Installation Manual

Model 600J

Moisture Sensor Kit for John Deere Large Square Balers

HARVEST TEC
Equipment and Products for Quality Hay.™

P.O. Box 63 • 2821 Harvey Street • Hudson, WI 54016
800-635-7468 • www.harvesttec.com

600J-16-INST-BLE
9/16

(intentionally blank)

Harvest Tec Model 600J Installation Table of Contents

Introduction

Thank you for purchasing a Harvest Tec Model 600J Moisture Monitoring System. This 600J system has been designed to plug directly into the baler's ISOBUS and/or an Apple iPad (not included) display. The 600J Moisture Monitoring 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 monitor
4. Records kept together
5. System is ready for future updates

The 600J Moisture Monitoring kit includes the following parts: Dual Channel Processor (DCP), Moisture Sensors, Harnesses and Miscellaneous Hardware. For your convenience a parts breakdown for the 600J Moisture Monitoring System is included in the back of this manual. Your local dealer can assist you answering any questions and ordering parts.

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

System Requirements

***Requirement to run iPad option are 3rd Generation iPad (2012) or newer with iOS8 or greater operating system, plus the Hay App.**

Tools Needed:

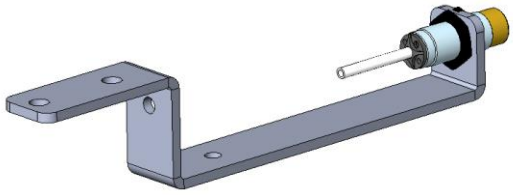
- Standard wrench set
- Electric drill and bits
- Side cutter
- Crescent wrench
- Standard screwdriver
- Standard nut driver set
- Standard socket set
- Hammer
- Metal cutting tools
- Hose cutter
- Center punch

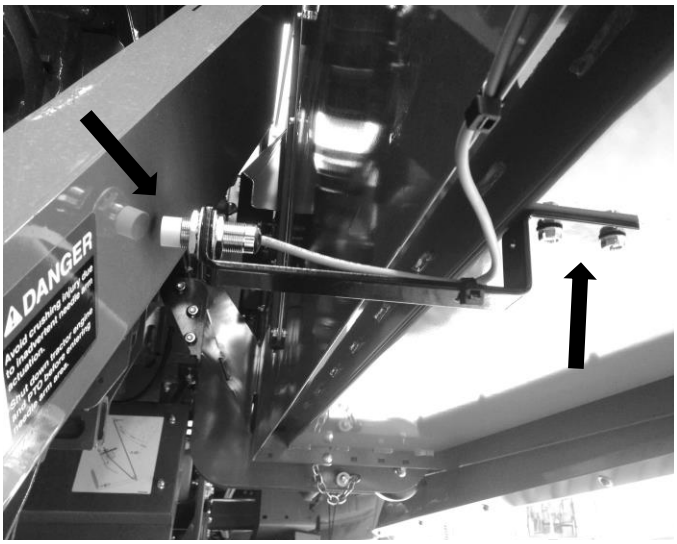
Installation of Dual Channel Processor (DCP)

To mount the Dual Channel Processor (DCP) onto your John Deere L330 / L340 baler, the DCP location will be on the back of the right twine box. The location will vary slightly depending on placement of safety decals from factory, do not cover the safety decals. Mount DCP on back of right hand twine box using Figure 1 as a reference. DCP location is recommended 5” (12.5cm) from inside edge and 5” (12.5cm) from top of twine box.

