Installation Manual

Model 600A

Moisture Sensor Kit for Large Square Balers

AGCO PARTS

HayBoss™ G2

600A INST
12/15

CE

DECLARATION OF APPLICATION OF ESSENTIAL REQUIREMENTS OF THE DIRECTIVE 2006/42/ EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 17, MAY, 2006 AND OTHER RELEVANT EU DIRECTIVES: The Harvest Tec Hay Moisture Sensor Kit conforms with the Directive and other relevant EU directives.

SERVICE DUTY OF THE PARTIALLY COMPLETED MACHINE: The Harvest Tec Hay Moisture Sensor Kit will only be put into service after installed on a hay baler that has been declared to conform with the Directive.

Noise from the Harvest Tec Moisture Sensor Kit does not exceed 70 dB (A).

Manufacturers Name Plate

Harvest Tec Inc. Manufactured at and correspondence to: 2821 Harvey Street Hudson, WI 54016 USA **Model**
Build Date
Serial No.

PERSON AUTHORIZED TO PROVIDE INFORMATION ON THE MACHINE AND WHO MAKES THIS DECLARATION:

Jeffery S. Roberts, President, Harvest Tec, Inc.

Signed in Hudson, WI, USA on May 21, 2011

For AGCO part cross-reference visit: www.harvesttec.com/system.html

600A Installation Manual Table of Contents

For AGCO part cross-reference visit: www.harvesttec.com/system.html

Introduction

Thank you for purchasing the HayBoss G2 600A Moisture Monitor System. This system is designed to monitor the moisture and tonnage of the forage crop and to plug directly into the baler's ISOBUS and display on a C1000 monitor. The 600A Moisture Monitor System offers these advantages;

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

The 600A Moisture Monitor kit includes the following parts: Dual Channel Processor (DCP), Moisture Sensors, Harnesses and Miscellaneous Hardware. For your convenience a parts break down for the model 600A is included n the back of this manual. If you do have questions bring this manual into the dealership. They can assist you in ordering the correct replacement parts.

The HayBoss G2 600A Moisture Monitoring System can have a complete preservative applicator added as well as the tagging option to enhance the system at any time. Contact your local dealer for more information.

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

System Requirements

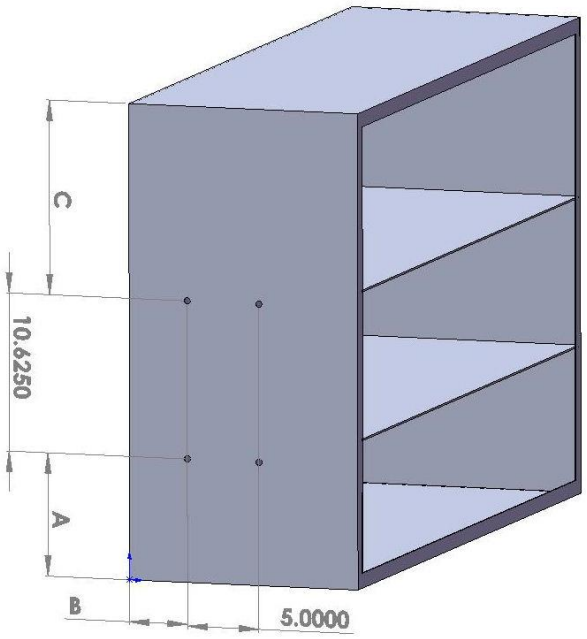
The Baler Processor must have Version 3.3 or higher.
C1000 monitor must have Version 3.0.1 or higher
If equipped with the SBM, the SBM must have Version 4.0 or higher.

Tools Needed:

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

1. Installation of the Dual Channel Processor

Follow the instructions below to mount the Dual Channel Processor (DCP) on to 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 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.



