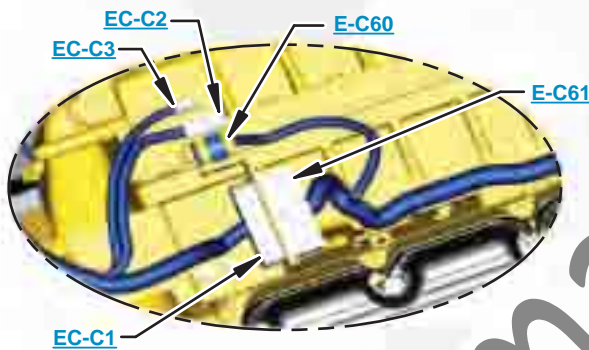


This document is best viewed at a screen resolution of 1024 X 768.

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

12M-Series 2, 120M-Series 2, 140M-Series 2 and 160M-Series 2 Motor Grader Electrical System - Attachment

12M2:
F9B1-UP
F9M1-UP
R9P1-UP
R9S1-UP

120M2:
M9C1-UP
M9H1-UP
R9N1-UP
R9W1-UP

140M2:
M9D1-UP
R9G1-UP
M9J1-UP
R9M1-UP

160M2:
M9E1-UP
M9K1-UP
R9L1-UP
R9T1-UP

Attachment: AccuGrade Ready Options

COMPONENT LOCATION



Component	Schematic Location	Machine Location
Alarm	A-6	1
Display GP - Monitor (CD610)	B-6	2
Display GP - Monitor (CD700)	E-7	3
Display GP - Monitor (Lightbar)(Center)	F-7	4
Display GP - Monitor (Lightbar)(LH)	E-7	5
Display GP - Monitor (Lightbar)(RH)	F-7	6
Mast - Electric	F-1	7
Module AS - Power Supply	D-4	8
Radio AS (CR924)	C-4	9
Receiver - GPS	E-1	10
Resistor AS - AccuGrade GPS CAN 1	D-6	11
Resistor AS - AccuGrade GPS CAN 2	E-2	12
Resistor AS - AccuGrade Sensor CAN	D-1	13
Sensor AS - Blade Inclination	D-1	14
Sensor AS - Blade Rotation	D-1	15
Sensor AS - Incination	D-2	16
Sensor AS - Laser Elevation	E-1	N/A
Sensor AS - Sonic Elevation	E-1	N/A
Switch AS - Auto/Manual Sideshift	D-6	19
Switch AS - Auto/Manual (LH)	C-6	20
Switch AS - Auto/Manual (RH)	C-6	21
Switch AS - Offset (LH)	C-6	22
Switch AS - Offset (RH)	C-6	23
Target - ATS	E-1	N/A

Connector Number	Schematic Location
CONN 1	C-7
CONN 2	C-7
CONN 3	D-7
CONN 4	D-6
CONN 5	B-7, E-6
CONN 6	B-7, E-6
CONN 7	F-6
CONN 8	C-5
CONN 9	C-5, D-5
CONN 10	D-4
CONN 11	D-2
CONN 12	E-2
CONN 13	E-2
CONN 14	E-2
CONN 15	E-2
CONN 16	D-1
CONN 17	D-1

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.

Resistor Specifications		
Part No.	Component Description	Resistance (Ohms) ¹
134-2540	Resistor: Accugrade GPS and Sensor CAN	120 ± 10%

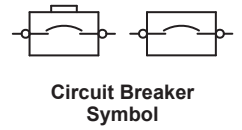
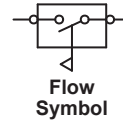
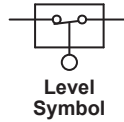
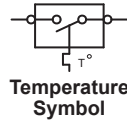
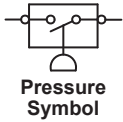
¹ At room temperature unless otherwise noted.

HARNESS and WIRE

Electrical Schematic Symbols



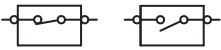
Symbols



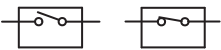
Symbols and Definitions



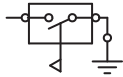
Fuse: A component in an electrical circuit that will open the circuit if too much current flows through it.



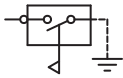
Switch (Normally Open): A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.



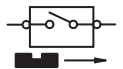
Switch (Normally Closed): A switch that will open at a specified point (temp, press, etc.). No circle indicates that the wire cannot be disconnected from the component.



