SERVICE MANUAL SECTION

DIAGNOSTIC TROUBLE CODES

S08289

02/08/2006

Table of Contents

1. TERMS AND DEFINITIONS

1.1. 1. SWITCHES IN AN INVALID STATE

In order to understand this phrase you must understand the construction of the center panel switches used on NGV. There are two "fingers" that protrude out of the back of the switch actuators (an upper and lower finger). These fingers are used to depress microswitches located on the circuit board of the center panel switch modules. With two microswitches there are 4 possible states for a switch to be in:

1. Both microswitches not depressed.
2. Bottom microswitch only depressed.
3. Top microswitch only depressed.
4. Both microswitches depressed (this is always an illegal switch state, there is no switch actuator that depresses both microswitches simultaneously).

There are 4 different switch actuation types used on NGV:

1. Monostable 2 position–An example of this type of actuator is Marker Interrupt. For the marker interrupt example, the switch is stable in the down position (upper finger depressing upper microswitch) and is momentary in the up position (lower finger depressing lower microswitch). If both of the microswitches are depressed simultaneously or neither is depressed this is an invalid state and will cause a trouble code to be set.

2. Monostable 3 position–An example of this type of actuator is Panel Light Dimmer. For the panel dimmer example, the switch is stable in the center position (neither microswitche depressed) and is momentary in the up position (lower finger depressing lower microswitch) and down position (upper finger depressing upper microswitch). Both microswitches depressed simultaneously is an invalid state.

3. Tristable 3 position–An example of this type of actuator is Engine Brake. For the engine brake example, the switch is stable in the up (lower finger depressing lower microswitch), middle (neither microswitche depressed) and down positions (upper finger depressing upper microswitch). Both microswitches depressed simultaneously is an invalid state.

4. Bistable 2 position–An example of this type of actuator is Fog Light. For the fog light example, the switch is stable in the up (lower finger depressing lower microswitch) and down positions (upper finger depressing upper microswitch). If both of the microswitches are depressed simultaneously or neither is depressed this is an invalid state and will cause a trouble code to be set.

1.2. 2. UNDER CURRENT

This term is used to describe the ESC virtual fuse output faults. As the DTC list states, this corresponds to less than 1/2 Amp being drawn on this output. In other words, less current is being drawn on this output than expected by the ESC.

1.3. 3. OVER CURRENT

This term is used to describe the ESC virtual fuse outputs and the Remote Power Module fuse faults. There are two types of output devices used on the ESC, a 20 Amp and a 10 Amp device. The Remote Power Module only uses the 20 Amp device. The 20 Amp devices behave like a 20 Amp circuit breaker and the 10 Amp devices behave like a 10 Amp circuit breaker. Over current means that sufficient current has been drawn from the output to cause the "circuit breaker" to trip.

1.4. 4. OUT OF RANGE HIGH

This means that the signal is outside its normal operating range on the high side. For example, the input pin on the ESC which is attached to the clutch switch has a normal operating voltage range of 12% to 18% of ignition voltage. Out of range high would correspond to a value greater than 18% of ignition voltage on this pin.

1.5. 5. OUT OF RANGE LOW

This means that the signal is outside its normal operating range on the low side. For example, the input pin on the ESC which is attached to the clutch switch has a normal operating voltage range of 12% to 18% of ignition voltage. Out of range low would correspond to a value less than 12% of ignition voltage on this pin.

1.6. 6. OVER CURRENT

See Number 3 above.

1.7. 7. UNDER CURRENT

See Number 2 above.

1.8. 8. SHORT TO GROUND

This means that the ESC pin that the trouble code is generated for is connected to chassis ground

1.9. 9. OVERLOAD

An overload corresponds to too much load current. For example, for the virtual fuse outputs if too much load (i.e. too many lamps connected to this output) are attached to this output the device will trip.

1.10. 10. OPEN CIRCUIT

Open circuit means that there is no load attached to the output. For example, a broken wire (or disconnected connector) from the ESC to the fog lights will generate an open circuit fault.

1.11. 11. OUTPUT PIN OVER CURRENT

See Number 3 above.

2. DIAGNOSTICS

2.1. ON-LINE DIAGNOSTICS

On-line Diagnostics are automatically performed while the key is in the accessory or ignition position. Any faults encountered will be entered in the active diagnostic trouble code list.

Check Electrical System Light

The check electrical system light will turn on for 5 seconds after the gauge sweep, on power up. If there is an active fault the light will stay on for an extra minute. If a fault occurs during operation of the vehicle the light will come on for 1 minute. This will alert the driver that an active fault exists.

If the check electrical system light comes on and stays on after the gauge sweep is completed there is an active diagnostic trouble code (DTC) or there is no communication between the EGC and ESC.

If the EGC loses communication with the ESC or engine controller the check electrical system light will turn on and stay on. The light will be accompanied by 10 short beeps from the EGC alarm.

Gauges

Gauge warning lamps will illuminate and be accompanied by the appropriate alarm when gauge readings exceed preset limits. Gauges will also respond when the ESC is not receiving input from sensors.

Flashing Switch Lamps

Several features activated by switches in the switch packs are programmed to flash the indicator lamp in the switch when there is a switch malfunction or a malfunctioning feature.

Not all switches will respond the same. Generally a malfunctioning switch will cause the indicator to flash at a slow rate. A problem with the feature will cause the indicator to flash at a fast rate. Refer to the section on the particular feature for details on how the switch indicator responds to failures.

2.2. OFF- LINE DIAGNOSTICS

NOTE – Diagnostic messages from the engine controller, antilock brake system or transmission are not displayed on the electronic gauge cluster (EGC) digital display.

Placing the electronic gauge cluster (EGC) in diagnostic mode will allow the EGC to display active and previously active diagnostic messages from the electrical system controller (ESC) or from the EGC itself.

To engage the diagnostic mode turn the Ignition key ON (or in accessory), then press the Cruise ON switch and the Cruise RESUME switch simultaneously. If no faults are present, the gauge cluster display will read NO FAULTS. If faults are present, the gauge cluster will display a message with the number of faults, followed by the diagnostic codes. Refer to Diagnostic Trouble Code Display. This procedure will also initiate the diagnostic flash codes for the engine controller and the hydraulic ABS controller. The display will show each DTC for 10 seconds, then automatically scroll to the next entry and continue to cycle through the faults. To manually cycle through the fault list, press the cluster SELECT/RESET button.

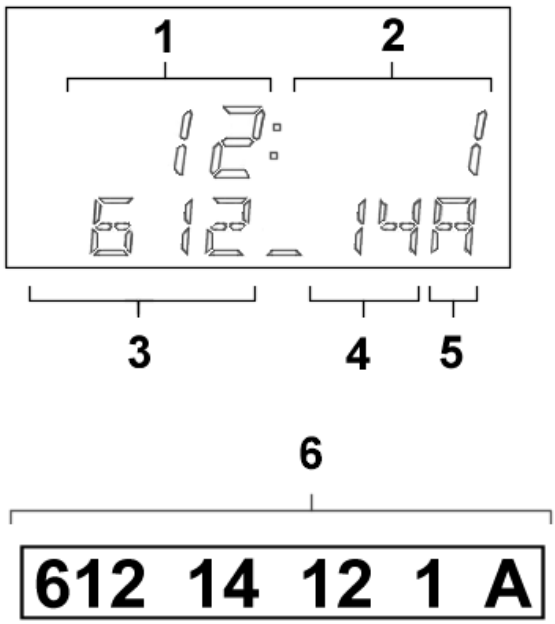

Figure 1 Diagnostic Trouble Code Display

1. BYTE 7 FIELD
2. BYTE 8 FIELD
3. SPN FIELD
4. FMI FIELD
5. ACTIVE/PREVIOUSLY ACTIVE STATUS INDICATOR
6. COMPILED FORMAT OF DIAGNOSTIC TROUBLE CODE

Diagnostic trouble codes will end with an “A” while the code is active. The code will remain active as long as the feature affected is active and the fault is present. If the feature is turned off or the fault is removed, the trouble code will be moved to the “previously active” list and the code will end with a “P”. For example: when the work light is turned on and there is an open an active circuit fault code (611 14 11 1 A) will be logged. When the light is turned off the code will become previously active. The fault still exists, but the code will not go active until the light is turned on.

While in the diagnostic mode, previously active diagnostic trouble codes may be cleared by turning the left turn signal ON and pressing the Cruise ON switch and the Cruise SET switch simultaneously.

Diagnostic codes for the engine controller and hydraulic ABS controller will not be cleared with this procedure.

To exit the diagnostic mode, cycle the key switch or release the parking brake.

2.3. OFF-BOARD DIAGNOSTICS

The diagnostic service tool, running the INTUNE software, can be used to view and clear ESC diagnostic trouble codes. Other diagnostic software can be used to view and clear engine controller, ABS and transmission diagnostic trouble codes. Refer to the applicable supplier service manual for information on their diagnostic software and tools.

