

# Schematic

## 950M and 962M Wheel Loader Electrical System

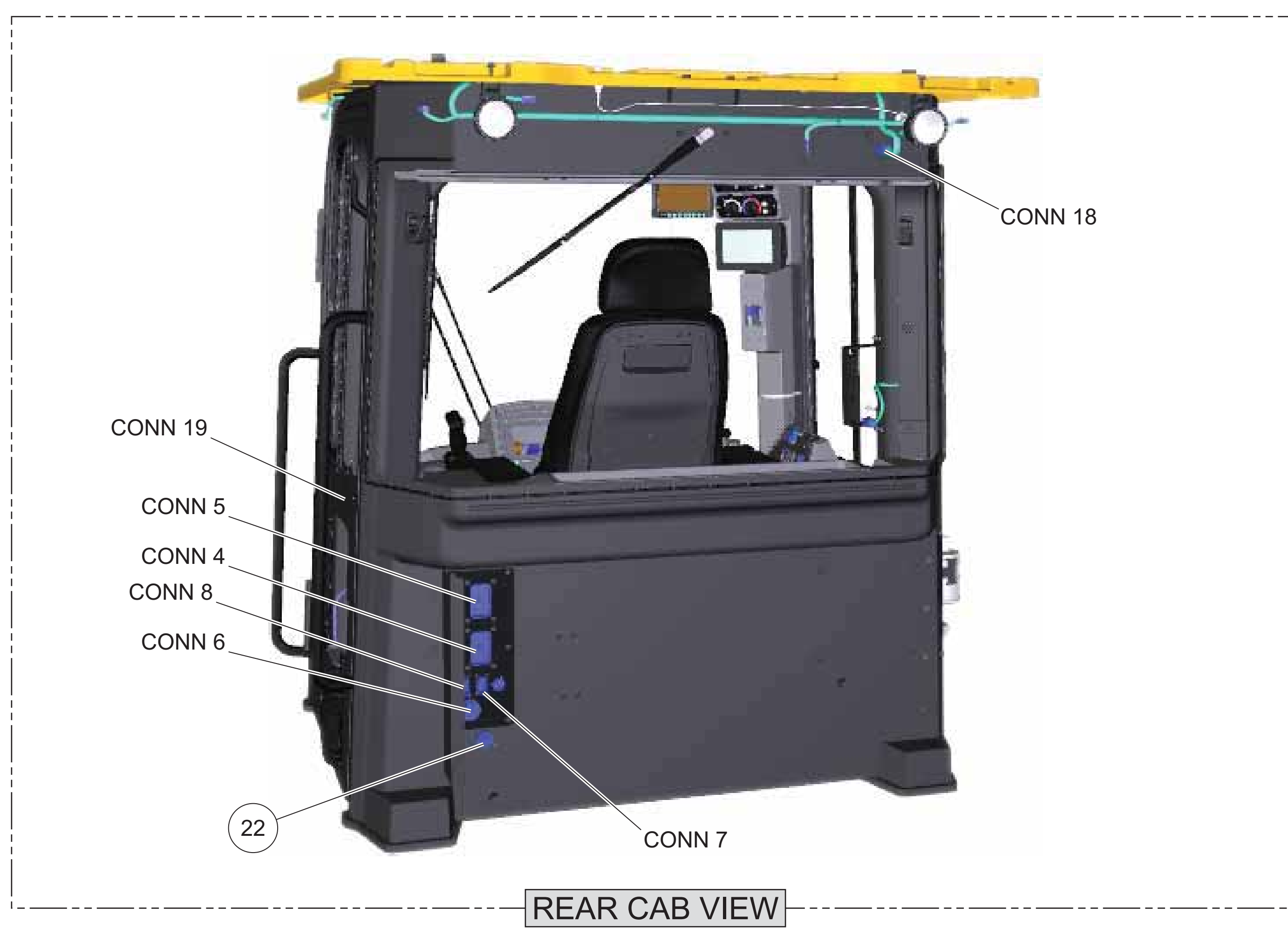
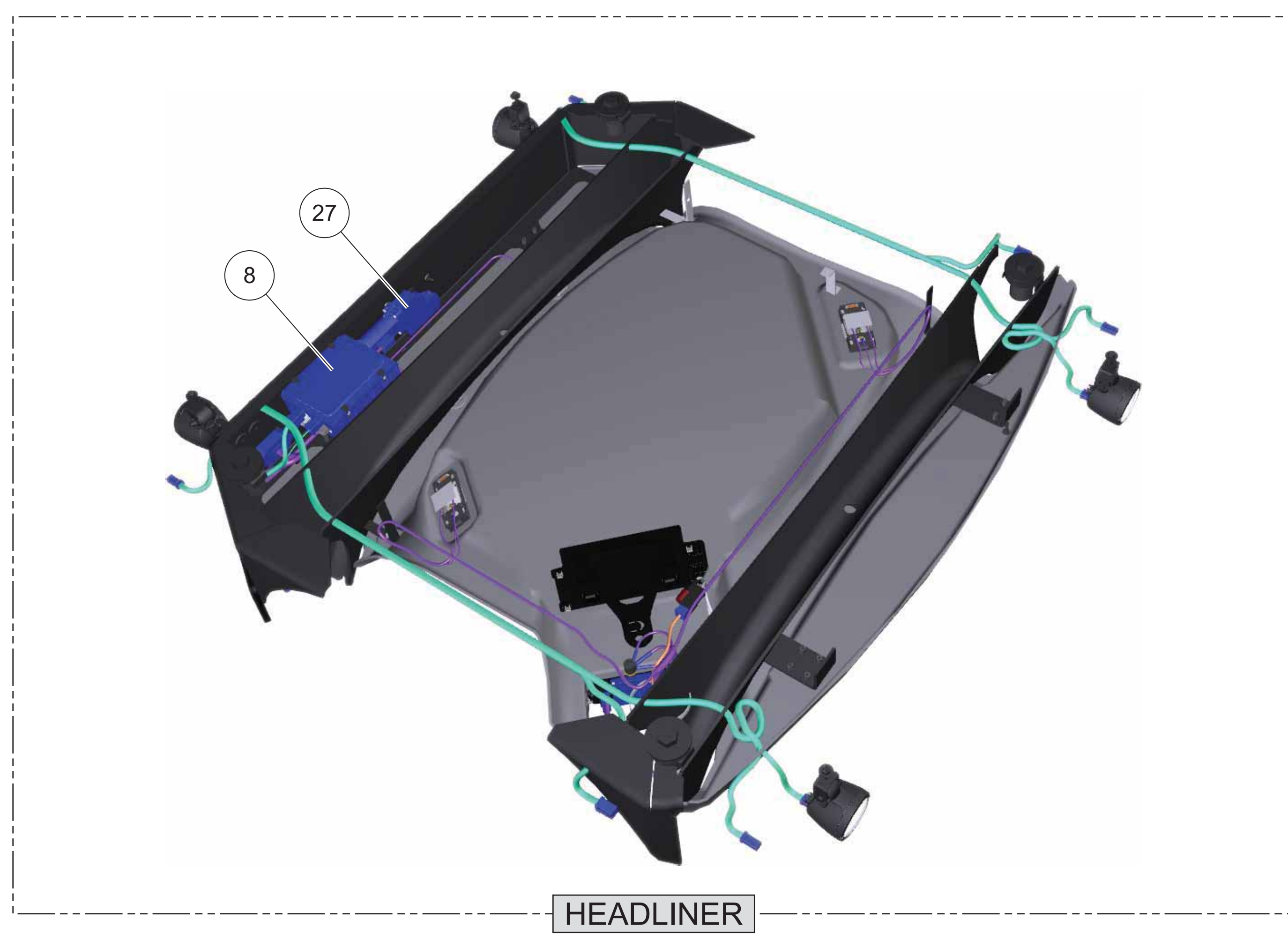
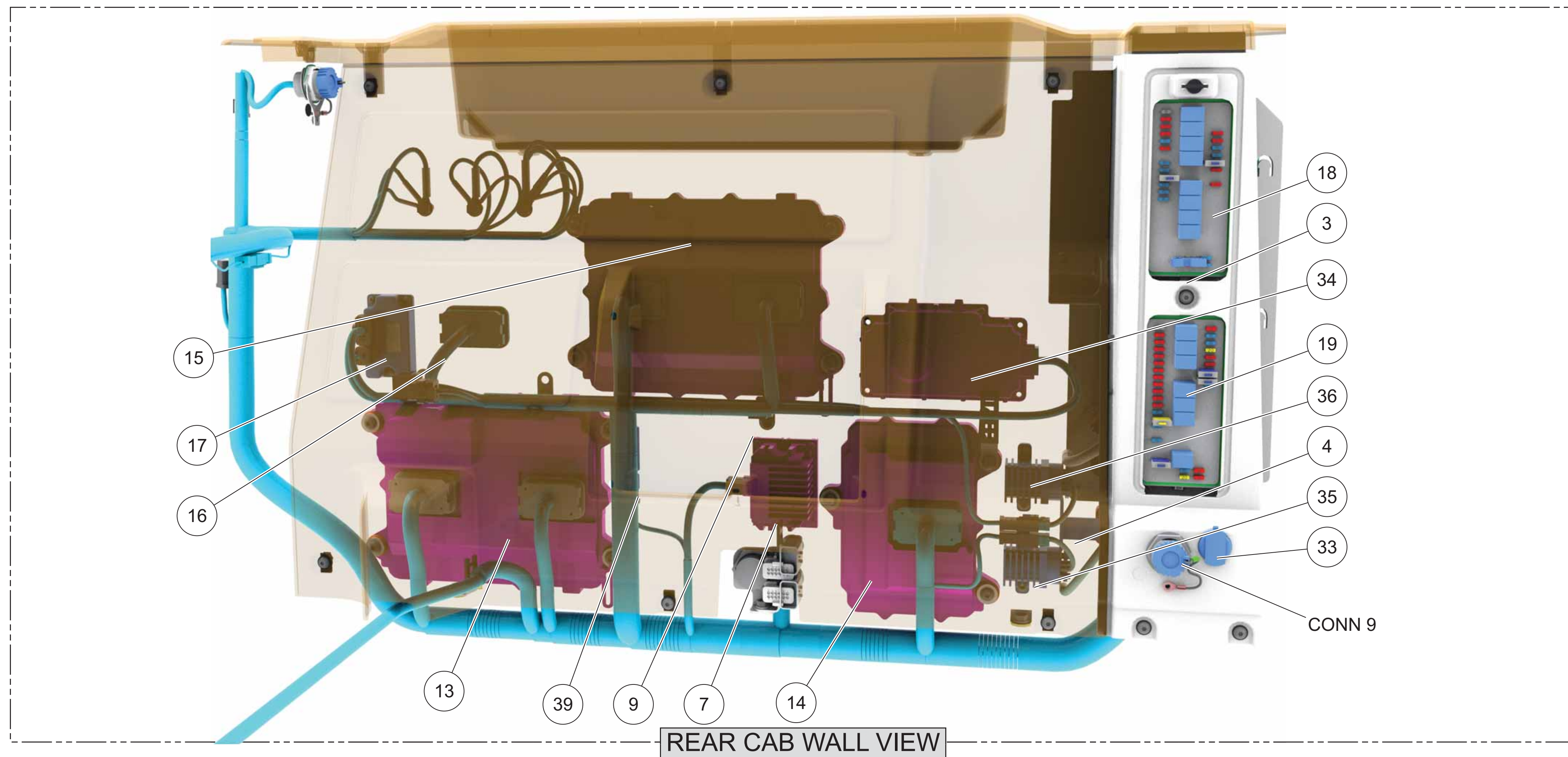
