

STAR Prefeeder

AND INFEED HOPPERS

USED WITH MODEL M6 CONCRETE RECLAIMERS

Installation, Operation & Maintenance Manual

MST17.4

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TABLE OF CONTENTS

PAGE No.

	SAFETY FIRST!	i-iv
SECTION 1.0	MECHANICAL INSTALLATION	2
	1.01 EQUIPMENT DESCRIPTION.....	2
	1.02 PREPARATION.....	3
	1.02.01 Off-loading the Star Prefeeder/Hopper assembly.....	3
	1.02.02 Installation of the Star Prefeeder/Hopper assembly.....	4
	1.02.03 Installation of M6 Concrete Reclaimer.....	5
	1.03 INITIAL START-UP.....	7
	1.04 REPLACEMENT PARTS.....	9
SECTION 2.0	ROUTINE INSPECTION AND MAINTENANCE CHECKLIST	9
SECTION 3.0	BUSHING REPLACEMENT	10
SECTION 4.0	TROUBLESHOOTING GUIDE	11
	Limited Warranty.....	12





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)



<u>Inhalation</u>	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).
<u>Skin contact</u>	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.
<u>Eye contact</u>	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.
<u>Ingestion</u>	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 Star Prefeeder/Hopper assembly, for use with your Model M6 Concrete Reclaimer. By reading and understanding these written instructions, and following all operational, safety and maintenance procedures, the Star Prefeeder will give you many years of service with minimal maintenance.

The Star Prefeeder is designed for trouble-free operation and minimal maintenance. Various hopper sizes and styles are available, from ½ up to 2 cubic yard capacity, either round, square or rectangular. Custom sizes are also available.

Wet concrete with a maximum aggregate size of ¾" is discharged into the Hopper. The Star Prefeeder mounted to the bottom of the Hopper, discharges directly into the M6 feed hopper, for a consistent flow of wet concrete, minimizing over feeding of material into the M6.

CAUTION: Never feed aggregates larger than ¾" into the Star Prefeeder, it will JAM!

IMPORTANT NOTE:

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, which may or may not be covered in this manual.

The manual attempts to show common, typical installations. YOUR ACTUAL INSTALLATION MAY VARY.

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

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

IT IS THE CUSTOMER'S RESPONSIBILITY TO INSTALL AND OPERATE IN A MANNER CONSISTENT WITH ALL FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS IN THEIR LOCATION, INCLUDING BUT NOT LIMITED TO ELECTRICAL, SEISMIC, AND CLEAN WATER CODES AND REGULATIONS.

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.

1.02 PREPARATION

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

- One (1) Infeed Hopper Assembly, complete with STAR Prefeeder
- Items such as installation/assembly hardware and instruction manual will most likely be shipped in a box with other items specific to the Concrete Reclaimer.



DANGER! SEVERE EQUIPMENT DAMAGE AND/OR PERSONAL INJURY OR DEATH MAY RESULT FROM IMPROPER OFF-LOADING AND LIFTING OF EQUIPMENT!

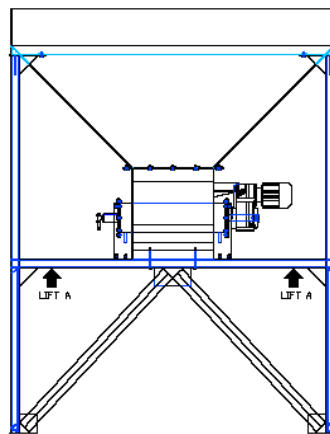
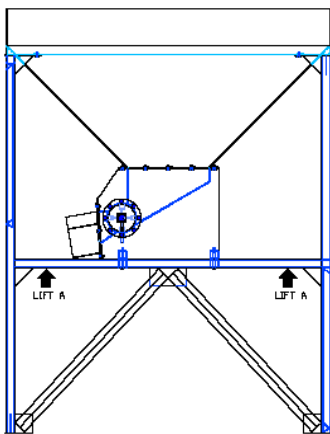
STANDARD RIGGING PRACTICES AND PROCEDURES SHOULD BE UTILIZED TO AVOID DAMAGE OR INJURY. DAMAGE CAUSED BY IMPROPER OFF-LOADING IS EASILY DETECTABLE AND NOT COVERED UNDER WARRANTY.

