



Ponce Control Systems

Control Pro **Instruction Manual**

Table of Contents

1.0	Overview
1.1	Instruction Label Definitions
2.0	Operation Modes
2.1	Work Lights & Strobes
2.2	Plow System
2.3	Dump Body
2.4	Spreader System
2.4.1	Speed Adjustment
2.4.2	Blast, Pause, & Reverse Functions
2.4.3	Automatic Mode and Calibration
3.0	Settings
3.0.1	Setting the LED Brightness
3.0.2	System Setup
4.0	Specifications
5.0	Warranty
6.0	Schematics

1.0 Overview

Congratulations on purchasing the Control Pro™ hydraulic control system. This system provides a complete interface between the operator and the hydraulic valves used to control the dump body, spreader, and plow in straight plow or v-plow mode. In addition, the Control Pro™ can be used to control the strobe or beacon lights and work lights attached to the vehicle. This manual is intended to provide the operator with all information necessary to use the Control Pro™ under normal conditions. It should NOT be used to service or repair the Control Pro™.

4800108 Rev 0

1.1 Instruction Labels



NOTE

Indicates an important point in the installation or use of the product



WARNING

Indicates a situation that may cause damage to the truck, the product or personal injury

BEFORE operating a truck with the product installed:

1. Read and understand all safety instructions and operating procedures in this manual.
2. Confirm proper wiring.
3. Confirm that operating parameters (threshold, hi-end, ramp up, ramp down, frequency, etc.) have been properly set.

DO NOT

1. Do NOT make additional holes in the unit for mounting.
2. Do NOT turn power on to the unit until all wiring is complete and confirmed for accuracy.
3. Do NOT use the Control Pro™ on a truck that is not 100% functional. Discontinue use and make all necessary repairs.

2.0 Operation Modes

The Control Pro™ can operate the following four systems.

- **Work Lights & Strobe/Beacon Lights**
- **Plow System**
- **Dump Body**
- **Spreader System – Auger & Spinner**

2.1 Work Lights & Strobes/Beacon Lights

Strobes

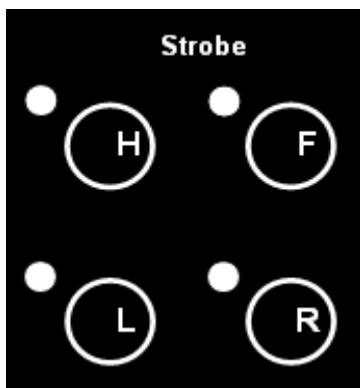


Fig. 2.1.1 – Strobe Controls

These controls govern the operation of the flashing strobes, rotating beacons, and/or LED flashers attached to the vehicle. These components can be operated when the vehicle ignition is off. The function of these controls can vary depending on the vehicle setup and method of installation wiring as described in the following scenarios.

- Default Switch Operation**
 In this mode, the front (F) and rear (R) strobe buttons act to toggle the respective vehicle strobes on and off. Push each button once to turn its associated strobe on. The status LED beside the button will light to indicate that the strobe is activated. Push the button again to turn it off. The high (H) and low (L) buttons control the intensity of the strobes and is applied to both the front and rear strobes.
- Independent Switch Operation**
 In this mode, each of the four buttons is used to toggle a strobe on and off. Push the button once to turn on the associated strobe. The LED beside the button will turn on to indicate the strobe has been activated. Push the button again to turn the strobe off.
- Grouped Switch Operation**
 This operation mode allows the strobe intensity of the front and rear to be controlled independently. The H and L buttons control the intensity for the first set of strobes. The F and R buttons control the intensity for the second set of strobes. A set of strobes can be turned off by pressing the button corresponding to its active intensity setting.

