SERVICE MANUAL

Speedrower® 200
Speedrower® 240
Tier 3

Self-Propelled Windrower

PIN YGG677501 and above

Part number 48143361
1st edition English
April 2017

MidWestTech | New Holland Speedrower 200, 240 Tier 3 Self Propelled Windrower Service Manual | Publication 48143361

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Type	Component	Connector / Link	Description
ECU	**A-001**	**X-003 X-007**	MODULE, UCM
Connector	X-001	**X-001**	A-001 MODULE, UCM, CN1 A
Connector	X-002	**X-002**	A-001 MODULE, UCM, CN1 B
Connector	X-003	**X-003**	A-001 MODULE, UCM, CN2 A
Connector	X-005	**X-005**	A-001 MODULE, UCM, CN3 A
Connector	X-006	**X-006**	A-001 MODULE, UCM, CN3 B
Connector	X-007	**X-007**	A-001 MODULE, UCM, CN4 A
Connector	X-044	**X-044**	FM TO CM PASS THRU
Connector	X-192	**X-192**	FM TO HEADER PASS THRU
Connector	X-433	**X-433**	GND-003 - HYD MANIFOLD

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Component A	Component B	Distance to component B	Component A instructions
Hydraulic reservoir level switch	RS-FM pass thru **X-627**	**995 mm (39 in)**	**Hydraulic fluid level sensor - Remove (55.036)**
Right rear frame ground GND-008	RS-FM pass thru **X-627**	**1890 mm (74 in)**	Remove ground terminal
Right stubble lamp	Right rear frame ground GND-008	**2165 mm (85 in)**	**Work light - Remove - Stubble lights (55.404)**
Right rear work lamp	Right stubble lamp	**1045 mm (41 in)**	**Service lights - Remove (55.404)**
FM-TL pass thru **X-149**	Right rear work lamp	**1095 mm (43 in)**	See instruction **7**
Fuel level sensor	Hydraulic reservoir level switch	**1390 mm (55 in)**	Remove sensor terminals
Left rear cab ground GND-006	Fuel level sensor	**670 mm (26 in)**	Remove ground terminal
FM-CM pass thru **X-044**	Left rear cab ground GND-006	**595 mm (23 in)**	See instruction **6**
Windshield washer pump	FM-CM pass thru **X-044**	**1270 mm (50 in)**	**Windshield washer fluid pump - Remove (55.518)**
FM-AG pass thru **X-042**	Windshield washer pump	**1130 mm (44 in)**	See instruction **7**
Intake air pressurization motor	FM-AG pass thru **X-042**	**505 mm (20 in)**	See instruction **8**
FM-AC pass thru **X-033**	Intake air pressurization motor	**400 mm (16 in)**	See instruction **3**
FM-ET pass thru **X-132**	FM-AC pass thru **X-033**	**1195 mm (47 in)**	See instruction **9**
Left flashing lamp	FM-ET pass thru **X-132**	**1835 mm (72 in)**	**Turn signal and/or hazard lights - Remove (55.404)**
Header tilt indicator sensor	Left flashing lamp	**2405 mm (95 in)**	See instruction **10**
Header tilt apron switch	Header tilt indicator sensor	**1975 mm (78 in)**	**Header height control - Remove - External header tilt switch (55.662)**
Left ground speed sensor	Left flashing lamp	**1065 mm (42 in)**	**Ground speed sensor - Remove (55.610)**
Left lift arm position sensor	Left ground speed sensor	**1065 mm (42 in)**	**Header positioning sensor - Remove (55.670)**
Propulsion FWD solenoid	FM-ET pass thru **X-132**	**275 mm (11 in)**	**Hydrostatic control solenoids - Remove (55.019)**
Propulsion REV solenoid	Propulsion FWD solenoid	**60 mm (2 in)**	
Fuel door light switch	Propulsion REV solenoid	**960 mm (38 in)**	Remove terminals
Left service light jack	Fuel door light switch	**150 mm (6 in)**	See instruction **8**
Horn	Left service light jack	**345 mm (14 in)**	**Horn control switch - Remove (55.512)**
Left rear frame ground GND-001	Propulsion REV solenoid	**795 mm (31 in)**	Remove ground terminal
Left stubble lamp	Left rear frame ground GND-001	**2175 mm (86 in)**	**Work light - Remove - Stubble lights (55.404)**
Left rear work lamp	Left stubble lamp	**970 mm (38 in)**	**Service lights - Remove (55.404)**
Starter motor	Left rear frame ground GND-001	**835 mm (33 in)**	**Engine starter - Remove (55.201)**
Left swash plate angle sensor	Starter motor	**965 mm (38 in)**	**Hydrostatic drive control sensors - Remove (55.019)**
Right swash plate angle sensor	Left swash plate angle sensor	**510 mm (20 in)**	
Hydraulic charge pressure switch	Starter motor	**1180 mm (46 in)**	See instruction **11**

