



HARVEST TEC 600A Moisture Sensor Kit for Large Square Balers Instruction Manual

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HARVEST

HARVEST TEC 600A Moisture Sensor Kit for Large Square Balers



Introduction



Thank you for purchasing a Harvest Tec moisture monitor system. This moisture monitoring system has been designed to be operated through the baler's ISOBUS system and/or an Apple iPad (not included) using the Hay App. The unit offers these advantages:

1. Operation coordinated with baler operation
2. Less cab clutter provides better visibility
3. Ease of use with all information on one screen
4. Records kept together
5. The system is ready for future updates

The kit includes the following parts: Dual Channel Processor (DCP), Moisture Sensors, Harnesses, Bluetooth receiver, and Miscellaneous Hardware. For your convenience, a parts breakdown for the 600A Moisture Monitoring System is included in the back of this manual. If you do have questions please bring this manual to the dealership. They can assist you in ordering the correct replacement parts. Right, and Left sides are determined by facing in the direction of forwarding travel.

- Made for iPad® (3rd through Pro 2nd generation), running the current iOS operating system or one version previous required for iPad option
- iPad is a trademark of Apple Inc., registered in the U.S. and other countries.
- Hay App version must be at least 2.5.18 (or higher) to operate with the iPad Integration Module (030-6672C)

System Requirements

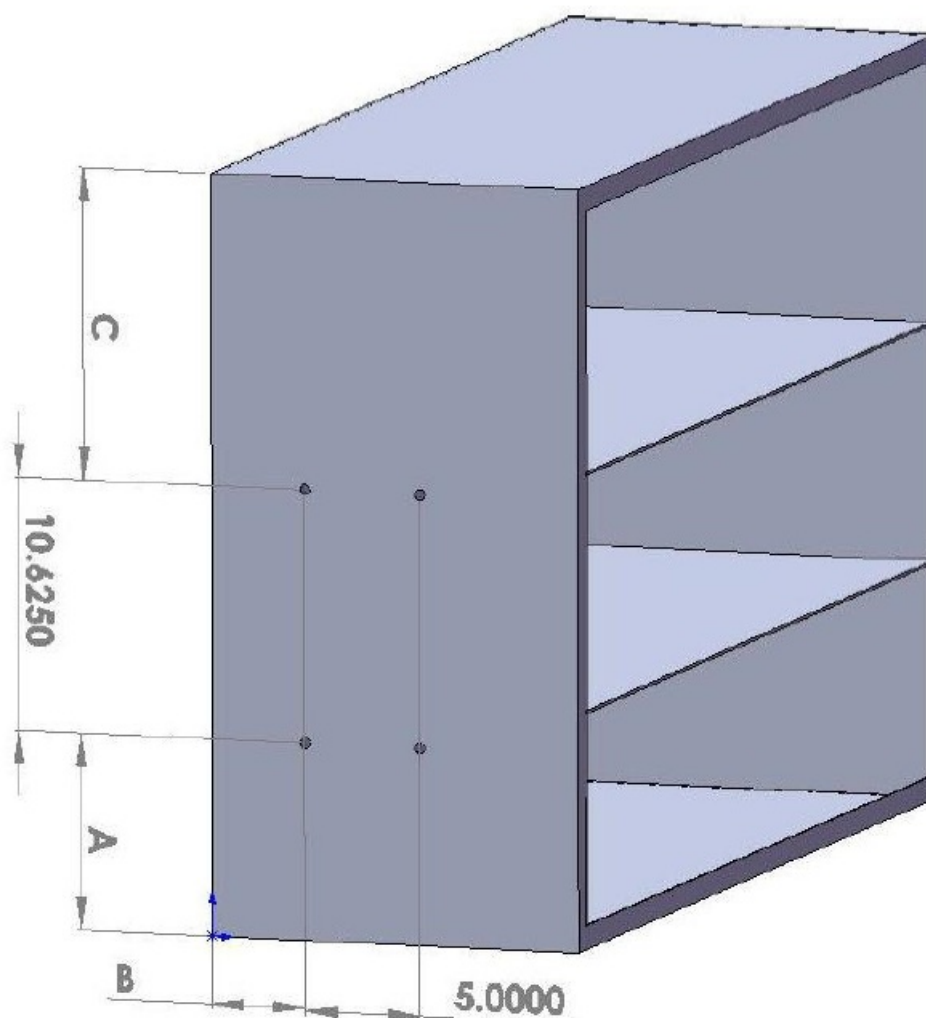
-  The Baler Processor must have Version 3.3 or higher. C1000 monitor must have Version 3.0.1 or higher. If equipped with the SBM, the SBM must have Version 4.0 or higher .
- The requirements to run the iPad option is a 3rd Generation iPad (2012) or newer with iOS8 or greater operating system, plus the Hay App.

