Walinga Hopper Auger HMI SMART System Unloading Procedure (Version 2.21)

Introduction

The SMART hydraulic unloading package is an automated unload system which is designed to monitor its own performance and make internal adjustments which ensure that the unit is unloading to its optimum potential. The system also provides built in safeguards which protect the hydraulic system from hard starts/stops, high oil temperatures and high pressures.

These features allow even less experienced operators to safely run the equipment to its maximum potential; resulting in consistently efficient unload times.

"SMART":   **S**oft - Start/Stop
           Machine Control
           Auto – Shutdown/Compensate
           Remote – Control/Monitoring
           Technology – e-Tech/Temperature/Pressure Control

Before operating a WALINGA bulk feed trailer, please read and understand all operating instructions and safety warnings.

Never leave the controls unattended while unloading!

All Walinga SMART trucks and trailers are equipped with two immediate stop buttons. One is the large red button found on the HMI junction box inside the control box. The second is the red button at the bottom of the Omnex remote.

Selecting a Feed Type

At start up the trough auger will try to bring product to the vertical as quickly as possible. When it senses product in the vertical, it will slow the trough down in order to ensure that the vertical is not overfed. As the vertical and boom pressures stabilize, the trough will try to ramp back up as much as the system will allow, based upon the active setpoint settings. The HMI system allows you to choose between 3 different feed types, which will affect how the HMI system responds to the hydraulic pressure readings that it is monitoring:

Pellet - Set to PELLET when discharging a product with good flowability. The HMI will react aggressively in bringing the trough auger up to its maximum speed as the vertical and boom pressures stabilize. This setting will maintain the most oil possible for trough speed, resulting in the best unloading performance. .

Meal - Set to MEAL when discharging a product with medium flowability. The HMI will react more conservatively while ramping the trough auger speed back up as the vertical and boom pressures stabilize, than it would if set to Pellet. This setting also adjusts the ratio of the boom and vertical speeds some, to help clear that transition.

Dairy - Set to DAIRY when discharging a product with poor flowability. The HMI will react the most conservatively while ramping the trough auger speed back up as the vertical and boom pressures stabilize. This setting also adjusts the ratio of the boom and vertical speeds more, to help clear that transition better.

To switch feed types, select FEED TYPE on the upper left corner of the home screen. Use the **+** and **-** buttons or the scroll wheel to switch between Pellet, Meal and Dairy feed.

Prior to Start Up

1. Operation of the equipment should only take place in daylight or in areas with good artificial lighting.
2. Be familiarized with the location and function of all controls.
3. On semi units, position the tractor and trailer in a straight line and on a firm, level surface to provide maximum stability when swinging the boom and unloading.
4. Ensure that the unit parking brakes are applied.
5. Ensure that all safety guards and covers are properly installed and all auger access doors are closed and remain closed while operating the equipment.
6. Ensure that all hydraulic controls are in their neutral position.
7. Make sure that the area around the PTO drive shaft (if equipped) and each of the augers are clear of bystanders or other objects which have the potential to get caught or may pose a safety hazard with the start-up of the hydraulic system.
8. Verify that the hydraulic oil reservoir is filled to the proper level.
9. Inspect the unit for hydraulic leaks, damaged components and hoses with weather cracks or abrasions which may be deep enough to expose the steel braids. Complete any required repairs before operating the unit.
10. Ensure that the wet line couplers are tight. The female coupler should be turned down until the edge of the coupler reaches the marked line on the male twist couplers.

PTO Engagement / Hydraulic System Start-Up

1. Disengage the clutch by depressing the clutch pedal and wait for the transmission or PTO gears to stop rotating.
2. Set the parking brake.
3. Shift the transmission into Neutral.
4. Shift the PTO into gear.
5. Slowly release the clutch pedal to re-engage the clutch.

