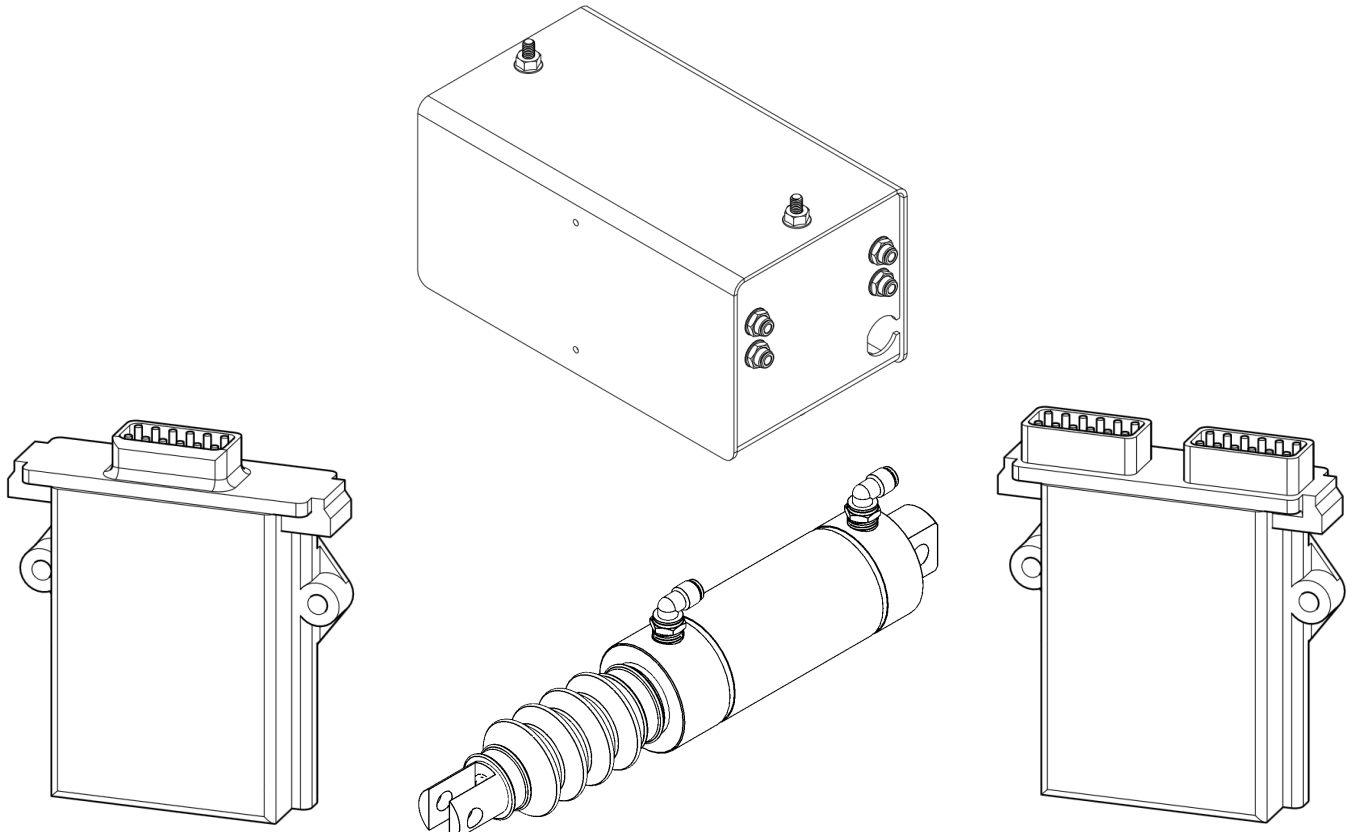




Installation Instructions



Martin Industries LLC

206 Elk Fork Road

Elkton, KY 42220

Telephone: 270-265-5817

E-Mail: martin@martintill.com

www.martintill.com



LIST OF CONTENTS:

1. Components introduction

1.1. Standard components

1.2. Optional components

2. Air cylinders installation

2.1. SmartClean bracket sets for different bundles

2.2. Top brackets installed on row cleaner mounts

2.3. Bottom brackets installed on row cleaner Frames

3. Plumbing box

3.1 Plumbing box overview

3.2 Plumbing box installation

4. Tubing

4.1 From plumbing box to air cylinders

4.2 Inside the plumbing box (Standard factory plumbing)

4.3 Plumbing box retubing for Bi-Directional Control

5. Wiring

6. Smart Clean app

6.1 Download the App

6.2 Connect to your Martin-Till SmartClean

6.3 Configure your Martin-Till SmartClean

6.4 Single Valve Bank (No Air Bag)

6.5 Single Valve Bank (Air Bag)

6.6 Bi-directional Control

6.7 Dual Valve Bank

7. Troubleshooting

Appendix :

Base Plate Drilling Template

1. COMPONENTS INTRODUCTION

1.1. Standard components

The following standard components are included in your Smart Clean purchase:

- 1. Plumbing box (SC-ASSEMBLY-1)**
- 2. Air preparation filter/regulator (SC-FILTER)**
- 3. Signal converter box (JCA00-015001)**
- 4. ORIOLE controller box (JCA00-009001)**
- 5. Planter harness (JCA86-000012)**
- 6. Power harness (JCA86-000011)**

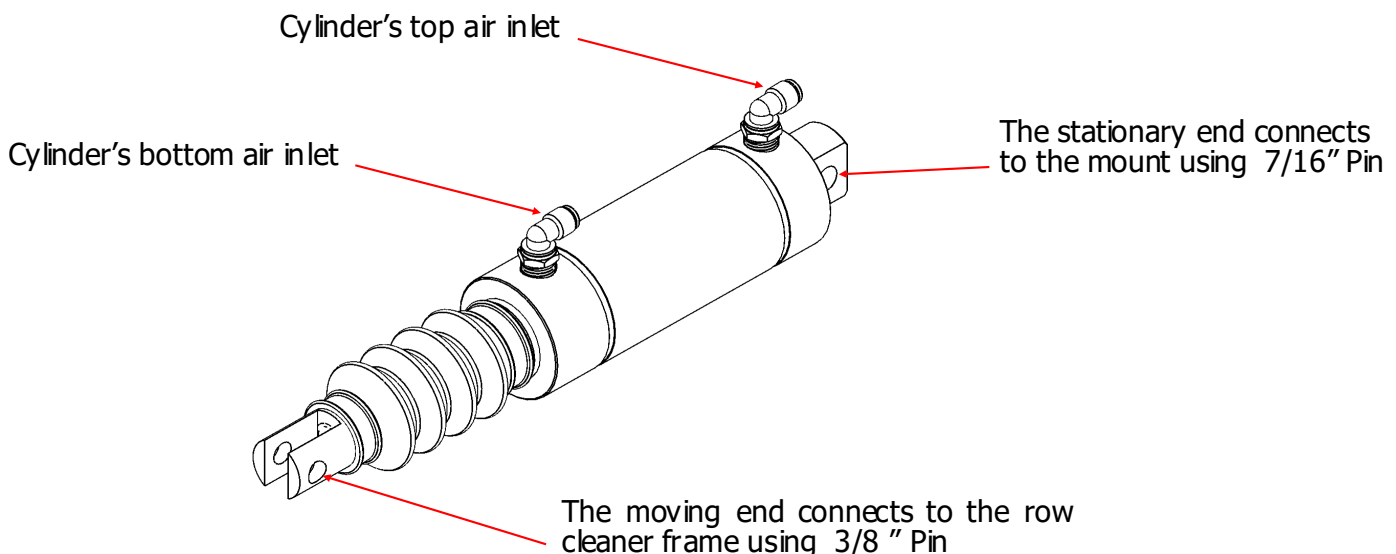
1.2. Optional components

The following optional components to be ordered separately:

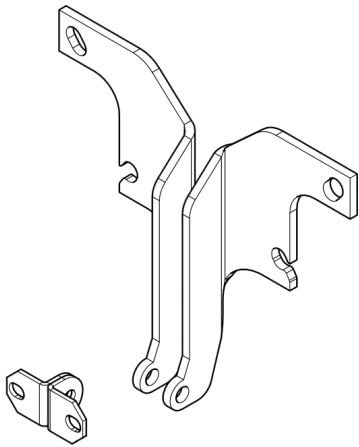
- 1. Air Cylinders (SC-CYL-2x2)**
- 2. Double valve plumbing box (With additional airbag valve)(SC-ASSEMBLY-2)**
- 3. Top and bottom cylinder brackets (Specific to your order)**
- 4. Hardware kit**
- 5. Pneumatic lines and fitting kits**
- 6. VIair heavy duty Compressor (SC-AC-12V)**
- 7. Compressor harness**

2. CYLINDER INSTALLATION

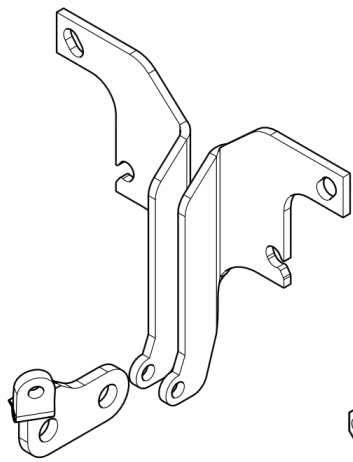
The stationary end of the cylinder connects to the row cleaner's mount (or the planter in some cases) using top brackets and the moving end of the cylinder connects to the row cleaner's frame using the bottom brackets. Top brackets are specific to the row cleaner's mount model and bottom brackets are specific to the row cleaner's frame model .



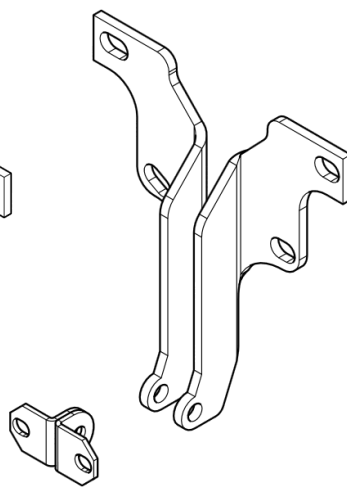
2.1. Smartclean bracket sets for different bundles:



