OPERATIONS AND PROCEDURES MANUAL FOR CS-130 AND ACCESSORIES

- Removes all hydraulics from the cab.
- User friendly, with advanced programming options to meet your needs.
- Ten user-programmable “Spread Width” and “Application Rate” settings.
- Three modes of operation.
- No feedback sensors required.
- “Pause” function for spot-spreading.

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

F U N C T I O N A L P U R P O S E

The CS-130-SC spreader control system allows all hydraulics to be mounted out of the cab. Its principle mode of operation is “manual”, meaning there are no feedback sensors detecting auger/conveyor R.P.M., or ground speed. However, the controller’s advanced features allow for two additional modes of operation. One is a Triggered mode, where there is no application of material until the vehicle is moving (requires a 12 Volt signal input). The second is “Open-Loop”, where the controller applies an increasing/decreasing percentage output based on ground speed. No longer is the driver constantly making adjustments to compensate for varying speed conditions. The operator can focus his attention on driving responsibilities as it should be.

S P E C I F I C A T I O N S

E L E C T R I C A L

O P E R A T I N G V O L T A G E

- Minimum operating Voltage 11.50 VDC
- Maximum Operating Voltage 18 VDC

O P E R A T I N G C U R R E N T

- 0 - 5 Amps
- Protection - Self-resettable fuses:
  - Microprocessor/Logic Circuit: 0.5A
  - Spread Width Output: 2A Holding
  - Application Rate Output: 2A Holding
  - Reverse Output (12V on/off): 2A Holding

O P E R A T I N G T E M P E R A T U R E

- Control System: -40ºC to 55ºC
  -40ºF to 130ºF

G R O U N D S P E E D S I G N A L

- 3 Volt Peak to Peak Ground Referenced at 5Hz NPN or PNP Input
- 1 Volt Peak Ground Referenced at 5Hz Hall Effect Input

O U T P U T D R I V E R

- Pulse Width Modulated
- Dither Frequency 150Hz

D I M E N S I O N A L

W i d t h

- 7 inches (18cm)

H e i g h t

- 2 inches (5cm)

D e p t h

- 5.1 Inches (13cm)

CONTROL UNIT INSTALLATION

PREPARATION

Ensure all system components have been supplied as per your purchase order and packing slip.

Visually inspect components for damage or incorrectly supplied material.

INSTALLING

Refer to CS-130-SC Electronic Installation and Commissioning Drawing for connection relationship of control system components and associated cable interface.

For further information regarding system components please see Module 2A installation and commissioning manual.

MOUNTING LOCATION

Always select a mounting location that allows easy operator accessability. Typical mounting locations include pedestal and dash mounting between operator and passenger seats. Ensure the CS-130-SC does not interfere with existing dashmount accessories. As well, allow clearance for cables to prevent unnecessary stress from incorrect cable routing.

NOTE: Mounting bracket P/N 151237 is supplied to simplify installation. This bracket is mounted via thumbscrews on either side of CS-130-SC, which can then be welded or bolted to pedestal or dash as required.

CABLE ROUTING

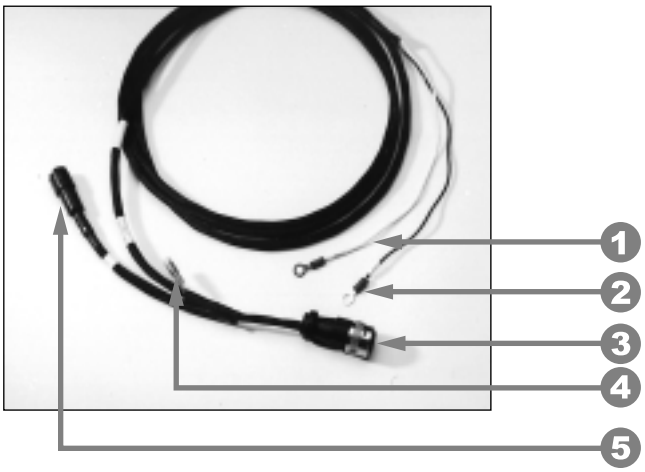
Ensure grommets are always used in new or existing floor or cab wall openings. Cables to be secured via plastic ties and mounting brackets away from moving parts and areas of extreme heat (engine exhaust system).

CS-130 CABLE AND WIRING INFORMATION

CABLE IDENTIFICATION

Refer to CS-130-SC Wiring Diagram, page 3.2 for clarification. This information is useful during installation and trouble shooting system problems.