Boom Positioning

Warning – never position the boom or operate the unit within 30 feet (10 meters) of overhead power lines.
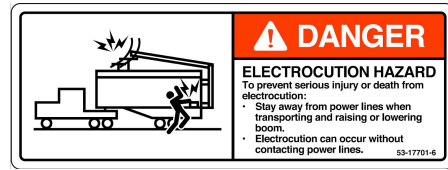
1. For the best visibility while positioning the boom and unloading the unit, it is recommended that the unit be positioned so that the bin or unloading area is on the left side (driver side) of the unit. Be aware of any power lines, buildings or other obstructions which may interfere with boom movement.
2. With the engine running at idle speed, gently raise the boom out of the saddle(s) using the manual, electric or remote controls. Note - positioning the boom at high engine speeds may result in damage to the equipment.
3. Raise and rotate the boom as necessary until it is positioned over the bin or the product storage location. Take care that the hydraulic hoses which run to the boom do not become tight or snagged. If necessary, rotate the boom in the opposite direction to prevent hydraulic hose damage.
4. Position the discharge end of the boom directly over the bin opening. Lower the boom sock into the bin opening. Leave at least 8" between the bottom of the boom and the top of the bin. Resting the boom on the storage bin may result in damage to the boom and/or the storage bin.
5. Do not move the unit with the boom out of the saddle or when the boom is full of product. Always empty the boom prior to repositioning. Moving the unit with the boom out of the saddles may cause major damage to the boom and upper vertical assembly**.**
6. For all boom motions (raise, lower, in & out) there is a second, higher positioning speed available. This is activated by using the GREEN shift button while also holding the desired boom motion button. For example, after starting the 'rotate boom out' motion by pressing the motion command button, you can press and hold the green shift button to activate the higher rotation speed. This faster rotation speed will continue as long as the green button is pressed. Release the green shift button to return to the slower motion speed for better positioning accuracy. **In order to avoid hard stops which create additional stress on the unit and may eventually result in damage to the trailer structure and boom motion components, the operator must alway first release the GREEN high speed shift button and return to low speed operation, before releasing the boom motion command button.**

Auger Unloading - Auto

1. Before beginning to unload product, particularly in temperatures below 32° F / 0° C, ensure that the oil has been adequately warmed at idle speed. Cold oil will result in higher start-up pressures and may cause damage to hydraulic components; particularly the hydraulic cooler elements.
2. Never leave the controls unattended while unloading! If a problem occurs and the system is allowed to operate at the relief valve pressure setting for an extended period of time, severe damage may be done to the hydraulic pump(s) and pressure relief valve(s).
3. Bring the engine speed up to the unit's recommended RPM setting. This setting can typically be found labeled in the cab of the truck, on or near the sun visor. Contact your Walinga representative if the appropriate engine speeds are not available.
4. On the HMI screen ensure **AUTO** is highlighted in the top right of the HMI screen. This can be selected by either pressing **AUTO** on the touch screen or the button beside it. When not in AUTO, this icon will read **MAN** (manual) with a **RED** border.
5. Turn on the blue Omnex remote control using the **GREEN** button at the top of the transmitter.
6. Press the **ON** button for the FLOOR AUGER. This will turn on all of the augers; first the boom, then the vertical and the finally the trough. Having the unit start the augers in this order is important to ensure that the trough auger is not pushing product into the vertical before the vertical auger has been turned on.
7. Open the gate for the first compartment which needs to be unloaded. In order to achieve maximum efficiency with minimum wear on the system, units should be unloaded starting at the discharge end of the trailer (rear → front for rear unload units and front → rear for front unload units). Do not unload from more than one compartment at a time. Doing so may result in the trough auger stalling or plugging up. This will also decrease the efficiency of the hydraulic system and result in longer unload times.
8. The **HMI** control system will monitor the auger and system hydraulic pressures to optimize unloading efficiency based on selected setpoints.
9. If unloading multiple compartments, do so one compartment at a time. Monitor the trough auger pressure. As each compartment empties the trough auger pressure will drop. For the best unloading performance, monitor the compartment material level and open the next gate just before the trough pressure begins to drop.
10. Leave the gates in the empty compartments open to reduce the load on the trough auger motor. **NOTE:** Unloading product below closed gates will result in higher than necessary trough auger motor pressures, leading to increased motor wear as well as potential damage and wear to the trough liner. This will also put outward pressure on the gates; eventually reducing their ability to achieve a tight seal.
11. When the destination bin reaches capacity before the trailer is empty, the product may plug up against the boom auger and cause the boom auger pressure to spike. If the unit is not shut down in time, this may trigger an overpressure fault in the control, which will shut the augers down. This is a protective feature of the HMI system to reduce wear and prevent damage to the system.