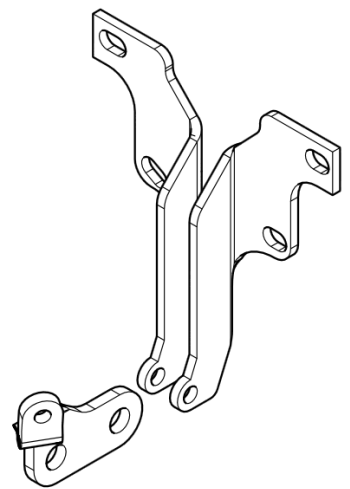
SC-BKW1345



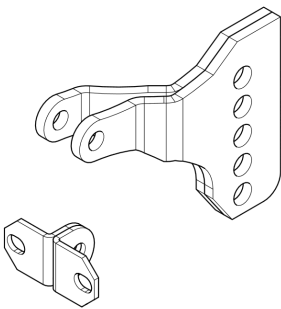
SC-BKW1360



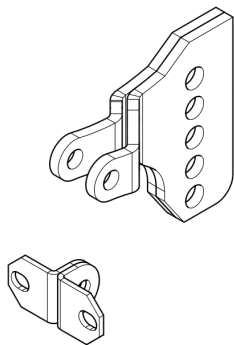
SC-BD1345



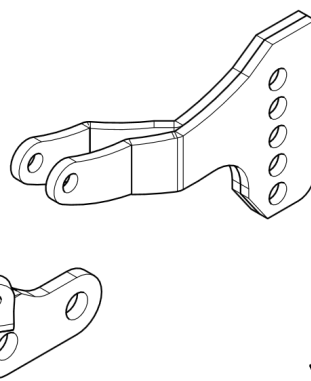
SC-BD1360



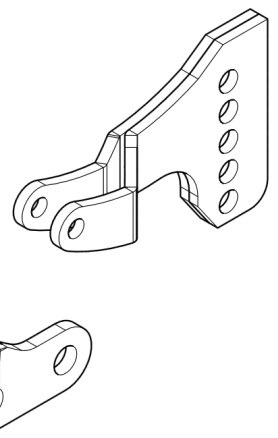
SC-1345-UMOL



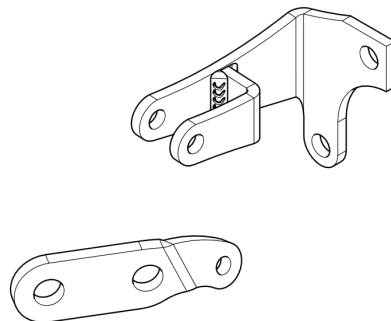
SC-1345-UMOR



SC-1360-UMOL



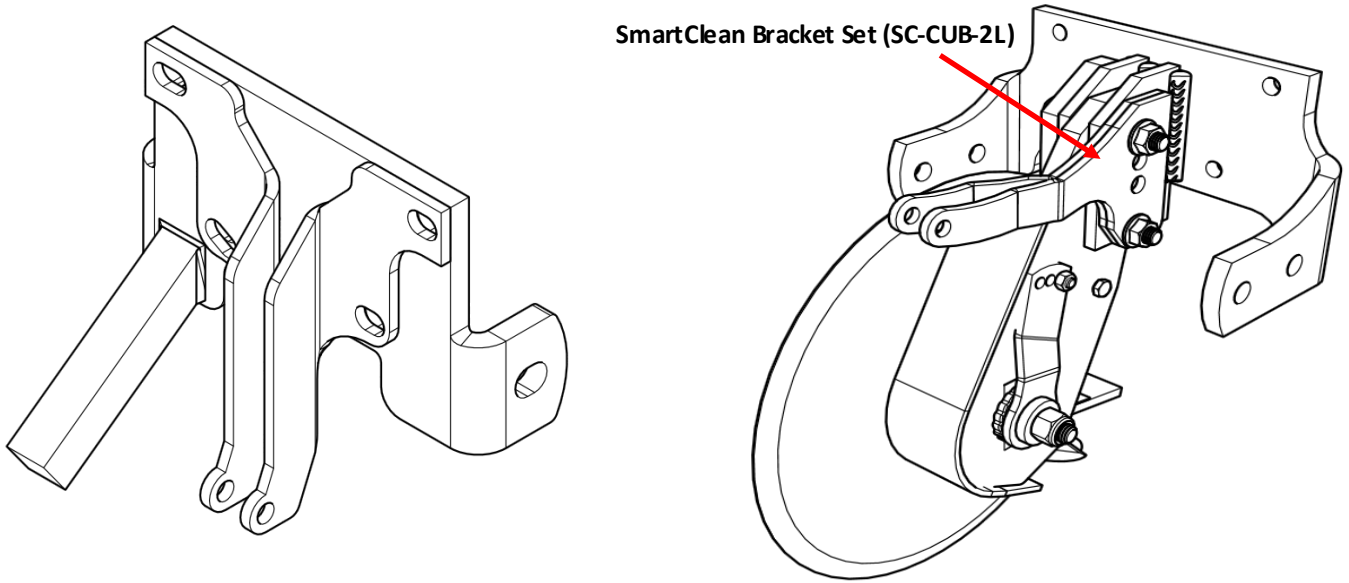
SC-1360-UMOR



SC-BDC1360

2.2. Top bracket installation on row cleaner mount:

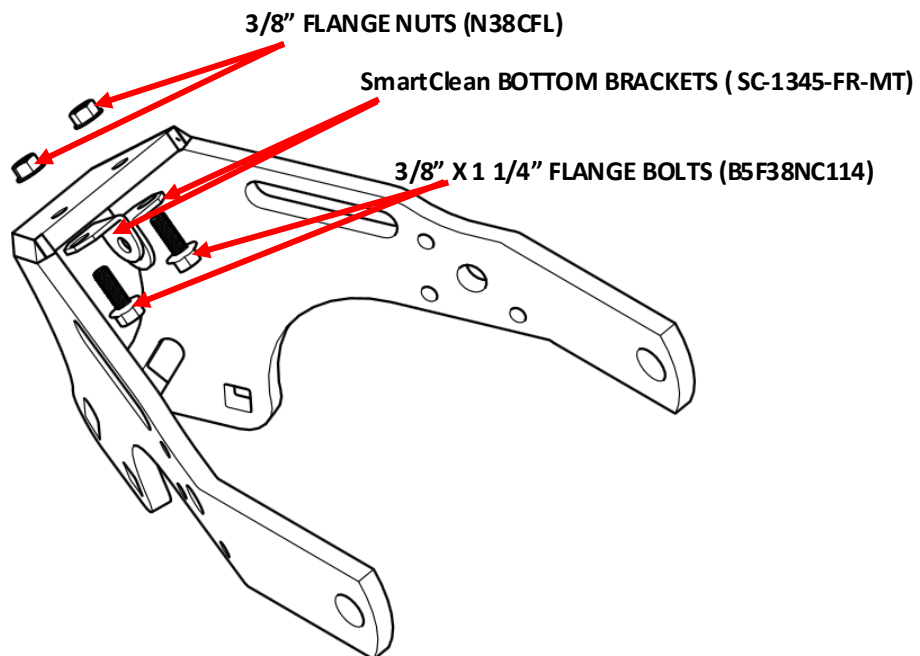
The top brackets are installed directly on the mount using the same hole patterns as the row cleaner mount (Left Picture). The UMO top brackets are designed for all single or dual UMO attachments , and are installed as shown in the right picture. They come in right and left sets and are used with their opposite side UMO.



Right UMO-100 and Left SmartClean Cylinder top bracket set are shown

2.3. Bottom bracket installation on row cleaner Frame:

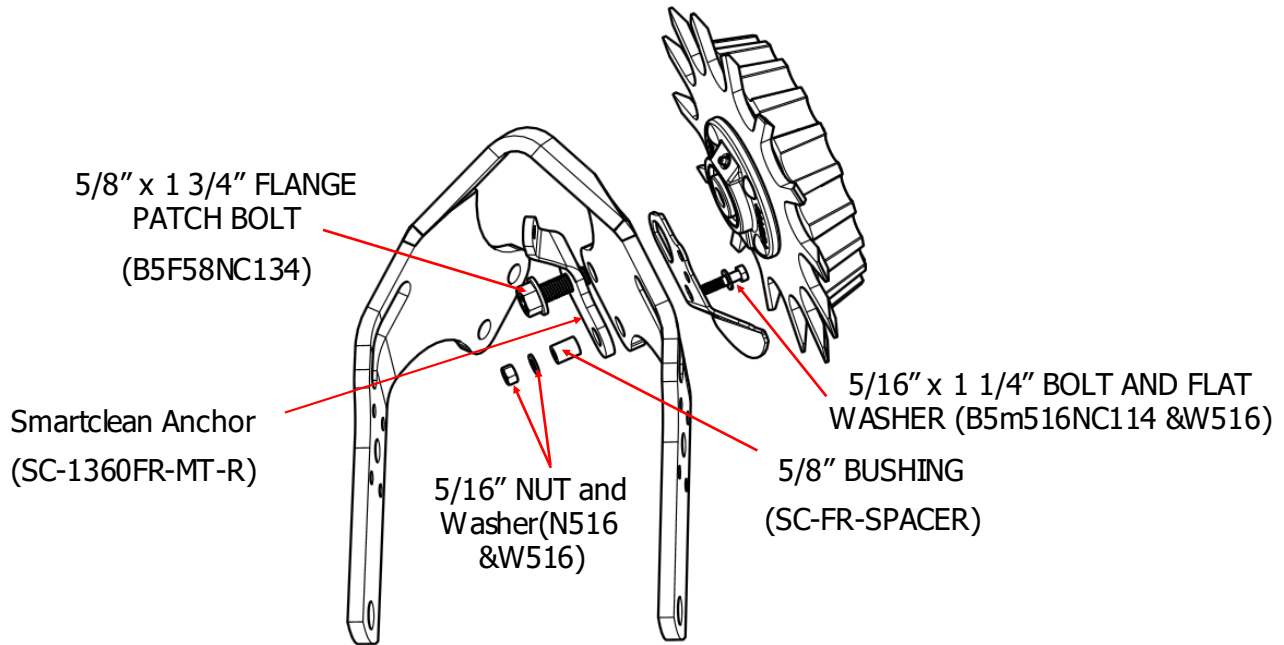
- WA1345 Frame:



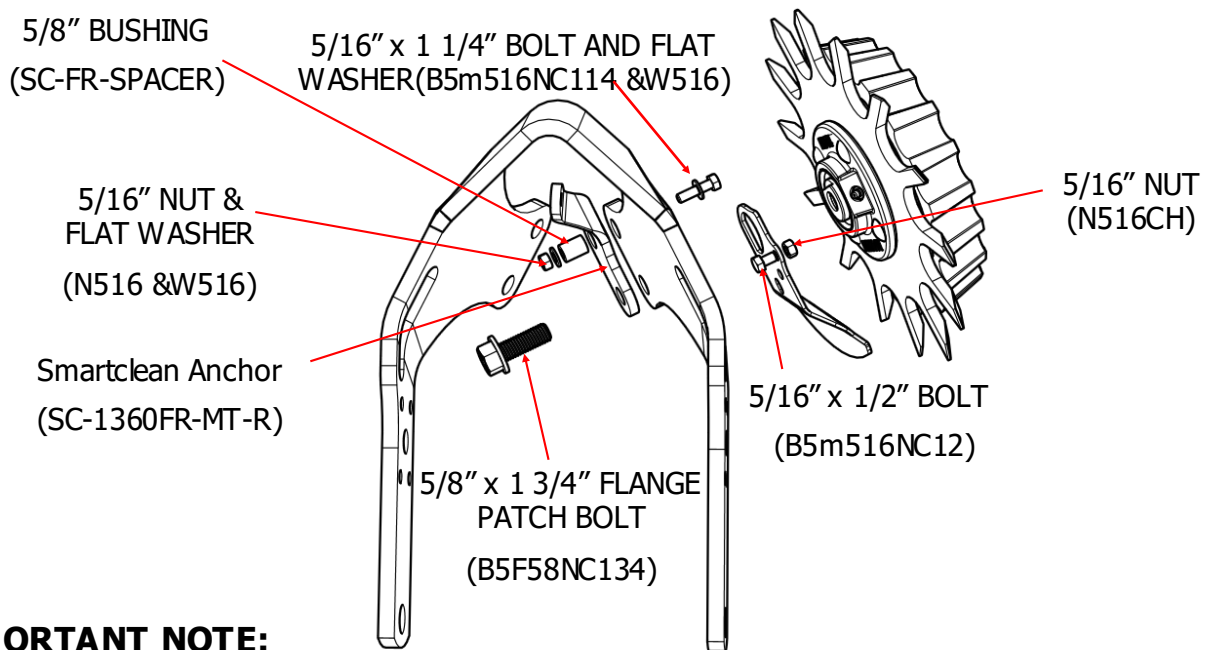
- **WA1360 frame:**

Install the bottom bracket as shown in the picture.

- Use 5/8" x 1 3/4" bolt
- Use 5/16" x 1 1/4 " bolt, 5/16" flat washer , 5/8" bushing & 5/16" nut (N516CH)



If installing the wheel in rear hole, use 5/16" x 1 1/4 " bolt, two 5/16" flat washers, 5/8" bushing and 5/16" nut (N516CH) in front hole as shown in the below picture to prevent bottom anchor from rotating and use 5/16" x 1/2" bolt and 5/16" nut (N516CH) in the top hole of the D-LOCK DEFLECTOR .



