Owner's Manual

Model 780GPS
GPS Attachement

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

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Harvest Tec 780GPS Table of Contents

Introduction

Congratulations on purchasing a Harvest Tec Model 780 GPS attachment. The 780 GPS kit enables you to connect a Garmin 16xHVS receiver to either a Harvest Tec 700 Series moisture-only or preservative application system. This system collects data for creating a GPS yield map (yield map software not included), as well as collects GPS data pertaining to where each bale was completed and will be stored to your job records. The model 780GPS includes the Garmin 16xHVS receiver and harness to connect to your Harvest Tec system.

Overview

The Harvest Tec model 780GPS utilizes WAAS satellite information and communicates that information with the ISO Communication Module (ICM) located in the cab of the tractor. The ICM correlates the GPS data with additional data gathered from the sensors connected to the Harvest Tec system and creates a downloadable yield file for each job. In addition, the ICM also records the GPS point where each bale was completed and ties that GPS coordinate to that bales individual record. The yield file is saved as a .csv file and can be imported as generic text data into your yield mapping software (not included). This yield data can be useful to the user for present and future field management decisions (fertility, water usage, etc.) The yield file is capable of being loaded into any type of field management software.

Installation of GPS Receiver & Harness

Installation of GPS Receiver

1. Locate the Garmin 16xHVS receiver and attach the mounting plate to the GPS receiver with the 3 supplied screws.
2. Determine mounting position on baler: For square balers, the GPS receiver will be mounted on top of the baler in front of the knotter flag indicators or on a flat surface near the knotters. For round balers, mount the GPS receiver on a flat area on top/center of baler away from all metal that could cause signal interference.
3. Mount the mounting plate to the baler by drilling 2 holes and using the supplied hardware.

Installation of GPS Harnesses

1. Route the GPS harness (006-7650GPS) from the receiver forward along the baler's existing wiring toward the front hitch of the baler. Secure the GPS harness away from moving parts or pinch points with supplied zip ties. Bundle up any remaining harness and secure it with zip tie in an out of the way location on the baler.
2. Locate the GPS integration harness (006-765GPS-EXT) in the kit. Locate the round Deutsch Plug connector at the front of the 006-762/3/5B main 700 series baler harness (Figure 1). With needle nose pliers remove white plugs from back of plug found in pin placement 15, 16, & 17 (Figure 2).
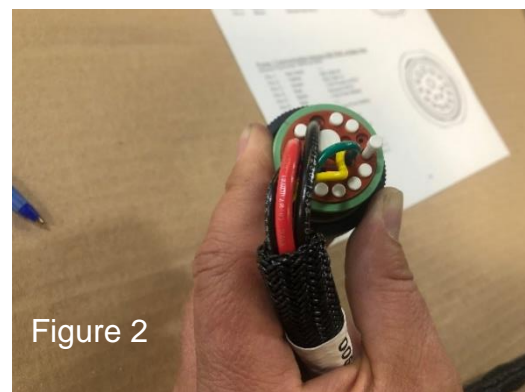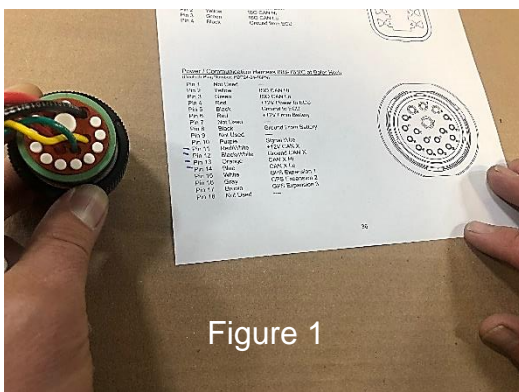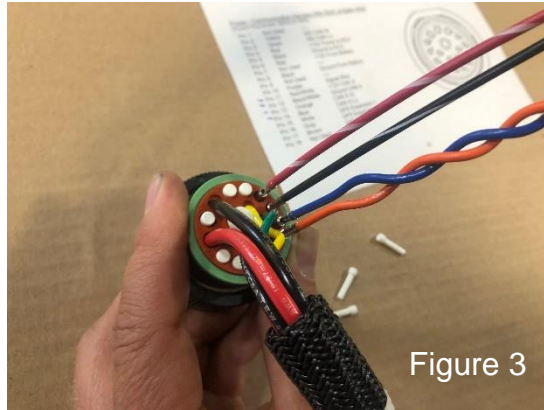

