



CHLOROBITE™
ELECTRONIC MATERIAL SPREADER CONTROLLER



**MATERIAL
SPREADING**

MECHANIC'S MANUAL

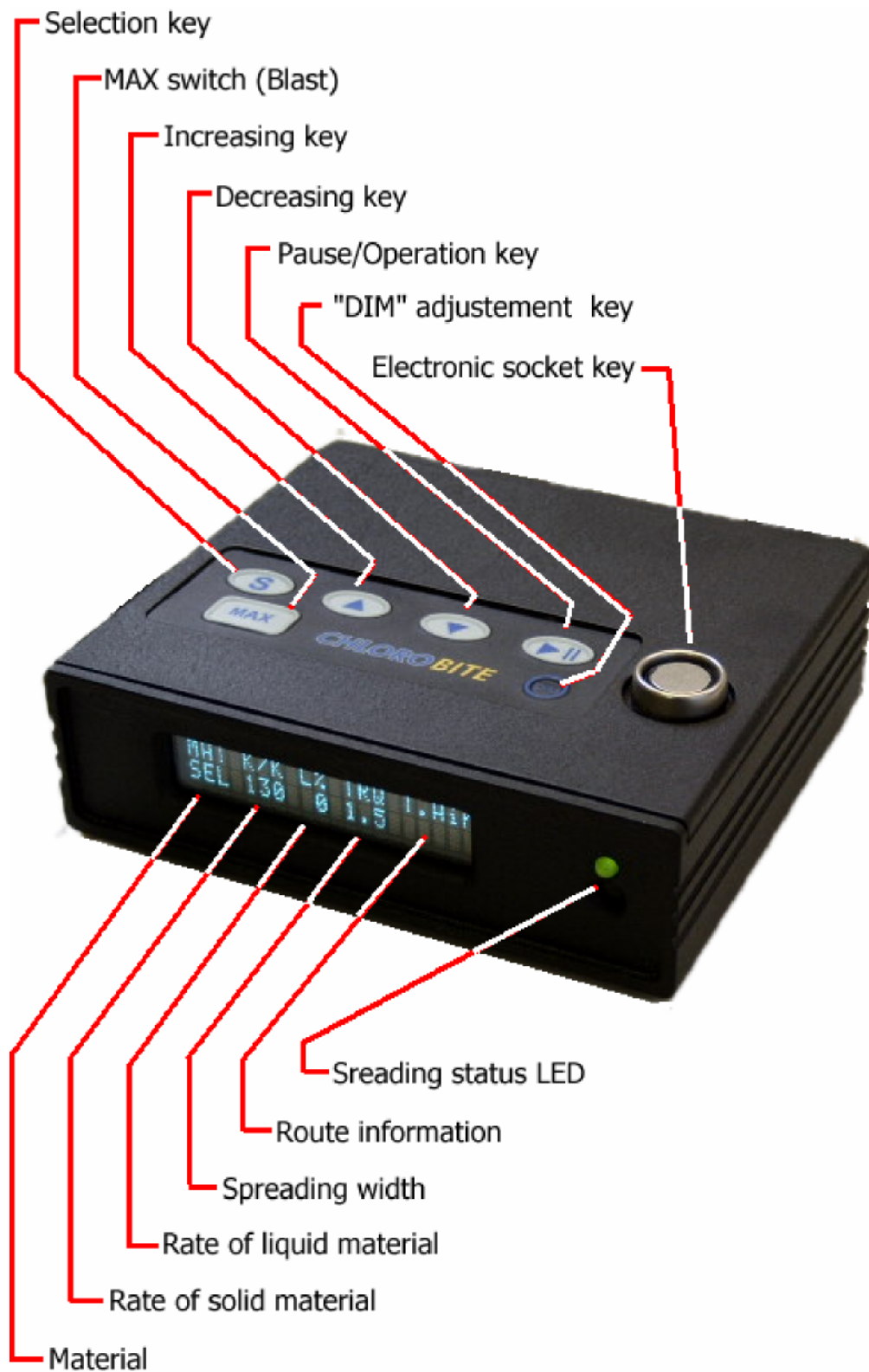
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CHLOROBITE CONSOLE



THE CHLOROBITE SPREADER CONTROL SYSTEM

CHLOROBITE OBJECTIF

The CHLOROBITE control was conceived to allow spreading of solid materials (salt, sand, stone dust, etc.) as well as the application of liquid (brine, liquid calcium) on the salt.

CHLOROBITE CONSOLE

The console of the Chlorobite Spreader Control system allows for:

- choosing the manner of spreading material in the American or European modes;
- choosing the type of solid material;
- adjusting the spread rate in K/K (kg/km, American mode) or G/M (g/m², European mode);
- Adjust the pre wet rate;
- Set the spread width;
- Activate or stop the Blast function.

CONSOLE SCREEN

The screen indicates from left to right:

- the type of solid material selected;
- the spread rate in K/K (kg/km) in the American mode or G/M (g/m²) in the European mode;
- the percentage of pre wetting L%;
- the spinner width meter;
- a field for various information concerning the spreading process that are user selectable.

REPORTS

Various reports for analysing and optimising your spreading operations are available. The INFOBITE software allows you to create the reports you need. It allows you to work in multi user mode. Using the optional INFOBITE GPS module adds the GPS position to the Chlorobite data and transfers them automatically via a wireless RF connection into the INFOBITE database. (See attachment 2 on page 38 for the report content).

USING THE CHLOROBITE CONTROLLER

The Chlorobite Spreader Control System integrates two modes of operation:

- the «Operating Mode» (see Operator Manual) for every day use of the spreader;
- the «Programming Mode» that consists of two levels of programming:
 - **practical programming** (see page 23) gives access to functions that fine tune the spreader's every day operation.
 - **essential programming** (see page 8) that calibrates the unit and establishes basic operating conditions.

Note: *The Chlorobite controller is pre programmed at the factory. Before starting a calibration process it is highly recommended to fill out Attachment I in order to define your particular settings.*

INITIAL PROGRAMMING

After installing and before using the CHLOROBITE Spreader Control System it is essential to establish certain settings particular to your truck.

The first choice required that determines most following settings.

PRIMARY SETTING: The type of spreading chosen

The CHLOROBITE may use two different modes of spreading:

The **American Mode** calculates the spread rate as a ratio of the weight of material spread over a certain distance and is calculated in kilograms per kilometer K/K (kg/km). In this modes any variation in spread width does NOT vary the quantity of material spread over a certain distance.

The **European Mode** calculates the quantity of material spread over a certain surface expressed in gram/square meter (G/M). In the European mode any change in spread width will vary the conveyor speed. The CHLOROBITE unless otherwise specified is delivered set to the **American Mode**. The spread rate field indicates **K/K**. If you want to work in the European Mode you have to change settings as follows:

STEP TO FOLLOW TO PASS IN EUROPEAN MODE WIHT THE CONSOLE.

1 - After opening the console press the S button twice . The K/K field will flash.	S S.
2 - Use the downward arrow and reduce the spread rate to zero (0). With any value other than zero the system cannot change from one mode to the other. Note: If you are unable to lower the spread rate to zero, go see the Minimum Rate setting in the «Solid Material» or Rates Table on Ontario version section on page 12.	
3 - Press the S button once. The rate unit will change to G/M .	S
4 - To confirm your choice of the spreading mode increase the spread rate with the upward arrow key.	
5 – Press: • the pause/automatic button if you want to start working at the selected rate OR • The S key in order to confirm and move to the pre wet field L% for its adjustment.	 S

ESSENTIAL PROGRAMMING

The Essential programming gives access to the calibration functions of the controller and allows the user to establish his personnel operating choices. This requires the use of the remote control provided with the Chlorobite System.



There are two ways to access the Essential Programming Mode of the controller: Press the blue programming key onto the electronic key socket on top of the console, or Enter the “Utility Programming”, then go to “Access Code Menu”. In both cases the console will ask you to enter the Access Code with your remote control

A blue (programming access) key may be required or be optional. See the section «Access Keys» on page 19.

The access code pre programmed at the factory is 1-2-3-4. It may be changed to limit access to authorised personnel only. See section “Access Code” on page 18.

To enter the access code numbers use the remote control keyboard of the ACE remote control.

Note: In case you loose the personnel access code only a technician from ACE will be able to unlock the controller.

After having entered the access code and pressed “Enter” with his remote control, you enter the main programming menu of the ACE controller.

ABOUT...
DATE AND TIME
DISTANCE
SALT
SAND
MATERIAL A
MATERIAL B
LIQUID
WIDTH
MAX SWITCH
MAXIMUM SPEED
ACCESS CODE
ACCESS KEYS
FACTORY MENU
EXIT

In order to move through the menu use the CH+ and CH- keys of your remote control. Confirm your choice by pressing the POWER  of your remote control.

ABOUT...

The ABOUT option gives the software's version and the control system's serial number. This is useful information when updating the control system.

Select the "about" option, then press POWER  to have access to this information.

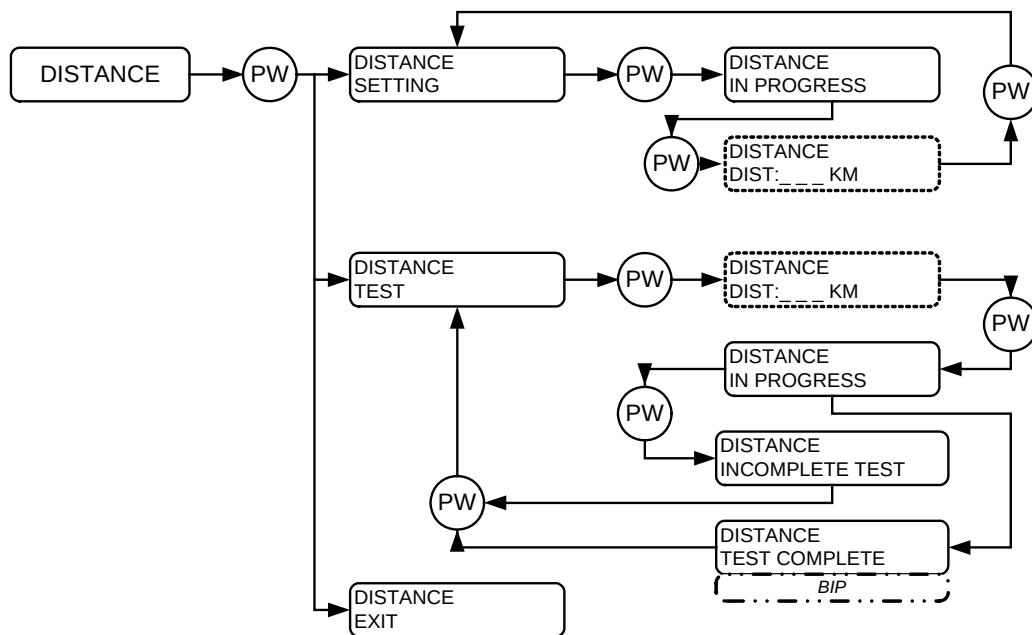
DATE AND TIME

The DATE AND TIME option is used to set the date and time of the controller. This setup is essential for correct data in the reports.

