

OWNER'S MANUAL

Model 479 YIELD MONITOR

HARVEST
TEC *Equipment and Products
for Quality Hay.*

010-0479
REVISED 5/06

HARVEST TEC 479 TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	3
TOOLS NEEDED	3
1. INSTALLATION OF STAR WHEELS ON LARGE SQUARE BALERS	4
2. INSTALLATION OF STAR WHEELS ON 3-TIE SMALL SQUARE BALERS	7
3. INSTALLATION OF STAR WHEELS ON 2-TIE SMALL SQUARE BALERS	8
4. INSTALLATION OF BALER MOUNTED SIGNAL CONDITIONER	9
5. WIRING STAR WHEEL HARNESS	9
6. INSTALLATION OF BALE RATE SENSORS	9
7. INSTALLATION OF CONTROLS	9
8. INSTALLATION OF GPS ANTENNA AND ANTENNA CABLE	9
9. POWER CABLE AND MAIN WIRING HARNESS INSTALLATION	9
10. OPERATING YIELD MONITOR	10
11. ADJUSTING CONTROLLER SCREEN CONTRAST	14
12. WINTER STORAGE	16
13. DOWNLOADING DATA FILES	17
14. DIRECTIONS FOR IMPORTING DATA FILES INTO MAPPING SOFTWARE	18
15. TROUBLESHOOTING	19
MODEL 479 PARTS BREAKDOWN AND LARGE SQUARE STAR WHEEL PARTS BREAKDOWN	20
SMALL SQUARE BALER STAR WHEEL PARTS BREAKDOWN	21
LARGE SQUARE STAR WHEEL MOUNTING TEMPLATE	22
SMALL SQUARE STAR WHEEL MOUNTING TEMPLATE	23
NOTES	24
WARRANTY STATEMENT	BACK PAGE

INTRODUCTION

Congratulations on purchasing a Harvest Tec Model 479 Yield Monitor. This yield monitor is designed to measure and collect data which can be imported into common yield mapping software packages. This data and mapping ability will allow you to better understand and manage variations in your hay fields. The model 479 yield monitor kit includes the following parts: in-cab display and processor, baler mounted signal conditioner, GPS satellite antenna, star wheel moisture sensors, wiring harnesses, and miscellaneous hardware. The yield monitor can be installed on most large square balers and conventional square balers. Before installing the unit on the baler, make sure you have fully read the installation instructions. If you are unsure about how to install the components included in the kit, contact Harvest Tec for clarification. For your convenience we have included a parts break down for the model 479 yield monitor. If replacement parts are required, contact Harvest Tec. Have your manual with you when you call. Ordering the correct part number is very important.

TOOLS NEEDED FOR INSTALLATION:

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

Attention: This yield monitor requires a computer with a USB port.

1. INSTALLATION OF STAR WHEELS ON LARGE SQUARE BALERS

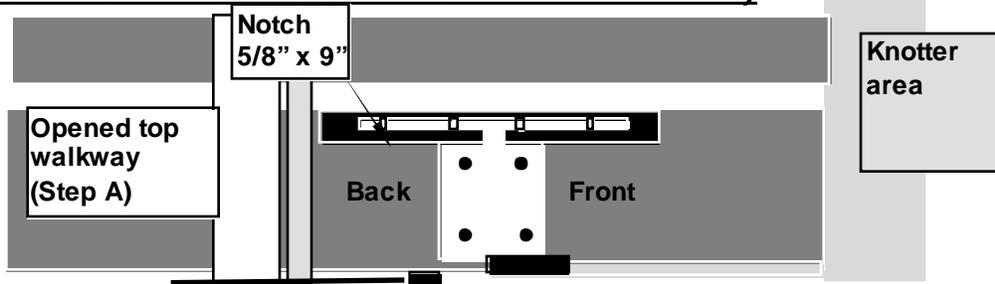
Use the template located in the back of this manual as a guide for cutting a notch and locating the mounting holes for the star wheels. Carefully mark the location of the star wheel holes using the template and a center punch so the **star wheels will run true to the direction of the bales, otherwise, the star wheels may work themselves out of the block.** The star wheels must be mounted so that they are no closer than 3/8" from any metal parts of the baler and come in contact only with the bale. Four 5/16" allen headed bolts will be used to mount the star wheel block and twine guard to the baler. The bolts must be inserted from the inside of the baler chamber. Use nuts and lock washers to hold the bolts in place before putting on the star wheel block, the block is counter-bored on one side so the block will fit over the nuts. The star wheel block has a plug on one side and a wire grommet on the other side. If there are interference 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 other side. Mount the twine guards using the two inner holes on the star wheel block. ****The twine guard containing the bale rate sensors should be placed on the baler's right side, when looking from the back of the baler.**

Case IH 8570, 8575, and 8585, Challenger LB33, LB34, and Hesston 4750, 4755, 4760, and 4790, and New Idea 7233, 7333, 7234 balers

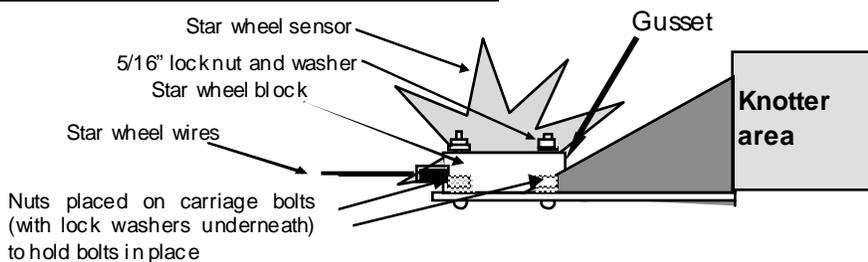
The star wheels are mounted under the walkway on top of the baler behind the knotters. Remove the bale from the chute and tip the walkway up. Locate the star wheel template on the outside corner angles of the bale chute on the left and right side of the baler. The center of the wheel shaft will be approximately 5 1/2 inches in front of the walkway support or about halfway between the walkway support and the cross frame almost directly in front of it. The notch will start just in front of the walkway support.

Two parts of the baler frame will have to be trimmed off on both sides to mount each star wheel. The first is the outside corner angles of the chute. Use the template to mark the location of the star wheel notch as well as the location of the four holes for the star wheel base. The notch will be 5/8" by 9" long and will help keep the wheel away from the twine. Spray the ground areas with touch up paint to prevent rusting. The second portion of the baler to trim off is the end of the gusset that may interfere with the star wheel's plastic base support. Center the star wheel in the slots that was just notched and check for interference with the gusset shown in the figures below.

Top View of Star wheel Placement Under Baler Walkway



Side View of Star Wheel Placement

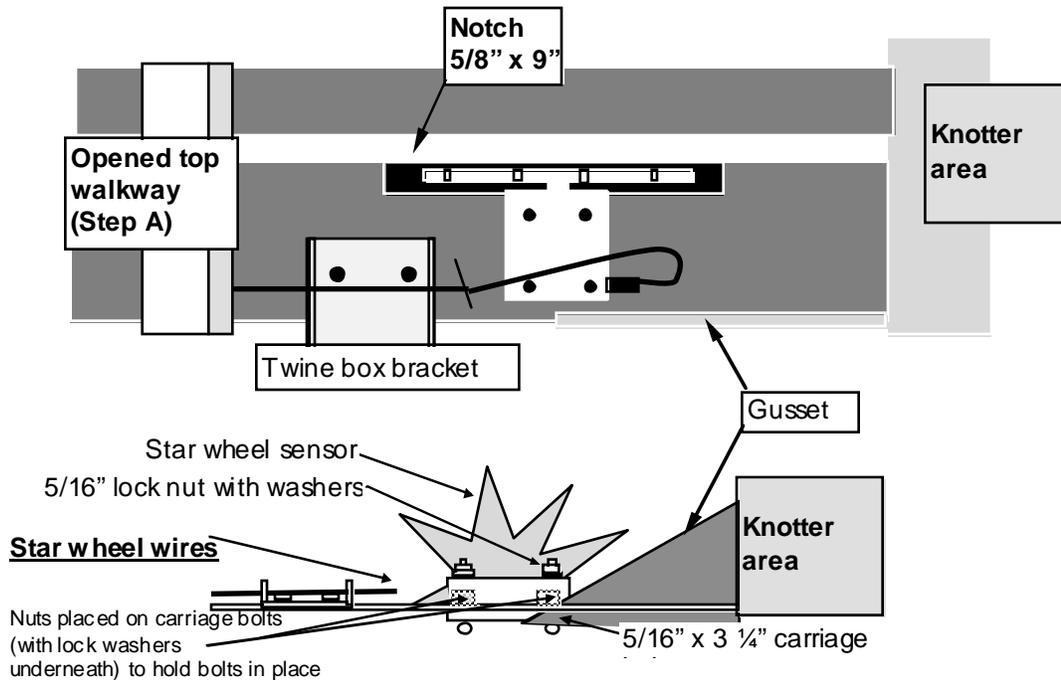


Drill 5/16" holes for the star wheel block. Insert the 5/16" by 3 1/4" bolts up through the chute and use nuts to hold the bolts in place as shown above. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. **The twine guard containing the bale rate sensors will be placed on the right side of the baler.** See **Step 5** for directions on how to hook-up the star wheel wires.