12. If the destination bin reaches capacity before the trailer is empty, raise the boom up higher from the bin opening. **Note - Do not move the truck or trailer with the boom out of the saddle or when the boom is full of product. Always empty the boom prior to repositioning. Moving the unit with the boom out of the saddle may cause major damage to the boom, and upper vertical assembly.**

13. Empty the remaining product out of the boom by either pressing the Vertical Auger **ON** button on the Omnex remote or pulling the Boom Auger handle on the hydraulic control. It is important to empty the boom before moving the trailer.

14. When boom has been emptied, turn off the augers by pressing the VERT AUGER **OFF** button. Now it is safe to put the boom back into the saddle, relocate to the next destination bin, as required, and continue the unloading process.

15. When unloading is complete, press the **OFF** button for the FLOOR AUGER. This will shut down the augers; first the trough, then the vertical and finally the boom. Having the unit shut down the augers in this order is important for ensuring that product is not being delivered to a stationary auger.

16. Bring the engine speed to an idle.

17. Discharge any residual product into a bucket or bag, if necessary. **Always keep all guards and covers in place and access doors closed when the hydraulic system is in operation.**

18. At idle speed, position the boom into the boom saddles. Always be aware of your surroundings and stay well clear of overhead power wires and other obstructions.

19. Shut off the remote control, by pressing the **RED** button.

20. Shut down the pump PTO.

21. Close and secure all of the gates in order to ensure that the unit is not reloaded with open gates. The trough should be empty at start-up to avoid feed type cross-contamination and to minimize start-up damage to the auger motors.

Auger Unloading - Manual

1. Before beginning to unload product, particularly in temperatures below 32° F / 0° C, ensure that the oil has been adequately warmed at idle speed. Cold oil will result in higher start-up pressures and may cause damage to hydraulic components; particularly the hydraulic cooler elements.
2. Never leave the controls unattended while unloading! If a problem occurs and the system is allowed to operate at a pressure higher than the relief valve pressure setting for an extended period of time, severe damage may be done to the hydraulic pump(s) and pressure relief valve(s).
3. In order to operate in manual mode ensure that the icon in the top right of the HMI home screen reads **MAN**. This setting can be changed by pressing **AUTO** on the touch screen or the button beside so that the icon changes to **MAN** and is framed RED.
4. The trough speed can be controlled manually by selecting the MANUAL SPEED icon on the left side of the screen. It is recommended that the manual speed located on the left side of the HMI screen be set at 75 to start. With the icon highlighted the trough speed can be adjusted either with the scroll wheel or the **+** and **-** buttons on the right side of the screen.
5. Turn on the blue Omnex remote control using the GREEN button at the top of the transmitter.
6. Press the **ON** button for the VERT AUGER. This will start both the vertical and the boom augers together. Then press the **ON** button for the FLOOR AUGER to start the trough auger. Starting the augers in this order is important to ensure that the trough auger is not pushing product into the vertical before the vertical auger has been turned on.
7. Open the gate for the first compartment to be unloaded. In order to achieve maximum efficiency with minimum wear on the system, units should be unloaded starting at the discharge end of the trailer (rear → front for rear unload units and front → rear for front unload units).
8. In manual mode it is the Operator's responsibility to monitor the auger and system pressures and to operate the unit within the desired pressure ranges. It is recommended that the unit operates within a pressure range between 1800 psi and 2300 psi for the auger motor with the highest pressure. The highest pressure will most often be seen on the boom auger but this can vary depending on the length of the boom and/or the height of the bin being unloaded into. If any of the auger or system pressures climb beyond 2300 psi, the trough auger speed should be decreased by using the scroll wheel or **+** and **-** buttons to adjust the MANUAL SPEED setting for the trough auger, until the pressures are operating back within the desired range.
9. If unloading multiple compartments, do so one compartment at a time. Monitor the trough auger pressure. As each compartment empties the trough pressure will drop and the next compartment can be opened.
10. Leave the gates in the empty compartments open to reduce the pressure at the trough auger motor. **NOTE:** Unloading product below closed gates will result in higher than necessary trough auger motor pressures, leading to increased motor wear as well as potential damage and wear
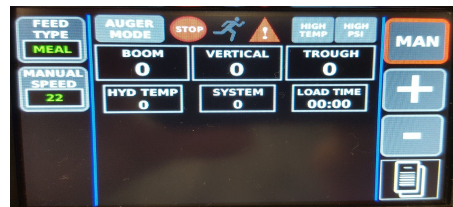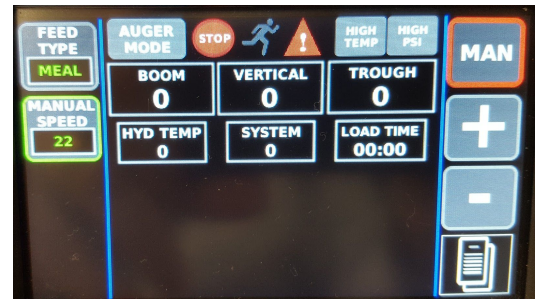
to the trough liner. This will also put outward pressure on the gates; eventually reducing their ability to achieve a tight seal.

