

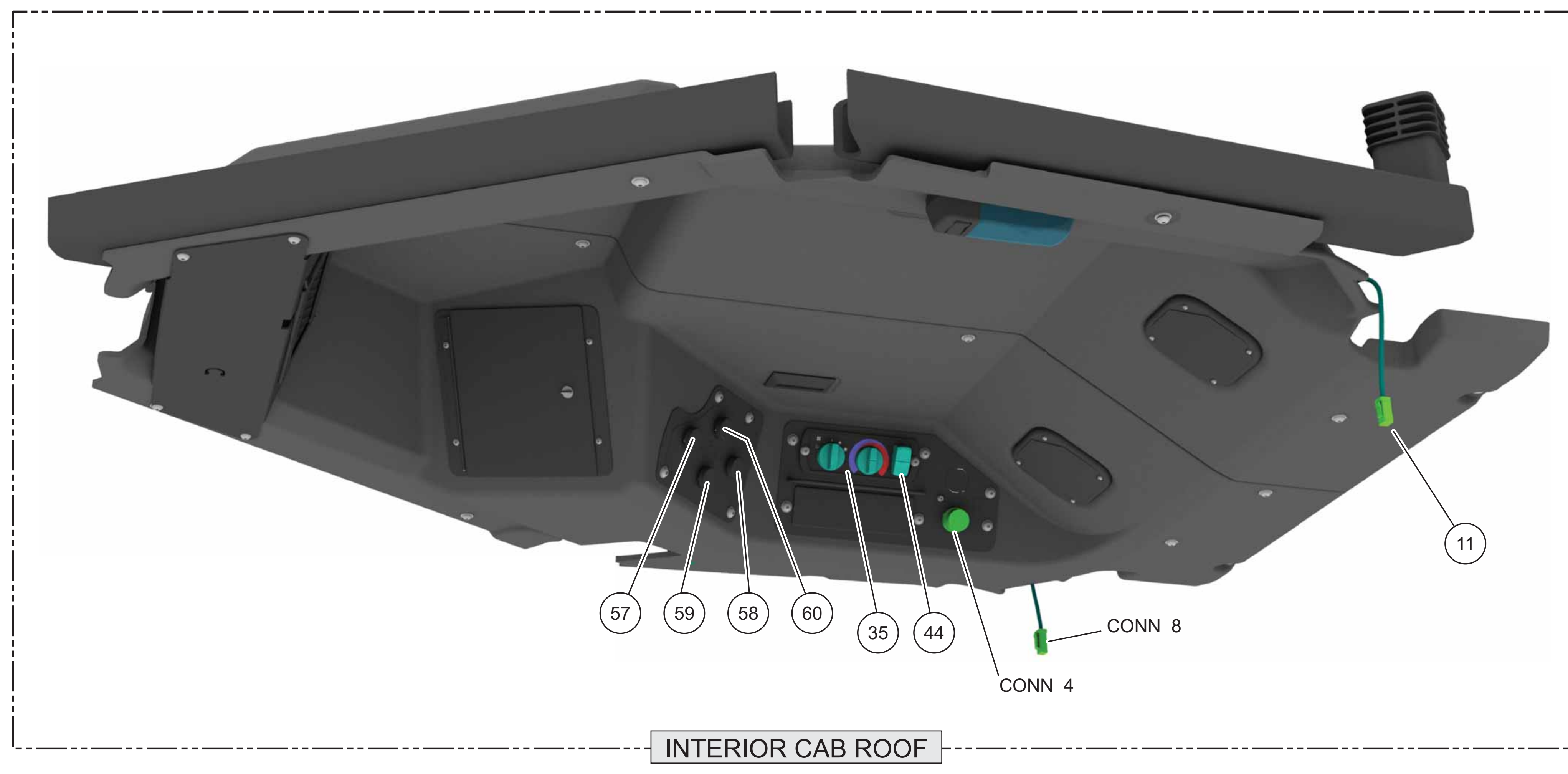
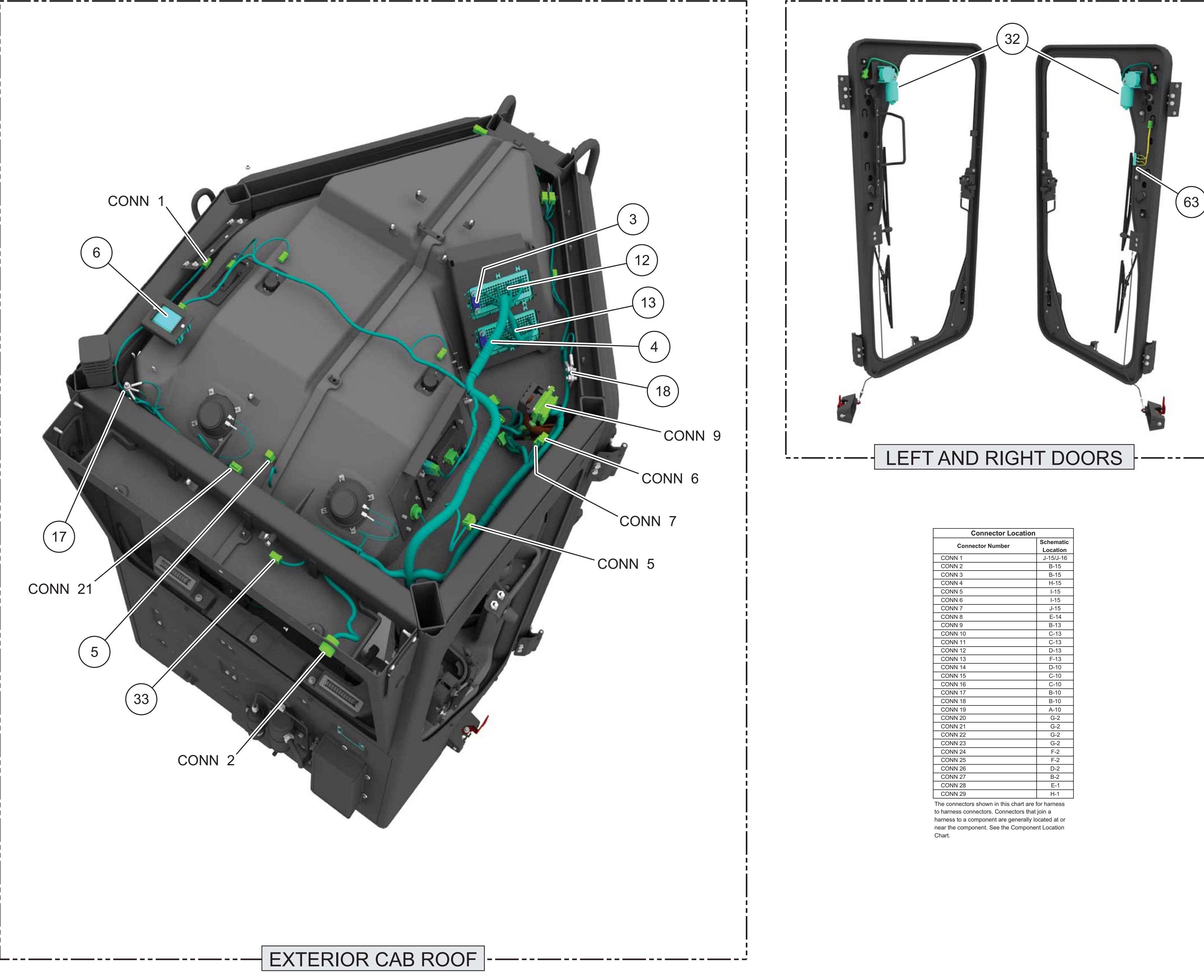
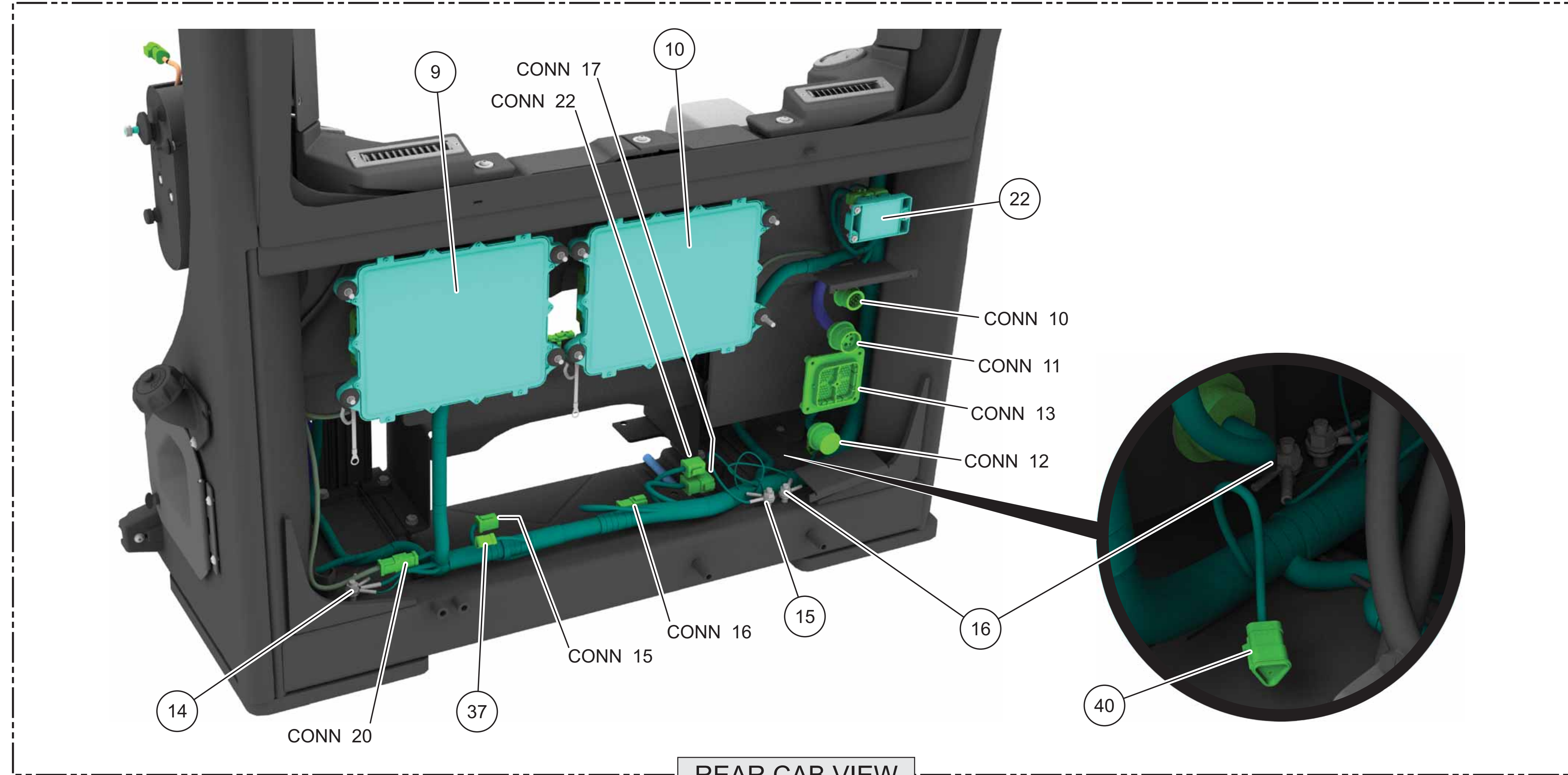
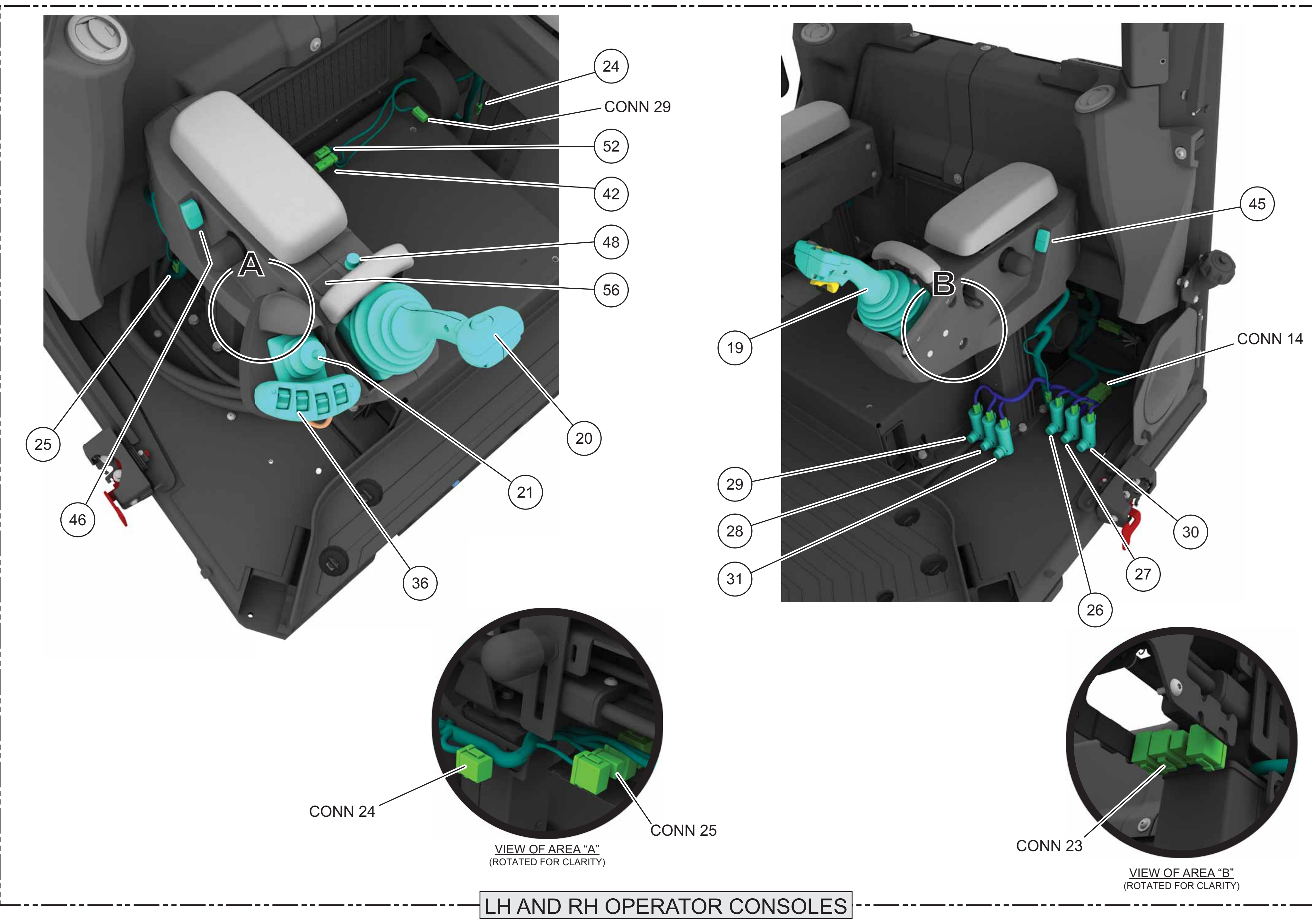
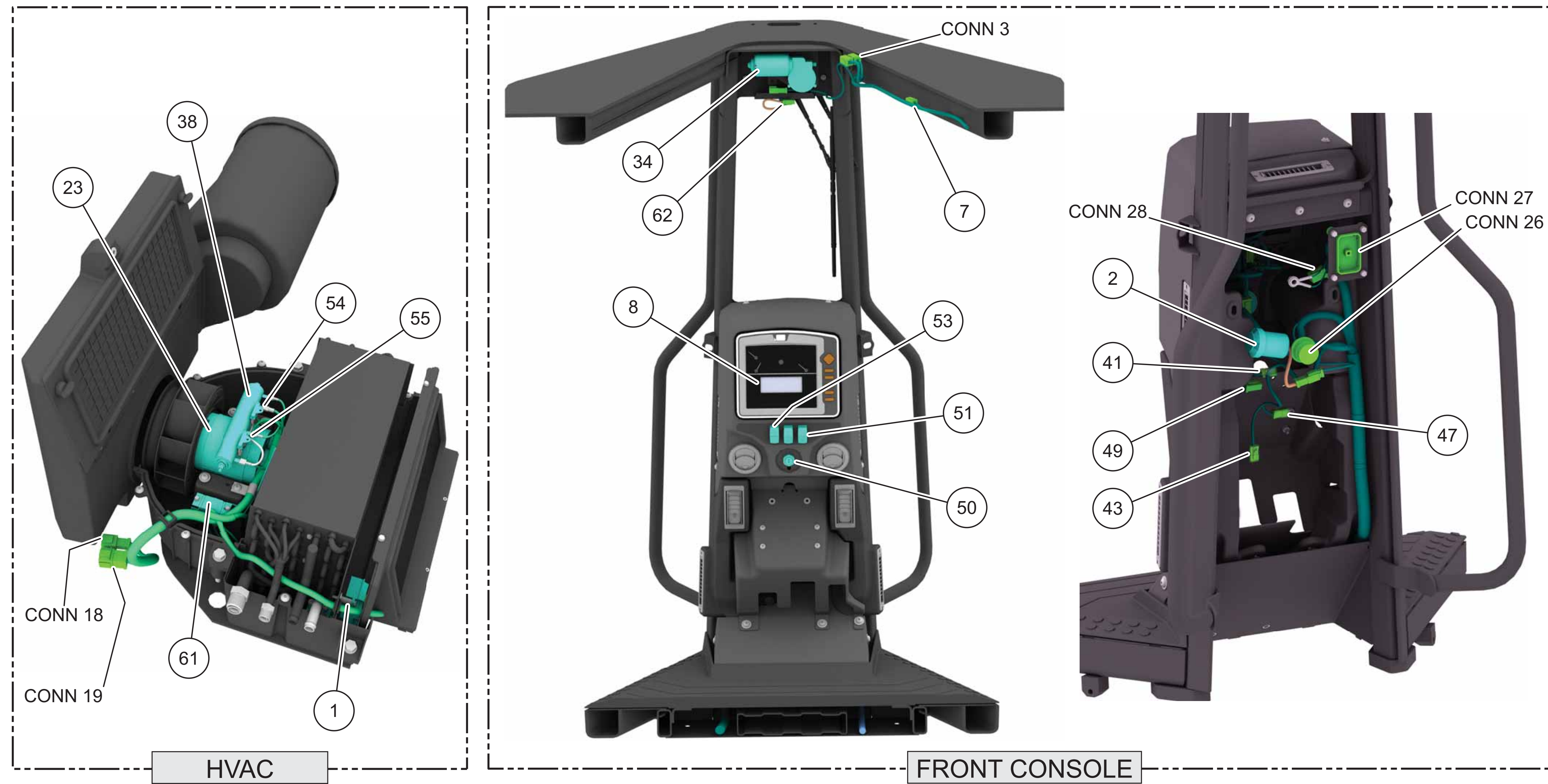
# Schematic

