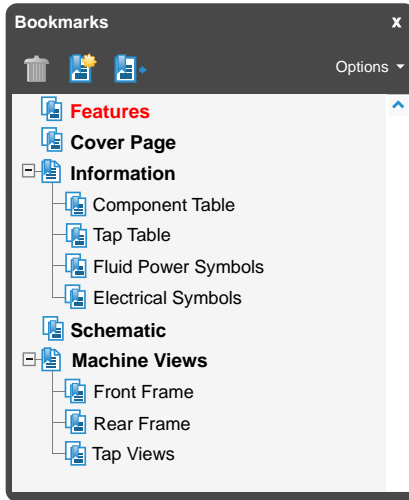


# INTERACTIVE SCHEMATIC

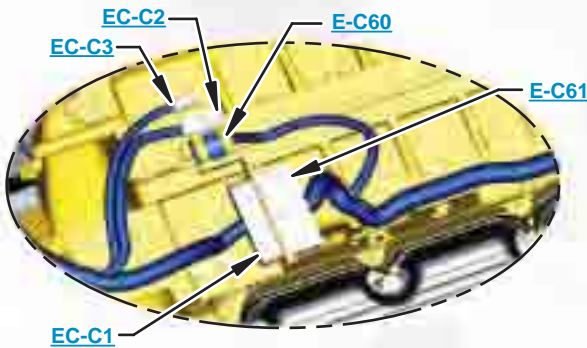


***This document is best viewed at a screen resolution of 1024 X 768.***

To set your screen resolution do the following:  
**RIGHT CLICK** on the **DESKTOP**.  
Select **PROPERTIES**.  
**CLICK** the **SETTINGS TAB**.  
**MOVE THE SLIDER** under **SCREEN RESOLUTION** until it shows **1024 X 768**.  
**CLICK OK** to apply the resolution.

The Bookmarks panel will allow you to quickly navigate to points of interest.

Open/Close Bookmark Panel



Click on any text that is BLUE and underlined. These are hyperlinks that can be used to navigate the schematic and machine views.

VIEW ALL CALLOUTS

When only one callout is showing on a machine view this button will make all of the callouts visible. This button is located in the top right corner of every machine view page.

HOTKEYS (Keyboard Shortcuts)		
	FUNCTION	KEYS
+	Zoom In	“CTRL” / “+”
-	Zoom Out	“CTRL” / “-”
□	Fit to Page	“CTRL” / “0” (zero)
☞	Hand Tool	“SPACEBAR” (hold down)
	Find	“CTRL” / “F”



# Schematic

---

## **834H Wheel Tractor 836H Landfill Compactor 988H Wheel Loader Electrical System**

---

**834H:  
BTX1000-UP**

**836H:  
BXD1000-UP**

**988H:  
A7A1-UP  
BXY4000-UP**

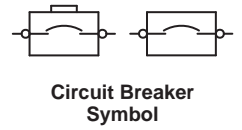
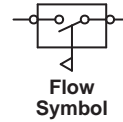
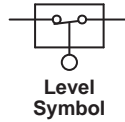
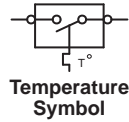
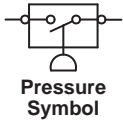
**Volume 1 of 3: Cab Wiring  
Volume 2 of 3: Chassis Wiring  
Volume 3 of 3: Steel Mill Version**

# HARNESS and WIRE

## Electrical Schematic Symbols



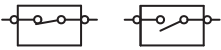
### Symbols



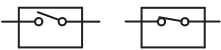
### Symbols and Definitions



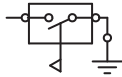
**Fuse:** A component in an electrical circuit that will open the circuit if too much current flows through it.



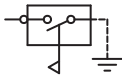
**Switch (Normally Open):** A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.



**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.



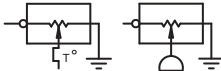
**Ground (Wired):** This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.



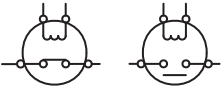
**Ground (Case):** This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.



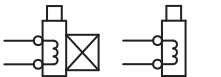
**Reed Switch:** A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.



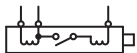
**Sender:** A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.



**Relay (Magnetic Switch):** A relay is an electrical component that is activated 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.



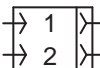
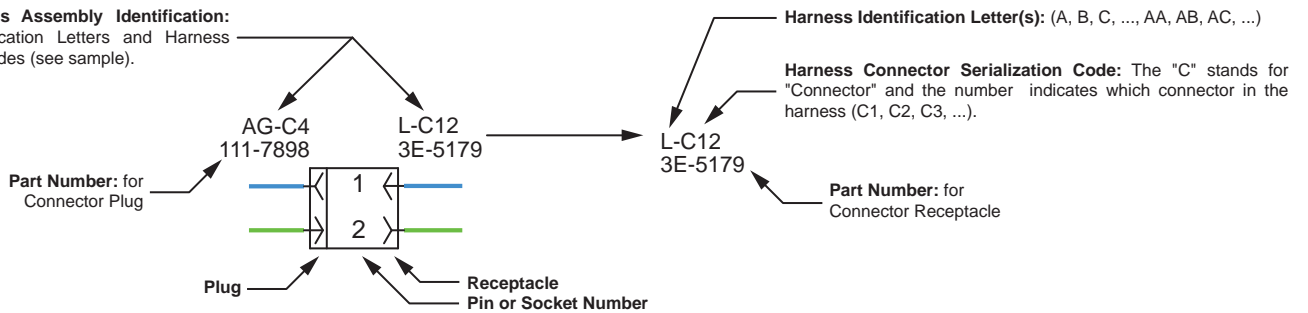
**Solenoid:** A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.



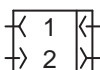
**Magnetic Latch Solenoid:** A magnetic latch solenoid is an electrical component that is activated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch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

### Harness and Wire Symbols

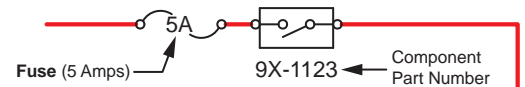
**Wire, Cable, or Harness Assembly Identification:** Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).



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



**Sure-Seal connector:** Typical representation of a Sure-Seal connector. The plug and receptacle contain both pins and sockets.



**Harness identification code:** This example indicates wire group 325, wire 135 in harness "AG".

**Wire Gauge** (PK-14)

**Wire Color** (325-AG135)

# COMPONENT TABLE: Volume 1 of 3 - CAB



## Component Location Volume 1

Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Actuator - Blend Door	<a href="#">F-14</a>	<a href="#">1</a>	Sensor - Lift Lever Position	<a href="#">I-12</a>	<a href="#">50</a>
Actuator - Water Valve	<a href="#">F-14</a>	<a href="#">2</a>	Sensor - Third Lever Position	<a href="#">I-12</a>	<a href="#">51</a>
Alarm - Action	<a href="#">I-8</a>	<a href="#">3</a>	Sensor - Throttle Position	<a href="#">C-6</a>	<a href="#">52</a>
Alarm - Audible (ATCH)	<a href="#">D-9</a>	<a href="#">4</a>	Sensor - Tilt Lever Position	<a href="#">I-12</a>	<a href="#">53</a>
Alarm - Auto Blade Position Kickout	<a href="#">H-9</a>	<a href="#">5</a>	Speedometer/Tachometer	<a href="#">G-6</a>	<a href="#">54</a>
Battery - Backup	<a href="#">B-10</a>	<a href="#">6</a>	Switch - A/C Selector	<a href="#">D-4</a>	<a href="#">55</a>
Control - Navigator	<a href="#">F-9</a>	<a href="#">7</a>	Switch - Auto Blade Position Enable Set	<a href="#">H-9</a>	<a href="#">56</a>
Control - Operator Monitor	<a href="#">C-6</a>	<a href="#">8</a>	Switch - Auto Blade Position Kickout Set	<a href="#">I-9</a>	<a href="#">57</a>
Control - Payload System	<a href="#">J-5, H-5</a>	<a href="#">9</a>	Switch - Autolube Override (988H)	<a href="#">H-4</a>	<a href="#">58</a>
Control - STIC	<a href="#">G-13</a>	<a href="#">10</a>	Switch - Auto/Manual Gear Select	<a href="#">E-4</a>	<a href="#">59</a>
Control - Water Valve Blend Door	<a href="#">F-14</a>	<a href="#">11</a>	Switch - Blower	<a href="#">D-4</a>	<a href="#">60</a>
Control - Wheel Loader PCS	<a href="#">G-10</a>	<a href="#">12</a>	Switch - Compressor Air Susp Seat (Heated)	<a href="#">H-13</a>	<a href="#">61</a>
Converter - 10 AMP	<a href="#">G-4</a>	<a href="#">13</a>	Switch - Forward Horn (836H)	<a href="#">F-6</a>	<a href="#">62</a>
Converter - 10A Voltage Converter (ATCH)	<a href="#">I-3</a>	<a href="#">14</a>	Switch - Forward Horn 2	<a href="#">I-12</a>	<a href="#">63</a>
Converter - 12/24 Volt DC	<a href="#">B-10</a>	<a href="#">15</a>	Switch - Front Intermittent Wiper	<a href="#">F-4</a>	<a href="#">64</a>
Dimmer - Control Group	<a href="#">J-7</a>	<a href="#">16</a>	Switch - Fuel Management	<a href="#">H-12</a>	<a href="#">65</a>
Diode Block - Hazard Signal (ATCH 834/988)	<a href="#">H-4</a>	<a href="#">17</a>	Switch - Hazard (988H/834H)	<a href="#">H-4</a>	<a href="#">66</a>
Diode Block - Turn Indicator (ATCH 834/988)	<a href="#">G-6</a>	<a href="#">18</a>	Switch - HID Lights	<a href="#">C-4</a>	<a href="#">67</a>
Element - Heater	<a href="#">J-13, J-9</a>	<a href="#">19</a>	Switch - Hi Idle Kickdown Auto Resume	<a href="#">G-7</a>	<a href="#">68</a>
Ferrite	<a href="#">D-9</a>	<a href="#">20</a>	Switch - Implement Lockout (834/836)	<a href="#">I-9</a>	<a href="#">69</a>
Flasher - 24V	<a href="#">H-8</a>	<a href="#">21</a>	Switch - Implement Lockout (988H)	<a href="#">J-12</a>	<a href="#">70</a>
Gage - Quad	<a href="#">G-6</a>	<a href="#">22</a>	Switch - Key (Ignition)	<a href="#">E-7</a>	<a href="#">71</a>
Ground - Cab 1	<a href="#">B-13</a>	<a href="#">23</a>	Switch - Kickout Set (988H Lift/Tilt)	<a href="#">I-4</a>	<a href="#">72</a>
Ground - Dash (Stud)	<a href="#">E-6</a>	<a href="#">24</a>	Switch - Lockout (3 Function)	<a href="#">H-12</a>	<a href="#">73</a>
Ground - Lower Cab 1 & 2	<a href="#">H-7</a>	<a href="#">25</a>	Switch - Lock Up Clutch (ATCH 988/834)	<a href="#">E-4</a>	<a href="#">74</a>
Ground - Upper Cab	<a href="#">D-11</a>	<a href="#">26</a>	Switch - Operator Mode Select	<a href="#">G-7</a>	<a href="#">75</a>
Keypad - Wheel Loader PCS	<a href="#">F-9</a>	<a href="#">27</a>	Switch - Payload Store	<a href="#">I-12</a>	<a href="#">76</a>
Lighter - Cigar	<a href="#">J-13</a>	<a href="#">28</a>	Switch - PCS Reweigh Zero	<a href="#">I-6</a>	<a href="#">77</a>
Lighter, Cigar 3	<a href="#">J-9</a>	<a href="#">29</a>	Switch - Rear Intermittent Wiper	<a href="#">E-4</a>	<a href="#">78</a>
Messenger	<a href="#">H-6</a>	<a href="#">30</a>	Switch - Reduced Rim Pull	<a href="#">I-4</a>	<a href="#">79</a>
Modular Joystick 1 Function (836H)	<a href="#">I-8</a>	<a href="#">31</a>	Switch - Retarder	<a href="#">F-6</a>	<a href="#">80</a>
Modular Joystick 3 Function (834H)	<a href="#">I-8</a>	<a href="#">32</a>	Switch - Reversing Fan	<a href="#">I-4</a>	<a href="#">81</a>
Monitor - Rear Vision	<a href="#">J-1</a>	<a href="#">33</a>	Switch - Ride Control (988H)	<a href="#">F-4</a>	<a href="#">82</a>
Motor - Blower	<a href="#">F-14</a>	<a href="#">34</a>	Switch - Rotary Beacon (ATCH 988/834)	<a href="#">E-4</a>	<a href="#">83</a>
Motor - Compressor Air Suspension Seat	<a href="#">H-13</a>	<a href="#">35</a>	Switch - Running Flood Lamp	<a href="#">B-3</a>	<a href="#">84</a>
Motor - Compressor Air Susp Seat (Heated)	<a href="#">H-13</a>	<a href="#">36</a>	Switch - Seat Height Adjust	<a href="#">H-14</a>	<a href="#">85</a>
Motor - Front Wiper	<a href="#">E-6</a>	<a href="#">37</a>	Switch - Stairway Access Lamp	<a href="#">C-4</a>	<a href="#">86</a>
Motor - Rear Wiper	<a href="#">I-7</a>	<a href="#">38</a>	Switch - Steering Lock	<a href="#">G-13</a>	<a href="#">87</a>
Outlet - 12V Accessory	<a href="#">H-8</a>	<a href="#">39</a>	Switch - Stop Lamp	<a href="#">B-5</a>	<a href="#">88</a>
Radio - CAES (TC900C)	<a href="#">C-10</a>	<a href="#">40</a>	Switch - Temperature Select	<a href="#">D-4</a>	<a href="#">89</a>
Radio - Product Link	<a href="#">G-14</a>	<a href="#">41</a>	Switch - Thermostat	<a href="#">F-13</a>	<a href="#">90</a>
Receiver - CAES	<a href="#">C-10</a>	<a href="#">42</a>	Switch - Throttle Lock Disengage	<a href="#">C-6</a>	<a href="#">91</a>
Resistor - Auto Blade Position LED	<a href="#">D-6</a>	<a href="#">43</a>	Switch - Throttle Lock Resume	<a href="#">I-12</a>	<a href="#">92</a>
Resistor - Auto Blade Position Pull Up	<a href="#">H-8</a>	<a href="#">44</a>	Switch - Throttle Lock Resume 3	<a href="#">I-9</a>	<a href="#">93</a>
Resistor - Blower Motor	<a href="#">F-13</a>	<a href="#">45</a>	Switch - Throttle Lock Set	<a href="#">I-12</a>	<a href="#">94</a>
Resistor - CAN	<a href="#">G-5</a>	<a href="#">46</a>	Switch - Throttle Lock Set 3	<a href="#">I-9</a>	<a href="#">95</a>
Resistor - Fuel Management Pull Up	<a href="#">H-12</a>	<a href="#">47</a>	Switch - Transmission Shifter 2 (836H)	<a href="#">F-6</a>	<a href="#">96</a>
Resistor - Throttle Lock Up Pull Up	<a href="#">E-6</a>	<a href="#">48</a>	Switch - Turn Signal (834)	<a href="#">I-8</a>	<a href="#">97</a>
Sensor - LH Brake Pedal	<a href="#">C-5</a>	<a href="#">49</a>	Switch - Turn Signal (988H)	<a href="#">G-12</a>	<a href="#">98</a>

