

AZS Rinse Conveyor A Users Guide

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Agricultural Engineering

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THE UNIVERSITY OF VERMONT

EXTENSION

**Agricultural
ENGINEERING**



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This guide is the result of conversations with
several current farmers using the rinse conveyor.
Their contributions are greatly appreciated.



Overview of Components



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STAGE 3

Low Pressure Final Spray
(Plastic Hose with Plastic Nozzles)

STAGE 2

High- Pressure Spinning Spray Bars
(Stainless Pipe with Metal Nozzles)

STAGE 1

Low-Pressure High-Volume
Rinse
(White PVC pipe with drilled holes)

Product Out

Control
Panel

Product In

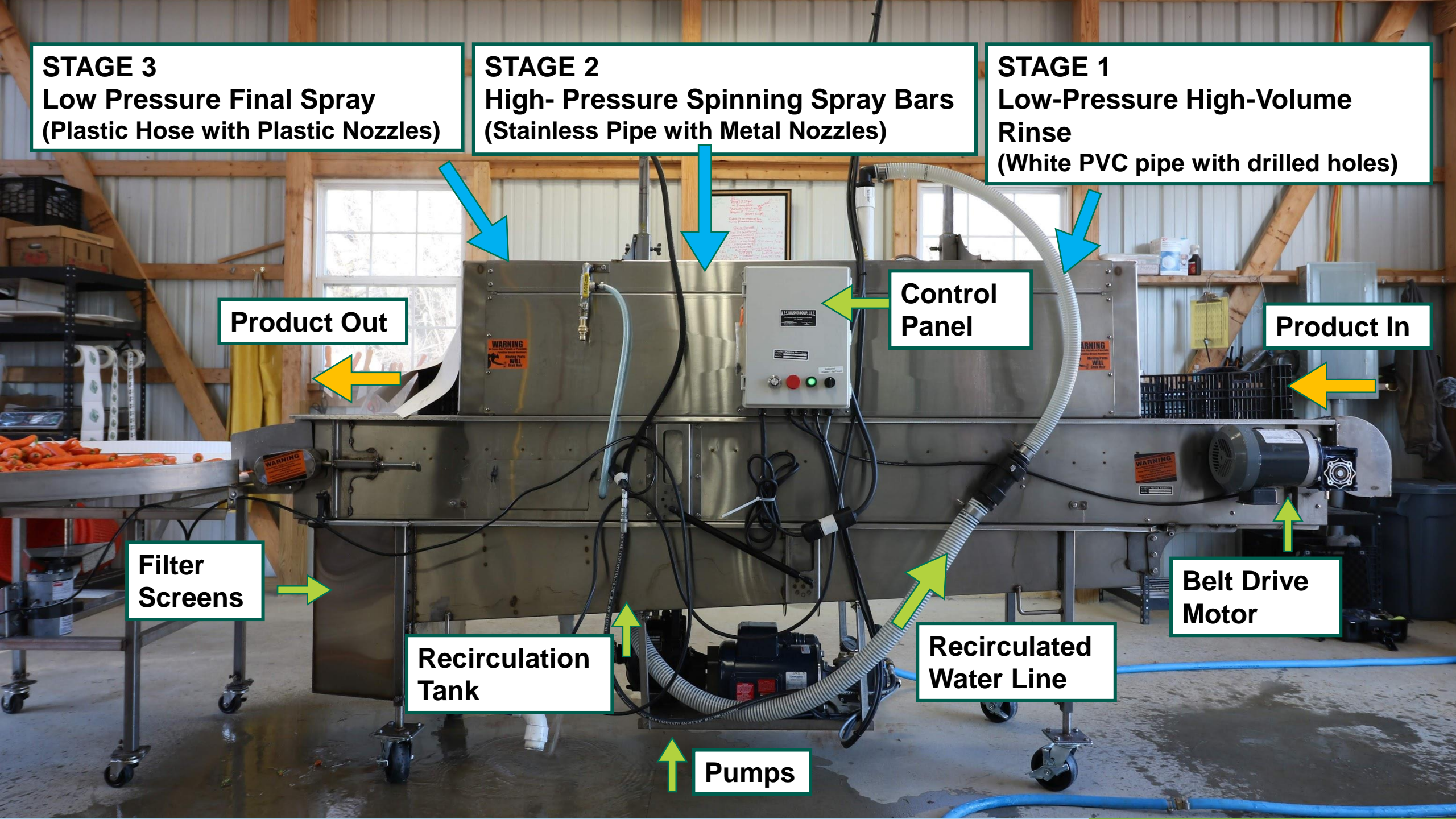
Filter
Screens

Recirculation
Tank

Pumps

Recirculated
Water Line

Belt Drive
Motor



RUBBER STRAP LATCH

WARNING
Keep Hands, Fingers & Clothing Away
From All Moving Parts.
Keep Children Away While Machine
Is Running.
Keep All Guards & Shields In Place.
Stop Machine While Servicing.

Rubber straps secure the top portion
down during operation, movement or
storage

**OPENS UP FOR
CLEANING**





**RUBBER STRAP
LATCH**
one each side

**RUBBER STRAP
CATCH**
one each side

**PNEUMATIC
CYLINDERS**
for opening the
top

ROLL OFF BRUSH

OUTLET



**CRATE SHELF
(Accessory)**

INLET





INLET

The image shows a large industrial machine, likely a shredder or grinder, with a blue motor and a metal mesh screen. The machine is mounted on a metal frame. A green arrow points to a removable pan at the bottom right. The background is a white corrugated metal wall.

REMOVEABLE PAN



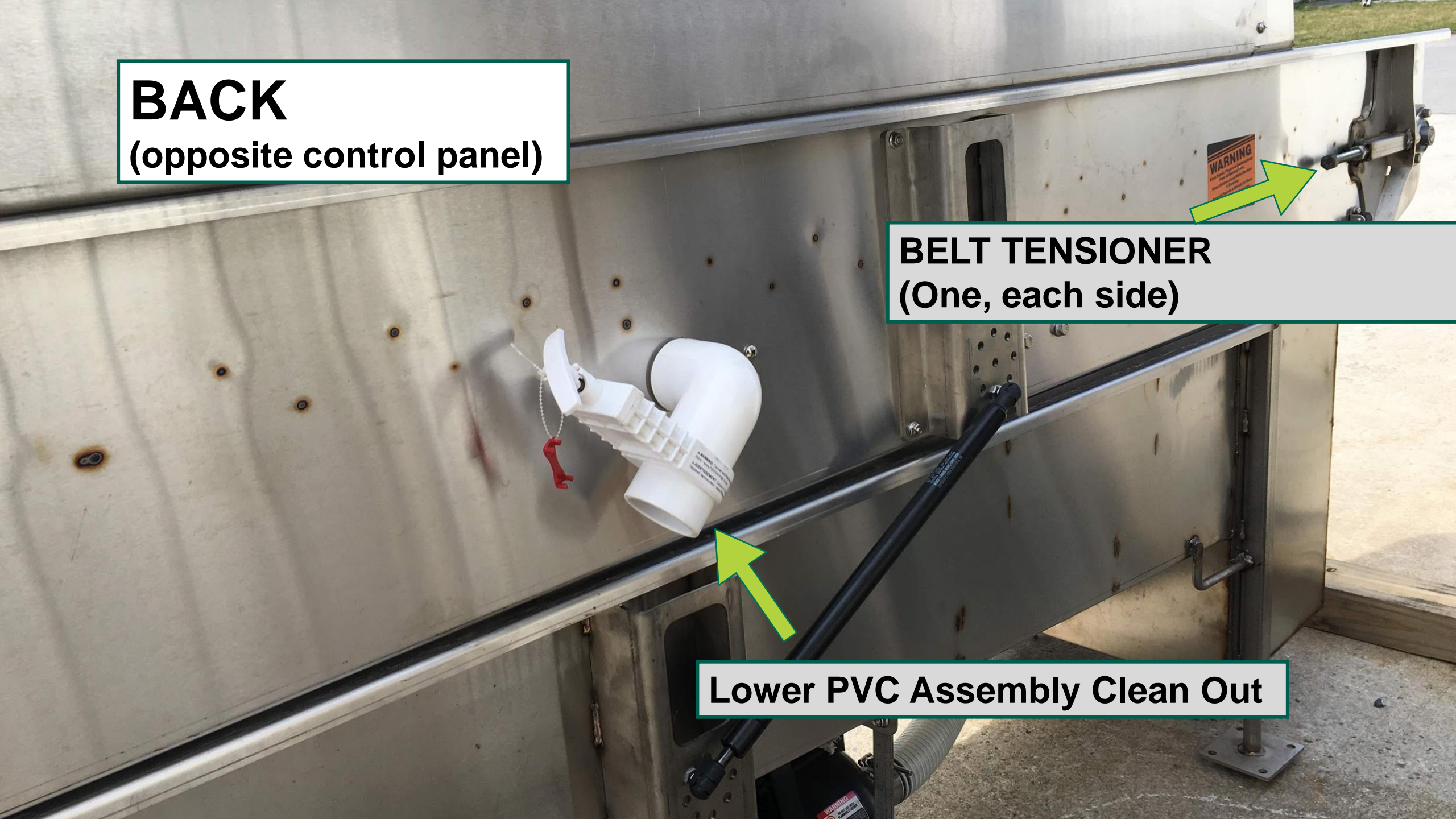
REMOVEABLE PAN

Directs water into the tank or permits mud to the ground when removed

BACK
(opposite control panel)

