



## ON DEMAND™ MAINTENANCE GUIDE





# MENU



This is an interactive PDF. Click on an icon tile and navigate to a chapter of interest.



Legal & Safety



Rotary Head



Drum & Frame



Pump Stations



Control Panels



Garmotors



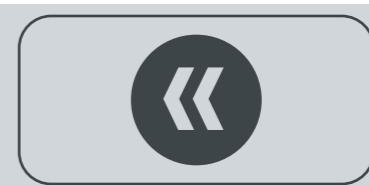
PM Checklist



Pictograms

Users can advance or go back single pages by using quick navigation links shown below, right.

Users can navigate to the Menu by clicking on the Menu icon shown below, left.





# LEGAL & SAFETY

This manual contains technical information regarding Bayer SeedGrowth™ Equipment. Please read and understand these instructions completely before proceeding to install and operate the equipment. Bayer reserves the right to change specifications, models, components, or materials at any time without notice. For additional equipment information contact us at 1.800.634.6738. Please have this manual available when contacting Bayer.

Always use caution and common sense when working with any chemical. Read the product label and SDS carefully and follow their instructions exactly as described.

Optimal operating conditions for this piece of equipment requires an ambient temperature 32° F to +104° F (0° C to +40° C), relative humidity less than 90% (minimum condensation). Make necessary provisions to protect this piece of equipment against excessive dust, particles containing iron, moisture and against corrosive and explosive gases.

Our technical information is based on extensive testing and is, to the best of our current knowledge, true and accurate but given without warranty as the conditions of use and storage are beyond our control. Variables, such as humidity, temperature, change in seed size or variety and viscosity of chemical products can all affect the accuracy of the chemical application and seed coverage. To ensure the desired application rate and optimum seed coverage, check the calibration periodically throughout the day, and make adjustments as needed.

Any person who is involved in the installation or periodic maintenance of this equipment should be suitably skilled or instructed and supervised using a safe system of work. Isolate the treater before removing guards for maintenance.





# EXPOSURE CONTROL

Always use caution and common sense when working with chemicals. Read the product label and SDS carefully and follow their instructions exactly as described. The following Personal Protective Equipment (PPE) recommendations and best practices help promote safe use in seed treatment.



Note: Exposure Control signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.



### Wear protective clothing

Wear disposable or reusable coveralls with long sleeves.



### Hand protection required

Wear chemical-resistant gloves.



### Wear rubber boots

Wear chemical resistant rubber boots.



### Labels

Label recommendations and directions for handling must be followed, including treatment procedure (use of sticker) as well as the safety requirements.



### Treatment products

Keep products in a locked room that has been approved for crop protection products.



### Wear a mask

Wear respiratory protection.



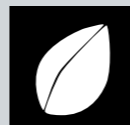
### Eye protection required

Wear protective eyewear.



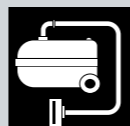
### Calibration

Seed treatment equipment must be checked and calibrated regularly to ensure accurate and safe application.



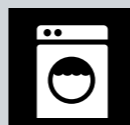
### Clean seed

Use well cleaned seed to avoid creation of polluted dust that will contaminate the machine, treating facility, workers, farmers and the environment during sowing.



### Cleaning

Use a vacuum to clean machines. Avoid using compressed air for cleaning.



### Laundry

Wash soiled reusable clothing separately. Workers must take a shower after each shift.



### Empty containers

Non-returnable empty containers must be triple rinsed before they can be disposed. For others the recommendation of the producer must be followed.



### Spillage

Spillage must be avoided; it must be thoroughly cleaned up to avoid contaminating the environment and waterways.



### Maintenance

Keep machinery clean between treating sessions.





# REFERENCE SYMBOLS

Symbols and signal words are used to identify the level of hazard and help avoid personal injury.



Note: Safety signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.



### Shock Hazard

Alerts that dangerous voltage may be present.



### Warning

Alerts that a hazard may cause serious injury or death.



### Caution

Alerts that a hazard may cause minor or moderate injury.



### Hand crush - moving parts

Alerts crushing is possible.



### Pinch point

Keep hands away from pinch points.



### Rotating shaft

Do not wear loose clothing around turning parts.



### Disconnect

Disconnect to de-energize before opening.



### Use guards

Keep guards in place. Do not remove during operation.



### Lifting

Requires two people to safely lift an item.



### Lift points

Requires the use of proper rigging and lifting techniques based on the lift plan.



### Center of gravity

Indicates the center of gravity of the machine to help assist when rigging and lifting.



### Tools

Required tools for installation and maintenance.



### Parts

Required parts for installation and maintenance.



### Tip

Calls attention to special information.



### Note

Emphasizes general information worthy of attention.



### Example

Provides a problem or exercise that illustrates a method or principle.

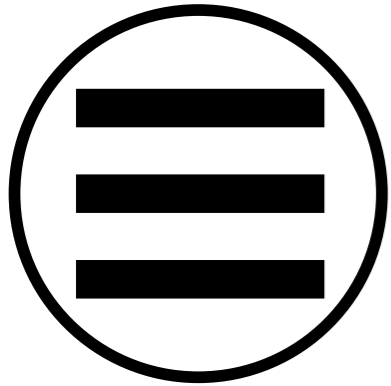




# PICTOGRAMS

i

Each Signifier displayed here is specific to this User Manual.