Case IH 8580 and 8590, Hesston 4900 and 4910, Challenger LB44, and New Idea 7244 balers

The star wheels are mounted on top of the baler, just behind the knotters under the walkway on both sides. Use the template at the back of the manual to mark the location and dimension of the notch and holes. Remove the bale from the chute. Tip the walkway up and locate the wheels on the top outside corner angles of the bale chute, one on each side. The star wheel block is located just in front of the horizontal channels holding the twine boxes. Using the template, mark the location of the notch (5/8" wide and 9" long) and the location of the four 5/16" holes for the star wheel base using a center punch. The bare metal edge of the angle should be sprayed with touch up paint to prevent corrosion.

Once the above modification to the baler is made on both sides of the chute, the wheels can be mounted. Insert the 5/16" by 3 1/4" bolts up through the chute and use nuts to hold the bolts in place. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. **The twine guard containing the bale rate sensors will be placed on the right side of the baler. See Step 5** for directions on how to hook-up the star wheel wires.



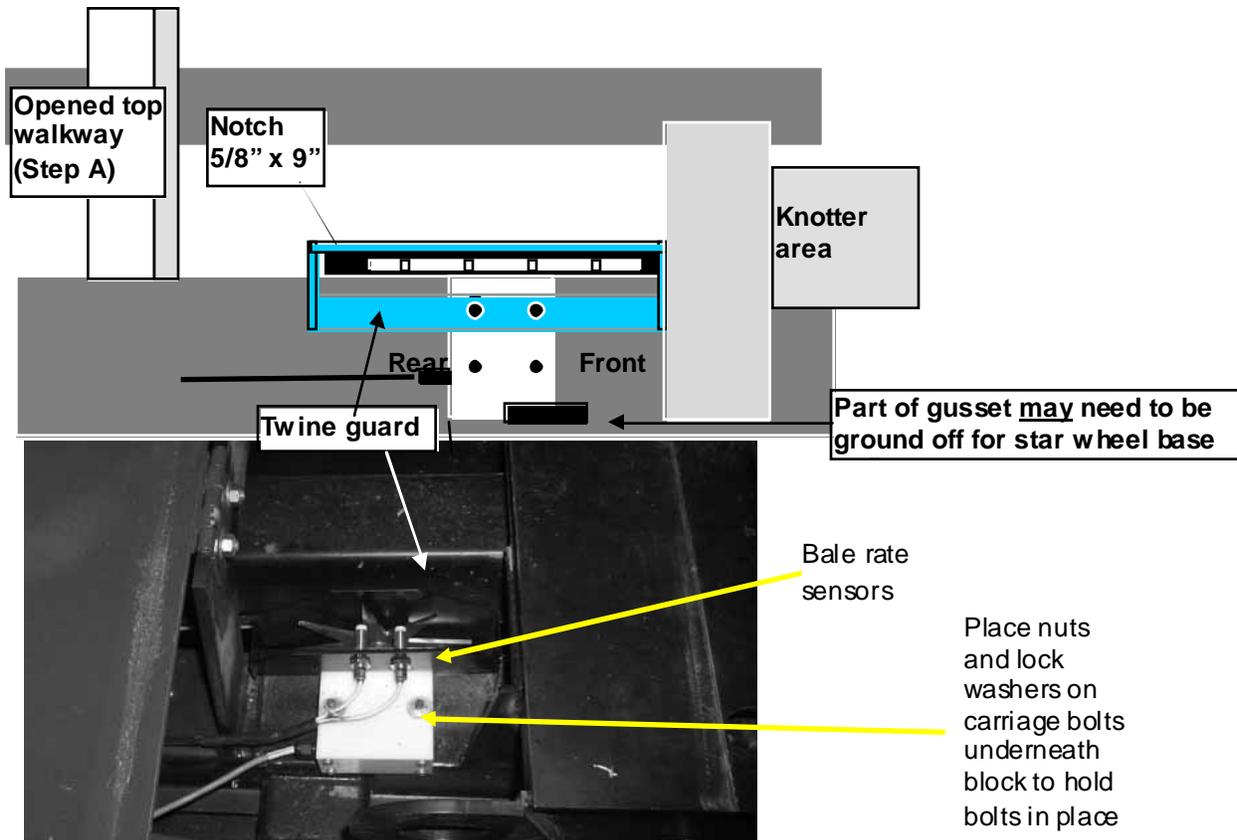
Claas 1200, 2100, 2200 and Krone VFS 88, VFS 128, 890, 1270, 1290, and 12130 balers

Use the template located in the back of the manual as a guide for cutting the notch and mounting holes for the star wheels. The star wheels are to be mounted on top of the baler, just behind the knotters and as far forward as possible. Remove the bale from the chute. Tip the walkway up and locate the wheels on the top outside corner angles of the bale chute, one on each side. Mark the location of the notch (5/8" wide and 9" long) and the location of the four 5/16" holes for the star wheel base. After cutting the notch and drilling the hole, insert the 5/16" by 3 1/4" black allen head bolts up through the chute and use nuts to hold the bolts in place. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. The twine guard containing the bale rate sensors will be placed on the right side. See **Step 5** for directions on how to hook-up the star wheel wires.

New Holland 590 through BB960A and Case IH LBX331 through LBX432 balers

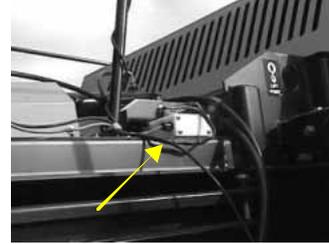
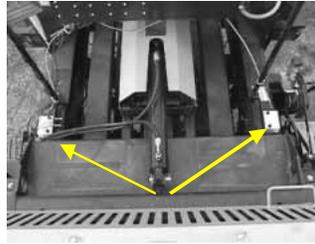
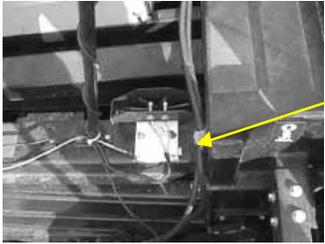
Use the template located in the back of the manual as a guide for cutting the notch and mounting holes for the star wheels. The star wheels are to be mounted on top of the baler, just behind the knotters and under the walkway on both sides. Remove the bale from the chute, tip the walkway up and locate the wheels on the top outside corner angles of the bale chute, one on each side. Mark the location of the notch (5/8" wide and 9" long) and the location of the four 5/16" holes for the star wheel base. After cutting the notch and drilling the hole, insert the 5/16" by 3 1/4" black allen head bolts up through the chute and use nuts to hold the bolts in place. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. **The twine guard containing the bale rate sensors will be placed on the right side.** See Step 5 for directions on how to hook-up the star wheel wires.

Top View of Star Wheel Placement Under Baler Walkway



Vermeer SQ2731 and SQ3347 balers

Locate the steel crossbeam that goes across the bale chamber in between the knotters and shield for the hydraulic cylinder. The yellow shield is located in the middle and runs in the same direction as the bale chamber. Using the provided star wheel template, locate the template as far forward as possible behind the crossbeam. Position the template so the edge of the star wheel base is aligned with the outside of the bale chamber. Mark the hole positions for drilling and also mark the notch for the star wheels. The notch will be 5/8" by 9" long and will help keep the wheel away from the twine. Repeat this process on the other side of the bale chamber for the second star wheel. After making the notch, center the star wheel in the slots to assure that they fit. Double-check the marked hole positions, and drill the four holes for each star wheel base. After cutting the notch and drilling the hole, insert the 5/16" by 3 1/4" black allen head bolts up through the chute and use nuts to hold the bolts in place. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. **The twine guard containing the bale rate sensors will be placed on the right side.** See Step 5 for directions on how to hook-up the star wheel wires.