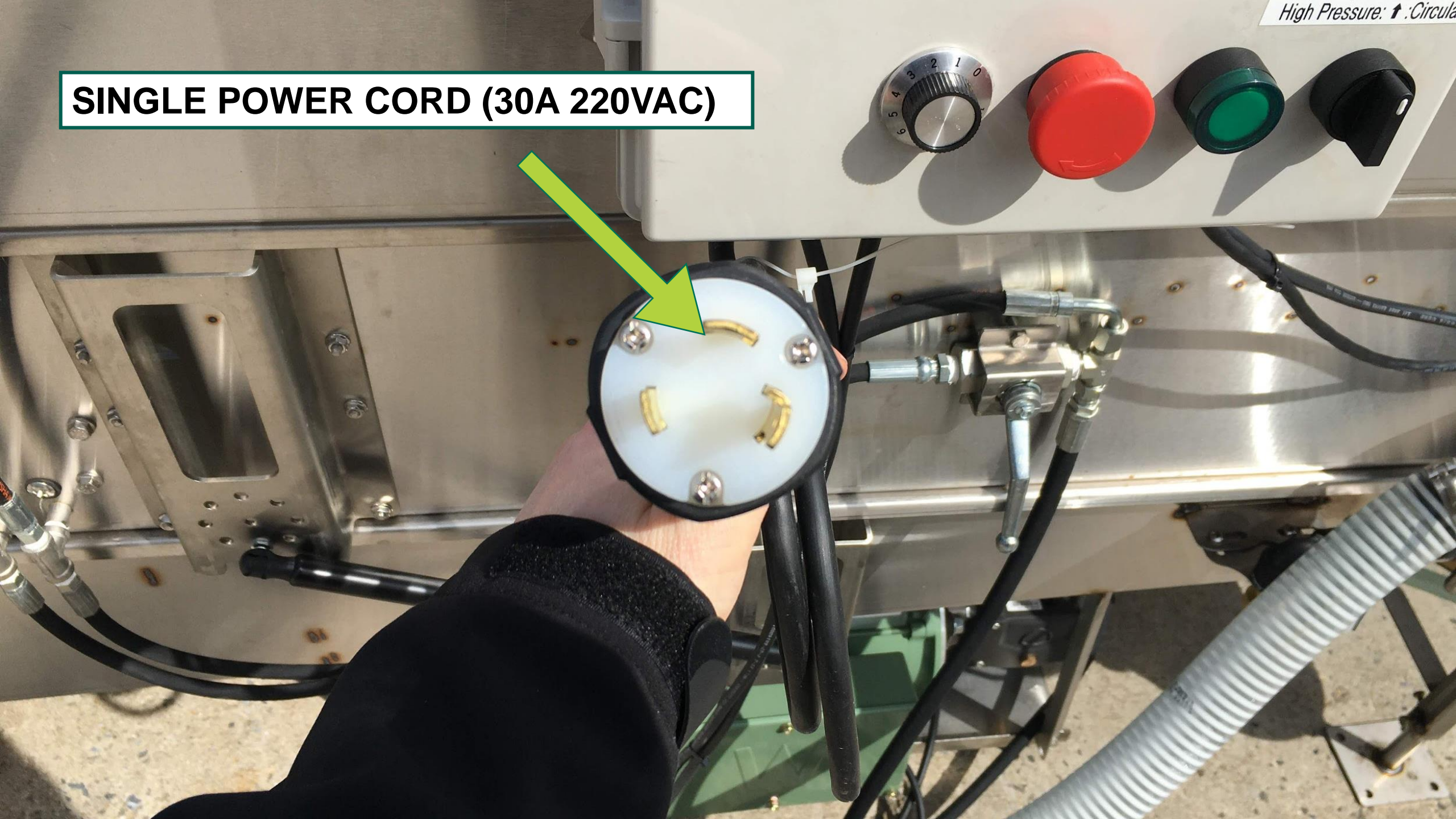
BELT TENSIONER
(One, each side)

Lower PVC Assembly Clean Out

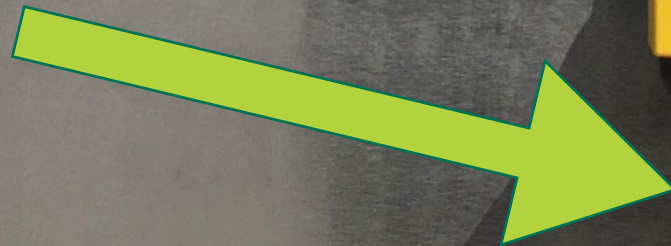


SINGLE POWER CORD (30A 220VAC)

