Individual Row Control (IRC) Setup

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SAFETY NOTICES

Safety notices are one of the primary ways to call attention to potential hazards.

This Safety Alert Symbol identifies important safety messages in this manual. When you see this symbol, carefully read the message that follows. Be alert to the possibility of personal injury or death.

⚠️ WARNING
Use of the word WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ CAUTION
Use of the word CAUTION with the Safety Alert Symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠️ CAUTION
Use of the word CAUTION without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in equipment damage.

DISCLAIMER
DICKEY-john reserves the right to make engineering refinements or procedural changes that may not be reflected in this manual. Material included in this manual is for informational purposes and is subject to change without notice.
INDIVIDUAL ROW CONTROL (IRC) SETUP

Individual Row Control (IRC) is used with electronic motor driven row units and requires setup at the following screens:

- Materials
- Controls
- IRC
- IRC Sections
- Speed

Figure 1
IRC Material Screen

MATERIALS
Setup of material types that are assigned to a control channel. Minimum/maximum limits, target rates, and alarm conditions are defined for materials.

CONTROLS
Setup of the control channel type identifying the channel parameters.

IRC
Setup and Diagnostics of the IRC motors and modules.

IRC SECTIONS
Define IRC sections by channels, rows, and switches to automatically or manually shut off individual sections.

SPEED
Setup of ground speed source and group speed contestants.
MATERIALS

Select parameters on the Material Setup screen as defined below.

**Figure 2**

*Page 1 Preset Method Disabled*

<table>
<thead>
<tr>
<th>MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ch:</strong> None</td>
</tr>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td><strong>Units</strong></td>
</tr>
<tr>
<td><strong>Preset Method</strong></td>
</tr>
<tr>
<td><strong>Target Rate</strong></td>
</tr>
<tr>
<td><strong>Max Rate</strong></td>
</tr>
<tr>
<td><strong>Min Rate</strong></td>
</tr>
<tr>
<td><strong>Inc/Dec %</strong></td>
</tr>
<tr>
<td><strong>Seeds Per Rev</strong></td>
</tr>
</tbody>
</table>

**TYPE**

Select IRC as the material type.

**UNITS**

An application rate in thousands of seeds per acre (KS/AC) or thousand seeds per hectare (KS/HA) will be used for Target Rates and Actual Rates when using the Area setting in the Control instrument. The Actual Rate will be displayed in disk RPM when using the Time setting in the Control instrument.

**PRESET METHOD**

**Preset Method Enabled**

The Preset Method table allows 10 user-defined target rates to be entered. When enabled, target rates can be adjusted from the Work Screen using the Increment/Decrement soft keys on the channel's control instrument.

**Preset Method Disabled**

When Preset Method is disabled, the target rate on the Work Screen is adjusted by pressing the Increment/Decrement buttons. The target rate increases and decreases based on the inc/dec percent value set at the Material Configuration screen.
TARGET RATE

Desired rate of application displays in thousands of seeds per acre (KS/AC) or thousands of seeds per hectare (KS/HA).

MAX RATE

The maximum application rate in thousands of seeds per acre (KS/AC) or thousands of seeds per hectare (KS/HA) that the control allows. Target rate cannot be incremented to a value greater than this established maximum rate.

MIN RATE

The minimum application rate in thousands of seeds per acre (KS/AC) or thousands of seeds per hectare (KS/HA) that the control allows. Target Rate cannot be decremented to a value lower than this established minimum rate.

INC/DEC %

Establishes the percentage of change of the entered target rate that is applied each time the material Increment/Decrement button is pressed on the Work Screen.

IMPORTANT: The maximum or minimum rates may not be reached if the percent increase or decrease, based off the Target Rate, exceeds the maximum or minimum rate limits set.

EXAMPLE: Maximum Rate is set for 101. Target Rate is set for 100. If the % increase is set at 2%, the maximum rate of 101 will not be met because the % increase of 2% would exceed the 101 maximum rate limit.
**SEEDS PER REV**

Displays the number of seeds that are dropped in one revolution of the seed disk.