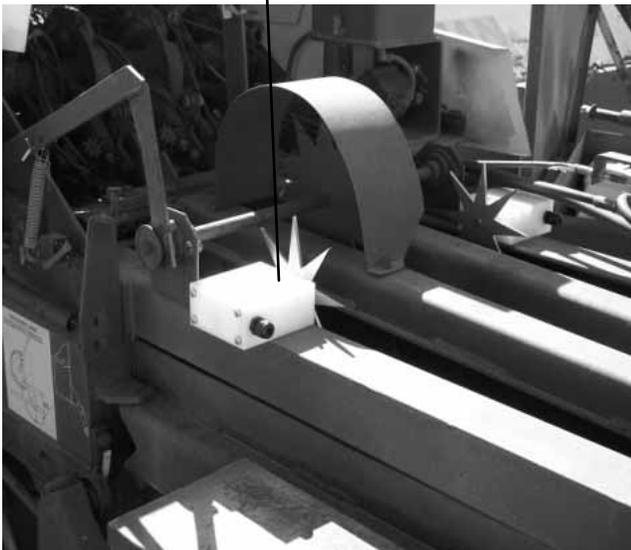
2. INSTALLATION OF STAR WHEELS ON 3- STRING BALERS

The pair of star wheels will need to mount on the top as close to the knotters as possible and at least 3/8" away from any metal. They will need to maintain a safe distance away from the twine.

The star wheels will require two holes to be drilled per block, when drilling make sure to keep the wheel square to the bale chamber. Any angle will cause stress on the wheel and will eventually cause the wheel to work itself out of the block. A template can be found in the back of the manual to help with the placement of the star wheel.

Use the supplied 5/16" allen head carriage bolts and place the carriage head inside of the bale chamber followed by lock and nut. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. Finally secure the entire block using nuts, locks, and flat washers. **The twine guard containing the bale rate sensors will be placed on the right side.** See Step 5 for directions on how to hook-up the star wheel wires.

Freeman Balers



Hesston and New Holland Balers

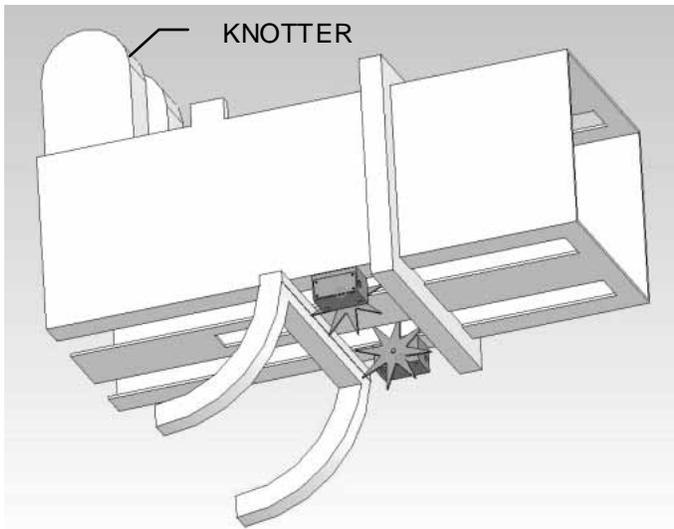


3. INSTALLATION OF STAR WHEELS ON CONVENTIONAL 2-STRING BALERS

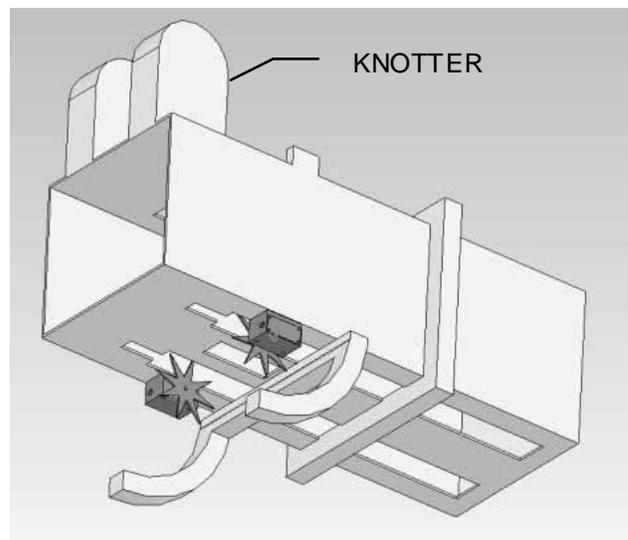
The pair of star wheels will need to mount on the bottom side as close to the front of the bale chute as possible and at least 3/8" away from any metal. They will need to maintain a safe distance away from the twine.

The star wheels will require two holes to be drilled per block, when drilling make sure to keep the wheel square to the bale chamber. Any angle will cause stress on the wheel and will eventually cause the wheel to work itself out of the block. Other balers may require a notch cut on the bottom of the bale chamber to mount the star wheels as close to the front of the chamber as possible. Use template in back of manual to aid in installation.

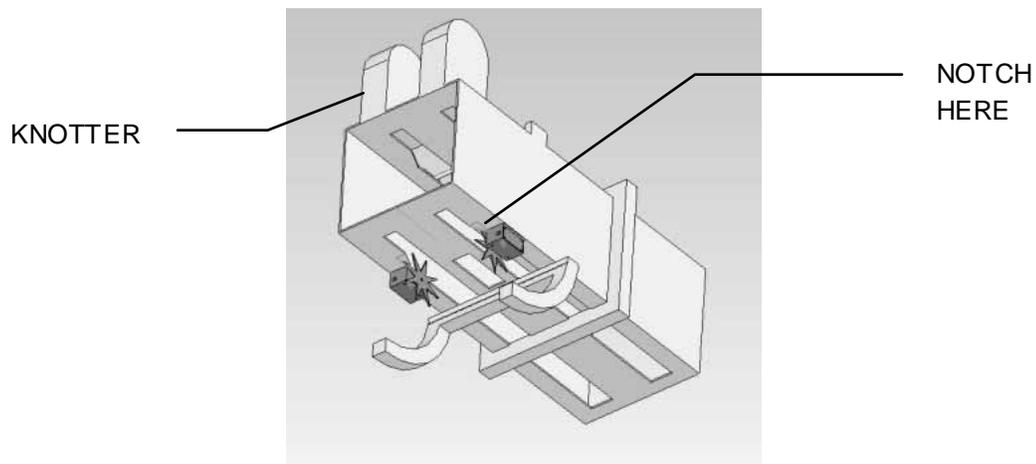
Use the supplied 5/16" allen head carriage bolts and place the carriage head inside of the bale chamber followed by lock and nut. Place the star wheel block over the nuts and install the twine guards using the two inner holes of the star wheel block. Finally secure the entire block using nuts, locks, and flat washers. **The twine guard containing the bale rate sensors will be placed on the left side when the star wheels are mounted on the bottom side. See Step 5 for directions on how to hook-up the star wheel wires.**



CASE AND NEW HOLLAND BALERS



JOHN DEERE BALERS



OTHER BALERS

4. INSTALLATION OF BALER MOUNTED SIGNAL CONDITIONER

Mount the baler mounted signal conditioner (006-4650C) to the baler in a position where it will not be in contact with moving parts and is located within 6 feet of the baler's knotter assembly. The signal conditioner should be mounted upside down to a piece of sheet metal on the baler so the plugs are facing towards the ground. This mounting orientation is recommended to reduce the chance of chaff piling around the plugs on the signal conditioner. After locating an appropriate area for mounting the signal conditioner, mark the 4 mounting holes and drill four 7/32" diameter holes. Mount the signal conditioner to the balers with four #10 machine screws supplied in the kit.

5. WIRING THE STAR WHEEL HARNESS

First, remove the cover from the star wheel block and use a 1/4" nut driver to remove the nut from the electronic swivel. Next, run the star wheel sensor wire through the black strain 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. Once the star wheel connection is complete, run the wires along the baler frame to the baler mounted signal conditioner, securing the wires to the frame with cable ties. Bundle any additional wire and secure to baler with cable ties to avoid interference with moving parts.

