SEEDMASTER | 2026

JEM SMS TOOLBAR - ISO SMS TOOLBAR

OPERATOR'S MANUAL

CONTENTS

INTRODUCTION

Thank you for purchasing a new SeedMaster unit. This manual will assist you in becoming a safe and efficient operator. The crops you grow because of the proper use of the unit will be your reward for spending some time studying this manual.

If problems arise, SeedMaster Manufacturing's dealership network can provide clarification and correction. It is important that all SeedMaster units maintain a solid reputation.

SeedMaster Manufacturing would like to take this opportunity to thank you, our valued customer, and our valued dealer, for showing your confidence in purchasing and representing a quality SeedMaster product.

SAFETY

Please be SAFE! Carefully read and understand all safety alerts and warnings in this manual and all safety decals on the SeedMaster drill and tank. Ensure that anyone who is going to use the SeedMaster drill and tank reads and understands the Operator's Manual. We recommend that only mature and well-trained or experienced people operate this product. We advise that periodic visual checks continue as a mandatory part of the implement operating procedure. Conduct regular maintenance checks on fasteners, hydraulic connections, etc. Always follow safety precautions. Serious INJURY or DEATH can result from improper operating practices.

Safety notices are one of the primary ways to call attention to potential hazards.

This Safety Alert Symbol identifies important safety messages in this manual. When you see this symbol, carefully read the message that follows. Be alert to the possibility of personal injury or death.

- Read and understand the Operator's Manual and all safety signs before operation or maintenance.
- Do not allow riders on any part of the equipment.
- Install and properly secure all shields and guards before operating the seeder.
- Keep hands, feet, clothing, and hair away from moving and/or rotating parts.
- Beware of all power lines and other overhead obstructions. Know the transport height and width of your SeedMaster drill. Ensure that minimum safe working distances are always maintained from any obstruction.
- Before servicing, adjusting, repairing, refilling, or unplugging: stop the engine, remove the engine key, set the park brake, disengage the hydraulics, and wait for all moving parts to stop.
- Ensure your seeder is properly marked as required by the local highway and transport authorities. Make sure the "Slow Moving Vehicle" sign, lights, and all reflectors are in place, clean, and visible to overtaking or oncoming traffic.
- Store a fully stocked first-aid kit in a visible, accessible place for use in case of an accident.
- Keep a fire extinguisher in an accessible location.
- Be sure that the area is clear of people before starting or moving your machine.
- Do not work around or under the raised wings unless the wings are securely chained in the transport position.
- In the event that wheel and tire assemblies must be raised off the ground for maintenance, block the implement up securely.
- Use extreme caution when working around or with high-pressure hydraulic systems. Depressurize the system when connecting or disconnecting the hose couplers.
- Wear heavy gloves and eye protection when searching for suspected hydraulic leaks. If an injury occurs, seek immediate medical attention as infection and toxic reaction could develop. Use a piece of cardboard or wood (instead of hands) when searching for such leaks.
- Never wear baggy or frayed clothing or hanging jewelry when working around or on any of the drive system components.
- When performing a product catch for meter calibration, keep hands and clothes well clear of rotating components. Be aware that when the hydraulics are activated, rotation may start unexpectedly at any time.
- We recommend that all maintenance and adjustments on the seeder be made when the implement wings are lowered.

- Store and transfer gasoline, solvents, cleaners, or any flammable liquids only in safety standard (i.e. CSA) approved containers.
- Clean and inspect all components in the hydraulic system on a regular basis.
- Replace all worn, cut, abraded, flattened, damaged, or crimped hoses and metal lines. Do not repair hydraulic components with tape, clamps, or cements. The system operates under extremely high pressure; such repairs will fail and create hazardous and unsafe conditions.
- Before applying pressure to the hydraulic system, make sure all connections are tight. Ensure lines, hoses, and couplings are not damaged.
- Ensure that the seeder is properly and safely connected to the tractor.
- Transport per local regulations for width and height.
- Follow all road safety regulations for your state or province.
- Store the seeder on a firm, level surface.
- Store with wings down.
- Have a qualified tire dealer or service person perform tire maintenance. Failure to follow proper procedures when mounting a tire on a wheel or rim can cause an explosion that may result in serious injury or death.
- Always keep safety decals and signs clean and legible. Replace safety decals and signs that are missing or have become illegible.
- Ensure proper use of wing lock-up chains in transport.
- Always use hitch safety chain.
- Do not transport at high speeds on loose gravel behind a truck or a tractor.
- Do not transport with product in tanks.
- Ensure proper hook-up of safety lights.
- Maneuver machine to ensure castors are moving freely before going onto roads.
- Do not transport at speeds higher than that recommended on tires and hubs (25 mph or 40 kph).
- Check all transport wheel nuts after the initial 10 hours of use and periodically thereafter. (See PAGE 8).
- Use proper tire inflation pressures (SEE TIRE TORQUE AND PSI SPECS, PAGE 8).

TIRE TORQUE AND PSI SPECS

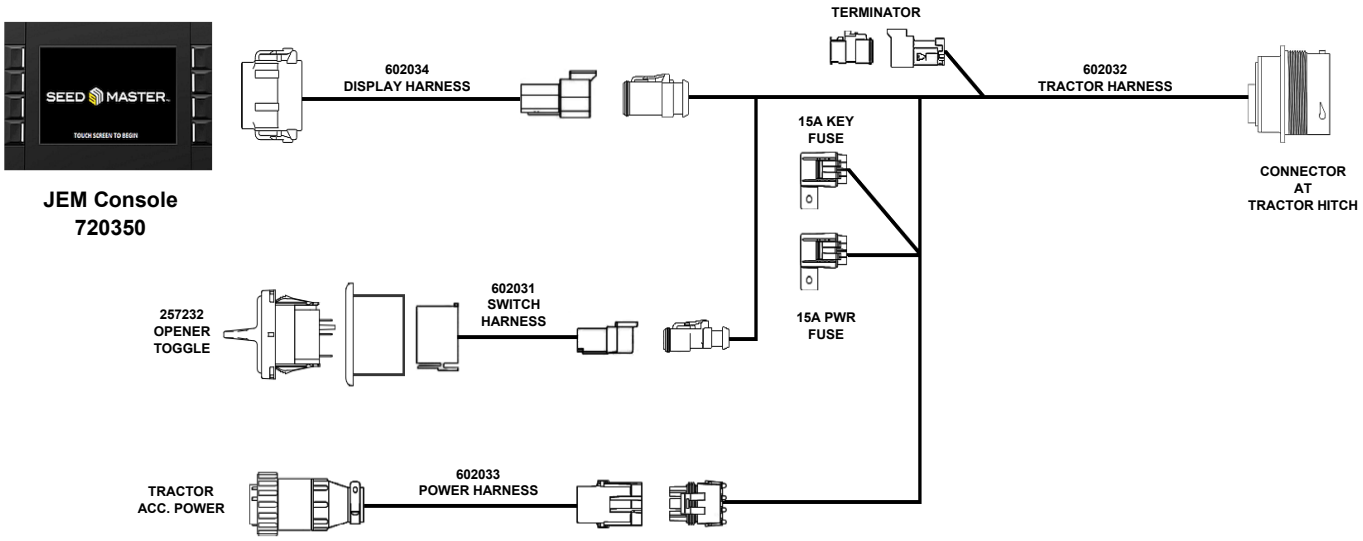
TIRE SIZE	TORQUE REQUIREMENTS (FT. LBS.)	RECOMMENDED PRESSURE (PSI)
380/55-16.5	200	72
31x13.5	200	60
750/65R26	450	35
Single 800/70R38	450	35

NOTE: All tires require re-torque after the initial 10 hours of in-field use. Subsequent checks should happen every 100 hours. Higher torque values may require a torque multiplier.

SEEDMASTER SMS TOOLBAR WITH E860 E-SERIES CART

IN-CAB ELECTRICAL HOOKUP

JEM TOOLBAR CONTROL IN-CAB HOOKUP



INSTALLATION

The JEM Toolbar Controller kit consists of 5-inch touch-screen display, RAM mount, and wiring harness.

1. Locate a convenient spot in the tractor cab to mount the display. The included mount will work for many tractors, but other RAM options (such as a suction mount) may be required.
2. Mount the Remote Lift/Lower switch where it is easily accessed during operations.
3. The Power harness will plug into a common 3-pin AMP power port, which provides both constant and key-switched power.
4. The display harness plugs into the grey connector on the back of the display.
5. Run the drill harness through the cab to the hitch. Connect the plug at the hitch to the mating connector on the drill.

TRACTOR HYDRAULIC HOOKUPS

SEEDMASTER MACHINE HYDRAULIC HOSES

HOSE MARKING CONVENTION: Each hose pair has been assigned a unique colour. The hose with 1 colour band is pressure, and the hose with 2 colour bands is return.

OPENER RAISE/LOWER HOSES: Red Tagged Lines – The two ½" Direct Opener Lift & Lower hydraulic lines with red colour bands are the opener lift and lower lines. These lines are connected to one tractor remote. The hose with 1 red band is opener down pressure. The hose with 2 red bands is pressurized to raise the openers. The openers are held up in transport with a Pilot Operated Check Valve. This maintains the pressure on the opener up pressure circuit for long transport and to facilitate unhooking under lift pressure. Leave the pressure engaged to operate the Smart Openers. **NOTE***: See page 18 for operation instructions.*

SYSTEM PRESSURE HOSES: Green Tagged Lines - The two 1/2" hydraulic lines with green colour bands are used to activate the block and raise and lower the wings. These lines are connected to one tractor remote. In the field, the operating position for this remote is locked-on to provide continuous pressure to the block via the line with 1 green band. Pressure should be adjusted and set between 2600-3000 psi by using the tractor remote flow control.

SEED AND FERT FAN HOSES E-SERIES (IF REQUIRED): The seed fan hoses will be tagged with 1x yellow (pressure) and 2x yellow (return) and the fertilizer fan will be tagged with 1x blue (pressure) and 2x blue (return).

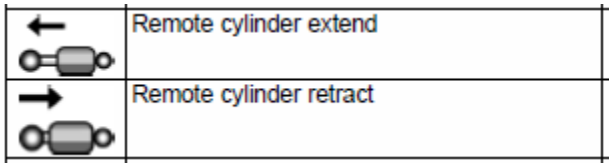
Ensure that you connect the right pair of hoses together on your tractor.

CASE DRAIN HOSE: **ONE** ¾" case drain line (zero back pressure). Improper connection or undersized return lines may cause inaccuracies in operation and the possibility for severe damage to the drill and tank's hydraulic systems.

SeedMaster Manufacturing recommends using the factory Case Drain connections provided with the drill and tank. It is important to ensure that the Case Drain is hooked up to a connection on the tractor with ZERO back pressure. Any back pressure values above zero can damage or cause complete failure of hydraulic motor seals. Damage of this nature is NOT covered under warranty.

HYDRAULIC CONNECTION REFERENCE CARDS

SeedMaster SMS Toolbars and E-Series carts can be paired or separate. Please refer to your configuration below. Ensure that you are hooking the pressure and return hoses to the appropriate remotes on your tractor: Pressure to Retract, Return to Extend.



SMS Toolbar Only Hydraulic Hookup

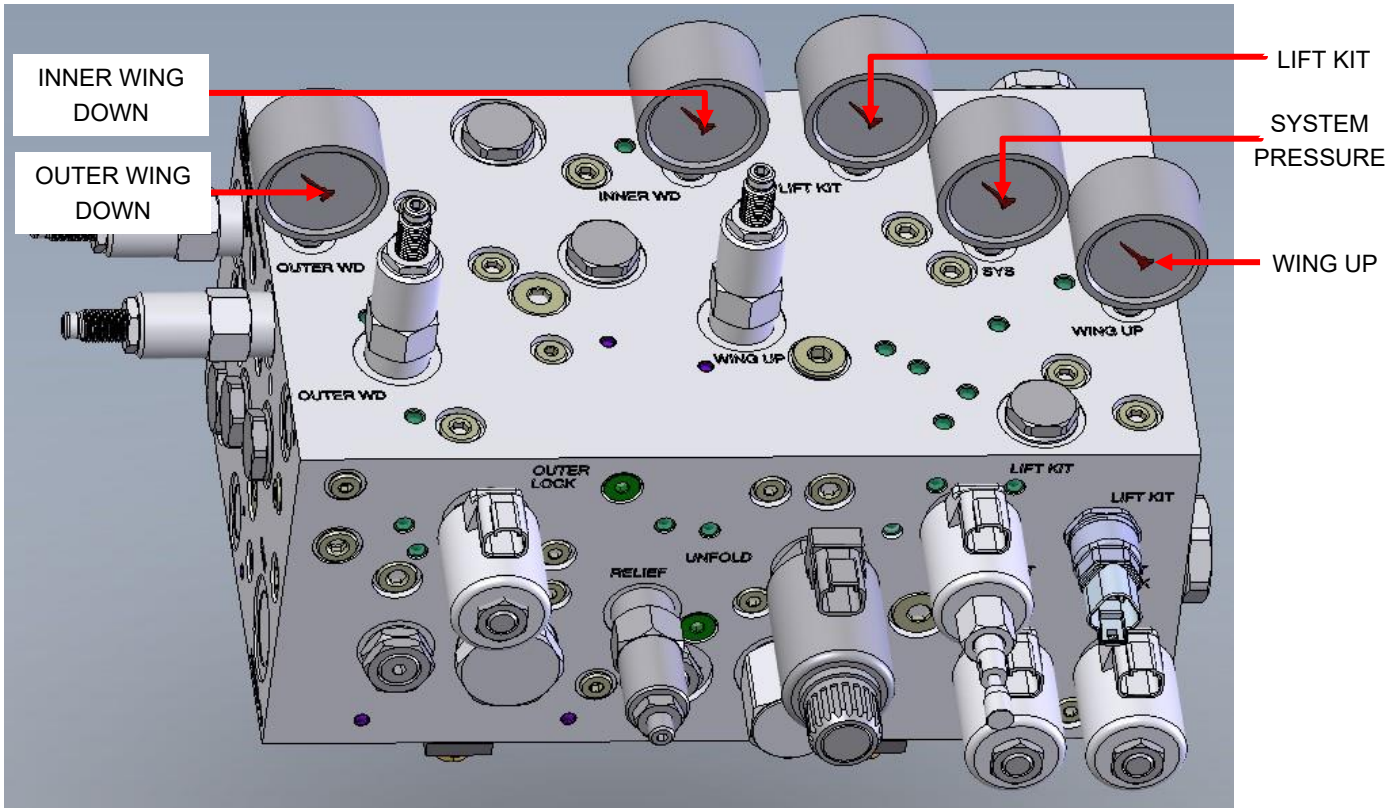
TRACTOR REMOTE	HOSE PAIR PRESSURE	HOSE PAIR RETURN	HYDRAULIC FUNCTION
SCV 1 SEEDMASTER	1 RED ⅝" Line	2 RED ⅝" Line	OPENER PRESSURE
SCV 2 SEEDMASTER	1 GREEN ⅝" Line	2 GREEN ⅝" Line	SYSTEM PRESSURE
SCV 3 UNUSED			
SCV 4 UNUSED			
SCV 5 UNUSED			
CASE DRAIN SEEDMASTER	¾" CASE DRAIN LINE		

