

Air Seeder Install Guide

SRM System Install



Contents

SRM System Installation Overview	2
1 - Tow Between Cart Additional Instructions	3
2 - Power Distribution Module Installation	4
3 - Row Unit Component Installation (Load Sensor and SRM)	7
4 - CAN Harnessing Installation	13
5 - Blockage Sensor Installation	18
6 - SRM Backbone Installation	21
7 - Row Harness	25
8 - Blockage Expansion Module Install	27
9 - Record Module Locations	34
10 - Apex Power Harness Installation	37
11 - Rotary Lift Switch Installation	39
Appendix A - Module Location Worksheets	41

SRM System Installation Overview

Refer to the below list of SRM system installation steps for an overview of this system installation. Details on each individual step can be found in the individual sections of this manual.

Step 1:

Install harnesses in Tow Between Cart (if applicable)

Step 2:

Install the PDM and Alternator.

Step 3:

Install row unit components: Load Sensor and SRM

Step 4:

Install CAN harnessing

Step 5:

Install Blockage Sensors

Step 6:

Install SRM Backbone harnessing

Step 7:

Install row harness

Step 8:

Install Blockage Expansion Module

Step 9:

Record module locations

Step 10:

Install APEX power harnesses

Step 11:

Install lift switch

Note: For tractor related installation of harnesses and the Gen3 monitor, refer to the 20| 20 Operator's Guide for Air Seeders.

1 - Tow Between Cart Additional Instructions

Proceed to Power Distribution Module Installation if not applicable

Step 1- Route harnessing with the hydraulic lines from the tractor to the back of the cart. Following the current hydraulic hoses



Figure 1-1

Step 2- Route the harnessing at the back of the cart through any of the holes shown to the right.



*Figure 1- SEQ Figure * ARABIC 2*

2 – Power Distribution Module Installation

Step 1- Locate the PDM mounting location.

Tower and CCS style seeders –

Mount to the right of the hitch at the front of the air seeder. Refer to the diagram.

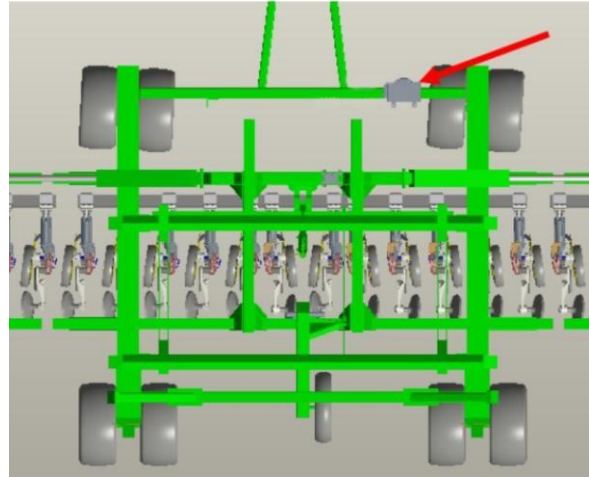


Figure 2-1

Box Drill style seeder –

Mount to the left of the hitch just in front of the seed box. Refer to picture.



Figure 2-2

Step 2- Attach the PDM to the mounting bracket using the provided four bolts.



Figure 2-3

Step 3- Mount the PDM bracket to the center frame using the two provided U-bolts.



Figure 2-4

Note: Mount the PDM with the 60 amp fuse facing the right side of the frame.

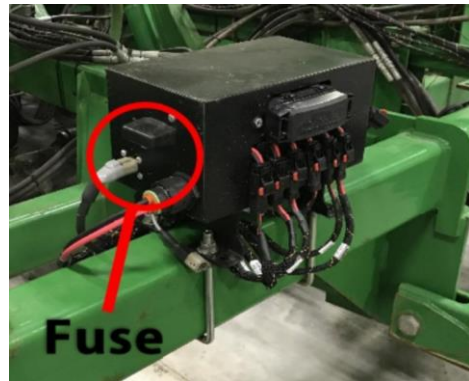


Figure 2-5

Step 4- Route the Tractor Power harness with integrated CAN A extension from the tractor hitch to the PDM.

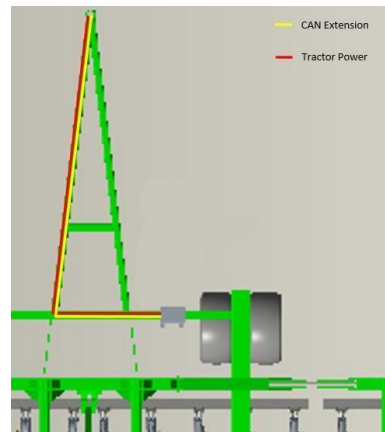


Figure 2-6

3 – Row Unit Components Installation: Load Sensor and SRM Installation

Removing JD Depth Arm and Handle:

Step 1- Remove the bolt and nut at the bottom of the depth adjustment arm. Slide arm off the shaft to expose the nut inside the T-handle. Re-use bolt and nut during install of new depth adjustment arm



Figure 3-1

Step 2- Remove the depth adjustment handle with a 9/16" socket. ***Be careful not to lose the spring inside the handle.**



Figure 3-2

Note: The depth adjustment handle, spring and nut will be reused for the load pin installation. Make sure to re-use the nut and bolt from Step 2.



Figure 3-3

Step 3- Using a 1/2" wrench, remove the carriage bolt and remove the John Deere front shield from the row unit.



Figure 3-4

Installing Load Sensor:

Step 1- Install the load sensor. While installing the load sensor you will need to raise the gauge wheel to get the proper angle for installation. Insert threaded end upward through the depth adjustment guide first, then slide the yoke of the sensor over the gauge wheel arm's shaft.



Figure 3-5

Note: While installing the load sensor, reinstall the handle spring and bolt.



Step 2- Tighten nut so it is flush with the top of the handle.



Step 3- Install bottom bolt and nut and torque to 30 ft/lbs.



Figure 3-8

Installing Shield Kit and SRM

Before proceeding, make sure to identify the correct shield bracket kit for either the left or right hand row units before installation. Each bracket is labeled "L" or "R" as well. Right hand represents the gauge wheel on the right side of the row unit.

Step 1- Install the front shield and the SRM mount using the 5/16" x 1.75" carriage bolt provided in the hardware kit.

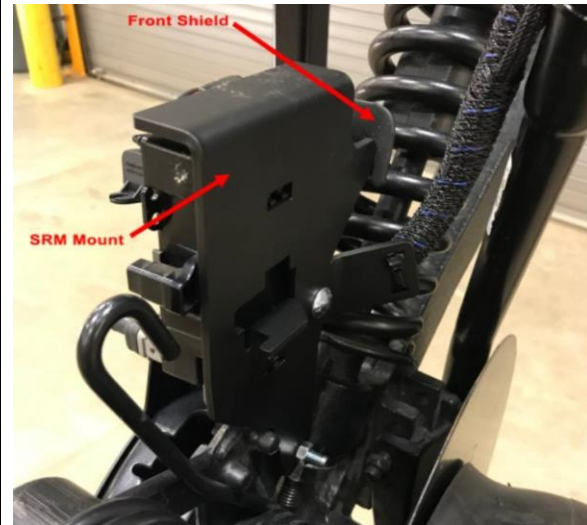


Figure 3-9

Step 2- With the depth handle in the lowest position, route the load sensor harness up the front shield with two zip ties. This will ensure you have enough room so the harness does not get pulled when moving the depth handle to the top or bottom.

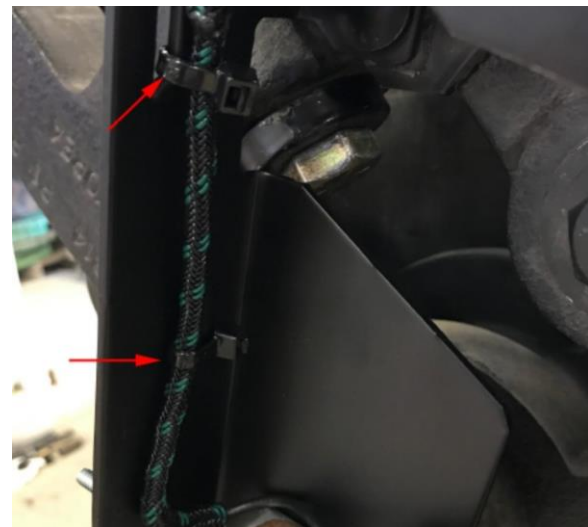


Figure 3-10

Step 3- Mount the SRM and ladder clip to the bracket.



Step 4- Use the 2" carriage bolt to install the SRM

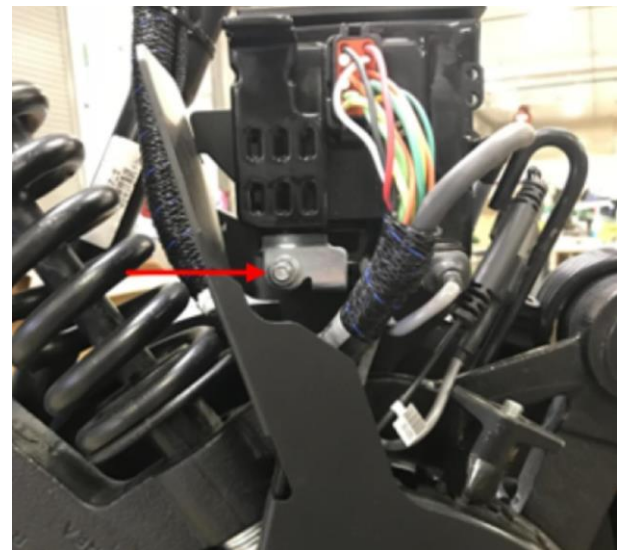


Figure 3-12

Step 5- Install the side shield with the 10-24 lock nuts from the hardware kit, ensuring the tab of the shield is slid up inside the depth adjustment bracket. Zip tie excess harnessing to the ladder bracket protect the wires from standing stalks as much as possible. Left hand row units will have the ladder bracket towards the rear of the seeder. Leave any excess row unit harness length up by the tower or backbone harness. Plug the load sensor harness into the SRM.



Figure 3-13

Step 6- Attach row number sticker to the top of the SRM mount

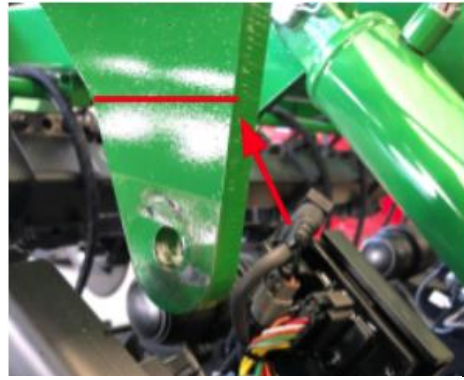
John Deere Box Drill Special Instructions

The center hoist point on some John Deere Box Drills may need to be cut in order to avoid interference with the SRM bracket.

