

**AccuFlow™ Row Conversion for John  
Deere 2510 Toolbars  
Installation & Operation Manual**

*P/N 016-0171-394 Rev A*

*09/15*

*E15844*

## ***Disclaimer***

---

While every effort has been made to ensure the accuracy of this document, Raven Industries assumes no responsibility for omissions and errors. Nor is any liability assumed for damages resulting from the use of information contained herein.

Raven Industries shall not be responsible or liable for incidental or consequential damages or a loss of anticipated benefits or profits, work stoppage or loss, or impairment of data arising out of the use, or inability to use, this system or any of its components. Raven Industries shall not be held responsible for any modifications or repairs made outside our facilities, nor damages resulting from inadequate maintenance of this system.

As with all wireless and satellite signals, several factors may affect the availability and accuracy of wireless and satellite navigation and correction services (e.g. GPS, GNSS, SBAS, etc.). Therefore, Raven Industries cannot guarantee the accuracy, integrity, continuity, or availability of these services and cannot guarantee the ability to use Raven systems, or products used as components of systems, which rely upon the reception of these signals or availability of these services. Raven Industries accepts no responsibility for the use of any of these signals or services for other than the stated purpose.

---

<b>Chapter 1</b>	<b><i>Important Safety Information</i></b> .....	<b>1</b>
<b>Chapter 2</b>	<b><i>Introduction</i></b> .....	<b>3</b>
	2510H Toolbars .....	<b>3</b>
	2510S Toolbars .....	<b>3</b>
	2510C Toolbars .....	<b>4</b>
<b>Chapter 3</b>	<b><i>Installation</i></b> .....	<b>5</b>
	2510H 15/11 Row Toolbars .....	<b>6</b>
	2510H 11 Row Toolbars .....	<b>8</b>
	2510S 16/12 Row Toolbars .....	<b>10</b>
	2510C 17/13 Row Toolbars .....	<b>12</b>
	2510C 13 Row Toolbars .....	<b>15</b>
<b>Chapter 4</b>	<b><i>Operation</i></b> .....	<b>17</b>
	2510H 15/11 Row Toolbars .....	<b>17</b>
	2510H 11 Row Toolbars .....	<b>19</b>
	2510S 16/12 Row Toolbars .....	<b>20</b>
	2510C 17/13 Row Toolbars .....	<b>21</b>
	2510C 13 Row Toolbars .....	<b>24</b>



## CHAPTER

# 1

# *Important Safety Information*

## NOTICE

- Read this manual carefully before installing the AccuFlow™ system.
- Review procedures for safe handling and use of anhydrous ammonia (NH<sub>3</sub>) with your NH<sub>3</sub> supplier. If you are not trained to handle anhydrous ammonia, contact your NH<sub>3</sub> supplier or the appropriate agricultural department for information on training.
- Please review the operation and safety instructions included with your implement and/or controller.
- Follow safety information presented within this manual and review operation of the AccuFlow system with your anhydrous ammonia (NH<sub>3</sub>) supplier.
- Follow all safety labels affixed to the AccuFlow system components. Be sure to keep safety labels in good condition and replace any missing or damaged labels. To obtain replacements for missing or damaged safety labels, contact your local John Deere® dealer.
- Do not attempt to modify or lengthen any of the system control cables. Extension cables are available from your local John Deere dealer.
- If you require assistance with any portion of the installation or service of your John Deere equipment, contact your local John Deere dealer for support.

 **DANGER**

1. Anhydrous ammonia (NH<sub>3</sub>) under pressure. Anhydrous ammonia can cause severe burning, blindness, or death. Carefully read and follow all safety instructions and warnings before operating or servicing equipment. Review safety requirements associated with NH<sub>3</sub> and the AccuFlow™ manual with your NH<sub>3</sub> supplier.
2. Anhydrous ammonia (NH<sub>3</sub>) in vapor form can cause serious injury or death. Pipe joints must be properly sealed with RectorSeal™, or an equivalent thread sealant, to prevent leaks.
3. Always wear proper personal protective equipment when working with the AccuFlow system and anhydrous ammonia. Appropriate protective clothing includes, but is not limited to:
  - Goggles or Face Shield
  - Protective Suit and Gloves
  - Respirator
4. **DO NOT** allow any one to operate the AccuFlow system without proper instruction and training.

 **CAUTION**

1. Use caution when handling anhydrous ammonia (NH<sub>3</sub>) products.
  - a. Stand 'up wind' when working around anhydrous ammonia (NH<sub>3</sub>) and related equipment. Always keep anhydrous ammonia equipment away from buildings, livestock, and other people.
  - b. Anhydrous ammonia may cause sickness or death. Never work on NH<sub>3</sub> equipment in confined spaces. Seek immediate medical attention if symptoms of illness occur during, or shortly after, use of anhydrous ammonia products.
  - c. Keep a source of clean water (at least five gallons) readily available while working with anhydrous ammonia. In case of exposure, flush exposed skin or eyes immediately with large quantities of water and seek immediate medical attention.
  - d. NH<sub>3</sub> can be harmful to the environment if not used properly. Follow all local, state, and federal regulations regarding proper handling of anhydrous ammonia.
2. Always remove the AccuFlow system from service before performing maintenance.
  - a. Thoroughly bleed all system lines and disconnect nurse tank hose before beginning service or maintenance.
  - b. **Allow a minimum of one (1) hour to fully discharge the system.** Verify gauge pressure is at zero before opening the system.
3. Use extreme caution when opening a previously pressurized system.

Before performing service or maintenance on the AccuFlow system, read and follow the instructions provided in the AccuFlow Installation & Operation Manual (P/N 016-0159-403) to properly discharge anhydrous ammonia.

## CHAPTER

# 2

## *Introduction*

The row conversion kits for John Deere® 2510 toolbars allow the operator to configure the application of anhydrous ammonia for side dressing or preplanting configurations. Review the following row conversion kit descriptions for more information.

---

### *2510H Toolbars*

#### **15/11 Row Conversion Kit**

The 15/11 row conversion kit provides the ability to shut off rows 1, 2, 14, and 15 using ball valves for operating in an 11 row configuration for side dressing.

The 15/11 row conversion kit also provides the ability to plumb the 16th and 17th port of the Impellicone™ flow divider to provide an additional half rate to rows 1 and 15 or 3 and 13 for side dressing 16 or 12 row corn.

#### **11 Row Conversion Kit**

The 11 row conversion kit provides the ability to plumb the 12th port of the Impellicone flow divider to provide an additional half rate to rows 1 and 11 for side dressing 12 row corn.

---

### *2510S Toolbars*

#### **16/12 Row Conversion Kit**

The 16/12 row conversion kit provides the ability to shut off rows 1, 2, 15, and 16 using ball valves for operating in a 12 row configuration for preplant.

