Operation Manual

Model 600A

Moisture Sensor Kit for Large Square Balers

AGCO PARTS

HayBoss™ G2

600A OPR
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

600A Operations Manual Table of Contents

Introduction

Thank you for purchasing a HayBoss G2 600A Moisture Monitor System and congratulations. 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.

For instructions on **How to Mount the 600A** to the Baler please refer to the 600A Installation Manual.

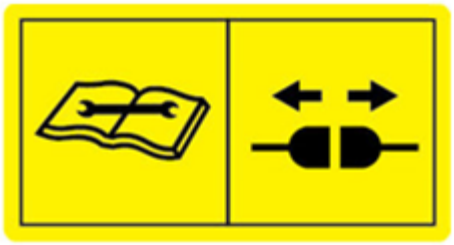
Safety

Carefully read all safety signs in this manual and on the moisture sensor kit before use. Keep signs clean and clear of obstruction to view. Replace missing or damaged safety signs. Replacement signs are available from your local authorized dealer. See your installation manual under the replacement parts section for the correct part numbers.

Keep your moisture sensor kit in proper working condition. Unauthorized modifications to the moisture sensor kit may impair the function and/or safety of the machine.

Carefully read and understand all safety signs before installing or servicing.

Safety Decals

	Number 1 Disconnect power before servicing. Part no. DCL-8003
	Number 2 Read and understand the operator's manual before using or working around the equipment. Part no. DCL-8000

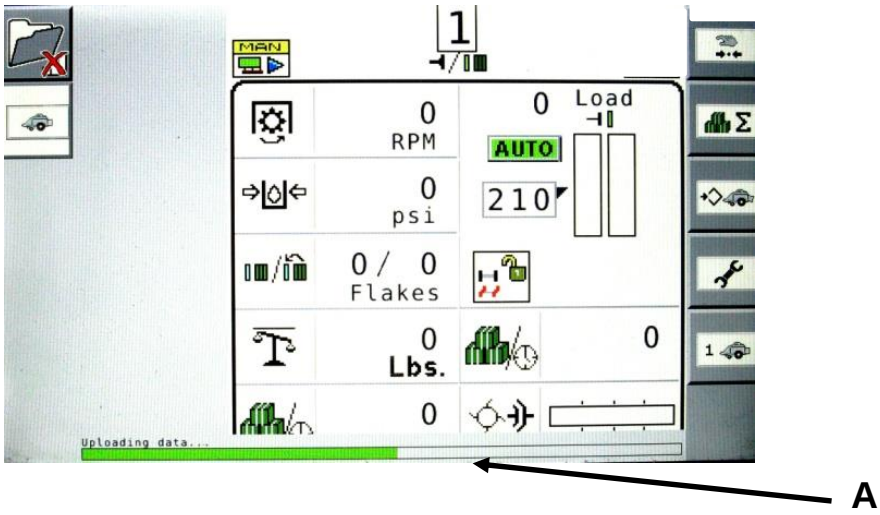
Operation of 600A Moisture Sensor Kit

Operation of the ISOBUS Monitor

The ISOBUS Monitor utilizes a combination of soft keys, number menus, and the scroll wheel on the upper right side of the actual monitor to make selections. Selections are made by scrolling the Thumb Wheel and pressing in once the selection is highlighted. All buttons are labeled and color coded.

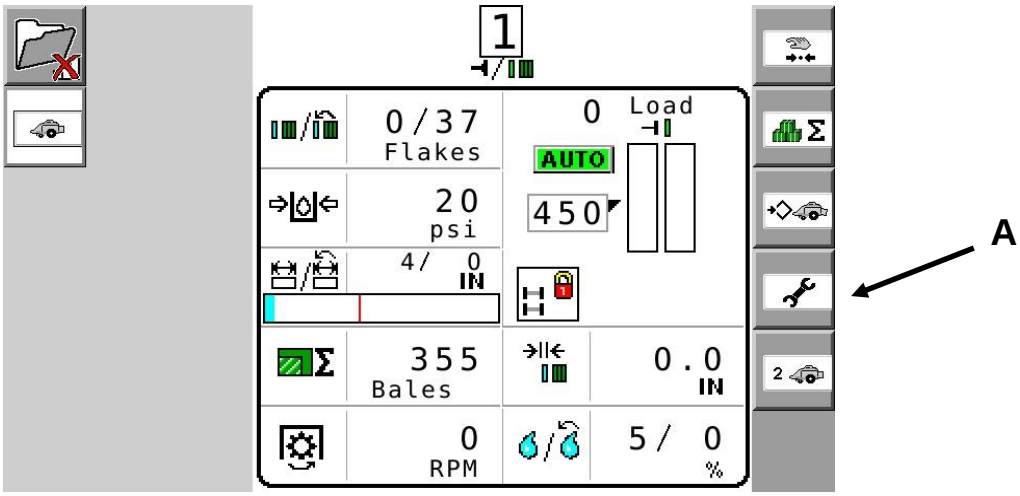
Baler Monitor Setup

At any time after the initial Start Up/Power On the green “uploading data” status bar (arrow A) should begin to fill.