Step 1: Locate the center hoist point on the rear rockshaft and evaluate if there is interference with the SRM bracket. This is typically located on the head side of the rear rockshaft cylinder. See picture to the right. If interference exists, proceed to the next step.



Step 2: Draw a line approximately 5-6 inches from the bottom of this bracket



Step 3: Cut to remove this section of the hoist point bracket, which is only used during the manufacturing of the drill at John Deere.



4 – CAN Harnessing Install

Overview - CAN harnessing will be split into CAN A and CAN B. CAN A will run through the PDM to the SRM backbone harnesses on the left section. CAN B will run directly from the hitch to the SRM backbone harnesses on the center and right sections. The length of any one CAN network should not be more than 140 ft. from DBM to terminator. CAN C is also available to be used on larger seeders (725147 Triple CAN Harness must be used).

Note: Any SRMs doing high speed section control (like for SeederForce Section) for a given rockshaft need to be placed on the same CAN Network. If an SRM on a rockshaft is not on the same network that the controlling SRM is on, the SRM information will be mapped but not controlled to. It is okay to split the CAN network in the middle of a rockshaft when doing high speed row by row control (like SeederForce row by row), as each row is controlling itself.

Step 1 - Split the two CAN Networks between the left wing and the center frame sections as shown in the diagram below to keep both CAN lengths as even and short as possible.

Tower Style CAN Harness Layout –

In this example, towers 1 and 2 will be on CAN A and towers 3-6 will be on CAN B.

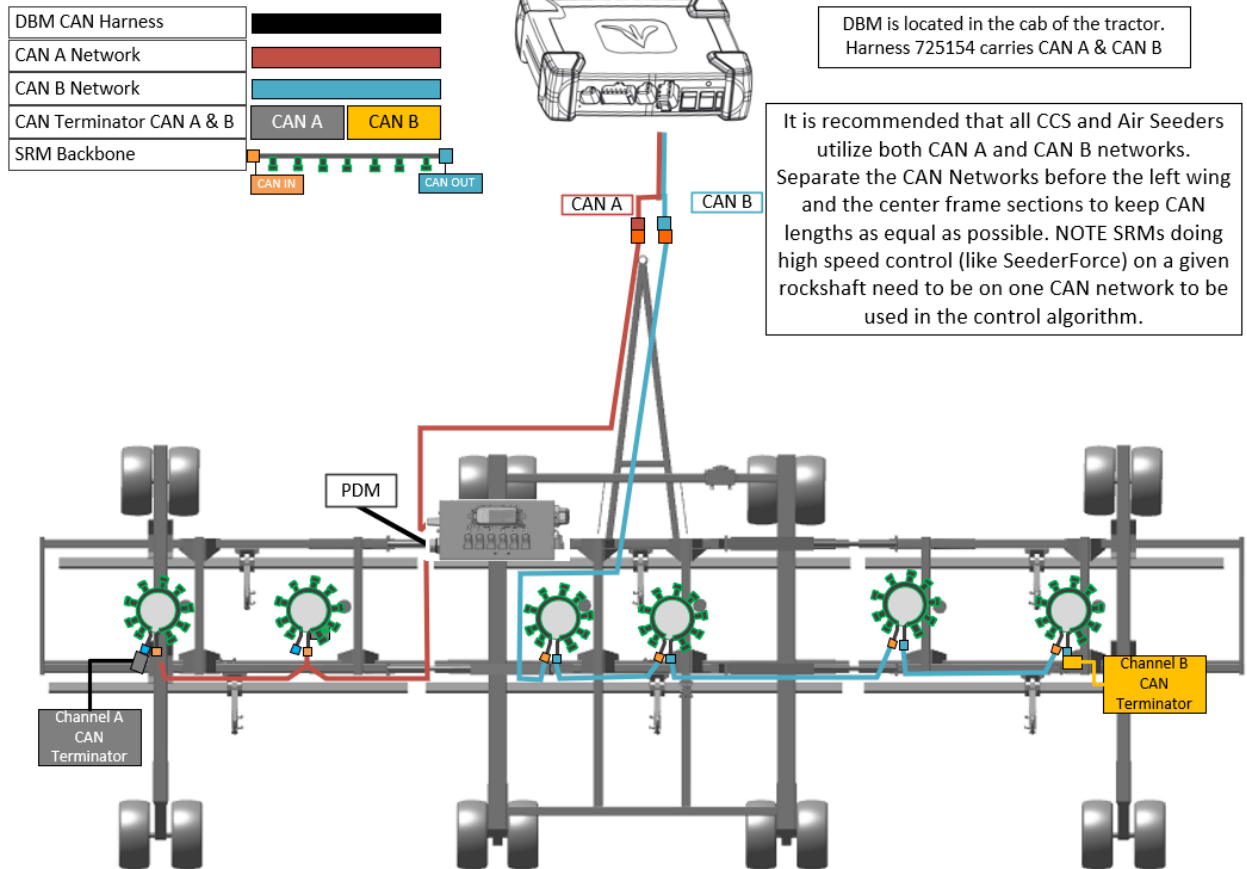


Figure 4-1

Tower Style w/ Fertilizer Rank CAN Harness Layout –

Fertilizer towers are not currently supported for downforce control (SeederForce) or load cell monitoring. Seeding towers should be added to the CAN network on the section they are located, ie.- left section on CAN A and center and right sections on CAN B. The main consideration for routing should be keeping the total length less than 140 ft.

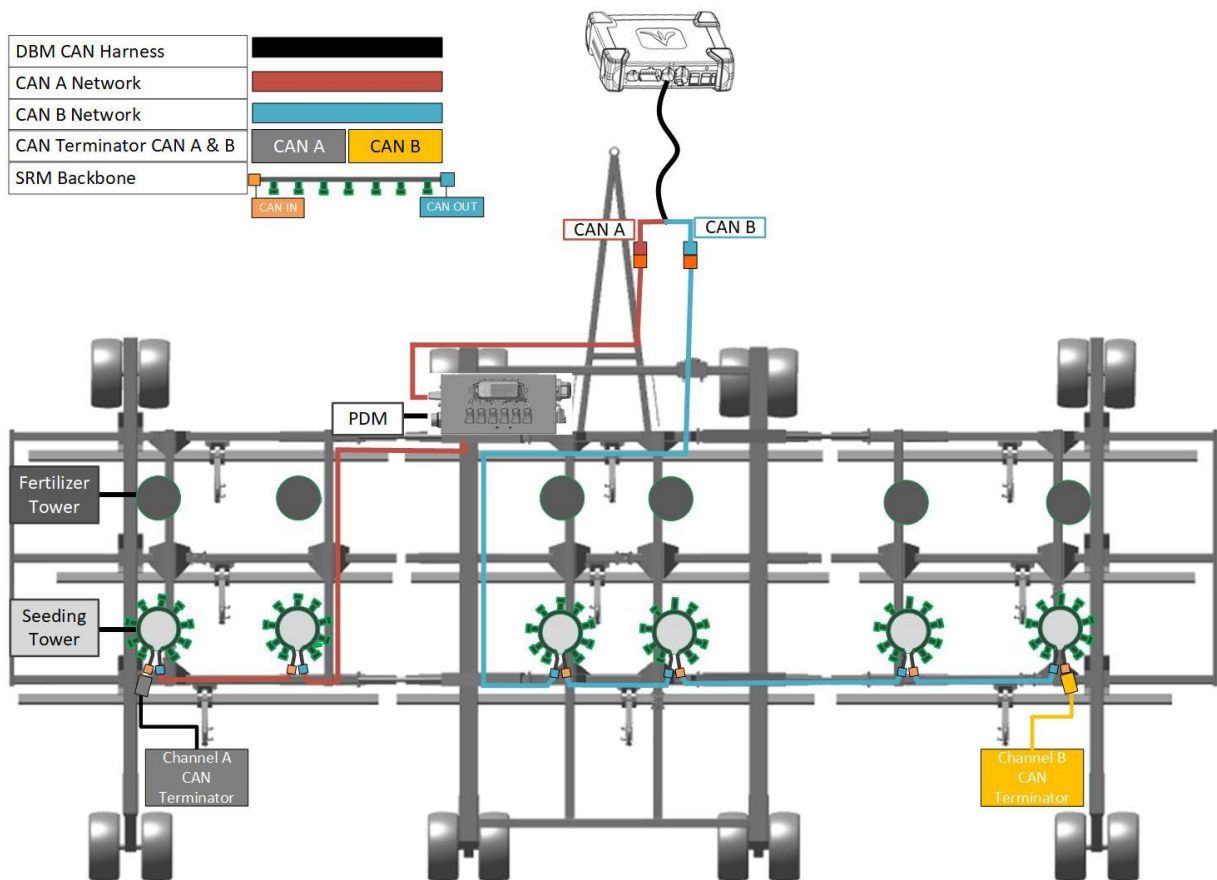


Figure 4-2

Fertilizer Ranks –

If blockage sensing is desired on fertilizer ranks the recommended installation would be to mount BXMs for the fertilizer rank on the seeding towers, using 180" Blockage Sensor Adaptor Harnesses (735094) to connect each blockage sensor on the fertilizer rank to a BXM mounted at the nearest seeding tower.

CCS Style CAN Harness Layout –

In this example, the 2 rockshafts on the left wing will be on CAN A and the rockshafts in the center section and right wing will be on CAN B. It is recommended the CAN networks run from left to right, as it will make the 20|20 setup process easier.