**Figure 3**

**IRC Material Screen Page 2**

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch: None</td>
<td>IRC SEED</td>
</tr>
<tr>
<td>High Pop Alarm</td>
<td>20.0</td>
</tr>
<tr>
<td>Low Pop Alarm</td>
<td>20.0</td>
</tr>
<tr>
<td>High Alarm Delay</td>
<td>5 SEC</td>
</tr>
<tr>
<td>Low Alarm Delay</td>
<td>5 SEC</td>
</tr>
<tr>
<td>Row Fail Rate</td>
<td>2/1 SEC</td>
</tr>
<tr>
<td>Population Adjust</td>
<td>100.0</td>
</tr>
<tr>
<td>Population Filter</td>
<td>0.0</td>
</tr>
<tr>
<td>Disk Low Limit</td>
<td>3 RPM</td>
</tr>
<tr>
<td>Disk High Limit</td>
<td>60 RPM</td>
</tr>
<tr>
<td>Prod Level Alarm</td>
<td>0 KS</td>
</tr>
</tbody>
</table>

**HIGH/LOW POPULATION ALARMS**

High and Low Alarm option sets the high and low population limit values. The limit can be set to 0.0 to disable the population alarms. The entered value is dependent on the target rate.

The High and Low Alarms are entered as a percentage. The percentage value is referenced in relation to the current channel target rate setting if rows are assigned to a channel. Otherwise the alarm will trigger from plater average population.

**High Alarm example:**

if the target rate is 100.0 and the High Alarm is 5.0%, multiply 100.0 x 1.05 (a 5% increase) = 105.0. The alarm will activate at this population.

**Low Alarm example:**

if the target rate is 100.0 and the Low Alarm is 5.0%, multiply 100.0 x 0.95 (a 5% decrease) = 95.0. The alarm will activate at this population.
HIGH/LOW ALARM DELAY

Establishes the delay between the detection of a high or low population alarm condition and the resulting alarm display. The value is entered in seconds. If the value is set to 10, a row must be in a high or low population alarm condition continuously for 10 seconds before the alarm is issued.

ROW FAIL RATE

Sets the threshold for row failure alarms. The value is entered in seeds per second. Both values are adjustable allowing for numerous combinations. The default value is 2/1 that indicates a row failure threshold of 2 seeds in 1 second.

POPULATION ADJUST

Scales the displayed population value to allow for inaccuracies with seed sensors in certain applications. This is a multiplier of the monitored population value. For true calculated results, the value can be increased above 100.0% to achieve the desired population display. The displayed value is calculated by the monitored value x population scalar.

POPULATION FILTER

Stabilizes the monitored population display. For a true population value this number should be set to 0.0%. 0.0 is no filtering at all. 99 is the highest level of filtering available. Set the filter to meet the appropriate level of filtering for your specific use.

DISC HIGH/LOW LIMITS

The maximum or minimum RPM at which the seed disc operates. The control will not allow the seed disc to rotate faster than the Disc High or Low Limit setting.

PRODUCT LEVEL ALARM

The product level alarm sets the amount of seeds remaining to alert of low seed levels. The entered value is an estimate of the number of seeds in KS (Thousand seeds).

IRC CONTROL CHANNEL

An IRC Control channel contains the parameters to control the application rate of an IRC planter.
NOTE: Consult your dealer for the correct gear ratio.

**MATERIAL NAME**
Select the name of the material assigned to the channel.

**GEAR RATIO**
Specifies the actual ratio from the IRC motor speed sensor to the seed meter. This number varies between different motors and gearbox.

**PRECHARGE TIME**
A specified length of time a control channel will operate or is active with a minimum precharge ground speed greater than 0 (Refer to the Speed Set section for Precharge Ground Speed setup information). This feature will activate the channel when the Precharge soft key on the Work Screen is pressed even without ground speed.

In order to use precharge, a precharge speed must be entered on the Speed screen. Reference the “Speed” section for precharge speed setup.

