

OWNER'S MANUAL

Model 545, 550 & 551 25 & 55 Gallon Automatic Preservative Applicator



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#010-0551

5/22

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INTRODUCTION

Congratulations on purchasing a Harvest Tec commercial applicator. This applicator is designed to apply Harvest Tec buffered propionic acid. The use of other products can cause application problems and damage to system components. The commercial base kit includes the following parts: Tank, Frame, Pumps, Hose, Precision Information Processor (PIP), Pump Controller, Touch screen display, Star wheels, Spray Shield Assembly and Miscellaneous Hardware. For your convenience we have included a parts break down for the commercial applicators. If something goes wrong, bring this manual into the dealership so they can order the correct parts for you. Ordering the correct part number is very important. It will save you time, money, and your crop.

INSTALLATION KIT REFERENCE CHART

<u>BALER MAKE</u>	<u>BALER MODEL</u>	<u>MODEL NUMBER</u>	<u>INSTALL NUMBER</u>
CASE IH	SBX530, SBX540, SBX550, SB 531 – SB 551 SQUARE BALERS	551	4415B
NEW HOLLAND	570, 575, 580 & BC 5060 – BC 5080 SQUARE BALERS	551	4415B
CASE IH	2001 AND OLDER SQUARE BALERS (TWO TIE)	550	4485B
HESSTON, MASSEY NEW IDEA, AND CHALLENGER	ALL CONVENTIONAL SQUARE BALERS (TWO TIE)	550	4485B
HESSTON, MASSEY NEW IDEA, AND CHALLENGER	ALL THREE TIE BALERS	550	4502B
FREEMAN	ALL THREE TIE BALERS	550	4506B
NEW HOLLAND	BB 900 & 585	550	4507B
JOHN DEERE	ALL SMALL SQUARE	545	4410B

TOOLS NEEDED

- Standard wrench set
- Standard socket set
- Standard screw driver or 5/16" nut driver
- Side cutter
- Hose cutter
- Crescent wrench
- Hammer
- Metal drilling and cutting tools
- Center punch
- Tape measure
- Straight edge
- 1 1/2" hole saw

INSTALLATION OF APPLICATOR

1. INSTALLATION OF MOUNTING BRACKETS, PUMP MANIFOLD, HOSE MANIFOLD AND TANK

MODEL 551

Mount the two long strap bases (001-4703CD) to the bottom side of the saddle (001-4703C) front edge. Note: This is the side that has a 2" diameter hole in one of the sides. Use four 3/8" x 1 1/4" bolts, washers, locks, and nuts to secure. Mount the two short bases (001-4703CC) to the bottom side of the saddle's back edge. Use 3/8" x 1 1/4" bolts on the outside holes. Leave the inside holes open for the installation of the pump plate mount.

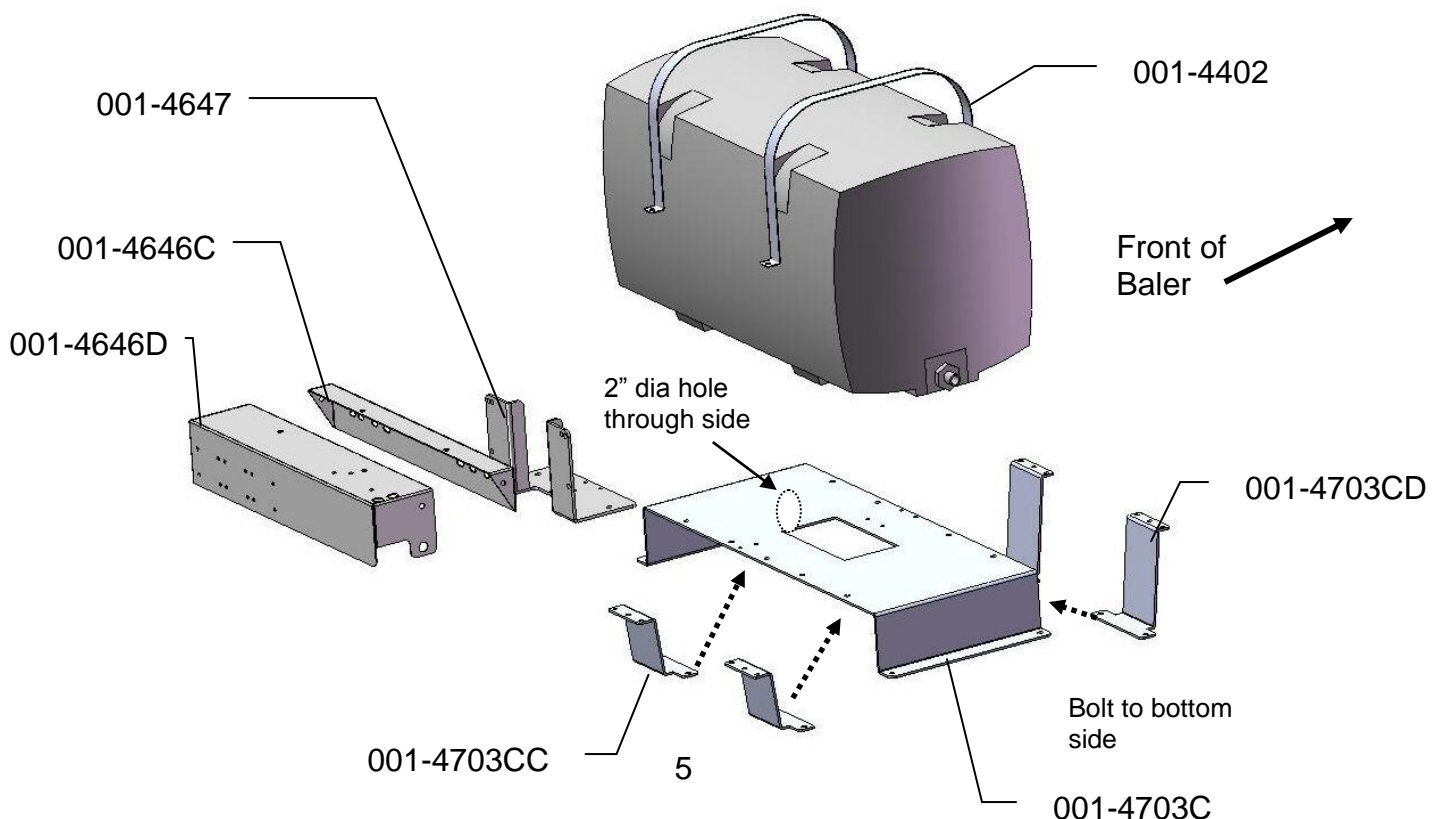
Install the "U" shaped pump plate mount (001-4647) to the top and back edge of the saddle. Secure with two 3/8" x 1 1/2" bolts on the outside that also go through the short mounting bases as listed above. Place one 3/8" x 1 1/4" bolt in the middle. Secure with washers, locks and nuts.

Install the tank fitting into the bottom of the tank (003-EL3412) and mount the tank on top of the saddle and between the strap bases. When facing the front of the tank, make sure the side tank fitting is on the left.

Locate the two straps (001-4402). Position the straps over the top of the tank and secure with four 5/16 x 4 1/2" bolts and eight nuts. All of the strap bolts need to have double nuts. Mount the door strap (001-4703CL) on a back strap base using the 1/4 x 1 1/2" bolt, two washers and nylock nut.

Connect the pump plate mounting bracket (001-4646C) using two 3/8 x 1" bolts, nuts, locks, and flat washers to the U shaped bracket (001-4647). Attach the pump plate holder (001-4646D) to pump plate mounting bracket (001-4646C) using four 3/8 x 3/4 flange head bolts.

Mount the tank as shown below. The tank will be mounted as far to the right side of the baler as possible. The side tank fitting (Figure A) will be facing the right side of the baler. The pump plate assembly (Figure B) will be at the back of the baler. Place the tank on top of the baler and open the front access door. Position the tank so that the front access door can be lifted open and locked in place. Line up the side of the tank saddle closest to the plunger with the bolts on top of the hood. Remove the two bolts, line saddle up with existing holes, and secure with new M8 x 30 bolts, flat washers, and locks. The back access door will be held open with the door strap. Mark and drill two 3/8 inch holes on the top of the baler for the other open holes in the saddle to attach, secure with two 8 x 30mm bolts, locks, flats, and nuts. Before drilling, verify that the hole placement will not interfere with any baler operation.



MODEL 550

Attach legs part #001-4703B to the tank saddle with 3/8 x 1" bolts, flat and lock washers. The legs will attach on top of the bale chamber in front of the hydraulic compression area. (Figure 1) You will need to drill four 1/2 inch holes on top of the chamber to mount the tank and frame. Clamp legs on top of the bale chamber, mark the holes and drill. The 1/2 x 1 3/4" inch allen head carriage bolts will be inserted through the bale chamber along with flat washers so that the carriage head will be inside of the chamber. Secure the allen head carriage bolts with 1/2 nuts, flat and lock washers. Mount the supplied support bracket to the bottom of the tank saddle and to the baler frame as shown below.

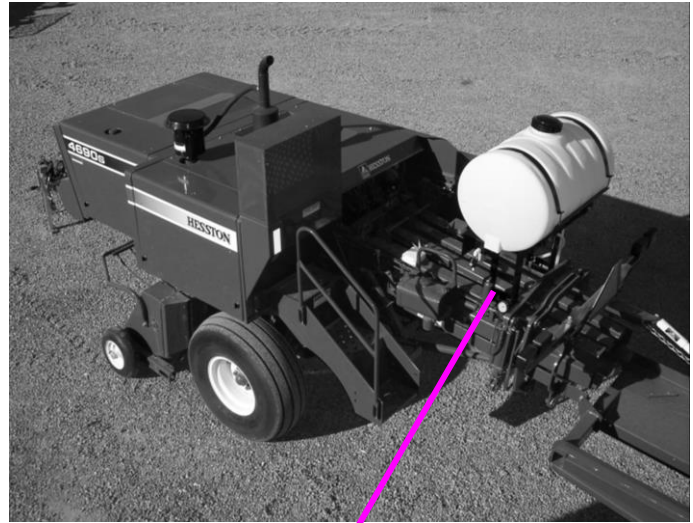
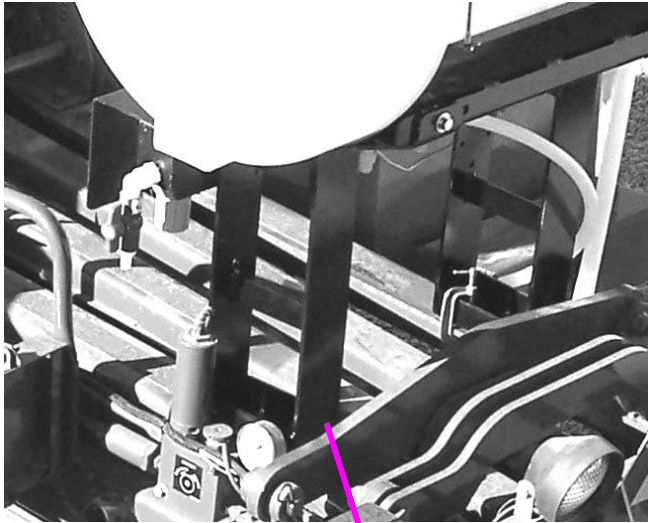


Figure 1



Mount support bracket (001-4424C) at these locations. Two tie models only.

MODEL 550 CONT.

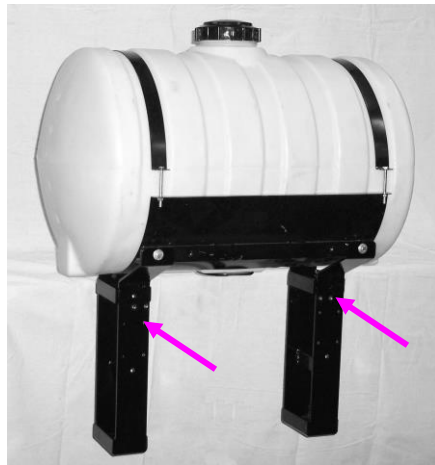


Figure 1

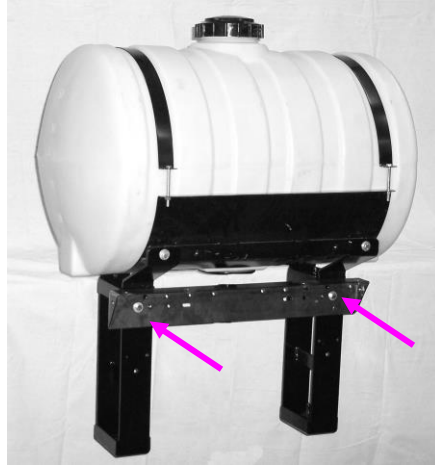


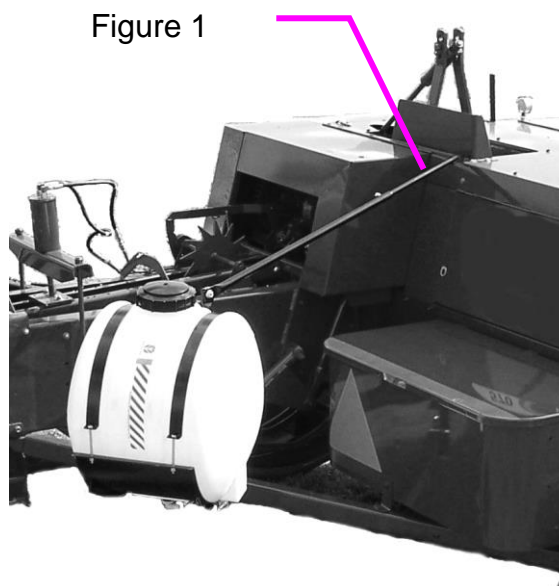
Figure 2



Figure 3

1. Locate the two mounting holes as shown in Figure 1.
2. Connect the pump plate mounting bracket (001-4646C), shown in Figure 2, using two 3/8 x 1 1/4 bolts, nuts, locks, and flat washers to the saddle.
3. Attach the pump plate holder (001-4646D) to pump plate mounting bracket (001-4646C) using four 3/8 x 3/4 flange head bolts. Figure 3.

MODEL 545



Mount the unit on the diagonal frame behind the twine box, as pictured using the base clamp (001-4406) and u-bolts (001-4406A). Locate the top reach rod (Figure 1) in a position opposing the overhanging tank. Bolt one end to the top stub pipe on the tank saddle and the other end to a secure location on the baler. **NOTE: REACH RODS MAY HAVE TO BE BENT ON THE TAB TO ALIGN PROPERLY.**



Figure 1

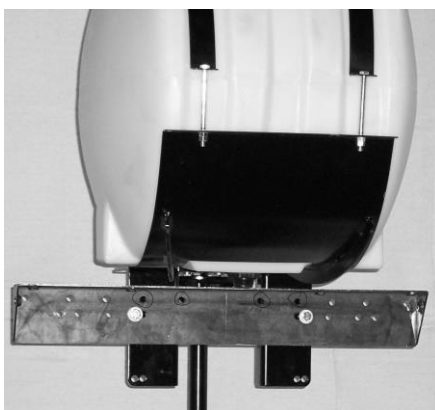


Figure 2

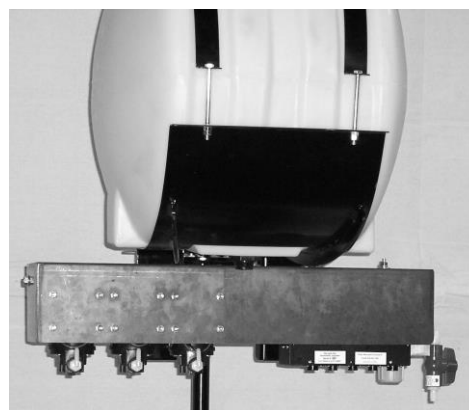


Figure 3

A. RECOMMENDED MOUNT

The U shaped bracket (001-4647) will already be attached to the saddle and will need to be inverted to fit on the bottom of the saddle as shown in Figure 1. Reattach the bracket to the bottom of the saddle using the four 1/4 x 1 bolts, nuts, flats and lock washers. Connect the pump plate mounting bracket (001-4646C), shown in Figure 2, using two 3/8 x 1 1/4 bolts, nuts, locks, and flat washers to the U shaped bracket (001-4647). Install the rest of the pump plate as shown in Figure 3. Attach the pump plate holder (001-4646D) to pump plate mounting bracket (001-4646C) using four 3/8 x 3/4 flange head bolts.