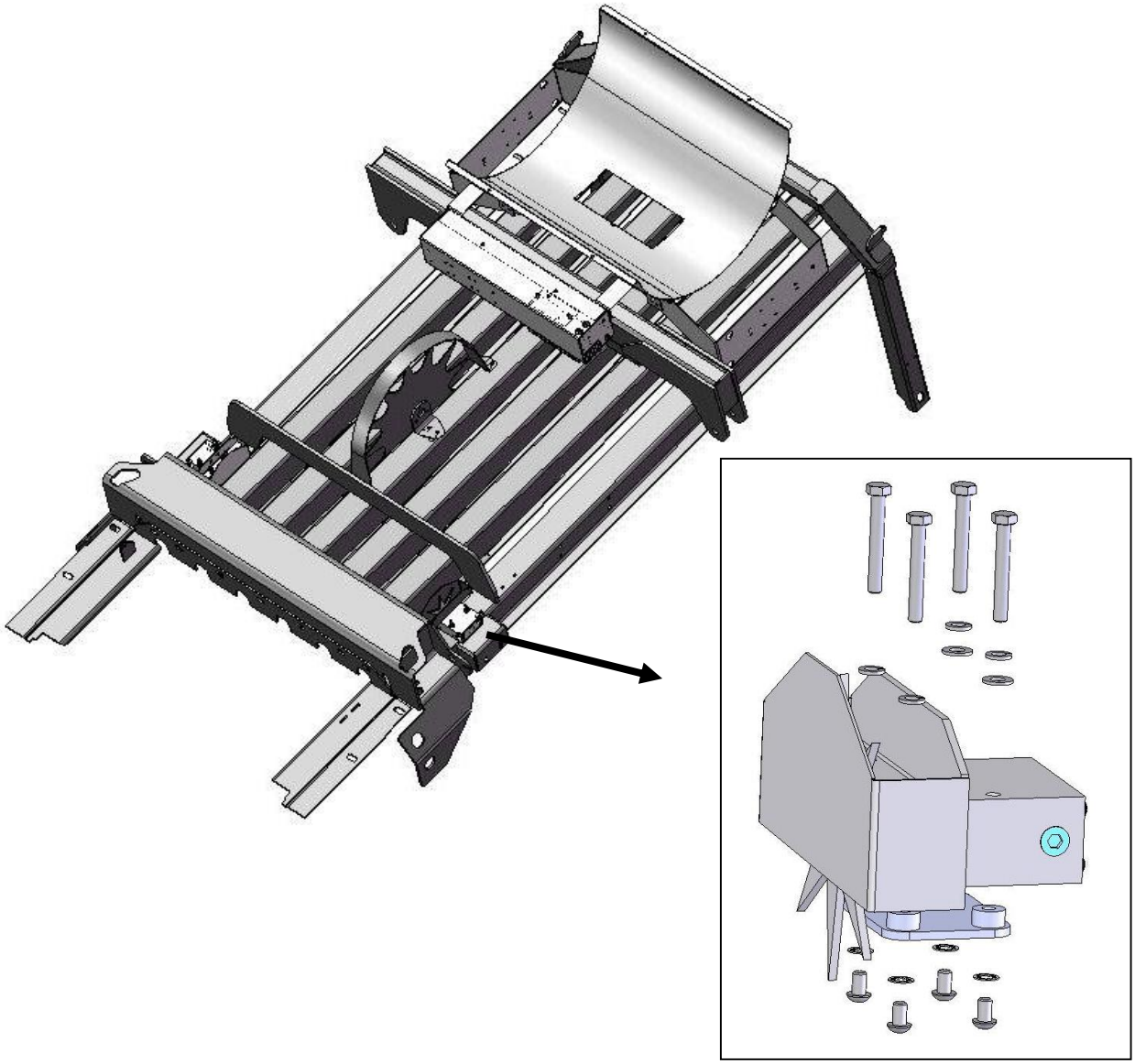
Baler Type	A	B	C
AGCO Hesston	12"	3"	N/A
Challenger	12"	3"	N/A
Massey Ferguson	12”	3”	N/A

For AGCO part cross-reference visit: www.harvesttec.com/system.html

2. Installation of the Star Wheels

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.

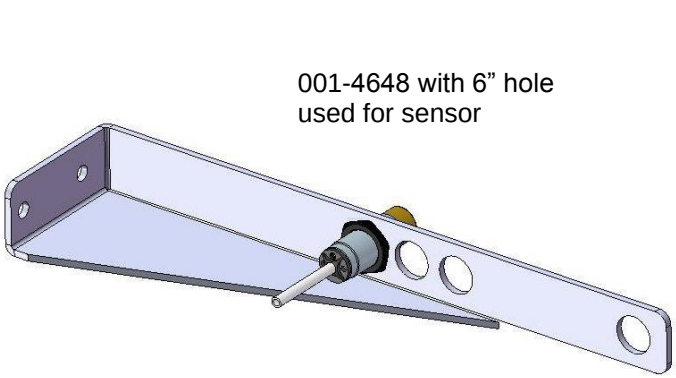
The star wheels are to be mounted on top of the baler, just behind the knotters and under the walkway on both sides. The notch and holes for the star wheel are precut. **If the star wheels are cutting the twine the sensors and notch must be moved out an additional 1/2 inch. Use the template in the back 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 remainder two holes per star wheel attach with 5/16 x 2 1/4" hex bolt, lock washer, and one 5/16" thick flat washers 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.