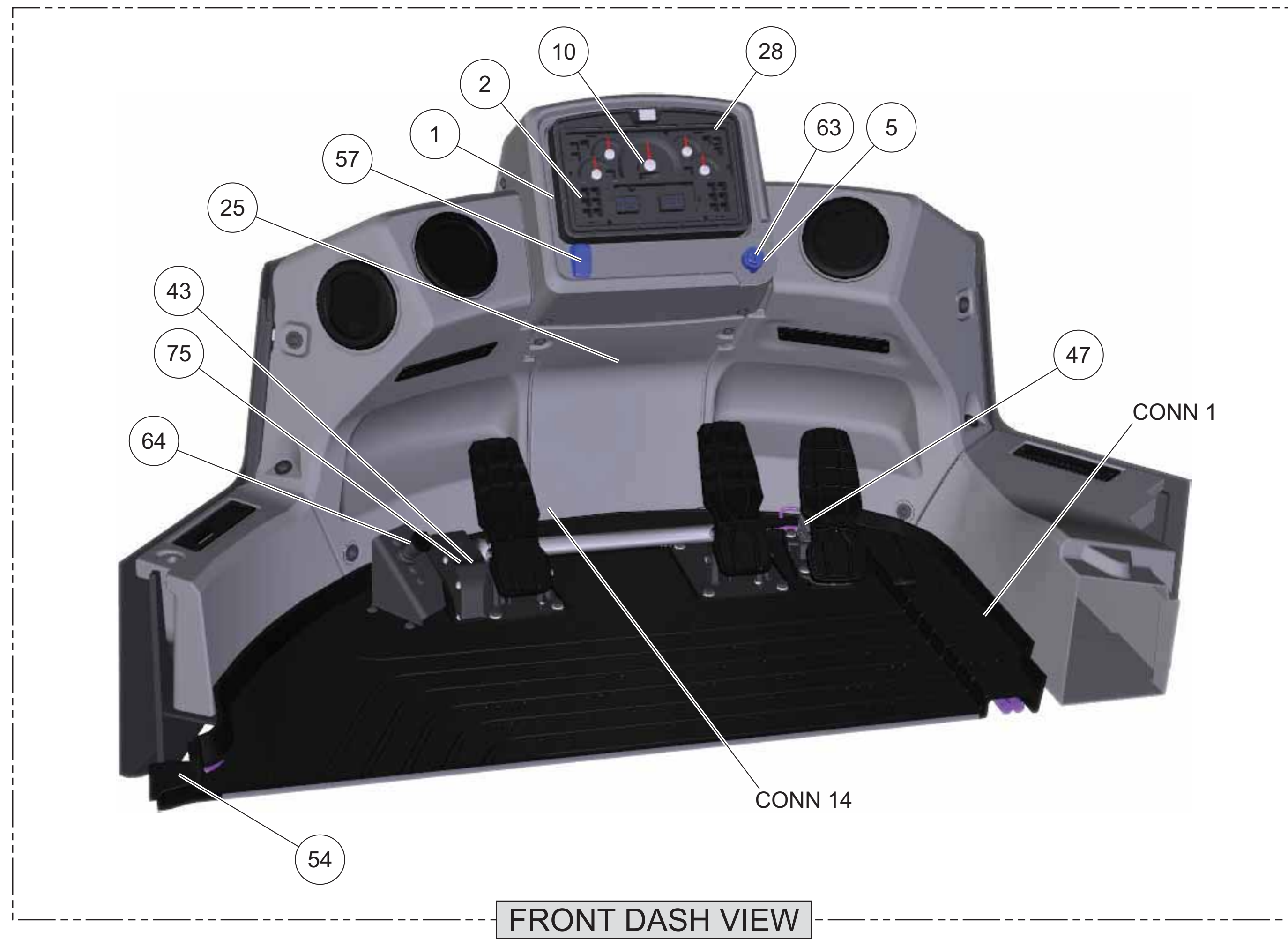
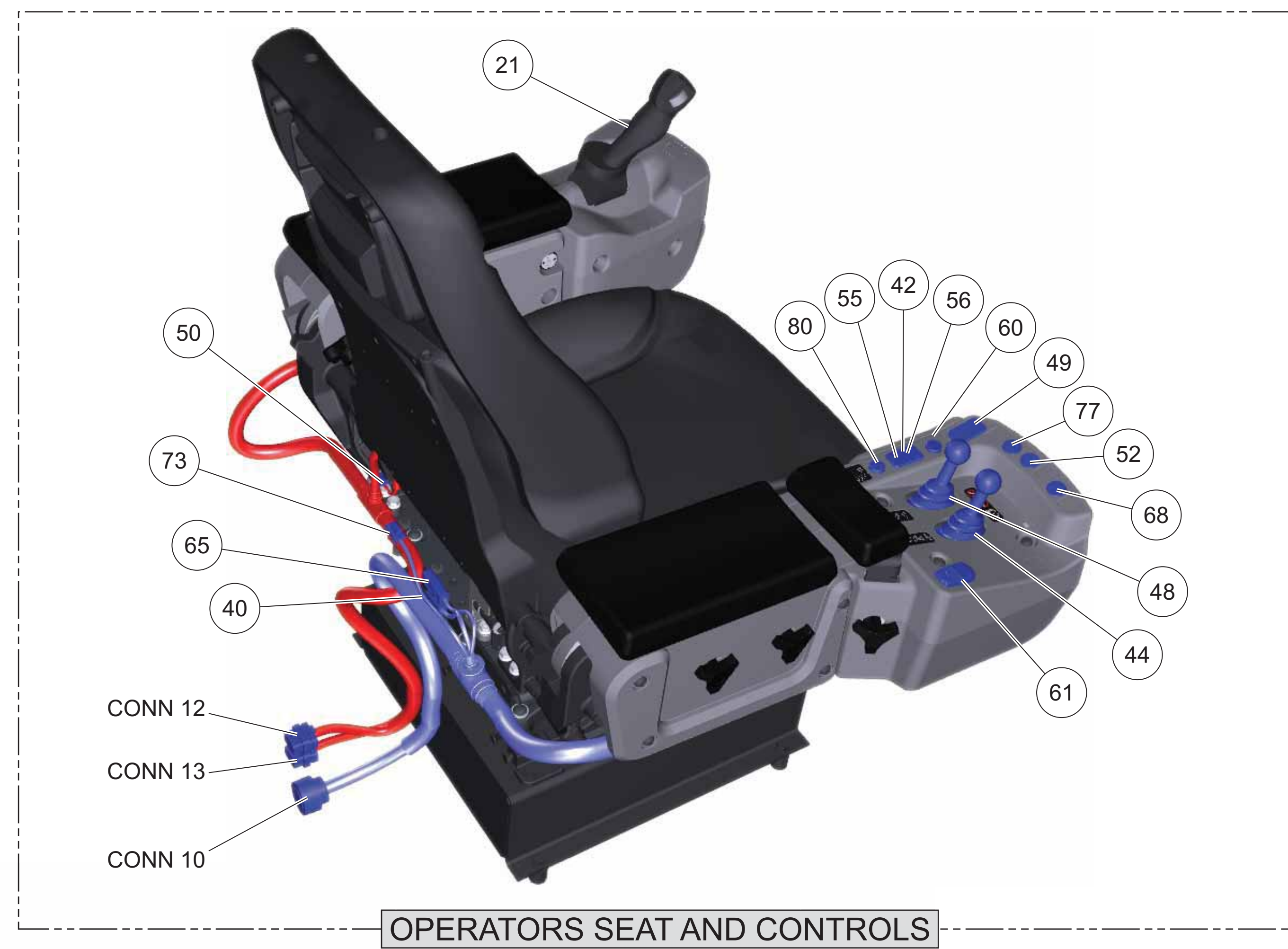
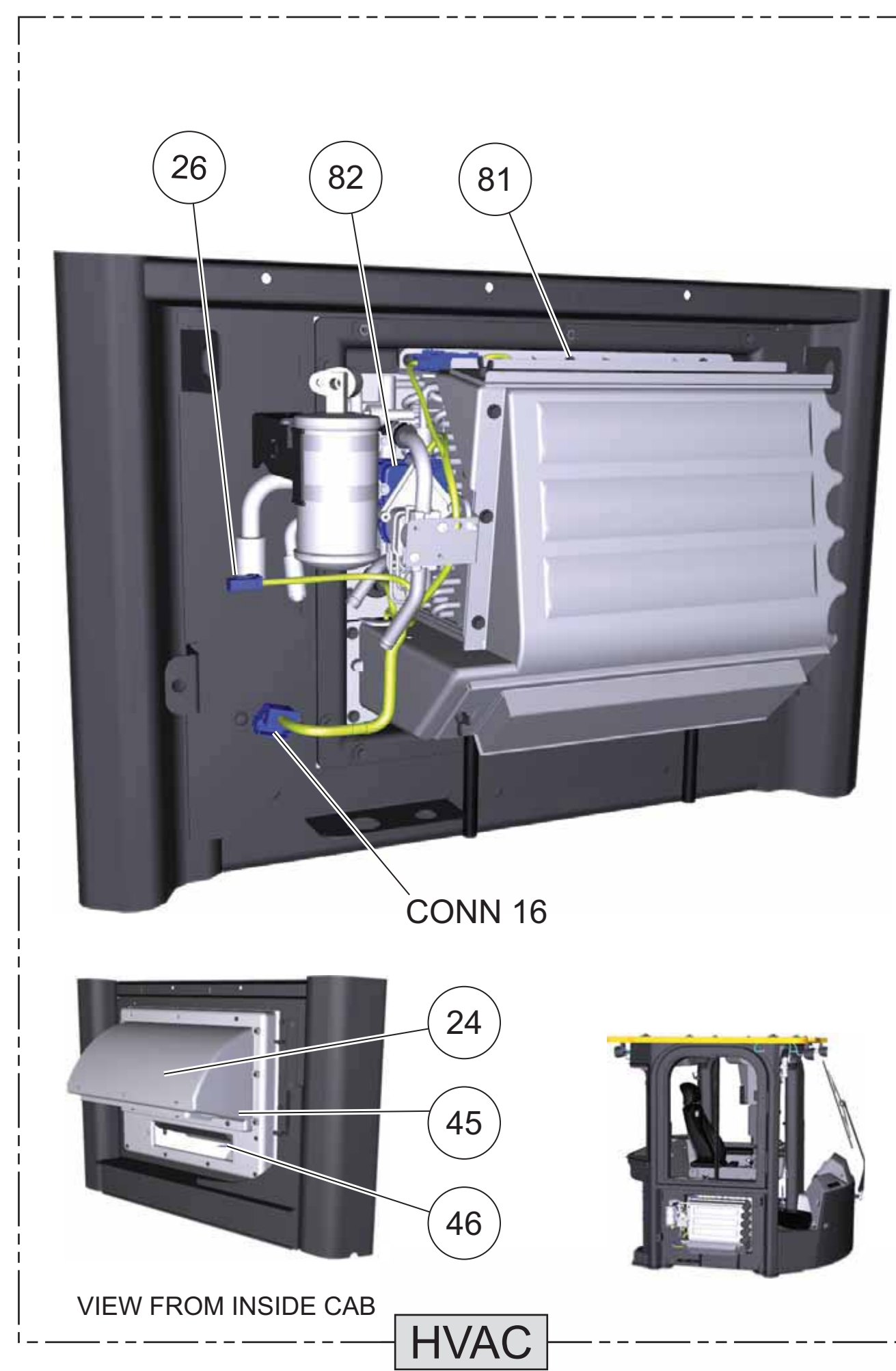
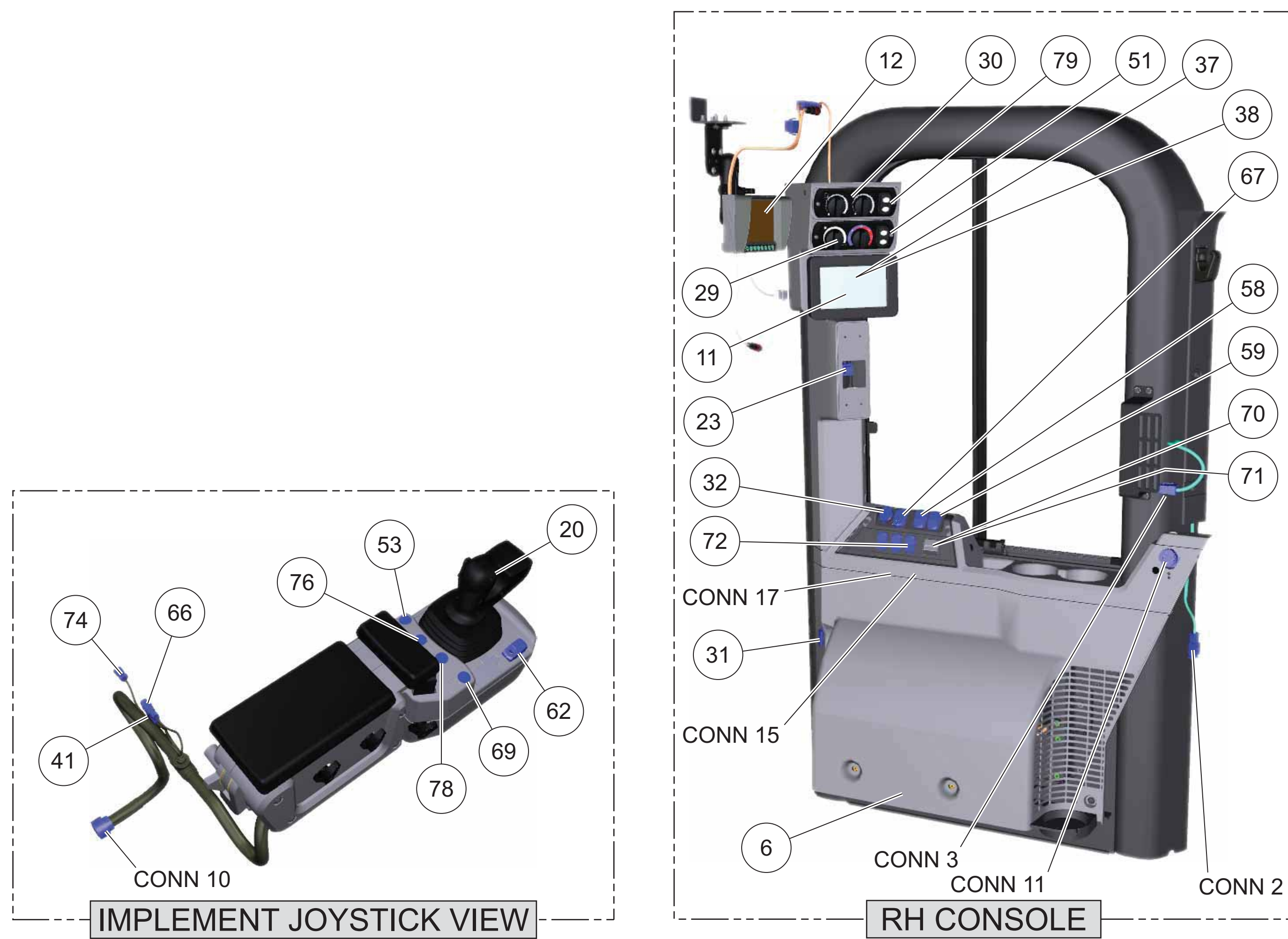
950M:  
EMB1-UP  
FTR1-UP