6. INSTALLATION OF BALE RATE SENSORS

The bale rate sensors will be factory installed on the right side (large square) or left side (small square) twine guard in the correct position. The sensor with the longer sensor wire should say "FRONT", which indicates it should be placed in the front sensor hole. The sensor wire with the shorter wire should say "BACK." The tip of the sensor should be placed no more than 1/4" away from the star wheel teeth and no less than 1/8" from the star wheel teeth. Connect the bale rate sensor wires to the baler mounted signal conditioner mounted on the baler. Route the wires along the baler frame and secure with cable ties. Each sensor will have an LED light located by the wire connection by the star wheel. 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. Bundle any additional wire and secure to baler with cable ties to avoid interference with moving parts.

7. INSTALLATION OF CONTROLS

Use the four mounting screws to mount the round base (001-2012J) in a convenient area in your cab or on your fender. If unit is mounted on fender it will need to be removed at night and stored in a clean, dry area. Use the Ram mount swivel-positioning nut to tighten the entire assembly. Adjust it so that you can view the entire screen and be able to use the touch screen without interfering with other tractor functions.

8. INSTALLATION OF GPS ANTENNA AND ANTENNA CABLE

The GPS antenna (006-4792) has a magnetic mount (006-4793) and can be mounted magnetically to any steel surface on the top center of the tractor cab. If the tractor doesn't have a cab, the antenna can be mounted to a steel fender. In the event there is no steel on top of the tractor cab roof, remove the adhesive backing from the steel plate supplied in the kit and press the adhesive backing to the top of the tractor cab roof/fender. The antenna should be mounted near the back of the tractor cab roof. Connect the GPS antenna cable (006-4794) to the antenna. Route the cable into the cab, either through a window or grommetted hole, and attach the cable to the controller.

9. POWER CABLE AND MAIN WIRING HARNESS INSTALLATION

1. Locate the power harness.
2. Connect the power harness (**006-4580**) to the battery (12 volt) attaching the green wire to the positive side and the black wire to the negative.
 - a. **The power harness must be connected to the battery!** Any modifications of the power harness will void systems warranty. **CONTACT HARVEST TEC IF MODIFICATION IS REQUIRED!**
 - b. **This unit will not function on positive ground tractors.**



3. The power harness (006-4580) will run from the tractor battery to the in-cab controller. Route the tractor communication harness (006-4660N) from the in-cab controller to the drawbar of the tractor. Route the baler communication harness (006-4479F) from the tractor drawbar to the baler mounted signal conditioner. Connect the tractor communication harness to the baler communication harness.



Route communication harness 006-4479F along this path or similar inside of the baler. Keep cord away from moving parts and hydraulic hoses. Secure with existing cable locks or use cable ties.

10. OPERATING THE YIELD MONITOR

If operating the yield monitor for the first time, follow instructions 1 and 2, then read the sections titles “Description of Buttons on Main Screen” and “Setting Up System for Initial Use”. After reading these sections, continue with steps 3-7.

1. Turn the unit on by turning on the red switch located on the bottom of the controller.
2. Plug the USB memory stick (006-4791) into the bottom of the controller. When the controller is powered up, it will go through it’s start-up sequence. Wait until the main screen appears as shown in Figure 1. The memory stick must be installed at all times for the unit to operate.
3. Verify that all bale values are correct by pressing yield setup and adjusting values for bale weight, bale length, and swath width if necessary. Press MAIN to return to the main screen.
4. Verify that controller is communicating with GPS signal by making sure there are two bars above satellite icon in lower right corner.
5. Press NEW FIELD and enter the name of the field to be baled.
6. Press RESET to zero out total tons and total acres on the main screen.
7. Press START and begin baling. You must press stop/stop key when turning around or stopping. When STOP is displayed the unit is running and currently mapping. When START is displayed the unit is paused.
8. Turn the unit off by turning off the red switch located on the bottom of the controller. Pause the unit by pressing the stop/start key before powering down.

DESCRIPTION OF BUTTONS ON MAIN SCREEN

START-

This button enables the unit to begin logging data. When the button is pressed, it will automatically change to say STOP. It takes the controller approximately 1-1/2 minutes to recognize that the USB memory stick that is plugged into the bottom of the controller is the correct component when the unit is turned on or the memory stick is plugged in. If the unit has just been turned on or the USB memory stick was just plugged into the controller, you may receive an error stating “Bad or Missing USB Flash! – Logging Disabled” when the start button is pressed. To clear this message, press the X in the upper right corner of the message box. It is recommended that you turn the unit on and plug the USB memory stick into the controller before you are ready to bale to allow the controller enough time to recognize the USB memory stick.

YIELD SETUP-

Pressing this button will result in the appearance of the Yield Setup Screen (figure 2). Options that you can change in the Yield setup screen include: bale type, bale weight, bale length, swath width, and GPS resolution.

WAYPOINT-

This button enables you to enter a descriptive note about the field. For instance, you may want to mark a fence post or patch of weeds in a field. You would stop next to that post or patch of weeds, press the waypoint button and use the keypad to enter a note (i.e. post or weeds). This note would then appear on your field map. Figure 4 is the input screen for entering waypoints. Use the keypad to enter the note and select OK to confirm your entry.

NEW FIELD-

Pressing this button enables you to begin a new file. It is recommended that you enter a new field name for each field that you do. When you have entered a name for a new field, the name will appear on the upper left side of the main screen directly above MOISTURE (%). The name of the field also becomes the default file name for the data files saved to the USB memory stick. Figure 5 is the input screen for entering field. Use the keypad to enter the field name and select OK to confirm your entry.

RESET-

Pressing this button zero's out the total tons and total acres on the main screen. Resetting these values does not affect the data saved in the USB memory stick.

You will also notice the satellite icon in the lower right corner of the screen. When the controller is attached to the antenna and the antenna is receiving a GPS signal, the icon will appear with two bars over flashing above it. The antenna must be in an area where it can receive a satellite signal in order for this icon to flash.

Moisture (%)-

This is the measured moisture content of the hay in contact with the star wheel moisture sensors.

Total Tons-

This is the total tons harvested during a particular job or field.

Tons/Acre (WET)-

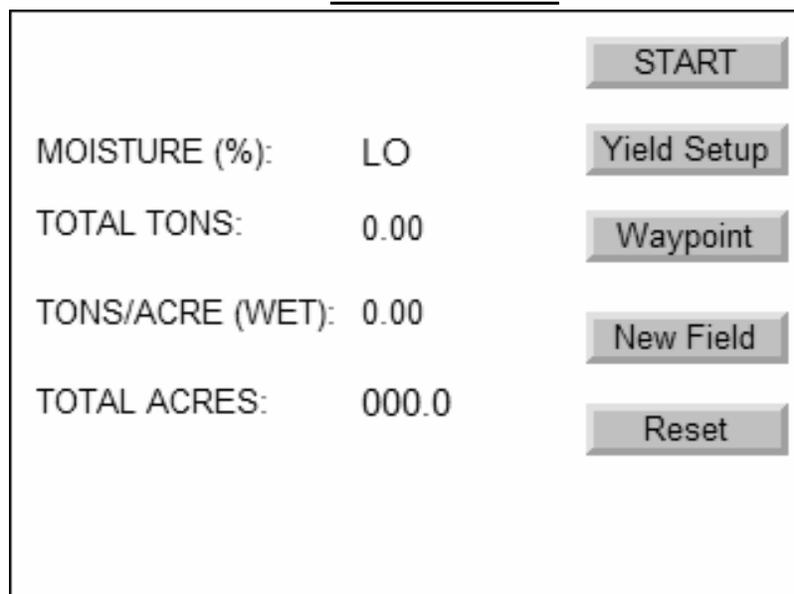
This is the calculated tons/acre harvested on a wet basis.

Total Acres-

This is the total acres harvested during a particular job or field.

FIGURE 1

MAIN SCREEN



SETTING UP SYSTEM FOR INITIAL USE

When initially setting up the yield monitor, you will need to enter bale data into the yield setup. You will need to select the bale type in addition to entering your correct bale weight, bale length, and swath width in the yield setup screen (figure 2).

--Bale Type--

Bale type refers to what type of baler is being used, as there are different moisture charts for large square and small square balers (large when harvesting with a large square baler, small when harvesting with a two or three tie baler). The default setting is Large.

--Bale Weight--

Bale weight refers to the average weight of the bales produced by the baler. It is very important to use an accurate bale weight. The default setting is 1500 lb. Measurement is inputted in pounds (US). Min/max inputs are 35-4000. Fig 3.

--Bale Length--

Bale length refers to the end to end length of the bales. The default setting is 96 inches. Measurement is inputted in inches. Min/max inputs are 10-100.

