rexroth
A Bosch Company

CS660/CS661 Spreader Controller

Operator Manual

Table of Contents

1 Operator Interface and Basic Operation

CS-660 Display

CS-661 Display + Knob Console

GSS=0

Total	
Total Dist	17 km
Spread Dist	35 km
Pause Dist	3 km
Spread Qty	47 kg
PreWet Vol	5 ltr
Deice Vol	0 ltr
Voltage	14.7 V

GSS>0

Status	
App Rate	57 kg/km
Cnv RPM	16 RPM
Wet Rate	17 lt/ton
Liq Rate	0 lt/km
Voltage	14.7 V

[1]Status/Totals:
Press&hold icon
5s to clear
(without key)

[2]Settings
(PGM key
required)

[3]Vehicle speed
Press&hold 5s
to sim spd

Press to
unload

[4]Toolbox
LOG key for Log data
PGM key for parms
Set vol&dim level

[5]Driver ID

Total dist & qty

[6]Load WT
Press&hold 2s
To enter

[7]Error Messages
wipe up/dn to view
(OI & RC versions on
the last line)
Clear messages
(PGM key required)

Normal, Pause,
Blast, Unload, &
Joy Mode

Spinner
Rate

Tap to change
material

Anti-ice rate

[8]Gate Position
(tap to change)

Pre-wet
Rate

Turn: Spinner
Press: Pause

Turn: Conveyor
Press: Blast

Spreading
Rate

Turn: Pre-wet
Press: Momentary
Conveyor Reverse

Turn: Anti-Icing
(If configured)

[1] **Status/Totals–** Display real time status and trip summary. Press&hold icon for 5 seconds to clear.

Total	
Total Dist	2 km
Spread Dist	0 km
Pause Dist	0 km
Spread Qty	0.0 kg
PreWet Vol	0 ltr
Deice Vol	0 ltr

Status	
App Rate	59 kg/km
Cnv RPM	284 RPM
Wet Rate	0 lt/ton
Liq Rate	0 lt/km

        Vehicle stopped   Vehicle in motion

[2] **Settings–** Switch to program mode (a PGM key required)

[3] **Speed–** Displays current ground speed. You can simulate ground speed by pressing and holding in the circle for 5 seconds. The following arrows will appear which will allow you to adjust the speed:

Press and hold for 5 seconds

Adjust speed Up/Down

EDMONTON
660TEST
DRIVER3
RPM
10 kph
UNLOAD

2019-05-15   · 3 km

05/15/19 10:37:19   Exited Setup Mode
05/15/19 10:36:52   Entered Setup Mode

Spinner   SALT--
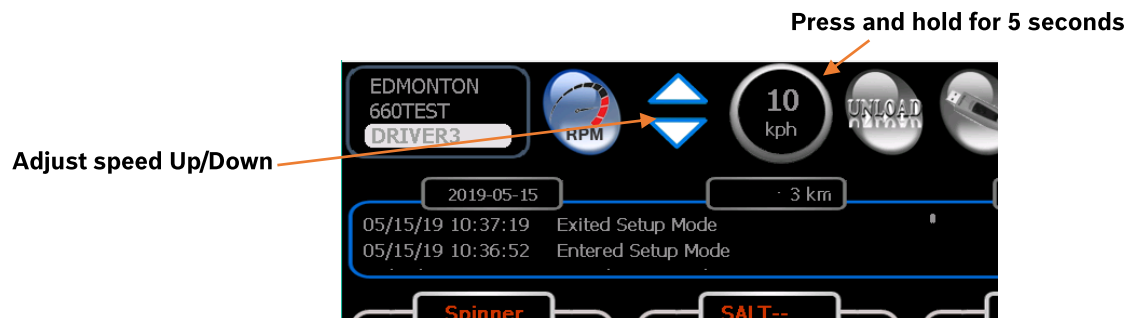
[4] **Toolbox–** This button changes depending whether a Program key is inserted into the display or not. When not inserted, the icon is displayed. Pressing this icon will show the following:

Adjust Volume & Brightness   Volume   Dim

When a Log or Program key are inserted you will see the   icon instead. Please see the Parameter and Log transfer section in this manual for more information. This button also displays   the gps/avl status if gps or avl connection is active.

[5]**Driver ID–** This shows the current Driver ID, and allows the selection and naming of Driver IDs. To select one of four Driver IDs, press on the Driver name and a list will drop down.