MODEL 545 CONT.



Figure 4



Figure 5



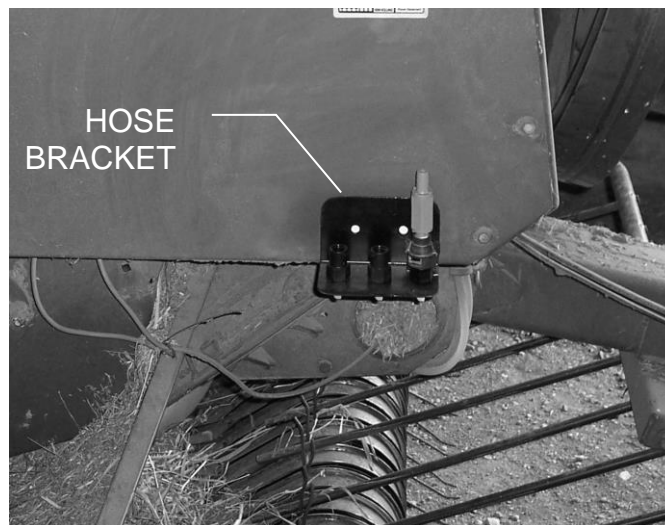
Figure 6

B. ALTERNATE LOCATION FOR GROUND CLEARANCE

The U shaped bracket (001-4647) will already be attached to the saddle as shown in Figure 4. Connect the pump plate mounting bracket (001-4646C), shown in Figure 5, using two 3/8 x 1 1/4 bolts, nuts, locks, and flat washers to the U shaped bracket (001-4647). Install the rest of the pump plate as shown in Figure 6. Attach the pump plate holder (001-4646D) to pump plate mounting bracket (001-4646C) using four 3/8 x 3/4 flange head bolts.

MODEL 550 & 545

Mount the hose bracket on the front of the baler in the area of the spray shield. Make sure the bracket will not interfere with any baler operations. Shown below on AGCO small square.



2. PLACEMENT OF SPRAY NOZZLE ASSEMBLY

Install kit 4415B-SO

Locate the hay guard directly above the bale chamber. This install can be done with the hay guard in the baler, but it is recommended to remove. Consult your dealer for procedure.

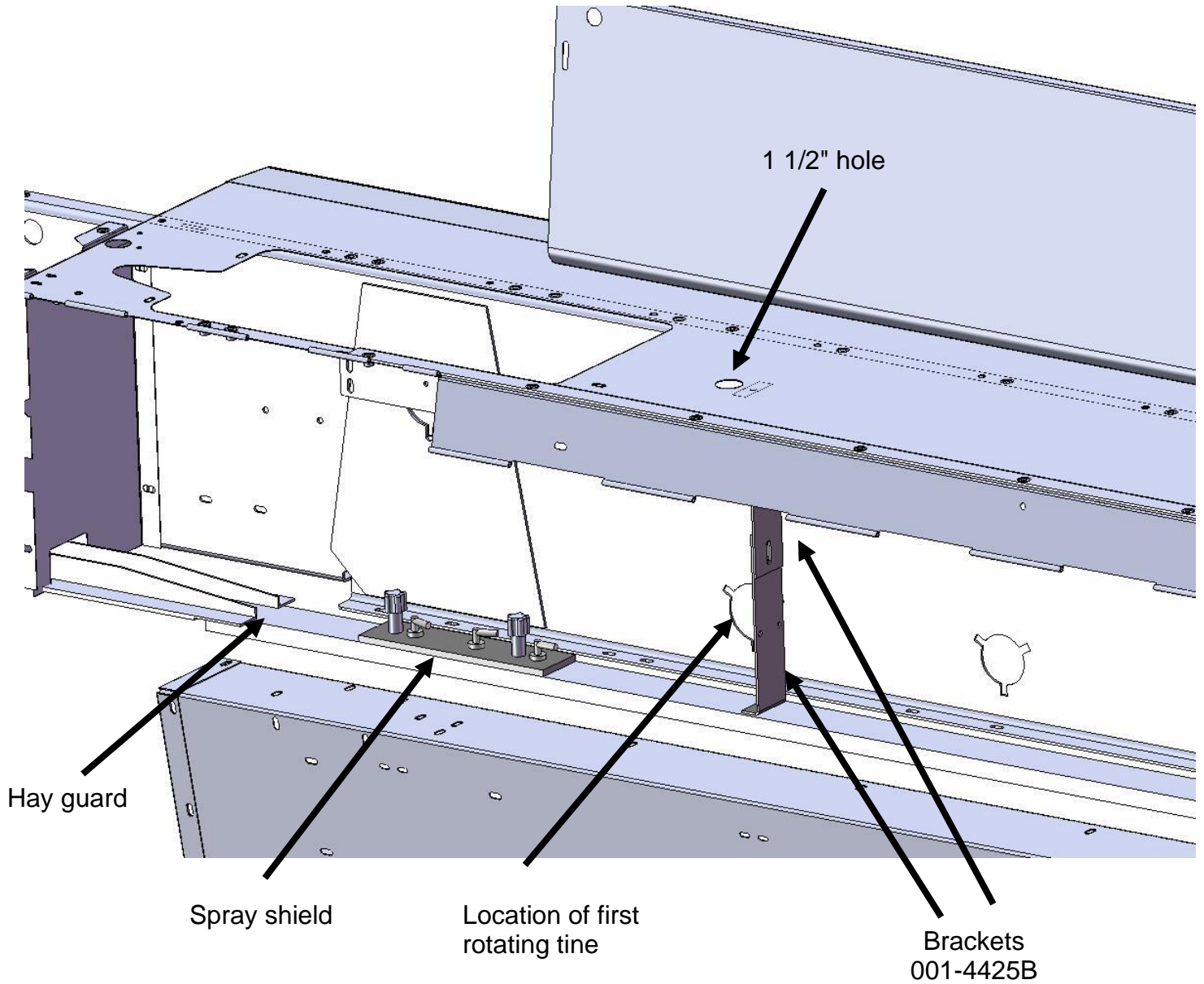
Installation of spray shield

1. Mark a point 10" from the knife and centered on the hay guard. Next, mark a point 20" from the knife and centered on the hay guard. Using a straight edge draw a line between these two points.
2. Locate the template in the back on the manual. Align the template accordingly with the centerline and the correct side pointing towards the knife. The first point will align on the 10" mark from the knife. Tape the template to the hay guard following the centerline.
3. Center punch all five of the points on the hay guard. Verify measurements with template.
4. Remove the template and mark the center-punched points 1 through 5 starting at the point closest to the knife.
5. Drill all five holes with an 1/8" drill bit **ONLY THROUGH THE TOP PIECE OF STEEL.**
6. At points 2, 3, and 5 drill only through the top of the hay guard with a 1 1/2" hole saw.
7. Drill points 1 and 4 through both the top and bottom steel using a 1/4" drill bit.
8. Insert two 1/4" x 2" button head cap screws through holes 1 and 4. The head of the screw will need to be down (in the chamber). Secure with nylon lock nut.
9. Place spray shield with plastic fittings down onto the hay guard. Secure with 1/4" flat washers and nut. Turn the white nylon fittings down until they touch the bottom of the hay guard. These fittings will be used as drill guides.
10. Drill through the bottom steel on holes 2, 3, and 5 with a 1/4" bit. Remove the shield and drill the holes with a 9/16" bit. Be careful to not oblong the holes. De-bur any metal filings left around the three holes on both sides of the hay guard.
11. Remove plastic drill guides from the shield and replace with the elbow fittings. Place the check valve, tip and cap onto the end of the elbow.
12. Thread the elbow with the blue tip into the low threaded hole on the shield. The medium will be the green tip, followed by brown at the high threaded hole. Do not thread all the way down, only start the elbows.
13. Place the shield on the hay guard and secure by pressing down. Thread all three elbows down until they touch the bottom metal.
14. Secure the spray shield with the knobs.

Installation of hose and support bracket

1. If the hay guard was removed for shield installation reinstall at this time.
2. Mark a point 6" from the first rotating tine on the center of the hay guard. Center punch this mark and drill a 1/4" hole through both top and bottom of the hay guard.
3. Bolt the bottom bracket (001-4425B) using 1/4" x 2" button head cap screw. Secure with a 1/4" flange nut. The head will need to be down (in the chamber).
4. Loosely install the remaining bracket (001-4425B) to the bottom bracket attaching in the middle. Level the two pieces and extend the top bracket until it reaches the top of the baler. Secure with a 1/4" flange bolt and nut.
5. Mark and drill the top hole with a 1/4" bit. Secure with a 1/4" flange bolt and nut.

6. Cut a 1 1/2" hole in the top of the baler for the hose to route through. Install the grommet once the hole is complete.
7. Secure the low and medium hoses on the end of the spray shield with two jiffy clips (008-9014) and a 1/4" x 1/2" round head screw.
8. Install the hose from the shield under the hay tine, to the bracket, and out the top.
9. Secure the hose to the bracket with two jiffy clips (008-9009) and 1/4" flange bolts and nuts.
Keep the hose in the center of the bracket.
10. Install the hoses on to the correct pumps. See plumbing section.



View from behind the twine box with the inspection door open.

Install kit 4485B



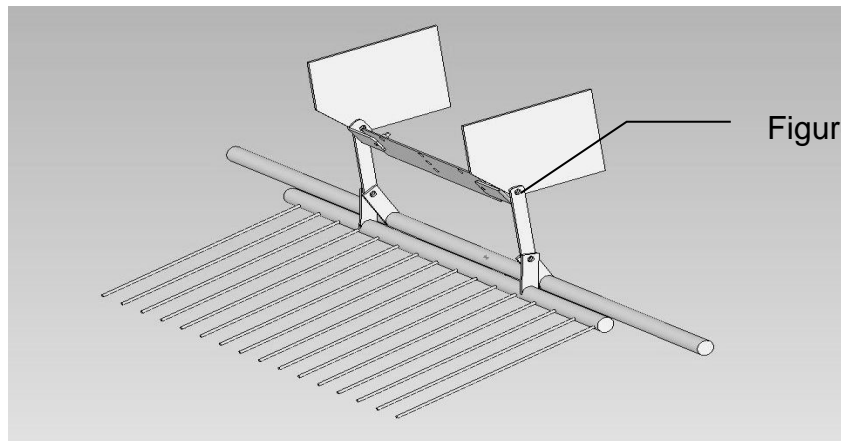
Figure 1



Figure 2

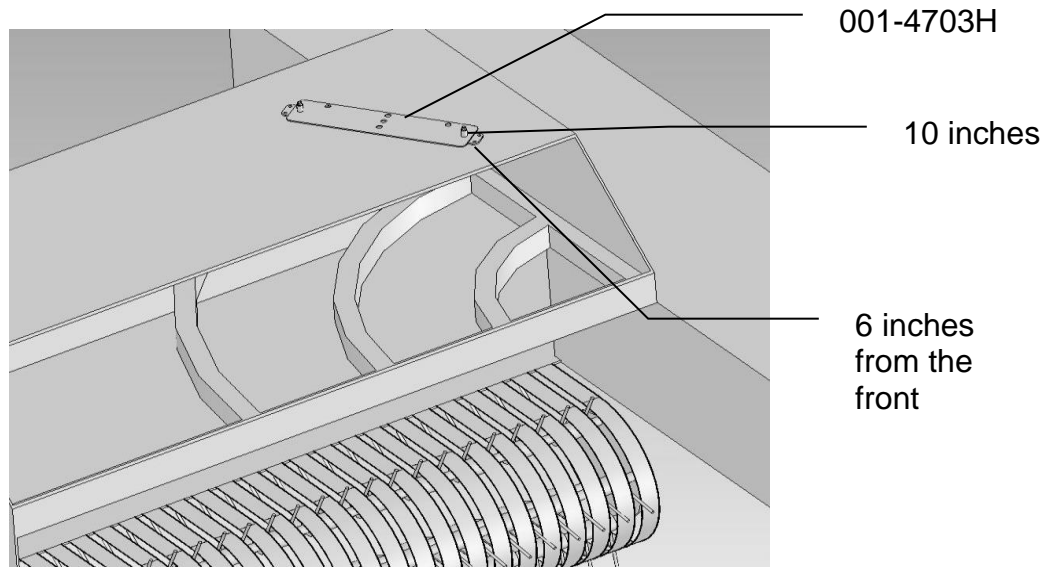
Install spray shield (001-4424B) on baler as shown in Figure 1 and 2. Use the two existing holes shown in Figure 1 and one existing hole shown in Figure 2 to attach the spray shield.

Install kit 4502B



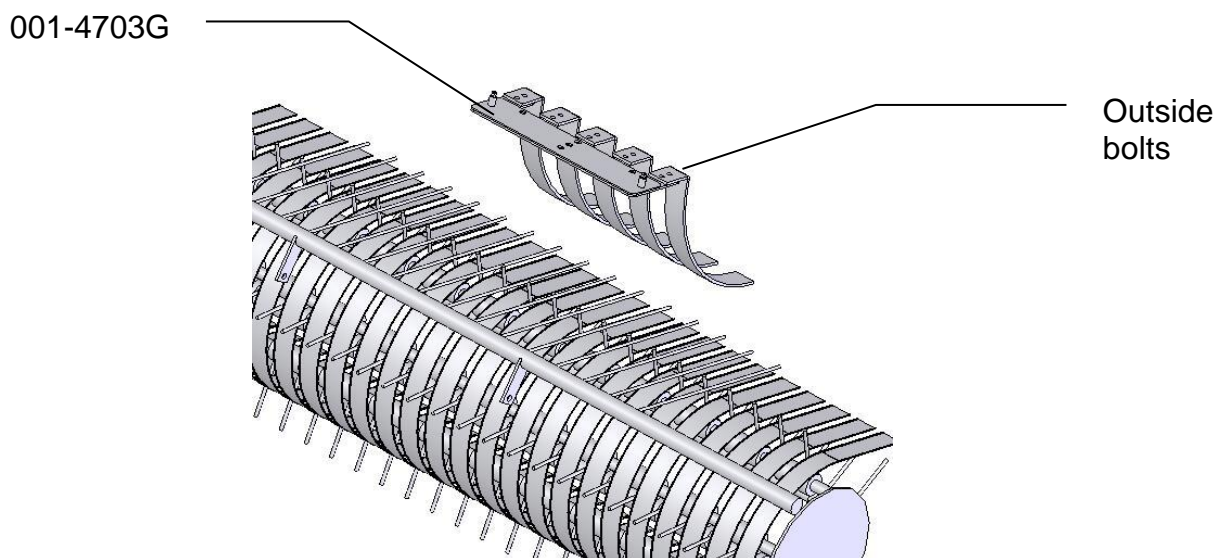
The shield for your baler will mount in the throat of the baler as shown above. Remove nut and bolt on both sides of baler. (Figure 1). Install shield holders (001-4703I) with 1/2 x 2" bolts, nuts, locks and flat washers. Do not tighten these bolts until the shield is properly aimed. Aim the shield at bottom of the pickup head at the point where stuffer fingers connect with hay (between the two augers) and make sure the bushing is not removed. Once the shield is in place the nuts may be tightened down.

Install kit 4506B



The shield for your baler will mount on top of the sheet metal directly above the pickup head shown in the picture above. Mount shield holder (001-4703H) on top of metal 6 inches from the front of the baler and 10 inches from the side of the baler. Attach this holder with $\frac{1}{4}$ x 1 $\frac{1}{4}$ " self-tapping bolts. Place shield on top of holder and rotate the shield to a 45-degree angle. Mark the location of the next holder's position and install. Four holes will need to be drilled below the tips using a $\frac{3}{4}$ " hole saw or bit.

