Planting - General specification

24-row 2150 front-fold trailing planter

- Number of rows: 24
- Row spacing: **762 mm** (**30 in**)
- Planter wheel tread: **1524 mm** (**60 in**) and **3048 mm** (**120 in**)
- Wing flex: **21°** upward and downward

Wing wheels (4):

- **Firestone®** VF 295/75R22.5 AD2 Radial, Load Index 151D
- Tire inflation pressure: **440 kPa** (**64 psi**)
- Wheel lug bolt torque: **331 – 447 N·m** (**244 – 330 lb ft**)

Center toolbar wheels (4):

- **Firestone®** VF 295/75R22.5 AD2 Radial, Load Index 151D
- Tire inflation pressure: **440 kPa** (**64 psi**)
- Wheel lug bolt torque: **331 – 447 N·m** (**244 – 330 lb ft**)

Transport width:

- With two-stage closing: **3810 mm** (**150 in**)
- With V-closing: **3683 mm** (**145 in**)

Transport length:

- Bulk-fill, drawbar hitch: **14.8 m** (**48.5 ft**)
- On-row hoppers, drawbar hitch: **14.2 m** (**46.7 ft**)
- Bulk-fill, two-point hitch: **13.9 m** (**45.5 ft**)
- On-row hoppers, two-point hitch: **13.3 m** (**43.7 ft**)

Planter height:

- Without weigh scales: **3429 mm** (**135 in**)
- With weigh scales: **3556 mm** (**140 in**)

Planter weight:

- Empty: **14022 kg** (**30920 lb**)
- **1514 L** (**400 US gal**) of fertilizer: approximately **1996 kg** (**4400 lb**)
- 120 units of seed: approximately **3265 kg** (**7200 lb**)
- Granular chemical: approximately **23 kg** (**50 lb**) per row

NOTE: *The above planter weights include bulk hopper system, residue managers, markers, two-stage closing system, and liquid fertilizer system.*

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Ref	Quantity	Description
1	1	Lift and fold valve block
2	4	Frame lift cylinders - Center section
3	4	Frame lift cylinders - Wing sections
4	2	Frame fold cylinders
5	1	Left-hand dual section motor control valve
6	1	Alternator motor
7	1	Left-hand vacuum fan motor
8	1	**DeltaForce®** valve block
9	24	**DeltaForce®** cylinder
10	1	Marker valve block
11	2	Marker fold cylinder
12	1	Right-hand dual section motor control valve
13	1	Right-hand vacuum fan motor
14	1	Bulk fill fan motor
15	1	Compressor motor valve block
16	1	Compressor motor
17	1	Liquid fertilizer pump motor valve block
18	1	Liquid fertilizer pump motor
19	1	Wing down-pressure valve block
20	2	Wing down-pressure cylinder
21	1	PTO tractor mounted pump
22	1	PTO reservoir
23	1	PTO oil cooler
24	1	PTO oil filter
25	1	Drawbar hitch valve block
26	1	Drawbar hitch cylinder

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Reference	Description
A	Tractor remote pressure
B	Tractor remote return
3	Fold cylinders - Solenoid valve #3
4	Left-hand wing carrying-wheel (Lower) - Solenoid valve #4
5	Right-hand wing carrying-wheel (Lower) - Solenoid valve #5
6	Left-hand center carrying-wheel (Lower) - Solenoid valve #6
7	Right-hand center carrying-wheel (Lower) - Solenoid valve #7
8	Left-hand wing carrying-wheel (Lift) - Solenoid valve #8
9	Right-hand wing carrying-wheel (Lift) - Solenoid valve #9
14	Right-hand center carrying-wheel (Lift) - Solenoid valve #14
15	Left-hand carrying wheels (Plant mode) - Solenoid valve #15
16	Right-hand carrying wheels (Plant mode) - Solenoid valve #16
17	Left-hand center carrying-wheel (Lift) - Solenoid valve #17
18	Left-hand marker solenoid valve
19	Right-hand marker solenoid valve
20	Lift and fold valve block
21	Marker valve block
22	Left-hand fold cylinder
23	Right-hand fold cylinder
24	Outer left-hand center carrying-wheel cylinder
25	Inner left-hand center carrying-wheel cylinder
26	Inner right-hand center carrying-wheel cylinder
27	Outer right-hand center carrying-wheel cylinder
28	Outer left-hand wing carrying-wheel cylinder
29	Inner left-hand wing carrying-wheel cylinder
30	Inner right-hand wing carrying wheel cylinder
31	Outer right-hand wing carrying-wheel cylinder
32	Left-hand marker arm cylinder
33	Right-hand marker arm cylinder
34	Drawbar hitch valve block
35	Drawbar hitch cylinder

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Fixed displacement pump - General specification - PTO pump flow testing

Use the specification in the table to test the PTO pump.

- Oil temperature should be above **37.8 °C** (**100 °F**).
- PTO shaft at rated speed.

Description	Flow at Pressure
83 L/min (**22 US gpm**) **1000 RPM** pump	**23 – 24 US gpm** at **15168 kPa** (**2200 psi**)

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Hydraulic down-pressure - General specification - DeltaForce® common pressures

Lift manifold - Stationary	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**0 MPa** (**0 psi**)

Cylinder - Stationary	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**0 MPa** (**0 psi**)
Cylinder	**0 MPa** (**0 psi**)

Lift manifold - Health check	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**15.17 MPa** (**2200 psi**)

Cylinder - Health check	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**15.17 MPa** (**2200 psi**)
Cylinder	**1.38 – 15.17 MPa** (**200 – 2200 psi**)

Lift manifold - During operation	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**1.38 – 15.17 MPa** (**200 – 2200 psi**)

Cylinder - During operation	
Description	**Pressure**
Supply - System pressure	Approximately **19.30 MPa** (**2800 psi**)
Return	Less than **0.69 MPa** (**100 psi**)
Lift	**1.38 – 15.17 MPa** (**200 – 2200 psi**)
Cylinder	**1.38 – 15.17 MPa** (**200 – 2200 psi**)

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Vacuum system control valve - Install - Dual section motor control valve blocks

⚠ WARNING

Escaping fluid!
Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.
Failure to comply could result in death or serious injury.

W0178A

⚠ WARNING

Battery gas can explode!
To prevent an explosion: 1. Always disconnect the negative (-) battery cable first. 2. Always connect the negative (-) battery cable last. 3. Do not short circuit the battery posts with metal objects. 4. Do not weld, grind, or smoke near a battery.
Failure to comply could result in death or serious injury.

W0011A

⚠ WARNING

Chemical hazard!
Battery posts, terminals, and related accessories contain lead and lead compounds. Wash hands after handling.
Failure to comply could result in death or serious injury.

W0349A

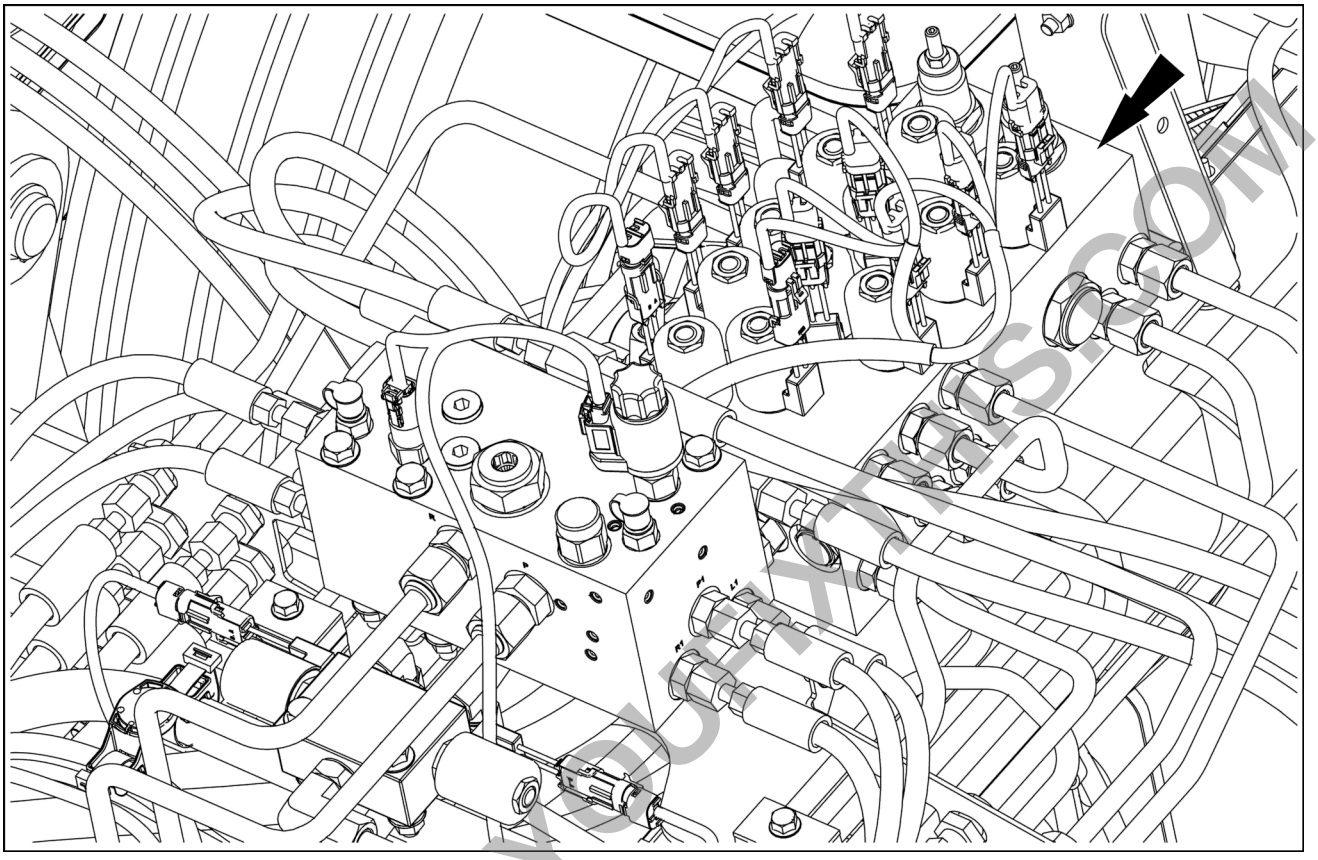
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Proportional flow control valve (35.745)
Prior operation:
Control valve - Assemble - Dual section motor control valve block - Bulk fill fan - Proportional flow control valve (35.912)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Coast down check valve (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Flow limiter control valve (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Unloading valve (Power Take-Off (PTO) equipped planters only) (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Unloading valve cavity plug (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Pressure relief valve (Power Take-Off (PTO) equipped planters only) (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Pressure relief valve cavity plug (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Signal check valve (35.745)
Prior operation:
Vacuum system control valve - Assemble - Dual section motor control valve block - Signal flow regulator (35.745)

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Folding control valve - Component localization - 24Row lift/fold valve block

The lift and fold valve block is located on top of the toolbar in the center section of the planter.



