

Fertilizer Conditioner

Owner's Manual

PNEG-2095

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All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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1. Introduction

General Information

InterSystems reserves the right to improve its product whenever possible and practical to do so. We reserve the right to change, improve and modify products at any time without obligation to make changes, improvements and modifications on equipment sold previously.

This manual covers the installation and operation for the Fertilizer Conditioner Assembly. This manual provides guidelines for installing the product. You must retain a qualified contractor to provide on-site expertise. InterSystems is not responsible for the installation of this product.

General Safety Statements

1. The Fertilizer Conditioner Assembly is designed and manufactured with operator safety in mind. However, residual hazards remain due to the nature of fertilizer. Use extreme caution at all times.
2. Modifications to equipment may cause extremely dangerous situations that could result in damage to the equipment as well as serious injury or death. Never modify the equipment.
3. InterSystems recommends that you contact the local power company to have a representative survey the installation to ensure wiring is compatible with their system and adequate power is supplied to the unit.

Receiving Inspection

1. Carefully inspect the shipment for damage as soon as it is received. Verify that the quantity of parts or packages actually received corresponds to the quantity shown on the packing slip. One or more cartons containing the fasteners required for assembly are included with the shipment. Report any damage or shortage to the delivering carrier as soon as possible.
2. InterSystems responsibility for damage to the equipment ended with acceptance by the delivering carrier. Refer to the bill of lading for more detailed information.
3. Save all paperwork and documentation furnished with any of the Fertilizer Conditioner components.

Pre-Installation Preparation

1. The MOST IMPORTANT preparations are retaining a licensed engineer to plan the installation and a qualified millwright or contractor to install the Fertilizer Conditioner and the accompanying equipment and structures. Before starting the Fertilizer Conditioner Assembly installation, review this manual, the drawing(s) furnished with the equipment and other applicable documents, including but not limited to, O.S.H.A. Regulations and the National Electrical Code and all other applicable federal, state and local codes and regulations.
2. InterSystems does not assume responsibility for the installation.
3. The installation recommendations contained within this manual are for consideration only. The user or installer will want to consult a civil or structural engineer regarding the design, construction and supervision of the entire installation.

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY** or **DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**



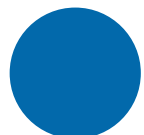
This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection



Respiratory Protection



Foot Protection



Hearing Protection



Head Protection



Fall Protection



Hand Protection



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.



ST-0002-1

2. Safety

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which can crush personnel and cause serious injury or death.



ST-0047-1

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.



ST-0009-3

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.



ST-0003-1

Flying Material Hazard

- Flying material can cause severe eye injury or blindness.
- Wear safety glasses around operating equipment.



ST-0063-1

Toxic Fume and Dust Hazard

- Remove paint before welding or heating.
- Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.
- Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly.
- Remove paint before welding or heating:
 - If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
 - If you use solvent or paint-stripper, remove stripper with soap and water before welding.
 - Remove solvent or stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



ST-0043-1

Stay Clear of Rotating Parts

- Do not service equipment while it is in operation.
- Entanglement in rotating parts or exposed belts will cause serious injury or death.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.



ST-0072-1

3. Mechanical Installation

The Fertilizer Conditioner comes as a pre-assembled unit containing the panels (A), the torque arm reducer (B), and the motor assembly (C). The InterSystems factory assembled Fertilizer Conditioner can be shipped directly on a conventional truck trailer. It is completely ready for erection on a support frame/tower.