## **2510C Toolbars**

### **17/13 Row Conversion Kit**

The 17/13 row conversion kit provides the ability to shut off rows 1, 2, 3, 15, 16, and 17 using ball valves for operating in a 13 row configuration for side dressing.

The 17/13 row conversion kit also provides the ability to plumb the 18th port of the Impellicone™ flow divider to provide a half rate to rows 1 and 17 or 3 and 15 for side dressing 16 or 12 row corn.

### **13 Row Conversion Kit**

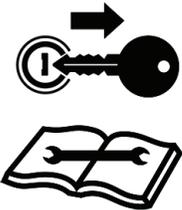
The 13 row conversion kit provides the ability to apply half rate to rows 1 and 13 when side dressing 12 row corn.

## CHAPTER

# 3

## *Installation*

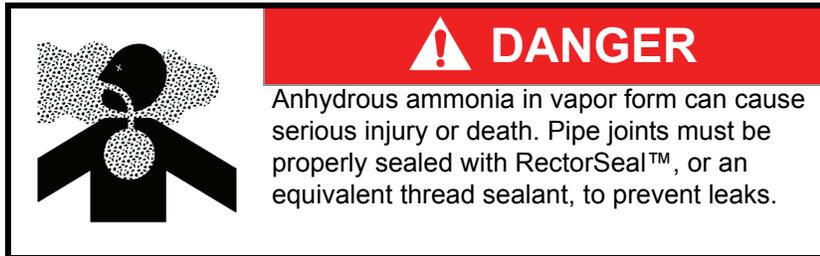
This chapter contains instructions for installing the impellicone row conversion kit for each toolbar configuration. Before proceeding with installation, be sure to bleed the AccuFlow™ system according to the instructions provided in the AccuFlow Installation and Service Manual.

	<p><b>! DANGER</b></p> <p>Anhydrous ammonia (NH<sub>3</sub>) under pressure. Anhydrous ammonia can cause severe burning, blindness, or death. Carefully read and follow all safety instructions and warnings before operating or servicing equipment. Review safety requirements associated with NH<sub>3</sub> and the AccuFlow manual with your NH<sub>3</sub> supplier.</p>
	<p><b>! CAUTION</b></p> <p>Before performing service or maintenance on the AccuFlow system, read and follow the instructions provided in the AccuFlow Installation &amp; Operation Manual to properly discharge anhydrous ammonia.</p>

**Note:** *Disconnect any supply lines from the Impellicone flow divider before proceeding with the following procedure. For proper operation of the ball valves on the Impellicone flow divider, be sure to install ball valves and row supply lines as instructed and as labeled on the Impellicone overlay.*

*The Impellicone flow divider is not supplied with the row conversion kits.*

## 2510H 15/11 Row Toolbars

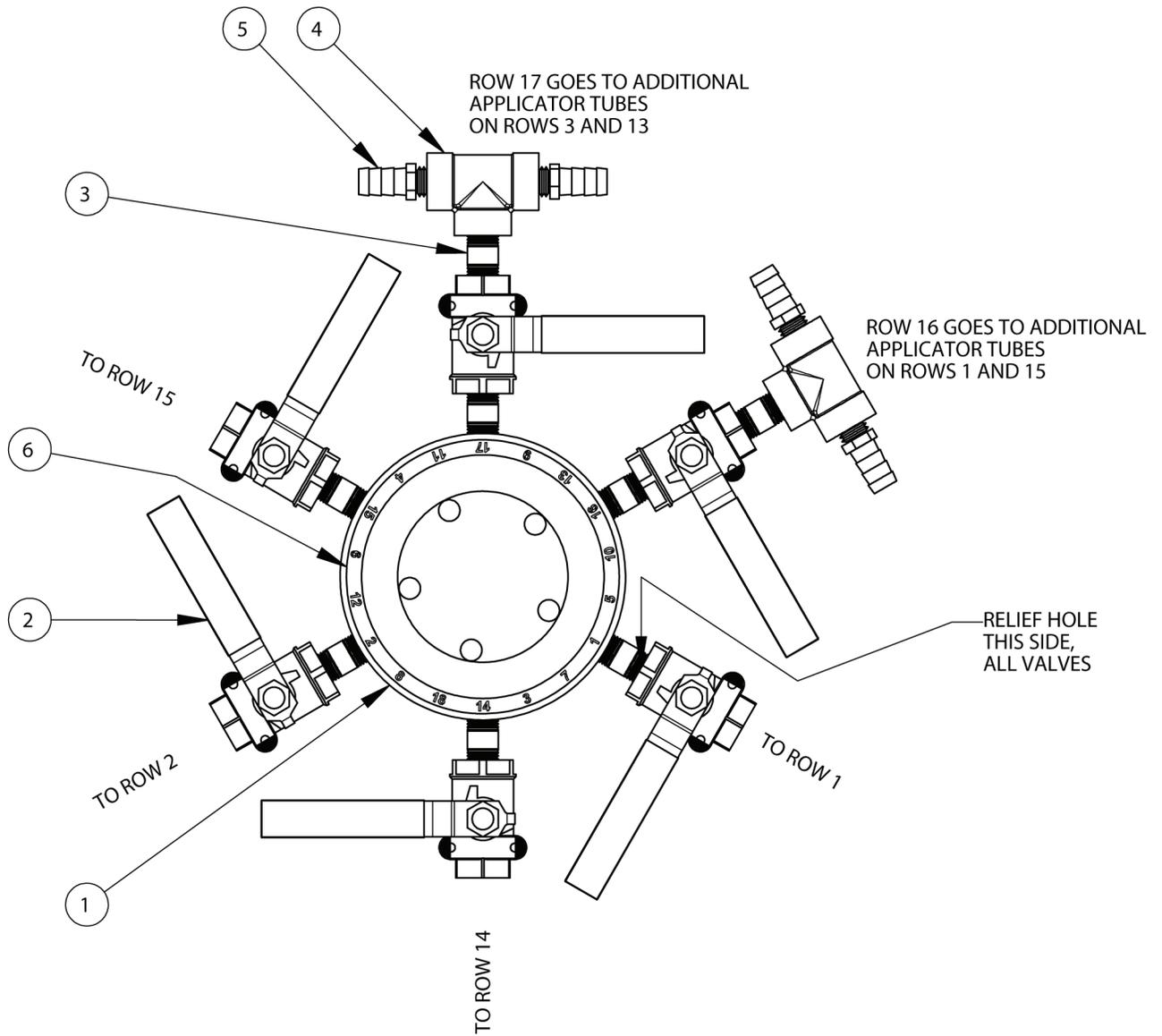


1. Clean and dry the surface of the Impellicone flow divider (item 1) to ensure the supplied overlay will adhere properly.
2. Carefully align and apply the supplied overlay (item 6) onto the Impellicone. The orientation of the supplied overlay is not specific to the ports on the Impellicone flow divider. Apply the overlay so that the Impellicone ports are aligned with the port labels on the overlay.
3. Install six of the supplied pipe nipples (item 3) into ports 1, 2, 14, 15, 16 and 17.
4. Thread the supplied ball valves (item 2) onto the installed pipe nipples.