Figure 1

Installation of End of Bale Sensor



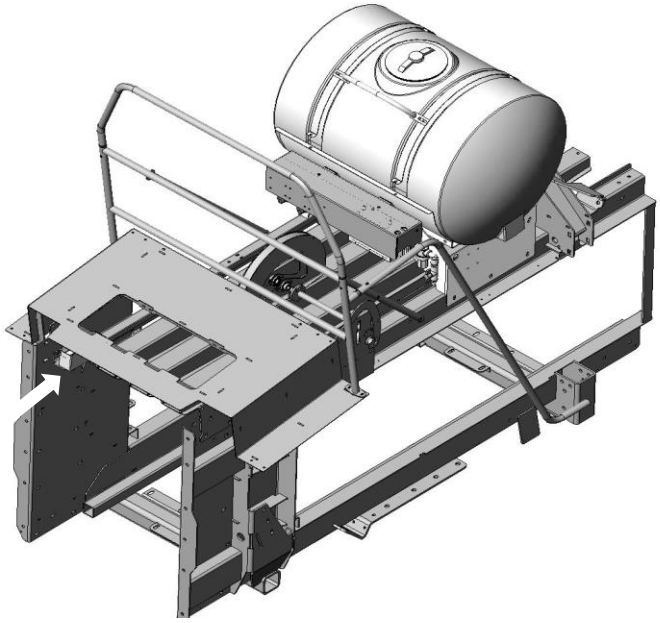


Mount the end of bale sensor bracket (001-4648J) as shown. Under the twine box mark and drill two 3/8” holes and attach the bracket using two 5/16” x 1” self-tapping screws, and 5/16” flange nuts. Position the bolts so the bolt heads are inside the twine box so they don’t interfere with the twine. Mount the sensor in hole location centered alongside the needle arm, keep the sensor 1/4" (7mm) from the needle arm and tighten both nuts. Route the sensor wire along the bottom side of the twine box toward the twine box pivot point. Secure the wire to the twine box and around the pivot point to avoid damage to the wire. Once routed around the pivot point, connect the EOB sensor wire to the Dual Channel Processor (DCP).

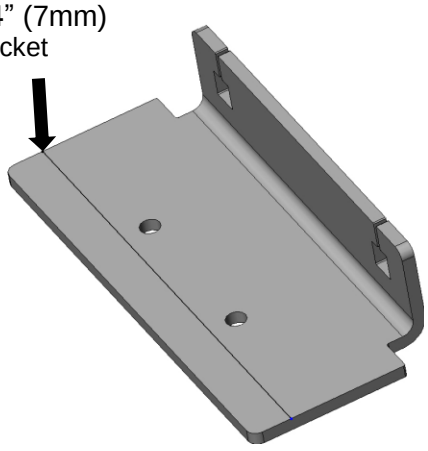
Installation of Star Wheel Moisture Sensors

Star Wheel Mounting – remove any material from the bale chute. The star wheels are to be mounted on the transition bracket on both sides of the bale chute located after knotters shown above. Holes have been installed at the factory, however you need to remove the bracket and cut 3/4” (19mm) off the bracket as indicated below to allow proper spacing for star wheel assembly. Once complete, touch up with spray paint to prevent rusting and place the carriage bolts that mount the transition bracket back in original bracket mounting holes (A) before mounting star wheel assembly (C). Insert the 5/16” by 3 1/4” Allen head bolts up through the transition bracket and use nuts to hold the bolts in place (B). Place the star wheel block over the nuts. Place twine guard on top of star wheel (D), the guard containing bale rate sensors will be placed on the right side. Note: Thicker part of star wheel block should be on baler side.