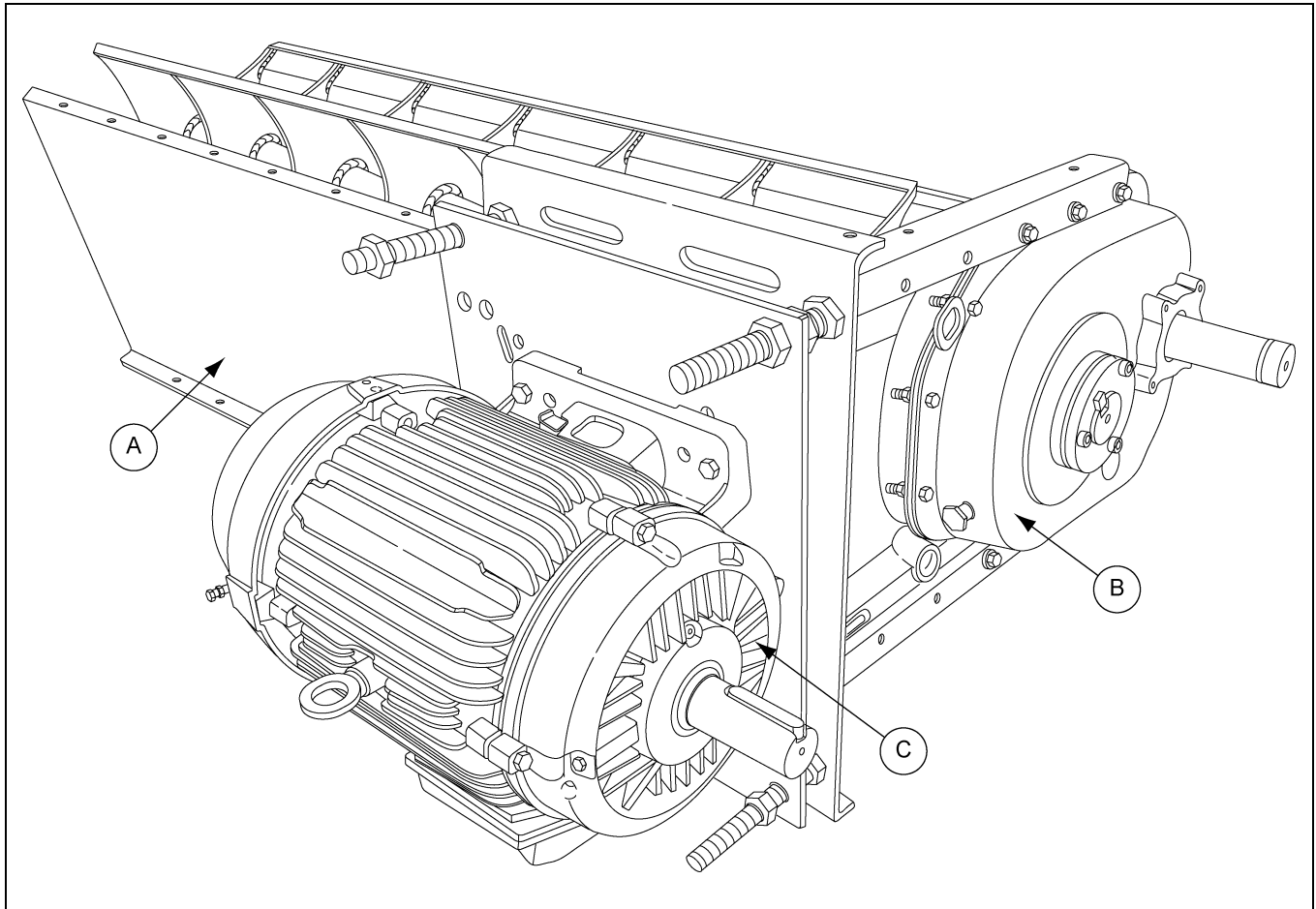


Figure 3A

Ref #	Description
A	Conditioner Panels
B	Torque Arm Reducer
C	Motor

1. The factory assembled conditioner hopper is positioned vertically to the tower.
2. Raise the Fertilizer Conditioner units to the roof foundation and level in all directions prior to anchoring.
3. Line up the connecting holes so that bolts and nuts can be loosely inserted at this time.
4. Once all holes have a nut and bolt installed, tighten with power impact.
5. Bolt the brackets to which the motor and the reducer are mounted.

3. Mechanical Installation

Installation of Drive Components

1. The drive guard assembly includes belt guard mounting brackets with slotted holes for adjustment. Fasten the drive guard rear panel (C) to the belt guard mounting brackets.
2. Guard should be set as close to the outer bushing of the reducer (B) as possible without contacting the bushing.