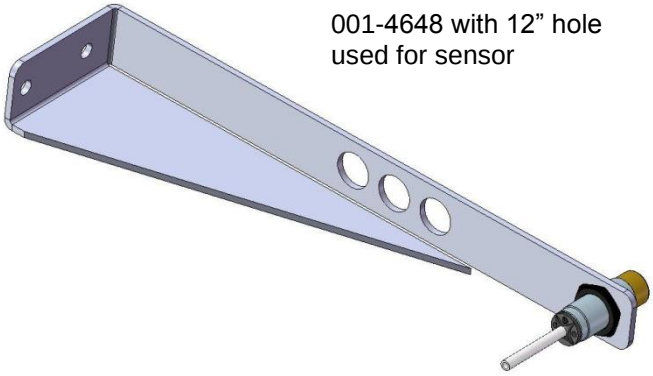


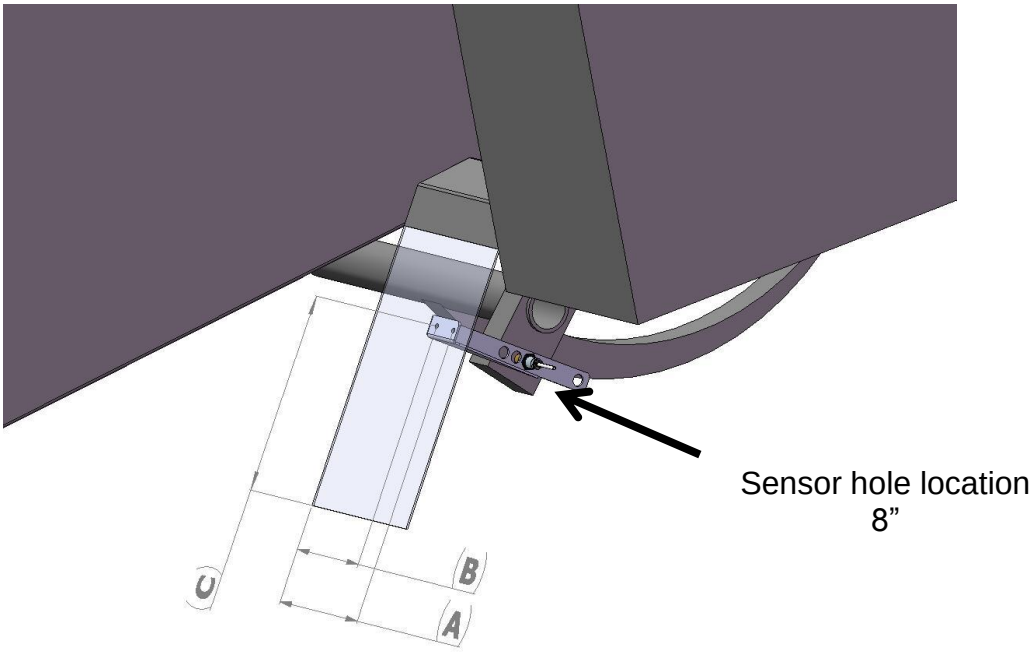
3. Installation of End of Bale Sensor

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 for your baler to mount the sensor.

End of bale sensor bracket (001-4648) will be used. Cutoff excess metal not used during installation.







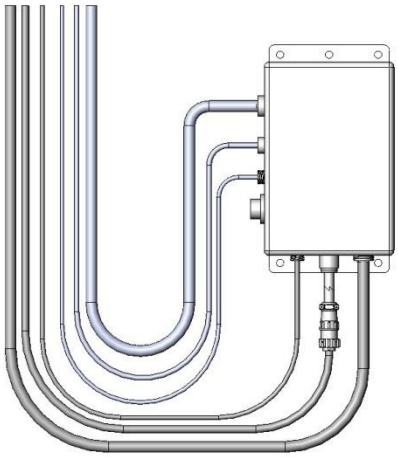
A	B	C
4-7/8”	3-1/8”	15”

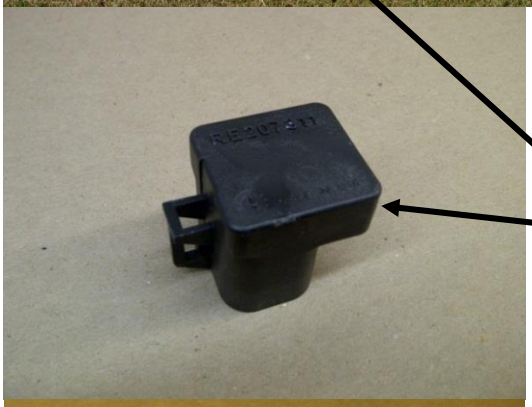
Mount the end of bale sensor bracket (001-4648) as shown. Mark and drill two 5/16” holes and attach the bracket using two 1/4” x 1” bolts, locks, flats, and nuts. Mount the sensor in the 8” hole location, keep the sensor 1/4" from the needle and tighten both nuts. Cut off excess metal past the sensor.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

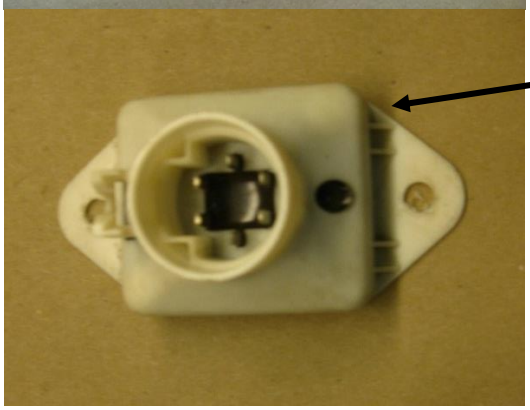
4. Installation of the Star Wheel and Bale Rate Harness

First, remove the cover from the star wheel block and use a ¼" 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 ¼" away from the star wheel teeth and no less than 1/8" 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.
Once the star wheel connection is complete, run the harness along the baler frame to the DCP. (See wiring installation on the page 9.) The DCP is located on the back of the right twine box.