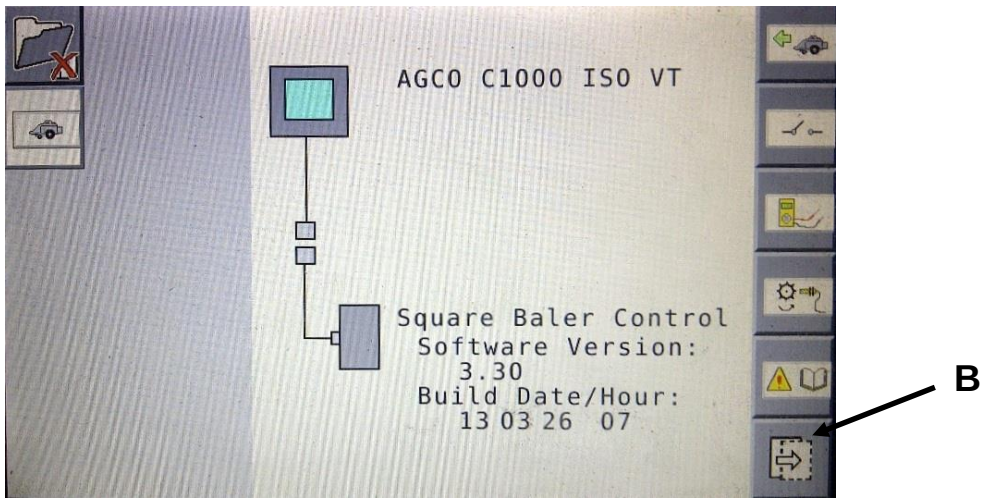


System Setup

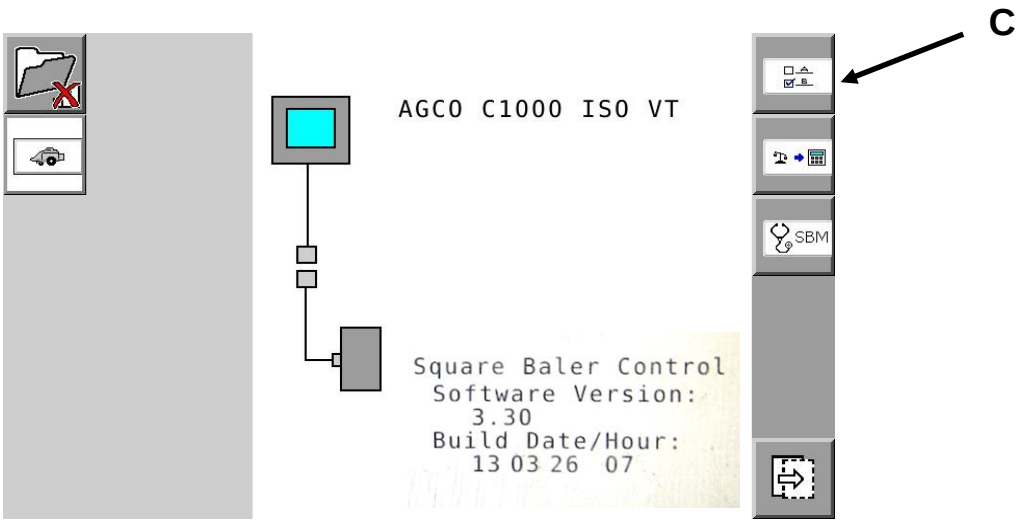
1. To view moisture from the 600A Moisture Sensor begin setup at the main baler screen. Select the **WRENCH** icon (arrow A) which is the fourth icon down on the right side of the screen-the right selection menu.



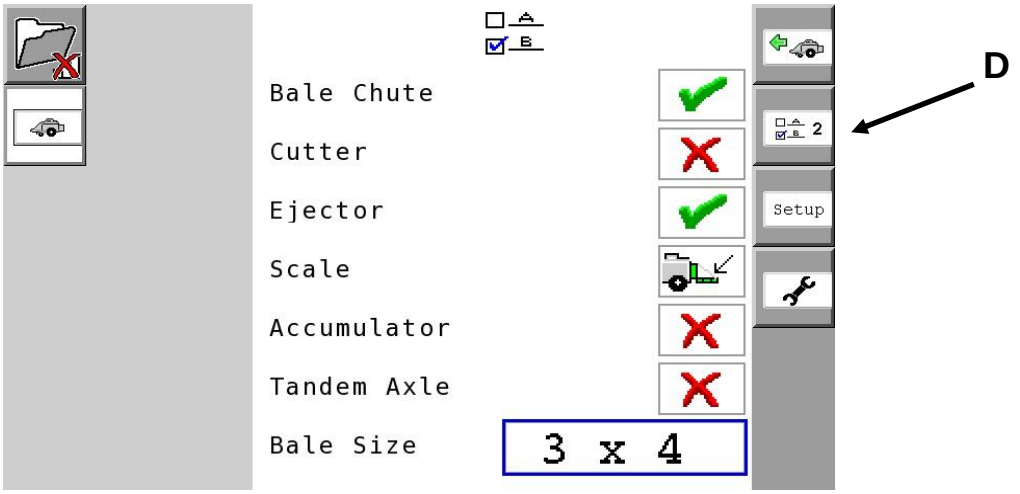
2. The service screen displayed below should appear. Select the **Next Screen** icon (arrow B) located at the bottom of the right selection menu.