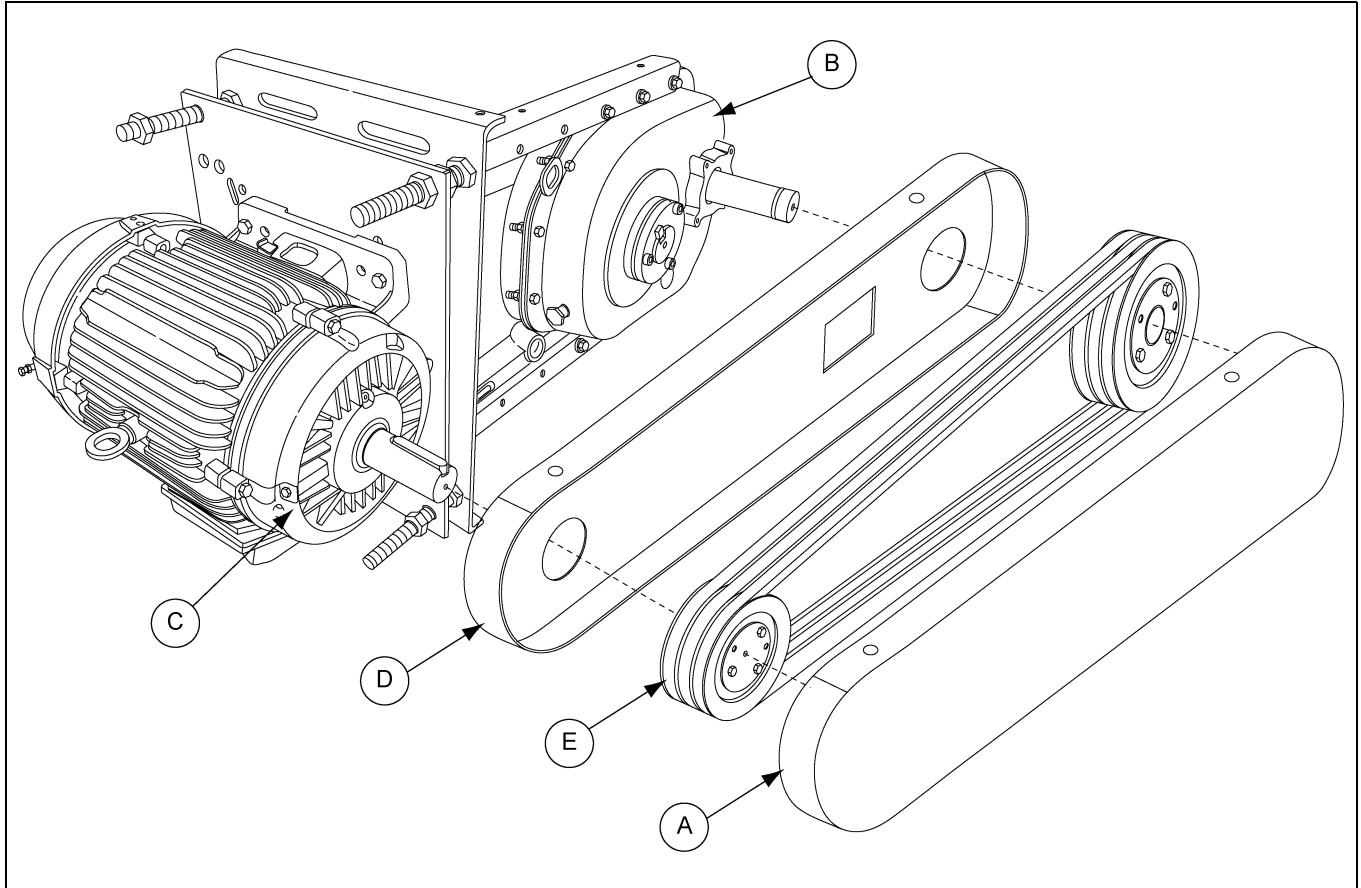


Figure 3B Drive Components

Ref #	Description
A	Drive Guard Front Panel
B	Torque Arm Reducer
C	Motor
D	Drive Guard Rear Panel
E	Belt Assembly

Sheave Installation

1. Assemble the V-belt driven sheave to the input shaft of the shaft mount reducer and assemble the driver sheave to the input shaft of the motor.
2. Insert the bushing into sheave hub.
3. Match holes in bushing and hub (not threads). Put screws into holes that are farthest apart.
4. Place entire unit with key onto shaft.
5. Align the driver and driven sheaves and tighten the retaining screws. During tightening, it is possible for the sheave to move out of alignment or become out of square.
6. For maximum V-belt life, the driven sheave should remain both perpendicular to the drive shaft and aligned with the drive sheave.