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Remove Crankshaft Speed sensor connector **X-387** and connect the above mentioned special test lead to the Crankshaft Speed sensor. Start the engine and measure the (AC) voltage using a multi-meter across the breakout alligator clips from the test leads. Use the test table below to determine the measurement results.

In-Line Test Lead Connection Test:
Remove Crankshaft Speed sensor connector **X-387** and connect the above mentioned special test lead in-line with the sensor and the engine wiring harness. Make sure that the signal polarity is not swapped during the connection process. Start the engine and measure the (AC) voltage using a multi-meter across the breakout alligator clips from the test leads. Use the test table below to determine the measurement results.

Note:
The engine will be running off the Segment (Camshaft) Speed sensor during the single ended test, if it isn't already (based on the fault code type). The engine can also be very hard to start when running exclusively off the Segment (Camshaft) Speed sensor. The Engine Control Module needs to see a few revolutions of the camshaft to be able to use this information to start the engine.

Test Type	From	To	Expected Results
1. Voltage (AC) - Single ended connection at low RPM (**1000 – 1100 RPM**)	Crankshaft Speed sensor connector **X-387 pin B**	Crankshaft Speed sensor connector **X-387 pin A**	Approx. **16 – 18 volts** (AC)
2. Voltage (AC) - Single ended connection at high RPM (**2000 – 2200 RPM**)	Crankshaft Speed sensor connector **X-387 pin B**	Crankshaft Speed sensor connector **X-387 pin A**	Approx. **32 – 34 volts** (AC)
3. Voltage (AC) - In-line connection at low RPM (**1000 – 1100 RPM**)	Crankshaft Speed sensor connector **X-387 pin B**	Crankshaft Speed sensor connector **X-387 pin A**	Approx. **10 – 12 volts** (AC)
4. Voltage (AC) - In-line connection at high RPM (**2000 – 2200 RPM**)	Crankshaft Speed sensor connector **X-387 pin B**	Crankshaft Speed sensor connector **X-387 pin A**	Approx. **14 – 17 volts** (AC)

A. If the voltage test was successful, proceed to step **5**.

B. If the voltage test was not successful for any of the single ended connections, replace the sensor.

C. If the voltages encountered during testing are low and the sensor was replaced on a prior diagnostic procedure of this type, proceed to check sensor mechanical alignment and tooth spacing referenced in the Iveco Engine Mechanical Troubleshooting and Repair Manual.

D. If the voltage test was successful for the single ended connections and not for any of the in-line connections, proceed to step **4**.

4. Operation: Check for Faulty Wiring.
Vehicle status: Key Off Engine Off.

Remove and perform continuity tests between Crankshaft Speed sensor connector **X-387** and Engine Control Module connector **X-035** on engine wiring harness. Flex harness during test to check for any intermittent operation. Use the test lead labeled "Coolant/Fuel Temp Sensor" from the Tier II (NEF) Diagnostic Repair Kit **380040185** to be able to access the pins on the sensor connector. Also, use the **0.4 mm** (**0.017 in**) diameter test probes from the repair kit when connecting the digital multi-meter (DMM) to the Engine Control Module connector **X-035**. Make sure the DMM's test lead resistance is taken into account when taking continuity measurements. See test table below.