IMPORTANT NOTE:

It is very important to limit the row cleaner down travel by adjusting the cam adjuster or the stop bolt to prevent the air cylinder from extending or retracting fully by setting stop bolt or cam to catch the row cleaner just before the cylinder reaches the end of its stroke. Failure to do so will destroy the cylinder prematurely.

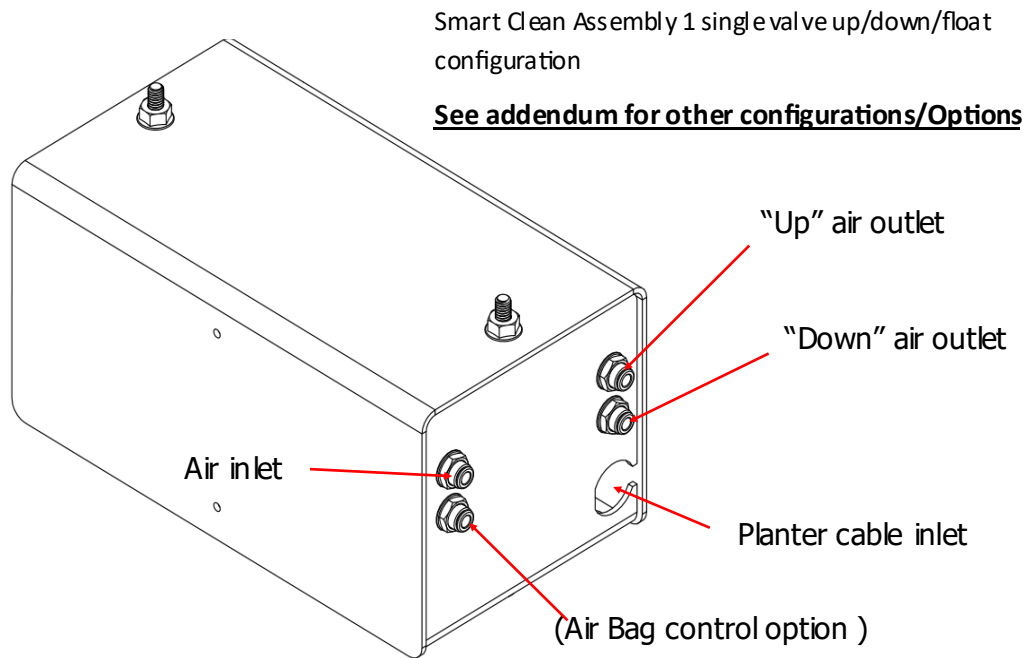
3. PLUMBING BOX

3.1 Plumbing box overview

The plumbing box (SC-ASSEMBLY-1) connects wirelessly to your smart phone and allows you to control the row cleaner's downforce by controlling the cylinder's air pressure . The control box includes one pressure regulator valve (SC-QB1), one directional valve (SC-DIR-VALVE), signal converter box (JCA00-015001), ORIOLE controller box (JCA00-009001), and an external air filter/regulator (SC-FILTER). The plumbing box (SC-ASSEMBLY-2) includes an extra pressure regulator valve (SC-QB1).

3.2 Plumbing box installation

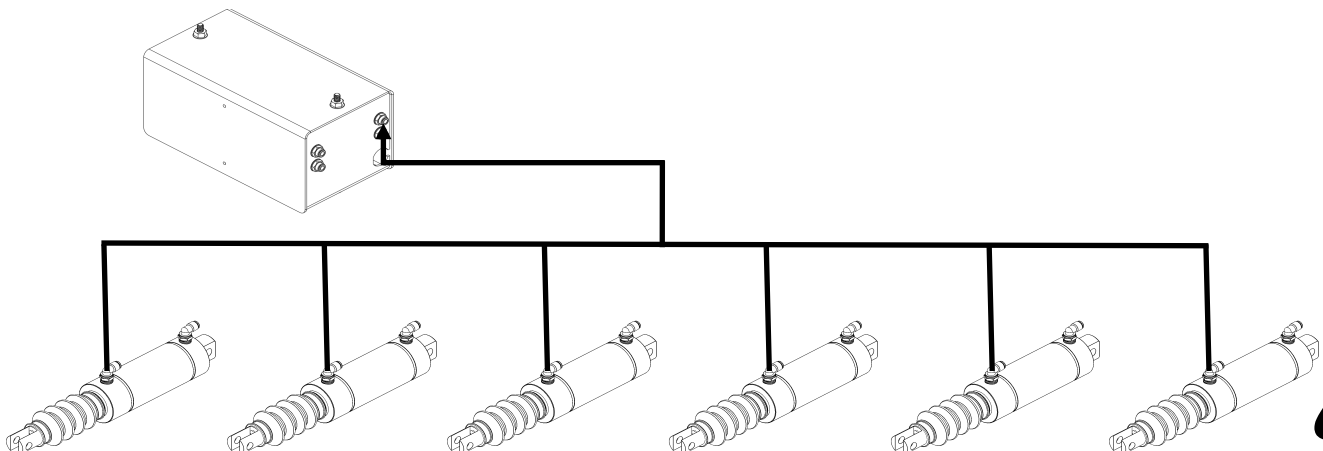
Since the plumbing box is connected to your smartphone wirelessly , it doesn't have to be installed inside the cab. However, for better Bluetooth connectivity, It is recommended to install it within the line of sight of the cab in a central location. Open the plumbing box cover loosening the 3/8" locknuts on the top of the box and use the 3/8" holes under the box to attach and secure the plumbing box on the planter. Use the template on page 20 for possible mounting hole locations.



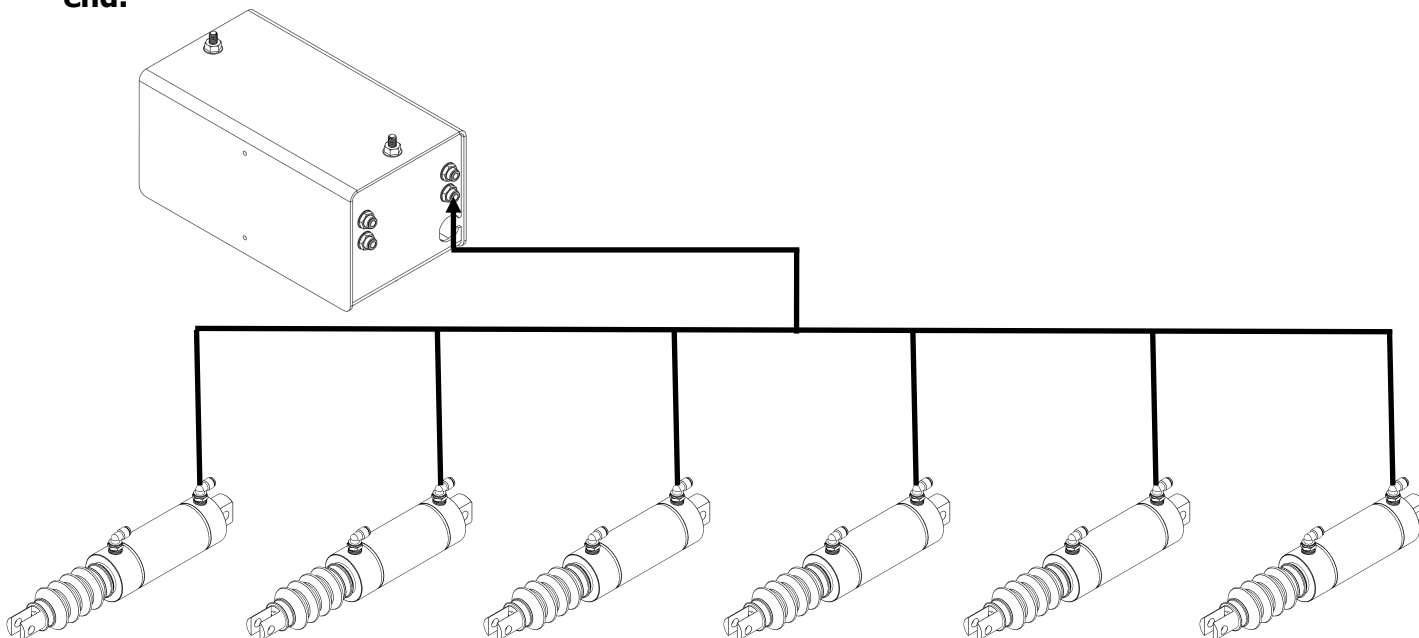
4. TUBING

4.1 From plumbing box to air cylinders

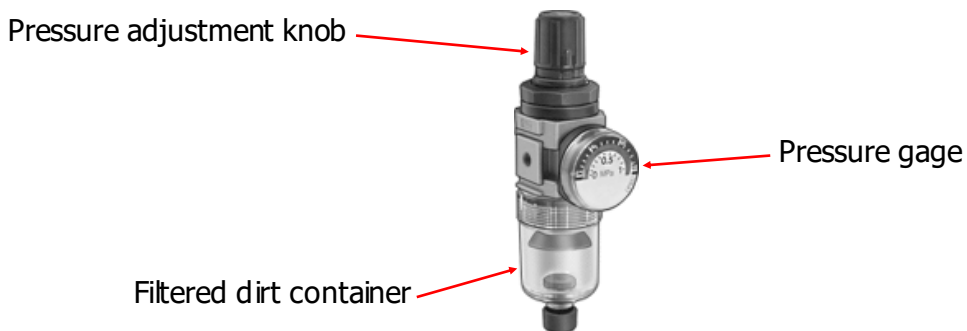
According to the picture, connect the box's "Up" air outlet to the bottom air inlets of the cylinders using the 1/4" tubing and tee fittings provided.



- **Use different colored tubing for the up and down circuits. Connect the box's "Down" air outlet to either the extend or retract end of the cylinder and use the other color for the opposite end.**



- **If your planter is equipped with airbags and you ordered the double valve plumbing box with additional airbag valve(SC-ASSEMBLY-2), connect the box's "Airbag" outlet to the airbags circuit using the 1/4" tubing and tee fittings provided.**
- **Use the provided zip ties to secure the tubes.**
- **Make sure that the tubes will not be stretched or sharply bent during planter movement or folding/unfolding. It is highly recommended to follow the possible existing wiring harnesses or airbag tubing routes.**
- **To make tubing easier, you can start by connecting the very first air cylinder to the very last air cylinder (for both inlets) , then cut the tube at any conjunction and take branches for middle air cylinders and plumbing box by adding Tee connections.**
- **Connect the air preparation filter/regulator (SC-FILTER) to your air supply. You can use your own air compressor or buy the optional compressor (SC-AC-12). Look at the air flow arrow shown on the filter/regulator and connect the air supply to the inlet port of the filter/regulator.**

