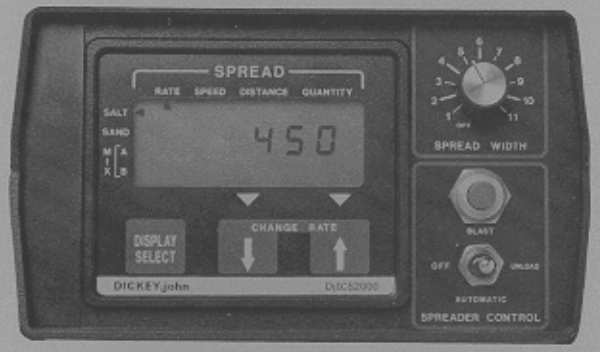
# DjICS2000
# ICE CONTROL SYSTEM




# OPERATOR'S MANUAL

*first in agrionics*

**DICKEY-john®**
CORPORATION



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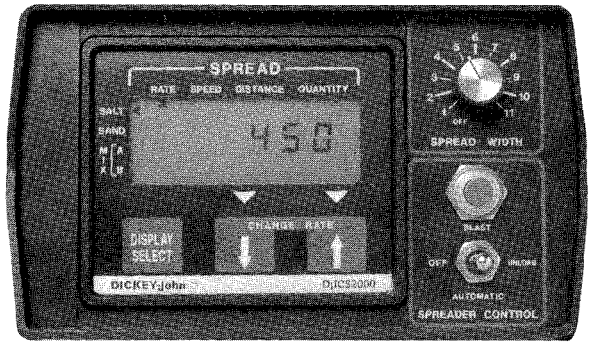
# INTRODUCTION

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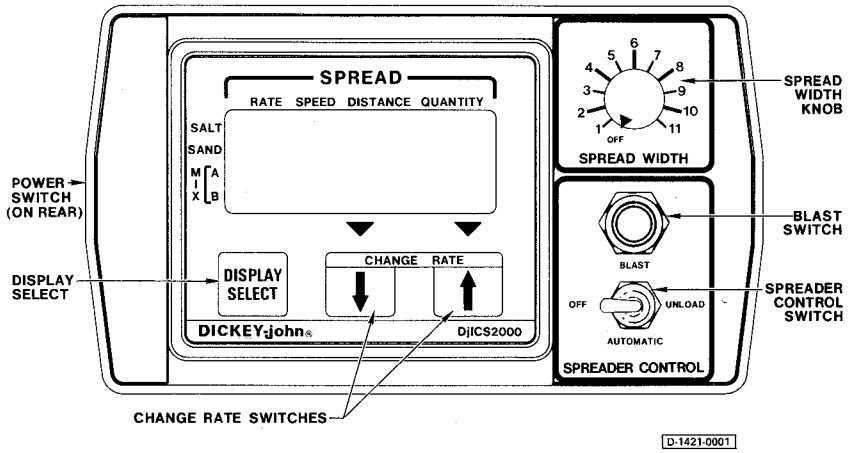
The DICKEY-john ICS 2000 Ice Control System was designed to maximize the efficiency of a spreading operation. This Control System with its microprocessor based electronics provides total automatic control of the spreader. Once the desired application rate has been programmed, the system locks it in. The flow of product varies automatically in proportion to changes in ground speed so the application rate remains uniform. Spreading automatically starts when the vehicle begins to move and automatically stops when the vehicle stops.

The ICS 2000 Ice Control System consists of four major components; a control console, a valve actuator (driver), a ground speed sensor, and an application rate sensor. The control console is installed in the vehicle cab within easy reach of the operator. The valve actuator is installed on the hydraulic control valve where it can control the speed of the conveyor motor and spinner motor. The ground speed sensor is installed where it can sense the ground speed of the vehicle (**NOTE:** There are two types of ground speed sensors available; (1) in-line speedometer drive sensor, (2) electronic speedometer adapter.) The application rate sensor is installed on a rotating shaft to sense the speed of the conveyor.