--Swath Width--

Swath width is the width of the area harvested in a single pass down the field. It can be measured by measuring the distance between two adjacent windrows. The default swath width is 30 feet. Measurement is inputted in feet. Min/Max inputs are 1-100.

--GPS Resolution--

GPS resolution refers to the distance between logged data points. The default measurement is 15 feet, and it is recommended that this should not be changed. Measurement is inputted in feet. Min/Max inputs are 10-1000.

--Main--

Pressing MAIN will return the operator to the main screen (figure 1).

To make changes to bale weight, bale length, swath width, and GPS resolution, press the number next to the item you would like to change. Then enter the new number using the yield setup keypad and press OK to save the change (see figure 3). Once your changes are made in the yield setup screen, press MAIN to return to the main screen (figure 1).

FIGURE 2

YIELD SETUP SCREEN

The screenshot shows the 'Yield Setup Screen' with a 'Main' button in the top right corner. Below the title, there are five rows of settings, each with a label, a value field, and a unit label. The 'Bale Type' field is set to 'LARGE'. The 'Bale Weight' field is set to '1500' with the unit 'Lbs'. The 'Bale Length' field is set to '96' with the unit 'Inches'. The 'Swath Width' field is set to '30' with the unit 'Feet'. The 'GPS Res' field is set to '15' with the unit 'Feet'. A callout box with an arrow pointing to the 'Main' button contains the text 'Return to Main Screen'.

Field	Value	Unit
Bale Type	LARGE	
Bale Weight	1500	Lbs
Bale Length	96	Inches
Swath Width	30	Feet
GPS Res	15	Feet

FIGURE 3

YIELD SETUP KEYPAD



FIGURE 4

WAYPOINT KEYPAD



FIGURE 5

NEW FIELD KEYPAD



11. Adjusting Screen Contrast

While viewing the main screen:

- Touch the display near the bottom left corner of the screen. The START menu and toolbar should appear on the bottom of the screen as shown in figure 6. If it does not appear, try touching as close to the bottom of the screen as possible.
- Once the start menu appears, touch where it says START in the bottom left corner of the screen. The Start menu will expand.
- Touch on the Start Menu where it says SETTINGS and touch again where Settings expands to the box containing CONTROL PANEL as shown in figure 7.
- Touch where it says CONTROL PANEL in the box.
- The screen will now show numerous icons. Touch the icon labeled DISPLAY located in the upper right corner, shown in figure 8, twice. If any screen appears besides the Display Properties screen, touch the X in the upper right corner to go back to the control panel icons.
- A screen titled DISPLAY PROPERTIES will appear. Touch the tab labeled CONTRAST. (figure 9)
- Touch the to left or right of the sliding bar to adjust the contrast for increased visibility.
- Once you have adjusted the contrast to where you desire it, press the OK box in the top right corner of the Display Properties screen, followed by pressing the X in the top right corner of the icons screen.