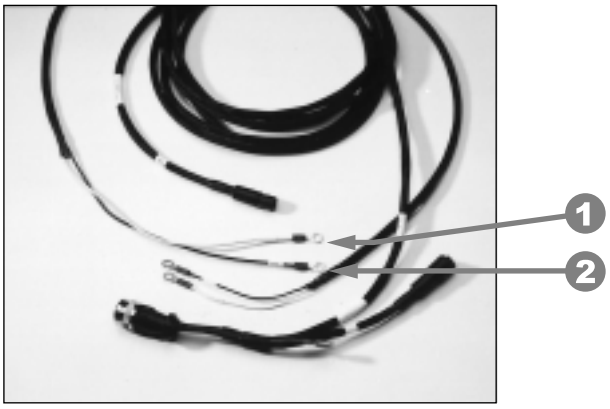
Power and Ground Speed Cable P/N 101155



1. Connect black lead to a good negative ground location (preferably battery ground).
2. Connect white lead to +12 volt supply.
3. Connect to CS-130-SC as labelled.
4. Connection for Ground Speed Option A or B please see CS-130-SC Installation and Commissioning Drawing, page 3.1.

CABLE IDENTIFICATION CONTINUED

Power and Ground Speed Cable Including P/N 101155 and Electronic speed adaptor cable P/N 011923. OPTION A



1. Connect pulse wire (as labelled) to the wire supplying the pulse signal to the speedometer, or to the 12 Volt Trigger provided by the transmission (if applicable).

2. Connect ground wire (as labelled) with the ground wire on the speedometer, or to chassis ground (when utilizing the 12 Volt Trigger option).

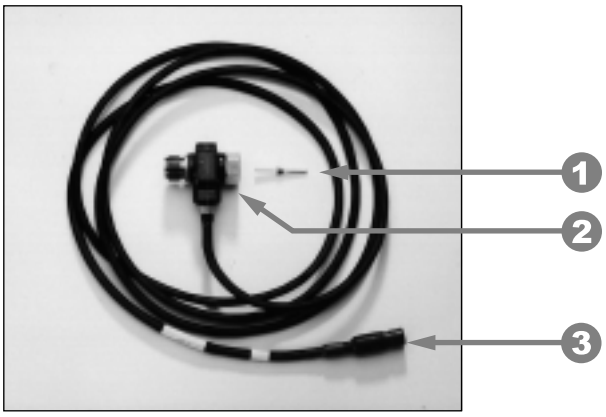
NOTE: Vehicles equipped with computerized engines and transmissions require special considerations therefore, **always contact the truck manufacturer before installation.**

Ensure connections are of good quality preferably located inside cab area if possible to reduce the possibilities of corrosion.

C A B L E
I D E N T I F I C A T I O N
C O N T I N U E D

Mechanical Ground Speed Sensor and Installation OPTION B

P/N 017948 7/8 -18 Threaded connection option



1. Square Drive key included with cable.
2. Install inline with the existing speedometer cable. Depending on manufacturer this may be done at either the transmission or speedometer location.
3. Connect to input on Power and Ground speed cable as labelled.

P/N 102791 5/8" - 18 Threaded connection option for G.M. Trucks

P/N 016475 1" - 18 threaded connection option

C A B L E I D E N T I F I C A T I O N C O N T I N U E D

Valve cable P/N 102273

1. Connect to CS-130-SC as labelled
2. Connect conveyor/auger lead to conveyor/auger valve section.
3. Connect spinner lead to spinner valve section.

NOTE: Due to different flow requirements for the auger and spinner functions, always ensure cables are connected to the appropriate coils. If connected incorrectly performance of functions may not be satisfactory.

4. Connection for Conveyor feedback signal **not utilized**.

Valve cable P/N 101154 includes optional auger reverse connection.

1. Auger reverse connection (12 Volt output).

NOTE: All other connections as above.

Optional Remote Pause and Blast cable kit, including an On-Off-(On) toggle switch and a 3 meter (10 foot) cable, P/N 144025. See CS-130-SC Installation and Commissioning Drawing, page 3.1. Cable and toggle switch can be used to remotely operate the pause and blast functions.

