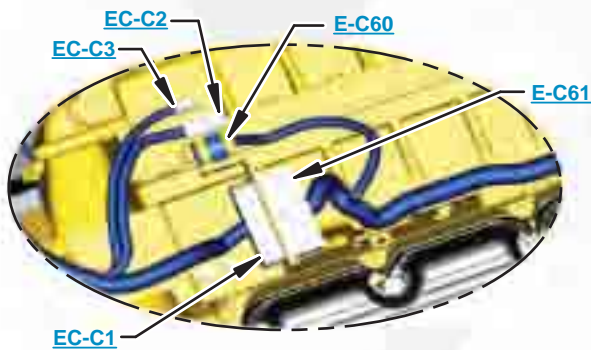


***This document is best viewed at a screen resolution of 1024 X 768.***

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.



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

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

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**834H:  
BTX1-299**

**836H:  
BXD1-599**

**988H:  
BXY1-1899**

**Volume 1 of 2: Cab Wiring**

**Volume 2 of 2: Chassis Wiring**

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# COMPONENT LOCATION

## Volume 1 of 2 - CAB WIRING



Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Actuator - Blend Door	<a href="#">F-18</a>	<a href="#">1</a>	Switch - ABP Enable	<a href="#">J-11</a>	<a href="#">9</a>
Actuator - Water Valve	<a href="#">F-18</a>	<a href="#">1</a>	Switch - Auto Lube Manual	<a href="#">J-5</a>	<a href="#">12</a>
Alarm - Action	<a href="#">J-10</a>	<a href="#">2</a>	Switch - Auto/Manual Gear Select	<a href="#">E-5</a>	<a href="#">5</a>
Battery Backup	<a href="#">D-13</a>	<a href="#">3</a>	Switch - Blower	<a href="#">D-5</a>	<a href="#">5</a>
Control - Dimmer	<a href="#">L-9</a>	<a href="#">4</a>	Switch - Cab Stair Lamp	<a href="#">B-5</a>	<a href="#">13</a>
Control - Navigator	<a href="#">F-11</a>	<a href="#">5</a>	Switch - Forward Horn 2	<a href="#">K-16</a>	<a href="#">9</a>
Control - Operator Monitor	<a href="#">C-8</a>	<a href="#">2</a>	Switch - Front HID Flood Lamp	<a href="#">B-5</a>	<a href="#">13</a>
Control - STIC	<a href="#">F-8, G-16</a>	<a href="#">4</a>	Switch - Front Inter. Wiper	<a href="#">F-5</a>	<a href="#">5</a>
Control - Water Valve Blend Door	<a href="#">E-18</a>	<a href="#">1</a>	Switch - Hazard Lamp	<a href="#">I-5</a>	<a href="#">3</a>
Control - WLPCS	<a href="#">H-13</a>	<a href="#">6</a>	Switch - Implement Lockout	<a href="#">K-11</a>	<a href="#">9</a>
Converter - 10A	<a href="#">H-5</a>	<a href="#">7</a>	Switch - Key	<a href="#">G-9</a>	<a href="#">2</a>
Converter - 12/24 DC	<a href="#">E-13</a>	<a href="#">7</a>	Switch - Kickout Set	<a href="#">K-5</a>	<a href="#">12</a>
Converter - 20A	<a href="#">J-1</a>	<a href="#">7</a>	Switch - L.U.C. Control	<a href="#">F-5</a>	<a href="#">14</a>
Ferrite	<a href="#">E-13</a>	<a href="#">7</a>	Switch - Loose Material Mode	<a href="#">K-5</a>	<a href="#">12</a>
Flasher - 24v	<a href="#">I-10</a>	<a href="#">8</a>	Switch - Operator Mode Select	<a href="#">H-9</a>	<a href="#">2</a>
Fuse - Comm. Radio Memory	<a href="#">J-2</a>	<a href="#">7</a>	Switch - Rear Wiper	<a href="#">D-5</a>	<a href="#">14</a>
Fuse - Comm. Radio Power	<a href="#">J-2</a>	<a href="#">7</a>	Switch - Reduced Rim Pull	<a href="#">L-5</a>	<a href="#">12</a>
Fuse - Converter Memory Power	<a href="#">J-2</a>	<a href="#">7</a>	Switch - Reduced Rim Pull Enable	<a href="#">H-16</a>	<a href="#">9</a>
Fuse - Entertainment Radio Memory	<a href="#">J-2</a>	<a href="#">7</a>	Switch - Retarder	<a href="#">G-8</a>	<a href="#">9</a>
Gage - Quad	<a href="#">H-8</a>	<a href="#">2</a>	Switch - Reverse Fan	<a href="#">J-5</a>	<a href="#">7</a>
Joystick	<a href="#">L-11</a>	<a href="#">9</a>	Switch - Ride Control	<a href="#">F-5</a>	<a href="#">6</a>
Keypad - WLPCS	<a href="#">G-13</a>	<a href="#">6</a>	Switch - Rotary Beacon	<a href="#">E-5</a>	<a href="#">5</a>
Motor - Blower	<a href="#">F-18</a>	<a href="#">9</a>	Switch - Running Lamp	<a href="#">A-5</a>	<a href="#">14</a>
Motor - Front Wiper	<a href="#">E-8</a>	<a href="#">7</a>	Switch - Steering Lock	<a href="#">G-16</a>	<a href="#">15</a>
Motor - Rear Wiper	<a href="#">K-9</a>	<a href="#">1</a>	Switch - Steering Wheel Horn	<a href="#">F-8</a>	<a href="#">4</a>
Radio - CAES (TC 900C)	<a href="#">B-11</a>	<a href="#">3</a>	Switch - Stop Lamp	<a href="#">A-7</a>	<a href="#">2</a>
Receiver - CAES	<a href="#">C-11</a>	<a href="#">3</a>	Switch - Temperature Select	<a href="#">C-5</a>	<a href="#">14</a>
Resistor - Blower Motor	<a href="#">F-17</a>	<a href="#">3</a>	Switch - Thermostat	<a href="#">E-17</a>	<a href="#">16</a>
Resistor - CAN Data Link	<a href="#">B-11</a>	<a href="#">3</a>	Switch - Throttle Lock Disengage	<a href="#">B-7</a>	<a href="#">11</a>
Sensor - L.H. Brake Pedal	<a href="#">A-6</a>	<a href="#">10</a>	Switch - Throttle Lock Enable	<a href="#">G-9</a>	<a href="#">4</a>
Sensor - Throttle Position	<a href="#">B-7</a>	<a href="#">11</a>	Switch - Throttle Lock Resume	<a href="#">L-12</a>	<a href="#">4</a>
Speedometer/Tachometer	<a href="#">G-8</a>	<a href="#">2</a>	Switch - Throttle Lock Set	<a href="#">K-12, I-16</a>	<a href="#">4</a>
Switch - A/C Selector	<a href="#">C-5</a>	<a href="#">9</a>	Switch - Turn Signal	<a href="#">G-9, J-11</a>	<a href="#">14</a>
Switch - ABP Blade Height Kickout Set	<a href="#">J-11</a>	<a href="#">9</a>			