**To Activate Precharge Time:**
1. At the control screen, enter a Precharge time
   - A Precharge Time must be entered as a POSITIVE number (5.0 seconds) before the Precharge Ground Speed feature displays on the Speed Setup screen (Refer to Ground Speed section)
2. Press the Home button and select the Speed button.
   - Enter a Precharge Ground Speed greater than 0.

**NUMBER (#) OF SEED ROWS**
Displays the total number of seed rows assigned to the control channel.
SEED ROW ASSIGNMENT
Displays the first and last number of seed rows assigned to the control channel. The seed rows are automatically assigned in order of control channels based on the number of seed rows assigned.

SEED ROW ASSIGNMENT
For more information about the Fill Disk, Continuous Test, and 5 Rev Test, reference the “Performing a Fill Disk” for a Planter Seeding Channel.

IRC SECTIONS
Auto Section Control using IRC allows for assignments of user-defined “sections”. A section is assigned a switch for manual control by a virtual switch on a Sections Instrument on the Work Screen. If a Task Controller controls a section and a switch is assigned, the switch will have “Priority Off” preference.

Controlling sections using individual row control requires:
• (1) IRC module to control 2 rows
The IRC Section Screen must be configured to perform Auto Section Control functions using IRC.

Section Control can be performed in the following ways:
• Manual Section Control with Virtual Switches - Sections are controlled via a virtual switches on a Sections instrument. One or multiple sections can be assigned per switch on the Sections instrument.
• Automatic (Task Controller) Section Control - Task control output provides on/off section and rate control. A Sections instrument can still be used to override sections to on “Off” state.

IRC SECTION AND SWITCH ASSIGNMENT
Defines number of sections and switches. Sections are assigned a number of rows and a switch number.

To Assign Sections and Rows:
1. Press the IRC Sections button.
2. Enter total number of sections for IRC. The Section Number (#) column auto populates with number of sections entered.
3. Enter the total number of switches to be used with IRC Sections. The Maximum is 24 switches.
4. For each section, select the number of the Control Channel that the section is assigned to.
5. For each section, enter the number of rows to be controlled by that section.
6. For each section, enter the switch number assigned to the section. Leave the switch number blank if no switches are available or if switches are not used.
**Figure 5**

IRC Section Setup Screen

<table>
<thead>
<tr>
<th>SECT. #</th>
<th>CH.</th>
<th># OF ROWS</th>
<th>ROW #</th>
<th>SWITCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1 - 4</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4</td>
<td>5 - 8</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>4</td>
<td>9 - 12</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>4</td>
<td>13 - 16</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>4</td>
<td>17 - 20</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>4</td>
<td>21 - 24</td>
<td>6</td>
</tr>
</tbody>
</table>

- - - - - -

**IRC SECTIONS**

Number of Sections: 6
Number of Switches: 6
IRC SETUP

CHARGING VOLTAGE LIMIT

Charging Voltage is the minimum voltage needed for charging. If the voltage drops below the given value, the flashing batter icon appears on the work screen. For more on this, see the Voltage Alert section.

SOFT START LIMIT

Soft start is performed at system startup. During the 2 second soft start, the IRC modules are brought up to operating voltage. If the IRC modules do not reach the Soft Start Limit value during this time, the soft start will fail, and the IRC motors will not receive power. TO manually perform a soft start (if not already running) go to the Module Position screen and perform a Recheck Position.

MOTOR LOW VOLTAGE LIMIT

Motor Low Voltage Limit is setting used to trigger the IRC Motor Voltage Low Alarm (Alarm 402).

Figure 6
IRC Setup Screen
IRC DIAGNOSTICS

The IRC Diagnostics screen provides information from feedback sensors, valve output, and system voltages of the planter drill control. The control valve can be manually opened on this screen when necessary. Each channel has its own Diagnostics screen. Items on the screen are not editable, but the Channel Pulse Count data is resettable. The system can be active on the Diagnostics screen.

