Operation Manual

Small Square Baler Models

25 & 55 gallon Preservative Applicators

HARVEST TEC *Equipment and Products for Quality Hay.™*

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800-635-7468 • www.harvesttec.com

445T-450T-451T-OPR
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Small Square Baler Models Operation Table of Contents

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Introduction

Congratulations on purchasing a Harvest Tec Model 445T, 450T or 451T applicator. The applicator is designed to apply a buffered propionic acid on to the forage crop as it is being baled. The 445T, 450T & 451T applicator will adjust the rates of preservative being applied based on the moisture and tonnage of the crop being harvested. This manual will take you through the steps of operation of the applicator and also point out all safety precautions that need to be made while using the applicator. Read this manual carefully to learn how to operate the equipment correctly. Failure to do so may result in personal injury or equipment malfunction. If you are unsure about operating the system after consulting this manual, contact your local authorized dealership for additional assistance. If you are in need of parts for the system please see your Installation Manual and contact your local authorized dealer to order the parts. This applicator is designed to apply Harvest Tec buffered propionic acid.

Right and Left sides are determined by facing in the direction of forward travel.

Model Reference

Baler make	Baler model	Model number	Installation kit	Tank size
Case IH	SBX530, SBX540, SBX550, SB 531 – SB 551 square balers	445T	4415B	25 gallon
John Deere	All small square balers	445T	4410B	25 gallon
New Holland	570, 575, 580 & BC 5060 – BC 5080 squares	445T	4415B	25 gallon
Case IH & New Holland & Others	Case IH SBX 520, SB 521 New Holland 200 & 300 series, 565, BC 5050 & all others	445T	4409B	25 gallon
Case IH	SBX530, SBX540, SBX550, SB 531 – SB 551 Square balers	451T	4415B	55 gallon
New Holland	570, 575, 580 & BC 5060 – BC 5080 Square balers	451T	4415B	55 gallon
Case IH	2001 and older small square Balers (two tie)	450T	4485B	55 gallon
Hesston, Massey, New Idea, & Challenger	All small square (two tie)	450T	4485B	55 gallon
Hesston, Massey, New Idea, & Challenger	All three tie balers	450T	4502B	55 gallon
Freeman	All three tie balers	450T	4506B	55 gallon
New Holland	BB 900 & 585	450T	4507B	55 gallon

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 for under the replacement parts section for the correct part numbers.

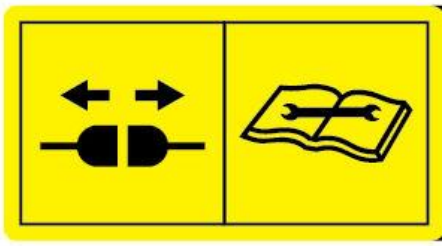
Keep your applicator in proper working condition. Unauthorized modifications to the applicator may impair the function and/or safety of the machine. Carefully read and understand all of the baler safety signs before installing or servicing the baler. Always use the supplied safety equipment on the baler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

Safety sign locations

Model 450T & 451T

Model 445T

Safety Signs Definitions

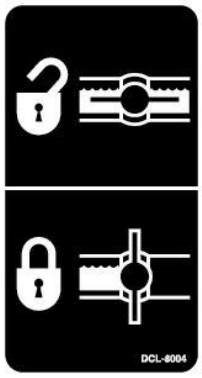


Number 1
Spraying hazard. Disconnect power before servicing the applicator
Part no. DCL-8003

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

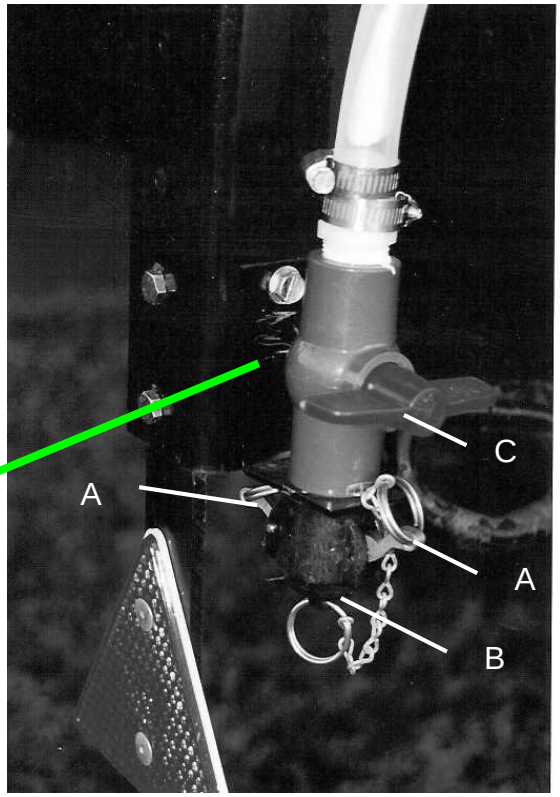
After the Applicator has been installed on the baler, follow the below steps to prepare for operating the applicator both safely and correctly.

Filling the tank (Model 450T & 451T):

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 the tank (Model 445T):

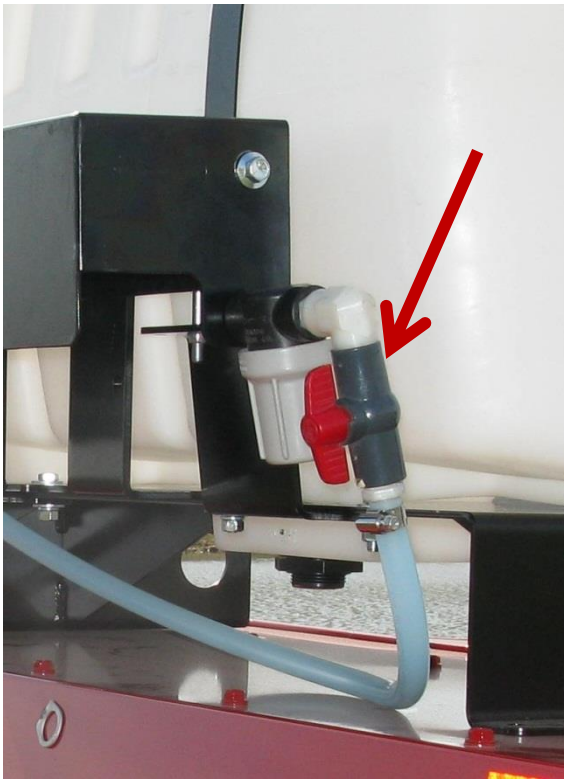
Read the label of the product being filled into the tank to determine what individual protective measures need to be taken. Clean the tank lid area and unscrew the lid. Transfer product from the container into the tank.

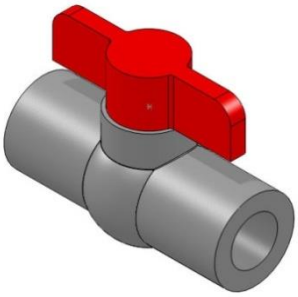
Water is recommended for first time and annual start up procedures.

Operation of the main ball valve

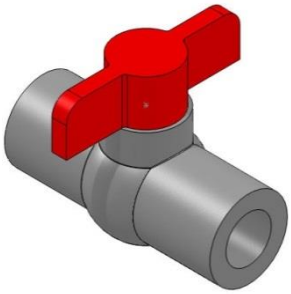
The ball valve should be closed at all times when the applicator is not being used. The valve should also be closed when any service work is being done to the baler or applicator.

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





Valve open



Valve closed

Connecting the power harness

The power harness that supplies power from the tractor battery to the applicator pump has a disconnect at the hitch. Connect the two together for operation. Always disconnect before servicing the applicator or baler.

WARNING: Stop tractor engine and shift to park or neutral, set brakes and remove key before leaving the tractor.

400T Bluetooth Operation

Turn On / Off iPad using the Sleep/Wake button

*(Info from Apple User's Guide)

Turn iPad on. Hold down the Sleep/Wake button until Apple logo appears. iPad will take a moment to load.

You can lock iPad and put it to sleep when you're not using it. Locking iPad puts the display to sleep, saves the battery, and prevents anything from happening if you touch the screen.

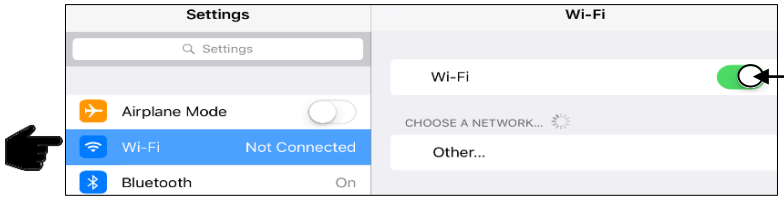
Sleep/Wake Button

When you are not going to use the iPad for an extended period of time put the unit into sleep mode by pressing the Sleep/Wake button. Press Sleep/Wake button to wake iPad and then unlock iPad by entering passcode.

Turn iPad off. Hold down the Sleep/Wake button for a few seconds until the slider appears onscreen, then drag the slider to the right.

Downloading Harvest Tec App

1. If iPad does not have Wi-Fi turned on, select the Settings tab  then select the Wi-Fi tab (below).

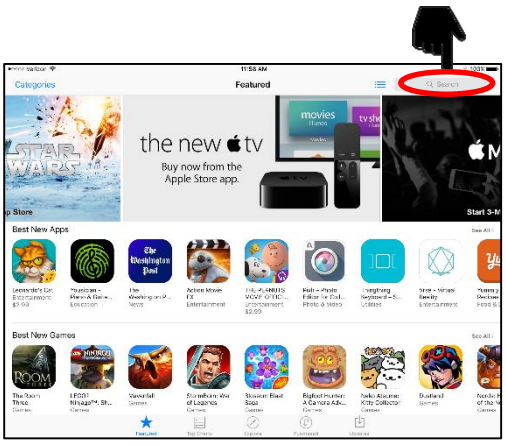


2. Turn Wi-Fi on by sliding button to the right.
*Green bar indicates ON

3. Use same process to turn on Bluetooth function

4. Select an available network when detected by the iPad, shown in area above that currently says 'Other.'
5. Select App Store icon (below) and open. *You will need a Wi-Fi connection available to view App Store.

Download the Hay App in the App Store by searching for 'Hay App' in the search bar in the top right corner of screen (right):
*The advertisements displayed on the App Store screen will change.



The app will have the icon as shown:

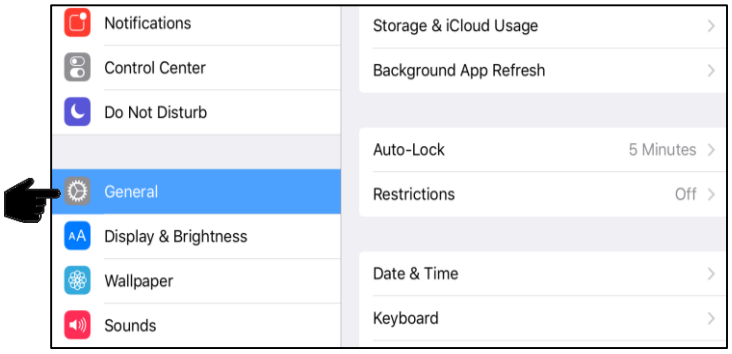
Hay App

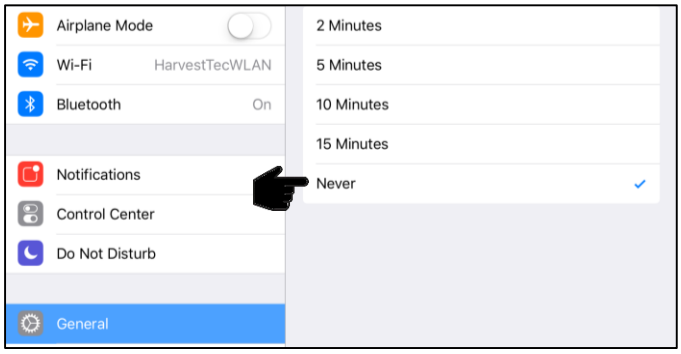
Note: Operation requires 3rd generation (2012) iPad, iPad Mini, or newer with iOS8 or greater operating system.

Turn Off Auto-Lock Function

To ensure that your iPad does not periodically auto-lock or 'sleep' during periods of inactivity the auto-lock timer must be changed.

Under the Setting tab (illustrated previously), select the General settings tab (below left), and change the timer setting to Never (below right).





Shutting Down the Hay App

1. To shut down the Hay App double click the home button (Figure A). This will show the open apps that are running on your iPad (Figure B).
   *Note: By pressing the home button one time to return to the home screen, the Hay App **does not** shut down. The system will however, stop applying preservative after 10 seconds.

Figure A

2. Slide the app you want to shut down by sliding the app toward the top of the iPad, until the app is no longer visible (Figure C).

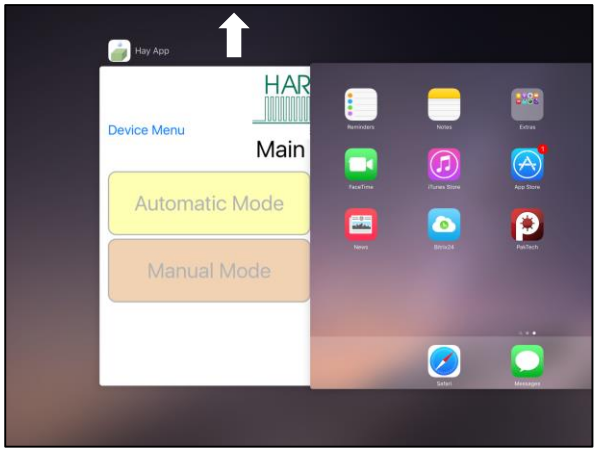


Figure B

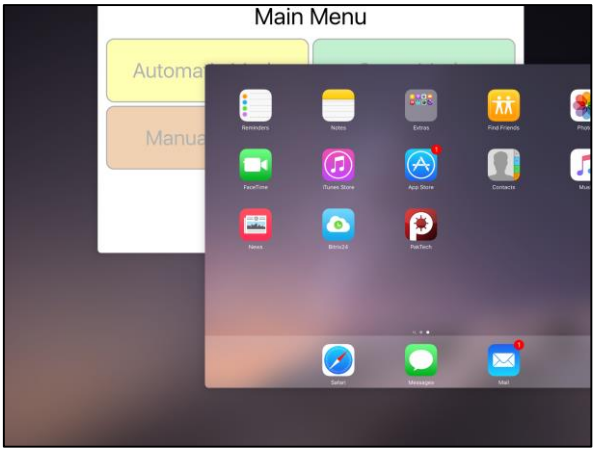


Figure C

Operating the Harvest Tec iPad App

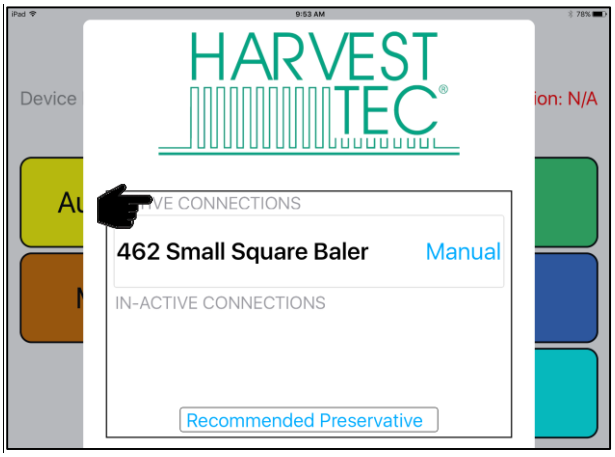
After installation of the Bluetooth Receiver (030-4672A) on to the applicator system, attach the power cord 006-4640A to supply power.
*Refer to the applicator installation manual for details on connecting the Bluetooth Receiver.