## 12M3, 140M3, and 160M3 Motor Grader Electrical System

12M3: N8B1-UP, N9F1-UP, N9P1-UP, N9R1-UP  
140M3: N9D1-UP, N9G1-UP, N9J1-UP, N9M1-UP  
160M3: N9E1-UP, N9K1-UP, N9L1-UP, N9T1-UP

Volume 1 of 4: Cab

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### Harness and Wire Electrical Schematic Symbols

**Symbols**

**Pressure Symbol**: [Symbol]

**Temperature Symbol**: [Symbol]

**Level Symbol**: [Symbol]

**Flow Symbol**: [Symbol]

**Circuit Breaker Symbol**: [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.

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

**Sensor**: A component that is used with a temperature or pressure gauge. The sensor requires 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 piece of metal that can 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. A latch has no return switch that prevents the latch coil from opening at the time the coil latches.

**Harness and Wire Symbols**

**Wire, Cable, or Harness Assembly Identification**: Includes Harness Identification Letters and Numbers, Connector Letters and Numbers, and Cable Numbers.

**Wire Number for Connector Plug**: [Symbol]

**Wire Number for Connector Receptacle**: [Symbol]

**Part Number for Connector Plug**: [Symbol]

**Part Number for Connector Receptacle**: [Symbol]

Connector Number	Bohemian Location
CONN 1	J-151/16
CONN 2	B-15
CONN 3	B-15
CONN 4	H-15
CONN 5	I-15
CONN 6	I-15
CONN 7	J-15
CONN 8	F-14
CONN 9	B-13
CONN 10	C-13
CONN 11	C-13
CONN 12	D-13
CONN 13	F-13
CONN 14	B-10
CONN 15	C-10
CONN 16	D-10
CONN 17	B-10
CONN 18	B-10
CONN 19	A-10
CONN 20	G-2
CONN 21	G-2
CONN 22	G-2
CONN 23	F-2
CONN 24	F-2
CONN 25	B-2
CONN 26	D-2
CONN 27	B-2
CONN 28	E-1
CONN 29	E-1

Component	Bohemian Location	Machine Location
Activator - Upper Valve	B-1	
Alarm - Alarm	H-1	2
Blower #1	C-1	3
Blower #2	E-1	4
Blower #3	E-1	5
Converter - Communications	A-13	6
Converter - Entertainment Radio	A-13	6
Display - Main Instrument	D-1	8
ECM - Instrument	J-8	9
ECM - Steering	J-10	10
Fan - Rear Defroster	E-15	11
Fuse Block - Switched	E-1	12
Fuse Block - Unswitched	G-7	13
Ground - Cab 1	B-10	15
Ground - Cab 2	B-10	15
Ground - Roof 1	C-14	17
Ground - Roof 2	C-14	18
JoyStick - LH	I-1	19
JoyStick - RH	D-1	21
Motor - Blower	A-8	23
Motor - LH-Open Armrest (LH)	B-1	25
Motor - LH-Open Armrest (RH)	B-1	25
Motor - Washer (Front)	D-9	27
Motor - Washer (LH Door)	D-9	29
Motor - Washer (RH Window)	C-6	26
Motor - Washer (RH Window)	C-6	26
Motor - Washer (RH Window)	D-9	29
Motor - Wiper (LH Door or RH Door)	J-16	32
Motor - Wiper (Front)	C-15	34
Panel - HVAC	C-15	34
Panel - Auxiliary Control	E-1	36
Reactor - Accessible Service CAN	F-15	38
Reactor - Blower Motor	A-8	38
Reactor - Blower Fan (Not Shown)	F-15	38
Reactor - Steering CAN	C-13	43
Sensor - Working Paper (Not Shown)	A-3	42
Sensor - Operator Present	A-3	42
Sensor - Vehicle Position (Not Shown)	C-15	44
Switch - A/C	C-15	44
Switch - Access (LH)	J-1	45
Switch - Access (RH)	F-1	45
Switch - Brake Light (Not Shown)	F-1	45
Switch - Horn	C-1	46
Switch - Key	F-1	48
Switch - Parking Brake	H-3	51
Switch - Fuel Tank	A-3	52
Switch - Working Paper (Not Shown)	F-1	48
Switch - Thermal 1	A-8	54
Switch - Thermal 2	A-8	55
Switch - Turn Signal	C-1	56
Switch - Wiper (Front)	G-15	57
Switch - Wiper (Rear)	H-15	58
Switch - Wiper (RH Door)	G-15	59
Thermocouple - (RH Door)	A-3	42
Thermocouple	B-8	61
Window - Rear Window	A-3	42
Window - Side Window	I-10	63







# Schematic

## 12M3, 140M3, and 160M3 Motor Grader Electrical System

12M3: N8B1-UP N9F1-UP N9P1-UP N9R1-UP	140M3: N9D1-UP N9G1-UP N9J1-UP N9M1-UP	160M3: N9E1-UP N9K1-UP N9L1-UP N9T1-UP
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Volume 2 of 4: Additional Cab Components

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### Harness And Wire Electrical Schematic Symbols

**Symbols**

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

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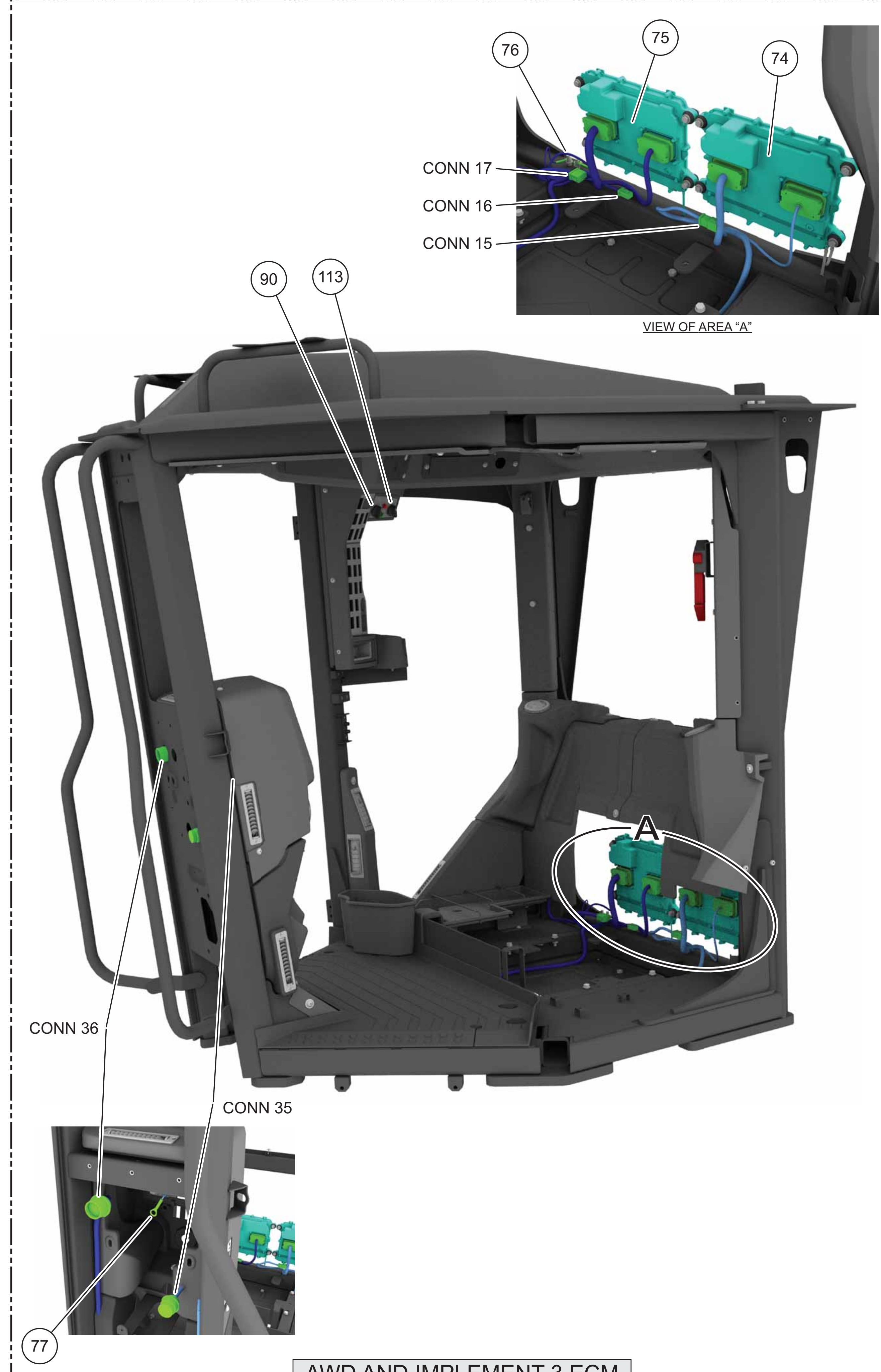
**Harness and Wire Symbols**

Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Colors and Codes as Applicable.

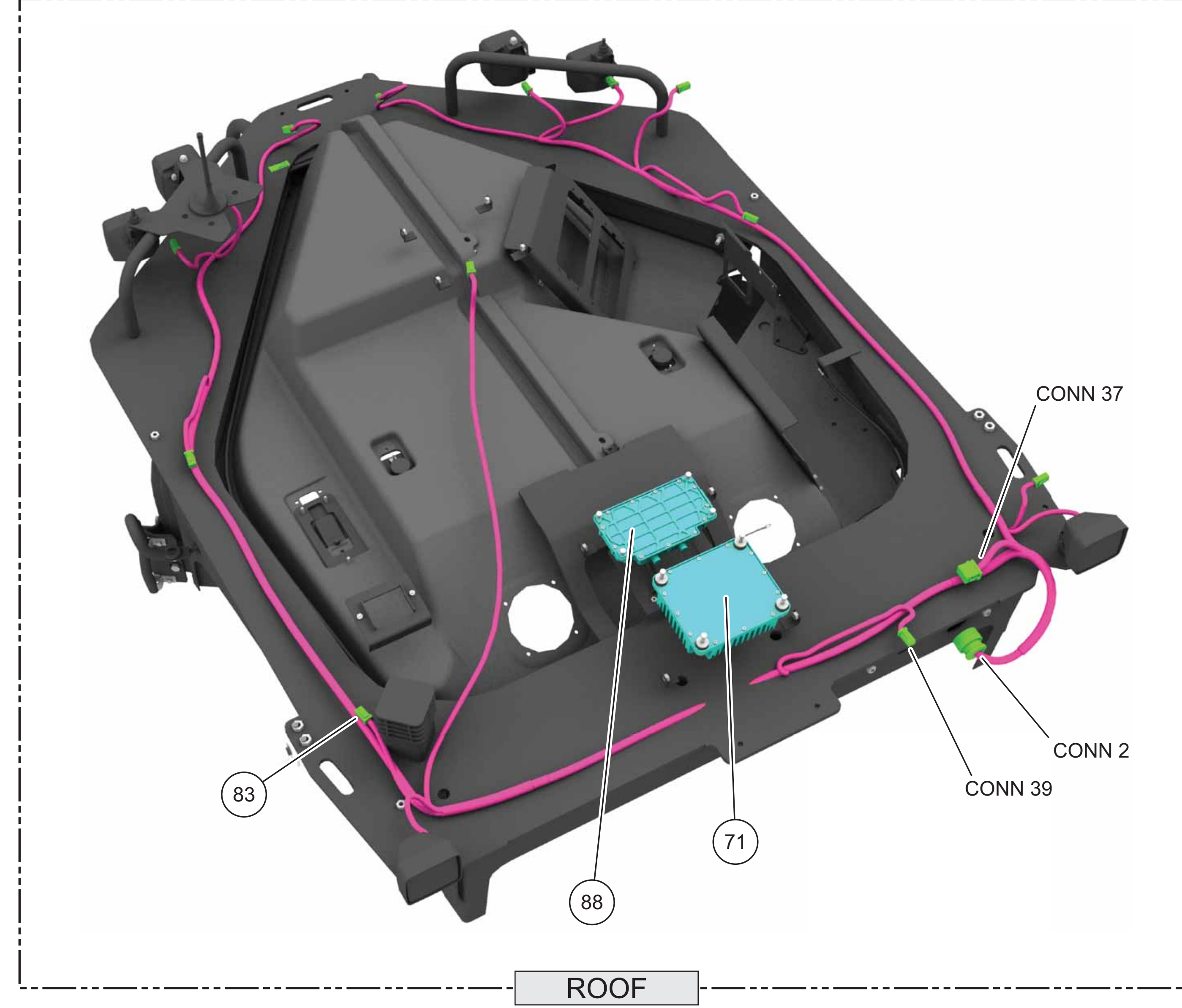
Part Number for Connector Plug, Part Number for Connector Receptacle