# COMPONENT TABLE: Volume 2 of 3 - CHASSIS



Component Location Volume 2					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alarm - Backup	<a href="#">H-12</a>	<a href="#">99</a>	Sensor - Speed (Camshaft)	<a href="#">I-14</a>	<a href="#">173</a>
Alternator	<a href="#">G-9</a>	<a href="#">100</a>	Sensor - Speed (Crankshaft)	<a href="#">I-14</a>	<a href="#">174</a>
Alternator (With Debris Shield 836H)	<a href="#">G-9</a>	<a href="#">101</a>	Sensor - Speed (Torque Converter Output)	<a href="#">B-5</a>	<a href="#">175</a>
Battery - 1	<a href="#">F-10</a>	<a href="#">102</a>	Sensor - Speed (XMSN Output - Leading)	<a href="#">I-10</a>	<a href="#">176</a>
Battery - 2	<a href="#">F-9</a>	<a href="#">103</a>	Sensor - Speed (XMSN Output - Trailing)	<a href="#">I-10</a>	<a href="#">177</a>
Battery - 3	<a href="#">F-9</a>	<a href="#">104</a>	Sensor - Temperature (Air Intake)	<a href="#">I-14</a>	<a href="#">178</a>
Battery - 4	<a href="#">F-10</a>	<a href="#">105</a>	Sensor - Temperature (Coolant)	<a href="#">I-14</a>	<a href="#">179</a>
Block - Junction	<a href="#">F-10, F-12</a>	<a href="#">106</a>	Sensor - Temperature (Front Axle Oil - 834H)	<a href="#">E-2</a>	<a href="#">180</a>
Breaker - Engine ECM	<a href="#">D-12</a>	<a href="#">107</a>	Sensor - Temperature (Front Axle Oil - 988H)	<a href="#">I-2</a>	<a href="#">181</a>
Breaker - Ignition Key	<a href="#">D-12</a>	<a href="#">108</a>	Sensor - Temperature (Fuel)	<a href="#">H-13</a>	<a href="#">182</a>
Breaker - Main	<a href="#">D-12</a>	<a href="#">109</a>	Sensor - Temperature (Hydraulic Oil)	<a href="#">C-4</a>	<a href="#">183</a>
Breaker - Roof A/C	<a href="#">D-12</a>	<a href="#">110</a>	Sensor - Temperature (Rear Axle Oil)	<a href="#">C-4</a>	<a href="#">184</a>
Breaker - Running Lamp	<a href="#">C-12</a>	<a href="#">111</a>	Sensor - Temperature (Torque Converter Oil)	<a href="#">B-5</a>	<a href="#">185</a>
Breaker - Start Relay	<a href="#">D-12</a>	<a href="#">112</a>	Sensor - Temperature (Transmission Oil)	<a href="#">I-10</a>	<a href="#">186</a>
Control - Engine	<a href="#">I-14</a>	<a href="#">113</a>	Solenoid - A/C Clutch	<a href="#">G-10</a>	<a href="#">187</a>
Control - Gateway	<a href="#">E-14</a>	<a href="#">114</a>	Solenoid - Autolube	<a href="#">I-12</a>	<a href="#">188</a>
Control - Implement	<a href="#">E-9</a>	<a href="#">115</a>	Solenoid - Axle Cooler Fan	<a href="#">B-5</a>	<a href="#">189</a>
Control - Powertrain	<a href="#">F-10</a>	<a href="#">116</a>	Solenoid - Clutch 1 (Reverse)	<a href="#">I-10</a>	<a href="#">190</a>
Ground - E Bay	<a href="#">D-13</a>	<a href="#">117</a>	Solenoid - Clutch 2 (Forward)	<a href="#">I-10</a>	<a href="#">191</a>
Ground - EE Frame 1	<a href="#">F-9</a>	<a href="#">118</a>	Solenoid - Clutch 3 (Speed 4)	<a href="#">I-10</a>	<a href="#">192</a>
Ground - EE Frame 2	<a href="#">F-10</a>	<a href="#">119</a>	Solenoid - Clutch 4 (Speed 3)	<a href="#">I-10</a>	<a href="#">193</a>
Ground - Electronics Bay 2	<a href="#">E-10</a>	<a href="#">120</a>	Solenoid - Clutch 5 (Speed 2)	<a href="#">I-10</a>	<a href="#">194</a>
Ground - Electronics Bay 3	<a href="#">F-10</a>	<a href="#">121</a>	Solenoid - Clutch 6 (Speed 1)	<a href="#">I-10</a>	<a href="#">195</a>
Ground - Engine 2	<a href="#">G-10</a>	<a href="#">122</a>	Solenoid - Dump (988H)	<a href="#">F-2</a>	<a href="#">196</a>
Ground - Engine Block	<a href="#">F-10</a>	<a href="#">123</a>	Solenoid - Hyd Pilot Supply (988H)	<a href="#">F-2</a>	<a href="#">197</a>
Ground - External E Bay	<a href="#">F-12</a>	<a href="#">124</a>	Solenoid - Hyd Pilot Supply 2 (834H)	<a href="#">D-2</a>	<a href="#">198</a>
Ground - Frame 1	<a href="#">F-8</a>	<a href="#">125</a>	Solenoid - Hyd Pilot Supply 3 (836H)	<a href="#">B-1</a>	<a href="#">199</a>
Ground - Platform	<a href="#">G-6</a>	<a href="#">126</a>	Solenoid - Impeller Clutch	<a href="#">B-5</a>	<a href="#">200</a>
Horn - RH 1 (988H)	<a href="#">I-1</a>	<a href="#">127</a>	Solenoid - Implement Dual Relief (988H)	<a href="#">G-2</a>	<a href="#">201</a>
Horn - RH 2 (988H)	<a href="#">I-1</a>	<a href="#">128</a>	Solenoid - Implement Pump	<a href="#">B-5</a>	<a href="#">202</a>
Horn - LH 3 (836H)	<a href="#">B-1</a>	<a href="#">129</a>	Solenoid - Injector 1	<a href="#">H-12</a>	<a href="#">203</a>
Horn - RH 3 (836H)	<a href="#">B-1</a>	<a href="#">130</a>	Solenoid - Injector 2	<a href="#">H-12</a>	<a href="#">204</a>
Horn - LH 4 (834H)	<a href="#">F-2</a>	<a href="#">131</a>	Solenoid - Injector 3	<a href="#">G-12</a>	<a href="#">205</a>
Horn - RH 4 (834H)	<a href="#">D-2</a>	<a href="#">132</a>	Solenoid - Injector 4	<a href="#">G-12</a>	<a href="#">206</a>
Horn - RH 5 (988H)	<a href="#">I-1</a>	<a href="#">133</a>	Solenoid - Injector 5	<a href="#">G-12</a>	<a href="#">207</a>
Horn - RH 6 (988H)	<a href="#">I-1</a>	<a href="#">134</a>	Solenoid - Injector 6	<a href="#">G-12</a>	<a href="#">208</a>
Motor - Condenser Blower 1 (836H)	<a href="#">E-5</a>	<a href="#">135</a>	Solenoid - Lift Float (988H)	<a href="#">H-3</a>	<a href="#">209</a>
Motor - Condenser Blower 2 (836H)	<a href="#">E-5</a>	<a href="#">136</a>	Solenoid - Lockup Clutch	<a href="#">B-5</a>	<a href="#">210</a>
Motor - Front Washer (988H)	<a href="#">I-8</a>	<a href="#">137</a>	Solenoid - Lower 1 (988H)	<a href="#">G-2</a>	<a href="#">211</a>
Motor - Front Washer 2 (834/836H)	<a href="#">I-7</a>	<a href="#">138</a>	Solenoid - Lower 2 (834H)	<a href="#">G-2</a>	<a href="#">212</a>
Motor - Fuel Priming Pump	<a href="#">H-10</a>	<a href="#">139</a>	Solenoid - Lower 3 (836H)	<a href="#">B-1</a>	<a href="#">213</a>
Motor - Guideon Cleaner	<a href="#">G-4</a>	<a href="#">140</a>	Solenoid - Rack (988H)	<a href="#">F-2</a>	<a href="#">214</a>
Motor - Quick Lube Pump	<a href="#">F-6</a>	<a href="#">141</a>	Solenoid - Raise 1 (988H)	<a href="#">G-2</a>	<a href="#">215</a>
Motor - Rear Washer (988H)	<a href="#">J-8</a>	<a href="#">142</a>	Solenoid - Raise 2 (834H)	<a href="#">C-2</a>	<a href="#">216</a>
Motor - Rear Washer 2 (834/836H)	<a href="#">I-7</a>	<a href="#">143</a>	Solenoid - Raise 3 (836H)	<a href="#">B-1</a>	<a href="#">217</a>
Motor - Starter	<a href="#">F-10</a>	<a href="#">144</a>	Solenoid - Regen (988H)	<a href="#">G-2</a>	<a href="#">218</a>
Relay - Backlight	<a href="#">D-13</a>	<a href="#">145</a>	Solenoid - Retarder 1	<a href="#">H-12</a>	<a href="#">219</a>
Relay - Cab HID Halogen	<a href="#">E-13</a>	<a href="#">146</a>	Solenoid - Retarder 2	<a href="#">G-12</a>	<a href="#">220</a>
Relay - Condenser (836H)	<a href="#">E-5</a>	<a href="#">147</a>	Solenoid - Retarder 3	<a href="#">G-12</a>	<a href="#">221</a>
Relay - Front Cab Flood	<a href="#">E-13</a>	<a href="#">148</a>	Solenoid - Reversing Fan 1	<a href="#">H-12</a>	<a href="#">222</a>
Relay - Front Machine Flood	<a href="#">E-13</a>	<a href="#">149</a>	Solenoid - Reversing Fan Bypass	<a href="#">H-12</a>	<a href="#">223</a>
Relay - Horn 2	<a href="#">D-13</a>	<a href="#">150</a>	Solenoid - Ride Control (988H)	<a href="#">J-2</a>	<a href="#">224</a>
Relay - Machine HID Halogen	<a href="#">E-13</a>	<a href="#">151</a>	Solenoid - Start Aid	<a href="#">J-7</a>	<a href="#">225</a>
Relay - Main	<a href="#">C-12</a>	<a href="#">152</a>	Solenoid - 3rd Funct Rear Head End (988H)	<a href="#">F-2</a>	<a href="#">226</a>
Relay - Rear Halogen HID	<a href="#">E-13</a>	<a href="#">153</a>	Solenoid - 3rd Funct Fwd Rod End (988H)	<a href="#">G-2</a>	<a href="#">227</a>
Relay - Starter Motor	<a href="#">C-12</a>	<a href="#">154</a>	Solenoid - Tilt Left (834H)	<a href="#">C-2</a>	<a href="#">228</a>
Sender - Fuel Level	<a href="#">I-8</a>	<a href="#">155</a>	Solenoid - Tilt Right (834H)	<a href="#">D-2</a>	<a href="#">229</a>
Sender - Fuel Level 2 (836H)	<a href="#">B-2</a>	<a href="#">156</a>	Solenoid - Tip Bckward (834H)	<a href="#">C-2</a>	<a href="#">230</a>
Sender - Fuel Level 3 (834H)	<a href="#">F-4</a>	<a href="#">157</a>	Solenoid - Tip Forward (834H)	<a href="#">D-1</a>	<a href="#">231</a>
Sensor - Position (Blade 1 - 834H)	<a href="#">D-2</a>	<a href="#">158</a>	Solenoid - Variable Speed Fan	<a href="#">J-11</a>	<a href="#">232</a>
Sensor - Position (Blade 2 - 836H)	<a href="#">B-1</a>	<a href="#">159</a>	Suppressor - Arc (A/C)	<a href="#">H-10</a>	<a href="#">233</a>
Sensor - Position (Lift - 988H)	<a href="#">H-1</a>	<a href="#">160</a>	Switch - A/C Hi Low Pressure	<a href="#">H-10</a>	<a href="#">234</a>
Sensor - Position (Tilt - 988H)	<a href="#">H-1</a>	<a href="#">161</a>	Switch - Autolube Grease Level	<a href="#">I-12</a>	<a href="#">235</a>
Sensor - Pressure (Autolube Pump)	<a href="#">I-12</a>	<a href="#">162</a>	Switch - Brake Accumulator Pressure	<a href="#">C-4</a>	<a href="#">236</a>
Sensor - Pressure (Atmospheric)	<a href="#">H-13</a>	<a href="#">163</a>	Switch - Disconnect (Cab)	<a href="#">F-9</a>	<a href="#">237</a>
Sensor - Pressure (Boost)	<a href="#">H-13</a>	<a href="#">164</a>	Switch - Disconnect (Main)	<a href="#">F-9</a>	<a href="#">238</a>
Sensor - Pressure (Oil)	<a href="#">H-13</a>	<a href="#">165</a>	Switch - Fuel Priming Pump	<a href="#">H-10</a>	<a href="#">239</a>
Switch - Pressure (Differential Fuel)	<a href="#">H-12</a>	<a href="#">166</a>	Switch - Ground Level Shutdown	<a href="#">H-12</a>	<a href="#">240</a>
Sensor - Pressure (Fuel)	<a href="#">H-12</a>	<a href="#">167</a>	Switch - Ground Level Stairway Lamp	<a href="#">H-12</a>	<a href="#">241</a>
Sensor - Pressure (Impeller Clutch)	<a href="#">B-5</a>	<a href="#">168</a>	Switch - Hyd Pilot Oil Pressure	<a href="#">C-4</a>	<a href="#">242</a>
Sensor - Pressure (Lift Cyl - Head End 988H)	<a href="#">H-3</a>	<a href="#">169</a>	Switch - Park Brake Pressure	<a href="#">F-6</a>	<a href="#">243</a>
Sensor - Pressure (Lift Cyl - Rod 988H)	<a href="#">H-3</a>	<a href="#">170</a>	Switch - Suppl Steering Press (834/988)	<a href="#">I-8</a>	<a href="#">244</a>
Sensor - Pressure (NEEF Autolube 988H)	<a href="#">H-4</a>	<a href="#">171</a>	Switch - Transmissn Oil Filter Bypass (988H)	<a href="#">I-8</a>	<a href="#">245</a>
Sensor - Pressure (Var Hyd Oil Pump 988H)	<a href="#">B-6</a>	<a href="#">172</a>	Switch - XMSN Oil Filter Bypass 1 (834/836H)	<a href="#">I-7</a>	<a href="#">246</a>

