



Soiling Resource Assessment Kit

Assembly Instructions

Assembly instructions for SRA Kit w/ ARES CS5 and Wash Extension V4



Revision A








Release date: September 3, 2024

1.0 Introduction

The soiling resource assessment (SRA) kit is a structure intended for installing ARES soiling monitoring hardware in green fields during origination and pre-construction phases. This is the most accurate way to estimate future soiling loss in a particular location. Fracsun's SRA kit comes pre-assembled in 2 separate boxes. The final assembly instructions and other adjustment information is covered in this document.

2.0 Tools required

In addition to the tools required to install ARES and Wash Extension, the following tools are required to assemble the SRA Kit:

Electric impact driver	5mm hex bit	5/16" hex impact driver	Socket wrench	7/16" hex deep socket driver	5mm hex key	Mallet
						

3.0 Box contents and parts

The SRA kit is most often shipped in two boxes, not including the ARES box:

- Wash Extension box with SRA [25" x 19" x 25", 45 lbs)
- SRA Tube [48" x 5" x 5", 10 lbs)

3.1 Wash Extension box with SRA contents

- (1) Wash Extension
- (1) SRA base (already assembled)
- (4) SRA snow shoes
- (1) SRA hardware kit with the following contents:
 - (8) Hex screw 1/4"-20 x 1/2"L
 - (8) Fender washer 1/4" ID
 - (8) Split-lock washer 1/4" ID
 - (2) Unistrut clamp for 3/4" pipe

3.2 SRA Tube contents

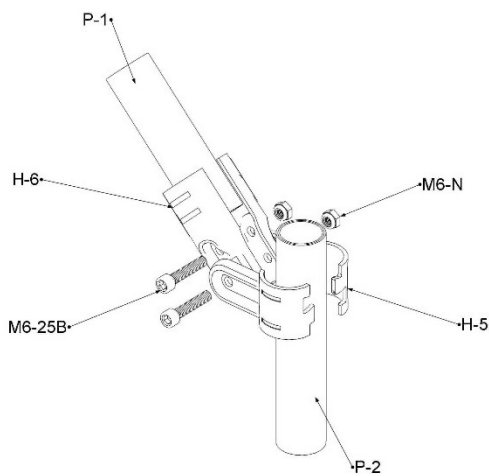
- (2) 24" channel strut
- (1) 45" primary pole
- (2) 39" diagonal poles with clamps
- (1) 12" horizontal pole
- (8) 12" ground spikes

4.0 Key component descriptions

The following key components are critical to the SRA kit. Understanding how these components are put together are important to the structural integrity of the SRA.

4.1 Pivot tee pipe clamp

The SRA kit has 4 pivot tee pipe clamps that attach the diagonal poles to the SRA base and SRA primary pole. The pivot tees are pre-installed on the diagonal poles prior to boxing. The (2) non-locking joint pieces are secured tightly diagonal poles and do not need to be loosened prior to installation. The (2) locking joint pieces are connected for packing purposes but loose.



When installing the pivot tee pipe clamp on the SRA base and SRA primary pole, you will do the following:

1. Remove the (2) locking joint pieces (noted as H5 in the drawing above)
2. Install the joint pieces around the pole you are attaching it to, verifying that they are locked together.
3. Insert the M6-25B machine screw and M6-N captive nut through the open holes on the H-5 and H-6 joint pieces. Hand tighten them.
4. Align the clamp so that the primary pole is vertically plumb.
5. Using an impact driver with 5mm hex bit, tighten at a medium level.
6. Ensure the clamp cannot shift back and forth or move around.



4.2 Unistrut pipe clamp

The SRA kit has (2) Unistrut pipe clamps which allows you to secure the provided shallow Unistrut channel to the structural pipe.

It's important that the pipe clamp is installed correctly, so please follow note the following instructions:

1. Position the Unistrut channel against the pipe where you want it secured.
2. Place the Unistrut pipe clamp around the pipe and align it with the holes in the Unistrut.
3. Insert the bolts through the clamp and into the Unistrut channel slots or holes.
4. Tighten the bolts using a socket driver (preferred) or wrench until the Unistrut is securely fastened to the pipe.
5. Check the alignment and make any final adjustments as needed.