**Note:** *Be sure the relief hole in the ball is pointing toward the Impellicone when valve is closed. See Figure 1 on page 7.*

5. Install hose barbs from the Impellicone kit into the ball valves installed in ports 1, 2, 14 and 15.
6. Thread two pipe nipples (item 3) into the ball valves installed in ports 16 and 17.
7. Connect the branch port of the supplied pipe tees (item 4) onto the ball valves.
8. Install the supplied hose barbs (item 5) into the through ports on the installed pipe tees.
9. Connect the row 1 supply line to the ball valve installed in port 1.
10. Connect the row 2 supply line to the ball valve installed in port 2.
11. Connect the row 14 supply line to the ball valve installed in port 14.
12. Connect the row 15 supply line to the ball valve installed in port 15.
13. From the tee installed in port 16 on the Impellicone, run two equal length hoses out to additional applicator tubes, supplied by John Deere®, to rows 1 and 15.
14. From the tee installed in port 17 on the Impellicone, run two equal length hoses out to additional applicator tubes, supplied by John Deere to rows 3 and 13.
15. Connect the remaining row supply lines to hose barbs installed directly into the Impellicone flow divider and plug any unused ports.

FIGURE 1. 15/11 Row Conversion Installation



## 2510H 11 Row Toolbars

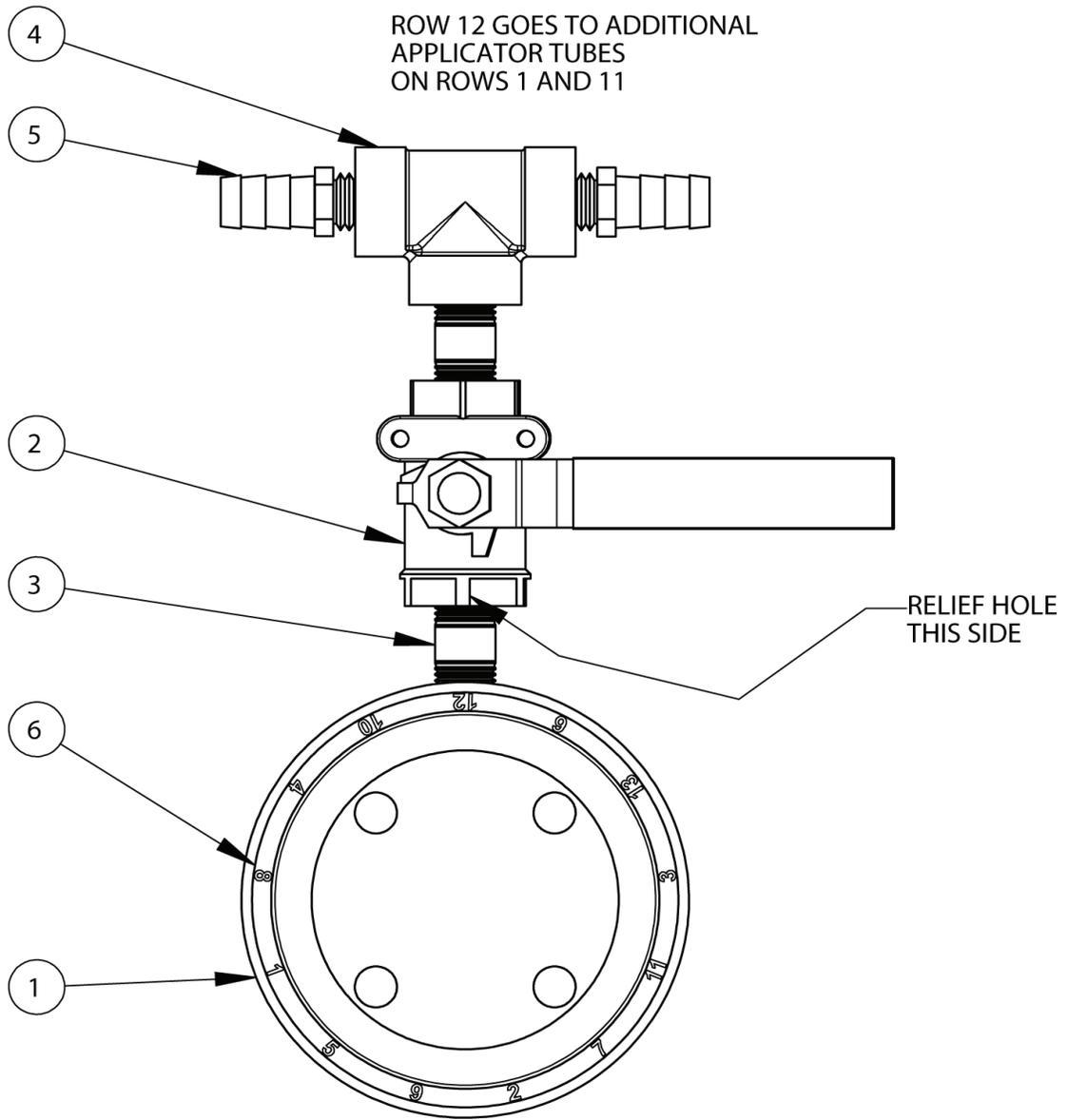


1. Clean and dry the surface of the Impellicone flow divider (item 1) to ensure the supplied overlay will adhere properly.
2. Carefully align and apply the supplied overlay (item 6) onto the Impellicone. The orientation of the supplied overlay is not specific to the ports on the Impellicone flow divider. Apply the overlay so that the Impellicone ports are aligned with the port labels on the overlay.
3. Install a supplied pipe nipple (item 3) into port 12.
4. Thread the supplied ball valve (item 2) onto the installed pipe nipple.

**Note:** *Be sure the relief hole in the ball is pointing toward the Impellicone when valve is closed. See Figure 2 on page 9.*

5. Thread the remaining pipe nipple (item 3) into the ball valve.
6. Thread the branch of the pipe tee (item 4) onto the pipe nipples in port 12.
7. Install the supplied hose barbs (item 5) into the through ports on the installed pipe tee.
8. From the tee installed in port 12 on the Impellicone, run two equal length hoses out to additional applicator tubes, supplied by John Deere®, to rows 1 and 11.
9. Connect the row supply lines to hose barbs installed directly into the Impellicone flow divider and plug any unused ports.