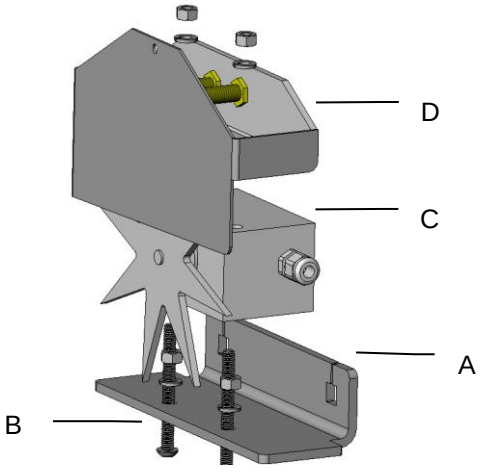
Transition Bracket Location



Cut 3/4” (7mm)
Off Bracket



Baler transition bracket

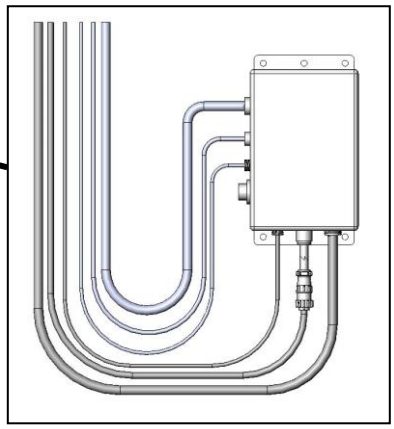


Star wheel assembly

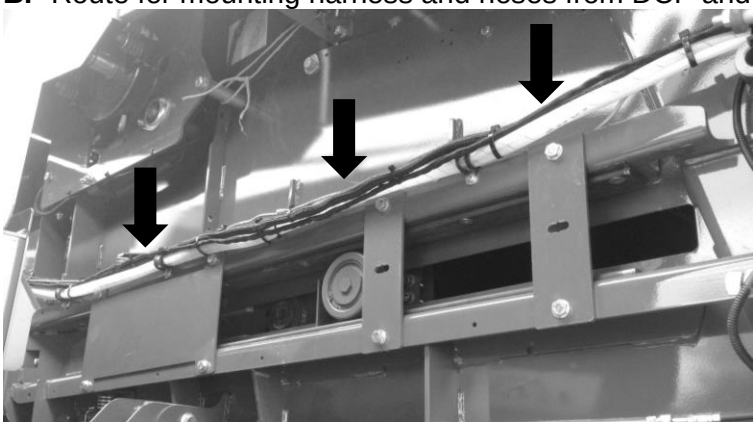
John Deere L330 / L340 Balers Harness Routing and ISOBUS Connection

A. Main wiring harness and power cord connection to baler harness terminator connection

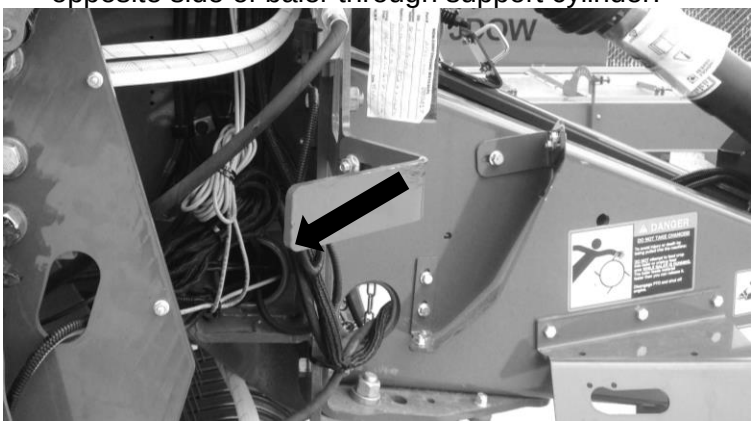
Route cords 006-6650LS2 along this path. Keep cords away from moving parts and hydraulic hoses. Secure with existing cable clamps or use cable ties. When all connections are made to DCP secure wires as shown below.



B. Route for mounting harness and hoses from DCP and Pumps



C. Route ISO Integration Harness (006-6650VAJ) to opposite side of baler through support cylinder.



D. ISOBUS Connection

Locate harness 006-6650VAJ and connect to baler interface harness next to baler's processor (below) on front left side of baler. Remove baler terminating resistor and connect to short pigtail on 006-6650VAJ Harness.

