

KEEP IN VEHICLE

READ OPERATING INSTRUCTIONS
INSIDE BEFORE OPERATING

Omni-System[®] ESP

**OESP 3016/3017 OPEN & CLOSED SYSTEMS
AUGER, SPINNER, AND LIQUID (PRE-WET)**



OPERATION AND
CONFIGURATION MANUAL



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FEATURES AND DESCRIPTION

- Auto and Manual Operation
- 9 levels of Auger Control
- 9 levels of Spinner Control
- 9 levels of Pre-Wet Control
- Blast Mode
- Pause Mode
- Liquid/Pre-Wet (Electric or Hydraulic Motor)
- Ground Speed Controls
- Adjustable Backlighting

The Omni-System® Electronic Spreader (OESP) controller provides manual and automatic spreader operation. In the Auto Mode, the OESP maintains a constant liquid (pre-wet) and spreader rate as the vehicle's speed varies. The controller will drive three electrohydraulic proportional flow control valves; conveyor (Auger), Spinner, and Pre-Wet. The OESP's valve control is fully adjustable with minimum and maximum trim settings.

The OESP's front panel incorporates three rate control knobs for the Auger, Liquid/Pre-Wet, and Spinner operation. All settings are reported to the operator from digital displays located directly above the rate controls. For Blast and Pause simply push each button.

SPECIFICATIONS

OPERATING VOLTAGE

- (8-28) Volts DC
- Works with 12 V systems

OUTPUTS

- Two (2) voltage controlled PWM valve drivers for Auger and Spinner valve control – 2,200 mA max
- One Liquid voltage controlled output up to 12 Amps for Electric or Hydraulic functionality
- 100 Hz pulse width modulation
- Short and open circuit protection

INPUTS

- Groundspeed Input (0 – 2.5 kHz square or sine wave)

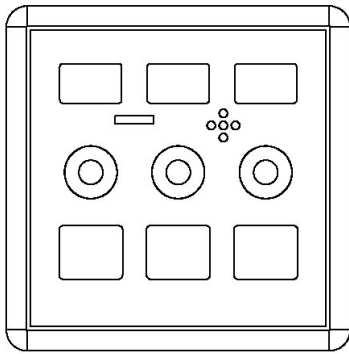
FRONT PANEL

- Three dual seven segment rate displays
- Three rate controls (Auger, Liquid, Spinner)
- Blast and Pause buttons

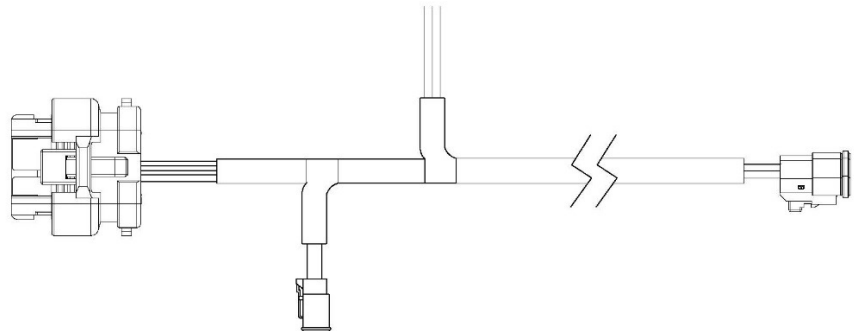
CALIBRATION

- All calibrations are set via the front panel, no tools required.

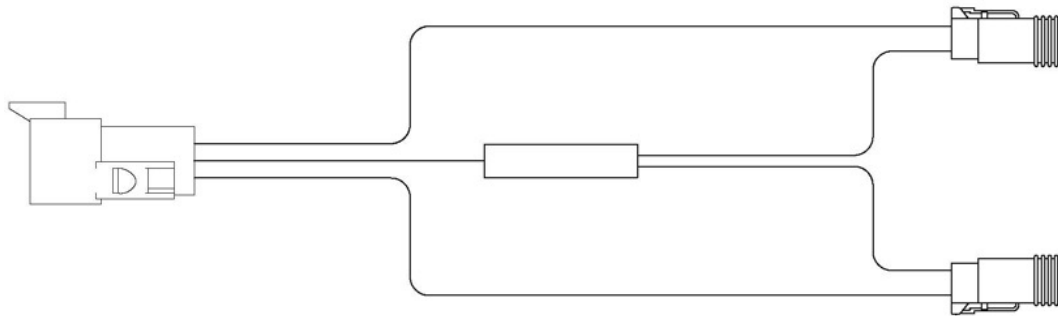
SPREADER SYSTEM COMPONENTS



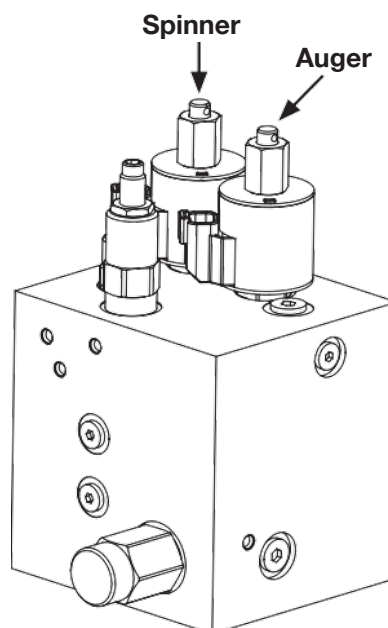
**Spreader Controller — OESP
OESP300A**



Controller Wire Harness — 34T42521 (Sold Separately)

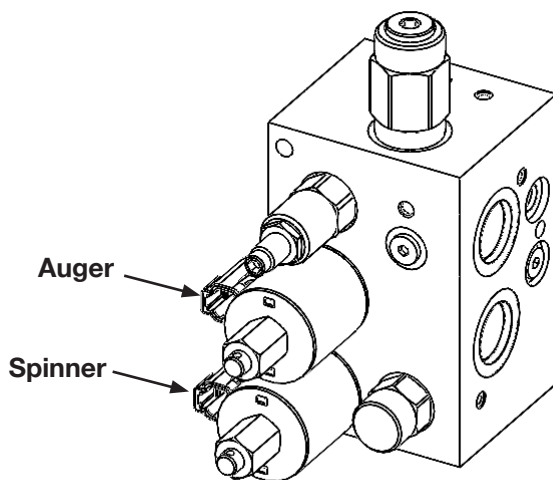


Valve Enclosure Wire Harness — 34T42522 (Sold Separately)