Press here to show list

Swipe up and down to see all available drivers
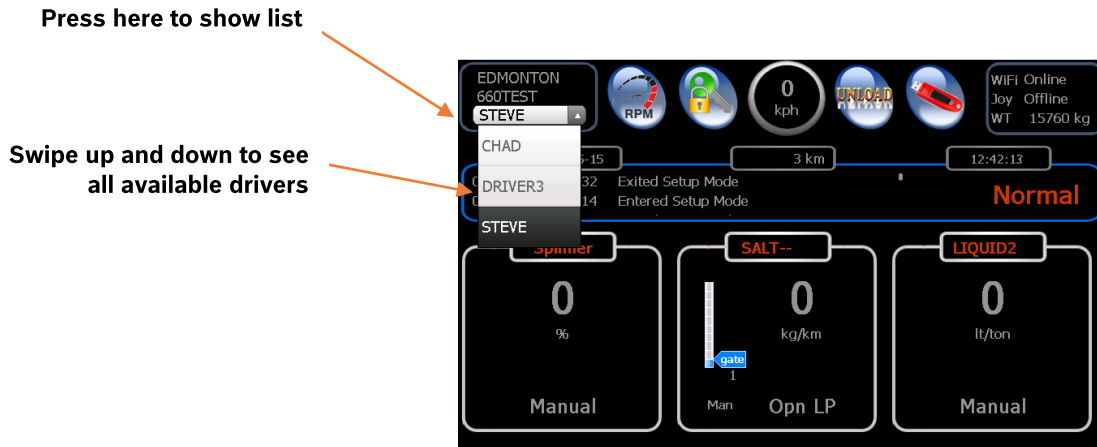
If the 4th driver ID is configured as "USER", then the keyboard will appear when clicked. This allows the operator to enter a custom name:

Type in custom name then press here when complete
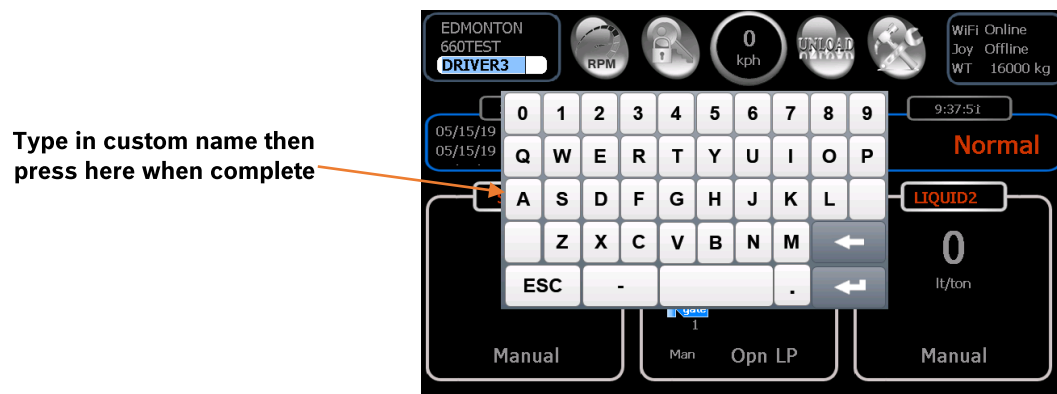
[6]**Load WT –** This displays the current calculated weight of the solid material on the truck. The operator enters the current weight, and as spreading is performed, the weight decreases. To enter the weight, press and hold the weight for 5 seconds and a keypad will pop up:

Enter weight, then press enter key
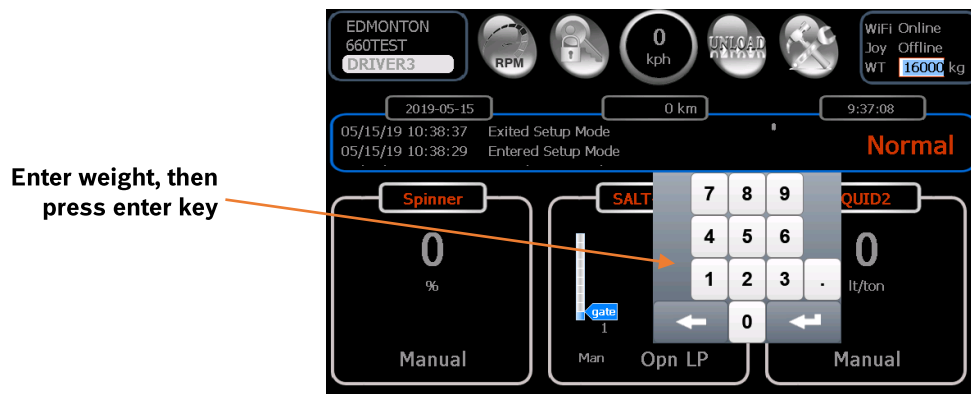
[7]**Error Messages –** During the operation when an error occurs, a message will appear in the notification area. Tap anywhere in the rectangle to acknowledge the warning.

Active error message

Tap in here to acknowledge

Whenever there are warnings or errors, they are added to a list (log) in the notification area. To clear the log, press and hold anywhere in the rectangle for 5 seconds with a PGM key inserted.