962M:  
EJB1-UP  
F2T1-UP

Volume 1 of 4: Cab

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### Harness and Wire Electrical Schematic Symbols

**Symbols**

Pressure Symbol, Temperature Symbol, Level Symbol, Flow Symbol, Circuit Breaker Symbol

**Symbols and Definitions**

- Fuse:** A component in an electrical circuit that will open the circuit if too much current flows through it.
- Switch (Normally Open):** A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.
- Switch (Normally Closed):** A switch that will open at a specified point (temp, press, etc.). No circle indicates that the wire cannot be disconnected from the component.
- Ground (Wire):** This indicates that the component is connected to a grounded wire. The grounded wire is bonded to the machine.
- Ground (Case):** This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.
- Reed Switch:** A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch. It opens the contacts of a normally closed reed switch.
- Sender:** A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.
- Relay (Magnetic Switch):** A relay is an electrical component that is actuated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a reed switch part of the relay.
- Solenoid:** A solenoid is an electrical component that is actuated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a gear or piston that is part of the work.
- Magnetic Latch Solenoid:** A magnetic latch solenoid is an electrical component that is actuated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnets when current flows through them. It also has an internal switch that places the latch coil circuit open at the time the coil latches.

**Harness and Wire Symbols**

Wiring, Cable, or Harness Assembly Identification: Includes Harness Identifier Letters and Harness Connector Identification Code (see the legend).

Part Number for Connector Plug, Part Number for Connector Receptacle

Deutsch connector: Typical representation of a Deutsch connector. The plug consists of sockets and the receptacle consists of pins.

Bay-Block connector: Typical representation of a Bay-Block connector. The plug consists of sockets and the receptacle consists of pins and sockets.

Harness Identification Code: This number indicates wire size, color, and wire gauge.

Component Location					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alarm - Action	D-13	1	Sensor - 3RD Function Lever Position	C-1	45
Alarm - Machine Feature	D-13	2	Sensor - LH Pedal Position	G-4	45
Bus Bar - 1	G-10	3	Sensor - LH Lever Position	C-1	46
Bus Bar - 2	E-10	4	Sensor - Lower Temperature	G-3	45
Coil - MISC Ester	H-5	5	Sensor - Resistor Fuel Temperature	G-3	45
Control - Blower Fan Speed	H-3	6	Sensor - RH Pedal Position	G-4	47
Converter - VSA	E-8	7	Sensor - TG Lever Position	C-1	48
Converter - 20A	B-14	8	Switch - 4th Function Thumbwheel	B-7	49
Door - Fuel Filling	D-8	9	Switch - Armrest Position	B-8	50
Display - Indicator	A-4	10	Switch - Auto/Manual A/C	F-4	51
Display - Information	J-10	11	Switch - Autolock Trigger 1	D-7	52
Display - WAB	H-1	12	Switch - Autolock Trigger 2	E-1	53
ECM - Implement	H-14	13	Switch - Door	C-4	54
ECM - Relay Control Module	H-13	14	Switch - FMS 1	E-7	55
ECM - Traction	J-13	15	Switch - FMS 2	E-7	56
ECM - VMS	E-13	16	Switch - Fog Light	F-1	57
Flasher AS	D-14	17	Switch - Hazard	E-4	58
Fuse Block AS 1	H-8	18	Switch - Parked Mirror	J-5	59
Fuse Block AS 2	G-10	19	Switch - Horn	C-1	60
Joystick - Implement	D-1	20	Switch - Implement Lockout 1	E-7	61
Joystick - Steering LH Console	B-8	21	Switch - Implement Lockout 2	E-1	62
Junction Block AS	E-10	22	Switch - Key	H-3	63
Motor - Fan	D-8	23	Switch - Manual Differential Lock	B-1	64
Motor - Blower	H-3	24	Switch - Operator Present 1	D-7	65
Motor - Front Wiper	B-8	25	Switch - Operator Present 2	D-7	66
Motor - Preheater	H-3	26	Switch - Parking Brake	E-4	67
Motor - Rear Wiper	B-8	27	Switch - PCH Slave 1	D-7	68
MISC Assembly	H-4	28	Switch - PCS Slave 2	C-1	69
Panel - HVAC	D-4	29	Switch - Power Mirror 1	H-4	70
Panel - Wiper	B-4	30	Switch - Power Mirror 2	H-1	71
Port - 12V 1	C-4	31	Switch - Dash Coupler	F-8	72
Port - 12V 2	C-4	32	Switch - Seat Belt 1	D-7	73
Port - 12V 3	C-4	33	Switch - Seat Belt 2	C-1	74
Radio - Hood Lamp	G-13	34	Switch - Stop Lamp	B-1	75
Relay - Low Current Mode	E-10	35	Switch - Throttle Lock Sol	E-1	76
Relay - Alarm Volume	F-10	36	Switch - Throttle Return	D-7	77
Resistor - CAN Data Link A	H-15	37	Switch - Throttle Return 2	C-1	78
Resistor - CAN Data Link B	J-8	38	Switch - Wiper	E-4	79
Resistor - HVAC	H-14	39	Switch - Xmas Overhaul/Manual Off Lock	C-1	80
Seat GP 1	D-7	40	Thermistor - HVAC Evaporator	H-3	81
Seat GP 2	C-1	41	Valve - Water	G-3	82

Always check component part numbers with Parts Manual for your specific machine.

Connector Location			
Connector Number	Schematic Location	Machine Location	Notes
CONN 1 - 10 PCS Pinout	D-13		
CONN 2	B-12		
CONN 3	A-12		
CONN 4	H-8		
CONN 5	H-8		
CONN 6	F-8		
CONN 7	E-8		
CONN 8 - VMS Service Port	D-8		
CONN 9	C-8		
CONN 10 - ET Service Port	C-8		
CONN 11	A-8		
CONN 12	C-8		
CONN 13	A-8		
CONN 14	C-8		
CONN 15	E-8		
CONN 16	H-8		
CONN 17	H-12		
CONN 18	J-8		
CONN 19 - Power Door Unlatch	C-4		

The connectors shown in this chart are for harness to harness connections. Connectors that plug a harness to a component are generally located at or near the component. See the Component Location Chart.

