



MP² ADVANTAGE SYSTEMS

THE FUTURE OF SNOW & ICE CONTROL



MCNTM
MUNCIE CHASSIS NETWORK
+TECHNOLOGY-

OPERATIONS AND PROGRAMMING GUIDE



SNOW & ICE PRODUCTS

PERFORMANCE

ECONOMY

CONVENIENCE

SAFETY



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Cylinder Operations

On-Off Controls

- The Plow and Dump Keypad On-Off is controlled from the ignition on-off.
- The Spreader On-Off is controlled by simultaneously pushing the Auger and Liquid knobs together.
- The Liquid Pre-wet On-Off is controlled by simultaneously pushing the Liquid and Spinner knobs together.



Disabling Cylinder Controls

You may turn-off the cylinder control pushbuttons or joystick control as follows.

- To disable the pushbuttons, press the plow up & down simultaneously and hold for 5 seconds. The keypad lighting will switch from green to red. The buttons will remain red but will not operate. Repeat holding the plow up & down to reinstate the controls.
- To disable the joystick hold the plow and scraper selection buttons simultaneously for 5 seconds. The Plow, Dump & Scraper labels on the panel will go off. The joystick is now dead. Repeat the sequence to reinstate joystick control.

Plow & Dump Operations

- Push an arrowed button to operate. Up arrows will raise. Down arrows will lower.
- The system will respond to the first button pushed if more than one is pressed at one time.
- The backlighting on the arrowed buttons will change from green to red to indicate the action has been successfully communicated to the valves.

- Alternating green and red lights on the arrowed buttons indicates a fault with the attempted function. This could be a short or open circuit.
- Any operation of a plow function will generate a quick chirp when the arrowed button is pressed.
- Any operation of a dump function will generate a continuous tone when the arrowed button is pressed.

Joystick Operations

If your system is equipped with a joystick, it is designed to operate up to three pieces of equipment with full proportional speed control.

- Select between Plow, Dump or Scraper operation by momentarily pressing the appropriate button on the joystick head. The selection will be locked in and displayed on the control panel with a lighted label (Plow, Dump, Scraper)
- The dead-man switch trigger must be depressed before moving the joystick and held throughout the operation. If you release the trigger the operation will cease and you must return the joystick to center in order to re-initiate control.



Spreader Operations

Auto-Man, Blast & Pause

- Select Auto or Manual operation by pressing the Liquid control and holding for two seconds then release to see the change.
- Blast operation will be initiated by pressing and releasing the Auger control knob. Blast will last a predetermined time and then normal spreader operation will resume.
- Pause operation of the spreader will be initiated by pressing and releasing the Spinner control knob. Press and release again to resume spreader operations.



Granular Product Selection

- Up to 3 different granular material products can be selected for calibrated operation. These are designated Prod 1, 2 & 3 by the system.
- To change a Product selection, hold the Spinner knob before the Spreader function is turned-on, and slightly turn the knob either direction. The display shown will appear. While holding the Spinner knob down turn it either direction to the desired Product number and release.



Auto Spreading

- Push and hold the Liquid control for two seconds and release to switch from Man to Auto.
- The AUTO label will flash whenever the MPH is “0” or there is no speedometer connection. This also indicates the auger is not turning.
- Select an Auger output by turning the Auger control to increase or decrease the display from “00” to “99”.
- If the system has been weight calibrated then the number displayed times 10 indicates the “LBS PER MILE” to be spread in Auto. (Ex. Display 47 X10 = 470 LBS/MILE)
- If the system has not been weight calibrated then adjust the Auger control setting while observing the spread pattern in your mirrors. The Auto function will still adjust itself to produce the same pattern at all MPH.

Manual Spreading

- Push and hold the Liquid control for two seconds and release to switch from Auto to Man.
- Adjust the Auger control for “00, 10, 20, 30.....90, 99” on the display. These are simply reference values and have no other meaning attached to them.
- Make an adjustment while observing the pattern in your mirrors. Your setting will result in a constant auger speed regardless of MPH.
- Use the PAUSE function to stop and start at intersections, etc.

Spinner Control

- Turn Spinner control to adjust the display from “00, 10, 20, 30,...90, 99”.
- Observe your mirrors to find a suitable pattern width.
- The numbers are reference values only and have no other meaning.