1 1 2 2 2 2

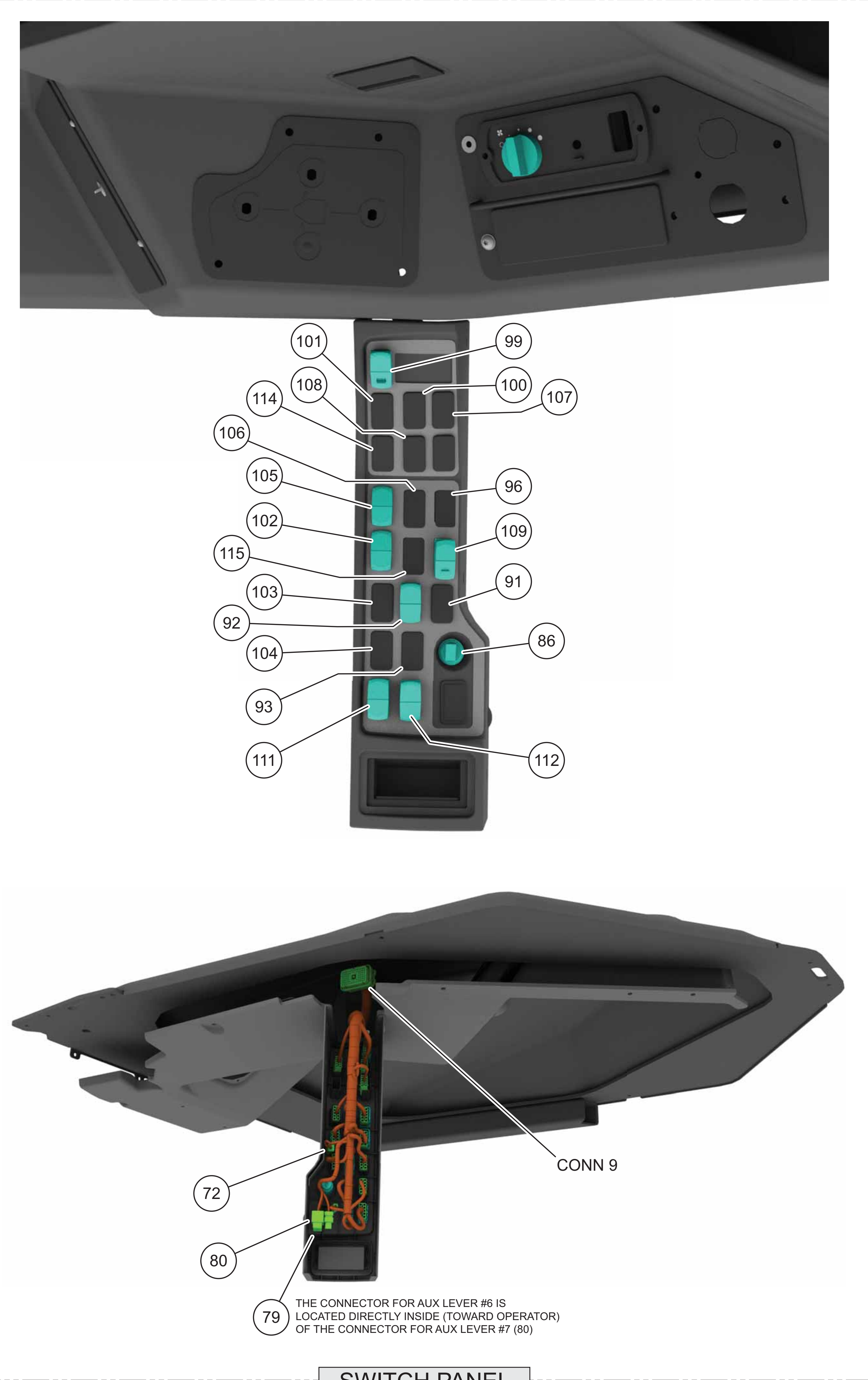
1 1 2 2 2 2



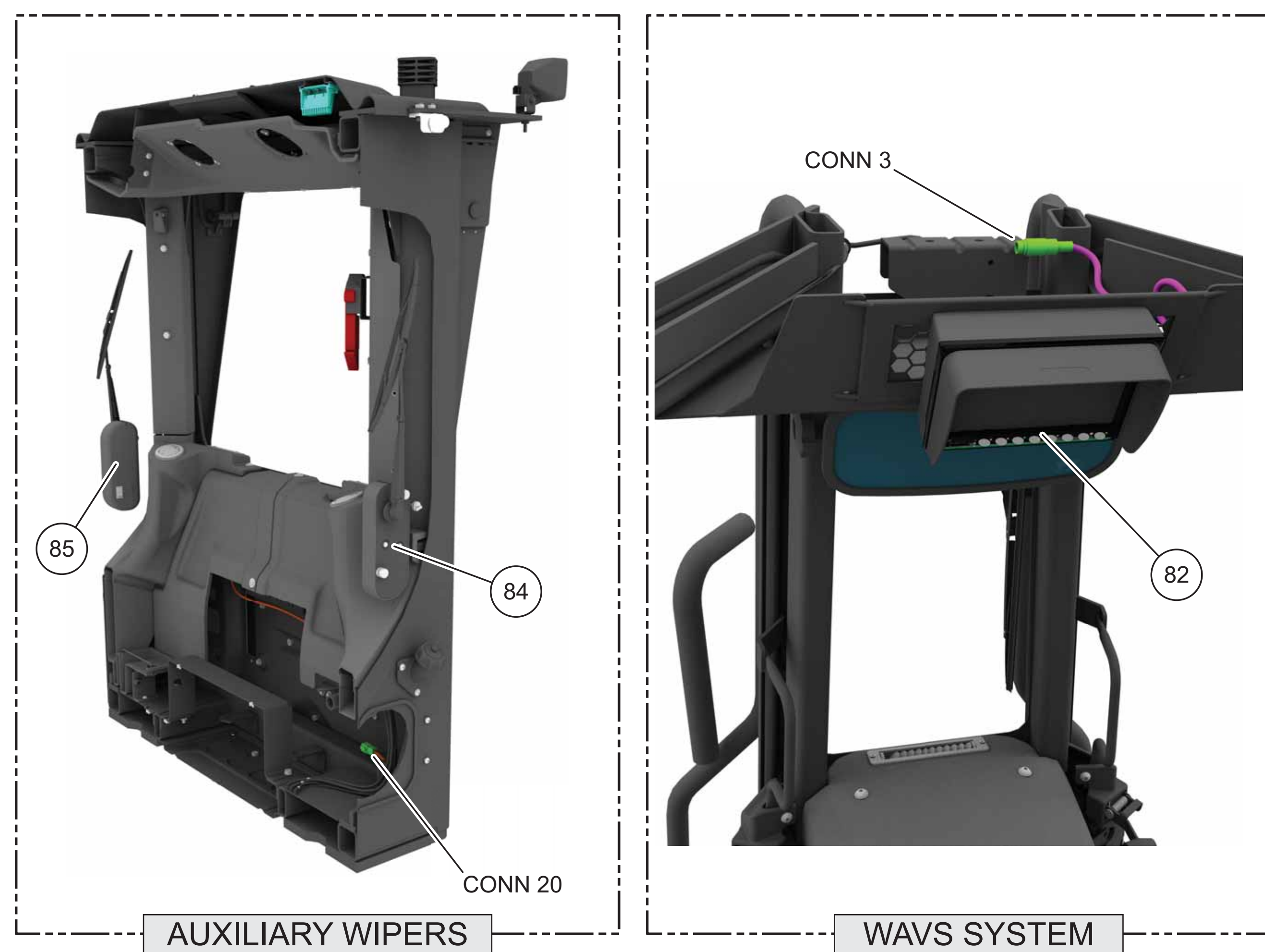
AWD AND IMPLEMENT 3 ECM



ROOF

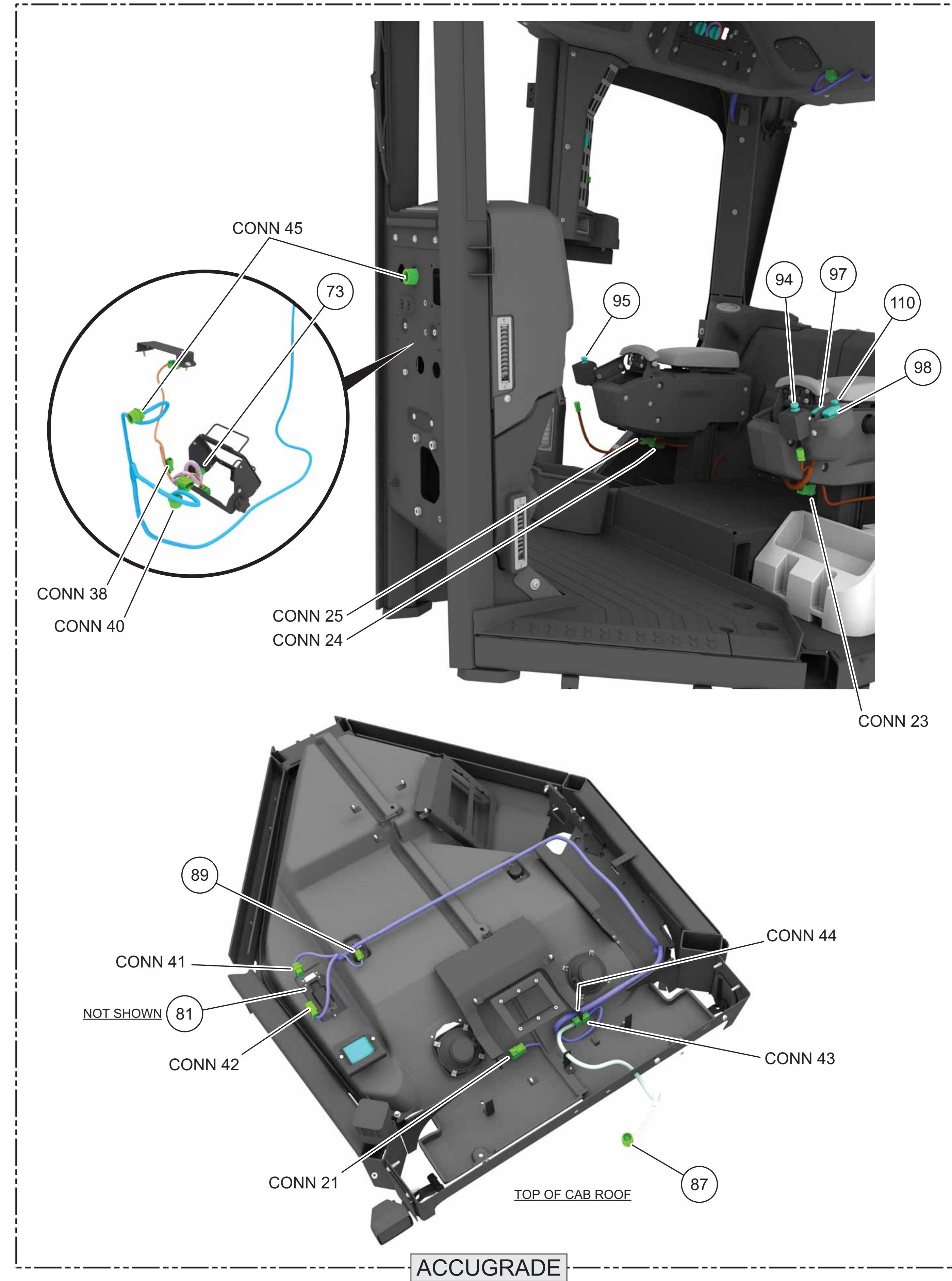


SWITCH PANEL

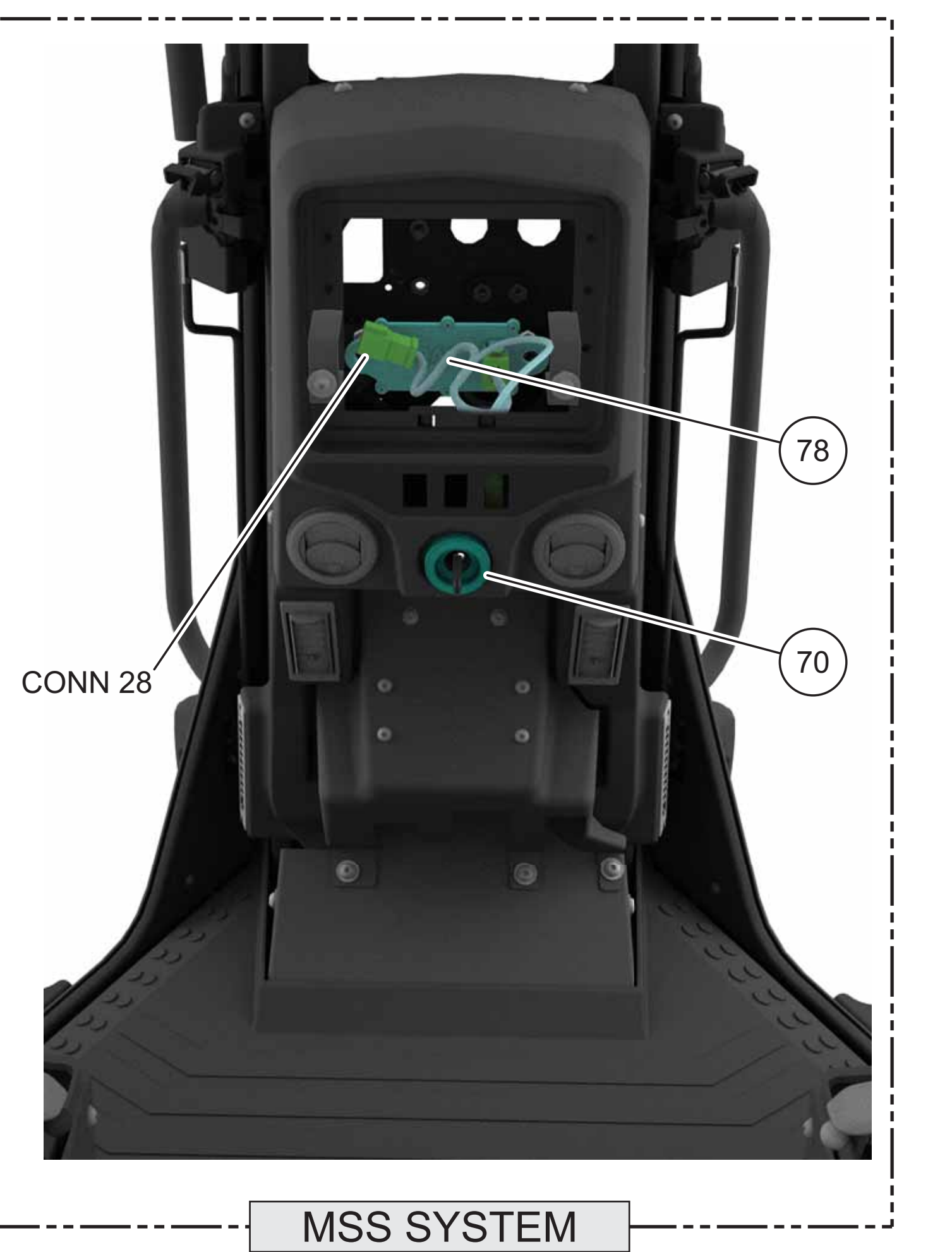