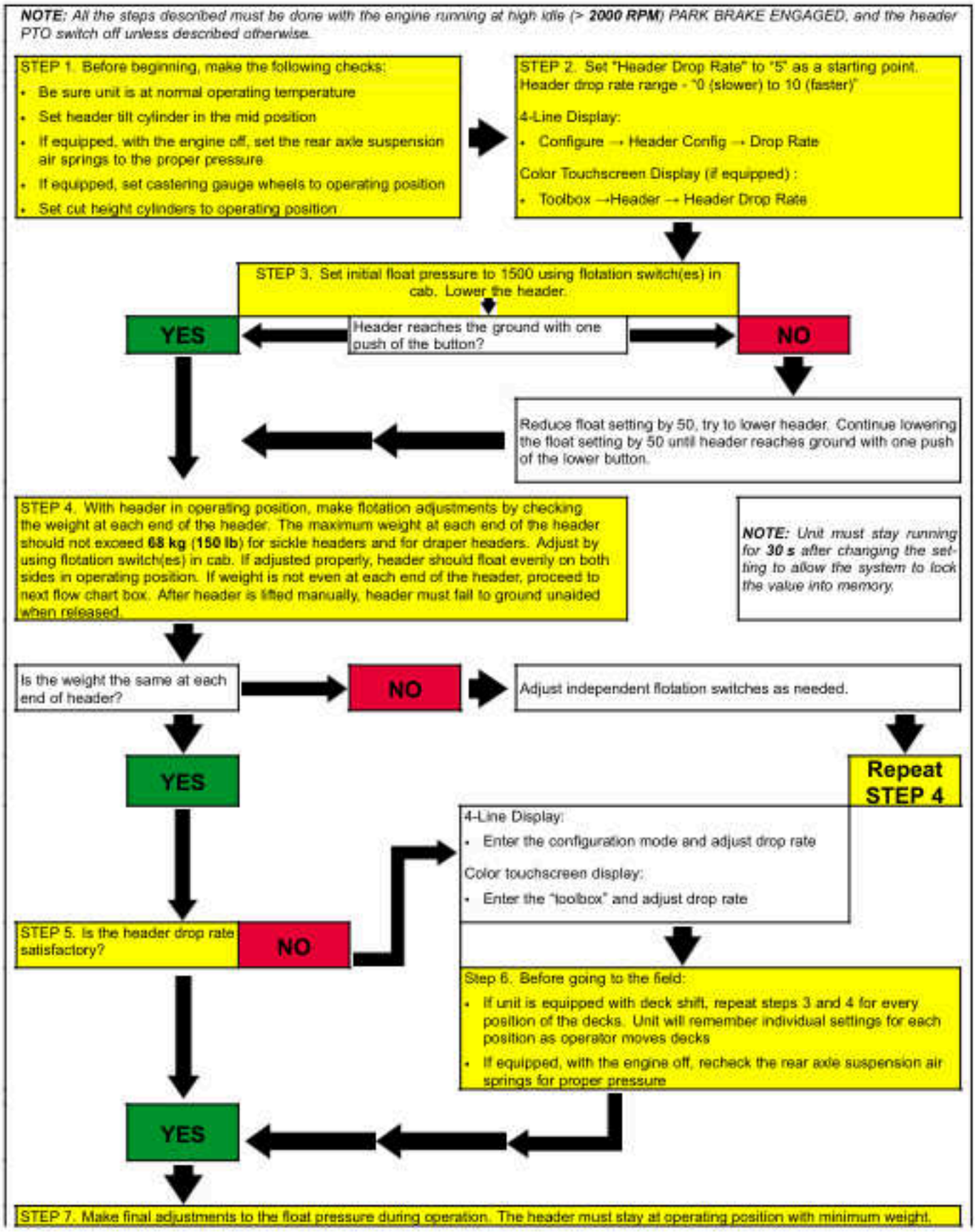
Important Note: Check and verify that the Vehicle Status is correct. Potential Engine Control Module damage could result when removing main Engine Control Module connectors if this is not followed.

Test Type	From	To	Expected Results
1. Continuity	Crankshaft Speed sensor connector **X-387 pin A**	Engine Control Module connector **X-035 pin 23**	Approx. **0 – 0.10 ohms**
2. Continuity	Crankshaft Speed sensor connector **X-387 pin A**	Engine Control Module connector **X-035 pin 19**	Approx. **0 – 0.10 ohms**