- Select the "Date and Time" option and press POWER .
- Use the CH+ and CH- keys to make the fields you want to change flash. Use the remote control key board to enter the correct numbers. When all numbers of the date are correct, press POWER .
- Repeat the procedure to adjust the time (HH : MM) and press POWER .

DISTANCE

The DISTANCE menu is to establish the setting of the signals/distance ratio. This setting allows the control system to calculate the number of pulses sent by the transmission and relate this to the truck speed when the vehicle is moving.



A - Setting

The SETTING option is to begin the distance setting.

- Press POWER  to select the “SETTING” option.
- Press POWER  to begin the setting. The system displays “IN PROGRESS” and counts the number of pulses coming from the transmission.
- Travel a distance of X,XX km. The longer the distance, the more precise is the setting. It is suggested to travel a distance of 1 km. Press POWER  once the distance is completed.
- Enter the covered distance and press POWER .

B - Test

The TEST option verifies the distance setting.

- Press POWER  to select the “TEST” option.
- Enter the distance used for testing and press POWER . The system displays “IN PROGRESS” and counts the pulses coming from the transmission. When the count corresponds to the distance used for testing, a sound is heard and “TEST COMPLETE” is displayed on the system’ screen.

Note: You may take note of the number of pulse indicated in the lower right of the screen for later reference.

- Press POWER . If the test is interrupted, the system displays “INCOMPLETE TEST”.
- Press POWER  to return to the “DISTANCE” menu.

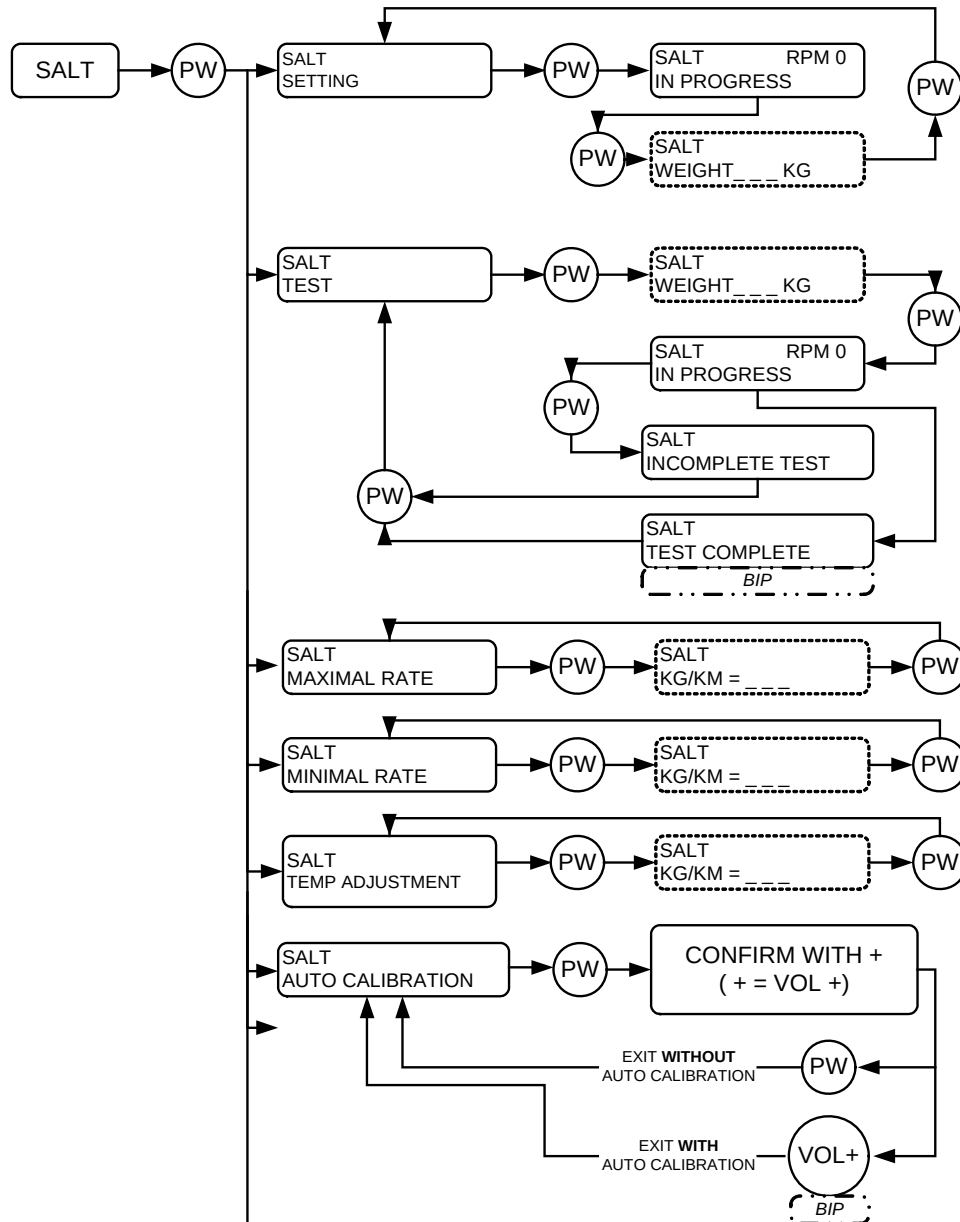
C - Exit

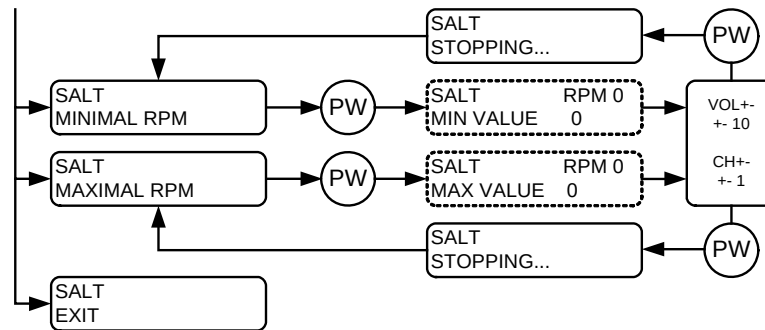
The EXIT option returns you to the “Essential Programming” main menu.

SOLID MATERIALS

The Salt, Sand, Material A, Material B menus are used to establish the settings for each of these materials

Note: Use the setting specific material to make the most precise possible initial setting. Moreover, it is advised to fill the spreader to half its capacity





A - Setting

The SETTING option is to engage the designated material setting.

- Press POWER  to select the SETTING option.
- Press POWER  to start the setting. The system displays “IN PROGRESS” and is ready to begin the filling of the box.
- Use the CH+ and CH- keys to set the conveyor to its desired speed.
- If needed use the Volume + and Volume – keys to adjust the spinner speed. You may use the # 2 and # 8 keys for faster spinner speed adjustment if required.
- Vary the conveyor speed as necessary for convenient and precise filling of the calibration box. Using the CH- key you may actually stop the conveyor while levelling the calibration box, and then restart the conveyor with the CH+ key for adding some material.
- Once the box is perfectly full, press the “POWER” key.
- Enter the weight of the material just unloaded into the calibration box, expressed in Kg, then press POWER .

B - Test

The TEST option is used to verify the material setting.

- Press POWER  to select the TEST option.
- Enter the weight in kg of the material requested for testing. Press POWER . The system displays “IN PROGRESS” and is ready to begin the filling of the box used during setting.
- Control the conveyor and spinner speeds as during the setting process. When the weight of the material unloaded equals the weight of the material requested for testing, the conveyor stops. A sound is heard and “COMPLETE” is displayed on the screen. The box must be full for the test to be positive.
- Press POWER .

Note: If the test is interrupted, the system displays “incomplete”. Press POWER  to return to the solid material menu.

IMPORTANT: It is always possible to stop the conveyor during the setting operations by pressing any key of the remote control (except the CHANNEL, VOLUME, 2, and 8 keys).

C - Maximal rate

The MAXIMAL RATE option is to set the maximal spreading value for the material. This value will be the programmable limiting value and the upper limit of the automatic rate adjustment done by the infrared temperature sensor when this option is activated.

- Press POWER  to select the MAXIMAL RATE option.
- Enter the new MAXIMAL RATE value and press POWER .

Note: In European mode (G/M), the actual maximal rate will be the programmed maximal rate multiplied by the spreading width.

D - Minimal rate

The MINIMAL RATE adjustment is the lowest rate the operator may select during normal operation, and the lower limit of the automatic rate adjustment done by the temperature sensor option.

- Press POWER  to select the MINIMAL RATE option.
- Enter the new MINIMAL RATE value and press POWER .

Note: In European mode (G/M), the actual maximum rate will be the programmed maximum rate multiplied by the spreading width.

E - Temp. Adjustment

The TEMP ADJUSTMENT setting determines the rate variation when the automatic temperature sensor controlled rate adjustment is activated. For each degree Celsius of temperature change up or down the rate is varied according to this setting. For example, a one degree increase in temperature will decrease the rate by 10 kg/km or any other value entered in the TEMP ADJUSTMENT field. A one degree drop in temperature will increase the rate by 10 kg/km in the example. To activate this feature you need the ACE infrared temperature sensor and its interface.

- Press the POWER  key to select the TEMP ADJUSTMENT option.
- Enter the new rate change number, then press POWER .

IMPORTANT: It is always possible to stop the conveyor during the setting operations by pressing any key of the remote control (except the CHANNEL, VOLUME, 2, and 8 keys).

F - Auto Calibration (In the SALT menu only)

The «AUTO CALIBRATE» function calibrates Sand, MxA and MxB from the various specific material weights as defined by the MTQ. The controller calculates the number of conveyor sensor pulses required to discharge a given amount of material by taking into account the weight per volume for each material.