HYDRAULIC VALVE ASSEMBLIES

SPINNER AND AUGER/CONVEYOR ASSEMBLIES

Following are the most common valve assemblies used to provide actuation of spinner and auger/conveyor functions only. A wide range of valve configurations are available to control additional functions. Please review Module 4 for further information regarding valve models and configurations.

A photograph has been supplied to aid in the identification of existing valve assemblies, as well, to show standard configurations available for immediate delivery.

MP18 VALVE ASSEMBLY

Valve P/N 122185 for gear pump applications, as assembly is equipped with unloader inlet. Valve is of cast iron construction to deter salt corrosion. Pressure compensation for both spinner and auger/conveyor functions standard.

INLET - CLOSED CENTER

Valve P/N 122419 for closed center variable displacement piston pump applications. In this case the unloader inlet has been removed in favour of the closed centre inlet as shown. Functionality and construction as per P/N 122185. In this case the pump supplying the valve assembly is a closed center, variable displacement piston pump (see Module 3 for pump information).

S P I N N E R A N D A U G E R / C O N V E Y O R A S S E M B L I E S C O N T I N U E D

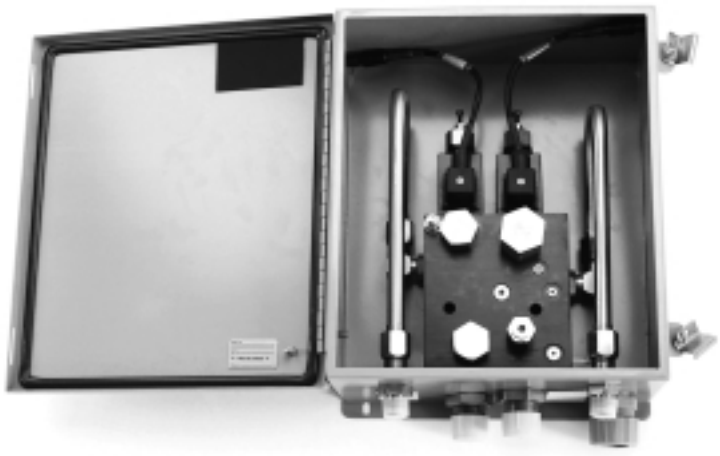
M O D E L C S - S C B - 0 F - A 3

Valve P/N 148646 for gear pump applications assembly is equipped with uploader inlet. Valve is manifold arrangement utilizing proportional cartridge valves for spinner and Auger/Conveyor functions. Anodized aluminum construction, compact in size and pressure compensation for both spinner and auger/conveyor functions standard.

M O D E L C S - S C B - C V - A 3

Valve P/N 148647 for closed center variable displacement piston pump applications, in this case unloader inlet has been removed. Again functionality and construction as per P/N 148646, only the pump supplying the valve assembly is a closed center variable displacement piston pump (see Module 3 for pump information).

S P I N N E R A N D A U G E R / C O N V E Y O R A S S E M B L I E S C O N T I N U E D

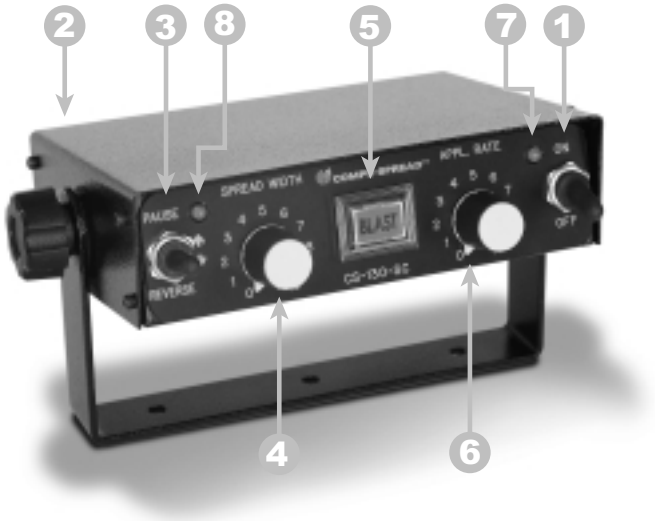


M O D E L C S - S C B - 0 F - E N C L - A 4

Enclosure Assembly P/N148650 includes valve assembly P/N148646, mounted in Nema 12 enclosure for further protection. Again this configuration is available for immediate delivery. Other configurations are available. Please contact your nearest Basic Technologies location for assistance.

