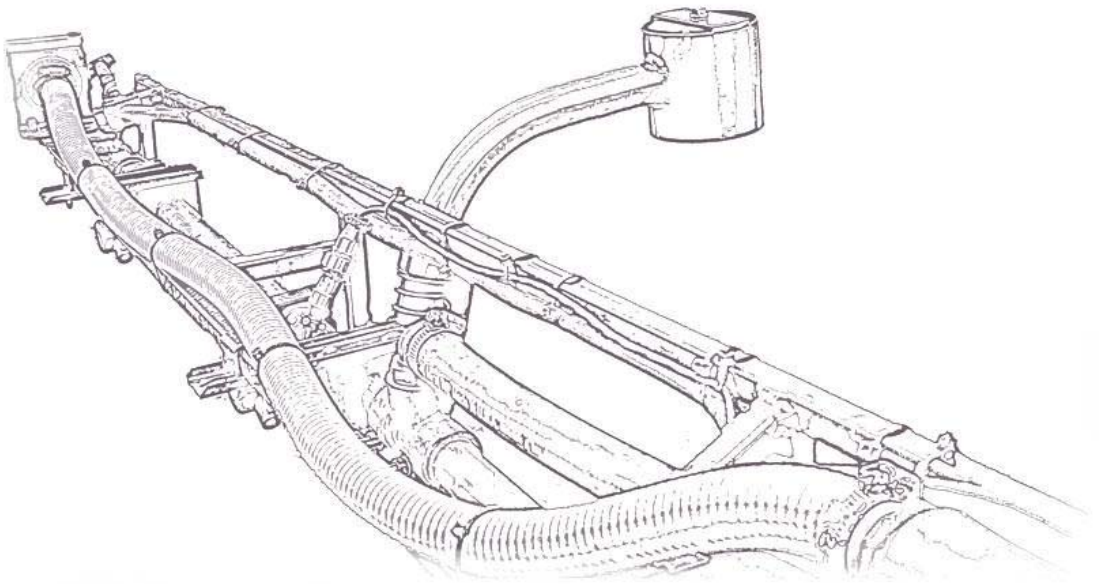
NORAC®

UC5™ CAN BUS Spray Height Controller



Hardi Installation Manual

HD03

Printed in Canada

Reorder P/N: UC5-BC-HD03-INST Rev B (Hardi)

Contents

1 Introduction

Congratulations on your purchase of the NORAC UC5 Spray Height Controller. 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.

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Important

Every effort has been made to ensure the accuracy of the information contacted 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 UC5 System Layout

Figure 1 illustrates the general layout of the UC5 system components:

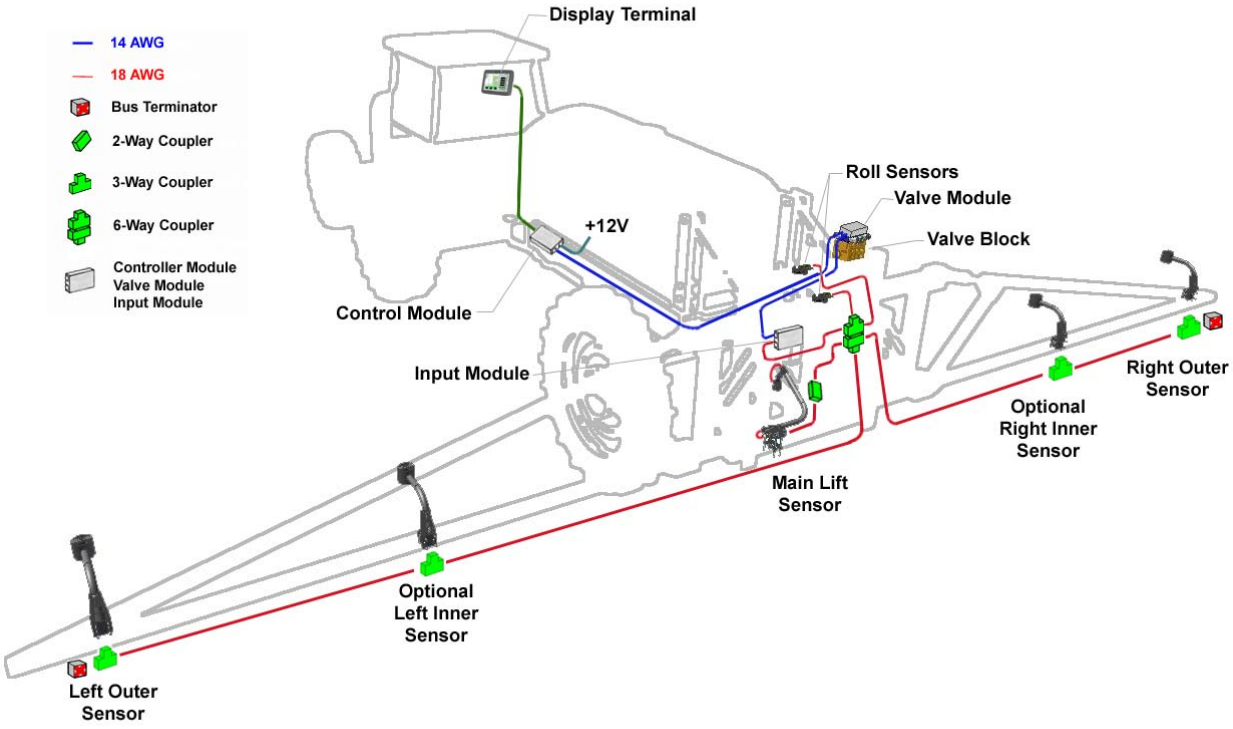


Figure 1: General UC5 System Layout

3 Kit Parts

3.1 Kit Overview

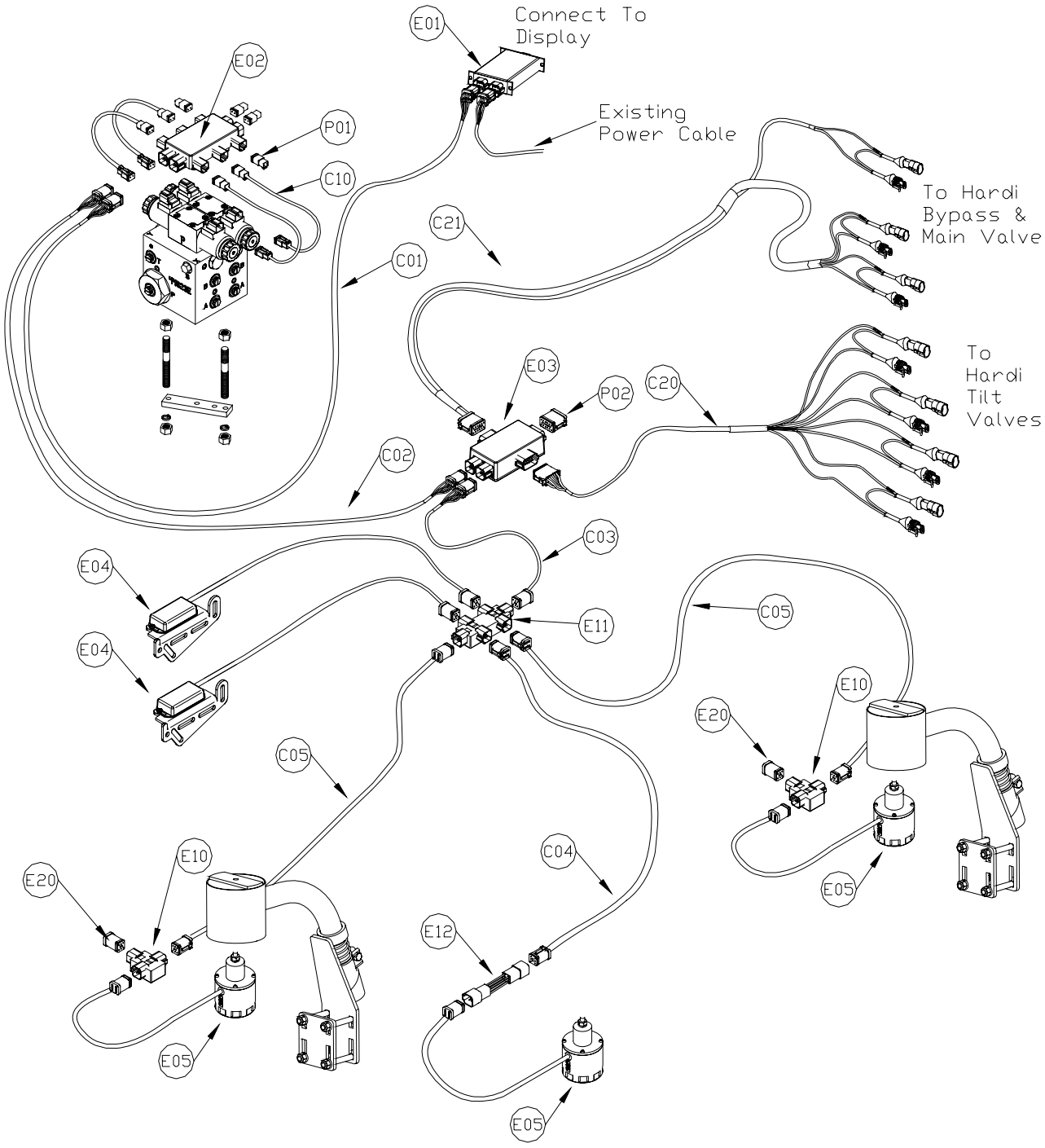


Figure 2: HD03 System Parts

3.2 Hydraulic Plumbing

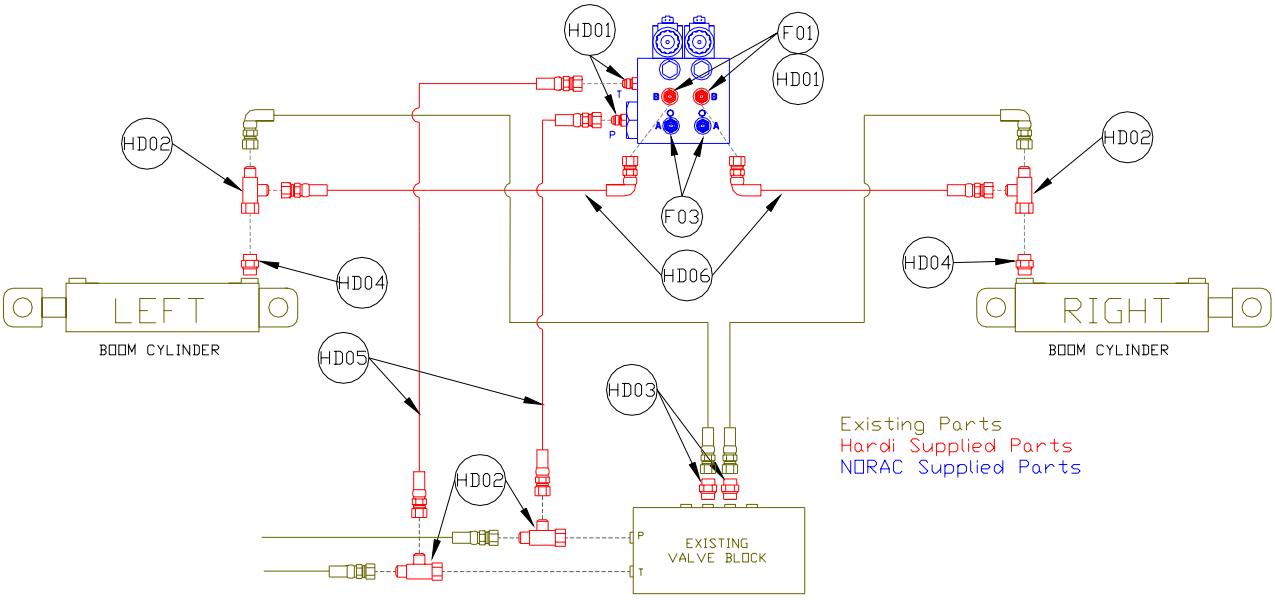


Figure 3: HD03 Hydraulic Plumbing: Single Acting (Force Boom)