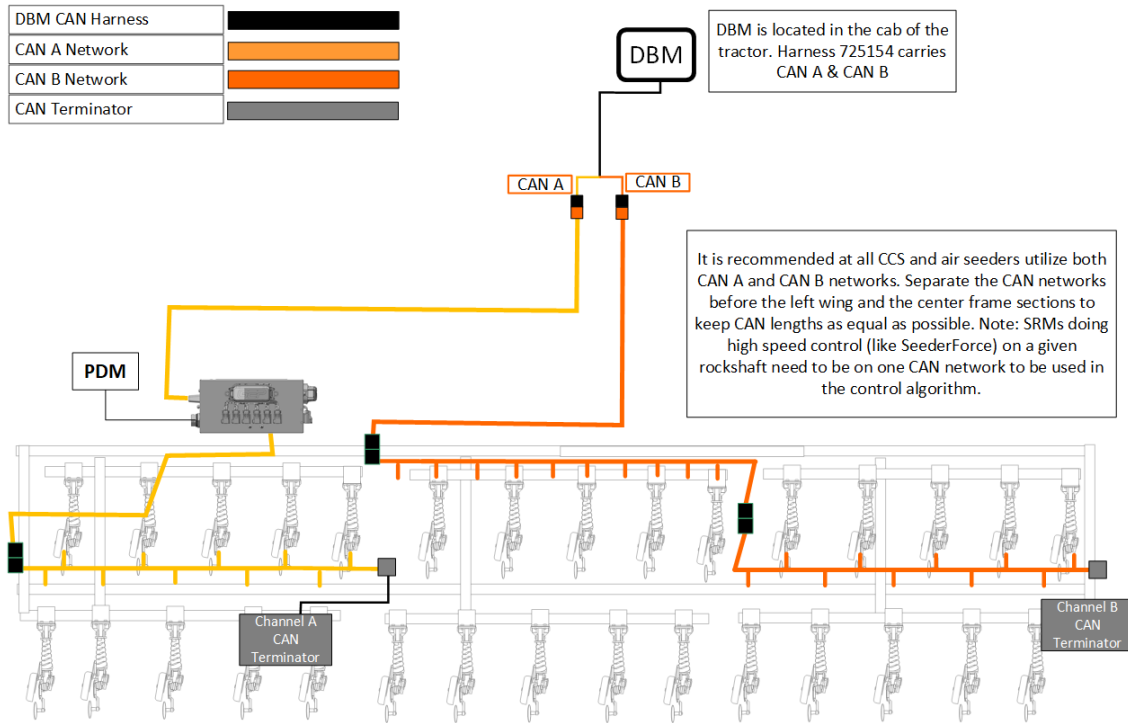


Figure 4-3

Box Drill CAN Harness Layout –

It is recommended Box Drills utilize only CAN A. In the case where 2 box drills are used in tandem, each drill should be on a separate CAN network. The drill on the left should be on CAN A and the drill on the right on CAN B.

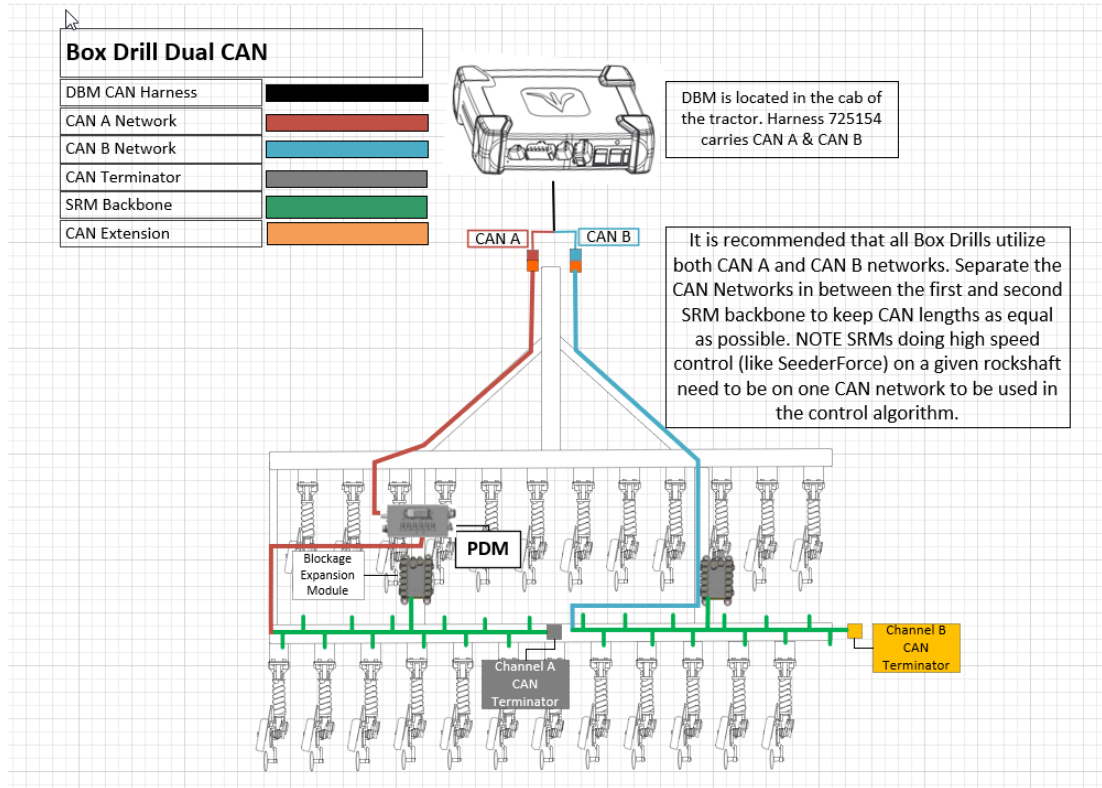


Figure 4-4

5 - Blockage Sensor Install

Tower and CCS – Blockage Sensors

Use a hose cutter to cut the secondary line 8 inches from the manifold to ensure there is enough harness length to connect the sensor harness to the backbone harness.

Note: Cut the hose as clean and straight as possible to ensure a tight fit with the sensor.



Install the sensor so that the arrows on the side of the sensor are facing the direction of seed flow.

To secure the sensor to the hose use an 8mm nut driver to tighten the two hose clamps (torque to 26 in/lbs.)

Seed Flow

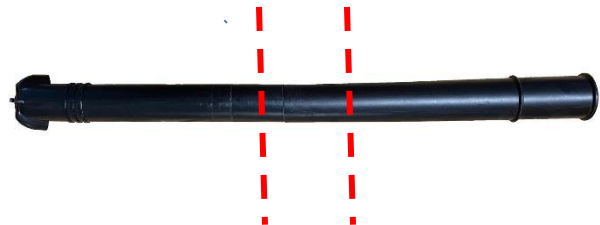


Box Drill – Blockage Sensors

Step 1 – Remove all the flexible hose from the seed tube, remove the seed tube once the flexible hose is disconnected.



A section of the seed tube will need to be removed in order to add the Blockage Sensor. Picture shows approximate location, following step will give more precise measurements.



Step 2 – Measure from the bottom of the tube and make a mark at the 12" and 14" location. The diameter of the tube should be ~1.5" and 1.54" respectfully (Verify with a caliper). Cut the tube at the 12" and 14" marks to remove a 2" section. This section will be replaced with the blockage sensor.



Step 3 – Install Blockage sensor in the location where the cut was made in the previous steps.

NOTE: Ensure the arrow on the side of the blockage sensor is pointed in the direction of seed travel. (Indicated by red arrow)



Step 4 – Use hose clamps (2) to secure

the blockage sensor.



Step 5: Reinstall seed boot tube to the seed delivery system.



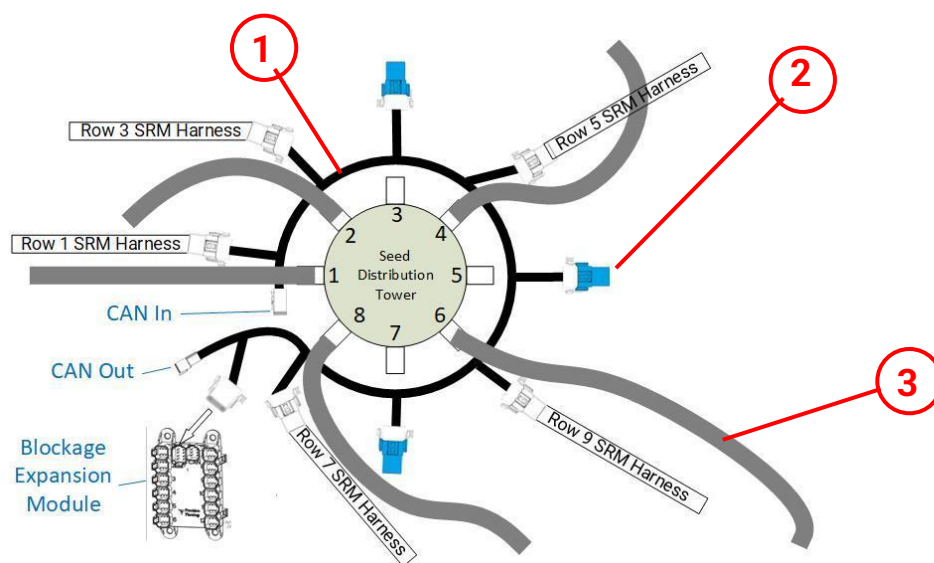
6 – SRM Backbone Harnessing Install

Step 1 – Install the SRM Backbone into the CAN network. See details below:

Tower Style – SRM Backbone Harness

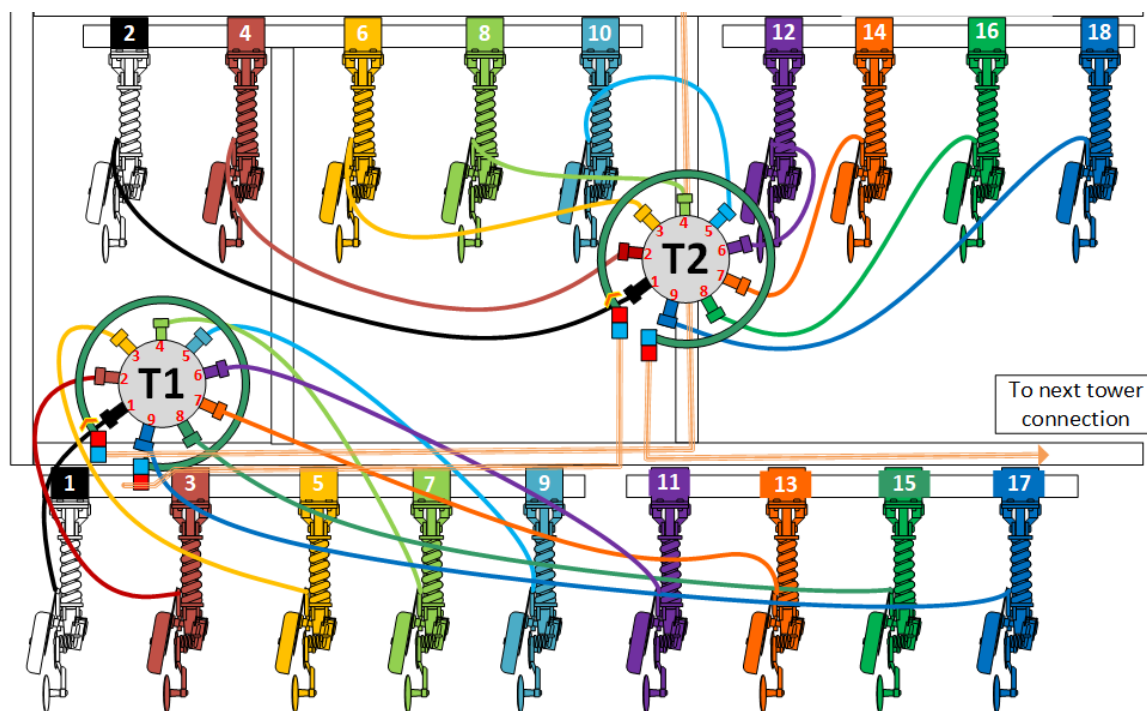
Install one tower backbone harness per seeding tower and connect them together with CAN extension harnesses. Start by locating the leftmost row of the tower. This is going to be the first row on the tower harness. Start with the row drop labeled “first” (located on the “CAN In” side of the harness), align the first row drop with seed exit number 1 and wrap the harness clockwise around the tower. Attach the harness to the underside of the seed delivery tubes with zip ties, aligning each row drop with the corresponding seed exit. Any seed exits that are not being used and have no seed hose attached

require an SRM Backbone Row Plug (729039). See diagram below.