F U N C T I O N A L I N T R O D U C T I O N T O F R O N T F A C E C O N T R O L S

In the “OPERATORS INSTRUCTIONS” manual, the function of the face controls are described as they are for operators. However, when the CS-130-SC is entered into the “Calibration” or “Program mode”, these controls take on new functions as described in the following.



1. P O W E R O N / O F F

This toggles the power on the CS-130-SC, whether in the program or operating mode. Note the power LED (7) illuminates.

2. P R O G R A M M I N G K E Y (located on rear panel)

Noted for programming purposes.
To enter into programming mode, insert key and rotate 90° counter-clockwise. To exit programming mode, rotate and remove key.

NOTE: KEY MUST BE TURNED, AND REMOVED, BEFORE POWERING THE CONTROLLER OFF, OR CHANGES WILL NOT TAKE EFFECT!

3. P A U S E (I n c r e m e n t U p) / R E V E R S E (I n c r e m e n t D o w n)

The Pause/Reverse toggle switch performs three functions:
1. System defaulting.
2. Increment Up / Increment Down for speed settings
3. Spinner mode selection.

NOTE: The pause LED (8) illuminates when using Pause or when using Increment Up function.

4. SPREAD WIDTH

This knob is used to select the tens digit of any two digit parameter number. e.g. 20, 30, 40, etc.

5. BLAST

This can be pressed to enter and exit any selected parameter number so that the value of that parameter can be adjusted. When you press Blast to enter a parameter, the “Blast” button light will blink. When you press Blast to exit a parameter, the “Blast” button light will stop blinking.

6. APPLICATION RATE

This knob is used to select the unit digit of any two digits parameter number. e.g. 1, 12, 24, 36, etc.

7. POWER LED

This illuminates when powered on.

8. PAUSE LED

This illuminates when in pause mode, or when using the increment up function.

INTRODUCTION TO PROGRAMMING THE CS-130

As previously stated and defined, the controls on the front face of the CS-130-SC take on new functions while in the programming mode. In the following steps we will outline the general procedure to program the CS-130-SC. From that point we will proceed to outline the specific steps to do all levels of programming and calibrating.

1. Toggle “ON” the power ON/OFF switch.

2. Insert the Program Key into the key slot located on the CS-130-SC rear panel. Turn the key 1/4 turn to enter the “Program Mode”. The “BLAST” button light will activate to acknowledge that program mode has been selected.

NOTE: a. In the program mode you cannot remove the key. You must turn the key back to the operating mode to remove it.
b. Turning the power on or off at any time in the program mode will not save any programming changes. **YOU MUST EXIT PROGRAMMING MODE FOR THE CHANGES TO TAKE EFFECT.**

3. Use the Spread Width and Application Rate knobs to select the Parameter number you wish to enter. Each Parameter controls some function in this manual. Refer to Parameter listing page.

e.g. • set Spread Width knob to 3
• set Application Rate knob to 5

This then is the Parameter that determines if the Spinner should stop or continue to run if the truck is stopped. To change this mode of operation, the user would at this point press the “BLAST” button. The “BLAST” button light would begin to blink, indicating that this Parameter can now be changed. Once a change has been made (using the Pause/ Reverse switch), the “BLAST” button has to be pressed for that value to be stored.

SPECIFIC PROGRAMMING OPERATION

PRELIMINARY OPERATION BEFORE COMMENCING CALIBRATION

Prior to calibrating a CS-130-SC the following procedures must be followed to set up the CS-130-SC. These steps are critical in assuring base values have been set correctly, thus eliminating concerns for calibration errors.

1. Toggle ON the CS-130-SC Power.

2. Ensure both Spread Width and Application Rate knobs are set at zero.

3. Use the programming key to enter the program mode.

4. In programming mode select Parameter 5-9 using rotary switches.

5. Press “BLAST” button to activate. “BLAST” button light will start blinking.

6. Toggle the Pause/Reverse switch to the down (reverse) position momentarily, then release.

7. The box has been successfully defaulted. Press “BLAST” again and resume commissioning.

You have now set the CS-130-SC to the base parameter values.

The defaulted CS-130-SC is now configured as a manual controller. Although it is ready for operation without any further programming, it is suggested that Solenoid Nulling should be performed. Solenoid Nulling **will** provide optimum start-up performance.