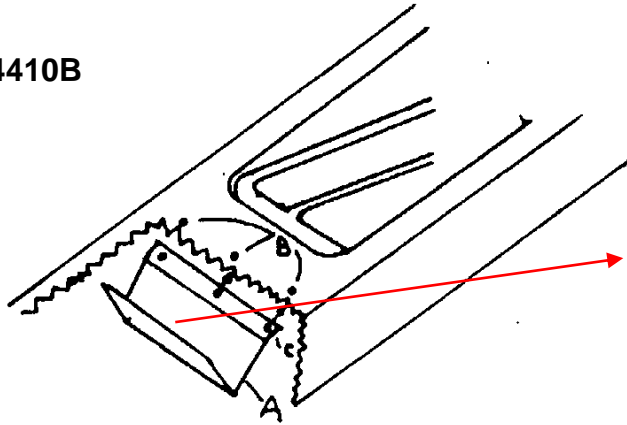
Install kit 4507B



The shield for your baler will mount on the wrap guard as shown in the picture above. Remove the two outside bolts on each side of the wrapper guard. Place bracket 001-4703G so pins are facing up and bolt through with $\frac{3}{8}$ x 1 $\frac{1}{2}$ " into bracket 001-4703G, through wrap guard, and into threaded holes on baler frame that the bolts were removed from.

Install kit 4410B

4410B

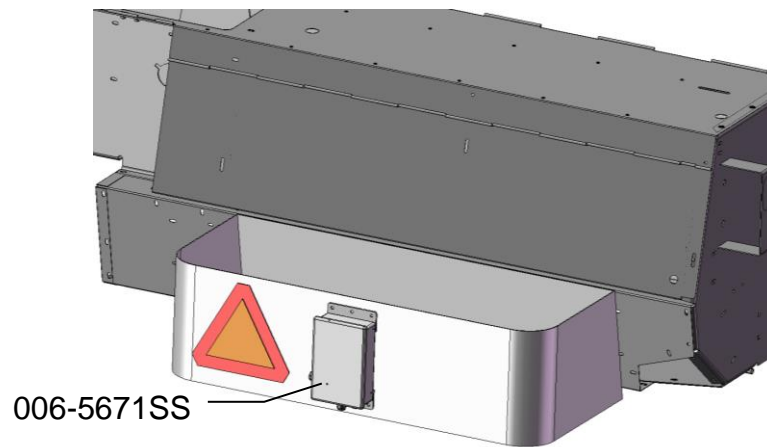


Install hoses before installation of shield. Bolt the nozzle holder (A) up under the baler's hood. Remove 3 bolts (B) on the baler and replace with hardware in kit to fasten lip(C) securely in place. Three 1/4 inch lines will need to be run from the hose manifold to the spray shield. Use the color-coded stickers to attach the correct hose to the correct tips, and couplers. Secure the lines to the bracket and spray shield using the supplied hose clamps.

3. INSTALLATION OF PRECISION INFORMATION PROCESSOR (PIP)

Model 551 & 545

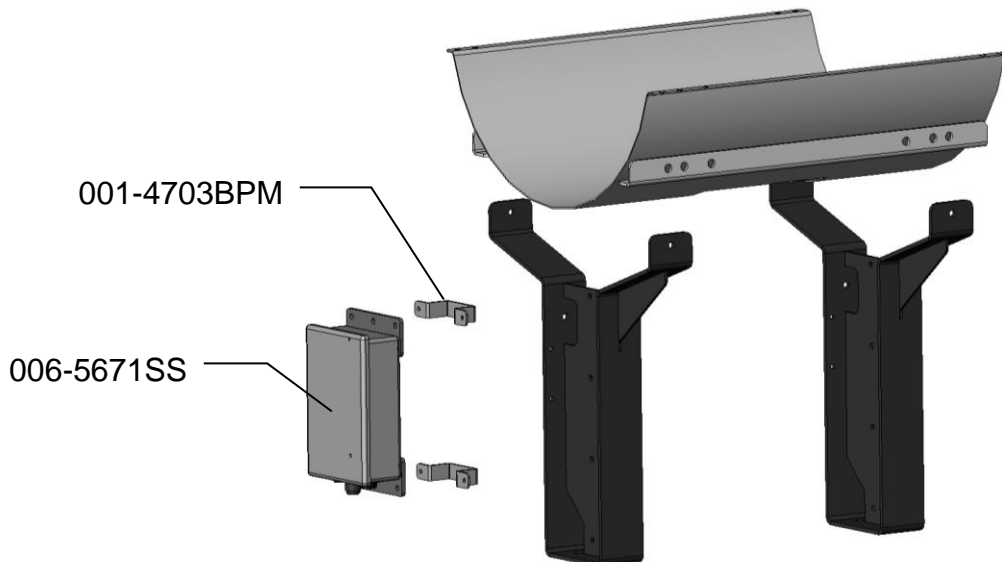
The PIP (006-5671SS) will mount on the back of the twine box. Mark and drill four 5/16" holes and secure the PIP using four 5/16 x 1" bolts, locks, flats, and nuts. Install the PIP with power plug facing down.



View from back of baler

Model 550

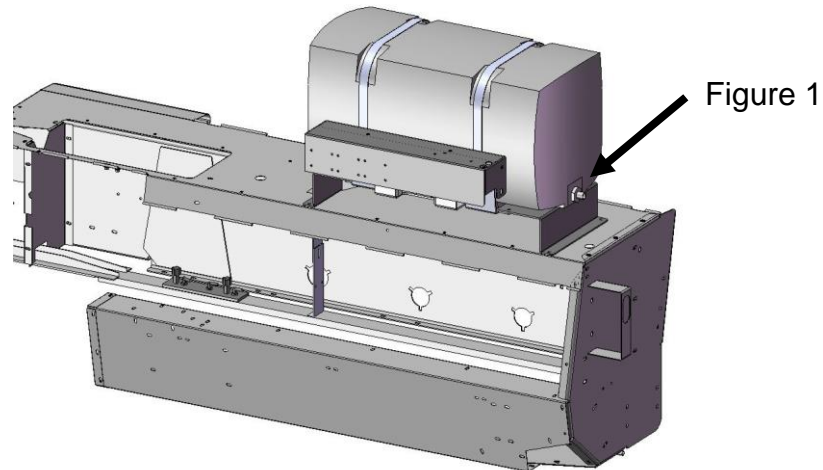
The PIP (006-5671SS) will mount on the right saddle leg. Install the two PIP mounts (001-4703BPM) to the leg using two 5/16 x 1 bolts, locks, and nuts. Install the PIP to the mounts using four 5/16 x 1 bolts, locks, flats and nuts. Install the PIP with the power plug facing down.



4. INSTALLATION OF DRAIN/FILL LINE

Model 551

Install the straight fitting (003-A3434) or elbow fitting (003-EL3434) into the side fitting in the tank (Figure 1). Drill two 5/16" holes using the valve holder (001-6702H) as a template on the right side of the baler above the tire. Mount the valve holder with two 1/4 x 1" bolts, locks, flats and lock washers. Attach the 3/4" cam coupler to the 3/4" ball valve through the valve holder. Insert the straight fitting (003-A3434) into the ball valve. Cut the 3/4" hose to length secure on both sides using hose clamps.



Model 550

Thread 3/4" elbow fitting into end of tank. (003-EL3434) Run 3/4" hose from the elbow down the frame to the bottom of the baler. Drill 1/4" holes to accept the valve holder bracket and use 5/16" x 1 1/4" self-tapping screws. Connect valve assembly to other end of hose. Place hose clamps on both ends. Secure hose to frame using cable locks.



5. INSTALLATION OF PLUMBING

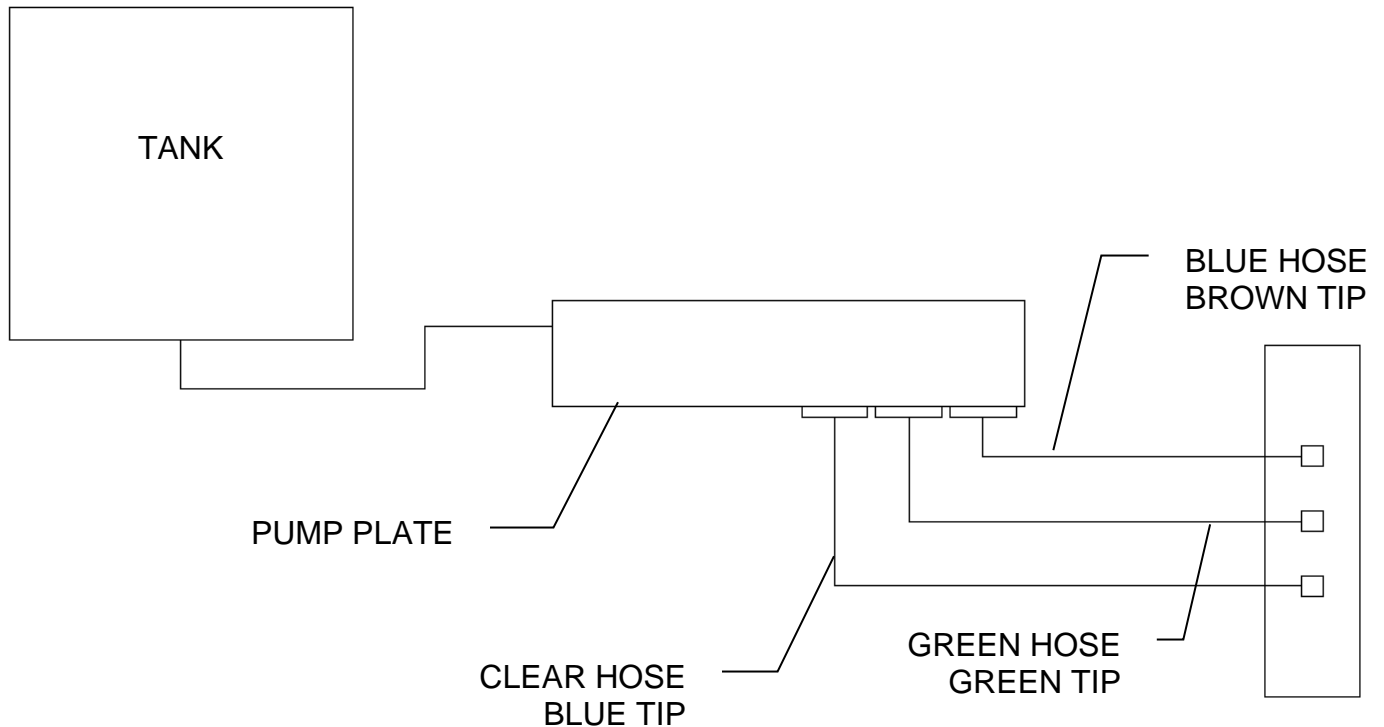
Model 551

A. Intake

Use the 003-EL3412 on the bottom of the tank to route 1/2" line (002-9001) to the 003-A1212 fitting on the ball valve already attached to the pump plate. Attach hose clamps (003-9003) on both of the fittings.

B. Discharge

The three-1/4" hose assembly will be used to attach the pumps to spray shield. Use the color-coded stickers to attach the clear, green, and blue hoses to the proper pumps and elbows on the spray shield. (Pump 1 clear/white, Pump 2 green, Pump 3 blue.) Leave slack in the hoses to allow the back door on the baler to open for service.



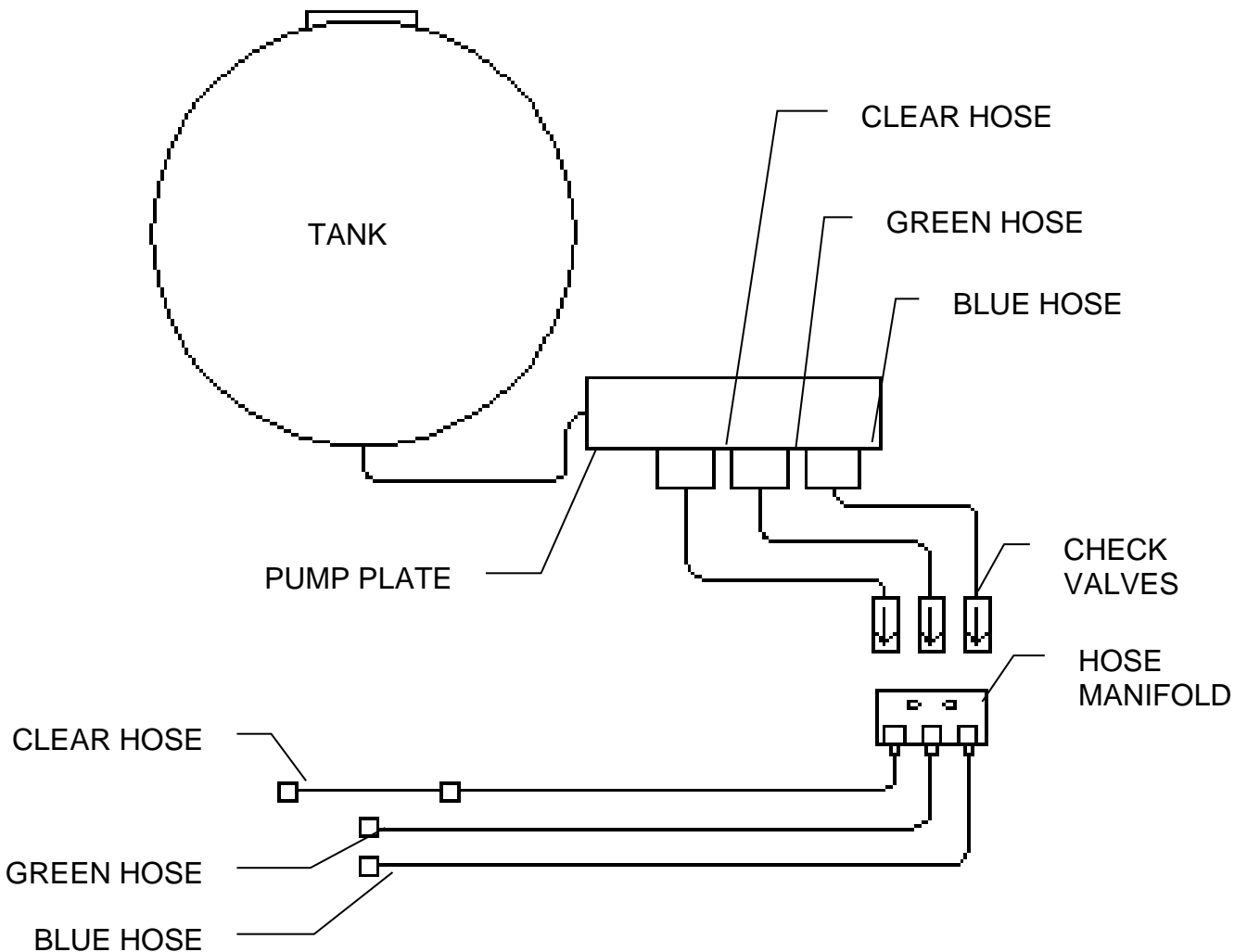
Model 550 & 545

A. Intake

Use the 003-EL3412 on the bottom of the tank to route 1/2" line (002-9001) to the 003-A1212 fitting on the ball valve already attached to the pump plate. Attach hose clamps (003-9003) on both of the fittings.

B. Discharge

The three-1/4" hose assembly will be used to attach the pumps to the hose manifold. Use the color-coded stickers to attach the clear, green, and blue hoses to the proper pumps and couplers on the hose manifold. The same color-coded stickers will be used to attach the hoses from the hose bracket to the spray shield. (Pump 1 clear/white, Pump 2 green, Pump 3 blue.)