- 1 – Tower SRM Backbone
- 2 – SRM Backbone Row Plug (729039)
- 3 – Seed Delivery Hose

SRM Backbone Harness - Single Rank Tower Example



SRM Backbone – Double Rank Tower Example

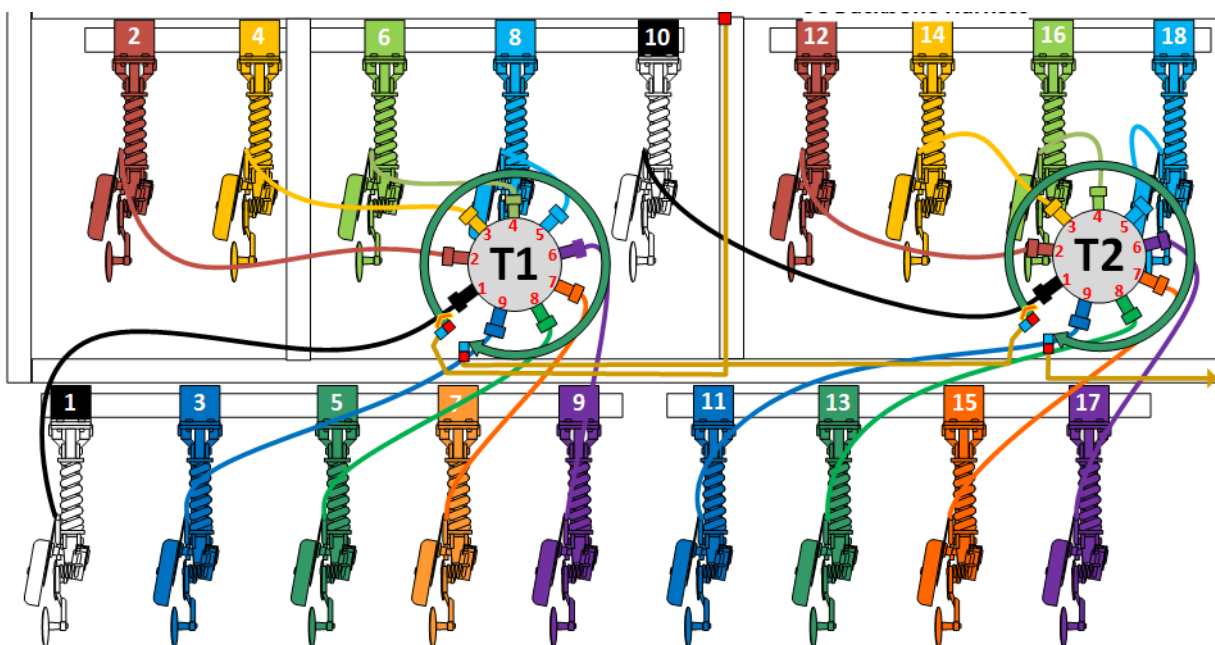


Figure 5-3

CCS – SRM Backbone Harness

For double or single Rank CCS seeders install backbone along the seed hoses feeding both front and back rows. Refer to the diagram below on how to route the backbone harnesses. Route the backbones from left to right.

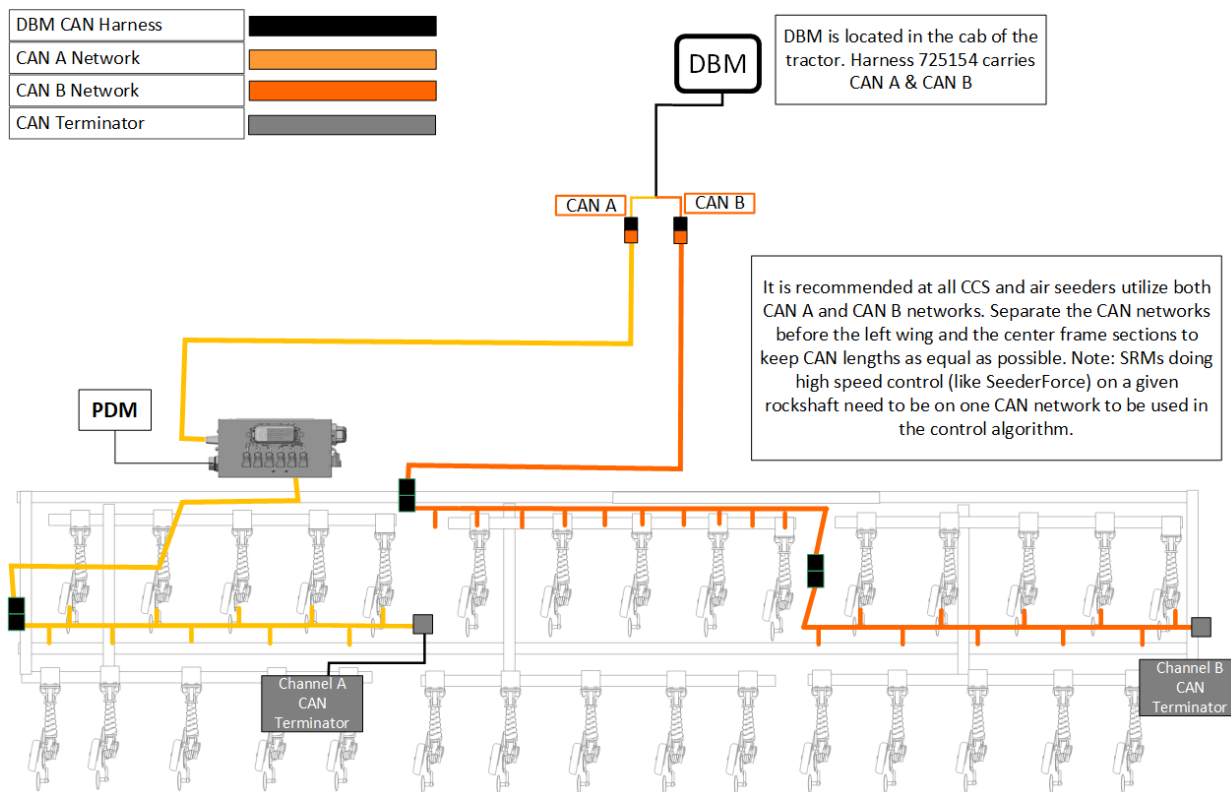


Figure 5-4

Box Drill – SRM Backbone Harness

Zip tie the backbone harness underneath the rear platform.



7 – Row Harness Installation

Measure for Row Harness length –

Using a tape measure, measure from the top of the seed boot to the seeder tower manifold. Refer to the order guide for the correct SRM Row Harness to use.

Step 1: Connect the row harness to the SRM backbone harness for the appropriate row. Route the row harness down through SRM mount, zip tie in place, and take excess up the seed line to the top of the tower. Try to keep the harness on the backside of the seed line to help protect from in field debris.



Step 2: At the bottom end of the seed line, route the harness inside and through the SRM bracket (see SRM Install for more info). Use the tab on the mount shown in figure to zip tie the harness. Plug into the SRM.



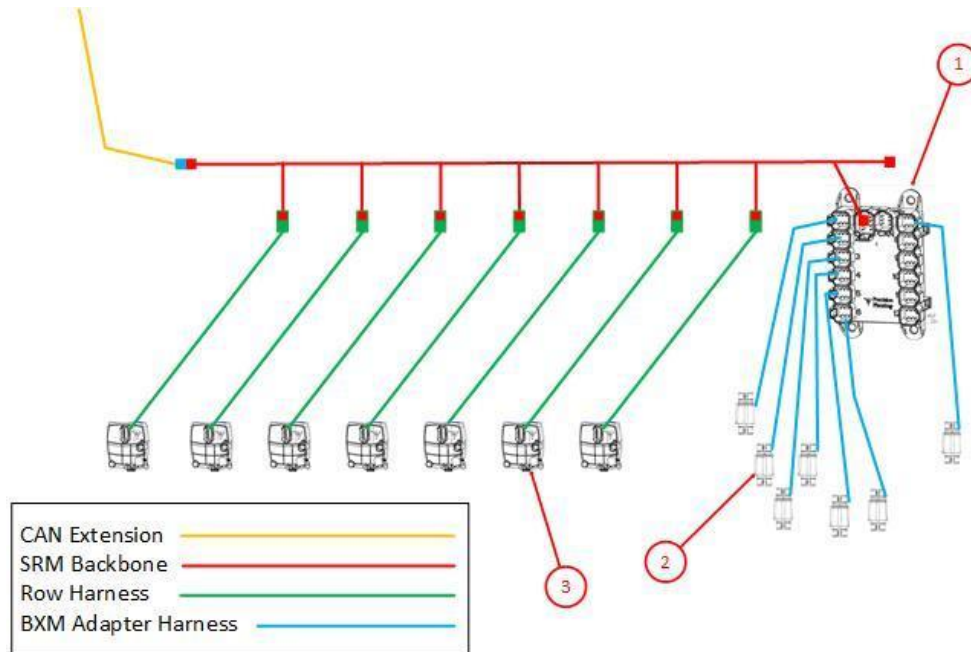
Step 3: Zip tie the extra row unit harnessing at the top, near the tower.



Step 4: Install an SRM row plug on each backbone connection that does not have a row harness.