High Pressure: ↑ :Circular



**FRESH WATER INLET &
VALVE FOR FINAL
SPRAY NOZZLES**



**CONTROL PANEL
or HUMAN
MACHINE
INTERFACE (HMI)**

Produce Packing Machinery
Serial No. M15200 2001
Model No. RCAE220C

KEEP FROM FREEZING
Damage will occur to pumps and plumbing

Drain all Waterlines and Pumps
before freezing temperatures

Add RV Antifreeze
if pump or line can not be drained

AZSL1008

A.Z.S. BRUSHER EQUIP., L.L.C.
821 CROOKED LANE • EPHRATA, PA 17522-8602
717-733-2584

Manufacturer Of
Produce Packing Machinery
Produce Washers
Produce Conveyors

Sweetcorn Desilkers
&
Creamers

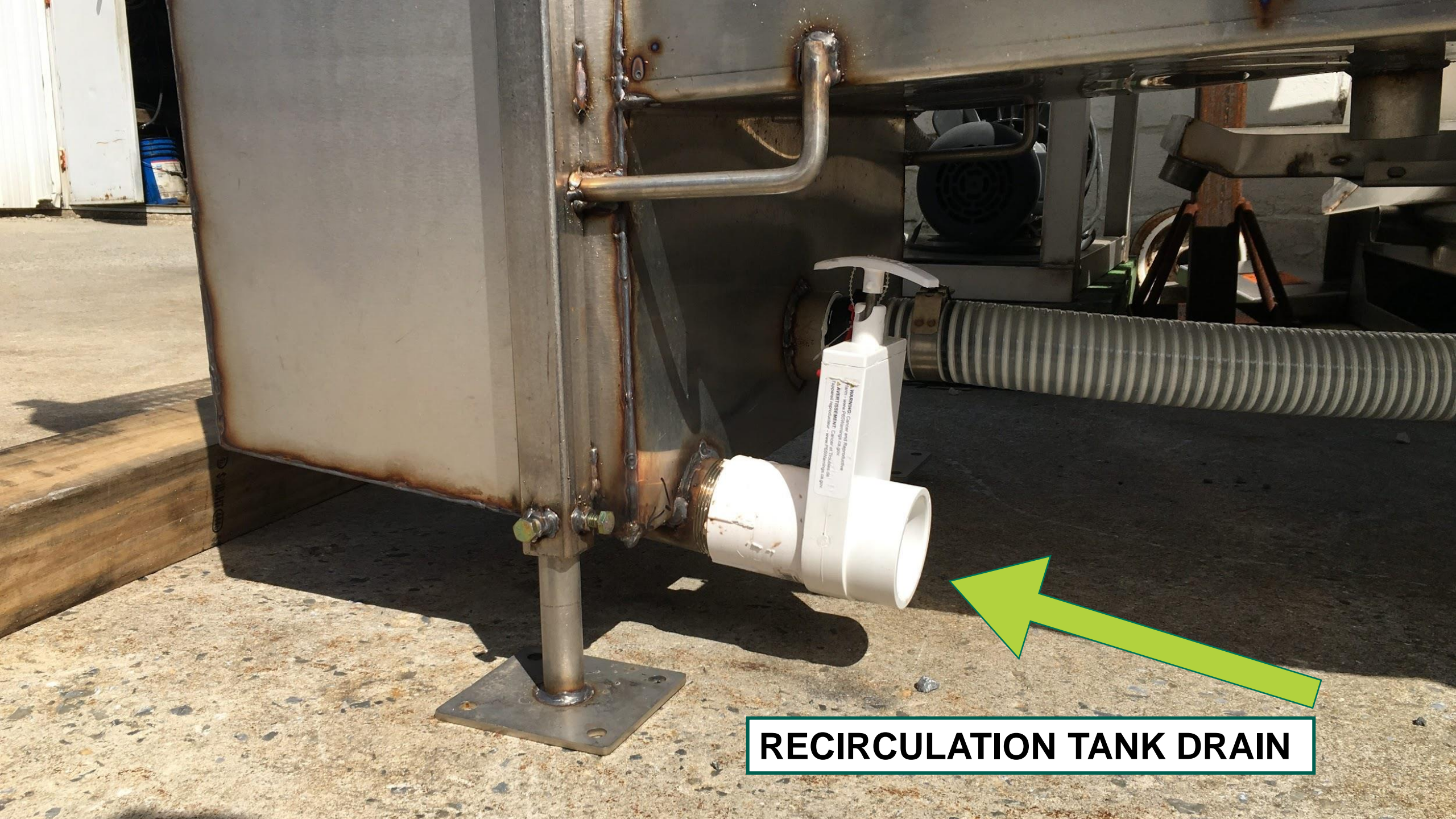
Belt Speed

Stop Switch

Mode Selection

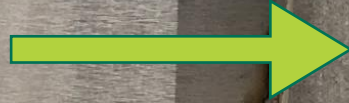
Start Switch

(Combination)
High Pressure: ↑ :Circulatio

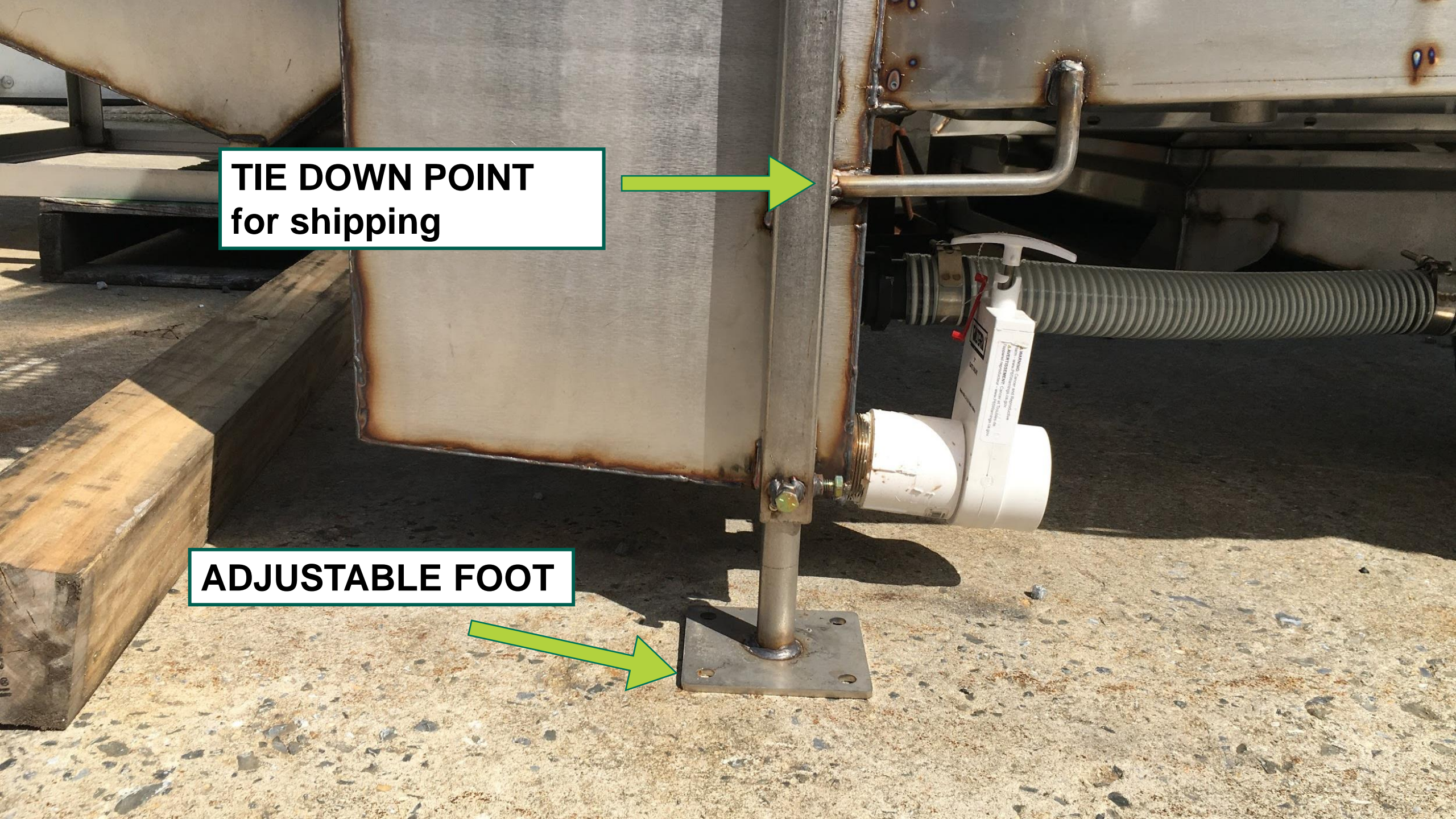


RECIRCULATION TANK DRAIN

TIE DOWN POINT
for shipping



ADJUSTABLE FOOT



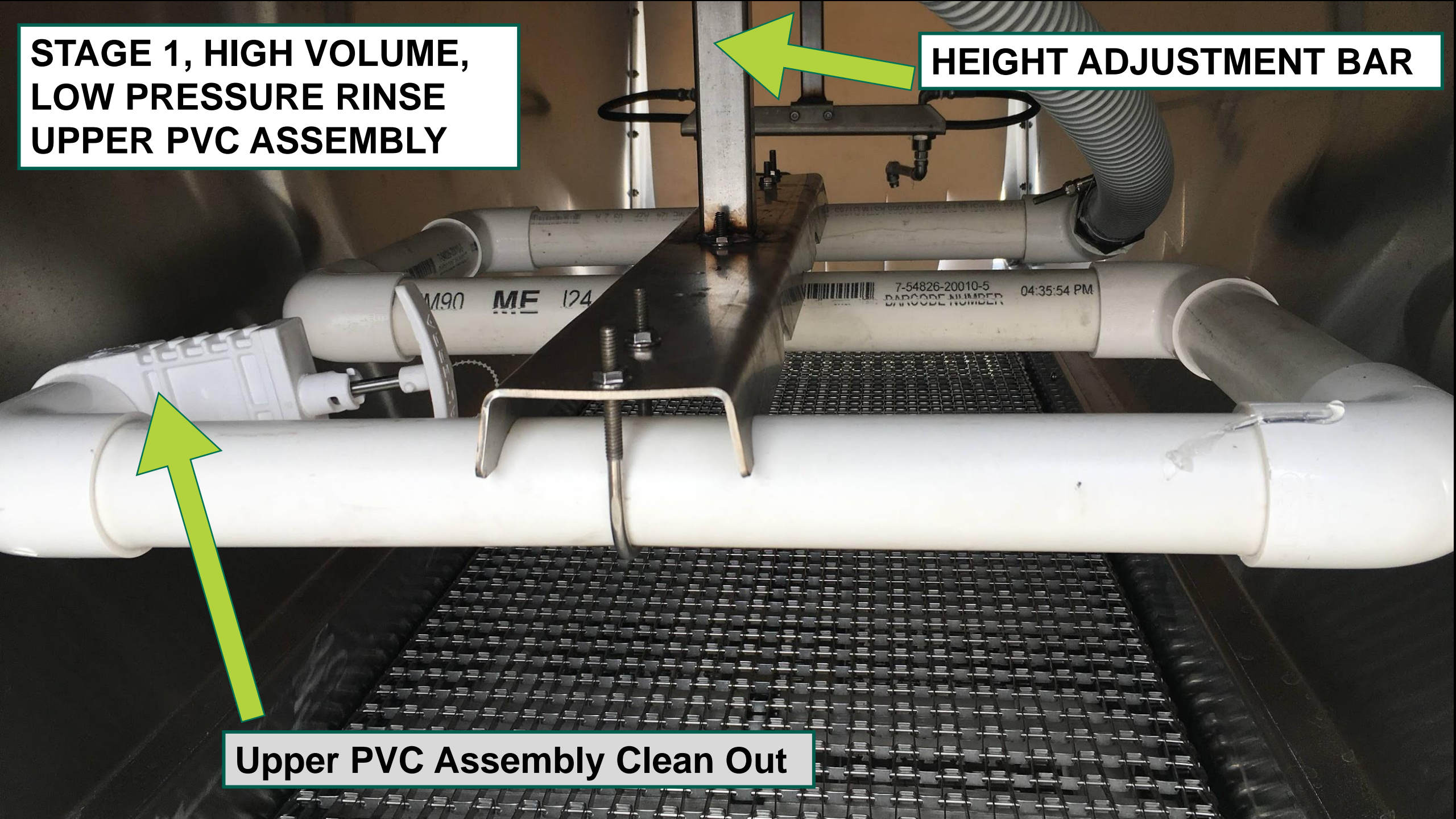
**LOW PRESSURE, HIGH
VOLUME RINSE (STAGE 1)
HEIGHT ADJUSTMENT**



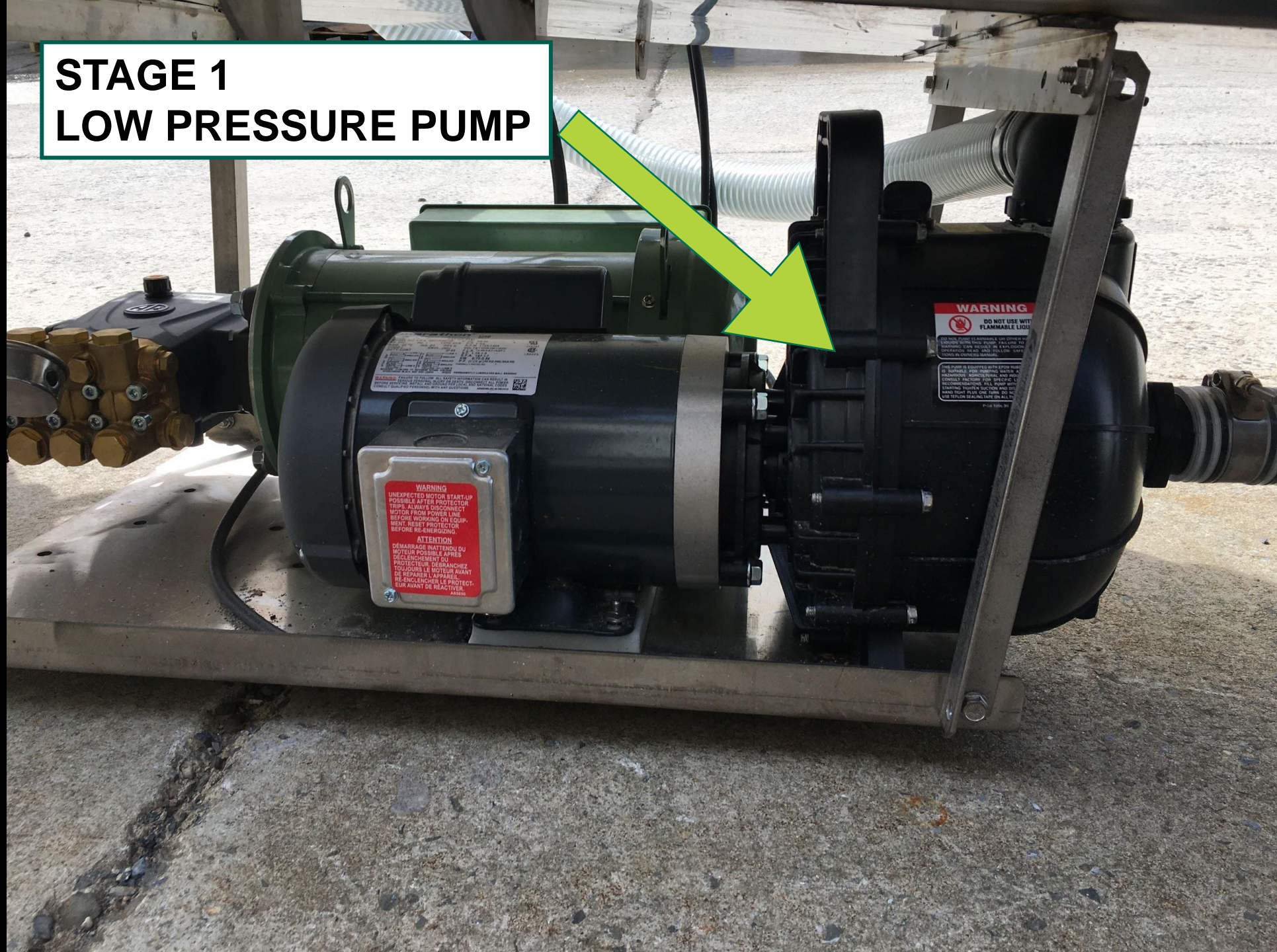
**STAGE 1, HIGH VOLUME,
LOW PRESSURE RINSE
UPPER PVC ASSEMBLY**