When ready to operate your applicator system, open the Hay App on the iPad by selecting the Hay App icon.

Device Selection

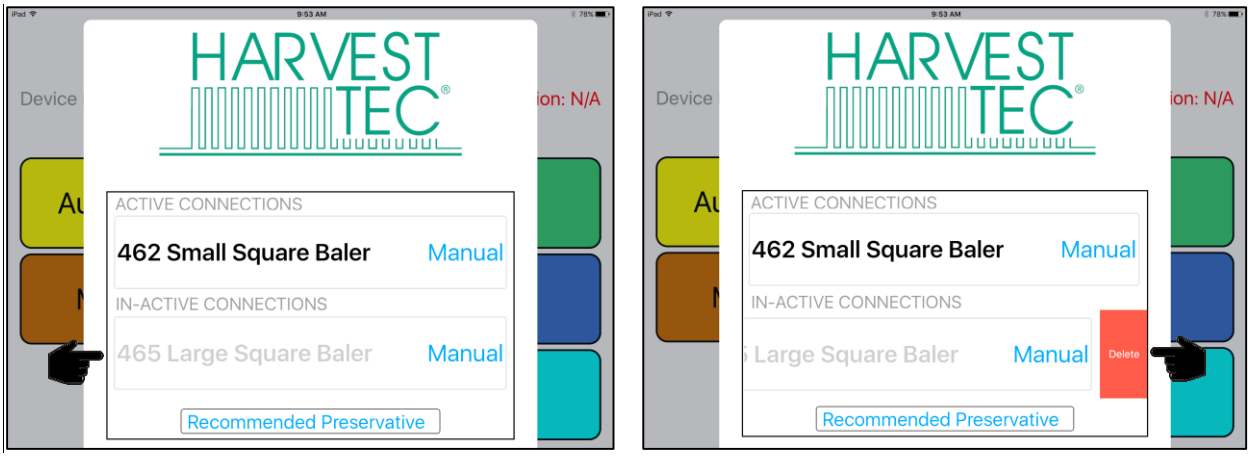
The app will open to the Device Menu screen as shown below. Applicators which are equipped with the Bluetooth receiver that are within range (20') of the iPad and have power going to them, will be shown under the Active Connections section.

After the iPad connects to the Bluetooth receiver, select the applicator you want to connect with.



The In-Active Connections section will show applicator systems that have been connected in the past, but are not within range of the iPad or do not currently have power going to them (bottom left).

To remove a baler from the In-Active list, slide the bar displaying the baler name to the left, and select the Delete button that will appear (bottom right).

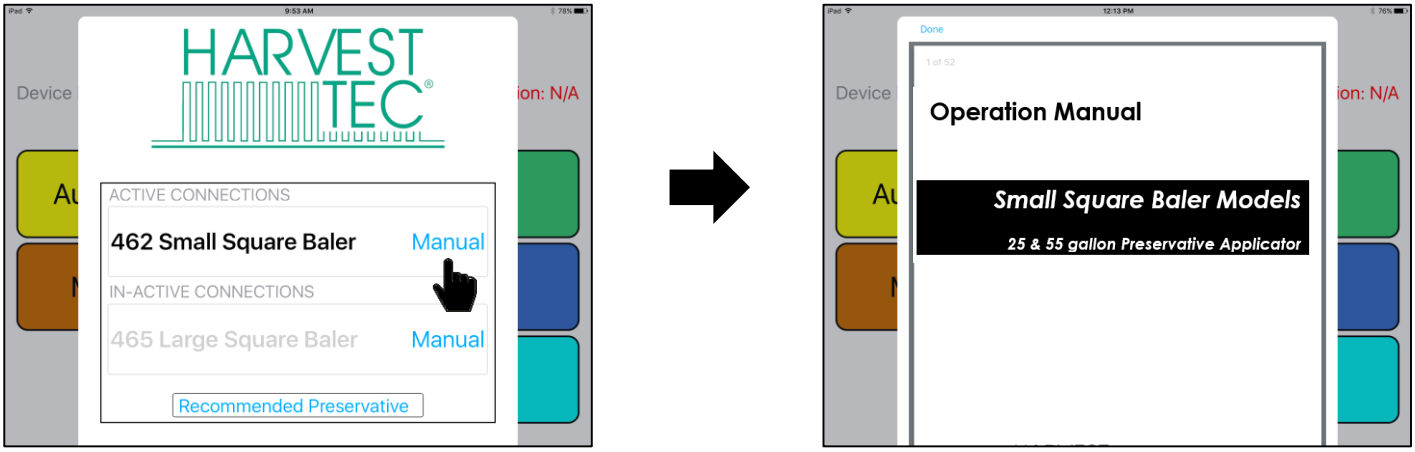


Operating the Harvest Tec iPad App (continued)

Manual Selection

Selecting the Manual button (below) displayed to the right of the baler name will open the operation manual for your baler.

*You do not need to be connected to a baler to open the manual after a baler has been connected.

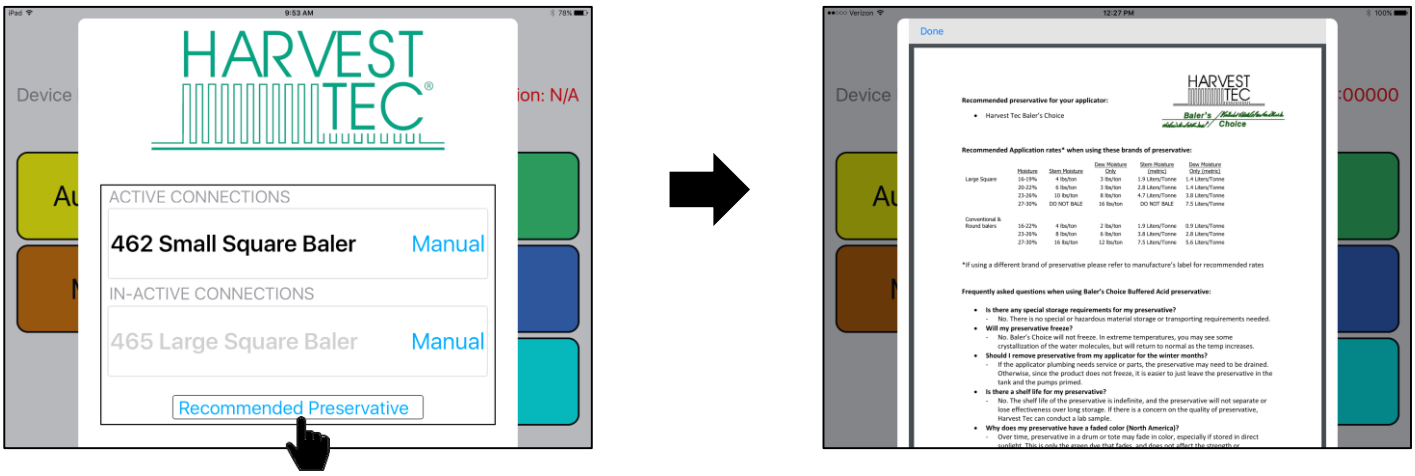


When finished reviewing the manual, press the Done button in the top left corner to return to the Device Menu.

Recommended Preservative

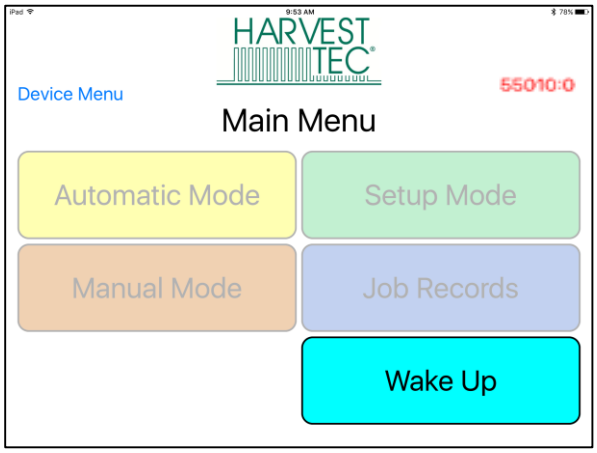
To view recommended preservative information, application rates, and frequently asked preservative questions, select Recommended Preservative (below).

*You do not need to be connected to a baler to open the recommended preservative page.



Operating the Harvest Tec iPad App (continued)

Once you have selected the baler you want to connect with from the Device Menu, the applicator main menu will display (below).



Tab Descriptions

Wakeup: Press this button to take the system out of the Standby mode and perform operation (above).

Automatic Mode: This mode allows you to use all of the applicator features such as adjusting preservative application on the go and counting total pounds of product used.

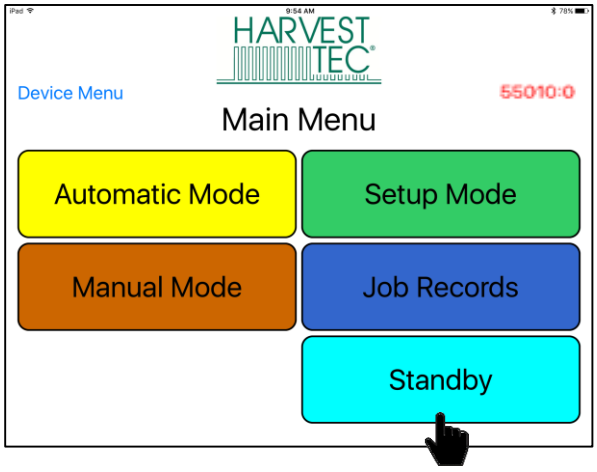
Manual Mode: Allows operator to manually turn pumps on and off. This mode also has moisture content displayed. Use this mode to prime pumps.

Setup Mode: This mode allows the operator to adjust bale rate, application rate settings and select tip output.

Job Records: Keep track of up to 63 jobs with total product used, average moisture content, tons baled, and baling date.

Standby: The feature puts the system into a non-operating mode when operation is not needed.

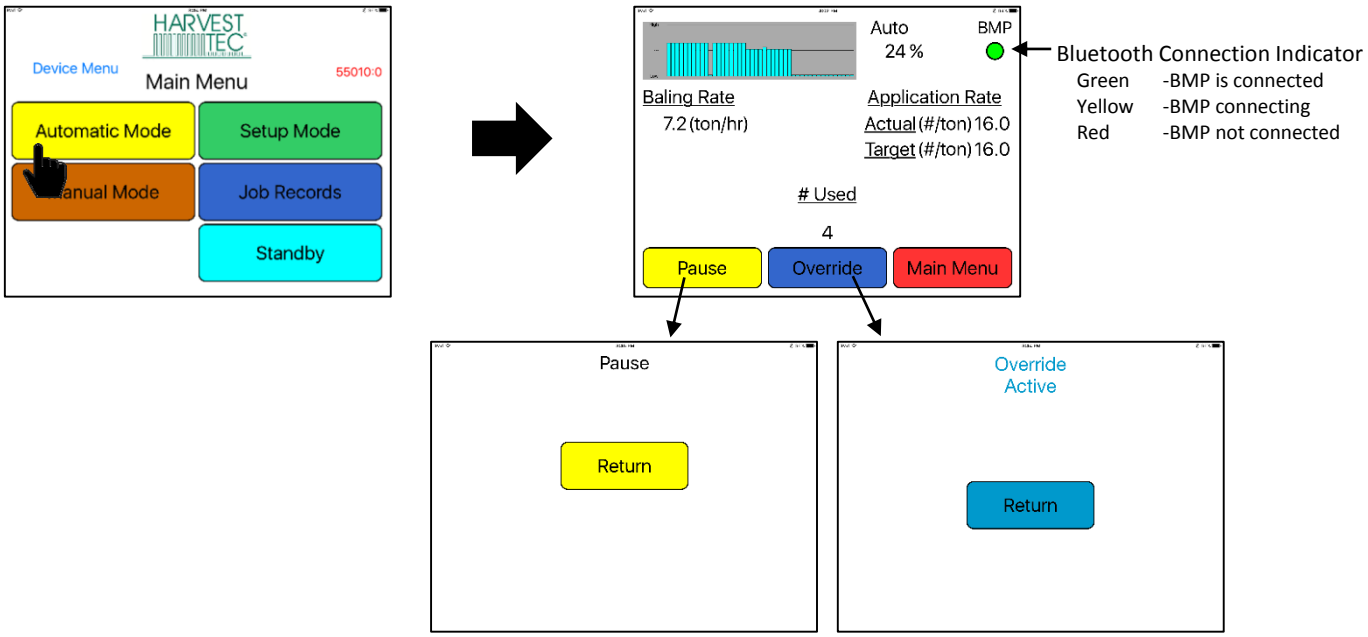
Device Menu: This button will take you back to the Device Menu to select an applicator to connect with.



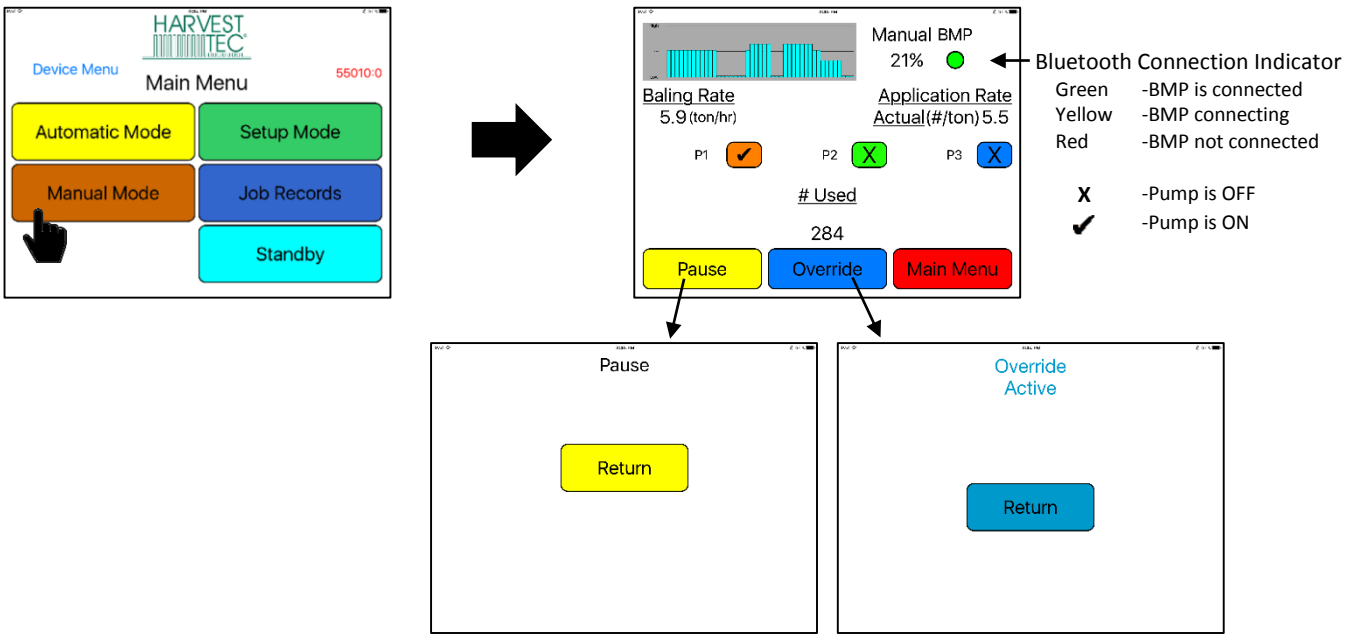
Screen Menus

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

Automatic Mode

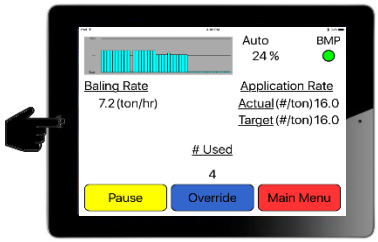


Manual Mode



Operation Note:

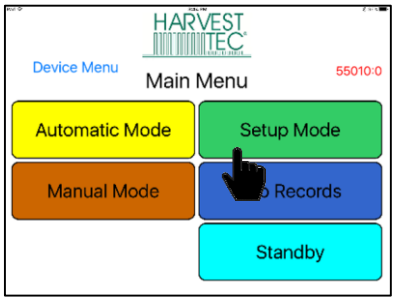
Pressing the Home Button on the iPad **WILL NOT** stop application of the Harvest Tec System (see below):

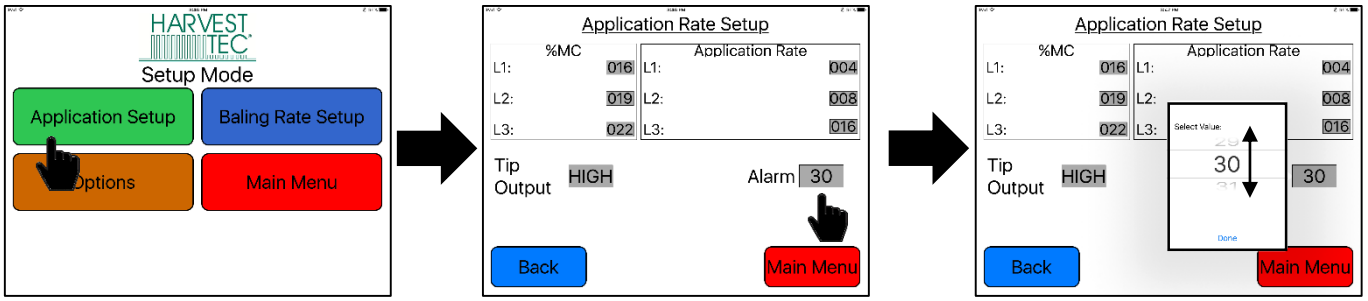


Select Pause or Main Menu to stop application

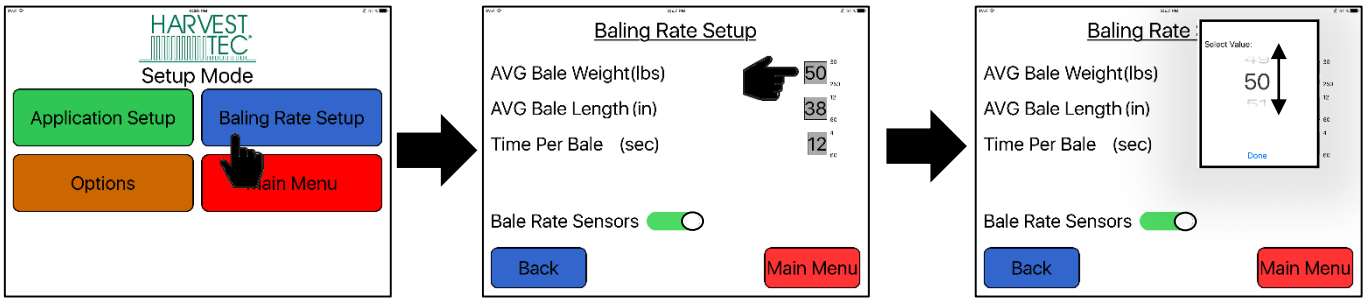
*To close app see the Shutting Down Hay App Section

Setup Mode

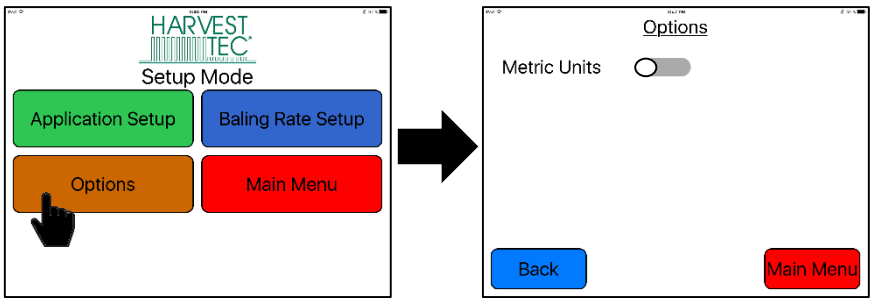




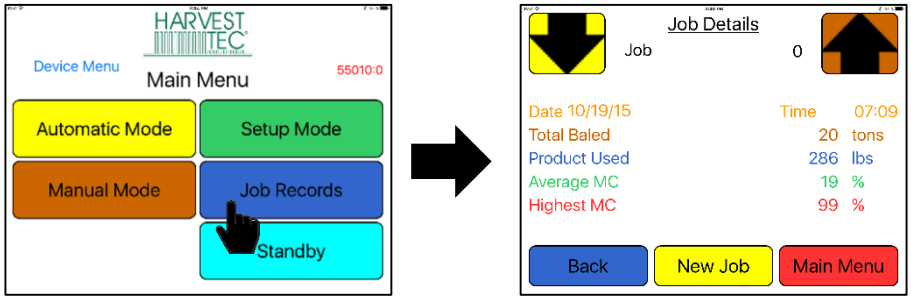
*All values can be changed



*All values can be changed



Job Records

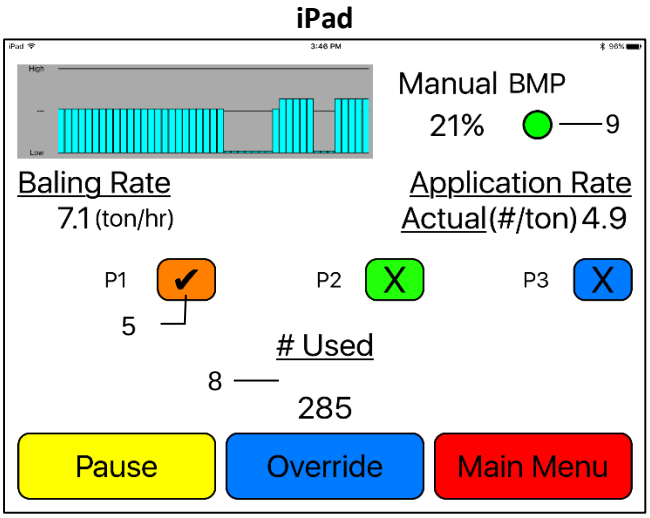


First Time and Annual Startup Instructions

THE UNIT MUST BE CHECKED OUT BEFORE FIELD OPERATION!

Check and Prime the Pumps

1. Put 10 gal of water in tank and turn main ball valve on.
2. Inspect for any leaks or drips at this time. If any are found tighten or replace area or fitting.
3. Turn controller on.
4. Press the SETUP MODE key. Turn bale rate sensors off. Make sure the AVG Bale Weight is 100 lbs and the AVG Baler Length is 36", Time per bale is 10 seconds, and press the MAIN MENU key to return to the opening screen.
5. Press the MANUAL MODE key and the screen shown below will appear.



Note: The system comes with the tips already installed on the spray shield or nozzle tubes.

Pump	2-Tie Baler Tip Output (Lbs / Ton)	3-Tie Baler Tip Output (Lbs / Ton)
1	1.2 – 1.6	1.8 – 2.6
2	3.6 – 5.0	3.6 – 5.0
3	6.7 – 9.3	10.0 – 13.4

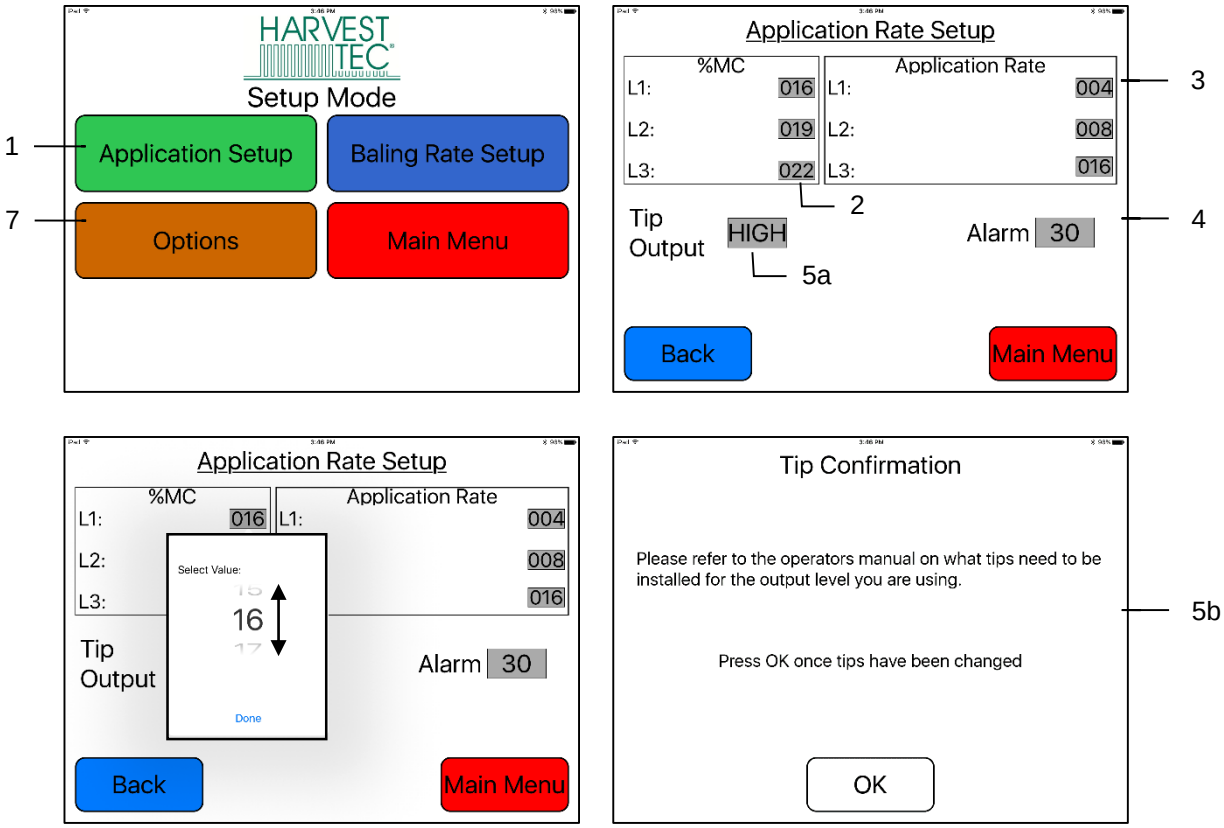
6. Turn pump 1 on (P1). To turn the pump on, select the colored box next to P1 and change the 'X' to a check mark Repeat the process for pumps 2 and 3 (P2 and P3).
7. This process will also be used to prime the pumps whenever needed.
8. While running pumps check for a good spray pattern out of the respective tips and verify that no parts of the system are leaking.
9. While doing these tests the Volume Used on the bottom of the screen will be increasing, this verifies that the flow meter is functioning.
10. The BMP button displays your connection signal with the Bluetooth receiver. Green – BMP is connected, Yellow – BMP is connecting, Red – BMP not connected. Pressing MAIN MENU key to return to the initial startup screen.

Setting Up the System for initial use with the iPad

In this mode you will setup your initial application rate and baling rate.

Application Rate

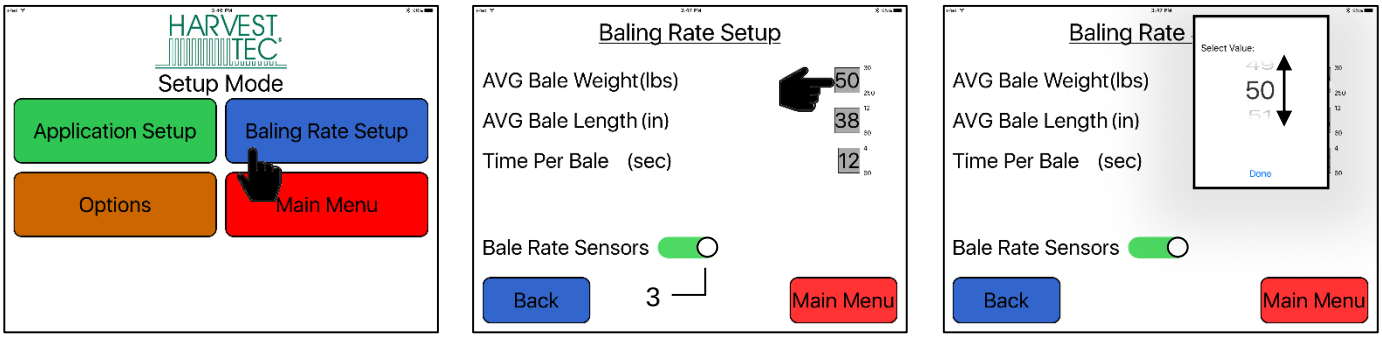
After pushing the SETUP MODE key in the Main Menu screen, the top left screen will appear:



1. On the Setup Mode screen press the APPLICATION RATE key. Once selected the SETUP APPLICATION RATE screen will be shown. (Top right picture)
2. Press any of the grey number values to the right of %MC to adjust their figures. The scroll pad shown on the bottom left will display. Remember level 1 must be lower than level 2 and level 2 must be lower than level 3. Press Done, when value has been selected. Harvest Tec products recommend set points of 16, 22, and 26 % MC levels. These are preset from the factory. Press Back to return.
3. To change rate of chemical application, press any of the grey number values to the right of RATE. Remember level 1 must be lower than level 2 and level 2 must be lower than level 3. Press Done, when value has been selected. Harvest Tec products recommend rates of 4, 8, and 16 lbs/ton. These rates are preset from the factory. Press Back to return to previous screen. **IT IS THE OPERATORS RESPONSIBILITY TO FOLLOW THE RECOMMENDATIONS OF THE PRESERVATIVE. ONLY THE OPERATOR CAN APPLY THE PROPER RATE.**
4. 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 50.
5. Press the grey area next to Tip Output to **cycle between the high and low sets of tips** (5a). Use the correct tip set for the field conditions. The tip confirmation screen will appear (5b). Press OK once tips are changed.
6. Next press the BACK key found on the bottom left hand figure of the screen to return to SETUP MODE screen or press MAIN MENU key on bottom right hand figure of the screen to return to opening screen.
7. Press OPTIONS to adjust the unit between metric and standard units.

Baling Rate Settings

After pushing the SETUP MODE key in the Main Menu screen, the screen on the left will appear:



1. On the setup mode screen press the BALING RATE key.

2. Press the grey number value to the right of AVG Bale Weight (Lbs). To adjust the weight of your bales, the scroll tool shown on the right will display. Scroll through the values to select correct information, press DONE when value has been selected. The information will be saved until updated. Use the same procedure for adjusting bale length and time per bale.