Figure 1

Figure 2

Figure 3

3. The GPS expansion harness (006-765GPS-EXT) has a 3 Pin triangular plug with 3 wires leads terminated with socket connectors. Install the socket connectors by identifying each colored wire on the GPS expansion Harness and pushing them into the corresponding open cavity in the back side of the 18 Pin connector (Figure 3). Reference wire pinout "Power / Communication Harness 006-765IC at Baler Hitch" in pin out section and the chart below to locate wire color with corresponding plug pin #.

Note: Do not remove any existing wires from baler harness plug; the Expansion Plug is meant to plug into open cavities, as followed:

GPS Expansion Plug	Baler harness plug/wire color
Gray, Pin 1, Garmin 12V+	Cavity #16
Brown, Pin 2, Garmin GND wire	Cavity #17
White, Pin 3, Garmin Rx wire	Cavity #15

4. Connect 3 pin Deutsch male plug from expansion harness (006-765GPS-EXT) to female plug on GPS harness (006-7650GPS) which has been routed to the front of baler (Figure 4). Secure all cables/wires with zip ties.
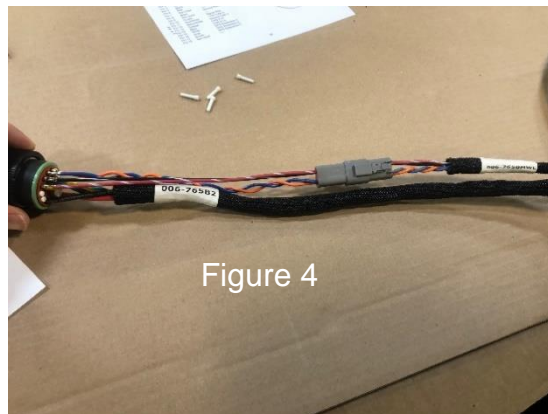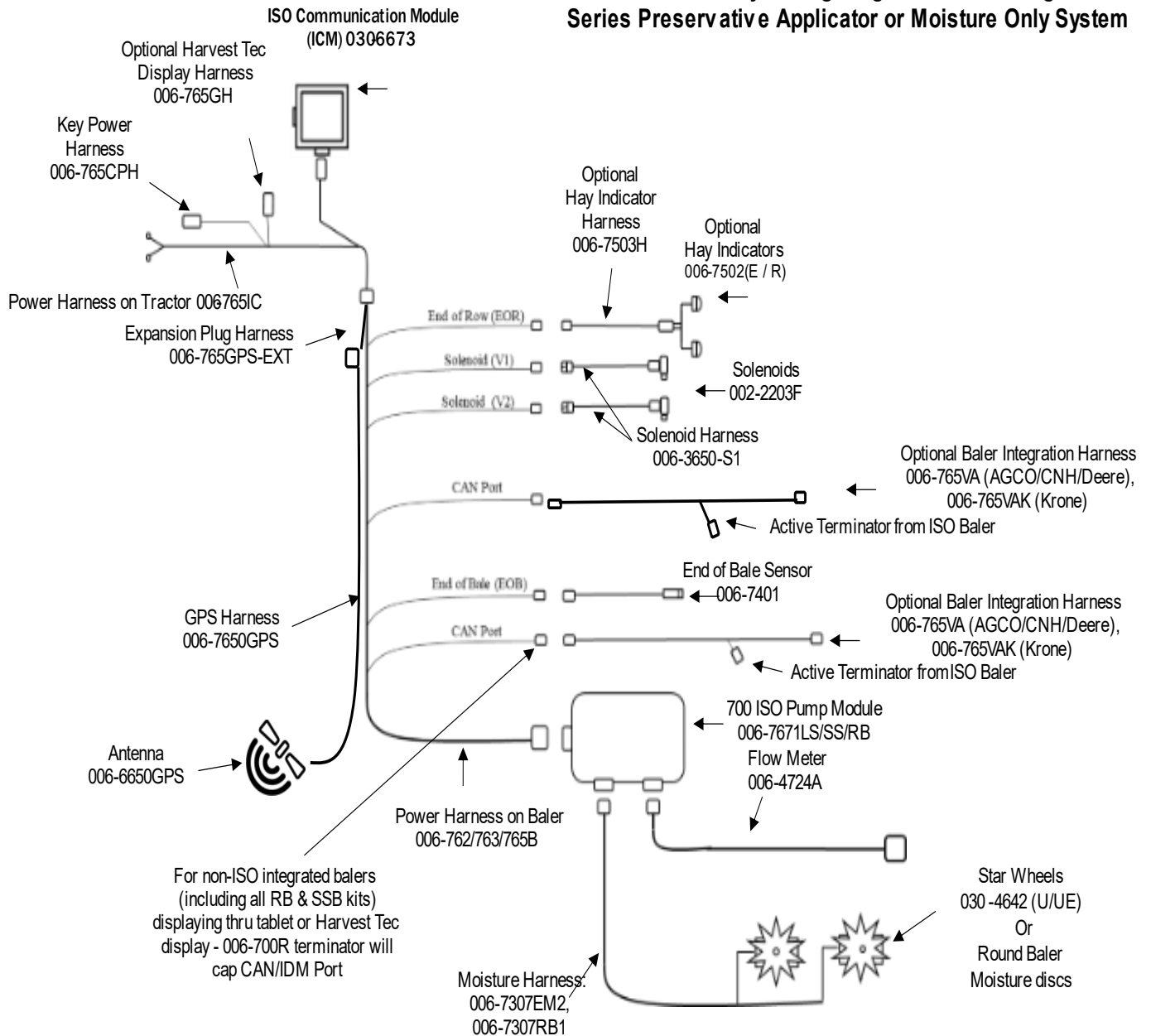