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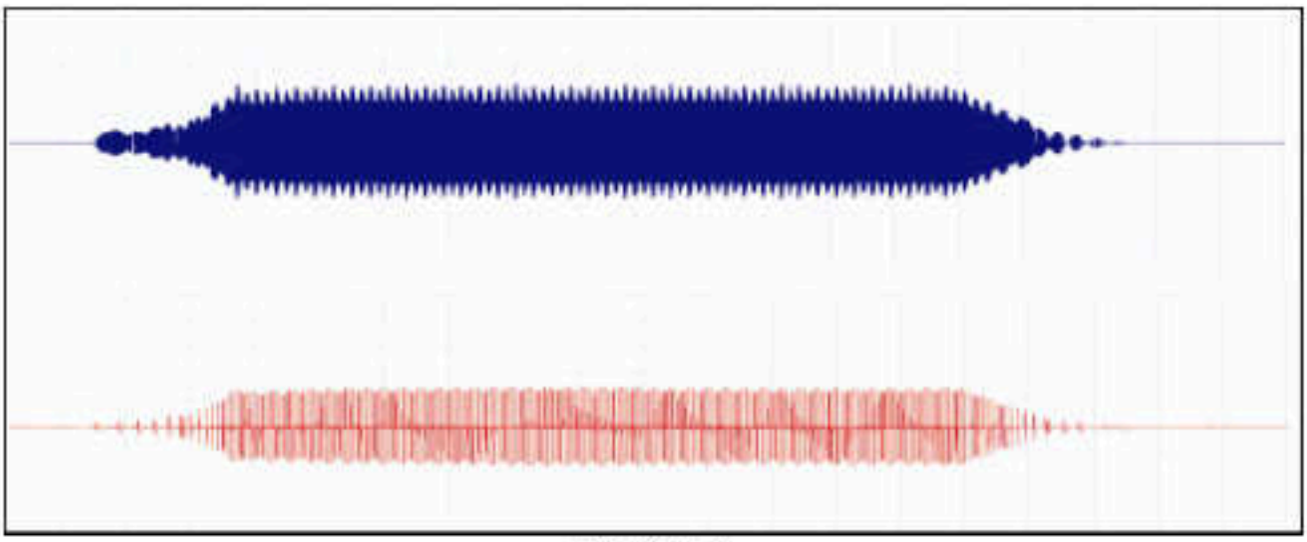
Hydraulic systems - Overview - Setting header flotation - Draper header only

Speedrower® 200	NA Draper ready - Factory-fitted to accept draper
Speedrower® 240	NA Draper ready - Factory-fitted to accept draper



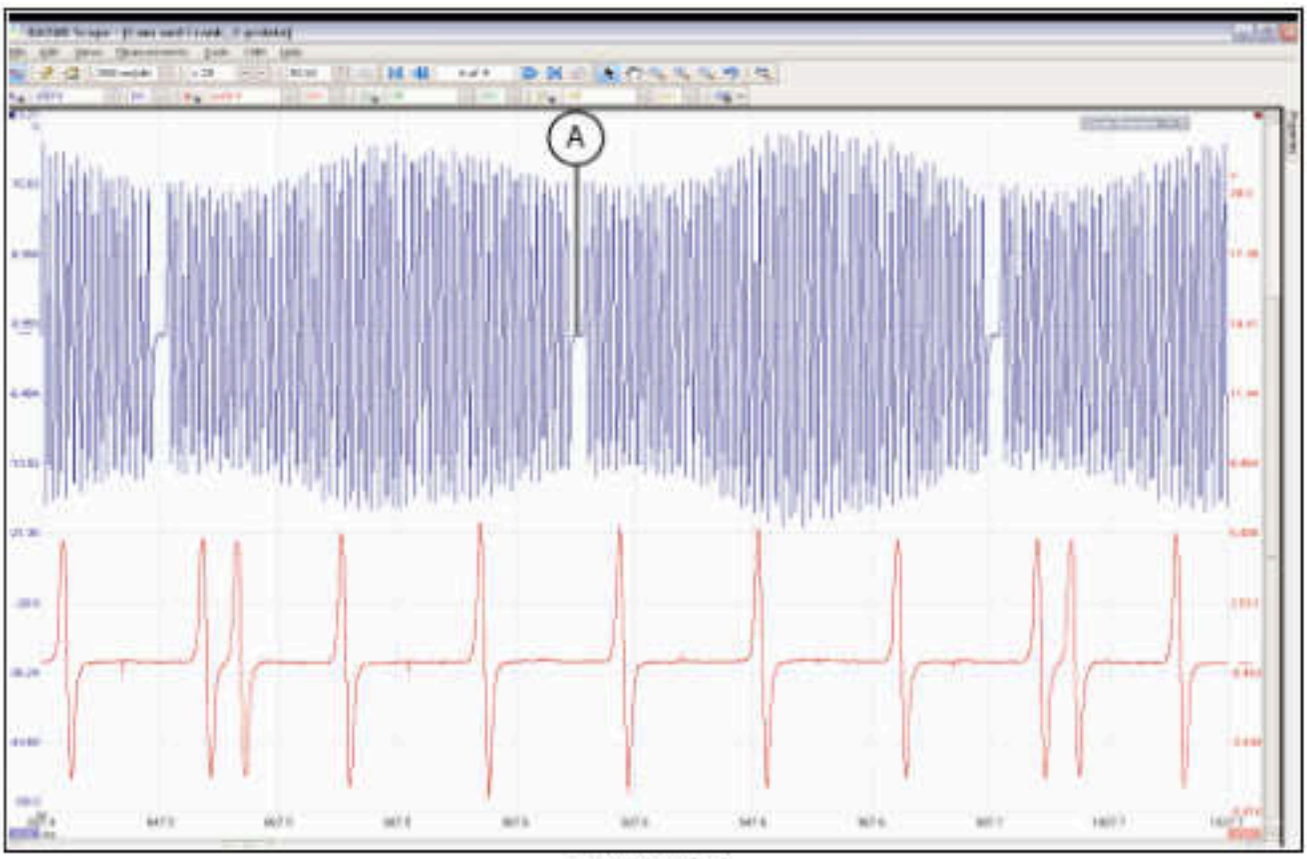
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Figure **5**
(A) = Ignition start up **(B)** = Engine begins to turn



