

# PREVOST

## COACH MANUFACTURER

### OWNER'S MANUAL



# PA1559

December 2009

revised 2023/07/14

PA1559

December 2009

Beginning with vehicle 9-1481

Featuring:

- New headlights and bumper design

# TABLE OF CONTENTS I

|                       |          |
|-----------------------|----------|
| <b>FOREWORD</b> ..... | <b>1</b> |
|-----------------------|----------|

## **SAFETY PRECAUTIONS** ..... **3**

|                                       |          |
|---------------------------------------|----------|
| <b>SAFE OPERATING PRACTICES</b> ..... | <b>3</b> |
|---------------------------------------|----------|

|  |          |
|--|----------|
| <b>DEFENSIVE DRIVING PRACTICES</b> ..... | <b>3</b> |
|--|----------|

## **VEHICLE EXTERIOR** ..... **5**

|  |          |
|--|----------|
| <b>ENGINE COMPARTMENT COMPONENTS</b> ..... | <b>6</b> |
|--|----------|

|                                 |          |
|---------------------------------|----------|
| <b>ENGINE COMPARTMENT</b> ..... | <b>7</b> |
|---------------------------------|----------|

|   |          |
|---|----------|
| <i>ENGINE R.H. SIDE ACCESS DOOR</i> ..... | <b>7</b> |
|---|----------|

|   |          |
|---|----------|
| <i>ENGINE COMPARTMENT REAR DOOR</i> ..... | <b>7</b> |
|---|----------|

|   |          |
|---|----------|
| <b>MAIN POWER COMPARTMENT (BATTERIES)</b> ..... | <b>8</b> |
|---|----------|

|                                   |          |
|-----------------------------------|----------|
| <b>ENGINE RADIATOR DOOR</b> ..... | <b>8</b> |
|-----------------------------------|----------|

|  |          |
|--|----------|
| <b>DIESEL PARTICULATE FILTER (DPF) COMPARTMENT ACCESS DOOR</b> ..... | <b>9</b> |
|--|----------|

|  |          |
|--|----------|
| <b>CONDENSER COMPARTMENT (Optional Central A/C System)</b> ..... | <b>9</b> |
|--|----------|

|   |           |
|---|-----------|
| <b>EVAPORATOR COMPARTMENT (Optional CENTRAL A/C SYSTEM)</b> ..... | <b>10</b> |
|---|-----------|

|   |           |
|---|-----------|
| <b>FRONT ELECTRICAL AND SERVICE COMPARTMENT</b> . | <b>10</b> |
|---|-----------|

|   |           |
|---|-----------|
| <b>RECLINING BUMPER COMPARTMENT</b> ..... | <b>11</b> |
|---|-----------|

|                                   |           |
|-----------------------------------|-----------|
| <b>BAGGAGE COMPARTMENTS</b> ..... | <b>11</b> |
|-----------------------------------|-----------|

|                                |           |
|--------------------------------|-----------|
| <b>FUEL FILLER DOORS</b> ..... | <b>11</b> |
|--------------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>ENTRANCE DOOR</b> ..... | <b>12</b> |
|----------------------------|-----------|

|                               |           |
|-------------------------------|-----------|
| <i>INSIDE OPERATION</i> ..... | <b>12</b> |
|-------------------------------|-----------|

|                                |           |
|--------------------------------|-----------|
| <i>OUTSIDE OPERATION</i> ..... | <b>12</b> |
|--------------------------------|-----------|

|                                   |           |
|-----------------------------------|-----------|
| <i>KEYLESS ENTRY SYSTEM</i> ..... | <b>12</b> |
|-----------------------------------|-----------|

|   |           |
|---|-----------|
| <i>KEYLESS OPERATING INSTRUCTIONS</i> ..... | <b>13</b> |
|---|-----------|

|   |           |
|---|-----------|
| <b>EXTERIOR REAR VIEW MIRRORS</b> ..... | <b>13</b> |
|---|-----------|

|   |           |
|---|-----------|
| <i>ELECTRICALLY ADJUSTED MIRROR (RAMCO)</i> ..... | <b>13</b> |
|---|-----------|

|   |           |
|---|-----------|
| <b>RETRACTABLE BACK-UP CAMERA</b> ..... | <b>13</b> |
|---|-----------|

|                                      |           |
|--------------------------------------|-----------|
| <b>110-120 VOLTS CONNECTOR</b> ..... | <b>14</b> |
|--------------------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>TRAILER HITCH</b> ..... | <b>14</b> |
|----------------------------|-----------|

## **VEHICLE INTERIOR** ..... **17**

|   |           |
|---|-----------|
| <b>DRIVER'S SEAT – “DELIVERY”</b> ..... | <b>17</b> |
|---|-----------|

|   |           |
|---|-----------|
| <b>DRIVER'S AND NAVIGATOR'S SEATS – ISRI (OPTIONAL)</b> | <b>17</b> |
|---|-----------|

|                                   |           |
|-----------------------------------|-----------|
| <i>PNEUMATIC ISRI SEATS</i> ..... | <b>17</b> |
|-----------------------------------|-----------|

|                                  |           |
|----------------------------------|-----------|
| <i>ELECTRIC ISRI SEATS</i> ..... | <b>17</b> |
|----------------------------------|-----------|

|                           |           |
|---------------------------|-----------|
| <b>SAFETY BELTS</b> ..... | <b>18</b> |
|---------------------------|-----------|

|  |           |
|--|-----------|
| <b>STEERING WHEEL ADJUSTMENT</b> ..... | <b>18</b> |
|--|-----------|

|                                 |           |
|---------------------------------|-----------|
| <b>SUNSHADES (BLINDS)</b> ..... | <b>19</b> |
|---------------------------------|-----------|

|                             |           |
|-----------------------------|-----------|
| <b>INSIDE MIRRORS</b> ..... | <b>19</b> |
|-----------------------------|-----------|

|  |           |
|--|-----------|
| <b>ADJUSTABLE HVAC REGISTERS</b> ..... | <b>19</b> |
|--|-----------|

|                      |           |
|----------------------|-----------|
| <b>WINDOWS</b> ..... | <b>19</b> |
|----------------------|-----------|

|                                    |           |
|------------------------------------|-----------|
| <i>DRIVER'S POWER WINDOW</i> ..... | <b>19</b> |
|------------------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <i>FIXED WINDOWS</i> ..... | <b>20</b> |
|----------------------------|-----------|

|                             |           |
|-----------------------------|-----------|
| <i>AWNING WINDOWS</i> ..... | <b>20</b> |
|-----------------------------|-----------|

|                              |           |
|------------------------------|-----------|
| <i>SLIDING WINDOWS</i> ..... | <b>20</b> |
|------------------------------|-----------|

## **CONTROLS AND INSTRUMENTS**..... **23**

|                   |           |
|-------------------|-----------|
| <b>KEYS</b> ..... | <b>23</b> |
|-------------------|-----------|

|   |           |
|---|-----------|
| <i>FRONT ENTRANCE DOOR LOCK KEY</i> ..... | <b>23</b> |
|---|-----------|

|  |           |
|--|-----------|
| <i>EXTERIOR COMPARTMENTS KEY</i> ..... | <b>23</b> |
|--|-----------|

|                                       |           |
|---------------------------------------|-----------|
| <i>UTILITY COMPARTMENTS KEY</i> ..... | <b>23</b> |
|---------------------------------------|-----------|

|                                  |           |
|----------------------------------|-----------|
| <i>IGNITION SWITCH KEY</i> ..... | <b>23</b> |
|----------------------------------|-----------|

|                                       |           |
|---------------------------------------|-----------|
| <i>REMOTE ENTRY TRANSMITTER</i> ..... | <b>23</b> |
|---------------------------------------|-----------|

|                              |           |
|------------------------------|-----------|
| <i>IGNITION SWITCH</i> ..... | <b>24</b> |
|------------------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>DRIVER'S AREA</b> ..... | <b>26</b> |
|----------------------------|-----------|

|                                    |           |
|------------------------------------|-----------|
| <b>LATERAL CONTROL PANEL</b> ..... | <b>27</b> |
|------------------------------------|-----------|

|                                       |           |
|---------------------------------------|-----------|
| <i>TRANSMISSION CONTROL PAD</i> ..... | <b>27</b> |
|---------------------------------------|-----------|

|                               |           |
|-------------------------------|-----------|
| <i>CONTROL SWITCHES</i> ..... | <b>27</b> |
|-------------------------------|-----------|

|                              |           |
|------------------------------|-----------|
| <i>MIRROR CONTROLS</i> ..... | <b>28</b> |
|------------------------------|-----------|

|                               |           |
|-------------------------------|-----------|
| <i>LEVEL LOW SYSTEM</i> ..... | <b>28</b> |
|-------------------------------|-----------|

|   |           |
|---|-----------|
| <i>PARKING BRAKES CONTROL VALVE</i> ..... | <b>29</b> |
|---|-----------|

|                                     |           |
|-------------------------------------|-----------|
| <i>TAG AXLE CONTROL VALVE</i> ..... | <b>29</b> |
|-------------------------------------|-----------|

|   |           |
|---|-----------|
| <i>TRAILER AIR SUPPLY CONTROL VALVE</i> ..... | <b>29</b> |
|---|-----------|

|  |           |
|--|-----------|
| <i>UTILITY COMPARTMENT &amp; 12-VOLT DC POWER OUTLET</i> ..... | <b>30</b> |
|--|-----------|

|                      |           |
|----------------------|-----------|
| <i>ASHTRAY</i> ..... | <b>30</b> |
|----------------------|-----------|

|                                |           |
|--------------------------------|-----------|
| <i>CIGARETTE LIGHTER</i> ..... | <b>30</b> |
|--------------------------------|-----------|

|  |           |
|--|-----------|
| <i>DIAGNOSTIC DATA READER (DDR) RECEPTACLE</i> ..... | <b>30</b> |
|--|-----------|

|   |           |
|---|-----------|
| <i>AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM (AFSS)</i> ..... | <b>30</b> |
|---|-----------|

|  |           |
|--|-----------|
| <i>TIRE PRESSURE MONITORING SYSTEM</i> ..... | <b>31</b> |
|--|-----------|

|                        |           |
|------------------------|-----------|
| <b>DASHBOARD</b> ..... | <b>34</b> |
|------------------------|-----------|

|                               |           |
|-------------------------------|-----------|
| <i>CONTROL SWITCHES</i> ..... | <b>35</b> |
|-------------------------------|-----------|

|                                   |           |
|-----------------------------------|-----------|
| <i>L.H. DASHBOARD PANEL</i> ..... | <b>35</b> |
|-----------------------------------|-----------|

|                                   |           |
|-----------------------------------|-----------|
| <i>R.H. DASHBOARD PANEL</i> ..... | <b>40</b> |
|-----------------------------------|-----------|

|                                 |           |
|---------------------------------|-----------|
| <i>HVAC CONTROL UNITS</i> ..... | <b>41</b> |
|---------------------------------|-----------|

|                                 |           |
|---------------------------------|-----------|
| <i>HVAC AIR REGISTERS</i> ..... | <b>41</b> |
|---------------------------------|-----------|

|                      |           |
|----------------------|-----------|
| <i>CLUSTER</i> ..... | <b>44</b> |
|----------------------|-----------|

|   |           |
|---|-----------|
| <i>MESSAGE CENTER DISPLAY (MCD)</i> ..... | <b>44</b> |
|---|-----------|

|                     |           |
|---------------------|-----------|
| <i>GAUGES</i> ..... | <b>44</b> |
|---------------------|-----------|

## II TABLE OF CONTENTS

---

|   |           |  |           |
|---|-----------|--|-----------|
| TELLTALE PANEL .....                                  | 47        | RETRACTABLE TAG AXLE .....                       | 72        |
| <b>STEERING COLUMN CONTROLS</b> .....                 | <b>53</b> | <b>KEYLESS ENTRY SYSTEM</b> .....                | <b>72</b> |
| MULTI-FUNCTION LEVER.....                             | 53        | KEYLESS OPERATING INSTRUCTIONS .....             | 73        |
| STEERING WHEEL CONTROLS.....                          | 54        | PROGRAMMING A PERSONAL CODE .....                | 73        |
| HORNS.....  | 56        | <b>REMOTE ENTRY TRANSMITTER</b> .....            | <b>73</b> |
| TRANSMISSION RETARDER.....                            | 56        | PROGRAMMING TRANSMITTERS .....                   | 74        |
| <b>FOOT-OPERATED CONTROLS</b> .....                   | <b>57</b> | <b>SLIDE-OUT OPERATION</b> .....                 | <b>74</b> |
| BRAKE PEDAL.....                                      | 57        | SAFETY PRECAUTIONS.....                          | 74        |
| ACCELERATOR PEDAL.....                                | 57        | FRONT AND REAR SLIDE-OUT OPERATION .....         | 74        |
| STEERING WHEEL ADJUSTMENT                             |           | SLIDE-OUT MANUAL OVERRIDE PROCEDURE .....        | 76        |
| UNLOCK AIR VALVE .....                                | 57        | SLIDE-OUT TROUBLESHOOTING.....                   | 78        |
| <b>ALLISON TRANSMISSION</b> .....                     | <b>57</b> | <b>STARTING AND STOPPING</b>                     |           |
| OPERATION.....  | 58        | <b>PROCEDURES</b> .....                          | <b>83</b> |
| PUSHBUTTON SHIFT SELECTOR .....                       | 58        | <b>STARTING THE ENGINE</b> .....                 | <b>83</b> |
| FUNCTIONS OF THE "MODE" BUTTON.....                   | 58        | STARTING THE ENGINE FROM THE DRIVER'S AREA ..... | 83        |
| TRANSMISSION SERVICE INDICATOR.....                   | 59        | STOPPING THE ENGINE .....                        | 83        |
| DESCRIPTION OF THE AVAILABLE RANGES.....              | 59        | STARTING THE ENGINE FROM THE ENGINE              |           |
|   |           | COMPARTMENT.....                                 | 84        |
|   |           | STOPPING THE ENGINE .....                        | 84        |
|   |           | COLD WEATHER STARTING .....                      | 84        |
|   |           | JUMP STARTING .....                              | 84        |
|   |           | <b>ENGINE BLOCK HEATER</b> .....                 | <b>86</b> |
|   |           | <b>ENGINE WARM-UP</b> .....                      | <b>86</b> |
|   |           | <b>ALLISON TRANSMISSION WARM-UP</b> .....        | <b>86</b> |
| <b>OTHER FEATURES</b> .....                           | <b>61</b> | <b>SAFETY FEATURES AND</b>                       |           |
| <b>EXHAUST AFTERTREATMENT SYSTEM</b> .....            | <b>61</b> | <b>EQUIPMENT</b> .....                           | <b>87</b> |
| AFTERTREATMENT DEVICE .....                           | 61        | <b>EMERGENCY EXITS</b> .....                     | <b>87</b> |
| PASSIVE REGENERATION .....                            | 61        | ELECTRIC AWNING WINDOWS .....                    | 87        |
| ACTIVE REGENERATION.....                              | 61        | SLIDING WINDOWS.....                             | 87        |
| STATIONARY (PARKED) REGENERATION.....                 | 61        | FIXED WINDOWS.....                               | 87        |
| <b>MESSAGE CENTER DISPLAY (MCD)</b> .....             | <b>62</b> | EMERGENCY ROOF ESCAPE HATCH .....                | 87        |
| <b>DRIVING MODE MENU</b> .....                        | <b>63</b> | <b>EMERGENCY AIR-FILL VALVES</b> .....           | <b>88</b> |
| GAUGE MODE MENU .....                                 | 63        | <b>EMERGENCY AND PARKING BRAKES</b> .....        | <b>89</b> |
| FUEL ECONOMY MENU .....                               | 63        | <b>SAFETY EQUIPMENT</b> .....                    | <b>89</b> |
| TIME/DIST MENU.....                                   | 63        | AUTOMATIC FIRE DETECTION AND SUPPRESSION         |           |
| FAULT ? MENU .....                                    | 64        | SYSTEM (AFSS).....                               | 89        |
| <b>NON-DRIVING MODE MENU</b> .....                    | <b>65</b> | TIRE PRESSURE MONITORING SYSTEM.....             | 90        |
| SET-UP MODE MENU .....                                | 65        | FIRE EXTINGUISHERS .....                         | 92        |
| SYSTEM DIAGNOSTIC MENU.....                           | 66        | FIRST AID KIT .....                              | 93        |
| PART NUMBER.....                                      | 68        | WARNING REFLECTORS.....                          | 93        |
| STATUS TEST.....                                      | 68        |  |           |
| DATA LOG MODE MENU .....                              | 69        |  |           |
| PASSWORDS.....  | 69        |  |           |
| <b>ALLISON TRANSMISSION ELECTRONIC CONTROLS</b> ..... | <b>70</b> |  |           |
| <b>TRANSMISSION RETARDER</b> .....                    | <b>70</b> |  |           |
| <b>ENGINE BRAKE</b> .....                             | <b>70</b> |  |           |
| <b>ANTILOCK BRAKING SYSTEM (ABS) – AUTOMATIC</b>      |           |  |           |
| <b>TRACTION CONTROL (ATC) – ELECTRONIC STABILITY</b>  |           |  |           |
| <b>PROGRAM (ESP)</b> .....                            | <b>71</b> |  |           |

# TABLE OF CONTENTS III

|  |           |
|--|-----------|
| JACK/TOOLS.....  | 93        |
| SPARE PARTS KIT.....   | 93        |
| <b>CHANGING WHEELS .....</b>   | <b>93</b> |
| JACKING POINTS.....  | 93        |
| HYDRAULIC JACK.....  | 94        |
| <b>TOWING.....</b>   | <b>94</b> |
| <b>DAYTIME RUNNING LIGHTS.....</b>   | <b>95</b> |
| <b>FOG LIGHTS.....</b>   | <b>95</b> |
| <b>CORNERING AND DOCKING LIGHTS.....</b>   | <b>95</b> |
| <b>COMPARTMENT LIGHTING.....</b>   | <b>95</b> |
| <b>MUD FLAPS AND SPLASH GUARDS.....</b>  | <b>96</b> |
| <b>BACK-UP CAMERA .....</b>  | <b>96</b> |
| <b>BACK-UP ALARM .....</b>   | <b>96</b> |
| BACK-UP ALARM CANCEL .....   | 96        |
| <b>ESSENTIAL FUNCTIONS TO OPERATE THE VEHICLE<br/>(BASIC LIMP-HOME FUNCTIONS).....</b> | <b>96</b> |
| <b>AUDIBLE ALERT.....</b>  | <b>96</b> |

## **CARE AND MAINTENANCE ..... 99**

|  |            |
|--|------------|
| <b>CLEANING.....</b>                               | <b>99</b>  |
| SEAT UPHOLSTERY.....                               | 99         |
| PLASTIC AND VINYL.....                             | 100        |
| WINDOWS.....                                       | 100        |
| STAINLESS STEEL.....                               | 100        |
| FORMICA.....                                       | 100        |
| CARPET.....  | 100        |
| RUBBER COMPONENTS.....                             | 100        |
| FLOOR CLEANING.....                                | 100        |
| EXTERIOR SURFACES.....                             | 100        |
| TAR OR OIL.....                                    | 101        |
| INSECTS.....                                       | 101        |
| TREE SAP.....                                      | 101        |
| WINDOWS.....                                       | 101        |
| WIPER BLADES.....                                  | 101        |
| <b>FLUID LEVEL VERIFICATION.....</b>               | <b>102</b> |
| ENGINE OIL LEVEL.....                              | 102        |
| TRANSMISSION OIL LEVEL.....                        | 102        |
| POWER STEERING FLUID LEVEL.....                    | 104        |
| COOLING FAN RIGHT ANGLE GEARBOX OIL LEVEL<br>..... | 105        |
| WHEEL BEARING OIL LEVEL.....                       | 105        |
| FRONT AND TAG AXLE WHEEL HUBS.....                 | 105        |
| COOLANT FLUID.....                                 | 105        |

|   |            |
|---|------------|
| WINDSHIELD WASHER & HEADLIGHTS WASHER.....          | 105        |
| <b>OTHER VERIFICATIONS.....</b>                     | <b>106</b> |
| AIR TANK PURGE.....                                 | 106        |
| FIRE EXTINGUISHERS.....                             | 106        |
| FUEL FILTER/WATER SEPARATOR.....                    | 107        |
| BELT TENSION ADJUSTMENT.....                        | 107        |
| BACK-UP CAMERA.....                                 | 108        |
| AIR FILTER RESTRICTION INDICATOR.....               | 108        |
| MAIN POWER COMPARTMENT FAN AIR FILTER.....          | 108        |
| A/C AND HEATING SYSTEM AIR FILTERS.....             | 109        |
| HOSE INSPECTION.....                                | 109        |
| LUBRICATION.....                                    | 110        |
| WHEELS AND TIRES.....                               | 110        |
| WHEEL BEARINGS.....                                 | 110        |
| SERVICE BRAKE TEST.....                             | 110        |
| PARKING / EMERGENCY BRAKE TEST.....                 | 110        |
| EXTERIOR LIGHTING VERIFICATION.....                 | 110        |
| <b>GENERAL RECOMMENDATIONS.....</b>                 | <b>113</b> |
| <b>WALK-AROUND INSPECTION (BEFORE EVERY TRIP)..</b> | <b>115</b> |

## **TECHNICAL INFORMATION..... 119**

|   |            |
|---|------------|
| <b>DIMENSIONS AND WEIGHTS .....</b>   | <b>119</b> |
| <b>CAPACITIES.....</b>  | <b>119</b> |
| <b>FUEL TYPE.....</b>   | <b>119</b> |
| BIODIESEL FUELS.....  | 119        |
| <b>WHEELS AND TIRES .....</b>   | <b>120</b> |
| RECOMMENDED TIRE INFLATION PRESSURE AT<br>MAXIMUM COLD LOAD.....                      | 120        |
| <b>BELTS.....</b>   | <b>120</b> |
| <b>ENGINE.....</b>  | <b>120</b> |
| <b>ALLISON TRANSMISSION.....</b>  | <b>120</b> |
| <b>PROPELLER SHAFT.....</b>   | <b>121</b> |
| <b>BRAKES.....</b>  | <b>121</b> |
| BRAKE CHAMBER EFFECTIVE AREA.....   | 121        |
| <b>AIR SYSTEM.....</b>  | <b>121</b> |
| <b>ANTILOCK BRAKING SYSTEM (ABS).....</b>   | <b>121</b> |
| TROUBLESHOOTING AND TESTING.....  | 121        |
| <b>AUTOMATIC TRACTION CONTROL (ATC) – ELECTRICAL<br/>STABILITY PROGRAM (ESP).....</b> | <b>121</b> |
| <b>STEERING.....</b>  | <b>122</b> |
| <b>ELECTRICAL SYSTEM.....</b>   | <b>122</b> |
| <b>AXLES.....</b>   | <b>122</b> |
| FRONT AXLE.....   | 122        |

# IV TABLE OF CONTENTS

---

|  |            |
|--|------------|
| DRIVE AXLE.....                              | 122        |
| TAG AXLE.....                                | 122        |
| <b>SUSPENSION.....</b>                       | <b>122</b> |
| FRONT AXLE.....                              | 122        |
| DRIVE AXLE.....                              | 122        |
| TAG AXLE.....                                | 122        |
| <b>ALIGNMENT SPECIFICATIONS .....</b>        | <b>123</b> |
| <b>COOLING SYSTEM.....</b>                   | <b>123</b> |
| <b>FUEL SYSTEM .....</b>                     | <b>123</b> |
| <b>EXHAUST SYSTEM .....</b>                  | <b>123</b> |
| <b>HEATING AND AIR CONDITIONING .....</b>    | <b>123</b> |
| <b>OIL SPECIFICATIONS .....</b>              | <b>124</b> |
| ENGINE.....                                  | 124        |
| ALLISON TRANSMISSION.....                    | 124        |
| DIFFERENTIAL.....                            | 124        |
| FAN RIGHT ANGLE GEARBOX.....                 | 124        |
| POWER STEERING RESERVOIR.....                | 124        |
| <b>ENGINE TROUBLESHOOTING FLOWCHART.....</b> | <b>125</b> |
| <b>LIGHT BULB DATA.....</b>                  | <b>126</b> |
| <b>PLATES AND CERTIFICATION .....</b>        | <b>127</b> |
| SAFETY CERTIFICATION.....                    | 127        |
| DOT CERTIFICATION PLATE.....                 | 127        |
| EPA ENGINE LABEL.....                        | 128        |
| VEHICLE IDENTIFICATION NUMBER (VIN).....     | 128        |
| COACH FINAL RECORD.....                      | 128        |

## **APPENDIX A ..... 129**

|                         |     |
|-------------------------|-----|
| SERVICE LITERATURE..... | 129 |
| NOTICE .....            | 130 |

## **APPENDIX B – Road Side Troubleshooting Multiplex..... 131**

|   |     |
|---|-----|
| ROADSIDE TROUBLESHOOTING GUIDE FOR<br>MULTIPLEX VEHICLES..... | 131 |
|---|-----|

## **APPENDIX C – Allison Diagnostic Troubleshooting Codes..... 137**

### **TROUBLESHOOTING CODES (DTC) — ALLISON 4<sup>TH</sup> GENERATION CONTROLS..... 137**

|   |     |
|---|-----|
| DIAGNOSTIC TROUBLESHOOTING CODES (DTC)<br>OVERVIEW..... | 137 |
|---|-----|

|   |     |
|---|-----|
| DIAGNOSTIC CODES – ALLISON 4 <sup>TH</sup> GENERATION<br>CONTROLS ..... | 137 |
|---|-----|

|  |     |
|--|-----|
| DIAGNOSTIC CODE DISPLAY AND CLEARING<br>PROCEDURE – ALLISON 4 <sup>TH</sup> GENERATION CONTROLS<br>..... | 138 |
|--|-----|

|                               |     |
|-------------------------------|-----|
| DIAGNOSTIC CODE RESPONSE..... | 139 |
|-------------------------------|-----|

|  |     |
|--|-----|
| DIAGNOSTIC TROUBLESHOOTING CODES (DTC) LIST<br>- ALLISON 4 <sup>TH</sup> GENERATION CONTROLS ..... | 140 |
|--|-----|

### **ALLISON TRANSMISSION OIL LEVEL CHECK USING THE PUSHBUTTON SHIFT SELECTOR .....** **144** |

### **CONTROL SYSTEM DIAGNOSTICS .....** **145** |

|                       |     |
|-----------------------|-----|
| OIL LIFE MONITOR..... | 145 |
|-----------------------|-----|

|                          |     |
|--------------------------|-----|
| FILTER LIFE MONITOR..... | 145 |
|--------------------------|-----|

|                                   |     |
|-----------------------------------|-----|
| TRANSMISSION HEALTH MONITOR ..... | 146 |
|-----------------------------------|-----|

## **APPENDIX D – DDEC VI Diagnostic Codes ..... 149**

|                               |     |
|-------------------------------|-----|
| DDEC VI DIAGNOSTIC CODES..... | 149 |
|-------------------------------|-----|

|   |     |
|---|-----|
| READING DIAGNOSTIC CODES – FLASHING LIGHT<br>METHOD ..... | 149 |
|---|-----|

|   |     |
|---|-----|
| DDEC VI CPC DIAGNOSTIC CODES LIST ..... | 150 |
|---|-----|

|   |     |
|---|-----|
| DDEC VI MCM DIAGNOSTIC CODES LIST ..... | 153 |
|---|-----|

This PREVOST *Private Coach Owner's Manual* has been prepared to thoroughly acquaint you, the owner, with vehicle equipment and features in order to fully appreciate and safely enjoy your vehicle. Of course, you are anxious to drive your new private coach and test its features, but first please read this publication carefully to help ensure enjoyable and trouble free operation. This book should be kept inside the vehicle at all times for convenient reference. It is also suggested that it remains with the vehicle at the time of resale. Please notify PREVOST CAR INC. when the vehicle's ownership is transferred so that our records can be kept up to date. Do this by filling out the appropriate form at the end of this manual.

The specifications, descriptions and figures given are based on the latest information available at printing time. And because at PREVOST we are constantly striving to improve our products, we reserve the right to make changes at any time without notice and/or obligation on our part.

Please note that this publication applies to factory-prepared, conversion-ready luxury private coaches, manufactured by PREVOST CAR INC. It describes and explains the equipment and options available for installation in our factory. Therefore, there may be equipment described herein that is not installed on your vehicle. This publication also does not cover equipment installed by your interior designer or system manufacturer.

This manual, or portions thereof, cannot be reproduced in any form whatsoever, in whole or in part, without the written consent of PREVOST CAR INC.

The following words are used to emphasize particularly important information:



## WARNING

Identifies instructions which, if not followed, could result in serious personal injury or loss of life.



## CAUTION

Denotes instructions which, if not followed, could cause serious damage to vehicle components.

## *NOTE*

*Indicates supplementary information needed to fully understand and complete an instruction.*

For your own safety and to ensure prolonged service life of your private coach, heed our cautions, warnings and notes. Ignoring them could result in extensive damage and/or serious personal injury.



To ensure safe and reliable operation, heed the following safety precautions.

### SAFE OPERATING PRACTICES

- Operation and maintenance of the vehicle must be performed only by qualified personnel.
- Before driving, conduct a walk around inspection and check that all baggage compartment doors and equipment access doors are securely shut.
- Make sure good visibility is maintained at all times. Keep windshields clean and free of obstructions.
- Adjust the driver's seat so that all controls can be reached easily.
- Always wear the safety belt when driving.
- Check the instrument panel frequently. Do not operate the vehicle when dials or indicators are not in their normal operating condition.
- Always pay attention to pedestrians passing in front and behind the vehicle. Always yield to pedestrians at pedestrian walkways.
- Do not drive over obstacles on the road. Empty boxes, piles of leaves, and snowdrifts could conceal hidden dangers that could damage the vehicle suspension and underbody.
- When turning or changing lanes, signal your intention well in advance.
- When approaching to make a right turn, reduce the space between the vehicle and the curb to make sure another vehicle cannot pass on the right. Since the vehicle makes wide turns, allow enough space to make safe turns.
- Switch from high beams to low beams when meeting or following other vehicles within 500 feet (150 meters).
- Never leave the vehicle unattended with the engine running, or with the key in the ignition. Turn off the engine, remove keys and apply the parking brake before leaving the vehicle.
- Shut-off the engine before refueling, adding oil, performing maintenance or servicing tasks, unless stated otherwise.

- Fuel is highly flammable and explosive. Do not smoke when refueling. Keep away from open flames or sparks.
- Do not run the engine or HVAC system with access doors left open. Close compartment doors before operating any equipment.
- Do not remove the surge tank filler cap or the cooling system pressure cap when the engine is hot. Let the engine cool down before removing filler caps.
- Do not attempt to push or pull-start a vehicle equipped with an automatic transmission.
- The service life of the vehicle depends on the kind of maintenance it receives. Always record any problems and report them immediately to maintenance personnel.
- Do not use the trailer hitch before reading the safety, technical and operational requirements on page 14 of this manual.

### DEFENSIVE DRIVING PRACTICES

- For city driving, allow a four to six second travel interval between your vehicle and the vehicle ahead. Increase this travel interval to six to eight seconds for highway driving. Increase time interval for driving at night or in foul weather.
- Be prepared to stop when approaching an intersection. The stopping distance of the vehicle increases with the weight and speed.
- Establish eye-to-eye contact with other drivers and with pedestrians. Use, high beam and low beam headlights, turn signals and horn as needed.
- On highway, don't stare at the road ahead. Keep your eyes moving. Check mirrors and dashboard instruments frequently.
- To keep the vehicle from drifting across lanes during highway driving, always look over the horizon on the road ahead.
- Adjust your speed to road conditions, traffic and visibility. Never exceed the posted speed limits.
- If another vehicle is following close behind, reduce your speed to let the vehicle pass.
- For additional information about safe operation and defensive driving practices,

## 4 SAFETY PRECAUTIONS

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contact the local department of motor vehicles authority.

### OTHER PRECAUTIONS



#### WARNING

Prior to working on a system inside vehicle, make sure to cut electrical power and air supply. A component could be supplied with electricity even if the ignition switch is set to the OFF position and/or a component could be pressurized even if air tanks are emptied. Always refer to the appropriate wiring and pneumatic diagrams prior to working on electrical and/or pneumatic systems.

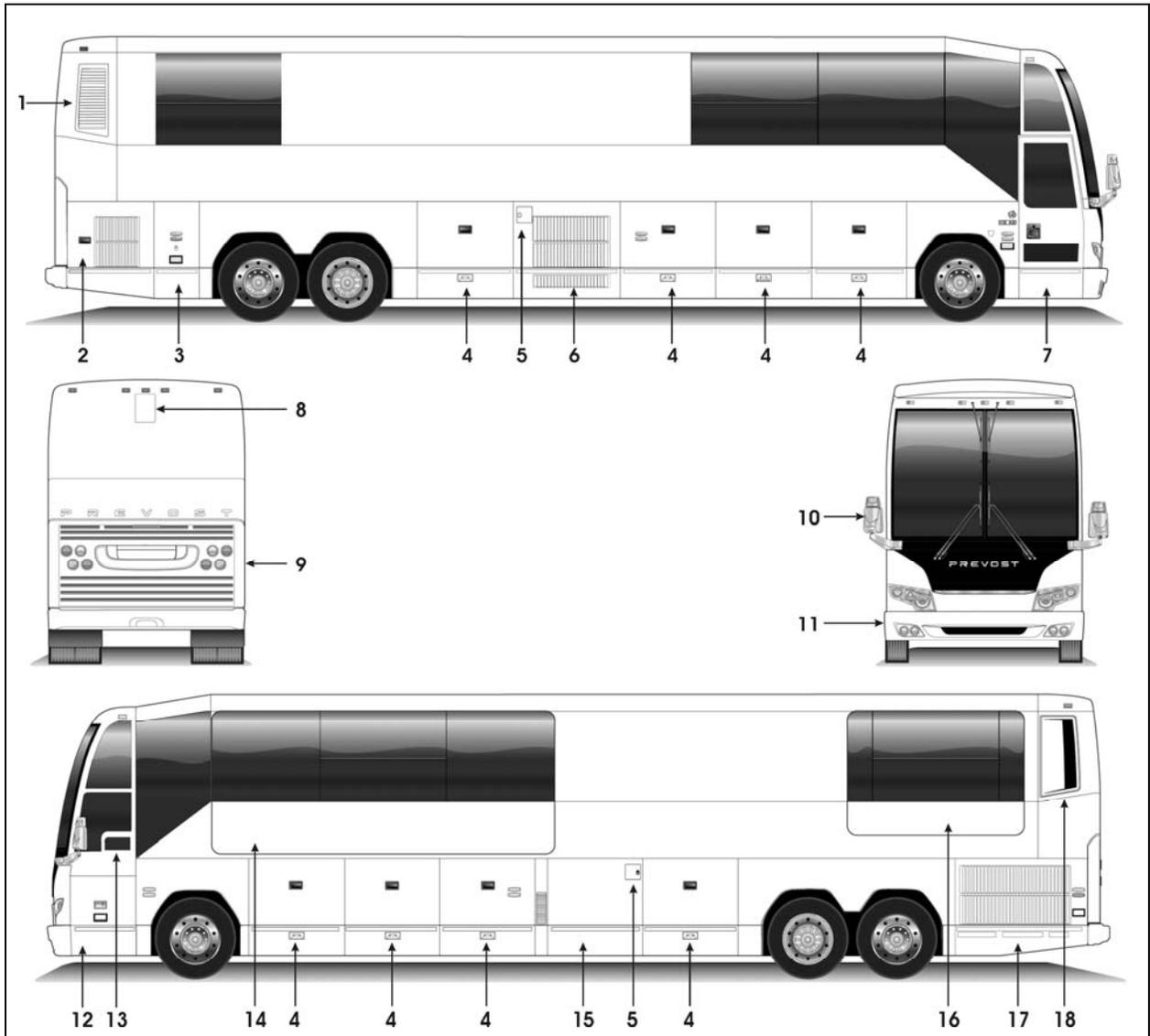
#### *NOTE*

*When the ignition switch is set to the OFF position, the electrical components are not energized except for the CECM (Chasis Electronic Control Module), the battery equalizer, the preheater system and some electronic modules; which are energized during 15 minutes after the ignition has been set to the OFF position. Prior to working on one of these electrical components, set the battery master switch in the main power compartment to the OFF position. If the vehicle will not be operated for a long period (more than 2 weeks), it is recommended, in order to prevent the batteries from discharging, to trip the main circuit breakers located in the main power compartment to stop the small current drawn by the radio preset station memory, the CECM memory and the instrument cluster clock. Note that the radio station presets will be erased, same thing for the diagnostic codes history and the instrument cluster clock will have to be reset.*



#### CAUTION

Prior to arc welding on the vehicle, refer to section 00-GENERAL of your maintenance manual. Precautions have to be taken to avoid costly damage to the electronic components.



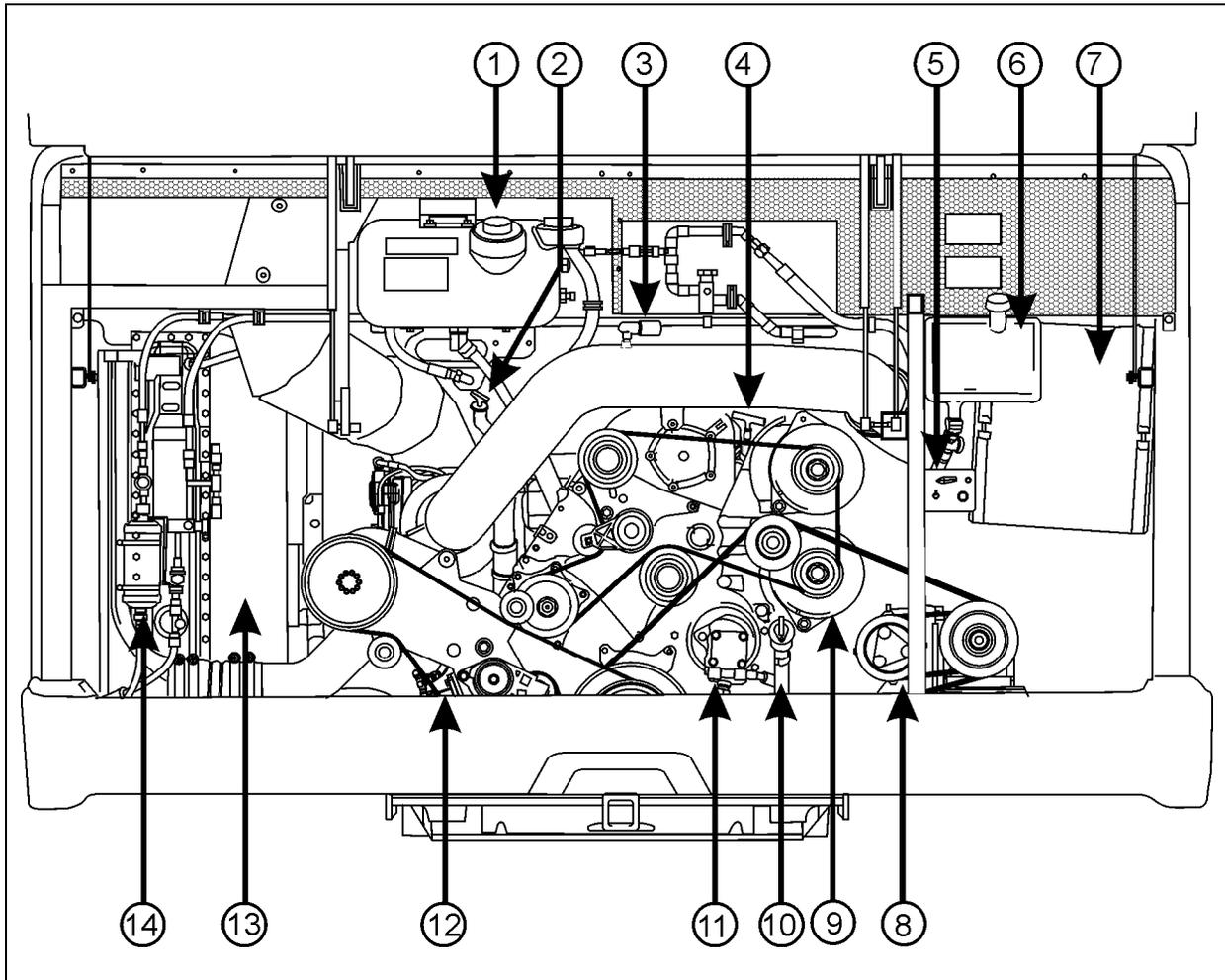
H3-45 VIP EXTERIOR VIEW

18677

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Engine air intake</li> <li>2. Engine R.H. side access door</li> <li>3. Main power compartment</li> <li>4. Baggage compartment</li> <li>5. Fuel filler door</li> <li>6. A/C condenser compartment or baggage compartment</li> <li>7. Entrance door</li> <li>8. Retractable back up camera (optional)</li> <li>9. Engine compartment rear door</li> </ol> | <ol style="list-style-type: none"> <li>10. Rear-view mirrors</li> <li>11. Reclining bumper compartment</li> <li>12. Front electrical and service compartment</li> <li>13. Driver's power window</li> <li>14. Front Slide-out</li> <li>15. Heating, ventilating and air conditioning compartment (HVAC) or baggage compartment</li> <li>16. Rear Slide-out</li> <li>17. Engine radiator door</li> <li>18. Diesel Particulate Filter (DPF) compartment access door</li> </ol> |
|---|---|

## 6 VEHICLE EXTERIOR

### ENGINE COMPARTMENT COMPONENTS



01178\_1

- |  |   |
|--|---|
| 1. Coolant surge tank and filler cap   | 8. Small A/C compressor                             |
| 2. Transmission oil dipstick & filler tube   | 9. Alternator (2x Bosch)                            |
| 3. Air cleaner restriction indicator   | 10. Engine oil filler tube                          |
| 4. Engine oil dipstick   | 11. Steering pump                                   |
| 5. Starter selector switch, rear start pushbutton, belt tensioner control valve & engine compartment lighting switch | 12. Engine coolant filter/conditioner               |
| 6. Engine oil reserve tank   | 13. Radiator fan shroud                             |
| 7. Engine air filter   | 14. Small HVAC System air conditioning filter dryer |

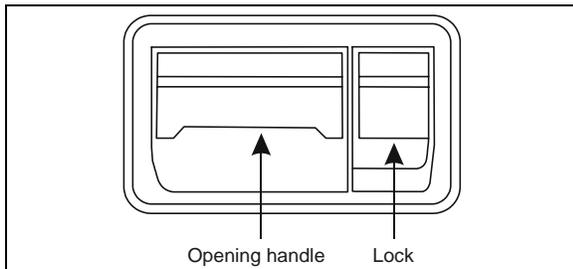
## ENGINE COMPARTMENT

### ENGINE R.H. SIDE ACCESS DOOR

The engine R.H. side access door provides access to the following:

- Engine compartment rear door release lever ;
- Booster block terminals ;
- Engine air filter ;
- Engine block heater connector ;
- Fuel Pro 382 filtration system (optional) ;
- Power steering fluid reservoir ;
- Wet air tank drain valve ;
- Primary and secondary systems air supply fill valve ;
- Cold weather starting fluid bottle (ether) (optional).

This door can be locked/unlocked using the exterior compartment key. Lift up protector cover to gain access to the lock. Pull up the door handle to release the latch and then pull the door open. To keep the door open, engage the safety catch on top of the door. Release the safety catch before closing the door.



DOOR HANDLE

18184B



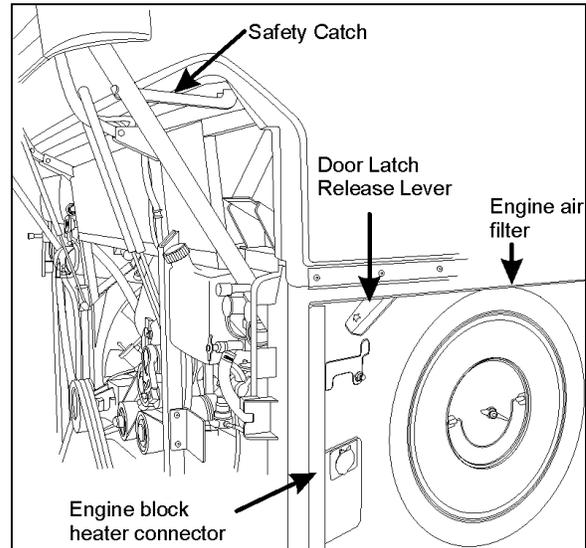
### WARNING

Unless otherwise stated, do not run the engine when the engine compartment curb-side door is open.

### ENGINE COMPARTMENT REAR DOOR

To open engine compartment rear door, you must first open engine compartment curb-side door then push up on the door latch release lever, place hand on the upper right of the rear door and pull rearward.

The lighting in the engine compartment turns on automatically when that door is open if the engine compartment light switch is set to ON and the ignition key is set to ON or ACC. Use this switch to turn off the light if not required when the door is open. When that door is open, a telltale light illuminates on the telltale panel.



DOOR LATCH RELEASE LEVER

18331

The engine compartment rear door provides access to the following:

- Engine;
- Alternators;
- Compressors;
- Belt tensioner control valve (see chapter 7, Care and Maintenance);
- Starter selector switch (see chapter 5, Starting and Stopping Procedures);
- Plates and certifications
- Engine coolant surge tank;
- Air cleaner restriction indicator;
- Engine oil dipstick;
- Engine oil reserve tank;
- Engine oil filler cap
- Automatic transmission oil dipstick & filler tube;
- Engine coolant filler cap.

## 8 VEHICLE EXTERIOR

Always engage the safety catch when the engine compartment rear door is open. Release the catch before closing the door.



### WARNING

Pressurized cylinders assist the engine compartment rear door opening. To avoid injury when opening, do not stand at the rear of the coach. Stand clear when opening the engine compartment rear door.



### WARNING

Unless otherwise stated, do not run the engine when the engine compartment rear door is open.

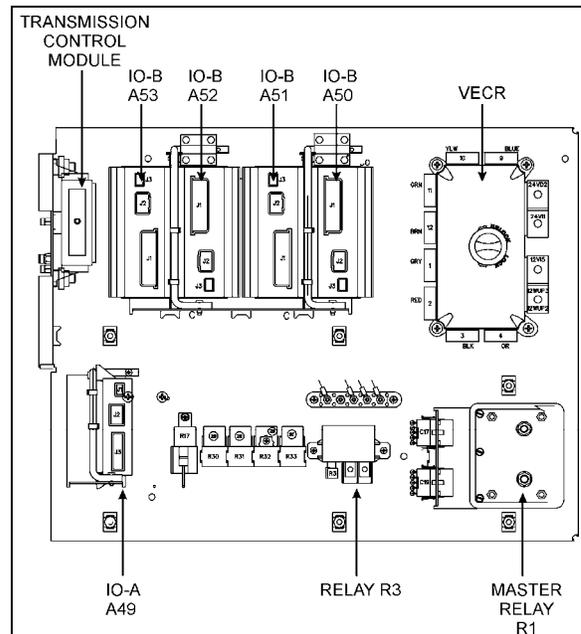
## MAIN POWER COMPARTMENT (BATTERIES)

The main power compartment provides access to the following:

- (4x) 12-volt batteries ;
- Main circuit breakers for 12-volt and 24-volt electrical systems ;
- Battery charger (optional) ;
- Vanner battery equalizer ;
- Battery master relay & battery master switch ;
- Transmission Control Module (TCM) ;
- Electronic ground stud ;
- Multiplex modules: I/O-A, I/O-B ;
- Rear fuse box (VECR) & spare fuses ;
- Relays and diodes.

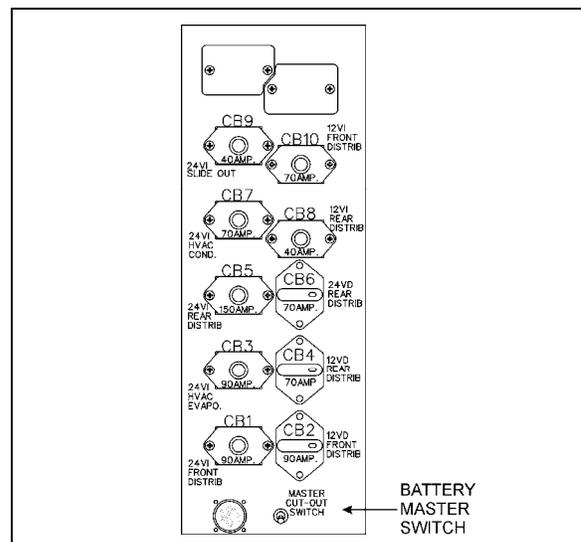
The compartment door can be locked/unlocked using the exterior compartment key. Turn the key in the lock to open the door.

The lighting in the compartment turns on automatically when the door is open if the ignition key is set to ON or ACC. If the main power compartment door is open, a telltale light will illuminate on the central dashboard.



VIEW OF UPPER MAIN POWER COMPARTMENT

06666

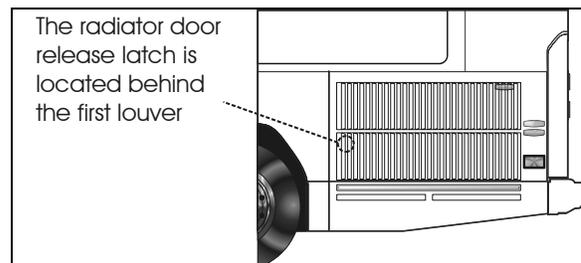


MAIN CIRCUIT BREAKERS 12-VOLT & 24-VOLT

06605A

## ENGINE RADIATOR DOOR

Open the engine radiator door by pushing on the release latch.



RADIATOR DOOR RELEASE LATCH LOCATION

18529

## DIESEL PARTICULATE FILTER (DPF) COMPARTMENT ACCESS DOOR

To gain access to the DPF, open the engine compartment door first. On the left wall, under the DPF, pull the catch connecting rod to unlock the DPF compartment access door and lift the door open.

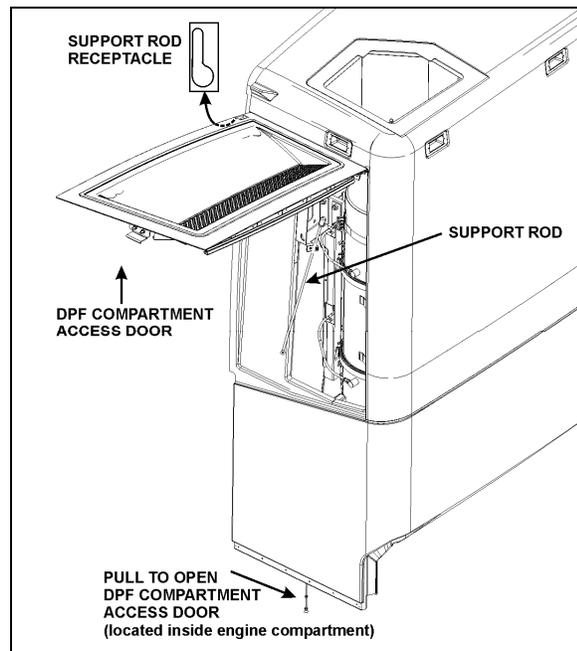
Hold the door open by inserting the support rod free end into the receptacle located on the left side of the door.

 **CAUTION**

After inserting the support rod into the receptacle, make sure the rod supports the door securely from falling down on to your head or body.

 **CAUTION**

External and internal temperatures remain hot long after engine has been shutdown. Allow the Aftertreatment Device and DPF to cool before handling. Wear protective clothing and glove while servicing.



## CONDENSER COMPARTMENT (Optional Central A/C System)

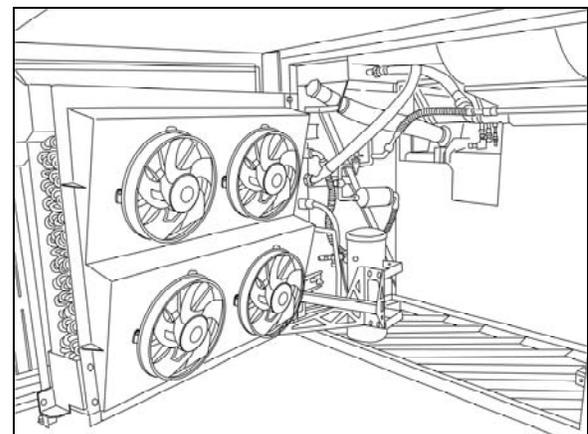
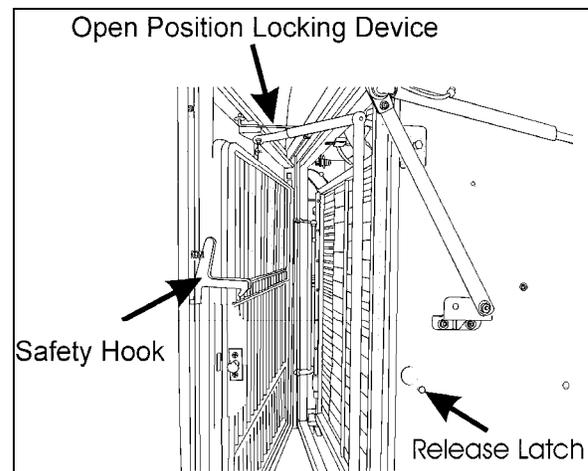
Pull the A/C condenser door release latch located inside the adjacent baggage compartment to partly open the condenser door. Push on the safety hook, accessible through the opening, to open the door.

**NOTE**

*The locking device must be unbolted to fully swing open condenser compartment door.*

 **CAUTION**

Close baggage compartment door before opening completely condenser compartment door.

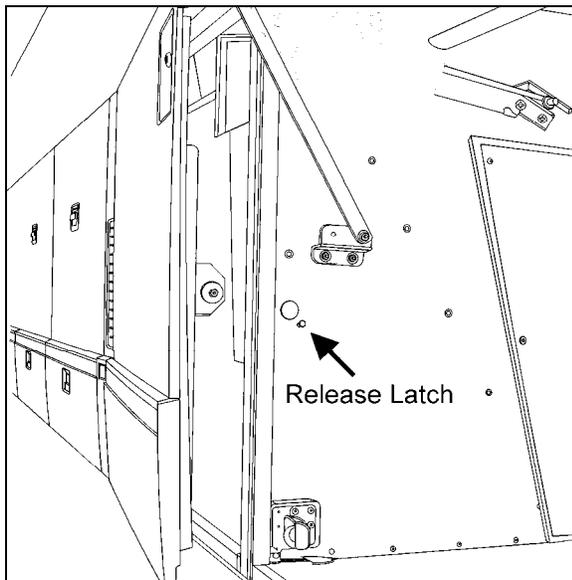


## 10 VEHICLE EXTERIOR

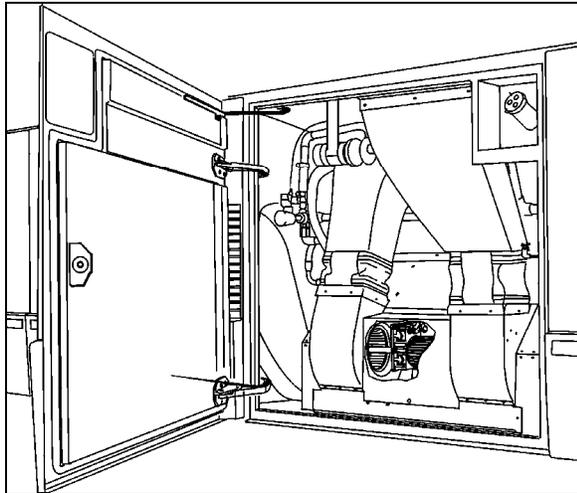
### EVAPORATOR COMPARTMENT (Optional Central A/C System only)

The evaporator compartment door release latch is located on the left side of the baggage compartment and to the right of the HVAC compartment door. Pull the release latch then pull the HVAC compartment door open.

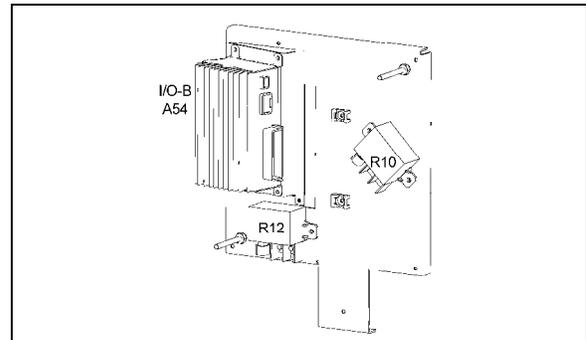
The HVAC compartment contains relays, diodes and an I/O-B multiplex module mounted on a panel located on the R.H. side wall when facing the compartment.



EVAPORATOR COMPARTMENT ACCESS 18306



EVAPORATOR COMPARTMENT (WITH CENTRAL A/C SYSTEM ONLY) 22365



HVAC COMPONENTS PANEL

06596B

Each relay or resistor is identified to facilitate its location.

#### **NOTE**

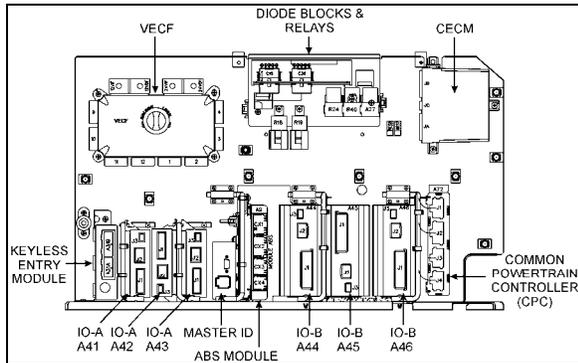
*It is important to keep the evaporator compartment door closed while checking the HVAC system to prevent faulty readings.*

### FRONT ELECTRICAL AND SERVICE COMPARTMENT

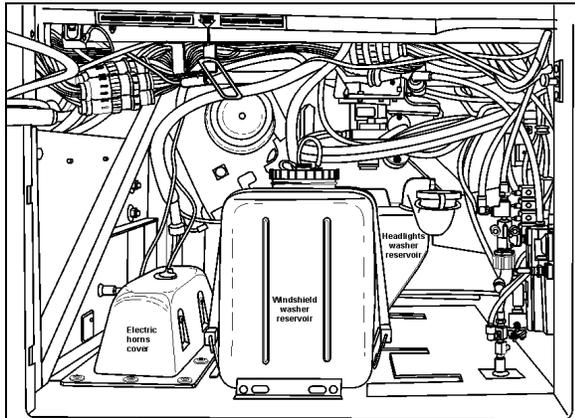
The front electrical and service compartment provides access to the following:

- ABS module ;
- Relays & diode blocks ;
- Windshield washer reservoir ;
- Headlights washer reservoir;
- Reclining bumper compartment opening lever ;
- Accessory air tank drain valve ;
- Accessory air tank fill valve.
- Electronic ground stud ;
- Multiplex modules: I/O-A, I/O-B ;
- CECM & Master ID
- Front fuse box (VECF) & spare fuses ;
- Keyless entry module ;
- Common Powertrain Controller (CPC).

The front electrical & service compartment door can be locked/unlocked with the exterior compartment key. Lift protector cover to access the lock. Pull up door handle to release the latch then pull the door open.



**FRONT ELECTRICAL & SERVICE COMPARTMENT** 06665

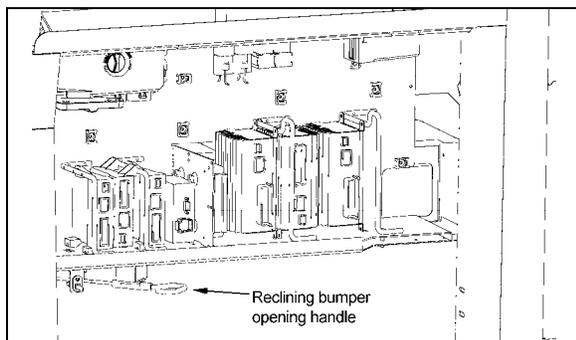


**FRONT ELECTRICAL & SERVICE COMPARTMENT** 14066

The lighting in the front electrical & service compartment turns on automatically when the door is open if the ignition key is set to ON or ACC.

## RECLINING BUMPER COMPARTMENT

The front bumper can be tilted downward to give access to the compartment. Pull the opening handle located in the front electrical and service compartment to unlock. Tilt down the bumper to access the compartment. Push the bumper back up firmly in place to lock in position.



**RECLINING BUMPER OPENING HANDLE** 06602



## WARNING

The compartment behind the bumper is not designed for storage. Never store loose objects in this compartment since they can interfere with the steering linkage mechanism.

Use care when opening or closing the reclining bumper compartment to prevent personal injury

## BAGGAGE COMPARTMENTS

The baggage compartment doors can be locked/unlocked using the exterior compartment key. Lift up the cover to gain access to the lock. Pull up door handle to release the latch and then pull the door open. Pressurized cylinders assist the opening and closing of the baggage compartment doors and hold the doors open.

The lighting in the baggage compartments turns on automatically when the door is opened if the ignition key is set to ON or ACC. When a baggage compartment door is open, a telltale light illuminates on the telltale panel.



## WARNING

To avoid injury, keep hands clear of door edge and door frame when closing.

### NOTE

To prevent theft and vandalism, always lock all doors before leaving the vehicle unattended.

### NOTE

The baggage compartment doors can also be locked / unlocked using:

- The baggage compartments locking system switch on the L.H. dashboard (refer to "Controls & Instruments" chapter).
- The keyless entry system.
- The remote entry transmitter (refer to "Controls & Instruments" chapter).

## FUEL FILLER DOORS

Both fuel filler doors can be locked/unlocked using the exterior compartment key. Turn the key in the lock to remove.

## 12 VEHICLE EXTERIOR

It is recommended to refuel from the curb-side whenever possible, to avoid spilling fuel into the evaporator compartment. Any amount of fuel vapor in this compartment will be carried right up into the cabin by the Central HVAC System fresh air intake.

### NOTE

Provided the vehicle is parked on level ground, an automatic nozzle will automatically shut off when tank is approximately 95% full.



### CAUTION

Do not fill to more than 95% of the tank capacity. Do not "top off" the tank, doing so may result in fuel spillage when the fuel expands.

## ENTRANCE DOOR

### INSIDE OPERATION

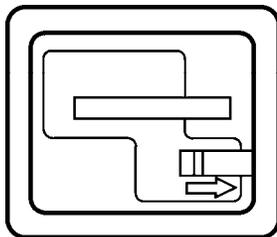
Lock or unlock the entrance door from the inside by actuating the front entrance door rocker switch on the R.H. dashboard panel. Also, you can lock or unlock the entrance door by sliding its lock lever.

### NOTE

If the alarm system is armed, unlocking the entrance door from the inside by sliding its lock lever will not disarm the alarm system. The alarm will sound.

### NOTE

For complete information concerning the Remote Keyless Entry & Anti-theft Alarm System, refer to the document included in your vehicle "publication box".



DOOR LOCK LEVER INSIDE THE VEHICLE

18187

## OUTSIDE OPERATION

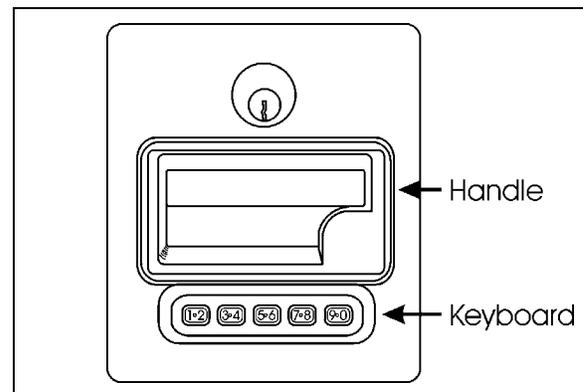
The first way of locking/unlocking the entrance door from the outside is the front entrance door lock key provided with the vehicle. Turn key counterclockwise to lock or clockwise to unlock the entrance door and disarm the intrusion protection and anti-theft system.

### NOTE

The stepwell lights and entrance overhead light turn on as the door opens.

### NOTE

For complete information concerning the Keyless Entry System & Anti-theft Alarm System, refer to the document included in your vehicle's "publication box".



DOOR HANDLE & KEYLESS ENTRY SYSTEM KEYBOARD  
18597

## KEYLESS ENTRY SYSTEM

By this system, you can lock or unlock the entrance door and the baggage compartment doors. Unlocking the entrance door using the keyless entry system will also disarm the intrusion protection and anti-theft system. The keyboard is located below the outside entrance door handle. The microprocessor/relay module is pre-programmed by the manufacturer and this code can not be deleted. Moreover, you can program your own entry code (e.g. a birthday or part of a social security number).