3. Small square balers are equipped with Bale Rate Sensors which can be turned ON by sliding the bar to the right as shown above. A green bar indicates that the bale rate sensors are on. While a grey bar means the bale rate sensors are off.
   Note: Bale rate sensors are used instead of a fixed time per bale to help determine a real time ton per hour reading.

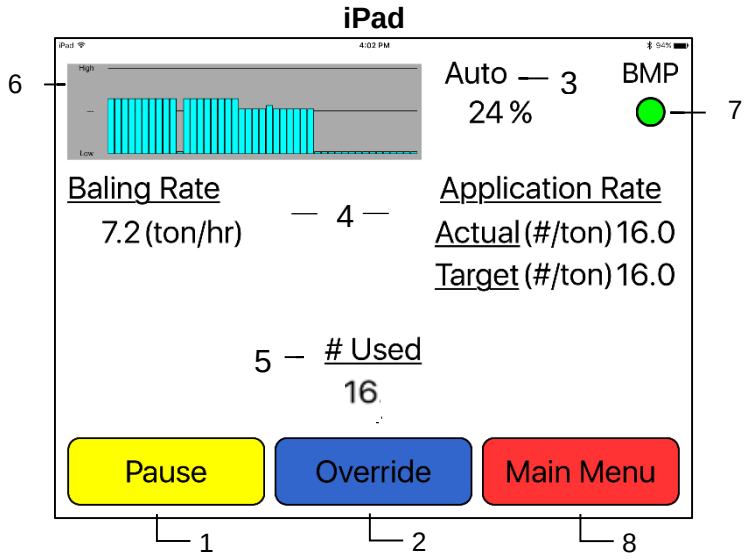
4. Press the BACK key found on the bottom left hand figure of the screen to return to SETUP MODE screen or press the MAIN MENU key to return to the opening screen.

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 of these settings. **Manual mode will apply preservative to the hay at a fixed rate regardless of the moisture.**

Automatic Mode

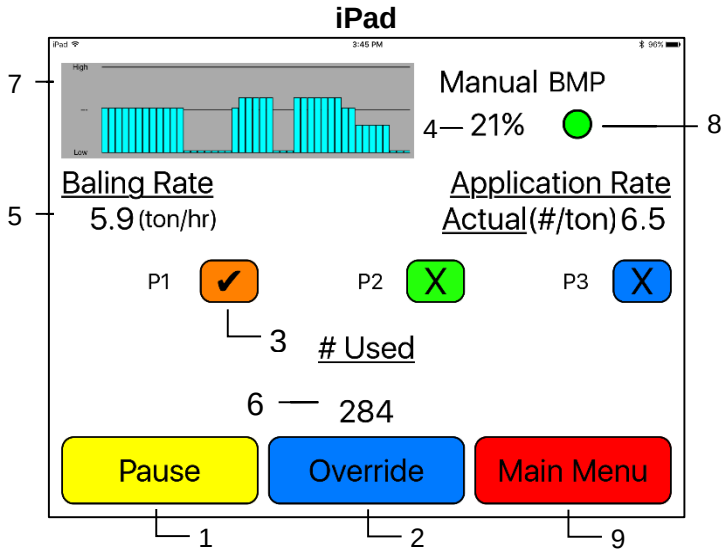
After pushing the AUTOMATIC MODE key in the Main Menu screen, the following screen will appear:



1. To pause the unit while in operation select the Pause key.
2. Push the OVERRIDE key to turn on all three pumps at the same time for full output of the system. Use this mode when going through a short area of wet crop.
3. The moisture content is shown in the upper right hand corner.
4. Baling Rate and Application Rate are shown in the middle of the screen. The operator sets the target application rate and baling rate in the setup mode; the actual rate should be within +/- one pound.
5. Volume used shown at the bottom of the screen will show accumulated pounds of preservative used on the go. This number will reset at power down, but remains in the job record screen. **NOTE: Initial start-up requires pressing the New Job key in the Job Records screen in order for Volume Used accumulation to be recorded**. **This only needs to be done once on initial start-up of system and not every time the system is started for operation.** (See JOB RECORDS screen)
6. The graph shows the moisture trend from the past 90 seconds in 3 second intervals.
7. The BMP button shown when using an iPad displays your connection signal with the Bluetooth receiver. Green – BMP is connected, Yellow – BMP is connecting, Red – BMP not connected.
8. Press the MAIN MENU key to return to the opening screen.

Manual Mode

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



1. To pause the unit during operation select the Pause key.
2. Push the OVERRIDE key to turn on all three pumps at the same time for full output of the system. Use this mode when going through a short area of wet crop.
3. To turn the pump on, select the colored box next to P1 and change the 'X' to a check mark. In Manual Mode (regardless of moisture, baling rate or bale weight) the outputs are fixed rates as follows:

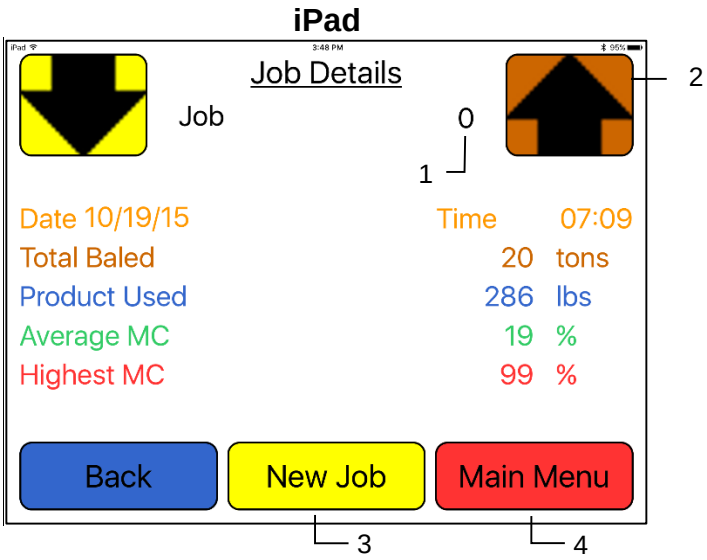
Small Square Balers

Pump	Low Tips Output (Lbs / HR)	High Tips Output (Lbs / HR)
1	25	40
2	75	75
3	145	205

4. The moisture content is shown in the upper right hand corner.
5. Baling rate and Application rate are shown in the middle of the screen. The output of a pump can be checked by dividing the preset output (shown in step 3) by the displayed baling rate. For example, if you have the high output tips in and are running pump 1, by itself, your output is 40 lbs/hr. Given the baling rate shown on the above screen of 5.9 tons/hr, the application rate should be about 6.5 lbs/ton (40 lbs/hr divided by 5.9 tons/hr). The baling rate is set in the SETUP MODE menu.
6. Volume used shown at the bottom of the screen will show accumulated pounds of preservative used on the go. This number will reset at power down, but remains in the job record screen. **NOTE: Initial start-up requires pressing the New Job key in the Job Records screen in order for Volume Used accumulation to be recorded**. **This only needs to be done once on initial start-up of system and not every time the system is started.**
7. This graph shows the moisture trend from the last 90 seconds of baling (one reading every 3 seconds).
8. The BMP button shown displays your connection signal with the Bluetooth receiver.
   Green – BMP is connected, Yellow – BMP is connecting, Red – BMP not connected.
9. Pressing MAIN MENU will return you to the opening screen.

Job Records

After pushing the JOB RECORDS key in the Main Menu screen, the following screen will appear:



1. The job number will be displayed at the top center. The current job being viewed will always read "Job #: 0". Product used and average moisture content will be reset when the NEW JOB key is pressed. The job records screen will store up to 63 jobs and will allow you to access previous jobs by using the up and down arrows.
2. Scrolling through previous jobs is done by pressing the UP or Down keys.
3. **Every time the NEW JOB key is pressed the accumulated pounds on auto and manual modes will be reset to zero.** After 63 jobs have been stored, the next time the NEW JOB key is pressed the system will start over with job one and the old job will be replaced.
4. To return the opening screen, press the MAIN MENU key.
   NOTE: Initial start-up requires pressing the New Job key in the Job Records screen in order for Volume Used accumulation to be recorded. This only needs to be done once on initial start-up of system and not every time the system is started for operation.

Backup fuse

The Model 462 is equipped with a backup system if your display is not functioning. This function is intended for use only as a temporary means for application and not as a way to apply preservative over multiple fields or for a lengthy amount of time. The baler mounted processor has a location for a backup fuse on the same side as the pump and flow meter harness that bypasses all other system inputs and applies preservative using one pump (Pump Three) at a constant lbs/hour shown below. These values are based upon on input voltage of 13.5 DC. Insert at least a 10 amp up to 20 amp fuse (3 AG style) into the backup fuse port to activate the bypass. The system will not turn off or pause until the fuse is removed. The main fuse must also be functional for the backup fuse to work.

	Tip Set	Output (lbs/hour)
462	**High**	**180**
	Low	**150**

Common Questions

1. **How do I turn the system on/off?**
   To turn the system ON open the Hay App, then select the active system for the baler you are using. Press the Wake Up tab if the system was put into Standby mode when last used. If not in Standby mode, select Automatic or Manual mode to begin.

   To turn the system OFF click the Standby tab on the Main Menu screen. To close the app double click the home button on the iPad and swipe the app that you would like closed, toward the top of the screen until it is no longer visible. See SHUTTING DOWN THE HAY APP for more details.

2. **How to get in the LBS/TON, MC%, and TONS/HR screens?**
   In the Main Menu press the SETUP MODE key. From this screen you can change your application rates and how much product is applied. See SETTING UP FOR INITIAL USE for a detailed explanation of this process.

3. **The unit is stuck in the Application Rate 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 all three pumps at full output. The pumps will remain at full output until the operator turns these pumps off by pressing the OVERRIDE 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 motors as well as varying tractor voltages inputted to the control box. The flow meter reading is an accurate measure of how much product is actually being applied. The set points then will need to be adjusted if you want to attain a different flow meter reading.

6. **Why don't all the pumps turn on even at higher application rates?**
   The selections of what pumps turn on when are automatically controlled by the control box's flow rate look up chart. Thus, not all the pumps turn on at once and the combination of what pumps turn on when is automatically controlled by the software. If you want to make sure all three pumps are working, go to the Diagnostics screen and run pump outputs. .

7. **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. Initially check inside the white star wheel block, to see if the electronic swivel is in the star wheel shaft and that the star wheel shaft is not coming out of the block. Also, check all star wheel wires and connectors to see if there is a continuity of grounding problem.

8. **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.

9. **What is the expected battery life of the iPad when baling?**
   3.5 hours is the expected amount of time the battery when continuously baling. Shut off all other applications, wireless internet, and Wi-Fi signal to reduce the amount of programs iPad is running.
   *It is recommended to use an accessory outlet charger when operating (not included with iPad).

10. **What is the max distance for connection between the iPad and the Bluetooth Receiver?**
    The range for the connection will depend on the amount of equipment (tractor, baler, ect.) between the two devices. The max distance will range between 10' – 20'.

Troubleshooting

Problem	Possible cause(s)	Solution(s)
Pump will not run.	1. No voltage to Baler Mounted Processor.	1. Check for short, low voltage, and replace fuse if necessary.
	2. Pump locked up.	2. Clean or rebuild pump if motor is OK.
	3. Damaged wire.	3. Repair damaged wire.
Pump runs but will not prime.	1. Air leak in intake.	1. Tighten fittings on intake side.
	2. Clogged intake.	2. Clean.
	3. Restricted outlet.	3. Check and clean tips.
	4. Check valve on outlet 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 side.	1. Tighten or clean filter bowl assembly.
	2. Pump worn or dirty.	2. Rebuild pump.
Moisture reading errors (high or low)	1. Wire disconnected or bad connection between star wheels and baler mounted processor.	1. Reconnect wire.
	2. Low power supply to baler mounted processor.	2. Check voltage at box. (Min of 12 volts required.) See Diagnostics section of manual.
	3. Wet hay over 32% moisture	
	4. Ground contact with one or both star wheels and baler mounted processor.	4. Reconnect.
	5. Short in wire between star wheels and baler mounted processor.	5. Replace wire.
	6. Check hay with hand tester to verify.	6. Contact Harvest Tec if conditions persist.
Moisture readings erratic.	1. Test bales with hand tester to verify that cab monitor has more variation than hand tester.	
	2. Check all wiring connections for corrosion or poor contact.	2. Apply dielectric grease to all connections.
	3. Check power supply at tractor. Voltage should be constant between 12 and 14.	3. Install voltage surge protection on tractors alternator.
Flow meter readings do not match up with product usage.		
Product is less than actual product used.	1. Voltage supplied to meter is less than 6 volts.	1. Check for a min of 6 volts supplied at baler mounted processor.
	2. Wiring short in signal to baler mounted processor.	2. Inspect wire and replace if necessary.
	3. Clog in meter.	3. Back flush with water. DO NOT USE AIR.
	4. Using product other than Harvest Tec	4. Catch and weigh product to check outputs.

Troubleshooting (continue)

Product shown is more than actual product used.	1. High voltage supplied to the meter.	1. Check voltage at baler mounted processor. Max of 18 volts.
	2. Light interference with meter.	2. Reflection into meter can cause a high reading. Move meter or protect from sunlight.
	3. Air leak in intake.	3. Look for air bubbles in line. Replace line or other defective area that is allowing air into the system.
	4. Using product other than Harvest Tec	4. Catch and weigh product to check outputs.
System leaks product out of tips after shut down.	1. Dirty or defective check valves.	1. Clean or Replace.
Terminal reads under or over power.	1. Verify with multi-meter actual voltage. Voltage range should be between 12-14 volts.	1. Clean connections and make sure applicator is hooked to battery. See Diagnostics section of manual.
System always displays "End of Row Pause".	1. Flow meter connector plug is plugged into Hay Indicator port on Baler Mounted Processor.	1. Switch ports.
System does not pause at the end of a row.	1. Short in cable.	1. Replace cable.
Bale rate displays zero.	1. Bale rate sensors are reversed. 2. Short in cable. 3. Damaged sensor	1. Switch the sensors next to the star wheel. 2. Replace cable. 3. Replace sensor.