# COMPONENT LOCATION

## Volume 2 of 2 - CHASSIS WIRING



Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alarm - Back Up	<a href="#">J-15</a>	<a href="#">13</a>	Sensor - Intake Manifold Air Temperature	<a href="#">L-18</a>	<a href="#">24</a>
Alternator	<a href="#">H-12</a>	<a href="#">26</a>	Sensor - Lift Cylinder Head End Pressure <sup>1</sup>	<a href="#">J-4</a>	<a href="#">2</a>
Arc Suppressor	<a href="#">J-12</a>	<a href="#">25</a>	Sensor - Lift Cylinder Rod Pressure <sup>1</sup>	<a href="#">J-4</a>	<a href="#">70</a>
Bateries	<a href="#">G-12</a>	<a href="#">5</a>	Sensor - Lift Position <sup>1</sup>	<a href="#">J-1</a>	<a href="#">68</a>
Block Assembly	<a href="#">A-15, A-17</a>	<a href="#">10</a>	Sensor - Oil Pressure	<a href="#">I-17</a>	<a href="#">8</a>
Breaker - Alternator	<a href="#">D-14</a>	<a href="#">25</a>	Sensor - Rear Axle Oil Temperature	<a href="#">C-6</a>	<a href="#">55</a>
Breaker - Engine Control	<a href="#">D-14</a>	<a href="#">25</a>	Sensor - Tilt Position <sup>1</sup>	<a href="#">J-1</a>	<a href="#">69</a>
Breaker - Key Switch	<a href="#">C-14</a>	<a href="#">48</a>	Sensor - Torque Converter Output Speed	<a href="#">A-6</a>	<a href="#">54</a>
Breaker - Main	<a href="#">D-14</a>	<a href="#">25</a>	Sensor - Torque Converter Temperature	<a href="#">A-6</a>	<a href="#">7</a>
Breaker - Roof A/C	<a href="#">D-14</a>	<a href="#">40</a>	Sensor - Xmsn Oil Temperature	<a href="#">K-12</a>	<a href="#">54</a>
Breaker - Running Lamp	<a href="#">C-14</a>	<a href="#">25</a>	Sensor - Xmsn Output Speed (Leading)	<a href="#">L-12</a>	<a href="#">18</a>
Control - Engine ECM	<a href="#">L-18</a>	<a href="#">23</a>	Sensor - Xmsn Output Speed (Trailing)	<a href="#">L-12</a>	<a href="#">18</a>
Control - Gateway	<a href="#">F-17</a>	<a href="#">19</a>	Sensor - Variable Hydraulic Oil Pump Pressure	<a href="#">A-7</a>	<a href="#">18</a>
Control - Implement	<a href="#">C-11</a>	<a href="#">41</a>	Solenoid - A/C Compressor	<a href="#">I-13</a>	<a href="#">25</a>
Control - Power Train	<a href="#">F-11</a>	<a href="#">41</a>	Solenoid - Auto Lube	<a href="#">K-15</a>	<a href="#">47</a>
Fuse - Alternator	<a href="#">G-13</a>	<a href="#">58</a>	Solenoid - Axle Cooler Fan <sup>1</sup>	<a href="#">A-5</a>	<a href="#">73</a>
Fuse Panel	<a href="#">A-16, A-18</a>	<a href="#">41</a>	Solenoid - Dump HYDRAC <sup>1</sup>	<a href="#">H-2</a>	<a href="#">4</a>
Junction Block (1)	<a href="#">B-13</a>	<a href="#">46</a>	Solenoid - Hydraulic Pilot Supply <sup>1 2</sup>	<a href="#">D-2, H-2</a>	<a href="#">72</a>
Junction Block (2)	<a href="#">A-13</a>	<a href="#">46</a>	Solenoid - Impeller Clutch	<a href="#">A-5</a>	<a href="#">54</a>
Motor - Condenser Blower 1	<a href="#">F-6</a>	<a href="#">44</a>	Solenoid - Implement Pump	<a href="#">A-6</a>	<a href="#">54</a>
Motor - Condenser Blower 2	<a href="#">F-6</a>	<a href="#">44</a>	Solenoid - Lift Prop	<a href="#">D-2, I-2</a>	<a href="#">14</a>
Motor - Crankcase Guard	<a href="#">L-14</a>	<a href="#">6</a>	Solenoid - Lower Prop	<a href="#">C-2, I-2</a>	<a href="#">14</a>
Motor - Front Washer Pump	<a href="#">K-9, L-10</a>	<a href="#">38</a>	Solenoid - L.U.C.	<a href="#">A-5</a>	<a href="#">14</a>
Motor - Fuel Priming Pump	<a href="#">J-12</a>	<a href="#">11</a>	Solenoid - Rack Back <sup>1</sup>	<a href="#">H-2</a>	<a href="#">2</a>
Motor - Powertrain Guard	<a href="#">K-9</a>	<a href="#">18</a>	Solenoids - Retarder 1-3	<a href="#">I-16</a>	<a href="#">59</a>
Motor - Quick Lube Pump	<a href="#">G-8</a>	<a href="#">50</a>	Solenoid - Reversing Fan	<a href="#">J-15, L-15</a>	<a href="#">12</a>
Motor - Rear Washer Pump	<a href="#">L-9, L-10</a>	<a href="#">42</a>	Solenoid - Ride Control <sup>1</sup>	<a href="#">L-2</a>	<a href="#">1</a>
Motor - Starter	<a href="#">G-13</a>	<a href="#">24</a>	Solenoid - Start Aid	<a href="#">J-9</a>	<a href="#">8</a>
Radio - Product Link	<a href="#">E-5</a>	<a href="#">36</a>	Solenoid - Third Valve RE <sup>1</sup>	<a href="#">G-2, H-2</a>	<a href="#">74</a>
Relay - Backlight	<a href="#">E-16</a>	<a href="#">52</a>	Solenoid - Tilt Left Prop	<a href="#">D-2</a>	<a href="#">14</a>
Relay - Cab HID HAL	<a href="#">F-16</a>	<a href="#">52</a>	Solenoid - Tilt Right Prop	<a href="#">C-2</a>	<a href="#">14</a>
Relay - Condenser	<a href="#">F-6</a>	<a href="#">43</a>	Solenoid - Tipback Prop	<a href="#">D-2</a>	<a href="#">14</a>
Relay - Front Cab Flood	<a href="#">F-16</a>	<a href="#">30</a>	Solenoid - Variable Speed Fan	<a href="#">K-14</a>	<a href="#">10</a>
Relay - Front Machine Flood	<a href="#">F-16</a>	<a href="#">52</a>	Solenoids - Cylinder Head 1-6	<a href="#">I-16</a>	<a href="#">25</a>
Relay - Horn (2)	<a href="#">E-16</a>	<a href="#">52</a>	Solenoids - Transmission	<a href="#">L-13</a>	<a href="#">19</a>
Relay - Machine HID HAL	<a href="#">E-16</a>	<a href="#">52</a>	Switch - A/C Pressure	<a href="#">I-13</a>	<a href="#">25</a>
Relay - Main	<a href="#">C-14</a>	<a href="#">19</a>	Switch - Auto Lube Grease Level	<a href="#">K-15</a>	<a href="#">45</a>
Relay - Starter Motor	<a href="#">B-14</a>	<a href="#">19</a>	Switch - Brake Oil Pressure	<a href="#">B-6</a>	<a href="#">30</a>
Sender - Fuel Level	<a href="#">B-2, H-4, L-10</a>	<a href="#">28</a>	Switch - Crankcase Guard	<a href="#">L-16</a>	<a href="#">39</a>
Sensor - A.B.P.	<a href="#">A-1, D-2</a>	<a href="#">27</a>	Switch - Disconnect	<a href="#">G-12</a>	<a href="#">26</a>
Sensor - Atmospheric Pressure	<a href="#">J-17</a>	<a href="#">25</a>	Switch - Fuel Differential Pressure	<a href="#">J-16</a>	<a href="#">21</a>
Sensor - Auto Lube Pressure <sup>1</sup>	<a href="#">J-5</a>	<a href="#">3</a>	Switch - Fuel Priming Pump	<a href="#">J-13</a>	<a href="#">21</a>
Sensor - Boost Pressure	<a href="#">J-17</a>	<a href="#">24</a>	Switch - Ground Level Shutdown	<a href="#">J-15, L-15</a>	<a href="#">11</a>
Sensor - Camshaft Speed Timing	<a href="#">L-18</a>	<a href="#">26</a>	Switch - Ground Level Stairway Lamp	<a href="#">J-15, K-15</a>	<a href="#">66</a>
Sensor - Coolant Temperature	<a href="#">L-18</a>	<a href="#">26</a>	Switch - Hydraulic Pilot Oil Filter	<a href="#">B-6</a>	<a href="#">50</a>
Sensor - Crankshaft Speed Timing	<a href="#">L-18</a>	<a href="#">22</a>	Switch - Park Brake	<a href="#">G-8</a>	<a href="#">30</a>
Sensor - Front Axle Oil Temperature	<a href="#">E-2, L-2</a>	<a href="#">60</a>	Switch - Powertrain Guard	<a href="#">L-16</a>	<a href="#">26</a>
Sensor - Fuel Pressure	<a href="#">J-16</a>	<a href="#">23</a>	Switch - Supplemental Steering Pressure	<a href="#">K-10</a>	<a href="#">67</a>
Sensor - Fuel Temperature	<a href="#">J-16</a>	<a href="#">23</a>	Switch - Transmission Filter Bypass	<a href="#">K-9, K-10</a>	<a href="#">17</a>
Sensor - Hydraulic Oil Temperature	<a href="#">B-6</a>	<a href="#">16</a>			
Sensor - Impeller Clutch Pressure	<a href="#">A-5</a>	<a href="#">54</a>			

