

Operation Manual

***700 Series Automatic
for Large Square Baler Models***

100, 110, 115 Gallon Preservative Applicators



HarvestTec[®]

EST. 1976

Table of Contents

	<u>Page</u>
Introduction	4
Safety	4-5
Safety Sign Definitions	5
Preparing the applicator for operation	6-8
Filling the Tank	6-7
Operation of Main Ball Valve	7
ISO Communication Module (ICM)	8
Install / Startup / Shutdown Precision Baling App	8
Operating Harvest Tec System	9-14
Tab Descriptions	9-10
Screen Menus	11-14
Automatic Mode & Manual Mode	11
Setup Mode	12
Job Records	13-14
Software Versions	14
First time and Annual Startup Instructions	15
Checking and Priming the Pumps	15
Setting Up System for Initial Use	16-19
Moisture Rate	16
Baling Rate	17
Application Rate	18-19
Operating Instructions	19-23
Automatic Mode	19
Manual Mode	20
Job Records	21
Service	22-23
Maintenance	24-26
Maintenance Schedule	24
Filter Bowl and Tip Cleaning	24
Tank Lid Cleaning	25
Dielectric Grease Connections	25
Rebuild Pump	25
Battery Connections	25
Solenoid Valves	25
Miscellaneous Maintenance	26
Winter Storage	26
Common Questions	27
Troubleshooting	28-29
Warranty	31

*** For up to date install kit models visit www.harvesttec.com ***

**PARTS BREAKDOWN SECTIONS ARE FOUND
IN THE INSTALLATION MANUAL FOR YOUR BALER**

Introduction

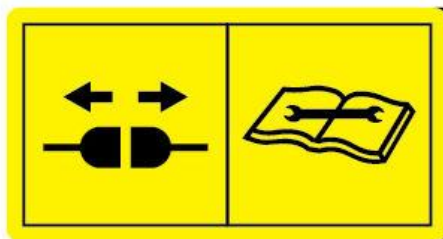
Read this manual carefully to ensure correct steps are done to operate the applicator. This applicator is designed to apply Harvest Tec buffered propionic acid. Use of alternative products may cause complications. Including inaccurate readings from the flow meter and damage to all parts. Resulting in the warranty being void. The applicator can be installed on many large square balers with the proper installation kit.

Safety

Carefully read all the safety signs in this manual and on the applicator before use. Keep signs clean and in good working order. Replace missing or damaged safety signs. Replacement signs are available from your local authorized dealer. See your installation manual or under the replacement parts section for the correct part numbers.

Keep your applicator in proper working condition. Unauthorized modifications to the applicator may impair the function and/or safety of the machine. Carefully read and understand all the baler safety signs before installing or servicing the baler. Always use the supplied safety equipment on the baler to service the applicator.

Safety Signs Definitions



Number 1
Spraying hazard. Disconnect power before servicing the applicator
Part no. DCL-8003



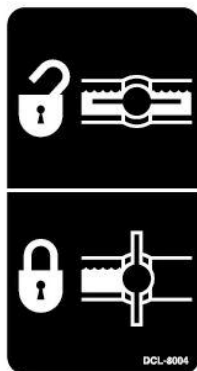
Number 2
Falling hazard. Do not step in this area.
Part no. DCL-8002



Number 3
Use caution when working around chemicals. **Wear all protective equipment according to the label of the product.**
Part no. DCL-8001



Number 4
Read and understand the operator's manual before using or working around the equipment.
Part no. DCL-8000



Number 5
Open (unlocked) and closed (locked) position of the ball valve.
Part no. DCL-8004

Preparing the Applicator for Operation

After the Applicator has been installed on the baler, follow the below steps to prepare for operating the applicator both safely and correctly.

Filling the tank through the Drain / Fill kit

Read the label of the product being filled into the tank to determine what individual protective measures need to be taken. Locate the Drain/Fill line on the baler. Open the cam-couplers (A) and remove the protective plug (B). Insert the male coupler (found on transfer pump) into the female cam and close the cams (A).

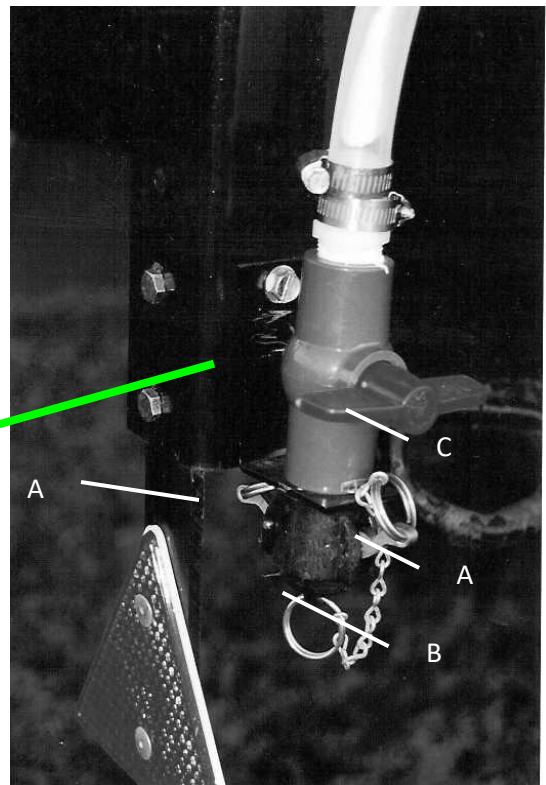
To open the ball valve (C) turn the handle so it is vertical. After the ball valve has been turned ON switch the pump to the ON position. Monitor the level on the tank visually and shut off the pump before over filling. Once the pump is turned OFF, close the ball valve, and remove the male coupler.

The handle of the ball valve (C) will be horizontal when closed. Reinstall the protective plug and close the cams. The Harvest Tec model 9212 transfer pump is recommended for this process.

Water is recommended for first time and annual start up procedures.



Drain/Fill line on the baler



Enlarged view of the drain/fill line valve and cam-coupler assembly.

Filling Tank Through Tank Lid Opening

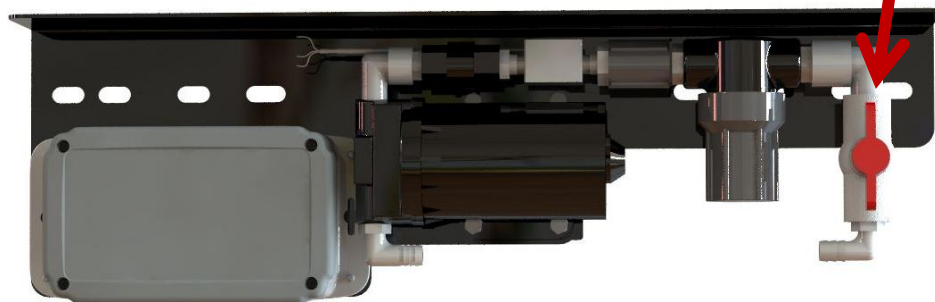
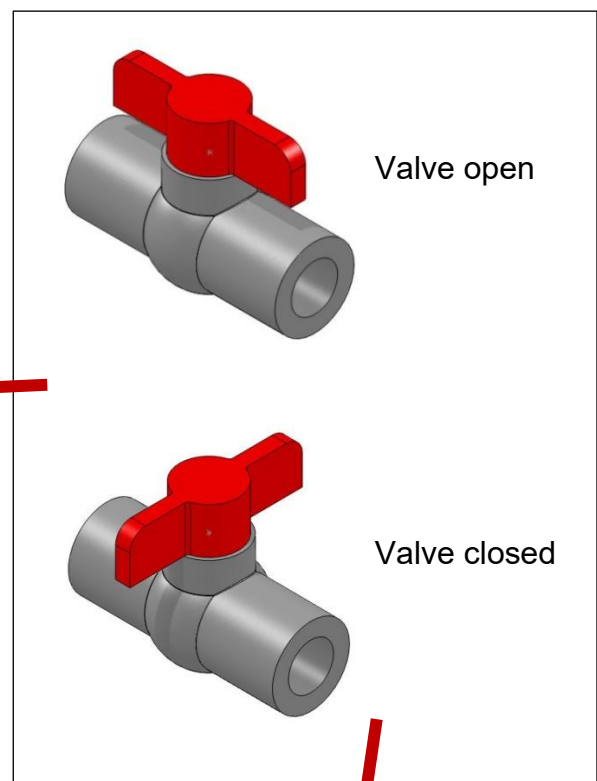
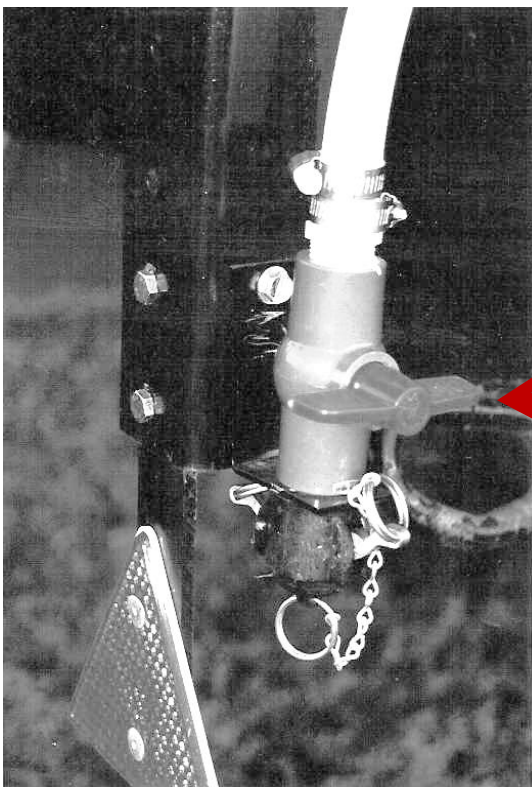
Read the label of the product being filled into the tank to determine what individual protective measures need to be taken. Clean the tank lid area and unscrew the lid. Transfer product from the container into the tank.