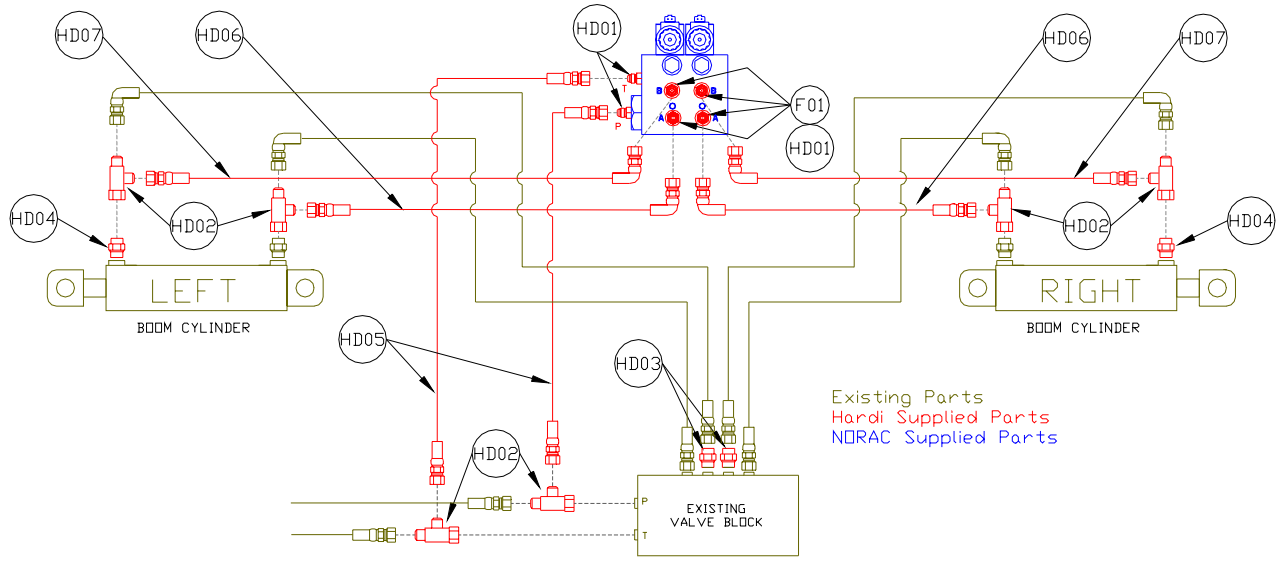
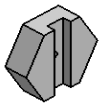


Figure 4: HD03 Hydraulic Plumbing: Double Acting (Eagle Boom)

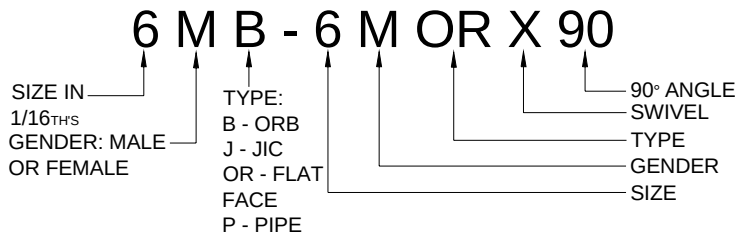
3.3 List of Parts

Item	Part Number	Name	Quantity
B05	44706-01	KIT CABLE TIE BLACK 10 PCS 21 IN 150 PCS 7.5 IN	1
B10	44728	MOUNTING BRACKET COMPLETE UC4 BREAKAWAY EXTENDED	2
C01	43220-10	CABLE UC5 NETWORK 14 AWG 10M	1
C02	43220-01	CABLE UC5 NETWORK 14 AWG 1M	1
C03	43210-03	CABLE UC5 NETWORK 18 AWG 3M	1
C04	43210-01	CABLE UC5 NETWORK 18 AWG 1M	1
C05	43210-20	CABLE UC5 NETWORK 18 AWG 20M	2
C10	43230-04	CABLE UC5 VALVE 2PIN DT TO 2PIN DT	4
C20	43240-08	CABLE UC5 INTERFACE TILT AMP (SUPERSEAL)	1
C21	43240-09	CABLE UC5 INTERFACE MAIN AMP (SUPERSEAL 240" W/ BYPASS)	1
E01	43710	UC5 CONTROLLER MODULE	1
E02	43720	UC5 VALVE MODULE	1
E03	43732	UC5 INPUT MODULE PASS THRU	1
E04	43740	UC5 ROLL SENSOR	2
E05	43750	UC5 ULTRASONIC SENSOR	3
E10	43760	UC5 NETWORK COUPLER 3-WAY	2
E11	43762	UC5 NETWORK COUPLER 6-WAY	1
E12	43764	UC5 NETWORK COUPLER 2-WAY	1
E20	43780	UC5 NETWORK TERMINATOR PLUG	2
H10	44865-12	HYDRAULICS FITTING KIT - HD3	1
M02	UC5-BC-HD03-INST	MANUAL INSTALLATION UC5 HARDI	1
M03	UC5-BC-HD03-INST-E	MANUAL INSTALLATION UC5 HARDI END-USER	1
P01	106034	UC5 NETWORK 2 PIN PLUG	4
P02	106035	UC5 NETWORK 12 PIN PLUG (A-KEY)	1
V01	44933D	VALVE BLOCK ASSEM UC4-BC 2-STATION CC/LS VARIABLE RATE	1

3.4 Hydraulic Fitting Kit Details (P/N: 44865-12)

Item	Part Number	Name	Quantity	Picture
F01	44928	ORIFICE INSERT .047 IN ONE WAY	4	
F02	501301	MALE ADAPTER - 6MB 6MBSPP	4	
F03	104369	PLUG - 6MBP	2	

Fitting Name Example:



Important

The 6MBP plugs (F03) are only used for the single acting plumbing installation.

3.5 Optional Pressure and Tank Hose Kit (P/N: 44865-49)

If you require a separate pressure and tank line from your tractor to your NORAC valve block, you can order the hoses and fittings as a kit (P/N: 44865-49).

Part Number	Name	Quantity
44863-11	HOSE ASSEMBLY 122R2-06 402 IN L 6FJX 8MB WITH QUICK COUPLER	2
103312	MALE ADAPTER - 6MB 6MJ	2

3.6 Hardi Supplied Kit

Some of the parts supplied in this kit are supplied by Hardi. There are three possible kits supplied, depending on the type of Hardi sprayer you have. Only one of the following kits will be supplied with your NORAC system so you must make sure you are referencing the correct list of parts. If you are unsure of the Hardi kit supplied with your system, contact the dealership that you purchased the kit through.

Table 1 - Hardi Kit 84210003 – SPB

Item	Part Number	Name	Quantity
HD01	23000003	HYDRAULIC FITTING - 3/8 INCH O-RING X 1/4 BSPP	6
HD02	232109	HYDRAULIC TEE - 1/4 INCH BSP UNION	6
HD03	78601103	HYDRAULIC FITTING - 1/4 INCH X 1/4 INCH - 1.8 RESTRICTOR	2
HD04	146835	HEX NIPPLE 1/4 INCH X 3/8 INCH BSP	2
HD05	784018	HYDRAULIC HOSE 1/4 INCH X 29.5 INCH (STR + ELB)	2
HD06	784023	HYDRAULIC HOSE 1/4 INCH X 43.25 INCH (STR + ELB)	2
HD07	784033	HYDRAULIC HOSE 1/4 INCH X 61 INCH (STR + ELB)	2
HD08	420744	BOLT HEX 8.8 DEL M8X40	2
HD09	460817	NUT HEX M8 STAINLESS DIN 934	2
HD10	410605	BOLT HEX 8.8 DEL M6X80	1
HD11	460261	NUT HEX M6X1 LOCK	1
HD12	480804	RIVIT 4.8 DIAM X 14.5 LENGTH	2
HD13	160181	CLAMP NOZZLE TUBE 60X60	1

Table 2 - Hardi Kit 84210103 – SPC

Item	Part Number	Name	Quantity
HD01	23000003	HYDRAULIC FITTING - 3/8 INCH O-RING X 1/4 BSPP	6
HD02	232109	HYDRAULIC TEE - 1/4 INCH BSP UNION	6
HD03	78601103	HYDRAULIC FITTING - 1/4 INCH X 1/4 INCH - 1.8 RESTRICTOR	2
HD04	146835	HEX NIPPLE 1/4 INCH X 3/8 INCH BSP	2
HD05	784005	HYDRAULIC HOSE 1/4 INCH X 37.38 INCH (STR + ELB)	2
HD06	784028	HYDRAULIC HOSE 1/4 INCH X 53 INCH (STR + ELB)	2
HD07	784001	HYDRAULIC HOSE 1/4 INCH X 67 INCH (STR + ELB)	2
HD08	420744	BOLT HEX 8.8 DEL M8X40	2
HD09	460817	NUT HEX M8 STAINLESS DIN 934	2
HD10	410642	BOLT HEX 8.8 DEL M6X75	1
HD11	460261	NUT HEX M6X1 LOCK	1
HD12	480804	RIVIT 4.8 DIAM X 14.5 LENGTH	2
HD13	160181	CLAMP NOZZLE TUBE 60X60	1

Table 3 - Hardi Kit 84210203 – FTZ

Item	Part Number	Name	Quantity
HD01	23000003	HYDRAULIC FITTING - 3/8 INCH O-RING X 1/4 BSPP	6
HD02	232109	HYDRAULIC TEE - 1/4 INCH BSP UNION	6
HD03	78601103	HYDRAULIC FITTING - 1/4 INCH X 1/4 INCH - 1.8 RESTRICTOR	2
HD04	146835	HEX NIPPLE 1/4 INCH X 3/8 INCH BSP	2
HD05	784022	HYDRAULIC HOSE 1/4 INCH X 25.5 INCH (STR + ELB)	2
HD06	784023	HYDRAULIC HOSE 1/4 INCH X 43.25 INCH (STR + ELB)	2
HD08	420744	BOLT HEX 8.8 DEL M8X40	2
HD09	460817	NUT HEX M8 STAINLESS DIN 934	2
HD10	410443	BOLT HEX 8.8 DEL M6X70	1
HD11	460261	NUT HEX M6X1 LOCK	1
HD12	480804	RIVIT 4.8 DIAM X 14.5 LENGTH	2
HD13	160656	CLAMP NOZZLE TUBE 50X50	1
HD14	43000703	BOLT HEX 3/8-16 (LENGTH = 5" SS)	2

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 5**.

⚠ Important

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

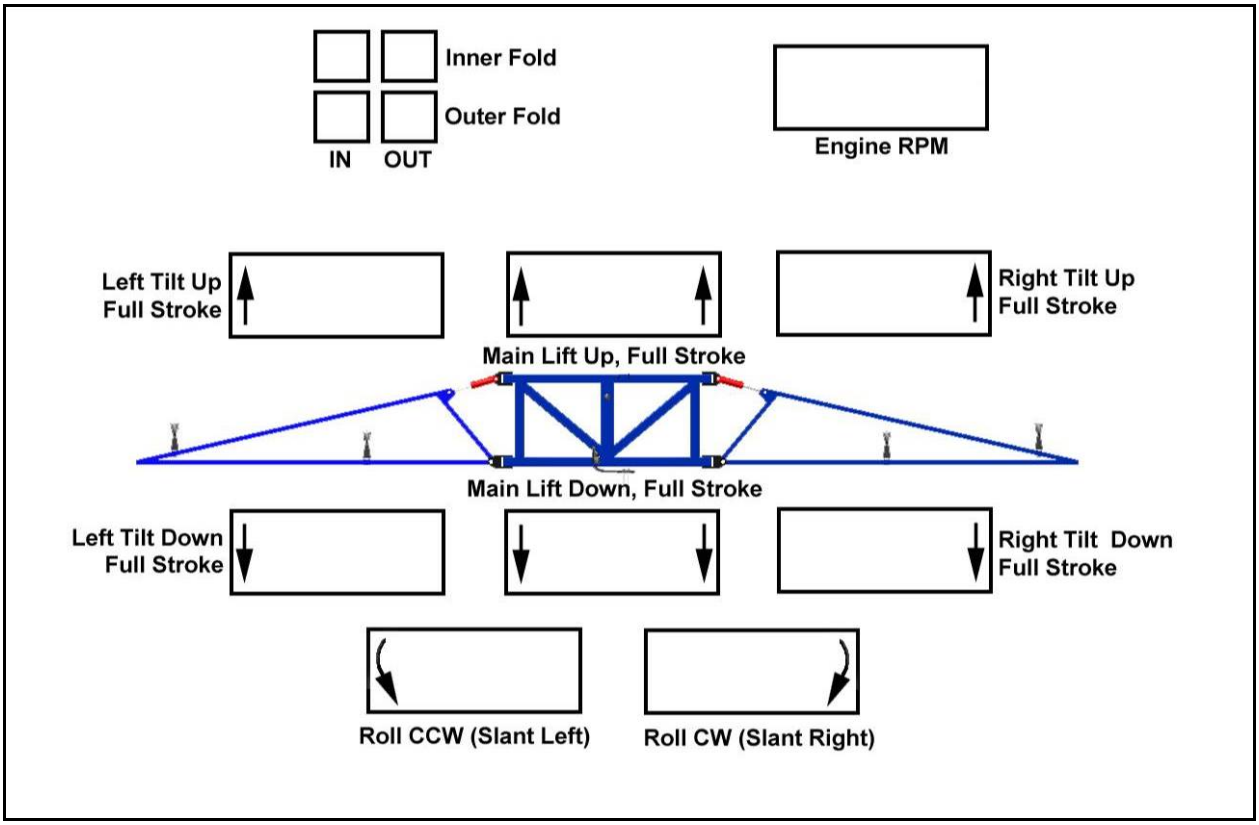


Figure 5: Pre-Install Boom Speeds

5 Ultrasonic Sensor Installation

5.1 Bracket Assembly

Assemble the breakaway sensor bracket as illustrated in **Figure 6**, following the instructions below.

