

SIX-SHOOTER

CONCRETE RECLAIMER

Installation, Operation & Maintenance Manual

MSX13.11

Your Serial No.:

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TABLE OF CONTENTS

	<u>PAGE No.</u>
SECTION 1.0	MECHANICAL INSTALLATION..... 5
1.01	EQUIPMENT DESCRIPTION..... 5
1.02	PREPARATION..... 7
1.03	OFF-LOADING..... 9
1.04	RECLAIMER INSTALLATION..... 10
1.05	WASH-OUT STINGER INSTALLATION..... 13
1.06	PUMP INSTALLATION..... 14
1.07	CONTROL PANEL INSTALLATION..... 14
1.08	DRAIN INSTALLATION..... 15
1.09	WATER CONNECTIONS..... 16
1.10	OPTIONAL EQUIPMENT..... 22
1.10.1	SAND DEWATERING SCREW HEATER..... 22
1.10.2	LOOP DETECTOR..... 23
1.11	GEARMOTOR OIL FILL..... 24
SECTION 2.0	ELECTRICAL CONTROL PANEL..... 25
2.01	SCHEMATICS/FIELD WIRING DIAGRAMS & POWER REQUIREMENTS..... 25
2.02	OPERATIONS..... 25
SECTION 3.0	INITIAL EQUIPMENT START-UP..... 28
SECTION 4.0	PROCEDURES FOR RECLAIMING CONCRETE..... 31
SECTION 5.0	EQUIPMENT MAINTENANCE..... 33
SECTION 6.0	PIT SYSTEM MAINTENANCE & OPERATION..... 34
SECTION 7.0	SERVICE..... 35
SECTION 8.0	INSPECTION CHECKLIST..... 40
SECTION 9.0	TROUBLESHOOTING..... 41
SECTION 10.0	RECOMMENDED SPARE PARTS LIST..... 43
SECTION 11.0	WINTERIZING..... 44
	Limited Warranty..... 45





SAFETY FIRST!

High voltage and rotating parts can cause serious or fatal injury. Safe installation, operation and maintenance **MUST** be performed by **qualified personnel only**. Familiarization with and adherence to NEMA MG2, the National Electric Code and local codes is recommended.

It is important to observe ALL safety precautions to protect personnel from possible injury.

EVERY DAY, prior to use, make sure ALL Safety Guards are in place and properly secured to the equipment.

EVERY DAY, prior to use, inspect ALL Safety Stickers and **CLEAN** or **REPLACE** if covered or damaged.

	WARNING! FAILURE TO OBSERVE SAFETY PRECAUTIONS COULD CAUSE EQUIPMENT DAMAGE, PERSONAL INJURY OR EVEN DEATH.
	DANGER! DO NOT OPERATE WITHOUT PROPER GUARDS IN PLACE. ROTATING PARTS MAY CAUSE SERIOUS OR FATAL INJURY.
	DANGER! HIGH VOLTAGE MAY CAUSE SERIOUS OR FATAL INJURY.
	WARNING! DISCONNECT ALL POWER WHILE ADJUSTING UNITS. USE APPROPRIATE LOCK-OUT EQUIPMENT TO PREVENT ACCIDENTAL EQUIPMENT START-UP.

SAFETY FIRST !

The following safety precautions are basic requirements for attending to, operating, installing, maintaining, or cleaning equipment, and should **ALWAYS** be followed. ***NO EXCEPTIONS!***

- **ANY AND ALL PERSONNEL WHO WILL BE INSTALLING, OPERATING OR MAINTAINING THIS EQUIPMENT SHOULD READ THRU THE ENTIRE MANUAL BEFORE WORKING ON OR NEAR THE EQUIPMENT.**
- **ONLY QUALIFIED, TRAINED PERSONNEL SHOULD INSTALL, OPERATE AND MAINTAIN THE EQUIPMENT.**
- **FAILURE TO READ AND UNDERSTAND ALL SAFETY PRECAUTIONS MAY CAUSE INJURY OR DEATH!**
- THIS PREFACE IS INTENDED TO ALERT ALL INSTALLERS, OPERATORS, USERS AND PERSONNEL OF THE POTENTIAL SAFETY HAZARDS. **OTHER SAFETY WARNINGS AND DANGERS ARE LISTED FURTHER THROUGHOUT THIS MANUAL. READ THE ENTIRE MANUAL!**
- **ALL ELECTRICAL INSTALLATION, MAINTENANCE AND REPAIR SHOULD BE PERFORMED ONLY BY A QUALIFIED, CERTIFIED ELECTRICIAN.**
- **REMEMBER, NO MANUAL CAN PREVENT SLOPPY OR IRRESPONSIBLE BEHAVIOR WHEN INSTALLING, OPERATING OR MAINTAINING THIS EQUIPMENT. SAFETY IS UP TO YOU!**
- **ALWAYS ALWAYS ALWAYS DISCONNECT AND LOCK-OUT ELECTRICAL POWER** from the service to the control panel before performing any maintenance, repair or service functions OF ANY KIND. Always!
- **NEVER NEVER NEVER OPERATE EQUIPMENT WITHOUT ALL GUARDS IN PLACE.** They were installed for a reason.
- **Observe good safety habits at all times.** Use care to avoid personal injury or damage to equipment.
- **Keep clothing and hands away from rotating or moving parts even when equipment is NOT running, in the event of an unexpected or automatic start-up.**
- Always use safety glasses to protect your eyes.
- Always use hearing protection. Avoid extended exposure to equipment with high noise levels.

SAFETY FIRST !

- Use proper electrical installation wiring and controls consistent with local and national electric codes, using a qualified electrician.
- Refer to motor name plates and control panel documents for proper power supply requirements. Be sure connections are tight and adequately secured to prevent shorts and to assure maximum protection against moisture and corrosion.
- Be sure equipment is electrically grounded in accordance with code requirements.
- Avoid contact with energized circuits or rotating parts.
- Act with care in accordance with prescribed procedures in handling and lifting the equipment.
- Be sure mounting and assembly bolts are secure.
- Be sure equipment is properly enclosed or guarded to prevent access by children or other unauthorized personnel, to prevent possible accidents.
- Be sure shaft keys on gearmotors are fully captive before unit is energized.
- Provide proper safeguards for personnel against rotating parts.
- Be familiar with the equipment and read all instructions thoroughly before installing, operating or working on it.



THE EQUIPMENT SHOULD NOT BE ENTERED BY PERSONNEL.

Concrete Reclaimer Systems:

A Concrete Reclaimer System includes the Concrete Reclaimer AND the Slurry Collection System, i.e. Settling Ponds. Both need to be properly maintained for proper function of the SYSTEM. If the concrete reclaimer SYSTEM is properly maintained, build-up inside the machine housing should be minimal, and not cause equipment problems. **If substantial build-up occurs, the SYSTEM is not being properly maintained.**

FIRST LOCK-OUT/TAG-OUT THE EQUIPMENT, THEN DISCONNECT AND REMOVE THE SUB-ASSEMBLIES (i.e. Rotary Screen and Sand Auger) FROM THE MACHINE HOUSING FOR CLEANING.

MORE FREQUENT POND CLEAN-OUTS SHOULD BE SCHEDULED, AND PROPER HOUSE-KEEPING SHOULD BE COMPLETED, TO MINIMIZE INTERNAL CEMENTITIOUS BUILD-UP.

SAFETY FIRST !

Systems that use compressed air:

- **HIGH PRESSURE AIR SHOULD BE PROPERLY BLED FROM SYSTEM PRIOR TO MAINTENANCE OR ADJUSTMENT.**
- Always wear safety glasses and other personal protection devices when installing, operating, adjusting or maintaining this equipment.



WARNING!

COMPRESSED AIR. LOCK OUT source and BLEED OFF pressure before servicing equipment.

Systems that use Flocculants:

First-aid measures for handling and using Flocculant(s)



Inhalation If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop. If not breathing, give artificial respiration or give oxygen by trained personnel. To avoid inhalation problems, it is recommended that a respirator be worn by all personnel involved in using or handling flocculant(s).

Skin contact Immediately flush skin with running water for at least 20 minutes. Get medical attention if irritation develops or persists. It is recommended that all personnel involved in using or handling flocculant(s) wear protection covering exposed skin, including long sleeve shirts, long pants, gloves, etc.

Eye contact Immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if irritation develops or persists. It is recommended that all personnel involved in using or handling flocculant(s) wear protective eye-wear and face shield.

Ingestion Have victim rinse mouth thoroughly with water. If ingestion of a large amount does occur, seek medical attention.

Consult Flocculant Manufacturers current Safety Data Sheet for further information.

SECTION 1.0 MECHANICAL INSTALLATION

1.01 EQUIPMENT DESCRIPTION

Thank you for choosing the SIX-SHOOTER Reclaimer. By reading and understanding these written instructions, and following all operational, safety and maintenance procedures, the SIX-SHOOTER will give you many years of service with minimal maintenance.

The SIX-SHOOTER Concrete Reclaimer is designed for easy operation and low maintenance. The simplicity of the central shafted rotor design provides high efficiency with minimum wear and low energy usage. High quality standard parts provide long life and availability.

A wide infeed hopper allows 1 vehicle to unload wet concrete into the SIX-SHOOTER. The SIX-SHOOTER is also available with an optional "Double-Wide" Infeed hopper, which will allow 2 vehicles to discharge simultaneously.

Wet concrete is fed into the SIX-SHOOTER for washing and screening with an 8" infeed screw. The infeed screw discharges directly into the rotary rock screen/wash area for a consistent flow of wet concrete from the infeed hopper, minimizing over-feeding of material.

The material is spray washed and separated as the concrete passes over the rock screen and the sand and cement pass through. The rock screen is wrapped around a 21" diameter x 6' long cylinder on a central shaft. A 12" dewatering screw removes the sand from the reclaimer.

Fines and cement slurry separated from the returned concrete collect at the bottom of the reclaimer and gravity flow out of a side-mounted 8" drainpipe.

NOTE:

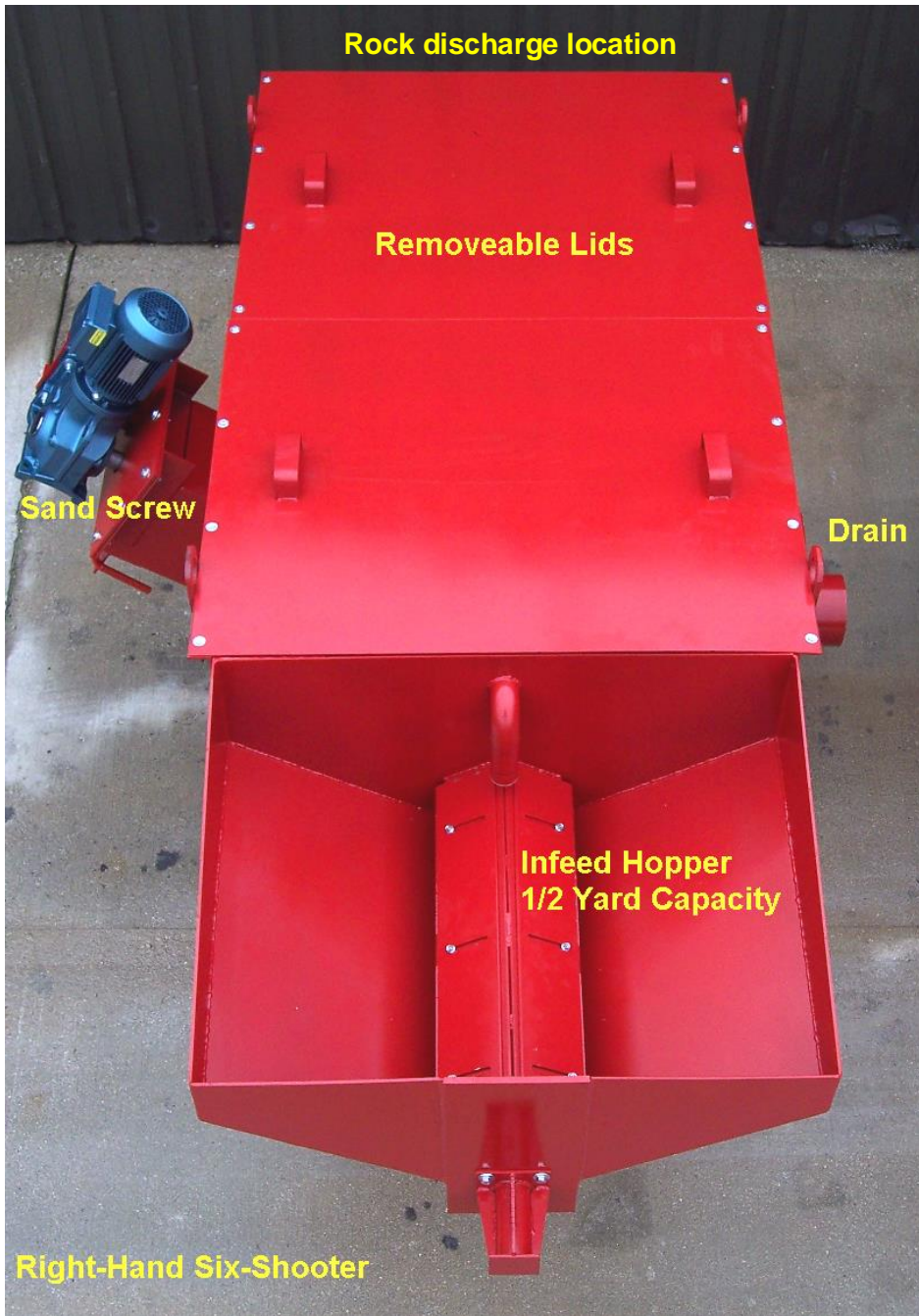
ALL dimensions, weights and technical specifications are subject to change, at BFK's discretion. In some applications, NON-standard or custom pieces may be supplied, which may or may not be covered in this manual.

The manual attempts to show common, typical installations. YOUR actual Installation may vary.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE CUSTOMER TO ENSURE PROPER SIZES AND DESIGNS OF ALL CONNECTIONS, FITTINGS, WIRING, ETC. ARE PROVIDED BEFORE INSTALLING AND OPERATING EQUIPMENT.

This manual is intended as a guideline only, and may or may not represent the actual equipment supplied.

Please consult factory if any discrepancies arise BEFORE the system is installed and operated.



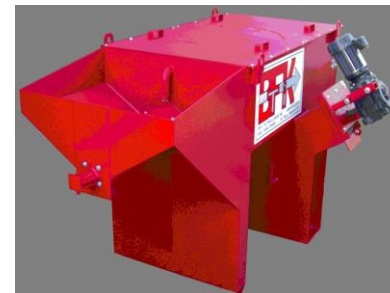
The picture to the left shows a RIGHT-hand standard Six-Shooter, with 4' wide infeed hopper. The "hand" is defined as the side of the machine that the Sand Screw discharges from.

Notice the drain location, on the opposite side of the Sand Screw location.

Rock discharges out the back end of the machine, opposite from the Infeed Hopper.

Removable lids cover the rotary screen.

A Left-hand machine is obviously a mirror image of this, as shown below.



Standard
Left-Hand
Six-Shooter



Double-Wide
Left-Hand
Six-Shooter

1.02 PREPARATION

Prior to beginning installation of the SIX-SHOOTER, the following should be completed and available:

All concrete foundation work should be completed. Before your reclaimer arrives, the lay-out of this installation should have been predetermined.

Allow approx. one day for installation, barring unnecessary delays.