S O L E N O I D N U L L I N G

This is the process of ensuring that hydraulic valve manufacturing variances (tolerances) are compensated for to provide optimum control accuracy. This procedure must be performed with full pump flow. This requires the engine operating at a normal operating R.P.M., normally between 1500-2000 R.P.M.

A. Select Parameter 8-1 MINIMUM CONVEYOR NULL.
B. Press the “BLAST” button to activate.
C. Using the Pause (Increment Up) / Reverse (Increment Down switch, adjust the conveyor speed. Your setting should be such that the conveyor JUST STOPS.

NOTE: Factory minimum setting 700mA

D. Press the “BLAST” button to deactivate and save value as set.
E. Select Parameter 8-2 MAX. CONVEYOR NULL.
F. Press the “BLAST” button to activate.
G. Using the Pause (Increment Up) / Reverse (Increment Down switch, adjust the conveyor to its maximum R.P.M. Press the “BLAST” button to deactivate.

NOTE: Factory minimum setting 1600mA

H. After setting the max null in PAR. 8-2 return briefly to PAR.8-1 to double check if the min. null setting is still at the point of conveyor just stopping.
I. Select Parameter 8-3 MINIMUM SPINNER NULL.
J. Press the “BLAST” button to activate.
K. Using the Pause (Increment Up) / Reverse (Increment Down switch, adjust the spinner speed. Your setting should be such that the spinner JUST STOPS. Press the BLAST button to deactivate.

NOTE: Factory minimum setting 600mA

L. Select Parameter 8-4 MAXIMUM SPINNER NULL.
M. Press the “BLAST” button to activate.
N. Using the Pause (Increment Up) / Reverse (Increment Down switch, adjust the spinner speed. Your setting should be such that the spinner operates at a safe speed. Press the “BLAST” button to deactivate.

NOTE: Factory minimum setting 1300mA

O. After setting Parameter 8-4 return briefly to Parameter 8-3 to be sure the set value is still where the spinner JUST STOPS.
P. Select Parameter 2-8 MAXIMUM BLAST ADJUSTMENT.
Q. Press the “BLAST” button to activate.
R. Using the Pause (Increment Up) / Reverse (Increment Down switch, adjust the maximum “BLAST” to the required speed.
S. Press the “BLAST” button to deactivate, and save the value as set.

NOTE: Factory “BLAST” setting 1800mA

WARNING: The Proportional Valve Driver Board was designed for a maximum output no greater than 2.0A (2000 mA) for each function. If the maximum speed is calibrated to a value greater than 2.0A (2000 mA), the customer assumes liability for any damage that may occur. Warranty is void on all components damaged by over calibration.

Rotate and remove key to save changes. The CS-130-SC controller is now optimized and ready to operate as a manual controller. No further calibration is required.

ADVANCED PROGRAMMING

In the preceding section, Specific Programming Operation, all the necessary steps were covered to ensure your CS-130-SC controller is calibrated accurately on a particular truck, in manual mode. There are a number of additional parameters that you can adjust to control the spreading operation to suit your own particular needs. At present these parameters are a pre-set generic program, or are at "DEFAULT VALUES". You may choose to accept these, or to customize them as you wish. Listed are those parameters that are most likely to require some modifications, with some notes and /or ideas to assist in changing.

SELECTING MODE OF OPERATION

MANUAL MODE PARAMETER 20

As previously stated, the defaulted (reset) CS-130-SC is a manual controller. This means there are no feedback references to the controller. The operator is in full control of the unit. He/she must monitor the material flow, and manually intervene when disengaging the spreader's operation (i.e. approaching an intersection).

NOTE: To choose this mode, select Parameter 20, press the "BLAST" button, and press it once again to save this change.

12 VOLT TRIGGERED MODE PARAMETER 21

In this mode, the CS-130-SC functions as a manual controller. However, the unit requires a 12 Volt signal input to engage operation. The advantage to this is the spreader will not apply any material while the vehicle is stationary. This provides hands-off spreader interruption, with no added cost (of sensor) to the user (if applicable).

NOTE: To choose this mode, select Parameter 21, press the "BLAST" button, and press it once again to save this change.

"OPEN-LOOP" MODE PARAMETER 22

This mode of operation utlizes some form of ground speed feedback to achieve a metered rate of material application that is relative to the vehicle speed. This allows the operator to set the conveyor setting once, and then focus on vehicle operation, as opposed to spreader operation.

NOTE: To choose this mode, select Parameter 22, press the "BLAST" button, and press it once again to save this change.