2.4. DIAGNOSTIC TROUBLE CODE (DTC) LIST

Table 1 Diagnostic Trouble Code (DTC) List

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
70	14	1	0	1600/4004/ Bus 1602 16/32/16	Connector #4004 Pin 32 MD — Air Powered Park Brake is stuck. Connector #1600 & 1602 Pin 16 Bus Redundant Door Occurs when the park brake switch does not match the spring apply air release (SAAR) chamber travel sensor. This indicates the park brake cannot be applied or cannot be released. Refer to Service Park Brake warning lamp in the Electronic Gauge Cluster section of this manual. Refer to Air Actuated Park Brake in the Chassis Accessories section of this manual.
70	14	1	1	1600/4004/ Bus 1602 16/32/16	Connector #4004 Pin 32 MD — Air Powered Park Brake is not operating. Connector #1600 & 1602 Pin 16 Bus Redundant Door Occurs when the park brake switch is not set within 5 seconds of the receipt of the Park as the requested gear. This failure would indicate a failure in the auto apply relay or in the air lines between the auto apply relay and the Park Brake switch. Refer to Service Park Brake warning lamp in the Electronic Gauge Cluster section of this manual. Refer to Air Actuated Park Brake in the Chassis Accessories section of this manual.
597	14	1	0	Hyd or Air n/4091 – 1600 Air w/4091 — 4004 Bus – 1602/33	Brake switch is stuck in the open or closed position Occurs if the wheel based vehicle speed increases from 0 kph to 72 kph two times without the brake switch opening or decreases from 72 kph to 0 kph two times without the brake switch closing. Defective brake switch Refer to hydraulic brake switch or air brake switch in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
597	14	2	0	Hyd or Air n/4091 – 1600 Air w/4091 — 4004 Bus – 1602/33	Brake switch inputs do not match Occurs if the comparison of the inputs indicates a mismatch in the analog and digital signals. Occurs if there is a high resistance in the wire harness, defective brake switch or a defective Electronic System Controller (ESC). Refer to hydraulic brake switch or air brake switch in the Light Systems section of this manual.
598	14	1	0	1600/17	Upper Clutch Switch stuck in the open or closed position Occurs if the vehicle speed increases from 0 kph to 72 kph without a change in state of the clutch switch. Defective upper clutch switch Refer to Clutch Switch in the Cab Features section of this manual.
610	14	1	0	1600/12	Ignition feed error. Loss of Ignition feed for 10 seconds while the engine is running Refer to ESC Power and Ground.
610	14	2	0	1600/2	Accessory feed error. Loss of Accessory feed for 10 seconds while the engine is running Refer to ESC Power and Ground.
611	14	1	1	1601/G	Connector #1601 Pin #G Mirror heat under current Connector #1601 Pin #G Bus Left Front and Rear Red Flashers under current The Current from this output is below 0.5 A Open circuit Refer to Heated Mirrors in the Cab Features section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	1	2	1601/G	Connector #1601 Pin #G Mirror heat over current Connector #1601 Pin #G Bus Left Front and Rear Red Flashers over current The output behaves like a 20 amp type III circuit breaker. Short to ground or overload Refer to Heated Mirrors in the Cab Features section of this manual.
611	14	1	3	1601/G	Connector #1601 Pin #G Mirror heat less than normal low current but more than open circuit Connector #1601 Pin #G Bus Left Front and Rear Red Flashers less than normal low current but more than open circuit Refer to Heated Mirrors in the Cab Features section of this manual.
611	14	1	4	1601/G	Connector #1601 Pin #G Mirror heat greater than normal high current and less than fusing current Connector #1601 Pin #G Bus Left Front and Rear Red Flashers greater than normal high current and less than fusing current Refer to Heated Mirrors in the Cab Features section of this manual.
611	14	1	6	1601/G	Connector #1601 Pin #G Mirror heat has current flow when output commanded off Connector #1601 Pin #G Bus Left Front and Rear Red Flashers has current flow when output commanded off Refer to Heated Mirrors in the Cab Features section of this manual.
611	14	2	1	4008/Bus 1604 A	Connector #4008 Pin #A Solenoid power under current Connector # 1604 Pin #A Bus (Left Front Amber PWL) under current The current from this output is below 0.5 A Open circuit Refer to Air Solenoid Modules in the Chassis Features section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	2	2	4008/Bus 1604 A	Connector #4008 Pin #A Solenoid power over current Connector # 1604 Pin #A Bus (Left Front Amber PWL) over current The output behaves like a 20 amp type III circuit breaker. Short to ground or overload Refer to ESC-Solenoid Power Circuit in the Chassis Features section of this manual.
611	14	2	3	4008/Bus 1604 A	Connector #4008 Pin #A Solenoid power less than normal low current but more than open circuit Connector # 1604 Pin #A Bus (Left Front Amber PWL) less than normal low current but more than open circuit Refer to ESC-Solenoid Power Circuit in the Chassis Features section of this manual.
611	14	2	4	4008/Bus 1604 A	Connector #4008 Pin #A Solenoid power greater than normal high current and less than fusing current Connector #1604 Pin #A (Left Front Amber PWL) greater than normal high current and less than fusing current Refer to ESC-Solenoid Power Circuit in the Chassis Features section of this manual.
611	14	2	6	4008/Bus 1604 A	Connector #4008 Pin #A Solenoid power has current flow when output commanded off Connector #4008 Pin #A BUS (Left Front Amber PWL) has current flow when output commanded off Refer to ESC-Solenoid Power Circuit in the Chassis Features section of this manual.
611	14	3	1	4007/Bus 1603 A	Connector #4007 Pin #A Fog light / Spare 1 under current Connector #1603 Pin #A Bus Right Front and Rear Red Flashers under current The Current from this output is below 0.5 A Open circuit Refer to Fog Lights in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	3	2	4007/Bus 1603 A	Connector #4007 Pin #A Fog light / Spare 1 over current Connector #1603 Pin #A Bus Right Front and Rear Red Flashers over current The output behaves like a 20 amp type III circuit breaker. Short to ground or overload Refer to Fog Lights in the Light Systems section of this manual.
611	14	3	3	4007/Bus 1603 A	Connector #4007 Pin #A Fog light / Spare 1 less than normal low current but more than open circuit Connector #1603 Pin #A Bus Right Front and Rear Red Flashers less than normal low current but more than open circuit Refer to Fog Lights in the Light Systems section of this manual.
611	14	3	4	4007/Bus 1603 A	Connector #4007 Pin #A Fog light / Spare 1 greater than normal high current and less than fusing current Connector #1603 Pin #A Bus Right Front and Rear Red Flashers greater than normal high current and less than fusing current Refer to Fog Lights in the Light Systems section of this manual.
611	14	3	6	4007/Bus 1603 A	Connector #4007 Pin #A Fog light / Spare 1 has current flow when output commanded off Connector #1603 Pin #A Bus Right Front and Rear Red Flashers has current flow when output commanded off Refer to Fog Lights in the Light Systems section of this manual.
611	14	4	1	4007/Bus 1603 H	Connector #4007 Pin #H Park light under current The Current from this output is below 0.5 A Open circuit Refer to Marker, Park and Tail Lamps in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	4	2	4007/Bus 1603 H	Connector #4007 Pin #H Park light over current The output behaves like a 20 amp type III circuit breaker. Short to ground or overload Refer to Marker, Park and Tail Lamps in the Light Systems section of this manual.
611	14	4	3	4007/Bus 1603 H	Connector #4007 Pin #H Park light less than normal low current but more than open circuit Refer to Marker, Park and Tail Lamps in the Light Systems section of this manual.
611	14	4	4	4007/Bus 1603 H	Connector #4007 Pin #H Park light greater than normal high current and less than fusing current Refer to Marker, Park and Tail Lamps in the Light Systems section of this manual.
611	14	4	6	4007/Bus 1603 H	Connector #4007 Pin #H Park light has current flow when output commanded off Refer to Marker, Park and Tail Lamps in the Light Systems section of this manual.
611	14	5	1	4007/Bus 1603 D	Connector #4007 Pin #D Low beam under current The current from this output is below 0.5 A Open circuit Refer to Headlight System in the Light Systems section of this manual.
611	14	5	2	4007/Bus 1603 D	Connector #4007 Pin #D Low beam over current The output behaves like a 20 amp type I circuit breaker Short to ground or overload Refer to Headlight System in the Light Systems section of this manual.
611	14	5	3	4007/Bus 1603 D	Connector #4007 Pin #D Low beam less than normal low current but more than open circuit Refer to Headlight System in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	5	4	4007/Bus 1603 D	Connector #4007 Pin #D Low beam greater than normal high current and less than fusing current Refer to Headlight System in the Light Systems section of this manual.
611	14	5	6	4007/Bus 1603 D	Connector #4007 Pin #D Low beam has current flow when output commanded off Refer to Headlight System in the Light Systems section of this manual.
611	14	6	1	4008/Bus 1604 F	Connector #4008 Pin #F Wiper power under current Connector #1604 Pin #F Bus (Wiper power) output under current The Current from this output is below 0.5 A Open circuit Refer to Wiper Motor Circuits in the Cab Feature section of this manual.
611	14	6	2	4008/Bus 1604 F	Connector #4008 Pin #F Wiper power over current Connector #1604 Pin #F Bus (Wiper power) output over current The output behaves like a 20 amp type I circuit breaker Short to ground or overload Refer to Wiper Motor Circuits in the Cab Feature section of this manual.
611	14	6	3	4008/Bus 1604 F	Connector #4008 Pin #F Wiper power less than normal low current but more than open circuit Connector #1604 Pin #F Bus (Wiper power) less than normal low current but more than open circuit Refer to Wiper Motor Circuits in the Cab Feature section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	6	4	4008/Bus 1604 F	Connector #4008 Pin #F Wiper power greater than normal high current and less than fusing current Connector #1604 Pin #F Bus (Wiper power) greater than normal high current and less than fusing current Refer to Wiper Motor Circuits in the Cab Feature section of this manual.
611	14	6	6	4008/Bus 1604 F	Connector #4008 Pin #F Wiper power has current flow when output commanded off Connector #1604 Pin #F Bus (Wiper power) has current flow when output commanded off Refer to Wiper Motor Circuits in the Cab Feature section of this manual.
611	14	7	1	4007/Bus 1603 G	Connector #4007 Pin #G High beam under current The Current from this output is below 0.5 A Open circuit Refer to Headlight System in the Light Systems section of this manual.
611	14	7	2	4007/Bus 1603 G	Connector #4007 Pin #G High beam over current The output behaves like a 20 amp type I circuit breaker Short to ground or overload Refer to Headlight System in the Light Systems section of this manual.
611	14	7	3	4007/Bus 1603 G	Connector #4007 Pin #G High beam less than normal low current but more than open circuit Refer to Headlight System in the Light Systems section of this manual.
611	14	7	4	4007/Bus 1603 G	Connector #4007 Pin #G High beam greater than normal high current and less than fusing current Refer to Headlight System in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	7	6	4007/Bus 1603 G	Connector #4007 Pin #G High beam has current flow when output commanded off Refer to Headlight System in the Light Systems section of this manual.
611	14	9	1	4008/Bus 1604 G	Connector #4008 Pin #G A/C Clutch under current Connector #1604 Pin #G (Left Rear Amber Flashers) under current The Current from this output is below 0.5 A Open circuit Refer to AC Compressor Circuits in the HVAC service manual section S160254.
611	14	9	2	4008/Bus 1604 G	Connector #4008 Pin #G A/C Clutch over current Connector #1604 Pin #G (Left Rear Amber Flashers) over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to AC Compressor Circuits in the HVAC service manual section S160254.
611	14	9	3	4008/Bus 1604 G	Connector #4008 Pin #G A/C Clutch less than normal low current but more than open circuit Connector #1604 Pin #G (Left Rear Amber Flashers) less than normal low current but more than open circuit Refer to AC Compressor Circuits in the HVAC service manual section S160254.
611	14	9	4	4008/Bus 1604 G	Connector #4008 Pin #G A/C Clutch greater than normal high current and less than fusing current Connector #1604 Pin #G (Left Rear Amber Flashers) greater than normal high current and less than fusing current Refer to AC Compressor Circuits in the HVAC service manual section S160254.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	9	6	4008/Bus 1604 G	Connector #4008 Pin #G A/C Clutch has current flow when output commanded off Connector #1604 Pin #G (Left Rear Amber Flashers) has current flow when output commanded off Refer to AC Compressor Circuits in the HVAC service manual section S160254.
611	14	10	1	1601/C	Connector #1601 Pin #C Dome light under current Connector #1601 Pin #C (BUS Right Rear Amber PWL) under current The Current from this output is below 0.5 A Open circuit Refer to dome light circuits in the Light Systems section of this manual.
611	14	10	2	1601/C	Connector #1601 Pin #C Dome light over current Connector #1601 Pin #C (BUS - Right Rear Amber PWL) over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to dome light circuits in the Light Systems section of this manual.
611	14	10	3	1601/C	Connector #1601 Pin #C Dome light less than normal low current but more than open circuit Connector #1601 Pin #C (BUS - Right Rear Amber PWL) less than normal low current but more than open circuit Refer to dome light circuits in the Light Systems section of this manual.
611	14	10	4	1601/C	Connector #1601 Pin #C Dome light greater than normal high current and less than fusing current Connector #1601 Pin #C (BUS - Right Rear Amber PWL) greater than normal high current and less than fusing current Refer to dome light circuits in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	10	6	1601/C	Connector #1601 Pin #C Dome light has current flow when output commanded off Connector #1601 Pin #C (BUS - Right Rear Amber PWL) has current flow when output commanded off Refer to dome light circuits in the Light Systems section of this manual.
611	14	11	1	4007/Bus 1603 F	Connector #4007 Pin #F Work light under current Connector #1603 Pin #F (Right Front Amber PWL's) under current The Current from this output is below 0.5 A Open circuit Refer to Work Lights in the Light Systems section of this manual.