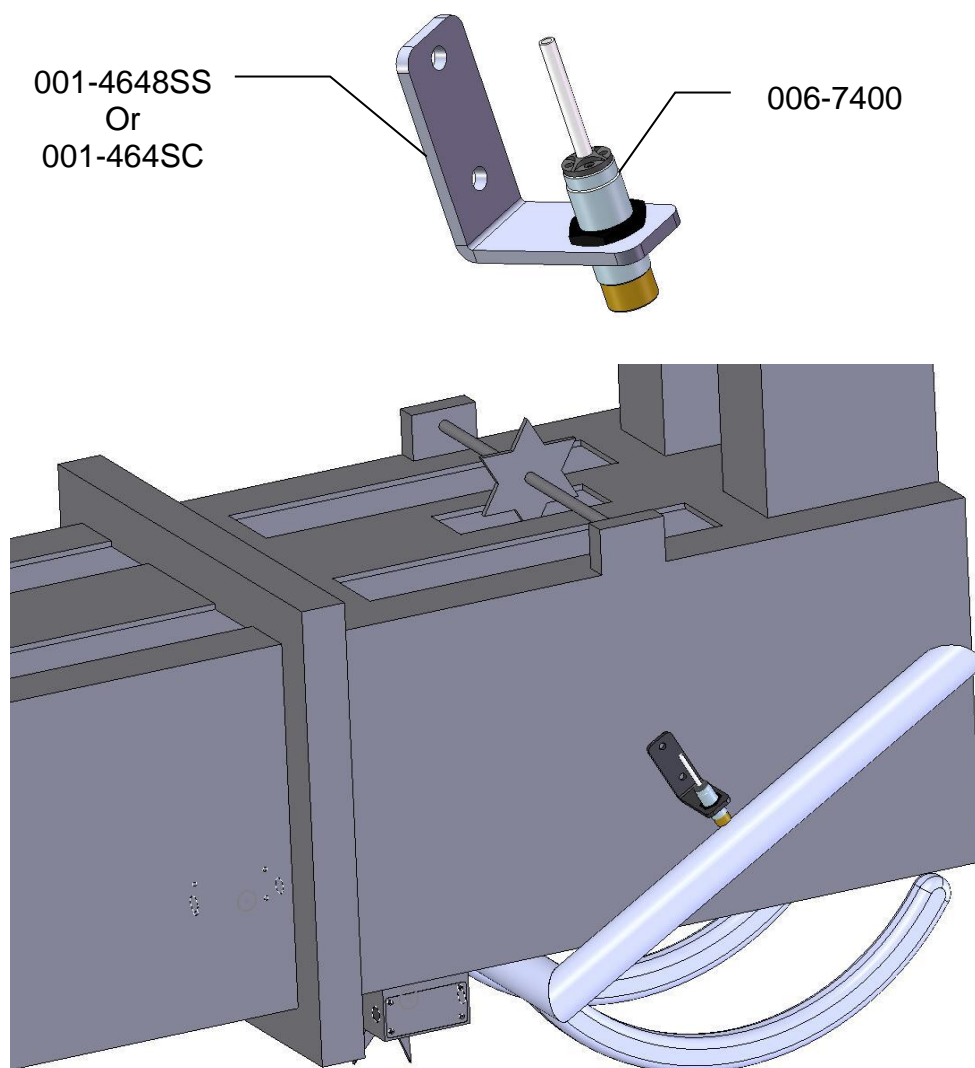


6. INSTALLATION OF END OF BALE SENSOR

The end of bale sensor determines the position of the needles on the baler. When the needles cycle, the sensor communicates this information to the Precision Information Processor. This information is used for job records and will be used by the optional Bale Identification system. Follow the steps below for your baler to mount the sensor.

Mount the 006-7400 sensor to the mounting bracket 001-4648SS for Case IH, New Holland, & John Deere or 001-4648SC for AGCO as shown below. Figure 1

Mount the assembly on the right side of the baler chamber. The face of the sensor needs to be parallel to the arm attached to the needles. Figure 2 Mark and drill two 3/8" holes. Install the sensor using two 5/16 x 1 " allen head bolts, locks, and nuts. The end of the sensor needs to be no greater than 1/4" away from the needle arm. Tighten both nuts on the sensor after the adjustment.



7. INSTALLATION OF STROKE COUNTER SENSOR

The stroke counter sensor determines how many plunger strokes were used to make a bale. This sensor works in combination with the end of bale sensor and sends the information to the PIP. The information will be saved in your Job Records and will also be displayed on the screen in Automatic or Manual mode. Follow the steps below for your baler to mount the sensor.

Model 551

Locate the steel behind the gathering fork (Figure 1). Figure 1 shows the steel from the back of the baler, Figure 2 would be front and left. Mark and drill the 3/4" hole for the sensor to mount through. With the tractor turned off and the PTO disconnected from the tractor, rotate the baler fly wheel by hand until the gathering fork arm is directly in front of the 3/4" hole. Install the sensor and position so that the end of the sensor is 1/4" away from the fork. Tighten the nuts on both sides of the sensor after the adjustment.

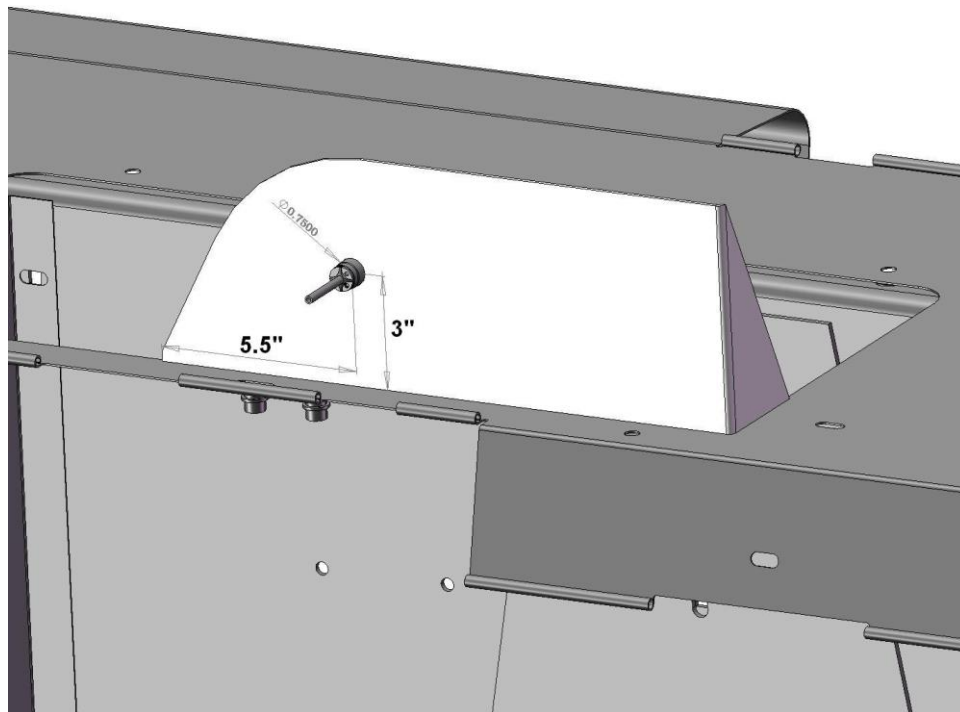


Figure 1

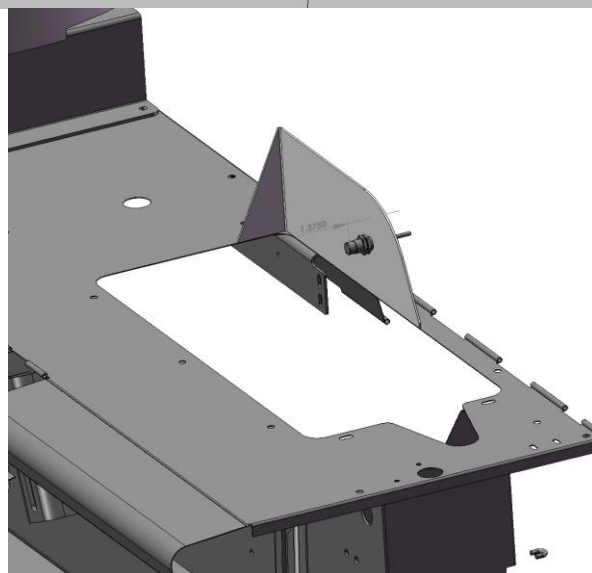


Figure 2

Model 550

Open the left access panel as shown in Figure 1. The end of the sensor (A) will be aligned with the bolt head (B). With the tractor turned off and the PTO disconnected from the tractor, rotate the balers flywheel so that the bolt head (B) is at its lowest position. Locate bracket 001-4648SI (B) and loosely install the sensor. Align the end of the sensor over the bolt head (B) and mark the two 3/8 holes that will need to be drilled to mount the bracket (C). Install the bracket using two 5/16 x 1" bolts, flats, locks, and nuts. Close the access panel (Figure 2) and adjust the sensor so that it is 1/4" away from the bolt head (B). Tighten the nuts on the sensor after the adjustment is made. Leave enough slack in the wire to allow the access door to function.

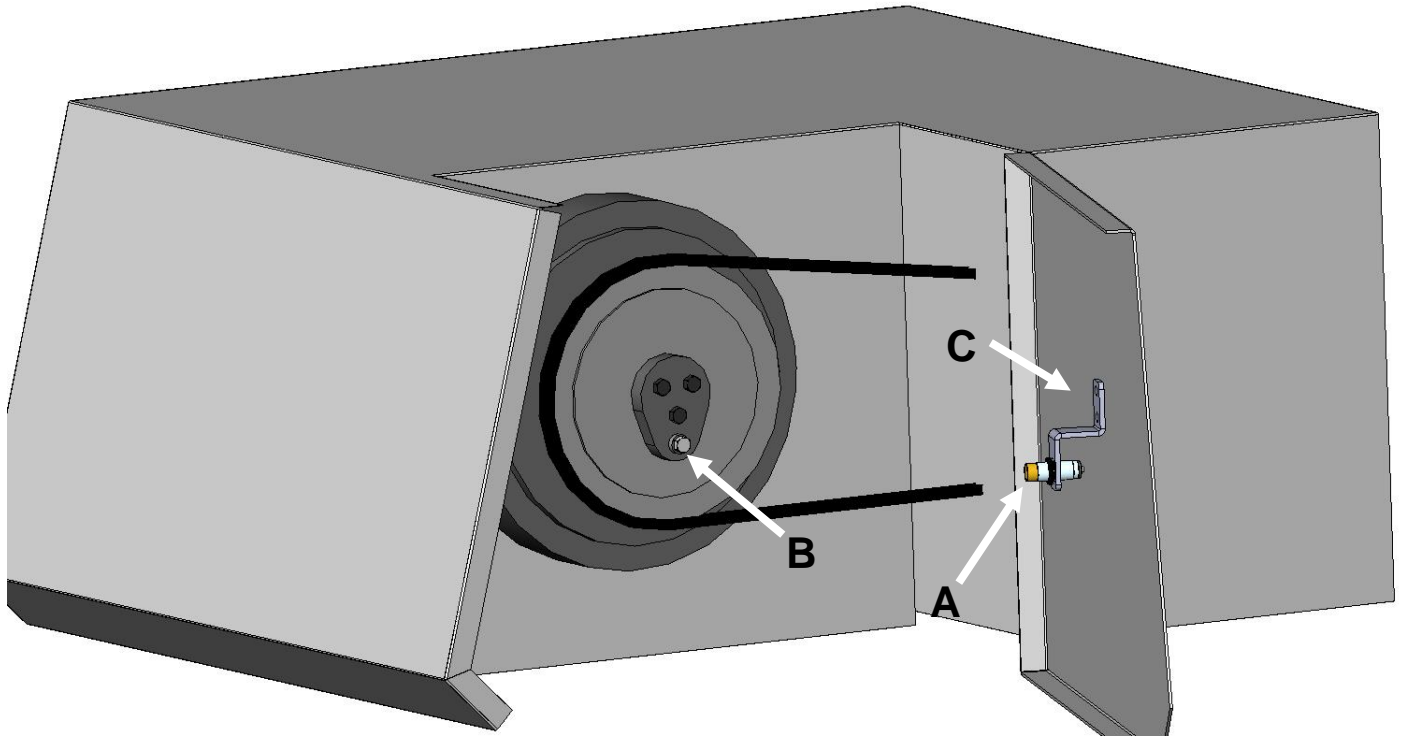


Figure 1

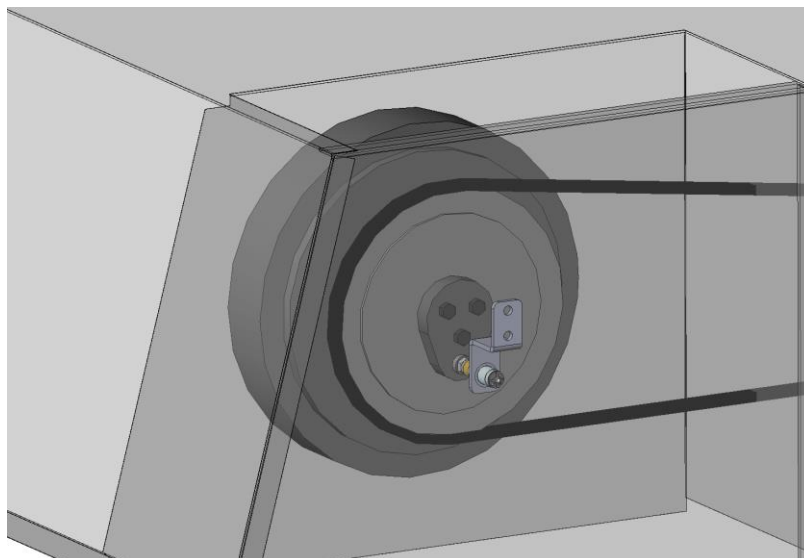
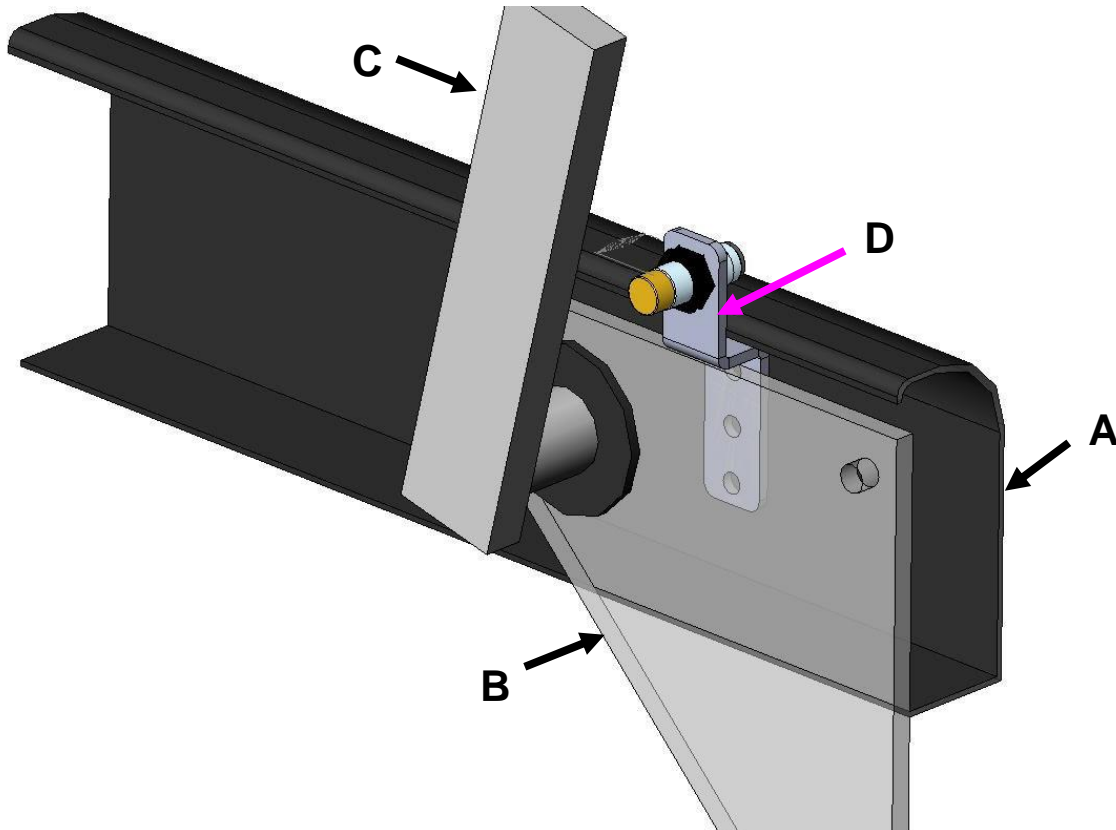


Figure 2

Model 545

Locate the area shown in Figure 1 on the baler. In Figure 1 the area is shown standing at the front of the baler and looking to the back. The bracket will mount on the steel next to the bearing on the gathering fork. Point (A) is the sheet metal on the back of the baler, point (B) is the steel that holds the gathering fork bearing, point (C) is the back arm on the gathering fork.