G R O U N D S P E E D C A L I B R A T I O N P R O C E D U R E F O R ‘ O P E N - L O O P ’ C O N T R O L

The CS-130-SC has been designed to make calibration as easy as possible. The ground speed signal provides the reference for the controller, allowing maximum material flow once the vehicle achieves the speed at which it was calibrated.

NOTE: Due to the variety of ground speed configurations that are in the field, the CS-130-SC has been optimized to operate on most vehicles. It comes pre-configured to detect a digital (electronic) signal. For Hall-Effect configuration, please refer to page 3.2 “CS-130-SC Wiring Diagram” for setup.

1. Toggle ON the CS-130-SC power.

2. Ensure both Spread Width and Application Rate knobs are set at zero.

3. Use the programming key to enter the program mode.

4. Select Parameter 44, “MAXIMUM GROUND SPEED DRIVEN IN OPEN-LOOP CONTROL”, and press the “BLAST” button.

5. Drive the truck to an area where you can safely drive the vehicle at the speed you wish to calibrate. The speed that will be entered here should be the maximum speed at which the driver will operate the vehicle during spreading. Once this speed has been achieved, press “BLAST” to store this value.

6. Turn, clockwise, and remove programming key, to save changes. The CS-130-SC is now programmed for maximum application rate (at selected dial setting) to be achieved when the vehicle reaches its programmed speed.

APPLICATION RATE SETTINGS PARAMETERS 0-0 TO 0-10

These are the spread rates you can select with the Application Rate knob.

Knob Setting:	Default Value:
0-1	10%
0-2	20%
0-3	30%
0-4	40%
0-5	50%
0-6	60%
0-7	70%
0-8	80%
0-9	90%
0-10	100%

To set these different ranges, select Parameter 0-1 to 0-10 and adjust for the conveyor speed that you require.

NOTE: At any time you can set any or all the Application Rate knob positions to 0%. Thus, instead of a selection of 10 spread rates for your material, you may have as few as one.

SPREAD WIDTH SETTINGS PARAMETERS 1-0 TO 1-10

These control the Spinner speeds. The default program values are usually quite acceptable providing the solenoids were properly nulled as outlined previously in the manual. However, if you require special higher or lower speeds, just select the appropriate Parameter from 1-0 to 1-10 and increase or decrease the speed as needed.

SPINNER STOP OR NO STOP PARAMETER 3-5

The Spinner can be set to run continuously if the Spread Width knob is set higher than position zero, regardless of the motion or non-motion of the truck itself. Alternately, the Spinner can be set to stop whenever the truck stops. This adjustment can be done in Parameter 3-5. The default is Spinner No-Stop. To change to Spinner Stop, simply toggle the Pause (Increment Up) / Reverse (Increment Down) switch to Pause (in parameter 3-5 in programming mode), and then return to neutral.

You will note that when you select Spinner Stop mode, the “BLAST” indicator will blink at twice its previous rate. This indication confirms Spinner Stop mode.

PARAMETER IDENTIFICATION

PARAMETER LISTING

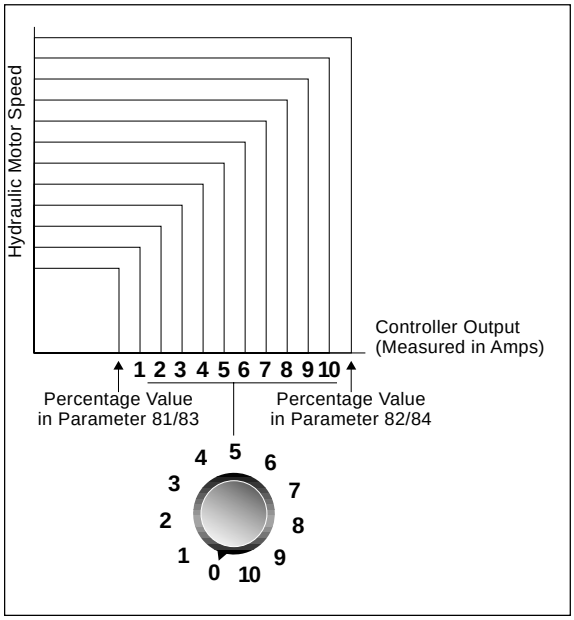
Parameter	Description
0-0 to 0-10	Application Rate settings
1-0 to 1-10	Spread Width settings
2-0	Manual Operation mode
2-1	12 Volt-Triggered manual mode
2-2	“Open-Loop” Operation mode
2-8	Maximum Blast output
3-5	Spinner Stop/No Stop
4-4	Maximum Ground Speed Driven In Open-Loop Control
5-9	System Initialize with Default Values
8-1	Minimum Current Setting of Conveyor Valve
8-2	Maximum Current Setting of Conveyor Valve
8-3	Minimum Current Setting of Spinner Valve
8-4	Maximum Current Setting of Spinner Valve