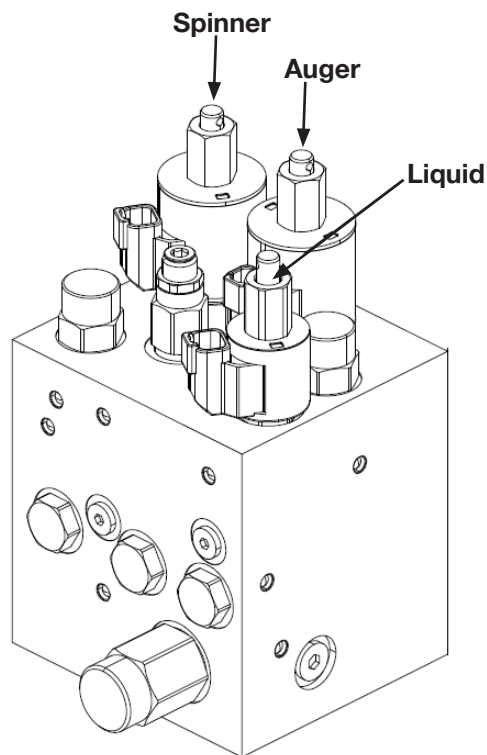


Spreader Manifold — HF80983-12 (Sold Separately)

SPREADER SYSTEM COMPONENTS



Spreader Manifold — HF136735-19 (Sold Separately)

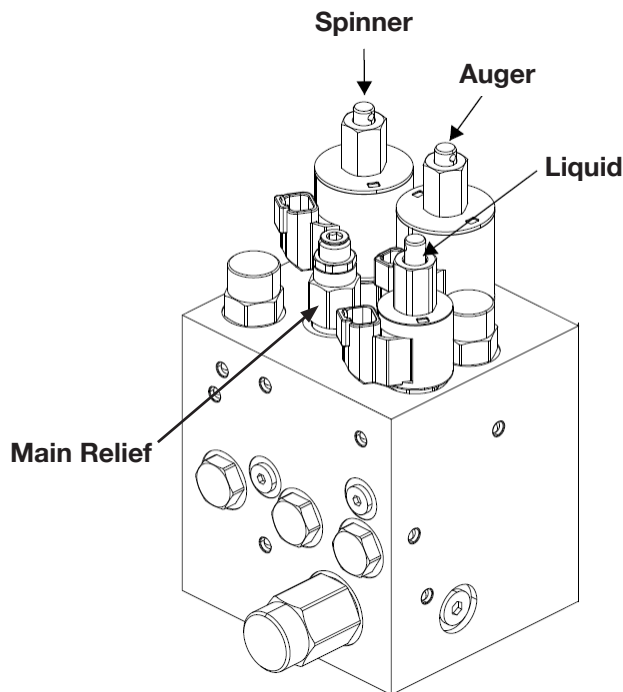


Spreader Manifold — HF172326-23 (Includes Hydraulic Liquid/Pre-Wet) (Sold Separately)

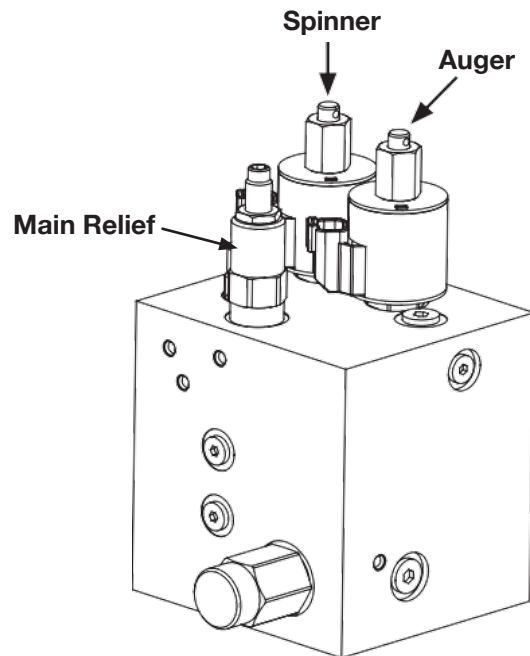
RELIEF VALVE ADJUSTMENT

Main System Relief (Factory Setting 1,800 PSI)

1. The tools required for adjusting the main relief setting includes: $\frac{3}{4}$ " wrench and a $\frac{1}{4}$ " Allen drive.
2. Tee a pressure gauge into the pump port (gauge greater than 3,000 PSI).
3. Loosen the lock nut while holding the Allen screw stationary.
4. Start the truck and deadhead flow at either the auger or spinner. (pressure will increase to the main relief setting).
5. While observing the pressure gauge, turn the Allen screw CCW to decrease pressure, and CW to increase pressure.
 - * **DO NOT EXCEED 3,000 PSI**
 - ** **ALWAYS VERIFY MAX MOTOR PRESSURE RATINGS BEFORE ADJUSTING**
6. Once the desired pressure has been established, hold the Allen screw stationary and tighten the lock-nut.



Spreader Manifold — HF172326-23
(Includes Hydraulic Liquid/Pre-Wet)



Spreader Manifold — HF80983-12

OMNI ELECTRONIC SPREADER PACKAGE

	<u>OESP</u>	<u>30</u>	<u>16</u>	<u>G</u>	<u>3</u>	<u>ASM</u>	<u>SS</u>
Series OESP — Omni ESP							
Controller 30 — OESP300A							
Valve Configuration 16 — Open Center (Gear Pump) 17 — Closed Center (LS Piston Pump)							
Hydraulic Functionality G — Auger + Spinner H — Auger + Spinner + Hyd Pre-wet Control **E — G Option Pre-Wet Exhaust Valve (See page 12)							
Pre-wet Options BLANK — Loose lead (Electric or Hydraulic)/No Pump 3 — Electric Pre-Wet Incl. Pump w/Enclosure — 3 GPM 5 — Electric Pre-Wet Incl. Pump w/Enclosure — 5 GPM L — Hydraulic Pre-Wet Incl. Pump w/Enclosure — 10 GPM							
Enclosure Configuration BLANK — No Enclosure Supplied ASM — Steel Enclosure Included							
Enclosure Material Selection BLANK — Powder Coated Steel SS — Stainless Steel Enclosure Included							

NOTE: ** Recommended for smaller duty vehicles with limited pump flow available that require hydraulic liquid.