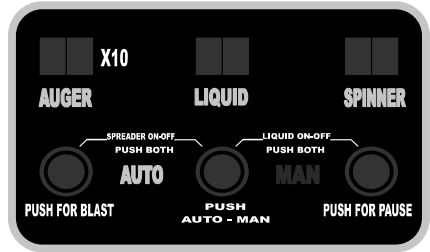
Liquid Pre-wet Operations

- The Liquid function is turned on/off by simultaneously depressing the Liquid and Spinner knobs.
- The Liquid function can only be turned on if the Spreader function is also on.
- The Liquid knob controls the output and is adjustable from 00, 10, 20.....70, 80, 90, 99.
- These numbers are simply reference values and have no other meaning.
- The Liquid output will run in proportion to vehicle speed when the Spreader function is operating in AUTO.
- When the Spreader function is operating in MAN mode the Liquid function will remain at a constant rate as selected regardless of MPH.

User Adjustments

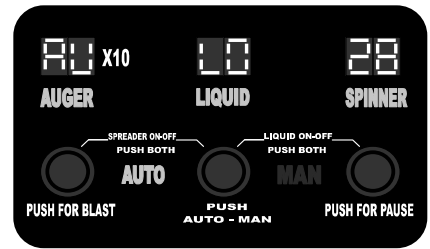
Entering The Adjustment Mode

- With the spreader control off - press the Auger and Spinner knobs together and hold for two seconds.
- After the controller powers up in the Adjustment Mode (CA), enter your Pass Code using the Liquid and Spinner displays and knobs. Press the Spinner knob to enter the value. If the wrong value is entered the screen will go blank.



Scrolling Through The Menu

- After entering the proper passcode the first line of the menu of adjustments will appear as shown.
- You may scroll through the menu items by turning the Auger control knob.
- There may be some adjustments that do not apply. For example you may not have a Pre-wet system or joystick control. Any adjustment that does not apply can simply be skipped.

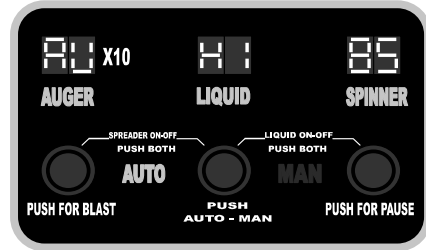
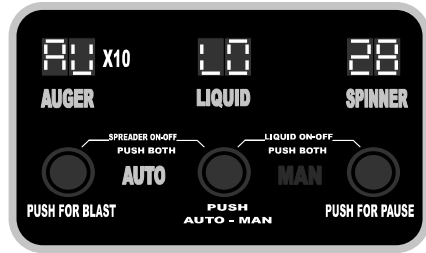


Auger (Min) Lo and Auger (Max) Hi

The hydraulic pump should be operating before this adjustment is made.

! WARNING! When these adjustments are made the Auger motor will operate!

- Auger LO sets the lowest speed available to the operator. It is important that it be high enough to cause the Auger or Conveyor to turn. Turn the Spinner knob to adjust the value and then press to enter.
- Auger HI sets the highest speed available to the operator. Turn the Spinner knob to adjust the value and then press to enter.

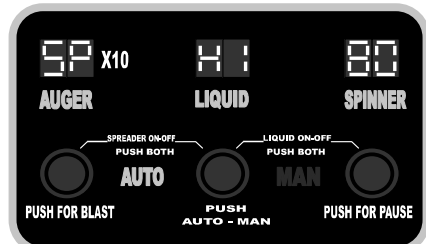


Spinner (Min) Lo and Spinner (Max) Hi

The hydraulic pump should be operating before this adjustment is made.

! WARNING! When these adjustments are made the Spinner will operate!

- Spinner LO sets the lowest speed available to the operator. It is important to set it high enough to cause Spinner movement. Turn the Spinner knob to adjust the value and then press to enter.
- Spinner HI sets the highest speed available to the operator. Turn the Spinner knob to adjust the value and then press to enter.



Liquid (Min) Lo and Liquid (Max) Hi

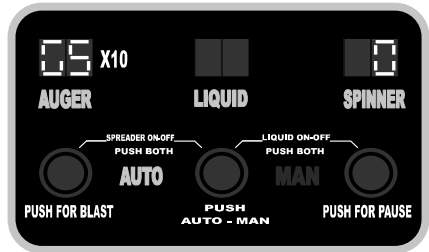
WARNING! When these adjustments are made the Liquid system will operate.

- Liquid LO sets the lowest output flow available to the operator. It should be set high enough to cause some flow. Turn the Spinner knob to adjust the value and then press to enter
- Liquid HI sets the highest output flow available to the operator. Turn the Spinner knob to adjust the value and then press to enter



Speedometer Input Type

- GS or Groundspeed is asking for the type of speedometer input.
- 0 = Trucks equipped with a manual transmission and includes most trucks equipped with an Allison automatic.
- 1 = Most International trucks
- Select the input number on the Spinner display and enter by pushing the Spinner knob.



Blast Timer and Level Settings

WARNING! When adjusting Blast HI the Auger or Conveyor may operate.

