580N
580SN
590SN
580SN WT
580 Super N
580 Super N WT
590 Super N
Tier 4 Tractor Loader Backhoe

580N - from PIN NCC560000,
580SN - from PIN NCC564000,
580SN WT - from PIN NCC5*

Service Manual

47365539

CASE
CONSTRUCTION

MidWestTech | Case 580N, 580SN, 590SN, 580SNWT, 580 Super N, 580 Super NWT, 590 Super N Tier 4 Tractor Loader Backhoe Service Manual | Publication 47365539

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Powershift transmission - General specification - H-type

Type	Carraro TLB1 2WD & 4WD SPS - SAHR Parking Brake

Lubricant - Carraro TLB1 2WD& 4WD SPS - SAHR Parking Brake	
Total system capacity	**19.5 l (20.6 US qt)**
Refill capacity with or without filter change	**16 l (16.9 US qt)**
Type of fluid	Case AKCELA Hy-Tran™ Ultra (CASE MS1209) (CNH MAT 3505)

Specifications

NOTE: *All pressures and flows must be measured with an oil temperature of* ***80 °C (176 °F).***

Parameter	Operating Pressure / Temperature
Forward and reverse clutch pressures at **2200 RPM**	**13.5 - 16.5 bar (196 - 239 psi)**, clutch activated **0 - 0.3 bar (0 - 4.4 psi)**, clutch released
Filter bypass valve	**8 - 11 bar (116 - 160 psi)**
Lube pressure	**1 - 5 bar (15 - 73 psi)**
Torque converter inlet pressure	**3 - 9 bar (43.5 - 130.5 psi)**
Differential lock	**14 - 17 bar (203 - 246.5 psi)**
Brake booster port	**14 - 17 bar (203 - 246.5 psi)**
Park brake pressure switch	**9 - 11 bar (130.5 - 159.5 psi)**
Park brake check port Vehicle may move during the park brake pressure check, monitor park brake pressure from inside of cab by removing the floor plate.	**13.5 - 15.5 bar (195.8 - 224.8 psi)**
Pump flow at **900 RPM** bench test before filter	**19 l/min (5 US gpm)**
1st gear at **900 RPM**	**11.5 - 14.5 bar (166.8 - 210.3 psi)**
1st gear at **2200 RPM**	**13 - 15.5 bar (188.5 - 224.8 psi)**
2nd gear at **900 RPM**	**14 - 16.5 bar (203.0 - 239.3 psi)**
2nd gear at **2200 RPM**	**15.5 - 18 bar (224.8 - 261.0 psi)**
3rd gear at **900 RPM**	**14 - 16.5 bar (203.0 - 239.3 psi)**
3rd gear at **2200 RPM**	**15.5 - 18 bar (224.8 - 261.0 psi)**
4th gear at **900 RPM**	**14 - 16.5 bar (203.0 - 239.3 psi)**
4th gear at **2200 RPM**	**15.5 - 18 bar (224.8 - 261.0 psi)**
4WD check port at **900 RPM**	**13.5 - 15 bar (195.8 - 217.5 psi)**
4WD check port at **2200 RPM**	**14.5 - 16.5 bar (210.3 - 239.3 psi)**
Forward/ Reverse clutch solenoids	7.15 Ω at **20 °C (68 °F)**
4WD solenoid	7.15 Ω at **20 °C (68 °F)**
Park brake solenoid	9.8 Ω at **20 °C (68 °F)**
S 1/3 solenoid	7.15 Ω at **20 °C (68 °F)**
S 2/4 solenoid	7.15 Ω at **20 °C (68 °F)**
PWM 1/3 solenoid	7.25 Ω at **20 °C (68 °F)**
PWM 2/4 solenoid	7.25 Ω at **20 °C (68 °F)**

Powershift transmission - General specification - S-Type

NOTE: *All transmission pressures are to measured with an oil temperature of* ***80 °C (176 °F)***

Item	Pressure Minimum/Maximum
Control valve supply pressure	**13 bar (189 psi) @ 900 RPM** **17 bar (247 psi) @ 2400 RPM**
Forward or reverse clutch pressure	**12 bar (174 psi) @ 900 RPM** **16 bar (232 psi) @ 2400 RPM**
1N2, 3N4, 1st, 2nd, 3rd, 4th, HDL, 4WD	**13 bar (189 psi) @ 900 RPM** **17 bar (247 psi) @ 2400 RPM**