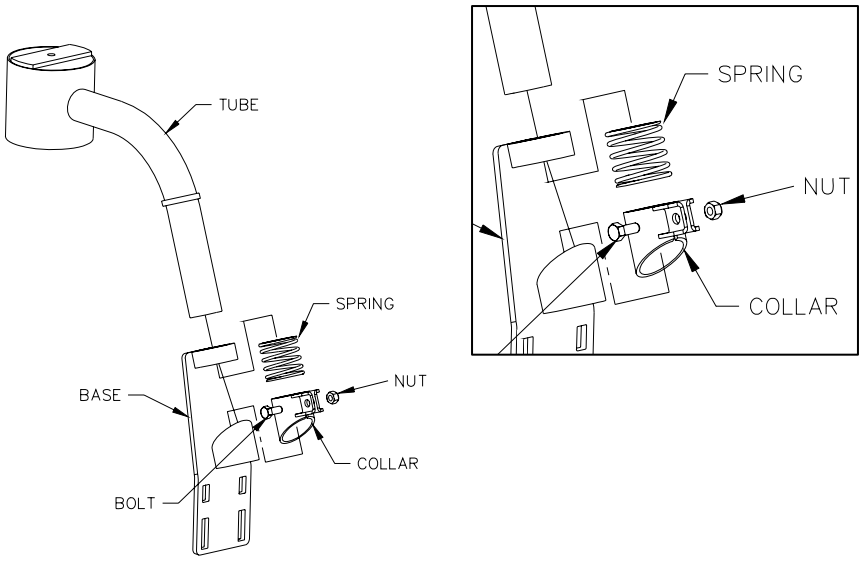
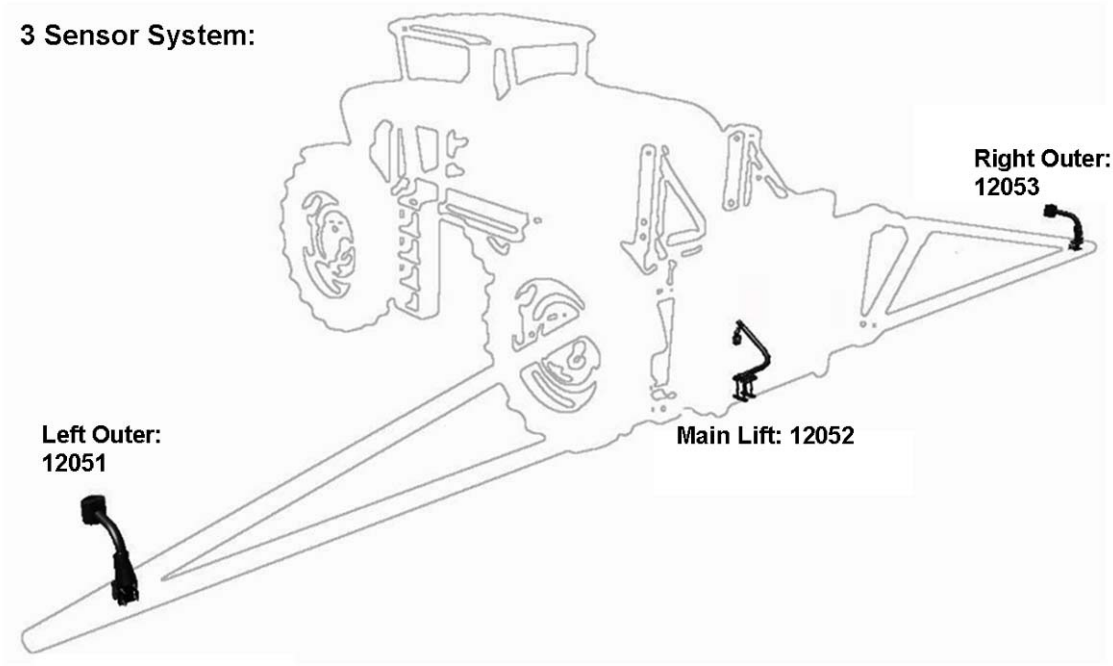


Figure 6: Breakaway Bracket Assembly

1. Compress the spring and insert it together with the collar into the base.
2. Slide the tube through the assembled part.
3. Using the bolt and nut, tighten the collar to the tube with the sensor tube centered.
4. Apply a small amount of grease to the rotating surfaces of the bracket.

5.2 Ultrasonic Sensor Serial Number Arrangement

When installing the UC5 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 UC5 sensor has a serial number stamped on the sensor housing.



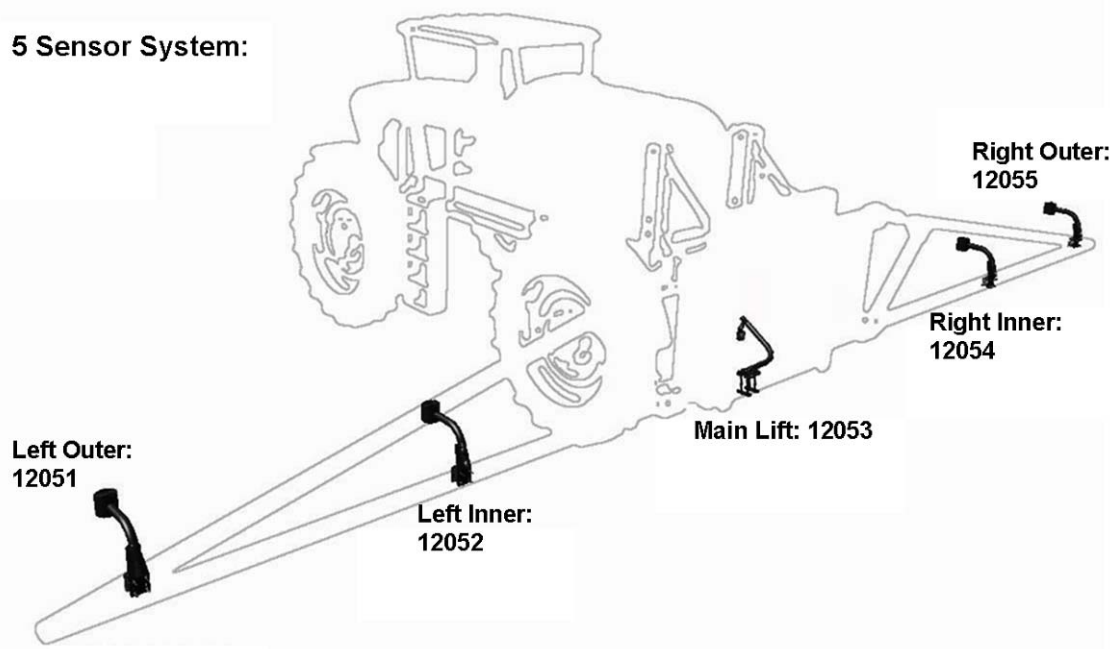


Figure 7: Sensor Serial Number Arrangement

5.3 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 **(A)**.

2. The centerline of the acoustic cone should be approximately vertical at normal operating heights **(A)**.

3. The bottom of the sensor must be at least 9 inches in front of the spray nozzles and boom structure **(B)**. (This does not apply for the main lift sensor)

4. The bottom of the sensor must be at least 9 inches above the spray nozzles **(C)**.

5. Ensure there are no other obstructions with a 12 inch (23 cm) diameter circle projected directly below the sensor **(D)**.

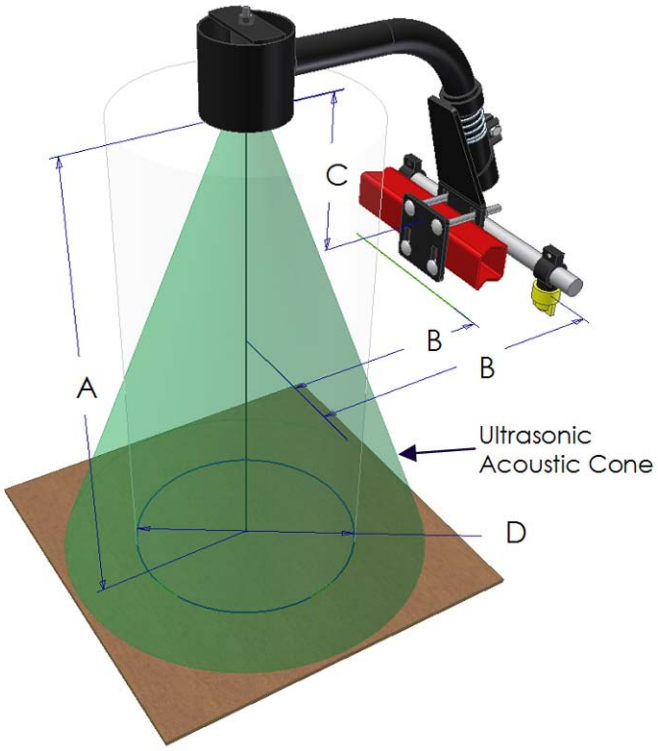


Figure 8: Sensor Mounting Guidelines

5.4 Wing Sensor Installation

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

2. Typically the best mounting location for the wing sensor brackets will be just inside of the boom tip break-away sections.

3. 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.

4. Mount the NORAC UC5 ultrasonic sensor into the sensor bracket and run the sensor cable through the sensor tube.

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 controller 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.

Figure 9: Sensor Reading Off Boom

5.5 Main Lift Sensor Installation

1. Drill a 3/8” hole in the end of the red mounting bracket (HD13) as shown in **Figure 10**.

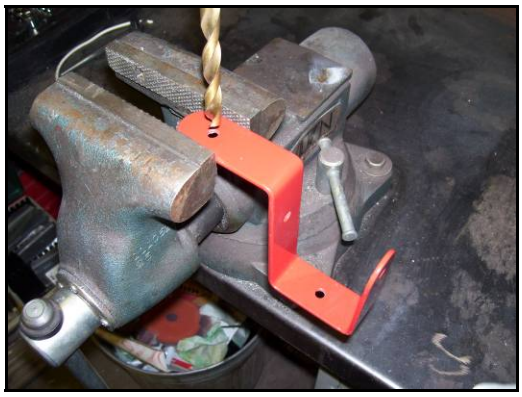


Figure 10: Drilling the main lift sensor bracket

2. Mount the bracket onto the sprayer’s center section using the M6 bolt (HD10) and nut (HD11).

3. Mount the sensor into the main lift mount as shown in **Figure 11**.

Figure 11: Main Lift Sensor Installed

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 CAN-bus connector must be pointing towards the right side of the sprayer.

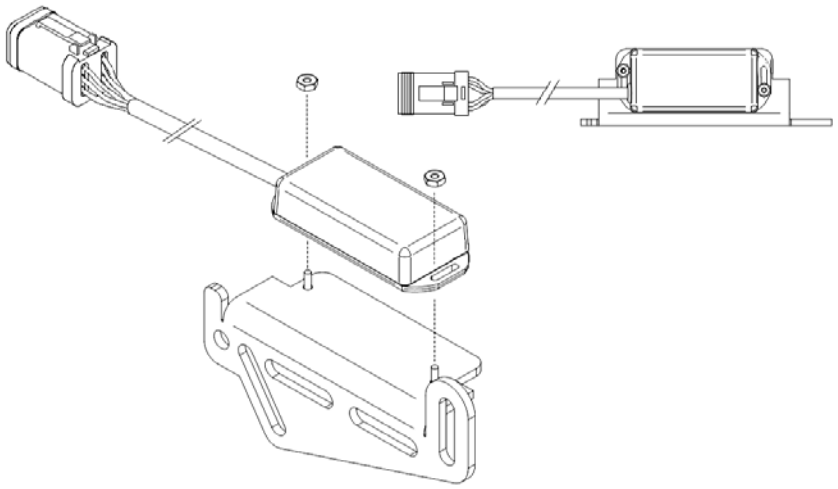


Figure 12: Mounting Roll Sensor to Bracket

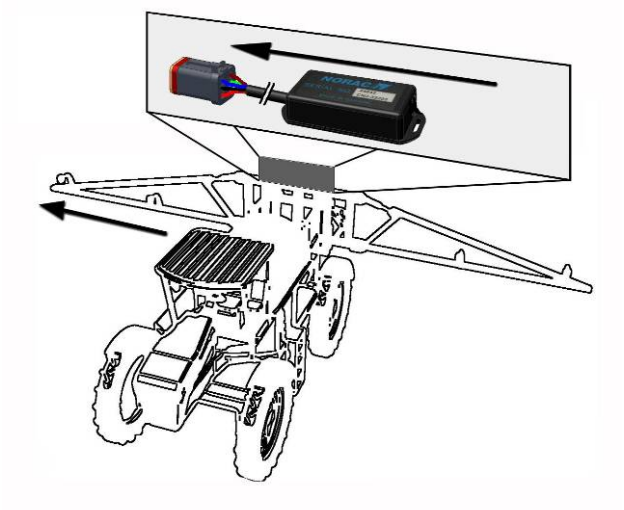


Figure 13: Roll Sensor Orientation - Connector Facing Right Wing

6.2 Roll Sensor Mounting Guidelines: Trapeze-Suspended Booms

1. When mounting the roll sensors, mount one to the trapeze link (boom frame) and one to the trapeze support (chassis). For optimal performance, minimize the distance from the boom frame roll sensor to the pivot point (A) and minimize the vertical distance between the chassis roll sensor and the pivot point (B).