FIGURE 2. 11 Row Conversion Installation



## 2510S 16/12 Row Toolbars

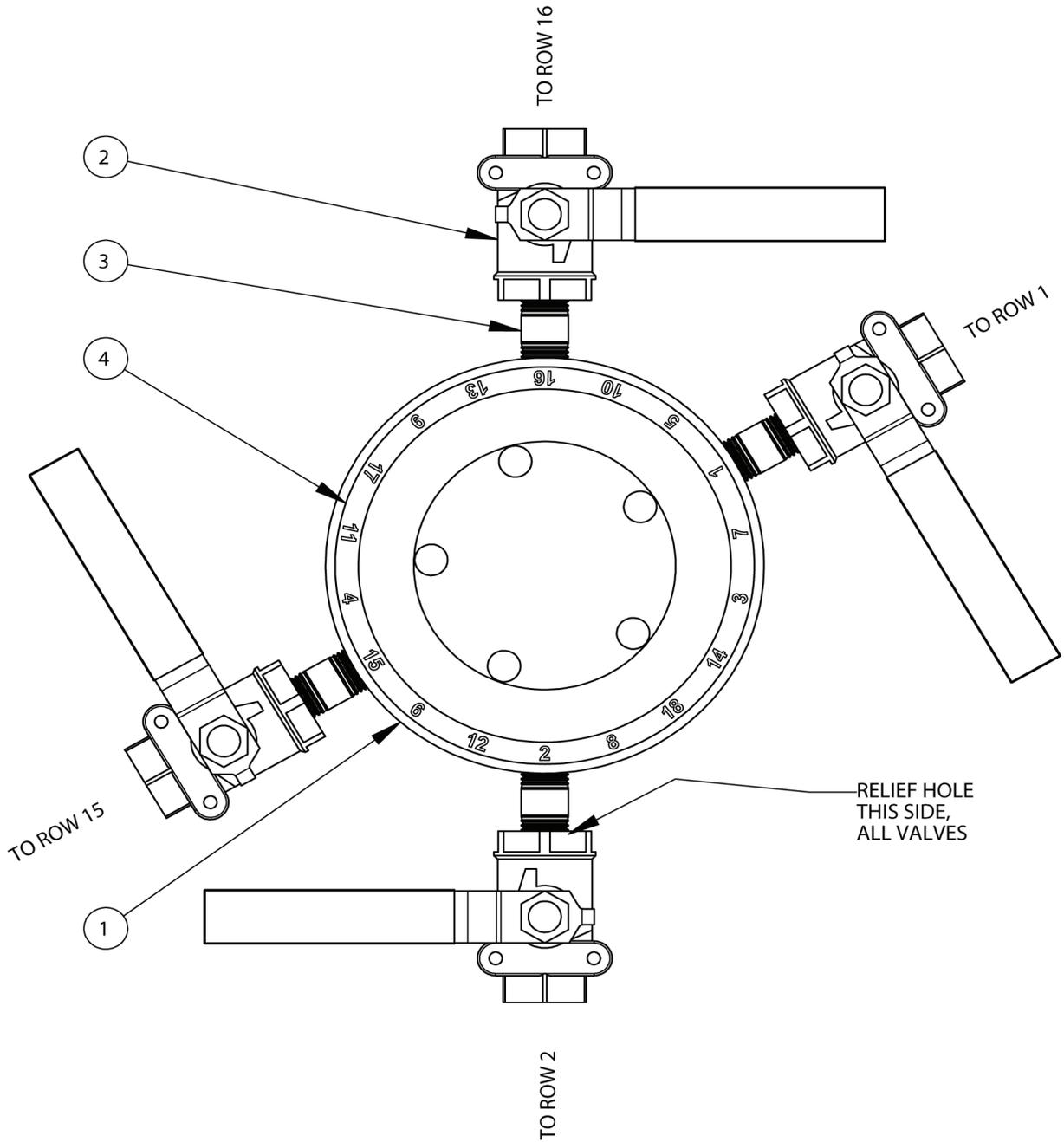


1. Clean and dry the surface of the Impellicone flow divider (item 1) to ensure the supplied overlay will adhere properly.
2. Carefully align and apply the supplied overlay (item 4) onto the Impellicone. The orientation of the supplied overlay is not specific to the ports on the Impellicone flow divider. Apply the overlay so that the Impellicone ports are aligned with the port labels on the overlay.
3. Install the supplied pipe nipples (item 3) into ports 1, 2, 15 and 16.
4. Thread the supplied ball valves (item 2) onto the installed pipe nipples.

**Note:** *Be sure the relief hole in the ball is pointing toward the Impellicone when valve is closed. See Figure 3 on page 11.*

5. Install hose barbs from the Impellicone kit into the ball valves installed in ports 1, 2, 15 and 16.
6. Connect the row 1 supply line to the ball valve installed in port 1.
7. Connect the row 2 supply line to the ball valve installed in port 2.
8. Connect the row 15 supply line to the ball valve installed in port 15.
9. Connect the row 16 supply line to the ball valve installed in port 16.
10. Connect the remaining row supply lines to hose barbs installed directly into the Impellicone flow divider and plug any unused ports.

FIGURE 3. 16/12 Row Conversion Installation



## 2510C 17/13 Row Toolbars

	<p><b>! DANGER</b></p> <p>Anhydrous ammonia in vapor form can cause serious injury or death. Pipe joints must be properly sealed with RectorSeal™, or an equivalent thread sealant, to prevent leaks.</p>
---	---

1. Clean and dry the surface of the Impellicone flow divider (item 1) to ensure the supplied overlay will adhere properly.
2. Carefully align and apply the supplied overlay (item 6) onto the Impellicone. The orientation of the supplied overlay is not specific to the ports on the Impellicone flow divider. Apply the overlay so that the Impellicone ports are aligned with the port labels on the overlay.

### Ports 2 and 16

1. Install pipe nipples (item 3) into port 2 and port 16 on the Impellicone flow divider.
2. Install ball valves (item 2) onto the pipe nipples installed into ports 2 and 16.

**Note:** *Be sure the relief hole in the ball is pointing toward the Impellicone when valve is closed. See Figure 4 on page 14.*

3. Thread hose barbs from the Impellicone kit into the ball valves installed in both port 2 and 16.
4. Connect the row 2 supply line to the ball valve installed in port 2.
5. Connect the row 16 supply line to the ball valve installed in port 16.

### Ports 1, 3, 15 and 17

1. Install the supplied pipe nipples (item 3) into ports 1, 3, 15 and 17.
2. Install ball valves onto each pipe nipple installed in the previous step.