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CONNECTOR X-054 - X-054

CONNECTOR X-054 - X-054		
PIN NUMBER	WIRE NUMBER	CIRCUIT REFERENCE
A	64A5 (RD)	HORN B+
B	64B5 (WH)	HORN OUTPUT
C	AP44 (OR)	PILOT CONTROLS KEY-ON
D	G116 (BK)	PILOT CONTROLS GROUND
E	1212 (BL)	ONE-TOUCH DECEL SIGNAL
F	G149 (BK)	COMBO HYD. SWITCH GROUND
G	0725 (BL)	COMBO HYRAULICS SIGNAL
H	0736 (YE)	AUX FORWARD OR HAMMER VALVE OUTPUT
J	073A (WH)	AUX FORWARD OUTPUT
K	0739 (WH)	HAMMER VALVE POWER

Power Shuttle transmission with options

- **Wire harnesses - Electrical schematic frame 03 Grounding, Power Shuttle transmission with options (55.100)**
- **Wire harnesses - Electrical schematic frame 12 Instrument Cluster, Power Shuttle transmission with options (55.100)**
- **Wire harnesses - Electrical schematic frame 19 Horn, Power Shuttle transmission with options (55.100)**
- **Wire harnesses - Electrical schematic frame 22 Pilot Controls Inputs, Power Shuttle transmission with options (55.100)**
- **Wire harnesses - Electrical schematic frame 23 Combo/ Aux/ Uni Hydraulics, Power Shuttle transmission with options (55.100)**

Power Shuttle transmission without options

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Powershift transmission with options

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- **Wire harnesses - Electrical schematic frame 26 Pilot Control Inputs, Powershift transmission with options (55.100)**

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3284-Sensor Supply Voltage 2 - Low

580N T4, 580SN T4, 580SN WT T4, 590SN T4

NOTICE: *Check alternator output voltage. Troubleshoot charging system before proceeding.*

NOTE: *Besides the 3 independent 5V voltage supplies the ECU also provides a 12V supply for the sensors. This 12V supply is monitored to ensure it remains within a certain range. This is done by using an analog input of the ECU. The lower and upper thresholds depend on the battery voltage.*

Cause:

1. Faulty alternator output.
2. Faulty wiring.
3. Connectors not mated fully, pins not pushed into connector fully, bent pin or broken wire at rear of connector.
4. Faulty reading from ECU.

Solution:

1. Verify that the fault code is still active, refer to **0000 - Retrieving fault codes, Backhoes**.
   Prior to clearing fault codes write down all fault codes, number of occurrences, and engine hours at last occurrence.

   (1) Use the Electronic Service Tool to clear all fault codes.

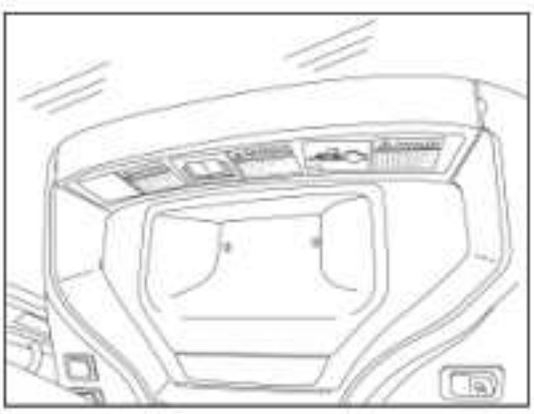
   (2) To check for fault code: Start and operate machine.

   A. NOT OK – Fault code 3284 is recorded again. Go to Step **2**.

   B. OK – Fault is not recorded again. OK for return to service.

2. Measure the ECU unswitched input voltage

   (1) Turn ignition OFF. Disconnect Engine Control Unit (ECU) connector B from engine controller.



RCPH11TLB006AAL 1



RCPH11TLB054GAD 2

   (2) Inspect pins on Engine Control Unit (ECU) connector and on engine controller. Clean connections.

   (3) Turn the ignition ON.

