580N
580SN WT
580SN
590SN
Tier 4B (final)
Tractor Loader Backhoe

580N PIN NGC730186 and above; 580SN WT PIN NGC735098 and above;
580SN PIN NGC732639 and above; 590SN PIN NGC736228 and above

SERVICE MANUAL

Part number 48038048
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CASE CONSTRUCTION

MidWestTech | Case 580N, 580SN WT, 580SN, 590SN Tier 4B Tractor Loader Backhoe Service Manual | Publication 48038048
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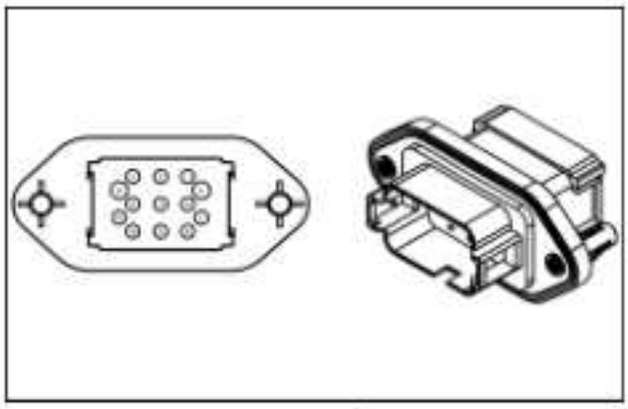
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Pin	From	Wire	Description	Color-Size	Frame
A	SP-101-P-X	142C	REAR WL PWR 1	VT - 2.0	SHEET 22
B	**X-507 (Plug) pin 6** TO OUTTER LIGHT HARNESS	741R	TAIL LIGHT	VT - 2.0	
C	**X-507 (Plug) pin 2** TO OUTTER LIGHT HARNESS	7440	BRAKE LIGHTS	VT - 0.5	
D	**X-507 (Plug) pin 3** TO OUTTER LIGHT HARNESS	745R	RIGHT TURN INDICATOR	VT - 0.5	
E	**X-507 (Plug) pin 1** TO OUTTER LIGHT HARNESS	745L	LEFT TURN INDICATOR	VT - 0.5	
F	**X-507 (Plug) pin 5** TO OUTTER LIGHT HARNESS	7480	ROTATING BEACON	VT - 0.5	
G	**X-507 (Plug) pin 4** TO OUTTER LIGHT HARNESS	7430	SIDE WORK LIGHTS	VT - 2.0	
H	SP-061-P-X	743C	REAR WL PWR 2	VT - 2.0	
J	SP-101-P-X	742C	REAR WL PWR 1	VT - 2.0	
K	SP-061-P-X	143C	REAR WL PWR 2	VT - 2.0	

X-506B - (Receptacle)

X-507 - TO OUTTER LIGHT HARNESS (47495388) (Plug)



47495388 B

47495388

Pin	From	Wire	Description	Color-Size	Frame
1	**X-506 (Plug) pin E** TO LOWER C-POST X-503	745L	LEFT TURN INDICATOR	VT - 0.5	SHEET 22
2	**X-506 (Plug) pin C** TO LOWER C-POST X-503	7440	BRAKE LIGHTS	VT - 0.5	
3	**X-506 (Plug) pin D** TO LOWER C-POST X-503	745R	RIGHT TURN INDICATOR	VT - 0.5	
4	**X-506 (Plug) pin G** TO LOWER C-POST X-503	7430	SIDE WORK LIGHTS	VT - 2.0	
5	**X-506 (Plug) pin F** TO LOWER C-POST X-503	7480	ROTATING BEACON	VT - 0.5	
6	**X-506 (Plug) pin B** TO LOWER C-POST X-503	741R	TAIL LIGHT	VT - 2.0	
A	SP-061-P-X	641C	REAR WL PWR 2	VT - 3.0	
B	SP-101-P-X	541C	REAR WL PWR 1	VT - 3.0	

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1056-Timeout of CAN message Engine Fluid EFL/P1

Context:
CAN bus communications between the instrument cluster and the ECU may have been interrupted. The instrument cluster did not receive the EEC3 message from the ECU. This fault code may be displayed with other CAN bus fault messages. The instrument cluster will illuminate the stop lamp and will continually sound the audible alarm while this fault is active.

