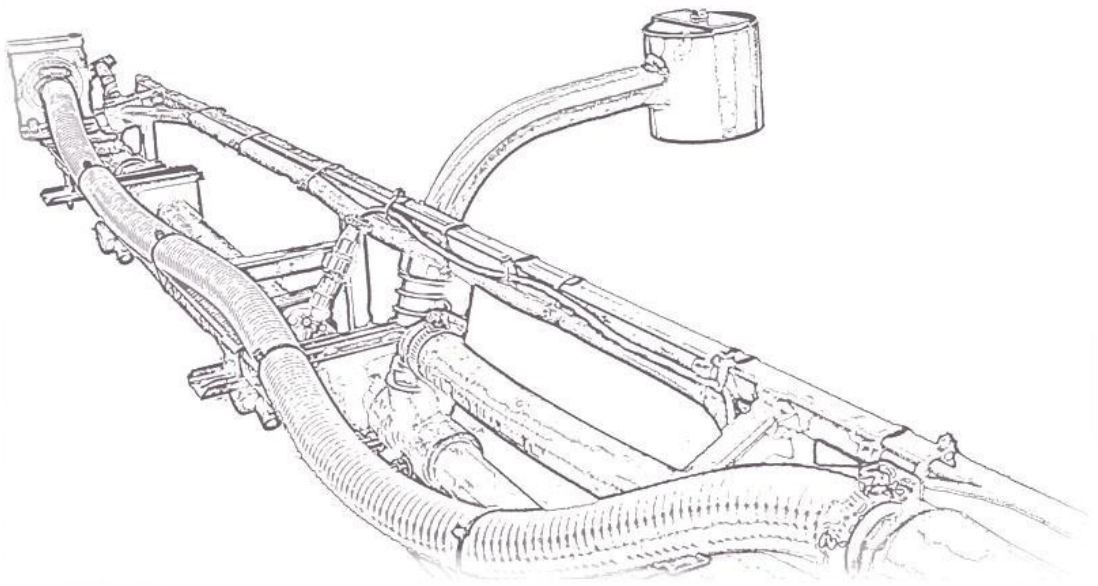
NORAC®

UC4.5™ Spray Height Control System



John Deere 4700, 4710, 4720
Installation Manual

JD7

Printed in Canada

Reorder P/N: UC4.5-BC-JD7-INST Rev D (John Deere 4700, 4710, 4720)

Contents

1 Introduction

Congratulations on your purchase of the NORAC UC4.5 Spray Height Control System. This system is manufactured with top quality components and is engineered using the latest technology to provide operating reliability unmatched for years to come.

When properly used the system can provide protection from sprayer boom damage, improve sprayer efficiency, and ensure chemicals are applied correctly.

Please take the time to read this manual completely before attempting to install the system. A thorough understanding of this manual will ensure that you receive the maximum benefit from the system.

Your input can help make us better! If you find issues or have suggestions regarding the parts list or the installation procedure, please don't hesitate to contact us.

⚠ Important

Every effort has been made to ensure the accuracy of the information contained in this manual. All parts supplied are selected to specially fit the sprayer to facilitate a complete installation. However, NORAC cannot guarantee all parts fit as intended due to the variations of the sprayer by the manufacturer.

Please read this manual in its entirety before attempting installation.

2 General UC4.5 System Layout

Figure 1 illustrates the general layout of the UC4.5 system components:

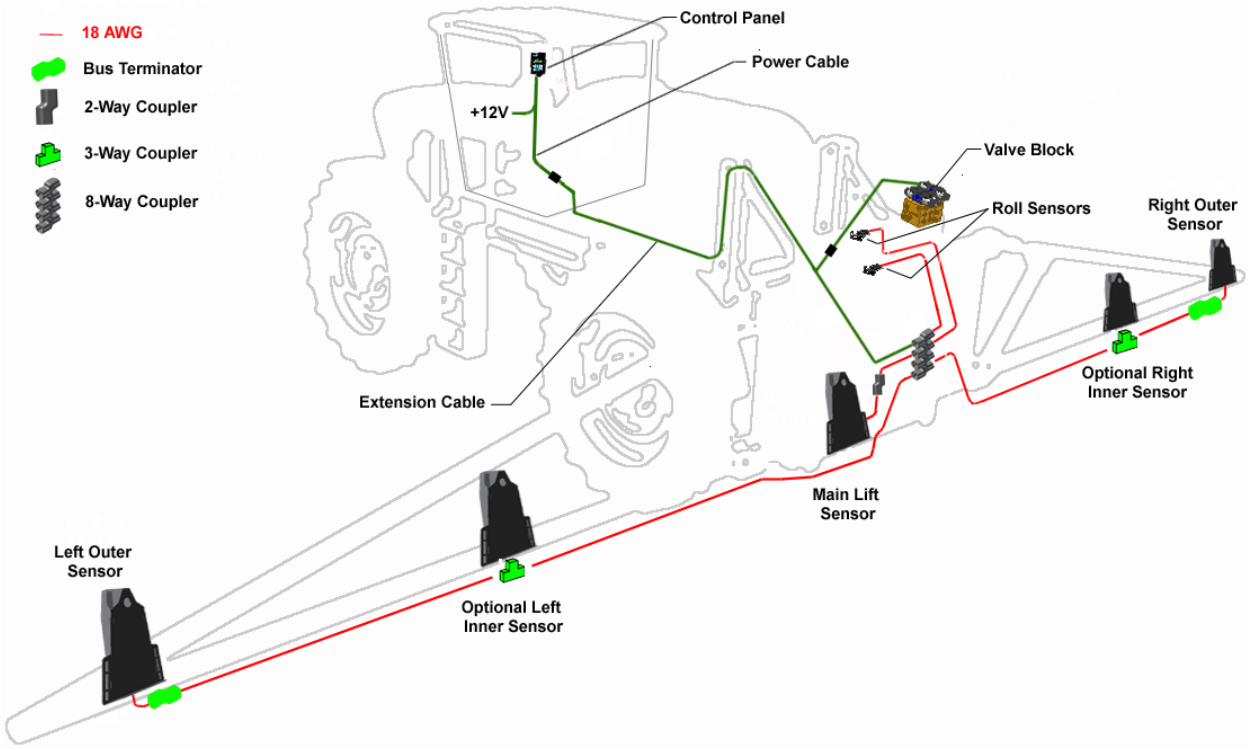


Figure 1: General UC4.5 System Layout

3 Kit Parts

3.1 Kit Overview

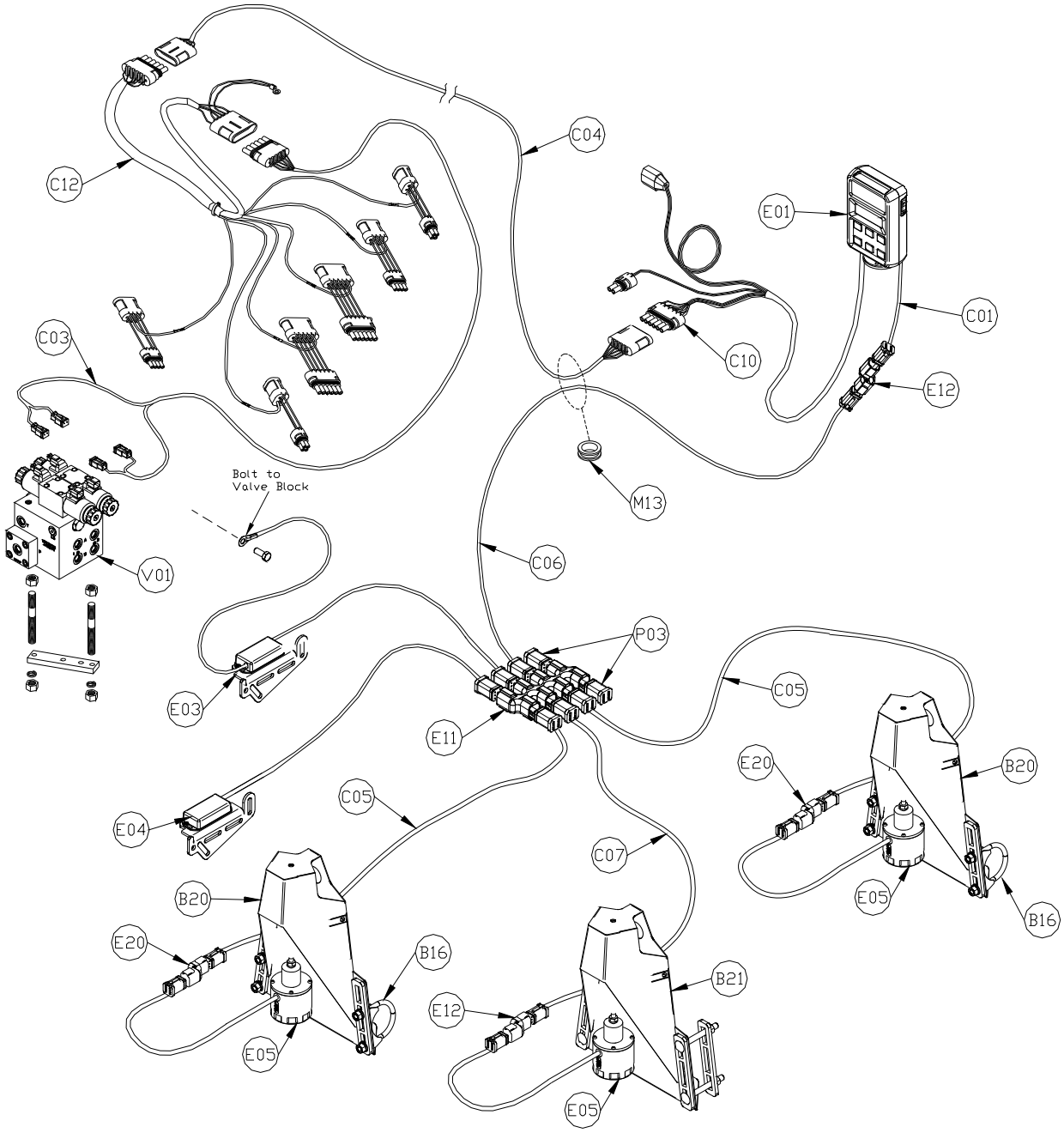


Figure 2: JD7 System Parts

3.2 Hydraulic Plumbing

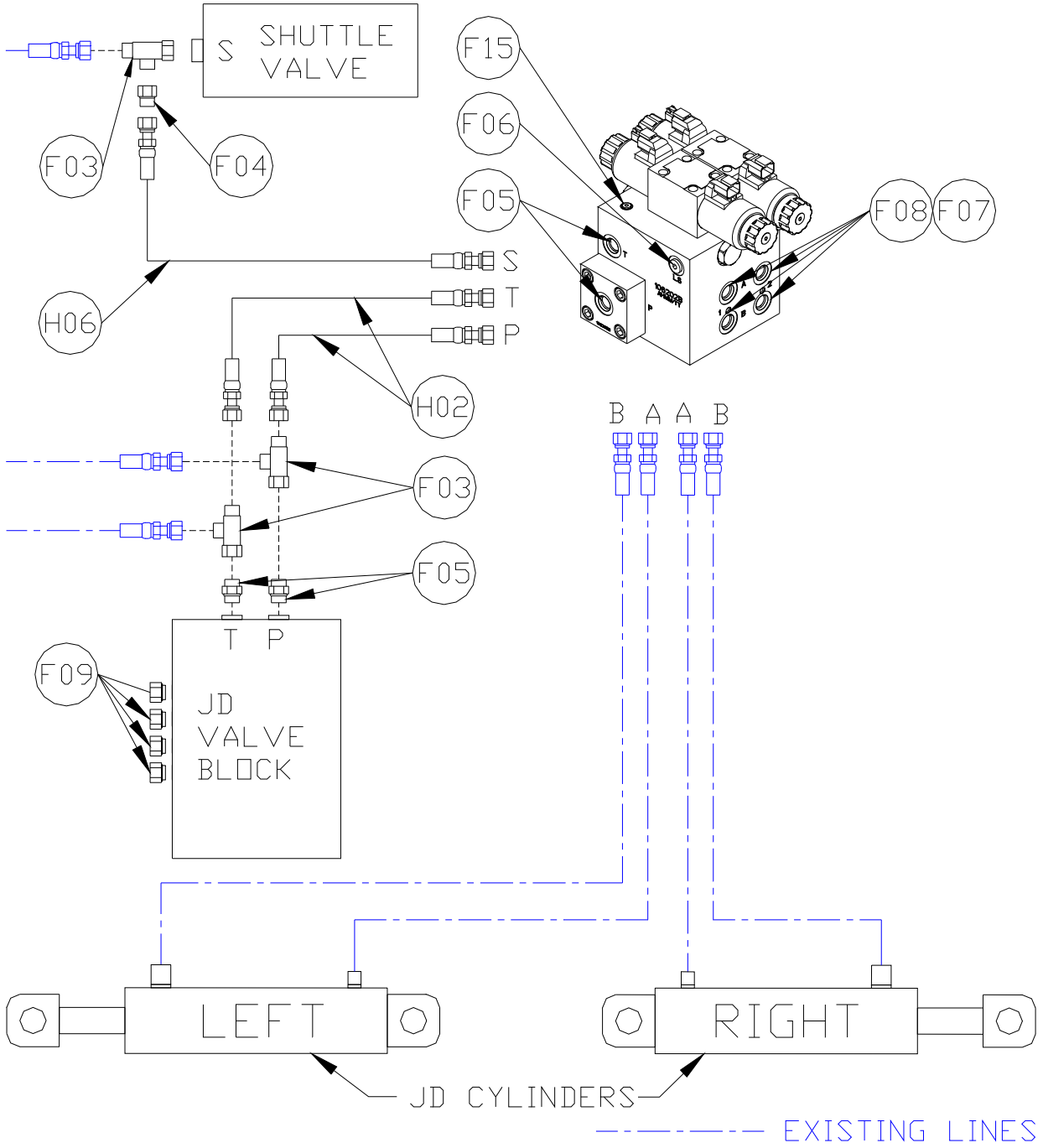
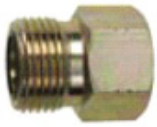
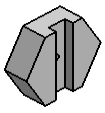


Figure 3: JD7 Hydraulic Plumbing

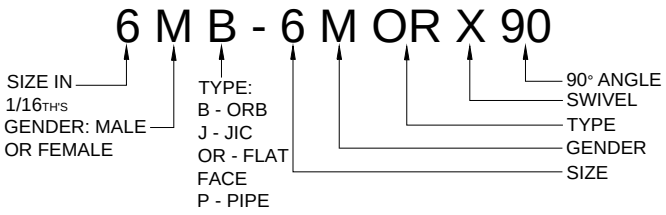
3.3 List of Parts

Item	Part Number	Name	Quantity
B05	44706-01	KIT CABLE TIE BLACK 10 PCS 21 IN 150 PCS 7.5 IN	1
B16	105415	CLAMP ROUND 2IN SS	4
B20	44971	SENSOR MOUNTING BRACKET LOW PROFILE 16GA	2
B21	44973	SENSOR MOUNTING BRACKET LOW PROFILE 16 GA LARGE FLANGE	1
C01	44653-10	CABLE UC4.5 ADAPTER MOLEX TO DEUTSCH	1
C03	44656D	CABLE VALVE VARIABLE RATE DT	1
C04	44651	CABLE VALVE EXTENSION	1
C05	43210-20	CABLE UC5 NETWORK 18 AWG 20M	2
C06	43210-10	CABLE UC5 NETWORK 18 AWG 10M	1
C07	43220-01	CABLE UC5 NETWORK 14 AWG 1M	1
C10	44650-57	CABLE UC4.5 POWER JOHN DEERE	1
C12	44658-01	CABLE UC4 VALVE BC JD	1
E01	45100	UC4.5 BOOM CONTROL PANEL	1
E03	43742	UC5 ROLL SENSOR W TEMPERATURE PROBE	1
E04	43741	UC5 ROLL SENSOR VER. 2	1
E05	43750	UC5 ULTRASONIC SENSOR	3
E11	43765	UC5 NETWORK COUPLER 8-WAY	1
E12	43764	UC5 NETWORK COUPLER 2-WAY	2
E20	43764T	UC5 NETWORK COUPLER 2-WAY WITH TERMINATOR	2
H02	44863-23	HOSE ASSEMBLY 122R2-06 32IN L 6FORX 6FORX	2
H06	44862-05	HOSE ASSEMBLY 122R2-04 144 IN L 4FORX 4FORX	1
H10	44865-19	HYDRAULICS FITTING KIT - JD7	1
M01	UC4.5-BC-MANUAL-OPERATOR	OPERATOR MANUAL UC4.5 SPRAY HEIGHT CONTROL	1
M02	UC4.5-BC-JD7-INST	MANUAL INSTALLATION UC4.5 JOHN DEERE 4700, 4710, 4720	1
M06	45015	ANTI-SEIZE LUBRICANT KIT	1
P03	106162	UC5 NETWORK 6 PIN PLUG	2
V01	44963D	VALVE BLOCK ASSEMBLY 2 STATION CC/LS PROP DT 4 BOLT	1