5. Installation of the Main Harness: the Power/Communication Harness







A. Route harness 006-6650LS2 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.

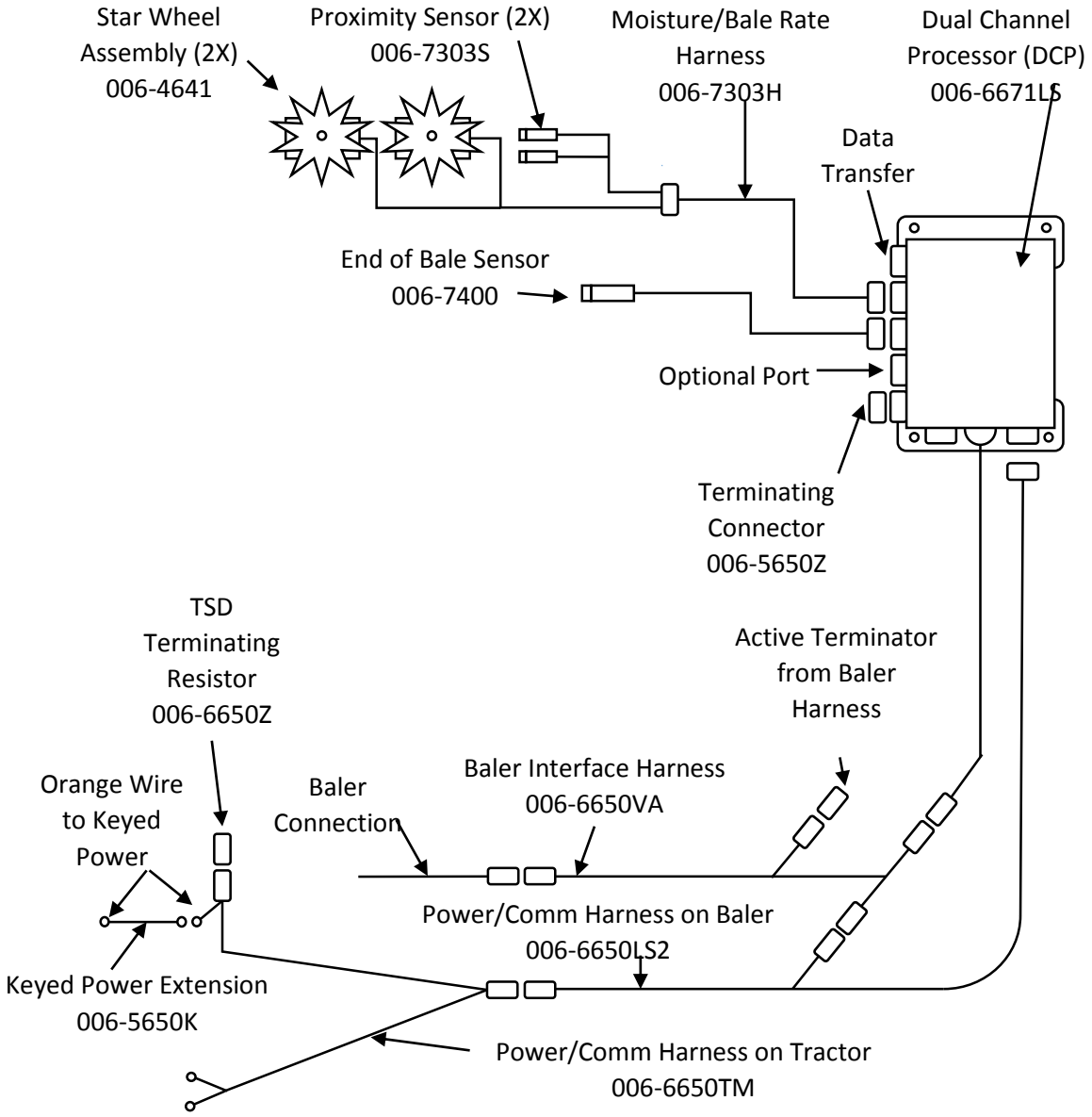
B. Under the chamber locate the Active Terminator from the end of the baler harness. It is located at the right rear corner of the baler frame. Attach Baler Interface Harness (006-6650VA) to that location. Reconnect Active Terminator to open port of that same harness (006-6650VA). If your baler does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

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.

For AGCO part cross-reference visit: www.harvesttec.com/system.html

Harness/Wiring Installation

A. The **Baler Power/Communication Harness** (006-6650LS2) will attach to the open port of the Tractor **Harness** (006-6650TM) and run back to the Dual Channel Processor (DCP-006-6671LS). Connect the large plug of the Baler Power/Communication Harness (006-6650LS2) to the bottom (shorter side) of the DCP. Attach the **Baler Interface Harness** (006-6650VA) in between the short whip cable hardwired to the DCP and the main Power/Communication Harness (006-6650LS2). Make sure Active Terminator removed from the back underside of the baler is attached to the Baler Interface Harness (006-6650VA).
B. Install the terminating connector with green cap (006-5650Z) to the port labeled Pump Controller
C. Attach moisture and bale rate harness (006-7303H) and also end of bale harness (006-7400) to the DCP (006-6671LS).
D. Install terminating resistor with red cap (006-6650Z) on tractor harness (006-6650TM).
E. Connect Keyed Power Extension harness (006-5650K) to a keyed power source.
    a. When using Bluetooth Receiver (030-6672A) or optional Touch Screen Display (030-5670A). Connect either option to Communication Harness (006-6650TM) in place of the TSD Terminating Resistor (shown below) and connect the keyed power wire to a keyed power source on tractor.
F. The Optional Port and the Data Transfer Port are not used in this application.