COMPLETE SPREADER PACKAGES

NO ENCLOSURE

OESP3016G (Open Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF80983-12 – Open Center Manifold

OESP3016F (Open Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF136735-19 – Open Center Manifold

OESP3016H (Open Center w/ Hydraulic Liquid (Pre-Wet))

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Open Center Manifold
- * Hydraulic Motor/Pump Assembly
(purchased separately)

OESP3017G (Closed Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF80983-12 – Closed Center Manifold

OESP3017F (Closed Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF136735-19 – Closed Center Manifold

OESP3017H (Closed Center w/ Hydraulic Liquid (Pre-Wet))

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Closed Center Manifold
- * Hydraulic Motor/Pump Assembly
(purchased separately)

COMPLETE SPREADER PACKAGES

WITH ENCLOSURE

OESP3016GASM (Open Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF80983-12 – Open Center Manifold
- 55T43246 – Enclosure
- 55T43247 – Lid

OESP3017GASM (Closed Center)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF80983-12 – Closed Center Manifold
- 55T43246 – Enclosure
- 55T43247 – Lid

OESP3016HLASM (Open Center w/ Hydraulic Liquid (Pre-Wet))

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Open Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 10 GPM Hydraulic Pre-Wet Pump Kit

OESP3017HLASM (Closed Center w/ Hydraulic Liquid (Pre-Wet))

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Closed Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 10 GPM Hydraulic Pre-Wet Pump Kit

OESP3016G3ASM (Open Center) w/ Electric Liquid (Pre-Wet)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Open Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 3 GPM Electric Pre-Wet Pump Kit

OESP3017G3ASM (Closed Center) w/ Electric Liquid (Pre-Wet)

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Closed Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 3 GPM Electric Pre-Wet Pump Kit

OESP3016G5ASM (Open Center w/ Electric Liquid (Pre-Wet))

Includes the following:

- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Open Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 5 GPM Hydraulic Pre-Wet Pump Kit

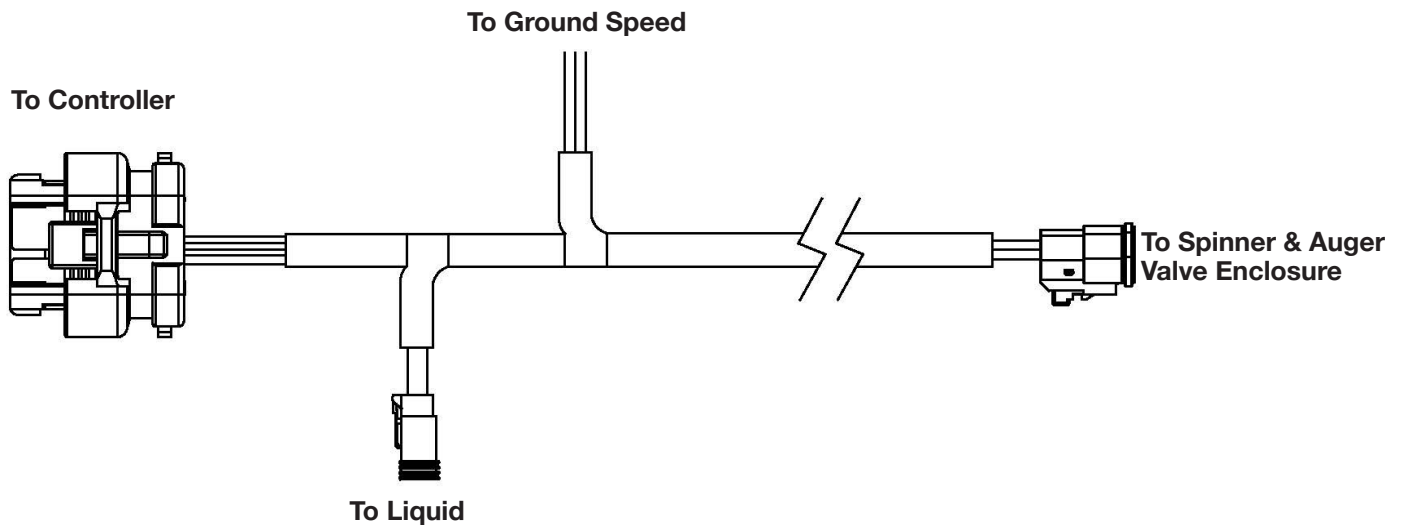
OESP3017G5ASM (Closed Center w/ Electric Liquid (Pre-Wet))

Includes the following:

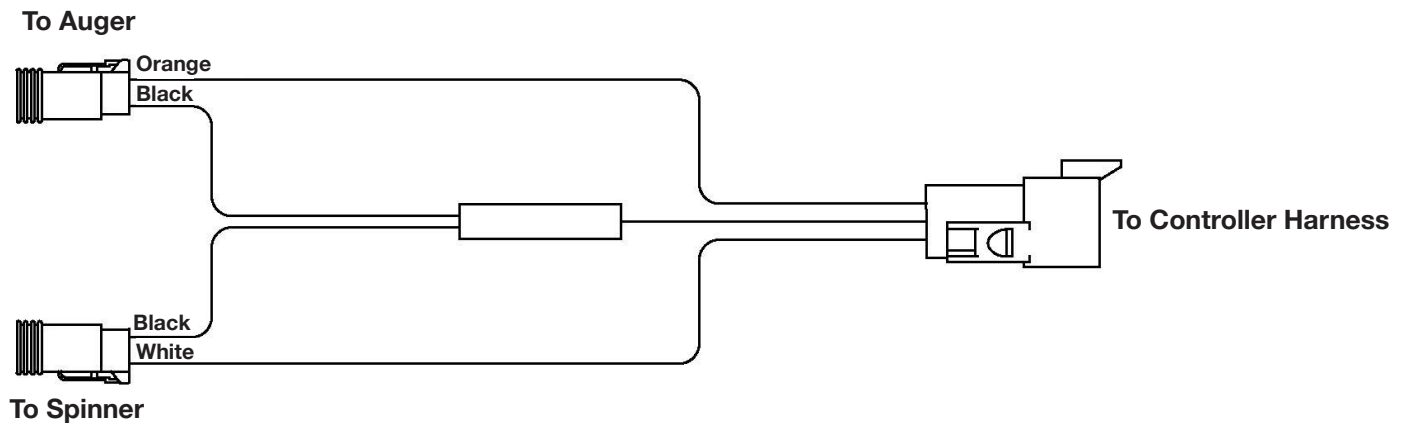
- OESP300A – Controller
- 34T42521 – Controller Wire Harness
- 34T42522 – Valve Enclosure Harness
- HF172326-23 – Closed Center Manifold
- 55M67214 – Enclosure
- 55T43247 – Lid
- 5 GPM Electric Pre-Wet Pump Kit