AUXILIARY WIPERS

WAVS SYSTEM



ACCUGRADE









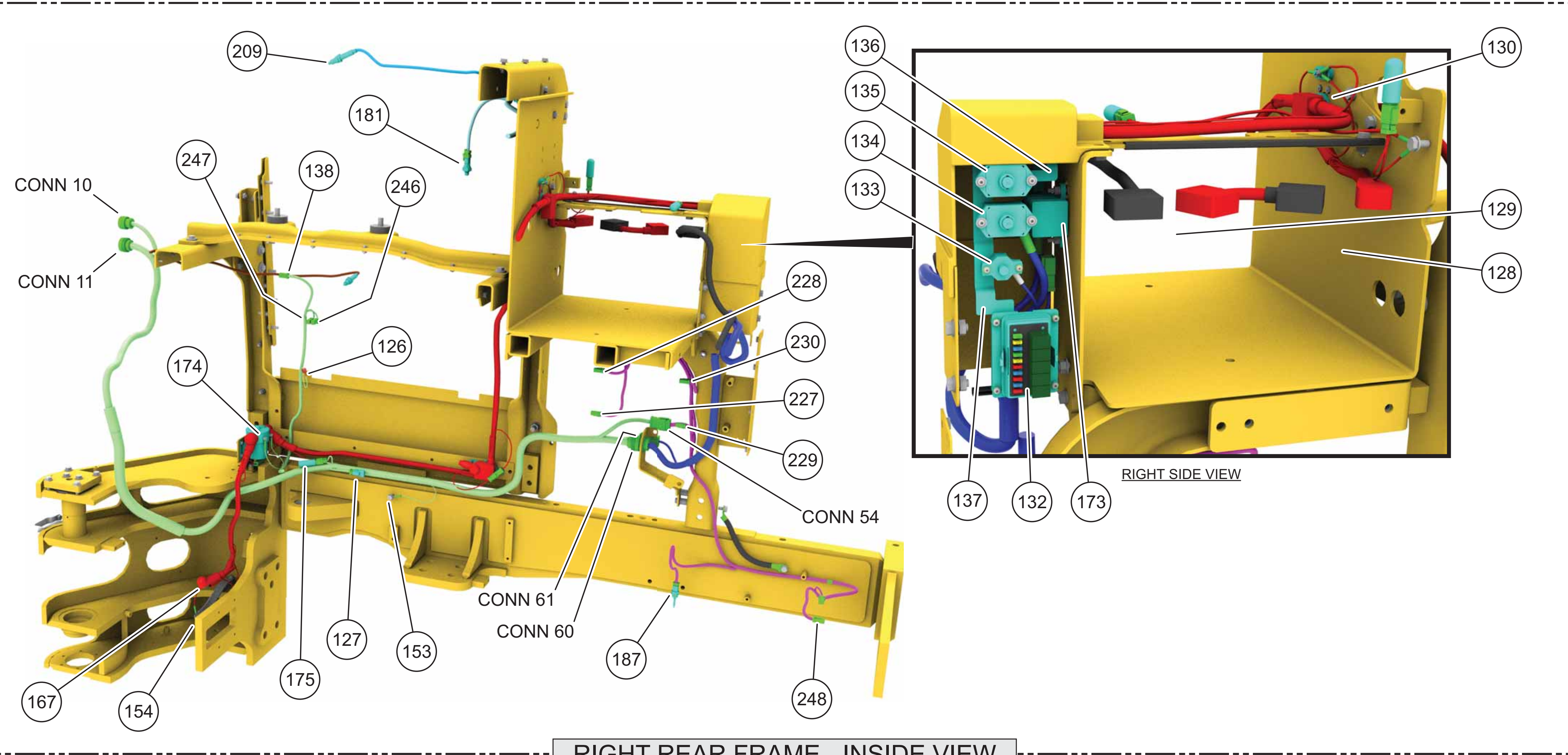
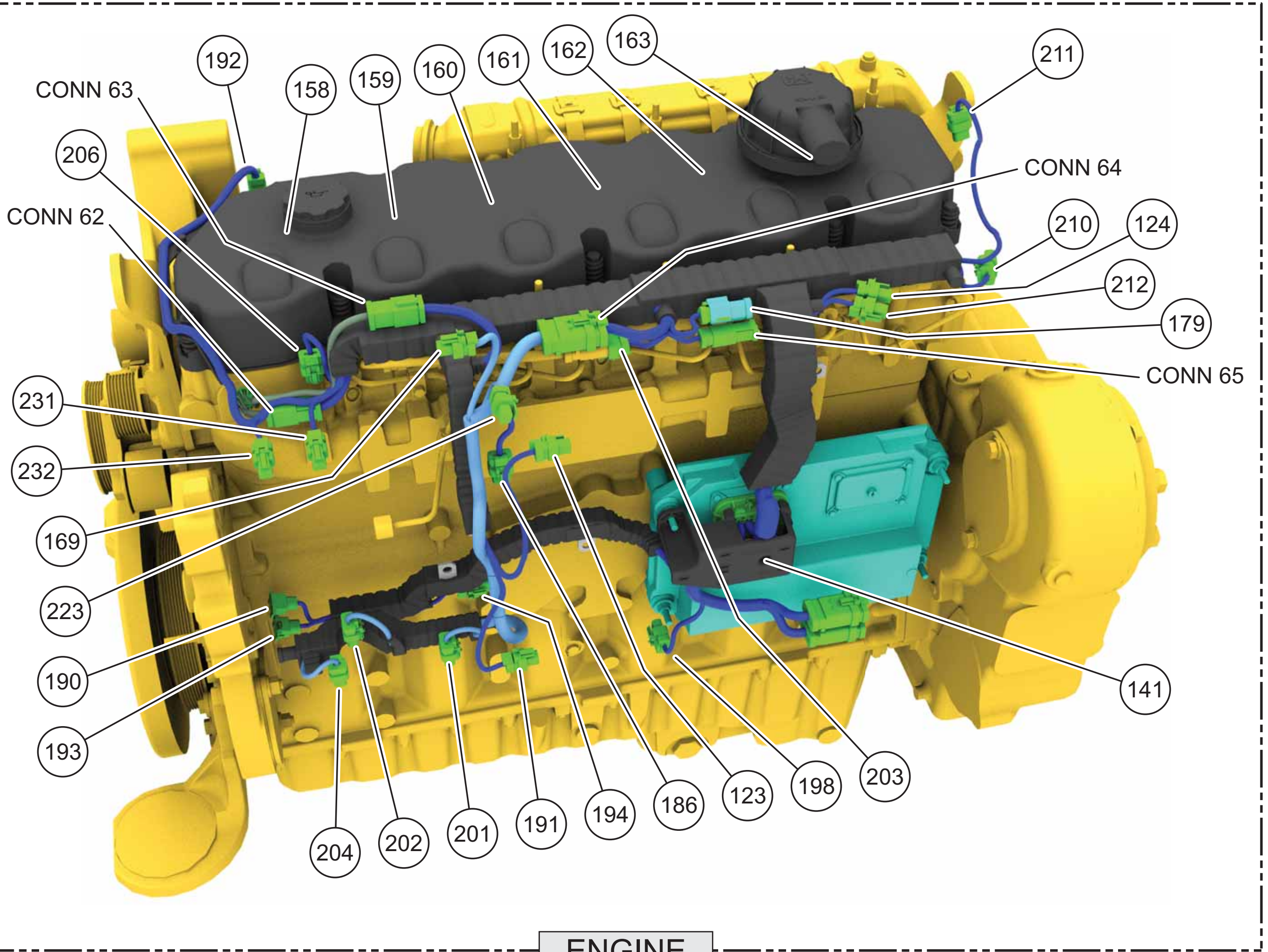
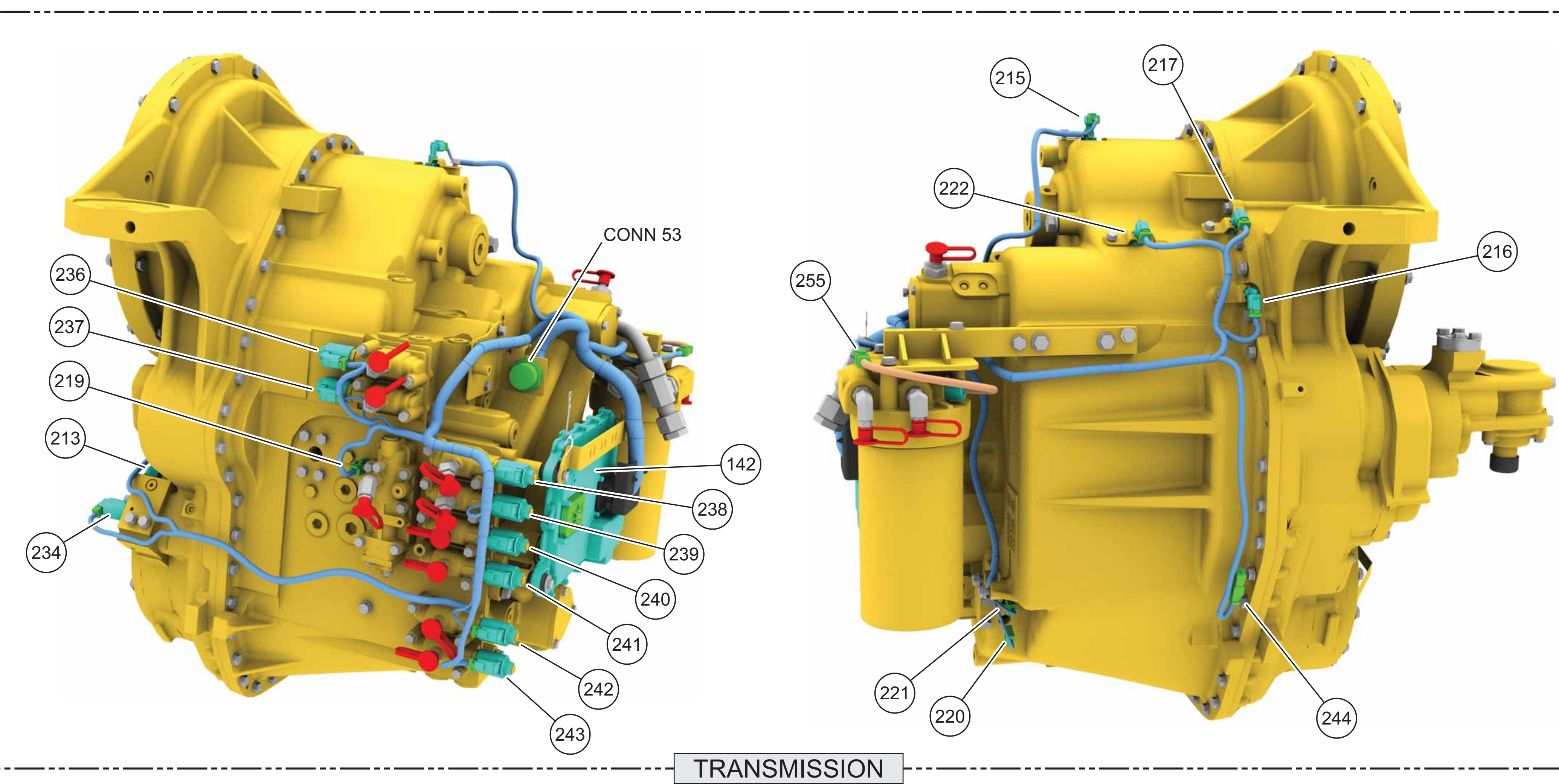
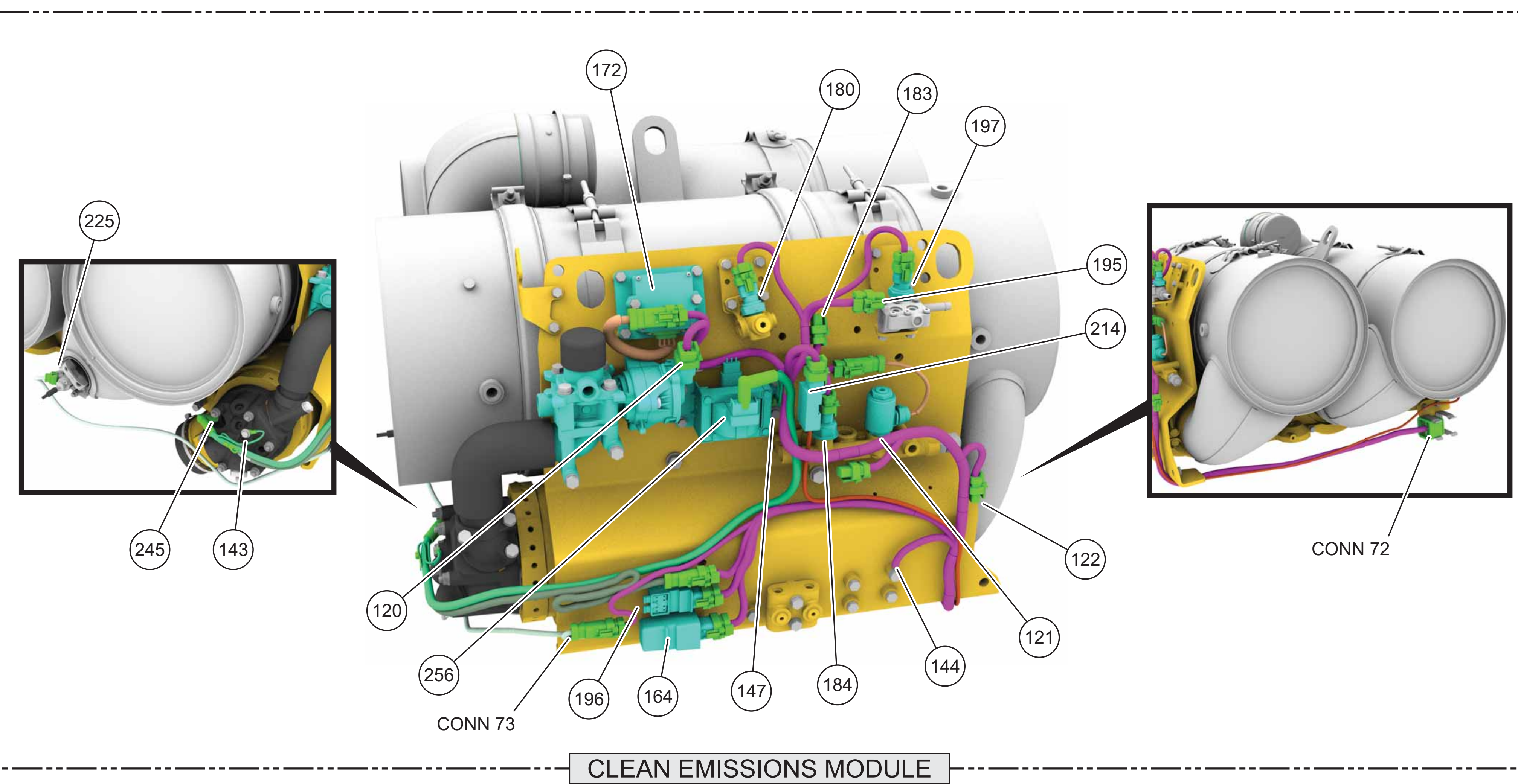
# Schematic