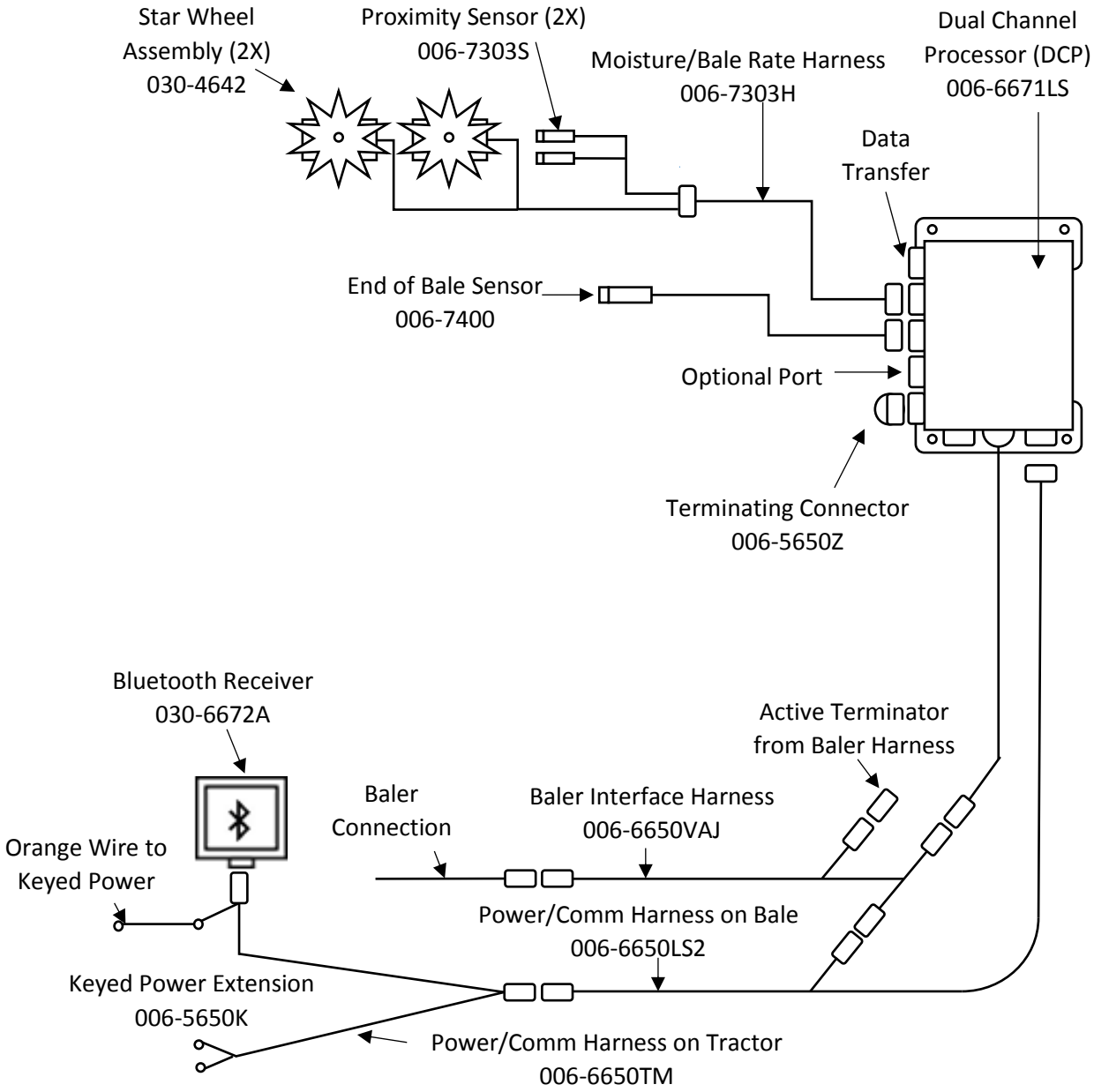
Installation of Bluetooth Receiver

Locate a safe location in the cab of the tractor to place the Bluetooth Receiver (030-6672A). Recommended location is as close to the iPad being used as possible.

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

John Deere L330 / L340 Balers Harness/Wiring Installation for using ISOBUS Display

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 (006-6650VAJ) in between the short whip cable hardwired to the DCP and the main Power/Communication Harness. Make sure Active Terminator removed from the baler processor is attached to the Baler Interface Harness (006-6650VAJ).
D. Connect the Bluetooth Receiver (030-6672A) to Communication Harness (006-6650TM).
E. Install the Terminating Connector (006-5650Z) to the port labeled Modular Port on the Pump Controller (006-5672).
F. Attach moisture and bale rate harness (006-7303H) to the DCP (006-6671LS).
G. Connect Keyed Power Extension harness (006-5650K) to a keyed power source.
H. Note: the Optional Port and the Data Transfer Port are not used in this application.



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

Bluetooth Receiver on Harness 006-6650TM

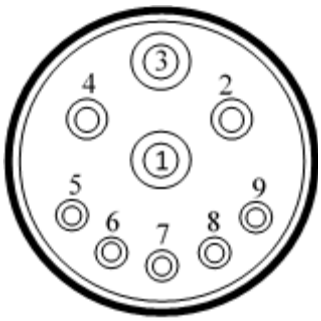
Pin 1	Red	+12V Power from DCP
Pin 2	Black	Ground from TSD
Pin 3	Yellow	HT Can Low
Pin 4	Gray	Shield
Pin 5	Green	HT Can Hi
Pin 6	Orange	Can1 Hi
Pin 7	Blue	Can1 Low

