

OWNER'S MANUAL

Model 860 ***Bale Scanner***



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INTRODUCTION

Congratulations on purchasing a Harvest Tec Model 860 bale scanner. This scanner will allow you to read all the information stored on the RFID tags applied to the bale with the Harvest Tec model 850 tagger. The model 860 will include the bale scanner, hand held antenna, loader antennas, antenna cables, ac/dc chargers, and mounting hardware.

TOOLS NEEDED

- Standard wrench set
- Standard socket set
- Standard screw driver or 5/16" nut driver
- Hammer
- Metal drilling and cutting tools
- Center punch
- Tape measure
- Straight edge

OVERVIEW

The Harvest Tec model 860 Bale Scanner uses RFID to read the information stored on the tags.

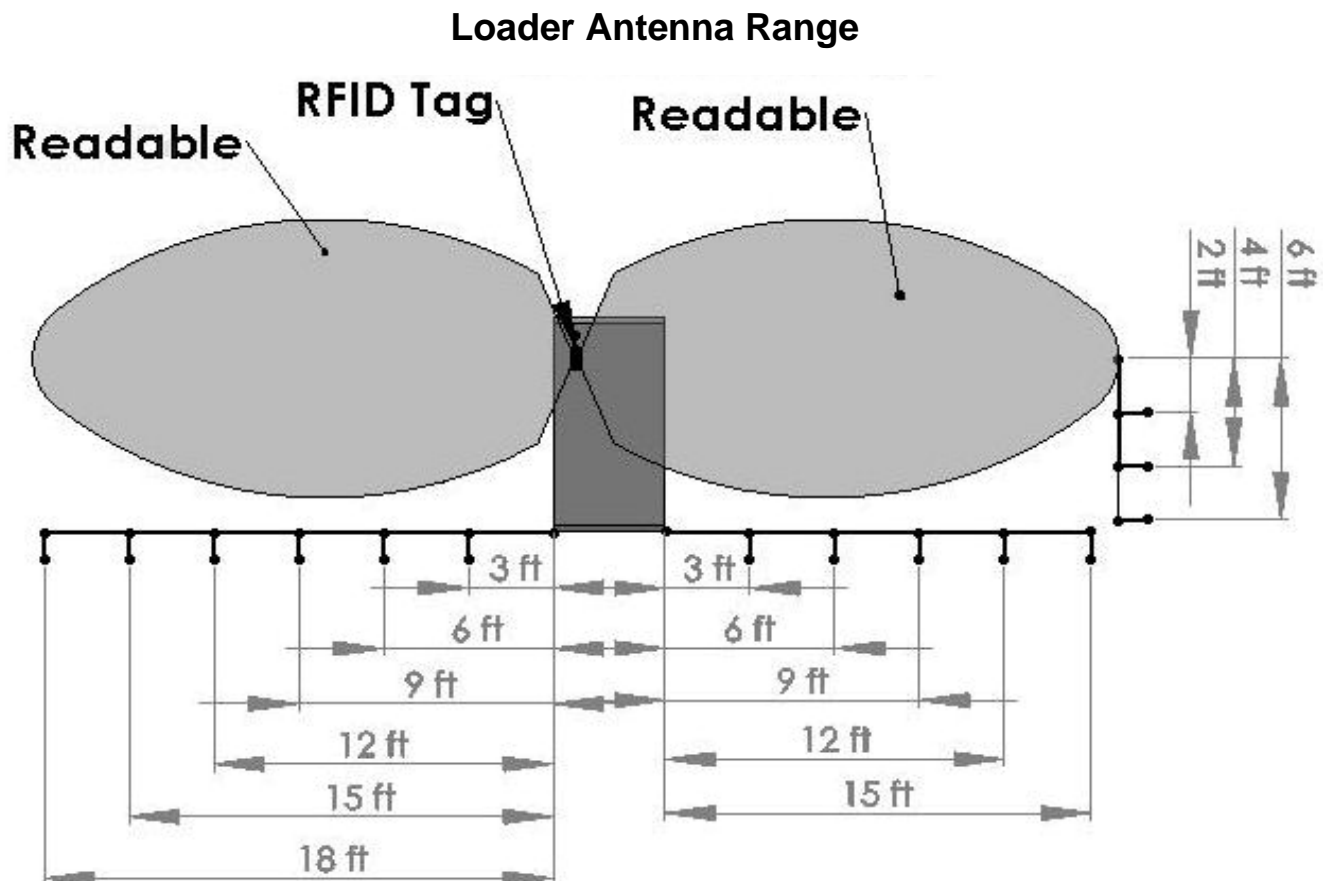
Radio Frequency Identification (RFID)

The antennas used (either using the handheld/loader or on the baler) emit radio waves to 'wake up' the microchip in the tag. The tag uses captured energy broadcast by the antenna to power itself up. Once the tag 'wakes up', it responds to the antenna.

Radio waves cannot be seen, so it can be difficult to visualize. Imagine that the antenna is a flashlight and the tag is a mirror. When the flashlight is focused on the mirror, the beam is reflected back to the flashlight. The reflected light is what the antenna sees and it knows how to interpret the 'response' signal.