1. Labor

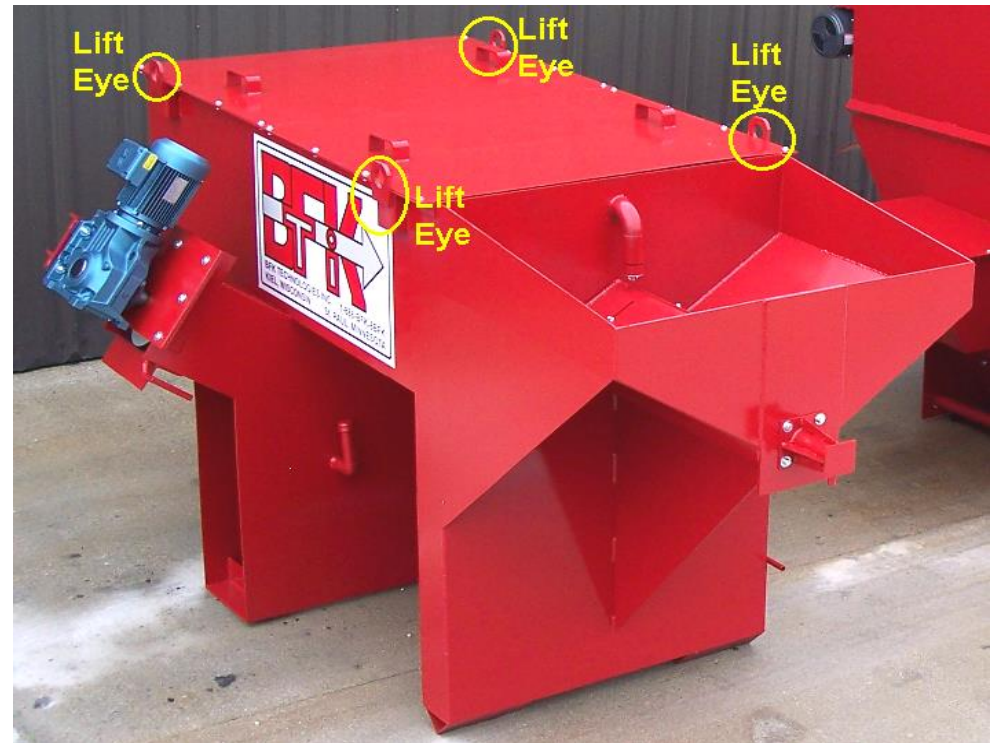
- ◆ 1 General laborer
- ◆ 1 Mechanic
- ◆ 1 Electrician
- ◆ 1 Crane Operator

2. Equipment

- 1 Crane or Boom truck. Capacity of lifting
5000 Lbs. **minimum** for *standard* machine,
6000 Lbs. **minimum** for *double-wide* machine
- 1 Set of standard mechanics tools.

NOTE: THE USE OF A FRONT END LOADER FOR RECLAIMER ASSEMBLY AND INSTALLATION IS DANGEROUS AND SLOW, AND ALWAYS RESULTS IN DAMAGED EQUIPMENT. THE USE OF A LOADER IS NOT RECOMMENDED.

ALWAYS LIFT EQUIPMENT FROM LIFT EYES ONLY!
Lifting from other locations is dangerous and may lead to equipment damage and/or injury or death to personnel!



3. Hardware and miscellaneous which may be required for *each* SIX-SHOOTER to be installed. Individual installations vary, so confirm required items before purchasing and installing. **When in doubt, CONSULT FACTORY.**

Drain:

- (1) 8" diameter Schedule 40 PVC pipe, length as needed.
- (1) 8" diameter rubber coupling (Fernco-type Coupling) for slurry drain.

Connecting Pump to Reclaimer:

Water supply line: It is up to the Customer to determine the proper size and type of line to minimize friction losses to the reclaimer. In most (NOT ALL) installations, the pump has a 3" discharge. In most (not all) installations, water hose will work.

The supply line that is *least* restrictive in terms of friction loss is PVC pipe. If PVC pipe is used, customer should minimize the use of elbows and tees, wherever possible, as they add to friction loss. **IF IN DOUBT, CONSULT FACTORY PRIOR TO PURCHASING AND INSTALLING THE WATER SUPPLY LINE.**

Wash-out Stinger(s):

- Model X1:
- (4) 1/2" anchor bolts
 - 2" Hose and Hose clamps
 - (1) 3" x 2" Reducer

Model X2:

- (8) 1/2" anchor bolts
- 2" Hose and Hose clamps
- (1) 3" threaded Tee
- (1) 3" x 2" Reducer

Infeed Spray Nozzles:

- (1) 1" Tee
- 1" Hose and Hose Clamps
- 1" Ball valve (may need to be installed to limit flow to the infeed hopper so as to maintain flow up to the wash-out stinger(s))

Front Rotor Bushing:

- 3/4" Hose and Hose Clamps

Rotor Spray Nozzle:

- 2" Hose and Hose Clamps
- 2" Ball Valve recommended

Sand Screw Nozzle and Tail Shaft Bushing:

- 3/4" Hose and Hose Clamps
- 1/2" Tee

Rear Rotor Nozzle:

- 1" Hose and Hose Clamps
- 1" Ball Valve recommended

Optional Sand Screw Heater:

- (6.25) Gallons Anti-Freeze, 1" Street Elbow, 1" x 8" Nipple, 1" Cap, Conduit and/or cable

Optional Loop detector: 16 AWG THHN stranded Copper wire, Silicone Caulk or Epoxy for sealing detector loop on ramp.

Gearmotors:

Are shipped WITH oil. Before operating system, ensure oil is at proper level (ref. Section 1.11)

Electrical connections and mounting should be performed by qualified electrician, following all local and national codes. Electrician to determine use of junction boxes, water-tight fittings, etc. to meet codes.

1.03 OFF-LOADING

Depending on the options ordered with your equipment, you should receive some or all of the following items with each system:

- One (1) SIX-SHOOTER Shroud/Rotor assembly, complete with Sand Dewatering Screw (may be shipped pre-assembled, or un-assembled, depending on shipping location/arrangements)
- One (1) Electrical Control Panel.
- One or more boxes containing installation and assembly hardware, if needed for optional equipment, and, if purchased, the optional dewatering sand screw heater.
- One (1) or two (2) sets of wash-out Stinger Weldment(s), with valve(s), and box containing pump.

The shroud/rotor/dewatering sand screw assembly comes equipped with lifting lugs for off-loading and installation. This assembly **MUST** be off-loaded using a crane or “cherry-picker”. **USE OF A FRONT-END LOADER IS NOT RECOMMENDED!** Severe equipment damage and/or personal injury or death may result from improper off-loading of equipment.

 **CAUTION! DO NOT USE A FRONT-END LOADER TO OFF-LOAD OR INSTALL EQUIPMENT.**

Standard rigging practices and procedures should be utilized to avoid damage or injury. **Damage caused by improper off-loading is easily detectable and NOT covered under warranty.**

ALWAYS LIFT EQUIPMENT FROM LIFT EYES ONLY! Lifting from other locations is dangerous and may lead to equipment damage and/or injury or death to personnel!

All other items may be off-loaded with a fork truck, or other means.

TOTAL SHIPPING WEIGHT OF THE SYSTEM IS APPROX. 5-6000#, broken down as follows:

Snubnose Shroud/Rotor/Sand Screw Standard assembly:	5000#
Electrical Control Panel:	200#
	PLUS additional depending on miscellaneous/optional items.
Snubnose Shroud/Rotor/Sand Screw Double Wide assembly:	5300#
Electrical Control Panel:	200#
	PLUS additional depending on miscellaneous/optional items.

1.04 RECLAIMER INSTALLATION

1.04.01 SETTING THE RECLAIMER SHROUD (MAIN ASSEMBLY)

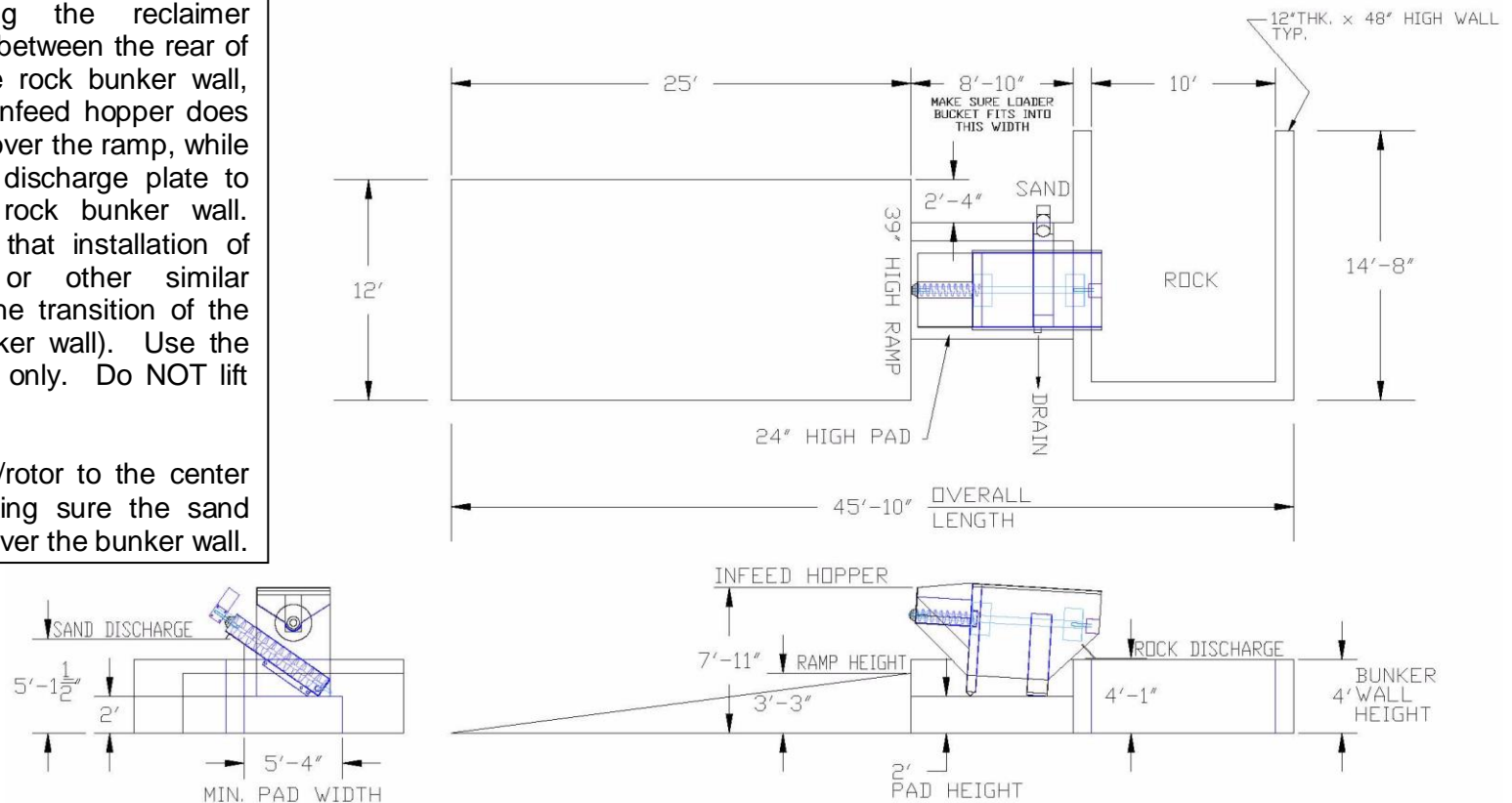
The following lay-out drawing shows a typical installation. This lay-out may vary for each application.

Actual pad lay-out and pit dimensions are typically provided by BFK Technologies prior to equipment shipment. Please refer to those drawings during installation.

Begin by setting the reclaimer assembly in place between the rear of the ramp, and the rock bunker wall, ensuring that the infeed hopper does not extend too far over the ramp, while allowing the rock discharge plate to extend over the rock bunker wall. (Some users find that installation of rubber skirting, or other similar material, aids in the transition of the rock over the bunker wall). Use the integral lifting lugs only. Do NOT lift elsewhere.

Center the shroud/rotor to the center of the ramp, making sure the sand screw discharges over the bunker wall.

NOTE: Dimensions are for reference only! Do NOT build from this drawing!



1.04.02 INSTALLING THE SAND SCREW DRIVE HEAD

In most cases, the sand screw is shipped from the factory completely assembled in the reclaimer main assembly. This is typical for US and Canadian customers, where the reclaimer is shipped via flatbed truck, for example. If your reclaimer was shipped with the sand screw completely assembled, you may skip this section.

In some instances, the reclaimer is shipped without the sand screw drive head (sand screw gearmotor assembly) installed. This is typical for International customers, where the reclaimer is shipped via container.

If your reclaimer was shipped via container, you will find the sand screw drive head in a box on a pallet, and will need to now install the drive head.

See pictures on the following page.

A. First, install the drive shaft to the sand screw, using the (2) 5/8" Grade 2 Hex Head Cap Screws and associated hardware supplied. Tighten securely.

B. Next, lift the drive head up and position the gearmotor hollow-bore opening to the end of the previously installed drive shaft. **NOTE: The Drive Head assembly weighs approx. 220#.** Use of a sling or other lifting device is recommended to avoid injury to personnel!

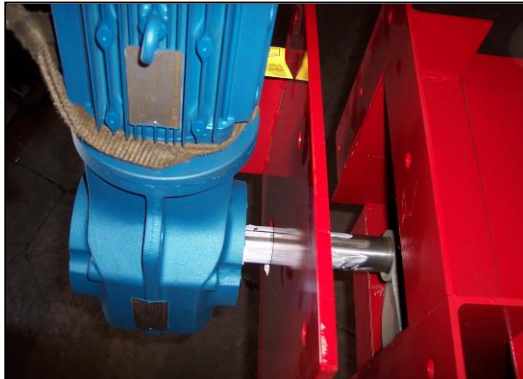
C. Begin sliding the gearmotor onto the shaft. Use of grease, applied to the drive shaft, is recommended. Before completely seating the gearmotor, install the supplied square drive key into the keyway. Finish installing the drive head by sliding the gearmotor down onto the drive shaft until the mounting plate meets the mounting flanges on the reclaimer housing. **MAKE SURE THE KEY IS FULLY ENGAGED IN THE HOLLOW-BORE OF THE GEARMOTOR.**

D. Install the (7) 3/8 hex head cap screws and associated hardware. Tighten securely.

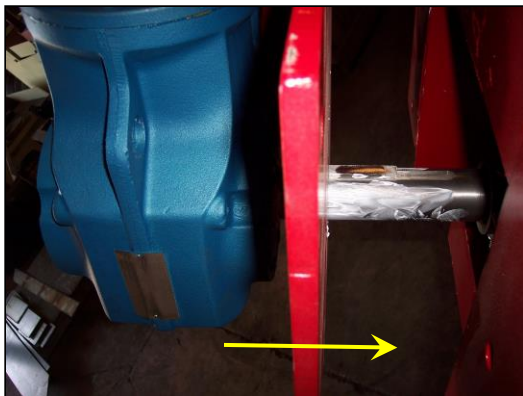
E. You must then install the gearmotor shaft bolt and spacer washer (supplied) into the end of the drive shaft. You may need to lift (slide) the sand screw up into the gearmotor (use a pry bar, or other device) in order to complete the installation. Tighten bolt securely, and then install supplied end cap to complete installation of the sand screw drive head.



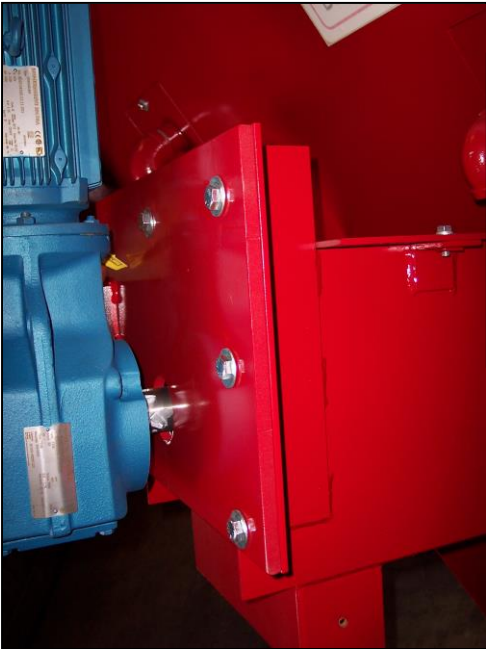
A
Drive Shaft installed using (2) 5/8" Grade 2 Hex Head Cap Screws and associated hardware.