Cause:
The instrument cluster did not receive a CAN message from the ECU. CAN bus communications between the instrument cluster and the ECU may have been interrupted.

Possible failure modes:

1. CAN bus wiring open circuit.
2. CAN bus wiring short circuit.
3. Faulty instrument cluster.
4. Faulty ECU.

Solution:

1. Verify that the fault code is active.

   Connect the Electronic Service Tool to the service tool connector.

   To check for fault codes: Start and operate the machine.

   A. Fault code **1056 - Timeout of CAN message Engine Fluid EFL/P1** is not recorded again. Go to step **2**.

   B. Fault code **1056 - Timeout of CAN message Engine Fluid EFL/P1** is recorded again. There are one or two other CAN bus fault codes associated with **1056 - Timeout of CAN message Engine Fluid EFL/P1**. Go to step **2**.

   C. Fault code **1056 - Timeout of CAN message Engine Fluid EFL/P1** is recorded along with other CAN data link faults such as 1051-1060, and/or 3096, 3179 and 3180. Go to **1051-Timeout of CAN message EEC1 (55.015)** step 3.

2. Verify that the CAN bus circuit is functioning properly.

   Connect the Electronic Service Tool to the service tool connector.

   Turn the ignition switch ON.

   Verify the connections to the ECU, the instrument cluster, the diagnostic connector, the Trax control module (if installed), and the optional Telematics unit are tight and secure. Check for CAN bus fault codes while wiggling the harness.

   Turn the ignition switch OFF.

   Disconnect the instrument cluster connector **X-029 X-029**.

   Measure the resistance between **X-029 (Receptacle) pin 3 X-029 (Receptacle) pin 3** and **X-029 (Receptacle) pin 4 X-029 (Receptacle) pin 4** on the instrument cluster. The resistance should be between **108 Ω** and **132 Ω**.

   Disconnect ECU connector **X-461 X-461**.

   Measure the resistance between **X-461 (Receptacle) pin 24 X-461 (Receptacle) pin 24** and **X-461 (Receptacle) pin 26 X-461 (Receptacle) pin 26** on the ECU. The resistance should be between **108 Ω** and **132 Ω**.

   A. All connections are secure. Both resistance measurements are within the specified range. OK to return the machine to service.

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A. The resistance is less than **10 Ω**. Go to step **4**.

B. The resistance is greater than **10 Ω**. There is an open circuit in the wire. Repair or replace the harness as required. Return to step **1** to confirm the elimination of the fault.

4. Measure the voltage of the temperature signal wire to chassis ground.

   Turn the ignition switch ON.

   Measure the voltage between **X-300 (Receptacle) pin 43** and chassis ground. The voltage should be less than **0.5 V**. Wiggle the harness during measurement to reveal an intermittent condition.

   A. The voltage is less than **0.5 V**. Go to step **5**.

   B. The voltage is greater than **0.5 V**. There is a short circuit to another voltage source. Repair or replace the harness as required. Return to step **1** to confirm the elimination of the fault.

5. Measure the resistance of the temperature sensor

   Measure the resistance of the temperature sensor between pin 1 and pin 2.

Transmission Sensor Open Circuit Resistance Measurements	
Temperature	Resistance in ohms (± 10%)
110 °C (230 °F)	**130 Ω**
105 °C (221 °F)	**151 Ω**
100 °C (212 °F)	**175 Ω**
95 °C (203 °F)	**202 Ω**
92 °C (198 °F)	**223 Ω**
88 °C (190 °F)	**258 Ω**
85 °C (185 °F)	**280 Ω**
81 °C (178 °F)	**323 Ω**
78 °C (172 °F)	**358 Ω**
74 °C (165 °F)	**412 Ω**
68 °C (154 °F)	**511 Ω**
16 °C (61 °F)	**4250 Ω**

   A. The resistance measurements are within the values from the table. Temporarily replace the Trax control module and retest. Return to step **1** to confirm the elimination of the fault.

   B. The resistance measurements are not within the values from the table. Temporarily replace the temperature sensor and retest. Return to step **1** to confirm the elimination of the fault.

6. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires.

   Verify that the connectors are fully installed.

   Flex the harnesses involved to reveal an intermittent break or a short circuit in the wiring.