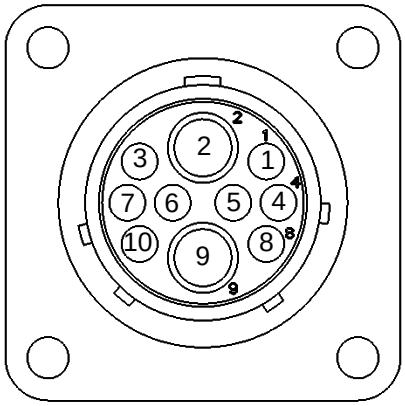
AGCO 2100 Series Balers Pre 2012 need the AGCO Integration Harness (006-6650VAX)

For AGCO part cross-reference visit: www.harvesttec.com/system.html

600A Pin Outs

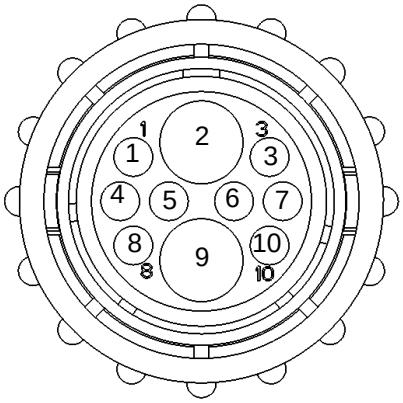
Power/Comm Harness 006-6650TM at Hitch

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



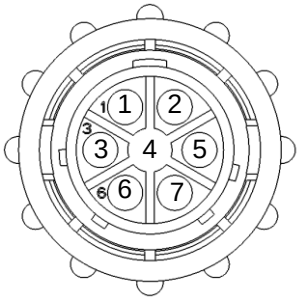
Power/Comm Harness 006-6650LS2 at Hitch

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



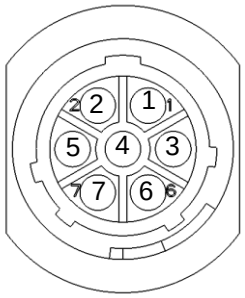
Display Plug or Bluetooth Receiver on Harness 006-6650TM

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

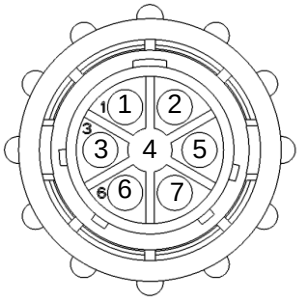
Pin 1	Red	Can Power
Pin 2	Black	Can Ground
Pin 3	Yellow	HT Can Hi
Pin 4	Gray	Shield
Pin 5	Green	HT Can Low
Pin 6	Orange	Can1 Hi
Pin 7	Blue	Can1 Low



For AGCO part cross-reference visit: www.harvesttec.com/system.html

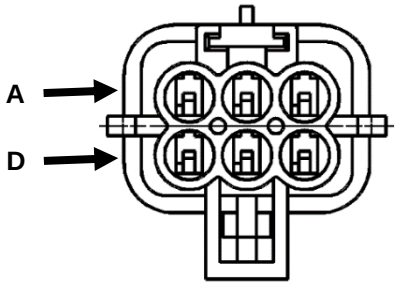
006-6650VA to 006-6650LS2

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	



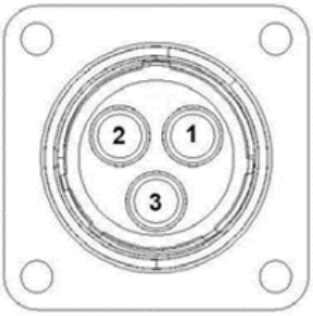
006-6650VA Harness to Baler Plug

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

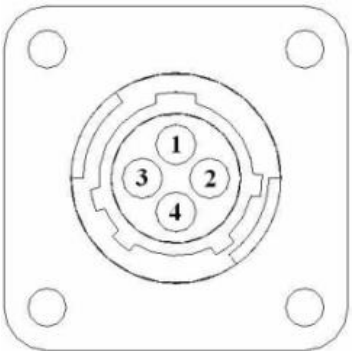


Star Wheel and Bale Rate Sensor Connector on DCP

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

1. **How do I turn the system on/off?**
   Turn the key in the tractor to the ON position. The ISOBUS Monitor will turn on, and the baler, on 600A working screen tabs, will be viewable. Turn the system off by turning the tractor key OFF.

2. **How to get in the LBS/TON, MC%, and TONS/HR menus?**
   In the Main Menu press the SETUP MODE key. From this screen you can change your alarm settings and bale rate settings. See SETUP INSTRUCTIONS in the Operations Manual for a detailed explanation of this process.

3. **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. One of the first places to check is inside the white star wheel block. Check to see if the electronic swivel is in the star wheel shaft and check to see that the star wheel shaft is not working out of the block. Also, check all star wheel wires and connectors to see if there is a continuity or grounding problem.

4. **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.

5. **Can the Harvest Tec 600 be updated for preservative or a tagger?**
   Yes. Consult your local dealer for part numbers and pricing.