611	14	11	2	4007/Bus 1603 F	Connector #4007 Pin #F Work light over current Connector #1603 Pin #F (Right Front Amber PWL's) over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to Work Lights in the Light Systems section of this manual.
611	14	11	3	4007/Bus 1603 F	Connector #4007 Pin #F Work light less than normal low current but more than open circuit Connector #1603 Pin #F (Right Front Amber PWL's) less than normal low current but more than open circuit Refer to Work Lights in the Light Systems section of this manual.
611	14	11	4	4007/Bus 1603 F	Connector #4007 Pin #F Work light greater than normal high current and less than fusing current Connector #1603 Pin #F (Right Front Amber PWL's) greater than normal high current and less than fusing current Refer to Work Lights in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	11	6	4007/Bus 1603 F	Connector #4007 Pin #F Work light has current flow when output commanded off Connector #1603 Pin #F (Right Front Amber 's) has current flow when output commanded off Refer to Work Lights in the Light Systems section of this manual.
611	14	12	1	4007/Bus 1603 E	Connector #4007 Pin #E Electric horn under current The Current from this output is below 0.5 A Open circuit Refer to Electric Horn in the Cab Feature section of this manual.
611	14	12	2	4007/Bus 1603 E	Connector #4007 Pin #E Electric horn over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to Electric Horn in the Cab Feature section of this manual.
611	14	12	3	4007/Bus 1603 E	Connector #4007 Pin #E Electric horn less than normal low current but more than open circuit Refer to Electric Horn in the Cab Feature section of this manual.
611	14	12	4	4007/Bus 1603 E	Connector #4007 Pin #E Electric horn greater than normal high current and less than fusing current Refer to Electric Horn in the Cab Feature section of this manual.
611	14	12	6	4007/Bus 1603 E	Connector #4007 Pin #E Electric horn has current flow when output commanded off Refer to Electric Horn in the Cab Feature section of this manual.
611	14	13	1	4008/Bus 1604 C	Connector #4008 Pin #C Left rear turn lamp under current Connector #1604 Pin #C (Left rear turn lamp) under current The Current from this output is below 0.5 A Blown bulb or open circuit Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	13	2	4008/Bus 1604 C	Connector #4008 Pin #C Left rear turn lamp over current Connector #1604 Pin #C (Left rear turn lamp) over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	13	3	4008/Bus 1604 C	Connector #4008 Pin #C Left rear turn lamp less than normal low current but more than open circuit Connector #1604 Pin #C (Left rear turn lamp) less than normal low current but more than open circuit Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	13	4	4008/Bus 1604 C	Connector #4008 Pin #C Left rear turn lamp greater than normal high current and less than fusing current Connector #1604 Pin #C (Left rear turn lamp) greater than normal high current and less than fusing current Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	13	6	4008/Bus 1604 C	Connector #4008 Pin #C Left rear turn lamp has current flow when output commanded off Connector #1604 Pin #C (Left rear turn lamp) has current flow when output commanded off Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	14	1	4008/Bus 1604 B	Connector #4008 Pin #B Right rear turn lamp under current Connector #1604 Pin #B (Right rear turn lamp) under current The Current from this output is below 0.5 A Blown bulb or open circuit Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	14	2	4008/Bus 1604 B	Connector #4008 Pin #B Right rear turn lamp over current Connector #1604 Pin #B (Right rear turn lamp) over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	14	3	4008/Bus 1604 B	Connector #4008 Pin #B Right rear turn lamp less than normal low current but more than open circuit Connector #1604 Pin #B (Right rear turn lamp) less than normal low current but more than open circuit Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	14	4	4008/Bus 1604 B	Connector #4008 Pin #B Right rear turn lamp greater than normal high current and less than fusing current Connector #1604 Pin #B (Right rear turn lamp) greater than normal high current and less than fusing current Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	14	6	4008/Bus 1604 B	Connector #4008 Pin #B Right rear turn lamp has current flow when output commanded off Connector #1604 Pin #B (Right rear turn lamp) has current flow when output commanded off Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.
611	14	15	1	4007/Bus 1603 C	Connector #4007 Pin #C Left front turn lamp under current The Current from this output is below 0.5 A Blown bulbs or open circuit Refer to Rear Stop/Turn Signal/Hazard Light Outputs From ESC in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	15	2	4007/Bus 1603 C	Connector #4007 Pin #C Left front turn lamp over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to left front circuits in the Light Systems section of this manual.
611	14	15	3	4007/Bus 1603 C	Connector #4007 Pin #C Left front turn lamp less than normal low current but more than open circuit Refer to left front circuits in the Light Systems section of this manual.
611	14	15	4	4007/Bus 1603 C	Connector #4007 Pin #C Left front turn lamp greater than normal high current and less than fusing current Refer to left front circuits in the Light Systems section of this manual.
611	14	15	6	4007/Bus 1603 C	Connector #4007 Pin #C Left front turn lamp has current flow when output commanded off Refer to left front circuits in the Light Systems section of this manual.
611	14	16	1	4007/Bus 1603 B	Connector #4007 Pin #B Right front turn lamp under current The Current from this output is below 0.5 A Blown bulb or open circuit Refer to right front circuits in the Light Systems section of this manual.
611	14	16	2	4007/Bus 1603 B	Connector #4007 Pin #B Right front turn lamp over current The output behaves like a 10 Amp type III circuit breaker. Short to ground or overload Refer to right front circuits in the Light Systems section of this manual.
611	14	16	3	4007/Bus 1603 B	Connector #4007 Pin #B Right front turn lamp less than normal low current but more than open circuit Refer to right front circuits in the Light Systems section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
611	14	16	4	4007/Bus 1603 B	Connector #4007 Pin #B Right front turn lamp greater than normal high current and less than fusing current Refer to right front circuits in the Light Systems section of this manual.
611	14	16	6	4007/Bus 1603 B	Connector #4007 Pin #B Right front turn lamp has current flow when output commanded off Refer to right front circuits in the Light Systems section of this manual.
612	14	0	1	1600/2	Connector #1600 Pin #2 Ignition out of range low Shorted to ground or open Refer to ESC Power and Ground.
612	14	0	2	1600/2	Connector #1600 Pin #2 Ignition out of range high Shorted high Refer to ESC Power and Ground.
612	14	1	1	1600/33	Connector #1600 Pin #33 Brake switch out of range low Shorted to ground. Refer to hydraulic brake switch or air brake switch in the Light Systems section of this manual.
612	14	1	2	1600/33	Connector #1600 Pin #33 Brake switch out of range high Shorted high or open circuit Refer to hydraulic brake switch or air brake switch in the Light Systems section of this manual.
612	14	2	1	1600/17	Connector #1600 Pin #17 Upper Clutch Switch out of range low Shorted to ground. Refer to Clutch Switch in the Cab Features section of this manual.
612	14	2	2	1600/17	Connector #1600 Pin #17 Upper Clutch Switch out of range high Shorted high or open circuit Refer to Clutch Switch in the Cab Features section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	3	1	1600/16	Connector #1600 Pin #16 Secondary Air Sensor / Spare out of range low Short to ground, open circuit Secondary Air Pressure Gauge
612	14	3	2	1600/16	Connector #1600 Pin #16 Secondary Air Sensor / Spare out of range high Shorted high Secondary Air Pressure Gauge
612	14	4	1	1600/15	Connector #1600 Pin #15 Primary Air Sensor / Auxiliary Air Sensor out of range low Short to ground, open circuit For vehicles with air brakes, refer to Primary Air Pressure Gauge . For vehicles with hydraulic brakes, refer to Auxiliary Air Pressure Gauge .
612	14	4	2	1600/15	Connector #1600 Pin #15 Primary Air Sensor / Auxiliary Air Sensor out of range high Shorted high For vehicles with air brakes, refer to Primary Air Pressure Gauge . For vehicles with hydraulic brakes, refer to Auxiliary Air Pressure Gauge .
612	14	5	1	1600/10	Connector #1600 Pin #10 Analog cruise switch input out of range low Connector #1600 Pin #10 (Bus - Diags/flashers/Entrance Door Input) out of range low Shorted to ground or open circuit Refer to Cruise Control . The EGC cannot be put in diagnostic mode when there is a fault in these circuits. The INTUNE software must be used to view this DTC.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	5	2	1600/10	Connector #1600 Pin #10 Analog cruise switch input out of range high Connector #1600 Pin #10 (Bus - Diags/flashers/Entrance Door Input) out of range high Shorted high Refer to Cruise Control . The EGC cannot be put in diagnostic mode when there is a fault in these circuits. The INTUNE software must be used to view this DTC.
612	14	23	1	4004/Bus 1602 4	Connector #4004/Bus 1602 Pin #4 Fuel level sensor out of range low Bus — Not Used This code is associated with a short to ground on the fuel level sensor on the storage tank for dual tank vehicles. Shorted to ground. Refer to Fuel Transfer System in the Chassis Features section of this manual.
612	14	23	2	4004/Bus 1602 4	Connector #4004/Bus 1602 Pin #4 Fuel level sensor out of range high Bus — Not Used This code is associated with a short to accessory or open circuit on the fuel level sensor on the storage tank for dual tank vehicles. Shorted high or open circuit Refer to Fuel Transfer System in the Chassis Features section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	24	1	4004/Bus 1602 23	Connector #4004 Pin #23 Hydraulic ABS warning lamp input out of range low Connector #1602 Pin #23 (Bus Wheel Chair Lift Solenoid) open circuit Open circuit Refer to ABS indicator in the Electronic Gauge Cluster section of this manual.
612	14	24	2	4004/Bus 1602 23	Connector #4004 Pin #23 Hydraulic ABS warning lamp input out of range high Connector #1602 Pin #23 (Bus Wheel Chair Lift Solenoid) shorted to battery Shorted high Refer to ABS indicator in the Electronic Gauge Cluster section of this manual.
612	14	25	1	4004/Bus 1602 5	Connector #4004/Bus 1602 Pin #5 Fuel level sensor out of range low This code is associated with a short to ground on the fuel level sensor on the draw tank for both single tank and dual tank vehicles. Shorted to ground. Refer to Fuel Level Gauge in the Electronic Gauge Cluster section of this manual.
612	14	25	2	4004/Bus 1602 5	Connector #4004/Bus 1602 Pin #5 Fuel level sensor out of range high. This code is associated with a short to accessory or open circuit on the fuel level sensor on the draw tank for both single tank and dual tank vehicles. Shorted high or open circuit. Refer to Fuel Level Gauge in the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	27	1	4004/Bus 1602 6	Connector #4004/Bus 1602 Pin #6 Outlet HVAC thermistor out of range low Bus — Not Used Shorted to ground. Refer to AC Refrigerant Thermistors in the HVAC Troubleshooting in S160254.
612	14	27	2	4004/Bus 1602 6	Connector #4004/Bus 1602 Pin #6 Outlet HVAC thermistor out of range high Bus — Not Used Thermistor open circuit. Refer to AC Refrigerant Thermistors in the HVAC Troubleshooting in S160254.
612	14	29	1	4004/Bus 1602 7	Connector #4004/Bus 1602 Pin #7 Inlet HVAC thermistor out of range low Bus — Not Used Shorted to ground. Refer to AC Refrigerant Thermistors in the HVAC Troubleshooting in S160254.
612	14	29	2	4004/Bus 1602 7	Connector #4004/Bus 1602 Pin #7 Inlet HVAC thermistor out of range high Bus — Not Used Thermistor open circuit. Refer to AC Refrigerant Thermistors in the HVAC Troubleshooting in S160254.
612	14	30	1	4004/Bus 1602 27	Connector #4004/Bus 1602 Pin #27 Switched 5 volt sensor supply out of range low Shorted to ground or open circuit All air gauges and air brake switches will be inoperative. Refer to ESC Switched 5 Volt Sensor Supply.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	30	2	4004/Bus 1602 27	Connector #4004/Bus 1602 Pin #27 Switched 5 volt sensor supply out of range high Shorted high All air gauges and air brake switches will be inoperative. Refer to ESC Switched 5 Volt Sensor Supply.
612	14	31	1	4004/Bus 1602 8	Connector #4004/Bus #1602 Pin #8 (MD)HVAC high side pressure sensor out of range low Connector #1602 Pin #8 (Bus Crossing gate disable) out of range low Short to ground or open circuit Refer to AC Pressure Transducer in the HVAC Troubleshooting in S160254. Refer to Bus Crossing gate in the BUS Troubleshooting in S08290..
612	14	31	2	4004/Bus 1602 8	Connector #4004/Bus #1602 Pin #8 (MD)HVAC high side pressure sensor out of range high Connector #1602 Pin #8 (Bus Crossing gate disable) out of range high Shorted high Refer to AC Pressure Transducer in the HVAC Troubleshooting in S160254. Refer to Bus Crossing gate in the BUS Troubleshooting in S08290..
612	14	32	1	4004/Bus 1602 1	Connector #4004/Bus #1602 Pin #1 Rear Axle Oil Temperature out of range low Bus — Not Used Shorted to ground or open circuit. Refer to Rear-Rear Axle Temperature Gauge.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	32	2	4004/Bus 1602 1	Connector #4004/Bus #1602 Pin #1 Rear Axle Oil Temperature out of range high Bus — Not Used Shorted high. Refer to Rear-Rear Axle Temperature Gauge .
612	14	33	1	4004/Bus 1602 10	Connector #4004/Bus #1602 Pin #10 Engine Oil Temperature/Power Park Brake out of range low Bus — Not Used Short to ground or open circuit Refer to Engine Oil Temperature Gauge in the Electronic Gauge Cluster section of this manual. Refer to Air Application Gauge in the Electronic Gauge Cluster section of this manual.
612	14	33	2	4004/Bus 1602 10	Connector #4004/Bus #1602 Pin #10 Engine Oil Temperature/Power Park Brake out of range high Bus — Not Used Shorted high Refer to Engine Oil Temperature Gauge in the Electronic Gauge Cluster section of this manual. Refer to Air Application Gauge in the Electronic Gauge Cluster section of this manual.
612	14	34	1	4004/Bus 1602 2	Connector #4004/Bus 1602 Pin #2 Forward Rear Axle Temperature out of range low Bus — Not Used Shorted to ground. Refer to Forward-rear axle temperature gauge

