CS 520

Spreader Controller Configuration Manual
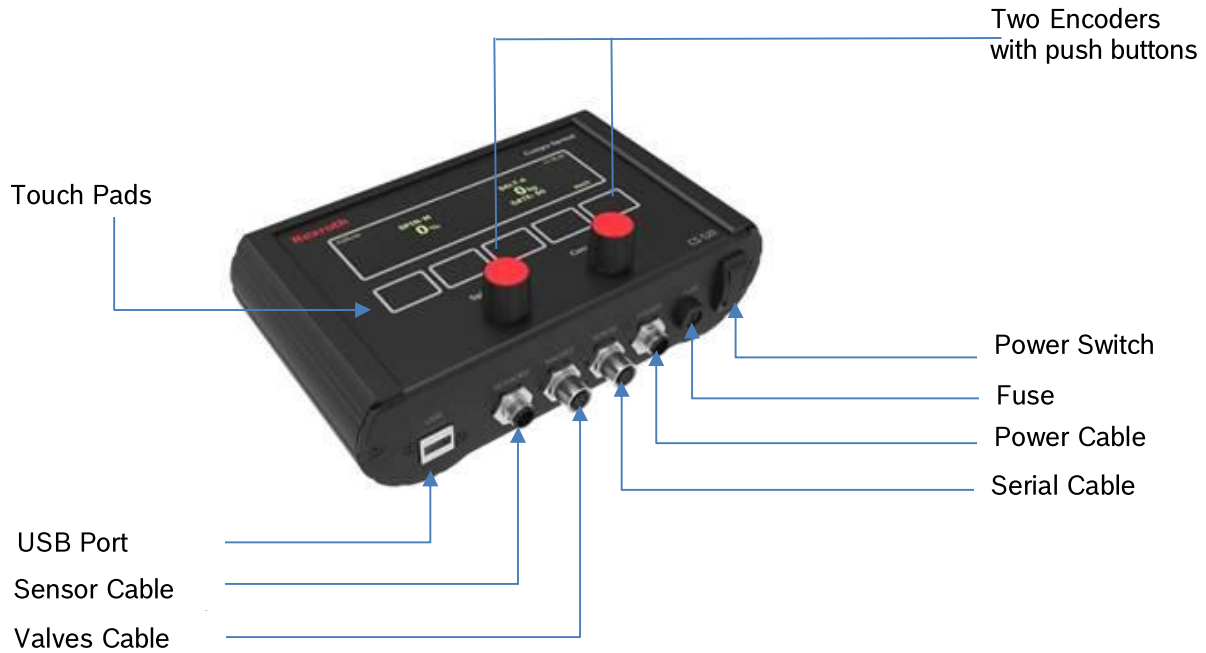
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Please check for updates at: www.boschrexroth.ca/compu-spread

1 LAYOUT

CS 520 is a two function programmable controller, available in Manual, Closed or Open Loop mode, for the controlled application of granular solids in snow and ice control.

Two Encoders with push buttons

Touch Pads

Power Switch

Fuse

Power Cable

Serial Cable

USB Port

Sensor Cable

Valves Cable

See Appendix for system layout in detail.

2 MAIN MENUS

When the truck is stopped or no ground speed signal is coming in, the screen below will be shown:

Solid material

System clock

Speed

0KMh

11:35:07

SPIN–M

SALT–C

Conveyor mode

Spinner

0%

0kg

GATE: 05

TOTAL   SETUP   MISC   ↓   REVS

Keypad functions   Gate position   Solid rate
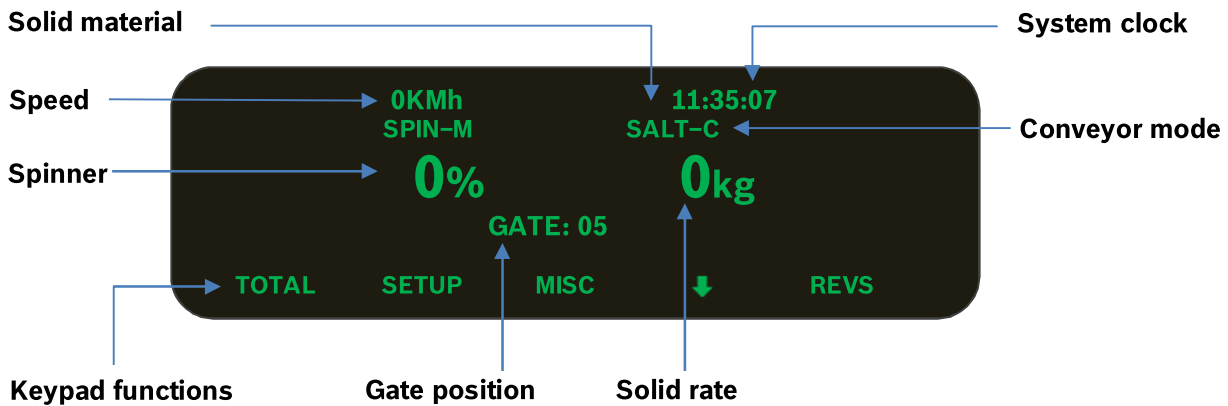
Key pads from left to right are for TOTAL, SETUP, MISC, ⬇SUBMENU and REVERSE. Pressing the touch panel pad enters the corresponding menu screen or holding REVS to reverse the conveyor.

TOTAL ---- trip and season totals, data display / save / load / log
SETUP ---- access to all settings of the system
MISC ---- adjust the brightness of screen or driver ID if AVL attached
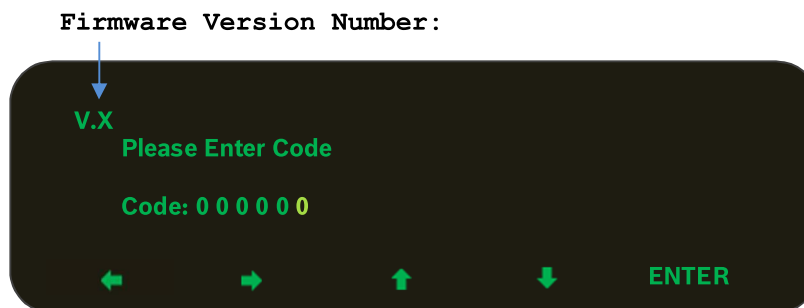⬇ ---- go to submenu to do speed simulation, gate adjustment and material change.
REVS ---- to reverse the conveyor