SMS Toolbar and E-Series Tank (If Required)

TRACTOR REMOTE	HOSE PAIR PRESSURE	HOSE PAIR RETURN	HYDRAULIC FUNCTION
SCV 1 SEEDMASTER	1 RED ⅝" Line	2 RED ⅝" Line	OPENER PRESSURE
SCV 2 SEEDMASTER	1 GREEN ⅝" Line	2 GREEN ⅝" Line	SYSTEM PRESSURE
SCV 3 SEEDMASTER	1 YELLOW ¾" LINE	2 YELLOW ¾" LINE	SEED FAN E-SERIES
SCV 4 SEEDMASTER	1 BLUE ¾" LINE	2 BLUE ¾" LINE	FERT FAN E-SERIES
SCV 5 UNUSED			
CASE DRAIN SEEDMASTER	¾" CASE DRAIN LINE		

MAIN HYDRAULIC BLOCK DETAILS

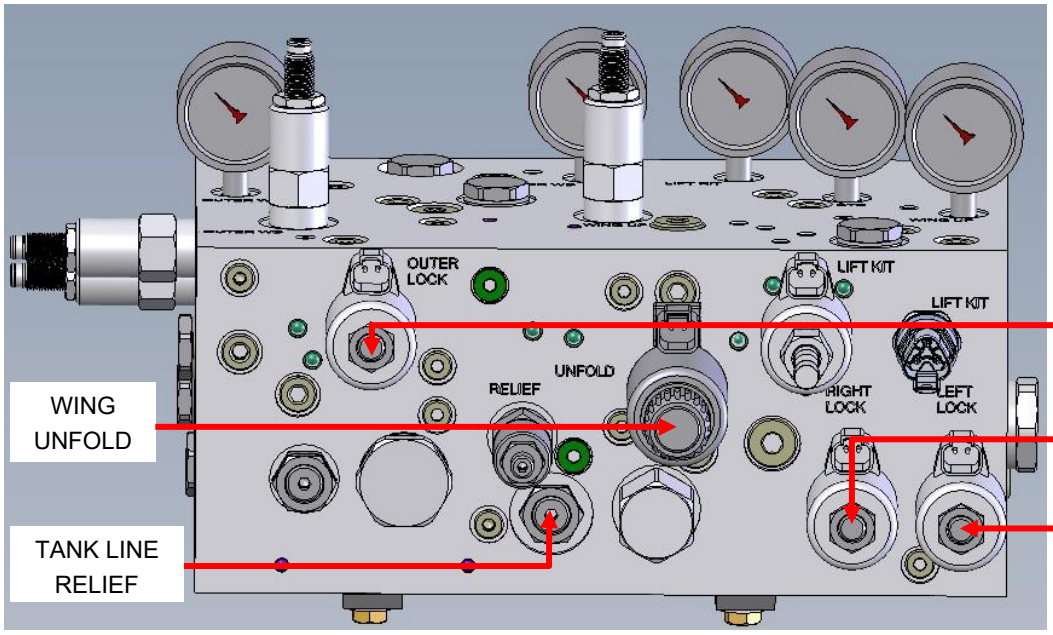
HYDRAULIC BLOCK GAUGES

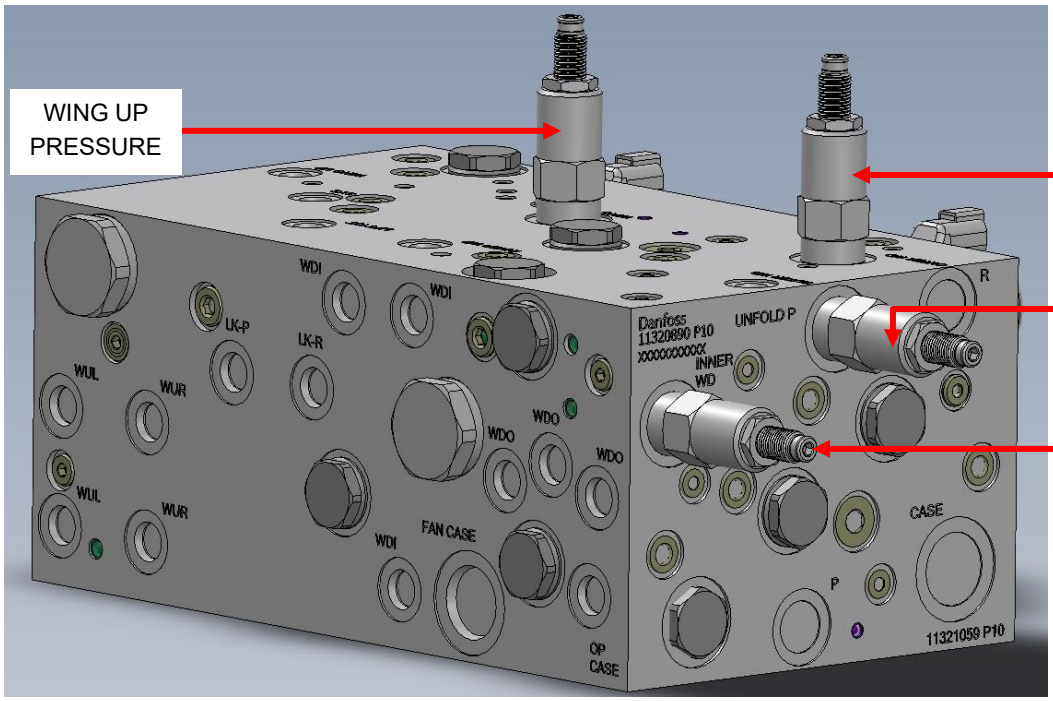


MAIN BLOCK GAUGES

OUTER WING DOWN: The OUTER WING DOWN gauge reads the amount of pressure being applied to the outer wings while they and the openers are down and in field operation.
INNER WING DOWN: The INNER WING DOWN gauge reads the amount of pressure being applied to the inner wings while they and the openers are down and in field operation.
LIFT KIT: The LIFT KIT gauge reads the amount of pressure being supplied to the lift kit.
SYSTEM PRESSURE: The gauge labeled “SYS” on the main block reads the amount of system pressure being applied to the system. System Pressure is the main pressure supply for the WING UP, INNER and OUTER DOWN, and LIFT KIT, circuits. 2600-3000 psi indicates tractor working pressure to block. Pressure fluctuation can indicate back pressure or lack of flow to the circuit. Adjust tractor flow as necessary to hold within range.
WING UP: The WING UP gauge reads the positive amount of “up” pressure applied to the wing circuit to account for tractor backpressure.

MAIN BLOCK VALVES, SOLENOIDS, AND PWMS





LEFT WING LOCK: This on/off solenoid turns the oil flow on/off to the left wing cylinders.
RIGHT WING LOCK: This on/off solenoid turns the oil flow on/off to the right wing cylinders.
OUTER WING LOCK: This on/off solenoid turns the oil flow on/off to the outer wing cylinders.
WING UNFOLD: This on/off solenoid turns the oil flow on/off to the inner wing cylinders.
TANK LINE RELIEF: The tank line relief cartridge is preset at 440 psi. If the cartridge exceeds 440 psi it will relieve to the case drain. If the case drain is not hooked up, a special coupler will relieve to atmosphere. This valve does not require adjustment.
WING UP PRESSURE: This applies pressure to the up portion of the wing cylinders to allow for fine adjustment of the differential pressure between the up and down circuits. It does not require adjustment.
INNER WING-DOWN PRESSURE: This relief valves sets the down pressure applied to the inner (main) wings of the drill. This pressure will vary with the various tractor and drill combinations.
OUTER WING-DOWN PRESSURE: This relief valve sets the down pressure applied to the outer wings of the drill. This pressure will vary with the various tractor and drill combinations.

★**Wing-Down pressures may need to be increased if the wings start to float and not contour correctly while in the seeding position or if a positive Wing-Up pressure is detected.**
★**Wing-Down pressures may need to be decreased if the wings become too rigid while in the seeding position.**
★**Wing-Down pressures are only active when the openers are pressured in the down position.**
LIFT KIT: See Lift Kit procedure on page 22 or 33 (depending on configuration).
UNFOLD PRESSURE: See procedure below.

PRESSURE SETTING PROCEDURES

Setting Wing-Down Procedure (INNER AND OUTER WING-DOWN PRESSURE)
The Wing-Down pressure is the amount of hydraulic pressure being applied to the inner and outer wing circuits; the oil supply is supplied from the system pressure and only active when the openers are pressured down. Wing-Down Pressure is required so the wings will contour while travelling through the field. To mitigate back pressure variables, the valve labeled “Wing Up” is now used to apply pressure to the wing-up circuit on the drill. This valve is factory preset and will read 600-700 PSI when System Pressure is applied. This valve should ***NOT*** be adjusted. SeedMaster Wing-Down Pressure is a differential value. To determine your net value, subtract your displayed wing-up pressure from your current wing-down pressure. (ie. 880 PSI wing-down – 700 PSI wing-up = 180 PSI net wing-down).

- To adjust the **INNER WING-DOWN PRESSURE**, ensure the openers are lowered, loosen the jam nut on the cartridge in port **INNER WD** on the main block. Turn the cartridge in to increase the pressure, and out to decrease the pressure. When the desired pressure is set, re-tighten the jam nut.
- To adjust the **OUTER WING-DOWN PRESSURE**, ensure the openers are lowered, loosen the jam nut on the cartridge in port **OUTER WD** on the main block. Turn the cartridge in to increase the pressure, and out to decrease the pressure. When the desired pressure is set, re-tighten the jam nut.

Setting Wing Unfold Pressure Procedure (UNFOLD PRESSURE)
The wing unfold pressure relief valve applies boosted hydraulic pressure supplied from the System Pressure to the inner wing circuit while the tool bar is unfolding. If the wings are not unfolding the pressure will need to be increased. This pressure should only be increased to the point that the wings just begin to unfold. As soon as movement begins, the pressure is adequate.

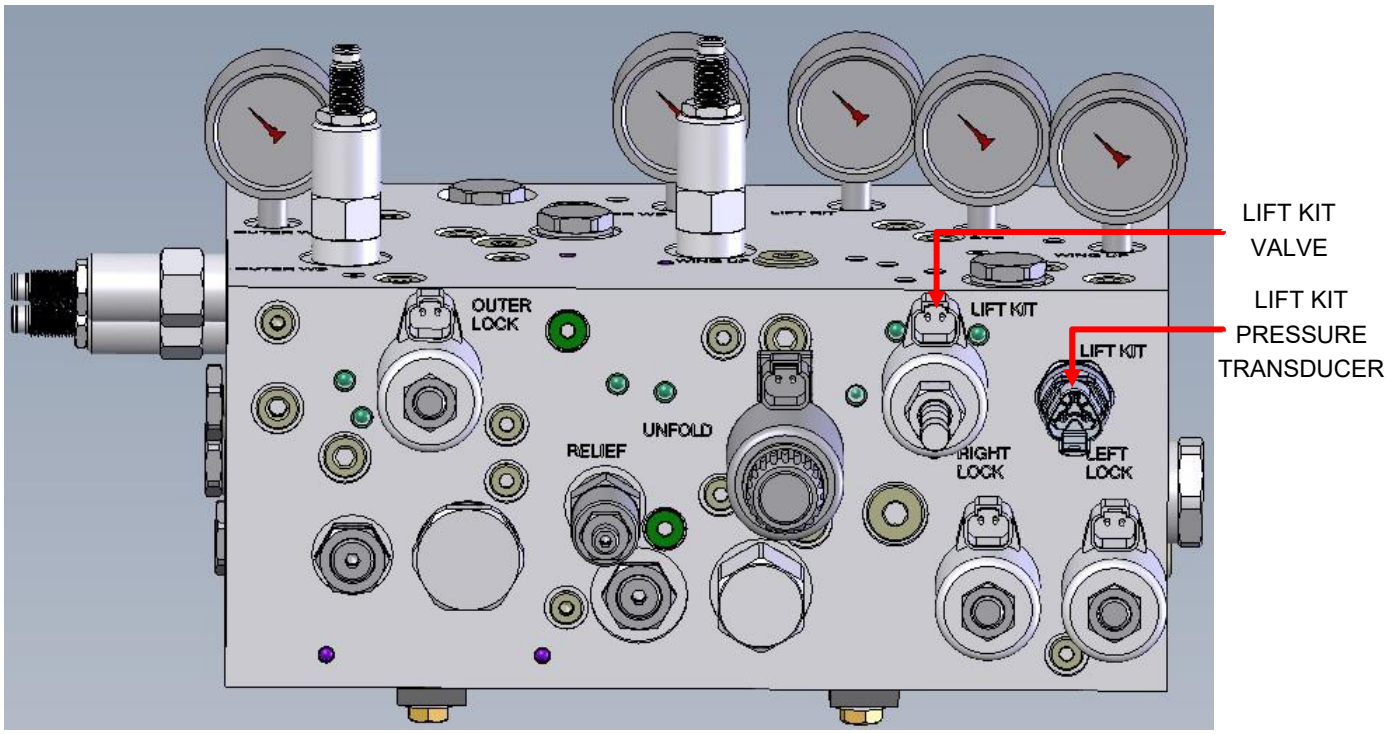
- To adjust the **UNFOLD PRESSURE**, loosen the jam nut on the cartridge in port **UNFOLD P** on the main block. Turn the cartridge in to increase the pressure and out to decrease the pressure. When the desired pressure is set, re-tighten the jam nut.

LIFT KIT OVERVIEW

LIFT KIT: The Lift Kit is designed to decrease the weight on the main frame front caster wheels during field operation. It is hydraulically operated utilizing supply oil from the main hydraulic block. The Lift Kit increases floatation by redistributing weight from the front caster wheels of the drill forward to the tractor hitch and backwards to the rear of the drill. The reduced weight and draft on the drill then adds weight and traction to the rear of the tractor. It also reduces stress on the hitch and frame of the drill when seeding in wet conditions.