Part No.	Resistor	Sender, and Solenoid Specifications	Resistance (Ohms)
150-0461	Resistor - CAN Data Link A		100 ± 10
255-4882	Resistor - HVAC		150 ± 7.5

1 At non-temperature unless otherwise noted.







# Schematic

## 950M and 962M Wheel Loader Electrical System

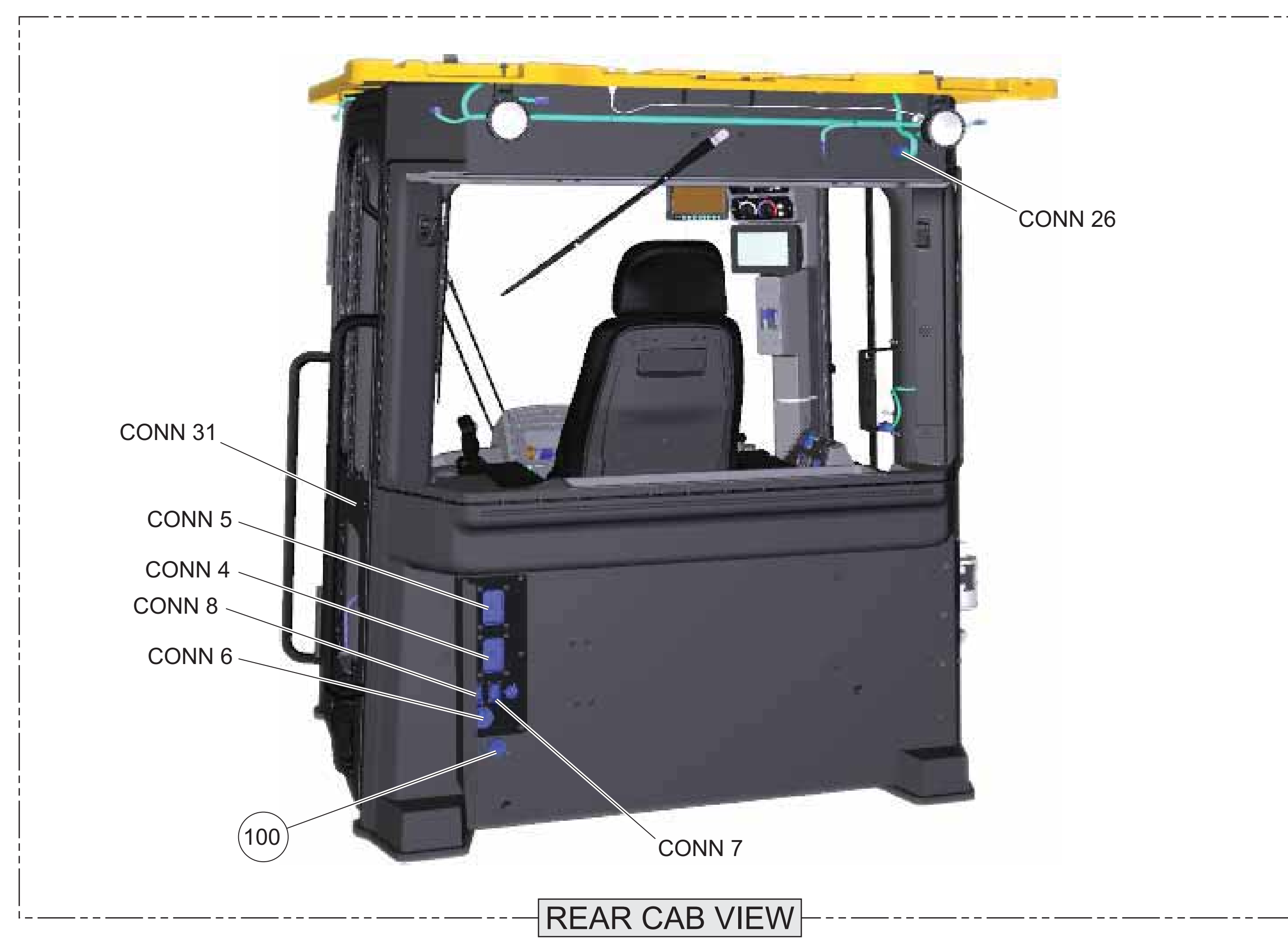