# COMPONENT TABLE:

## Volume 3 of 3 - STEEL MILL ARRANGEMENT



Component Location Volume 3					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Breaker - Engine ECM	<a href="#">D-4</a>	<a href="#">247</a>	Relay - Front Machine Flood	<a href="#">E-6</a>	<a href="#">264</a>
Breaker - Ignition Key	<a href="#">D-4</a>	<a href="#">248</a>	Relay - Horn 2	<a href="#">D-6</a>	<a href="#">265</a>
Breaker - Main	<a href="#">D-4</a>	<a href="#">249</a>	Relay - Machine HID Hal	<a href="#">E-6</a>	<a href="#">266</a>
Breaker - Roof A/C	<a href="#">D-4</a>	<a href="#">250</a>	Relay - Main	<a href="#">C-4</a>	<a href="#">267</a>
Breaker - Running Lamp	<a href="#">D-4</a>	<a href="#">251</a>	Relay - Rear Halogen HID	<a href="#">E-6</a>	<a href="#">268</a>
Breaker - Start Relay	<a href="#">D-4</a>	<a href="#">252</a>	Relay - Starter Motor	<a href="#">C-4</a>	<a href="#">269</a>
Control - Implement	<a href="#">D-2</a>	<a href="#">253</a>	Sensor - Xmsn Oil Temperature	<a href="#">B-7</a>	<a href="#">270</a>
Control - Powertrain	<a href="#">E-2</a>	<a href="#">254</a>	Sensor - Xmsn Out Speed (Leading)	<a href="#">C-7</a>	<a href="#">271</a>
Control - Transmission Override	<a href="#">D-8</a>	<a href="#">255</a>	Sensor - Xmsn Out Speed (Trailing)	<a href="#">B-7</a>	<a href="#">272</a>
Ground - E Bay	<a href="#">E-4</a>	<a href="#">256</a>	Solenoid - Clutch 1 (Reverse) SM	<a href="#">C-6</a>	<a href="#">273</a>
Ground - E Bay Instrument	<a href="#">C-8</a>	<a href="#">257</a>	Solenoid - Clutch 2 (Forward) SM	<a href="#">C-6</a>	<a href="#">274</a>
Ground - E Bay 2	<a href="#">E-3</a>	<a href="#">258</a>	Solenoid - Clutch 3 (Speed 4) SM	<a href="#">C-6</a>	<a href="#">275</a>
Ground - E Bay 3	<a href="#">E-3</a>	<a href="#">259</a>	Solenoid - Clutch 4 (Speed 3) SM	<a href="#">C-6</a>	<a href="#">276</a>
Relay - Backlight	<a href="#">D-6</a>	<a href="#">260</a>	Solenoid - Clutch 5 (Speed 2) SM	<a href="#">C-6</a>	<a href="#">277</a>
Relay - Backup	<a href="#">C-7</a>	<a href="#">261</a>	Solenoid - Clutch 6 (Speed 1) SM	<a href="#">C-6</a>	<a href="#">278</a>
Relay - Cab HID Hal	<a href="#">E-6</a>	<a href="#">262</a>	Switch - Forward Override	<a href="#">D-7</a>	<a href="#">279</a>
Relay - Front Cab Flood	<a href="#">E-6</a>	<a href="#">263</a>	Switch - Reverse Override	<a href="#">D-7</a>	<a href="#">280</a>

## Connector Location Volume 1

Connector Number	Schematic Location
<a href="#">CONN 1</a>	<a href="#">I-14, I-11</a>
<a href="#">CONN 2</a>	<a href="#">H-14</a>
<a href="#">CONN 3</a>	<a href="#">G-14</a>
<a href="#">CONN 4</a>	<a href="#">C-13</a>
<a href="#">CONN 5</a>	<a href="#">E-13</a>
<a href="#">CONN 6</a>	<a href="#">E-13</a>
<a href="#">CONN 7</a>	<a href="#">F-13</a>
<a href="#">CONN 8</a>	<a href="#">F-13</a>
<a href="#">CONN 9</a>	<a href="#">D-11</a>
<a href="#">CONN 10</a>	<a href="#">G-11</a>
<a href="#">CONN 11</a>	<a href="#">F-7</a>
<a href="#">CONN 12</a>	<a href="#">D-5</a>
<a href="#">CONN 13</a>	<a href="#">E-5</a>

# CONNECTOR LOCATIONS: Volume 2 of 3 - CHASSIS



Connector Location Volume 2	
Connector Number	Schematic Location
<a href="#">CONN 4</a>	<a href="#">C-8</a>
<a href="#">CONN 5</a>	<a href="#">D-8</a>
<a href="#">CONN 6</a>	<a href="#">C-5</a>
<a href="#">CONN 7</a>	<a href="#">D-5</a>
<a href="#">CONN 14</a>	<a href="#">D-13</a>
<a href="#">CONN 15</a>	<a href="#">G-13</a>
<a href="#">CONN 16</a>	<a href="#">H-13</a>
<a href="#">CONN 17</a>	<a href="#">G-11</a>
<a href="#">CONN 18</a>	<a href="#">H-11</a>
<a href="#">CONN 19</a>	<a href="#">I-11</a>
<a href="#">CONN 20</a>	<a href="#">G-9</a>
<a href="#">CONN 21</a>	<a href="#">H-9</a>
<a href="#">CONN 22</a>	<a href="#">I-9</a>
<a href="#">CONN 23</a>	<a href="#">I-9</a>
<a href="#">CONN 24</a>	<a href="#">G-8</a>
<a href="#">CONN 25</a>	<a href="#">F-8</a>
<a href="#">CONN 26</a>	<a href="#">H-7</a>
<a href="#">CONN 27</a>	<a href="#">I-6</a>
<a href="#">CONN 28</a>	<a href="#">H-6</a>
<a href="#">CONN 29</a>	<a href="#">F-6</a>
<a href="#">CONN 30</a>	<a href="#">B-6</a>
<a href="#">CONN 31</a>	<a href="#">B-6</a>
<a href="#">CONN 32</a>	<a href="#">E-5</a>
<a href="#">CONN 33</a>	<a href="#">F-5, H-5</a>
<a href="#">CONN 34</a>	<a href="#">G-5</a>
<a href="#">CONN 36</a>	<a href="#">I-4</a>
<a href="#">CONN 37</a>	<a href="#">I-4</a>
<a href="#">CONN 38</a>	<a href="#">H-4</a>
<a href="#">CONN 39</a>	<a href="#">F-4</a>
<a href="#">CONN 40</a>	<a href="#">F-4</a>
<a href="#">CONN 41</a>	<a href="#">E-4, E-3</a>
<a href="#">CONN 42</a>	<a href="#">C-4</a>
<a href="#">CONN 43</a>	<a href="#">C-4</a>
<a href="#">CONN 44</a>	<a href="#">J-2</a>
<a href="#">CONN 45</a>	<a href="#">I-2</a>
<a href="#">CONN 46</a>	<a href="#">I-2</a>
<a href="#">CONN 47</a>	<a href="#">I-2</a>
<a href="#">CONN 48</a>	<a href="#">H-2</a>
<a href="#">CONN 49</a>	<a href="#">G-2</a>
<a href="#">CONN 50</a>	<a href="#">F-2</a>
<a href="#">CONN 51</a>	<a href="#">E-2</a>
<a href="#">CONN 52</a>	<a href="#">E-2</a>
<a href="#">CONN 53</a>	<a href="#">D-2</a>
<a href="#">CONN 54</a>	<a href="#">B-2</a>



# CONNECTOR LOCATIONS:

## Volume 3 of 3 - STEEL MILL ARRANGEMENT



<b>Connector Location Volume 3</b>	
<b>Connector Number</b>	<b>Schematic Location</b>
<a href="#"><u>CONN 4</u></a>	<a href="#"><u>B-1</u></a>
<a href="#"><u>CONN 5</u></a>	<a href="#"><u>C-1</u></a>
<a href="#"><u>CONN 14</u></a>	<a href="#"><u>D-6</u></a>
<a href="#"><u>CONN 22</u></a>	<a href="#"><u>B-7</u></a>
<a href="#"><u>CONN 23</u></a>	<a href="#"><u>C-7</u></a>
<a href="#"><u>CONN 24</u></a>	<a href="#"><u>E-1</u></a>
<a href="#"><u>CONN 25</u></a>	<a href="#"><u>E-1</u></a>
<a href="#"><u>CONN 55</u></a>	<a href="#"><u>C-7</u></a>
<a href="#"><u>CONN 56</u></a>	<a href="#"><u>C-7</u></a>
<a href="#"><u>CONN 57</u></a>	<a href="#"><u>C-7</u></a>
<a href="#"><u>CONN 58</u></a>	<a href="#"><u>D-7</u></a>
<a href="#"><u>CONN 59</u></a>	<a href="#"><u>D-7</u></a>

Component Identifiers (CID <sup>1</sup> ) Module Identifier (MID <sup>2</sup> ) Caterpillar Monitoring System (MID No. 030)	
CID	Component
0096	Fuel Level Sender
0100	Engine Oil Pressure Sensor
0110	Engine Coolant Temperature Sensor
0177	Torque Converter Oil Temperature Sensor
0248	Data Link
0263	Sensor Power Supply
0271	Action Alarm
0324	Action Lamp
0600	Hydraulic Oil Temperature Sensor
0819	Display Data Link
0821	Display Power Supply
0826	T/C Oil Temperature Sensor
0830	Brake Oil Temperature Sensor
Payload Control System (MID No. 074)	
CID	Component
0168	Electrical System Voltage
0254	Electronic Control Module
0350	Lift Linkage Position Sensor
0364	Lift Cylinder Head End Pressure Sensor
0769	Lift Cylinder Rod End Pressure Sensor
0818	ECM Internal Backup Battery
0820	Keypad Data Link
Electronic Transmission Control System (MID No. 081)	
CID	Component
0041	8 Volt DC Supply
0138	Reduced Rimpull Selection Switch (988H only)
0168	Electrical System Voltage
0177	Transmission Oil Temperature Sensor
0190	Engine Speed Sensor
0363	Machine Ride Control Actuator (988H only)
0367	Ride Control Switch (988H only)
0378	Machine Autolube Solenoid (988H only)
0379	Machine Autolube Pressure Sensor (988H only)
0444	Start Relay
0562	Electronic Monitoring System
0585	Transmission Output Speed Sensor 1
0590	Engine Control Module
0596	Implement Control (988H only)
0603	T/C Impeller Clutch Pressure Sensor
0623	Directional Switch
0626	Steering/Transmission Lock Switch
0627	Parking Brake Pressure Switch
0650	Harness Code
0670	Left Pedal Position Sensor
0672	Transmission Input Speed Sensor
0673	Transmission Output Speed Sensor 2
0678	T/C Impeller Clutch Solenoid
0679	T/C Lockup Clutch Solenoid
1401	Reverse Solenoid
1402	Forward Solenoid
1403	Fourth Speed Clutch
1404	Third Speed Clutch
1405	Second Speed Clutch
1406	First Speed Clutch
Electronic Implement Control (MID No. 082)	
CID	Component
0139	Tip Backward Solenoid (834H, 836H only)
0140	Tip Forward Solenoid (834H, 836H only)
0168	Electrical System Voltage
0268	Programmed Parameter Fault
0296	Transmission Control
0350	Lift Linkage Position Sensor (988H only)
0351	Tily Linkage Position Sensor (988H only)
0352	Lift Lever Position Sensor
0353	Tilt Lever Position Sensor
0354	Raise Solenoid
0355	Lower Solenoid
0356	Dump Solenoid #1 (988H only)
0357	Rackback Solenoid #1 (988H only)
0358	Pilot Pressure Solenoid
0359	Raise Detent Electromagnet (988H only)
0361	Rackback Detent Electromagnet (988H only)
0365	ABP Kickout Set Switch
0487	3rd Lever Position Sensor (988H only)
0489	Implement Function Select Switch
0490	Implement Lockout Switch
0491	3rd Function Forward Solenoid (988H only)
0492	3rd Function Rearward Solenoid (988H only)
0497	Tilt Right Solenoid (834H, 836H only)
0498	Tilt Left Solenoid (834H, 836H only)
0499	Implement Variable Hyd Oil Pump Solenoid (988H only)
0562	Caterpillar Monitoring System
0590	Engine Electronic Control Module
0591	Internal Memory
0650	Harness Code
0864	Variable Implement Pump Oil Pressure Sensor (988H only)
1393	Driver Enable Line
1400	Axle Oil Cooler Fan Bypass Solenoid
1667	Loose Material Switch (988H only)
1964	Lift Cylinder Position Sensor (834H, 836H only)
2119	ABP Enable Switch (834H, 836H only)

<sup>1</sup> The CID is a diagnostic code that indicates which component is faulty.

<sup>2</sup> The MID is a diagnostic code that indicates which electronic control module diagnosed the fault.

Monitoring System Service Modes	
Service Mode	Number
Operator Mode Sequence	0
Harness Code	1
Numeric Readout	2
Service	3
Digital Tattletale	4
Units	5
Calibration 1	6
Calibration 2	7

Monitoring System Operator Modes	
Operator Mode	Number
Service Meter	0
Odometer - Machine Travel Distance	1
Tachometer	2
Scrolling (Diagnostic)	3

Engineering Codes for CAESultra	
Code	Condition
ENG 10	Master cfg file not found.
ENG 12	Cfg - A directory was not found.
ENG 14	Cfg - Invalid machine dimension.
ENG 16	Cfg - No vehicles identified.
ENG 18	Cfg - Invalid GPS antenna location.
ENG 20	Cfg - Invalid application usage
ENG 22	Cfg - Invalid GPS log configuration.
ENG 24	Cfg - Invalid internal units.
ENG 26	Cfg - Can't delete specified files.
ENG 28	Cfg - Can't find GPS input file.
ENG 30	Cfg - Open/create data file error
ENG 32	Cfg - Invalid machine type/ID.
ENG 38	Invalid security key.
ENG 40	Can't open cfg file for read.
ENG 42	Can't open cfg file for write.
ENG 44	Can't create a file cfg file.
ENG 46	All data not saved on shutdown.
ENG 48	Can't create diagnostics file.
ENG 50	Can't open diagnostics file.
ENG 52	Backlight heater on.
ENG 60	No radio comm port initialized.
ENG 62	Invalid radio message status.
ENG 64	Radio message queue is full.
ENG 70	Can't find serial .dll file.
ENG 72	Invalid serial .dll file.
ENG 74	Unrecognized command to Interface Board.
ENG 76	Unrecognized command from Interface Board.
ENG 78	Communications port to Interface Board is not initialized
ENG 79	On board communications fault.
ENG 80	Memory allocation error.
ENG 82	Memory reallocation error.
ENG 90	Can't open/create design file.
ENG 92	Can't open/create update file.
ENG 94	New update file created.
ENG 95	File cfg file incomplete.
ENG 96	Backup config file incomplete.
ENG 97	File receive cancelled wrong CRC.

Failure Mode Identifiers (FMI) <sup>1</sup>	
FMI No.	Failure Description
0	Data valid but above normal operational range.
1	Data valid but below normal operational range.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted high.
4	Voltage below normal or shorted low.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding properly.
8	Abnormal frequency, pulse width, or period.
9	Abnormal update.
10	Abnormal rate of change.
11	Failure mode not identifiable.
12	Bad device or component.
13	Out of calibration.
14	Parameter failures.
15	Parameter failures.
16	Parameter not available.
17	Module not responding.
18	Sensor supply fault.
19	Condition not met.
20	Parameter failures.