NOTE: *Check proper motor shaft rotation before installing drive belts.*

Belt Installation

1. Place the V-belts over both the driver and driven sheaves.
2. Adjustment of V-belt tension is achieved by tightening the hex nuts located on the four (4) jack screws of the motor base.
3. Adjust motor base equally at all four (4) jack screws to maintain shaft alignment. Belts are designed to fit loosely upon installation.
4. When the V-belt tension is correct, tighten the top nut on the jack screws to lock the motor base in position.

Proper tension is 1/64" of deflection per one (1") of sheave centers on one side of belt, centered between sheaves.

Belt Installation Criteria	
Installation Deflection (inches)	0.60
Minimum Installation Force (lbs.)	6.3
Maximum Installation Force (lbs.)	7.2

NOTE: *Too much tension shortens belt life. Check belt tension frequently during the first 24-48 hours of operation.*

Install the front drive guard panel over the four (4) corner mounting studs. Secure with washers and nuts provided.

4. Electrical Installations

Power Supply

An adequate power supply and proper wiring are important factors for maximum performance and longlife of the conditioner. Electrical service must be adequate enough to prevent low voltage damage to motors and control circuits.

Standard electrical safety should be used. (Refer to the National Electrical Code Standard Handbook by the National Fire Protection Association.) A qualified electrician should make all electrical wiring installations.

Technical Specifications

Motor

Motor Design	3 Phase
HP	25
Frame	284T
Voltage	230/460
FLA @ 230V	30
RPM	1800

Reducer

Manufacturer Reducer Size	TA6307H25
Ratio	24.87:1
Drive Type	Torque-Arm
Dimensions	20.55 x 10.84 x 25.23"
Maximum Output RPM	80

Lubrication

1. Dodge Torque Arm II Reducer is supplied WITHOUT OIL and must be filled before use. See lubrication table and manufacturer's instructions with the reducer.

NOTE: Refer to the Owner's manual supplied with the gearbox for proper vent plug (B), fill plug and drain plug (A) locations.