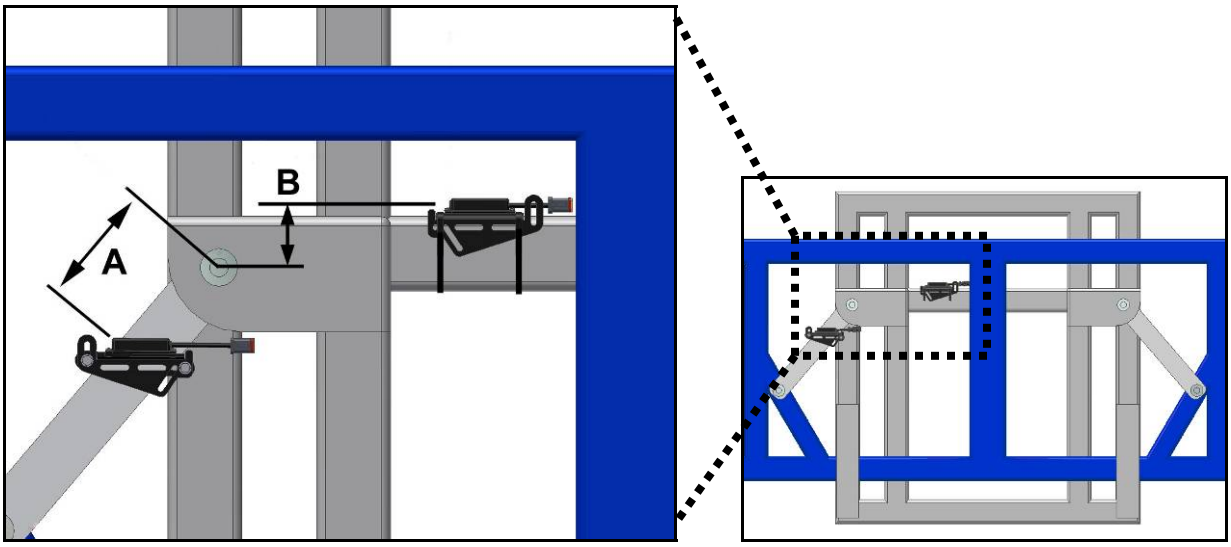


Figure 14: Roll Sensor Mounting on a Trapeze Suspended Boom

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.

6.3 Roll Sensor Mounting on a Twin Force / Force FTZ Boom

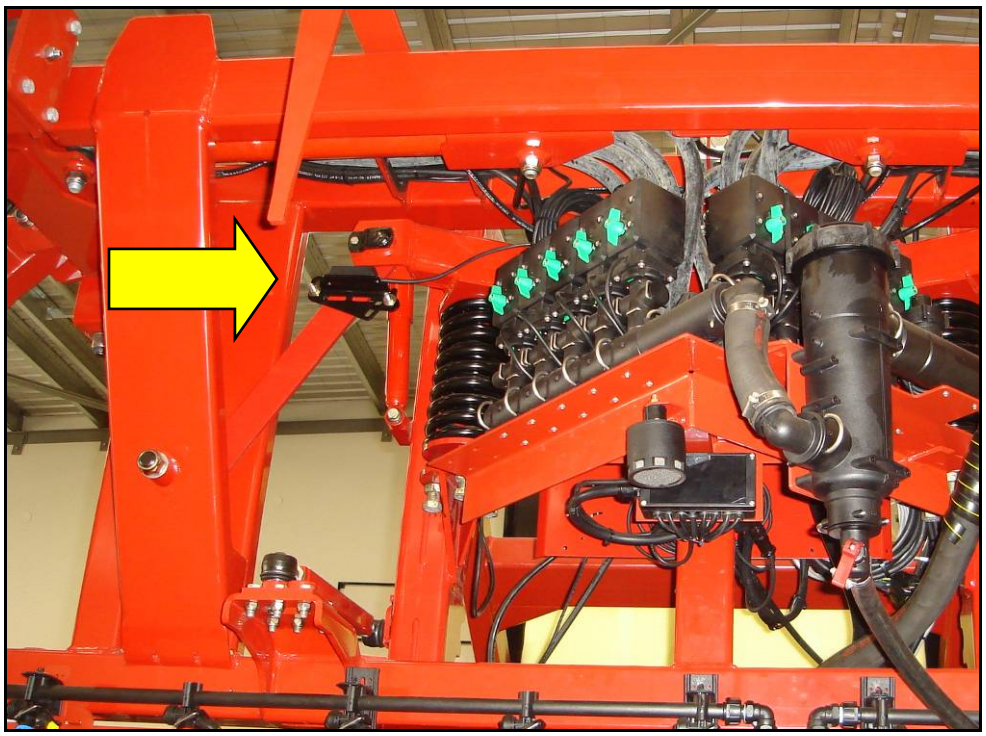


Figure 15: Boom Frame Roll Sensor Mounting (Viewed from the rear of sprayer)

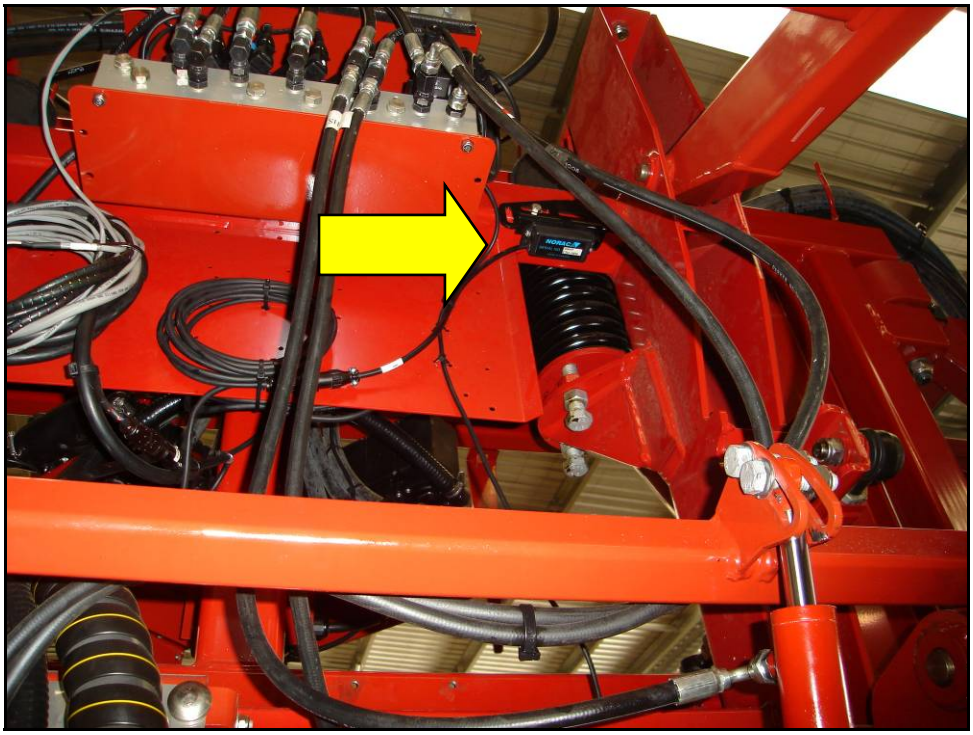


Figure 16: Chassis Roll Sensor Mounting (Viewed from the front of sprayer)

6.4 Roll Sensor Mounting on an Eagle Boom

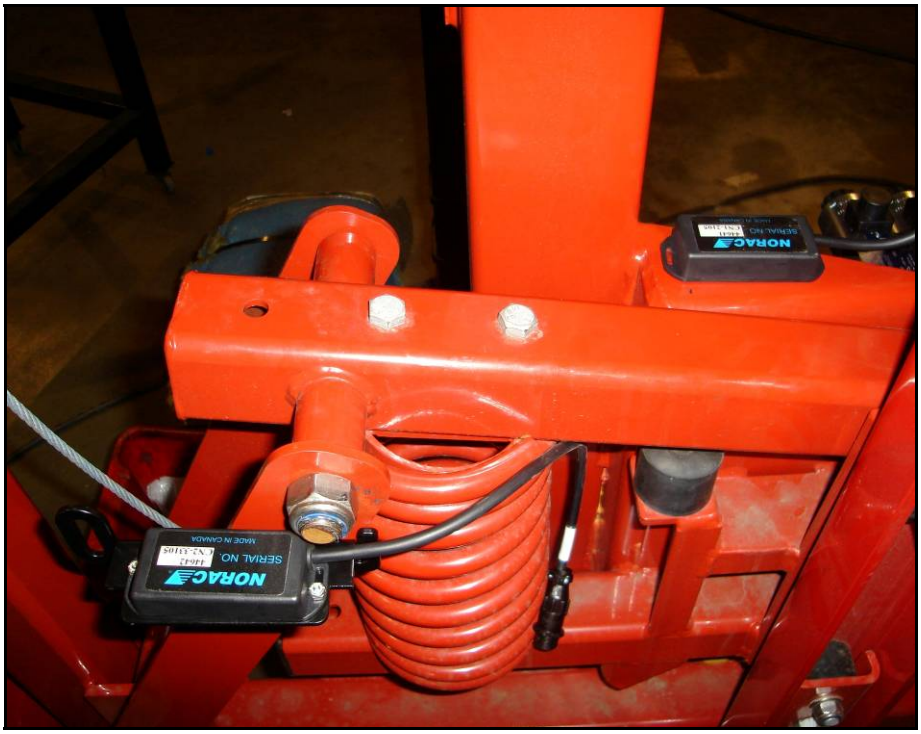


Figure 17: Roll Sensor Mounting (Viewed from the rear of sprayer)

7 Module Installation

7.1 Control Module

1. Refer to **Figure 1** and **Figure 18**.

2. Securely mount the control module (E01) near the hitch of the sprayer, near the display terminal connections.

3. Connect the display terminal to the control module using the existing display CAN-bus cable. This cable must be connected to the end of the control module with only one Deutsch connector.

4. Connect the existing power cable to one of the two CAN-bus connectors on the other end of the control module.

5. Route cable C01 from the other CAN-bus connector towards the rear of the sprayer.

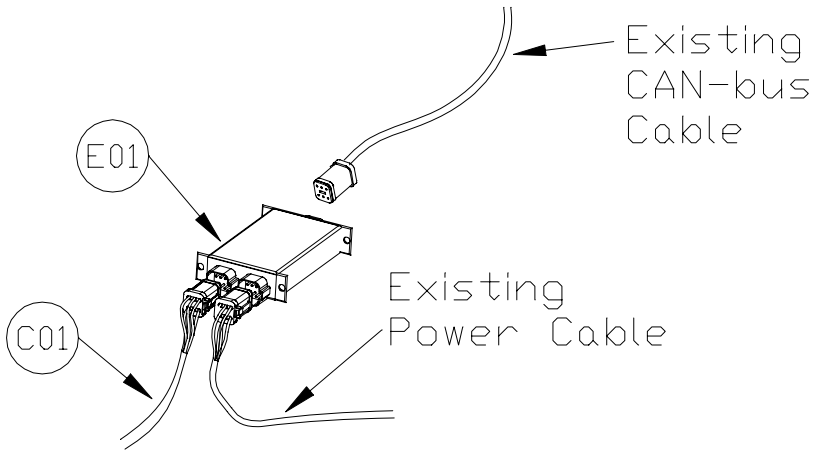
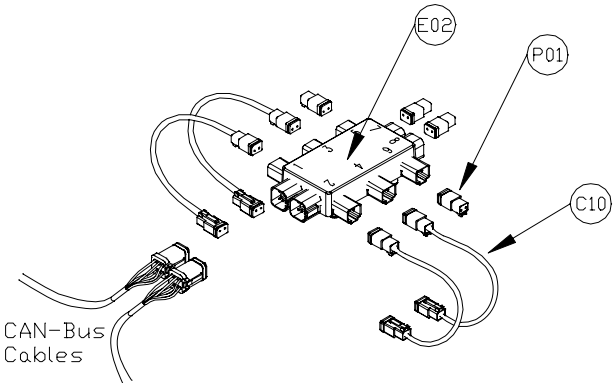


Figure 18: Control Module Mounting

7.2 Valve Module

1. Install the valve module (E02) to the top of the NORAC valve block. Orient the 6-pin Deutsch (CAN-bus) connectors towards the P and T ports.