Use finger to swipe up and down to see all logged warnings/errors
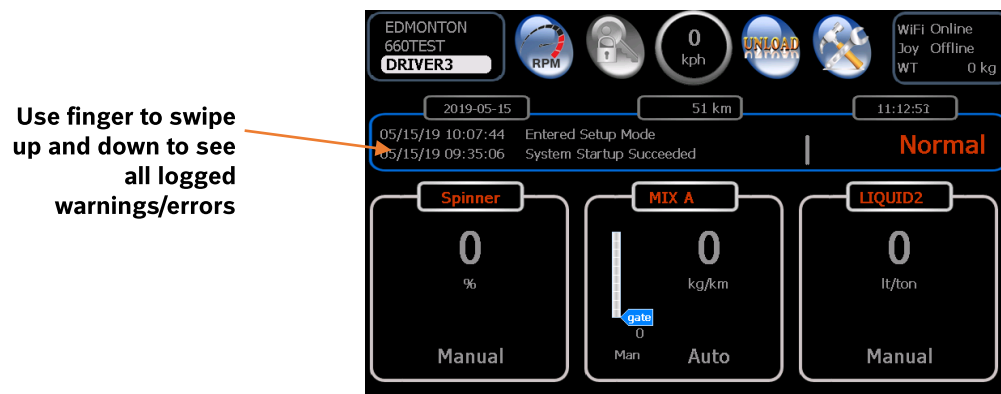
[8]**Gate Position–** This indicates current gate position and control type (Auto, Readbk, AirGate, Man). The gate position can be adjusted here when using a Manual gate. Please refer to the Manual Gate Control section under Spreader Operation in this manual. Please refer to the 660 Calibration Manual for setting up the gate control type.

2   Additional Feature Functions

2.1 Conveyor Forward and Reverse

The Conveyor can work in either forward or reverse direction selected by a rocker switch wired to a digital input of the 660 system. The Reverse operation is indicated by a red "R" in the conveyor control panel.

Conveyor reversing
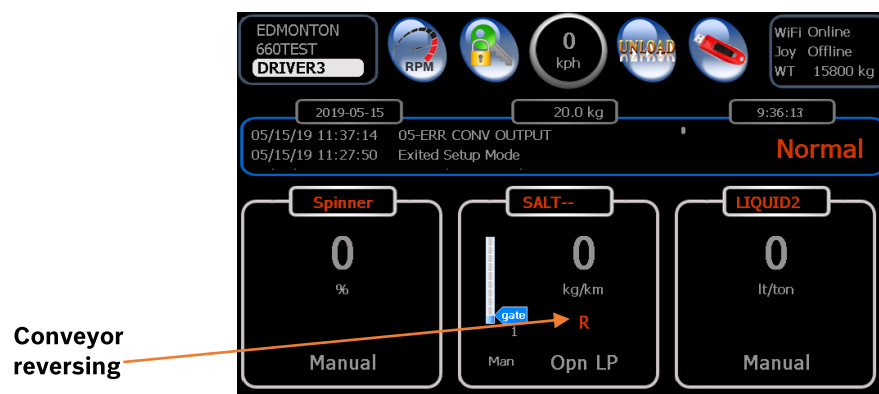
2.2 Spinner Forward and Reverse

The Spinner can work in either forward or reverse direction selected by a rocker switch wired to a digital input of the 660 system. The Reverse is indicated by a red "R" in the spinner control panel.


Spinner reversing
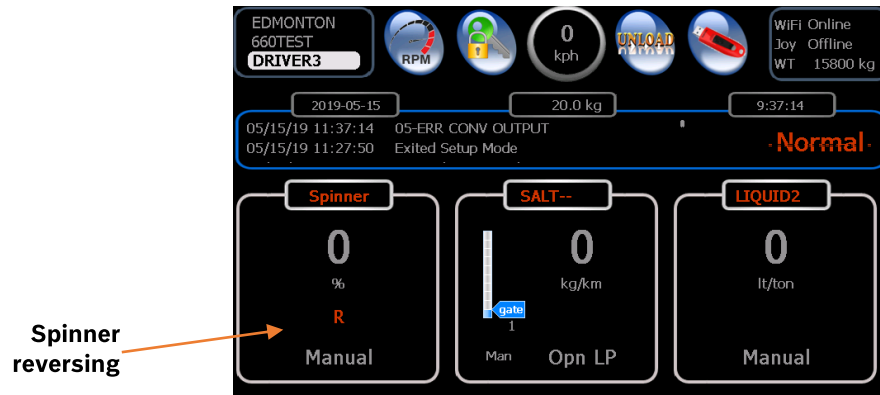
2.3 Spinner & Conveyor Forward and Reverse