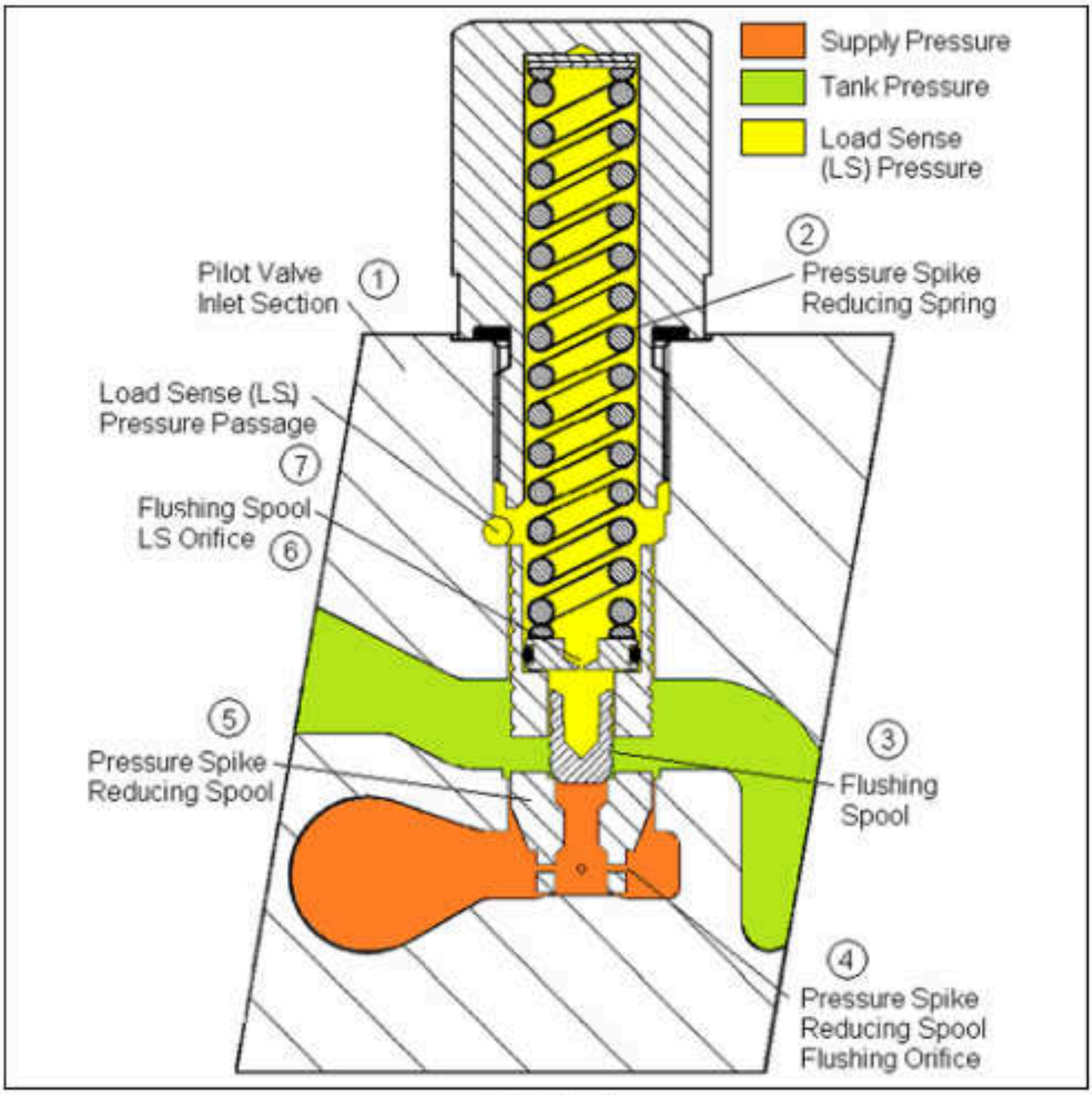
   Operate the machine while monitoring the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition. Verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 23 SH23 - POWERSHIFT TRANSMISSION JUMPER HARNESS (55.100.DP-C.20.E.23)
Wiring harnesses - Electrical schematic sheet 24 SH24 - TRAX SPS/PS CONTROLLER (55.100.DP-C.20.E.24)