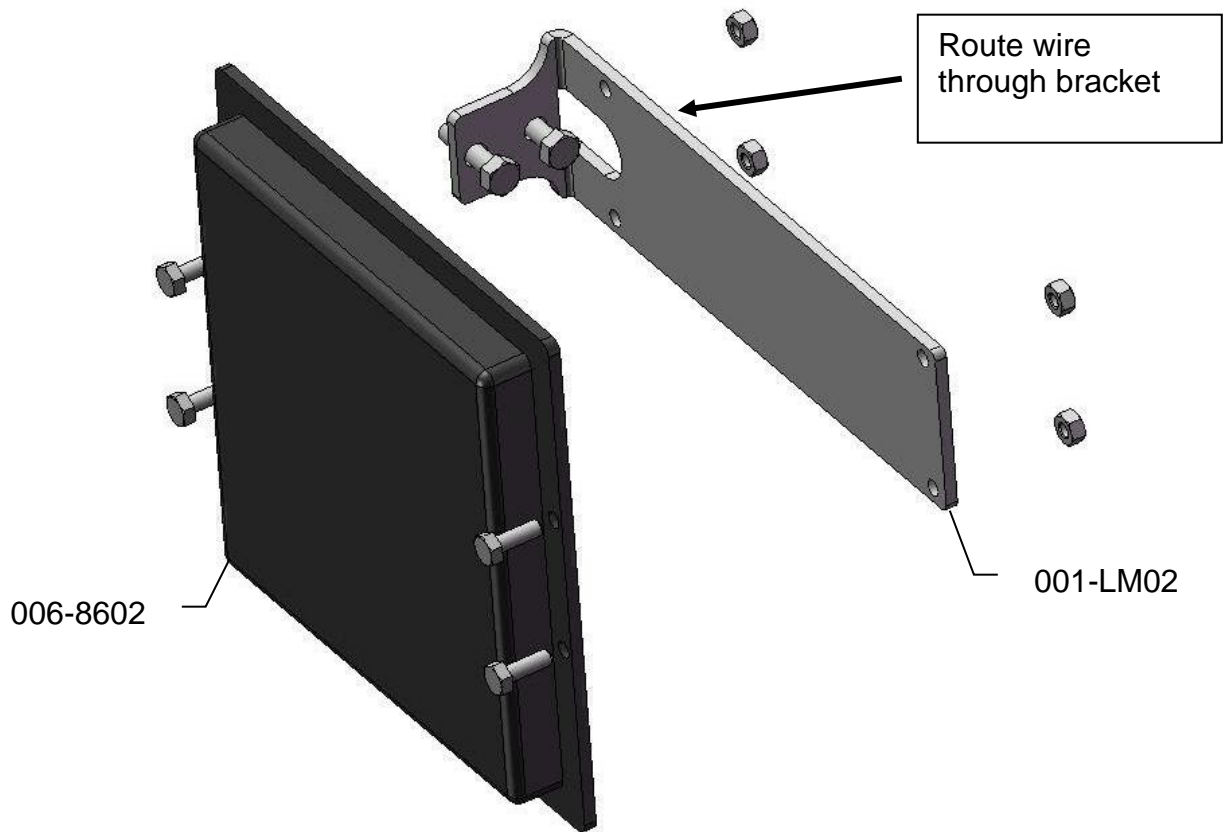
The frequency being used for the Bale Identification system does not work well around high moisture, and can be totally blocked by metal. Plastics, wood, and glass do not pose any problems to the functionality.

Positioning of the antenna to the tag is critical. The diagram below shows a top down view of the range and distance for the loader antennas. The antenna(s) always need to be positioned so the "face" of the tag is towards the antenna(s). The range is cut by 1/3 when using the handheld antenna.