iPad Troubleshooting

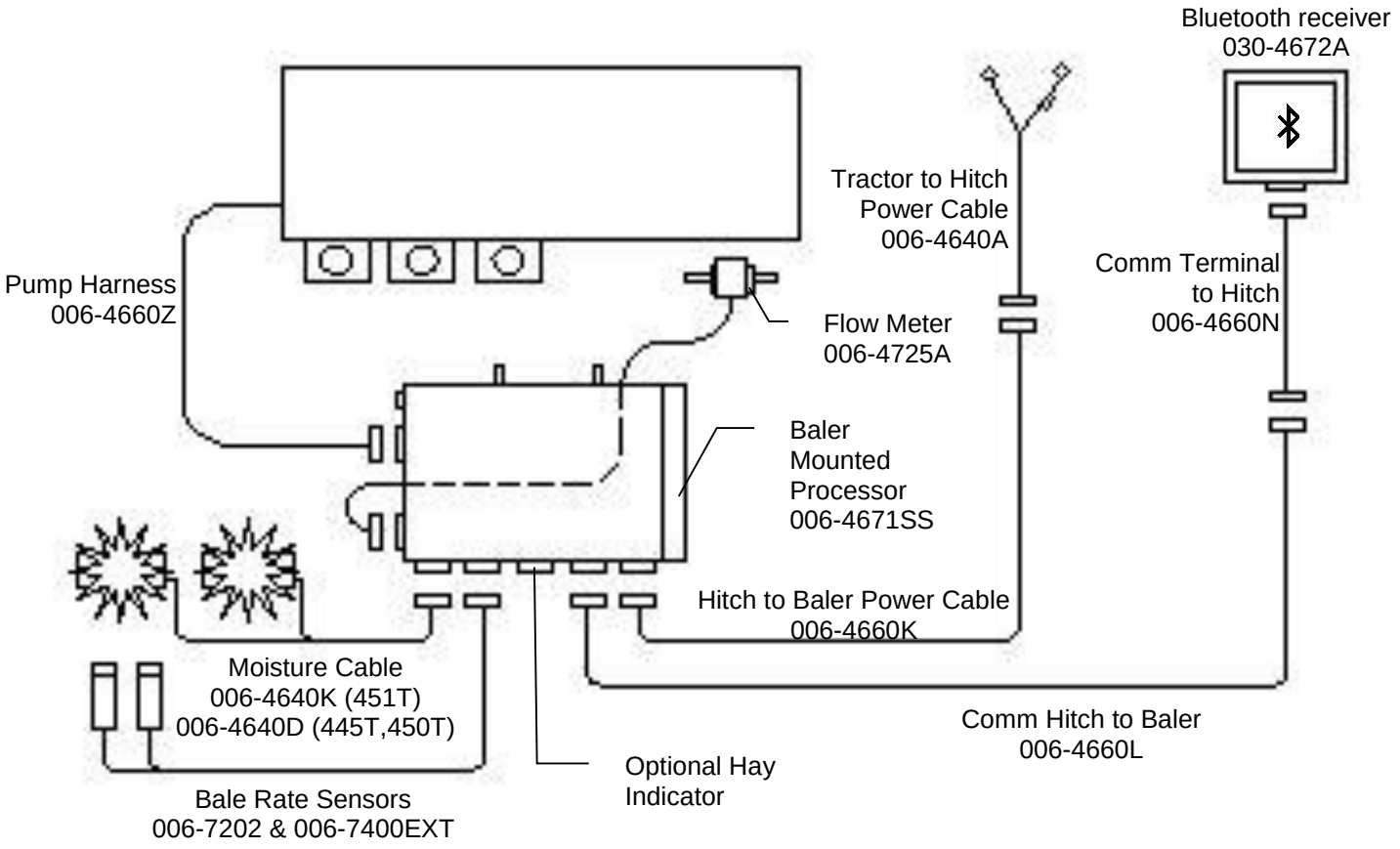
iPad Symptom	Troubleshooting
iPad won't turn on	-Turn your iPad off and on. Press and hold the Sleep/Wake button for a few seconds until a red slider appears; then slide it. Press and hold the Sleep/Wake button to turn on again.
	-Reset your iPad. Press the "Sleep/Wake" button and the "Home" button simultaneously for at least 10 seconds until the Apple logo appears on the screen. This reset will not damage your files.
	-Battery may be drained. Plug iPad into your computer or AC adapter and see if anything happens. The iPad 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. Battery level displays in top right corner of iPad.
Cannot get an active baler connection	-Make sure that your Bluetooth accessory and iOS device are close to each other when connecting.
	-Make sure that your Bluetooth accessory is on and fully charged or connected to power. If it uses batteries, test them to see if they need to be replaced.
	-Restart your Bluetooth receiver, by removing power and reconnecting after 30 seconds.
	-Make sure that you have at least a 3rd generation iPad with iOS8 or greater operating system on your iPad
	-On your iPad, go to Settings > Bluetooth and make sure that Bluetooth is on. If you can't turn Bluetooth on or you see a spinning gear, restart your iPad
	-Unpair the Bluetooth accessory, put the accessory back in discovery mode, then pair and connect it again. By tapping on its name in the Bluetooth accessories tab and then Forget this Device. In settings, tap on a device's name, then Unpair.
	-Display connector plug and bale rate sensors plug are switched on BMP. Switch connections.
	-Short in display cable. Replace the cable.
iPad touchscreen is slow or does not respond	-Screen may be dirty. Clean screen. Unplug everything, turn off iPad and with soft, lint-free, slightly damp cloth gently wipe screen. Do NOT use window cleaners and paper towels.
	-If you have a screen protector sheet, try removing it.
iPad is not charging or is slow to charge	-In order to charge your iPad you can try either connecting your iPad to a power outlet or connecting to a USB 2.0 port on a computer. However, note that computers generally don't supply enough power to their USB ports to be able to charge an iPad. When this happens, a "Not Charging" message will appear.
How can I unlock my iPad if I forgot the passcode	-If you cannot remember the passcode, you will need to restore your device using the computer with which you last synced. This allows you to reset your passcode and resync the data from the device (or restore from a backup). If you restore on a different computer that was never synced with the device, you will be able to unlock the device for use and remove the passcode, but your data will not be present.
How do I send in my iPad for service?	-Refer to your iPad owner's manual or contact Apple. DO NOT SEND iPad TO HARVEST TEC.
For other issues refer to your iPad Owner's Manual or contact Apple Directly	

Harvest Tec Does Not Service iPads

Wiring Diagram

1. Connect the power harness (006-4640A) to the battery (12 volt) using the red wire with fuse to the positive side and the black wire to the negative.
   - **A. The power harness must be connected to the battery!** The unit will draw more amps than convenience outlets can handle. Any modifications of the power harness will void systems warranty. **CONTACT HARVEST TEC IF MODIFICATION IS REQUIRED!**
   - **B. This unit will not function on positive ground tractors.**
   - **C. If the unit loses power while operating it will not keep track of accumulated pounds of product used.**
2. The power harness (006-4640A) will run from the tractor battery to the hitch. The power harness (006-4660K) will connect to the tractor power harness (006-4640A) at the hitch. Run the Communication harness (006-4660N) from the cab to the hitch. This wire will connect to the Communication harness (006-4660KE). These wires will run together to the Baler Mounted Processor (006-4671SS).
3. Connect Communication harness (006-4660N) to Bluetooth Receiver (030-4672A) mounted in cab.
   A. Mount Bluetooth Receiver (030-4672A) in safe location as close to iPad as possible in cab.
4. Connect Flow Meter (006-4725A) to the Baler Mounted Processor.
5. Connect Pump Harness (006-4660Z) the Baler Mounted Processor.
6. Attach moisture cable (006-4640K) to Baler Mounted Processor.
7. Connect bale rate sensors cable (006-7202) to the extension harness (006-7400EXT) and then to the Baler Mounted Processor.
8. Install Baler Mounted Processor in pump plate using 5/16” lock, nut and flat washers.

NOTE: The plugs on the Baler Mounted Processor must face down. Failure to mount correctly will void systems warranty.

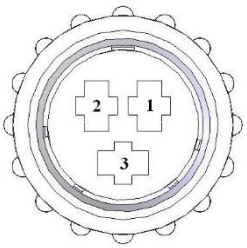


*If using the optional Touch Screen Display (006-4670) it will replace Bluetooth Receiver location.

Pin Outs

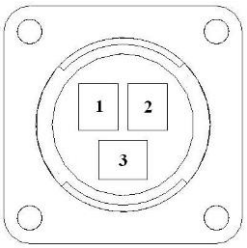
A. Main power connector mounted on battery

Pin 1	Red	+ 12 V input from tractor supply
Pin 2	Black	Ground from tractor supply
Pin 3	Not used	



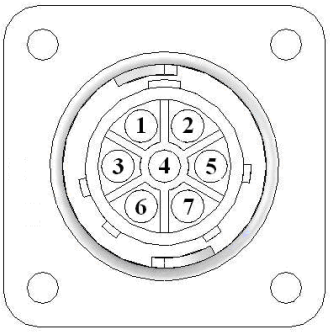
B. Main power connector mounted on BMP

Pin 1	Red	+ 12 V input from tractor supply
Pin 2	Black	Ground from tractor supply
Pin 3	Not used	



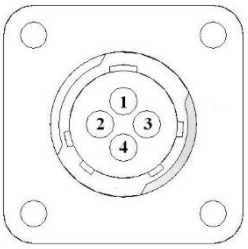
C. Pump connection colors

Pin 1	Black with orange markings	Pump 1 ground
Pin 2	Black with green markings	Pump 2 ground
Pin 3	Black with yellow markings	Pump 3 ground
Pin 4	Not used	
Pin 5	Orange with black markings	Pump 1 positive
Pin 6	Green with black markings	Pump 2 positive
Pin 7	Yellow with black markings	Pump 3 positive



D. Flow meter connection on BMP

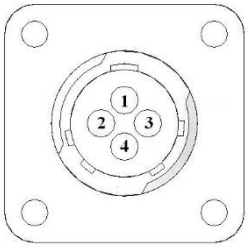
Pin 1	White	5 - 12 V (+) supply
Pin 2	Green	Ground
Pin 3	Brown	Signal
Pin 4	Black	Shield



E. Connector for Hay Indicator option on BMP

Note: Hay indicators are an option that will turn the system on and off automatically as hay enters the pickup of the baler.

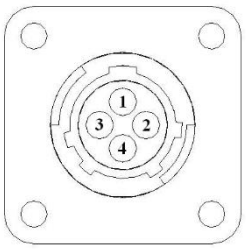
Pin 1	Red	+12V
Pin 2	Black	Ground
Pin 3	White	Signal wire
Pin 4	Not used	



Pin Outs (continued)

F. Bale rate sensors on BMP

Pin1	Brown	Sensor power
Pin2	Black	Signal for front prox. sensor
Pin3	Blue	Sensor ground
Pin4	Black	Signal for back prox. sensor

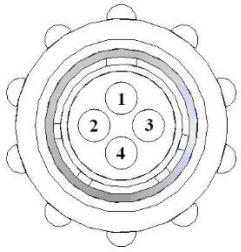


G. Star wheel connector mounted on BMP

Pin 1	Brown	Star wheel input 1
Pin 2	Blue	Star wheel input 2
Pin 3	Brown	Diagnostic 1
Pin 4	Blue	Diagnostic 2
Pin 5	Silver	Shield
Pin 6	Silver	Shield
Pin 7	Not used	
Pin 8	Not used	
Pin 9	Not used	

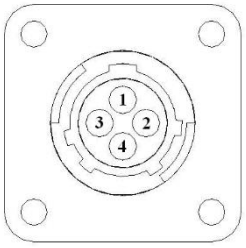
H. Communication harness at Bluetooth receiver to hitch

Pin 1	Red	Power to display
Pin 2	Black	Ground to display
Pin 3	Blue	Comm channel OH
Pin 4	Orange	Comm channel OL



I. Communication harness hitch to baler mounted processor

Pin 1	Red	Power to display
Pin 2	Black	Ground to display
Pin 3	Blue	Comm channel OH
Pin 4	Orange	Comm channel OL



Maintenance

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

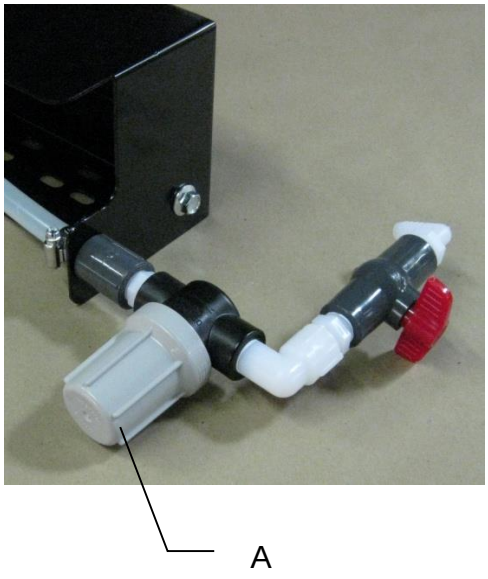
Maintenance Schedule

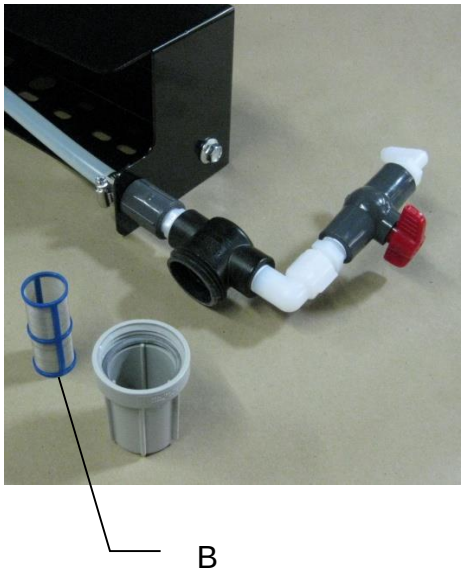
	Daily	10 hrs	400 hrs	Weekly	Monthly	Season
Diagnostics	X					X
Filter bowl cleaning		X				X
Tips & tip screen cleaning		X				X
Tank lid cleaning		X				X
Dielectric grease connections					X	X
Rebuild pumps			X			
Battery connections				X		X
Check valves			X			
Visually inspect hoses				X		X

Diagnostics: Follow the instructions in this manual to run the Diagnostics mode.

Filter bowl cleaning: The filter bowl is located 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.





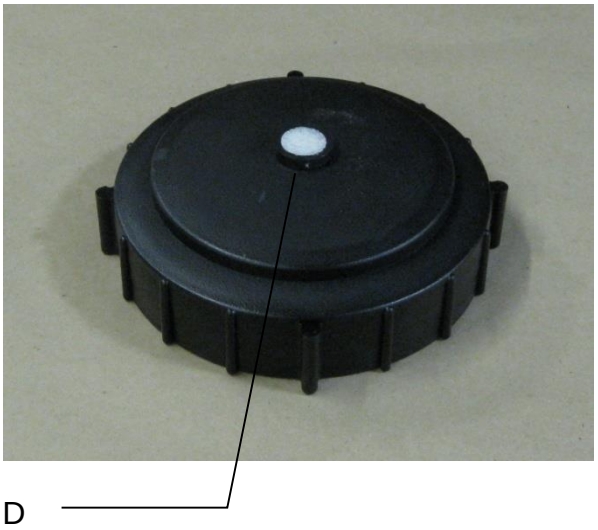
Maintenance (continued)

Tips & tip screen cleaning: Before cleaning the tips and screens 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 tip, and screen. 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 and screens are cleaned reinstall by following the directions in reverse.

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). If the screen cannot be thoroughly cleaned with compressed air, replace fitting (005-9022B3). 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 pumps: If Diagnostic or Manual mode show that the pumps are running lower than normal, a pump rebuild may be necessary. To do this rebuild the pump must be removed from the pump manifold. Pump rebuild is part no. 007-4581. A service pack that includes pump rebuilds and check valves is available from your local dealer.

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.

Check Valves: Before servicing the check valves all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

Verify the ball valve is turned off before service the check valves. Replace the intake check valves by the pumps (002-4566F) and the discharge check valves by the tip (004-1207VB).

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.