11. When the destination bin reaches capacity, the product may plug up against the boom auger and cause the boom auger pressure to spike. If the unit is not shut down in time, this may trigger an overpressure fault in the control, which will shut the augers down. This is a protective feature of the HMI system to reduce wear and prevent damage to the system.

12. If the destination bin reaches capacity before the trailer is empty, raise the boom up higher from the bin opening. **Note - Do not move the truck or trailer with the boom out of the saddle or when the boom is full of product. Always empty the boom prior to repositioning. Moving the unit with the boom out of the saddle may cause major damage to the boom, and upper vertical assembly.**

13. Empty the remaining product out of the boom by either pressing the Vertical Auger **ON** button on the Omnex remote or pulling the Boom Auger handle on the hydraulic control. It is important to empty the boom before moving the trailer.

14. When unloading is complete, press the **OFF** button for the FLOOR AUGER and then for VERT AUGER. This will first shut down the trough auger and then the boom and vertical augers. Shutting down the augers in this order is important for ensuring that product is not being delivered to a stationary auger.

15. Bring the engine speed to an idle.

16. Discharge any residual product into a bucket or bag if necessary. **Always keep all guards and covers in place and access doors closed when the hydraulic system is in operation.**

17. At idle speed, position the boom into the boom saddles. Always be aware of your surroundings and stay well clear of overhead power wires and other obstructions.

18. Shut off the remote control, by pressing the **RED** button.

19. Shut down the pump PTO.

20. Close and secure all of the gates in order to ensure that the unit is not reloaded with open gates. The trough should be empty at start-up to avoid feed type cross-contamination and to minimize start-up damage to the auger motors.

Pit Dumping

Note: Pit dumping must be done in MANUAL mode as the operator needs to monitor product flow into the pit and adjust accordingly.

1. Before beginning to unload product, particularly in temperatures below 32° F / 0° C, ensure that the oil has been adequately warmed at idle speed. Cold oil will result in higher start-up pressures and may cause damage to hydraulic components; particularly the hydraulic cooler elements.
2. Do not leave the controls unattended while unloading! If not shut down immediately, severe damage may be done to the hydraulic pump(s) and pressure relief valve(s) if the system is allowed to operate over the relief pressure setting for an extended period of time.
3. In order to operate in manual mode ensure that the icon in the top right of the HMI home screen reads **MAN**. This setting can be changed by pressing **AUTO** on the touch screen or the button beside so that the icon reads **MAN** and is framed **RED**.
4. The trough speed can be controlled manually by highlighting the **MANUAL SPEED** icon on the left side of the screen. It is recommended that the manual speed located on the left side of the HMI screen be set to 75 to start. With the icon highlighted this can be adjusted either with the scroll wheel or the **+** and **-** buttons on the right side of the screen.
5. With the augers off, open the pit dump door at the rear of the unit.
6. Turn on the blue Omnex remote control using the **GREEN** button at the top of the transmitter.
7. Then press the **ON** button for the FLOOR AUGER to start the floor auger.
8. Open the gate for the first compartment to be unloaded. In order to achieve maximum efficiency with minimum wear on the system, units should be unloaded starting from the rear and working towards the front when pit dumping.
9. In manual mode it is the Operator's responsibility to monitor the auger and system pressures and to operate the unit within the desired pressure ranges. These pressures can be viewed on the HMI screen. It is recommended that the unit operates within a pressure range between 1800 psi and 2200 psi on the auger so long as the pit can keep up with the unloading speed of the unit. If any of the auger or system pressures climb beyond 2300 psi, the trough auger speed should be decreased by using the scroll wheel or **+** and **-** buttons to adjust the **MANUAL SPEED** setting for the trough auger, until the pressures are operating back within the desired range.
10. If unloading multiple compartments, do so one compartment at a time. Monitor the trough auger pressure. As each compartment empties the trough pressure will drop and the next compartment can be opened.
11. Leave the gates in the empty compartments open to reduce the pressure at the trough auger motor. **NOTE:** Unloading product below closed gates will result in higher than necessary trough auger motor pressures, leading to increased motor wear as well as potential damage and wear