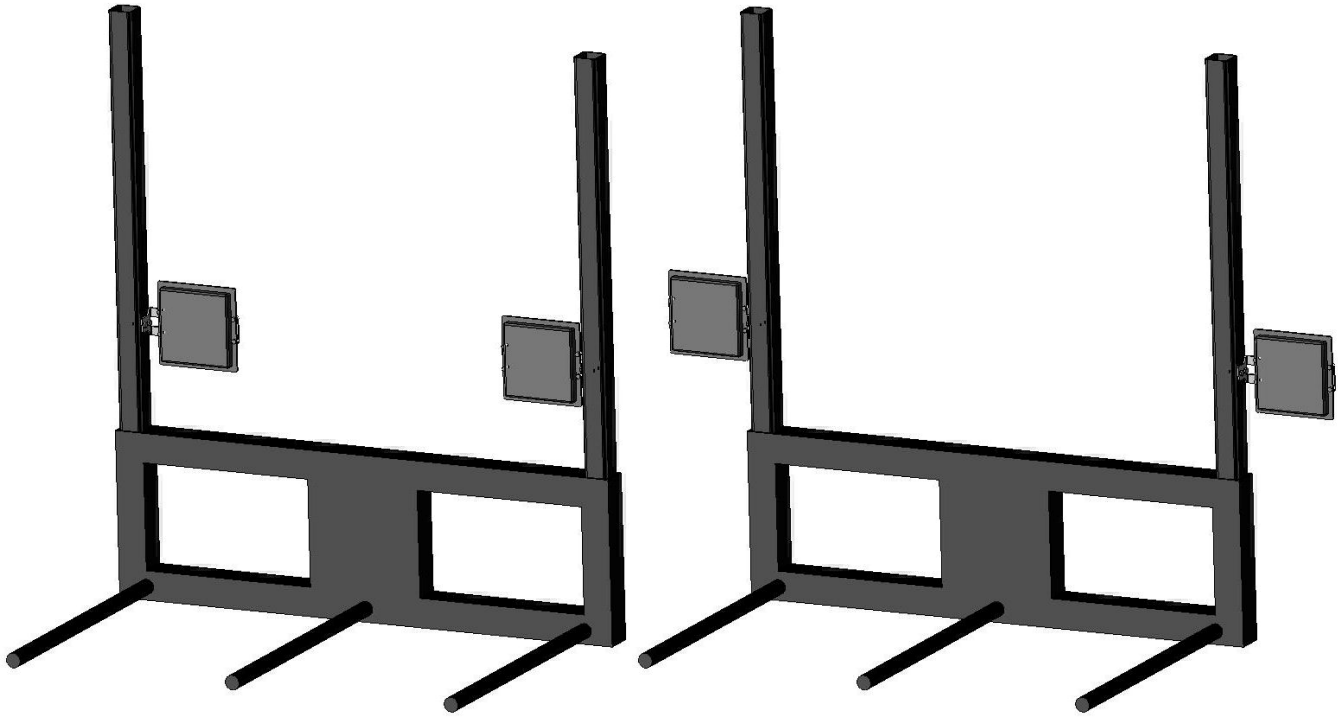
INSTALLATION OF ANTENNAS AND CABLES

1. INSTALLATION OF ANTENNA TO MOUNTING BRACKET



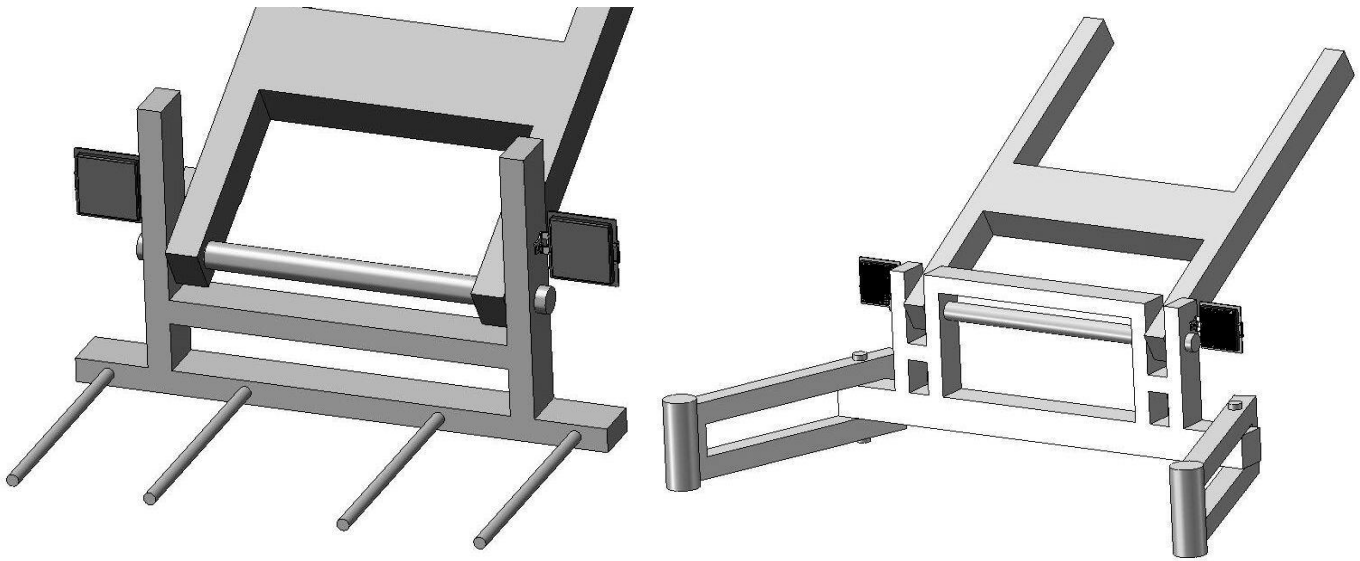
Locate the antenna (006-8602) and antenna mount (001-LM02). Attach the bracket to the antenna as shown above and route the antenna cable out of the above shown area. Use four 1/4" x 3/4" bolts, and nylon lock nuts to secure the mount to the antenna. Do not over tighten or the plastic case around the antenna(s) may crack.