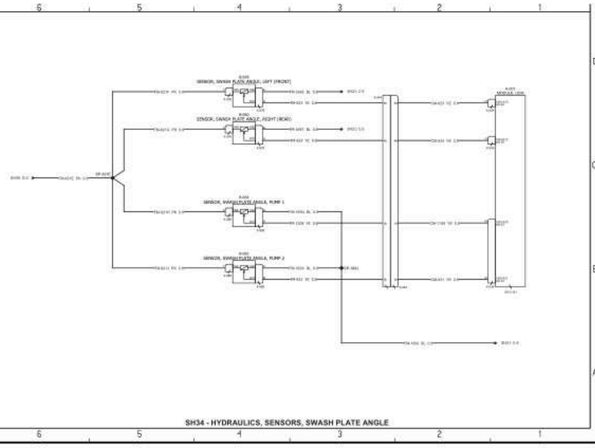
BAL10CVT354FMB 6

5. Figure **6** shows the ideal full signal of the crank and cam position from the point of when the engine is turned on , and until it is turned off.

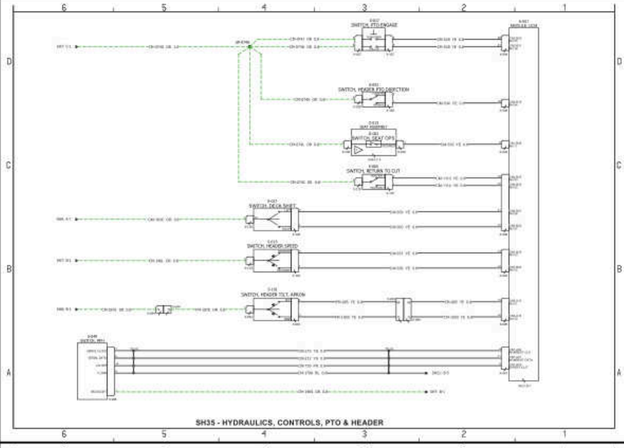


BAL11CVT057FMA 7
(A) = Sync Trigger

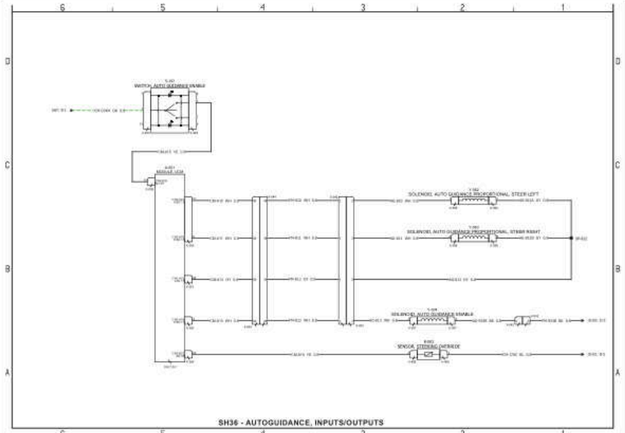
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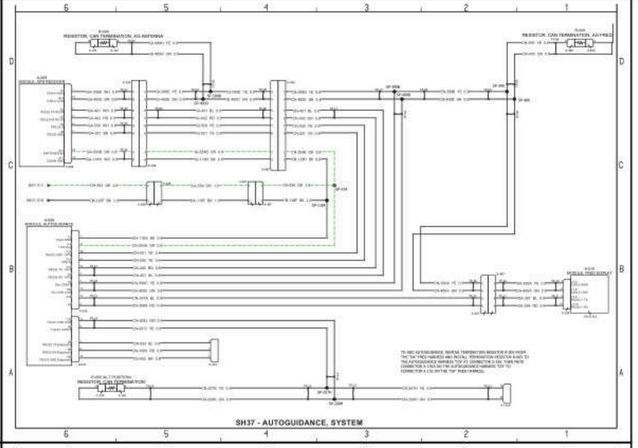
SH34 - HYDRAULICS, SENSORS, SWASH PLATE ANGLE



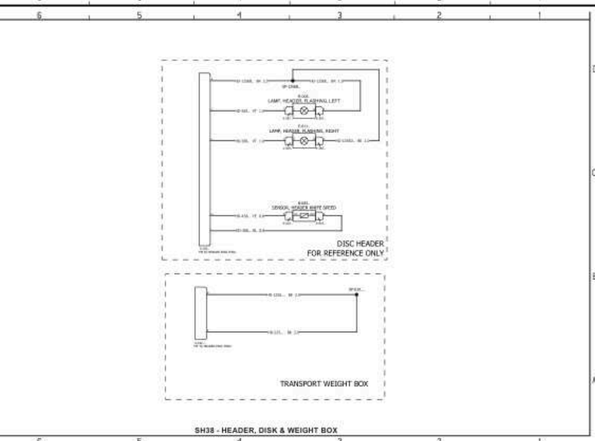
SH35 - HYDRAULICS, CONTROLS, PTO & HEADER