Tools Needed

- Standard wrench set
- Electric drill and bits
- Side cutter
- The standard nut driver set
- Standard socket set
- Hammer
- Center punch

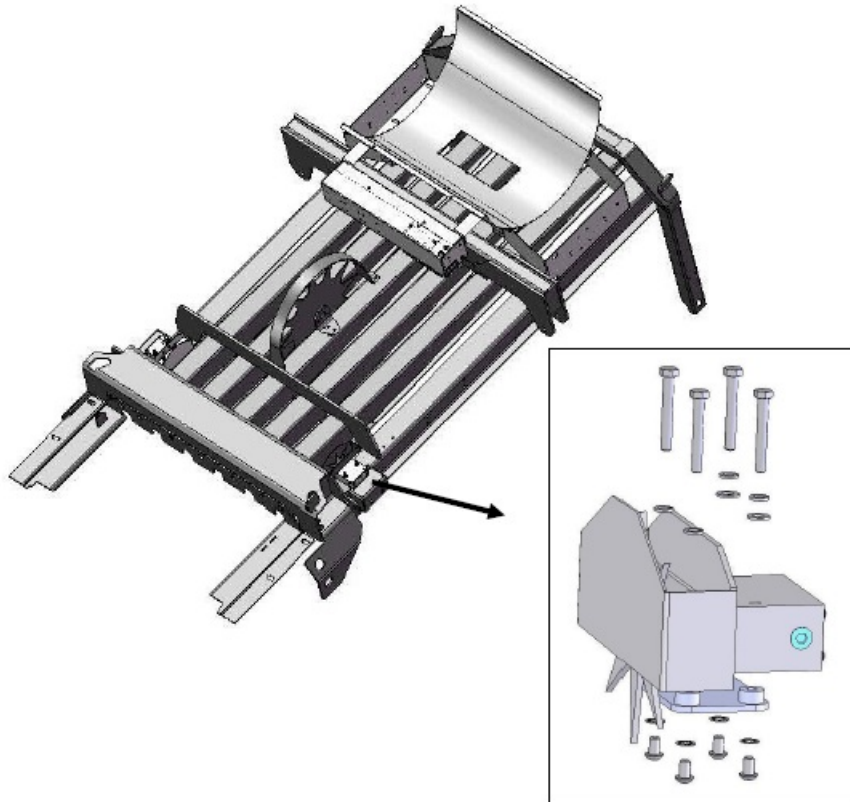
Installation of the Dual Channel Processor

Follow the instructions below to mount the Dual Channel Processor (DCP) onto your specific baler model and type. The locations shown are on the right twine box (looking at the back of the baler). Mark and drill the four 3/8 (10mm) holes and install DCP with four 5/16 x 1 bolts, locks, flats, and nuts. If your baler is not listed below mount the DCP on the back of the twine box on the right side.



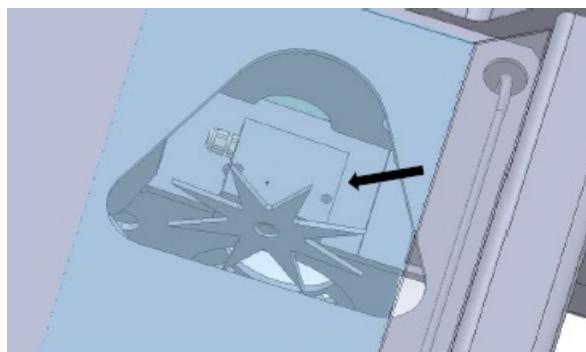
| Baler Type | A | B | C |
|--------------------|---------------|--------------|-----|
| AGCO Hesston | 12" (30cm) | 3" (70mm) | N/A |
| Challenger | 12" (30cm) | 3" (70mm) | N/A |
| Massey Ferguson | 12" (30cm) | 3" (70mm) | N/A |

Installation of the Star Wheels – Non-UHD Balers



The star wheel block has a plug on one side and a wire grommet on the other side. If there is interference or problems with the star wheel wires on one side of the block, exchange the wire grommet with the plug so the wire can exit the block on the opposite side. Mount the twine guards using the two inner holes on the star wheel block. The star wheels are to be mounted on top of the baler, just behind the knotters, and under the walkway on both sides. The notch and holes for the star wheel are precut. If the star wheels are cutting the twine the sensors and notch must be moved out an additional 1/2" (13mm). Use the template in the back of the manual for hole spacing. Place the spacer plate (001-6707E) over the precut holes. Attach with 5/16 x 1/2 Allen head bolts and internal star washers from inside the bale chamber. Center the star wheels over the top of the spacer plate, place the twine diverters on top of the star wheel and attach with 5/16 x 2 1/4 hex bolt and lock washers. For the remainder, two holes per star wheel attach with a 5/16 x 2 1/4" hex bolt, lock washer, and one 5/16" (8mm) thick flat washer per bolt. Verify that star wheels align with bale chamber before tightening down all hardware. The twine guard containing the bale rate sensors will be placed on the right side of the baler. See Step 4 for directions on how to hook up the star wheel wires.