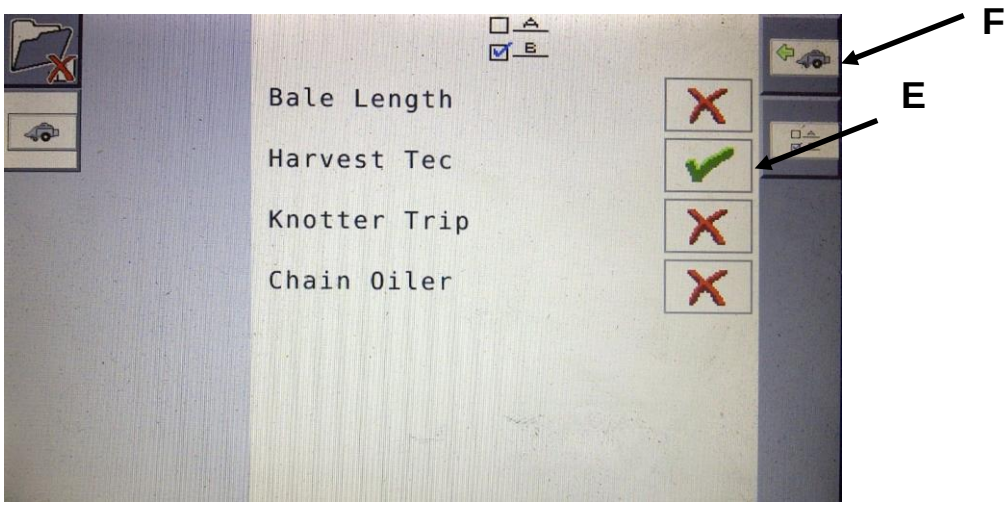
3. A similar screen will appear with a different menu options on the right side of the screen. Press the **A B** icon (arrow C) located at the top right of the selection menu.



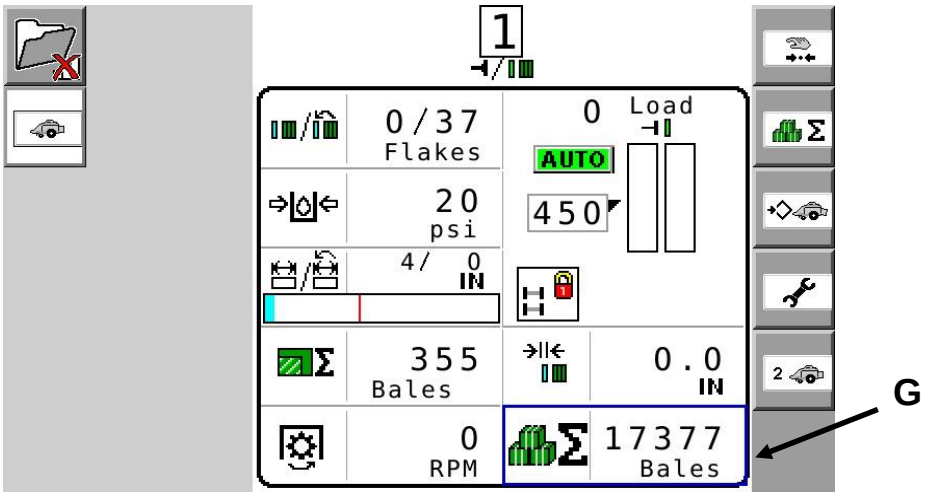
4. The A B screen will appear. Next select the **A B 2** (arrow D) icon which is the second from the top on the far right selection menu.



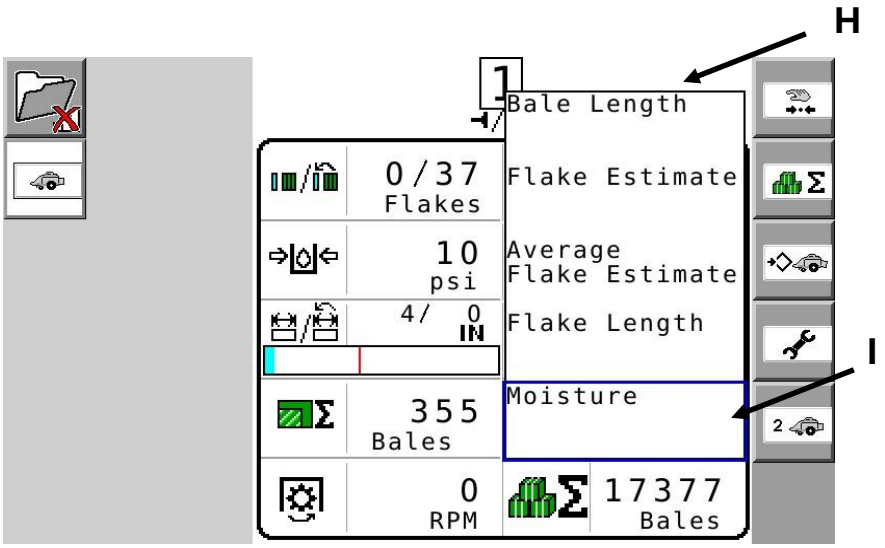
5. The A B 2 screen will appear. The **Harvest Tec** On/Off selection icon can now be selected. To turn the Harvest Tec Moisture Sensor On (signified by a **green check mark**) or Off (signified by a **red X)** navigate to the box and select (arrow E) by pressing the **Scroll Wheel**. Once the Harvest Tec Moisture Sensor has been turned On/Off you can navigate back to the main baler work screen by pressing the **BALER** (arrow F) icon on the top right of the selection menu.