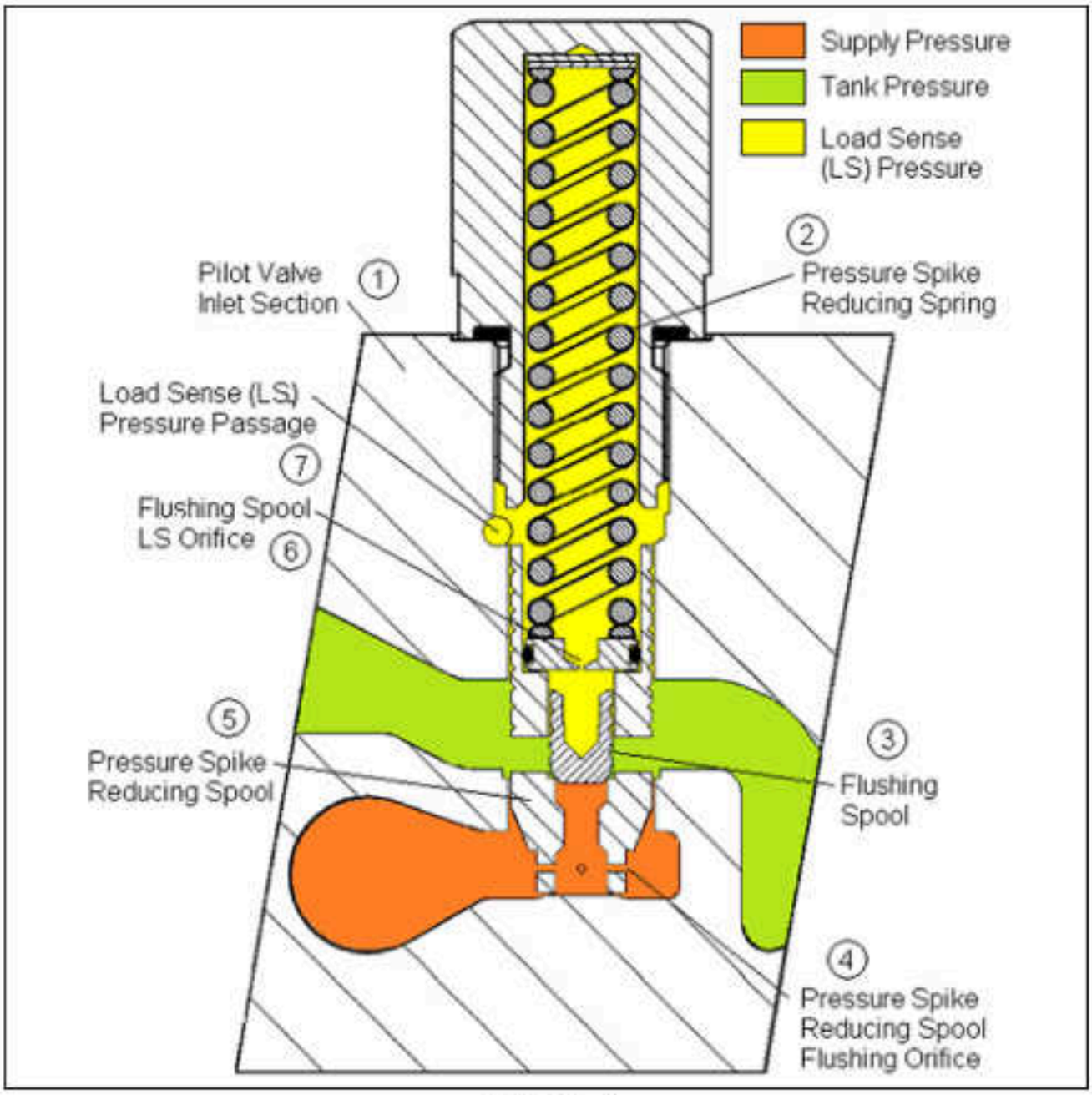
   (4) Measure the voltage from pins 1, 3, 5, and 28 on ECU connector X-461 to ground (ECU connector X-461 pins 2, 4, and 6). The voltage should be between **11.5 V** and . **13 V**.

   A. NOT OK – Voltage is too high. Troubleshoot the charging system. Return to Step **1** to confirm elimination of fault.

   B. NOT OK – Voltage is to low. Verify battery voltage. Check fuses and wiring to ECU. Return to Step **1** to confirm elimination of fault.