to the trough liner. This will also put outward pressure on the gates; eventually reducing their ability to achieve a tight seal.

12. Turn off the trough augers by pressing FLOOR AUGER **OFF.**
13. Shut off the remote control, by pressing the **RED** button.
14. When unloading is completed, lower the engine speed to an idle.
15. Shut down the pump PTO.
16. Ensure that the augers are not running, then close and secure the pit dump door.
17. Close and secure all of the gates in order to ensure that the unit is not reloaded with open gates. The trough should be empty at start-up to avoid feed type cross-contamination and to minimize start-up damage to the auger motors.

Unit Settings:

1. One of the most powerful features of the HMI system is the ability of the operators to adjust key settings to optimize the unit performance to suit feed types, destination bin heights, and other factors they encounter.
2. To adjust settings or choose a target setpoint navigate to the settings screens. Press the menu button on the bottom of the right hand sidebar to bring up the tools and settings sidebar.
3. Then press the "GEAR" button located second from the bottom on the right hand sidebar to open the settings screens.
4. Pressing the Page Cycle button will allow you to cycle between the various settings pages. Use the up and down arrows on the left side of the screen to scroll through the list. Sometimes the list of adjustable settings on a given page will be more than visible on a single screen. If more parameters are available they will be shown by scrolling down again at the bottom of the list.

Settings Page #1 - Auger unload settings:
AUGER SETPOINTS

Auger setpoints are the target pressure setpoints that the HMI system will operate with when auger unloading in AUTO mode. This will be the pressure setting (PSI) that the system will try to maintain for the boom and/or vertical during operation, whichever of the two is operating at the higher pressure. Two auger setpoints can be saved as quick selections for different unloading conditions (eg. different bin heights).

1. To select which setpoint the system will use as its target setting, press the SETPOINT ACTIVE button on the upper left corner of the screen as required until the desired set point is shown as ACTIVE.
2. In order to adjust a setpoint, use the up and down arrow buttons to scroll through the setpoints until the desired function is framed in green.
3. Use the **+** and **-** buttons or the scroll wheel to adjust the setpoint to the desired target pressure.

AUGER TROUGH MAX:

The AUGER TROUGH MAX setting is a percentage of the total available trough speed and represents the speed that the trough auger will run at during initial start-up in auger unloading mode. Typically from the factory this will be set to 85. This means that when the system first starts up, the trough will run at 85% of its maximum speed until it senses the pressure in the vertical auger starting to rise, which indicates that the product has reached the vertical. Once it sees this increased hydraulic pressure at the vertical motor, the HMI will monitor the vertical and boom pressures and adjust the trough speed as required to maintain the selected auger setpoint (see instructions above regarding Auger Setpoints).

The reason for setting this start up speed to 85% is because when the system has been running for 2 minutes and the pressures have stabilized, the HMI will allow the trough auger to run at 15% above the AUGER TROUGH MAX setting. This allows the trough auger speed to reach 100% of its available speed if not limited by the AUGER SETPOINT selected for the vertical and boom.

If the AUGER TROUGH MAX is set too high it could potentially deliver more product at start up than the vertical and boom are able to take away and cause the system sense an over pressurization fault and force the system to shut down. To lower the AUGER TROUGH MAX setting use the up and down arrow buttons to scroll through the setpoints until AUGER TROUGH MAX is framed in green. Then press the **+** and **-** buttons or use the scroll wheel to adjust the AUGER TROUGH MAX setting.

If the AUGER TROUGH MAX is set to low, the trough auger may never run the augers fast enough to allow the vertical or boom to reach the selected setpoint; resulting in the unit not operating at peak efficiency and longer unload times. If the unit has been running stable for two minutes and it has not yet reached the selected auger setpoint setting, raise the AUGER TROUGH MAX setting by using the up and down arrow buttons to scroll through the setpoints until AUGER TROUGH MAX is framed in green. Then press the **+** and **-** buttons or use the scroll wheel to adjust the AUGER TROUGH MAX setting.