3.4 Hydraulic Fitting Kit Details (P/N: 44865-19)

Item	Part Number	Name	Quantity	Picture
F02	104691	TEE ADAPTER - 4FORXR 4MORT	1	
F03	104586	TEE ADAPTER - 6FORXR 6MORT	3	
F04	105226	MALE TO FEMALE ADAPTER - 4MOR 6FORX	1	
F05	44917	MALE ADAPTER - 6MB-6MOR MACHINED ORB	4	
F06	104693	MALE ADAPTER - 4MOR 4MB	1	
F07	44916	MALE ADAPTER - 6MB-4MOR MACHINED ORB	4	
F08	44928	ORIFICE INSERT .047 IN ONE WAY	4	
F09	103381	PLUG - 4MBP	4	
F15	105500	SETSCREW 1/4X3/8	1	

Fitting Name Example:



3.5 Additional Parts

Item	Part Number	Packed with:	Name	Quantity	Picture
M13	104557	44650-14 (C10)	RUBBER GROMMET	1	
M14	104302	44658-01 (C12)	6 WAY SHROUD (KEYED B&F)	1	
M15	104303	44658-01 (C12)	6 WAY TOWER (KEYED B&F)	1	
M16	104302	44651 (C04)	6 WAY SHROUD	1	

Important

The use of dielectric grease is not recommended on any NORAC electrical connections.

Important

To ensure all stainless steel hardware does not gall or seize apply a light coating of the supplied Permatex Anti-seize grease (M06) to all threaded parts upon installation. Permatex Anti-seize lubricant is preferred, but other similar anti-seize products may be used.

4 Pre-Install Checklist

The pre-install checklist is necessary to check the existing sprayer functionality before the installation.

1. Unfold the sprayer over a flat, unobstructed area (i.e. no power lines…etc.).
2. Ensure all boom-fold operations are functional (place a check mark in boxes below).
3. Bring engine to field-operational RPM and record below.
4. Record the time (seconds) it takes for a full stroke for all boom functions. To ensure repeatable measurements, take the average of 3 trials.
5. Not all sprayers will have the functions listed below in **Figure 4**.

⚠ Important

Ensure the boom has sufficient travel so it does not contact the ground during these tests.

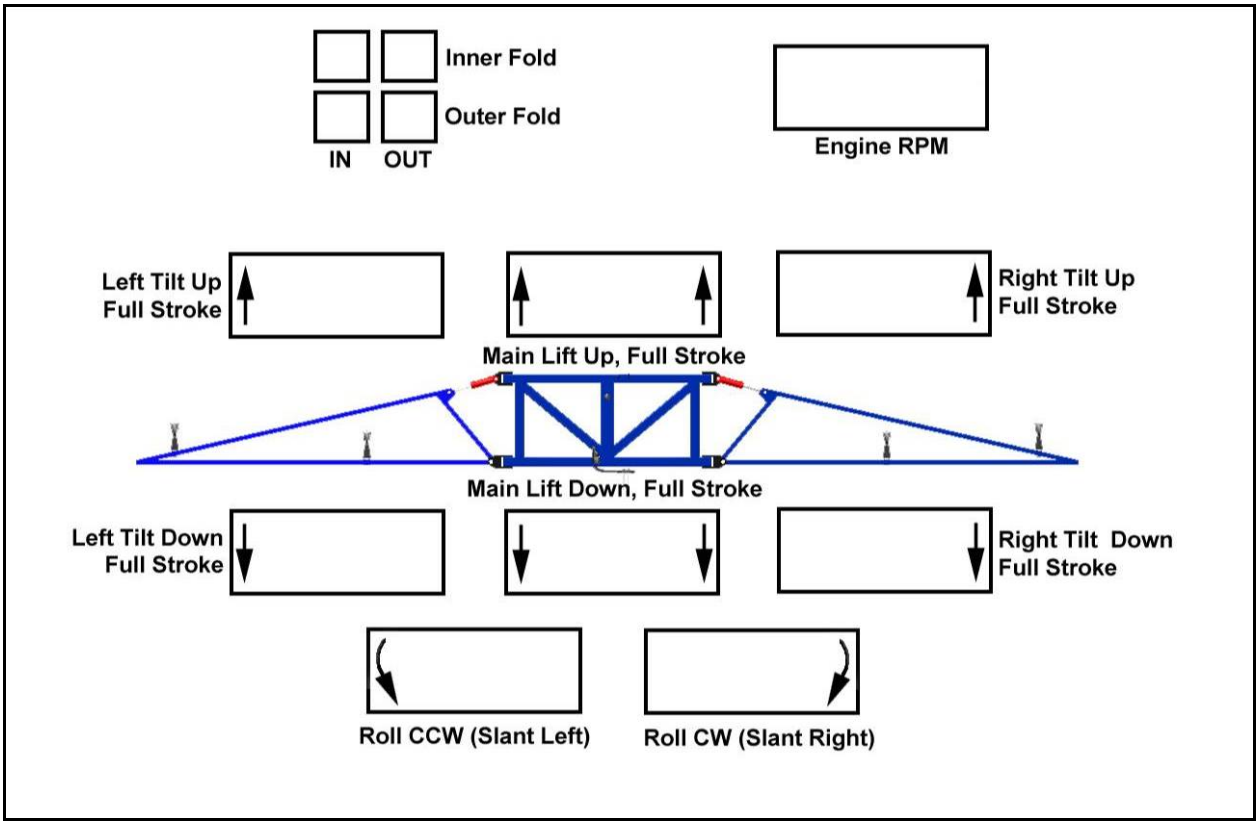


Figure 4: Pre-Install Boom Speeds

5 Ultrasonic Sensor Installation

5.1 Ultrasonic Sensor Serial Number Arrangement

When installing the sensors, start with the smallest serial number on the left-hand side, and proceed to the largest serial number on the right hand side. Each sensor has a serial number stamped on the sensor housing.

Apply a light coating of the supplied Permatex Anti-seize grease (M06) to all threaded parts upon installation.

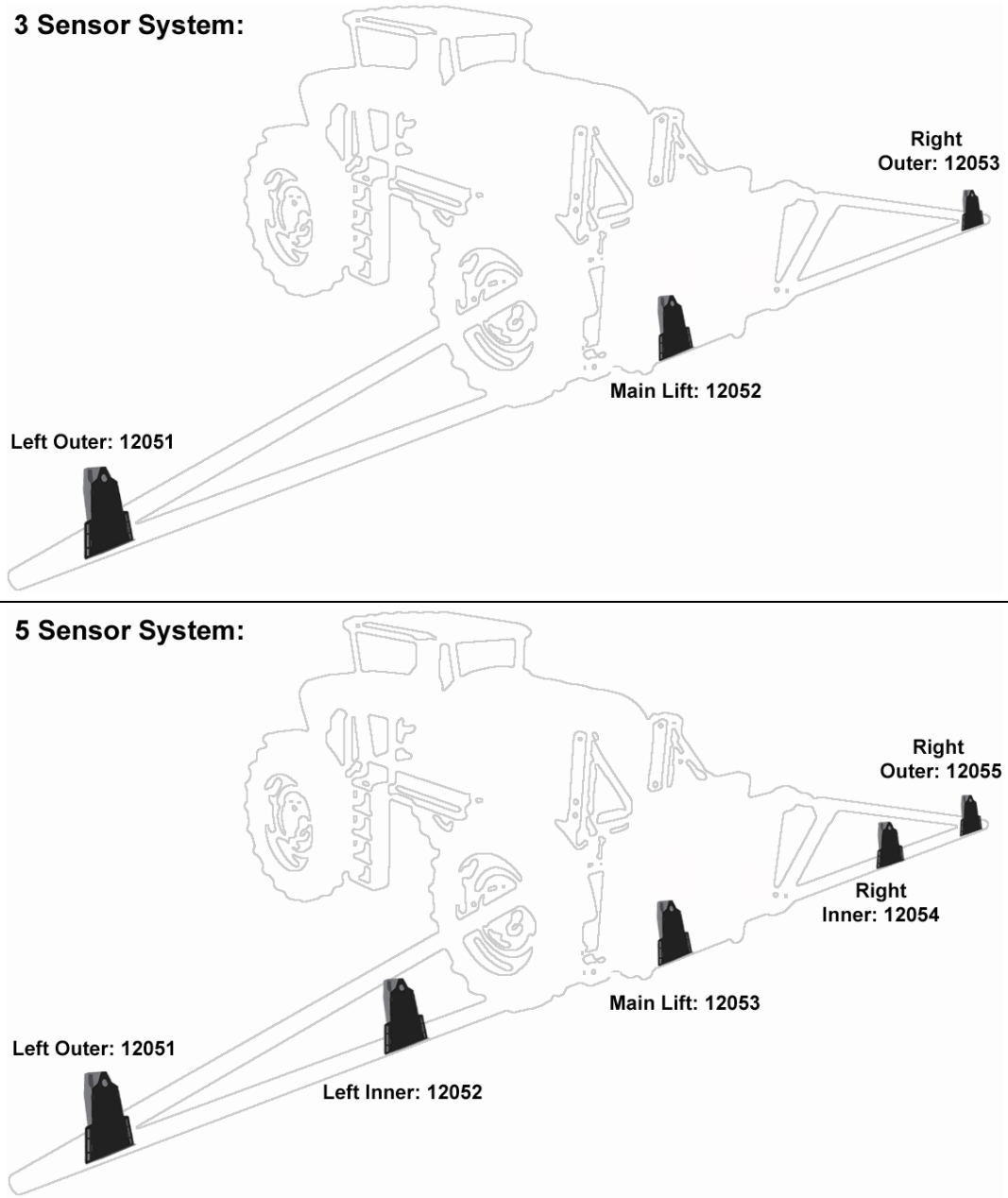


Figure 5: Sensor Serial Number Arrangement

5.2 Ultrasonic Sensor Mounting Guidelines

The following guidelines will ensure optimal sensor performance and prevent sensor measurement error. These rules should be followed for both the wing sensors and the main lift (middle) sensor.

1. In its lowest position, the sensor must be 9 inches (23 cm) or more from the ground.

2. Ensure that there are no obstructions within a 12-inch diameter circle projected directly below the center of the sensor.

3. The sensor should be approximately vertical at normal operating heights.

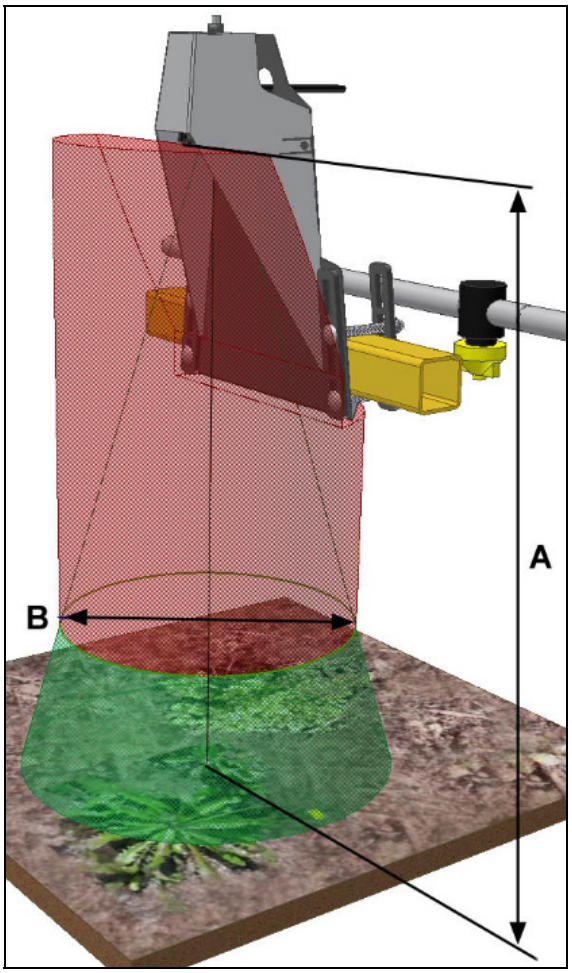


Figure 6: Sensor Mounting Guidelines

5.3 Low Profile Bracket Mounting Guidelines

1. Minimize the distance between the bolts to prevent bending the bracket and prevent the bracket from loosening over time.

2. Ensure the bracket is mounted tight against the bottom of the boom, minimizing the distance between the boom structure and the angled flange.

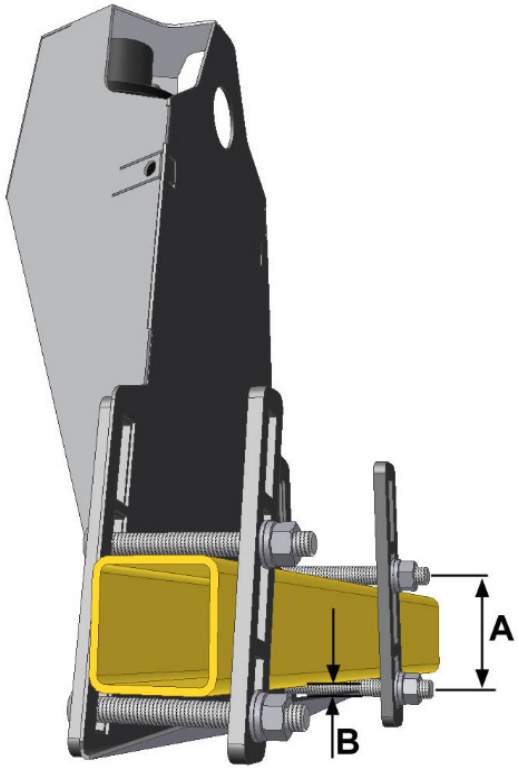


Figure 7: Bracket Mounting Guidelines

⚠ Important

A problem can arise if a sensor is not mounted correctly. It is possible for the sensor to read off of the boom instead of the ground. This may only become apparent once the control system is switched from soil to crop mode.

Also be careful that the sensor bracket does not collide with any other part of the boom when the boom is folded to transport position. If possible, mount the sensor brackets while the booms are folded to ensure they will not cause interference.

5.4 Wing Sensor Installation

1. The wing sensor mounting brackets (B20) are the two brackets with the shorter mounting flange.

2. The sensor bracket should be oriented forward (ahead of the boom).

3. Typically the best mounting location for the wing sensor brackets will be near the end of the boom tips, approximately two feet (60cm) from the end.

4. Depending on the boom design, some breakaway sections will lift upwards as they break back. If the sensor is mounted to this portion of the boom, the system will force the boom downwards towards the ground as the boom folds backwards.

5. Mount the NORAC ultrasonic sensor into the sensor bracket and run the sensor cable either through hole in the back or through the side cut-out and behind the bracket. Ensure the cable is clear of moving parts and will not be damaged during folding.