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24 Row planter - Lift and fold valve block location

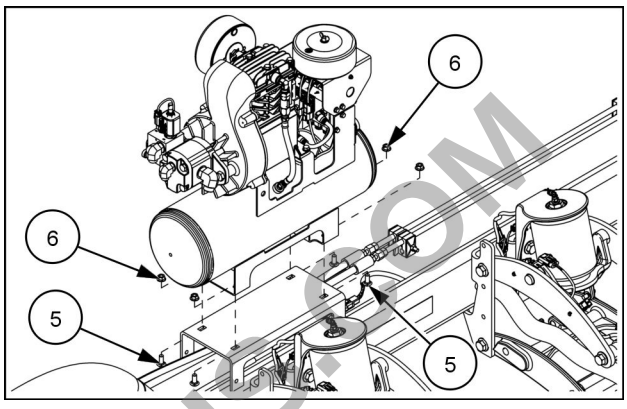
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Pneumatic compressor - Install

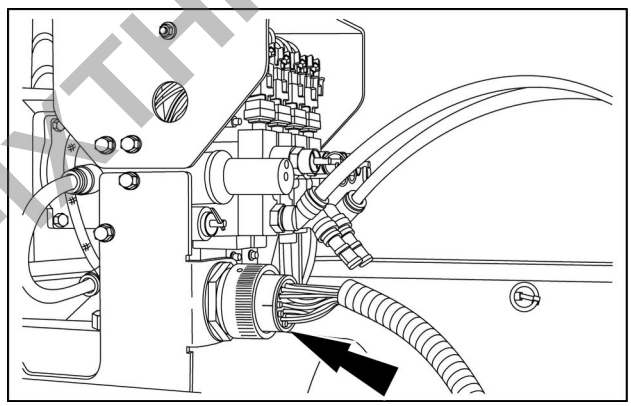
Prior operation:
Pneumatic compressor - Inspect (36.100)

1. Install the compressor onto the compressor mounting location on the toolbar.
2. Secure the compressor to the mounting location with the four M10 x 25 carriage bolts **(5)** and four M10 flange nuts **(6)**.



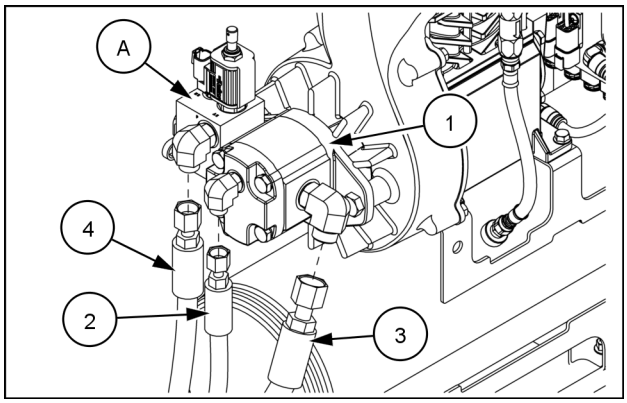
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3. Connect the main compressor harness to the compressor.



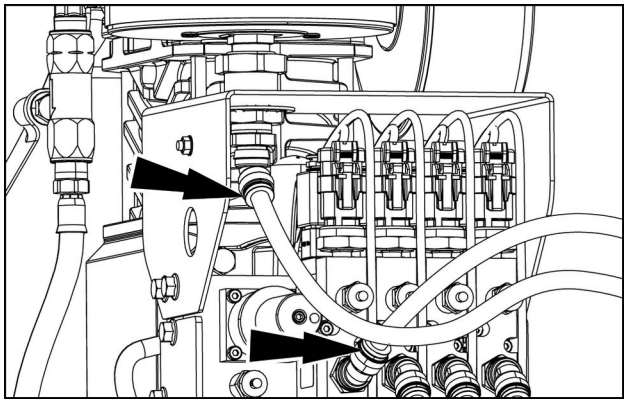
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4. Connect the hydraulic ‘pressure’ hose **(4)** to the fitting on the compressor valve block **(A)**.
5. Connect the hydraulic ‘return’ hose **(3)** to the fitting on the rear of the compressor hydraulic motor **(1)**.
6. Connect the ‘case drain’ hose **(2)** to the fitting located in the center port on the compressor hydraulic motor **(1)**.



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7. Reconnect any air lines that were disconnected from the compressor pneumatic pilot valves and the return air filter.



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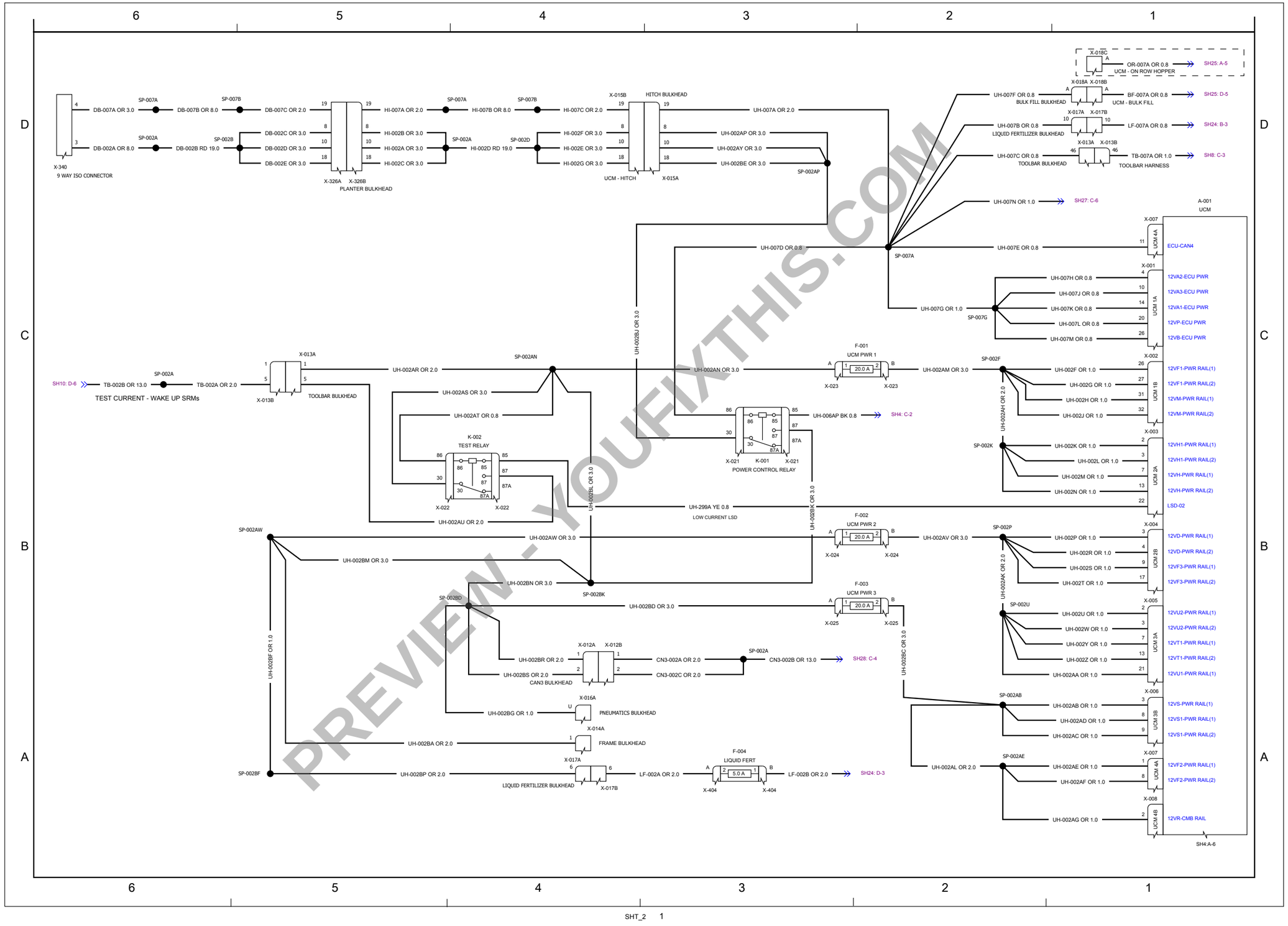
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Electrical components - Component localization

Reference	Description
1	UCM (Universal Control module)
2	Power control relay
3	UCM test relay
4	SRM (Single Row Module) (one per row unit)
5	**vDrive®** seed meter motor (one per row unit)
6	PDM (Power Distribution Module)
7	PDM (Power Distribution Module) gyro
8	PDM (Power Distribution Module) relay
9	Alternator
10	Alternator valve solenoid coils
11	Alternator excitation resistor
12	Vacuum valve solenoid coils - Left-hand
13	Battery
14	Alternator excitation relay
15	**SpeedTube™** module (High speed seed delivery option) (one per row unit)
16	**Hy Rate Plus™** seed tube sensor (Standard seed tube option) (one per row unit)
17	Row unit down-pressure load cell (Hydraulic Down-Pressure - one per row unit) (Pneumatic Down-Pressure - Rows 7, 11, 17)
18	Case drain pressure switch - Two-point hitch
19	Case drain pressure switch - Drawbar hitch
20	Liquid fertilizer section control valves
21	Liquid fertilizer flow meter
22	Liquid fertilizer on-row hopper shut-off valve (one per row unit)
23	Liquid fertilizer valve solenoid coil
24	Liquid fertilizer manifold pressure sensor
25	Compressor air manifold pilot valves
26	Compressor pressure switch
27	Vacuum sensor (Rows 11 and 14)
28	Bulk fill tank bin level sensor
29	On-Row hopper bin level sensor (Rows 11 and 14)
30	Wheel speed sensors (Right-hand center section carrying wheels)
31	Bulk fill fan speed sensor
32	Bulk fill fan valve solenoid coil (Right-hand dual section motor control valve block)
33	PTO thermal switch
34	PTO cooling fan
35	Lighting module
36	Light assembly - Right-hand
37	Light assembly - Left-hand
38	Toolbar height position sensor (Right-hand center section carrying wheel) (Row 14)
39	Lift and fold valve solenoid coils
40	Marker valve solenoid coils
41	Compressor valve block solenoid coil
42	Wing down-pressure valve solenoid coil
43	Wing down-pressure valve pressure sensor
44	Bulk fill work lights
45	Bulk fill work light switch
46	Bulk fill work light relay
47	Bulk fill weigh scale controller
48	Bulk fill weigh scale load cells
49	Bulk fill weigh scale monitor
50	**DeltaForce®** valve block - Pressure reducing solenoid coil
51	**DeltaForce®** valve block pressure sensor
52	**DeltaForce®** cylinder solenoid coil (one per row unit)

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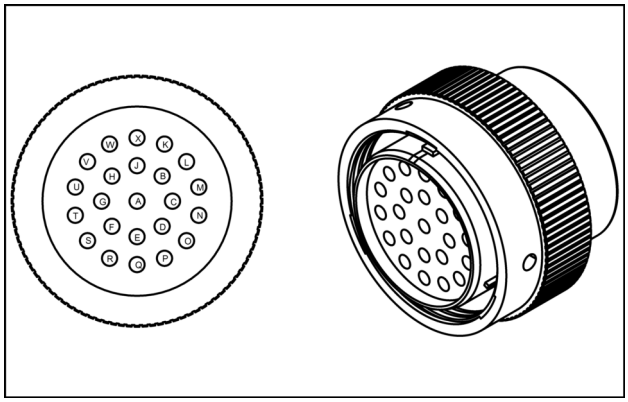