HEIGHT ADJUSTMENT BAR

Upper PVC Assembly Clean Out



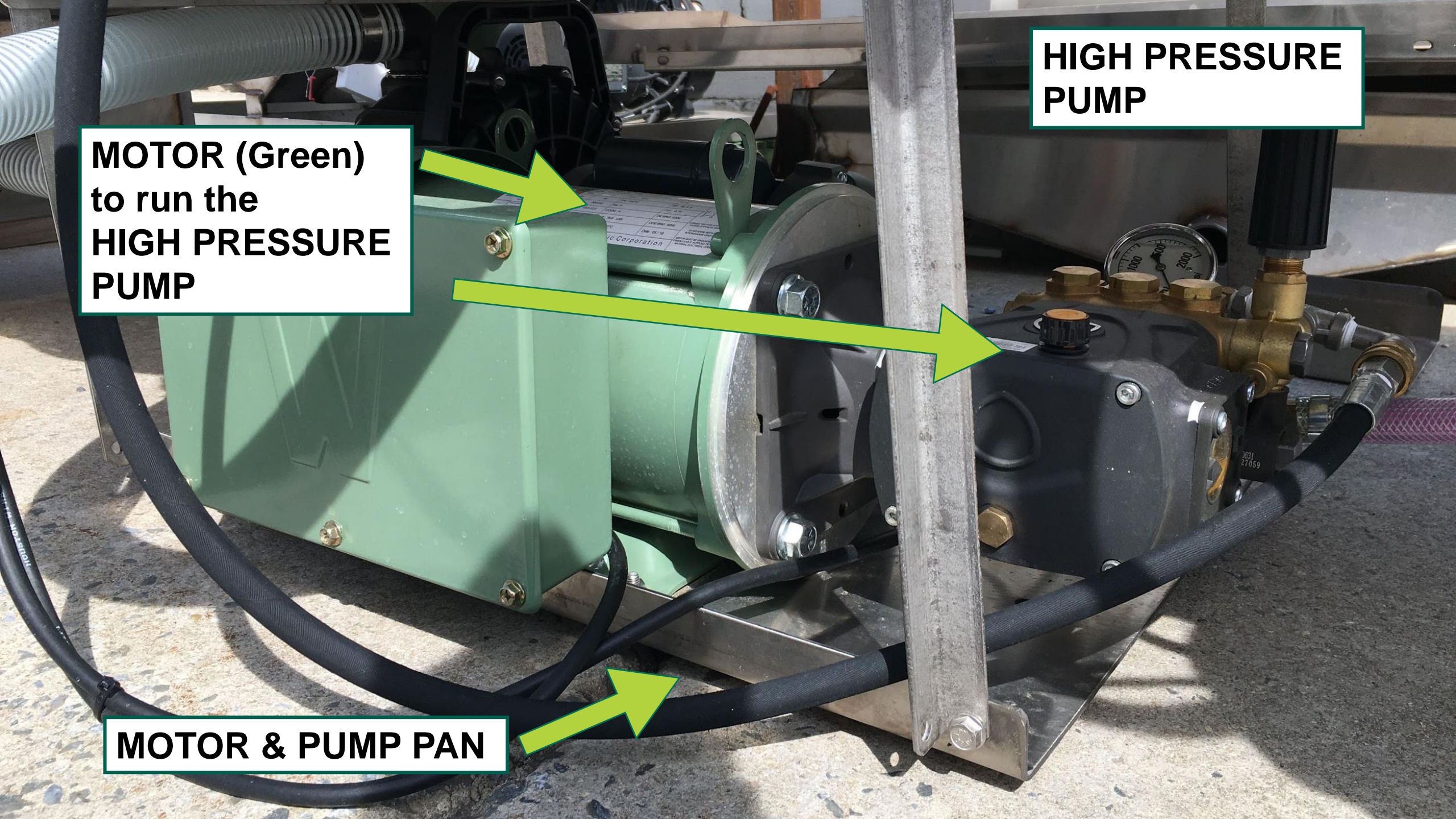
STAGE 1 LOW PRESSURE PUMP



**HIGH PRESSURE
PUMP**

**MOTOR (Green)
to run the
HIGH PRESSURE
PUMP**

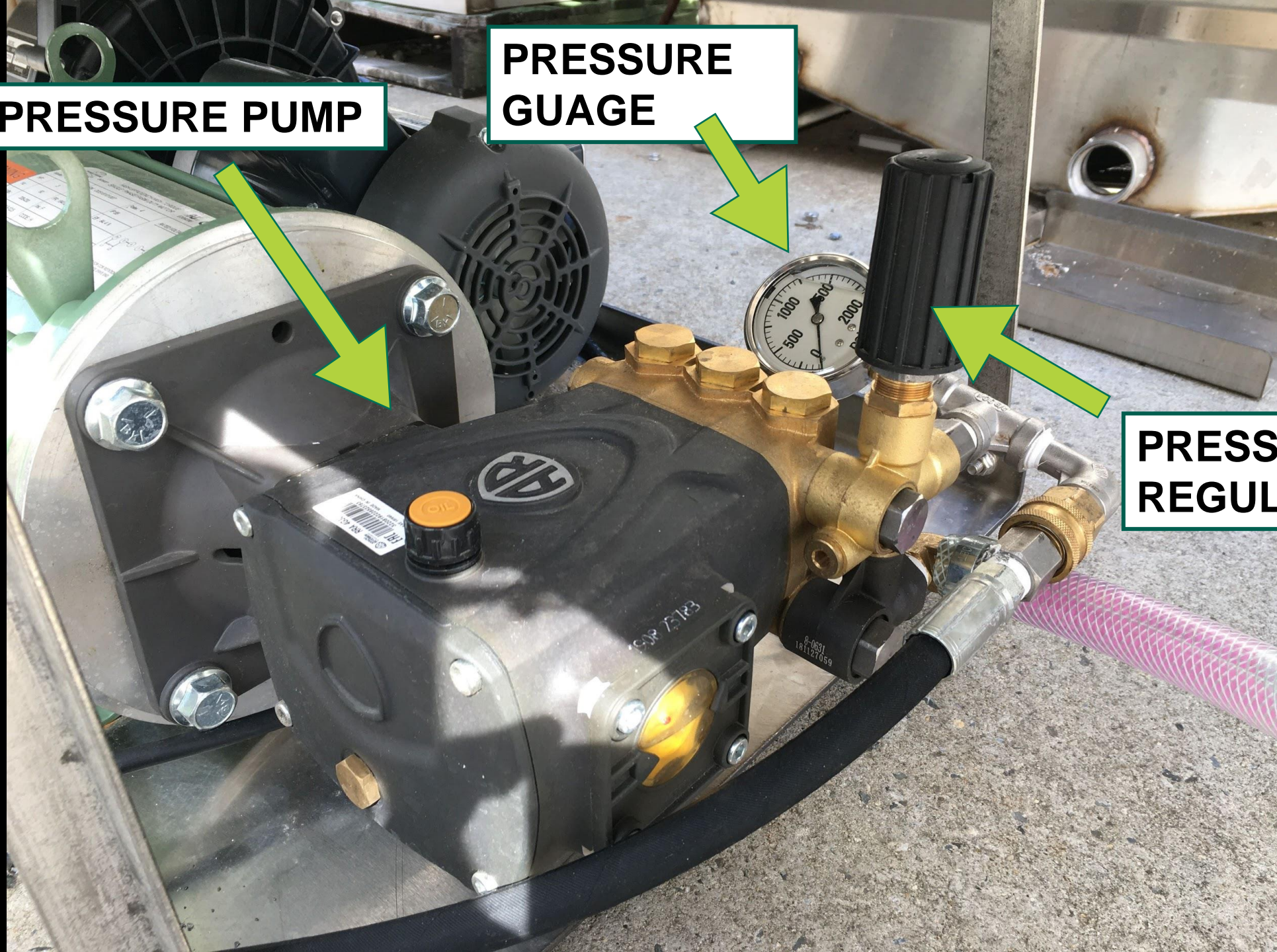
MOTOR & PUMP PAN



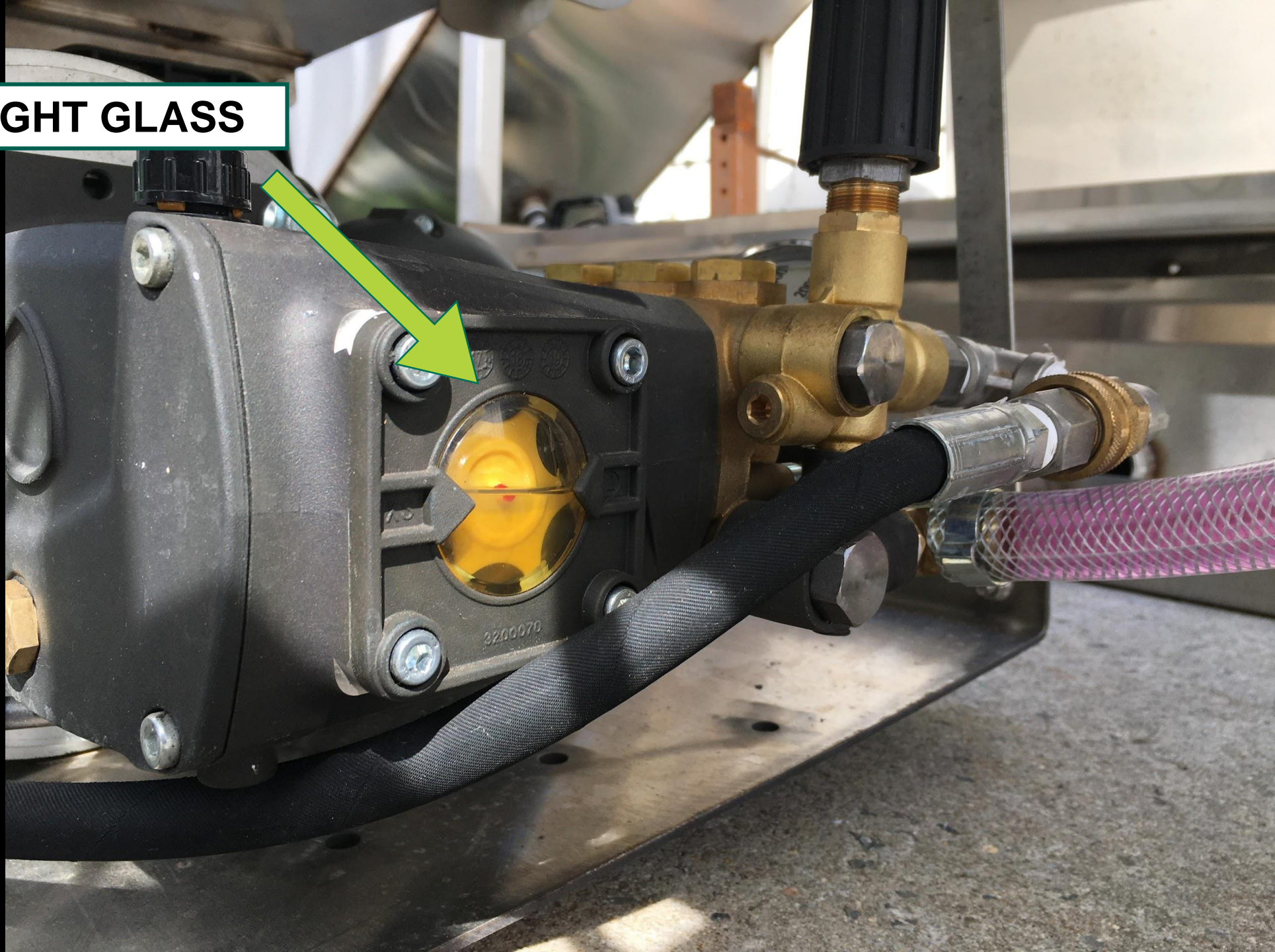
HIGH PRESSURE PUMP

**PRESSURE
GUAGE**

**PRESSURE
REGULATOR**



OIL SIGHT GLASS



STAGE 2, HIGH PRESSURE LOW VOLUME, SUPPLY SYSTEM

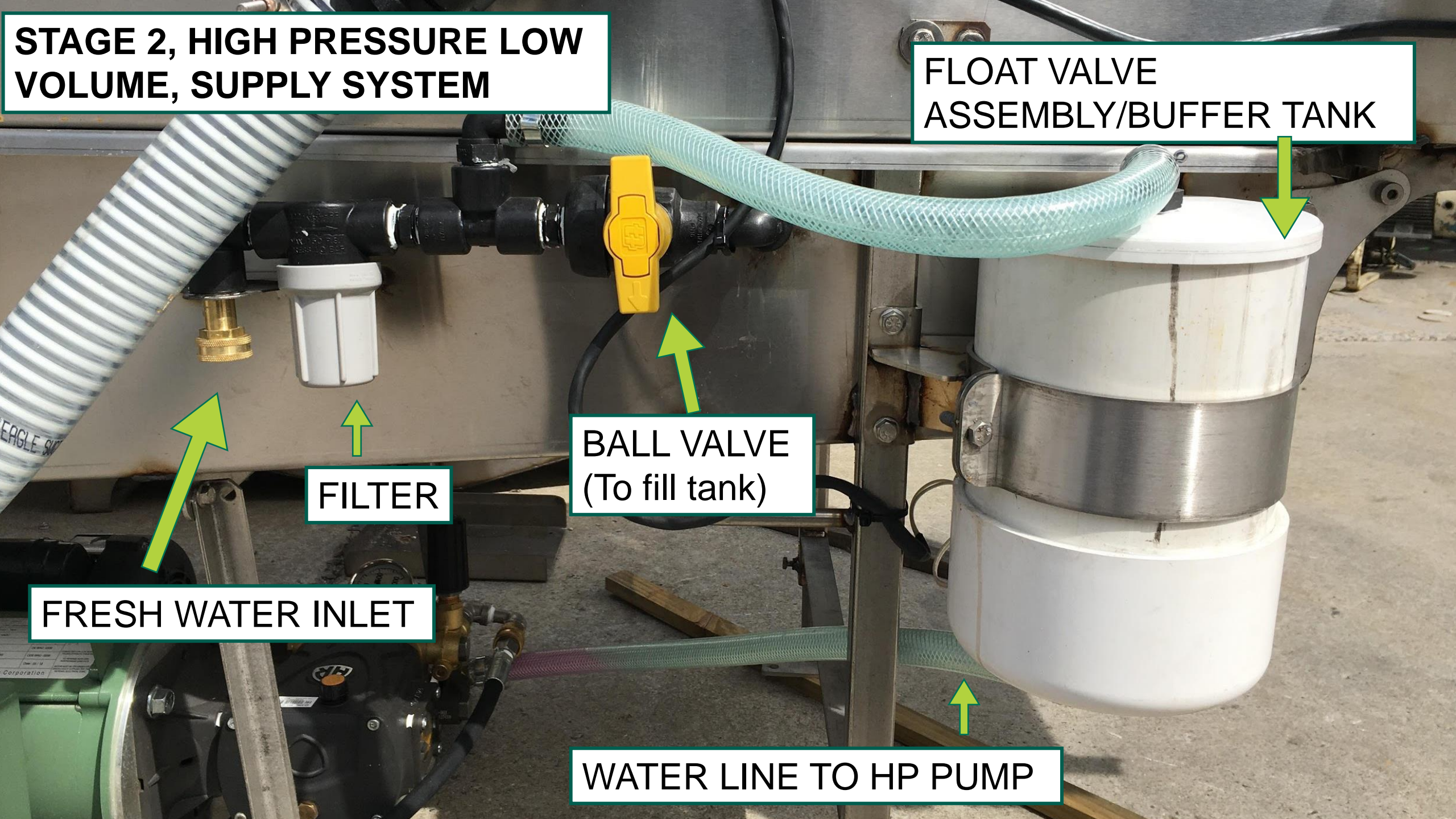
FLOAT VALVE
ASSEMBLY/BUFFER TANK

BALL VALVE
(To fill tank)