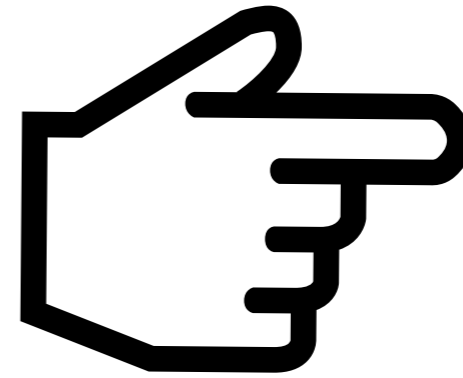
Menu



Previous



Advance



Cursor Hand



Like



Gearmotors



Rotary Head



Drum & Frame



Pump Stations



Control Panels



PM Checklist





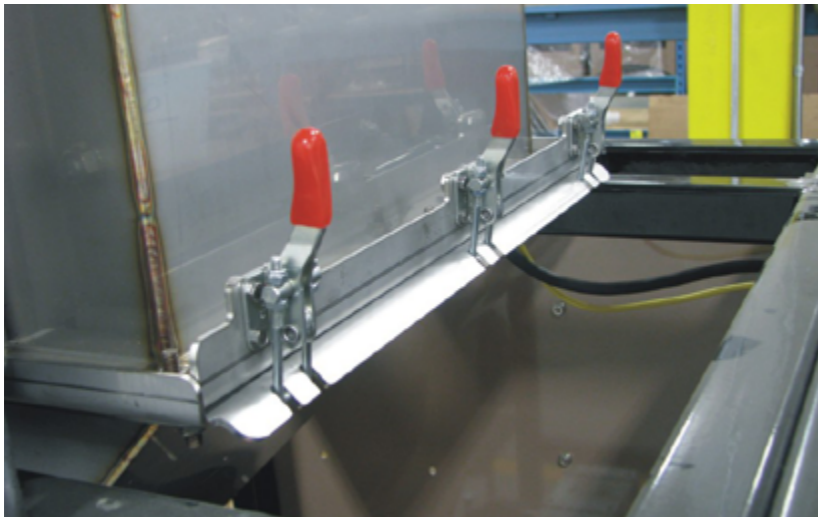
# ROTARY HEAD



Warning! Exercise extreme caution when working with chemicals!



Note: Seed Wheel (Reducer) factory fill of Glygoyle 460 lubricant does not require changing after break-in and is satisfactory for the full service life of the reducer.



## Seed Transition Quick Clean out

**Step 1:** Remove the Seed Transition.

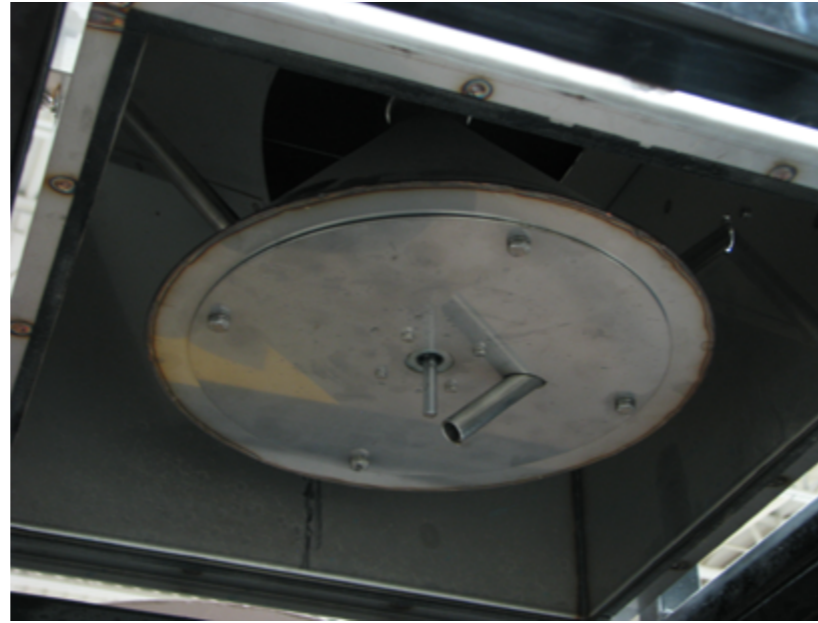
- Place one hand on the transition and use the other to unlatch the three clamps holding the transition onto the bottom of the Atomizer section.



**Step 2:** Clean the Seed Transition.

- Use a rag to wipe down inside the Seed Transition and a putty knife to scrape any residue build-up ↻





**Step 3: Remove the atomizer with a wrench.**

- Use a rag to thoroughly clean the atomizer and atomizer housing.
- This is recommended after each treating session, to avoid unnecessary chemical and seed buildup.
- Replace the atomizer on the shaft.
- Push it up on the shaft until it touches the chemical tube, then back it off a little.
- Tighten the nut.



**Step 4: Replace the clean Transition under the Atomizer Housing.**

- Align the Transition to the back lip of the Housing and ensure each clamp is in line with the grooves on the transition.
- Close each Clamp to securely fasten the transition in place.







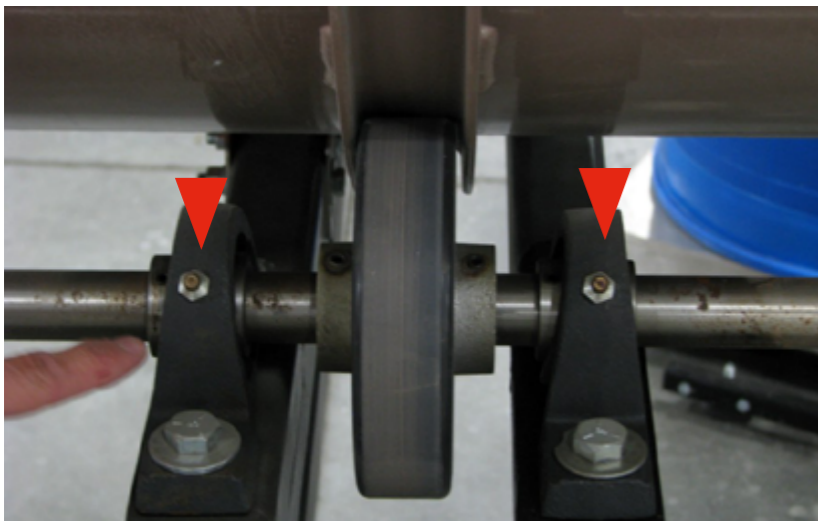
# DRUM & FRAME



## Grease Zerk

**Step 1:** Remove Drum Guards from both sides of the Drum.

- Use a 7/16 wrench to loosen the four bolts that hold the Drum Guard in place.