<sup>1</sup>The FMI is a diagnostic code that indicates what type of failure has occurred.

Component Identifiers (CID <sup>1</sup> ) Module Identifier (MID <sup>2</sup> )					
Engine ECM (MID No. 036)		Electronic Transmission Control System (MID No. 081)		Electronic Implement Control (MID No. 082)	
CID	Component	CID	Component	CID	Component
0001	Fuel Injector Solenoid #1	0041	8 Volt DC Supply	0139	Tip Backward Solenoid (834H, 836H only)
0002	Fuel Injector Solenoid #2	0138	Reduced Rimpull Selection Switch (988H only)	0140	Tip Forward Solenoid (834H, 836H only)
0003	Fuel Injector Solenoid #3	0168	Electrical System Voltage	0168	Electrical System Voltage
0004	Fuel Injector Solenoid #4	0177	Transmission Oil Temperature Sensor	0268	Programmed Parameter Fault
0005	Fuel Injector Solenoid #5	0190	Engine Speed Sensor	0296	Transmission Control
0006	Fuel Injector Solenoid #6	0363	Machine Ride Control Actuator (988H only)	0350	Lift Linkage Position Sensor (988H only)
0041	ECM 8V DC Supply	0367	Ride Control Switch (988H only)	0351	Tily Linkage Position Sensor (988H only)
0091	Throttle Sensor	0378	Machine Autolube Solenoid (988H only)	0352	Lift Lever Position Sensor
0094	Fuel Pressure Sensor	0379	Machine Autolube Pressure Sensor (988H only)	0353	Tilt Lever Position Sensor
0100	Oil Pressure Sensor	0444	Start Relay	0354	Raise Solenoid
0102	Boost Pressure Sensor	0562	Electronic Monitoring System	0355	Lower Solenoid
0110	Engine Coolant Temperature Sensor	0585	Transmission Output Speed Sensor 1	0356	Dump Solenoid #1 (988H only)
0168	Electrical Power Supply	0590	Engine Control Module	0357	Rackback Solenoid #1 (988H only)
0172	Intake Manifold Air Temperature Sensor	0596	Implement Control (988H only)	0358	Pilot Pressure Solenoid
0174	Fuel Temperature Sensor	0603	T/C Impeller Clutch Pressure Sensor	0359	Raise Detent Electromagnet (988H only)
0190	Engine Speed Sensor	0623	Directional Switch	0361	Rackback Detent Electromagnet (988H only)
0261	Engine Speed Sensor	0626	Steering/Transmission Lock Switch	0365	ABP Kickout Set Switch
0262	5 Volt Sensor Supply	0627	Parking Brake Pressure Switch	0487	3rd Lever Position Sensor (988H only)
0267	Engine Shutdown Switch	0650	Harness Code	0489	Implement Function Select Switch
0268	Check Programmable Parameters	0670	Left Pedal Position Sensor	0490	Implement Lockout Switch
0274	Atmospheric Pressure Sensor	0672	Transmission Input Speed Sensor	0491	3rd Function Forward Solenoid (988H only)
0291	Engine Cooling Fan Solenoid	0673	Transmission Output Speed Sensor 2	0492	3rd Function Rearward Solenoid (988H only)
0296	Transmission ECM	0678	T/C Impeller Clutch Solenoid	0497	Tilt Right Solenoid (834H, 836H only)
0342	Camshaft Position Sensor	0679	T/C Lockup Clutch Solenoid	0498	Tilt Left Solenoid (834H, 836H only)
0485	Engine Fan Reversing Solenoid	1401	Reverse Solenoid	0499	Implement Variable Hyd Oil Pump Solenoid (988H only)
0788	Engine Retarder Selector Switch	1402	Forward Solenoid	0562	Caterpillar Monitoring System
1248	Retarder Solenoid	1403	Fourth Speed Clutch	0590	Engine Electronic Control Module
1330	Right Brake Pedal Switch	1404	Third Speed Clutch	0591	Internal Memory
1589	Turbo Inlet Air Pressure Sensor	1405	Second Speed Clutch	0650	Harness Code
1639	Machine Security System	1406	First Speed Clutch	0864	Variable Implement Pump Oil Pressure Sensor (988H only)
2417	Start Aid Solenoid			1393	Driver Enable Line
				1400	Axle Oil Cooler Fan Bypass Solenoid
				1667	Loose Material Switch (988H only)
				1964	Lift Cylinder Position Sensor (834H, 836H only)
				2119	ABP Enable Switch (834H, 836H only)

<sup>1</sup> The CID is a diagnostic code that indicates which component is faulty.

<sup>2</sup> The MID is a diagnostic code that indicates which electronic control module diagnosed the fault.

Failure Mode Identifiers (FMI) <sup>1</sup>	
FMI No.	Failure Description
0	Data valid but above normal operational range.
1	Data valid but below normal operational range.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted high.
4	Voltage below normal or shorted low.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding properly.
8	Abnormal frequency, pulse width, or period.
9	Abnormal update.
10	Abnormal rate of change.
11	Failure mode not identifiable.
12	Bad device or component.
13	Out of calibration.
14	Parameter failures.
15	Parameter failures.
16	Parameter not available.
17	Module not responding.
18	Sensor supply fault.
19	Condition not met.
20	Parameter failures.

<sup>1</sup>The FMI is a diagnostic code that indicates what type of failure has occurred.

Event Codes For Engine ECM	
Event Code	Condition
E172	High Air Filter Restriction
E194	High Exhaust Temperature
E360	Low Engine Oil Pressure
E361	High Engine Coolant Temperature
E362	Engine Overspeed
E363	High Fuel Temperature
E390	Fuel Filter Restriction
E441	Idle Elevated to Increase Battery Voltage
E539	High Intake Manifold Air Temperature

Component Identifiers (CID <sup>1</sup> ) Module Identifier (MID <sup>2</sup> )			
Powertrain ECM (MID No. 081)		Implement ECM (MID No. 082)	
CID	Component	CID	Component
0041	Sensor Power Supply Voltage	0168	Electrical System Voltage
0138	Rotary Switch (Reduced Rimpull Selector)	0296	Electronic Control Module (Powertrain)
0168	Electrical System Voltage	0350	Position Sensor (Lift Linkage)
0177	Temperature Sensor (Transmission Oil)	0351	Position Sensor (Tilt Linkage)
0190	Speed Sensor (Engine)	0352	Position Sensor (Lift Lever)
0363	Solenoid Valve (Ride Control)	0353	Position Sensor (Tilt Lever)
0367	Rocker Switch (Ride Control)	0354	Coil (Raise)
0378	Valve Solenoid	0355	Coil (Lower)
0379	Sensor (Auto Lube Pressure)	0356	Coil (Dump)
0444	Magnetic Switch (Start Relay)	0357	Coil (Tiltback)
0562	Caterpillar Monitoring System	0358	Solenoid Valve (Pilot Pressure)
0585	Speed Sensor No. 1 (Transmission Output)	0359	Detent Coil (Lift Lever Raise)
0590	Electronic Control Module (Engine)	0361	Detent Coil (Tilt Lever Tilt Back)
0596	Electronic Control Module (Implement)	0365	Switch (Kickout Set)
0603	Pressure Sensor (Torque Converter Impeller Clutch)	0487	Position Sensor (Auxiliary Lever)
0623	Rocker Switch (Transmission Direction)	0489	Rocker Switch (Implement Function Selector)
0626	Limit Switch (Steering / Transmission Lock)	0490	Rocker Switch (Implement Lockout)
0627	Pressure Switch (Parking Brake)	0491	Coil (Auxiliary Lever Forward)
0650	Harness Code	0492	Coil (Auxiliary Lever Back)
0670	Pedal Position Sensor (Torque Converter Output)	0499	Solenoid Valve (Pump Control)
0672	Speed Sensor (Torque Converter Output)	0562	Caterpillar Monitoring System
0673	Speed Sensor No. 2 (Transmission Output)	0590	Electronic Control Module (Engine)
0678	Modulating Valve (Torque Converter Impeller Clutch)	0591	Internal Memory
0679	Modulating Valve (Torque Converter lockup Clutch)	0650	Harness Code
1401	Modulating Valve (No. 1) (Transmission)	0864	Pressure Sensor (Variable Displacement Pump Oil)
1402	Modulating Valve (No. 2) (Transmission)	1393	Driver Enable Line
1403	Modulating Valve (No. 3) (Transmission)	1400	Solenoid Valve (Axle Oil Cooler)
1404	Modulating Valve (No. 4) (Transmission)	1667	Rocker Switch (Loose Material Mode)
1405	Modulating Valve (No. 5) (Transmission)		
1406	Modulating Valve (No. 6) (Transmission)		

<sup>1</sup> The CID is a diagnostic code that indicates which circuit is faulty.

<sup>2</sup> The MID is a diagnostic code that indicates which electronic control module diagnosed the fault.

Failure Mode Identifiers (FMI) <sup>1</sup>	
FMI No.	Failure Description
0	Data valid but above normal operational range.
1	Data valid but below normal operational range.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted high.
4	Voltage below normal or shorted low.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding properly.
8	Abnormal frequency, pulse width, or period.
9	Abnormal update.
10	Abnormal rate of change.
11	Failure mode not identifiable.
12	Bad device or component.
13	Out of calibration.
14	N / A
15	N / A
16	Parameter not available.
17	Module not responding.
18	Sensor supply fault.
19	Condition not met.
20	N / A

<sup>1</sup>The FMI is a diagnostic code that indicates what type of failure has occurred.

PCS Message Explanation Table		
PCS Message	Cause	Correctction
"LOWER"	Bucket position is too high to start the weigh.	Lower the bucket until the "Lower" message disappears.
"LIFT TOO SLOW"	Lift speed was too slow.	Repeat lift with increased engine RPM.
"REW-1"	Paused lift in weigh range	Repeat lift and maintain constant engine RPM throughout the lift. Ensure lift kickout is set above end-of-weigh range.
"REW-2"	Machine motion or bounce caused excessive pressure spikes.	Repeat lift with the following suggestions: 1. Lower the start of lift position to a point closer to the ground. 2. Hold the machine at a constant engine RPM through the entire weigh range. 3. Lift with a lower engine RPM. 4. Lift with the lift lever in Detent. Ease the lever into the Detent position. 5. Ensure that the machine is not moving at excessive speeds or over rough ground. 6. Lift with the machine stationary, or with minimal motion.
"REW-3"	Lift speed changed too much during the lift. This is typically caused by lowering engine RPM at the end of the lift as the machine nears the truck.	Repeat lift with a more constant engine RPM.
"REW-4"	Lift was too slow.	Repeat lift with increased engine RPM.
"LIFT BUCKET 10 TIMES"	After the machine has rested four or more hours, this message will appear.	Perform a minimum of ten lifts in order to warm the machine linkage and hydraulics.
"RE-ZERO PCS"	Automatic PCS reminder to Re-zero. This will reduce errors caused by pressure drift.	1. Lower the bucket to the ground. 2. Rack the empty bucket back fully. 3. Raise the engine speed to typical lifting speed. 4. Gently pull the lift lever into the detent position. 5. Maintain constant engine speed throughout the lift. 6. When the weight has been displayed, press the "ZERO" key (3).
"CALC" <sup>1</sup>	The system is in the process of calculating the payload.	No action is required.

<sup>1</sup>This message is not typical. For additional information on this message, read the section that is entitled "CALC" in the text below.

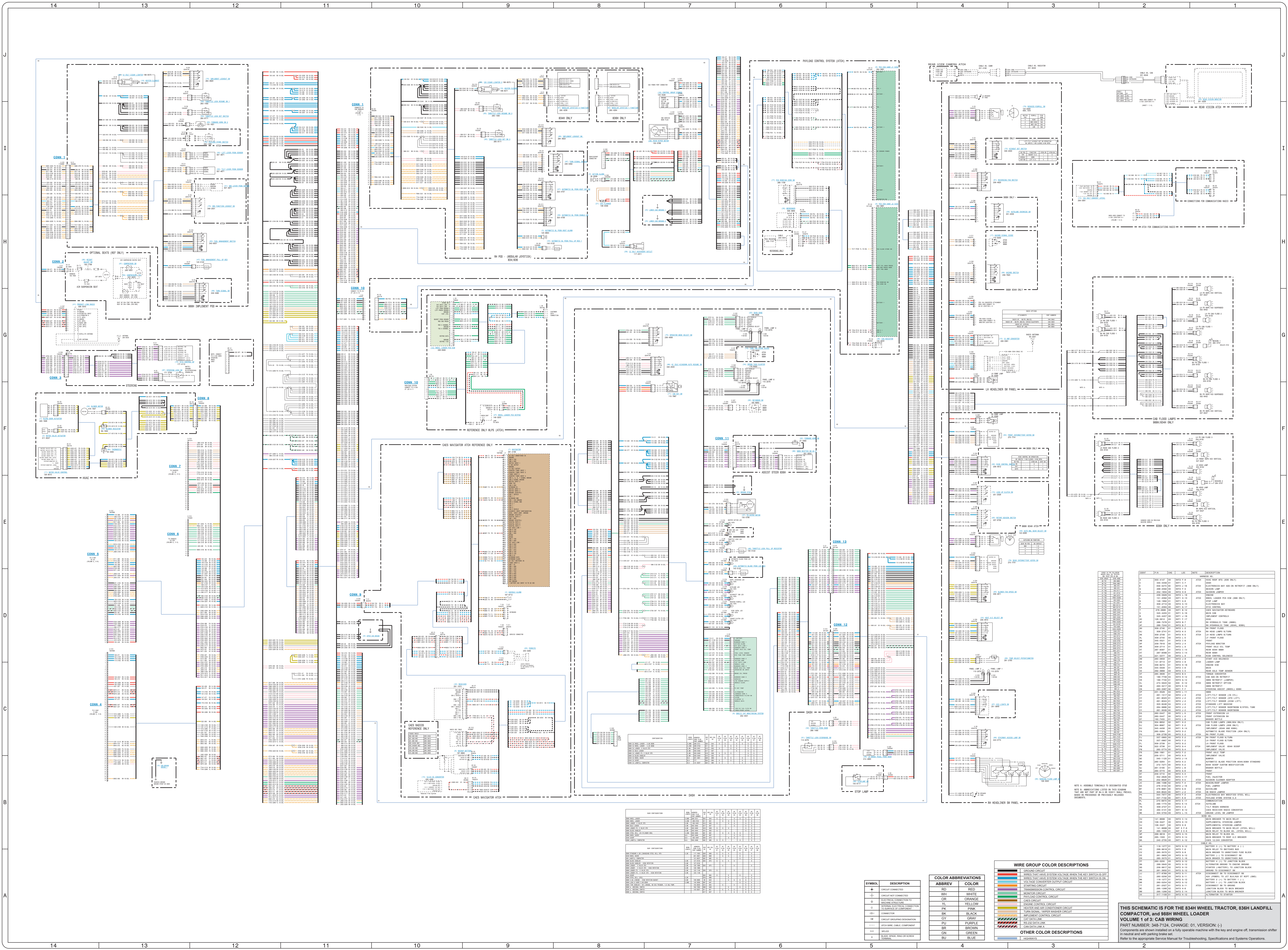
### RELATED ELECTRICAL SERVICE MANUALS

Volume 1 of 3 - CAB		Volume 2 of 3 - CHASSIS		Volume 3 of 3 - STEEL MILL AR.	
Title	Form Number	Title	Form Number	Title	Form Number
Caterpillar Monitoring System	SENR1394	Alternator: 197-8820 (Denso HDB)	SENR4130	XMSN Override Control:	REHS2692
Electronic Implement Control	REN8699	Electric Starting Motor: 338-3454 (Delco 50MT)	SENR3860	Powertrain Control:	REN86205
Electronic Transmission Control	REN8689	Engine Control:	REN85033	Implement Control:	REN86218
CAES ULTRA	REN87892	Gateway PL1000T Communication ECM:	REN87945		
Payload Control System	SENR6614	Electronic Implement Control:	REN86999		
		Electronic Transmission Control:	REN8689		

### Volume 3 - (SM) Resistor, Sender and Solenoid Specifications

Part No.	Component Description	Resistance (Ohms) <sup>1</sup>
226-9622	Solenoid: Clutch 1 (Reverse) SM Clutch 2 (Forward) SM Clutch 3 (Speed 4) SM Clutch 4 (Speed 3) SM Clutch 5 (Speed 2) SM Clutch 6 (Speed 1) SM	8.7 ± 0.4

<sup>1</sup> At room temperature unless otherwise noted.