2. INSTALLATION OF ANTENNA FOR FRONT END OR SKID LOADERS



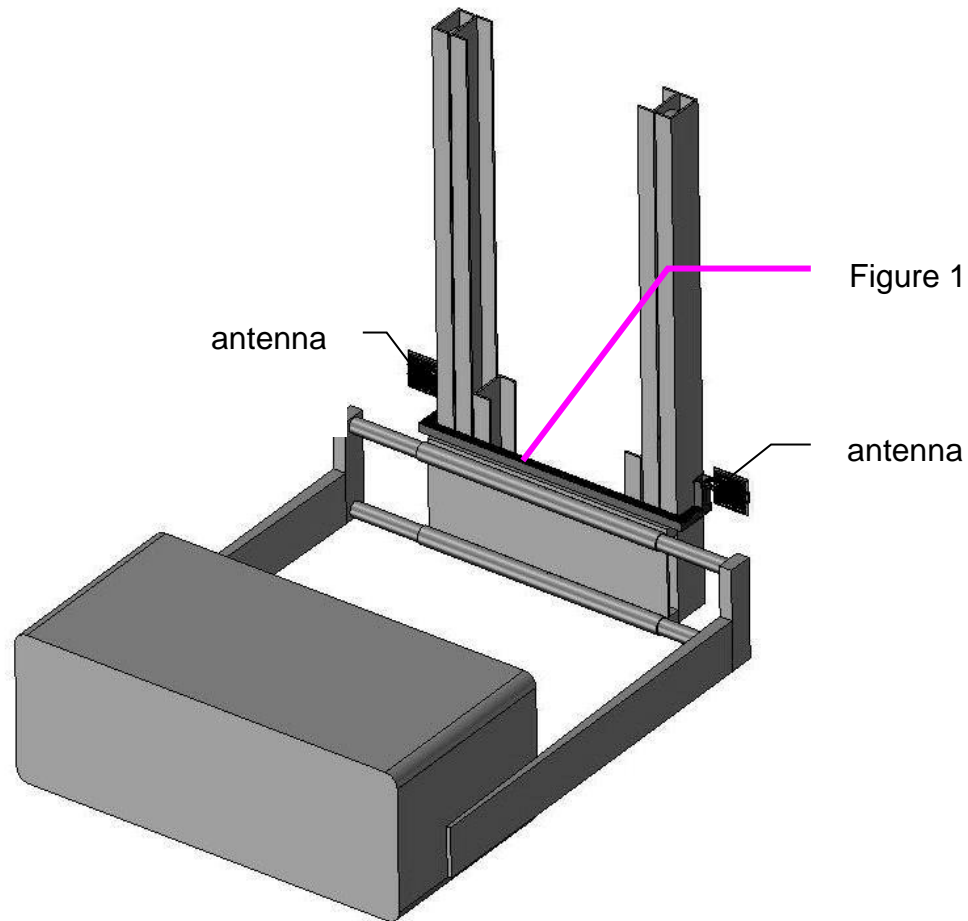
Mount the two assembled antennas as shown above on the uprights. The uprights are not included in the kit. Use an inside or outside mounting style. Use the style that positions the antennas closest to the position of the tags according to the bale length and width of the bale handling forks. Center the antenna height to the tag as it is located on the bale. Set the antennas back as far as possible, from the bale, without interfering with normal loader operation. Attach the antennas to the bale handling forks using the 5/16" x 1" bolt, flats, locks, and nuts or 5/16" x 1 1/4" self tapping bolts. Run the cables to the scanner. When attaching cables to scanner the left antenna needs to attach to the left scanner port and the right antenna needs to attach to the right scanner port. Take care to run the cables to avoid all pinch points and leave enough slack in the cable to allow for normal movement of the bale handling forks. The excess cable needs to be looped in a safe area, not bunched or kinked.

3. INSTALLATION OF ANTENNA FOR RETRIEVER TRUCK LOADERS



Mount the two assembled antennas as shown above. Center the antenna height to the tag as it is located on the bale. Set the antennas back as far as possible, from the bale, without interfering with normal operation. Attach the antennas to the bale handling forks or squeeze using the 5/16" x 1" bolt, flats, locks, and nuts or 5/16" x 1 1/4" self tapping bolts. Run the cables to the scanner. When attaching cables to scanner the left antenna needs to attach to the left scanner port and the right antenna needs to attach to the right scanner port. Take care to run the cables to avoid all pinch points and leave enough slack in the cable to allow for normal movement of the bale handling forks or bale squeeze. Use the hydraulic lines by the antennas to help route the cables to the cab. The excess cable needs to be looped in a safe area, not bunched or kinked.