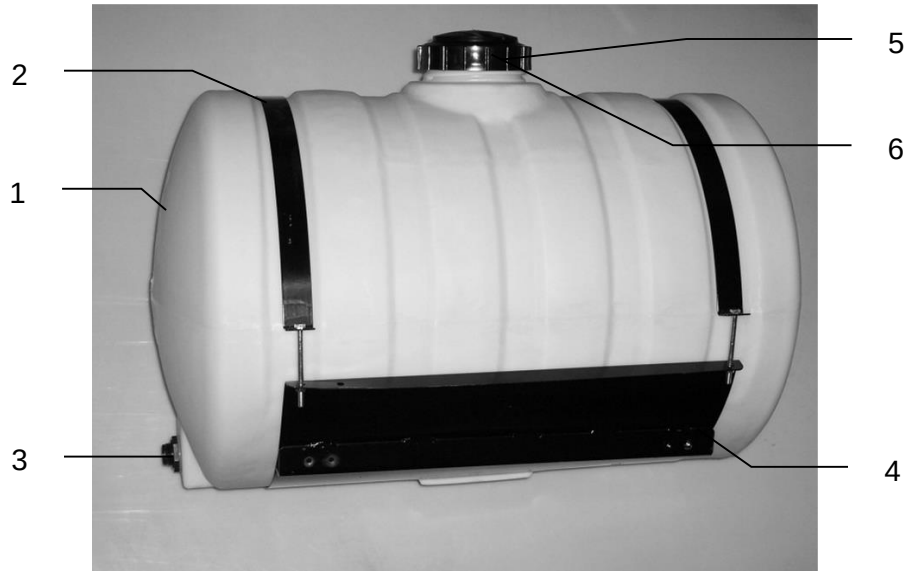
Winter Storage

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. Remove the red plug from the bottom of the pump, drain, and run pump for 30 seconds or until it is dry.
4. Drain all lines on the outlet side.
5. Never use oils or alcohol based anti-freeze in the system.
6. For spring start-up, if the pump is frozen, turn off the power immediately to avoid burning the motor out or blowing a fuse. The pump head can be disassembled and freed or rebuilt in most cases. Check the fuses after the pump has been freed.
7. Disconnect power from the Baler Mounted Processor.
8. Remove display from tractor and store in a warm, dry place.

Parts Breakdowns
Harvest Tec Model 445T Base Kit

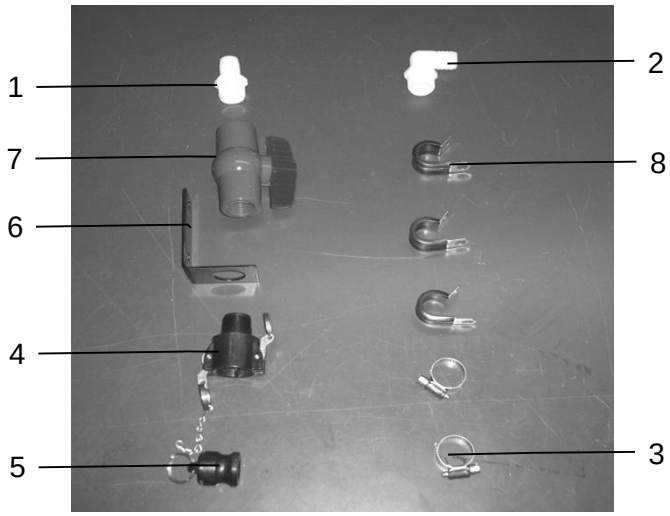
Ref#	Description	Part #	Qty
1	Tank Cap	005-9022C	1
2	Tank Cap Gasket	005-9022CG	1
3	Tank Strap	001-4402	2
4	Stub Pipe	001-4403	1
5	Tank	005-9022	1
6	Saddle	001-4401	1
7	Mounting Bracket	001-4647	1
8	Tank Fitting	005-9100	1

Harvest Tec Model 450T Base Kit



Ref#	Description	Part #	Qty	Ref#	Description	Part #	Qty
1	Tank	005-9203	1	4	Saddle	001-4703	1
2	Straps	001-4402	2	5	Tank Cap	005-9022C	1
3	Tank Fitting	005-9100	2	6	Tank Gasket	005-9022CG	1
				NP	PIP mount	001-4703BPM	2

Parts Breakdown for Drain Fill Kit (Model 451T & 450T only)

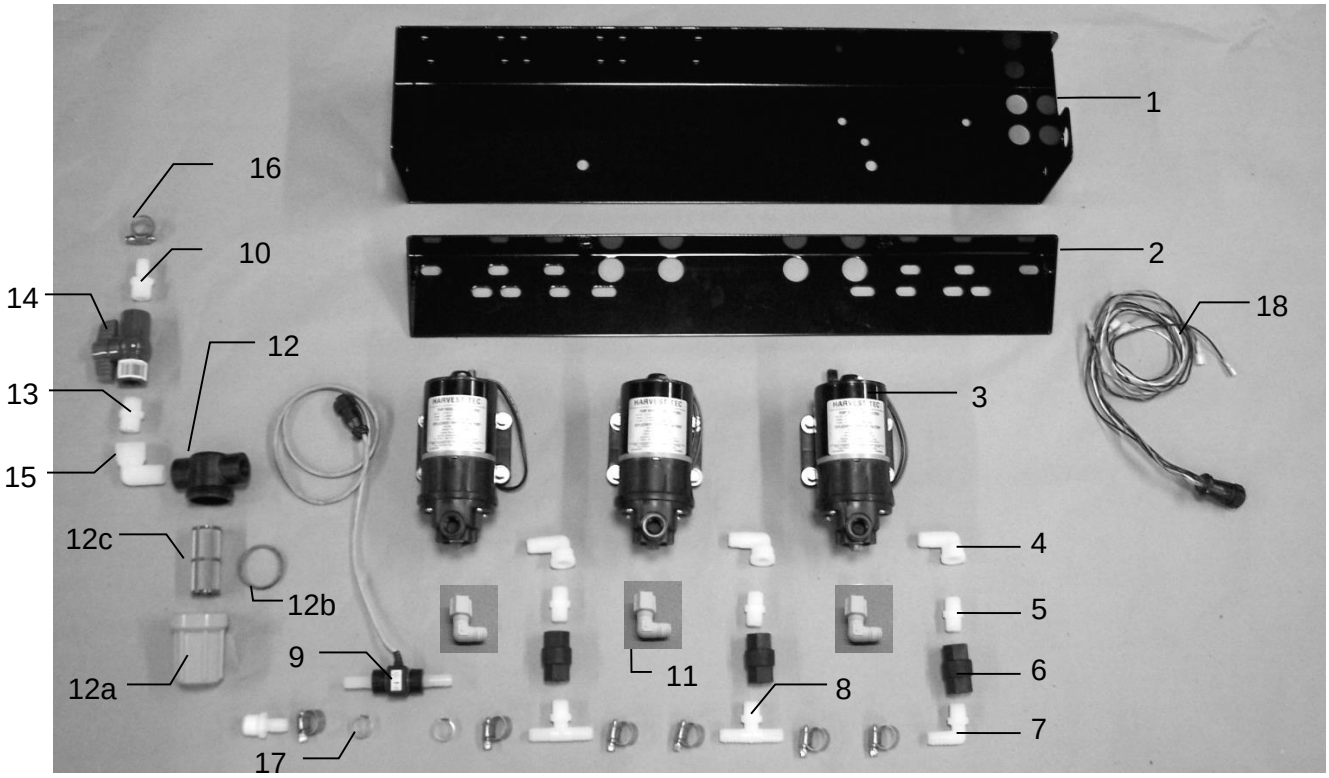


Ref #	Description	Part #	Qty	Ref #	Description	Part #	Qty
1	Straight Fitting	003-A3434	1	5	Male Coupler	002-2205G	1
2	Elbow	003-EL3434	1	6	Valve Holder	001-6702H	1
3	Hose Clamps	003-9004	2	7	Ball Valve	002-2200	1
4	Female Coupler	002-2204A	1	8	Jiffy Clip	008-9010	3

Harvest Tec Model 451T Base Kit

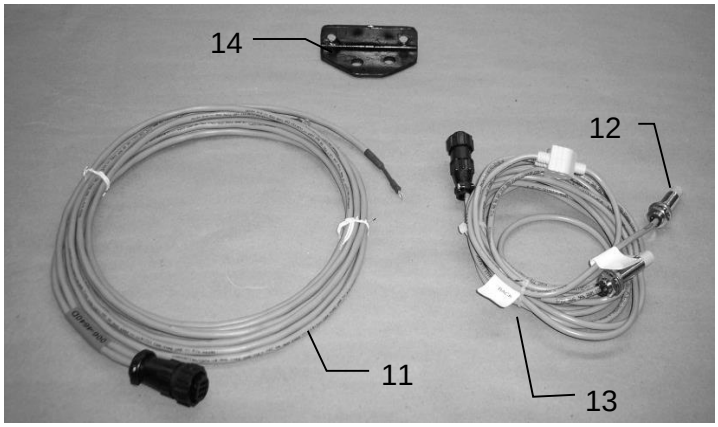
Ref#	Description	Part #	Qty
1	Tank	005-9203SQ	1
2	Tank Saddle	001-4703C	1
3	Tank Straps	001-4402	2
4	Short Strap Base	001-4703CC	2
5	Tank fitting	005-9100	2
6	Mounting Bracket	001-4647	1
7	Door Latch	001-4703CL	1
8	Tank Lid	005-9022G	1
NP	Long Strap Base	001-4703CD	2
NP	Not Pictured		

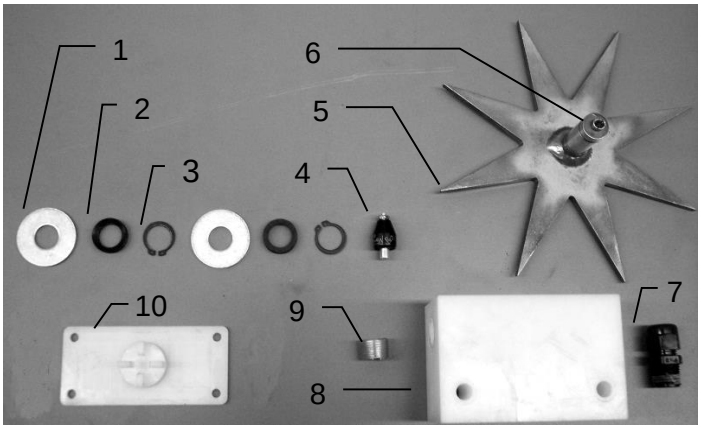
Parts breakdown for Pump Manifold



Ref#	Description	Part#	Qty
1	Pump plate	001-4646D	1
2	Mounting Bracket	001-4646C	1
3	Pump	007-4120H	3
4	Street elbow fitting	003-SE38	3
5	Nipple fitting	003-M3838	3
6	Check valve	002-4566F	3
7	Elbow fitting	003-EL3812	1
8	Tee fitting	003-T3812HB	2
9	Flow meter assembly	006-4725A	1
10	Straight fitting	003-A1212	2
11	Elbow fitting	003-JEL1238	3
12	Filter bowl assembly	002-4315-100	1
12a	Filter bowl only	002-4315F	1
12b	Filter bowl gasket	002-4315D	1
12c	Filter bowl screen	002-4315A	1
13	Nipple fitting	003-M1212	2
14	Ball valve	002-2212	1
15	Street elbow fitting	003-SE12	1
16	Hose clamp	003-9003	7
17	Hose clamp (Flow Meter)	003-9005	2
18	Pump Cable	006-4660Z	1
NP	Pump rebuild kit (1 per pump)	007-4581	1
NP	Elbow	003-EL1212	1
NP	Union	003-M1212F	1
NP	Not Pictured		

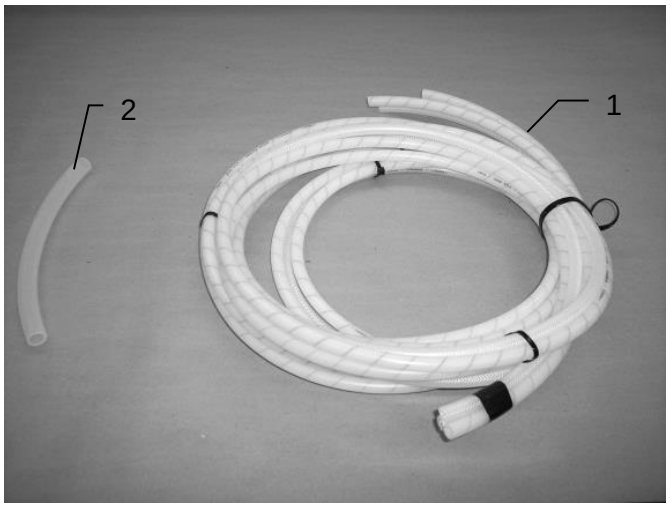
Parts Breakdown for Star Wheel Sensor, Bale Rate Sensor & Hoses





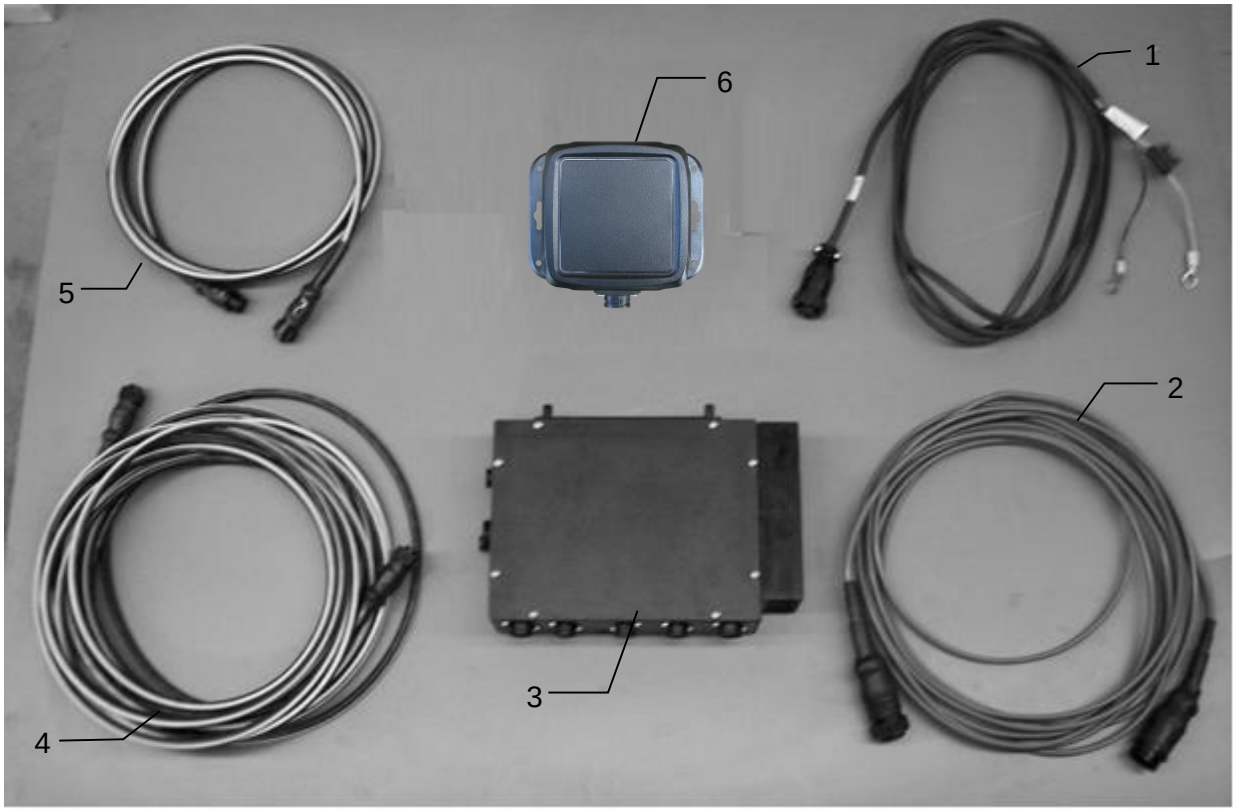
Ref	Description	Part#	Qty	Ref	Description	Part#	Qty
1	Washer (per side)	006-4642K	2	11	Moisture Cable (445T,450T)	006-4640D	1
2	Dust Seal (per side)	w/006-4642K	1		Or		
3	Snap Ring (per side)	w/006-4642K	2	11	Moisture Cable (451T)	006-4640K	1
4	Swivel	006-4642A	2	12	Bale rate sensor	006-7303S	2
5	Star Wheel	030-4641E	2	13	Bale rate sensor harness	006-7202H	1
6	Insert	w/ Ref # 5	2	12-13	Bale rate sensor assembly	006-7202	1
7	Wiring grommet	008-0821A	2	14	Bale rate sensor holder	001-4644SS	1
8	Star wheel block	006-4641A	2	NP	Bale rate sensor extension	006-7400EXT	1
9	Plug Fitting	003-F38	2				
10	Block Cover	006-4641B	2				
1-10	Star wheel assembly	030-4642	2				