Star Wheel Mounting – UHD Balers

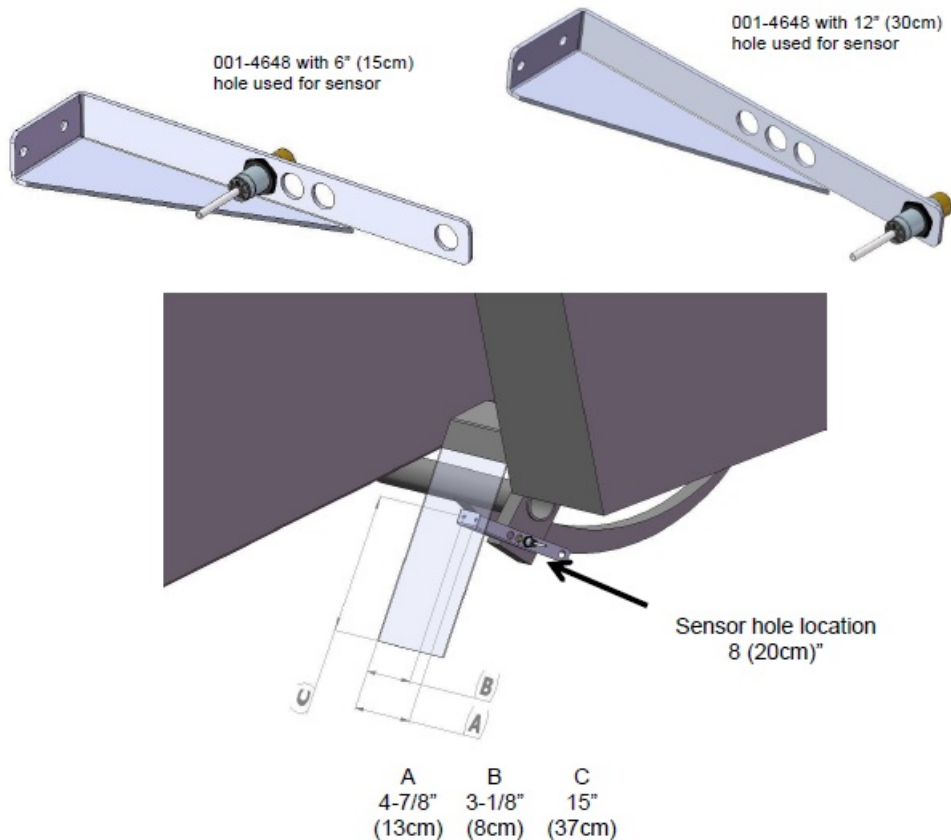


The star wheels are to be mounted on top of the baler, just behind the knotters, and under the walkway on both sides. The holes for the star wheel are precut. Remove the plate on top of the catwalk covering the triangle-shaped access cutout. Place the star wheel over the predrilled holes on both sides of the bale chamber, (below). Secure the star wheels with 5/16" x 3-1/4" BHCS (x2 each side) from the bottom side and are secured with a 5/16" lock washer and nuts. Blocks are dropped down on the bolts and secured in place with the star wheel twine

guards (001-4645, 001-4644). The twine guard containing the bale rate sensors will be placed on the right side of the baler.

Installation of End of Bale Sensor

The end of bale sensor determines the position of the needles on the baler. When the needles cycle the sensor communicates this information to the Dual Channel Processor. This information is used for job records and will be used by the optional Bale Identification systems. Follow the steps below to mount the sensor. The end of the bale sensor bracket (001-4648) will be used. Cutoff excess metal not used during installation.

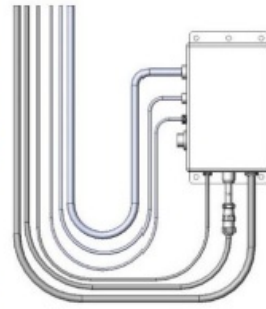


Mount the end of the bale sensor bracket (001-4648) as shown. Mark and drill two 5/16" (8mm) holes and attach the bracket using two 1/4" x 1" bolts, locks, flats, and nuts. Mount the sensor in the 8" (20cm) hole location, keep the sensor 1/4" (7mm) from the needle and tighten both nuts. Cut off excess metal past the sensor. Run the sensor cable up to the Dual Channel Processor and secure it to the baler.

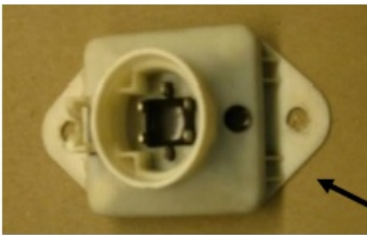
Installation of Star Wheel and Bale Rate Harness

First, remove the cover from the star wheel block and use a 1/4" nut driver to remove the nut from the electronic swivel. Next, run the star wheel sensor wire through the black grommet and place the eye terminal on the star wheel sensor. Tighten the eye loop with the nut on the sensor and put the star wheel cover back on the base. Next, tighten the grommet to form a tight seal around the wire. The bale rate sensors will be factory installed on the right side twine guard in the correct position. The sensor with the longer sensor wire should say "FRONT", which indicates it should be placed in the front sensor hole. The sensor wire with the shorter wire should say "BACK." The tip of the sensor should be placed no more than 1/4" (7mm) away from the star wheel teeth and no less than 1/8" (3mm) from the star wheel teeth. Each sensor will have an LED light located on the sensor by the diverter. Once the unit is powered up spin the wheel and make sure that both led lights turn on and off. If they don't turn on and off, adjustments may need to be made.

Main Wire Harness and Baler Interface Harness Routing and Connections



A. Route harness 006-6650LS2(E) along this path or similar inside of the baler. Keep harnesses away from moving parts and hydraulic hoses. Secure with existing cable clamps or use cable ties. When all connections are made to the DCP secure wires as shown above to allow for water to be shed away from the DCP.