Work Lights

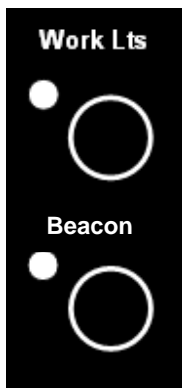


Fig. 2.1.2 – Work Lights Controls

The work lights buttons act as toggles to turn the front and back work lights on and off. In order for these lights to work, the vehicle IGNITION AND SYSTEM POWER MUST BE ON. These switches can also be used to control rotating beacons depending on the truck configuration.

2.2 Plow System

The Control Pro™ plow operations interface with the hydraulic valves attached to the vehicle plow and allow for movement up, down, left, and right.



In order to operate the plow functions, the hydraulic pump must be turned on. This is done by pressing the PUMP button. A status light beside this button indicates the on/off state of the hydraulic pump. The engine must be running for the pump to be engaged. **The pump is turned off each time the truck's ignition is turned off, or the Control Pro main power is turned off.**

The Control Pro™ can be purchased for either Straight Plow or V-Plow setup. A V-Plow unit can also accommodate a straight plow.

- **Straight Plow Setup**

Plow operation in this setup is controlled by the joystick on the Control Pro™. The button below the joystick will toggle joystick control of the plow or dump body. The current control mode is indicated by a status light above the joystick.

*****Make sure the control is in plow mode before attempting to position the plow.**

Pushing the joystick left or right in straight plow mode will fully retract the left / right valves attached to the plow and fully extend the opposite valve. Pushing the joystick forward will move the plow toward the ground (down). Pulling back on the joystick, conversely, will bring the plow upward and off the ground.

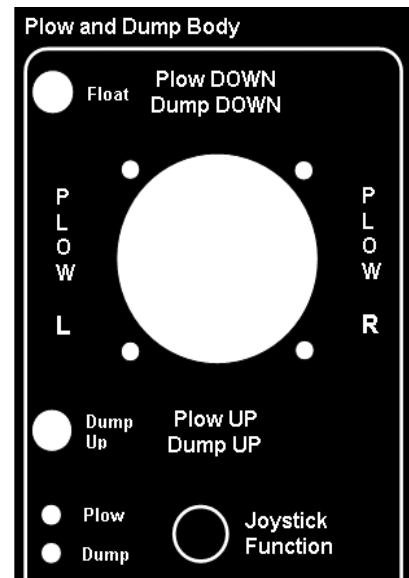


Fig. 2.2.1 – Joystick Control

- **V-Plow Setup (optional)**

In this setup, the plow controls (joystick) operate in the same manner as the straight plow setup. In addition to this, four pushbuttons are provided to allow more precise control over the plow valves.

The \ and / buttons for the left and right valves allow independent control over the valve hydraulics. These buttons will extend and retract their respective valves.

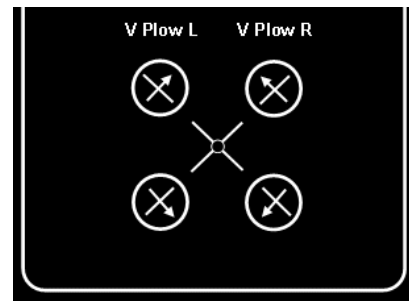


Fig. 2.2.2 – V-Plow Controls

- **Plow Float Mode**

The plow can also be placed in float mode to automatically trace the road. This is done by keeping the plow down valve open. In some vehicles this feature will be disabled for hydraulic reasons

Activating Float Mode:

Float mode can be activated by pushing the joystick forward (plow down) for at least 2 seconds. The Float LED will turn on to indicate float mode has been activated. After this, the joystick can be released and the plow will remain in float mode.

Deactivate float mode by raising the plow.

2.3 Dump Body

The dump body can be moved up and down with the joystick when in Dump mode. Press the button below the joystick until the status light indicates the system is in Dump mode. (see figure 2.2.1)

*****Make sure the joystick is in Dump mode before attempting dump body movement.**

Push the joystick forward to move the dump body down. Pull the joystick back to move the dump body up. The system includes proportional control and automatically ramps up and down to prevent dump body movement from stopping or starting abruptly.

A status light below the joystick indicates the state of the dump body. This light is active when the dump body is not in a fully down position.



