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DjASM II

OPERATOR'S MANUAL

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INTRODUCTION

SYSTEM OVERVIEW

The Dj Air Seeder Monitor (Dj ASM II) provides accurate blockage and low cost monitoring of up to 128 rows and 8 hopper levels. It can scan 8 ASM II Modules and display the status of 16 rows for each module, or 15 rows and 1 hopper per module. The monitor provides:

- 128 row maximum monitoring capability
  - 8 ASM II module scanning capability
  - 16 row display capability per ASM II Module or 15 rows and 1 hopper level sensor
- Implement lift switch input
- 16 row indicators
- 7 segment indicator (displays 1,2,3,4,5,6,7,8,9,0, A,C,E,H,L)
- OFF/ON/DIM-ALARM CANCEL toggle switch
- 5 step LED dimming for full sunlight/night time use
- Internal audible alarm (chirp/blare output)
- 12 Vdc power relay switching output (for modules)
- Minimum seeding rate adjustment switch/split row enable

Figure 1

Dj ASM II Air Seeder Front Panel

On/Off/ Dim-Alarm Cancel toggle switch

Minimum seeding rate adjustment/split row enable toggle switch

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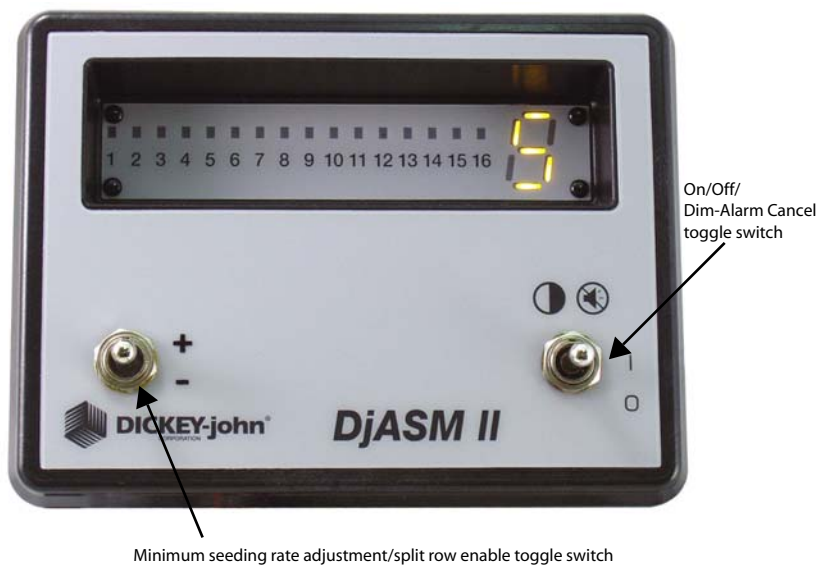
SYSTEM DIAGRAM