WIRE HARNESS LOCATION/ASSIGNMENT

Controller Wire Harness — 34T42521

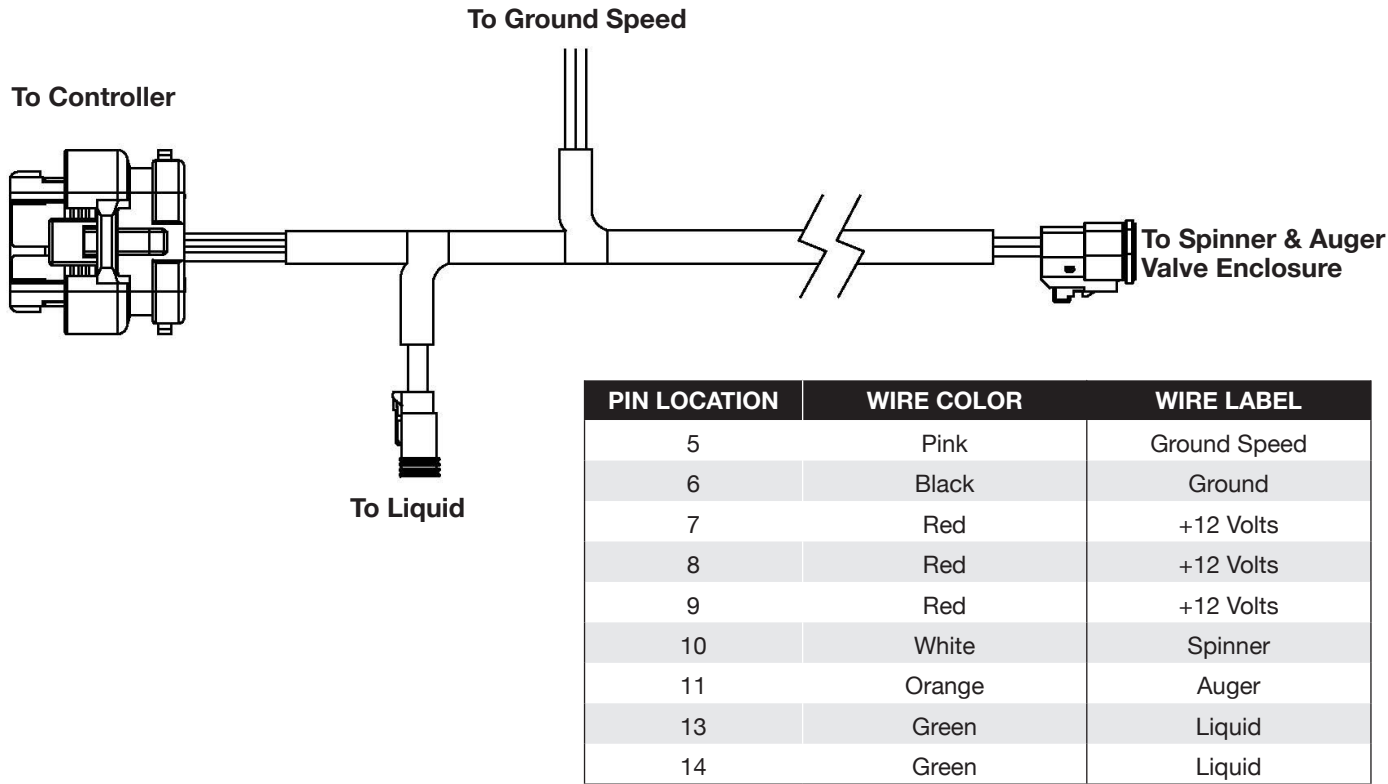


Valve Enclosure Wire Harness — 34T42522

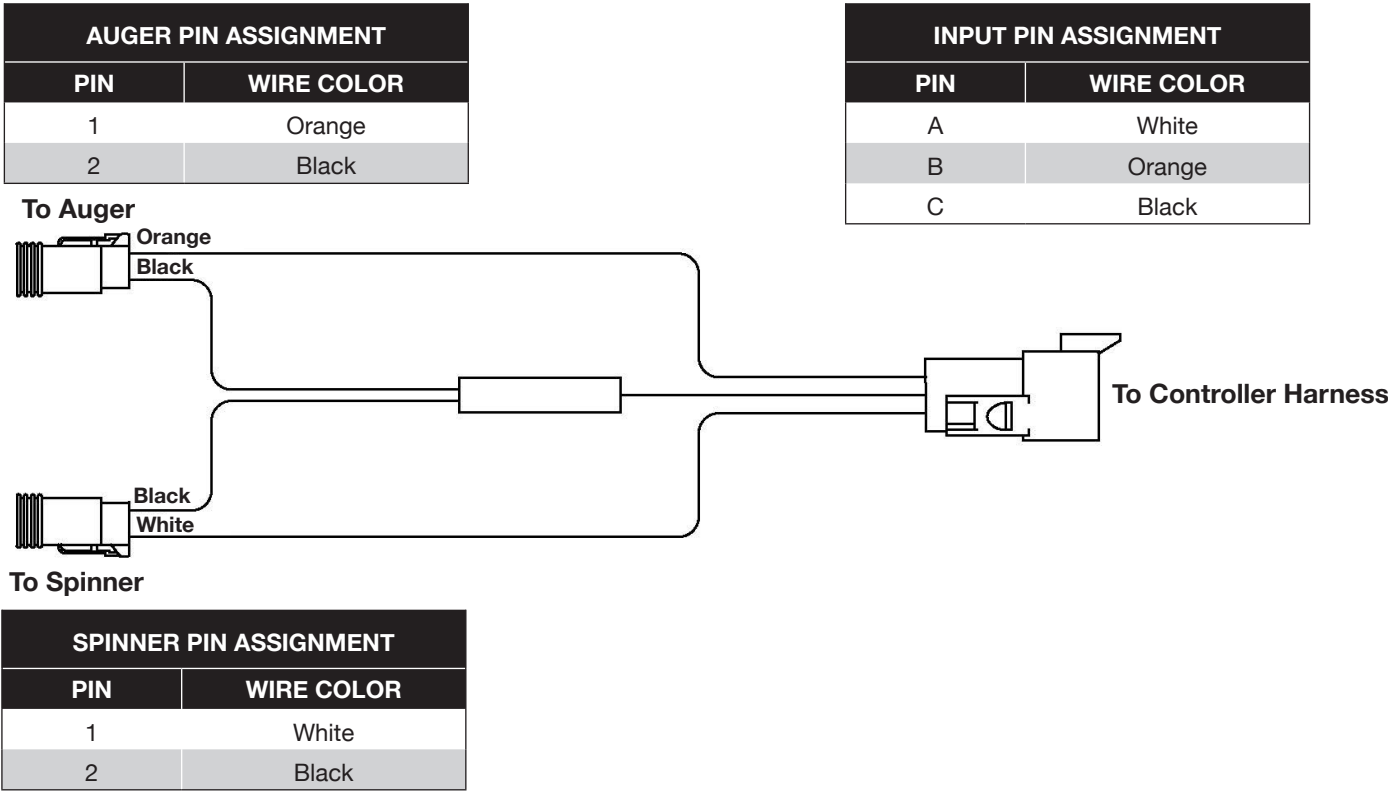


PIN-OUTS

Controller Wire Harness — 34T42521



Valve Enclosure Wire Harness — 34T42522



PRE-WET EXHAUST VALVE DIAGRAM

Parts Needed:

Qty. (1) NXPV7630AM12TN12ER

This is a solenoid operated proportional flow control valve used to direct flow to the Pre-Wet Motor from the Auger Return. It electronically regulates the Auger Return flow between the Pre-Wet Motor and Tank.

Max. Flow: 25 GPM

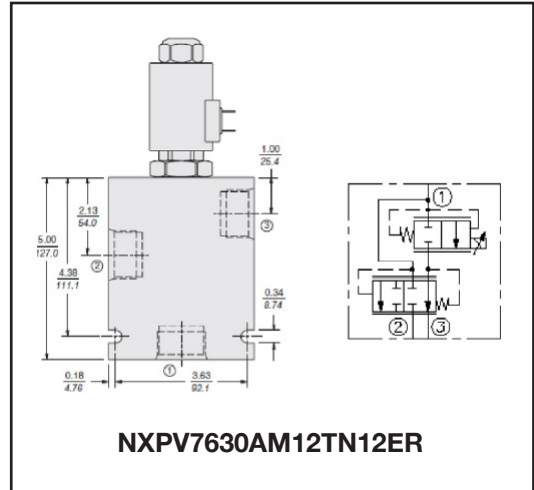
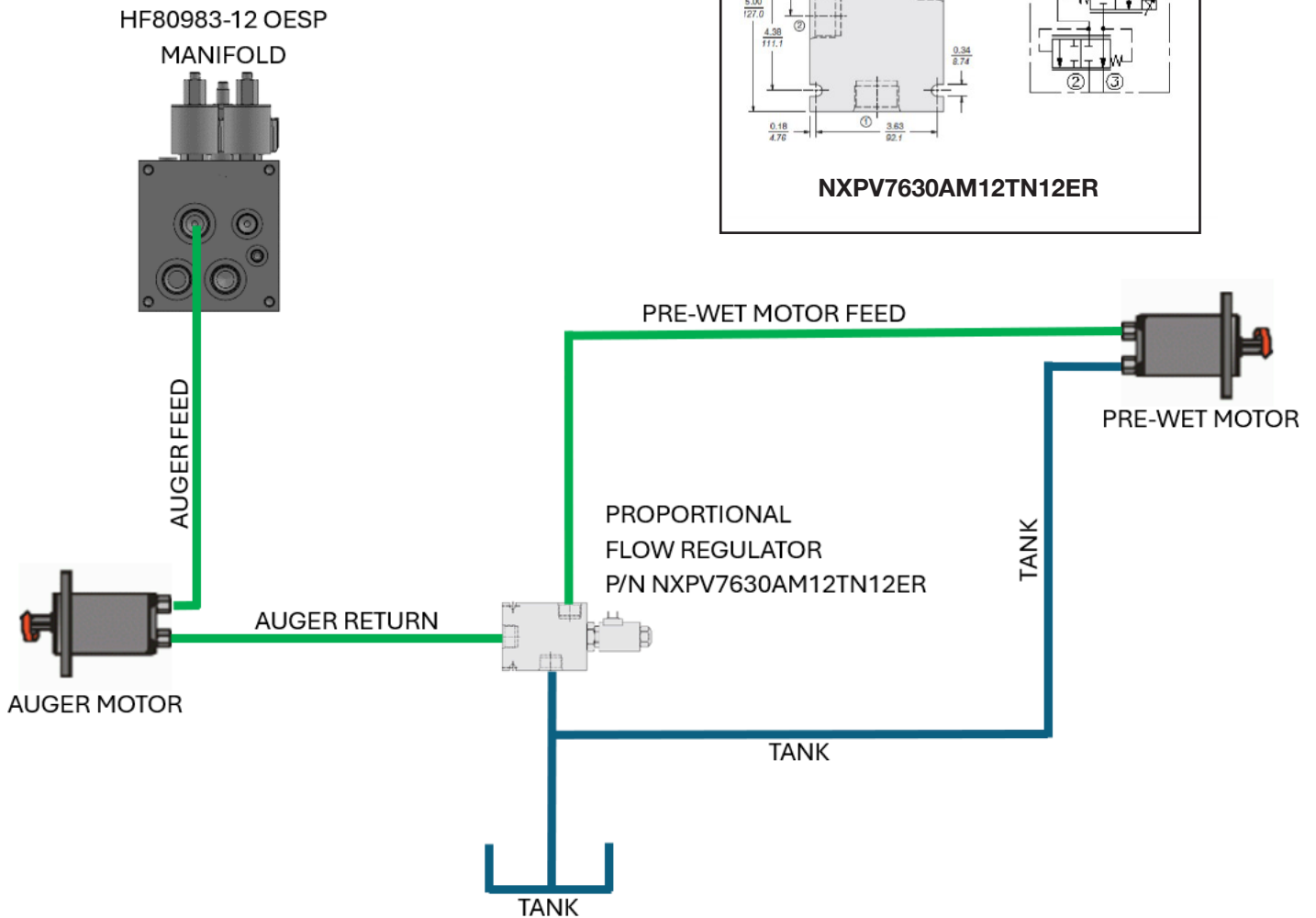
Max. Pressure: 3,000 PSI