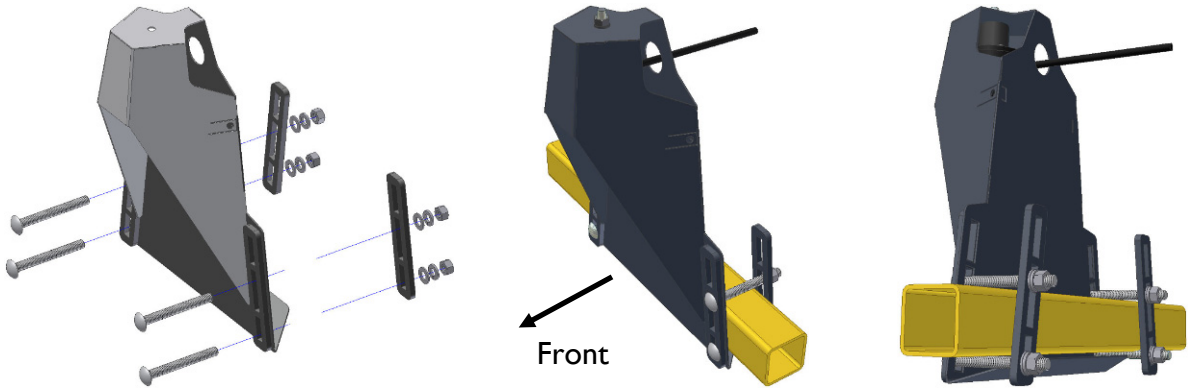


Figure 8: Bracket Mounting Example

6. Exhaust clamps (B16) can be used if mounting the sensor brackets to a portion of the boom with round tubing.

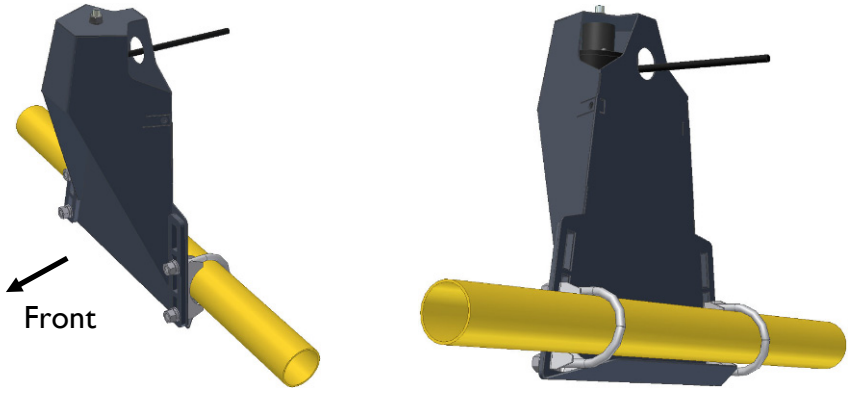


Figure 9: Bracket Mounted with Exhaust Clamps

5.5 Main Lift Sensor Installation

1. The main lift mounting bracket (B21) is the bracket with the longer mounting flange.

2. There are a variety of ways to mount the main lift bracket on most sprayers. The bracket should position the sensor approximately in the center of the sprayer, forward of the boom. An example of this mounting is illustrated in **Figure 11**.

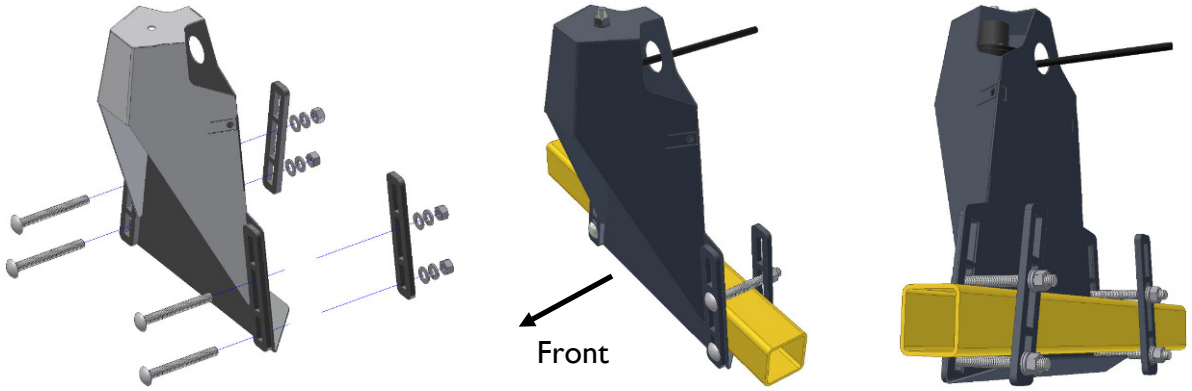


Figure 10: Bracket Mounting Example

3. Mount the ultrasonic sensor to the main lift bracket. Run the sensor cable through hole and behind the bracket.

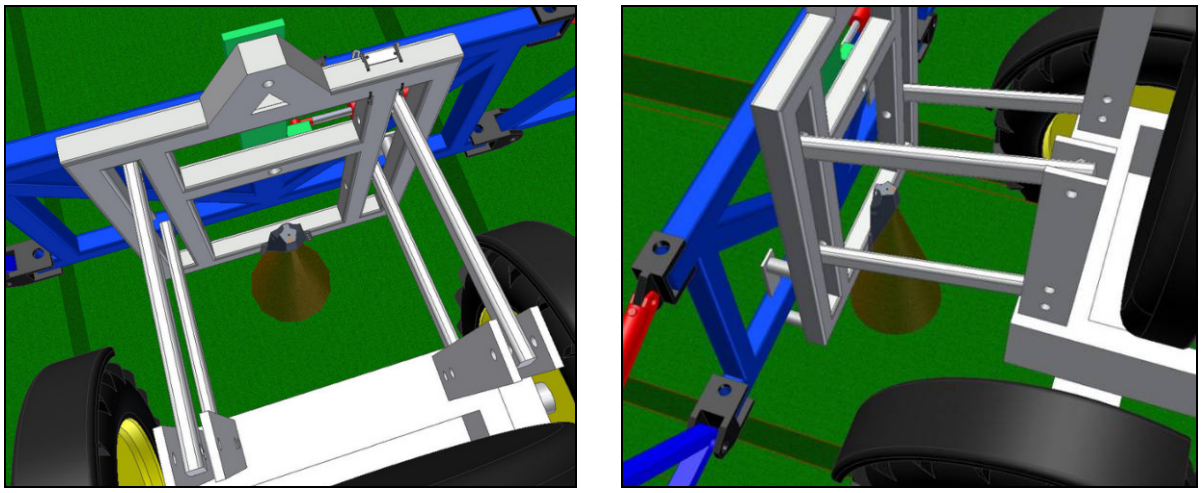


Figure 11: Example Mounting of the Main Lift Bracket

⚠ Important

Avoid mounting the main lift sensor over or near a wheel-track. Measurements from the wheel-track do not provide an accurate crop height and will cause measurement and control error.

Ensure the bracket does not collide with any other part of the sprayer throughout the full range of main lift motion.

6 Roll Sensor Installation

6.1 Bracket Assembly

1. Securely mount the roll sensors to the included roll sensor brackets using the #6 machine screw and nylon lock-nuts.

2. The orientation of the mounted roll sensor to the roll sensor bracket will depend on the bracket mounting. The roll sensor CANbus connector must be pointing towards the right side of the sprayer (when looking from the rear of the sprayer).

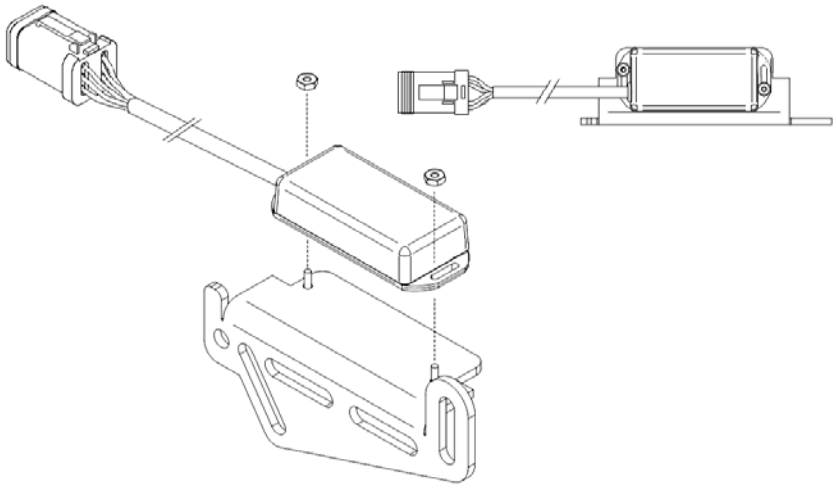


Figure 12: Mounting Roll Sensor to Bracket

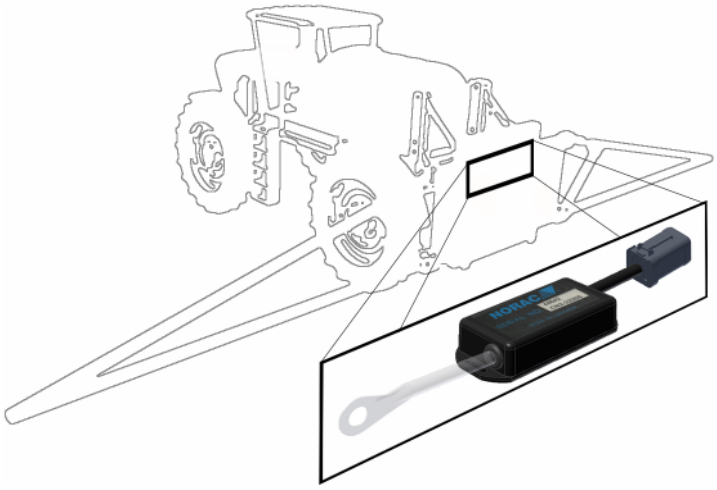


Figure 13: Roll Sensor Orientation - Connector Facing Right Wing

6.2 Roll Sensor Mounting Guidelines: Center Pivot Booms

1. When mounting the roll sensors, mount the roll sensor **without** the temperature probe on the boom frame and the roll sensor **with** the temperature probe on the chassis (non-pivoting portion of the sprayer). For optimal performance, minimize the distance between the roll sensors (A) and minimize the height from each roll sensor to the pivot point (B).

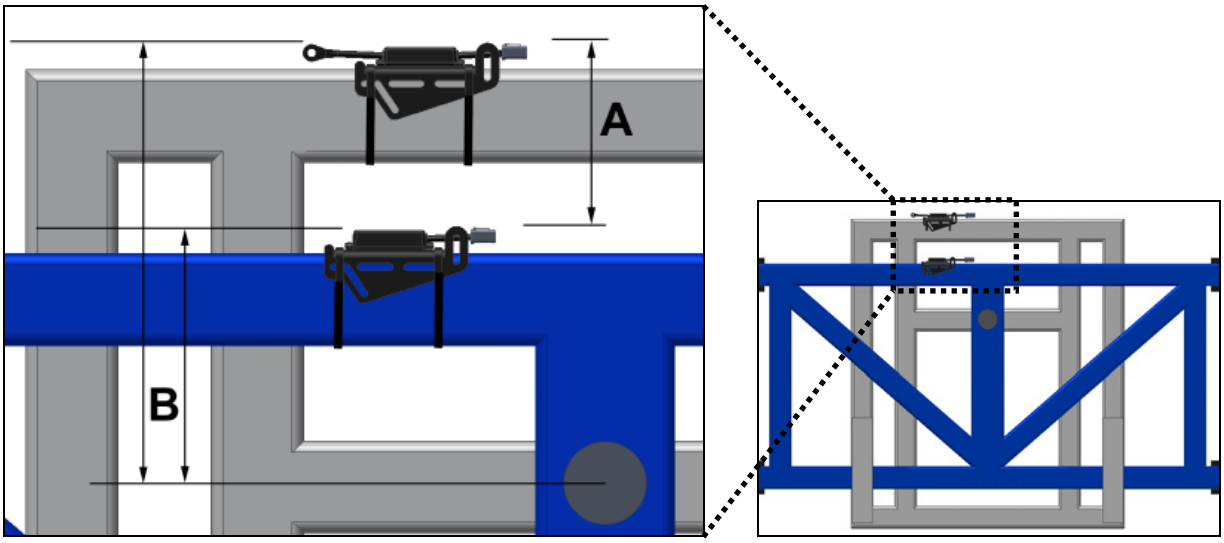


Figure 14: Roll Sensor Mounting on a Center Pivot Suspended Boom

2. Ensure the roll sensors are relatively level when the sprayer boom and chassis are level.

3. Both roll sensor cables should be pointing towards the right hand wing of the sprayer.

4. Ensure both roll sensors are mounted adequately and that the cables provide enough slack to allow sufficient boom roll.

5. The chassis roll sensor can also be mounted inverted to minimize the distance between the roll sensors (**Figure 15**).

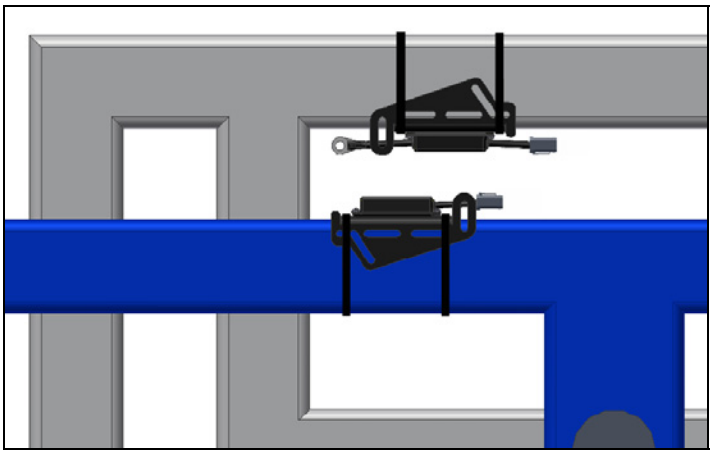


Figure 15: Inverted Chassis Roll Sensor Mounting on a Center Pivot Suspended Boom

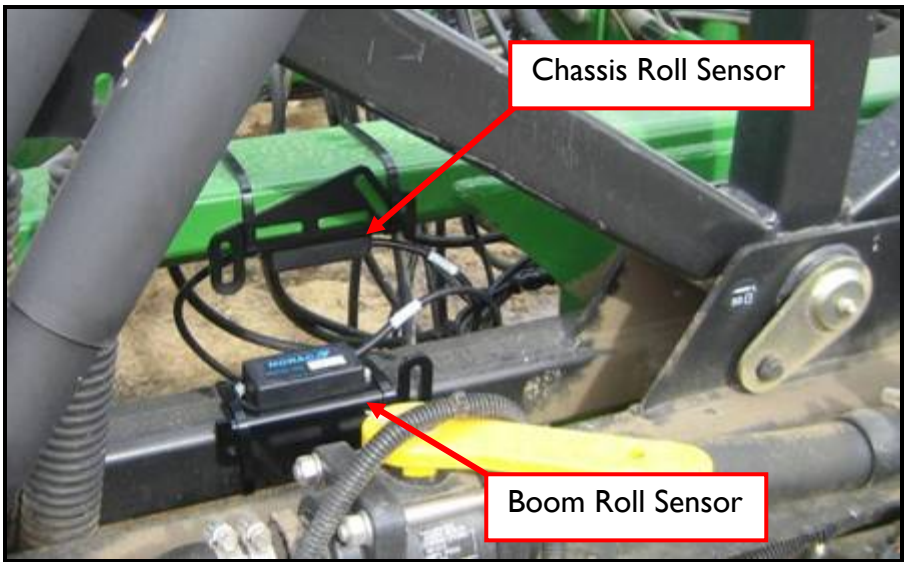


Figure 16: Roll Sensor Mounting (Viewed from Rear of Sprayer)

6.3 Temperature Probe

Once the block is mounted, fasten the temperature probe from E03 to the NORAC valve block using the included 3/8x1/2" bolt as illustrated in **Figure 17**.

Figure 17: NORAC Valve Block with Temperature Probe Installed

7 Electrical Installation

1. Install the UC4.5 Control Panel (E01) in the cab of the sprayer. Mount the panel where it will be clearly visible and within easy reach of the operator.