The manufacturer's code is:

- On your owner's wallet card;
- Taped to the keyless module in the front electrical & service compartment;
- Three stickers are joined to your owner's wallet card.

When you use the keyless entry system, the keyboard illuminates. Do not push the buttons with a key, pencil or any other hard object as it could damage the buttons. Although each button is provided with two digits separated by a vertical line, there is only one contact per button. Press in center of button, i.e. between the two digits.

You must unlock the entrance door before you unlock the baggage compartment doors. If you let more than five seconds pass between the numbers you press, the system shuts down, and you have to enter your code again. If the keyless entry system does not work properly, use the key or the remote entry transmitter to lock or unlock entrance door or the baggage compartment doors.

### KEYLESS OPERATING INSTRUCTIONS

- 1) To unlock the entrance door, enter the five numbers of the code. After pressing the fifth number, the stepwell lights and entrance overhead light turn on and the door unlocks. During the night, press any button to illuminate the keyboard and then enter the code.

When pressing any button, the keyboard lights up for five seconds.

- 2) To unlock the baggage and service compartment doors, press button 3-4 within five seconds after the code that unlocks the entrance door.
- 3) To lock the entrance door, the baggage compartment doors and arm the intrusion protection and anti-theft system all at the same time, press buttons 7-8 and 9-0 simultaneously.

**NOTE**

*The intrusion protection and anti-theft system will be set after a 30 seconds delay.*

For additional information, refer to "Other Features" chapter.

### EXTERIOR REAR VIEW MIRRORS

The coach is equipped with flat-type and convex-type rear-view mirrors. Convex mirrors give a wide angle view. Objects viewed in convex-type rear-view mirrors appear smaller and are actually closer than they appear.

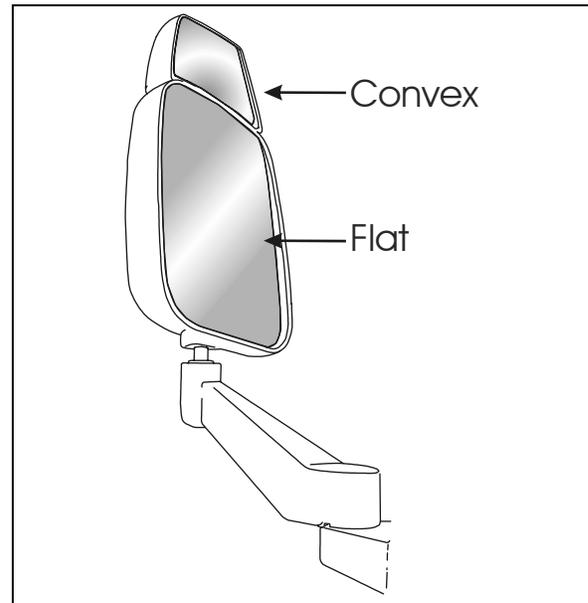
To provide good visibility in cold weather, the mirrors are equipped with heating elements that are activated by a rocker switch located on the dashboard. Refer to "Controls & Instruments" chapter. Thermostats are used to prevent continuous operation of the heating elements.



**CAUTION**

Do not attach stick-on type convex mirror accessories to the heated mirror glass. This could impede uniform heat distribution on the mirror surface and could break the mirror glass.

### ELECTRICALLY ADJUSTED MIRROR (RAMCO)



RAMCO REAR-VIEW MIRROR

18443

Electrically adjusted mirrors are adjusted by the outside mirror controls located on the L.H. control panel. Refer to "Controls & Instruments" chapter. Manual adjustment is also possible.

Adjust the side-view mirrors until the side of the vehicle is visible. Adjust the flat-type mirror until the road behind is in full view.

### RETRACTABLE BACK-UP CAMERA

An optional back-up camera is available which provides the driver with visual assistance when backing-up. The back-up camera is mounted in a retractable housing. For additional information, refer to "Controls & Instruments" and "Care and maintenance" chapters.

## 14 VEHICLE EXTERIOR

### NOTE

A switch located in the rear electric compartment is used to retract the back-up camera for cleaning or maintenance.

### 110-120 VOLTS CONNECTOR

This connector is used with a 110-120 volts supply and is connected to the optional engine block heater. Refer to "Starting And Stopping Procedures" chapter.

### TRAILER HITCH

Your vehicle may be equipped with a factory installed trailer hitch which has been designed to meet the following rating:

- **Maximum gross trailer weight: 20,000 lbs (9072 kg)**
- **Maximum tongue weight at 6 ½ inches (165 mm) or less from coupling receiver : 1,500 lbs (680 kg)**



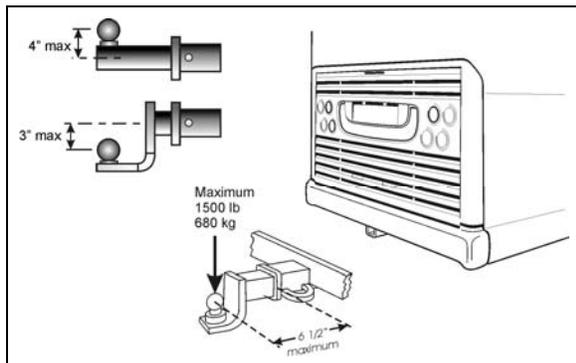
### WARNING

The draw bar and the ball used for towing the trailer should be rated for 20,000 lb capacity or more.



### WARNING

Pulling a trailer weighing more than the recommended maximum gross weight may cause engine and transmission overheating, and also possible hitch failure.



TRAILER HITCH

18487

### NOTE

Pulling a trailer over long distances is considered as a "severe operating condition" for the vehicle and therefore, power plant requires more frequent servicing.



### CAUTION

The minimum requirement for a trailer weighing up to 20,000 lbs when coupled to a 20,000 lb Prevost Trailer Hitch is as per the following:

- Trailer must comply with **Federal Motor Carrier Safety Regulations 393.52** regarding trailer breaking capability.
- The trailer coupling attachments meet the following minimum static test load requirements :
  - Longitudinal tension and compression: (1.5 x GVWR of trailer)
  - Transverse thrust : (0.5 x GVWR of trailer)
  - Vertical tension and compression: (0.5 x GVWR of trailer)

Loads indicated must be applied without incurring loss of attachments or distortion or failure which could affect the safe towing of trailer.

- The ball and trailer coupling should meet the following minimum test load requirements without incurring failure :
  - Longitudinal tension and compression : (Gross Trailer Weight of trailer x 3)
  - Transverse thrust : (Gross Trailer Weight of trailer x 1)
  - Vertical tension and compression : (Gross Trailer Weight of trailer x 1.3)

In this case, failure is identified as the point at which the coupling or ball will accept no additional test load without separation of the ball from the coupling ball socket, or the occurrence of a metal fracture of either coupling ball or coupling assembly, which results in separation of the ball from the coupling ball socket.

- Two lengths of safety chain shall be used.

The strength rating (minimum breaking force) of each individual chain and its connecting means shall be equal to, or exceed the trailer GVWR.

- E) Towing vehicle must be equipped with engine or transmission retarder. The engine or the transmission retarder on the vehicle must be functional at all time (to be inspected frequently).

This hitch must be used for recreational use only.



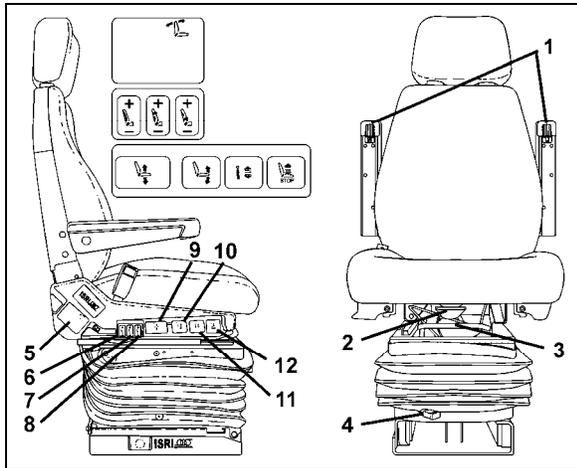
## DRIVER'S SEAT - "DELIVERY"

The driver's "delivery" seat is standard and legal only for driving the vehicle on its initial delivery. It is a conventional van seat equipped with tracks for fore and aft adjustments.

## DRIVER'S AND NAVIGATOR'S SEATS - ISRI (OPTIONAL)

Two distinct *ISRI* model driver's and navigator's seats may be supplied with your vehicle: both with a sophisticated air suspension system, one being pneumatically operated, while the other is electrically operated. Both seats may be equipped with lumbar supports, heated cushions and adjustable armrests. Seats can be adjusted to the desired driving position by following the instructions listed below:

### PNEUMATIC ISRI SEATS



PNEUMATIC DRIVER'S SEAT

18385



## WARNING

Never try to adjust seat while driving vehicle as this could result in loss of vehicle control.

### Armrest (1)

Rotate control knob to select desired arm-resting angle. When not in use, raise armrest parallel with backrest.

### Seat Cushion (2)

Provides optimum comfort and support for any leg shape or size. Adjustable to 50mm length.

### Fore-and-aft (3)\*

Pull handle up and slide seat forwards or backwards to adjust distance between seat and dashboard.

### Isolator (4)

Reduces horizontal vibration, ensuring smooth ride.

### Backrest (5)

Lift lever to select proper adjustment angle of backrest.

### Air Side Bolster (6)

Offers desired side support to avoid body sideway.

### Air Lumbar (7) (8)

Provides back support with upper and lower settings, ensuring comfort during lengthy sitting.

### Air Height Adjustment (9)

Moves seat up or down independently of other seat settings. 100mm total travel.

### Adjustable Seat Recline (10)

Allows easy adjustment of four-setting inclination.

### Adjustable Shock Absorber (11)

Choose stiff or soft ride infinitely.

### Quick Air Release (12)

Exhausts all air from suspension, allowing for easy entry/exit. Returns seat to previous position.

## ELECTRIC ISRI SEATS

Adjust electric seats as follows:

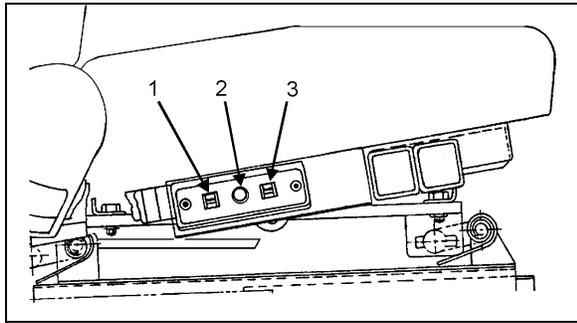
### Tilt (rear) (1)

Pull switch up to raise rear section of seat. Push switch down to lower rear section of seat.

### Fore-and-aft/Up-Down (2)

Push switch towards dashboard to move seat forwards or back to move seat backwards. Pull switch up to raise seat or push switch down to lower seat.

## 18 VEHICLE INTERIOR



SEAT CONTROLS

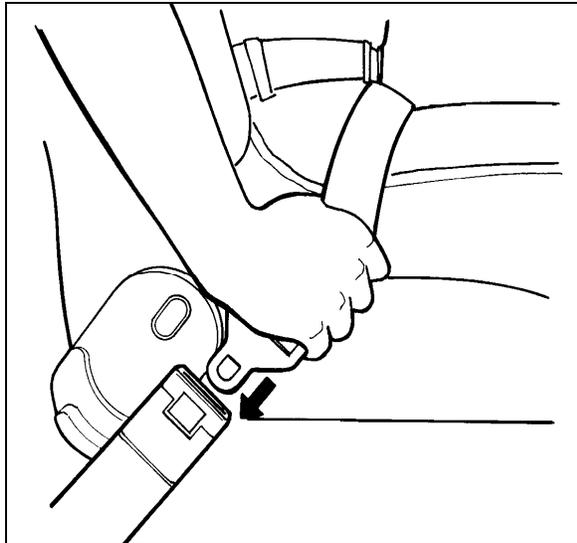
18040

### Tilt (front) (3)

Pull switch up to raise front section of seat. Push switch down to lower front section of seat.

### SAFETY BELTS

The driver's seat is equipped with a retractable safety belt as required by State, Provincial and Federal regulations. To fasten, pull seat belt out of the retractor and insert the latch plate into the buckle until it clicks. No special adjustment is required since the reel device is self-adjusting. If seat belt operation becomes defective, report to Manufacturer's Service Center.



SEATBELT

18028

#### NOTE

*The safety belt must be pulled out slowly and continuously, otherwise it will lock the reel before the latch plate reaches the buckle. If this happens, allow the belt to retract completely and repeat the procedure correctly.*



### WARNING

A snug fit with the lap belt positioned low on the hips is necessary to ensure motorist's safety. The belt should not be worn twisted. Avoid pinching belt and/or belt hardware in seat mechanism. Do not wear belt over rigid or breakable objects, such as eyeglasses, pens or keys as these may cause injuries.



### CAUTION

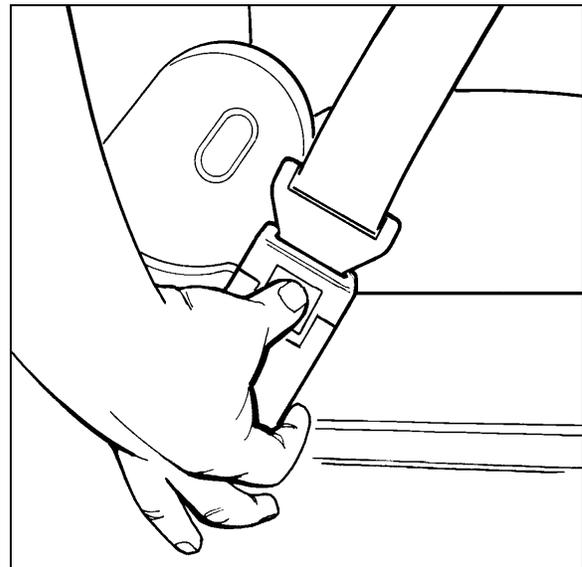
Never bleach or dry-clean safety belt.

To unfasten belt, press the red button in center of buckle and allow belt to retract. If the belt does not fully retract, pull it out and check for kinks or twists. Make sure that it remains untwisted as it retracts.



### WARNING

Safety belts should always be worn by motorists using seats supplied with belts since this is required by most State and Provincial laws.



SEATBELT

18029

### STEERING WHEEL ADJUSTMENT

Push on the valve button with the left foot to unlock the steering wheel for tilt and telescopic adjustment.



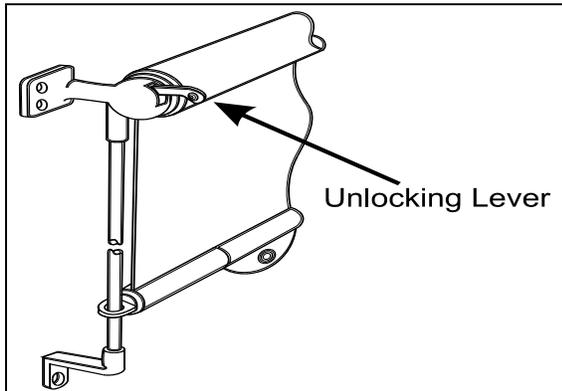
## WARNING

Do not adjust the steering wheel while the vehicle is moving. Loss of control could result. Park the vehicle safely and apply parking brakes before adjusting the steering wheel.

## SUNSHADES (BLINDS)

This vehicle is provided with two electrically operated sunshades which are installed on both sides of the windshield. Push up or down the appropriate switch to raise or lower the shade to the desired position.

Moreover, an optional spring release type sunshade is provided for the driver's window to protect him from side glare. To operate, pull down the shade by its hem to the appropriate position and release it. It will remain automatically in position. To lift, depress the unlocking lever.



SPRING RELEASE SUNSHADE

23019

## INSIDE MIRRORS

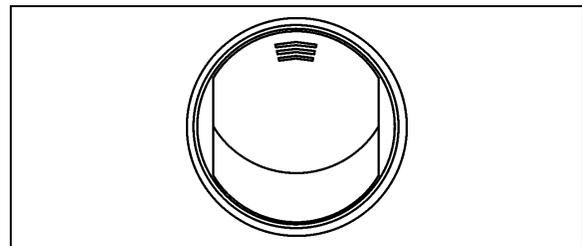
Two mirrors are located in the driver's area. The left overhead mirror provides visibility in the critical area on the R.H. side of the private coach. Adjust the left overhead mirror to see through the front cabin windows. The central mirror allows the driver to see in the central cabin aisle.

## ADJUSTABLE HVAC REGISTERS

The HVAC system has adjustable registers to control air flow around the driver's and navigator's area.

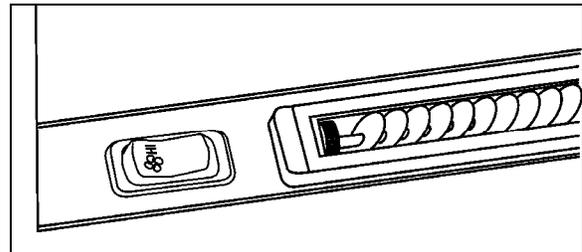
- Three are located on the dashboard, two on the R.H. side and one on the left (refer to Controls & Instruments chapter).
- Two more registers are located near the steering wheel column, under the dashboard. These registers are not adjustable but may be electrically open or closed by means of the HVAC control panel.
- Three auxiliary unit registers are located behind the driver (with small HVAC system only).
- For the navigator, two adjustable registers are located near the entrance door, at bottom of first lateral window (refer to Controls & Instruments chapter).

Use the HVAC control panel to set air temperature.



DASHBOARD AIR REGISTER

22287



NAVIGATOR'S AIR REGISTER & FAN SPEED CONTROL SWITCH

22286

## WINDOWS

The vehicle is equipped with single pane or double pane (thermos) windows. There is one automobile-like power window and a possible combination of three types of side windows, all of them flush-mounted to the structure: fixed, awning and sliding windows. Following is a description and operating instructions for these types of windows:

### DRIVER'S POWER WINDOW

The driver's area is equipped with a power window. The window is controlled by a rocker switch located on the L.H. control panel. Refer to Chapter 3, Controls & Instruments.

## 20 VEHICLE INTERIOR

### FIXED WINDOWS

These windows are either fastened or glued to the structure and form an integral part of the body of the vehicle, helping reduce vibration and noise. Fixed windows cannot be opened.

### AWNING WINDOWS

To open or close an electrically-operated awning window, use the rocker switch button located on the wall, next to the window. After closing the window, maintain the rocker switch button depressed to latch the window.

#### NOTE

*The awning window electrical circuit is equipped with a thermistor protecting the components from overheating. If the awning window is opened and closed repeatedly, causing overheating of the components, the thermal protection will interrupt the operation of the window for a short while to permit cooling down of the components. This feature also prevents personal injuries and damages to the components if something obstructs the window movement.*



#### CAUTION

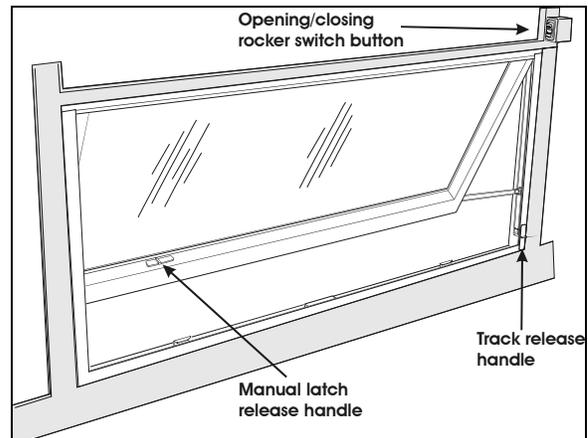
Avoid holding the rocker switch button depressed after the window has reached its full opened position or after the window has been latched.



#### CAUTION

Never try to open or close the awning window by pulling or pushing directly on the window, this could damage the opening mechanism gearbox.

A telltale light on the dashboard illuminates when an awning window is opened. Refer to "Controls And Instruments" chapter for more information.



ELECTRIC AWNING WINDOW

18585

### SLIDING WINDOWS

To open or close an electrically-operated sliding window, use the rocker switch button located on the wall, next to the window.

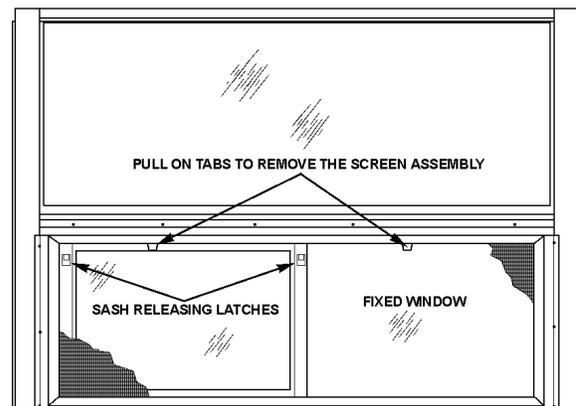


#### CAUTION

Never try to open or close the awning window by pulling or pushing directly on the window; this could damage the opening mechanism gearbox.

#### NOTE

*If the sliding window electrical circuit is inoperative, the power sliding window can be manually closed by removing the lateral plastic trim located on the R. H. side of the window to access the drive belt. Manually move the drive belt to close the window.*



SLIDING WINDOW

18206

***NOTE***

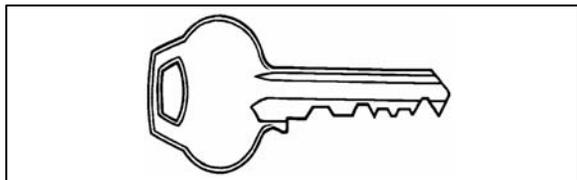
*The sliding window electrical circuit is equipped with a thermistor protecting the components from overheating. If the sliding window is opened and closed repeatedly, causing overheating of the components, the thermal protection will interrupt the operation of the window for a short while to permit cooling down of the components. This feature also prevents personal injuries and damages to the components if something obstructs the window movement.*



## KEYS

Four different key models are provided with the vehicle. They are used as described below.

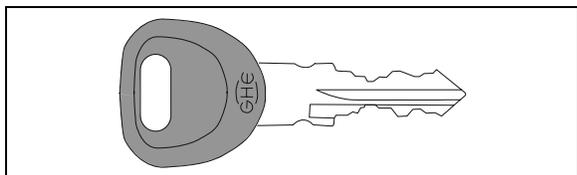
### FRONT ENTRANCE DOOR LOCK KEY



FRONT ENTRANCE DOOR LOCK KEY 23057

Use this key to lock or unlock the entrance door from outside. It is also possible to lock or unlock the entrance door using the entrance door locking switch, the keyless entry system or the remote entry transmitter.

### EXTERIOR COMPARTMENTS KEY



EXTERIOR COMPARTMENTS KEY 23302

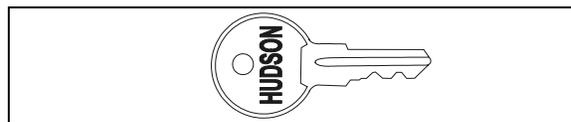
Use this key to lock or unlock any exterior compartment door, including the fuel tank filling access doors, the baggage compartment doors and electrical/service compartment doors. It is also possible to lock/unlock the baggage compartments from the inside by means of the baggage compartments locking system switch located on the L.H. dashboard panel.

#### **NOTE**

*For your protection against theft:*

- *Record the key numbers and keep this information in a safe place. Do not keep these records inside vehicle.*
- *It is also advisable to deposit a duplicate of each key in a safe place, so they can be obtained without difficulty in case of an emergency or loss.*

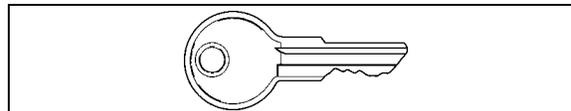
### UTILITY COMPARTMENT KEY



UTILITY COMPARTMENT KEY 23344

This key locks or unlocks the utility compartment and the utility drawers on the dashboard.

### IGNITION SWITCH KEY



IGNITION SWITCH KEY 23056

Turn the ignition key counterclockwise to the ACC position to activate the electrical circuits.

To start the engine, turn the key clockwise to the START position, and then release it. The key will set back to the ON position.



#### **CAUTION**

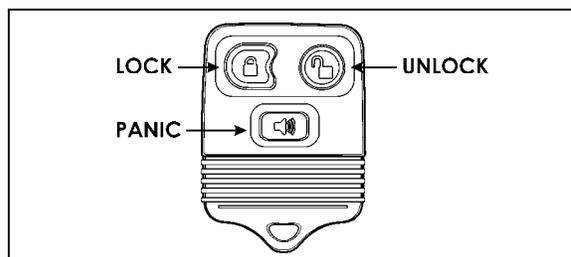
When the vehicle is parked overnight or for an extended period of time, the battery master switch should be set to the OFF position.

#### **NOTE**

*When the battery master switch is set to the OFF position, all electrical supply from the batteries is cut off, with the exception of battery equalizer check module, MCM ignition and power supply, TCM power (Transmission), coolant heater electronic timer coolant heater and water re-circulating pump, pro-driver, power-verter, keyless entry system and fire alarm.*

### REMOTE ENTRY TRANSMITTER

Up to four hand held (electronic key) transmitters can control electronic door lock system.



REMOTE ENTRY TRANSMITTER 23383

## 24 CONTROLS AND INSTRUMENTS

To lock the entrance door and the baggage compartment doors simultaneously and arm the intrusion protection and anti-theft system:

- Press LOCK  on the transmitter once.

### NOTE

The intrusion protection and anti-theft system will be set after a 30 seconds delay.

To confirm that the entrance door and baggage compartment doors have been locked and that the intrusion protection and anti-theft system is armed:

- Press LOCK  again within five seconds of the first lock. The front and rear side markers will flash once if the doors have locked. If the entrance door or one of the baggage compartment doors is open, a door ajar signal prevents arming of the system.

To unlock the entrance door:

- Press UNLOCK  on the transmitter. This will unlock the door and disarm the intrusion protection and anti-theft system.

To unlock the baggage compartment doors:

- Press UNLOCK  a second time within five seconds of the first unlock.

To set off the personal security alarm:

- Press the red PANIC  button on any transmitter. The horn will sound and the marker lights will flash for a maximum of three minutes.

To deactivate the personal security alarm:

- Press the red PANIC  button again on any transmitter or turn the ignition key ON.

### NOTE

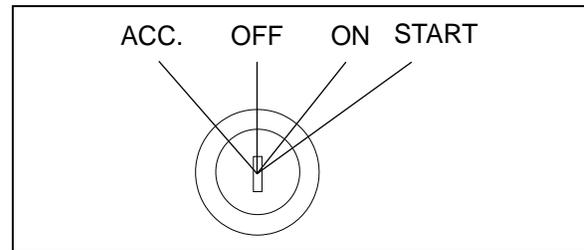
The remote entry features will not function when the ignition is in the ON or ACC. position.

For additional information, refer to "OTHER FEATURES" chapter.

### NOTE

For complete information concerning the Remote Keyless Entry & Anti-theft Alarm System, refer to the document included in your vehicle "publication box".

### IGNITION SWITCH



IGNITION SWITCH POSITIONS

06354

The ignition switch is located on the lower left side of the dashboard. It has four positions:

#### Off

In the OFF position, ignition cannot take place. The key can be removed when in this position.

The electrical circuits are not activated when the switch is in this position. Only the accessories connected directly to the batteries can be activated. Maintain the switch in this position when parked overnight or for an extended period.

### NOTE

The main battery relay is activated when the hazard flashers are activated, even if the key is in the OFF position.

#### Accessories

To operate the accessories only, turn the ignition key counterclockwise to the "ACC" position. The key cannot be removed in this position.

The electrical circuits are activated when the switch is in this position or when the hazard flashers are activated.

The features enabled when the key is in the ACC position are all those linked directly to the battery plus the exterior temperature display, the radio or entertainment system, exterior and interior lighting.

#### On

To place ignition switch to ON, turn the key clockwise to the first position. The key cannot be removed in this position.

The electrical circuits activated when the switch is in the *ACC* position plus the transmission, engine and accessories, ABS system, air dryer heater, wipers, dashboard cluster gauges and buzzers are activated when the key is in this position. Do not leave the key in this position unless the engine is running.

### **Start**

Turn the key clockwise to the second position and release as soon as the engine starts. The key will return to the *ON* position. If the engine did not start, return the ignition key to the *OFF* position before trying to restart the engine.

The ignition switch is equipped with a starter protection which inhibits turning the key to the *START* position if the key has not previously been turned to the *OFF* position.



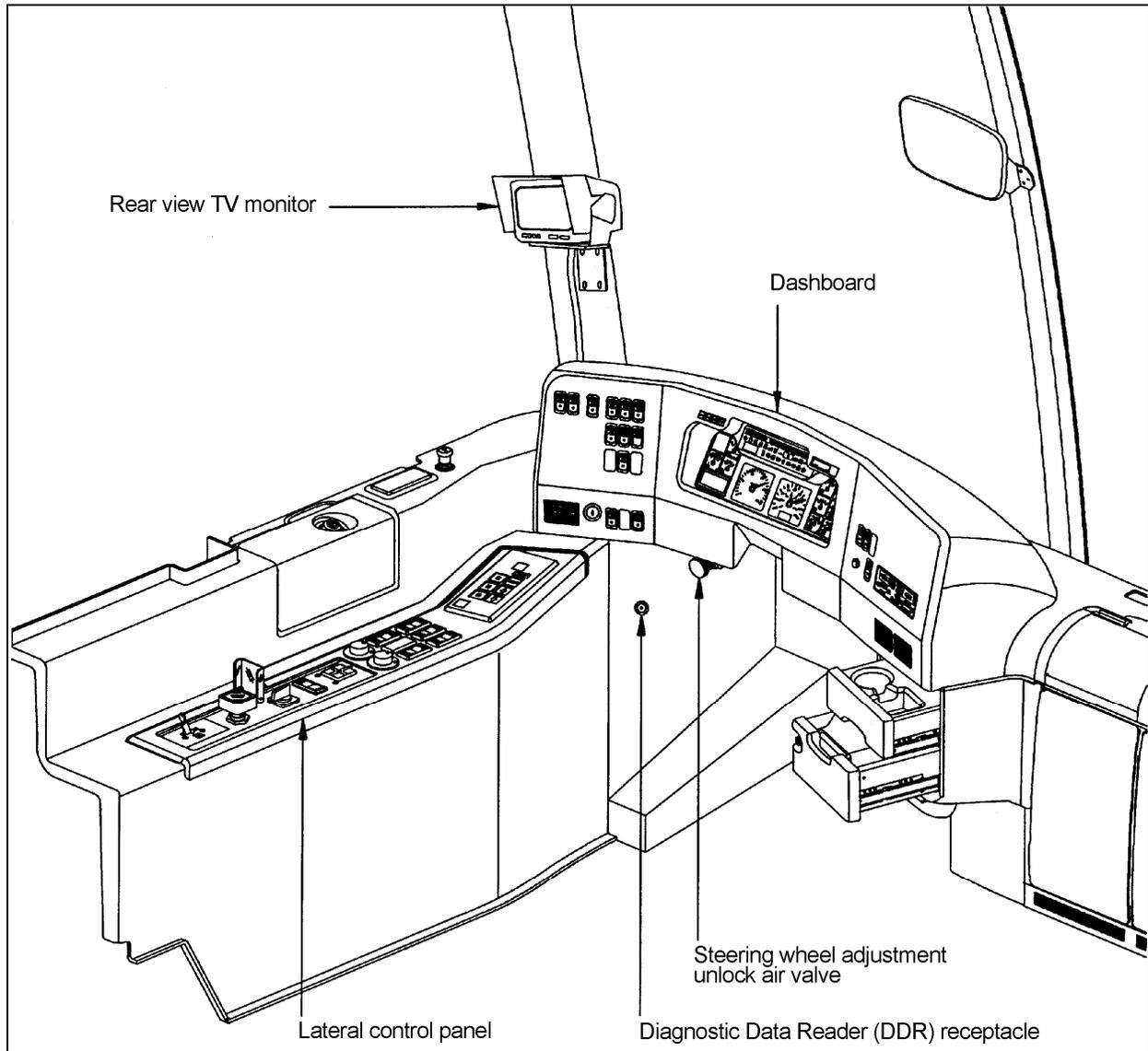
### **CAUTION**

To avoid overheating the starter, do not engage the starter for more than 15 seconds at a time. Allow the starter to cool before trying to restart the engine

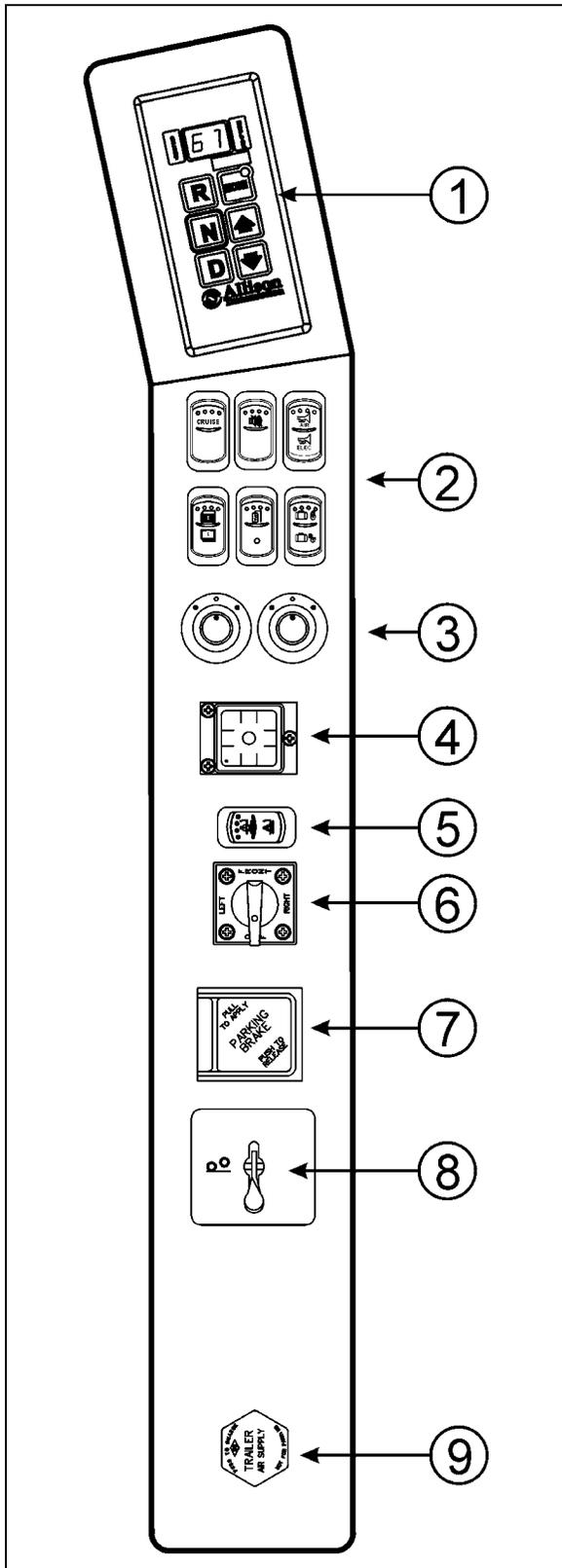
The features activated when the engine is running are all those described above plus the HVAC system and daytime running lights. The optional ether cold-start system is automatically deactivated once the engine runs.

## 26 CONTROLS AND INSTRUMENTS

### DRIVER'S AREA



## LATERAL CONTROL PANEL



### ① TRANSMISSION CONTROL PAD

The control pad for the automatic transmission is located as shown. Refer to "Automatic Transmission" in this chapter for operating instructions and more information.

### ② CONTROL SWITCHES

#### Cruise Control Switch



Depress the **CRUISE** rocker switch to activate the cruise control. This turns the system on. A LED on the switch shows that you can now set the vehicle at a desired cruising speed.

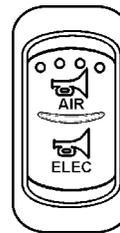
The cruise control allows you to cruise the vehicle at a desired speed over 18 mph (30 km/h) without having to use the accelerator pedal. For operation of the cruise control, refer to "Steering Wheel Controls" paragraph in this chapter.

#### Back-up Alarm Cancel



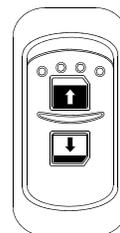
Press down this switch to cancel the back-up alarm. Return to normal operation after use.

#### Horn Selector



Use this switch the toggle between the air horn and the electric horn when pressing the steering wheel center pad.

#### Power Window Switch



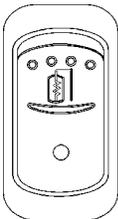
Use this rocker switch to open or close the driver's power window.



## CAUTION

Close power window when parked or leaving the coach unattended.

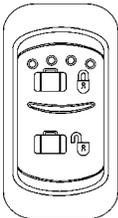
### Outside Rear View Mirror Heat (Optional)



06261

Press this rocker switch to clear fog, frost or thin ice from outside mirror.

### Baggage Compartments Locking System



06266

This rocker switch enables locking all baggage compartment doors by pressing the switch forward. To unlock, press the switch rearward.

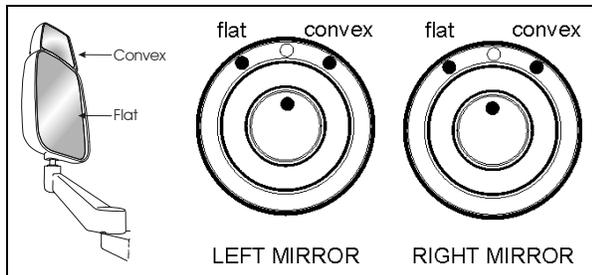
#### NOTE

Service compartment doors are not linked to the baggage compartments locking system.

#### NOTE

Doors must be locked using the key first; they can then be unlocked or locked using the baggage compartments locking system.

### ③ MIRROR CONTROLS



MIRROR CONTROLS

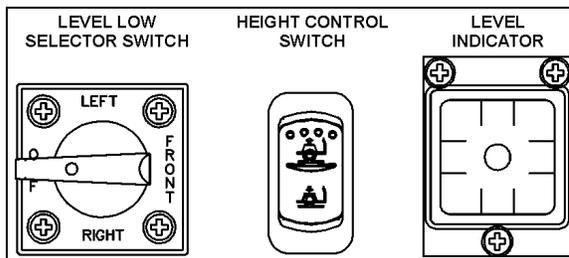
06374

Turn left pointer knob counterclockwise for flat mirror adjustments and to the right for convex mirror adjustments, then use the joystick control to adjust the selected mirror's viewing angle. Adjust the right outside mirror similarly but by using the right side control.

#### NOTE

If the mirror assemblies on your vehicle do not include convex mirrors, only one mirror control knob will be installed for both mirrors. To operate, turn knob to the left for L.H. mirror adjustments and to the right for R.H. mirror adjustments, then use the joystick control to adjust the selected mirror's viewing angle.

### ④ ⑤ ⑥ LEVEL LOW SYSTEM



When driving, the conventional air leveling system of the vehicle controls the height at three points: the front, the left rear and the right rear. Your vehicle is equipped with a suspension system that consists of air springs (pressurized air bellows) located near each wheel. The amount of air in each air spring (and thus the vehicle height) is controlled by automatic leveling valves that operate between the chassis and the axles of the vehicle.

The three leveling valves are located as follows: one at the front which controls the amount of air in both front air springs, one at the left rear which controls the left rear corner of the vehicle and one at the right rear which controls the right rear corner of the vehicle. During normal driving, these valves work automatically to maintain the chassis at the proper level above the axles, indifferent of road conditions or vehicle weight.

When parked, and **ONLY** when parked, the level of the vehicle can be manually adjusted within the range of travel of the air springs. Thus, if the vehicle is parked on uneven ground, the manual override leveling system can be used to level the chassis of the vehicle. With the ignition ON (engine running or not), turn the selector switch located on L.H. side control panel to the area of the vehicle requiring leveling, then press the height control switch accordingly (up or down) to inflate or deflate the selected set of air springs. The front position raises or lowers the front only and does not tilt the vehicle to its sides. Each rear position raises or lowers its respective side, therefore, the rear positions can be used to tilt the vehicle to one side or the other, or they can

be used to raise or lower the rear of the vehicle. When leveling vehicle, it is often necessary to run the engine in order to get an adequate air supply.

**NOTE**

*It is always better to first level the rear of the vehicle (right to left) before raising or lowering the front. After adjusting the rear, watch the level indicator as you adjust the front. If the level shows that the vehicle is starting to tilt to either side, then stop adjusting the front as one of the air springs has come to the end of its travel range.*

After manual leveling, turn **OFF** the engine. The vehicle will stay in the leveled position (the air is "locked" in the air springs) as long as there are no air leaks. The vehicle will hold this position for several days. When engine is restarted and air pressure is adequate, the vehicle will automatically level itself for driving conditions.

**WARNING**

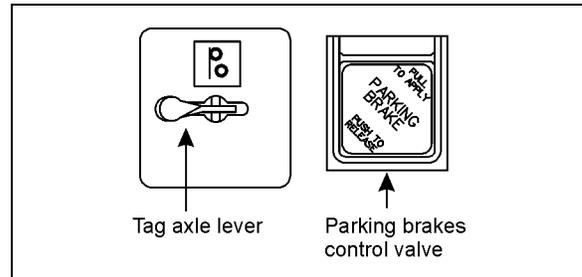
**Do not** drive the vehicle with the level low selector switch in any position other than **OFF**, as this may render the vehicle unsafe and uncontrollable. If this is the case, the Level Low warning telltale light in dashboard will flash as the vehicle speed exceeds 12 mph (20 km/h), reminding you that the selector is not in the **OFF** position.

**NOTE**

*If, for any reason, you wish to start the engine without moving vehicle (to warm up engine for instance) while keeping the vehicle in the manually leveled position, place selector switch in any position except **OFF**. When ignition switch is turned to the **OFF** position, reset the Level Low selector switch to the **OFF** position.*

**⑦ PARKING BRAKES CONTROL VALVE**

Spring-loaded parking brakes are applied by pulling up the control valve knob and protector assembly. Lift the safety cover and push down to release brakes. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter.



**CONTROL VALVES**

12224

**⑧ TAG AXLE CONTROL VALVE**

Lift the tag axle by pushing the lever forward. Pulling the lever back will lower (load) the tag axle. Refer to "OTHER FEATURES" chapter for additional information.

**WARNING**

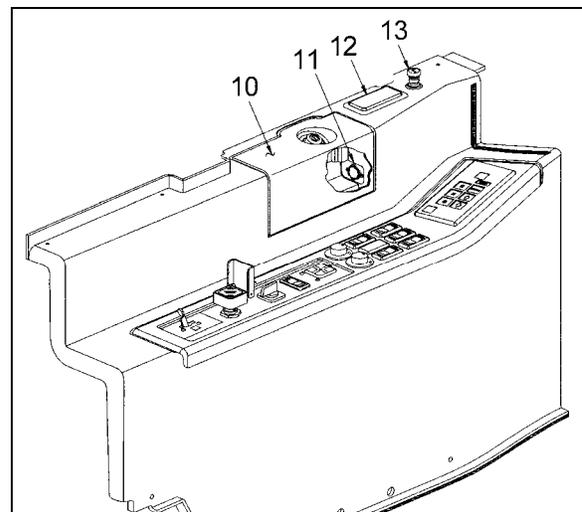
Do not drive vehicle with tag axle raised when speed is exceeding 12 mph (20 km/h).

**⑨ TRAILER AIR SUPPLY CONTROL VALVE (Optional)**



12225

The trailer air braking system is supplied by pushing this control valve.



06485

**10. Utility Compartment**

**11. 12-volt DC Power Outlet**

**12. Ashtray**

**13. Cigarette Lighter**

## 30 CONTROLS AND INSTRUMENTS

### (10) (11) UTILITY COMPARTMENT & 12-VOLT DC POWER OUTLET

The lockable free space utility compartment also includes a 12-volt appliance socket.

### (12) ASHTRAY

To open the ashtray, push slightly on the cover's side. The ashtray can be removed for cleaning by pulling it out.



#### WARNING

To prevent a fire, never put paper or plastic wrappers in the ashtray. Empty ashtray often.

### (13) CIGARETTE LIGHTER

Push lighter in to activate. When ready to use, it will spring out automatically. Replace lighter in non-activated position. The cigarette lighter socket can be used to power 12-volt appliances (eg. flashlight, vacuum cleaner). The maximum power consumption allowed for appliances plugged in this socket is 130 watts. Make sure the appliances are equipped with suitable plugs that will not damage the socket.

#### NOTE

The cigarette lighter can still be used after the ignition key has been removed.

### DIAGNOSTIC DATA READER (DDR) RECEPTACLE

To facilitate troubleshooting of the DDEC, WT and ABS systems and to obtain data logged in the MCM (Motor Control Module) memory, a Diagnostic Data Reader (DDR) (not supplied) can be connected through the DDR receptacle. A user's manual is supplied with the optional DDR.

The DDR receptacle is located inside the footwell, on the upper left side wall.

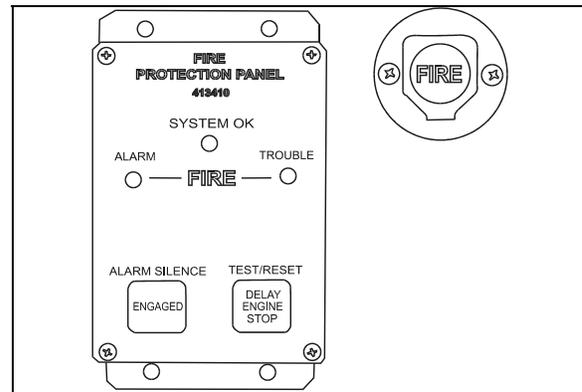
### AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM (AFSS)

#### Protection Panel

The protection panel displays the current system status. The protection panel contains "SYSTEM OK", fire "ALARM" and "TROUBLE" lamps, the audio alarm, the "TEST/RESET" switch, and the "ALARM SILENCE" switch.

The "SYSTEM OK" lamp indicates power is on the system and that there are no trouble conditions present. The "TROUBLE" lamp blinks if there is a fault in the detection circuitry and illuminates solid if there is a fault in the extinguishing circuitry. When the "TROUBLE" lamp is on, the "SYSTEM OK" lamp will be off and the audible alarm will sound intermittently. The "SYSTEM OK" lamp will flash when the system is low on battery power. Depressing the "TEST/RESET" switch tests the protection panel lamps and audio alarm. The "ALARM SILENCE" switch will disable the audio alarm.

When a fire detector automatically detects a fire, the fire "ALARM" lamp and audio alarm activate. When the Manual Activation Switch is activated, the fire "ALARM" lamp blinks and the audio alarm activates. The lamp will remain blinking until power is cycled to the system.



AFSS PROTECTION PANEL & MANUAL ACTIVATION SWITCH

#### Manual Activation Switch

The manual activation switch allows immediate system activation (extinguisher discharge and engine shutdown) by the operator at any time. Activation of the switch is accomplished by twisting and pulling the tamper seal to remove, lifting the cover and pressing the red "FIRE" button for more than half a second. After the manual activation switch has been activated, the protection panel will blink the fire "ALARM" indicator until power has been cycled to the system.

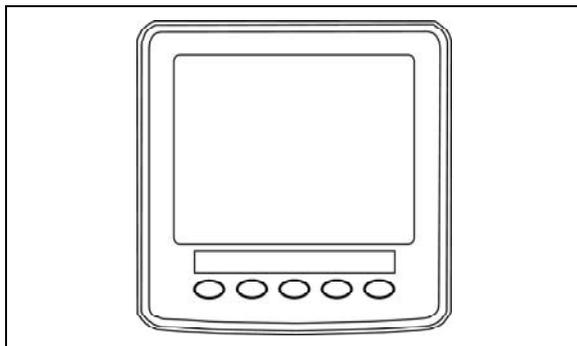
Refer to chapter "SAFETY FEATURES AND EQUIPMENT" for more information on *Kidde Dual Spectrum* Automatic Fire detection and Suppression System (AFSS).

## TIRE PRESSURE MONITORING SYSTEM (TPMS)

This system is a sensing device designed to identify and display tire operating data and activate an alert or warning when pressure or temperature irregularities are detected.

**NOTE**

*It is the responsibility of the driver to react promptly and with discretion to alerts and warnings. Abnormal tire inflation pressures should be corrected at the earliest opportunity.*



**TPMS DISPLAY**

### TPMS Display

The TPMS display knows where the sensors are located. It receives the raw temperature and pressure readings from the TPMS receiver, it reads several signals from the vehicle and does the calculation required to generate the various screens.

When no readings have been received for a tire location or when the received data correspond to a parameter range defined as unavailable, then the reading is considered as not available and appears as two dash lines “\_ \_”.

The TPMS display is initially configured to define how many axles and running tires are present on the vehicle. For current Prevost vehicle models, there are two axle / tire configurations. These configurations are:

**Config 1:** Axle 1 (Front) Two tires, Axle 2 (Drive) 4 tires, Axle 3 (Tag) 2 tires.

**Config 2:** Axle 1 (Front) Two tires, Axle 2 (Drive) 2 tires (super Singles), Axle 3 (Tag) 2 tires.

The TPMS display is also configured with several other parameters, including threshold levels for the alarms.

The TPMS display power supply turns OFF when the ignition key is switched OFF.

### Operation

The system will monitor all vehicle tires (6 or 8) plus the spare tire when a spare is supplied.

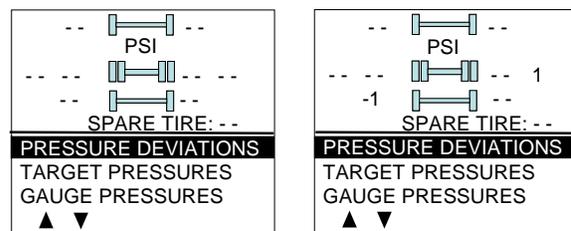
**NOTE**

*Some vehicle models do not come with a spare tire.*

There are two configurations of vehicle tires to be supported. One configuration (the most common) consists of 8 tires total: two tires on the front axle, 4 tires on the drive axle and 2 tires on tag axle. All screen figures shown in this document relates to this vehicle configuration. The second tire configuration consist of 6 tires total: 2 tires on the front axle, 2 tires on the drive axle (super single tires) and 2 tires on the tag axle. The vehicle tire configuration is selected with a parameter (Refer to “SAFETY FEATURES AND EQUIPMENT” chapter for more information). When the display is configured for 6 tires, the drive axle tires appears as one large tire on both side instead of twin tires as illustrated in this document and there is one reading appearing on each side instead of two as illustrated in this document.

### Start-up

When turning the ignition switch to ON, the following screen appears on the TPMS Display. Dash lines are displayed meaning that no pressure data have been received by the display.



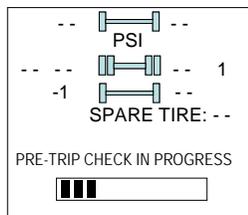
As illustrated, the pressure readings will appear replacing the dash lines as the TPMS display starts to receive pressure data from the TPMS receiver. It can take 1 minute to get all pressure readings updated since the sensors transmit at a one minute interval.

The user can flip through the menus.

## 32 CONTROLS AND INSTRUMENTS

### Pre-Trip Check

When one of the preconditions defined to start the pre-trip check is met, the TPM display enters into a pre-trip check routine and the screen shown below appears. The preconditions to initiate the pre-trip are: Park brake removed Or No activity on the display menu keys for a defined time (Key pressed timeout). After a pre-trip, the display is in a “drive” mode with bottom menu replaced by the alarm status. The display remains in this mode until one of the following occurs: A menu key is touched while the park brake is applied, or the park brake does a transition from released to park brake applied.

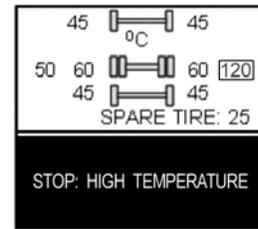
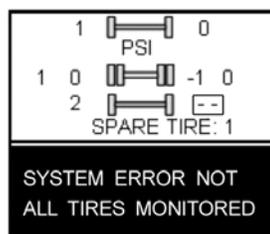
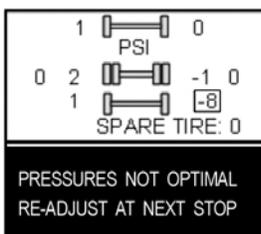
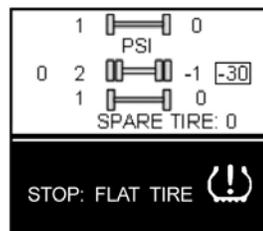
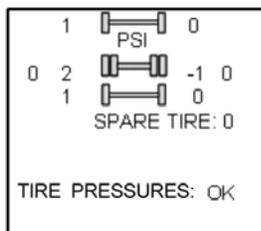


During the pre-trip check, the pressure readings for the different wheels become all available.

The pre-trip check ends, either when: the pressure readings have been received for all running wheels or the pre-trip check maximum time has elapsed. It was selected to provide sufficient time for all wheel sensors to wake-up and send a first reading.

The pre-trip check is aborted and the bottom menu reappears if the park brake was active and the user press one of the menu keys.

Upon completion of the pre-trip check, the TPMS display will come up with one of the following screens:



A rectangle around each pressure/temperature reading of the tires that have an issue is blinking to draw the attention to the defective tires.

In the case of multiple errors at the same time, the highest priority error is displayed at the bottom. “Flat Tire” has the highest priority followed by “High Temperature”, “Not all tires monitored” and “Tire pressure not Optimal”.

To get the driver's attention to the alarms, the bottom section of the screen where the alarm message appears will blink to reverse contrast at the following rate: 0.7sec normal contrast, 0.3 sec reverse contrast. Pressing any key will acknowledge the alarms that are considered as non critical and stop the blinking of these alarms message for the remaining of the trip. The non critical alarms are: “Pressure not optimal” and “Not all tires monitored”. The “flat tires” and “high temperature” alarms are critical and will keep blinking even when a key is pressed. If a different alarm occurs, blinking will start again. The blinking rectangle around the pressure/temperature readings is not impacted by the acknowledgement and keeps blinking until the error condition disappears.

The spare tire does not contribute to alarms and so never blinks.

On the road, the TPMS display shows one of the 5 previous screens.

In the event of a temperature alarm, the display switches automatically to temperature readings.

The driver can also press any of the menu keys to momentary switch the display to temperature readings. In this case, the temperature reading appears for 15 seconds and the display returns to pressure.

The switching to temperature by pressing a key does not take place if there is an acknowledgeable alarm active, since in this case pressing the key does acknowledge the alarm.

The switching to temperature does not take place either if there is an alarm of Temperature or Flat Tire.

The switching to temperature works when the bottom message indicates either: Tire Pressure OK, Pressure Not Optimal non flashing or not all tires monitored non flashing. When the switch is done to temperature readings, the bottom portion of the screen is not affected and still shows the status message.

**NOTE**  
*High temperature is not likely to occur during the pre-trip.*

The pressure and temperature readings are continuously updated with the displayed readings of the wheel having issues blinking. The bottom line message is automatically updated to the highest priority alarm prevailing. There is a hysteresis on the alarm levels to assure that the error conditions do not flicker ON and OFF.

On the occurrence of an alarm, a beep will sound. The alarm beep could be turned OFF in the alarm settings menu.

**Spare tire:**

The spare tire is monitored but it is not taken into account when setting the bottom alarm messages. This is to prevent unnecessary alarms that would otherwise occur, if for example, the spare tire is removed from a vehicle.

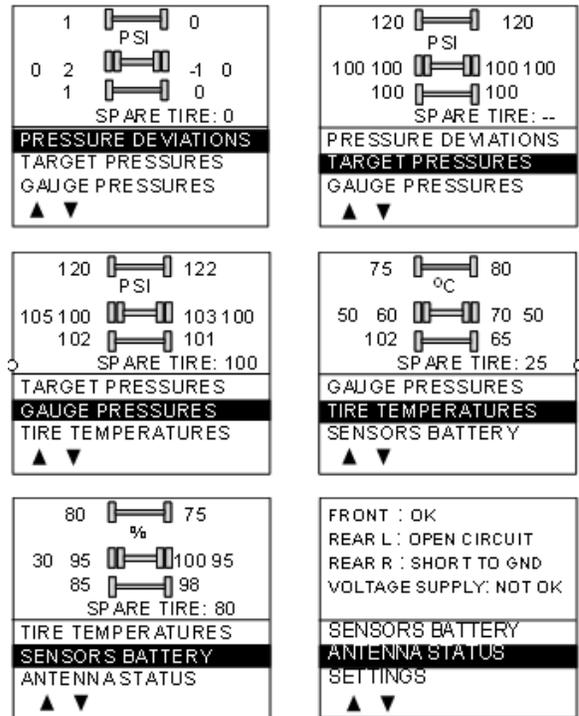
The user will have the possibility to check the pressure of the spare tire by accessing the TPMS display menu. For vehicles that have no spare tires, the title “spare tire:” will still appear on the screens but the pressure will remain with two dash lines at all time.

**Post Trip Operation**

When parking the vehicle (park brake applied), the TPMS display keep the drive mode display active. The driver can press any keys to get the bottom lines showing the status information replaced with the menus.

The pressure readings are still displayed and updated as new readings are received and the readings are blinking if not within the optimum pressure range.

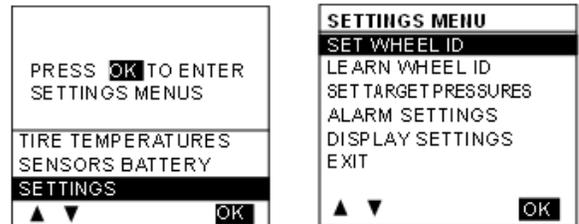
From this point the user can scroll through the menus to get more detailed information and inflate/deflate the tires to bring them back to their optimum target pressures. Scrolling through these menus is also available prior to departure.



The display remains in this mode with the menus appearing at the bottom until the pre-trip check sequence starts again.

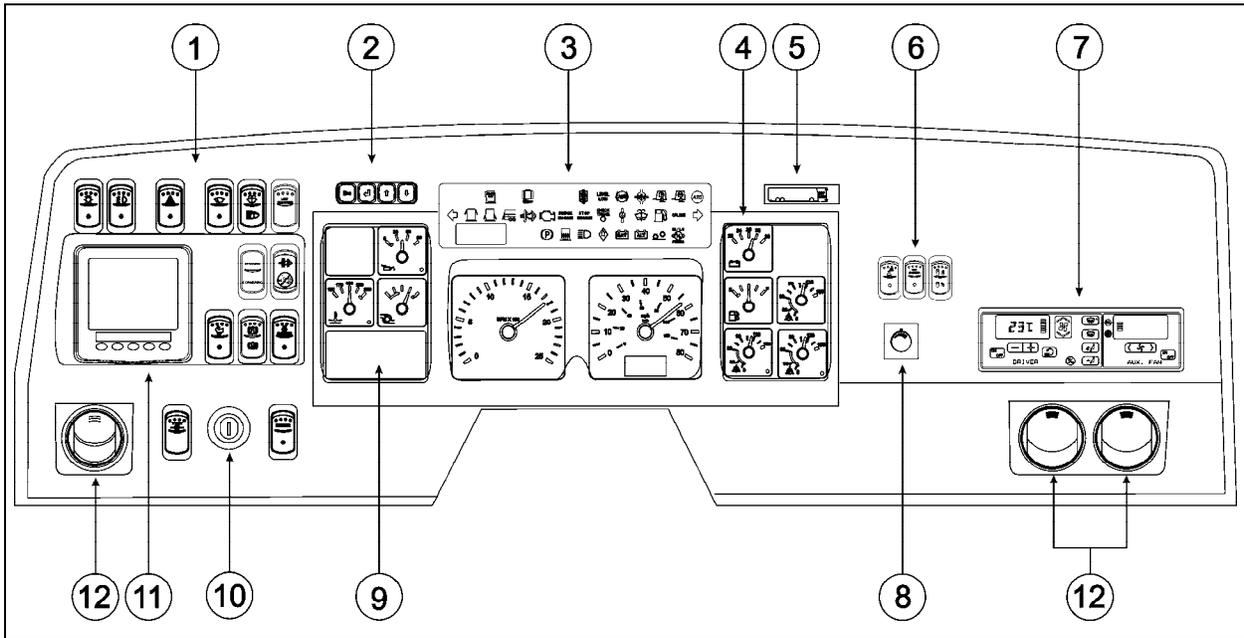
Scrolling down below the Battery life menu will show the Settings menu. Highlighting the Settings and pressing OK allows entering the settings menu. Refer to “SAFETY FEATURES AND EQUIPMENT” chapter for more information on “Settings Menu”.

Highlighting the Exit menu and pressing OK exits the settings and come back to the pressure display mode.



## 34 CONTROLS AND INSTRUMENTS

### DASHBOARD



DASHBOARD

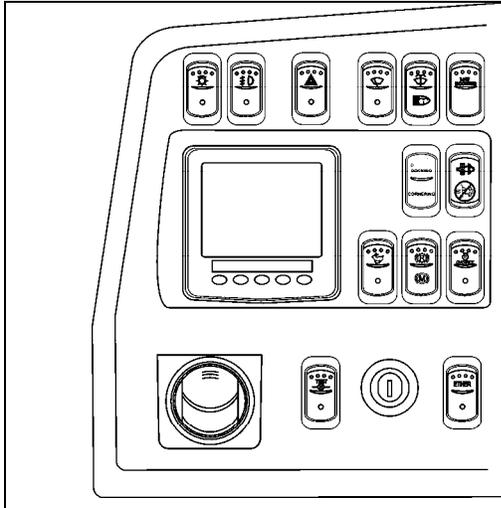
06698

1. L. H. DASHBOARD PANEL
2. MCD KEYPAD
3. TELLTALE PANEL
4. GAUGES
5. VEHICLE CLEARANCE INFORMATION
6. R.H. DASHBOARD PANEL
7. HVAC CONTROL UNIT
8. BRIGHTNESS CONTROL
9. MESSAGE CENTER DISPLAY (MCD)
10. IGNITION SWITCH
11. TIRE PRESSURE MONITORING SYSTEM DISPLAY (TPMS)
12. ADJUSTABLE AIR REGISTERS

## CONTROL SWITCHES

High quality laser-engraved switches are used to control many of the features of the coach. Many switches have an embedded witness LED to inform the driver at a glance which features are active. Some switches' LED will turn *OFF* after a short while when the engine is running. This is normal and is designed to reduce glare when driving. The functions still operate even if the LED is *OFF*. If the switches are still *ON* when the engine is turned *OFF*, the LEDs will illuminate to warn the driver to turn them *OFF*.

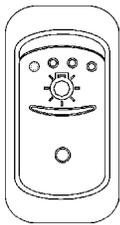
## L. H. DASHBOARD PANEL



The L.H. dashboard panel includes driver-exclusive controls, ether start control switch, ignition switch and an adjustable air register for the driver.

L. H. DASHBOARD PANEL

06711



06254

### Headlights and Exterior Lighting

**OFF position** – Daytime running lights only.

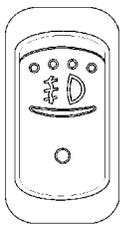
Press this rocker switch to turn on the following lights:

**First position** – Front parking lights, taillights, clearance lights, marker lights, license plate light.

**Second position** (push down fully) - the headlights, the controls and instrument lights and all lights from the first position.

**NOTE**

*Daytime running lights will be automatically cancelled when the exterior lighting switch is fully depressed (second position).*



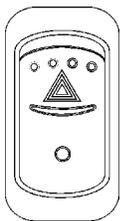
06255

### Fog Lights (Optional)

Optional halogen fog lights provide better visibility in fog and precipitation. They improve close range visibility and provide added safety.

**NOTE**

*Some states and provinces restrict the use of fog lights. Verify local state or provincial regulations before using.*



06256

### Hazard Warning Flashers

Press the rocker switch to make all turn signal lights flash at once. The dashboard telltale lights will flash when the hazard warning flashers are ON.



### CAUTION

Do not use the hazard flashers for an extended period of time unless necessary because the electrical circuits are activated when the hazard switch is depressed.



06257

### Upper Windshield Wipers (Optional)

Press the rocker switch to the first position to activate the upper wipers intermittently. Press to the second position for continuous operation of the upper wipers.

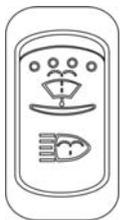


### CAUTION

To avoid damaging the wiper blades or scratching the windshield, do not operate the wipers when the windshield is dry. Also, loosen frozen wipers before operating.