FIGURE 6

START MENU AND TOOLBAR

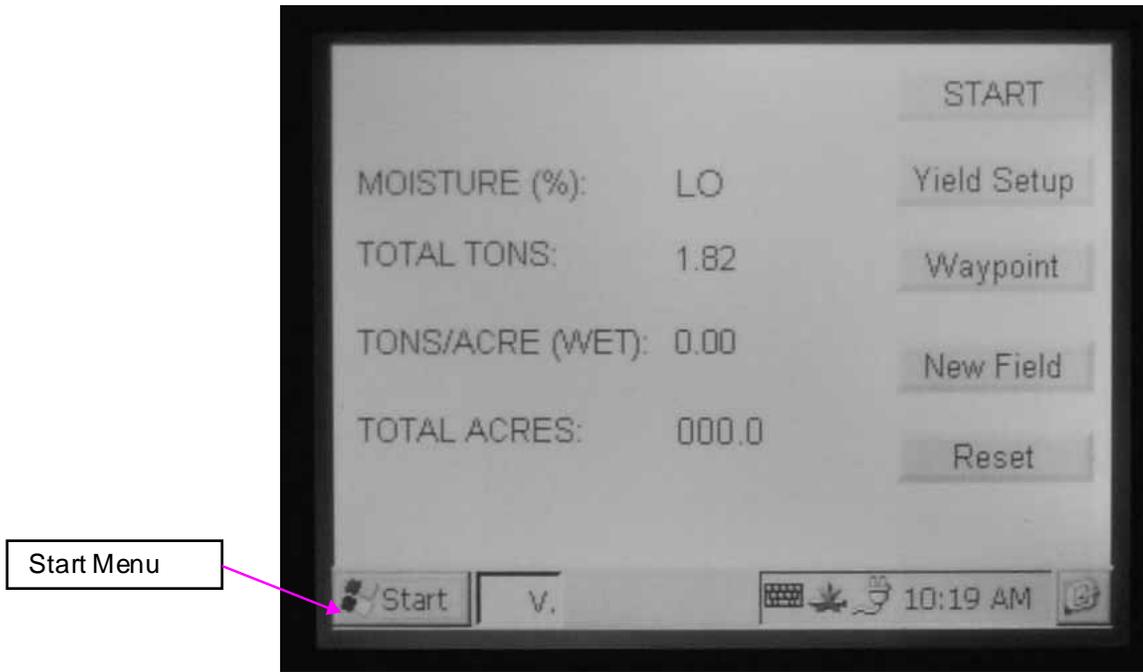


FIGURE 7

SETTINGS AND CONTROL PANEL

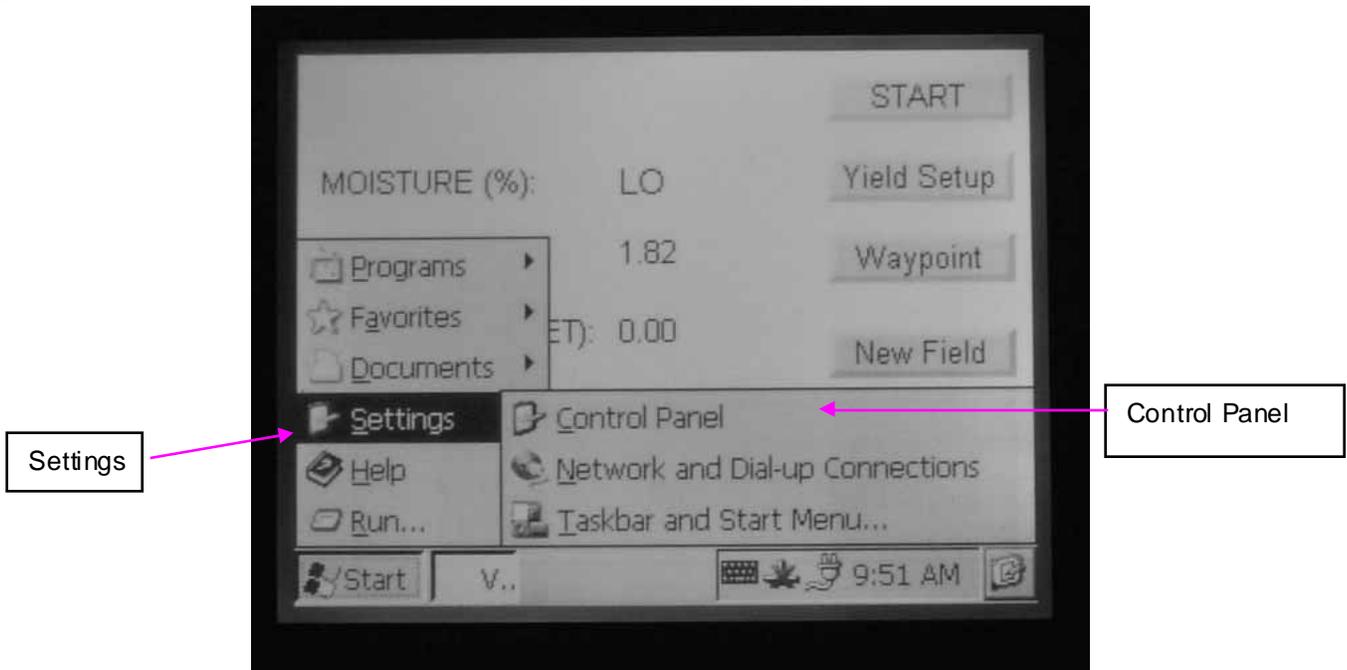


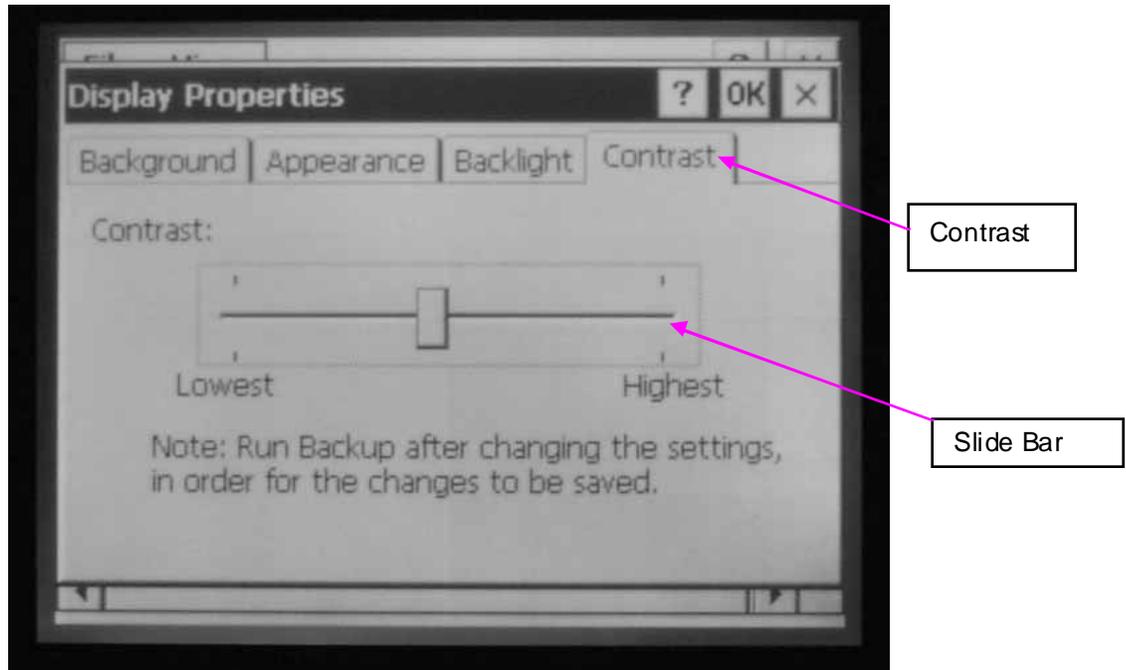
FIGURE 8

CONTROL PANEL ICONS



FIGURE 9

DISPLAY PROPERTIES AND CONTRAST ADJUSTMENT



12. WINTER STORAGE

1. Disconnect power from the tractor battery.
2. Remove controller from tractor and store in a warm, dry place.

13. DOWNLOADING DATA FILES

The field mapping and yield data is collected by the in-cab controller and stored on the removable USB memory stick (006-4791) during operation. This data is saved to a data file that is formatted as a Microsoft Excel *Comma Separated Values (CSV)* file.

- To process the data, remove the USB memory stick from the bottom of the controller. Plug the USB memory stick into the USB port on the PC that is to be used for creating the field and yield maps. It is recommended that you set up a specific folder (i.e. ALFALFA YIELD) on your computer, either in *My Documents* or on the *Desktop*, where your data files can be stored.
- Once this folder is created, access the USB memory stick. This is normally done by going to *My Computer*, then selecting the *USB drive (E:)*. The *E:* drive is normally located under *Devices with Removable Storage*. Transfer the files on the memory stick to the folder you created on your computer.
- If your yield mapping software has the ability to import CSV files, you are now ready to import these files into your yield mapping software. Skip ahead to section 14. If your yield mapping software does not have the ability to import CSV files, you will need to convert the CSV files to ESRI Shape formatted files by following the instructions listed below.
- To convert the files from CSV to Shape format, you will need to install software from the CD labeled **Harvest Tec 479 Yield Monitor File Converter** included with the kit. To install the file converter program, insert the CD into your PC.
- Click on *My Computer* and locate the *D: drive (CD ROM)* with the disk titled **HarvestTecDist**.
- Click on the icon for the *D: drive*. Locate the icon labeled **(INSTALL , MS DOS BATCH FILE.)** Double Click on this icon. This will install the conversion software onto your computer and create a shortcut icon labeled **MAKESHape** on your desktop. When the installation is complete, remove the CD from the PC and put it back into its protective case. Store this CD in a safe place.
- To begin the file conversion process, double click on the **MAKESHape icon** located on the PC's desktop. Two screens will pop up, the first having a black background with *Makeshape* as the header title, and the other that is gray and blue and has a header labeled *MakeShape Launcher*.
- Click anywhere on the window with the *MakeShape Launcher* header to bring that screen to the front. Then click on the box in the upper right corner to maximize the size of the window.
- After the window is maximized, it asks you to select the **Input Directory** for the files. Click the **browse** button on the right side next to input directory. Locate the folder where you saved the data files from and select that folder. Select a CSV file from that folder. All CSV files that have not been processed in that folder will automatically appear in the white box beneath the input directory box, with the file you selected, highlighted in blue. If you want to select a different file, click on that file in the white box. The file highlighted in blue will also appear in the **Selected Input File** box.
- The next step is to define the **Output Directory** or where you want the converted files to be saved. We recommend that you create a new folder within the *ALFALFA YIELD* folder, and name this new folder *CONVERTED FILES*. Use the **browse** button to search your computer's directory for the new folder. Once you have selected this folder for the output directory, you have the option of changing the output file's name. Change the file's name by clicking on the **Output File** box and editing the name of the file.
- Finally, click the **Create Shape File button** in the lower right corner of the screen. The software will automatically create the new shape file and place it in the folder you chose with the name you provided for that file. Click on the **OK** button on the **SUCCESS** box to continue converting files.
- Once the files have been converted, they can be imported into the mapping software.

14. Directions for Importing Data Files into Mapping Software

When importing the data files, whether they are CSV or ESRI Shape File formatted, they will need to be imported as generic data files. You will need to format the data files by creating a template in your mapping software that can be used for importing the generic Harvest Tec yield data. The data files created by the Harvest Tec 479 Yield Monitor is stored with the following column headings. You will need to assign attributes to these columns before a template can be created. Once the template is created, all other files can be imported into the mapping software and will automatically assigned attributes when that template is chosen.