**Note:** *Be sure the relief hole in the ball is pointing toward the Impellicone when valve is closed. See Figure 4 on page 14.*

*To allow the ball valves installed in ports 1 and 3 to operate properly, tighten the valves until the valve stem is 45° to the right of vertical.*

3. Thread pipe nipples (item 3) into each of the ball valves installed in the previous step.
4. Connect the through port of four supplied pipe tees (item 5) onto each of the pipe nipples installed in the previous step.
5. Install the supplied hose barbs (item 4) into the branch of the installed pipe tees.

**Note:** *Final connections for the pipe tee branches will be covered in the Port 18 section on page 13.*

6. Install hose barbs from the Impellicone kit into the remaining through port on the tees installed in ports 1, 3, 15 and 17.
7. Connect the row 1 supply line to the tee installed in port 1.
8. Connect the row 3 supply line to the tee installed in port 3.
9. Connect the row 15 supply line to the tee installed in port 15.
10. Connect the row 17 supply line to the tee installed in port 17.

---

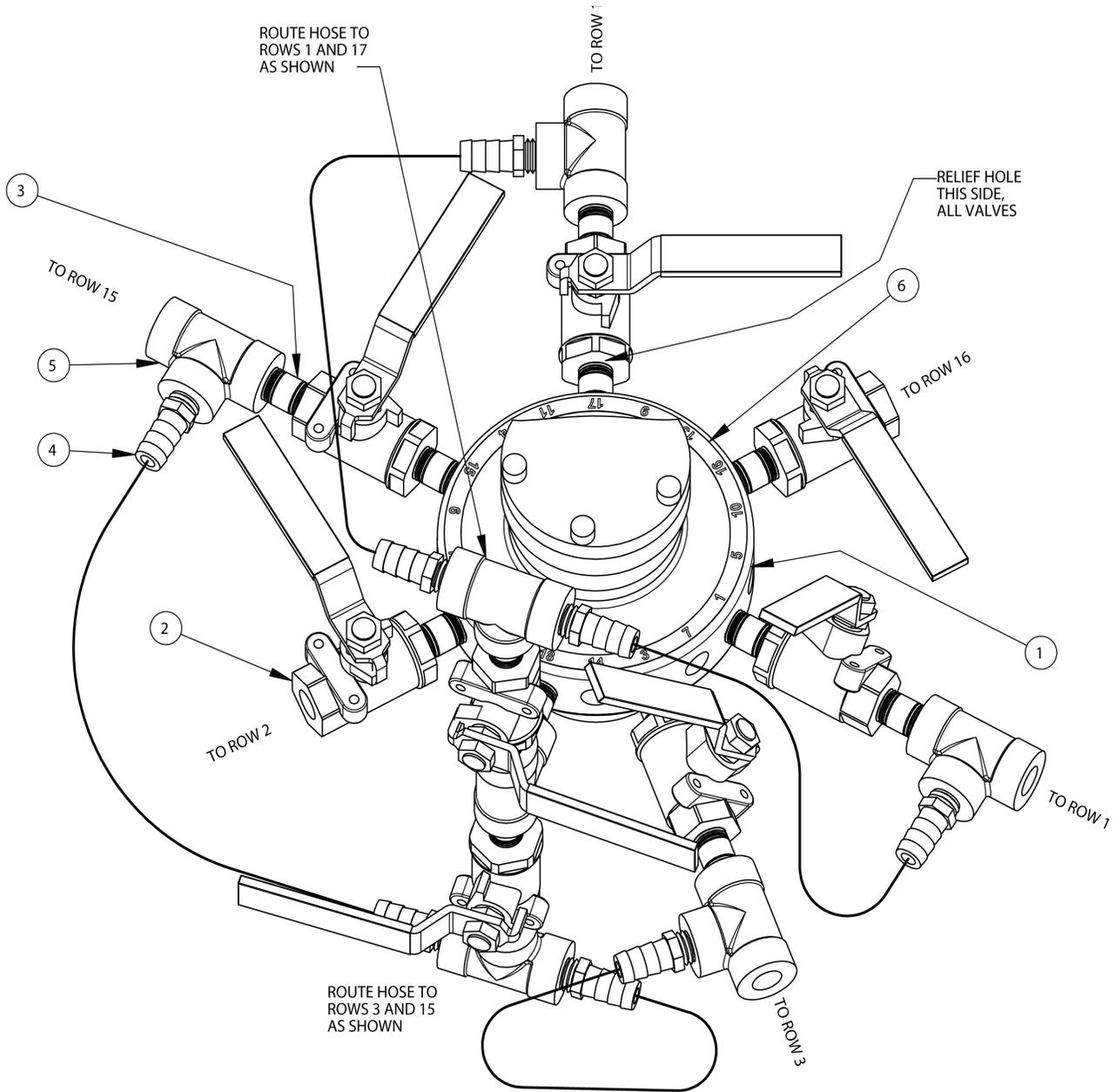
## Port 18

1. Install a supplied pipe nipple (item 3) into port 18.
2. Thread the branch of a supplied pipe tee (item 5) onto the pipe nipple installed in port 18. Tighten the pipe tee until the through ports are aligned vertically.
3. Install a pipe nipple (item 3) into each of the through ports on the pipe tee installed in the previous step.
4. Install two ball valves (item 2) onto the pipe tee installed in port 18.

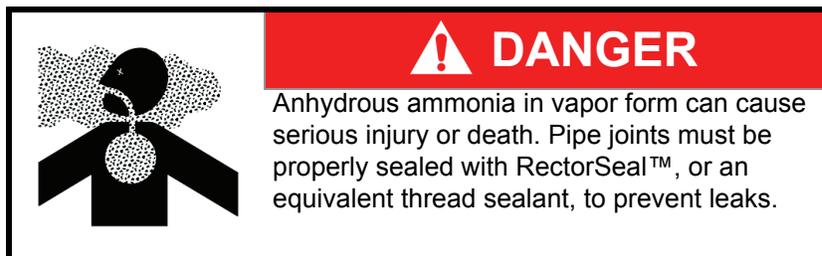
**Note:** *Be sure the relief hole in the ball is pointing toward the pipe tee when valve is closed. See Figure 4 on page 14.*

5. Install pipe nipples (item 3) into each ball valve installed in the previous step.
6. Thread the branch of two pipe tees (item 5) onto the ball valves.
7. Install four hose barbs (item 4) into the through ports on the pipe tees installed in the previous step.
8. Connect the open hose barb on the tee fitting in port 1 to one of the hose barbs at the top of the assembly in port 18.
9. Connect the open hose barb on the tee fitting in port 17 to the remaining open hose barb at the top of the assembly in port 18.
10. Connect the open hose barb on the tee fitting in port 3 to one of the hose barbs at the bottom of the assembly in port 18.
11. Connect the open hose barb on the tee fitting in port 15 to the remaining open hose barb at the bottom of the assembly in port 18.
12. Connect the remaining row supply lines to hose barbs installed directly into the Impellicone flow divider and plug any unused ports.