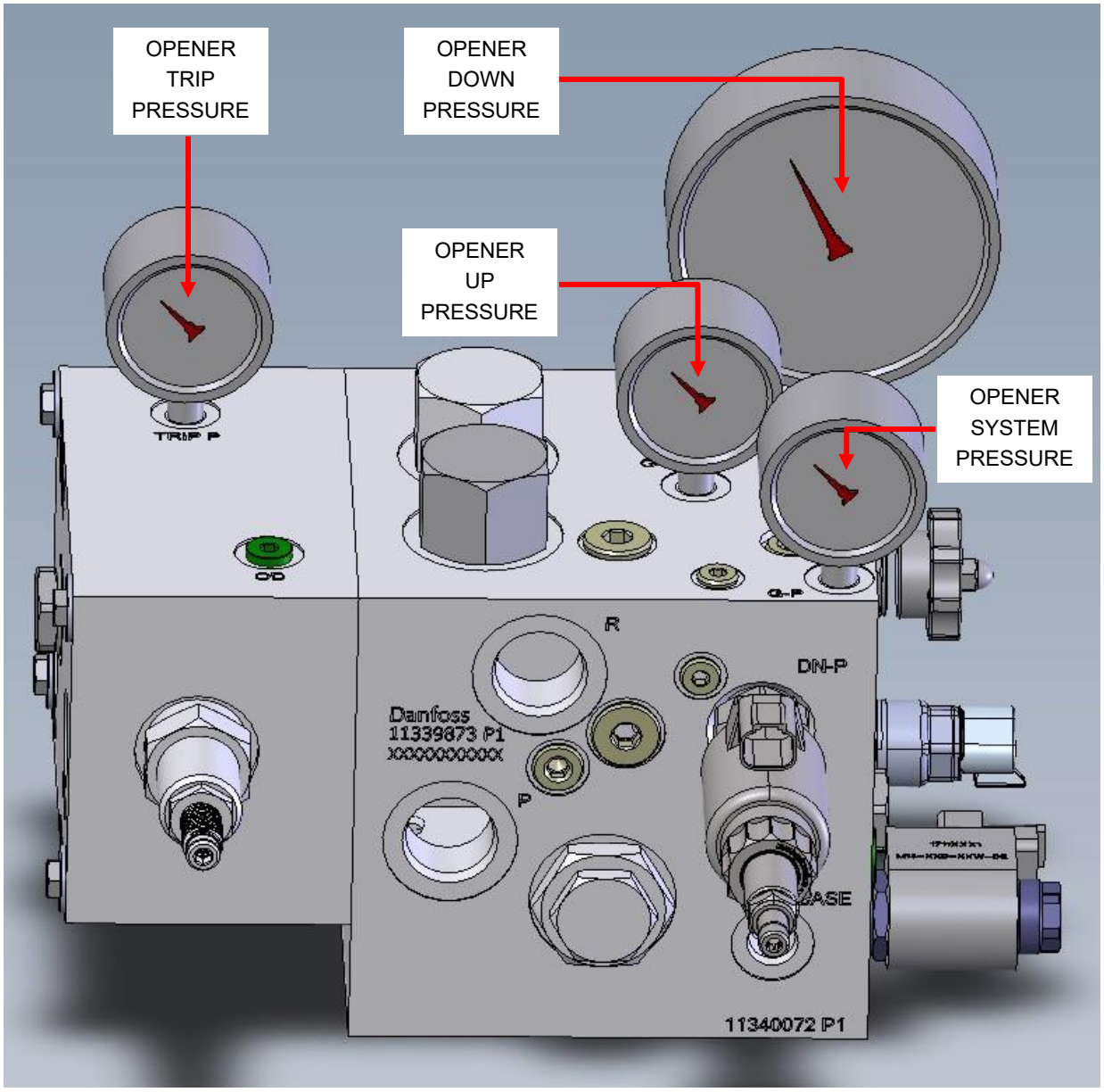
Lift Kit Pressure Settings (Proportional Relief Valve)

- Depending on your toolbar controller, see page 22 or 33 for in-cab pressure readout, pressure adjustment, and operating modes for this feature.

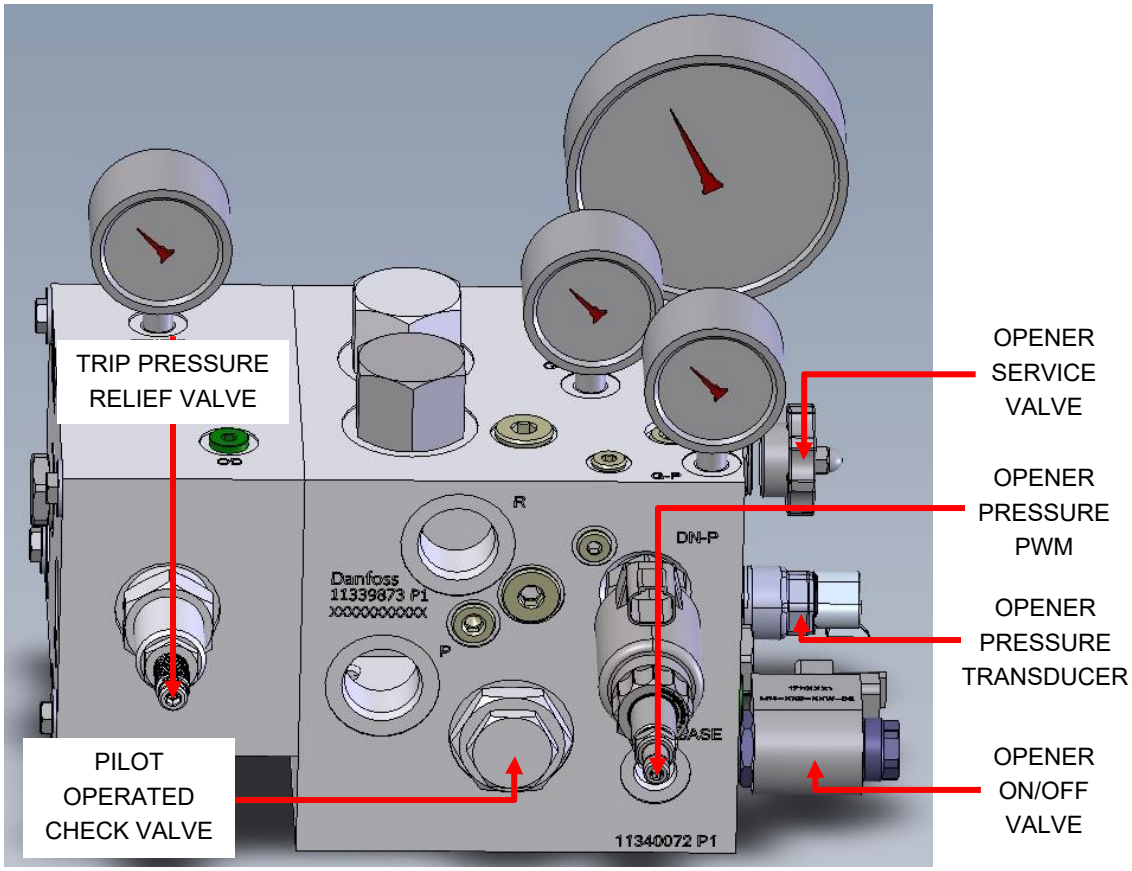


OPENER HYDRAULIC BLOCK DETAILS AND OPERATION

OPENER HYDRAULIC BLOCK GAUGES



OPENER BLOCK VALVES, SOLENOIDS, AND PWMS



OPENER BLOCK DETAILS AND OPERATION

The Opener Hydraulic Block contains the main functions of your openers: raising, lowering, trip pressure, and down-pressure. These functions are controlled by a Master ON/OFF solenoid and coil to raise and lower, a manually adjusted reducing/relieving valve for trip pressure, and a PWM valve for down-pressure. The Opener block is located on the first rank behind the main block. For it to operate, you will leave the connected tractor hydraulic remote engaged during field operation. This continuous flow should be run with the least amount of flow required to raise and lower the openers. Tractor SCV flow can be decreased until the openers become slow to raise and lower. Recommended maximum flow for this remote is 75%. Trip pressure is factory set to 1000 PSI.

OPERATION:

BEGIN:

1. LOCK ON REMOTE TO SUPPLY OPENERS WITH HYDRAULIC PRESSURE.
2. CYCLE MASTER SWITCH FROM OFF TO ON AND LEAVE THE MASTER SWITCH “ON”. OPENERS WILL LOWER AND BUILD PRESSURE TO YOUR PRESET VALUE.

LIFT:

3. AFTER THE TOOLBAR IS COMPLETEY OVERLAPPED INTO AN APPLIED AREA, SHUT THE MASTER SWITCH OFF. OPENERS WILL LIFT.
4. COMPLETE THE TURN.

LOWER:

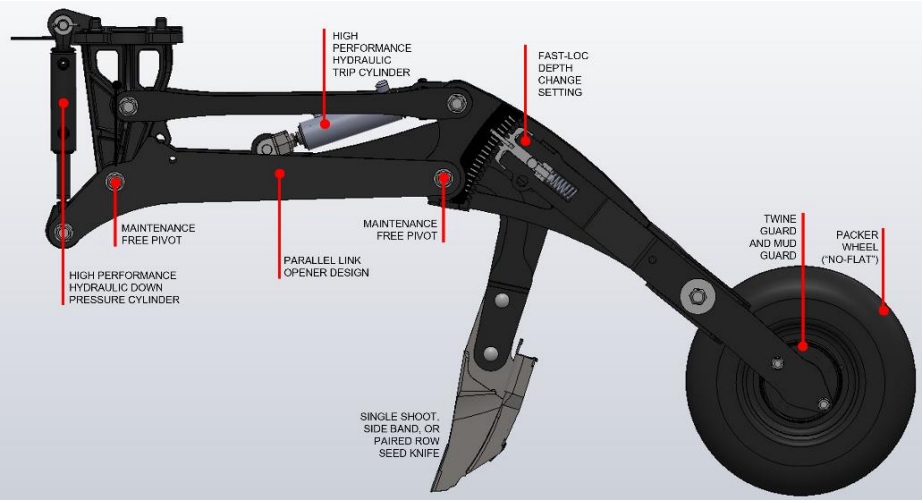
5. CYCLE MASTER SWITCH FROM OFF TO ON AND LEAVE THE MASTER SWITCH “ON”. OPENERS WILL LOWER AND BUILD PRESSURE TO YOUR PRESET VALUE.

SMS TOOLBAR OPENERS AND KNIVES

SINGLE KNIFE OPENER

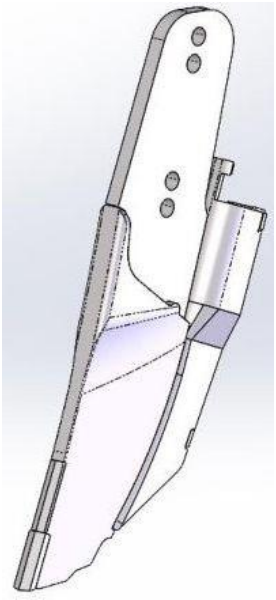
SeedMaster's Single Knife openers are designed to place seed, fertilizer, or both down one knife. Due to the absence of a dedicated fertilizer knife, placing more than one product requires the use of different style seed knives detailed in the next section. The opener is preset for product depth. This depth is factory set at ¾" below the packed surface.

In varying field conditions, soil types, and moisture conditions, it may be required to adjust the openers from the pre-set depth. We recommend seeding cereals, oil seeds, and all other products at the determined seed and fertilizer depths desired by the owner/operator.

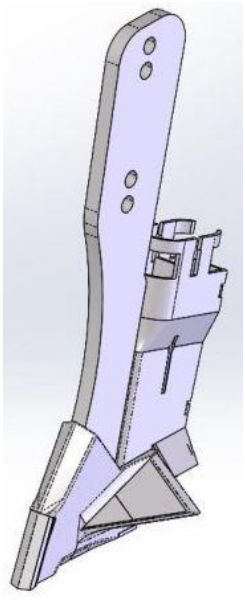


SEED KNIFE OPTIONS

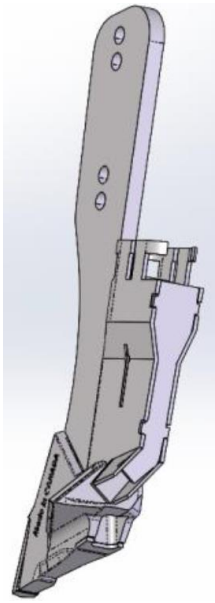
To accommodate one or two products on a single knife configuration, different style seed knives are required. There are three styles to choose from: Single Shoot, Side Band, and Paired Row. The single shoot knife places all product(s) in a single band at the operator's set depth. The side band knife places the seed in much the same manner as the traditional offset opener – ¾" above the fertilizer, but in a 1½" band. The paired row will place the seed in two bands on both sides ¾" above the fertilizer band.



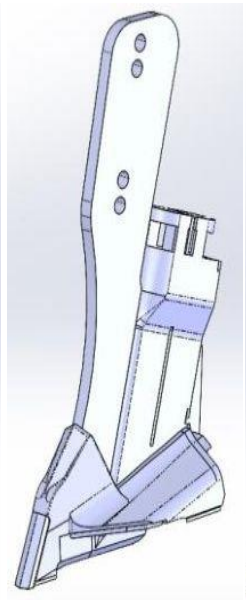
Single Shoot Side View



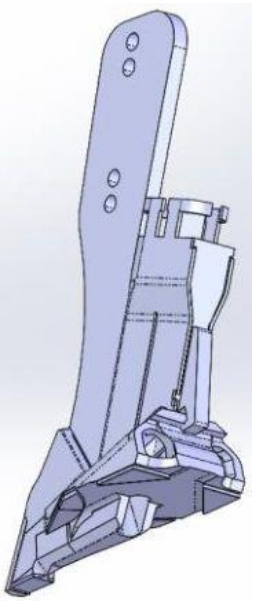
Side Band Side View



Side Band Rear View

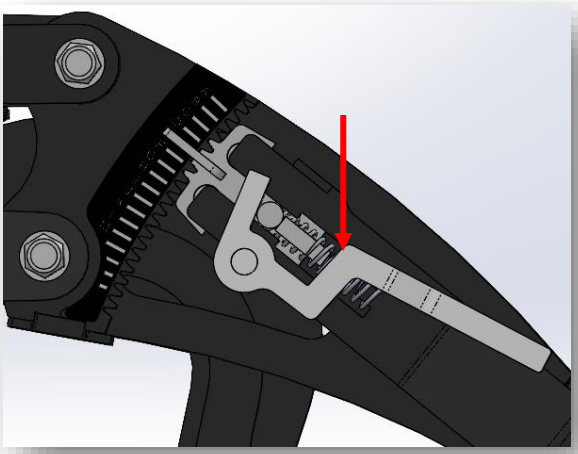


Paired Row Side View

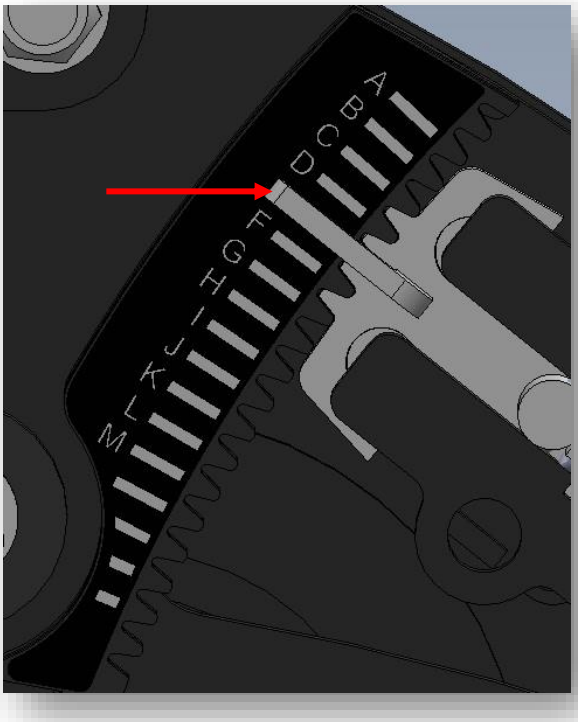


Paired Row Rear View

SMS FAST-LOC DEPTH ADJUSTMENT



To change depth using the SMS Fast-Loc Depth Adjustment, you require a SeedMaster manufactured “wrench”. First, raise the openers up to the frame fully. Then, while lifting on the packer arm, use the wrench to pry the spring-loaded depth guide backwards to release it from the adjustment plate’s teeth. Using the decal on the side to determine the appropriate setting, move the Fast-Loc indicator bar up or down to set the opener to your desired depth by lifting on the packer arm. Return the spring-loaded depth guide into the teeth of the adjustment plate to set the depth for that opener.