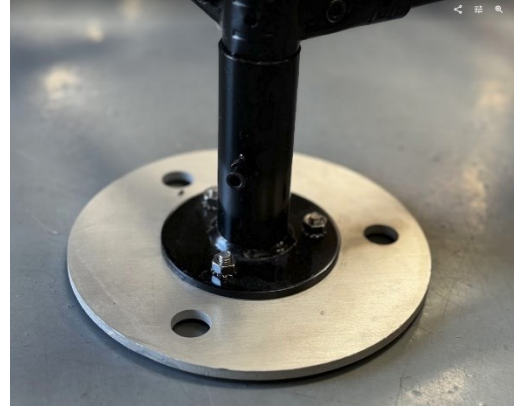
5.0 Assembly Instructions

The following instructions should be followed in this order. Refer to the key component descriptions in section 4 for additional information on how to use these components.

5.1 Snow shoes and base

Attach the (4) snow shoes to the bottom of the SRA base poles.

- If you've been provided snow shoes that have a **shorter** stanchion mount, use the provided self-tapping screws to secure them to the SRA base poles.
- If you've been provided snow shoes that have a **longer** stanchion mount (pictured), tighten the set screw with an allen key.



5.2 Install the primary pole

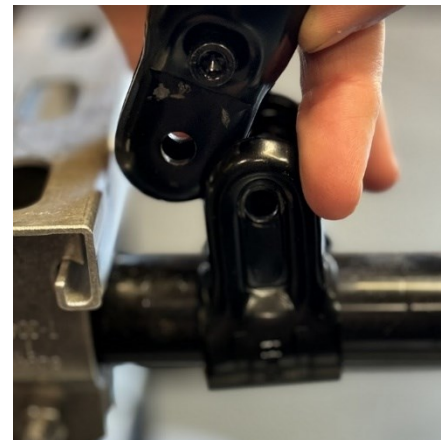
The primary pole has a metal coupling on one end to connect the base and primary poles together. Push down on the primary pole until the metal coupler is hidden and the two poles are flush with each other.



5.3 Install the (2) diagonal poles

The diagonal poles are installed between the SRA base and primary poles. These poles provided stability to the SRA structure.

1. Position the diagonal poles at the designated locations on the SRA primary pole, per the SRA kit assembly drawing.
2. Attach one end of each diagonal pole to the SRA primary pole using the provided pivot tee clamps in the hardware kit. Fasten and secure the pivot tee clamps per the instructions in section 4.1.
 - a. At this point, the diagonal poles should be hanging off the primary pole.
3. Position the bottom end of the diagonal pole to the SRA base, per the SRA kit assembly drawing.
4. Secure the other end of the diagonal poles to the SRA base using the pivot tee clamps, ensuring they are firmly in place.



5. Vertically plump the primary pole by carefully shifting the diagonal poles along the SRA base upper horizontal poles.
6. Tighten the pivot tee's machine screws using an impact driver and 5mm bit to lock them into place.

5.4 Install the top horizontal pole

1. Place the 12" horizontal pole on top of the primary pole using the standard tee clamp.
2. Using an impact driver with 5mm hex bit, tighten at a medium level.

If necessary, install a self-tapping screw in the small hole of the tee clamp to lock the horizontal bar from spinning during high wind events.



5.5 ARES installation

Prepare ARES by installing the 24" shallow Unistrut channels to the rear left and right sides of ARES.

Use the following components from the SRA Hardware Kit:

- (4) 1/4"-20 x 1/2" L machine screws
- (4) split-lock washer 1/4" ID
- (4) fender washer 1/4" ID

Install each set of machine screw, split-lock washer, and fender washer to corners of the ARES mounting points (1/4"-20 inserts). Tighten the screws at approximately 10 in-lbs. Ensure the split-lock washers have compressed flat.



5.6 Install ARES on top horizontal pole

Using the (2) Unistrut 3/4" pipe clamps, secure the ARES (w/ shallow Unistrut channel) to the horizontal pole.