Port Size: SAE 12

NOTE: ** Recommended for smaller duty vehicles with limited pump flow available that require hydraulic liquid.

PLUMBING INSTRUCTIONS

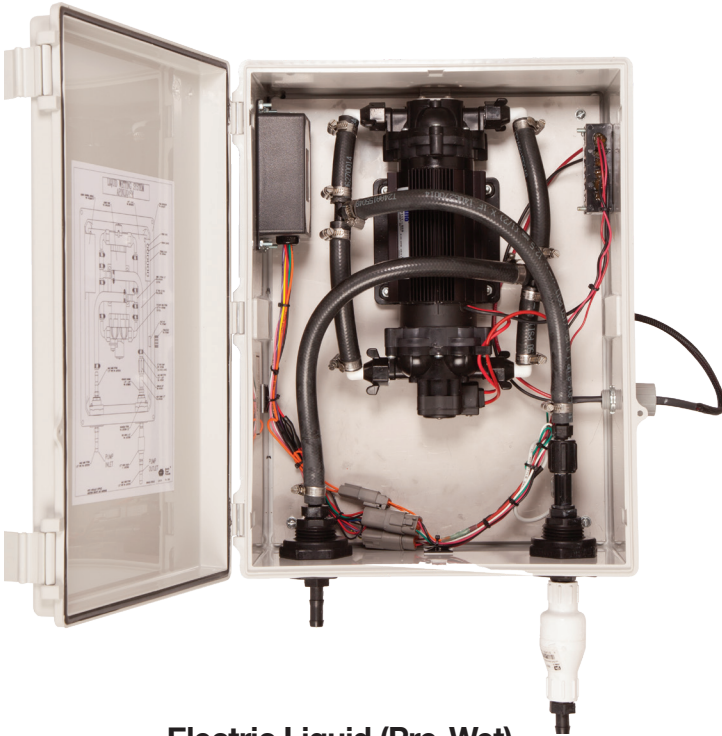
- 1) Connect Port 1 to the Auger Return
- 2) Connect Port 2 to Tank
- 3) Connect Port 3 to Pre-Wet Motor



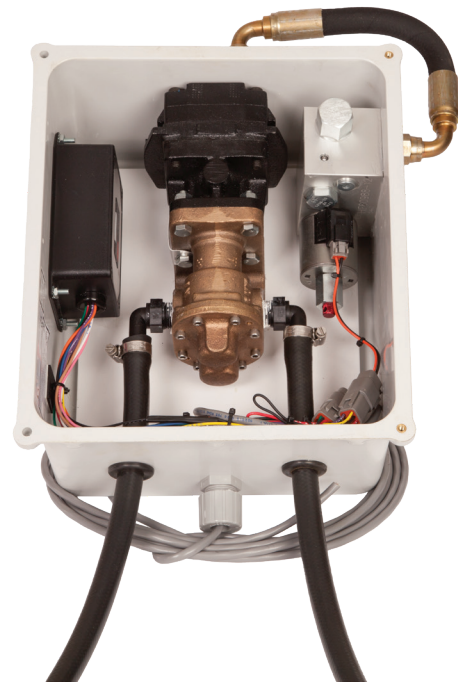
SPREADER SYSTEM COMPONENTS

Liquid (Pre-Wet) Kits

Developed to match the granular ground speed spreading consistently to maintain the desired gallons per ton of salt distribution. Our pre-wet kits are mounted and pre-wired into NEMA enclosures. Pumps are available for 5 or 6 GPM in electric systems or 10 to 20 GPM in hydraulic systems.