Water is recommended for first time and annual start up procedures.

Operation of Main Ball Valve

The ball valve should always be closed when the applicator is not being used. The valve should also be closed when any service work is being done to the baler or applicator.

The valve is located next to the pump and by the applicator tank. The arrow below points at the valve.



ISO Communication Module

With the Precision Baling app installed on iPad or Android tablet, operate the applicator by connecting the tablet by cable* to the ISO Communication Module (ICM) USB tablet port.

ISO Communication Module (ICM)

Blinking or Solid Green Light – Module is connected and ready to operate.

**Recommended to use a quality data transfer communication cable with a USB-A plug.
Use of plug adapters are not supported**

When baling is completed, be sure to properly shut down the Precision Baling App.



Pressing the Home Button on the tablet WILL NOT stop application of the Harvest Tec System

*Note: By pressing the home button one time to return to the home screen, the Precision Baling App **does not** shut down. The system will, however, stop applying preservative after 10 seconds.

Shutting Down the Precision Baling App - iPad

1. To shut down the Precision Baling App double click the home button. This will show the open apps that are running on your iPad.



2. Slide the app you want to shut down toward the top of the iPad, until the app is no longer visible.

Shutting Down the Precision Baling App - Android

1. To shut down the Precision Baling App click the recent button. This will show the open apps that are running on your tablet.

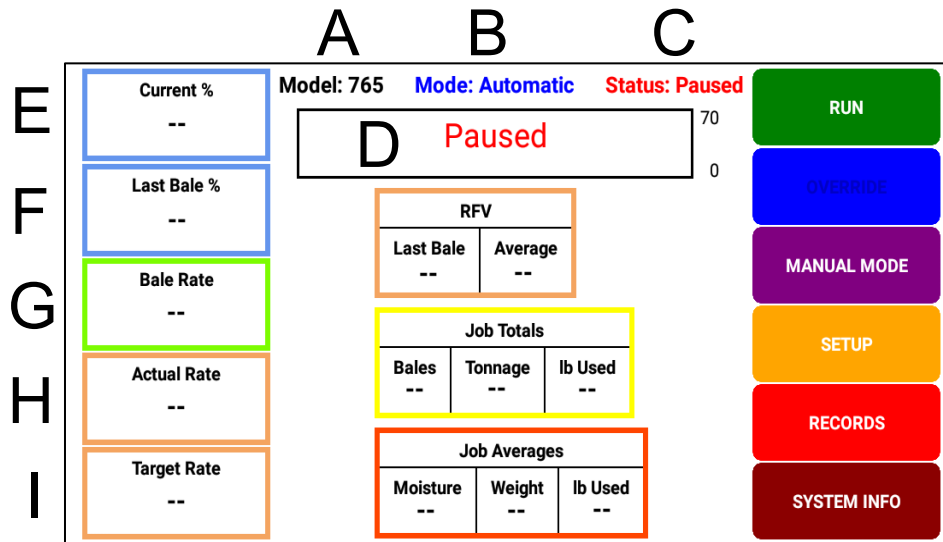


2. Slide the app you want to shut down toward the right of the tablet screen or click on the 'x', until the app is no longer visible.

Operating the Harvest Tec 700 Series Applicator

The 700 series display is broken down into four main categories:

- **Top:** Status Messages
- **Bottom Center:** Current Job Summary Information
- **Left Side:** Real Time Information
- **Right Side:** Operational Keys



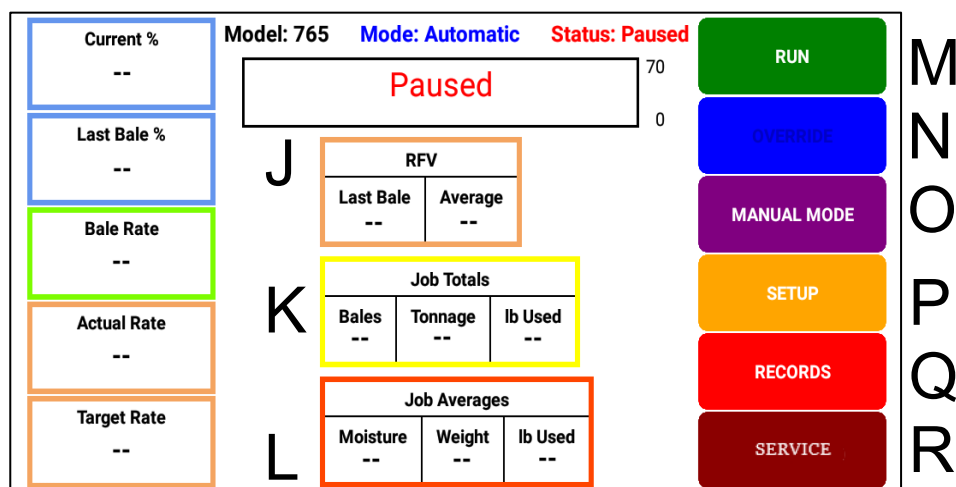
Status Message Descriptions

- A) **Model:** Indicates what model system.
- B) **Mode:** Confirms which mode has been selected.
- C) **Status:** Confirms if system is running or paused. **Note: Upon startup the system is PAUSED.**
- D) **Histogram:** Moisture graph of the last 90 seconds or shows if system is paused.

Real Time Information Boxes

- E) **Current %:** This displays instantaneous moisture reading of hay coming into baler.
- F) **Last Bale %:** This displays average of all moisture readings taken from last bale made
- G) **Bale Rate:** This displays the tons per hour going through baler. Based on weight and time to make a bale.
- H) **Actual Rate:** Actual amount of preservative being applied.
- I) **Target Rate:** Rate of preservative that the system is set to apply.

Operating the Harvest Tec 700 Series Applicator (continued)



Current Job Summary Boxes

J) RFV

- **Last Bale:** Displays the RFV reading for the last bale made.
- **Average:** Displays the average of all RFV readings for the current job.

K) Job Totals

- **Bales:** Displays the total number of bales made for the current job.
- **Tonnage:** Displays total tonnage baled in job. Based on number of bales made multiplied by weight.
- **Lbs. Used:** Displays the total amount of preservative applied for job.

L) Job Averages

- **Moisture:** Displays average moisture of all bales made in job.
- **Weight:** Displays the average weight of all bales in job.
- **Lbs. Used:** Displays average amount of preservative applied to each bale in job.

Operational Keys

M) Run / Pause: Toggles between run mode to apply and pause mode to stop applying.

N) Override: Only displays when in run mode while the applicator is applying preservative. Once in override, the applicator will apply at full rate.

O) Manual Mode / Auto Mode: Toggles between auto mode and manual mode preservative application.

- **Auto Mode:** Self-adjusts preservative based on user input values, moisture, and baling rate.
- **Manual Mode:** Allows the ability to manually adjust pump rate based on five fixed rates.

P) Setup: Allows for user inputs for values regarding moisture, baling rate, application rate, and relative feed value (RFV) if equipped.