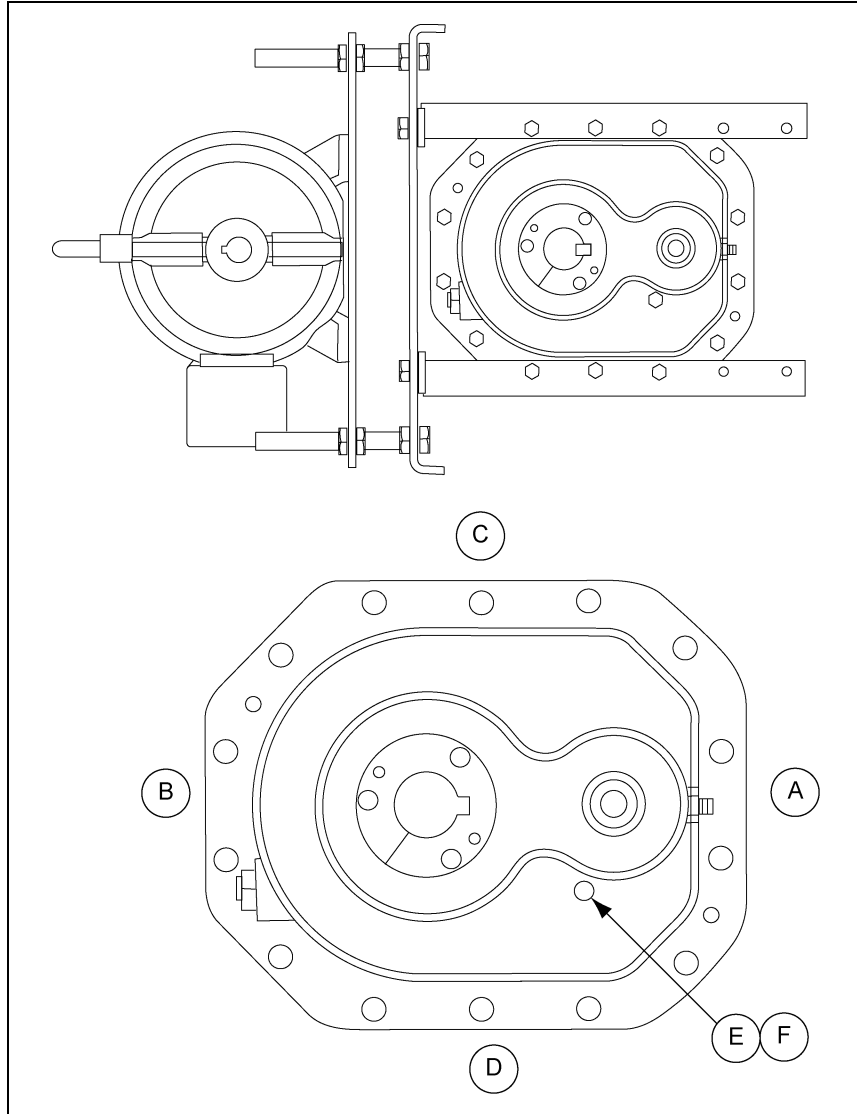
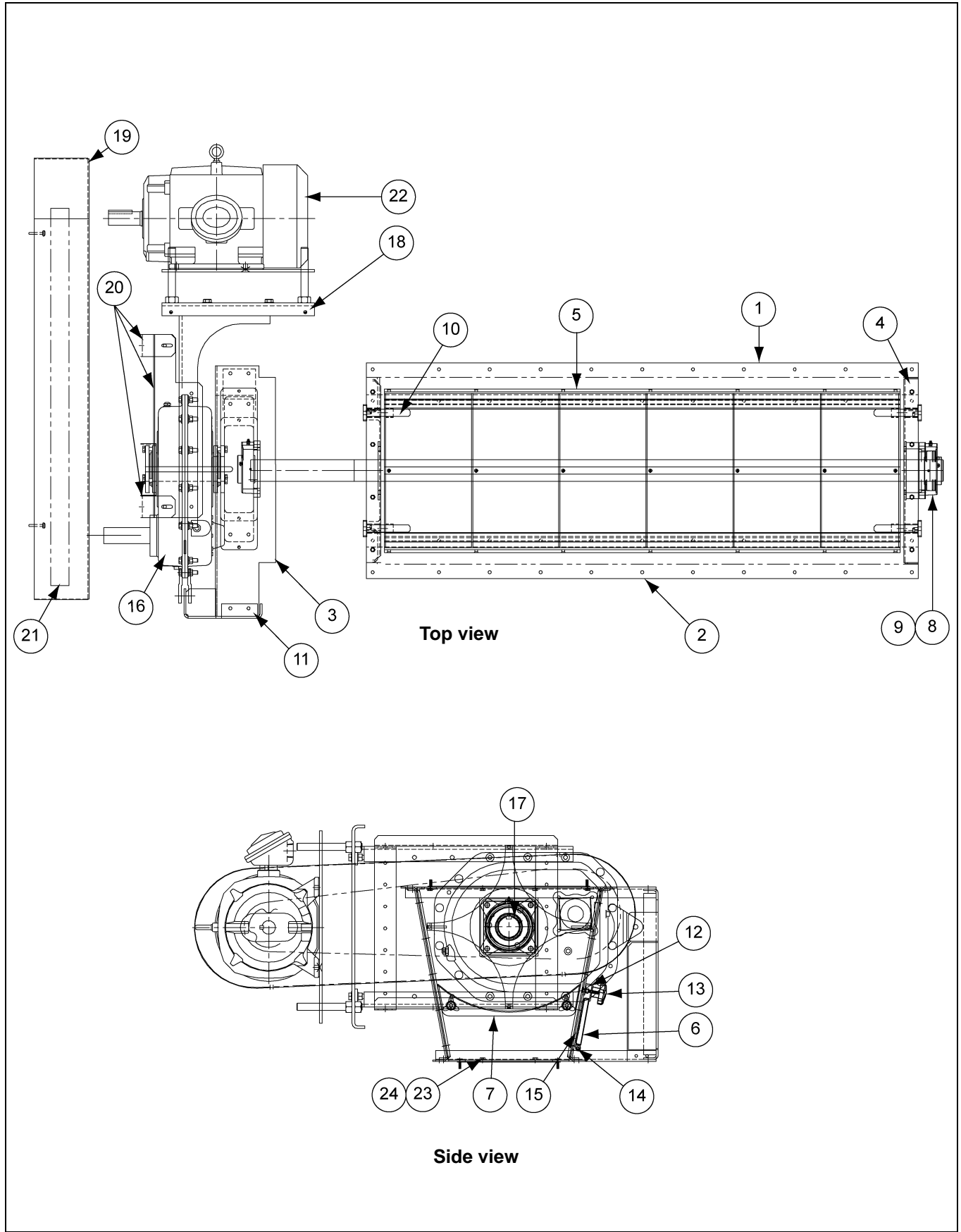