Troubleshooting

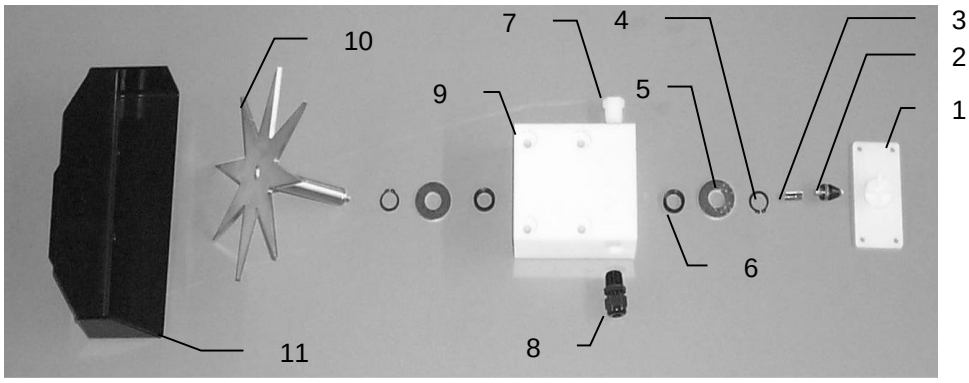
PROBLEM	POSSIBLE CAUSE	SOLUTION
Moisture reading errors (high or low)	1. Wire disconnected or bad connection w/ star wheels and DCP	1. Reconnect wire.
	2. Low power supply to DCP	2. Check voltage at box. (Min of 12 volts required.) See Diagnostics
	3. Dry hay lower than 8% moisture or wet hay over 75%.	3. System reads 8-70% moisture.
	4. Ground contact with one or both star wheels and DCP	4. Reconnect.
	5. Short in wire between star wheels and DCP.	5. Replace wire.
	6. Test with hand tester.	6. Contact HT 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	2. Apply dielectric grease to connections
	3. Check power supply at tractor. Voltage should be constant 12-14V	3. Install voltage surge protection on tractors alternator.
Terminal reads under or over power.	1. Verify with mult-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 star wheel. 2. Replace cable or replace sensor. 4. Adjust gap between prox sensor and star wheel so it is 1/8-1/4" away.
Display says PAC error	1. The DCP and Pump controller are not communicating.	1. Check all connections at DCP and Pump controller including terminator

For AGCO part cross-reference visit: www.harvesttec.com/system.html

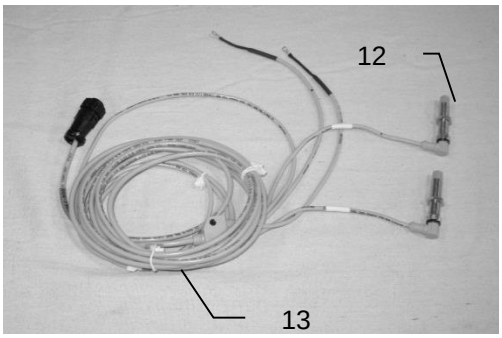
	2. Broke connection between the display and DCP or PAC and DCP.	2. Check, clean, and tighten connections.
Bale scale not giving accurate reading	Load cell calibration is off	1. Refer to your scale owner's manual for instructions on recalibrating.
Error Code 415: Harvest Tec Online	Harvest Tec is communicating with the baler, but Harvest Tec option is not turned on in baler software	Turn harvest Tec option on. See Baler Monitor Setup section
Error Code 416: Harvest Tec Not Detected	Harvest Tec option is turned on, but no communication between the baler and DCP is happening	Check for nozzle icon in top right corner (right). Power cycle DCP only if icon not visible. 
Background of moisture container is red on main baler work screen	Communication error between DCP and AGCO ECU	Enter Auto / Manual mode, verify that no moisture reading has occurred. Then Power cycle DCP only
Moisture container only reads 0/0% when HT system is reading correctly	Communication error between DCP and AGCO ECU	Enter Auto / Manual mode, verify that no moisture reading has occurred. Then Power cycle DCP only
No "HT preservative" option to select on the baler run screen	Harvest Tec PAC is turned off	Turn PAC on. See setup mode section
Job records are showing as symbols or incorrect values	The job file is corrupted on SD card	Write down all job record information the operator wishes to keep. Update the DCP software to the most current version available on the Harvest Tec website. Delete all existing jobs by selecting all in the download screen and pressing delete. Be sure to start a new job and verify it is saved by checking job details screen.
Values in auto / manual mode are obscure	The job file is corrupted on SD card	If baler is compatible, Harvest Tec can reconfigure DCP to correct setting. Contact your dealership to send to HT.
Can't download job records, stuck at "Saving to USB Stick"	One of more jobs are corrupted on SD card. If "saving to USB" is displayed, some jobs have been downloaded correctly.	Turn off Bale Rate Sensor in baler sensors screen, make sure Auto baling rate is turned on in baling rate setup screen
Can't download job records, stuck at "Searching"	If searching is displayed then the first job is corrupted and download will not work.	Make sure the operator has the USB in the DCP with good connect and not the VT port in the cab of the tractor.
No green baler sensors button in bale rate setup screen	DCP is not configured to communicate with baler	If baler is compatible, Harvest Tec can reconfigure DCP to correct setting. Contact your dealership to send back to Harvest Tec for repair.
Bale rate goes to zero and prox sensors/star wheels check out fine	DCP is set to use "Bale Rate Sensor" from baler in calculation and baler does not have installed	Turn off Bale Rate Sensor in baler sensors screen, make sure Auto baling rate is turned on in baling rate setup
"Cannot open USB" message when trying to download	DCP does not see a USB stick in the Data Transfer port	Make sure the operator has the USB in the DCP with good connect and not the VT port in the cab of the tractor.

