



# 396-4762Y1 QuickStart Card



Variable Rate Technology

## JDRC 2000 Dual-Product Gen3 LiquiShift

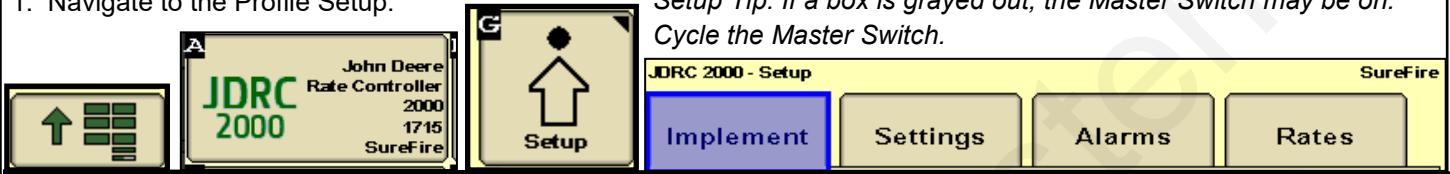
Below are typical SureFire Liquid Fertilizer System setup screens. *Your setup may vary. Not all screens are shown.*

**The operator must read the John Deere JDRC 2000 Operator's Manual and the SureFire manual that came with your system for safety information and additional setup/operating information.**

### NOTICE

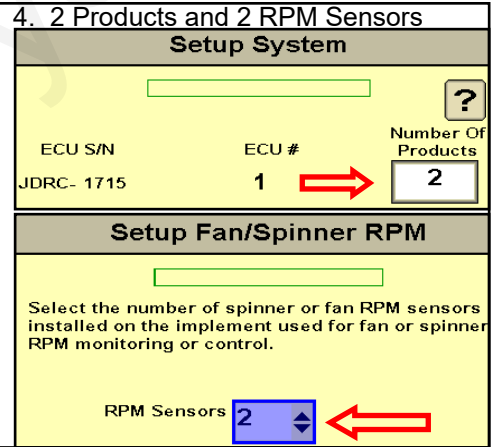
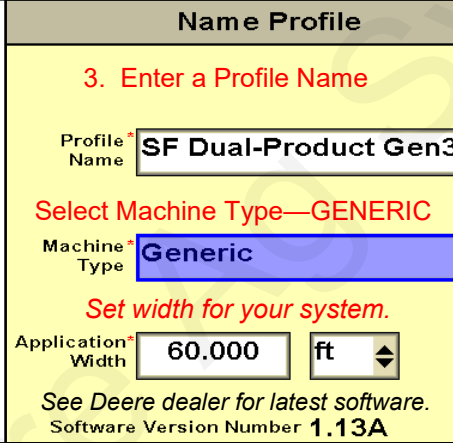
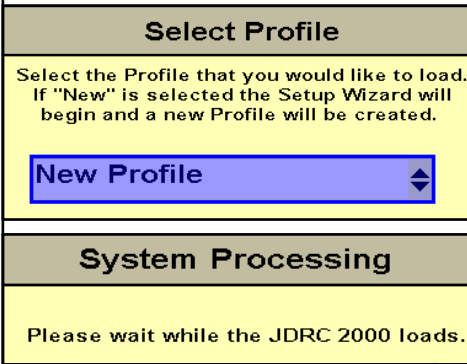
1. Navigate to the Profile Setup:

*Setup Tip: If a box is grayed out, the Master Switch may be on. Cycle the Master Switch.*