### NOTE

Lower windshield wipers are activated using the multi-function lever. Refer to paragraph: "Steering Column Controls" in this chapter.



06615

### Upper Windshield Washer (optional) & Headlights Washer

Press this rocker switch upwards to spray the upper windshields with washer fluid. Windshield wipers will automatically come on and stop a few seconds after releasing the switch.

Momentarily press this rocker switch downwards to spray the headlights washer fluid. Each pressing of this switch produces 2 successive jets.

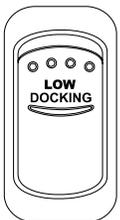


### CAUTION

Do not operate the washer mechanism while the washer fluid reservoirs are empty. This may damage the washer fluid pumps.

### NOTE

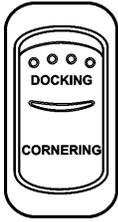
Lower windshield wipers are activated using the multi-function lever. Refer to paragraph: "Steering Column Controls" in this chapter.



06486

### Low Docking

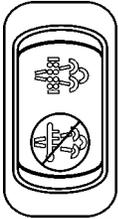
Press the rocker switch to reduce cornering and docking lights intensity.



06337

### Docking / Cornering

Press this rocker switch upwards (DOCKING) to illuminate the cornering and docking lights.  
Press this rocker switch rearwards (CORNERING) to illuminate the cornering lights when signaling a left or right turn.



06660

### Manual Regeneration / Stop Regeneration

#### Manual Regeneration



DPF Regeneration Lamp

The «DPF Regeneration Lamp» illuminates to notify the driver of the need and urgency of a manual stationary regeneration.

If stationary regeneration is not performed, this telltale will blink, indicating that a stationary regeneration is required immediately. If stationary regeneration is still not performed, “engine power derate and shutdown” sequence may occur.

To initiate a stationary regeneration:

- Park the vehicle in a clear area, vehicle speed must be 0 mph (0km/h);
- Engine must be on normal idle and fully warmed up (coolant temperature above 140°F/60°C);
- Apply service brakes and set the transmission to the neutral “N” position.
- While maintaining the service brakes applied, apply parking brake, release it and then apply parking brake once again (this sequence is required to enable the stationary regeneration);
- **Press** and hold for 5 seconds the top-most switch position to initiate a stationary regeneration;

The regeneration will begin. Turn off the air conditioning to reduce engine load. The engine idling speed will increase to 1600 rpm. Once the regeneration is completed, the engine speed will return to normal idle.

#### Stop Regeneration



Inhibit Regeneration Lamp

The «Inhibit Regeneration Lamp» illuminates to indicate the system’s acknowledgement of regeneration inhibit request and to remind the driver that regenerations have been or will be inhibited.

**Press** down to cancel a regeneration that is in progress or to inhibit a pending regeneration. Use this function to move the vehicle to a safe parking place. Releasing the parking brakes will also cancel the regeneration.

**NOTE**

**STATIONARY REGENERATION**

*This process requires the vehicle to be parked while the driver or a maintenance technician initiates the regeneration process.*

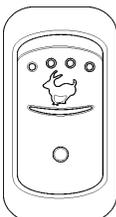
**NOTE**

*To initiate a stationary regeneration while the Engine Protection Shutdown sequence has already started, you must press and hold both the «Engine Stop Override» switch and the «Manual Regeneration» switch at the same time until the regeneration starts. Once started, the regeneration may last for only a few minutes and engine may shut down again. Repeat the operation as required until the stationary regeneration can be completed.*



**CAUTION**

Before initiating stationary regeneration or using the inhibit regeneration function, read carefully and understand paragraph "Detroit Diesel Exhaust Aftertreatment System" in *Chapter 4* "OTHER FEATURES" for complete information concerning regeneration precautions. Ignoring them could result in extensive damage and/or serious personal injury.



06264

**Fast Idle**

For extended idling periods, run the engine at fast idle. Press down the rocker switch to engage fast idle. This increases the engine speed to approximately 1,000 rpm. Return to normal idle before driving or when stopping engine.



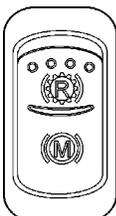
**CAUTION**

Even if normally the engine will return to normal idle and remain there if the parking brake is applied and/or transmission is placed in neutral (N), it is safer to first press down the rocker switch to run the engine at normal idle before engaging the transmission.



**CAUTION**

Return the engine to normal idle before shutting the engine OFF.



06703

**Engine Brake / Transmission Retarder**

Use this switch to select between the transmission retarder and the engine brake when using the vehicle speed retarding device switches on the steering wheel. Both systems cannot be in function at the same time. This rocker switch can be found on the dashboard, only if the vehicle is equipped with both systems. Refer to "Transmission Retarder" heading in this chapter. Refer also to "Transmission Retarder" & "Engine Brake" in "OTHER FEATURES" chapter.



06265

**Engine Stop Override**

Press this switch then release to override the emergency engine shutdown protection. Engine emergency shutdown will be turned *OFF* for 30 seconds. This procedure can be repeated if done before the 30 seconds are up.



**CAUTION**

Use sparingly and in order to move the vehicle to a safe parking place only. Excessive use can cause severe engine damage.

**DDEC Diagnostic Request**

With the engine at idle or *OFF* and with the ignition switch in the *ON* position, press and release the Engine Stop Override rocker switch. Active codes will be flashed on the "Stop Engine" and inactive codes on the "Check Engine" telltale lights alternately. Refer to Appendix D "DDEC VI Diagnostic Codes".



06263

**Telltale Light Test**

Press down and maintain this switch at least 2 seconds to illuminate the telltale light panel. The telltale panel audible alarm will sound. Perform this test to verify indicator light and telltale panel audible alarm functionality.



06237

**Ether Start Control (Optional)**

Activates the engine cold starting aid. Refer to "STARTING AND STOPPING PROCEDURES" chapter.

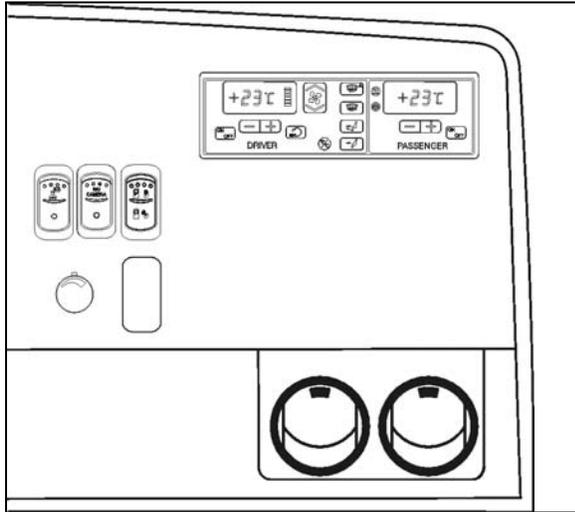


**CAUTION**

Excessive use may result in severe engine damage.

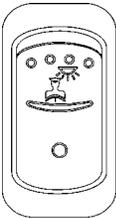
# 40 CONTROLS AND INSTRUMENTS

## R.H. DASHBOARD PANEL



R.H. DASHBOARD PANEL

06562



06244

### Driver's Area Lighting

Press the rocker switch to turn on the driver's overhead light as needed.

#### *NOTE*

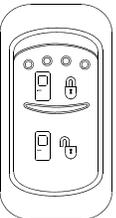
*The entrance overhead light and the stepwell lights turn on with the entrance door opening and turn off with door closing. If the entrance door is left opened, these lights will be turned off automatically if the batteries voltage drops below 24.0 volts.*



06314

### Back-up Camera

Press this switch to activate the back-up camera monitor when the transmission is not in the reverse gear.



06313

### Front Entrance Door

Press this switch forward to lock the entrance door from the inside. To unlock the entrance door from the inside and disarm the intrusion protection and anti-theft system, press the switch rearward.

#### *NOTE*

*When the alarm system is armed, unlocking the entrance door from the inside by sliding its lock lever will not disarm the alarm system. The alarm will sound.*



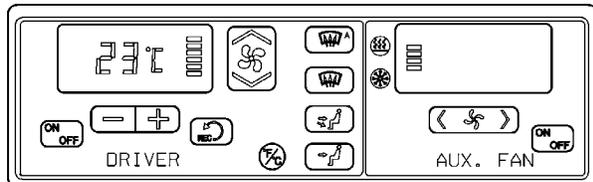
06565

### Brightness Control

Adjusts the brightness of the dashboard instruments and switches.

## HVAC CONTROL UNITS

### Vehicles equipped with small HVAC system



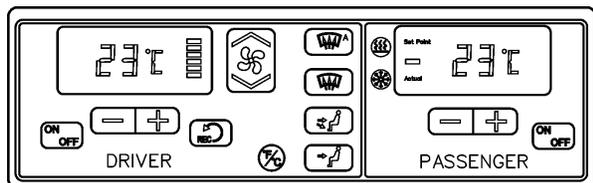
**CONTROL UNIT FOR SMALL HVAC SYSTEM** 22286

The temperature control in the driver's area is provided directly by the driver section of the HVAC control unit.

Using the Up/Down type switch sets the fan speed and the speed chosen is illustrated on the window display.

In addition to the driver's unit, the small HVAC system also includes an auxiliary unit which uses the temperature control of the driver section of the control unit. The R.H. section of the control unit AUX. FAN enables to actuate the auxiliary unit and to regulate its fan speed. Using the < > type switch sets the fan speed and the speed chosen is illustrated on the window display.

### Vehicles equipped with central HVAC system



**CONTROL UNIT FOR CENTRAL HVAC SYSTEM** 22276

The vehicle is slightly pressurized by the central HVAC system to prevent dust and moisture from entering. Air flow and controls divide the vehicle into two areas: *driver's area* with defroster and *passenger's (cabin) area*.

Fresh air is fed in each area and has a separate return air and discharge air duct.

#### **NOTE**

*To operate the air conditioning system when stationary, run engine at fast idle. When the system is running, keep windows and door closed.*

To prevent battery run-down, the central A/C and heating systems will not operate if the charging system is not working properly.

When the A/C system is running, park at least 4 feet (1,5 m) from other vehicles or buildings to allow sufficient air flow through the condenser core.

Separate driver and passenger heating, ventilation and air conditioning controls are located on this control unit. To operate, the vehicle's engine must be running.

The driver section and the passenger section of the control unit may be turned ON by pressing the following button:



Also, the driver section of the control unit turns on automatically at starting of the engine and uses the settings that were kept in memory before turning off of the system.

The A/C compressor starts automatically when the two following conditions are satisfied:

1. The outside temperature is above 32°F (0°C).
2. The passenger's area temperature has reached 7°F (4°C) under the set point.

#### **NOTE**

*Upon starting, if the outside temperature is above 32°F (0°C) and then drops below 32°F (0°C), the compressor will keep running up to a temperature of 15°F (-9°C) to prevent condensation from forming on the windows.*

All parameters set before turning the system OFF will be kept in memory for the next power ON.

### HVAC Air Registers

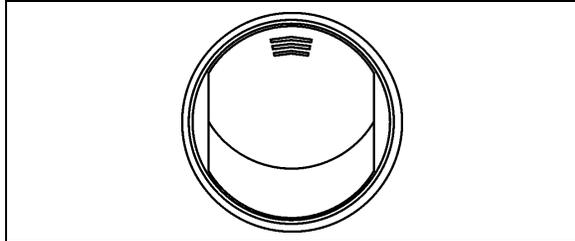
The HVAC system has registers to control air flow around the driver's and navigator's area.

- Three are located on the dashboard, two on the R.H. side and one on the left.
- Two more registers are located near the steering wheel column, under the dashboard. These registers are not adjustable but may

## 42 CONTROLS AND INSTRUMENTS

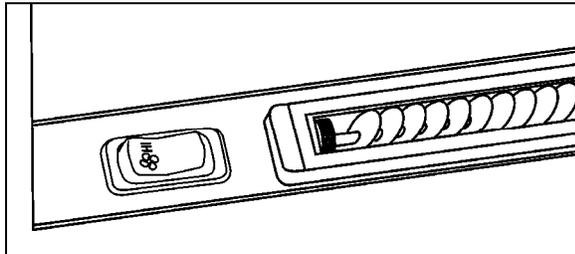
be electrically open or closed by means of the HVAC control panel.

- Three auxiliary unit registers are located behind the driver (with small HVAC system only).
- For the navigator, two adjustable registers are located near the entrance door, at bottom of first lateral window.



DASHBOARD AIR REGISTER

22287



NAVIGATOR'S AIR REGISTER & FAN SPEED SELECTOR

### Navigator fan speed switch

Upon turning on of the HVAC control unit, both right and left windshield defogging/defrosting fans speed is set according to the driver section settings of the control unit. The navigator can afterwards, use this switch to increase or decrease the right windshield defogging/defrosting fan speed as needed.

### Navigator air registers

On small HVAC system, these registers are part of the auxiliary unit. Use the auxiliary unit fan speed switch on the R.H. portion of the control unit (AUX. FAN) to regulate the fan speed. Doing so will also reduce air from the three registers located behind the driver.

On vehicles equipped with the Central HVAC system, these registers are supplied in air by the passenger's (cabin) unit.

### Heating Mode Indicator



22135

This red LED illuminates when system is heating.

### Cooling Mode Indicator



22134

This green LED illuminates when the system is cooling (when the compressor clutch is engaged).

#### NOTE

*Both Heating Mode and Cooling Mode indicator LED can illuminate simultaneously. During winter, if the outside temperature is above 32°F (0°C), the A/C compressor may start for dehumidification purposes to prevent condensation from forming on the windows. During summer, the Heating Mode may activate to regulate inside temperature.*

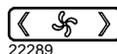
### Fan Speed



22135

This switch controls both right and left windshields defogging/defrosting fans speed. Increase speed by pressing on the upper portion of the button, decrease by pressing on the lower portion.

### Auxiliary Unit Fan Speed (With Small HVAC System Only)



22289

Use this switch to increase or decrease the auxiliary unit fan speed by pressing on the right or left portion of the button.

### Recirculate



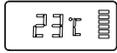
22138

Closes or opens the driver's and passenger's section fresh air damper.

A red LED in the top right corner of the button illuminates when air is recirculating. Use for faster section heating.

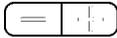
This feature is automatically cancelled when defogging is activated.

### Driver's section temperature setting



The temperature displayed on the driver section of the control unit is the temperature set point.

To increase the temperature set point, press on the "+" sign, to decrease the temperature set point, press on the "-" sign. Temperature range is between 60°F and 82°F (16°C to 28°C). On the driver section



22132

only, asking for a temperature set point of 82°F (28°C) will keep the coolant valve open.

In case of interior temperature sender unit failure, the coolant valve will remain open and three lines "---" will be displayed.

**WARNING**

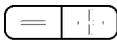
Warm temperatures may cause drowsiness and affect alertness while driving. Keep the temperature comfortable but not too high.

### Passenger's (cabin) section temperature setting (with Central HVAC System)



The temperature displayed on the passenger section of the control unit is the actual temperature in the passenger's area.

To increase or decrease the temperature set point, press on the "+" or the "-" sign. Pressing these buttons will flash the displayed set point and the word "SET" will highlight. Temperature range is between 60°F and 82°F (16°C to 28°C).



22132

In case of interior temperature sender unit failure, the coolant valve will remain open and three lines "---" will be displayed.

**NOTE**

*Upon starting of the vehicle, when the ambient temperature is very cold and so is the inside of the vehicle, the HVAC control unit will permit a temperature overshoot up to 3° over the passenger's area set point to help warming up of the area.*

### Windshield Defogger/Defroster



Upon pressing this button, the dashboard damper sends air only to the lower windshield. The fans are turned on to maximum speed, the fresh air damper opens completely (REC off) and the driver set point is increased to 4°F (2°C) over the passenger's section set point.



22139

The dashboard damper sends air only to the lower windshield when activated. The footwell damper is closed also but the fans speed can be reduced or increased.

### Panel and Footwell



22137

The dashboard damper sends air to the panel vents and footwell.

### Panel



22136

Air is sent to panel vents. The foot damper is closed.

### Temperature Degree Selector

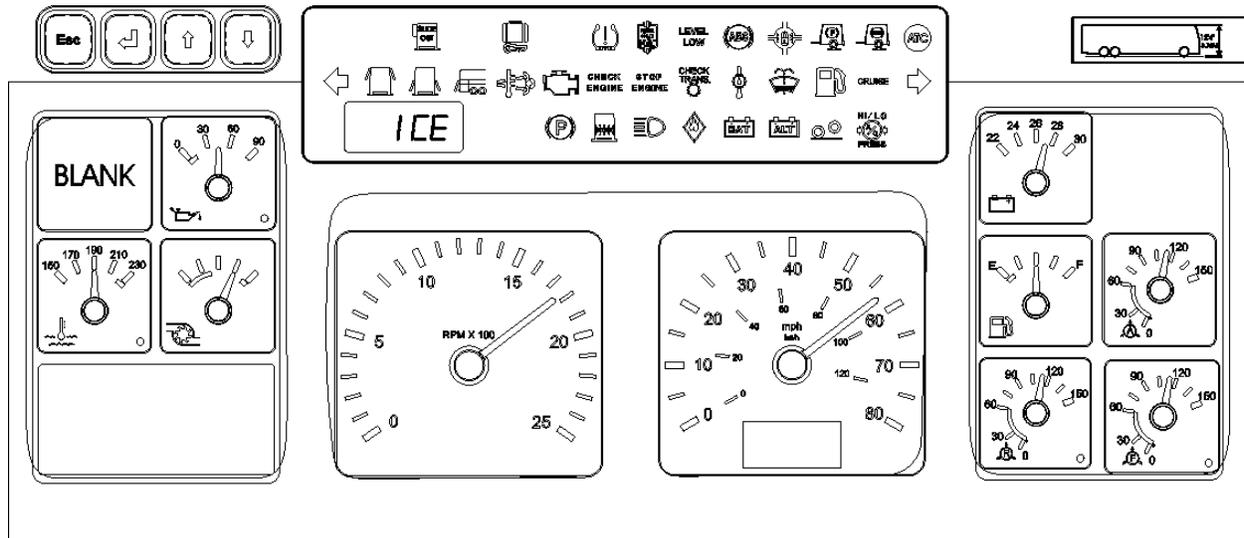


22133

Toggles the HVAC control unit temperature units between Fahrenheit and Celsius. The driver's section must be on. Also toggles the outside temperature units displayed on the telltale panel.

# 44 CONTROLS AND INSTRUMENTS

## CLUSTER

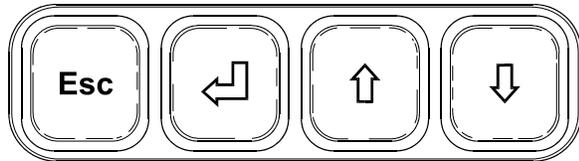


CLUSTER

06710

The cluster incorporates the Message Center Display, the Telltale Panel, the Gauges and Vehicle Clearance Information.

### MESSAGE CENTER DISPLAY (MCD)



06399

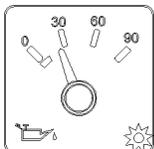
This standard feature gathers, stores and displays important information about the vehicle's operation on a display screen on the lower left portion of the cluster. Refer to Message Center Display in "OTHER FEATURES" chapter for a description of how to set up and operate the Message Center Display.

### GAUGES

#### NOTE

Do not refer to dashboard instruments during adjustment procedures. Use only calibrated gauges.

### Engine Oil Pressure



Indicates engine oil pressure. The normal reading should be between 50 and 70 psi (345 - 480 kPa) at 55 mph (90 km/h).

06229

A low oil pressure indicator LED (bottom right corner of gauge) illuminates when the MCM decides oil pressure is too low. In such a case, the MCM will start to power down the engine until finally shutting it off as explained under "STOP Engine" telltale light, in this chapter.

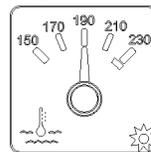
An audible alert signal also informs the driver of low oil pressure. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter for table of audible alerts.



### CAUTION

Loss of oil pressure may cause severe engine damage. If low oil pressure LED illuminates, park the vehicle safely and stop the engine immediately. Request service assistance.

### Engine Coolant Temperature



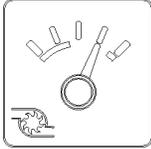
Indicates the operating temperature of the engine coolant. The normal reading should be between 190°F and 222°F (88°C to 106°C).

06231

A high coolant temperature indicator LED (bottom right corner of gauge) illuminates when the coolant temperature rises above 223°F (106°C). An audible alert signal also informs the driver of this condition.

The engine protection system will start power down. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter for table of audible alerts.

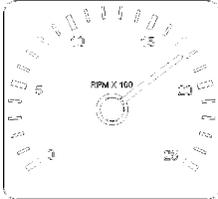
### Turbo Boost Pressure



06230

Indicates turbo boost pressure in psi. Reading depends on engine rpm and load conditions.

### Tachometer

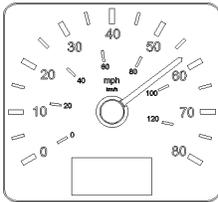


06221

Indicates the operating speed of the engine in hundreds of revolutions per minute (rpm x 100). The tachometer serves as a guide for gear shifting and

helps to prevent engine over-speeding when driving downhill with the JACOBS engine brake operating. The maximum allowed engine speed is 2,450 rpm.

### Speedometer

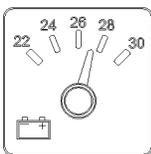


06222

Indicates the vehicle speed in miles per hour (mph) and kilometers per hour (km/h).

The digital odometer records the distance traveled in miles or in kilometers (units are driver selectable).

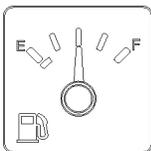
### Voltmeter (24-Volt System)



06224

Indicates the condition of the 24-volt electrical system. With the engine running, the normal reading should be between 26.5 and 28.0 volts.

### Fuel Level



06225

Indicates the amount of fuel remaining in the fuel tank.

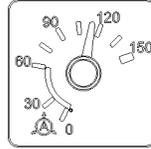
A telltale light illuminates when about 12 US gallons (45 liters) of fuel remain in the fuel tank.



### CAUTION

Operating the vehicle when the reading is below 1/8 full is not recommended.

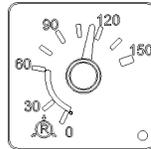
### Accessories Air Pressure



06226

Indicates the accessories air system pressure. The normal operating pressure is from 95 to 125 psi (655 to 860 kPa).

### Primary System Air Pressure (Rear)



06228

Indicates the primary air system pressure. The normal operating pressure is from 95 to 125 psi (655 to 860 kPa).

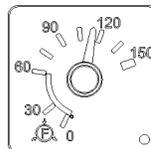
A low air pressure indicator LED (bottom right corner of gauge) illuminates when the primary air system pressure drops below 66 psi (455 kPa). An audible alert signal also informs the driver of low air pressure. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter for table of audible alerts. If the air pressure drops below 40 psi (276 kPa), the emergency brake applies at full capacity.



### WARNING

Do not drive the coach when air pressure is low.

### Secondary System Air Pressure (Front)



06227

Indicates the secondary air system pressure. The normal operating pressure is from 95 to 125 psi (655 to 860 kPa).

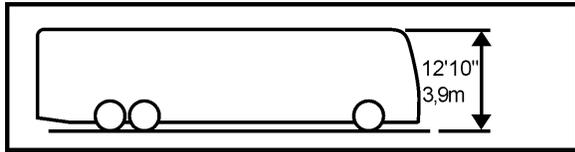
A low air pressure indicator LED (bottom right corner of gauge) illuminates when the secondary air system pressure drops below 66 psi (455 kPa). An audible alert signal also informs the driver of low air pressure. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter for table of audible alerts. If the air pressure drops below 40 psi (276 kPa), the emergency brake applies at full capacity.



### WARNING

Do not drive the coach when air pressure is low.

#### Vehicle Clearance Information



00012

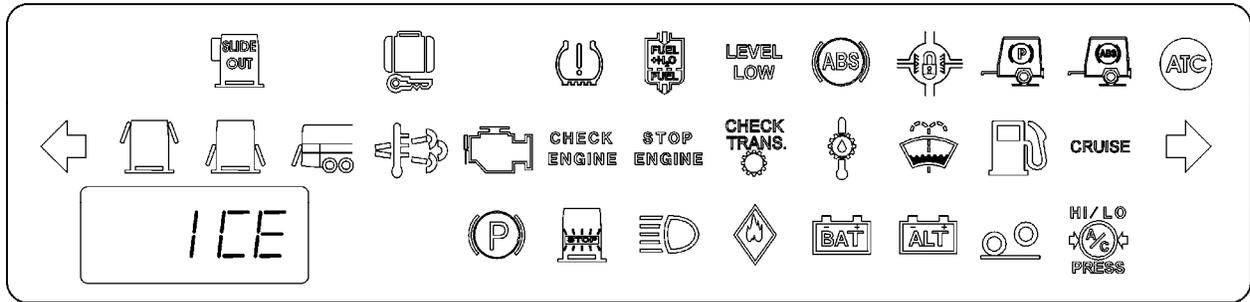
Safe vehicle clearance height is 12'10" (3.9 m).



### CAUTION

Vehicle clearance is higher when the ventilation hatch is open, Hi-Buoy is selected or if additional equipment is installed on the roof.

## TELLTALE PANEL



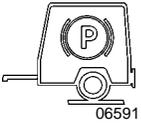
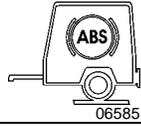
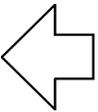
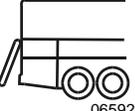
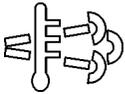
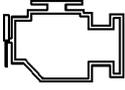
TELLTALE PANEL

06652

The telltale lights illuminate during 5 seconds at the start of every ignition cycle as a light bulb check. Some telltale lights described below appear on the telltale panel only if the corresponding optional equipment is installed on the vehicle.

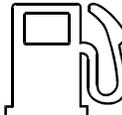
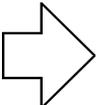
|   |   |
|---|---|
| <br><small>06559</small>   | <p><b>Slide-Out</b></p> <p>Illuminates when one or both slide-outs are partially or fully extended. Blinks to indicate that an error condition has been detected (refer to "OTHER FEATURES" chapter).</p>   |
| <br><small>06387</small>  | <p><b>Baggage Compartment Door Unlocked</b></p> <p>Illuminates when one or more baggage compartment doors are unlocked.</p>   |
| <br><small>06694</small> | <p><b>Flat Tire (with optional Tire Pressure Monitoring System)</b></p> <p>Illuminates when a tire pressure is 25% below the target tire pressure.</p>  |
| <br><small>06291</small> | <p><b>Fuel Filter/Water Separator</b></p> <p>Illuminates when accumulated water in the optional fuel filter/water separator needs to be drained. Refer to "CARE AND MAINTENANCE" chapter.</p>   |
| <p><b>LEVEL<br/>LOW</b></p> <small>06297</small>  | <p><b>Level Low System Indicator</b></p> <p>Illuminates when the vehicle leveling system is active. This telltale starts flashing if the vehicle speed exceeds 12 mph (20 km/h), reminding you that the selector is not in the <i>OFF</i> position.</p>   |
| <br><small>06272</small> | <p><b>Antilock Brake System (ABS)</b></p> <p>Illuminates when the ABS is not available or when the ABS is malfunctioning. Since the ABS system does not operate at less than 4 mph (7 km/h), the indicator will remain illuminated until the coach reaches that speed. Refer to "OTHER FEATURES" chapter.</p> |
| <br><small>06272</small> | <p><b>Driver Controlled Differential Lock (DCDL)</b></p> <p>Illuminates when the differential action is locked</p>  |

# 48 CONTROLS AND INSTRUMENTS

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|  <p>06591</p>   | <p><b>Trailer Emergency / Parking brake</b></p> <p>Illuminates when the trailer emergency/parking brake is unexpectedly applied as when the vehicle is moving and a parking brake air line rupture happens.</p>  |
|  <p>06585</p>   | <p><b>Trailer Antilock Brake System (ABS)</b></p> <p>Illuminates when the trailer ABS is malfunctioning.</p>   |
|                 | <p><b>Automatic Traction Control (ATC)</b></p> <p>Illuminates when the automatic traction control system intervenes to prevent excess wheel spin during acceleration.</p>  |
|  <p>06290</p>   | <p><b>Left Turn Signal</b></p> <p>Flashes when the left turn signals are activated. Signal right and left turns by operating the multi-function lever. See "Steering Column Controls" in this chapter.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b></p> <p><i>The directional signals are automatically activated when the vehicle is backing up.</i></p> </div>  |
|  <p>06572</p>  | <p><b>Emergency Window Open</b></p> <p>Illuminates when an emergency window is open or unlocked.</p>   |
|  <p>06573</p> | <p><b>Baggage Compartment Door Ajar</b></p> <p>Illuminates when one or more baggage compartment doors are ajar.</p>  |
|  <p>06592</p> | <p><b>Engine Door Ajar</b></p> <p>Illuminates when the engine compartment door is ajar.</p>  |
|  <p>06654</p> | <p><b>High Exhaust System Temperature Lamp (HEST Lamp)</b></p> <p>Illuminates to notify the driver of potentially hazardous exhaust gas temperature at the DPF outlet.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p style="text-align: center;"> <b>WARNING</b></p> <p>During regeneration, exhaust temperature may reach up to 1200°F (650°C) at the diesel particulate filter. When parking the vehicle, if this warning light is illuminating, make sure that the DPF outlet diffuser is away from people or any flammable materials, vapors or structures.</p> </div> |
|  <p>06655</p> | <p><b>Malfunction Indicator Lamp (MIL)</b></p> <p>Indicates a failure of an Emission Control device. May illuminate at the same time as the "Check Engine" Amber Warning Lamp. The lamp will go out when the fault is inactive. Vehicle can be driven to end of shift. Call for service.</p>   |

|   |   |
|---|---|
| <p><b>CHECK ENGINE</b><br/>06656</p>  | <p><b>Check Engine (Amber Warning Lamp)</b></p> <p>Indicates a minor fault detected by DDEC VI system. This warning lamp is illuminated for all active faults.</p> <p>The warning lamp will remain <i>ON</i> until the malfunction has been corrected. Vehicle can be driven to end of shift. Call for service.</p> <p>A diagnostic code will be stored in the memory and the lamp can be used to identify the problem. Refer to Appendix D under "DDEC VI Diagnostic Codes".</p>   |
| <p><b>STOP ENGINE</b><br/>06657</p>   | <p><b>STOP Engine (Red Stop Lamp)</b></p> <p>Illuminates when a potential engine damaging fault is detected. Immediately park the coach in a safe place and stop the engine.</p> <p>Flashes when Engine Protection Shutdown occurs. When a problem is detected, the engine power will automatically begin to decrease gradually, followed by full shutdown after 30 seconds. The Engine Protection Shutdown may be bypassed by using the "Engine Stop Override" switch on the L.H. lower control panel. Use only in order to move the vehicle to a safe parking place and then shutdown the engine. Call for service.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i><b>NOTE</b></i></p> <p><i>Once the engine is stopped, it cannot be restarted until the problem has been corrected. A diagnostic code will be stored in memory. The STOP engine indicator can be used to identify the problem. Refer to Appendix D under "DDEC VI Diagnostic Codes".</i></p> </div>   |
| <p><b>CHECK TRANS</b><br/><br/>06282</p> | <p><b>Check Transmission</b></p> <p>When the "CHECK TRANS" indicator is illuminated and the shift selector emits short beeps for 8 seconds, the transmission control module (TCM) is restricting transmission shifting because special or abnormal conditions are detected. The control pad display will be blank.</p> <p>If this happens, drive the coach to the next available service center to receive assistance. The TCM will not respond to shift selector requests since operating limitations are being placed on the transmission (i.e. upshifts and downshifts may be restricted). Direction changes and shifts to and from neutral (N) will not occur.</p> <p>Any time the CHECK TRANS telltale light illuminates, the transmission control module will register a diagnostic code. It may be identified on the display (Allison &amp; ZF-Astronic transmission) or by using a diagnostic tool. Refer to Appendix C.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i><b>NOTE</b></i></p> <p><i>The CHECK TRANS indicator may also illuminate when starting the engine in extremely cold weather. Refer to "Starting and Stopping Procedures".</i></p> </div> |
| <p><br/>06292</p>                        | <p><b>Transmission fluid Temperature</b></p> <p>Illuminates when the transmission fluid temperature is too high. An audible alert signal also informs the driver of this condition. Disengage the retarder to allow the oil temperature to cool down.</p>   |

# 50 CONTROLS AND INSTRUMENTS

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|--|---|
|  <p>066001</p>  | <p><b>Windshield Washer or Headlights Washer Fluid Low</b></p> <p>Illuminates when the windshield washer or the headlight washer fluid level is low. The washer fluid containers are located inside the front service compartment.</p> <div style="border: 1px solid black; background-color: #cccccc; padding: 5px; text-align: center;">  <b>WARNING</b> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Do not drive without sufficient washer fluid.</p> </div> |
|  <p>06286</p>   | <p><b>Fuel Level Low</b></p> <p>Illuminates when approximately 12 US gallons (45 liters) of fuel remains in the tank. After the light comes <i>ON</i>, the remaining fuel will provide no more than 60 miles (100 km) of travel. Do not exceed this distance.</p> <div style="border: 1px solid black; padding: 5px;"> <p><i>NOTE</i></p> <p><i>Refuel as soon as possible.</i></p> </div>  |
| <p><b>CRUISE</b></p> <p>06284</p>  | <p><b>Cruise Control Enabled</b></p> <p>Illuminates when cruise control is enabled.</p>   |
|  <p>06289</p>  | <p><b>Right Turn Signal</b></p> <p>Flashes when the right turn signals are activated. Signal right and left turns by operating the multi-function lever. See “STEERING COLUMN CONTROLS” in this chapter.</p> <div style="border: 1px solid black; padding: 5px;"> <p><i>NOTE</i></p> <p><i>The directional signals are automatically activated when the vehicle is backing up.</i></p> </div>   |
|  <p>06696</p> | <p><b>Freezing Conditions</b></p> <p>The word ICE is momentarily displayed when the temperature is in the range between 2°C and 1°C (35°F to 34°F), when the road is most slippery. The rest of the time, the exterior temperature is displayed at this location.</p>   |
|  <p>06303</p> | <p><b>Emergency/Parking Brake</b></p> <p>Illuminates when the emergency/parking brake is applied. The control valve is located on the L.H. control panel. An audible alert will sound if ignition is turned to <i>OFF</i> and the parking brake is not engaged.</p>   |
|  <p>06305</p> | <p><b>Stoptlights ON</b></p> <p>Illuminates when rear stoptlights illuminate. This occurs when service brake is applied, when the parking brakes are applied with engine running or when the vehicle is slowing down after the application of the engine brake or the transmission retarder.</p>  |
|  <p>06300</p> | <p><b>High Beam ON</b></p> <p>Illuminates when high beams are selected. High and low beams are selected by operating the multi-function lever. Refer to “Steering Column Controls” heading in this chapter.</p>   |



06288

**Fire Detected**

Illuminates if a fire is detected in the engine compartment while the vehicle is on the road. An audible alert informs the driver when a fire is detected. In case of fire detection when parked (parking brake applied, engine running or not), the electric horn is activated to alert the driver. Refer to "SAFETY FEATURES AND EQUIPMENT" chapter.



**WARNING**

In case of a fire, stop the vehicle immediately, stop the engine and evacuate the vehicle.

***NOTE***

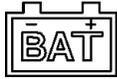
*It is possible to cancel an alarm while on the road. To do so, stop the vehicle. Cycle the ignition between the ON and OFF position and then start the vehicle normally. This can be done on a temporary basis when a false alarm is activated by a defective fire detector. The driver can go on without being annoyed by the alarm.*

***NOTE***

*To stop the electric horn alarm when parked, cycle the ignition between the ON and OFF position twice within 3 seconds.*

***NOTE***

*For extinguisher's location, refer to "Safety Features And Equipment" chapter.*



06588

## Battery Voltage Incorrect

Illuminates when the battery voltage is too high, too low or not equalized.

### NOTE

To identify the battery problem (too high, too low or not equalized voltage), using the message center display (MCD), perform a system diagnostic by selecting SYSTEM DIAGNOSTIC, FAULT DIAGNOSTIC & ELECTRICAL SYSTEM and see the fault messages.

### NOTE

The high/low battery voltage indicator will illuminate for a few seconds after the engine is started because of the voltage drop when the starter is engaged.

### NOTE

To prevent discharge of the batteries when the engine is not running, some functions are automatically switched off if the batteries voltage drops below 24.0 volts for more than 30 seconds. The "BAT" telltale light blinks while this protection mode is active. Set the ignition key to the OFF position and then turn the ignition key to the ON position to reactivate the functions for a period of 30 seconds before they switch off again.

### NOTE

If the battery equalizer indicator illuminates, make sure that the battery equalizer circuit breakers are reset before requesting breakdown assistance. Wait 15 minutes after setting breakers to allow batteries to equalize. The breakers are located in the main power compartment.



06586

## Alternator

Illuminates when one of the alternators is not charging.

### NOTE

To identify which alternator is defective (1=lower, 2=upper), using the message center display (MCD), perform a system diagnostic by selecting SYSTEM DIAGNOSTIC, FAULT DIAGNOSTIC & ELECTRICAL SYSTEM and see the fault messages.



06271

## Retracted Tag Axle

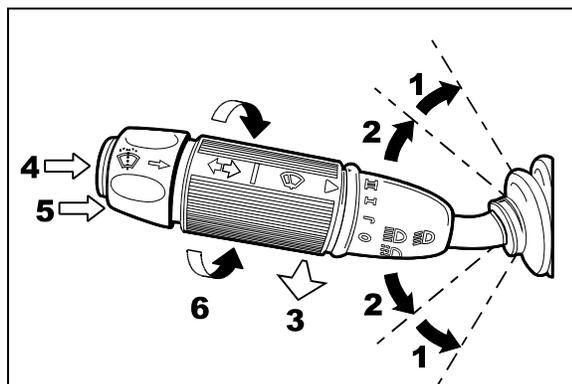
Illuminates when the tag axle is raised. If the vehicle speed exceeds 12 mph (20 km/h), this telltale will start flashing and an audible alarm will sound to warn the driver that the allowed speed with tag axle raised is exceeded. The control valve is located on the L.H. lateral console.

|   |  |
|---|--|
| <br><small>06658</small>                               | <p><b>A/C System Pressure High Or Low</b></p> <p>Illuminates when the A/C system pressure is too low or too high.</p> <p>If the A/C pressure is too low, the compressor clutch disengages and the fan stops.</p> <p>If the A/C pressure is too high, the compressor clutch is disengaged, but the fan remains activated.</p> <p>Refer to the Maintenance Manual for information on control panel troubleshooting mode.</p> |
| <p><b>NOTE</b></p> <p><i>When outside temperature is low or high, it is possible and normal for that telltale light to come ON.</i></p> |  |

## STEERING COLUMN CONTROLS

Many of the most frequently used controls are conveniently placed on the steering column or the steering wheel, just like a passenger car. The Multi-function lever is located on the left side of the steering wheel while the optional transmission retarder lever is located on the right side of the steering wheel. Switches for the electric horn and the air horn are located directly on the steering wheel.

### MULTI-FUNCTION LEVER



**MULTI-FUNCTION LEVER**

23133

The multi-function lever is used to operate the following:

#### Turn Signal (1)

Move the lever all the way up until it locks in position to signal a right turn. Move the lever all the way down until it locks in position to signal a left turn. The lever automatically returns to the horizontal *OFF* position once the turn is completed.

#### Lane Change Signal (2)

Move the lever part way to the catch position and hold until the lane change maneuver is completed. The lever will spring back into the *OFF* position once released.

#### Headlight Beam Toggle Switch (3)

Toggle between high and low beams by pulling the lever up towards you. To flash the headlights, pull the lever up halfway. The lever will spring back into normal position once released.

#### Courtesy Blinkers (4)

Clearance and parking lights can be flashed by pressing the button located on the lever tip.

#### Windshield Washer Control (5)

Push the external ring at the end of the lever toward the steering column to activate the lower windshield washers. The wipers come *ON* and continue wiping for a few seconds after the ring is released.



### WARNING

Before using the windshield washers in cold weather, heat the windshield with the defroster to prevent icing and reduced visibility.



### CAUTION

To avoid damaging the pump mechanism, do not use the windshield washer when the fluid level is very low or empty.

## 54 CONTROLS AND INSTRUMENTS

### Windshield Wipers (6)

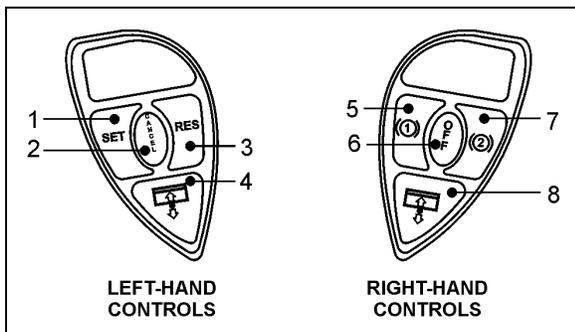
Turn the lever counterclockwise to activate the lower windshield wipers. The first position activates the wipers intermittently. The second position is the slow speed and the third position is for high speed wiping.



### CAUTION

To avoid scratching the windshield, do not operate the wipers when the windshield is dry. To avoid damaging the wiper motor, free wiper blades that may be frozen to the windshield before operating the wipers.

### STEERING WHEEL CONTROLS



STEERING WHEEL CONTROLS

14069

The steering wheel controls include the following:

#### Cruise Control Buttons (1) SET, (2) CANCEL, (3) RES

#### NOTE

The **CRUISE** switch and **RESUME** button do not operate at speeds below 20 mph (32 km/h).

To operate the cruise control, press the **CRUISE** rocker switch located on the lateral control panel first.

- **Setting Coach Speed.** Accelerate the vehicle to the desired cruising speed using the accelerator pedal. Press and release the **SET** button then remove foot from the accelerator pedal. This will set the vehicle cruise speed and store it in memory.
- **Increasing Set Speed.** The vehicle cruise speed setting can be increased by one of the following methods.
  1. Accelerate using the accelerator pedal until the desired cruising speed is

reached. Press and release the **SET** button.

2. Press and hold the **RES** (RESUME) button until the desired cruising speed is reached. When the **RES** button is released, the new cruising speed will be stored in the cruise control memory.

3. When driving with cruise control, each time the **RES** button is momentarily depressed, the cruising set speed is raised by 1 mph (2 km/h).

#### NOTE

When driving with cruise control, the vehicle can still be accelerated by depressing the accelerator pedal in the usual manner. Once the accelerator pedal is released, the vehicle will return to the previously set cruising speed.

- **Decreasing Set Speed.** The vehicle cruise speed setting can be decreased by one of the following methods.
  1. Press and hold the **SET** button until the desired cruising speed is reached. When the **SET** button is released, the new cruising speed will be stored in the cruise control memory.
  2. Each brief pressing of the **SET** button will decrease set cruising speed by 1 mph (2 km/h).
  3. Slightly apply the service brake and when desired cruise speed is reached, press and release the **SET** button.
- **Canceling Set Speed.** You can cancel the preset cruising speed by.
  1. Pressing momentarily the **CANCEL** button.
  2. Depressing the brake pedal.
- **Resuming Set Speed.** If the preset speed is cancelled by pressing the **CANCEL** button or depressing the brake pedal, pressing the **RES** (RESUME) button will restore the speed set prior to cancellation, providing that your speed is above 9 mph (15 km/h).

**NOTE**

When driving downhill with the cruise control on, the engine brake or the transmission retarder engage automatically (if previously activated) when the selected cruise speed is exceeded by approximately :

- 7 km/h (4 mph) with the engine brake activated;
- 1 km/h (0.6 mph) with the transmission retarder activated.

The engine brake or the transmission retarder is then disengaged when speed has returned to selected cruise speed.

The engine brake will provide low braking power or high braking power depending on which of the two steering wheel engine brake control buttons is activated; (1) LOW or (2) HIGH.

The transmission retarder maximum braking level is determined by the retarder hand lever position on the steering wheel.

**NOTE**

To avoid sudden vehicle hesitation, slightly depress the accelerator pedal before disengaging the cruise control.

**NOTE**

When the **CRUISE** rocker switch is released, the cruise control is completely shut off and the cruise speed setting is erased from the cruise control memory.

**IMPORTANT NOTE**

If the engine was stopped and the **CRUISE** rocker switch was in the ON position, the rocker switch must be reset by turning it OFF then ON again in order for the cruise control to be reactivated.



**WARNING**

Do not use the cruise control when driving speed must be constantly adjusted, such as in heavy traffic or on winding, icy, snow-covered or slippery roads, or on gravel roads.



**WARNING**

Do not put the transmission in the neutral (N) position while driving with cruise control. This may cause the engine to over-speed and result in a loss of driving control.

**(4) & (8) Left Sunshade; Right Sunshade**

Press and hold the button to lower the left or right sunshade. Press twice rapidly and hold the button to raise the left or right sunshade.



**CAUTION**

Do not attempt to raise or lower these shades manually. Damage to electric motor or roller mechanism could result.

**(5) Retarder / Engine Brake Low**

If your vehicle is equipped with a transmission retarder, press this button to simply enable the transmission retarder. Afterwards, operate the transmission retarder with the hand lever mounted on the steering wheel or the brake pedal. For more information about the operation of this system, refer to “Transmission Retarder” heading in this chapter.

On vehicles equipped with an engine brake, the engine brake provides two levels of braking power. Press this button for low engine braking power (about 70 % of full braking power). Refer to “OTHER FEATURES” chapter for more information about the engine brake operation.



**WARNING**

Engine brake must be used on dry road only. Never use the engine brake on slippery roads; loss of control could result.

**(6) Retarder / Engine Brake OFF**

Press this button to cancel operation of the transmission retarder or the engine brake.

**(7) Retarder / Engine Brake High**

If your vehicle is equipped with a transmission retarder, this button has the same effect than the Retarder/Engine Brake Low button.

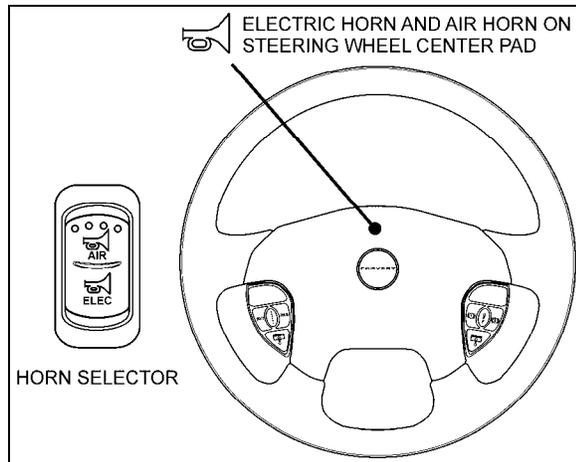
On vehicles equipped with engine brake, pressing this button will permit full application of

## 56 CONTROLS AND INSTRUMENTS

engine brake (100% of braking power). Refer to "OTHER FEATURES" chapter for more information about the engine brake operation.

**⚠ WARNING**

Engine brake must be used on dry road only. Never use the engine brake on slippery roads; loss of control could result.



Steering Wheel

14068

### HORNS

The electric horn (city horn) and air horn (highway horn) are operated from the steering wheel center pad. Use the Horn Selector switch located on the lateral control panel to select the appropriate horn type.

**NOTE**

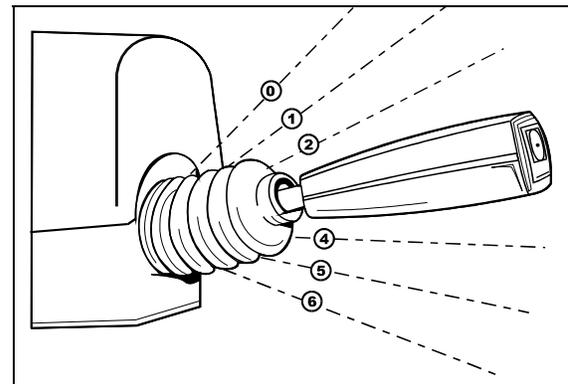
When the vehicle is stationary, the electric horn will sound to inform the driver that a fire is detected in the engine compartment.

### TRANSMISSION RETARDER (Optional)

The retarder can be operated using a hand lever mounted on the steering wheel column or using the service brake pedal.

To use the transmission retarder, it must be activated first by pressing one of the two Retarder/Engine Brake buttons on the steering wheel.

### Operating The Retarder Using The Hand Lever



RETARDER HAND LEVER

07043

With the retarder enabled and the accelerator pedal released, move the output retarder lever clockwise from the first to the sixth position. The braking level for each position is as follows:

| Position  | Braking level (up to)   |
|-----------|-------------------------|
| Initial ① | Varies with brake pedal |
| ①         | 16%                     |
| ②         | 33%                     |
| ③         | 49%                     |
| ④         | 71%                     |
| ⑤         | 89%                     |
| ⑥         | 100%                    |

**NOTE**

The output retarder lever is located on the right side of the steering column.

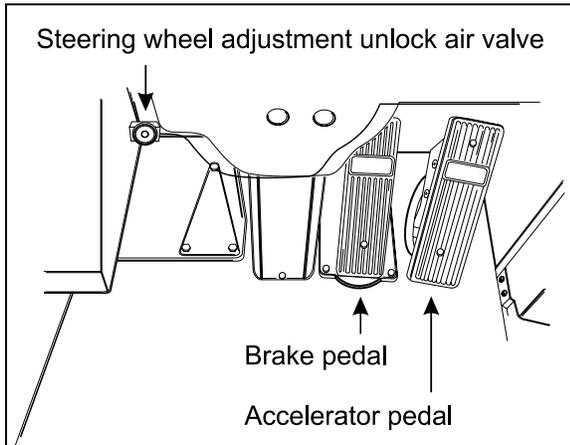
### Operating The Retarder Using The Brake Pedal

With the retarder enabled, the accelerator pedal released and the output retarder lever in the initial position ①, depressing the brake pedal will engage both the service brake and the transmission retarder. This is referred to as retarder-brake blending. The further the pedal is depressed, the more total braking power is provided. Refer to "OTHER FEATURES" chapter for further information about the transmission retarder.

**NOTE**

If the wheels start to lock up on slippery roads, the output retarder will automatically deactivate until the wheels start to turn.

## FOOT-OPERATED CONTROLS



FOOT OPERATED CONTROLS

00023A

### BRAKE PEDAL

The private coach is equipped with a dual braking system. The front brakes operate from a different air source than the drive and tag axle brakes.

The dual braking system becomes a modulated emergency system if a pressure drop occurs in the primary brake system.

Service brakes are applied by depressing the brake pedal. Braking increases with the amount of pressure applied to the foot pedal. Refer to "OTHER FEATURES" chapter under Antilock Braking System. When the brake pedal is depressed, the brake lights turn ON automatically.

For safe and effective braking, the air system pressure should reach at least 95 psi (655 kPa) in both the primary and secondary circuits.

A warning light and an audible alert will sound when the air pressure in either the primary or secondary circuits drops below 66 psi (455 kPa). If this occurs, stop the coach, determine the cause of the pressure loss before proceeding. The brake pedal can be used in conjunction with the transmission retarder. Refer to "Transmission Output Retarder" heading in this chapter.



### WARNING

Immediately report any brake system problem to the nearest Prevost or Prevost-approved service center.



### WARNING

Do not "fan" or "pump" the brake pedal. This practice does not increase brake system effectiveness but rather reduces system air pressure thereby causing reduced braking effectiveness.



### CAUTION

"Riding" the brake by resting one's foot on the brake pedal when not braking can cause abnormally high brake temperature, can damage and cause premature wear of brake components and reduce brake effectiveness.

### ACCELERATOR PEDAL

Controls engine RPM as needed.

#### NOTE

*The accelerator pedal will not operate when the entrance door is open.*



### CAUTION

Do not let the engine operate above 2,450 RPM.

### STEERING WHEEL ADJUSTMENT UNLOCK AIR VALVE

Push on the valve button with the left foot to unlock the steering wheel for tilt and telescopic adjustment.



### WARNING

Do not adjust the steering wheel while the vehicle is moving. Loss of control could result. Park the vehicle safely and apply parking brake before adjusting the steering wheel.

### ALLISON TRANSMISSION

The transmission is fully automatic: Proper ranges should be automatically selected according to driving speeds to improve vehicle performance and control. The speed ratio of the power converter changes automatically as vehicle speed increases and direct-drive goes in and out as necessary. The speed ratio is modulated by vehicle speed and accelerator

## 58 CONTROLS AND INSTRUMENTS

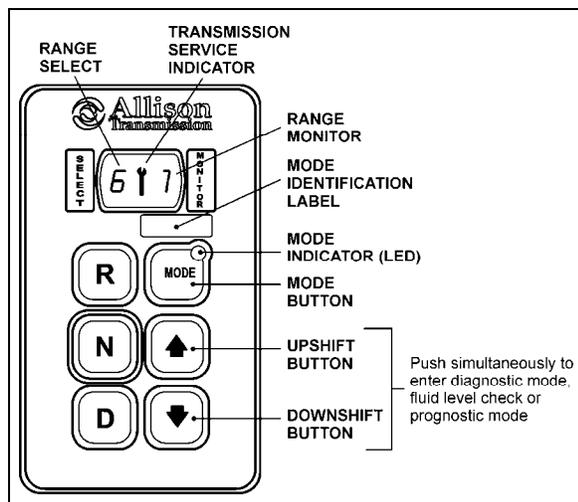
pedal position. You will find the complete transmission operation instructions and driving tips in the **Allison Bus Series Operator's Manual** included in your vehicle's publication box.

### OPERATION

When a button is depressed on the transmission control pad, the corresponding letter or number is displayed indicating the transmission is ready to operate in the selected range. If the transmission control module (TCM) detects a serious problem in the transmission, a buzzing tone sounds for 5 seconds and the "CHECK TRANS" light on the dashboard illuminates to warn the driver that the transmission is held in gear. If another button is depressed, the buzzing sound will continue until the original range is selected.

#### NOTE

As a light bulb and systems check, the "CHECK TRANS" light will illuminate when the ignition switch is turned to ON. After about two seconds the light will turn off. If the "CHECK TRANS" light remains on, the self-diagnostic system has detected a problem. If the problem disappears, the light will go out, but a trouble code will remain stored in the TCM.



ALLISON PUSHBUTTON SHIFT SELECTOR 07142

### PUSHBUTTON SHIFT SELECTOR

The pushbutton shift selector has the following elements:

**R** (Reverse) — Press this button to select Reverse.

**N** (Neutral) — Press this button to select Neutral.

**D** (Drive) — Press this button to select Drive. The highest forward range available will appear in the digital display window under SELECT. The transmission will start out in the lowest available forward range, displayed under MONITOR, and advance automatically to the highest range.

▲ ▼ — Press respectively the ▲ (Upshift) or ▼ (Downshift) arrow button when in DRIVE to request the next higher or lower range. One press changes gears by one range. If the button is held down, the selection will scroll up or down until the button is released or until the highest or lowest possible range is selected. Protection mechanisms inhibit selecting ranges that are not appropriate for the current speed or which may damage driveline components.

**MODE** — The MODE button can allow the driver to enable a secondary shift mode that has been programmed into the TCM unit. The name of the secondary mode appears on the MODE IDENTIFICATION label adjacent to the MODE button. Pressing the MODE button activates the PERFORMANCE shift schedule and illuminates the mode indicator (LED).

#### NOTE

When the diagnostic display mode has been entered, the MODE button is used to view and toggle through diagnostic code information. Refer to appendix C for more details about **diagnostic code display procedure** and **fluid level check** using the pushbutton shift selector.

### FUNCTION OF THE «MODE» BUTTON

Both ECONOMY (default mode at starting of the engine) and PERFORMANCE (secondary shift mode) modes are equivalent from the first to the fourth gear as the transmission upshifts at around 2000 rpm.

The ECONOMY mode allows for upshifts in fifth and sixth gear at around 1700 rpm. This is a more efficient operation of the transmission and thereby helps improve fuel economy.

The PERFORMANCE mode keeps upshifts at 2000 rpm in fifth and sixth gears. This makes for better performance than the economy mode but with higher fuel consumption. It is recommended this mode be selected while driving up or down

grades. The mode indicator (LED) is illuminating when PERFORMANCE mode is selected.

## TRANSMISSION SERVICE INDICATOR

 — This indicator will illuminate upon the detection of a service issue relating to clutch, filter or fluid life. The appearance of the indicator (lit steadily, flashing, etc.) varies for each of the conditions monitored by the system. Refer to appendix C for more details about **diagnostic code display procedure, fluid level check or prognostic features** (Oil Life Monitor, Filter Life Monitor and Transmission Health Monitor) using the pushbutton shift selector.

Illuminated at startup for a bulb check, this indicator will then turn off if no service conditions exist.

## DESCRIPTION OF AVAILABLE RANGES

### R (Reverse)

Press the «R» button to select reverse. Completely stop the vehicle and let the engine return to idle before shifting from forward range «D» to reverse «R» or from reverse to forward range. The reverse warning signal will be activated when this range is selected.

### N (Neutral)

Use this position to start engine. Select «N» (Neutral) when checking vehicle accessories and for extended periods of engine idle operation; parking brake must then be applied. The pushbutton shift selector will automatically select «N» (Neutral) when the ignition switch is turned ON.

#### *NOTE*

*The automatic transmission does not have a park «P» position. Select «N» (Neutral) and apply parking brake when the vehicle is left unattended. An audible alert will sound if the engine is stopped and the parking brake is not applied.*



#### **WARNING**

Before leaving driver's seat, always put the transmission in NEUTRAL and apply parking brake.



#### **WARNING**

The vehicle service brakes or park brake must be applied whenever NEUTRAL is selected to prevent unexpected vehicle movement.



#### **WARNING**

Always apply parking brake before leaving driver's seat.



#### **CAUTION**

Detroit Diesel engines should not be idled for extended periods at "slow" idle. For extended idling, engine should run at "fast" idle.



#### **CAUTION**

Do not allow your vehicle to "coast" in neutral «N». This practice can result in transmission damage. Also, no engine braking is available in neutral.

### D (Drive)

Use this position for all normal driving conditions. After touching this pad, the vehicle will start in first or second range and will automatically upshift to a higher range as output speed increases. As the vehicle slows down, output speed decreases, the transmission automatically downshifts to the correct range. If a locked brake or a slick surface condition should occur, the TCM (Transmission Control Module) will command converter operation (disconnect lockup) and inhibit downshifts for a period of time or until normal wheel speed has been restored.

#### *IMPORTANT NOTE*

*Brake pedal must be applied when selecting «D» (Drive) otherwise the transmission will stay in «N» (Neutral).*

#### *NOTE*

*The transmission should normally be allowed to shift by itself, but manual shifting can be done as described below.*

## 60 CONTROLS AND INSTRUMENTS

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### 1 (First range)

Select this range when pulling through mud and snow, when speed control is needed for driving up or down steep grades or when maneuvering in tight spaces. This range also provides maximum driving torque and engine braking power or retarder braking effect. In the lower ranges (1, 2, 3 and 4), the transmission will not upshift above the highest gear selected unless engine overspeed is detected.

### 2 (Second range)

Select this range when operating in heavy and congested traffic. The transmission will start in first and automatically upshift to second. When slowing, the transmission will automatically downshift to first range. Low ranges provide progressively greater engine and retarder braking power (the lower the range, the greater the engine and retarder braking effect).

### 3, 4 (Third and fourth ranges)

Select these ranges when driving on moderate grades or when load and traffic conditions limit speed.



#### **WARNING**

Service brake should not be used to control the speed of vehicle on long, steep descents. Instead, lower transmission ranges should be used (in conjunction with output retarder. Refer to "JACOBS Engine Brake" and "Transmission Retarder" headings in "OTHER FEATURES" chapter for details regarding both systems. This procedure keeps service brake cool and ready for emergency stopping.



#### **CAUTION**

When descending in lower ranges, care must be taken that engine speed does not exceed 2,450 rpm.

**EXHAUST AFTERTREATMENT SYSTEM**

**AFTERTREATMENT DEVICE**

Detroit Diesel’s workhorse behind clean emissions technology is an exhaust Aftertreatment Device (ATD) which replaces today’s muffler. The ATD primary function is to capture and oxidize (regenerate) the particulate matter (soot) in the engine exhaust gas. The ATD is split into two main sections. The exhaust gas first enters the Diesel Oxidation Catalyst (DOC) and then flow through the Diesel Particulate Filter (DPF); together they capture and regenerate the soot on a regular or passive basis. Through constant monitoring of the exhaust gas temperature and the system back pressure, DDEC VI is able to manage regeneration.

**PASSIVE REGENERATION**

Passive regeneration is the process by which the particulate matter is oxidized due to the heat generated by the engine internal combustion process. However, exhaust temperature must be above 572°F (300°C) to initiate the oxidation catalyst that precedes the filter substrate. During normal highway operation, exhaust temperatures alone are usually high enough to oxidize accumulating soot. In low ambient temperatures, however, or in some stop-and-go applications, the system needs a little help to regenerate, or clean itself. This process is called “active” regeneration.

**ACTIVE REGENERATION**

When required, DDEC VI activates two key upstream systems that assist in a process called “active” regeneration when the engine internal combustion process alone does not generate enough heat. The first is an Intake Throttle Valve which can be actuated to help increase the Aftertreatment Device temperature which speeds the regeneration. The second system is the Dosing System, which injects a mist of diesel fuel into the exhaust system to increase and maintain the Aftertreatment temperature. Exhaust temperature must again be above 572°F (300°C) to initiate the oxidation catalyst, which in turn oxidizes the injected diesel fuel molecules to achieve up to 1200°F (650°C) exhaust temperature at the particulate filter. This process of “active regeneration” takes

place during the normal operation cycle of the vehicle without charges in performance or control for the operator.

**STATIONARY (PARKED) REGENERATION**

In a small number of specific engine duty cycles, DDEC VI may not be capable of completing an active regeneration. In these situations, the operator will be notified that a “stationary” regeneration may be required. A DPF telltale light will illuminate indicating the need for user interaction. The lamp gives the operator a grace period to allow this process to take place at a time when most convenient for the operator. This process requires the vehicle to be parked while a driver or maintenance technician initiates the regeneration process. Once initiated, the stationary regeneration process will be complete in about 20 to 45 minutes.

The driver will be notified of the need for a stationary regeneration (parked) by illumination of the «DPF Regeneration Lamp».

The sequence of indicator lamp(s) is as follow:

**LEVEL 1**  (solid)

**REGENERATION NEEDED**

Diesel particulate filter is becoming full.

The «DPF Regeneration Lamp» will be illuminated prior to any engine protection measures being taken. Once this lamp is lit, the stationary regeneration (parked) process should be initiated.

**LEVEL 2**  (flashing)

**REGENERATION REQUIRED**

Diesel particulate filter is full.

If no DPF regeneration occurs after the initial «DPF Regeneration Lamp» illumination, the lamp will begin blinking and a stationary regeneration should be initiated as soon as possible in order to prevent from entering into Level 3.

**LEVEL 3**  (flashing) + **CHECK ENGINE**

**ATD SERVICE REQUIRED**

**ENGINE DERATE ACTIVE**

Diesel particulate filter is overfull.

If the flashing «DPF Regeneration Lamp» is

## 62 OTHER FEATURES

still ignored, the «Check Engine» will illuminate. At that time, engine performance is limited. Perform a parked regeneration IMMEDIATELY to avoid further derate and prevent from entering into Level 4.

**LEVEL 4**  (flashing) + **STOP ENGINE**

ATD SERVICE REQUIRED

ENGINE DERATE ACTIVE

A serious engine problem has occurred. The DPF may be over its maximum capacity.

If a stationary regeneration is still not initiated, a standard Engine Protection Shutdown sequence will occur. All of the following dashboard lamps will be present:

Blinking «DPF Regeneration Lamp»;  
Solid «Check Engine» lamp;  
Solid «Stop Engine» lamp.

Once engine derate and/or shutdown sequence is completed, a stationary regeneration must occur to continue vehicle operation. If the driver continues to operate the vehicle without a regeneration, additional measures will be taken to protect the engine and ATD from damage, up to and including engine shutdown. Parked regeneration might no longer be possible.