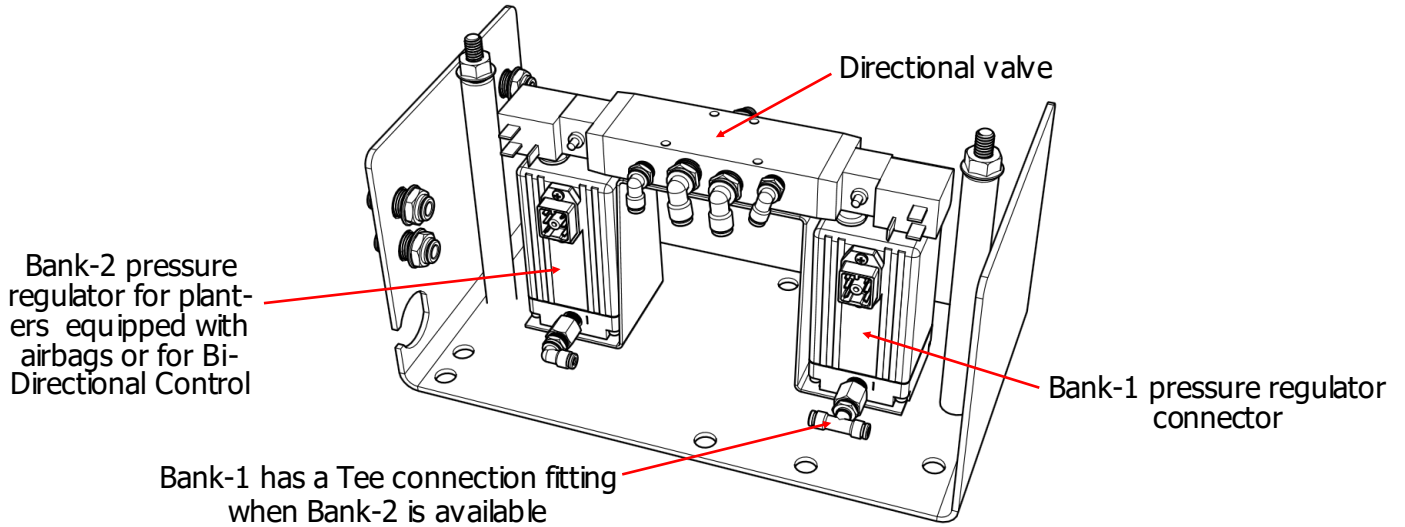


- **Connect the air preparation filter/regulator's outlet port to the air inlet of the control box using the provided black 1/4" tubing.**
- **Turn on the air supply, then lift up the top knob on the filter/regulator and rotate it to adjust the air pressure shown on the gage to 120 PSI max.**

4.2 Inside the plumbing box (Standard factory plumbing)

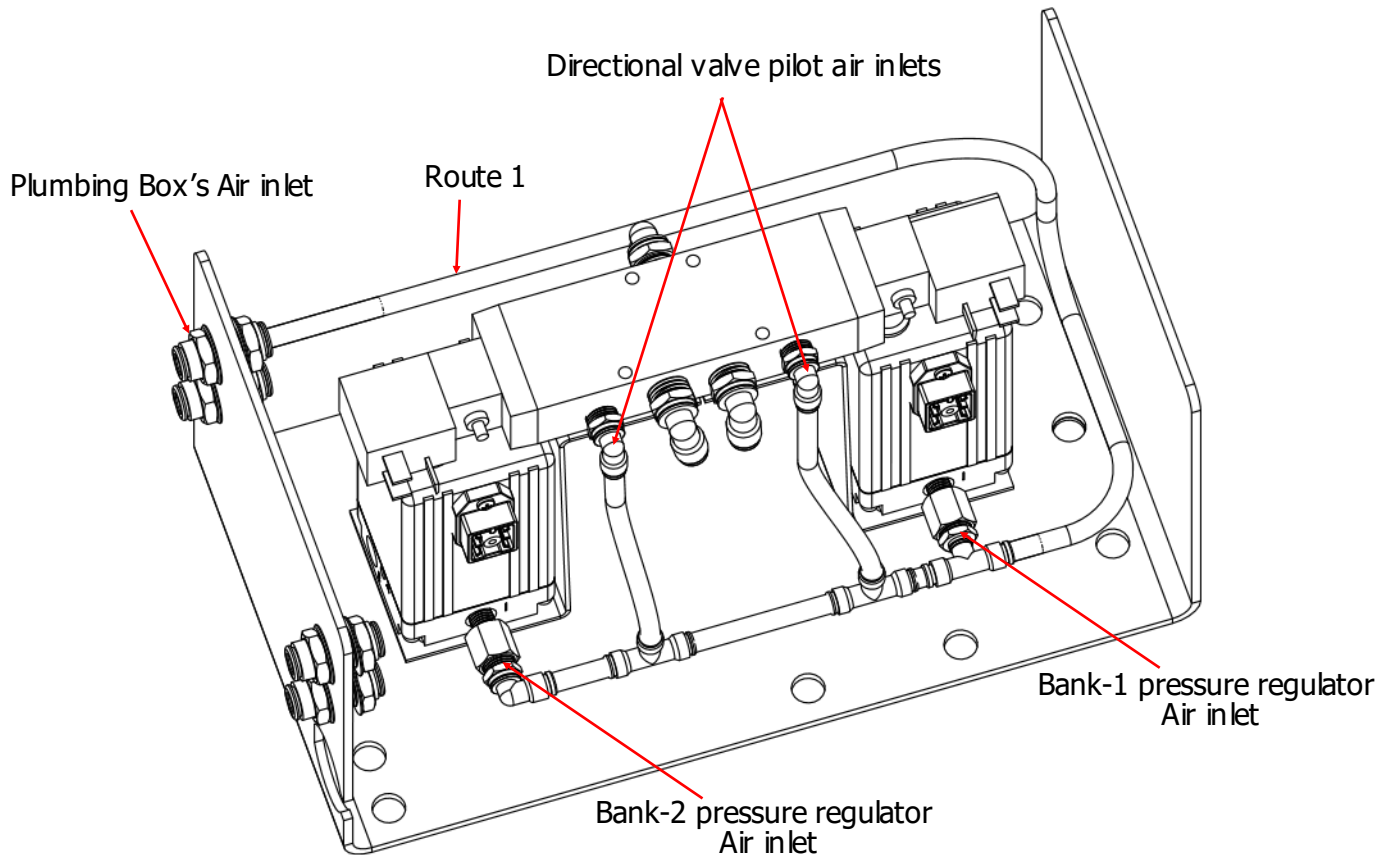
Although you may have received a complete box , the standard factory plumbing of the valves inside the box is described here for future reference.

The standard plumbing box (SC-ASSEMBLY-1), includes one pressure regulator valve (Bank-1) and one Directional Valve, while the Double valve plumbing box (SC-ASSEMBLY-2) includes an extra pressure regulator valve (Bank-2). All the valves are shown in the picture.

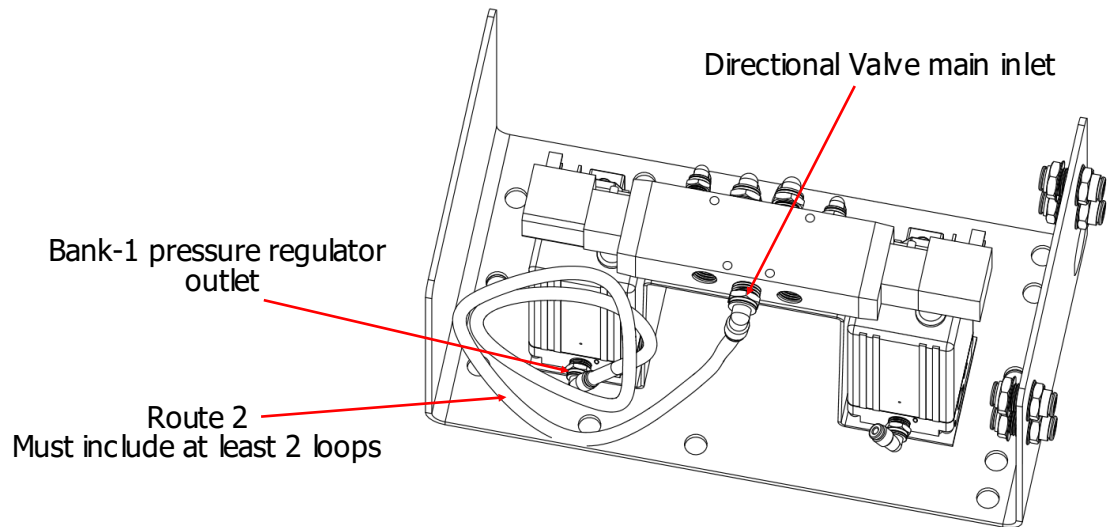


There are four tubing routes as follows:

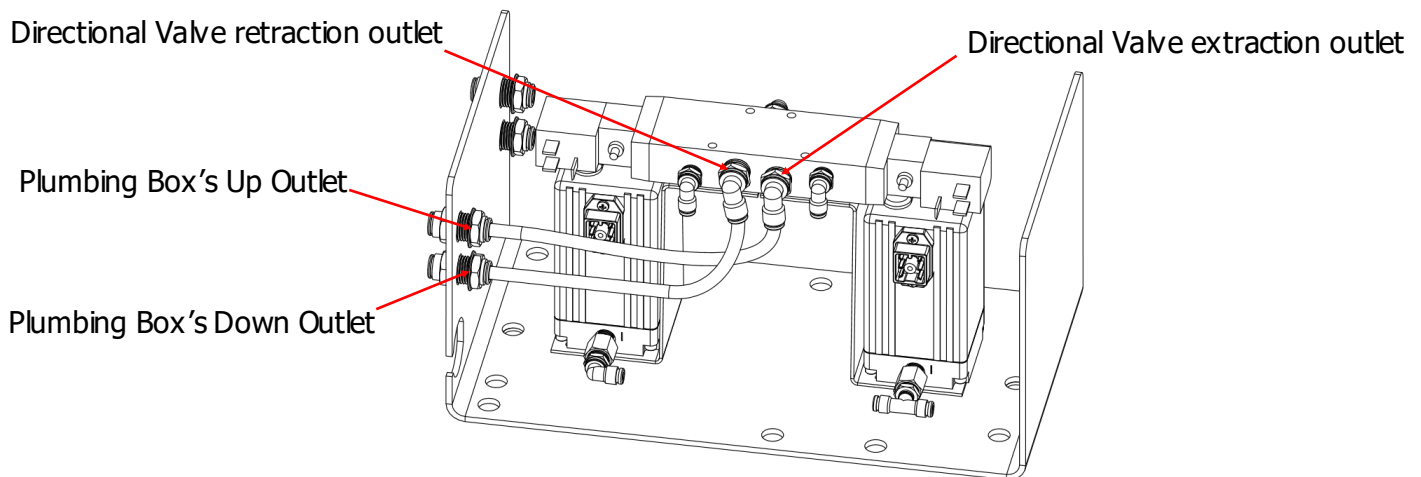
Route1 : Tubing from air inlet to pressure regulators and directional valve pilot inlets



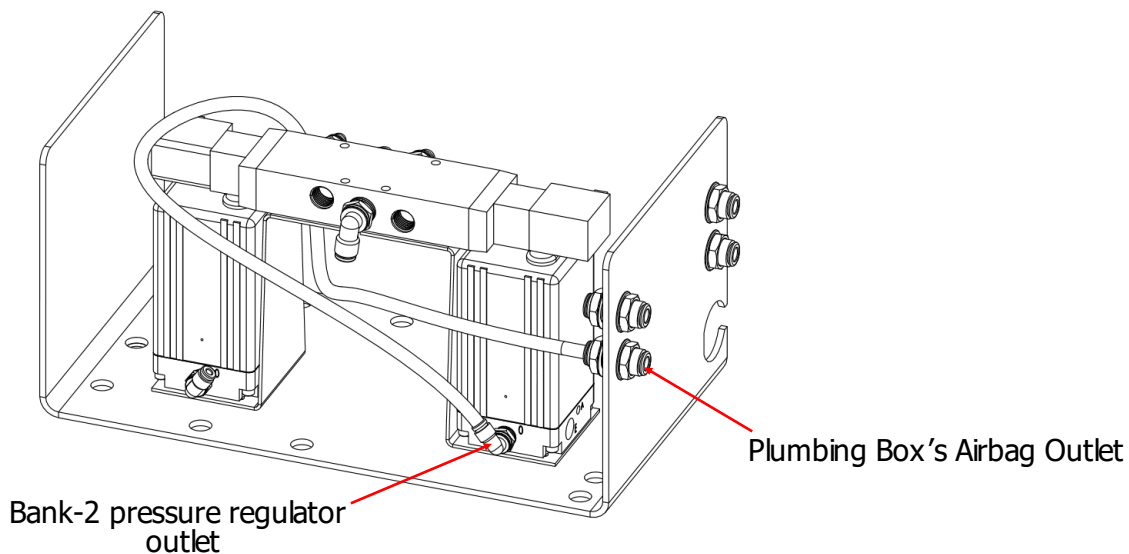
Route2 : Tubing from Bank-1 pressure regulator outlet to directional valves main inlet