COLD OIL FACTOR:

The Cold Oil Factor works as a fraction of the available trough speed and can be adjusted between 0.3 and 1. This setting slows the trough down when the oil is cold (below 32 °F) in order to protect the equipment. Cold oil is more viscous and may cause the system to operate inconsistently. In general, the trough motor will run faster with cold oil due to less hydraulic slip. Once the oil warms to 60 °F, this adjustment is unnecessary and internally the HMI will adjust it to 1.

For example: With the cold oil factor set to 0.3 and AUGER TROUGH MAX at 90%, the trough will be limited to 0.3 of the AUGER TROUGH MAX setting (27%) any time the oil temperature is below 32 °F; between 32 °F and 60 °F this trough limit will be midway between 27% and 90% giving a temporary trough max limit of 58.5% until the oil temperature reaches 60 °F. Once the oil temperature is above 60 °F the HMI will use the current setting of AUGER TROUGH MAX in any trough limit calculations. If the cold oil factor is set to 1, the trough auger will start up at its full potential based on the AUGER TROUGH MAX setting and not make any adjustments to allow the oil to warm.

The cold oil factor will come preset from the factory set to 0.9. In order to change this setting use the arrow buttons on the left side of the setting screen to highlight COLD OIL FACTOR, then press the **+** and **-** buttons or use the scroll wheel to adjust the cold oil factor settings as required. **Note: In cold temperatures, operating the system with the cold oil factor set too high may result in damage to the equipment.**

GATE TIMERS ACTIVE:

The GATE TIMERS ACTIVE feature is an option available to the operator if the unit is equipped with **auto gate control**. If there is no auto gate control, this should be set as FALSE.

To activate or deactivate the gate timers, select this setting using the arrow keys on the left side of the screen and use either the **+** and **-** buttons or the scroll wheel to switch between TRUE and

FALSE. If the unit is equipped with auto gate control, the operator is able to choose between using timers to automatically open the enabled gates at timed intervals, or to manually open gates using control icons on the screen. This allows the operator to optimize timer settings for a certain type of feed, and run without the timers for special circumstances such as a different feed or when pit dumping.

AUGER SHUTDOWN PSI:

The AUGER SHUTDOWN PSI the pressure setting at which the augers will shutdown in an over-pressurization situation in order to protect the system. The most common causes of over-pressurization are:

- When the boom auger senses back pressure from unloading into a full bin.
- When the AUGER TROUGH MAX setting is too high: During system startup the unit might be unable to slow down the initial flow of product between the trough and vertical quickly enough before the vertical or boom augers reach the shutdown pressure setting. In the event of shutdowns at startup when the destination bin is not full, empty the remaining product out of the boom by either pressing the Vertical Auger ON button on the Omnex remote or pulling the Boom Auger handle on the hydraulic control. Then lower the AUGER TROUGH MAX setting and start again.
- If the next gate in sequence is opened slightly late and the trough pressure has dropped for a very short period of time, the AUGER TROUGH MAX feature may not come into effect, but there can be an increase of product flow to the vertical auger, causing high pressure in the vertical and boom. The best way to avoid this is to open the next gate just before the trough pressure drops, keeping the trough auger at a consistent pressure.

This auger shutdown setting comes preset at 2700 PSI and may be lowered if the system configuration allows, but should never be raised above 2700 PSI. This adjustment is critical to operator safety and unit protection and can only be made by authorized Walinga personnel. Please contact your local Walinga representative if assistance is needed with this setting.

AUGER TROUGH DIR:

The AUGER TROUGH DIR function controls the direction the trough will run in auger unloading mode when it is activated with the remote control or in local mode. On rear unload systems, this will be set to REAR and on front unload systems should be set to FRONT. To change the trough direction select this setting using the arrow keys on the left side of the screen and use either the **+** and **-** buttons or the scroll wheel to switch between FRONT and REAR.

The most common need to change the trough auger direction is with a front unload auger trailer when the trough needs to run to the rear for pit dumping.