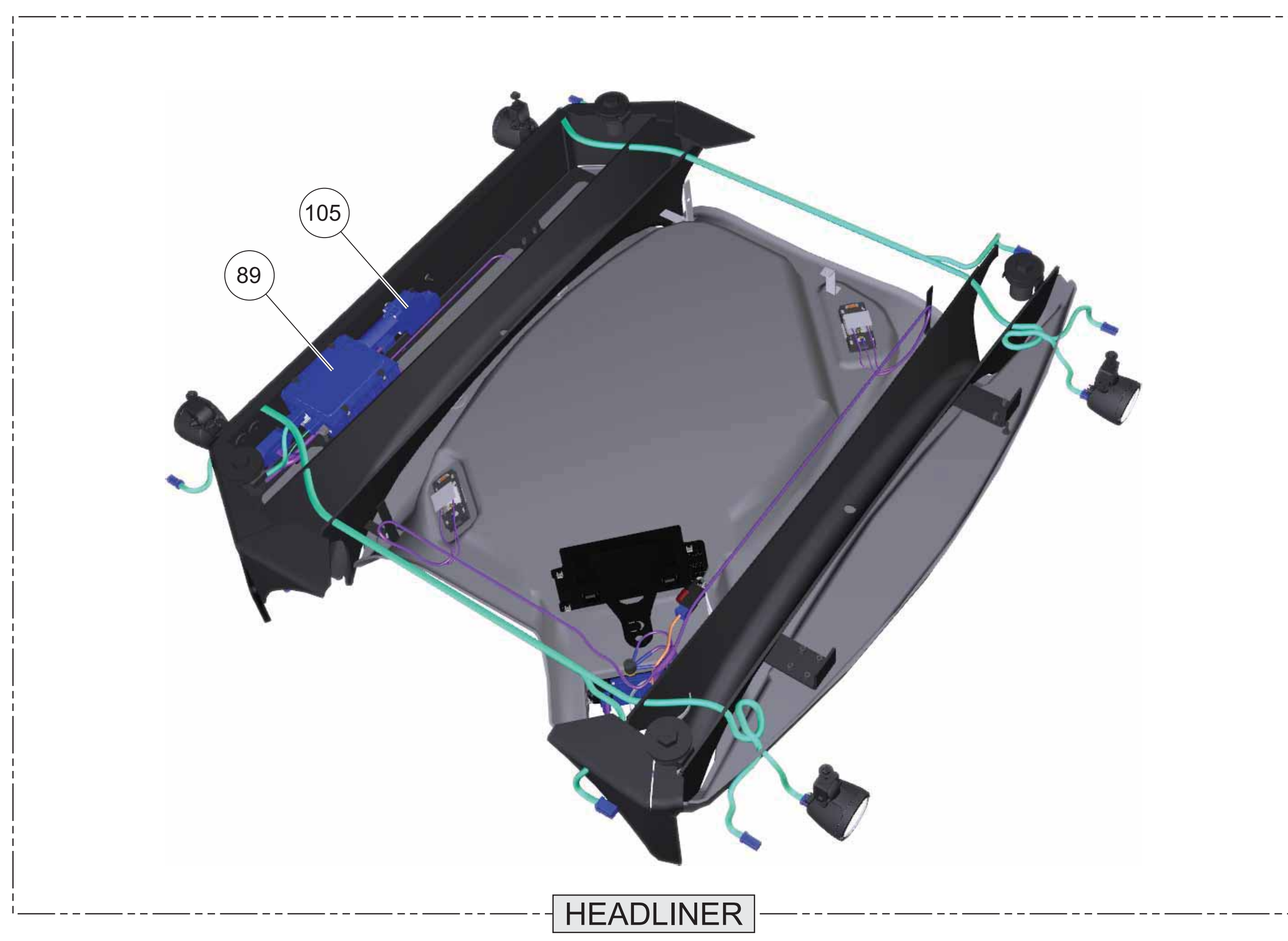
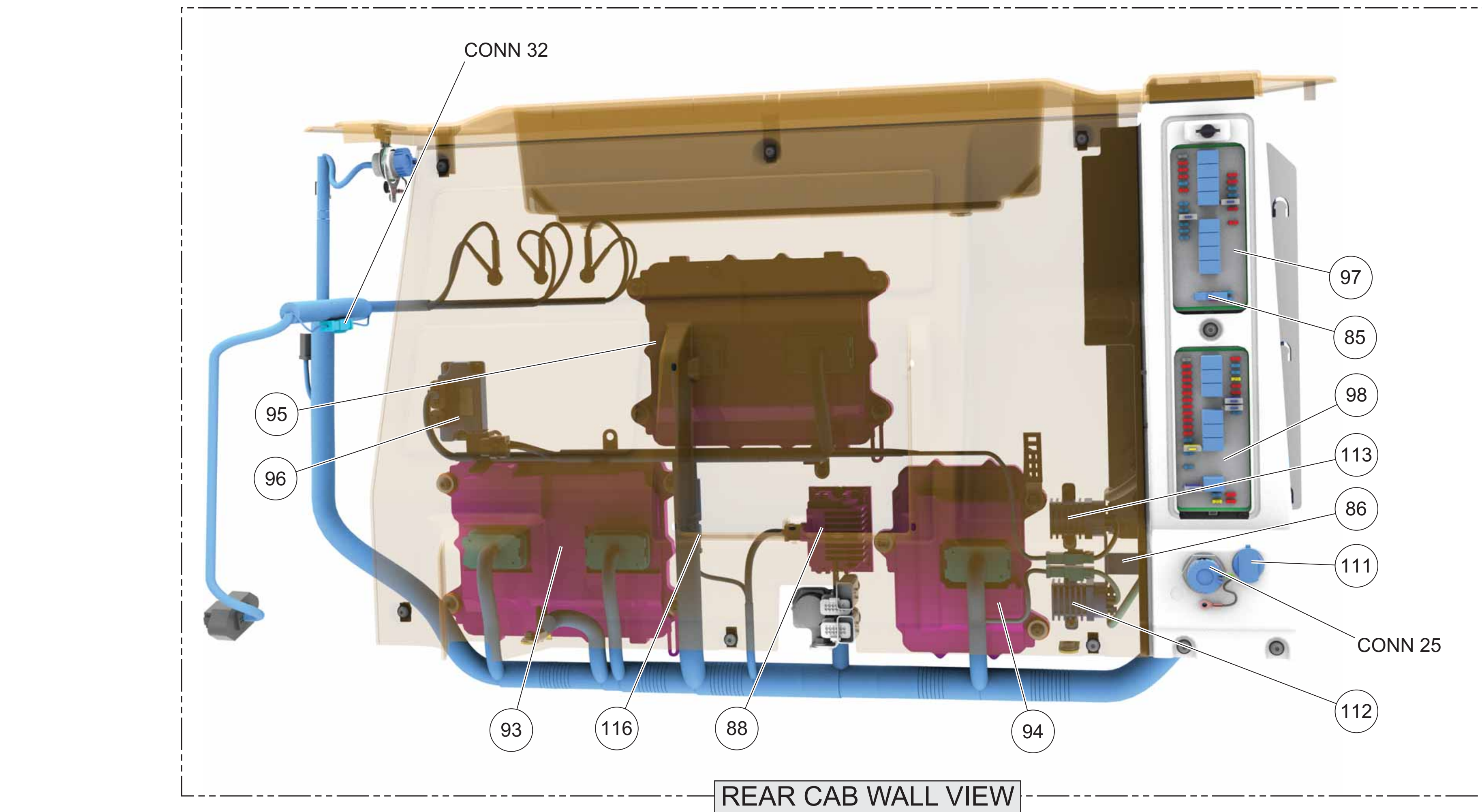
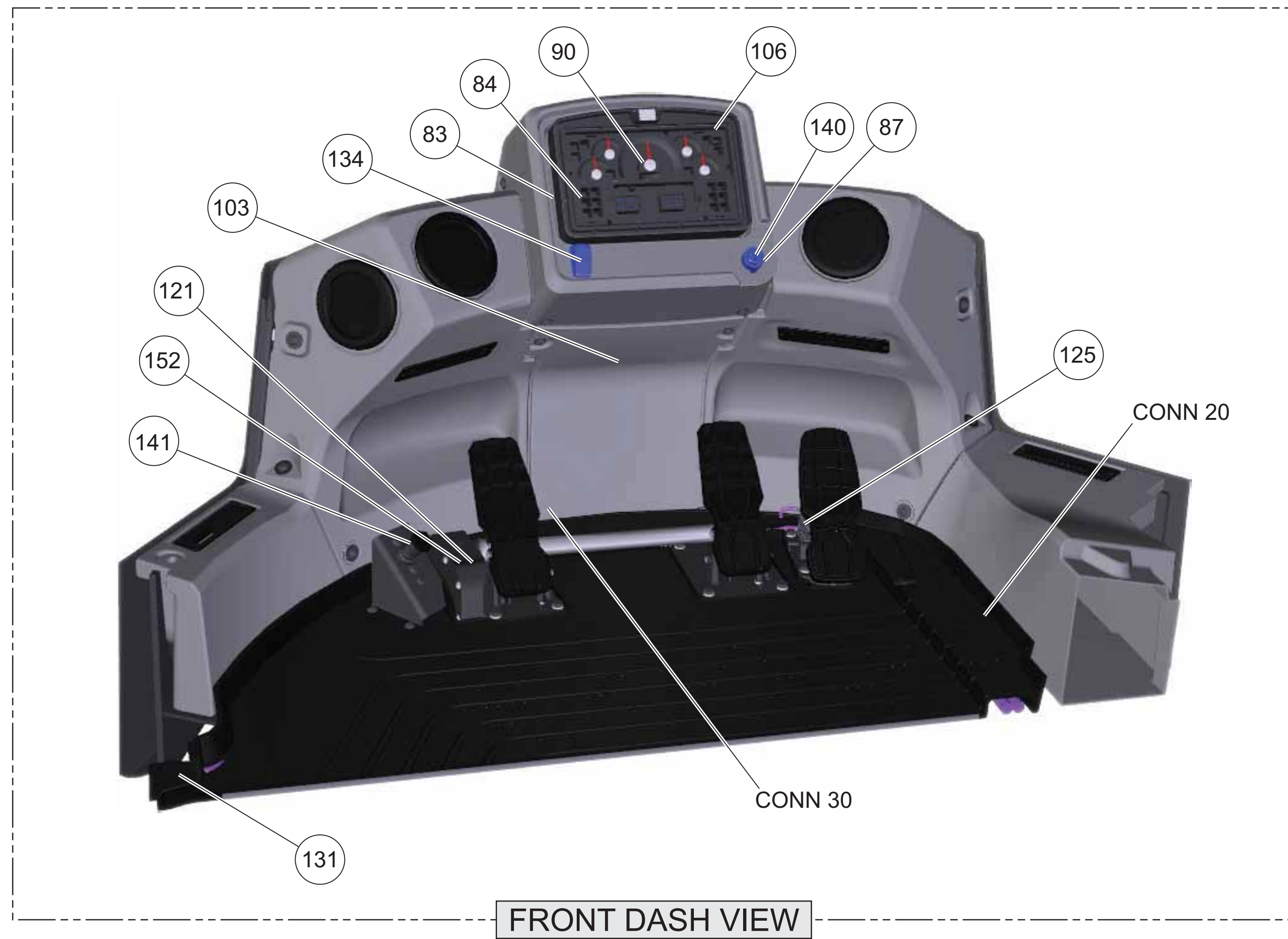
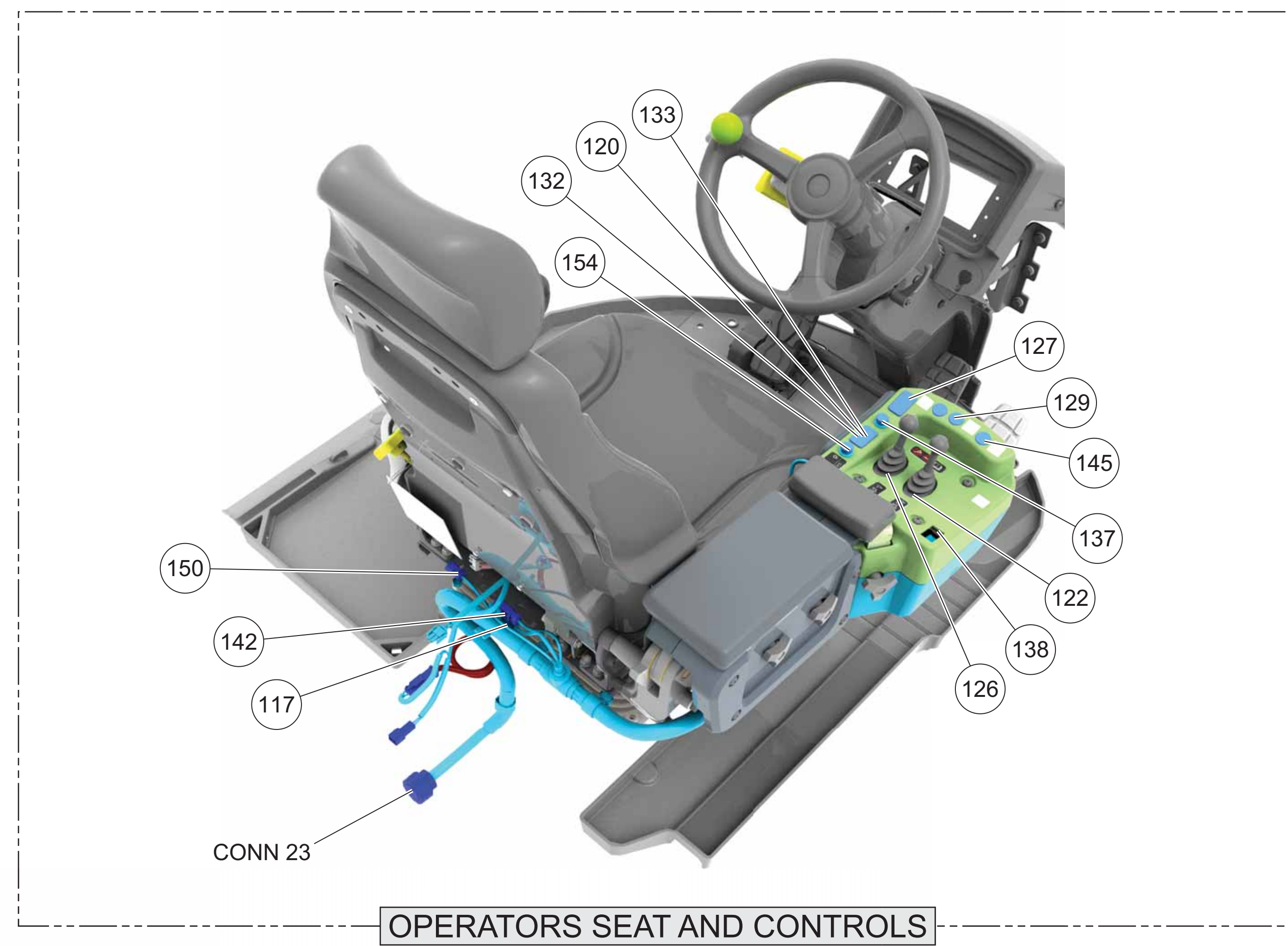
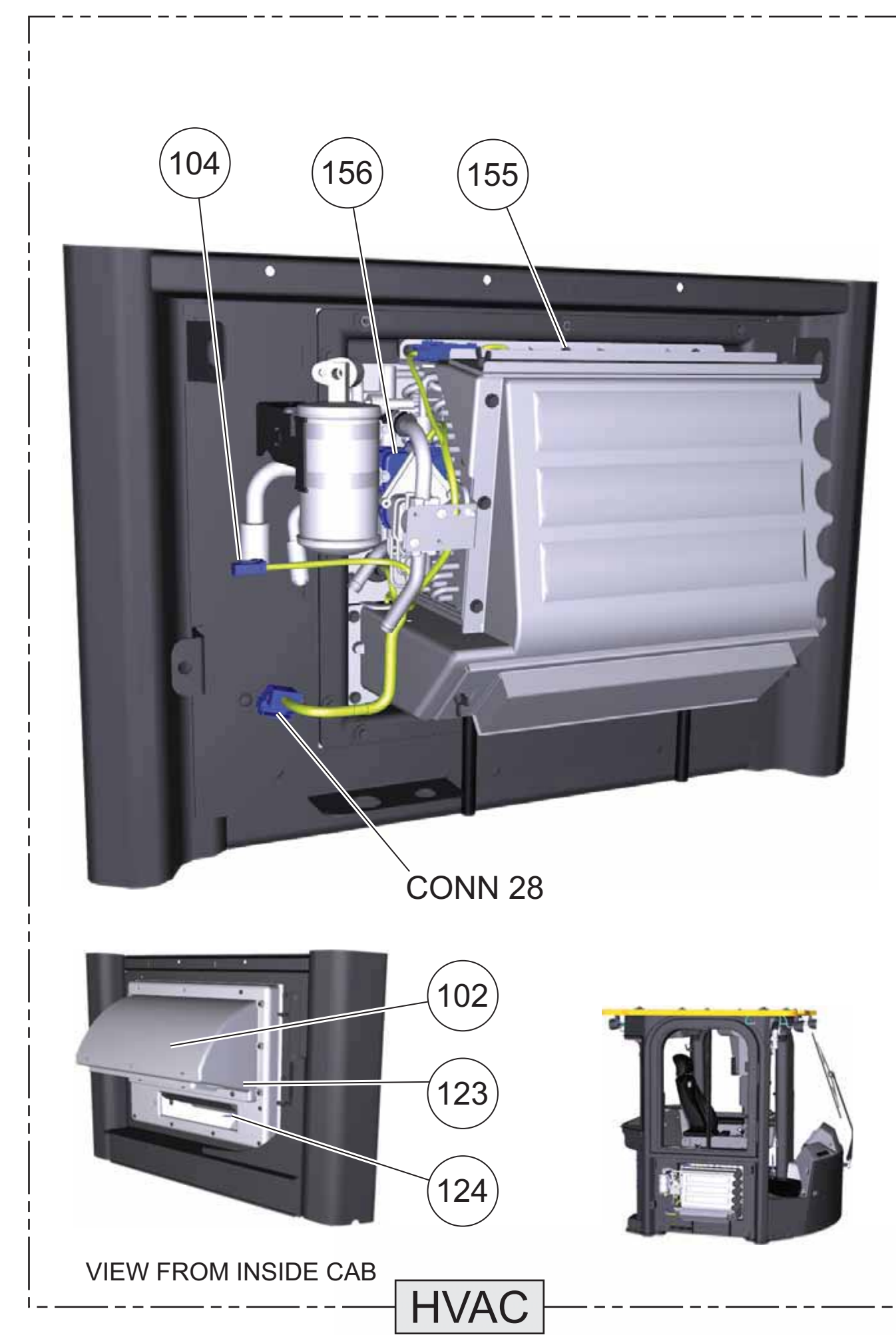
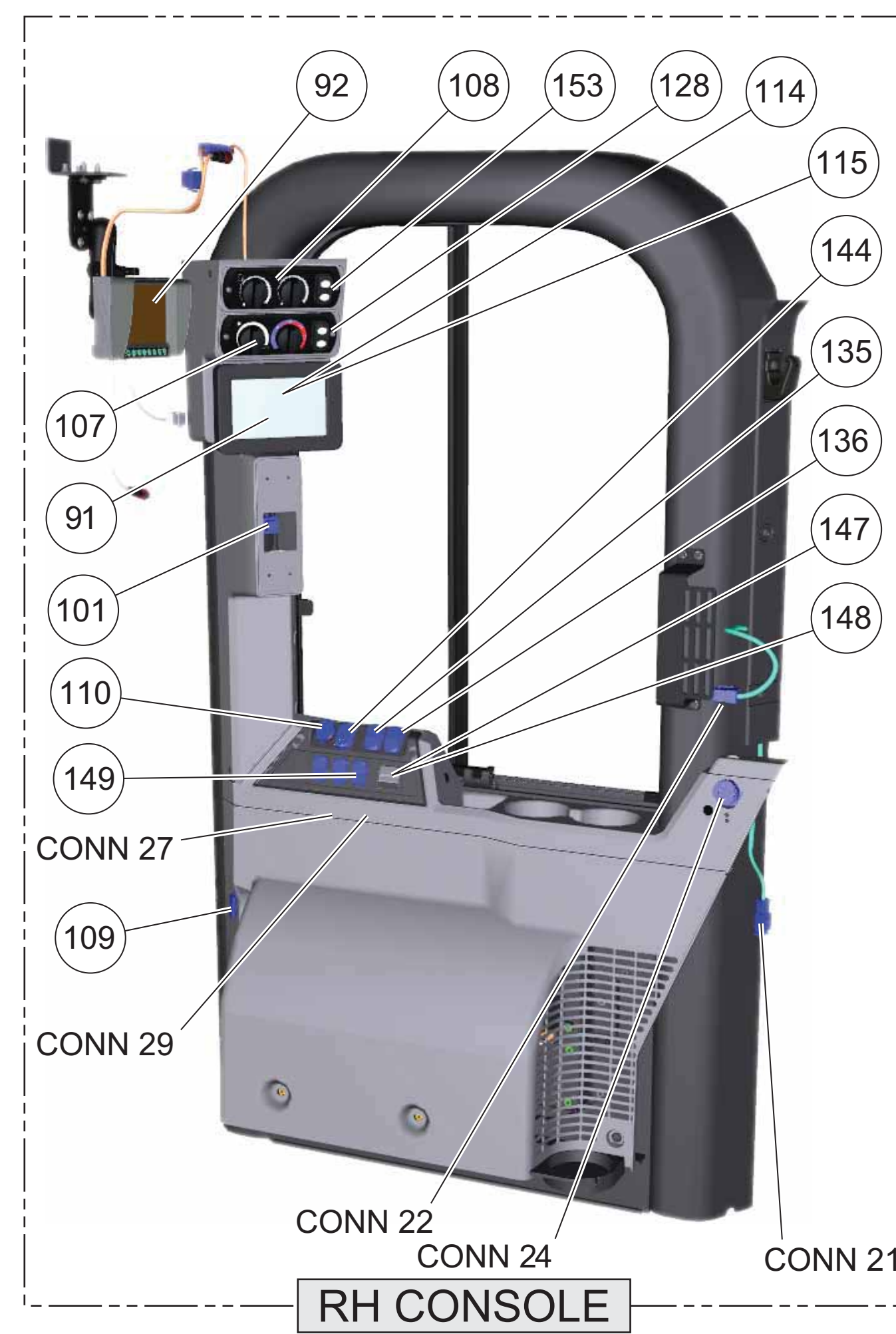
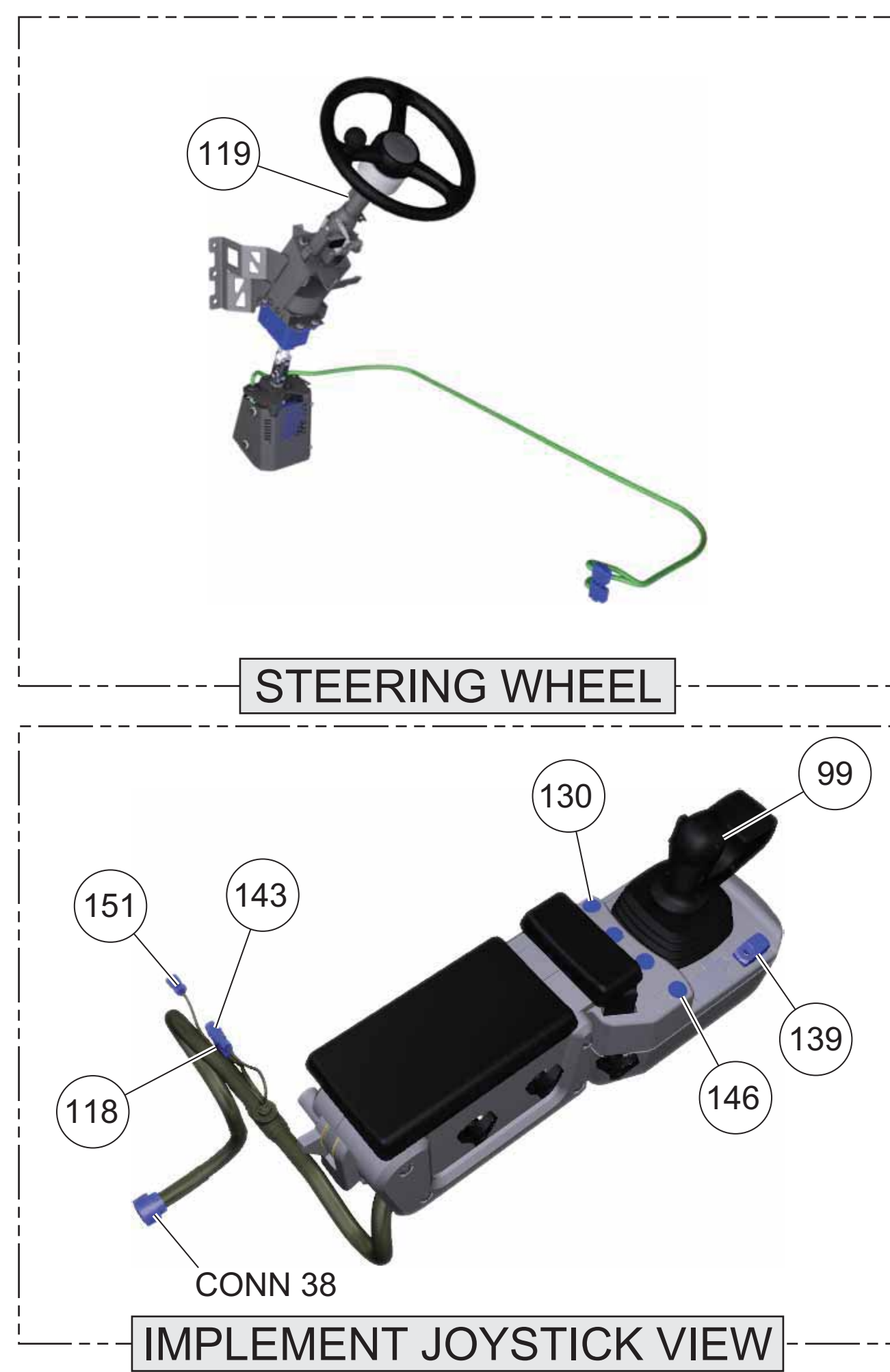
950M:  
EMB1-UP  
FTR1-UP