FILTER

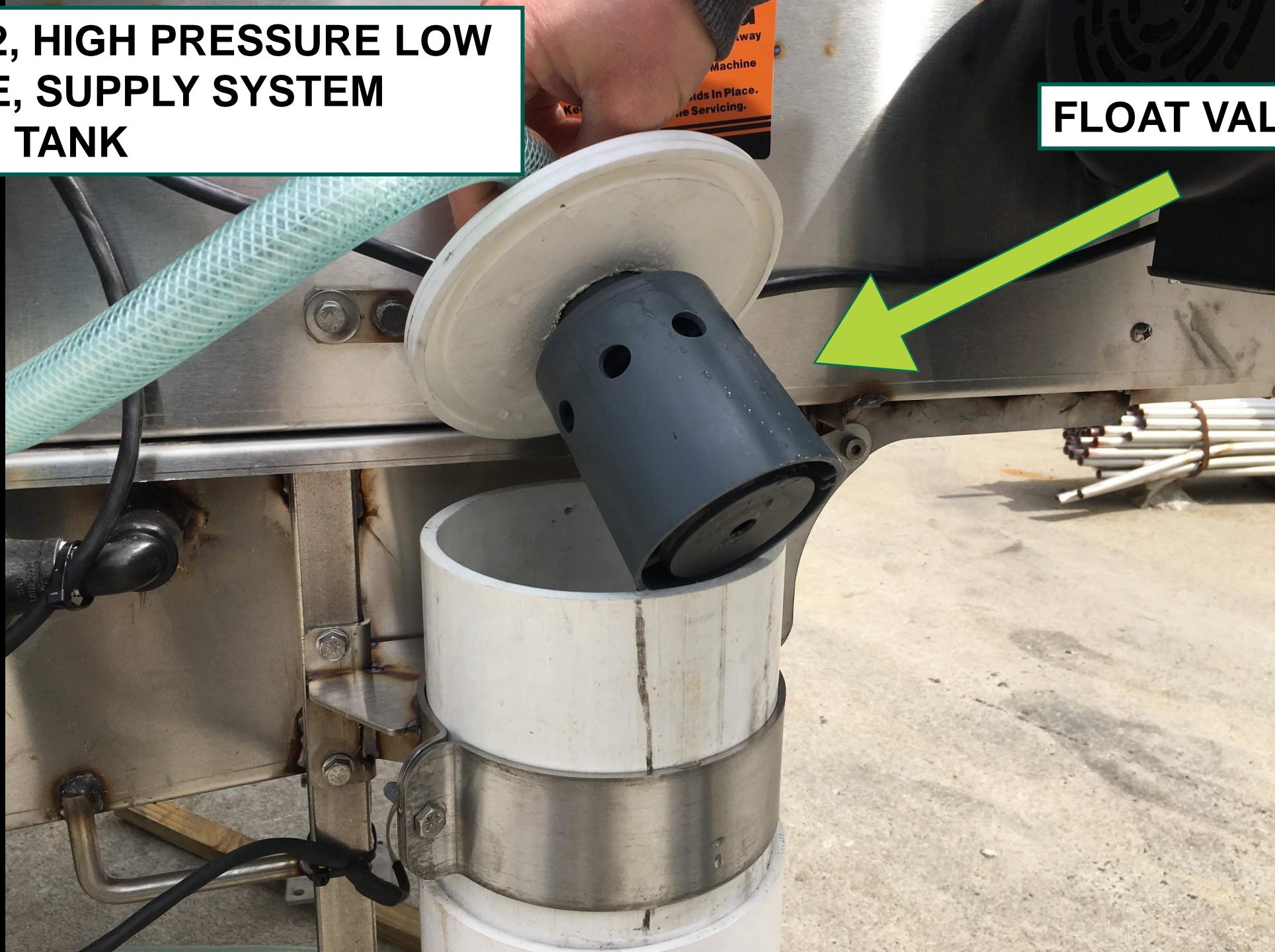
FRESH WATER INLET

WATER LINE TO HP PUMP



**STAGE 2, HIGH PRESSURE LOW
VOLUME, SUPPLY SYSTEM
BUFFER TANK**

FLOAT VALVE



**STAGE 2, HIGH PRESSURE LOW
VOLUME, SUPPLY SYSTEM**
Looking inside BUFFER TANK

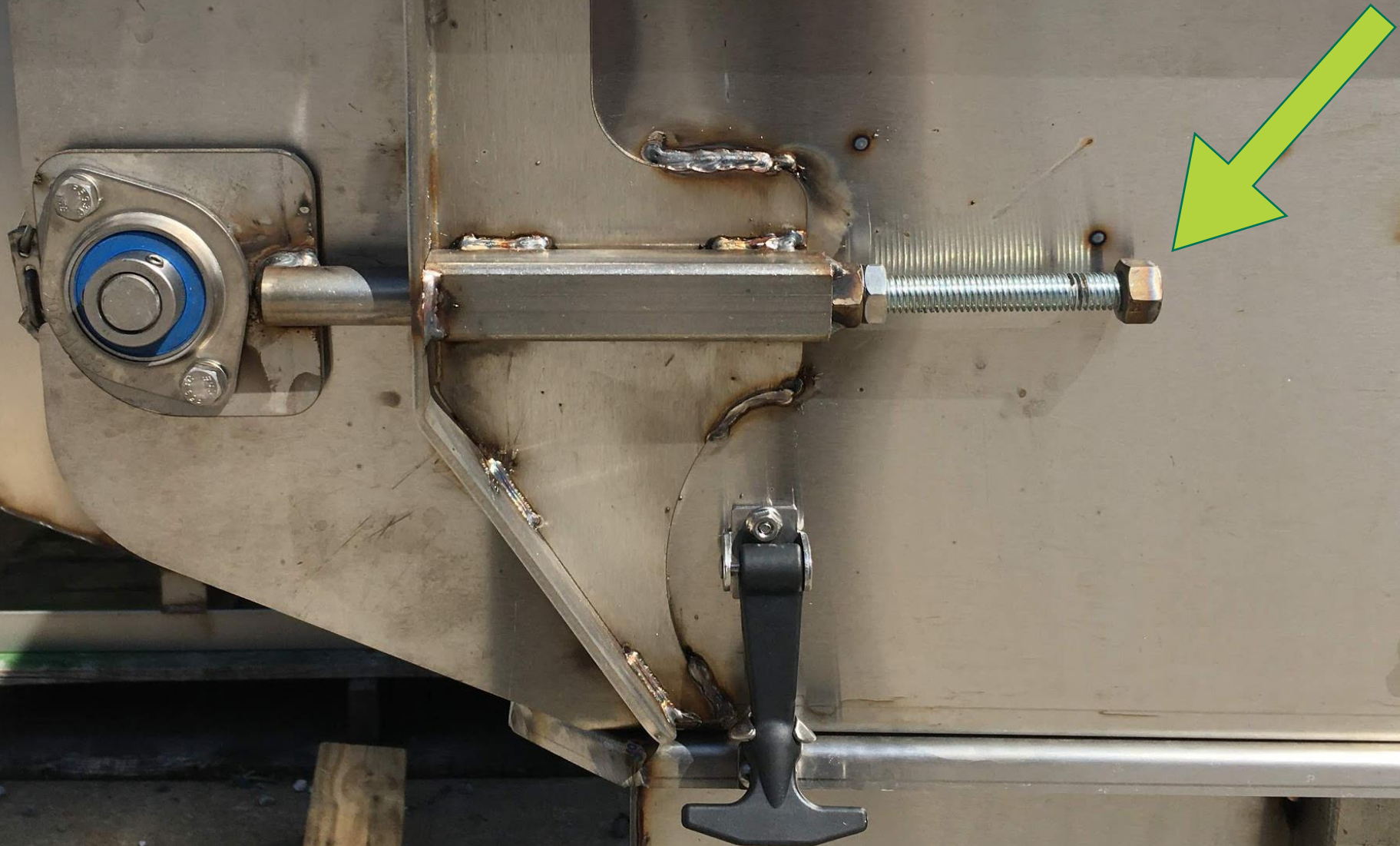
**LOW-FLOW PUMP
CUT OFF SWITCH**



**STAGE 1
FLOAT VALVE IN
RECIRCULATION TANK**

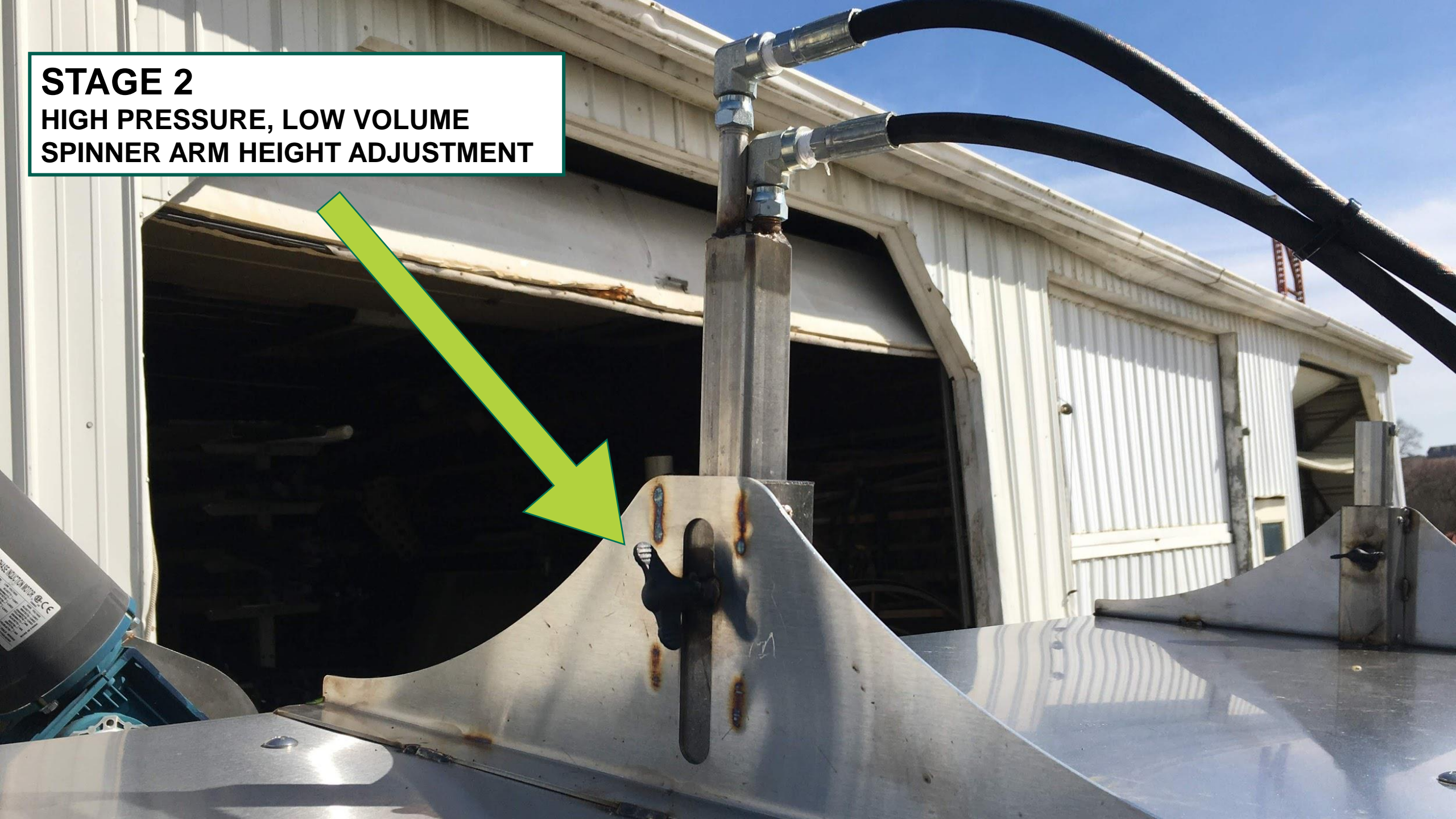


CHAIN (BELT) TENSIONER



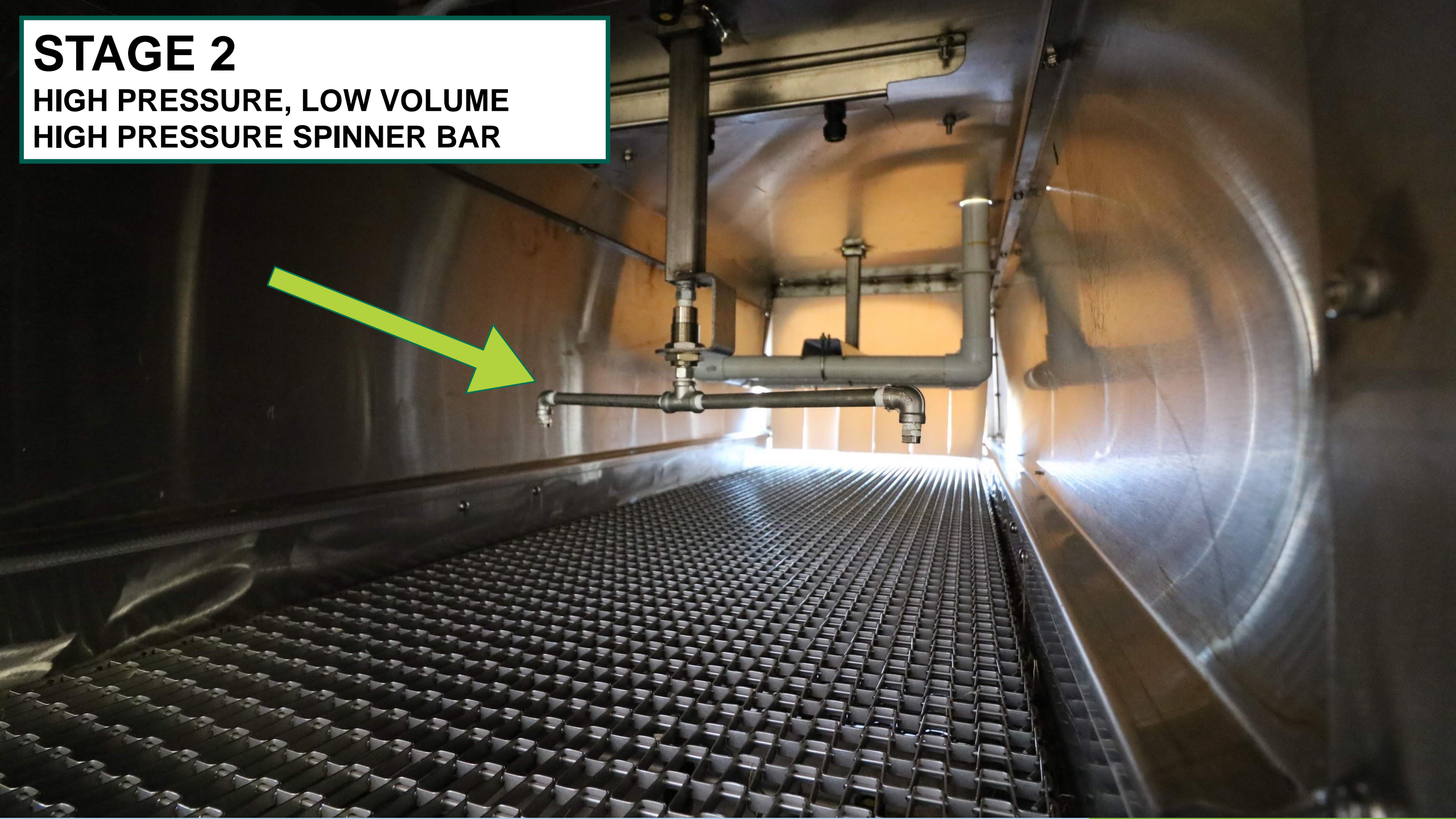
STAGE 2

HIGH PRESSURE, LOW VOLUME
SPINNER ARM HEIGHT ADJUSTMENT



STAGE 2

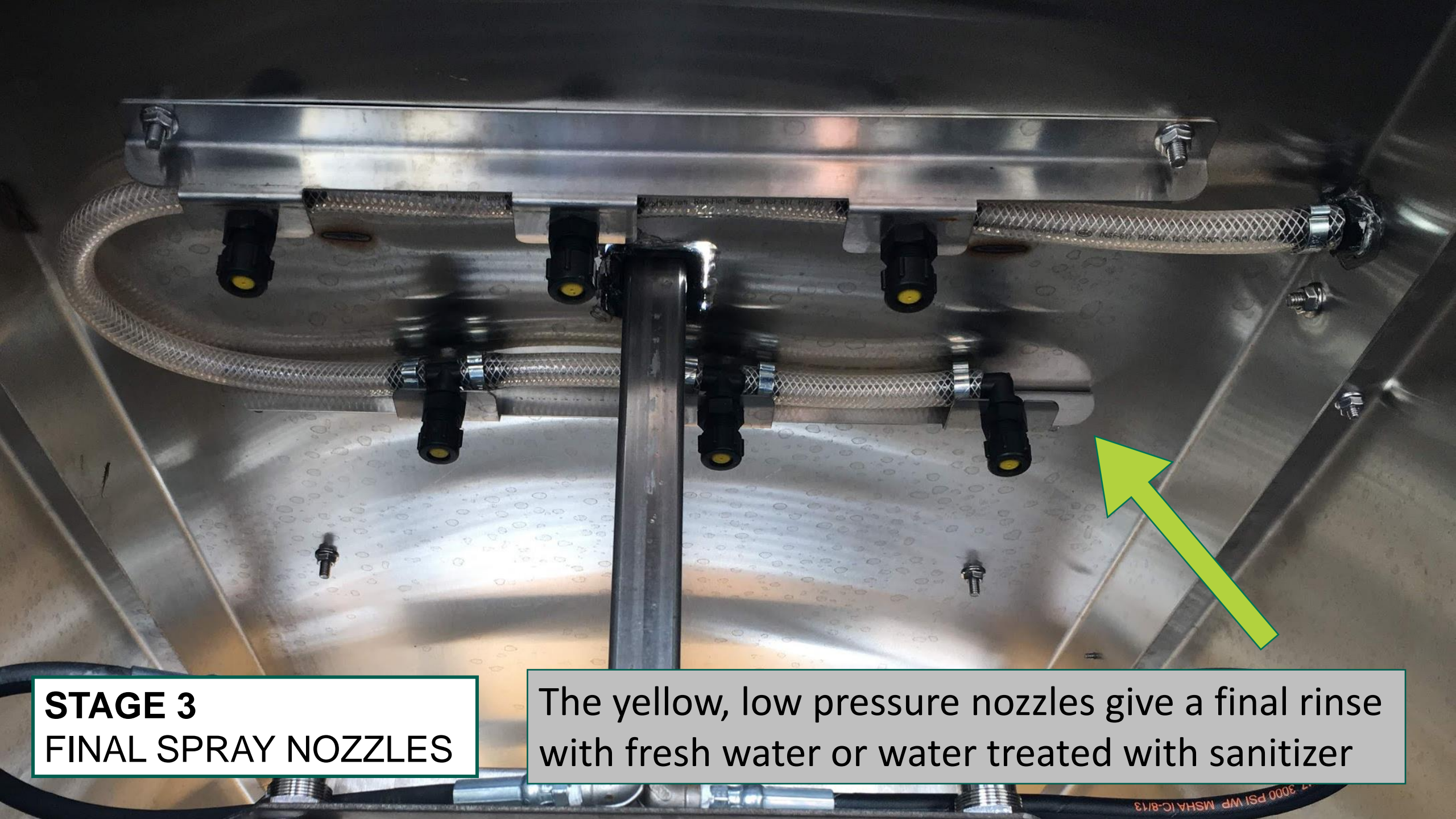
HIGH PRESSURE, LOW VOLUME
HIGH PRESSURE SPINNER BAR



NOZZLE ANGLE



Adjusting the position of the elbow
changes the speed of the spinner arm




STAGE 3
FINAL SPRAY NOZZLES