Figure 4

700 Series with 780GPS WIRING DIAGRAM

780GPS Accessory Wiring Diagram – Connecting to 700 Series Preservative Applicator or Moisture Only System

ISO Communication Module (ICM) 0306673

Optional Harvest Tec Display Harness 006-765GH

Key Power Harness 006-765CPH

Power Harness on Tractor 006765IC

Expansion Plug Harness 006-765GPS-EXT

GPS Harness 006-7650GPS

Antenna 006-6650GPS

Optional Hay Indicator Harness 006-7503H

Optional Hay Indicators 006-7502(E / R)

End of Row (EOR)

Solenoid (V1)

Solenoid (V2)

Solenoids 002-2203F

Solenoid Harness 006-3650-S1

CAN Port

Optional Baler Integration Harness 006-765VA (AGCO/CNH/Deere), 006-765VAK (Krone)

Active Terminator from ISO Baler

End of Bale (EOB)

End of Bale Sensor 006-7401

CAN Port

Optional Baler Integration Harness 006-765VA (AGCO/CNH/Deere), 006-765VAK (Krone)

Active Terminator from ISO Baler

700 ISO Pump Module 006-7671LS/SS/RB Flow Meter 006-4724A

Power Harness on Baler 006-762/763/765B

For non-ISO integrated balers (including all RB & SSB kits) displaying thru tablet or Harvest Tec display - 006-700R terminator will cap CAN/IDM Port