<sup>1</sup> Installed on 988H model only.

<sup>2</sup> Installed on 830H models only.

# CONNECTOR LOCATION

## Volume 1 of 2 - CAB WIRING



Connector Number	Schematic Location	Machine Location
CONN 1	<a href="#">G-18</a>	<a href="#">15</a>
CONN 2	<a href="#">K-14,J-18</a>	<a href="#">9</a>
CONN 3	<a href="#">A-16</a>	<a href="#">18</a>
CONN 4	<a href="#">B-16</a>	<a href="#">18</a>
CONN 5	<a href="#">C-16</a>	<a href="#">18</a>
CONN 6	<a href="#">D-16</a>	<a href="#">18</a>
CONN 7	<a href="#">E-16</a>	<a href="#">18</a>
CONN 8	<a href="#">F-16</a>	<a href="#">8</a>
CONN 9	<a href="#">D-14</a>	<a href="#">9</a>
CONN 10	<a href="#">G-14</a>	<a href="#">6</a>
CONN 11 Customer Data Conn	<a href="#">H-12</a>	<a href="#">6</a>
CONN 12 CAES Service Conn	<a href="#">C-11</a>	<a href="#">16</a>
CONN 13 CMS Code Plug	<a href="#">B-10</a>	<a href="#">9</a>
CONN 14 Service Port Conn	<a href="#">J-10</a>	<a href="#">9</a>
CONN 15 Aux Power Port Conn	<a href="#">L-9</a>	<a href="#">17</a>
CONN 16 CMS Service Mode Plug	<a href="#">K-9</a>	<a href="#">9</a>
CONN 17	<a href="#">F-8</a>	<a href="#">15</a>
CONN 18	<a href="#">D-7</a>	<a href="#">11</a>
CONN 19	<a href="#">C-7</a>	<a href="#">11</a>
CONN 20	<a href="#">A-6</a>	<a href="#">4</a>
CONN 21	<a href="#">J-3,I-5</a>	<a href="#">7</a>
CONN 22	<a href="#">J-3</a>	<a href="#">7</a>

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.

# CONNECTOR LOCATION

## Volume 2 of 2 - CHASSIS WIRING



Connector Number	Schematic Location	Machine Location
CONN 3	C-6	35
CONN 4	D-6	31
CONN 5	A-10	32
CONN 6	C-10	33
CONN 7	C-10	34
CONN 23	L-18	10
CONN 24	J-17	19
CONN 25	I-17	21
CONN 26	C-15, C-17	48
CONN 27	C-15, C-17	48
CONN 28	B-15, B-17	48
CONN 29	B-15, B-17	48
CONN 30	D-16	20
CONN 31	H-14, I-14	13
CONN 32	J-14, L-14	49
CONN 33	K-14	47
CONN 34	L-14	49
CONN 35	L-11	20
CONN 36	L-11	20
CONN 37	J-11	56
CONN 38	I-11	56
CONN 39	G-11	9
CONN 40	D-10	52
CONN 41	F-10	52
CONN 42	G-10	52
CONN 43	J-10	49
CONN 44	K-10	20
CONN 45	K-9, K-10	67
CONN 46	G-8	52
CONN 47	I-8	57
CONN 48	L-8	65
CONN 49	C-7	53
CONN 50	B-7	37
CONN 51	A-7	63
CONN 52	A-7	63
CONN 53	E-6	19
CONN 54	E-6	26
CONN 55	A-3, G-6, I-6	29
CONN 56	L-5	15
CONN 57	F-3, K-5, L-5	15
CONN 58	J-5	64
CONN 59	F-4, F-5	20
CONN 60 <sup>2</sup>	G-4	62
CONN 61 <sup>2</sup>	G-4	62
CONN 62 <sup>1</sup>	L-3	2
CONN 63	E-3, L-3	60
CONN 64	L-3	15
CONN 65	L-2, K-3, E-3	15
CONN 66 <sup>1</sup>	J-3	71
CONN 67 <sup>2</sup>	A-2, D-2	61

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.