TOTAL SHIPPING WEIGHT OF THE SYSTEM IS APPROX. 1500-2000#, depending on options, hopper size/shape, etc.
If unknown, consult factory before lifting!

1.02.01 Off-loading the Star Prefeeder/Hopper assembly:



CAUTION! ASSEMBLY IS TOP HEAVY! CLAMP OR SECURE ASSEMBLY TO FORKS PRIOR TO LIFTING AND MOVING TO ELIMINATE THE POTENTIAL FOR TIPPING!



Standard Star Hopper designs:

Lift Star Prefeeder/Hopper assembly underneath frame tubing where shown.

Keep forks on fork lift spread as wide as possible.

Make sure forks extend all the way thru assembly prior to lifting. Fork extensions may be required.

Set unit in place where desired, ensuring that the Prefeeder trough points in the proper direction to feed M6 reclaimer.

Custom Star Hopper designs may require special rigging not covered in this manual. Consult factory.

1.02.02 Installation of the Star Prefeeder/Hopper assembly:

Prior to beginning installation of the M6, the Star Prefeeder/Hopper assembly generally needs to be set in place first.

All concrete foundation work must be completed, and the assembly should be secured to the foundation once set in position.

Allow one day for installation, barring unnecessary delays.

Labor

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

Hardware and miscellaneous

(for *each* Star Prefeeder/Hopper to be installed).

NOTE: Hose lengths listed are generally longer than required. Trim hose(s) to proper length during installation. This list is intended as a guideline only, and may or may not be all-inclusive. Individual installations may vary.

Gearmotor(s):

Are shipped WITH oil. Before operating system, ensure oil is at proper level.

Securing Star Prefeeder/Hopper assembly to foundation:

Hoppers are equipped with four (4) mounting feet, made of 1/4" steel plate, each foot has two (2) 1" dia. holes for securing to foundation. Use (4) to (8) anchor bolts, 3/4" diameter, and associated hardware (anchor bolts and hardware by others).



DANGER! NEVER OPERATE STAR PREFEEDER/HOPPER ASSEMBLIES WITHOUT FIRST SECURING TO FOUNDATION! UNIT IS TOP HEAVY AND CAPABLE OF TIPPING, ESPECIALLY WHEN FULL OF WET CONCRETE! FAILURE TO SECURE MAY RESULT IN SEVERE INJURY OR DEATH!!

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. Some items which *may* be required include:

(1) 6" x 6" junction box for pump connection, where needed.

Conduit and/or cable for connecting reclaimer rotor and sand screw.

1.02.03 Installation of M6 Concrete Reclaimer:

After the Star Hopper/Prefeeder assembly is set in place and secured to the foundation, install the Model M6 Concrete Reclaimer according to the instructions listed in the Installation & Operation Manual provided with the M6 Reclaimer.

In order to set the M6 in the proper position, keep the Star Prefeeder Safety Guard (provided) nearby.

Set the M6 so that the small infeed hopper of the M6 is located just below the discharge point of the Star Prefeeder. Begin mounting the Star Prefeeder Safety Guard onto the face of the Star Prefeeder discharge, making sure the Star Prefeeder will discharge directly into the infeed hopper on the M6, and not interfere with the M6. Move the M6 accordingly. Then secure the M6 to the foundation prior to proceeding with the installation, as described in the Installation & Operation Manual provided with the M6.

Lastly, install the Safety Guard.