Moisture Harness: 006-7307EM2, 006-7307RB1

Star Wheels 030 -4642 (U/UE) Or Round Baler Moisture discs

Setup Instructions – ISOBUS VT

1. Turn the control system on. After a few seconds, the Main Menu screen will load. Press **Setup**, the Setup screen will then appear.
2. Press the **Yield Map** tab. Yield Mapping Setup will now be displayed.
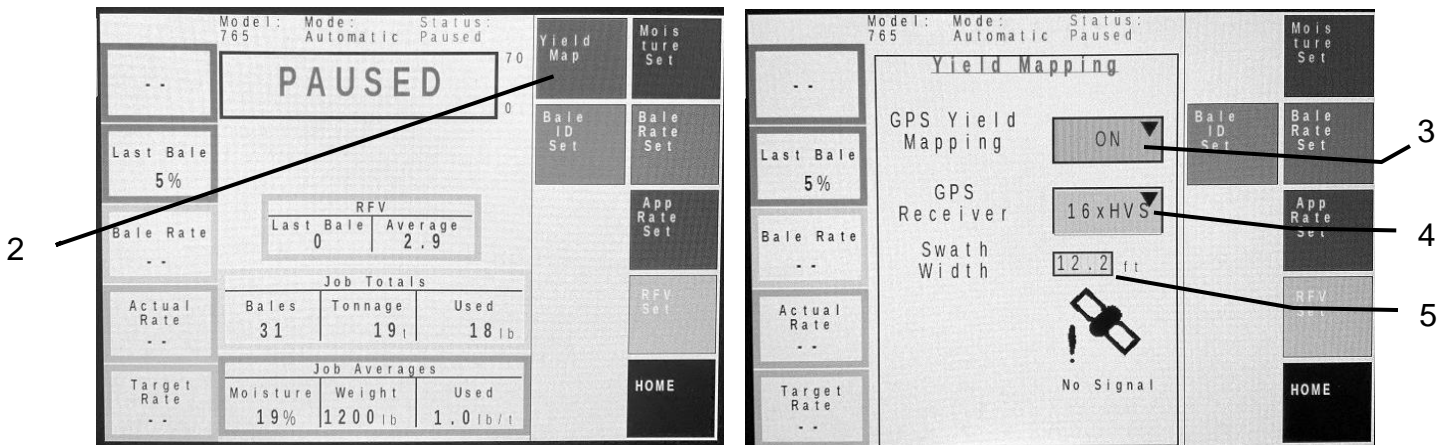
3. Press the **GPS Yield Mapping** dropdown and select ON to enable GPS communication.

4. Press the **GPS Receiver** dropdown to select 16xHVS (Garmin).
5. Press the **Swath Width** cell and enter in the swath width that will be baled. Press → to confirm.