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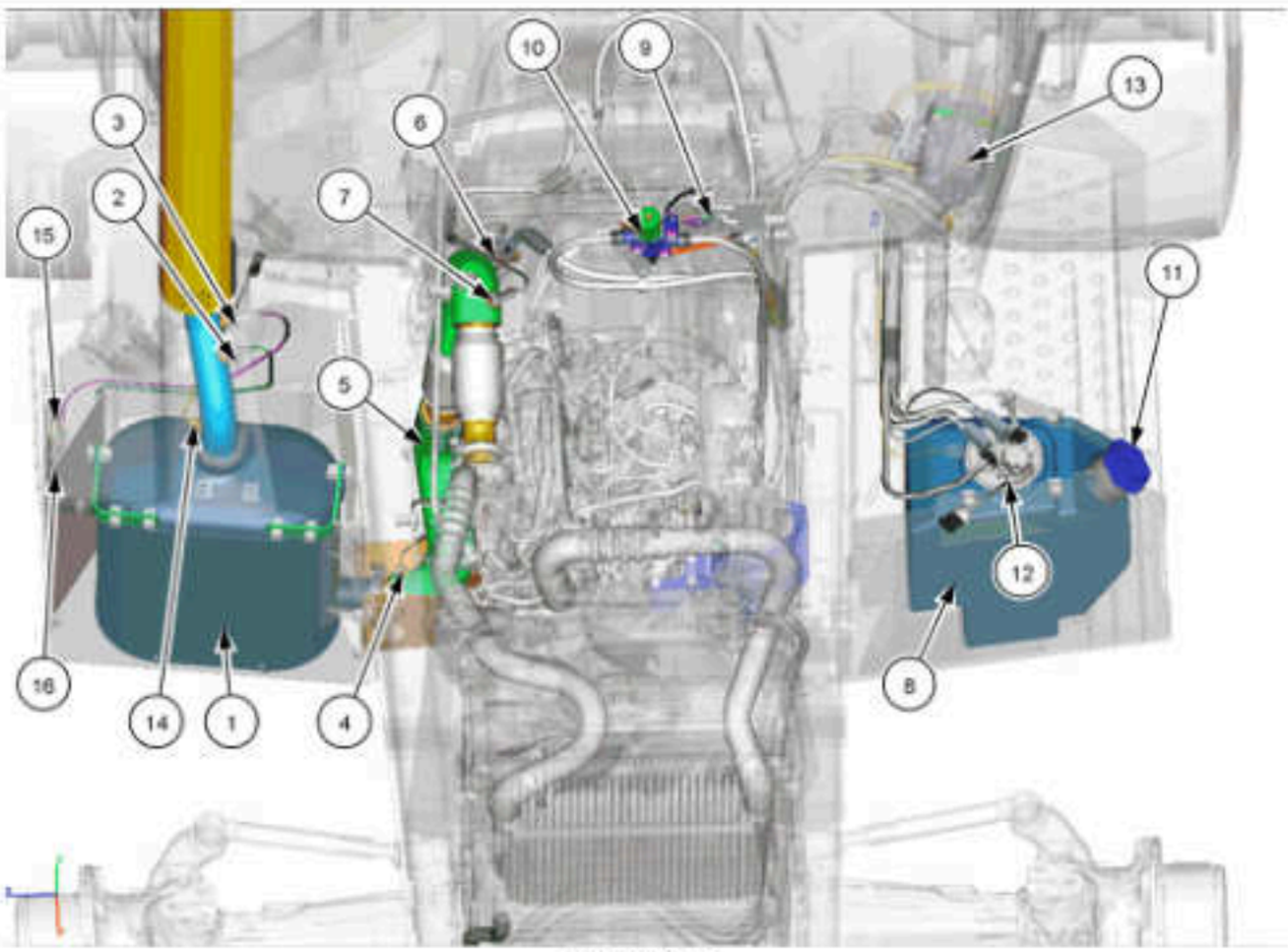
Backhoe flushing valve cutaway

1. Pilot valve inlet section	5. Pressure spike reducing spool
2. Pressure spike reducing spring	6. Flushing spool load sense (LS) orifice
3. Flushing spool	7. Load sense (LS) pressure passage
4. Pressure spike reducing flushing orifice	

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Selective Catalytic Reduction (SCR) exhaust treatment - Component identification