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
612	14	35	1	4004/Bus 1602 13	Connector #4004/Bus 1602 Pin #13 (Brake Application Air) out of range low Bus — Not Used Short to ground or open circuit Refer to Air Application Gauge in the Electronic Gauge Cluster section of this manual.
612	14	35	2	4004/Bus 1602 13	Connector #4004/Bus 1602 Pin #13 (Brake Application Air) out of range high Bus — Not Used Shorted high Refer to Air Application Gauge in the Electronic Gauge Cluster section of this manual.
612	14	36	1	4004/Bus 1602 3	Connector #4004/Bus 1602 Pin #3 (Transmission Oil Temp/Spare) out of range low Shorted to ground. Refer to Transmission Oil Temperature Gauge
613	14	1	1	N/A	HVAC Control Head air inlet fault This is a motor fault in the evaporator module. This motor controls the door in the evaporator module duct. Motor in the wrong position or jammed. Refer to Recirculation Motor in the HVAC service manual section S160254.
613	14	1	2	N/A	HVAC Control Head hot/cold temp. mix control fault This is a motor fault in the heater module. This motor controls the door in the heater module/blower scroll. Motor in the wrong position or jammed. Refer to Temperature Actuator in the HVAC service manual section S160254.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
613	14	1	3	N/A	HVAC Control Head mode control fault. This is a motor fault in the kinematic network. This motor controls the doors in the kinematic network of the heater module. Motor in the wrong position or jammed. Refer to Mode Actuator in the HVAC service manual section S160254.
613	14	1	4	N/A	HVAC Control Head multiple motor faults. 2 or more motor faults. Motor in the wrong position or jammed. Refer to HVAC Control Head in the HVAC service manual section S160254.
613	14	1	5	N/A	HVAC Control Head diagnostic circuit loss of communication with the ESC. Open circuit, short to ground or shorted high. Refer to HVAC Control Head in the HVAC service manual section S160254.
613	14	1	6	N/A	AC service soon At the current operating ambient temperature the system has lost enough charge that service should be performed to insure continued AC performance. Refer to HVAC Diagnostics in the HVAC service manual section S160254.
613	14	1	7	N/A	AC service now - low charge At the current operating ambient temperature the system has lost so much charge that the compressor must be shut off to prevent damage to it or other system components. Refer to HVAC Diagnostics in the HVAC service manual section S160254.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
613	14	1	8	N/A	AC service now - very low charge At the current operating ambient temperature the system has lost so much charge that the compressor must be shut off to prevent damage to it or other system components. Refer to HVAC Diagnostics in the HVAC service manual section S160254.
613	14	1	9	N/A	AC service now - burst pipe An almost complete loss of charge has occurred due to pipe or other component rupture. The compressor is shut off so that no damage will occur. Refer to HVAC Diagnostics in the HVAC service manual section S160254.
613	14	1	10	N/A	AC service now - fan problem/clogged pipe At the current operating ambient temperature the engine fan isn't working, one of the AC lines has become plugged or the system is over-charged. The compressor is shut off to prevent damage. Refer to HVAC Diagnostics in the HVAC service manual section S160254.
613	14	1	11	N/A	AC service now - compressor failure The compressor is not functioning Refer to HVAC Diagnostics in the HVAC service manual section S160254.
613	14	1	12	N/A	AC service now - rapid cycling The compressor clutch is cycling faster than once every 15 seconds. The compressor is not allowed to operate. Refer to HVAC Diagnostics in the HVAC service manual section S160254.
614	14	1	1	1600/ 34,35,36	Electronic Gauge Cluster #1 checksum error fixed by reteach. The configuration checksum in the cluster did not match the teach/reteach checksum in the ESC. This situation was corrected by the teach/reteach operation. Refer to EGC section.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
614	14	1	2	1600/ 34,35,36	Electronic Gauge Cluster #1 checksum error could not be fixed. The configuration checksum in the cluster did not match the teach/reteach checksum in the ESC. This situation could not be corrected by the teach/reteach operation. Defective cluster Refer to EGC section.
614	14	23	1	1600/ 34,35,36	Electronic Gauge Cluster #1 checksum error fixed by reteach. The configuration checksum in the cluster did not match the teach/reteach checksum in the ESC. This situation was corrected by the teach/reteach operation. Refer to EGC section.
614	14	23	2	1600/ 34,35,36	Electronic Gauge Cluster #1 checksum error could not be fixed. The configuration checksum in the cluster did not match the teach/reteach checksum in the ESC. This situation could not be corrected by the teach/reteach operation. Defective cluster Refer to EGC section.
614	14	40	1	1600/ 34,35,36	Auxiliary Gauge Switchpack #1 checksum error fixed by reteach. The configuration checksum in the AGSP did not match the teach/reteach checksum in the ESC. This situation was corrected by the teach/reteach operation. Refer to the AGSP Preliminary System Check section of this manual.
614	14	40	2	1600/ 34,35,36	Auxiliary Gauge Switchpack #1 checksum error could not be fixed. The configuration checksum in the AGSP did not match the teach/reteach checksum in the ESC. This situation could not be corrected by the teach/reteach operation. Defective AGSP Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	0	1600/ 29,30	Switch Pack #4 not communicating with the ESC (Lower half of 12 pack) The ESC sets the status of the switches in switch pack #4 to there default values. Switch data link fault. Refer to the Switch Pack Module section of this manual.
625	14	5	17	1600/ 29,30	Switch Pack #4 Switch #1, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #4 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	18	1600/ 29,30	Switch Pack #4 Switch #1, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #4 switch #1 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	5	19	1600/ 29,30	Switch Pack #4 Switch #1, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #4 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	20	1600/ 29,30	Switch Pack #4 Switch #1, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #4 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	21	1600/ 29,30	Switch Pack #4 Switch #1. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of Switch Pack #4 Switch #1 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	5	33	1600/ 29,30	Switch Pack #4 Switch #2, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #4 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	34	1600/ 29,30	Switch Pack #4 Switch #2, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #4 switch #2 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	35	1600/ 29,30	Switch Pack #4 Switch #2, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #4 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	36	1600/ 29,30	Switch Pack #4 Switch #2, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #4 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	37	1600/ 29,30	Switch Pack #4 Switch #2. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of Switch Pack #4 Switch #2 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	5	49	1600/ 29,30	Switch Pack #4 Switch #3, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of Switch Pack #4 Switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	50	1600/ 29,30	Switch Pack #4 Switch #3, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of Switch Pack #4 Switch #3 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	5	51	1600/ 29,30	Switch Pack #4 Switch #3, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #4 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	52	1600/ 29,30	Switch Pack #4 Switch #3, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of Switch Pack #4 Switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	53	1600/ 29,30	Switch Pack #4 Switch #3. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of Switch Pack #4 Switch #3 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	65	1600/ 29,30	Switch Pack #4 Switch #4, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of Switch Pack #4 Switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	66	1600/ 29,30	Switch Pack #4 Switch #4, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of Switch Pack #4 Switch #4 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	5	67	1600/ 29,30	Switch Pack #4 Switch #4, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of Switch Pack #4 Switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	68	1600/ 29,30	Switch Pack #4 Switch #4, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #4 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	69	1600/ 29,30	Switch Pack #4 Switch #4. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of Switch Pack #4 Switch #4 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	5	81	1600/ 29,30	Switch Pack #4 Switch #5, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of Switch Pack #4 Switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	82	1600/ 29,30	Switch Pack #4 Switch #5, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of Switch Pack #4 Switch #5 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	5	83	1600/ 29,30	Switch Pack #4 Switch #5, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of Switch Pack #4 Switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	84	1600/ 29,30	Switch Pack #4 Switch #5, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of Switch Pack #4 Switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	85	1600/ 29,30	Switch Pack #4 Switch #5. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of Switch Pack #4 Switch #5 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	5	97	1600/ 29,30	Switch Pack #4 Switch #6, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of Switch Pack #4 Switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	98	1600/ 29,30	Switch Pack #4 Switch #6, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of Switch Pack #4 Switch #6 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	5	99	1600/ 29,30	Switch Pack #4 Switch #6, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of Switch Pack #4 Switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	100	1600/ 29,30	Switch Pack #4 Switch #6, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of Switch Pack #4 Switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	5	101	1600/ 29,30	Switch Pack #4 Switch #6. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #4 switch #6 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	6	0	1600/ 29,30	Switch Pack #3 not communicating with the ESC (Upper half of 12 pack) The ESC sets the status of the switches in switch pack #3 to there default values Switch data link fault Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	17	1600/ 29,30	Switch Pack #3 Switch #1, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	18	1600/ 29,30	Switch Pack #3 Switch #1, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #1 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	6	19	1600/ 29,30	Switch Pack #3 Switch #1, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #3 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	20	1600/ 29,30	Switch Pack #3 Switch #1, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #3 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	21	1600/ 29,30	Switch Pack #3 Switch #1. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #1 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	6	33	1600/ 29,30	Switch Pack #3 Switch #2, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	34	1600/ 29,30	Switch Pack #3 Switch #2, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #2 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	6	35	1600/ 29,30	Switch Pack #3 Switch #2, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	36	1600/ 29,30	Switch Pack #3 Switch #2, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	37	1600/ 29,30	Switch Pack #3 Switch #2. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #2 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	6	49	1600/ 29,30	Switch Pack #3 Switch #3, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	50	1600/ 29,30	Switch Pack #3 Switch #3, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #3 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	6	51	1600/ 29,30	Switch Pack #3 Switch #3, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #3 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	52	1600/ 29,30	Switch Pack #3 Switch #3, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #3 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	53	1600/ 29,30	Switch Pack #3 Switch #3. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #3 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	6	65	1600/ 29,30	Switch Pack #3 Switch #4, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	66	1600/ 29,30	Switch Pack #3 Switch #4, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #4 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	67	1600/ 29,30	Switch Pack #3 Switch #4, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #3 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	68	1600/ 29,30	Switch Pack #3 Switch #4, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #3 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	69	1600/ 29,30	Switch Pack #3 Switch #4. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #4 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	6	81	1600/ 29,30	Switch Pack #3 Switch #5, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	82	1600/ 29,30	Switch Pack #3 Switch #5, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #5 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	6	83	1600/ 29,30	Switch Pack #3 Switch #5, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #3 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	84	1600/ 29,30	Switch Pack #3 Switch #5, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #3 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	85	1600/ 29,30	Switch Pack #3 Switch #5. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #5 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	97	1600/ 29,30	Switch Pack #3 Switch #6, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #3 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	98	1600/ 29,30	Switch Pack #3 Switch #6, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #3 switch #6 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	6	99	1600/ 29,30	Switch Pack #3 Switch #6, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #3 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	6	100	1600/ 29,30	Switch Pack #3 Switch #6, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #3 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	6	101	1600/ 29,30	Switch Pack #3 Switch #6. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #3 switch #6 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	7	0	1600/ 29,30	Switch pack #2 not communicating with the ESC The ESC sets the status of the switches in switch pack #2 to there default values Switch data link fault Refer to the Switch Pack Module section of this manual.
625	14	7	17	1600/ 29,30	Switch Pack #2 Switch #1, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	18	1600/ 29,30	Switch Pack #2 Switch #1, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #1 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	7	19	1600/ 29,30	Switch Pack #2 Switch #1, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #1 to its default value. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	20	1600/ 29,30	Switch Pack #2 Switch #1, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	21	1600/ 29,30	Switch Pack #2 Switch #1. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #1 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	7	33	1600/ 29,30	Switch Pack #2 Switch #2, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	34	1600/ 29,30	Switch Pack #2 Switch #2, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #2 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	35	1600/ 29,30	Switch Pack #2 Switch #2, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	36	1600/ 29,30	Switch Pack #2 Switch #2, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	37	1600/ 29,30	Switch Pack #2 Switch #2. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #2 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	7	49	1600/ 29,30	Switch Pack #2 Switch #3, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	50	1600/ 29,30	Switch Pack #2 Switch #3, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #3 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	7	51	1600/ 29,30	Switch Pack #2 Switch #3, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	52	1600/ 29,30	Switch Pack #2 Switch #3, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	53	1600/ 29,30	Switch Pack #2 Switch #3. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #3 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	65	1600/ 29,30	Switch Pack #2 Switch #4, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	66	1600/ 29,30	Switch Pack #2 Switch #4, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #4 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	7	67	1600/ 29,30	Switch Pack #2 Switch #4, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	68	1600/ 29,30	Switch Pack #2 Switch #4, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	69	1600/ 29,30	Switch Pack #2 Switch #4. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #4 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	7	81	1600/ 29,30	Switch Pack #2 Switch #5, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	82	1600/ 29,30	Switch Pack #2 Switch #5, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #5 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	7	83	1600/ 29,30	Switch Pack #2 Switch #5, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	84	1600/ 29,30	Switch Pack #2 Switch #5, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	85	1600/ 29,30	Switch Pack #2 Switch #5. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #5 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	7	97	1600/ 29,30	Switch Pack #2 Switch #6, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #2 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	98	1600/ 29,30	Switch Pack #2 Switch #6, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #2 switch #6 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	7	99	1600/ 29,30	Switch Pack #2 Switch #6, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #2 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	100	1600/ 29,30	Switch Pack #2 Switch #6, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #2 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	7	101	1600/ 29,30	Switch Pack #2 Switch #6. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #2 switch #6 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	15	0	1600/ 29,30	Switch pack #1 not communicating with the ESC The ESC sets the status of the switches in switch pack #1 to there default values Switch data link fault Refer to the Switch Pack Module section of this manual.
625	14	15	17	1600/ 29,30	Switch Pack #1 Switch #1, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	18	1600/ 29,30	Switch Pack #1 Switch #1, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #1 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	15	19	1600/ 29,30	Switch Pack #1 Switch #1, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	20	1600/ 29,30	Switch Pack #1 Switch #1, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #1 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	21	1600/ 29,30	Switch Pack #1 Switch #1. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #1 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	33	1600/ 29,30	Switch Pack #1 Switch #2, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	34	1600/ 29,30	Switch Pack #1 Switch #2, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #2 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	15	35	1600/ 29,30	Switch Pack #1 Switch #2, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	36	1600/ 29,30	Switch Pack #1 Switch #2, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #2 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	37	1600/ 29,30	Switch Pack #1 Switch #2. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #2 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	15	49	1600/ 29,30	Switch Pack #1 Switch #3, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	50	1600/ 29,30	Switch Pack #1 Switch #3, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #3 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	15	51	1600/ 29,30	Switch Pack #1 Switch #3, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	52	1600/ 29,30	Switch Pack #1 Switch #3, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #3 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	53	1600/ 29,30	Switch Pack #1 Switch #3. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #3 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	15	65	1600/ 29,30	Switch Pack #1 Switch #4, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	66	1600/ 29,30	Switch Pack #1 Switch #4, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #4 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	67	1600/ 29,30	Switch Pack #1 Switch #4, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	68	1600/ 29,30	Switch Pack #1 Switch #4, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #4 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	69	1600/ 29,30	Switch Pack #1 Switch #4. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #4 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	15	81	1600/ 29,30	Switch Pack #1 Switch #5, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	82	1600/ 29,30	Switch Pack #1 Switch #5, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #5 to its default value. Faulty microswitch Refer to the Switch Pack Module section of this manual.
625	14	15	83	1600/ 29,30	Switch Pack #1 Switch #5, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	84	1600/ 29,30	Switch Pack #1 Switch #5, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #5 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	85	1600/ 29,30	Switch Pack #1 Switch #5. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #5 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	97	1600/ 29,30	Switch Pack #1 Switch #6, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of switch pack #1 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	98	1600/ 29,30	Switch Pack #1 Switch #6, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of switch pack #1 switch #6 to its default value. Faulty microswitch Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	99	1600/ 29,30	Switch Pack #1 Switch #6, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of switch pack #1 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.
625	14	15	100	1600/ 29,30	Switch Pack #1 Switch #6, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of switch pack #1 switch #6 to its default value. Switch actuator Refer to the Switch Pack Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	15	101	1600/ 29,30	Switch Pack #1 Switch #6. The switch should be empty but one or both microswitches is pressed. The ESC sets the status of switch pack #1 switch #6 to its default value. Switch actuator or faulty microswitch. Refer to the Switch Pack Module section of this manual.
625	14	64	0	1600/ 29,30	Front passenger side Door Pod not communicating with the ESC The status message from the door pod has not been received by the ESC Switch data link fault Refer to the Front Power Windows and Locks section of this manual.
625	14	64	7	1600/ 29,30	Front passenger side Door Pod window motor failure The window motor drive circuit is not functioning This could be a short in the window motor, an open in the window motor or a jammed window. Refer to the Front Power Windows and Locks section of this manual.
625	14	64	8	1600/ 29,30	Front passenger side Door Pod door lock motor failure The Door Lock Actuation Solenoid is not functioning This could be a short in the solenoid, open in the solenoid, or a jammed solenoid. Refer to the Front Power Windows and Locks section of this manual.
625	14	64	9	1600/ 29,30	Front passenger side Door Pod module failure A failure has occurred in the Door Pod module circuitry. Defective door pod. Refer to the Front Power Windows and Locks section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	65	0	1600/ 29,30	Rear passenger side Door Pod not communicating with the ESC The status message from the door pod has not been received by the ESC Switch data link fault Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	65	7	1600/ 29,30	Rear passenger side Door Pod window motor failure The window motor drive circuit is not functioning This could be a short in the window motor, an open in the window motor or a jammed window. Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	65	8	1600/ 29,30	Rear passenger side Door Pod door lock motor failure The Door Lock Actuation Solenoid is not functioning This could be a short in the solenoid, open in the solenoid, or a jammed solenoid. Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	65	9	1600/ 29,30	Rear passenger side Door Pod module failure A failure has occurred in the Door Pod module circuitry. Defective door pod. Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	66	0	1600/ 29,30	Rear driver side Door Pod not communicating with the ESC The status message from the door pod has not been received by the ESC Switch data link fault Refer to the Crew Cab Rear Power Windows And Locks section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	66	7	1600/ 29,30	Rear drivers side Door Pod window motor failure The window motor drive circuit is not functioning This could be a short in the window motor, an open in the window motor or a jammed window. Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	66	8	1600/ 29,30	Rear drivers side Door Pod door lock motor failure The Door Lock Actuation Solenoid is not functioning This could be a short in the solenoid, open in the solenoid, or a jammed solenoid. Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	66	9	1600/ 29,30	Rear drivers side Door Pod module failure A failure has occurred in the Door Pod module circuitry. Defective door pod Refer to the Crew Cab Rear Power Windows And Locks section of this manual.
625	14	130	0	1600/ 29,30	Front drivers side Door Pod not communicating with the ESC The status message from the door pod has not been received by the ESC Switch data link fault Refer to the Front Power Windows and Locks section of this manual.
625	14	130	7	1600/ 29,30	Front drivers side Door Pod window motor failure The window motor drive circuit is not functioning This could be a short in the window motor, an open in the window motor or a jammed window. Refer to the Front Power Windows and Locks section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
625	14	130	8	1600/ 29,30	Front drivers side Door Pod door lock motor failure The Door Lock Actuation Solenoid is not functioning This could be a short in the solenoid, open in the solenoid, or a jammed solenoid. Refer to the Front Power Windows and Locks section of this manual.
625	14	130	9	1600/ 29,30	Front drivers side Door Pod module failure A failure has occurred in the Door Pod module circuitry. Defective door pod Refer to the Front Power Windows and Locks section of this manual.
627	14	1	1	4010/ A	ESC power supply #1 open circuit Open Circuit Refer to the ESC Power and Ground section of this manual.
639	14	0	240	1600/ 34,35,36	Engine retarder torque not being communicated from the ECM or transmission retarder torque not being communicated from Allison WTEC transmission PGN 61440–SA 15 or 16 Refer to the appropriate Allison manual or engine diagnostic manual. Refer to the Transmission section of this manual.
639	14	1	240	1600/ 34,35,36	ABS controller not communicating with the ESC PGN 61441–SA 11 Refer to the Air ABS Power and Data Link section of this manual.
639	14	2	240	1600/ 34,35,36	Electronic transmission controller communication has not been received PGN 61442–SA 3 Refer to the Transmission section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
639	14	3	240	1600/ 34,35,36	Accelerator position not communicated to the ESC PGN 61443–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	4	240	1600/ 34,35,36	Engine speed not communicated to the ESC PGN 61444–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	5	240	1600/ 34,35,36	Current gear, range inhibit and check transmission lamps not communicated to the ESC. PGN 61445–SA 3 Refer to the applicable transmission manual for this vehicle. Refer to the Transmission section of this manual.
639	14	8	240	1600/ 34,35,36	Electronic pressure mode indicator not communicated to the ESC PGN 61448–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	33	239	1600/ 34, 35, 36	EGC not communicating with the ESC or AGSP not communicating with the ESC PGN 61148–DA 33 —SA 23 or 40 Refer to EGC Power and Data Link Troubleshooting.
639	14	82	254	1600/ 34,35,36	Pyrometer Ammeter not communicating to the ESC PGN 65106–SA 10 Refer to information for the Pyrometer Ammeter module (PAM) in this vehicle in Chassis Features section of this manual.
639	14	192	254	1600/ 34,35,36	Fuel filter status not communicated to the ESC PGN 65216–SA 00 Refer to information for the Fuel filter in this vehicle in Chassis Features section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
639	14	202	254	1600/ 34,35,36	Engine Lamp information not communicated to the ESC PGN 65226–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	228	254	1600/ 34,35,36	Wait to start lamp information not communicated to the ESC PGN 65252–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	230	253	1600/ 34,35,36	Full Power Park Brake information not communicating to the ESC PGN 64998–SA 08 Refer to information for the Full Power Park Brake in this vehicle in Chassis Features section of this manual. Refer to Full Power Park Brake in the Full Power Park Brake Troubleshooting in S04048.
639	14	241	254	1600/ 34,35,36	Cruise control enable, active, state and vehicle speed not communicated to the ESC PGN 65265–SA 0 Refer to information for the engine in this vehicle in Engine section of this manual.
639	14	250	254	1600/ 34,35,36	Brake message is not being communicated to the ESC PGN 65274–SA 08 Refer to information for the brake in this vehicle in Chassis Features section of this manual. Refer to Full Power Brake in the Full Power Brake Troubleshooting in S04048.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
639	14	251	254	1600/ 34,35,36	Retarder overheat lamp information not communicated to the ESC PGN 65275–SA 3 Refer to the applicable manual for the transmission on this vehicle. Refer to the Transmission section of this manual.
639	14	255	254	1600/ 34,35,36	Water in fuel indicator not communicating to the ESC PGN 65279–SA 0 Refer to information for the Water in fuel indicator in this vehicle in Chassis Features section of this manual.
1231	14	**0–255**	3	4004/Bus 1602 34, 35,36	Unconfigured Source Address Something with the source address in Byte 7 is broadcasting on the data link and the ESC is not configured to expect it. Unexpected or incorrectly addressed module is on the data link. Refer to the Remote Power Module section of this manual.
1231	14	34	1	4004/Bus 1602 34, 35,36	RASM #1 not communicating with the ESC Failed Source Address/Message Time-out PGN 65441–SA 34 Drivetrain J1939 data link, an improperly addressed RASM module, or a missing RASM module that the ESC is expecting Refer to the Air Solenoid (7–Pack) section of this manual.
1231	14	34	2	4004/Bus 1602 34, 35,36	More than one RASM responds back as RASM #1 Multiple Source Address PGN 65441–SA 234 Refer to the Air Solenoid (7–Pack) section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1231	14	209	1	4004/Bus 1602 34, 35,36	Remote engine speed control module is not communicating with the ESC Failed Source Address/Message Time-out PGN 65441–SA 234 Drivetrain J1939 data link, an improperly addressed RESCM module, or a missing RESCM module that the ESC is expecting Refer to Remote Engine Speed Control Module.
1231	14	209	2	4004/Bus 1602 34, 35,36	More than one Remote engine speed control module with the same source address is responding to the ESC. Multiple Source Address PGN 65441–SA 234 Refer to Remote Engine Speed Control Module.
1231	14	225	1	4004/Bus 1602 34, 35,36	RPM #1 not communicating with the ESC Failed Source Address/Message Time-out PGN 65313–SA 225 Drivetrain J1939 data link, an improperly addressed RPM module, or a missing RPM module that the ESC is expecting Refer to the Remote Power Module section of this manual.
1231	14	225	2	4004/Bus 1602 34, 35,36	More than one RPM responds back as RPM #1 Multiple Source Address PGN 65313–SA 225 Refer to the Remote Power Module section of this manual.
1231	14	226	1	4004/Bus 1602 34, 35,36	RPM #2 not communicating with the ESC Failed Source Address/Message Time-out PGN 65313–SA 226 Drivetrain J1939 data link, an improperly addressed RPM module, or a missing RPM module that the ESC is expecting Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1231	14	226	2	4004/Bus 1602 34, 35,36	More than one RPM responds back as RPM #2 Multiple Source Address PGN 65313–SA 226 Refer to the Remote Power Module section of this manual.
1231	14	228	1	4004/Bus 1602 34, 35,36	RPM #4 not communicating with the ESC Failed Source Address/Message Time-out PGN 65313–SA 228 Drivetrain J1939 data link, an improperly addressed RPM module, or a missing RPM module that the ESC is expecting Refer to the Remote Power Module section of this manual.
1231	14	228	2	4004/Bus 1602 34, 35,36	More than one RPM responds back as RPM #4 Multiple Source Address PGN 65313–SA 228 Refer to the Remote Power Module section of this manual.
1231	14	231	1	4004/Bus 1602 34, 35,36	RPM #7 not communicating with the ESC Failed Source Address/Message Time-out PGN 65313–SA 231 Drivetrain J1939 data link, an improperly addressed RPM module, or a missing RPM module that the ESC is expecting Refer to the Remote Power Module section of this manual.
1231	14	231	2	4004/Bus 1602 34, 35,36	More than one RPM responds back as RPM #7 Multiple Source Address PGN 65313–SA 231 Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1231	14	234	1	4004/Bus 1602 34, 35,36	RASM #2 not communicating with the ESC Failed Source Address/Message Time-out PGN 65441–SA 234 Drivetrain J1939 data link, an improperly addressed RASM module, or a missing RASM module that the ESC is expecting Refer to the Air Solenoid (7–Pack) section of this manual.
1231	14	234	2	4004/Bus 1602 34, 35,36	More than one RASM responds back as RASM #2 Multiple Source Address PGN 65441–SA 234 Refer to the Air Solenoid (7–Pack) section of this manual.
1542	14	1	1	4009/ A	ESC power supply #2 open circuit Open Circuit Refer to the ESC Power and Ground section of this manual.
1557	0	1	1	N/A	ESC internal fault software main loop time exceeded. There are too many features and the main loop is exceeding its maximum execution time. Truck may work partially or not at all. This indicates ESC is incapable of handling this configuration. Software configuration too big. Refer to the Electrical System Controller section of this manual.
1705	14	101	3	N/A	EGC gauge location 1 (tachometer) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	101	4	N/A	EGC gauge location 1 (tachometer) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Tachometer