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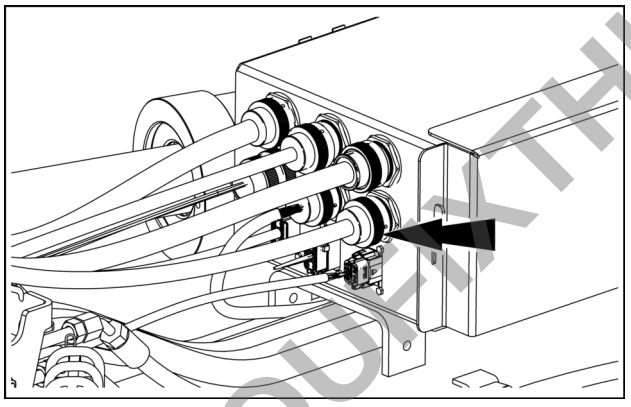
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X-016B - UCM-PNEUMATICS (84179099) (Plug)



84179099 27

84179099

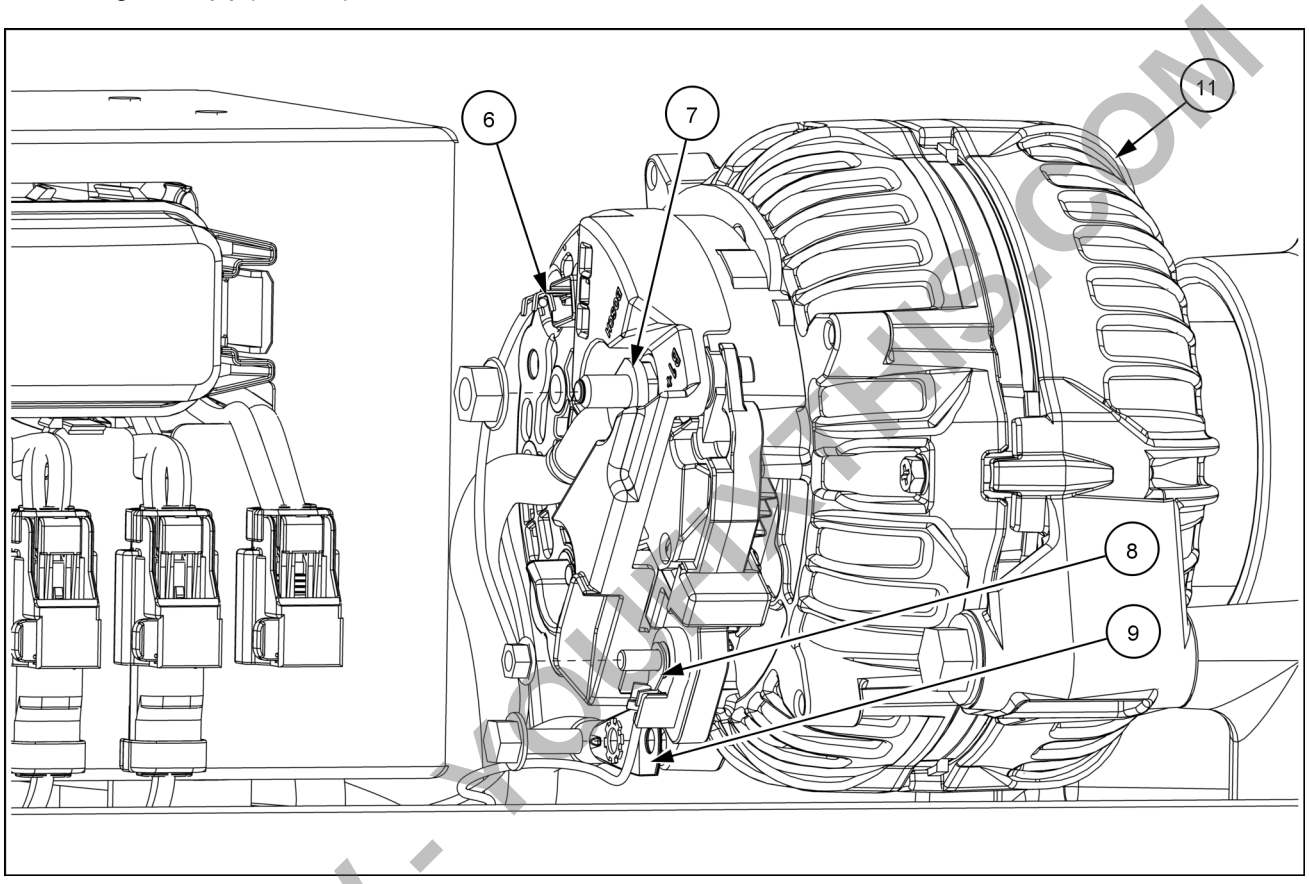


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Pin	From	Wire	Description	Color-Size	Frame
A	**X-361A (Receptacle) pin A** PNEUMATICS ENCLOSURE	PN-006A	GROUND (PNEUMATIC VALVES)	BK - 2.0	**SHEET 04**
B	**X-361A (Receptacle) pin B** PNEUMATICS ENCLOSURE	PN-008A	SIGNAL GROUND	BL - 0.8	
C	**X-361A (Receptacle) pin C** PNEUMATICS ENCLOSURE	PN-003A	5V SENSOR POWER	PK - 0.8	**SHEET 03**
D	**X-361A (Receptacle) pin D** PNEUMATICS ENCLOSURE	PN-346A	TANK PRESSURE	YE - 0.8	**SHEET 22**
E	**X-361A (Receptacle) pin E** PNEUMATICS ENCLOSURE	PN-219A	PDP DECREASE	GY - 0.8	
F	**X-361A (Receptacle) pin F** PNEUMATICS ENCLOSURE	PN-218A	PDP INCREASE	WH - 0.8	
G	**X-361A (Receptacle) pin G** PNEUMATICS ENCLOSURE	PN-347A	PDP PRESSURE	YE - 0.8	
H	**X-361A (Receptacle) pin H** PNEUMATICS ENCLOSURE	PN-213A	CLEANER DOWN DECREASE	GY - 0.8	
J	**X-361A (Receptacle) pin J** PNEUMATICS ENCLOSURE	PN-212A	CLEANER DOWN INCREASE	WH - 0.8	
K	**X-361A (Receptacle) pin K** PNEUMATICS ENCLOSURE	PN-348A	CLEANER DOWN PRESSURE	YE - 0.8	
L	**X-361A (Receptacle) pin L** PNEUMATICS ENCLOSURE	PN-215A	CLEANER UP DECREASE	GY - 0.8	
M	**X-361A (Receptacle) pin M** PNEUMATICS ENCLOSURE	PN-214A	CLEANER UP INCREASE	WH - 0.8	
N	**X-361A (Receptacle) pin N** PNEUMATICS ENCLOSURE	PN-349A	CLEANER UP PRESSURE	YE - 0.8	
O	**X-361A (Receptacle) pin O** PNEUMATICS ENCLOSURE	PN-217A	CLOSER DECREASE	GY - 0.8	
P	**X-361A (Receptacle) pin P** PNEUMATICS ENCLOSURE	PN-216A	CLOSER INCREASE	WH - 0.8	
Q	**X-361A (Receptacle) pin Q** PNEUMATICS ENCLOSURE	PN-350A	CLOSER PRESSURE	YE - 0.8	
R	SP-006B-P-X	PN-006B	GROUND (COMPRESSOR AND DRAIN VALVES)	BK - 1.0	**SHEET 04**

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7. Remove the following harness connections from the alternator **(11)**:
   - Alternator speed **(6)** (**X-174**)
   - Alternator positive **(7)** (**X-171**)
   - Alternator voltage **(8)** (**X-175**)
   - PDM ground **(9)** (**X-172**)



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Electrical systems - 55

FAULT CODES - DTC

Early Riser® 2150 Front Fold Trailing 24 Row planter with a drawbar hitch and 30 inch spacing
Early Riser® 2150 Front Fold Trailing 24 Row planter with a two-point hitch and 30 inch spacing

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4205-03 - Alternator Excite Relay

Control Module: Planter UCM

Context:
The planter Universal Control Module (UCM) **A-001** controls and monitors the operation of the control circuit for the excitation relay **K-003**. The High-Side Driver (HSD) circuit leakage current, while in its OFF state, detects if the output control circuit has an open circuit or a short to a voltage source condition and triggers this fault.

Cause:
The UCM **A-001** is detecting an open circuit or a short to a voltage source condition in the excitation relay **K-003** control circuit.

Possible failure modes:

1. Faulty excitation relay **K-003**, internal failure.
2. Faulty excitation relay **K-003** circuit wiring, open circuit or short to a voltage source.
3. Faulty UCM **A-001**, internal failure.

Solution:

1. Verify the fault is present and active.

   Use the display to check the status of this fault.

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

   B. If the fault is no longer present or in an inactive state, the fault may be intermittent and not currently active. Continue with Step **11**.

2. Check the excitation relay **K-003** for an internal failure.

   Disconnect the frame (FR) harness from the excitation relay **K-003** at connector **X-176**.

   Use a multimeter to measure the resistance on the excitation relay **K-003** side :

From	To	Value
X-176 (Receptacle) pin 86	**X-176 (Receptacle) pin 85**	There should be a nominal amount resistance, approximately **75 – 80 Ω** .

   A. If there is a nominal amount of resistance, leave connector **X-176** disconnected and continue with Step **3**.

   B. If there is an infinite amount of resistance, the excitation relay **K-003** has failed internally. Replace the excitation relay **K-003**.

3. Check the excitation relay **K-003** HSD control circuit for a short to a voltage source condition.

   With the key switch in the ON position, use a multimeter to check for voltage on the alternator (AL) harness side :

From	To	Value
X-176 (Receptacle) pin 86	chassis ground	There should be less than **5.0 V** .

   A. If there is less than **5.0 V**, leave connector **X-176 (Receptacle)** disconnected and continue with Step **4**.

   B. If there is greater than **5.0 V**, there is a short to a voltage source. Continue with Step **8**.

4. Check the excitation relay **K-003** alternator (AL) harness HSD control circuit for an open circuit condition.

   Disconnect the alternator (AL) harness connector **X-170A** from the tool bar (TB) harness connector **X-170B**.

   Place a jumper wire between **X-170A (Plug) pin 2** and chassis ground.

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5801-03 - UCM Power Fault (12V)

Control Module: Planter UCM

Context:
The planter Universal Control Module (UCM) **A-001** internally monitors the input source voltage for UCM **A-001** circuits. The UCM **A-001** detects a greater than normal voltage source condition, and triggers this fault.

Cause:
The UCM **A-001** detects a higher than normal input source voltage condition.

Possible failure modes:

1. Faulty tractor power supply wiring.
2. Faulty UCM **A-001**, internal failure.

Solution:

1. Check the tractor to the planter power supply.

   Disconnect the drawbar (DB) harness to the tractor connector **X-340**.

   With the key switch in the ON position and the tractor running, use a multimeter to check for voltage on the tractor side :

From	To	Value
X-340 (Receptacle) pin 4	chassis ground	There should be appropriate charging system voltage present.