Number	Component
(1)	Muffler, Select Catalytic Reduction (SCR)
(2)	NH3 sensor (downstream)
(3)	NOx sensor (downstream)
(4)	Exhaust Gas Temperature (EGT), (upstream)
(5)	Engine exhaust to Select Catalytic Reduction (SCR)
(6)	**DEF/ADBLUE®** dosing module (injector)
(7)	NOx sensor (upstream)
(8)	**DEF/ADBLUE®** tank
(9)	NOx sensor (upstream) module
(10)	Heater valve
(11)	**DIESEL EXHAUST FLUID (DEF)/ADBLUE®** tank cap with in-line screen filter
(12)	**DIESEL EXHAUST FLUID (DEF)/ADBLUE®** tank heater coil and supply assembly
(13)	**DIESEL EXHAUST FLUID (DEF)/ADBLUE®** supply module with filter
(14)	Exhaust Gas Temperature (EGT), (downstream)
(15)	NOx sensor (downstream) module
(16)	NH3 sensor (downstream) module



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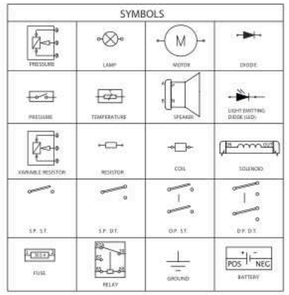
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SYMBOLS



CIRCUIT DIAGRAM LEGENDS



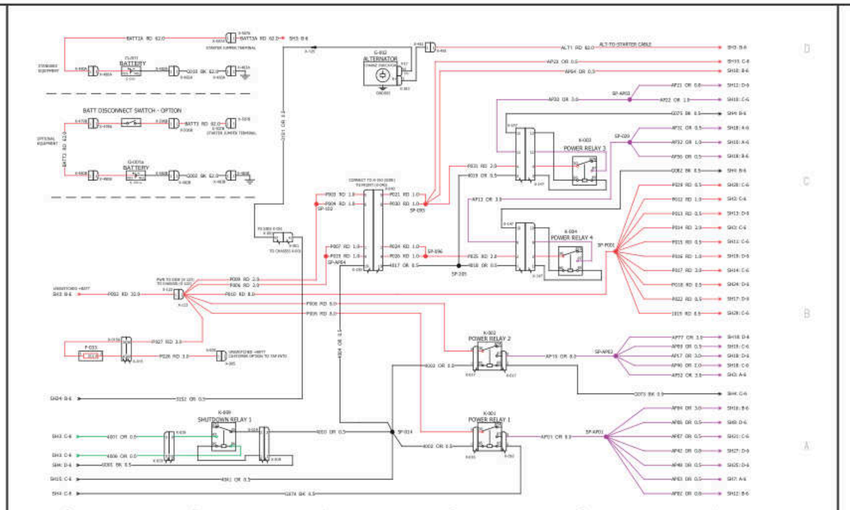
COLOR	ABBREVIATION
BLACK	BK
BLUE	BL
LIGHT BLUE	LB
BLACK/WHITE	BK/WH
GREEN	GN
LIGHT GREEN	LG
ORANGE	OR
PINK	PK
VIOLET	VT
RED	RD
GREY	GY
TAN	TN
WHITE	WH
YELLOW	YE

WIRE SIZE CHART	
Sq. mm	AWG
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8

NOTE:
DIAGRAM SHOWN WITH VEHICLE PARKED & POWER OFF

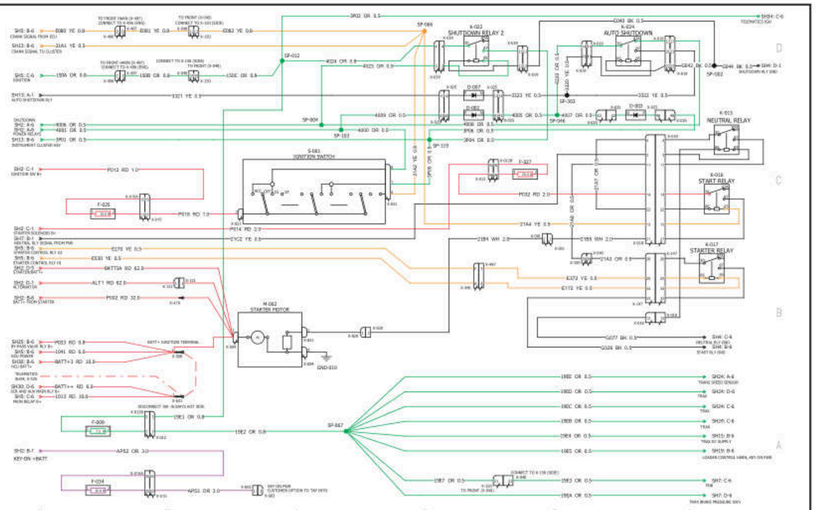
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POWER DISTRIBUTION / CHARGING SYSTEM