The yellow, low pressure nozzles give a final rinse with fresh water or water treated with sanitizer

ACCESS COVER TO LOWER SPINNERS

WARNING
Keep Hands, Fingers & Clothing Away
From All Moving Parts.
Keep Children Away While Machine
Is Running.
Keep All Guards & Shields In Place.
Stop Machine While Servicing.



Lower lip should be directed
inside the machine



STAGE 2
High Pressure Spinner Bar

A green arrow points from this text box to a horizontal metal pipe that runs across the middle of the frame, just below the diamond plate surface.

STAGE 3
Low Pressure Final Spray Nozzles

A green arrow points from this text box to a horizontal metal pipe located below the main assembly, which has several black fittings and blue braided hoses attached to it.

UNDER THE BELT
INSIDE ACCESS COVER

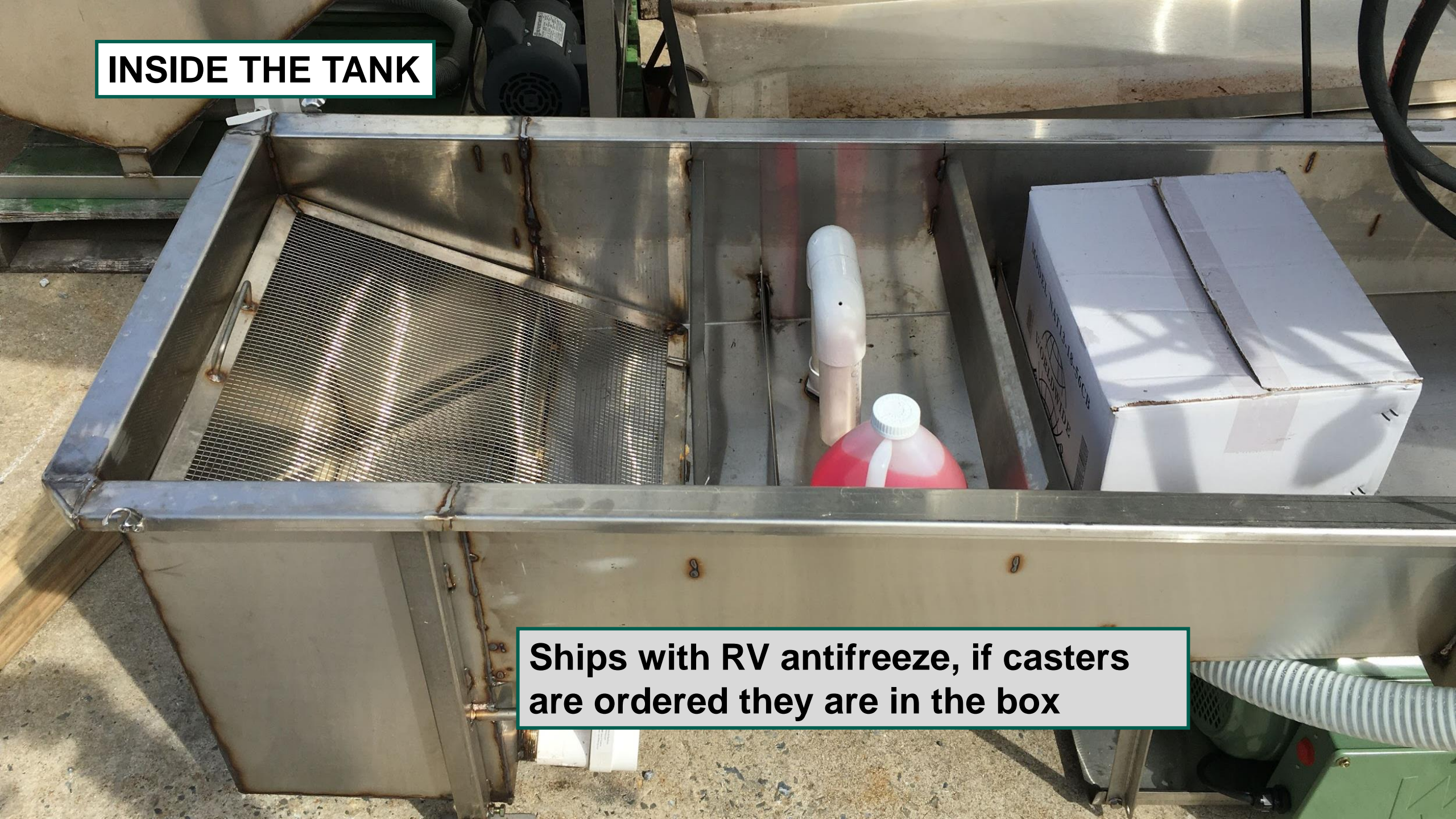
CHAIN BELT