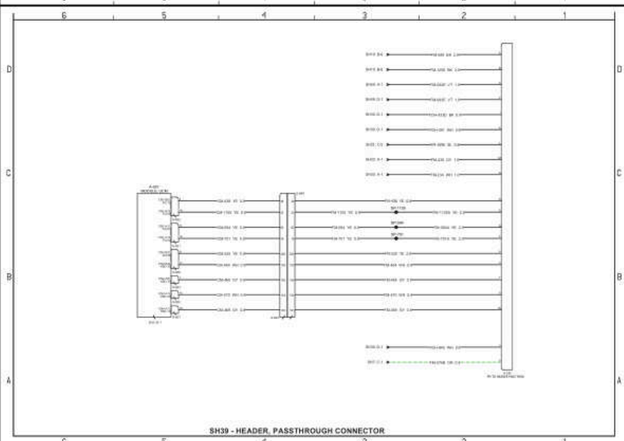
SH36 - AUTOGUIDANCE, INPUTS/OUTPUTS



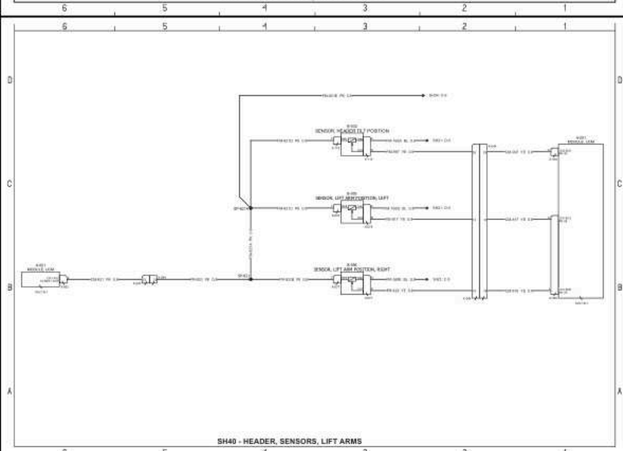
SH37 - AUTOGUIDANCE, SYSTEM



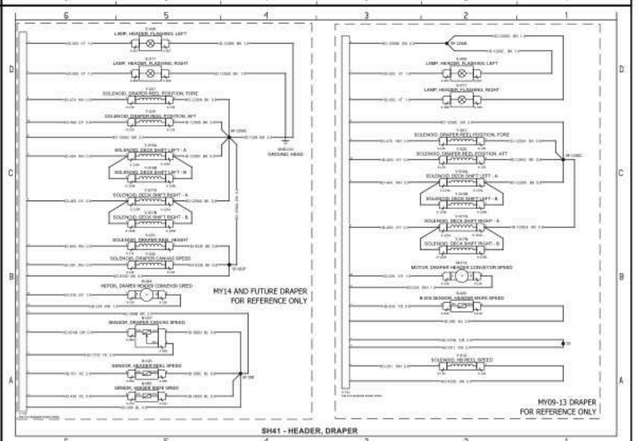
SH38 - HEADER, DISK & WEIGHT BOX



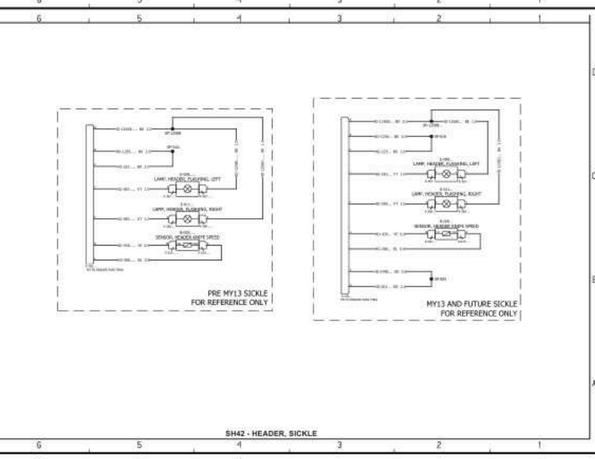
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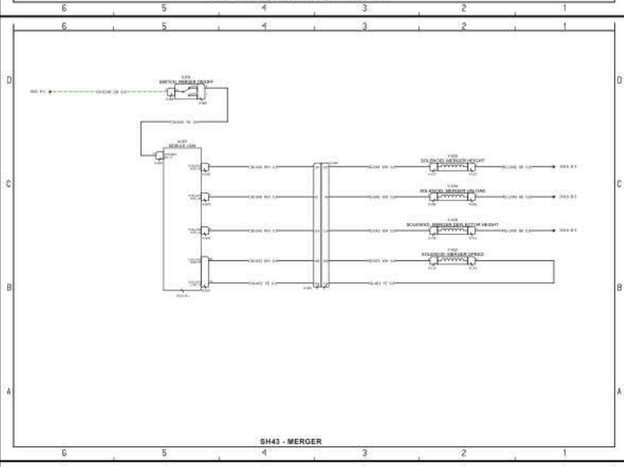