Both spinner and conveyor can work in either forward and reverse direction separately selected by a switch. The Reverse is indicated by a red "R" in the Spinner and Conveyor control panels.
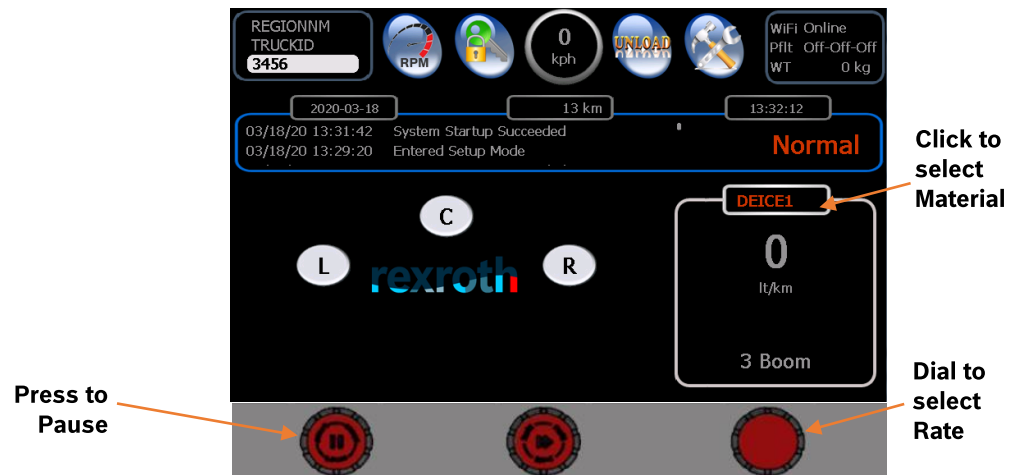

Conveyor reversing

Spinner reversing
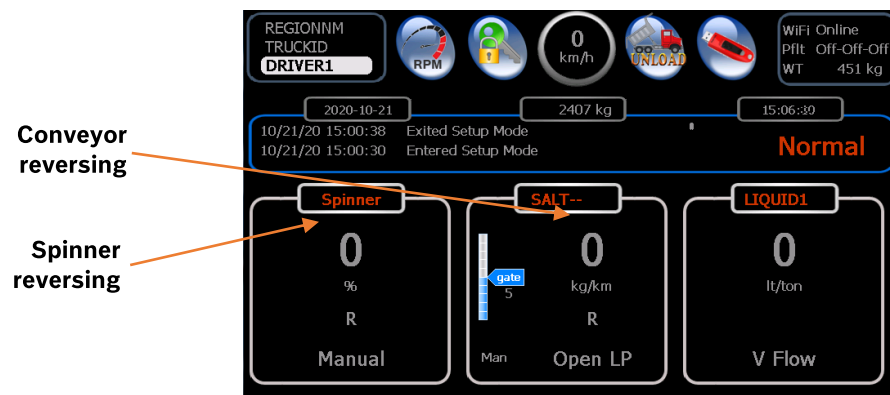
2.4 Dual Spinner

Dual spinner is selected by a switch. A red 'D' is displayed in the spinner panel when it is selected.


Dual spinner enabled
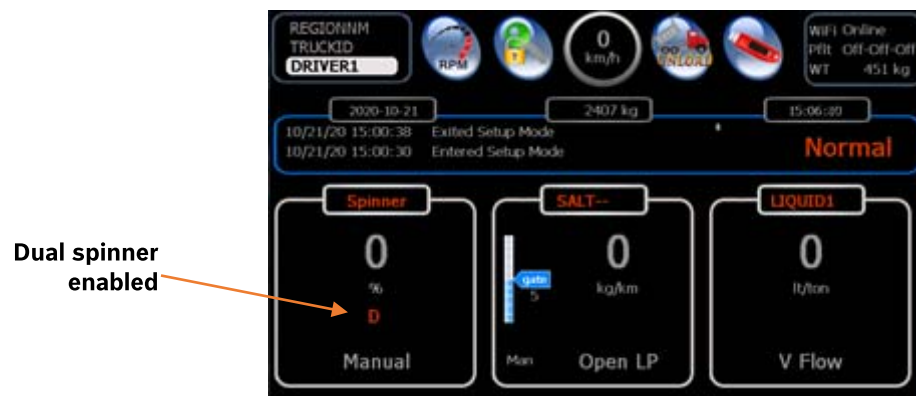
2.5 3 Boom 3 Boom Anti-ice

This is a dedicated 3 boom Anti-ice set up. It has 3 boom switches built in the armrest or a separate enclosure.

Click to select Material

Press to Pause

Dial to select Rate

2.6 Air Gate

It uses an electrical switch to control an air cylinder to toggle between two gate positions. Turning on/off the switch would toggle between two materials, and automatically set the operation gate to the calibrated gate for the material selected.