   A. If there is appropriate charging system voltage, the UCM **A-001** has failed internally.
   Replace the UCM **A-001**.

   B. If there is greater than normal charging system voltage, the tractor wiring is shorted to a voltage source greater than the normal charging system voltage. Consult the appropriate tractor service manual to locate and repair the shorted condition.

Wiring harnesses - Electrical schematic sheet 02 Power distribution (55.100.DP-C.20.E.02)

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B. If there is no continuity, wire PNM-346A YE in the pneumatics - Parker (PNM) harness is broken. Locate and repair the damage to the conductor or replace the harness.

8. Check the tank pressure **B-010** sensor pneumatic (PN) harness signal circuit for an open circuit condition.

   Disconnect the in-line pneumatic (PN) harness connector **X-016B** from the UCM interface (UH) harness connector **X-016A** at the UCM bulkhead.

   Place a jumper wire, on the pneumatic (PN) harness side, between **X-016B (Plug) pin D** and chassis ground.

   With the key switch in the OFF position, use a multimeter to check for continuity on the pneumatic (PN) harness side :

From	To	Value
X-361A (Receptacle) pin D	chassis ground	There should be continuity.

   A. If there is continuity, continue with Step **9**.

   B. If there is no continuity, wire PN-346A YE in the pneumatic (PN) harness is broken. Locate and repair the damage to the conductor or replace the harness.

9. Check the tank pressure **B-010** sensor UCM interface (UH) harness signal circuit for an open circuit condition.

   Disconnect the UCM interface (UH) harness connector from the planter UCM **A-001** at connector **X-002**.

   With the key switch in the OFF position, use a multimeter to check for continuity on the UCM interface (UH) harness side :

From	To	Value
X-016A (Receptacle) pin D	**X-002 (Receptacle) pin 13**	There should be continuity.

   A. If there is continuity, continue with Step **10**.

   B. If there is no continuity, wire UH-346A YE in the UCM interface (UH) harness is broken. Locate and repair the damage to the conductor or replace the harness.

10. Replace the tank pressure **B-010** sensor, then re-check the status of this fault.

    A. If this fault is still present and active, continue with Step **11**.

    B. If this fault is not present, return the planter to field operation and monitor for a recurring fault.

11. Use the Electronic Service Tool (EST) to check the status of the current software.

    Re-flash and/or re-configure as required.

    Re-check the status of this fault.

    A. If this fault is still present and active, the UCM **A-001** has failed internally. Replace the UCM **A-001**.

    B. If this fault is not present, return the planter to field operation and monitor for a recurring fault.

12. 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 intermittent breaks or shorts in the wiring concerned.

    Operate the machine while you monitor 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 and 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.

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SERVICE MANUAL

Metering system

Early Riser® 2150 Front Fold Trailing 24 Row planter with a drawbar hitch and 30 inch spacing
Early Riser® 2150 Front Fold Trailing 24 Row planter with a two-point hitch and 30 inch spacing

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Chemical applicators - 63

Granular chemical system - 110

Early Riser® 2150 Front Fold Trailing 24 Row planter with a drawbar hitch and 30 inch spacing
Early Riser® 2150 Front Fold Trailing 24 Row planter with a two-point hitch and 30 inch spacing

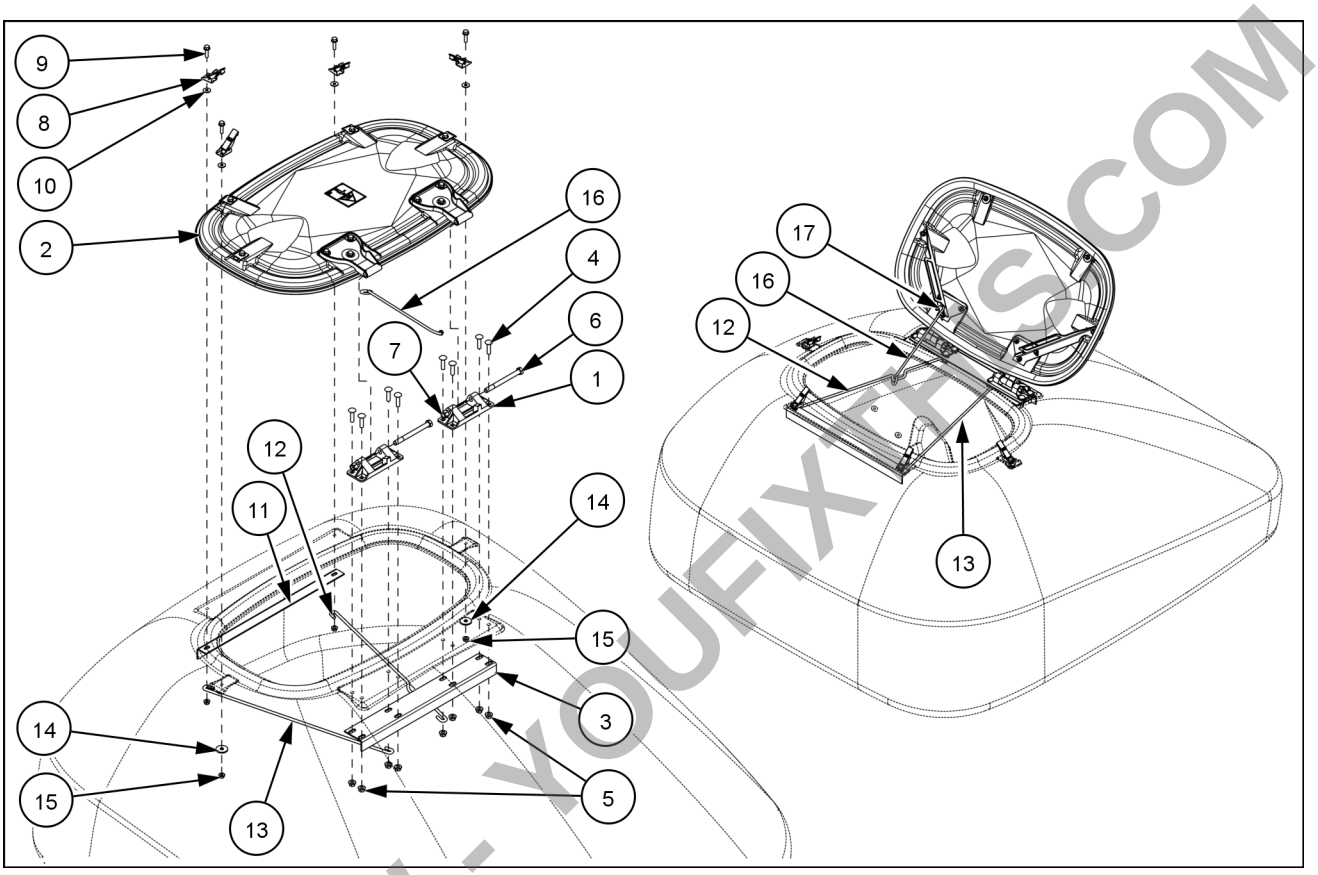
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Tank - Inspect - Bulk fill hopper tank lid

Prior operation:
Tank - Remove - Bulk fill hopper tank lid (79.100)

1. Inspect the lid components and service or replace the components as needed.



SAPE16PLA0348FA 1

Reference	Description
1	PIVOT, LID
2	LID, BF TANK ASSY
3	BRACKET, BACK HOPPER BRACE-PNTD
4	BOLT, RDH SHT SQNK FULL M10X40 8.8 ZND
5	NUT, HEX FLANGE M10 8 ZND *
6	BOLT, 1/2-13 X 5-1/2 GR5 ZND
7	NUT, PREV TORQ ALL MTL 1/2-13 GR B ZND
8	LATCH, UNDERCENTER DOUBLE LOCK SS
9	BOLT, FLANGE M8X30 FULL 8.8 ZND
10	WASHER, NEOPRENE RUBBER ****
11	SUPPORT, TANK LID-PNTD
12	SAFETY ROD, LH TANK SUPPORT 5/16 OD
13	SAFETY ROD, RH TANK SUPPORT 5/16 OD
14	WASHER, 10.2 X 35 X 3 MM CST ZND ***
15	NUT, HEX FLANGE M8 8 ZND *
16	ROD, LID PROP **
17	NUT, PREV TORQ ALL MTL 5/16-18 GR B ZND
*	These nuts are secured from inside the tank.
**	Thread the safety rod through the eye of the prop rod. Thread the hook of the prop rod through the support brace of the lid.
***	Installed inside of the tank.
****	Rubber washer is installed on the outside of the tank.

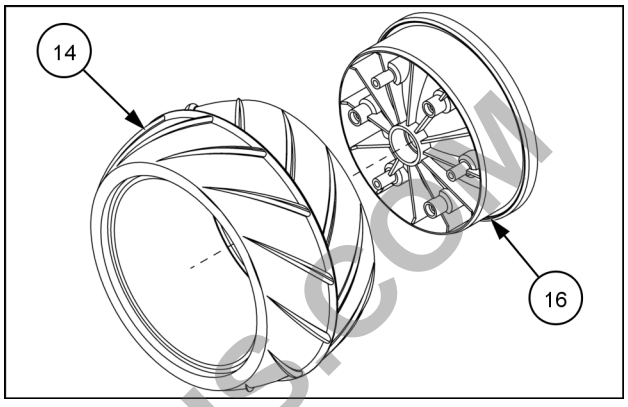
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Press wheel - Assemble - Press wheel and bushing

Prior operation:
Press wheel - Inspect - Press wheel (79.105)

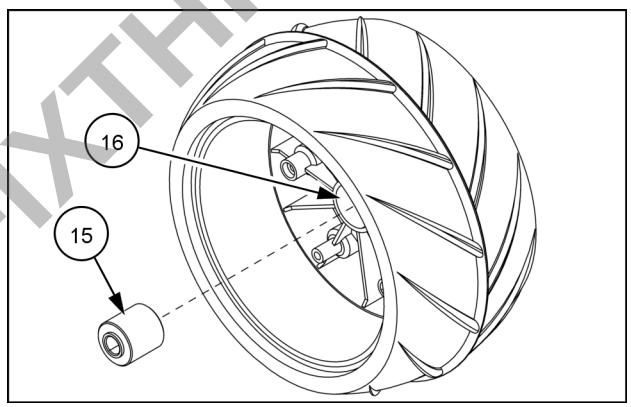
1. Install the tire **(14)** onto the press wheel rim **(16)**.

NOTE: *Use liquid soap on the edge of the rim to ease the installation of the tire onto the rim.*



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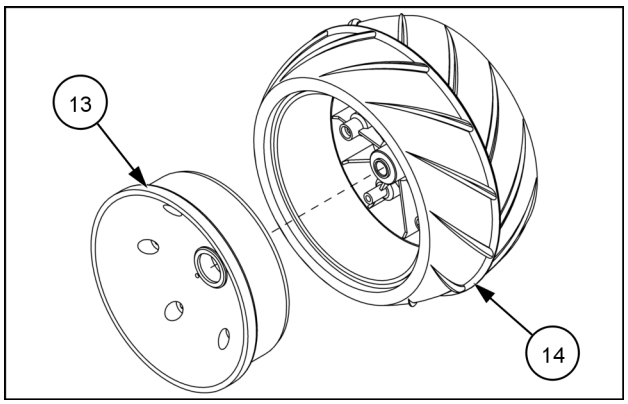
2. Install the bearing **(15)** into the press wheel rim **(16)**.