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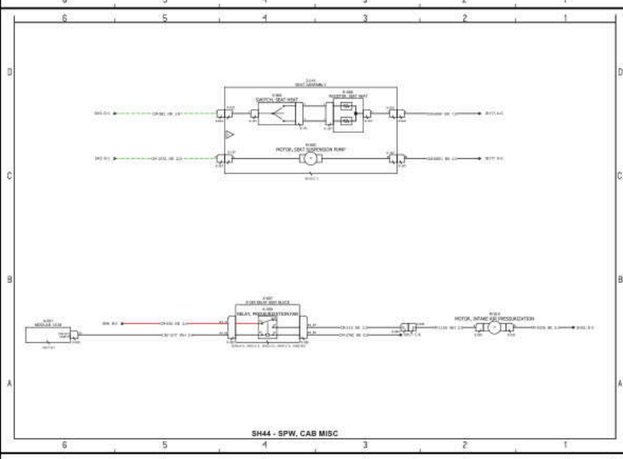
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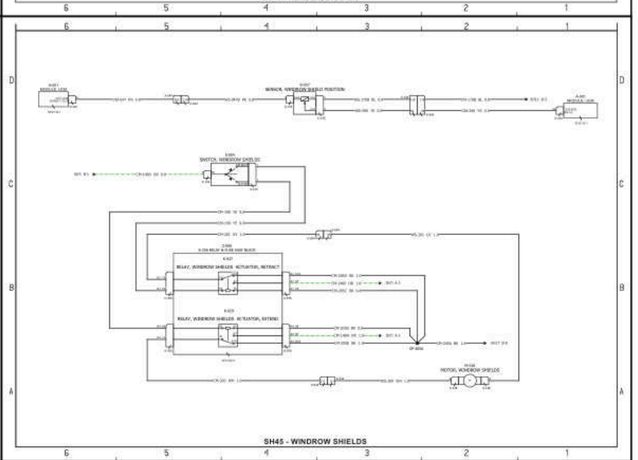
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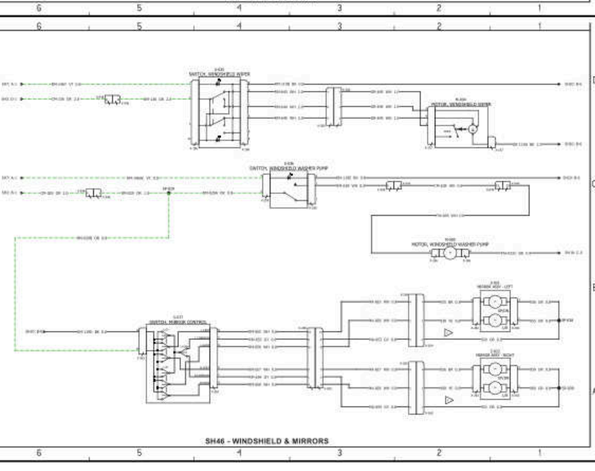
SH43 - MERGER