Figure 4A

Ref #	Description
A	Drain
B	Vent
C	Level
D, E and F	Plug

Conditioner Assembly (XR7040) Parts



Conditioner Assembly (XR7040) Parts List

Ref #	Part #	Description	Qty
1	XR7041	Side Panel Conditioner 72 x 24	1
2	XR7042	Side Panel Conditioner 72 x 24 Inspection	1
3	XR7043	End Panel Conditioner 72 x 24	1
4	559407	End Panel Conditioner 72 x 24 - Non-Drive End	1
5	XR7044	Conditioner Rotor 72 x 24 TA6 SS	1
6	XR3321	Inspection Door Conditioner 6-1/2" x 72-1/2" SS	1
7	XR7045	Bottom Screen Weld Conditioner 72 x 24	1
8	XR3325	Seal Super Pack 3"	2
9	XR3338	Flange Bracket 4 Bolt 3 SCM SFL	2
10	XR7051	Locking Pin with Lobed Handle Screen Conditioner	4
11	XR7046	Reducer Traque Arm TA6 Bracket Mount Assembly Zinc Conditioner	1
12	546200	Inspection Door Clip 304SS	5
13	XR7047	Nylon Knob with 3/8"-16 Thorough Hole	5
14	555269	Bolt Pin 3/8"-UNC TO 1/4" RD x 1" LG Zinc	5
15	530550	Seal 1/4" Thick x 3/8" W P-Profile	15
16	544166	Reducer Torque Arm TA6307H25 with RA	1
17	XR3331	Bush Assembly 3 TA6307TB	1
18	544631	Motor Mount Assembly TA6307MM	1
19	XU9479	Guard Belt TA6 25 HP 42.23CL SS	1
20	XR7054	Mounting Bracket Belt Guard TA6 SS	1
21	XV0522	Drive Package Dodge 25 HP TA6 38.0 RPM M3 Position	1
22	558448	Motor 25 HP 3 PH TEFC 284T 230/460V Prem	1
23		Hex Head Bolt 3/8"-16 x 1"	6
24		Lock Washer 3/8"	6

6. Start-Up and Operation



*Failure to perform any or all of these pre-start checks may cause damage to the equipment and/or cause **SERIOUS INJURY** or **DEATH** to those in the work area.*

Failure to perform any or all of these pre-start checks may also be a misuse of the equipment. Any misuse of the equipment may void the warranty.

First Start-Up:

Once you are sure all installations, safety checks, adjustments and lubrications have been completed:

1. Run the conditioner **WITHOUT LOAD** for an initial break-in period of 30 minutes.
2. Look and listen for any irregularities before running any material through the unit.
3. Re-check all moving parts and adjust as needed.
4. Adjust belt for final tension under load as needed.
5. Make sure gearbox has recommended oil level.