Air gate Indicator
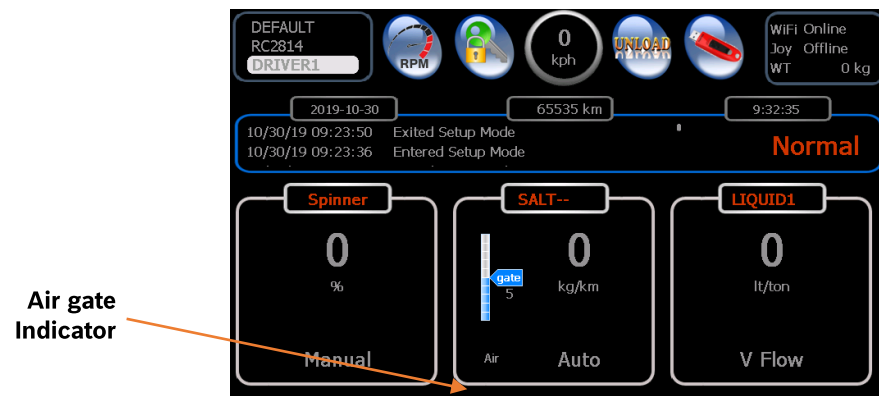
2.7 Gate Read back and Automatic Gate

Gate Read back - A gate position sensor to monitor the actual gate position in real time. With the Read back sensor operators do not need to enter on screen when adjusting gate position for different materials.


Readback Indicator

Automatic Gate - A hydraulic gate cylinder with built in position sensor automatically move the gate up and down based on the spreading rate, vehicle speed and material selected.

Auto Gate Indicator

In case of a need to move the gate manually due to jam or other reason the operator can tap on the gate bar on the screen to pop up the up/down arrows, adjust to a desired position, and tap on the bar again to hide arrows.
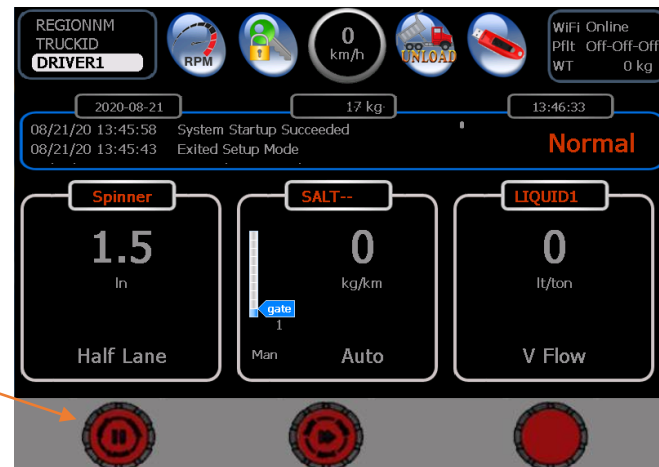

Tap here to view/hide up/dn arrows
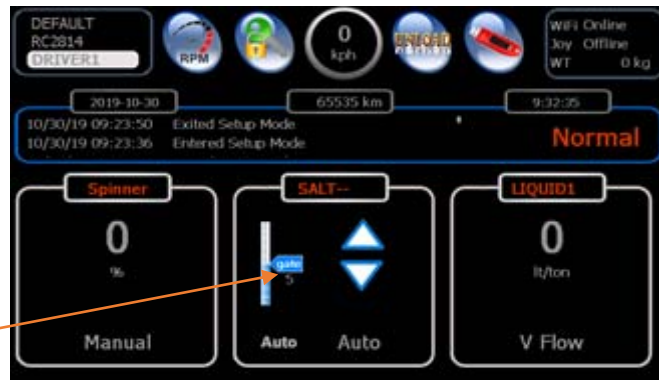
Note: Gate access needs to be enabled on setup screen

2.8 Lane Control

Operator can adjust spreading width by an increment of half lane or one lane depending on the configuration. With the lane control the solid application rate is lbs per lane mi or kg per lane km.

Dial spinner knob to change lane width

2.9 (4 knob) Spreader + 1Boom Anti-ice

This 4 knob configuration allows to run a standard spreader (Spinner, Conveyor, Prewet) and a single boom Anti-ice simultaneously. The 4 knobs (left→right) are for Spinner, Conveyor, Prewet and Anti-ice.
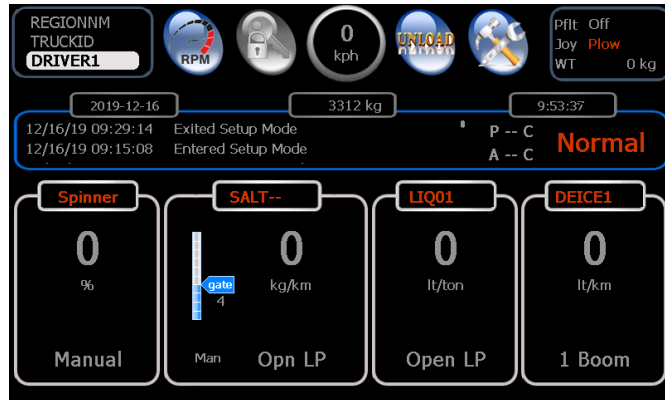
2.10 (4 knob) Spreader + 3Boom Anti-ice

The 4 knobs (left→right) are for Spinner, Conveyor, Prewet and Anti-ice. It has 3 external switches built in the armrest or a separate enclosure to switch booms On/Off. When a boom is ON the color of the boom indication letter changes to RED.