Driving with the dump body up can be hazardous. Be mindful of overpasses and low headroom areas when the **Dump up** light is lit!

2.4 Spreader System

The Spreader system consists of the auger and spinner control. The auger and spinner can be controlled in either manual or automatic mode. The auger controls the AMOUNT of material to be spread. The spinner controls the WIDTH of the spread.

Spreader Operation Modes

The spreader system can operate in **manual** or **automatic** mode. The current mode of operation is indicated by the status light beside manual or automatic mode selection buttons.

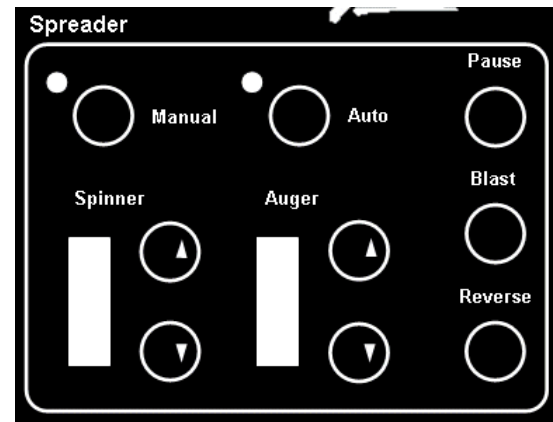


Fig. 2.4.1 – Spreader System Controls

2.4.1 Speed Adjustment

- When operating in **manual mode**, the speed of the spinner and auger components can be controlled by using the up / down buttons. The current speed of each component is indicated by the LED digit beside these controls.

2.4.2 Blast, Pause, & Reverse Functions

- Blast – This turns the auger speed to its highest setting for a set period of a few seconds. This function is useful for distributing a quick burst of material in critical areas.
- Reverse – This function reverses the rotation of the auger for a set period of a few seconds. This is useful for removing jams in the material distribution system.
- Pause – Pressing this button will stop the operation of the auger and spinner until the button is pressed again. This will stop the material distribution for the time period which it is activated.

2.4.3 Automatic Mode

In this mode, the operation of the auger and spinner is determined by the speed of the vehicle. The spreader will only operate when the vehicle is moving and can be configured to spread material proportionally to the speed of the truck. The LED digits can be used to determine the spreader status. While stopped in automatic mode, the auger and spinner speed level indicator will remain at zero but the maximum output can be adjusted manually with the up / down buttons if desired.

Automatic Mode Calibration

Calibrating Automatic mode requires setting the speed at which the maximum spreader output should be achieved. Perform the following to step through the calibration sequence:

1. Make sure that the truck is running, but stopped, and the Control Pro™ is turned on.
 2. Hold down the Automatic button for 5 seconds until the its light begins to flash
 3. Press the pause button while stopped, this saves the stand-still speed to memory.
 4. Hold down the Automatic button for 5 more seconds until the light begins to flash again.
 5. Now accelerate the truck to the maximum spreading speed
 6. Once driving at the maximum speed, press the Blast button to save the speed to memory and exit the calibration sequence.
- To exit the calibration sequence at any time without saving a new speed, simply press the Automatic button again.
 - Some operators want the automatic starting and stopping feature of automatic mode, but do not desire the proportional speed following. To eliminate the proportional speed tracking, follow the calibration sequence above but press the blast button without moving the vehicle to save the maximum speed as zero.

3.0 Settings

3.0.1 Setting the Backlighting Brightness

The brightness of the backlights on the Control Pro™ can be adjusted as follows:

1. Press and hold the H and L buttons for the strobes for 5 seconds. The backlights on the device will flash.
2. Use the H and L buttons to adjust the LED brightness.
3. Wait 5 seconds. The backlights will flash once again indicating that the setting has been saved.

3.0.2 System Setup

The Control Pro will be configured at the time of installation for the specific hydraulic, lighting, and timing requirements of the truck. Any further adjustments necessary should be done only by qualified personnel.