Note: The specific weights as defined by the MTQ are:

Salt:	1300 kg/m ³
Sand:	1680 kg/m ³
MxA:	1455 kg/m ³
MxB:	1555 kg/m ³

Press POWER  to select AUTO CALIBRATE. Press VOL+ to confirm that you want to auto calibrate the system, or press POWER to return to the main menu.

G - Minimal Conveyor RPM

This adjustment matches the electronics to the hydraulic valves of set (starting point). Increase slowly the current until the conveyor hydraulic motor starts to move. Once the minimal speed is established, press POWER .

Note 1: The RPM indicated in the upper left of the screen are the hydraulic motor revolutions, at the bottom is the value in $x/255$ that expresses the intensity of the PWM signal.

Note 2: It is sufficient to do this adjustment on one material only.

H - Maximal Conveyor RPM

This adjustment establishes the maximal revolutions of the conveyor. Press POWER  when the setting is reached.

Note 1: The RPM indicated in the upper left of the screen are the hydraulic motor revolutions, at the bottom is the value in $x/255$ that expresses the intensity of the PWM signal.

Note 2: It is sufficient to do this adjustment on one material only.

I - Exit

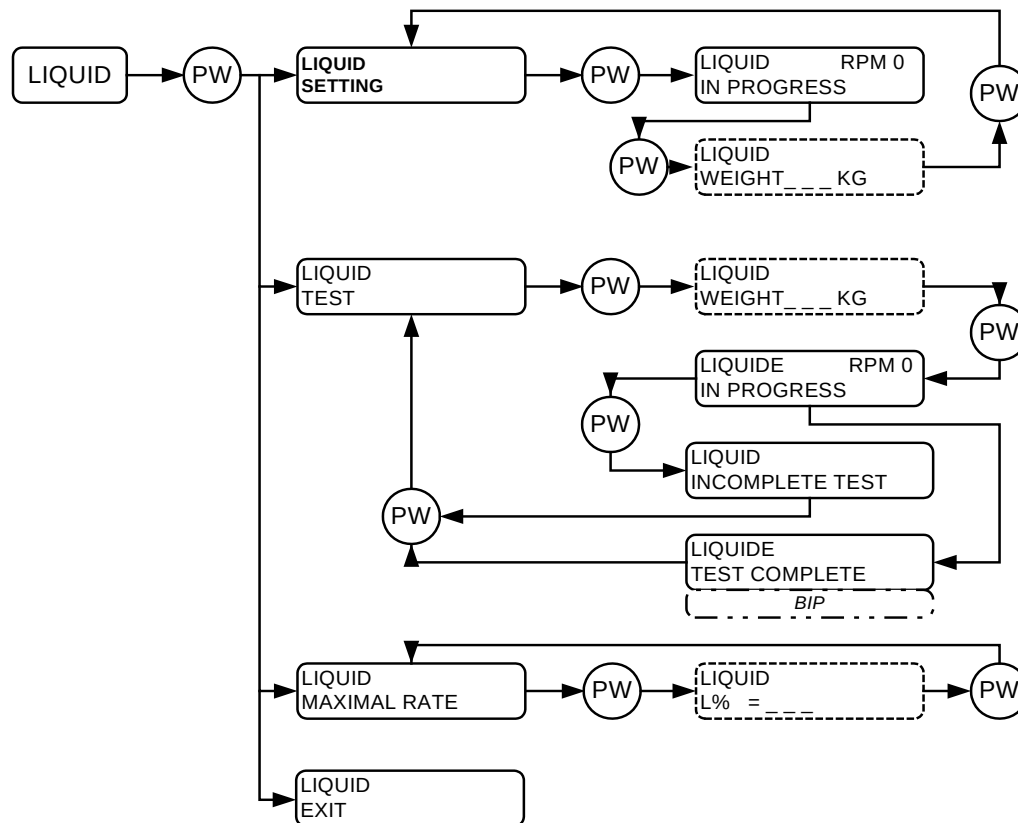
The EXIT option returns you to the Essential Programming main menu.

IMPORTANT: It is always possible to stop the conveyor during the setting operations by pressing any key of the remote control (except the CHANNEL, VOLUME, 2, and 8 keys).

LIQUID

The LIQUID menu is used to establish the setting for the pre wet option.

The procedure is the same as for a solid material (see solid materials section, page 10).

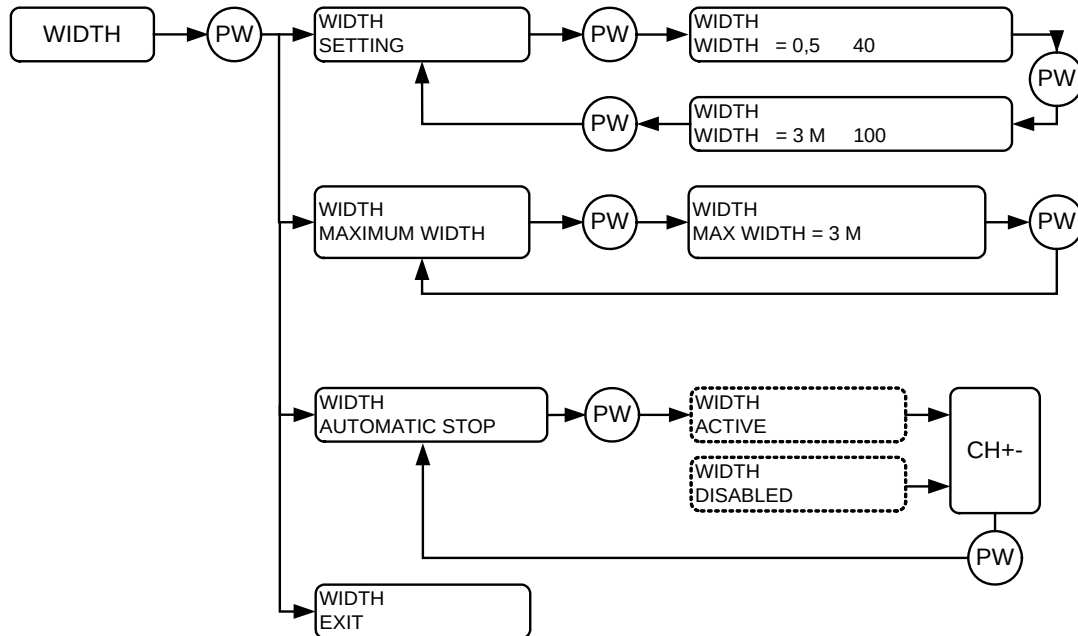


IMPORTANT: It is always possible to stop the conveyor during the setting operation by pressing any key of the remote control (except the CHANNEL, VOLUME, 2, and 8

WIDTH

The WIDTH menu is to adjust the spreading width. The spreading width setting is necessary when working in European mode.

Important Note: It is advised to use salt with this setting in order to have a more precise spreading width.



IMPORTANT: It is always possible to stop the conveyor during the setting operation by pressing any key of the remote control (except the CHANNEL, VOLUME, 2, and 8 keys).

A - Setting

The SETTING option is to establish the settings for two spread widths: 0,5m and 3,0m

- Press POWER  to select the SETTING option.
- Press POWER  to begin the SETTING.
- Start the conveyor using the VOLUME keys to bring material to the spinner.
- Increase or decrease the spinner speed using the CH+ and CH- keys until the spreading width equals 0,5 meter. At that point, press POWER .

The same adjustment is necessary for the 3 meters width. Press POWER  to end the spread width setting.

Note : It is recommended to have the conveyor moving when setting the spinner, as this results in more precise adjustment. When adjusting the spread width, every time the VOL+ and VOL- keys are used for the conveyor speed adjustment, they vary the solenoid opening by 1/255. When using the 2 or 8 keys, the conveyor solenoid opening changes by 10/255.

B - Maximum Width

The MAXIMUM WIDTH option is to set the maximum spreading value. This value will be the upper limit of the spinner speed when in operation mode.

- Press POWER  to select the MAXIMUM WIDTH option.
- Enter the new MAXIMUM WIDTH value and press POWER .

C - Automatic Stop

The AUTOMATIC STOP option allows you to keep the spinner operational when the vehicle is stopped.

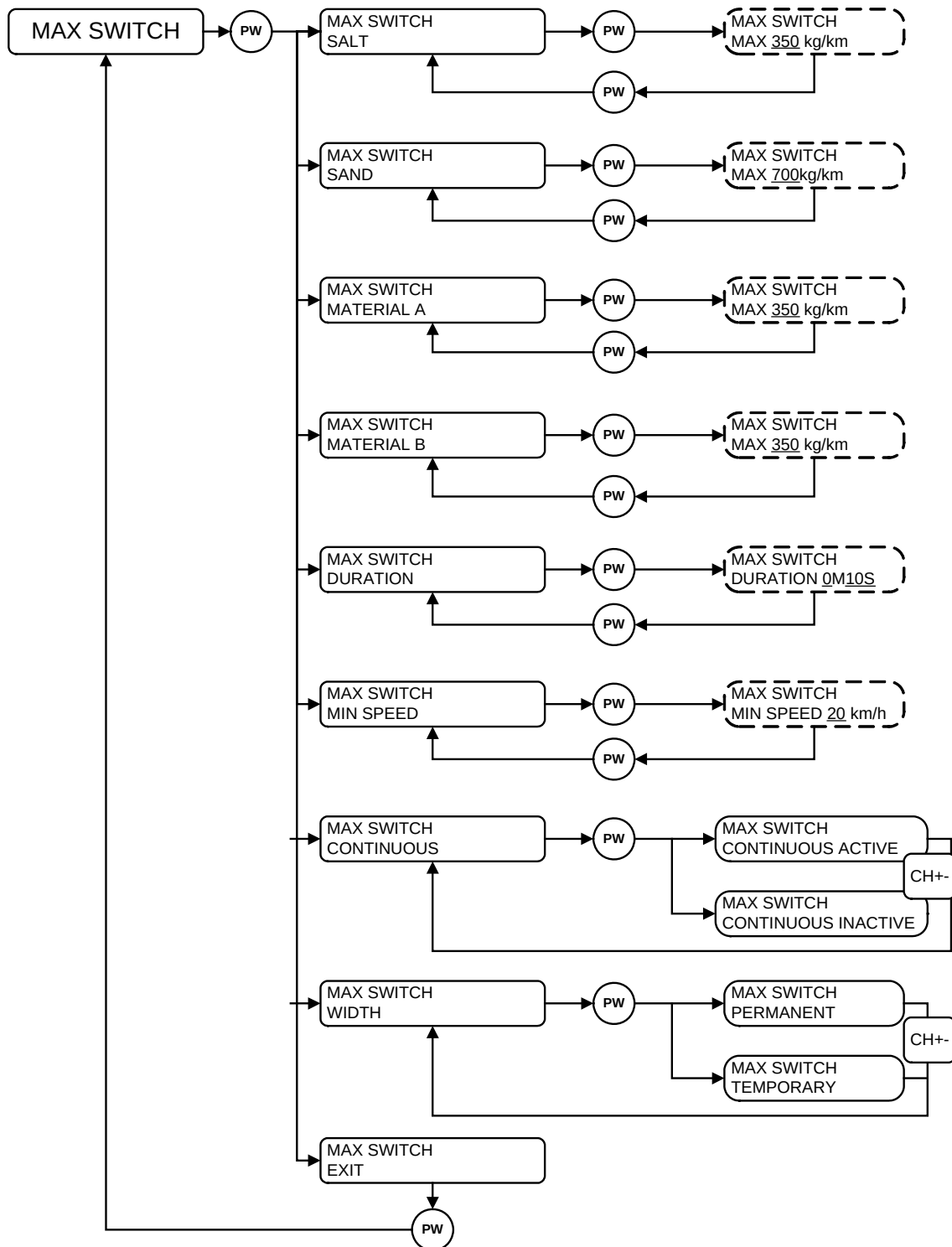
- Press POWER  to select AUTOMATIC STOP.
- Choose DISABLED to allow continuous spinner operation with the vehicle stopped, or ACTIVE if you want to stop the spinner when the vehicle stops.