The screen below will show up when system is saving log data automatically, please keep the power on and let it finish by itself.

```
=====================================
        Log  is  backing  up  ...
        Pls  keep  power  on !
=====================================
```
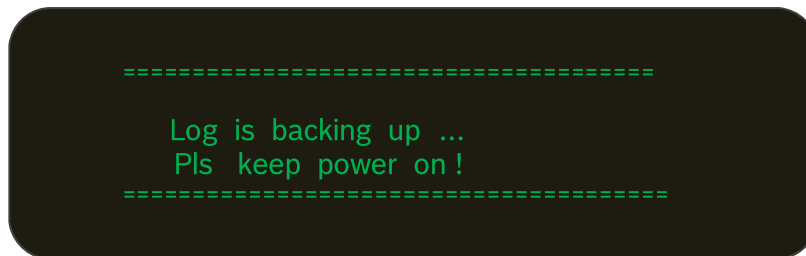
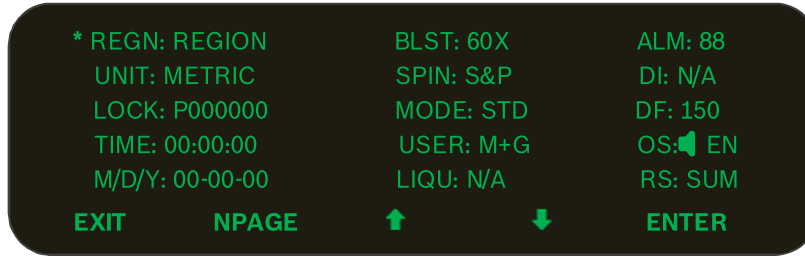## 3   AUTHORIZATION VERIFICATION

To set up the CS-520, either a security USB or a password is needed according to the setting of LOCK feature in programming mode. This is to prevent unauthorized personnel from making adjustments to the system. After pressing the 'SETUP' button, the screen changes to "PLS insert USB" or the input of the password. If it is password verification, the screen below will be shown:

Firmware Version Number:

```
V.X
    Please Enter Code

    Code: 0 0 0 0 0 0

  ←        →        ↑        ↓        ENTER
```

The most right digit stays bright while the rests are dim, pressing the keypads left or right arrows to choose the digit and the up / down arrow to change character (This also applies to the settings of other features). After that, press **ENTER** to confirm the input. The default password is 000000, the user can change this password once in the setup screen.

4   SYSTEM CONFIGURATION

If the password is correct or a program key is present, the setup screen below will be shown:

```
* REGN: REGION        BLST: 60X        ALM: 88
  UNIT: METRIC        SPIN: S&P        DI: N/A
  LOCK: P000000       MODE: STD        DF: 150
  TIME: 00:00:00       USER: M+G        OS:◄ EN
  M/D/Y: 00-00-00     LIQU: N/A        RS: SUM
     EXIT        NPAGE        ⬆         ⬇         ENTER
```

Press up / down arrow to navigate to the different features, the * symbol preceding the line will mark the active line. Press **ENTER** to edit / select the settings, some fields may also have a sub menu as indicated by the '**CHG**' icon. This is for editing the field. (See example of the editing of REGN below).
Press **NPAGE** to go to the next screen and **PPAGE** to the former one.

4.1   Setting the Region Name and Truck ID
REGN: To edit the REGION and TRUCK name

```
* REGN: REGION        BLST: 60X        ALM: 88
  UNIT: METRIC        SPIN: S&P        DI: N/A
  LOCK: P000000       MODE: STD        DF: 150
  TIME: 00:00:00       USER: M+G        OS:◄ EN
  M/D/Y: 00-00-00     LIQU: N/A        RS: SUM
     CHG                             ⬇       FINSH
```

Press ⬇ to switch between region and truck name. Press **CHG** to start to edit the region or truck name,
Then press **FINSH** button to quit editing.

4.2   Setting the UNIT
UNIT: To choose the system unit, metric or imperial.

4.3   Authorization method
LOCK: A valid USB programing key or six characters password can be chosen to verify the access to the setup screen.

4.4   Setting the Time
TIME: Clock time is formatted as: Hour: Minute: Second

4.5   Setting the Date
DATE: is formatted as Month: Day: Year

4.6   Blast Timer and Mode

BLST: The first two digits of 'BLST' is the blast timer in seconds & the last one digit is the mode of blasting.
F --- Blast disabled
C --- Blast at close loop with rate set at material screen.
S --- 100% output even at zero ground speed
X --- 100% output **except** at zero ground speed

The default setting for blast timer is 60 seconds.

4.7   Spinner Stop Mode

SPIN: Choose the spinner stop mode.
NEV --- spinner will always turn when the dial is set.
SPD --- spinner will start and stop with ground speed.
PSE --- spinner will only stop when the pause button is pressed.
S&P --- spinner will stop with ground speed and the pause button

4.8   System mode

MODE: Standard or Air Gate. (Air gate mode offers a 12 volt output signal with the change in materials.)

4.9   User Option

USER: This option determines what the truck driver is allowed to change.
N/A --- operator is **not** allowed to change either the gate setting or the materials.
M+G --- operator is allowed to change both the gate setting and materials.
GAT --- operator is only allowed to change gate setting.
MAT --- operator is only allowed to change the material.

4.10   Setting the Liquid

LIQU: CS-520 does not have this feature. (N/A will be present)

4.11   Alarm Speed

ALM: This is the ground speed at which a warning will be displayed on the screen. The "Alarm Speed" is not activated when the spread rate is set at zero or the controller is in the Pause mode.

4.12   Liquid level detection

DI: CS-520 does not have this feature. (N/A will be present)

4.13   Setting Dither Frequency

DF: Two options: 66 Hz and 150 Hz

4.14   Setting Beeping and Language

🔊 : Enable / disable the beeping as the feedback to touching of the pads.
 EN: Default language is English (En.) unit can switch to French. (Fr.)

4.15   Default Setting and Season Reset

RS: system parameters can be reset to factory defaults or season totals can be reset to zero.
SUM: reset season totals
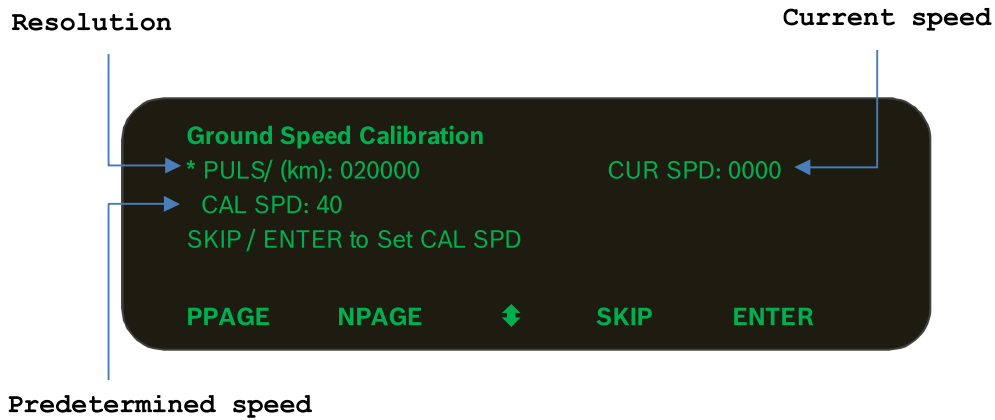PAR: reset all parameters to factor defaults

A text page will be shown to confirm the action.