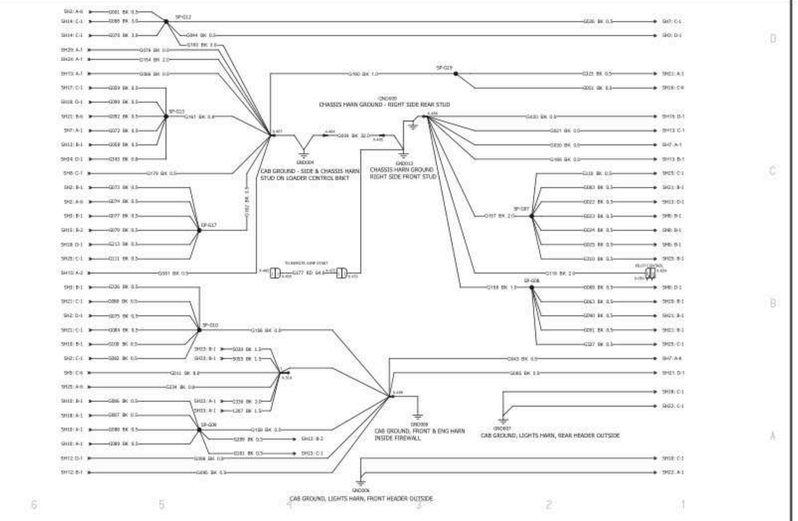


POWER DISTRIBUTION / CHARGING SYSTEM 2

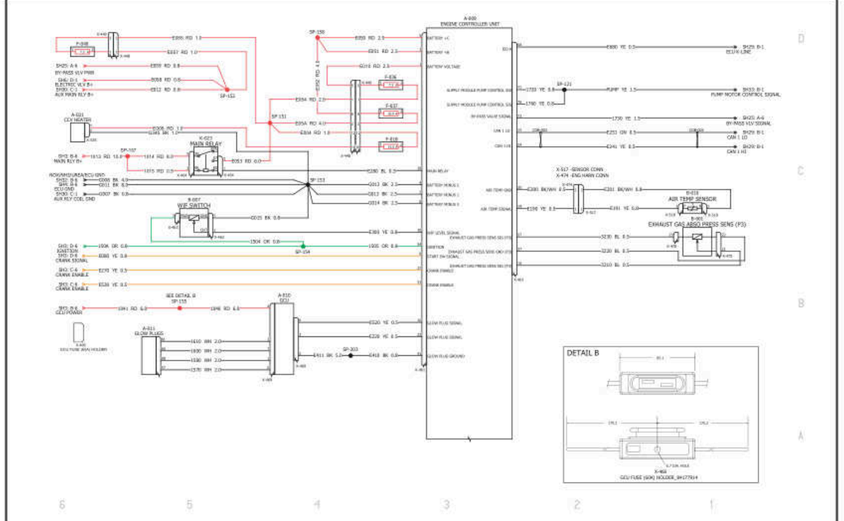
STARTING SYSTEM



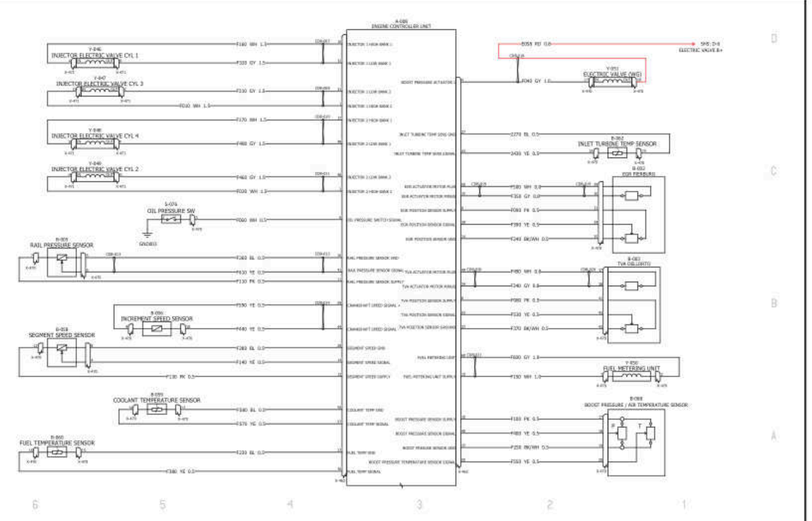
STARTING SYSTEM 3



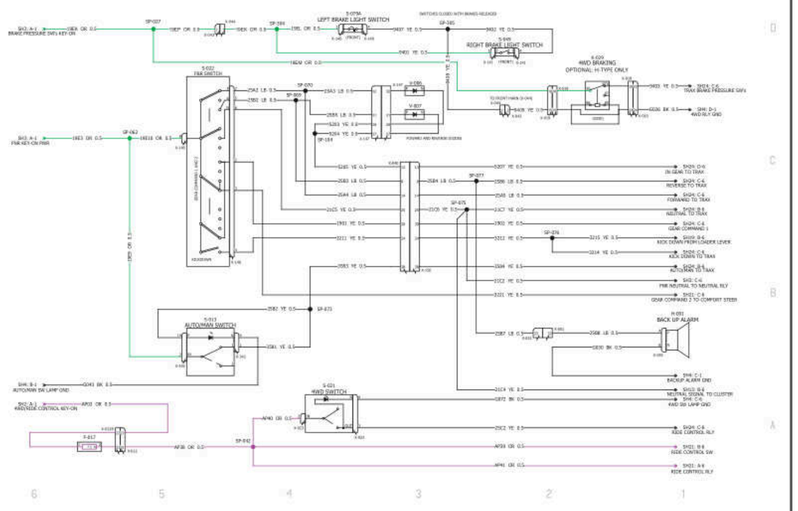
GROUNDING 4



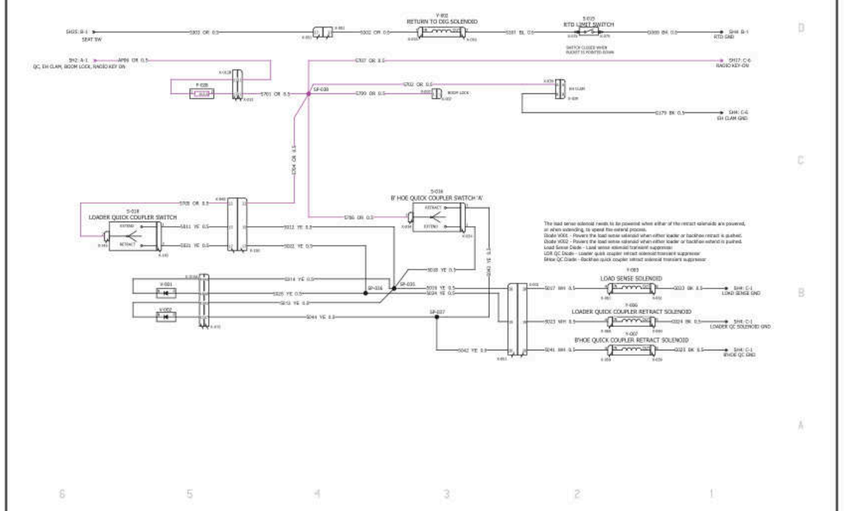
ENGINE CONTROL 5



ENGINE CONTROL 6



POWERSHIFT TRANSMISSION INPUTS 7



HYDRAULICS 8

580N [NGC730186 -]
580SN [NGC732639 -]
580SN WT [NGC735098 -]
590SN [NGC736228 -]
TIER 4B (FINAL) POWERSHIFT TRANSMISSIONS
ELECTRICAL SCHEMATIC RAC 48038072

BATTERY POWER
STARTING SEQUENCE
SWITCHED POWER
POWER RELAY OUTPUT

RAC48038072S1S1

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