962M:  
EJB1-UP  
F2T1-UP

Volume 2 of 4: Cab With Steering Wheel

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### Harness and Wire Electrical Schematic Symbols

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**Symbols and Definitions**

**Fuse:** A component in an electrical circuit that will open the circuit if too much current flows through it.

**Switch (Normally Open):** A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.

**Switch (Normally Closed):** A switch that will open at a specified point (temp, press, etc.). No circle indicates that the wire cannot be disconnected from the component.

**Ground (Wired):** This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.

**Ground (Clear):** This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.

**Reed Switch:** A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch. It opens the contacts of a normally closed reed switch.

**Sensor:** A component that is used with a temperature or pressure gauge. The sensor measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.

**Relay (Magnetic Switch):** A relay is an electrical component that is actuated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close the switch part of the relay.

**Solenoid:** A solenoid is an electrical component that is actuated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a gear or ratchet that can do work.

**Magnetic Latch Solenoid:** A magnetic latch solenoid is an electrical component that is actuated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnets when current flows through them. It also has a thermal switch that places the latch coil circuit open at the time the coil latches.

**Harness and Wire Symbols**

Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Harness Connector Identification. Includes the "C" wire for "Connector" and the "H" wire for "Harness".

Part Number for Connector Plug, Part Number for Connector Receptacle

Deutsch connector: Typical representation of a Deutsch connector. The plug contains all sockets and the receptacle contains all pins.

Bare-Bead connector: Typical representation of a bare-bead connector. The plug and receptacle contain both pins and sockets.

Harness Identification Letters: JA, C, - (JA, AC, AC).

Harness Connector Schematic Code: The "C" wire for "Connector" and the "H" wire for "Harness".

Part Number for Connector Plug, Part Number for Connector Receptacle

Fuse (Amp): 9X-1123, 9X-1124

Wire Gauge: 12S-AG135, PK14

Component Location					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alarm - Alarm	D-13	83	Sensor - 3RD Function Lever Position	G-4	121
Alarm - Machine Feature	D-13	84	Sensor - LH Pedal Position	G-4	122
Bus Bar - 1	D-10	85	Sensor - L/R Lever Position	C-7	122
Bus Bar - 2	E-10	86	Sensor - Lower Temperature	G-3	123
Col. M55 Exciter	A-4	87	Sensor - Rear Filter Temperature	G-3	124
Converter - 10A	C-4	88	Sensor - RH Pedal Position	G-4	125
Converter - 20A	B-4	89	Selector - LE Lever Position	C-7	126
Display - Indication	A-4	90	Selector - LE Lever Position	B-7	127
Display - Information	J-10	91	Switch - AutoManual A/C	F-4	128
Display - Warning	B-1	92	Switch - AutoManual A/C	D-7	129
ECM - Implementation	H-14	93	Switch - Autolock Trigger 2	D-1	130
ECM - Relay Driver Module	A-14	94	Switch - Door	C-4	131
ECM - Transmission	J-12	95	Switch - PARK 1	E-7	132
Flasher AS	D-14	96	Switch - PARK 2	E-7	133
Fuse Block AS-1	E-10	97	Switch - Fog Light	E-1	134
Fuse Block AS-2	E-10	98	Switch - Horn	E-4	135
Joystick - Implementation	D-11	99	Switch - Horn	E-4	136
Joystick Block AS	E-10	100	Switch - Interlock Mirrors	E-4	137
Keyset	B-4	101	Switch - Interlock Mirrors	E-4	138
Motor - Blower	H-3	102	Switch - Interlock Lockout 1	E-2	139
Motor - Front Wiper	B-4	103	Switch - Interlock Lockout 2	E-2	140
Motor - Protractor	H-3	104	Switch - Key	E-4	141
Motor - Rear Wiper	B-4	105	Switch - Manual Differential Lock	G-4	142
M55 Exciter	A-4	106	Switch - Operator Present 1	D-7	143
Panel - HVAC	B-4	107	Switch - Operator Present 2	D-1	144
Panel - Wiper	B-4	108	Switch - Parking Brake	F-4	145
Part - 12V 1	C-4	109	Switch - P/CS Stop 1	C-1	146
Part - 12V 2	C-4	110	Switch - P/CS Stop 2	C-1	147
Part - 12V 3	C-4	111	Switch - P/CS Stop 3	C-1	148
Relay - Line Current Mode	E-10	112	Switch - Power Mirror 1	F-4	149
Relay - Main Power	E-10	113	Switch - Power Mirror 2	F-1	149
Resistor - CAN Data Link A	H-4	114	Switch - Quick Clutch	F-4	150
Resistor - CAN Data Link B	D-7	115	Switch - Seat Belt 1	D-6	150
Resistor - HVAC	H-13	116	Switch - Seat Belt 2	C-1	151
Seat GP 1	D-6	117	Switch - Stop Lamp	B-4	152
Seat GP 2	C-1	118	Switch - Stop Lamp	B-4	153
Sensor - Transmission Gear	B-7	119	Switch - Throttle / Manual D/F Lock	C-7	154
			Throttle - HVAC Evaporator	H-3	155
			Video - Water	G-3	156

Always check component part numbers with Parts Manual for your specific machine.