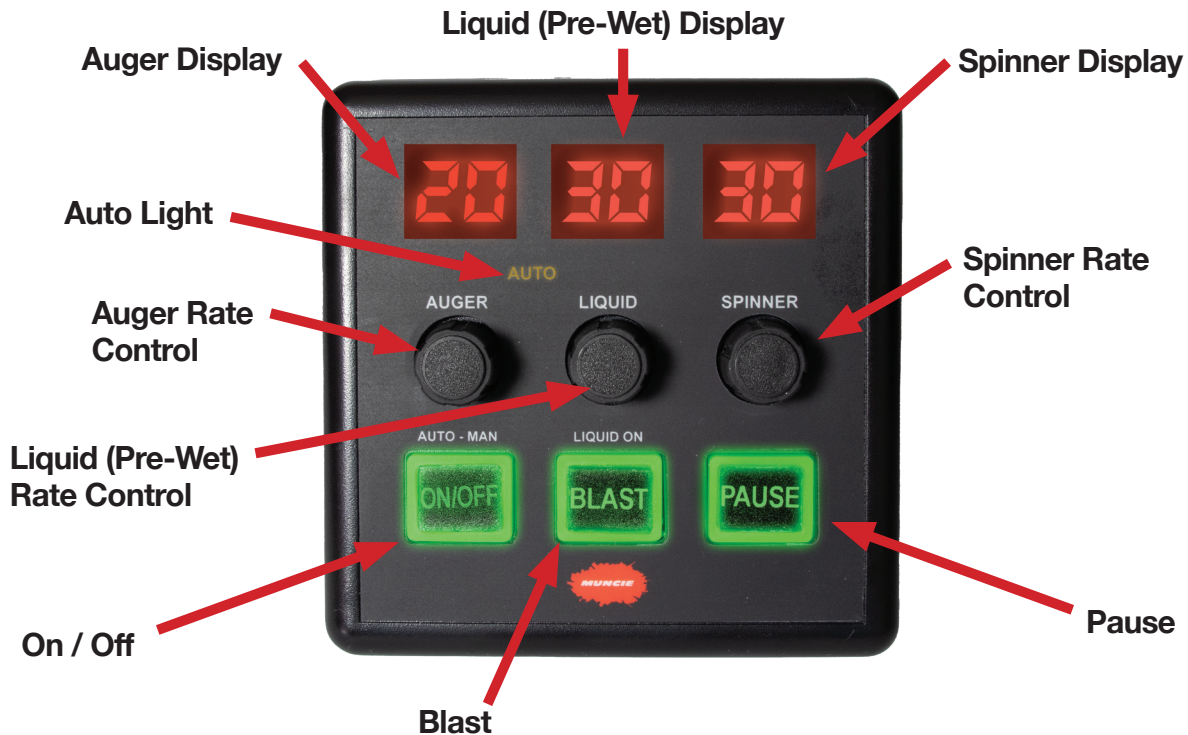


Electric Liquid (Pre-Wet)



Hydraulic Liquid (Pre-Wet)

CONTROLS AND DISPLAYS



OPERATION INSTRUCTIONS - CONTROLS

ON-OFF: Press the On – Off button to power controller

AUGER RATE CONTROL: Rotate the 'Auger' control knob clockwise to increase and counter-clockwise to decrease the rate

LIQUID RATE CONTROL: Press and release Liquid knob to turn on. Rotate the 'Liquid' control knob clockwise to increase and counter-clockwise to decrease the rate

SPINNER RATE CONTROL: Rotate the 'Spinner' control knob clockwise to increase and counter-clockwise to decrease the rate

BLAST: Press the Blast button to increase auger output to the maximum trim setting. Once released, the blast will continue for the number of seconds configured in controller settings. See Configuration Menu, page 20. Repress the blast during the timed interval to cancel the blast operation. Hold the blast button for infinite operation. The numerical value "9" will show on the auger display while the system is in blast mode.

PAUSE: Push and release the button to pause the operation of the Auger, Spinner, and Liquid. Push and release again to resume operation at the original settings.

SWITCHING AUTO & MANUAL MODES: Press the 'Auger' control knob down to switch between AUTO & MANUAL modes. The AUTO light will illuminate yellow on the controller when Auto Mode is active.

BRIGHTNESS: To adjust the brightness of the display and buttons:

- (1) With the controller powered off, depress and hold the Liquid knob for 6 seconds until a numerical value appears in the Spinner window.
- (2) While continuing to depress Liquid knob, rotate the Spinner encoder to adjust the intensity of the backlighting.

OPERATION INSTRUCTIONS

AUTO MODE OPERATION

In Auto Mode the truck speed (MPH) is used to automatically increase/decrease the auger output to maintain constant rate. If the Auto Mode feature is going to be used, the vehicle speed will need to be synchronized with the controller. See steps below on how to verify the controller is receiving the speedometer signal and how to sync.

1) Verify controller is receiving a speedometer input:

- a) Turn the controller “on”
- b) Place the controller in Auto Mode by pressing the Auger knob (The AUTO light will light up yellow on the controller when Auto Mode is active.)
- c) In Auto Mode the Auger and Liquid display will flash whenever the MPH is “0” or there is no speedometer connection. This also indicates the Auger is not turning and there is no Liquid output. If the Auger and Liquid display goes steady when the vehicle begins moving, the controller is receiving a valid signal. (See ‘Speedometer Synchronizing’ on page 18.)

Note: If the Liquid (Pre-Wet) function is not part of your truck setup, then only the Auger display will act as described above. Liquid will show error if turned on when not connected.

- In Auto Mode, the auger rate adjustment has (10) settings. (0-9) (0 = off). As the auger rate is increased, the auger will discharge more material per lane mile.
- The Auger will automatically halt at 0 MPH in Auto Mode. The Auger display will continuously flash at 0 MPH or if there is no speedometer connection.
- Auto Mode does not proportionally affect the Spinner rate like the Auger. This is set by the operator and remains constant at all MPH speeds.
- The Liquid function will automatically halt at 0 MPH in auto mode. The Liquid display will continuously flash at 0 MPH if there is no speedometer connection.

MANUAL MODE OPERATION

In Auto Mode the truck speed (MPH) is used to automatically increase/decrease the auger output
In Manual Mode the auger rate adjustment has (10) settings. (0-9) (0 = off)

- Each increment changes the auger speed by approximately 10%, independent of truck speed. Unlike auto, the system will not automatically turn off the spreader output when the truck comes to a stop. The operator must use the pause button or turn the auger rate to 0 to manually stop the spreader.

CONFIGURATION MENU

ACCESSING CONFIGURATION MENU:

This menu is passcode protected to limit access to non-authorized personnel. It is recommended to change the passcode from the default value to limit access and prevent unintentional system adjustments.

Follow the steps below to enter the Configuration Menu:

- 1. Accessing Configuration Menu:** With the spreader off, simultaneously depress the Auger and Spinner knobs and release.
- 2. Passcode Entry:** The Liquid knob will adjust the left 2 digits and the Spinner control will adjust the right 2 digits. Enter passcode and depress Spinner knob.