Knife and product depth varies from soil to soil. It is incumbent on the owner/operator to ensure that product depths meet their requirements as well as that of the product being applied. The decal’s depth measurements begin with “A” and increase by $^{3}/_{16}$” with each setting. To achieve the unlabeled depths, move the adjustment plate one tooth at a time past the labeled depths.

Semi-pneumatic packer tires are a standard feature on all SeedMaster drills. There is no internal air pressure that needs to be checked. The resulting dent the packer wheel leaves behind is dependent on soil type and hardness. The variation in dent depth does not affect the crop since the seed depth is always monitored from the packed surface.

*Avoid the temptation to harrow after seeding, as harrowing will reduce the uniformity of crop emergence and reduce yield potential. The dent left by the packer wheel and the loose soil tossed to the side as the openers move through the soil may appear rough at first glance, but you will find the residue and soil settles over time leaving just the ripple of the packer wheel. This dent provides several agronomic benefits.

Warning: Avoid turning your drill very short. The opener is designed to seed primarily in straight lines. A sharp turn will cause the openers to be dragged sideways, resulting in an improper seeding job and undue stress on the openers. Never turn so short that the inside openers move straight sideways or backwards.

JEM TOOLBAR CONTROLLER OPERATION

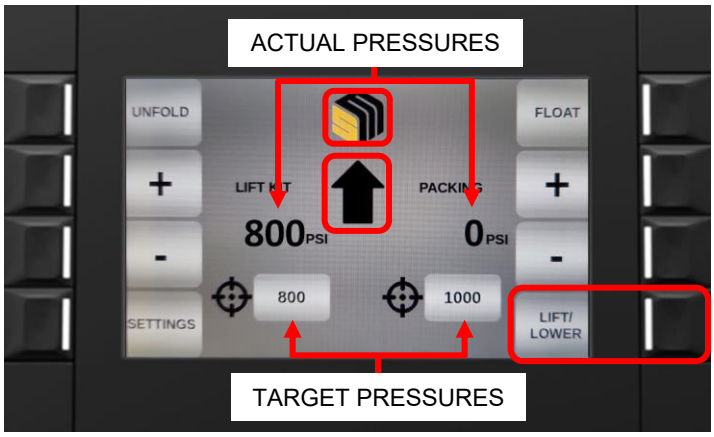
JEM CONTROLLER POWER ON/OFF

The JEM controller has a touch activated screen and physical buttons. These instructions refer to using the buttons, however for many functions you can choose to touch the screen icon instead. Entering values or silencing an alarm is only available via the touchscreen.

Power On/Off – The JEM controller is activated and deactivated via keyed power from the tractor. While loading, it displays the SeedMaster logo. When fully ready, the Standby Screen shows “Touch Screen to Begin”. Touch the screen or push any of the buttons to get to the Home Screen.

HOME SCREEN AND ALARMS

The primary working screen offers direct control of the drill operating functions as well as access to the Unfold Screen and Settings Screen.



Touch and hold the SeedMaster logo to toggle the screen between day and night mode.

The arrow in the center of the display indicates whether the openers are up or down.

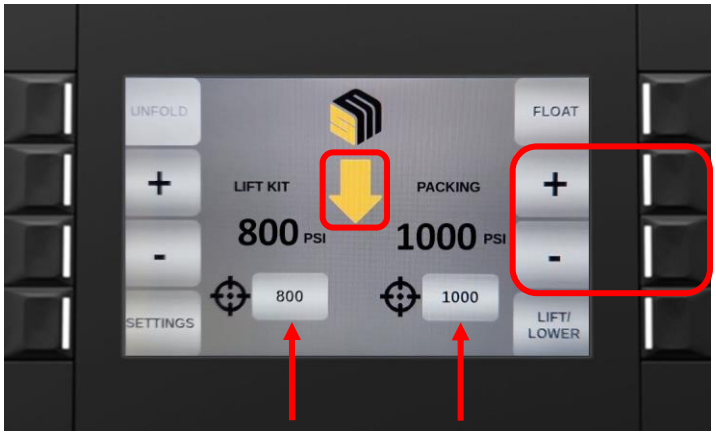
On the right-hand side of the screen, the Lift/Lower button toggles between openers raised and openers lowered. This function is duplicated with the Remote Lift/Lower switch.

Any combination of the on-screen button, adjacent side button, or remote switch can be used to toggle the position of the openers.

The target pressure settings for the lift kit and the packer wheels are shown at the bottom of the screen with the actual pressure shown just above. Touching either of the target pressure boxes will allow the target pressure to be changed directly.

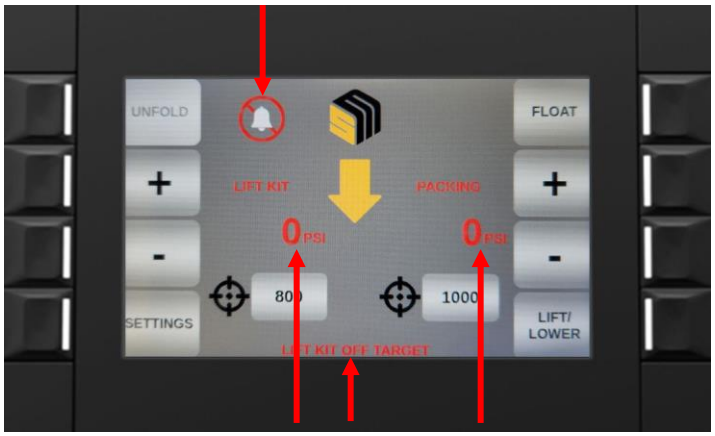
Note: The relevant minimum and maximum allowable entry is provided for reference above the keypad.

When the openers are lowered, packing pressure will begin to build up to the target displaying the actual pressure above it. If desired, the +/- buttons on the right side will increase or decrease the target pressure by 25psi with each press of the button.



Note: The Unfold Screen cannot be accessed with the openers lowered.

A “bell” icon will appear on the screen and an audible alarm will sound if either the lift kit or packing pressures are outside of their target pressures.

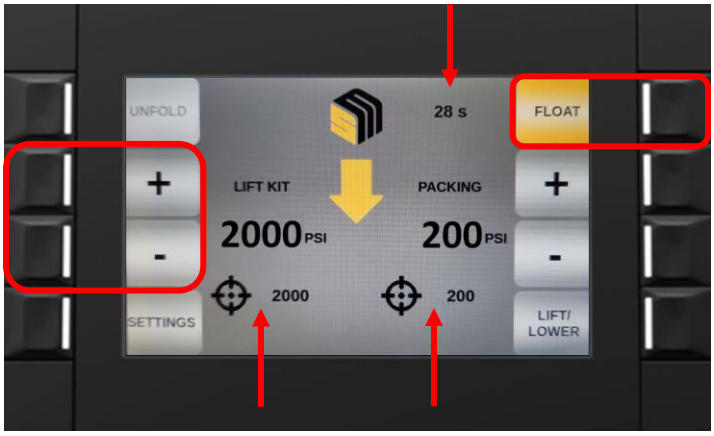


The actual pressure readings will turn red and “Lift Kit Off Target” or “Packing Off Target” will display at the bottom of the screen. If both are simultaneously active, they will appear sequentially.

Touching the “bell” icon will silence the alarm, but the visual indicators remain until the targets are met.

LIFT KIT PRESSURE SETTINGS

The Lift Kit target pressure can also be adjusted using the +/- buttons on the left side to increase or decrease the target pressure in 25psi increments.



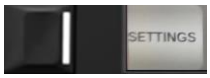
Pressing the Float button will start a timed interval where the packing pressure is reduced, and the lift kit pressure is increased to reduce the power requirement of the tractor. The primary use of this is to avoid getting stuck in a soft area of the field.

A countdown timer shows the number of seconds remaining before the float is disengaged and previous operating target pressures are resumed. This can be disengaged by touching the float button before the timer runs out.

Note: The target pressures cannot be changed when float is active. Float values are preset.

CONTROLLER SETTINGS

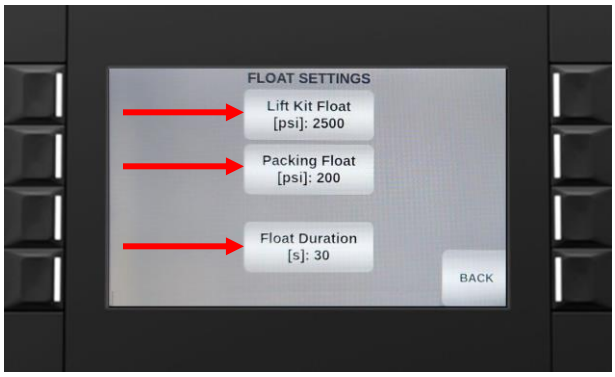
The JEM Controller settings are access by pressing the “Settings” button in the lower left portion of the main work screen. Float settings, Alarm settings, Screen brightness and basic Diagnostics are accessed here. You can also choose to put the JEM back into Standby mode from here or return to the home screen.

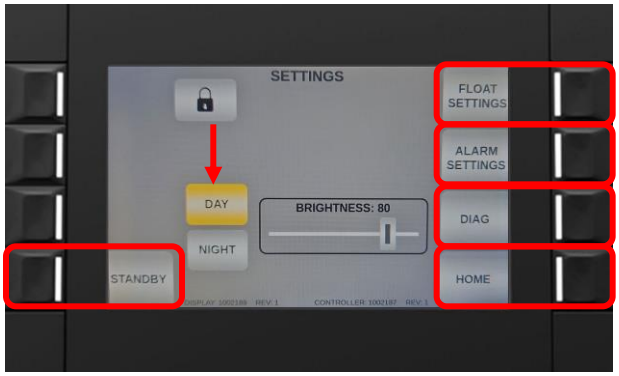


Monitor brightness levels can be set independently for Day and Night modes.

The Float Settings screen provides access to the temporary target pressures for the lift kit and packing wheel which apply only during the float interval.

You can also set the duration of the float interval on this screen. Touch the setting you want to change to enter the new value.



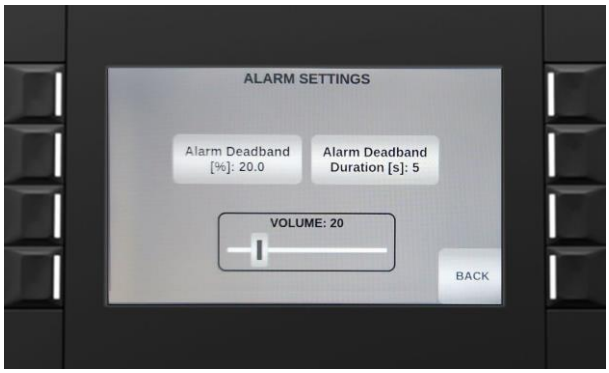


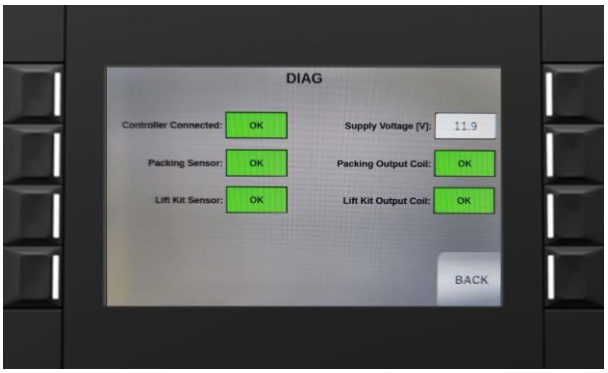
CONTROLLER ALARM SETTINGS

The Alarm Settings screen allows for customization of the lift kit and packing pressures alarms. You can adjust directly to set the percentage off-target (deadband) your pressure set points can be, the volume of the audible alarm, as well as the alarm duration.

Touch the setting you want to change to enter the new value.

The Diagnostic screen provides a basic indication of wiring connectivity. This screen can be used as a first step in troubleshooting problems with toolbar operation.





UNFOLDING AND FOLDING WINGS

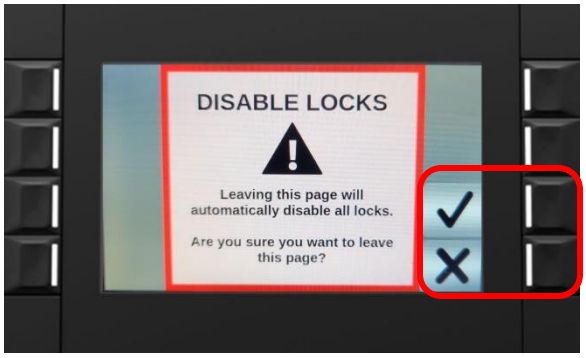
The Unfold screen houses the controls necessary for unfolding and locking the wings. If the controller has the openers set into the “down” position, the user cannot access this screen. The openers must be raised before the drill can unfold.