B. Under the chamber locate the Active Terminator from the end of the baler harness. It is located at the right rear corner of the baler frame. Attach Baler Interface Harness (006-6650VA) to that location. Reconnect Active Terminator to open port of that same harness (006-6650VA). If your baler does not have a Terminator at this location please call Harvest Tec.

If your baler has the White Terminating Resistor you will need to attach the Pre 2012 AGCO Integration Harness (006-6650VAX) to the end of the Baler Interface harness (006-6650VA). Please contact Harvest Tec for this harness. This style terminator may be next to the Baler's Main Processor.

UHD Baler ISOBUS Integration Connection



Under the chamber locate the harness labeled (LHR-C72 ISOBUS Term). It is located at the right rear corner of the baler frame. Attach Baler Interface Harness (006-6650VAU) to that location.

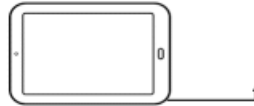
Installation of iPad Integration Control

Locate a safe location in the cab of the tractor to place the iPad Integration Control (030-6672C). The recommended location is securely fastened out of the operator's way in a location that is close enough to reach with the iPad cord.



Connect the Power / Communication harness (006-6650TM(E)) to the bottom of the receiver

To operate the applicator, plug the iPad cord into the communication port indicated by:



iPad Integration Control Light Signals

- **Green Slow Blink:** Power is supplied to the applicator system and the unit is going through its startup process. This will take approximately 25-35 seconds.
- **Green Double Blink:** Indicating the iPad module recognizes the iPad but the app is not open or connected.
- **Green Solid Light:** The module is connected to the app and is ready to operate.

Recommended to use the USB cable included with the applicator kit (006-6672USBC)

Bluetooth Receiver Lights

Pre-2020 applicators equipped with Bluetooth receivers (030-6672B) are now equipped with lights to indicate both power and Hay App connection on the Apple iPad. Clean light regularly.



- **Blinking Lights:** The system is waiting for the processor to connect, which could take up to 35 seconds.
- **Red Light:** The Bluetooth receiver has power
- **Green Light:** The Bluetooth receiver is connected to the Hay App.

600 Series Applicators with serial numbers before DCP27000 will require the DCP to be sent to Harvest Tec for a required update in order to use the iPad Integration Module (030-6672C). Hay App version must be at least 2.5.18

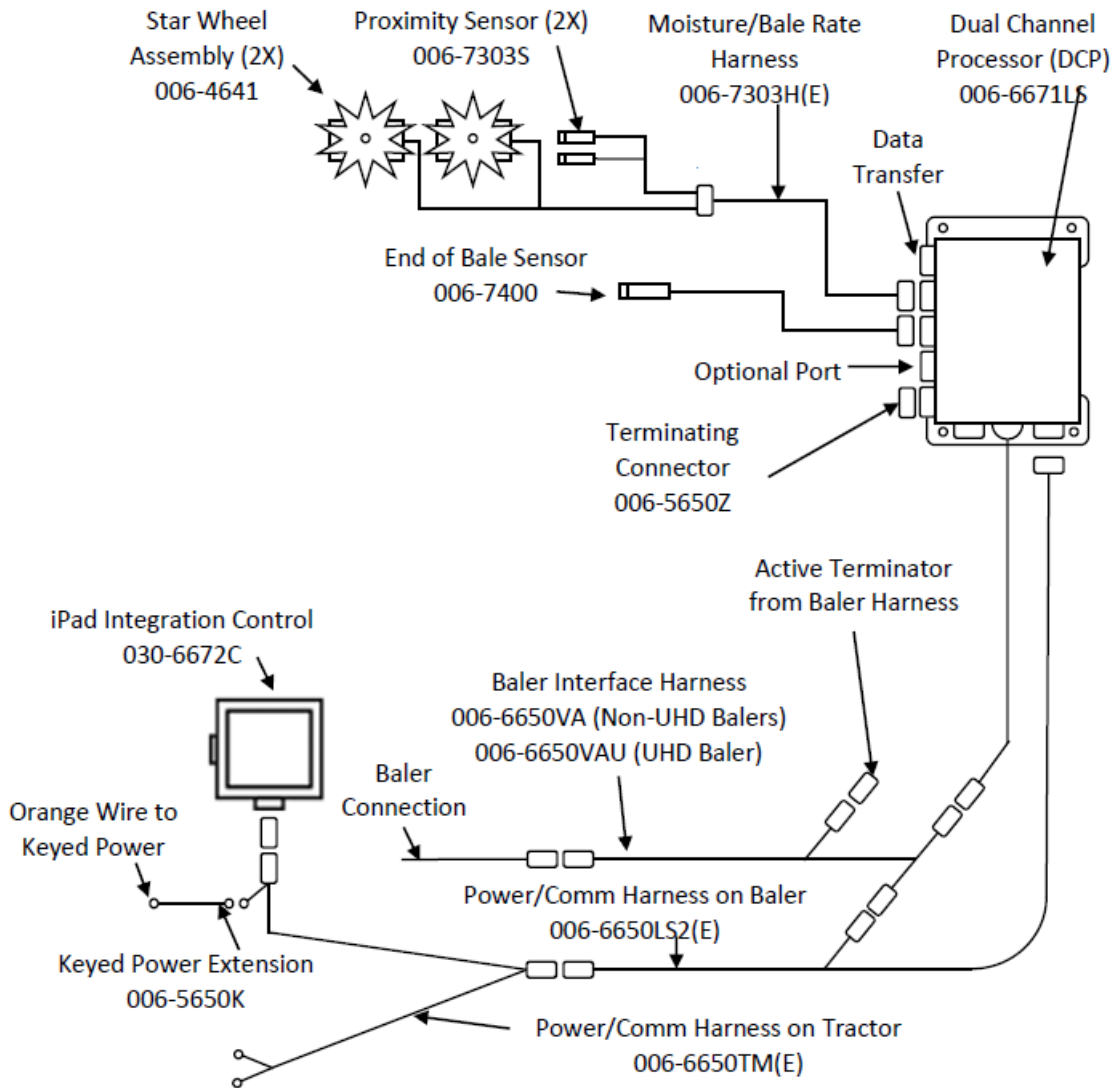
(or higher) to operate with the iPad Integration Module.