D - Exit

The EXIT option returns you to the basic programming main menu.

MAX SWITCH

The MAX SWITCH menu is to adjust the blast operation rates. It is possible to modify the pre-programmed values.



A – Materials

The *salt, sand, material A, material B* options allow to adjust the blast rates specific to each material. The blast rates are in kg/km for a North American mode spreading or in g/m² for an European mode spreading.

- Press POWER  to select the material to modify the blast rate (MAX).
- Enter the new blast rate and press POWER .

B – Duration

The DURATION option sets the duration of the blast operation.

Note: Blast may be cancelled by the operator any time by clicking the blast button a second time.

- Press POWER  to select the DURATION option.
- Enter the new blast duration value (between 1 second and 99 minutes 59 seconds) and press POWER .

C - Min Speed

The MIN SPEED option sets the minimum theoretical speed considered by the control system at low vehicle speed. This means that at lower than the programmed minimum speed the controller will use the programmed minimum speed during the blast operation.

- Press POWER  to select the MIN SPEED option.
- Enter the new minimum speed value and press POWER .

D - Continuous

The continuous option allows you to keep the blast function operational when the vehicle is stopped.

- Press POWER  to select CONTINUOUS.
- Choose ACTIVE to allow continuous blast operation with the vehicle stopped, or INACTIVE if you want to stop the blast when the vehicle stops.

E - Width

The width option automatically returns the spinner speed to the width setting as it was prior to the blast operation.

- Press POWER  to select WIDTH.
- If you want the spread width to return to its original setting at the end of the blast operation, choose TEMPORARY width.
- If you want the width setting during the blast operation to be maintained at the return to normal operation, choose PERMANENT width.
- Confirm your choice by press POWER .

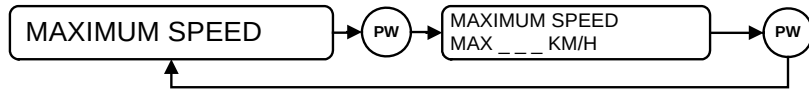
F - Exit

The EXIT option returns you to the basic programming main menu.

MAXIMUM SPEED

The MAXIMUM SPEED menu is to set the maximum speed allowed during spreading. If, during the spreading operation, the vehicle goes faster than the programmed maximum speed, the controller will warn the driver.

- Press POWER  to select the MAXIMUM SPEED menu.
- Enter the MAXIMUM SPEED value and press POWER .

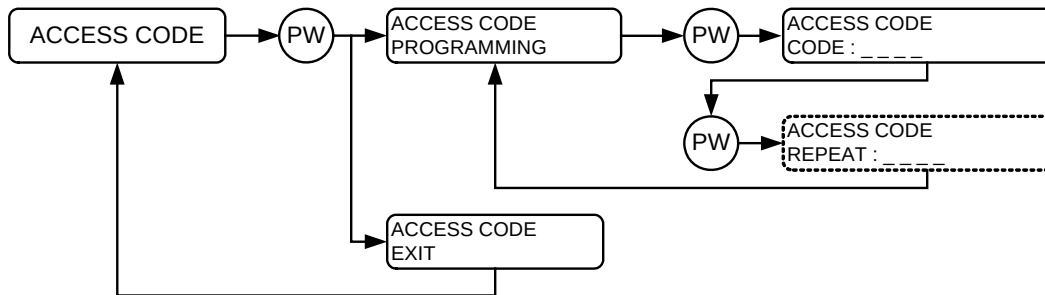


ACCESS CODE

The ACCESS CODE menu is to modify the basic programming access code.

- Press POWER  to select the ACCESS CODE option.
- Enter a new four character code and press POWER .
- Enter the new code a SECOND TIME and press POWER .

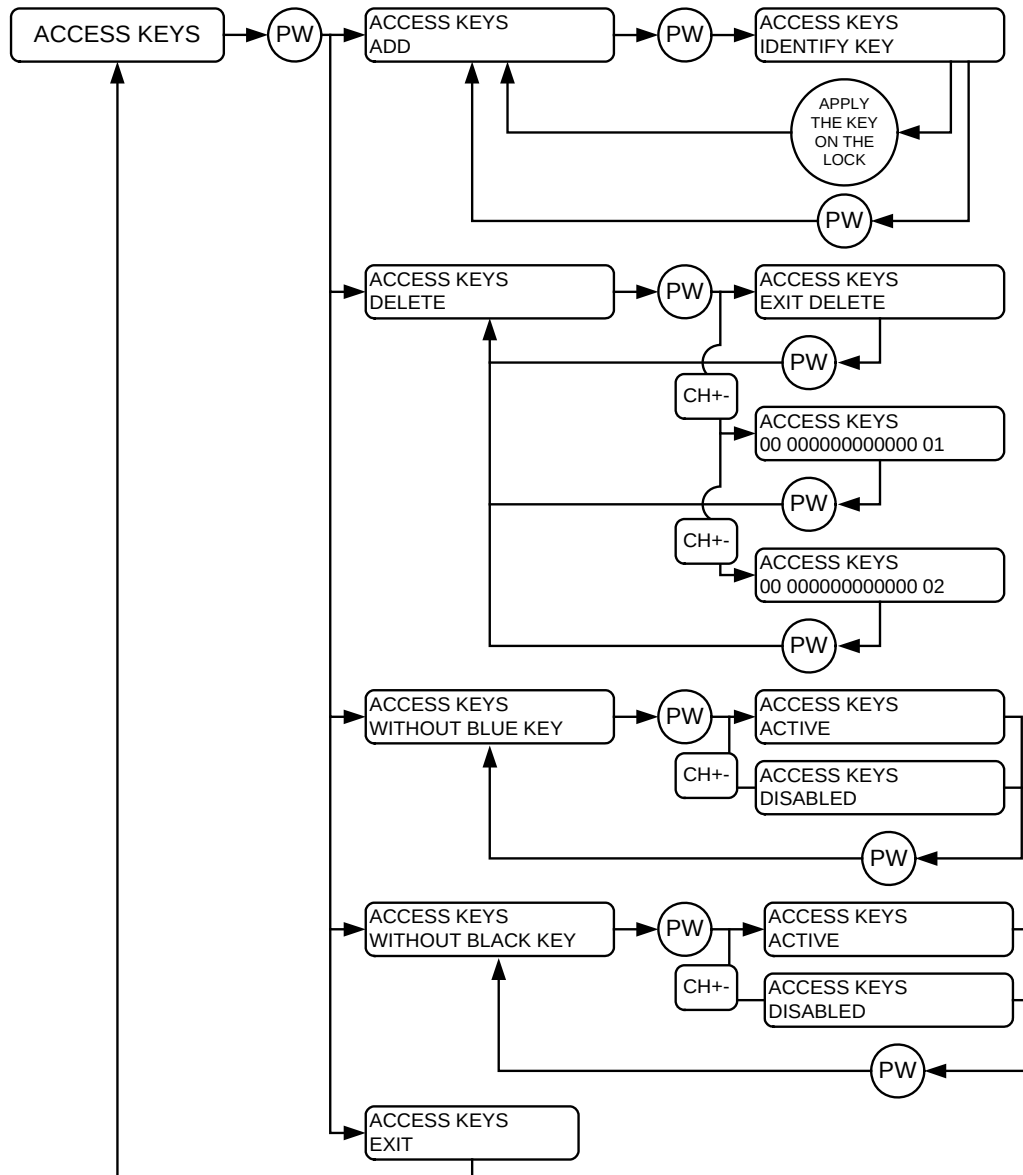
Important note: If an access code is forgotten, only an ACE, Accent Electronics Controls Inc. technician can unlock the control system.



ACCESS KEYS

The ACCESS KEY menu allows you to add or suppress (black) operator's keys. The operator keys are intended to identify the operator in the reports.

This menu also allows to start the controller without operator keys, and to allow access to the essential programming mode without the blue operating key.



A - Add

The ADD function allows you to add new black keys to the controller's memory.

- Press POWER  to enter the ADD option. The screen will indicate "IDENTIFY KEY".
 - Press the new black key onto the key socket on top of the console. "ADD" will re appear.
- To add a second key, repeat the operation. To leave the ADD menu use the CH+ or CH- keys.

B - Delete

The DELETE function allows you to remove black keys from the controller's memory.

- Press POWER  to enter the DELETE option. The screen will indicate "EXIT DELETE".
- Using the CH+ and CH- keys visualise the black keys in the controller's memory.
- Press POWER  when the key number you want to suppress appears.

Note: If you want to leave the DELETE menu without removing any key, press POWER  when EXIT DELETE is on screen.

C - Without Blue Key

The WITHOUT BLUE KEY function allows access to the Essential Programming Mode of the controller without a blue key when activated.

- Press POWER  when WITHOUT BLUE KEY appears on the screen.
- Set to ACTIF if you want access without a blue key, or choose INACTIF if you want to require a blue key.
- Confirm your choice by pressing POWER .

D - Without Black Key

The WITHOUT BLACK KEY function lets you choose if you allow the operator to open the console without a black operator's key.