## 12M3, 140M3, and 160M3 Motor Grader Electrical System

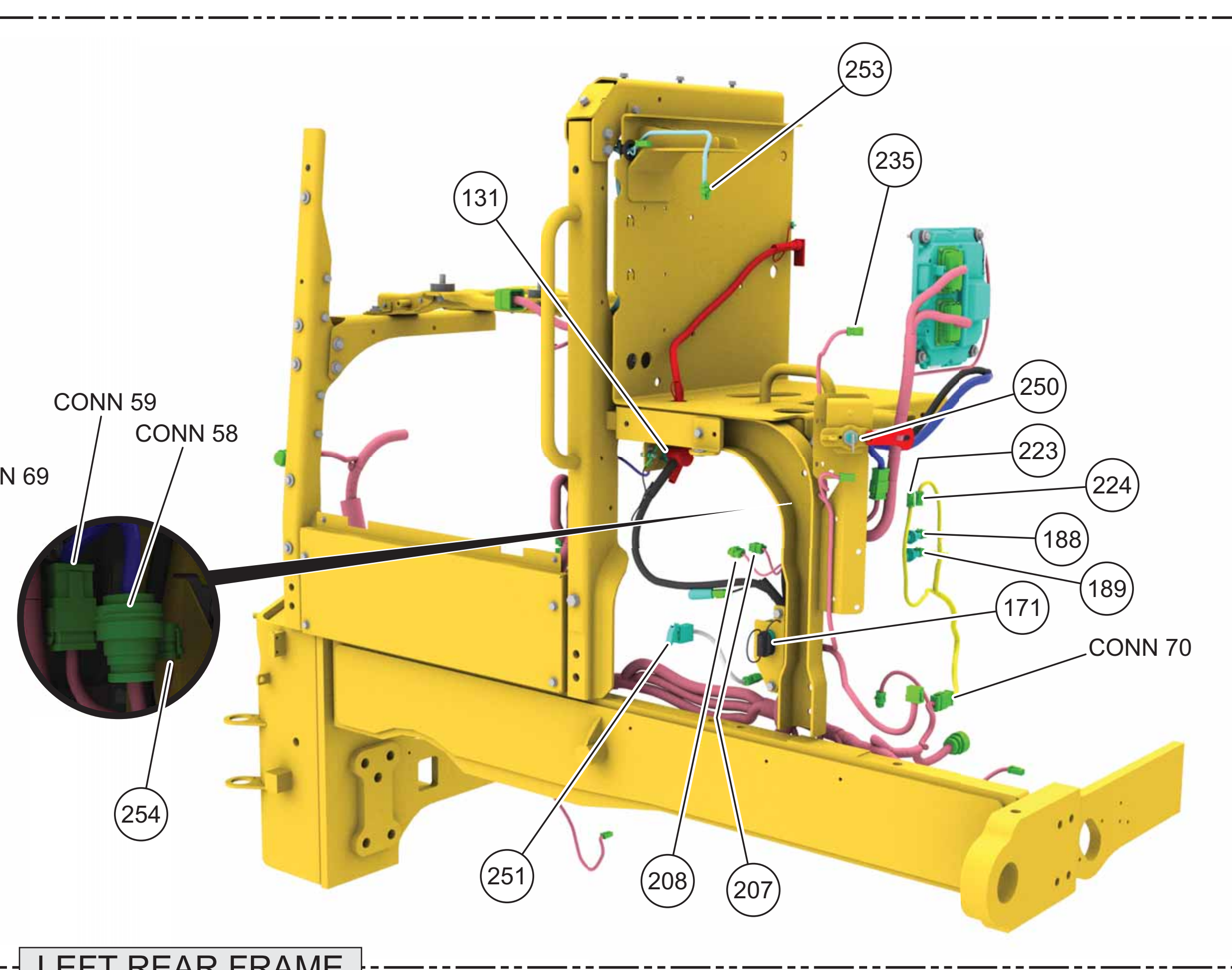
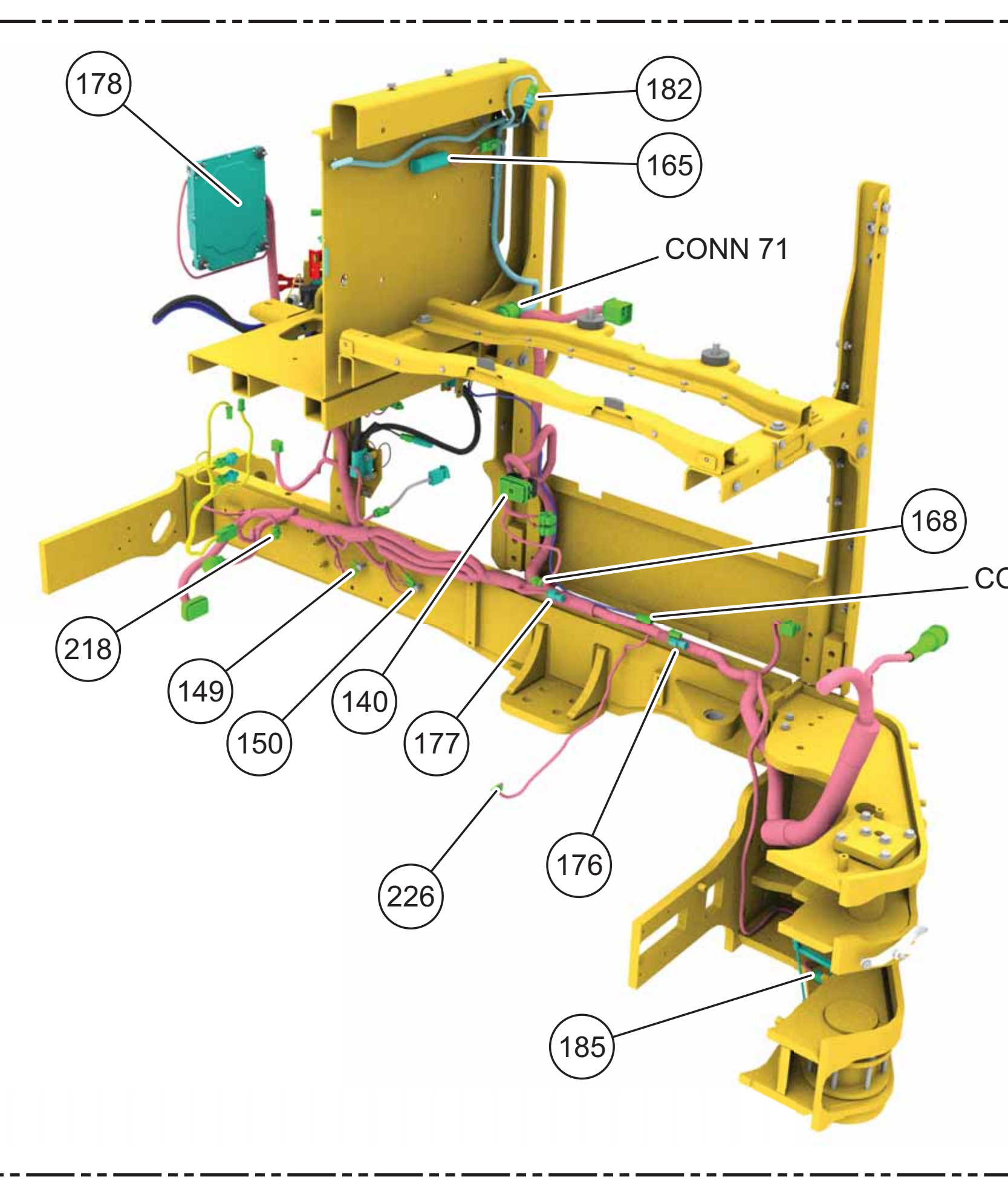
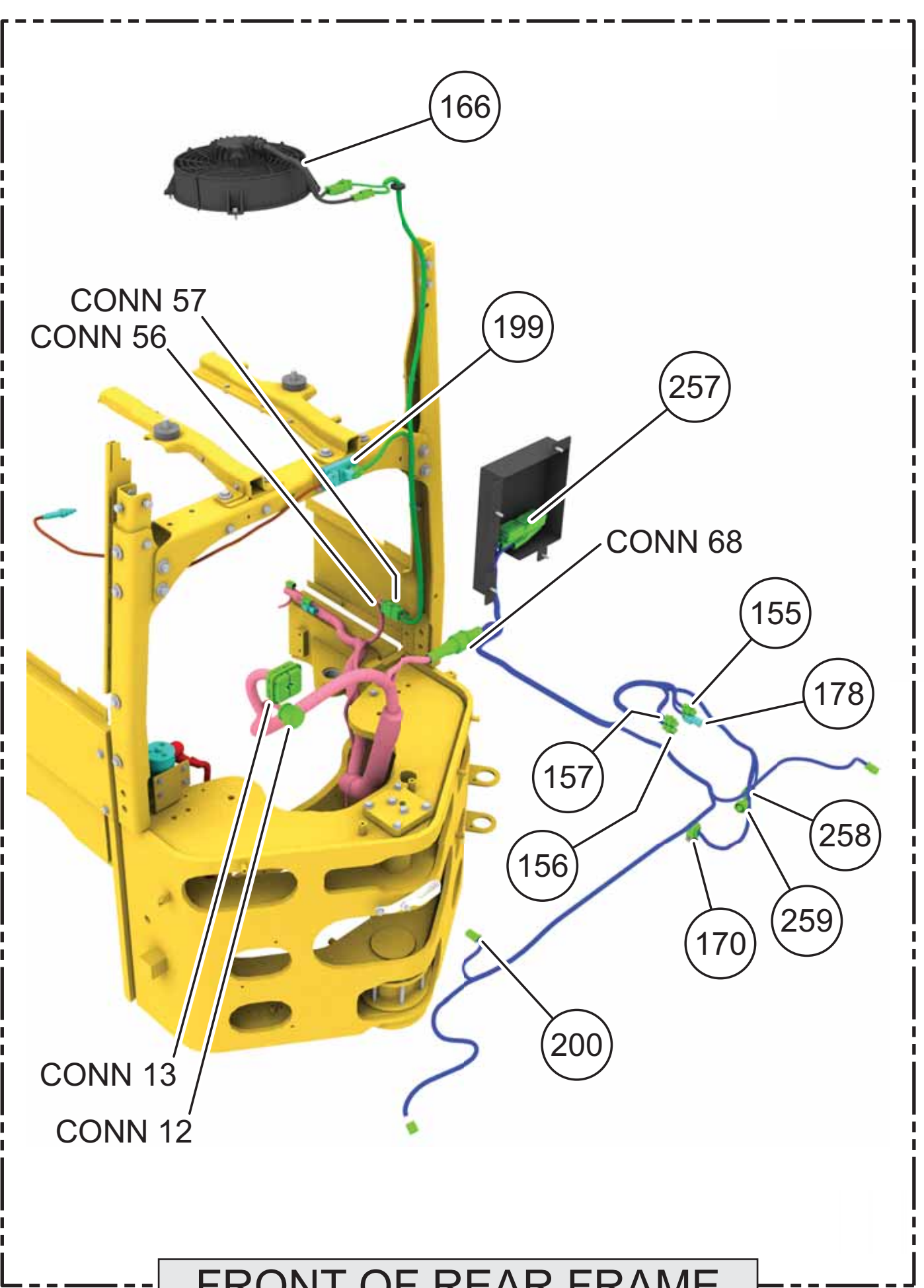
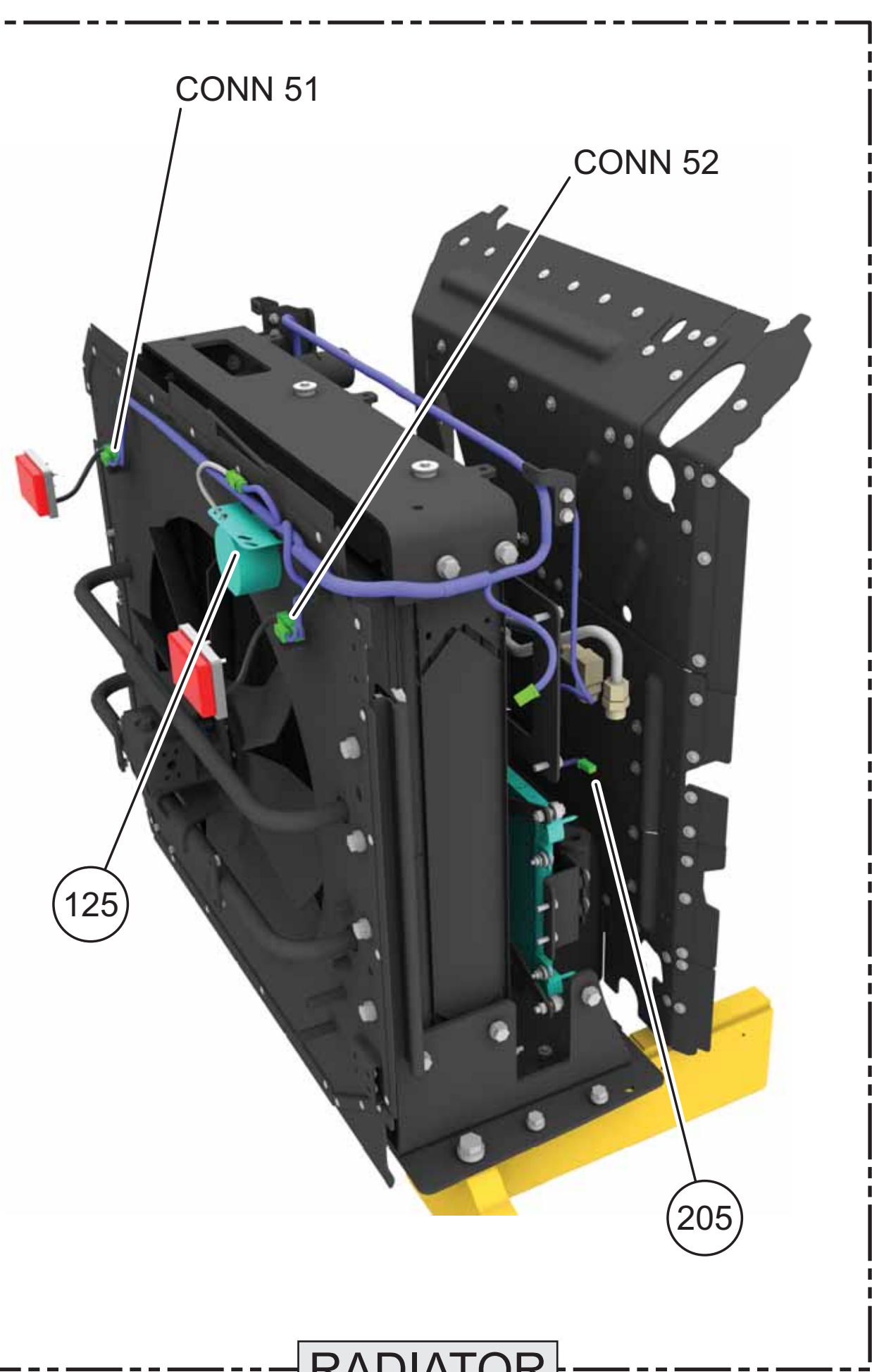
- 12M3: N8B1-UP, N9F1-UP, N9P1-UP, N9R1-UP
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- 160M3: N9K1-UP, N9L1-UP, N9T1-UP

