SERVICE MANUAL

CR6090 / CR7090 / CR8080 / CR8090 / CR9090
Tier 4a
Combine

PIN YDG118501 and above

Part number 47667943
1st edition English
April 2014

NEW HOLLAND AGRICULTURE

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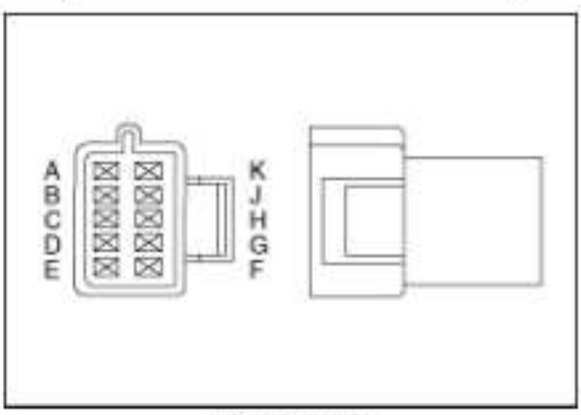
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CONNECTOR X-498 - DISPLAY HARNESS

CONNECTOR X-498 - DISPLAY HARNESS			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
A	CN-1203 (OR)	CCM3 power relay **K-26** switched power from RH console fuse **F-48** to ceres module **A-24**	**Wire harnesses - Electrical schematic sheet 38 — GPS, Service Sockets (55.100)**
B	CN-1206 (BK)	Cab ground for ceres module **A-24** and DGPS module **A-11**	
C	CN-1229 (YE)	CAN 1 high signal from ceres module **A-24** and DGPS module **A-11** to display module **A-02**,ECU diagnostic outlet **J-10**, and CAN 2 termination **R-26**	**Wire harnesses - Electrical schematic sheet 34 — CAN Network (55.100)**
D	CN-1228 (GN)	CAN 1 low signal from ceres module **A-24** and DGPS module **A-11** to display module **A-02**,ECU diagnostic outlet **J-10**, and CAN 2 termination **R-26**	
E	CN-1212 (BL)	Transmit signal from ceres module **A-24** to display module **A-02**	**Wire harnesses - Electrical schematic sheet 38 — GPS, Service Sockets (55.100)**
F	CN-1211 (RD)	Receive signal from ceres module **A-24** to display module **A-02**	
G	-	-	
H	-	-	
J	CN-1217 (YE)	CAN 1 high signal from ceres module **A-24** and DGPS module **A-11** to display module **A-02**,ECU diagnostic outlet **J-10**, and CAN 1termination **R-17**	**Wire harnesses - Electrical schematic sheet 34 — CAN Network (55.100)**
K	CN-1218 (GN)	CAN 1 low signal from ceres module **A-24** and DGPS module **A-11** to display module **A-02**,ECU diagnostic outlet **J-10**, and CAN 1termination **R-17**	



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E0197-11-Rotor Screen Brush/Dust-off Select Relay - Unidentified failure Code

Control Module : CCM2

Context:
At key ON, the Combine Control Module 1 (**CCM2**) has relay drivers contained within that will energize some of the control relays in the fuse panel. The electronic circuitry within **CCM2** monitors the current flow or lack of current flow and disable the output in the event of an over-current demand.

Cause:
CCM2 is sensing an open or short to high in the brush/dust off select relay circuit.

Possible failure modes:

1. Faulty relay.
2. Faulty signal circuit wiring.
3. Faulty control module.

Solution:

1. Verify that the fault is present and active. Use the Display Monitor diagnostic capability to view Parameter status, reference **Instrument cluster - Detailed view (55.408)** if needed, to check for fault code.

   A. If the fault is still present and active, continue to Step**2**.

   B. If the fault is not present and active, the fault may be intermittent and not currently active. Continue to Step **6**.

   NOTE: *The key switch should be in the ON position.*
2. Verify that the solenoid in the relay functions properly. Disconnect the Cab Main (CM) harness from the relay at connector **X-655**. Use a multimeter to check the resistance AND for continuity at pins C1 and C2.