**Step 2:** Use a grease gun to lubricate each bearing zerk.

- There are nine pillow block bearings, five on the drive shaft side and four on the idler side ➡





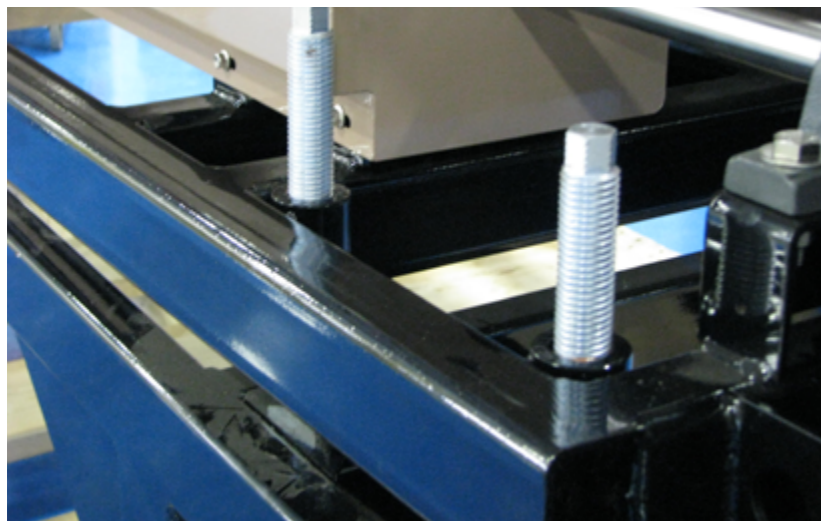
### Step 3: Align the drum guard.

- Align the drum guard properly with the channel in the middle of the drum guard groove, as shown.



### Step 4: Fasten Drum Guards.

- Fasten the Drum Guards in place and tighten securely.



### Drum Clean-out

**Step 1:** Use a wrench (on all thread bolt 3/4-10 SQ Nut) to lower the Drum angle to its most flat position.

**Step 2:** Fill the Drum with hot water.

**Step 3:** Run the VFD Drum Drive **FORWARD** for 30 minutes or so to clean the drum to the metal.

**Step 4:** An option is to add discard seed and letting that mix either with or without the hot water to clean the drum to the metal.

**Step 5:** Dispose of water and seed responsibly, according to state and local regulations. **DO NOT RUN RINSE WATER DOWN THE DRAIN!**





# PUMP STATIONS



Warning! The rinse water (gray water) in the pail may be saved and used with the next slurry mix or disposed of properly, according to state and local regulations.



## Line Rinse

**Step 1:** If there is chemical in the lines, run the pump in reverse and recover product.

- Remove the Keg from the Scale.
- Remove the Plumbing Assembly from the Keg.
- Unlock by pulling the Handle **UP**, then twist and pull the Assembly out of the Keg.



**Step 2:** Twist the Rinsing Socket onto the end of the Plumbing Assembly.

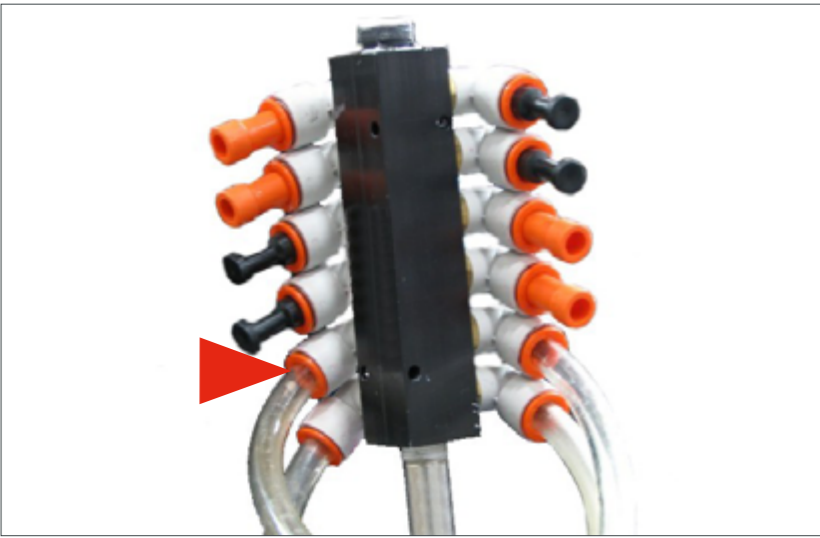
- Then lock down the handle (push **DOWN**) ⇨





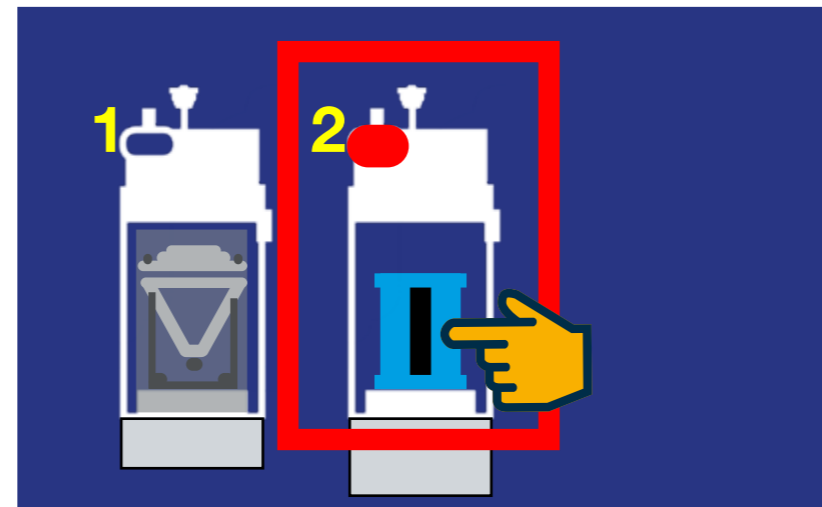
**Step 3: Fill a 5 gallon pail with clean water.**

- Place the Plumbing Assembly in the pail, as shown.
- Inventory will not be affected as long as the bucket is **NOT** sitting on the scale when priming the line.