ISOBUS Plug Baler Side

Pin 1		N/A
Pin 2		N/A
Pin 3		120 OHM with Pin 5
Pin 4		N/A
Pin 5		120 OHM with Pin 3
Pin 6	Orange	Can1 Hi
Pin 7	Blue	Can1 Low

ISOBUS Plug Tractor Side

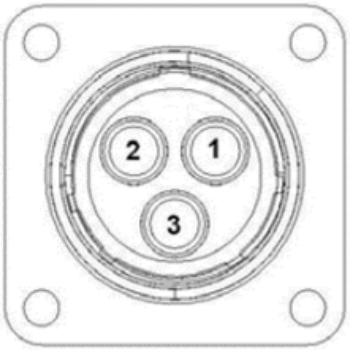
Pin 1		N/A
Pin 2		N/A
Pin 3		+12V Keyed Tractor Power
Pin 4		N/A
Pin 5		N/A
Pin 6		N/A
Pin 7		N/A
Pin 8	Orange	Can1 Hi
Pin 9	Blue	Can1 Low



Pin Outs (continued)

Main Power Connector on DCP

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

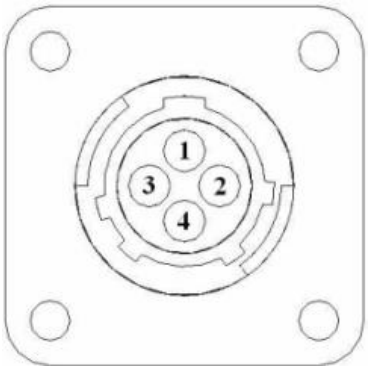


Star Wheel and Bale Rate Sensor connector on DCP

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

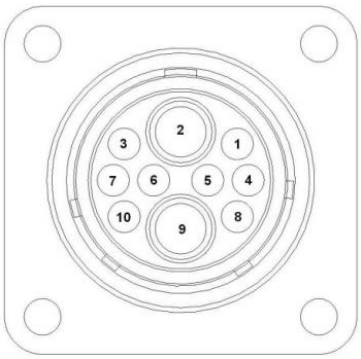
End of Bale sensor on DCP

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



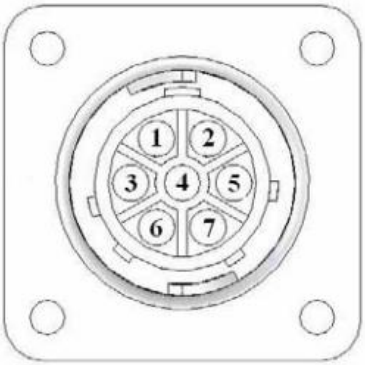
Pump Communication Plug on DCP

Pin 1	Red	+12V Can
Pin 2	Red	+12V Power
Pin 3	Gray	Shield
Pin 4	Green	Comm Channel OH
Pin 5	Yellow	Comm Channel OL
Pin 6	Blue	Comm Channel IH
Pin 7	Orange	Comm Channel IL
Pin 8	Black	Can Ground
Pin 9	Black	Power Ground
Pin 10	N/A	



Pump Connection Colors

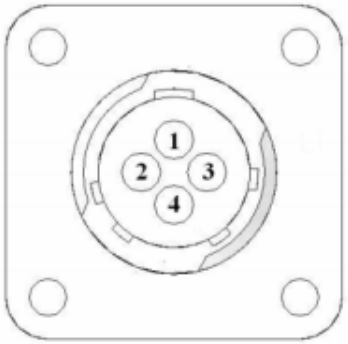
Pin 1	Black with Orange Stripe	Pump 1 Ground
Pin 2	Black with Green Stripe	Pump 2 Ground
Pin 3	Black with Yellow Stripe	Pump 3 Ground
Pin 4	N/A	
Pin 5	Orange with Black Stripe	Pump 1 Positive
Pin 6	Green with Black Stripe	Pump 2 Positive
Pin 7	Yellow with Black Stripe	Pump 3 Positive



Pin Outs (continued)

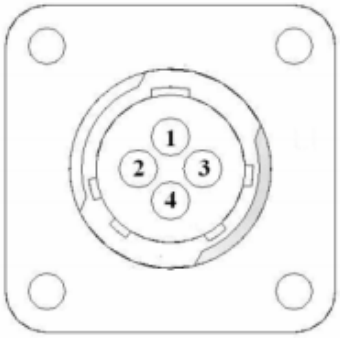
Flow Meter Connection on Pump Controller