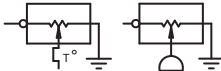
Ground (Wired): This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.



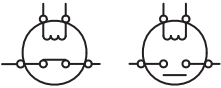
Ground (Case): This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.



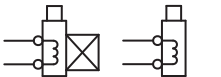
Reed Switch: A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.



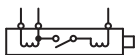
Sender: A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.



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.



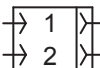
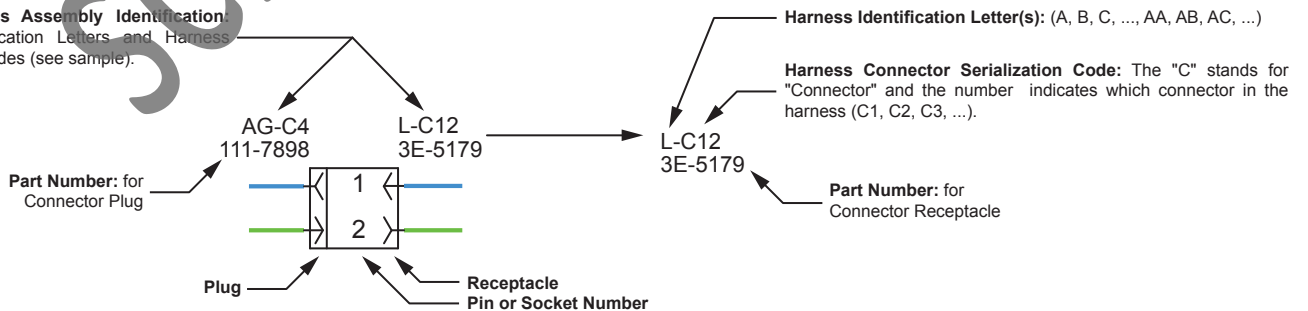
Solenoid: A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.



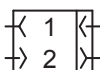
Magnetic Latch Solenoid: A magnetic latch solenoid is an electrical component that is activated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch coil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

Harness and Wire Symbols

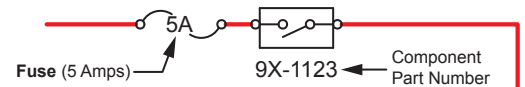
Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).



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.



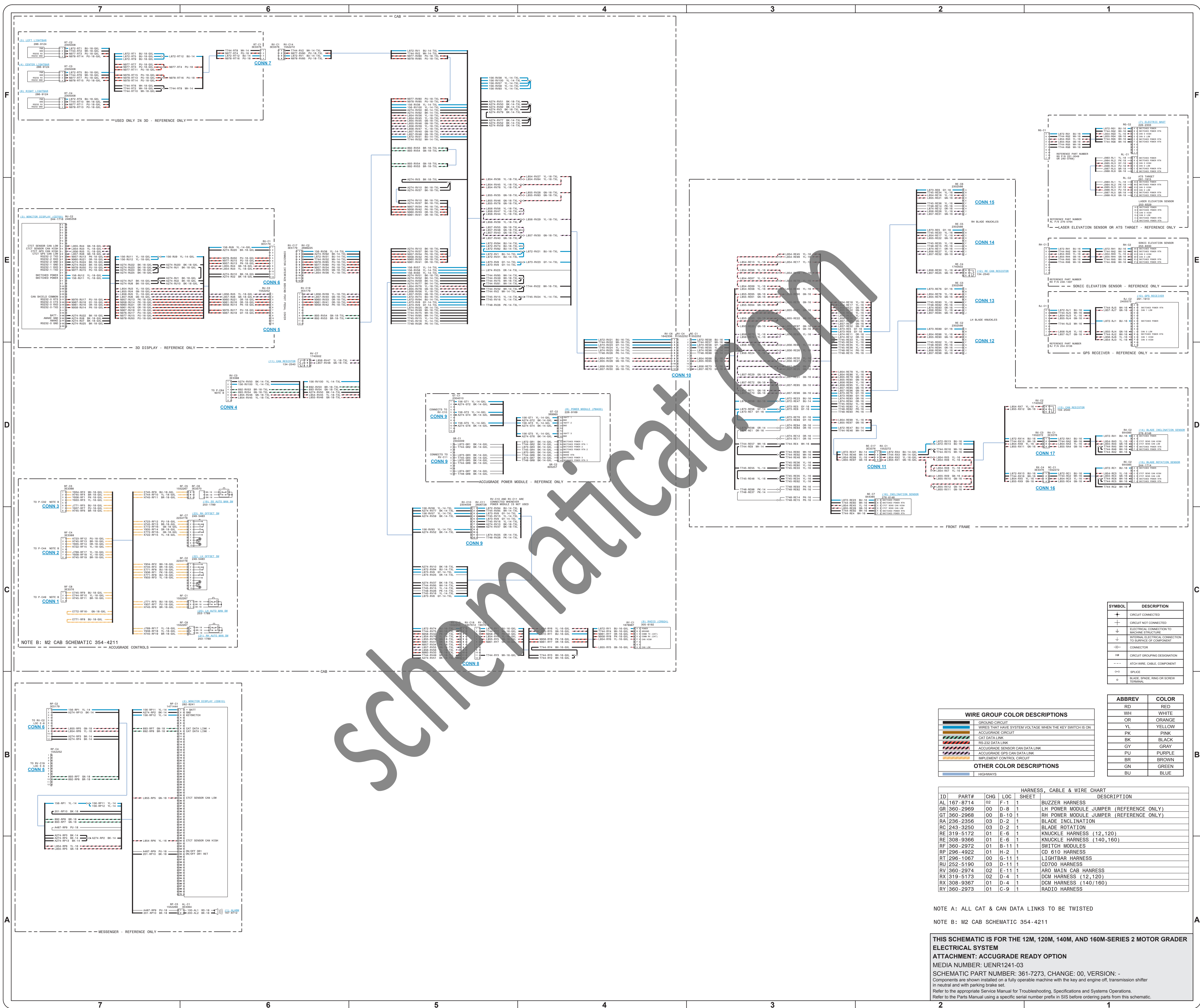
Harness identification code: This example indicates wire group 325, wire 135 in harness "AG".