Setup Instructions – Tablet App

1. Turn the control system on. After a few seconds, the Main Menu screen will load. Press **SETUP**, and the Setup menu will then appear.
2. Press the **APPLICATION SETUP** tab on the right. The Application Rate Setup menu will display.
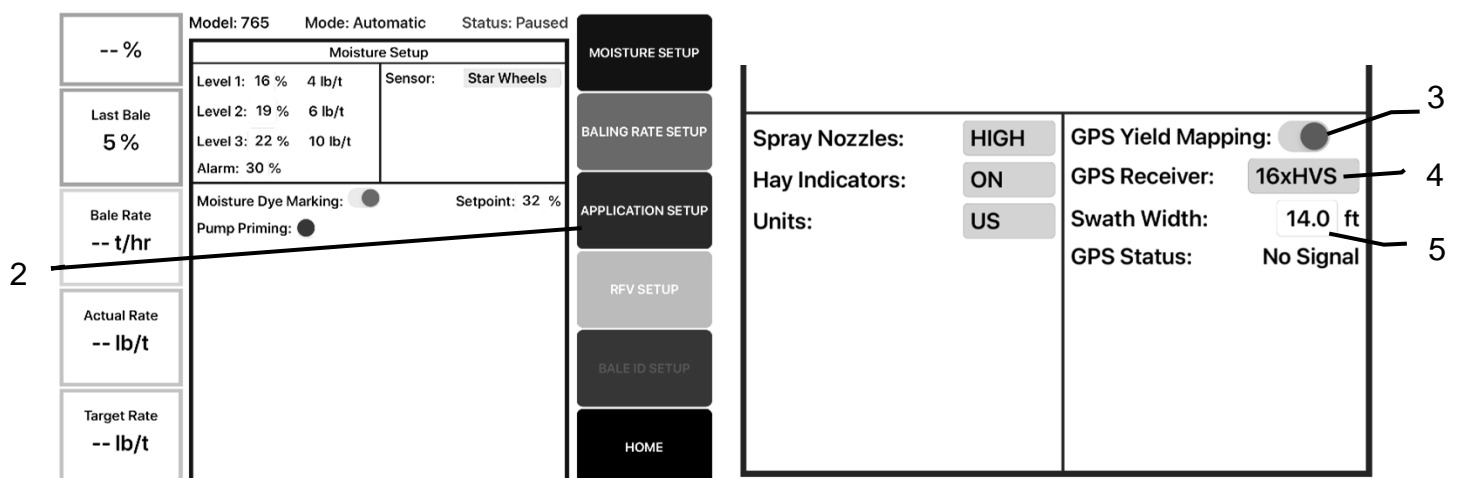

3. Press the **GPS Yield Mapping** slider to enable GPS communication.
4. Press the **GPS Receiver** cell and select 16xHVS (Garmin).
5. Press the **Swath Width** cell and enter in the swath width that will be baled. Press **ENTER** to confirm.

Operation Instructions

1. Once installation and setup are complete, the system is ready for baling. The status of the GPS system is indicated by the **color of the border** around the moisture histogram on the main run screen in both Auto and Manual modes.
   - *BLACK*- GPS is turned *OFF.*
   - *GREEN*- GPS is turned *ON*, signal is good.
   - *RED*- GPS is turned *ON*, no signal or signal has been lost.