- Press POWER  when WITHOUT BLACK KEY appears on screen.
- Set to ACTIF if you want access without a black key, or choose INACTIF if you want to require a black key.
- Confirm your choice by pressing POWER .

E - Exit

The EXIT option returns you to the basic programming main menu

FACTORY MENU

The factory's menu allows entering certain data essential to the controller's performance. Access to this menu requires a special code that only ACE may provide you with.

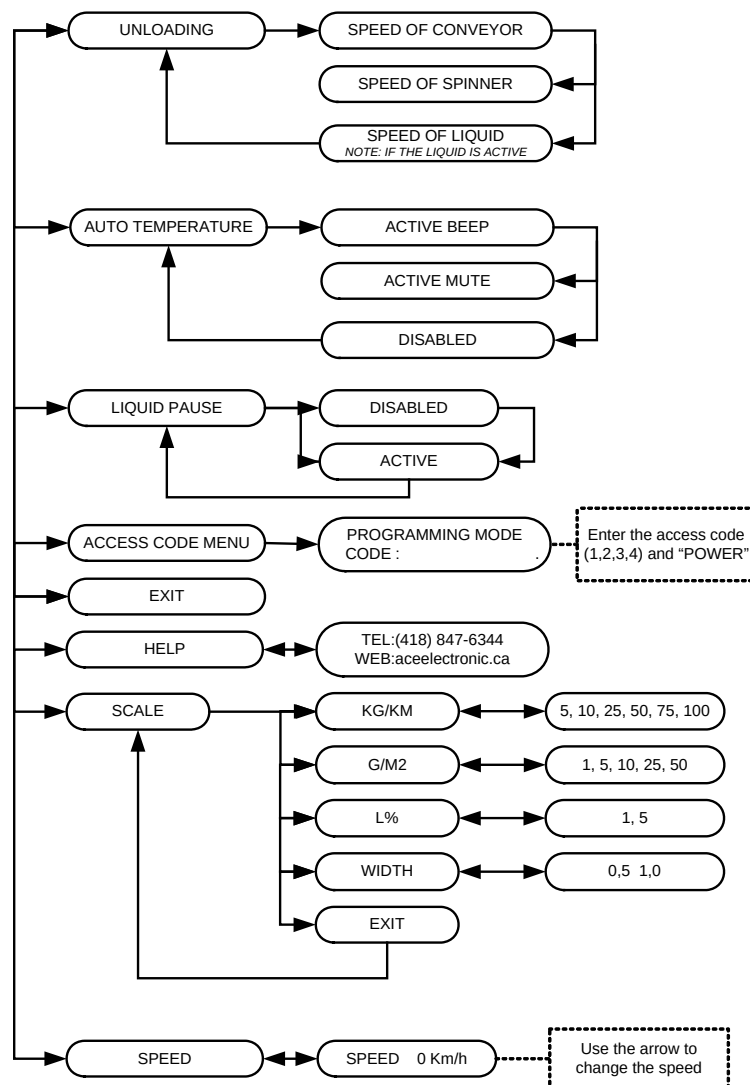
PRACTICAL PROGRAMMING

All Practical Programming is done with the keys on top of the console.

To have access to the practical programming mode, press simultaneously the **selection key** and the **pause/operation key**. A sound is then heard to confirm that the system is in practical programming mode. The Practical Programming menu is then displayed on the system's screen.

Use the arrow keys to move through the menu,
and confirm your choices with the "S" key.

S



Practical Programming Options

UNLOADING :	to unload the spreader. Bring the vehicle to a stop for the unloading to engage.
AUTO TEMPERATURE	activates the automatic spread rate adjustments for the solids and liquid as a function of the road surface temperature. Requires the optionnal ACE Temperature sensor.
LIQUID PAUSE	When DISABLED it stops the application of solid and liquid materials when the Pause key is pressed once (the indicator LED goes from green to red directly)
ACCESS CODE MENU	Gives access to the Essential Programming menu without a blue programming key.
EXIT :	to exit the practical programming mode. The control system automatically saves the selection.
HELP	information on ACE, Accent Electronic Controls, Inc.
SCALE :	to modify the scale of variation of the pre-determined values (kg/km, g/m ² , L%, Width,)
SPEED :	to simulate speed signals to the control system. Use this option to overcome a breakdown in the speed reading system.

OPERATOR'S SECOND CHOICE: IN CASE OF FAILURE OF THE CHLOROCOM.

The operator may continue his work even in case the CHLOROCOM switch panel fails and must be unplugged.

Choice of the Solid Material Type, using the console only:

The choice of the Solid Material Type is done by activating the “SOLID MATERIAL” field on the console.

1 - Press once on the “S” key on top of the console. The field on the screen will flash.

2 - Using the + **and** – **arrow** keys go to the material of your choice.

3 - Press the

- “**Pause/Automatic**” key to start operating immediately,

OR

- “S” to continue adjusting the controller

Solid material spread rate

Choice of the Solid Material Spread Rate, using the console only:

The adjustment of the solid material spread rate is done by activating the solid material field on the screen identified by “K/K” or “G/M”.

1 - Press the “S” key twice, the K/K field will flash.

2 - Using the **arrow keys** adjust the spread rate as desired. Each time an arrow is pressed the rate will vary by a step as set in the “SCALE” section of the Practical Programming menu.

- Press the “**Pause/Automatic**” key to start operating immediately,

OR

- Press “S” to continue adjusting the controller

Example: The rate is at 300 kg/km, you want to reduce it to 225 kg/km

- *Press “S” twice, K/K will flash*
- *Press three times the arrow down key, the rate will decrease 275, 250, 225.*
- *Press the “Pause/Automatic” key to start operating immediately, or press “S” to continue adjusting the controller*

Pre wet percentage adjustment

Choice of the Pre wet Percentage Rate, using the console only:

The adjustment of the liquid material spread rate is done by activating the liquid material field on the screen identified by “L%”.

1 - Press the “S” key three times

2 - Using the **arrow keys**, adjust the liquid rate as desired.

- Press the “**Pause/Automatic**” key to start operating immediately,

OR

- Press “S” to continue adjusting the controller

When you set the solid material rate to a new setting, the pre wet rate is maintained automatically by the controller.

Spread Width

Adjustment of the Spread Width, using the console only:

In the Operation Mode, the arrow keys on top of the console directly control the spinner speed.

Arrow up increases speed, arrow down decreases speed by the step as programmed in the “SCALE” section of the Practical Programming menu.

PAUSE/AUTOMATIC

When the console is started it is always in the “PAUSE” mode (Indicator LED red). Pressing the “PAUSE/AUTOMATIC” key once will make it enter the “AUTOMATIC” mode (Indicator LED green). When in the “AUTOMATIC” mode, pressing it again will make it go in “PAUSE” mode (LED red).

If the “LIQUID PAUSE” option in the Practical Programming section is activated, hitting the “PAUSE” button once while in the “AUTOMATIC” mode will stop the liquid only (LED orange), hitting it again will stop the solid and keep the liquid stopped (LED red).

See Practical programming page 22.

OPERATION DURING PARTIAL SYSTEM FAILURE

Conveyor speed signal loss (conveyor sensor or cable failure)

INDICATION

The controller will start to beep while the conveyor accelerates to its maximum capacity.
On screen the message: “CONVEYOR NOT WORKING” , followed by “BREAKDOWN CONVEYOR ACTIVE”

AUTOMATIC CONTROLLER ACTION

The controller operates the sander in open loop mode without feed back from the conveyor sensor. Spreading remains controlled by vehicle speed, material choice and spread rate.

REPETITION

The error message is repeated every 10 km, with a small audible signal.
The controller remains in open loop mode until shut down. It will re enter this mode until the problem at the source is repaired.

WHAT TO DO

Advise your foreman or competent technicians to fix the problem.

Liquid flow meter signal loss (liquid sensor or cable failure)

INDICATION

The controller will start to beep while the liquid pump accelerates to its maximum capacity.
On screen the message: “LIQUID NOT WORKING”, followed
The LED in front of the console will turn orange from green.
The liquid flow signal may be due to empty tanks, a plugged brine filter, plugged nozzles, etc.

AUTOMATIC CONTROLLER ACTION

The pre wet rate is automatically reduced to zero, and the brine pump is stopped.

WHAT TO DO

Advise your foreman or competent technicians to fix the problem.

Exceeding the maximum speed

INDICATION

The controller will beep slowly. The screen shows no particular message.

WHAT TO DO

Slow down.

Exceeding the hydraulic capacity

INDICATION

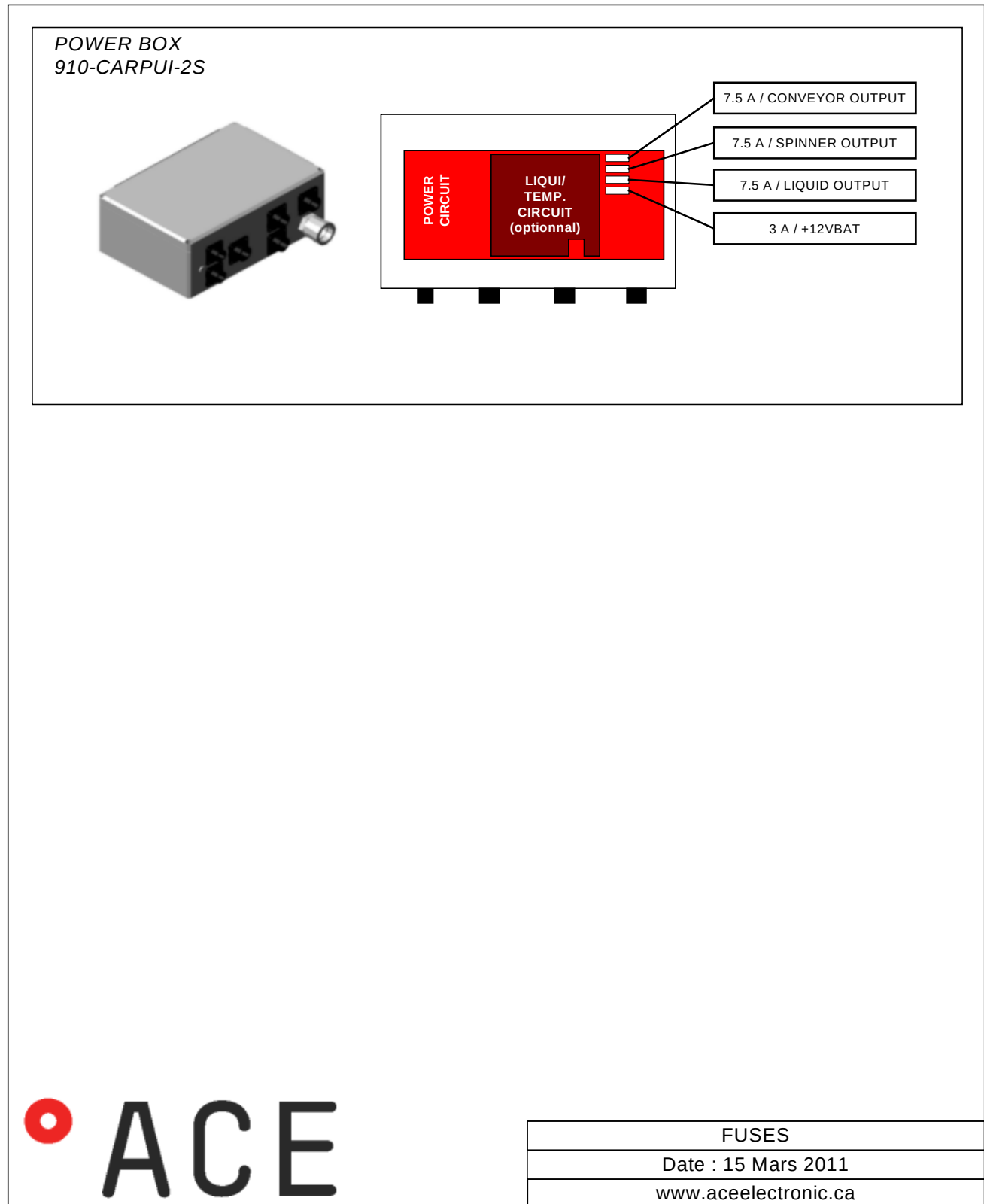
The controller will beep rapidly. The screen shows no particular message.