**Step 4: Disconnect the treatment line from the Chemical Inlet Assembly.**

- Push in the orange fitting and pull out the tubing.



**Step 5: This will require two people!**

- Hold the Treatment Line in a 5 gallon bucket.
- On the **MAIN SCREEN**, touch the Pump Station graphic icon that requires rinsing: navigates to the **STATION 2 PUMP DETAIL SCREEN** ↻





**Step 6:** Touch and hold **PRIME LINE** button icon on the **STATION 2 PUMP DETAIL SCREEN** until all of the water from the Tank fills the 5 gallon pail.

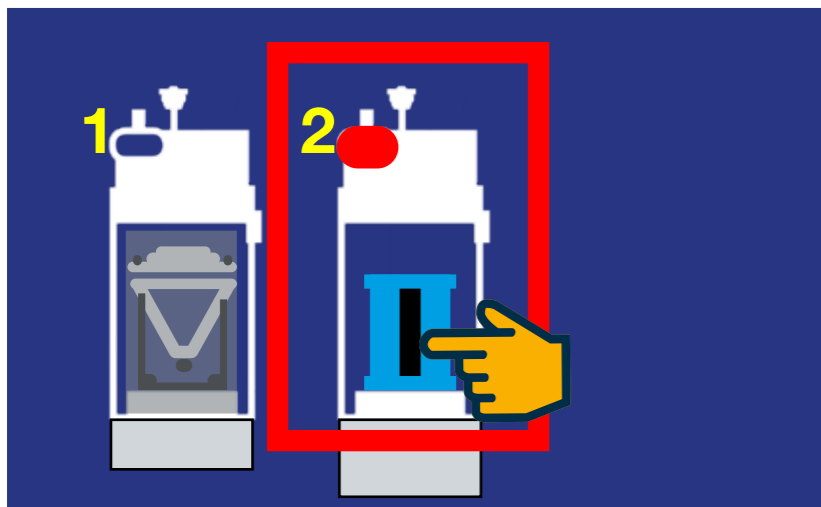
- Repeat steps 1-6 for each Pump Station used.



### Complete Line Rinse

**Step 1:** Remove the 2 screws that holds the Chemical Inlet on the Treating Head.

- Place the Chemical Inlet Assembly (connected to the Treatment Line) in a 5 gallon pail, as shown.



**Step 2:** On the **MAIN SCREEN**, touch the Pump Station graphic icon that requires rinsing: navigates to the **STATION 2 PUMP DETAIL SCREEN** ↻





**Step 3:** Touch and hold **PRIME LINE** button icon on the **STATION 2 PUMP DETAIL SCREEN** until all of the water from the Tank fills the 5 gallon pail.

- Repeat steps 1-6 for each Pump Station used.



**Step 4: Clean Chemical Inlet Assembly.**

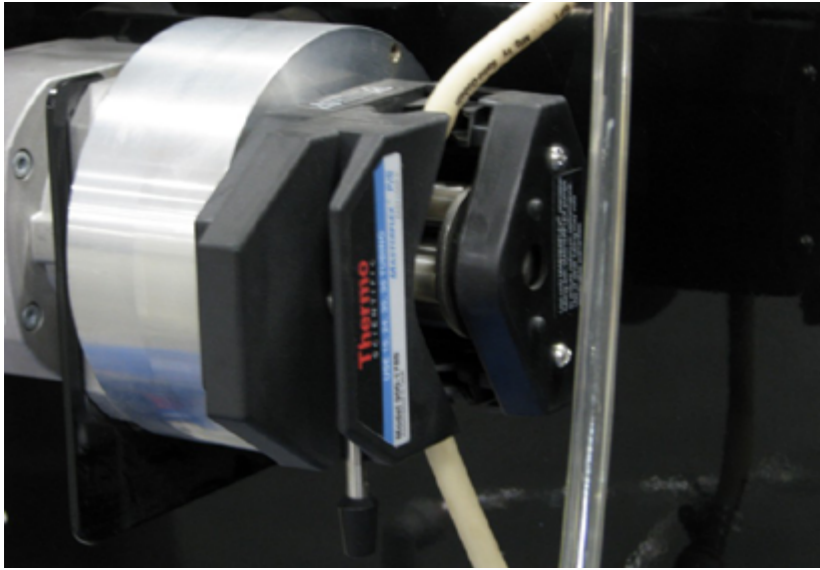
- Use a wrench to remove the nut on the end of the Chemical Inlet Assembly.
- Use a factory supplied tube brush to thoroughly clean the inside of the Chemical Inlet Assembly.
- Replace nut on the Chemical Inlet Assembly.



**Step 5: Replace the Chemical Inlet Assembly on the Treating Head.**

- Tighten screws ⇌





**Step 6: Open the Pump Head** using the Handle (down position), as shown when the Pump is not in use, to avoid forming flat spots in the element.