To View Diagnostics:

1. Verify the master/control switch button is off.
2. At the Home Menu Screen, press the IRC Button.
3. At the IRC Setup Screen, Press the IRC Diag button.
4. At the IRC Diagnostics screen, press the Start master button or turn the physical switch on.

---

**DANGER**

When the START key is engaged, the machine will become operational. All necessary precautions must be taken to ensure user safety. Failure to practice all necessary caution may result in serious injury or death.

---

MODULE SERIAL NUMBER

The detected serial number of the module assigned to the current row.

MOTOR NUMBER

The motor position on the module for the current row. The motor number will be either 1 or 2.

CHANNEL NUMBER

The number of the channel the current row is currently assigned to.

ROW NUMBER

The row to display. The current row may be changed by either entering a new row number into the input box, or by scrolling using the arrow buttons.

GROUND SPEED

The current speed as reported by the Ground Speed Source. For more information on Ground Speed, refer to the Ground Speed section.

MOTOR CURRENT

The current of the motor.

MOTOR TEMPERATURE

The temperature of the motor.
TARGET RATE

Channel Target is the current channel’s rate as entered into the Target Rate constant on the Controls Configuration screen.

ACTUAL RATE

The Channel Actual Rate value is the current channel’s actual controlled rate with the system active.

TARGET SPEED

The calculated RPM or flow rate for the current channel.

ACTUAL SPEED

The channel’s actual RPM or flow rate

---

**Figure 7**

**IRC Diagnostics Screen**

![IRC Diagnostics Screen](image)

**MODULE INFO**

The voltages detected by the IRC modules can be viewed on the Module Info Screen. The Motor Bus Voltage, ECU Bus Voltage, ECU/Ground Differential, Sensor Supply Voltage, and Logic Voltages can be viewed by navigating with the arrow buttons.
The voltage on the motor bus.

**ECU BUS VOLTAGE**

The voltage on the ECU bus.

**ECU/MOTOR GROUND VOLTAGE**

The voltage detected on the ground line of the ECU Motor Buses.

**SENSOR SUPPLY VOLTAGE**

The voltage supplied to the sensors on the module.

**LOGIC VOLTAGE**

The supplied voltage that powers the IRC module, separate from the motor voltage.
MOTOR VERSIONS

The Motor Versions page lists the IRC modules in order and displays their serial numbers as well as their motors’ hardware and software model/version number. Navigation through the modules is accomplished by using the arrow keys. If no motors are detected, a warning “NO MOTORS ONLINE” will be displayed.

Figure 9

Motor Versions Screen

<table>
<thead>
<tr>
<th>IRC</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Module S/N: 293</td>
</tr>
<tr>
<td></td>
<td>Motor 1 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW 31952925508410</td>
</tr>
<tr>
<td></td>
<td>Motor 2 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW PM7225556330</td>
</tr>
<tr>
<td></td>
<td>Module S/N: 296</td>
</tr>
<tr>
<td></td>
<td>Motor 1 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW PM7225556330</td>
</tr>
<tr>
<td></td>
<td>Motor 2 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW PM7225556330</td>
</tr>
<tr>
<td></td>
<td>Module S/N: 150</td>
</tr>
<tr>
<td></td>
<td>Motor 1 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW PM7225556330</td>
</tr>
<tr>
<td></td>
<td>Motor 2 HW 31900451700a</td>
</tr>
<tr>
<td></td>
<td>SW PM7225556330</td>
</tr>
</tbody>
</table>
SEQUENCE TEST

Perform an IRC motor test to confirm that motors are assigned to the correct rows. For each row in the specified range the corresponding motor is run and a seed count is measured. If a seed count is detected on the wrong row and alarm is displayed. This test is performed across the row range specified, which defaults to the first and last IRC rows.

To Perform an IRC Sequence Test:

2. Lock brakes and place transmission in Park.
3. Engage hydraulics and run engine at normal speed until hydraulic fluid is at operating temperature.
4. Ensure the start and end row limits are correct.
5. Press the Start button.