FIGURE 4. 17/13 Row Conversion Installation



## 2510C 13 Row Toolbars



1. Clean and dry the surface of the Impellicone flow divider (item 1) to ensure the supplied overlay will adhere properly.
2. Carefully align and apply the supplied overlay (item 6) onto the Impellicone. The orientation of the supplied overlay is not specific to the ports on the Impellicone flow divider. Apply the overlay so that the Impellicone ports are aligned with the port labels on the overlay.

### Port 1

3. Thread a supplied pipe nipple (item 3) into port 1 and connect a supplied ball valve (item 2) onto the pipe nipple.

**Note:** Be sure the relief hole in the ball is pointing toward the pipe tee when valve is closed. See Figure 5 on page 16.

4. Thread a supplied pipe nipple into the ball valve and connect the through port of a supplied pipe tee (item 4).
5. Install a hose barb (item 5) into the branch of the tee fitting.

**Note:** Final connections for the hose barb in port 1 will be covered later in this section.

6. Connect the row 1 supply line to the tee installed in port 1.

### Port 13

7. Thread a supplied pipe nipple (item 3) into port 13 and connect the supplied pipe cross (item 10) to the pipe nipple.
8. Thread two supplied pipe nipples into the pipe cross. When installing the pipe nipples on the pipe cross, thread one of the pipe nipples in the through port of the pipe cross (port across from the nipple connected to port 13 on the impellicone) and one nipple into a branch port on the pipe cross.
9. Install a hose barb (item 5) into the remaining port on the pipe cross.
10. Connect ball valves (item 2) to the pipe nipples installed in the pipe cross.

**Note:** Be sure the relief hole in the ball is pointing toward the pipe cross when valve is closed. See Figure 5 on page 16.

11. Install a hose barb into the ball valve installed in the branch of the pipe cross (ball valve opposite of the hose barb installed in the pipe cross).
12. Install a pipe nipple into the ball valve on the through port of the pipe cross.
13. Connect the through port of the remaining pipe tee to the pipe nipple.
14. Install a hose barb into the branch of the pipe tee.
15. Connect the open hose barb on the tee fitting in port 13 to the hose barb in the pipe cross.
16. Connect the open hose barb in the ball valve to the hose barb in the pipe tee installed in port 1.



## CHAPTER

# 4

## Operation

The row conversion kits are designed to supply the outer rows with the rates needed for side dressing or pre-plant applications. To set up the AccuFlow™ system for different application types, the appropriate ball valves installed for the row conversion must be opened.

Review the following sections to set the AccuFlow row conversion for side dressing or pre-plant applications.

### 2510H 15/11 Row Toolbars

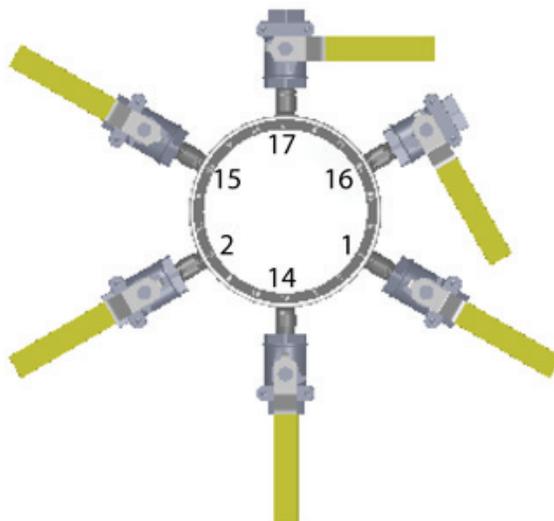
**Note:** In side dressing configurations, the outer rows will receive one and a half flow rate increase.

#### 15 Row Operation

In 15 row standard operations:

- Open valves on ports 1, 2, 14 and 15
- Close valves on ports 16 and 17

FIGURE 1. 2510H 15 Row Operation



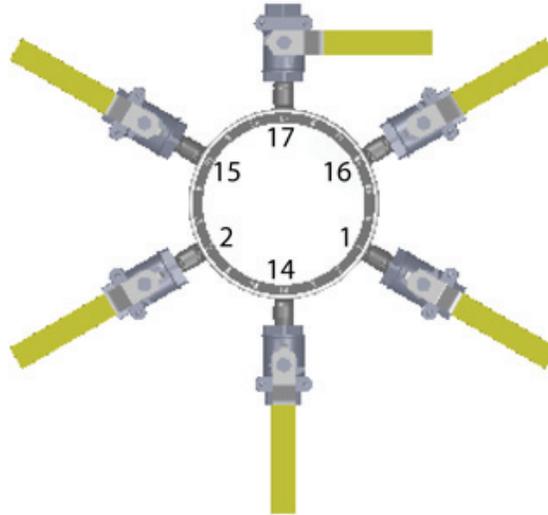
## 16 Row Side Dressing Operation

In 16 row side dressing operations:

- Open valves on ports 1, 2, 14, 15, and 16
- Close valve on port 17

FIGURE 2. 2510H 16 Row Side Dressing Operation

---



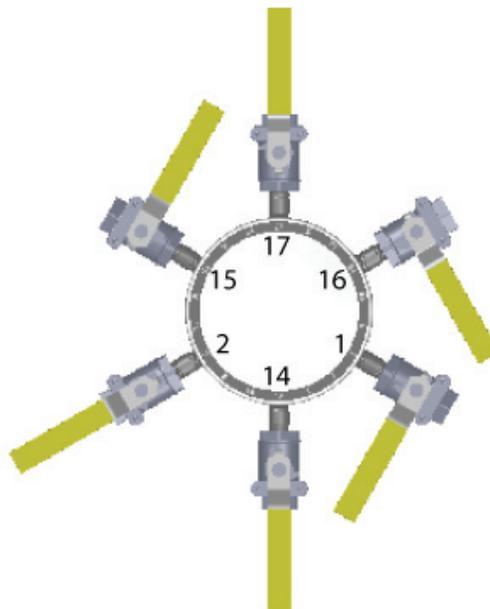
## 12 Row Side Dressing Operation

In 12 row side dressing operations:

- Open valves on ports 2, 14 and 17
- Close valves on ports 1, 15 and 16

FIGURE 3. 2510H 12 Row Side Dressing Operation

---



---

## 2510H 11 Row Toolbars

**Note:** In side dressing configurations, the outer rows will receive one and a half flow rate increase.

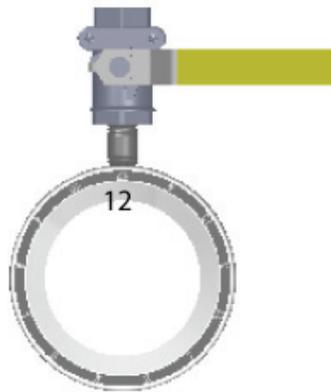
### 11 Row Operation

In 11 row standard operations:

- Close valve on port 12

FIGURE 4. 2510H 11 Row Operation

---



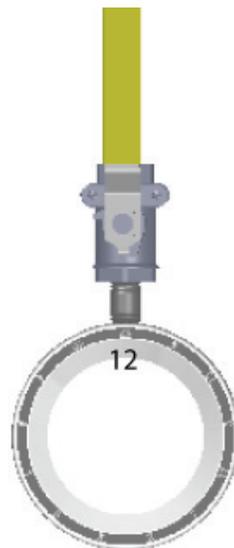
### 12 Row Side Dressing Operation

In 12 row side dressing operations:

- Open valve on ports 12

FIGURE 5. 2510H 12 Row Side Dressing Operation

---



## 2510S 16/12 Row Toolbars

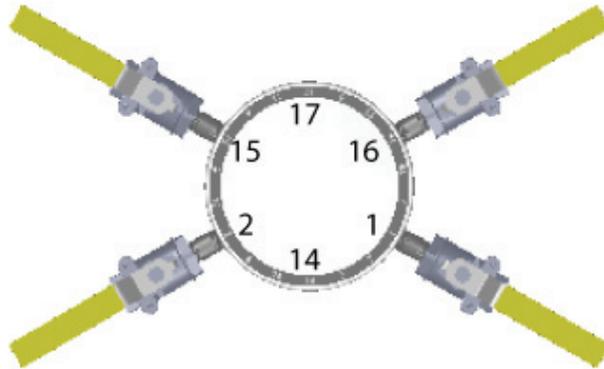
### 16 Row Operation

In 16 row standard operations:

- Open valves on ports 1, 2, 15 and 16

FIGURE 6. 2510S 16 Row Operation

---



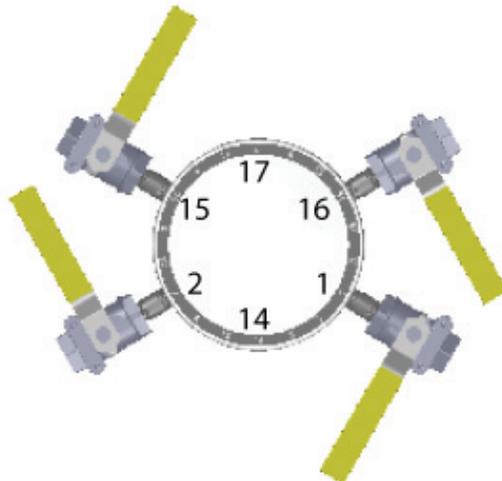
### 12 Row Preplant Operation

In 12 row preplant operations:

- Close valves on ports 1, 2, 15 and 16

FIGURE 7. 2510S 12 Row Preplant Operation

---



---

## 2510C 17/13 Row Toolbars

**Note:** In side dressing configurations, the outer rows will receive a half rate.

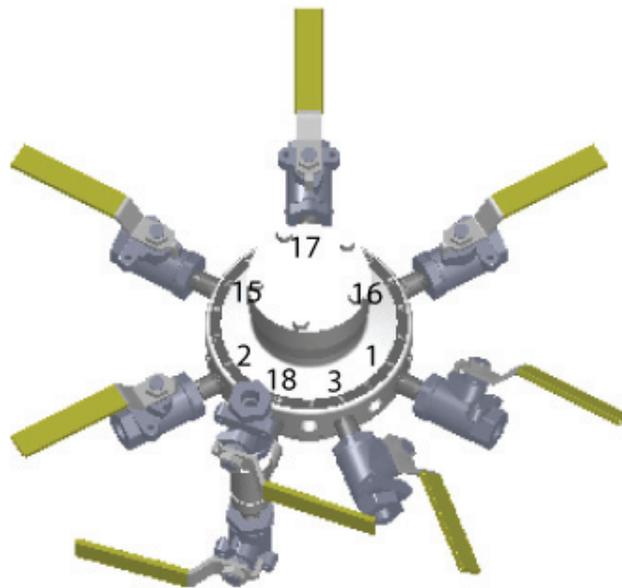
### 17 Row Operation

In 17 row standard operations:

- Open valves on ports 1, 2, 3, 15, 16 and 17
- Close both valves on port 18

FIGURE 8. 2510C 17 Row Operation

---



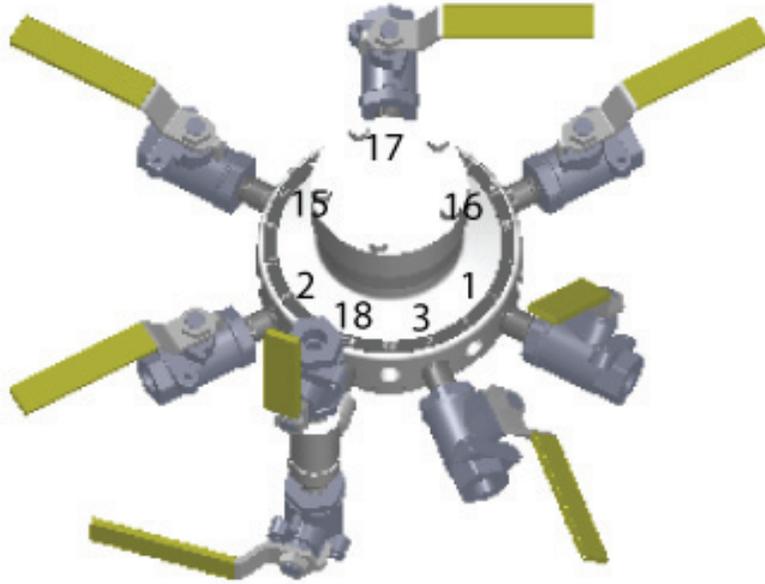
## 16 Row Side Dressing Operation

In 16 row side dressing operations:

- Open valves on ports 2, 3, 15, 16 and the top valve on port 18
- Close valves on ports 1, 17 and the bottom valve on port 18