5   GROUND SPEED CALIBRATION

There are two ways to input the ground speed calibration.

If the resolution is known, just manually input the pulses per KM or Mile.

The other way is to set a predetermined speed (speed the truck will be spreading at most often, is recommended). Follow the hints on the screen and allow the system to finish the speed calibration by itself.

Resolution   **Current speed**

```
Ground Speed Calibration
* PULS/ (km): 020000              CUR SPD: 0000
  CAL SPD: 40
SKIP / ENTER to Set CAL SPD


   PPAGE      NPAGE        ⬍      SKIP      ENTER
```

Predetermined speed

After the predetermined speed is set up, the controller will jump to the following screen and the text message "Run CAL SPD & press START" will flash.

```
Ground Speed Calibration
* PULS/ (km): 020000              CUR SPD: 0000
  CAL SPD: 40
Run CAL SPD & press START


   ABORT              START
```
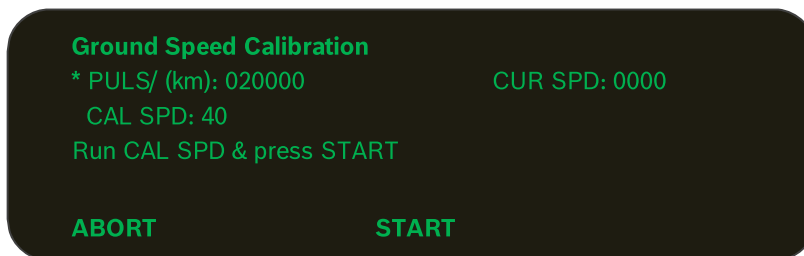
Drive the vehicle and hold the vehicles speed (as indicated on the speedometer) at the value you entered in the CAL SPD field. Press the **START** button.
Hold the vehicles speed at this rate and after 5 seconds, the system will record the pulse resolution automatically.
The speed calibration is now completed.

6   HYDRAULIC VALVE CONFIGURATION

The left side of screen is used to set up the valve configuration.

```
 * CONVEYOR ⬍          1   SALT ⬍
   MODE: AUTO           BLAST: 0270 M99%
   SENSOR: 0050         RATE1: 0032
   NULL: 15.0 60.0      WT/REV: 1.00
   GAIN: 60%            CAL GATE: 05
      AUTONULL               AUTOCAL
   PPAGE         ⬌         ⬆         ⬇         ENTER
```

6.1   Valves

When * is in front of CONVEYOR, press Enter to select the valves. Choose valves to edit between conveyor and spinner.

```
 * SPINNER     ⬍
   MODE: MANUAL

   NULL: 15.0 75.0
   BLAST: 0 0 0


   PPAGE                   ⬆         ⬇         ENTER
```
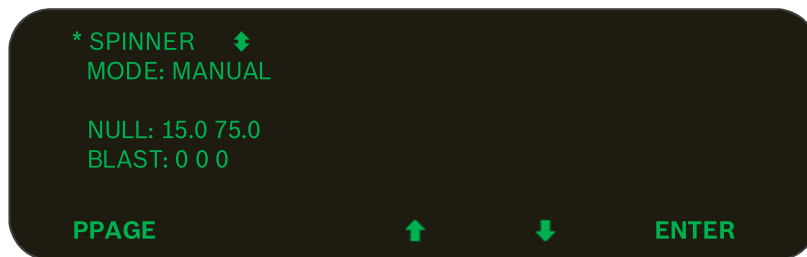
6.2   Mode

Conveyor has five modes: close loop (auto), open loop, manual 12V triggered, manual speed or manual.

Spinner can only work under manual mode.

If the Closed loop mode is selected for Conveyor, it is able to run Auto Null.

--- Manual Mode-(M)
This mode allows the driver to manually control the spread rate. Each setting on the Conveyor Dial 1–9 is a percentage of maximum valve null setting. The display will show "M" beside solid material name on the operation screen.

--- 12 Volt Triggered Manual Mode-(T)
In addition to manual mode operation, this mode allows the controller to start and stop the spreader based on a 12V input signal. The display will show "T" on the screen.

--- Ground Speed Triggered Manual Mode-(G)
In addition to manual mode operation, this mode will start and stop the spreader based on ground speed input. The display will show "G" on the screen.

--- Open Loop Mode-(O)

This mode utilizes the ground speed sensor only to regulate the amount of material that will be dispensed off the vehicle. There are 9 configurable application rate settings available. The display will show "O" on the screen.

--- Closed Loop Mode-(C)
This mode utilizes both a conveyor and ground speed sensor to regulate the amount of material that will be dispensed off the vehicle. There are 9 configurable application rate settings available. The display will show "C" on the screen.

6.3   Sensor
Determine the number of pulses per revolution of conveyor motor you are using, and enter this value in the 'sensor' field, when closed loop mode is selected. During nulling or auto-nulling, this line will show the actual conveyor speed.

6.4   Null

1. Press **ENTER** to manually null the minimum and maximum current (in %) to the valve solenoids.

WARNING: Once selected the conveyor or spinner has the ability to turn, and caution must be exercised.

2. Use up and down arrows to adjust the speed so that the motor just begins to turn.
3. Press ⬌ to end 'Minimum' value editing and switch to the 'Maximum' value.
4. Do the same for "Maximum" except adjust the motor to a safe maximum speed or until the RRM readout stops to increase.