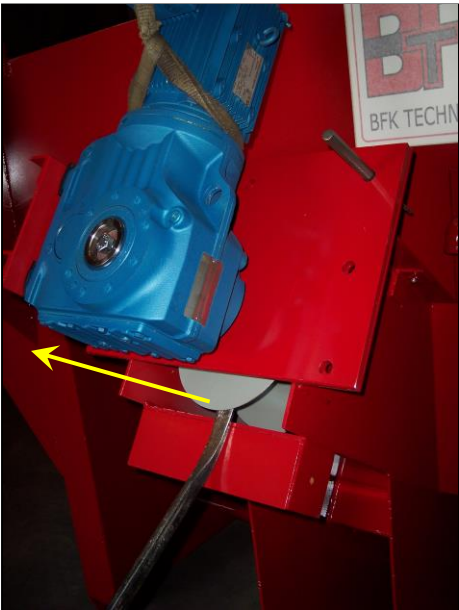
B
Drive head lifted via sling.



C
Slide drive head onto drive shaft. Use supplied grease on shaft. Install key.



D
Install (7) 3/8" hex head cap screws.



E
Lift screw to install gearmotor shaft bolt and spacer washer.

Complete by installing end cap.

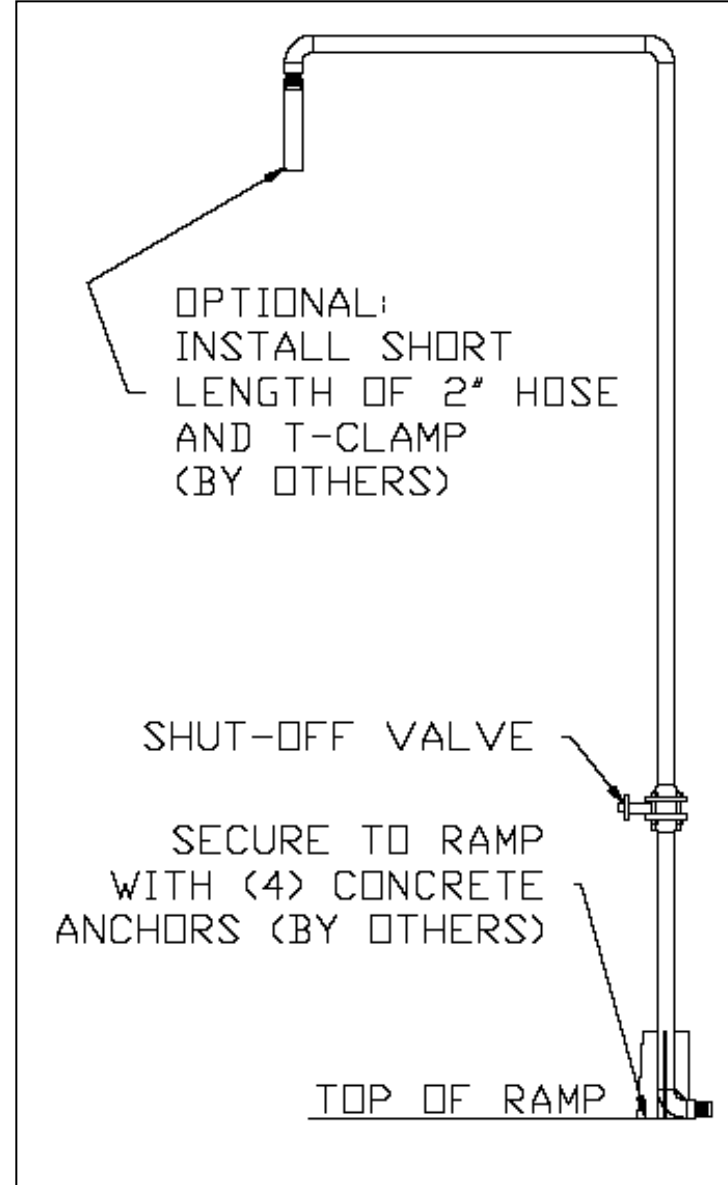
1.05 WASH-OUT STINGER INSTALLATION (When purchased)

The SIX-SHOOTER system may come equipped with (1) truck wash-out stinger (Standard Model X1), or (2) wash-out stingers (Double-Wide Model X2).

Locate the shut-off valve and (4) ½" Cap Screws & associated hardware for each.

Before bolting the lower stinger(s) to the ramp, assemble the entire stinger assembly as follows:

1. Lay lower stinger weldment in line with upper stinger weldment.
2. Position the valve body in-line with the flanges on the upper and lower stingers, and install and tighten all hardware.
3. Optional: Install short length of 2" water hose on upper stinger king nipple, securing with a hose clamp.
4. Lift stinger assembly into position and secure to ramp with ½" anchor bolts (by others).



1.06 PUMP INSTALLATION (When purchased)

The system *may* be supplied with one Submersible pump. Suspend the pump near the surface of the water, off of the pit wall in the settling pond farthest from the reclaimer. **When installed, it is important to keep the submersible pump above the bottom of the pit to prevent the fine solids from being sucked up and run through the water system.** The pump has 2 lift eyes integral to the pump for suspending the pump properly. It is up to the purchaser to develop the best way to install the pump for their installation. Lay-out and pit dimensions may have already been provided by BFK Technologies prior to equipment shipment. Please refer to those drawings during installation.

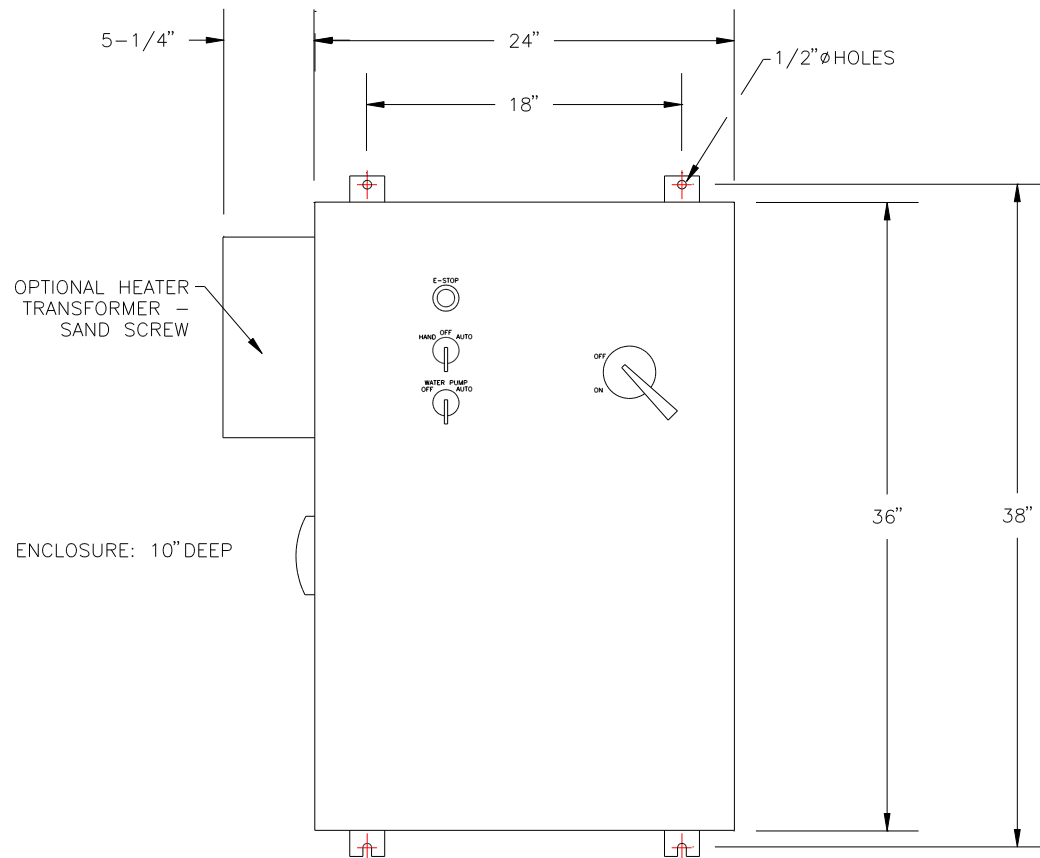
1.07 CONTROL PANEL INSTALLATION

The Control Panel needs to be mounted in accordance with local and national codes.

Typical Control Panel dimensions shown on drawing.

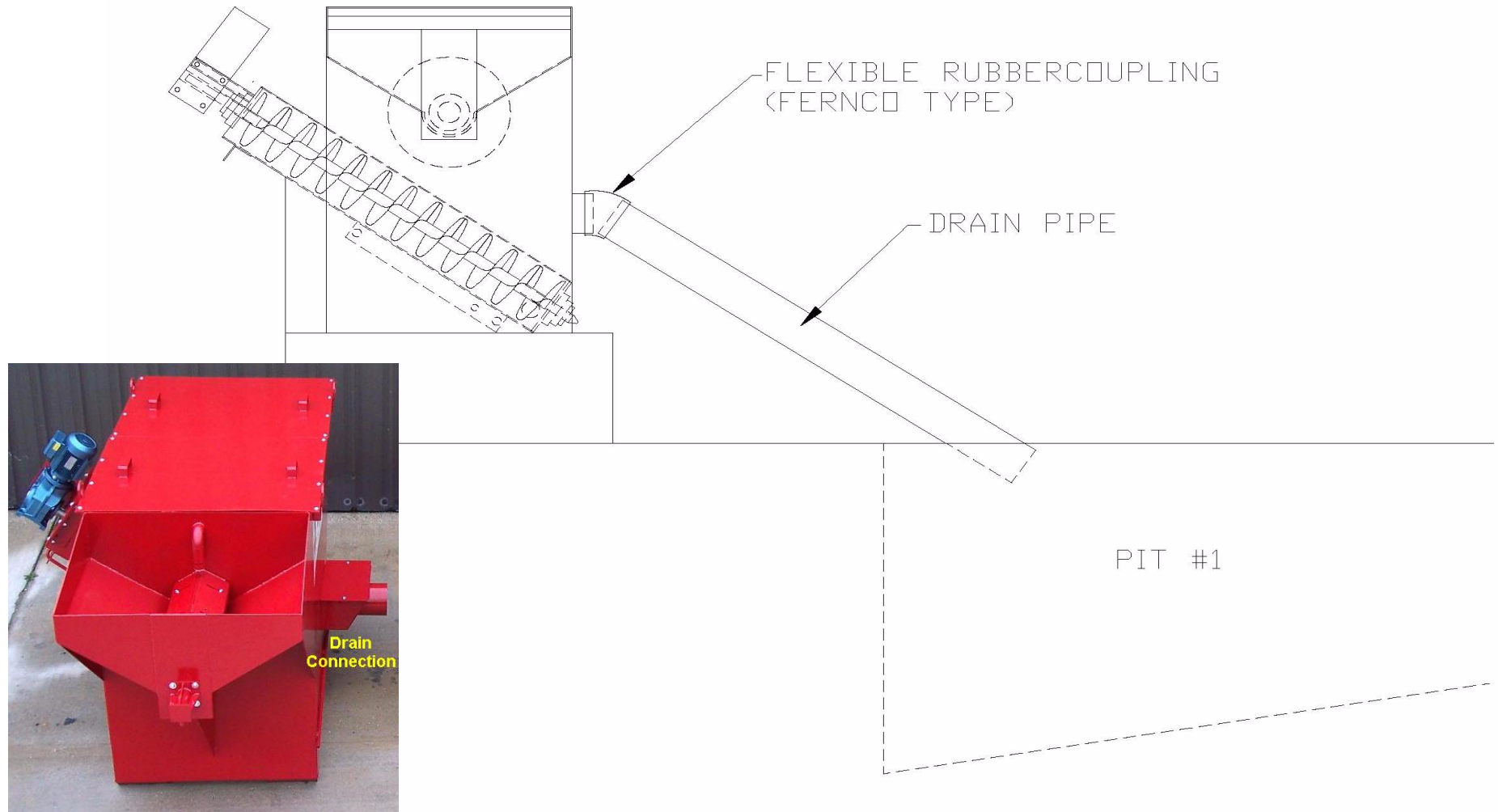
Actual dimensions may vary, depending on options purchased.

CONFIRM DIMENSIONS PRIOR TO INSTALLATION.



1.08 DRAIN INSTALLATION

The drain pipe must be installed so that it has a negative slope. It typically consists of 8"Ø PVC Pipe, and a rubber coupling (Fernco type) supplied by the user. It may also need 90° or 45° elbows to drain properly into the first pit (closest to the reclaimer). The drain lay-out should already have been identified on the pit system installation drawings (if supplied). Please refer to those drawings during installation. On especially long runs, support stands are recommended.

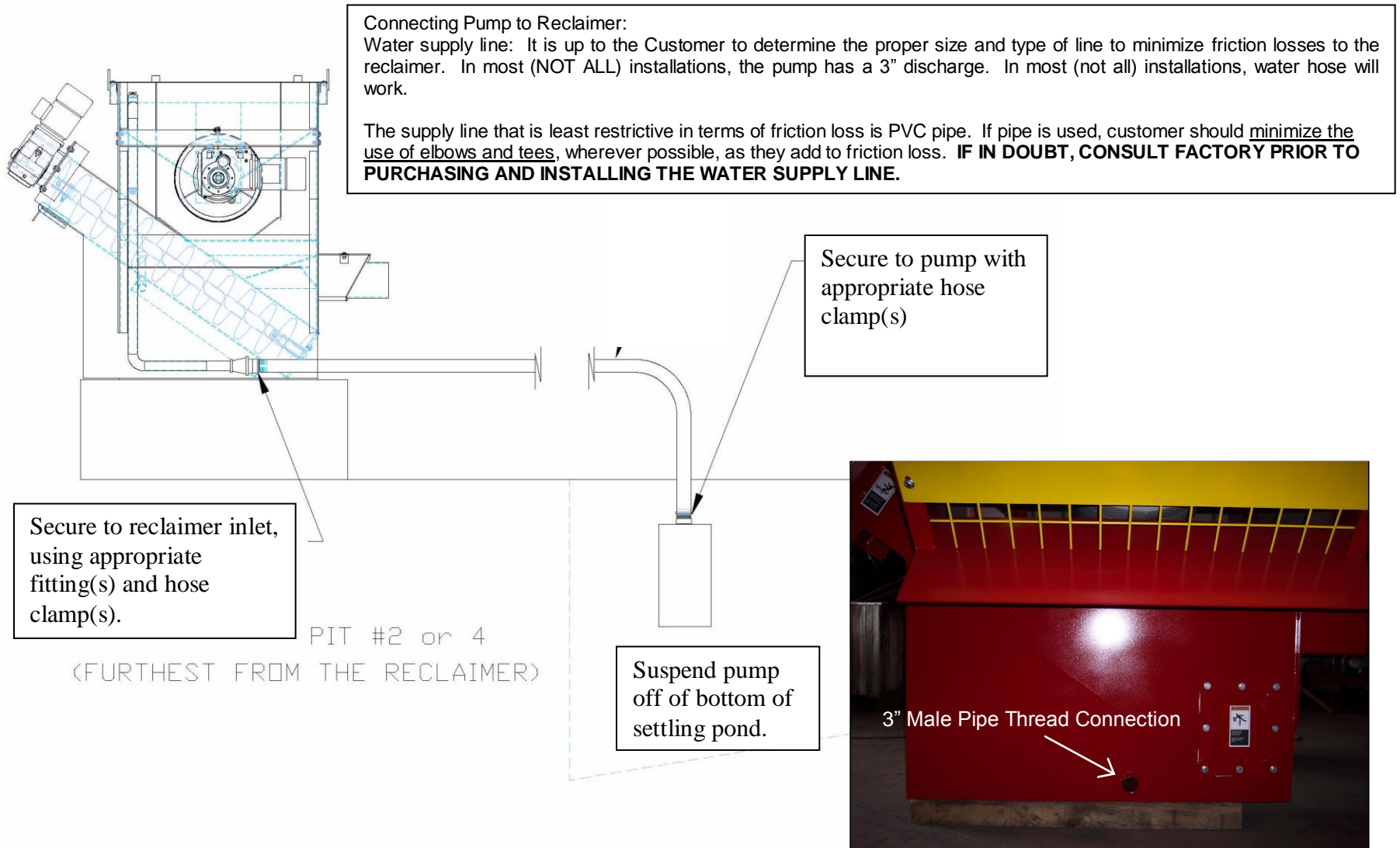


1.09 WATER CONNECTIONS

NOTE: Any pipe connections NOT used should be capped/plugged with appropriate fitting.