Made for Apple iPad badge

Use of the Made for Apple iPad badge means that an accessory has been designed to connect specifically to the Apple product(s) identified in the badge and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with an Apple product may affect wireless performance.

Wiring Diagram

1. Locate the tractor power/communication harness (006-6650TM(E)).
2. At the back of the tractor run the power leads to the battery.
3. Connect the red power wire with the 50 amp fuse to the positive side (12 volts) of the battery.
 - 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 the system's warranty. IF MODIFICATIONS ARE REQUIRED CONTACT HARVEST TEC FIRST!
 - This unit will not function on positive ground tractors.
 - If the unit loses power while operating it will not keep track of accumulated pounds of product used and bale records.
4. Connect the black ground wire to the frame of the tractor or the negative side of (12 volts) battery.
5. Connect the iPad Integration Control (030-6672C) to the Communication Harness (006-6650TM(E)). Place in a safe location in the cab. Behind the seat for example.
6. Connect the orange wires and attach the plug to the tractor's ISOBUS port.
7. Connect the end to the Communication Harness (006-6650TM) to the Bluetooth Receiver.
8. Connect the orange keyed power wires (006-5650K) and attach the plug to the tractor's ISOBUS port.



Note: (E) indication is used for International Dealers.

AGCO 2100 Series Balers Pre 2012 will need the Integration Harness 006-6650VAX

Pin Outs

Power/Comm Harness 006-6650TM(E) at Hitch

- Pin 1 Red +12V Power to TSD
- Pin 2 Red +12V Power to DCP
- Pin 3 Orange Keyed Power
- Pin 4 Gray Shield
- Pin 5 Green HT Can Low
- Pin 6 Yellow HT Can Hi
- Pin 7 Orange Can1 Hi
- Pin 8 Black Ground from TSD
- Pin 9 Black Ground from DCP
- Pin 10 Blue Can1 Low

Power/Comm Harness 006-6650LS2(E) at Hitch

- Pin 1 Red +12V Power to TSD
- Pin 2 Red +12V Power to DCP
- Pin 3 Orange Keyed Power
- Pin 4 Gray Shield
- Pin 5 Green HT Can Low
- Pin 6 Yellow HT Can Hi
- Pin 7 Orange Can1 Hi
- Pin 8 Black Ground from TSD
- Pin 9 Black Ground from DCP
- Pin 10 Blue Can1 Low

iPad Integration Control / BLE on Harness 006-6650TM(E)

- Pin 1 Red +12V Power from DCP
- Pin 2 Black Ground from TSD
- Pin 3 Yellow HT Can Low
- Pin 4 Gray Shield
- Pin 5 Green HT Can Hi
- Pin 6 Orange Can1 Hi
- Pin 7 Blue Can1 Low

006-6650VA to DCP Whip

- Pin 1 Red Can Power
- Pin 2 Black Can Ground
- Pin 3 Yellow HT Can Hi
- Pin 4 Gray Shield
- Pin 5 Green HT Can Low
- Pin 6 Orange Can1 Hi
- Pin 7 Blue Can1 Low

006-6650VA to 006-6650LS2(E)

- Pin 1 Red Can Power
- Pin 2 Black Can Ground
- Pin 3 Yellow HT Can Hi
- Pin 4 Gray Shield
- Pin 5 Green HT Can Low
- Pin 6 N/A
- Pin 7 N/A

006-6650VA & 006-6650VAU Harness to Baler Plug

- Pin A N/A
- Pin B Red TBC Power
- Pin C N/A
- Pin D Gray TBC Ground
- Pin E Orange Can1 Hi
- Pin F Blue Can1 Low

Main Power Connector on Dual Channel Processor (DCP)

- Pin 1 Red +12V Power from tractor
- Pin 2 Black Ground from tractor
- Pin 3 Orange Keyed power

Star Wheel and Bale Rate Sensor Connector on DCP

- Pin 1 Blue +12V Power
- Pin 2 Orange Ground
- Pin 3 Black Signal for sensor 1
- Pin 4 White Signal for sensor 2
- Pin 5 N/A
- Pin 6 N/A
- Pin 7 N/A
- Pin 8 Violet Star wheel input 1
- Pin 9 Brown Star wheel input 2

End of Bale Sensor on DCP

- Pin 1 Brown Sensor Power
- Pin 2 Blue Sensor Ground
- Pin 3 N/A
- Pin 4 Black Signal from Sensor

Common Questions

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.