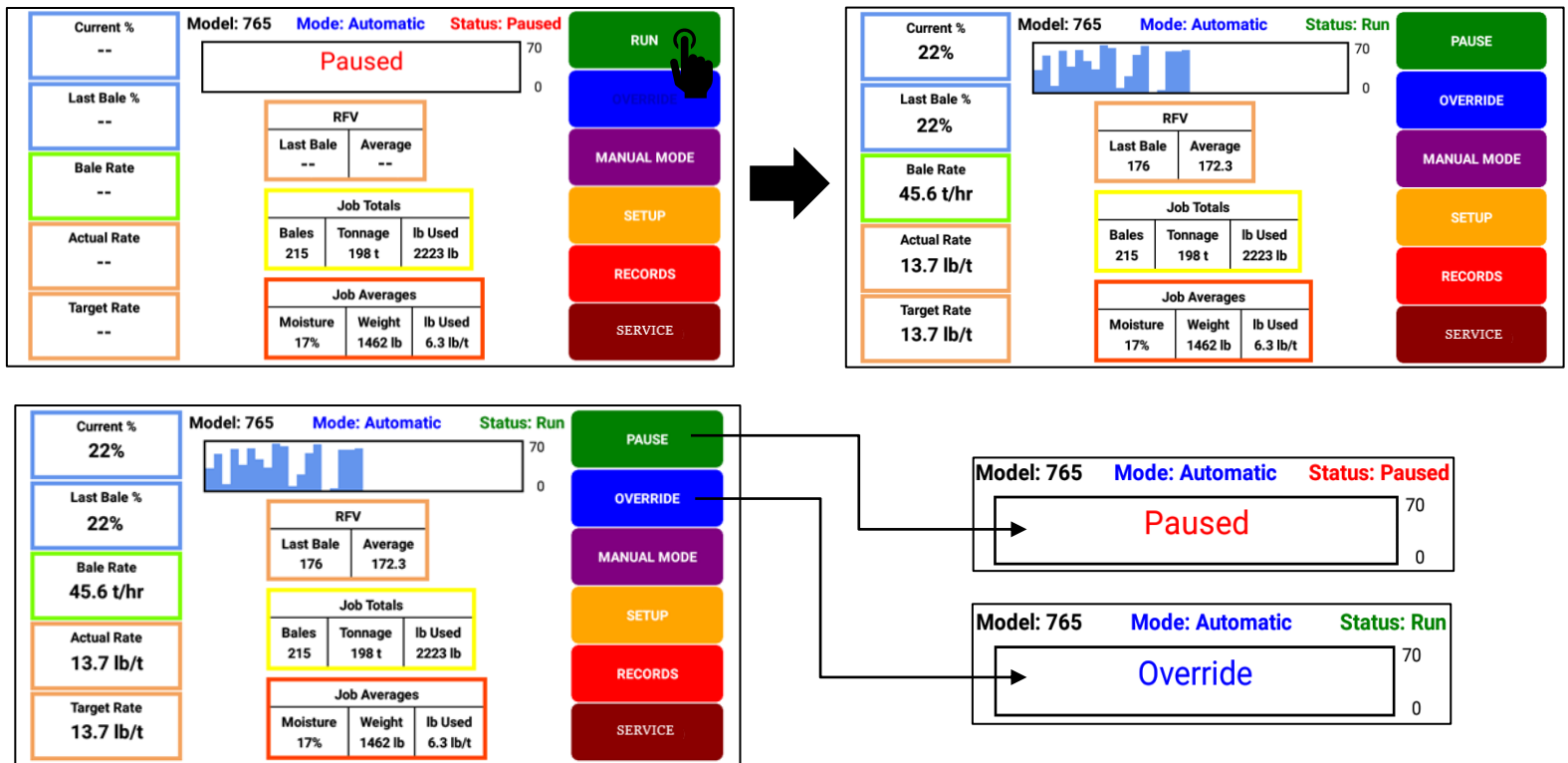
Q) Records: Access to view current job, view job list, view a selected job, create a new job, or reopen and add to existing job.

R) Service: Displays software versions, sensor assignment, annual start-up pump test

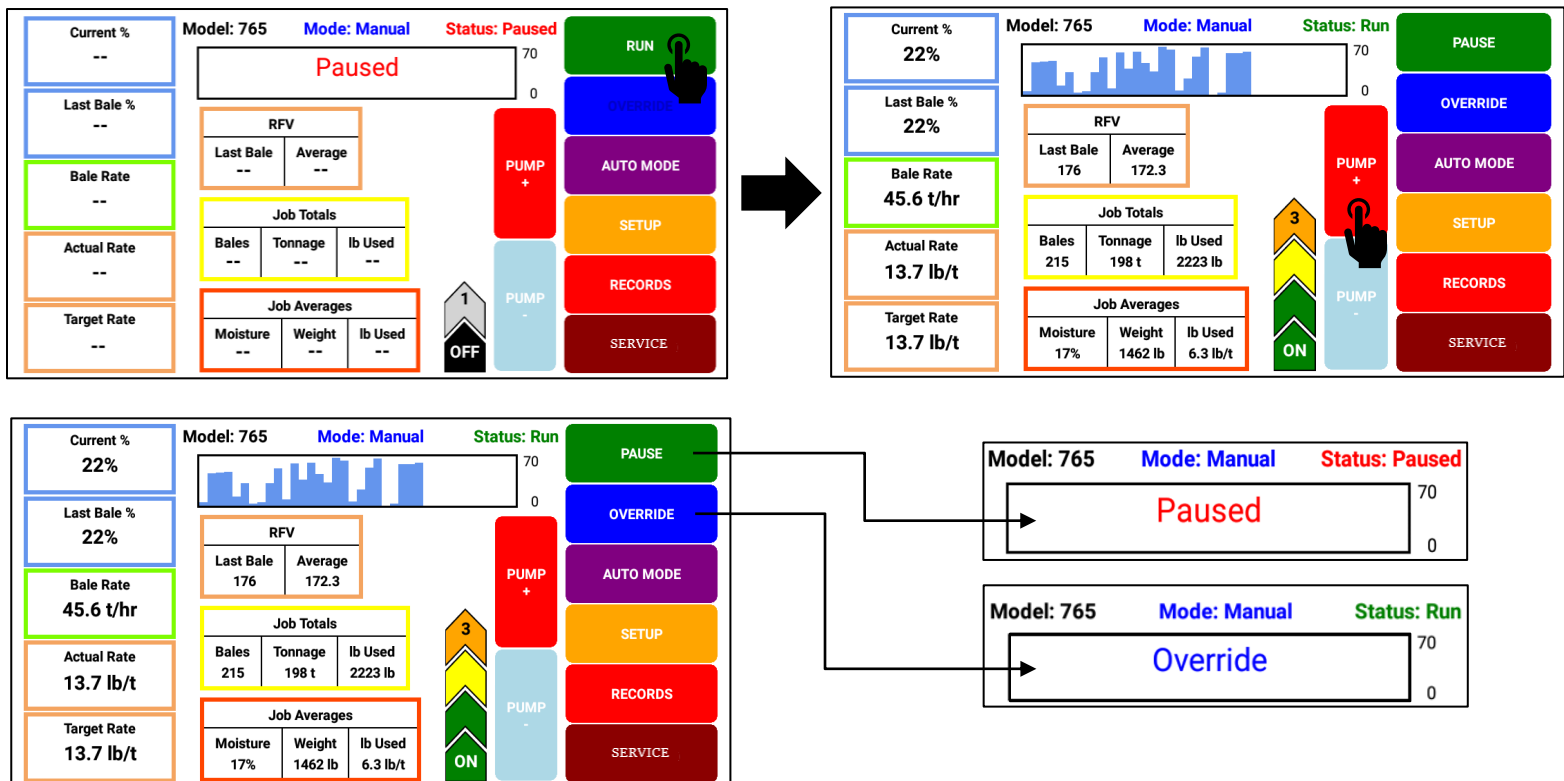
Screen Menus

Use the screen shots below to navigate through the operation screens.

Automatic Mode



Manual Mode



Setup Mode

Adjusting Moisture Levels

Model: 765 Mode: Automatic Status: Paused

Current % --

Last Bale % --

Bale Rate --

Actual Rate --

Target Rate --

Paused

RFV

Last Bale -- Average --

Job Totals

Bales -- Tonnage -- lb Used --

Job Averages

Moisture -- Weight -- lb Used --

RUN

OVERRIDE

MANUAL MODE

SETUP

RECORDS

SERVICE



Model: 765 Mode: Automatic Status: Paused

Current % 22%

Last Bale % 22%

Bale Rate 45.6 t/hr

Actual Rate 13.7 lb/t

Target Rate 13.7 lb/t

Moisture Setup

Level 1: 16% 4.0 lb/t Sensor: Star Wheels

Level 2: 19% 6.0 lb/t OEM:

Level 3: 22% 10.0 lb/t

Alarm: 27%

Moisture Dye Marking: ☒ Setpoint: 22%

MOISTURE SETUP

BALING RATE SETUP

APPLICATION SETUP

RFV SETUP

BALE ID SETUP

HOME

Select and change input boxes / sliders as needed

Adjusting Baling Rate

Model: 765 Mode: Automatic Status: Paused

Current % --

Last Bale % --

Bale Rate --

Actual Rate --

Target Rate --

Paused

RFV

Last Bale -- Average --

Job Totals

Bales -- Tonnage -- lb Used --

Job Averages

Moisture -- Weight -- lb Used --

RUN

OVERRIDE

MANUAL MODE

SETUP

RECORDS

SERVICE



Model: 765 Mode: Automatic Status: Paused

Current % 22%

Last Bale % 22%

Bale Rate 45.6 t/hr

Actual Rate 13.7 lb/t

Target Rate 13.7 lb/t

Bale Rate Setup

Rate Sensor: ISO-Baler Bale Length: 96 in

Avg Bale Weight: 1350 lb Bale Width: 34 in

Avg Bale Time: 58 sec Bale Height: 47 in

Bale Tie Sensor: ISO

Bale Scale: ☒

MOISTURE SETUP

BALING RATE SETUP

APPLICATION SETUP

RFV SETUP

BALE ID SETUP

HOME

Select and change input boxes / sliders as needed

Adjusting Application Rate

Model: 765 Mode: Automatic Status: Paused

Current % --

Last Bale % --

Bale Rate --

Actual Rate --

Target Rate --

Paused

RFV

Last Bale -- Average --

Job Totals

Bales -- Tonnage -- lb Used --

Job Averages

Moisture -- Weight -- lb Used --

RUN

OVERRIDE

MANUAL MODE

SETUP

RECORDS

SERVICE



Model: 765 Mode: Automatic Status: Paused

Current % 22%

Last Bale % 22%

Bale Rate 45.6 t/hr

Actual Rate 13.7 lb/t

Target Rate 13.7 lb/t

Application Rate Setup

Level 1: 4.0 lb/t @ 16%

Level 2: 6.0 lb/t @ 19%

Level 3: 10.0 lb/t @ 22%

Spray Nozzles: X-HIGH Units: English

Hay Indicators: ☒ GPS Yield Mapping: ☒

Swath Width: 32.5 ft GPS Receiver: 16xHVS

MOISTURE SETUP

BALING RATE SETUP

APPLICATION SETUP

RFV SETUP

BALE ID SETUP

HOME

Select and change input boxes / sliders as needed

Job Records

View Job List

Current %
--

Last Bale %
--

Bale Rate
--

Actual Rate
--

Target Rate
--

Model: 765

Mode: Automatic

Status: Paused

Paused

70

0

RFV

Last Bale
--

Average
--

Job Totals

Bales
215

Tonnage
198 t

lb Used
2223 lb

Job Averages

Moisture
17%

Weight
1462 lb

lb Used
6.3 lb/t

RUN

OVERVIEW

MANUAL MODE

SETUP

RECORDS

SERVICE

View Job List						
Job #	Farm	Field	Crop	Started	Ended	Bales
4	Brown	SW corner	Alfalfa RU 1	10-Mar-20	10-Mar-20	187
26	Brown	Nw corner	Alfalfa NS 2	10-Mar-20	10-Mar-20	174
6	J.Smith	ravene	straw	10-Mar-20	11-Mar-20	87
9	Dairy Farms	grn pasture	alfalfa 2nd	11-Mar-20	12-Mar-20	320
10	Dooleys	14	Alfalfa NS 2	14-Mar-20	14-Mar-20	92
16	Billy Joe	coop	straw	15-Mar-20	15-Mar-20	114
17	Gustavus	the ridge	alfalfa 3rd	15-Mar-20	15-Mar-20	72
21	Test Site 2	Plot 45	56798-3	16-Mar-20	16-Mar-20	369
3	Smith	A34	alfalfa X1	16-Mar-20	16-Mar-20	221

Viewing Filters:
Farm: All Field: All Crop: All

EXPORT ALL JOBSDELETE ALL JOBSADD TO THIS JOB

View Current Job List

Current %
--

Last Bale %
--

Bale Rate
--

Actual Rate
--

Target Rate
--

Model: 765

Mode: Automatic

Status: Paused

Paused

70

0

RFV

Last Bale
--

Average
--

Job Totals

Bales
215

Tonnage
198 t

lb Used
2223 lb

Job Averages

Moisture
17%

Weight
1462 lb

lb Used
6.3 lb/t

RUN

OVERVIEW

MANUAL MODE

SETUP

RECORDS

SERVICE

View Current Job						
Farm: Brown		Field: SW corner		Crop: Alfalfa RU 1		Created: 10-Mar-20
Bales		Moisture		Application		
Count	Tons	Average	High	Product	Avg RFV	TDN Calif. 90%
187	758	16%	24%	2919 lb	175	58.6
ID#	Avg MC	High MC	Prod Used	Bale Weight	RFV	TDN
1001	15%	17%	4.2 lb	1485 lb	176	57.2
1002	14%	19%	3.5 lb	1482 lb	179	58.1
1003	18%	25%	4.9 lb	1444 lb	182	58.3
1004	22%	24%	10.2 lb	1432 lb	190	59.9
1005	19%	23%	9.2 lb	1423 lb	180	59.4
1006	13%	15%	3.2 lb	1501 lb	174	56.1
1007	12%	15%	4.3 lb	1404 lb	176	57.2
1008	17%	19%	7.1 lb	1471 lb	179	58.1

View Selected Job List

Current %
--

Last Bale %
--

Bale Rate
--

Actual Rate
--

Target Rate
--

Model: 765

Mode: Automatic

Status: Paused

Paused

70

0

RFV

Last Bale
--

Average
--

Job Totals

Bales
215

Tonnage
198 t

lb Used
2223 lb

Job Averages

Moisture
17%

Weight
1462 lb

lb Used
6.3 lb/t

RUN

OVERVIEW

MANUAL MODE

SETUP

RECORDS

SERVICE

View Selected Job						
Farm: Brown		Field: SW corner		Crop: Alfalfa RU 1		Created: 10-Mar-20
Bales		Moisture		Application		
Count	Tons	Average	High	Product	Avg RFV	TDN Calif. 90%
187	758	16%	24%	2919 lb	175	58.6
ID#	Avg MC	High MC	Prod Used	Bale Weight	RFV	TDN
1001	15%	17%	4.2 lb	1485 lb	176	57.2
1002	14%	19%	3.5 lb	1482 lb	179	58.1
1003	18%	25%	4.9 lb	1444 lb	182	58.3
1004	22%	24%	10.2 lb	1432 lb	190	59.9
1005	19%	23%	9.2 lb	1423 lb	180	59.4
1006	13%	15%	3.2 lb	1501 lb	174	56.1
1007	12%	15%	4.3 lb	1404 lb	176	57.2
1008	17%	19%	7.1 lb	1471 lb	179	58.1

Create a New Job

Current % --

Last Bale % --

Bale Rate --

Actual Rate --

Target Rate --

Model: 765 Mode: Automatic Status: Paused

Paused 70 0

RFV

Last Bale	Average
--	--

Job Totals

Bales	Tonnage	lb Used
215	198 t	2223 lb

Job Averages

Moisture	Weight	lb Used
17%	1462 lb	6.3 lb/t

RUN

MANUAL MODE

SETUP

RECORDS

SERVICE

Select Job Details to view job records

View Job List

Job #	Farm	Field	Crop	Started	Ended	Bales
4	Brown	SW corner	Alfalfa RU 1	10-Mar-20	10-Mar-20	187
26	Brown	Nw corner	Alfalfa NS 2	10-Mar-20	10-Mar-20	174
6	J.Smith	ravene	straw	10-Mar-20	11-Mar-20	87
9	Dairy Farms	grn pasture	alfalfa 2nd	11-Mar-20	12-Mar-20	320
10	Dooleys	14	Alfalfa NS 2	14-Mar-20	14-Mar-20	92
16	Billy Joe	coop	straw	15-Mar-20	15-Mar-20	114
17	Gustavus	the ridge	alfalfa 3rd	15-Mar-20	15-Mar-20	72
21	Test Site 2	Plot 45	56798-3	16-Mar-20	16-Mar-20	369
3	Smith	A34	alfalfa X1	16-Mar-20	16-Mar-20	221

Viewing Filters:

Farm: All Field: All Crop: All

EXPORT ALL JOBS DELETE ALL JOBS ADD TO THIS JOB

JOB LIST

VIEW CURRENT JOB

VIEW SELECTED JOB

CREATE NEW JOB

HOME

Press Create Job

Create New Job

Farm: NEW

Field: NEW

Crop: NEW

CREATE NOW

CLEAR

JOB LIST

VIEW CURRENT JOB

VIEW SELECTED JOB

CREATE NEW JOB

HOME

Select and fill out blank input boxes as needed

Create New Job

Farm: NEW Test 1

Field: NEW 10

Crop: NEW Alfalfa

CREATE NOW

CLEAR

JOB LIST

VIEW CURRENT JOB

VIEW SELECTED JOB

CREATE NEW JOB

HOME

Software Versions

Current % --

Last Bale % --

Bale Rate --

Actual Rate --

Target Rate --

Model: 765 Mode: Automatic Status: Paused

Paused 70 0

RFV

Last Bale	Average
--	--

Job Totals

Bales	Tonnage	lb Used
215	198 t	2223 lb

Job Averages

Moisture	Weight	lb Used
17%	1462 lb	6.3 lb/t

RUN

MANUAL MODE

SETUP

RECORDS

SERVICE

Services - Versions

Module	Current	Available
ICM	907	N/A
IPM	403	N/A
ISM	200	N/A
IDM	401	N/A
APP	1.0.14	N/A

* This is an example; Software Versions will change *

UPDATE

VERSIONS

SENSORS

FILE

PUMP TEST

HOME

First Time and Annual Startup Instructions

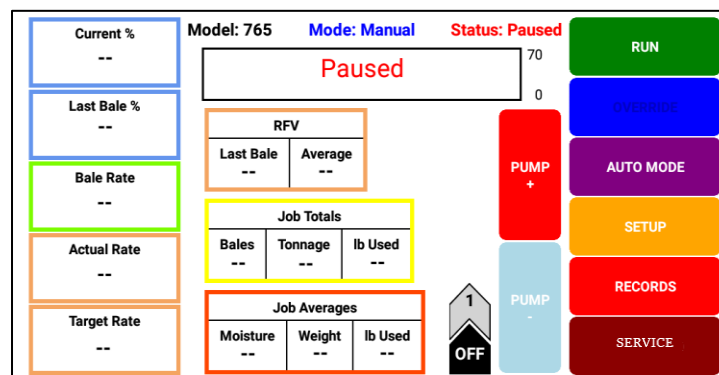
THE UNIT MUST BE CHECKED OUT BEFORE FIELD OPERATION!

Check and Prime the Pumps

1. Put 10 gal (5L) of water or preservative in tank and turn main ball valve on.
2. Inspect for any leaks or drips currently. If any are found tighten or replace area or fitting.
3. Turn system on.
4. Press the SETUP key, then press BALING RATE SETUP key. Make the following adjustments:
 - Change Rate Sensor to Manual
 - Change Average Bale Weight to 1500
 - Change Average Bale Time to 60 seconds

Press the home key to return to run screen once changes have all been made.