The following provides an illustration of the Dj ASM II system.
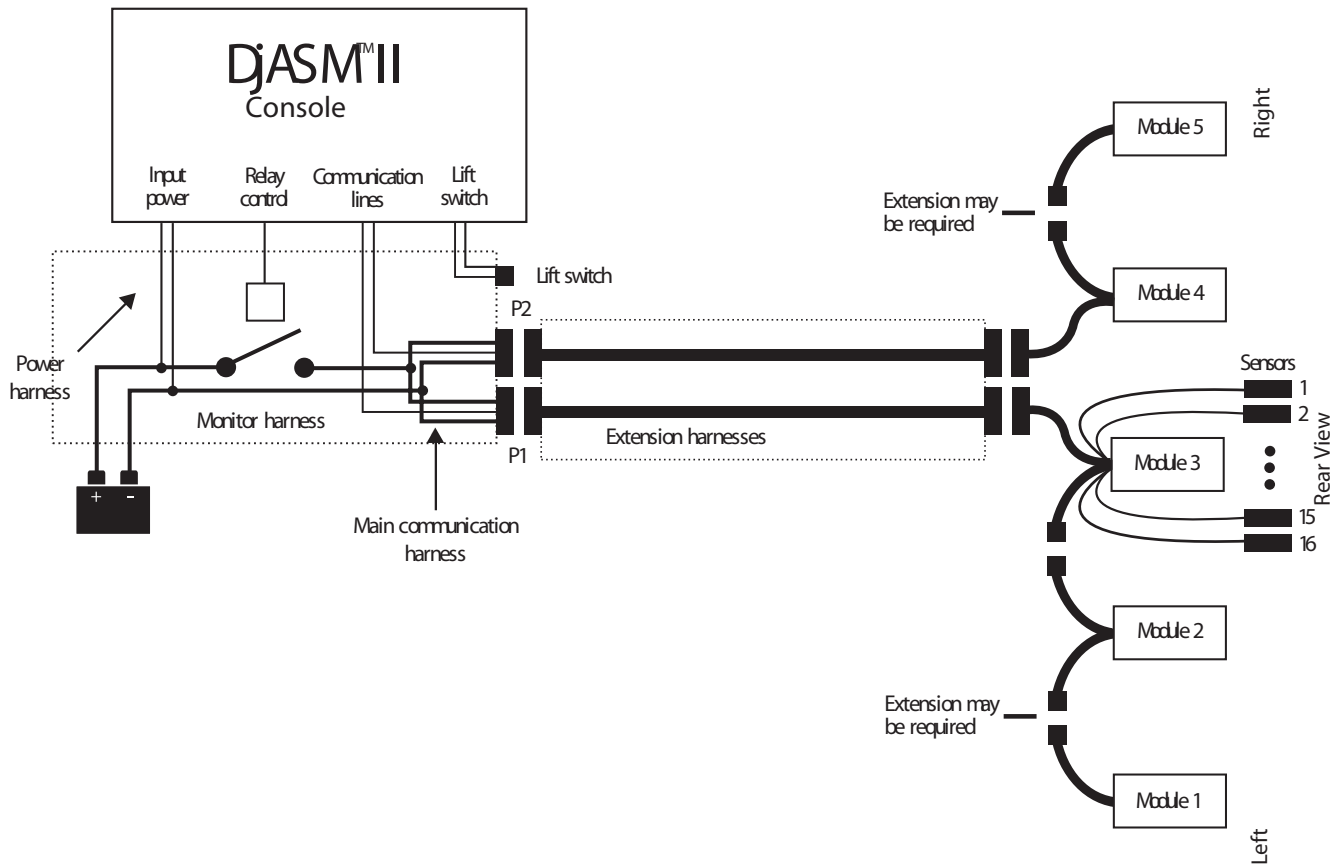
Figure 2

Dj ASM II System Diagram

Diagram Notes:

- P1 modules address from left end to middle, while P2 modules address from middle to right end
- Lift switch is optional
- Module power is not carried through the console due to worst-case voltage drop on 128-row system
- P2 is not required for systems with four modules or less (64 rows or less)
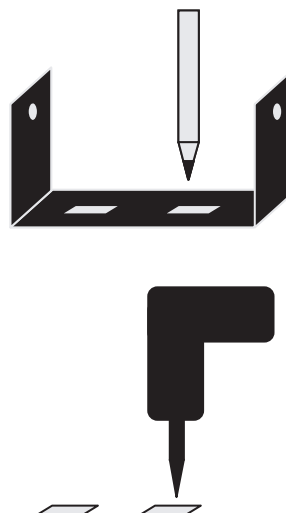- P1 can drive four modules

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INSTALLATION

CONSOLE MOUNTING

To mount the Dj ASM II console, use the mounting bracket as a template for drilling. Mount the console in a location that is easy to view and easy to reach for threshold adjustment, split row activation, dimming, and alarm silencing.

Figure 3

Console Mounting

Before drilling, assure the power and main hitch harness can be routed in the proper manner. Harness retention and routing outside of the cab is also important.

⚠ **CAUTION**

Do not use the enclosure as a guide when drilling. This may cause damage to the mounting bracket.

MONITOR AND POWER CONNECTIONS

Route the power leads of the main harness to the battery. Allow some slack to tie the harness off to the console bracket for strain relief and protection of the harness.

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Figure 4

Monitor and Power Connections
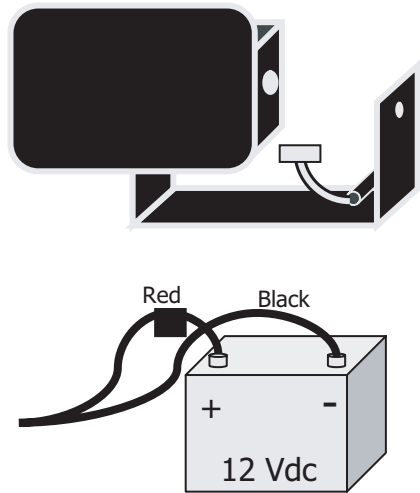
The monitor operates on 12Vdc only. The red (fused) lead should be connected to the positive battery terminal and the black lead should be connected to the negative battery terminal.

ASM II CONSOLE MAIN HARNESS

Insert the connector of the harness into the J1 connector inside the bottom of the ASM II console.