   A good spot to mount the UC4.5 control panel is on the right hand side of the cab to the Roll Over Protection Bar. Four pilot holes for the screws provided need to be drilled to facilitate the control panel mounting.

   If desired, a mounting bracket (part #A53255) can be purchased from your local John Deere dealer to allow the UC4.5 control panel to be mounted to the existing John Deere terminal mount. Another option is to purchase an adapter for the flexible panel mount that has a 3/8" NC threaded stud on the end to bolt through the existing JD mount. These are available at your local outdoor store as a RAM mount part number RAM-B-236. (See http://www.ram-mount.com/)

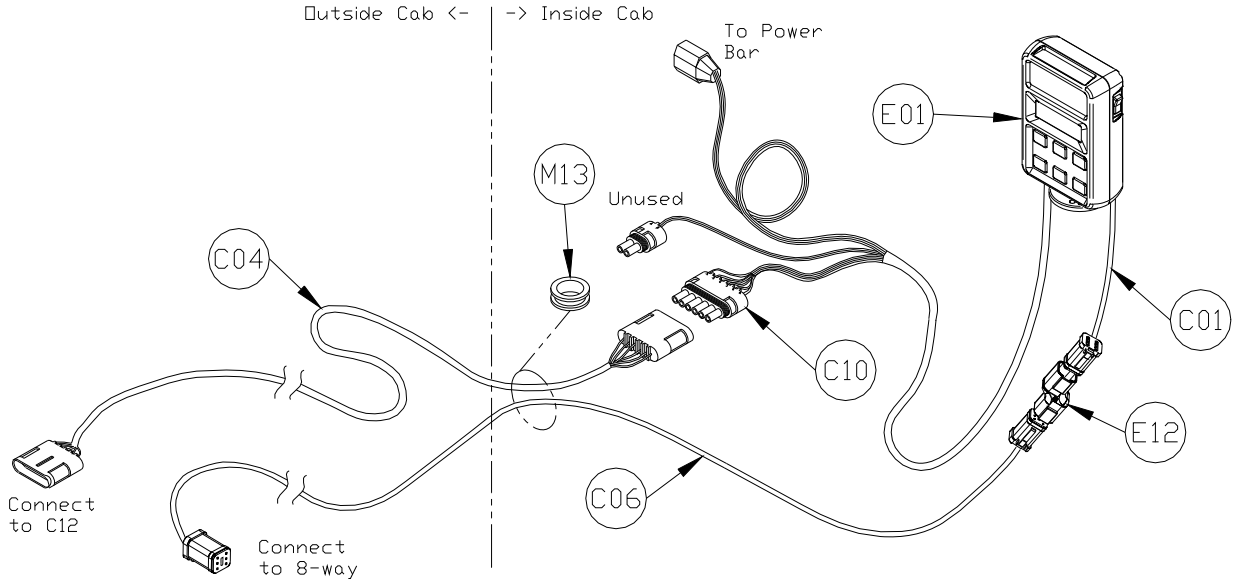


Figure 18: Cable Configurations: C01, C04, C06 and C10

2. Connect the UC4.5 power cable (C10) to the 16-pin connector on the back of the UC4.5 Control Panel in the cab. Connect C01 to the 4-pin connector on the back of the UC4.5 Control Panel. Cable tie C10 and C01 to the RAM mount to help provide strain relief.

⚠ **Ensure the UC4.5 Control Panel's power is OFF for the remaining installation. (Bottom of switch pressed IN).**

3. Connect C06 to C01 using the 2-way coupler (E12).

4. Plug the 3-pin connector on C10 to the power bar in the cab.

5. Route the free ends of C10 and C06 along the side of the cab post and under the floor mat.

The hole in the floor may be covered by a plate, or a grommet may be installed in the hole. They can be reinstalled after the wiring is complete. NORAC supplies a grommet (M13) for the hole if one does not exist.

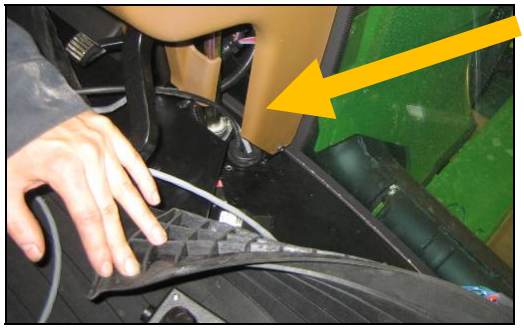


Figure 19 – Hole under Floor Mat

The cables may also be routed through the rear window of the cab.

6. Plug in the 6-pin tower on C10 to the 6-pin shroud on the valve extension cable (C04).

C04 comes with one connector (M16) unassembled to allow the cable to be run through a hole in the floor under the steering column. To assemble this connector (M16), refer to the drawing in Section 10. The pins require a special tool to remove them if an error is made.

7. Route the free ends of C06 and C04 to the rear of the sprayer near the sprayer valve block. Run the cables along the sprayer frame with the JD harness.

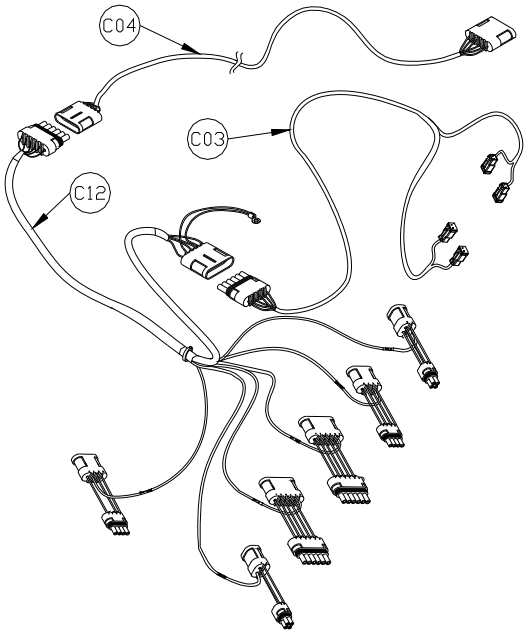


Figure 20: Cable Configurations: C12, C03 and C04

8. Connect the 6-pin shroud on C04 to 6-pin tower on the junction cable (C12).

9. Connect the 6-pin tower on the valve cable (C03) to 6-pin shroud on C12.

10. C12 has a screw terminal. It must be connected to the frame of the sprayer. Scrape any paint off the frame where the terminal is mounted. A good location is the bolt holding the JD wiring harness next to the large connector at the rear of the sprayer frame.

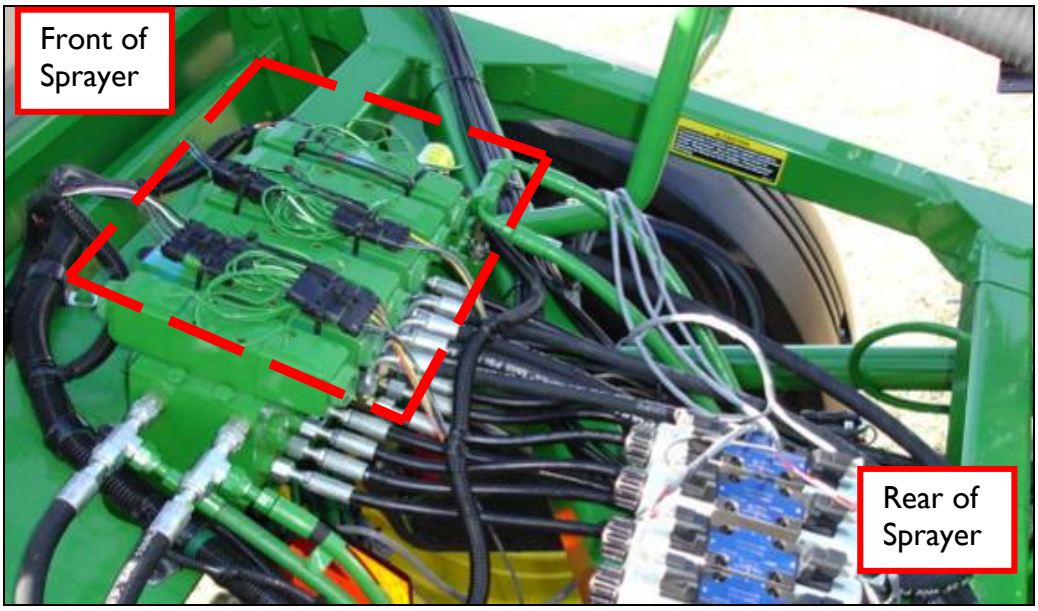
The terminal must be attached directly to the sprayer frame NOT the parallel linkage. An improper ground can cause UC4.5 Spray Height Control system malfunctions.

11. Insert the connectors labeled **Main Up** and **Main Down** on C12 into the main lift connectors on the John Deere solenoids (**Figure 21**).

12. Insert the other connectors on C12 into the tilt connectors on the John Deere solenoids according to the labels on the wires.

Important

There is one set of different connectors (M14 and M15) included with the interface cable (C12). Some John Deere sprayers use this connector on the left down function. If the sprayer has this connector, remove the existing NORAC connectors using the included pin removal tool. Insert the wires into the new connector and ensure they are in the same position as they were in the previous connector.



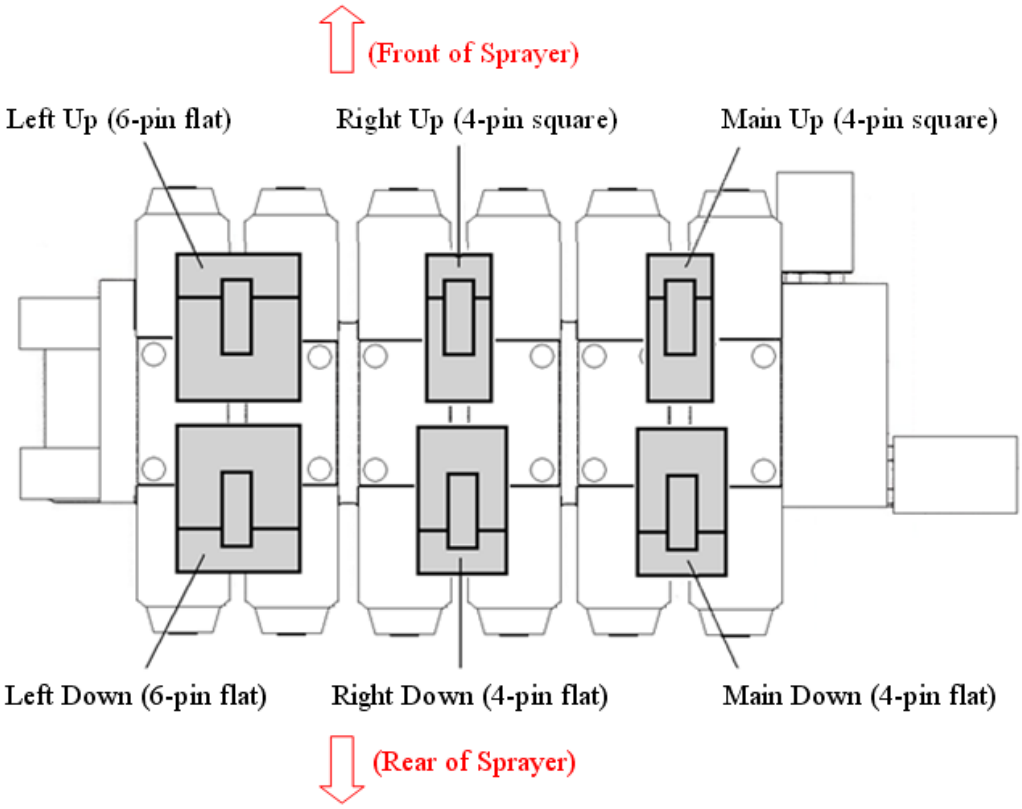


Figure 21: John Deere Boom Valve Block (top view) with Connectors Labeled

Important

Some older model John Deere sprayers (4700 and 4710) may have a different style boom valve block that has different connector arrangements. The NORAC interface cable (C12) 44658-01 will require modification. See Appendix A for modification procedure.

13. Connect the 2-pin connectors on C03 to the NORAC valve block, as shown in **Figure 22**.

14. The connectors on the valve cable (C03) are marked **RIGHT UP**, **LEFT UP**, **RIGHT DOWN** and **LEFT DOWN**. Cables labeled with **UP** go on the same side as the hydraulic hoses.

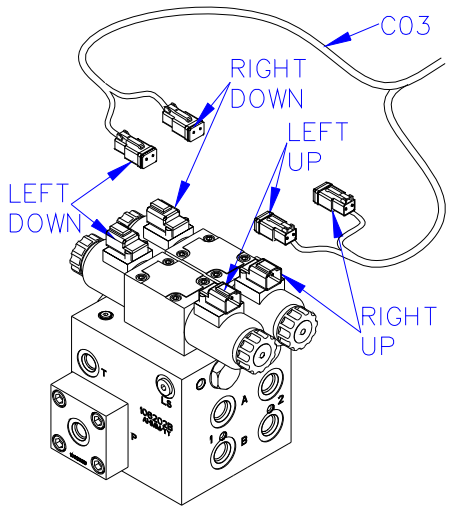


Figure 22: Valve Cable Connections

15. Fasten the 8-way coupler to the boom with cable ties. Connect C06 to the 8-way coupler.

16. Connect both roll sensors to the 8-way coupler.

17. Connect the main lift sensor to the 8-way coupler using cable C07 and a 2-way coupler (E12). Cable C07 and item E12 may not be needed if the 8-way coupler is mounted close enough to the main lift sensor.

18. Connect two cables (C05) to the 8-way coupler and route along the booms to the wing sensors. Follow existing cables and hoses to be sure the cable will not be pinched or stretched.

19. At the sensor brackets, attach a 2-way coupler with terminator (E20) to the sprayer boom. The 2-way coupler with terminator is the white two way coupler. Plug the sensor and the CANbus cable into the 2-way coupler.

IMPORTANT:

Provide enough slack in all cables to account for the movement of the main section, parallel lift, and FOLDING boom movement.

8 Hydraulic Installation

Warning!

Ensure all pressure has been bled from the system before disconnecting any lines or fittings. Hydraulic pressure will exist on the wing tilt circuits unless the wings are being supported by other means. The hydraulic installation may be performed with the wings in transport position, resting on the ground or with the tilt cylinders fully extended.

Important

Component failure due to oil contamination is not covered under the NORAC UC4.5 system warranty. It is recommended that a qualified technician perform the hydraulic installation.

8.1 Valve Assembly

1. On a clean surface remove the plastic plugs from the block.
2. Install the 6MB-6MOR (F05) fittings on the "P" and "T" ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).
3. Install the 4MOR-4MB (F06) into the "S" port and tighten to 11 ft-lbs.
4. Insert the orifices (F08) into the "B" ports with the notch facing out.
5. Insert the orifices (F08) into the "A" ports with the notch facing in.
6. Install the 6MB-4MOR (F07) fittings into the "A" and "B" ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

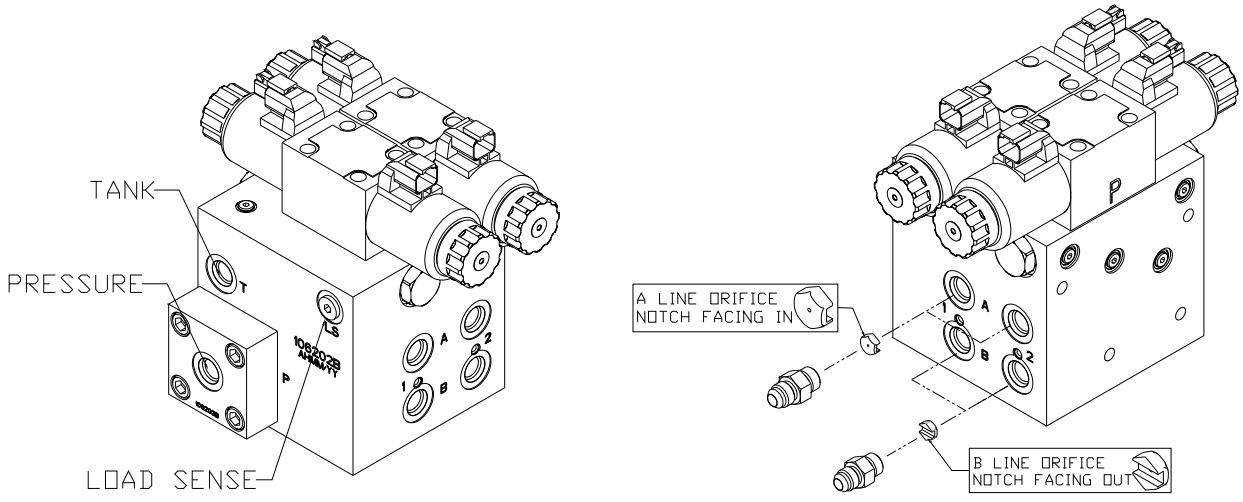


Figure 23: NORAC Valve Block Details

7. Remove the plug from the Sense Line Bleed port. Location is shown in **Figure 24**. Gently tap the plug with a hammer to loosen it before attempting to remove it.