Control Pro™ Specifications

Electrical Information

Power Supply:	+10 to +15 VDC
PWM Outputs (current control):	0-2.5A
PWM Frequency:	40-400Hz
Auxiliary Outputs:	3A resistive or inductive
Ramp (all PWM's, up & down)	0.5-4.0 sec
Output Status:	On-board LED display
Standard Protections: (PWM & auxiliaries)	output short circuit, reverse polarity, load dumps, overvoltage
Acceptable Joystick Inputs:	analog, 2.5V center tap 0.5 to 4.5V range

NOTE: These specifications are for demonstration purposes only. They are not intended for installation or operation and are subject to change without notice.

Available Options

- V-plow system
- Bluetooth connectivity
- Data Logging package
- GPS tracking

Replacement Parts

4100215: Joystick 0.5-4.5V
4500189: Rocker switch with indicator light

Warranty

PCS warrants this product to be free of manufacturing defects for a period of 2 winters, consisting of any part of a first winter through the last snow of a 2nd winter to a maximum of 20 months. The following items are specifically not covered under warranty.

- The warranty does not cover misuse or abuse that includes using the product in ways for which it was not intended. This includes aggressive use of the joystick.
- The warranty does not cover damage due to exposure to corrosive materials or water damage.
- The warranty does not cover damage to the product due to incorrect installation, configuration or operation.
- The warranty does not cover damage to this or other products that results from information that was incorrectly supplied to PCS from the purchaser.
- The warranty is void if any physical changes are made to the product by anyone but a PCS authorized service representative, including any holes drilled in the enclosure.
- PCS will repair or replace the unit at its discretion. PCS is not responsible for any consequential damages.

Exclusive Distributor:
Ponce Control Systems
310 Richardson Drive
Lancaster PA 17603