Resistor, Sensor, and Solenoid Specifications		
Part No.	Component Description	Resistance (Ohms)
134-2540	Resistor - CAN Data Link A	120 ± 10
229-4902	Resistor - HVAC	150 ± 7.5

1 = 100 milliwatt resistor unless otherwise noted.

Connector Location	
Connector Number	Schematic Location
CONN 4	J-7
CONN 5	H-7
CONN 6	E-7
CONN 7	E-7
CONN 8	F-7
CONN 20 - To PCB Printer	D-12
CONN 21	A-12
CONN 22	G-4, C-3
CONN 23	B-7
CONN 24	B-7
CONN 25	D-7
CONN 26	J-4
CONN 27	H-4, F-7
CONN 28	F-4
CONN 29	C-4
CONN 31	C-4
CONN 32	B-4

The connectors shown in this chart are for harness to harness connections. Connectors that are not shown in this chart are generally located at or near the component. See the Component Location Chart.

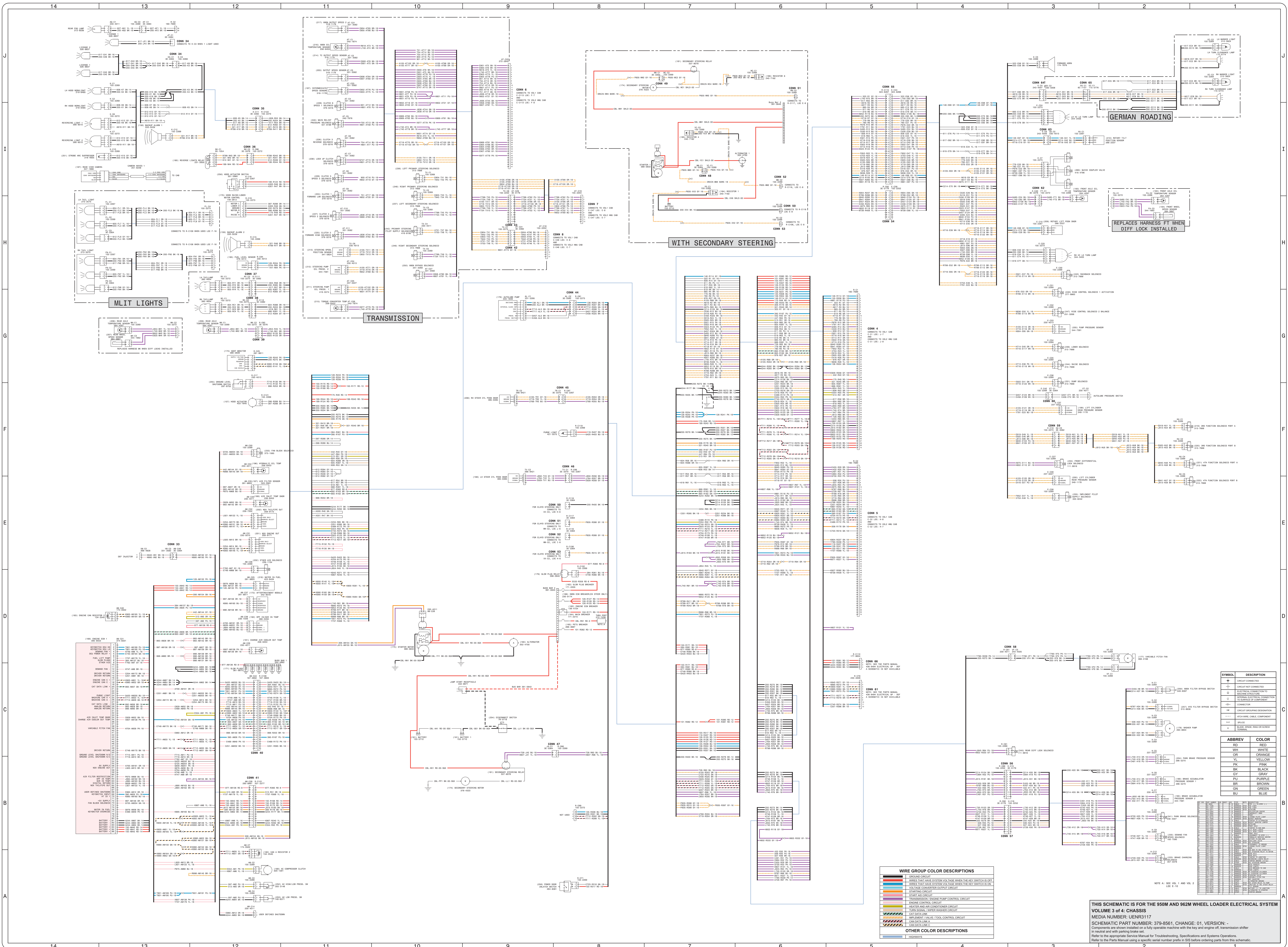












**THIS SCHEMATIC IS FOR THE 950M AND 962M WHEEL LOADER ELECTRICAL SYSTEM**  
VOLUME 3 of 4: CHASSIS  
MEDIA NUMBER: UENR3117  
SCHEMATIC PART NUMBER: 379-8561, CHANGE: 01, VERSION:  
Continues on sheet included on a full operating machine with key and engine off. Transmission shifter  
in neutral and with parking brake set.  
Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.  
Refer to the Parts Manual using a specific serial number prefix in SIS before ordering parts from this schematic.