6.5   Auto-nulling

The nulling of the valve solenoids for the minimum and maximum values can also be accomplished automatically. Providing a conveyor sensor is being used in the system.
Press the **ENTER** to start the auto-null process, the text "Auto-nulling" will flash on the screen during procedure. Auto-null will end after recording the minimum and maximum null values.
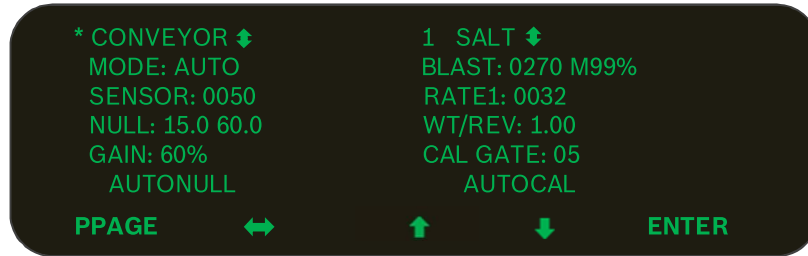
6.6   Gain
This is the percentage of valve output increase, introduced on the conveyor during start up, when the vehicle starts to move, to overcome hydraulic motor pulsing and provide for instant, continuous movement of the conveyor.

6.7   Blast in Spinner
This is to set the blast rate of the spinner based on the percentage of its maximal output. The default value is zero, which means the spinner will not blast while the conveyor is blasting.
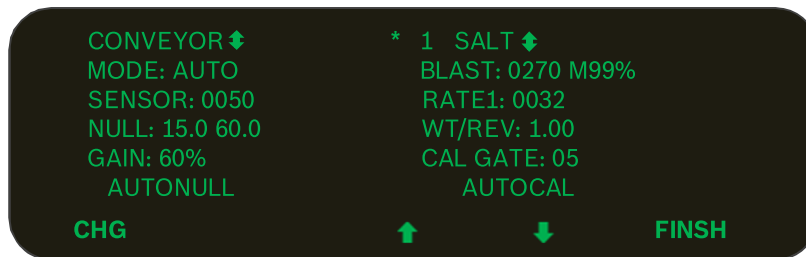
7   MATERIAL CONFIGURATION

There are four solid material under the standard mode and two solid materials with air gate mode. Within the valves configuration page, the right side of the screen is for the corresponding material configuration.

```
* CONVEYOR ⬍          1   SALT ⬍
  MODE: AUTO           BLAST: 0270 M99%
  SENSOR: 0050         RATE1: 0032
  NULL: 15.0 60.0      WT/REV: 1.00
  GAIN: 60%            CAL GATE: 05
     AUTONULL             AUTOCAL
   PPAGE        ⬌        ⬆        ⬇        ENTER
```

Using ⬌ or ⬇ move from conveyor configuration to material configuration.

7.1   Material Name

Press **ENTER** to input the different solid material names.

```
  CONVEYOR ⬍          *  1   SALT ⬍
  MODE: AUTO             BLAST: 0270 M99%
  SENSOR: 0050           RATE1: 0032
  NULL: 15.0 60.0        WT/REV: 1.00
  GAIN: 60%              CAL GATE: 05
     AUTONULL               AUTOCAL
   CHG                  ⬆        ⬇        FINSH
```

Use up / down arrow to view each material's settings and press **FINSH** to select the material.
If **CHG** is pressed, the system will start to edit the material names. (to a maximum of 4 characters)

After you finish editing the material name, press **DONE**.

7.2   BLAST RATE

BLAST: The first number is the blast rate for blast in closed loop and the next one is the percent of manual blast.

7.3   APPLICATION RATES

RATE: There are 9 settings of the application rate for each material when the conveyor works in open or close loop mode.
Press **ENTER** and then the **up / down** arrows to browse the rate setting values, and press **CHG** to edit the current rate value.

7.4   WT/REV

This setting refers to the weight of material being discharged from the main conveyor / auger for every revolution of the conveyor motor.

Note: This number will automatically be generated as a result of the weight / rev. calibration process (AUTOCAL) or you can input this value manually.
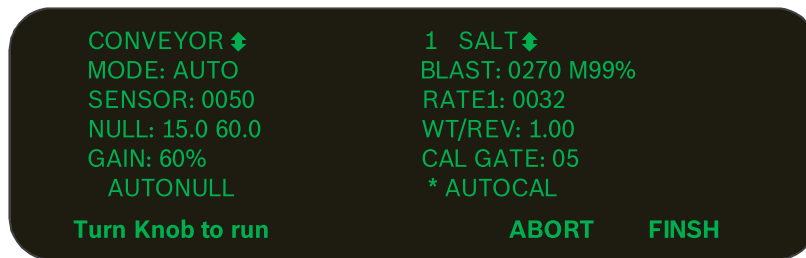
7.5   CAL GATE
Enter the correct gate setting at which the current solid material was calibrated at.
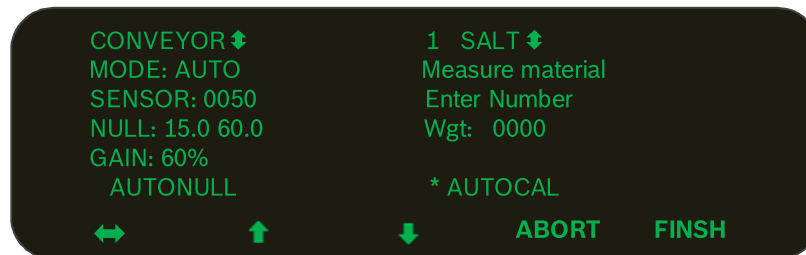

7.6   AUTOCAL
Here is where you can perform the material calibration if the controller is set to 'Auto' or 'Open'
1. Place an adequate catch container under the spreader discharge chute.
2. Make sure that you have sufficient material in the hopper, ensure the conveyor or auger has been loaded, hopper is full of material and the system is safe to run.
3. Set the gate position. (ensure you enter this value in the CAL GATE field)
4. Press **ENTER** to proceed.
5. Turn the CONV knob to any position to start the material discharging.
6. Press **FINSH** when the desired amount of material is reached.

```
CONVEYOR ⬍           1  SALT ⬍
MODE: AUTO           BLAST: 0270 M99%
SENSOR: 0050         RATE1: 0032
NULL: 15.0 60.0      WT/REV: 1.00
GAIN: 60%            CAL GATE: 05
  AUTONULL             * AUTOCAL

Turn Knob to run                 ABORT    FINSH
```

After pressing **FINSH**, the screen will jump to the material weight input screen, enter the weight of the material that was dispensed, the controller will calculate the WT/REV and the result will be displayed on the screen.

```
CONVEYOR ⬍           1  SALT ⬍
MODE: AUTO           Measure material
SENSOR: 0050         Enter Number
NULL: 15.0 60.0      Wgt:   0000
GAIN: 60%
  AUTONULL             * AUTOCAL

   ⬌        ⬆        ⬇     ABORT    FINSH
```