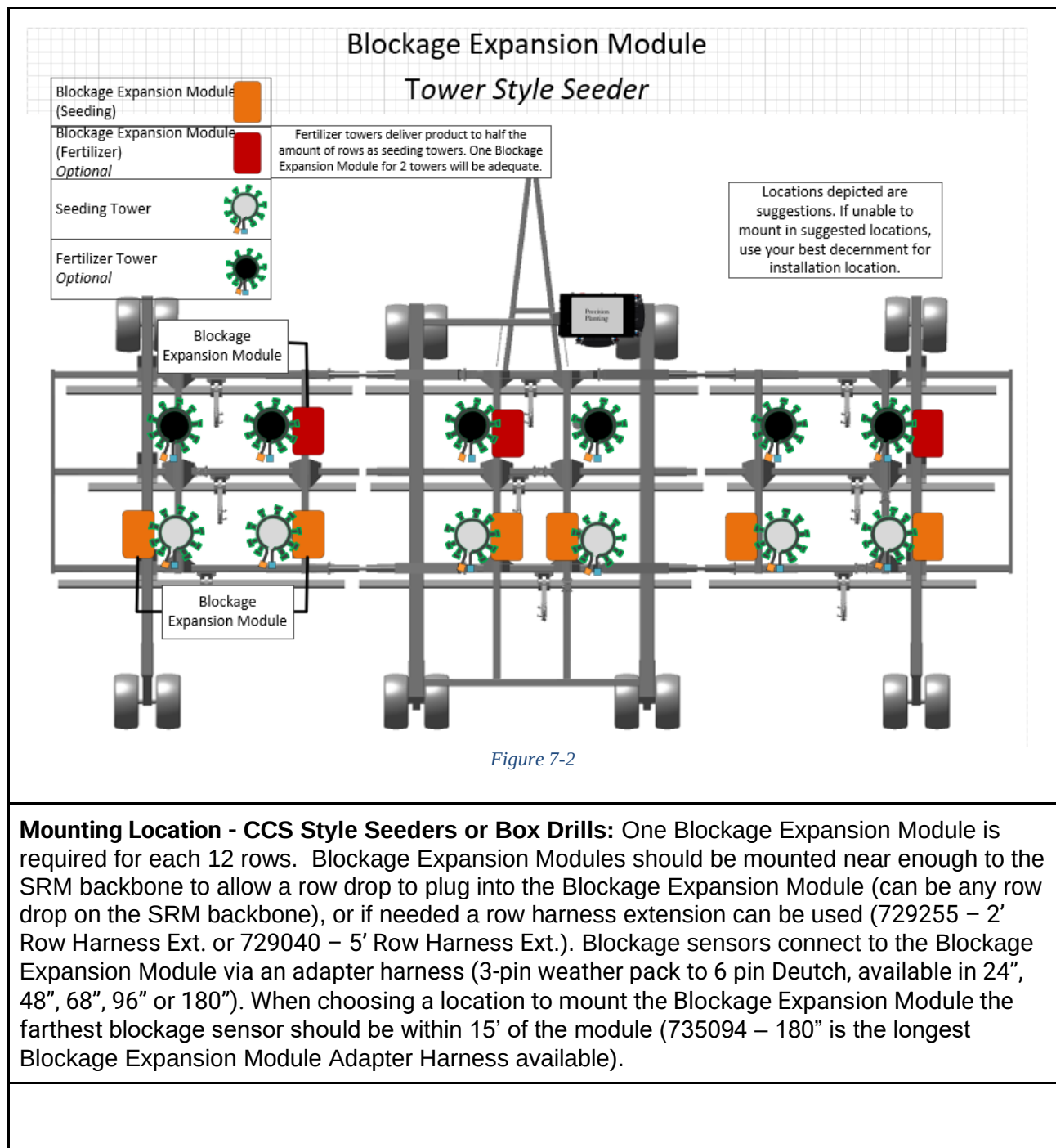
8 – Blockage Expansion Module (BXM) Installation

Overview: Blockage sensors must be plugged into a Blockage Expansion Module via an adapter harness (3-pin weather pack to 6 pin Deutch, available in 24", 48", 68", 96" or 180"). The Blockage Expansion Module is plugged into a row drop on an SRM backbone. Therefore, it is important to mount the Blockage Expansion Module close to an SRM backbone harness. A BXM has 12 ports which accommodates up to 12 rows, there is also a CAN port (at the top next to the 8-pin plug) which should not be used for a blockage sensor.



- 1 – BXM (Blockage Expansion Module)
- 2 – Blockage Sensors
- 3 – SRM (Single Row Module)

Mounting Location - Tower Style Seeders: Blockage Expansion Modules mount to distribution towers, up to 12 blockage sensors can be plugged into a BXM. One of the row drops on the SRM backbone will need to be plugged into the Blockage Expansion Module, so it is important to mount the module close enough to be reached by a backbone row drop.



Blockage Expansion Module Locations

CCS Seeder

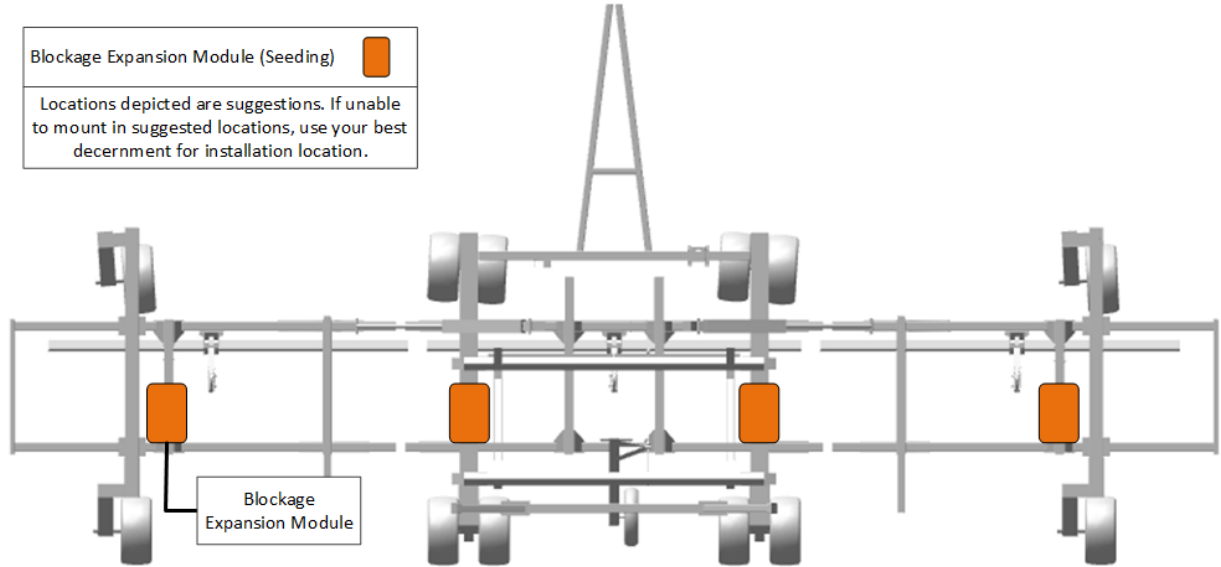
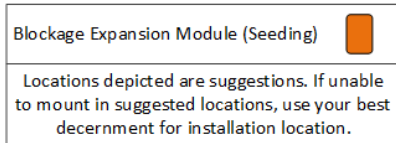
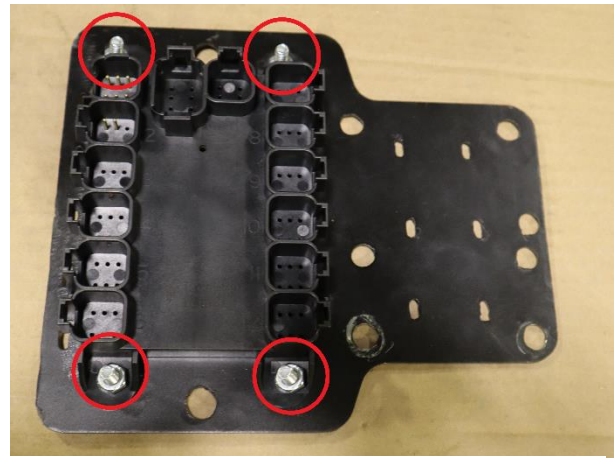


Figure 7-3

Step 1 - Bolt the Blockage Expansion Module onto the Blockage Expansion Module mounting bracket with the four bolts included in 735315 Blockage Expansion Module Mounting Kit.



Step 2 - Install Blockage Expansion Module

Tower Style Seeders: Install Blockage Expansion Module onto seed distribution tower mounting plate u-bolts using the provided M8 nuts (included in the 735312 Blockage Expansion Module Mounting Bracket Hardware Kit). Use as few as two u-bolts; two methods pictured below:

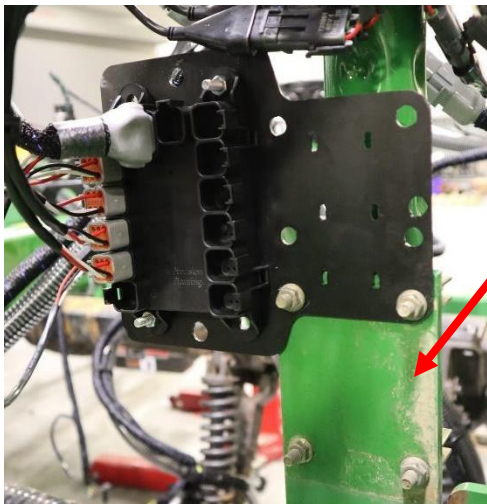


Figure 7-5

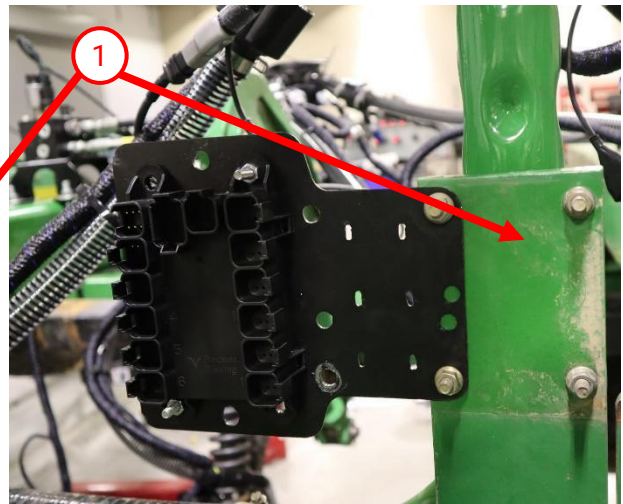
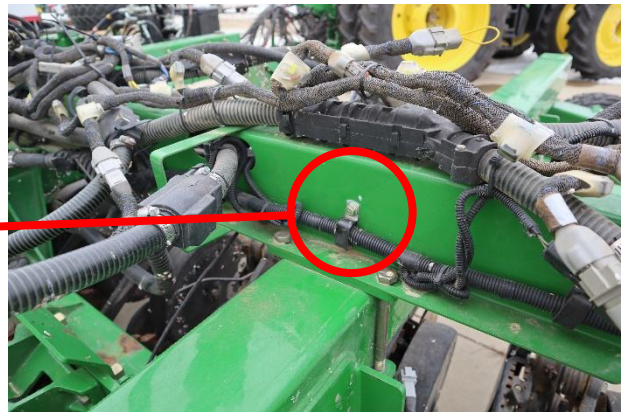


Figure 7-6

1 – Distribution Tower Mounting Plate

CCS Style Seeders: Choose mounting location of Blockage Expansion Module, see options below. Verify the location is within 15' of the farthest blockage sensor that will be plugged into the Blockage Expansion Module.