5. Press the MANUAL MODE key and the screen shown below will appear.



6. Turn the pump on (Level 1). To turn the pump on, press the red PUMP+ key. This will add a chevron indicating level 1, turning the pump on.
7. Verify the pump output is set on level 1.
8. Move the pump output settings to 2, 3, 4, and 5. With the baling rate set at 45 tons/hr, the application rate actual reading should be:

Testing Liquid	Tips	Level 1 #/Ton (L)	Level 2 #/Ton (L)	Level 3 #/Ton (L)	Level 4 #/Ton (L)	Level 5 #/Ton (L)
Water	High	1.7-2.3 (0.7-1.0)	3.7-5.2 (1.5-2.2)	6.6-9.4 (2.8-4.0)	8.0-11.6 (3.4-5.0)	10.2-15.8 (4.3-6.8)
Preservative	High	1.4-2.1 (0.6-0.9)	3.3-4.7 (1.4-2.0)	6.4-7.8 (2.7-3.4)	9.5-10.9 (4.0-4.7)	13.1-14.5 (5.6-6.2)

Dot color	Tip	Hose color	Position on 765B2 wire
White Dot	8004 or 11004	White	Sol 1
Blue Dot	8008 or 11008	Blue tracer	Sol 2

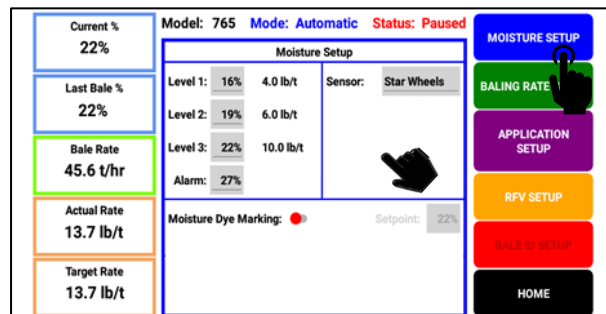
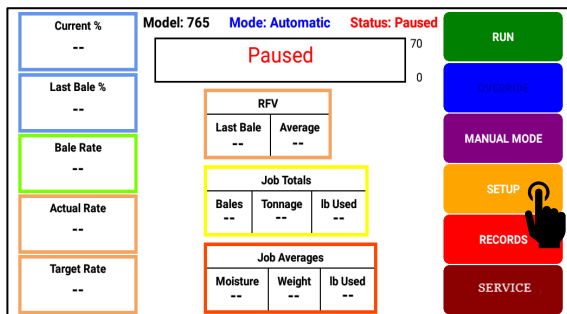
9. This process will also be used to prime the pump whenever needed.
10. While running pump check for a good spray pattern out of the respective tips and verify that no parts of the system are leaking.
11. While doing these tests the Volume (Lbs. Used) in Job Totals/Averages on the screen will be increasing, this verifies that the flow meter is functioning.
12. When test is completed, change settings back to original.

Setting Up System for Initial Use

When setting up your system for initial use, you will need to setup three main categories: These consist of Moisture Setup, Baling Rate Setup, and Application Setup. The setup screens can be adjusted during operation of the system and will accept new values after any key is pressed. Be sure to reference the barrel or tote of preservative during setup to know what is needed for different moisture levels. Also, the average weight of bale should be known.

Moisture Setup

This screen allows for the adjustment of three moisture set points. As well as gives the option to set what moisture system is being used and additional features such as OEM, Moisture Dye Marking (optional), etc.



Adjusting Moisture Set Points

- Push the SETUP key on the main run screen, as shown in top left picture.
- On the Setup Mode screen press the MOISTURE SETUP key. Once selected the MOISTURE SETUP screen will be shown. (Top Right Picture)
- Press any of the grey number values to the right of level 1, 2, and 3 to adjust their figures. Remember level 1 must be lower than level 2, and level 2 must be lower than level 3. Press OK when value has been selected. Harvest Tec products recommend set points of 16, 19, and 22 % MC levels. These are preset from the factory. Press Home to return.
- To set the alarm, press the grey number value and set the level at which you want the alarm to activate. To turn the alarm off, set level above 70.

Adjusting Moisture Sensors

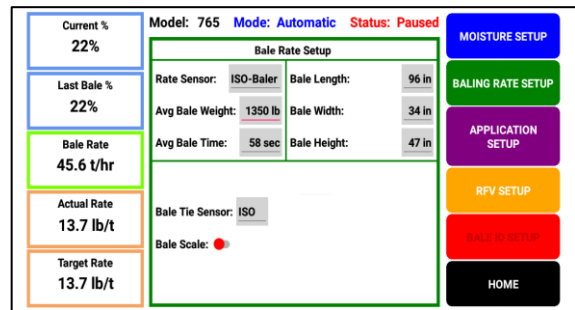
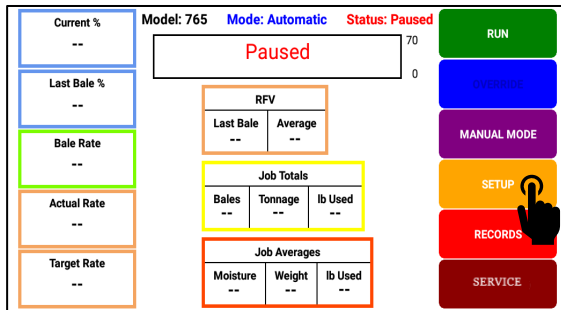
- Select between standard star wheels or optional microwave sensors if equipped. Reference 770MWM and 771MWM manuals for operating these upgrade features.

Moisture Dye Marking (Optional Equipment)

- Turn on and off the moisture dye marker.
- Set the moisture level for moisture dye marker to spray at.

Baling Rate Setup

This screen allows for adjustment in the following: Type of baling rate sensor being used, average bale weight, average bale time, bale length, bale width, bale height, bale tie sensor, bale scale.



- Push the SETUP key on the main run screen, as shown in top left picture.
- On the setup mode screen press the BALING RATE SETUP key.

Rate Sensor

Option to select between Manual, Automatic, ISOBUS.

- **Manual** uses average bale weight and time to determine tons/hour.
- **Automatic** uses average bale weight or scale weight (if equipped) and star wheel encoder to determine tons/hour.
- **ISOBUS** uses the average bale weight or scale weight (if equipped) and balers electronic bale length signal (if equipped) to determine tons/hour. Verify that baler has sensor system before selecting. **Note: If using Optional Harvest Tec Display, the following can not be used from baler ISOBUS communication: Scale Weight, Electronic Bale Length, and Bale Tie Sensor**

Average Bale Weight

- Set the weight of bale if baler is not equipped with scale.

Average Bale Time

- Set the time between knotter cycles.

Average Bale Length, Width, and Height

- Set the length, width, and height of the bale in the chamber.

- Bale Tie Sensor

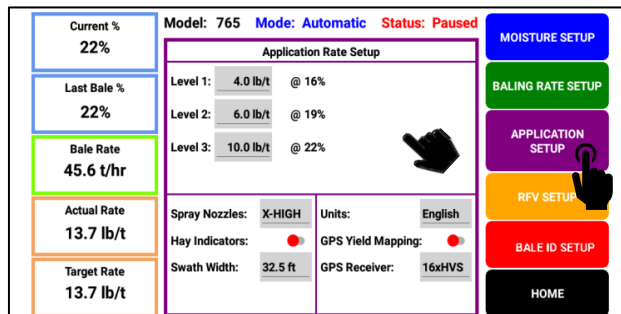
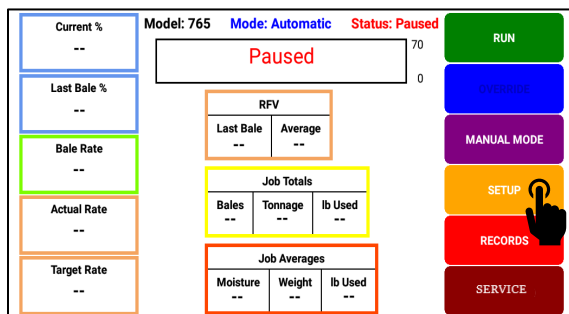
- Option to use either Harvest Tec sensor or the baler's tie sensor if equipped (AGCO and CNH balers only)

- Bale Scale

- Turn on or off the baler scale if equipped. Currently this system only takes signals from, CNH and AGCO balers that are equipped with scales.

Application Rate Setup

This screen allows for adjustment of preservative usage: Spray nozzles being used, hay indicator (optional), swath width (optional) needed to use GPS, units (English or Metric), GPS yield mapping (optional), and GPS receiver model (optional).



Adjusting Application Set Points

- Push the SETUP key on the main run screen, as shown in top left picture.
- On the Setup Mode screen press the APPLICATION SETUP key. Once selected the APPLICATION SETUP screen will be shown as seen in top right picture.
- To change rate of chemical application, press any of the grey number values to the right of level 1, 2, or 3. Remember level 1 must be lower than level 2, and level 2 must be lower than level 3. Press OK when value has been selected. Harvest Tec products recommend rates of 4, 6, and 10 lbs./ton (2,3,8 L/MT). These rates are preset from the factory. Press HOME to return to main screen.

IT IS THE OPERATORS RESPONSIBILITY TO FOLLOW THE RECOMMENDATIONS OF THE PRESERVATIVE. ONLY THE OPERATOR CAN APPLY THE PROPER RATE.