Hoses Parts Breakdown



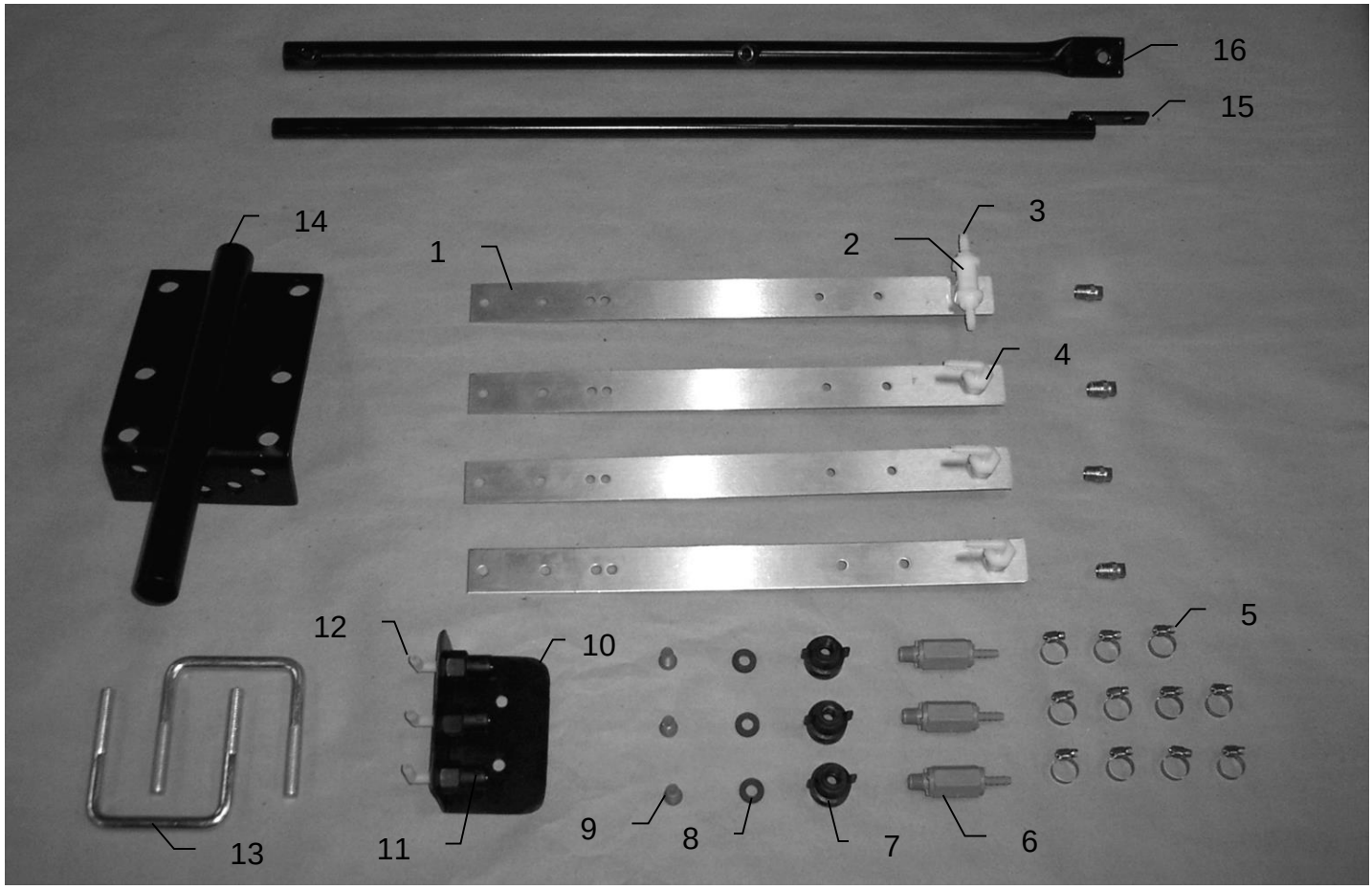
Ref	Description	Part#	Qty
1	Triple weld hose (from pumps to tips)	002-9016	15ft
		002-9016B	15ft
		002-9016G	15ft
	Hose assembly (3 hose assembly)	030-9016SS	1
2	½” Hose (tank to filter)	002-9001	6ft

Parts Breakdown for Control Box and Wiring Harnesses



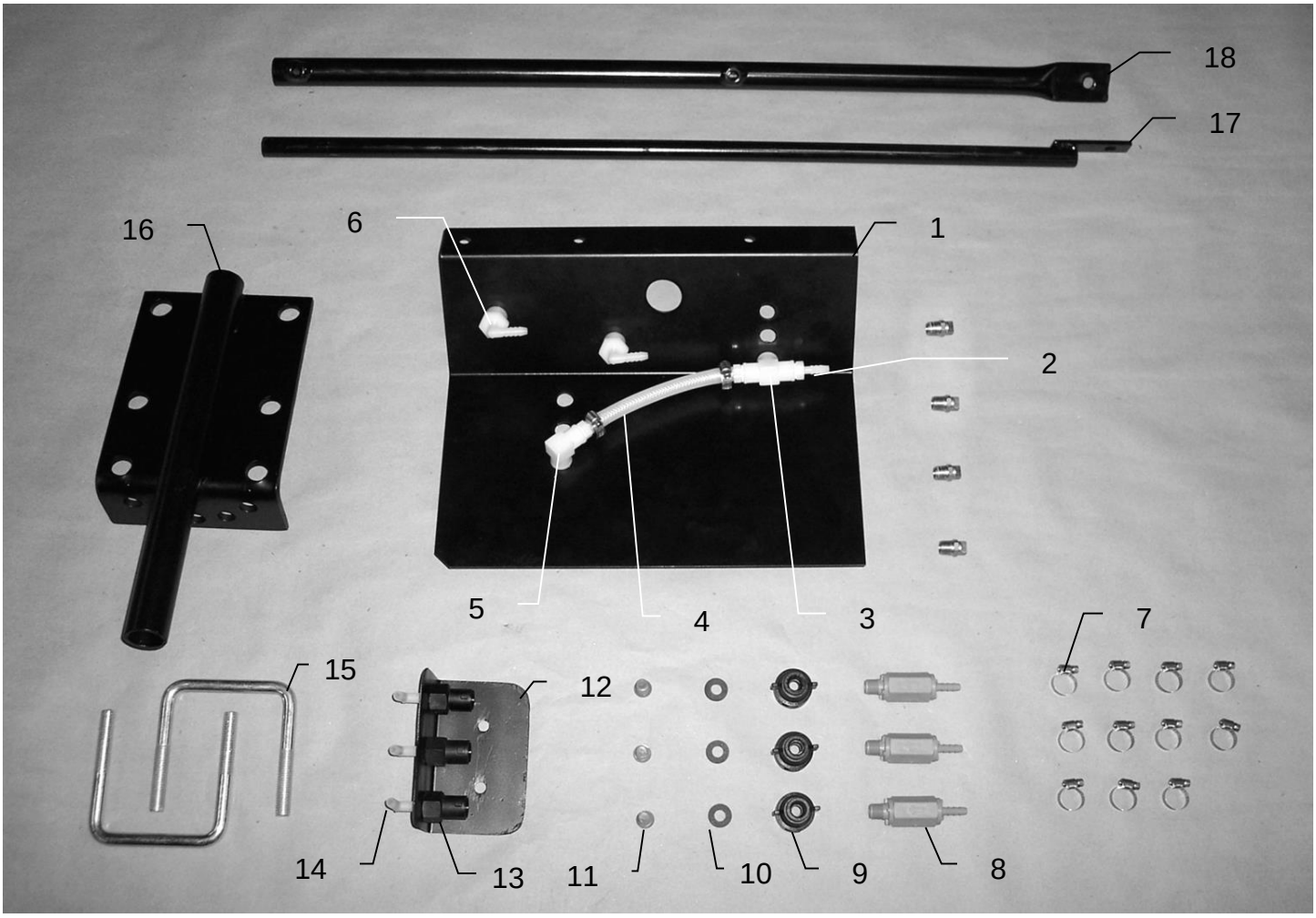
Ref.	Description	Part#
1	Power lead tractor	006-4640A
2	Power lead baler (451T)	006-4660K
	or	
	Power lead baler (445T, 450T)	006-4660R
3	Baler mounted processor	006-4671SS
4	Communication harness baler (451T)	006-4660L
	or	
	Communication Harness (445T,450T)	006-4660S
5	Communication harness (tractor)	006-4660N
6	Bluetooth Receiver	030-4672A
NP	Optional Touch Screen Display	030-4670A

Harvest Tec model 4409B installation kit



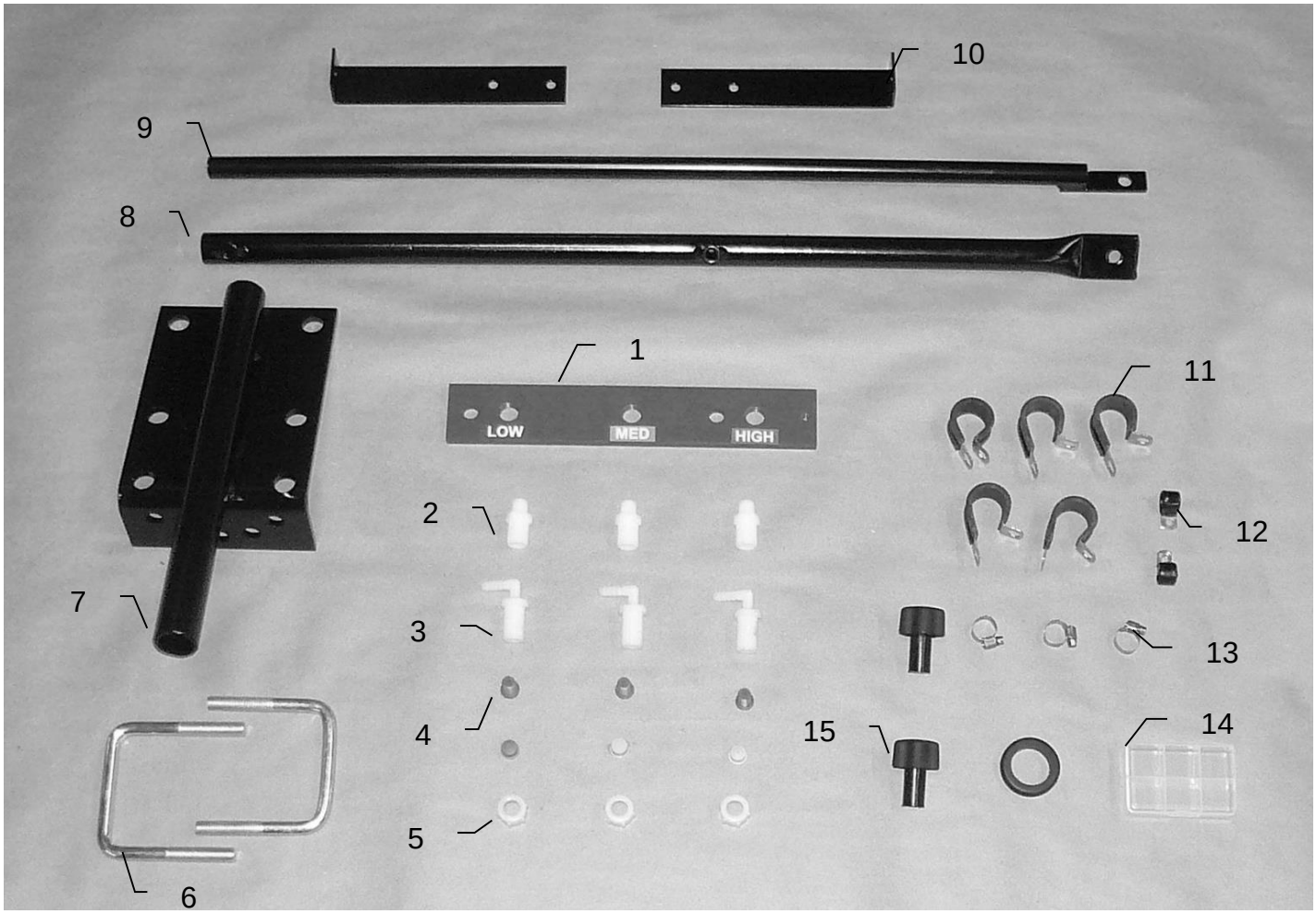
Ref	Description	Part#	Qty	Description	Part#	Qty
1	Nozzle strap	001-4215	4	Tip	004-T650033-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Straight fitting	003-A1414	2	Tip	004-T11003-SS	1
4	Elbow	003-EL1414F	3	Hose	002-9016	9 ft
5	Hose clamp	003-9002	11			
6	Check valve	002-4564XB	3			
7	Female disconnect	004-1207H	3			
8	Washer	004-1207W	3			
9	Tip screen	004-1203-200	3			
10	Hose bracket	001-4720	1			
11	Female coupler	004-1207G	3			
12	Elbow	003-EL1414	3			
13	U bolt	001-4406A	2			
14	Mounting bracket	001-4406	1			
15	Inside reach rod	001-4405	1			
16	Outside reach rod	001-4404	1			