Caution: Always unfold the inner wings first, as you can damage the outer wings by unfolding them into each other if the inner wings are not completely unfolded.

The unfold buttons are “momentary” meaning they function only while held down. Hold down one button at a time only and release it immediately when that unfold operation completes.

The left and right wings can be locked individually. Touch to lock, touch to unlock. In the picture below, the left wing is locked and visually highlighted.

NOTE: All wing locks are disabled when exiting the unfold screen. You are reminded of this and must acknowledge your understanding before leaving the Unfold screen.

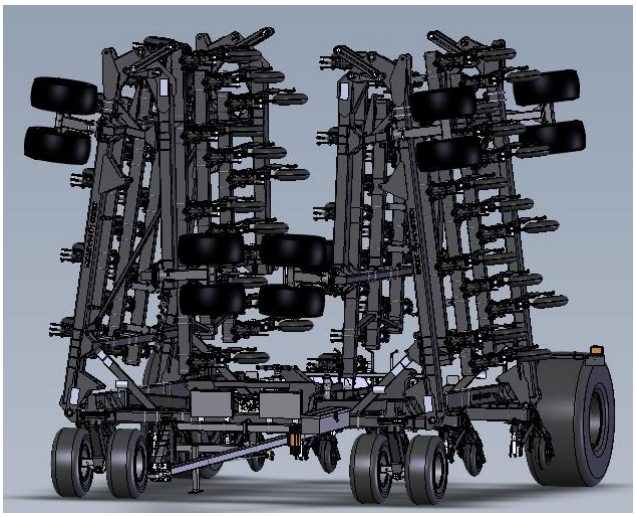


Wing Lock Acknowledgement

PROCEDURE:

1. Ensure the hydraulic remote supplying system pressure to the block is activated and locked into constant flow. The pressure needs to be adjusted from your tractor to fall within 2600-3000 PSI.
2. Enter the Unfold Screen then press and hold “UNFOLD INNER” until the inner wings are fully unfolded. It is important to unfold the inner wings first as you can damage the outer wings by unfolding them into each other if the inner wings are not completely unfolded.
3. Next, press and hold “UNFOLD OUTER” until the outer wings are fully unfolded. Once the wings have completed unfolding, immediately release the button. Holding the button down after the outer wings have contacted the ground can damage frame components.
4. If you need to partially unfold the drill, the wing lock buttons can be used. Release the unfold button you are using and turn on the lock to the wing you want to be stopped and held. When ready to resume unfolding, press the lock button again to toggle it off.

   NOTE: Always exit the Unfold screen to ensure that the wing locks are left off after use. Failure to disengage will result in the wings not contouring to the land.
5. To fold, ensure the openers are raised all the way up.
6. Reverse the flow on the system pressure to the block. You may need to increase the flow from the field operation setting. The outer wings will begin to fold first, then the main wings.



Always store the drill for extended periods of time in the unfolded wing position. This is to prevent water getting into the packer tire and wing wheel bearings. This is very important for winter storage.

FIELD OPERATION

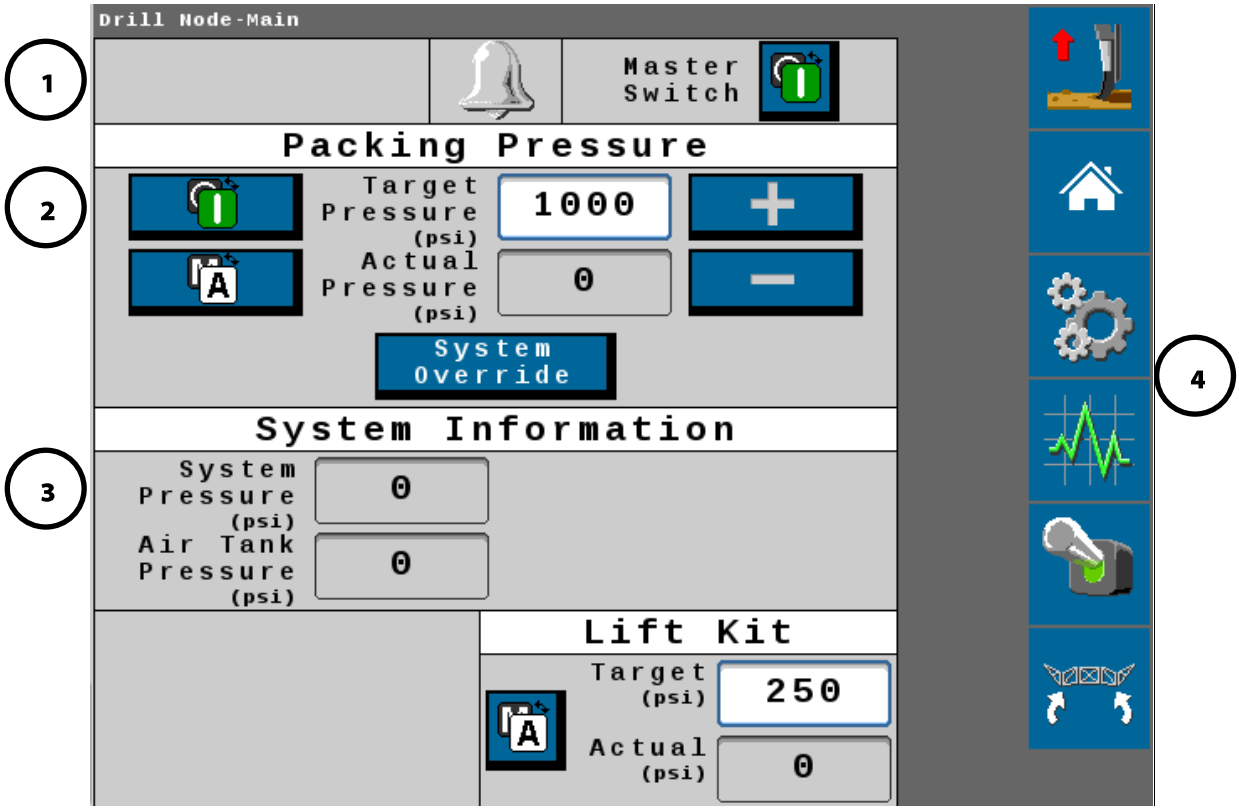
1. The JEM controller will be powered on when the tractor is started. Confirm that you have proceeded past the Standby Screen.
2. Ensure the SCV supplying system pressure to the Main block is activated and locked into constant flow. The pressure needs to be adjusted from your tractor to fall within 2600-3000 PSI.
3. Once your drill has been unfolded from the transport position, you are ready to begin seeding.
4. Using the SCV connected to your opener lift/lower lines, pressurize the Openers block. Set this SCV at a flow of 75% to ensure the lift and lower speeds are adequate.
5. Turn on the “Lift/Lower” switch. The openers will lower and begin to build pressure up to the set target.
6. When entering a headland, turn the “Lift/Lower” switch off. The opener pressure will release, and the openers will lift out of the ground.
7. Complete the turn.
8. Repeat steps 5, 6, and 7 for each headland turn required.

ISOBUS TOOLBAR FUNCTIONS

HOME SCREEN LAYOUT

The Drill Control Module (DCM) will monitor and control your SMS Toolbar via the installed Universal Terminal (UT). To access the ISO Toolbar Functions, touch the ISOBUS SMS soft key on your UT display. See your UT's operator's manual for more information on locating UT soft keys.

SMS SOFT KEY



1. **Status Area:** This area shows the current status of the Master Switch and System Alarms.
2. **Packing Pressure Area:** This area will allow you to toggle the packing pressure from **OFF** to **ON** and switch between **Manual** or **Auto**. The Packing pressure can also be quickly changed by using the PLUS arrow to increase and MINUS arrow to decrease or set to a predetermined pressure. The System Override will dump the opener pressure. This target override pressure and override time can be adjusted in the settings page. See packing pressure setup and operation section starting on page 31.
3. **System Information Area:** This area will allow for a quick view of different pressures and Lift Kit status.
4. **Soft Key Area:** Touch soft keys to access different settings and functions.

ISO TOOLBAR QUICK START PROCEDURE

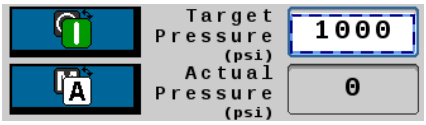
Before you go to the field, please review the steps below to ensure your ISO SMS Toolbar is field ready.

1. **Turn safety switch ON:** Before turning the safety switch on, please ensure the toolbar is free of any persons, animals, or objects that could damage your equipment. Touch the RED safety switch in the Soft Key Area. The Safety Switch will turn green indicating that the system is ready.

2. **Engage System Pressure:** Engage the tractors hydraulic remote for system pressure. The System Pressure will be displayed in the System Information Area. *NOTE: System Pressure must operate with a pressure greater than 2600psi and less than 3000psi. Ensure tractor remote is set to constant flow. Adjust flow as necessary to avoid fluctuation.*

3. **Unfold Drill:** Start unfolding the drill by touching the Drill Unfold Soft Key. ***BEFORE UNFOLDING MAKE SURE THE WING TRANSPORT SAFETY CHAINS ARE REMOVED AND THAT WINGS ARE FREE AND CLEAR OF ANY OBJECTS THAT COULD CAUSE HARM TO YOU OR ANYONE ELSE.*** Start by unfolding the Wings first then the Outer Wings. *NOTE: The buttons need to be held down during the unfolding process.*

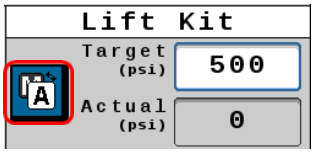
4. **Set Packing Pressure:** Ensure that the packing pressure is set to your desired mode. Recommended mode is AUTO, but field conditions may require Manual mode. After setting the mode to Auto, the desired packing pressure must be set. The recommended starting point is 1000psi. ***NOTE:*** *PACKING PRESSURE NEEDS TO CHANGE WITH FIELD CONDITIONS.*



5. **Engage Opener Pressure:** Engage the tractor's hydraulic remote for Opener Pressure. ***NOTE:*** *Ensure tractor remote is set to constant flow for Smart Openers. Recommended max flow is 75%.*

6. **Test Openers Function UP/DWN:** You will need to note what your master switch configuration is. The machine comes from factory with a foot switch, so the system is set on foot switch. ***BEFORE ENGAGING THE OPENERS MAKE SURE THE OPENERS ARE FREE AND CLEAR OF ANY OBJECTS THAT COULD CAUSE HARM TO YOU OR ANYONE ELSE.*** Begin with engaging the Master Switch by stepping on the foot pedal. After engaging the master, the openers will go to the ground and start building pressure. You will see the Master Switch Icon turn green. To lift the openers, step on the foot switch to disengage the packing pressure. ***NOTE:*** *If the openers are not going up and down your hydraulic pressure on the tractor's remote could be reversed or a hose could have popped out of the tractor SCV. Also note that if the openers are not going down that the Opener transport shipping bolts may need to be removed.*

7. **Review Lift Kit Mode**: Touch the Settings button in the Soft Key Area to access the Lift Kit settings page. Touch the status button to toggle between "Auto" and "Manual". Factory default is set to 200psi.

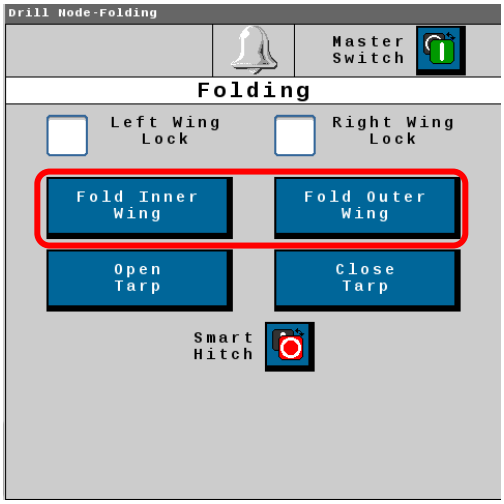


UNFOLDING, FOLDING, AND WING LOCKS

Touch the Fold button soft key located in the soft key area to access the Unfold Operation & Wing Locks. The machine's system pressure will need to be engaged before the unfold process can begin. The live pressure can be viewed in the System Information Area on the Home Page. System pressure must be 2600psi or greater to unfold.

Wing Unfold Buttons

Begin by ensuring the openers are completely lifted before unfolding the **INNER Wings first**. It is important to unfold the **INNER Wings first** as you can damage the **OUTER** Wings by unfolding them into each other if the **INNER** wings are not completely unfolded.



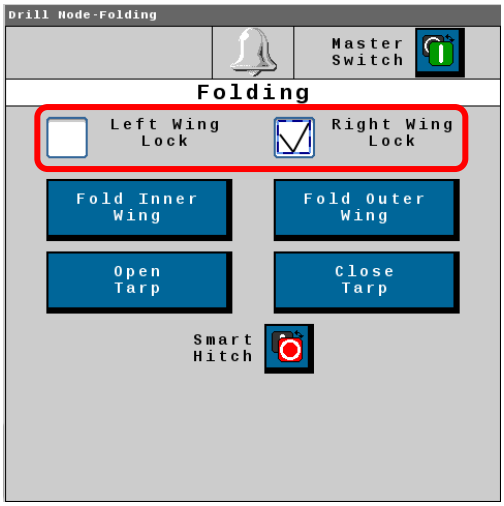
1. Touch and hold the **FOLD INNER WING** button to unfold the inner wings. Ensure that the wings have completely finished unfolding before moving to the next step.
2. Touch and hold the **FOLD OUTER WING** button to unfold the outer wings.
3. Once the wings are unfolded, touch the home button and touch **YES** to acknowledge that you are leaving the page to return to the Home screen.

4. **OPEN TARP** and **CLOSE TARP** are for future use. These do not function currently.

Wing Lock Buttons

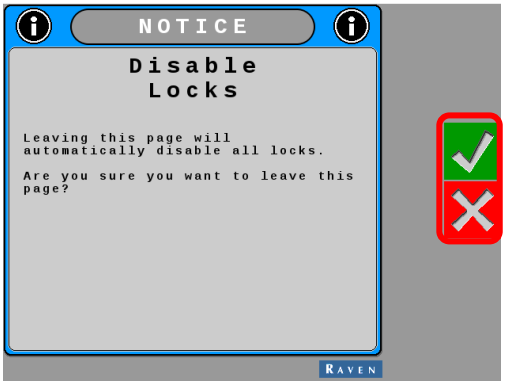
Left Wing Lock Check Box: When the wings are unfolding, or folding up, use the check box to lock the left wing into its current position. Uncheck the check box to unlock the wing.