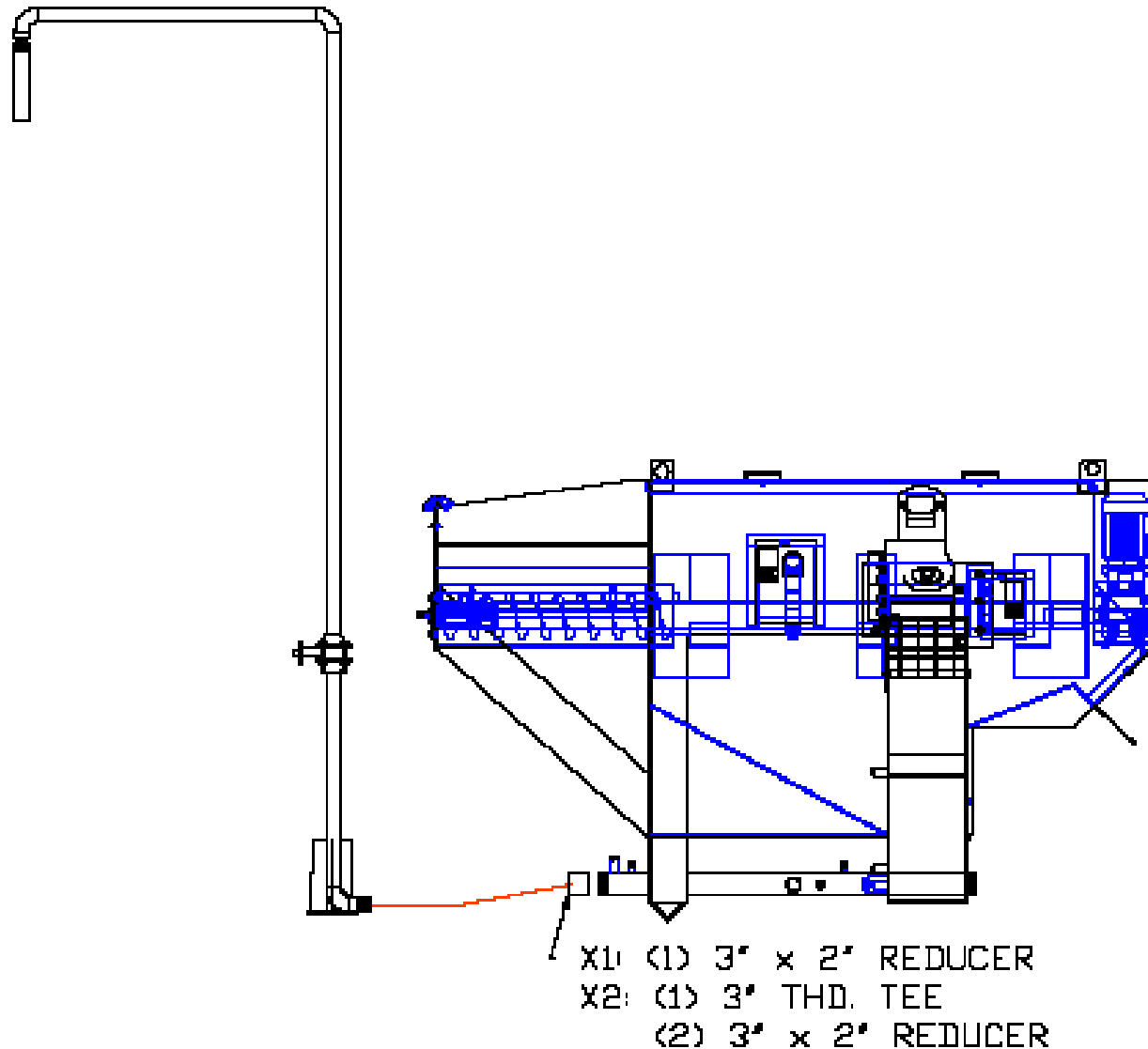
PUMP TO RECLAIMER:

Connect pump to reclaimer. BFK provides a 3" Male Pipe Thread connection at rear of reclaimer. MOST (NOT ALL) PUMPS supplied have a 3" pipe thread discharge. **CONFIRM** pump discharge size before purchasing and installing connection and fittings. **ALWAYS** place reducer fitting (if needed) AT RECLAIMER INLET, NEVER AT PUMP DISCHARGE!



CONNECT TO WASH-OUT STINGER(S) (where used):

Install required fittings on pipe connection on reclaimer, under infeed hopper. BFK provides a 3" male pipe thread. If your reclaimer was supplied with (1) wash-out stinger (Model X1), use a 3" x 2" reducer and appropriate fittings, 2" hose and hose clamps to connect from the reclaimer to the stinger. If your reclaimer was supplied with (2) wash-out stingers (Model X2), you will need to add a 3" threaded tee wand (2) 3" x 2" reducers in order to connect both.



INFEEED SPRAY NOZZLES:

Install required fittings on pipe connection on reclaimer, under infeed hopper. BFK provides a 1" male pipe thread. Nozzles are 1" female pipe thread.

NOTE: If pressure at wash-out stinger outlet(s) is not great enough to provide wash-out water to truck, **install a ball valve in the hose feeding the infeed nozzles**, and close down until water comes out of wash-out stinger(s), while sufficient water is still being sprayed into infeed hopper.

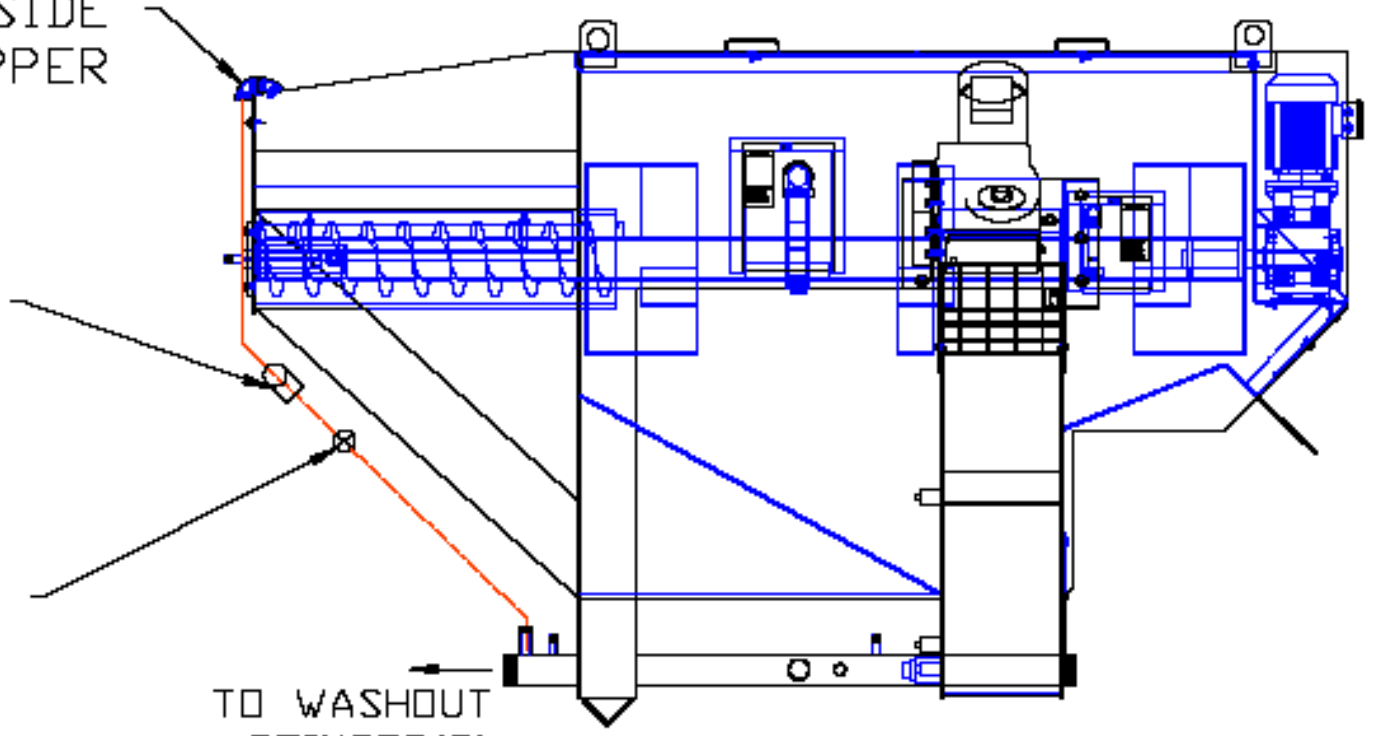
This may occur when the distance from the pump to the reclaimer is especially long.

1" INFEEED NOZZLES
ONE EACH SIDE
OF INFEEED HOPPER

1" TEE REQ'D.

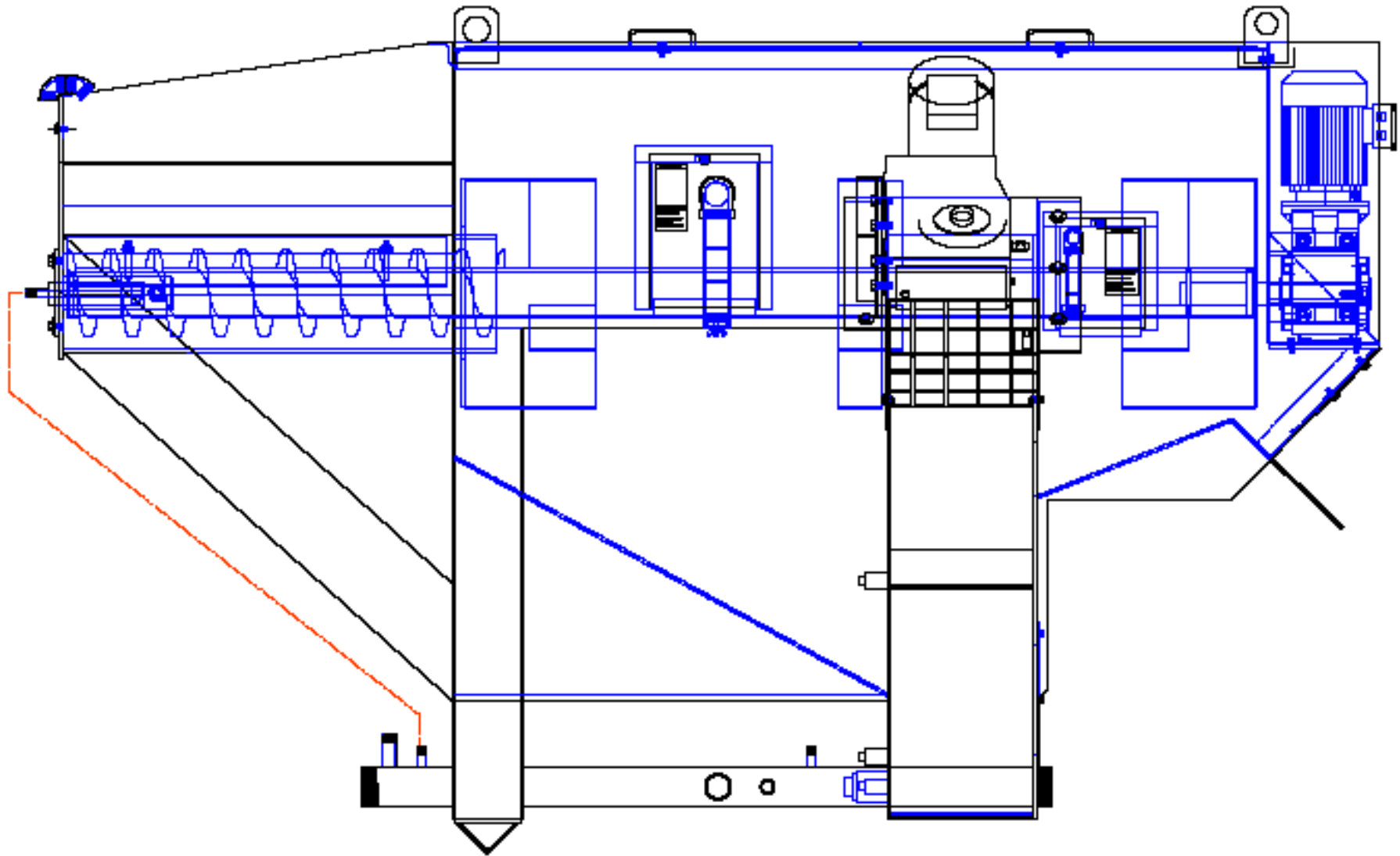
1" BALL VALVE
(IF NEEDED)

TO WASHOUT
STINGER(S)



FRONT ROTOR BUSHING:

Connect front rotor bushing nozzle using $\frac{3}{4}$ " water hose and (2) hose clamps, as shown, taking care so that the water will drain out of the hose after shutdown, so as not to freeze in cold weather.

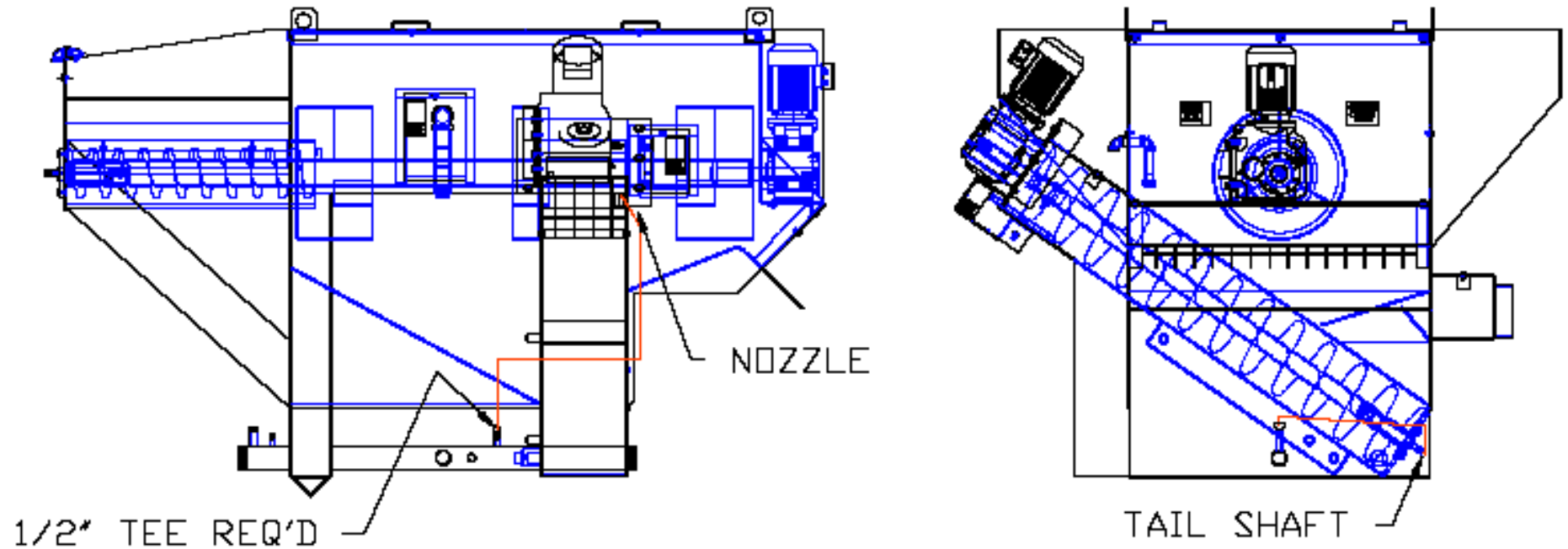


SAND DEWATERING SCREW NOZZLE AND TAIL SHAFT:

BFK provides a 1/2" male pipe stub on main water pipe. Customer should first install a 1/2" tee, facing side-to-side when tight.