(Default Passcode = 0001)

3. Navigating Configuration Menu:

- Rotate the Auger knob to scroll through the various adjustment items.
- To enter and exit the sub menus, depress the Auger knob.
- To change settings, rotate the Liquid and Spinner knobs

CONFIGURATION MENU

SYSTEM MENU:



Firmware Bundle: Non-adjustable and reference only.



Profile: Non-adjustable and reference only.



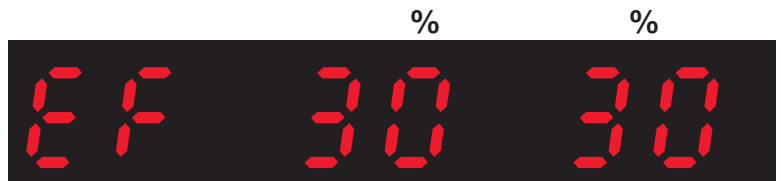
Passcode Change: Using the Liquid and Spinner knobs, adjust the default passcode.



EQUIPMENT MENU:



E Flow: Flow Sharing – N/A on standard Omni System ESP (OESP) only setups.



Speedometer Synchronizing:



a) Place the controller in Auto Mode by pressing the Auger knob (The AUTO light will light up yellow on the controller when Auto Mode is active.)

b) The display should show as 0 MPH. Begin accelerating until you reach 20 MPH on the display. Once at 20 MPH, press the Spinner knob. The controller should now be calibrated, and match the truck MPH.



CONFIGURATION MENU

Plow Down Float: N/A on standard
Omni System ESP (OESP) only setups.

%

FL db 40

SPREADER:

SP Ad

Retain: Use the Spinner knob to toggle the retain settings feature. This functionality allows the controller to retain the Auger, Liquid, and Spinner rates through power cycles. **0-OFF / 1-ON**

0-OFF / 1-ON

RE 1

CAUTION: This will cause the spreader controller to retain the settings after the controller has been powered off. Be aware that anytime the spreader controller is repowered, the motors will initiate at the last settings.

0 MPH SPINNER: The 0 MPH spinner feature allows the spinner operation to halt when the truck comes to a stop. If the setting is configured for “spinner on” the spinner will remain spinning regardless of truck speed. **0-OFF / 1-ON**

0-OFF / 1-ON

20 PH 0

BLAST LVL: The blast level sets the auger speed when the blast button is pressed. This is adjustable from 0-100%. Use the Spinner knob to change.

%

BL 99

CONFIGURATION MENU

BLAST Time: The Blast duration can be adjusted from 0 – 199 seconds. Use the Liquid and Spinner knob to change. Above 199 setting will change to LT (latching). This means when you hit Blast, it will stay on until turned off.

SECONDS



SECONDS

Take-off Timer: The take-off timer is only applicable to Auto Mode, and it is intended to help expedite material output as a vehicle accelerates from a stop. This setting is adjustable from 0 - 20 seconds. Turning this setting above 0 will cause the auger to blast material. Use the Spinner knob to adjust this setting.



Auger Min/Max: The min setting should be adjusted so that the auger is barely turning. The max setting is the maximum preferred auger speed.

MIN %

MAX %



Spinner Min/Max: The min setting should be adjusted so that the spinner is barely turning. The max setting is the maximum preferred spinner speed.

MIN %

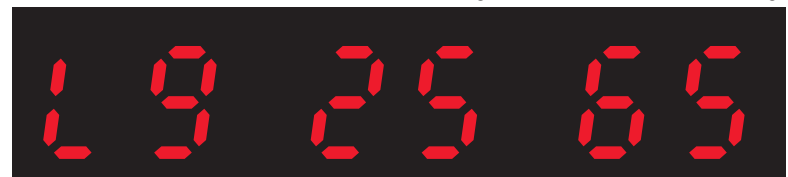
MAX %



Liquid Min/Max: The min setting should be adjusted so that the liquid is barely flowing from the spray nozzles. The max setting is the maximum preferred liquid speed.

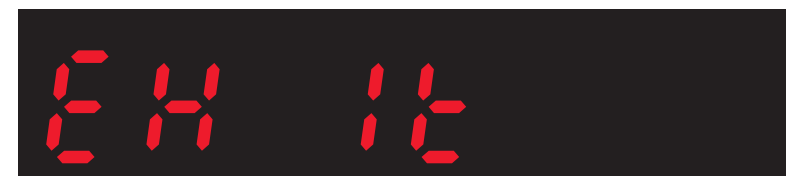
MIN %

MAX %



EXIT:

Save & Exit: Navigate to this menu item and depress the Auger knob to save and exit the calibration menu.



TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE
OESP300A controller will not power on	Check wiring designation, and check inline fuse if installed.
Auger - Non-Functional	Check if the AUTO display light is illuminated yellow on controller. The Auger will not function in Auto Mode until vehicle begins moving.
Auto Mode Non - Functional	<p>If Auger or Liquid display continuously flash in Auto Mode while truck is moving, the controller is not recognizing a speedometer signal. Verify that speedometer input is connected to a valid speedometer signal.</p> <p>Speedometer input not properly synchronized with controller. Try recalibrating speedometer input (page 18).</p>
Auto Mode does not perform at low MPH	<p>Speedometer input not properly synchronized with controller. Try recalibrating speedometer input (page 18).</p> <p>Set Auger minimum trim setting.</p>
Auger, Liquid, or Spinner inoperative in auto and manual mode	<p>Check Wire harness connections and verify that pins are crimped and seated correctly in the connectors. Controller will show 'ER' error if connection is broken.</p> <p>Check electrical connections to solenoids valves and grounds. Controller will show 'ER' error if connection is broken.</p> <p>Adjust trim settings.</p>
No Auger, Liquid, or Spinner operation at low rates	Increase minimum trim settings so that either the Spinner, Auger, or Liquid just begins to move. This will eliminate the deadband within the valve.
Spinner only operates when vehicle is moving	Check the Spinner pause at 0 (MPH) setting. See page 20.

NOTES

NOTES



**Muncie®
Power
Products**

A Member of the Interpump Group

IN24-01 (Rev. 05-24)

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