   A. If the resistance value is nominal, leave connector **X-655** disconnected and continue to Step **3**.

   B. If the resistance value is **0 Ω** or infinite, the solenoid has failed internally. Replace the solenoid.

   C. If there is continuity, the solenoid has failed internally. Replace the solenoid.
3. Check the control circuit. Use a multimeter to check for voltage from the CM harness side of connector **X-655 pin C1** and the chassis ground.

   A. If the voltage reading is high, continue to Step **4**.

   B. If there is no voltage,**5**.

   C. If there is voltage, the fault may be intermittent and not currently active. **6**.
4. Check for a short to high condition. Carefully disconnect the CM harness from the module at connector **X-015**. Use a multimeter to check for voltage at connector **X-015 pin J1-12** and the chassis ground.

   A. If the voltage reading is high, the module has failed internally. Replace the module.

   B. If there is voltage, there is a short to high condition in the CM harness between connector **X-655 pin C1** and connector **X-015 pin J1-06**, wire CM-1124 white. Locate and repair the shorted conductors.
5. Check for an open condition. Carefully disconnect the CM harness from the module at connector **X-015**. Use a multimeter to check for voltage at connector **X-015 pin J1-06** and the chassis ground.

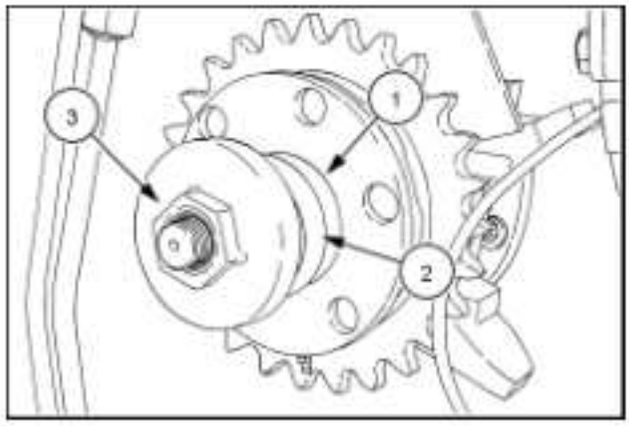
   A. If there is no voltage, the module has failed internally. Replace the module.

   B. If there is voltage, there is an open condition in the CM harness between connector **X-655 pin C1** and connector **X-015 pin J1-06**, wire CM-1124 white. Locate and repair the open conductors.

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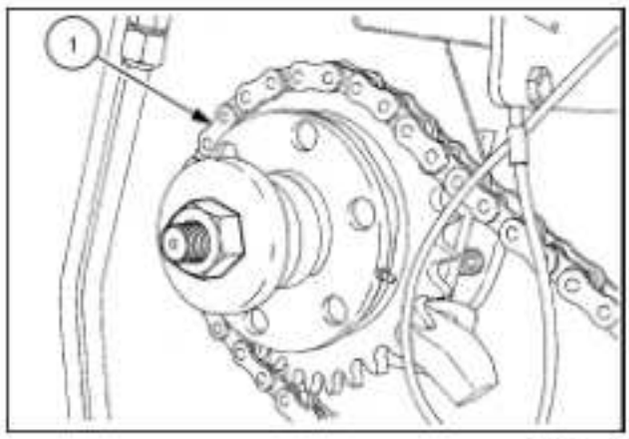
6. Set the washer **(1)**, shims (not shown) and the spring **(2)** into place. Install nut **(3)** until the nut bottoms out against the shoulder of the pivot shaft. Torque to **320 - 380 N·m** (**236 - 280 lb ft**).

NOTICE: *The nut has left-hand threads.*



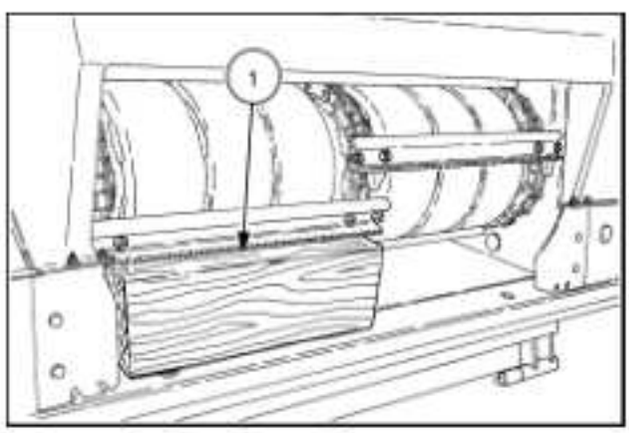
4

7. Route the rear chain **(1)** around the sprocket. Connect the ends of the chain together using the master link previously removed.
8. Adjust the tensioner sprocket to obtain **9.7 - 15.7 mm** (**3/8 - 5/8 in**) of sag at the center of the longest length of chain.
9. Install the front chain in the same manner.