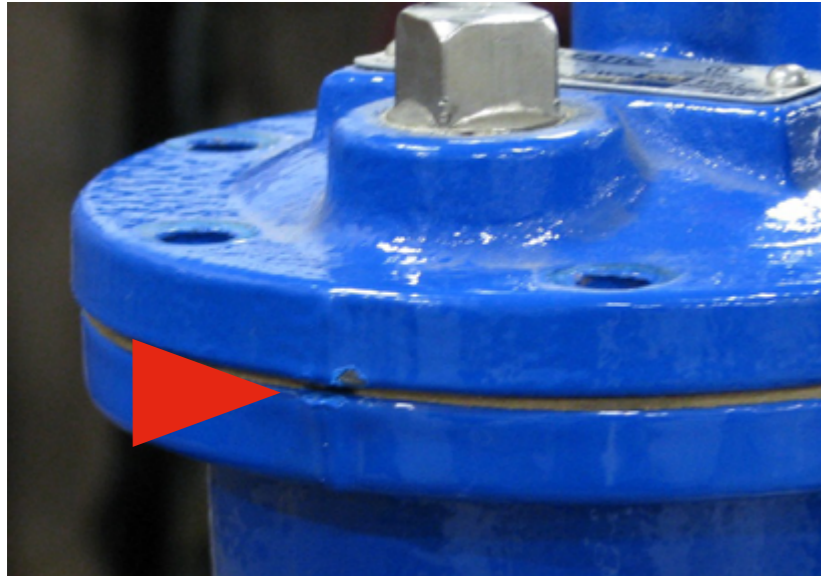


### Air Release Valve

**Step 1:** Approximately once a year clean out the Air Release Valve on all Pump Stations.

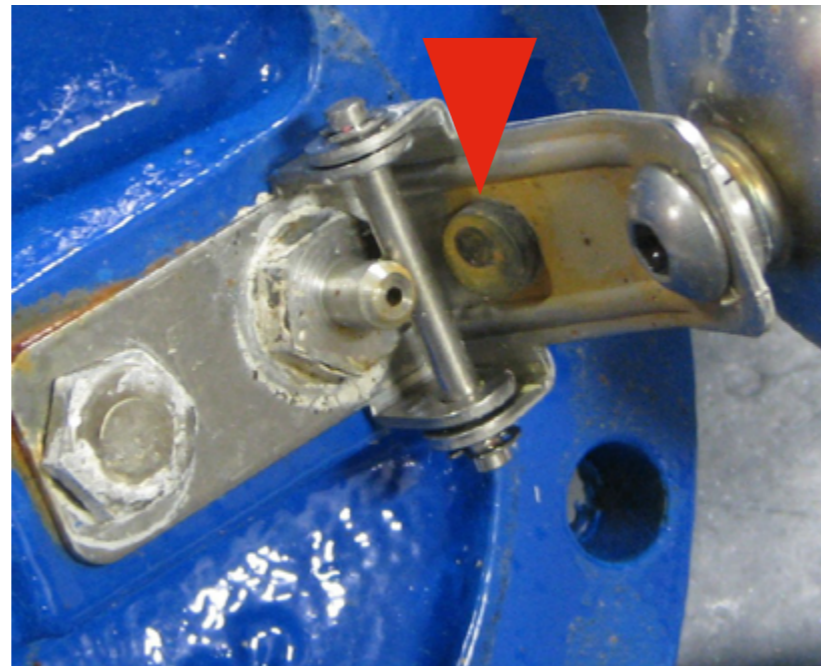
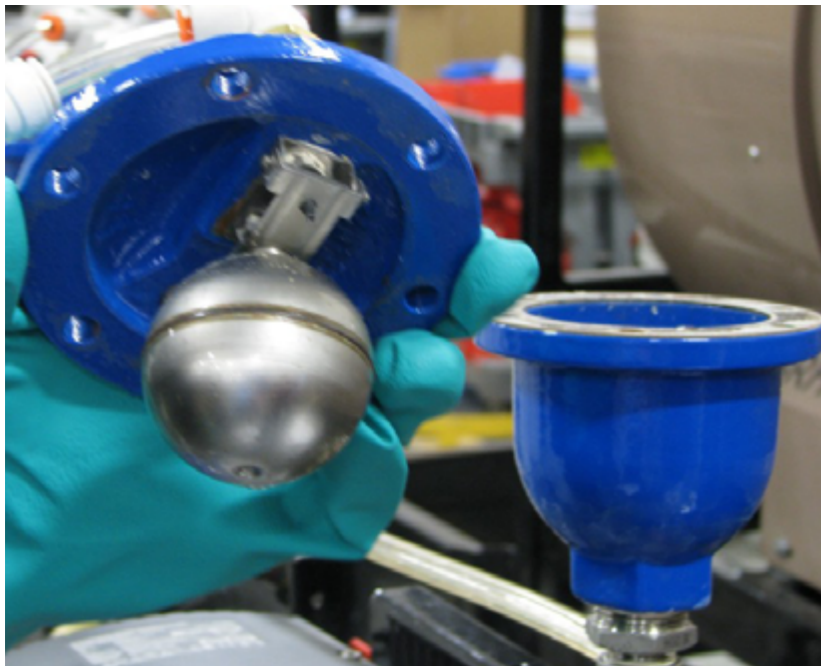
- Use 1/2" wrench to loosen six bolts and washers on top of the Air release Valve ➡





**Step 2: Pry cap off.**

- Use a screwdriver to carefully pry the cap off the housing (use protrusions).
- Do not damage the gasket!
- Remove the cover.



**Step 3: Clean and inspect the cover.**

- Especially inspect the small rubber washer for wear →







#### Step 4: Clean Air release valve housing.

- Use a rag to thoroughly clean out the Air release valve housing.
- Inspect gasket for cracks and wear. Replace if needed.

#### **FREEZING WILL CAUSE PUMP DAMAGE!**

When storing the Pump in subfreezing temperatures, flush with products that prevent freezing; such as RV Antifreeze or diluted windshield washer fluid.

**Warning!** Failure to clean the Pump properly or completely drain all liquid from the pump and lines after use, may damage the Pump and void any warranties expressed or implied!