Option 1: Locate a P-Clamp on the hose support frame free of obstructions.

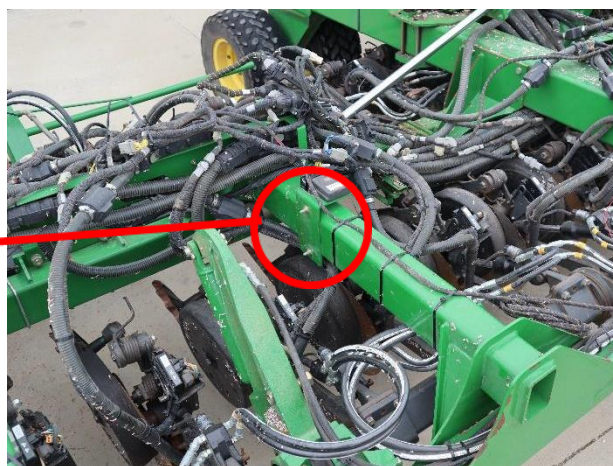


Remove bolt from P-Clamp and insert Blockage Expansion Module mounting bracket under the P-Clamp. Re-install and tighten bolt.



Figure 7-8

Option 2: Locate the JD blockage control module mounting bracket.



Attach the Blockage Expansion Module mounting bracket on the upper U-bolt and secure with the provided M10 nut (included in the 735312 Blockage Expansion Module Mounting Bracket Hardware Kit).

Note: With this installation, the SRM backbone may be too far away to plug into the Blockage Expansion Module. A row harness extension can be used in this case:

729255 – 2' Row Harness Extension
729040 – 5' Row Harness Extension
729041 – 12' Row Harness Extension



Figure 7-10

Box Drill Style Seeders: Choose mounting location of Blockage Expansion Module, see suggested location in photo below. Verify the location is within 15' of the farthest blockage sensor that will be plugged into the module. Attach using the u-bolt supplied in the 735320 u-bolt kit.



Step 3 – Connect SRM backbone to Blockage Expansion Module.

Tower Style Seeder: The best practice is to connect the Blockage Expansion Module to the last row drop on the SRM backbone to provide more slack to reach the module.

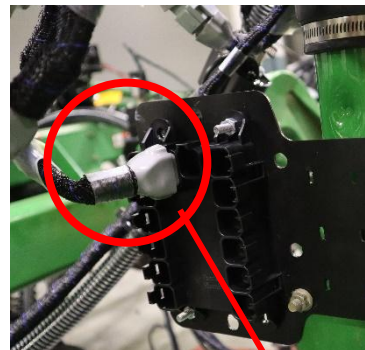


Figure 7-12

1 – SRM Backbone row drop

CCS/Box Drill Style Seeder: Plug any 8-pin row drop from the SRM backbone into the 8-pin port on the Blockage Expansion Module. A row harness extension may be used if needed:

729255 – 2' Row Harness Ext.
729040 – 5' Row Harness Ext.

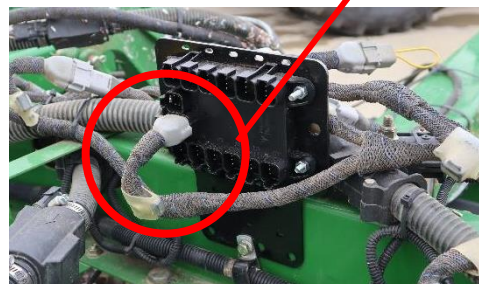
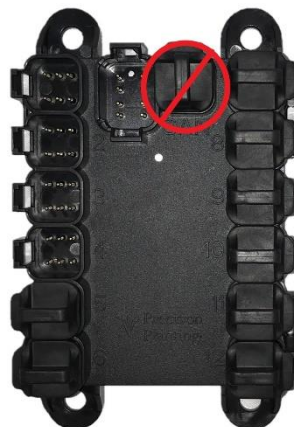


Figure 7-13

Step 4 – Connect adapter harnesses to Blockage Expansion Module 6-pin ports and blockage sensor 3-pin weather pack connections. Start with lowest number row (farthest to the left) in

port 1 and continue sequentially according to the in-ground row.

Caution: Do not plug an Adapter Harness into the CAN port next to the 8 pin port at the top. Although this is a 6 pin port, it will not communicate with a blockage sensor.

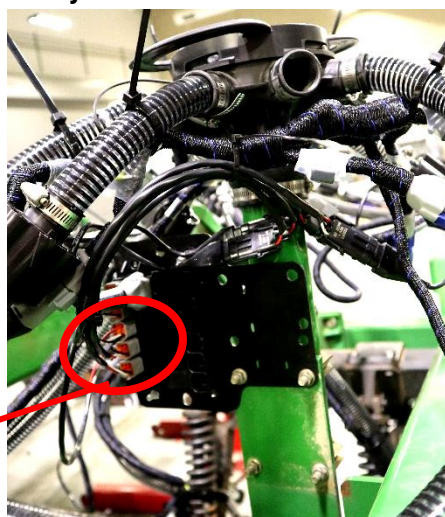


CCS/Box Drill seeder:



Figure 7-14

Tower Style Seeder:



1

1 - Blockage Expansion Module Adapter Harnesses

Step 5 – Secure harnessing with zip ties to assure a clean installation to prevent damage to harnessing.

9 – Record Module Locations for 20|20 Setup



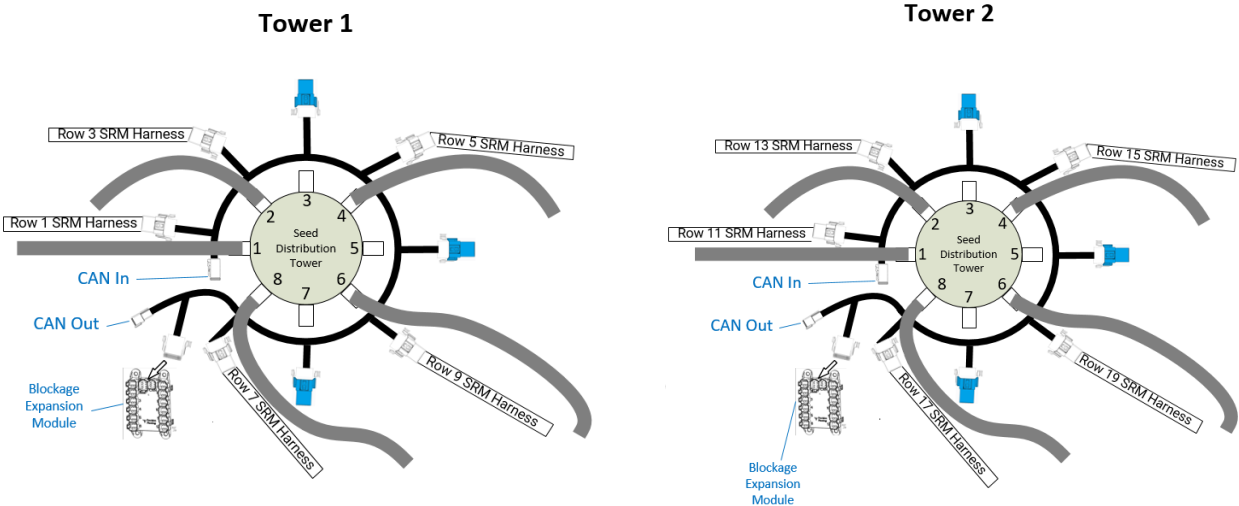
Important Note: 20|20 Setup

The following step is required when setting up the 20|20 display. The CAN network on a seeder does not always have rows plugged in sequentially, therefore it is important to record the order in which all modules (SRMs and BXMs) are plugged into the network, the following step will help record that sequence.

Step 1 – In this step we are recording **each module that is plugged into the network and the sequence in which those are located.** Begin by locating the **Module Index Worksheet** in **Appendix B** of this installation guide for your type of seeder (tower style or CCS/Box drill style) and fill out the chart according to your installation. It is important that you record these assignments and refer to it when configuring the 20|20 display. It is also recommended to keep this record in the event the display needs to be reconfigured in the future.

Tower Style Seeder Module Index Worksheet example:

In the example below, Distribution Tower 1 supplies 5 rows, row 1 SRM is plugged into the 1st SRM Backbone Connector, row 3 SRM is plugged in the 2nd Backbone Connector and so on.



CAN A								
SRM Backbone Connector	1st Backbone				1st Backbone			
	Tower No. 1				Tower No. _____			
	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment
		SRM	BXM			SRM	BXM	
PDM	1	2		3				
1	2	☒	☐	2	8	☒	☐	11
2	3	☒	☐	3	9	☒	☐	13
3		☐	☐			☐	☐	
4	4	☒	☐	5	10	☒	☐	15
5		☐	☐			☐	☐	
6	5	☒	☐	9	11	☒	☐	19
7		☐	☐			☐	☐	
8	6	☒	☐	7	12	☒	☐	17
9	7	☐	☒	*2	13	☐	☒	
10		☐	☐			☐	☐	
11		☐	☐			☐	☐	
12		☐	☐			☐	☐	
13		☐	☐			☐	☐	

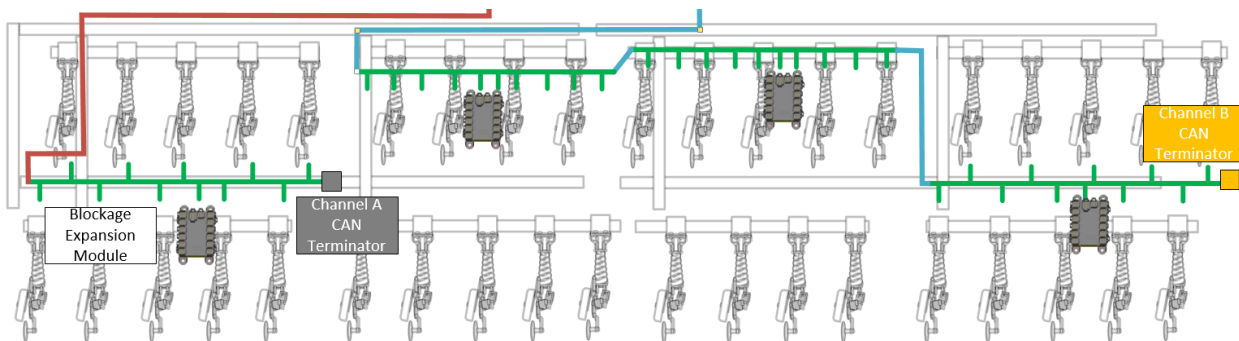
In this example, fill out the Module Index Worksheet as follows:

- 1** Record the Tower No. where the backbone is installed.
- 2** Mark an "X" on rows where SRMs or BXMs are installed.
- 3** Record the in-ground rows connected to each tower at the corresponding SRM Backbone Connector location.
- 4** Number sequentially, across the entire CAN network, for each row drop that has any device plugged in (red arrow).