Harvest Tec model 4410B installation kit



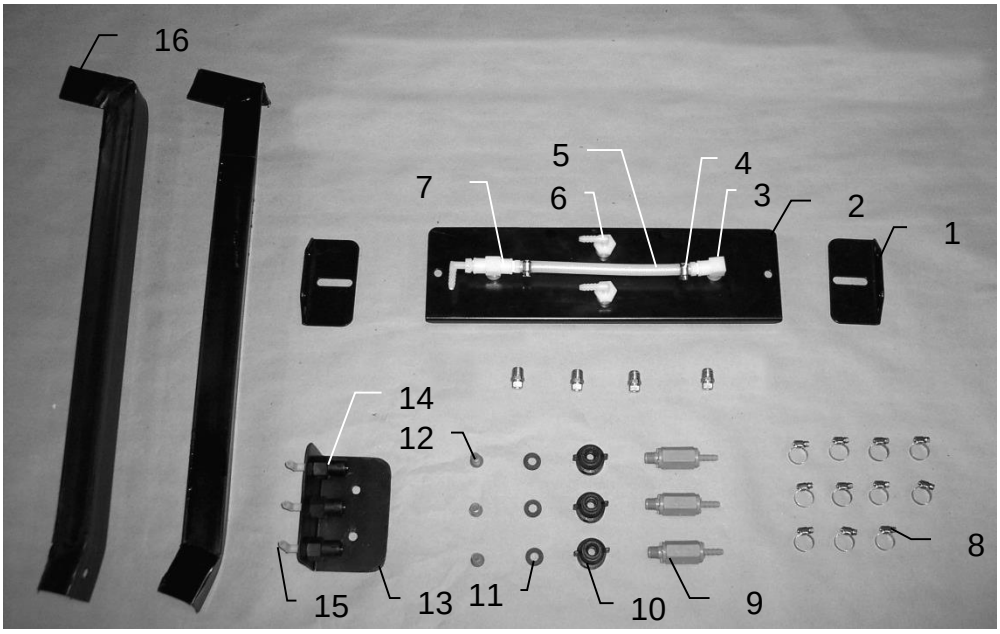
Ref	Description	Part#	Qty	Description	Part#	Qty
1	Spray shield	001-4426	1	Tip	004-T650033-SS	2
2	Straight fitting	003-A1414	3	Tip	004-T110015-SS	1
3	Tee	003-TT14SQ	1	Tip	004-T11003-SS	1
4	Hose	002-9016	9 ft			
5	Elbow	003-SE14F	1			
6	Elbow	003-EL1414F	2			
7	Hose clamp	003-9002	11			
8	Check valve	002-4564XB	3			
9	Female disconnect	004-1207H	3			
10	Washer	004-1207W	3			
11	Tip strainer	004-1203-200	3			
12	Hose bracket	001-4720	1			
13	Female coupler	004-1207G	3			
14	Elbow	003-EL1414	3			
15	U bolt	001-4406A	2			
16	Mounting bracket	001-4406	1			
17	Inside reach rod	001-4405	1			
18	Outside reach rod	001-4404	1			

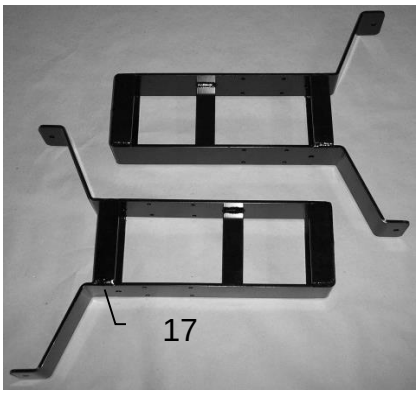
Harvest Tec model 4415B installation kit



Ref	Description	Part#	Qty	Description	Part#	Qty
1	Spray shield	001-4425C	1	Tip	004-TX-SS-4	1
2	Drill guide	003-M3814NB	3	Tip	004-TX-SS-10	1
3	Elbow	003-EL3814NB	3	Tip	004-TX-SS-18	1
4	Tip strainer	004-4213-100	3			
5	Nozzle cap	004-BC12	3			
6	U bolt	001-4406A	2			
7	Mounting bracket	001-4406	1			
8	Outside reach rod	001-4404	1			
9	Inside reach rod	001-4405	1			
10	Hose bracket	001-4425B	2			
11	Jiffy clip	008-9010	5			
12	Jiffy clip	008-9014	2			
13	Hose clamp	003-9003	3			
14	Tip box	008-9001	1			
15	Knob	008-0925	2			

Harvest Tec model 4485B installation kit

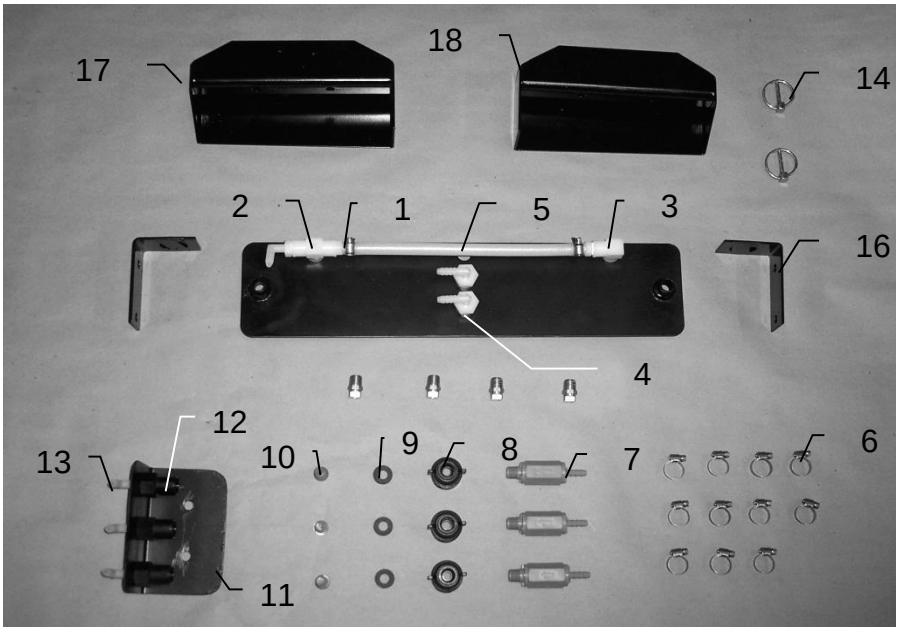


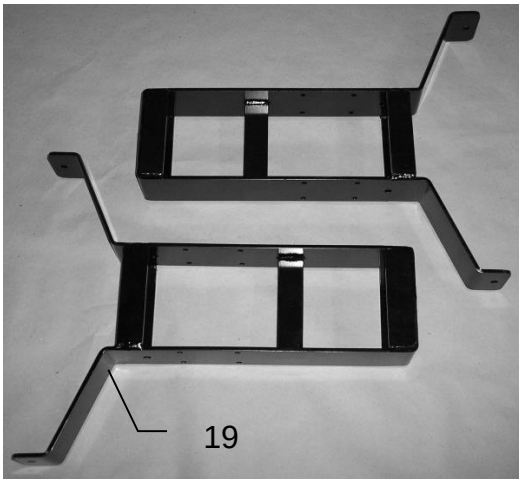


Ref	Description	Part#	Qty
1	Shield holder	001-4424B	2
2	Spray shield	001-4424A	1
3	Elbow	003-SE14F	1
4	Straight fitting	003-A1414	2
5	Hose	002-9016	9 ft
6	Elbow	003-EL1414F	2
7	Tee	003-TT14SQ	1
8	Hose clamp	003-9002	11
9	Check valve	002-4564XB	3
10	Female disconnect	004-1207H	3
11	Washer	004-1207W	3
12	Tip strainer	004-1203-200	3
13	Hose bracket	001-4720	1
14	Female coupler	004-1207G	3
15	Elbow	003-EL1414	4
16	Leg support	001-4424C	2
17	Saddle leg	001-4703B	2

Ref	Description	Part#	Qty
	Tip	004-T650033-SS	2
	Tip	004-T110015-SS	1
	Tip	004-T11003-SS	1

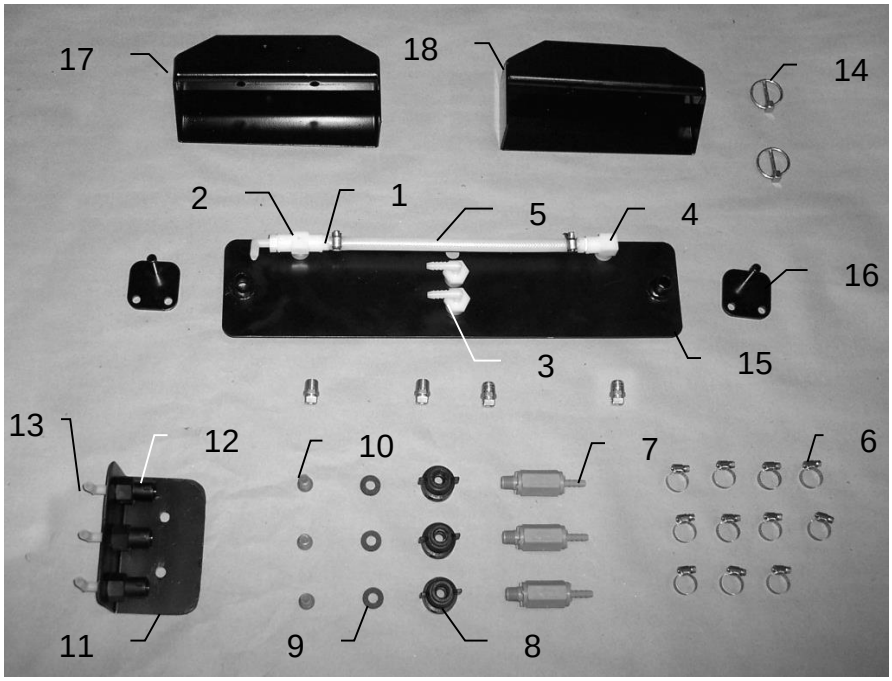
Harvest Tec model 4502B installation kit

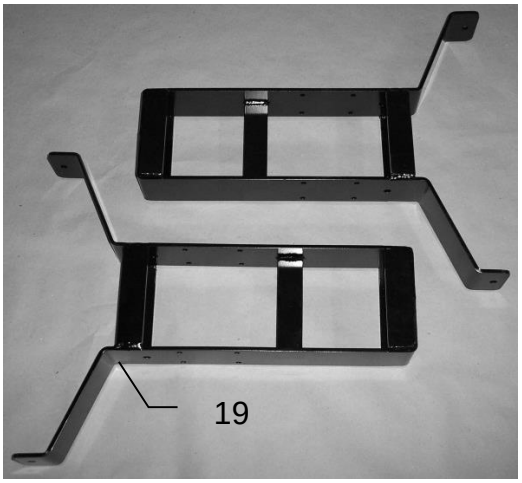




Ref	Description	Part #	Qty	Description	Part #	Qty
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-SE14F	1	Tip	004-T11004-SS	1
4	Elbow	003-EL1414F	2			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9002	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703I	2			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

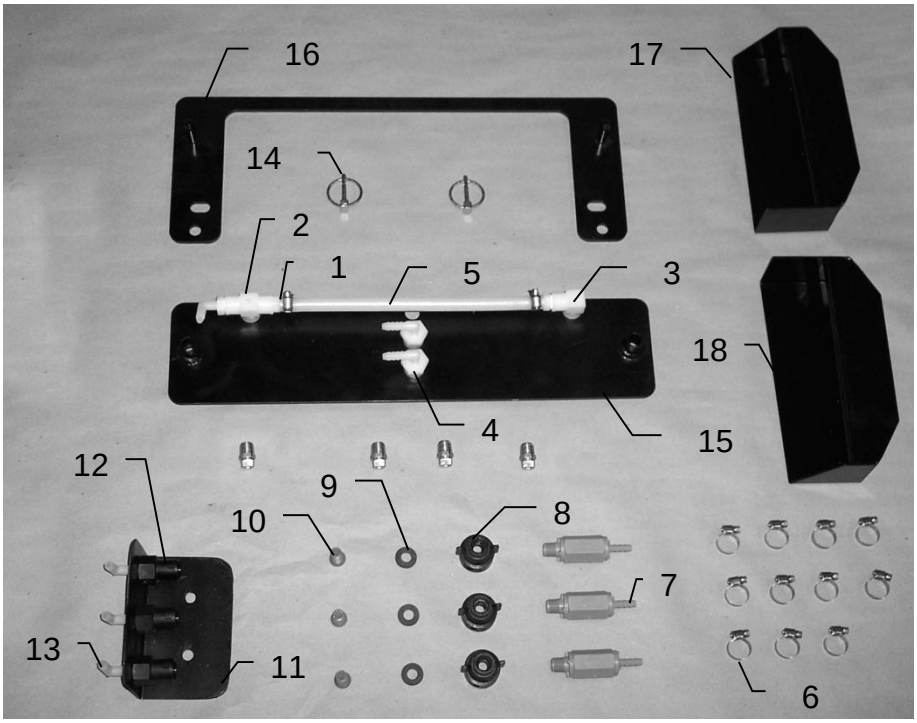
Harvest Tec model 4506B installation kit

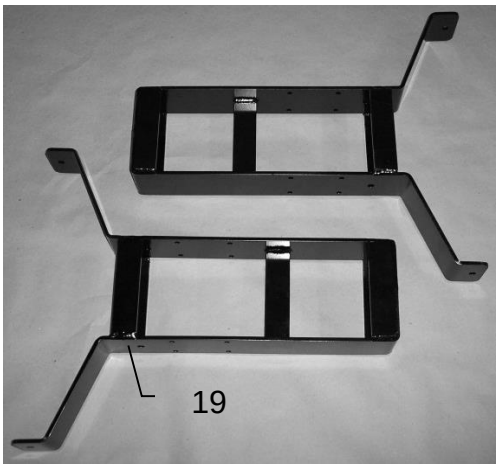




Ref	Description	Part #	Qty	Description	Part#	Qty
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-EL1414F	2	Tip	004-T11004-SS	1
4	Elbow	003-SE14F	1			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9002	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703H	2			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

Harvest Tec model 4507B installation kit





Ref	Description	Part #	Qty	Description	Part#	Qty
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-SE14F	1	Tip	004-T11004-SS	1
4	Elbow	003-EL1414F	2			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9003	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703J	1			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

Selecting Tips - Reference Guide – 445T, 450T, 451T, kits

The applicator is sent from the factory with High output tips installed. The tips used are determined by how many ton per hour you are baling at. You can see this on either the automatic or manual screen.

1 – 4 Tons of hay per hour

- Too low for system to apply at. Increase baling speed or rake more hay together. System will show over application when at these tonnages.

Tip selection for install kit 4415B (25-145 lbs of hay preservative per hour)

Tons of Hay per Hour	Pump	Tip Qty	Top Tip Output (Lbs / Hr)	Tip Part Number
4-8 Tons	1	1	25	TX-SS-4 (Low)
8-14 Tons	2	1	75	TX-SS-10 (Medium)
14-25 Tons	3	1	145	TX-SS-18 (High)

Tip selection for install kits 4409B, 4410B, 4485B – 2 Tie Balers (25-145 lbs of hay preservative per hour)

Tons of Hay per Hour	Pump	Tip Qty	Top Tip Output (Lbs / Hr)	Tip Part Number
4-8 Tons	1	2	25	T650033-SS (Low)
8-14 Tons	2	1	75	T110015-SS (Medium)
14-25 Tons	3	1	145	T11003-SS (High)

Tip selection for install kits 4502B, 4506B, 4507B – 3 Tie Balers (40 – 205 lbs of preservative per hour)

Tons of Hay per Hour	Pump	Tip Qty	Top Tip Output (Lbs / Hr)	Tip Part Number
4-8 Tons	1	2	40	T650050-SS (Low)
8-14 Tons	2	1	75	T110015-SS (Medium)
14-25 Tons	3	1	205	T11004-SS (High)

Warranty and Liability Agreement

Harvest Tec, Inc. 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, Inc. 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, Inc.

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, Inc. within 30 days of the failure. Parts must be returned through the selling dealer and distributor, transportation charges prepaid.

This warranty shall not be interpreted to render Harvest Tec, Inc. 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, Inc. 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, Inc. will not affect our ability to obtain materials or manufacture necessary replacement parts.

Harvest Tec, Inc. 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.

Note: The warranty registration card supplied with the installation manual must be filled out and returned to the manufacturer within fifteen days of purchase. Without record of receipt of warranty registration at the manufacturer, the warranty is not valid.

Revised 02/01/2012

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