This parameter will automatically reset to a factory default which is based on unit configuration at each power-up cycle.
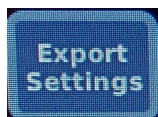
Note: It is extremely important that this is always set to the proper direction. Running the trough in the wrong direction may result in damage to the equipment.

## Settings Page #2 - USB Functions   Press

With a USB memory stick inserted in the USB port on the HMI screen many of the system settings and some data can be transferred between the HMI screen and the memory stick.

Select **Export Settings** to export all the unit's current system settings onto a USB memory stick. This is recommended prior to doing a system update, so that the unit settings can be restored after completing the update. It is also useful if this file is saved away from the trailer to restore settings in case of data loss.
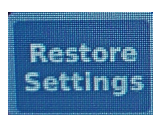
Using a USB memory stick which already has system settings saved on it inserted in the USB port, press **Restore Settings** to install these saved settings on the HMI. This would typically be done after doing a system update or to copy settings from one identical unit to another.
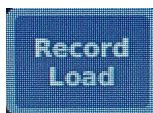
Select **Record Load** to be able to capture unloading data onto the USB stick during all unload cycles run in AUTO. This data can be used for troubleshooting problems.
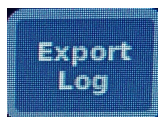
Press **Export Log** to download all accumulated error log data; such as faults or system shutdowns. This data can be very helpful to investigate problems.
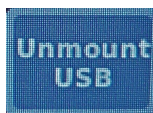
Press **Unmount USB** to safely remove the USB stick from the HMI screen.

Manager's Lock Settings Screen

With a Walinga supplied **Manager Key** inserted into the HMI screen, an additional settings screen is made available which allows authorized individuals to lock or unlock operator access to certain unit settings and parameters; giving the operator more or less freedom to make system adjustments. This is often used by a fleet manager to ensure that all drivers are operating the unit with the same settings. It can also be used to make operation simpler for novice operators, by limiting the parameters that the operator needs to worry about adjusting.
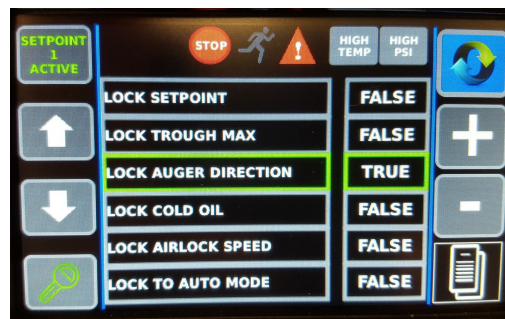
1. Wth the **Manager Key** inserted in the USB port on the HMI, press on the **Key Symbol** in the bottom left corner. If a valid manager key is in the USB port, the key symbol will turn green. NOTE: When changes with the manager key are complete, remove the key and push the key symbol again to deactivate this access. Alternatively, the access will be reset on the next power cycle of the controller.

2. Press the page cycle button until the **lock out settings screen** is visible. Navigate through the list of parameters that can be locked using the up/down arrows on the left of the screen, and adjust the settings using the +/- buttons on the right side or the scroll wheel.

LOCK SETPOINT - When set to TRUE, will not allow the operator to adjust the target pressure set points.

LOCK TROUGH MAX - When set to TRUE, will not allow the operator to adjust the maximum speed settings for the trough auger.

LOCK AUGER DIRECTION - When set to TRUE, will not allow the operator to change the trough auger direction. For most units that are rear unload, this could be locked to avoid accidental reversing of the trough direction, since there is no need to run the trough auger constantly in the forward direction.

LOCK COLD OIL - When set to TRUE, will not allow the operator to adjust the cold oil factor setting.

**LOCK AIRLOCK SPEED -** When set to TRUE, will not allow the operator to adjust the airlock speed.

LOCK TO AUTO MODE - When set to TRUE, will not allow the operator to select MANUAL mode for unloading.

Tools and Diagnostics:

1. To navigate to the Tools and Diagnostic screen, press the menu button on the bottom of the right hand sidebar to bring up the tools and settings sidebar.