# Schematic

## 950M and 962M Wheel Loader Electrical System

950M:  
EMB1-UP  
FTR1-UP

962M:  
EJB1-UP  
F2T1-UP

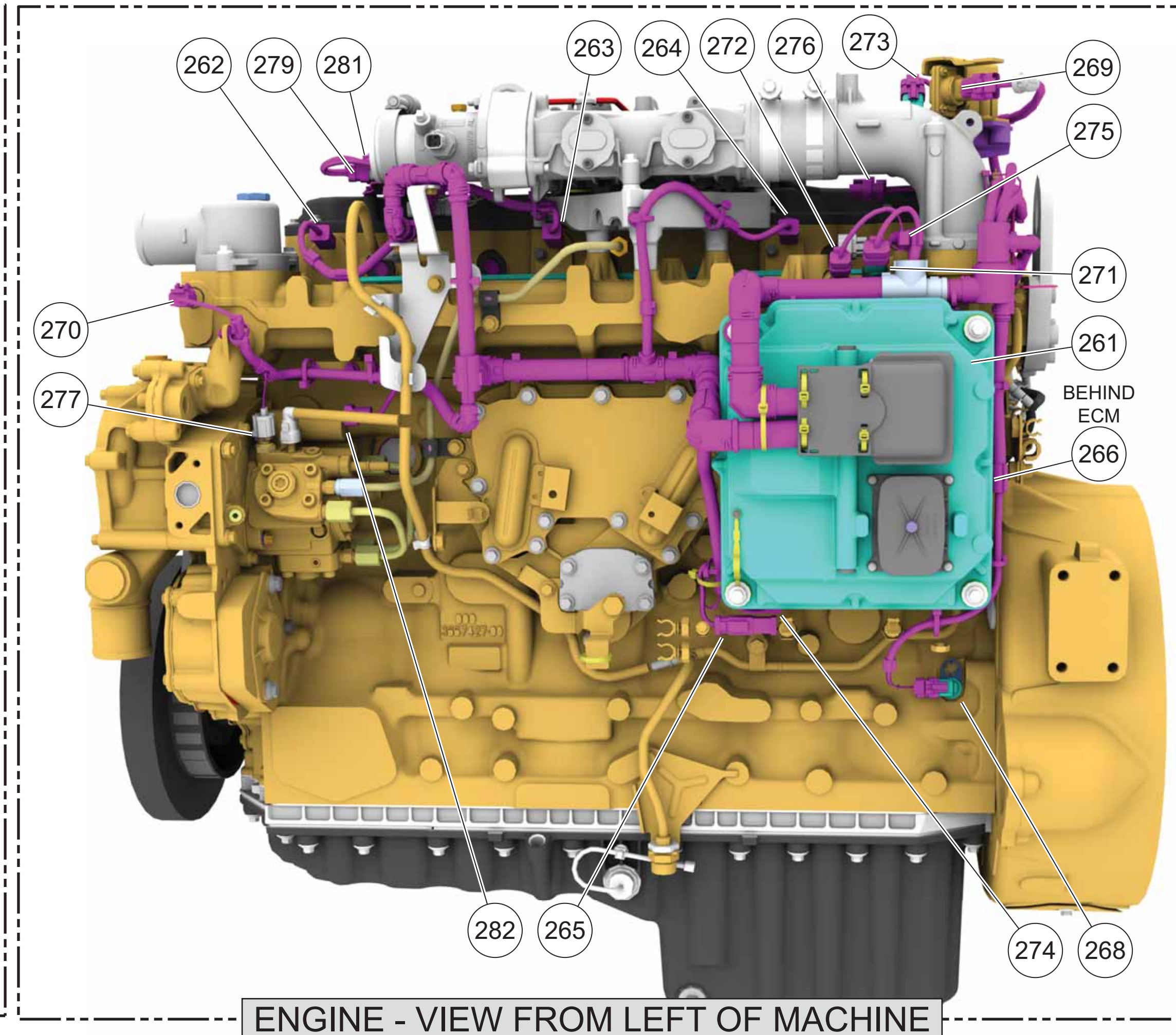
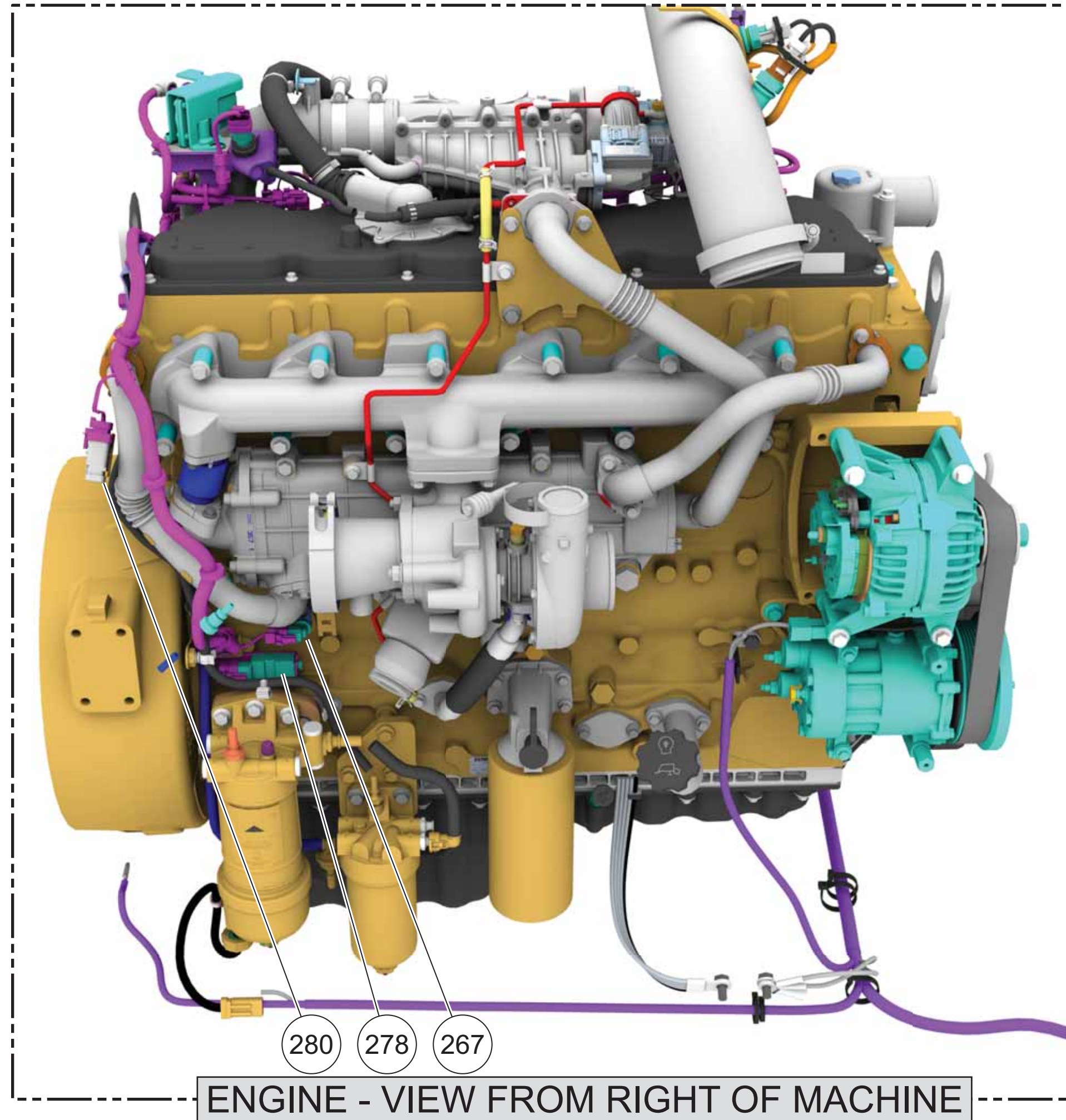
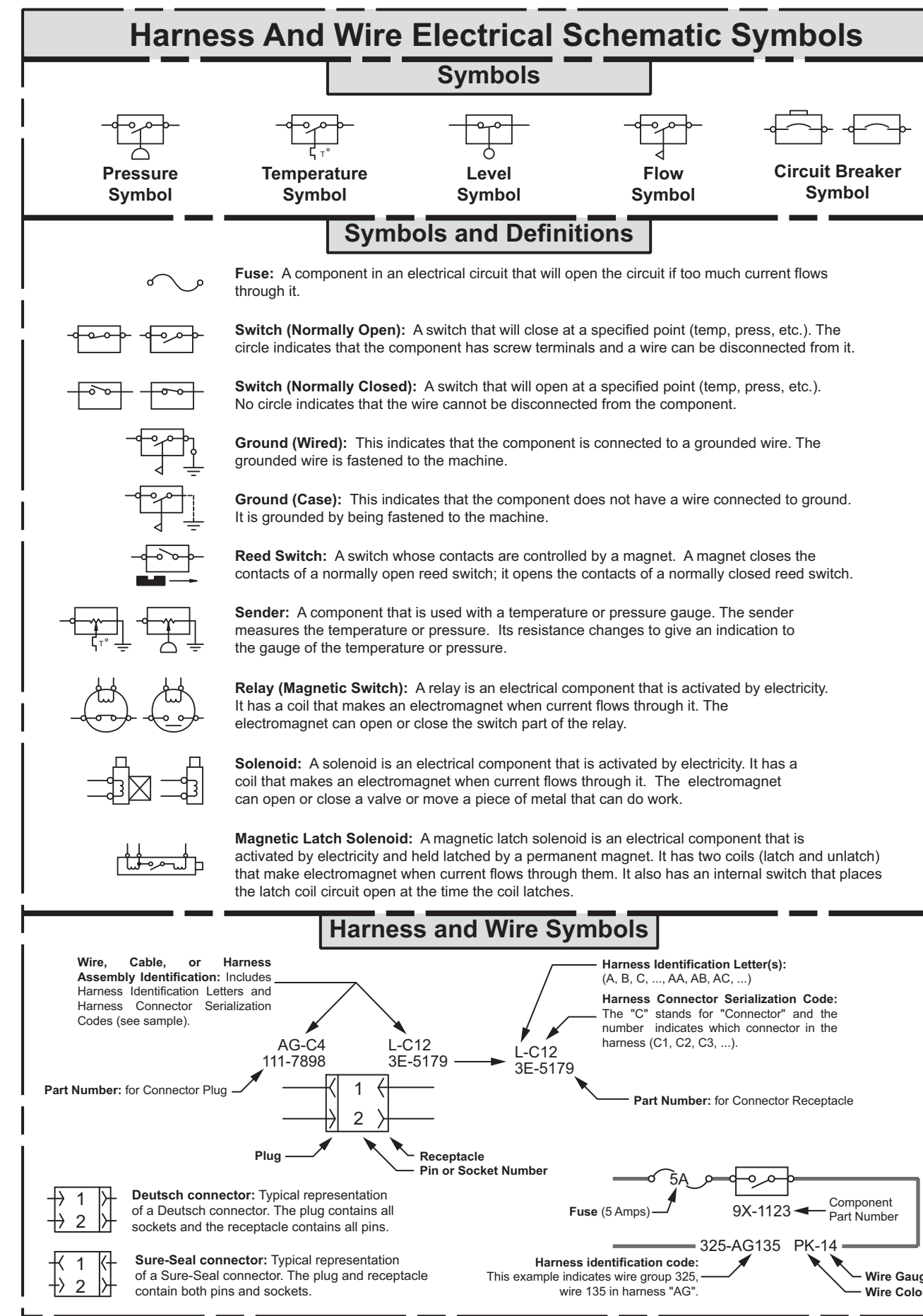
Component Location		
Component	Schematic Location	Machine Location
Control Gp - Engine ECM	F-7	261
Injector Harness 1	F-2	262
Injector Harness 2	F-2	263
Injector Harness 3	F-2	264
Pump - Fuel Lift	A-4	265
Sensor Gp - Barometric Pressure	C-2	266
Sensor Gp - Cam Speed	E-2	267
Sensor Gp - Crank Speed	D-2	268
Sensor Gp - Differential Pressure (EGR Inlet)	B-4	269
Sensor Gp - Engine Coolant Temperature	D-2	270
Sensor Gp - Engine Inlet Manifold Pressure	D-2	271
Sensor Gp - Engine Inlet Manifold Temperature	D-2	272
Sensor Gp - Pressure (EGR Inlet)	C-4	273
Sensor Gp - Pressure (Engine Oil)	D-2	274
Sensor Gp - Pressure (Fuel)	E-2	275
Sensor Gp - Temperature (EGR Inlet)	C-4	276
Sensor Gp - Temperature (Fuel)	E-2	277
Sensor Gp - Temperature (Turbo Outlet)	A-5	278
Smart Waste Gate	A-4	279
Valve - Back Pressure Valve	B-4	280
Valve - EGR	B-4	281
Valve - Fuel Pump Control	E-2	282

NOTE: Refer to the Parts Manual using a specific serial number prefix in SIS before ordering parts from this schematic.

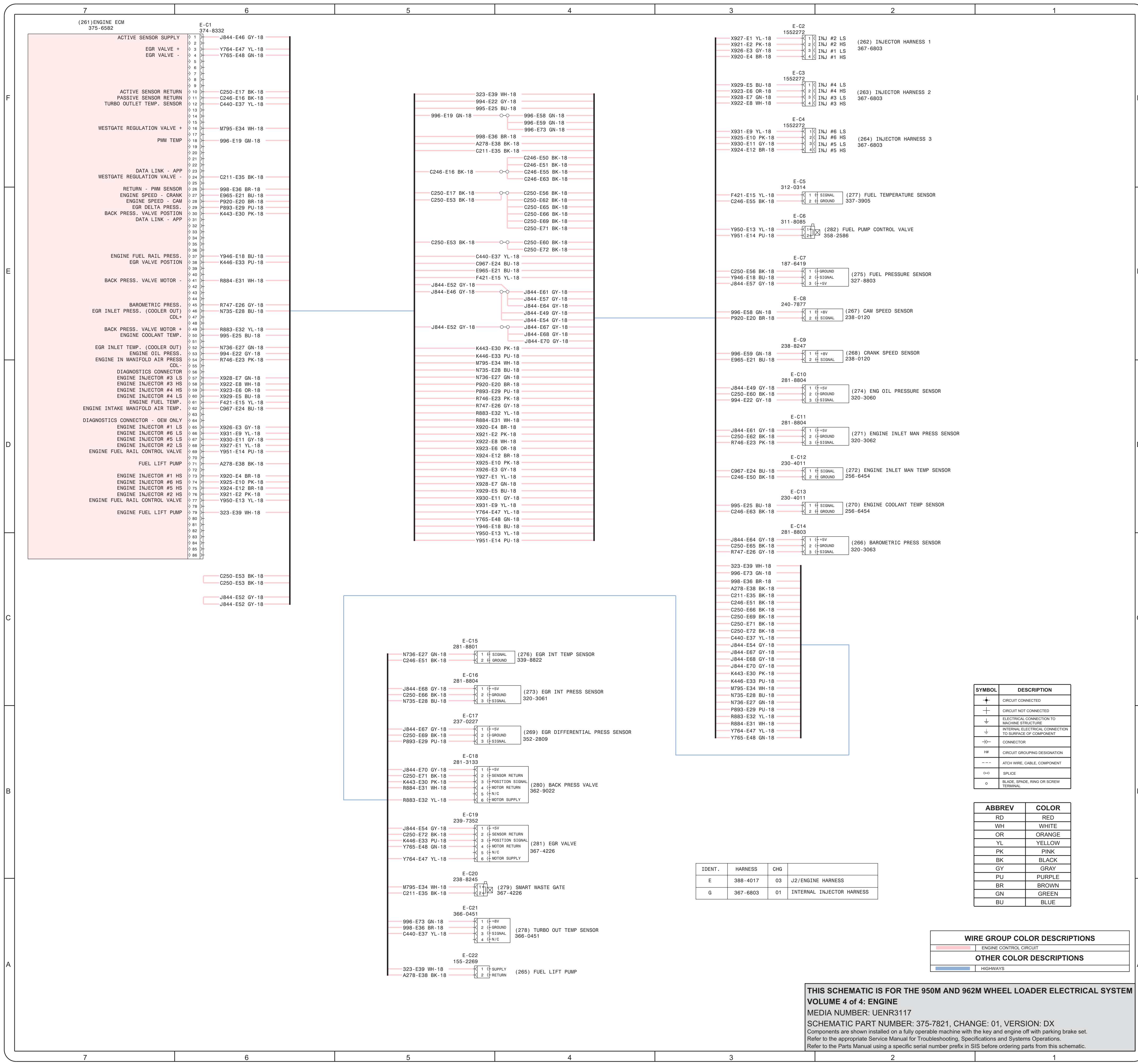
### Volume 4 of 4: Engine

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**THIS SCHEMATIC IS FOR THE 950M AND 962M WHEEL LOADER ELECTRICAL SYSTEM**  
**VOLUME 4 of 4: ENGINE**  
 MEDIA NUMBER: UENR3117  
 SCHEMATIC PART NUMBER: 375-7821, CHANGE: 01, VERSION: DX  
 Components are shown installed on a fully operable machine with the key and engine off with parking brake set.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.  
 Refer to the Parts Manual using a specific serial number prefix in SIS before ordering parts from this schematic.