**DANGER! NEVER OPERATE THE EQUIPMENT WITHOUT GUARDS SECURELY IN PLACE.
FAILURE TO SECURE TO DO SO MAY RESULT IN SEVERE INJURY OR DEATH!!**



Fittings and hose for plumbing connections from Star Prefeeder to M6:

Connecting Star Prefeeder to M6:

Qty. (1) Connection A:

- (1) Ball Valve (recommended)
- (Set) Fittings to reduce from 1-1/4" MNPT Connection on M6 down to 3/8" Sch. 40 Pipe Nipple
- (1) 3/4" ID Hose x 36"
- (2) Hose clamps

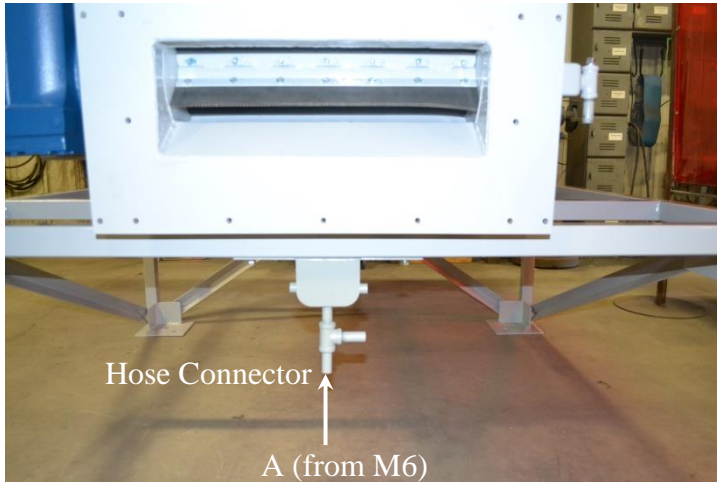
Qty. (2) Connection B:

- (1) 3/4" ID Hose x 15"
- (2) Hose clamps

Qty. (1) Connection C:

- (1) 3/4" ID Hose x 24"
- (2) Hose clamps

Total for all four (4) connections: approx. 90" hose



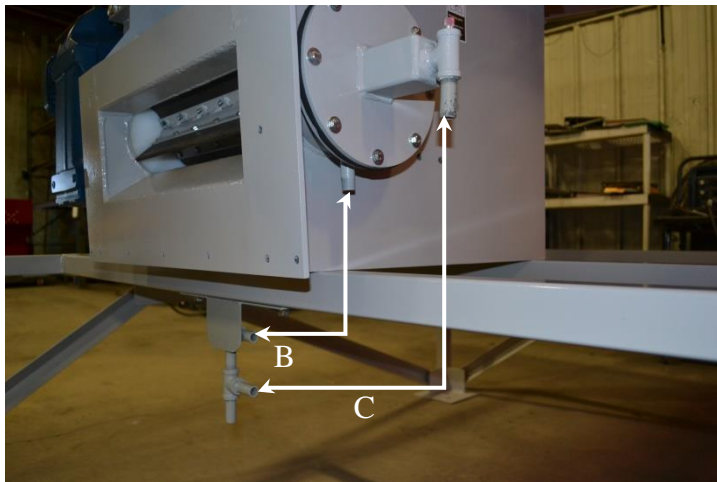
Connection A

The Star Prefeeder/Hopper comes equipped with an additional hose connector (shipped loose) to connect from the 1-1/4" male pipe connection on the M6 to the required ports on the Star Prefeeder.

The Star hose connector mounts underneath the Star feeder using two of the bolts that mount the Star feeder to the hopper frame. Simply loosen the 2 bolts, and slide the connector underneath the bolt heads, retighten. Make sure the extra tee stub points in the direction of the non-drive side of the Star feeder.