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	101	5	N/A	EGC gauge location 1 (tachometer) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Tachometer
1705	14	101	6	N/A	EGC gauge location 1 (tachometer) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Tachometer
1705	14	102	3	N/A	EGC gauge location 2 (speedometer) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to Speedometer
1705	14	102	4	N/A	EGC gauge location 2 (speedometer) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Speedometer
1705	14	102	5	N/A	EGC gauge location 2 (speedometer) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Speedometer
1705	14	102	6	N/A	EGC gauge location 2 (speedometer) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Speedometer
1705	14	103	3	N/A	EGC gauge location 3 (engine coolant temperature) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to Engine Coolant Temperature Gauge.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	103	4	N/A	EGC gauge location 3 (engine coolant temperature) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Engine Coolant Temperature Gauge.
1705	14	103	5	N/A	EGC gauge location 3 (engine coolant temperature) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Engine Coolant Temperature Gauge.
1705	14	103	6	N/A	EGC gauge location 3 (engine coolant temperature) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Engine Coolant Temperature Gauge.
1705	14	104	3	N/A	EGC gauge location 4 out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	104	4	N/A	EGC gauge location 4 out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. The gauge in this location can be any optional gauge. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	104	5	N/A	EGC gauge location 4 sensor fault The gauge in this location can be any optional gauge. There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	104	6	N/A	EGC gauge location 4 data unavailable The data that this gauge displays should be, but is not available at this time. The gauge in this location can be any optional gauge. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	105	3	N/A	EGC gauge location 5 (oil pressure) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to Engine Oil Pressure Gauge.
1705	14	105	4	N/A	EGC gauge location 5 (oil pressure) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Engine Oil Pressure Gauge.
1705	14	105	5	N/A	EGC gauge location 5 (oil pressure) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Engine Oil Pressure Gauge.
1705	14	105	6	N/A	EGC gauge location 5 (oil pressure) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Engine Oil Pressure Gauge.
1705	14	106	3	N/A	EGC gauge location 6 out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	106	4	N/A	EGC gauge location 6 out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	106	5	N/A	EGC gauge location 6 sensor fault There is a problem with the sensor that provides the data for this gauge. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	106	6	N/A	EGC gauge location 6 data unavailable The data that this gauge displays should be, but is not available at this time. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	107	3	N/A	EGC gauge location 7 (fuel level) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to Fuel Level Gauge.
1705	14	107	4	N/A	EGC gauge location 7 (fuel level) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Fuel Level Gauge.
1705	14	107	5	N/A	EGC gauge location 7 (fuel level) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Fuel Level Gauge.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	107	6	N/A	EGC gauge location 7 (fuel level) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Fuel Level Gauge.
1705	14	108	3	N/A	EGC gauge location 8 out of range high On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	108	4	N/A	EGC gauge location 8 out of range low On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	108	5	N/A	EGC gauge location 8 sensor fault On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	108	6	N/A	EGC gauge location 8 data unavailable On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data that this gauge displays should be, but is not available at this time. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	109	3	N/A	EGC gauge location 9 (volts) out of range high Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to Voltmeter.
1705	14	109	4	N/A	EGC gauge location 9 (volts) out of range low Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to Voltmeter.
1705	14	109	5	N/A	EGC gauge location 9 (volts) sensor fault There is a problem with the sensor that provides the data for this gauge. Refer to Voltmeter.
1705	14	109	6	N/A	EGC gauge location 9 (volts) data unavailable The data that this gauge displays should be, but is not available at this time. Refer to Voltmeter.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	110	3	N/A	EGC gauge location 10 out of range high On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge Data for this gauge is above the value that the gauge can display. For example: a value exceeding the gauge maximum scale value. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	110	4	N/A	EGC gauge location 10 out of range low On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge Data for this gauge is below the minimum value the gauge can display. For example: the lowest scale value on the gauge. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	110	5	N/A	EGC gauge location 10 sensor fault On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.
1705	14	110	6	N/A	EGC gauge location 10 data unavailable On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data that this gauge displays should be, but is not available at this time. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
1705	14	150	1	N/A	ESC not communicating with the EGC. Loss of communication in excess of 10 seconds. Drivetrain J1939 data link. Refer to the Electrical System Controller section of this manual.
1705	14	150	2	N/A	Engine Controller not communicating with the EGC. Loss of communication in excess of 10 seconds. Drivetrain J1939 data link. Refer to the Electronic Engine Controls section of this manual.
2023	14	101 or 201	5	N/A	EGC gauge location 1 (tachometer) sensor fault to primary EGC (101) or secondary EGC (201) There is a problem with the sensor that provides the data for this gauge. Refer to Tachometer
2023	14	101 or 201	6	N/A	EGC gauge location 1 (tachometer) data unavailable to primary EGC (101) or secondary EGC (201) The data that this gauge displays should be, but is not available at this time. Refer to Tachometer
2023	14	101 or 201	7	N/A	EGC gauge location 1 (tachometer) data missing to primary EGC (101) or secondary EGC (201) The data for this gauge is not being transmitted on the datalink. Refer to Tachometer
2023	14	102 or 202	5	N/A	EGC gauge location 2 (speedometer) sensor fault to primary EGC (102) or secondary EGC (202) There is a problem with the sensor that provides the data for this gauge. Refer to Speedometer