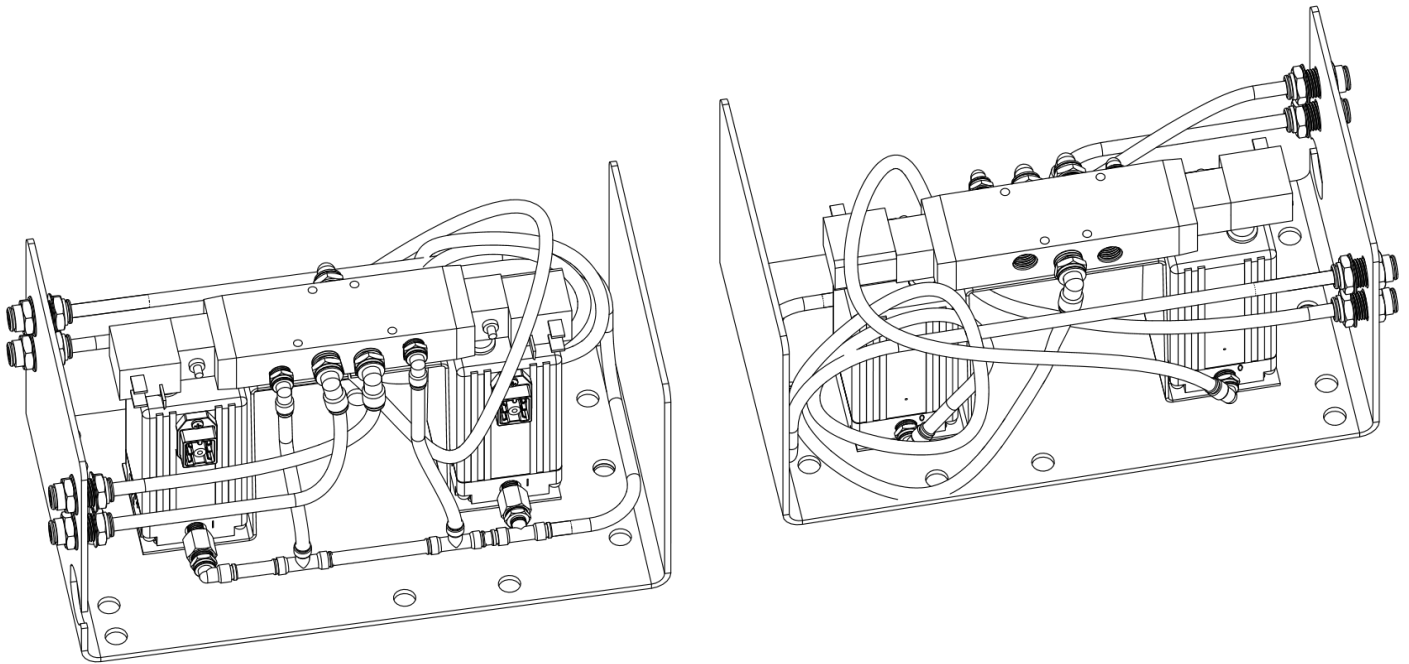
Route 3: Tubing from Directional valves outlets to Up and Down outlets



Route 4 : Tubing from Bank-2 pressure regulator outlet to Airbag outlet



Complete plumbed box is shown from left and right views in below pictures. Check for any leaks before closing the plumbing box cover.



4.3 Plumbing box retubing for Bi-Directional Control

The bi-directional control configuration requires a 2-valve system (Part No: SC-ASSEMBLY-2). The plumbing box valve connection needs to be reconfigured as described below for bi-directional control.

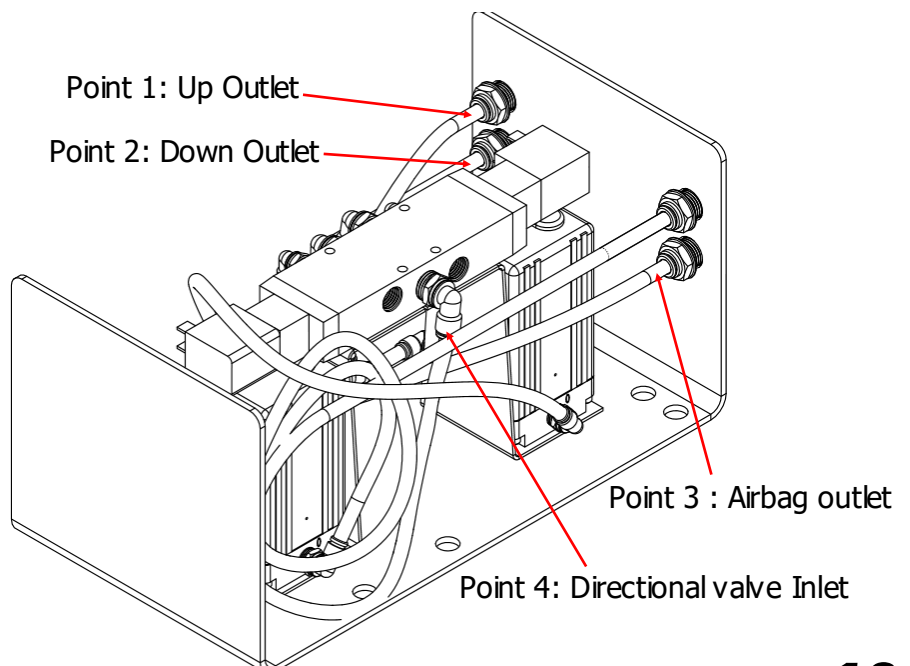
Step 1: Disconnect the tube ends only at the points shown in the picture. Don't disconnect the other ends of the tubes.

Point 1: Up outlet

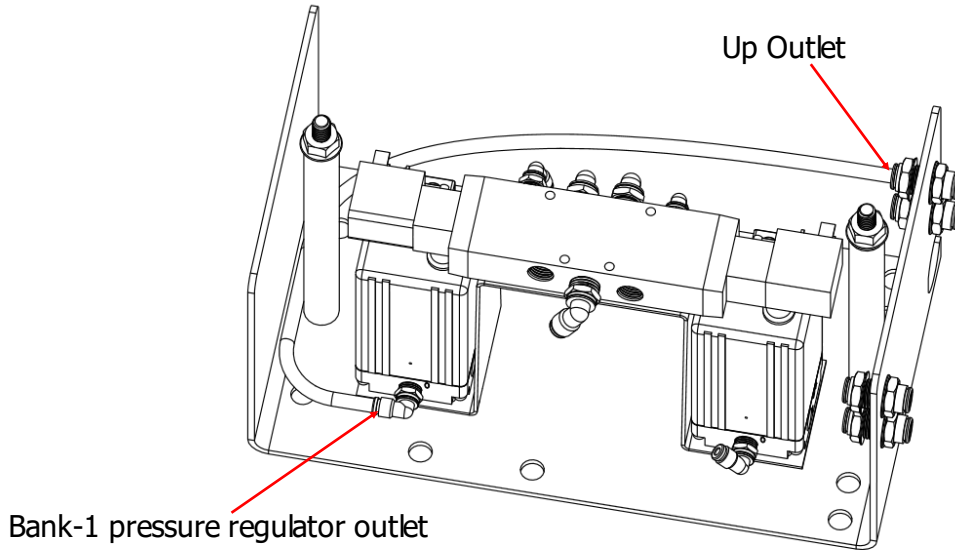
Point 2: Down outlet

Point 3: Airbag Outlet

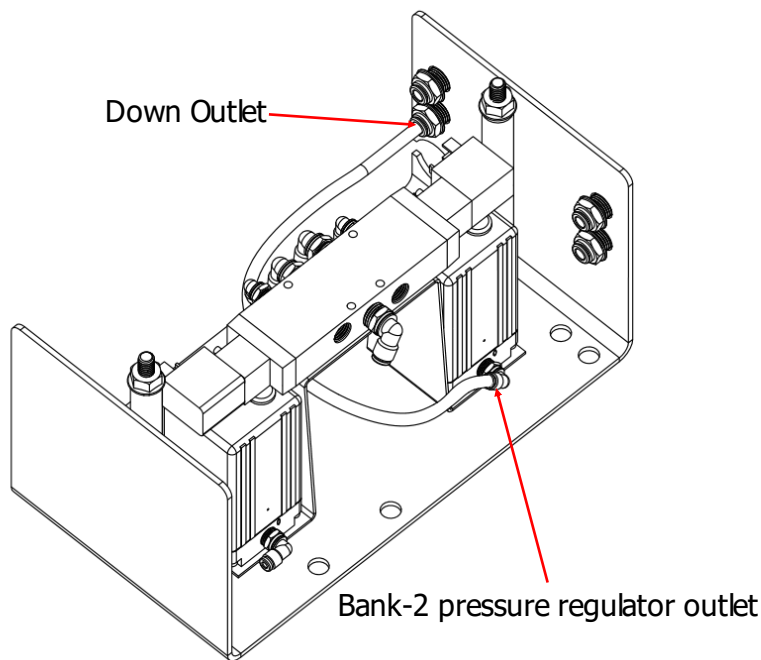
Point 4: Directional valve inlet



Step 2 : Connect the Bank-1 pressure regulator outlet to the Up Outlet as shown in the picture.



Step 3 : Connect the Bank-2 pressure regulator outlet to the Down Outlet as shown in the picture.



Step 4 : The retubing process is complete. You can leave the tubes with one open ends inside the box. Plug the three open ends (two hoses connected to the directional valve and directional valve main inlet).

Follow the instruction in section 6.6 to test the Bi-Directional control configuration. Check for any leaks before closing the plumbing box cover.

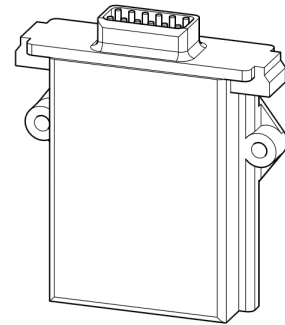
5. WIRING:

Identify the two harnesses provided for the control box wiring:

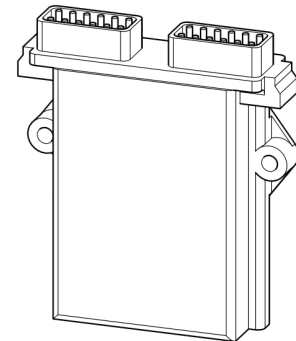
- *Planters harness (JCA86-000012) with 9 connectors.*
- *Power harness (JCA86-000011) with one connector and two ring wire-ends*

Start with the planters harness.