Boom On/Off indicators

2.11 (4 knob) Spreader + Cross Conveyor

The 4 knobs(left→right) are for Spinner, Conveyor, Prewet and Cross Conveyor. This requires a 4 knob console with an external direction switch to control the cross conveyor direction that is displayed with the RED dot at the bottom of the cross conveyor panel.
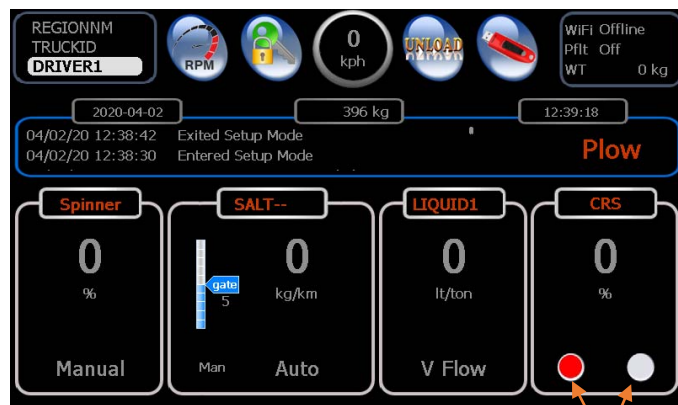
Direction indicators

2.12 (4 knob) Spreader + 3Boom Anti-icing + Cross Conveyor

The 4 knobs (left→right) are for Spinner, Conveyor, Prewet and Anti-ice. The Up/Down arrows at the top left are for cross conveyor speed control. It has 4 external switches built in the armrest or a separate enclosure to switch booms On/Off and switch cross conveyor direction. When a boom is ON the color of the boom indication letter changes to RED.

Adjust crs cnv speed

crs cnv direction

Boom On/Off indicators
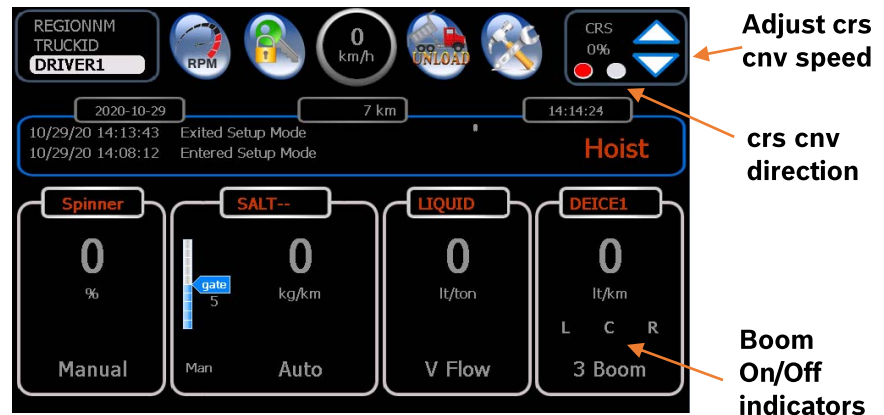
3   Selecting Profiles

Profiles allow the system to be configured in different ways. For example, you may have a profile for standard spreading operation, and another for anti-icing only. To select profiles, press and hold down in the truck information panel. If profiles are available, the menu shown below will pop up. Select a profile and then press "Apply Profile".

Note: You will need to reboot the system 2 times for changes to take effect.

Press and hold 5 seconds for profile menu
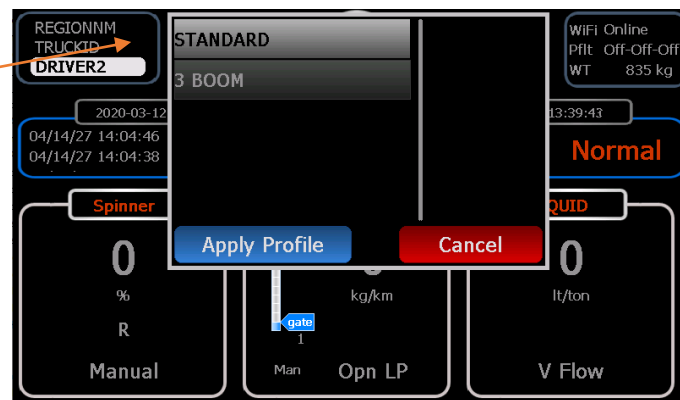
4   Joystick Operation

Available only when equipped with a joystick Armrest Console. When the Deadman Trigger is pressed, the joystick screen will be shown. When the trigger is released, the screen reverts back to the spreader layout. The PAUSE, BLAST and Power Float(PFloat, PFloat2) functions on joystick buttons can always be activated by pressing the button without pressing the Deadman trigger.