- Blast (to) sets the Time-Out function on Blast operations. This can be set for 0-30 seconds of operation after the Blast button is released. Use the Spinner knob to select and push to enter the value.
- Blast HI sets the Auger or Conveyor speed for the Blast operation. This can be 0-99% of full capacity. Use the Spinner knob to select and push to enter the value.



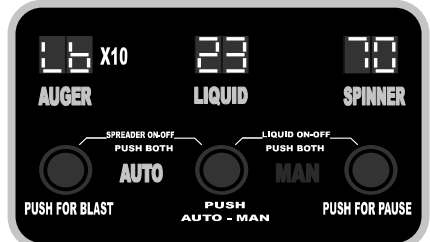
Speedometer MPH Matching

- GS CA is the Groundspeed Calibration. It is used to synchronize the control system to the truck.
- Adjust the Spinner display to a target MPH. 20 or 30 MPH might be good choices.
- Drive the truck until the target speed is reached and hold steady.
- Push the Spinner knob while the truck is at the target speed.
- Check the results by slowing and reaccelerating. The Spinner display will blink and an audible tone will be heard when the speed matches again.



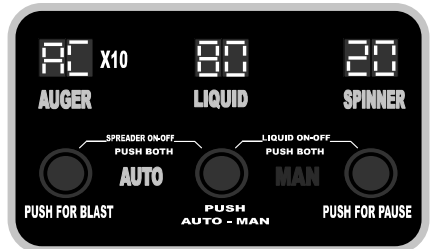
Weighed Dump Calibration

- Fill the truck with material and weigh.
- Position the truck to discharge material. The hydraulic pump has to be operating and the engine speed should be at least 1500 RPM.
- Set the Auger (rt) rate on the Spinner display to a mid-level value (30-70) and press the Spinner knob to start the dump process.
- Push the Spinner knob again to stop the dump process.
- Reweigh the truck and subtract from the first weight to determine the dumped pounds of material.
- Enter the dumped pounds using the Liquid and Spinner knobs and displays. Push the Spinner knob to enter the value.



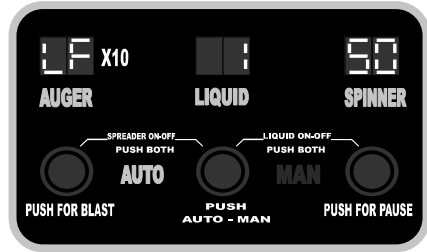
Calibrated Value

- This value is automatically calculated and displayed after completing the preceding “Weighed Dump” procedure.
- The number is a mathematical computation and only has meaning to the computer.
- You should write this number down and keep it for reference.
- If you should need to recheck the calibration of your system in the future this is your reference.
- If you should ever need to replace a control you can insert the number from the old into the new control on this line and avoid having to re-do a new “Weighed Dump” process.



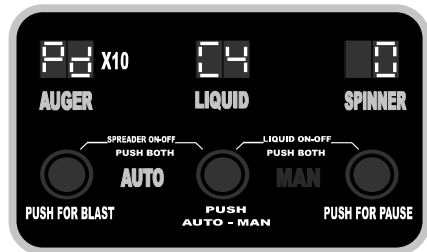
Liquid Drive PWM Frequency

- This sets the drive frequency for the Liquid system to 50, 100, 150 or 200 Hz. This can vary according to whether the liquid system is operating an electric pump or hydraulic valve.
- Use 50 Hz for electric pumps.
- Most hydraulic valves will respond well to 100 Hz. Check with the hydraulic valve manufacturer's recommendations.



Plow and Dump Cylinder Type

- If the Plow lift cylinder is single-acting set the Spinner display for 1. If it is a double-acting cylinder set it for 0. Press the Spinner knob to enter the value.
- If the Dump hoist cylinder is single-acting set the Spinner display for 1. If it is a double-acting cylinder set it for 0. Press the Spinner knob to enter the value.



Plow (Min) Lo and Plow (Max Up & Down) dr

- For Joystick users.....the Plow LO and (dr) will set the low and high Plow (up & down) flows for the travel of the Joystick. Set each on the Spinner display and push the Spinner knob to enter the values.

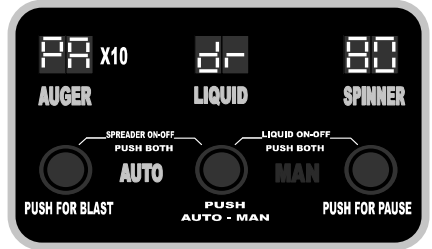


- For Keypad users.....the Plow LO serves no function and can be ignored. The Plow (dr) “drive” will allow trimming the flow or speed of the Plow (up & down) operation when those keypads are pressed. Set a value on the Spinner display and push the Spinner knob to enter.