Volume 3 of 4: Chassis

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Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Actuator - AND Air Flow Control	A-2.2	127	Sensor - Cam Speed	A-9	197
Actuator - AND Fuel Control 1	G-1.1	121	Sensor - Charge Air Cooler Outlet Temperature	A-9	191
Actuator - AND Fuel Control 2	G-1.1	122	Sensor - Engine Temperature	E-8	192
Actuator - NRS Flow Balance Valve	G-8	123	Sensor - Crank Speed	A-9	193
Actuator - NRS Valve	G-8	124	Sensor - Crankshaft Pressure	G-8	194
Alarm - Backup	I-1.4	125	Sensor - DPF Delta Pressure	A-1	195
Block - Air	E-2.3	126	Sensor - DPF Inlet	B-1	196
Block - Air/Inlet 1	G-3	127	Sensor - DPF Inlet Pressure	A-1	197
Block - Air/Inlet 2	F-2	128	Sensor - DPF Outlet Pressure	D-8	198
Battery - 12V-2	F-2	129	Sensor - Engine Cool NOx	J-11	199
Block - Air/Inlet 3	F-1	130	Sensor - Fuel Inlet Pressure	B-4	200
Block - Air/Inlet 4	F-3	131	Sensor - Fuel Pressure Filter (AF)	B-4	201
Block - Air/Inlet 5	H-3	132	Sensor - Fuel Pressure Filter (FF)	B-4	202
Block - Air/Inlet 6	G-2	133	Sensor - Fuel Temperature	E-8	203
Breaker - Load	G-2	134	Sensor - Hydraulic Temperature	B-4	204
Breaker - Main	G-2	135	Sensor - Fuel Temperature	B-4	205
Bus Bar - Main Relay	F-2	136	Sensor - Inlets Manifold Pressure	G-8	206
Bus Bar	G-2	137	Sensor - Main Hydraulic Pressure 1	F-12	207
Compressor - A/C	D-3	138	Sensor - Main Hydraulic Pressure 2	E-12	208
ECM - Administration	G-4	139	Sensor - NRS Pressure	B-4	209
ECM - Engine (J1)	E-12	140	Sensor - NRS Differential Pressure	G-8	210
ECM - Engine (J2)	D-11	141	Sensor - NRS Inlet Pressure	B-4	211
ECM - Transmission and Chassis	H-15	142	Sensor - NRS Temperature	G-8	212
Ground - ASD Heat	G-8	143	Sensor - Parking Brake Pressure	G-10	213
Ground - CSM	B-2	144	Sensor - SCR Heat Temperature	B-1	214
Ground - Chassis (Not Shown)	G-8	145	Sensor - Transmission Inlet Speed 1	E-10	215
Ground - Engine 1 (Not Shown)	E-4	146	Sensor - Transmission Inlet Speed 2	H-10	216
Ground - Engine 2	B-2	147	Sensor - Transmission Oil Pressure	E-12	217
Ground - Rear Frame 1 (Not Shown)	C-13	148	Sensor - Transmission Oil Temperature	G-10	218
Ground - Rear Frame 2	I-11	149	Sensor - Transmission Output Speed 1	H-10	219
Ground - Rear Frame 3	D-3	150	Sensor - Transmission Output Speed 2	H-10	220
Ground - Rear Frame 4 (Not Shown)	F-2	151	Sensor - NRS Charge	H-4	221
Ground - Rear Frame 5	D-3	152	Sensor - AND Fuel Flow Switcher	B-4	222
Ground - Rear Frame 6	D-3	153	Sensor - AND Fuel Flow Switcher	B-4	223
Ground - Secondary Steering Motor	E-2	154	Sensor - Hydraulic Pressure	H-4	224
Heater - Inceptor LRA	L-8	155	Sensor - DEF Injector	D-1	225
Heater - Return to Tank Line	L-8	156	Sensor - Oil Level	H-12	226
Heater - Subcool Line	L-8	157	Sensor - Drive Pump (RH Fuel)	B-16	227
Inceptor - 1	A-5	158	Sensor - Drive Pump (LH Fuel)	B-16	228
Inceptor 2	A-5	159	Sensor - Drive Pump (RH Fuel)	A-10	229
Inceptor 3	A-5	160	Sensor - Drive Pump (LH Fuel)	A-10	230
Inceptor 4	A-5	161	Sensor - Fuel Pump (AM)	G-8	231
Inceptor 5	A-5	162	Sensor - Fuel Pump (PM)	G-8	232
Inceptor 6	A-5	163	Sensor - Hydraulic Fan	H-4	233
Inceptor 7	A-5	164	Sensor - Hydraulic Fan	H-4	234
Module - Alternator ID	G-8	165	Sensor - Parking Brake	G-10	235
Module - Voltage Load Protection	G-4	166	Sensor - Shift Act	L-6	236
Motor - Engine Fan	L-1	167	Sensor - Transmission	J-10	237
Motor - Secondary Steering	E-2	168	Sensor - Transmission (Fuel Low)	J-10	238
Motor - Steering	E-2	169	Sensor - Transmission (Reverse)	J-10	239
Pump - AND Fuel	E-4	170	Sensor - Transmission (Forward)	J-10	240
Pump - DEF Dring	J-8	171	Sensor - Transmission (Throt)	J-10	241
Relay - AND Fuel	F-3	172	Sensor - Transmission (Speed)	J-10	242
Relay - AND Fuel Heater Inlet	A-1	173	Sensor - Transmission (Low Range)	J-10	243
Relay - Main	G-1	174	Sensor - Transmission (High Range)	J-10	244
Relay - Secondary Steering Motor	E-2	175	Sensor - Transmission Pump Bypass	J-10	245
Resistor - A/C Terminal	D-3	176	Switch - Dry	B-1	246
Resistor - CAN	A-3	177	Switch - A/C Discharge Pressure	D-3	247
Resistor - CAN 1	E-12	178	Switch - A/C Suction Pressure	D-3	248
Resistor - CAN 2	H-8	179	Switch - AND Fuel Bypass (LH)	A-10	249
Sensor - Air Filter Air Pressure	E-4	180	Switch - AND Fuel Bypass (RH)	A-10	250
Sensor - Air Filter Oil Pressure	A-1	181	Switch - Discharge	F-3	251
Sensor - Air Inlet Temperature	G-4	182	Switch - Engine Shutdown	H-12	252
Sensor - AND Main Fuel Pressure	G-1	183	Switch - Hydraulic Pilot Supply Filter Bypass	E-12	253
Sensor - AND Pilot Fuel Pressure	G-1	184	Switch - Hydraulic Return Filter Bypass	H-4	254
Sensor - Attenuation	F-12	185	Switch - Service LH	H-12	255
Sensor - Attenuation Pressure	G-8	186	Switch - Transmission Filter Bypass	H-10	256
Sensor - AND Hydraulic Temperature	A-10	187	Transfer - AND Voltage	B-1	257
Sensor - Brake Charge Pressure 1	H-8	188	Unit - Diesel Exhaust Fluid Control	J-10	258
Sensor - Brake Charge Pressure 2	L-4	189	Unit - NRS Valve Heater	B-8	259
			Unit - Valve - Coaster Drive	L-8	259



### Harness and Wire Electrical Schematic Symbols

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**Harness and Wire Symbols**

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Part Number for Connector Plug: 111-7898

Part Number for Connector Receptacle: 3E-5179

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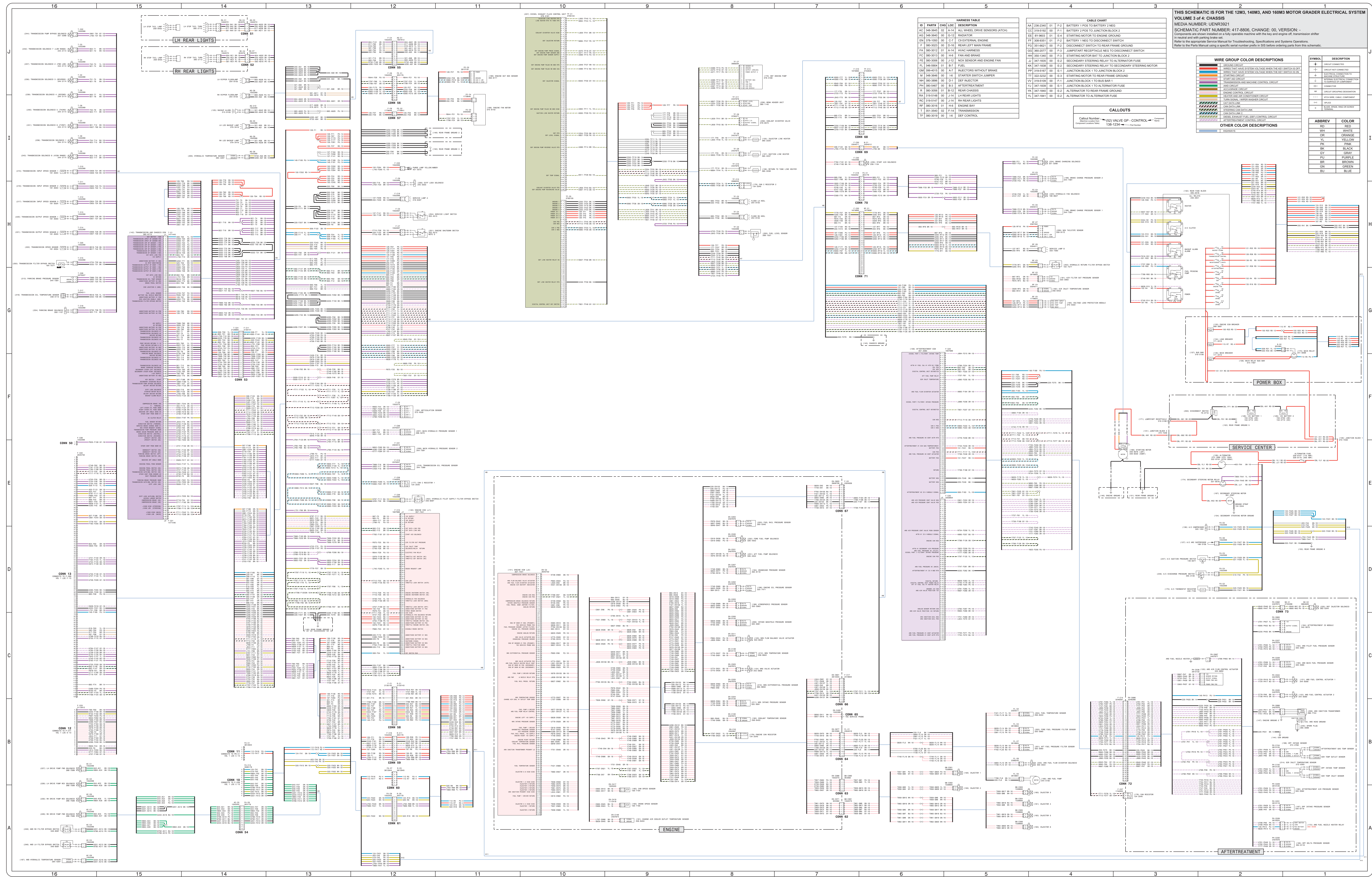
Part Number for Connector Plug: 3E-5179

Part Number for Connector Receptacle: 3E-5179

Connector Location	Schematic Location
CONN 10	B-4
CONN 11	B-4
CONN 12	D-10
CONN 13	D-10
CONN 14	D-10
CONN 15	D-10
CONN 16	D-10
CONN 17	D-10
CONN 18	D-10
CONN 19	D-10
CONN 20	D-10
CONN 21	D-10
CONN 22	D-10
CONN 23	D-10
CONN 24	D-10
CONN 25	D-10
CONN 26	D-10
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CONN 65	D-10
CONN 66	D-10
CONN 67	D-10
CONN 68	D-10
CONN 69	D-10
CONN 70	D-10
CONN 71	D-10
CONN 72	D-10
CONN 73	D-10