Figure 10

IRC Motor Test
MODULE POSITION

Module positioning is performed automatically. If module positioning fails an alarm is displayed and the Module Position screen can be used to troubleshoot potential issues. Each module has a Mod In and Mod Out connection. The module with the first IRC row must have its Mod In line grounded. The first module must drive its Mod Out line low and allow the subsequent module to position and so on.

The screen will display the modules that have positioned in sequence connected by lines. Un-positioned modules are displayed alone. Each icon has an indication of the state of its Mod In and Mod Out status. By pressing the Recheck Position soft key the module position sequence can be repeated (the last module’s Mod Out need not be green for positioning to be complete).

Pressing the Recheck Position will also perform a soft start if the system is not currently running.

Figure 11
IRC Module Position Screen

![IRC Module Position Screen](image-url)
GROUP TEST

A group test is a general purpose diagnostic test. Motors on the specified rows are run at the RPM specified by the test. By default the start and end range are the first and last configured IRC rows. By pressing the Details soft key further diagnostic information is displayed for each row and the Instruction key will return to the instruction view. Target Speed may be set for all motors in the test while on the Details view. The current row’s detected seed count is displayed, and the range of the rows running the test can be entered in the Rows input boxes. The current display row can be changed by the Up and Down keys or by entering a row number into the Row input box in the Details view.

Figure 12

Motor Group Test Details Screen

To Perform an IRC Group Test:

2. Engage hydraulics and run engine at normal speed until hydraulic fluid is at operating temperature.
3. Ensure the start and end row numbers are correct
4. Press the Details key to view the diagnostic row information.
5. Enter the desired Target Rate
6. Press the Start button.
MOTOR ID SETUP

Motor ID setup is to be performed so the system knows which motor is left and which motor is right for each module. Unidentified motors will be marked with a red X and identified motors will be marked with a green check mark. Motors marked with a red X must be reprogrammed to renew the left and right motor assignments.

To Perform Motor ID Assignment:

1. From the Home Screen, Press the IRC Button.
2. Press the Motor ID Setup key.
3. Ensure all the listed IRC modules are correct.
4. Press the Reprogram key.
5. Check the boxes of the modules that have motors that need to be reprogrammed. Use the Select All key to check all the modules, and the Select None key to deselect all selected modules.
6. Press the Next arrow key.
7. While viewing from behind the planter, disconnect the right motors for all the modules displayed in the tables. If more than twelve modules were selected in step 5, the tables will cycle between all the modules.
8. Once all the right motors are disconnected, press the Assign Left key.
9. While viewing from behind the planter, reconnect all the previously disconnected right motors.
10. Press the Assign key.
11. Press the Done key to return to the motor summary screen. Review the module list to ensure that all motors that were reprogrammed now display a green checkmark in the “Left Motor” and “Right Motor” columns.

**Figure 14**

**Motor ID Setup**

GROUND SPEED

Ground speed setup requires selecting a ground speed type, setting speed parameters, and performing a calibration.

When using the IRC speed source, two radars connected to IRC modules and mounted left and right of the planter adjust the seed rate of each row to provide turn compensation. If the speed signal is not connected to IRC modules then another Source must be selected.

For information on Ground Speed Source options other than IRC left and right radars, please refer to the Ground Speed Setup section of the IntelliAg® ISO6™ PDC UL 2/3 V3 manual.

**To Select a Ground Speed Type:**

1. At the Home Screen, press the Speed Button.
2. At the Speed Screen, enter ground speed parameters as defined below.

**Figure 15**

*Ground Speed Setup Screen*

<table>
<thead>
<tr>
<th>MAIN SOURCE</th>
<th>IRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shutoff Speed</strong></td>
<td>0.01 KPH</td>
</tr>
<tr>
<td><strong>Minimum Override</strong></td>
<td>0.0 KPH</td>
</tr>
<tr>
<td><strong>Master Sw Timeout</strong></td>
<td>10 SEC</td>
</tr>
<tr>
<td><strong>Precharge Gnd Speed</strong></td>
<td>0.0 KPH</td>
</tr>
<tr>
<td><strong>Ground Speed</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Gspd Constant</strong></td>
<td>10000 PUL, 10000 PUL</td>
</tr>
<tr>
<td><strong>Offset</strong></td>
<td>0.00 M, 0.00 M</td>
</tr>
</tbody>
</table>

**MAIN SOURCE**

Select IRC as the Main Source when two radar sensors mounted on the left and right of planter will calculate ground speed.