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	102 or 202	6	N/A	EGC gauge location 2 (speedometer) data unavailable to primary EGC (102) or secondary EGC (202) The data that this gauge displays should be, but is not available at this time. Refer to Speedometer
2023	14	102 or 202	7	N/A	EGC gauge location 2 (speedometer) data missing to primary EGC (102) or secondary EGC (202) The data for this gauge is not being transmitted on the datalink. Refer to Speedometer
2023	14	103 or 203	5	N/A	EGC gauge location 3 (engine coolant temperature) sensor fault to primary EGC (103) or secondary EGC (203) There is a problem with the sensor that provides the data for this gauge. Refer to Engine Coolant Temperature Gauge.
2023	14	103 or 203	6	N/A	EGC gauge location 3 (engine coolant temperature) data unavailable to primary EGC (103) or secondary EGC (203) The data that this gauge displays should be, but is not available at this time. Refer to Engine Coolant Temperature Gauge.
2023	14	103 or 203	7	N/A	EGC gauge location 3 (engine coolant temperature) data missing to primary EGC (103) or secondary EGC (203) The data for this gauge is not being transmitted on the datalink. Refer to Engine Coolant Temperature Gauge.
2023	14	104 or 204	5	N/A	EGC gauge location 4 sensor fault to primary EGC (104) or secondary EGC (204) The gauge in this location can be any optional gauge. There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	104 or 204	6	N/A	EGC gauge location 4 data unavailable to primary EGC (104) or secondary EGC (204) The data that this gauge displays should be, but is not available at this time. The gauge in this location can be any optional gauge. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	104 or 204	7	N/A	EGC gauge location 4 data missing to primary EGC (104) or secondary EGC (204) The data for this gauge is not being transmitted on the datalink. The gauge in this location can be any optional gauge. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	105 or 205	5	N/A	EGC gauge location 5 (oil pressure) sensor fault to primary EGC (105) or secondary EGC (205) There is a problem with the sensor that provides the data for this gauge. Refer to Engine Oil Pressure Gauge.
2023	14	105 or 205	6	N/A	EGC gauge location 5 (oil pressure) data unavailable to primary EGC (105) or secondary EGC (205) The data that this gauge displays should be, but is not available at this time. Refer to Engine Oil Pressure Gauge.
2023	14	105 or 205	7	N/A	EGC gauge location 5 (oil pressure) data missing to primary EGC (105) or secondary EGC (205) The data for this gauge is not being transmitted on the datalink. Refer to Engine Oil Pressure Gauge.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	106 or 206	5	N/A	EGC gauge location 6 sensor fault to primary EGC (106) or secondary EGC (206) There is a problem with the sensor that provides the data for this gauge. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	106 or 206	6	N/A	EGC gauge location 6 data unavailable to primary EGC (106) or secondary EGC (206) The data that this gauge displays should be, but is not available at this time. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	106 or 206	7	N/A	EGC gauge location 6 data missing to primary EGC (106) or secondary EGC (206) The data for this gauge is not being transmitted on the datalink. The gauge in this location is optional. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	107 or 207	5	N/A	EGC gauge location 7 (fuel level) sensor fault to primary EGC (107) or secondary EGC (207) There is a problem with the sensor that provides the data for this gauge. Refer to Fuel Level Gauge.
2023	14	107 or 207	6	N/A	EGC gauge location 7 (fuel level) data unavailable to primary EGC (107) or secondary EGC (207) The data that this gauge displays should be, but is not available at this time. Refer to Fuel Level Gauge.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	107 or 207	7	N/A	EGC gauge location 7 (fuel level) data missing to primary EGC (107) or secondary EGC (207) The data for this gauge is not being transmitted on the datalink. Refer to Fuel Level Gauge.
2023	14	108 or 208	5	N/A	EGC gauge location 8 Primary/Auxiliary Air Pressure Gauge sensor fault to Primary EGC (108) or Secondary EGC (208) On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	108 or 208	6	N/A	EGC gauge location 8 Primary/Auxiliary Air Pressure Gauge data unavailable to Primary EGC (108) or Secondary EGC (208) On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data that this gauge displays should be, but is not available at this time. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	108 or 208	7	N/A	EGC gauge location 8 Primary/Auxiliary Air Pressure Gauge data missing to Primary EGC (108) or Secondary EGC (208) On vehicles with air brakes this is the primary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data for this gauge is not being transmitted on the datalink. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	109 or 209	5	N/A	EGC gauge location 9 Voltmeter sensor fault to primary EGC (109) or secondary EGC (209) There is a problem with the sensor that provides the data for this gauge. Refer to Voltmeter.
2023	14	109 or 209	6	N/A	EGC gauge location 9 Voltmeter data unavailable to primary EGC (109) or secondary EGC (209) The data that this gauge displays should be, but is not available at this time. Refer to Voltmeter.
2023	14	109 or 209	7	N/A	EGC gauge location 9 Voltmeter data missing to primary EGC (109) or secondary EGC (209) The data for this gauge is not being transmitted on the datalink. Refer to Voltmeter.
2023	14	110 or 210	5	N/A	EGC gauge location 10 Secondary Air Pressure Gauge sensor fault to Primary EGC (110) or Secondary EGC (210) On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge There is a problem with the sensor that provides the data for this gauge. Refer to the Electronic Gauge Cluster section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	110 or 210	6	N/A	EGC gauge location 10 Secondary Air Pressure Gauge data unavailable to Primary EGC (110) or Secondary EGC (210) On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data that this gauge displays should be, but is not available at this time. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	110 or 210	7	N/A	EGC gauge location 10 Secondary Air Pressure Gauge data missing to Primary EGC (110) or Secondary EGC (210) On vehicles with air brakes this is the secondary air gauge. On vehicles with hydraulic brakes this can be any optional gauge The data for this gauge is not being transmitted on the datalink. Refer to the Electronic Gauge Cluster section of this manual.
2023	14	150 or 250	1	N/A	Loss of data link from ESC to primary EGC (150) or secondary EGC (250) Loss of communication in excess of 10 seconds. Drivetrain J1939 data link. Refer to the Electrical System Controller section of this manual.
2023	14	150 or 250	2	N/A	Engine Controller not communicating with the primary EGC (150) or secondary EGC (250) Loss of communication in excess of 10 seconds. Drivetrain J1939 data link. Refer to the Electronic Engine Controls section of this manual.
2023	14	150 or 250	8	N/A	ABS warning light malfunction on primary EGC (150) or secondary EGC (250) Refer to the ABS warning light section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	150 or 250	9	N/A	Trailer ABS warning light malfunction on primary EGC (150) or secondary EGC (250) Refer to the Trailer ABS Lamp section of this manual.
2023	14	50, 40, 30, or 20	1	N/A	ESC not communicating with AGSP 1 (50), AGSP 2 (20), AGSP 3 (30), or AGSP 4 (40). Loss of communication in excess of 10 seconds. Drivetrain J1939 data link. Refer to the Electrical System Controller section of this manual.
2023	14	50, 40, 30, or 20	10	N/A	Ignition signal from datalink from ESC does not match hardwired ignition signal on AGSP 1 (50), AGSP 2 (20), AGSP 3 (30), or AGSP 4 (40). Ignition Circuit to ESC/AGSP. Refer to the Electronic Engine Controls section of this manual.
2023	14	1, 11, 21, 31	5	N/A	Gauge location 1 sensor fault on AGSP 1 (1), AGSP 2 (11), AGSP 3 (21), or AGSP 4 (31). There is a problem with the sensor that provides the data for this gauge. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	1, 11, 21, 31	6	N/A	Gauge location 1 data unavailable on AGSP 1 (1), AGSP 2 (11), AGSP 3 (21), or AGSP 4 (31). The data that this gauge displays should be, but is not available at this time. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	1, 11, 21, 31	7	N/A	Gauge location 1 data missing on AGSP 1 (1), AGSP 2 (11), AGSP 3 (21), or AGSP 4 (31). The data for this gauge is not being transmitted on the datalink. Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	2, 12, 22, 32	5	N/A	Gauge location 2 sensor fault on AGSP 1 (2), AGSP 2 (12), AGSP 3 (22), or AGSP 4 (32). There is a problem with the sensor that provides the data for this gauge. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	2, 12, 22, 32	6	N/A	Gauge location 2 data unavailable on AGSP 1 (2), AGSP 2 (12), AGSP 3 (22), or AGSP 4 (32). The data that this gauge displays should be, but is not available at this time. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	2, 12, 22, 32	7	N/A	Gauge location 2 data missing on AGSP 1 (2), AGSP 2 (12), AGSP 3 (22), or AGSP 4 (32). The data for this gauge is not being transmitted on the datalink. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	3, 13, 23, 33	5	N/A	Gauge location 3 sensor fault on AGSP 1 (3), AGSP 2 (13), AGSP 3 (23), or AGSP 4 (33). There is a problem with the sensor that provides the data for this gauge. Refer to the AGSP Preliminary System Check section of this manual.
2023	14	3, 13, 23, 33	6	N/A	Gauge location 3 data unavailable on AGSP 1 (3), AGSP 2 (13), AGSP 3 (23), or AGSP 4 (33). The data that this gauge displays should be, but is not available at this time. Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2023	14	3, 13, 23, 33	7	N/A	Gauge location 3 data missing on AGSP 1 (3), AGSP 2 (13), AGSP 3 (23), or AGSP 4 (33). The data for this gauge is not being transmitted on the datalink. Refer to the AGSP Preliminary System Check section of this manual.
2033	14	1	0	1601/A	Connector 1601 pin A, ((MD), (BUS) Stop Arm Cmd). There is a load on this pin that has been configured as Unused. Connector 1601 pin A is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	1	1	1601/A	Connector 1601 pin A, ((MD), (BUS) Stop Arm Cmd). Output overloaded Connector 1601 pin A current overload. Too much load attached.
2033	14	1	2	1601/A	Connector 1601 pin A, ((MD), (BUS) Stop Arm Cmd). Output open circuit. Connector 1601 Pin A open Open circuit.
2033	14	1	3	1601/A	Connector 1601 pin A, ((MD), (BUS) Stop Arm Cmd). Output shorted to ground. Connector 1601 Pin A shorted to ground. Shorted to ground.
2033	14	2	0	1601/E	Connector 1601 pin E, ((MD)/(BUS) Lamp test reverse lamps) There is a load on this pin that has been configured as Unused. Connector 1601 pin E is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	2	1	1601/E	Connector 1601 pin E, ((MD)/(BUS) Lamp test reverse lamps) Output overloaded Connector 1601 pin E current overload. Too much load attached.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	2	2	1601/E	Connector 1601 pin E, ((MD)/(BUS) Lamp test reverse lamps) Output open circuit. Connector 1601 Pin E open. Open circuit.
2033	14	2	3	1601/E	Connector 1601 pin E, ((MD)/(BUS) Lamp test reverse lamps) Output shorted to ground. Connector 1601 Pin E shorted to ground. Shorted to ground.
2033	14	3	0	1600/11	Connector 1600 pin 11. There is a load on this pin that has been configured as Unused. Connector 1600 Pin#11. Bus - Electric Door Control Open Command, there is a load on this pin that has been configured as Unused Connector 1600 pin 11 is drawing current and it is configured as Unused. Connector 1600 Pin#11. Bus - Electric Door Control Open Command, is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	3	1	1600/11	Connector 1600 pin 11. Output overloaded Connector 1600 Pin#11. BUS - Electric Door Open Output overloaded Connector 1600 pin 11 current overload. Connector 1600 Pin#11. BUS - Electric Door Open current overloaded Too much load attached.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	3	2	1600/11	Connector 1600 pin 11. Output open circuit. Connector 1600 Pin#11. BUS - Electric Door Open Output open circuit Connector 1600 Pin 11 open. Connector 1600 Pin#11. BUS - Electric Door Open circuit open Open circuit.
2033	14	3	3	1600/11	Connector 1600 pin 11. Output shorted to ground. Connector 1600 Pin#11. BUS - Electric Door Open Output shorted to ground Connector 1600 Pin 11 shorted to ground. Connector 1600 Pin#11. BUS - Electric Door Open shorted to ground Shorted to ground.
2033	14	4	0	1600/6	Connector 1600 pin 6. There is a load on this pin that has been configured as Unused. Connector 1600 Pin#6. BUS - Fog Light Command Connector 1600 pin 6 is drawing current and it is configured as Unused. Connector 1600 Pin#6. BUS - Fog Light Command is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	4	1	1600/6	Connector 1600 pin 6. MD — Park Position Solenoid Output overloaded Connector 1600 Pin#6. BUS - Fog Light Command Output overloaded Connector 1600 pin 6 current overload Connector 1600 Pin#6, BUS - Fog Light Command Output, current overload Too much load attached.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	4	2	1600/6	Connector 1600 pin 6. MD — Park Position Solenoid Output open circuit. Connector 1600 Pin#6. BUS - Fog Light Command Output open circuit Connector 1600 Pin 6 open. Connector 1600 Pin#6, BUS - Fog Light Command Output, open Open circuit.
2033	14	4	3	1600/6	Connector 1600 pin 6. MD — Park Position Solenoid Output shorted to ground. Connector 1600 Pin#6. BUS - Fog Light Command Output shorted to ground Connector 1600 Pin 6 shorted to ground. Connector 1600 Pin#6, BUS - Fog Light Command Output, shorted to ground Shorted to ground.
2033	14	5	0	1600/4	Connector 1600 Pin#4. (Bus - Park Brake Relay) There is a load on this pin that has been configured as Unused Connector 1600 pin 4 is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	5	1	1600/4	Connector 1600 Pin#4. (Bus - Park Brake Relay) Output overloaded Connector 1600 pin 4 current overload Too much load attached.
2033	14	5	2	1600/4	Connector 1600 Pin#4. (Bus - Park Brake Relay) Output open circuit Connector 1600 Pin 4 open. Open circuit.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	5	3	1600/4	Connector 1600 Pin#4. (Bus - Park Brake Relay) Output shorted to ground Connector 1600 Pin 4 shorted to ground. Shorted to ground.
2033	14	6	0	4004/Bus 1602 17	Connector 4004 pin 17. There is a load on this pin that has been configured as Unused. BUS Connector 1602 Pin#17. Electric Door Control Closed, there is a load on this pin that has been configured as Unused Connector 4004/Bus 1602 pin 17 is drawing current and it is configured as Unused. Bus Connector 1602 pin 17, Bus Electric Door Control, is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	6	1	4004/Bus 1602 17	Connector 4004 pin 17. MD — Body Trailer Marker & Tail lamp relay is Output overloaded Bus Connector 1602 pin 17, Bus Electric Door Control, is Output overloaded Connector 4004/Bus 1602 pin 17 current overload Bus Connector 1602 pin 17, Bus Electric Door Control, current overload Too much load attached.