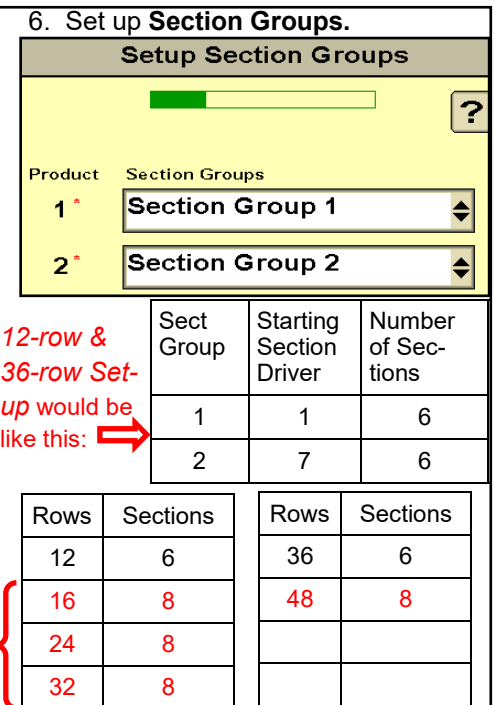
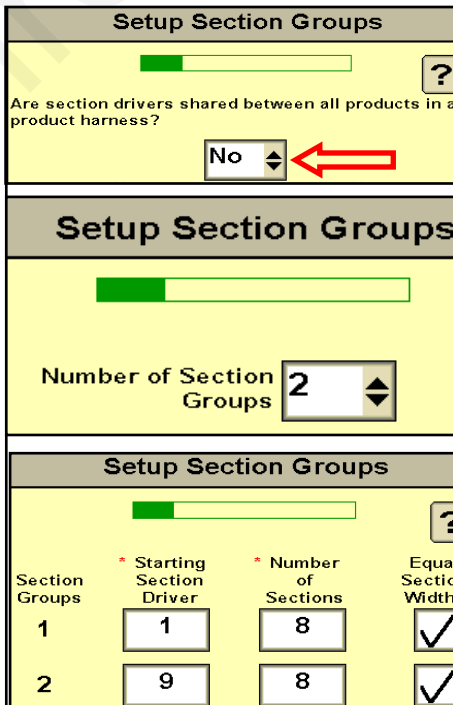
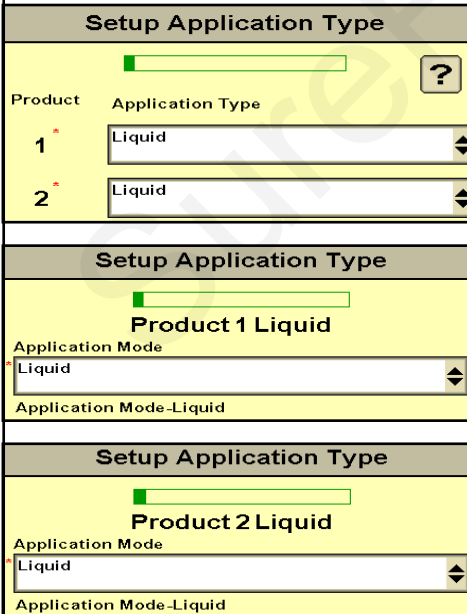


For initial setup, start a new profile. The JDRC 2000 allows you to store 8 profiles. Be prepared to wait a little.

2. Start a New Profile



5. Select Application Type and Application Mode—LIQUID



*12-row & 36-row Set-up would be like this:*

Product	Section Groups	Sect Group	Starting Section Driver	Number of Sections
1 *	Section Group 1	1	1	6
2 *	Section Group 2	2	7	6

Rows	Sections	Rows	Sections
12	6	36	6
16	8	48	8
24	8		
32	8		



# QuickStart setup instructions for JDRC 2000 and Dual-Product Gen3 LiquiShift

7. The SureFire pressure sensor will be set up as a **Custom** sensor. Calibration will be done later.

### Setup Pressure Sensors

Pressure Sensor 1: Custom

Pressure Sensor 2: Custom

Pressure Sensor 3: None

### Setup Sensor Assignment

Pressure Sensor 1

Product 1:

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### Setup Sensor Assignment

Pressure Sensor 2

Product 1:

Product 2:

### Setup Pressure Alarms

	Minimum	Maximum	Alarm
Pressure 1 (psi)	0	85	<input checked="" type="checkbox"/>
Pressure 2 (psi)	0	85	<input checked="" type="checkbox"/>

*Checking the Alarm box will keep the system from going above 85 PSI. The system would work fine up to 95 PSI, but if it is running this high, check for restrictions on the outlet side of the system and check to see if a larger diameter (or shorter) metering tube pair is needed.*

8. Optional Aux Functions—RPM Sensors

### Setup Aux Functions

RPM 1 Calibration Pulses/Rev: 15

RPM 1 Low Limit (rpm): 0

RPM 1 High Limit (rpm): 500

RPM 2 Calibration Pulses/Rev: 15

RPM 2 Low Limit (rpm): 0

RPM 2 High Limit (rpm): 500

### Setup RPM Sensor Assignment

RPM Sensor 1

Product 1:

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### Setup RPM Sensor Assignment

RPM Sensor 2

Product 1:

Product 2:

*This QuickStart Card is a supplement to the full system manual (396-3583Y1) and the Gen3 LiquiShift Manual (396-4608Y1). This card and those manuals and other troubleshooting guides are available at [www.surefireag.com/support](http://www.surefireag.com/support).*

⚠ **WARNING**

*The operator is responsible for the safe operation of this equipment. Systems with hydraulic equipment require additional safety precautions to prevent serious injury and/or death.*

*The pump is rated at 550 rpm. With the Alarm box checked, the pump will not go above the High Limit set. If necessary, set the High Limit at 550. If the pump suddenly needs to run faster, check for restrictions on the inlet side (strainer, etc).*

9. Control Valve Setup

**Valve Response Rate:** (Adjust as needed)

<b>PumpRight (hydraulic)</b>	<b>PR17-80</b>	100
<b>PR30-70</b>	<b>PR40-60</b>	5-15
	<b>D250-50</b>	

Tower (electric) 100  
Spartan 5-15

If pump is slow responding to rate or speed changes, increase **Valve Response Rate** 10 at a time. If product oscillates around rate going across the field, reduce **Valve Response Rate**.

### Setup Control Valve

Product 1 Liquid

Control Valve Type: PWM Close

See Valve Response Rate (1-100) Above: [ ]

Control Deadband (%): 2

### Setup PWM

Product 1 Liquid

Coil Frequency (Hz): 100

High Limit (%): 80.0

Low Limit (%): 25.0

PWM Startup (%): 40.0

*High Limit may be set lower to limit speed of pump*

### Tip for Best Startup Performance

For best startup performance, set the **PWM Startup** at or slightly above the normal operating PWM Duty Cycle (DC%). When the pump starts, it will go immediately to that Duty Cycle and then will have just a minor adjustment to lock on to the Target Rate.

Normal Operation	PWM Startup
37.1 DC (%)	PWM Startup 40.0 (%)

If pump starts up too fast, lower the PWM Startup.

# QuickStart setup instructions for JDRC 2000 and Dual-Product Gen3 LiquiShift

### 10. Rate Sensor (Flowmeter) Setup

#### Setup Rate Sensor

**Product 1 Liquid**

Flowmeter Calibration: **2000**

Flow Cal is for 0.6 to 13 gpm & larger

Flowmeter Pulse/Units: **gal**

Product 1 Setup is shown. Set up Product 2 in a similar manner.

**Verify** Flowmeter Calibration by carefully watching acres worked and gallons applied in the field. Adjust flow cal for best accuracy.

### 11. Tank and Fill Flowmeter Setup (Optional)

#### Setup Tank

**Product 1 Liquid**

OPTIONAL: Use as desired

Tank Capacity (gal): **0**

Current Level (gal): **0**

Low Tank Level (gal): **0** Alarm?

Check **Tank Fill Monitor** box if using a fill flowmeter.

Tank Fill Monitor:

#### Setup Tank Fill

SFA 3" Fill Flowmeter: 130

SFA 2" Fill Flowmeter: 300

Tank Fill Flowmeter Calibration:

Tank Fill Flowmeters are not used very often.

Tank Fill Flowmeter Pulse/Units: **10 gal**

### 12. Rates (Predefined or Map-Based), Rate Smoothing, Decimal Shift

#### Setup Rates

**Product 1 Liquid**

Preset Rate Values (gal/ac): Rate 1\* **4.0**, Rate 2 **0.0**, Rate 3 **0.0**

Rate Bump (gal/ac): **0.0**

Rate Smoothing:  **10** %

Decimal Shift: **1**

Rate Selection: **Predefined**

Select **Map-Based** for a prescription.

#### Setup Alarms

**Product 1 Liquid**

Off Rate Alarm (% off target rate): **20** Alarm

### 13. Pressure Sensors must be calibrated. Enter 50.0 mv/PSI for SureFire 0-100 PSI, 0 to 5 volt sensor. (Unplug the sensor during the calibration process.)