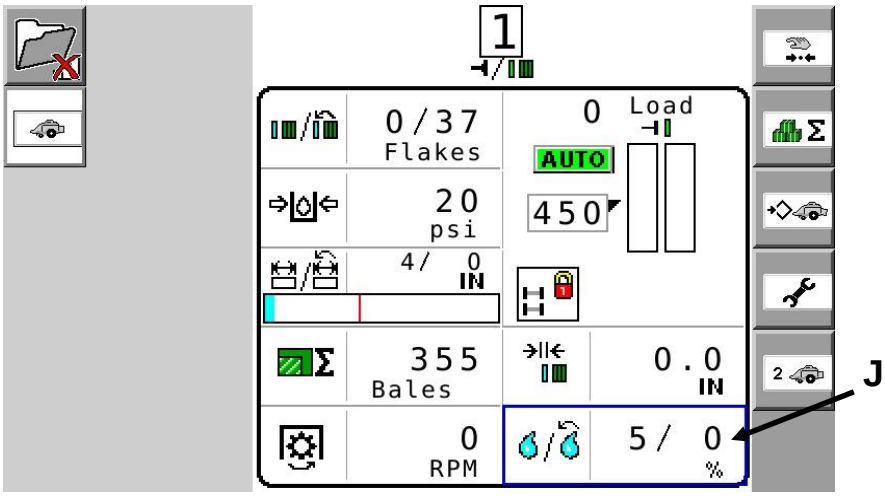
6. The main baler work screen will appear. Select the **container** (arrow G) where you would like to view the moisture information on the baler run screen. *Note: This can be done on the primary or secondary baler work screen. The screen has been or can be customized for viewing containers or options as you would like and as guided in the baler manual.*



7. Once the user has selected the container they would like to change, a **drop down list** (arrow H) will appear. The **Moisture option** (arrow I) should be at the bottom of the drop down selection list.

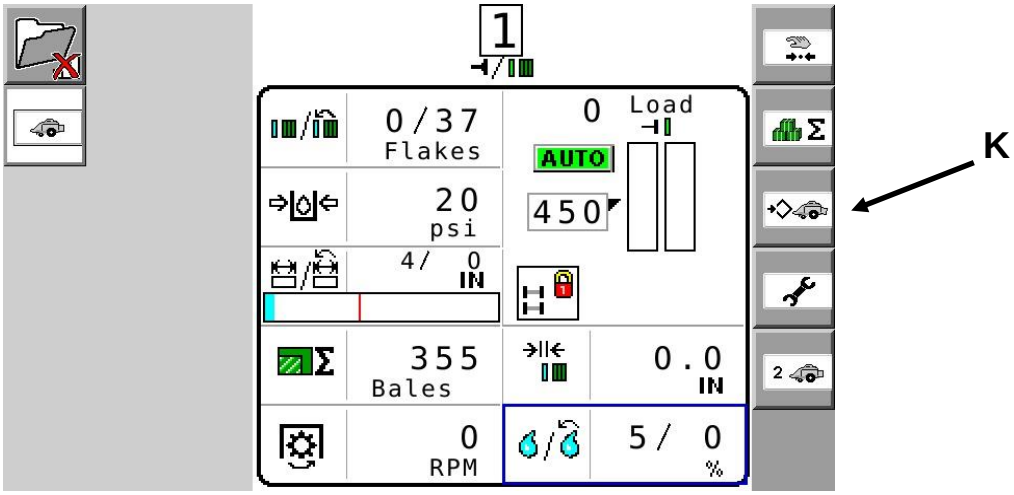


8. The Moisture container will have a red background until HayBoss G2 system is put in Manual Mode or Auto Mode. The two values indicated in the moisture option are as follows: ***current moisture / last bale average moisture*** (arrow J).

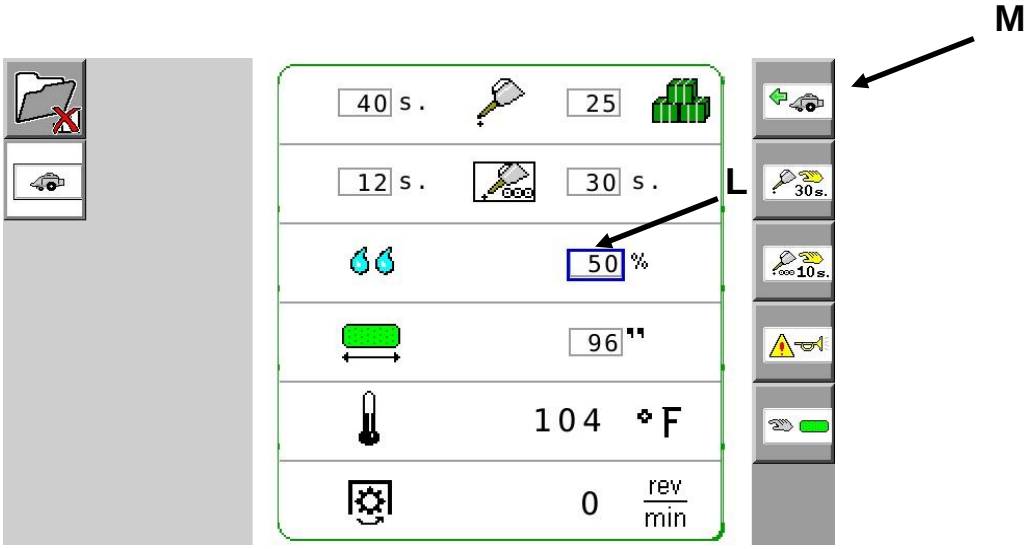


To Adjust the Moisture Alarm

1. From the main baler screen, select the third icon down the right selection menu that shows a **diamond beside a baler** (arrow K).