Every Start-Up:

1. Open inspection door and remove clogging in screen if any.
2. Make sure no foreign material presence inside conditioner.

Normal Shut Down

1. Before shutting down the unit, make certain that conditioner is empty.
2. Disconnect and lock out the power source before leaving the work area.

Emergency Shut Down

1. Disconnect and lock out the power source.

Lock Out

1. Always disconnect and lock out the power source before leaving the work area or before performing any maintenance or service.



ALWAYS shut down and disconnect the power supply before adjusting, servicing or cleaning the equipment.

The care and maintenance section is provided to help extend the life of the unit. Like all equipment, the useful life of the conditioner is greatly reduced if not used properly and well-maintained.

Please follow the next few simple steps to ensure the safety and longevity of the equipment.

1. Check all bearings and moving parts daily during use.
2. Lubricate bearings at regular intervals to bearing manufacturer's recommendations. If one bearing is re-lubricated, all other bearings should also be lubricated. Do not over lubricate as this will destroy bearing seals.
3. Follow manufacturer's recommendations for gear reducer lubrication and maintenance.
4. Inspect the V-belts periodically for proper tension and wear. V-belts should be replaced as necessary. If replacement or tension adjustment is required, please refer to the V-belt adjustment section.

Welding



Remove paint before welding or heating. Toxic fumes can be generated when paint is heated by welding, soldering or using a torch. Always wear an approved respirator and work in well-ventilated area.

1. Welding on or to the conditioner may cause damage to both the conditioner and its electrical system.
2. If welding is necessary, measures should be taken to protect the Fertilizer Conditioner. Should it be necessary to fasten anything to the conditioner permanently, careful consideration should be given to methods of maintenance, removal and replacement of the conditioner and/or its parts.

Motor

1. Connect the motor to a power source according to the motor manufacturer's instructions and recommendations. To avoid injury it is recommended that a certified electrician perform the motor wiring.
2. A shut off switch should be placed near the motor so that the system may easily be shut down to help prevent accidents during maintenance.
3. A label is located on the motor designating the correct direction of rotation. It is important to check proper motor shaft rotation before installing drive belts.

NOTE: *Do not run the motor in the wrong direction. Damage to the limit switch arm may result.*



Electric motors and controls shall be installed by a qualified electrician and must meet the standards set by the national electrical code all other applicable federal, state and local codes and regulations. Reset and motor starting controls shall be located where the operator has unrestricted access to the controls. Do not make alterations or modifications to the unit.

Discharge

The Standard Fertilizer Conditioner is constructed with a bottom screen welded (B) at the discharge end.