Use of a chain belt allows maximum water to product contact and easy water draining



INSIDE THE TANK

Ships with RV antifreeze, if casters are ordered they are in the box



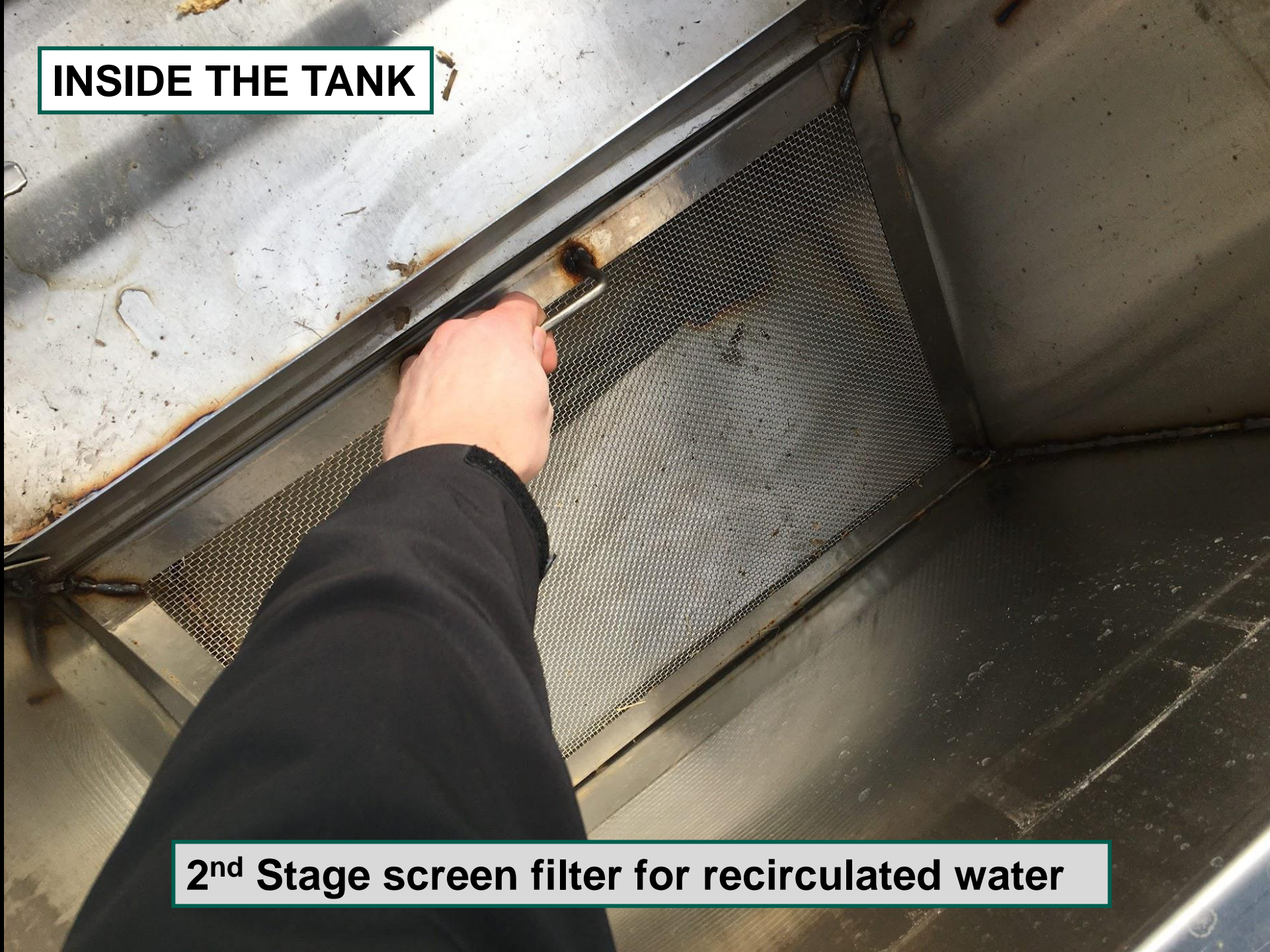
INSIDE THE TANK

Screen filter for recirculated water

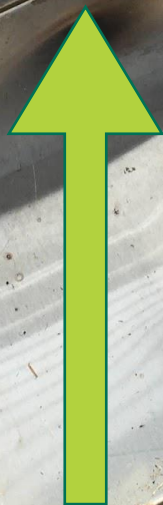


INSIDE THE TANK

2nd Stage screen filter for recirculated water



INSIDE THE TANK



Recirculation Pump Inlet

**SCREWS TO ADJUST
TRANSITION PLATE**
(View from underneath
product outlet)



Too Tight

**View from top of
product outlet**

About Right

Tips & Tricks



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USING THE MACHINE

- Think of belt speed as dwell time
- Flushing the Low Pressure (Stage 1) PVC lines with the gate valve helps to reduce plugging.
- Keeping produce in a single layer will provide best cleaning results