Output Number	Normal Function
1	Left Up
2	Left Down
3	Right Up
4	Right Down
5	Option 1
6	Option 2
7	Option 3
8	Option 4

Figure 19: Valve Module

2. Verify the valve coil connectors are oriented vertically (**Figure 20**).

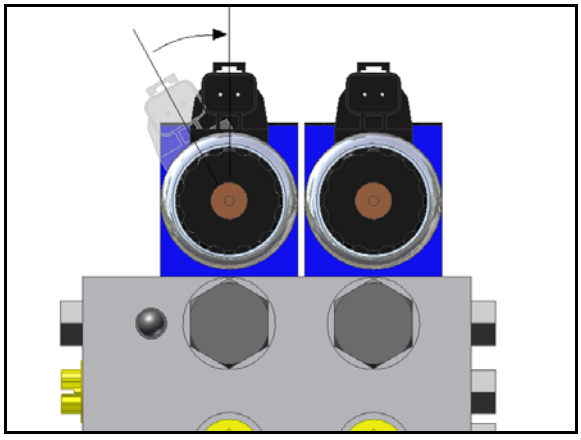


Figure 20: Align Coils

3. Place the valve module between the valve coils. Slide a valve mounting bracket over the connectors of the valve module and the valve coil connectors. This may require flexing the plastic bracket slightly (**Figure 21**).

4. Ensure the bracket is pushed over the connectors far enough to allow the clips to engage behind the valve connectors.

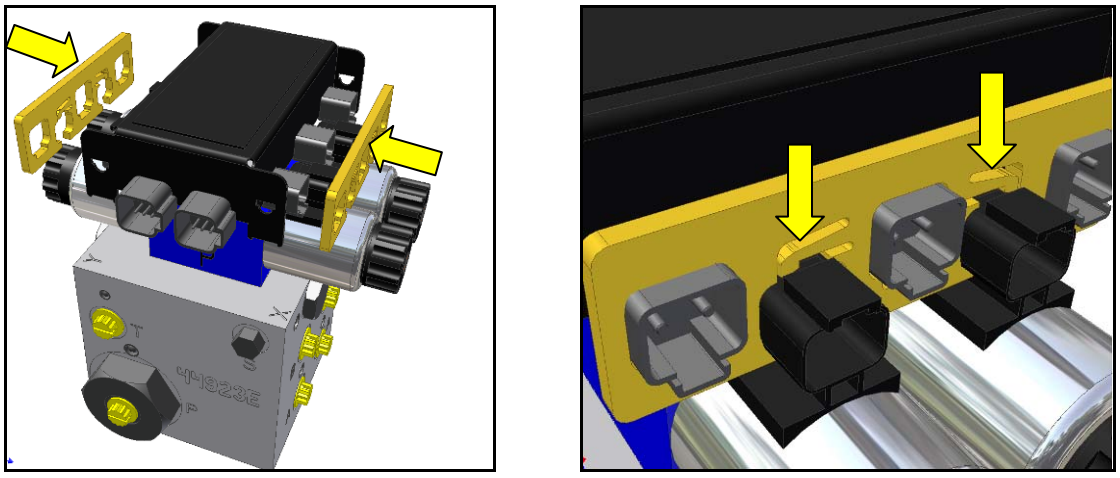


Figure 21: Valve Module Bracket Installation

5. Connect the valve module CAN-bus to cable C01 from the control module. Route cable C02 from the other CAN-bus connector to the input module.

6. With the valve module securely mounted to the valve block, connect the valve cables (C10), to the valve coils. Insert the 2-pin plugs (P01) into the unused 2-pin connectors on the valve module.

7. Connect the temperature probe to the valve block using the supplied 3/8” x 1/2” hex bolt.

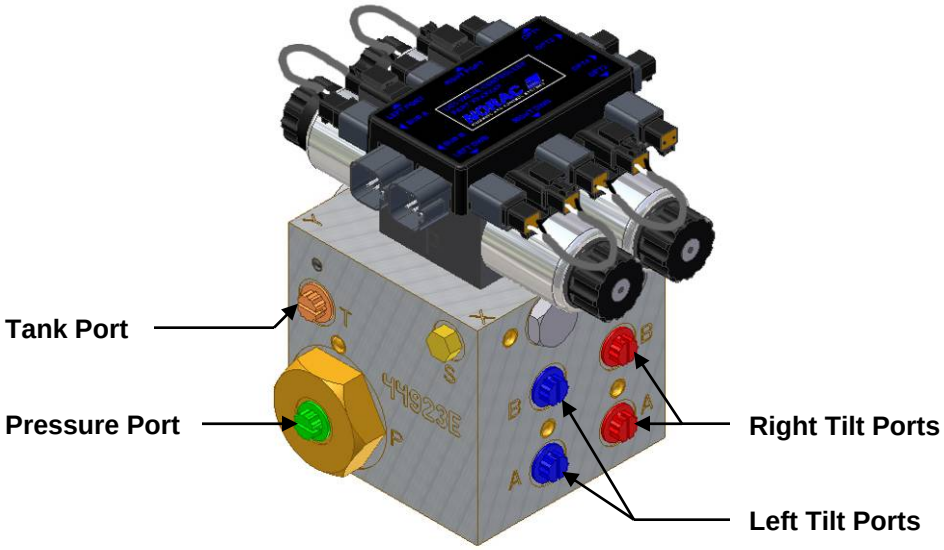


Figure 22: Valve Module - Valve Coil Connections

7.3 Input Module

1. Install the input module (E03) on the boom near the Hardi valve block. Secure it to the boom with cable ties.

2. Connect the free end of the CAN-bus cable (C02) from the valve module to the input module.

3. Insert the 12 pin plug (P02) into the grey connector on the end of the input module

4. Connect the 12 pin connector on the tilt interface cable (C20) to the grey connector on the side of the input module.

5. Insert the connectors on the other end of C20 into the tilt connectors on the Hardi solenoids

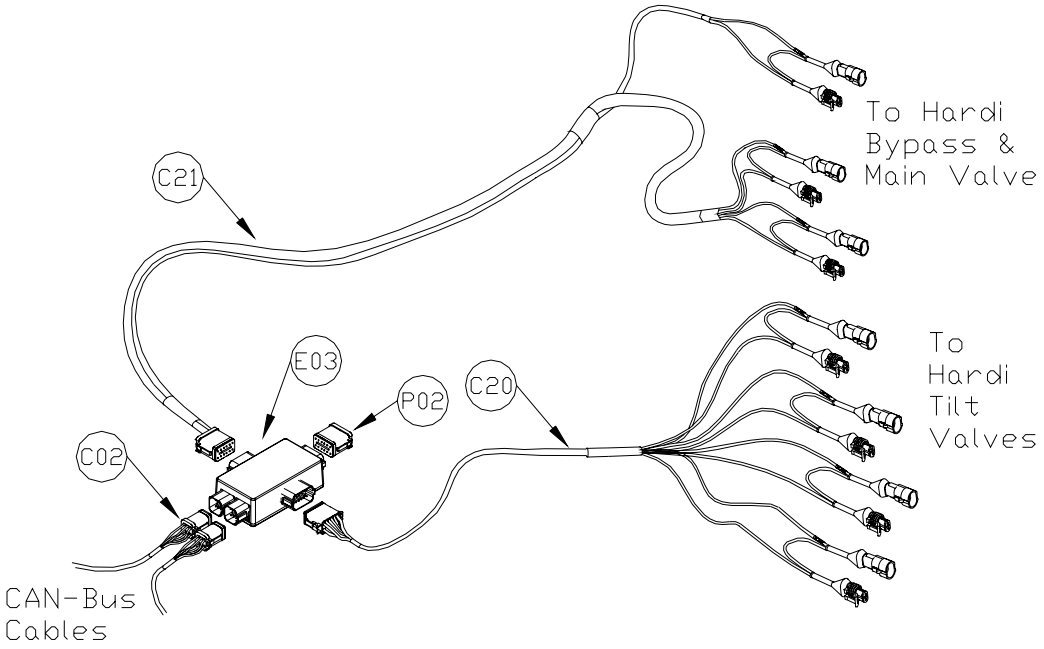


Figure 23: Input Module Connections

6. Connect the 12 pin connector on the main lift interface cable (C21) to the black connector on the side of the input module.

7. Route cable C21 under the sprayer, to the main lift valve.

8. Insert the connectors on the other end of C21 into the main lift connectors on the Hardi solenoids.

9. If your sprayer is equipped with a bypass valve, insert the connector labeled “Aux 1” into the bypass valve connectors. If your sprayer does not have a bypass valve, connect the male and female “Aux 1” connectors together.

8 Connecting the Sensors to the CAN-Bus

1. Route cable C03 from the input module to the 6-way coupler (E11).

2. Connect both roll sensors to the 6-way coupler. Fasten the 6-way coupler to the boom with cable ties.

3. Connect the main lift sensor to the 6-way coupler using cable C04 and a 2-way coupler (E12). Cable C04 and item E12 may not be needed if the 6-way coupler is mounted close enough to the main lift sensor.

4. Connect two cables (C05) to the 6-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.

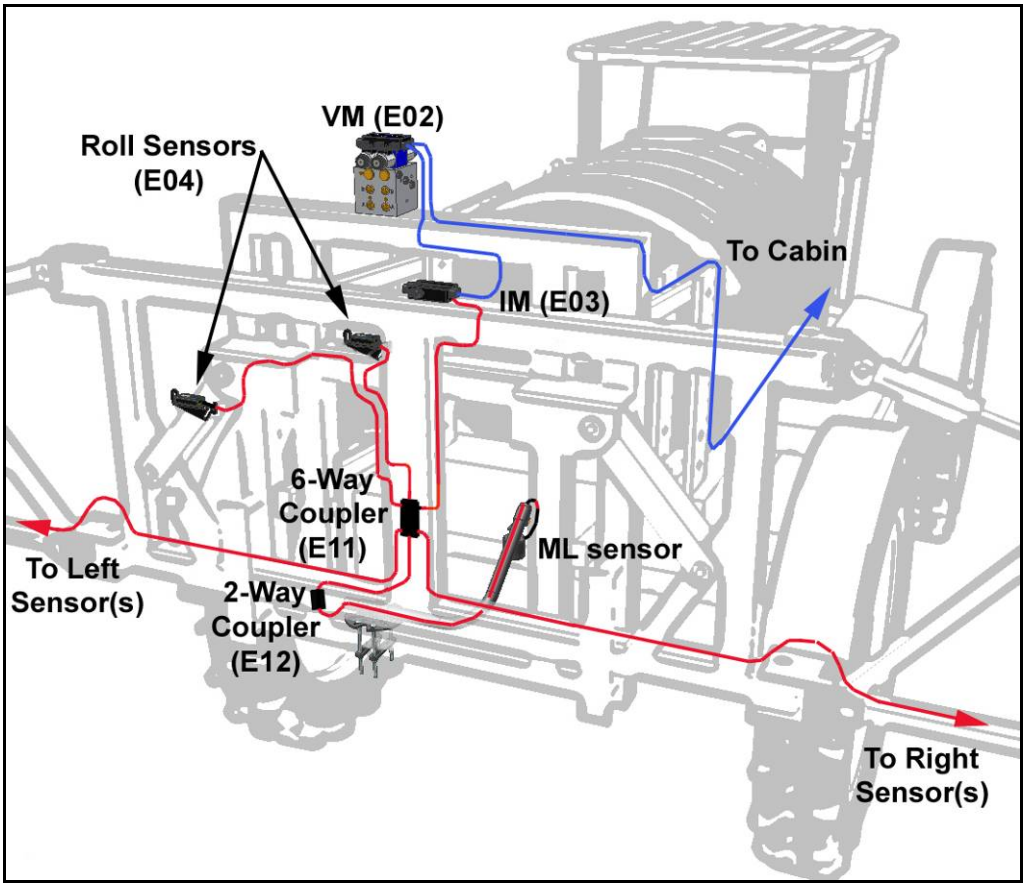


Figure 24: UC5 Module Locations and Cable Connections

5. At the sensor brackets, attach a 3-way coupler (E10) to the sprayer boom. Plug the sensor and the CAN-bus cable into the 3-way coupler.

6. Insert a CAN-bus terminator plug (E20) into the open connector on the 3-way coupler at the left outer and right outer sensors.

9 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. You may wish to perform the hydraulic installation 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 UC5 system warranty. It is recommended that a qualified technician perform the hydraulic installation.