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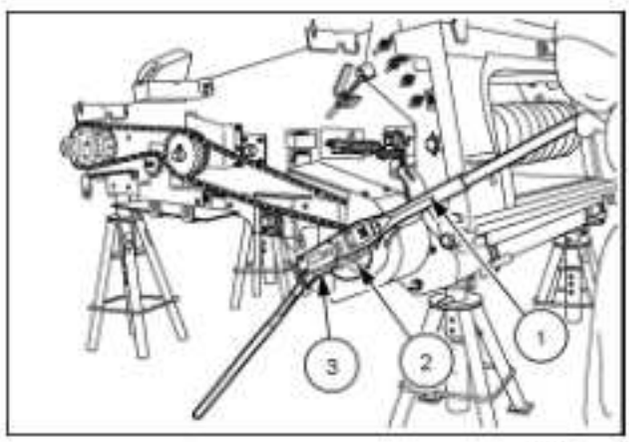
10. Insert a 4 x 6 wood block **(1)** into the lower area of the feeder opening. Rotate the drum to lodge the wood in place.
11. Loosen the secondary drive belt tensioner, allowing the jackshaft sheave to rotate freely.



6

12. Use a **19 mm** (**0.75 in**) torque wrench **(1)** with a maximum rating of **1356 N·m** (**1000 lb ft**) to measure the torque required to slip the slip clutch. Using a **33 mm** (**1.312 in**) socket, connect the torque wrench to the feeder jackshaft **(2)**. Pull the torque wrench until the clutch slips and note the torque.

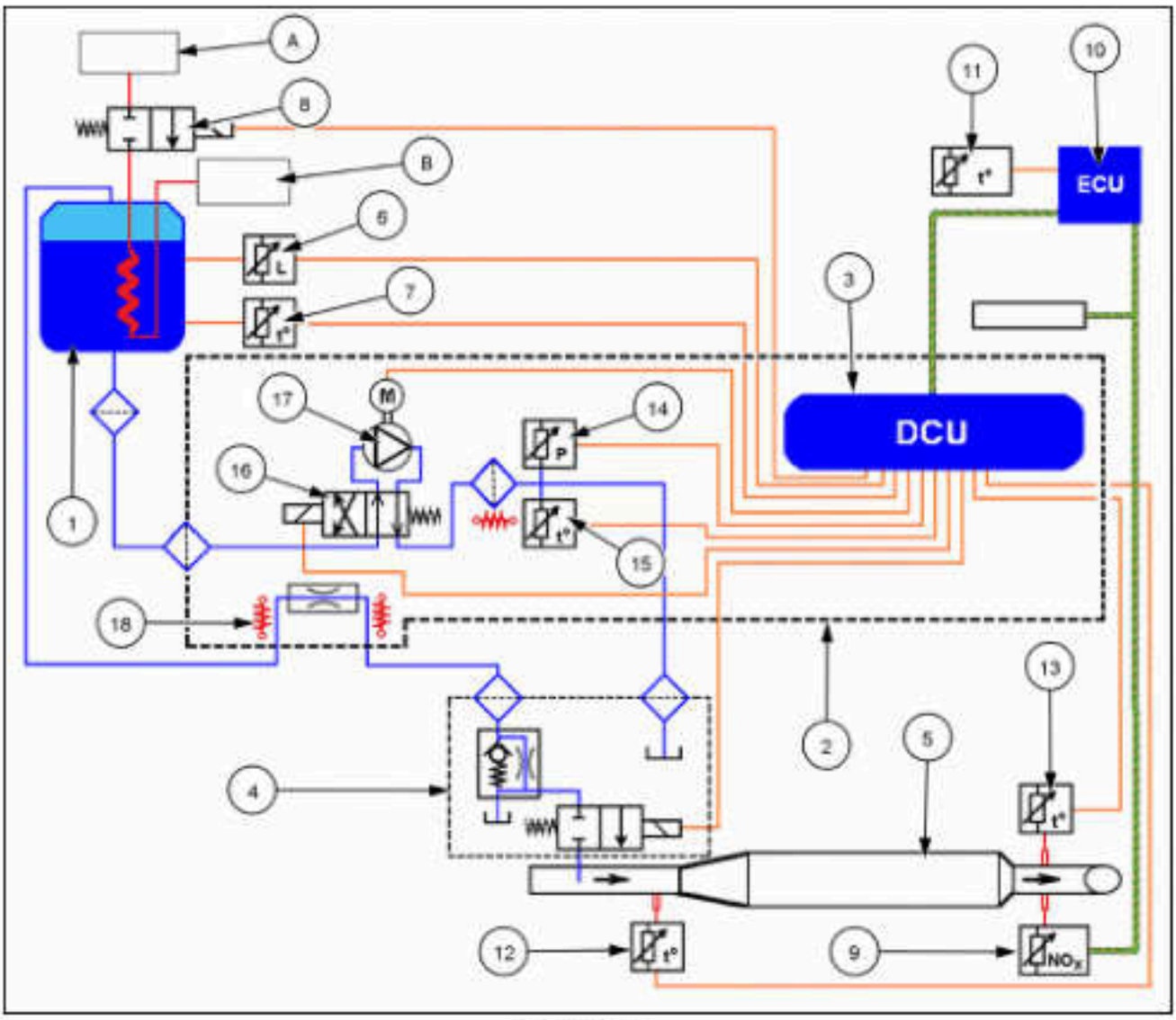
NOTE: *If a torque wrench with a maximum rating of* ***1356 N·m*** *(****1000 lb ft****) is not available, a wrench with a lower rating can be used, but a torque multiplier* ***(3)*** *of sufficient range must be used to bring the torque up to the required rating. Example: An* ***813 N·m*** *(****600 lb ft****) wrench can be used with a 4-to-1 torque multiplier.*