2033	14	6	2	4004/Bus 1602 17	Connector 4004 pin 17. MD — Body Trailer Marker & Tail lamp relay is Output open circuit. Bus Connector 1602 pin 17. Bus Electric Door Control, Output open circuit Connector 4004/Bus 1602 Pin 17 open. Bus Connector 1602 pin 17. Bus Electric Door Control, open Open circuit.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	6	3	4004/Bus 1602 17	Connector 4004 pin 17. MD — Body Trailer Marker & Tail lamp relay is Output shorted to ground. Bus Connector 1602 pin 17. Bus Electric Door Control, Output shorted to ground. Connector 4004/Bus 1602 Pin 17 shorted to ground. Bus Connector 1602 pin 17. Bus Electric Door Control, shorted to ground Shorted to ground.
2033	14	7	0	4004/Bus 1602 19	Connector 4004/Bus 1602 pin 19. There is a load on this pin that has been configured as Unused. Connector #1602 Pin # 19. (Bus - Air solenoid power) There is a load on this pin that has been configured as Unused Connector 4004 pin 19 is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	7	1	4004/Bus 1602 19	Connector 4004/Bus 1602 pin 19. Output overloaded. Connector #1602 Pin # 19. (Bus - Air solenoid power) Output overloaded Connector 4004 pin 19 current overload. Too much load attached.
2033	14	7	2	4004/Bus 1602 19	Connector 4004/Bus 1602 pin 19. Output open circuit. Connector #1602 Pin # 19. (Bus - Air solenoid power) Output open circuit Connector 4004 Pin 19 open. Open circuit.
2033	14	7	3	4004/Bus 1602 19	Connector 4004/Bus 1602 pin 19. Output shorted to ground. Connector #1602 Pin # 19. (Bus - Air solenoid power) Output shorted to ground Connector 4004 Pin 19 shorted to ground. Shorted to ground.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	8	0	4004/Bus 1602 20	Connector 4004/Bus 1602 pin 20. There is a load on this pin that has been configured as Unused. Bus Connector 1602 Pin#20. Wiper high speed relay, there is a load on this pin that has been configured as Unused Connector 4004/Bus 1602 pin 20 is drawing current and it is configured as Unused. Bus Connector 1602 Pin#20. Wiper high speed relay, is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	8	1	4004/Bus 1602 20	Connector 4004/Bus 1602 pin 20. Output overloaded. Bus Connector 1602 Pin#20. Wiper high speed relay, Output overloaded Connector 4004/Bus 1602 pin 20 current overload. Bus Connector 1602 Pin#20 Wiper high speed relay current overloaded Too much load attached.
2033	14	8	2	4004/Bus 1602 20	Connector 4004/Bus 1602 pin 20. Output open circuit. Bus Connector 1602 Pin#20. Wiper high speed relay Output open circuit Connector 4004/Bus 1602 Pin 20 open. Bus Connector 1602 Pin#20. Wiper high speed relay Output open circuit Open circuit.
2033	14	8	3	4004/Bus 1602 20	Connector 4004/Bus 1602 pin 20. Output shorted to ground. Bus Connector 1602 Pin#20. Wiper high speed relay Output, Output shorted to ground Connector 4004/Bus 1602 Pin 20 shorted to ground. Bus Connector 1602 Pin#20. Wiper high speed relay Output, Output shorted to ground Shorted to ground.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	9	0	4004/Bus 1602 21	Connector 4004/Bus 1602 pin 21. There is a load on this pin that has been configured as Unused. Connector #1602 Pin #21 (Bus - Stop Relay) There is a load on this pin that has been configured as Unused Connector 4004 pin 21 is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	9	1	4004/Bus 1602 21	Connector 4004/Bus 1602 pin 21. Output overloaded. Connector #1602 Pin #21 (Bus - Stop Relay) Output overloaded Connector 4004 pin 21 current overload. Too much load attached.
2033	14	9	2	4004/Bus 1602 21	Connector 4004/Bus 1602 pin 21. Output open circuit. Connector #1602 Pin #21 (Bus - Stop Relay) Output open circuit Connector 4004 Pin 21 open. Open circuit.
2033	14	9	3	4004/Bus 1602 21	Connector 4004/Bus 1602 pin 21. Output shorted to ground. Connector #1602 Pin #21 (Bus - Stop Relay) Output shorted to ground Connector 4004 Pin 21 shorted to ground. Shorted to ground.
2033	14	10	0	4004/Bus 1602 22	Connector 4004/Bus 1602 pin 22. There is a load on this pin that has been configured as Unused. (4 Pack Air Solenoid Channel 3) Connector 4004/Bus 1602 pin 22 is drawing current and it is configured as Unused. An unexpected load is attached to this pin. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	10	1	4004/Bus 1602 22	Connector 4004/Bus 1602 pin 22. Output overloaded. (4 Pack Air Solenoid Channel 3) Connector 4004/Bus 1602 pin 22 current overload. Too much load attached, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	10	2	4004/Bus 1602 22	Connector 4004/Bus 1602 pin 22. Output open circuit. (4 Pack Air Solenoid Channel 3) Connector 4004/Bus 1602 Pin 22 open Open circuit, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	10	3	4004/Bus 1602 22	Connector 4004/Bus 1602 pin 22. Output shorted to ground. (4 Pack Air Solenoid Channel 3) Connector 4004/Bus 1602 Pin 22 shorted to ground. Shorted to ground, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	10	4	4004/Bus 1602 22	Connector 4004/Bus 1602 Pin 22. Power to solenoid pack has been disabled due to this solenoid being shorted to ground. This condition causes all solenoids in the solenoid pack to report as being shorted to ground. This fault indicates the true cause of the solenoid pack shut-down. Connector 4004/Bus 1602 Pin 22 shorted to ground. Power to the solenoid pack has been turned off due to a short in solenoid 3. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	11	0	4004/Bus 1602 23	Connector 4004/Bus 1602 pin 23. There is a load on this pin that has been configured as Unused. Bus connector 1602 pin#23. Wheelchair Lift solenoid, there is a load on this pin that has been configured as Unused Connector 4004/Bus 1602 pin 23 is drawing current and it is configured as Unused. Bus connector 1602 pin#23, Wheelchair Lift solenoid, is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	11	1	4004/Bus 1602 23	Connector 4004/Bus 1602 pin 23. Output overloaded. Bus connector 1602 pin#23, Wheelchair Lift solenoid, Output Overloaded Connector 4004/Bus 1602 pin 23 current overload. Bus connector 1602 pin#23, Wheelchair Lift solenoid, current Overloaded Too much load attached.
2033	14	11	2	4004/Bus 1602 23	Connector 4004/Bus 1602 pin 23. Output open circuit. Bus connector 1602 pin#23, Wheelchair Lift solenoid, Out put open circuit Connector 4004/Bus 1602 Pin 23 open. Bus connector 1602 pin#23, Wheelchair Lift solenoid, open Open circuit.
2033	14	11	3	4004/Bus 1602 23	Connector 4004/Bus 1602 pin 23. Output shorted to ground. Bus connector 1602 pin#23, Wheelchair Lift solenoid, Output shorted to ground Connector 4004/Bus 1602 Pin 23 shorted to ground. Bus connector 1602 pin#23, Wheelchair Lift solenoid, shorted to ground Shorted to ground.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	12	0	4004/Bus 1602 24	Connector 4004/Bus 1602 pin 24. There is a load on this pin that has been configured as Unused. (4 Pack Air Solenoid Channel 2) Connector 4004/Bus 1602 pin 24 is drawing current and it is configured as Unused. An unexpected load is attached to this pin. Refer to the 4– pack air solenoid module section of this manual.
2033	14	12	1	4004/Bus 1602 24	Connector 4004/Bus 1602 pin 24. Output overloaded. (4 Pack Air Solenoid Channel 2) Connector 4004/Bus 1602 pin 24 current overload. Too much load attached, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	12	2	4004/Bus 1602 24	Connector 4004/Bus 1602 pin 24. Output open circuit. (4 Pack Air Solenoid Channel 2) Connector 4004/Bus 1602 Pin 24 open Open circuit, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	12	3	4004/Bus 1602 24	Connector 4004/Bus 1602 pin 24. Output shorted to ground. (4 Pack Air Solenoid Channel 2) Connector 4004/Bus 1602 Pin 24 shorted to ground. Shorted to ground. Defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	12	4	4004/Bus 1602 24	Connector 4004/Bus 1602 Pin 24. Power to solenoid pack has been disabled due to this solenoid being shorted to ground. This condition causes all solenoids in the solenoid pack to report as being shorted to ground. This fault indicates the true cause of the solenoid pack shut-down. Connector 4004/Bus 1602 Pin 24 shorted to ground. Power to the solenoid pack has been turned off due to a short in solenoid 2. Refer to the 4– pack air solenoid module section of this manual.
2033	14	13	0	4004/Bus 1602 25	Connector 4004/Bus 1602 pin 25. There is a load on this pin that has been configured as Unused. Bus connector 1602 pin#25, Park Position Unlock solenoid, there is a load on this pin that has been configured as Unused Connector 4004/Bus 1602 pin 25 is drawing current and it is configured as Unused. Bus connector 1602 pin#25, Park Position Unlock solenoid, is drawing current and it is configured as unused An unexpected load is attached to this pin.
2033	14	13	1	4004/Bus 1602 25	Connector 4004/Bus 1602 pin 25. Output overloaded. Bus connector 1602 pin#25, Park Position Unlock solenoid, Output overloaded Connector 4004/Bus 1602 pin 25 current overload Bus connector 1602 pin#25, Park Position Unlock solenoid current overload Too much load attached.
2033	14	13	2	4004/Bus 1602 25	Connector 4004/Bus 1602 pin 25. Output open circuit Bus connector 1602 pin#25, Park Position Unlock solenoid, Output open circuit Connector 4004/Bus 1602 Pin 25 open. Bus connector 1602 pin#25, Park Position Unlock solenoid, open Open circuit.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	13	3	4004/Bus 1602 25	Connector 4004/Bus 1602 pin 25. Output shorted to ground. Bus connector 1602 pin#25, Park Position Unlock solenoid, Output Shorted to ground Connector 4004/Bus 1602 Pin 25 shorted to ground. Bus connector 1602 pin#25, Park Position Unlock solenoid, Shorted to ground Shorted to ground.
2033	14	14	0	4004/Bus 1602 29	Connector 4004/Bus 1602 pin 29. There is a load on this pin that has been configured as Unused. Connector 4004/Bus 1602 pin 29 is drawing current and it is configured as Unused. An unexpected load is attached to this pin.
2033	14	14	1	4004/Bus 1602 29	Connector 4004/Bus 1602 pin 29. Output overloaded. Connector 4004/Bus 1602 pin 29 current overload. Too much load attached.
2033	14	14	2	4004/Bus 1602 29	Connector 4004/Bus 1602 pin 29. Output open circuit. Connector 4004/Bus 1602 Pin 29 open. Open circuit.
2033	14	14	3	4004/Bus 1602 29	Connector 4004/Bus 1602 pin 29. Output shorted to ground Connector 4004/Bus 1602 Pin 29 shorted to ground. Shorted to ground.
2033	14	15	0	4004/Bus 1602 30	Connector 4004/Bus 1602 pin 30. There is a load on this pin that has been configured as Unused. (4 Pack Air Solenoid Channel 4) Connector 4004/Bus 1602 pin 30 is drawing current and it is configured as Unused. An unexpected load is attached to this pin. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	15	1	4004/Bus 1602 30	Connector 4004/Bus 1602 pin 30. Output overloaded. (4 Pack Air Solenoid Channel 4) Connector 4004/Bus 1602 pin 30 current overload. Too much load attached, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	15	2	4004/Bus 1602 30	Connector 4004/Bus 1602 pin 30. Output open circuit. (4 Pack Air Solenoid Channel 4) Connector 4004/Bus 1602 Pin 30 open Open circuit, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	15	3	4004/Bus 1602 30	Connector 4004/Bus 1602 pin 30. Output shorted to ground. (4 Pack Air Solenoid Channel 4) Connector 4004/Bus 1602 Pin 30 shorted to ground. Shorted to ground, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	15	4	4004/Bus 1602 30	Connector 4004/Bus 1602 Pin 30. Power to solenoid pack has been disabled due to this solenoid being shorted to ground. This condition causes all solenoids in the solenoid pack to report as being shorted to ground. This fault indicates the true cause of the solenoid pack shut-down. Connector 4004/Bus 1602 Pin 30 shorted to ground. Power to the solenoid pack has been turned off due to a short in solenoid 4. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	16	0	4004/Bus 1602 31	Connector 4004/Bus 1602 pin 31. There is a load on this pin that has been configured as Unused. (4 Pack Air Solenoid Channel 1) Connector 4004/Bus 1602 pin 31 is drawing current and it is configured as Unused. An unexpected load is attached to this pin. Refer to the 4– pack air solenoid module section of this manual.
2033	14	16	1	4004/Bus 1602 31	Connector 4004/Bus 1602 pin 31. Output overloaded. (4 Pack Air Solenoid Channel 1) Connector 4004/Bus 1602 pin 31 current overload. Too much load attached, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	16	2	4004/Bus 1602 31	Connector 4004/Bus 1602 pin 31. Output open circuit. (4 Pack Air Solenoid Channel 1) Connector 4004/Bus 1602 Pin 31 open. Open circuit, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.
2033	14	16	3	4004/Bus 1602 31	Connector 4004/Bus 1602 pin 31. Output shorted to ground. (4 Pack Air Solenoid Channel 1) Connector 4004/Bus 1602 Pin 31 shorted to ground. Shorted to ground, defective relay or 4 pack air solenoid module. Refer to the 4– pack air solenoid module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2033	14	16	4	4004/Bus 1602 31	Connector 4004/Bus 1602 Pin 31. Power to solenoid pack has been disabled due to this solenoid being shorted to ground. This condition causes all solenoids in the solenoid pack to report as being shorted to ground. This fault indicates the true cause of the solenoid pack shut-down. Connector 4004/Bus 1602 Pin 31 shorted to ground. Power to the solenoid pack has been turned off due to a short in solenoid 1. Refer to the 4– pack air solenoid module section of this manual.
2034	14	1	1	N/A	Remote Air Solenoid Module #1 - Output #1 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	1	2	N/A	Remote Air Solenoid Module #1 - Output #1 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2034	14	1	3	N/A	Remote Air Solenoid Module #1 - Output #1 - Open Circuit coil or valve not installed. Install solenoid or refer to theTesting Individual Solenoids section of this manual.
2034	14	1	4	N/A	Remote Air Solenoid Module #1 - Output #1 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	2	1	N/A	Remote Air Solenoid Module #1 - Output #2 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	2	2	N/A	Remote Air Solenoid Module #1 - Output #2 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2034	14	2	3	N/A	Remote Air Solenoid Module #1 - Output #2 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2034	14	2	4	N/A	Remote Air Solenoid Module #1 - Output #2 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	3	1	N/A	Remote Air Solenoid Module #1 - Output #3 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	3	2	N/A	Remote Air Solenoid Module #1 - Output #3 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2034	14	3	3	N/A	Remote Air Solenoid Module #1 - Output #3 - Open Circuit coil or valve not installed. Refer to the Testing Individual Solenoids section of this manual.