9.1 Valve Assembly: Single Acting

1. On a clean surface remove the plastic plugs from the block.

2. Install two 3/8" x 1/4" BSPP (HD01) fittings into the P and T ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

3. Insert the two orifices into the "B" ports. Note the orifice orientation in **Figure 25**.

4. Install two 3/8" x 1/4" BSPP (HD01) fittings into the B ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

5. Install the 6MBP (F03) plugs into the "A" ports on the NORAC block and tighten to 18 ft-lbs (24 Nm).

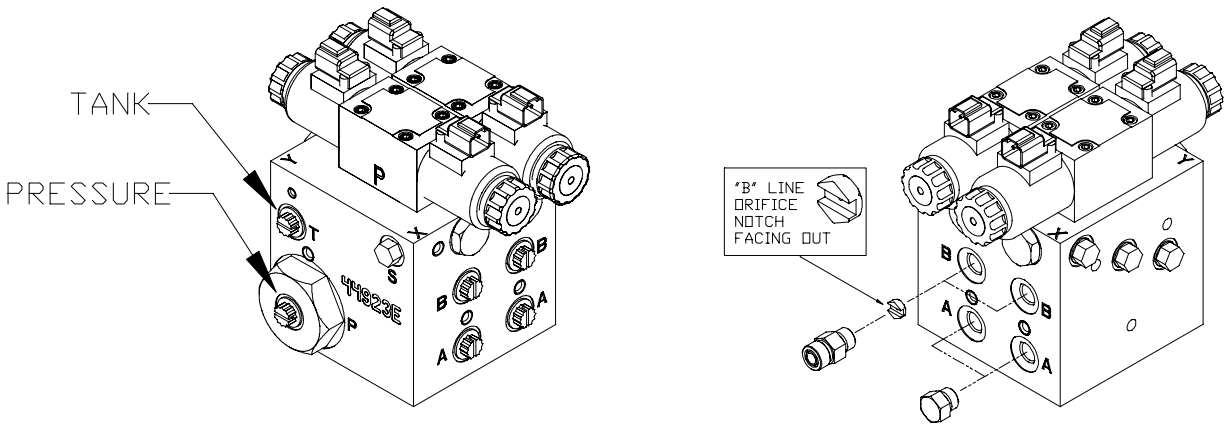


Figure 25: NORAC Valve Block Details

9.2 Valve Assembly: Double Acting

1. On a clean surface remove the plastic plugs from the block.

2. Install two 3/8” x 1/4” BSPP (HD01) fittings into the P and T ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

3. Insert the two orifices into the “B” ports. Note the orifice orientation in **Figure 26**.

4. Install two 3/8” x 1/4” BSPP (HD01) fittings into the B ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

5. Insert the two orifices into the “A” ports. Note the orifice orientation in **Figure 26**.

6. Install two 3/8” x 1/4” BSPP (HD01) fittings into the A ports on the NORAC block. Tighten to 18 ft-lbs (24 Nm).

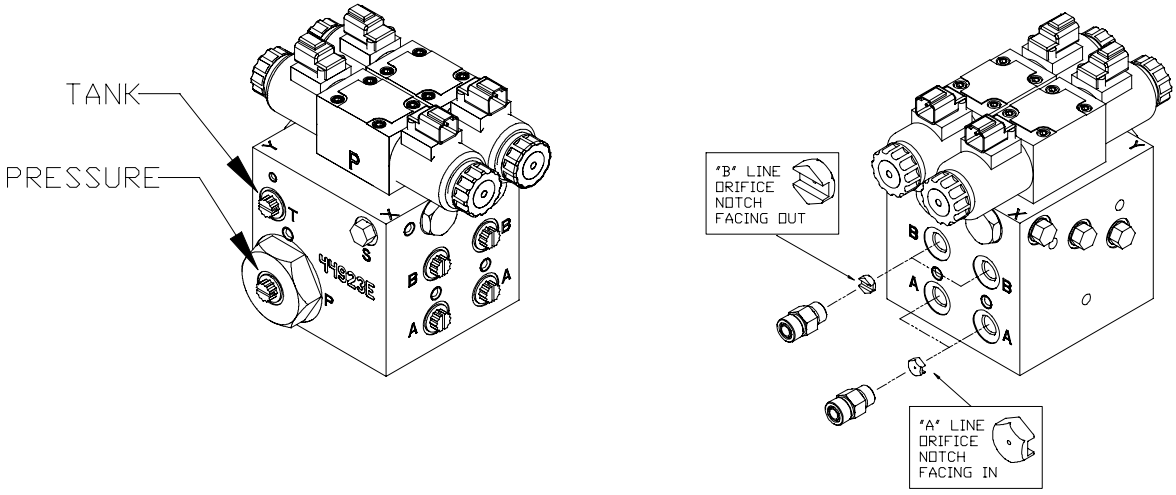


Figure 26: NORAC Valve Block Details

9.3 Valve Block Mounting

1. A suitable mounting location for the valve block is illustrated in **Figure 27**.

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.

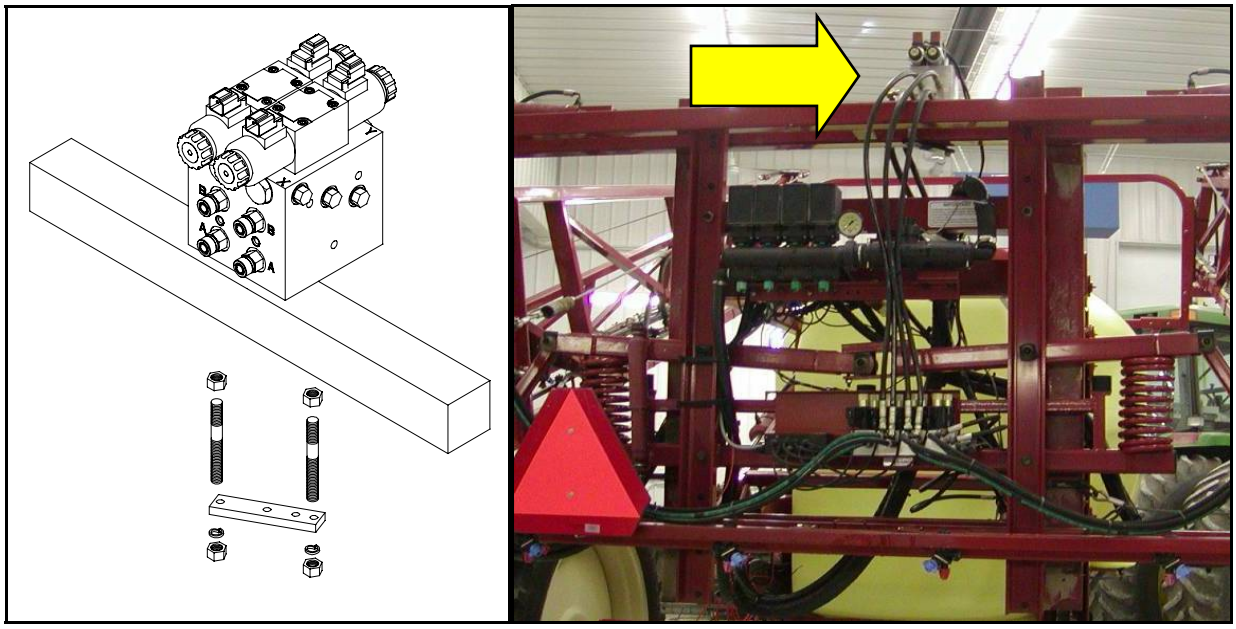


Figure 27: Valve Block Mounting

9.4 Hydraulic Plumbing: Single Acting

Warning!

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

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

2. Install the 90 degree fittings on hoses HD06 onto the "B" ports on the NORAC valve block.

3. Route the free ends of the hoses to each of the wing tilt cylinders.

4. Remove the Hardi hoses from the tilt cylinders and replace the restricted BSPP fittings from the butt ends of the cylinders with the straight through fitting HD04 (**Figure 28**).

5. Install the 1/4 inch BSP tee union (HD02) onto the fitting on the cylinder and install the NORAC and Hardi hoses onto the tee union.

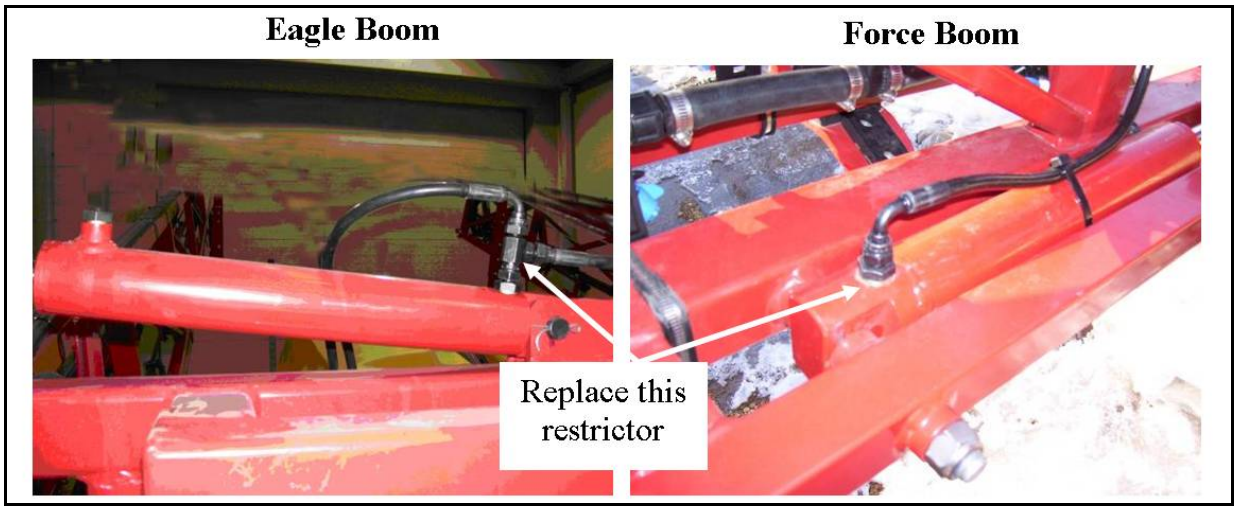


Figure 28: Restrictor to be replaced on the tilt cylinders

6. At the Hardi main valve block, remove the hydraulic hoses that run from the butt end of the tilt cylinders to the valve block.

7. Install the supplied restrictor (HD03) between the hoses and the valve block.

8. Remove the pressure and tank hoses from the Hardi valve block and install the 1/4 inch BSP tee union (HD02) between the valve block and hoses.

9. Connect hoses H05 to each of the tee fittings and route to the NORAC valve block.

10. Install the corresponding hose to the pressure and tank port on the NORAC valve block.

9.5 Hydraulic Plumbing: Double Acting

1. After the NORAC valve is mounted, the hydraulic hoses and fittings can be plumbed. The plumbing for the hydraulic circuit is shown schematically in **Figure 4**.

2. Install the 90 degree fittings on hoses HD06 onto the "A" ports on the NORAC valve block.

3. Install the 90 degree fittings on hoses HD07 onto the "B" ports on the NORAC valve block.

4. Route the free ends of the hoses to each of the wing tilt cylinders.

5. Remove the Hardi hoses from the "raise" line (the "B" line) of the cylinder and replace the restricted straight BSPP fittings with the straight through fitting HD04.

6. Install the 1/4 inch BSP tee union (HD02) on the "raise" line of the cylinder and install the NORAC and Hardi hoses onto the tee union.

7. Remove the Hardi hoses from the "lower" line (the "A" line) of the cylinder and install the 1/4 inch BSP tee union (HD02) onto the fitting on the cylinder.

8. Install the NORAC and Hardi hoses onto the tee union on the tilt cylinders.

9. At the Hardi main valve block, remove the hydraulic hoses that run from the "raise" line of the tilt cylinders to the valve block (**Figure 29**).

10. Install the supplied restrictor (HD03) between the hoses and the valve block.

11. Remove the pressure and tank hoses from the Hardi valve block and insert the 1/4 inch BSP tee union (HD02).

12. Connect hoses H05 to each of the tee fittings and install the corresponding hose to the pressure and tank port on the NORAC valve block.

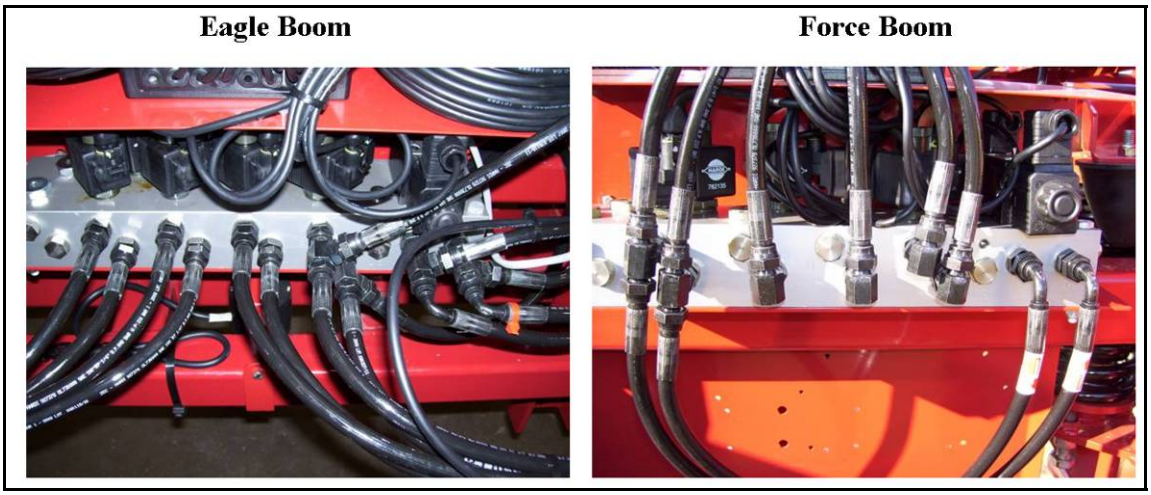


Figure 29: Location of Hoses on Hardi Valve Block

10 Software Setup

1. Start up your sprayer and test the sprayer's functionality. The display terminal 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 display terminal using the switch on the side.