<sup>1</sup> Installed on 988H model only.  
<sup>2</sup> Installed on 830H models only.

# CID / MID / FMI

## Volume 1 of 2 - CAB WIRING

### Page 1 of 2



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.

# CID / MID / FMI

## Volume 1 of 2 - CAB WIRING

### Page 2 of 2



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.

Machine Codes	
Machine	Code
824H	47
825H	48
826H	49

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.



# CID / MID / FMI

## Volume 2 of 2 - CHASSIS WIRING

### Page 1 of 2



Component Identifiers (CID <sup>1</sup> ) Module Identifier (MID <sup>2</sup> ) Engine ECM (MID No. 036)	
CID	Component
0001	Fuel Injector Solenoid #1
0002	Fuel Injector Solenoid #2
0003	Fuel Injector Solenoid #3
0004	Fuel Injector Solenoid #4
0005	Fuel Injector Solenoid #5
0006	Fuel Injector Solenoid #6
0041	ECM 8V DC Supply
0091	Throttle Sensor
0094	Fuel Pressure Sensor
0100	Oil Pressure Sensor
0102	Boost Pressure Sensor
0110	Engine Coolant Temperature Sensor
0168	Electrical Power Supply
0172	Intake Manifold Air Temperature Sensor
0174	Fuel Temperature Sensor
0190	Engine Speed Sensor
0261	Engine Speed Sensor
0262	5 Volt Sensor Supply
0267	Engine Shutdown Switch
0268	Check Programmable Parameters
0274	Atmospheric Pressure Sensor
0291	Engine Cooling Fan Solenoid
0296	Transmission ECM
0342	Camshaft Position Sensor
0485	Engine Fan Reversing Solenoid
0788	Engine Retarder Selector Switch
1248	Retarder Solenoid
1330	Right Brake Pedal Switch
1589	Turbo Inlet Air Pressure Sensor
1639	Machine Security System
2417	Start Aid Solenoid

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

# CID / MID / FMI

## Volume 2 of 2 - CHASSIS WIRING

### Page 2 of 2



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)

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.

<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.

# SPECIFICATIONS AND RELATED MANUALS

## Volume 1 of 2 - CAB WIRING



Related Electrical Service Manuals	
Title	Form Number
Caterpillar Monitoring System	SENR1394
Electronic Implement Control	RENR8699
Electronic Transmission Control	RENR8689
CAES ULTRA	RENR7892
Payload Control System	SENR6614

PCS Message Explanation Table		
PCS Message	Cause	Correction
"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.

Resistor, Sender and Solenoid Specifications		
Part No.	Component Description	Resistance (Ohms) <sup>1</sup>
9G-1 950	Resistor: Blower Speed	Overall 2.0 ± .1; Tap 1.0 ± .05
147-2577	Lift Lever Kickout Detent Solenoid: Lift Lever Lower Kickout Detent Tilt Lever Bucket Detent	74 ± 4
174-3016	Resistor: CAN Data Link	120

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

# SPECIFICATION AND RELATED MANUALS

## Volume 2 of 2 - CHASSIS WIRING

### Page 1 of 2



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

Related Electrical Service Manuals	
Title	Form Number
Alternator: 197-8820 (Denso HDB)	SENR4130
Electric Starting Motor: 237-1962 (Delco 50MT)	SENR3860
Engine Control:	RENR5033
Gateway PL1000T Communication ECM:	RENR7945
Electronic Implement Control:	RENR8699
Electronic Transmission Control:	RENR8689

Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
114-5333	A/C (High / Low) Pressure	275 to 1750 kPa <sup>1</sup> (39.9 to 253.8 psi)	- -	Normally Open <sup>2</sup>
117-7773	Hydraulic Pilot Oil Filter Pressure	138 ± 28 kPa (20 ± 4 psi)	89 ± 20 kPa (13 ± 3 psi)	Normally Closed
174-4312	Park Brake Pressure	8270 kPa MAX (1200 psi MAX)	6890 ± 345 kPa (1000 ± 50 psi)	A-B, Normally Open A-C, Normally Closed
175-3244	Brake Dual Charge V Pressure	10700 kPa MAX (1550 psi MAX)	8960 ± 537 kPa (1300 ± 79 psi)	A-B, Normally Open A-C, Normally Closed
258-0883	Fuel Differential Pressure	110.3 ± 13.8 kPa (16 ± 2 psi)	69 kPa MIN (10 psi MIN)	Normally Closed
3E-6450	Supplemental Steering Pressure	1200 kPa MAX (174.0 psi MAX)	700 ± 100 kPa (102 ± 14.5 psi)	A-B Normally Open A-C Normally Closed

<sup>1</sup> With increasing pressure the closed condition can be maintained up to 2800 kpa (405 psi), with decreasing pressure the closed condition can be maintained down to 170 kpa (25psi).

<sup>2</sup> Contact position at the contacts of the harness connector.

# SPECIFICATIONS AND RELATED MANUALS

## Volume 2 of 2 - CHASSIS WIRING

### Page 2 of 2



Resistor, Sender and Solenoid Specifications		
Part No.	Component Description	Resistance (Ohms) <sup>1</sup>
148-2350	Solenoid: Dump HYDRAC Implement Pump Lift Lower Rack Back Third Valve Return Tilt Forward Tilt Left Tilt Right Tip Back	5.0 ± 0.3
149-2610	Solenoid: Axle Cooler Fan Hydraulic Pilot Supply (988H)	32.6 ± 1.6
151-1399	Sender: Fuel Level (2) (3)	Empty: 95 ± 3.0 Full: 1.75 ± 1.75
152-8340	Solenoid: Ride Control	32.6 ± 1.6
157-8853	Sender: Fuel Level	Empty: 95 ± 3.0 Full: 1.75 ± 1.75
162-2191	Solenoid: Reversing Fan	32.6 ± 1.6
163-0869	Solenoid: Hydraulic Pilot Supply (830H)	32.6 ± 1.6
183-7595	Solenoid: Variable Speed Fan	5.0 ± 0.3
217-2708	Solenoid: Impeller Clutch	7.75 ± 1.0
218-0324	Solenoid: A/C Compressor Clutch	17.6±0.6
226-9622	Solenoid: Lockup Clutch	8.7 ± 0.4
239-1134	Solenoid: Start Aid	6
244-3114	Solenoids: Transmission Clutch	8.7 ± 0.4
253-0616	Solenoids: Injectors	1.06 ± 5%

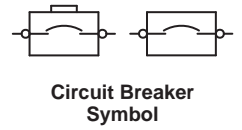
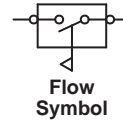
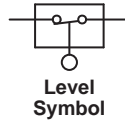
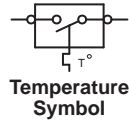
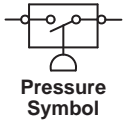
<sup>1</sup> At room temperature unless otherwise noted.