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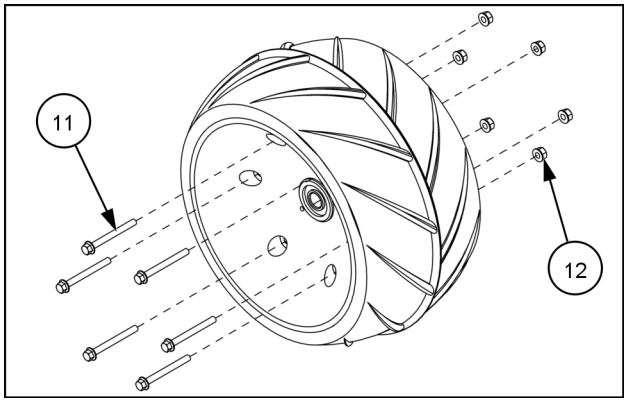
3. Install the press wheel rim **(13)** onto the tire **(14)**.

NOTE: *Use liquid soap on the edge of the rim to ease the installation of the tire onto the rim.*



SAVM15PLA0428AA 3

4. Loosely install the six **1/4 in** x **2-1/2 in** flange bolts **(11)** and flange nuts **(12)** to secure the wheel rims together.
5. Tighten and torque the six **1/4 in** x **2-1/2 in** flange bolts **(11)** and flange nuts **(12)** in a cross pattern to **10 N·m** (**90 lb in**), then relax the torque to **6 +/- 1 N·m** (**50 +/- 10 lb in**).

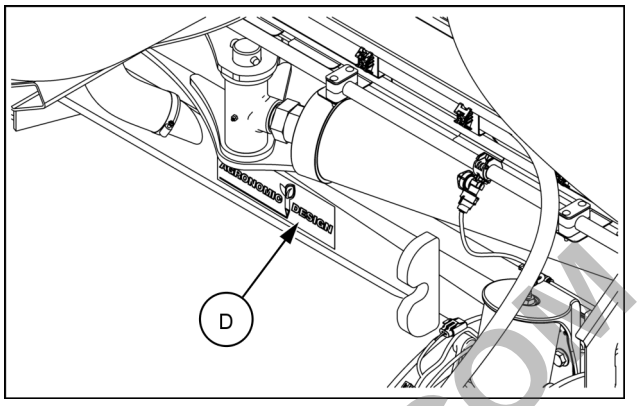


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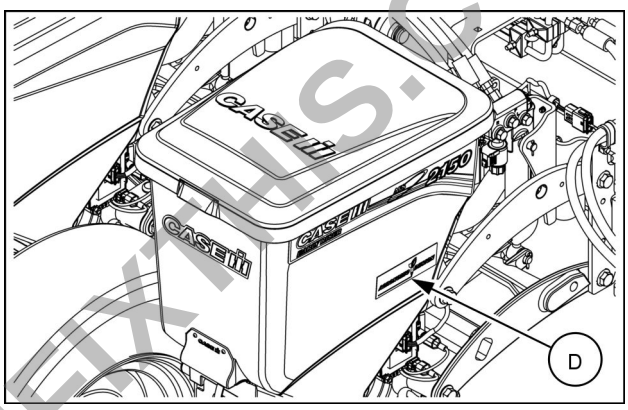
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‘Agronomic Design’ decal **(D)** located on the right-hand inner wing and the outer right-hand On-Row hopper.

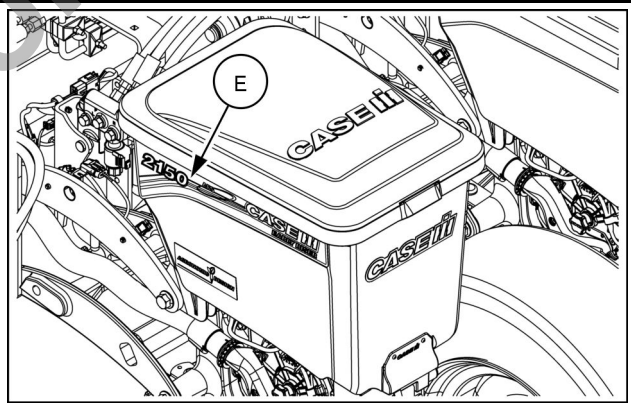


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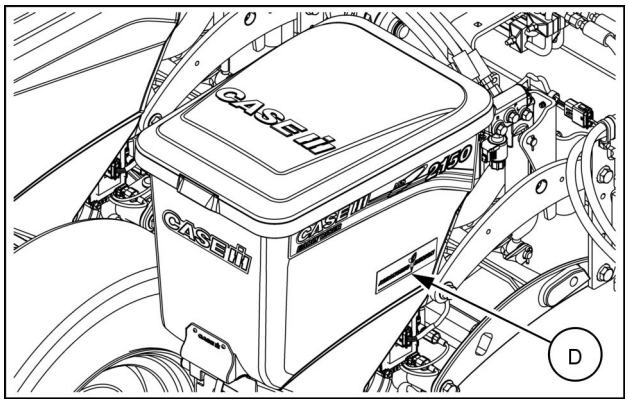
SAVM15PLA0827AA 6

Early Riser® 2150 decal **(E)** located on the outer left-hand On-Row hopper.



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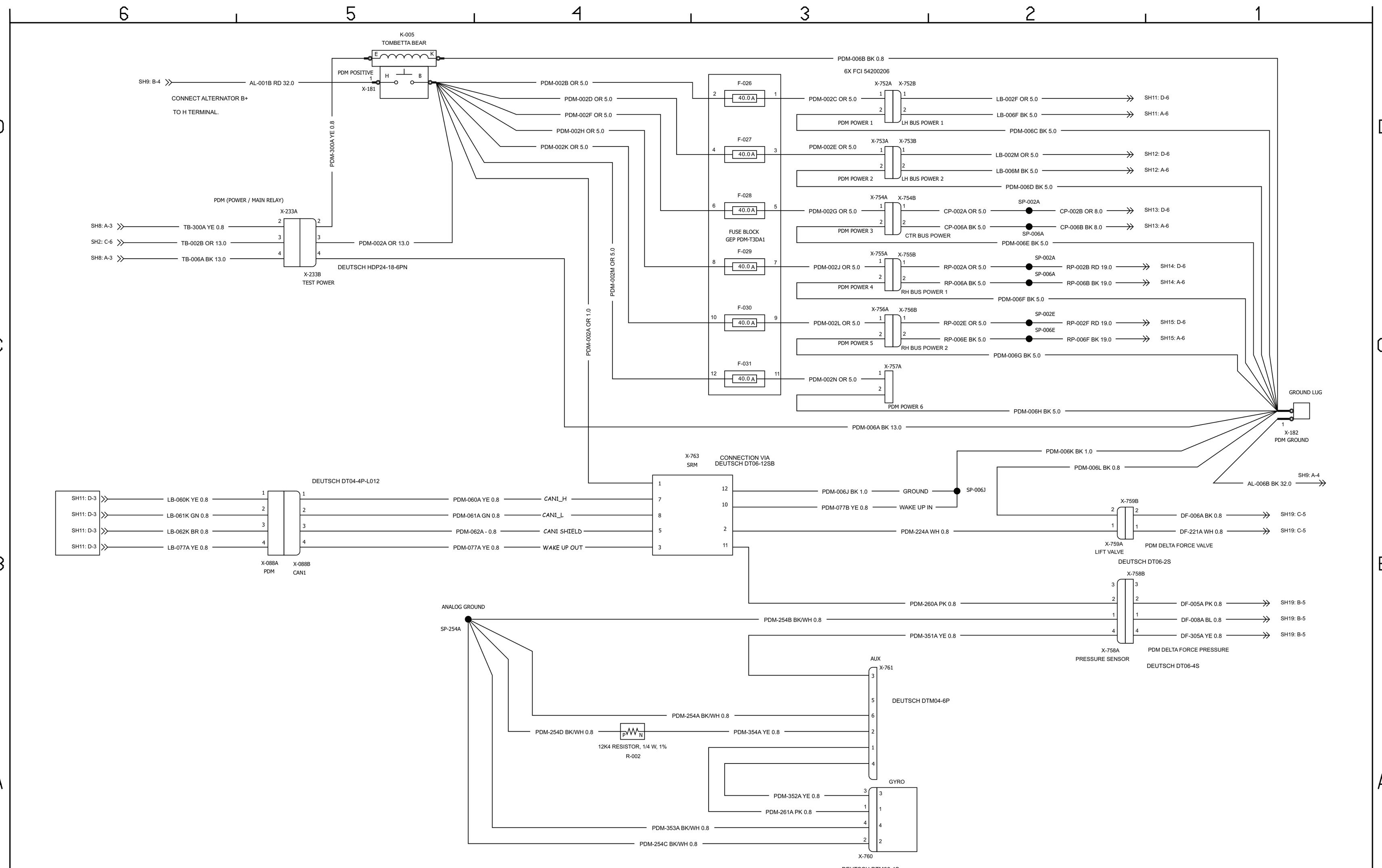
Early Riser® 2150 decal **(F)** located on the outer right-hand On-Row hopper.