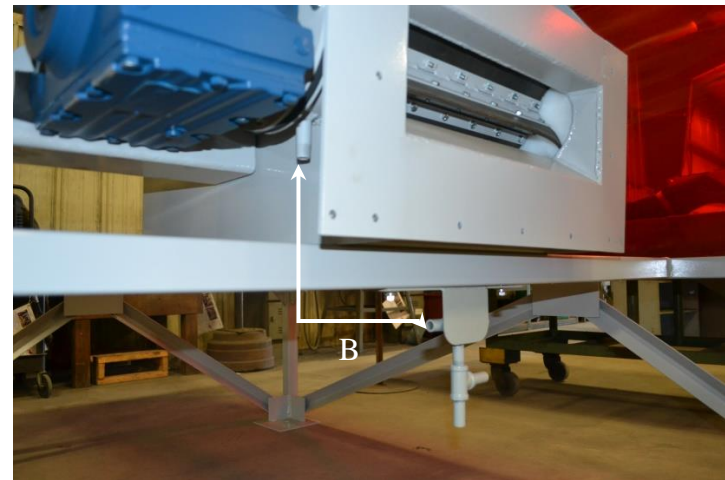
NOTE:

Some users may wish to install a ball valve in connection A, to be able to adjust water flow into the Star Prefeeder, however, it is not necessary, and can be added later, if needed.



One of two Connection B
and Connection C

Non-drive end of Star feeder requires two (2) connections, one to the main Support bushing (B), one to the Tail Shaft support bushing (C).



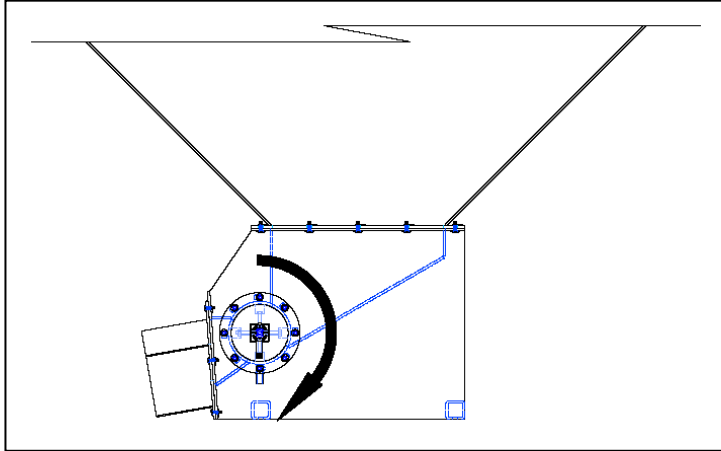
Two of two Connection B

Drive end of Star feeder requires one (1) connection to the main Support bushing (B).

1.03 INITIAL START-UP

NOTE: See Installation & Operation Manual supplied with the M6 Concrete Reclaimer, for start-up of the reclaimer.

After all water connections are complete, and electrical power is available, customer needs to check rotation of the Star Prefeeder.



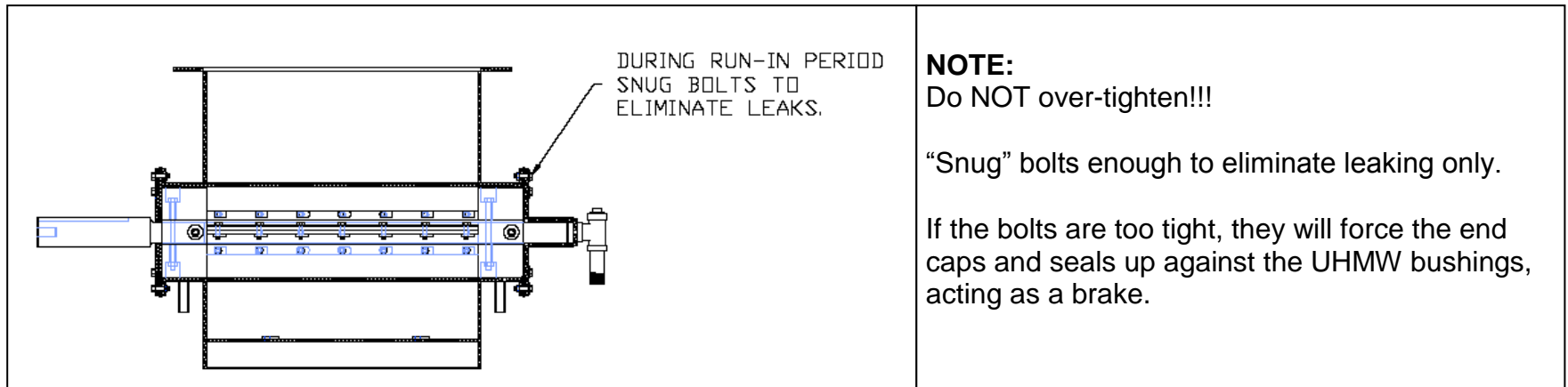
Make sure star feeder is rotating in the direction shown.