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Selective Catalytic Reduction (SCR) exhaust treatment - Overview of SCR components



Selective Catalytic Reduction (SCR) Component Layout

(A) From engine cooling system
(B) Return to engine cooling system
(1) Diesel Exhaust Fluid (DEF) Tank
(2) DEF Supply Module
(3) Dosing Control Unit (DCU)
(4) Dosing Module
(5) Catalyst
(6) Tank Level Sensor
(7) Tank Temperature Sensor
(8) DEF Heater Control Valve
(9) NOx Sensor
(11) Air Intake Temperature/Humidity Sensor
(12) Exhaust Temperature Upstream
(13) Exhaust Temperature Downstream
(14) DEF Pressure Sensor
(15) DEF Temperature Sensor
(16) Reverting Valve
(17) Diaphragm Pump
(18) DEF Electric Heater

The main SCR components are a DEF storage tank **(1)** , a DEF Supply Module **(2)** with Dosing Control Unit (DCU) **(3)**, a Dosing Module **(4)** and a Catalyst **(5)**. The storage tank has a DEF level sensor **(6)**, DEF tank temperature sensor **(7)** and an engine coolant heating loop connected to the DEF Heater Control valve **(8)**. The catalyst has two exhaust temperature sensors **(12)**, **(13)** and a NOx sensor **(9)** which is a CAN based device wired into the ECU directly. The ECU also has an Intake Air/Humidity sensor **(11)** in addition to the normal intake boost pressure/temperature sensor.