The control console receives signal inputs from the ground speed sensor and application rate sensor and compares these signals to the programmed application rate. If the input signals do not compare to the programmed application rate, an output from the control console drives the hydraulic control valve in the direction required to maintain a uniform application rate.

## OPERATOR CONTROLS (OPERATE MODE)




**DISPLAY SELECT** – This switch selects the quantities that are read out on the display. When spreading, the selectable readouts are RATE (application rate), SPEED, DISTANCE SPREAD, and QUANTITY SPREAD. If more than one material type (SALT, SAND, MIX A or MIX B) is to be spread, the DISPLAY SELECT switch also selects the change material pointer function.

**CHANGE RATE ( ↓ , ↑ SWITCHES)** – The ↓ and ↑ switches are used to change the application rate by the amount, as programmed, in the direction indicated by the switch arrow.

In the Change Material Pointer Function, the ↓ and ↑ switches are used to move the pointer up or down consistent with the arrow direction.

**SPREADER CONTROL Switch** – Three position switch.

**OFF** Position – Shuts spreader and spinner off.

**AUTOMATIC** Position – Provides automatic spreading control based on vehicle ground speed.

**UNLOAD** Position – Provides a command that causes the Feed Mechanism to run at maximum speed.

**BLAST** Switch – Provides a command that causes the spreader to run at the programmed BLAST application rate.

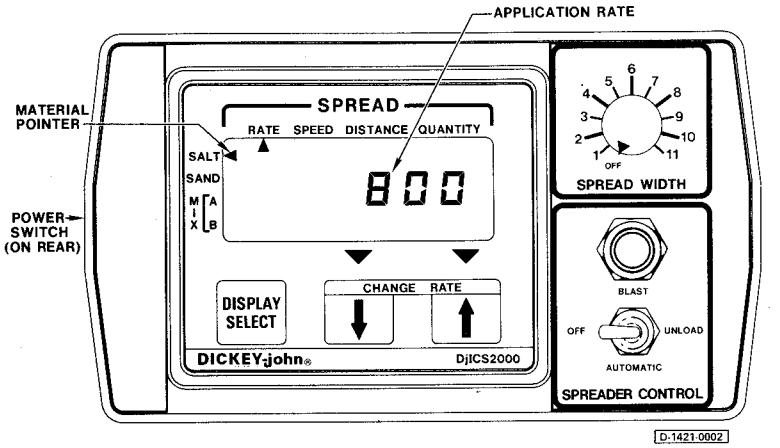
**SPREAD WIDTH** Knob – This knob adjusts the spinner speed.

**POWER** Switch – Applies battery power to the control system.





## AUTOMATIC MODE




Step 1. Set the **SPREADER CONTROL** switch to **OFF**, **POWER ON/OFF** switch to **ON** (rear of console).

Step 2. Check material pointer position. If not in correct position refer to MATERIAL POINTER POSITIONING on page 7.

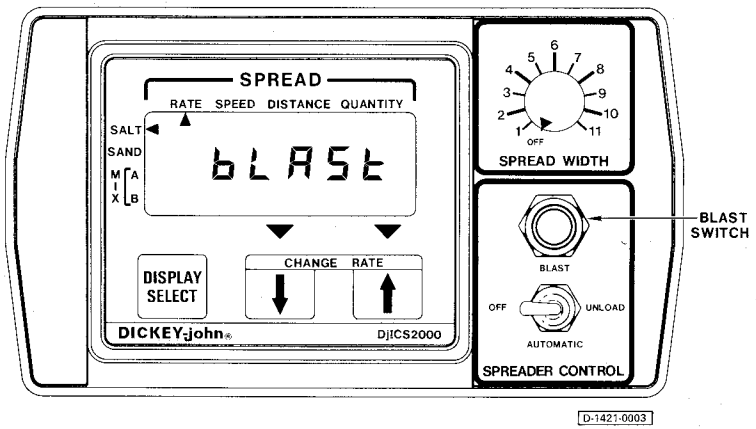
Step 3. Set application rate using the CHANGE RATE ( ↓ , ↑ ) touch switches. To increase the programmed application rate use the ↑ switch, to decrease the programmed application rate use the ↓ switch.