2. Then press the "TOOLS" button located second from the bottom on the right hand sidebar to open the Tools and Diagnostics screen.
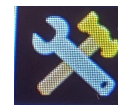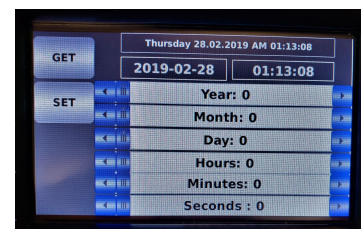
3. On the Tools and Diagnostics screen the operator is able to view any active fault messages as well whether or not the HMI is recognizing that it is connected to other unit hardware; such as the radio remote. A green light beside the hardware description indicates a connection (eg. the remote control base is powered on). A red light indicates that the HMI is not currently connected to the hardware (eg. the remote control base is not powered on).
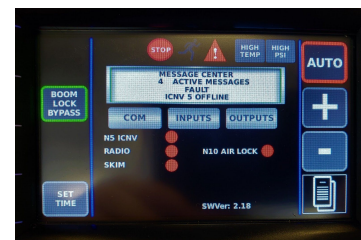
4. Activating the **Boom Lock Bypass** (left sidebar) will temporarily power the boom lock valve to allow the operator to position the boom using the manual handles on the hydraulic control.

5. Press **SET TIME** to open up the clock screen. Use the arrows on either side of the screen (or the slide bars) to adjust the date and time appropriately. Press SET when complete to save the changes and return you to the Tools and Diagnostics screen. This time is used to log any error messages and date stamp any data or recordings saved on the USB memory stick.

6. Press **INPUTS** on the Tools and Diagnostics screen to view the pressures and voltages of various sensors and elements of the system. Note that pressure values on this screen are raw data values and are not scaled to PSI like those on the home screens.
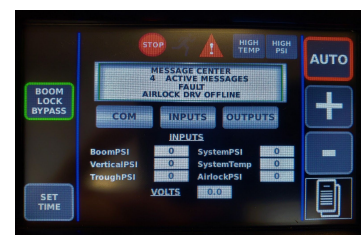
7. Press **OUTPUTS** on the Tools and Diagnostics screen to view the mA current outputs that the HMI is sending to the hydraulic control coils. This value is an indication of how far the spools are shifted which affects the speed at which each function operates. These settings can only be adjusted by authorized Walinga personnel, but the values can be useful when troubleshooting problems.
Digital outputs such as boom and work lights or roof control are shown with red (off) or green (on) dots at the bottom of this screen.
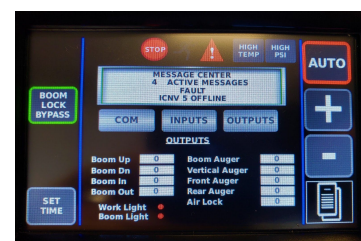
8. Pressing the **LOCAL MODE** icon (top left sidebar, if enabled) will bring up the LOCAL MODE control screen. This is described in more detail in the following section titled "Local Mode".

Local Mode

The HMI hydraulic system would typically be operated with the supplied remote control. In the event that the remote control is lost or inoperable, the system can be temporarily switched to LOCAL MODE where all of the functions that are available on the remote control are able to be operated from the HMI screen. In order to operate in LOCAL MODE:

1. Position the toggle switch on the side of the HMI control box to LOCAL.

2. Press the menu button on the bottom of the right hand sidebar to bring up the tools and settings sidebar.

3. Press the Tools button on the lower right corner of the screen to bring you to the Tools and Diagnostics screen. You may see a fault message noting that the R170 radio is offline. This is normal; it just means that the remote control is not powered up and communicating to the system while in local mode.
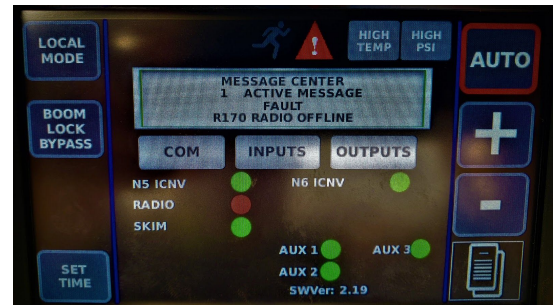
4. Press the button for **LOCAL MODE**, found in the upper left corner to bring up the LOCAL MODE control screen. In this screen the unit can be operated as either AUTO or MANUAL unload. Before starting operation with this screen, make sure any other desired adjustments and settings are completed. If exiting this screen for any reason while operating in LOCAL MODE any functions that are currently running will shut down.

5. To resume operation with the remote control transmitter, position the toggle switch to RADIO and turn on the remote control with the GREEN button located at the top of the transmitter.