**SHUTOFF SPEED**

Indicates the minimum ground speed allowed before the system shuts off all control channels.

**MINIMUM OVERRIDE**

Minimum override takes over when actual ground speed is below the designated value. The control operates at this speed until actual ground speed rises above the minimum override speed or the actual speed drops below the shutoff speed. The Minimum Override speed has a background color of black and appears in the ground speed location on the Work Screen.

**MASTER SW TIMEOUT**

Determines the length of time before the system disables the operate function after ground speed is 0 (zero) if the master switch remains in the ON position. After the delay time elapses, an alarm is issued stating that the master switch must be toggled OFF/ON before the system will restart.
PRECHARGE GROUND SPEED
The rate at which seed will be dispensed when using the Precharge feature. For more information, see the “Using the Precharge Feature” section of the IntelliAg® ISO6™ PDC UL 2/3 V3 manual.

MAIN GROUND SPEED CONSTANT
Represents the pulse count produced by the ground speed sensor over a 400’ (100 m) distance. A ground speed calibration is recommended to obtain the ground speed constant. With IRC set as the Main Source, the left and right radars may have different Ground Speed Constants. Enter the speed constants for the left and right radars, if known, or run a ground speed calibration. Refer to the Calibration section for additional information.

OFFSET
The distance the ground speed radars are offset from the middle of the planter.
GROUND SPEED CALIBRATION WITH LEFT AND RIGHT IRC GROUND SPEED SENSORS

Ground speed is the rate in MPH (Km/h) as measured by the ground speed sensor. The number reflects the number of pulses generated by the ground speed sensor while traveling a distance of 400 feet (100 meters).

For instructions on how to perform a Ground Speed Calibration with Ground Speed Sources other than IRC, please refer to the Ground Speed Calibration section of the IntelliAg® ISO6™ PDC UL 2/3 V3 manual.

**IMPORTANT:** Performing a ground speed calibration directly influences population, area accumulation, and application rate control as is recommended.

*Figure 16*
1. Measure a 400 Foot (100 meter) straight, flat course marking start and finish points.
2. Press the Calibrate button to open the Calibration screen.
3. Drive tractor 2-5 mph with the planter in planning position and press the Start button at the start of the 400 foot (100 meter) course to begin calibration. The display showing the ground speed calibration will zero and begin counting ground speed pulses.
4. Press Stop button at the end of the 400 foot (100 meter) course. The new calibration numbers for the left and right sensors display on the center of the screen.
5. Manually enter the average calibration numbers for both the left and right constants on the Ground Speed Setup page, or press Save to store the results from the most recent calibration.

NOTE: For better accuracy, run this course 3 times and average the 3 calibration numbers. Enter the averaged number at Main Ground Speed Constant.

IRC GROUND SPEED DIAGNOSTICS

The IRC Ground Speed Diagnostics is only accessible when IRC is selected as the Main Source on the Ground Speed Setup page. The Speed Diagnostics page displays the ground speeds detected by the left and right IRC radars, the frequency received by the radars, and the overall ground speed calculated from the speeds reported by the left and right radars. The state of the implement lift is also displayed, along with a turn indicator.

Figure 17

IRC Ground Speed Diagnostics Screen
IMPLEMENT LIFT INDICATOR
The Work Screen identifies the implement position as up or down. The implement lift switch automatically turns the control channels on and off without turning the master/control switch off. The Implement Lift Indicator must be in the down position for the control channels to operate while on the Work Screen.

Refer to the Implement Lift Sensor instructions for installation location.