Right Wing Lock Check Box: When the wings are unfolding, or folding up, use the check box to lock the right wing into its current position. Uncheck the check box to unlock the wing.



Unfold Operation and Wing Lock Safety Page

After touching the Home soft key, a safety page will be displayed. You must acknowledge the fact that you will be leaving the page and the wing locks will be disabled. Before touching  , make sure the machine is free and clear of any persons, animals, or objects. After touching yes, you will return to the home page and wing locks are disabled. If you are not ready to disable the wing locks, simply touch the  button and the wing locks will stay enabled.



Folding Operation

After completing the seeding operation for a field, the drill must be folded for transport to the next location. To prepare the drill for folding, ensure all jobs on the tank monitor(s) are either paused, or completed and closed.

1. Ensure the openers are raised out of the ground by disengaging the master switch. This is done by stepping on the foot pedal.
2. Return the opener hydraulic circuit to neutral.
3. Return the system pressure remote to neutral and allow the gauge to return to “zero”.
4. To begin folding, reverse the flow on the system pressure remote and ensure that **“Wing Up”** pressure starts building. You may need to increase the SCV flow from field operation to get the wings to fold.
5. The outer wings will begin folding first, followed by the inner wings. Depending on certain physical and environmental conditions (such as temperature, uneven terrain, or excess soil buildup on the openers and tires), it is also completely normal for one side of the drill to complete folding first.
6. Normally, it is not necessary to use the “**FOLD INNER WING”** and **“FOLD OUTER WING”** buttons. Depending on the size of your machine, it may slightly speed up the folding process.
7. Once the drill has completed folding, return the tractor remote back to neutral. Then, exit the tractor and reinstall the wing transport safety chains before moving the machine in the folded position.

⚠ ***NOTE: THE OPENER HYDRAULIC CIRCUIT IS EQUIPPED WITH A PILOT OPERATED CHECK VALVE THAT WILL HOLD THE OPENERS UP FOR TRANSPORT. HOWEVER, IF TRANSPORTING OVER A LONGER PERIOD, PERIODICALLY OBSERVE THE OPENERS AND MANUALLY ENSURE THEY STAY IN THE RAISED POSITION.***

ENSURE WINGS ARE CLEAR OF ANY OBJECTS THAT COULD CAUSE HARM TO YOU OR ANYONE ELSE. DO NOT LEAVE CONSTANT PRESSURE ENGAGED TO THE WINGS AFTER THE FOLDING PROCESS HAS COMPLETED. DOING SO CAN RESULT IN SEVERE DAMAGE TO BOTH THE HYDRAULIC SYSTEM AND FRAME COMPONENTS. DAMAGE OF THIS NATURE IS NOT COVERED BY WARRANTY.

MACHINE & MASTER SWITCH CONFIGURATION

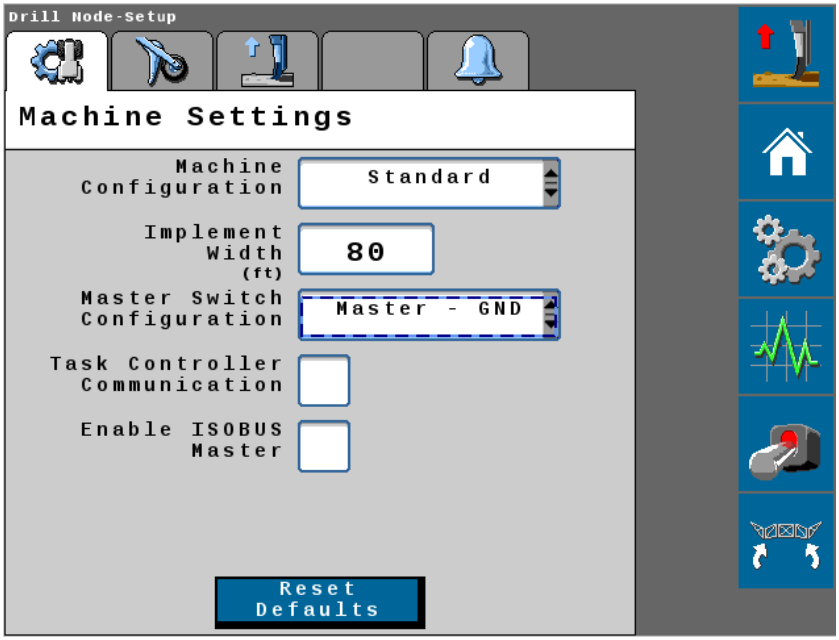
Machine Settings Setup

To access the machine settings setup page, touch the Settings Soft key found in the soft key area, it will default to the machine settings.

Machine Configuration – There are 3 different machine configurations. Choose "**Standard**" machine configuration for your drill.

Implement Width: Set the implement width equal to your seeder width.

Master Switch Configuration: Packing pressure can be enabled by four different methods: On-Screen, Master – GND, Master – PWR, and Remote. Touch in the white box to choose the method of choice. The factory default setting is "**Master – GND**" to enable the In-cab Foot Switch.



On-Screen: This setting uses the Soft Key on the Home Page. Simply touch the soft key to enable or disable the packing pressure.

Master Switch – GND: Your SeedMaster machine comes standard with a Foot Switch to enable and disable the packing pressure. This is the factory default setting. Press the foot switch to enable/disable the packing pressure.

Master Switch – PWR: Your SeedMaster machine comes standard with a Foot Switch to enable and disable the packing pressure. Use this setting when the ISO Toolbar uses +12v to enable, these were only found on SM16 machines. Press the foot switch to enable/disable the packing pressure.

Remote Master: The Packing Pressure can be enabled or disabled by a third party +12v signal. The "Implement Height Connection" found on the Toolbar is used for this function. Pin C or the Black/White wire is the signal wire. This is also a power and ground wire supplied if the use of a relay is needed.

Task Controller Communication: The DCM can communicate to the Task Controller. This is for future use. Please leave this setting *UNCHECKED*.

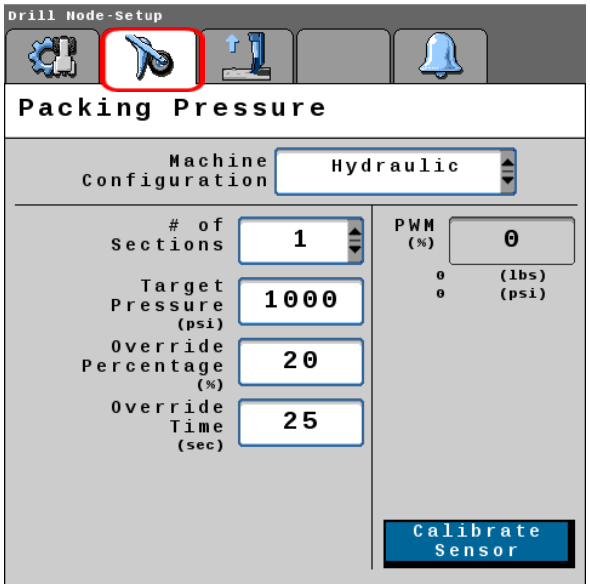
Enable ISOBUS Master: The DCM has the ability to utilize the ISOBUS Master Switch, this is used in conjunction of the Task Controller Communication and is for future use. Please leave this setting *UNCHECKED*.

PACKING PRESSURE SET UP AND OPERATION

Packing Pressure keeps the openers engaged in the ground while seeding. The “Packing Pressure ON/OFF” icon in the top left corner indicates whether Packing Pressure is engaged or disengaged. The Icon will be green if the packing pressure is ON. The Icon will be red when it is OFF.

Packing Pressure Setup

To access the packing pressure setup page, touch the Settings Soft Key found in the Soft Key Area, then touch the Packing Pressure tab.



Machine Configuration – There are two packing pressure options from which to choose.

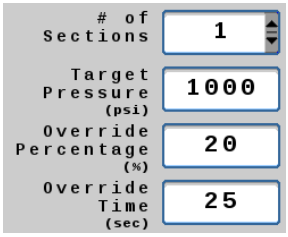
Hydraulic Mode: Choose this option if your machine was configured with a pressure transducer only at time of sale. The transducer is plumbed into the opener down circuit to display the toolbar packing pressure.

PFS Mode: This mode requires the Packing Force Sensor load cell to be installed on the machine. It reads the actual packer tire down force in pounds. Choose this mode if your drill was configured this way at time of sale.

# of Sections: All machines are equipped with 1 packing pressure section. Multiple packing pressure sections are for future use. Please set this to 1.

Target Pressure setting: The target pressure will be the desired amount of packing pressure in PSI or LBS of downforce to the openers. For example, if the desired amount of packing pressure is 1000psi, touch the white box to the right of Target Pressure and enter 1000.

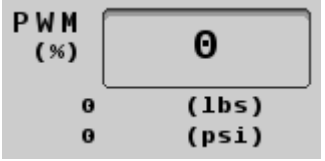
Pressure Override % setting: This setting will reduce the amount of packing pressure to the openers to a percentage of the set target pressure. Use the System Override button to turn the override function on/off/reset the override time. Use a lower percentage value to reduce the pressure significantly. For example, if the Target Pressure is set at 1000psi, the Override % is set at 20%, and the system override is tripped, it will drop the Target Pressure to 200psi. To set the Pressure Override %, enter the percentage in the white box to the right of Override.



Pressure Override Time: This setting sets the amount of time that the system will override the packing pressure setting. Enter the desired amount of time in seconds in the white box to the right of Override Time. The factory default setting is 30 seconds.

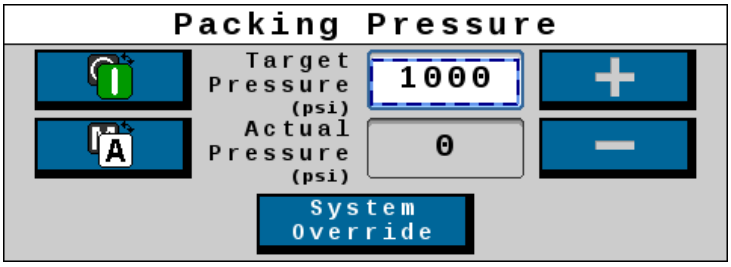
Calibrate Sensor Button: With the openers raised and the hydraulic remotes disengaged, press the “Calibrate Sensor” button to zero out the sensor.

PWM Reading: This reading will display the current position in percentage of the PWM valve.



PACKING PRESSURE OPERATION ON HOME PAGE

Touch the Home soft key to return to the home page to have access to the Packing Pressure operation settings.



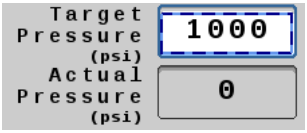
Off/Manual/Auto settings: The system is equipped with a PWM valve for controlling the hydraulic pressure to the openers when they are in the down position.

OFF: When the safety switch is “Off”, the PWM will not control the packing pressure.

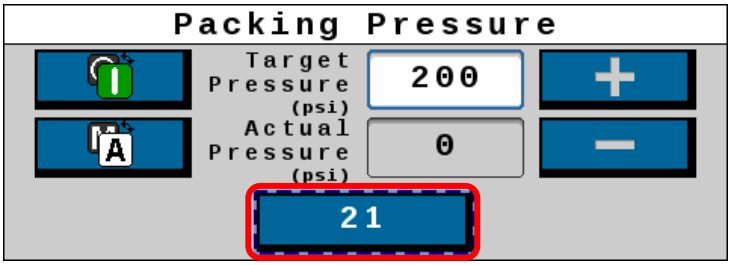
MANUAL: When “M” is selected, this puts the packing pressure into manual mode. Use the plus and minus arrows to increase or decrease the amount of down pressure to the openers.

AUTO: When the button is in the “A” position, this puts the packing pressure into an automatic mode. In automatic mode, the system will automatically adjust the packing pressure to keep it at the desired “Target Pressure”. ***This is the recommended setting.***

Target and Actual Packing Pressure: The Target Pressure and Actual Pressure are displayed in the middle of the Packing Pressure area. Touch in the white area to easily change the target on the fly.



System Override: Touch the System Override button to reduce the amount of packing pressure to the openers to a percentage of the set target pressure. The System Override button will override the packing pressure for the set amount of time (set in the settings page). A timer will be displayed to show the remaining override time. To reset the timer, simply touch the System Override button again and it will start the timer from the top of the set amount of time.

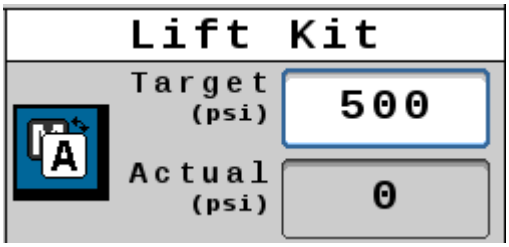


You can also touch the System Override Soft Key in the top right-hand corner of the page. Touching this soft key will initiate the System Override. Touching this icon again will cancel the timer and normal packing pressure will resume.

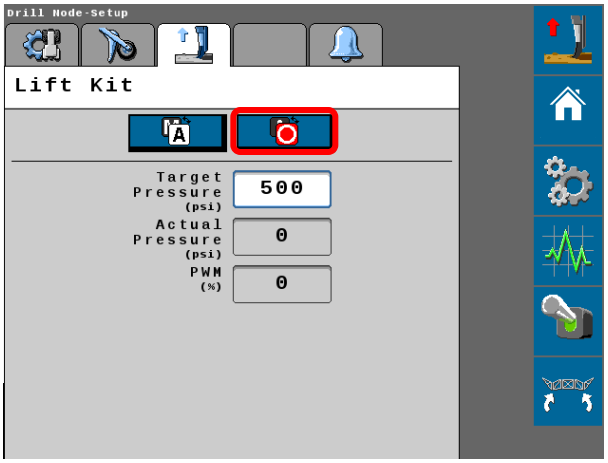
***NOTE**: When the packing pressure override is enabled it will increase the Lift Kit pressure to 1500psi.*

LIFT KIT PRESSURE SET UP AND OPERATION

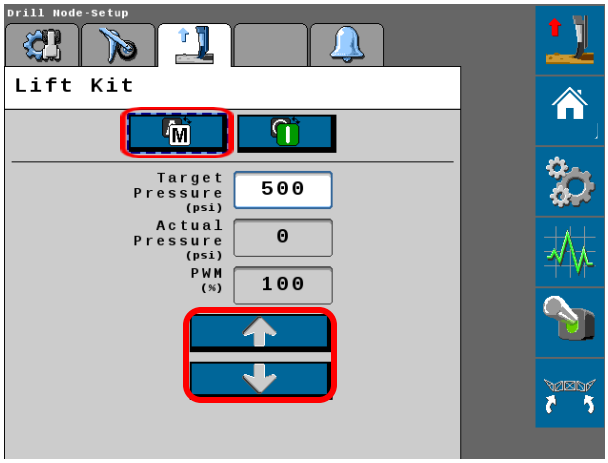
SMSToolbars are equipped with a hydraulic pressure transducer enabling in-cab viewing of the Lift Kit hydraulic pressure. The Toolbar is also equipped with a Proportional Relief Valve for controlling the Lift Kit pressure. The Lift Kit's hydraulic pressure can be controlled automatically or manually from the comfort of the cab.