8. Remove the Sense Line Bleed Orifice and discard. (**Figure 24**) Install the setscrew (F15) into the Sense Line Bleed Orifice location. Ensure the setscrew is threaded entirely into the hole and tightened to 35-40 in-lbs to ensure a tight seal. Reinstall the plug and tighten to 35-40 in-lbs.

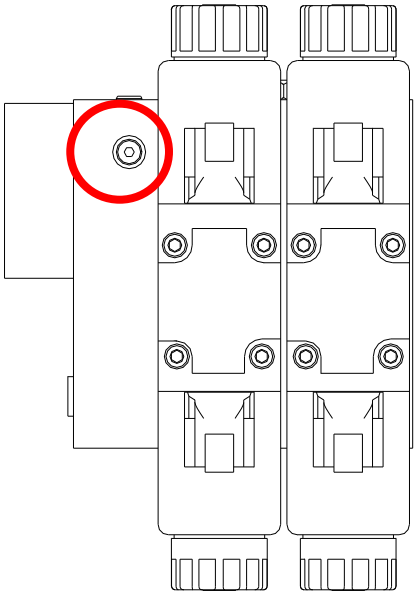


Figure 24: Load Sense Bleed Orifice Location on Top of Block

8.2 Valve Block Mounting

Important

Ensure that no hydraulic components will interfere with any sprayer parts or be pulled tight at any time.

The recommended location for the valve is on the angled cross tube of the parallel linkage on the sprayer. Orient the valve block so the "A" and "B" ports face towards the boom (Figure 25).

1. A suitable mounting location for the valve block is illustrated in **Figure 25**.

2. Insert the threaded rod into the block and use a hex nut to hold the rod. The block holes are 3/8" NC-1" deep. If bolts are used instead of the threaded rod, ensure the bolts thread in at least 3/8".

3. Use the remaining hardware to secure the block to the sprayer.

4. Cut off excess threaded rod, if necessary.

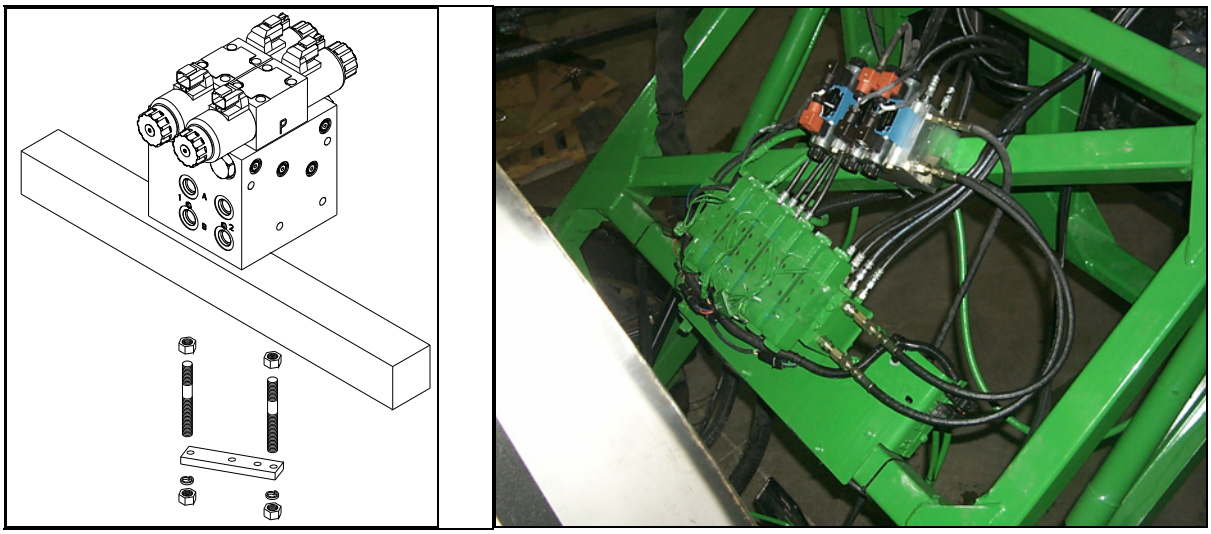


Figure 25: Valve Block Mounting

8.3 Hydraulic Plumbing

Warning!

From this point on in the installation the booms will be inoperative until the hydraulics are fully installed.

1. After the NORAC valves are mounted, the hydraulic hoses and fittings can be plumbed. The plumbing for the hydraulic circuit is shown schematically in **Figure 3**.

2. Connect the NORAC supplied hoses (H02) to the pressure ("P") and tank ("T") ports on the NORAC valve block (V01).

3. Tee hoses H02 ("P" and "T" lines) into the ports on the sprayer valve block with the 6FORXR-6MORT fittings (F03). The elbow fittings currently on the JD valve block must be replaced by the 6MB-6MOR fitting (F05).

4. The existing hoses that run to the boom tilt cylinders should be disconnected from the sprayer valve block and reconnected to the NORAC valve block.

5. The "raise" lines must be connected to the "B" ports of the NORAC valve block. The ports on the sprayer block must then be capped with 4MBP plugs (F09).

6. The "A" ports of the NORAC block must be connected to the "lower" lines of the cylinders. The ports on the sprayer block must then be capped with F09.

7. Connect H06 to the Load Sense ("S") port on the valve block. Tee the Load Sense line (H06) directly in to the "S" port of the shuttle valve manifold using fittings F03 and F04 as shown in **Figure 26**, **Figure 27**, **Figure 28** and **Figure 29.**

Most John Deere Sprayers have orifices in the "A" and "B" lines of the boom tilt cylinders. Remove the fitting from the cylinder to remove the orifices. The orifice is directly beneath the fitting.

There are multiple versions of JD load sense blocks on sprayers. Choose the picture that most closely resembles the sprayer valve block and tee in accordingly.

On some installs the Load sense hose (H06) may be too long and the excess hose must be coiled and secured where it will not interfere with other components.