### NOTE

*At starting of the engine, if a stationary regeneration is required, the engine coolant temperature must reach 140°F (60°C) before any stationary regeneration may be initiated and completed. Permit the engine to idle for a short while or drive the vehicle until engine temperature increases sufficiently.*



### WARNING

Do not initiate a stationary regeneration in a closed area like a garage. Stationary regenerations must be undertaken outdoors only.



### WARNING

During stationary regeneration, exhaust temperature may reach up to 1200°F (650°C) at the particulate filter. Before initiating stationary regeneration, make sure that the DPF outlet diffuser is clear of objects and that no one is working near the DPF outlet diffuser.



### WARNING

Hot surfaces. Keep yourself clear of all hot Aftertreatment Device components, particularly during and after active or stationary regeneration. Hot surfaces can cause serious burns.

## MESSAGE CENTER DISPLAY (MCD)

MCD is a standard dashboard mounted graphic device that displays and records operational data transmitted by the Detroit Diesel Electronic Controls (DDEC) and other electronically controlled components on the SAE J1708/1587 diagnostic data link.

The many functions of the MCD include vehicle operating status for the driver and diagnostics for the technician.

The MCD uses a dashboard integrated liquid crystal display. It provides automated intensity control of the display, based on the dashboard instrument panel lights for improved driver convenience.

Should an alert message be sent out by the ECM, the driver will be shown what is wrong via an error code. Symbols may be displayed on the screen when a condition occurs or as a reminder that a feature is enabled. These symbols include a bell when the reminder alarm is on, «PTO» when fast idle is activated or «CC» when cruise control is activated.

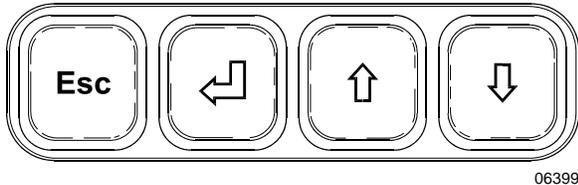
### NOTE

*When a condition requiring attention occurs, the screen relating to that condition will automatically replace the current display.*

The MCD works with interactive menus in a series of cascading layers. The MCD allows access only to GAUGE MODE, FUEL ECONOMY and TIME/DIST menus when the

vehicle is moving. Access to the remaining menus is granted when the vehicle is stopped.

The driver inputs commands and settings by using the keys on the MCD keypad.



Use the up (↑) and down(↓) arrows to highlight a function or a setting. At any given level, small arrows may appear in the upper and lower right corner of the display. This means that more information is available by scrolling up or down with the arrow keys.

To change the setting of a feature, press enter key (↵). The first value to set is highlighted. Set the correct value with the arrow keys. Press the enter key when the correct value is displayed. The next value to set is highlighted. In some cases, the enter key will reset compiled data. In that situation, the MCD will prompt you to press the enter key for 1 second to prevent accidental resetting.

To return to the previous level, press Esc key any time. In most cases, the MCD will return to the previous level once a setting has been chosen.

To return to the main menu from any submenu, press Esc key a few times.

### DRIVING MODE MENU

This menu includes the following modes;

Gauge Mode; Fuel Economy, Time/Dist; Faults?.

### GAUGE MODE MENU

Transmission fluid temperature, engine oil temperature and battery voltage can be displayed in this mode.

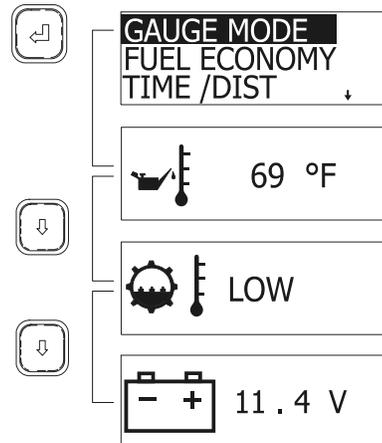
To display:

1. Highlight GAUGE MODE;
2. Press enter key (↵);
3. Choose a gauge using the up (↑) or down (↓) arrow keys.

To exit gauge mode, press Esc key.

### NOTE

*When a condition requiring attention occurs, the screen relating to that condition will automatically replace the current display.*



### FUEL ECONOMY MENU

Check average and instantaneous fuel consumption, as well as distance until empty.

To display:

1. Highlight FUEL ECONOMY
2. Press enter key (↵);
3. Toggle between average/instantaneous fuel consumption or leg fuel consumption using the up and down arrows;

To exit FUEL ECONOMY menu, press Esc key any time.

4. To reset average and instantaneous fuel consumption, press enter key. The MCD will prompt you to press enter key for one second to reset;

If you do not wish to reset the fuel data, press Esc to return to previous menu.

### TIME / DIST MENU

This menu gives access to the digital clock, the reminder alarm, two trip odometers and the average speed counter.

To display the digital clock:

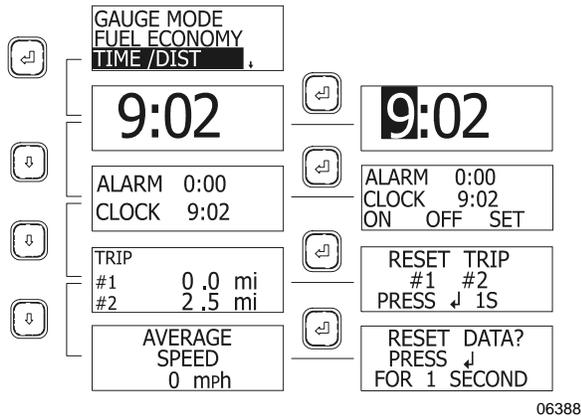
1. Highlight TIME/DIST;
2. Press enter key (↵);

## 64 OTHER FEATURES

The digital clock appears;

- Use up down arrows to display the alarm and clock display, the trip odometer display or the average speed counter display.

To exit TIME/DIST menu, press Esc key.



### Setting the Digital Clock

- Display the clock;
- Press the enter key (↵);

The first digit of the time is highlighted.

- Set the correct value using the arrow keys;
- Press enter key (↵);

The next digit of the time is highlighted.

- Set the correct time using the up (↑) and down(↓) arrow keys and the enter key (↵);

After pressing the enter key when the last digit is highlighted, the display reverts to clock mode.

### Reminder Alarm

The alarm can be useful to remind the driver of a task to do at a given time.

To set the alarm:

- Display the alarm and clock menu;
- Press the enter key (↵);
- Using the arrow keys, highlight ON, to arm the alarm, OFF to disarm the alarm or SET to set the alarm time;
- Press the enter key (↵);

If you have chosen SET, set the time using the arrow keys and enter key.

To exit any menu and return to the previous menu, press Esc key.

A bell appears in the upper right corner on all MCD screens if the alarm is armed.

When armed, the alarm will sound at the set time even when the battery master switch is off.

To stop the alarm from sounding, press any key on the MCD keypad.

### Trip Odometers

Two trip odometers are available for driver convenience.

To reset a trip odometer:

- Display the trip odometers;
- Press the enter key (↵);
- Using the arrow keys, highlight the trip odometer you wish to reset;
- Press the enter key (↵) for 1 second.

To exit anytime, press Esc key.

### Average Speed

The average speed display shows the average speed has been driven since the last reset.

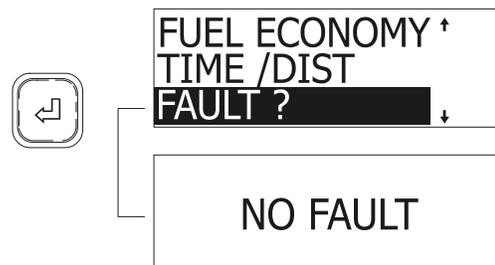
To reset:

- Display the average speed;
- Press the enter key (↵);
- When prompted, press the enter key for 1 second to reset data.

### FAULT ? MENU (Fault messages)

To display logged fault messages:

- Highlight FAULT ?
- Press the enter key (↵);
- Fault messages are displayed (if any).



06393

## NON-DRIVING MODE MENU

### SET UP MODE MENU

Set up mode allows the driver to customize the MCD. Set up mode allows setting the language, units used (Metric or Standard), clock format, display contrast, backlight and night display.

If the correct password is entered, default language, fleet fuel target and passwords can also be set.

To configure the MCD, highlight SET UP MODE using the arrow keys, then press the enter key.

### Language Selection

If available, language may be selected. To select a language:

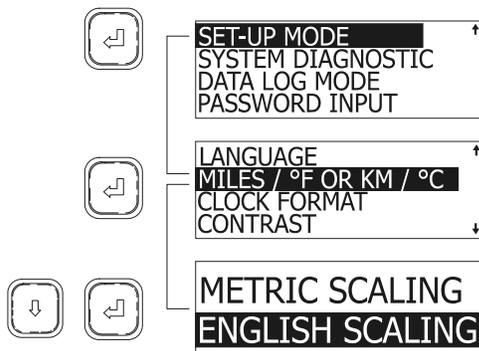
1. In SET UP MODE, highlight LANGUAGE using the arrow keys;
2. Press the enter key ();
3. Highlight the desired language using the arrow keys;
4. Press enter key () to confirm the language choice.

The MCD returns to SET UP MODE menu.

### Metric or Standard Units

1. In SET UP MODE menu, highlight MILES/°F OR KM/°C using the arrow keys;
2. Press the enter key ();
3. Highlight the desired units using the arrow keys;
4. Press enter key () to confirm.

The MCD returns to SET UP MODE menu.

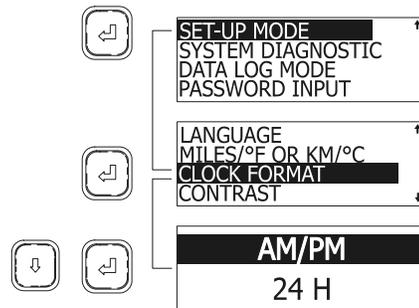


06384

### Clock Format

1. In SET UP MODE, highlight CLOCK FORMAT using the arrow keys;
2. Press the enter key ();
3. Highlight the desired format (AM/PM or 24 H) using the arrow keys;
4. Press enter key () to confirm.

The MCD returns to SET UP MODE.

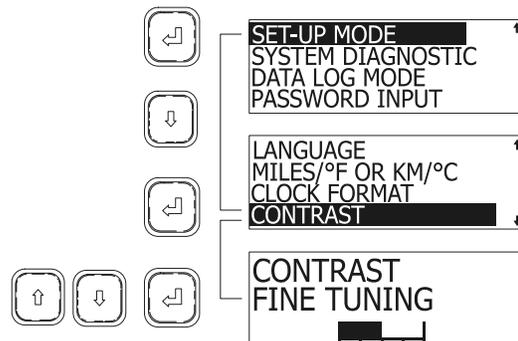


06389

### Setting Contrast

1. In SET UP MODE, highlight CONTRAST using the arrow keys;
2. Press the enter key ();
3. Using the arrow keys, set the desired contrast. A horizontal graphic shows state of contrast;
4. Press enter key () to confirm.

The MCD returns to SET UP MODE.



06395

### Setting Backlight

1. In SET UP MODE, highlight BACKLIGHT using the arrow keys;
2. Press the enter key ();



and other instruments. The driver can also perform a cluster self test and read data about the ECM's

Enter diagnostic mode by using the arrow keys to highlight SYSTEM DIAGNOSTIC, then pressing the enter key to confirm.

**Fault Diagnostic**

To request a diagnostic:

1. Highlight FAULT DIAGNOSTIC with the arrow keys;
2. Press the enter key (↵) to confirm.
3. Highlight the component to request a diagnostic using the arrow keys;
4. Press the enter key (↵).

After showing a fault message (if any) the MCD returns to FAULT DIAGNOSTIC screen.

To request a general diagnostic:

1. Highlight GENERAL REQUEST using the arrow keys;
2. Press the enter key (↵).

After showing a fault message (if any) the MCD returns to FAULT DIAGNOSTIC screen.

To reset fault codes:

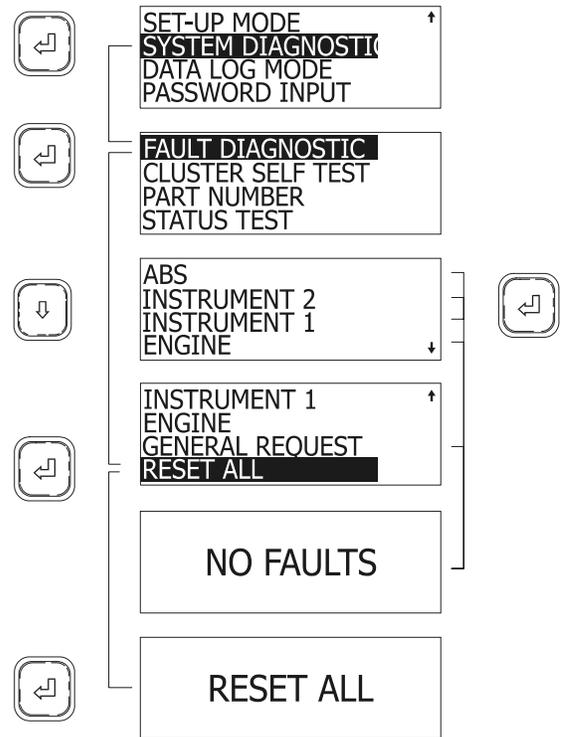
1. Highlight RESET ALL using the arrow keys;
2. Press the enter key (↵);

The MCD displays RESET ALL.

3. Press enter key (↵) to confirm.

After resetting the fault codes, the MCD returns to FAULT DIAGNOSTIC screen.

Exit FAULT DIAGNOSTIC and return to SYSTEM DIAGNOSTIC using Esc key.



06392

**Cluster Self Test**

Tests cluster light bulbs, gauges, MCD display and buzzers.

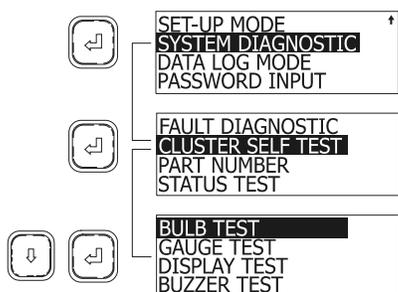
To perform a self test:

1. In diagnostic mode, highlight CLUSTER SELF TEST using the arrow keys;
2. Press enter key (↵) to confirm;
3. Highlight the test to perform using the arrow keys;
4. Press enter key (↵) to confirm;

The test may normally take several seconds to perform. The MCD may explain the progression of the test as it runs. The display returns to cluster self test mode once finished.

**NOTE**

While in the cluster self test mode, the engine ECM data link is disconnected. Therefore, the gauges will not function until the cluster is out of the self test mode. To interrupt any test, cycle the ignition key off and on.



06378

## BULB TEST

Turns ON all telltale lights and red warning LED's in the gauges which have them, for ten seconds.

## GAUGE TEST

This test causes the pointers in the tachometer, speedometer, oil pressure, coolant temperature, fuel and turbo boost gauges to move from minimum scale to full scale and back, briefly stopping at mid-scale each way. This occurs three times. The air pressure and voltmeter gauges are excluded from the test.

## DISPLAY TEST

To help identify defects in the graphic display, the display goes from dark to bright in about ten seconds.

## BUZZER TEST

Sounds each of the buzzer signals for ten seconds each. The name of the buzzer is written on the display as the test runs.

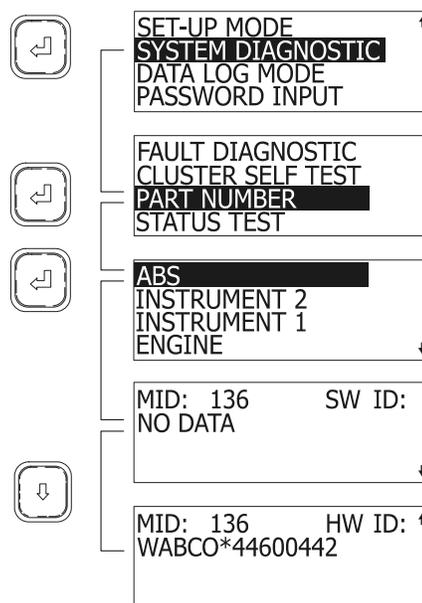
## PART NUMBER

This feature requests information from the available components. This information includes the component's SAE message identifier (MID), its software ID (SW ID) and hardware ID (HW ID) if available.

To access PART NUMBER:

1. When in SYSTEM DIAGNOSTIC menu, highlight PART NUMBER using the arrow keys;
2. Press enter key (↵);
3. Highlight the desired component;
4. Press enter key (↵).

The MCD displays the information on two screens. Toggle between screens using the arrow keys.



06391

## STATUS TEST

This feature allows testing the response of vehicle systems. This can be useful when troubleshooting or checking the proper working order of senders and other components. This feature is enabled when correct password is entered (see password input)

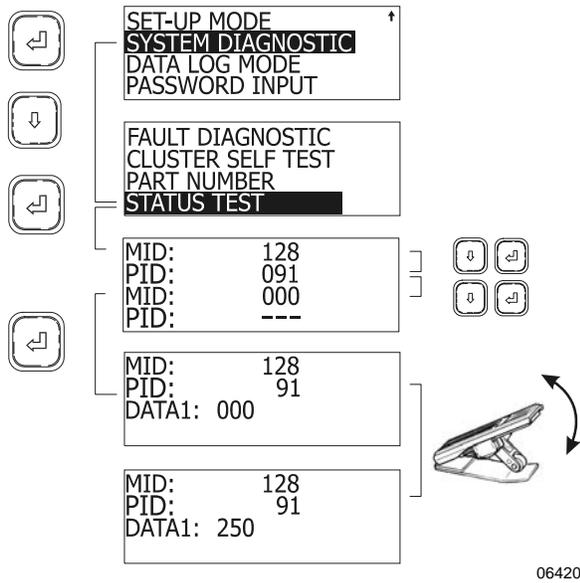
In Status Test mode, the MCD will monitor the system and display the data on the screen. Up to two components can be monitored at once.

To perform a status test:

1. When in SYSTEM DIAGNOSTIC, highlight STATUS TEST using the arrow keys;
2. Press enter key (↵);
3. Using the arrow and enter keys, enter a MID and PID (or PPID);
4. Press enter key (↵).

The MCD now displays in real time the value of the component. The example below shows how changing the throttle position will be displayed on the MCD. That way one can verify if any identifiable sender unit is working properly or whether the link is OK.

5. Press Esc key to exit.



06420

In this example, a throttle pedal in good working order will send a linear and continuous (no jumps) signal to the ECM, appearing as DATA value on the MCD screen. Full pedal movement will display values from 000 (no throttle) to 250 (maximum throttle).

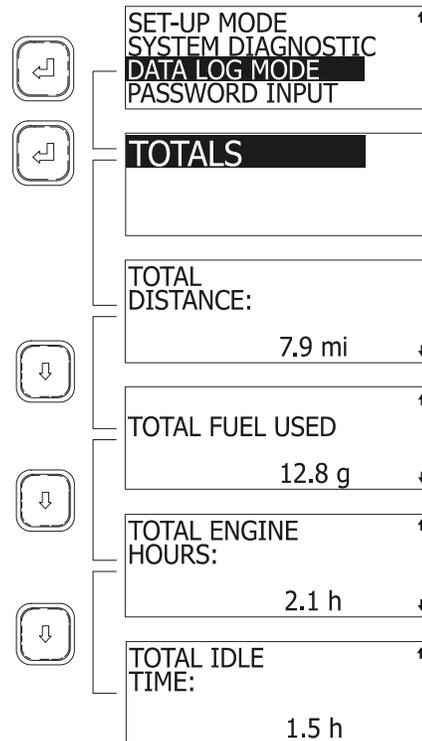
**NOTE**

The MCD can perform a status test on as many as two components simultaneously. To do so, when setting MID and PID codes, set a second (non zero) MID and PID code.

**DATA LOG MODE MENU**

This feature shows total accumulated distance, fuel used engine hours and idle time.

1. To access data log:
  2. Highlight DATA LOG MODE using the arrow keys;
  3. Press enter key (↵) to confirm;
- The screen shows TOTALS highlighted.
4. Press enter key (↵);
  5. View totals using the arrow keys.
- Exit by pressing the Esc key.



06383

**PASSWORDS**

The MCD recognizes two passwords: a mechanic's password and an owner's password. The mechanic's password allows setting DEFAULT LANGUAGE, FLEET FUEL TARGET, performing a STATUS TEST and using the RESET ALL function. The owners password gives access to all the above and allows changing both passwords.

The mechanic's password is initially set to "0000".

The owner's password is initially set to "1234".

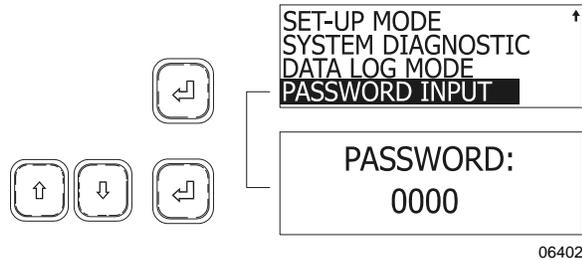
**Password Input**

To enter either password and have access to restricted functions of the MCD:

1. Use the arrow keys to highlight PASSWORD INPUT;
2. Press enter key (↵) to confirm;
3. Use the arrow keys to set the first digit of the password;
4. Press enter to highlight the next digit;
5. Pressing enter key on last digit will confirm the password.

## 70 OTHER FEATURES

If the entered password is correct, the MCD will revert to the previous screen. Access to restricted screens is allowed.



### Changing passwords

To change any password, owner's password must be entered first.

To change passwords:

1. Using the arrow keys, highlight SET UP MODE;
2. Press enter key (↵) to confirm;
3. Using the arrow keys, highlight PASSWORD CONFIG;
4. Press enter key (↵) to confirm;
5. Using the arrow keys, select MECHANIC or OWNER;
6. Press enter key (↵) to confirm;
7. Set new password.

### ALLISON TRANSMISSION ELECTRONIC CONTROLS

In addition to controlling the operation of the transmission, the electronic controls monitor the system for abnormal conditions.

When one of these conditions is detected, the electronic control system is programmed to automatically respond in a manner which is safe for the driver, the vehicle and the transmission. The electronic control system turns ON the CHECK TRANS light on the dashboard, which serves as a fault indicator.

To enhance troubleshooting and to allow interrogation of the TCM for valuable service information, the digital display on the transmission pushbutton shift selector or an optional diagnostic tool can be used. For information about reading and interpreting diagnostic codes, refer to Appendix C under

"Diagnostic Troubleshooting Codes (DTC) – Allison 4<sup>th</sup> Generation Controls".

### TRANSMISSION RETARDER

The transmission retarder is an optional device that helps to reduce the speed of a vehicle. It improves vehicle control, increases driving safety and permits more economical operation. The retarder provides slowing power when it is most needed, such as when descending mountain roads, in stop-and-go traffic and on crowded freeways.

The retarder is provided with control buttons on the steering wheel and a lever on the steering column (refer to "CONTROLS AND INSTRUMENTS" chapter).

#### **NOTE**

*Extended use will raise the temperature of the transmission oil.*

The retarder helps to reduce speed on grades without using the vehicle's conventional service braking system. This virtually eliminates brake overheating and reduces the risk of a runaway vehicle. A retarder greatly increases the service life of brake pads and discs, resulting in reduced brake maintenance costs.

#### **NOTE**

*The stoplights automatically illuminate when the vehicle is slowing down after application of the transmission retarder.*

#### **NOTE**

*For vehicles equipped with the Antilock Braking System (ABS), as the wheels start to lock-up on slippery roads, the output retarder automatically deactivates until the wheels roll freely.*

### ENGINE BRAKE

The JACOBS engine brake is an optional diesel engine retarder which uses engine compression to aid in slowing and controlling the vehicle. When activated, (refer to "CONTROLS & INSTRUMENTS" chapter) the JACOBS brake alters the operation of the engine's exhaust valves so that the engine works as a power-absorbing air compressor. This provides a retarding action to the wheels.

The engine brake is a vehicle-slowng device, not a vehicle-stopping device. It is not a substitute for the service braking system. The service brakes must be used to bring the vehicle to a complete stop.

Effectiveness of the engine brake system will vary according to the transmission range in use. The engine brake system is more effective in lower ranges and at higher engine speeds.

|   |                |
|---|----------------|
|    | <b>WARNING</b> |
| <p>A vehicle speed retarding device (such as engine brake) is not intended to replace the service brake systems on your vehicle nor intended to bring your vehicle to a stop. A vehicle speed retarding device is only intended to reduce the speed of your vehicle under certain conditions.</p> <p>Several types of engine brake can be installed or are standard on certain engines. All are used to reduce wear on the vehicle brake linings.</p> |                |

|  |
|--|
| <i><b>NOTE</b></i>   |
| <p><i>Jacobs engine brake is only engaged when the accelerator pedal is fully released, the engine speed exceeds 750 rpm and one of the two engine brake control buttons is activated; (1) LOW or (2) HIGH. When this system is in operation, the stoplights automatically illuminate.</i></p> |

|   |                |
|---|----------------|
|    | <b>WARNING</b> |
| <p>When descending significant grades, use the service brakes as little as possible. If the engine does not slow the vehicle to a safe speed, apply service brakes and shift to a lower range. Let the engine (and engine brake) slow the vehicle. Keep brakes cool and ready for emergency stopping.</p> |                |

|  |
|--|
| <i><b>NOTE</b></i>   |
| <p><i>For vehicles equipped with the Antilock Braking System (ABS), as the wheels start to lock-up on slippery roads, the engine brake automatically deactivates until the wheels roll freely.</i></p> |

|   |
|---|
| <i><b>NOTE</b></i>  |
| <p><i>The stoplights automatically illuminate when the vehicle is slowing down after application of the engine brake.</i></p> |

**ANTILOCK BRAKING SYSTEM (ABS) – AUTOMATIC TRACTION CONTROL (ATC) – ELECTRONIC STABILITY PROGRAM (ESP)**

The purpose of the Antilock Braking System (ABS) is to maintain vehicle stability and control during braking and to minimize the stopping distance in any road condition.

On slippery roads and more generally in emergency situations, over-braking frequently induces wheel locking. Wheel locking greatly increases breaking distance on any road surface. Locked wheels also impede directional control and cause severe tire abrasion. An anti-lock braking system provides maximum braking performance while maintaining adequate control on slippery roads.

The basis of ABS is constant monitoring of wheel parameters during braking. Sensors on each wheel of the front and drive axles constantly measure wheel speed during braking. This information is transmitted to a four-channel electronic processor which senses when any wheel is about to lock. Modulating valves quickly adjust brake pressure (up to 5 times every second) to prevent wheel lock. Each wheel is therefore controlled according to the available grip.

In this way, the vehicle is brought to a stop in the shortest possible time while remaining stable and under the driver's control.

|   |                |
|---|----------------|
|    | <b>CAUTION</b> |
| <p>Vehicles following ABS-equipped vehicles may not be able to brake as fast on slippery roads. Whenever possible, warn other drivers by depressing the brake pedal lightly several times before braking.</p> |                |

In addition to the ABS function, advanced models of Bendix controllers provide an **Automatic Traction Control (ATC)** feature. Bendix ATC can improve vehicle traction during acceleration, and lateral stability while accelerating through curves. ATC utilizes **Engine Torque Limiting (ETL)** where the ECU

## 72 OTHER FEATURES

communicates with the engine's controller and/or **Differential Braking (DB)** where individual wheel brake applications are used to improve vehicle traction.

Advanced models of Bendix controllers also provide ABS-based stability features referred to as **ESP® Electronic Stability Program**.

The Bendix ESP system is an ABS-based stability system that enhances vehicle stability by both reducing engine throttle and by applying vehicle braking based on actual vehicle dynamics. Accordingly, the ESP system is available only on specific approved vehicle platforms after vehicle application and development efforts and validation testing. Only certain limited variations of an approved vehicle platform are permitted without further validation of the ESP system application.



### CAUTION

In the case where a vehicle equipped with the ESP system pulls a trailer, the latter must be equipped with ABS.

ESP stability system consists of Yaw Control (YC) and Roll Stability Program (RSP) features.



### CAUTION

Even with ESP-equipped vehicles, the driver remains responsible for ensuring vehicle stability during operation.

## RETRACTABLE TAG AXLE

Lifting of the tag axle is controlled by a valve located on the left lateral console. The valve can be switched to either the WHEELS UP or WHEELS DOWN position. The axle will be raised or lowered by air pressure according to the position of the valve switch. Refer to "CONTROLS & INSTRUMENTS" chapter.

The tag axle service brakes and parking brakes operate only when the tag axle is in the WHEELS DOWN position. When the tag axle is in the WHEELS UP position, the corresponding indicator light will illuminate. The indicator light will start flashing and an audible alarm will sound to warn the driver if the vehicle speed exceeds 12 mph (20 km/h) with tag axle raised. Lifting the tag axle shortens the wheelbase and allows tighter turning. This is very useful in tight

maneuvering areas like in a parking lot or when negotiating a tight corner. Raising the tag axle transfers extra weight and additional traction to the drive wheels providing improved control on slippery surface when needed.



### CAUTION

Do not use tag axle in raised position for an extended period. Raising tag axle increases load on the drive axle, suspension and tires.

Do not drive vehicle with tag axle raised when speed is exceeding 12mph (20 km/h).

In order to prevent damage to the suspension, always raise the tag axle before lifting the coach.

## KEYLESS ENTRY SYSTEM

By this system, you can lock or unlock the entrance door and the baggage compartment doors. Unlocking the entrance door using the keyless entry system will also disarm the intrusion protection and anti-theft system. The keyboard is located below the outside entrance door handle. The microprocessor/relay module is pre-programmed by the manufacturer and this code can not be deleted. Moreover, you can program your own entry code (e.g. a birthday or part of a social security number).

The manufacturer's code is:

- On your owner's wallet card;
- Taped to the keyless module in the front electrical & service compartment;
- Three stickers are joined to your owner's wallet card.

When you use the keyless entry system, the keyboard illuminates. Do not push the buttons with a key, pencil or any other hard object as it could damage the buttons. Although each button is provided with two digits separated by a vertical line, there is only one contact per button. Press in center of button, i.e. between the two digits.

You must unlock the entrance door before you unlock the baggage compartment doors. If you let more than five seconds pass between the numbers you press, the system shuts down, and you have to enter your code again. If the keyless entry system does not work properly, use the key or the remote entry transmitter to lock or

unlock entrance door or the baggage compartment doors.

### KEYLESS OPERATING INSTRUCTIONS

- 1) To unlock the entrance door, enter the five numbers of the code. After pressing the fifth number, the stepwell lights and entrance overhead light turn on and the door unlocks. During the night, press any button to illuminate the keyboard and then enter the code.

When pressing any button, the keyboard lights up for five seconds.

- 2) To unlock the baggage and service compartment doors, press button 3-4 within five seconds after the code that unlocks the entrance door.
- 3) To lock the entrance door, the baggage compartment doors and arm the intrusion protection and anti-theft system all at the same time, press buttons 7-8 and 9-0 simultaneously.

### PROGRAMMING A PERSONAL CODE

**NOTE**

*To avoid erasing the code from the system memory, you should connect the keyless entry system to house batteries, otherwise the code will be erased each time battery main disconnect switches are set to the OFF position.*

You can program one personal code to unlock the entrance door and compartments. This code does not replace the permanent code that is factory programmed into the system. Use your personal code in the same manner that you would use the original code.

Do not choose a code that presents the numbers in sequential order, such as 1-2, 3-4, 5-6, 7-8, 9-0. Studies show that people who idly press the buttons usually press a sequential pattern. Also, do not select a code that uses the same button five times. Thieves can easily figure out these types of codes.

1. Choose and memorize your personal code.
2. Enter the original code, and within eight seconds, press button 1-2.
3. Within five seconds of pressing button 1-2, enter your personal code, pressing each button within five seconds of the previous

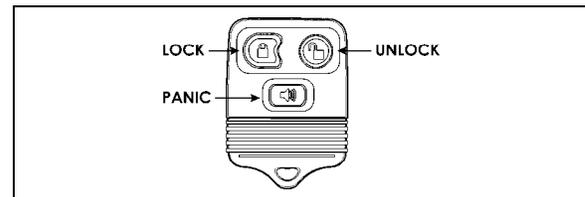
digit. The keyboard light will immediately turn **OFF** if the code is correctly entered.

The keyless entry system registers your personal code. To unlock the entrance door, you can use either code.

To erase your personal code, enter the original code, press button 1-2, then wait six seconds.

### REMOTE ENTRY TRANSMITTER

Up to four hand held (key fob) transmitters can control electronic door lock system.



REMOTE ENTRY TRANSMITTER 23383

**To lock the entrance door and the baggage compartment doors simultaneously and arm the intrusion protection and anti-theft system:**

- Press LOCK on the transmitter once.

**NOTE**

*The intrusion protection and anti-theft system will be set after a 30 seconds delay.*

**To confirm that the entrance door and baggage compartment doors have been locked and that the intrusion protection and anti-theft system is armed:**

- Press LOCK again within five seconds of the first lock. The front and rear side markers will flash once if the doors have locked. If the entrance door or one of the baggage compartment doors is open, a door ajar signal prevents arming of the system.

**To unlock the entrance door:**

- Press UNLOCK on the transmitter. This will unlock the door and disarm the intrusion protection and anti-theft system.

**To unlock the baggage compartment doors:**

- Press UNLOCK a second time within five seconds of the first unlock.

**To set off the personal security alarm:**

## 74 OTHER FEATURES

- Press the red PANIC  button on any transmitter. The horn will sound and the marker lights will flash for a maximum of three minutes.

### To deactivate the personal security alarm:

- Press the red PANIC  button again on any transmitter or turn the ignition key ON.

#### **NOTE**

*The remote entry features will not function when the ignition is in the ON or ACC. position.*

### Programming Transmitters

To program additional transmitters or replacing a lost or broken transmitter, all transmitters for a vehicle must be programmed at the same time. The receiver assembly module erases all previous transmitters from memory. When the transmitters are programmed or reprogrammed, the receiver assembly module can store up to four transmitters in memory.

To program or reprogram transmitters into the remote/keyless entry system, perform the following steps:

1. Make sure that the anti-theft system is not armed or triggered.
2. Turn the ignition key from OFF to ON and wait about 10 seconds. If you do not respect this 10 seconds delay, the remote entry transmitters reprogram will not be possible.
3. On the dashboard, press the Central Locking System switch 4 times (to lock position) slowly to enter programming mode.

If the system has successfully entered programming mode, the horn will beep one time.

4. Press UNLOCK  on the transmitter. The horn will beep to confirm that the transmitter has been programmed.
5. Repeat step 4 for each other transmitters (up to 3 other transmitters).
6. Turn ignition OFF to exit programming mode.
7. Test each transmitter separately (try all the functions).

## SLIDE-OUT OPERATION

### SAFETY PRECAUTIONS

Before operating both slide-out units, proceed to the following verifications:

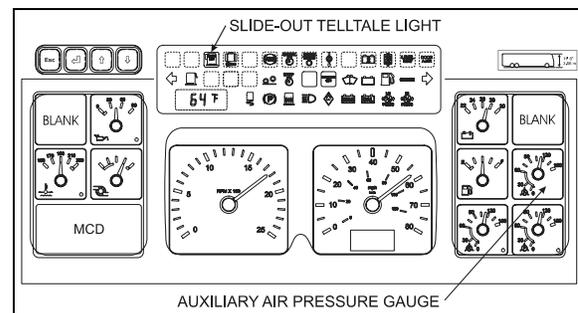
- Make sure that the area outside the slide-out is clear and that there are no persons or objects within 3 feet of the slide-out outside wall. **Serious personal injury or damage to the vehicle components may occur.**
- Make sure that the area inside the motor home where the room retracts (30" for the front and 24" for the rear slide-out) is free of people or obstacles. **Serious personal injury or damage to the vehicle components may occur.**
- In temperatures below freezing point, make sure that the entire sliding surface outside the slide-out is free of snow, ice or sleet. **Failure to clear all ice or snow may seriously damage the inflatable seal.**
- The parking brake must be applied.
- The transmission must be in the "NEUTRAL" position.
- Open a window to avoid slide-out movement restriction.
- Level the vehicle.

### FRONT AND REAR SLIDE-OUT OPERATION

#### Preliminary condition for the slide-out operation

Before extending or retracting the slide-out, please make sure that all the following conditions are met:

1. Make sure the air pressure is 110 psi minimum on the dashboard auxiliary air pressure gauge.



VEHICLE INSTRUMENT CLUSTER

23343

2. Make sure the parking brake is applied and that transmission is in the "NEUTRAL" position.
3. Turn the ignition key to the "ON" position, start the engine and set the RPM to fast idle.

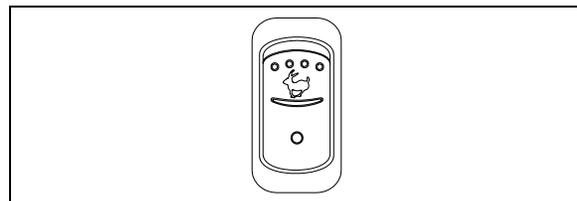
**⚠ CAUTION**

Prevost does not recommend operation of the slide-out with the engine being shut off.

Running the engine will assure a sufficient air pressure and reserve, and high voltage for proper operation of the slide-out.

**⚠ CAUTION**

Before extending or retracting the slide-out, always open a window to avoid movement restriction and to prevent the motor from stopping in overcurrent because of a vacuum or pressure build up inside the vehicle.



**FAST IDLE BUTTON**

06264

### Slide-out extending operation

With the ignition switch to the "ON" position and the engine running, press and hold down the handheld control rocker switch to the "OUT" position. The green indicator light "ROOM IN OPERATION" will come on to indicate that the slide-out operation cycle is activated. The following actions will be done in sequence:

- Deflation of the inflatable seal
- Movement of the slide-out to its full "OUT" position

Then releasing the rocker switch will permit the following actions:

- Re-inflation of the seal

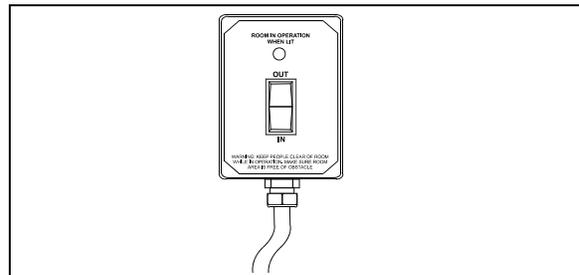
When the rocker switch is released, the green indicator light goes out. Note that for safety reasons, releasing the rocker switch will stop the slide-out movement instantly. At any time, releasing the rocker switch from the "OUT" position and pressing it to the "IN" position will reverse the operation.

**⚠ CAUTION**

The inflatable seals can be re-inflated only when the slide-out is in its full "OUT" or full "IN" position. Do not leave the slide-out in any position other than the full extended or closed position as water infiltration may occur.

**NOTE**

*Handheld control green indicator light blinking. A green light blinking indicates an error condition or missing operation condition on the slide-out operated by this handheld control. Refer to SLIDE-OUT TROUBLESHOOTING at the end of this section if that situation occurs.*



**SLIDE-OUT HANDHELD CONTROL**

26034

### Slide-out retracting operation

With the ignition switch to the "ON" position and the engine running, press and hold down the rocker switch to the "IN" position to retract the slide-out. Note that the green indicator light "ROOM IN OPERATION" will come on. When the movement of the slide-out to its full "IN" position is completed, the rocker switch can be released to allow the re-inflation of the seal. The green indicator light goes out as the rocker switch is released. At any time during the slide-out movement, releasing the rocker switch will stop the operation instantly.

**⚠ CAUTION**

The inflatable seals can be re-inflated only when the slide-out is in its full "OUT" or full "IN" position. Do not leave the slide-out in any position other than the full extended or closed position as water infiltration may occur.

## 76 OTHER FEATURES

### SLIDE-OUT MANUAL OVERRIDE PROCEDURE

In case of power retracting system failure, it is possible to use the manual override procedure to retract or extend the slide-out.

The manual override procedure consist in rotating the slide-out motor shaft extension using a cordless power drill with a 3/8" hexagonal bit.

However, it is very important to follow all the instructions very carefully to assure that the inflatable seal or the retraction mechanisms are not damaged.

### Preliminary conditions for manual override procedure

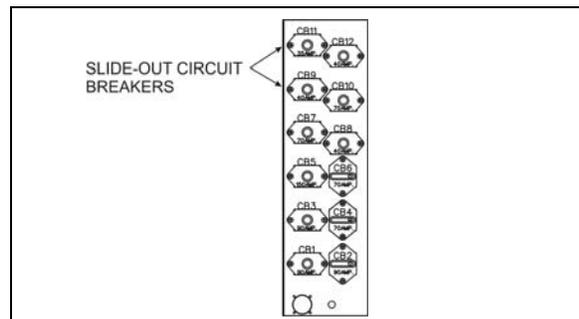
Before using the slide-out manual override procedure, make sure that the problem cannot be solved by one of the following simple checks:

- Make sure that none of the breakers are tripped (slide-out circuit breakers CB9 & CB11 are located inside the main power compartment on the breaker panel).
- Make sure the parking brake is applied and that transmission is in the "NEUTRAL" position.
- Make sure the voltage is high enough by running the engine at fast idle or having a battery charger connected.



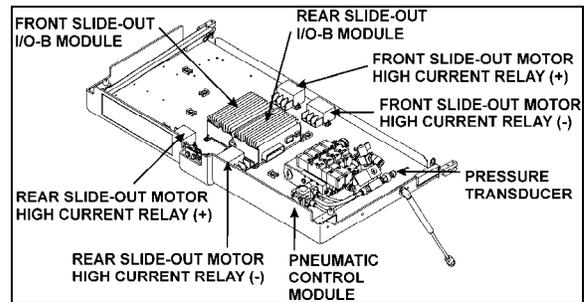
### CAUTION

Before extending or retracting the slide-out, always open a window to avoid movement restriction and to prevent the motor from stopping in overcurrent because of a vacuum or pressure build up inside the vehicle.



SLIDE-OUT CIRCUIT BREAKERS CB9 & CB11 IN MAIN POWER COMPARTMENT

26091



SLIDE-OUT CONTROL PANEL IN FIRST BAGGAGE COMPARTMENT

26107

### Manual retracting procedure – Front and rear slide-out

1. Turn the ignition switch to the "OFF" position, and remove the ignition key for more safety.
2. Deflate the inflatable seal by using the relieving shut-off valve located on the slide-out control panel. Turn the handle clockwise to deflate the seal. Make sure the pressure indicator reading is "0 psi".

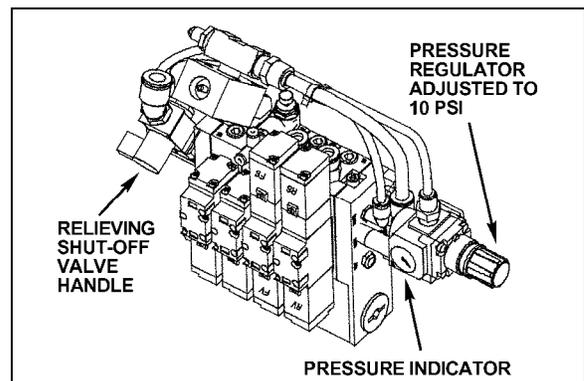


### CAUTION

The pressure in the inflatable seal must be completely relieved to prevent any damage to the seal. Also, check that the security pin is retracted so it does not stop slide-out movement.

### NOTE

*When air pressure is relieved using the shut-off valve, the normal extending and retracting operation cycle is disabled, for that reason the slide-out cannot be moved using the handheld control.*



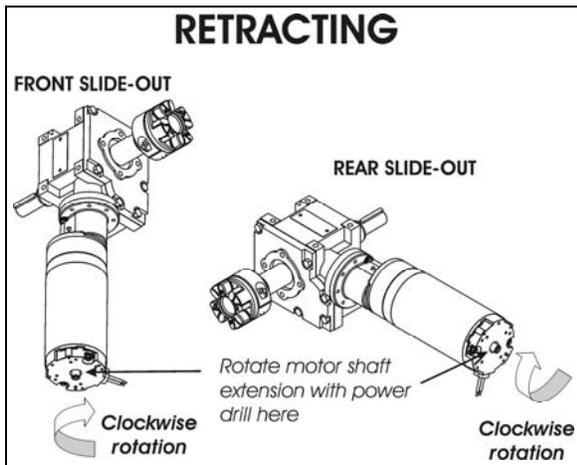
INFLATABLE SEAL RELIEVING SHUT-OFF VALVE

26098

3. To move the slide-out, use a cordless power drill with a 3/8" hexagonal bit on the shaft extension of the slide-out motor.
4. Rotate the slide-out motor shaft extension with the cordless power drill until the slide-out comes to its closed position.
5. Once the slide-out room is lined up to its closed position, remove the tool from the motor.

**NOTE**

The **front slide-out motor** is located inside the 2<sup>nd</sup> baggage compartment while the **rear slide-out motor** is accessible from inside the vehicle, under the bed structure.



**SLIDE-OUT MOTOR ROTATION**

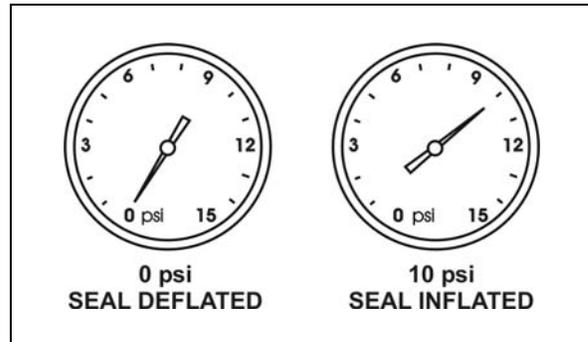
26038



**CAUTION**

Slow down on the closing speed as the slide-out approaches its closed position. As soon as the "in limit" stoppers come in contact with their bearing surface, stop immediately the cordless power drill rotating movement. Not doing so could overload the drive mechanism and cause damage to the reduction gearbox.

6. Finally, the inflatable seal can be re-inflated by turning the shut-off valve handle counterclockwise. Check the pressure gage on the inflatable seal regulator to see if the pressure is increasing to 10 psi.



**INFLATABLE SEAL PRESSURE GAGE**

26108

**NOTE**

The slide-out control system inhibits transmission range selection to prevent the vehicle from moving if the slide-out is not in its full "IN" position.

**Manual extending procedure – Front and rear slide-out**

1. Apply parking brake to disengage the security pin from the receptacle.
2. Turn the ignition switch to the "OFF" position, and remove the ignition key for more safety.
3. Deflate the inflatable seal by using the relieving shut-off valve located in the slide-out control panel. Turn the handle clockwise to deflate the seal. Make sure the pressure indicator reading is "0 psi".

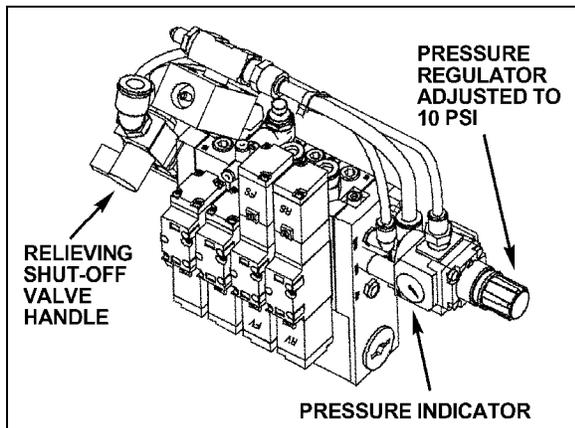


**CAUTION**

The pressure in the inflatable seal must be completely relieved to prevent any damage to the seal. Also, check that the security pin is disengaged from the receptacle so it does not stop slide-out movement.

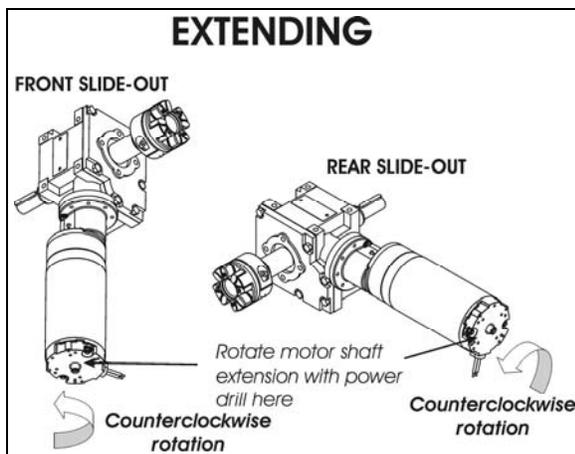
**NOTE**

When air pressure is relieved using the shut-off valve, the normal extending and retracting operation cycle is disabled, for that reason the slide-out cannot be moved with the handheld control.



INFLATABLE SEAL RELIEVING SHUT-OFF VALVE 26098

4. To move the slide-out, use a cordless power drill with a 3/8" hexagonal bit on the shaft extension of the slide-out motor.
5. Rotate the slide-out motor shaft extension with the cordless power drill until the slide-out comes to its opened position.
6. Once the slide-out is lined up to its opened position, remove the tool from the motor.



SLIDE-OUT MOTOR ROTATION 26038

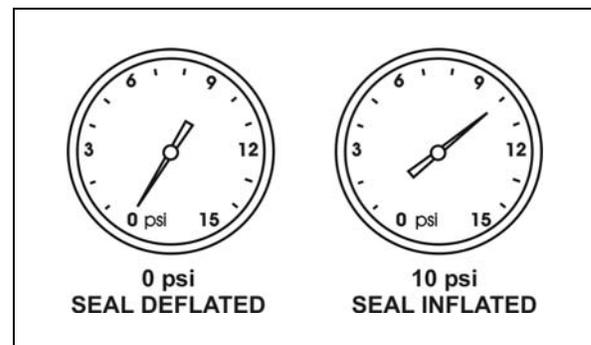
**NOTE**

The **front slide-out motor** is located inside the 2<sup>nd</sup> baggage compartment while the **rear slide-out motor** is accessible from inside the vehicle, under the bed structure.

**CAUTION**

Slow down on the closing speed as the slide-out approaches its extended position. As soon as the "out limit" stoppers come in contact with their bearing surface, stop immediately the cordless power drill rotating movement. Not doing so could overload the drive mechanism and cause damage to the reduction gearbox.

7. Finally, the inflatable seal can be re-inflated by turning the shut-off valve handle counterclockwise. Check the pressure gage on the inflatable seal regulator to see if the pressure is increasing to 10 psi.



INFLATABLE SEAL PRESSURE GAGE 26108

**NOTE**

The slide-out control system inhibits transmission range selection to prevent the vehicle from moving if the slide-out is not in its full "IN" position.

**SLIDE-OUT TROUBLESHOOTING**

**Error condition or missing operation condition**

When an error condition or a missing operation condition is present on a slide-out, the green indicator light on its respective handheld control starts blinking upon releasing of the IN/OUT rocker switch.

Turning the ignition OFF and ON again, will stop the blinking and reset the fault. If the error condition or a missing operation condition is still present, the blinking will start again the next time that the slide-out is operated. So, to get a fault diagnostic, use the MCD right after operating the slide-out without cycling the ignition switch.

**Fault diagnostic**

To get more specific information about the error condition or the missing operation condition, request a diagnostic from the slide-out CECM using the dashboard message center display (MCD). Check if there are active errors in the slide-out electrical system. With the SYSTEM DIAGNOSTIC menu, highlight FAULT DIAGNOSTIC and then highlight ELECTRICAL SYSTEM to request a diagnostic of the electrical system from the CECM. Press the enter key. If applicable, the MCD shows the device ID, the fault messages or fault codes recorded. When more than one fault is recorded, an arrow pointing down appears on the right of the display. Use the down arrow to see all the fault messages.

Once the problem corrected, the MCD still shows the fault as being active. You have to leave the FAULT DIAGNOSTIC menu, wait approximately 20 to 30 seconds and then return to FAULT DIAGNOSTIC to request a new diagnostic of the ELECTRICAL SYSTEM from the CECM. The MCD should display the fault as being inactive.

**TROUBLESHOOTING – OPERATING CONDITIONS, CONTROL & MECHANICAL COMPONENTS**

| PROBLEM   | CAUSE   | CORRECTIVE ACTION  |
|---|---|--|
| <p>The slide-out functions normally but the handheld control green indicator light blinks</p> | <p>Something is defective and may eventually create an issue if not repaired. The problem may be:</p> <ul style="list-style-type: none"> <li>A. Faulty limit sensor causing the slide-out to stop in overcurrent;</li> <li>B. CAN network problem causing the transmission inhibit safety to be non-operational;</li> <li>C. Vacuum pressure transducer disconnected or damaged (vacuum is applied for a fixed time of 7 seconds);</li> <li>D. Seal inflating valve solenoid open circuit (the seal is not re-inflated and water can penetrate in the vehicle);</li> <li>E. Security pin valve solenoid open circuit (the security pin is not extended while vehicle is riding).</li> </ul> | <p>Request a diagnostic from the electrical system using the MCD SYSTEM DIAGNOSTIC menu.</p>   |
| <p>The slide-out does not extend</p>  | <ul style="list-style-type: none"> <li>A. The parking brake is not seen by the controller as being applied;</li> <li>B. Not enough air pressure in the accessory air tank to permit proper operation of the vacuum generator;</li> <li>C. Faulty vacuum generator, connection to the vacuum generator open, seal deflating valve solenoid open circuit;</li> <li>D. I/O-B module output defective, regulated 5-volt supply to sensors shorted to ground, "out limit" sensor</li> </ul>  | <ul style="list-style-type: none"> <li>A. Make sure the parking brake is applied. Confirm parking brake application with the parking brake light on the telltale panel.</li> <li>B. Run the engine at fast idle a few minutes to increase air pressure in the accessory air tank and try again.</li> <li>C. Turn the relieving shut-off valve handle clockwise to deflate the inflatable seal, disconnect the pressure transducer. Do not forget to reconnect the pressure transducer and to close the relieving shut-off valve. Failure to do so could damage the seal and lead to water infiltration;</li> </ul> |

## 80 OTHER FEATURES

| PROBLEM  | CAUSE   | CORRECTIVE ACTION   |
|--|---|---|
|  | shorted to ground, connection to the motor negative relay solenoid open circuit;  | D. Operate the slide-out with the manual override procedures.   |
| The slide-out does not retract   | <p>A. Not enough air pressure in the accessory air tank to permit proper operation of the vacuum generator;</p> <p>B. Faulty vacuum generator, connection to the vacuum generator open, seal deflating valve solenoid open circuit;</p> <p>C. I/O-B module output defective, "in limit" sensor shorted to ground, connection to the motor positive relay solenoid open circuit;</p> | <p>A. Run the engine at fast idle a few minutes to increase air pressure in the accessory air tank and try again.</p> <p>B. Turn the relieving shut-off valve handle clockwise to deflate the inflatable seal, disconnect the pressure transducer. CAUTION, do not forget to reconnect the pressure transducer and to close the relieving shut-off valve. Failure to do so could damage the seal and lead to water infiltration;</p> <p>C. Operate the slide-out with the manual override procedures.</p> |
| When extending, the slide-out stops after having extended by 1 inch                                    | A. The security pin valve solenoid circuit is shorted to (+) 24-volt and the security pin remains engaged;  | A. Disconnect air supply from the security pin cylinder;  |
| Transmission DRIVE range or REVERSE cannot be selected (the slide-out telltale light is illuminating). | <p>A. Slide-out not in full "in" position;</p> <p>B. Faulty "in limit" sensor. The slide-out is retracted but the controller doesn't not see it as retracted.</p>   | <p>A. Retract slide-out.</p> <p>B. Confirm that all slide-outs are retracted. On the slide-out control panel, disconnect the 5 pins green connector on the I/O-B module to disable the transmission inhibit. CAUTION, this is a temporary measure, the vehicle must be serviced as soon as possible.</p>  |
| Slide-out does not retract or extend when depressing the control switch.                               | <p>A. Electrical motor failure;</p> <p>B. Speed reduction gearbox failure;</p> <p>C. Security pin still engaged in receptacle;</p>  | <p>A. Replace motor.</p> <p>B. Inspect gearbox components, particularly: bronze wheel or first reduction stage output shaft. Replace damaged components.</p> <p>C. Disengage pin and check if air cylinder is damaged.</p>  |
| Slide-out is not straight once retracted or during retracting or extending operation.                  | <p>A. Broken rack tooth;</p> <p>B. Faulty rack attachment;</p> <p>C. Faulty shaft key at speed reduction gearbox or jaw coupling;</p> <p>D. Pinion keyless bushing slipping;</p> <p>E. Shaft breaking;</p> <p>F. Flange bearing attachment loosen;</p>  | <p>A. Replace rack.</p> <p>B. Tighten mounting bolts, apply proper torque and use Loctite threadlocker (replace rack if necessary).</p> <p>C. Replace key or component having a damaged keyway.</p> <p>D. Realign slide-out and apply proper torque to keyless bushing.</p> <p>E. Replace shaft.</p> <p>F. Reposition shaft and tighten flange bearing mounting bolts.</p>  |
| Slide-out moves out slightly when vehicle is traveling.  | A. Lower "in limit" stoppers are not leaning against the structure at the moment when the "in limit" sensor detects the magnet;   | B. Adjust the sensor position in order to have contact of the stoppers against the structure at the time when the system stops the slide-out retraction.  |

|  |   |  |
|--|---|--|
| Slide-out moves when vehicle is moving.                        | A. Inflatable seal not inflated   | A. Check seal condition and seal air supply system.  |
| Slide-out retracts or extends difficultly.                     | A. Foreign matters accumulated in the linear bearing;   | A. Inspect the linear bearing end seals to see if they are in good condition. If not, replace the end seals and clean the inside of linear bearing.  |
| Slide-out oscillates vertically when retracting or extending   | A. Linear bearing balls hardened due to a too heavy load;<br>B. Linear bearing mounting bolts loosen;   | C. If balls clearance is excessive, replace linear bearing.<br>D. Tighten mounting bolts.  |
| Slide-out vibrating or noisy when extending or retracting      | A. Acetal plastic block rubbing against the slide-out structure;<br>B. Worn-out anti-friction coating on wiper seal around slide-out;<br>C. Lower acetal plastic block rubbing against rail;  | A. Realign acetal plastic block.<br>B. Replace wiper seal.<br>C. Remove lower acetal plastic block and machine down 1mm (0.039").  |
| Top of slide-out moves sideways when vehicle is moving         | A. Roof reinforcing rod misadjusted;  | A. Readjust as per procedure.  |
| Slide-out does not retract up to its full "in" position        | A. Interference between the exterior extrusion and the vehicle upper horizontal member above the slide-out;   | A. Check for straightness of horizontal member and adjust the roof reinforcing rod.<br>B. Check for outer wiper seal lip straightness on the slide-out roof.   |
| Bottom of slide-out not flush with vehicle body                | A. Broken or misadjusted lower "in limit" stopper;<br>B. Lower "in limit" stoppers are not leaning against the structure at the moment when the "in limit" sensor detects the magnet;<br>C. Acetal plastic block serving as leaning surface for lower "in limit" stopper broken or moved; | D. Replace or adjust lower "in limit" stopper.<br>E. Adjust the sensor position in order to have contact of the stoppers against the structure when slide-out is stopped.<br>F. Replace or adjust acetal plastic block proper position.  |
| Top of slide-out not flush with vehicle body                   | A. Broken or misadjusted leveling or retaining screw;<br>B. Faulty upper "in limit" stopper;  | A. Check and replace screw.<br>B. Replace upper "in limit" stopper.  |
| Lower edge of slide-out not parallel with vehicle body opening | A. Faulty leveling and retaining screw (8 screws each side).  | C. Inspect screw, replace and adjust slide-out level.  |
| Watertightness problem   | A. Inflatable seal and/or wiper seal damaged or unstuck;<br>B. Insufficient air pressure in the seal;<br>C. No air pressure in the slide-out pneumatic system;  | A. Check both seals condition.<br>B. Check the pressure regulator, the relieving shut-off valve and the seal valve condition.<br>C. Check the slide-out air pressure inlet valve condition and the accessory air tank pressure.<br>D. Check the exterior extrusion screws, the windows and the exterior panels sealant |

## 82 OTHER FEATURES

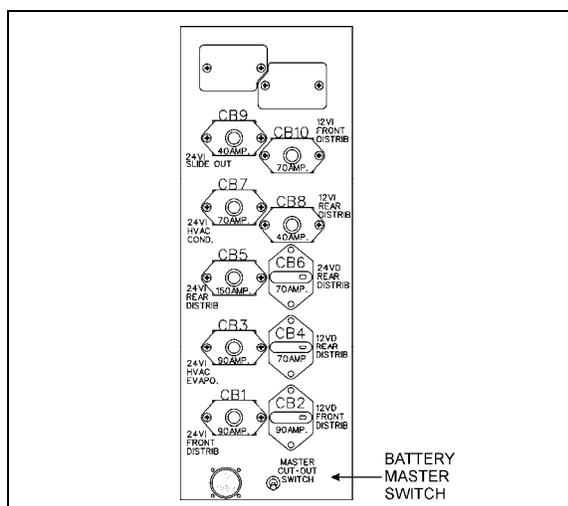
|   |  |  |
|---|--|--|
|   | <p>D. Sealant missing;</p> <p>E. Wiper seal draining hole clogged;</p> <p>F. Faulty water recovery pan;</p> <p>G. Faulty internal gutter;</p>  | <p>condition.</p> <p>E. Unclog draining hole.</p> <p>F. Check the recovery pan.</p> <p>G. Check internal gutter.</p>   |
| Knocking sound at end of travel when extending slide-out                          | A. Inner stoppers misadjusted;   | A. Readjust the inner stoppers.  |
| Knocking sound when parking brake is released                                     | A. Security pin retracts too rapidly;  | A. Adjust security pin air flow regulator.   |
| Inflatable seal damaged or removed, or wiper seal unstuck from the structure.     | <p>A. Slide-out has been retracted or extended with the manual procedure with the inflatable seal not deflated;</p> <p>B. Pressure transducer malfunction;</p> <p>C. Faulty roof reinforcing rod adjustment;</p> <p>D. Seal valve malfunction;</p> <p>E. Excessive load in the slide-out;</p> <p>F. Slide-out not centered in the structure opening;</p> | <p>A. Always deflate the seal when manually retracting or extending the slide-out.</p> <p>B. Check the pressure transducer condition, replace if necessary.</p> <p>C. Readjust the roof reinforcing rod.</p> <p>D. Check the seal valve condition.</p> <p>E. Reduce load or distribute load evenly in order to respect the deflection criterion and slide-out load capacity.</p> <p>F. Readjust the slide-out height and center horizontally in opening.</p> |
| Friction at end of travel when in full OUT position or at beginning of retraction | A. Interference between upper structure key and upper inner stopper;   | A. Readjust the upper inner stopper.   |

## STARTING THE ENGINE

In normal circumstances, the engine should be started from the driver's area. However, a rear start panel located in the engine compartment permits starting the engine from that location, mainly for maintenance purposes.

## STARTING THE ENGINE FROM THE DRIVER'S AREA

- Apply the spring-loaded parking brake by pulling the parking brake control button all the way up;
- Make sure the starter selector switch located in the engine compartment is set to the *NORMAL* position;
- Check that the battery master safety switch in the main power compartment and on the dashboard are set to the *ON* position;



**INSIDE MAIN POWER COMPARTMENT** 06605A

- Place transmission in neutral;
- Turn ignition key to *START* position (refer to "CONTROLS AND INSTRUMENTS" chapter), release the key after the engine starts.

### CAUTION

Do not engage starter for more than 15 seconds at a time. If engine does not start within 15 seconds, release ignition key and let starter cool for one minute before attempting to restart.

### CAUTION

Do not press accelerator pedal before starting. This could result in an electronic control unit fault and degrade the fuel system control.

### CAUTION

Special precautions are necessary with turbocharged engines to avoid possible turbine damage. After starting, run the engine at normal idle for two minutes to allow lubricating oil to reach the turbocharger. Then run the engine at fast idle. Let oil pressure reach normal operating range before driving.

**NOTE**

*If engine does not start, return key to OFF position before attempting to restart.*

**NOTE**

*If the accelerator pedal is depressed before starting, release and wait 30 seconds before attempting to restart.*

**NOTE**

*Brake pedal must be applied when selecting Drive (D) otherwise the transmission will stay in neutral (N).*

## STOPPING THE ENGINE

- Apply parking brake and place transmission in neutral (N);
- Remove all electrical loads;
- Allow engine to idle for at least two minutes before shutting engine *OFF*. This insures that the turbine speed drops and allows time for the engine exhaust gas temperature to drop to about 300°F (150°C);
- Turn the ignition key to the *OFF* position.

### CAUTION

Do not shut *OFF* engine when running above normal idle.