Parts Breakdown

Star Wheels and Bale Rate Sensors



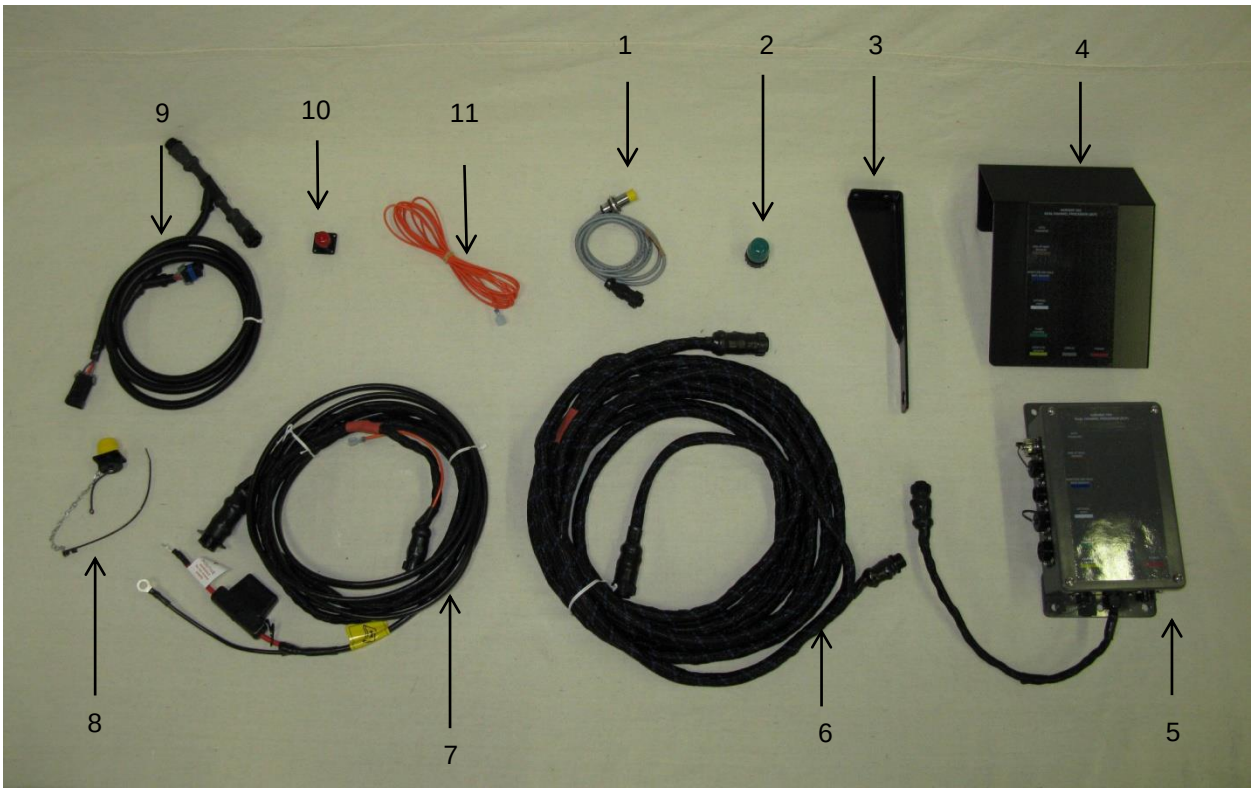
Ref	Description	Part#	Qty	Ref	Description	Part#	Qty
1	Block cover	006-4641B	2	9	Star wheel block	006-4641A	2
2	Electronic swivel	006-4642A	2	10	Star wheel sensor	030-4641C	2
3	Swivel insert	w/ Ref # 10	2	11	Twine guard-left for AGCO	001-4645H	1
4	Snap ring (per side)	006-4641K	2		Twine guard-right for AGCO has bale rate sensor holes in it	001-4644H	1
5	Washer (per side)	w/006-4641K	2				
6	Dust seal (per side)	w/006-4641K	2				
7	Plug fitting	003-F38	2	1-10	Star wheel assembly	030-4641	2
8	Wiring grommet	008-0821A	2				



Ref	Description	Part#	Qty
12	Bale rate sensor	006-7303S	2
13	Moisture and bale rate harness	006-7303H	1

For AGCO part cross-reference visit: www.harvesttec.com/system.html

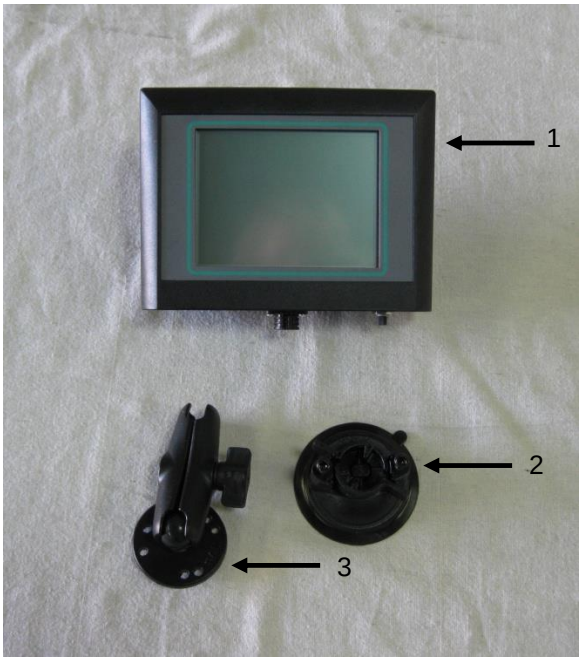
Parts Breakdown for 600A Series Control and Harnesses