   While the border is green, GPS coordinates and crop data will be written to the Yield File every three seconds. ***Note - It is highly recommended to run 700 series with 474C cropeye kit to ensure system is pausing when crop flow is not entering baler giving a false baling rate. If cropeyes are not in use the operator should be diligent to pause and un-pause system when hay is not entering pickup to obtain the most accurate yield file.***
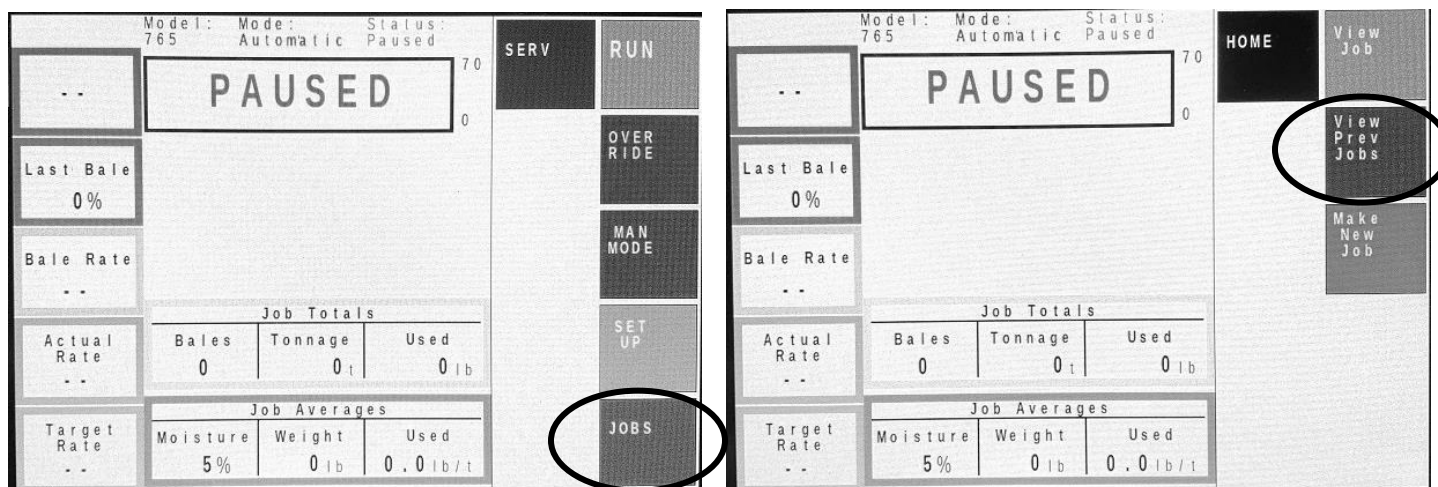
   When the baler ties to complete the bale, the ICM will record the corresponding GPS coordinate with the bale data in the job record.
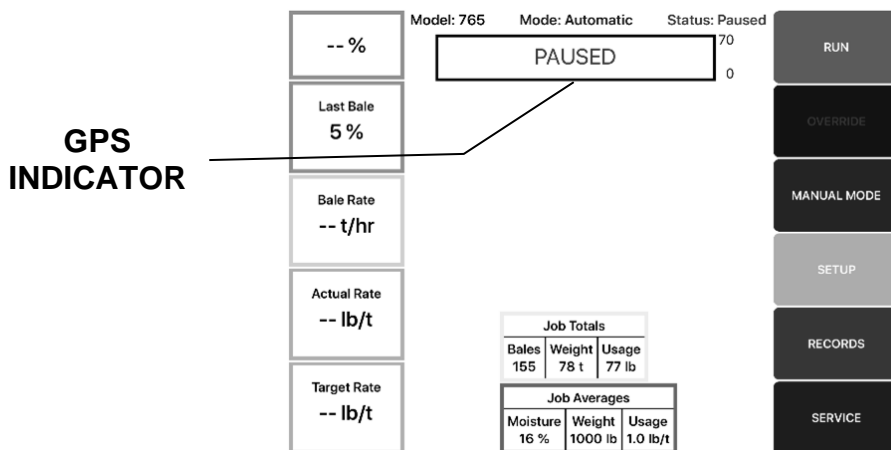
2. After baling is complete, Job records and Yield files can be downloaded to a USB thumb drive by inserting the thumb drive into the USB port on the ICM located in the tractor. Insert the USB thumb drive into the port on the side of the ICM indicated by the decal. Remove the plastic plug to install the USB thumb drive.

