SmartClean
By Martin ™

Installation Instructions

LIST OF CONTENTS:

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)

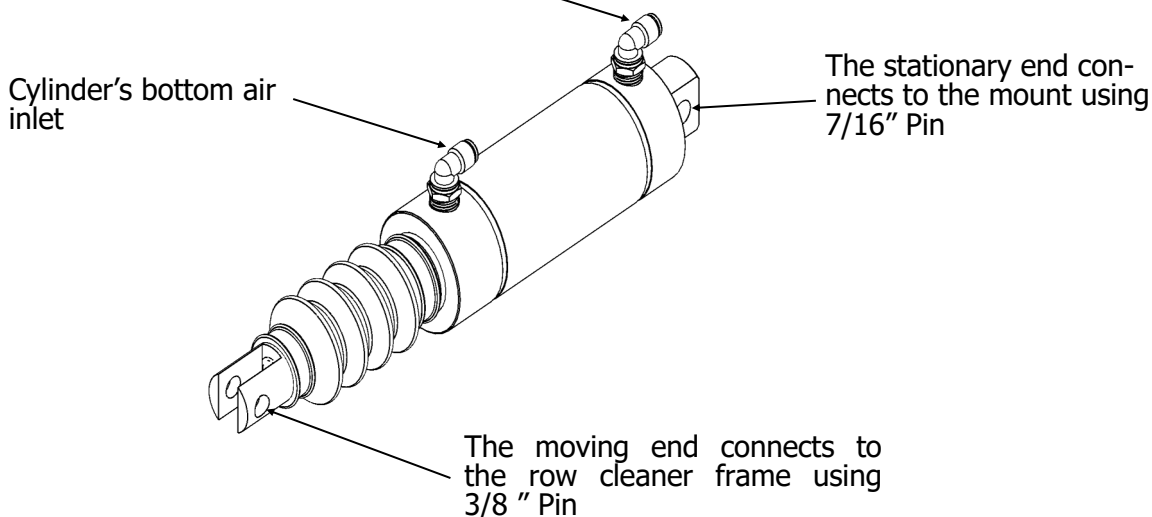5. Planter harness (JCA86-000012)

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 Cylinder's top air specific to the row cleaner's frame model .

Cylinder's bottom air inlet

The stationary end connects to the mount using 7/16" Pin

The moving end connects to the row cleaner frame using 3/8 " Pin

2.1. Smartclean bracket sets for different bundles:
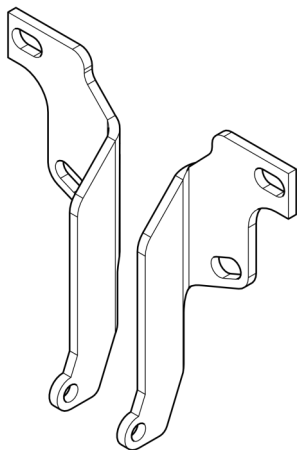
SC-BKW1345
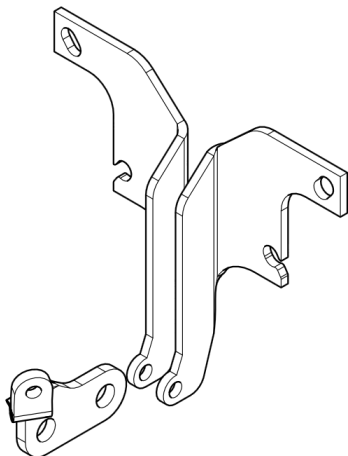
SC-BKW1360

SC-BD1345
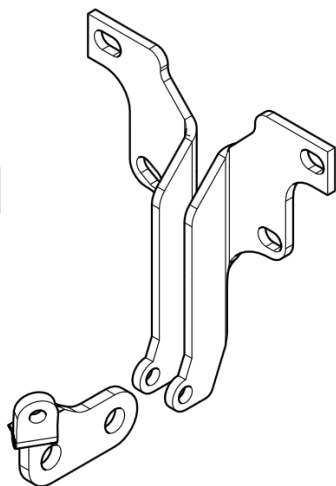
SC-BD1360
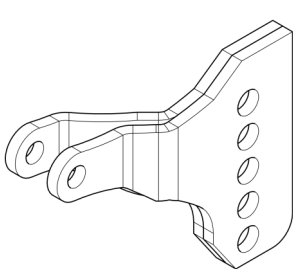
SC-1345-UMOL
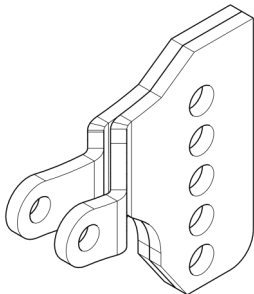
SC-1345-UMOR
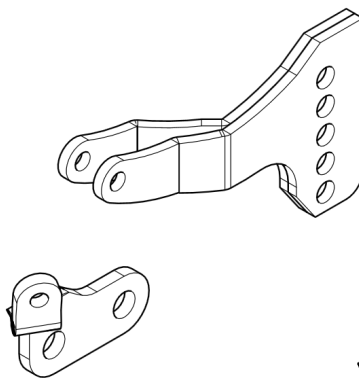
SC-1360-UMOL
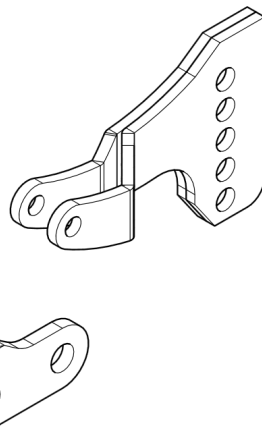
SC-1360-UMOR

2.2. Top bracket installation on row cleaner mount:

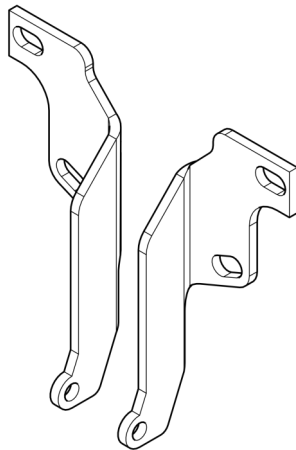The top brackets are installed directly on the mount using the same hole patterns as the row cleaner mount (Left Picture). The UMO top brackets are designed for all single or dual UMO attachments , and are installed as shown in the right picture. They come in right and left sets and are used with their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