4. INSTALLATION OF ANTENNA FOR HAY SQUEEZE



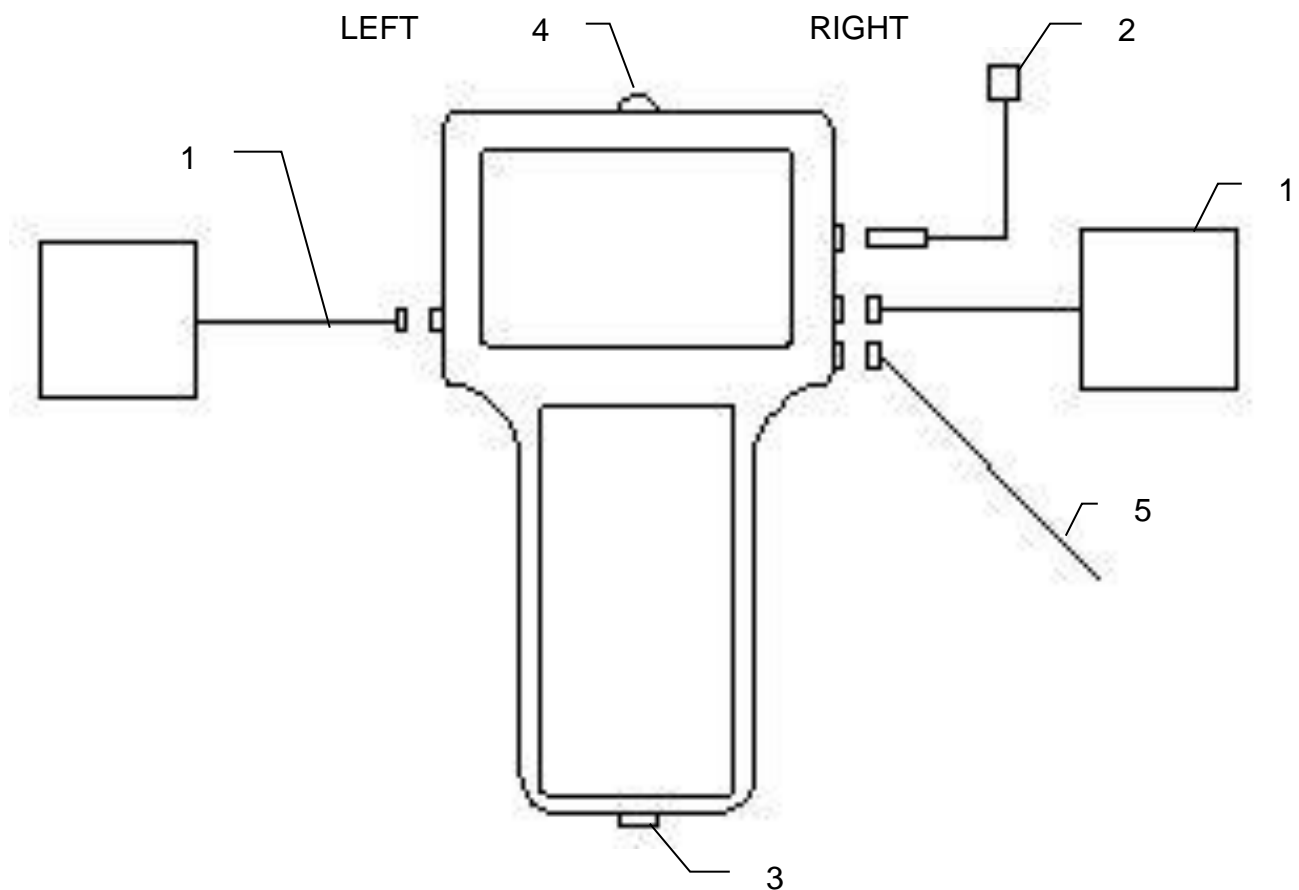
The antennas will mount as shown above. A metal bracket will need to be fabricated and attached to the top of the mast (figure 1). This metal bracket is not included in the kit. The bottom of the antenna should be flush with the top of the center mast. Position the antennas back towards the cab as much as possible to prevent contact with bales and without interfering with normal movement of the machine. Position the antennas to line up with the tags in the orientation shown above. Attach the antennas to the squeeze using the 5/16" x 1" bolt, flats, locks, and nuts or 5/16" x 1 1/4" self tapping bolts. Run the cables to the scanner. When attaching cables to scanner the left antenna needs to attach to the left scanner port and the right antenna needs to attach to the right scanner port. Take care to run the cables to avoid all pinch points and leave enough slack in the cable to allow for normal movement of the bale squeeze. The excess cable needs to be looped in a safe area, not bunched or kinked.

5. INSTALLATION OF ANTENNA FOR HAND HELD MODE

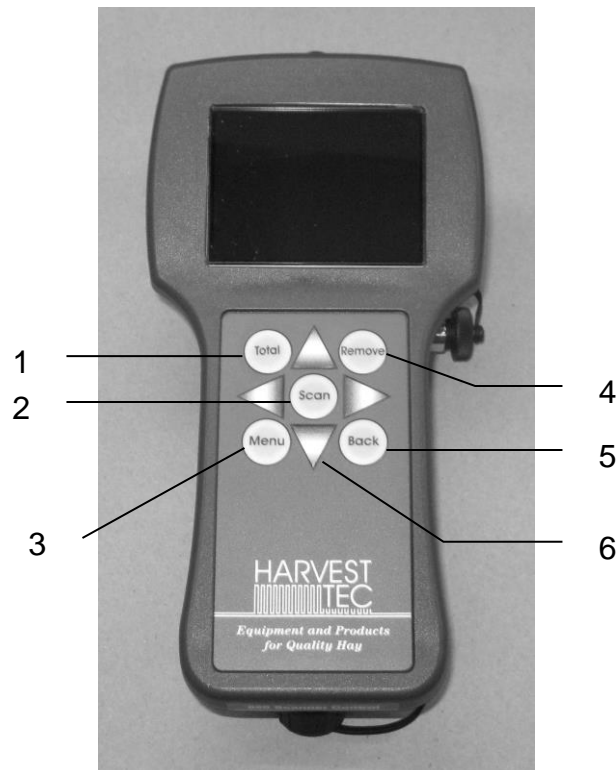
Locate the smaller hand held antenna (006-8601) and attach it using the sliding mount on the back of the scanner. Attach the coaxial cable to the right antenna plug on the scanner (with the screen visible).

SYSTEM WIRING DIAGRAM

1. Connect the antenna (s) to the scanner port. If two antennas are used (loader application) connect the left antenna to the left port and the right antenna to the right port. If one antenna is used (handheld application) only connect to the right port.
2. Connect the battery charging plug on the right side as shown. When the battery is charging the screen charging icon will turn red. When the battery is not charging the icon will be grey.
3. The USB port is located on the bottom of the scanner. Insert a USB drive to upload software or download bale groups.
4. The power button is located on the top of the screen. Press and hold for 1/2 second to power on/off. The green led will be illuminated when the scanner is powered on.
5. Optional foot switch lead for scanning and removing bales.



DESCRIPTION OF BUTTONS



1. Press the Total key when you are working in an active Group ID to show the average moisture content, High moisture content, average bale weight, total bale weight, total pounds of preservative, and total number of bales. This will continue to update as more bales are scanned. Press the Total key again to return to the scanning screen.
2. Press the Scan key when you need to enter through screens or when you are scanning bale(s) in the Scan Only mode or in an active Group ID.
3. Press the Menu key in any screen to return to the Main Menu.
4. Press the Remove key in any active Group ID to remove all the currently displayed bale(s) from the group. After pressing this key the bale(s) will be removed from the Group ID and the screen.
5. Press the Back key to move one screen back. Pressing this key multiple times will take the unit back to the Main Menu screen.
6. Press any of the arrow keys to navigate through the different screens.