325-AG135

PK-14

Wire Gauge

Wire Color



SYMBOL	DESCRIPTION
+	CIRCUIT CONNECTED
-	CIRCUIT NOT CONNECTED
↓	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
↑	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
—○—	CONNECTOR
—	CIRCUIT GROUPING DESIGNATION
—	ATCH WIRE, CABLE, COMPONENT
—○—	SPACE
○	BLADE SPACE, RING OR SCREW TERMINAL

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

WIRE GROUP COLOR DESCRIPTIONS	
(Solid Blue)	GROUND CIRCUIT
(Solid Orange)	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
(Solid Yellow)	ACCURGRADE CIRCUIT
(Solid Green)	CAN DATA LINK
(Solid Purple)	ISO 232 DATA LINK
(Solid Red)	ACCURGRADE SENSOR CAN DATA LINK
(Solid Brown)	ACCURGRADE GPS CAN DATA LINK
(Solid Grey)	WORKER CONTROL CIRCUIT
OTHER COLOR DESCRIPTIONS	
(Dashed Blue)	HIGHWAYS

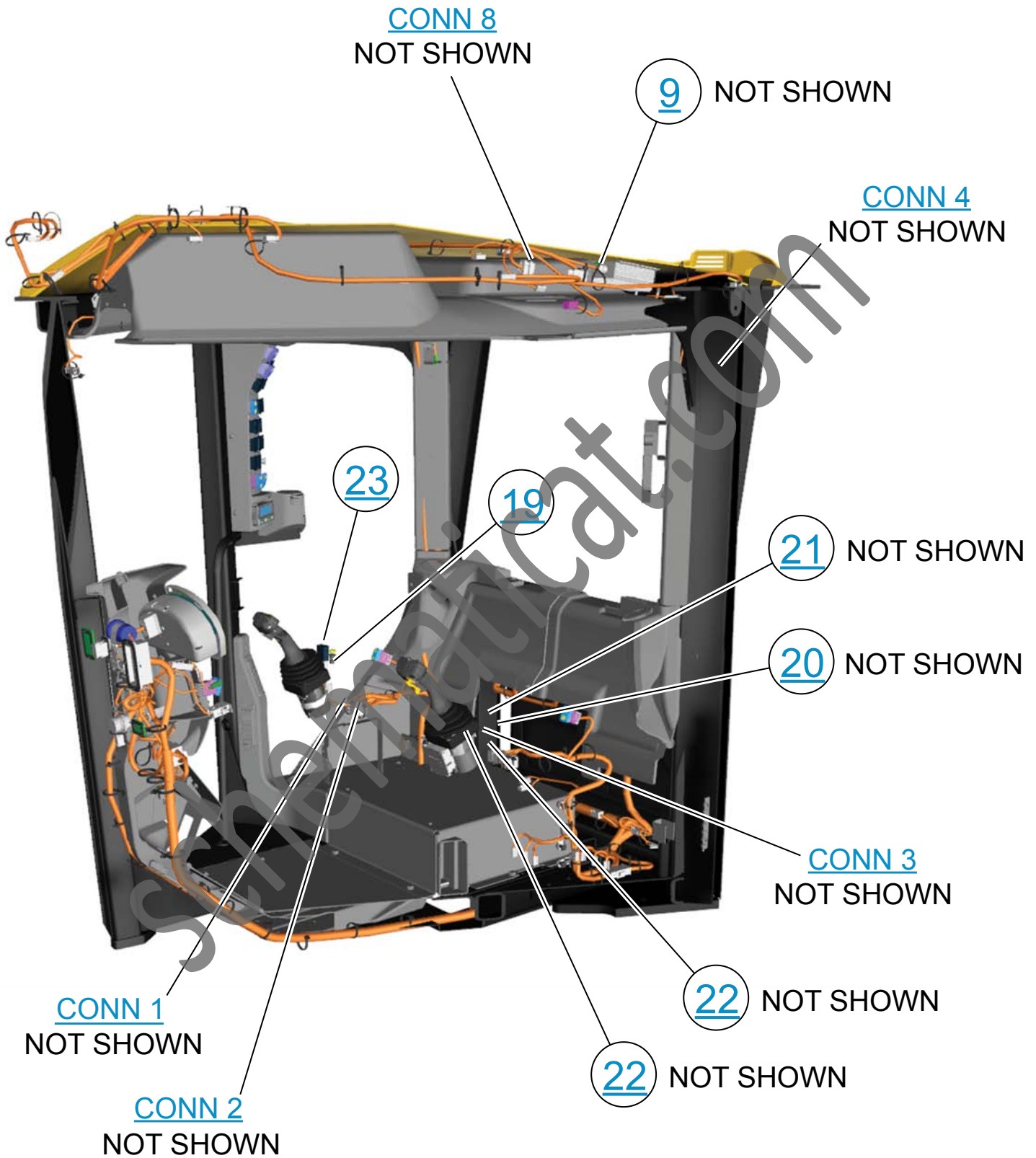
HARNESS, CABLE & WIRE CHART					
ID	PART#	CHG	LOC	SHEET	DESCRIPTION
AL	167-8714	02	F-1	1	BUZZER HARNESS
GR	360-2969	00	D-8	1	LH POWER MODULE JUMPER (REFERENCE ONLY)
GI	360-2968	00	B-10	1	RH POWER MODULE JUMPER (REFERENCE ONLY)