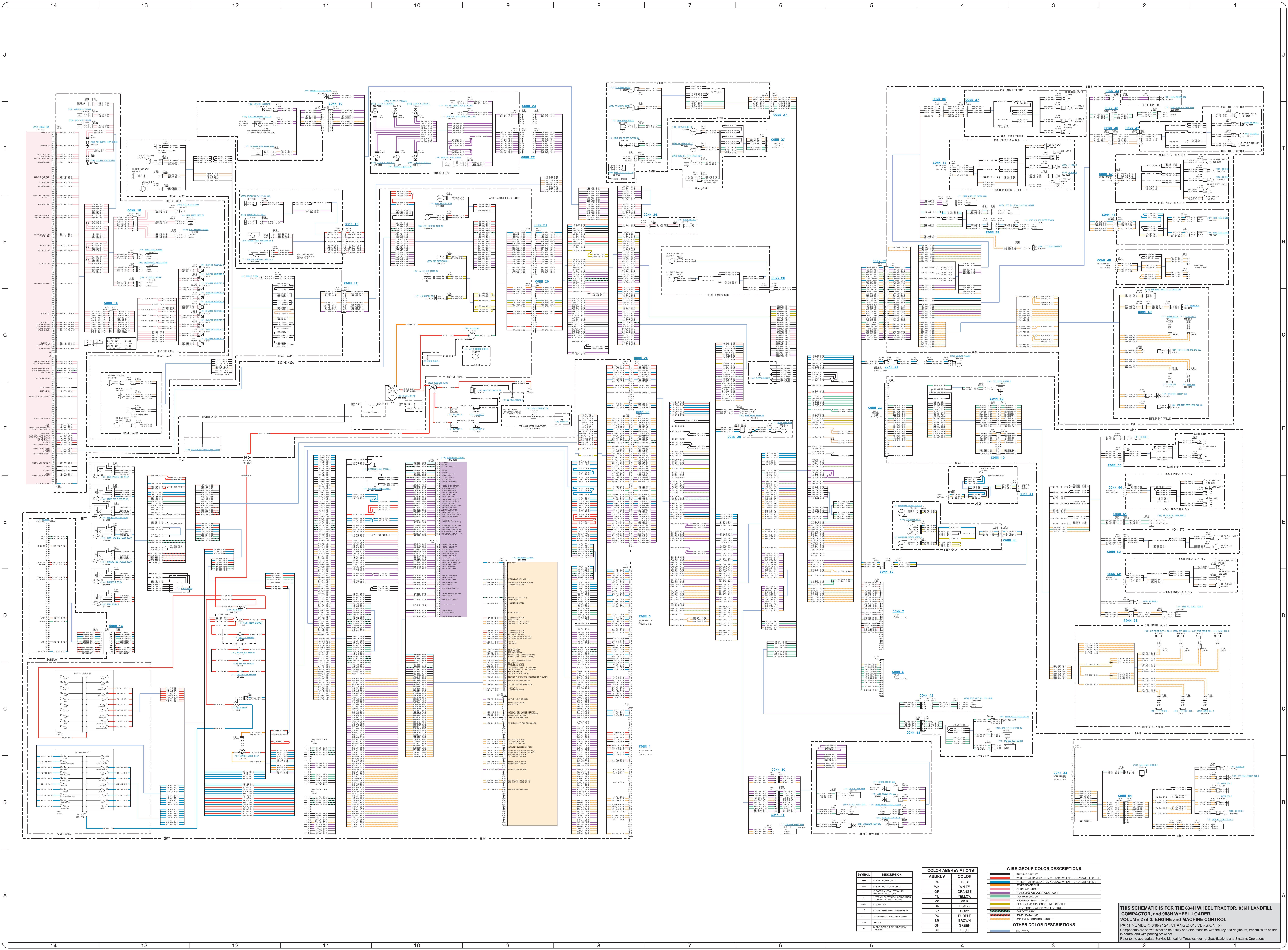
WIRE NUMBER	WIRE COLOR	WIRE FUNCTION
100-001	RED	IGNITION SWITCH
100-002	BLACK	IGNITION SWITCH
100-003	YELLOW	IGNITION SWITCH
100-004	GREEN	IGNITION SWITCH
100-005	BLUE	IGNITION SWITCH
100-006	PINK	IGNITION SWITCH
100-007	ORANGE	IGNITION SWITCH
100-008	WHITE	IGNITION SWITCH
100-009	BROWN	IGNITION SWITCH
100-010	PURPLE	IGNITION SWITCH
100-011	GRAY	IGNITION SWITCH
100-012	RED	IGNITION SWITCH
100-013	BLACK	IGNITION SWITCH
100-014	YELLOW	IGNITION SWITCH
100-015	GREEN	IGNITION SWITCH
100-016	BLUE	IGNITION SWITCH
100-017	PINK	IGNITION SWITCH
100-018	ORANGE	IGNITION SWITCH
100-019	WHITE	IGNITION SWITCH
100-020	BROWN	IGNITION SWITCH
100-021	PURPLE	IGNITION SWITCH
100-022	GRAY	IGNITION SWITCH
100-023	RED	IGNITION SWITCH
100-024	BLACK	IGNITION SWITCH
100-025	YELLOW	IGNITION SWITCH
100-026	GREEN	IGNITION SWITCH
100-027	BLUE	IGNITION SWITCH
100-028	PINK	IGNITION SWITCH
100-029	ORANGE	IGNITION SWITCH
100-030	WHITE	IGNITION SWITCH
100-031	BROWN	IGNITION SWITCH
100-032	PURPLE	IGNITION SWITCH
100-033	GRAY	IGNITION SWITCH
100-034	RED	IGNITION SWITCH
100-035	BLACK	IGNITION SWITCH
100-036	YELLOW	IGNITION SWITCH
100-037	GREEN	IGNITION SWITCH
100-038	BLUE	IGNITION SWITCH
100-039	PINK	IGNITION SWITCH
100-040	ORANGE	IGNITION SWITCH
100-041	WHITE	IGNITION SWITCH
100-042	BROWN	IGNITION SWITCH
100-043	PURPLE	IGNITION SWITCH
100-044	GRAY	IGNITION SWITCH
100-045	RED	IGNITION SWITCH
100-046	BLACK	IGNITION SWITCH
100-047	YELLOW	IGNITION SWITCH
100-048	GREEN	IGNITION SWITCH
100-049	BLUE	IGNITION SWITCH
100-050	PINK	IGNITION SWITCH
100-051	ORANGE	IGNITION SWITCH
100-052	WHITE	IGNITION SWITCH
100-053	BROWN	IGNITION SWITCH
100-054	PURPLE	IGNITION SWITCH
100-055	GRAY	IGNITION SWITCH
100-056	RED	IGNITION SWITCH
100-057	BLACK	IGNITION SWITCH
100-058	YELLOW	IGNITION SWITCH
100-059	GREEN	IGNITION SWITCH
100-060	BLUE	IGNITION SWITCH
100-061	PINK	IGNITION SWITCH
100-062	ORANGE	IGNITION SWITCH
100-063	WHITE	IGNITION SWITCH
100-064	BROWN	IGNITION SWITCH
100-065	PURPLE	IGNITION SWITCH
100-066	GRAY	IGNITION SWITCH
100-067	RED	IGNITION SWITCH
100-068	BLACK	IGNITION SWITCH
100-069	YELLOW	IGNITION SWITCH
100-070	GREEN	IGNITION SWITCH
100-071	BLUE	IGNITION SWITCH
100-072	PINK	IGNITION SWITCH
100-073	ORANGE	IGNITION SWITCH
100-074	WHITE	IGNITION SWITCH
100-075	BROWN	IGNITION SWITCH
100-076	PURPLE	IGNITION SWITCH
100-077	GRAY	IGNITION SWITCH
100-078	RED	IGNITION SWITCH
100-079	BLACK	IGNITION SWITCH
100-080	YELLOW	IGNITION SWITCH
100-081	GREEN	IGNITION SWITCH
100-082	BLUE	IGNITION SWITCH
100-083	PINK	IGNITION SWITCH
100-084	ORANGE	IGNITION SWITCH
100-085	WHITE	IGNITION SWITCH
100-086	BROWN	IGNITION SWITCH
100-087	PURPLE	IGNITION SWITCH
100-088	GRAY	IGNITION SWITCH
100-089	RED	IGNITION SWITCH
100-090	BLACK	IGNITION SWITCH
100-091	YELLOW	IGNITION SWITCH
100-092	GREEN	IGNITION SWITCH
100-093	BLUE	IGNITION SWITCH
100-094	PINK	IGNITION SWITCH
100-095	ORANGE	IGNITION SWITCH
100-096	WHITE	IGNITION SWITCH
100-097	BROWN	IGNITION SWITCH
100-098	PURPLE	IGNITION SWITCH
100-099	GRAY	IGNITION SWITCH
100-100	RED	IGNITION SWITCH

SYMBOL	DESCRIPTION
+	CIRCUIT CONNECTED
+	CIRCUIT NOT CONNECTED
+	ELECTRICAL CONNECTION
+	Mechanical Structure
+	Wiring to Electrical Component
+	Connector
+	Circuit Grouping Organization
+	Wiring Cable Component
+	Wiring Cable Component
+	Wiring Cable Component

ABBREV	COLOR
WH	WHITE
RD	RED
OR	ORANGE
YL	YELLOW
PK	PINK
BLK	BLACK
GY	GRAY
PL	PURPLE
BR	BROWN
GN	GREEN
BLU	BLUE

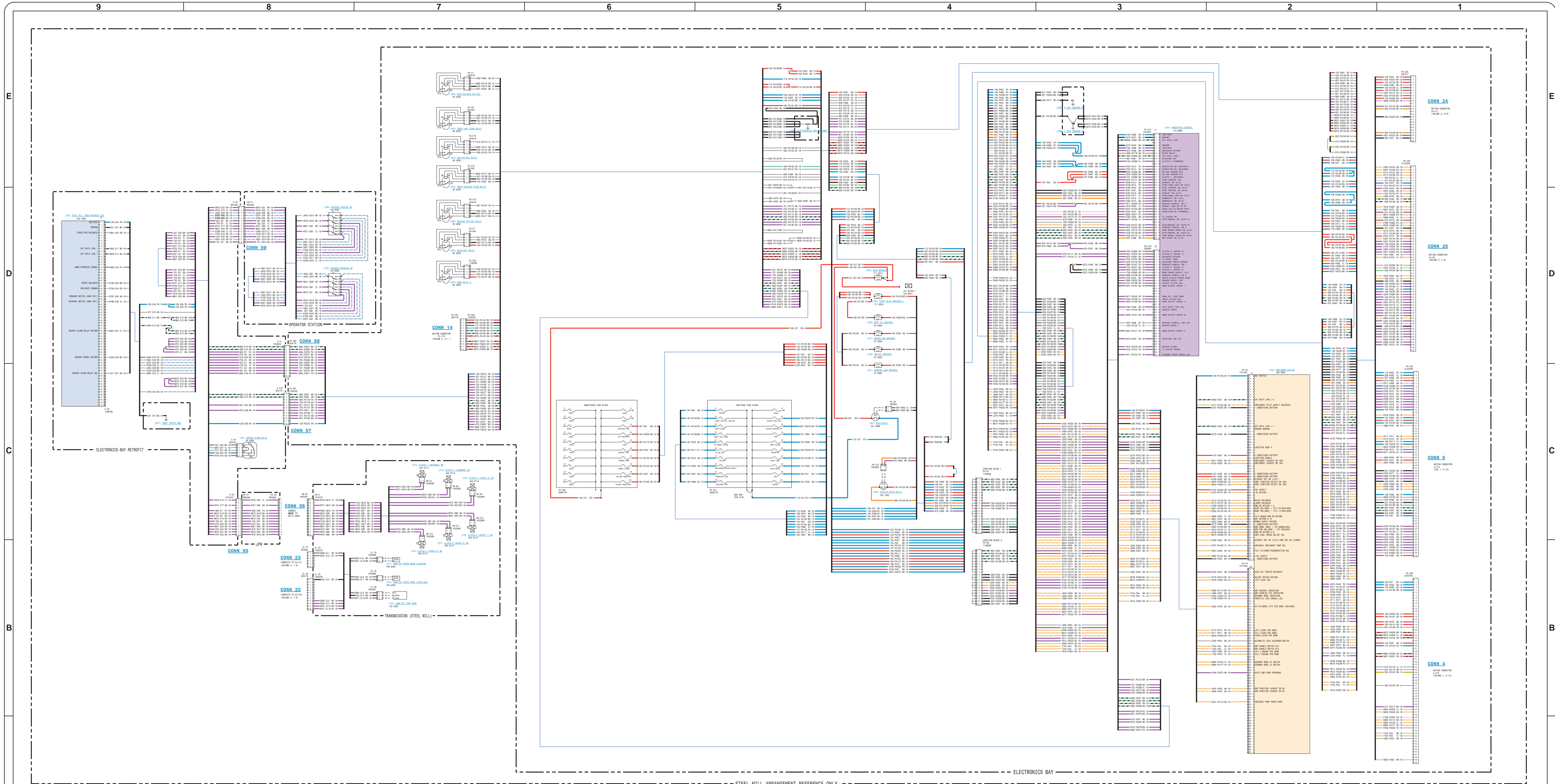
WIRE GROUP	DESCRIPTION
IGNITION	IGNITION SYSTEM
STOP	STOP LIGHTS
PAVELAD	PAVELAD CONTROL SYSTEM
ENGINE	ENGINE CONTROL CIRCUIT
TURN	TURN SIGNALS
WASHER	WASHER CIRCUIT
DATA	DATA LINES
OTHER	OTHER WIRING

**THIS SCHEMATIC IS FOR THE 834H WHEEL TRACTOR, 836H LANDFILL COMPACTOR, and 888H WHEEL LOADER**  
**VOLUME 1 of 3: CAB WIRING**  
 PART NUMBER: 348-7124, CHANGE: 01, VERSION: 1  
 Components are shown installed on a fully operational machine with the key and engine off. Transmission shift in neutral and with parking brake set.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.