2034	14	3	4	N/A	Remote Air Solenoid Module #1 - Output #3 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	4	1	N/A	Remote Air Solenoid Module #1 - Output #4 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	4	2	N/A	Remote Air Solenoid Module #1 - Output #4 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2034	14	4	3	N/A	Remote Air Solenoid Module #1 - Output #4 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2034	14	4	4	N/A	Remote Air Solenoid Module #1 - Output #4 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	5	1	N/A	Remote Air Solenoid Module #1 - Output #5 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	5	2	N/A	Remote Air Solenoid Module #1 - Output #5 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2034	14	5	3	N/A	Remote Air Solenoid Module #1 - Output #5 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2034	14	5	4	N/A	Remote Air Solenoid Module #1 - Output #5 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	6	1	N/A	Remote Air Solenoid Module #1 - Output #6 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	6	2	N/A	Remote Air Solenoid Module #1 - Output #6 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2034	14	6	3	N/A	Remote Air Solenoid Module #1 - Output #6 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2034	14	6	4	N/A	Remote Air Solenoid Module #1 - Output #6 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2034	14	7	1	N/A	Remote Air Solenoid Module #1 - Output #7 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2034	14	7	2	N/A	Remote Air Solenoid Module #1 - Output #7 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2034	14	7	3	N/A	Remote Air Solenoid Module #1 - Output #7 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2034	14	7	4	N/A	Remote Air Solenoid Module #1 - Output #7 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Remove solenoid or reprogram ESC to recognize the solenoid. Refer to the Air Solenoid (7–Pack) section of this manual.
2040	14	1	1	N/A	AGSP #1 Switch #1, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #1 to the default value. Replace switch acturator Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	1	2	N/A	AGSP #1 Switch #1, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #1 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	1	3	N/A	AGSP #1 Switch #1, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #1 to the default value. Replace switch acturator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	1	4	N/A	AGSP #1 Switch #1, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #1 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	1	5	N/A	AGSP #1 Switch #1, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #1 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	2	1	N/A	AGSP #1 Switch #2, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #2 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	2	2	N/A	AGSP #1 Switch #2, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #2 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	2	3	N/A	AGSP #1 Switch #2, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #2 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	2	4	N/A	AGSP #1 Switch #2, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #2 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	2	5	N/A	AGSP #1 Switch #2, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #2 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	3	1	N/A	AGSP #1 Switch #3, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #3 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	3	2	N/A	AGSP #1 Switch #3, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #3 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	3	3	N/A	AGSP #1 Switch #3, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #3 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	3	4	N/A	AGSP #1 Switch #3, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #3 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	3	5	N/A	AGSP #1 Switch #3, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #3 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	4	1	N/A	AGSP #1 Switch #4, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #4 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	4	2	N/A	AGSP #1 Switch #4, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #4 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	4	3	N/A	AGSP #1 Switch #4, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #4 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	4	4	N/A	AGSP #1 Switch #4, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #4 to the default value. Replace switch acturator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	4	5	N/A	AGSP #1 Switch #4, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #4 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	5	1	N/A	AGSP #1 Switch #5, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #5 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	5	2	N/A	AGSP #1 Switch #5, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #5 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	5	3	N/A	AGSP #1 Switch #5, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #5 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	5	4	N/A	AGSP #1 Switch #5, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #5 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	5	5	N/A	AGSP #1 Switch #5, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #5 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	6	1	N/A	AGSP #1 Switch #6, microswitch inputs are in an invalid state. Both microswitches are not depressed. The ESC sets the status of AGSP #1 Switch #6 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	6	2	N/A	AGSP #1 Switch #6, microswitch inputs are in an invalid state. Both microswitches are depressed. The ESC sets the status of AGSP #1 Switch #6 to the default value. Replace faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2040	14	6	3	N/A	AGSP #1 Switch #6, microswitch inputs are in an invalid state. Top microswitch depressed, bottom microswitch not depressed. The ESC sets the status of AGSP #1 Switch #6 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.
2040	14	6	4	N/A	AGSP #1 Switch #6, microswitch inputs are in an invalid state. Top microswitch not depressed, bottom microswitch depressed. The ESC sets the status of AGSP #1 Switch #6 to the default value. Replace switch actuator Refer to the AGSP Preliminary System Check section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2040	14	6	5	N/A	AGSP #1 Switch #6, This switch should be empty but one or both of the microswitches is pressed. The ESC sets the status of AGSP #1 Switch #6 to the default value. Replace switch actuator or faulty microswitch Refer to the AGSP Preliminary System Check section of this manual.
2209	14	1	1	N/A	Remote Engine Speed Control Module Digital Output #1 - Output failure Refer to Remote Engine Speed Control Module.
2209	14	1	4	N/A	Remote Engine Speed Control Module Digital Output #1 - Data mismatch Refer to Remote Engine Speed Control Module.
2209	14	2	1	N/A	Remote Engine Speed Control Module Digital Output #2 - Output failure Refer to Remote Engine Speed Control Module.
2209	14	2	4	N/A	Remote Engine Speed Control Module Digital Output #2 - Data mismatch Refer to Remote Engine Speed Control Module.
2209	14	3	1	N/A	Remote Engine Speed Control Module Digital Output #3 - Output failure Refer to Remote Engine Speed Control Module.
2209	14	3	4	N/A	Remote Engine Speed Control Module Digital Output #3 - Data mismatch Refer to Remote Engine Speed Control Module.
2209	14	4	2	N/A	Remote Engine Speed Control Module Analog Input #1 - Shorted to Battery Refer to Remote Engine Speed Control Module.
2209	14	4	3	N/A	Remote Engine Speed Control Module Analog Input #1 - shorted to ground. Refer to Remote Engine Speed Control Module.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2209	14	5	2	N/A	Remote Engine Speed Control Module Analog Input #2 - Shorted to Battery Refer to Remote Engine Speed Control Module.
2209	14	5	3	N/A	Remote Engine Speed Control Module Analog Input #2 - shorted to ground. Refer to Remote Engine Speed Control Module.
2209	14	5	4	N/A	Remote Engine Speed Control Module Analog Input #2 - Data mismatch Refer to Remote Engine Speed Control Module.
2209	14	6	1	N/A	Remote Engine Speed Control Module Vbat Supply-Output Failure Refer to Remote Engine Speed Control Module.
2225	14	1	1	N/A	RPM #1 output pin A over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Short to ground or overload Refer to the Remote Power Module section of this manual.
2225	14	2	1	N/A	RPM #1 output pin B over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Short to ground or overload Refer to the Remote Power Module section of this manual.
2225	14	3	1	N/A	RPM #1 output pin C over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Short to ground or overload Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2225	14	4	1	N/A	RPM #1 output pin D over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Short to ground or overload Refer to the Remote Power Module section of this manual.
2225	14	5	1	N/A	RPM #1 output pin E over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Short to ground or overload Refer to the Remote Power Module section of this manual.
2225	14	6	1	N/A	RPM #1 output pin H over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - connected to zero volt reference) Refer to the Remote Power Module section of this manual.
2226	14	1	1	N/A	RPM #2 output pin A over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2226	14	2	1	N/A	RPM #2 output pin B over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2226	14	3	1	N/A	RPM #2 output pin C over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2226	14	4	1	N/A	RPM #2 output pin D over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2226	14	5	1	N/A	RPM #2 output pin E over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2226	14	6	1	N/A	RPM #2 output pin H over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - connected to zero volt reference, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2228	14	1	1	N/A	RPM #4 output pin A over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2228	14	2	1	N/A	RPM #4 output pin B over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2228	14	3	1	N/A	RPM #4 output pin C over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2228	14	4	1	N/A	RPM #4 output pin D over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2228	14	5	1	N/A	RPM #4 output pin E over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2228	14	6	1	N/A	RPM #4 output pin H over current The output behaves like a 20 amp type III circuit breaker. (MS3 - connected to zero volt reference, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2231	14	1	1	N/A	RPM #7 output pin A over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2231	14	2	1	N/A	RPM #7 output pin B over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2231	14	3	1	N/A	RPM #7 output pin C over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2231	14	4	1	N/A	RPM #7 output pin D over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2231	14	5	1	N/A	RPM #7 output pin E over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2231	14	6	1	N/A	RPM #7 output pin H over current The output behaves like a 20 amp type III circuit breaker. (MS3 - open circuit, MS2 - open circuit, MS1 - open circuit) Short to ground or overload Refer to the Remote Power Module section of this manual.
2234	14	1	1	N/A	Remote Air Solenoid Module #2 - Output #1 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	1	2	N/A	Remote Air Solenoid Module #2 - Output #1 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	1	3	N/A	Remote Air Solenoid Module #2 - Output #1 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	1	4	N/A	Remote Air Solenoid Module #2 - Output #1 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.
2234	14	2	1	N/A	Remote Air Solenoid Module #2 - Output #2 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	2	2	N/A	Remote Air Solenoid Module #2 - Output #2 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	2	3	N/A	Remote Air Solenoid Module #2 - Output #2 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2234	14	2	4	N/A	Remote Air Solenoid Module #2 - Output #2 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.
2234	14	3	1	N/A	Remote Air Solenoid Module #2 - Output #3 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	3	2	N/A	Remote Air Solenoid Module #2 - Output #3 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	3	3	N/A	Remote Air Solenoid Module #2 - Output #3 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	3	4	N/A	Remote Air Solenoid Module #2 - Output #3 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.
2234	14	4	1	N/A	Remote Air Solenoid Module #2 - Output #4 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	4	2	N/A	Remote Air Solenoid Module #2 - Output #4 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	4	3	N/A	Remote Air Solenoid Module #2 - Output #4 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	4	4	N/A	Remote Air Solenoid Module #2 - Output #4 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2234	14	5	1	N/A	Remote Air Solenoid Module #2 - Output #5 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	5	2	N/A	Remote Air Solenoid Module #2 - Output #5 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	5	3	N/A	Remote Air Solenoid Module #2 - Output #5 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	5	4	N/A	Remote Air Solenoid Module #2 - Output #5 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.
2234	14	6	1	N/A	Remote Air Solenoid Module #2 - Output #6 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.
2234	14	6	2	N/A	Remote Air Solenoid Module #2 - Output #6 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	6	3	N/A	Remote Air Solenoid Module #2 - Output #6 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	6	4	N/A	Remote Air Solenoid Module #2 - Output #6 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.
2234	14	7	1	N/A	Remote Air Solenoid Module #2 - Output #7 - Valve ON when commanded OFF. Refer to the Testing Individual Solenoids section of this manual.

Table 1 Diagnostic Trouble Code (DTC) List (cont.)

SPN	FMI	Byte 7	Byte 8	ESC Connector and Pin #	Condition Description/Comments/Probable Cause(s)
2234	14	7	2	N/A	Remote Air Solenoid Module #2 - Output #7 - Valve OFF when commanded ON. Refer to the Testing Individual Solenoids section of this manual.
2234	14	7	3	N/A	Remote Air Solenoid Module #2 - Output #7 - Open Circuit coil or valve not installed. Install solenoid or refer to the Testing Individual Solenoids section of this manual.
2234	14	7	4	N/A	Remote Air Solenoid Module #2 - Output #7 - Unknown remote air solenoid. An air Solenoid is installed in this position but is not configured. Refer to the Air Solenoid (7–Pack) section of this manual.