If not, de-energize and lock-out, reverse leads and check again.

While performing initial 10-20 minute run-in (see M6 manual), end-cap seals may need adjustment to eliminate leaks.

Begin to tighten bolts (8 per end cap) in an “opposite” fashion, as you would normally tighten the lug nuts on a car tire.

Tighten $\frac{1}{4}$ to $\frac{1}{2}$ turn, then move opposite across end cap and repeat to that bolt. Select bolt midway between those 2, and repeat, followed by its opposite. Continue around the cap in this fashion until all bolts are snug and leaking water has stopped.



NOTE:
Do NOT over-tighten!!!

“Snug” bolts enough to eliminate leaking only.

If the bolts are too tight, they will force the end caps and seals up against the UHMW bushings, acting as a brake.

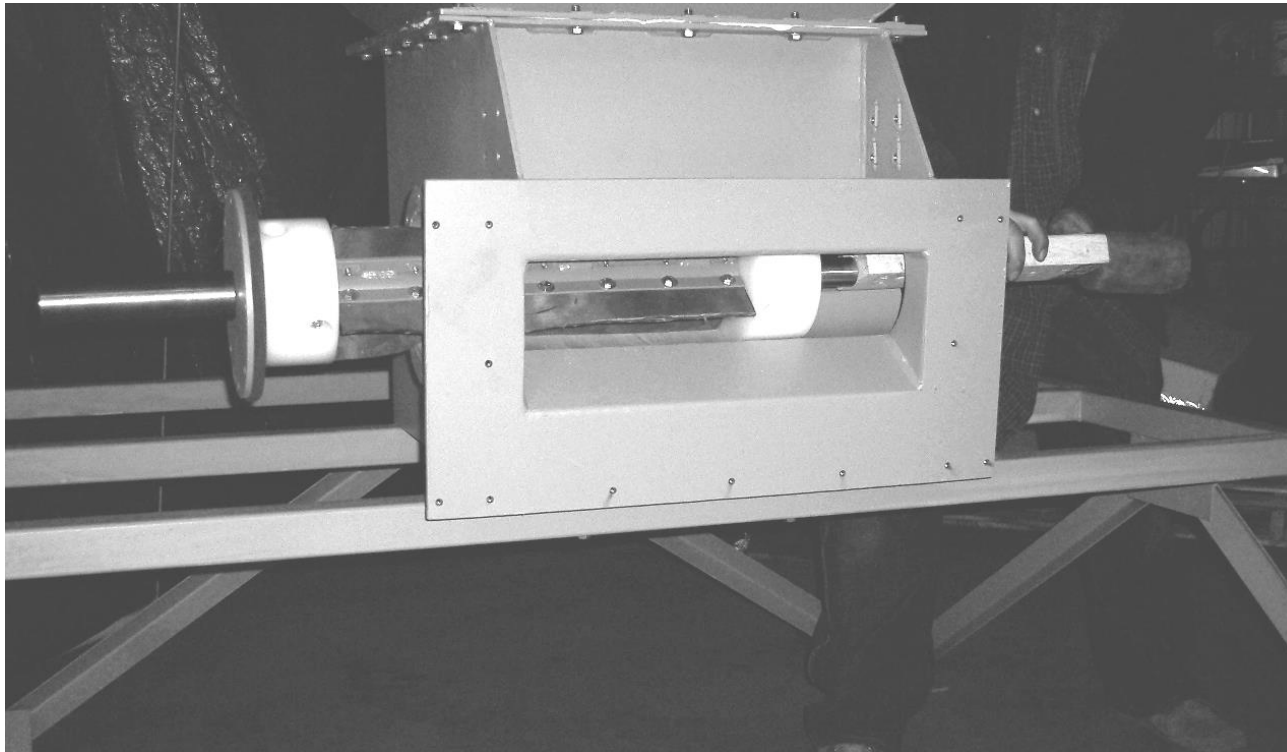
**IMPORTANT OPERATIONAL NOTE:
What to do if there is Wet Concrete in the Infeed Hopper,
and the STAR Prefeeder is not operating.**