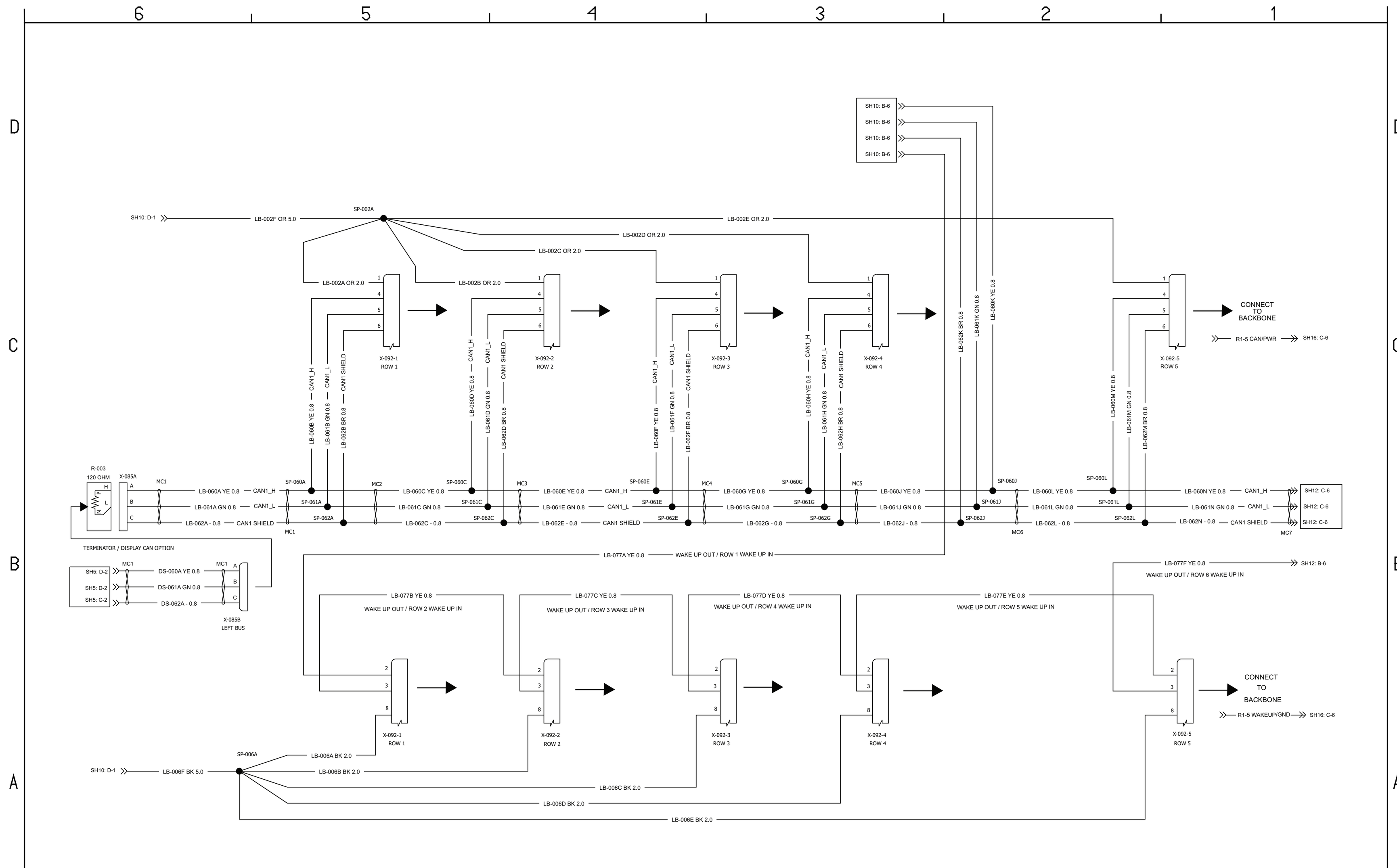
SAVM15PLA0827AA 8

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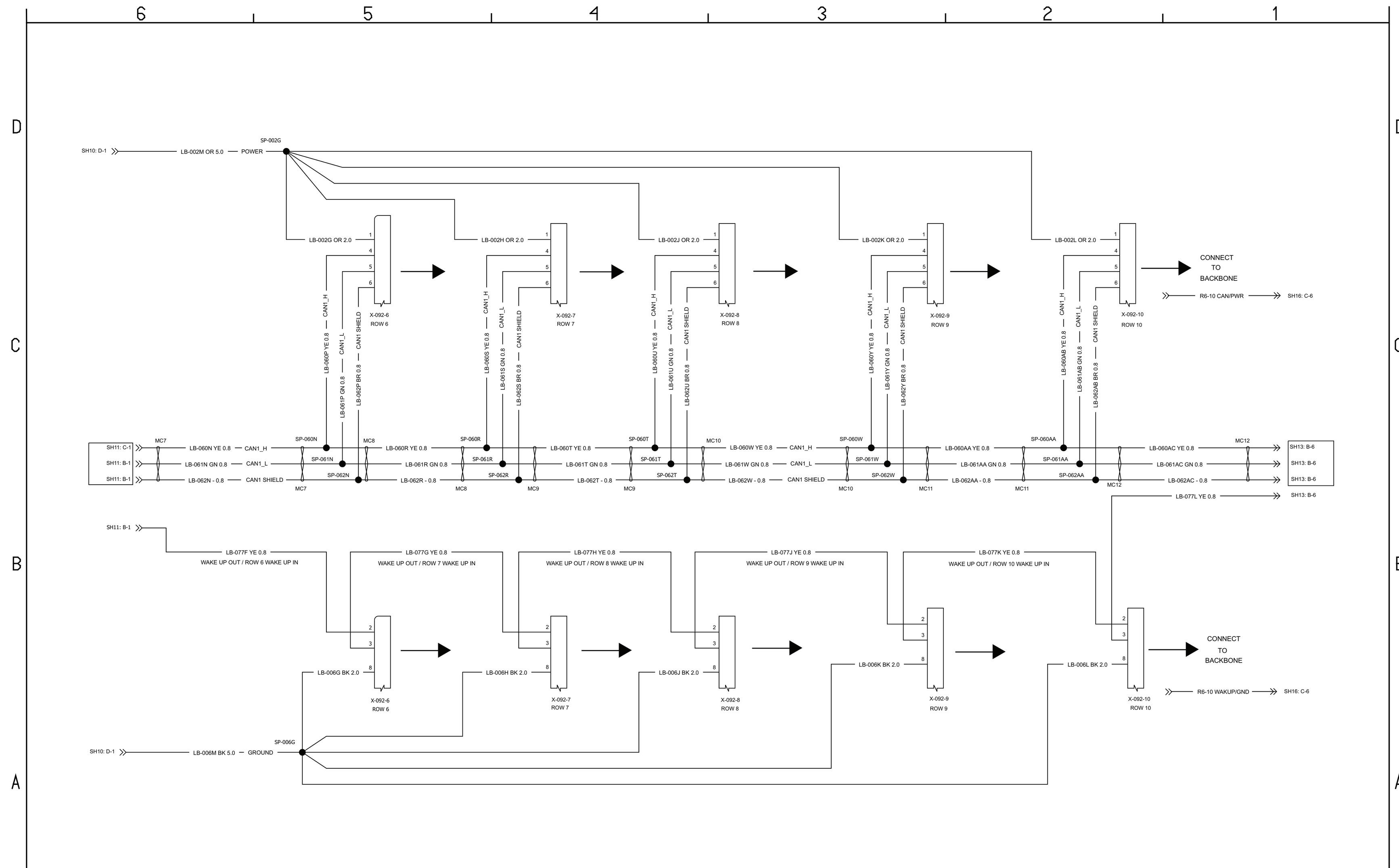
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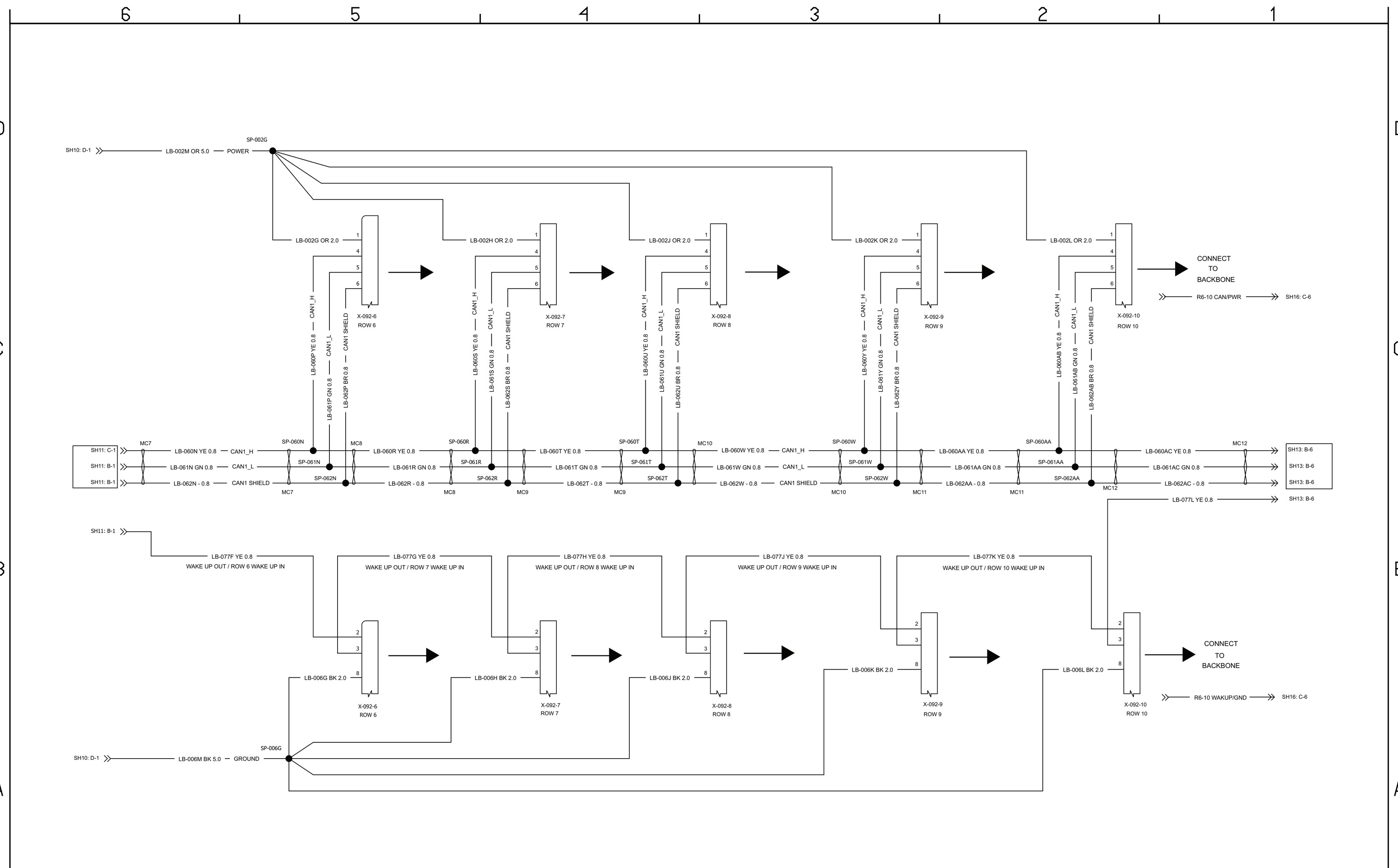
SHEET 10 OF 35 - TOOLBAR POWER - POWER DISTRIBUTION MODULE (PDM)