OPERATION INSTRUCTIONS

After the antenna(s) have been attached to the scanner turn it on by holding the button on top of the unit for 1/2 second. When the scanner is operating, the green LED on the button will be illuminated. Press and hold the button for 1/2 second to turn the unit off. The top left corner circle will light up red when the scanner is running on 12V battery or 110V power.

Main Menu



Scan Only In this mode you can quickly scan bale information only. **Bale information cannot be saved here.**

Create a New Group In this mode you can create a Group ID, from a created group. Once a group is created bales can then be saved.

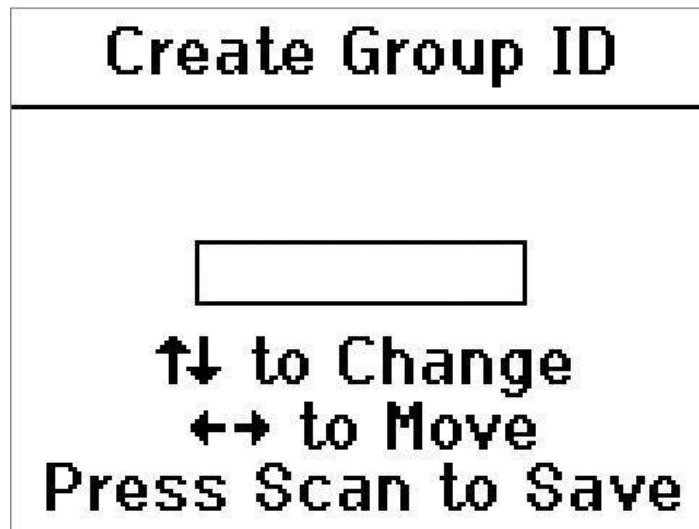
Edit Created Groups In this mode you can add or remove bales to Created groups.

View, Download, Clear In this mode you can view created groups, download current groups, or clear groups from the system.

Alarms In this mode you can set your alarms on or off and adjust the alarm ranges. The contrast control and software version is also found in this mode.

Create a New Group

From the Main Menu screen highlight **Create a New Group** using the up and down arrows and press Scan. The following screen will appear:



Create Group ID

↑↓ to Change
←→ to Move
Press Scan to Save

1. In this screen use the up and down keys to scroll through the alphabet to name your Group ID.
2. If no name is entered the system will default to Group ID name GROUP000. To set a Group ID without a name press the scan key twice. Every additional group named will add a consecutive number (GROUP001, GROUP002).
3. Once the name is complete press the Scan key to save the Group ID name.
4. After pressing the Scan key to save the Group ID, the next screen to appear will be the main operating screen. See section: **Scanning and Saving Bales**.
5. Press the Back key to select different Group ID's or press the Menu key to go to the Main Menu screen.

Edit Created Groups

From the Main Menu screen highlight **Edit Created Groups** using the up and down arrows and press Scan. The following screen will appear:

Group ID
Group 2
Group 1
Stack 4
Stack 3
↑↓ to select then press Scan

1. Use the up and down arrow keys to select the Group ID you would like to edit. Press Scan to enter the Group ID.
2. Bales can now be added or subtracted in this Group ID. Bales are automatically saved to the group once they are scanned. If a particular bale needs to be removed from the group, it will need to be separated from the other bales, scanned again, and the Remove button will have to be pressed to remove it from the group. All bales will need to be rescanned to find the undesirable bale(s).
3. Press the Back key to select a different Group ID or press Menu to go to the Main Menu screen.

View, Download, Clear groups

From the Main Menu screen, highlight **View, Download, Clear** using the up and down arrows, and press Scan.

View Group Totals View Individual Bales Download All Groups Clear All Groups	Group ID
	Group 2
	Group 1
	Stack 4
	Stack 3
↑↓ to select then press Scan	

ID:GROUP001	Totals
Average MC%	23
High MC%	30
Avg Bale Wt (Lbs)	1500
Total Wt (Tons)	9.8
Pres. (Lbs)	13.5
Total Bales	130

View Group Totals

1. Using the up and down arrows highlight View Group Totals and press Scan.
2. The screen on the right will now appear. Using the up and down arrows highlight which Group ID you would like to view and press Scan.
3. The bottom screen will now appear.
4. Press the Back key to select a different Group ID, or press Menu to go to the Main Menu screen.

View Individual Bales

View Group Totals View Individual Bales Download All Groups Clear All Groups	Group ID
	Group 2 Group 1 Stack 4 Stack 3
	↑↓ to select then press Scan

ID: GROUP001 Bale	Moisture Average
1	21 %
2	18 %
3	16 %
4	14 %
Pg 1/2	Total:5

1. Using the up and down arrows highlight View Individual Bales and press Scan. The screen on the right will appear.
2. Select the Group ID you would like to view the individual bales in by using the up and down arrow and pressing scan.
3. Once a Group ID is selected the bottom screen will appear. The default screen to appear will be Moisture Average. Use the left and right arrows to scroll through the different screens and the up and down arrows to view additional bales.
4. Press the Back key to choose a different Group ID or press the Menu key to return to the Main Menu screen.