SmartClean Bracket Set (SC-CUB-2L)
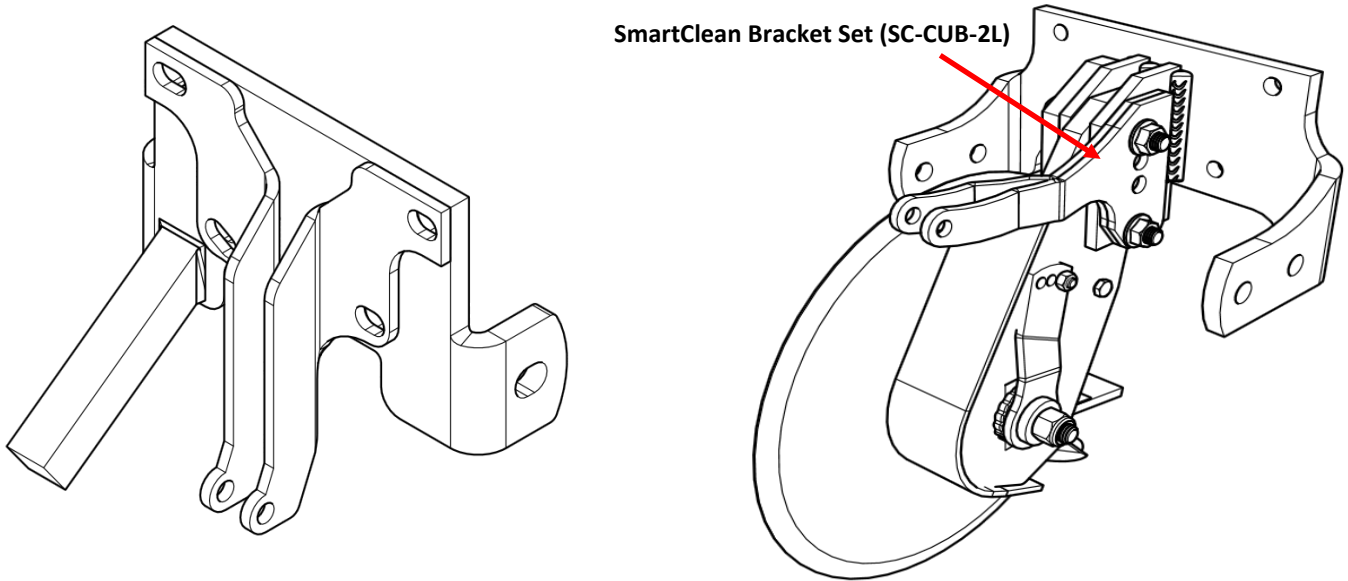
Right UMO-100 and Left SmartClean Cylinder top bracket set are shown

2.3. Bottom bracket installation on row cleaner Frame:

• **WA1345 Frame:**

SmartClean BOTTOM BRACKET (WELDED TO FRAME)
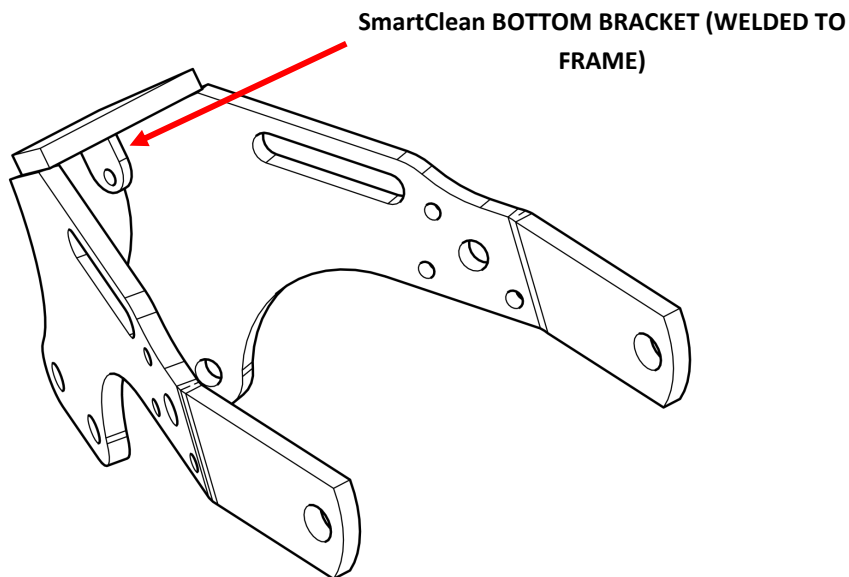
- **WA1360 frame:**

Install the bottom bracket as shown in the picture.

- **Use 5/8" x 2" bolt**

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

5/8" x 1 3/4" FLANGE
PATCH BOLT
(B5F58NC134)

Smartclean Anchor
(SC-1360FR-MT-R)

5/16" NUT and
Washer(N516
&W516)

5/16" x 1 1/4" BOLT AND FLAT
WASHER (B5m516NC114 &W516)

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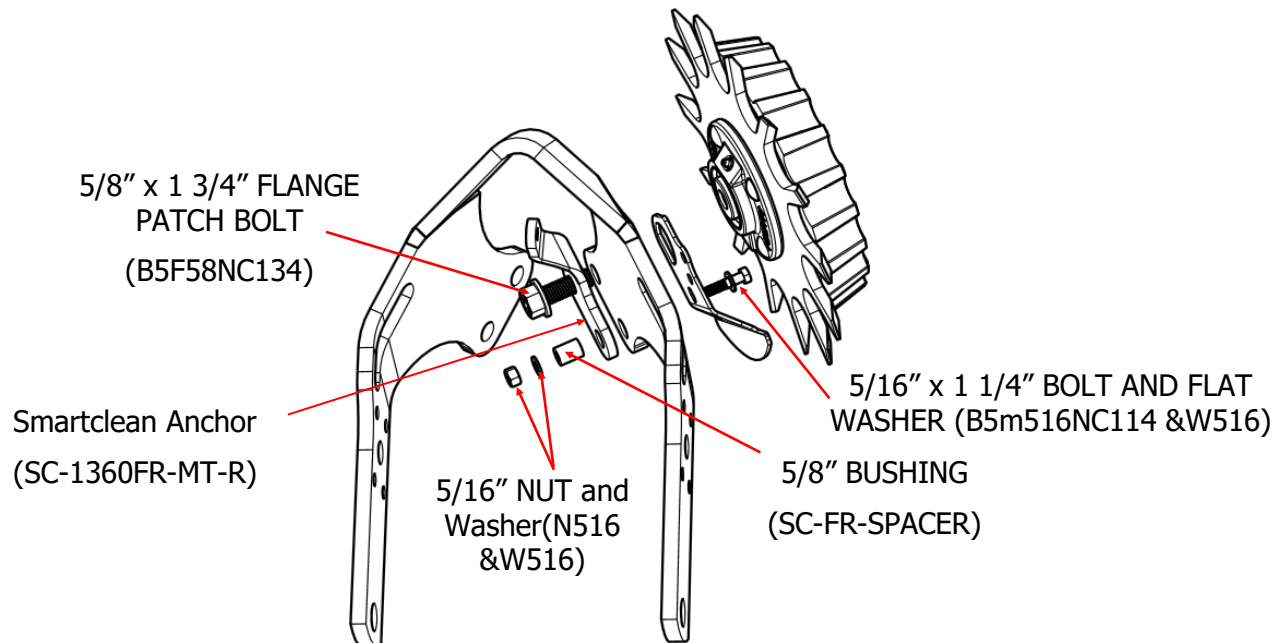
If installing the wheel in rear hole, use 5/16" x 1 1/4 " bolt, two 5/16" flat washers, 5/8" bushing and 5/16" nut (N516CH) in front hole as shown in the below picture to prevent bottom anchor from rotating and use 5/16" x 1/2" bolt and 5/16" nut (N516CH) in the top hole of the D-LOCK DEFLECTOR .