SYMBOL	DESCRIPTION	ABBREV	COLOR	DESCRIPTION
+	GROUND CONNECTION	RD	RED	GROUND CIRCUIT
+	GROUND NOT CONNECTED	WH	WHITE	WIRING THAT HAS SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
+	FUNCTIONAL CONNECTION TO	OR	ORANGE	START AND CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	YL	YELLOW	STARTING CONTROL CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	PK	PINK	MONITOR CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	BLK	BLACK	ENGINE CONTROL CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	GRY	GRAY	HEATER AND AIR CONDITIONER CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	PUR	PURPLE	IGNITION, LAMP, WIPER CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	BRN	BROWN	CAT DATA LINE
+	SYSTEMS CONTROL CONNECTION TO	GRN	GREEN	HYDRA-RAIL CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO	BLU	BLUE	IMPLEMENT CONTROL CIRCUIT
+	SYSTEMS CONTROL CONNECTION TO			OTHER COLOR DESCRIPTIONS

**THIS SCHEMATIC IS FOR THE 834H WHEEL TRACTOR, 836H LANDFILL COMPACTOR, and 988H WHEEL LOADER**  
**VOLUME 2 of 3: ENGINE and MACHINE CONTROL**  
 PART NUMBER: 348-7124, CHANGE: 01, VERSION: (-)  
 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.



WIRE GROUP COLOR DESCRIPTIONS	
[Red line]	GROUND CIRCUIT
[Blue line]	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF
[Green line]	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
[Yellow line]	STARTING CIRCUIT
[Orange line]	TRANSMISSION CONTROL CIRCUIT
[Purple line]	MONITOR CIRCUIT
[Pink line]	ENGINE CONTROL CIRCUIT
[Light Blue line]	HEATER AND AIR CONDITIONER CIRCUIT
[Light Green line]	CAT DATA LINK
[Light Purple line]	IMPLEMENT CONTROL CIRCUIT
[Light Orange line]	TRANSMISSION OVERRIDE CONTROL CIRCUIT
[Light Blue line]	OTHER COLOR DESCRIPTIONS
[Light Blue line]	HIGHWAYS

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

SYMBOL	DESCRIPTION
+	CIRCUIT CONNECTED
-	CIRCUIT NOT CONNECTED
⊕	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
⊖	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
↔	CONNECTOR
HR	CIRCUIT GROUPING DESIGNATION
---	AT-AIR WIRE CABLE COMPONENT
○	SPRUE
⊙	BLADE, SPRUE, RING OR SCREW TERMINAL

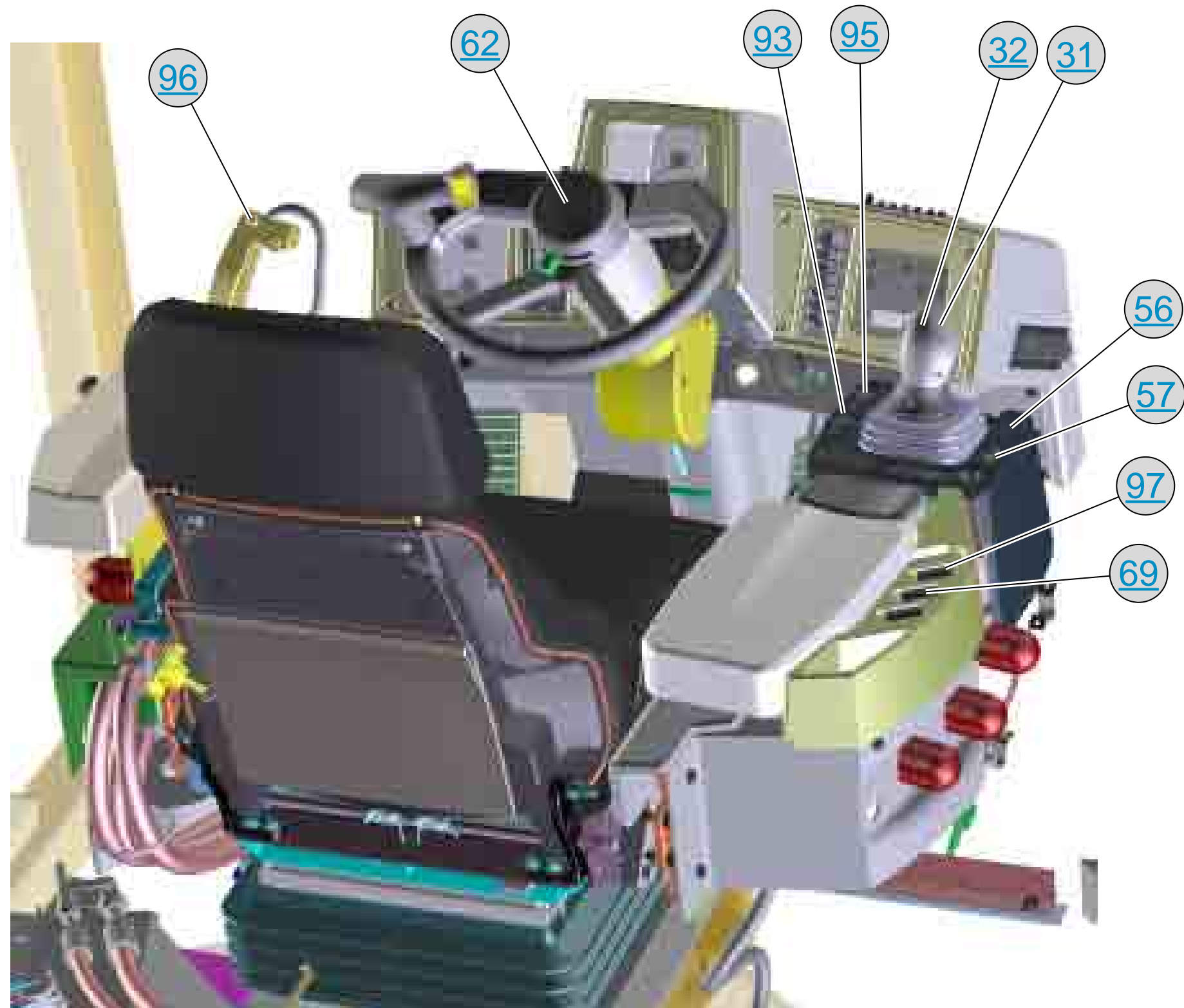
NOTES FOR STEEL MILL

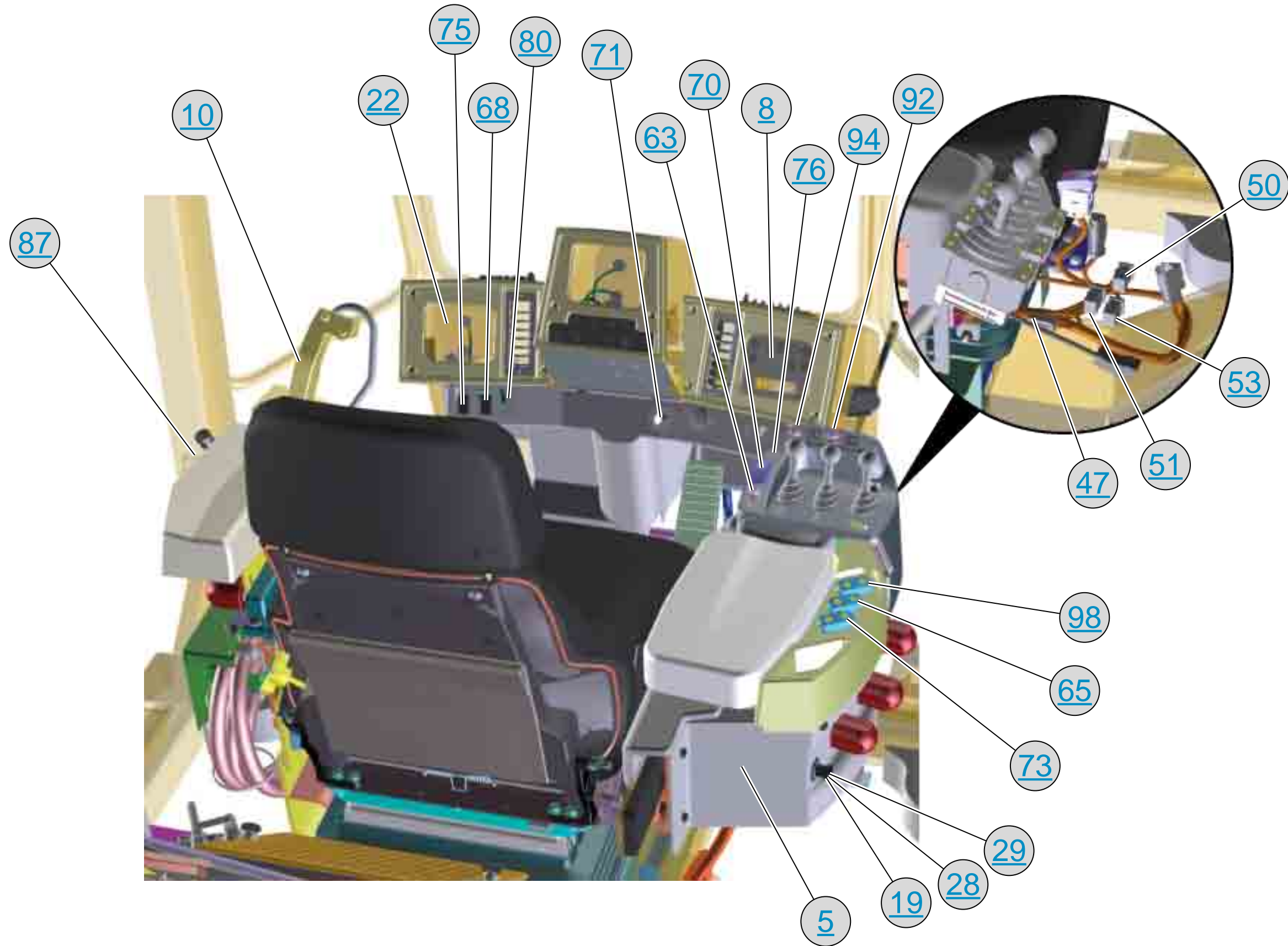
NOTE 1: STEEL MILL DRAWING IS FOR A CUSTOM SHOP TRANSMISSION. OVERSEE DRAWING - STEEL MILL DRAWING IS ONLY FOR REFER. THE FILE DRAWING NUMBER IS A DIFFERENT.

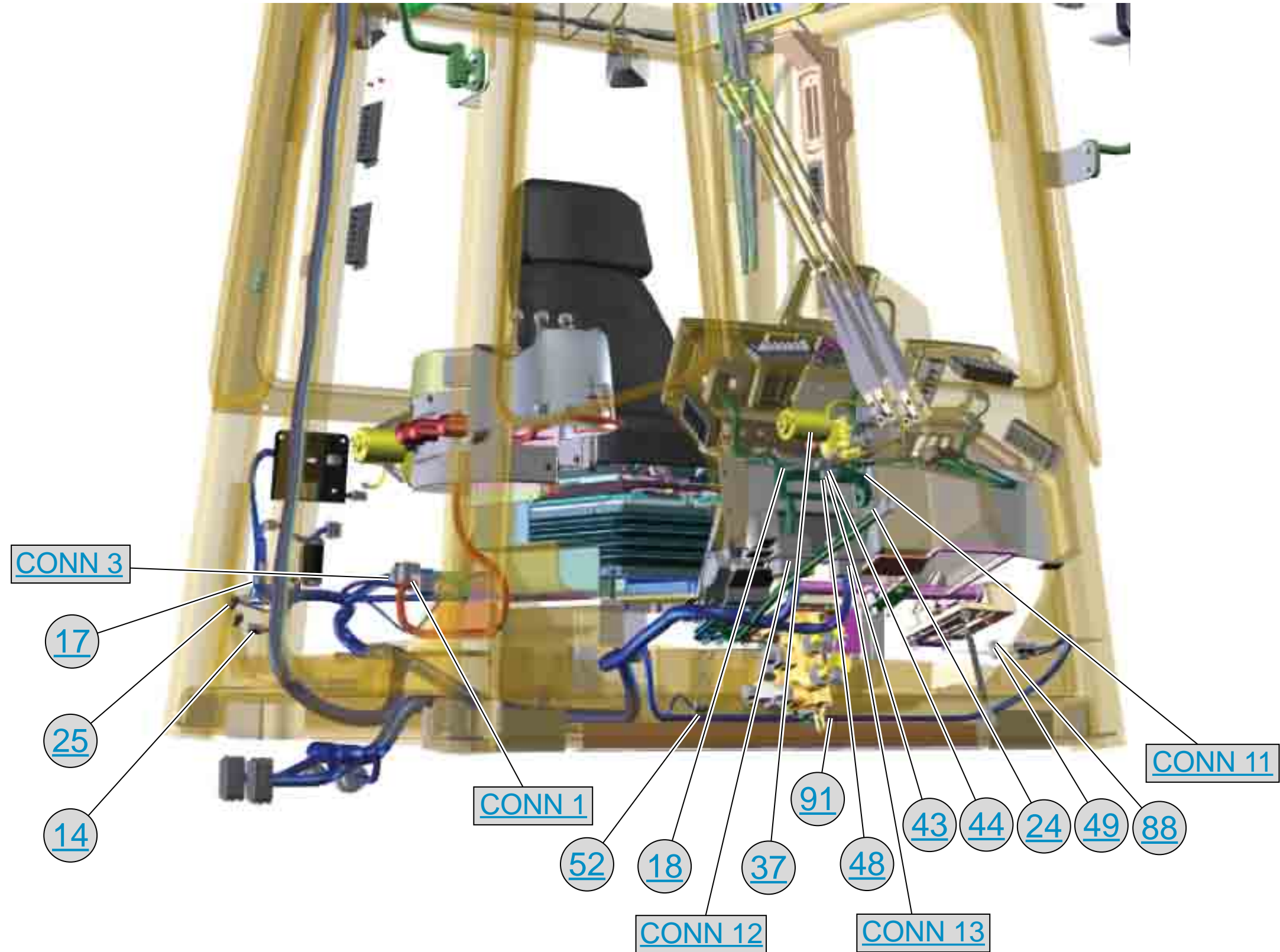
NOTE 2: ABBREVIATION ON IS FOR STEEL MILL. REFER TO THE SYMBOLS FROM STANDARD PRODUCTION.