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.

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.

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.

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 signals to reduce the number of programs the iPad is running. It is recommended to use an accessory outlet charger when operating (not included with the iPad).

What is the max distance for connection between the iPad and the Bluetooth Receiver?

Pre-2020 applicators were equipped with Bluetooth receivers (030-6672B). The range for the connection will depend on the amount of equipment (tractor, baler, etc.). The max distance will range between 10'–20'.

What do the lights on the 030-6672B indicate?

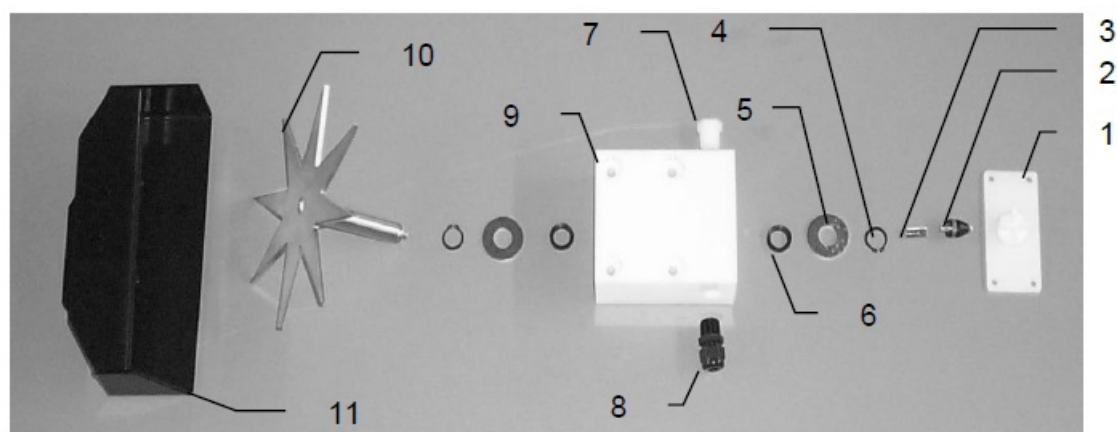
Pre-2020 applicators were equipped with Bluetooth receivers (030-6672B) and are now equipped with lights to indicate both power and Hay App connection on the Apple iPad. Red Light – The Bluetooth receiver has power. Green Light – The Bluetooth receiver is connected to the Hay App.

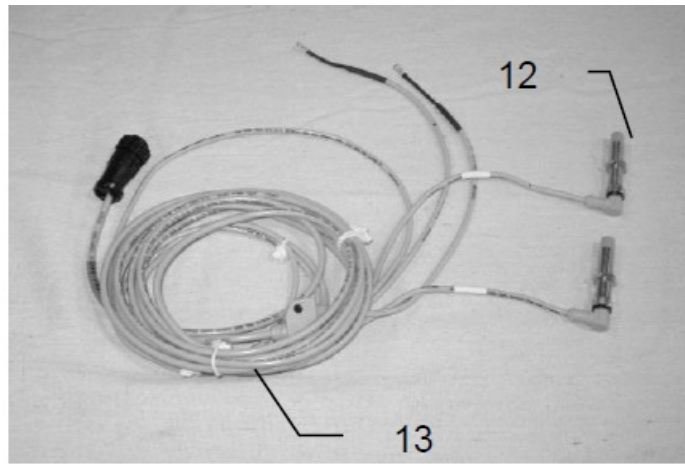
Troubleshooting

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|---|--|--|
| Moisture reading errors (high or low) | 1. Wire disconnected or bad connection between star wheels and DCP | 1. Reconnect wire. |
| | 2. Low power supply to DCP | 2. Check voltage at box. (Min of 12 volts required.) See Diagnostics section of manual. |
| | 3. Dry hay lower than 8% moisture or wet hay over 75%. | 3. System reads 8-70% moisture. |
| | 4. Ground contact with one or both star wheels and baler mounted processor. | 4. Reconnect. |
| | 5. Short in wire between star wheels and DCP. | 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 DCP 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 volts. | 3. Install voltage surge protection on tractors alternator. |
| 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. |
| Bale rate displays zero. | 1. Bale rate sensors are reversed. 2. Short in cable. 3. Damaged sensor. 4. Sensor too far from starwheel. | 1. Switch the sensors next to the star wheel. 2. Replace cable. 3. Replace sensor. 4. Adjust gap between prox sensor and star wheel so it is 1/8-1/4" away. |
| Bluetooth Receiver lights will not illuminate | 1. Bluetooth receiver not connected 2. Harness disconnected 3. Low power | 1. Check connections and voltage. Minimum 12.5V needed. |
| | Blinking Lights – System is waiting for the processor to connect, which could take up to 35 seconds. <i>Red Light</i> – The Bluetooth receiver has power <i>Green Light</i> – When the proper active connection is selected in the Hay App menu, the green light will indicate connection with the iPad. | |