   C. OK – Go to Step **3**.

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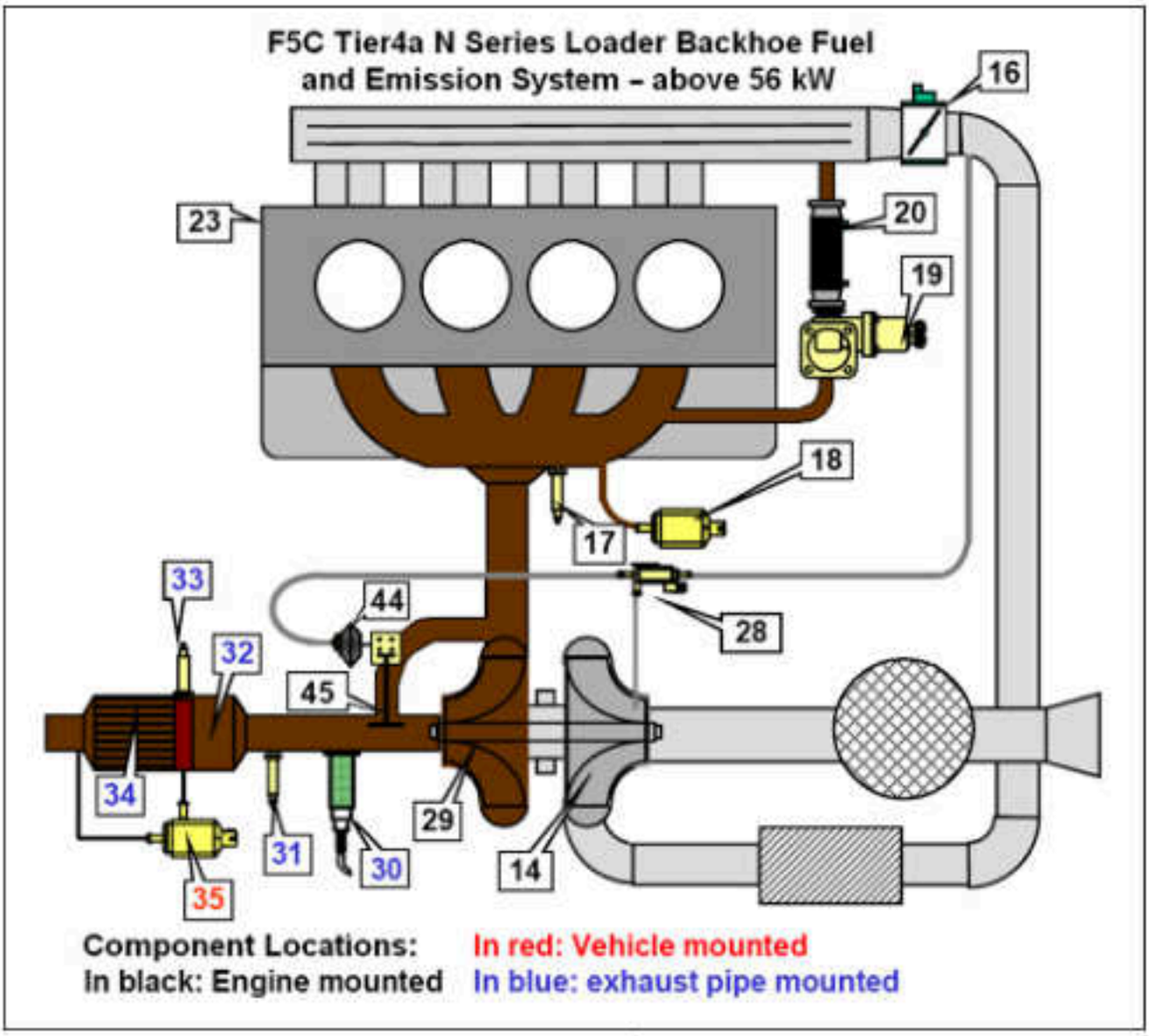


RAPH12TLB0121GA 9

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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RAL12TLB0077FA 3