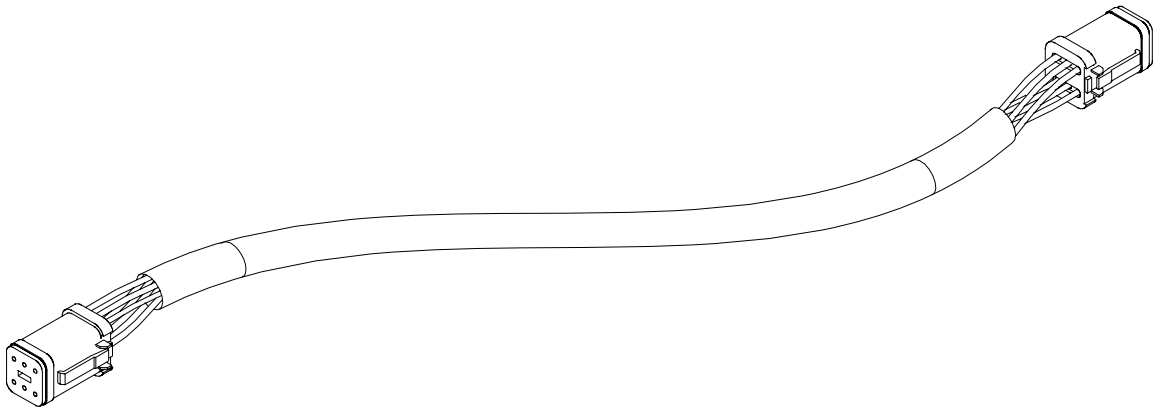
4. The procedure for the installation of the UC5 Spray Height Control system is now complete. Begin the AUTOMATIC SYSTEM SETUP procedure as described in the UC5 Spray Height Control Operator's Manual.

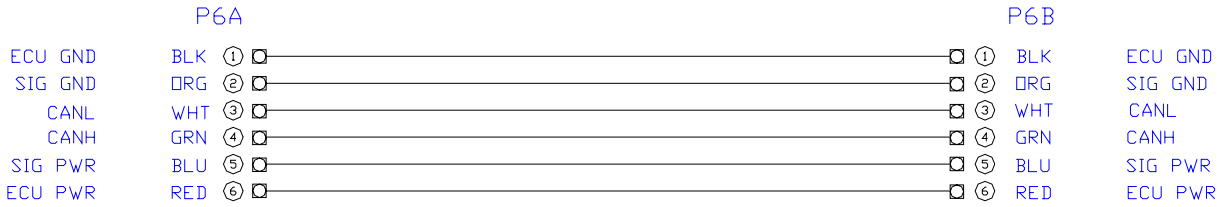
5. For optimal performance of the UC5 system, there should be very little play at the hitch clevis. The addition of polymer washers can help tighten up this connection (**Figure 30**).

Figure 30: Hitch Point

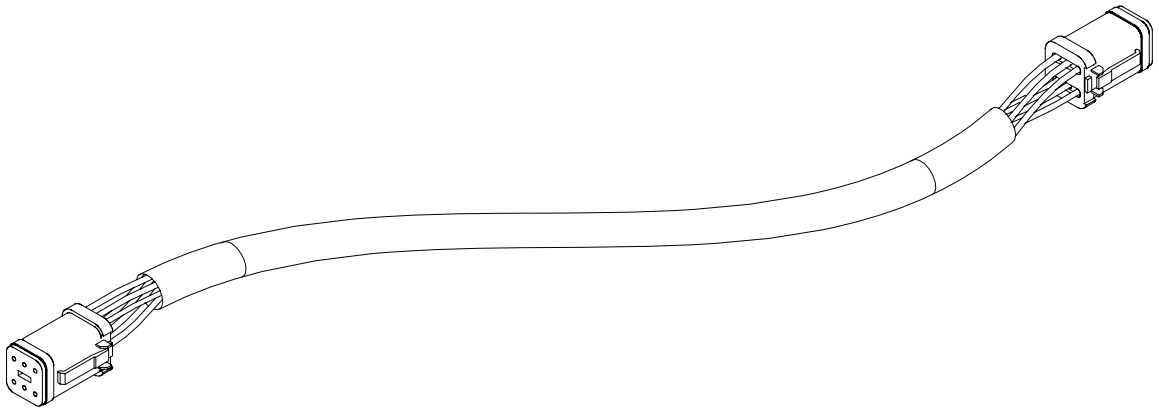
11Cable Drawings

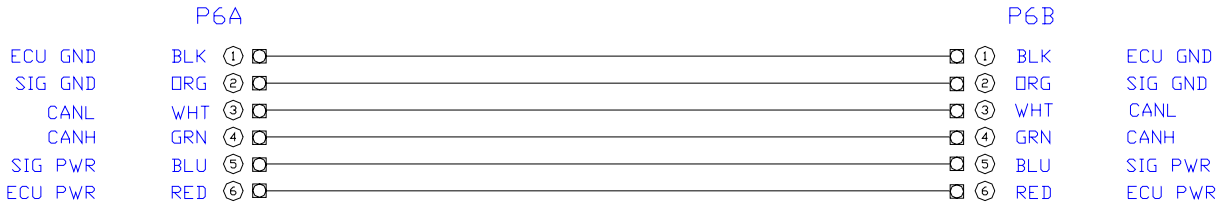
11.1 ITEM C01: 43220-10a - CABLE UC5 NETWORK 14 AWG - 10M



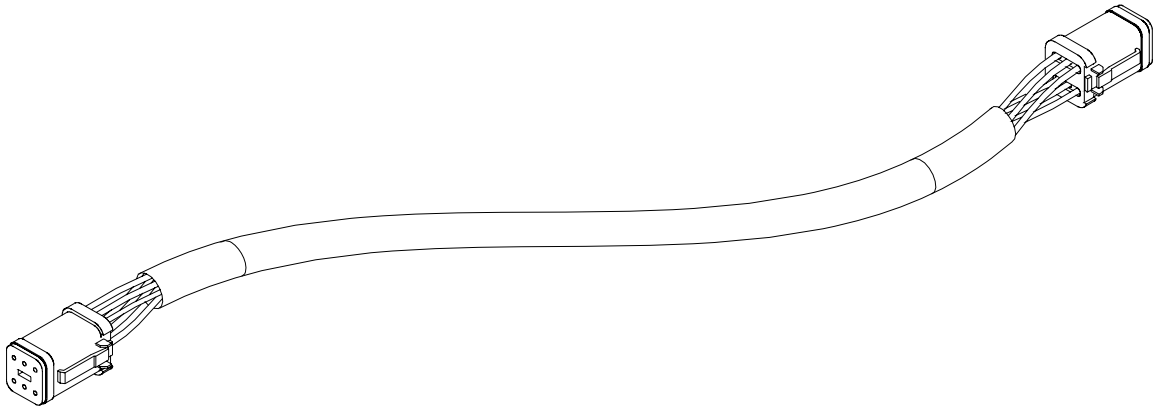


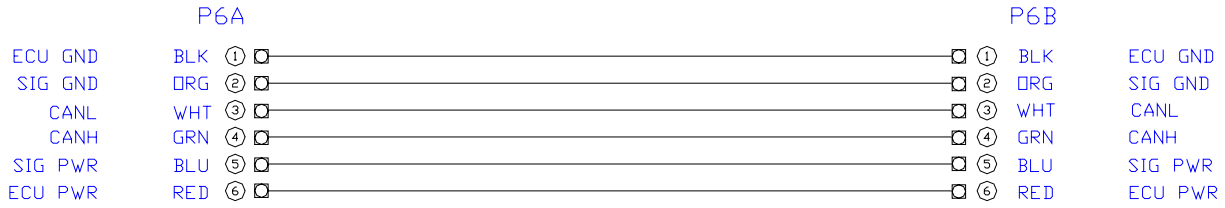
11.2 ITEM C02: 43220-01a - CABLE UC5 NETWORK 14 AWG - 1M



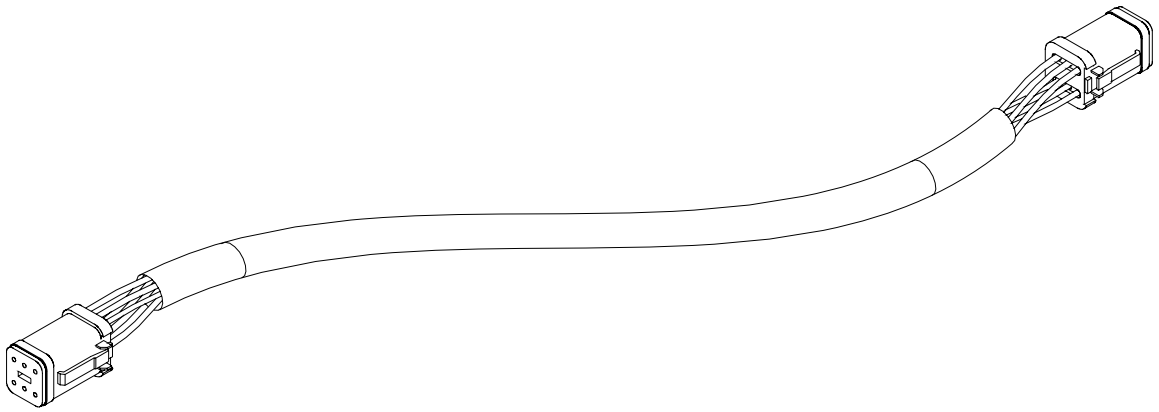


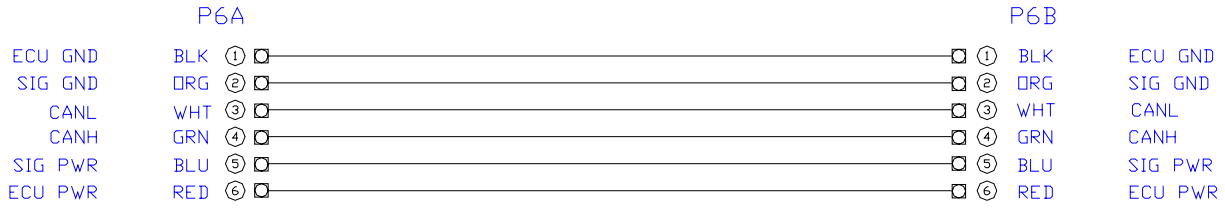
11.3 ITEM C03: 43210-03a - CABLE UC5 NETWORK 18 AWG - 3M



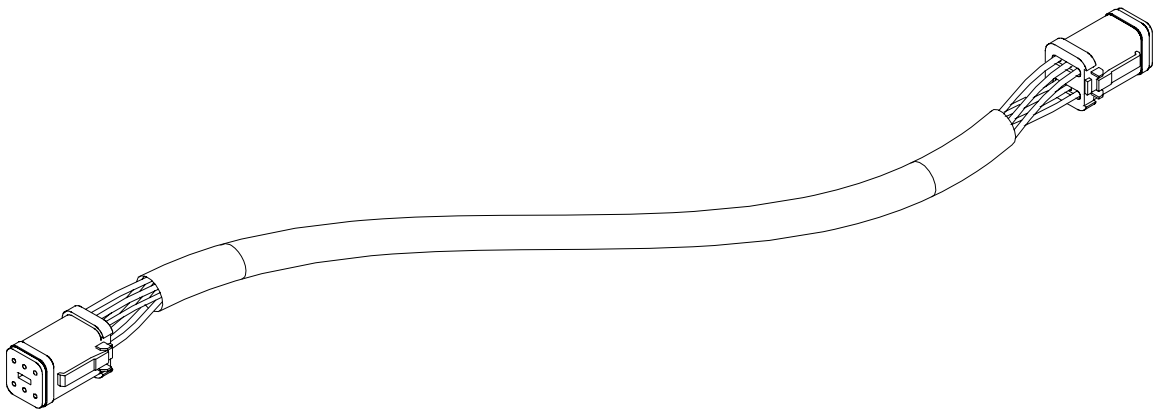


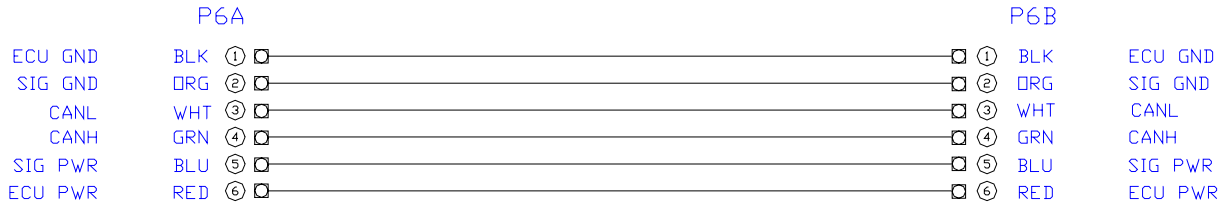
11.4 ITEM C04: 43210-01a - CABLE UC5 NETWORK 18 AWG - 1M