First, connect sand dewatering screw nozzle to one side of tee using fitting, 3/4" water hose and (2) hose clamps, as shown. Second, connect tail shaft to opposite side of tee with fitting, 3/4" water hose and (2) hose clamps, as shown.

Take care so that the water will drain out of the hoses after shutdown, so as not to freeze in cold weather.



ROTOR SPRAY NOZZLE AND REAR ROTOR NOZZLE:

These nozzles are mounted on access panels on the side of the reclaimer. The rotor spray nozzle is a 2" nozzle, the rear rotor nozzle is a 1" nozzle.

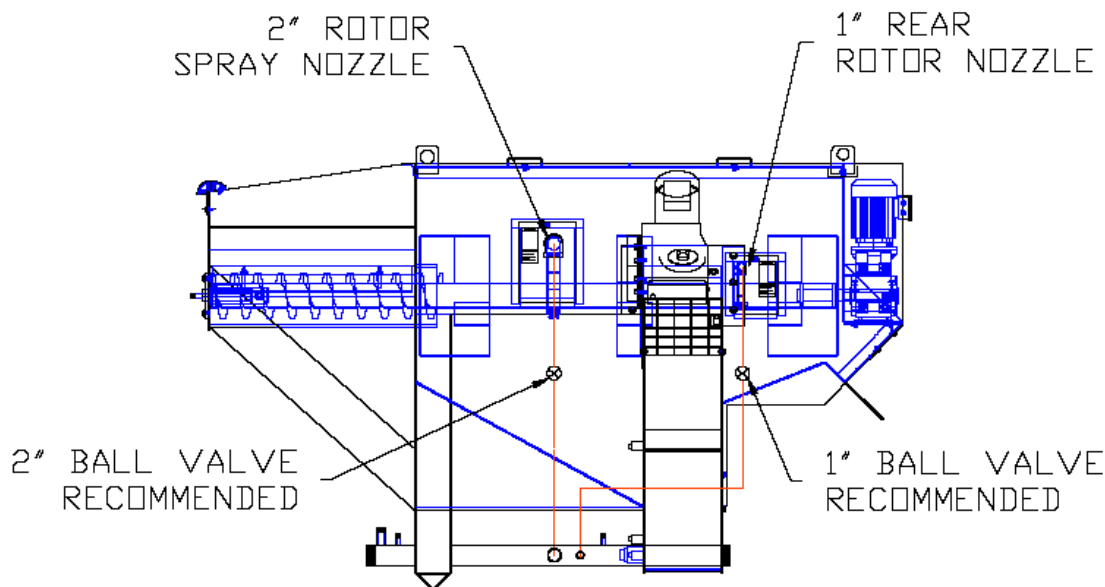
BFK provides a 2" male pipe stub on main water pipe for connection to rotor spray nozzle. Customer should connect from 2" pipe stub to rotor spray nozzle using required fittings, 2" hose, and hose clamps. **It is recommended that customer also install 2" ball valve in this hose, to be able to control water flow to the nozzle.**

BFK provides a 1" male pipe stub on main water pipe for connection to rear rotor nozzle. Customer should connect from 1" pipe stub to rear rotor nozzle using required fittings, 1" hose, and hose clamps. **It is recommended that customer also install 1" ball valve in this hose, to be able to control water flow to the nozzle.**

The purpose of the valves is to control the amount of water being sprayed into the rotary screen. Less water in means less water out, therefore, less turbulence in the drain (turbulence increases fine sand flow out of the drain).

It is recommended that the user turn down the flow using the valves to the minimum flow that still ensures that the rock is being effectively cleaned. This will probably involve some trial and error on the users part.

Take care so that the water will drain out of the hoses after shutdown, so as not to freeze in cold weather.



NOTE:

Leave enough slack in the hose so that the access panels may be removed for nozzle inspection and cleaning.

Make sure, however, in areas prone to freezing, you do not leave too much slack in the hose to create a "dead spot", where water can collect after shutdown.

1.10 OPTIONAL EQUIPMENT

1.10.1 SAND DEWATERING SCREW HEATER

If optional heater was *not* purchased, you may skip this page.

The screw box heater is designed to minimize the possibility of freezing the water in the bottom (lower end) of the sand dewatering screw during extended shut-down periods.

Remove 1"Ø square head pipe plug shipped on unit. Locate electric heater (shipped in accessory box), and screw into coupling, being careful not to damage the heating elements. Tighten to eliminate leakage. Install 1¼"Ø street elbow and 8" nipple pipe into highest coupling. Fill heat box with approximately 6.25 U.S. gallons of anti-freeze. Recommended winter setting: 140° to 160°F.

Install 1¼"Ø pipe cap on 8" nipple when filled, to complete installation.

Locations of Heat Box Fill, Heater Mounting, Heat Box Drain, and Sand Screw Drain shown.

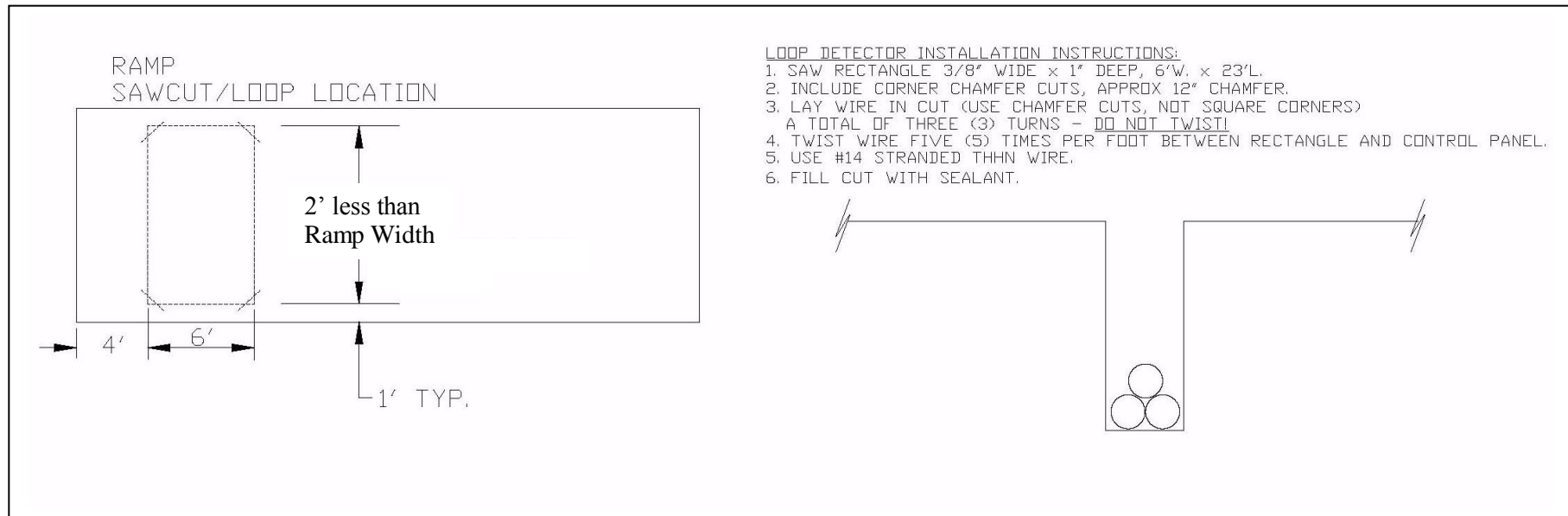
If optional Sand Screw Heater was purchased, installation of a 1" Street elbow, 1" x 8" nipple and 1" cap to create a Heat Box Fill Tube (as shown in picture) will aid in proper filling of anti-freeze.



1.10.2 LOOP DETECTOR

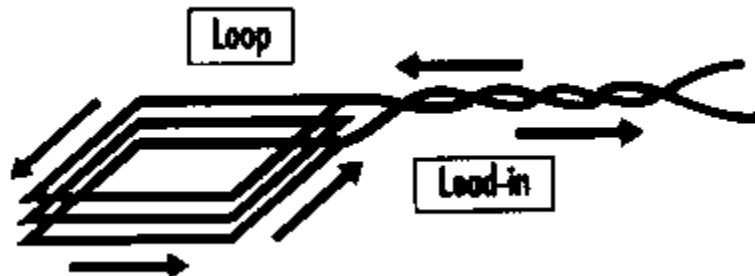
If optional loop detector was *not* purchased, you may skip this page.

The loop detector is designed to automatically sense the presence (or absence) of trucks at the reclaimer. It is tied into the “start” relay in the control panel. When a truck, or other large metallic object, such as a front-end loader, is sensed, the system will automatically turn on. Also, when the loop detector senses the absence of a truck, it will initiate the shut down cycle.



**NOTE: Customer to supply actual loop wire.
Use #14 Stranded THHN Wire.**

BFK provides the Loop Detector Sensor only, mounted and pre-wired inside Control Panel enclosure.



LOOP INSTALLATION TIPS

The loop consists of stranded wire suitable for direct burial with low AC and DC resistance. The loop should be not less than 6' wide, the length being 2' less than the overall width of your ramp (allowing 1' off of each edge of the ramp). The depth of the saw cut is typically 1" deep by 1/4" to 3/8" wide. Cut the corners of the loop to 45° angles to avoid pulling loop wires around a 90° and risk damaging the wires. Do not push the loop wires into the saw cut with any sharp object. Always stay a minimum of 2" above any rebar or wire mesh. The loop wire is wound to form a coil. Ideally there should be no splices in the loop i.e. take your loop wire and go out to your saw cut, go around your saw cut 3 times, and come back to your detector. Twist the lead-in portion 5 times per foot. The loop is one continuous wire.

Twist only the lead-in, the part from the edge of the loop back to the detector. **Do not twist the loop.**

1.11 GEARMOTOR OIL

Gearmotors mounted on both the rotor and the sand screw are shipped with the proper type and amount of oil.

Oil level should be checked prior to operation of the equipment, to confirm.

DAMAGE CAUSED BY RUNNING THE EQUIPMENT WITHOUT OIL IS EASILY DETECTABLE AND NOT COVERED UNDER WARRANTY!

When the need arises to refill the units, refer to the Gearmotor Specification Sheets shipped with the equipment for proper oil types and amounts. If uncertain, CONSULT FACTORY.

At a minimum, Gearmotor oil should be drained and replaced ANNUALLY.

SECTION 2.0 ELECTRICAL CONTROL PANEL

2.01 SCHEMATICS/FIELD WIRING & POWER REQUIREMENTS

Schematic drawings are sent in the inside door pocket of the electrical control panel enclosure. It is up to the qualified electrician on-site to run the appropriate conduit and cable for proper connection of all equipment supplied with your system.

Main power requirements are as follows:

230VAC	50 Amp minimum	80 Amp recommended
460VAC	30 Amp minimum	50 Amp recommended

At other voltages, consult factory. Note that there is both a minimum and a recommended amperage for each voltage. The minimum amperage listed will be enough to run the complete reclaimer operation. However, we recommend that larger service be provided up front for additions such as lighting, pumps, etc. that you may not want or need now, but may wish to add later. The additional expense to size for the larger service is much cheaper now rather than later, and is not much more initially than sizing for the minimum.

2.02 OPERATIONS

The SIX-SHOOTER Control Panel will be assembled for your specific application and optional equipment purchased. The basic system is the “heart” of all applications. Discussions of optional equipment will follow.

Basic System – MANUAL OPERATIONS

The basic package consists of a NEMA 12 enclosure, complete with all required fuses, heaters, motor starters, relays and terminal strips, on/off and e-stop switches, and alarm horn.

In addition, there are (3) internal relays with the following functions:

- TR1 Start Delay Relay When system is turned on, relay energizes alarm horn for 10 sec. prior to energizing equipment. Time delay (amount of time from when on/off switch is turned on, until reclaimer begins to operate, also amount of time alarm horn sounds) is adjustable on the face of the relay, but is factory preset for approx. 10 seconds.
- TR2 Stop Delay Relay When system is turned off, relay goes into shut-down cycle. The relay allows the reclaimer to continue to run for a time after the on/off switch is turned off, to allow the reclaimer to clean-out prior to shut-down. The time delay is adjustable on the face of the relay, and is factory preset for 6 minutes (shown as 36 x 10 sec.).

TR3 Latch Up Timer This timer is energized by the manual start switch (or loop detector, if used). As long as the On/Off switch remains in the ON position (or there is a truck sensed by the loop detector) for 2 seconds, the relay energizes to latch up the motor starters.

On the front door, the switches consist of:

- Main Disconnect
- On/Off Switch
- E-Stop Switch
- Water Pump Off/Auto

To operate the machine, the Main Disconnect must be in the ON position (door closed), with the E-Stop pulled out. Simply turn the On/Off Switch to the ON position.

At this point, the alarm horn will sound for approx. 10 seconds (thru TR1), and then the equipment will begin to operate.

After you are done using the reclaimer, simply turn the On/Off switch to the OFF position. The reclaimer will continue to run for an additional 6 minutes prior to shutting down (thru TR2).

Water Pump Off/Auto Switch: This switch allows the user to run the reclaimer without turning on the water pump. This is beneficial during housekeeping or while troubleshooting the equipment in the event of problems. Simply turn the switch to OFF to turn off the pump. Make sure to put the switch back into the AUTO position prior to using the reclaimer.