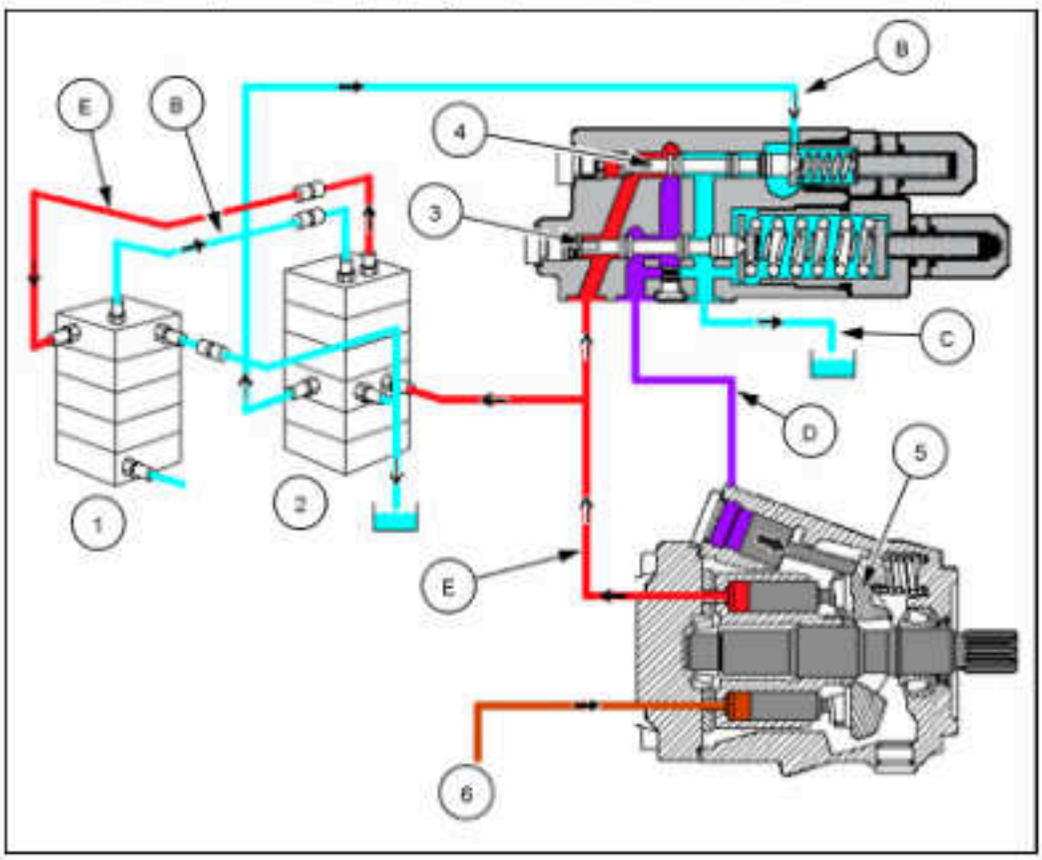
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Low Pressure Standby

Low pressure standby is the system pressure - **21 - 24 bar** (**305 - 348 psi**) - maintained by the hydraulic pump when high pressure hydraulic circuits are not being operated. During engine startup, standby pressure has not been generated and both the pressure and flow compensating valves **(3) (4)** are held to the left by spring pressure. While the spools are held to the left, oil pressure generated by the pump in gallery **(E)** cannot be applied to the swash plate servo piston via gallery **(D)**. The swash plate **(5)** consequently remains in the maximum flow position until the pump has developed sufficient flow to produce pressure at low pressure standby.

As pump output pressure increases to **21 - 24 bar** (**305 - 348 psi**), this pressure is sensed in gallery **(E)** and applied to the flow compensating spool **(4)**. The spool gradually moves against the spring, allowing oil flow from gallery **(E)** to gallery **(D)**. The controlled pressure rise in gallery **(D)** operates the swash plate servo piston, changing the angle of the swash plate in relation to the pumping head. The change in angle reduces the operating stroke of the pistons and output of the pump.

As pump output decreases and the pressure in gallery **(D)** decreases to less than **24 bar** (**348 psi**), the flow compensating valve gradually moves under spring pressure to the left, bleeding gallery **(D)** to sump through gallery **(C)**. This reduces the control pressure applied to the servo piston, allowing the servo piston to retract at a controlled rate under pressure from the swash plate return spring and re-adjust the angle of the swash plate to increase pump output. This control process continues, maintaining pump output pressure at **21 - 24 bar** (**305 - 348 psi**) (low pressure standby) until a high pressure circuit is operated and pump system pressure needs to be increased to operate the service.