5.6.1 ARES tilt angle

If adjusting the tilt angle of ARES now, use an inclinometer or similar tool to measure the angle on the ARES top cover. When the desired angle has been reached, tighten the pipe clamps using a 7/16" socket driver or wrench.

Keep tightening the pipe clamps until the ARES tilt can no longer be adjusted by hand.

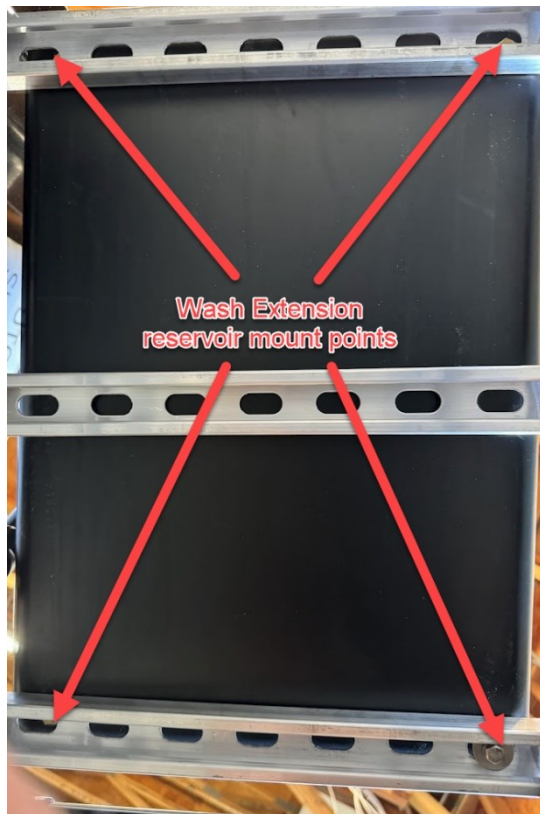


5.7 Install the Wash Extension on the SRA Base

The Wash Extension reservoir has (4) 1/4"-20 brass inserts on the bottom surface. Use the following components from the SRA Hardware Kit:

- (4) 1/4"-20 x 1/2" L machine screws
- (4) split-lock washer 1/4" ID
- (4) fender washer 1/4" ID

Install each set of machine screw, split-lock washer, and fender washer to bottom corners of the Wash Extension reservoir mounting points (1/4"-20 brass inserts). Tighten the screws at approximately 10 in-lbs. Ensure the split-lock washers have compressed flat.



5.8 Install ground spikes through SRA shoes

Each SRA shoe has 3 holes to place a ground spike through. A 12" ground spike is provided, but longer lengths can be added to increase stability, especially in softer soil conditions or in areas with high wind loads.

Ensure that the ground spikes are driven in fully and evenly to secure the assembly. For extra stability, consider using longer spikes or reinforcing with additional anchoring techniques if the soil is particularly loose or unstable.

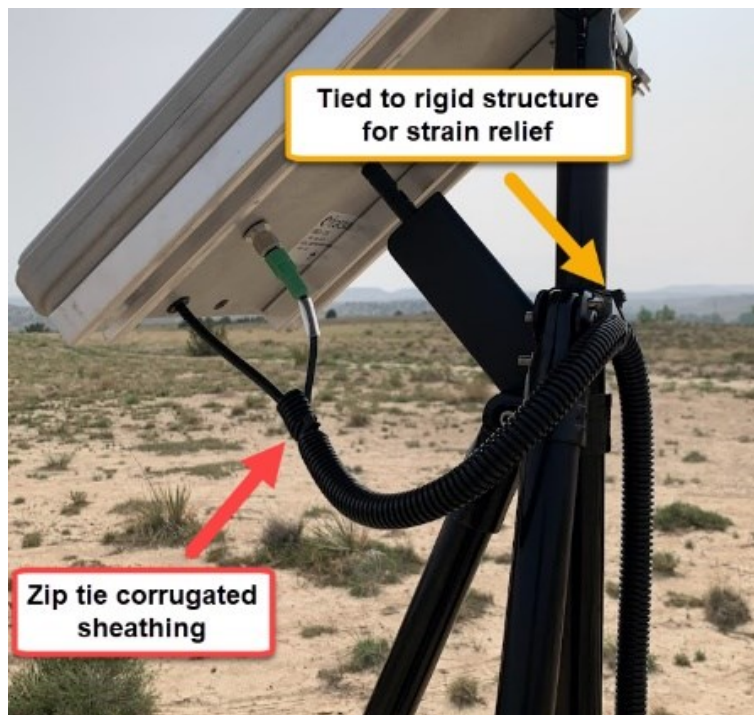
5.9 Follow ARES and Wash Extension Installation Guide

The SRA structure is now assembled, but now it's time to connect ARES and Wash Extension and turn them on to start communicating and sending data.