Adjusting Spray Nozzles

- Standard spray nozzle selection for all Large Square Baling applications are set from factory.

	Tip Part Numbers	Qty	Tip Output (lb/hr)			
Solenoid 1	004-XR11004VK	2	24-700			
Solenoid 2	004-XR11008VK	2	with all tips in use			
Manual Mode Output Ranges (For Approx. Reference Only)		L1 80 lb/hr	L2 180 lb/hr	L3 320 lb/hr	L4 460 lb/hr	L5 620 lb/hr

Turn ON/OFF Hay Indicators

- Turn sliders on for Hay Indicators if system is equipped, otherwise leave off. Mount at baler pickup and automatically pause applicator upon crop flow discontinuing. Kit number: 030-474C.

Adjusting Swath Width

- Input average swath width in the field.

Change Units

- Adjust the unit between metric and standard units.

Application Rate Setup (cont.)

Turn ON/OFF GPS

- Turn on or off GPS if equipped with Harvest Tec GPS module. Optional Kit number: 030-780GPS.

Selecting GPS Receiver

- Select style of GPS device equipped on baler.

RFV Setup –

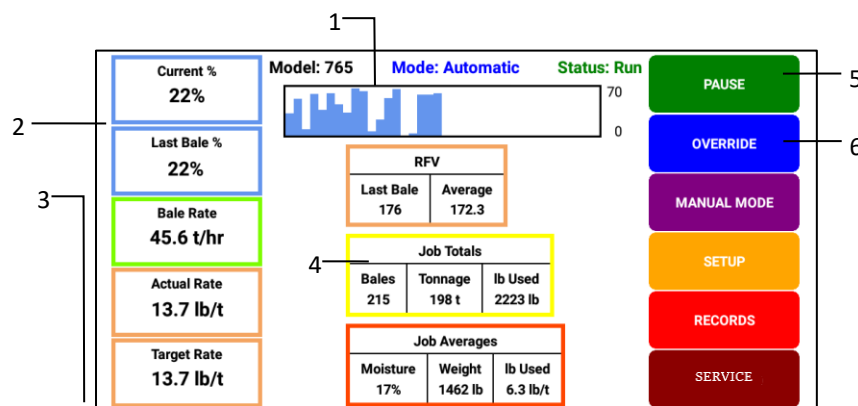
- Optional upgrade – reference 745RFV Dye Marker Manual for details on this Bale ID feature.

Operation Instructions

Automatic mode will automatically apply product based on hay moisture content sensed by the moisture sensors and the operator's presets. See SETTING UP SYSTEM FOR INITIAL USE to change any settings.

Automatic Mode

After pushing the AUTOMATIC MODE key in the Main Menu screen, the following screen will appear:

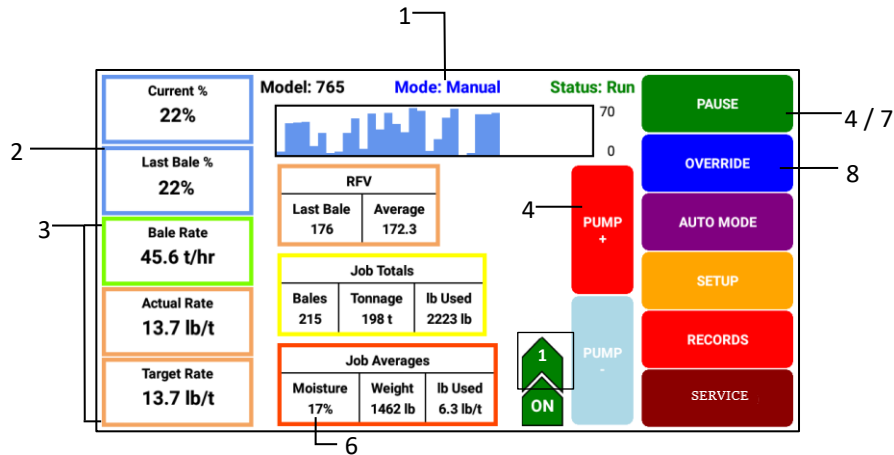


1. The graph shows the moisture trend from the past 90 seconds in 3 second intervals.
2. The moisture content is shown in the upper left corner.
3. Baling Rate and Application Rate are shown on the middle left of the screen. The operator sets the target application rate and baling rate in the setup mode; it is common the actual rate will fluctuate above and below the target rate.
4. Job Totals and Job Averages will show at the bottom center of the screen. These numbers will only reset once a new job record is created. **NOTE: Initial start-up requires pressing the CREATE NEW JOB key in the RECORDS screen for volume used accumulation to be recorded. This only needs to be done once on initial start-up of system and not every time.** (See JOB RECORDS screen)
5. To pause the unit while in operation select the PAUSE key, select RUN key to resume operation.
6. Push the OVERRIDE key to turn the pump for full output of the system. Use this mode when going through a short area of wet crop. Select NORMAL key to resume operation.

Manual Mode

After pushing the MANUAL MODE key on the main run screen, the following screen will appear:

When pump is ON, manual mode will apply preservative to the hay at a fixed rate regardless of the moisture or tonnage.



1. This graph shows the moisture trend from the last 90 seconds in 3 second intervals.
2. The moisture content is shown in the upper left-hand corner.
3. Baling rate and Application rate are shown in the bottom left of the screen.
4. To turn the pump on, press the RUN key. Every time PUMP+ is pressed this adds a chevron. In Manual Mode (regardless of moisture, baling rate or bale weight) the outputs are fixed rates.
5. Press PUMP+ key from level 1 → 5 to increase the amount of preservative being applied.
6. Job Totals and Job Averages will show at the bottom center of screen. These numbers will reset once a new job record is created **NOTE: Initial start-up requires pressing the CREATE NEW JOB key in the RECORDS screen for volume used accumulation to be recorded. This only needs to be done once on initial start-up of system and not every time.** (See JOB RECORDS instructions)
7. To pause the unit during operation, select the PAUSE key, select RUN key to resume operation.
8. Push the OVERRIDE key to turn on the pump for full output of the system. Use this mode when going through a short area of wet crop. Select NORMAL key to resume operation.

Manual Mode Output Levels					
Manual Mode Output Ranges (For Approx. Reference Only)	L1	L2	L3	L4	L5
	80 lb/hr	180 lb/hr	320 lb/hr	460 lb/hr	620 lb/hr

Job Records

This screen allows for adding, editing, and continuation of all job records. After pushing the RECORDS key on the main run screen, the following screen on left will appear:

View Job List

Job #	Farm	Field	Crop	Started	Ended	Bales
4	Brown	SW corner	Alfalfa RU 1	10-Mar-20	10-Mar-20	187
26	Brown	Nw corner	Alfalfa NS 2	10-Mar-20	10-Mar-20	174
6	J.Smith	ravene	straw	10-Mar-20	11-Mar-20	87
9	Dairy Farms	grn pasture	alfalfa 2nd	11-Mar-20	12-Mar-20	320
10	Dooleys	14	Alfalfa NS 2	14-Mar-20	14-Mar-20	92
16	Billy Joe	coop	straw	15-Mar-20	15-Mar-20	114
17	Gustavus	the ridge	alfalfa 3rd	15-Mar-20	15-Mar-20	72
21	Test Site 2	Plot 45	56798-3	16-Mar-20	16-Mar-20	369
3	Smith	A34	alfalfa X1	16-Mar-20	16-Mar-20	221

Viewing Filters:
 Farm: All Field: All Crop: All

EXPORT ALL JOBS DELETE ALL JOBS ADD TO THIS JOB

Create New Job

Farm: NEW Test 1
 Field: NEW 10
 Crop: NEW Alfalfa

CREATE NOW CLEAR

View Current Job (1)

- This will display current real time job information.

View Selected Job (2)

- Allows the user to select any job in JOB LIST and view, edit, or continue to add to the selection.

Create New Job (3)

- Select the CREATE NEW JOB key to generate a new job record.
- Enter desired farm, field, and crop name and press CREATE NOW. System is able to store up to 19 Farm Names, and unlimited number of Filed and Crops under each Farm Name. Farm Names cannot be edited or deleted once created.
- The job details screen will appear with name of the job shown under the Job List. Information shown on this screen will include Job Number, Field Name, Crop, Date, and Total Bales.
- Every time the CREATE NEW JOB key is pressed the accumulated pounds on auto and manual modes will be reset to zero.
- To return the operating screen, press the HOME key. **NOTE:** Initial start-up requires pressing the CREATE NEW JOB key in the Records. This only needs to be done once on initial start-up of system and not every time the system is started for operation.

Export Job (4)

- Insert USB drive to ICM Port located in tractor cab. Select the job(s) wished to export, once selected, press EXPORT key.

Delete Job (5)

- Select the job(s) wished to delete, once selected, press the DELETE key.

View Job List

Job #	Farm	Field	Crop	Started	Ended	Bales
4	Brown	SW corner	Alfalfa RU 1	10-Mar-20	10-Mar-20	187

EXPORT 1 JOB DELETE 1 JOB ADD TO THIS JOB

Service

After pushing the Service key on the main run screen, the following will appear:

Services - Versions			VERSIONS SENSORS FILE PUMP TEST HOME
Module	Current	Available	
ICM	907	N/A	
IPM	403	N/A	
ISM	200	N/A	
IDM	401	N/A	
APP	1.0.14	N/A	
* This is an example; Software Versions will change *			
UPDATE			

This will show the current version of software being used on the 700 series applicator system.