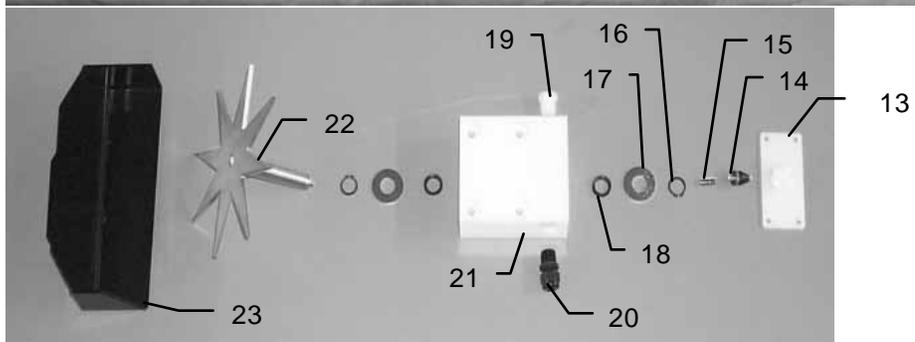
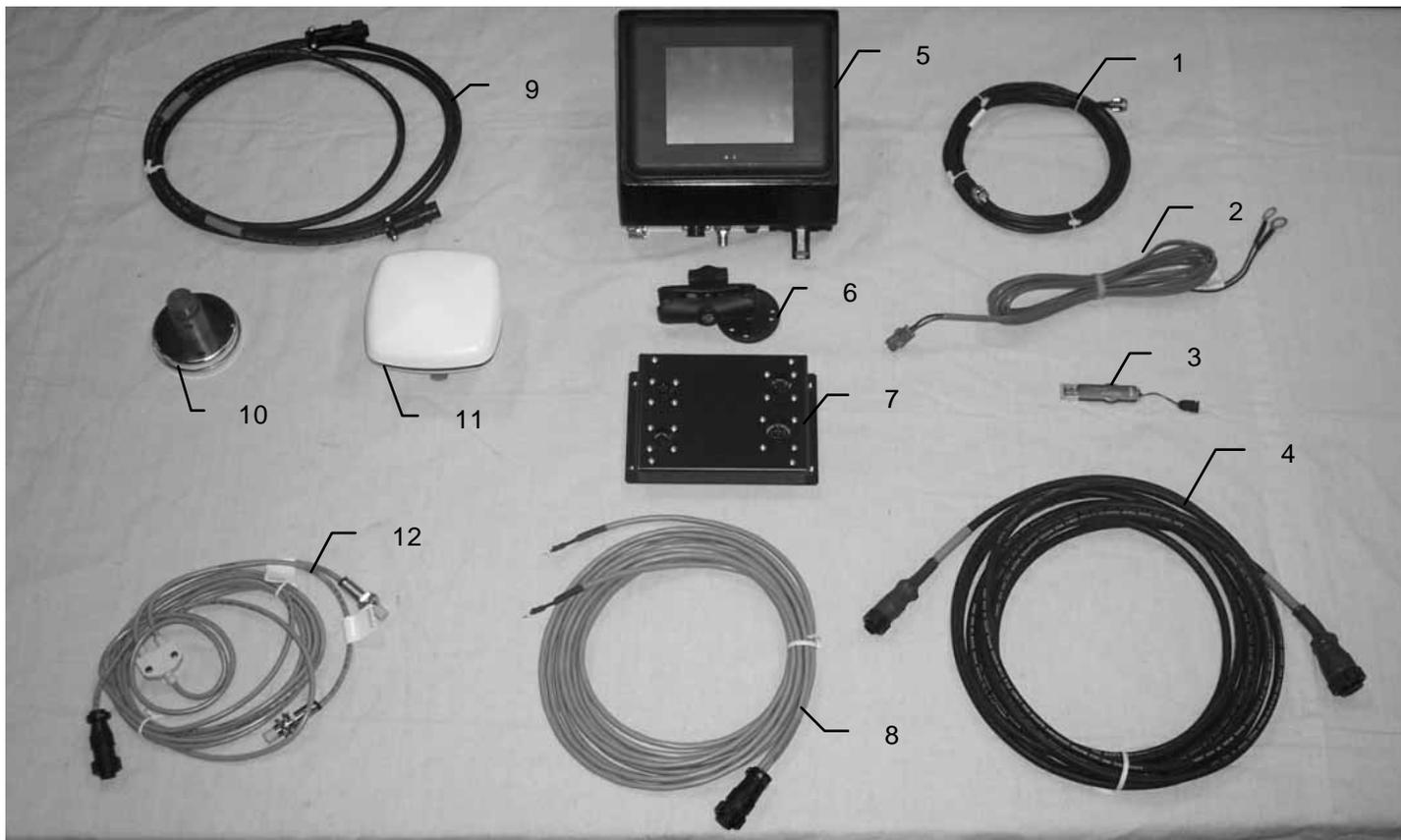
Column Heading	Attribute
LATITUDE	When importing as a Shape File, this header does not require an attribute to be assigned to it. When importing as a CSV, the software will require that you define (select) the Latitude column.
LONGITUDE	When importing as a Shape File, this header does not require an attribute to be assigned to it. When importing as a CSV, the software will require that you define (select) the Longitude column.
SWATH	This header needs to be used as an attribute. Define the attribute as Swath Width . The unit for this measurement must be defined as feet .
DIST	This header needs to be used as an attribute. Define the attribute as Distance . The unit for this measurement must be defined as feet .
GPS TIME	This header needs to be used as an attribute. Define the attribute as Duration . The unit for this measurement must be defined as seconds .
YIELD_WET	This header needs to be used as an attribute. Create a new attribute named Wet Basis Hay Yield . Define this attribute as a decimal number and specify that the units for the measurement are tons(US)/acre .
YIELD_DRY	This header needs to be used as an attribute. Create a new attribute named Dry Basis Hay Yield . Define this attribute as a decimal number and specify that the units for the measurement are tons(US)/acre .
MOISTURE	This header needs to be used as an attribute. Define the attribute as Moisture . The unit for this measurement must be defined as % .
WAYPOINT	This header can be used as a description.

15. TROUBLE SHOOTING:

<u>PROBLEM</u>	<u>POSSIBLE CAUSE</u>	<u>SOLUTION</u>
Unit will not turn on	Faulty wire connection at the battery.	Check connection and clean terminals
	Switch is not turned on	Turn switch on bottom of controller on
GPS does not show that it is connected	Unit is indoors	Move unit outdoors
	Bad connection between satellite and controller	Disconnect and reconnect antenna cable
Missing or Bad USB Flash message when Start is pressed	No USB memory stick connected to controller	Connect USB memory stick to controller
	USB memory stick recently connected to controller	Wait 1-1/2 minutes and retry
	Unit recently powered up.	Wait 1-1/2 minutes and retry
Total Tons does not increment	Faulty prox sensor reading	Verify prox sensors are orientated correctly
	Faulty prox sensors	Check connections and wires
	Sensors too far/close to star wheel	Adjust prox sensor mounting. See section 6
	Yield Setup screen values	Verify that valid numbers are entered in yield setup screen
Total Acres does not increment	No GPS signal	Check antenna connections
Moisture reading errors (high or low)	Wire disconnected or bad connection between star wheels and baler mounted signal conditioner	Reconnect wire.
	Wet hay over 32% moisture.	Stop baling
	Ground contact with one or both star wheels and baler mounted signal conditioner	Reconnect and isolate
	Short in wire between star wheels and baler mounted signal conditioner.	Replace wire.
	Check hay with hand tester to verify.	Contact Harvest Tec if conditions persist.
Moisture readings erratic.	1. Test bales with hand tester to verify that cab monitor 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.