PARAMETER 0-1 TO 0-10: APPLICATION RATE SETTINGS

In the following, a detailed explanation has been added to further assist in understanding each individual parameter.

These parameters determine the Application Rate called for each position of the "APPLICATION RATE" control knob. When the system is configured as an open-loop, or manual system, the parameter value shown is the actual percent between your calibrated operation window. Note: For further information see figure 1.

FIGURE 1



NOTE: Applicable to both Application Rate and Spread Width when operating in Open-Loop and Manual mode.

Open Loop or Manual:

Minimum value: 0.0 [%]

Maximum value: 100.0 [%]

PARAMETER 1-0 TO 1-10: SPREAD WIDTH SETTINGS

These parameters determine the speed at which the material spreader disk spins for each position of the "SPREAD WIDTH" control knob. The parameter value is the actual percent between your calibrated operation window. See figure 1, page 31 for clarification.

Minimum value: 0.0 [%]

Maximum value: 100.0 [%]

PARAMETER 20: CONVEYOR SPEED SENSOR PULSES/REV.

This parameter allows the controller to be set to Manual Operation Mode (default).

PARAMETER 2-1: 12 VOLT TRIGGERED MANUAL MODE

This parameter allows the controller to operate in Manual Mode, requiring however, a 12 volt input to engage operation.

PARAMETER 2-2: 'OPEN-LOOP' OPERATION MODE

This parameter allows the controller to operate in "Open-Loop" Mode. This requires some frequency input from the vehicle as a speed reference. The controller will apply material at a rate proporttional to vehicle speed travelled.

PARAMETER 2-8: MAXIMUM BLAST OUTPUT

This parameter sets the maximum output to the conveyor valve when the "BLAST" button is pressed.

Minimum value: 0.0 [%]

Maximum value: 100.0 [%]

Default value: 80.0 [%]

PARAMETER 3-5: SPINNER STOP/NO STOP

This parameter determines whether the Spinner will continue running or not, when the truck comes to a complete stop.

Default: Spinner does not stop when truck stops (indicated by flash rate of BLAST indicator).

P A R A M E T E R 4 - 4 : M A X I M U M G R O U N D S P E E D D R I V E N I N O P E N L O O P C O N T R O L

The value set in this parameter defines the maximum ground speed that is driven for which full rate application will be achieved (based on the selected application rate).

Note: If "Open-Loop" mode is selected, and this parameter is **NOT** calibrated, full application will be achieved (based on the selected application rate), upon vehicle movement.

P A R A M E T E R 5 - 9 : S Y S T E M I N I T I A L I Z E D W I T H F A C T O R Y D E F A U L T V A L U E S

This parameter allows the reset of all user-definable parameters to the factory default values.

P A R A M E T E R 8 - 1 : M I N I M U M C U R R E N T S E T T I N G O F C O N V E Y O R / A U G E R V A L V E

This parameter sets the minimum current output signal to the Auger/ Conveyor valve. The parameter value is in [%] of full scale.

Minimum valve: 00.0 [%]

Maximum valve: XX.X [%] (Determined by the % value of parameter 8-2)

Default value: 35.0 [%]

P A R A M E T E R 8 - 2 : M A X I M U M C U R R E N T S E T T I N G O F C O N V E Y O R / A U G E R V A L V E

This parameter sets the maximum current output signal to the conveyor/ auger valve. The parameter value is in [%] of full scale

Minimum value: XX.X [%] (Determined by the % value of parameter 8-1)

Maximum value: 100.0 [%]

Default value: 80.0 [%]

PARAMETER 8-3: MINIMUM CURRENT SETTING OF SPINNER VALVE

This parameter sets the minimum current output signal to the spinner valve. The parameter value is in [%] of full scale.