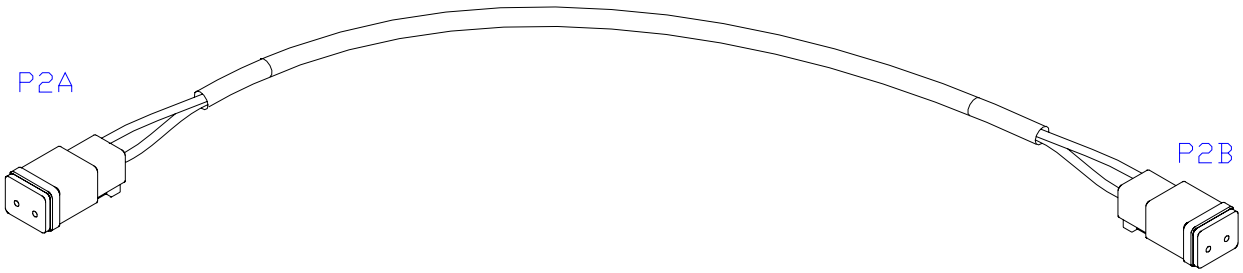


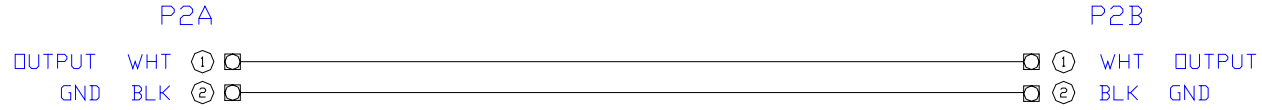
11.5 ITEM C05: 43210-20a - CABLE UC5 NETWORK 18 AWG - 20M



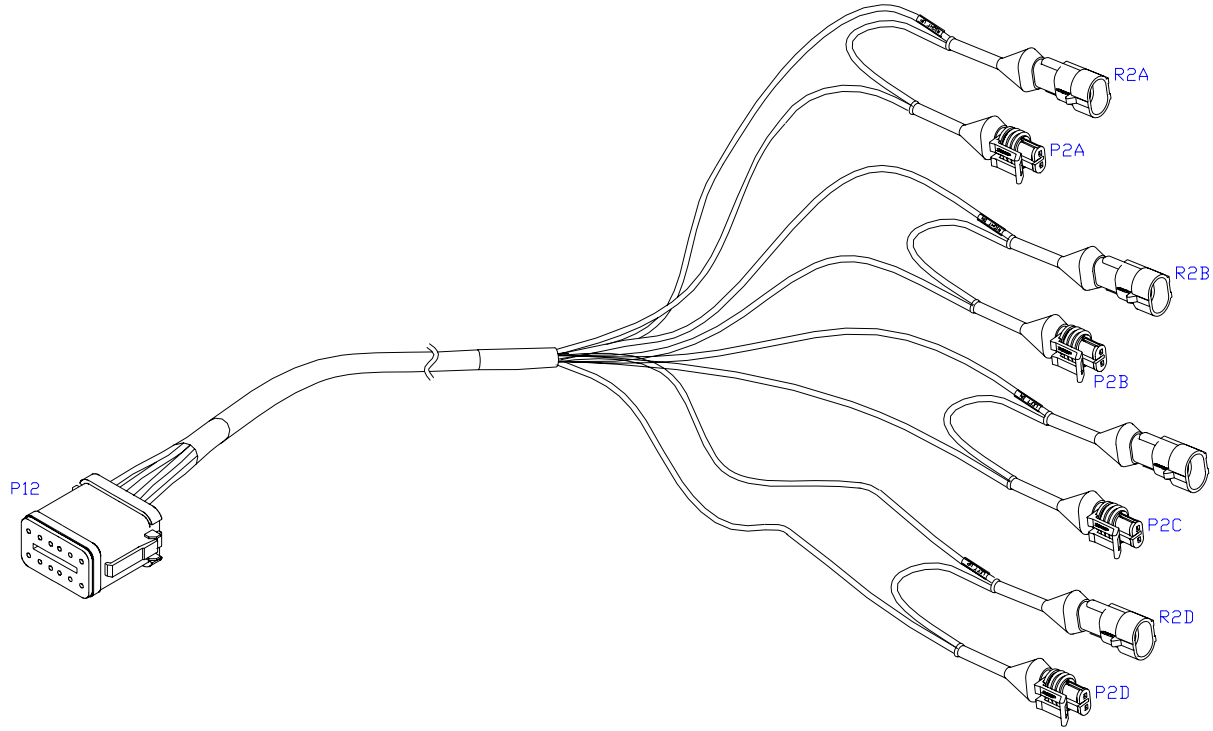


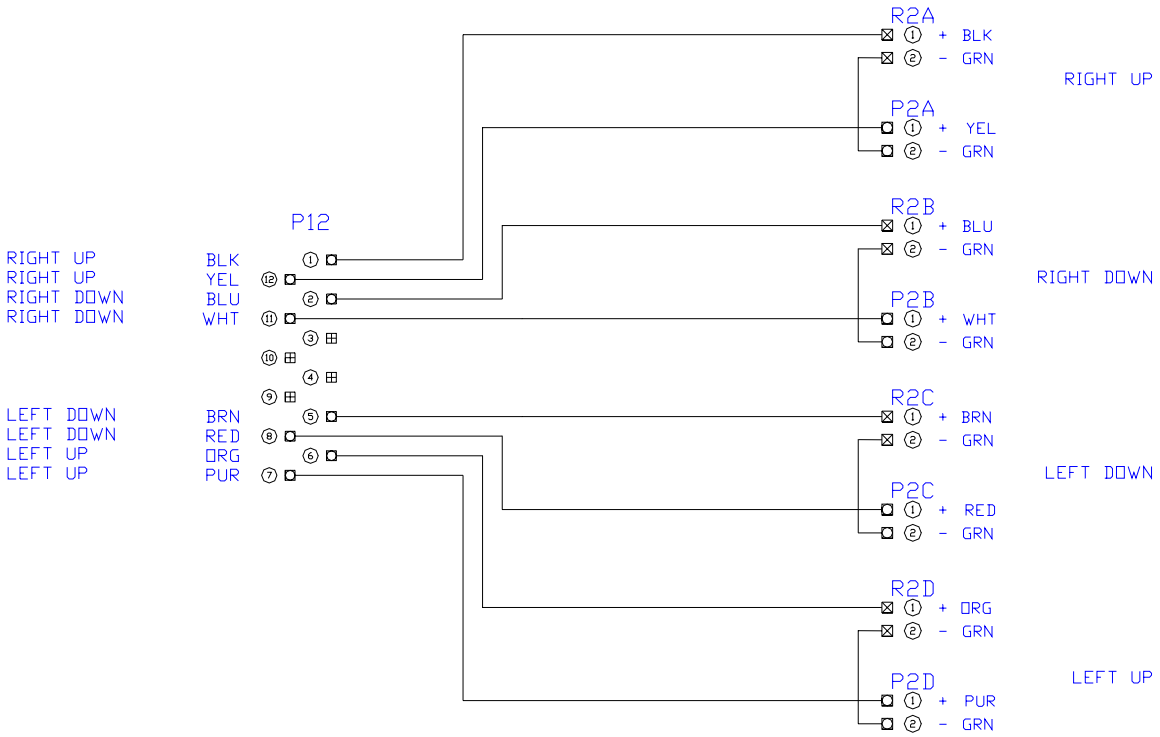
11.6 ITEM C10: 43230-04a – CABLE UC5 VALVE DT TO DT



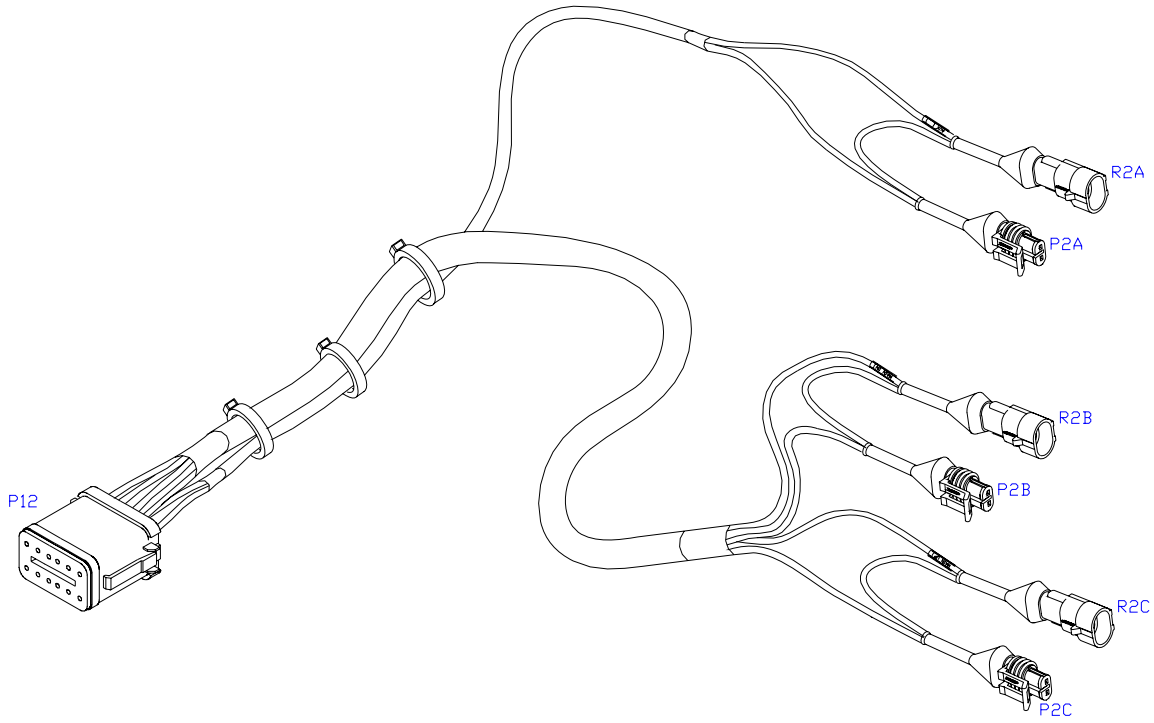


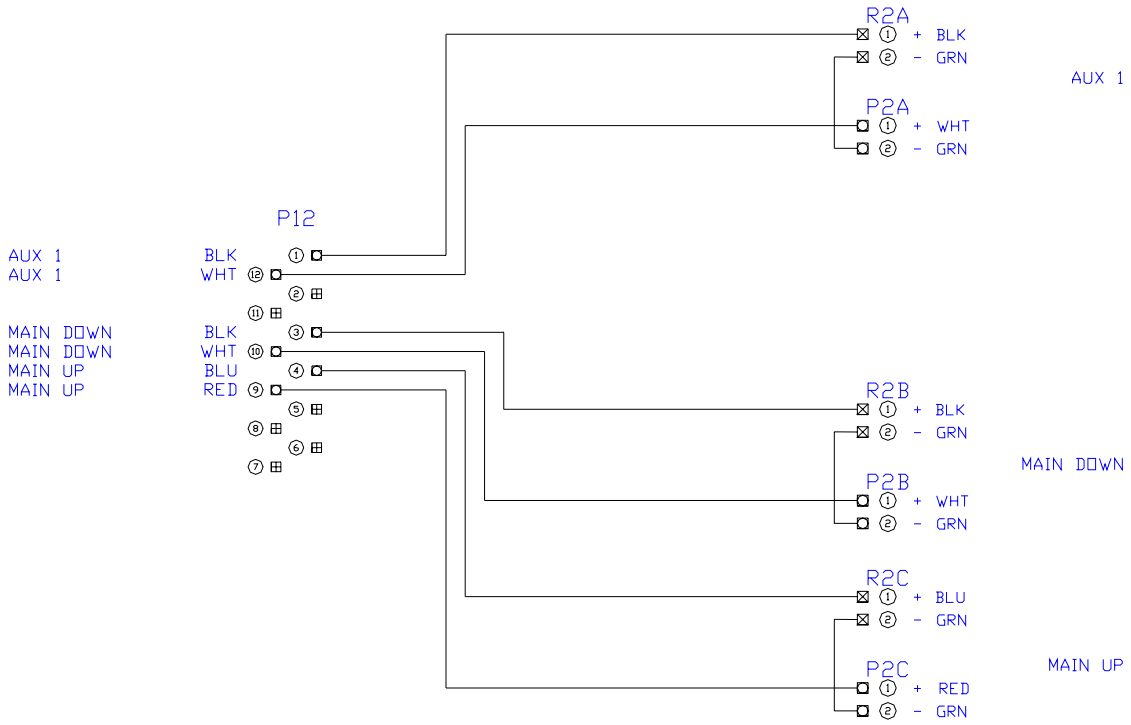
11.7 ITEM C20: 43240-08c – CABLE UC5 INTERFACE TILT AMP (SUPERSEAL)





11.8 ITEM C21: 43240-09c – CABLE UC5 INTERFACE MAIN AMP (SUPERSEAL 240" WITH BYPASS)





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