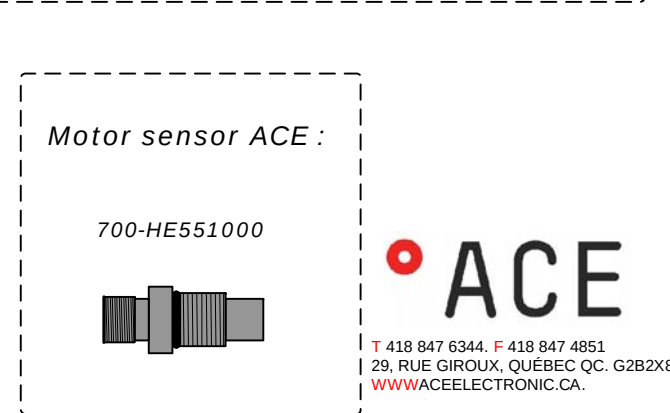
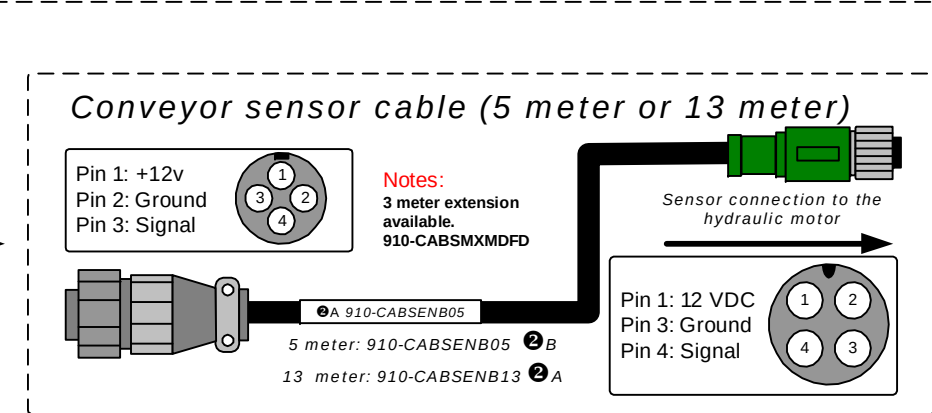
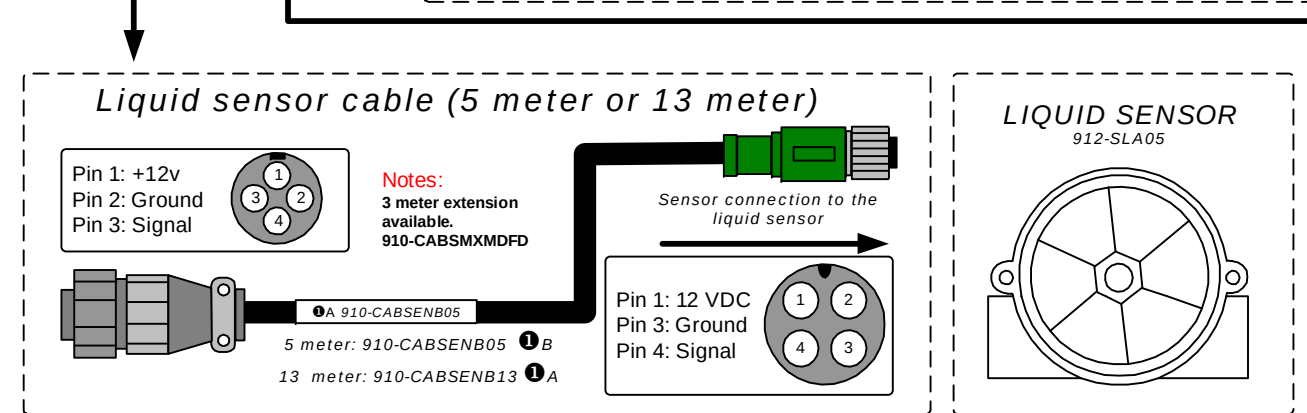
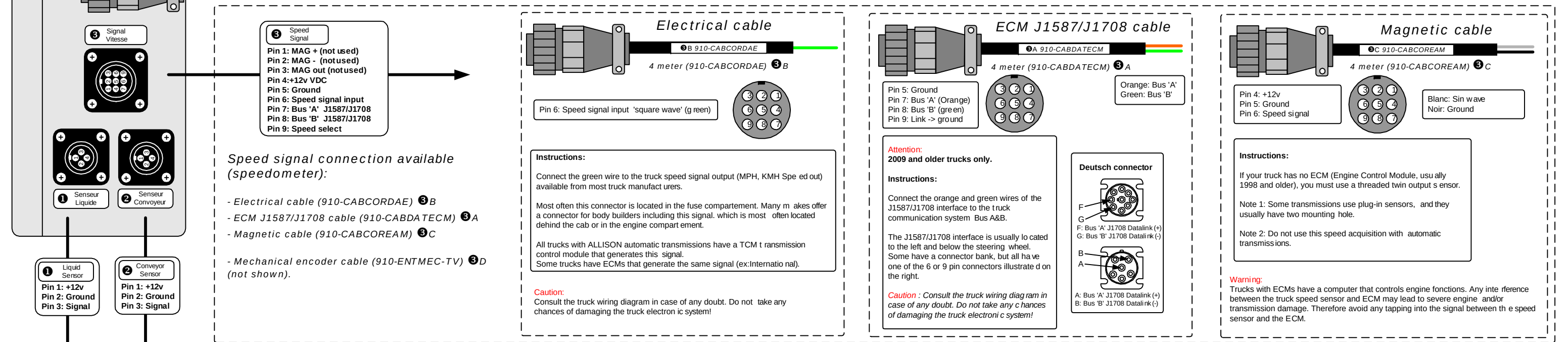
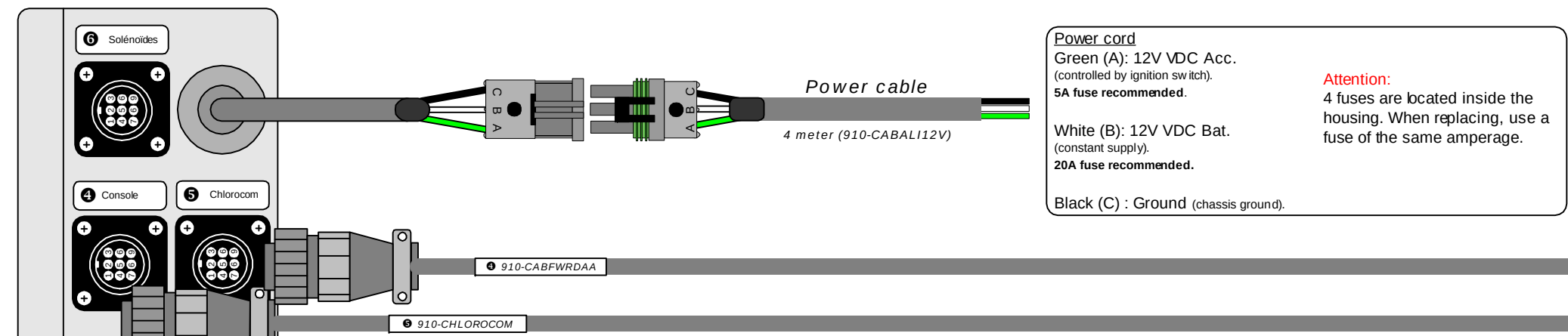
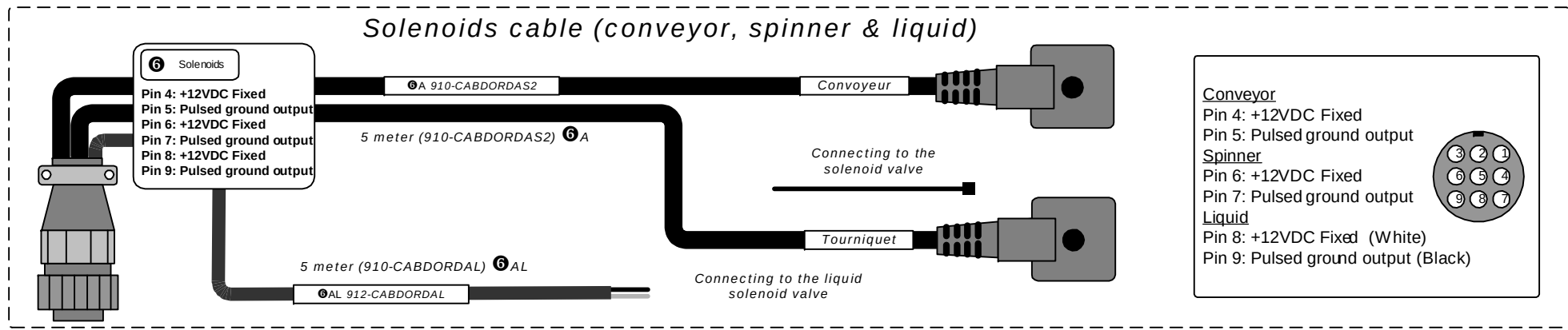
WHAT TO DO

Slow down or reduce the spread rate.