#### Step 5: Replace the cover.

- Tighten the six bolts on the cover.
- Torque to 30 Ft-lbs. evenly.

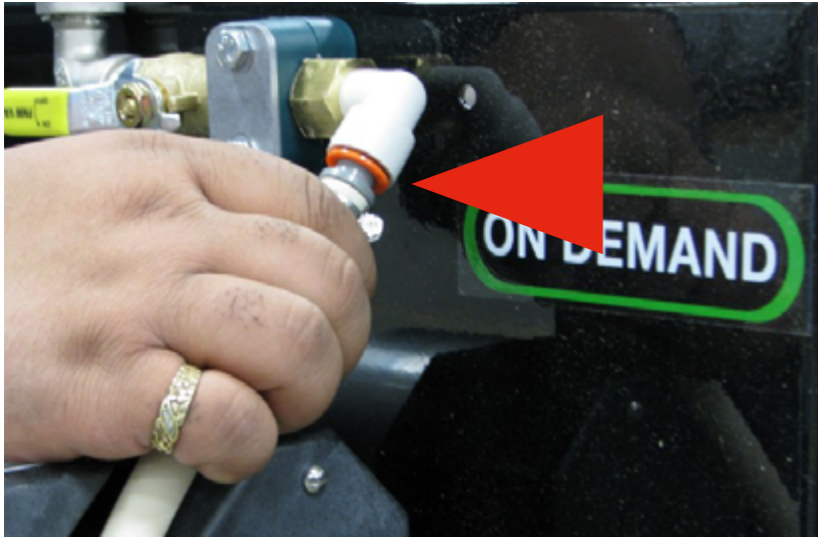


#### Pump Element Replacement

**Step 1:** Pump Elements should be replaced annually.

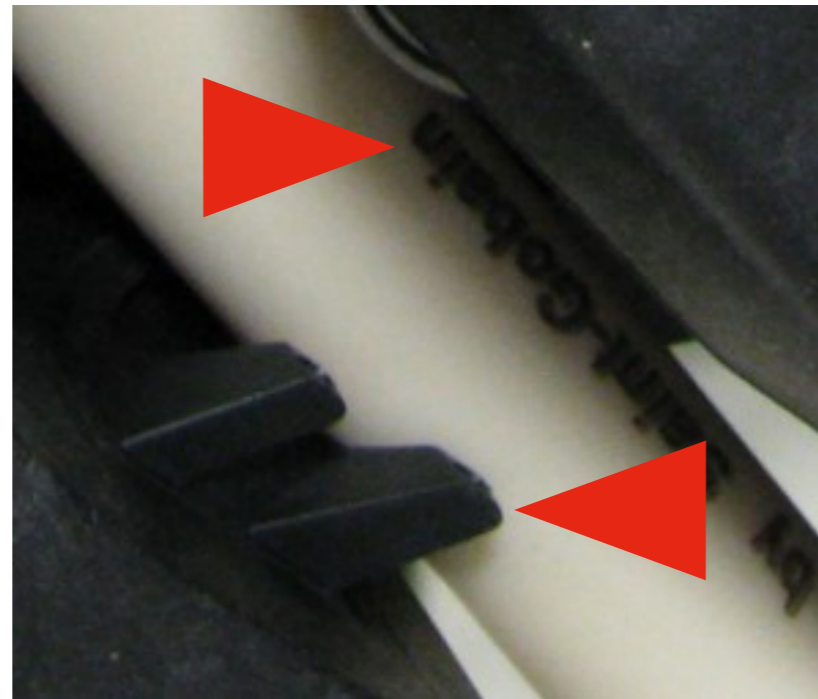
- Open the Pump Head Assembly, using the Pump Head Handle (down position), as shown ⇌





**Step 2: Use the correct element with the right Pump.**

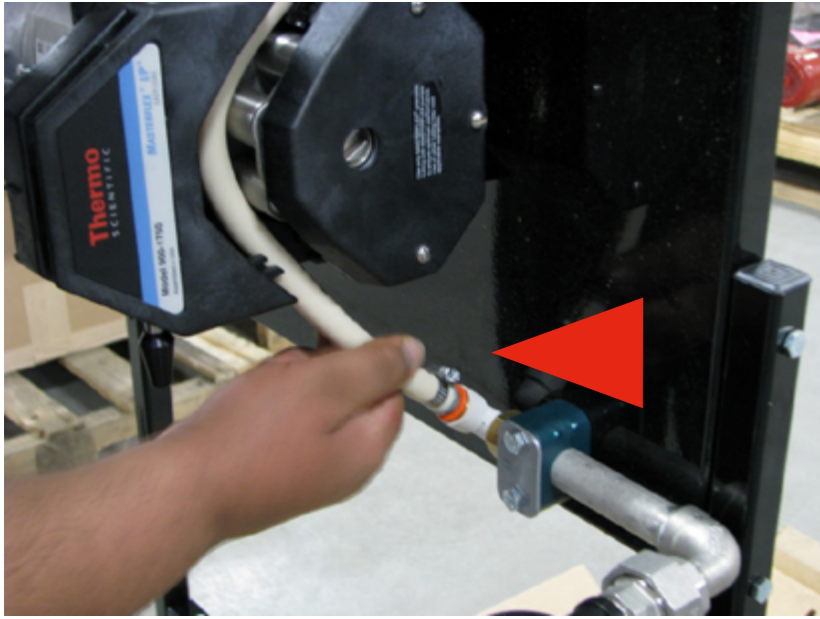
- LS uses 15 (small), IP uses 73 (large).
- Insert one end of the factory supplied Pump Element into the orange Fitting Receptacle on the Pump Treatment Valve Vibration Mount, as shown.