5/8" BUSHING
(SC-FR-SPACER)

5/16" x 1 1/4" BOLT AND FLAT
WASHER(B5m516NC114 &W516)

5/16" NUT &
FLAT WASHER
(N516 &W516)

5/16" NUT
(N516CH)

Smartclean Anchor
(SC-1360FR-MT-R)

5/16" x 1/2" BOLT
(B5m516NC12)

5/8" x 1 3/4" FLANGE
PATCH BOLT
(B5F58NC134)
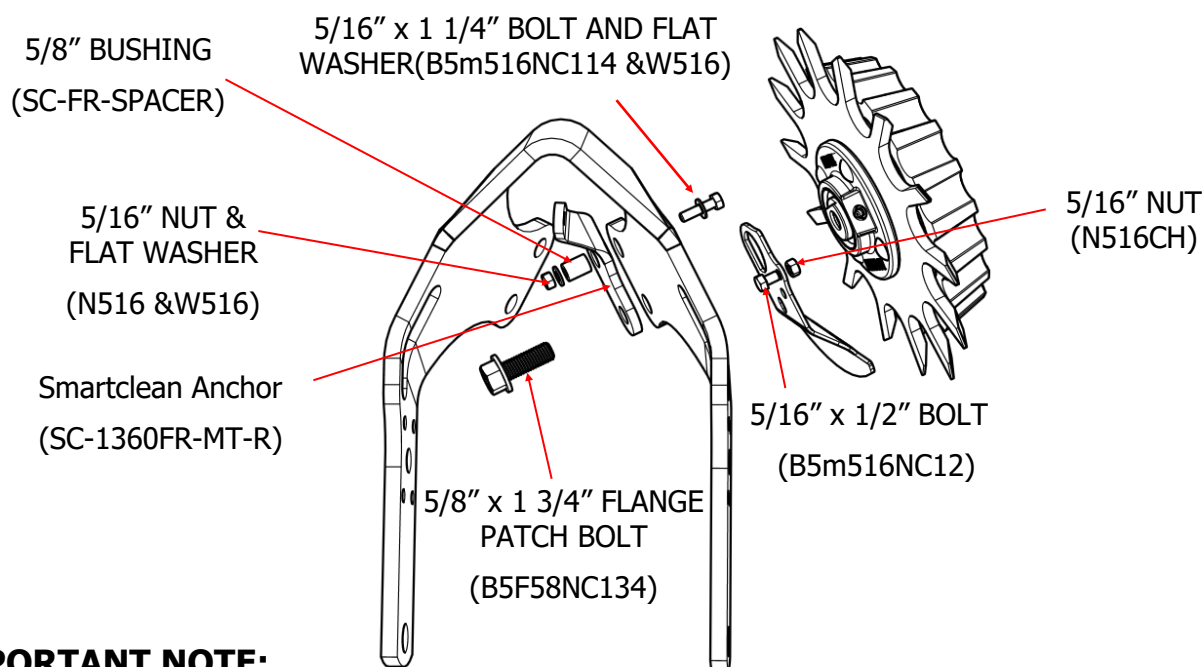
IMPORTANT NOTE:

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 optional airbag 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).

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. 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. We recommend a central location close to the air compressor. Use the template on page 13 for possible mounting hole locations.
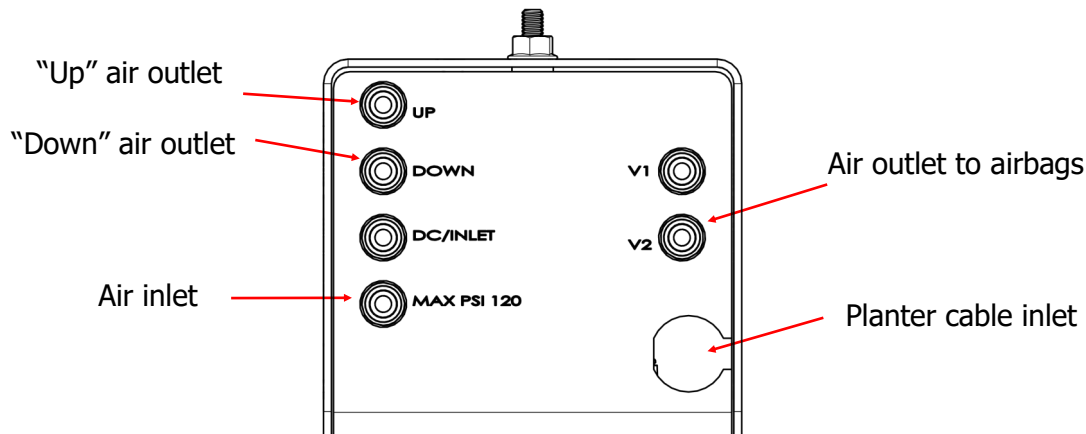

3.3 Configurations

For Row Cleaner Adjust System (900182), connect the line from the pressure regulator to the port -MAX PSI 120, connect the jumper tube (supplied) to the V1 and DC/INLET ports. Connect the Smartclean cylinder UP line to UP port , and the Smartclean cylinder DOWN line to DOWN port. Place orange plug (supplied) in the unused V2 port.

For Row cleaner with Air Bag System (900180), a jumper tube (supplied) must be placed between the V1 port and the DC/ INLET port as shown .The air line to the airbags must be connected to the V2 port. The Smart clean cylinder lines are connected to the UP and DOWN ports respectively.

For Bidirectional Control System (900181), the Smartclean cylinder UP line is connected to V1 port, and the DOWN line is connected to the V2 port. NO JUMPER tube is installed and unused ports are to be plugged off using the supplied port plugs.