Manufactured by:
All Traffic Solutions

(800) 767-0181
www.snowplowcontrol.com

www.alltrafficsolutions.com

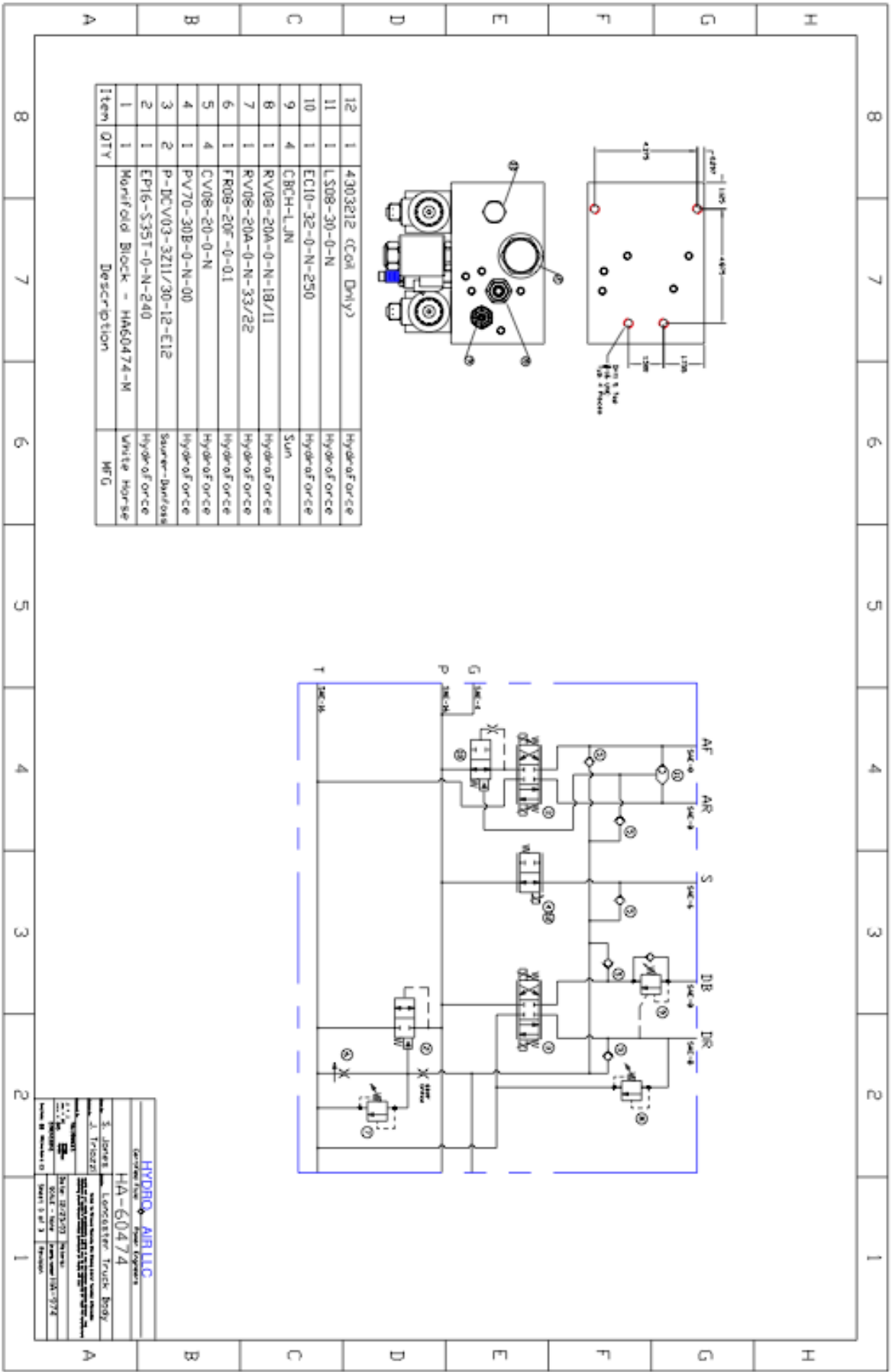
Mechanical Information

Operating Temperature:	-30°C to 70°C
Connectors:	AMP CPC Connectors

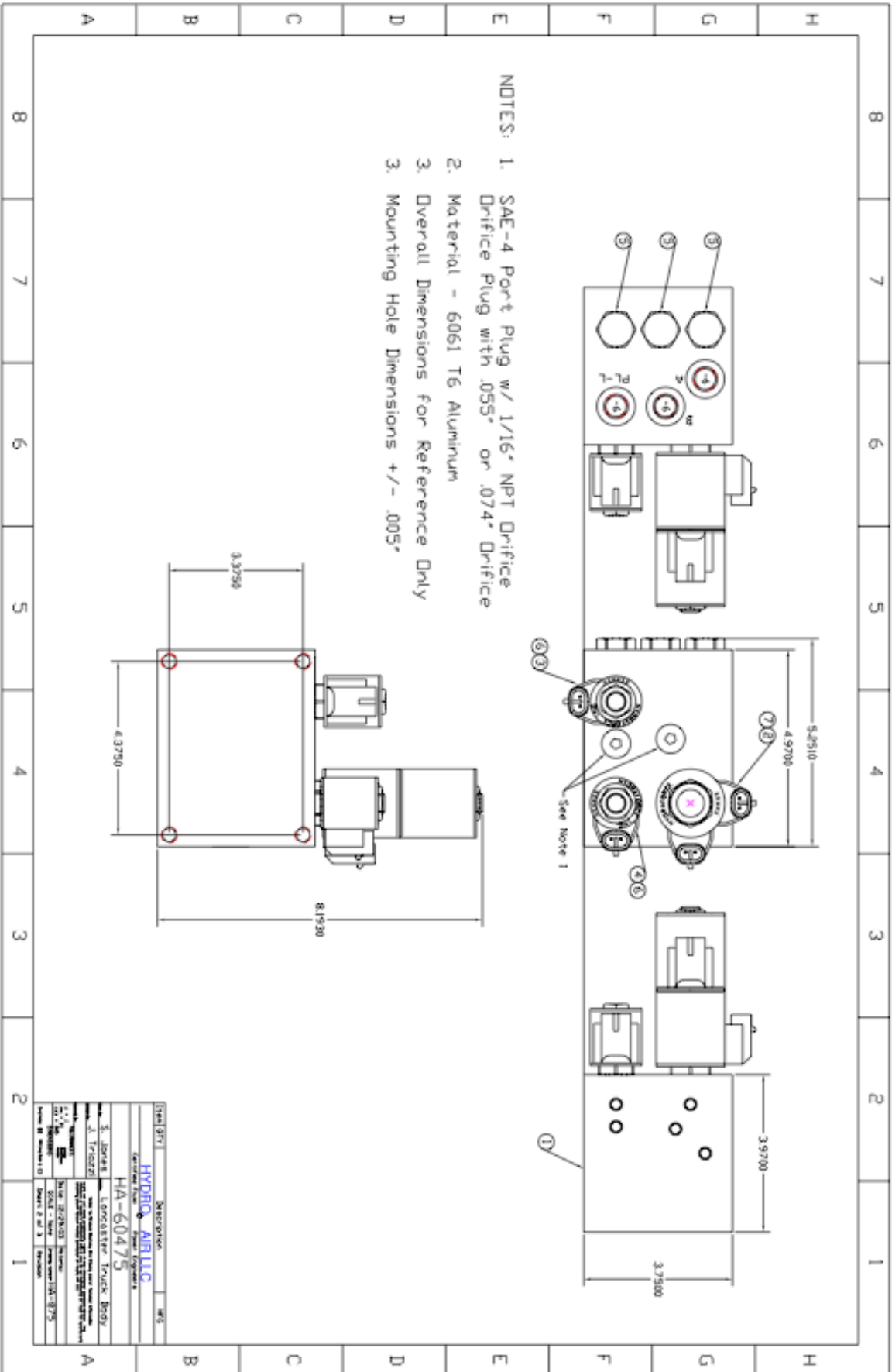
Programmable Settings

Programming Interface:	PC software 4570166
Adjustable Performance Parameters	
PWM max current:	0.5-2.5A
Frequency:	40-400Hz
Ramp Up:	0.5-4 sec, 0.5 sec intervals
Ramp Down:	0.5-4 sec, 0.5 sec intervals
PWM Threshold:	0-100%
PWM Hi-end:	Thresh-100%