## 84 STARTING AND STOPPING PROCEDURES



### CAUTION

Set the battery master switch to the *OFF* position after parking and when left unattended for an extended period of time.

### STARTING THE ENGINE FROM THE ENGINE COMPARTMENT

Switches to start and stop the engine from inside the engine compartment are mounted on a small panel on the R.H. side of engine compartment.



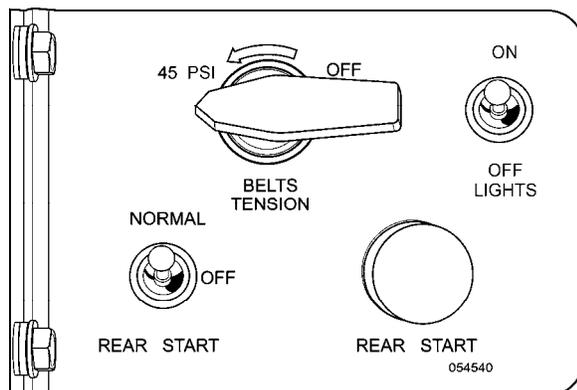
### WARNING

Apply parking brake and place transmission in neutral (N) before starting engine from inside the engine compartment.

Set the safety switches in the main power compartment and on the dashboard to the *ON* position;

Set the starter selector switch to the *REAR START* position;

Press the starter push-button switch. Release push-button after the engine starts.



ENGINE REAR START PANEL

01044



### WARNING

Do not wear loose clothing when working near engine. Stand clear of rotating components.



### CAUTION

Refer to cautions in "Starting From The Driver's Seat" and "Stopping the Engine" in this chapter.

### STOPPING THE ENGINE

To stop the engine, set the starter selector switch to the *OFF* position.



### CAUTION

Do not stop engine by any other method.



### WARNING

Apply the parking brake before stopping engine. In the event the engine is stopped while the parking brake is not applied, a reminder alert will sound.

### COLD WEATHER STARTING

The vehicle may be equipped with the optional ether cold starting aid to facilitate cold-weather starts. A rocker switch located on the dashboard near the ignition switch activates the device. A dashboard logic circuit prevents accidental operation when the engine is running.

To activate the ether starting aid, proceed as follows:

1. Before starting the engine, press the "Ether" rocker switch on the dashboard for 3 seconds to fill the solenoid;
2. Release rocker switch to discharge a shot of ether;
3. Allow 3 seconds for the shot to discharge;
4. Start the engine and use if necessary another shot to keep the engine running.



### CAUTION

Use the cold starting aid only when absolutely necessary. Excessive use of starter fluid could result in serious engine damage.



### CAUTION

Do not engage starter for more than 15 seconds at a time. If engine does not start within 15 seconds, release ignition key and let starter cool for one minute before attempting to restart.

## JUMP STARTING

In order to avoid damage to solid-state electrical components, it is important that jumper (booster) cables be used correctly and only in emergencies. To jump start, use another 24 volt DC, negative grounded, power source. Use only jumper cables rated at 500 cranking amperes.



### WARNING

Injury, explosion, battery acid damage or charging system overload may result if these jump starting procedures are not precisely followed.



### WARNING

Wear eye protection and remove rings, metal jewelry and watches with metal bands.



### WARNING

The battery could rupture or explode if jump started when the run-down battery fluid is frozen or if the battery fluid level is low. Check condition of run-down battery before attempting to jump start.



### WARNING

The gases given off by batteries while jump starting are explosive. Do not smoke near batteries.



### CAUTION

Do not let the two vehicles touch. Keep a walk-through distance between the two vehicles. Make sure positive (red) and negative (black) jumper cable clamps do not touch.



### CAUTION

Never connect the jumper cable to the negative terminal post of the run-down battery.



### CAUTION

Do not jump start if a maintenance-free battery has a yellow test indicator. Have the battery replaced.



### CAUTION

Before attempting to jump start, make sure the parking brake is applied and the transmission is in neutral (N). Turn off all lights, heaters and other electrical accessories.



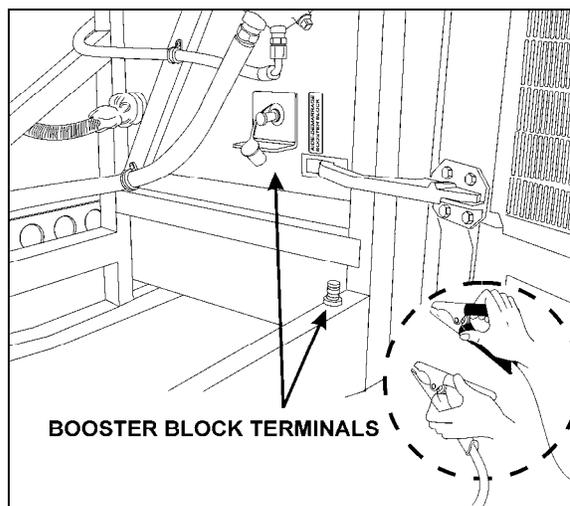
### CAUTION

Off-board battery charger with a start boost facility must not be used to jump start the vehicle. This could damage the electrical system.



### CAUTION

Choose a booster vehicle which produces comparable amperage as your vehicle.



BOOSTER BLOCK TERMINALS IN ENGINE R.H. SIDE ACCESS COMPARTMENT

18645

To jump start, proceed as follows:

1. Remove the protective caps from the booster block terminals located in the main power compartment.
2. Connect one end of the red jumper cable to the positive (+) post of the booster power

## 86 STARTING AND STOPPING PROCEDURES

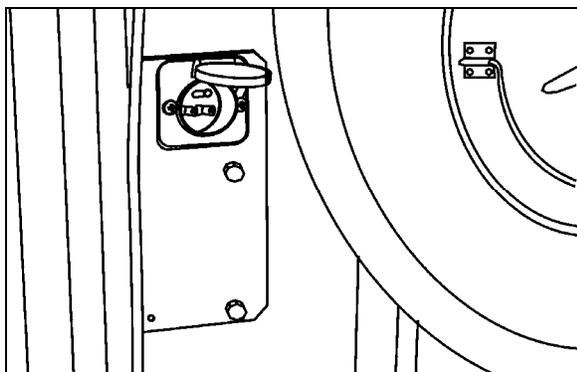
source. If the good battery is in another vehicle, that vehicle's engine must be stop before connecting;

3. Connect the other end of the same red jumper cable to the positive (+) terminal on the booster block;
4. Connect one end of the black jumper cable to the negative (-) post on the booster power source;
5. Connect the other end of the same black jumper cable to the negative (-) terminal on the booster block; If the good battery is in another vehicle, start that vehicle's engine;
6. Let the engine run for a few minutes, then start the vehicle with the run-down battery;
7. Disconnect the jumper cables in reverse order given in steps 2 through 5;
8. Install protective caps on the booster block terminals.

### NOTE

*Jumper cables must be rated at 500 cranking amperes. If jumper cable length is 20 feet (6 m) or less, use 2/0 (AWG) gauge wires. If cable length is between 20 to 30 feet (6 to 9 m), use 3/0 (AWG) gauge wires.*

### ENGINE BLOCK HEATER



110-120 VOLTS BLOCK HEATER CONNECTOR 06650

The vehicle is equipped with an engine immersion-type electric block heater to assist cold weather starting. A connector is located on the engine compartment door. Using an extension cord, connect to a 110 - 120 VAC outlet. Use the engine block heater when the vehicle is parked in cold weather for a long period and the proper power source is available.



### CAUTION

Connect only to a 110-120 VAC power source. Use only grounded (three prongs) extension cords with a minimum rated capacity of 15 amps. Disconnect the extension cord before starting. Before driving, make sure the extension cord is disconnected and the engine compartment door is closed.

### ENGINE WARM-UP

After starting the engine, keep the parking brake applied and let the engine run at normal idle for two minutes to allow lubricating oil to reach the turbocharger. Increase engine speed to fast idle, using the fast idle switch located on the dashboard for five minutes, without loading the engine. Monitor the gauges and indicator lights to make sure all conditions are normal. If an abnormal condition is observed, stop the engine immediately and have the condition corrected.



### WARNING

Never let the engine run in an enclosed, non-ventilated area. Engine exhaust fumes contain dangerous gases which can be fatal if inhaled. Before warming up the engine, open the door(s) or move the vehicle outside.

### NOTE

*The engine will reach normal operating temperature shortly after driving. Avoid driving at full throttle until engine coolant temperature reaches 140°F (60°C).*

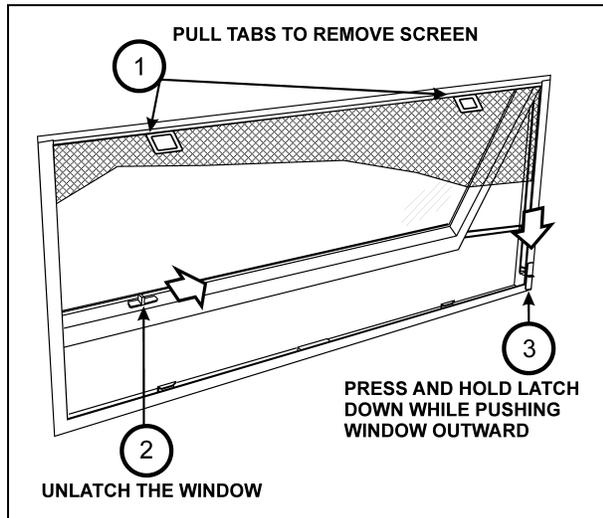
### ALLISON TRANSMISSION WARM-UP

With an automatic transmission, when the temperature falls below -20°F (-29°C), the CHECK TRANS telltale light illuminates after the engine is started, and a reminder tone will sound. In this case, the transmission will be locked in neutral (N) until the transmission temperature rises above -20°F (-29°C) and the CHECK TRANS telltale light goes out. The transmission will only operate in first or reverse gears until it reaches normal operating temperature.

## EMERGENCY EXITS

Locate and learn how to use all possible emergency exits. Inform all guests or passengers of the location of exits and how to use them in case of an emergency.

### ELECTRIC AWNING WINDOWS



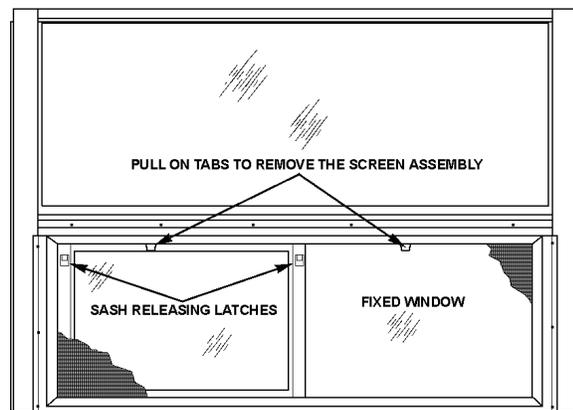
**ELECTRIC AWNING WINDOW**

18584

### ELECTRIC SLIDING WINDOWS

Electric (power) sliding windows can be used as emergency exits.

- Remove the screen assembly,
- Pull down on both red release latches simultaneously and rotate the sash inwards approximately 10 degrees.
- Lift the sash up and out to disengage the bottom of the sash from the window frame.



**ELECTRIC SLIDING WINDOW**

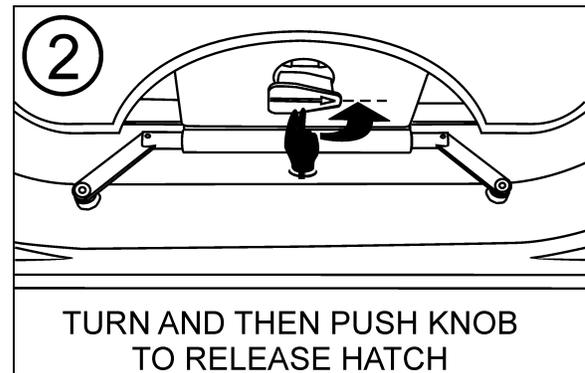
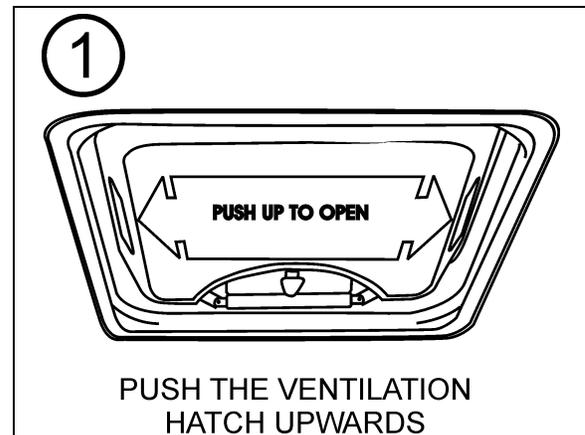
18206

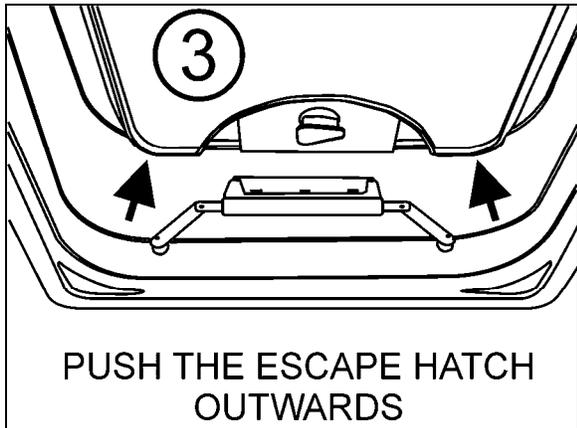
### FIXED WINDOWS

Fixed windows are fastened or glued to the structure of the vehicle, they do not open and are very hard to break. Do not attempt to open, instead find and use the entrance door, the nearest awning or sliding window or a roof escape hatch.

### EMERGENCY ROOF ESCAPE HATCH

A roof ventilation hatch, designed to be opened by occupants may be installed in the roof at the rear of the vehicle. Another optional roof hatch may be located in the front of the vehicle. The hatches can serve as emergency exits. In case of an emergency, push the ventilation hatch upwards (1). Turn knob ¼ turn (arrow pointing "TO EXIT") and then push knob to release the hatch (2). Push the escape hatch outwards (3). A decal with operating instructions is located on the hatch.





**PUSH THE ESCAPE HATCH OUTWARDS**  
EMERGENCY ROOF ESCAPE OPENING

**NOTE**

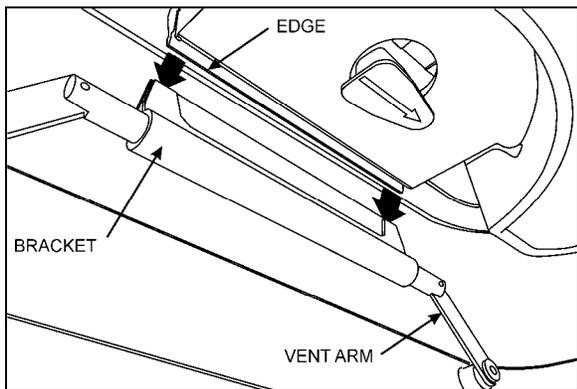
*In the event of ventilation blower motor failure, the roof hatch may be used to aid ventilation by pushing the hatch upwards.*



**CAUTION**

Be aware of reduced vehicle overhead clearance when driving under overpasses with the roof hatch open.

To latch escape hatch after use, vent arms must be pushed upright in FULL OPEN VENT position. Insert edge firmly between the two sections of the bracket and then return knob to original position (arrow pointing "LATCHED") to lock the hatch. Finally, pull the hatch in to closed position, one side at a time.

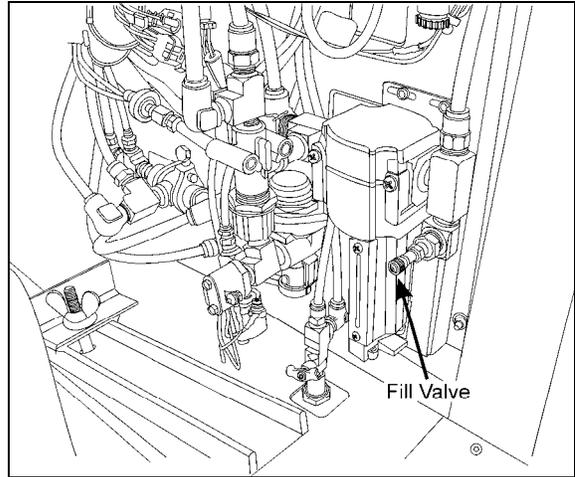


**ROOF ESCAPE LATCHING**

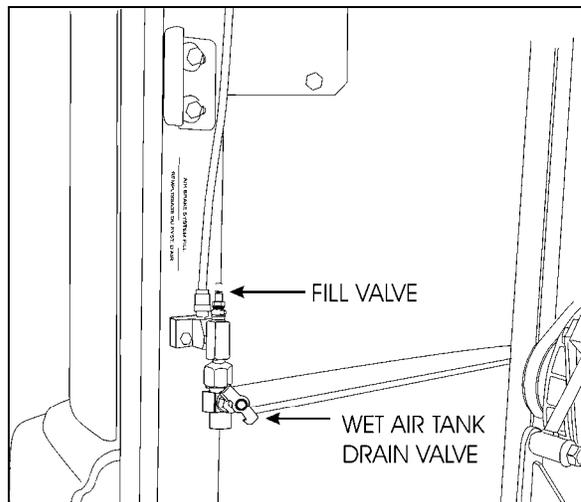
**EMERGENCY AIR-FILL VALVES**

The private coach is equipped with two air system emergency fill valves to supplement the air system when air pressure is low and the engine cannot be operated. One valve is located

inside the front service and electrical compartment. The other valve is located inside the engine R.H. side compartment.



**FILL VALVE IN FRONT SERVICE COMPARTMENT** 12130



**FILL VALVE IN ENGINE R.H. SIDE COMPARTMENT** 12219

Both air system emergency fill valves are fitted with standard tire valve stems. The air systems can be filled using any standard external air supply line. The fill valve located in the engine R.H. side compartment supplies air for all systems (brakes, suspension and accessories). The fill valve located in the service compartment supplies air for accessories only.



**CAUTION**

Air filled through the two emergency fill valves will pass through the standard air filtering system. Do not fill air at any other location. Do not exceed 120 psi (827 kPa).

## EMERGENCY AND PARKING BRAKES

During normal operation, if air pressure in both brake circuits drops below 40 psi (276 kPa), spring-loaded emergency parking brakes will be immediately applied at full capacity to the drive axle wheels to stop the private coach.

Spring-loaded parking brakes are applied by pulling up the control valve knob located on the L.H. lateral console.

Parking brakes are not designed to be used as service brakes. For normal driving conditions, the control valve knob must remain in the down position.

**NOTE**

*Only use the parking brakes to supplement the service brakes to stop the private coach in emergency conditions. The stopping distance will be considerably longer than when using normal service brakes.*

**NOTE**

*Before releasing the parking brakes by pushing down the control valve knob, check the pressure gauges to make sure that the brake system air pressure is greater than or equal to 95 psi (655 kPa).*



**WARNING**

Always apply the parking brakes before leaving the driver's seat.

**NOTE**

*A beep will sound if the ignition switch is turned to the OFF position without applying the parking brakes. The same beep will sound if pressure is still applied to the service brake pedal.*

**NOTE**

*The stoplights will automatically turn on if the parking brake is applied when the ignition key is set to the ON position.*

## SAFETY EQUIPMENT

### AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM (AFSS) (OPTIONAL)

The vehicle may be equipped with the optional Automatic Fire Detection and Suppression System (AFSS).

#### System operation

When a fire is detected inside the engine compartment, the system sends a fire alarm signal to the **Protection Panel** located in the Driver's area near the lateral control panel. The **Protection Panel** immediately turns on the fire "ALARM" lamp and sounds the audio alarm. After a 15-second time delay the engine is automatically shut down. The fire extinguisher is discharged simultaneously with engine shutdown.

**NOTE**

*The **Manual Activation Switch** is used when immediate discharge of the fire extinguisher and engine shutdown is desired.*

**NOTE**

*The **Protection Panel** continuously monitors system integrity and displays the information via the "SYSTEM OK" and fire "TROUBLE" indicators.*

#### Operational sequence (fire)

1. A fire detector or liner thermal detector detects a fire in the engine compartment and sends a signal to the **Protection Panel** in the driver's area.
2. The fire "ALARM" lamp on the **Protection Panel** will illuminate solid red and an audible alarm will sound.
3. The operator shall bring the vehicle to a safe stop.
4. The system automatically shuts down the vehicle engine and discharges the extinguisher into the engine compartment 15 seconds after the fire alarm starts unless advanced or delayed by the operator.
  - If the operator presses the **Manual Activation Switch**, all delays will terminate and the engine shutdown and extinguisher discharge will occur immediately.

## 90 SAFETY FEATURES AND EQUIPMENT

- If the operator presses and releases the **Delay Engine Stop** switch once, the engine shutdown and extinguisher discharge will be delayed by an additional 15 seconds.

**WARNING**

The engine will stop 15 seconds after the fire alarm starts. The operator must be prepared to bring the vehicle to a safe stop as soon as the alarm sounds. Steering may become difficult after engine shutdown. If more time is required, the "DELAY ENGINE STOP" switch may be pressed and released for an additional 15 seconds delay.

**WARNING**

The extinguisher discharge may cause an obscuring cloud behind and near the vehicle.

- The red fire "ALARM" lamp and audible alarm will stay on. The yellow fire "TROUBLE" lamp will also be on indicating a discharged extinguisher.
- The system must be reset and the fire extinguisher removed and replaced in accordance with the System Reset portion of the Kidde Dual Spectrum Operation & Maintenance Manual.

### TIRE PRESSURE MONITORING SYSTEM (TPMS) (OPTIONAL)

The vehicle may be equipped with the optional Tire Pressure Monitoring System (TPMS).

#### Description

System includes the following elements:

- Special tire valves;
- RF sensor inside each tire, fixed to the valve;
- 3 antennas to receive the sensors RF signal (one in the front spare tire compartment, one above the L.H. side rear wheels and one above the R.H. side rear wheels);
- A TPMS receiver connected to the antennas and located in the front electrical compartment, above the CECM;
- A TPMS display built in the L.H. dashboard panel;

- A "FLAT TIRE" telltale panel indicator.

The section of the special tire valves located inside the tire is dome-shaped to allow fixing the sensor.

Sensors provide continuous tire pressure and temperature reading.

The normal sensor battery lifespan is 5 years. The remaining lifespan is displayed as a percentage in the TPMS display.

**NOTE**

*It is recommended to check the remaining battery lifespan when changing the tires in order to replace the sensors at the same time if they are due for replacement before the next change.*

The screw fixing the sensor to the valve can only be used once because the threads are powder-coated to lock the sensor in place and prevent unfastening.

The telltale panel indicator illuminates for 3 seconds when the ignition switch is turned ON to check the display operation and the communication between the display and the vehicle multiplex system. This confirms the communication between the TPMS display and CECM.

#### Settings Menu

- Set Wheel ID

SETTINGS MENU

**SET WHEEL ID**

LEARN WHEEL ID

SET TARGET PRESSURES

ALARM SETTINGS

DISPLAY SETTINGS

EXIT

▲ ▼ OK

**Set Wheel ID**

CHOOSE AXLE & WHEEL 1 : 1

OLD VALUE: 1548964589

NEW VALUE: 1548964589

ACCEPT                      EXIT

+ - ◀ ▶ OK

- ◀ ▶ Navigate
- +/- Increase, decrease digits
- OK Navigate forward
- ACCEPT & OK Execute Change Old Value = New. Stay in Menu
- EXIT & OK Ignore changes in progress (new value) and EXIT menu

- Learn Wheel ID

This menu allows learning new wheel sensors ID. The user can learn only one wheel, several wheels or all wheels of the vehicle. The

sequence automatically jumps to the next wheel such that a user can initiate all wheels without having to come back to the display between each wheel.

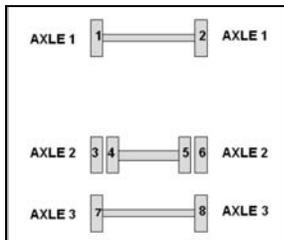
The display uses a pressure change as the criteria to recognize which wheel sensor the operator wants to get assigned to a given location. The amount of pressure change required is established at 2 PSI.

A pressure change of about 3 PSI is needed to wake up a sensor and then an extra amount of pressure change of 2 PSI is needed to trigger the display. The operator has to create a pressure change by at least 6 PSI and then wait for the display to recognize the pressure change. The wait time correspond to the sensor sampling rate.

When entering the menu, the axle 1, wheel 1 is selected by default as a starting point for the learning. The user can select another axle with +/- , move the cursor to the wheel number with the right arrow and select another wheel with the +/- or move the cursor down to the start learning button.

After the start learning button is selected, the display stores the first transmission it gets from each sensor ID into the "initial pressure" for that sensor ID. Then it compares each subsequent pressures received for that sensor ID with the initial one and when the comparison shows a delta pressure exceeding the defined level required, this sensor ID is assigned to the selected tire location.

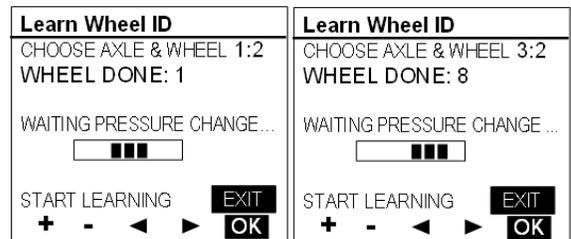
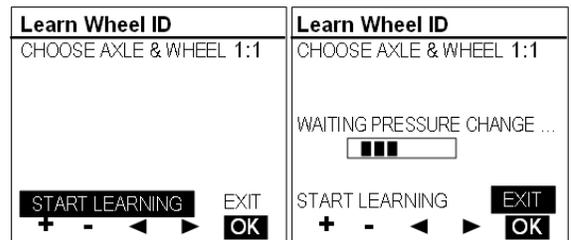
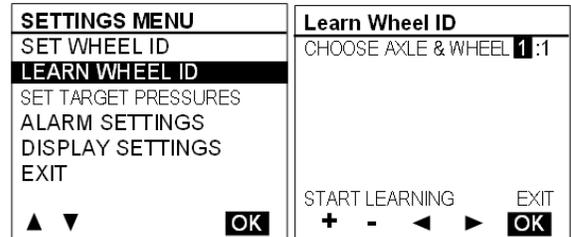
Once a wheel ID has been assigned, the display increments the number of Wheels done and it moves the axle/wheel to the next one in the sequence waiting for another sensor to come up with a pressure change. Within one learning session, the display remembers which sensor has been assigned and it will not assign it twice.



The sequence increments to the next wheel on the same axle counting wheels from left to right and then moves to the next axle counting axles from front to rear.

The display activates the next wheel parameter each time a wheel is done. This parameter is use by the vehicle electronic to activate an audible signal on the vehicle thus providing a feedback to the user that he can move to the next wheel.

The spare Tire can be done by selecting the axle/wheel "spare" which is internally encoded to 15:1.



- **Set Target Pressures**

This menu allows the end user fine tuning the target pressure setting to account for the specific operating conditions (cold weather operation or unloaded operation). The end user can readjust the target pressure within +30% and -20% of the factory set target pressure but not outside this range.

The factory set target pressure is always kept in permanent memory into the TPMS display and cannot be edited by the end user.

When the user enters a new target value, the user cannot select values outside the valid range.

## 92 SAFETY FEATURES AND EQUIPMENT

|                             |                                  |
|-----------------------------|----------------------------------|
| <b>SETTINGS MENU</b>        | <b>SET TARGET PRESSURES</b>      |
| SET WHEEL ID                | ENTER AXLE NUMBER: 1             |
| LEARN WHEEL ID              | OLD VALUE: 100 PSI               |
| <b>SET TARGET PRESSURES</b> | NEW VALUE: <b>100</b> PSI        |
| ALARM SETTINGS              | ACCEPT                      EXIT |
| DISPLAY SETTINGS            | +   -   ◀   ▶ <b>OK</b>          |
| EXIT                        |                                  |
| ▲ ▼ <b>OK</b>               |                                  |

- Alarm Settings

When selecting the Alarm Settings Menu, a sub menu containing Pressure Alarm and Temperature Alarm appears.

|                       |                       |
|-----------------------|-----------------------|
| <b>SETTINGS MENU</b>  | <b>ALARM SETTINGS</b> |
| SET WHEEL ID          | <b>PRESSURE</b>       |
| LEARN WHEEL ID        | TEMPERATURE           |
| SET TARGET PRESSURES  | SOUND                 |
| <b>ALARM SETTINGS</b> | EXIT                  |
| DISPLAY SETTINGS      |                       |
| EXIT                  |                       |
| ▲ ▼ <b>OK</b>         | ▲ ▼ <b>OK</b>         |

When selecting Pressure Alarm the screen pressure alarm shown below appears. A similar screen is defined for temperature settings. The cursor can be moved to highlight the number beside “new value”, “ACCEPT” or “EXIT”. +/- allows increasing or decreasing the numbers. Pressure alarms changes are allowed in steps of 1 PSI in the range from 5 to 20 PSI. Temperature alarms in steps of 5°F (2°C) in the range from 150 to 180 °F (64 to 82 °C). Pressing OK with “ACCEPT” highlighted applies the change and exits to the previous menu. Pressing OK when “EXIT” is highlighted exits without changes.

|                                  |                                  |
|----------------------------------|----------------------------------|
| <b>PRESSURE ALARM</b>            | <b>TEMPERATURE ALARM</b>         |
| DEVIATION FROM TARGET            |                                  |
| OLD VALUE: 10 PSI                | OLD VALUE: 175 °F                |
| NEW VALUE: <b>11</b> PSI         | NEW VALUE: <b>180</b> °F         |
| ACCEPT                      EXIT | ACCEPT                      EXIT |
| +   -   ◀   ▶ <b>OK</b>          | +   -   ◀   ▶ <b>OK</b>          |

|                    |
|--------------------|
| <b>ALARM SOUND</b> |
| <b>ON</b>          |
| OFF                |
| ▲ ▼ <b>OK</b>      |

- Display Settings

|                         |                          |
|-------------------------|--------------------------|
| <b>SETTINGS MENU</b>    | <b>DISPLAY SETTINGS</b>  |
| SET WHEEL ID            | <b>UNITS</b>             |
| LEARN WHEEL ID          | LANGUAGE                 |
| SET TARGET PRESSURES    | BACKLIGHT CONTROL        |
| ALARM SETTINGS          | CONTRAST CONTROL         |
| <b>DISPLAY SETTINGS</b> | KEY SOUND                |
| EXIT                    | DRIVE AXLE CONFIGURATION |
| ▲ ▼ <b>OK</b>           | ▲ ▼ <b>OK</b>            |

### Units

|                        |
|------------------------|
| <b>SET UNITS</b>       |
| <b>FAHRENHEIT (°F)</b> |
| CELCIUS (°C)           |
| ▲ ▼ <b>OK</b>          |

### Languages

|                     |
|---------------------|
| <b>SET LANGUAGE</b> |
| <b>ENGLISH</b>      |
| FRANÇAIS            |
| ▲ ▼ <b>OK</b>       |

### Backlight Intensity

|                          |
|--------------------------|
| <b>BACKLIGHT CONTROL</b> |
| +                      - |
| ▲ ▼ <b>OK</b>            |

### Key Sound

|                  |
|------------------|
| <b>KEY SOUND</b> |
| <b>ON</b>        |
| OFF              |
| ▲ ▼ <b>OK</b>    |

turns key press sound ON/OFF

### Tire / Axle Configuration

|                         |
|-------------------------|
| <b>DRIVE/AXLE TIRES</b> |
| <b>4 TIRES</b>          |
| 2 TIRES (SUPER SINGLE)  |
| ▲ ▼ <b>OK</b>           |

Pressing the up down arrow when the number of tires is highlighted allows flipping the number to 2 or 4 which are the only valid choices.

Refer to “Appendix G” for Troubleshooting Guide on TPMS system.

## FIRE EXTINGUISHERS

Two fire extinguishers are located on the private coach L.H. side just behind the driver’s seat. Instructions for use are found on the extinguishers. Make sure you know how to operate fire extinguishers in case of an emergency.

## FIRST AID KIT

The First Aid Kit is optional. A sticker (white cross over red background) identifies the First Aid Kit. It is usually stored near the driver's seat.

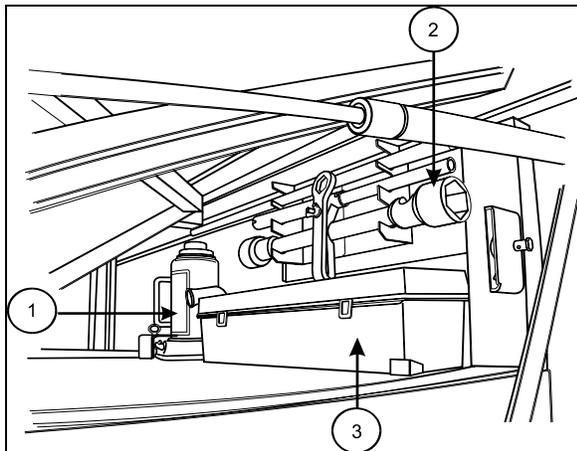
## WARNING REFLECTORS

A kit containing three triangular reflectors is provided to warn other drivers on the road in case of a breakdown. The kit is located on the right side of the first R.H. side baggage compartment with the jack and tools. The reflectors provide visible warning of an emergency situation. The three reflectors should be placed as indicated on the box cover. These reflectors comply with FMVSS 125 (Federal Motor Vehicle Safety Standards).

## JACK/TOOLS

A kit for jacking up the private coach is stored in the first R.H. side baggage compartment. The kit includes a:

1. 30 ton bottle jack;
2. Wheel nut wrench and lever;
3. Triangular reflectors.



FIRST R.H. SIDE BAGGAGE COMPARTMENT 13015

## SPARE PARTS KIT

The private coach may be equipped with a spare parts kit (optional). The kit contains parts such as bulbs, circuit breakers, belts, etc. The spare parts kit is stored in the first baggage compartment.

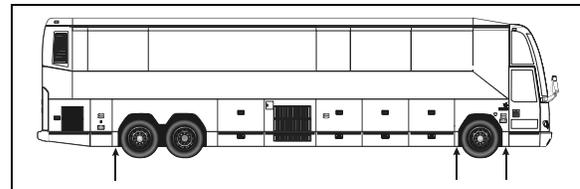
## CHANGING WHEELS

In case of a flat tire, turn *ON* the hazard flashers and bring the vehicle to a stop on the side of the road. Apply the parking brake. Make sure the vehicle is parked safely away from traffic. Set up the triangular reflectors in accordance with applicable highway regulations.

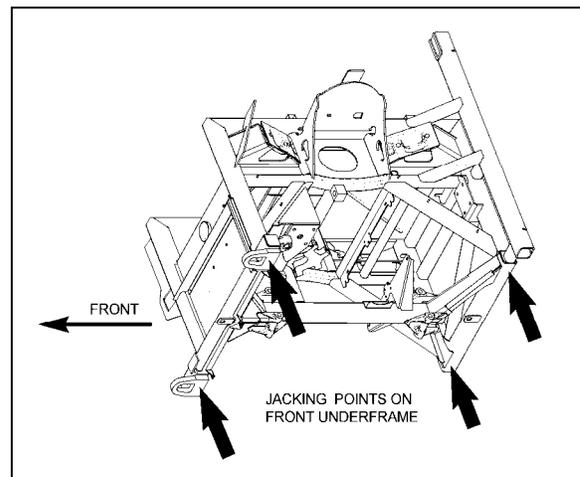
We suggest that you **do not** attempt to change a wheel. First, the wheel and tire are very heavy and usually there is no space available to put the removed flat. Second, the wheel nuts, especially those on inner dual, can become very tight after being on for only a short time. Often a heavy air wrench is required to get these nuts loose. We suggest you get help via cellular phone. There are tire service trucks all over the country that can bring a wheel and make the change safely.

## JACKING POINTS

Twelve jacking points are located on the vehicle: three are located on each side of the frame and two are located under each axle. Refer to the following illustrations for the location of jacking points.

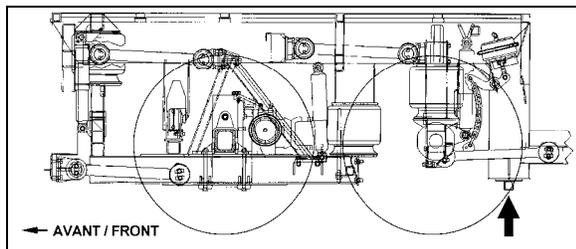


JACKING POINTS ON FRAME 18530



JACKING POINTS ON FRONT UNDERFRAME 18530

## 94 SAFETY FEATURES AND EQUIPMENT

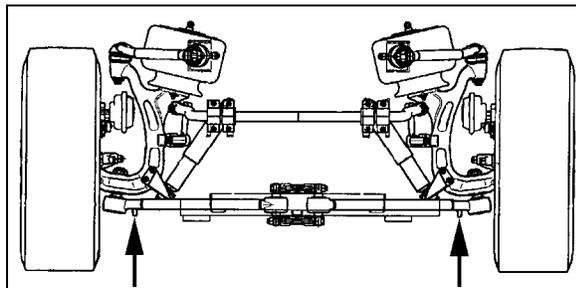


JACKING POINTS ON REAR FRAME



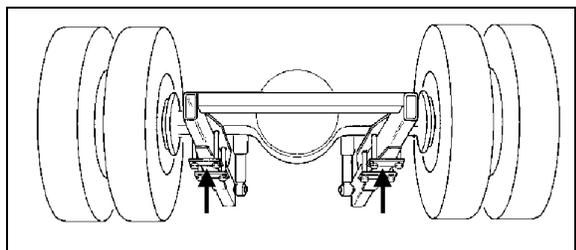
### WARNING

The suspension of the vehicle must be in the normal ride position before jacking. The level low system must be in the *OFF* position prior to turning *OFF* the ignition key.



JACKING POINTS ON FRONT AXLE

16095



JACKING POINTS ON DRIVE AXLE

OEH3B762



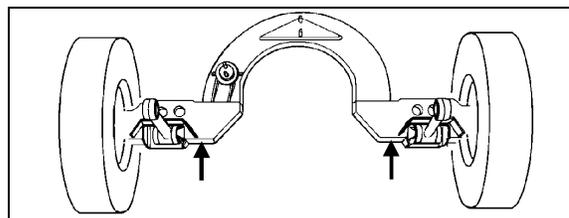
### WARNING

Always unload or retract the tag axle before jacking the vehicle from the front and drive axle jacking points to prevent damage to suspension components.



### WARNING

The jacking points on the tag axle must be used for raising the tag axle only.



JACKING POINTS ON TAG AXLE

OEH3B764

Several kinds of hydraulic jacks can be used. Only jack at the specified jacking points. Jack must support the following capacities:

Front axle: 20,000 lbs. (9 100 kg);

Drive axle: 40,000 lbs. (18 200 kg).

### HYDRAULIC JACK

To raise: turn release valve clockwise. Insert handle in socket and raise by pumping.

To lower: remove handle and turn the release valve slowly counterclockwise.

Always keep ram and extension screw retracted when jack is not in use.

Service: Check oil level when jack fails to raise to full height. Lower ram completely with release valve open and jack in upright position, remove filler plug and refill to level of filler hole with hydraulic jack oil. Never use brake fluid.



### WARNING

Jack is intended for lifting only. Do not get under the vehicle or load for any reason unless it is properly supported with safety stands and securely blocked.



### WARNING

Do not overload jack above rated capacity. Prevent "side loading", make sure load is centered on ram. Do not push or tilt load off jack.

### TOWING

To prevent damage to the vehicle, use the two tow eyes fixed to the vehicle's frame between the front axle and the front bumper. Use only a solid link tow bar and a safety chain to tow the vehicle. If required, connect an auxiliary air supply to the vehicle so brakes can be operated while towing.



## WARNING

During a towing operation, the driver should be alone inside the vehicle.

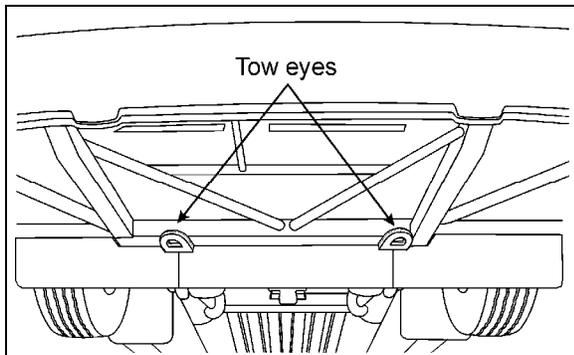


## CAUTION

To prevent damage to the drive train components, disconnect axle shafts or driveshaft before towing. Do not attempt to push or pull-start a vehicle equipped with an automatic transmission.

### *NOTE*

*Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.*



**TOW EYES UNDER VEHICLE**

18401

## DAYTIME RUNNING LIGHTS

The daytime running lights system provide added safety by making the front of the vehicle more visible to other drivers during the day.

The daytime running lights system turns the headlights on when:

- Engine is running;
- Parking brake is released;
- The exterior lighting switch is set to the OFF position or depressed to the first position.



## WARNING

Do not drive only with the daytime running lights at night because the taillights and the side marker lights are not turned on in that situation and the high beam can blind other drivers. For night driving, turn *ON* the headlights by depressing the headlights and exterior lighting rocker switch to the second position.

## FOG LIGHTS

Fog lights provide better visibility in fog and precipitation. They improve visibility immediately in front of the vehicle. They also provide added safety.

### *NOTE*

*Some states or provinces may restrict the use of fog lights. Verify local state or provincial regulations before using.*

## CORNERING AND DOCKING LIGHTS

The private coach may be equipped with up to four halogen lights. Two cornering lights are installed at the front of the vehicle, on each side as standard equipment. Two optional docking lights may be installed on each side at the rear of the private coach. The front lights illuminate at the same time as the turn signal flashers to increase lateral visibility while turning. The rear lights illuminate automatically when the reverse (R) range is selected to increase visibility while backing-up the vehicle.

## COMPARTMENT LIGHTING

Baggage, engine, front service and main power compartment lights are automatically turned *ON* when their respective compartment door is opened if the ignition key is set to *ON* or *ACC*. A telltale light on the central dashboard will illuminate when a compartment door is open.

## MUD FLAPS AND SPLASH GUARDS

Mud flaps are installed behind each front wheel and the tag axles. Mud flaps minimize dirt on the lower panels of the private coach and prevent stones and debris from being thrown at vehicles travelling behind the private coach. Splash guards may be installed behind each dual wheel of the drive axle to prevent stone projectiles from being thrown at the tag axle wheels.

## BACK-UP CAMERA

An optional back-up camera is available which provides the driver with visual assistance when backing-up.

The TV monitor is mounted on the left side pillar and switches *ON* automatically when the transmission is in the reverse (R) range.

## BACK-UP ALARM

The back-up alarm alerts pedestrians and other drivers when the private coach is being backed-up. Take extra precautions whenever backing-up. If necessary, use a guide to provide directions when backing-up. Both the alarm and optional camera are automatically activated when the transmission is put in the reverse (R) range.

## BACK-UP ALARM CANCEL

A rocker switch located on the L.H. side dashboard panel allows the driver to cancel the back-up alarm system (as for example: at night on a camping site).

***NOTE***

*After use, return to normal operation.*

## ESSENTIAL FUNCTIONS TO OPERATE THE VEHICLE (BASIC LIMP-HOME FUNCTIONS)

Even with a defective CECM (Chassis Electronic Control Module) or a CAN network problem, essential base functions are maintained to rear start the vehicle from the engine compartment and drive in a secure manner.

## AVAILABLE FUNCTIONS

- Startup: Turn on the ignition in the driver's area and rear start the vehicle from the engine compartment,
- Windshield wipers: Wipers functions at 1st speed only,
- Headlights: Low beams only,
- Directional signals: Rear and front only,
- Stoplights: 2 upper stoplights + high-mounted stoplight are functional,
- HVAC: Functional with set point fixed at 70°F (22°C), evaporator and condenser fixed at speed 1, defroster fixed at speed 4.
- Entrance door lock/unlock switch.



## CAUTION

The following directives must be followed.

- Never connect a battery charger when the ignition is at the ON position on a vehicle with a CAN defective or certain functions will start up by themselves,
- Disconnect the charger before starting the vehicle, if not the default functions will not activate,
- If the default mode does not activate, try to turn the ignition OFF while ensuring that no charger is connected and then restart the vehicle.

## AUDIBLE ALARMS

In addition to the dashboard indicator lights, the private coach is equipped with an audible alarm system to provide audible indications to the driver of the conditions given in the following table:

| Indicator Light  | Audible Alarm | Condition  |
|--|---------------|--|
| <br>06227   | Yes           | Air pressure in primary system<br>below 66 psi (860 kPa)         |
| <br>06228   | Yes           | Air pressure in secondary system<br>below 66 psi (860 kPa)       |
| <br>06229   | Yes           | Engine oil pressure<br>Below 50 psi (345 kPa)                    |
| <br>06231   | Yes           | Coolant temperature<br>above 223°F (106°C)                       |
| <br>06282 | Yes           | Gear changing inhibited  |
| None   | Yes           | Reverse gear engaged   |
| <br>06288 | Yes           | Fire in engine compartment                                       |
| <br>06271 | Yes           | Tag axle raised with vehicle speed exceeding 12<br>mph (20 km/h) |
| None   | Yes           | Engine OFF but parking brake not applied                         |
| <br>06309 | Yes           | Major problem detected by engine ECM                             |
| <br>06292 | Yes           | Transmission fluid too hot                                       |



**CLEANING**

The cleaning information provided in this section is regarded as recommended cleaning practices. Cleaning results may vary depending on the condition of the stain. Always clean stains promptly for best results.

**NOTE**  
*Use only approved cleaning products such as Prevost A.P.C., all purpose cleaner (Prevost # 683664). Never use stain protection products on new fabrics. To prevent permanent staining of fabrics, clean stains soon after they occur. Incorrect treatment of stains can worsen them. Get help from a cleaning specialist to remove stubborn stains.*

**CAUTION**  
 Custom fabrics and materials may require different cleaning and maintenance practices. Consult your converter.

**SEAT UPHOLSTERY**

Firmly beat the fabric with a blunt object, such as a wooden paddle, to release dust and dirt. Vacuum the seat fabric in the direction of the stitching using an upholstery nozzle.

**NOTE**  
*The abrasive nature of dirt and grit will reduce upholstery life expectancy. Vacuum regularly.*

**Removal of stains and marks**

Depending on the nature of the stain, apply one of the two methods explained below to remove stains and marks on wool plush.

Method One:

- Apply a nonflammable solvent (Trichloroethylene) to stained area with a clean, white absorbent rag;
- Clean stain by starting at the outer edges of the stain and working in toward the center;
- Blot affected area frequently with a clean, dry absorbent cloth to prevent stain rings caused by excess solvent.

**WARNING**  
 Use solvents in a well ventilated area. Open all windows and doors.

Method Two:

- Wet the stain with a solution of household detergent and lukewarm water. Do not soak the stain;
- Rub the stain with a damp cloth;
- Rinse cloth after each application.

**CAUTION**  
 Do not use soap, soap powder, ammonia, soda, bleach or cleaning products containing any of these compounds.

**Beverage stains**

Remove beverage stains by following method one. If stain persists, repeat method one using methyl alcohol instead of solvent.

**Alcoholic beverage stains**

Remove alcoholic beverage stains by wetting the stain with water, then cleaning following method two.

**Burns**

Scrape burnt area using a knife or razor blade then clean following method two. Consult an upholstery specialist when dealing with extensive burns.

**Cosmetic stains**

Remove stains left by cosmetics by following method one then method two.

**Ink stains**

Remove ink stains following method two. If stain persists, apply a warm oxalic acid solution. Rinse with water.

**Blood, urine or vomit stains**

Remove such stains by following method two.

**Copying ink - ball-point pen ink**

Treat with methyl alcohol, blotting frequently to avoid spreading stain, followed by method two.

## 100 CARE AND MAINTENANCE

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### Marking ink (Felt-tip pens)

Treat with Methyl-Ethyl-Ketone (MEK) followed by method two.

### Oil, grease and paint

Remove excess using a knife. Treat with method one followed by method two. If stain persists, repeat procedure.

### Rust stains

Remove rust stains by following method two. Apply a warm oxalic acid solution to stained area. Rinse with water.

### Tar

Soften tar with benzene, then treat using method one followed by method two.

### Chewing gum

Soften gum with cyclohexane. Carefully scrape off stains using a sharp knife or razor blade.

### PLASTIC AND VINYL

Clean plastic and vinyl trim using a clean damp cloth or sponge. For vinyl trim marks, use a lukewarm all purpose cleaner or a mild saddle soap. Remove water spots and soap traces using a clean damp cloth or sponge. Dry with a clean soft cloth.

Remove grease, tar or oil stains with a clean cloth or sponge and an all purpose or solvent-type vinyl cleaner.

Apply a colorless vinyl or leather protective product to maintain the luster and pliability of the plastic or vinyl surface.

### WINDOWS

Clean the inside of the windows with a solution of one part vinegar to ten parts water.

### STAINLESS STEEL

Use a stainless steel cleaner and follow the manufacturer's instructions. Stainless steel cleaning solution may be ordered from Prevost Car Inc. quoting part number 68-0356.

### FORMICA

Remove stains on formica surfaces with a household detergent, methyl alcohol or mineral

turps. Clean with a mild abrasive and water solution if stain persists.

### CARPET

Vacuum carpets regularly to prolong carpet life.

### RUBBER COMPONENTS

Use only pure water or glycerin to clean stains on rubber components.



### CAUTION

Never use solvents on rubber components.

### FLOOR CLEANING

Clean vinyl floors with a quality nonionic detergent cleaner. Follow the manufacturer's recommendations for cleaning.

Remove any excess detergent solution using a wet/dry vacuum or mop. Rinse floor with a solution of one part Clorox to ten parts warm water.

Polish dry floor using a high-speed buffer and a smooth red 3-M polishing pad.

Mop floor periodically with a solution of 5 per cent Clorox in warm water.

### NOTE

*For custom or special floor covering materials, consult the manufacturer or your converter for information on how to clean and maintain these types of floors.*

### EXTERIOR SURFACES

Frequent washing and waxing of the vehicle exterior will help protect the finish and luster. The paint finish is attacked by the abrasive effects of airborne particles and corrosive pollutants.

Before washing the exterior of the vehicle, close the fresh air dampers using the "REC" button located on HVAC control panel and on the air intake duct in the evaporator compartment. Install keyhole protectors to prevent water from penetrating. Rinse vehicle with water to remove all loose dirt. Wash vehicle using a quality brand car wash soap. Follow manufacturer's recommendations for cleaning. Rinse well with water.

The vehicle exterior should be cleaned, waxed and buffed when water droplets no longer form on the painted surfaces.



### CAUTION

Hot water can damage paint. Keep water cool or lukewarm.



### CAUTION

Make sure cleaning solutions are not harmful to painted surfaces. Read the manufacturer's instructions before using.



### CAUTION

Do not spray water jet directly into fresh air inlet dampers.



### CAUTION

Do not aim high pressure water jet at radiator or condenser doors. This could damage the fins.

To prevent corrosion, remove caked-on dirt and road salt from the vehicle underbody using a high pressure water jet. Clean wheel housings, bumpers, muffler, tailpipe and brackets.

Carry out corrosion prevention cleaning at least twice a year. Spray underneath of the vehicle and let soak before cleaning. Let engine and exhaust system cool down before cleaning.

### TAR OR OIL

Remove tar or oil as soon as possible with an approved automotive tar and oil remover or turpentine. Thoroughly clean area with car wash soap and water. Let dry, then wax.

### INSECTS

Remove insect stains as soon as possible with lukewarm soap and water or insect remover.

### TREE SAP

Remove tree sap or bird droppings with lukewarm soap and water. Do not allow to harden.

### WINDOWS

To prevent windshield wiper streaking, keep silicone sprays away from windshield. Remove road film and wax build-up from windows with lukewarm soap and water or with an alcohol-based cleaning agent. If a chamois is used to dry and polish glass, use it exclusively for that purpose.

### WIPER BLADES

To avoid tearing frozen wiper blades, loosen them before removing. Remove and clean wiper blades periodically with an alcohol-based cleaning solution. Clean wiper blades using a sponge or soft cloth.

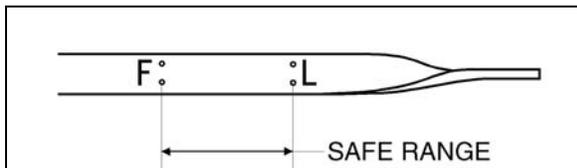
## FLUID LEVEL VERIFICATION

Periodic inspection of fluid level is the most economical and easiest way to help your vehicle perform at its best. Rigorous fluid level inspection and replacement will greatly help minimize expensive and unscheduled repairs.

### ENGINE OIL LEVEL

Check engine oil level when engine is still warm and with vehicle parked on a level surface. Shut *OFF* engine and wait at least 10 minutes for oil to drain into oil pan before checking. Check engine oil level daily or before each trip. Add oil as required. Do not overfill. Remove dipstick, wipe clean and fully reinsert to ensure an accurate reading. Remove dipstick and check engine oil level.

The oil level must be maintained between the two marks indicated on the dipstick. Do not let the oil level drop below the L mark. Add oil by opening the oil reserve tank drain valve or through the oil filler pipe. Use the markings on the tank to check the quantity of oil added. Close the oil reserve tank drain valve or oil filler cap after adding oil. Recheck the oil level. Do not let the oil level go above the F mark on the dipstick.



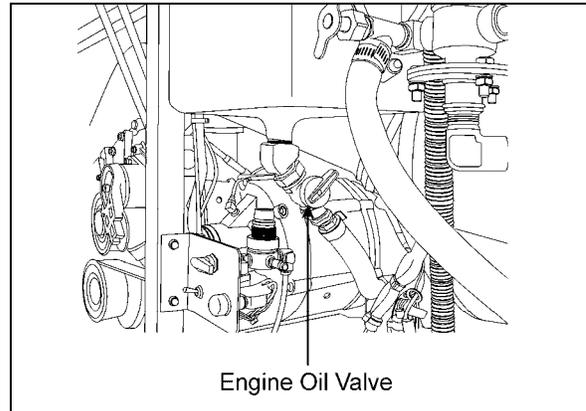
ENGINE OIL LEVEL DIPSTICK

01027



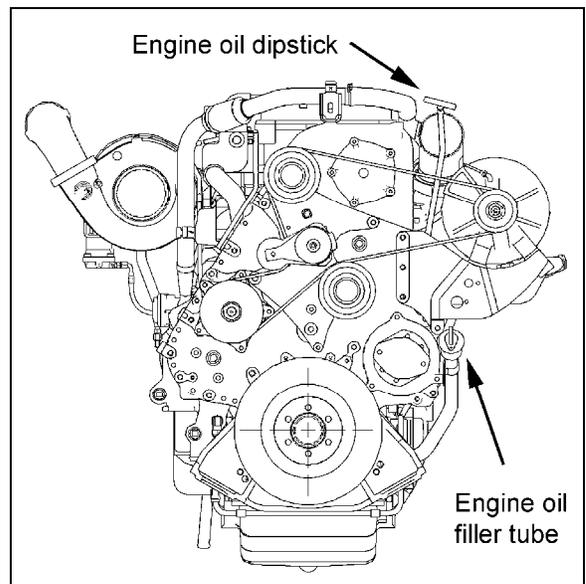
### CAUTION

Keep engine oil level between "L" and "F" on dipstick. Do not overfill. Check when refueling.



ENGINE OIL RESERVE TANK

01063



ENGINE COMPARTMENT

01117

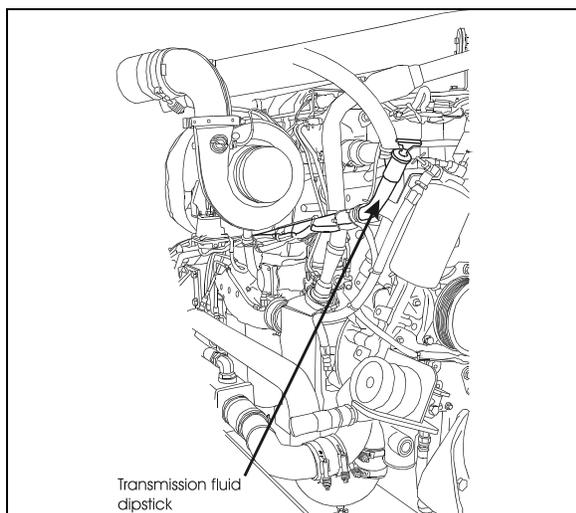
### TRANSMISSION OIL LEVEL

The transmission fluid level can be checked with the dipstick or with the use of the shift selector display. For more information on how to use the shift selector display to check the transmission oil level, refer to Appendix C under "Allison transmission oil level check using the pushbutton shift selector" in this manual.

The automatic transmission oil level dipstick is accessible through the engine compartment rear door and is located on the left side of the engine.

Clean all dirt from around the end of the oil filler tube before removing the dipstick. Dirt or foreign matter must not be permitted to enter the oil system since it will cause valves to stick, undue wear of transmission parts, and clogged passages. To remove dipstick, unscrew filler cap approximately three turns and pull out dipstick. Check the oil level using the procedures in Cold

Check and Hot Check. Record any abnormal level on your "Maintenance Records".



LEFT SIDE OF ENGINE

01121



## WARNING

When checking the oil level, be sure that the parking brake and/or emergency brakes are set and properly engaged, and the wheels are chocked. Unexpected and possible sudden vehicle movement may occur if these precautions are not taken.

Special care must be taken not to touch the engine coolant tubing and/or exhaust pipe, since this could cause severe burns.

Do not wear loose clothing and, stay away from rotating parts during procedure; personal injury could occur.

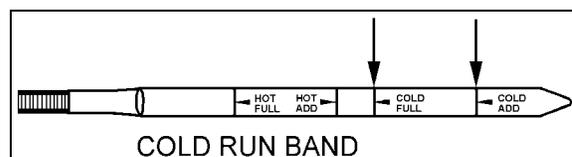
## NOTE

*The Cold Check is more appropriate for verifying the oil level after the first fill-up. In case of conflict, the Hot Check has priority over the Cold Check; the fluid level check using the pushbutton shift selector has priority over the Hot Check.*

## Cold Check

The purpose of the **Cold Check** is to determine if the transmission has enough fluid to be operated safely until a **Hot Check** can be made.

1. If the engine has been shut down for an extended period of time, park the vehicle on a level surface and apply the parking brake.
2. Run the engine at idle in «N» (Neutral) for about one minute.
3. Shift to «D» (Drive) and operate the engine for 30 seconds at 1000-1500 rpm; then shift to «R» (Reverse) to clear the hydraulic system of air.
4. Move the vehicle to a level surface, put transmission in «N» (Neutral), and set the parking brake.
5. Finally shift to «N» (Neutral) and allow the engine to idle (500 - 800 rpm).
6. While the engine is running, remove the dipstick from the tube and wipe it clean. Insert the dipstick into the fill tube, pushing down until it stops.
7. Remove the dipstick and observe the fluid level. Repeat the check procedure to verify the reading. If the fluid on the dipstick is within the COLD CHECK band, the level is satisfactory for operating the transmission until the oil is hot enough to perform a **Hot Check**. If the fluid level is **not** within this band, add or drain fluid as necessary to bring the level within the COLD CHECK band.
8. Perform a **Hot Check** at the first opportunity after the normal operating temperature of 160°F to 200°F (71°C to 93°C) is attained.



AUTOMATIC TRANSMISSION OIL LEVEL DIPSTICK 07006



## CAUTION

**DO NOT** operate the transmission for extended periods of time until a **Hot Check** has verified proper fluid level. Transmission damage can result from extended operation at improper fluid level conditions.



## CAUTION

Obtain an accurate fluid level by imposing the following conditions:

- Engine is idling (500-800 rpm) in «N» (Neutral).
- Transmission fluid is at normal operating temperature.
- The vehicle is on a level surface.



## CAUTION

The oil level rises as sump temperature increases. **DO NOT** fill above the Cold Run band if the transmission oil is below normal operating temperature. During operation, an overfull transmission can become overheated, leading to transmission damage.

### Hot Check

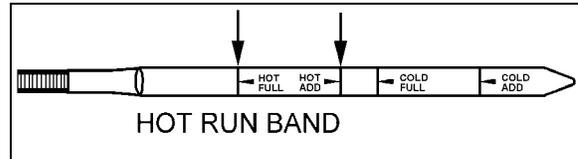


## CAUTION

The oil **must be hot** to obtain an accurate check because the fluid level rises as temperature increases.

1. The **Hot Check** can be performed when the transmission oil reaches the normal operating temperature (160°F to 200°F / 71°C to 93°C). The transmission oil temperature can be checked with the dashboard message center display (MCD) when selecting the Gauge Mode.
2. Park the vehicle on a level surface and shift to «N» (Neutral). Apply the parking brake and allow the engine to idle (500 - 800 rpm).
3. Remove the dipstick from the tube and wipe it clean. Insert the dipstick into the fill tube, pushing down until it stops.
4. Remove the dipstick and observe the fluid level. The safe operating level is anywhere within the HOT RUN band on the dipstick. Repeat the check procedure to verify the reading.
5. If the level is **not** within this band, add or drain fluid as necessary to bring the level within the HOT RUN band.
6. Be sure fluid level checks are consistent. Check level more than once and if readings

are not consistent, check to be sure the transmission breather is clean and not clogged. If readings are still not consistent, contact your nearest Allison dealer or distributor.



AUTOMATIC TRANSMISSION OIL LEVEL DIPSTICK 07006

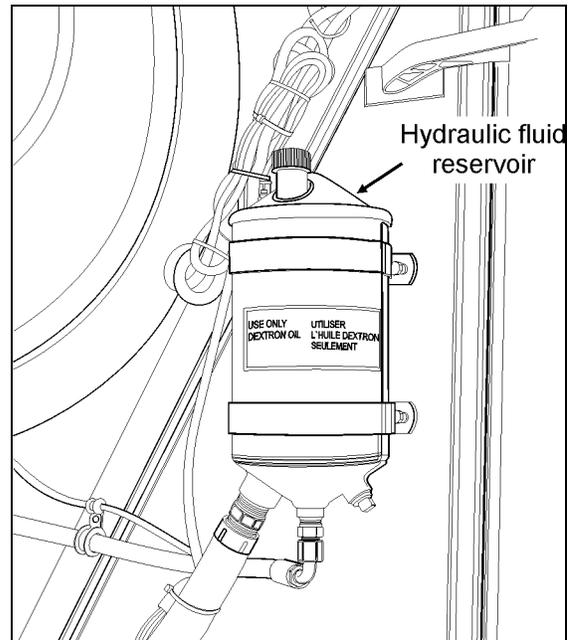
### NOTE

*Approximately 1 quart (0.95 liters) of oil will raise the oil level from the lower line of the HOT RUN band to the middle of the HOT RUN band.*

Replace dipstick and tighten the filler tube cap until the rubber seal is correctly seated.

### POWER STEERING FLUID LEVEL

The vehicle is equipped with a power steering system. The hydraulic fluid tank is accessible by the engine compartment R.H. side door.



POWER STEERING HYDRAULIC FLUID TANK 14043

Check fluid level as follows:

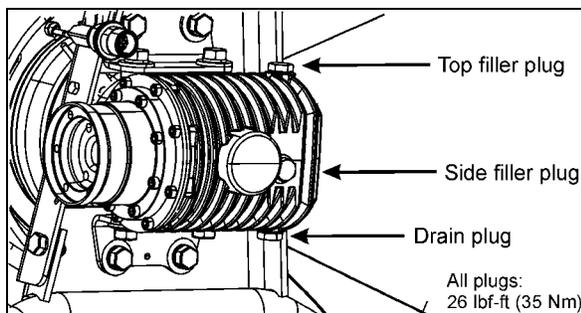
1. Stop engine, open engine compartment R.H. side door and engine compartment door, place rear start switch to OFF position;

2. Unscrew and remove the dipstick located on top of the fluid tank and wipe with a clean rag;
3. Replace dipstick in tank, then remove to check fluid level;
4. Add hydraulic fluid until it reaches the FULL mark on the dipstick (use Dexron-II, Dexron-IIIE, Dexron-III or Mercon fluid type);
5. Place engine rear start switch to *NORMAL* position. Close engine compartment door;
6. Replace and tighten dipstick and close engine compartment R.H. side door.