Locate the sensor bracket (001-4648RB). Mark and drill two 3/8" holes to mount the bracket (D). Attach the bracket using two 5/16 x 1" bolts, flats, locks, and nuts. Loosely install the sensor into the bracket. With the tractor turned off and the PTO disconnected from the tractor, rotate the flywheel by hand to get the end of the sensor lined up with the gathering fork (C). The end of the sensor need to be 1/4" away from gathering fork. After the adjustments are made tighten both nuts on the sensor.



8. INSTALLATION OF STARWHEELS & BALE RATE SENSOR

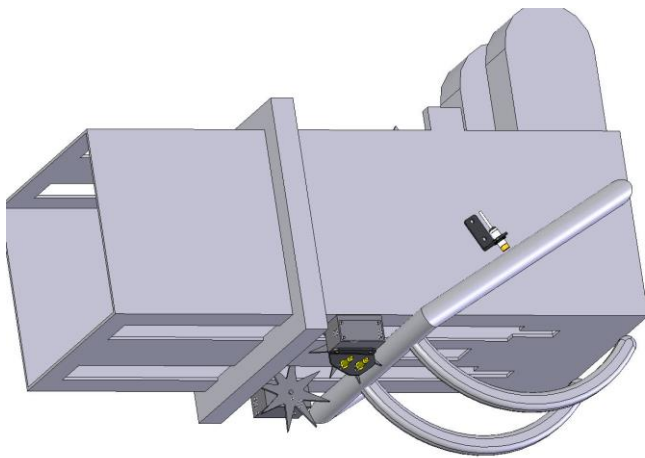
Model 551, 550 & 545 (Two-Tie only)

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.

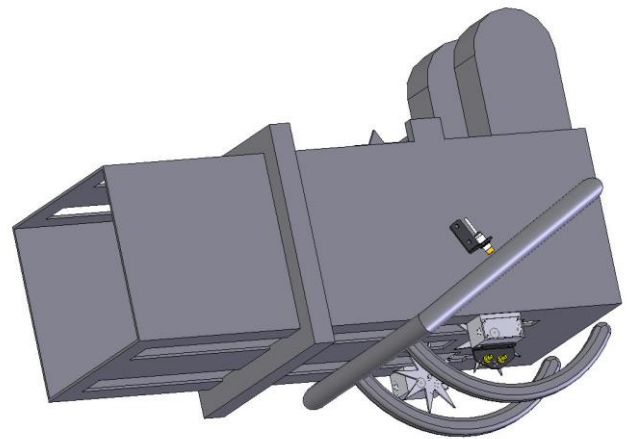
The star wheels will require two holes to be drilled per block, when drilling make sure to keep the wheel square to the bale chamber. Any angle will cause stress on the wheel and will eventually cause the wheel to work itself out of the block. Some balers may require a notch cut on the bottom of the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

Use the supplied bolts and place the carriage head inside of the bale chamber followed by lock and nut. Next attach the star wheels to the bolts followed by flat washer, lock washer and nut. The right side star wheel will have the bale rate sensor bolted to the bottom of the block.

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 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. 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. Each sensor will have an LED light located on the sensor by the sensor holder. 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. Once the star wheel connection is complete, run the harness along the baler frame to the Precision Information Processor (PIP). (See wiring installation on the following page.)



Model 551



Model 550 & 545

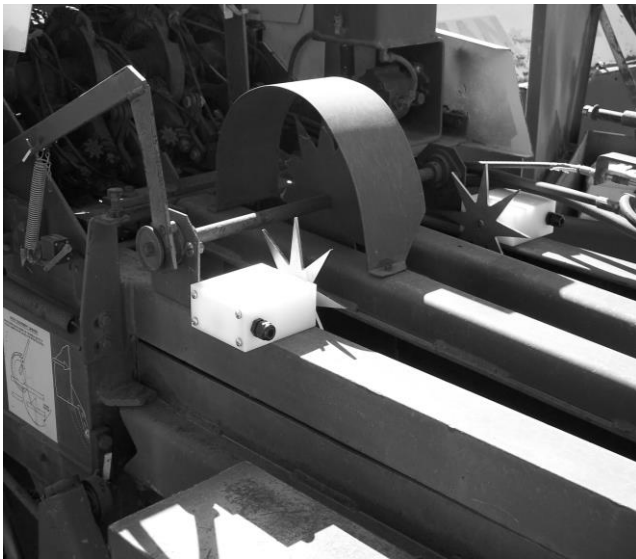
Model 550 (Three-Tie only)

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. Next attach the star wheels to the bolts followed by the twine diverters 001-4644 and 001-4645. Finally secure the entire block using nuts, locks, and flat washers. The twine diverter with the bale rate sensors needs to be mounted on the right side of the baler.

Remove the four screws holding the plastic cover and attach one wire eye loop per star wheel through the grommet and tighten down with the nut attached to the swivel. Reinstall the cover and run the wires up to the pump plate. You will need to use zip ties to attach the wires so as to not interfere with normal baler use.



Freeman
Balers



Hesston and New
Holland Balers

9. INSTALLATION OF CONTROLS

Use the four mounting screws to mount the round base 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.

10. INSTALLATION OF DISPLAY CABLE HARNESS

On the bottom of the touch screen display you will find the main display wire plug. The harness (006-5650T) will need to be attached to this plug and run through the cab towards the hitch where it will connect with its matching harness (006-5650SS) from the PIP.

11. MAIN WIRING HARNESS AND POWER CORD INSTALLATION

Route cord 006-5650SS from the hitch to the back of the twine box or saddle leg. Keep cords away from moving parts and hydraulic hoses. Secure with existing cable clamps or use cable ties. .

WIRING INSTALLATION

1. Locate the power harness.
2. Connect the tractor communication & power harness (006-5650T) to the battery (12 volt) using the red wire with fuse to the positive side and the black wire to the negative.



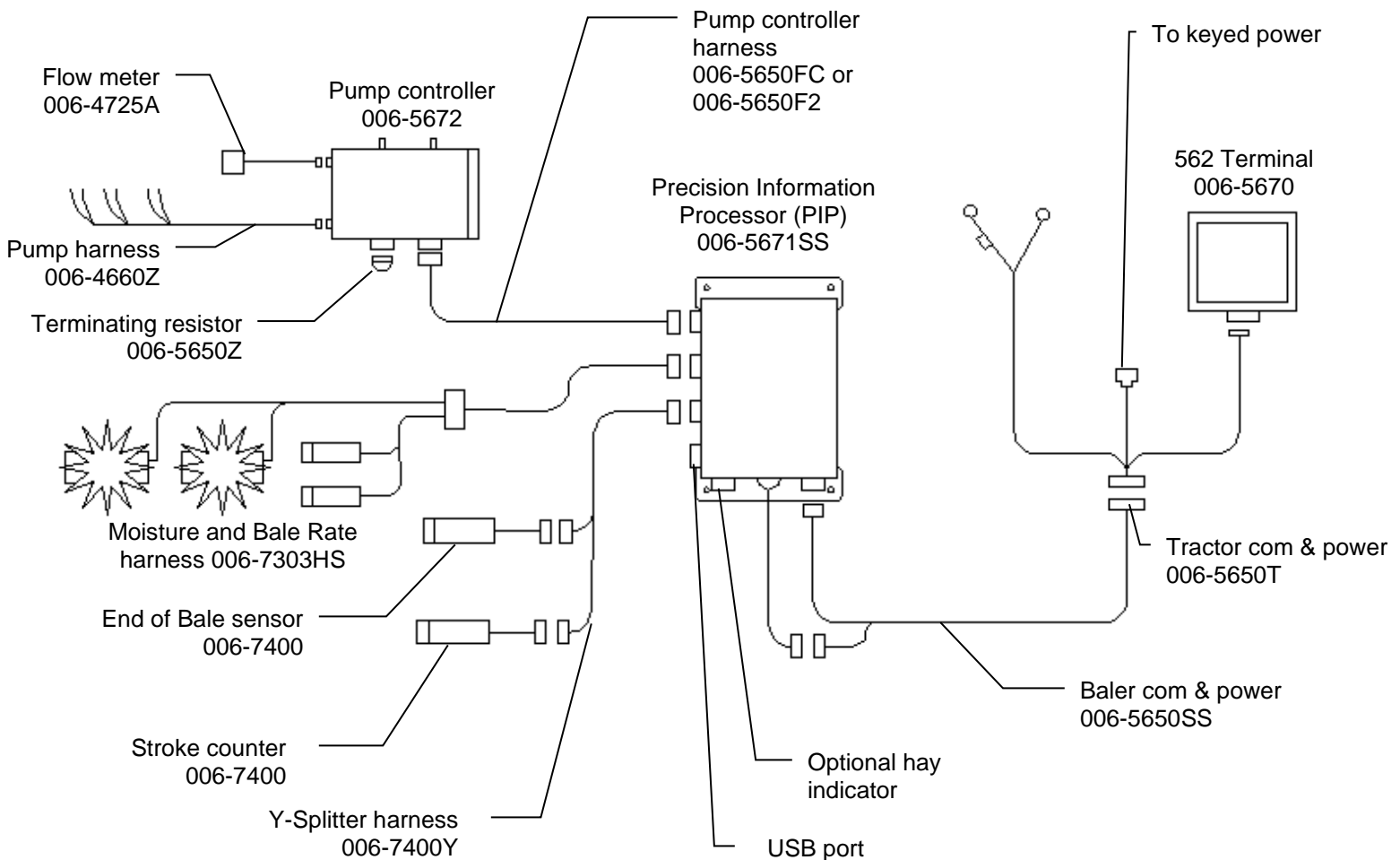
A. The power harness must be connected to the battery! The unit will draw more amps than convenience outlets can handle. Any modifications of the power harness will void systems warranty. IF MODIFICATIONS ARE REQUIRED CONTACT HARVEST TEC FIRST!

B. This unit will not function on positive ground tractors.

C. If the unit loses power while operating it will not keep track of accumulated pounds of product used and individual bale records.

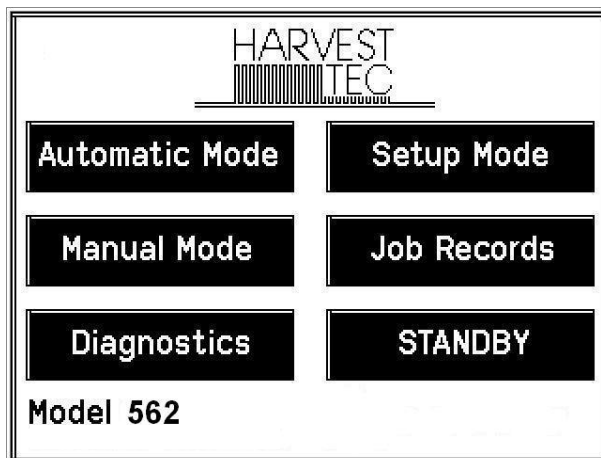
3. Connect the tractor communication & power harness (006-5650T) amp connector to the bottom of the 562 terminal, and connect the keyed power harness to a keyed power source.
4. Connect the baler power and communication harness (006-5650SS) to the power port on the PIP and to the display port on the PIP.
5. Connect flow meter (006-4725A) and pump harness (006-4660Z) to the Pump Controller.
6. Connect the Pump Controller harness (006-5650FC or 006-5650F2) to the PIP and Pump Controller.
7. Install one terminating resistor to the pump controller (006-5650Z).
8. If you have the optional Hay Indicator kit, connect it to the PIP.
9. Attach moisture and bale rate harness (006-7303HS) to the PIP.
10. Attach the splitter harness (006-7400Y) to the PIP. One sensor (006-7400) for the stroke counter will connect to the Y-harness at the point labeled SC. Another sensor (006-7400) will connect for the end of bale at the point labeled EOB.
11. Install the Pump Controller in pump plate using 5/16" lock, nut and flat washers.

SYSTEM WIRING DIAGRAM



12. DESCRIPTION OF BUTTONS

This system is calibrated for use with Harvest Tec buffered propionic acid. The use of other products can cause application problems and damage to system components. It is designed to apply rates of 16 to 300 pounds of acid per hour and read moisture levels of 10 to 32 percent. The 562 monitor will allow you to set your bale weight, single bale formation time, moisture levels and application rates. The Automatic Mode option will automatically adjust the application rates as the moisture level changes. Manual Mode will allow you to control the application rates on the go.



AUTOMATIC MODE This operating mode automatically adjusts preservative application as you bale. The following items are displayed in the mode while baling: Moisture, Baling Rate, Application Rate (actual and target), Last Bale Average Moisture, Ton Baled, and Pounds of Product Used.

MANUAL MODE This operating mode allows the three different pumps to be turned on at a fixed rate as you bale. The following items are displayed in the mode while baling: Moisture, Baling Rate, Application Rate (actual only), Last Bale Average Moisture, Tons Baled, and Pounds of Product Used. This mode can also be used to prime the pumps.

SETUP MODE This mode allows the operator to customize the applicators settings for their baler and baling needs. This mode allows changes to be made to the following areas: Application Rate, Baling Rate, Language, US or Metric units, Stroke Counter and turn on/off the optional Hay Indicators.

DIAGNOSTICS Allows operator to automatically check performance and output of pumps as well as set the date and time and calibrate the touch screen. The installed software versions can also be viewed here.

JOB RECORDS Keeps track of up to 300 jobs with total product used, average moisture content, highest moisture content, tons baled, date of baling, and total number of bales made. Individual bales are also able to be viewed and the records can also be downloaded to a USB drive in this mode.

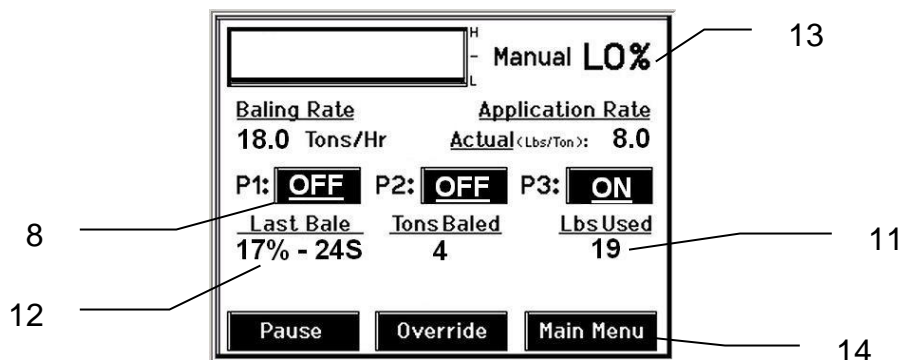
STANDBY This powers down the display only. The application unit will not fully power down unless the keyed power is turned off. Press anywhere on the screen to power back on (with the key on).

13. FIRST TIME AND ANNUAL START UP INSTRUCTIONS

AFTER INSTALLATION THE UNIT MUST BE CHECKED OUT BEFORE FIELD OPERATION!!

CHECKING AND PRIMING THE PUMPS

1. Put 10 gal of water in tank and turn main ball valve on.
2. Inspect for any leaks or drips at this time. If any are found tighten or replace area or fitting.
3. **Turn controller on** (push anywhere on the screen).
4. Press the SETUP MODE key. Disable bale rate sensors. (**See page 29**) **Bale Rate Sensors: OFF** Make sure the AVG Bale Weight is 100 lbs and the AVG Baler Length is 36 in. and EST Baling Time is 10 sec. Press the MAIN MENU key to return to the opening screen.
5. Press the MANUAL MODE key.
6. The screen shown below should appear.
7. The rates listed below are for Harvest Tec buffered propionic acid. Other products will need to be collected and weighed to assure proper performance is achieved.



8. NOTE: THE SYSTEM COMES WITH THE TIPS ALREADY INSTALLED ON THE SPRAY SHIELD. FOR TWO-TIE BALERS USE THE CONVENTIONAL TEST BELOW, FOR THREE-TIE USE THE THREE-TIE TEST BELOW.