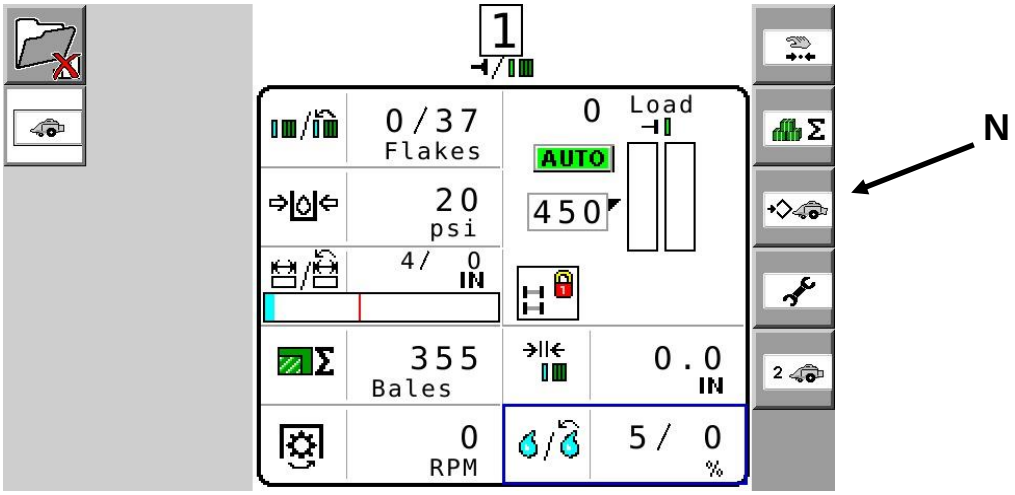


2. To adjust the moisture alarm set point select the **box option to the right of the moisture droplets** (arrow L) and adjust to the desired moisture limit. To return to the baler work screen, press the baler icon at the top right of the selection menu (arrow M). When the moisture is higher than the alarm setting the audible alarm will sound (if turned on) and the moisture values on the screen will display with a red background.

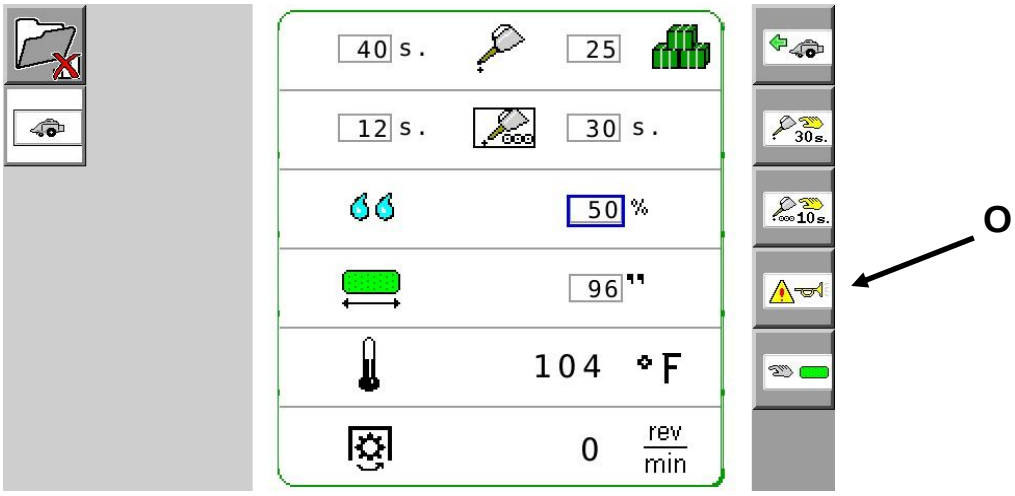


Option to turn Off/On all Alarms or Beeps

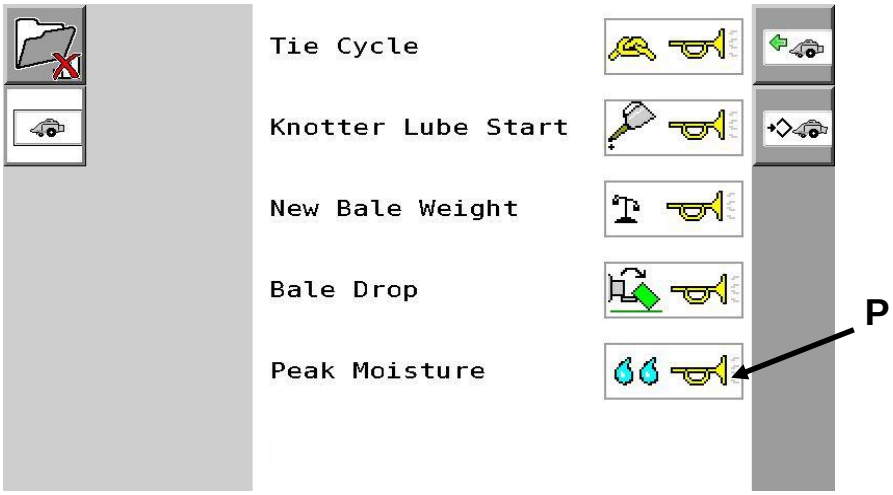
1. From the main baler work screen select the third icon down the right selection menu that shows a **diamond beside a baler** (arrow N).