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Figure 5

Main Harness Connection

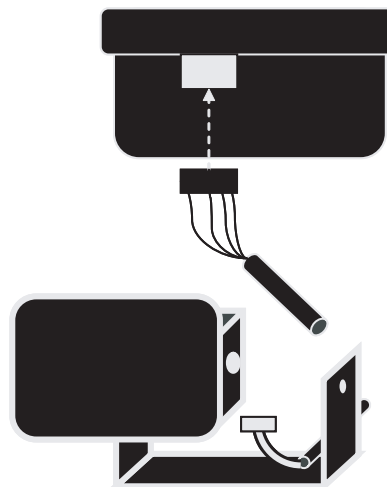Route the main harness to the rear of the tractor. Mount the relay (part of the main harness) to a suitable location at the rear of the tractor, assuring the connector will reach the implement connector at the hitch.

MODULE MOUNTING

Lay out all harnesses and modules on the implement to determine proper mounting locations. Refer to Figure 2 for layout guidelines.

Use the module as a template for drilling in a location that will allow the tower harness to reach all the sensors installed on the air seeder and be connected to the hitch cable or next module in line (1/4-20 hardware is recommended).

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Figure 6

Module Mounting
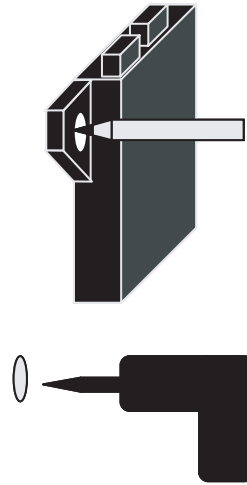
Before drilling, assure the harness can be routed in the proper manner. Consider harness placement in regard to air seeder movement during planting.

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SYSTEM CONFIGURATION

SPLIT ROW ENABLE

This feature will set the Dj ASM II to monitor only odd or even numbered rows.

To configure the Dj ASM II to monitor only even numbered rows, hold the +/- switch to "+" and turn the power switch ON. The letter "E" as well as the even row indicators will be displayed. Release the +/- switch immediately.
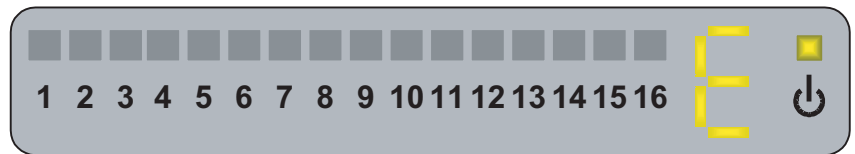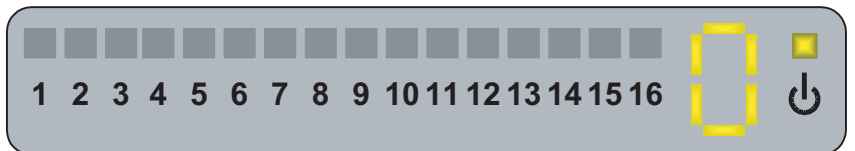
Figure 7

Even Row Enable

NOTE: Turning the power switch ON with the +/- switch in the center position configures the system to monitor all rows.

To configure the Dj ASM II to monitor only odd numbered rows, hold the +/- switch to "-" and turn the power switch ON. The letter "O" will be displayed as well as the odd row indicators. Release the +/- switch immediately.

Figure 8

Odd Row Enable

MINIMUM SEEDING RATE

The Minimum Seeding Rate feature allows for setting a minimum number of seeds per second that will cause a seed row to fail and alarm to sound. The factory default minimum seeding rate is 2 seeds per second.

To set the minimum seeding rate, perform the following:

1. Power up the console and wait until the start up test of modules, seed sensors, and hopper level sensors is complete.
2. Momentarily hold the +/- switch in either the "+" or "-" position to change the threshold adjustment setting.
3. Refer to Figure 9 and enter the desired threshold.
4. Holding the +/- switch to the "+" position will increase the LED's. Holding the +/- switch to the "-" position will decrease the LED's.
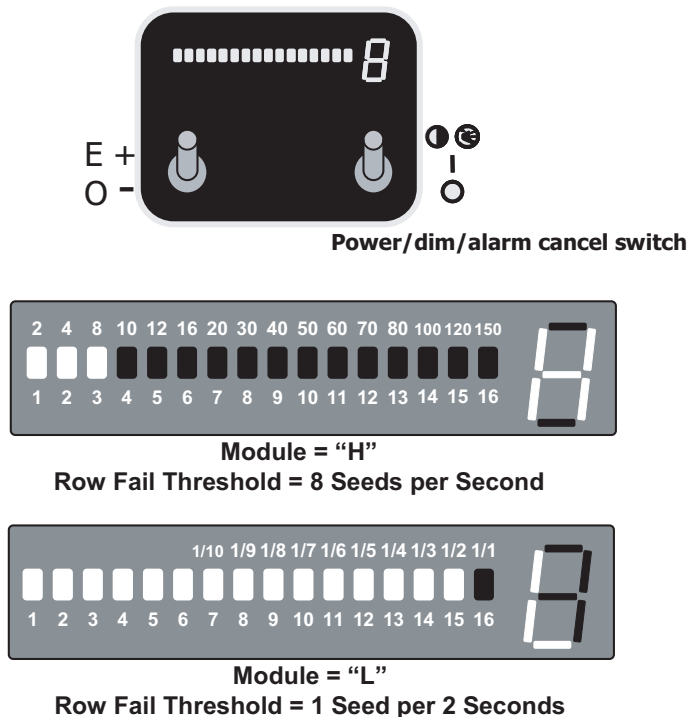
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Figure 9

Minimum Seeding Rate Table

Number of LED's on Seeds vs. Second Threshold

LED Indicator	High Range (H) (seeds per second)	LED Indicator	Low Range (L) (seconds per seed)
1	2 seeds every second	7	1 every 10 seconds
2	4 seeds every second	8	1 every 9 seconds
3	8 seeds every second	9	1 every 8 seconds
4	10 seeds every second	10	1 every 7 seconds
5	12 seeds every second	11	1 every 6 seconds
6	16 seeds every second	12	1 every 5 seconds
7	20 seeds every second	13	1 every 4 seconds
8	30 seeds every second	14	1 every 3 seconds
9	40 seeds every second	15	1 every 2 seconds
10	50 seeds every second	16	1 every 1 second
11	60 seeds every second		
12	70 seeds every second		
13	80 seeds every second		
14	100 seeds every second		
15	120 seeds every second		
16	150 seeds every second		

Figure 10

Minimum Seeding Rate Example

Power/dim/alarm cancel switch

Module = "H"
Row Fail Threshold = 8 Seeds per Second

Module = "L"
Row Fail Threshold = 1 Seed per 2 Seconds

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ENGLISH CONVERSION FOR SEEDING RATE

sps = 43560 x V * 5280 / 3600 x S / 12

P = population (seeds/acre), V = speed (m.p.h.)

S = spacing (inches), sps = threshold (seeds/s)
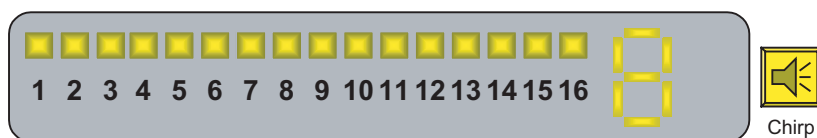
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SYSTEM OPERATION

POWER SEQUENCE

Moving the I-O (power) switch to the center position turns on the monitor. Upon power up, the Air Seeder Monitor provides the operator with an indicator test by illuminating all 16 rows and the 7 display segments. The alarm will output a single chirp during the display test.

Figure 11

Power Up Indicator and Alarm Test

SENSOR DETECTION

After the indicator test is complete, the monitor will begin displaying the results of the sensor detection. The Module Number will display "1" and the row numbers with detected sensors will illuminate. If another Dj ASM II module is connected, the Module Number will advance to "2" and the row numbers with detected sensors will illuminate, and so on for additional modules. The monitor will dwell for 2 seconds on each module. In the event a hopper/row module is connected, the monitor will display the seed sensors detected first, then detect the hopper, with an "H" displayed.

The following sensor detection sequence, Figure 12, depicts 56 rows of monitoring with 12 rows connected to Dj ASM II module 1, 16 rows connected to modules 2 and 3, and 12 rows and 1 hopper connected to module 4.