- **For Conventional Square balers:** Turn pump 1 on (P1). To do this press the underlined area on the screen which says OFF. The application rate should then read between 1.2 – 1.6 Lbs/Ton. Ideally, at 13.5 volts, the rate would read 1.4 Lbs/Ton.
- Repeat the process for pumps 2 and 3 (P2 and P3). The application rate should read between 3.6 – 5.0 Lbs/Ton and 6.7 – 9.3 Lbs/Ton respectively. Ideally, at 13.5 volts, the rate for pump 2 would be 4.3 Lbs/Ton; pump 3 would be 8.0 Lbs/Ton.
- **For Three Tie:** Turn pump 1 on (P1). To do this press the underlined area on the screen which says OFF. The application rate should then read between 1.8 – 2.6 Lbs/Ton. Ideally, at 13.5 volts, the rate would read 2.2 Lbs/Ton.
- Repeat the process for pumps 2 and 3 (P2 and P3). The application rate should read between 3.6 – 5.0 Lbs/Ton and 9.7 – 13.4 Lbs/Ton respectively. Ideally, at 13.5 volts, the rate for pump 2 would be 4.3 Lbs/Ton; pump 3 would be 11.4 Lbs/Ton.

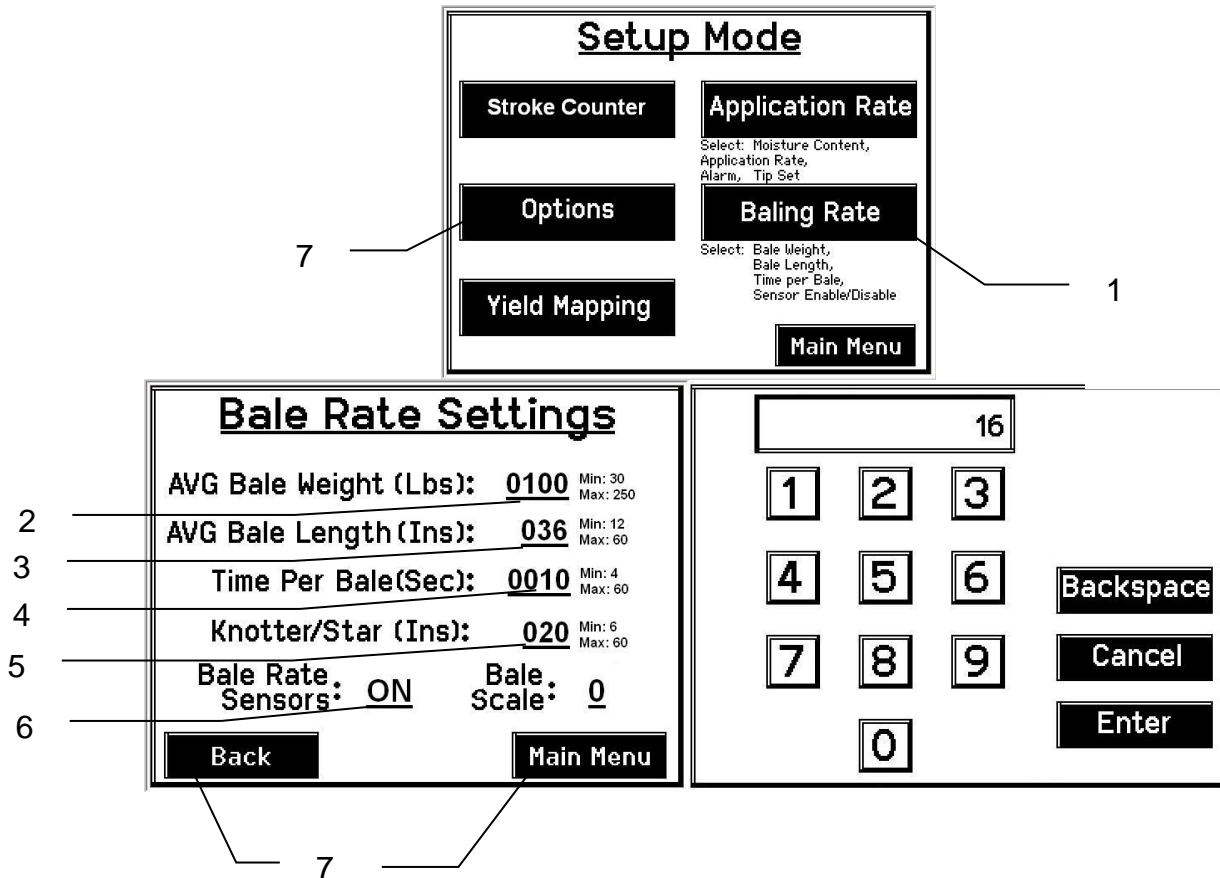
9. This process will also be used to prime the pumps whenever needed.

10. While running pumps check for a good spray pattern out of the respective tips and verify that no parts of the system are leaking.
11. While doing these tests the Volume Used on the bottom of the screen should be counting up, this verifies that the flow meter is functioning.
12. Last bale shows the average moisture content and number of strokes for the last bale made. This information will then be saved in your Job Records.
13. In order to check moisture reading, have an assistant grab the star wheels. The moisture should read between 17-25 percent depending on how moist their hands are.
14. Press the MAIN MENU key to return to the initial start up screen.

NOTE: It is recommended that the system be run with the bale rate sensors on. Press the SETUP MODE key and turn the bale rate sensors back on for normal operation. (Also see Baling Rate to adjust bale weight, length, and time.)

BALING RATE

After pushing the SETUP MODE key in the Main Menu screen, the top screen should appear:

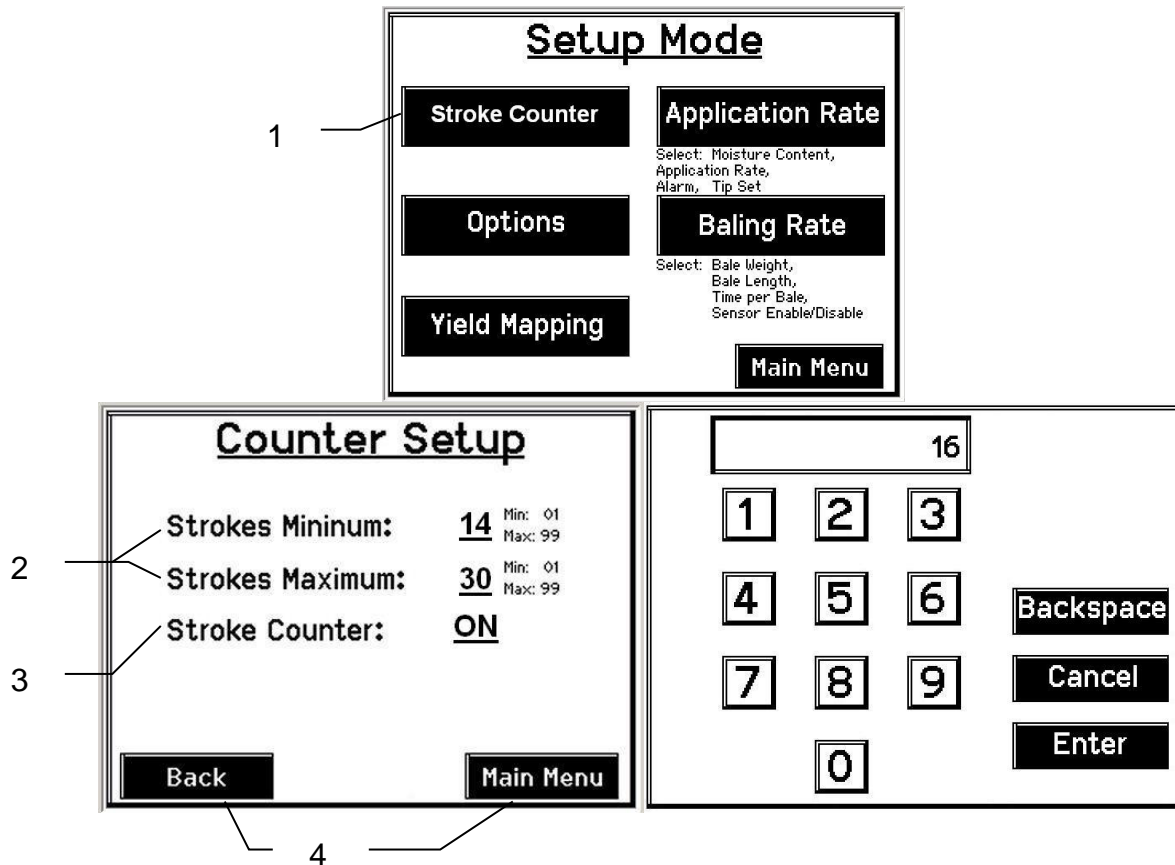


1. On this screen the operator will press the BALING RATE key. This screen is shown on the bottom left picture shown above.
2. Press the underlined number to the right of AVG Bale Weight (Lbs): to adjust the weight of your bales. The key pad shown on the right side will display. Press any number combination in this screen within the min/max limits. Press the ENTER key to save this information. The information will remain until it is changed again.
3. Press the underlined number to the right of AVG Bale Length (In): to adjust the length of your bales. The key pad shown on the right side will display. Press any number combination in this screen within the min/max limits. Press the ENTER key to save this information. The information will remain until it is changed again.
4. Press the underlined number to the right of EST Baling Time (Sec): to adjust the time it takes to make a bale. The key pad shown on the right side will display. Press any number combination in this screen within the min/max limits. Press the ENTER key to save this information. The information will remain until it is changed again.
5. Press the underlined number to the right of Knotter/Star to adjust the distance between the knotter and star wheel. To determine the distance, measure between the center of the starwheel and the center of the knotter.
6. If the unit will be run with the bale **sensors on**, then the bale weight and length will need to be inputed. When the **sensors are:** on, the applicator will calculate your tons per hour. When the **Sensors are:** off (as shown above), a constant tons per hour (your inputed bale weight and time) will be used. Press the underlined word to toggle between on or off.
7. Next press the BACK key found on the bottom left hand of the screen to return to the Setup Mode screen, or press the MAIN MENU key on the bottom right hand of the screen to return to the opening screen.
8. Press the OPTION key to adjust the touchscreen between metric and standard units and languages. The Hay Indicators can also be turned on or off in the OPTION screen. Press the underlined ON/OFF next to EOR

STROKE COUNTER

The stroke counter will keep track and display the number of strokes or flakes for the last bale. This information will be saved to the Job Record and will be shown on the operating screens.

After pushing the SETUP MODE key in the Main Menu screen, the top screen should appear:



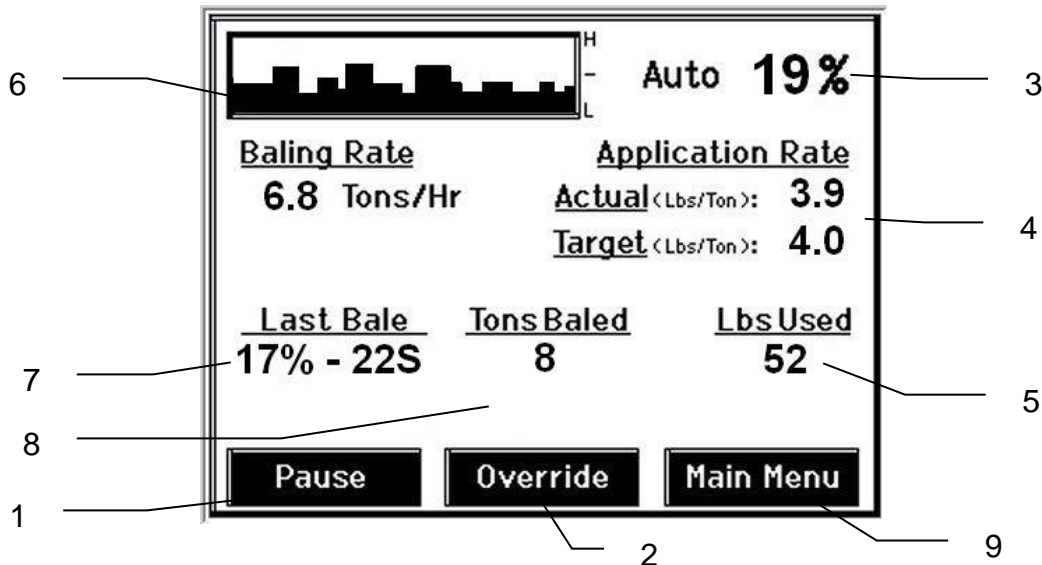
1. On this screen the operator will press the STROKE COUNTER key. This screen is shown on the bottom left picture shown above.
2. Press the underlined number to the right of Strokes Minimum: and Strokes Maximum: to adjust the alarm range. An audible alarm will sound and a message will appear while running in one of the operating screens if your bales are not within this range. Press any number combination in this screen within the min/max limits. Press the ENTER key to save this information. The information will remain until it is changed again.
3. To turn the Stroke Counter ON/OFF press the underlined area.
4. Next press the BACK key found on the bottom left hand of the screen to return to the Setup Mode screen, or press the MAIN MENU key on the bottom right hand of the screen to return to the opening screen.

OPERATING INSTRUCTIONS

Auto mode will automatically apply product based on both hay moisture content sensed by the star wheels and the operator's presets. (See SETTING UP SYSTEM FOR INITIAL USE to change any of these settings). **Manual mode will apply preservative to the hay at a fixed rate regardless of the moisture content.**

AUTOMATIC MODE

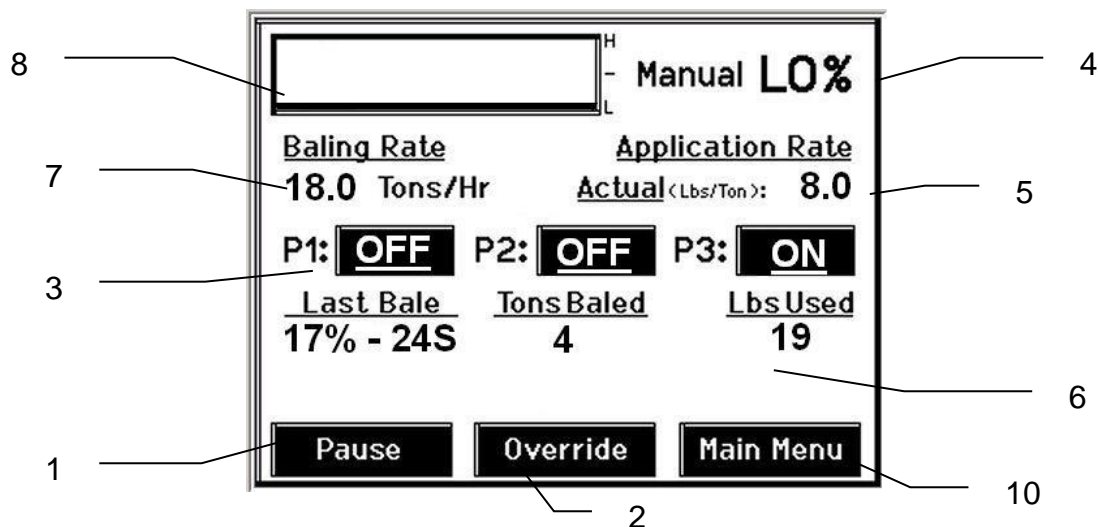
After pushing the AUTOMATIC MODE key in the Main Menu screen, the following screen should appear:



1. Push the Pause key to stop application while in operation.
2. Push the OVERRIDE key to turn on all three pumps at the same time for full output of the system. Use this mode when going through a short area of wet crop.
3. The moisture content is shown in the upper right hand corner.
4. Baling Rate and Application Rate are shown in the middle. The operator sets the target application rate in the setup mode; the actual rate should be within +/- one pound when running. The baling rate is also calculated in the Setup Mode.
5. The Totals on the bottom of the screen show the total tons baled and pounds of product used for the current job. These numbers will reset to zero when a new Job Record is started. If operating with Bale Rate Sensors: OFF total tons baled will be zero.
6. The graph shows the moisture trend from the past 90 seconds in 3 second intervals.
7. Last bale shows the average moisture content and number of strokes for the last bale made. This information will then be saved in your Job Records.
8. Any Status Alerts for the system will appear in this area. If bales outside the stroke counter alarm range and made a message will appear here. See the STATUS ALERTS section for information.
9. Press the MAIN MENU key to return to the opening screen.