***Note** – in current software BXMs must be assigned a row, it is recommended to assign the first row on that backbone.

CCS/Drill Style Seeder Module Index Worksheet example:

In the example below, the Air Seeder has 38 rows split into 2 CAN networks, CAN A (red line) and CAN B (blue line), with 4 Blockage Expansion Modules (BXMs).



In the above scenario, the Module Index Worksheet should be filled out as follows:

1. Starting with the first backbone connection on each network, mark an X for each module present.
2. Assign a row to each module, if a BXM is present, assign the previous SRM row number.
3. For each CAN network, number sequentially on the Module Number row for each backbone connection that has a module present.

SeederForce Row by Row Example - CCS/Box Drill

CAN A																																								
SRM Backbone Connections	PDM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Module Number		1	2	3	4	5	6	7	8	9	10	11	12																											
SRM Connected		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																											
BXM Connected											✓																													
Row #		1	2	3	4	5	6	7	8	*8	9	10																												

	CAN B																																							
SRM Backbone Connections	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Module Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31									
SRM Connected																																								
BXM Connected																																								
Row #	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38										

*Note: In current software BXMs must be assigned a row, it is recommended on a CCS seeder the row just before the BXM is used.

See example below for SeederForce Rockshaft Module Worksheet, diagram not shown:

SeederForce Rockshaft Control Example - CCS/Box Drill

CAN A																																								
SRM Backbone Connections	PDM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Module Number	1	2	3							4	5	6										7	8	9																
SRM Connected	☒	☒	☒	☐	☐	☐	☐	☐	☐	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
BXM Connected	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Row #		1	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24													

	CAN B																																							
SRM Backbone Connections	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Module Number	1	2											3	4	5									6	7	8									9	10				
SRM Connected	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	
BXM Connected	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Row #	25	26	27	28	29	30	31	32	33	34	35	36	*36	37	38	39	40	41	42	43	44	45	46	*46	47	48	49	50	51	52	53	54	55	56	57	58				

*Note: In current software BXMs must be assigned a row, it is recommended on a CCS seeder the row just before the BXM is used.

Step 2 – Record Blockage Expansion Module input assignments – Tower Style Seeders

Locate the **Blockage Expansion Module Input Assignment Worksheet** in Appendix B of this installation guide. Fill out the worksheet according to each BXM installation.

BXM #1	
Tower # <u>1</u>	
Input	*Row
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	
11	
12	

TOWER AIR SEEDER- Blockage Expansion Module

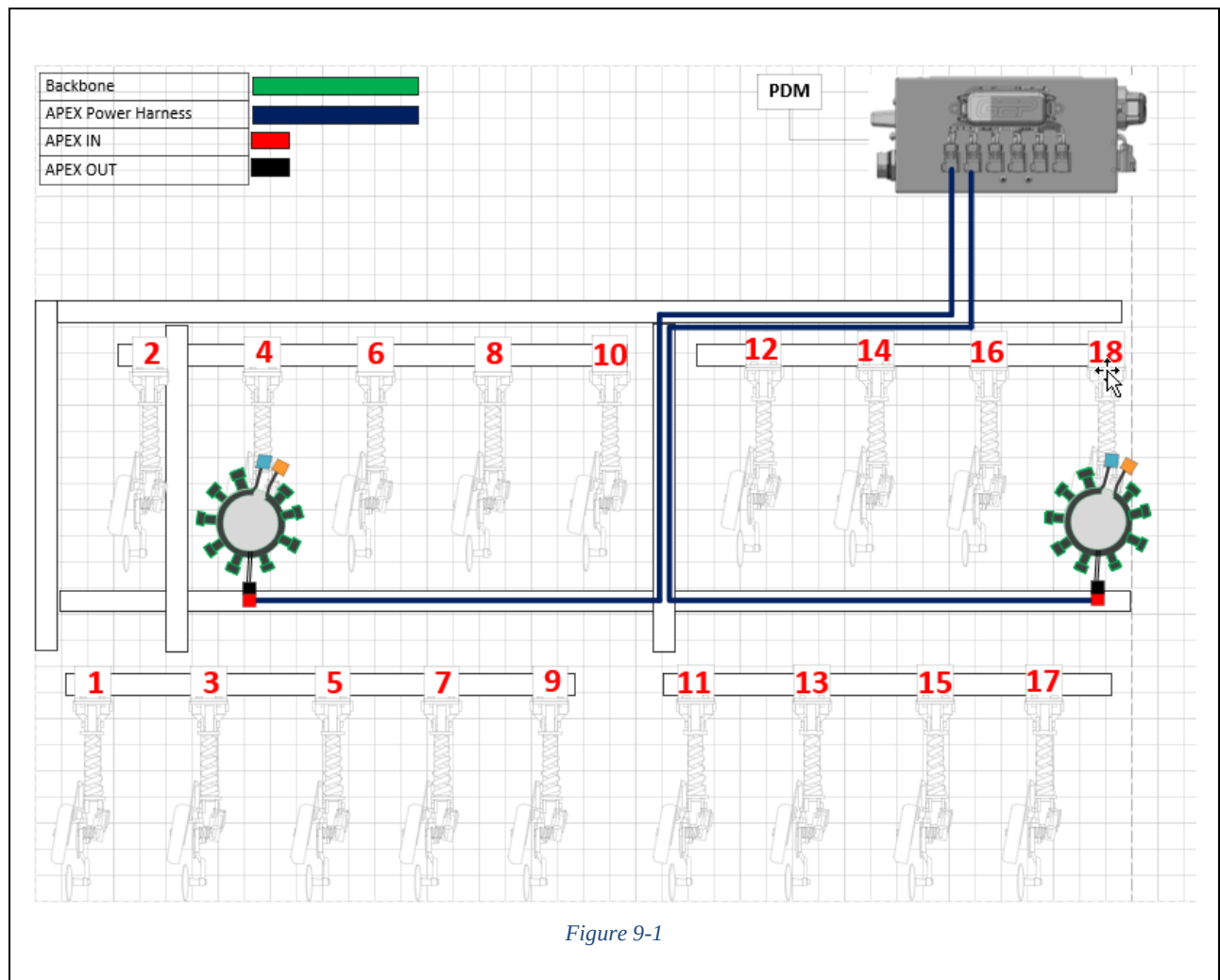
The number on the blockage sensor represents which in-ground row the blockage sensor is located. The color of the blockage sensor and Adapter harness correlates to the assigned port number on the Blockage Expansion Module (BXM).

1 – Fill in the “Row” column with the in-ground row that corresponds with each port.

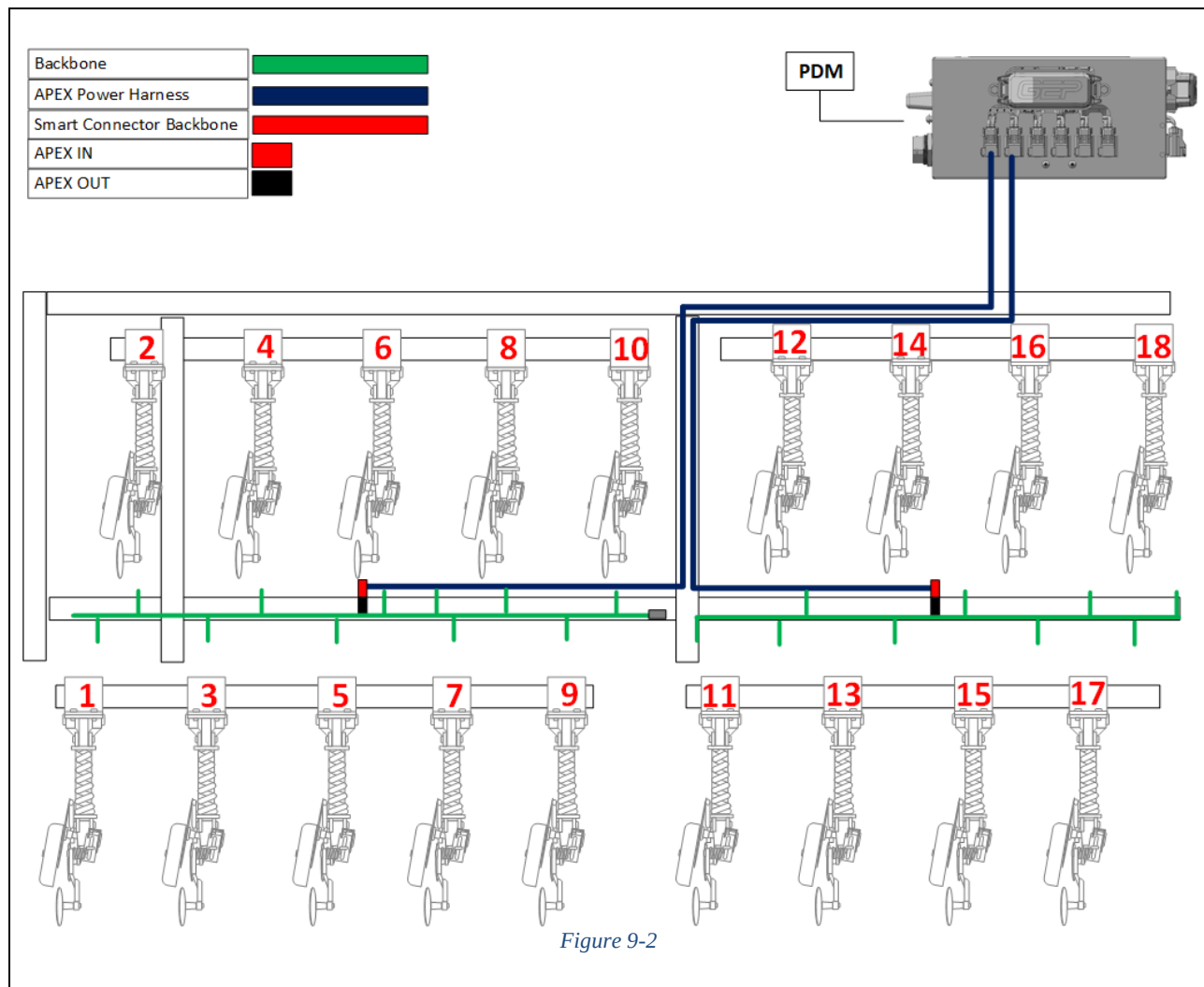
10 – APEX Power Extension Installation

Overview: Route the APEX power extensions (also known as SRM Backbone Power Harness) from the PDM to each individual backbone. Below are suggestions on how to route for a Tower Seeder and CCS Seeder/Box Drill. The APEX power extensions plug into any of the 12 outlets on the PDM.