Row Cleaner Adjust (900182) and Row Cleaner Plus Airbag (900180)
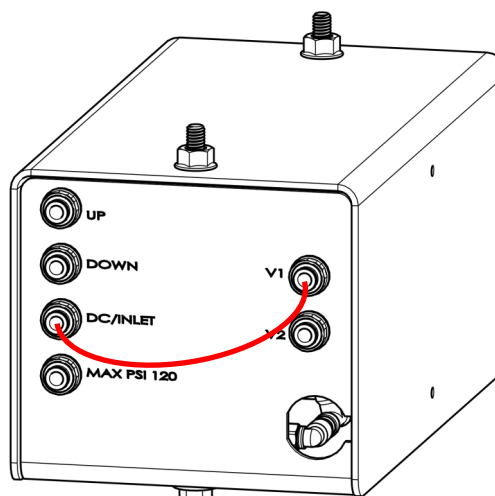
4. TUBING

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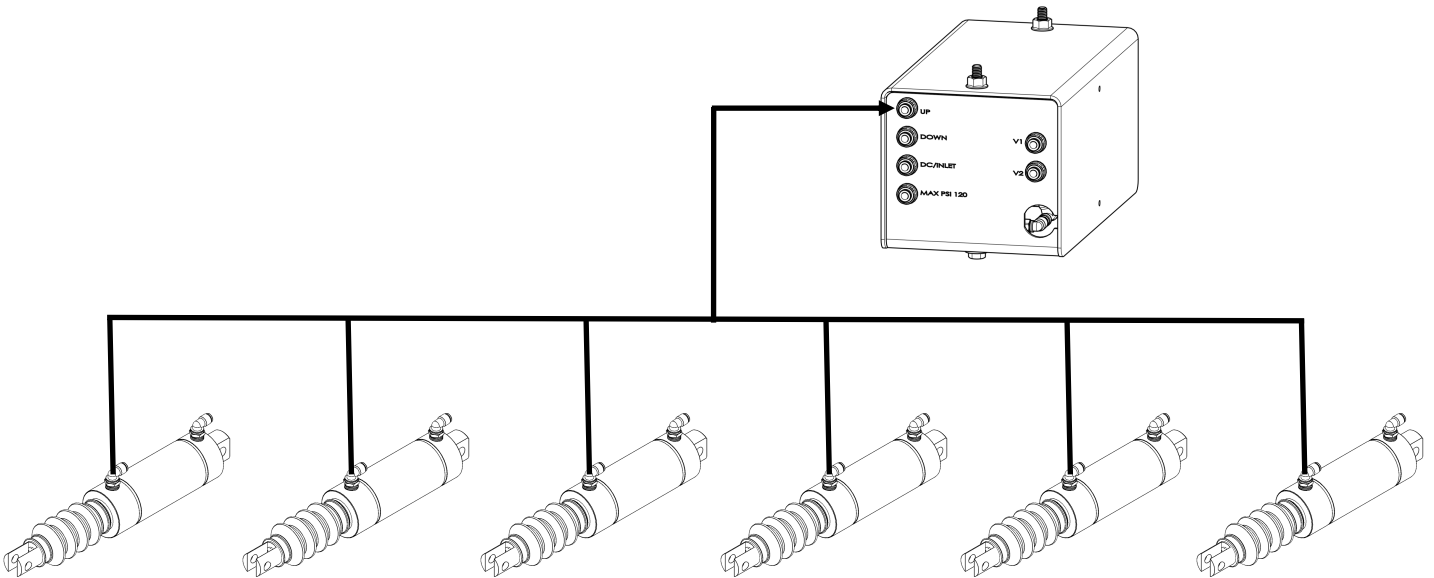
- **Use different colored tubing for the up and down circuits. Connect the box's "Down" air outlet to either the extend or retract end of the cylinder and use the other color for the opposite end.**

- **If your planter is equipped with airbags and you ordered the optional double valve plumbing box with additional airb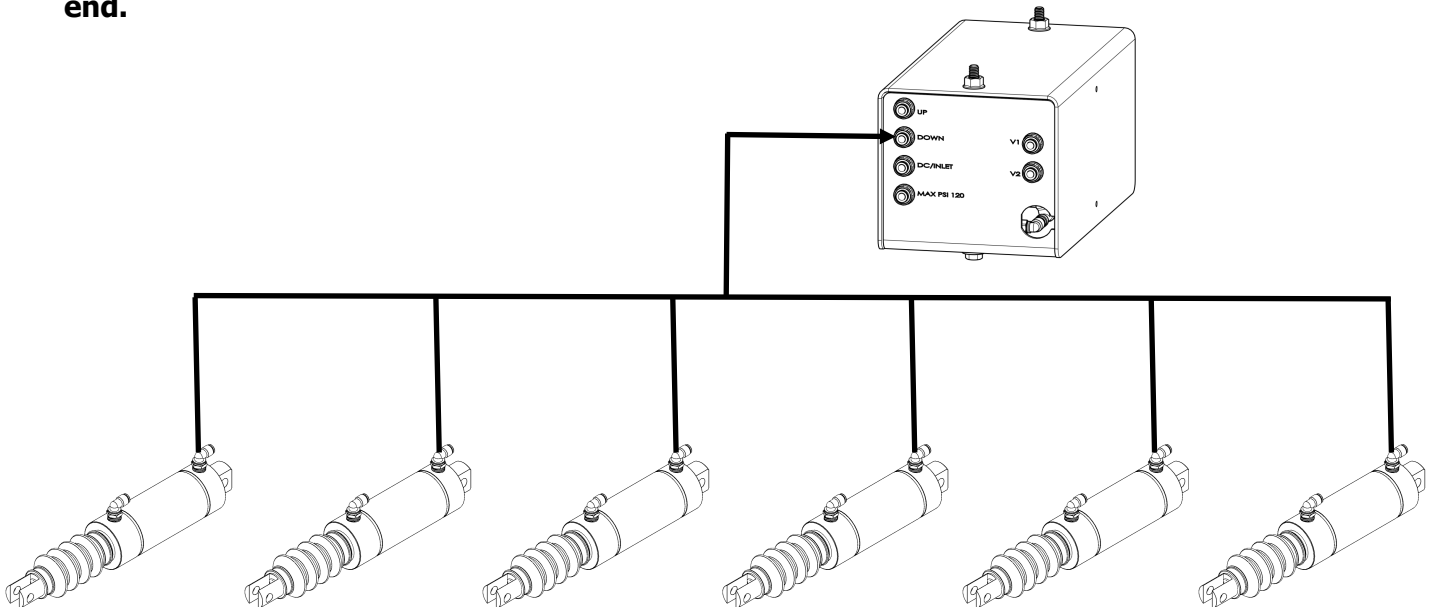ag valve(900180), connect the box's "Airbag" outlet to the airbags circuit using the 1/4" tubing and tee fittings provided.**

- **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.**

Pressure adjustment knob

Pressure gage

Filtered dirt container
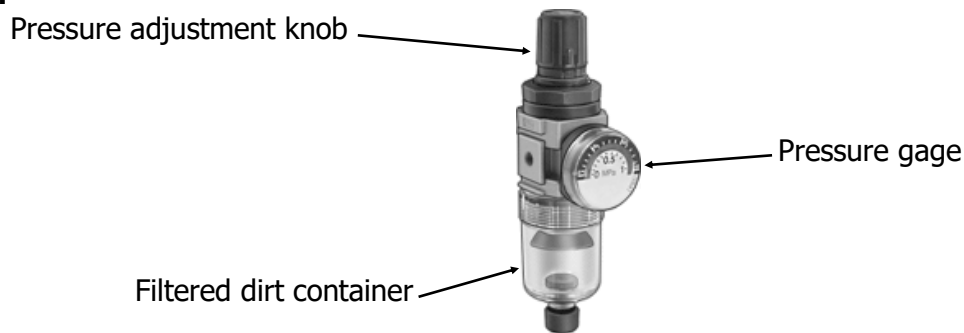
- **Connect the air preparation filter/regulator's outlet port to the air inlet of the control box using the provided black 1/4" tubing.**