Ref	Description	Part Number	Qty
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	1
7	DCP Tractor Harness	006-6650TM	1
8	Dust Plugs	006-5651PLUGS	1
9	DCP Baler Interface Harness	006-6650VA	1
10	DCP TSD Terminating Resistor w/red cap	006-6650Z	1
11	Key Switch Wire	006-5650K	1
	AGCO 2100 Series Balers Pre 2012 need	006-6650VAX	

For AGCO part cross-reference visit: www.harvesttec.com/system.html

Optional Touch Screen Display (TSD)



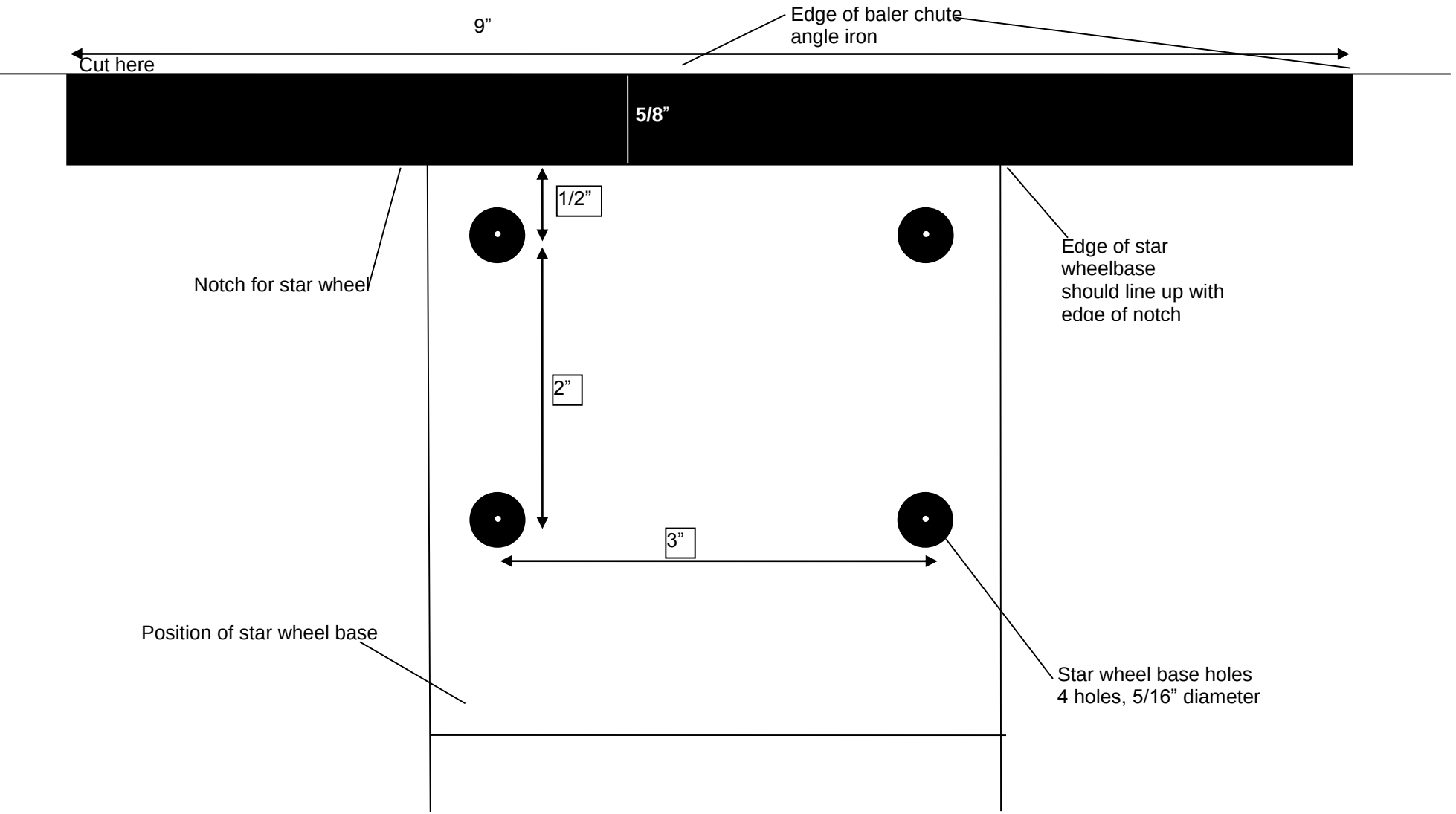
1	Touch Screen Display	006-6670
2	Suction Cup Mount	001-2012SCM
3	RAM Mount	001-2012H
	Complete Kit	030-5670A

Optional Bluetooth Receiver

Part #: 030-6672A

For AGCO part cross-reference visit: www.harvesttec.com/system.html

Star Wheel Installation Template



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

For AGCO part cross-reference visit: www.harvesttec.com/system.html

NOTES

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.

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HARVEST TEC, INC.
P.O. BOX 63
2821 HARVEY STREET
HUDSON, WI 54016
PHONE: 715-386-9100
1-800-635-7468
FAX: 715-381-1792
Email: info@harvesttec.com