Minimum value 0.0 [%]

Maximum value: XX.X [%] (Determined by the % value of parameter 8-4)

Default value: 30.0 [%]

PARAMETER 84: MAXIMUM CURRENT SETTING OF SPINNER VALVE

This parameter sets the maximum current output signal to the spinner valve. The parameter value is in [%] of full scale.

Minimum value: X.X [%] (Determined by the % value of parameter 8-3)

Maximum value: 100.0 [%]

Default value: 65.0 [%]

CS-230 OPTIONAL ACCESSORIES

GROUND SPEED SIMULATOR

FUNCTIONAL PURPOSE

Basic Technologies' Ground Speed Simulator P/N 016527 is designed to assist you in both calibration and trouble shooting. The simulator provided with the standard Sure Seal connector can be interfaced with the existing wire harness very easily. Simply disconnect your ground speed extender cable and plug the simulator in. Turn on the on/off switch and select the desired speed required by adjusting the speed control potentiometer.

REMOTE CABLE KIT

Basic Technologies' Remote Cable Kit P/N 144025 allows for remote operation of the Pause and “BLAST” functions via the included toggle switch.

REMOTE INTERFACE CABLE

Basic Technologies’ Remote Interface Cable P/N 144383 allows for remote operation of the Pause and “BLAST” functions via the CS-105 controller (not included).

CS-230 BRACKET SPACER KIT

Basic Technologies’ Spacer Kit P/N 143901 allows the CS-130-SC to be mounted in an existing CS-230 mounting bracket.

CS-130-SC ACCESSORIES AND SPARE PARTS SUMMARY

The following is a summary of all components and parts associated with the CS-130-SC. Included in this section will be a list of all cables, sensors and replacement parts that will aid in identifying and reordering of spares as required.

NOTE: Please contact your closest Basic Technologies location if further assistance is required with identification or clarification on replacement parts.

CS-130-SC Package use P/N 151786

CS-130-SC Base Controller use P/N 143894

CS-130-SC Mounting Kit use P/N 143891

CS-130-SC Thumbscrew Knob P/N 143889

CS-130-SC Nuts for Spacers use P/N 143898

CS-130-SC Pot Assembly use P/N 144108

CS-130-SC Knob use P/N 108141

CS-130-SC Cap use P/N 108143

CS-130-SC Pointer use P/N 108142

CS-130-SC BLAST Switch use P/N 141972

CS-130-SC BLAST Switch Cover use P/N 142441

CS-130-SC Pause/Reverse Switch use P/N 141977

CS-130-SC Power Switch use P/N 108789

CS-130-SC Switch Boot for Above use P/N 108787

CS-130 TROUBLE SHOOTING GUIDE

Symptoms	Probable Cause	Corrective Action
The Auger/Conveyor is running when vehicle is stopped. **Note:** Only applicable when operating in 12 Volt Triggered or Open-Loop Mode	• Valve spool jammed open. • Stray ground speed signal.	• Remove and inspect. Replace if necessary. See Module 4A. • Check sensor or connection point. Recalibrate ground speed. • See Parameter 8-1. Lower the value.
The Auger/Conveyor is stopped when vehicle is running.	• Hydraulic/Mechanical • Electrical	• Check for system pressure and flow. Check hoses, pumps, motors and gearboxes for leaks and proper operation. Check oil level in reservoir. Check shafts and chains. • Check cables and solenoids; repair or replace if required. Check CS-130 for output to solenoids; replace or repair as required.
Ground speed calibration is incorrect.	• Incorrect ground speed calibration procedure.	• Recalibrate ground speed.
There is no Spinner, or Auger/Conveyor output.	• Defective component. • Low vehicle voltage.	• Return CS-130 to supplier for repair. • Check ground connection. • Check battery voltage.

Symptoms	Probable Cause	Corrective Action
CS-130-SC will not turn on.	• Poor power connection.	• Check power and ground connections.
	• Defective power cable.	• Test, repair or replace power cable.
	• Blown fuse.	• Wait for 5 minutes and fuse will reset.
	• Burnt traces.	• Return CS-130-SC to supplier for repair.
	• Low vehicle voltage.	• Check vehicle voltage Check ground connection.
CS-130-SC turns on, but does not operate.	• Poor power connection	• Check power and ground connections. • Reset Parameter 5-9.
Conveyor / Auger settings slow to respond.	• Conveyor/auger nulling too low.	• Recalibrate Parameters 8-1 and 8-2.