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





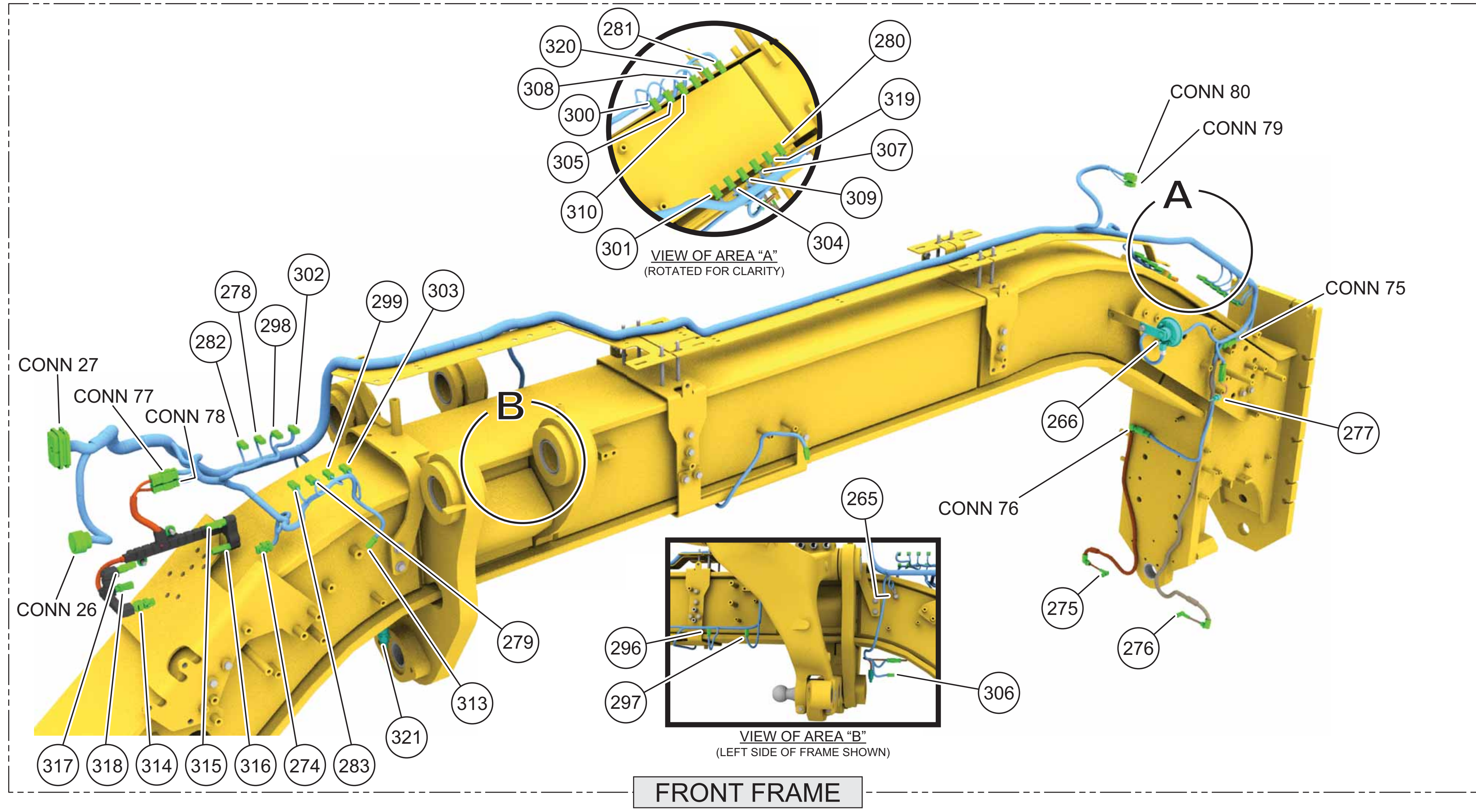
THIS SCHEMATIC IS FOR THE 12M3, 140M3, AND 160M3 MOTOR GRADER ELECTRICAL SYSTEM  
VOLUME 3 of 4: CHASSIS  
MEDIA NUMBER: UENR3921  
SCHEMATIC PART NUMBER: 417-8906, CHANGE: 00, VERSION: -  
Components are shown installed on a fully operable machine with the key and engine off, transmission in the neutral 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 SIB before ordering parts from this schematic.

ID	PART#	CHG	LOC	DESCRIPTION
AC	348-3645	02	A-14	ALL WHEEL DRIVE SENSORS (AT4)
AD	348-3645	02	C-13	RADIATOR
EN	378-1050	00	C-13	CD EXTERNAL ENGINE
F	380-3023	00	D-18	REAR LEFT MAIN FRAME
FA	380-3023	00	A-13	FRANC MAINFRAME
FC	380-3015	00	H-4	FAN AND BRAKE
FE	380-3008	00	J-13	NOX SENSOR AND ENGINE FAN
FL	348-3645	02	B-3	FUEL
GM	358-4015	00	A-2	INJECTORS WITHOUT BRAKE
M	348-3646	00	16	STARTER SWITCH JAMPER
NO	380-3086	00	B-3	DEF INJECTOR
PH	380-4687	00	B-3	AFTER TREATMENT
R	380-3026	00	B-10	REAR CHASSIS
PA	378-1048	00	J-14	LIFECRACK LIGHTS
RE	380-3016	00	H-4	ENGINE BAY
T	380-3040	00	F-2	TRANSMISSION
TT	380-3019	00	14	DEF CONTROL

AA	F2	BATTERY 1 POS TO BATTERY 2 NEG
CC	F1 <td>BATTERY 2 POS TO JUNCTION BLOCK 2</td>	BATTERY 2 POS TO JUNCTION BLOCK 2
EE	E4 <td>STARTING MOTOR TO ENGINE GROUND</td>	STARTING MOTOR TO ENGINE GROUND
FF	F2 <td>BATTERY 1 NEG TO DISCONNECT SWITCH</td>	BATTERY 1 NEG TO DISCONNECT SWITCH
FO	F2 <td>DISCONNECT SWITCH TO REAR FRAME GROUND</td>	DISCONNECT SWITCH TO REAR FRAME GROUND
OO	E3 <td>LAMP/START RECEIVABLE NEG TO DISCONNECT SWITCH</td>	LAMP/START RECEIVABLE NEG TO DISCONNECT SWITCH
PH	F3 <td>STARTING MOTOR BAT TO JUNCTION BLOCK 2</td>	STARTING MOTOR BAT TO JUNCTION BLOCK 2
UJ	E2 <td>SECONDARY STEERING RELAY TO ALTERNATOR FUSE</td>	SECONDARY STEERING RELAY TO ALTERNATOR FUSE
PH	E2 <td>SECONDARY STEERING RELAY TO SECONDARY STEERING MOTOR</td>	SECONDARY STEERING RELAY TO SECONDARY STEERING MOTOR
PH	E1 <td>JUNCTION BLOCK 1 TO JUNCTION BLOCK 2</td>	JUNCTION BLOCK 1 TO JUNCTION BLOCK 2
TT	E5 <td>STARTING MOTOR TO REAR FRAME GROUND</td>	STARTING MOTOR TO REAR FRAME GROUND
PH	E1 <td>JUNCTION BLOCK 1 TO BATTERY</td>	JUNCTION BLOCK 1 TO BATTERY
TY	E2 <td>ALTERNATOR TO REAR FRAME GROUND</td>	ALTERNATOR TO REAR FRAME GROUND
TY	E2 <td>ALTERNATOR TO ALTERNATOR FUSE</td>	ALTERNATOR TO ALTERNATOR FUSE
TY	E2 <td>ALTERNATOR TO ALTERNATOR FUSE</td>	ALTERNATOR TO ALTERNATOR FUSE

WIRE GROUP COLOR DESCRIPTIONS	ABBREV	COLOR
1. BATTERY POSITIVE	RED	RED
2. BATTERY NEGATIVE	BLACK	BLACK
3. GROUND	BLACK	BLACK
4. STARTING MOTOR	RED	RED
5. STARTING MOTOR TO ENGINE GROUND	RED	RED
6. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
7. STARTING MOTOR TO BATTERY	RED	RED
8. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
9. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
10. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
11. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
12. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
13. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
14. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
15. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
16. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
17. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
18. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
19. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
20. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
21. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
22. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
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24. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
25. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
26. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
27. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
28. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
29. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
30. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
31. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
32. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
33. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
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35. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
36. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
37. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
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40. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
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285. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
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310. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
311. STARTING MOTOR TO ALTERNATOR FUSE	RED	RED
312. STARTING MOTOR TO DISCONNECT SWITCH	RED	RED
313. STARTING MOTOR TO JUNCTION BLOCK 1	RED	RED
314. STARTING MOTOR TO JUNCTION BLOCK 2	RED	RED
315. STARTING MOTOR TO REAR FRAME GROUND	RED	RED
3		





# Schematic

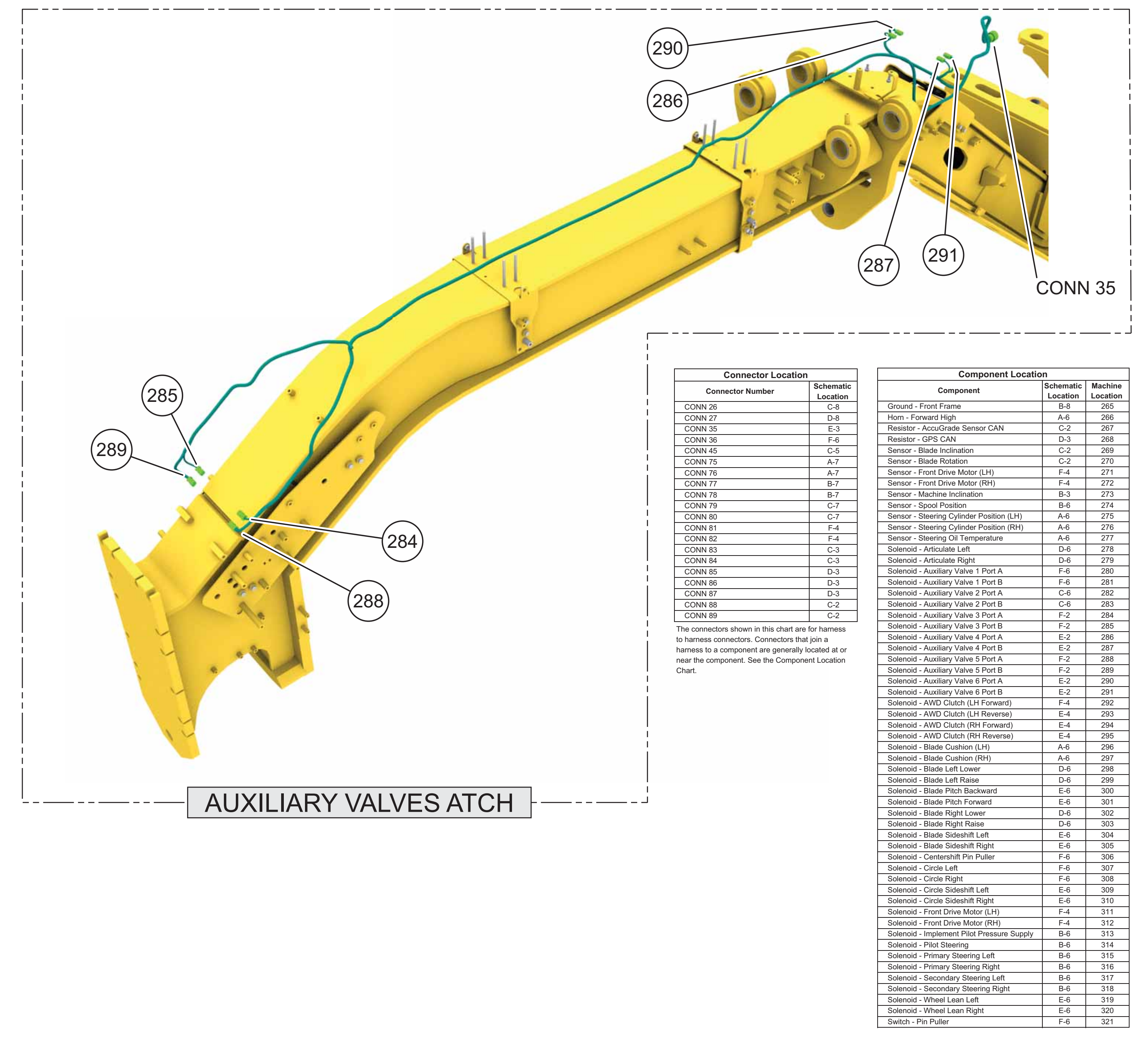
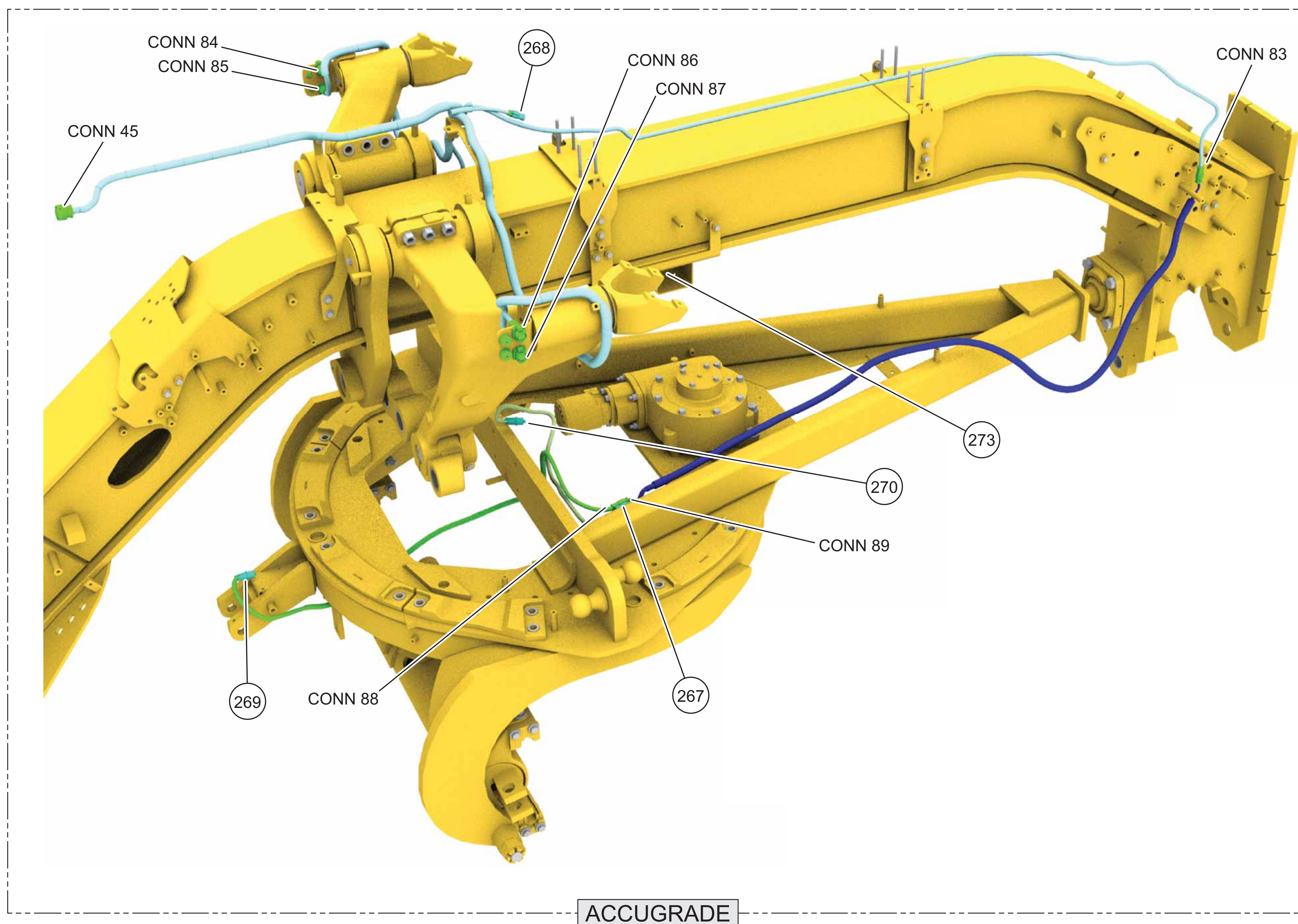
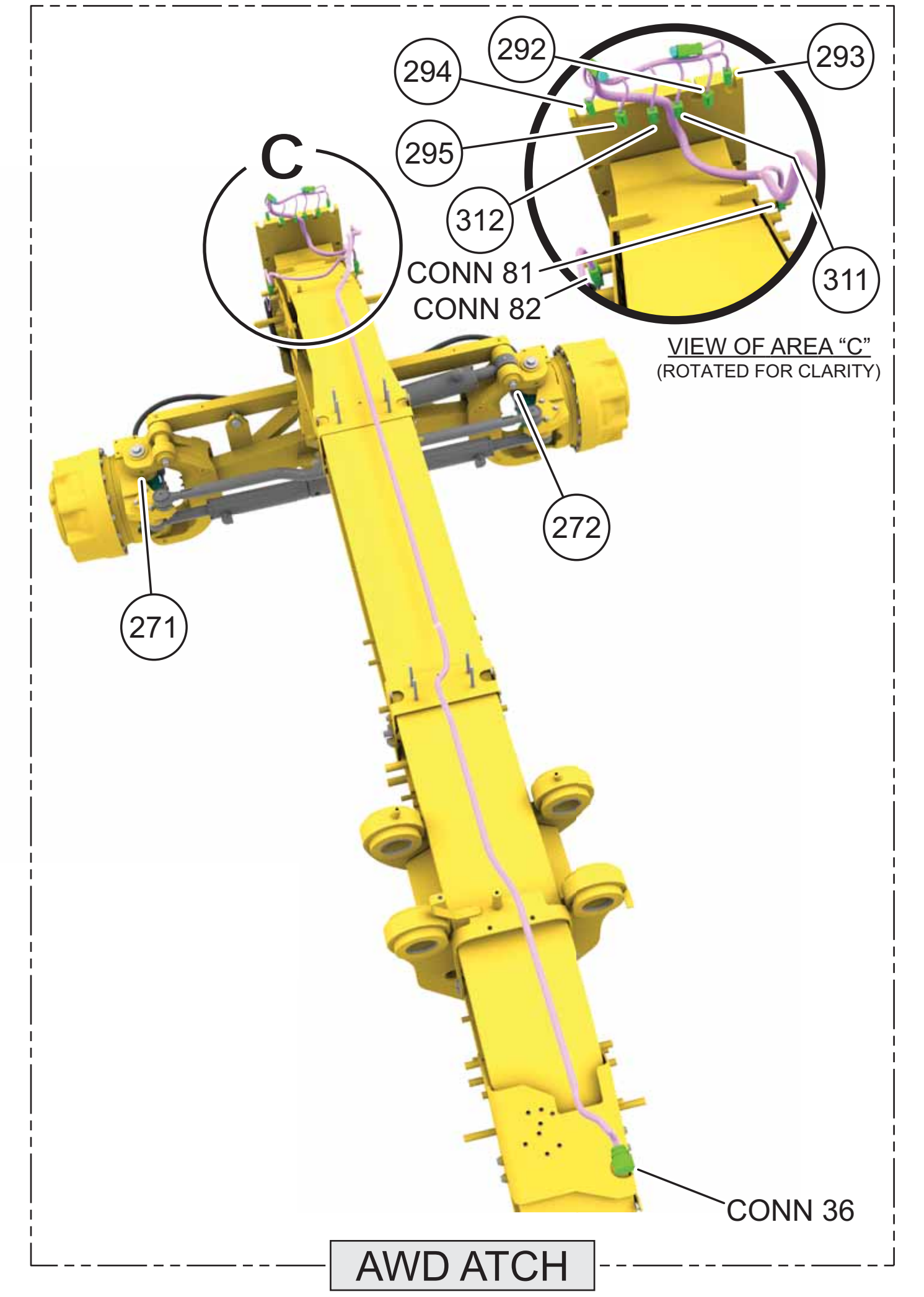
## 12M3, 140M3, and 160M3 Motor Grader Electrical System