OPTIONAL EQUIPMENT:

SAND DEWATERING SCREW HEATER:

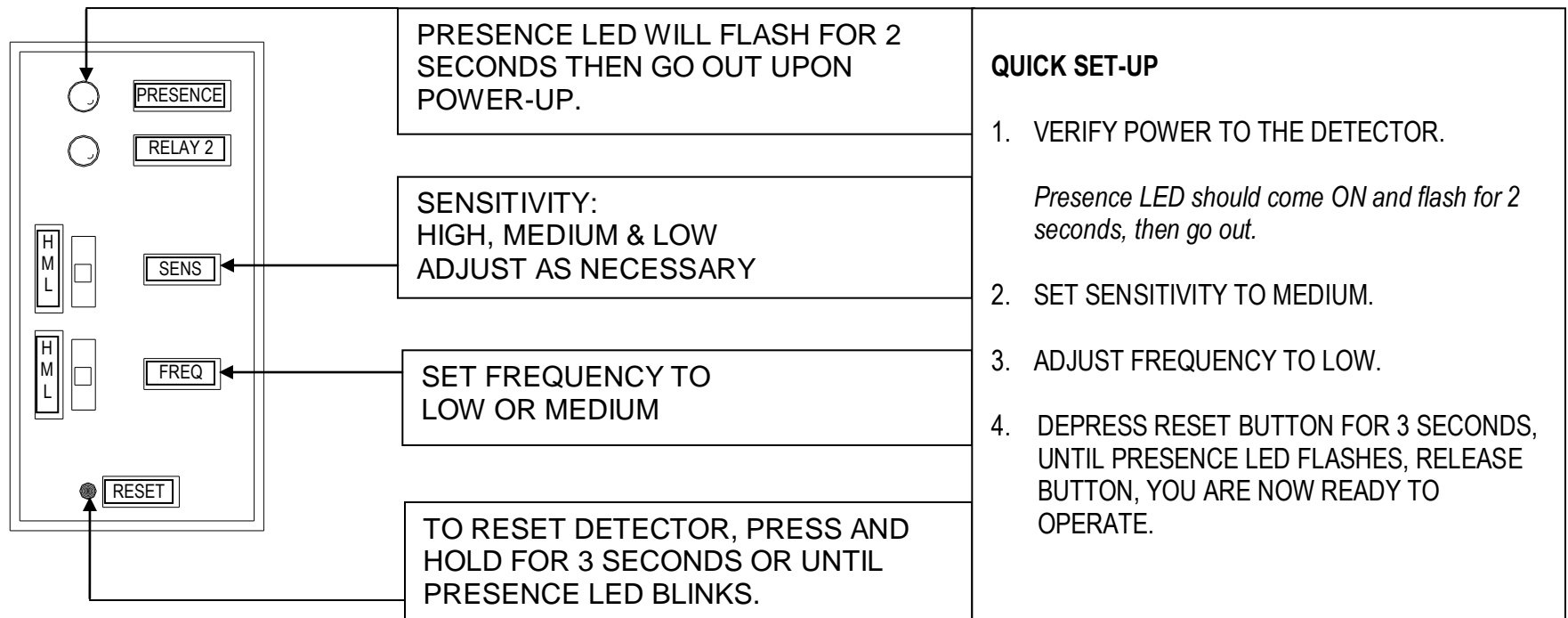
In certain locations, it is desirable to provide a heat source to the sand screw in order to prevent it from freezing. The heater provided on the Snubnose reclaimer is thermostatically controlled (up to 180°F), and is powered by a 110VAC circuit thru a step-down transformer. This transformer is mounted to the side of the enclosure.

The heater element installs in a 1"NPT coupling underneath the sand screw (see Section 1.10.01). The heating element is immersed in anti-freeze. When the ambient temperature drops below the preset temperature, the heater turns on, heating the anti-freeze, which in turn, keeps the water in the sand screw from freezing. The temperature setting is adjustable. Simply remove the cover plate from the heater, and adjust to desired temperature. Recommended winter setting: 140° to 160°F.

LOOP DETECTOR/PRESENCE SENSOR (Optional):

The Loop Detector option provides the user the ability for fully automatic operation of their reclaimer. It eliminates the need to rely on the truck drivers to turn the reclaimer on and off.

When a truck drives over the loop (installation covered in Section 1.10.02), the presence sensor senses its presence and initiates the START operation of the reclaimer. The alarm horn sounds, and the machine turns on. After the truck leaves, the presence sensor senses its absence, and initiates the shut-down cycle (factory preset for 6 minutes). Should another truck arrive before the shut-down cycle is complete, the presence sensor resets and keeps the system running until that truck leaves, and then initiates the shut-down cycle once again.



NOTES:

- The optional loop detector that is supplied (if purchased) is simply the loop detector relay module.
- Wire for the loop by others (see Sec. 1.10.2).
- The loop detector relay module is shipped inside the Control Panel, typically in a small cardboard box secured within (to avoid damage during shipment).
- User must plug loop detector relay module into socket that is mounted and pre-wired in the panel enclosure, and connect loop wire.

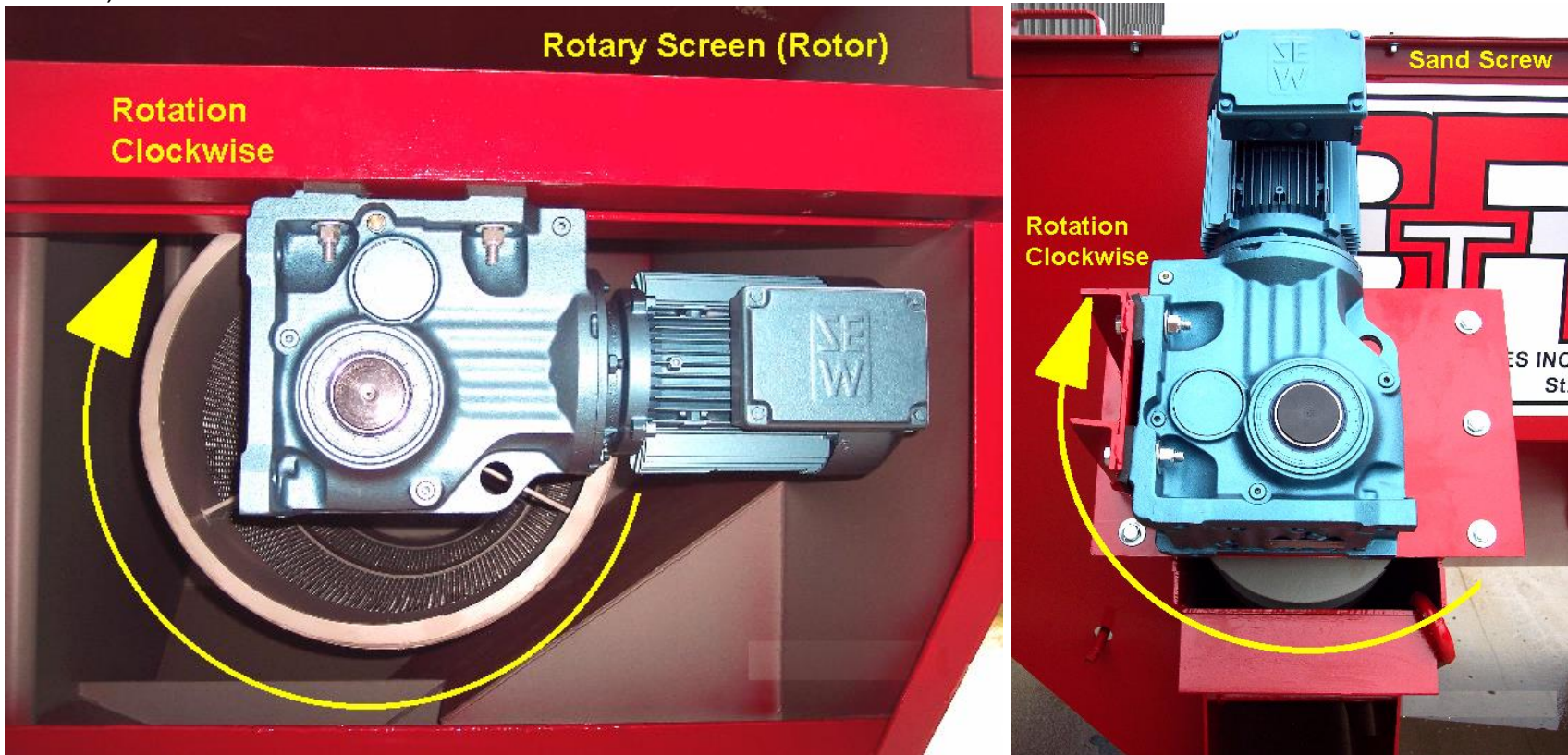
SECTION 3.0 INITIAL EQUIPMENT START-UP

At this point, all items should be mechanically mounted, electrical connections are complete, and all water connections have been completed. It is time to start up the SIX-SHOOTER for the first time. **NOTE: It is also assumed, at this point, the pit system is full of water.**

The goal here is to determine the following:

- Rotor is spinning in the proper direction.
- Sand Screw is spinning in the proper direction.
- Water Pump is spinning in the proper direction.

With the Control Panel operating manually, turn the On/Off switch to the ON position. After the alarm horn sounds, the equipment should begin to operate. Check rotation of the rotor and sand screw as shown in the following pictures (NOTE: BOTH should rotate CLOCKwise.)

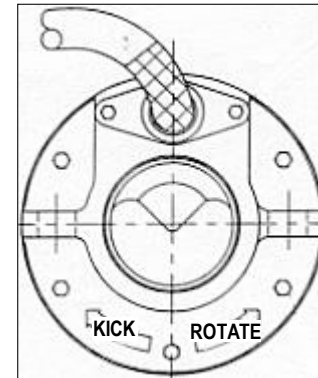


If either the rotor or the sand screw is turning the wrong direction, turn off and lock-out the reclaimer, and have your electrician reverse the leads for proper operation. Confirm rotation again.

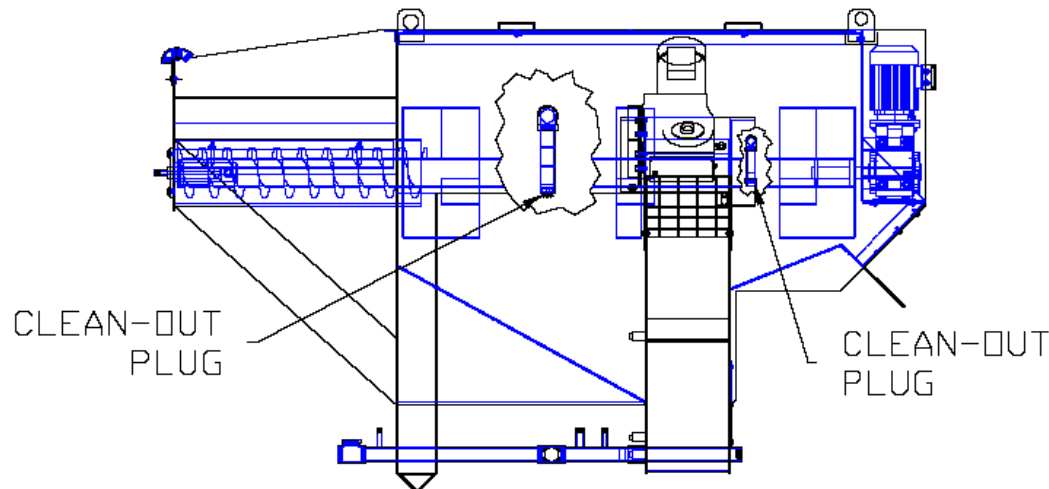
To confirm proper pump rotation, pull the pump out of the pit and hold the pump by the 2 integral lifting lugs. HOLD ON TIGHT as the rotational force of the pump will try to “kick” the pump out of your hands. Have someone “bump” the On/Off switch to the ON position, then quickly turning to OFF. While looking down at the top of the pump, notice the directional arrow on the top of the pump. “Bump” the pump on and off 3 or 4 times to confirm that the pump is turning in the direction of the proper arrow.

IMPORTANT: Do NOT just check for water flow into the reclaimer, as the pump is able to pump water in *either* direction.

However, if it is running in the wrong direction, the amount of water to the reclaimer will not be sufficient. If pump is turning the wrong direction, have electrician reverse the leads for proper operation. Confirm by “bumping” prior to replacing the pump into the pit.



Once all 3 rotational items are turning in the proper direction, turn On/Off switch to the ON position, and allow reclaimer to run for 10-20 minutes. This period allows the equipment to become wet, ensuring everything seats properly, etc. While it is running, review all nozzles for water output. Check the infeed hopper nozzles, the rotor spray nozzle, the rear rotor nozzle, and sand screw backwash nozzle. **Make sure clean-out plugs are in place.**



Also, open the valve(s) (if equipped), on the wash-out stinger(s) and check for water flow. Now is also a good time to confirm proper operation of the E-Stop. With reclaimer running, press E-Stop. Check to make sure system stops. To restart, simply pull out the E-Stop. Confirm reclaimer is again running.

After a 10-20 minute break-in time, shut the reclaimer OFF using the On/Off Switch (NOT the E-Stop).

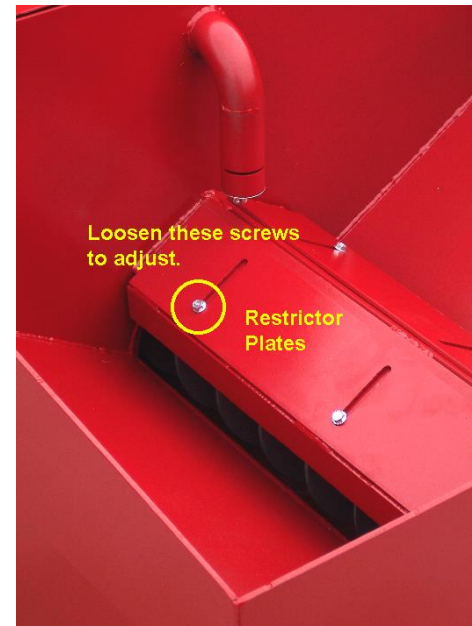
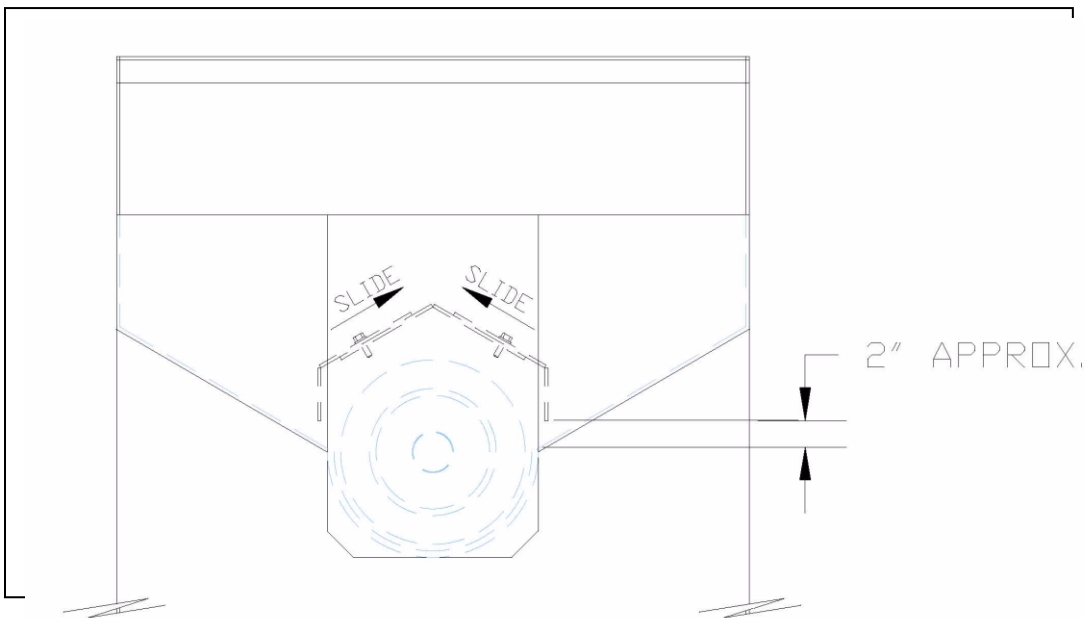
Inside of the infeed hopper, you will notice a set of adjustable infeed restrictor plates (NOTE: Style may vary from that shown). These restrictor plates provide 2 functions. First, they are a safety precaution, covering the infeed auger to keep operators safe. Second, they help restrict the speed that the wet concrete can flow into the reclaimer. The restrictor plates may need to be adjusted for your operations.

ADJUST RESTRICTOR PLATES. **DANGER:** Do NOT adjust while reclaimer is running! Turn Off and Lock-out equipment before adjusting to avoid injury!

Loosen 3/8" Self-tapping screws and slide plates into position. When gap between slider plates and the bottom of the infeed hopper is at the proper setting, tighten all bolts.