   a. **ISOBUS VT - Yield files** can be accessed on the ISOBUS VT by selecting **SERVICE** from the main screen, then selecting **FILE** from the menu options on the **right.** The list of yield files can be viewed, exported to USB (when USB stick is plugged into ICM), or deleted. Yield Files can be managed individually, or all at once. These files will have yield data collected every three seconds.
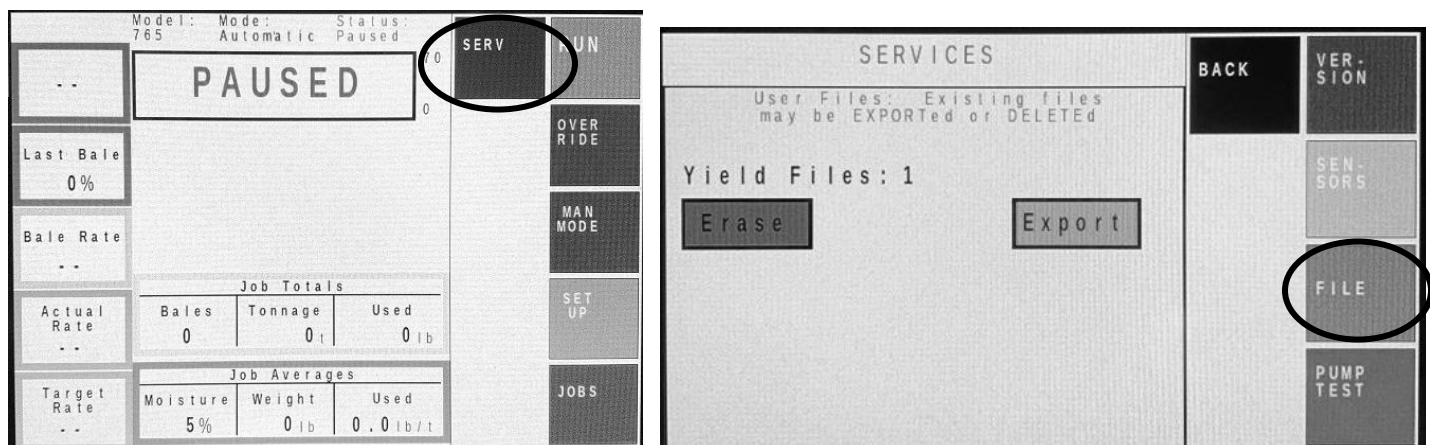
b. **ISOBUS VT - Job records** can be accessed on the ISOBUS VT by selecting **JOBS** from the menu options on the right side of the main screen, then selecting **VIEW PREVIOUS JOBS** from the menu options on the right side. Job records can be managed individually (View, Download to USB, Delete, or Add to Job), if selected, or all at once (Export or Delete). The Job List can be filtered by Farm, Field, or Crop by selecting a cell in the **Viewing Filters** section on the bottom of the list. The job files have information pertaining to each individual bale, including the GPS coordinate for where each bale was completed.

Viewing Filters

c. **Tablet - Job records and Yield Files** can be accessed on the Tablet by selecting **RECORDS** from the menu options on the right side of the main screen. This will open the **View Job List**. If the GPS was connected properly, a "Y" will appear on the far-right column of the job list, indicating that a Yield File is available with this job. By Selecting one job from the list, job records can be managed individually (View, Export, Delete, or Add to Job). If none are selected, job records can be managed all at once (Export or Delete). The job list can also be filtered by Farm, Field, or Crop by selecting a cell in the **Viewing Filters** section at the bottom of the list. If a Yield File is available with a job, it will be downloaded at the same time. The job files have information pertaining to each individual bale, including the GPS coordinate for where each bale was completed. Yield files will have yield data and GPS coordinates collected every three seconds.

Yield File indicator

Viewing Filters

Troubleshooting

| PROBLEM	POSSIBLE CAUSE	SOLUTION
GPS icon not displaying green in Auto or Manual modes	1. GPS is not enabled. 2. GPS signal blocked by obstruction (trees, building, etc). 3. Harness is damaged or the connection is dirty/damaged. 4. Pins inserted incorrectly on baler plug.	1. Check Yield Mapping Setup to make sure that the GPS is enabled. 2. Move baler to a location where GPS signal is not blocked. 3. Inspect GPS wiring harness and connections. 4. Check **Pin Location** section and verify correct cavities are populated.
Missing GPS data in Yield File and/or Job Records	1. GPS is disabled. 2. GPS did not connect to GPS satellites prior to baling. 3. Harness is damaged or the connection is dirty/damaged.	1. Check Yield Mapping Setup to make sure that the GPS is enabled. 2. Verify that the GPS icon is green in Automatic/Manual modes before baling. 3. Inspect GPS wiring harness, connections, pin outs on plug.