Download All Groups

View Group Totals
View Individual Bales
Download All Groups
Clear All Groups

Downloading

Download Complete	
Clear Groups?	
Yes	No
←→ to select then press Scan	

1. Insert a USB into the bottom of the scanner.
2. Using the up and down arrows highlight Download All Groups and press Scan.
3. The screen on the right will be displayed while the scanner is downloading the jobs.
4. When the download is complete the bottom screen will appear. Using the left and right arrows select yes or no to clear all the groups.
5. After the download is complete the and groups are cleared the scanner will switch to the Main Menu screen.

Clear All Groups

View Group Totals
View Individual Bales
Download All Groups
Clear All Groups

Clear Groups

**Are You Sure You
Want To Clear
All Groups?**

Yes

No




←→ to select then press Scan

**Clearing
Groups**

1. Using the up and down arrow keys highlight Clear All Groups and press Scan.
2. The screen on the right will appear. Using the left and right arrows select Yes or No.
3. If Yes is selected the bottom screen will appear. After the groups are cleared the scanner will switch to the Main Menu.

Setting system alarms and screen backlight brightness

From the Main Menu screen, highlight **Alarms** using the up and down arrows and press Scan. The top left screen will appear.

<p>Alarms On/Off Alarm Ranges</p> <p>  </p> <p>Version:01011</p>	<p>Alarms</p> <table><tr><td>MC%</td><td>Off</td></tr><tr><td>Weight</td><td>Off</td></tr><tr><td>Date</td><td>On</td></tr></table> <p>↑↓ to Select ↔ to Change Scan to Save</p>	MC%	Off	Weight	Off	Date	On						
MC%	Off												
Weight	Off												
Date	On												
<p>Alarm Ranges</p> <table><tr><td>Avg MC% Low</td><td>21</td></tr><tr><td>Avg MC% High</td><td>26</td></tr><tr><td>Weight Low</td><td>1000</td></tr><tr><td>Weight High</td><td>2000</td></tr></table> <p>↑↓ to Select ↔ to Change Pg 1/2 Scan to Save</p>	Avg MC% Low	21	Avg MC% High	26	Weight Low	1000	Weight High	2000	<p>Alarm Ranges</p> <p>Month / Day / Year</p> <table><tr><td>Start Date</td><td>04/12/07</td></tr><tr><td>End Date</td><td>03/10/09</td></tr></table> <p>↑↓ to Select ↔ to Change Pg 2/2 Scan to Save</p>	Start Date	04/12/07	End Date	03/10/ 09
Avg MC% Low	21												
Avg MC% High	26												
Weight Low	1000												
Weight High	2000												
Start Date	04/12/07												
End Date	03/10/ 09												

1. Use the left and right keys to adjust the screen backlight brightness. The black line inside the box is a visual aid to determine the brightness.
2. Use the up and down keys to select Alarms On/Off and press Scan. The top right screen will appear. Use the up and down keys to highlight the different alarms and use the left and right keys to toggle them On or Off. Press the Scan key to save.
3. Use the up and down keys to select Alarm Ranges and press Scan. The bottom right screen will appear. To access the bottom left screen continue to scroll down. Use the left and right keys to change the values. Press Scan to save the changes.

Scanning and saving bales with hand held antenna or loader antenna

From the Main Menu screen, highlight **Create a New Group** or **Edit Created Groups**. If you select **Create a New Group**, see that section of the manual for instructions on how to proceed with group creation. If you select **Edit Created Groups**, select one of the created Group ID's and begin scanning bales.

ID:GROUP001 Bale	Moisture Average	ID:GROUP001 Bale	Moisture Average
		1	21 %
		2	18 %
		3	16 %
		4	14 %
Pg 1/1	Total:0	Pg 1/2	Total:5

1. Once a Group ID has been created or chosen in the editing software the left screen will appear.
2. When approaching the bale(s) press the scan button. The screen will display Reading and will then display bales as shown on the right screen.
3. Use the left and right key to scroll through all the different screens. Use the up and down key to scroll through the different bales if more than four are scanned.
4. The bales shown will automatically be stored into the Group ID that was selected or made.
5. If the bale(s) scanned are not desired, press the Remove key to remove the currently displayed bale(s) from the group. If more than one bale is scanned and only part need to be removed, the remove key must be pressed to remove all bales. The bales must then be separated and scanned until the undesirable is found.

Scan Only

1. The operator can choose to only view the bale information and not to save. This is how the function is used.
2. This mode will not save bales to any Group ID.

Alarm Indicators

1. When the alarms are on if any of bales are out of desired range the screen will flash Bales out of Range.
2. Two colors will also be used to indicate the bales that are out of range. All categories of the bale will be displayed in orange. The red box will indicate what area is out of range.

COMMON QUESTIONS ABOUT THE 860

1. How do I turn the system on/off?

Press and hold the power button on top of the scanner. A green light will illuminate when the power is on.

2. How do I charge the battery?

Insert one of the power cords into the right side of the scanner and lock in place with a quarter turn. The charging icon on the screen will then illuminate red.

3. Why did the screen turn off?

After 5 minutes of no buttons being pressed the scanner will go into power saving mode. Press any of the soft keys to turn the screen back on.

4. How many scans can be done with a full battery charge?

With a full battery charge around 300 scans can be performed before charging the battery.