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



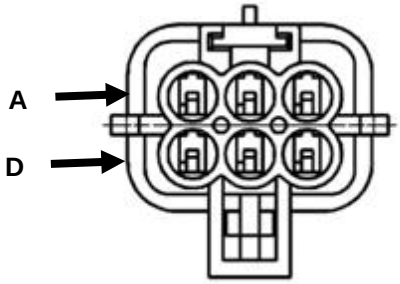
Connector for Crop Eyes on DCP

Pin 1	Red	+12V Power
Pin 2	Black	Ground
Pin 3	White	Signal
Pin 4	N/A	



006-6650VAJ 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



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.

4. 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.

5. 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.

6. 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).

7. 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

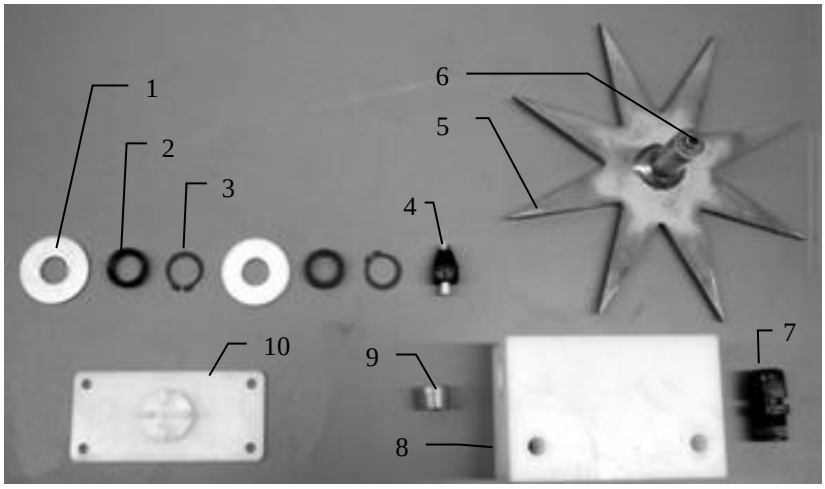
PROBLEM	POSSIBLE CAUSE	SOLUTION
Moisture reading errors (high or low)	1. Wire disconnected or bad connection between star wheels and DCP	1. Reconnect wire.
	2. Low power supply to DCP	2. Check voltage at box. (Min of 12 volts required.) See Diagnostics section of manual.
	3. Dry hay lower than 8% moisture 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.

Parts Breakdown

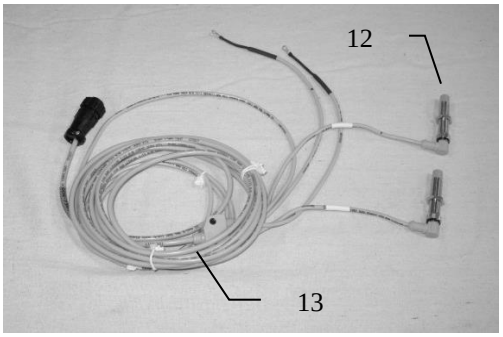
600J Series Control and Harnesses
Dual Channel Processor (DCP)

Ref	Description	Part Number	Qty
1	Dust Plugs	006-5651PLUGS	1
2	End of Bale Sensor 600 Series	006-7400	1
3	End of Bale Sensor Bracket	001-4648J	1
4	DCP Shield Cover	001-5650X	1
5	DCP Main Control LS 600 AUTO	006-6671LS	1
6	Terminating Connector (Green Cap)	006-5650Z	1
7	DCP Baler Harness 30 Ft	006-6650LS2	1
8	DCP Tractor Harness	006-6650TM	1
9	Key Switch Wire	006-5650K	1
10	Bluetooth Receiver	030-6672A	1
NP	Baler Integration Harness	006-6650VAJ	1