Parts Breakdown for Model 780GPS
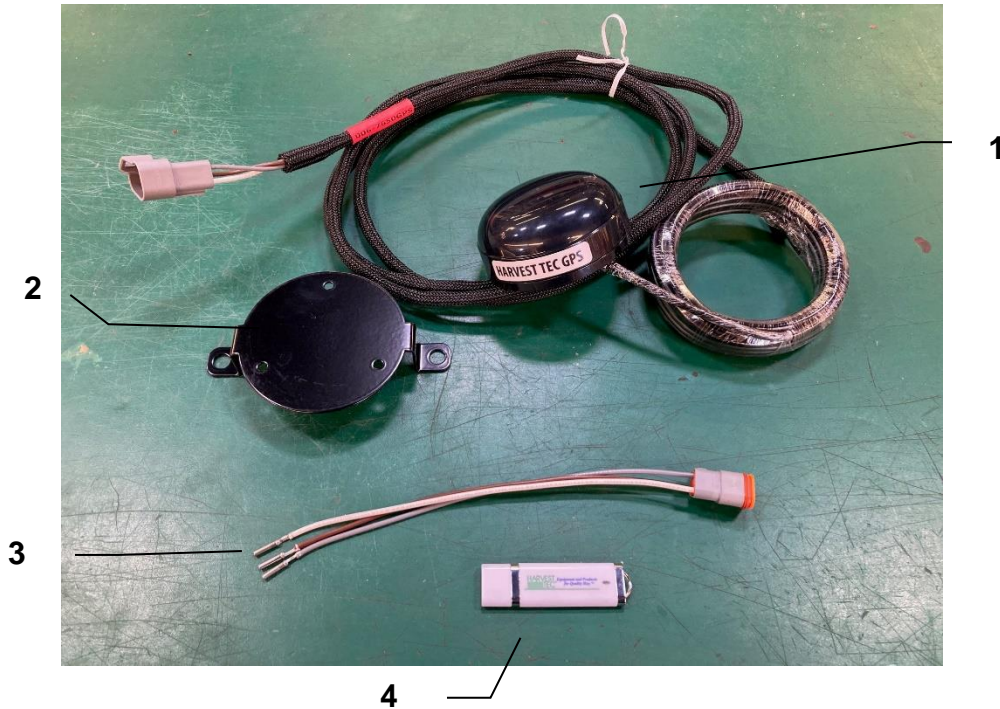
Ref	Description	Part#	Qty
1	GPS Receiver w harness	006-7650GPS	1
2	GPS Receiver Mount	001-2012GPS	1
3	GPS Expansion Harness	006-765GPS-EXT	1
4	USB stick	006-5650USB	

Pin Locations

006-762/3/5B Baler Plug – destinations for 765GPS Expansion Plug
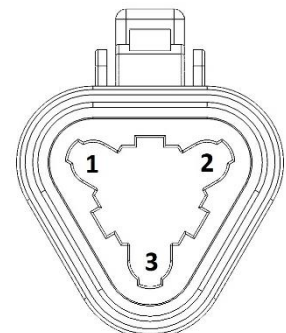
Pin 16   Gray   Garmin 12V+
Pin 15   White   Garmin RX1
Pin 17   Brown   Garmin GND

Note: Rear View of plug (wire side)
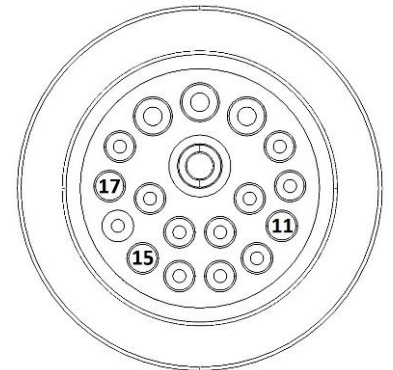
006-765GPS Expansion Plug

Pin 1   Gray   Garmin 12V+
Pin 2   Brown   Garmin GND
Pin 3   White   Garmin RX1

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, 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 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.

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