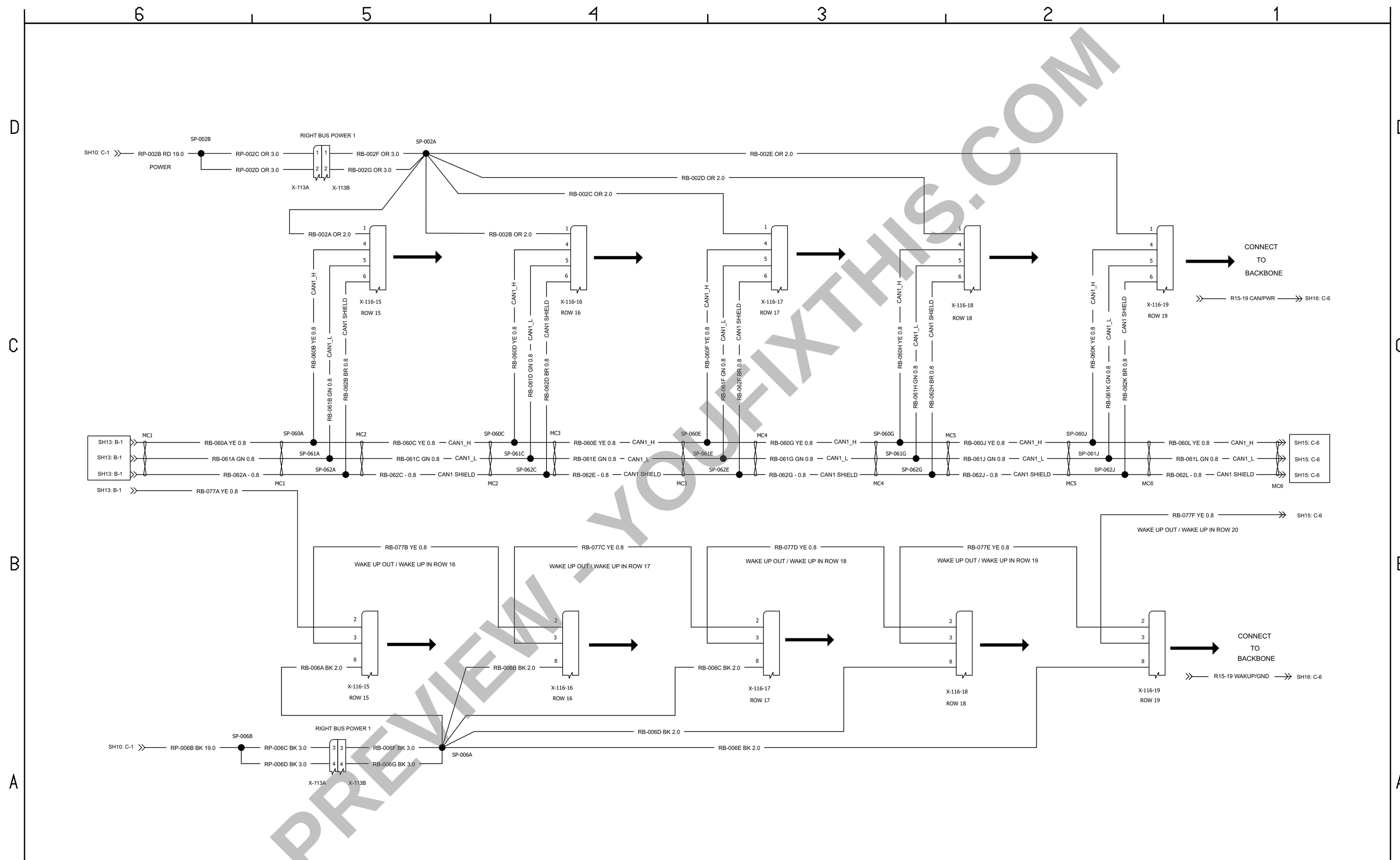
SHEET 11 OF 35 - LEFT-HAND BUS AND POWER, ROWS 1-5



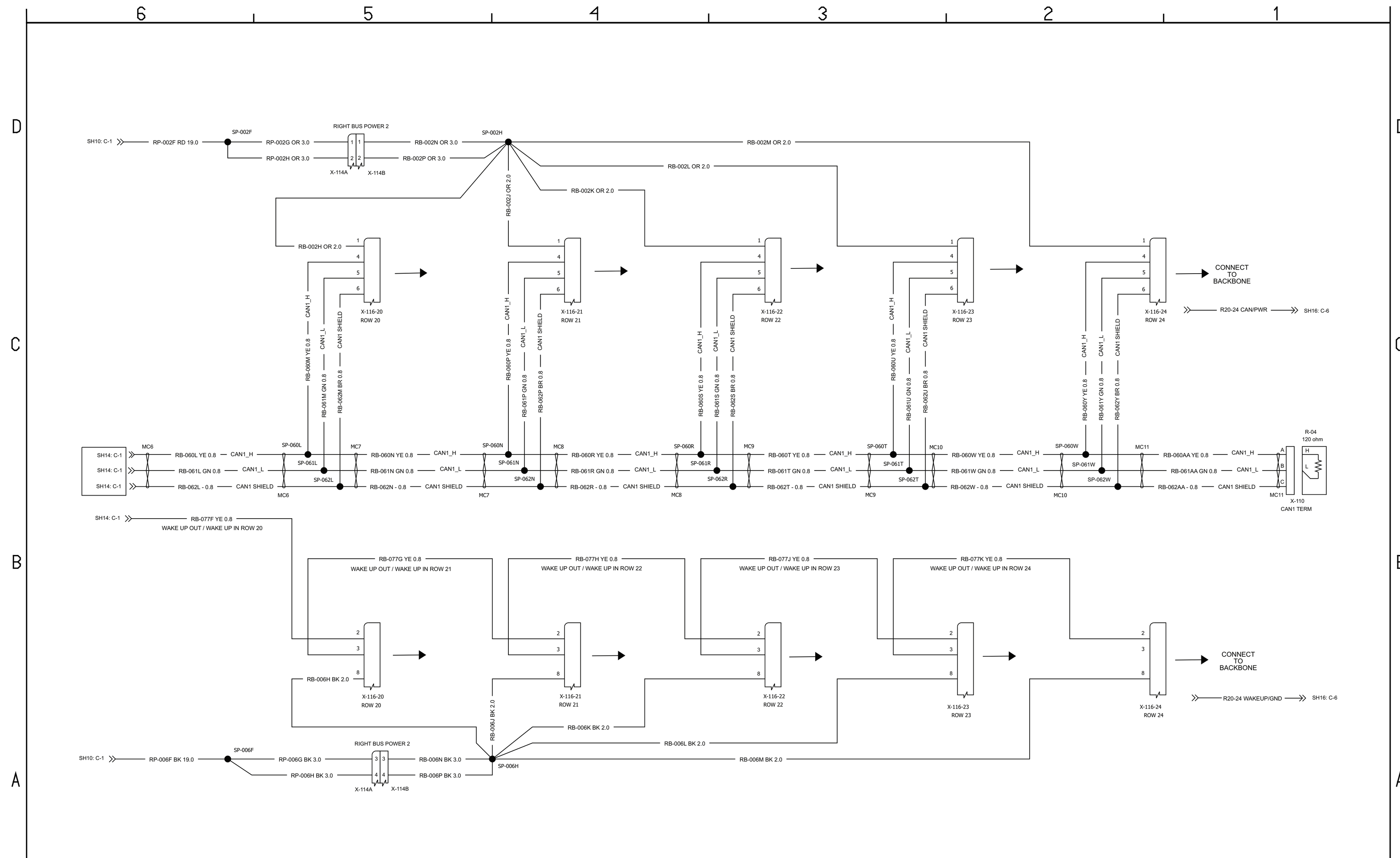
SHEET 12 OF 35 - LEFT-HAND BUS AND POWER, ROWS 6-10



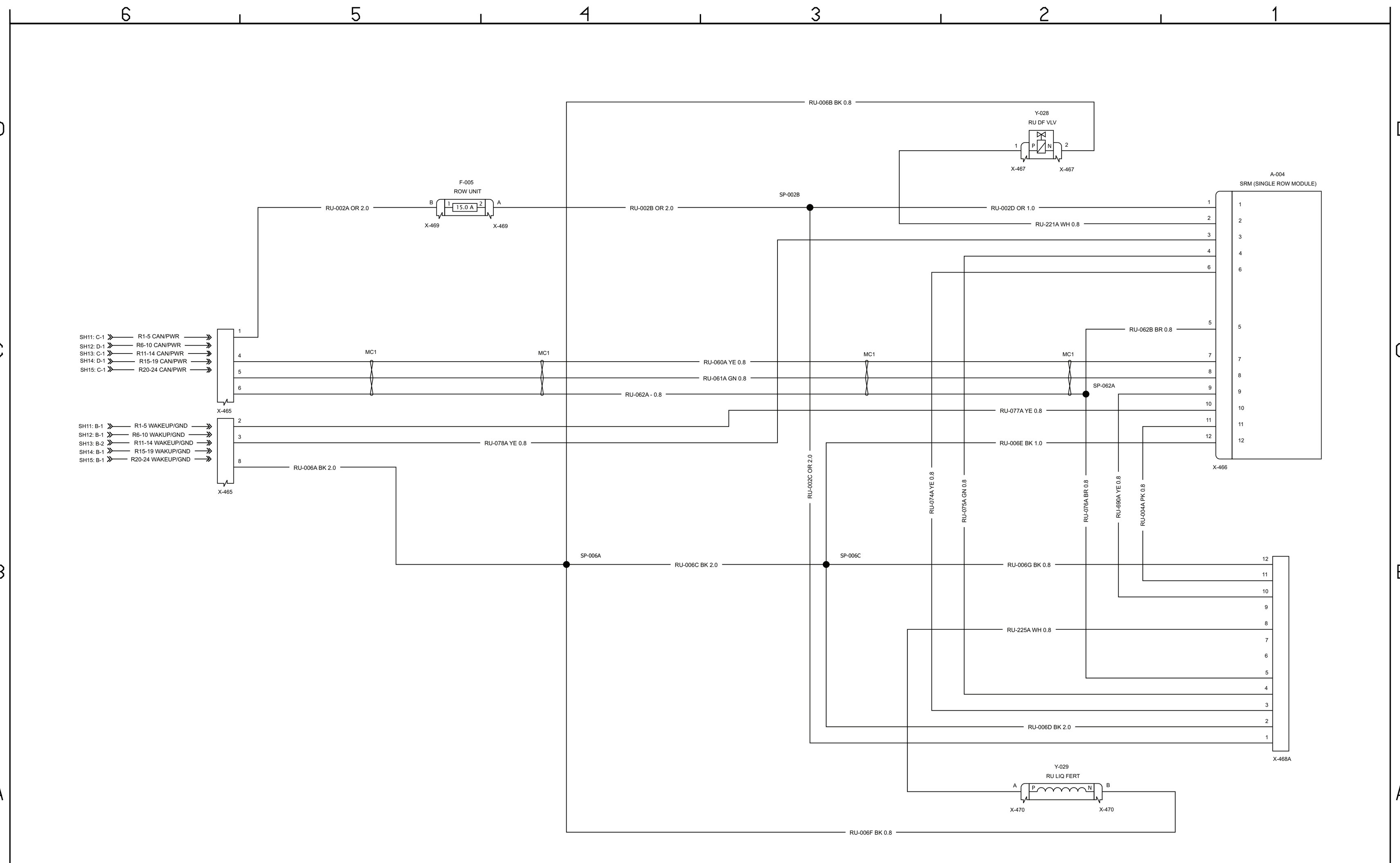
SHEET 13 OF 35 - CENTER SECTION BUS AND POWER, ROWS 11-14