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Figure 12

Sensor Detection Sequence

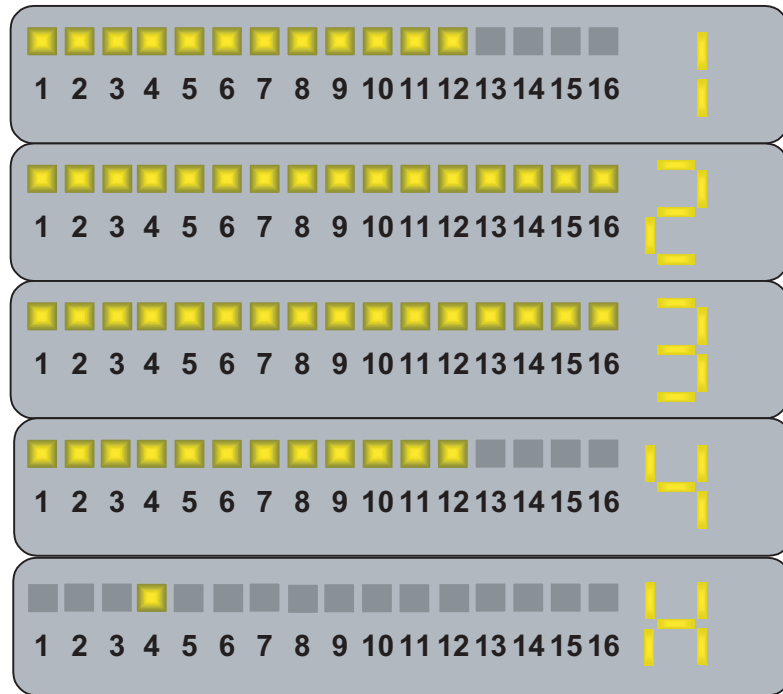Figure 13 illustrates a row that was not detected during the sensor test is not usable. This could indicate that a sensor is not connected or has failed on module 1.

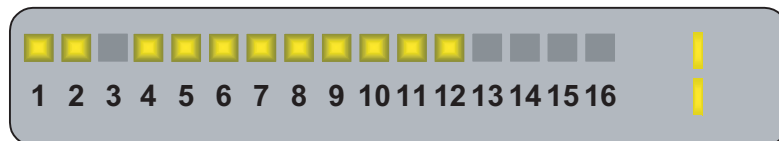*Figure 13*

Example of Failed Row

Figure 14 illustrates that no rows are lit on the Hopper detection sequence. This indicates that a Hopper module was detected but no Hopper sensors were detected.

Dj ASM II Air Seeder Monitor
11001-1311-200501
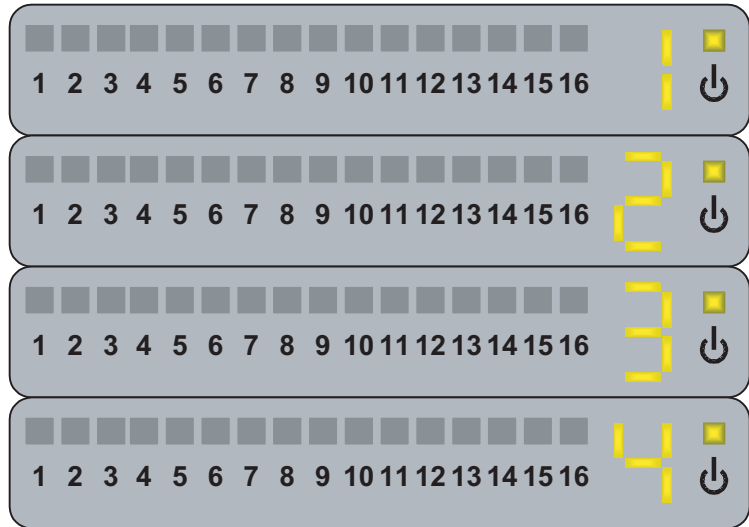
Figure 14

Example of Hopper Failure

PLANTING

After the sensor detection is displayed to the operator, the monitor is ready for the planting operation. When planting begins, monitoring operation starts. As long as every reported row detects at least the minimum seeding rate, the 7-segment display will scan through each detected module number.

Figure 15

Planting Display - No Failed Rows

SINGLE ROW FAILURE

If a single row failure is detected, the appropriate Module Number will be displayed and the corresponding row output will light and the alarm will sound. Figure 16 provides an example of what the display would show with Module 2, Row 5 failure.

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*Figure 16*

Example of Single Row Failure

Unless the alarm is cancelled by toggling the I/O (power) switch, the display will continue to show this condition. If this occurs, the display will scroll through each module as before, but will illuminate only the failed rows. If an additional single row failure occurs, the operation will return to dwell upon that failure. If a second alarm cancel is performed, the display will again scroll through each module as before, but will illuminate both failed rows.

MULTIPLE ROW FAILURE

If rows fail on more than one module, the monitor will sequence through the Module Numbers and display the corresponding row numbers for 2 seconds on each module. For example, if Module 1, Row 8 and Module 2, Row 5 fail, the following display sequence will occur and loop.