- **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.**
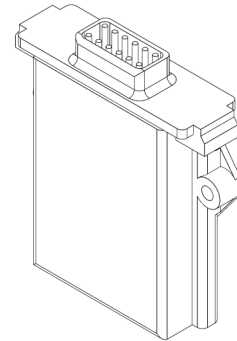
5. WIRING:

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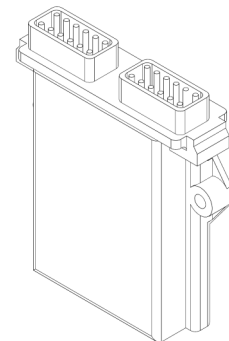
- **Locate the connector labeled "PRES-REG BANK-1" and connect it to the bank-1 pressure regulator in the box. The bank-1 pressure regulator is the one closer to the air inlet and has a tee connection fitting. Secure the connector to the valve using the center bolt provided in the small plastic bag attached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

Bank-1 pressure regulator connector

Tee connection fitting

Air inlet

Optional Bank-2 pressure regulator for planters equipped with airbags
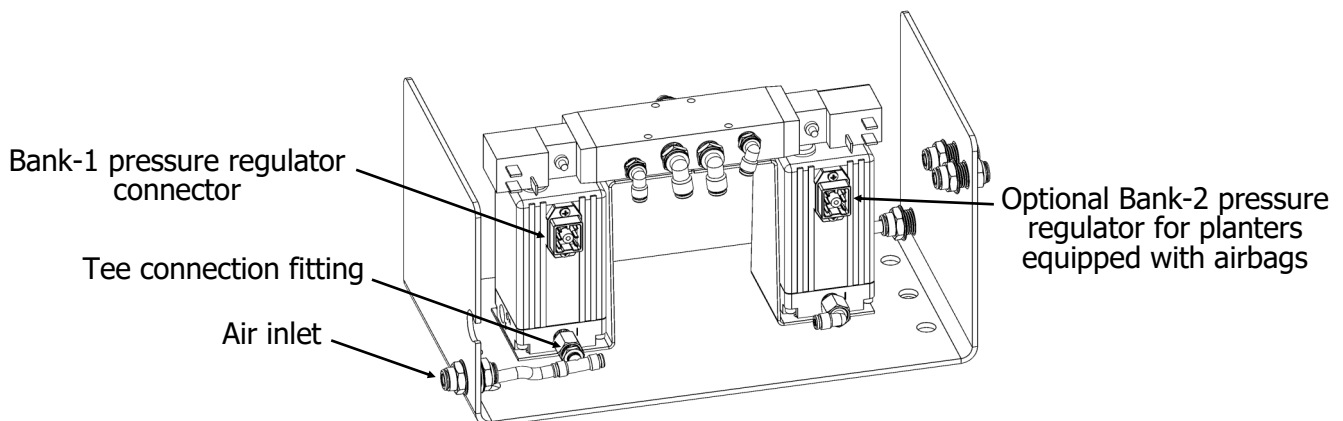
- **If you ordered the optional double valve plumbing box with additional airbag valve(900180), locate the connector labeled "PRES-REG BANK-2" and connect it to the bank-2 pressure regulator in the box. The bank-2 pressure regulator is the one closer to the air outlets and doesn't have a tee connection 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.**

Directional valve

Directional valve extraction connector

Directional valve retraction connector

Tee connection fitting

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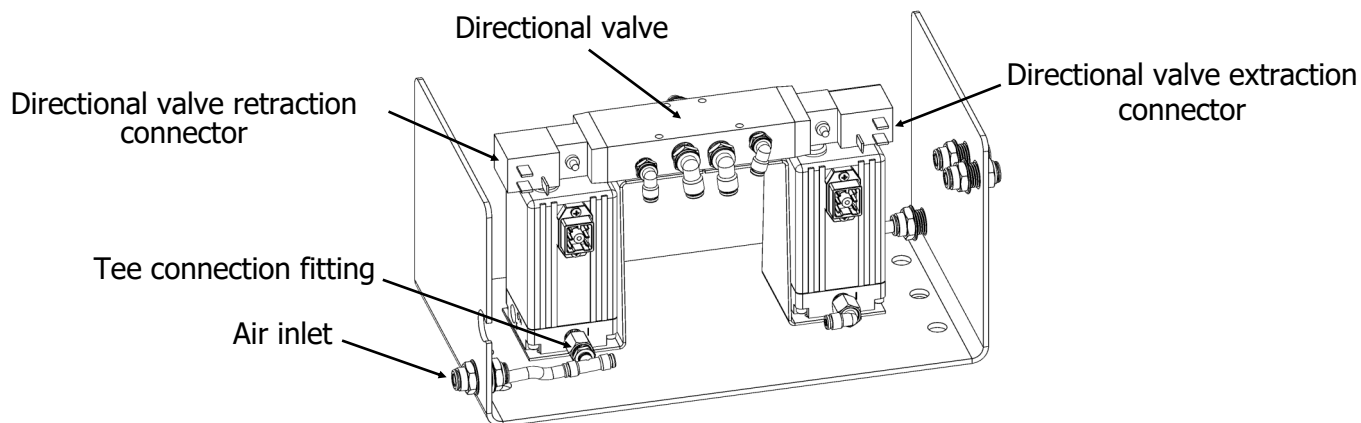
- **Locate the connector labeled "EXT-VLV" and connect it to the extraction side of the directional valve as shown in the picture. Secure the connector to the valve using the center bolt provided in the small plastic bag attached to the planter harness .**

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.
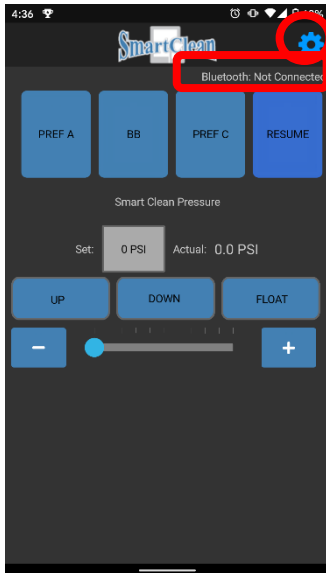
1. Download the App