Note: Any software updates that are available will be shown at: harvesttec.com/product-updates/

Sensors

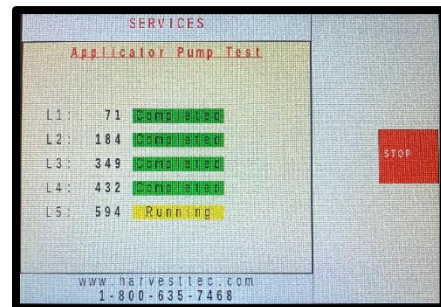
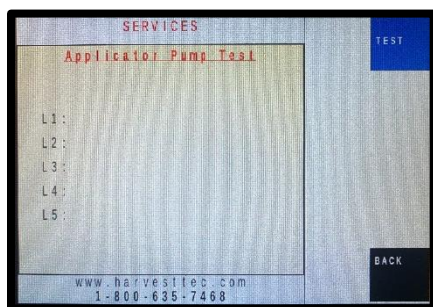
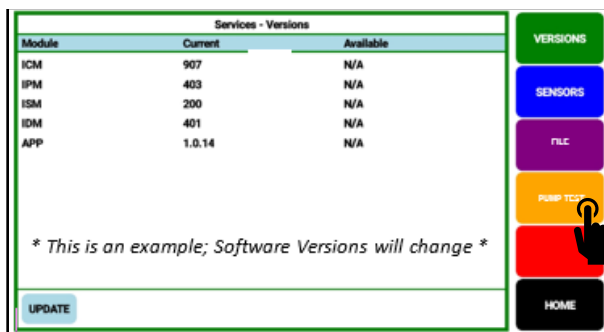
Within the Service menu, select SENSORS key to select sensor setup:

Services - Versions			VERSIONS SENSORS FILE PUMP TEST HOME
Module	Current	Available	
ICM	907	N/A	
IPM	403	N/A	
ISM	200	N/A	
IDM	401	N/A	
APP	1.0.14	N/A	
* This is an example; Software Versions will change *			
UPDATE			

Services - Sensors			VERSIONS SENSORS FILE PUMP TEST HOME
Moisture:	IPM	Module Present	
End-Of-Row:	IPM	Module Present	
End-Of-Bale:	IPM	Module Present	
Bate Rate:	IPM	Module Present	
GPS is:	Off		

Pump Test

Within the Service menu, select PUMP TEST key. Once in Pump Test screen, select TEST:



Make sure baler is in an area where spray from the applicator will not cause any unwanted mess. The test will run for one minute and 40 seconds, spraying up to two gallons of fluid. Readings will update every 3 seconds and the last reading will be the completed value. Each level will run for 20 seconds.

Use range tables below to compare Pump Test values:

Preservative			Water		
	MIN	MAX		MIN	MAX
L1	65	95	L1	80	100
L2	150	210	L2	170	230
L3	290	350	L3	300	420
L4	430	490	L4	360	520
L5	590	650	L5	460	710

Maintenance

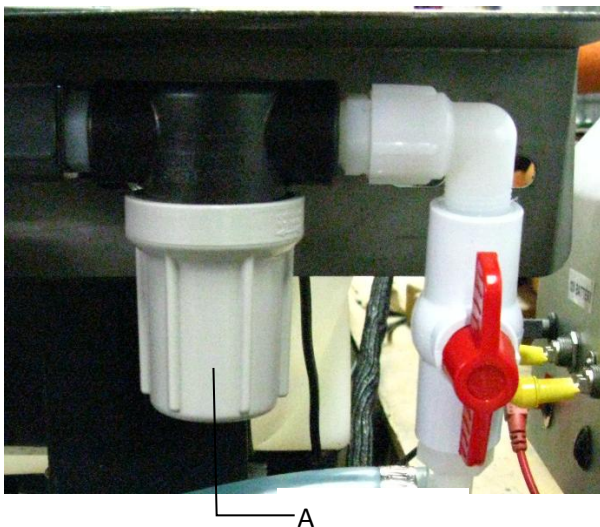
If you are unsure how to perform any of the maintenance steps have your local authorized dealer perform the tasks.

Maintenance Schedule

	Daily	10 hrs.	400 hrs.	Weekly	Monthly	Season
Diagnostics	X					X
Filter bowl cleaning		X				X
Tips & tip screen cleaning		X				X
Tank lid cleaning		X				X
Dielectric grease connections					X	X
Rebuild pump			X			
Battery connections				X		X
Solenoid Valves			X			
Visually inspect hoses				X		X

Filter bowl cleaning: The filter bowl is in front of the applicators tank and is connected to the ball valve. Before cleaning the filter bowl all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

Verify that the ball valve located next to the pump is turned off. Locate the filter bowl on the side of the pump manifold (A). Unscrew the bottom section of the filter bowl and remove the strainer (B). Clean off any debris and soak in warm water with a mild soap if necessary. Once the screen is clean reinstall by following the directions in reverse.

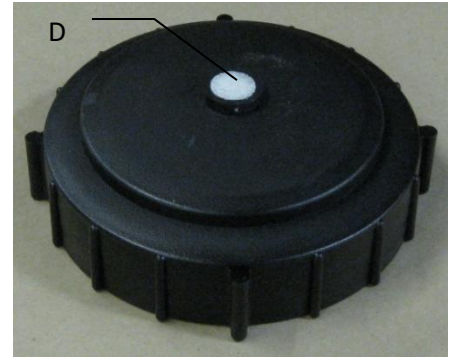


Tip Cleaning: Before cleaning the tips all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

Verify that the ball valve located next to the pump is turned off. Disconnect spray shield from hangers if possible or remove tips in place. Remove the tips from the spray shield. Some models may require a wrench to remove. Clean off any debris and soak tip and screen in warm water with a mild soap if necessary. Once the tips are cleaned reinstall tips into spray shield.

Tank lid cleaning: Before cleaning the tank lid all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

The tank lid is located on the top of the tank. Unscrew the tank lid and bring down ground level. Use compressed air clean out the tank screen (D). Once the screen is cleaned reinstall the cover.



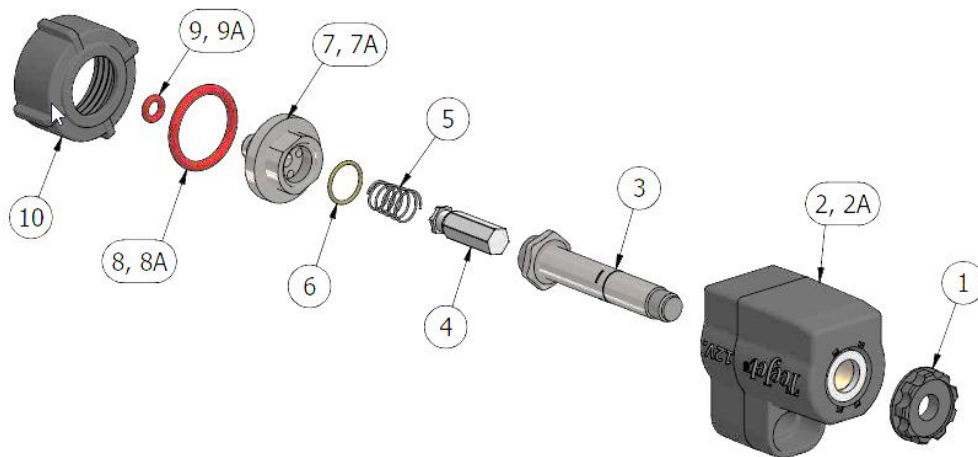
Dielectric grease connections: Disconnect all harnesses on the applicator, clean the connections, and repack with dielectric grease.

Rebuild pump: If Manual mode show that the pump is running lower than normal, a pump rebuild may be necessary. To do this rebuild the pump must be removed from the pump manifold. The pump rebuild is part number 007-4581.

Verify that the ball valve is turned off. Before working around the pumps all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves). Remove pump from manifold. Follow rebuild instructions supplied with pump rebuild kit. Reinstall after rebuild is complete.

Battery connections: Follow the batteries safety warnings and clean the battery connections. If the connections cannot be cleaned, replace harness.

Solenoid Valves: Before servicing the solenoid, all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves), inlet side of solenoid could be under pressure. Verify the ball valve is turned off before servicing the solenoid. Clean the solenoid valve body (004-1207VF). Replace the solenoids if needed (002-2203F qty 2).



To clean solenoid valves:

The Center Section can be removed from Housing #2 by loosening #1 from #3. Once removed, use wrenches on components #3 and #7 and gently turn to loosen and separate. Soak parts #3-10 in warm soapy water, clean with a soft bristle brush, rinse with clean water to remove buildup before reassembly.

Miscellaneous maintenance:

1. Depending on the product being used, the system may need to be flushed with water at a regular interval (consult with manufacturer of the chemical.) If Harvest Tec product is being used, flushing is not necessary.
2. Although the pump can run dry, extended operation of a dry pump will increase wear. Watch the preservative level in the tank.
3. If you are using bacterial inoculants, flush your system daily after every use.