In a situation where the Star feeder stops turning with wet concrete in the hopper, it is imperative that you quickly remove the wet concrete before it sets up.



**DANGER! DE-ENERGIZE AND LOCK-OUT AT THE CONTROL PANEL BEFORE WORKING ON PREFEEDER.
FAILURE TO SECURE TO DO SO MAY RESULT IN SEVERE INJURY OR DEATH!!**

1. **FIRST SHUT-OFF AND LOCK-OUT ELECTRICAL CONTROLS!**
2. Next, remove the gearbox from the prefeeder.
3. Remove hardware from BOTH end caps.
4. Use a 3-pound hammer or mallet and a block of wood (between hammer and shaft end to avoid damage!) to remove the Star paddle assembly from either end.
5. Rinse out all wet concrete.
6. Re-assemble Star feeder in reverse order.



1.04 REPLACEMENT PARTS

Star Feeder Bushing, 2 per feeder	10000.900
Star Prefeeder Paddles, 4 per feeder	10000.716
End Cap Seal, Drive End	10000.723
End Cap Seal, Tail End	10000.724

SECTION 2.0 ROUTINE INSPECTION AND MAINTENANCE CHECKLIST

DAILY

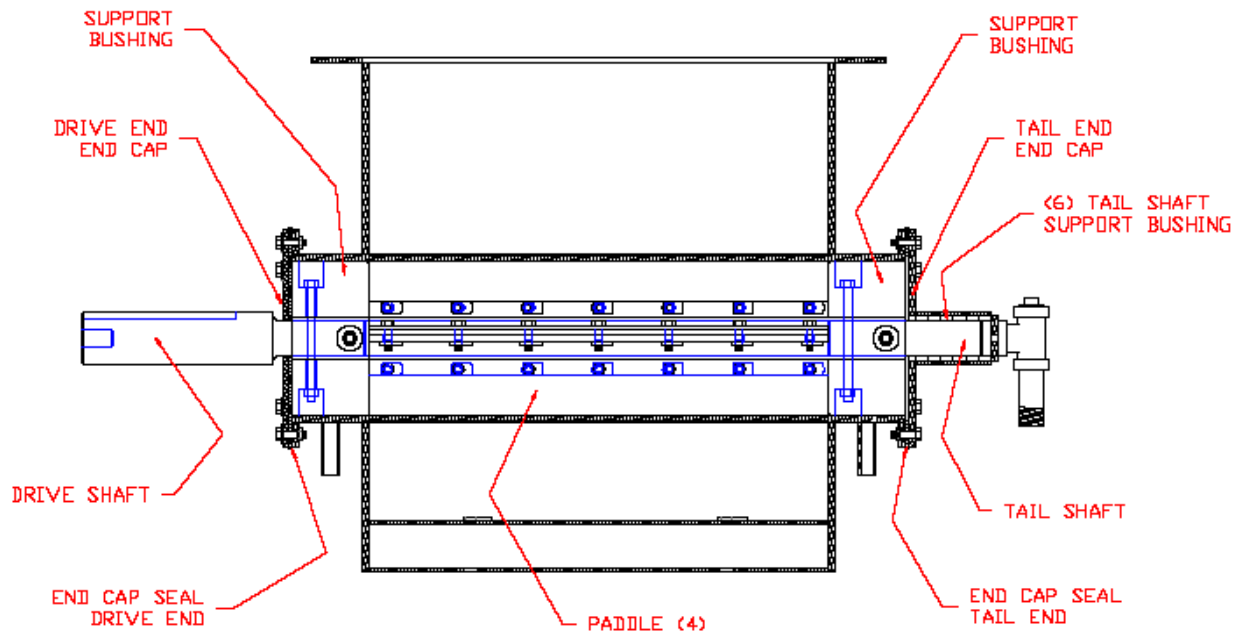
1. EVERY DAY, prior to use, make sure all Safety Guards are in place and properly secured to the equipment.
2. EVERY DAY, prior to use, inspect ALL Safety Stickers and CLEAN or REPLACE if covered or damaged.
3. Check for build-up in Hopper, clean as necessary.