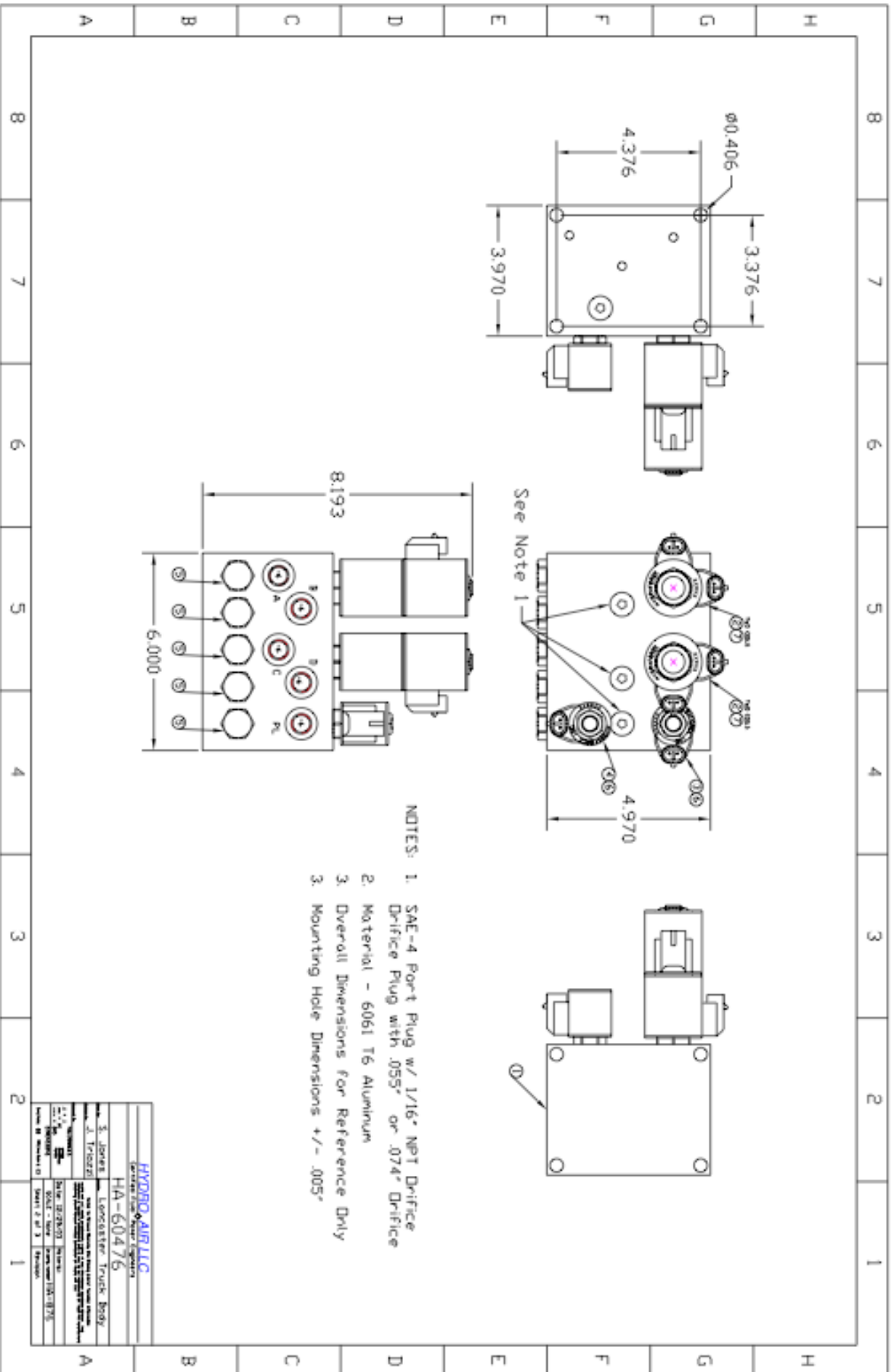
Spreader and Dump Body (Continued)