**Step 3: Insert the Pump Element onto the Pump Head Rollers, as shown.**

- Ensure Pump Element fits behind Pump Head Clips ➡





**Step 4:** Insert the other end of the factory supplied Pump Element into the orange Fitting Receptacle on the In-line Strainer Vibration Mount, as shown.



**Step 5: Close Pump Head.**

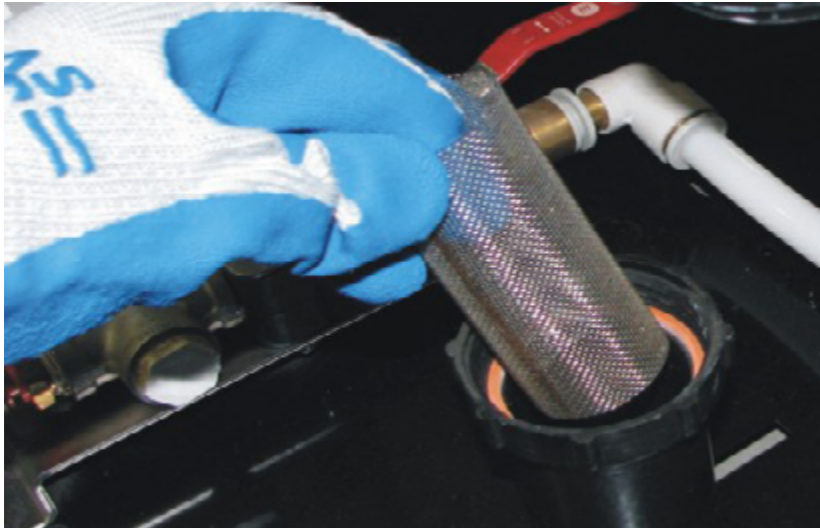
- Handle is in the UP position, as shown.



**In-line Filter**

**Step 1:** Periodically remove, inspect and clean out the in-line filter assembly on the Pump Station →





**Step 2: Open Filter Basket.**

- Place a drip pan or bucket beneath the filter and unscrew the Basket from the cap.
- Remove the filter from the basket and clean thoroughly.



**Step 3:** Ensure the gasket is seated correctly within the groove.



**Step 4: Replace the filter inside the Filter basket.**

- Hand tighten the Basket back onto the In-line Filter.
- **ENSURE FILTER BASKET IS TIGHT (VERY IMPORTANT)!**

Failure to clean the treating system (including all accessories) properly, or failure to completely drain all liquid chemicals from the Pump and Treatment lines after use, may cause damage to the equipment and void the warranty!





# CONTROL PANELS



**Warning!** Power cord for HMI must remain plugged in to a live outlet at all times. Battery back up system in HMI will need to be replaced if left unplugged for extended period!



## Control Panel

Periodically remove, inspect and clean out air filters.

- Grasp the top of the filter frame and pull away from the panel, as shown.
- Remove the filter and clean with a vacuum cleaner or replace the filter.
- Repeat for air filter on the other top side of Controller ➡





## Main Control Panel & HMI

At end of treating season, turn **OFF** the Main Control Power Lever, as shown below.

## NOTICE

INTERNAL BATTERY  
REQUIRES POWER 24/7

TO SHUTDOWN COMPUTER  
FOR STORAGE GO TO SETUP  
SCREEN & PRESS SHUTDOWN

**Step 2:** Turn **OFF** the HMI Control according to the instructions on the following pages ➔



Bayer Engineering R&D 81

**ON DEMAND**

System Status  
Idle

12/18/2017  
1:51:34 PM  
-78 dBm  
Current User: ENGR

Seed Present  
Seed Wheel Stopped  
Drum Stopped

Batch Setup Reports Setup Inventory Alerts Login

### MAIN SCREEN

**Step 1:** Touch the **Setup** button icon: navigates to the **System Configuration Screen** ↻



# System Configuration Screen

12/18/2017  
1:51:34 PM

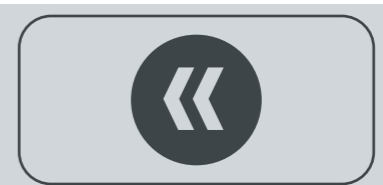
PLC Revision 4.11.15  
HMI Revision 4.11.15

Show Seed Quantity on Batch Report

- Shutdown
- Seed Wheel
- Drum Settings
- Pump Stations
- Treater Config
- Charts
- Clean Screen
- Exit

## SYSTEM CONFIGURATION SCREEN

**Step 1:** Touch the **Shutdown** button icon: navigates to the **Shutdown Screen** ↻





# System Configuration Screen

1:51:34 PM

PLC Revision 4.11.15

HMI Revision 4.11.15

Warning

This will exit the application and turn the computer off. Are you sure you want to do this?

No Yes



Shutdown

Seed Wheel

Drum Settings

Pump Stations

Treater Config

Charts

Clean Screen

Exit

## SYSTEM CONFIGURATION SCREEN - SHUT DOWN WARNING POP-UP

**Step 1:** Touch the **Yes** button icon: HMI will exit the application program and turn the computer off.





# GEARMOTORS



**Warning!** The gear motor has been tested and adjusted at the factory. Dismantling or replacement of components must be done by the manufacturer to maintain the warranty!



## Required maintenance tools

- 9/16" Wrenches (2)
- 6mm Allen Wrench
- 8mm Allen Wrench
- Oil Pan

## Bevel Helical Gear Motor

After 100 hours of the initial operation of the Gear Motor, the housing should be thoroughly drained. After the initial break-in, the oil should be changed every six months or 2,500 operating hours (whichever comes first).

### Lubrication - Standard (mineral): CLP 460

- Suitable for ambient temperatures from 32° to 104° F.
- Life is 16,000 hours or three years when operating temperatures are between 158° and 176° F.