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**

2. Connect to your Martin-Till SmartClean

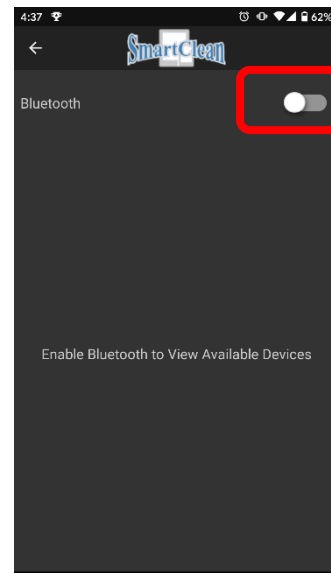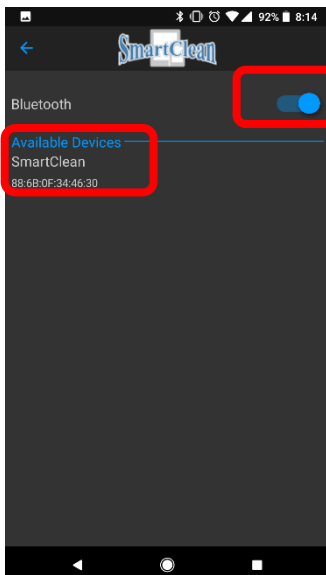Follow the below steps to connect to the Martin-Till SmartClean system.

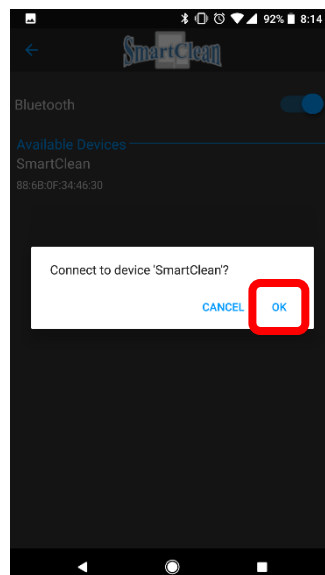*1. Notice the Bluetooth: Not Connected message. Click on the gear*
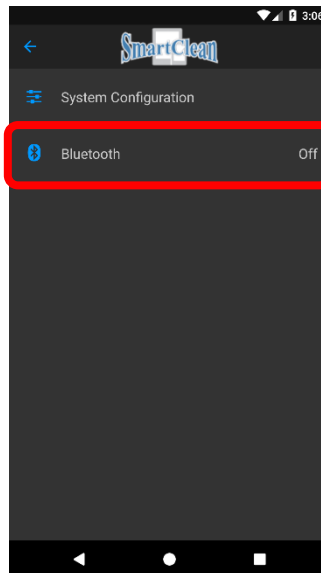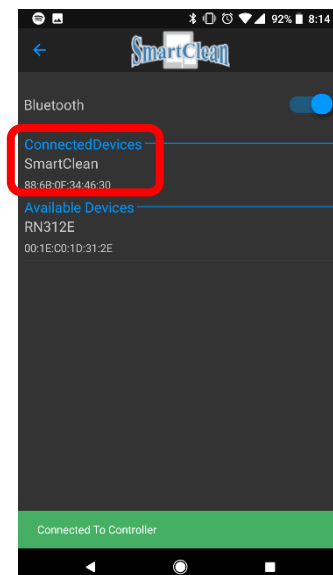

2. Click on the Bluetooth label

3. If Bluetooth is disabled, ENA-BLE 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 dis-played momentarily and the SmartClean device will be in the list of Connected Devices.
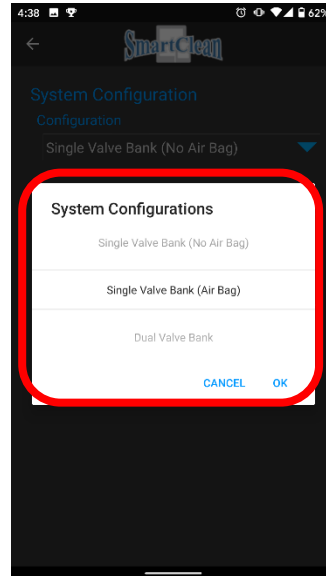
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3. Configure your Martin-Till SmartClean

The Martin-Till SmartClean can have several different configurations. The operator must se-lect the proper configuration within the app by launching the Smart Clean V2 app following the instructions below.
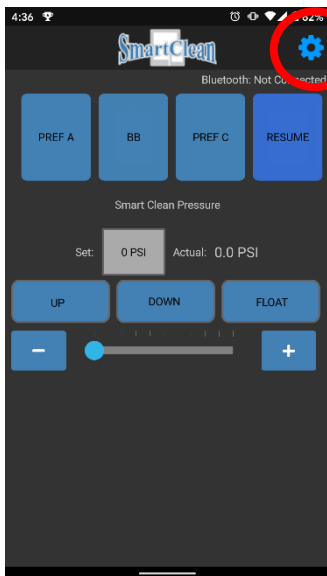
1. Click on the gear
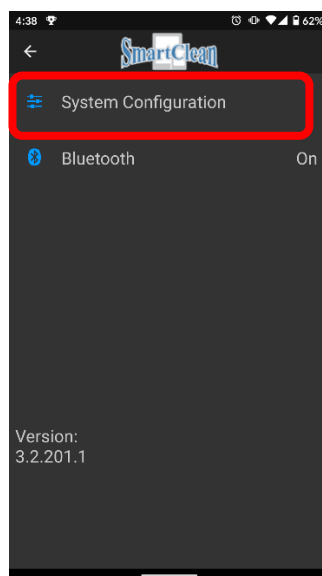
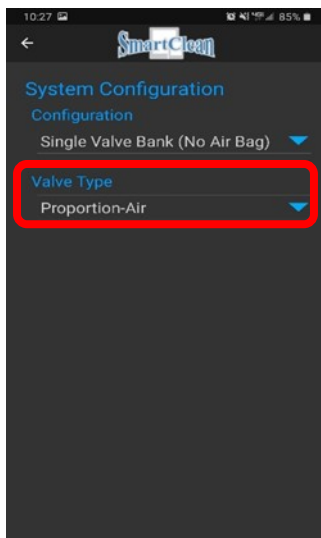*2. Click on System Configuration*

*3. Select the appropriate configuration*

The Martin-Till SmartClean system can be installed in several different configurations. The following sections highlight functionality available in the app for each configuration.