MANUAL MODE

After pushing the MANUAL MODE key in the Main Menu screen, the following screen should appear:



1. Push the START/STOP key to pause the system while in operation.
2. Push the OVERRIDE key to turn on all three pumps at the same time for full output of the system. Use this mode when going through a short area of wet crop.
3. In Manual Mode you can turn the pumps on or off by pressing the underlined area next to the pump numbers. In Manual Mode (regardless of tons per hour, moisture, or bale weight) the outputs of the pumps are fixed rates as follows:

Pump outputs for Three Tie (High):

Pump 1 = 40 LBS/HR
 Pump 2 = 75 LBS/HR
 Pump 3 = 205 LBS/HR

Conventional Square (Low):

Pump 1 = 25 LBS/HR
 Pump 2 = 75 LBS/HR
 Pump 3 = 145 LBS/HR

4. The moisture content is shown in the upper right hand corner.
5. Baling rate and Application rate are shown in the middle. The output of a pump can be checked by dividing the preset output (shown in step 3, above) by the displayed baling rate. For example, if you are running pump three, by itself for conventional square, your output is 145 lbs/hr. Given the baling rate shown on the above screen (18 tons/hr), the application rate should be about 8.0 lbs/ton (145 lbs/hr divided by 18 tons/hr).
6. The Totals on the bottom of the screen show the total tons baled and pounds of product used for the current job. These numbers will reset to zero when a new Job Record is started. If operating with Bale Rate Sensors: OFF total tons baled will be zero.
7. The baling rate is set in the Setup Mode menu.
8. The graph shows the moisture trend from the past 90 seconds of baling time (one reading every three seconds).
9. Press the Main Menu key to return to the opening screen.

JOB RECORDS

After pushing the JOB RECORDS key in the Main Menu screen, the following screen should appear:

Job Records

1 — New Job

3 — Job Details

5 — Download

Main Menu

Field Name

LUKE1

1 2 3

4 5 6

7 8 9

* 0 #

Backspace

Cancel

Enter

Job Details

Job: 1 Field: LUKE1

Date: 04/11 /05 Time: 17:15

Total Baled: 32 Tons

Product Used: 192 Lbs

Average MC: 24 %

Highest MC: 52 %

Bales: 43

Back Bales Main Menu

Bale Details

Job #: 1 Field Name: LUKE1

Bale #	MC%	HI MC%	WT (Lbs)	Pres (Lbs)
17890	20	23	1000	5
17891	18	21	1000	3
17892	22	26	1000	6
17893	20	23	1000	5
17894	18	21	1000	3

Back Main Menu

1. Pressing New Job will save all the previous bale records and open the Field Name screen.
2. Use the key pad in the Field Name screen to enter up to an eight character field name. Use the asterisk key to move on to the next letter or number if they are identical. Use the pound sign as a space between the characters. When you have completed the field name press enter.
3. Pressing Job Details will open the Job Details screen. Use the up and down arrows to scroll through the different jobs. Job: 0 will always be your current and open job record. Press Back to go to the Job Records screen or Main Menu for the main screen.
4. Pressing Bales on the bottom of the screen will open a Bale Details screen. This screen lets you look at the individual bale records for the first five bales made. Use the up and down arrows to scroll through five bales at a time. Press Back to go to the Job Details screen or Main Menu for the main screen.

Continued on the next page

Continued JOB RECORDS

Download Job Records

Job Field

0 BUTCH

* 4 GL

3 RICK2

↑

↓

Download

Select

Delete

Select All

Selected

Back

Main Menu

Microsoft Excel - JB001

JOB DATA							
FIELD	JOB #	AVG MC	HI MC	#USED	BALES	TONS	DATE/TIME
JB001	1	21	55	16	12	8	16 JAN 09 08:32
BALE DATA							
FIELD	JOB #	AVG MC	HI MC	#BALE	BALE ID	BALE WT	DATE/TIME
JB001	1	29	39	1.3	1.23E+09	1500	16 JAN 09 08:31
JB001	1	27	55	0.9	1.23E+09	1500	16 JAN 09 08:33
JB001	1	20	24	2	1.23E+09	1500	16 JAN 09 08:34
JB001	1	16	16	0.3	1.23E+09	1500	16 JAN 09 08:35
JB001	1	21	24	1.6	1.23E+09	1500	16 JAN 09 08:36
JB001	1	16	24	1.8	1.23E+09	1500	16 JAN 09 08:36
JB001	1	23	39	1.3	1.23E+09	1500	16 JAN 09 08:37
JB001	1	27	55	0.9	1.23E+09	1500	16 JAN 09 08:38
JB001	1	20	24	2	1.23E+09	1500	16 JAN 09 08:40
JB001	1	16	16	0.3	1.23E+09	1500	16 JAN 09 08:41
JB001	1	21	24	1.6	1.23E+09	1500	16 JAN 09 08:42
JB001	1	16	24	1.8	1.23E+09	1500	16 JAN 09 08:43

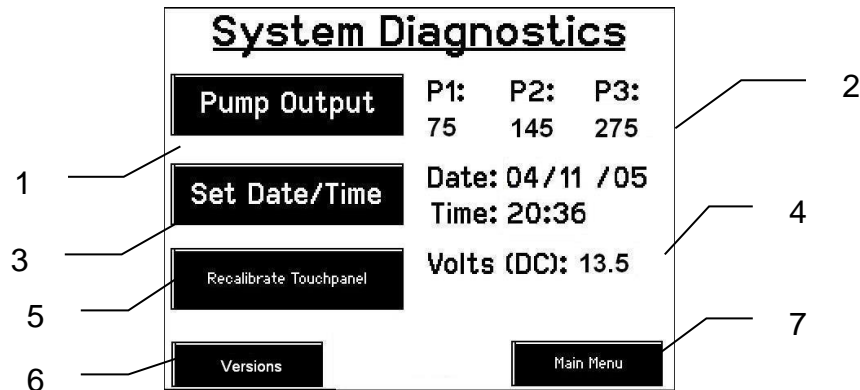
RYANI Notepad

JOB DATA							
FIELD NAME	JOB NUMBER	AVG MC	HIGH MC	PRODUCT USED	TOTAL BALES	TOTAL TONS	DATE/TIME
RYANI	00033	00016	00003	000000009F	00012	0000000004	29 DEC 08 12:13
BALE DATA							
FIELD NAME	JOB NUMBER	AVG MC/BALE	HIGH MC/BALE	PRODUCT USED/BALE	BALE ID NUMBER	BALE WEIGHT	D
RYANI	00033	00024	00024	0003	0847600719	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600719	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600720	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600721	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600722	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600723	01600	29 DEC
RYANI	00033	00024	00024	0003	0847600724	01600	29 DEC
RYANI	00033	00016	00016	0001	0847600725	01600	29 DEC
RYANI	00033	00016	00016	0001	0847600727	01600	29 DEC
RYANI	00033	00016	00016	0004	0847600728	01600	29 DEC
RYANI	00033	00016	00016	0001	0847600729	01600	29 DEC

5. Pressing the Download key will open the Download Job Records screen. This screen lets you select jobs to download onto a USB drive. To download insert a USB drive into the port on the Precision Information Processor. Select the job(s) you would like to download using the up and down arrows to highlight the job(s), an asterisk will appear next to all selected jobs. Once all the jobs are selected press the Download key. Press the Download key again to confirm. When the USB drive light goes off all the jobs selected will be saved. The jobs can then be opened on any computer with Excel or Notepad. To delete jobs highlight, select them and press delete followed by pressing delete again for confirmation. Press Back to go to the Job Records screen or Main Menu for the main screen.
6. Pressing the Select key will select or unselect the highlighted job.
7. Pressing the Select All key will select all jobs, except for the current job (0). To unselect press the Back key.
8. The job record in excel will show as above. The Bale ID column will need to be adjusted for proper viewing.
9. The job record in Notepad will show as above. You will need to move right to see all the information.

DIAGNOSTICS

After pushing the DIAGNOSTICS key in the Main Menu screen, the following screen should appear:



The diagnostic mode will automatically check the pump output and performance of the three pumps. It is recommended to use this mode daily to ensure proper system performance.

Acceptable ranges for output:

Low output tips:

Pump 1 = 21 - 30 LBS/HR
Pump 2 = 64 - 88 LBS/HR
Pump 3 = 123 -170 LBS/HR

High output tips:

Pump 1 = 34 - 47 LBS/HR
Pump 2 = 64 - 88 LBS/HR
Pump 3 = 175 - 240 LBS/HR

- Once the screen is displayed, press the PUMP OUTPUTS key.
The machine will cycle all three of the pumps for 15 seconds. After the cycles are complete, the system will display a number next to each pump number.
- If the system displays within the listed range.**
 - The system is operating correctly.**If the system displays higher than the listed range, some common problems could be:**
 - Leak in line. Inspect lines thoroughly.
 - Tip missing. Check for lost or broken tip on spray shield.
 - Tip worn. Replace tip.
 - High tractor voltage.**If the system displays lower than the listed range, some common problems could be:**
 - Make sure there is preservative in the tank and ball valve is in the open position.
 - Air in lines. Pump will not prime. Check for leak in lines, or defective check valve.
 - Pump is working, but not producing desired output. Pump needs to be rebuilt.
 - Main filter plugged. Check filter by tank and clean if necessary.
 - Tip or tip screen plugged. Check both tip and tip screen and clean if necessary.
 - Kink in hose. Straighten or replace hose.
 - Voltage from tractor is low. Check power cord with multimeter for 12 volts at baler mounted processor. Clean connections on battery. Dielectric grease connections at baler mounted processor and at hitch connection.
 - Pump is defective. Rebuild pump if motor runs smoothly. Replace pump if motor is bad.
 - Defective flow meter. Only if all pumps run, product is applied, and all numbers read 0.
- To set date and time, press the SET DATE/TIME key. In the next screen enter the date (month, day, year format) followed by the time. When done press the ENTER key. NOTE: The clock uses military (or 24 hour) time.
- The voltage should be between 12.0 to 14.5 volts for the system to work properly. If voltage is not in this range check all power cord connections and the tractors charging system.
- Press the Recalibrate Touchpad key to realign the screen keys to your preference. When the screen appears follow the directions and press accept when done.
- Press the Versions key to check all software versions of modules attached to the PIP.
- When done in this mode, press the MAIN MENU key.

COMMON QUESTIONS ABOUT THE 562

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

Turn the key in the tractor to the on position. If the unit is in Standby Mode, press anywhere on the screen. To turn off, press the Standby key, wait for the screen to power down and turn off the key.

2. How to get in the LBS/TON, MC%, and TONS/HR menus?

In the Main Menu press the SETUP MODE key. From this screen you can change your application rates and how much product is applied. See SETTING UP FOR INITIAL USE for a detailed explanation of this process.

3. The unit is stuck in the MC% screen.

In the MC% screen, level 1 must be less than level 2, and level 2 must be less than level 3. For example, if level 1 is set at 16, level 2 must be set at 17 or higher, and level 3 must be set higher than level 2.

4. How does OVERRIDE work?

Override turns on all three pumps at full output. The pumps will remain at full output until the operator turns these pumps off by pressing the OVERRIDE key again.

5. The flow meter reading is more or less than the programmed level set in the box.

Some variation in flow meter readings compared to the programmed set point is normal due to factory tolerances on the pump motors as well as varying tractor voltages inputted to the control box. The flow meter reading is an accurate measure of how much product is actually being applied. The set points then will need to be adjusted if you want to attain a different flow meter reading.

6. Why don't all the pumps turn on even at higher application rates?

The selections of what pumps turn on when are automatically controlled by the control box's flow rate look up chart. Thus, not all the pumps turn on at once and the combination of what pumps turn on when is automatically controlled by the software. If you want to make sure all three pumps are working, go to the Diagnostics screen and run pump outputs.

7. The moisture content displays "LO" or "HI" all the time.

When the moisture content display does not change frequently while baling, there is likely a faulty star wheel connection. One of the first places to check is inside the white star wheel block. Check to see if the electronic swivel is in the star wheel shaft and check to see that the star wheel shaft is not working out of the block. Also, check all star wheel wires and connectors to see if there is a continuity or grounding problem.

8. 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.

9. How do I recalibrate the touch screen display?

In the system diagnostics screen press the Recalibrate Touch screen key and follow the directions on the screen. Press accept when done.

10. How can I turn the optional Hay Indicators on/off from the cab?

In the Setup Mode screen press options. Press the on/off underlined area next to EOR sensor.

MAINTENANCE

1. Clean the tip strainers and main strainer every 10 hours of operation or more frequently if required.
2. Depending on the product being used, the system may need to be flushed with water at a regular interval (consult with manufacturer of the chemical.) If Harvest Tec product is being used, flushing is not necessary.
3. Although the pump can run dry, extended operation of a dry pump will increase wear. Watch the preservative level in the tank.
4. Cover the automatic cab terminal on open station tractors if left outside.
5. Pump performance may start to decline after 400 hours (1500 acres on conventional balers) of use. Rebuilding pumps is a simple procedure if the motor is not damaged. Order pump rebuilding kit #007-4581 for the automatic unit.
6. If you are using bacterial inoculants, flush your system daily after every use.
7. Clean tank cap every 10 hours of operation.

Maintenance Schedule

	Daily	10 hrs	400 hrs	Weekly	Monthly	Season
Diagnostics	X					X
Filter bowl cleaning		X				X
Tip screen cleaning		X				X
Tank cap cleaning		X				X
Dielectric grease connections					X	X
Rebuild pump			X			
Battery connections				X		X
Check valves			X			
Visually inspect hoses				X		X

WINTER STORAGE

1. Thoroughly flush the system with water.
2. Remove the filter bowl and run dry until the water has cleared out of the intake side.
3. Remove the red plug from the bottom of the pump, drain, and run the pump for 30 seconds or until it is dry.
4. Drain all lines on the outlet side.
5. Never use oils or alcohol based anti-freeze in the system.
6. During spring start-up, if the pump is frozen turn off the power immediately to avoid burning the motor out. The pump head can be disassembled and freed or rebuilt in most cases.
7. Disconnect power from system.
8. Remove display from tractor and store in a warm dry place.

STATUS ALERTS

Two Status Alerts will appear on the Auto and Manual mode screens when the Job Records are approaching, or full of records.

Status Alert "**Bale Records: Less than 1K remaining**". The system is now approaching the maximum amount of records that can be saved. When this code appears download and delete jobs in the Job Records menu. Follow the instructions in Job Records to accomplish this.

Status Alert "**Bale Records failed – Memory Full**". The system will not longer accept any new data until jobs in the Job Records menu are downloaded and deleted. Follow the instructions in Job Records to accomplish this.

TROUBLE SHOOTING CHECKS:

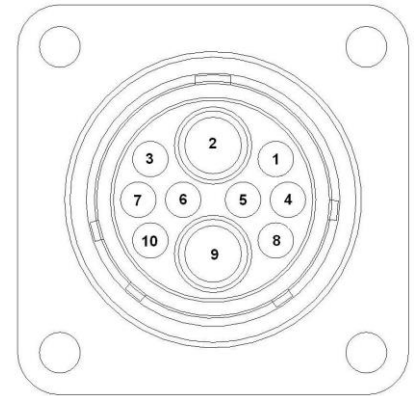
PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump will not run.	1. No voltage to PIP or Pump controller.	1. Check for short, low voltage, and replace fuse(s) if necessary.
	2. Pump locked up.	2. Clean or rebuild pump if motor is OK.
	3. Damaged wire.	3. Repair damaged wire.
	4. Fuse blown on Pump controller.	4. Replace fuse and check pump for short in wire or locked motor.
Pump runs but will not prime.	1. Air leak in intake.	1. Tighten fittings on intake side.
	2. Clogged intake.	2. Clean.
	3. Restricted outlet.	3. Check and clean tips.
	4. Check valve on the outlet is stuck closed.	4. Clean or repair check valve.
	5. Dirt inside pump.	5. Replace pump check valve.
Pump does not develop enough output.	1. Air leaks or clogs on inlet side.	1. Tighten or clean filter bowl assembly.
	2. Pump worn or dirty.	2. Rebuild pump.
Moisture reading errors (high or low)	1. Wire disconnected or bad connection between star wheels and PIP	1. Reconnect wire.
	2. Low power supply to PIP	2. Check voltage at box. (Min of 12 volts required.) See Diagnostics section of manual.
	3. Wet hay over 75% moisture	
	4. Ground contact with one or both star wheels and baler mounted processor.	4. Reconnect.
	5. Short in wire between star wheels and PIP.	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 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.
Flow meter readings do not match up with product usage.		
Product is less than actual product used.	1. Voltage supplied to meter is less than 6 volts.	1. Check for a min of 6 volts supplied at Pump controller.
	2. Wiring short in signal to Pump Controller.	2. Inspect wire and replace if necessary.
	3. Clog in meter.	3. Back flush with water. DO NOT USE AIR.
	4. Air in flow meter	4. Prime all pumps to remove air
	5. Using product other than Harvest Tec	5. Catch and weigh product to check outputs.