Step 4. Start vehicle engine, engage PTO and bank valve section lever (if applicable). Drive to start of spread route.

Step 5. To begin spreading, set the **SPREADER CONTROL** switch to **AUTOMATIC**. And if necessary set **SPREAD WIDTH** knob to desired spinner speed. Spreader and spinner will begin operation when vehicle moves and will stop when vehicle stops. To stop spreading set the **SPREADER CONTROL** switch to **OFF**.

Step 6. You may select the desired display readout using the **DISPLAY SELECT** touch switch. The pointer at the top of the display points to the name of the function displayed; RATE, SPEED, DISTANCE, or QUANTITY.

## BLAST MODE



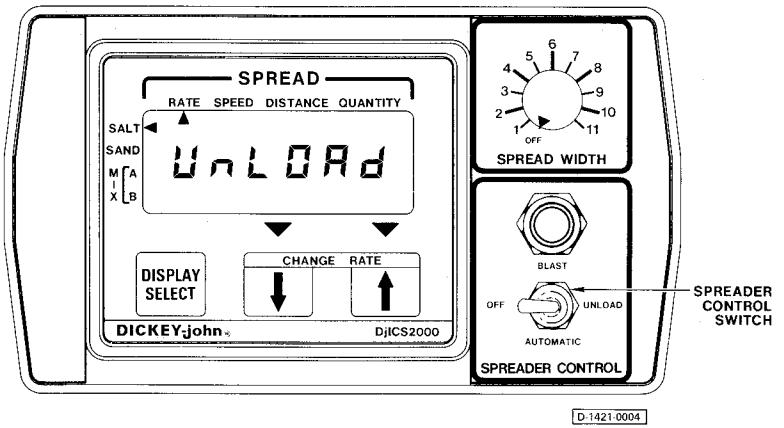

Pushing the **BLAST** switch forces the spreader to operate at the programmed blast application rate. Blast is active for both stationary and moving vehicle conditions. It is active only while the switch is held on.

**NOTE:** Spot spreading can be accomplished by using the AUTOMATIC MODE (Automatic Application Rate) or by using the BLAST MODE (BLAST Application Rate).





## UNLOAD MODE

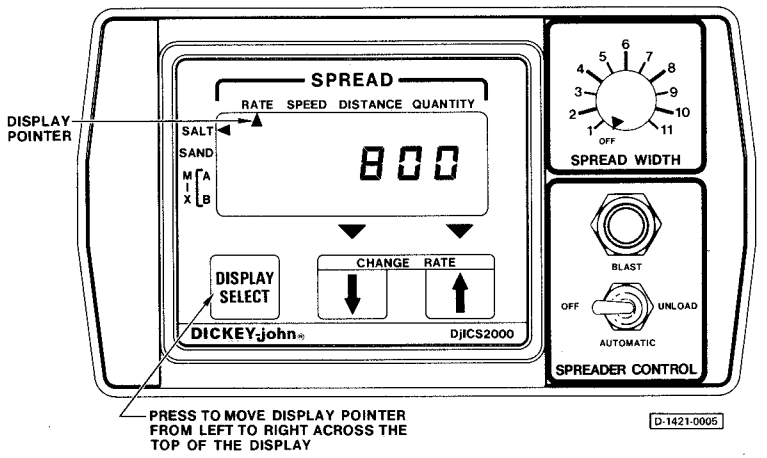



Holding the **SPREADER CONTROL** switch in **UNLOAD** causes the spreader to run at full capacity. This mode can be accessed by holding the **SPREADER CONTROL** switch in the **UNLOAD** position when the vehicle is stopped. **NOTE:** The **UNLOAD MODE** cannot be accessed when the vehicle is moving. The message **UnLOAd** will appear on the display and flash for 3 seconds after which the display stops flashing and the **SPREADER CONTROL** switch can be released.