Star Wheel Moisture Sensors and Bale Rate Sensors

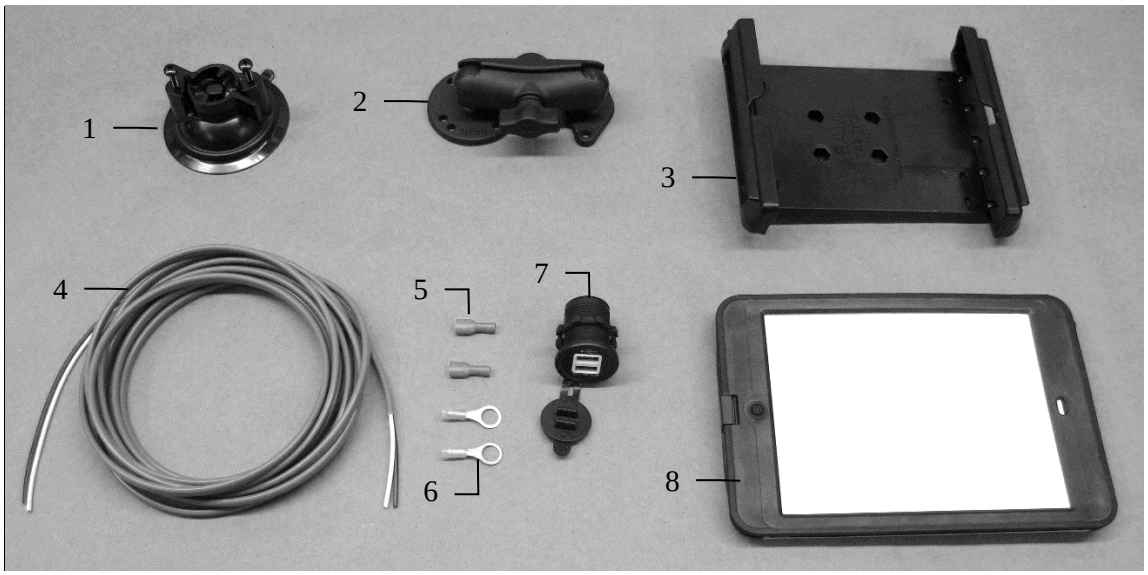


Ref	Description	Part#	Qty	Ref	Description	Part#	Qty
1	Washer (per side)	006-4642K	2	8	Star wheel block	006-4641A	2
2	Dust seal (per side)	w/006-4642K	1	9	Plug fitting	003-F38	2
3	Snap ring (per side)	w/006-4642K	2	10	Block Cover	006-4641B	2
4	Swivel	006-4642A	2	**1-10**	**Star wheel assembly**	**030-4642**	**2**
5	Star wheel	030-4641E	2	NP	Twine guard – right (prox)	001-4644	1
6	Insert	w/ Ref # 5	2	NP	Twine guard - left	001-4645	1
7	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

Optional iPad Mini Mounting Kit (030-2012MK)



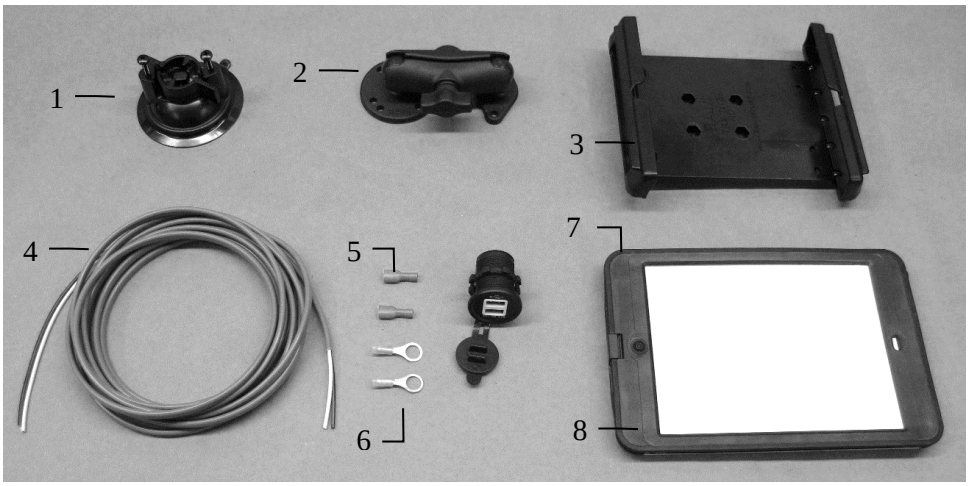
Ref	Description	Part #	Qty
1	Suction cup mount	001-2012SCM	1
2	Ram mount	001-2012H	1
3	iPad Mini spring load cradle (Mini 1,2,3)	001-2012SLC	1
4	16 gauge power wire	006-4723P	1
5	Female spade connector	Hardware	2
6	Eye loop connector	Hardware	2
7	iPad Mini Charger 12V	001-2012P	1
8	iPad Mini 2 case	001-2012C2	1
NP	4 amp fuse	Hardware	1
	Mounting Kit Assembly	030-2012MK (Includes All Parts)	