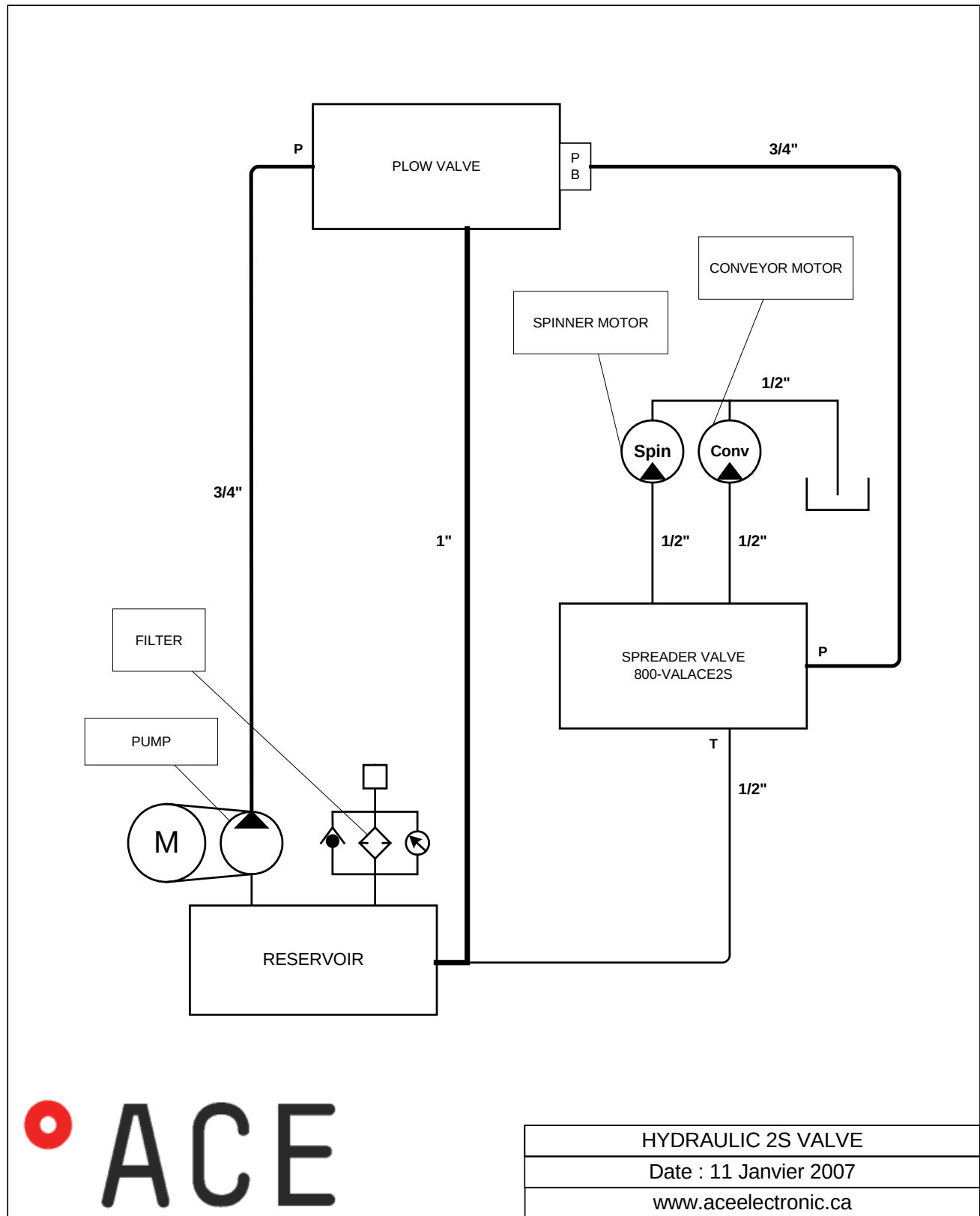
ELECTRIC & HYDRAULIC PLANS

Fuses

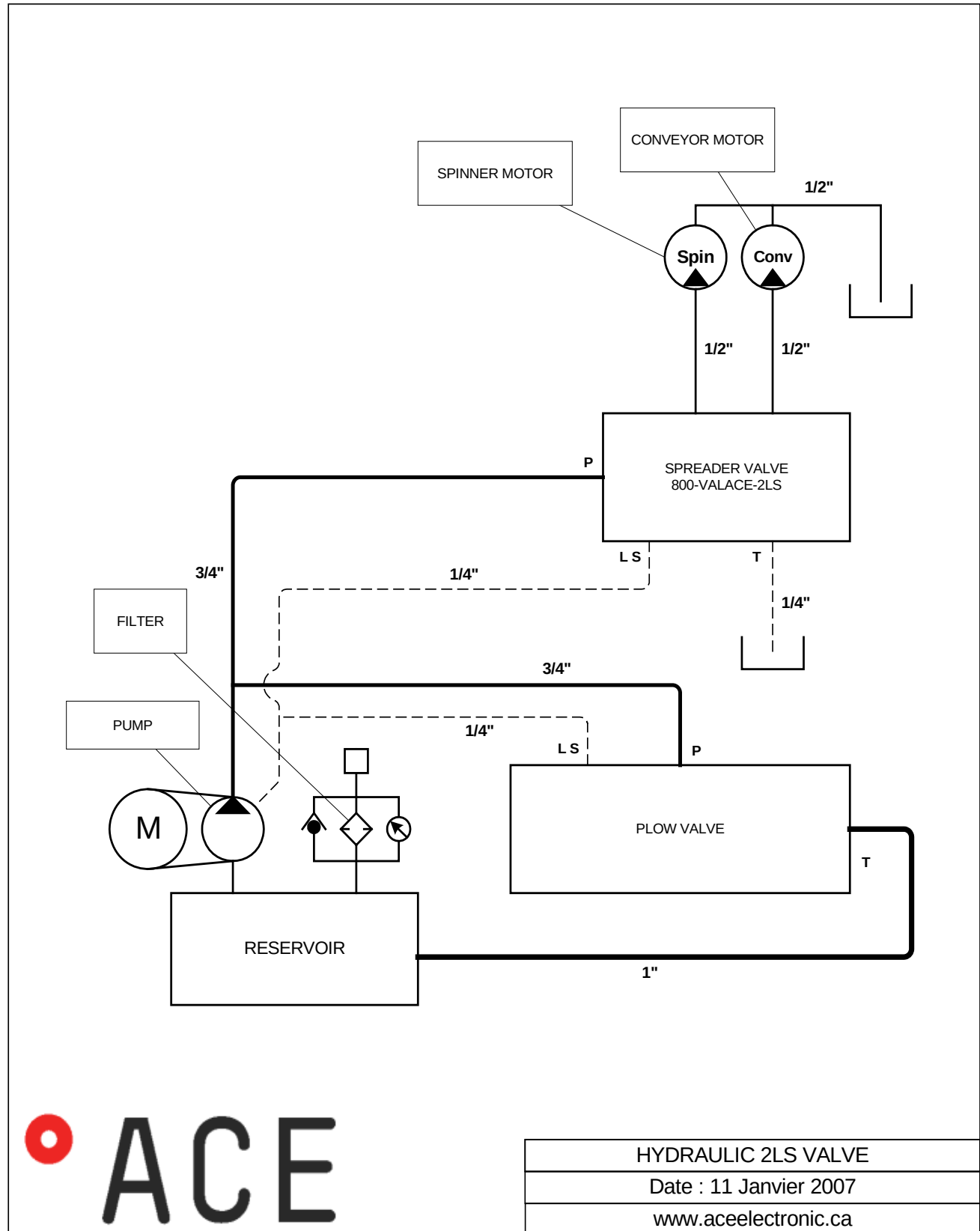




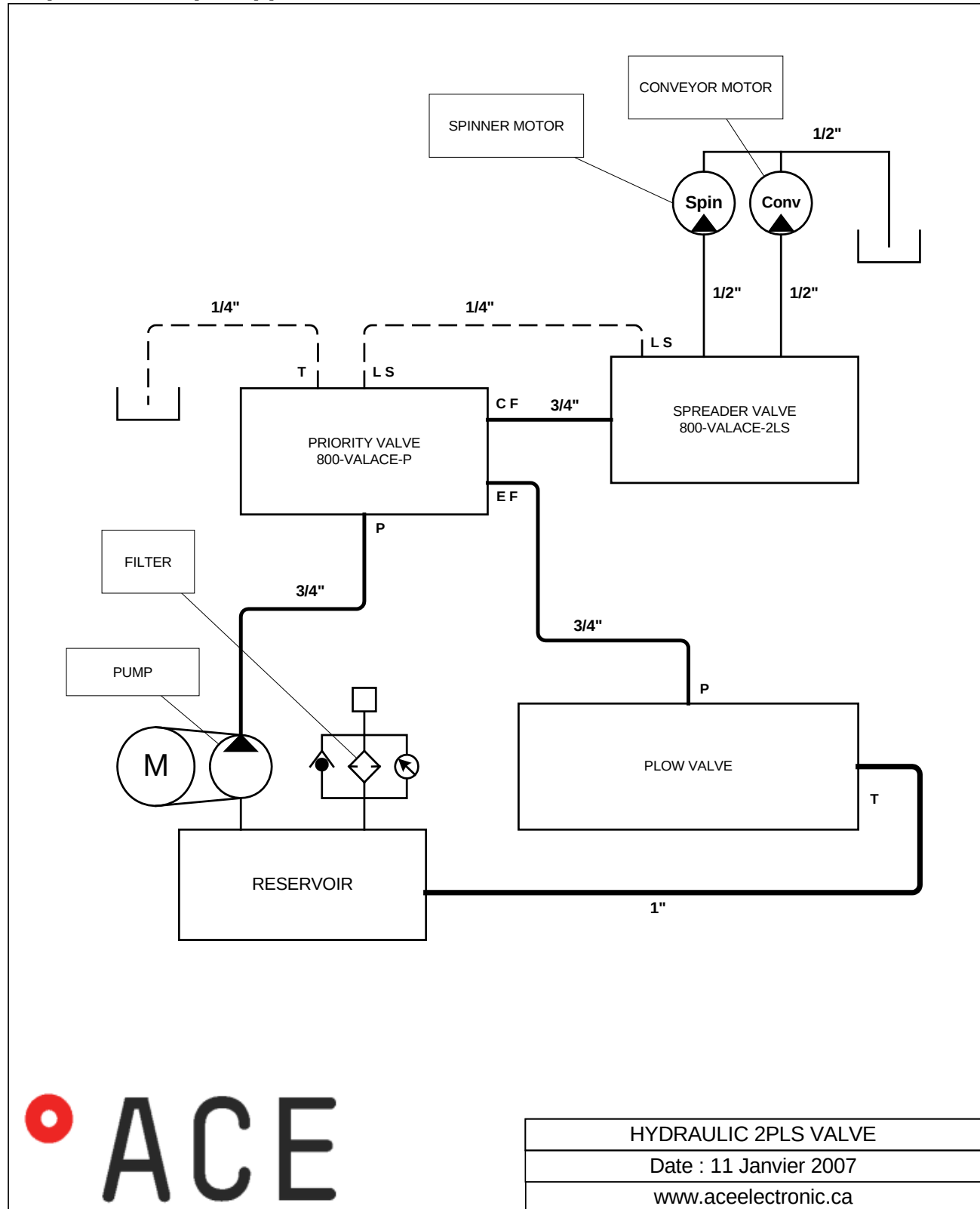
Standard 2 sections valve (single or tandem fixed displacement pumps)