The Smart Clean App also provides compatibility for earlier and current style systems through the new "Valve Type" Setting in System Configurations Menu, follow instructions below.
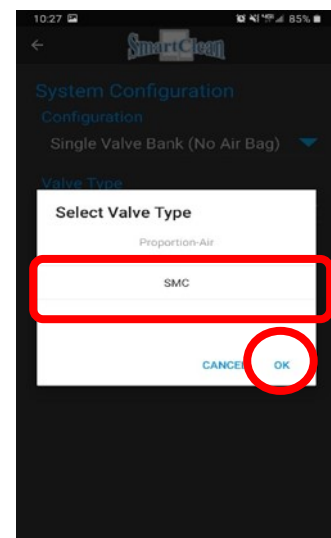
If unsure which valve is needed, compare the Set PSI to the Actual. If the two are approxi-mately 20 psi different, you may need to change the valve type.
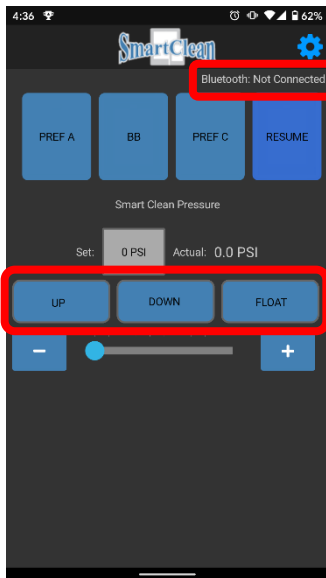

Go to System Configurations Menu
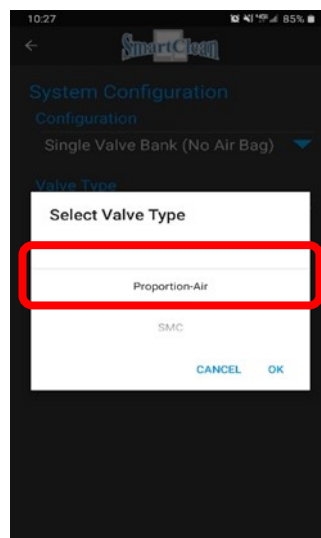
Selecting Proportion Air will make app compatible with Earlier Smart Clean Systems
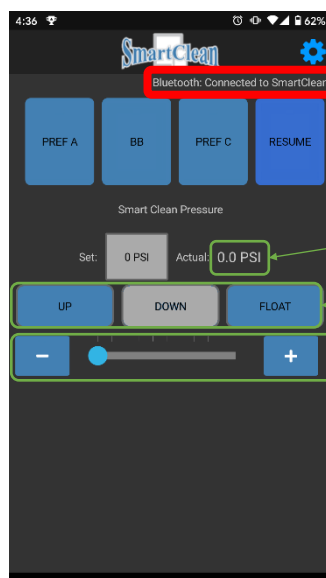

Selecting SMC Valve will make your app compatible for the current Smart Clean Systems

4. Single Valve Bank (No Air Bag) (900182)

Actual pressure value.

Select the direction pressure is applied.

Select the set/target pressure applied by clicking the plus and minus buttons or adjusting the slider.

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

Connected State

5. Single Valve Bank (Air Bag) (900180)

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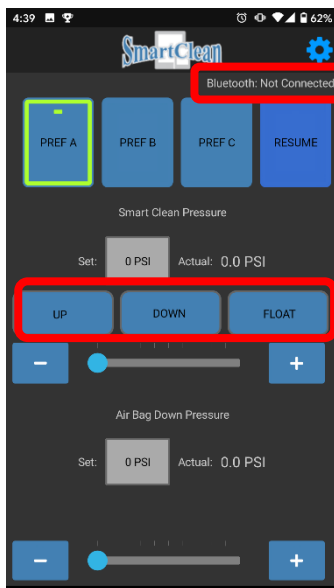

Actual pressure value.

Select the direction pressure is applied.

Select the set/target pressure applied by clicking the plus and minus buttons or adjusting the slider.

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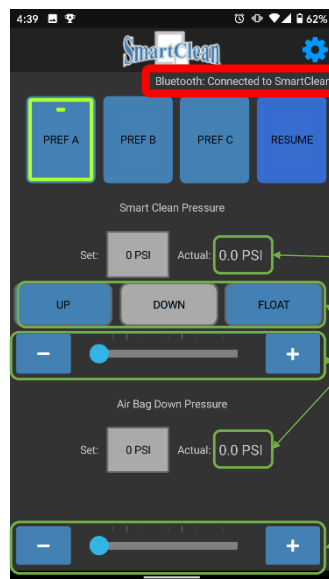
Connected State

6. Bi-Directional Control (900181)

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. Please contact your dealer or call Martin-Till for reconfiguration directions and more information.

Not Connected State (Bluetooth: Not Connected)
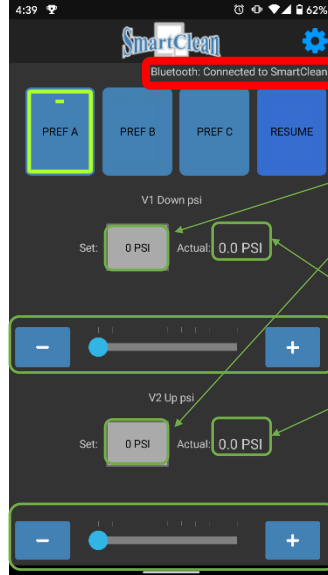
Connected State

Select the set/target pressure by clicking on it and entering a value.

Actual pressure value.

Select the set/target pressure applied by clicking the plus and minus buttons or adjusting the slider.

If this is the first time using the system and the actual pressure is not responding to target pressure adjustments, change the System Configuration to single valve, select UP direction, and then change the System Configuration back to Bi-Directional Control.

7. Dual Valve Bank * Not Currently Supported * (900183)

The dual valve bank 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 set/target pressure by clicking on it and entering a value.

Actual pressure value.

Select the direction pressure is applied.

Select the set/target pressure applied by clicking the plus and minus buttons or adjusting the slider.

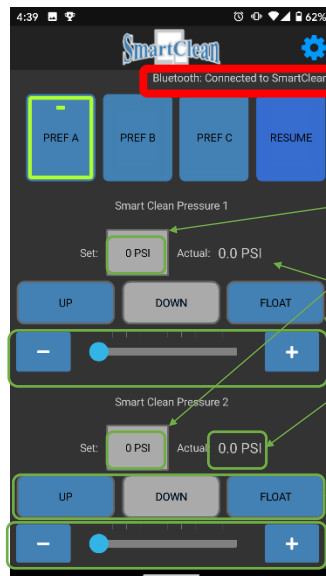## 8. Saved States / Presets and Resume

The application can store up to three saved states using preset buttons, which are by default named PREF A, PREF B and PREF C but can be given meaningful names. The saved states are configuration specific (single valve bank, bi-directional control, etc.) and are used to quickly change between commonly used SmartClean states.