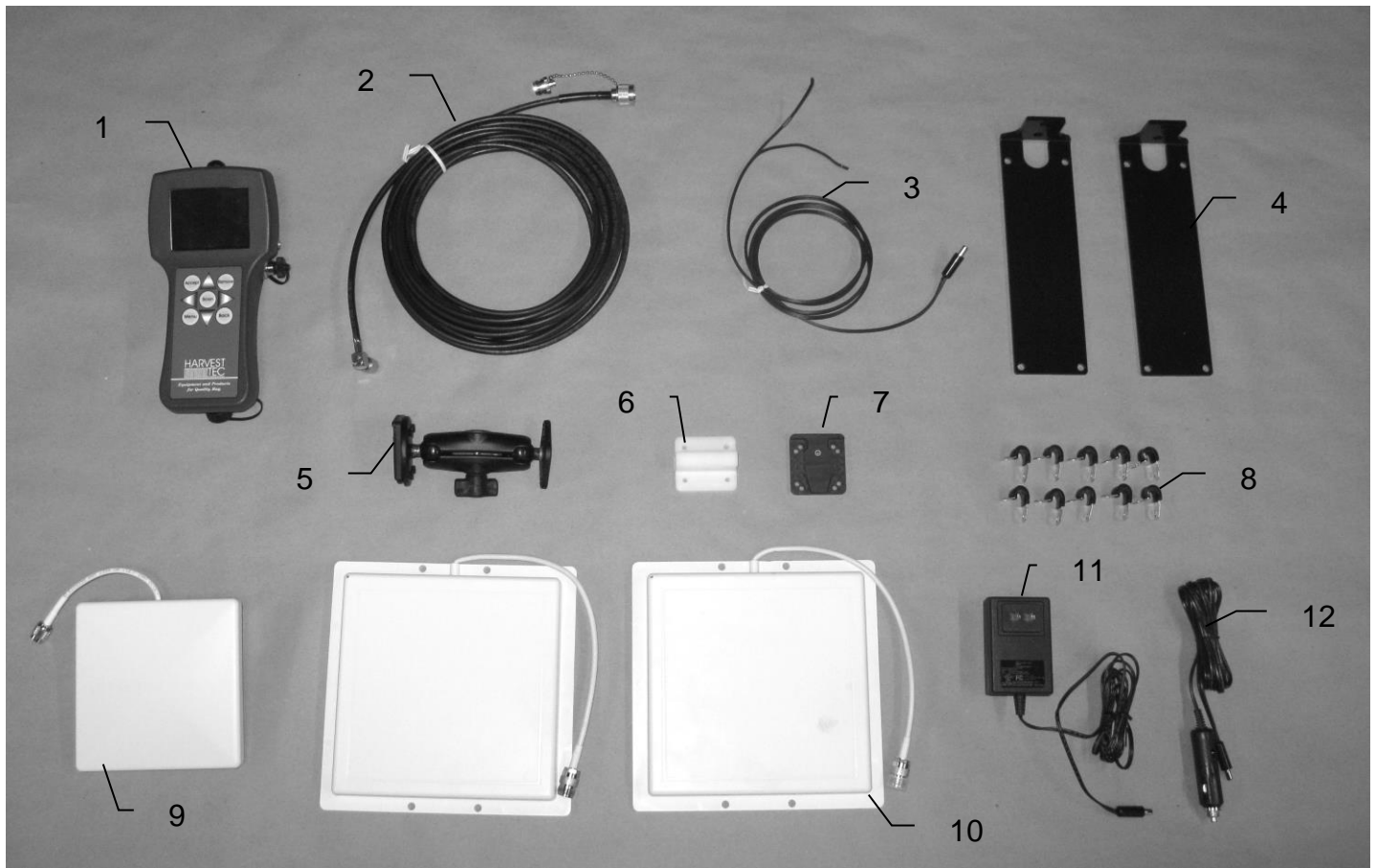
5. How do I update the software on the scanner?

Insert a USB into the bottom of the unit with the appropriate software. Then, before turning on the unit, press and hold a button on the keypad while turning the unit on. Once the unit is powered on, stop pressing the buttons. The display should read 'Checking for Updates' on a white screen. If an update is found on the USB drive, the screen will change to 'Updating Firmware'. Once the process is complete, the unit should boot into the main menu.

TROUBLE SHOOTING CHECKS:

<u>PROBLEM</u>	<u>POSSIBLE CAUSE</u>	<u>SOLUTION</u>
During a scan screen goes to Main Menu	1. Low battery.	1. Insert battery charging plug into scanner and try to scan again.
Scanner says "No Antenna Found"	1. Bad connections on antenna.	1. Check all connections and try another scan.
Scanner says "USB Download Failed"	1. Bad connection at USB port. 2. USB format incorrect.	1. Verify USB is in the port. 2. Try a different USB drive.

PARTS BREAKDOWN FOR SCANNER & ANTENNAS



<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	Bale Reader (scanner)	006-5674	1	7	Antenna mount	006-8600M	2
2	Antenna cord	006-8601A	2	8	Jiffy clips	008-9011	10
3	Battery charging cord	006-8600BP	1	9	Hand held antenna	006-8601	1
4	Loader mount	001-LM02	2	10	Loader antennas	006-8602	2
5	Ram mount	001-2012H	1	11	AC charger	006-8600AC	1
6	Antenna adapter	001-8600AM	1	12	DC charger	006-8600DC	1

NOTES:

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. 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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Federal Communications Commission (FCC) Statement:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. **Class A Device Statement:** (Section 15.105(a) of the FCC Rules) This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the operators own expense. **Caution: Changes or modifications not expressly approved by Harvest Tec can void the user's authority to operate the equipment.**



Industry Canada (IC) Compliance Statement:

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.