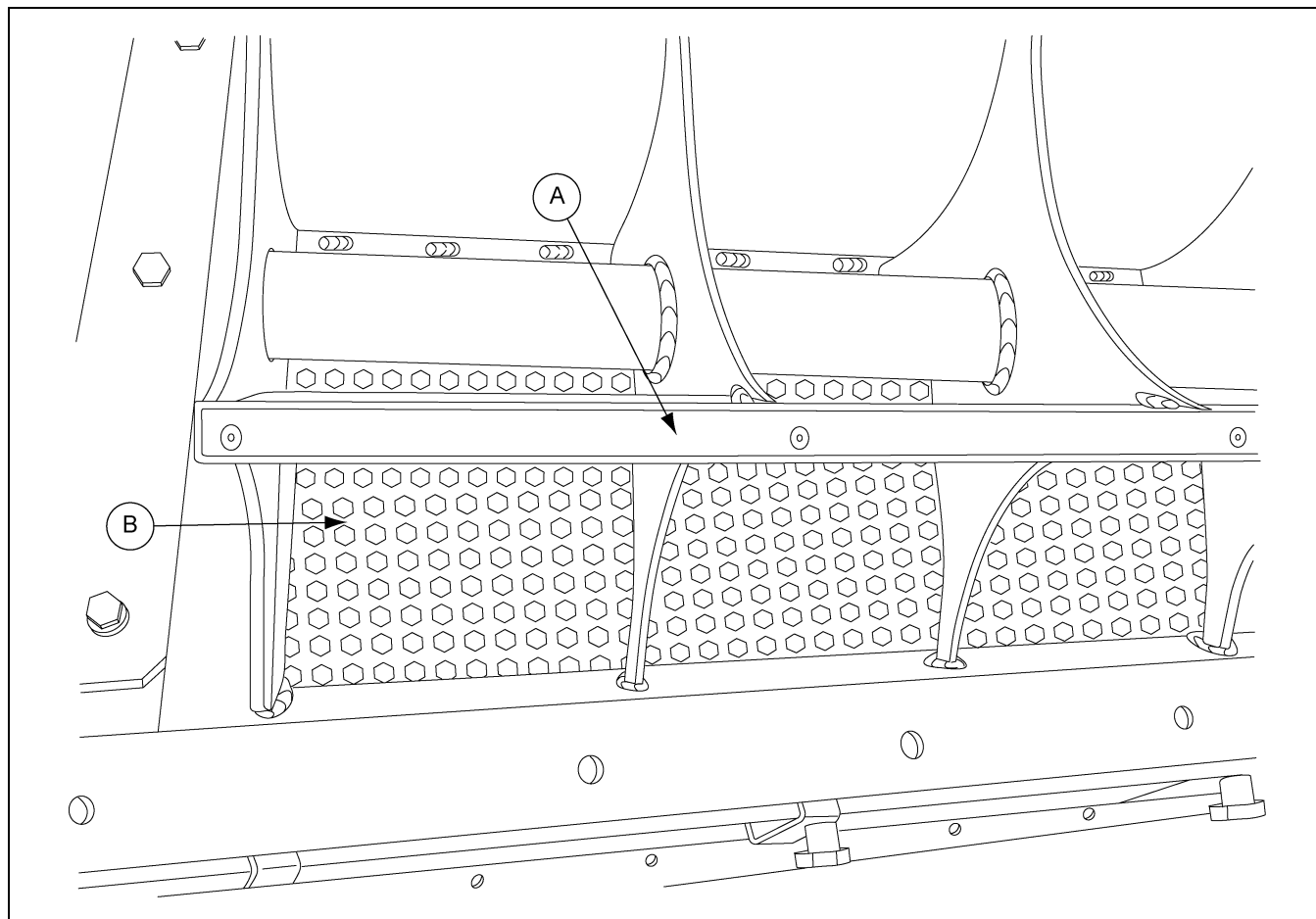


Figure 7A

Ref #	Description
A	Conditioner Rotor
B	Bottom Screen (Welded)

The owner assumes all responsibility for any alterations to the equipment.

Storage

If the unit is to be inactive for an extended period, the following procedures are recommended.

1. Thoroughly clean the unit.
2. Loosen the V-belt tension to relieve the stress placed on the bearings and shafts.
3. Lubricate bearings, shafts and drive components with a good grade of light machine oil.

InterSystems, Inc. reserves the right to make changes in design or in construction of equipment and components without obligation to incorporate such changes in equipment and components previously ordered.

WARRANTY, LIMITATION OF LIABILITY, DISCLAIMER OF IMPLIED WARRANTIES: InterSystems, Inc. manufactured equipment and components are guaranteed against defects in workmanship or materials for one year from date of shipment. The obligation of InterSystems, Inc. with respect to any goods is limited to replacement or repair of defective parts and equipment provided those parts are returned, shipping costs prepaid, to InterSystems' factory and provided the product has not been subject to misuse, negligence, or accident, or repaired or altered outside of our factory, or other than by an Authorized Service Representative. This warranty does not cover the replacement of parts inoperative because of wear occasioned by use, the cost of replacing parts by a person other than an InterSystems employee or an Authorized Service Representative, or the adjustment of a product where the product was improperly adjusted by the purchaser. In addition, this warranty does not cover components manufactured by others such as motors, drives, clutches, cylinders, valves, blowers, and the like. On those components the standard Manufacturers' warranty applies. In any event, liability is limited to the purchase price paid, and InterSystems, Inc. will, under no circumstances, be responsible for special or consequential damages, or for incidental damages.

INTERSYSTEMS, INC. NEITHER MAKES NOR AUTHORIZES ANY WARRANTY OTHER THAN AS HEREIN CONTAINED. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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