8   DATA SAVING / LOADING / DISPLAYING

8.1   Save parameters to the system

All the changes made to the parameters will be updated and saved after pressing **EXIT** on the setup screen, the system will also give a text message screen as shown below.

```
================================

   SAVE CONFIGURATION

   KEEP POWER ON!

================================
```
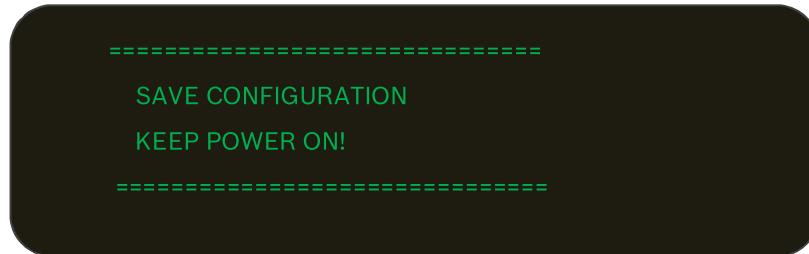
8.2   Display the trip and season totals

When the truck is stopped (no ground speed present), Press **TOTAL** to display the trip and season totals.

Total distance   Total spreading distance

```
              TRIP                 SEASON
   SDT:       1KM                    1KM
   DST:       1KM                    1KM
   QTY:      100KG                  100KG


   RESET              DATA              QUIT
```

Total quantity
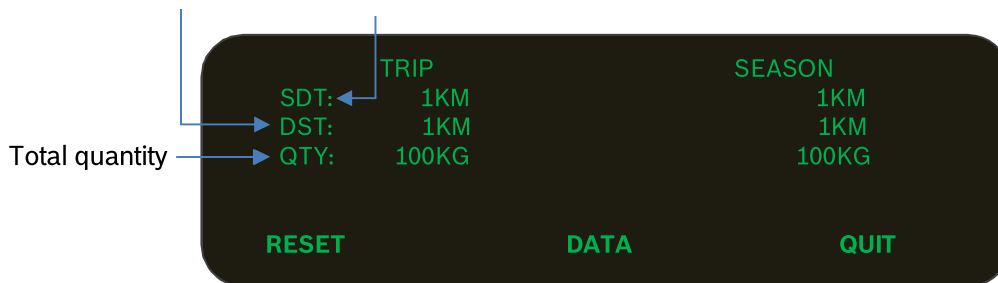
Pressing **RESET** will clear the TRIP TOTALS, while the SEASON TOTALS can only be cleared in the program setup screen.

8.3   Save parameters to USB

Press **DATA,** insert program key and follow the hints on screen. Once "USB FOUND" appears, pressing **SPARA** will save all the parameters on the USB key with the file name that includes the Region and Truck ID names.

```
LOGGING DATA or PARAMETERS

     INSERT USB



SPARA     LPARA            LOG     QUIT
```

11
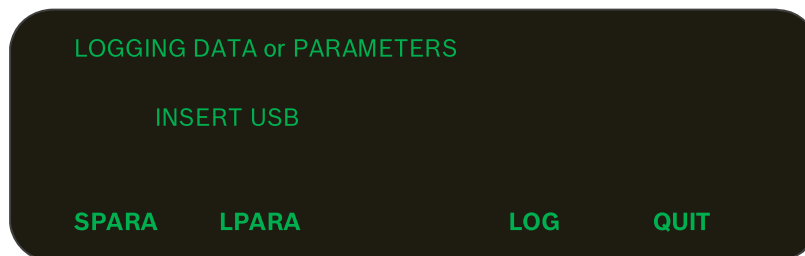
8.4 Loading parameters from USB key to Controller

It is also possible to load saved parameters from a USB key to the controller on the screen. By pressing **LPARA**, the screen (as shown below) will list all the saved parameters files on the USB key.

```
 * REGION_TURC01              REGION_TURC06
   REGION_TURC02              REGION_TURC07
   REGION_TURC03              REGION_TURC08
   REGION_TURCK04             REGION_TURC09
   REGION_TURCK05
                      1 --- 10
   QUIT      NPAGE        ⬆        ⬇        SELCT
```
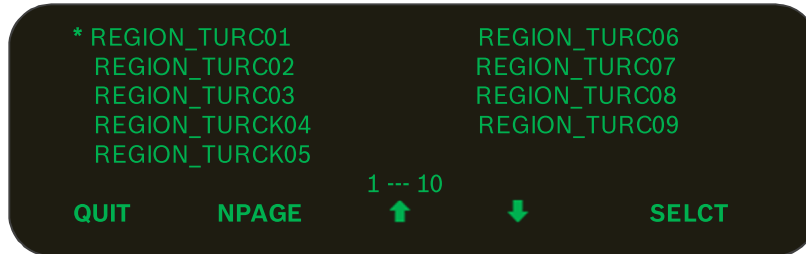
Use up / down arrow to navigate and press **SELCT** to load the desired parameter file.

```
   Load REGION_TURC01 ?



             YES                   NO
```
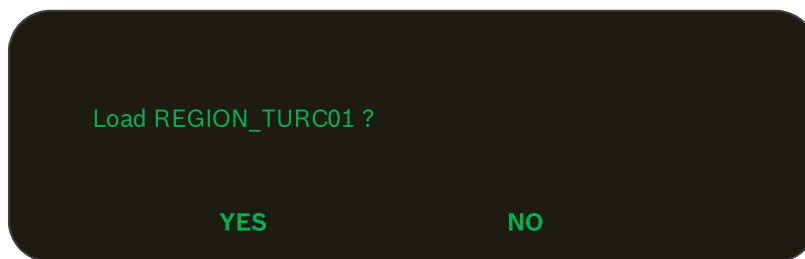
Press YES, the controller will display 'LOADING', when complete touch 'QUIT' and then 'QUIT' again. Touch the 'SETUP' button, then the 'EXIT' button and power the display off. This procedure confirms all the parameters will be refreshed to the controller's memory.

8.5 Save Controller Logging Data to USB Key

When the truck is stopped, Press **TOTAL** first, then press **DATA,** insert the log key and press **LOG**, The screen text will show "SAVING…" which will disappear after it saves the spreading log information to the USB key. (This will also clear the logged data from the controller). Touch 'QUIT' and then 'QUIT' again. Insert the USB key into a laptop and open the CS-530 logging Excel desktop software. The logging information will have the file name "data_REGN_TRID.txt", and it will be date and time stamped.