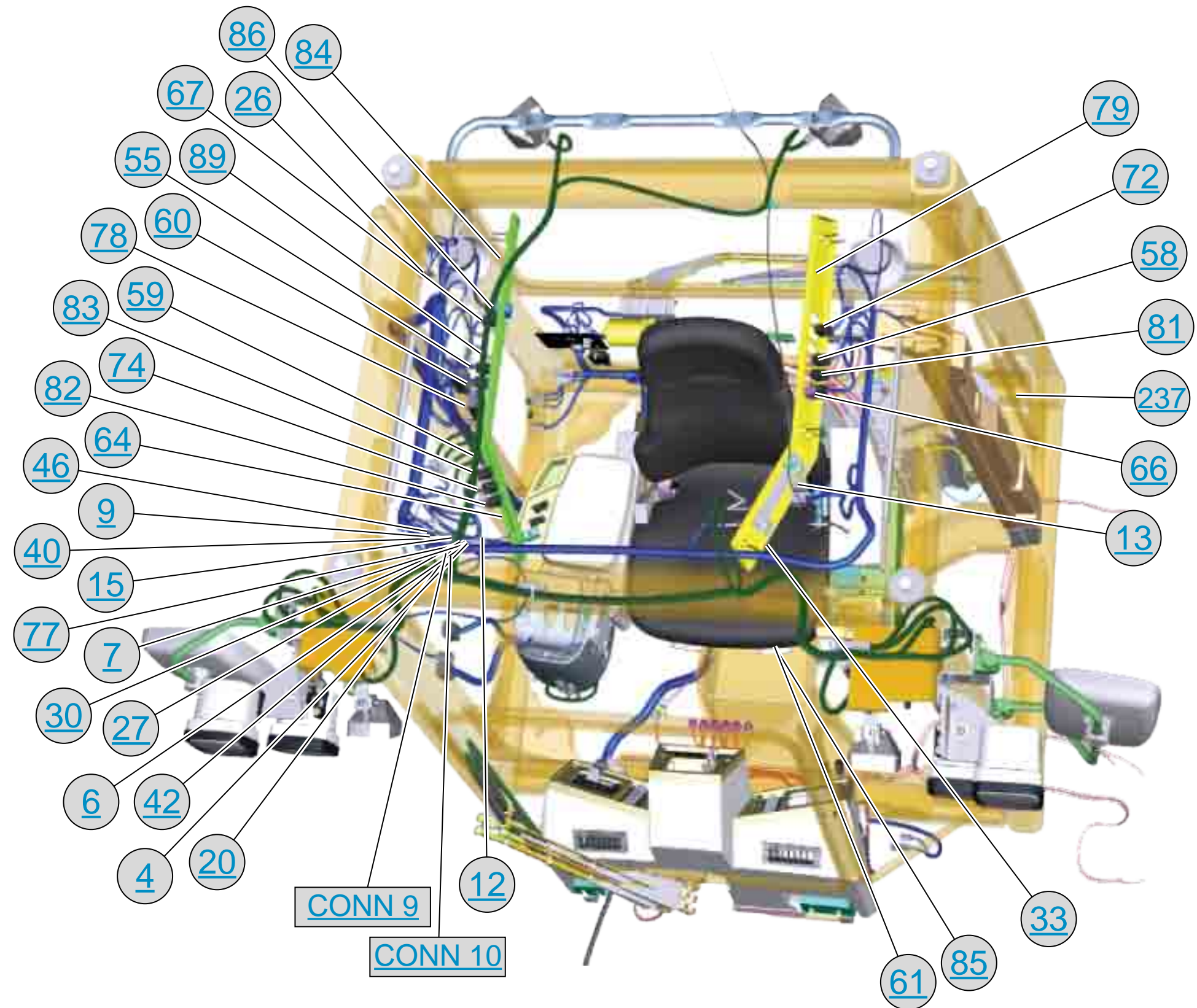
**THIS SCHEMATIC IS FOR THE 988H WHEEL LOADER**  
**VOLUME 3 of 3: STEEL MILL VERSION**  
 PART NUMBER: 348-7124, CHANGE: 01, VERSION: (-)  
 Components are shown installed on a fully operable machine with the key and engine off, transmission shifter in neutral and with parking brake set.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.