### Additional lubricants available upon request - Synthetic: GH6-680

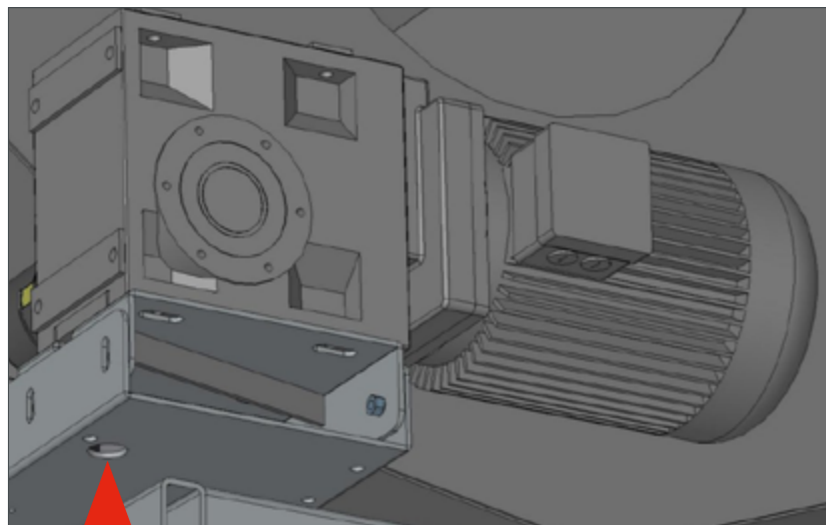
- Extended temperature range -32° to 122° F.

### Food Grade: CLP-H1220

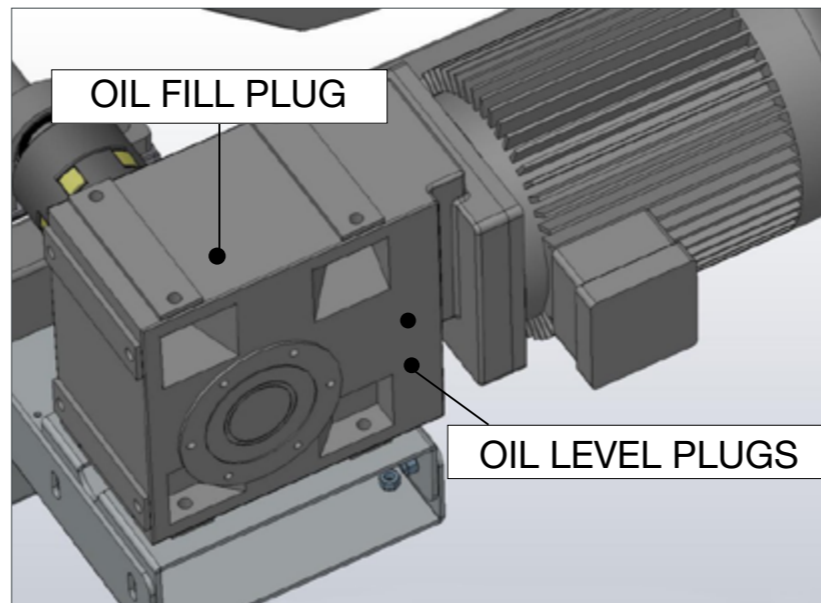
- Registered USDA-H1.

### Biodegradable: CLP-E320

- Water pollution class O.



OIL DRAIN PLUG ACCESS HOLE



OIL FILL PLUG

OIL LEVEL PLUGS

## THOROUGHLY DRAIN OIL WHILE IT IS WARM

**Step 1:** Use a 6mm Allen Wrench to remove the oil drain plug, located on the bottom of the Gear Motor. An access hole is provided on the Motor Mount to gain access to the oil drain plug without having to remove the entire Gear Motor. Drain thoroughly, then replace the oil drain plug.

**Step 2:** Use an 8mm Allen Wrench to remove both the fill and oil level plugs, located on the top and side of the Gear Motor. Fill the Gear Motor with new Standard (mineral): CLP 460 motor lubricant until oil comes out of the oil level plug on the side of the Gear Motor. Do not mix compounded oil and synthetic oil in the Gear Motor!

**Step 3:** Use an 8mm Allen Wrench to replace both the fill and oil level plugs. Tighten snug and secure.





# PM CHECKLIST

Preventive Maintenance check list for in season and end of season treating.

## END OF DAY:

- Lift valve lever to lock lines and prevent losing prime.
- Release pump element lever to prevent damage to pump element.
- HMI and Main Control panel can remain on during treating season.
- Clean drum if needed.
- Kegs may remain connected and on the scales.

## START OF DAY:

- Close pump pressure levers (ensure proper placement of pump element).
- Open valve lever.
- Jog lines as needed to top up prime.

## WEEKEND SHUTDOWN:

- Reverse pumps to clear all product from lines.
- Release pump element lever to prevent damage to element.
- HMI and Main Control panel may remain on.
- Clean drum if needed.
- Kegs may remain connected and on the scales ➡



## END OF SEASON:

- Reverse pumps to clear all product from lines.
- Remove kegs from scales.
- Remove Manifold from treating head and insert in bucket.
- Install rinsing socket and flush lines with water till clear.
- Clean manifold.
- Remove filters on pump stations and clean.
- Replace all pump elements - ensure proper size of replacements: (73 for IP pump and 15 for LS pump).
- Replace chemical lines to treater as needed.
- Remove transition chute and clean atomizer and chamber.
- Clean Air release valves.
- Clean Drum.
- Grease pillow block bearings.
- Clean air filters on main panel.
- Power down main panel and HMI (HMI Must remain plugged in to a live outlet at all times).





**Bayer**

Crop Science Division  
1451 Dean Lakes Trail  
Shakopee, MN 5379  
USA

**Telephone**

+1-952-445-6868

**Toll free:**

+1-855-363-3152

**Visit us on:**

[www.seedgrowth.bayer.com](http://www.seedgrowth.bayer.com)

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