Figure 17

Example of Multiple Row Failure
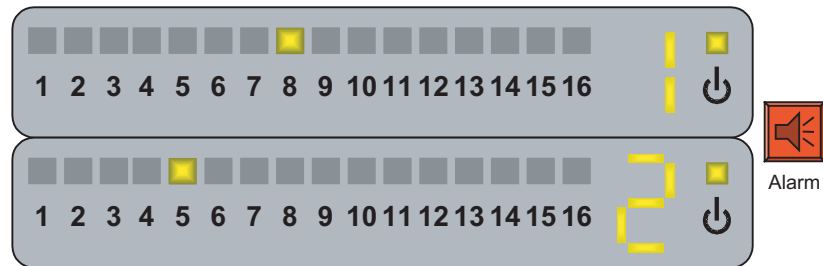
The looping of the modules with failed rows will continue unless the alarm is cancelled. If this occurs, the display will scroll through each module as before, but will illuminate the failed rows. If additional rows fail, the operation will return to looping the new failures only. If a second alarm cancel is performed, the display will again scroll through each module as before, but will illuminate all row failures.
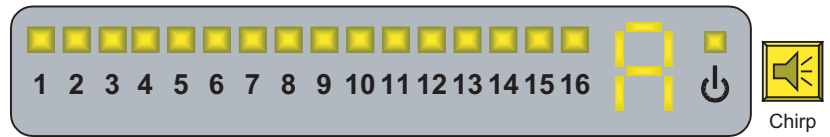
ALL ROWS FAILURE

If all rows fail, which is common when the planter is lifted and no lift switch is installed, the Module Display will output an "A", all rows will light, and the alarm will chirp.

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Figure 18

Example of All Rows Failure

DIMMING

A dimming feature is included for low light planting conditions. After the sensor detection has been completed and only during non-alarm conditions, the dim switch can be toggled into the up position to dim the indicators. Each dim step will cause the alarm to chirp. Once the lowest dim level has been reached, the alarm will sound for 2 seconds. After 2 seconds, or if the switch is released and toggled up again, the indicators will brighten. Once the highest brightness level has been reached, the alarm will sound for 2 seconds.

LIFT SWITCH

The lift switch input will keep the ALL ROWS FAILURE from occurring. When the Lift Switch input is grounded, it is considered active (inhibits ALL ROWS FAILURE). When active, the Module Display will output an "L" and will no longer scan through the modules. The alarm will chirp.

Figure 19

Active Lift Switch

HOPPER LEVEL LOW

Hoppers can be monitored with the Dj ASM II console in the event a 15 row Hopper Module is connected to the system. If a hopper is low, the sensor will ground the signal line and an "H" will appear on the display, indicating a hopper is empty. The LED number indicates which module the hopper level sensor is connected. In the following example, the hopper sensor on Module 4 is indicating a low hopper.

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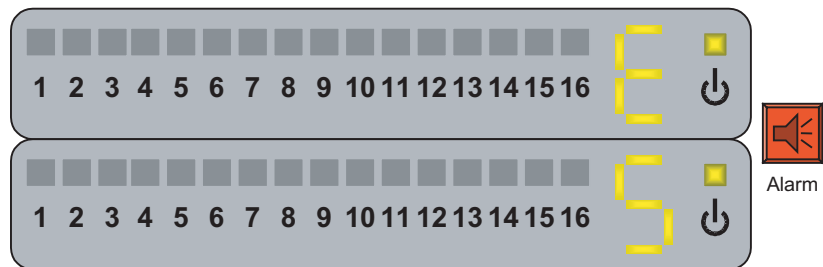*Figure 20*

Example of Low Hopper Level

ERRORS

The monitor can detect 8 Vdc error during start-up. If this error occurs, the Module Display will output an "E", followed by the module number. In the following example, Module 5 detected an 8 V sensor supply voltage short to ground.

Figure 21

Example of Module 5 Start-Up Error

⚠ CAUTION

This error CANNOT be disabled using the Alarm Cancel feature. The problem must be either repaired or the module must be disconnected from service.

The other error that the monitor will display is a communication error. If this error occurs, the monitor will display a "C", followed by the module number. In the following example, the monitor detected a communication error with Module 5.
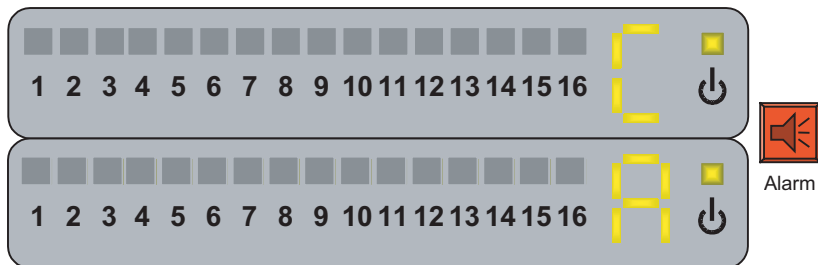
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Figure 22