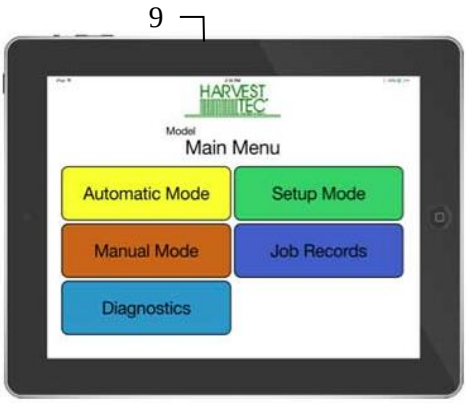
Installation Instructions

1. Identify 12V power source for wires to connect.
    a. Eye loops included if wiring directly to the battery is desired.
    b. Test for key power source if preferred to have power to the USB shut off with the key.
2. Once power source is identified, cut wires to desired length.
3. Crimp the two supplied quick connectors onto each the white and black wire.
4. Remove the round locking plastic nut from USB plug before connecting the wires. Black (+) White (-).
5. The wires will then be hooked to the designated terminals on the bottom of the USB plug
6. Drill a 1 1/8” hole in the preferred mounting location. Be sure to clean any sharp edges after drilling.
7. Feed the wires through the mounting hole.
8. If using the round plastic nut to secure plug in place, slide the nut back over the wiring before connecting the wires to powered source.
9. Connect the wires to the identified power source if easier to do so before tightening the plug into place.
10. Tighten plug using either the round plastic nut or mounting plate and two screws, both options supplied.
11. Once connected, hook a USB charging cord into the plug and connect a mobile device/tablet to ensure the plug is operating as you wish (key power working properly if necessary).

NOTE: This plug is not designed to charge two iPads. System damage could occur if this is attempted. System will charge a mobile phone and iPad simultaneously without problem.

Optional iPad Display Kit (030-2670DK)





Ref	Description	Part #	Qty	Ref	Description	Part #	Qty
1	Suction cup mount	001-2012SCM	1	7	iPad Mini Charger 12V	001-2012P	1
2	Ram mount	001-2012H	1	8	iPad Mini 2 case	001-2012C2	1
3	iPad Mini spring load cradle (Mini 1,2,3)	001-2012SLC	1	9	iPad Mini 2	006-2670IP	1
4	16 gauge power wire	006-4723P	1	NP	4 amp fuse	Hardware	1
5	Female spade connector	Hardware	2				
6	Eye loop connector	Hardware	2		Mounting Kit Assembly	030-2670DK (Includes All Parts)	

Installation Instructions

12. Identify 12V power source for wires to connect.
    a. Eye loops included if wiring directly to the battery is desired.
    b. Test for key power source if preferred to have power to the USB shut off with the key.
13. Once power source is identified, cut wires to desired length.
14. Crimp the two supplied quick connectors onto the white and black wire.
15. Remove the round locking plastic nut from USB plug before connecting the wires. Black (+) White (-).
16. The wires will then be hooked to the designated terminals on the bottom of the USB plug
17. Drill a 1 1/8” hole in the preferred mounting location. Be sure to clean any sharp edges after drilling.
18. Feed the wires through the mounting hole.
19. If using the round plastic nut to secure plug in place, slide the nut back over the wiring before connecting the wires to powered source.
20. Connect the wires to the identified power source if easier to do so before tightening the plug into place.
21. Tighten plug using either the round plastic nut or mounting plate and two screws, both options supplied.
22. Once connected, hook a USB charging cord into the plug and connect a mobile device/tablet to ensure the plug is operating as you wish (key power working properly if necessary).

NOTE: This plug is not designed to charge two iPads. System damage could occur if this is attempted. System will charge a mobile phone and iPad simultaneously without problem.

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

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