<b>12M3:</b> N9B1-UP N9F1-UP N9P1-UP N9R1-UP	<b>140M3:</b> N9D1-UP N9G1-UP N9J1-UP N9M1-UP	<b>160M3:</b> N9E1-UP N9K1-UP N9L1-UP N9T1-UP
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Volume 4 of 4: Additional Chassis Components

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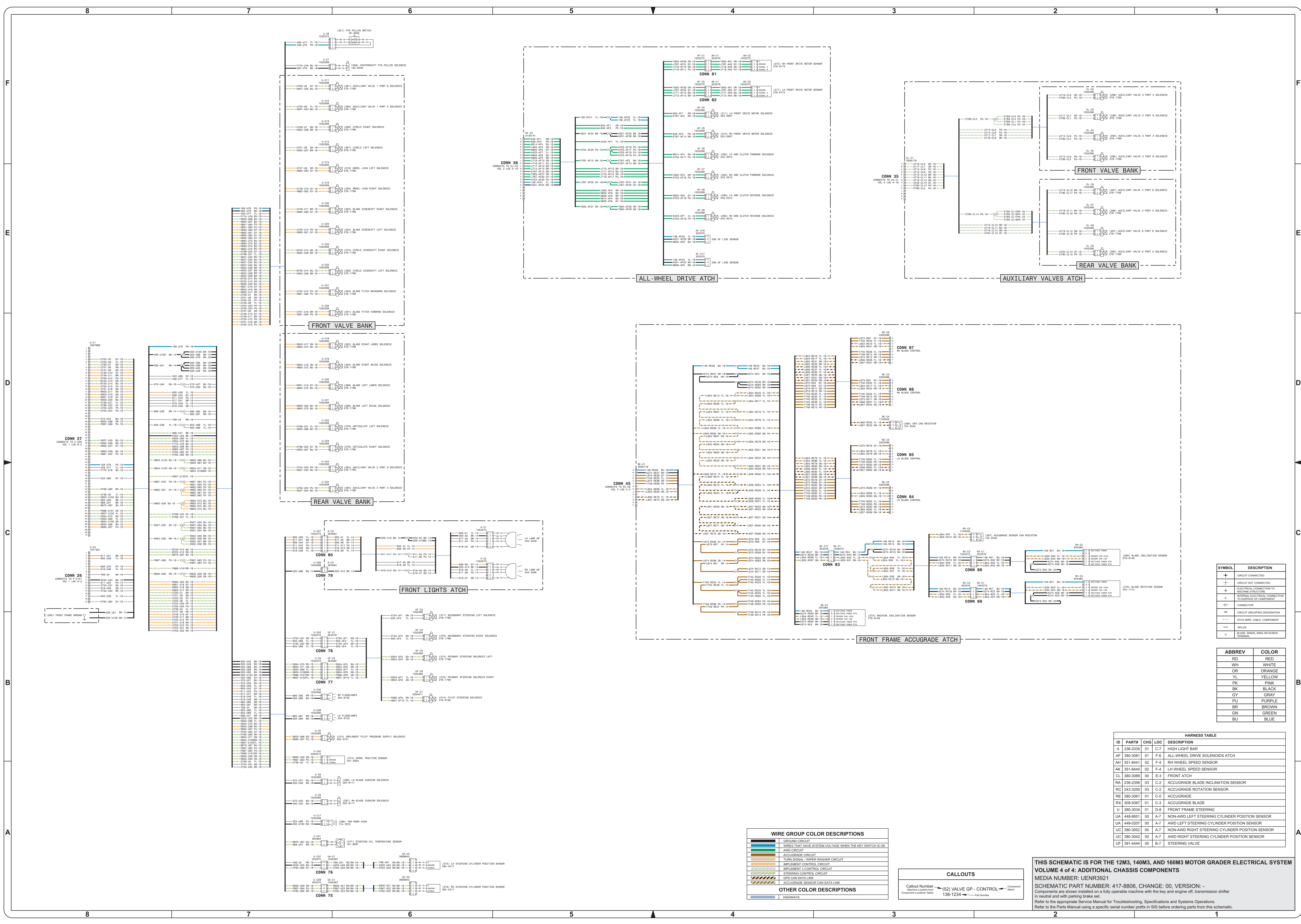
Printed in U.S.A.



Connector Location		Component Location	
Connector Number	Schematic Location	Component	Machine Location
CONN 26	C-8	Ground - Front Frame	B-8 265
CONN 27	D-8	Horn - Forward High	A-6 266
CONN 28	E-3	Resistor - AccuGrade Sensor CAN	C-2 267
CONN 30	F-6	Resistor - GPS CAN	D-3 268
CONN 45	C-5	Sensor - Blade Inclination	C-2 269
CONN 75	A-7	Sensor - Blade Rotation	C-2 270
CONN 76	A-7	Sensor - Front Drive Motor (LH)	F-4 271
CONN 77	B-7	Sensor - Front Drive Motor (RH)	F-4 272
CONN 78	B-7	Sensor - Machine Inclination	B-3 273
CONN 79	C-7	Sensor - Spoof Position	B-6 274
CONN 80	C-7	Sensor - Steering Cylinder Position (LH)	A-6 275
CONN 81	F-4	Sensor - Steering Cylinder Position (RH)	A-6 276
CONN 82	F-4	Sensor - Steering Oil Temperature	A-6 277
CONN 83	C-3	Solenoid - Articulate Left	D-6 278
CONN 84	C-3	Solenoid - Articulate Right	D-6 279
CONN 85	D-3	Solenoid - Auxiliary Valve 1 Port A	F-6 280
CONN 86	D-3	Solenoid - Auxiliary Valve 1 Port B	F-6 281
CONN 87	D-3	Solenoid - Auxiliary Valve 2 Port A	C-6 282
CONN 88	C-2	Solenoid - Auxiliary Valve 2 Port B	C-6 283
CONN 89	C-2	Solenoid - Auxiliary Valve 3 Port A	F-2 284
		Solenoid - Auxiliary Valve 3 Port B	F-2 285
		Solenoid - Auxiliary Valve 4 Port A	E-2 286
		Solenoid - Auxiliary Valve 4 Port B	E-2 287
		Solenoid - Auxiliary Valve 5 Port A	F-2 288
		Solenoid - Auxiliary Valve 5 Port B	F-2 289
		Solenoid - Auxiliary Valve 6 Port A	E-2 290
		Solenoid - Auxiliary Valve 6 Port B	F-2 291
		Solenoid - AWD Clutch (LH Forward)	F-4 292
		Solenoid - AWD Clutch (LH Reverse)	E-4 293
		Solenoid - AWD Clutch (RH Forward)	E-4 294
		Solenoid - AWD Clutch (RH Reverse)	E-4 295
		Solenoid - Blade Cushion (LH)	A-6 296
		Solenoid - Blade Cushion (RH)	A-6 297
		Solenoid - Blade Left Lower	D-6 298
		Solenoid - Blade Left Raise	D-6 299
		Solenoid - Blade Pitch Backward	E-6 300
		Solenoid - Blade Pitch Forward	E-6 301
		Solenoid - Blade Right Lower	D-6 302
		Solenoid - Blade Right Raise	D-6 303
		Solenoid - Blade Sideshift Left	E-6 304
		Solenoid - Blade Sideshift Right	E-6 305
		Solenoid - Centershift Pin Puller	F-6 306
		Solenoid - Circle Left	F-6 307
		Solenoid - Circle Right	F-6 308
		Solenoid - Circle Sideshift Left	E-6 309
		Solenoid - Circle Sideshift Right	E-6 310
		Solenoid - Front Drive Motor (LH)	F-4 311
		Solenoid - Front Drive Motor (RH)	F-4 312
		Solenoid - Implement Pilot Pressure Supply	B-6 313
		Solenoid - Pilot Steering	B-6 314
		Solenoid - Primary Steering Left	B-6 315
		Solenoid - Primary Steering Right	B-6 316
		Solenoid - Secondary Steering Left	B-6 317
		Solenoid - Secondary Steering Right	B-6 318
		Solenoid - Wheel Lean Left	E-6 319
		Solenoid - Wheel Lean Right	E-6 320
		Switch - Pin Puller	F-6 321

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





SYMBOL	DESCRIPTION
+	CIRCUIT CONNECTED
-	CIRCUIT NOT CONNECTED
⬇	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
⬇	INTERNAL ELECTRICAL CONNECTION TO AIRFRAME OF COMPONENT
⊕	CONNECTOR
⊕	CIRCUIT GROUPING DESIGNATION
---	ATCH WIRE CABLE COMPONENT
⊕	SPLICE
⊕	BLADE SPINDLE RING OR SCREW TERMINAL

ABBREV	COLOR
RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
PK	PINK
BK	BLACK
GY	GRAY
PJ	PURPLE
BR	BROWN
GN	GREEN
BU	BLUE

ID	PART#	CHG	LOC	DESCRIPTION
A	236-2335	01	C-7	HIGH LIGHT BAR
AF	380-3081	01	F-6	ALL-WHEEL DRIVE SOLENOIDS ATCH
AM	351-5641	02	F-4	RH WHEEL SPEED SENSOR
AN	351-5440	02	F-4	LH WHEEL SPEED SENSOR
CL	380-3089	00	E-3	FRONT ATCH
RA	236-2356	03	C-2	ACCUGRADE BLADE INCLINATION SENSOR
RC	243-3250	03	C-2	ACCUGRADE ROTATION SENSOR
RE	380-3061	01	C-5	ACCUGRADE
RX	308-9367	01	C-3	ACCUGRADE BLADE
U	380-3034	01	D-8	FRONT FRAME STEERING
UM	448-8651	00	A-7	NON-AWD LEFT STEERING CYLINDER POSITION SENSOR
UN	448-8207	00	A-7	AWD LEFT STEERING CYLINDER POSITION SENSOR
UC	380-3052	00	A-7	NON-AWD RIGHT STEERING CYLINDER POSITION SENSOR
LD	380-3042	00	A-7	AWD RIGHT STEERING CYLINDER POSITION SENSOR
LF	391-4444	00	B-7	STEERING VALVE

WIRE GROUP COLOR DESCRIPTIONS	
[Color]	GROUND CIRCUIT
[Color]	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
[Color]	AWD CIRCUIT
[Color]	ACCUGRADE CIRCUIT
[Color]	TURB SWASH / WIPER WASHER CIRCUIT
[Color]	IMPLEMENT CONTROL CIRCUIT
[Color]	IMPLEMENT CONTROL CIRCUIT
[Color]	STEERING CONTROL CIRCUIT
[Color]	SPS CAN DATA LINK
[Color]	ACCUGRADE SENSOR CAN DATA LINK
[Color]	OTHER COLOR DESCRIPTIONS

CALLOUTS	
Callout Number (3-Digit Number)	(5-2) VALVE GP - CONTROL
Component Location Number (3-Digit Number)	138-1234
Part Number	

**THIS SCHEMATIC IS FOR THE 12M3, 140M3, AND 160M3 MOTOR GRADER ELECTRICAL SYSTEM VOLUME 4 of 4: ADDITIONAL CHASSIS COMPONENTS**  
**MEDIA NUMBER: UENR3921**  
**SCHEMATIC PART NUMBER: 417-8806, CHANGE: 00, VERSION: 1**  
 Components are shown installed on a fully operable machine with the 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 the schematic.