## COOLING FAN RIGHT ANGLE GEARBOX OIL LEVEL

Check cooling fan right angle gearbox oil level as follows:

1. Stop engine, open engine compartment door and place engine rear start switch to *OFF* position;
2. Remove side oil filler plug;
3. Add oil through the oil filling point if the oil level has fallen below the oil filling point;
4. The oil level is correct once the top of the oil has reached the bottom of the filling point or once oil has already started to escape from the filling point;
5. Replace the seal and screw the side filler plug back in;
6. Place engine rear start switch to *NORMAL* position. Close engine compartment door.



RIGHT ANGLE GEARBOX OIL LEVEL CHECK 05118

## WHEEL BEARING OIL LEVEL

Drive axle wheel bearings are lubricated by the differential oil. Maintain differential oil at correct

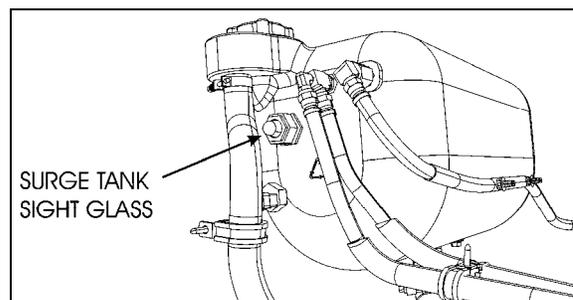
level to ensure adequate lubrication of drive axle wheel bearings at all times.

## FRONT AND TAG AXLE WHEEL HUBS

The unitized hub bearings used on the NDS range of axles, are non-serviceable items. Bearings are pre-adjusted, lubricated and have seals fitted as part of the manufacturing process. The bearings are greased for life and there is no need or facility for re-lubrication.

## COOLANT FLUID

Coolant level is correct when coolant is visible through the surge tank sight glass when cold. If coolant level is low, fill system with the same 50-50 mixture normally used.



SURGE TANK SIGHT GLASS

05114



## WARNING

Hot engine coolant is under high pressure. Allow engine to cool down before adding coolant.



## CAUTION

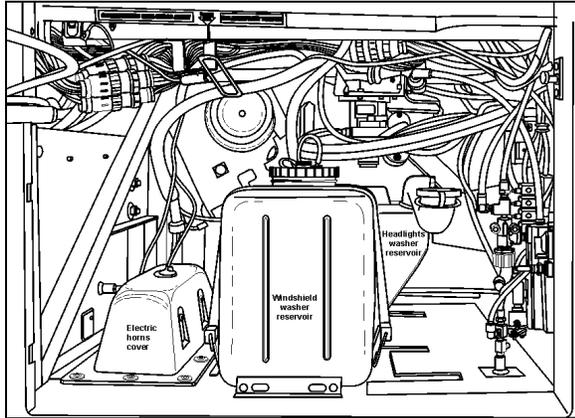
Use only coolant that meets DDC specs for use in DDC engines. The cooling system must be maintained according to DDC maintenance specs for coolant, ratio of 50/50 and supplemental coolant additives (SCAs). Failure to do so could damage the cooling system. Refer to Maintenance Manual or DDC for instructions.

## WINDSHIELD WASHER & HEADLIGHTS WASHER RESERVOIRS

The windshield washer reservoir and headlights washer reservoir are located in the front service

## 106 CARE AND MAINTENANCE

compartment door. The windshield washer reservoir has a capacity of 5.3 US gallons (20 liters) while the headlights washer reservoir has a capacity of 2.6 US gallons (10 liters). Check fluid level regularly.



**WINDSHIELD WASHER FLUID RESERVOIR** 14066

The spray jets are located on the windshield wipers and are angled to spray towards the center of the windshield.

Upper and lower windshield wipers have separate controls and separate washer pumps which are connected to the same reservoir.

Adjust the headlights washer nozzles according to the instructions found in section 23 of the maintenance manual. You may use water or windshield washer fluid as well.



### CAUTION

During cold weather days, use windshield washer fluid suitable for freezing temperature only.

### OTHER VERIFICATIONS

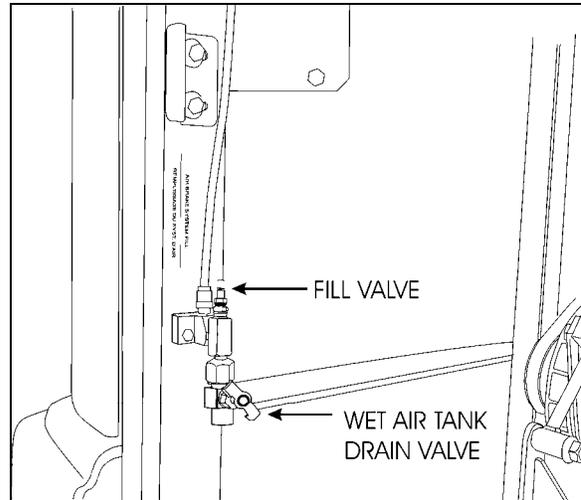
It is good practice to regularly inspect the vehicle for signs of component wear and to perform safety and maintenance routines.

### AIR TANK PURGE

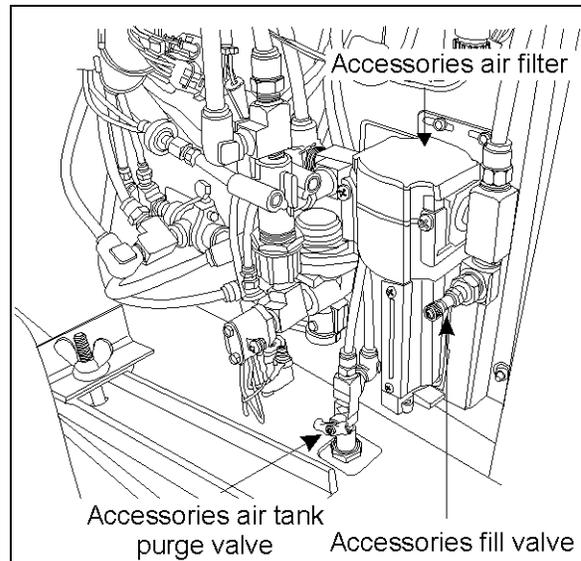
The vehicle may be equipped with up to twelve air tanks. Purge accessory and wet air tanks before each trip. The primary and secondary air tanks must be purged at every oil change. Oil changes should be scheduled at least every 12,500 miles (20 000 km).

The accessory air tank drain cock is accessible from the front service and electrical compartment. The wet air tank drain cock is accessible from the engine compartment R.H. side door. All air tanks are equipped with a drain cock underneath the tank. Refer to figure "Lubrication and Servicing Points" at the end of this chapter for tanks location.

Drain tanks by turning cocks counterclockwise.



**ENGINE R.H. SIDE COMPARTMENT** 12219



**FRONT SERVICE COMPARTMENT** 12130

### FIRE EXTINGUISHERS

Inspect fire extinguishers monthly to insure operation in emergency situations.

In the case of extinguishers equipped with a pressure gauge, the needle should be in the green or *NORMAL* range. Refill or replace extinguisher if pressure is below normal;

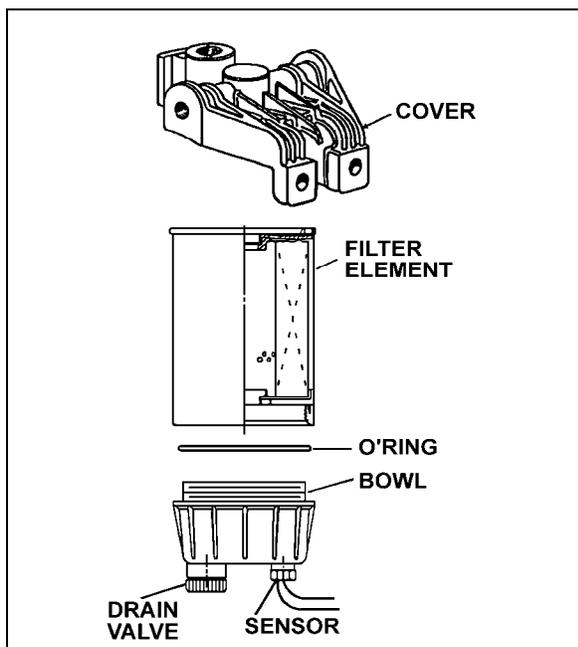
Check that seal on handle is intact;

Check that nozzle hose is in good condition and that nozzle is free of obstruction;

Keep fire extinguishers clean.

## FUEL FILTER / WATER SEPARATOR

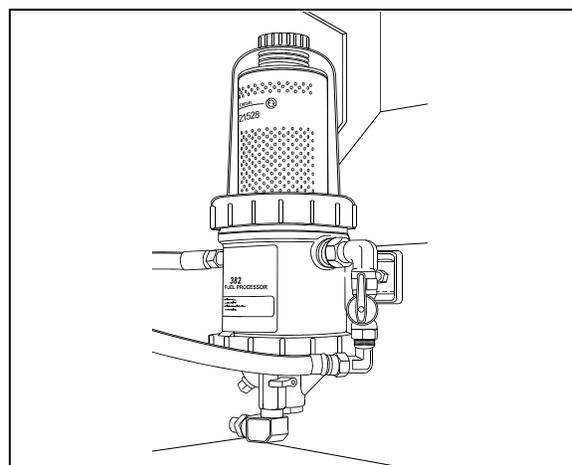
The fuel system is equipped with primary and secondary fuel filters for additional protection of the injectors. A fuel filter/water-separator may be installed in primary fuel-filter location, to prevent water infiltration in engine fuel system. It should be drained periodically, or when the water separator telltale light on the dashboard illuminates. To drain, loosen positive seal drain valve below separator, and tighten after water has been flushed out.



FUEL FILTER/WATER SEPARATOR

03025

The optional Fuel Pro 382 diesel fuel filter system consists of a permanently mounted fuel processor, a replaceable filter element, a filter element cover and collar and a fluid filter base assembly. This system is installed between the fuel tank and the fuel pump and replaces the primary fuel filter. The filter serves as a water separator as well as a fuel filter. To drain, turn ¼ turn the drain valve below filter, close when water has been flushed out.



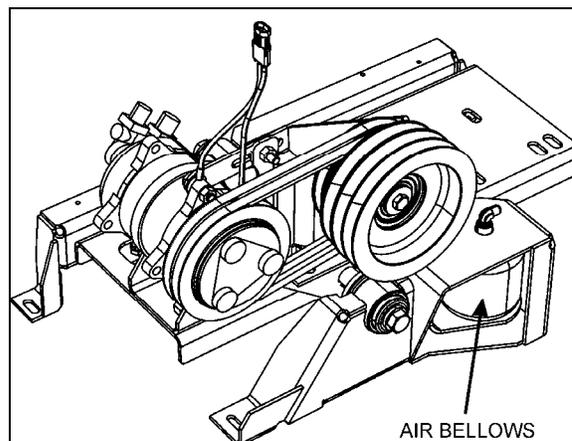
DAVCO FUEL PRO 382

03032

## BELT TENSION ADJUSTMENT

The air conditioning compressors are driven by V-belts.

Belt tensioning is applied through air bellows which are adjusted by an air pressure regulating valve mounted in the engine compartment, right behind the belt tensioning pressure control valve. The correct pressure of 45 psi (241 kPa) is set at the factory. Periodically verify the pressure at the regulating valve using a pressure gauge and correct if necessary.

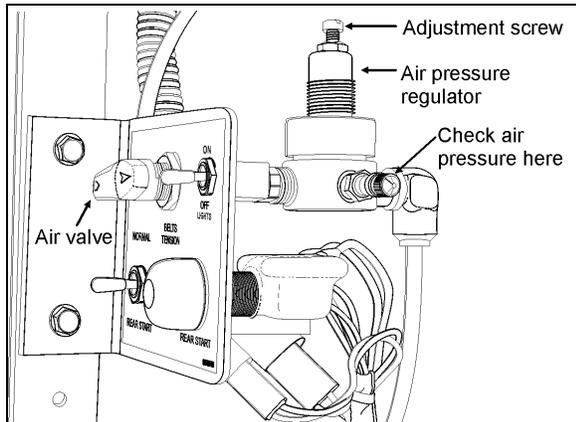


AIR BELLOWS

22341

For belt replacement, air pressure must be released from bellows by means of the belt tensioning pressure control valve. This valve, mounted close to the pressure regulating valve, is manually operated. Before handling, be sure that all engine stopping safety precautions have been observed.

# 108 CARE AND MAINTENANCE



**PRESSURE REGULATING VALVE** 01058

- Refer to the Parts Manual, Maintenance Manual or "Service Bulletins" for recommended belt sizes and tension settings;
- Periodically inspect belt and pulleys for wear or damage;
- Do not treat belts with any compounds. Keep belts dry;

## BACK UP CAMERA

The retractable back-up camera is visible only when turned *ON*. A switch located in the rear electrical compartment is used to extract the camera for cleaning.

To clean the camera's protective glass, turn the switch *ON* and spray with soapy water. Wipe with a clean damp rag or wiper blade.



### WARNING

To avoid injury, do not clean camera with transmission in reverse (R). Shut off engine and apply parking brake before cleaning.



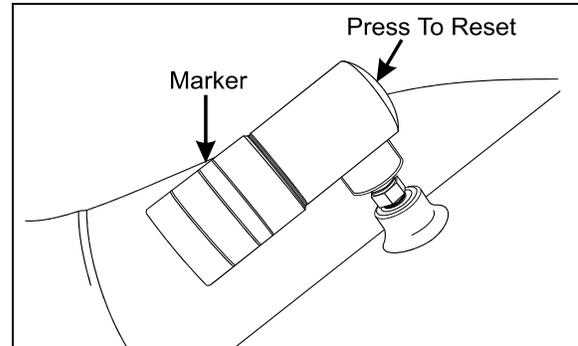
### CAUTION

To prevent scratches to the camera protective glass, do not wipe with dry rag. Use a clean damp rag.

## AIR FILTER RESTRICTION INDICATOR

A filter restriction indicator is used to monitor the vacuum level between the air filter and engine. A red marker is displayed when the air filter is clogged. When a red marker is displayed, the air filter must be replaced. Reset by pressing on the indicator's extremity.

The filter restriction indicator is located on the engine air intake duct.



**RESTRICTION INDICATOR** 01052

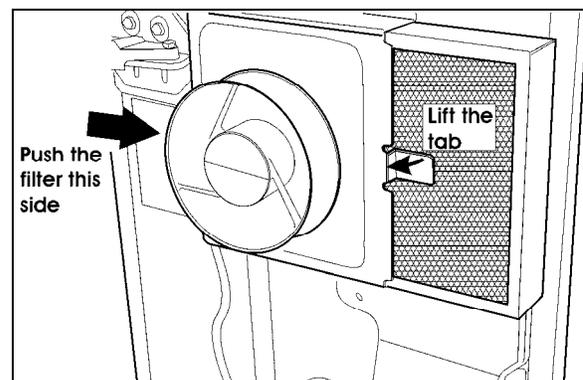
## MAIN POWER COMPARTMENT FAN AIR FILTER

For maximum service life of the electrical components, air filter should be inspected and cleaned as required in maintenance schedule to ensure proper ventilation and cooling of the main power compartment. Clean filter with an air jet in the opposite direction of normal air flow. Replace filter when necessary.



### CAUTION

Be sure not to reverse filter upon installation.



**MAIN POWER COMPARTMENT FAN AIR FILTER REMOVAL** 06603

## A/C AND HEATING SYSTEM AIR FILTERS

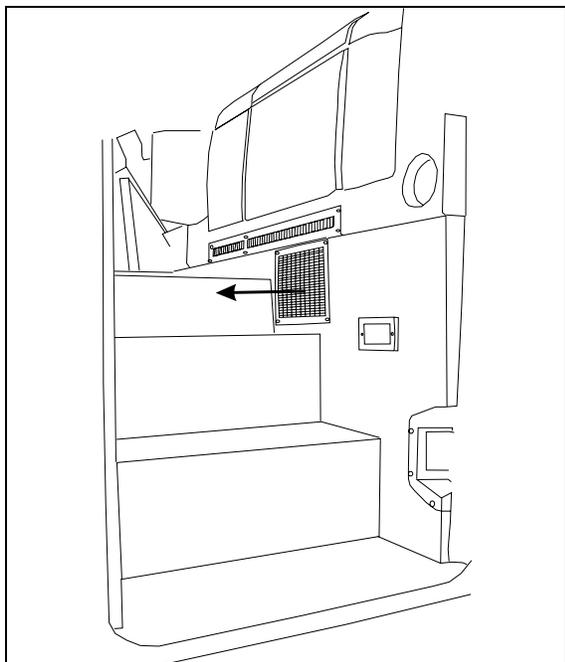
For maximum air conditioning and heating system efficiency, air filters should be inspected and cleaned as required in maintenance schedule to ensure proper ventilation of the evaporator and heating radiator cores. To clean filters, back flush with water, then dry with air.

|  |
|--|
|  <b>CAUTION</b> |
| Do not use high pressure water jet to avoid damaging filter.                                     |

|  |
|--|
|  <b>CAUTION</b> |
| Be sure not to reverse filter upon installation.   |

### Driver's Area Filters

The driver HVAC system's air filters are located behind the R.H. console. To gain access to the A/C filters, unscrew the grill located at the top step of the entrance door steps. Remove the filters for cleaning or replacement.



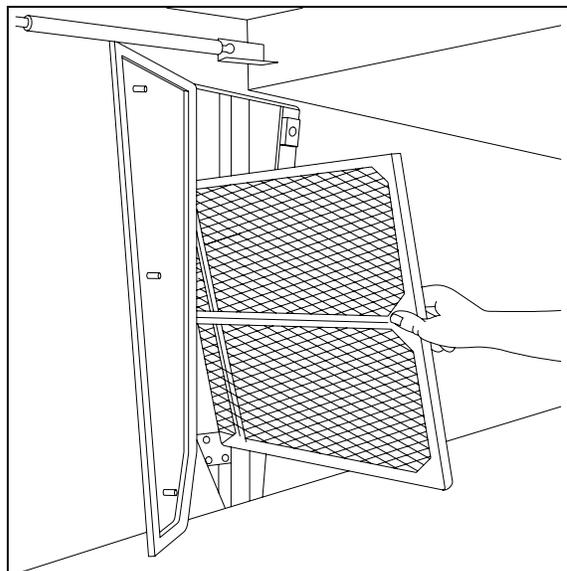
DRIVER'S AREA AIR FILTER REMOVAL 22231

### Cabin System Air Filter

The Central HVAC System's air filter is located in the evaporator compartment on L.H. side of the vehicle. To gain access, locate access panel

in one of the baggage compartment adjacent to the evaporator compartment. Open panel by unscrewing (¼ turn) the three screws of either panel, unsnap both fasteners on top of filter and slide out the filter for cleaning.

|  |
|--|
|  <b>CAUTION</b> |
| Be sure not to install filter in inverted position.  |



CABIN SYSTEM AIR FILTER REMOVAL 22178

### HOSE INSPECTION

Inspect hoses regularly to ensure efficient, economical and safe operation of the engine and related equipment.

Inspect hoses for leaks. Carefully inspect all fittings, clamps and ties. To prevent chafing, make sure hoses are not touching shafts, couplings, heated surfaces, sharp edges or other parts. Since hose clamps and ties can vibrate loose or fail over time, inspect frequently and tighten or replace as necessary.

Correct leaking hoses immediately. Failure to correct leaks can cause severe damage to the equipment, as well as increase operating costs due to lost fluids. Treat fuel and oil leaks as an immediate fire hazard.

|  |
|--|
|  <b>WARNING</b>         |
| Fire hazard - personal injury and property damage may result from fire caused by leaking flammable fluids. |

# 110 CARE AND MAINTENANCE

## Hose Service Life

Hoses have a limited service life. Thoroughly inspect hoses annually. Look for surface damage or indications of twisted, worn, crimped, cracked or leaking lines. Replace damaged hoses immediately.

Hoses should be replaced during major overhaul or after a maximum of five years service. Make sure replacement hoses match the original equipment manufacturer's specifications.

## LUBRICATION

Grease all lubrication points during scheduled maintenance. For heavy loads or extended use, lubricate more often. Refer to the end of this chapter or to Maintenance Manual, section 24 for information on lubrication.

## WHEELS AND TIRES

Check for loose wheel nuts. Both aluminum alloy and steel wheel nuts should be tightened to 450 to 500 foot-pounds (610 to 680 Nm.) torque.

Keep the tires inflated to the recommended inflation pressure to prolong tire life and for safety.

### **NOTE**

*Recommended tire inflation pressures are given in the "Coach Final Record", placed in the technical publications package supplied with the vehicle. The cold tire inflation pressures are on the Department of Transport certification plate located on the L.H. console besides the driver's seat.*



### **WARNING**

Do not exceed maximum inflation pressure. Incorrect tire pressure increases tire wear and could lead to loss of driving control because of reduced road handling. Check tire pressure regularly.

## WHEEL BEARINGS

Check wheel bearing cover for overheating (especially after brake work) during fuel stops by touching the wheel bearing cover.

## SERVICE BRAKE TEST

Check for correct pressure build-up. Pressure loss should not exceed 3 psi/minute (21 kPa/minute) with engine stopped and without brake applied. Perform a full brake application. Air loss should not exceed 7 psi/minute (48 kPa/minute).

## PARKING / EMERGENCY BRAKE TEST

Release parking/emergency brakes. Pump service brake pedal until air pressure drops to 65 psi (448 kPa). Make sure the warning buzzer operates and that the emergency brakes apply (the control valve knob lifts up). Allow air pressure to reach 95 psi (655 kPa) before releasing parking brake.

Driving the vehicle while the parking brake is applied should not be possible.

## EXTERIOR LIGHTING VERIFICATION

### Exterior Lighting Test Mode

This useful function allows quick verification of the vehicle exterior lights.

### Activating the test mode:

When the vehicle is stationary (parking brake applied), pull up the multi-function lever 3 times within 3 seconds to activate the test mode. This test can be done when the engine is not running providing that the battery charge is sufficient (above 24.0 volts).

The telltale panel alarm emits a sound each second to remind that the test mode is in progress.

### Stopping the test mode:

To stop the test mode, pull up the multi-function lever once or turn the ignition OFF or remove the parking brake.

### **IMPORTANT NOTE**

*The test mode is useful to check the functioning of the multiplex outputs and the exterior lights. It doesn't test the functionality of the commands related to the exterior lighting. For a complete testing, the directional signal commands, the headlights commands and the brake pedal have to be checked before. Once these commands tested, activate the test mode to check the exterior lighting.*

## Using the test mode:

First, test the functionality of the commands related to the exterior lighting:

- Activate the right directional signal and check that the corresponding telltale light illuminates.
- Activate the left directional signal and check that the corresponding telltale light illuminates.
- Press on the brake pedal and check that the STOP telltale light illuminates.

Once these commands tested, activate the test mode to check the exterior lighting by pulling up the multi-function lever 3 times within 3 seconds.

Go to the front of the vehicle and check the lights:

- First the left and right directional signals.
- Identification lights and clearance lights.
- Low beams.
- High beams.

Go to the left side of the vehicle:

- Directional signals.
- Marker lights.
- Cornering signals.

Go to the rear of the vehicle:

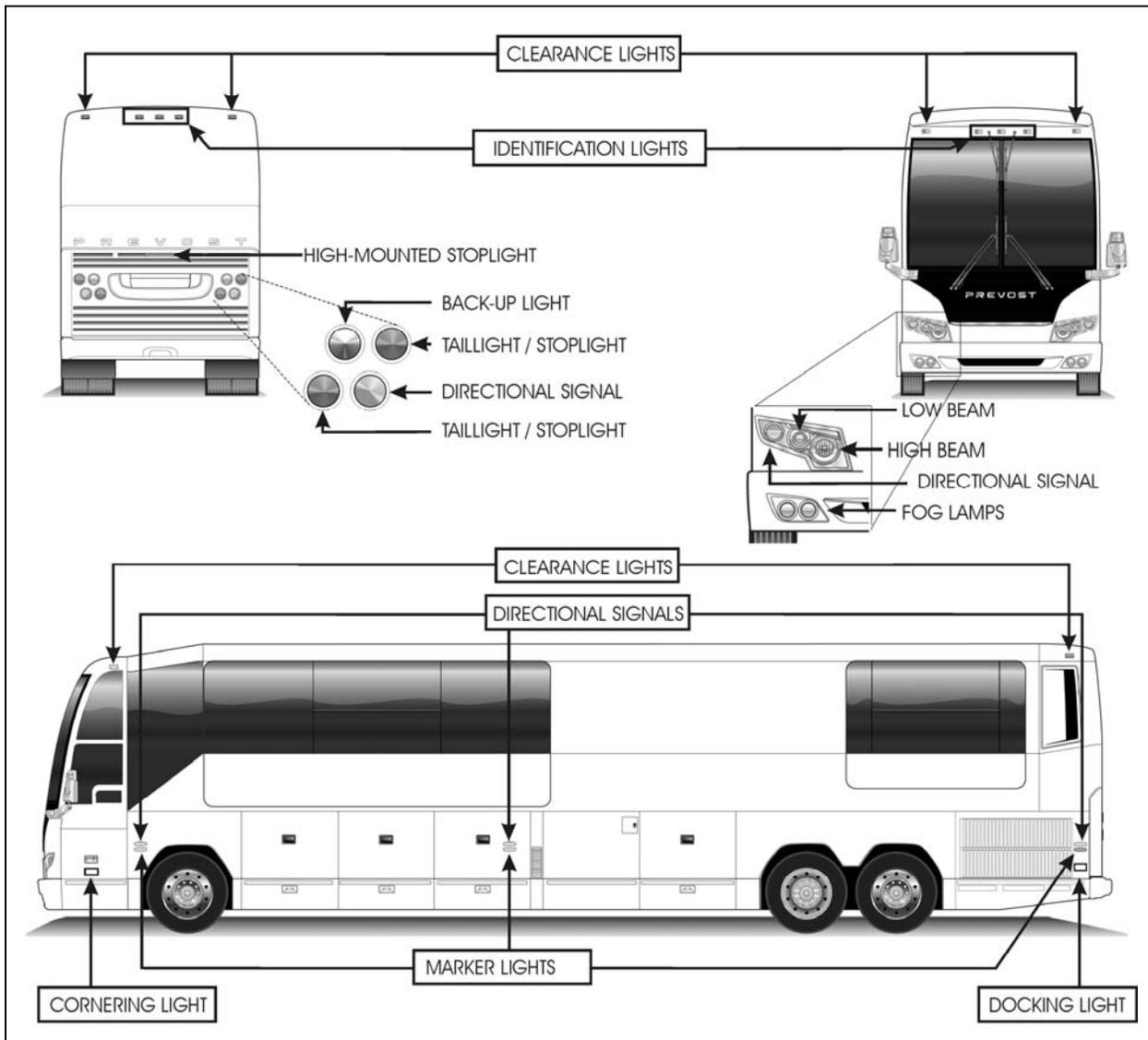
- Directional signals.
- Identification lights and clearance lights.
- Stoplights and taillights.
- Back-up lights and back-up alarm (option).

|                    |
|--------------------|
| <b><i>NOTE</i></b> |
|--------------------|

|   |
|---|
| <i>To check the back-up lights and back-up alarm, you must flip the starter selector switch to REAR START position. (If the vehicle is running, do this quick enough so that the engine does not stop).</i> |
|---|

Go to the right side of the vehicle (same sequence as left side).

# 112 CARE AND MAINTENANCE



EXTERIOR LIGHTING IDENTIFICATION

## GENERAL RECOMMENDATIONS

- Understand basic principles of vehicle operation;
- Always maintain the vehicle in good running condition;
- Do not drive with low fuel. If the fuel tank runs dry, the engine will not start until the air is bled from the fuel system. Refer to "Maintenance Manual" for more information;
- Allow engine to run for at least two minutes at slow idle before shutting *OFF*;
- Engine should be at idle when shifting from neutral (N) to forward (D) or from neutral (N) to reverse (R);
- The automatic transmission does not have a park (P) position. Place transmission in neutral (N) position and apply parking brake when the vehicle is stopped. A warning buzzer will sound if the engine is stopped and the parking brake has not been applied when foot pressure is removed from the brake pedal;
- Always follow the procedures described in this manual;
- Unless stated otherwise, shut *OFF* the engine before performing all servicing, lubrication and maintenance tasks;
- Do not attempt to push or pull-start a vehicle equipped with an automatic transmission;
- The vehicle may be damaged if towed with the axle shafts or driveshaft connected. Do not push or pull-start the vehicle in first or reverse gears;
- Two chemical fire extinguishers are stored near the back of the driver's seat. In case of fire, immediately evacuate all occupants. Human life safety is the first priority. Do not attempt to extinguish the fire if there is immediate danger or risk for personal injury;
- When driving on ice and snow, accelerate and decelerate gradually;



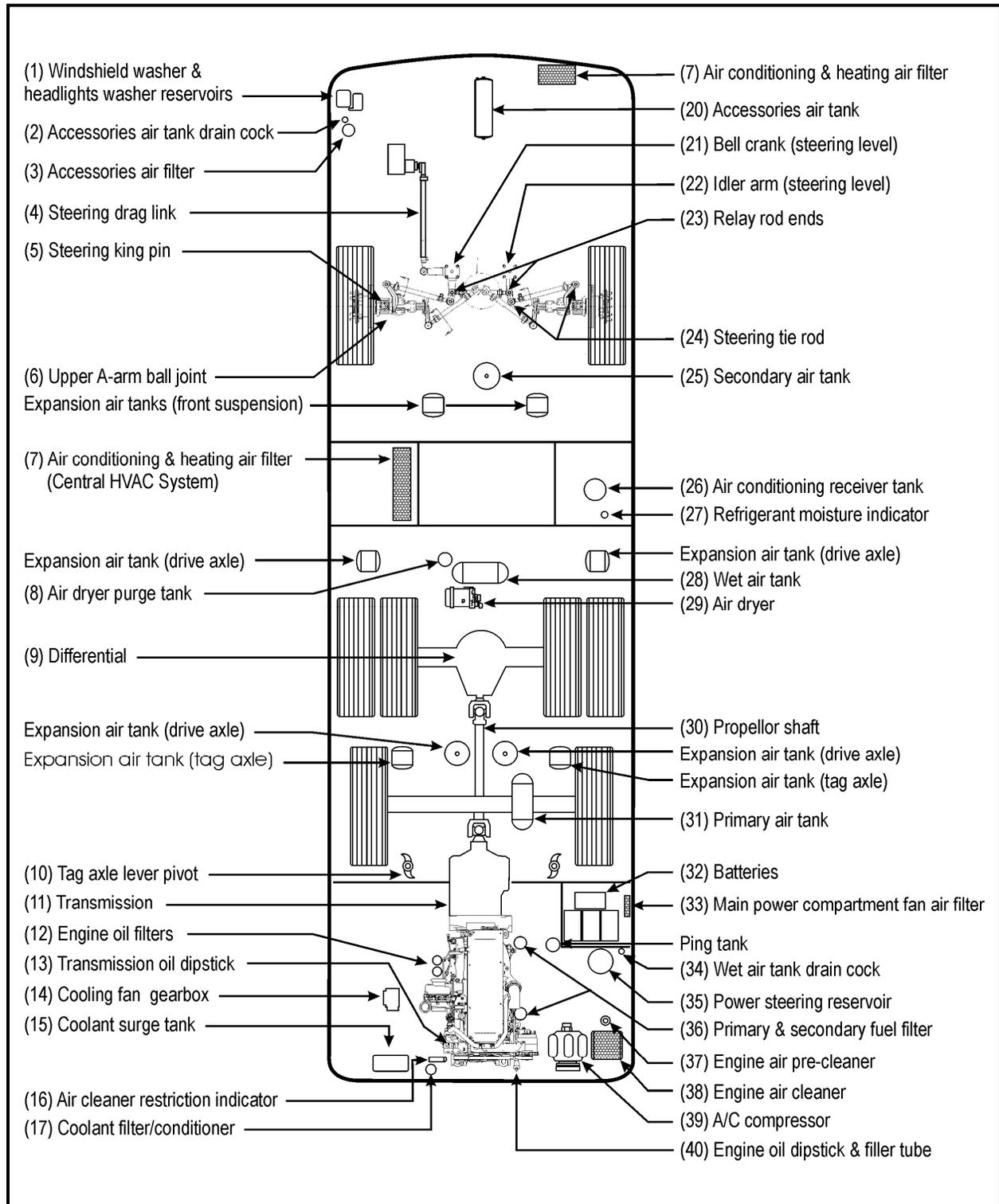
## WARNING

Report all problems affecting passenger or driver safety to your service center or an authorized service center. Have problems corrected immediately.

## NOTE

*Refer to Maintenance Manual for precise service schedule.*

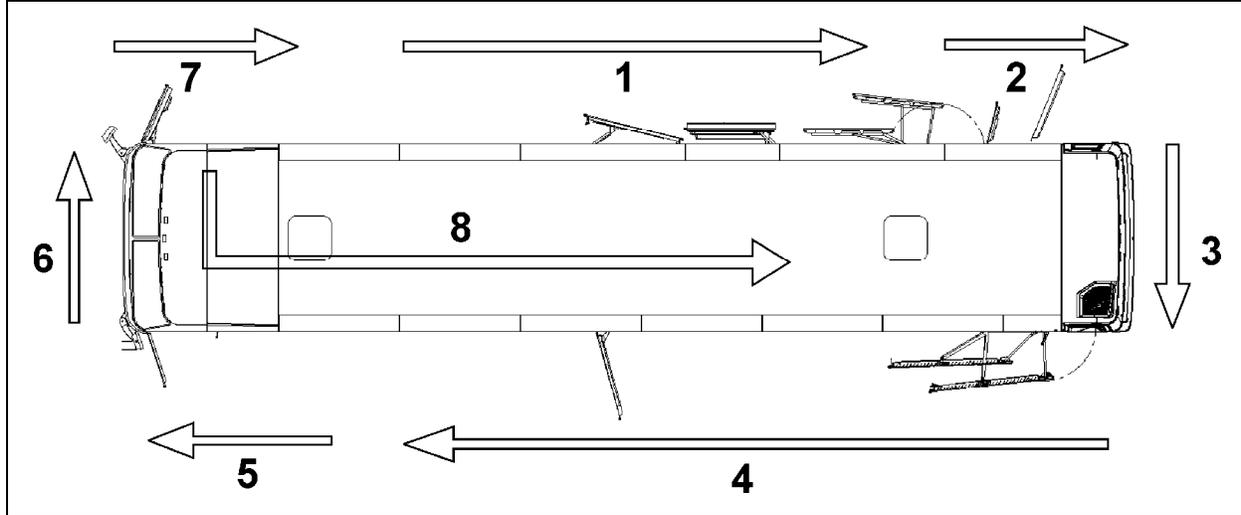
# 114 CARE AND MAINTENANCE



**LUBRICATION AND SERVICING POINTS ON INDEPENDENT FRONT SUSPENSION VEHICLES (Refer to the Maintenance Manual for the lubrication & servicing schedule)**

## WALK-AROUND INSPECTION (BEFORE EVERY TRIP)

It is a good practice to make a basic visual inspection of key areas on the vehicle before every trip and to report any problem areas to your PREVOST service center or a PREVOST-authorized authorized service center.



WALK-AROUND INSPECTION

18667

### NOTE

Inspect the coach in a circular manner as shown in the illustration.

### Approaching the Coach

- Check under the coach for oil, fuel or coolant leaks or other signs of damage.
- Check exterior body surfaces for signs of breaks or damage.

- Check condition of tires: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stems not touching wheels or rims; valve caps in place and no objects stuck between the wheels.

### Preparation

- Start the engine and let the air pressure build up to normal. Stop engine.
- Switch on hazard warning flashers.
- Make sure parking brakes are applied.

### Step 1: Right Side of the Coach

- Check that the vehicle is equipped with a wheel nut wrench, spare door keys, spare belts, reflectors and jack.
- Check that baggage doors and service compartment doors close properly. Check for good tightness and fit.
- Check condition of wheels and rims. Especially look for cracks, missing nuts, bent or broken studs.

### Step 2: Engine Compartment Right Side Area

- Drain wet air tank by opening drain cock. Close drain cock when completed.
- Check engine and surrounding areas for coolant, oil and fuel leaks.
- Check primary fuel filter/water separator and drain if necessary. Close drain valve after draining.
- Check power steering reservoir fluid level, add if necessary.
- Check wiring harness for signs of damage.

### Step 3: Engine Compartment

- Check engine and surrounding areas for coolant, oil and fuel leaks.

## 116 CARE AND MAINTENANCE

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- Check wiring harness for signs of damage.
- Check for loose, worn or broken belts.
- Check belts tension adjustment.
- Check engine crankcase oil level, add if necessary.
- Check Allison transmission fluid level (can also be checked from push-button shift selector), add if necessary.
- Check coolant surge tank fluid level, add if necessary.
- Check air cleaner restriction indicator, replace air cleaner when red signal locks in full view.
- Check stop light, tail light, directional signal light and back-up light assembly, they should be clean.

### Step 4: Rear Left Side of the Coach

- Check condition of wheels and rims. Especially look for cracks, missing nuts, bent or broken studs.
- Check that baggage doors and service compartment doors close properly. check for good tightness and fit.
- Check condition of tires: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stems not touching wheels or rims; valve caps in place and no objects stuck between the wheels.

### Step 5: Front Left Side of the Coach

- Check condition of wheel rim. Especially look for cracks, missing nuts, bent or broken studs.
- Check condition of tire: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stem not touching wheel or rim; valve cap in place.
- Check windshield and headlights washer reservoir fluid level and add if necessary.
- Drain accessory air tank by opening drain cock. Close drain cock when completed.

### Step 6: Front of the Coach

- Check for damage and clean if dirty.
- Check windshield wiper arms for proper spring tension.
- Check wiper blades for any damage, “dead” rubber and attachment to arm.
- Check clearance and identification lights, they should be clean.
- Check high and low beams, they should be clean. If equipped, check fog lights.
- Check left and right directional signals, they should be clean.

### Step 7: Front Right Side of the Coach

- Check condition of wheel rim. Especially look for cracks, missing nuts, bent or broken studs.
- Check condition of tire: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stem not touching wheel or rim; valve cap in place.

### Step 8: Inside the Coach

- Check for proper operation of the entrance door.
- Check steps; clean them if there is any substance that makes them slippery, which makes coach entry/exit hazardous.
- Adjust and clean mirrors for adequate rear view vision.
- Verify proper operation of windshield wiper/ washer.
- Check for fire extinguishers to make sure they are ready for operation.
- Check that emergency exit windows and roof escape hatches can be opened then close all windows and hatches securely

### With engine running

- Start engine and check for proper operation of all gauges. Perform a telltale light test (see “CONTROLS AND INSTRUMENTS” chapter). Indicator lights

and buzzers should all be OFF before driving.

- Using the message center display, perform a system diagnostic to check if error codes and anomalies were recorded in the vehicle electronic modules.
- Check for proper operation of electric and air horns and back-up alarm.
- Check automatic transmission oil level, using the pushbutton shift selector (see APPENDIX C).
- Check that there is enough fuel in the tank.
- Perform a parking brake test. Check both primary and secondary pressure gauges. Refer to "OTHER VERIFICATIONS" in this chapter.
- Perform the exterior lighting verification using the test mode. Refer to "Other Verifications" in this chapter.
- Walk around the vehicle and listen for air leaks.
- Check for leaks and listen for unusual sounds coming from the turbocharger.



| <b>DIMENSIONS AND WEIGHTS</b>                            |                        |
|--|------------------------|
| Overall length (over bumpers)                            | 45' 8" (13.9 m)        |
| Overall width  | 102" (2.59 m)          |
| Overall height (normal ride height)                      | 146 ¼" (3.715 m)       |
| Wheelbase (center of front axle to center of drive axle) | 316 ¼" (8.033 m)       |
| Floor height from ground                                 | 63" (1.6 m)            |
| Ground clearance   | 11" (280 mm)           |
| Step height from ground                                  | 14" (356 mm)           |
| Headroom   | 77" (1.956 m)          |
| Entrance door opening width                              | 27" (686 mm)           |
| Front overhang   | 76" (1,93 m)           |
| Rear overhang  | 108 ¼" (2.749 m)       |
| Front track  | 84.4" (2.145 m)        |
| Drive track  | 76.7" (1.949 m)        |
| Rear track (tag axle)                                    | 83.6" (2.124 m)        |
| Turning circle radius                                    | 42' (12.8 m)           |
| Curb weight (before conversion)                          | 31,990 lbs (14 540 Kg) |
| Gross Vehicle Weight Rating (G.V.W.R.)                   | 54,500 lbs (23 665 kg) |
| Front axle Gross Axle Weight Rating (G.A.W.R.)           | 18,000 lbs (7 500 kg)  |
| Drive axle G.A.W.R.                                      | 22,500 lbs (10 230 kg) |
| Tag axle G.A.W.R.  | 14,000 lbs (6 365 kg)  |

**NOTE**

*Curb weight is given as an indication only and is subject to vary from coach to coach, mostly due to optional equipment.*

The Gross Vehicle Weight Rating (G.V.W.R.) and the Gross Axle Weight Rating (G.A.W.R.) for front, drive and tag axles are listed on a certification plate located on the L.H. control panel in driver's section.

| <b>CAPACITIES</b>                                 |                     |
|---|---------------------|
| Engine oil (in crankcase)                         | 41 US qts (39 l)    |
| Engine oil (in reserve tank)                      | 8.4 US qts (8.0 l)  |
| Fuel tank (legal capacity equal to 95% of volume) | 235 US gal. (890 l) |

| <b>CAPACITIES</b>  |   |
|--|---|
| Cooling system   | 24 US gal. (91 l)                             |
| Allison transmission (does not include external circuit) | 6 US gal. (23 l)                              |
| Differential oil   | 5 US gal. (19 l)                              |
| Power steering reservoir                                 | 4 US qts (3.7 l)                              |
| A/C compressor oil                                       | 4.5 US qts (4.3 l)                            |
| Windshield washer reservoir                              | 5 US gal. (19 l)                              |
| Refrigerant  | 24.1 lbs (11 kg)<br>6 lbs (2.75 kg) small A/C |

**FUEL TYPE**

Diesel engines for 2007 and later model year vehicles are designed to operate only with **Ultra Low Sulfur Diesel** (ULSD) fuel, which can contain no more than 15 ppm sulfur.

|   |                |
|---|----------------|
|    | <b>CAUTION</b> |
| <p>ULSD fuel is necessary to avoid fouling the engine's Aftertreatment Device (ATD). Use of fuel other than ULSD will reduce the efficiency and durability of the engine.</p> |                |

**BIODIESEL FUELS**

ULSD-B5 biodiesel may be used. B5 tells you the percentage of biodiesel mixed in with ULSD. B5 is 5% biodiesel and 95% ULSD.

Fuel used must meet engine manufacturer's specification for biodiesel fuel. For Detroit Diesel engines refer to "Diesel Fuel Specifications" as stated in DDC publication 7SE270 LUBRICATING OIL, FUEL, AND FILTERS.

Biodiesel fuels are alkyl esters of long chain fatty acids derived from renewable resources. Detroit Diesel highly recommends biodiesel fuels made from soybean or rapeseed oil through the proper transesterification reaction process. Other feedstock source of biodiesel fuels such as animal fat and used cooking oils are not recommended by Detroit Diesel. Biodiesel fuels meeting ASTM D6751 specification and from BQ-9000 accredited producer, prior to blending can be mixed up to 5% maximum by volume in petroleum diesel fuel. The resulting mixture must

## 120 TECHNICAL INFORMATION

meet the fuel properties listed in Table 5-1 (see Detroit Diesel publication 7SE270 LUBRICATING OIL, FUEL, AND FILTERS.) and ASTM D975 specification. Failures attributed to the use of biodiesel fuel will not be covered by Detroit Diesel or Prevost product warranty. Also, any engine performance problem related to the use of biodiesel fuel would not be recognized nor considered as Detroit Diesel or Prevost's responsibility.

### WHEELS AND TIRES

Drive Axle Aluminum forged wheels ...9" X 22½"  
 Drive Axle Super Single Aluminum forged wheels ..... 14" X 22½"  
 Drive Axle Tires.....315/80 R 22½"  
 Drive Axle Super Single Tires .....455/55 R 22½"  
 Tag & Front Axle Aluminum forged Wheels ..... 10½" X 22½"  
 Tag & Front Axle Tires .....365/70 R 22½"

### RECOMMENDED TIRE INFLATION PRESSURE AT MAXIMUM COLD LOAD

The recommended tire inflation pressures are given in the applicable documents supplied with the vehicle. In addition, cold tire inflation pressures are listed on the Department of Transport (DOT) certification plate, affixed on the wall behind the driver's seat.

#### NOTE

Bus Shells vehicles, before being converted, are not at their maximum weight and tire pressures are adjusted at lower level than the maximum allowed appearing on the DOT plate. Tires pressure must be re-adjusted once converted.

Vehicles equipped with TPMS: The TPMS target pressures are factory set to equal the prevailing tire pressure at delivery time. When tire pressures are increased to account for higher vehicle weight, the TPMS set point need to be increased accordingly.



### WARNING

Special tire selection may lower maximum allowable speed limit, even below posted speed limit. For maximum safety, check with tire manufacturer.



### CAUTION

These tire pressures are established in accordance with the maximum allowable load on each axle. A lower pressure is recommended if the axle load is less than the above specifications. Weigh vehicle fully loaded and pressurize according to tire manufacturer's recommendations. For non standard tire and wheel specifications, see Prevost tire pressure tabulation in "Coach Final Record" or special specification chart affixed next to the DOT certification plate.

### BELTS

| Use                                     | Model                | Qty |
|---|----------------------|-----|
| Cooling fan drive belt                  | Poly-Rib<br>14PK2310 | 1   |
| A/C system 05G compressor               | BX-98                | 2   |
| A/C small system Sanden compressor      | V-Belt<br>AX32       | 2   |
| A/C small system (on crankshaft pulley) | V-Belt<br>BX96       | 2   |
| Alternator (twin Bosch)                 | Poly-V<br>10/2245    | 1   |

#### NOTE

*Belts specifications may vary. For proper belt selection, always consult your vehicle Coach Final Record.*

### ENGINE

Power is provided by a Detroit Diesel DDEC VI Series 60 engine, displacing 14 liters. The engine is an inline six cylinder, four stroke, turbocharged, air to air charge cooled, diesel engine with an overhead camshaft and four valves per cylinder.

Rated horsepower.....470-515 HP @ 1,800 rpm

Peak torque.....1,650 lbf•ft @ 1,200 rpm

Operating range .....1,200 – 2,100 rpm

### ALLISON TRANSMISSION

Allison MH4000 electronically controlled six speed automatic transmission.

## Gear Ratios

|                       |       |
|-----------------------|-------|
| 1 <sup>st</sup> ..... | 3.510 |
| 2 <sup>nd</sup> ..... | 1.906 |
| 3 <sup>rd</sup> ..... | 1.429 |
| 4 <sup>th</sup> ..... | 1.000 |
| 5 <sup>th</sup> ..... | 0.737 |
| 6 <sup>th</sup> ..... | 0.639 |
| Reverse .....         | 4.801 |
| Converter.....        | 1.578 |

## PROPELLER SHAFT

Dana 1810 series heavy-duty type universal joints, 4" outside diameter.

## BRAKES

The features of the braking system include a dual system where the front and rear circuits are completely independent from each other. The brakes are Knorr air operated disc type brakes with ABS and automatic slack adjusters on front drive and tag axles. Model 24/24 spring brakes on drive axle provide emergency and parking brakes. Emergency brake application will be automatic if pressure drops below 40 psi. At 60 psi a warning light and buzzer will come on so the driver can bring the vehicle to a safe stop simply by a conventional application of the foot brake pedal.

### BRAKE CHAMBER EFFECTIVE AREA

|                           |   |
|---------------------------|---|
| Front axle (IFS) .....    | 24 in <sup>2</sup>                          |
| Front axle (I-Beam) ..... | 24 in <sup>2</sup>                          |
| Drive axle .....          | 24/24 in <sup>2</sup> (service / emergency) |
| Tag axle.....             | 16 in <sup>2</sup> (service)                |

## AIR SYSTEM

Compressed air is provided by a 15.8 cfm Bendix-Westinghouse BA921, one cylinder, gear-driven, water-cooled and engine oil lubricated air compressor.

Other features and components of the air system include an air dryer and nylon color-coded air lines.

## ANTILOCK BRAKING SYSTEM (ABS)

The antilock braking system has one Electronic Control Unit (ECU) controlling a four channel system. A wheel slip sensor is mounted at each front axle and drive axle wheel. The Tag axle wheels are slave to the drive axle wheels.

The Electronic Control Module (ECM) is maintenance free. Its operating voltage is 24 ± 6 volts DC. The thermal operating range for the ECM is from -40 to 167°F (-40 to 75°C).

The solenoid control valves are maintenance free. Their operating voltage is 24 (+4.8, -2.4) volts DC. The rated current draw is 1.65 amps. The thermal operating range of the solenoid control valves is from -40 to 176°F (-40 to 80°C).

## TROUBLESHOOTING AND TESTING

For troubleshooting and testing of the vehicle's anti-lock braking system, refer to Meritor-WABCO Maintenance Manual MM-0112 "Anti-Lock Braking System For Trucks, Tractors and Buses" or use dashboard Message Center Display (MCD) Diagnostic Mode under ECU Diagnostic: "Brakes".

## AUTOMATIC TRACTION CONTROL (ATC) – ELECTRONIC STABILITY PROGRAM (ESP)

In addition to the ABS function, vehicle may be equipped with an advanced model of Bendix EC-60 controller to provide an **Automatic Traction Control (ATC)** feature. Bendix ATC can improve vehicle traction during acceleration, and lateral stability while accelerating through curves. ATC utilizes **Engine Torque Limiting (ETL)** where the ECU communicates with the engine's controller and/or **Differential Braking (DB)** where individual wheel brake applications are used to improve vehicle traction.

The EC-60 advanced model controller also provides ABS-based stability features referred to as **ESP® Electronic Stability Program**.

Refer to Maintenance Manual, Section 12: Brake and Air System for more information on this system.

|   |                |
|---|----------------|
|    | <b>WARNING</b> |
| <p><b>ESP may reduce the vehicle speed automatically.</b></p> <p>ESP can make the vehicle <b>decelerate automatically</b>. ESP can slow the vehicle with or <b>without the operator applying the brake</b>, and <b>even when the throttle is being applied</b>.</p> |                |



## CAUTION

Even with ESP-equipped vehicles, the driver remains responsible for ensuring vehicle stability during operation.

## STEERING

ZF 8098 integral steering gear model.

- Variable assistance in function of speed is optional.
- ZF servocomtronic integral steering gear model.
- TRW, PS25 series hydraulic pump gear driven from engine drive.
- Hydraulic reservoir and dipstick accessible from engine compartment.
- System pressure 2320 psi.
- Steering wheel diameter 17 3/4". Tilt and telescopic, pneumatically locked with foot operated switch for adjustment.
- Number of turns: 5¾.
- Outside turning radius: see Dimensions and Weight.

## ELECTRICAL SYSTEM

- 24 volt, negative ground;
- 12 volt exterior lighting;
- Four 12 volt, group 31 format maintenance-free batteries connected in series/parallel. Cold cranking capacity is 1900 amps with a reserve capacity of 195 minutes;
- Three manually operated circuit breakers located in the battery compartment can be tripped to cut low current direct loads and help preserving minimal charge when parked for a long period.
- 100 amp battery equalizer;

## AXLES

### FRONT AXLE

- Prevost independent front suspension with recalibrated air springs for improved comfort.
- 18,000 lbs capacity (loading limit could be less depending on wheel and tire selection).
- Wide apart double A-arm design mounted on ball joints with torque link.
- Double sealed taper roller bearings bell crank and idler steering arm.

- Unitized wheel bearing (maintenance free bearing).
- Factory pre-adjusted caster.

### DRIVE AXLE

- Meritor model RC23-165.
- Full floating banjo type.
- Induction hardened bearing journals for greater durability.
- Oil lubricated wheel bearing.
- Axle ratio 4.30 to 1 for optimized fuel economy at 65 mph (standard).
- Proposed ratios: 4.56 for performance.
- Differential ratios: Suggested standard 4.30. Option with Allison B500: 4.10, 4.56 and 4.88

### TAG AXLE

- Prevost hollow square beam.
- Unitized wheel bearings (maintenance free).
- Tag axle may be lifted to provide better traction in snow and mud.

## SUSPENSION

Goodyear rolling lobe type air springs (bellows) are used throughout.

### INDEPENDENT FRONT SUSPENSION

- 2 Bellows (14") for a G.A.W.R. of 18,000 lb;
- 2 Shock absorbers;
- 2 Upper A-arms;
- 2 Lower A-arms;
- 1 Height control valve;
- 1 sway bar (1¾" diameter).

### DRIVE AXLE

- 4 Bellows (11");
- 4 Shock absorbers;
- 3 Radius rods;
- 2 Height control valves;
- 1 Panhard rod
- 1 Anti-roll bar, 1½" diameter

### TAG AXLE

- 2 Bellows (11");
- 2 Shock absorbers;
- 3 Radius rods;
- 1 Panhard rod.

**ALIGNMENT SPECIFICATIONS**

Use wheel alignment systems which work with angle measurements only, such as Josam or Hunter systems. Alignment specifications are listed in the following tables:

| FRONT AXLE<br>(INDEPENDENT FRONT SUSPENSION) |               |           |               |           |               |           |
|--|---------------|-----------|---------------|-----------|---------------|-----------|
| Load   | Minimum value |           | Nominal value |           | Maximum value |           |
|  | Non-converted | Converted | Non-converted | Converted | Non-converted | Converted |
| Right camber                                 | 0.2°          | -0.150    | 0.35°         | 0°        | 0.55°         | 0.200°    |
| Left camber                                  | 0.2°          | -0.150    | 0.35°         | 0°        | 0.55°         | 0.200°    |
| Right caster                                 | 2.55°         |           | 2.8°          |           | 3.05°         |           |
| Left caster                                  | 2.55°         |           | 2.8°          |           | 3.05°         |           |
| Total toe-in                                 | 0.08°         |           | 0.10°         |           | 0.12°         |           |

| DRIVE AXLE   |               |               |               |
|--------------|---------------|---------------|---------------|
|              | Minimum value | Nominal value | Maximum value |
| Thrust angle | -0.04°        | 0°            | 0.04°         |

| TAG AXLE     |               |               |               |
|--------------|---------------|---------------|---------------|
|              | Minimum value | Nominal value | Maximum value |
| Parallelism* | -0.02°        | 0°            | 0.02°         |

(\* Use the drive axle as reference)

**COOLING SYSTEM**

- Extra capacity, copper fin radiator and aluminum charge air cooler.
- 3 speed fan clutch DDEC controlled.
- Rubber insulated from the body.
- Expansion tank above radiator and remote mounted.

- System pressure 14 psi.
- One (1) 185° F thermostat.
- System capacity 27.6 us gal (DDC S60).
- Coolant filter.
- Radiator fan: 38 inches fan, belt and shaft driven.

**FUEL SYSTEM**

Polyethylene 230 us gallon/870 liters fuel tank located in middle of second baggage bay (heating and a/c section) includes:

- Anti-spill device.
- Two Safety filler cap, providing filling access on each side of the vehicle.
- Pressure relief valve.
- Electric fuel gage.
- Fuel cooler.
- Low level signal at 26 US gallon/98 liters.
- Primary filter 25 microns (standard).
- Fuel pro 382 filter available as an option as a primary filter.
- Secondary filter 3 to 5 microns.
- Shut-off valve on fuel supply line.

**EXHAUST SYSTEM**

One all stainless steel exhaust system including:

- Meritor Aftertreatment Device (ATD) made of a Diesel Particulate Filter (DPF) and a Diesel Oxidation Catalyst (DOC). Noise, vibration and heat insulated. This ATD is mounted to the bus structure and is accessible through an exterior access door.
- Tail pipe diffuser and rain deviation device.
- Exhaust pipe with insulation and a flexible section.
- Exhaust to rear left hand top of rear cap.

**HEATING AND AIR CONDITIONING**

Two air conditioning systems are available: the large capacity (central A/C) or the small capacity A/C (also known as driver's air). Vehicles equipped with the large capacity A/C benefit from a combination heating and cooling system that provides adequate capacity of conditioned and filtered air for all climatic conditions. Fresh air is drawn into the system from the left (driver's) side of the vehicle. Return air is taken from the middle of the vehicle. The driver's heater and defogger are controlled separately from the central unit. An air mixture selector enables air to be drawn into the system from

## 124 TECHNICAL INFORMATION

outside the vehicle or recirculated. Driver's air provides cooling for the driver's area only, maximizing available baggage space for other uses. The small capacity A/C enables cooling the driver's area only.

| SMALL HVAC SYSTEM         |                                    |
|---------------------------|------------------------------------|
| Air conditioning capacity | 2 tons                             |
| Refrigerant type          | 134a                               |
| Air flow                  | 450 cfm (12,7 m <sup>3</sup> /min) |

| COMPRESSOR (For Small HVAC System) |                      |
|------------------------------------|----------------------|
| Number of cylinders                | 7                    |
| Operating speed                    | 700 to 6 000 rpm     |
| Oil capacity                       | 6.0 U.S. oz (0,18 l) |
| Approved oil                       | SP-20 (PAG)          |

| CENTRAL HVAC SYSTEM       |                                      |
|---------------------------|--------------------------------------|
| Air conditioning capacity | 7.5 tons                             |
| Refrigerant type          | 134a                                 |
| Heating capacity          | 152 000 Btu/h                        |
| Air flow                  | 2 600 cfm (73,6 m <sup>3</sup> /min) |

| COMPRESSOR (For Central HVAC System) |  |
|--------------------------------------|--|
| Number of cylinders                  | 6  |
| Operating speed                      | 400 to 2 200 rpm<br>(1,750 rpm, nominal) |
| Minimum speed for lubrication        | 400 rpm                                  |
| Oil capacity                         | 4.5 U.S. qts (4,3 l)                     |
| Approved oil                         | Castrol SW-68 (POE)                      |

### NOTE

*The above oils are suitable for use with reciprocating compressors using refrigerant R-134a and with evaporator temperatures above -40°F (-40°C).*

## OIL SPECIFICATIONS

### ENGINE

Use SAE 15W-40 meeting API classification CJ-4. Low ash oil formulation designated API CJ-4 is required in EPA-07 engines.



### CAUTION

CJ-4 contains less than 1% ash which is key to achieving maximum diesel particulate filter cleaning intervals. Use of high ash engine oils will reduce the cleaning interval on the Diesel Particulate Filter (DPF). DPF regenerates the combustible soot, but the ash (a product of the oil lubricant package) slowly accumulates in the channels of the DPF.

### ALLISON TRANSMISSION

Allison Transmission recommends the following fluids:

- Castrol TranSynd™ or TES-295 specification equivalent fluid;
- Dexron-III® automatic transmission fluid;
- Dexron-VI® automatic transmission fluid or TES-389 specification equivalent fluid.

### DIFFERENTIAL

Multigrade gear oil meeting MIL-PRF-2105-E: 85W140 is recommended for use in drive axle. This lubricant performs well over a broad temperature range, providing good gear and bearing protection in a variety of climates. If temperature drops below 10°F (-12°C), 80W90 should be used, and below -15°F (-26°C), 75W90 should be used. In extreme conditions or for better performance, full synthetic gear oil should be used.

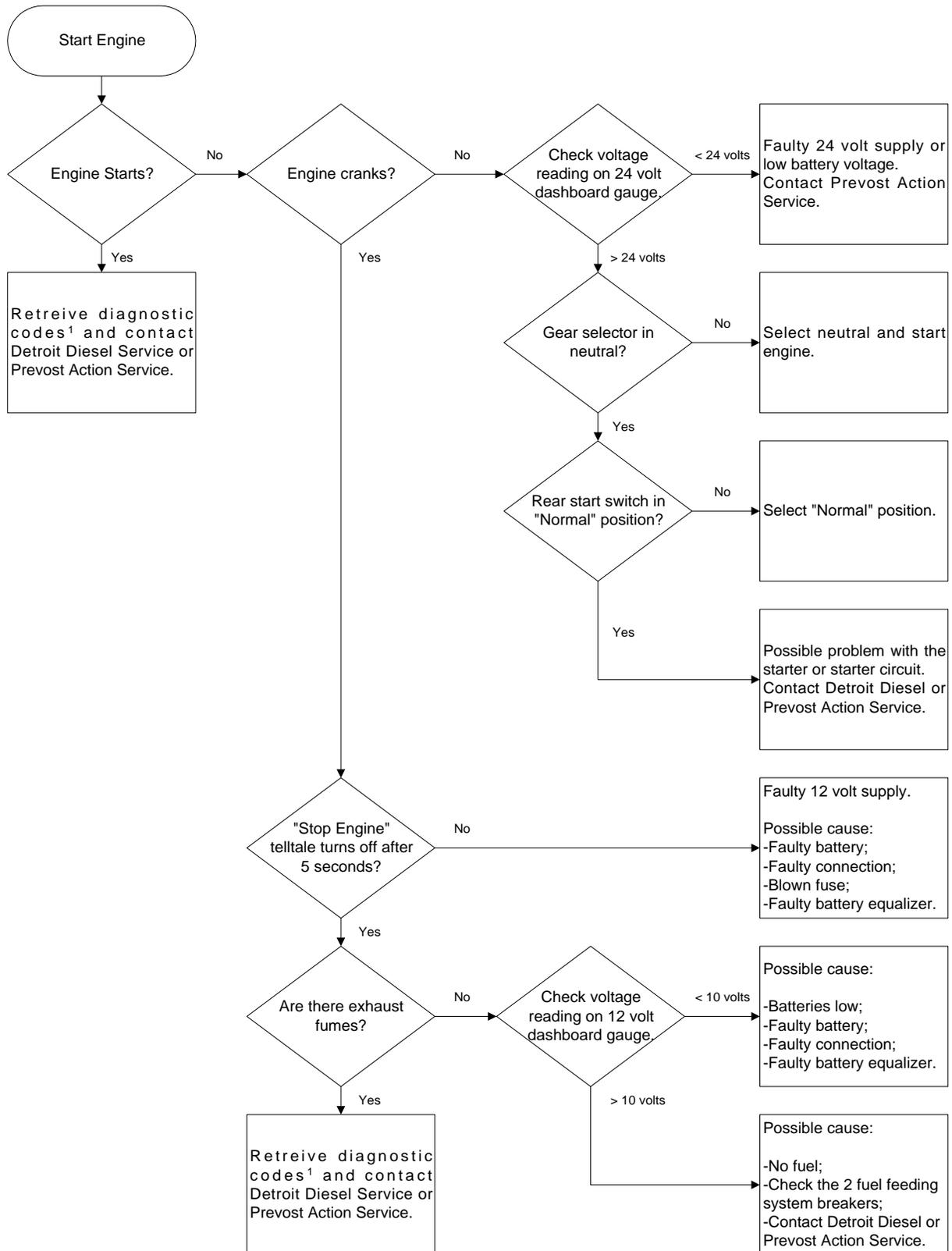
### FAN RIGHT ANGLE GEARBOX

Use Synthetic Gear Lubricant SAE 75W-90.

### POWER STEERING RESERVOIR

Use Dexron-IIe or Dexron-III automatic transmission fluid for this system.

ENGINE TROUBLESHOOTING FLOWCHART



(1) Refer to DDEC VI Diagnostic Codes in this chapter.

## **126 TECHNICAL INFORMATION**

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### **LIGHT BULB DATA**

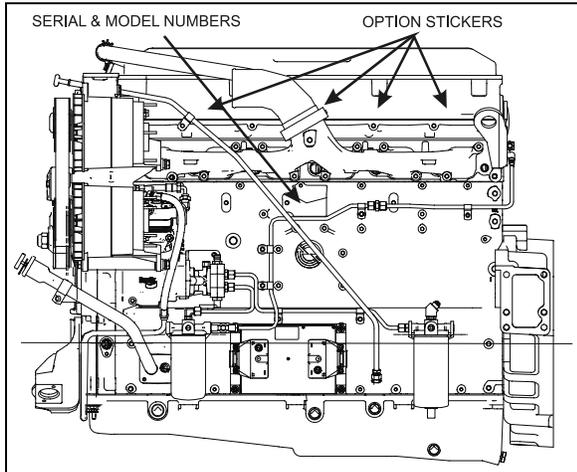
Please, refer to your vehicle Parts Manual for selection of replacement light bulbs.