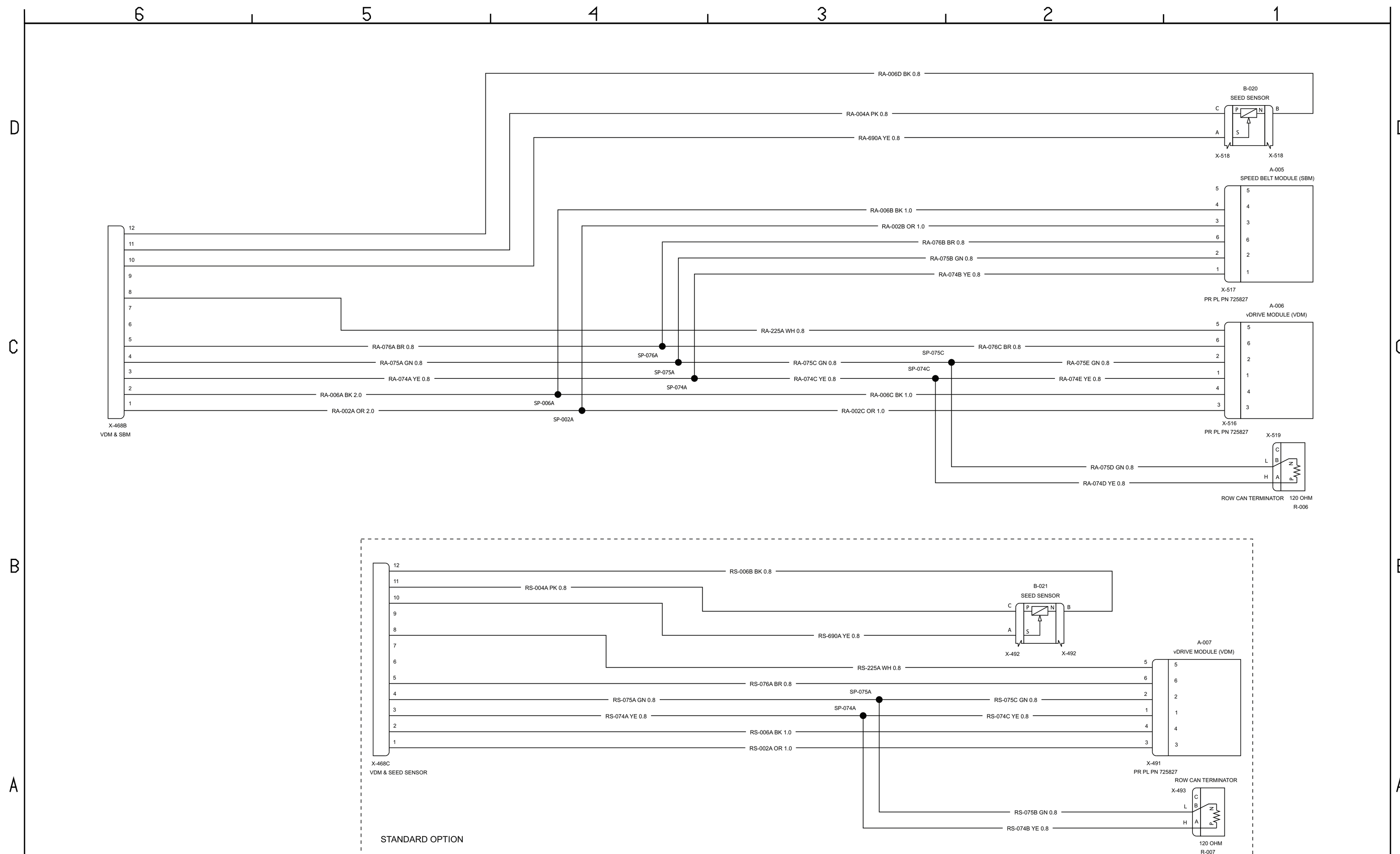
SHEET 14 OF 35 - RIGHT-HAND BUS AND POWER, ROWS 15-19



SHEET 15 OF 35 - RIGHT-HAND BUS AND POWER, ROWS 20-24



SHEET 16 OF 35 - ROW UNIT BACKBONE



SHEET 17 OF 35 - ROW UNIT HIGH SPEED AND STANDARD (OPTION)

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HARNESS WIRE PREFIXES

WIRE PREFIX	DESCRIPTION
AL	ALTERNATOR
BF	BULK FILL
BL	BULK FILL LIGHTING
CB	CENTER CAN BUS
CN3	GRANULAR CHEMICAL CAN/PWR
CN4	BULK FILL SCALE
CP	CENTER POWER
DB	DRAWBAR HITCH EXTENSION
DDB	DISPLAY (20/20) DRAWBAR HITCH EXTENSION
DF	HYDRAULIC DOWN FORCE EXTENSION
DS	DISPLAY (20/20) CAN EXTENSION
EX	GRANULAR CHEMICAL RU EXTENSION
FR	FRAME
GC	GRANULAR CHEMICAL BACKBONE
HI	HITCH
LB	LEFT-HAND CAN BUS
LF	LIQUID FERTILIZER SECTION
OR	ON-ROW HOPPER
OR	LIQUID FERTILIZER INDIVIDUAL ROW
PDM	PDM (ENCLOSURE)
PN	PNEUMATICS
PNM	AIR COMPRESSOR MAIN
PNV	AIR COMPRESSOR VALVE
RA	ROW UNIT HIGH-SPEED
RA	GRANULAR CHEMICAL ROW ADAPTER
RB	RIGHT-HAND CAN BUS
RH	REAR HITCH
RP	RIGHT-HAND POWER
RS	ROW UNIT STANDARD
RU	ROW UNIT BACKBONE
TB	TOOLBAR
TP	TWO-POINT HITCH EXTENSION
UH	UCM INTERFACE

UCM POWER/GROUND ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AN	ANALOG INPUT
CMB	COMBINATION OUTPUT (CONTROLLED HSD or LSD)
FQ	FREQUENCY INPUT
HSD	HIGH SIDE DRIVER (CONTROLED 12V)
LSD	LOW SIDE DRIVER (CONTROLLED GROUND)
12VA1, 12VA2,12VA3, 12VB, 12VP	ECU PWR FOR UCM ELECTRONICS
12VD	PWR FOR HSD SUPPLY RAIL FOR HSD_02; 03; 04; 20
12VF1	PWR FOR HSD SUPPLY RAIL FOR HSD_01; 07; 08; AND LSD PULLUPS FOR LSD_09; 14; 15; 16
12VF2	PWR FOR HSD SUPPLY RAIL FOR HSD_09; 10; 11; AND LSD PULLUPS FOR LSD_10; 11; 12; 13
12VF3	PWR FOR HSD SUPPLY RAIL FOR HSD_14; 15; 21; 22; AND LSD PULLUPS FOR LSD_01; 02; 03; 04; 05; 06; 07; 08; 17; 18; 19
12VH	PWR FOR HSD SUPPLY RAIL FOR HSD_05; 06; 17; 19
12VH1	PWR FOR HSD SUPPLY RAIL FOR HSD_18; 23; 37
12VM	PWR FOR HSD SUPPLY RAIL FOR HSD_24; 25; 26
12VR	CMB SUPPLY RAIL; CMB CIRCUITS POPULATED TO BE 220 MILLIAMP HSD's
12VS1	PWR FOR HSD SUPPLY RAIL FOR HSD_32; 33; 36
12VS2	PWR FOR HSD SUPPLY RAIL FOR HSD_27; 31
12VT1	PWR FOR HSD SUPPLY RAIL FOR HSD_12; 13; 16
12VU1	PWR FOR HSD SUPPLY RAIL FOR HSD_34; 35
12VU2	PWR FOR HSD SUPPLY RAIL FOR HSD_28; 29; 30
5V REF1	PWR FOR SENSORS
P GND, SS GND	GROUND
ECU GND	ECU GROUND (GND CONNECTION, TO CONTROLLER, FROM 9 PIN TRACTOR CONNECTOR)
PWR	POWER (12V POWER INPUT, TO CONTROLLER, FROM 9 PIN TRACTOR CONNECTOR)
ECU PWR	ECU POWER (12V POWER INPUT, TO CONTROLLER, FROM 9 PIN TRACTOR CONNECTOR)

SHEET 18 OF 35 - WIRE PREFIXES AND UCM ABBREVIATIONS

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[55.036] Hydraulic system control 55.1
[55.100] Harnesses and connectors 55.2
[55.301] Alternator 55.3
[55.302] Battery 55.4
[55.516] Seeding control system 55.5
[55.636] Application fertilizer control 55.6
[55.640] Electronic modules 55.7
[55.785] Precision farming system 55.8
[55.860] Frame positioning system 55.9
[55.DTC] FAULT CODES 55.10
Metering system 61
[61.901] Metering mechanical drive 61.1
[61.904] Product metering 61.2
Chemical applicators 63
[63.100] Liquid fertilizer system 63.1
[63.110] Granular chemical system 63.2
Soil preparation/Finishing 75
[75.200] Ground-engaging components 75.1
Planting 79
[79.100] Product handling and delivery drive system 79.1
[79.101] Planting fan system 79.2
[79.103] Planting vacuum system 79.3
[79.104] Planting marking system 79.4
[79.105] Planting tool 79.5
Platform, cab, bodywork, and decals 90
[90.108] Decals and plates 90.1

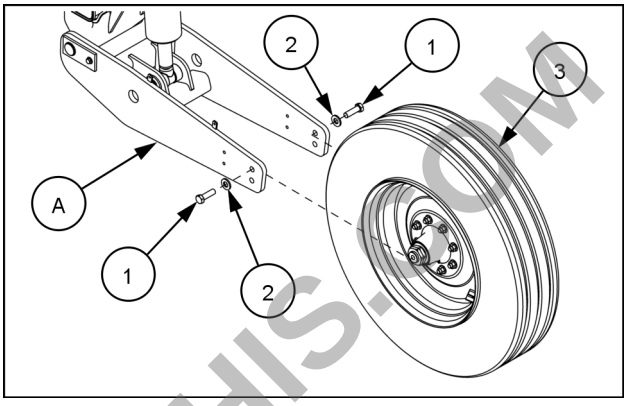
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Carrying and transport wheel components - Remove - 24 Row - Center section carrying wheel

Prior operation:
Basic instructions - Planter preparation for service - Raised position ()

1. Remove the two M20 x 65 bolts **(1)** and the two washers **(2)** that secure the wheel assembly **(3)** to the center section carrying wheel frame **(A)**.
2. Remove the wheel assembly **(3)** from between the arms on the center section carrying wheel frame **(A)**.



SAVM17PLA0221AA 1

Next operation:
Carrying and transport wheel components - Disassemble - 24 Row - Center and wing section carrying wheel (44.530)

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4606-02 - Product Master Off

Control Module: Planter Display

Context:
The display generates this alarm when the planter Universal Control Module (UCM) does not receive a product master apply ON command from the planter display and the planter is in the lowered position and senses movement.

Cause:
The display generates this alarm when the planter Universal Control Module (UCM) does not receive a product master apply ON command from the planter display and the planter is in the lowered position and senses movement.

Possible failure modes:

1. Lost or incomplete calibration of the tool bar position sensor **B-003**.
2. Faulty UCM **A-001**, internal failure.

Solution:

1. Verify that the fault is present and active.

   Use the display to check the status of this fault.

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

   B. If the fault is no longer present or in an active state, the fault may be intermittent and not currently active. Continue with Step **4**.
2. Verify that the toolbar position sensor **B-003** calibration is complete and correct.

   Use the display to verify that the calibration values for the toolbar position sensor **B-003** are stored.

   A. The toolbar position sensor **B-003**calibration values are present and stored.Continue with Step **3**.

   B. The toolbar position sensor is not complete or no longer stored in the display memory.Perform the toolbar position sensor B-003 calibration.
3. Use the Electronic Service Tool (EST) to check the status of the current software.

   Re-flash and/or re-configure as required.

   Re-check the status of this fault.

   A. If this fault is still present and active, the UCM **A-001** has failed internally. Replace the UCM **A-001**.

   B. If this fault is not present, return the planter to field operation and monitor for a recurring fault.
4. 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 intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor 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 and 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.

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