Winter Storage: If system is used with the Harvest Tec buffered propionic acid, the system does not need to be drained as long as the tank, tank cap, and system components are in good condition and free of cracks or leaks. Turning off the tank supply line, removing the filter bowl and running the pump for a short duration is sufficient to purge the preservative from the intake lines. Disconnect hose from solenoid, remove spray tips and drain all lines on the outlet side. Store any collected preservative in a sealed container or return to tank. Reinstall filter bowl, solenoid hose and spray tips after draining.

If other products are used, then follow this procedure:

1. Thoroughly flush the system with water.
2. Remove the filter bowl and run dry until the water has cleared out of the intake side.
3. Drain all lines on the outlet side.
4. Never use oils or alcohol based anti-freeze in the system.
5. For spring start-up, if the pump is frozen, turn off the power immediately to avoid burning the motor or damaging the circuit board. The pump head can be disassembled and freed or rebuilt in most cases.
6. Disconnect power from the IPM module.
7. Remove display from tractor and store in a warm, dry place

Common Questions

1. How do I turn the system on/off?

To turn the system ON, turn tractor key on to power up.

To turn the system OFF, turn off tractor key.

If operating via Tablet, see SHUTTING DOWN THE PRECISION BALING APP for more details.

2. How to get in the LBS/TON, MC%, and TONS/HR screens?

Press the SETUP key. Select MOISTURE SETUP to change moisture level settings, select APPLICATION SETUP to change your application settings, select BALING RATE SETUP to change tons/hour settings. See SETTING UP SYSTEM FOR INITIAL USE for a detailed explanation of this process.

3. The unit is stuck in the Application Setup screen.

In the Application Rate screen, level 1 must be less than level 2, and level 2 must be less than level 3. For example, if level 1 is set at 16, level 2 must be set at 17 or higher, and level 3 must be set higher than level 2.

4. How does OVERRIDE work?

Override turns on the pump and opens the solenoid for full output. The pump and solenoid will remain at full output until the operator turns the pump off by pressing the NORMAL key again.

5. The flow meter reading is more or less than the programmed level set in the box.

Some variation in flow meter readings compared to the programmed set point is normal due to factory tolerances on the pump motor as well as varying tractor voltages inputted to the control box. The flow meter reading is an accurate measure of how much product is being applied. The set points then will need to be adjusted if you want to attain a different flow meter reading.

6. The moisture content displays “LO” or “HI” all the time.

When the moisture content display does not change frequently while baling, there is likely a faulty star wheel connection. Check all star wheel wires and connectors to see if there is a continuity or grounding problem.

7. Should the battery connections be removed before jump starting or charging a battery?

Yes, anytime the tractor will have voltage going up rapidly the connections should be removed.

Troubleshooting

Problem	Possible cause(s)	Solution(s)
Pump will not run	1. No voltage to IPM.	1. Check for short, low voltage, and replace fuse if necessary.
	2. Pump locked up.	2. Clean or rebuild pump if motor ok
	3. Damaged wire.	3. Repair damaged wire.
	4. Damaged solenoid	4. Replace / Clean
Pump runs but will not prime	1. Air leak in intake.	1. Tighten fittings on intake side. Replace filter bowl O-ring.
	2. Clogged intake.	2. Clean.
	3. Restricted outlet.	3. Check and clean tips.
	4. Check valve stuck closed.	4. Clean or repair check valve.
	5. Dirt inside pump.	5. Replace pump check valve.
Pump does not develop enough output.	1. Air leaks or clogs on inlet.	1. Tighten or clean filter bowl
	2. Pump worn or dirty.	2. Rebuild pump.
Moisture reading errors (reading high or low)	1. Wire disconnected or bad connection between star wheels and IPM.	1. Reconnect wire.
	2. Low power supply to IPM	2. Check voltage at box for min of 12V
	3. Baleage not forming full top of bale allowing star wheels to not properly contact bale.	3. Adjust flake to contact star wheel sensors.
	4. Short in star wheel harness.	4. Replace wire.
Moisture reading erratic	1. Check all wiring connections for corrosion or poor contact.	1. Apply dielectric grease to all connections.
	2. Check power supply at tractor. Voltage should be 12V-14V	2. Replace battery harness. Install voltage surge protection on tractors alternator.
Product is less than actual product used.	1. Voltage supplied to flow meter is less than 11 volts.	1. Check for a min of 11 volts supplied at IPM module.
	2. Wiring short in signal to IPM.	2. Inspect wire and replace if necessary.
	3. Using product other than Harvest Tec	3. Catch and weigh product for output.
Product shown is 10% different than actual product used.	1. High voltage supplied to the meter.	1. Check voltage at IPM. Max of 18V.
	2. Air leak in intake.	2. Look for air bubbles in line. Replace line or other defective area that is allowing air into the system.
	3. Using product other than Harvest Tec	3. Catch and weigh product for output.
System leaks product out of tips after shutting down.	1. Dirty or defective solenoid	1. Clean or Replace.
System does not pause at the end of a row.	1. Short in harness 2. Damaged sensor 3. Sensor misalignment	1. Replace harness 2. Replace sensor 3. Align sensors – see 474C manual
Solenoid will not pulse	1. Dirty or plugged solenoid 2. Damaged wire from control 3. Wire disconnected	1. Clean or Replace 2. Repair 3. Reattach
ISO Communication Module light will not illuminate	1. ICM Module receiver not connected 2. Harness disconnected 3. Low power	1. Check connections and voltage. Minimum of 12.5 volts required.
	<i>Green Light</i> – When the ISO Communication Module is properly connected, the green light will indicate connection.	

Error Messages

<u>Message</u>	<u>Troubleshooting</u>
Baling Rate shows “ERROR”	- The star wheel with the encoder is installed incorrectly so it is spinning the wrong direction. Ensure star wheel is installed according to arrow diagram on the back.
“Auto Mode Disabled”	- Microwave chute moisture sensors have been selected. Ensure they are off and star wheels are used as main moisture reading for the system.
For other issues refer to Install Manual or contact Harvest Tec	

Tablet Troubleshooting

<u>iPad Symptom</u>	<u>Troubleshooting</u>
Tablet will not turn on	- Turn tablet off and on. Press and hold the Sleep/Wake button for a few seconds until powered completely off. Press and hold the Sleep/Wake button to turn on again. - Battery may be drained. Plug tablet into computer or AC adapter and see if anything happens. The tablet will recognize it has been connected to a power source and charge its battery. If it will no longer charge, the battery must be swapped with a replacement battery.
Tablet touchscreen is slow or does not respond	- Screen may be dirty. Clean screen. Unplug everything, turn off tablet and with soft, lint-free, slightly damp cloth gently wipe screen. DO NOT use window cleaner and paper towels. - If screen protector sheet installed, try removing it.
Tablet is not charging or is slow to charge	- To charge tablet, you can try either connecting to a power outlet or connecting to a USB 2.0 port on a computer.
How can I unlock my tablet if I forgot the passcode	- If cannot remember passcode, will need to restore device using the computer with which was last synced. This allows for ability to reset your passcode and resync the data from the device (or restore from a backup).
How do I send in my tablet for service?	- Refer to tablet owner’s manual. DO NOT SEND TABLET TO HARVEST TEC
For other issues refer to iPad Owner’s Manual or contact Apple Directly	

Harvest Tec Does Not Service Tablets

**SEE THE APPLICATOR KIT INSTALLATION MANUAL FOR
PARTS BREAKDOWN SECTIONS**

Harvest Tec LLC. Warranty and Liability Agreement

Harvest Tec, LLC. will repair or replace components that are found to be defective within 12 months from the date of manufacture. Under no circumstances does this warranty cover any components which in the opinion of Harvest Tec, LLC. have been subjected to negligent use, misuse, alteration, accident, or if repairs have been made with parts other than those manufactured and obtainable from Harvest Tec, LLC.

Our obligation under this warranty is limited to repairing or replacing free of charge to the original purchaser any part that in our judgment shows evidence of defective or improper workmanship, provided the part is returned to Harvest Tec, LLC. within 30 days of the failure. If it is determined that a non-Harvest Tec branded hay preservative has been used inside the Harvest Tec applicator system where the failure occurred, then Harvest Tec reserves the right to deny the warranty request at their discretion. Parts must be returned through the selling dealer and distributor, transportation charges prepaid.

This warranty shall not be interpreted to render Harvest Tec, LLC. liable for injury or damages of any kind, direct, consequential, or contingent, to persons or property. Furthermore, this warranty does not extend to loss of crop, losses caused by delays or any expense prospective profits or for any other reason. Harvest Tec, LLC. shall not be liable for any recovery greater in amount than the cost or repair of defects in workmanship.

There are no warranties, either expressed or implied, of merchantability or fitness for particular purpose intended or fitness for any other reason.

This warranty cannot guarantee that existing conditions beyond the control of Harvest Tec, LLC. will not affect our ability to obtain materials or manufacture necessary replacement parts.

Harvest Tec, LLC. reserves the right to make design changes, improve design, or change specifications, at any time without any contingent obligation to purchasers of machines and parts previously sold.

Revised 5/22

HARVEST TEC, LLC.
P.O. BOX 63
2821 HARVEY STREET
HUDSON, WI 54016 USA
Phone: 715-386-9100
1-800-635-7465
Fax: 715-381-1792
Email: info@harvesttec.com