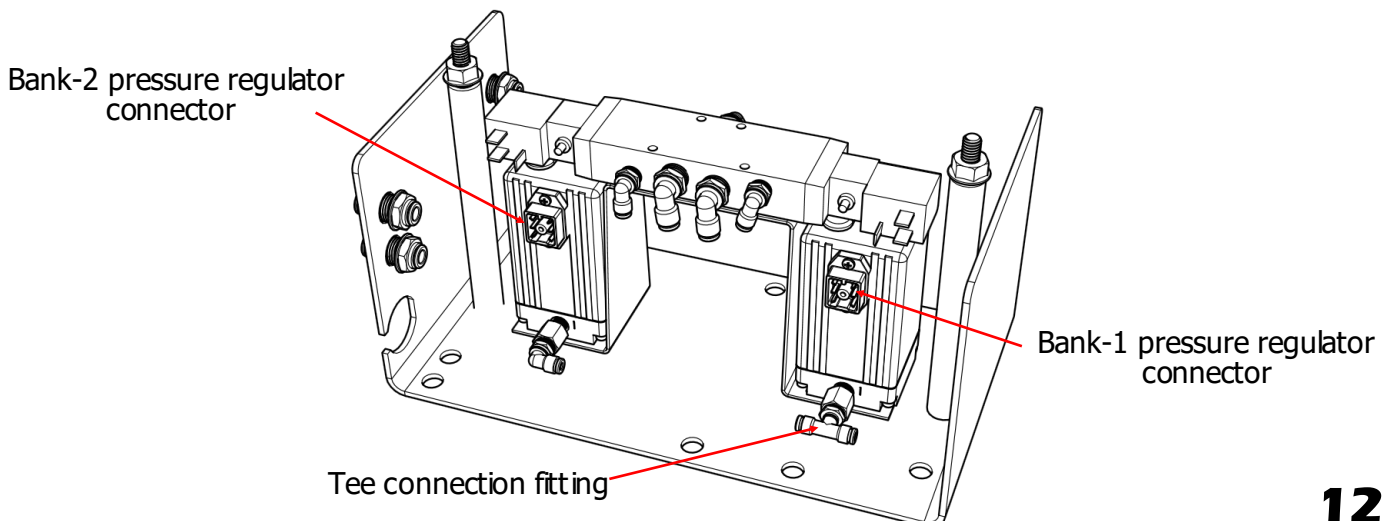
- Locate the connector labeled "CONVERTER BOX" and connect it to the provided Signal converter box (JCA00-015001) shown in the picture.



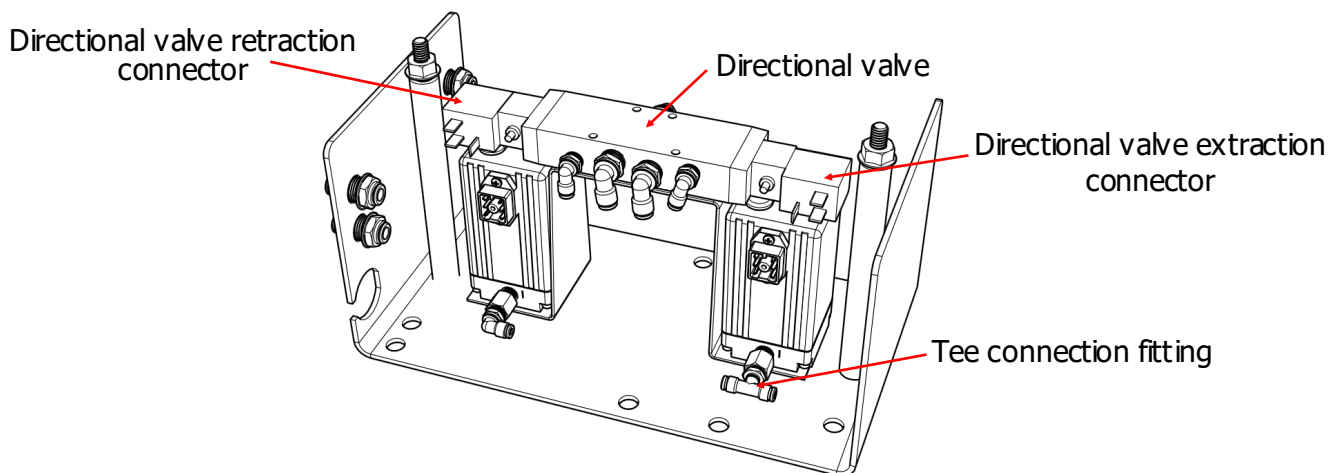
- Locate the connectors labeled "ORL-A" and "ORL-B" and connect them to the provided ORIOLE controller box (JCA00-009001) shown in the picture.



- Locate the connector labeled "PRES-REG BANK-1" and connect it to the bank-1 pressure regulator in the box. The bank-1 pressure regulator is the one farther from the air inlet/outlets and has a tee connection fitting. Secure the connector to the valve using the center bolt provided in the small plastic bag attached to the planter harness .



- If you ordered the double valve plumbing box with additional airbag valve(SC-ASSEMBLY-2), locate the connector labeled "PRES-REG BANK-2" and connect it to the bank-2 pressure regulator in the box. The bank-2 pressure regulator is the one closer to the air inlets/outlets and doesn't have a tee connection fitting. Secure the connector to the valve using the center bolt provided in the small plastic bag attached to the planter harness .
- Locate the connector labeled "RET-VLV" and connect it to retraction side of the directional valve as shown in the picture. Secure the connector to the valve using the center bolt provided in the small plastic bag attached to the planter harness.



- Locate the connector labeled "EXT-VLV" and connect it to the extraction side of the directional valve as shown in the picture. Secure the connector to the valve using the center bolt provided in the small plastic bag attached to the planter harness .

Continue with the power harness.

- Locate the connector labeled "POWER" and connect it to its mated connector on the planters harness.
- Connect the two ring wire-ends (Labeled RT-1 and RT-2) of the power harness to 12 Volts power supply on your tractor. Make sure that the red wire (RT-1) is connected to switch-on positive and the black wire (RT-2) is connected to negative. Incorrect connecting of the power wires can damage the electronics components.
- Close the box cover.
- Secure the harnesses, converter box, and ORIOLE controller box to the planter using the provided zip ties.

6. SMART CLEAN APP

The Martin-Till SmartClean system is controlled via an app that can be installed on iOS and Android devices. The app controls the system over a wireless Bluetooth connection.

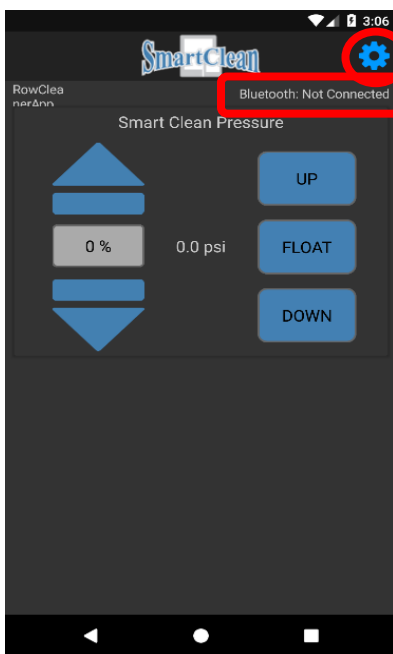
6.1 Download the App

Installing the Martin-Till Smart Clean V2 app on an iOS or Android mobile device is the first step.

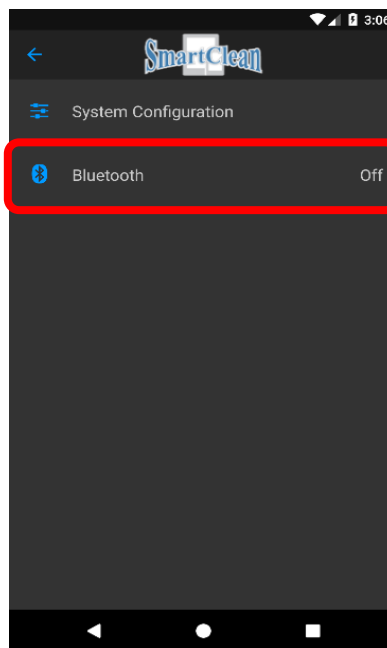
- **Go to the Google Play Store or the iOS App Store**
- **Search for Martin-Till Smart Clean V2**
- **Install the app titled Martin-Till Smart Clean V2**

6.2 Connect to your Martin-Till SmartClean

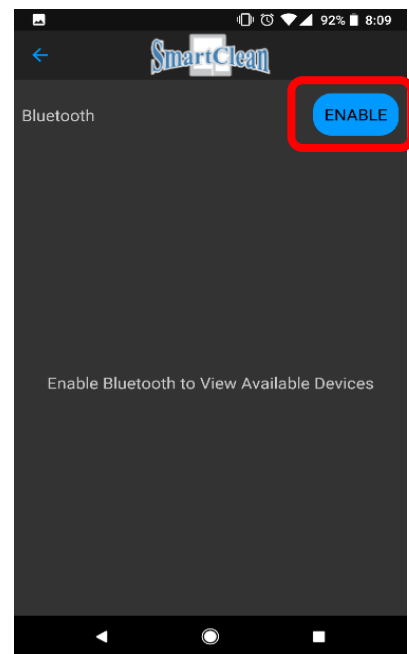
Follow the below steps to connect to the Martin-Till SmartClean system.



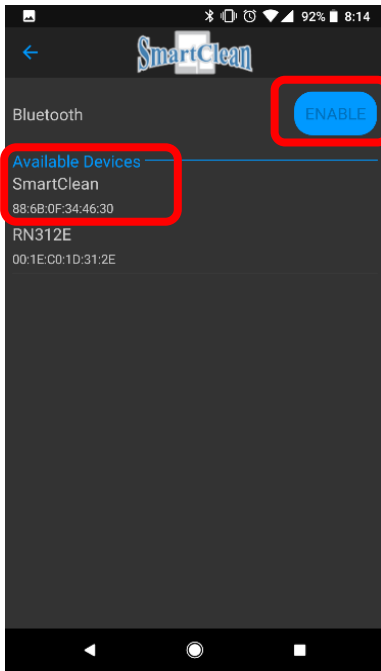
1. Notice the Bluetooth:Not Connected message. Click on the gear



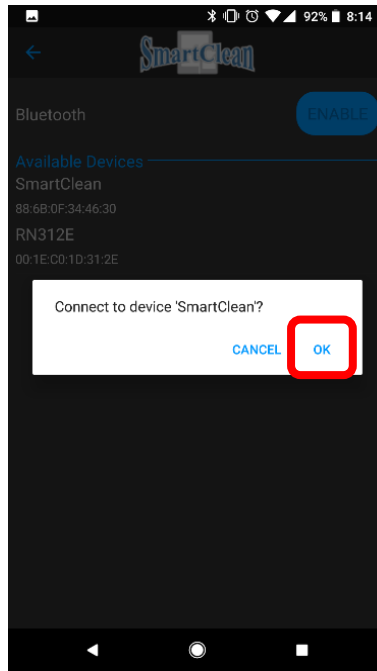
2. Click on the Bluetooth label



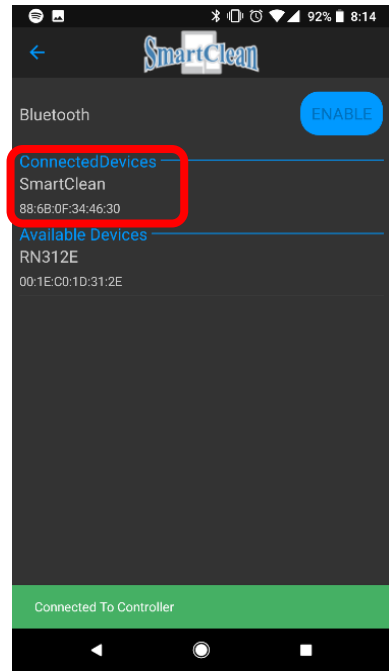
3. If Bluetooth is disabled, ENABLE will have black font. Click ENABLE



4. When Bluetooth is enabled, ENABLE will have grey font and available devices will be listed. Click SmartClean in the list of Available Devices.