Standby Pressure @ **21 - 24 bar** (**305 - 348 psi**)

Control Pressure

Return to Reservoir

Charge Pressure

1. Feeder stack valve (in neutral)
2. Main frame stack valve (in neutral)
3. Pressure Compensating Valve
4. Flow Compensating Valve
5. Swash Plate
6. Return from Hydrostatic Motors

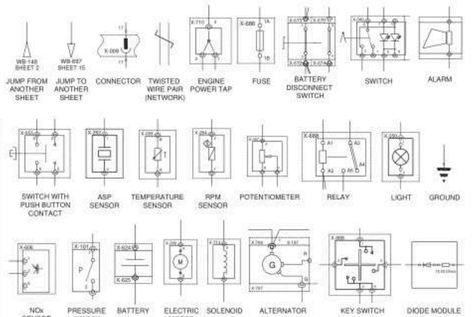
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GROUND LOCATIONS

- Frame GND
- Engine GND
- Cab GND
- Front GND
- Rotor/Walker Section GND
- T4 Engine GND
- Grid Heater GND

WIRING REFERENCES

Color	Color Code	Function
Black	BK	Ground, Chassis
Blue	BL	Printed Circuit Ground
White	WH	Increasing Actuation
Gray	GY	Decreasing Actuation
Orange	OR	Power After Ignition
Yellow	YE	Signal Wires
Red	RD	Battery Voltage
Violet	VT	Lighting
Pink	PK	Reference Voltage

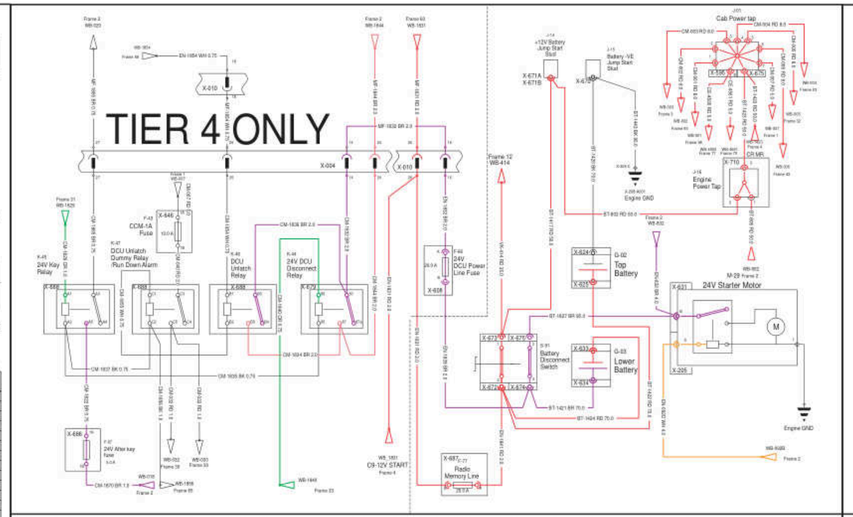
COMPONENT LEGEND

Label Prefix	Component Type
A	Electronics
B	Sensors
D	Diodes
E	Lights
F	Fuses
G	Generators
H	Audio
J	Outlets
K	Relays
M	Motors
Q	Circuit Breakers
R	Resistive
S	Switches
W	Splice Blocks
Y	Solenoids

LEGEND

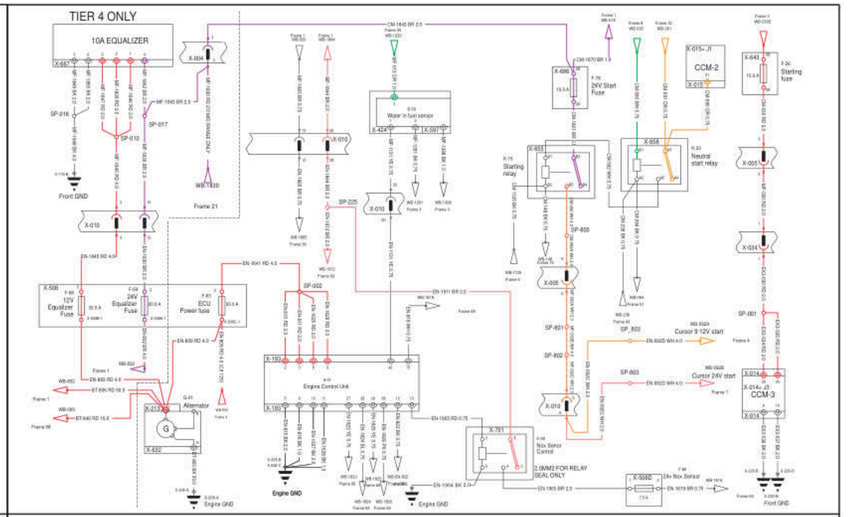
UNSWITCHED POWER
SWITCHED POWER
STARTING SEQUENCE
24 VOLT SYSTEM
24 VOLT SWITCHED POWER