#### Pressure Sensor Setup

**13** Sensor-1

- Ensure there is zero pressure at the sensor to be calibrated.
- Enable the sections to spray.
- Press the Calibration button for the desired type of calibration to begin test and set zero point.

**Calibrate Sensor 1 & Sensor 2.**

#### Calibrate Pressure Sensor

Sensor-1

Voltage-based

- Ensure the sensor has 12V power supply.
- Enter the slope as reported by the implement pressure gauge manufacturer in the box below
- Select Accept

**50.0** (mv/psi)

### 14. Set Flowmeter Low Limit

#### Flow/Rate Sensor Setup

**14** Product-1

Flowmeter Calibration: **2000**

Flowmeter Pulse/Units: **gal**

Flowmeter Low Limit (gal/min): **0.4**

Flowmeter	Low Limit
0.6 to 13	0.4
1.3 to 26	0.8
2.6 to 53	1.6

*Set Flowmeter Low Limit for Product 1 and Product 2.*

15. See the next page for DISPLAY SETTINGS and JDRC 2000 Run Page. You need to set up DISPLAY SETTINGS for both PR1 and PR2. Use PSI(1) and RPM (1) for PR1. Use PSI (2) and RPM (2) for PR2.

16. See the next page for SECTION SWITCHBOX.

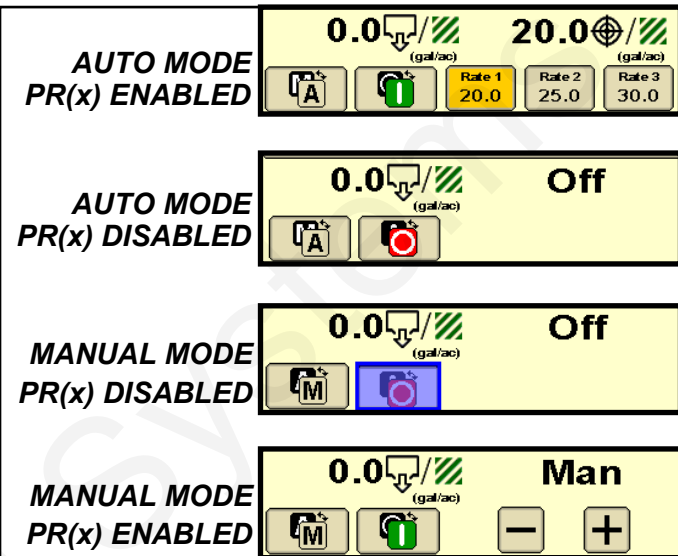
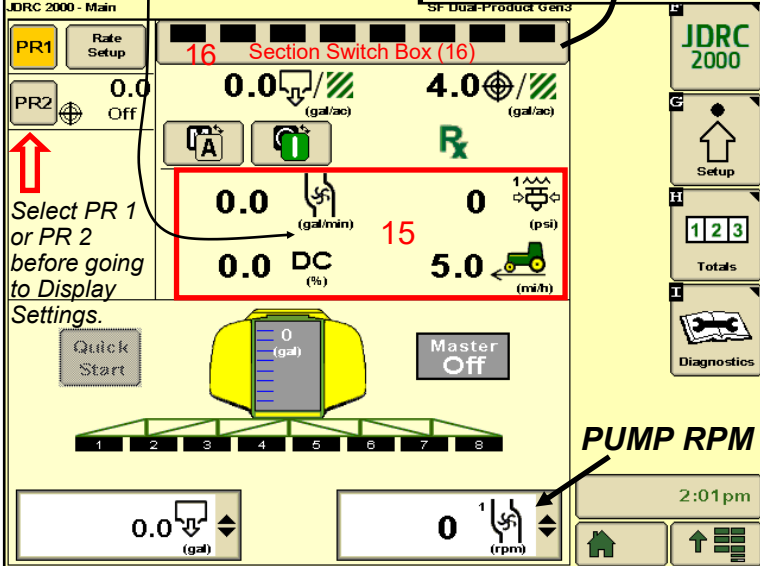
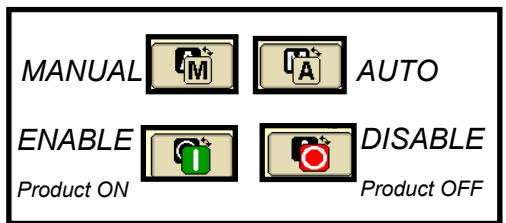
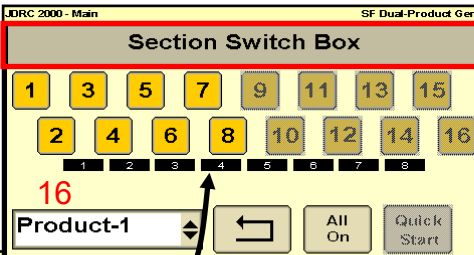
17. See the next page for INITIAL OPERATION IN MANUAL MODE.