SECTION 3.0 BUSHING REPLACEMENT



DANGER! DE-ENERGIZE AND LOCK-OUT AT THE CONTROL PANEL BEFORE WORKING ON PREFEEDER. FAILURE TO SECURE TO DO SO MAY RESULT IN SEVERE INJURY OR DEATH!!

1. Remove garmotor from STAR Prefeeder drive shaft.
2. Remove both end caps.
3. Use a 3-pound hammer or mallet and a block of wood (between hammer and shaft end to avoid damage!) to remove the Star paddle assembly from either end.
4. Bushings and shafts are secured to Star paddle wheel with (2) 5/16 x 4-1/2" Lg. Grade 5 Hex Head Cap Screws and associated hardware.
5. Remove the (4) bolts.
6. Slide the shafts and bushings off the paddle wheel.
7. Replace bushings, and reinstall onto paddle wheel.
8. Check the non-garmotor ('tail') end cap. Inside the 2" Square tube that is welded onto the end cap, there are (6) 1/2" thick UHMW support bushings. Inspect and replace, if needed.
9. Reinstall Star feeder, end caps and hardware, and place into service.



SECTION 4.0 TROUBLESHOOTING GUIDE

The Troubleshooting Guide will “point you in the right direction” 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:	<i>STAR Prefeeder will not run.</i>
PROBABLE CAUSES:	Main disconnect is shut off Emergency Stop (E-stop) is engaged Loss of electrical power Blown Fuses Motor Starter Relay Heaters are tripped Feeder is jammed due to washing aggregates thru larger than ¾”
POSSIBLE SOLUTIONS:	Check electrical control panel. Replace any blown fuses, if necessary. Consult a qualified electrician. De-energize and lock-out at panel, then remove jammed aggregates.

PROBLEM:	<i>Concrete will not feed from STAR Prefeeder.</i>
PROBABLE CAUSES:	Concrete too “stiff”/bridging Vibrator not working (if installed) Feeder is jammed due to washing aggregates thru larger than ¾”
POSSIBLE SOLUTIONS:	Add water to mix, to 6” to 10” slump Make sure vibrator is working, or install one De-energize and lock-out at panel, then remove jammed aggregates.

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.

Additional BFK Warranty provisions

INSTALLATION, OPERATION AND MAINTENANCE INFORMATION PROVISION: 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 RESPONSIBILITY 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.

SUBMERSIBLE PUMP(S) PROVISION: 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.

Maintenance Record	DATE / INITIAL	DATE / INITIAL	DATE / INITIAL	DATE / INITIAL	DATE / INITIAL	DATE / INITIAL	DATE / INITIAL
ACTION PERFORMED:							
Replace Support Bushings							
Replace Tail Shaft Support Bushings							
Replace End Cap Seals							
Replace Paddles							
Drain/Refill Gearmotor Oil							
NOTES:							