# HARNESS and WIRE

## Electrical Schematic Symbols



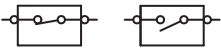
### Symbols



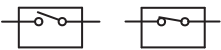
### Symbols and Definitions



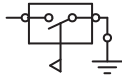
**Fuse:** A component in an electrical circuit that will open the circuit if too much current flows through it.



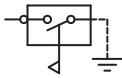
**Switch (Normally Open):** A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.



**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.



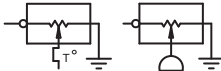
**Ground (Wired):** This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.



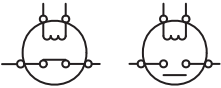
**Ground (Case):** This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.



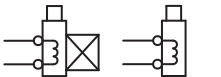
**Reed Switch:** A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.



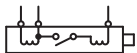
**Sender:** A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.



**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.



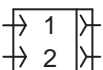
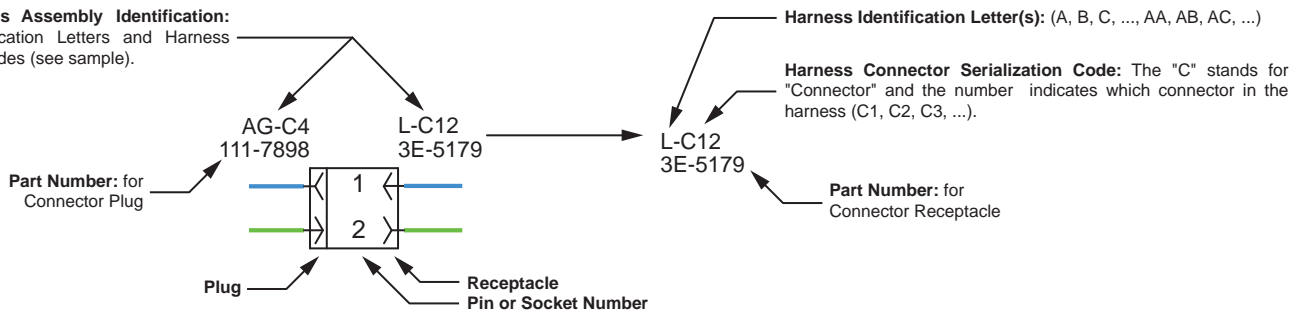
**Solenoid:** A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.



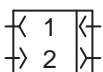
**Magnetic Latch Solenoid:** A magnetic latch solenoid is an electrical component that is activated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch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

### Harness and Wire Symbols

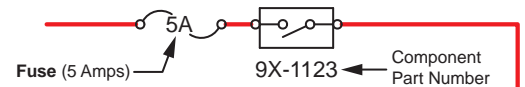
**Wire, Cable, or Harness Assembly Identification:** Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).



**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.



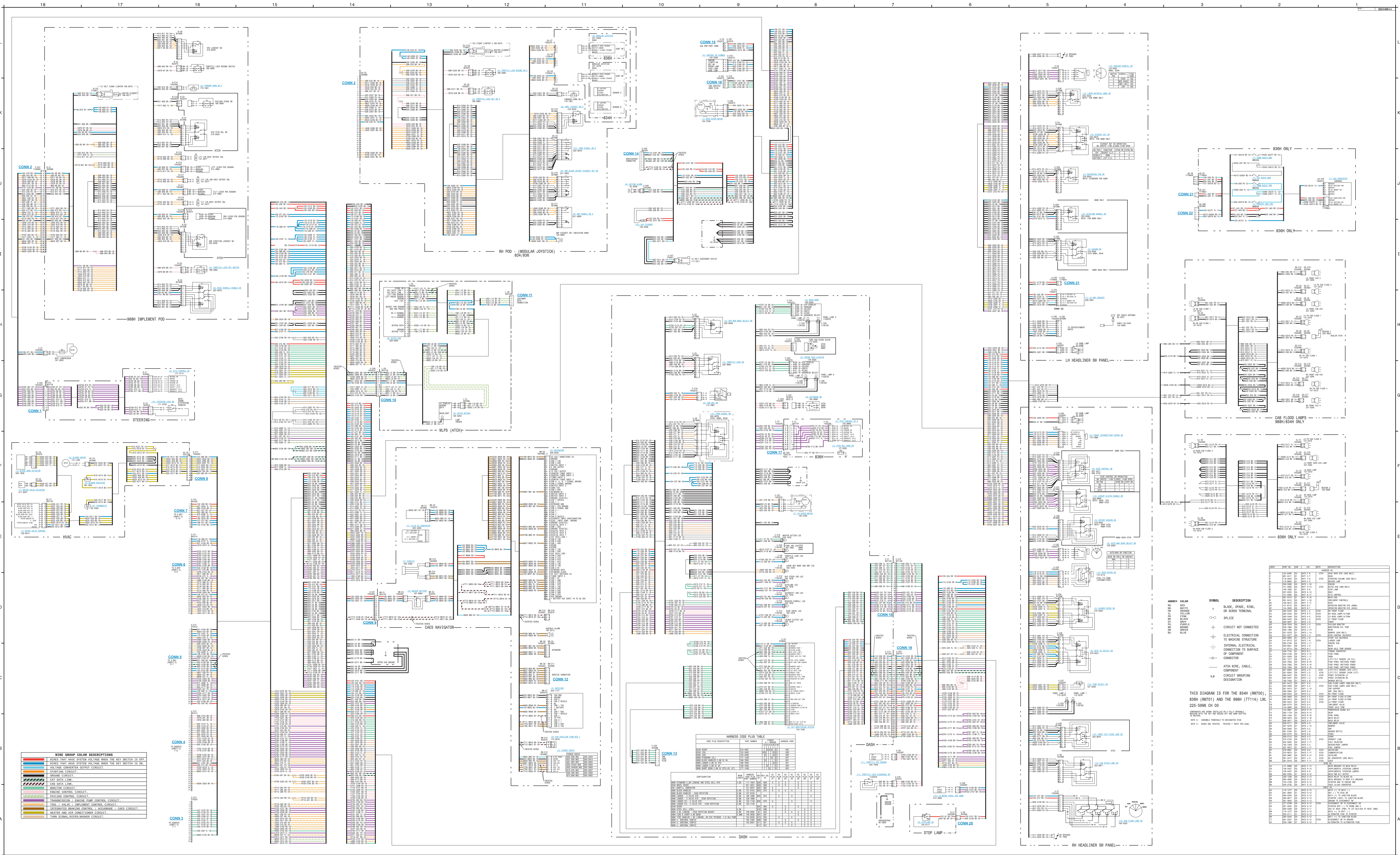
**Harness identification code:** This example indicates wire group 325, wire 135 in harness "AG".