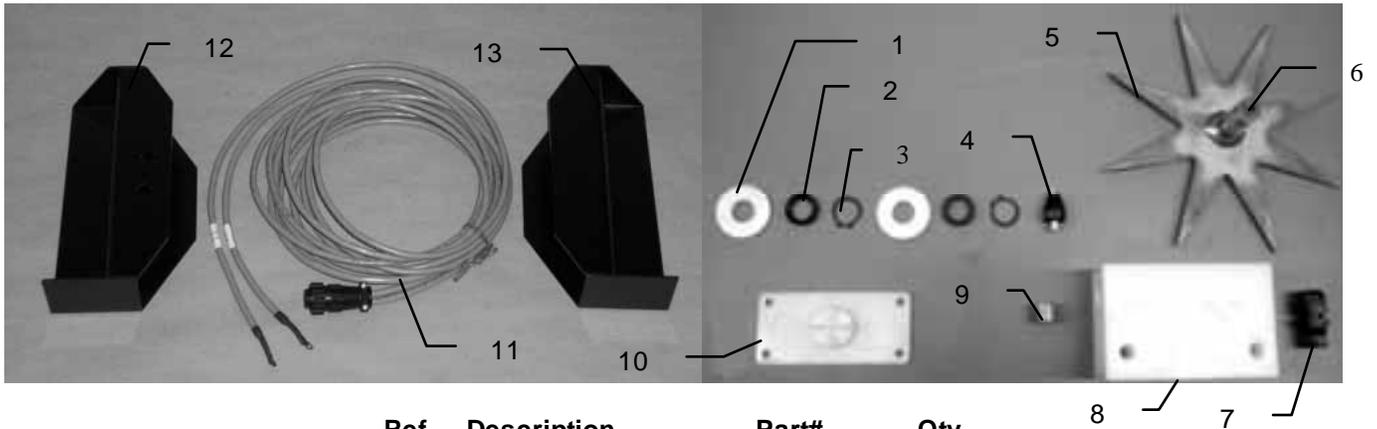
MODEL 479 BASE KIT PARTS BREAKDOWN

LARGE SQUARE STAR WHEEL PARTS BREAKDOWN

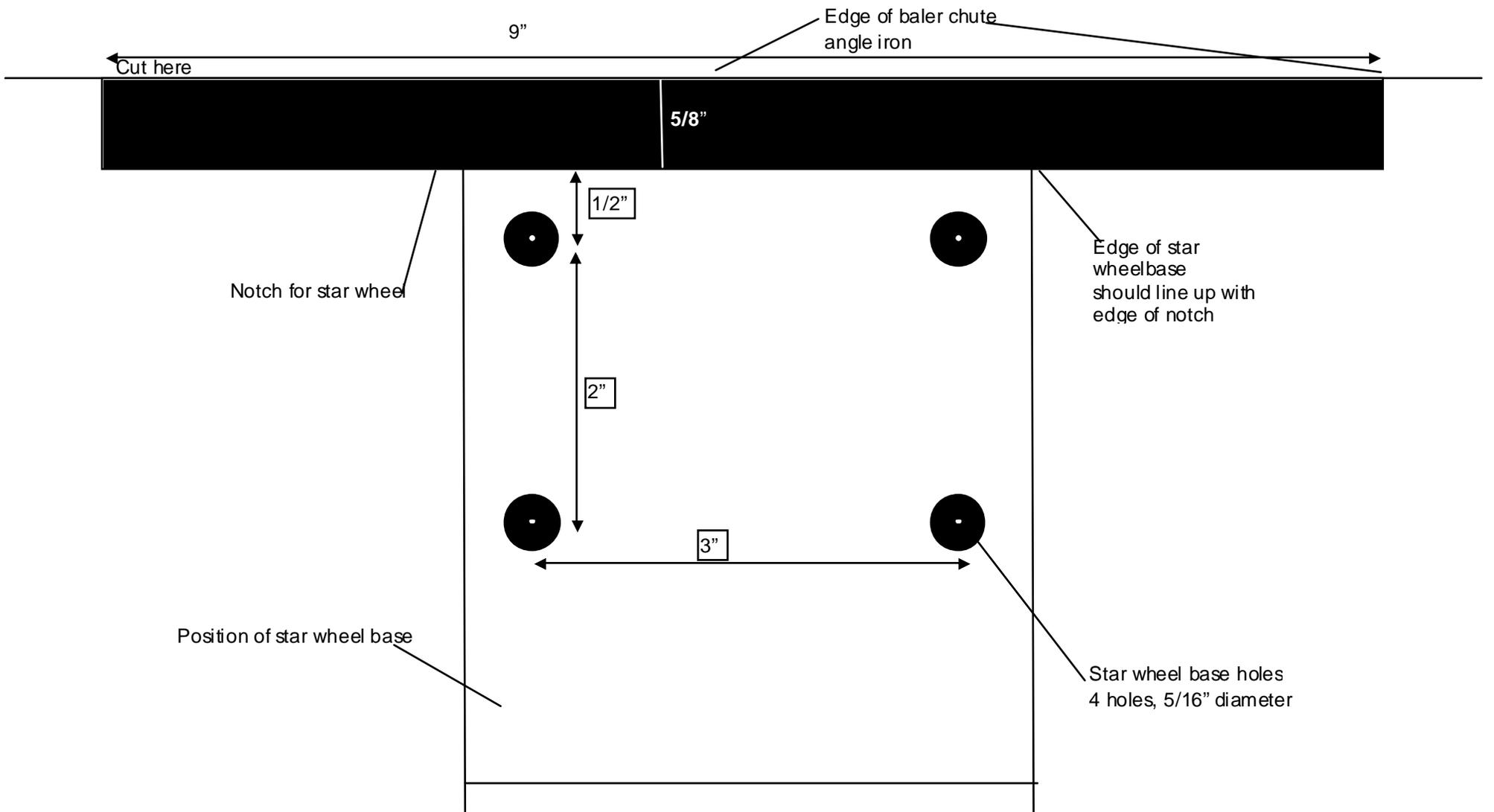


<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	GPS cable	006-4794	1	13	Block cover	006-4641B	2
2	Power cable	006-4580	1	14	Electronic swivel	006-4642A	2
3	USB flash drive	006-4791	1	15	Swivel insert	006-4642B	2
4	GPS com	006-4479F	1	16	Snap ring	N/A	4
5	Terminal	006-4790	1	17	Washer	N/A	4
6	Ram mount	001-2012J	1	18	Dust seal	N/A	4
7	Signal conditioner	006-4560C	1	19	Plug fitting	003-F38	2
8	Moisture harness	006-4640E	1	20	Wiring grommet	008-0821A	2
9	Tractor com	006-4660N	1	21	Star wheel block	006-4641A	2
10	Antenna mount	006-4793	1	22	Star wheel sensor	006-4641C	2
11	Antenna	006-4792	1	23	Twine guard-left	001-4645	1
12	Bale rate harness	006-7202	1		Twine guard-right (prox)	001-4644	1
				13-22	Star wheel assembly	030-4641	2

PARTS BREAKDOWN FOR SMALL SQUARE STAR WHEEL SENSORS AND CABLES



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Washer		4
2	Dust Seal		4
3	Snap Ring		4
4	Swivel	006-4642A	2
5	Star Wheel	006-4641C	2
6	Insert	006-4642B	2
7	Wiring grommet	008-0821A	2
8	Star wheel block	006-4641A	2
9	Plug Fitting	003-F38	2
10	Block Cover	006-4641B	2
11	Moisture cable	006-4640D	1
12	Left Diverter	001-4645	1
13	Right Diverter (prox)	001-4644	1
1-10	Star wheel assembly	030-4642	2



Drill 5/16" Diameter holes (x2)

2.00"

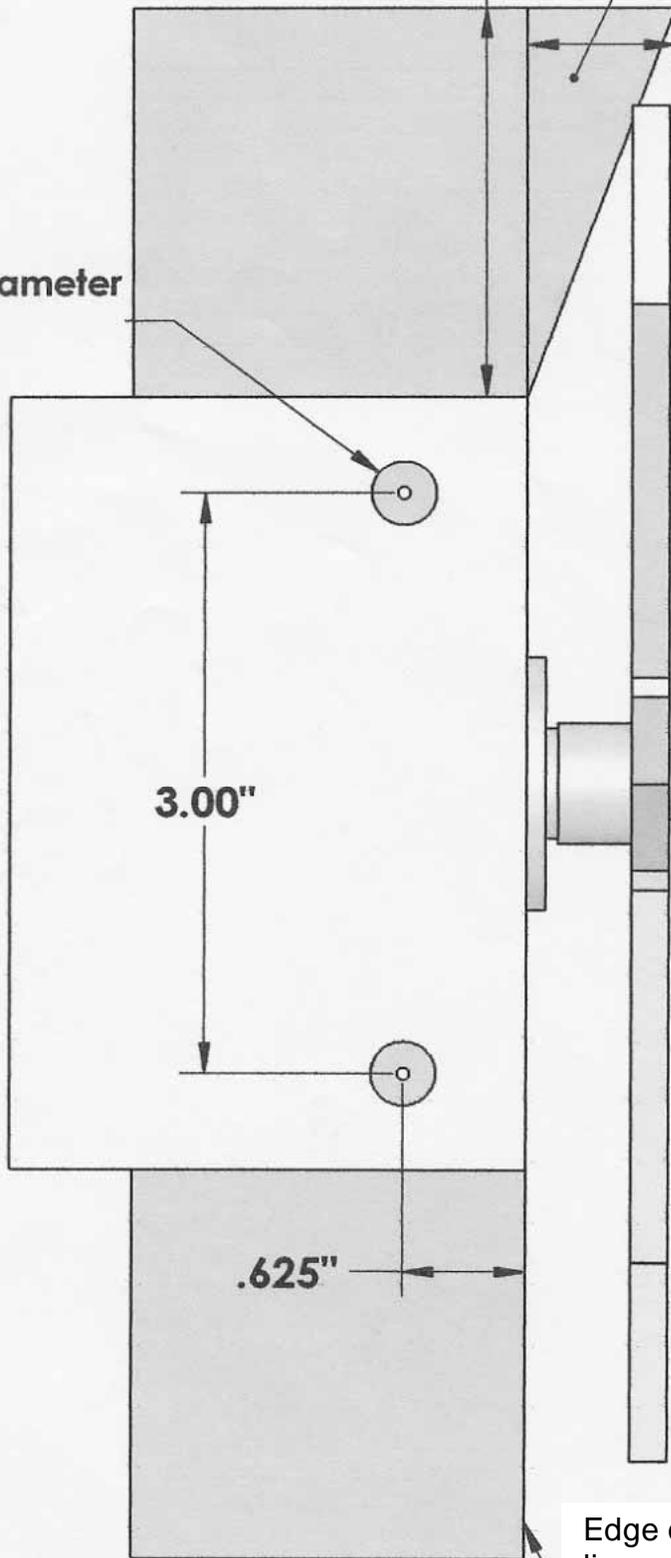
It may be necessary to make a notch for the Star Wheel on some balers.

.75"

3.00"

.625"

Edge of Star Wheel base should line up with the inside edge of bale chamber.



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 01/03/06

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