MF - 431 - YE
- WIRE COLOR
- CIRCUIT NUMBER
- HARNESS CODE



G-02 Top Battery (X-624, X-625) J-01 Cab Power Tap (X-595, X-675) J-15 Battery -VE Jump Start Stud (X-670) K-46 DCU Unlatch Relay (X-688) S-91 Battery Disconnect Switch (X-672, X-673, X-674, X-675)
G-03 Lower Battery (X-633, X-634) J-02 Engine Power Tap (X-710) K-44 24V DCU Disconnect Relay (X-679) K-47 DCU Unlatch Dummy Relay (X-688)
GND-002 Engine GND J-14 +12V Battery Jump Start Stud (X-6771A, X-671B) K-45 24V Key Relay (X-688) M-29 24V Starter Motor (X-205, X-631, X-648)

SHEET 1 - STARTING



A-01 Engine Control Unit (X-193) G-04 10A Equalizer (X-667) K-48 NOX Sensor Control (X-701)
B-59 Water in Fuel Sensor (X-424, X-597) K-15 Starting Relay (X-655)
G-01 Alternator (X-213, X-632) K-23 Neutral Start Relay (X-658)

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K-07 Fuel Pump Relay (X-652) R-30 Auxil. Fuel Tank Level Sensor (X-534) S-76 Fuel Clogging Sensor (X-526)
R-01 Fuel Tank Level Sensor (X-184) S-36 Engine Throttle Switch (X-060)
M-23 Fuel Pump (X-183) S-61 Air Filter Switch (X-200)

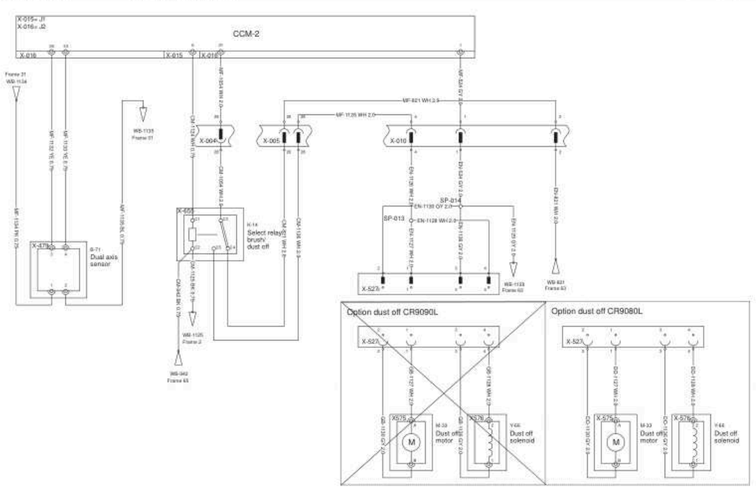
SHEET 3 - STARTING

G-02 Alternator (X-197, X-706, X-707) J-01 Cab Power Tap (X-595, X-675) M-45 12V Starter Motor (X-205, X-705)
G-05 12V Battery (X-703, X-704) J-16 – Battery Jump Start Stud (12V) (X-701) S-20 Battery Disconnect Switch (X-708, X-709)
GND-001 Engine Ground J-17 + Battery Jump Start Stud (12V) (X-702) V-001 Diode (X-196)