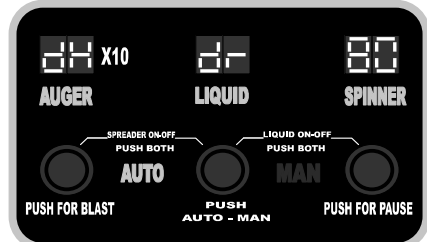
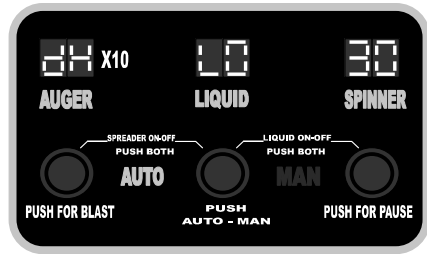
Plow Angle (Max left & right) dr

- This setting allows for trimming the speed of the angle operation when the joystick is full left or right. It also determines the speed of the angle operation when the left and right arrowed pushbuttons are used on the keypad control.
- Adjust the value in the Spinner window with the Spinner knob and push the Spinner knob to install the setting into the system.



Dump (Min) Lo and Dump (Max) dr

- For Joystick users.....the Dump LO and (dr) will set the low and high Dump flows for the travel of the Joystick. Set each on the Spinner display and push the Spinner knob to enter the values.
- For Keypad users.....the Dump LO serves no function and can be ignored. The Dump (dr) “drive” will allow trimming the flow or speed of the Dump operation when those keypads are pressed. Set a value on the Spinner display and push the Spinner knob to enter.



Joystick Deadband

- This adjustment will determine the sensitivity of the Joystick as it is moved off center.
- Set the Spinner display for 0-5 to determine how far from center the Joystick must be moved before operation begins.



Backup Joystick Channels (Up & Down)

- The joystick has the unique feature of having two sets of output mechanisms.
- If the primary channel fails you have the recourse of switching to the backup channel to “repair” the joystick.
- If you lose operation on the raise-lower function “Fb” (forward-back) you can select “channel 1” to restore function. “Channel 0” is the factory default or primary.
- Use the Spinner knob and display to change channels. Push the spinner knob after the selection to lock it in.



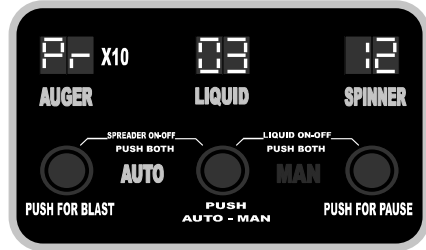
Backup Joystick Channels (Left & Right)

- A backup channel is also assigned to the left-right function of the joystick. (See preceding instruction)
- You may select “channel 1” if you are experiencing a problem with the left-right joystick operation. “Channel 0” is the factory default and primary channel.
- Use the Spinner knob and display to change to “channel 1” and lock in the setting by depressing the Spinner knob.



Product 2 & 3 Weight Ratios

- The product used to perform the Weighed-dump calibration is Product 1 and is the reference product.
- The weight ratio of Product 2 and Product 3 as compared to Product 1 can be entered as a percentage 50-150% on the Spinner display and entered by pushing the Spinner knob.
- Example: If the weight of Product 2 is half of Product 1 enter 5 (50%). If Product 3 is 20% heavier than Product 1, enter 12 (120%).



Pass Code Setting

- You may change your Pass Code to anything between 0-9999. Do this by using the Liquid and Spinner knobs and displays to enter a number and then set it by pushing the Spinner knob.



Auto Mode Take Off Timer

- The AUTO mode has a (to) take-off timer that will cause the Auger speed to operate at the Blast level for however many seconds whenever the truck starts from 0 MPH. Set the Spinner display for 0-9 seconds and push the Spinner knob to enter the value.



Pump Unloader Disable

- There is a provision for disabling the Unloader function when using a variable displacement pump. However, all MP² Advantage systems come with the Unloader enabled. This allows for the replacement of a piston pump with a gear pump in an emergency.
- It is important to select “O” for all pumps unless otherwise instructed by Muncie.



Exit The Adjustment Menu

- The last line of the Adjustment menu is an Exit.
- Press the Spinner knob on this menu line to return to the normal operating mode.





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Muncie Power Products, Inc. *Member of the Interpump Hydraulics Group*
General Offices and Distribution Center • P.O. Box 548 • Muncie, IN 47308-0548 • (765) 284-7721
FAX (765) 284-6991 • E-mail info@munciepower.com • Web site <http://www.munciepower.com>
Drive Products, Exclusive Agents for Canada, *ISO Certified by an Accredited Registrar*

IN06-02 (Rev. 6-08) Printed in the U.S.A.
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