The **UNLOAD** function can be turned off by setting the **SPREADER CONTROL** switch to **OFF**. Also if ground speed is greater than 5 MPH (kph) for 10 seconds the control system will return to the **AUTOMATIC** mode.

The **SPREAD WIDTH** control is used to set the speed of the spinners.

## DISPLAY READOUTS




**SPREAD RATE** – Displays the current application rate in pounds/mile (kilograms/kilometer).

**SPREAD SPEED** – Displays the current vehicle ground speed in MPH (kph).

**SPREAD DISTANCE** – Displays the accumulated distance in miles (km) since the last reset.

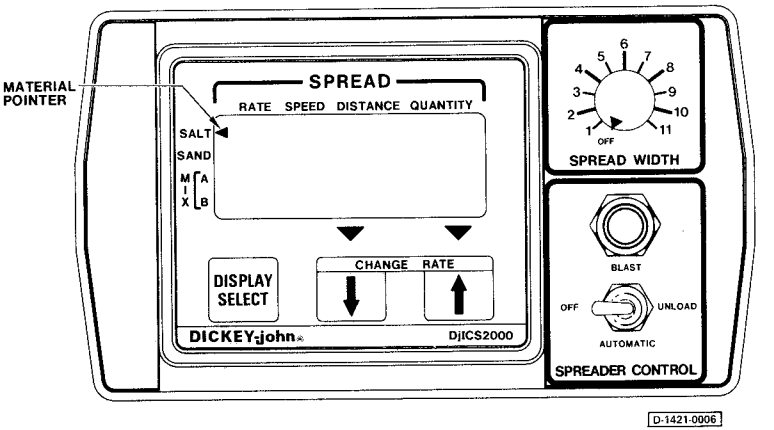
**SPREAD QUANTITY** – Displays the accumulated quantity in tons (metric tons) since the last reset.

**NOTE:** Spread Distance and Quantity are accumulated separately for each Material Type (SALT, SAND, MIX A and MIX B).





## MATERIAL POINTER POSITIONING




Step 1. Vehicle must be stopped with the **SPREADER CONTROL** switch in the **OFF** position.

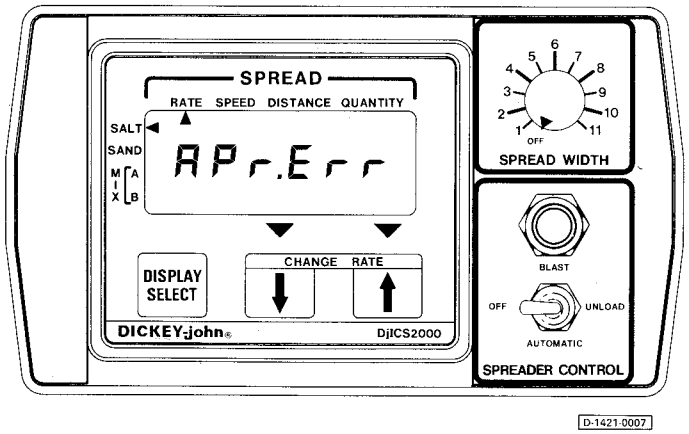
Step 2. Use the **DISPLAY SELECT** touch switch to select Material Pointer Position. Note that each time you press the **DISPLAY SELECT** touch switch, the display pointer moves to the right. Continue pressing the **DISPLAY SELECT** touch switch until the display looks like the above illustration. **NOTE:** The only thing on the display will be a "flashing" Material Pointer.

Step 3. Use the **CHANGE RATE** ( ↓ , ↑ ) touch switches to position the Material Pointer to the material you will be spreading.

When the Material Pointer is properly positioned, press the **DISPLAY SELECT** touch switch, you are now ready to begin automatic spreading. **NOTE:** When the console receives ground speed or the **SPREADER CONTROL** is set to **AUTOMATIC** the display will go to the **RATE** position.