2. Select the fourth icon down on the right selection menu showing a **bugle beside an alarm** icon (arrow O).



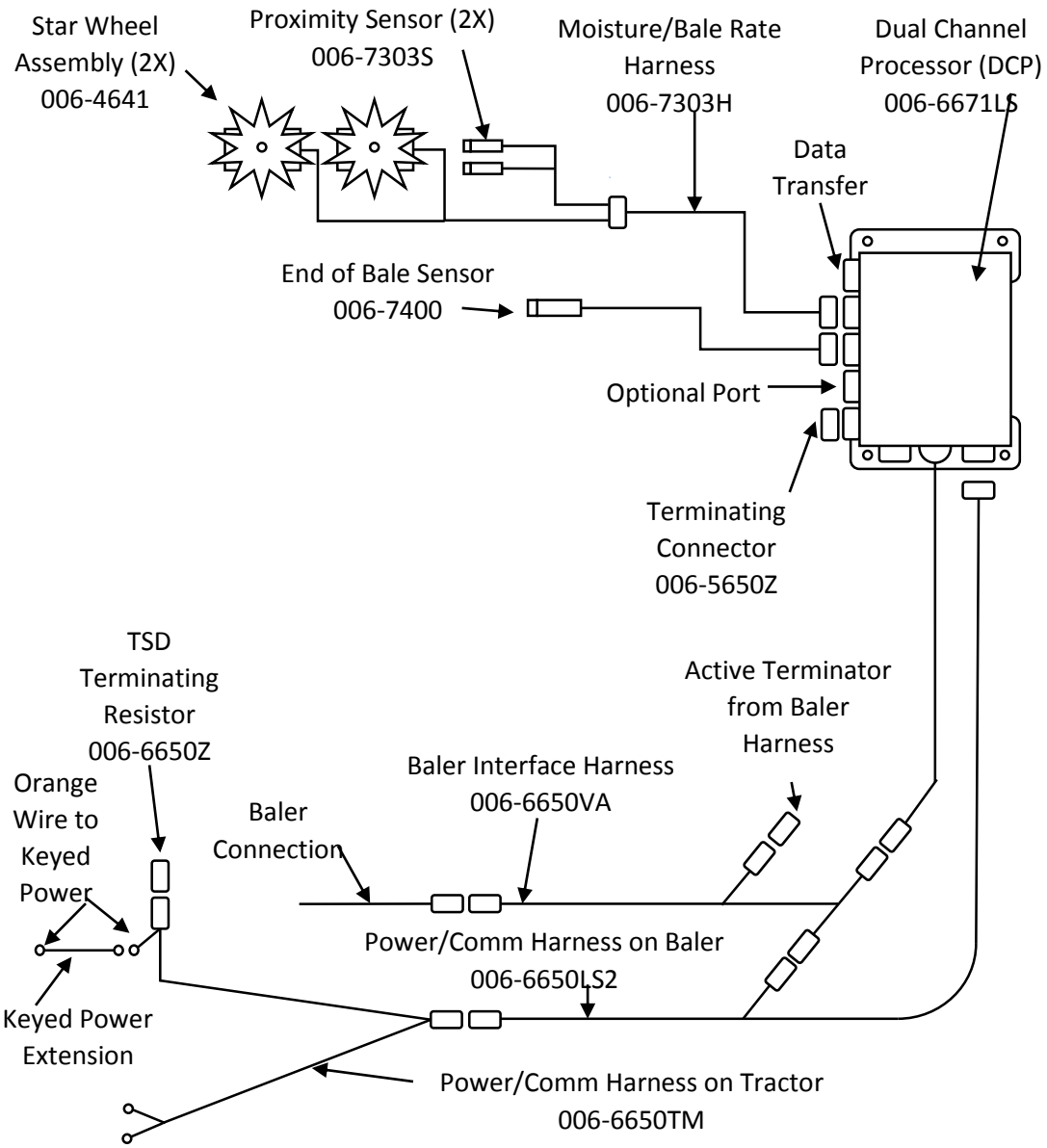
3. The alarm screen should now be displayed. All alarms can be silenced before they are ever heard. This can be done by selecting the **Peak Moisture** icon (arrow P) and turning the alarm On/Off. To return to the baler work screen, press the baler icon located at the top right of the selection menu. If the moisture is higher than the alarm setting the moisture values will be displayed with a red background but there will be no audible alarm if this is turned off.



Please refer to the baler service manual for software updates.

Harness/Wiring Installation and Diagram

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).
B. Connect the large plug of the Baler Power/Communication Harness (006-6650LS2) to the bottom (shorter side) of the DCP.
C. 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).
    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 ISO adapter (shown below) and connect the keyed power wire to a keyed power source on tractor.
D. Install the terminating connector with green cap (006-5650Z) to the port labeled Pump Controller
E. Attach moisture/bale rate harness (006-7303H) and end of bale harness (006-7400) to the DCP.
F. Install terminating resistor with red cap (006-6650Z) on tractor harness (006-6650TM).
G. Connect Keyed Power Extension harness (006-5650K) to a keyed power source.
H. The Optional Port and the Data Transfer Port are not used in this application.