9   SUB Menus

9.1   SPEED SIMULATION

When the truck is stopped (ground speed = 0), press ⬇ to enter the screen as shown below.

```
        0KMh                 11:35:07
        SPIN−M               SALT−C
        0%                      0kg
                  GATE: 05

    SMSPD        ⬆              ↔GAT      ↔MAT
```
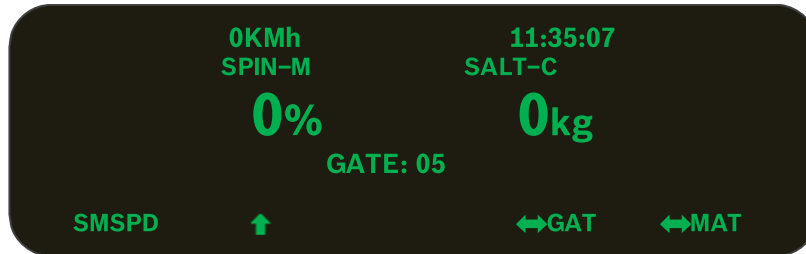
Press **SMSPD** to enter speed simulation mode.

```
    SIM     0KMh                 11:35:07
            SPIN−M               SALT−C
            0%                      0kg
                      GATE: 05

             ⬆                ⬇       STOP
```
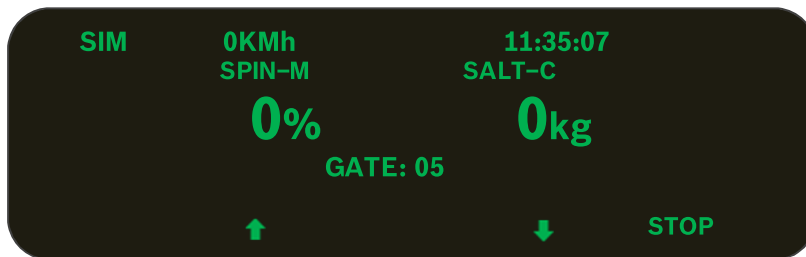
- Make sure that the vehicle is stationary (ground speed = 0)
- Press UP and DOWN buttons to adjust the simulated ground speed value.
- WARNING: In simulated mode the conveyor and or spinner has the ability to turn, and caution must be exercised.
- Turn the dials to verify the system is working.
- NOTE: Under the simulation mode, the system still counts the spreading information into log file, so please clear that by resetting the screen totals and retrieving logging data with USB log key.

9.2   Gate Adjustment

Depending on the setting of the USER options in the setup screen, GAT and MAT may show up on the sub menus.
If, GATE is there, press ↔GAT to enter the gate adjustment screen.

```
        0KMh                 11:35:07
        SPIN−M               SALT−C
        0%                      0kg
                  GATE: 05

    SMSPD        ⬆              ↔GAT      ↔MAT
```
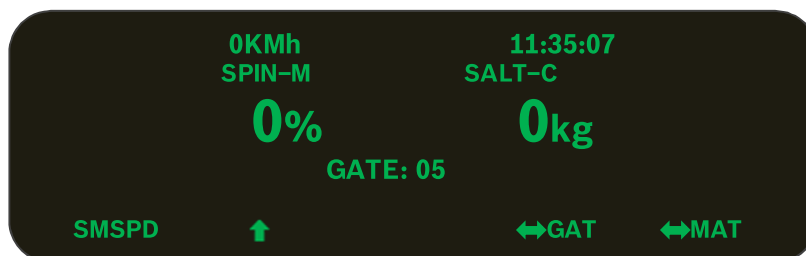
Change the gate value as required and press the **FINSH** button to exit.

9.3   Material change

Depending on the setting of the USER options in the setup screen, GAT and MAT may show up on the sub menus.
If, MAT is there, press ⬌MAT to enter the material adjustment screen.

```
        0KMh              11:35:07
        SPIN–M            SALT–C
         0%                0kg
              GATE: 05

  SMSPD      ⬆              ⬌GAT    ⬌MAT
```
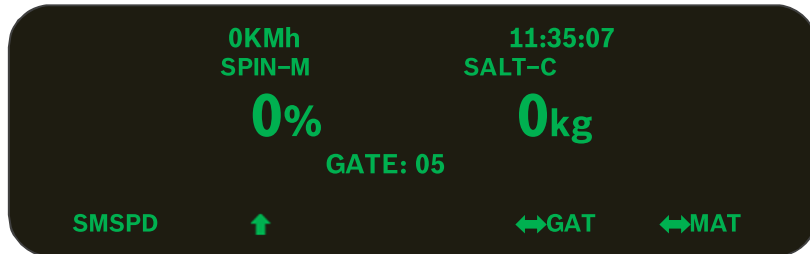
Press **SOLID** to change solid material

```
        0KMh              11:35:07
        SPIN–M            SALT–C
         0%                0kg
              GATE: 05

                 SOLID          FINSH
```

NOTE: A reminder screen for the calibrated gate setting of the new solid material selected will show for 5 seconds.

9.4   Air Gate

If "air gate" mode is the chosen in the setup screen, it will show the "AIRGT" menu instead of "GAT" and/or "MAT".

```
        0KMh              11:35:07
        SPIN–M            SALT–C
         0%                0kg
              GATE: 05

  SMSPD      ⬆              AIRGT
```
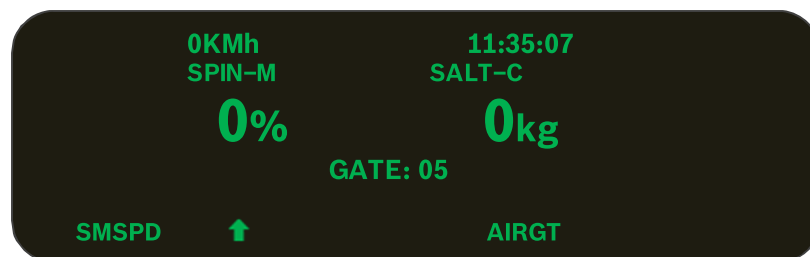
Press the **AIRGT** button to enter the air gate adjustment screen. Press the ⬌ button to switch between low gate and high gate. The chosen gate setting is highlighted.

NOTE: When you switch the gate setting the material will also change from material 1 (low gate) and material 3 (high gate).

```
        0KMh              11:35:07
        SPIN-M            SALT-C
        0%                0kg
            LOW   GATE: 05   HIGH

            ⟷                    ENTER
```
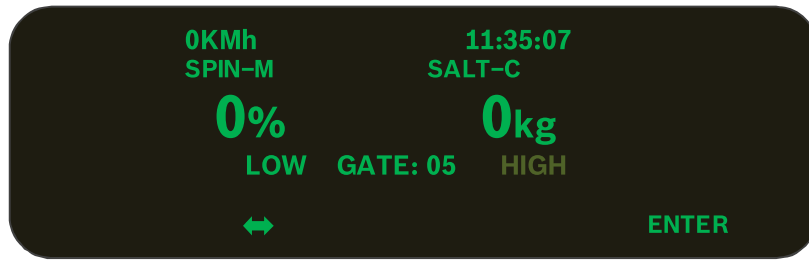
Press **ENTER** again to exit.