Note: *The joystick will only operate while the Deadman Trigger is pulled. The default spreader or joystick screen is selectable on USER setup screen.*

The oval buttons represent the push buttons on the handle of the joystick. When a joystick button is pushed, the proper mode or function activated(illuminated in red). The voice output feature audibly lets the operator know which mode has been selected.
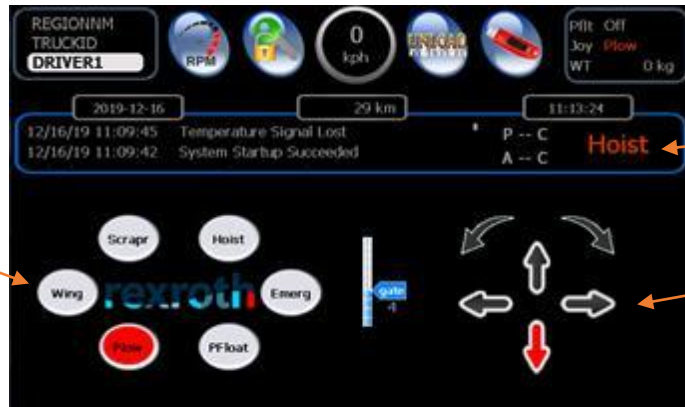
Current joy mode selected

Direction the joystick handle deflected.

# 5   Data Retrieval & Clear Trip Summary

Two different types of data can be retrieved from the 660/661, Log data, and parameter data. To get log data, you must use a 660 USB LOG Key. Parameter data, which is information about the current configuration can be retrieved using a 660 USB PROGRAM Key. The system will detect the type of USB Key inserted, so when the USB icon is pressed, the appropriate data will be downloaded to the Key.

With a 'LOG DATA KEY' inserted
Press the 'USB' symbol to transfer the log data.
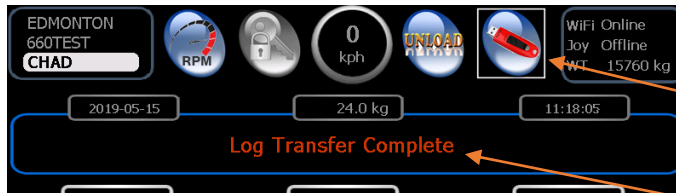
Press here to transfer log data
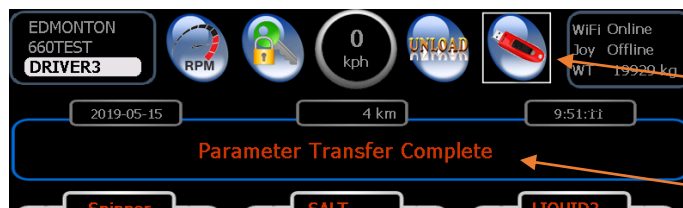
Confirmation message

With a 'PROGRAMMING KEY' inserted
Press the 'USB' symbol to transfer the parameter data.
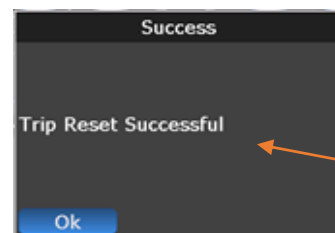
Press here to transfer parameter data

Confirmation message

Clear Trip Summary
With NO USB Key inserted. Press on the RPM icon   to display trip summary information.

Once this window is visible, press and hold the RPM icon for 5 seconds

Confirmation message

6   Error Messages

Error Messages	#	Suggested Solution
01-BLAST TOO LONG	1	Blast held too long
02-LIQ BLST TOO LONG	2	Liquid blast held too long
03-OVER SPEED	3	Slow down, reset max speed
04-ERR SPN OUTPUT	4	Check cables, check coil
05-ERR CONV OUTPUT	5	Check cables, check coil
06-ERR CRS1 OUTPUT	6	Check cables, replace coil
07-ERR CRS2 OUTPUT	7	Check cables, replace coil
08-NO GRANULAR DET	8	Load material, check sensor
09-NO LIQUID DET	9	Load material, check sensor
10-NO GROUND SPEED	10	Check cable/sensor
11-NO CONV FEEDBACK	11	Check cable/sensor
12-NO WET FEEDBACK	12	Check cable/sensor
13-NO LIQ FEEDBACK	13	Check cable/sensor