Example of Module 5 Error
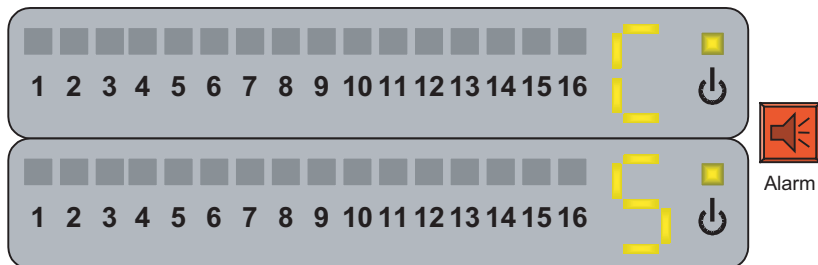
A Module 5 Communication error is similar to the 8 Vdc error. The "C" and "5" will toggle back and forth. The error cannot be eliminated until the communications failure has been corrected and power has been cycled OFF/ON.

Figure 23

Example of Communications Error

The error "C/A" indicates the monitor is experiencing communication problems with all modules. The letters "C" and "A" will toggle back and forth. This occurs, for instance, when the monitor is powered up with no modules connected.

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TROUBLESHOOTING GUIDE

UNIT WILL NOT POWER ON. NO LEDS WILL LIGHT DURING THE POWER UP SEQUENCE.

Probable Cause:

1. Loose connection between power harness and monitor
2. Blown fuse
3. Defective monitor or main harness
4. Defective module, harness, or sensor
5. Poor battery connection
6. Insufficient system voltage

Corrective Action

1. Assure harness connections are centered and fully inserted. Assure the main harness is properly connected to the monitor.
2. Assure the positive and negative connections are not reversed. Check the fuse in the power harness near the battery. If it is blown, troubleshoot and repair fault. Replace with a 7.5A AGC.

⚠ CAUTION

Do not replace fuse with one having a higher amperage rating - the console could be damaged internally.

3. Disconnect implement main harness. Measure for short between red (power) and black (ground) wires. If shorted, the power harness or the console is faulty and requires repair or replacement. Contact your Parts and Service Dealer or call DICKEY-john in the U.S.A. at 1-800-637-3302.
4. Disconnect the system at the hitch and measure for short between red (power) and black (ground) wires. If shorted, isolate by disconnecting harnesses until fault is found. Contact your Parts and Service Dealer or DICKEY-john in the U.S.A. at 1-800-637-3302. Outside of the U.S.A., contact your dealer or national distributor or DICKEY-john Europe at 00 33 (0) 1 41 19 21 80.
5. Check battery connections and assure they are clean and tight.
6. Make sure battery voltage is between 11 and 16 Vdc.

ROW OR HOPPER INDICATORS FAIL TO ILLUMINATE AFTER SELF-TEST

Probable Cause

1. Defective sensor or harness wire that is intermittent
2. Poor harness connection at console or at sensor that is intermittent
3. Defective harness or sensor cable (signal shorted or power open)

Corrective Action

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1. Swap the sensor with another row or hopper. If problem moves, sensor is faulty. Otherwise, harness or module is faulty.
2. Check module harness connections at the module and sensors. Check module harness for pinches, worn, or broken elements. Check sensor cables for pinched, worn, or broken elements.
3. Check module harness for pinched, worn, or broken elements. Check sensor for pinched, worn, or broken wires.

ROWS FAIL THAT ARE CORRECTLY PLANTING. SELF-TEST INDICATED THE SENSOR WAS PRESENT.

Probable Cause

1. Minimum seeding rate set too high
2. Defective seed sensor
3. Poor harness connection at console or at sensor that is intermittent
4. Defective sensor or harness wire that is intermittent
5. Defective harness or sensor cable (signal shorted or power open)
6. Hopper sensor is plugged into seed input

Corrective Action

1. Lower the minimum seeding rate (left hand +/- switch).
2. Clean sensing elements using a dry bottle brush. Some seed treatments require scrubbing with water and a commercial cleanser.
3. Check module harness connections at the module and sensors. Check module harness for pinched, worn, or broken elements. Check sensor cables for pinched, worn, or broken elements.
4. Swap the sensor with another row. If the problem moves, the sensor is faulty. Otherwise the harness or module is faulty.
5. Check module harness for pinched, worn, or broken elements. Check sensor for pinched, worn, or broken wires.
6. Assure hopper is only connected to "ROW 16/HOPPER" connector input.