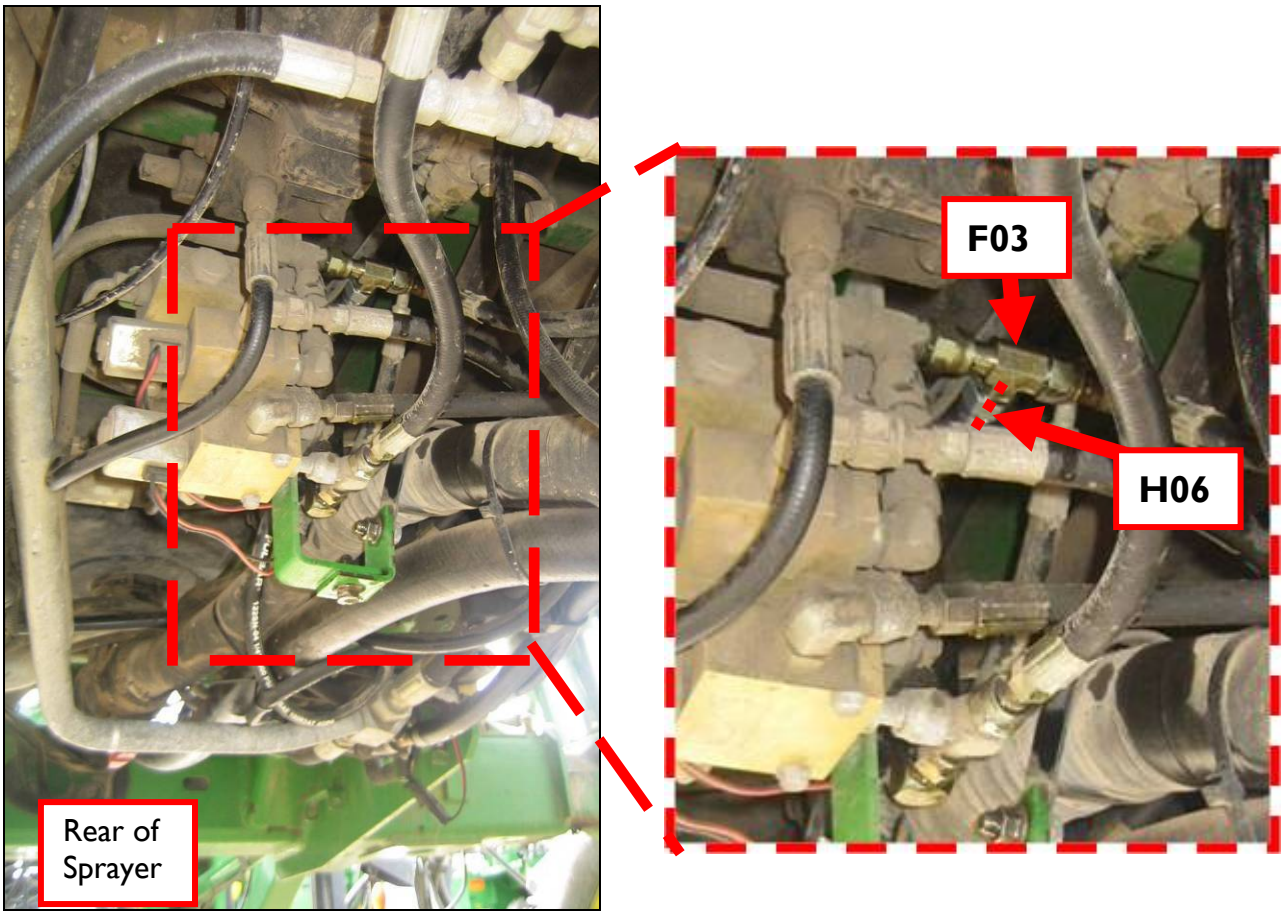


Figure 26: Looking towards the rear of the sprayer on a JD4700, JD4710

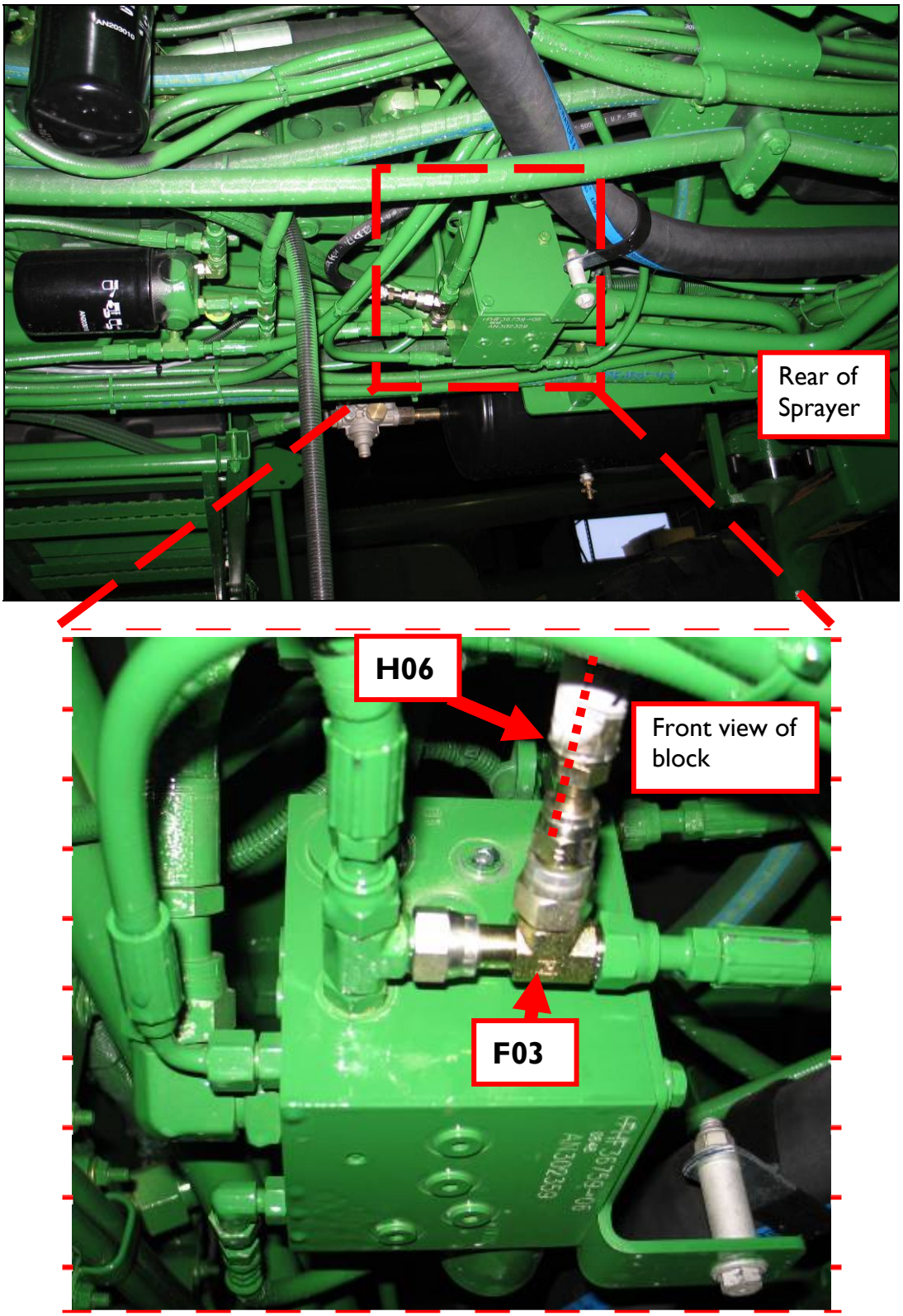


Figure 27: Load Sense Plumbing on some JD4710

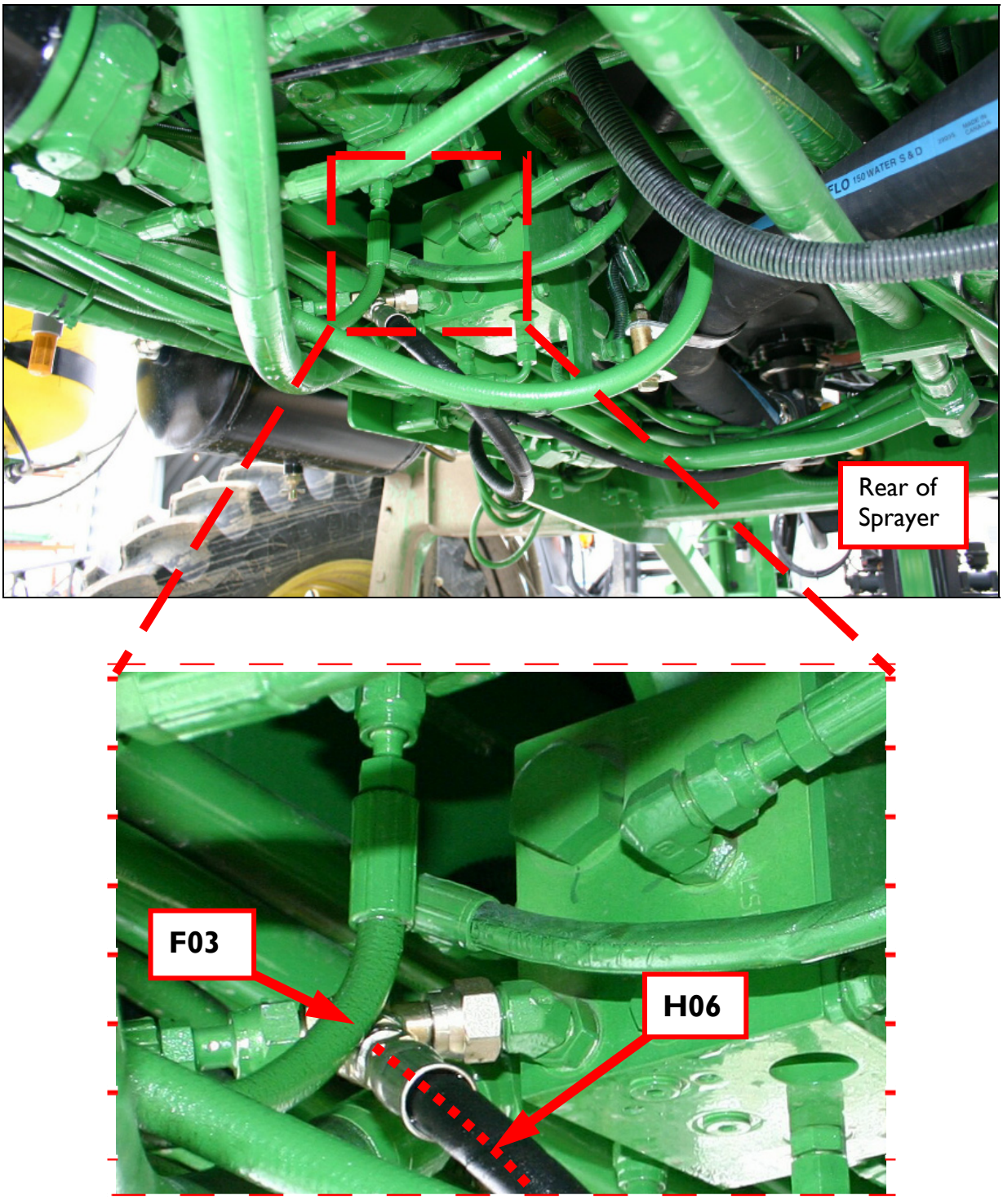


Figure 28: Load Sense Line Connection to John Deere Combination Valve Block

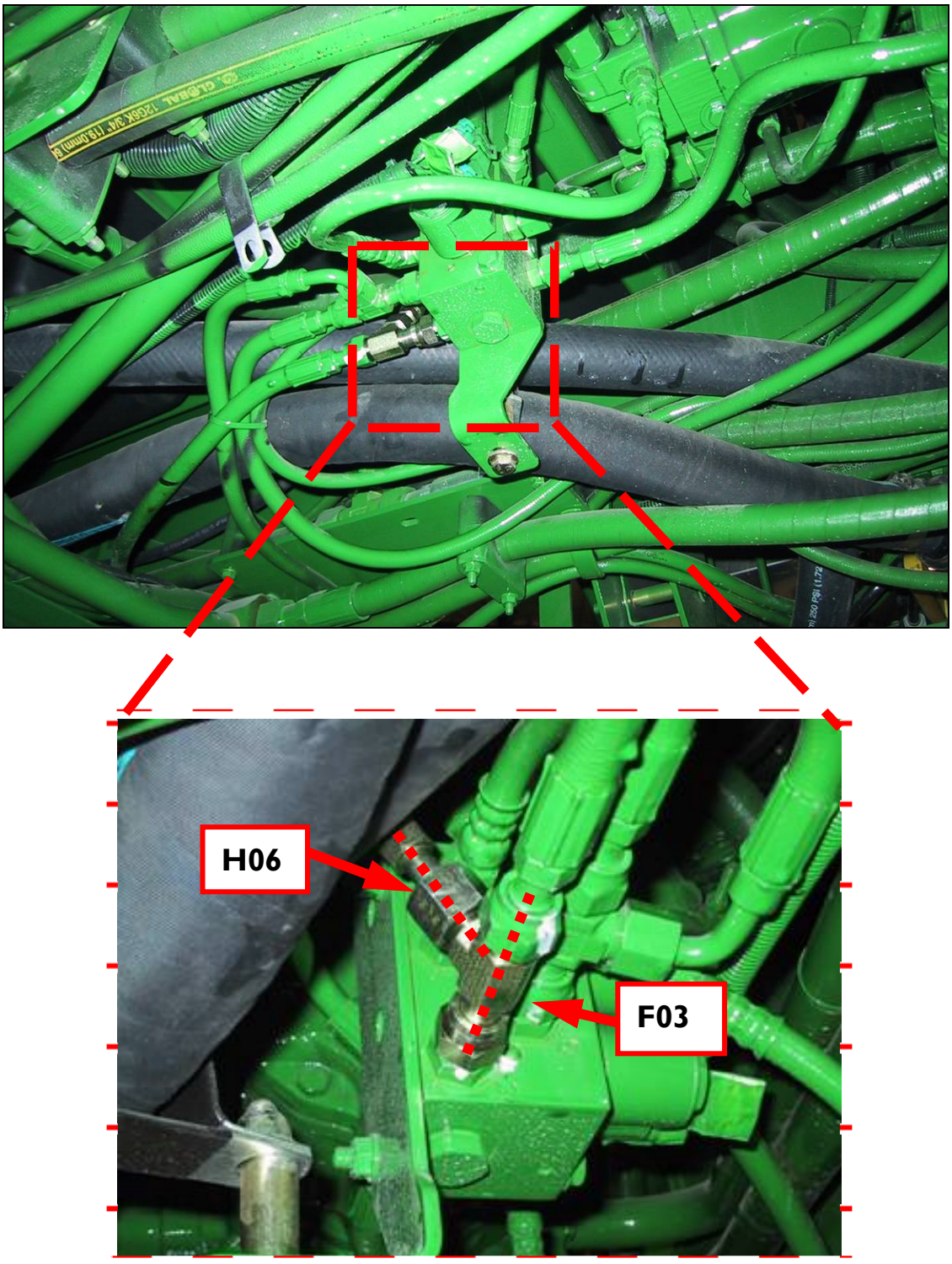


Figure 29: 2003+ Load Sense Line Connection

9 Software Setup

1. Start up the sprayer and test the sprayer's functionality. The NORAC control panel does not need to be powered on for the original boom function switches to operate. Unfold the booms and raise/lower each boom and the main section.

⚠ Important

Confirm that the cabling and hoses are agreeable to the entire range of motion.

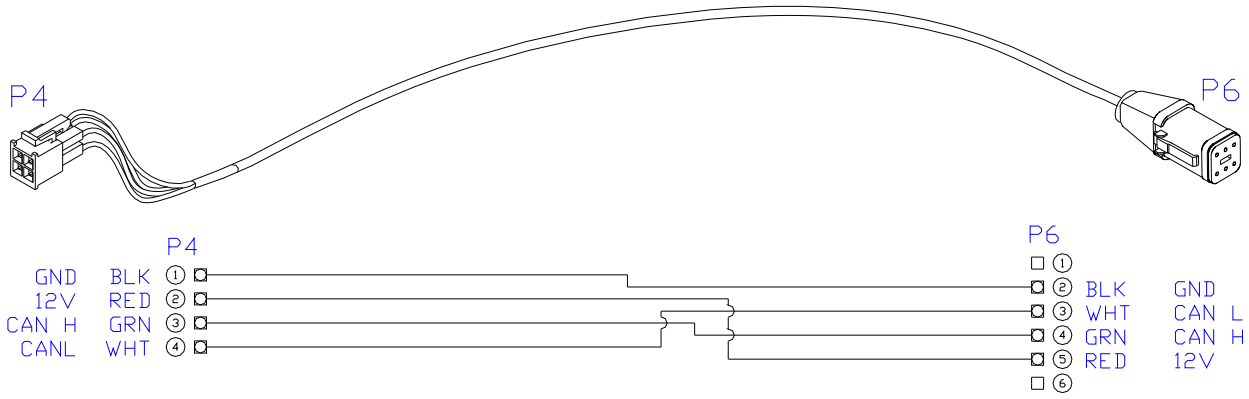
2. If any functions do not work, review the hydraulic and electrical portions of this manual to check for proper installation.

3. Turn on the power for the UC4.5 Control Panel using the switch on the side of its chassis.

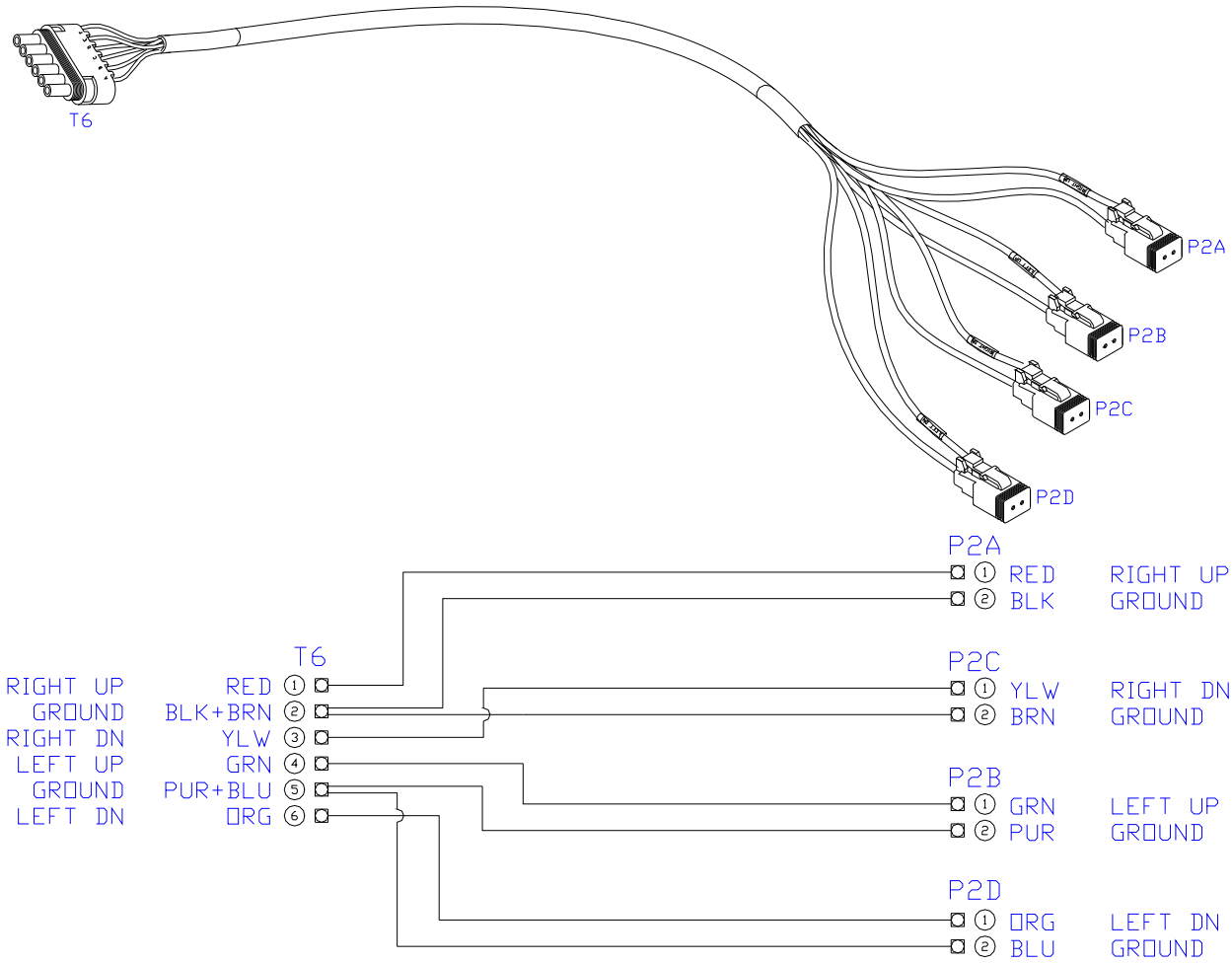
4. The procedure for the installation of the UC4.5 Spray Height Control system is now complete. Begin the AUTOMATIC SYSTEM SETUP procedure as described in the UC4.5 Spray Height Control Operator's Manual (M01).

10 Cable Drawings

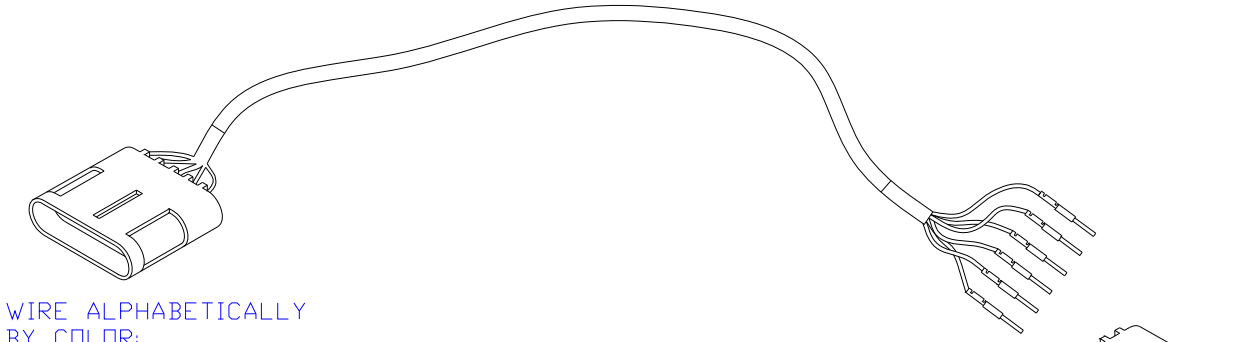
10.1 ITEM C01: 44653-10 - CABLE UC4.5 ADAPTER MOLEX TO DEUTSCH



10.2 ITEM C03: 44656D – CABLE VALVE VARIABLE RATE DT



10.3 ITEM C04: 44651 - CABLE VALVE EXTENSION

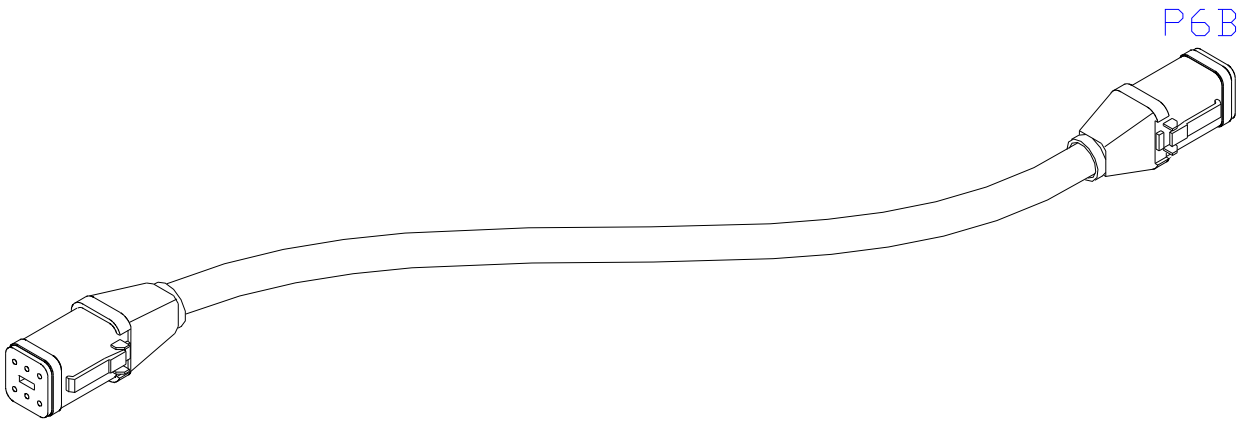


WIRE ALPHABETICALLY
BY COLOR:

A - BLACK
B - BLUE
C - BROWN
D - GREEN
E - RED
F - YELLOW

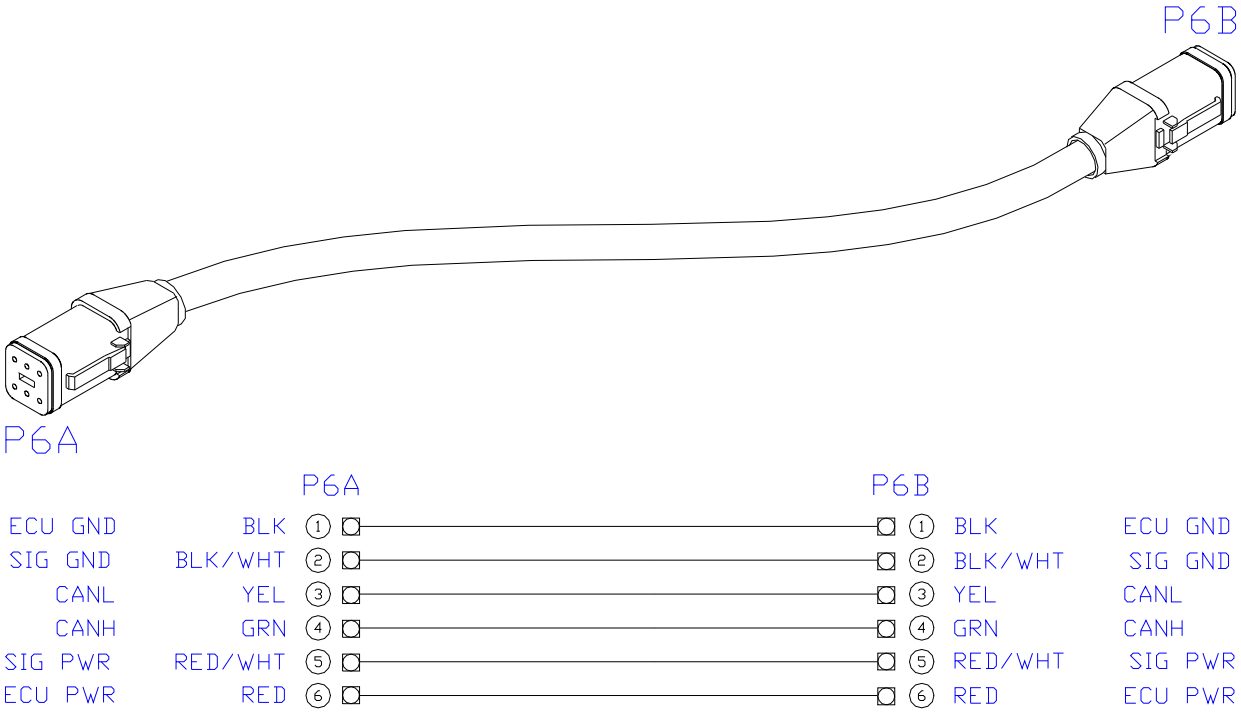
CONDUCTORS ARE CONNECTED A-A, B-B, ETC.

10.4 ITEM C05: 43210-20 - CABLE UC5 NETWORK 18 AWG - 20M

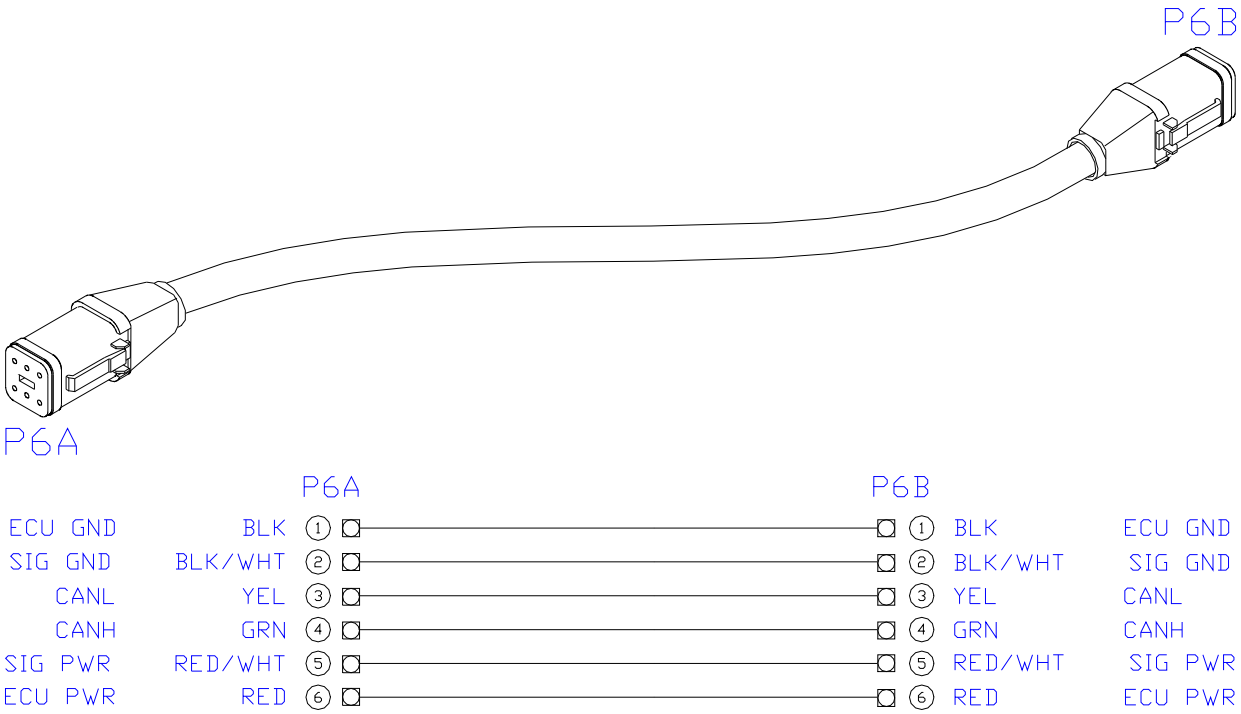


	P6A		P6B	
ECU GND	BLK	1 — 1	BLK	ECU GND
SIG GND	BLK/WHT	2 — 2	BLK/WHT	SIG GND
CANL	YEL	3 — 3	YEL	CANL
CANH	GRN	4 — 4	GRN	CANH
SIG PWR	RED/WHT	5 — 5	RED/WHT	SIG PWR
ECU PWR	RED	6 — 6	RED	ECU PWR

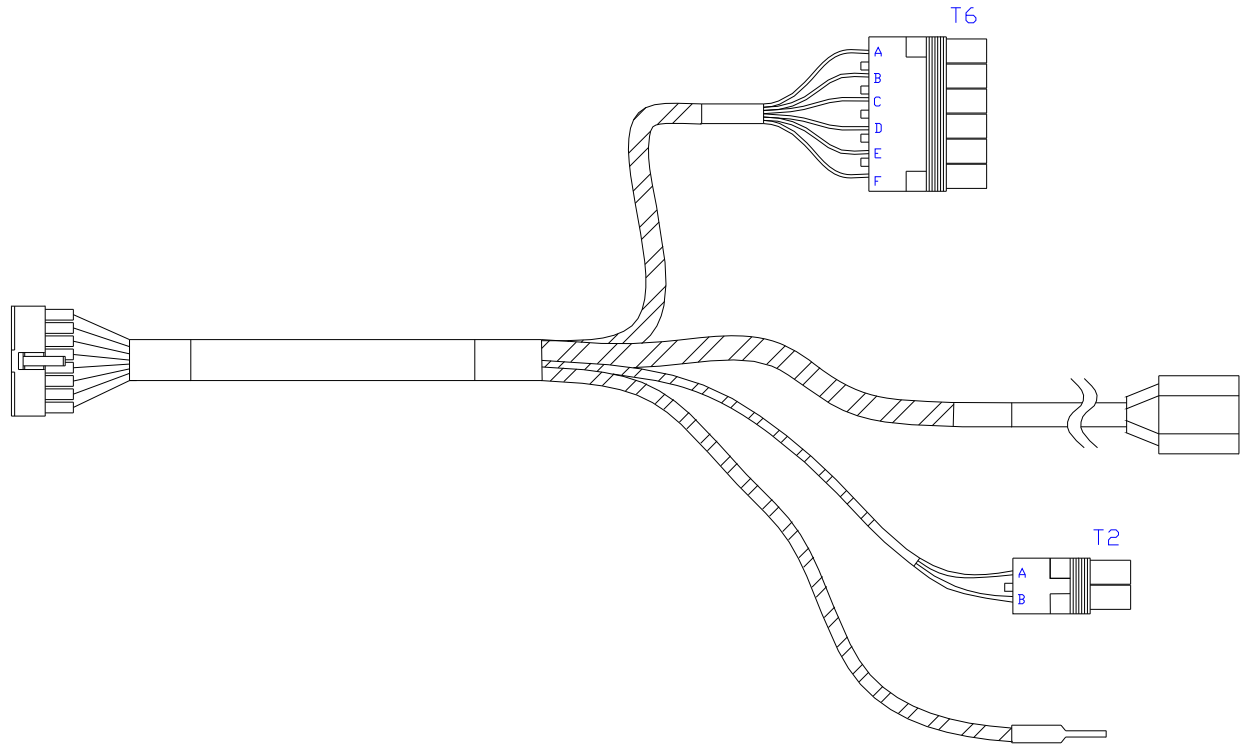
10.5 ITEM C06: 43210-10 - CABLE UC5 NETWORK 18 AWG - 10M

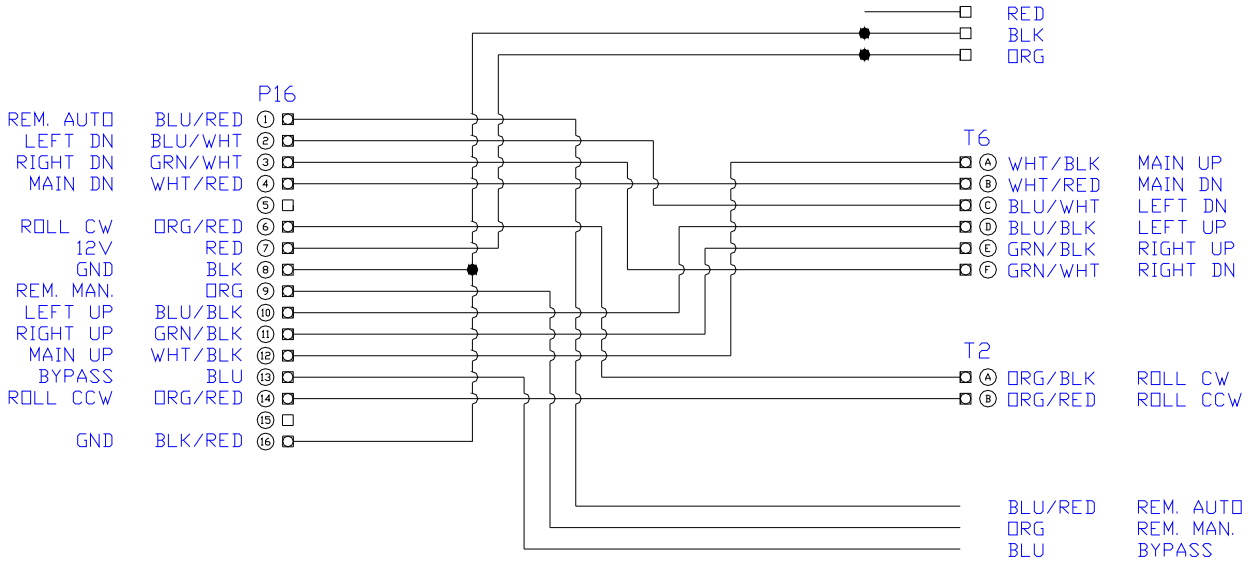


10.6 ITEM C07: 43220-01 - CABLE UC5 NETWORK 14 AWG - 1M

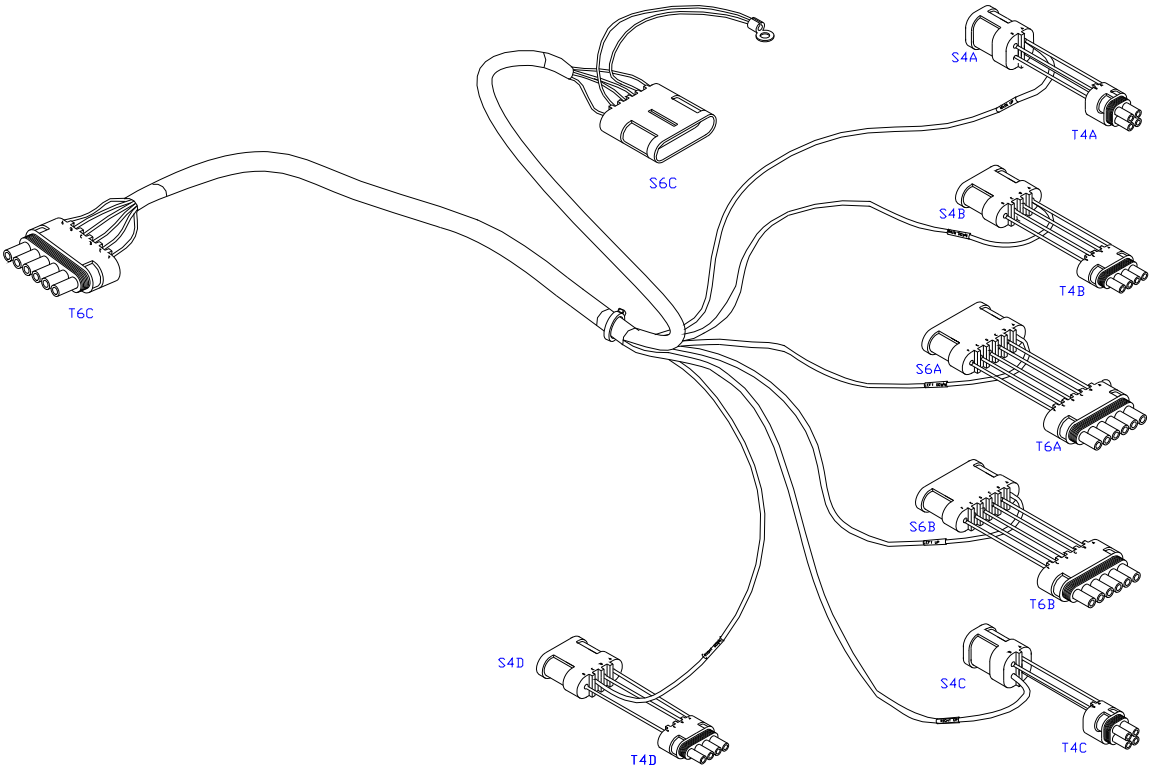


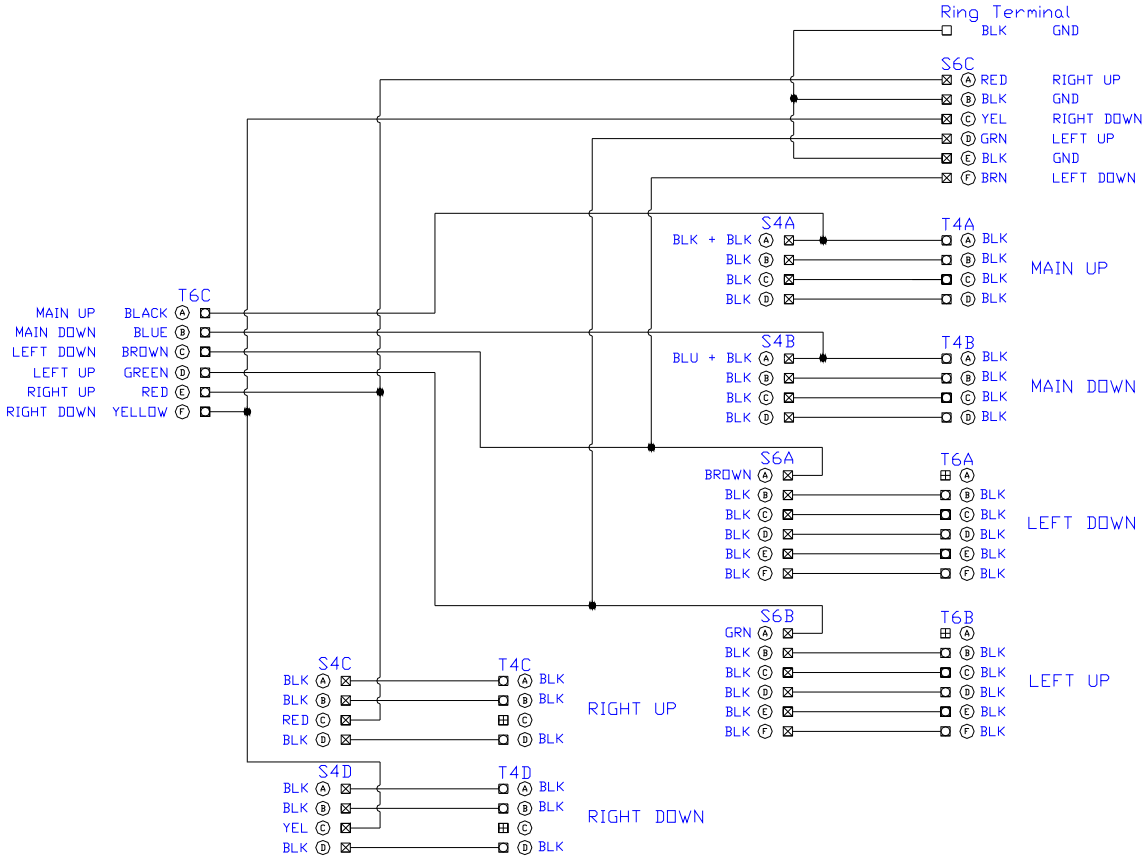
10.7 ITEM C10: 44650-57 - CABLE UC4.5 POWER JOHN DEERE