Warning Messages	#	Suggested Solution
21-UNLOAD NOT ALLOWED	21	Vehicle needs to be stationary
22-SYSTEM ERROR !!!	22	Reboot, or re-flash
23-NO RC,CHK FUSE/CONNECTION	23	Comm failure between display and RC
24-LIQUID BOOM OPERATION ERROR	24	Need at least one boom to work
25-NO JOY1,CHK CONNECTION	25	Comm failure between RC and Joy 1
26-NO JOY2,CHK CONNECTION	26	Comm failure between RC and Joy 2
27-NO GATE POS SENSOR	27	Check gate sensor, cable break
28-GATE CLOSED	28	Gate closed in READBACK mode
29-NO SIMULATE	29	Speed Simulation mode stopped
30-SPN UNDER APP	30	Spinner not able to reach desired RPM
31-SOLID UNDER APP	31	Rate or spd too hi, incorrect calib
32-PREWET UNDER APP	32	Rate or spd too hi, incorrect calib
33-LIQ UNDER APP	33	Rate or spd too hi, incorrect calib
37-GND SPD CALIBRATION	37	Too few or no pulses, recalibrate
38-SPINNER CALIBRATION	38	Bad or no sensor
39-CONVEYOR CALIBRATION	39	Bad or no sensor
40-PREWET CALIBRATION	40	Too few pulses, or sensor failed
41-LIQ CALIBRATION	41	Too few pulses, or sensor failed
42-SPN CAL: WRONG CTRL MODE	42	Auto null not allowed for MAN mode
43-CNV CAL:WRONG CTRL MODE	43	Auto-null or calibration not allowed
44-PREWET CAL:WRONG CTRL MODE	44	Auto-null or calibration not allowed
45-LIQ CAL:WRONG CTRL MODE	45	Check Anti-icing or CrsCnv modes
46-CRS CNV CAL:WRONG MODE	46	Check Cross-Conv mode setting
47-CALIBRATION ERROR	47	Check sensor, recalibrate
48-CALIBRATION ERROR	48	Check sensor, recalibrate
xx-CALIBRATION ERROR	49 • • 70	Check sensor, recalibrate

Error Messages	#	Suggested Solution
01-SURDOSAGE TROP LONG	1	Blast held too long
02-SURDOSAGE LIQUIDE TROP LONG	2	Liquid blast held too long
03-EXCÈS DE VITESSE	3	Slow down, reset max speed
04-ERREUR SORTIE TOURNIQUET	4	Check cables, check coil
05-ERREUR SORTIE CONVOYEUR	5	Check cables, check coil
06-ERREUR SORTIE CRS1	6	Check cables, replace coil
07-ERREUR SORTIE CRS2	7	Check cables, replace coil
08-MANQUE DE MATÉRIEL	8	Load material, check sensor
09-MANQUE DE LIQUIDE	9	Load material, check sensor
10-AUCUNE VITESSE AU SOL	10	Check cable/sensor
11-PAS DE SIGNAL DU CONVOYEUR	11	Check cable/sensor
12-PAS DE SIGNAL PRÉ-TREMPAGE	12	Check cable/sensor
13-PAS DE SIGNAL DE LIQUIDE	13	Check cable/sensor

Warning Messages	#	Suggested Solution
21-VIDER NON PERMIS	21	Vehicle needs to be stationary
22-ERREUR SYSTÈME !!!	22	Reboot, or re-flash
23-PAS DE RC,VÉRIFIER FUSIBLE/ CONNEXION	23	Comm failure between display and RC
24- ERREUR D'OPÉRATION DE BUSE LIQUIDE	24	Need at least one boom to work
25-PAS DE JOY1,VÉRIFIER CONNEXION	25	Comm failure between RC and Joy 1
26-PAS DE JOY2,VÉRIFIER CONNEXION	26	Comm failure between RC and Joy 2
27-PAS DE CAPTEUR DE PORTE	27	Check gate sensor, cable break
28-PORTE FERMÉE	28	Gate closed in READBACK mode
29-PAS DE SIMULATION	29	Speed Simulation mode stopped
30-TOURNIQUET SOUS APPLICATION	30	Spinner not able to reach desired RPM
31-SOLIDE SOUS APPLCATION	31	Rate or spd too hi, incorrect calib
32-PRÉ-TREMPAGE SOUS APPLICATION	32	Rate or spd too hi, incorrect calib
33-LIQUIDE SOUS APPLICATION	33	Rate or spd too hi, incorrect calib
37-ÉTALONNAGE VITESSE AU SOL	37	Too few or no pulses, recalibrate
38-ÉTALONNAGE TOURNIQUET	38	Bad or no sensor
39-ÉTALONNAGE CONVOYEUR	39	Bad or no sensor
40-ÉTALONNAGE PRÉ-TREMPAGE	40	Too few pulses, or sensor failed
41-ÉTALONNAGE LIQUIDE	41	Too few pulses, or sensor failed
42-ÉTALONNAGE TOURNIQUET: MAUVAIS MODE CTRL	42	Auto null not allowed for MAN mode
43-ÉTALONNAGE CONVOYEUR: MAUVAIS MODE CTRL	43	Auto-null or calibration not allowed
44-ÉTALONNAGE PRÉ-TREMPAGE: MAUVAIS MODE CTRL	44	Auto-null or calibration not allowed
45-ÉTALONNAGE LIQUIDE: MAUVAIS MODE CTRL	45	Check Anti-icing or CrsCnv modes
46-ÉTALONNAGE CONVOYEUR TRANSVERSAL: MAUVAIS MODE CTRL	46	Check Cross-Conv mode setting
47-CALIBRATION ERROR	47	Check sensor, recalibrate
48-ERREUR D'ÉTALONNAGE	48	Check sensor, recalibrate
xx-ERREUR D'ÉTALONNAGE	49 • • 70	Check sensor, recalibrate