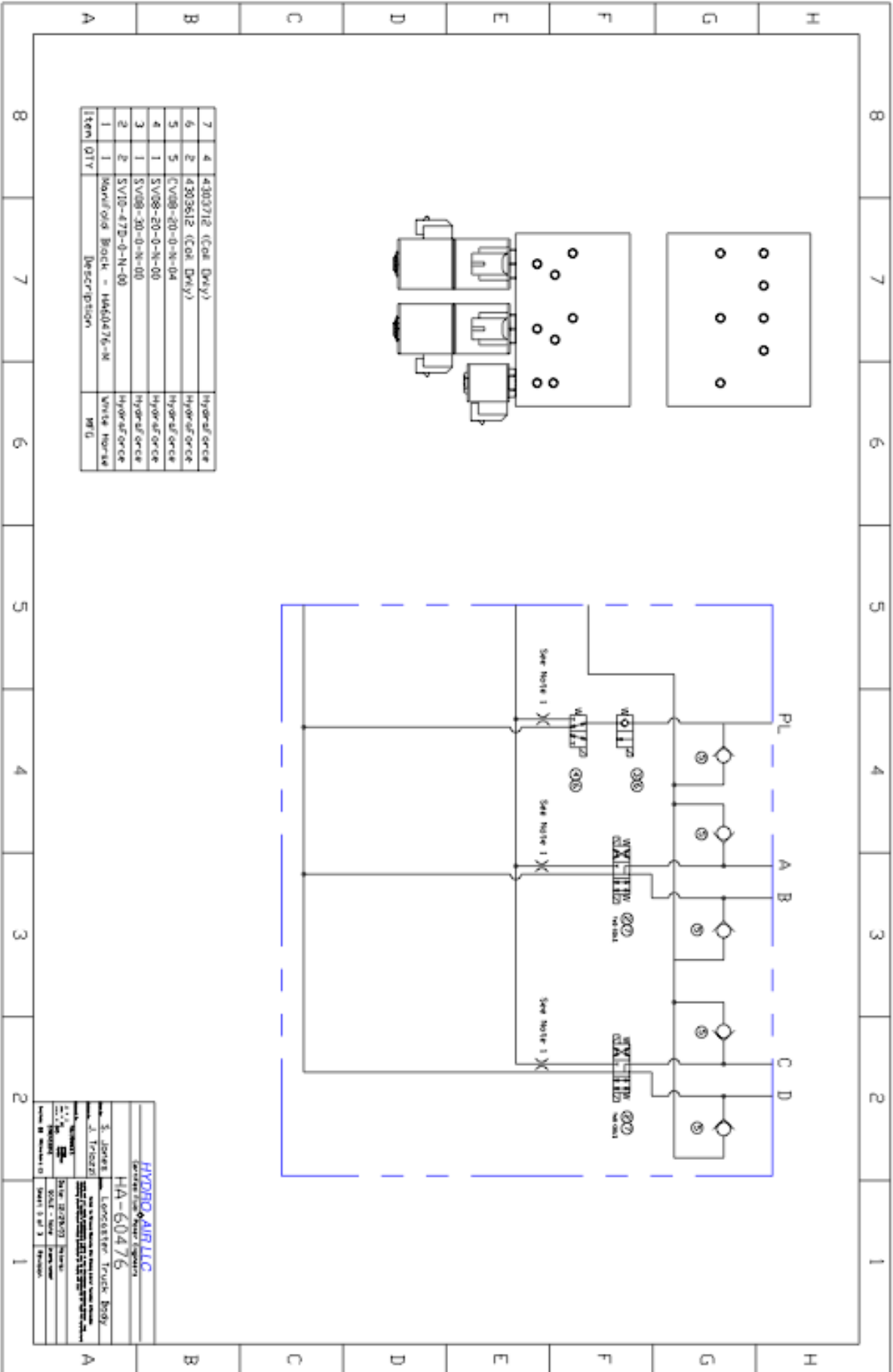
Straight Plow Manifold



V-plow Manifold



V-Plow Manifold (Continued)



**4820033 Control Pro 4 harness labels and lengths
Connector Pinouts and Wire Lengths**

p/n 4100159 Manifold (16pin connector)		p/n 4100160 Strobes (9pin connector)		p/n 4100161 Power/Sensors (9pin connector)	
1. Plow Left Ext	15'	1. Front Strobe +	7'	1. +12V ignition	15'
2. Plow Left Ret	15'	2. Rear Strobe +	7'	2. +12V ignition	15'
3. Auger Forward	15'	3. Strobe High +	7'	3. GND	15'
4. Auger Reverse	15'	4. Strobe Low +	7'	4. Pump Output	22'
5. Spinner	15'	5. Front Strobe - (opt)		5. Strobe Power (batt)	20'
6. Plow Up	15'	6. Rear Strobe - (opt)		6. Truck Movement Input	20'
7. Plow Down	15'	7. Strobe High - (opt)		7. Work Lights 1 - (opt)	
8. Dump Up	15'	8. Strobe Low - (opt)		8. Work Lights 2 - (opt)	
9. Dump Down	15'	9.		9.	
10. Plow Right Ext	15'				
11. Plow Right Ret	15'				
12.					
13. Dump Body Up	21'				
14. Work Lights 1 +	25'				
15. Work Lights 2 +	25'				
16. Calcium (opt)					
14' Loom		6' Loom		14' Loom	