RA	236-2356	03	D-2	1	BLADE INCLINATION
RC	243-3250	03	D-2	1	BLADE ROTATION
RE	319-5172	01	E-6	1	KNUCKLE HARNESS (12,120)
RF	308-9366	01	E-6	1	KNUCKLE HARNESS (140,160)
RG	360-2972	01	B-11	1	SWITCH MODULES
RP	296-4922	01	H-2	1	CD G10 HARNESS
RT	296-1067	00	G-11	1	LIGHTBAR HARNESS
RU	252-5190	03	D-11	1	CD700 HARNESS
RV	360-2974	02	E-11	1	ARO MAIN CAB HARNESS
RX	519-5173	02	D-4	1	DCM HARNESS (12,120)
RX	308-9367	01	D-4	1	DCM HARNESS (140/160)
RY	360-2973	01	C-9	1	RADIO HARNESS

NOTE A: ALL CAT & CAN DATA LINKS TO BE TWISTED

NOTE B: M2 CAB SCHEMATIC 354-4211

THIS SCHEMATIC IS FOR THE 12M, 120M, 140M, AND 160M-SERIES 2 MOTOR GRADER ELECTRICAL SYSTEM
ATTACHMENT: ACCURGRADE READY OPTION
 MEDIA NUMBER: UENR1241-03
 SCHEMATIC PART NUMBER: 361-7273, 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.
 Refer to the Parts Manual using a specific serial number prefix in SIS before ordering parts from this schematic.

CAB COMPONENT WIRING (LEFT SIDE VIEW)



* LEFT CAB PANEL REMOVED FOR CLARITY

FRONT FRAME WIRING