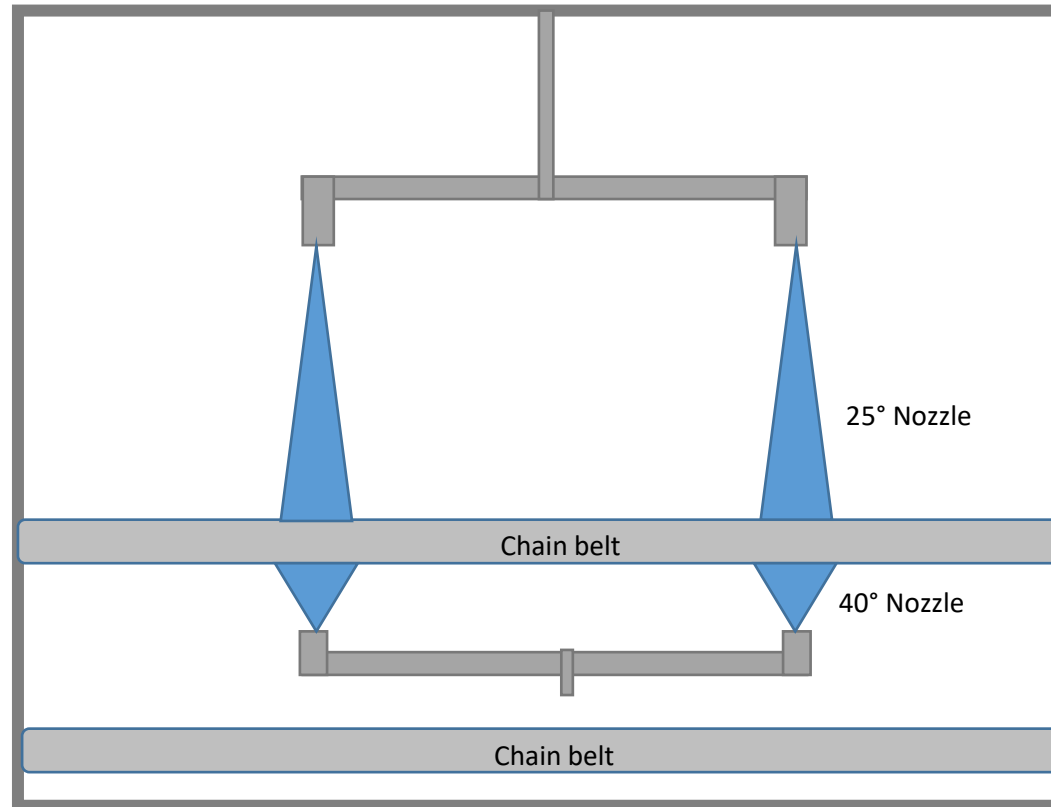


SETTING UP THE HIGH-PRESSURE NOZZLES

- Plug in the machine
- Ensure fresh water is connected, valve open, and buffer tank full
- Turn Mode Selector to HP or Combo and press the green start button
- Adjust pressure regulator to desired pressure
- Verify speed of spinning arms (see next page)



STAGE 2 LAYOUT



Stage 2 pressure is equal in both spinner arms but the nozzles differ to provide even coverage

SETTING ARM SPEED

The speed of the spinner arms is determined by the angle of the elbows on the arm.

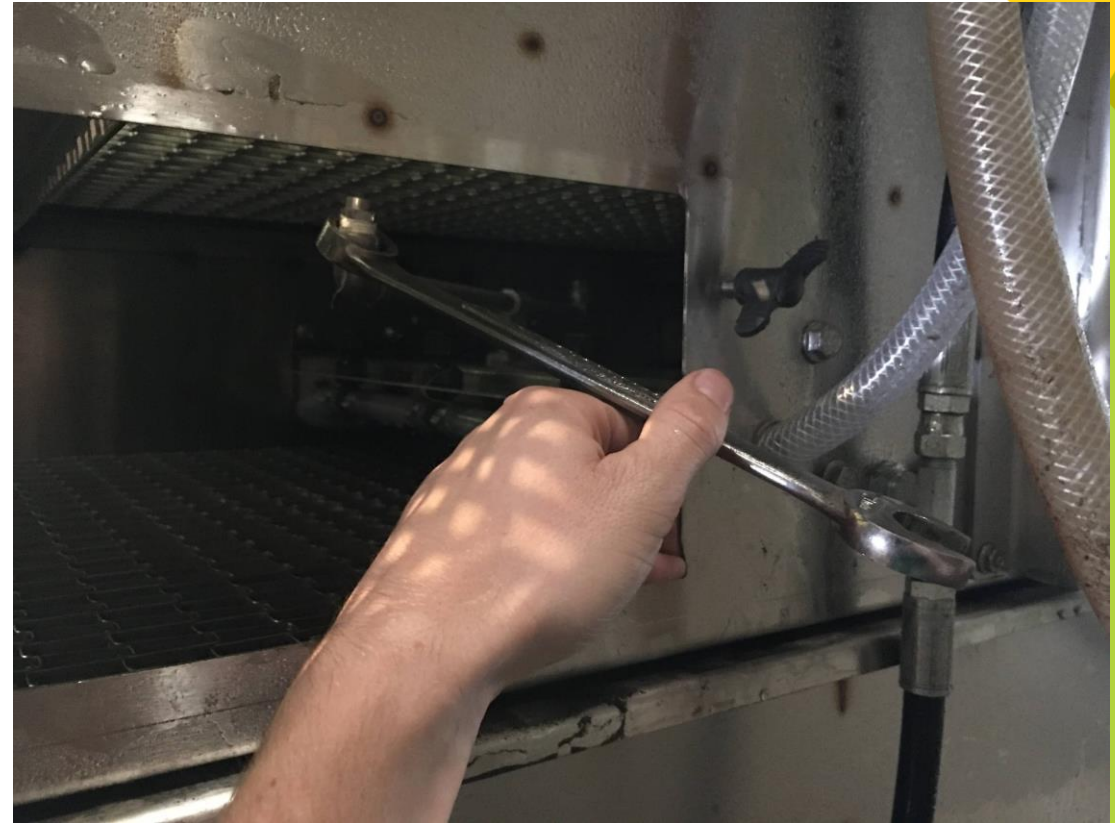
Propper calibration of arm speed is set by watching the tips of the arms. They should spin faster than you can count the revolutions, but slow enough you should still see the ends of the arm.

Too slow will not provide sufficient coverage to the product, *too fast* will wear out the swivel joint prematurely and not provide sufficient coverage of product.



ADJUSTING ARM SPEED

You can use an adjustable or the box end of a large wrench to carefully adjust the elbows. Set the speed at the pressure you find yourself using most.



USE THE RIGHT STAGE 2 PRESSURE FOR THE RIGHT CROP

- Some crops will not need the high-pressure rinse (Stage 2) at all
- Fragile crops like zucchini can be cleaned using the high-pressure bars if the pressure is turned down.

****DO NOT TEST THE PRESSURE WITH YOUR HANDS!****

Injury can result, test pressure on crops not your skin!



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CLEANING THE MACHINE

- Power off the machine and turn off water lines
- Disconnect power cable
- Drain the recirculation tank
- Remove collection screens and rinse off
- Spray off chain belt and basin
- Rinse/Brush PVC Assemblies
- Use appropriate detergent for cleaning food contact surfaces
- Consider using a sanitizer as needed
- Allow to completely dry



WINTERIZATION – A MUST BEFORE ANY FREEZE

- Drain circulation pump and tubes
- Opening the top of the machine eases the draining of lines
- Add RV antifreeze to pressure pump
- Purge nozzles with antifreeze or compressed air



Troubleshooting



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SPINNERS NOT SPINNING

- Low Pressure
- Improperly adjusted nozzle elbow position
- Low oil level in the high-pressure pump
- Degraded oil
- Clogged Nozzles



Frequently Asked Questions



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SETTINGS PER CROP

Crop	Belt Speed	Spinner PSI	Soil Type	
Bunched Greens		300-400		
Need additional input from Harvey/Growers				



WHAT DO I NEED TO ASK FOR WHEN I ORDER? CUSTOMIZATIONS/UPGRADES

- 32" and 40" wide machines get 2 spinners
 - Two 10hp pumps, one for top, one for the bottom
 - Or open a ball valve and use one pump for both at reduced pressure
- Pressure washer wand to attach to the HP pump
- Caster Wheels
- Infeed crate shelf
- Extra Tall Hood



WHAT OTHER EQUIPMENT IS AVAILABLE?

- Soak tank
- Barrel Washer
- Sorting table
- Roller Sizers



CAN I ADD SANITIZER?

Yes, it can be used in low pressure (Stage 1) and final spray (Stage 3)

- Use of a Dosatron into the freshwater inlet of the final rinse is the easiest addition
- The recirculation tank is constantly getting fresh water added, as well as containing a heavy soil load making the concentration of a sanitizer difficult to maintain
- Do not inject sanitizer into the high pressure (stage 2) pump or pump failure will occur



USE AS A HYDROCOOLER?

Absolutely!

- Using well water (~50F) helps remove field heat
- Add some ice to the recirculation tank for additional chilling
- Pay attention to water quality and temperature difference between water and product. Refer to GAPS and PSA training.



USE AS A CRATE WASHER?

- Ensure clean breaks between use as produce washer and use as a bin washer



Contacts

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