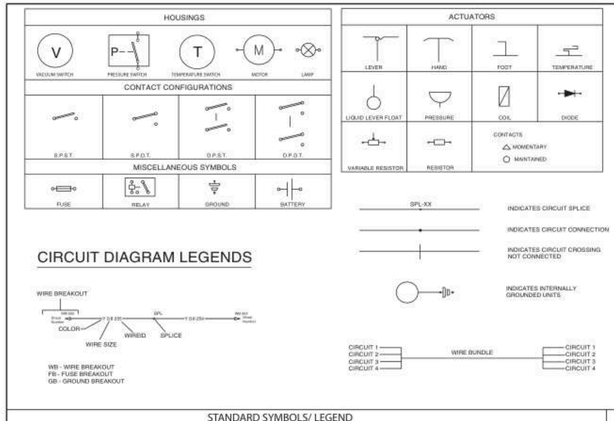
F5C Tier 4a N Series Loader Backhoe Fuel and Emission System – above 56kW

Component Locations:

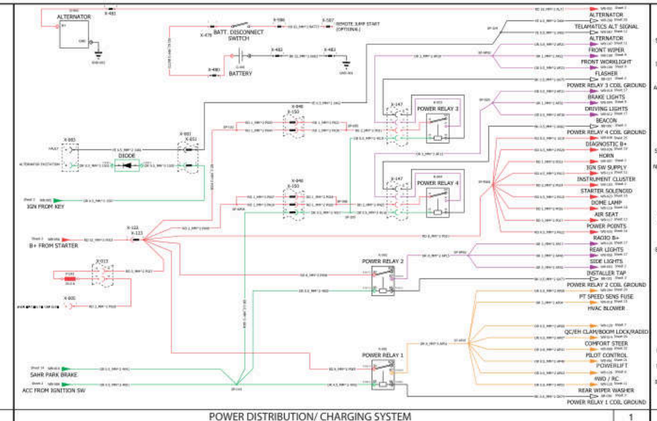
- Black = Engine mounted
- Red = Vehicle mounted
- Blue = Exhaust pipe mounted

F5C Tier 4a Diesel Particulate Filter (DPF) System Components	
14. Turbocharger Compressor	30. Heated Exhaust Gas Oxygen Sensor (HEGO)
16. Intake Throttle Valve (TVA)	31. DOC Inlet Temperature Sensor
17. Exhaust Manifold Temperature Sensor (T3)	32. Diesel Oxidation Catalyst (DOC)
18. Exhaust Manifold Pressure Sensor (P3)	33. DPF Inlet Temperature Sensor
19. EGR Valve with Position Feedback	34. Diesel Particulate Filter (DPF)
20. Exhaust Gas Recirculation (EGR) Cooler	35. DPF Differential Pressure Sensor
23. Engine	44. Turbocharger Waste Gate Diaphragm
28. Waste Gate Turbo Pressure Modulator	45. Turbocharger Waste Gate Valve
29. Fixed Geometry Turbocharger Turbine	

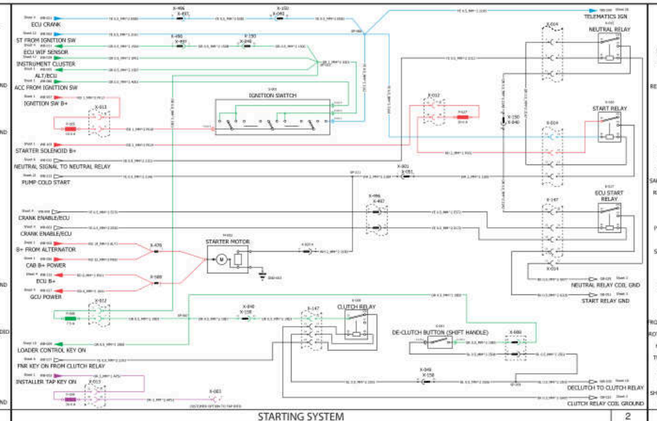
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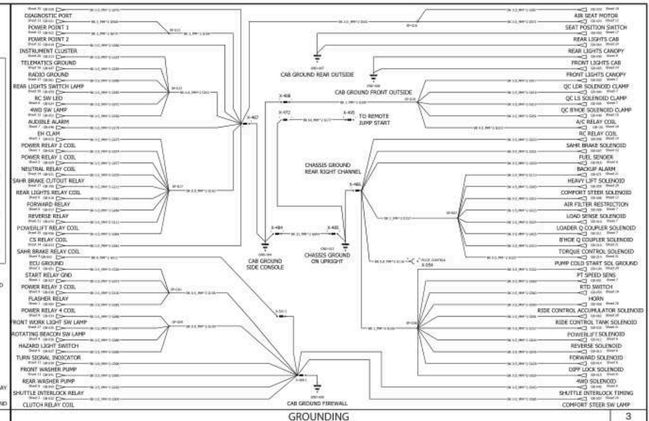
STANDARD SYMBOLS/ LEGEND