TURN INDICATOR
The turn indicator is a bar graph that will fill up on the left or the right side based on the speed difference between the left and right ground speed radars. The greater the bar is filled, the sharper the detected turn. When traveling in a straight line, the left and right speeds will be the same, and the turn indicator will be empty.

GROUND SPEED
The overall ground speed is calculated from the speeds reported by the left and right radars based on the Left and Right Ground Speed Constants and Offsets entered on the Ground Speed Setup screen.

LEFT AND RIGHT SPEED
The Speeds reported by the Left and Right radars, calculated from the Ground Speed Constant entered on the Ground Speed Setup page.

LEFT AND RIGHT FREQUENCY
The frequency detected by the Left and Right ground speed radars.
OPERATE SCREEN SYMBOL

VOLTAGE ALERT

A voltage alert icon appears during IRC operation when the motor voltage is not charging above the configured charging voltage limit. Most commonly this alert is the result of a charging issue or the alternator hydraulic motor is off and should be turned on. The charging voltage limit is set on the IRC Setup screen.

*Figure 18*

Voltage Alert on Work Screen

![Voltage Alert on Work Screen](image-url)
## ALARMS

<table>
<thead>
<tr>
<th>ALARM #</th>
<th>ALARM</th>
<th>PROBABLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
</table>
| 401     | IRC Motor Voltage High Alarm | Voltages for the IRC module(s) are too high. The motor voltage is above 36V. | 1) Verify measured voltage at module with a volt meter  
2) If above 36V, verify proper operation of motor power supply.  
3) Inspect module for damage. |
| 402     | IRC Motor Voltage Low Alarm  | Voltages for the IRC module(s) are too low. The motor voltage is below 18V.   | 1) Verify measured voltage at module with a volt meter  
2) If below 18V, verify proper operation of motor power supply.  
3) Inspect module for damage. |
| 403     | IRC Logic Voltage High Alarm | Logic voltage for the IRC module(s) are too high.                             | 1) Inspect harness for damage.  
2) Internal fault has occurred. Replace module. |
| 404     | IRC Logic Voltage Low Alarm  | Logic voltage for the IRC module(s) are too low.                             | 1) Inspect harness for damage.  
2) Internal fault has occurred. Replace module. |
| 405     | IRC Motor Ground Differential| Differential between ECU and motor ground for the IRC module(s) are too high. | 1) Verify connection between ECU and motor ground.  
2) Inspect module and harness for damage. |
| 406     | IRC Motor Temperature High Alarm | Temperatures for the motors are over the limit of 175F.                   | 1) Check the load on the motor(s) or restriction of a seed disk. |
| 407     | IRC Motor Current High Alarm | Current for the motors are too high.                                      | 1) Check the load on the motor(s).  
2) Check the motors on rows to ensure proper connection. |
| 408     | Invalid IRC Motor ID Assignment Alarm | One of more IRC motors have an invalid ID assignment.                | 1) Re-run the IRC Motor ID Setup. |
| 409     | IRC Motor Stalled Alarm      | One or more IRC motors have stalled.                                       | 1) Check proper connection on the motors for rows specified. |
| 410     | Left IRC Ground Speed Failure Alarm | No left IRC ground speed detected.                                | 1) Verify correct speed source setting and speed calibration on the Ground Speed Calibration screen.  
2) Inspect speed sensor/harness for damage or replace speed sensor.  
3) Replace module. |
| 411     | Right IRC Ground Speed Failure Alarm | No right IRC Ground speed detected.                                        | 1) Verify correct speed source setting and speed calibration on the Ground Speed Calibration screen.  
2) Inspect speed sensor/harness for damage or replace speed sensor.  
3) Replace module. |
Dealers have the responsibility of calling to the attention of their customers the following warranty prior to acceptance of an order from their customer for any DICKEY-john product.

**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; any expenses or liability for repairs made by outside parties without DICKEY-john’s written consent; damage to any associated equipment; or lost profits or special damages. Said part will not be considered defective if it substantially fulfills the performance expectations. 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.

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INDIVIDUAL ROW CONTROL

VERSION 3 ISO

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