Parts Breakdown

Star Wheels and Bale Rate Sensors

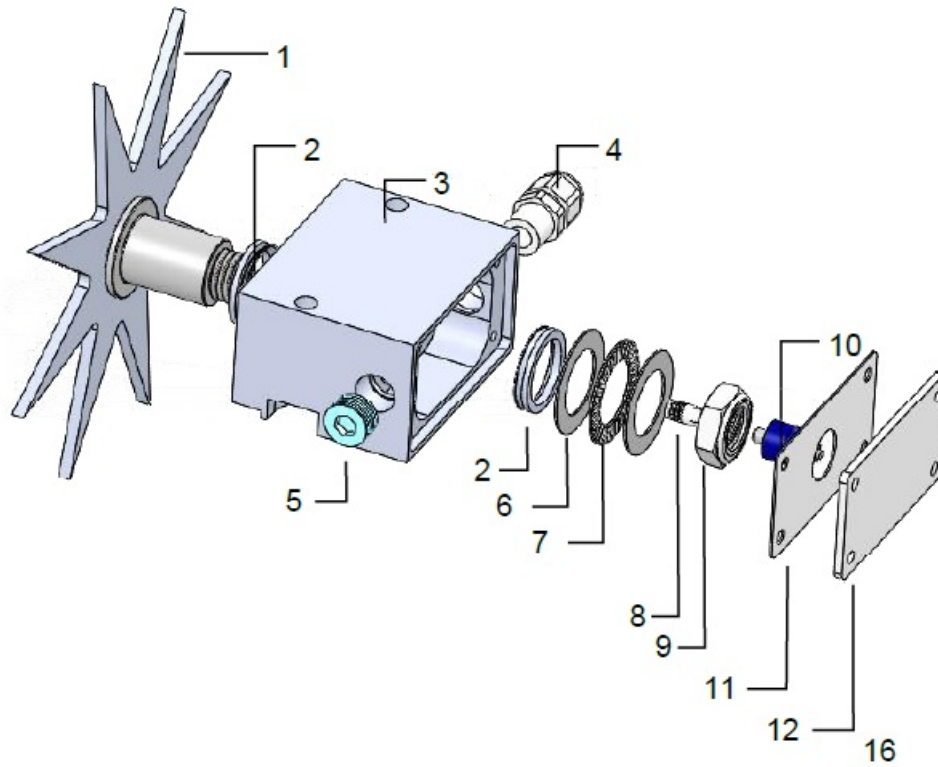




Ref/ Description/ Part/ Qty

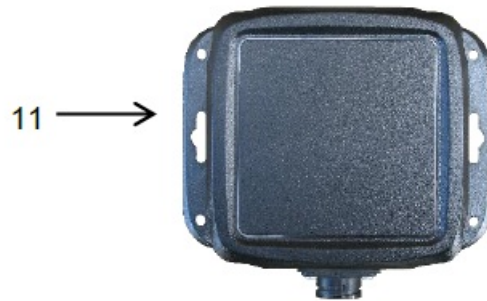
1. Block cover 006-4641B 2
2. Electronic swivel 006-4642A 2
3. Swivel insert w/ Ref # 10 2
4. Snap ring (per side) 006-4641K 2
5. Washer (per side) w/006-4641K 2
6. Dust seal (per side) w/006-4641K 2
7. Plug fitting 003-F38 2
8. Wiring grommet 008-0821A 2
9. Star wheel block 006-4641A 2
10. Star wheel sensor 030-4641C 2
11. Twine guard-left for AGCO 001-4645H 1
12. Twine guard-right for AGCO (w/bale rate sensor holes) 001-4644H 1
13. Star wheel assembly 030-4641 2
14. Bale rate sensor 006-7303S 2
15. Moisture and bale rate harness 006-7303H(E) 1