Gap setting will usually be approximately 2", depending upon the size and type of aggregates being used. If material enters the rotor too quickly, close the gap (material being fed too quickly will often times result in improper cleaning of the sand and rock). The maximum recommended gap setting is 3".

MAKE SURE GAP IS WIDE ENOUGH TO PREVENT JAMMING OR CLOGGING OF ROCKS!



Assuming that all nozzles are pumping water, everything is rotating properly, and after your 10-20 minute run in time, you are now ready to reclaim your first load of concrete!

SECTION 4.0 PROCEDURES FOR RECLAIMING CONCRETE

The SIX-SHOOTER is designed to reclaim *wet* concrete.

A large infeed hopper coupled with a capacity of up to 1/2 yard per minute allows one truck at a time (Standard X1), or 2 trucks at a time (Double-Wide X2) to unload concrete into the SIX-SHOOTER.

1. Drive mixer truck up to infeed hopper so chute can discharge concrete into hopper and washout stinger pipe is over truck mixer charge hopper.
2. If automatic operation is in use (i.e. loop detector), the alarm horn will sound upon detection of the truck, followed by the reclaimer starting. If manual operation is in use (i.e. NO loop detector), driver or operator should turn On/Off Switch to the ON position, the alarm horn will sound, followed by the reclaimer starting.
3. Add water as needed to slump up concrete, to **6" to 10" slump recommended**.
4. With the mixer truck at idle speed, discharge concrete and wash water into the dump hopper. Best performance occurs when the waste concrete is fed in **at the same rate that the reclaimer takes it away**. Do not fill the hopper and let the infeed auger move the material thru, as it will probably slow down the reclamation rate.
5. Add water to infeed hopper, if needed, thru trucks wash-out hose.
6. If system is in AUTO Mode - Drive away when truck is empty. System automatically shuts off after shut-down cycle.
7. If system is in MANUAL Mode – When truck is empty and rinsed out, turn On/Off switch to OFF position. System automatically shuts off after shut-down cycle.

IMPORTANT: DO NOT USE THE EMERGENCY STOP FOR NORMAL OPERATION!

Note: The capacity of the reclaimer will be approximately 1/2 cubic yard per minute.

Capacity and quality of reclaimed aggregates can be affected by:

- Fine gradation of material
- Coarse gradation of material
- High or Low slump,
- Poor pit system design.
- Overall system maintenance and cleanliness.

Keep in mind that it will take several yards of concrete passing thru the reclaimer before any sand will be discharged out of the sand screw. The sand must build up a layer inside the screw box, which gives the water a path back to the reclaimer drain, as well as minimizing wear on the screw box.

APPLICATION NOTES:

- a. *Cold weather operation **without a sand screw heater***: The SIX-SHOOTER Reclaimer completes separation of each load of concrete before shutting off. Water in the system drains back to the settling pond. **IMPORTANT:** At the end of each day, remove the water drain plug in the lower bottom section of the sand screw housing to drain out the water and prevent freezing of any water remaining in the sand screw. Also, remove the water pump from the ponds and allow to drain out.
- b. *Cold weather operation **with sand screw heater***: The SIX-SHOOTER Reclaimer completes separation of each load of concrete before shutting off. Water in the system drains back to the settling pond (if water connections were made properly!). The lower bottom section of the sand screw housing is jacketed with anti-freeze and includes an electric heating element to prevent freezing of water remaining in the sand screw. Remove the water pump from the ponds at the end of the day. **IN THE EVENT OF A POWER FAILURE OR HEATER FAILURE, THE SAND SCREW MUST BE DRAINED TO PREVENT FREEZING!** Always check for proper heater operations – simply “trusting” that it is working may cause freeze up of the sand screw.

CAUTION!

DO NOT ATTEMPT TO RUN THE RECLAIMER IF WATER AND SAND ARE FROZEN IN THE BOTTOM OF THE SAND SCREW BOX. Attempting to do so may cause SEVERE damage to the equipment!

SECTION 5.0 EQUIPMENT MAINTENANCE

CAUTION! TURN OFF AND LOCK-OUT RECLAIMER PRIOR TO PERFORMING ANY MAINTENANCE!

NOZZLES

Check ALL nozzles **DAILY** for plugging or obstructions. **It is important the nozzles are working properly to keep the screen clean.** Dirty nozzles reduce the efficiency of the system. Remove clean-out plugs where possible and remove any cement build-up, fibre, etc. Rotor Nozzles can be accessed by removing the access panels on the side of the reclaimer.

SCREENS

Check the screen weekly for wear, blinding, obstructions and fibre.

1. Clean screen of cement build up with a liberal amount of straight muriatic acid, or other commercially available product. Allow the acid to completely clean – then rinse with water. Screen life is related to how well the pit system is designed and maintained. Poor design and/or maintenance of the pit system will reduce screen life.
2. If fibre accumulates: Fibres can be removed from the screen using a pressure washer from the outside in, or treating with muriatic acid and then melting the fibers after they have dried with a propane burner.

Note: Screen is not covered under warranty.

PUMP SUCTION SCREEN. Inspect DAILY for obstruction.

Notes: *Remove* the pump(s) from the water when cleaning the pit to avoid damage by the loader.

A small winch lift can be installed above each pump for easy removal of the pump(s).

Reclaiming concrete with fibres may require the installation of a screen in the weir leading to the pump pond. A screen around the pump intake may also be necessary. This will help keep fiber out of the pumps and spray nozzles. The screens should be checked daily and fibre build up removed. **Plugged pump screens will lower pump output and reduce the efficiency of reclaimer material washing system, and if ignored, will eventually lead to the death of the pump.**

SECTION 6.0 PIT SYSTEM MAINTENANCE & OPERATION

1. Check the water level in the pits daily and add water if necessary. The water level should be maintained at the level of the weirs.
2. Pit #1, or the pit that is *closest* to the Reclaimer, where the reclaimer drains into: Remove the spent cement from the bottom of pit #1 as needed, typically every one (1) to three (3) days, with a front end loader. **This clean-out time will vary with reclaimer use.** This time frame allows the spent cement to settle at the bottom of the pit.
3. Pit #2 (where used): Remove the spent cement from the bottom of pit #2 as needed with a loader, typically every 2 to 4 weeks.
4. Pit #3 (where used): Remove the spent cement from the bottom of pit #3 as needed with a loader, typically every 2 to 4 weeks.
5. Pit #4, or the pit that is *farthest* from the Reclaimer, where the pump is located: Remove the spent cement from the bottom of pit #4 as needed with a loader, typically every 2 to 4 weeks.

NOTE: *Always* remove submersible pump during cleaning.

It is up to the user to check for cement build-up in the settling ponds, and clean as needed.

Remember the Settling Pond System is as much a part of the reclamation system as the Reclaimer itself.

**POOR SETTLING POND MAINTENANCE MAY LEAD TO DIRTY MATERIALS, PLUGGING OF PLUMBING,
AND PREMATURE EQUIPMENT FAILURE!**

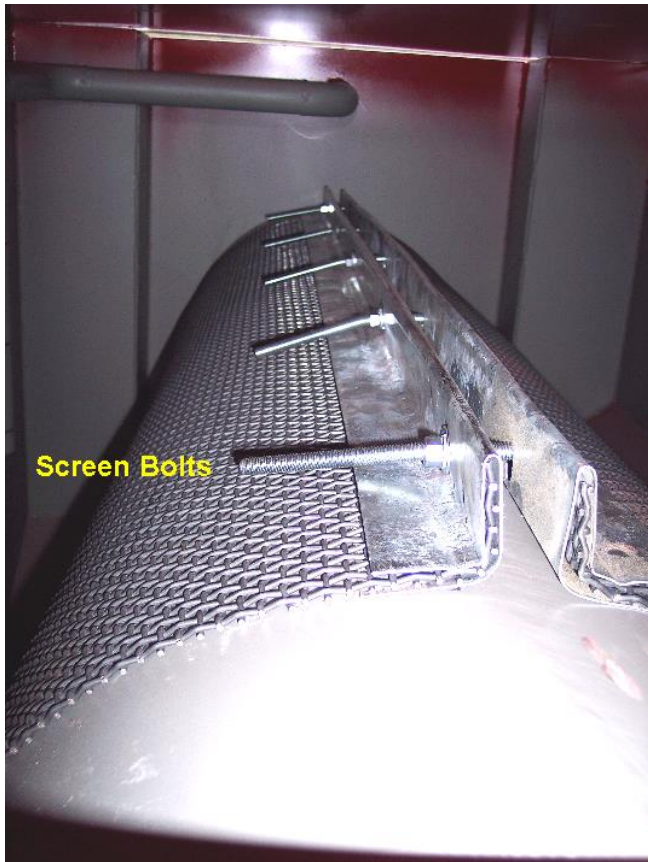
SECTION 7.0 SERVICE

SCREEN

- There is one (1) screen wrapped around the rotor. The screen holds back rock, allowing the sand and cement to pass through.
- The screen is held together at the screen edges with screen hold-down bolts that pass through tabs welded to the rotor.
- The screen should be inspected weekly, at a minimum, more frequently if heavy use of fiber occurs.

SCREEN REMOVAL & INSTALLATION (To access rotor and screen, remove 2 lids)

WARNING: To avoid injury, disconnect and lock out power before attempting screen removal!



The screen is wrapped around the rotor and **under some spring tension to lay flat.** **Care should be taken** when removing the screen hold-down bolts to avoid injury.

Remove the screen hold-down bolts from the screen and remove the screen from the reclaimer housing.

Reverse the above procedure for installing the screen.

INSTALLATION of NEW SCREENS

Screen: lay the screen flat on a clean flat surface with the metal bound edges towards the reclaimer. When installed, the bound edges will come together forming a cylinder and be bolted to the rotor tabs. Install the screen by wrapping it around the inner rotor by feeding the leading edge of the screen under the rotor. Bring the two opposing metal bound edges together, on either side of the screen hold down tabs and line up the holes. Secure the two edges of the screen with the screen hold down bolts going through the screen hold down tab. Tighten the bolts to draw the two edges together and close the gap in the screen. Bolts may be bent after installation to ensure hardware does not loosen.

BUSHINGS

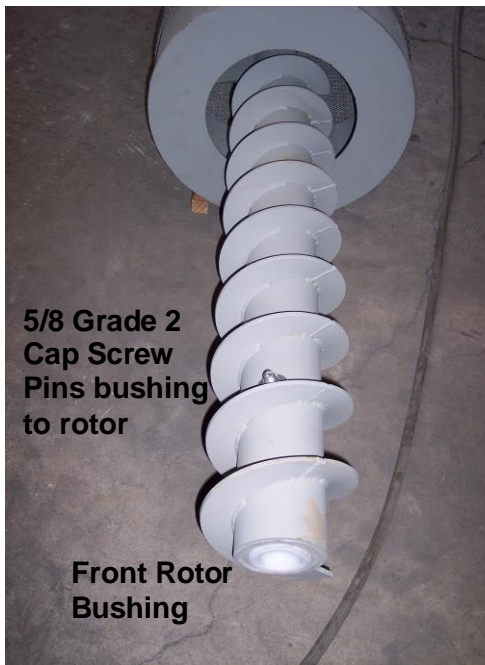
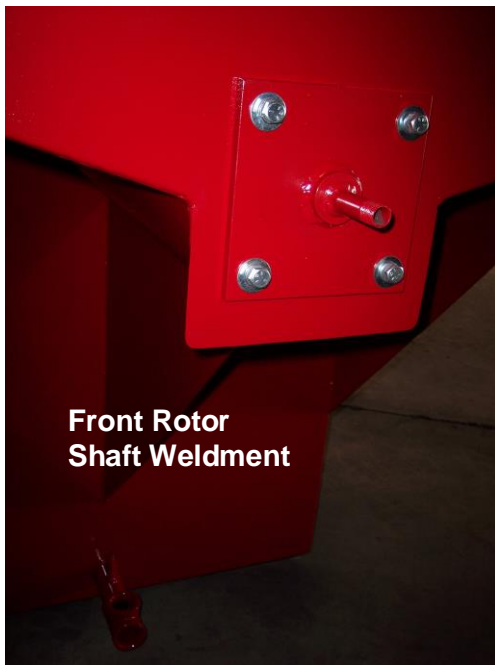
WARNING: To avoid injury, disconnect and lock out power before checking or replacing Bushings!

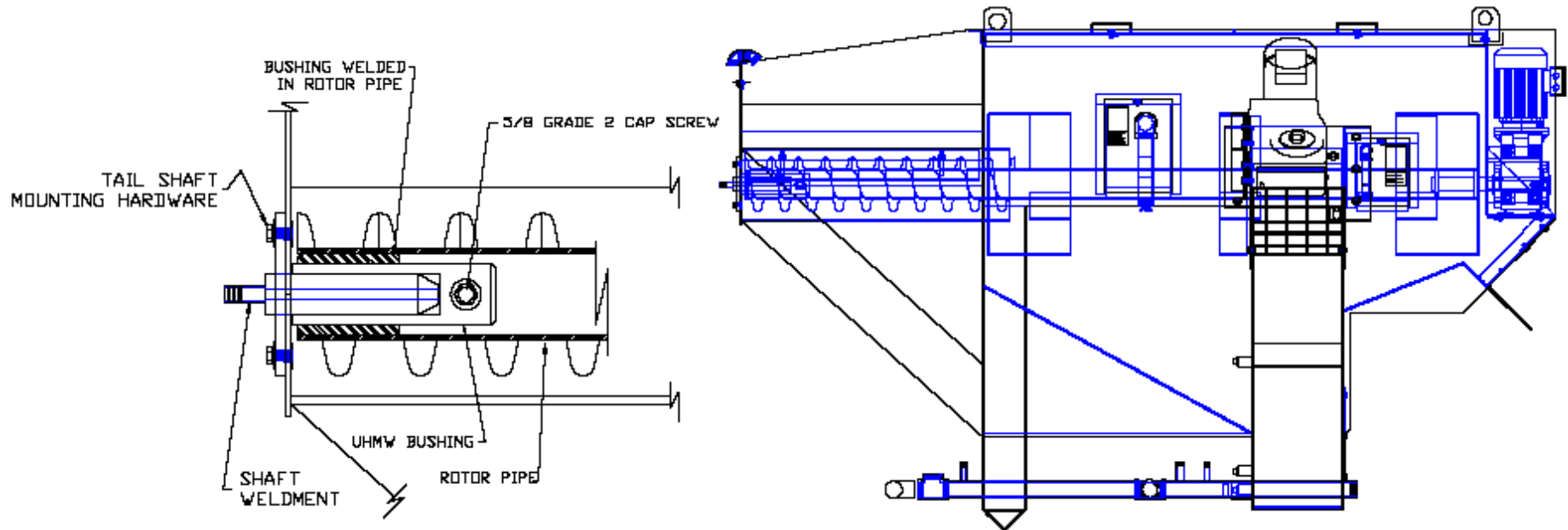
The Six-Shooter Reclaimer comes equipped with UHMW Bushings, rather than greaseable bearings, to support the non-drive ends of both rotating assemblies, the Rotary Screen (Rotor) and the Sand Screw. These bushings are wear items, and must be occasionally replaced. They should be visually inspected *at a minimum of every 3 months to 1 year, depending on reclaimer use, however more often is recommended.*

It is impossible for us to tell you how often these will need replacement, as there are many factors that affect the life of the bushing. Variations in size and hardness of aggregates (esp. sand), daily or weekly reclaimer usage, and pit maintenance (*how much spent cement and grit is being pumped back to the reclaimer, because the pits haven't been cleaned lately?*) are some of the many factors which will affect operating life.

Front Bushing, Rotor

The front rotor bushing is bolted onto the front of the infeed hopper. It is very accessible, and therefore, relatively easy to check. Simply remove the 4 bolts and slide the tail shaft out to view the bushing, which is pinned to the main rotor shaft. Excessive wear is easily noted. If required, replace bushing and/or shaft now, before they are forgotten.