HOPPERS FAIL THAT ARE FILLED ABOVE THE SENSOR. SELF-TEST INDICATED THE SENSOR WAS PRESENT.

Probable Cause

1. Defective sensor or harness wire that is intermittent
2. Defective harness or sensor cable (signal shorted to ground)

Corrective Action

1. Check module harness connections at the module and sensors. Check module harness for pinched, worn, or broken elements. Check sensor cables for pinched, worn, or broken elements.
2. Swap the sensor connection with another hopper connector or move sensor. If the problem moves, the sensor is faulty. Otherwise, the harness or module is faulty. Check module harness for pinched, worn, or broken elements. Check sensor for pinched, worn, or broken wires.

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HOPPERS FAIL TO ALARM WHEN SEED IS NOT BLOCKING SENSOR. SELF-TEST INDICATED THE SENSOR WAS PRESENT.

Probable Cause

1. Defective hopper sensor
2. Defective sensor or harness wire that is intermittent
3. Defective harness or sensor cable (signal shorted to power)
4. Hopper sensor is connected to seed input

Corrective Action

1. Clean sensing elements using a dry bottle brush. Some seed treatments require scrubbing with water and a commercial cleanser.
2. Check module harness connections at the module and sensors. Check module harness for pinched, worn, or broken elements. Check sensor cables for pinched, worn, or broken elements.
3. Swap the sensor connection with another hopper connector or move sensor. If the problem moves, the sensor is faulty. Otherwise the harness or monitor is faulty. Check module harness for pinched, worn, or broken elements. Check sensor for pinched, worn, or broken wires.
4. Assure hopper is connected to "ROW 16/HOPPER" connector input.

UNIT POWERS ON, ALL LEDS BLINK ON, AND NO ERROR OCCURS, BUT NO SENSORS ARE DETECTED ON A MODULE.

Probable Cause

1. Module harness is not properly connected
2. Defective (8V power or ground open) harness
3. Defective monitor or module

Corrective Action

1. Check module harness connections at the module and sensors.
2. Check module harness for pinched, worn, or broken elements.
3. Contact your Parts and Service Dealer or DICKEY-john in the U.S.A. at 1-800-637-3302. Outside of the U.S.A., contact your dealer or national distributor or DICKEY-john Europe at 00 33 (0) 1 41 19 21 80.

UNIT DISPLAYS AN "E" FOLLOWED BY A MODULE NUMBER

Probable Cause

1. 8V short error detected by Module

Corrective Action

1. Module voltage supply error. Check module harnesses and sensors for short of 8V supply to ground. 8V supply is generated by each module for its sensors.

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UNIT DISPLAYS A "C" FOLLOWED BY A MODULE NUMBER

Probable Cause

1. Communication error with module

Corrective Action

1. Lost communication with module. Check indicated module number first and nearby modules next. Check all communications next by each module for its sensors.

UNIT DISPLAYS A "C" FOLLOWED BY AN "A"

Probable Cause

1. Communication error with all modules

Corrective Action

1. No modules were detected at power up. Check harnesses and modules for proper connection.

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DJ ASM II SERVICE PARTS

MONITOR AND MAIN HARNESS

Dj ASM II Monitor	46794-2000
Main harness	46794-0580
Mounting bracket	46794-0080
Fuse, AGC 7.5A	20112-0039
Relay	F86606-3252

MODULE AND MODULE HARNESSES

Dj ASM II Module, 16 row	46794-2050S1
Dj ASM II Module, 15 row/1 hopper	46794-2052S1
12 row tower harness	46775-1320S1
16 row tower harness	46775-1330S1
12 row harness, 7.5" row spacing	46775-1300S1
12 row harness, 15" row spacing	46775-1301S1
12 row harness, 30" row spacing	46775-1302S1
16 row harness, 7.5" row spacing	46775-1310S1
16 row harness, 15" row spacing	46775-1311S1
16 row harness, 30" row spacing	46775-1312S1

EXTENSIONS

4' extension harness	46775-1200S1
6' extension harness	46775-1201S1
10' extension harness	46775-1202S1
15' extension harness	46775-1203S1
20' extension harness	46775-1204S1
25' extension harness	46775-1205S1
30' extension harness	46775-1206S1
40' extension harness	46775-1207S1
45' extension harness	46775-1208S1
50' extension harness	46775-1209S1

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**For DICKEY-john Service Department,
call 1-800-637-3302 in either the U.S.A. or Canada**

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Headquarters:
5200 Dickey-john Road, Auburn, IL 62615