## PLATES AND CERTIFICATION

The main components of the vehicle, such as engine, transmission, axles and the chassis are identified by different serial numbers. It may be necessary to locate these numbers for warranty purposes.

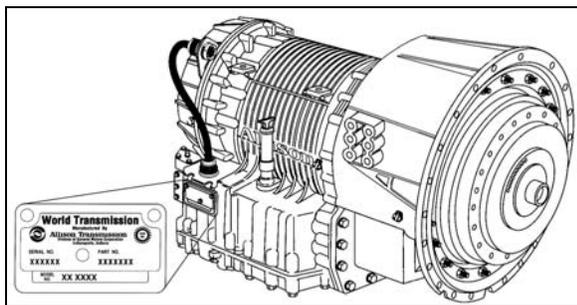
The engine serial and model number are laser etched on the cylinder block (as viewed from the flywheel end) on the left side just below the intake manifold and above the cast-in Detroit Diesel logo.

In addition, option decals are located on the rocker cover (starter side). The engine serial and model number and a list of the optional engine equipment are written on these decals. Refer to this information when ordering replacement parts.



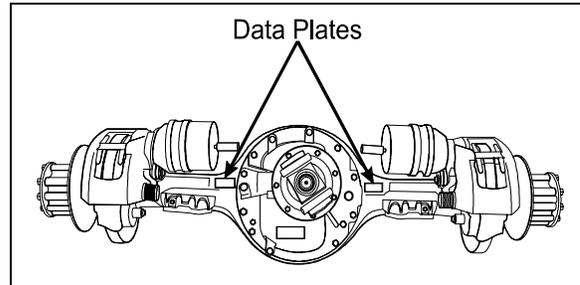
**SERIES 60 ENGINE**

00043



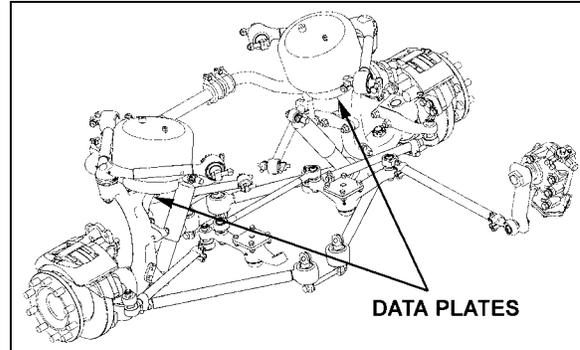
**TRANSMISSION DATA PLATE (ALLISON)**

07076



**DRIVE AXLE**

11019



**IFS TYPICAL SERIAL & MODEL NUMBERS**

00025C

## SAFETY CERTIFICATION

Vehicle components meet specifications and standards as follows:

- Material and parts conform to ASTM and/or SAE standards in effect at the time of manufacture.
- All factory-installed interior materials meet FMVSS 302 for fire resistance.
- Certified according to Provincial, State and Federal Safety standards (Canadian and US) BMCSS, FMVSS and CMVSS.

Other applicable certification labels are affixed to the applicable components.

## DOT CERTIFICATION PLATE

This certifies that vehicles manufactured by Prevost Car Inc. comply with all Federal Motor Vehicle Safety Standards at the time of manufacture. Information such as date of manufacture, model year, gross vehicle weight rating, tire types and inflation pressure is also etched on this plate. The DOT Certification plate is affixed to L.H. control panel.



**SERVICE LITERATURE**

Visit our web sit at [www.prevostcar.com](http://www.prevostcar.com) for on-line product information and technical publications!

Additional copies of the following service literature are available on request and at low cost.

- **Maintenance Manual**
- **Parts Manual**
- **Service Center Directory**

To order, call Prevost Parts toll free 1-800-463-8876 or write to:

**PREVOST PARTS INC.**

2955-A Watt Street  
Sainte-Foy, (Quebec)  
Canada G1X 3W1

**Specify the complete vehicle serial number. Allow 30 days for delivery**

## NOTICE

### DECLARATION OF THE MANUFACTURING DEFECTS TO THE GOVERNMENT OF THE UNITED STATES

If you believe that your vehicle has defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Prevest Car Inc..

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign.

However, NHTSA cannot become involved in individual problems between you, your dealer, or Prevest Car Inc..

To contact NHTSA you may either call the Auto Safety Hotline toll-free at **1-800-424-9393** (or **366-0123** in Washington, D.C. area) or write to:

**NHTSA  
U.S. Department of transportation  
Washington, D.C. 20590.**

You can also obtain other information about motor vehicle safety from the Hotline.

### DECLARATION OF THE MANUFACTURING DEFECTS TO THE CANADIAN GOVERNMENT

If you stay in Canada, and if you believe that your vehicle has a safety defect, you should immediately inform Transport Canada and Prevest Car Inc. You may write to:

**Transport Canada  
Box 8880  
Ottawa, Ontario, K1G 3J2**

### DECLARATION OF THE MANUFACTURING DEFECTS TO PREVOST CAR INC.

In addition to notify the NHTSA (or Transport Canada), please contact Prevest Car at **1-418-831-2046**. Or you may write to :

**Prevest Car Inc.  
After-sales service department  
850 ch. Olivier,  
Saint-Nicolas (Quebec)  
Canada, G7A 2N1**

## ROADSIDE TROUBLESHOOTING GUIDE FOR MULTIPLEX VEHICLES

| Problem/Symptom  | Probable Causes   | Actions   |
|--|---|---|
| Vehicle does not Start   | Rear Start selector switch is not at the NORMAL position<br><br>Battery master switch in the battery compartment is at the OFF position (down)                        | <ol style="list-style-type: none"> <li>1. Check that the rear start selector switch is flipped up to NORMAL start position and battery master switch is flipped up to ON and retry cranking</li> <li>2. Flip the rear start selector switch to "Rear Start" and start the vehicle from the rear</li> </ol>  |
|  | CAN network problem (Multiplex)<br><br>Module A53 not powered or is defective<br><br>Engine ECM does not receive the ignition signal<br><br>Engine ECM is not powered | If the vehicle does not start from the rear: <ol style="list-style-type: none"> <li>1. Verify that module A53 is powered:                             <ol style="list-style-type: none"> <li>a) Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA53, Active" indicates a power problem on the module or a CAN network problem.</li> <li>b) Check / reset circuit breaker CB5</li> <li>c) Check / replace fuse F65</li> <li>d) Probe gray connector on module to see if it is powered.</li> </ol> </li> <li>2. Verify that the engine ECM is powered and get the ignition signal                             <ol style="list-style-type: none"> <li>a) Check / reset circuit breaker CB8<br/>Check / replace fuse F74</li> <li>b) Check / reset circuit breaker CB2<br/>Check / replace fuse F78</li> </ol> </li> </ol> |
| None of the Multiplexed functions are operating, including the basic limp-home functions (door opening, flashers, wipers in speed 1)<br><br>Three dashes "---" appear in the telltale panel instead of the outside temperature<br><br><i>Note: The sunshades are still functioning since these are not multiplexed</i> | The program version in the CECM is different than the program in the I/O modules and the CECM is forcing all I/O modules to stay inactive                             | <ol style="list-style-type: none"> <li>1. Engage the auto-programming of the I/O modules: Turn the ignition key to the OFF position, flip the battery master switch in the battery compartment to OFF and ON and then turn the ignition key ON. The letters CAN will appear in the telltale LCD panel for about 3 minutes. Everything shall get back to normal once the letters CAN are replaced with outside temperature display</li> <li>2. Try disconnecting the green connector on the CECM and reconnect</li> <li>3. If step 1 and 2 are ineffective, try disconnecting the Master ID module completely and repeat step 1</li> </ol>   |

## 132 APPENDIX B – Road Side Troubleshooting Multiplex

| Problem/Symptom   | Probable Causes  | Actions  |
|---|--|--|
|   |  | <ol style="list-style-type: none"> <li>4. Try disconnecting the CECM completely, leave it disconnected and see if the limp-home functions (start of the vehicle from the engine compartment, wipers speed 1, flashers, etc ) are functioning</li> </ol>  |
| <p>Many secondary functions (not essential for driving) not functioning (interior lighting, driver's area lighting, wiper speed 2 and intermittent)</p> <p>Outside temperature display in the telltale LCD panel displays three dashes "---"</p> <p>Marker lights and clearance lights are turned ON when setting ignition to the ON position</p> | <p>The CECM module does not receive 24 V power</p> <p>The CAN network is not working. It could be caused by a short on the network, an open circuit, a problem with the CECM or the CECM being disconnected from the network</p> | <ol style="list-style-type: none"> <li>1. Check / reset circuit breaker CB6 (4<sup>th</sup> from the top on the right side column) Check / replace fuse F1</li> <li>2. Operate in limp-home mode by starting the vehicle from the engine compartment (REAR START). All functions essential to drive are available</li> </ol> <p>To close and lock the door, pull the door manually up to its closed position and it will lock by itself. The door opening button is still functioning</p>  |
| <p>No temperature control in the passenger area</p> <p>Passenger temperature display indicates two dashes "--"</p>  | <p>Problem with the temperature sensor located in the evaporator compartment air intake or the sensor wiring</p>   | <ol style="list-style-type: none"> <li>1. Instruct the driver to manually control the temperature by playing with the passenger set point. Set above 22°C (72°F) to heat and below 22° C (72°F) to cool</li> </ol>   |
| <p>Entrance door does not open nor close using the control buttons</p> <p>Defroster fan not functioning</p> <p>Lower windshield wipers not functioning in speed 1 or intermittent</p>   | <p>Module A47 is not powered or is faulty</p>  | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA47, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce these symptoms).</li> <li>2. Check / reset circuit breaker CB6</li> <li>3. Check / replace fuse F5</li> <li>4. Probe gray connector on module to see if it is powered.</li> <li>5. Use the air release valves near the entrance door and in the front service compartment to lock / unlock the door</li> </ol> |
| <p>Lower windshield wipers not functioning in speed 1 or intermittent</p>   | <p>No power on R23</p>   | <ol style="list-style-type: none"> <li>1. Check / replace fuse F82</li> </ol>  |
| <p>HVAC condenser fans not functioning in speed 1</p>   | <p>Circuit breaker CB7 was manually tripped and not reset</p>  | <ol style="list-style-type: none"> <li>1. Check / reset circuit breaker CB7</li> <li>2. Verify that module A54 is powered:</li> </ol>  |

## APPENDIX B – Road Side Troubleshooting Multiplex 133

| Problem/Symptom   | Probable Causes  | Actions  |
|---|--|--|
|   | Module A54 is defective  | Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA54, Active" indicates a power problem on the module or a CAN network problem.  |
| HVAC condenser fans not functioning in speed 2  | Circuit breaker CB7 was manually tripped and not reset<br><br>Module A54 not powered or is defective | <ol style="list-style-type: none"> <li>1. Check / reset circuit breaker CB7</li> <li>2. Verify that module A54 is powered:<br/>Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA54, Active" indicates a power problem on the module or a CAN network problem.</li> </ol>  |
| Lower and upper windshield washer not functioning<br><br>Upper windshield wiper not functioning<br><br>Defroster fan is functioning but no heat or cooling available in the driver area | Module A46 is not powered or is faulty   | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA46, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce these symptoms).</li> <li>2. Check / reset circuit breaker CB1</li> <li>3. Check / replace fuse F12</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol>         |
| Low beam headlights and front flasher on left side not functioning<br><br>Electric horn not functioning   | Module A45 is not powered or is faulty   | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA45, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce these symptoms).</li> <li>2. Check / reset circuit breaker CB2</li> <li>3. Check / replace fuse F33 and F34</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol> |
| Low beam headlights and flasher on right side not functioning   | Module A48 is not powered or is faulty   | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA48, Active" indicates a power problem on</li> </ol>  |

## 134 APPENDIX B – Road Side Troubleshooting Multiplex

| Problem/Symptom   | Probable Causes  | Actions  |
|---|--|--|
|   |  | <p>the module. (A CAN network problem would show the same message but doesn't produce this symptom).</p> <ol style="list-style-type: none"> <li>2. Check / reset circuit breaker CB2</li> <li>3. Check / replace fuse F33 and F34</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol>   |
| <p>Rear flashers not functioning</p> <p>Stoplights and high-mounted stoplight not functioning</p>                     | <p>Module A51 is not powered or is faulty</p>                                    | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA51, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce this symptom).</li> <li>2. Check / reset circuit breaker CB2</li> <li>3. Check / replace fuse F80</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol>                               |
| <p>Engine is overheating and radiator fan clutch does not engage</p> <p>The A/C compressor clutch does not engage</p> | <p>Module A52 is not powered or is faulty</p>                                    | <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA52, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce this symptom).</li> <li>2. Check / reset circuit breaker CB5</li> <li>3. Check / replace fuse F65</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol>                               |
| <p>Evaporator fan not functioning</p>   | <p>Circuit breaker CB3 tripped</p> <p>Module A54 is not powered or is faulty</p> | <ol style="list-style-type: none"> <li>1. Check / reset circuit breaker CB3</li> <li>2. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA54, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce this symptom).</li> <li>3. Check / reset circuit breaker CB5</li> <li>4. Check / replace fuse F67 , F68</li> <li>5. Probe gray connector on module to</li> </ol> |

## APPENDIX B – Road Side Troubleshooting Multiplex 135

| Problem/Symptom  | Probable Causes   | Actions   |
|--|---|---|
| HVAC condenser fans not functioning in speed 1   | Module A54 is not powered or is faulty  | <p style="text-align: center;">see if it is powered.</p> <ol style="list-style-type: none"> <li>1. Check the SYSTEM DIAGNOSTIC menu of the message center display (MCD). Select FAULT DIAGNOSTIC and ELECTRICAL SYSTEM. The message "No Response ModA54, Active" indicates a power problem on the module. (A CAN network problem would show the same message but doesn't produce this symptom).</li> <li>2. Check / reset circuit breaker CB5</li> <li>3. Check / replace fuse F67 , F68</li> <li>4. Probe gray connector on module to see if it is powered.</li> </ol>         |
| Sound system not functioning   | Circuit breaker CB4 or CB11 was manually tripped and not reset  | <ol style="list-style-type: none"> <li>1. Check / reset circuit breaker CB4 or CB11</li> </ol>  |
| Fire alarm telltale light and audible alarm always ON and there is no fire or high temperature in the engine compartment     | Short-circuited fire sensor or defective sensor   | <ol style="list-style-type: none"> <li>1. Prior to start the vehicle, cycle the ignition key to the ON position, OFF position and then ON position again and then start the vehicle. This will deactivate the fire alarm function. This has to be repeated each time the vehicle is re-started</li> </ol>   |
| The vehicle is parked and the electrical horn is activated to indicate a fire in the engine compartment but there is no fire | Short-circuited fire sensor or defective sensor   | <ol style="list-style-type: none"> <li>1. Cycle the ignition key between the ON and OFF position twice within 3 seconds. This will deactivate the fire alarm function. This has to be repeated each time the vehicle is parked</li> </ol>   |
| A single light, a group of LED lights or another function of the vehicle is not functioning                                  | The multiplex outputs are protected in current by an internal "soft-fuse". When an output is shorted, it turns OFF and stays OFF until the "soft-fuse" is reset | <ol style="list-style-type: none"> <li>1. Turn the ignition key to the OFF position and turn to the ON position again. This resets all "soft –fuses"</li> </ol>   |
| No backlighting in the instrument cluster  | Circuit breaker CB10 is tripped or fuse F20 blown   | <p>Check / reset circuit breaker CB10<br/>Check / replace fuse F20</p>  |
| The radiator fan clutch does not function and the engine is overheating  |   | <ol style="list-style-type: none"> <li>1. Set the ignition key to the ON position.</li> <li>2. Activate the dashboard Telltale Light Test switch 3 times within 4 seconds.</li> <li>3. In the engine compartment, set the starter selector switch to REAR START and then start the engine from the rear.<br/>While in this mode, the rear start push-button can be used to manually engage the fan clutch. The Multiplex system knows when the engine is already running, and it will not activate the starter.</li> <li>4. Press the push-button one time to engage</li> </ol> |

## 136 APPENDIX B – Road Side Troubleshooting Multiplex

| Problem/Symptom | Probable Causes | Actions   |
|-----------------|-----------------|---|
|                 |                 | <p>the clutch to 1<sup>st</sup> speed, press a second time to engage to 2<sup>nd</sup> speed, press a third time to stop the fan, press once again to return to 1<sup>st</sup> speed.</p> <p>If the fan clutch does not engage using this procedure then the clutch is faulty or the wiring between the multiplex module and the clutch is faulty. Mechanically lock the fan clutch as described in section 05: COOLING SYSTEM of the maintenance manual.</p> |

## DIAGNOSTIC TROUBLESHOOTING CODES (DTC) — ALLISON 4<sup>TH</sup> GENERATION CONTROLS

### DIAGNOSTIC TROUBLESHOOTING CODES (DTC) OVERVIEW

Diagnostic codes (DTC) are numerical indications relating to a malfunction in transmission operation. These codes are logged in a list in the TCM memory with the most severe or most recent code listed first. A maximum of five codes (numbered d1 to d5) may be listed in memory at one time. As codes are added, the oldest inactive code is dropped from the list. If all codes are active, the code with the lowest priority that is not included on the severity list is dropped from the list.

Diagnostic codes (DTC) and code information may be accessed through the pushbutton shift selector or using an Allison DOC™ diagnostic tool.

The TCM separately stores the active and inactive codes. An active code is any code that is current in the TCM decision-making process. Inactive codes are codes that are retained in the TCM memory and will not necessary affect the TCM decision-making process. Inactive codes are useful in determining if a problem is:

- Isolated ;
- Intermittent ;
- Result from a previous malfunction.

The TCM may automatically delete a code from memory if it has not recurred. If the condition which generated the code is active, the LED indicator on the selector will be illuminated simultaneously with the display of the code. If the condition which generated the code no longer exists, the LED is not illuminated and the code is maintained only as a historical record of the prior condition. An illuminated MODE INDICATOR (LED) during normal operation signifies secondary shift mode operation.



### DIAGNOSTIC CODES – ALLISON 4<sup>TH</sup> GENERATION CONTROLS

When the diagnostic mode is entered, the first code (position d1) is displayed as follows:

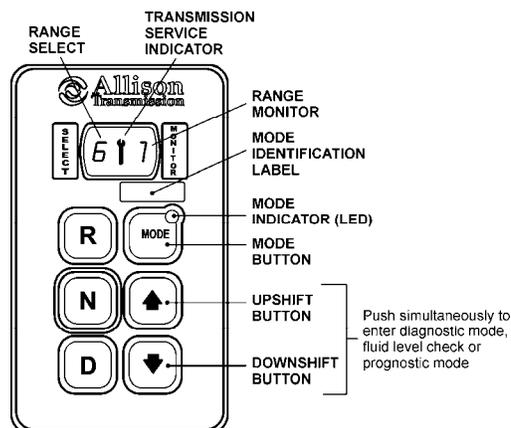
Exemple : Code P0722

Displayed as: **d1...P...07...22**

The code list position is the first item displayed, followed by the DTC. Each item is displayed for about one second. The display cycles continuously until the next code list position is accessed by pressing the **MODE** button. The following example shows how DTC P0722 is displayed on the pushbutton shift selector.

|        |   |   |         |
|--------|---|---|---------|
| SELECT | d | 1 | MONITOR |
|        |   | P |         |
|        | 0 | 7 |         |
|        | 2 | 2 |         |

- d1 (code list position) – The position which a code occupies in the list. Positions are displayed as « d1 » through « d5 » (code list position 1 through code list position 5).
- P0722 (DTC) – The diagnostic troubleshooting code number referring to the general condition or area of fault detected by the TCM.



## 138 APPENDIX C – Allison Transmission's Other Features

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### DIAGNOSTIC CODE DISPLAY AND CLEARING PROCEDURE – ALLISON 4<sup>TH</sup> GENERATION CONTROLS

Diagnostic codes can be read and cleared by two methods:

- Using an Allison DOC™ diagnostic tool. For specific instructions on how to use an Allison DOC™ diagnostic tool, refer to the User Guide.
- Using the pushbutton shift selector.

*To begin the diagnostic process:*

1. Bring the vehicle to a stop at a safe location.
2. Apply the parking brake.

*To display stored codes:*

1. Simultaneously press the ▲ (Up) and ▼ (Down) arrow buttons five times to access the Diagnostic Display Mode.

|                    |
|--------------------|
| <b><i>NOTE</i></b> |
|--------------------|

|   |
|---|
| <i>To access the Oil Level Display Mode, simultaneously press the ▲ (Up) and ▼ (Down) arrow buttons once. Consult paragraph: « ALLISON TRANSMISSION OIL LEVEL CHECK USING THE PUSHBUTTON SHIFT SELECTOR » at the end of this section.</i> |
|---|

2. Observe the digital display for code (d1).
3. Press the MODE button to see the next code (d2) – repeat for subsequent codes (d3, d4 & d5).

|                    |
|--------------------|
| <b><i>NOTE</i></b> |
|--------------------|

|  |
|--|
| <i>Be sure to record all codes displayed before they are cleared. This is essential for troubleshooting.</i> |
|--|

|                    |
|--------------------|
| <b><i>NOTE</i></b> |
|--------------------|

|  |
|--|
| <i>The Diagnostic Display Mode can be entered for viewing codes at any speed. Codes can only be cleared when the output speed = 0 and no output speed sensor failure is active</i> |
|--|

Active indicators (MODE INDICATOR LED) and inactive codes can be cleared manually, while in the diagnostic display mode, after the condition causing the code is identified.

*To clear active indicators and inactive codes:*

1. While in Diagnostic Display Mode, press and hold the MODE button for 10 seconds to clear both active indicators and inactive codes.
2. Begin operating as normal. Have the transmission checked at the earliest opportunity by an Allison Transmission distributor or dealer.

***NOTE***

*All active indicators are cleared at TCM power down.*

*Some codes will clear their active indicator when the condition causing the code is no longer detected by the TCM.*

*The Diagnostic Display Mode can be exited by any of the following methods:*

- Press simultaneously the ▲ (Up) and ▼ (Down) arrow buttons at the same time on the pushbutton shift selector.
- Press any range button «D», «N» or «R» on the pushbutton shift selector (the shift will be commanded if it is not inhibited by an active code).
- Wait until the calibrated time (approximately 10 minutes) has passed. The system will automatically return to the normal operating mode.
- Turn off power to the TCM (shut off the engine using the ignition key).

***NOTE***

*If clearing a code while locked in a «D» (Drive) or «R» (Reverse) position (fail-to-range), the transmission will still be in «D» (Drive) or «R» (Reverse) when the clearing procedure is completed. «N» (Neutral) must be manually selected.*

**DIAGNOSTIC CODE RESPONSE**

The following responses are used in the "Diagnostic Troubleshooting Code List and Inhibited Operation Description" table to command safe operation when diagnostic codes are sent.

**DNS - Do Not Shift Response**

- Release lock up clutch and inhibit lock up operation.
- Inhibit all shifts.
- Turn *ON* the CHECK TRANS light.
- Display the range attained.
- Ignore any range selection inputs from the shift selector.

**DNA - Do Not Adapt Response**

The TCM stops adaptive shift control while the code is active.

**SOL OFF - SOLenoid OFF Response**

All solenoids are commanded *OFF* (turning solenoids “A” and “B” off electrically cause them to be on hydraulically).

**RPR - Return to Previous Range Response**

When the speed sensor ratio or C3 pressure switch test associated with a shift not successful, the TCM commands the same range as commanded before the shift.

**NNC - Neutral No Clutches Response**

When certain speed sensor ratio or C3 pressure switch tests are not successful, the TCM commands a neutral condition with no clutches applied.

## 140 APPENDIX C – Allison Transmission's Other Features

### DIAGNOSTIC TROUBLESHOOTING CODES (DTC) LIST - ALLISON 4<sup>TH</sup> GENERATION CONTROLS

| DTC   | Description   | CHECK TRANS Light | Inhibited Operation Description   |
|-------|---|-------------------|---|
| C1312 | Retarder Request Sensor Failed Low                        | No                | May inhibit retarder operation if not using J1939 datalink  |
| C1313 | Retarder Request Sensor Failed High                       | No                | May inhibit retarder operation if not using J1939 datalink  |
| P0122 | Pedal Position Sensor Low Voltage                         | No                | Use default throttle values. Freezes shift adapts.  |
| P0123 | Pedal Position Sensor High Voltage                        | No                | Use default throttle values. Freezes shift adapts.  |
| P0218 | Transmission Fluid Over Temperature                       | No                | Use hot mode shift schedule. Holds fourth range. TCC is inhibited. Freezes shift adapts.                    |
| P0561 | System Voltage Performance                                |                   |   |
| P0562 | System Voltage Low  |                   |   |
| P0563 | System Voltage High                                       |                   |   |
| P0602 | TCM Not Programmed  | Yes               | Lock in Neutral   |
| P0610 | TCM Vehicle Options (Trans ID) Error                      | Yes               | Use TID A calibration   |
| P0613 | TCM Processor   | No                | All solenoids off   |
| P0614 | Torque Control Data Mismatch - ECM/TCM                    | Yes               | Allows operation only in reverse and second range.  |
| P0634 | TCM Internal Temperature Too High                         | Yes               | SOL OFF (hydraulic default)   |
| P063E | Auto Configuration Throttle Input Not Present             | Yes               | Use default throttle values   |
| P063F | Auto Configuration Engine Coolant Temp Input Not Present  | No                | None  |
| P0658 | Actuator Supply Voltage 1 (HSD1) Low                      | Yes               | DNS, SOL OFF (hydraulic default)  |
| P0659 | Actuator Supply Voltage 1 (HSD1) High                     | Yes               | DNS, SOL OFF (hydraulic default)  |
| P0667 | TCM Internal Temperature Sensor Circuit Range / Perform   |                   |   |
| P0668 | TCM Internal Temperature Sensor Circuit Low               |                   |   |
| P0669 | TCM Internal Temperature Sensor Circuit High              |                   |   |
| P0701 | Transmission Control System Performance                   |                   |   |
| P0702 | Transmission Control System Electrical (TransID)          | Yes               | Use TID A calibration   |
| P0703 | Brake Switch Circuit Malfunction                          | No                | No Neutral to Drive shifts for refuse packer. TCM inhibits retarder operation if a TPS code is also active. |
| P0708 | Transmission Range Sensor Circuit High Input              | Yes               | Ignore defective strip selector inputs  |
| P070C | Transmission Fluid Level Sensor Circuit – Low Input       | No                | None  |
| P070D | Transmission Fluid Level Sensor Circuit – High Input      | No                | None  |
| P0711 | Transmission Fluid Temperature Sensor Circuit Performance | Yes               | Use default sump temp   |
| P0712 | Transmission Fluid Temperature Sensor Circuit Low Input   | Yes               | Use default sump temp   |
| P0713 | Transmission Fluid Temperature Sensor Circuit High Input  | Yes               | Use default sump temp   |
| P0716 | Turbine Speed Sensor Circuit Performance                  | Yes               | DNS, Lock in current range  |
| P0717 | Turbine Speed Sensor Circuit No Signal                    | Yes               | DNS, Lock in current range  |
| P071A | RELS Input Failed On                                      | Yes               | Inhibit RELS operation  |
| P071D | General Purpose Input Fault                               | Yes               | None  |

| <b>DTC</b> | <b>Description</b>                                      | <b>CHECK TRANS Light</b> | <b>Inhibited Operation Description</b>                                     |
|------------|---|--------------------------|--|
| P0720      | Output Speed Sensor Circuit                             |                          |  |
| P0721      | Output Speed Sensor Circuit Performance                 | Yes                      | DNS, Lock in current range   |
| P0722      | Output Speed Sensor Circuit No Signal                   | Yes                      | DNS, Lock in current range   |
| P0726      | Engine Speed Sensor Circuit Performance                 | No                       | Default to turbine speed   |
| P0727      | Engine Speed Sensor Circuit No Signal                   | No                       | Default to turbine speed   |
| P0729      | Incorrect 6 <sup>th</sup> Gear Ratio                    | Yes                      | DNS, Attempt 5 <sup>th</sup> , then 3 <sup>rd</sup>                        |
| P0730      | Incorrect Neutral Gear ratio                            |                          |  |
| P0731      | Incorrect 1 <sup>st</sup> Gear ratio                    | Yes                      | DNS, Attempt 2 <sup>nd</sup> , then 5 <sup>th</sup>                        |
| P0732      | Incorrect 2 <sup>nd</sup> Gear ratio                    | Yes                      | DNS, Attempt 3 <sup>rd</sup> , then 5 <sup>th</sup>                        |
| P0733      | Incorrect 3 <sup>rd</sup> Gear ratio                    | Yes                      | DNS, Attempt 4 <sup>th</sup> , then 6 <sup>th</sup>                        |
| P0734      | Incorrect 4 <sup>th</sup> Gear ratio                    | Yes                      | DNS, Attempt 5 <sup>th</sup> , then 3 <sup>rd</sup>                        |
| P0735      | Incorrect 5 <sup>th</sup> Gear ratio                    | Yes                      | DNS, Attempt 6 <sup>th</sup> , then 3 <sup>rd</sup> , then 2 <sup>nd</sup> |
| P0736      | Incorrect Reverse Gear ratio                            | Yes                      | DNS, Lock in Neutral   |
| P0741      | Torque Converter Clutch System Stuck Off                | Yes                      | None   |
| P0776      | Pressure Control Solenoid 2 Stuck Off                   | Yes                      | DNS, RPR   |
| P0777      | Pressure Control Solenoid 2 Stuck On                    | Yes                      | DNS, RPR   |
| P0796      | Pressure Control Solenoid 3 Stuck Off                   | Yes                      | DNS, RPR   |
| P0797      | Pressure Control Solenoid 3 Stuck On                    | Yes                      | DNS, RPR   |
| P0842      | Transmission Pressure Switch 1 Circuit Low              | Yes                      | DNS, Lock in current range   |
| P0843      | Transmission Pressure Switch 1 Circuit High             | Yes                      | DNS, Lock in current range   |
| P0847      | Transmission Pressure Switch 2 Circuit Low              |                          |  |
| P0848      | Transmission Pressure Switch 2 Circuit High             |                          |  |
| P088A      | Transmission Fluid Filter Deteriorated                  |                          |  |
| P088B      | Transmission Fluid Filter Very Deteriorated             |                          |  |
| P0880      | TCM Power Input Signal                                  | No                       | None   |
| P0881      | TCM Power Input Signal Performance                      | No                       | None   |
| P0882      | TCM Power Input Signal Low                              | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0883      | TCM Power Input Signal High                             | No                       | None   |
| P0894      | Transmission Component Slipping                         | Yes                      | DNS, Lock in first   |
| P0960      | Pressure Control Solenoid Main Mod Control Circuit Open | Yes                      | None   |
| P0961      | Pressure Control Solenoid (PCS) MM System Performance   |                          |  |
| P0962      | Pressure Control Solenoid Main Mod Control Circuit Low  | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0963      | Pressure Control Solenoid Main Mod Control Circuit High | Yes                      | None   |
| P0964      | Pressure Control Solenoid 2 (PCS2) Control Circuit Open | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0965      | Pressure Control Solenoid (PCS) 2 System Performance    |                          |  |
| P0966      | Pressure Control Solenoid 2 (PCS2) Control Circuit Low  | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0967      | Pressure Control Solenoid 2 (PCS2) Control Circuit High | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0968      | Pressure Control Solenoid 3 (PCS3) Control Circuit Open | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0969      | Pressure Control Solenoid (PCS) 3 System Performance    |                          |  |
| P0970      | Pressure Control Solenoid 3 (PCS3) Control Circuit Low  | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0971      | Pressure Control Solenoid 3 (PCS3) Control Circuit High | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0973      | Shift Solenoid 1 (SS1) Control Circuit Low              | Yes                      | DNS, SOL OFF (hydraulic default)   |
| P0974      | Shift Solenoid 1 (SS1) Control Circuit High             | Yes                      | DNS, SOL OFF (hydraulic default)   |

## 142 APPENDIX C – Allison Transmission's Other Features

| DTC   | Description   | CHECK TRANS Light | Inhibited Operation Description                             |
|-------|---|-------------------|---|
| P0975 | Shift Solenoid 2 (SS2) Control Circuit Open             | Yes               | 7-speed: Allow 2 through 6, N, R                            |
| P0976 | Shift Solenoid 2 (SS2) Control Circuit Low              | Yes               | 7-speed: Allow 2 through 6, N, R<br>Inhibit TCC operation   |
| P0977 | Shift Solenoid 2 (SS2) Control Circuit High             | Yes               | 7-speed: Allow 2 through 6, N, R                            |
| P0989 | Retarder Pressure Sensor Failed Low                     | No                | None  |
| P0990 | Retarder Pressure Sensor Failed High                    | No                | None  |
| P1739 | Incorrect Low Gear Ratio                                | Yes               | Command 2 <sup>nd</sup> and allow shifts 2 through 6, N, R  |
| P1891 | Throttle Position Sensor PWM Signal Low Input           | No                | Use default throttle values                                 |
| P1892 | Throttle Position Sensor PWM Signal High Input          | No                | Use default throttle values                                 |
| P2184 | Engine Coolant Temperature Sensor Circuit Low Input     | No                | Use default engine coolant values                           |
| P2185 | Engine Coolant Temperature Sensor Circuit High Input    | No                | Use default engine coolant values                           |
| P2637 | Torque Management Feedback Signal (SEM)                 | Yes               | Inhibit SEM   |
| P2641 | Torque Management Feedback Signal (LRTP)                | Yes               | Inhibit LRTP  |
| P2670 | Actuator Supply Voltage 2 (HSD2) Low                    | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2671 | Actuator Supply Voltage 2 (HSD2) High                   | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2685 | Actuator Supply Voltage 3 (HSD3) Low                    | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2686 | Actuator Supply Voltage 3 (HSD3) High                   | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2714 | Pressure Control Solenoid 4 (PCS4) Stuck Off            | Yes               | DNS, RPR  |
| P2715 | Pressure Control Solenoid 4 (PCS4) Stuck On             | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2718 | Pressure Control Solenoid 4 (PCS4) Control Circuit Open | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2719 | Pressure Control Solenoid (PCS) 4 System Performance    |                   |   |
| P2720 | Pressure Control Solenoid 4 (PCS4) Control Circuit Low  | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2721 | Pressure Control Solenoid 4 (PCS4) Control Circuit High | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2723 | Pressure Control Solenoid 1 (PCS1) Stuck Off            | Yes               | DNS, RPR  |
| P2724 | Pressure Control Solenoid 1 (PCS1) Stuck On             | Yes               | DNS, RPR  |
| P2727 | Pressure Control Solenoid 1 (PCS1) Control Circuit Open | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2728 | Pressure Control Solenoid (PCS) 1 System Performance    |                   |   |
| P2729 | Pressure Control Solenoid 1 (PCS1) Control Circuit Low  | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2730 | Pressure Control Solenoid 1 (PCS1) Control Circuit High | Yes               | DNS, SOL OFF (hydraulic default)                            |
| P2736 | Pressure Control Solenoid 5 (PCS5) Control Circuit Open | Yes               | Inhibit retarder operation                                  |
| P2737 | Pressure Control Solenoid (PCS) 5 System Performance    |                   |   |
| P2738 | Pressure Control Solenoid 5 (PCS5) Control Circuit Low  | Yes               | Allow 2 through 6, N, R. Inhibit retarder and TCC operation |
| P2739 | Pressure Control Solenoid 5 (PCS5) Control Circuit High | Yes               | Inhibit retarder operation                                  |
| P2740 | Retarder Oil Temperature Hot                            | No                | None  |
| P2742 | Retarder Oil Temperature Sensor Circuit – Low Input     | No                | Use default retarder temp values                            |
| P2743 | Retarder Oil Temperature Sensor Circuit – High Input    | No                | Use default retarder temp values                            |
| P2761 | TCC PCS Control Circuit Open                            | Yes               | Inhibit TCC operation                                       |
| P2762 | TCC PCS Control Circuit Range / Performance             |                   |   |
| P2763 | TCC PCS Control Circuit High                            | Yes               | Inhibit TCC operation                                       |
| P2764 | TCC PCS Control Circuit Low                             | Yes               | 7-speed: Allow 2 through 6, N, R.<br>Inhibit TCC operation  |
| P2772 | Four Wheel Drive Low Switch Circuit Performance         |                   |   |
| P278A | Kickdown Input Failed ON                                | No                | Inhibit kickdown operation                                  |

| <b>DTC</b> | <b>Description</b>  | <b>CHECK TRANS Light</b> | <b>Inhibited Operation Description</b>                        |
|------------|---|--------------------------|---|
| P2793      | Gear Shift Direction Circuit                                    | Yes                      | Ignores PWM input from shift selector                         |
| P2808      | Pressure Control Solenoid 6 (PCS6) Stuck Off                    | Yes                      | DNS, RPR  |
| P2809      | Pressure Control Solenoid 6 (PCS6) Stuck On                     | Yes                      | DNS, RPR  |
| P2812      | Pressure Control Solenoid 6 (PCS6) Control Circuit Open         | Yes                      | DNS, SOL OFF (hydraulic default)                              |
| P2813      | Pressure Control Solenoid (PCS) 6 System Performance            |                          |   |
| P2814      | Pressure Control Solenoid 6 (PCS6) Control Circuit Low          | Yes                      | DNS, SOL OFF (hydraulic default)                              |
| P2815      | Pressure Control Solenoid 6 (PCS6) Control Circuit High         | Yes                      | DNS, SOL OFF (hydraulic default)                              |
| U0001      | Hi Speed CAN Bus Reset Counter Overrun (IESCAN)                 | No                       | Use default values, inhibit SEM                               |
| U0010      | CAN BUS Reset Counter Overrun                                   | No                       | Use default values, inhibit SEM                               |
| U0100      | Lost Communications with ECM/PCM (J1587)                        | Yes                      | Use default values  |
| U0103      | Lost Communication with Gear Shift Module (Shift Selector) 1    | Yes                      | Maintain range selected, observe gear shift direction circuit |
| U0115      | Lost Communication with ECM                                     | Yes                      | Use default values  |
| U0291      | Lost Communication with Gear Shift Module (Shift Selector) 2    | Yes                      | Maintain range selected, observe gear shift direction circuit |
| U0304      | Incompatible Gear Shift Module 1 (Shift Selector) ID            | Yes                      | Ignore shift selector inputs                                  |
| U0333      | Incompatible Gear Shift Module 2 (Shift Selector) ID            | Yes                      | Ignore shift selector inputs                                  |
| U0404      | Invalid Data Received From Gear Shift Module (Shift Selector) 1 | Yes                      | Maintain range selected, observe gear shift direction circuit |
| U0592      | Invalid Data Received From Gear Shift Module (Shift Selector) 2 | Yes                      | Maintain range selected, observe gear shift direction circuit |

## ALLISON TRANSMISSION OIL LEVEL CHECK USING THE PUSHBUTTON SHIFT SELECTOR

Oil level codes are obtained as follows:

1. Park vehicle on a level surface, select «N» (neutral) on the pushbutton shift selector and apply parking brake.
2. Press simultaneously the ▲ (Up) and ▼ (Down) arrow buttons once.
3. Oil level codes are displayed in 2 minutes (e.g. display will flash and 8, 7, 6, 5, ...; countdown will occur during the 2 minutes) once the following parameters are met :
  - **Waiting time, vehicle must be stationary for at least 2 minutes to allow the oil to settle;**
  - **Engine at idle;**
  - **Oil at normal operating temperature, between 140°F (60°C) and 220°F (104°C);**
  - **Transmission in «N» (Neutral);**
  - **Transmission output shaft stopped;**
  - **Oil level sensor present and working.**

After 2 minutes, the display will flash one of the codes shown below :

| DISPLAY        | INTERPRETATION  |
|----------------|---|
| O L...O K      | Oil level is correct  |
| O L...L O... 1 | Oil Level is LOw 1 quart  |
| O L...L O... 2 | Oil Level is LOw 2 quart  |
| O L...L O... 3 | Oil Level is LOw 3 quarts   |
| O L...L O... 4 | Oil Level is LOw 4 or more quarts   |
| O L...H I... 1 | Oil Level is HIgh 1 quart   |
| O L...H I... 2 | Oil Level is HIgh 2 quarts  |
| O L...H I... 3 | Oil Level is HIgh 3 or more quarts  |
| O L... – (fc)  | Oil Level is invalid. Source of invalid reading is defined by a two-character fault code (fc) |

### NOTE

*Note that the quantities LO 4 and HI 3 are the largest values displayed and that the actual variation in oil level may exceed these numbers.*

### NOTE

*Failure to meet one of the above parameters will stop the two minute countdown. One of the codes shown hereafter will indicate the cause of the countdown interruption. Once all parameters are met, the countdown will continue from where it left off.*

If the fluid level check cannot be completed, an Invalid for Display fault is reported. This condition is reflected by the display of "OL", followed by "-", followed by one or two additional characters. The displayed characters define the cause of the fault, which may be either a system malfunction or an improper condition for conducting the check.

| CODE        | CAUSE OF FAULT CODE            |
|-------------|--------------------------------|
| OL...-...0X | Waiting period is not complete |
| OL...-...EL | Engine speed (rpm) too low     |
| OL...-...EH | Engine speed (rpm) too high    |
| OL...-...SN | N (neutral) must be selected   |
| OL...-...TL | Sump oil temperature too low   |
| OL...-...TH | Sump oil temperature too high  |
| OL...-...SH | Output shaft rotation          |
| OL...-...FL | Sensor failure                 |

### Exiting the Fluid Level Display Mode

To exit the Oil Level Display Mode, press any range button «R», «N» or «D» at any time.

**CONTROL SYSTEM PROGNOSTICS**

The transmission control system includes the provision for the user to monitor various transmission operating parameters. Transmission operating parameters monitored by the prognostics feature are:

- Oil Life Monitor
- Filter Life Monitor
- Transmission Health Monitor

**NOTE**

*The prognostics package requires the use of TranSynd™ or an Allison approved TES-295 licensed fluid in the transmission and Allison High Capacity filters. If any other fluids or filters are used, Prognostic mode **must be disabled**. Prognostic information will not be accurate with any other fluids or filters and could result in missed maintenance activities resulting in transmission damage.*

*Refer to TES 295 Approved Fluids list, found under the Service/Fluids heading on the home page of the Allison Transmission web site.*

[www.allisontransmission.com](http://www.allisontransmission.com)

When a specified threshold is detected for any of the serviceable conditions, the TRANSMISSION SERVICE indicator **!** is illuminated to alert the operator. Failure to attend to the service condition and reset the TRANSMISSION SERVICE indicator within a defined operating period will result in illumination of the CHECK TRANS light on the dashboard telltale panel, indicating the increased probability that the service condition will develop into a more serious condition.

To access the Prognostic Mode functions, simultaneously press the **▲** (Up) and **▼** (Down) arrow buttons repeatedly. See the reference table at the end of this section.

**• OIL LIFE MONITOR**

The display message denotes the calculated remaining life of the transmission fluid. This value is based on the established life for the required baseline fluid, and then is continuously adjusted for cumulative effects of such operating parameters as operating time, retarder operation, output shaft revolutions and shift frequency.

**Display:** The display is a two-digit number, denoting percentage of the fluid life which remains. New fluid is displayed as 99%.

The TRANSMISSION SERVICE indicator **!** will be illuminated, denoting a required change of transmission fluid, when the remaining fluid life reaches approximately 1–2 %. The indicator will be lit steadily upon each initialization of the TCM, and will remain on steady for approximately 1–2 minutes after the first selection of “D” (drive) range each time, until service is performed and the indicator is reset.

Failure to perform maintenance and reset the TRANSMISSION SERVICE indicator within a defined period will result in the illumination of the CHECK TRANS light on the dashboard telltale panel and diagnostic code P0897 Transmission Fluid at Limit will be set.

**Reset:** The TRANSMISSION SERVICE indicator can be reset by a message over the SAE J1939 communication interface, with the Allison DOC™ for PC diagnostic program, or by depressing and holding the MODE button for ten (10) seconds while the Oil Life Monitor function is displayed. It may also be reset by selecting N-D-N-D-N-R-N on the shift selector, pausing briefly (less than 3 seconds) between each selector movement, with the ignition on and the engine not running.



**CAUTION**

Required calendar-based oil & filter change intervals (based on month) still apply because Oil Life Monitor function cannot measure time while ignition power is OFF.

If the Oil Life Monitor function has not indicated the need for a fluid change before 60 month (five years) have passed, it will be necessary to change the fluid and filters per calendar requirements and reset the system.

**• FILTER LIFE MONITOR**

The display message denotes operating status of the transmission main fluid filter, based on the measured pressure drop across the filter. The feature is not functional at transmission sump temperatures below 40 °C (105 °F). Both the main and lube filters **must be** changed when the TRANSMISSION SERVICE indicator **!** shows the main filter should be changed.

**Display:** An acceptable filter life status is displayed as "OK". An unacceptable filter life status is displayed as "LO".

Once the programmed threshold for maximum filter pressure drop has been observed and verified, the diagnostic code P088A Transmission Filter At/Over Limit will be recorded to indicate that the filter has reached the end of its designed life. At the next initialization of the TCM, the TRANSMISSION SERVICE indicator  $\uparrow$  will flash for approximately 1–2 minutes after the first selection of "D" (drive) range. Thereafter, the indicator will illuminate and flash upon each TCM initialization, continuing to flash for 1–2 minutes after the first selection of a drive range each time, until service is performed and the indicator is reset.

Failure to perform maintenance and reset the monitor after a calibration-defined number of warnings will result in the illumination of the CHECK TRANS light on the dashboard telltale panel and diagnostic code P088B will be recorded to indicate a highly deteriorated filter.

**Reset:** The feature will reset automatically when the main fluid filter has been changed and the pressure drop across the filter no longer exceeds the threshold value. A manual reset can be performed by depressing and holding the MODE button for ten (10) seconds while the Filter Life Monitor function is displayed. It may also be reset by selecting N-R-N-R-N-D-N on the shift selector, pausing briefly (less than 3 seconds) between each selector movement, with the ignition on and the engine not running.

### • TRANSMISSION HEALTH MONITOR

The display message denotes clutch life status, as determined by monitored changes and the calculated running clearance of the transmission clutches C1, C2, C3, C4 & C5.

**Display:** An acceptable clutch life status is displayed as "OK". An unacceptable clutch life status is displayed as "LO". The specific clutch(es) for which the function indicates "LO" cannot be identified with the shift selector. Allison DOC™ for PC-Service Tool displays clutch condition as OK or NOT OK for each clutch, C1 through C5.

The TRANSMISSION SERVICE indicator will be illuminated, indicating the need for clutch maintenance, when the remaining clutch life reaches approximately 10%, or if the running clearance exceeds a maximum value which may

indicate a non-wear-related issue. Thereafter, the indicator will be lit upon each initialization of the TCM, and will remain on steady during all vehicle operation until service is performed and the indicator is reset.

Failure to perform maintenance and reset the monitor after a number of warnings will result in the illumination of the CHECK TRANS light on the dashboard telltale panel and diagnostic code P2789 Clutch Adaptive learning at Limit will be set.

**Reset:** The feature will reset automatically upon elimination of the clutch clearance condition which initiated it. The indicator can also be manually reset using the Allison DOC™ for PC diagnostics program if necessary.

| ▲ (up) & ▼ (down)<br>arrow buttons pressed<br>simultaneously | Description  | SELECT                  | MONITOR                 |
|--|--|-------------------------|-------------------------|
| 1 <sup>st</sup> press  | <b>Allison transmission oil level check</b>  | " _ "                   | " _ "                   |
|  | Other codes will be displayed  |                         |                         |
| 2 <sup>nd</sup> press  | <b>Oil Life Monitor</b>  | " O "                   | " M "                   |
|  | Oil life remaining will range from 99% down to 00%   | Some number from 9 to 0 | Some number from 9 to 0 |
| 3 <sup>rd</sup> press  | <b>Filter Life Monitor</b>   | " F "                   | " M "                   |
|  | Present life of filter is OK   | " O "                   | " K "                   |
|  | Present life of filter is low  | " L "                   | " O "                   |
| 4 <sup>th</sup> press  | <b>Transmission Health Monitor</b>   | " O "                   | " K "                   |
|  | Shows "OK" until remaining life of one or more of the clutch(es) wear enough so that the programming changes | " O "                   | " K "                   |
|  | One or more of the clutches C1 through C5 have worn enough to change the program                             | " L "                   | " O "                   |
| 5 <sup>th</sup> press  | <b>Display of diagnostic codes</b>   | " d "                   | " 1 "                   |
|  | Other codes will be displayed  |                         |                         |



## DDEC VI DIAGNOSTIC CODES

### DIAGNOSTIC SYSTEM

Diagnostics is a standard feature of DDEC VI. The purpose of this feature is to provide information for problem identification and problem solving in the form of a code. The MCM and CPC continuously perform self diagnostic checks and monitor the other system components. Information for problem identification and problem solving is enhanced by the detection of faults, retention of fault codes and separation of active from inactive codes.

The engine-mounted MCM includes control logic to provide overall engine management. System diagnostic checks are made at ignition on and continue throughout all engine operating modes. Sensors provide information to the MCM and CPC regarding various engine and vehicle performance characteristics. The information is used to regulate engine and vehicle performance, provide diagnostic information, and activate the engine protection system.

The DDEC VI on-board diagnostic system accessories include the following:

- Check Engine telltale light (AWL);
- Stop Engine telltale light (RSL);
- Stop Engine Override switch (SEO);
- Diagnostic Data Link (DDL) connectors.

The AWL is illuminated and a code is stored if an electronic system fault occurs. This indicates the problem should be diagnosed as soon as possible. The CPC illuminates the AWL and RSL and stores a malfunction code if a potentially engine damaging fault is detected. These codes can be accessed in one of four ways:

- Commercially available J1587/J1939 diagnostic tools.
- Detroit Diesel Diagnostic Link® (DDDL 7.0).
- Flashing the AWL and RSL with the SEO/Diagnostic Request Switch.
- Dashboard's Message Center Display (MCD).

### READING DIAGNOSTIC CODES – FLASHING LIGHT METHOD

DDEC VI makes use of two types of codes: Active and inactive. The difference between the two types of codes is as follows:

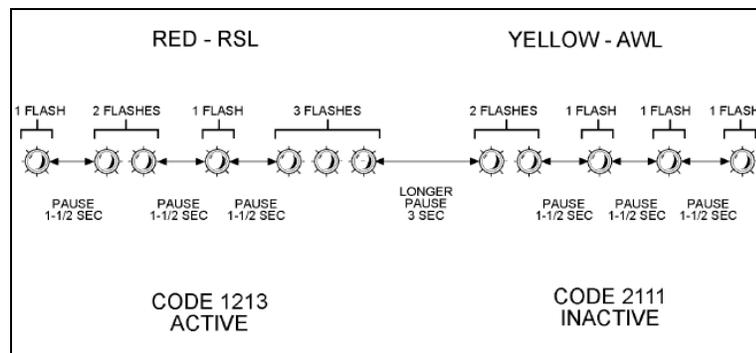
**Active Codes:** Codes that are currently keeping the Check Engine or Stop Engine telltale light illuminated. Active codes are flashed via the Stop Engine Light when checked with the stop-engine-override switch.

**Inactive Codes:** These are all the codes logged in the CPC, which have previously occurred, (whether or not they are currently turning on the Stop or Check Engine Light). Inactive codes are flashed via the Check Engine telltale light when checked with the stop-engine-override switch.

In most instances, only the DDR can provide the information necessary for a quick diagnosis of the problem. If you just need to read out codes, however, and do not have a DDR available, the following procedure will let you read out codes. Make sure the rear-starting switch (located in the engine compartment) is in the normal position. With the ignition ON, the engine idling or engine shut-off, momentarily depress the Stop Engine Override (SEO) switch. Active codes will be flashed on the stop engine telltale, followed by the inactive codes being flashed on the check-engine telltale panel. The cycle repeats itself until the operator depresses the stop engine override switch again.

## 150 APPENDIX D – DDEC VI Diagnostic Codes

Flashing codes provide a four digit number. Each fault code is flashed twice in order to help with counting the flashes. If there are no active faults or if there are no inactive faults the number “3” is flashed once followed by an ~3s delay.



**FIGURE 1: FLASHING FAULTS CODES**

Refer to DDEC Troubleshooting Manual 6SE567 for more information and SAE codes.

### ***NOTE***

*Active codes are flashed in ascending numerical flash code order. Inactive codes are flashed in most recent to least recent order.*

### **DDEC VI CPC DIAGNOSTIC CODES LIST**

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION  |
|-----|-----|---------|------------|-------------|--|
| 70  | 2   | PID     | 70         | 2111        | Park Brake Status Not Plausible (Vehicle Moving)           |
| 70  | 19  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #1 is erratic   |
| 70  | 13  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #1 is missing   |
| 70  | 19  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #2 is erratic   |
| 70  | 13  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #2 is missing   |
| 70  | 19  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #3 is erratic   |
| 70  | 13  | SID     | 234        | 2112        | J1939 Park Brake Switch Signal from Source #3 is missing   |
| 84  | 21  | PID     | 84         | 2113        | Vehicle Speed Failure                                      |
| 84  | 3   | PID     | 84         | 2113        | Vehicle Speed Sensor Circuit Failed High                   |
| 84  | 4   | PID     | 84         | 2113        | Vehicle Speed Sensor Circuit Failed Low                    |
| 84  | 2   | PID     | 84         | 2113        | VSS Anti Tamper Detection via Virtual Gear Ratio           |
| 84  | 8   | PID     | 84         | 2113        | VSS Anti Tamper Detection via Fixed Frequency Device       |
| 84  | 6   | PID     | 84         | 2113        | VSS Anti-Tamper Detection via ABS Vehicle Speed Comparison |

## APPENDIX D – DDEC VI Diagnostic Codes 151

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION  |
|-----|-----|---------|------------|-------------|--|
| 84  | 19  | PID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#1 is erratic    |
| 84  | 13  | PID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#1 is missing    |
| 84  | 19  | SID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#2 is erratic    |
| 84  | 13  | PID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#2 is missing    |
| 84  | 19  | PID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#3 is erratic    |
| 84  | 13  | PID     | 84         | 2113        | J1939 Wheel-Based Vehicle Speed Signal from Source#3 is missing    |
| 84  | 20  | PID     | 84         | 2113        | Vehicle Speed Sensor Drifted High Error (VSS signal not plausible) |
| 91  | 13  | PID     | 91         | 2114        | Accelerator Pedal Learn Error                                      |
| 91  | 3   | PID     | 91         | 2114        | Accelerator Pedal Circuit Failed High                              |
| 91  | 4   | PID     | 91         | 2114        | Accelerator Pedal Circuit Failed Low                               |
| 91  | 8   | PID     | 91         | 2114        | Pwm Accelerator Pedal Signal 1 Frequency Out Of Range              |
| 91  | 14  | PID     | 91         | 2114        | Pwm Accelerator Pedal Not Learned                                  |
| 91  | 7   | PID     | 91         | 2114        | Pwm Accelerator Pedal Idle Not Recognized                          |
| 91  | 31  | PID     | 91         | 2114        | Pwm Accelerator Pedal Learned Range to Large                       |
| 91  | 3   | PID     | 91         | 2114        | Accelerator Pedal Signal Circuit Failed High                       |
| 91  | 9   | SID     | 231        | 2615        | J1939 EEC2 Message is missing                                      |
| 98  | 0   | PID     | 98         | 2115        | Oil Level High   |
| 98  | 18  | PID     | 98         | 2115        | Oil Level Low  |
| 98  | 1   | PID     | 98         | 2115        | Oil Level Very Low   |
| 100 | 18  | PID     | 100        | 2121        | Oil Pressure Low   |
| 100 | 1   | PID     | 100        | 2121        | Oil Pressure Very Low  |
| 107 | 0   | PID     | 107        | 2122        | Air Filter Restriction High  |
| 107 | 4   | PID     | 107        | 2122        | Air Filter Signal Circuit Failed Low                               |
| 107 | 3   | PID     | 107        | 2122        | Air Filter Signal Circuit Failed High                              |
| 110 | 16  | PID     | 110        | 2123        | Coolant Temperature High   |
| 110 | 0   | PID     | 110        | 2123        | Coolant Temperature Very High                                      |
| 111 | 18  | PID     | 111        | 2124        | Coolant Level Low  |
| 111 | 3   | PID     | 111        | 2124        | Coolant Level Circuit Failed High                                  |
| 111 | 4   | PID     | 111        | 2124        | Coolant Level Circuit Failed Low                                   |
| 111 | 1   | PID     | 111        | 2124        | Coolant Level Very Low   |
| 168 | 0   | PID     | 168        | 2125        | Battery Voltage Very Low   |
| 168 | 0   | PID     | 168        | 2125        | Battery Voltage High   |
| 168 | 18  | PID     | 168        | 2125        | Battery Voltage Low  |

## 152 APPENDIX D – DDEC VI Diagnostic Codes

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION   |
|-----|-----|---------|------------|-------------|---|
| 168 | 14  | PID     | 168        | 2125        | Opt Idle Detected Charging System or Battery Failure                  |
| 168 | 14  | PID     | 168        | 2125        | ECU powerdown not completed (Main Battery Terminal Possibly Floating) |
| 171 | 2   | PID     | 171        | 2131        | Ambient Temperature Sensor Data Erratic                               |
| 171 | 14  | PID     | 171        | 2131        | J1587 Ambient Air Temp Sensor Data Not Received This Ign Cycle        |
| 171 | 9   | PID     | 171        | 2131        | J1587 Ambient Air Temp Sensor Data Message Stopped Arriving           |
| 191 | 9   | SID     | 231        | 2615        | J1939 ETC1 Message is missing   |
| 191 | 19  | SID     | 231        | 2132        | J1939 Transmission Output Shaft Speed Signal is erratic               |
| 191 | 13  | SID     | 231        | 2132        | J1939 Transmission Output Shaft Speed Signal is missing               |
| 247 | 9   | PID     | 247        | 2615        | MCM Engine Hours Data not received or stopped arriving                |
| 247 | 10  | PID     | 247        | 2615        | MCM Engine Hours Data increasing at an implausible rate               |
| 247 | 0   | PID     | 247        | 2615        | MCM Engine Hours Data higher than expected                            |
| 247 | 1   | PID     | 247        | 2615        | MCM Engine Hours Data lower than expected                             |
| 523 | 19  | PID     | 163        | 2133        | J1939 Transmission Current Gear Signal is erratic                     |
| 523 | 13  | PID     | 163        | 2133        | J1939 Transmission Current Gear Signal is missing                     |
| 524 | 9   | SID     | 231        | 2615        | J1939 ETC2 Message is missing   |
| 527 | 9   | SID     | 231        | 2615        | J1939 CCVS Message from Source #1 is missing                          |
| 527 | 9   | SID     | 231        | 2615        | J1939 CCVS Message from Source #2 is missing                          |
| 527 | 9   | SID     | 231        | 2615        | J1939 CCVS Message from Source #3 is missing                          |
| 558 | 2   | SID     | 230        | 2134        | Idle Validation Switch Inputs Reversed                                |
| 558 | 5   | SID     | 230        | 2134        | Idle Validation Switch 2 Circuit Failed Low                           |
| 558 | 6   | SID     | 230        | 2134        | Idle Validation Switch 2 Circuit Failed High                          |
| 558 | 4   | SID     | 230        | 2134        | Idle Validation Switch 1 Circuit Failed Low                           |
| 558 | 3   | SID     | 230        | 2134        | Idle Validation Switch 1 Circuit Failed High                          |
| 596 | 19  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #1 is erratic   |
| 596 | 13  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #1 is missing   |
| 596 | 19  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #2 is erratic   |
| 596 | 13  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #2 is missing   |
| 596 | 19  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #3 is erratic   |

## APPENDIX D – DDEC VI Diagnostic Codes 153

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION   |
|-----|-----|---------|------------|-------------|---|
| 596 | 13  | SID     | 244        | 2135        | J1939 Cruise Control Enable Switch Signal from Source #3 is missing     |
| 597 | 2   | SID     | 246        | 2141        | Service Brake Status Not Plausible                                      |
| 597 | 19  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #1 is erratic             |
| 597 | 13  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #1 is missing             |
| 597 | 19  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #2 is erratic             |
| 597 | 13  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #2 is missing             |
| 597 | 19  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #3 is erratic             |
| 597 | 13  | SID     | 246        | 2141        | J1939 Service Brake Switch Signal from Source #3 is missing             |
| 599 | 4   | SID     | 243        | 2142        | Cruise Control SET and RESUME Circuits Failed Low                       |
| 600 | 19  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #1 is erratic      |
| 600 | 13  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #1 is missing      |
| 600 | 19  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #2 is erratic      |
| 600 | 13  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #2 is missing      |
| 600 | 19  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #3 is erratic      |
| 600 | 13  | SID     | 243        | 2143        | J1939 Cruise Control Coast Switch Signal from Source #3 is missing      |
| 602 | 19  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #1 is erratic |
| 602 | 13  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #1 is missing |
| 602 | 19  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #2 is erratic |
| 602 | 13  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #2 is missing |
| 602 | 19  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #3 is erratic |
| 602 | 13  | SID     | 242        | 2144        | J1939 Cruise Control Accelerate Switch Signal from Source #3 is missing |
| 608 | 14  | SID     | 250        | 2145        | J1708 Data Link Failure   |
| 609 | 12  | SID     | 233        | 2145        | CPC2 Hardware Failure   |
| 615 | 9   | SID     | 231        | 2615        | J1939 DM1 Message from Transmission is missing                          |
| 625 | 13  | SID     | 248        | 2151        | ECAN ID_1629 Diagnostic Message Not Received This Ignition Cycle        |

## 154 APPENDIX D – DDEC VI Diagnostic Codes

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION  |
|-----|-----|---------|------------|-------------|--|
| 625 | 9   | SID     | 248        | 2151        | ECAN ID_1629 Diagnostic Message No Longer Being Received             |
| 625 | 10  | SID     | 248        | 2151        | ECAN ID_1629 Reporting Inconsistent Number of Frames                 |
| 625 | 2   | SID     | 248        | 2151        | ECAN ID_1629 Diagnostic Message Reporting Data Not Available         |
| 625 | 14  | SID     | 248        | 2151        | ECAN ID_1629 Diagnostic Message Reporting an Unknown MUID            |
| 625 | 9   | SID     | 248        | 2151        | Incorrect MCM System ID Received                                     |
| 625 | 9   | SID     | 248        | 2151        | MCM System ID Not Received or Stopped Arriving                       |
| 625 | 4   | SID     | 248        | 2151        | ECAN Link Circuit Failure  |
| 628 | 14  | SID     | 254        | 2151        | XFLASH Static Fault Code Memory Page Read Write Failure              |
| 628 | 13  | SID     | 155        | 2615        | 20ms ECU OS Task Locked in an Endless Loop                           |
| 628 | 13  | SID     | 155        | 2615        | 20ms ECU OS Task Timed out Prior to Completion                       |
| 628 | 13  | SID     | 155        | 2615        | 1000ms ECU OS Task Locked in an Endless Loop                         |
| 628 | 13  | SID     | 155        | 2615        | 1000ms ECU OS Task Timed out Prior to Completion                     |
| 629 | 2   | SID     | 254        | 2151        | CPC Hardware/Software Mismatch                                       |
| 629 | 12  | SID     | 254        | 2151        | DDEC Data Xflash Write Error. Replace CPC2.                          |
| 630 | 2   | SID     | 253        | 2152        | EEPROM Checksum Failure  |
| 630 | 2   | SID     | 253        | 2152        | EEPROM Checksum Failure for the SCR Block                            |
| 630 | 13  | SID     | 253        | 2152        | SCR Number Out of Range  |
| 630 | 14  | SID     | 155        | 2615        | MCM Fault Codes Unavailable via J1939 and J1587                      |
| 630 | 14  | SID     | 155        | 2615        | MCM Fault Code Table Inconsistent - Upgrade MCM Software             |
| 630 | 14  | SID     | 155        | 2615        | Insufficient Static Fault Code Storage Memory - Upgrade CPC Software |
| 630 | 14  | SID     | 155        | 2615        | MCM Fault Code Table Inconsistent - Upgrade MCM Software             |
| 639 | 14  | SID     | 231        | 2153        | J1939 Data Link Failure  |
| 701 | 3   | SID     | 26         | 2211        | Digital Output 4 09 Circuit Failed High                              |
| 701 | 4   | SID     | 26         | 2211        | Digital Output 4 09 Circuit Failed Low                               |
| 702 | 3   | SID     | 40         | 2212        | Digital Output 3 17 Circuit Failed High                              |
| 702 | 4   | SID     | 40         | 2212        | Digital Output 3 17 Circuit Failed Low                               |
| 703 | 3   | SID     | 51         | 2213        | Digital Output 3 09 Circuit Failed High                              |
| 703 | 4   | SID     | 51         | 2213        | Digital Output 3 09 Circuit Failed Low                               |
| 704 | 3   | SID     | 52         | 2214        | Digital Output 4 07 Circuit Failed High                              |
| 704 | 4   | SID     | 52         | 2214        | Digital Output 4 07 Circuit Failed Low                               |