Touch the Settings soft key to access the Lift Kit Settings. Use this menu to change the modes of operation.



OFF MODE



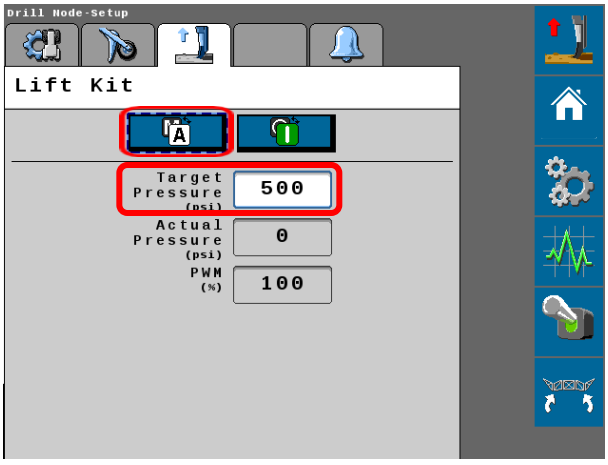
MANUAL MODE

LIFT KIT MODES

OFF MODE: When set on OFF mode, the lift kit functions are disabled.

MANUAL MODE: When set on MANUAL mode, the lift kit will display the Lift Kit's pressure and is adjusted manually from cab by touching the up or down arrow.

AUTO MODE: When set on AUTO mode, the Lift Kit pressure will be adjusted automatically to the users set target pressure. Enter the psi value into the Target Pressure area. Auto mode also features an alarm. If the actual pressure is not on target an alarm will sound. The factory setting is 200 psi.



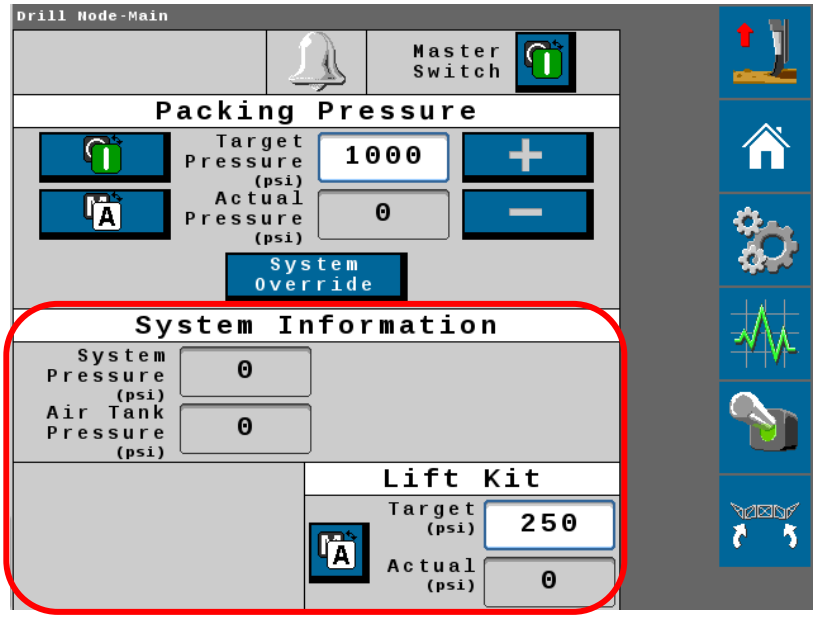
AUTOMATIC MODE

***NOTE:* After each monitor power cycle, depending on software versions, the Lift Kit may need to be activated from the DCM settings as shown above. Please ensure that the On/Off safety switch is turned on if you want the lift kit active during operation.**

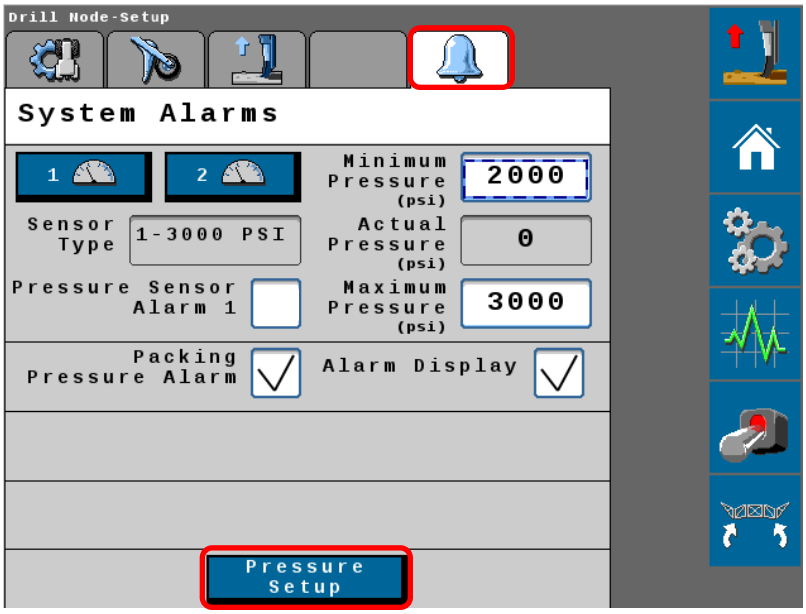
SYSTEM INFORMATION HOME PAGE SET UP

The System Information area on the home page displays the System Pressure and the Air Tank Pressure (if equipped with SeedMaster Zone Command).
Follow the steps below to set up the parameters for your pressure sensors. Please note that your SeedMaster machine will need to be equipped with the corresponding pressure transducer to monitor the pressure.

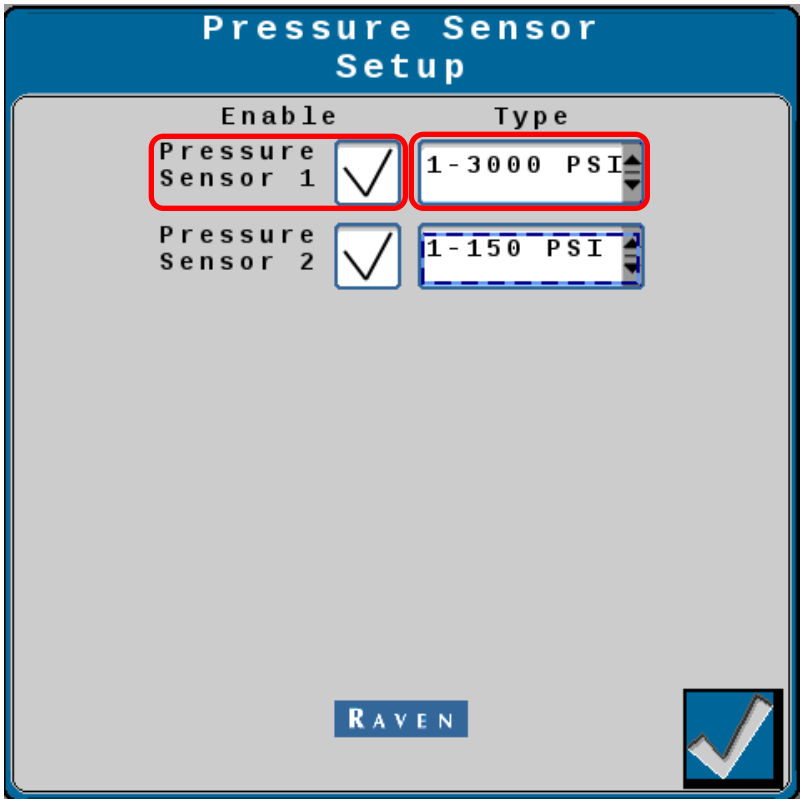
1. Touch the Settings Soft Key to access the System Alarms page.



2. Touch the System Alarms tab at the top right of the page. Ensure Packing Pressure Alarm, and Alarm Display have checkmarks. Then, choose Pressure Setup at the bottom of the page to access the sensors required and their corresponding pressures.

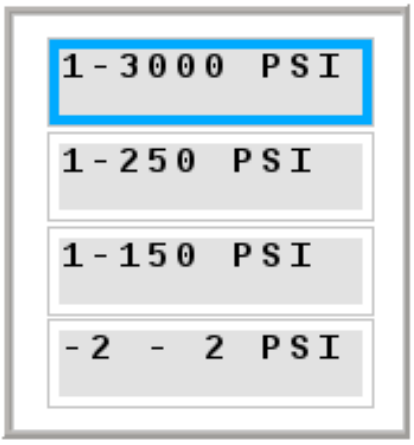


3. For Sensors 1 and 2, a checkmark box is available to enable the sensor on the System Information area. Touch the “Type” drop-down menu to change the sensor to the appropriate style for the sensor display.



4. For System Pressure, choose the “1-3000 PSI” sensor.

5. For Air Tank Pressure, choose the “1-150 PSI” sensor.

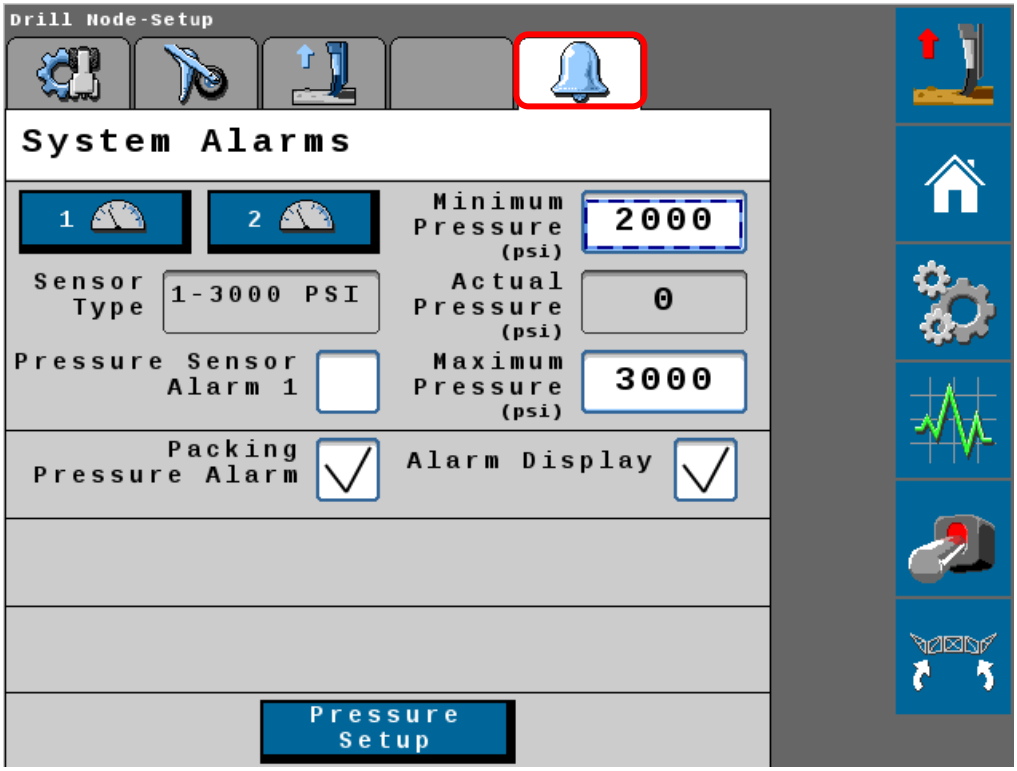


SYSTEM ALARMS

The system is equipped with alarms to warn the operator of any potential issues on the machine. To access the System Alarms settings, touch the Settings Soft Key. After touching the settings soft key, touch the Systems Alarm Tab to access the System Alarm settings.

Enabling or Disabling an alarm: To enable an alarm, touch the corresponding checkbox. To disable an alarm, remove the checkmark. If the alarm is enabled, the Min and Max values of the alarm range must be set.

Setting the Min and Max Range: To set the min alarm value, touch the white area to the right of System Minimum. If the installed sensor drops below this set value, the operator will be notified that a System Alarm has been tripped. To set the max value, touch the white area to the right of Maximum Pressure. The default is the maximum that the transducer can read. If the installed sensor rises above this value, the operator will be notified that a System Alarm has been tripped. The recommended minimum for System Pressure is 2500 PSI. For Air Tank Pressure, the minimum should be set to 30 PSI.



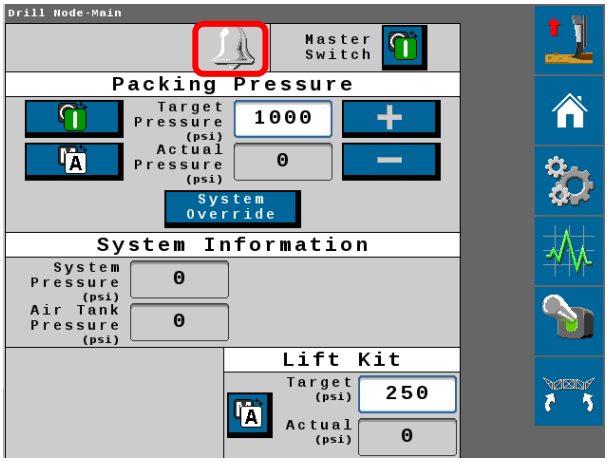
After the alarms have been set, touch the home button to return to the operating home page.

SYSTEM DIAGNOSTICS PAGE

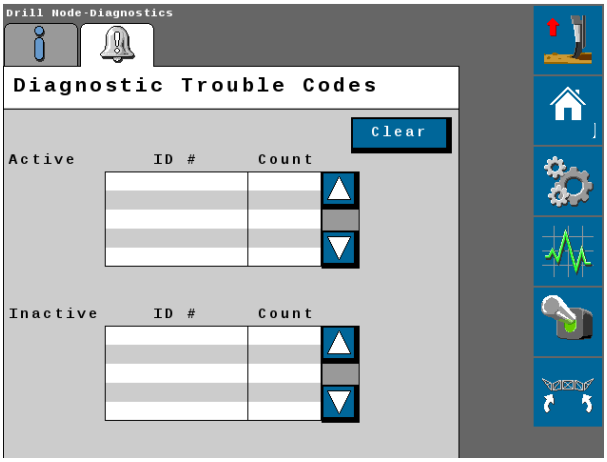
Touch the System Diagnostic Soft Key to access the Diagnostics page. From a drop-down menu, the Diagnostics page will display the DCM Firmware version and any installed load cell voltage for diagnosing any potential issues. This page also houses a Service Menu for SeedMaster and Dealer use during a service call or visit.