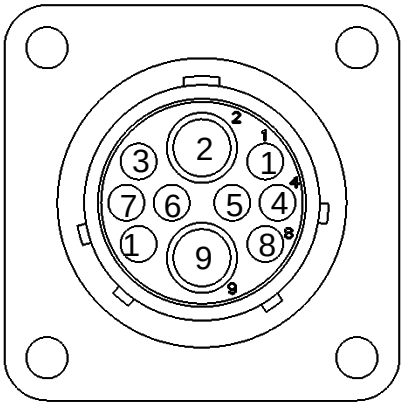


AGCO 2100 Series Balers Pre 2012 will need the AGCO Integration Harness (006-6650VAX)

600A Pin Outs for Harnesses

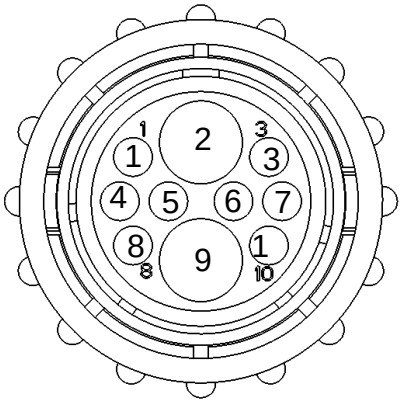
Power/Comm Harness 006-6650TM at Hitch

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



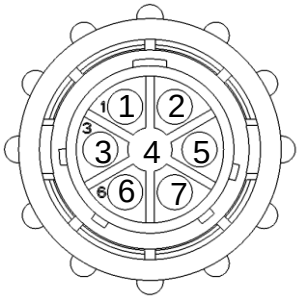
Power/Comm Harness 006-6650LS2 at Hitch

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



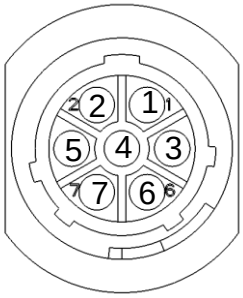
Display Plug on Harness 006-6650TM at TSD

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



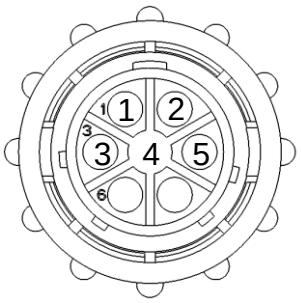
006-6650VA to DCP Whip

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



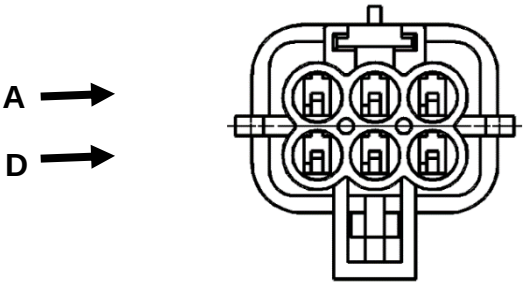
006-6650VA to 006-6650LS2

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	



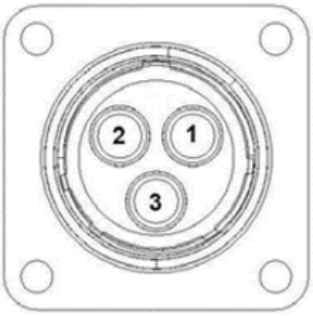
006-6650VA harness to Baler Plug

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 DCP

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

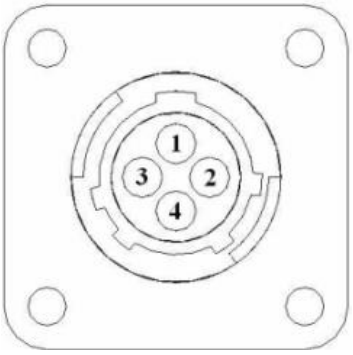


Star Wheel and Bale Rate Sensor connector on DCP

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.

6. **Bale scale does not give a consistent reading.**
   Baling on rough terrain or hills can cause the scale to give an inaccurate reading. Turn Bale Scale option OFF in the Bale Rate Screen and use AVG Bale Weight reading as weight of bale.

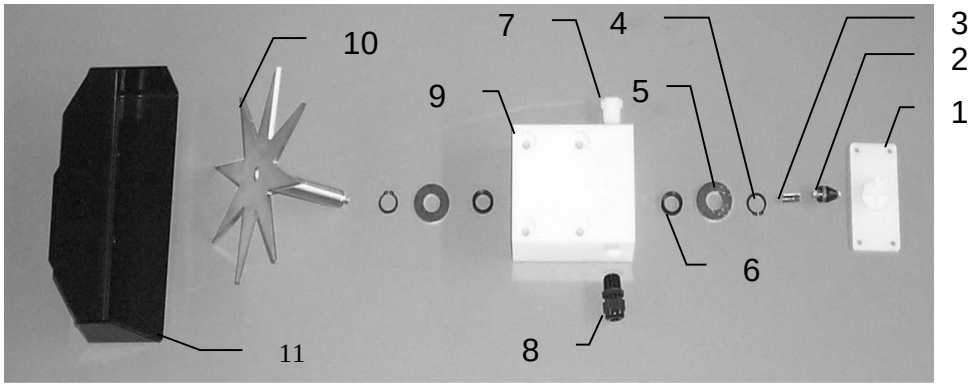
Troubleshooting

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	1. Check all connections at DCP and

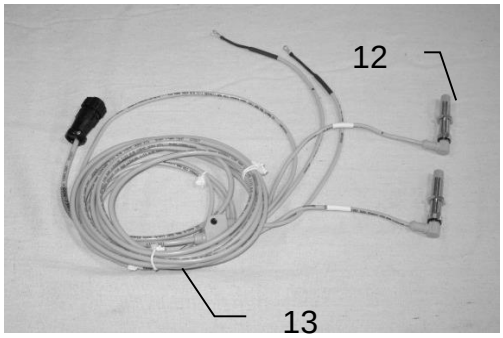
	are not communicating. 2. Broke connection between the display and DCP or PAC and DCP.	Pump controller including terminator 2. Check, clean, and tighten connections.
Bale scale not giving accurate reading	Load cell calibration is off	1. Refer to your scale owner's manual for instructions on recalibrating.
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