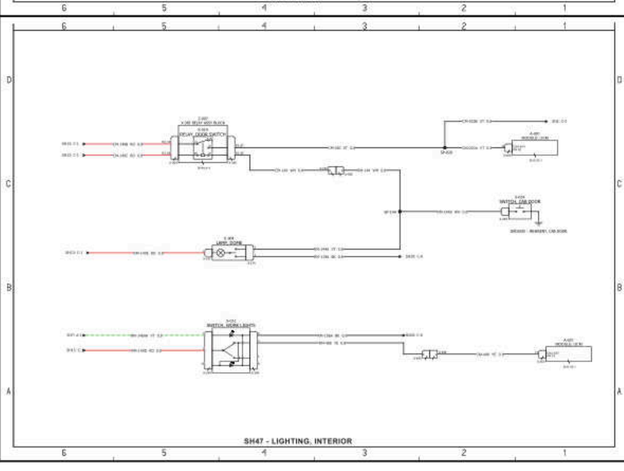
SH44 - SPW, CAB MISC



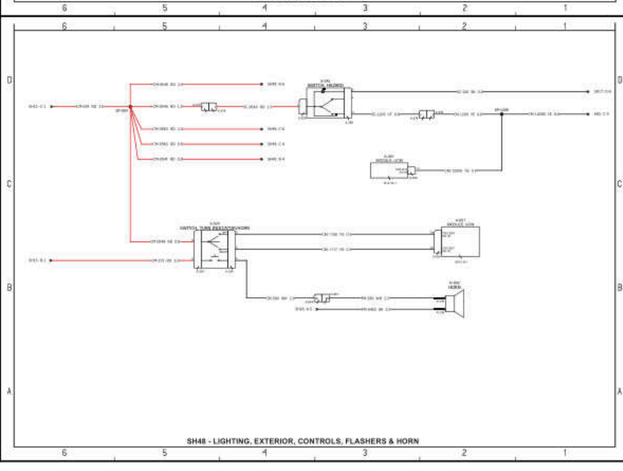
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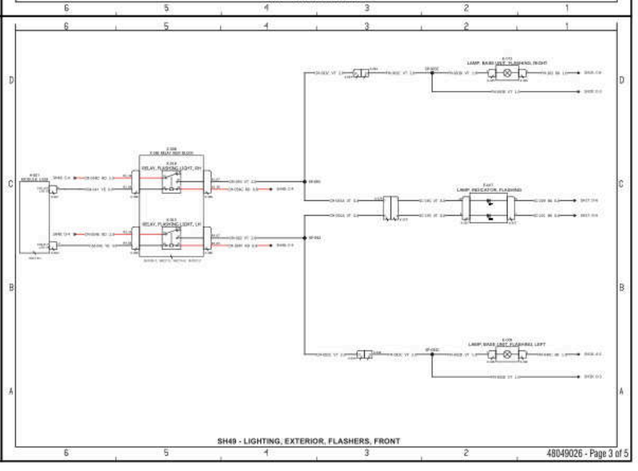
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SH47 - LIGHTING, INTERIOR



SH48 - LIGHTING, EXTERIOR, CONTROLS, FLASHERS & HORN



SH49 - LIGHTING, EXTERIOR, FLASHERS, FRONT

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