18. See the next page for INITIAL OPERATION IN AUTO MODE.

- TIPS: When first starting the system or when troubleshooting a problem, you can turn OFF either Product 1 or Product 2 and just run the system you want. You can also operate in the field with only one system turned on.
- (2) Go to *Diagnostics > System Summary* for a quick look at the System Settings.
  - (3) Go to *Diagnostics > Product Summary* for a quick look at the settings for each product setup.
  - (4) Go to *Diagnostics > Readings* for important information and feedback: *Hardware/Software, Delivery System, Section Status, System Voltage, Pressure Sensors, RPM Sensors and more.*

# Display Settings, Section Switch Box, Run Page (Manual/Auto, Enable/Disable)

15. Set these 4 items in Setup > Settings > Display Settings
- 1) Gal/min 15
  - 2) Pressure (PSI)
  - 3) DC(%) (PWM Duty Cycle)
  - 4) Mi/hr



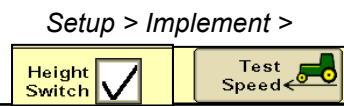
## Tests for Initial Operation

### 17. Initial Operation in MANUAL mode:

1. Fill the system with water. For first time startup, open air bleed valve, close recirculation.
2. Enter a Test Speed at Setup > Implement > Test Speed.
3. Navigate to MANUAL MODE on the JDRC 2000 Run page.
4. Height switch must be DOWN (or uncheck Height Switch box).
5. Turn on Master Switch. Press and hold (+) to increase flow. If you get "SOLUTION PUMP DRY", see below.
6. Monitor Flow (gal/min), PSI, DC, Pump RPM. Only Valve A will be on unless pressure exceeds 70 PSI. Open Valve B with the manual toggle switch by the valve.
7. Go to Section Switch box (see previous page). Turn Sections OFF and ON.
8. Turn Master Switch OFF. (After pump is primed, open recirculation 1/4 to 1/2 turn.)

### NOTICE

Running these tests will dispense liquid. Be sure it is safe to dispense the liquid at this time.



**OPTIONAL MANUAL PUMP OPERATION:** If you get "SOLUTION PUMP DRY", start with this:  
 "Solution Pump Dry" will not hurt the SureFire pump. The message means the system did not read flow.  
 Go to **Diagnostics > Tests > Calibrate PWM LIMITS**. This is a place where you can manually run the pump without the system shutting down if it doesn't read flow immediately. When you press START, the section valves will open. Press and hold (+) to increase the PWM Duty Cycle. Hydraulic pumps will need to be around 30% DC to get flow. When priming the pump, it will help to open the air bleed valve and run the pump faster to get it primed and to get the air out. You can also run the system manually at *Diagnostics > Tests > Control/Section Test*.

### 18. Initial Operation in AUTO mode: (Could also do Diagnostics > Tests > Nozzle Flow Check).

1. Enter a Test Speed at Setup > Implement > Test Speed.
2. Navigate to AUTO MODE on the JDRC 2000 Run page (PR1 or PR2 or both ON). Select a Rate.
3. Height switch must be DOWN (or uncheck Height Switch box).
4. Turn on Master Switch. **(NOTE: Pressure will be much less with water than with heavier, thicker fertilizer.)**
5. Monitor Actual Rate (gal/ac), Flow (gal/min), PSI, DC, Pump RPM.
6. Go to Section Switch box (see 16 above). Turn Sections OFF and ON.
7. Turn Master Switch OFF. (After pump is primed, open recirculation 1/4 to 1/2 turn.)

MAW