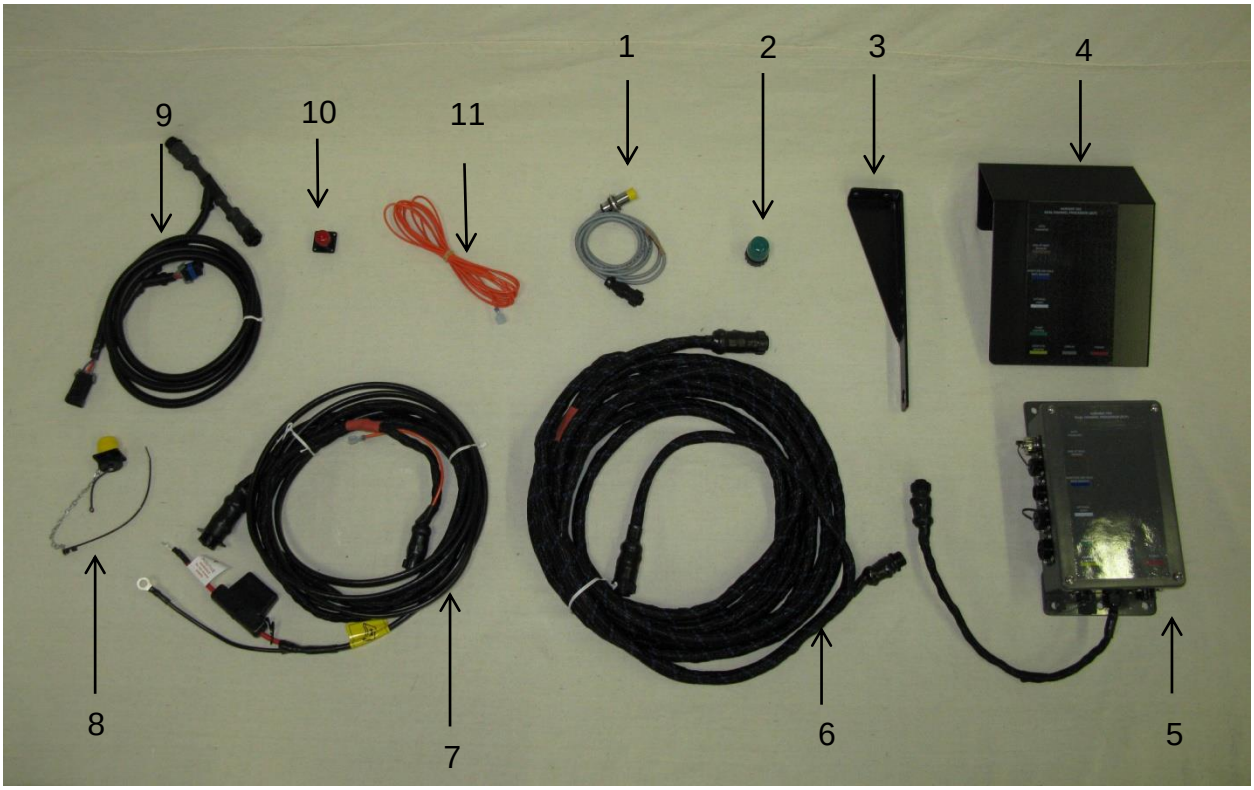


Ref	Description	Part#	Qty	Ref	Description	Part#	Qty
1	Block cover	006-4641B	2	9	Star wheel block	006-4641A	2
2	Electronic swivel	006-4642A	2	10	Star wheel sensor	030-4641C	2
3	Swivel insert	w/ Ref # 10	2	11	Twine guard-left for AGCO	001-4645H	1
4	Snap ring (per side)	006-4641K	2		Twine guard-right for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



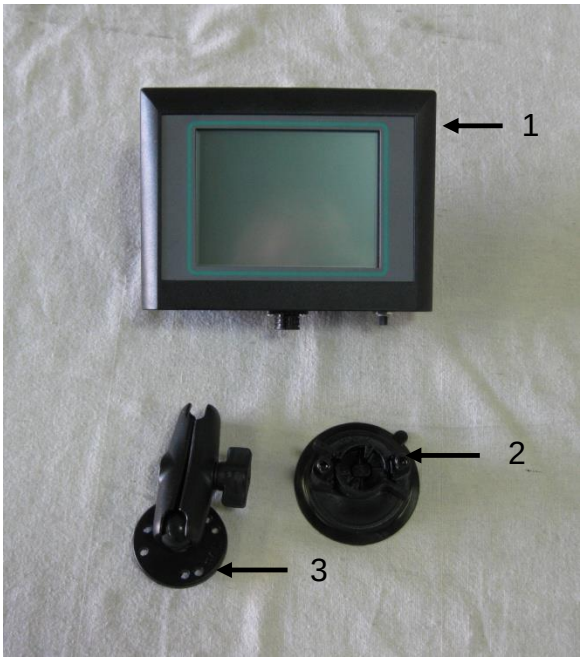
Ref	Description	Part#	Qty
12	Bale rate sensor	006-7303S	2
13	Moisture and bale rate harness	006-7303H	1

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 Baler Pre 2012 will need	006-6650VAX	1

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

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.

Revised 01/13

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