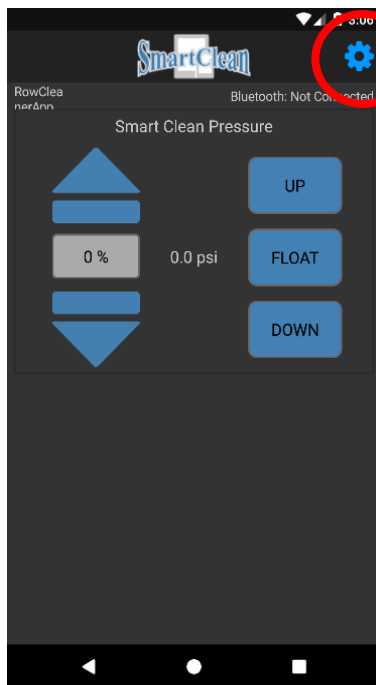
5. A verification prompt will be displayed. Click OK



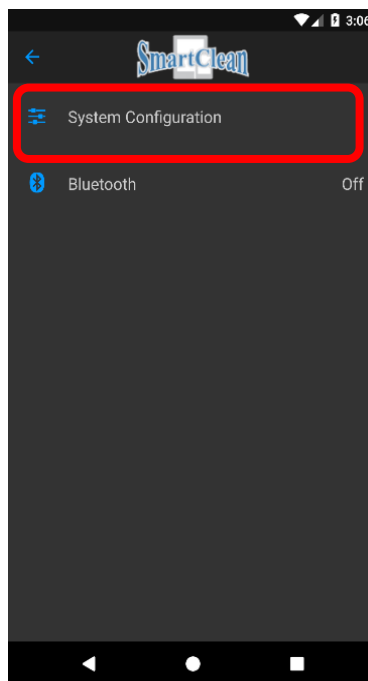
6. After the device is successfully connected, a green Connected To Controller message will be displayed momentarily and the SmartClean device will be in the list of Connected Devices.

6.3 Configure your Martin-Till SmartClean

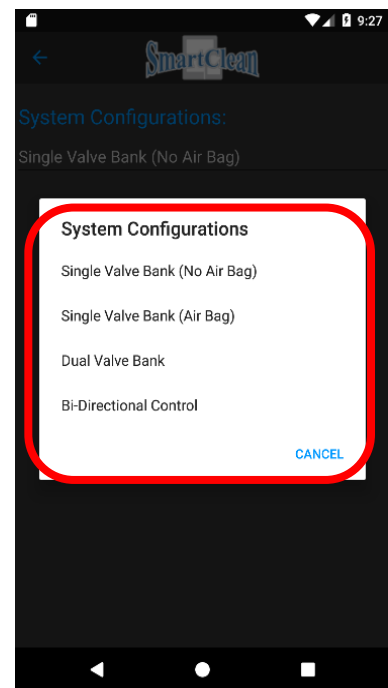
The Martin-Till SmartClean can have several different configurations. The operator must select the proper configuration within the app by launching the Smart Clean V2 app following the instructions below.



1. Click on the gear

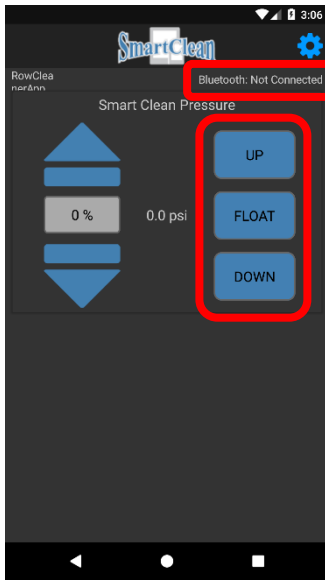


2. Click on System Configuration

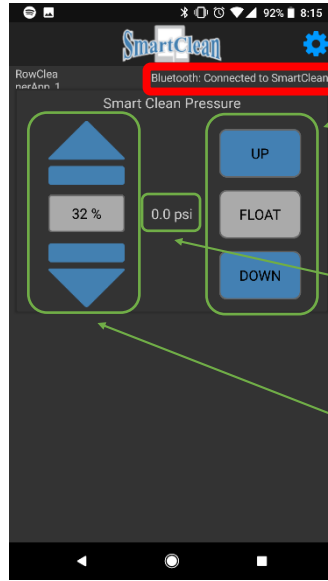


3. Select the appropriate configuration

6.4 Single Valve Bank (No Air Bag)



Not Connected State (Bluetooth: Not Connected and UP/FLOAT/DOWN buttons are all blue)



Connected State

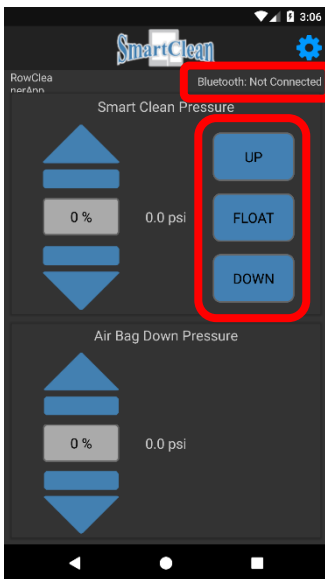
Select the direction pressure is applied.

Actual pressure value.

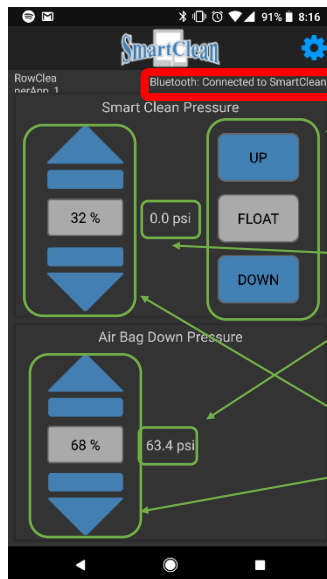
Select the target pressure applied by clicking the up and down buttons, or the actual number to manually enter a value.

6.5 Single Valve Bank (Air Bag)

NOTE: To run this configuration the Part SC-Assembly-2 (2-Valves) must be installed



Not Connected State (Bluetooth: Not Connected and UP/FLOAT/DOWN buttons are all blue)



Connected State

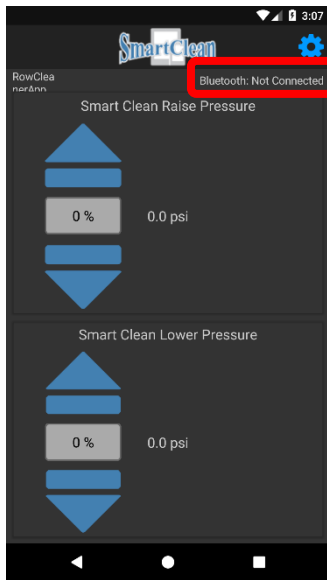
Select the direction pressure is applied.

Actual pressure value.

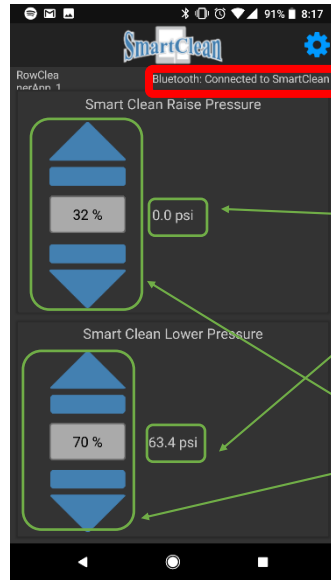
Select the target pressure applied by clicking the up and down buttons, or the actual number to manually enter a value.

6.6 Bi-Directional Control

The bi-directional control configuration requires a 2-valve system (Part No: SC-ASSEMBLY-2). The plumbing box valve connection needs to be reconfigured for bi-directional control as was described in section 4.3.



Not Connected State (Bluetooth: Not Connected)



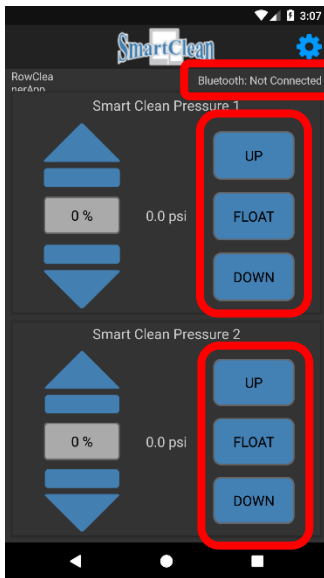
Connected State

Actual pressure value.

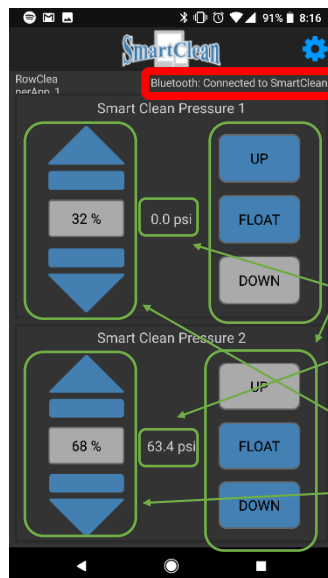
Select the target pressure applied by clicking the up and down buttons, or the actual number to manually enter a value.

6.7 Dual Valve Bank * Not Currently Supported *

The bi-directional control configuration requires a 2-valve system (Part No: SC-ASSEMBLY-2), and is not currently supported.



Not Connected State (Bluetooth: Not Connected and UP/FLOAT/DOWN buttons are all blue)



Connected State

Select the direction pressure is applied.

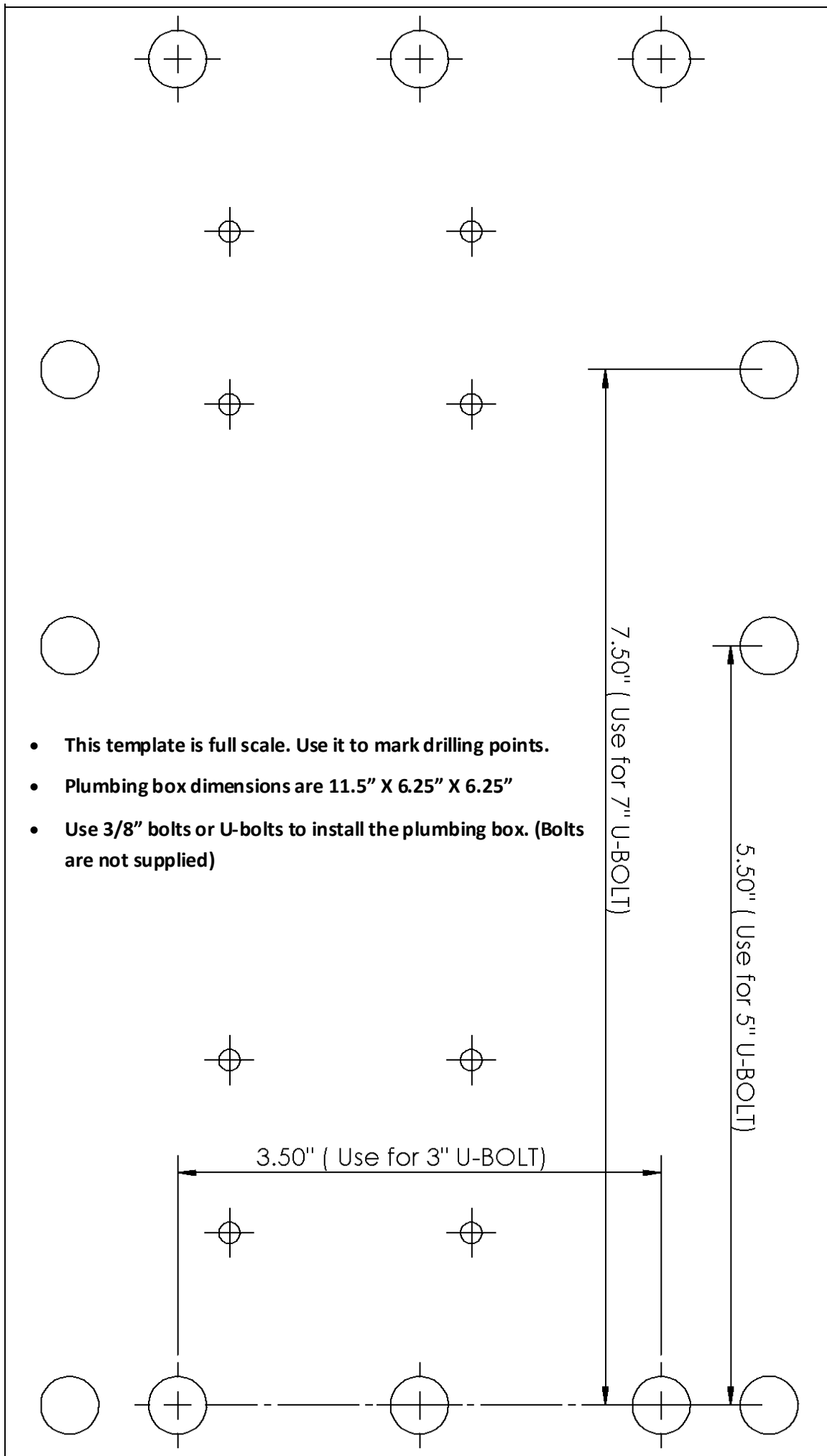
Actual pressure value.