Tower style seeder - APEX power extension layout:



CCS Seeder/Box Drill – APEX Power Extension layout



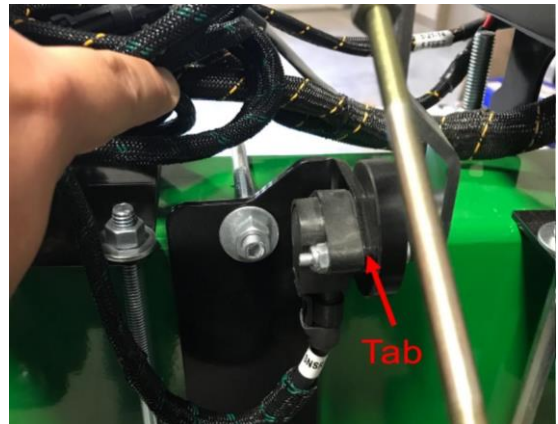
11 – Rotary Lift Switch Installation

Tower Style and CCS Seeders:

Note: Install the rotary lift switch on a rockshaft that is always in use and will never be locked up during seeding.

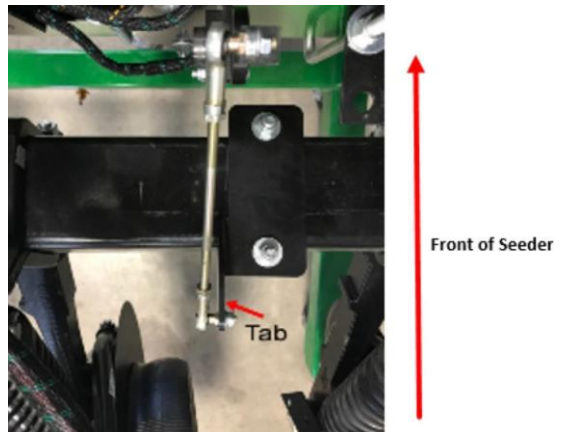
Step 1:

Install the rotary lift switch to the seeder bar using the U-bolts and bracket with the tab facing toward the right. Route harness to the 3 pin height sensor plug at the PDM.



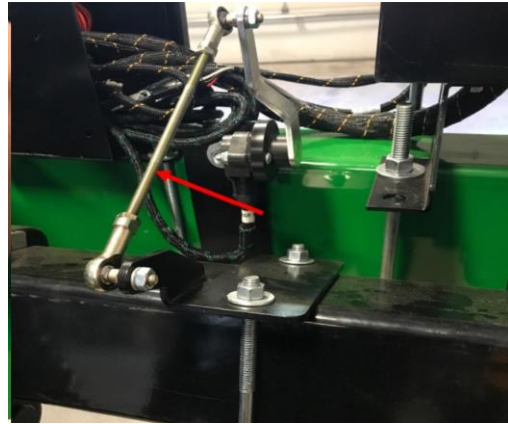
Step 2:

On the Rockshaft, install the linkage plate using the provided U-bolts with the tab facing toward the left.



Step 3:

Install the linkage bar between the plate and the switch using provided hardware.



Note: There should not be a need to adjust the linkage bar as it is already set for the correct length.

Box Drill:

Follow same steps above with the 1560/1590 Rotary Height Switch Bracket (735199), pictured below:



Appendix A

Module Index Worksheet - Tower Style Seeder																
Make/Model:					# of Rows:		KEEP FOR FUTURE REFERENCE									
Owner:																
Notes: The backbone sequence will be determined by the order in which they are plugged into the CAN network. *Row Assignment refers to the in-ground row. **BXM Location refers to the backbone connector that is plugged into the Blockage Expansion Module - mark with an "X" Steps: 1. Label the Tower No. for each backbone. Tower numbering can follow the manufacture's numbering system or a custom numbering pattern, it is recommended that the towers are clearly labeled so the operator can quickly identify each tower. 2. In "Module Type" column, mark an "X" on SRM or BXM in each SRM Backbone connection that has a module present. 3. In "Row Assignment" column, assign in-ground row # for each backbone connection. Note: Assign BXM to first row on each backbone. 4. In "Module Number" column; number sequentially across the entire CAN network, for each row drop that has a device present. If PDM is present the SRM in the PDM is the first module on CAN A. Any backbone connectors without a module connected should not have a Module Number assigned.																
CAN A																
SRM Backbone Connector	1st Backbone				2nd Backbone			3rd Backbone			4th Backbone					
	Tower No. _____				Tower No. _____			Tower No. _____			Tower No. _____					
	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment
		SRM	BXM			SRM	BXM			SRM	BXM			SRM	BXM	
PDM																
1		☐	☐			☐	☐			☐	☐			☐	☐	
2		☐	☐			☐	☐			☐	☐			☐	☐	
3		☐	☐			☐	☐			☐	☐			☐	☐	
4		☐	☐			☐	☐			☐	☐			☐	☐	
5		☐	☐			☐	☐			☐	☐			☐	☐	
6		☐	☐			☐	☐			☐	☐			☐	☐	
7		☐	☐			☐	☐			☐	☐			☐	☐	
8		☐	☐			☐	☐			☐	☐			☐	☐	
9		☐	☐			☐	☐			☐	☐			☐	☐	
10		☐	☐			☐	☐			☐	☐			☐	☐	
11		☐	☐			☐	☐			☐	☐			☐	☐	
12		☐	☐			☐	☐			☐	☐			☐	☐	
13		☐	☐			☐	☐			☐	☐			☐	☐	
CAN B																
SRM Backbone Connector	1st Backbone				2nd Backbone			3rd Backbone			4th Backbone					
	Tower No. _____				Tower No. _____			Tower No. _____			Tower No. _____					
	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment
		SRM	BXM			SRM	BXM			SRM	BXM			SRM	BXM	
PDM																
1		☐	☐			☐	☐			☐	☐			☐	☐	
2		☐	☐			☐	☐			☐	☐			☐	☐	
3		☐	☐			☐	☐			☐	☐			☐	☐	
4		☐	☐			☐	☐			☐	☐			☐	☐	
5		☐	☐			☐	☐			☐	☐			☐	☐	
6		☐	☐			☐	☐			☐	☐			☐	☐	
7		☐	☐			☐	☐			☐	☐			☐	☐	
8		☐	☐			☐	☐			☐	☐			☐	☐	
9		☐	☐			☐	☐			☐	☐			☐	☐	
10		☐	☐			☐	☐			☐	☐			☐	☐	
11		☐	☐			☐	☐			☐	☐			☐	☐	
12		☐	☐			☐	☐			☐	☐			☐	☐	
13		☐	☐			☐	☐			☐	☐			☐	☐	

CAN C												
SRM Backbone Connector	1st Backbone				2nd Backbone				3rd Backbone			
	Tower No. _____				Tower No. _____				Tower No. _____			
	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment	Module Number	Module Type		*Row Assignment
		SRM	BXM			SRM	BXM			SRM	BXM	
PDM												
1		☐	☐			☐	☐			☐	☐	
2		☐	☐			☐	☐			☐	☐	
3		☐	☐			☐	☐			☐	☐	
4		☐	☐			☐	☐			☐	☐	
5		☐	☐			☐	☐			☐	☐	
6		☐	☐			☐	☐			☐	☐	
7		☐	☐			☐	☐			☐	☐	
8		☐	☐			☐	☐			☐	☐	
9		☐	☐			☐	☐			☐	☐	
10		☐	☐			☐	☐			☐	☐	
11		☐	☐			☐	☐			☐	☐	
12		☐	☐			☐	☐			☐	☐	
13		☐	☐			☐	☐			☐	☐	

SeederForce Rockshaft Worksheet

1. Record each row with a solenoid plugged into an SRM.
2. Record the rows on the rockshaft that is being controlled by each solenoid

Frame Down Solenoid	
Location	Rows
Row	
Row	
Row	
Row	
Row	
Row	
Row	
Row	
Row	
Row	
Row	

Blockage Expansion Module (BXM) Input Assignment													
Make/Model:						# of Rows:		KEEP FOR FUTURE REFERENCE					
Owner:													
Notes: The BXM numbering will be determined by the order in which they are plugged into the CAN network. *Row refers to the in-ground row.													
Steps: 1. Record in-ground row # that is plugged into each BXM Input 2. For Tower seeders, record the Tower # (may be manufacturer designation or custom numbering).													
CAN A													
BXM #1		BXM #2		BXM #3		BXM #4		BXM #5		BXM #6			
Tower # _____		Tower # _____		Tower # _____		Tower # _____		Tower # _____		Tower # _____			
Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row
1		1		1		1		1		1		1	
2		2		2		2		2		2		2	
3		3		3		3		3		3		3	
4		4		4		4		4		4		4	
5		5		5		5		5		5		5	
6		6		6		6		6		6		6	
7		7		7		7		7		7		7	
8		8		8		8		8		8		8	
9		9		9		9		9		9		9	
10		10		10		10		10		10		10	
11		11		11		11		11		11		11	
12		12		12		12		12		12		12	

CAN B													
BXM #1		BXM #2		BXM #3		BXM #4		BXM #5		BXM #6			
Tower # _____		Tower # _____		Tower # _____		Tower # _____		Tower # _____		Tower # _____			
Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row	Input	*Row
1		1		1		1		1		1		1	
2		2		2		2		2		2		2	
3		3		3		3		3		3		3	
4		4		4		4		4		4		4	
5		5		5		5		5		5		5	
6		6		6		6		6		6		6	
7		7		7		7		7		7		7	
8		8		8		8		8		8		8	
9		9		9		9		9		9		9	
10		10		10		10		10		10		10	
11		11		11		11		11		11		11	
12		12		12		12		12		12		12	

Module Index Worksheet - CCS/Box Drill Style Seeder

Make/Model:

of Rows:

Owner:

KEEP FOR FUTURE REFERENCE

1. Starting with the first backbone connection on each network, mark an X for each module present. On CAN A, if a PDM is present the first connection will be the SRM in the PDM.
2. Assign a row to each module, if PDM present, row 1 on CAN A will be backbone connection 2, if no PDM is present row 1 will be the first backbone connection.

CAN A																																								
SRM Backbone Connections	PDM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
	SRM Backbone Connection Index																																							
SRM Connected																																								
BXM Connected																																								
Row #																																								

CAN B																																								
SRM Backbone Connections	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	SRM Backbone Connection Index																																							
SRM Connected																																								
BXM Connected																																								
Row #																																								

CAN C																																								
SRM Backbone Connections	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	36	36	36	
SRM Backbone Connection Index																																								
SRM Connected																																								
BXM Connected																																								
Row #																																								