ACTIVE ALARM PAGE

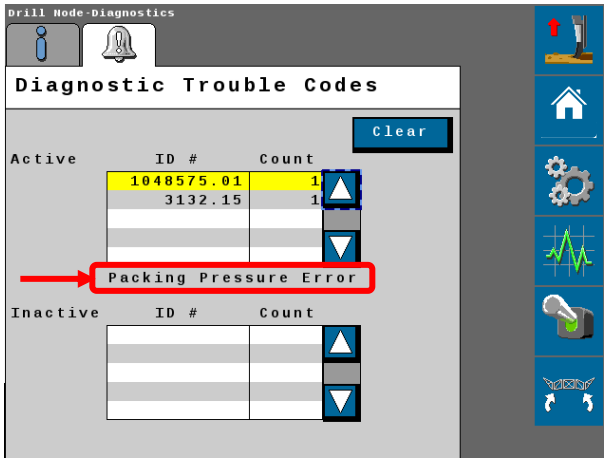
If the color around the bell changes to yellow, this means that there is an active alarm. If you touch on the bell, it will display the Active Alarms Page. The listed trouble codes can be manually highlighted to observe their description and specifically identify the triggered alarm. Touch the Home button to return to the home page after the alarm has been observed.



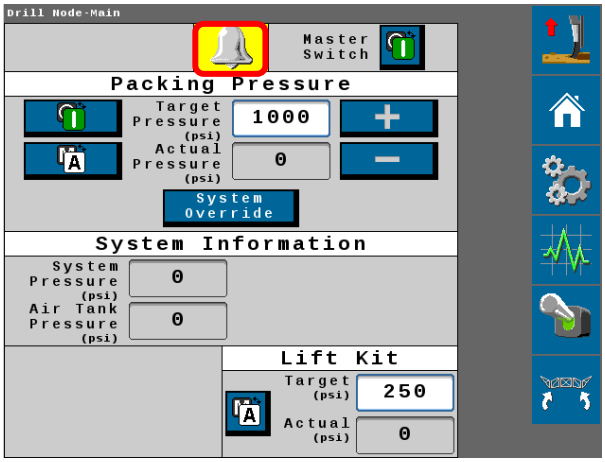
NO ALARM ON HOME PAGE



NO ACTIVE ALARMS ON ALARM PAGE



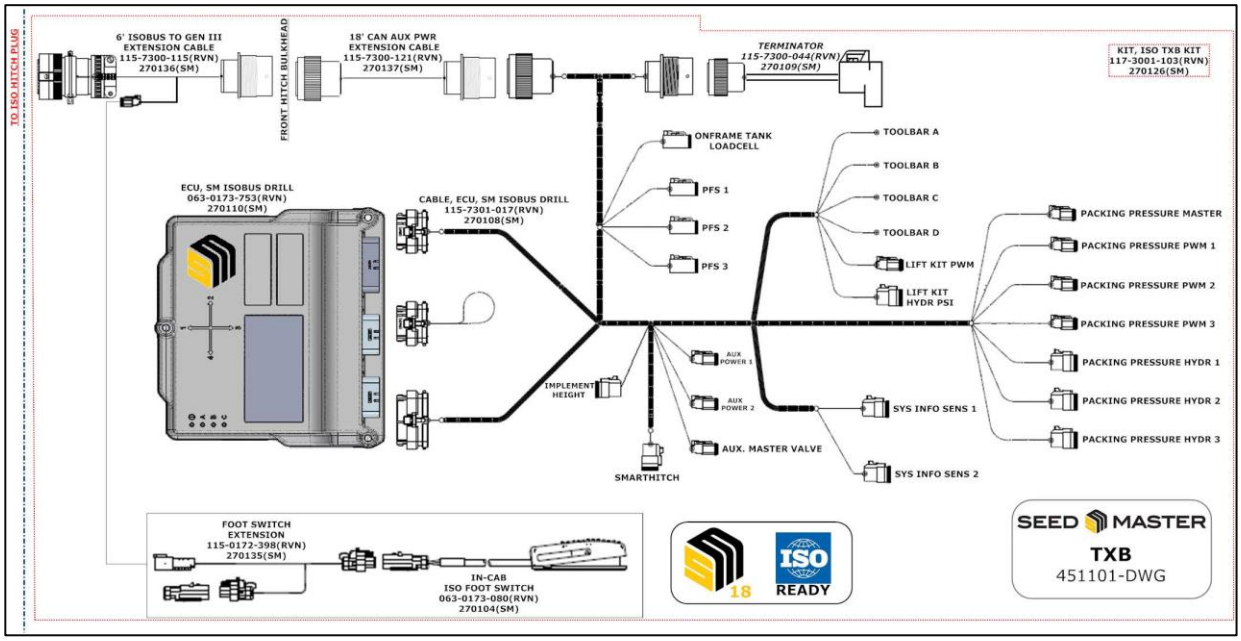
PACKING PRESSURE ALARM IS TRIPPED



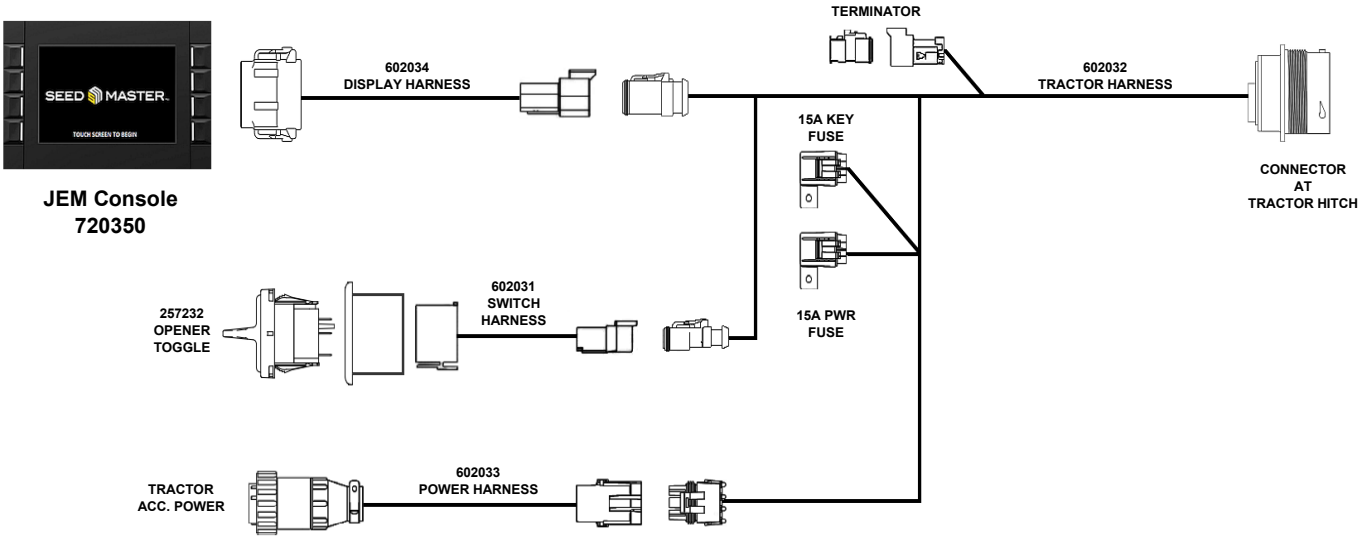
ACTIVE ALARM PRESENT ON HOME PAGE

SYSTEM ELECTRICAL DRAWINGS

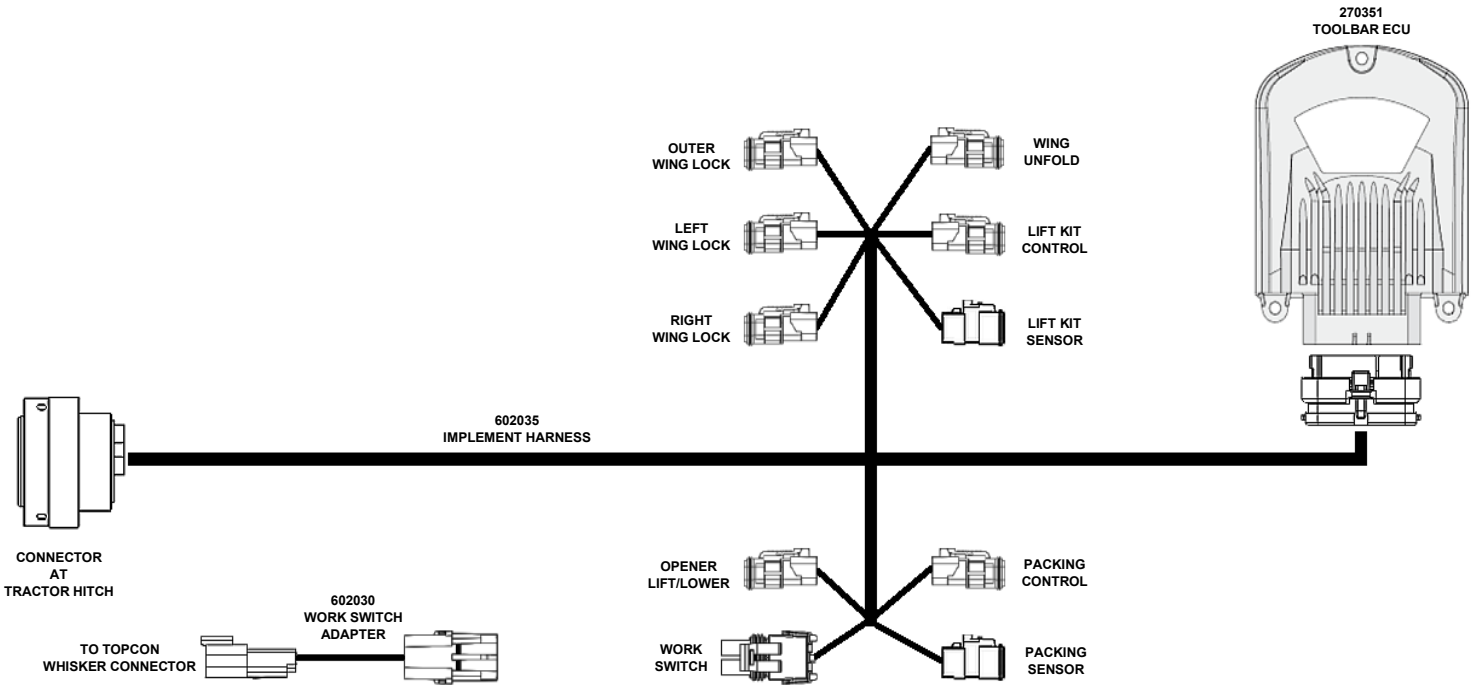
ISO TXB ONLY



JEM TOOLBAR CONTROL IN-CAB HOOKUP



JEM TOOLBAR CONTROL ON-FRAME



MAINTENANCE CHECKLIST

DESCRIPTION	NOTES	OK	N/A	REPLACE OR REPAIR
Tire Pressure				
Inspect tire conditions and pressures	Refer to Operator's Manual for proper tire pressure			
Wheel Bolt/Nut Torque				
Check torque for wheel bolt/nut	Refer to Operator's Manual for proper torque specifications. Please use a torque wrench only			
Transport Hub				
Grease each hub every 100 hours	Transport wheels have grease zerks			
Transport Caster				
Grease each caster on main pivot every 100 hours	Transport casters have grease zerks			
Grease each caster on walking beam pivot every 100 hours	Walking casters have grease zerks			
Transport Caster Adjustment				
Adjust the main frame caster wheels, pull the machine forward	Main frame casters will be adjusted to caster firmer than wing caster wheels. Wing caster wheels should turn freely (by hand) after adjustment. If they do not, loosen the bolts equally until they pivot freely			
With the caster positioned (driving forward), loosen all four jam nuts on the caster pivot point bolts				
Tighten the two rear bolts until they are snug ensuring left and right bolts are tensioned equally				
Back the machine up so the caster is turned forward (reverse the drill)				
Tighten the two front bolts until they are snug ensuring left and right bolts are tensioned equally				
Tighten the top jam nuts locking everything into place				
Frame Connection and Components				
Check the following:				
• All Frame Components				

DESCRIPTION	NOTES	OK	N/A	REPLACE OR REPAIR
• Frame Fasteners				
• U-bolts				
• Hydraulic cylinders				
• Lift Kit cables and components (if applicable)				
• Packing Force Sensor (if applicable)				
• Check that all components work at proper hydraulic pressure and speeds	Refer to your Operator's Manual for proper hydraulic pressures			
Hitch Tongue, Pintle Hitch and Keeper Bolts				
Inspect all hitch pins for excess wear, stress, and grease bull-pull style	Replace any stressed or worn-out components.			
Inspect hitch fasteners				
Inspect keeper bolts				
Pivot Pins and Keeper Bolts				
Inspect wing folds. Apply grease to greaseable pins.	Replace any stressed or worn-out components. Refer to the Parts Book for parts breakdowns			
Check all keeper bolts				
Link Pins and Retainers				
Inspect link pins, wing fold pins, cylinder pins, and retainers	Replace any stressed or worn-out components. Refer to the Parts Book for parts breakdowns			
Inspect keeper roll pins and cotter pins				
Opener Components				
Inspect openers and check for loose fasteners	Refer to the Parts Book for parts breakdowns			
Adjust all pivots to account for any wear	Ensure proper pivoting while limiting side movement			
Spin each packer wheel and check for mud or failed bearings				

DESCRIPTION	NOTES	OK	N/A	REPLACE OR REPAIR
Product Delivery Lines and Towers				
Inspect tower for blocks or restriction				
Inspect primary and secondary lines for wear and air loss				
Inspect towers and caps for wear and air loss				
Washing machine before storage				
Use hot water, soap, and thoroughly wash and rinse. Using compressed air, dry all moving components and use proper post wash lubrication	The clean-out doors can remain off the meters while the tank is sitting so it does not build up condensation inside the meters or tanks			
DESCRIPTION	NOTES	OK	N/A	REPLACE OR REPAIR
Storage				
To lubricate hydraulic components, utilize a synthetic lube (ie. Royal Purple) or grease.	Add the lube to any hydraulic cylinder rods, and other appropriate moving components to prevent corrosion			
Keep drill unfolded when stored for extended period of time				
Relieve all the hydraulic pressures, including the opener cylinders.	All hydraulic cylinder rods should be properly coated with Fluid Film to prevent corrosion			
Free return lines should be left uncapped to ensure no pressure can build during storage				
Indoor storage is ideal				
All monitors should be removed from tractor and machine to be stored indoors during winter months	Viper 4+, Remote Tank Monitor			

NOTES