**325-AG135**

**PK-14**

**Wire Gauge**

**Wire Color**



**WIRE GROUP COLOR DESCRIPTIONS**

[Red]	Wires that show system voltage when the key switch is OFF
[Blue]	Wires that show system voltage when the key switch is ON
[Green]	Volts Line Controller Output Circuit
[Black]	Return Circuit
[Orange]	Start Data Line
[Yellow]	Can Data Line
[Purple]	Monitor Circuit
[Light Blue]	Engine Control Circuit
[Light Green]	Transmission / Engine Pump Control Circuit
[Light Yellow]	Low / High / Lift/Implement Control Circuit
[Light Purple]	Hydraulic Brake/Line Control / Accumulator / Case Circuit
[Light Orange]	Monitor and/or Controller Circuit
[Light Green]	Turn Signal/Steer/Under Circuit

**WIRING CODE PLUS TABLE**

WIRING CODE	PLUS	DESCRIPTION
100	100	100
101	101	101
102	102	102
103	103	103
104	104	104
105	105	105
106	106	106
107	107	107
108	108	108
109	109	109
110	110	110
111	111	111
112	112	112
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197	197	197
198	198	198
199	199	199
200	200	200

**SYMBOL DESCRIPTION**

[Solid Line]	BLACK, SPARE, WING, OR BROWN TERMINAL
[Circle with dot]	SPICE
[Two lines meeting]	CIRCUIT NOT CONNECTED
[Line with arrow]	ELECTRICAL CONNECTION TO WELDING STRUCTURE
[Line with arrow]	EXTERNAL ELECTRICAL CONNECTION TO SURFACE OF CONNECTOR
[Line with arrow]	CONNECTOR
[Line with arrow]	ATCH WIRE, CABLE, COMPONENT
[Line with arrow]	CIRCUIT GRAPING DESIGNATION

THIS DIAGRAM IS FOR THE 834H (R#700), 836H (R#701) AND THE 988H (TT114) L# 225-5996 OR G0

COMPONENTS ARE SHOWN INSTALLED ON A FULLY OPERATIVE MACHINE WITH THE KEY AND ENGINE OFF. TRANSMISSION SHIFTER IS NEUTRAL AND WITH PARKING BRAKE SET.

REFER TO THE APPROPRIATE SERVICE MANUAL FOR TROUBLESHOOTING, SPECIFICATIONS AND SYSTEMS OPERATIONS.

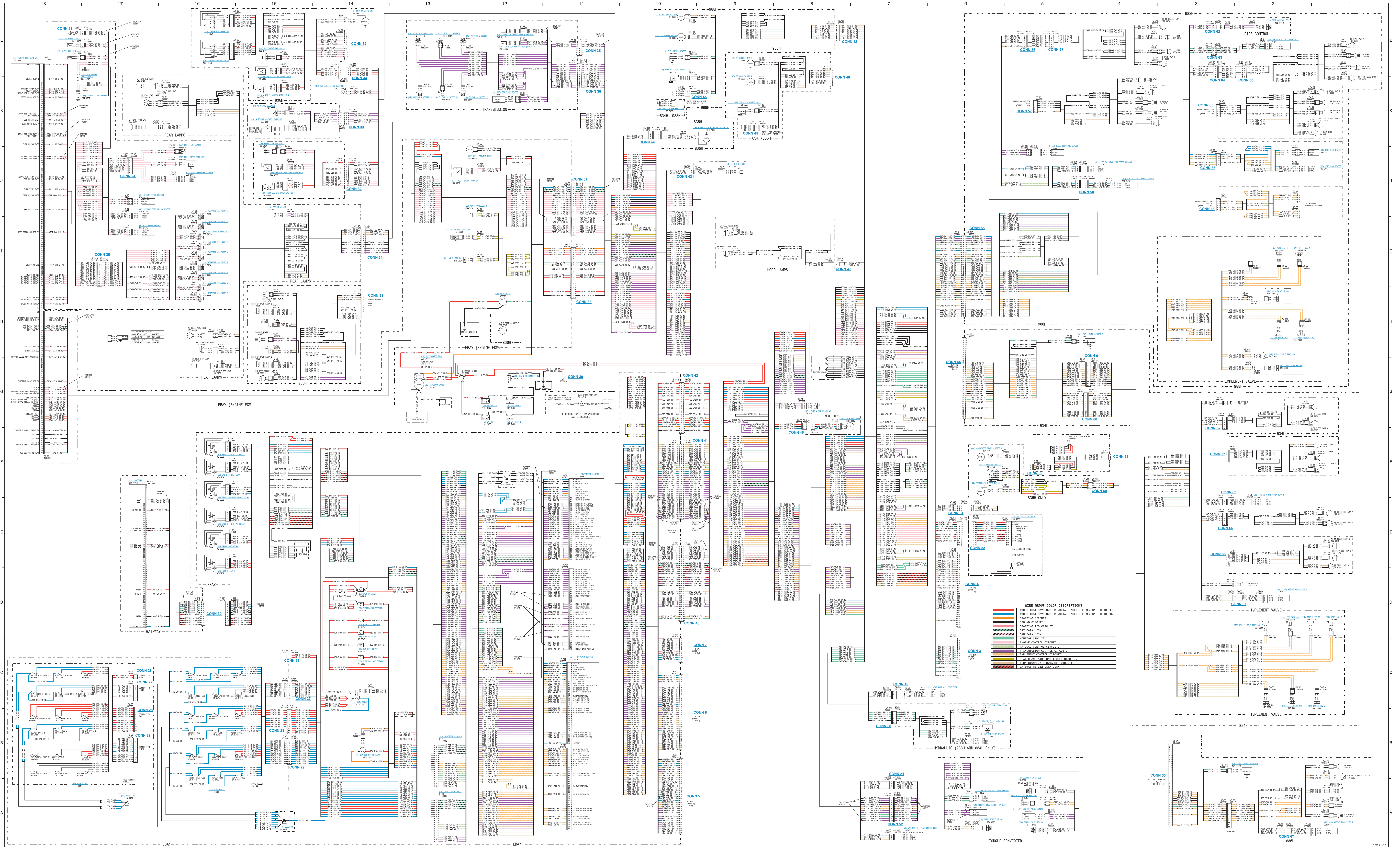
**THIS SCHEMATIC IS FOR THE 834H WHEEL TRACTOR, 836H LANDFILL COMPACTOR & 988H WHEEL LOAD ELECTRICAL SYSTEM**

**VOLUME 1 of 2: CAB WIRING**

SCHEMATIC PART NUMBER: 225-5996, CHANGE: 00, VERSION: 1

COMPONENTS ARE SHOWN INSTALLED ON A FULLY OPERATIVE MACHINE WITH THE KEY AND ENGINE OFF. TRANSMISSION SHIFTER IS NEUTRAL AND WITH PARKING BRAKE SET.