To replace bushing and/or tail shaft:

1. Remove Shaft Mounting Hardware.
2. Remove shaft weldment from reclaimer.
3. Remove 5/8" Grade 2 cap screw. **NOTE:** Removal of the Infeed Restrictor Plates may aid in cap screw removal.
4. Slide UHMW bushing out of rotor pipe.
5. Replace with new UHMW bushing and 5/8 cap screw (NOTE: 5/8 cap screw should be GRADE 2!)
6. Replace existing shaft, if still useable, or new shaft weldment and mounting hardware. **NOTE:** Silicone caulk should be applied to shaft weldment before replacing.

Tail Shaft Bushing, Sand Screw

WARNING: To avoid injury, disconnect and lock out power before checking or replacing Bushings!

The sand screw tail bushing is located at the lower (bottom) end of the sand screw, just below the reclaimer drain. While it is in a location that is not readily visible, with proper site clean-up (i.e. keep the location around the reclaimer free of spilled concrete, etc.) it is fairly accessible, and therefore, relatively easy to change out when needed.

The most effective way to know when the bushing needs replacing is **by listening** to the sand screw.

When the bushing and/or tail shaft has worn away, the lower end of the sand screw will no longer be supported, allowing the screw flighting to ride (i.e. drag) on the inside of the screw box. This will cause an undue amount of “dragging” noise when the reclaimer is running, and most users report that they are able to tell by this sound that the lower assembly must be replaced. It is preferable to replace before the dragging begins, to avoid undue wear and tear on the sand screw and housing.

An access panel is located at the rear of the reclaimer.



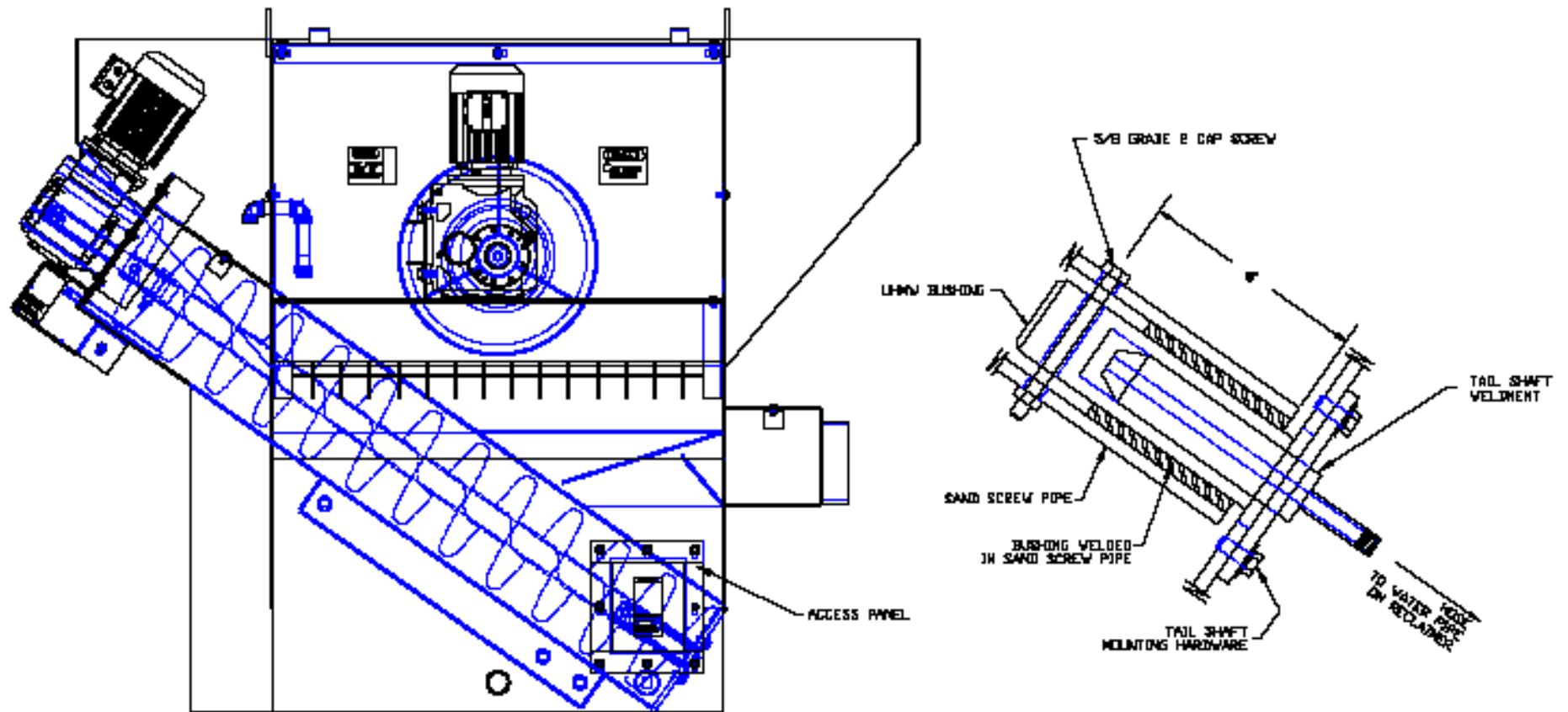
Before removing the access panel, DRAIN the sand screw, as the lower end of the sand screw housing is full of water.

See Section 1.10.1 for drain plug location.

Remove the (8) bolts securing the access panel. This allows access to the lower bushing and shaft.

After inspection/replacement of the bushing and/or shaft, replace drain plug and access panel.

It is recommended that silicone caulk is applied to the access panel flange before replacing. If no caulk is used, the panel will leak.



To replace bushing and/or tail shaft, after access panel has been removed:

1. Remove Tail Shaft Mounting Hardware.
2. Remove tail shaft weldment from reclaimer.
3. Remove 5/8" Grade 2 cap screw.
4. Slide UHMW bushing out of sand screw pipe.
5. Replace with new UHMW bushing and 5/8 cap screw (NOTE: 5/8 cap screw should be GRADE 2!)
6. Replace existing tail shaft, if still useable, or new tail shaft weldment and mounting hardware.
7. Replace access panel. NOTE: Silicone caulk should be applied to access panel before replacing.

SECTION 8.0 INSPECTION CHECKLIST

DAILY:

1. Submersible pump screen. Clean.
2. Nozzles. Check. Clean if needed.
3. Rotor Screen. Inspect. Clean as necessary for proper operation.
4. Infeed Hopper. Check for undue concrete build-up. Clean as necessary.

EVERY ONE TO THREE DAYS, or WEEKLY: (depending on usage)

1. Clean pit(s) with loader.
2. Remove clean-out plugs from nozzles. Clean cement build-up, fibre, etc. so water flows freely.

EVERY 3 TO 12 MONTHS:

1. Drain both Rotor and Sand Screw Gear Motors. Refill with proper oil.
2. Remove housing/weldment on both rotor front shaft and sand screw tail shaft assemblies. Check for wear on housing, shaft and especially UHMW bushing. Replace as needed.

SECTION 9.0 TROUBLESHOOTING

The Troubleshooting Guide should help when trying to solve problems with your reclamation system. It does not, and cannot, cover *all* of the problems you may experience in the field. However, it will give you (and a BFK Technician) a good idea of where the trouble may be.

PROBLEM: *Rotor, Sand Screw or pump will not run.*

POSSIBLE CAUSES: Main disconnect is shut off
Emergency Stop (E-stop) is engaged
Loss of electrical power
Blown Fuses
Motor Starter Relay Heaters are tripped

POSSIBLE SOLUTION: Have electrician check electrical control panel. Replace any blown fuses, if necessary.

PROBLEM: *Heat Tank on Sand Screw will not heat.*

POSSIBLE CAUSES: No or Low Level of Anti-freeze
Power is off
Blown Fuse
Thermostat is turned off, or too low

POSSIBLE SOLUTION: Have electrician check electrical control panel for blown fuse, replace if necessary.
Check thermostat setting on heater.
Fill tank with anti-freeze.

PROBLEM: *Too much Sand is draining into pit system.*

POSSIBLE CAUSES: Restrictor plates in infeed hopper open too far
Drivers feeding material too quickly, or too wet.

POSSIBLE SOLUTION: See Section 3 for proper adjustment of restrictor plates
Add water to truck, to 6" to 10" slump
NOTE: You will *never* reclaim 100% of your sand. A certain amount will always end up in the pit system, especially fines.

PROBLEM: *Discharged Sand is very wet.*

POSSIBLE CAUSES: Dewatering Screw Nozzle is restricted or clogged

POSSIBLE SOLUTION: Inspect and clean Dewatering Screw Nozzle

PROBLEM: *Concrete will not feed into infeed auger.*

POSSIBLE CAUSES: Concrete too “stiff”
Restrictor Plates in infeed hopper closed too far

POSSIBLE SOLUTION: Add water to truck, to 6” to 10” slump
See Section 3 for proper adjustment of restrictor plates

PROBLEM: *Discharged Rock or Sand is Dirty.*

POSSIBLE CAUSES: Restrictor plates in infeed hopper open too far
Pump intake is clogged
Water nozzles clogged
Pump running backwards
Pit system needs cleaning
Clean out plugs on nozzles have fallen out.

POSSIBLE SOLUTION: See Section 3 for proper adjustment of restrictor plates
Check all nozzles and pump intake for clogged material
Replace Clean out plugs
Clean pit system

PROBLEM: *Rock getting into Sand*

POSSIBLE CAUSES: Discharged Rock piled up, and allowed to spill back into rear of reclaimer
Hole, or separation, in screen
Screen opening too large for rock gradation

POSSIBLE SOLUTION: Remove clean Discharged Rock from rear of machine
Inspect screen, replace if needed

PROBLEM: *Sand and/or Cement getting into Rock*

POSSIBLE CAUSES: Screen blinded with fines and/or fiber
Pump or Nozzles are restricted or clogged

POSSIBLE SOLUTION: Inspect screen, clean or replace if needed
Check all nozzles and pump intake for clogged material and fibers

SECTION 10.0 RECOMMENDED SPARE PARTS LIST

		<u>BFK Part No.</u>
1. One (1) Screen	¼" Opening:	30-DPM-001
	3/16" Opening:	30-DPM-002
2. One (1) Front Rotor Tail Bushing		62-DPM-002
3. One (1) Front Rotor Tail Shaft		62-WBS-004
4. One (1) Sand Screw Tail Bushing		32-DPM-002
5. One (1) Sand Screw Tail Shaft (Pin Weldment)		32-WBS-004

SECTION 11.0 WINTERIZING

Upon completion of the reclaiming season, especially in colder climates, remove pump from pit systems. Store Indoors. Pump to be inspected and cleaned accordingly, prior to future use.

Drain entire reclaimer system by opening drain located at bottom of sand dewatering screw.

Disconnect and drain all hoses connecting pump to reclaimer and stinger(s).

Prior to start-up in spring, reconnect all hoses, re-install and connect pump, etc., as defined in preceding sections. During re-connection, visually inspect all hoses, connections and nozzles for leaks, clogging, etc. Correct as necessary. Also, inspect and replace screen cloth, if required. Clean as needed.

Also, perform all routine maintenance procedures, such as draining and re-filling gearmotors, etc. Start-up reclaimer system as defined in Section 3.0 INITIAL EQUIPMENT START-UP.

LIMITED WARRANTY

BFK Technologies, Inc. (BFK) warrants to the original purchaser the BFK equipment that is not manufactured by others, to be free from defects in material and workmanship under normal use and service, and when properly maintained by the purchaser. Use or service with corrosive or abrasive chemicals or materials or in a corrosive or abrasive atmosphere shall not be deemed normal. BFK's obligation under this warranty is limited to repairing at BFK's factory or a factory authorized service center or furnishing a replacement for any part, or correcting any workmanship, which shall be demonstrated to BFK's satisfaction to have been defective at the time of delivery and with respect to which a written claim specifying the particular defect or defects shall have been delivered to BFK or a factory authorized service center within one (1) year from the date of start up of the equipment, not to exceed eighteen (18) months from the date of the delivery of the equipment to purchaser. If the equipment is delivered piecemeal, the warranty period for each portion shall commence at its date of delivery.

The removal by purchaser of parts returned to BFK or a factory authorized service center for repair or replacement and the installation by the purchaser of replacement or repaired parts shall be at purchaser's expense. No work will be done by BFK or factory authorized service center at the site of the installation unless in BFK's opinion it is impractical for purchaser to remove the defective part and return it to BFK's factory or a factory authorized service center.

Defective parts shall be returned, after pre-authorization by BFK, to BFK's factory or to a factory authorized service center. Repairs, replacements, or adjustments for which BFK is responsible will be made as promptly as possible within the standard working hours of any day. All costs for freight, duties or any other related costs for sending or receiving parts are the responsibility of the purchaser. Overtime, if required by purchaser, will be paid for by purchaser. BFK does not warrant equipment manufactured by others, but will submit the manufacturer's warranty to the purchaser upon request.

EXCEPT AS EXPRESSLY STATED HEREIN, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE OF THE EQUIPMENT OR SERVICES FURNISHED BY BFK OR A FACTORY AUTHORIZED SERVICE CENTER. BFK SPECIFICALLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ARISING FROM A COURSE OF DEALING OR USAGE OF TRADE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. BFK SHALL NOT BE LIABLE FOR, NOR DOES BFK AUTHORIZE ANY PERSON TO ASSUME FOR BFK, ANY OTHER LIABILITY IN CONNECTION WITH THE EQUIPMENT OR SERVICES FURNISHED BY BFK, INCLUDING WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, LIABILITY FOR LOSS OF PRODUCTION, PRODUCT, EQUIPMENT OR PROFITS OR LIABILITY FOR DIRECT, INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES TO PERSONS OR PROPERTY. BFK will make no allowances for repairs, alterations or other work done unless specifically agreed to in writing. Purchaser agrees that purchaser's sole remedy for liability of any kind, including negligence with respect to the equipment and services furnished by BFK shall be limited to the remedies provided herein.

ALL dimensions, weights and technical specifications are subject to change, at BFK's discretion, from previously published information. In some applications, NON-standard or custom pieces may be supplied.

All installation, operation and maintenance instructions, including those shown in the Manual supplied with the equipment, attempt to show common, typical installations. YOUR actual Installation may vary.

The information is intended as a guideline only, and may or may not represent the actual equipment supplied. Some pictures and/or drawings may show earlier revisions of the same machine, and may not totally represent the revision of the machine you have.

IN ALL CASES, IT IS THE REPOSIBILTY OF THE CUSTOMER TO ENSURE PROPER SIZES AND DESIGNS OF ALL CONNECTIONS, FITTINGS, WIRING, ETC. ARE PROVIDED BEFORE INSTALLING AND OPERATING EQUIPMENT, and BFK shall be held harmless from problems occurring from improper installation and operation of the system.

Please consult factory if any discrepancies arise before the system is installed and operated. Metric equivalents are provided for reference only.

In most cases, your reclaimer was supplied with one or more submersible pumps. The pump has been sized to operate with most installations. However, as BFK has no control over the installation of the equipment, including but not limited to, the distance from the pump to the reclaimer, the connection method used (Hose vs. different types of pipe, for instance), fittings used, etc., it remains the end-users responsibility to ensure proper water flow and pressure is delivered to the reclaimer.

If the pump shipped with the reclaimer does not provide enough flow and/or pressure, the end-user is responsible for purchasing and installing a pump of the proper size, or adding an additional pump(s), as needed to ensure proper operation of the reclaimer.

Failure to provide adequate water flow and pressure resulting in damaged, plugged or otherwise compromised equipment is not covered under warranty, and all costs associated will be the end-users responsibility.