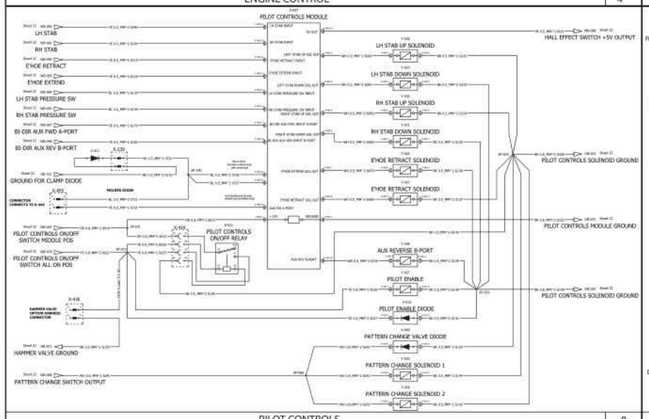
POWER DISTRIBUTION/ CHARGING SYSTEM 1



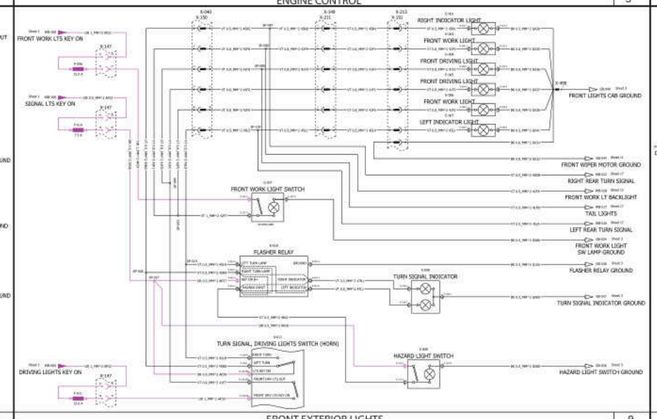
STARTING SYSTEM 2



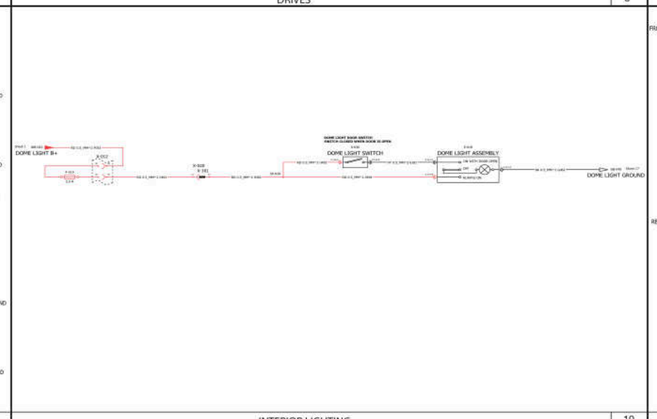
GROUNDING 3



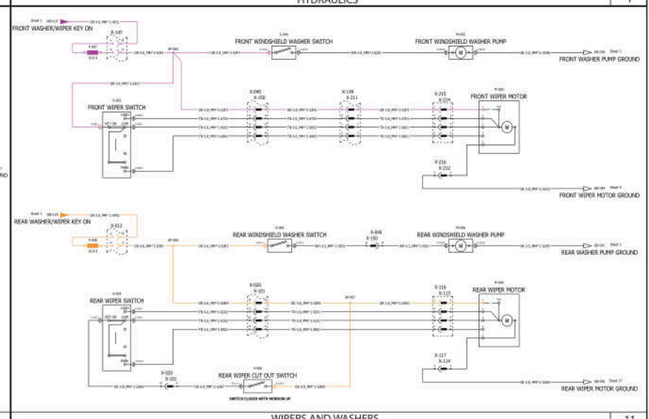
ENGINE CONTROL 4



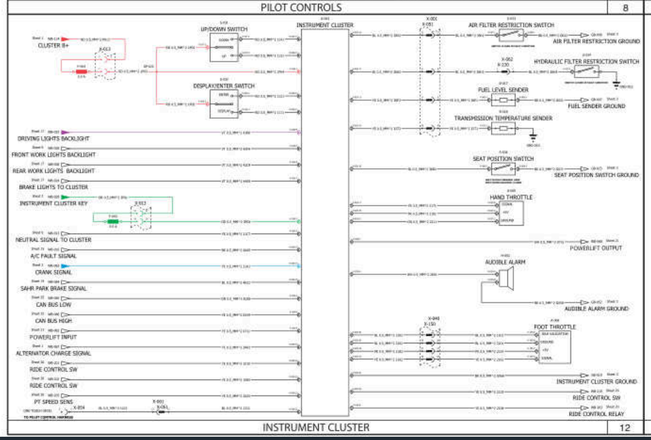
ENGINE CONTROL 5



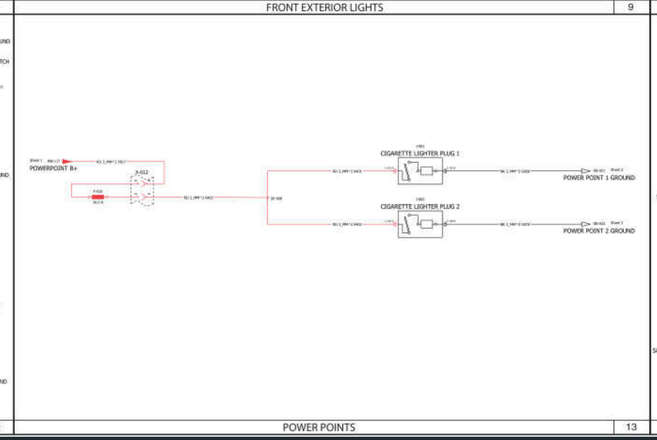
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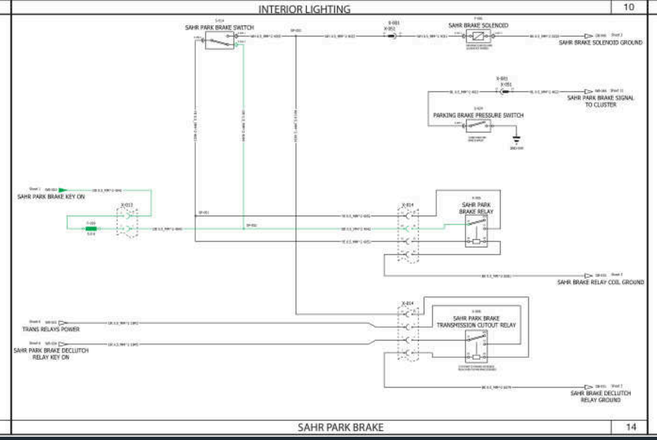
HYDRAULICS 7



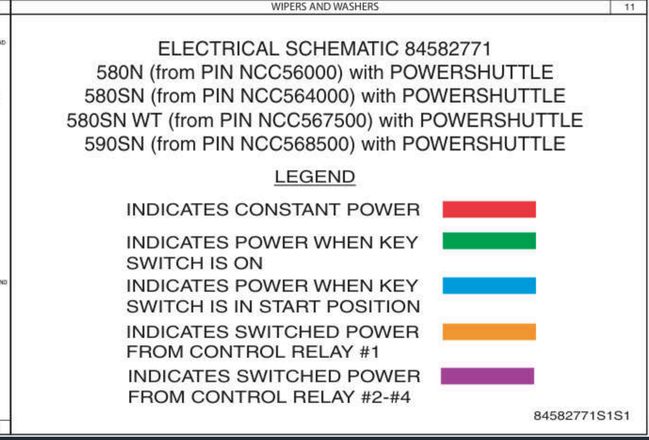
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INSTRUMENT CLUSTER 12

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ELECTRICAL SCHEMATIC 84582771
580N (from PIN NCC56000) with POWERSHUTTLE
580SN (from PIN NCC564000) with POWERSHUTTLE
580SN WT (from PIN NCC567500) with POWERSHUTTLE
590SN (from PIN NCC568500) with POWERSHUTTLE

LEGEND

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INDICATES POWER WHEN KEY SWITCH IS ON

INDICATES POWER WHEN KEY SWITCH IS IN START POSITION

INDICATES SWITCHED POWER FROM CONTROL RELAY #1

INDICATES SWITCHED POWER FROM CONTROL RELAY #2-#4

84582771S1S1

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