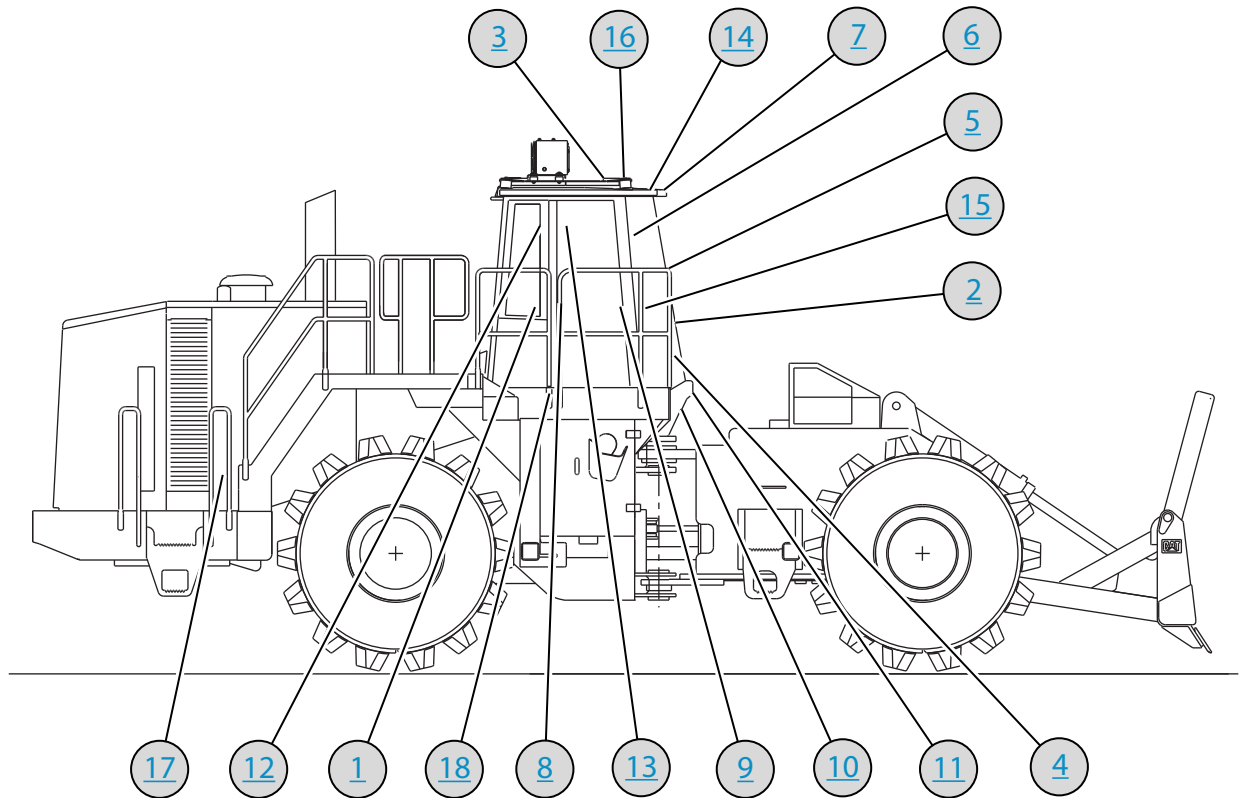
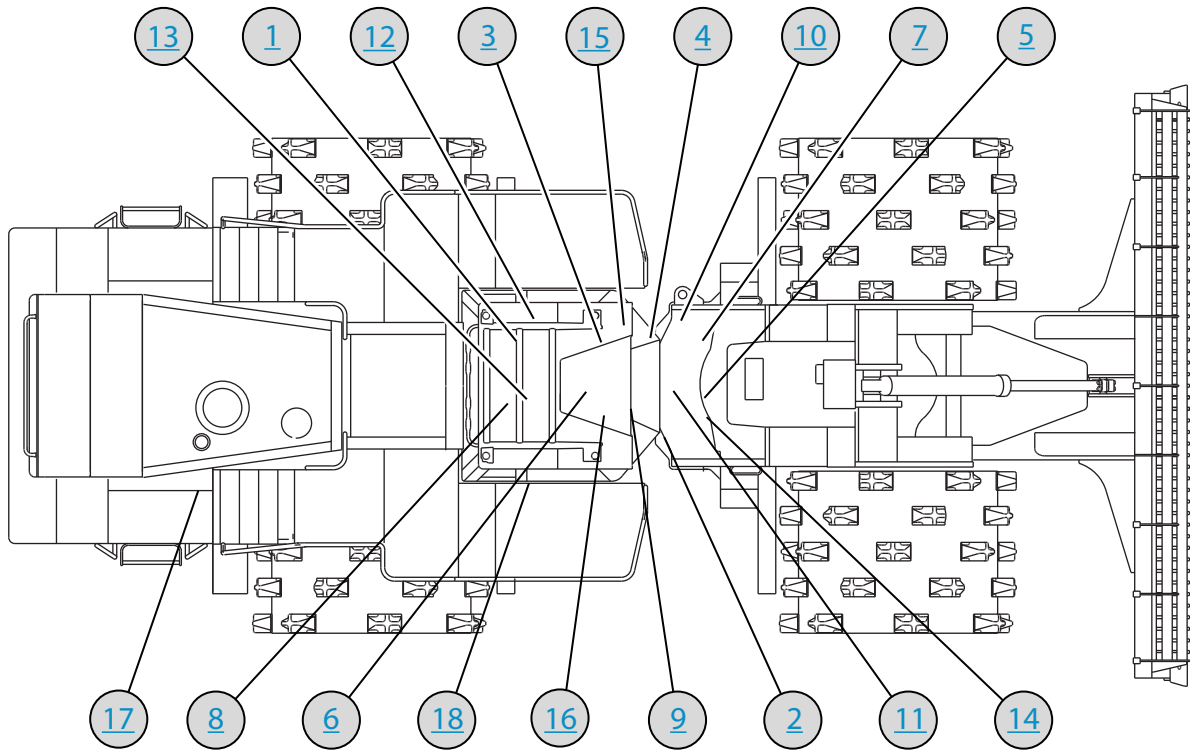
REFER TO THE APPROPRIATE SERVICE MANUAL FOR TROUBLESHOOTING, SPECIFICATIONS AND SYSTEMS OPERATIONS.