## APPENDIX D – DDEC VI Diagnostic Codes 155

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION  |
|------|-----|---------|------------|-------------|--|
| 705  | 3   | SID     | 53         | 2215        | Digital Output 1 13 Circuit Failed High                                  |
| 705  | 4   | SID     | 53         | 2215        | Digital Output 1 13 Circuit Failed Low                                   |
| 706  | 3   | SID     | 54         | 2221        | Digital Output 3 10 Circuit Failed High                                  |
| 706  | 4   | SID     | 54         | 2221        | Digital Output 3 10 Circuit Failed Low                                   |
| 707  | 3   | SID     | 55         | 2222        | Digital Output 2 10 Circuit Failed High (CEL / AWL Lamp)                 |
| 707  | 4   | SID     | 55         | 2222        | Digital Output 2 10 Circuit Failed Low (CEL / AWL Lamp)                  |
| 708  | 3   | SID     | 56         | 2223        | Digital Output 3 12 Circuit Failed High                                  |
| 708  | 4   | SID     | 56         | 2223        | Digital Output 3 12 Circuit Failed Low                                   |
| 709  | 3   | SID     | 257        | 2224        | Digital Output 3 16 Circuit Failed High                                  |
| 709  | 4   | SID     | 257        | 2224        | Digital Output 3 16 Circuit Failed Low                                   |
| 710  | 3   | SID     | 258        | 2225        | Digital Output 4 06 Circuit Failed High                                  |
| 710  | 4   | SID     | 258        | 2225        | Digital Output 4 06 Circuit Failed Low                                   |
| 711  | 3   | SID     | 259        | 2231        | Digital Output 1 05 Circuit Failed High                                  |
| 711  | 4   | SID     | 259        | 2231        | Digital Output 1 05 Circuit Failed Low                                   |
| 712  | 3   | SID     | 260        | 2232        | Digital Output 1 04 Circuit Failed High                                  |
| 712  | 4   | SID     | 260        | 2232        | Digital Output 1 04 Circuit Failed Low                                   |
| 713  | 3   | SID     | 261        | 2234        | Digital Output 3 07 Circuit Failed High                                  |
| 713  | 4   | SID     | 261        | 2234        | Digital Output 3 07 Circuit Failed Low                                   |
| 713  | 5   | SID     | 261        | 2234        | Digital Output 3 07 Open Circuit   |
| 713  | 7   | SID     | 261        | 2234        | TOP2 Shift Failure   |
| 714  | 3   | SID     | 262        | 2235        | Digital Output 3 08 Circuit Failed High                                  |
| 714  | 4   | SID     | 262        | 2235        | Digital Output 3 08 Circuit Failed Low                                   |
| 714  | 5   | SID     | 262        | 2235        | Digital Output 3 08 Open Circuit   |
| 715  | 3   | SID     | 263        | 2241        | Digital Output 4 10 Circuit Failed High                                  |
| 904  | 9   | SID     | 231        | 2615        | J1939 EBC2 Message from ABS is missing                                   |
| 904  | 19  | SID     | 231        | 2242        | J1939 Front Axle Speed Signal is erratic                                 |
| 904  | 13  | SID     | 231        | 2242        | J1939 Front Axle Speed Signal is missing                                 |
| 972  | 2   | SID     | 203        | 2243        | Throttle inhibit switch signal not plausible due to excess vehicle speed |
| 973  | 9   | SID     | 231        | 2615        | J1939 EBC1 Message is missing  |
| 973  | 13  | SID     | 231        | 2244        | J1939 Engine Retarder Selection Signal Missing                           |
| 973  | 19  | SID     | 231        | 2244        | J1939 Engine Retarder Selection Signal Erratic                           |
| 974  | 2   | PID     | 372        | 2245        | Remote Accelerator Pedal Supply Voltage Out of Range                     |
| 974  | 3   | PID     | 372        | 2245        | Remote Accelerator Pedal Circuit Failed High                             |
| 974  | 4   | PID     | 372        | 2245        | Remote Accelerator Pedal Circuit Failed Low                              |
| 981  | 0   | SID     | 155        | 2311        | PTO CC+ and CC- Switches Pressed Simultaneously                          |
| 986  | 9   | SID     | 231        | 2615        | J1939 CM1 Message is missing   |
| 1267 | 4   | SID     | 123        | 2312        | Digital Output 4 10 Circuit Failed Low                                   |
| 1267 | 3   | SID     | 123        | 2312        | Digital Output 4 10 Circuit Failed Open                                  |

## 156 APPENDIX D – DDEC VI Diagnostic Codes

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODES | FAULT DESCRIPTION  |
|------|-----|---------|------------|-------------|--|
| 1321 | 4   | SID     | 128        | 2314        | Starter Lockout Output Shorted to Ground                           |
| 1321 | 3   | SID     | 128        | 2314        | Starter Lockout Output Open Circuit                                |
| 1590 | 19  | SID     | 155        | 2615        | Adaptive Cruise Control Message Not Received                       |
| 1590 | 9   | SID     | 231        | 2615        | Adaptive Cruise Control Device Reporting Error                     |
| 1624 | 9   | SID     | 231        | 2615        | J1939 TCO1 Message is missing                                      |
| 1624 | 19  | SID     | 231        | 2315        | J1939 Tachograph Vehicle Speed Signal is erratic                   |
| 1624 | 13  | SID     | 231        | 2315        | J1939 Tachograph Vehicle Speed Signal is missing                   |
| 1663 | 7   | SID     | 123        | 2321        | Optimized Idle Safety Loop Faulted                                 |
| 1716 | 9   | SID     | 231        | 2615        | J1939 ERC1 Message is missing                                      |
| 1845 | 9   | SID     | 231        | 2615        | J1939 TCFG2 Message is missing                                     |
| 2623 | 14  | PID     | 91         | 2322        | Pwm Accelerator Pedal GAS1 and GAS2 Signal Missing                 |
| 2623 | 8   | PID     | 91         | 2322        | Pwm Accelerator Pedal Signal 2 Frequency Out Of Range              |
| 2900 | 9   | SID     | 231        | 2615        | J1939 ETC7 Message is missing                                      |
| 3510 | 3   | SID     | 211        | 2333        | Accelerator Pedal Supply Voltage Circuit Failed High               |
| 3510 | 4   | SID     | 211        | 2333        | Accelerator Pedal Supply Voltage Circuit Failed Low                |
| 3510 | 4   | SID     | 211        | 2333        | Pwm Accelerator Pedal Supply Voltage Missing                       |
| 3510 | 3   | SID     | 211        | 2333        | Accelerator Pedal Supply Voltage Circuit Failed High               |
| 3606 | 9   | SID     | 231        | 2615        | J1939 ESS Message is missing                                       |
| 3695 | 2   | SID     | 155        | 2334        | Manual DPF Regen and DPF Inhibit Switch Rationality Fault          |
| 3695 | 19  | SID     | 155        | 2334        | DPF Regen Inhibit MUX Switch Message Contains Data Error Indicator |
| 3695 | 13  | SID     | 155        | 2334        | DPF Regen Inhibit MUX Switch Message Contains SNV Indicator        |
| 3695 | 9   | SID     | 155        | 2334        | DPF Regen Inhibit MUX Switch Message Stopped Arriving              |
| 3695 | 14  | SID     | 155        | 2334        | DPF Regen Inhibit MUX Switch Message Not Received this Ign Cycle   |
| 3696 | 19  | SID     | 155        | 2335        | DPF Regen Force MUX Switch Message Contains Data Error Indicator   |
| 3696 | 13  | SID     | 155        | 2335        | DPF Regen Force MUX Switch Message Contains SNV Indicator          |
| 3696 | 9   | SID     | 155        | 2335        | DPF Regen Force MUX Switch Message Stopped Arriving                |
| 3696 | 14  | SID     | 155        | 2335        | DPF Regen Force MUX Switch Message Not Received this Ign Cycle     |

**DDEC VI MCM DIAGNOSTIC CODES LIST**

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION   |
|-----|-----|---------|------------|------------|---|
| 27  | 4   | PID     | 27         | 1111       | EGR Valve Position Circuit Failed Low                           |
| 27  | 3   | PID     | 27         | 1111       | EGR Valve Position Circuit Failed High                          |
| 27  | 2   | PID     | 27         | 1111       | EGR Valve Position Feedback Failed                              |
| 27  | 0   | PID     | 27         | 1111       | EGR Valve Position Feedback Failed (High Box)                   |
| 27  | 1   | PID     | 27         | 1111       | EGR Valve Position Feedback Failed (Low Box)                    |
| 27  | 14  | PID     | 27         | 1111       | EGR Valve Position Positive Torque Error                        |
| 27  | 7   | PID     | 27         | 1111       | EGR Valve Stuck Open  |
| 27  | 19  | PID     | 27         | 1521       | Smart Actuator Indicates EGR Position Error                     |
| 51  | 4   | SID     | 51         | 1112       | Intake Air Throttle Circuit Failed Low                          |
| 51  | 3   | SID     | 51         | 1112       | Intake Air Throttle Circuit Failed High                         |
| 51  | 2   | PID     | 51         | 1112       | Intake Throttle Position Deviation Error                        |
| 51  | 0   | PID     | 51         | 1112       | Intake Air Throttle Position High                               |
| 51  | 1   | PID     | 51         | 1112       | Intake Air Throttle Position Low                                |
| 51  | 7   | PID     | 51         | 1112       | Intake Throttle Auto Calibration Error                          |
| 94  | 4   | PID     | 94         | 1112       | Fuel Compensation Pressure Sensor Circuit Failed Low            |
| 94  | 3   | PID     | 94         | 1112       | Fuel Compensation Pressure Sensor Circuit Failed High           |
| 94  | 1   | PID     | 94         | 1112       | Fuel Pressure Too High/Too Low                                  |
| 97  | 4   | PID     | 97         | 1615       | Water in Fuel Circuit Failed Low                                |
| 97  | 3   | PID     | 97         | 1615       | Water in Fuel Circuit Failed High                               |
| 98  | 1   | PID     | 98         | 1114       | Oil Level Circuit Failed Low                                    |
| 98  | 0   | PID     | 98         | 1114       | Oil Level Circuit Failed High                                   |
| 98  | 13  | PID     | 98         | 1634       | Oil Level Measurement, Configuration Error                      |
| 98  | 14  | PID     | 98         | 1634       | Oil Level Measurement, Oil Level Too Low or Too High            |
| 100 | 4   | PID     | 100        | 1114       | Engine Oil Pressure Circuit Failed Low                          |
| 100 | 3   | PID     | 100        | 1114       | Engine Oil Pressure Circuit Failed High                         |
| 100 | 1   | PID     | 100        | 1114       | Engine Oil Pressure Low   |
| 100 | 2   | PID     | 100        | 1114       | Oil Pressure Plausibility - Engine Running                      |
| 100 | 2   | PID     | 100        | 1114       | Oil Pressure Plausibility - Stop                                |
| 103 | 2   | PID     | 103        | 1115       | Turbocharger Speed Not Plausible                                |
| 103 | 1   | PID     | 103        | 1115       | Turbo Charger Speed Below Threshold (High Box)                  |
| 103 | 0   | PID     | 103        | 1115       | Turbo Charger Speed Above Threshold (Low Box)                   |
| 103 | 4   | PID     | 103        | 1115       | Turbo Charger Speed Sensor Circuit Failed Low                   |
| 103 | 3   | PID     | 103        | 1115       | Turbo Charger Speed Sensor Circuit Failed High                  |
| 108 | 4   | PID     | 108        | 1211       | Barometric Pressure Circuit Failed Low                          |
| 108 | 3   | PID     | 108        | 1211       | Barometric Pressure Circuit Failed High                         |
| 108 | 2   | PID     | 108        | 1211       | Ambient Pressure Plausibility Fault (Low Box)                   |
| 108 | 20  | PID     | 108        | 1211       | Ambient Pressure Plausibility Fault (High Box)                  |
| 110 | 4   | PID     | 110        | 1212       | Engine Coolant Outlet Temperature Circuit Failed Low            |
| 110 | 3   | PID     | 110        | 1212       | Engine Coolant Outlet Temperature Circuit Failed High           |
| 110 | 0   | PID     | 110        | 1212       | Coolant Temperature High  |
| 110 | 14  | PID     | 110        | 1212       | Coolant Temperature / Engine Oil Temperature Plausibility Fault |
| 110 | 2   | PID     | 110        | 1212       | Engine Coolant Sensor (OUT), General Temp. Plausibility Error   |
| 132 | 7   | PID     | 132        | 1213       | Intake Air Throttle Valve Closure Detection- Positive Torque    |
| 132 | 14  | PID     | 132        | 1213       | Intake Air Throttle Valve Closure Detection -Braking Condition  |
| 132 | 14  | PID     | 322        | 1635       | HC-Doser Fuel Pressure Not Plausible                            |
| 132 | 1   | PID     | 322        | 1213       | Air Mass Flow Too Low   |
| 132 | 13  | PID     | 132        | 1213       | Air Mass Auto Calibration Failed                                |
| 158 | 2   | PID     | 43         | 1214       | Ignition Switch Not Plausible                                   |
| 164 | 4   | PID     | 164        | 1215       | Rail Pressure Governor Sensor Circuit Failed Low                |
| 164 | 3   | PID     | 164        | 1215       | Rail Pressure Governor Sensor Circuit Failed High               |

# 158 APPENDIX D – DDEC VI Diagnostic Codes

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION   |
|-----|-----|---------|------------|------------|---|
| 164 | 0   | PID     | 164        | 1215       | Rail Pressure Governor (High Side) Error  |
| 164 | 0   | PID     | 164        | 1215       | Rail Pressure Governor (Low Side) Error   |
| 168 | 1   | PID     | 168        | 1221       | Battery Voltage Low   |
| 168 | 0   | PID     | 168        | 1221       | Battery Voltage High  |
| 171 | 4   | PID     | 171        | 1222       | Ambient Temperature Circuit Failed Low  |
| 171 | 3   | PID     | 171        | 1222       | Ambient Temperature Circuit Failed High   |
| 174 | 4   | PID     | 174        | 1223       | Fuel Temperature Circuit Failed Low   |
| 174 | 3   | PID     | 174        | 1223       | Fuel Temperature Circuit Failed High  |
| 174 | 2   | PID     | 174        | 1223       | Fuel Temperature Sensor, General Temp. Plausibility   |
| 174 | 0   | PID     | 174        | 1223       | Fuel Temperature Too High   |
| 175 | 4   | PID     | 175        | 1224       | Engine Oil Temperature Circuit Failed Low   |
| 175 | 3   | PID     | 175        | 1224       | Engine Oil Temperature Circuit Failed High  |
| 175 | 14  | PID     | 175        | 1224       | Engine Oil Temperature Sensor Plausibility Fault  |
| 175 | 2   | PID     | 175        | 1224       | Engine Oil Temperature Sensor, General Temp. Plausibility                                   |
| 190 | 2   | PID     | 190        | 1225       | Engine Speed High   |
| 354 | 4   | PID     | 354        | 1231       | Relative Humidity Circuit Failed Low  |
| 354 | 3   | PID     | 354        | 1231       | Relative Humidity Circuit Failed High   |
| 411 | 4   | PID     | 411        | 1232       | EGR Delta Pressure Sensor Circuit Low   |
| 411 | 3   | PID     | 411        | 1232       | EGR Delta Pressure Sensor Circuit High  |
| 411 | 0   | PID     | 411        | 1232       | EGR Differential Pressure Failed (High Box)   |
| 411 | 1   | PID     | 411        | 1232       | EGR Differential Pressure Failed (Low Box)  |
| 411 | 5   | PID     | 411        | 1232       | EGR Sampling Range Failed   |
| 411 | 13  | PID     | 411        | 1232       | EGR Delta Pressure Sensor Out Of Calibration  |
| 411 | 13  | PID     | 411        | 1232       | EGR Delta Pressure Sensor Out Of Calibration  |
| 412 | 3   | PID     | 412        | 1233       | EGR Temperature Sensor Circuit Failed High  |
| 412 | 4   | PID     | 412        | 1233       | EGR Temperature Sensor Circuit Failed Low   |
| 412 | 20  | PID     | 412        | 1233       | EGR Temperature Drift (High Box)  |
| 412 | 21  | PID     | 412        | 1233       | EGR Temperature Drift (Low Box)   |
| 412 | 2   | PID     | 412        | 1233       | EGR Temperature Sensor, General Temp. Plausibility Error                                    |
| 412 | 0   | PID     | 412        | 1512       | EGR Temperature Very High   |
| 412 | 16  | PID     | 412        | 1233       | EGR Temperature Sensor / Temperature Too High   |
| 615 | 4   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed Low MU_ISP_T_TBD4_SRL  |
| 615 | 3   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed High MU_ISP_T_TBD4_SRH |
| 615 | 4   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed Low MU_ISP_T_TBD1_SRL  |
| 615 | 3   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed High MU_ISP_T_TBD1_SRH |
| 615 | 4   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed Low MU_ISP_T_TBD2_SRL  |
| 615 | 3   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed High MU_ISP_T_TBD2_SRH |
| 615 | 4   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed Low MU_ISP_T_TBD3_SRL  |
| 615 | 3   | SID     | 155        | 1615       | Reserved Monitoring Unit For Temperature Diagnostics, Circuit Failed High MU_ISP_T_TBD3_SRH |
| 615 | 4   | SID     | 155        | 1615       | Catalyst Temperature Sensor Circuit High Input (Bank 1 Sensor 1)                            |
| 615 | 3   | SID     | 155        | 1615       | Catalyst Temperature Sensor Circuit Low Input (Bank 1 Sensor 1)                             |
| 615 | 4   | SID     | 155        | 1615       | Catalyst Temperature Sensor Circuit High (Bank 1 Sensor 2)                                  |
| 615 | 3   | SID     | 155        | 1615       | Catalyst Temperature Sensor Circuit Low (Bank 1 Sensor 2)                                   |
| 615 | 4   | SID     | 51         | 1322       | Water Pump 1 Circuit Failed Low   |
| 615 | 3   | SID     | 51         | 1322       | Water Pump 1 Circuit Failed High  |
| 615 | 5   | SID     | 51         | 1322       | Water Pump 1 Circuit Failed Open  |

## APPENDIX D – DDEC VI Diagnostic Codes 159

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION   |
|-----|-----|---------|------------|------------|---|
| 615 | 4   | SID     | 55         | 1331       | Turbo Compound Valve Circuit Failed Low                   |
| 615 | 3   | SID     | 55         | 1331       | Turbo Compound Valve Circuit Failed High                  |
| 615 | 5   | SID     | 55         | 1331       | Turbo Compound Valve Circuit Failed Open                  |
| 615 | 4   | SID     | 259        | 1335       | Turbo Brake Sleeve Circuit Failed Low                     |
| 615 | 3   | SID     | 259        | 1335       | Turbo Brake Sleeve Circuit Failed High                    |
| 615 | 5   | SID     | 259        | 1335       | Turbo Brake Sleeve Circuit Failed Open                    |
| 615 | 4   | SID     | 261        | 1355       | Function 20 Circuit Failed Low                            |
| 615 | 3   | SID     | 261        | 1355       | Function 20 Circuit Failed High                           |
| 615 | 5   | SID     | 261        | 1355       | Function 20 Circuit Failed Open                           |
| 615 | 3   | SID     | 155        | 1451       | Service Push Button Circuit Failed High                   |
| 615 | 14  | SID     | 155        | 1615       | Turbocharger/Supercharger Boost System Performance        |
| 615 | 14  | SID     | 155        | 1615       | Starter Electronic Fault / ECU internal (Res)             |
| 615 | 14  | SID     | 155        | 1615       | Starter Jammed (Tooth to Tooth Jam)                       |
| 615 | 14  | SID     | 155        | 1615       | Rail Pressure Governor, Valve Stays Open                  |
| 615 | 14  | SID     | 155        | 1615       | MU_RPG_INT_MON_SRH, I Term Value Too High                 |
| 615 | 14  | SID     | 155        | 1615       | Rail Pressure Governor, Leakage in High Pressure Too High |
| 615 | 14  | SID     | 155        | 1615       | Rail Pressure Governor Sensor, Signal Drift               |
| 615 | 14  | SID     | 155        | 1615       | Rail Pressure Governor Sensor, Sensor Supply Line Broken  |
| 615 | 4   | SID     | 155        | 1615       | Compressor Differential Pressure Outlet Failed Low        |
| 615 | 3   | SID     | 155        | 1615       | Compressor Differential Pressure Outlet Failed High       |
| 615 | 14  | SID     | 155        | 1615       | Doser Metering and Safety Unit Valve Seals Check          |
| 615 | 14  | SID     | 155        | 1615       | High Pressure Pump, Leakage or TDC Position Wrong         |
| 615 | 4   | SID     | 155        | 1615       | Flap In Front of EGR Cooler Circuit Failed Low            |
| 615 | 3   | SID     | 155        | 1615       | Flap In Front of EGR Cooler Circuit Failed High           |
| 615 | 5   | SID     | 155        | 1615       | Flap In Front of EGR Cooler Circuit Failed Open           |
| 615 | 4   | SID     | 155        | 1615       | Water Pump 2 Circuit Failed Low                           |
| 615 | 3   | SID     | 155        | 1615       | Water Pump 2 Circuit Failed High                          |
| 615 | 5   | SID     | 156        | 1615       | Water Pump 2 Circuit Failed Open                          |
| 615 | 4   | SID     | 157        | 1615       | RCP Test Function 1 Circuit Failed Low                    |
| 615 | 3   | SID     | 158        | 1615       | RCP Test Function 1 Circuit Failed High                   |
| 615 | 5   | SID     | 159        | 1615       | RCP Test Function 1 Circuit Failed Open                   |
| 615 | 4   | SID     | 160        | 1615       | RCP Test Function 2 Circuit Failed Low                    |
| 615 | 3   | SID     | 161        | 1615       | RCP Test Function 2 Circuit Failed High                   |
| 615 | 5   | SID     | 162        | 1615       | RCP Test Function 2 Circuit Failed Open                   |
| 615 | 4   | SID     | 163        | 1615       | Volute Control Valve, Shorted to Ground                   |
| 615 | 3   | SID     | 164        | 1615       | Volute Control Valve, Shorted to Battery                  |
| 615 | 5   | SID     | 165        | 1615       | Volute Control Valve, Open Load                           |
| 615 | 4   | SID     | 166        | 1615       | Volute Shut Off Valve, Shorted to Ground                  |
| 615 | 3   | SID     | 167        | 1615       | Volute Shut Off Valve, Shorted to Battery                 |
| 615 | 5   | SID     | 168        | 1615       | Volute Shut Off Valve, Open Load                          |
| 615 | 4   | SID     | 169        | 1615       | Function 30 Circuit Failed Low                            |
| 615 | 3   | SID     | 170        | 1615       | Function 30 Circuit Failed High                           |
| 615 | 5   | SID     | 171        | 1615       | Function 30 Circuit Failed Open                           |
| 615 | 4   | SID     | 172        | 1615       | Function 31 Circuit Failed Low                            |
| 615 | 3   | SID     | 173        | 1615       | Function 31 Circuit Failed High                           |
| 615 | 5   | SID     | 174        | 1615       | Function 31 Circuit Failed Open                           |
| 615 | 14  | SID     | 155        | 1453       | Smart Remote Actuator 2, No Failsafe Mode, Motor Off      |
| 615 | 9   | SID     | 155        | 1453       | Smart Remote Actuator 2, Failsafe Mode, Motor Off         |
| 615 | 16  | SID     | 155        | 1453       | Smart Remote Actuator 2, Temperature Fault                |
| 615 | 7   | SID     | 155        | 1453       | Smart Remote Actuator 2, Failsafe Mode, Motor On          |

## 160 APPENDIX D – DDEC VI Diagnostic Codes

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|-----|-----|---------|------------|------------|--|
| 615 | 11  | SID     | 155        | 1453       | Smart Remote Actuator 2, Restricted Operability  |
| 615 | 15  | SID     | 155        | 1453       | Smart Remote Actuator 2, Temperature Warning   |
| 615 | 8   | SID     | 155        | 1453       | Smart Remote Actuator 2, Internal Test Running   |
| 615 | 31  | SID     | 155        | 1453       | Smart Remote Actuator 2, Unknown Error Code  |
| 615 | 13  | SID     | 155        | 1454       | Turbocharger Compressor Outlet Differential Pressure Sensor Out Of Calibration           |
| 615 | 13  | SID     | 155        | 1454       | Turbocharger Compressor Outlet Differential Pressure Sensor Out Of Calibration           |
| 615 | 19  | SID     | 155        | 1637       | Smart Actuator Indicates Actuator Position Error   |
| 625 | 2   | SID     | 248        | 1234       | Invalid Data on Engine CAN Link  |
| 625 | 9   | SID     | 248        | 1234       | No Data Received from Engine CAN Link  |
| 625 | 9   | SID     | 248        | 1234       | Engine CAN Low Wire Defect - (wire 1)  |
| 625 | 9   | SID     | 248        | 1234       | Engine CAN High Wire Defect - (wire 2)   |
| 630 | 12  | SID     | 253        | 1452       | EEPROM Read / Write Operation Failed   |
| 630 | 13  | SID     | 253        | 1455       | Calibration Data Not Plausible   |
| 630 | 13  | SID     | 253        | 1455       | Calibration Data Not Plausible (CPLD)  |
| 634 | 4   | SID     | 40         | 1321       | Constant Throttle Valve Circuit Failed Low   |
| 634 | 3   | SID     | 40         | 1321       | Constant Throttle Valve Circuit Failed High  |
| 634 | 5   | SID     | 40         | 1321       | Constant Throttle Valve Circuit Failed Open  |
| 636 | 1   | SID     | 21         | 1235       | Crankshaft Position Sensor Signal Voltage Too Low  |
| 636 | 3   | SID     | 21         | 1235       | Crankshaft Position Sensor Open Circuit  |
| 636 | 4   | SID     | 21         | 1235       | Crankshaft Position Sensor Short to Ground   |
| 636 | 8   | SID     | 21         | 1235       | Crankshaft Position Sensor Time Out  |
| 636 | 14  | SID     | 21         | 1235       | Crankshaft Position Sensor Pins Swapped  |
| 636 | 2   | SID     | 21         | 1235       | No Match of Camshaft and Crankshaft Signals  |
| 641 | 4   | SID     | 27         | 1542       | Turbo Control Circuit Failed Low   |
| 641 | 3   | SID     | 27         | 1542       | Turbo Control Circuit Failed High  |
| 641 | 5   | SID     | 27         | 1542       | Turbo Control Circuit Open   |
| 641 | 14  | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), No Failsafe Mode, Motor Off                               |
| 641 | 9   | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Failsafe Mode, Motor Off                                  |
| 641 | 7   | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Failsafe Mode, Motor On                                   |
| 641 | 11  | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Restricted Operability                                    |
| 641 | 8   | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Internal Test Running                                     |
| 641 | 31  | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Unknown Error Code  |
| 647 | 4   | SID     | 33         | 1334       | Fan Stage 1 Circuit Failed Low   |
| 647 | 3   | SID     | 33         | 1334       | Fan Stage 1 Circuit Failed High  |
| 647 | 5   | SID     | 33         | 1334       | Fan Stage 1 Circuit Failed Open  |
| 651 | 14  | SID     | 1          | 1242       | Injector Cylinder #1 Needle Control Valve Abnormal Operation                             |
| 651 | 10  | SID     | 1          | 1242       | Injector Cylinder #1 Needle Control Valve Abnormal Rate of Change                        |
| 651 | 5   | SID     | 1          | 1242       | Injector Cylinder 1, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |
| 651 | 7   | SID     | 1          | 1242       | Injector Cylinder 1, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 651 | 6   | SID     | 1          | 1242       | Injector Cylinder #1 Needle Control Valve, Valve Shorted Circuit                         |
| 651 | 31  | SID     | 1          | 1242       | Engine Smoothness Control / Cylinder #1 Value Out of Range                               |
| 652 | 14  | SID     | 2          | 1243       | Injector Cylinder #2 Needle Control Valve Abnormal Operation                             |
| 652 | 10  | SID     | 2          | 1243       | Injector Cylinder #2 Needle Control Valve Abnormal Rate of Change                        |
| 652 | 5   | SID     | 2          | 1243       | Injector Cylinder 2, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |

## APPENDIX D – DDEC VI Diagnostic Codes 161

| SPN | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|-----|-----|---------|------------|------------|--|
| 652 | 7   | SID     | 2          | 1243       | Injector Cylinder 2, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 652 | 6   | SID     | 2          | 1243       | Injector Cylinder #2 Needle Control Valve, Valve Shorted Circuit                         |
| 652 | 31  | SID     | 2          | 1243       | Engine Smoothness Control / Cylinder #2 Value Out of Range                               |
| 653 | 14  | SID     | 3          | 1244       | Injector Cylinder #3 Needle Control Valve Abnormal Operation                             |
| 653 | 10  | SID     | 3          | 1244       | Injector Cylinder #3 Needle Control Valve Abnormal Rate of Change                        |
| 653 | 5   | SID     | 3          | 1244       | Injector Cylinder 3, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |
| 653 | 7   | SID     | 3          | 1244       | Injector Cylinder 3, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 653 | 6   | SID     | 3          | 1244       | Injector Cylinder #3 Needle Control Valve, Valve Shorted Circuit                         |
| 653 | 31  | SID     | 3          | 1244       | Engine Smoothness Control / Cylinder #3 Value Out of Range                               |
| 654 | 14  | SID     | 4          | 1245       | Injector Cylinder #4 Needle Control Valve Abnormal Operation                             |
| 654 | 10  | SID     | 4          | 1245       | Injector Cylinder #4 Needle Control Valve Abnormal Rate of Change                        |
| 654 | 5   | SID     | 4          | 1245       | Injector Cylinder 4, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |
| 654 | 7   | SID     | 4          | 1245       | Injector Cylinder 4, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 654 | 6   | SID     | 4          | 1245       | Injector Cylinder #4 Needle Control Valve, Valve Shorted Circuit                         |
| 654 | 31  | SID     | 4          | 1245       | Engine Smoothness Control / Cylinder #4 Value Out of Range                               |
| 655 | 14  | SID     | 5          | 1251       | Injector Cylinder #5 Needle Control Valve Abnormal Operation                             |
| 655 | 10  | SID     | 5          | 1251       | Injector Cylinder #5 Needle Control Valve Abnormal Rate of Change                        |
| 655 | 5   | SID     | 5          | 1251       | Injector Cylinder 5, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |
| 655 | 7   | SID     | 5          | 1251       | Injector Cylinder 5, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 655 | 6   | SID     | 5          | 1251       | Injector Cylinder #5 Needle Control Valve, Valve Shorted Circuit                         |
| 655 | 31  | SID     | 5          | 1251       | Engine Smoothness Control / Cylinder #5 Value Out of Range                               |
| 656 | 14  | SID     | 6          | 1252       | Injector Cylinder #6 Needle Control Valve Abnormal Operation                             |
| 656 | 10  | SID     | 6          | 1252       | Injector Cylinder #6 Needle Control Valve Abnormal Rate of Change                        |
| 656 | 5   | SID     | 6          | 1252       | Injector Cylinder 6, Nozzle Control Valve or Spill Control Valve, Jammed Closed          |
| 656 | 7   | SID     | 6          | 1252       | Injector Cylinder 6, Nozzle Control Valve or Spill Control Valve, Jammed Open or Leakage |
| 656 | 6   | SID     | 6          | 1252       | Injector Cylinder #6 Needle Control Valve, Valve Shorted Circuit                         |
| 656 | 31  | SID     | 6          | 1252       | Engine Smoothness Control / Cylinder #6 Value Out of Range                               |
| 657 | 14  | SID     | 7          | 1253       | Injector Cylinder #7 Needle Control Valve Abnormal Operation                             |
| 657 | 10  | SID     | 7          | 1253       | Injector Cylinder #7 Needle Control Valve Abnormal Rate of Change                        |
| 657 | 6   | SID     | 7          | 1253       | Injector Cylinder #7 Needle Control Valve, Valve Shorted Circuit                         |
| 657 | 31  | SID     | 7          | 1253       | Engine Smoothness Control / Cylinder #7 Value Out of Range                               |
| 658 | 14  | SID     | 8          | 1254       | Injector Cylinder #8 Needle Control Valve Abnormal Operation                             |
| 658 | 10  | SID     | 8          | 1254       | Injector Cylinder #8 Needle Control Valve Abnormal Rate of Change                        |
| 658 | 6   | SID     | 8          | 1254       | Injector Cylinder #8 Needle Control Valve, Valve Shorted Circuit                         |
| 658 | 31  | SID     | 8          | 1254       | Engine Smoothness Control / Cylinder #8 Value Out of Range                               |
| 677 | 2   | SID     | 39         | 1255       | Starter Switch Inconsistent  |
| 677 | 5   | SID     | 39         | 1255       | Engine Starter Relay Circuit Failed Low  |
| 677 | 4   | SID     | 39         | 1255       | Engine Starter Relay Open Circuit  |
| 677 | 14  | SID     | 39         | 1255       | Starter Electronic Fault / ECU internal (Main)   |
| 677 | 7   | SID     | 39         | 1255       | Engine Starter Relay - Starter Does Not Engage   |

## 162 APPENDIX D – DDEC VI Diagnostic Codes

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|------|-----|---------|------------|------------|--|
| 677  | 3   | SID     | 39         | 1255       | Engine Starter Relay Shorted to High Source                                  |
| 677  | 7   | SID     | 39         | 1255       | Engine Starter Relay Jammed  |
| 698  | 4   | SID     | 58         | 1312       | Gridheater Circuit Failed Low  |
| 698  | 3   | SID     | 58         | 1312       | Gridheater Circuit Failed High   |
| 698  | 5   | SID     | 58         | 1312       | Gridheater Circuit Failed Open   |
| 715  | 4   | SID     | 263        | 1412       | High Side Digital Output # 1 Circuit Failed Low                              |
| 715  | 3   | SID     | 263        | 1412       | High Side Digital Output # 1 Circuit Failed High                             |
| 715  | 5   | SID     | 263        | 1412       | High Side Digital Output # 2 Circuit Failed Open                             |
| 716  | 4   | SID     | 264        | 1413       | High Side Digital Output # 2 Circuit Failed Low                              |
| 723  | 1   | SID     | 64         | 1415       | Camshaft Position Sensor Signal Voltage Too Low                              |
| 723  | 3   | SID     | 64         | 1415       | Camshaft Position Sensor Open Circuit  |
| 723  | 4   | SID     | 64         | 1415       | Camshaft Position Sensor Short to Ground                                     |
| 723  | 8   | SID     | 64         | 1415       | Camshaft Position Sensor Time Out  |
| 723  | 14  | SID     | 64         | 1415       | Camshaft Position Sensor Pins Swapped  |
| 729  | 4   | PID     | 45         | 1421       | Grid Heater Circuit Failed Low   |
| 729  | 14  | PID     | 45         | 1421       | Grid Heater Special Instructions   |
| 729  | 3   | PID     | 45         | 1421       | Grid Heater Circuit Failed High  |
| 729  | 7   | PID     | 45         | 1421       | Grid Heater Defect   |
| 729  | 0   | PID     | 45         | 1421       | Grid Heater Permanently On   |
| 1071 | 4   | SID     | 60         | 1314       | Fan Stage 2 Circuit Failed Low   |
| 1071 | 3   | SID     | 60         | 1314       | Fan Stage 2 Circuit Failed High  |
| 1071 | 5   | SID     | 60         | 1314       | Fan Stage 2 Circuit Failed Open  |
| 1072 | 4   | SID     | 79         | 1422       | Jake Brake Stage 1 Circuit Failed Low  |
| 1072 | 3   | SID     | 79         | 1422       | Jake Brake Stage 1 Circuit Failed High                                       |
| 1072 | 5   | SID     | 79         | 1422       | Jake Brake Stage 1 Circuit Failed Open                                       |
| 1073 | 4   | SID     | 80         | 1315       | Jake Brake Stage 2 Circuit Failed Low  |
| 1073 | 3   | SID     | 80         | 1315       | Jake Brake Stage 2 Circuit Failed High                                       |
| 1073 | 5   | SID     | 80         | 1315       | Jake Brake Stage 2 Circuit Failed Open                                       |
| 1074 | 4   | SID     | 81         | 1345       | Exhaust Brake Circuit Failed Low   |
| 1074 | 3   | SID     | 81         | 1345       | Exhaust Brake Circuit Failed High  |
| 1074 | 5   | SID     | 81         | 1345       | Exhaust Brake Circuit Failed Open  |
| 1077 | 14  | PID     | 164        | 1241       | Rail Pressure Governor Error, Open Loop Error                                |
| 1077 | 5   | PID     | 164        | 1423       | Rail Pressure Governor Error, Current Governor, Current Too Low              |
| 1077 | 7   | PID     | 164        | 1423       | Rail Pressure Governor Error, Pressure Governor, Pressure Not Plausible      |
| 1077 | 6   | SID     | 155        | 1423       | Rail Pressure Governor Error, Current Too High                               |
| 1127 | 4   | SID     | 273        | 1424       | Turbocharger Compressor Outlet Pressure Circuit Failed Low                   |
| 1127 | 3   | SID     | 273        | 1424       | Turbocharger Compressor Outlet Pressure Circuit Failed High                  |
| 1172 | 4   | PID     | 351        | 1425       | Turbocharger Compressor Inlet Temperature Circuit Failed Low                 |
| 1172 | 3   | PID     | 351        | 1425       | Turbocharger Compressor Inlet Temperature Circuit Failed High                |
| 1172 | 2   | PID     | 351        | 1425       | Coolant Temp/Compressor Inlet Temp Plausibility Error                        |
| 1172 | 2   | PID     | 351        | 1425       | Turbocharger Compressor Inlet Temp. Sensor, General Temp. Plausibility Error |
| 1176 | 4   | SID     | 314        | 1431       | Turbocharger Compressor Inlet Pressure Circuit Failed Low                    |
| 1176 | 3   | SID     | 314        | 1431       | Turbocharger Compressor Inlet Pressure Circuit Failed High                   |
| 1176 | 2   | PID     | 314        | 1431       | Compressor Pressure Plausibility Fault (High Box)                            |
| 1176 | 5   | PID     | 314        | 1431       | Compressor Inlet Pressure Plausibility Fault (Delta)                         |
| 1176 | 20  | SID     | 314        | 1431       | Compressor Inlet Pressure Plausibility Error, Pressure Too High (High Box)   |
| 1188 | 4   | SID     | 32         | 1325       | Waste Gate Circuit Failed Low  |
| 1188 | 3   | SID     | 32         | 1325       | Waste Gate Circuit Failed High   |
| 1188 | 5   | SID     | 32         | 1325       | Waste Gate Circuit Failed Open   |
| 1188 | 14  | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), No Failsafe Mode, Motor Off             |

## APPENDIX D – DDEC VI Diagnostic Codes 163

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|------|-----|---------|------------|------------|--|
| 1188 | 9   | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Failsafe Mode, Motor Off                          |
| 1188 | 16  | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Temperature Fault                                 |
| 1188 | 7   | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Failsafe Mode, Motor On                           |
| 1188 | 11  | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Restricted Operability                            |
| 1188 | 15  | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Temperature Warning                               |
| 1188 | 8   | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Internal Test Running                             |
| 1188 | 31  | SID     | 32         | 1432       | Smart Remote Actuator 1 (Wastegate), Unknown Error Code                                |
| 1188 | 19  | SID     | 32         | 1432       | Smart Actuator Indicates Turbocharger Wastegate Position Error                         |
| 1213 | 4   | SID     | 257        | 1333       | MIL Lamp Circuit Failed Low  |
| 1213 | 3   | SID     | 257        | 1333       | MIL Lamp Circuit Failed High   |
| 1213 | 5   | SID     | 257        | 1333       | MIL Lamp Circuit Failed Open   |
| 1323 | 31  | SID     | 155        | 1433       | Cylinder 1 Misfire detected  |
| 1323 | 14  | SID     | 156        | 1434       | Misfire Detected   |
| 1324 | 31  | SID     | 155        | 1435       | Cylinder 2 Misfire detected  |
| 1325 | 31  | SID     | 155        | 1441       | Cylinder 3 Misfire detected  |
| 1326 | 31  | SID     | 155        | 1442       | Cylinder 4 Misfire detected  |
| 1327 | 31  | SID     | 155        | 1443       | Cylinder 5 Misfire detected  |
| 1328 | 31  | SID     | 155        | 1444       | Cylinder 6 Misfire Detected  |
| 1329 | 31  | SID     | 155        | 1445       | Cylinder 7 Misfire Detected  |
| 1330 | 31  | SID     | 155        | 1446       | Cylinder 8 Misfire Detected  |
| 1351 | 4   | SID     | 155        | 1615       | Switchable Air Compressor Circuit Failed Low   |
| 1351 | 3   | SID     | 155        | 1615       | Switchable Air Compressor Circuit Failed High  |
| 1351 | 5   | SID     | 155        | 1615       | Switchable Air Compressor Circuit Failed Open  |
| 1636 | 4   | PID     | 105        | 1511       | Intake Manifold Temperature Circuit Failed Low   |
| 1636 | 3   | PID     | 105        | 1511       | Intake Manifold Temperature Circuit Failed High  |
| 1636 | 2   | PID     | 105        | 1511       | Intake Manifold Temperature Plausibility Error   |
| 1636 | 21  | PID     | 105        | 1511       | Difference Intake Manifold Temperature and EGR Temp. Less Than Threshold (Low Box)     |
| 1636 | 2   | PID     | 105        | 1511       | Difference Intake Manifold and I Cooler Temperature Out Less Than Threshold (Low Box)  |
| 1636 | 2   | PID     | 105        | 1511       | Difference Intake Manifold and I Cooler Temperature Out Less Than Threshold (High Box) |
| 1636 | 20  | PID     | 105        | 1511       | Intake Manifold Temperature Drift (Low Box)  |
| 1636 | 21  | PID     | 105        | 1511       | Intake Manifold Temperature Drift (High Box)   |
| 2629 | 4   | PID     | 404        | 1513       | Turbocharger Compressor Outlet Temperature Circuit Failed Low                          |
| 2629 | 3   | PID     | 404        | 1513       | Turbocharger Compressor Outlet Temperature Circuit Failed High                         |
| 2629 | 20  | PID     | 404        | 1513       | Turbocharger Out Temperature, Temperature Too High (Low Box)                           |
| 2629 | 21  | PID     | 404        | 1513       | Turbocharger Out Temperature, Temperature Too Low (High Box)                           |
| 2629 | 2   | PID     | 404        | 1513       | Turbocharger Compressor Outlet Temp. Sensor, General Temp. Plausibility Error          |
| 2630 | 4   | SID     | 272        | 1514       | Charge Air Cooler Outlet Temperature Circuit Failed Low                                |
| 2630 | 3   | SID     | 272        | 1514       | Charge Air Cooler Outlet Temperature Circuit Failed High                               |
| 2630 | 2   | SID     | 272        | 1514       | Charge Air Cooler Outlet Temperature Sensor Plausibility Error                         |
| 2630 | 20  | SID     | 272        | 1514       | Charge Air Outlet Temperature Drift (Low box)  |
| 2630 | 21  | SID     | 272        | 1514       | Charge Air Outlet Temperature Drift (High box)   |
| 2631 | 4   | SID     | 273        | 1515       | Charge Air Cooler Outlet Pressure Circuit Failed Low                                   |
| 2631 | 3   | SID     | 273        | 1515       | Charge Air Cooler Outlet Pressure Circuit Failed High                                  |
| 2659 | 1   | SID     | 277        | 1515       | EGR Flow Target Error Diagnostic - Low Flow  |
| 2659 | 0   | SID     | 277        | 1515       | EGR Flow Target Error Diagnostic - High Flow   |
| 2791 | 4   | PID     | 146        | 1521       | EGR Valve Circuit Failed Low   |
| 2791 | 3   | PID     | 146        | 1521       | EGR Valve Circuit Failed High  |

# 164 APPENDIX D – DDEC VI Diagnostic Codes

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION   |
|------|-----|---------|------------|------------|---|
| 2791 | 5   | PID     | 146        | 1521       | EGR Valve Circuit Failed Open   |
| 2791 | 7   | SID     | 146        | 1521       | EGR Valve Position Incorrect  |
| 2791 | 14  | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), No Failsafe Mode, Motor Off            |
| 2791 | 9   | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Failsafe Mode, Motor Off               |
| 2791 | 16  | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Temperature Fault                      |
| 2791 | 7   | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Failsafe Mode, Motor On                |
| 2791 | 11  | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Restricted Operability                 |
| 2791 | 15  | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Temperature Warning                    |
| 2791 | 8   | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Internal Test Running                  |
| 2791 | 31  | SID     | 146        | 1521       | Smart Remote Actuator 3 (EGR), Unknown Error Code                     |
| 2795 | 9   | SID     | 269        | 1241       | CAN3 Communication Error  |
| 2795 | 4   | SID     | 269        | 1522       | Position Waste Gate (VNT) Failed Low                                  |
| 2795 | 3   | SID     | 269        | 1522       | Position Waste Gate (VNT) Failed High                                 |
| 2795 | 2   | SID     | 269        | 1522       | VNT Valve Position Feedback Failed                                    |
| 2795 | 0   | SID     | 269        | 1522       | VNT Valve Position Feedback, Position Too Low (High Box)              |
| 2795 | 1   | SID     | 269        | 1522       | VNT Valve Position Feedback, Position Too High (Low Box)              |
| 2795 | 19  | SID     | 147        | 1522       | Smart Actuator Indicates Turbocharger Vane Position Error             |
| 2797 | 4   | SID     | 317        | 1523       | Injector Needle Control Valve Cylinder 1, 2, 3 Shorted to Ground      |
| 2797 | 4   | SID     | 317        | 1524       | Injector Needle Control Valve Cylinder 4, 5, 6 Shorted to Ground      |
| 2797 | 4   | SID     | 317        | 1615       | Injector Needle Control Valve Bank 3, Shorted to Ground               |
| 2797 | 3   | SID     | 317        | 1523       | Injector Needle Control Valve Cylinder 1,2,3 Shorted to Battery       |
| 2797 | 3   | SID     | 317        | 1524       | Injector Needle Control Valve Cylinder 4,5,6, Shorted to Battery      |
| 2797 | 3   | SID     | 317        | 1615       | Injector Needle Control Valve Bank 3, Shorted to Battery              |
| 2798 | 4   | SID     | 317        | 1615       | Injector Spill Control Valve Cylinder 1, 2, 3 Shorted to Ground       |
| 2798 | 4   | SID     | 317        | 1615       | Injector Spill Control Valve Cylinder 4, 5, 6 Shorted to Ground       |
| 2798 | 4   | SID     | 317        | 1615       | Injector Spill Control Valve ("Amplifier") Bank 6, Shorted to Ground  |
| 2798 | 3   | SID     | 317        | 1615       | Injector Spill Control Valve Cylinder 1,2,3, Shorted to Battery       |
| 2798 | 3   | SID     | 317        | 1615       | Injector Spill Control Valve Cylinder 4,5,6, Shorted to Battery       |
| 2798 | 3   | SID     | 317        | 1615       | Injector Spill Control Valve ("Amplifier") Bank 6, Shorted to Battery |
| 2988 | 4   | SID     | 262        | 1411       | EGR Water Cooling Regulator Circuit Failed Low                        |
| 988  | 3   | SID     | 262        | 1411       | EGR Water Cooling Regulator Circuit Failed High                       |
| 2988 | 5   | SID     | 262        | 1411       | EGR Water Cooling Regulator Circuit Failed Open                       |
| 3050 | 0   | SID     | 155        | 1525       | Engine Air Flow Out of Range Low                                      |
| 3050 | 1   | SID     | 324        | 1525       | Active Regen Temp Out of Range Low                                    |
| 3058 | 13  | PID     | 146        | 1615       | EGR System Parametrization Failure                                    |
| 3064 | 13  | SID     | 155        | 1615       | DPF System Parametrization Failure                                    |
| 3242 | 4   | PID     | 318        | 1531       | DOC Inlet Temperature Circuit Failed Low                              |
| 3242 | 3   | PID     | 318        | 1531       | DOC Inlet Temperature Circuit Failed High                             |
| 3242 | 10  | SID     | 318        | 1531       | DOC Inlet Temperature Sensor Stuck                                    |
| 3242 | 2   | SID     | 318        | 1531       | DOC Inlet Temperature Sensor - Plausibility Error                     |
| 3246 | 4   | SID     | 320        | 1532       | DPF Outlet Temperature Circuit Failed Low                             |
| 3246 | 3   | SID     | 320        | 1532       | DPF Outlet Temperature Circuit Failed High                            |
| 3246 | 14  | SID     | 320        | 1532       | Abnormal DPF Temperature Rise b)                                      |
| 3246 | 0   | SID     | 320        | 1532       | DPF Outlet Temperature High   |
| 3246 | 10  | SID     | 320        | 1532       | DPF Outlet Temperature Sensor Stuck                                   |
| 3246 | 2   | SID     | 320        | 1532       | DPF Outlet Sensor, General Temp. Plausibility                         |

## APPENDIX D – DDEC VI Diagnostic Codes 165

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION   |
|------|-----|---------|------------|------------|---|
| 3246 | 31  | SID     | 323        | 1532       | Abnormal DPF Temperature Rise                                 |
| 3250 | 4   | PID     | 322        | 1533       | DOC Outlet Temperature Circuit Failed Low                     |
| 3250 | 3   | PID     | 322        | 1533       | DOC Outlet Temperature Circuit Failed High                    |
| 3250 | 14  | PID     | 322        | 1533       | Abnormal DOC Temperature Rise                                 |
| 3250 | 10  | SID     | 322        | 1533       | DOC Outlet Temperature Sensor Stuck                           |
| 3250 | 2   | SID     | 322        | 1533       | DOC Outlet Temperature Sensor - Plausibility Error            |
| 3250 | 31  | PID     | 322        | 1533       | Abnormal DOC Temperature Rise                                 |
| 3250 | 0   | PID     | 322        | 1533       | DOC Outlet Temperature High                                   |
| 3251 | 0   | SID     | 324        | 1534       | DPF Pressure - Out of Range Very High                         |
| 3251 | 1   | SID     | 324        | 1534       | DPF Pressure - Out of Range Low                               |
| 3251 | 9   | SID     | 324        | 1534       | Abnormal Soot Rate  |
| 3251 | 16  | SID     | 324        | 1534       | DPF Pressure - Out of Range High                              |
| 3358 | 4   | SID     | 155        | 1535       | EGR Pressure Failed Low                                       |
| 3358 | 3   | SID     | 155        | 1535       | EGR Pressure Failed High                                      |
| 3464 | 4   | SID     | 59         | 1313       | Intake Throttle Valve Circuit Failed Low                      |
| 3464 | 3   | SID     | 59         | 1313       | Intake Throttle Valve Circuit Failed High                     |
| 3464 | 5   | SID     | 59         | 1313       | Intake Throttle Valve Circuit Failed Open                     |
| 3464 | 14  | SID     | 59         | 1615       | Intake Air Throttle Control Electrical Fault                  |
| 3464 | 2   | PID     | 51         | 1541       | Intake Throttle Valve, Spring Response Time Not Plausible     |
| 3464 | 7   | PID     | 51         | 1541       | Intake Throttle Valve, Stuck                                  |
| 3464 | 14  | PID     | 51         | 1541       | Intake Throttle Valve, Integrated Absolute Error Plausibility |
| 3464 | 8   | PID     | 51         | 1541       | Intake Throttle Valve, Current Deviation Too High             |
| 3470 | 4   | SID     | 57         | 1311       | Actuator Turbo Compound Bypass Circuit Failed Low             |
| 3470 | 3   | SID     | 57         | 1311       | Actuator Turbo Compound Bypass Circuit Failed High            |
| 3470 | 5   | SID     | 57         | 1311       | Actuator Turbo Compound Bypass Circuit Failed Open            |
| 3471 | 4   | SID     | 334        | 1323       | HC Doser Circuit Failed Low                                   |
| 3471 | 3   | SID     | 334        | 1323       | HC Doser Circuit Failed High                                  |
| 3471 | 5   | SID     | 334        | 1323       | HC Doser Circuit Failed Open                                  |
| 3471 | 1   | SID     | 155        | 1542       | EDV Failed Self Test  |
| 3480 | 2   | SID     | 332        | 1543       | Doser Fuel Line Pressure Abnormal                             |
| 3480 | 1   | SID     | 332        | 1543       | Doser Fuel Supply Pressure Abnormal                           |
| 3480 | 14  | SID     | 332        | 1543       | Doser FLP Sensors Failed Self Test                            |
| 3482 | 4   | SID     | 56         | 1332       | Fuel Cut Off Valve Circuit Failed Low                         |
| 3482 | 3   | SID     | 56         | 1332       | Fuel Cut Off Valve Circuit Failed High                        |
| 3482 | 5   | SID     | 56         | 1332       | Fuel Cut Off Valve Circuit Failed Open                        |
| 3482 | 7   | SID     | 155        | 1544       | FCV Failed Self Test  |
| 3509 | 3   | SID     | 212        | 1631       | Multiplexer 1 Channel 1, Shorted High                         |
| 3509 | 3   | SID     | 212        | 1631       | Multiplexer 1 Channel 2, Shorted High                         |
| 3510 | 3   | SID     | 211        | 1632       | Multiplexer 2 Channel 1, Shorted High                         |
| 3510 | 3   | SID     | 211        | 1632       | Multiplexer 2 Channel 2, Shorted High                         |
| 3511 | 3   | SID     | 211        | 1633       | Multiplexer 3 Channel 1, Shorted High                         |
| 3511 | 3   | SID     | 211        | 1633       | Multiplexer 3 Channel 2, Shorted High                         |
| 3556 | 1   | SID     | 155        | 1545       | Regen Temperature - Out of Range Low                          |
| 3556 | 0   | SID     | 155        | 1551       | Regen Temperature - Out of Range High                         |
| 3563 | 4   | PID     | 106        | 1551       | Intake Manifold Pressure Circuit Failed Low                   |
| 3563 | 3   | PID     | 106        | 1551       | Intake Manifold Pressure Circuit Failed High                  |
| 3563 | 20  | PID     | 106        | 1551       | Ambient and Inlet Manifold Pressure Difference (Low Box)      |
| 3563 | 21  | PID     | 106        | 1551       | Ambient and Inlet Manifold Pressure Difference (High Box)     |
| 3563 | 1   | PID     | 106        | 1551       | Inlet Manifold Pressure Failed Low                            |
| 3563 | 0   | PID     | 106        | 1551       | Inlet Manifold Pressure Failed High                           |
| 3563 | 3   | PID     | 106        | 1551       | Inlet Manifold Pressure Sampling Range Failed                 |
| 3563 | 20  | PID     | 106        | 1551       | Intake Manifold Pressure Plausibility (Low Box)               |

# 166 APPENDIX D – DDEC VI Diagnostic Codes

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|------|-----|---------|------------|------------|--|
| 3563 | 21  | PID     | 106        | 1551       | Intake Manifold Pressure Plausibility Error, Pressure Too Low (High Box)       |
| 3588 | 4   | SID     | 156        | 1552       | Ether Start, Shorted to Ground   |
| 3588 | 3   | SID     | 157        | 1552       | Ether Start, Shorted to Battery  |
| 3588 | 5   | SID     | 158        | 1552       | Ether Start, Open Load   |
| 3597 | 3   | SID     | 155        | 1553       | Proportional Valve Bank 1 Circuit Failed Low                                   |
| 3597 | 3   | SID     | 155        | 1615       | Proportional Valve Bank 1 Circuit Failed High                                  |
| 3597 | 6   | SID     | 155        | 1325       | Current Flow on HS1 IM1 Too High   |
| 3598 | 4   | SID     | 155        | 1615       | Proportional Valve Bank 2 Circuit Failed Low                                   |
| 3598 | 3   | SID     | 155        | 1615       | Proportional Valve Bank 2 Circuit Failed High                                  |
| 3599 | 4   | SID     | 317        | 1615       | Switching Power Supply Voltage Failed Low                                      |
| 3599 | 3   | SID     | 317        | 1615       | Switching Power Supply Voltage Failed High                                     |
| 3609 | 4   | PID     | 370        | 1554       | DPF Inlet Pressure Circuit Failed Low  |
| 3609 | 3   | PID     | 370        | 1554       | DPF Inlet Pressure Circuit Failed High   |
| 3609 | 10  | SID     | 370        | 1554       | DPF Inlet Pressure Sensor Stuck  |
| 3609 | 20  | SID     | 370        | 1554       | DPF Inlet Pressure Sensor Drifted High In Range Fault (Low Box)                |
| 3609 | 2   | SID     | 370        | 1554       | DPF Inlet Pressure Sensor Drifted High In Range Fault (High Box)               |
| 3609 | 21  | SID     | 370        | 1554       | DPF Inlet Pressure Sensor Drifted Low In Range Fault (Low Box)                 |
| 3609 | 21  | SID     | 370        | 1554       | DPF Inlet Pressure Sensor Drifted Low In Range Fault (High Box)                |
| 3610 | 3   | SID     | 371        | 1555       | DPF Outlet Pressure Circuit Failed High  |
| 3610 | 4   | SID     | 371        | 1555       | DPF Outlet Pressure Circuit Failed Low   |
| 3610 | 0   | SID     | 371        | 1334       | DPF System Back Pressure Too High  |
| 3610 | 10  | SID     | 371        | 1555       | DPF Outlet Pressure Sensor Stuck   |
| 3610 | 2   | SID     | 371        | 1555       | DPF Pressure Sensors - Plausibility Error                                      |
| 3610 | 20  | SID     | 371        | 1555       | DPF Outlet Pressure Sensor Drifted High In Range Fault (Low Box)               |
| 3610 | 14  | SID     | 371        | 1555       | DPF Outlet Pressure Sensor Drifted High In Range Fault (High Box)              |
| 3610 | 21  | SID     | 371        | 1555       | DPF Outlet Pressure Sensor Drifted Low In Range Fault (Low Box)                |
| 3610 | 31  | SID     | 371        | 1555       | DPF Outlet Pressure Sensor Drifted Low In Range Fault (High Box)               |
| 3659 | 14  | SID     | 362        | 1611       | Injector Cylinder #1 Spill Control Valve Abnormal Operation                    |
| 3659 | 10  | SID     | 362        | 1611       | Injector Cylinder #1 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3659 | 6   | SID     | 362        | 1611       | Injector Cylinder #1 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3660 | 14  | SID     | 363        | 1612       | Injector Cylinder #2 Spill Control Valve Abnormal Operation                    |
| 3660 | 10  | SID     | 363        | 1612       | Injector Cylinder #2 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3660 | 6   | SID     | 363        | 1612       | Injector Cylinder #2 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3661 | 14  | SID     | 364        | 1613       | Injector Cylinder #3 Spill Control Valve Abnormal Operation                    |
| 3661 | 10  | SID     | 364        | 1613       | Injector Cylinder #3 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3661 | 6   | SID     | 364        | 1613       | Injector Cylinder #3 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3662 | 14  | SID     | 365        | 1614       | Injector Cylinder #4 Spill Control Valve Abnormal Operation                    |
| 3662 | 10  | SID     | 365        | 1614       | Injector Cylinder #4 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3662 | 6   | SID     | 365        | 1614       | Injector Cylinder #4 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3663 | 14  | SID     | 366        | 1615       | Injector Cylinder #5 Spill Control Valve Abnormal Operation                    |
| 3663 | 10  | SID     | 366        | 1615       | Injector Cylinder #5 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3663 | 6   | SID     | 366        | 1615       | Injector Cylinder #5 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |

## APPENDIX D – DDEC VI Diagnostic Codes 167

| SPN  | FMI | PID/SID | PID/SID ID | FLASH CODE | FAULT DESCRIPTION  |
|------|-----|---------|------------|------------|--|
| 3664 | 14  | SID     | 367        | 1621       | Injector Cylinder #6 Spill Control Valve Abnormal Operation                    |
| 3664 | 10  | SID     | 367        | 1621       | Injector Cylinder #6 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3664 | 6   | SID     | 367        | 1621       | Injector Cylinder #6 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3665 | 14  | SID     | 368        | 1622       | Injector Cylinder #7 Spill Control Valve Abnormal Operation                    |
| 3665 | 10  | SID     | 368        | 1622       | Injector Cylinder #7 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3665 | 6   | SID     | 368        | 1622       | Injector Cylinder #7 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3666 | 14  | SID     | 369        | 1623       | Injector Cylinder #8 Spill Control Valve Abnormal Operation                    |
| 3666 | 10  | SID     | 369        | 1623       | Injector Cylinder #8 Spill Control Valve ("Amplifier") Abnormal Rate of Change |
| 3666 | 6   | SID     | 369        | 1623       | Injector Cylinder #8 Spill Control Valve ("Amplifier"), Valve Shorted Circuit  |
| 3719 | 16  | SID     | 155        | 1624       | Soot Level High  |
| 3719 | 0   | SID     | 155        | 1624       | Soot Level Very High   |
| 3719 | 31  | SID     | 155        | 1635       | DPF Zone 2 Condition   |
| 3719 | 15  | SID     | 155        | 1636       | DPF Zone 3 Condition   |
| 3720 | 15  | SID     | 155        | 1625       | DPF Ash Clean Request  |
| 3720 | 16  | SID     | 155        | 1625       | DPF Ash Clean Request - Derate   |
| 4076 | 4   | PID     | 110        | 1212       | Engine Coolant Inlet Temperature Circuit Failed Low                            |
| 4076 | 3   | PID     | 110        | 1212       | Engine Coolant Inlet Temperature Circuit Failed High                           |
| 4076 | 2   | SID     | 155        | 1615       | Engine Coolant Sensor (IN), General Temp. Plausibility Error                   |
| 4077 | 4   | SID     | 332        | 1543       | Doser Fuel Line Pressure Sensor Circuit Failed Low                             |
| 4077 | 3   | SID     | 332        | 1543       | Doser Fuel Line Pressure Sensor Circuit Failed High                            |
| 4077 | 14  | SID     | 332        | 1543       | Doser Fuel Line Pressure Failed Self Test                                      |
| 4226 | 4   | SID     | 155        | 1615       | Compressor Differential Pressure Inlet Failed Low                              |
| 4226 | 3   | SID     | 155        | 1615       | Compressor Differential Pressure Inlet Failed High                             |
| 4226 | 0   | SID     | 155        | 1615       | Turbocharger Compressor Inlet Differential Pressure Too High (Low Box)         |
| 4226 | 1   | SID     | 155        | 1615       | Turbocharger Compressor Inlet Differential Pressure Too Low (High Box)         |
| 4226 | 5   | SID     | 155        | 1615       | Turbocharger Compressor Inlet Differential Pressure Sampling Range Failure     |
| 4226 | 13  | SID     | 155        | 1454       | Turbocharger Compressor Inlet Differential Pressure Sensor Out Of Calibration  |
| 4226 | 13  | SID     | 155        | 1454       | Turbocharger Compressor Inlet Differential Pressure Sensor Out Of Calibration  |
| 4227 | 4   | SID     | 53         | 1324       | Electrostatic Oil Separator Circuit Failed Low                                 |
| 4227 | 3   | SID     | 53         | 1324       | Electrostatic Oil Separator Circuit Failed High                                |
| 4227 | 5   | SID     | 53         | 1324       | Electrostatic Oil Separator Circuit Failed Open                                |
| 4227 | 4   | SID     | 155        | 1615       | Oil Separator Circuit Failed Low   |
| 4227 | 3   | SID     | 155        | 1615       | Oil Separator Circuit Failed High  |
| 4227 | 7   | SID     | 155        | 1615       | Oil Separator, Max. Duration Time Reached                                      |
| 4228 | 16  | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Temperature Fault                               |
| 4228 | 15  | SID     | 147        | 1241       | Smart Remote Actuator 5 (VGT), Temperature Warning                             |