Star Wheel Moisture Sensors – UHD Balers



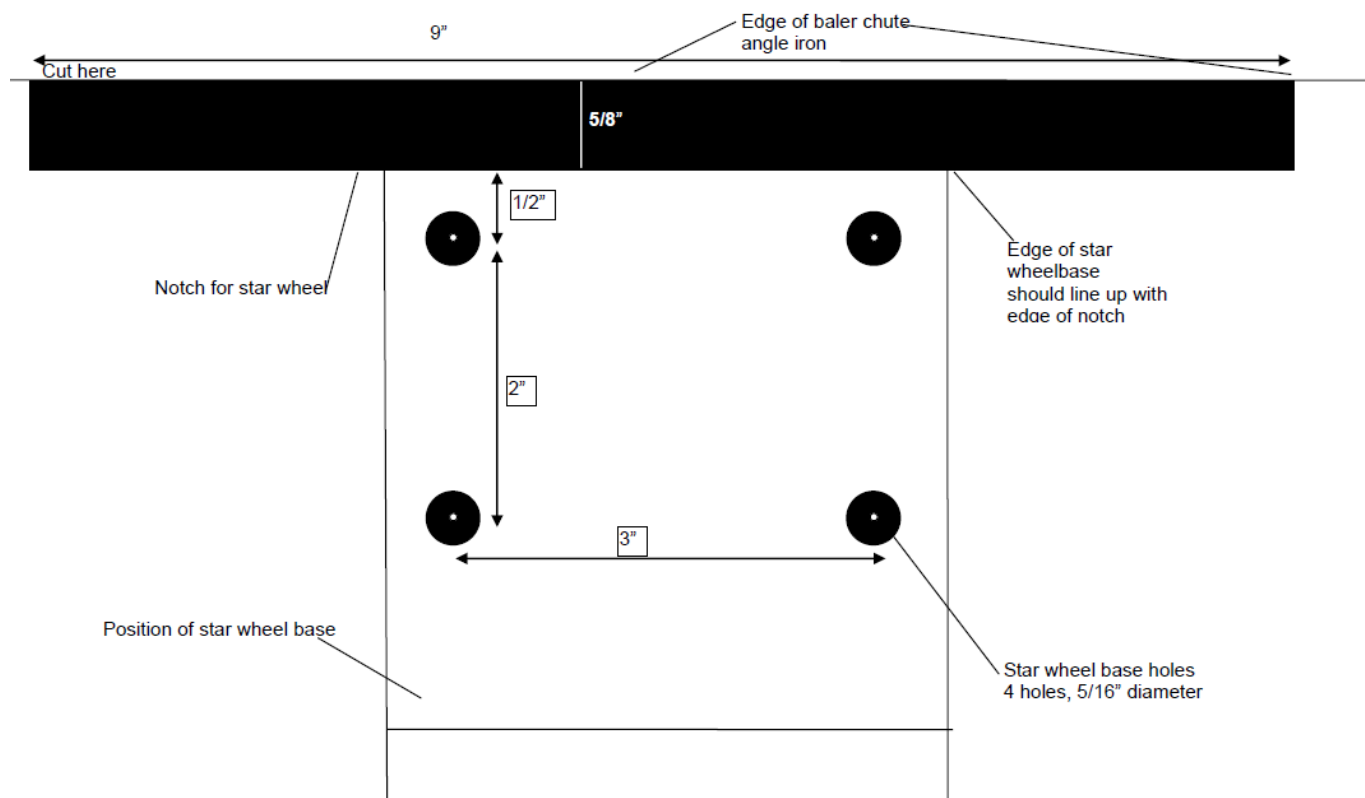
1. Univ Star Wheel 006-4641S 1
2. Dust Seal 006-4641DSL 2
3. Univ Star Block 006-4641Q 1
4. 3/8" NPT Cable Grip 008-0821A 1
5. 3/8" NPT Plug 003-F38 1
6. Thrust Washer 006-4641TA 2
7. Thrust Bearing 006-4641TB 1
8. Swivel Insert 006-4642B 1
9. 3/4" Short Nut 006-4641U 1
10. Rotary Swivel 006-4642A 1
11. Cover Gasket 006-4641RG 1
12. Univ Block Cover 006-4641R 1

Parts Breakdown for 600A & 600UHD Series Control and Harnesses



1. End Of Bale Sensor 006-7400 1
2. Terminating Connector w green cap 006-5650Z 1
3. End of Bale Sensor Bracket 001-4648 1
4. DCP Shield/Cover 001-5650X 1
5. DCP Main Control LS 600 AUTO 006-6671LS 1
6. DCP Baler Harness 30 FT 006-6650LS2(E) 1
7. DCP Tractor Harness 006-6650TM(E) 1
8. Dust Plugs 006-5651PLUGS1
9. DCP Baler Interface Harness 006-6650VA 1
10. Key Switch Wire 006-5650K 1
11. iPad Integration Control 030-6672C 1
12. NP USB Cable 006-6672USBC
13. NP UHD Integration Harness (UHD Baler) 006-6650VAU 1
14. AGCO 2100 Series Balers Pre 2012 need 006-6650VAX

Star Wheel Installation Template



This guide is to be used as a visual aid for star wheel installation. Exact measurements on the baler are determined by operator.

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, and 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 a 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.

DECLARATION OF INCORPORATION

- **MANUFACTURER:** Harvest Tec LLC.
- 2821 Harvey St.
- P.O. Box 63
- Hudson, WI 54016, U.S.A.

REPRESENTATIVE ESTABLISHED IN COMMUNITY: Profitable Farming Company

- Middle Burlington, Roborough Winkleigh, Devon, EX19 8AG ENGLAND

The person above certifies and declares that:

- **VIRTUAL MACHINE:** Equipment mounted on a farm press and for the application of inoculants onto forage crops.
- **MODEL:** 600A & 600UHD-INST-16-Imp&Metric
- **BRAND:** Harvest Tec

SERIAL NUMBER

This application preservatives for the hay Harvest Tec system meets the Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006 and other applicable European Directives including Directive 2004/108/EC on Electromagnetic compatibility.


The application of preservatives for hay Harvest Tec system will be turned on after being installed on a farm press has been declared in conformity with the Machinery Directive. Person in the community authorized to provide information on the partly completed machinery and make this statement:

- Richard Snell, President, Profitable Farming Company
- Signed on May 21, 2011: Middle Burlington, Roborough
- Winkleigh, Devon, EX19 8AG ENGLAND

HARVEST TEC, LLC

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- 1-800-635-7468
- **FAX:** 715-381-1792
- **Email:** info@harvesttec.com

Documents / Resources

| | |
|---|--|
|  | <p>HARVEST TEC 600A Moisture Sensor Kit for Large Square Balers [pdf] Instruction Manual 600A, 600UHD, Moisture Sensor Kit for Large Square Balers, Moisture Sensor Kit, Sensor Kit, 600A, Moisture Sensor</p> |
|---|--|