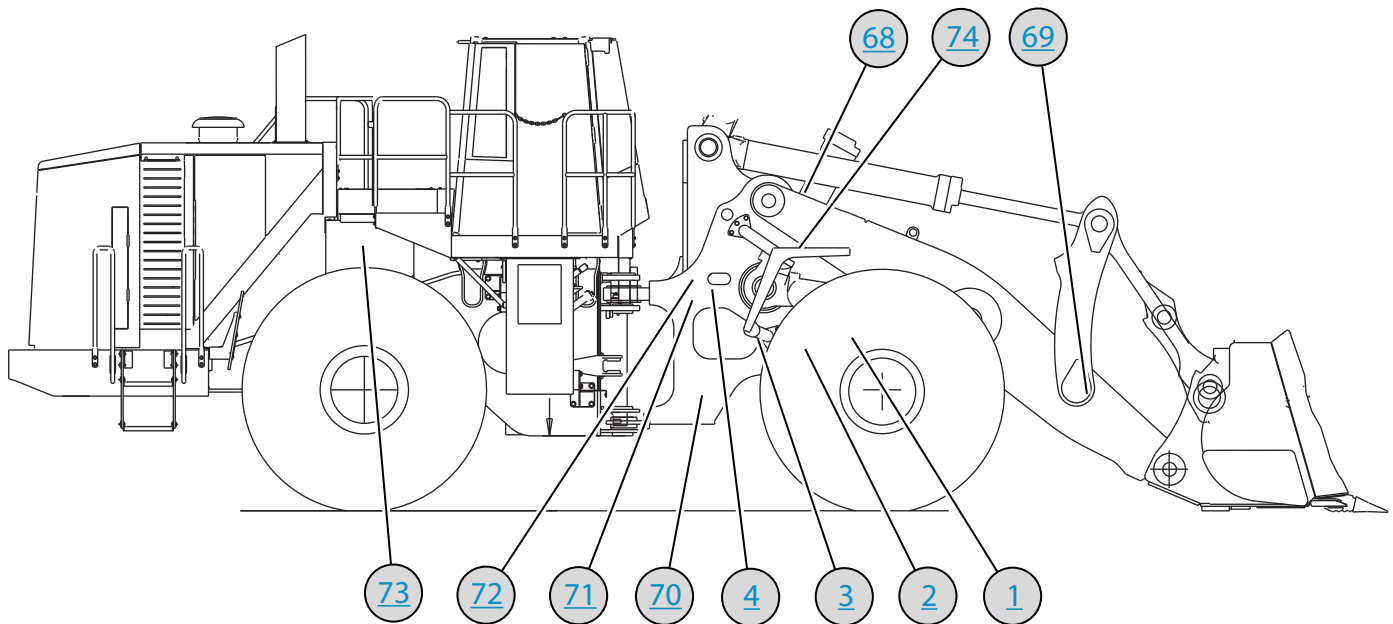
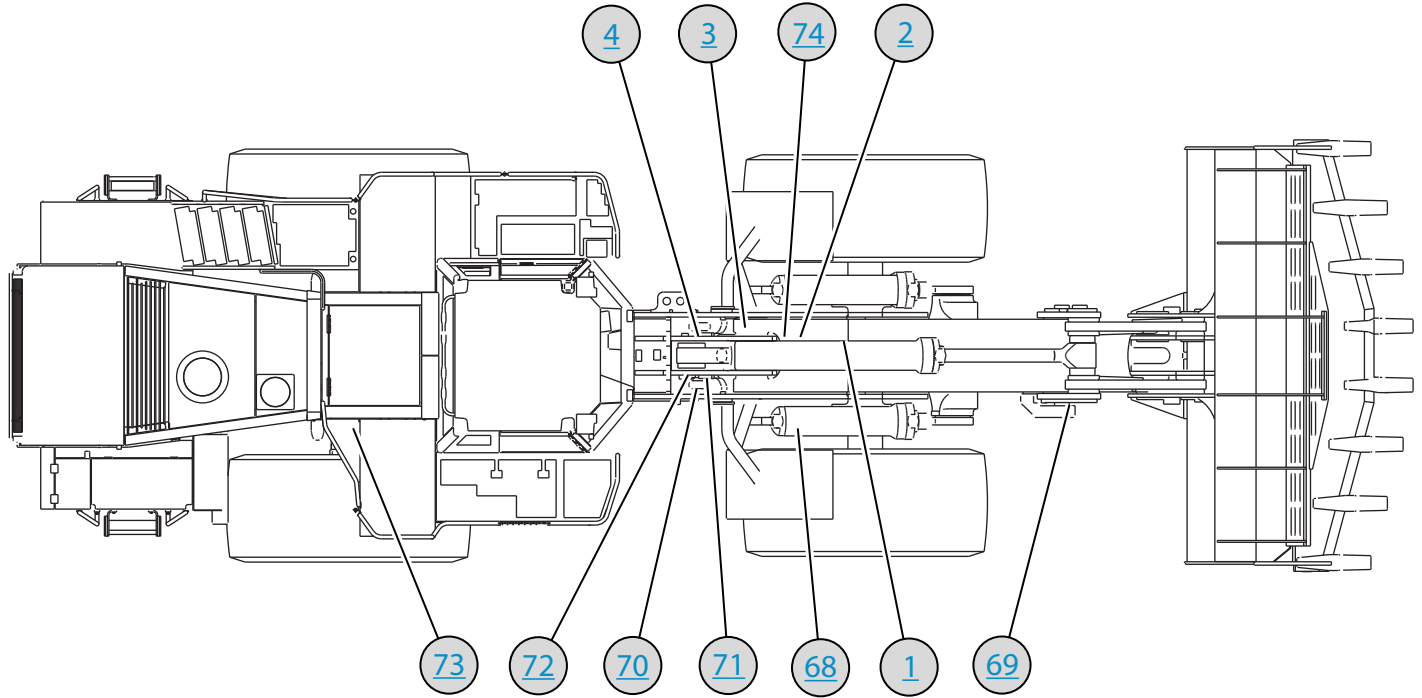
THIS SCHEMATIC IS FOR THE 834H WHEEL TRACTOR, 836H LANDFILL COMPACTOR & 988H WHEEL LOADER ELECTRICAL SYSTEM  
 VOLUME 2 of 2: CHASSIS WIRING  
 MEDIA NUMBER:  
 SCHEMATIC PART NUMBER: 225-5996 CHANGE: 00, VERSION: -  
 Components are shown installed on a fully operable machine with the key and engine off, transmission shifter in neutral and with parking brake set.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.



# MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS - CAB WIRING



# MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS - CHASSIS WIRING (834H & 988H)



# MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS - CHASSIS WIRING (836H)