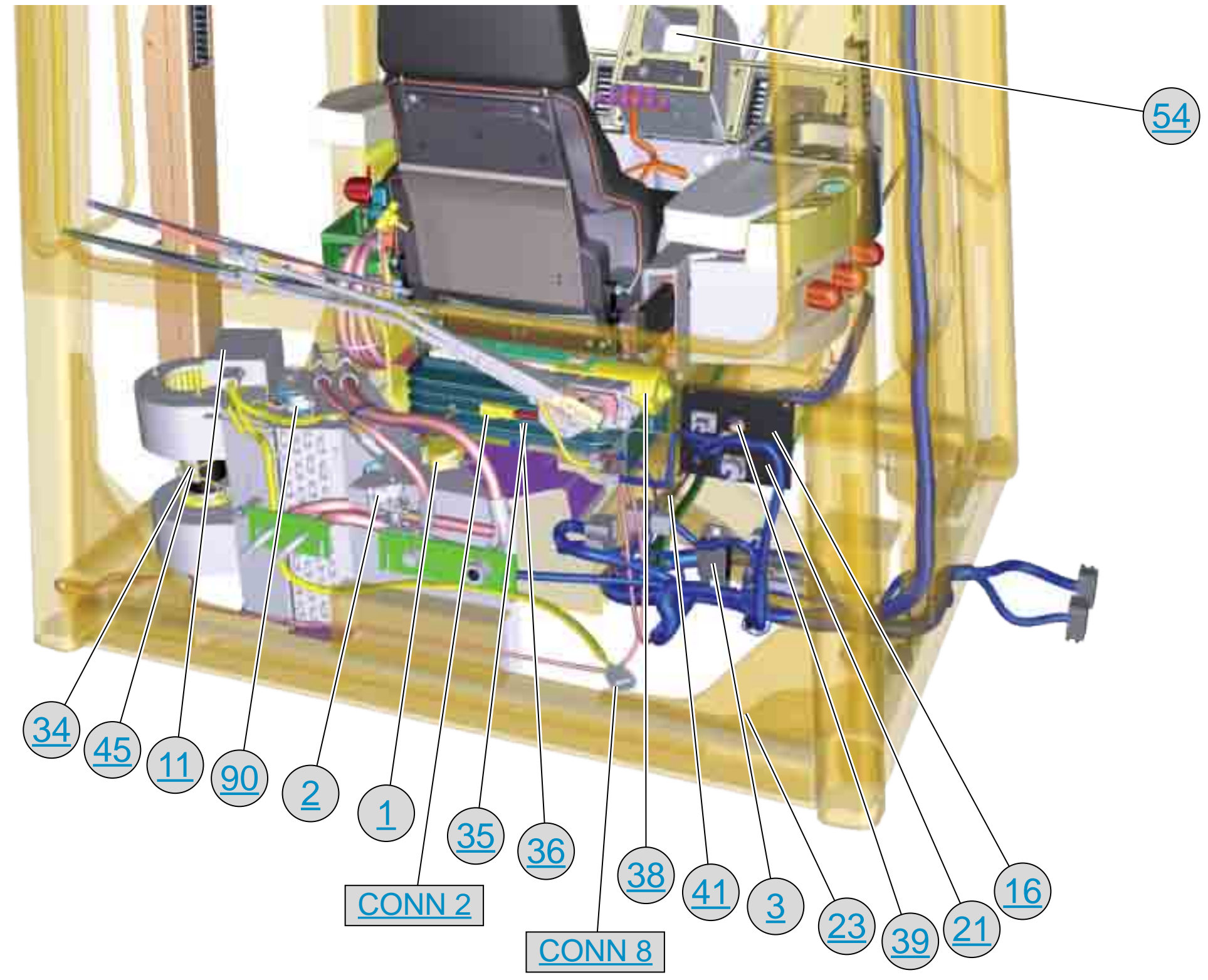


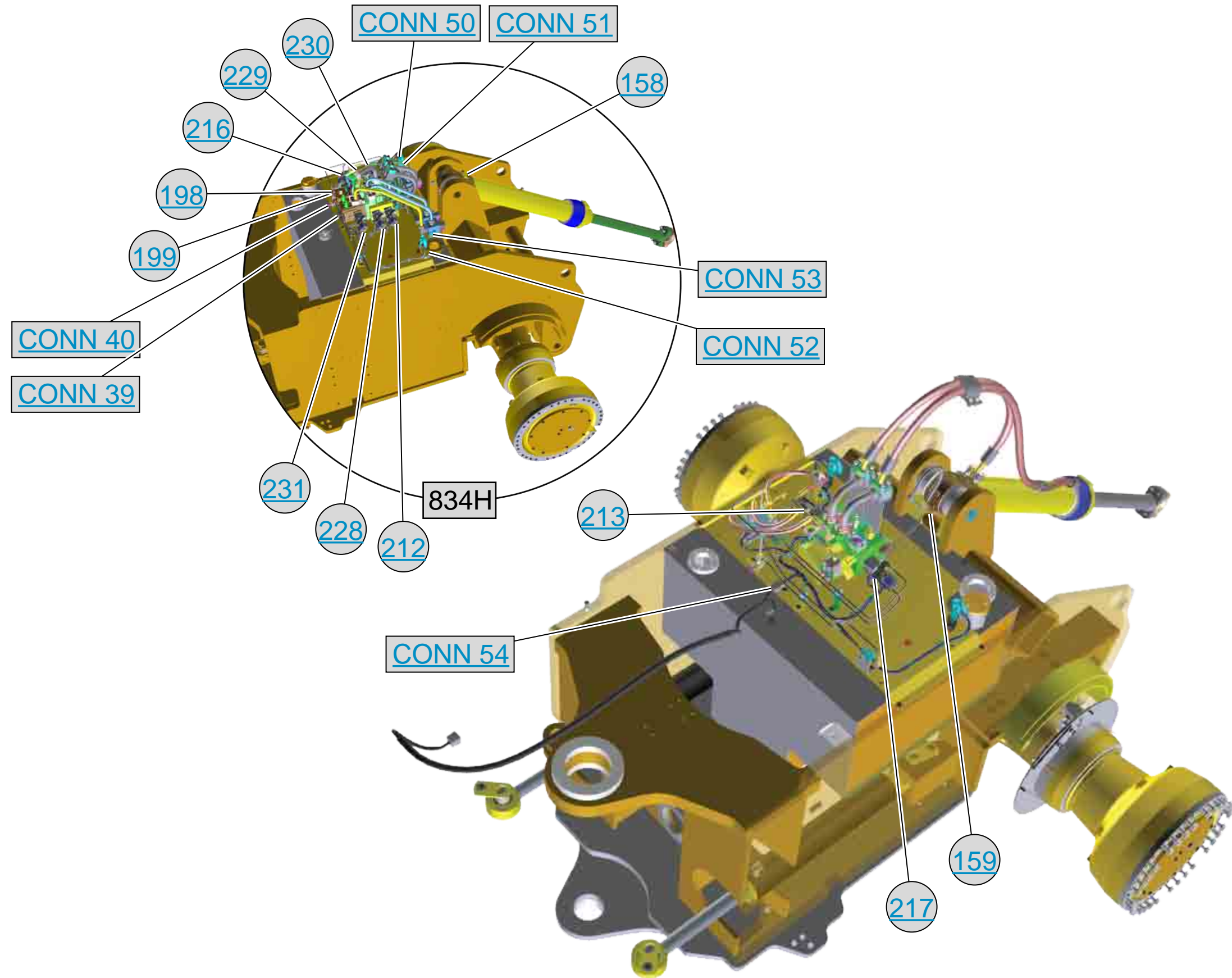


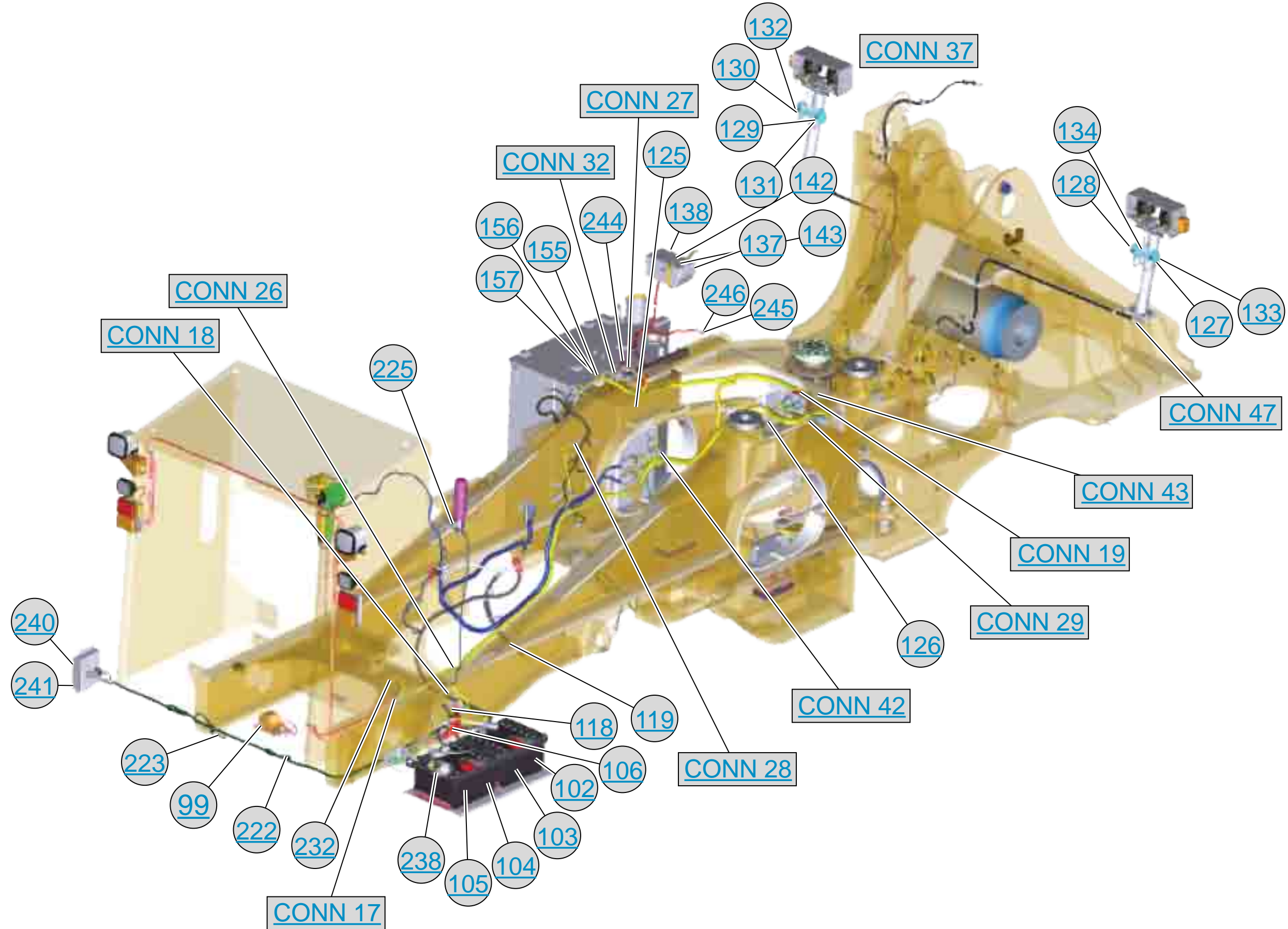


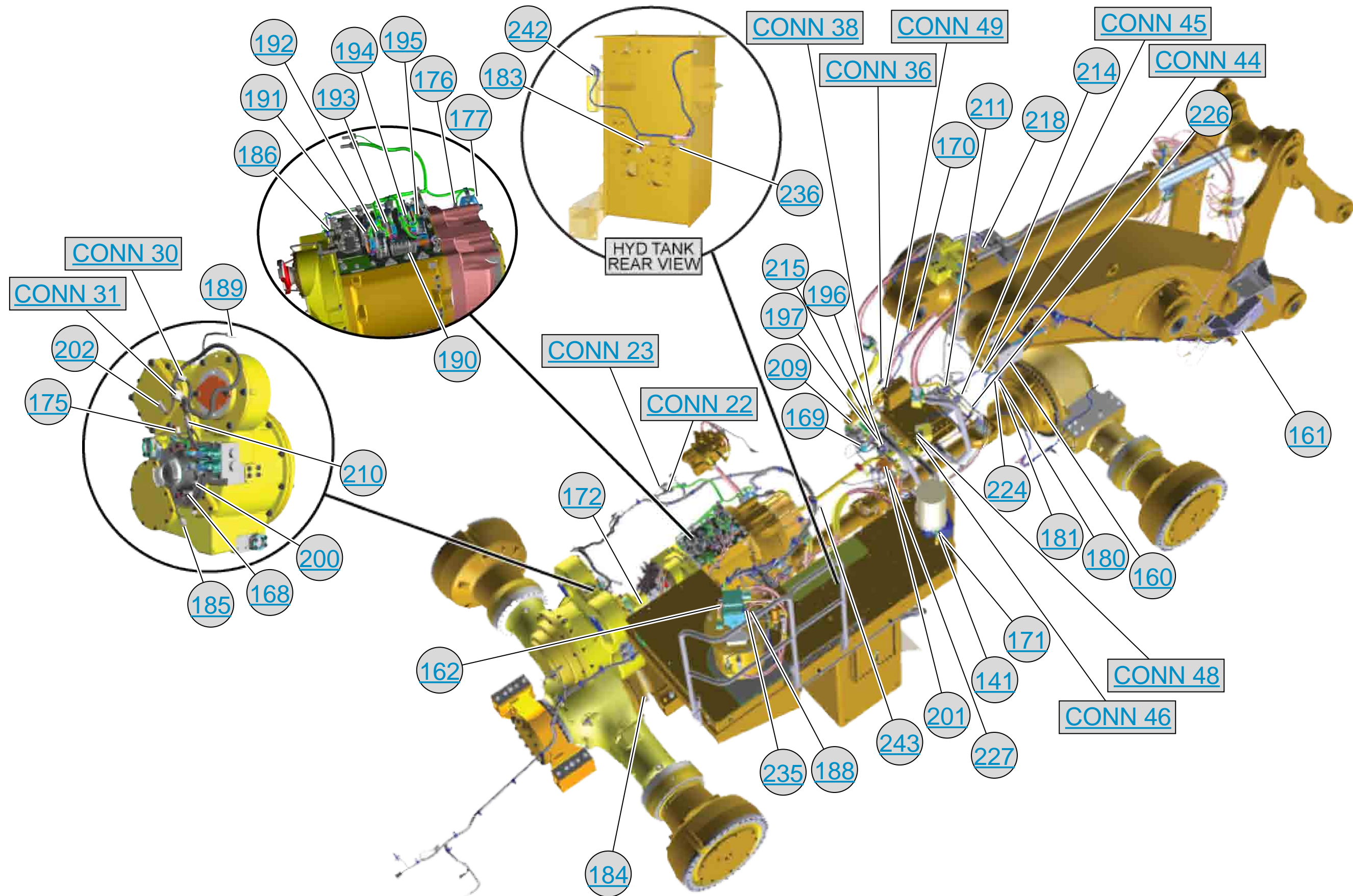




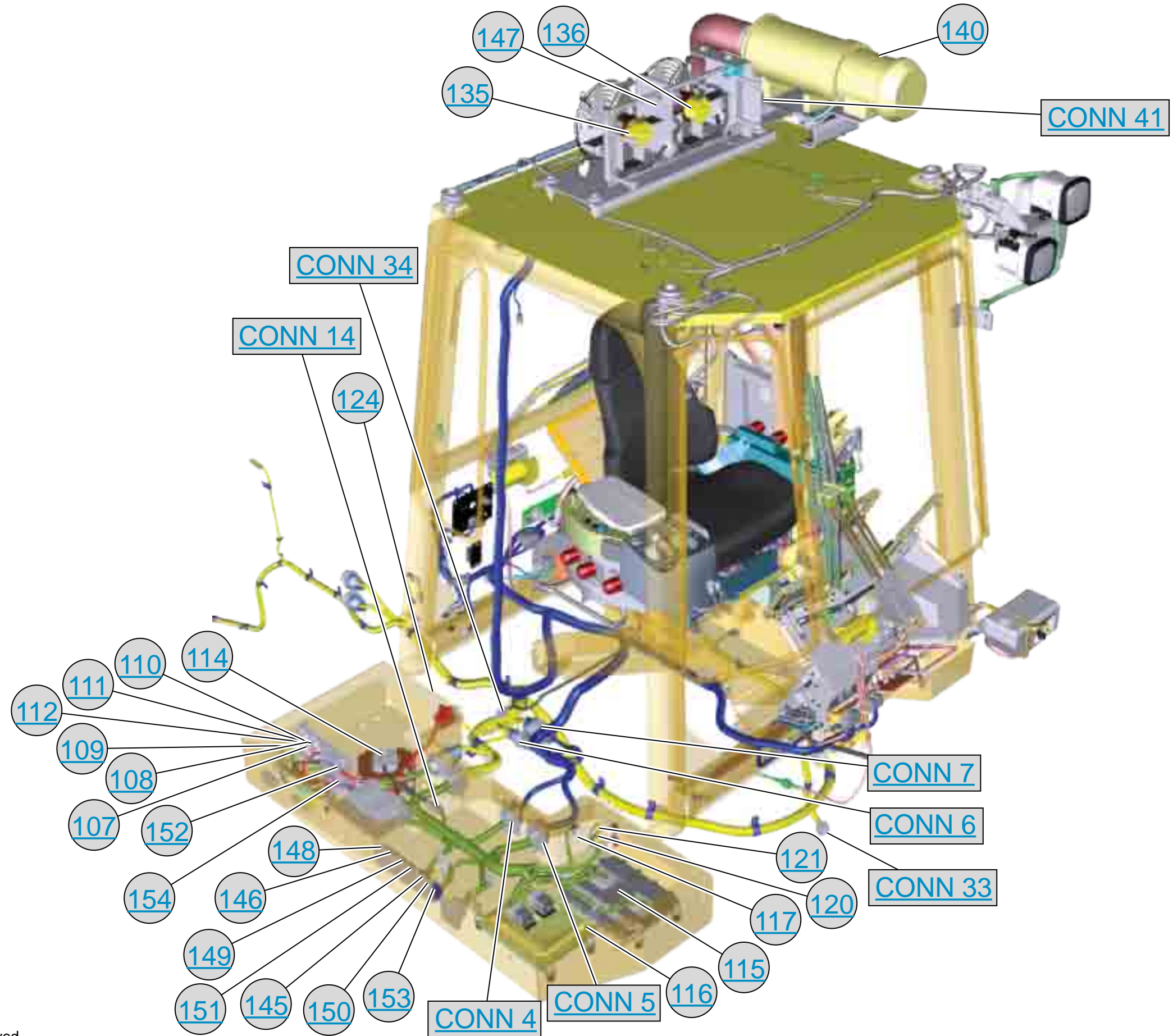


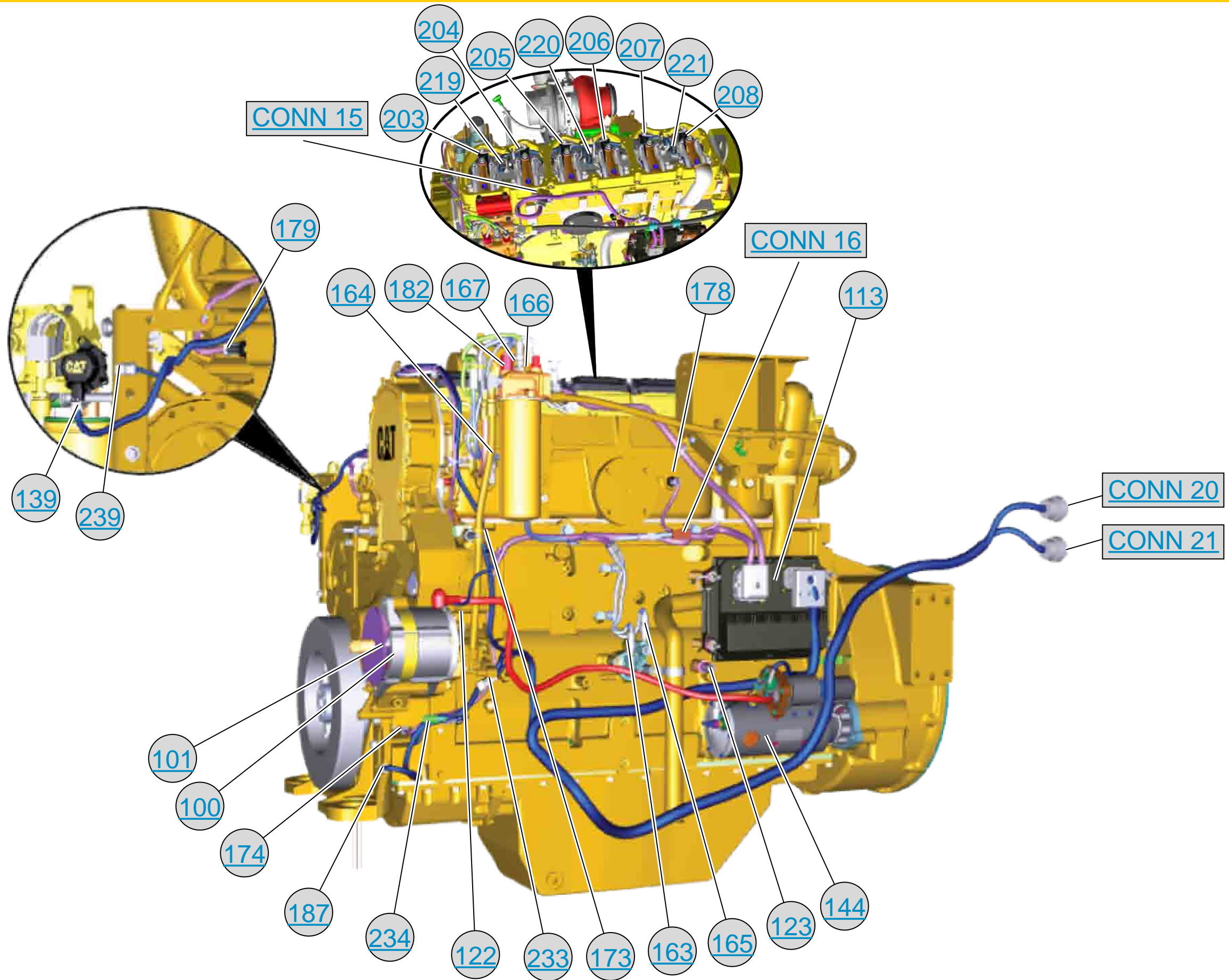


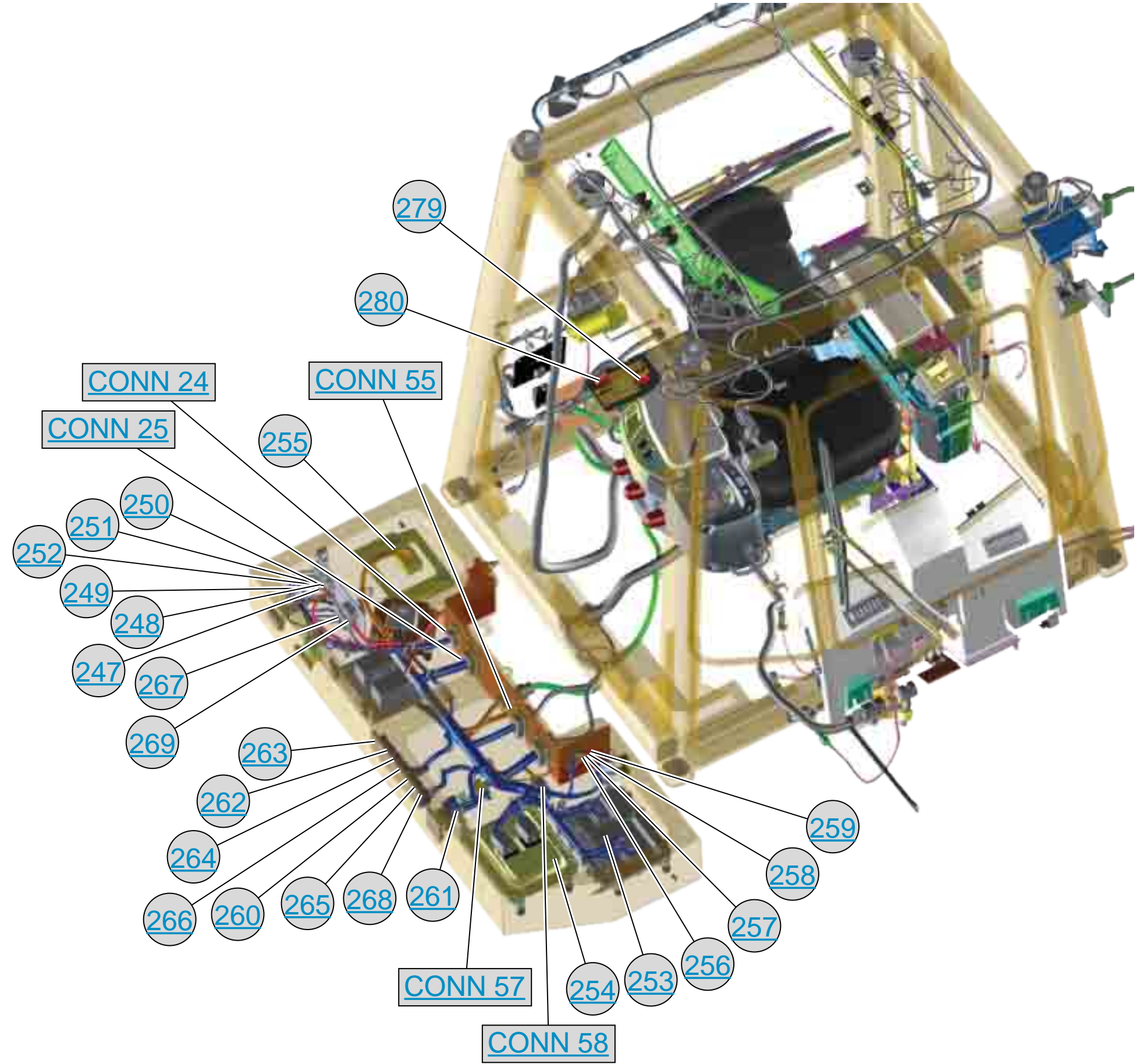












# XMSN OVERRIDE VALVE GROUP