## DISPLAY WARNINGS AND ALARMS

### Application Rate Error




**APr.Err** (Application Rate Error) – This message is displayed in all operate modes when the spreader is at full capacity (valve has opened fully and the system can no longer regulate to the target application rate). The message is displayed for 2 seconds out of every 6 seconds and is accompanied by the audible alarm.

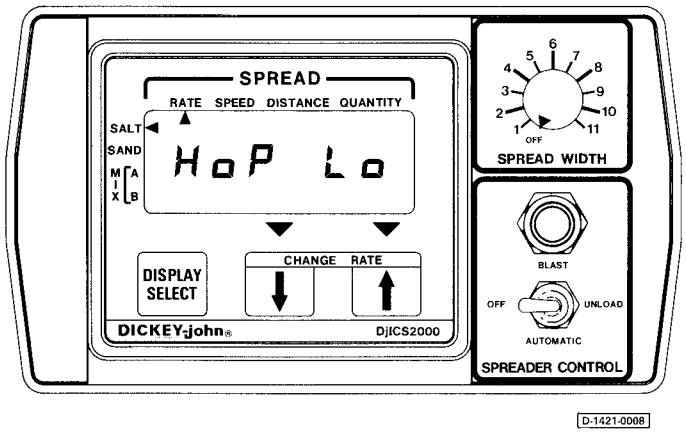
If this condition exists, slow vehicle down until the display and alarm conditions no longer occur.

**IMPORTANT** – If slowing down does not help, there could be a hydraulic system malfunction.





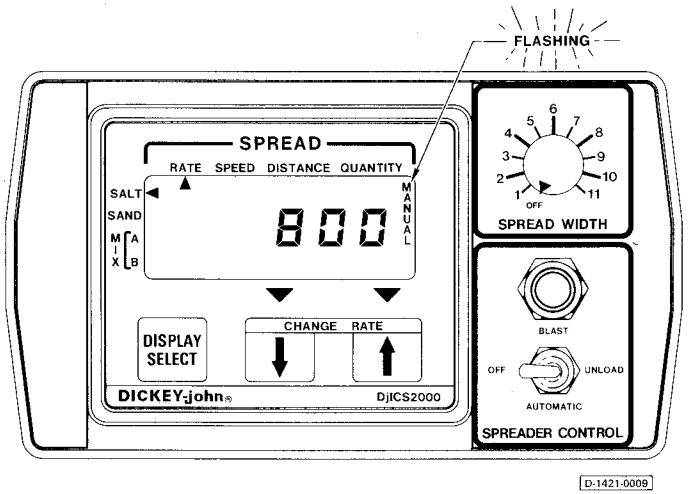
### Hopper Low Alarm (OPTIONAL)




This alarm applies only if the optional hopper level sensor is installed.

**HoP Lo** (Hopper Low) – This message is displayed in all operate modes when the contents of the hopper is low enough to uncover the hopper level sensor. The message is displayed for 2 seconds accompanied with a 1/4 second burst from the audible alarm every 90 seconds.

Flashing "MANUAL" Display




The Control System has an automatic override function which occurs in the event of a loss of the feedback sensor signal. Under this condition, the Control System reverts automatically from closed loop to open loop operation. This allows you to continue spreading until the condition is corrected.

If "MANUAL" begins to flash on the display: Check to see if the conveyor/auger is still running.

1. If conveyor/auger appears to be operating normally:

   a. Continue spreading.
   b. Report the display to the mechanic after the route is completed.

2. If conveyor/auger is not running:

   a. Check to make sure PTO is engaged.
   b. Turn SPREADER CONTROL to "OFF".
   c. Check for jammed conveyor/auger.
   d. Check for hydraulic system failure.



## DICKEY-john® WARRANTY

DICKEY-john warrants to the original purchaser for use that, if any part of the product proves to be defective in material or workmanship within one year from date of original installation, and is returned to DICKEY-john within 30 days after such defect is discovered, DICKEY-john will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident or improper installation or maintenance. Said part will not be considered defective if it substantially fulfills the performance specifications. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. DICKEY-john neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within fifteen days for full refund of purchase price.