1. Adjust the pressure(s) and position to the desired set/target values.
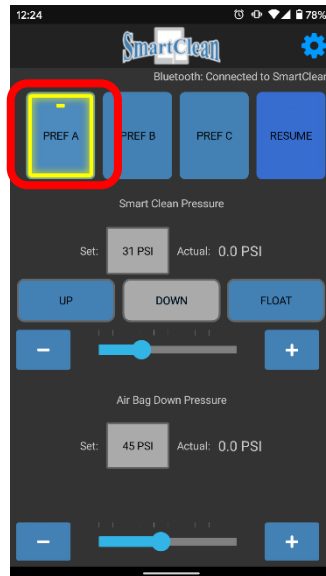
2. Press and hold one of the three preset buttons.
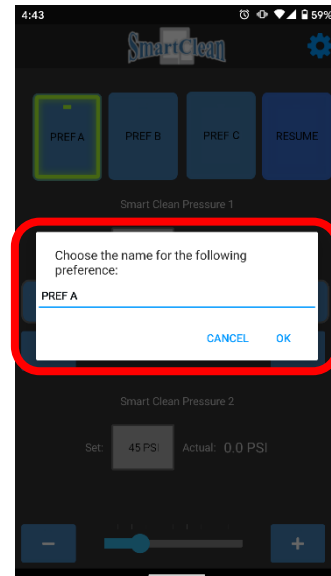
3. When prompted, name the saved state and click OK.

4. Notice the button for the updated saved state is highlighted, indicating the current SmartClean state and the saved state are equal.

The RESUME button is used to restore the previous SmartClean state, that has been stable for at least two seconds. This includes pressure(s) and position(s). It is used to toggle between two states.

For example, if the SmartClean system was targeting 31 PSI DOWN for a couple of minutes and then was manually adjusted to 50 PSI DOWN by using the slider or +/- buttons, as long as the operator made the change quickly and didn't stay at any of the intermediate pressures for more than two seconds, then when the operator pressed RESUME the 31 PSI DOWN state would be restored.
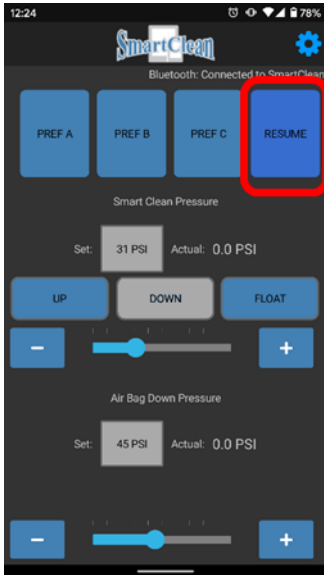
7. TROUBLESHOOTING:

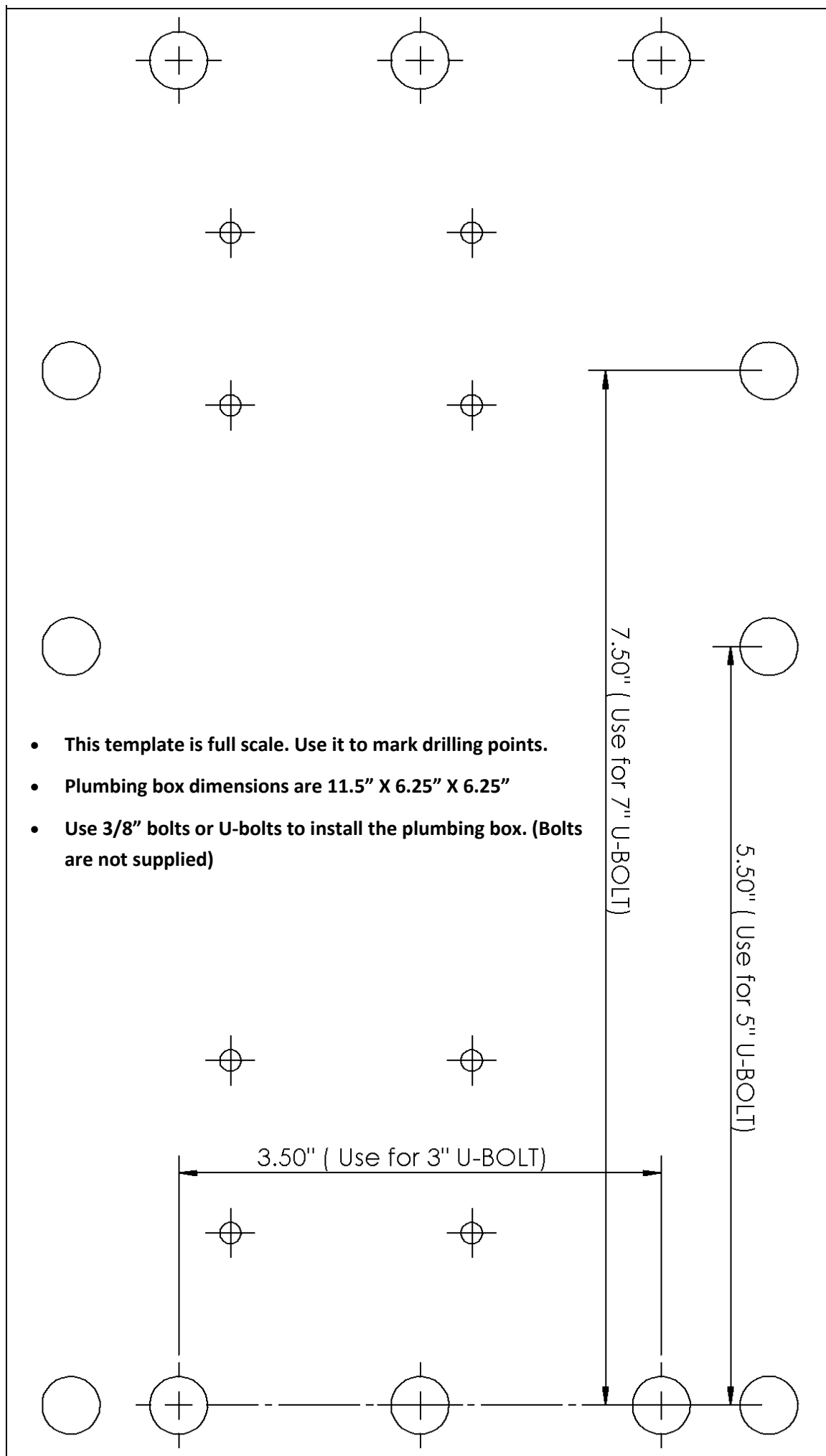*Please make sure that your phone's Bluetooth is working. All the buttons in the app get faded or their colors are changed when you touch them. Verify that your phone's touchscreen works properly, and If you use a case or screen protector for your phone, take them off temporarily before troubleshooting.*

Problem	Solution
The app doesn't find the Smart Clean after searching.	1– check to see if the operating status light on the ORIOLE controller box (JCA00-009001) is on. If the light is off : • 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. 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. 3– Close the app, and reopen it. 4– Update your device's Operating System (OS) version to ensure it uses latest Bluetooth drivers.
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 10 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)**

7.50" (Use for 7" U-BOLT)

5.50" (Use for 5" U-BOLT)

3.50" (Use for 3" U-BOLT)

Martin-Till

The most trusted name in no-till
Established 1991

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