10.8 ITEM C12: 44658-01 - CABLE UC4 VALVE BC JD





11 Appendix A: Interface Cable Modification Procedure

Some earlier models of John Deere sprayers (4700 and 4710) may use a different style of boom valve block with a different arrangement of the connectors. As a result, the NORAC 44658-01 interface cable (C12) will need to be modified according to the following instructions (See **Figure 30** and **Figure 31** for before and after schematics):

1. Using the supplied GP Weatherpack pin tool, locate and carefully remove the blue/black wire tee (Main Down) from the A-position of the 4-pin flat connector tee (S4B & T4B). The blue wire is attached to a black wire that goes across the tee connection (remove both ends of this tee).

2. Locate and remove the brown wire (Left Down) from the A-position of the 6-pin flat shroud (S6A).

3. Insert blue/black wire tee from step 1 into the A-position of the 6-pin flat connector tee (S6A & T6A). Remove the cavity plug from the A-position of the 6-pin tower (T6A).

4. Locate and remove the black wire (Main Up) from the A-position of the 4-pin square connector tee (S4A & T4A). This black wire is attached to a black tee wire similar to the wire described in step 1.

5. Locate and remove the green wire (Left Up) from the A-position of the 6-pin flat shroud (S6B).

6. Insert black wire tee from step 4 into the A-position of the 6-pin flat connector tee (S6B & T6B). Remove the cavity plug from the A-position of the 6-pin tower (T6B).

7. Remove the black wire that goes across the connection in the A-position of the 4-pin square tee with the red wire (Right Up) in the C-position (S4C & T4C). Insert the green wire (Left Up) from step 5 into the A-position of the 4-pin shroud (S4C). Seal the A-position on the 4-pin tower (T4C) with the cavity plug removed in step 3.

8. Remove the black wire that goes across the connection in the A-position of the 4-pin flat tee with the white wire (Right Down) in the C-position (S4D & T4D). Insert the brown wire (Left Down) from step 2 into the A-position of the 4-pin shroud (S4D). Seal the A-position on the 4-pin tower (T4D) with the cavity plug removed in step 6.

9. The cable modifications are complete. There should be 2 black wires, an incomplete 4-pin square tee and an incomplete 4-pin flat tee left over.

10. Connect the modified harness to the sprayer as indicated in **Figure 32**.

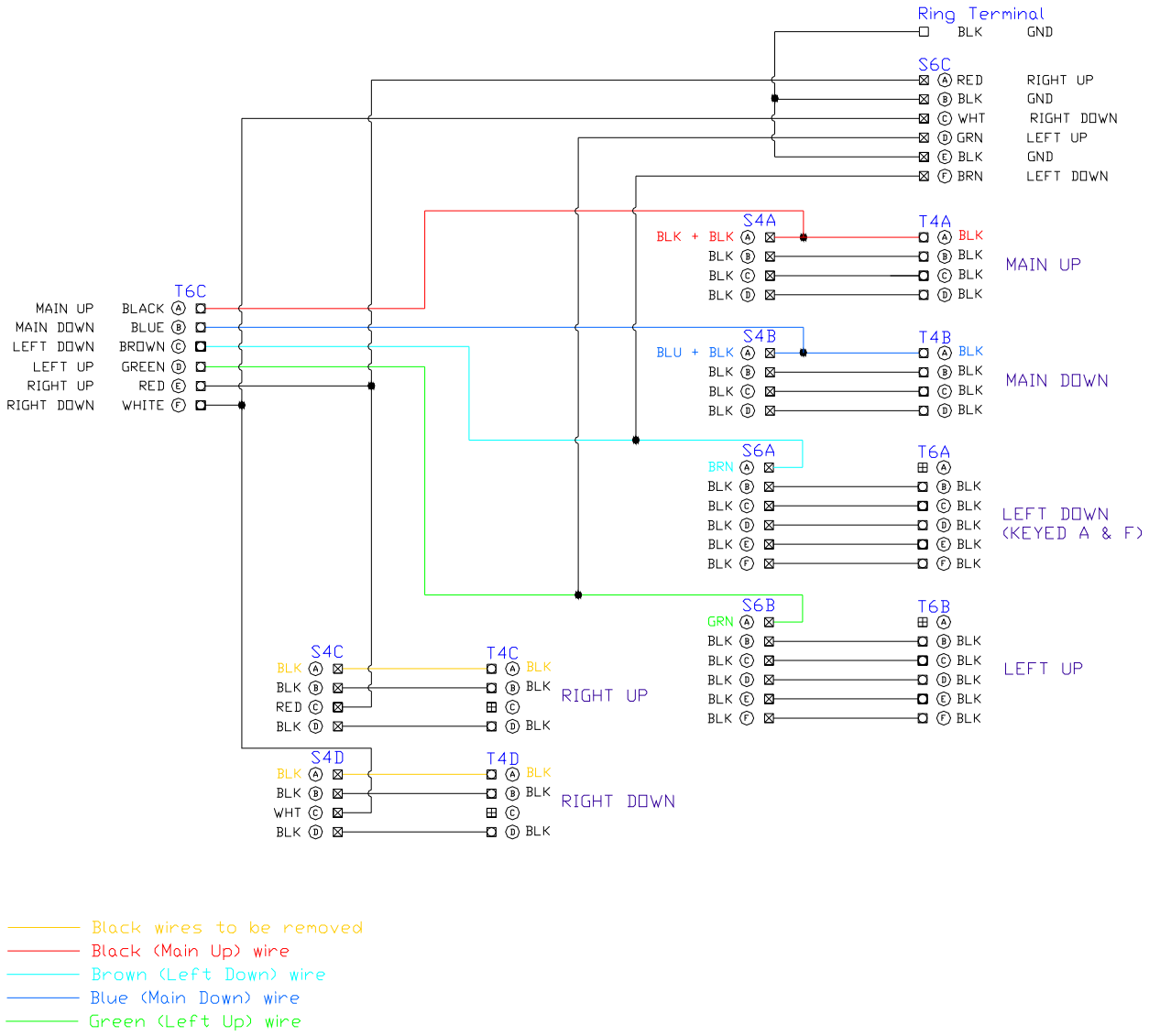


Figure 30: Cable C12 (44658-01) BEFORE Modification

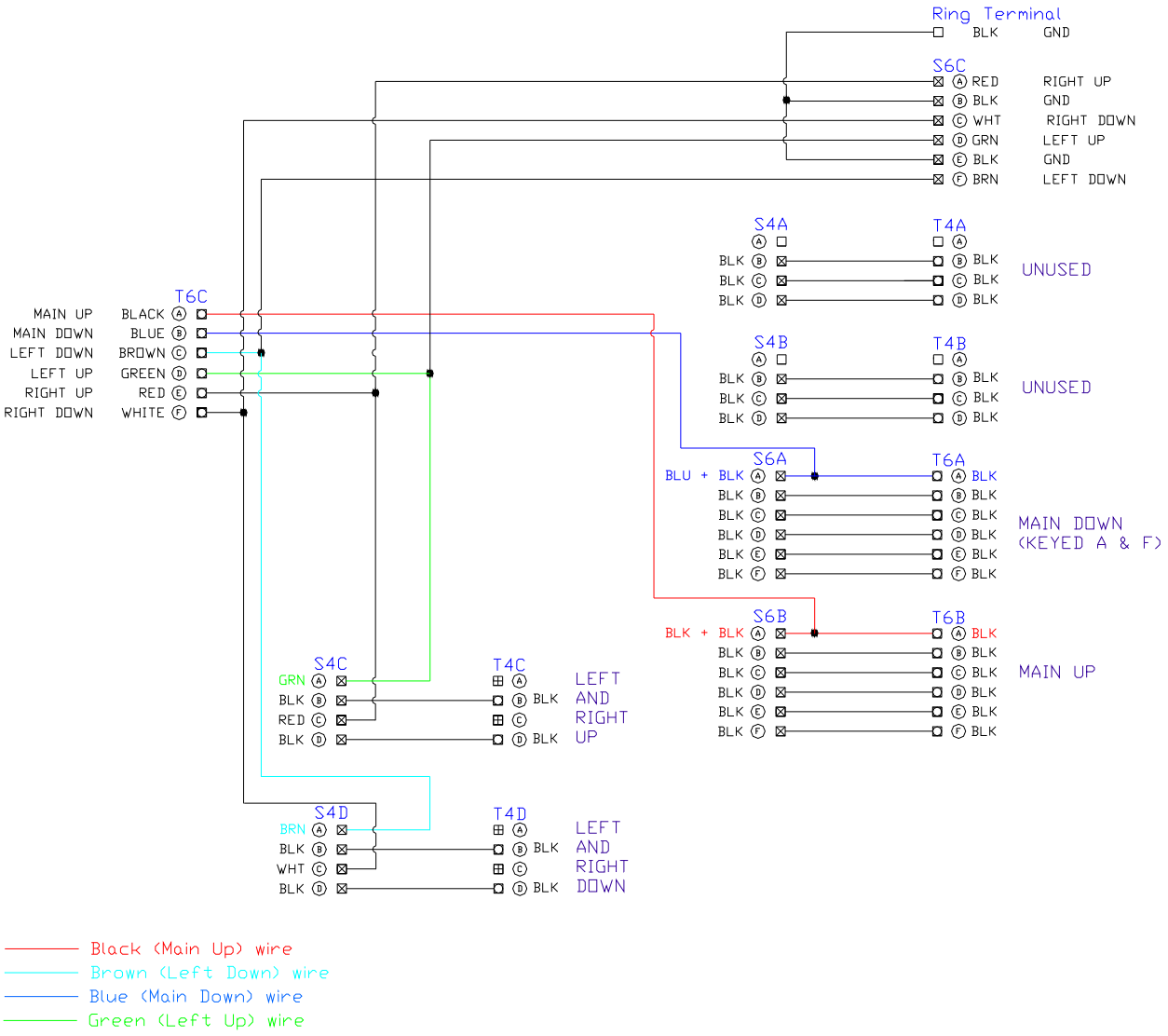


Figure 31: Cable C12 (44658-01) AFTER Modification

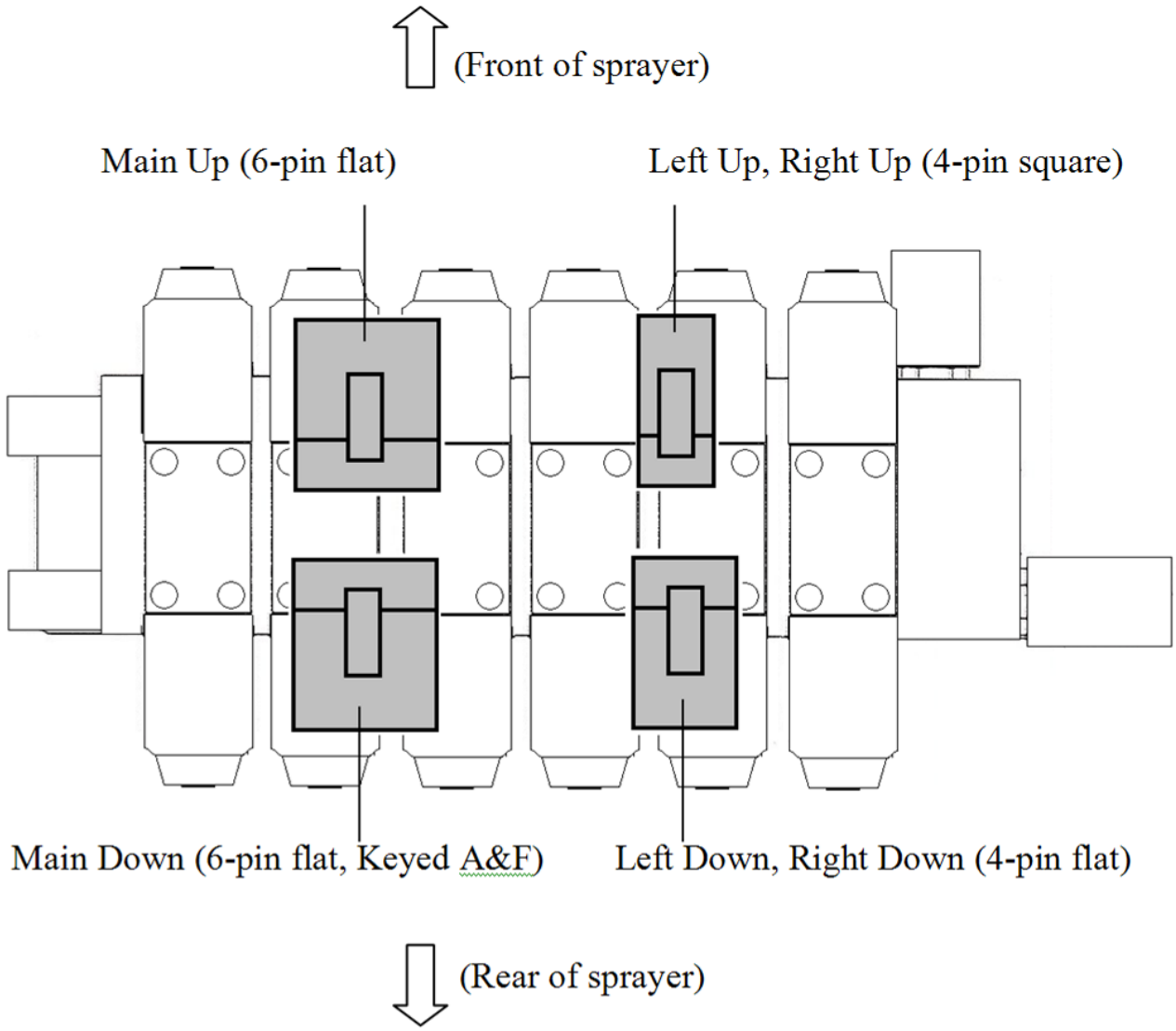


Figure 32: Early-Model John Deere Boom Valve Block (top view) with Connectors Labelled. (Valve may be different than illustrated.)

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