10   ERRORS

The controller continuously checks for errors during operation. E.g. the below screen shows that the ground speed is too high. (operator is driving faster than the programmed maximum speed setting)

```
        Warn:   OVERSPEED
        Please Slow Down Truck
```
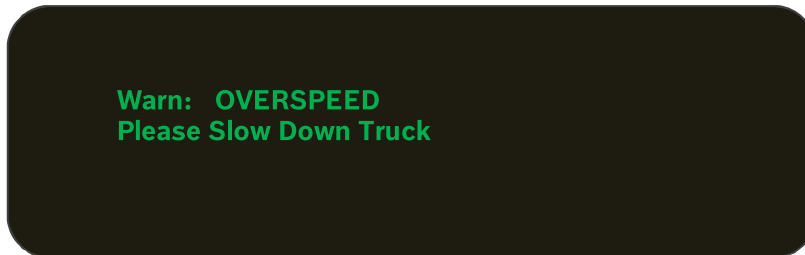
An audible alarm and error message will display on screen for 4 seconds when an error occurs, then it will go off and could come back on 3 minutes later if the error is not resolved. Others more serious errors will stay on the screen until the controller power is cycled or the error is resolved.

Error Messages	Suggested Solution	Cycle Power Needed?
BLAST2LONG	Turn off blast	No
OVERSPEED	Slow down, reset max speed	No
SPIN OUTPUT	Check cables, replace coil	Yes
CONV OUTPUT	Check cables, replace coil	Yes
NO CONVEYOR	Check cable/sensor	No, switches to open loop
COIL SHORT	Check cables, replace coil	Yes

11 UNLOAD

To unload remaining material after completion of the spreading operation, activate by pressing both the conveyor and the spinner dials simultaneously when spinner and conveyor rates are zero.
(Note: The vehicle must be stationary.)
WARNING: Once selected the conveyor or spinner has the ability to turn, and caution must be exercised.

```
0KMh                    11:35:07
SPIN-M                  SALT-C
   10%                     10%

       UNLOADING
          GATE: 05
```
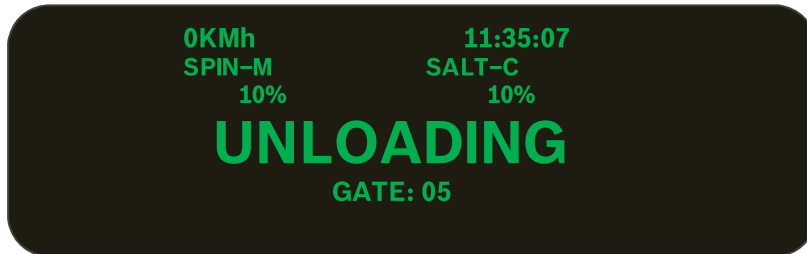
Turn the dials until the desired speed is achieved. Press both the conveyor and the spinner dials simultaneously to exit unload mode. Moving the vehicle will suspend the unload process. It will automatically resume when the truck is stopped again.

12 SPREADING SCREEN

When truck is moving, system will display the spreading screen.

```
30KMh                   11:35:07
SPIN-M                  SALT-C

  0%                    30kg
          GATE: 05

                    STAT      REVS
```
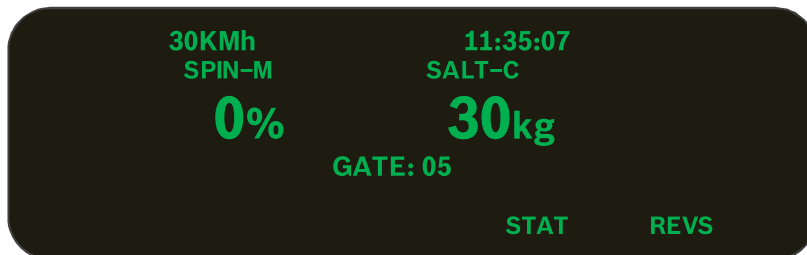
Pressing **STAT** will go to the diagnosis screen which displays the power voltage, actual conveyor RPM and rate.

```
VOLTAGE: 12V
CONVRPM:       0        CONV_ACTU:    0




                              QUIT
```
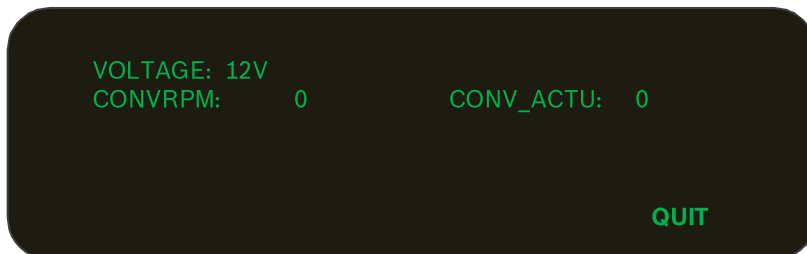
Press and hold the **REVS** to change the direction of the conveyor / auger (if equipped). Release the button to resume normal spreading.

13   PAUSE / BLAST

The two knobs for spinner and conveyor are also labelled as 'pause' and 'blast'. Press down the Pause button (spinner) to pause spreading, and press again to resume spreading. If the controller is in pause mode when powered off, the controller will start back up in pause mode once powered back on.

Press down the blast button (conveyor) to increase the spreading output, and press again or wait for the blast timer to time out to resume the regular spreading rate.
Remote pause / blast is optional by connecting a momentary switch to the digital inputs on the sensor lead cable.
When the blast timer is set to zero seconds in the setup screen, both the blast knob and the remote blast switch work on the momentary mode, holding the switch or knob to activate blasting, release to stop blasting.

If the blast timer is **not** set to zero seconds in the setup screen, the knob and switch will work on the latched mode. Press down the blast knob once to blast, blasting will stop once the timeout is reached or by pressing the knob again will stop blasting before the timeout is reached. The remote blast switch works in the same manner. Both the blast knob and the remote blast switch can work together, you can turn on blasting using the knob and turn off from the remote blast switch, or vice versa.

For pause mode, it can be activated / deactivated in parallel either from the pause knob or remote pause switch.