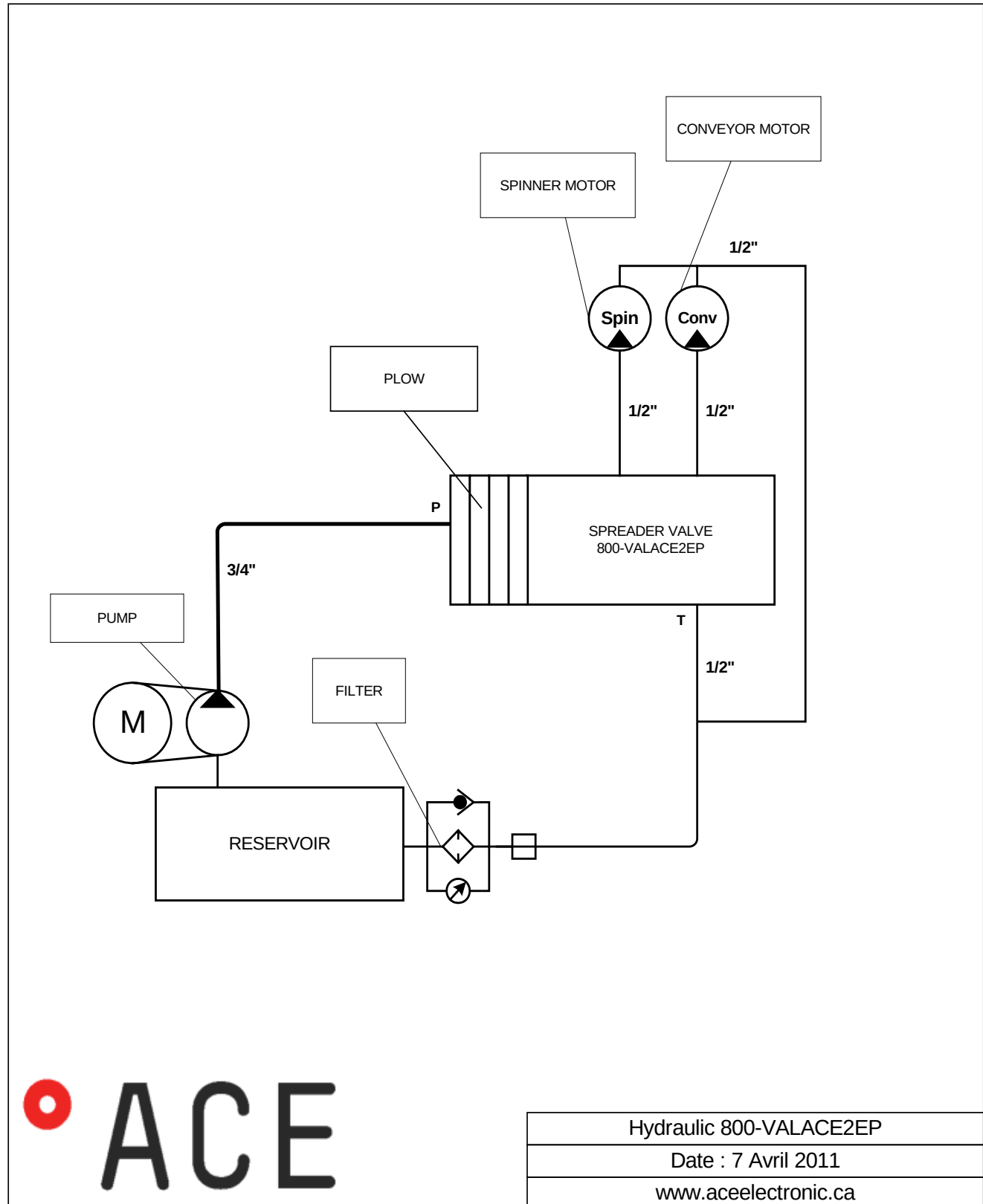
LS 2 sections valve (load sensing pump)



LS 2 sections valve with load sensing priority valve (single fixed displacement pump)



EcoValve 2 sections valve (single or tandem fixed displacement pumps)



ATTACHEMENT 1 PREPARATION FOR PROGRAMMING

Spreader adjustments	Page	Factory setting	Stetting range	Choice
Spread rate unit	7	North American Kg/ Km	European g / m ²	
SALT minimum spread rate	13	50 Kg/Km	0 – 999	
SALT maximum spread rate	13	350 Kg/Km	0 – 999	
SALT temperature ajustement step (per °C)	13	10 Kg/Km	0 – 999	
SAND minimum spread rate	13	200 Kg/Km	0 – 999	
SAND maximum spread rate	13	700 Kg/Km	0 – 999	
SAND temperature ajustement step (per °C)	13	20 Kg/Km	0 – 999	
MxA minimum spread rate	13	150 Kg/Km	0 – 999	
MxA maximum spread rate	13	500 Kg/Km	0 – 999	
MxA temperature ajustement step (per °C)	13	15 Kg/Km	0 – 999	
MxB minimum spread rate	13	150 Kg/Km	0 – 999	
MxB maximum spread rate	13	500 Kg/Km	0 – 999	
MxB temperature ajustement step (per °C)	13	15 Kg/Km	0 – 999	
Minimum RPM (conveyor valve off-set)	14	65	0 – 255	
Maximum RPM (conveyor valve)	14	180	0 - 255	
LIQUID maximum rate (pre wet %)	15	5 %	1 – 99	

Spreader adjustments	Page	Factory setting	Stetting range	Choice
Width setting 0.5m (minimum)	16	54	0 – 255	
Width setting 3m (reference)	16	98	0 – 255	
Width maximum setting	17	3	0 – 9,5	
Width automatic pause	17	Active	Active - Inactive	
Salt BLAST rate	17	350 Kg/Km	0-999	
Sand BLAST rate	17	700 Kg/Km	0-999	
MxA BLAST rate	17	350 Kg/Km	0-999	
MxB BLAST rate	17	350 Kg/Km	0-999	
BLAST duration	17	20 second	between 1 & 100 minutes	
BLAST minimum reference speed	17	20 Km/h	0 – 999	
BLAST automatic stop (truck stop)	18	Active	Active - Inactive	
BLAST width temporary/permanent	18	Active	Active - Inactive	
Maximum spreading speed	21	50 Km/h	0 – 999	
Access code	21	1234	0000 – 9999	
BLUE (programming) key requirement	23	Active	Active – Inactive	
BLACK (operator) key requirement	23	Active	Active - Inactive	
Solid spread rate variation (step) Kg/Km	25	25	5, 10, 25, 50, 75, 100	

Spreader adjustments	Page	Factory setting	Stetting range	Choice
Solid spread rate variation (step) g / m ²	25	10	1, 5, 10, 25, 50	
Pre wet rate variation (step) %	25	1	1, 5	
Spread width variation (step) m	25	0.5	0.5, 1.0	
Spread rate adjustment by surface temperature sensor Ts	25	Inactive	Active Bip Active Mute Inactive	
Liquid pause (LED orange)	25	Inactive	Active - Inactive	
On-screen information channel setting	25	R-Km	R-Kg, R-Km, All,Km/h, T-A, T-S, R-Lq	

ATTACHMENT 2 REPORTS AND REPORT SOFTWARE

The Chlorobite controller produces an event based report. In the reports you will find all spreading operations with date and time linked to them. You will be able to visualise your operations and compile results (Material spread, distance covered, etc.) sorted by operator or truck for any given time frame.

Report contents

The control must generate reports including the following data :

- Date and time of the event
- Controller number
- Vehicle number
- Operator number
- Operator name
- Solid rate
- Spreader state (On, Pause, Off)
- Liquid rate
- Spread with
- Material type (salt, sable, A material, B material)
- Spreading technique (distance or surface)
- Date of the last data transfer
- The state of spreading mode with or without conveyor sensor
- The state of spreading speed vs max speed
- Possible errors
- Miss of hydraulic capacity
- Lost of conveyor sensor signal
- Miss of solid material
- Miss of liquid material
- The vehicle speed while :
 - the truck is moving with the spreader in « pause mode »
 - The truck is spreading
 - The control is « off »
- The road surface temperature
- The ambient air temperature
- The distance covered
 - while the truck is moving with the spreader in « pause mode »
 - during normal spreading operations
 - during « blast » operation
 - while the consol is « off »
- The quantity of solid material spread
- The quantity of liquid material spread
- If the trap's adjust to calibrate height (require the height sensor option of the trap door)

ATTACHMENT 3 CHLOROBITE OPTIONS

Various options and accessories are available for the CHLOROBITE spreader system. Visit our website at www.aceelectronic.ca

- A- INFOBITE GPS and data transfer module.
- B- Third valve section control for pre wet applications at various rates.
- C- Temperature sensor for indication of air and surface temperatures on screen and registration in reports.
- D- Gate height sensor for spread rate control depending on the gate height.
- E- Remote control for BLAST/PLAY/PAUSE functions.



***Because maintenance of winter becomes...
a work of precision***