For this step, follow the ARES CS5 Installation Manual, available on the [FracSun Documentation](#) page.

5.10 Cable management

- Add zip ties to both ends of the corrugated sheathing – near the ARES and Wash Extension connections – approximately 3-5" from the connectors.
- Add strain relief to the corrugated sheathing near the ARES side. Coil the corrugated sheathing in 1-3 loops and attach to the SRA structure using zip ties.
- Do not allow the corrugated sheathing to lay directly on the ground, as weed abatement tools could cut the tube or cable.
- In environments with grazing sheep or other animals, consider adding a small fence around the Wash Extension so the animals don't knock it over.



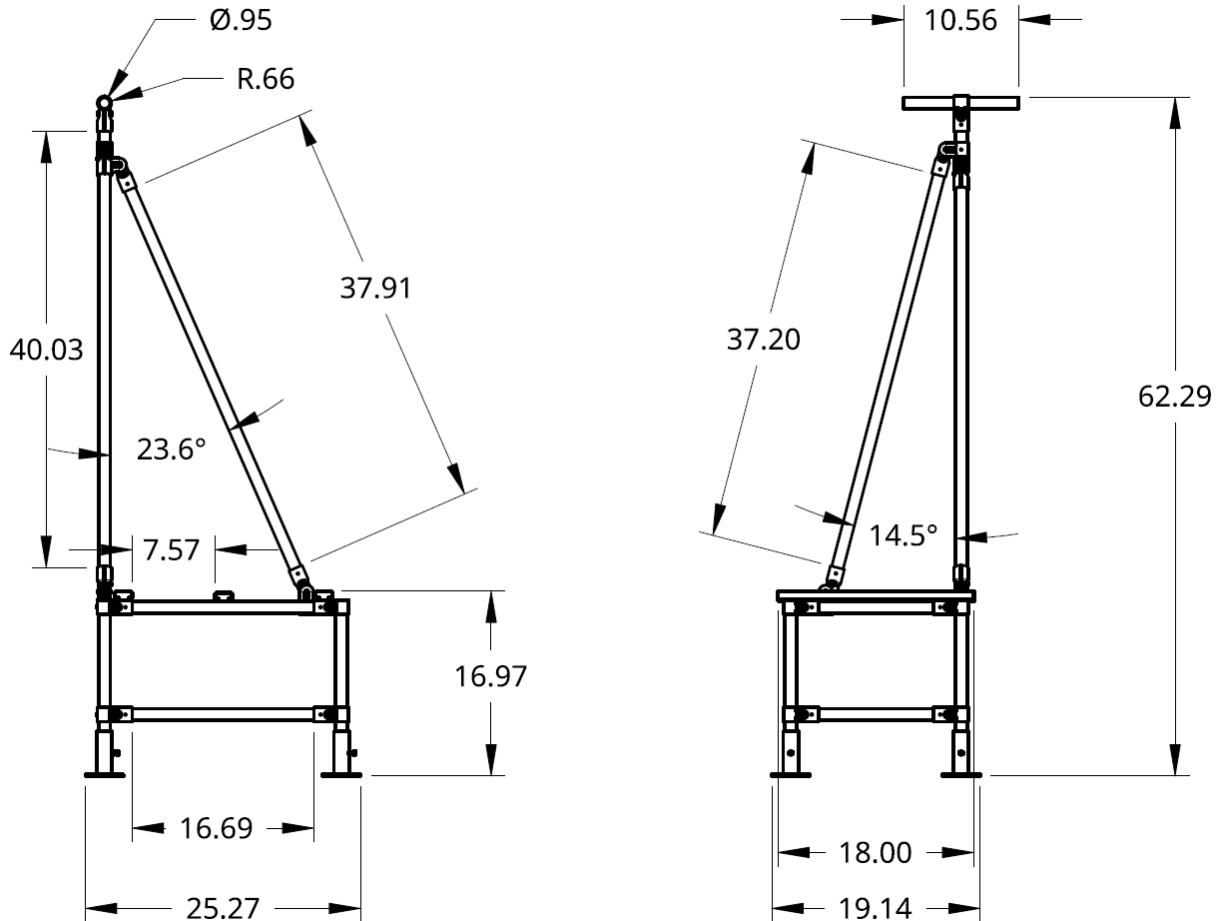
5.11 Final Tightening and Alignment

Go over all connections and ensure that all screws, clamps, and bolts are securely tightened.

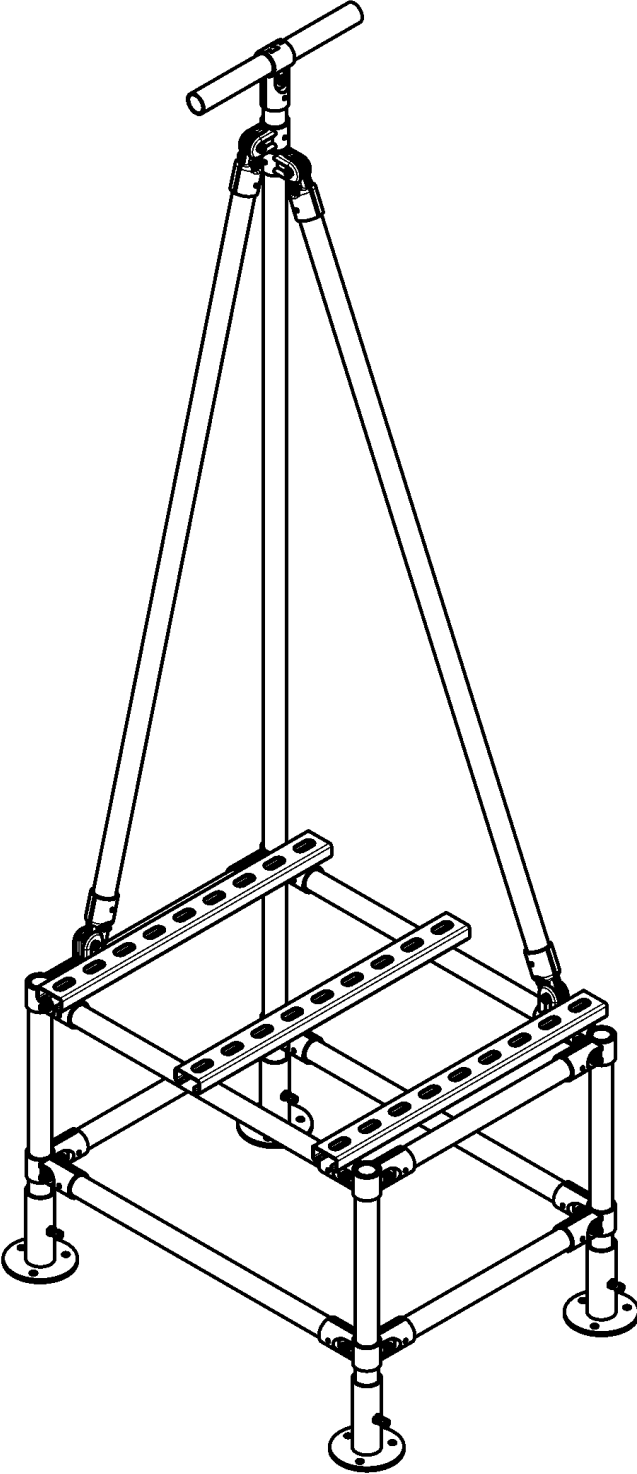
Ensure that the assembly is level and stable. Make any necessary adjustments to achieve proper alignment.

6.0 SRA Kit Drawing

6.1 Dimensions



6.2 Isometric





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