**FIGURE 9. 2510C 16 Row Side Dressing Operation**

---

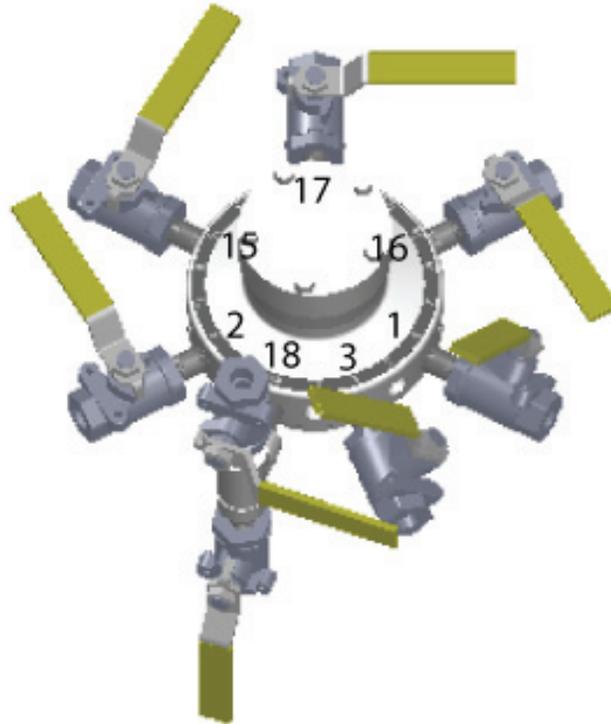


## 12 Row Side Dressing Operation

In 12 row side dressing operations:

- Open bottom valve on port 18
- Close valves on ports 1, 2, 3, 15, 16, 17 and the top valve on port 18

**FIGURE 10. 2510C 12 Row Side Dressing Operation**



## 2510C 13 Row Toolbars

**Note:** In side dressing configurations, the outer rows will receive a half rate.

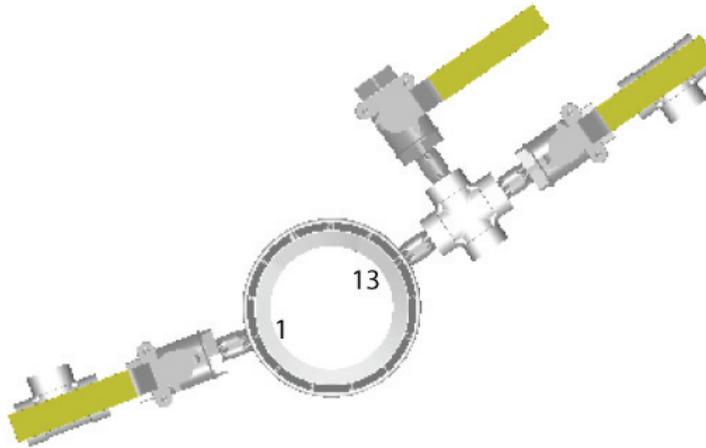
### 13 Row Operation

In 13 row standard operations:

- Open valves on port 1 and port 13 straight through pipe cross
- Close valve located on pipe cross branch of port 13

FIGURE 11. 2510C 13 Row Operation

---



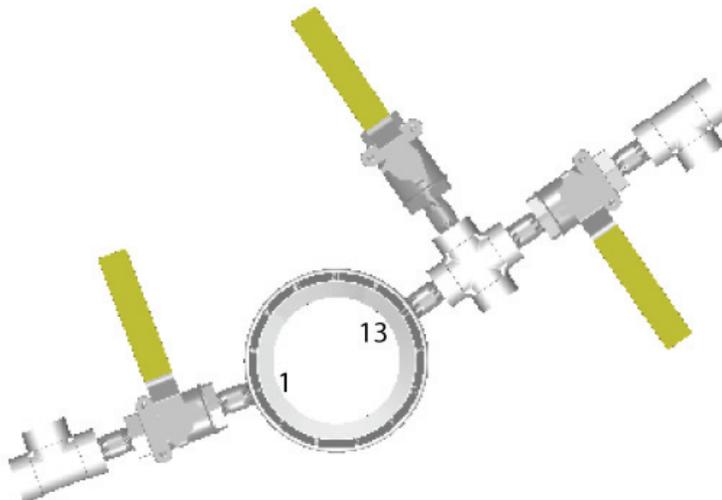
### 12 Row Side Dressing Operation

In 12 row side dressing operations:

- Open valve located on pipe cross branch of port 13
- Close valves on port 1 and port 13 straight through pipe cross

FIGURE 12. 2510C 12 Row Side Dress Operation

---



**F****Figures**

- 2510C 13 Row Toolbars
  - 12 Row Side Dress Operation 24
  - 13 Row Operation 24
  - Installation 16
- 2510C 17/13 Row Toolbars
  - 12 Row Side Dressing Operation 23
  - 16 Row Side Dressing Operation 22
  - 17 Row Operation 21
  - Installation 14
- 2510H 11 Row Toolbars
  - 11 Row Operation 19
  - 12 Row Side Dressing Operation 19
  - Installation 9
- 2510H 15/11 Row Toolbars
  - 12 Row Side Dressing Operation 18
  - 15 Row Operation 17
  - 16 Row Side Dressing Operation 18
  - Installation 7
- 2510S 16/12 Row Toolbars
  - 12 Row Preplant Operation 20
  - 16 Row Operation 20
  - Installation 11

**I****Installation 5**

- 2510C Toolbars
  - 13 Row Conversion 15
  - 17/13 Row Conversion 12
- 2510H Toolbars
  - 11 Row Conversion 8
  - 15/11 Row Conversion 6
- 2510S Toolbars
  - 16/12 Row Conversion 10

**Introduction 3**

- 2510C Toolbars
  - 13 Row Conversion Kit 4
  - 17/13 Row Conversion Kit 4
- 2510H Toolbars
  - 11 Row Conversion Kit 3
  - 15/11 Row Conversion Kit 3
- 2510S Toolbars
  - 16/12 Row Conversion Kit 3

**O****Operation 17**

- 2510C Toolbars
  - 13 Row Conversion 24
  - 17/13 Row Conversion 21
- 2510H Toolbars
  - 11 Row Conversion 19
  - 15/11 Row Conversion 17
- 2510S Toolbars
  - 16/12 Row Conversion 20

**S****Safety Information 1**



**RAVEN**

# **RAVEN INDUSTRIES**

## **Limited Warranty**

---

### ***What Does this Warranty Cover?***

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service.

### ***How Long is the Coverage Period?***

Raven Applied Technology Division products are covered by this warranty for 12 months after the date of purchase. This warranty coverage applies only to the original owner and is nontransferable.

### ***How Can I Get Service?***

Bring the defective part and proof of purchase to your Raven dealer. If your dealer agrees with the warranty claim, the dealer will send the part and proof of purchase to their distributor or to Raven Industries for final approval.

### ***What Will Raven Industries Do?***

Upon confirmation of the warranty claim, Raven Industries will, at our discretion, repair or replace the defective part and pay for return freight.

### ***What is not Covered by this Warranty?***

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit or other special damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.