SHEET 4 - STARTING

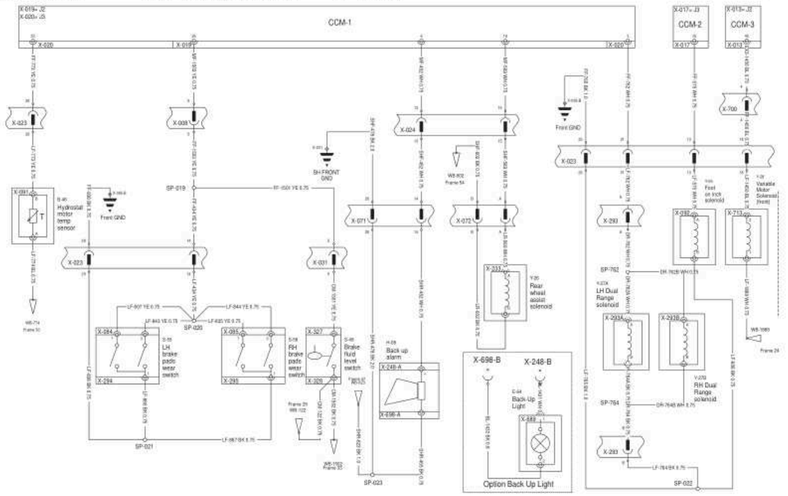
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B-05 Engine Flywheel RPM Sensor (X-519) B-36 Fuel Temperature Sensor (X-372) B-75 Oil Temp/Press Sensor (X-517) Y-36 Fuel Actuator 3 (cyl 2) (X-378) Y-39 Fuel Actuator 6 (cyl 5) (X-381)
B-07 Engine Camshaft RPM Sensor (X-518) B-41 Air Temp/Boost Press Sensor (X-210) Y-34 Fuel Actuator 1 (cyl 1) (X-376) Y-37 Fuel Actuator 4 (cyl 6) (X-379)

SHEET 5 - ENGINE



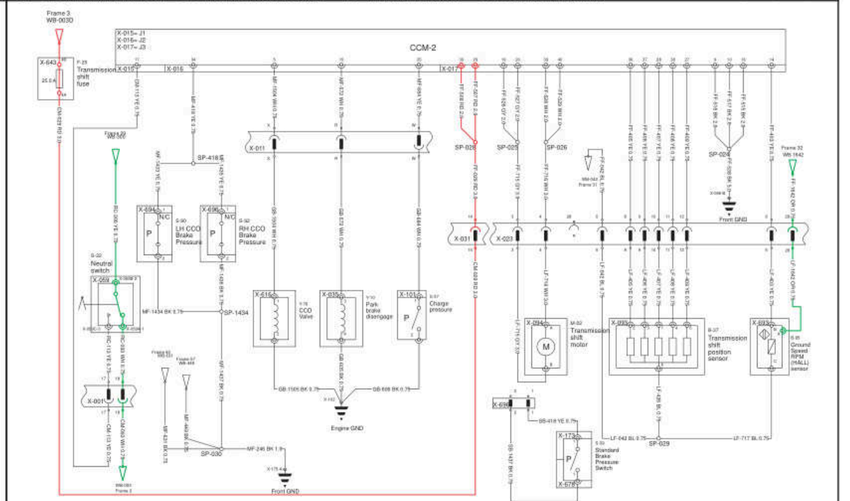
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K-14 Select Relay Brush/Dust Off (X-655)
M-33 Dust Off Motor (X-575)

SHEET 6 - ENGINE



B-46 Hydrostat Motor Temp Sensor (X-091) S-49 Brake Fluid Level Switch (X-327, X-328) Y-05 Foot on Inch Solenoid (X-092) Y-28 Variable Motor Solenoid (front) (X-713)
E-64 Back-Up Light (X-689) S-55 LH Brake Pads Wear Switch (X-084, X-294) Y-26 Rear Wheel Assist Solenoid (X-233)
H-08 Back-up Alarm (X-248-A, X-696-A) S-56 RH Brake Pads Wear Switch (X-085, X-295) Y-27 Dual Range Solenoid (X-293)

SHEET 7 - DRIVES



B-37 Transmission Shift Position Sensor (X-093) S-22 Neutral Switch (X-059, X-059A-1, X-059B-2, X-059C-3) S-92 RH COR Brake Pressure (X-696)
B-95 Ground Speed RPM (HALL) Sensor (X-693) S-37 Charge Pressure (X-101) Y-10 Park Brake Disengage (X-035)
M-02 Transmission Shift Motor (X-094) S-90 LH COR Brake Pressure (X-694) Y-76 COR Valve (X-616)

SHEET 8 - DRIVES

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