Select the target pressure applied by clicking the up and down buttons, or the actual number to manually enter a value.

7. TROUBLESHOOTING:

Please make sure that your phone's Bluetooth is working. All the buttons in the app get faded or their colors are changed when you touch them. Verify that your phone's touchscreen works properly, and If you use a case or screen protector for your phone, take them off temporarily before troubleshooting.

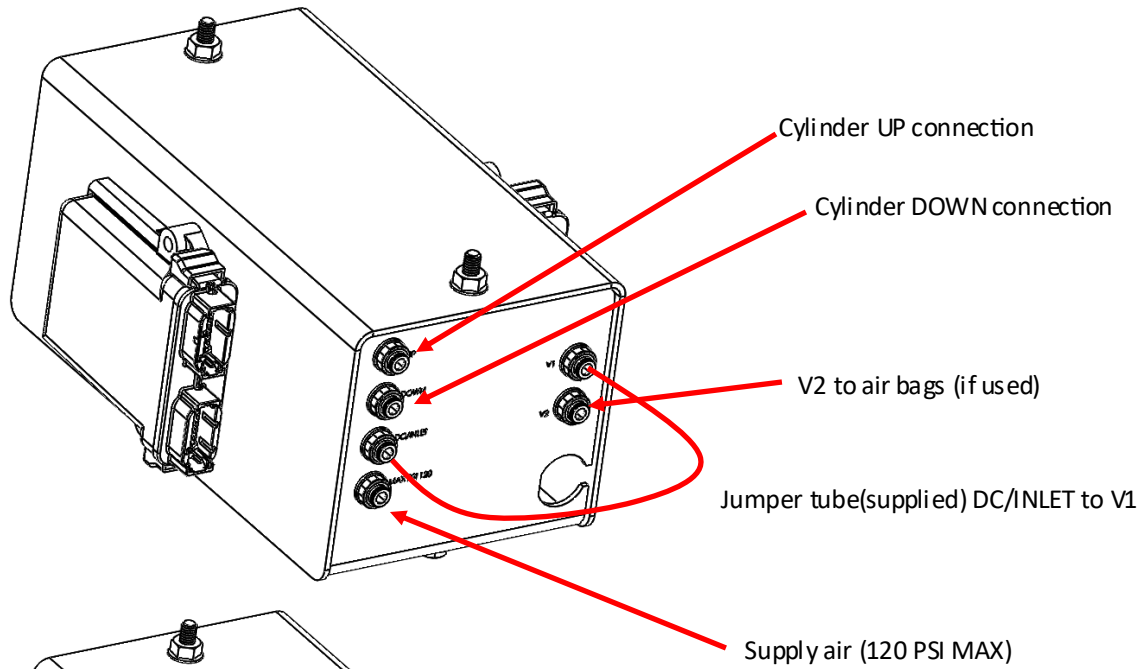
Problem	Solution
The app doesn't find the Smart Clean after searching.	<p>1- check to see if the operating status light on the ORIOLE controller box (JCA00-009001) is on. If the light is off :</p> <ul style="list-style-type: none"> • Disconnect the connector between the power harness and the planters harness and check the voltage at the power harness's end to be 12V. The power harness has an in-line fuse . Check the fuse and your tractor power supply if you don't see any voltage . • If there is voltage at the end of the power harness, then check the polarity of the voltage. Make sure that the red wire is connected to positive and the black wire is connected to negative. <p>2- If the operating status light is on, then reset the circuit by turning off the power supply or disconnecting the connector between the power and planters harnesses.</p> <p>3- Close the app, and reopen it.</p> <p>4- Update your device's Operating System (OS) version to ensure it uses latest Bluetooth drivers.</p>
The app finds the Smart Clean, but it doesn't connect.	This happens when another phone has been paired with the system. Reset the circuit by turning off the power supply or disconnecting the connector between power and planters harnesses to unpair the other phone.
The compressor works continuously and doesn't build up pressure.	Check all the tubing and connections for air leaks .
The compressor works continuously and does build up pressure.	Verify the compressor automatic switch is wired correctly and works properly according to the compressor manufacturer's instruction included with the compressor.
Air is leaking from the directional valve mufflers.	This happens when one or more air cylinders are defective and have internal leaks. To find the defective cylinders, adjust to 100% pressure and select the Down position on the main page of the app. Then test each individual cylinder by unplugging the cylinder's bottom air inlet. If air leaks out from the cylinder bottom air inlet, the cylinder has an internal leak and needs to be replaced.
The "Down" setting lift the row units and the "Up" setting lower them.	It happens In some of the bracket designs, where the stationery end of the cylinder is located under the row cleaner pivot point. Switching the air outlet tubes on the plumbing box will fix the problem.
App doesn't respond and appears frozen.	Check OS version . Smart Clean requires iOS 11 or later or the latest version of Android . Some older device's may not be compatible. Remove phone case to verify it is not prohibiting your touch screen.



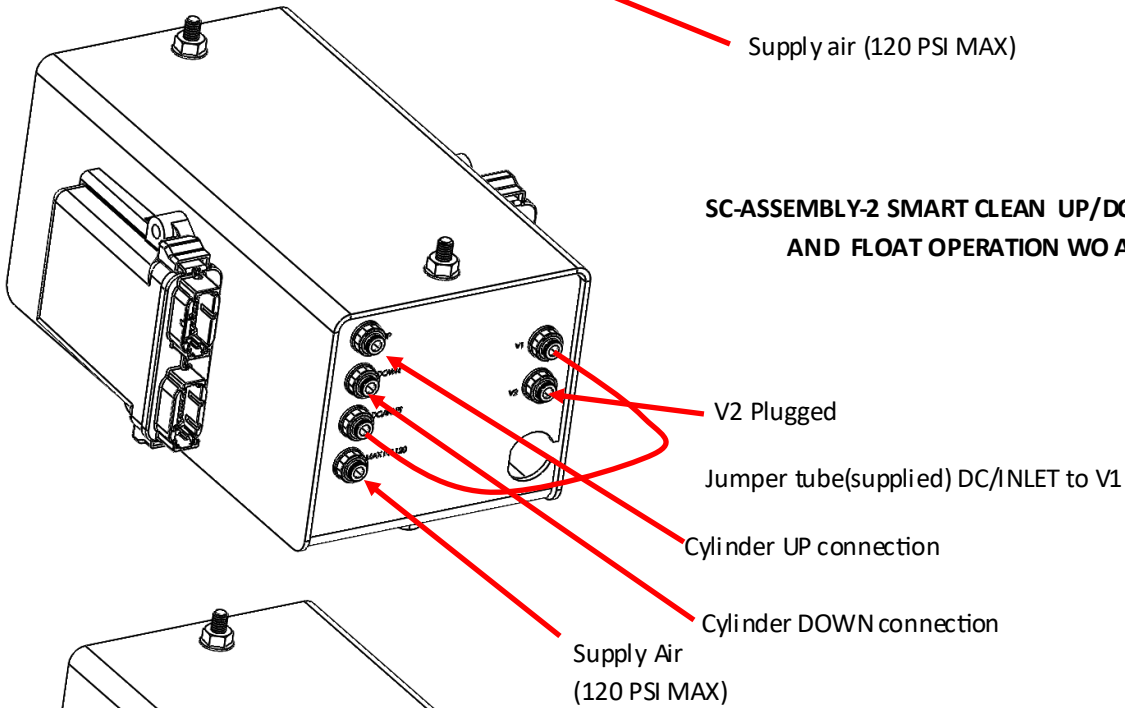
- This template is full scale. Use it to mark drilling points.
- Plumbing box dimensions are 11.5" X 6.25" X 6.25"
- Use 3/8" bolts or U-bolts to install the plumbing box. (Bolts are not supplied)

Installation instruction addendum

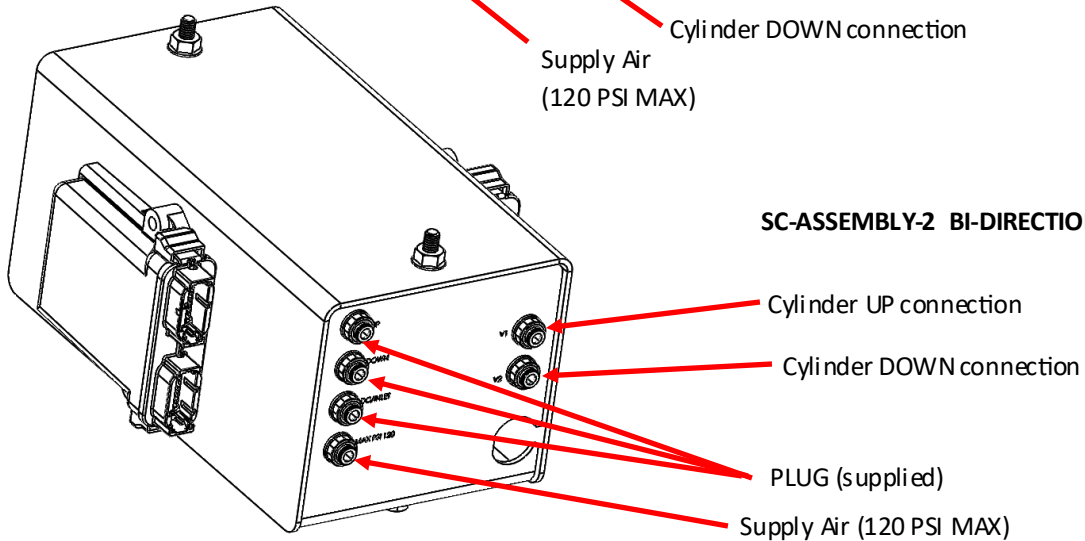
SC-ASSEMBLY-2 SMART CLEAN + AIR BAG CONTROL



SC-ASSEMBLY-2 SMART CLEAN UP/DOWN PRESSURE AND FLOAT OPERATION WO AIR BAGS



SC-ASSEMBLY-2 BI-DIRECTIONAL CONTROL





The most trusted name in no-till
Established 1991

Martin Industries LLC

206 Elk Fork Road

Elkton, KY 42220

Telephone: 270-265-5817

E-Mail: martin@martintill.com