14   UPDATE FIRMWARE

Copy the latest .bin file to the root directory of a USB Program Key and rename it to **Rexroth.bin**. With the controller powered "off" insert the USB key into the USB port and then power "on" the controller, the controller will upgrade the firmware automatically. Unplug the USB stick once **"Verified"** is shown on the display screen. If **"Verified failed"** appears on the display, copy the **Rexroth.bin** file to the root directory of a blank USB key and try again.

15   LOGGING REPORT

15.1   *Import the logging data to computer*

Once logging data is saved on the USB memory key (see section 8.5), it can be viewed on a computer with the CS-530 Desktop Excel tool (CS530Logging_v3.3.xlsm).

Open the CS530Logging_v3.0.xlsm on your desktop and press the "Import Log Data" icon, the computer will check to see if a USB log key is present. If log files are found, the truck log data files will be imported into and displayed in the Region and Truck data field as well as in the data zone. A new dialog window will also pop up to indicate the completion of the file import.
NOTE: The original log files will be deleted from the USB key.

Data Zone

15.2 Select Report

All the logging data will be displayed in the data zone. It is also possible to select the logging data involving multiple trucks under a single region.

When selecting data, if the **All Data** option is selected and no specific truck is selected, then all the trucks in that region will be used. Further filtered reports can be done by selecting truck name, date and time when **Specific** is selected.

•To select the start and end of the date and hours

•**Specific** allows you to choose records within a selected timing frame

15.3 View Report

The logging reports will be displayed on the sheet called "Report" by clicking on 'Display Truck' after choosing the criteria from the above sections. For example, here you can select region "Toroto" and truck "TUCK03".

• Click **Display Truck** and it will go to the Report Sheet

Region	Truck	Date	Start Time (secs)	Solid Material	Total Time (secs)	Total Distance (ml)	Spread Distance (ml)	Total Solid (lb)
TOROTO	TUCK03	03-08-2017	08:59:46	MAT4	00:57:25	42.81	42.67	4101
TOROTO	TUCK03	03-08-2017	09:57:11	SAND	00:09:53	5.83	5.74	1117
TOROTO	TUCK03	03-08-2017	10:31:52	MIXD	00:01:42	1.03	1	117
				SubTotal	**01:09:00**	**49.67**	**49.41**	**5335**

15.4 Delete Truck

Truck data or region can be erased by clicking "Delete Truck". A warning message will pop up to confirm the operation.

USB FLASH DRIVE (KEY)

CS-530 PROG - R987444135
CS-530 LOG - R987444126
CS-520 PROG - R987446776
CS-520 LOG - R987446777

OPTIONAL: REMOTE CABLE: R987246059
SWITCH: R913050642

REMOTE

SENSORS

VALVES

SERIAL

POWER +GSS

OPTIONAL: IF OPERATING IN CLOSED LOOP

OPTIONAL: AVL SERIAL CABLE R987446072

POWER R987410173 3M (10')

SENSORS R987410172 3M (10')

VALVES R987410247 6M (20')

+VBATT
GROUND
GSS

CS-530 only
LIQUID
REVERSE
CONVEYOR
SPINNER
CSS
LSS

R987376742 OPTIONAL INLINE SENSOR NETWORK USED FOR SENSORS THAT REQUIRE A PULL-UP RESISTOR (MANDATORY FOR WHITE MOTORS)

VEHICLE SPEED CABLE (2M) R987376770

OPTIONAL: IF OPERATING IN OPEN OR CLOSED LOOP

3-BLUE = GND
4-BLACK = PULSE

LIGHTED SENSOR CABLE
3M R987376519
5M R987379520
10M R987376517
15M R911373271

(43-16880)
(43-19138)
(43-18895)
(43-19207)

VALVE EXTENDER (IF REQUIRED)
R987379861 (5M)
R987376748 (10M)
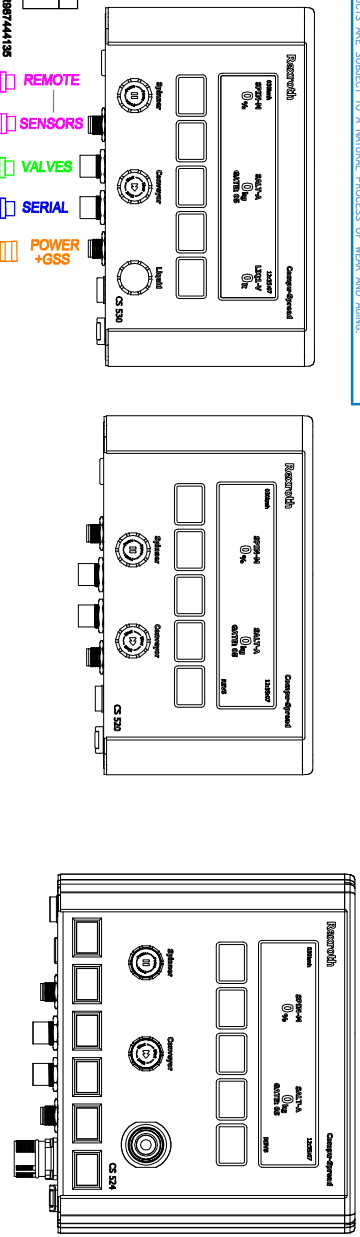
CS-530 CLP KIT BOM R987427985

CS-530 BASE CONTROLLER	R987410932
POWER CABLE	R987410173
VALVE CABLE	R987410247
M12 VEHICLE SPEED CABLE	R987376770
SENSOR CABLE	R987410172
M12 SENSOR 3M 43-10887	R987379519
MOUNTING BRACKET-SHORT	R987376774
USB FLASH DRIVE - BLK 4GB	R987376780

CS-520 CLP KIT BOM R987246694

CS-520 BASE CONTROLLER	R987248695
POWER CABLE	R987410173
VALVE CABLE	R987410247
M12 VEHICLE SPEED CABLE	R987376770
SENSOR CABLE	R987410172
M12 SENSOR 3M 43-10887	R987379519
MOUNTING BRACKET-SHORT	R987376774
USB FLASH DRIVE - BLK 4GB	R987376780

SCB / M4 VALVE

CS-520/530/524

OPEN/CLOSED_LOOP

DRAWING NO.: CS-5XX_CLP

I.N. REVDT
DRAWN BY: T.GIES APR6/16
DESIGN ENG.: T.GIES APR6/16
CUSTOMER:
SCALE: SCALE

REV. REVISION BY DATE

SHEET SIZE: SIZE
REV.: #2

CS-520/530/524_SYSTEM LAYOUT

Rexroth Bosch Group