Product shown is more than actual product used.	1. High voltage supplied to the meter.	1. Check voltage at Pump controller. Max of 18 volts.
	2. Light interference with meter.	2. Reflection into meter can cause a high reading. Move meter or protect from sunlight.
	3. Air leak in intake.	3. Look for air bubbles in line. Replace line or other defective area that is allowing air into the system.
	4. Using product other than Harvest Tec	4. Catch and weigh product to check outputs.
System leaks product out of tips after shut down.	1. Dirty or defective check valves.	1. Clean or Replace.
Terminal reads under or over power.	1. Verify with mult-meter actual voltage. Voltage range should be between 12-14 volts.	1. Clean connections and make sure applicator is hooked to battery. See Diagnostics section of manual.
System does not pause at the end of a row.	1. Short in cable. 2. Damaged sensor. 3. Bad alignment of sensors	1. Replace cable. 2. Replace sensor 3. Check 474 manual for alignment instructions
Bale rate displays zero.	1. Bale rate sensors are reversed. 2. Short in cable. 3. Damaged sensor.	1. Switch the sensors next to the star wheel. 2. Replace cable. 3. Replace sensor.
Display will not power up.	1. Connection broke between the display and the PIP. 2. Short in display cable.	1. Check, clean, and tighten connections. 2. Replace cable.
Display is too dark or light	1. Change in temperature or light conditions.	1. Use the monitors contrast control.
Display is locked up/froze.	1. CAN communication not responding. 2. Broke connection between the display and PIP or Pump control and PIP.	1. Check connections at PIP and Pump controller including the terminating resistors. 2. Check, clean, and tighten connections. 3. Power unit down and restart after steps 1 & 2 are complete.
Display powers up when key is turned and will not go to the Main Menu screen.	1. CAN communication not responding. 2. Broke connection between the display and PIP or Pump control and PIP.	1. Check connections at PIP and Pump controller including the terminating resistors. 2. Check, clean, and tighten connections. 3. Power unit down and restart after steps 1 & 2 are complete.
Display is locked up/froze and pumps continue to run.	1. CAN communication not responding. 2. Broke connection between the display and PIP or Pump control and PIP.	1. Check connections at PIP and Pump controller including the terminating resistors. 2. Check, clean, and tighten connections. 3. Power unit down and restart after steps 1 & 2 are complete.

WIRING DIAGRAMS

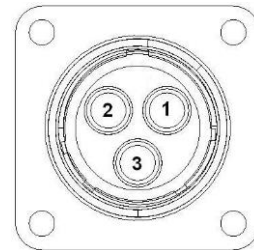
A. Communication and power harness

Pin 1	Red	Can 12 volt
Pin 2	Red	Battery 12 volt
Pin 3	Orange	Keyed power
Pin 4	Not Used	
Pin 5	Yellow	Comm channel OL
Pin 6	Green	Comm channel OH
Pin 7	Not used	
Pin 8	Black	Can ground
Pin 9	Black	Battery ground
Pin 10	Not used	



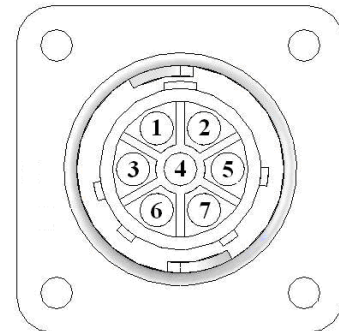
B. Main power connector mounted on PIP

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



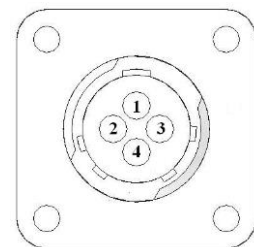
C. Pump connection colors

Pin 1	Black with orange markings	Pump 1 ground
Pin 2	Black with green markings	Pump 2 ground
Pin 3	Black with yellow markings	Pump 3 ground
Pin 4	Not used	
Pin 5	Orange with black markings	Pump 1 positive
Pin 6	Green with black markings	Pump 2 positive
Pin 7	Yellow with black markings	Pump 3 positive



D. Flow meter connection on Pump Controller

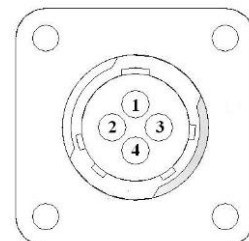
Pin 1	White	5 - 12 V (+) supply
Pin 2	Green	Ground
Pin 3	Brown	Signal
Pin 4	Black	Shield



E. Connector for Hay Indicator option on PIP

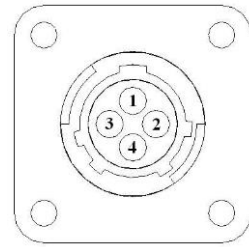
Note: Hay indicators are an option that will turn the system on and off automatically as hay enters the pickup of the baler.

Pin 1	Red	+12V
Pin 2	Black	Ground
Pin 3	White	Signal wire
Pin 4	Not used	



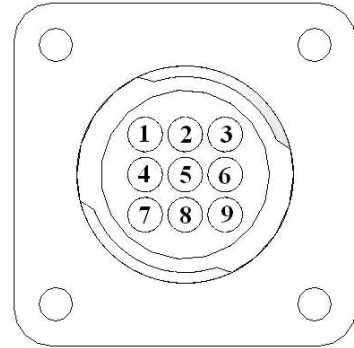
F. End of bale sensor on PIP

Pin1	Brown	Sensor power
Pin2	Blue	Sensor ground
Pin3	Not used	
Pin4	Black	Signal from sensor



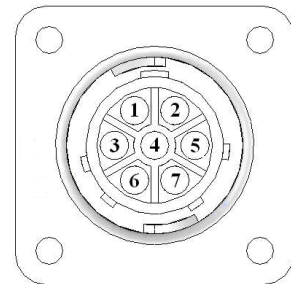
G. Star wheel and Bale rate sensor connector on PIP

Pin 1	Blue	12 volt power
Pin 2	Orange	Ground
Pin 3	Black	Signal for sensor 1
Pin 4	White	Signal for sensor 2
Pin 5	Not used	
Pin 6	Not used	
Pin 7	Not used	
Pin 8	Violet	Star wheel input 1
Pin 9	Brown	Star wheel input 2



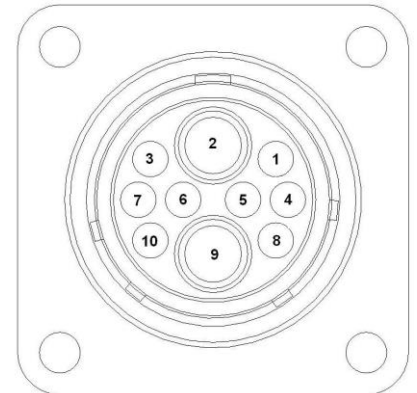
H. Display communication harness on PIP

Pin 1	Orange	Power to display
Pin 2	Blue	Ground to display
Pin 3	Green	Comm channel OH
Pin 4	Silver	Shield
Pin 5	Yellow	Comm channel OL
Pin 6	Not used	
Pin 7	Not used	

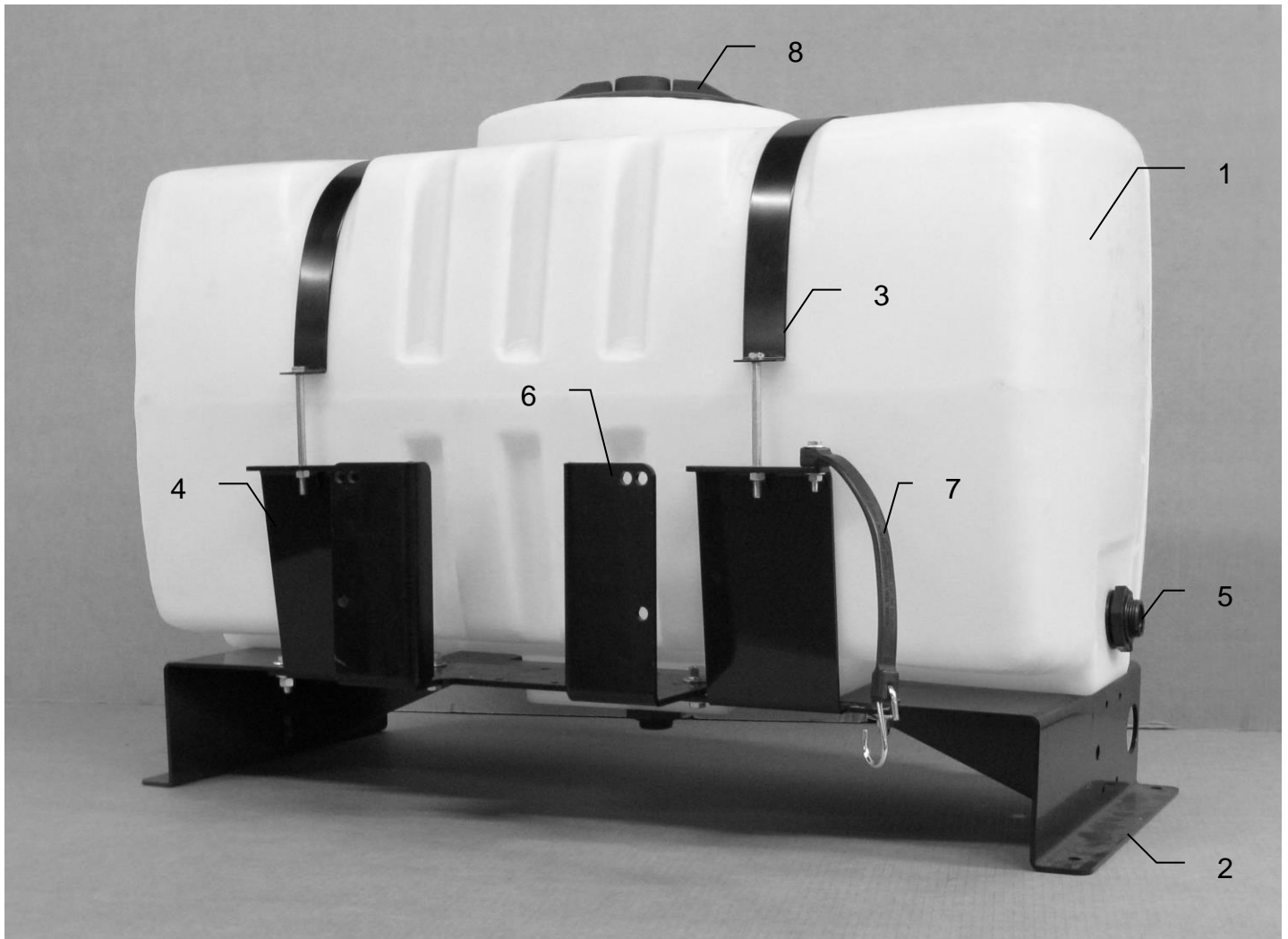


I. Communication harness on PIP and Pump Controller

Pin 1	Red	Can 12 volt
Pin 2	Red	Battery 12 volt
Pin 3	Grey	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	Battery ground
Pin 10	Not used	

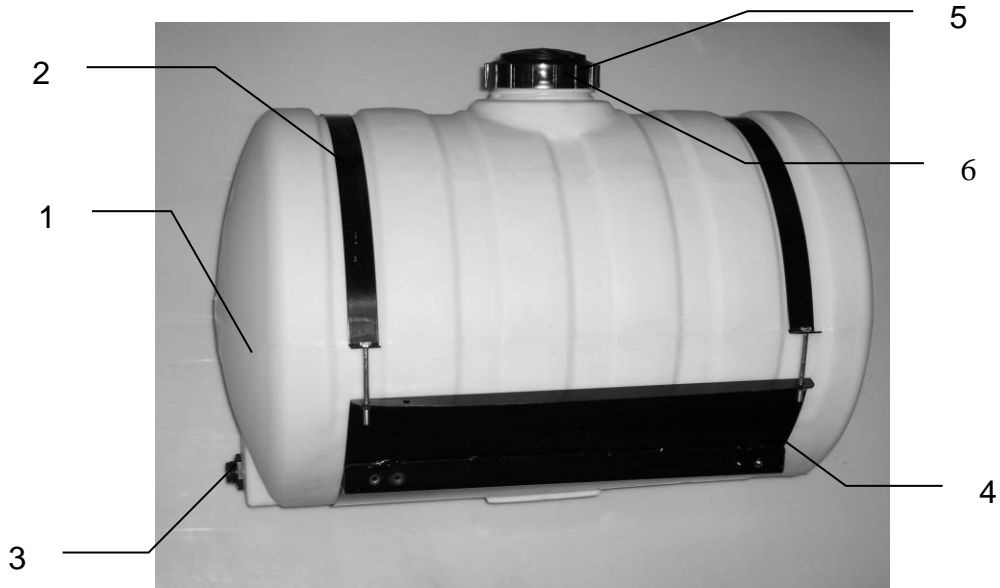


HARVEST TEC MODEL 551 BASE KIT



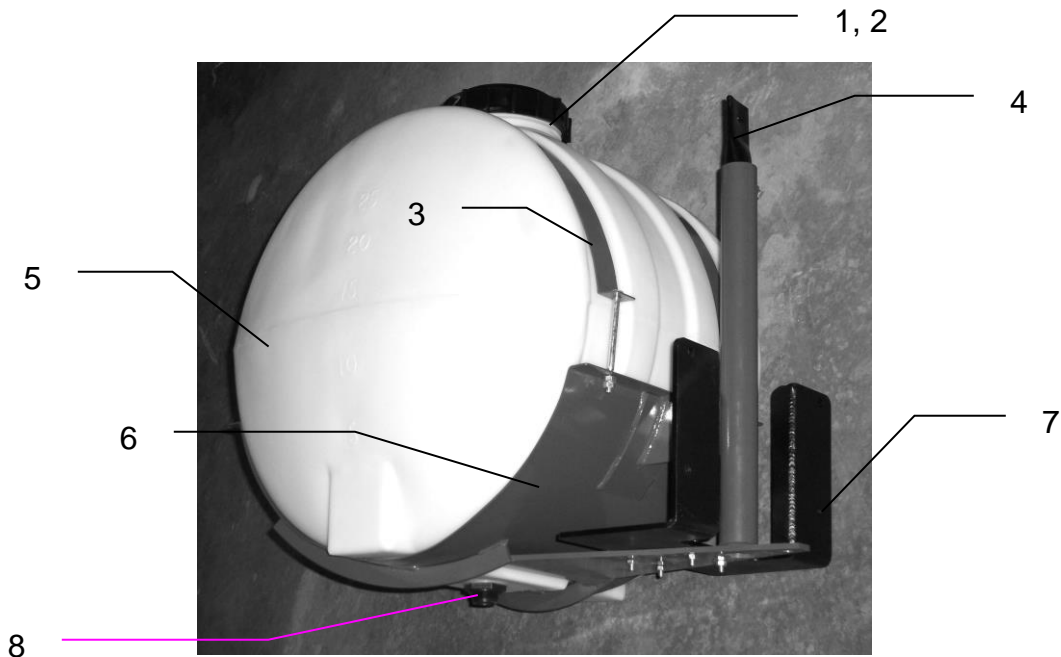
<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Tank	005-9203SQ	1
2	Tank Saddle	001-4703C	1
3	Tank Straps	001-4402	2
4	Short Strap Base	001-4703CC	2
5	Tank fitting	005-9100	2
6	Mounting Bracket	001-4647	1
7	Door Latch	001-4703CL	1
8	Tank Lid	005-9022G	1
NP	Long Strap Base	001-4703CD	2
NP	Not Pictured		

HARVEST TEC MODEL 550 BASE KIT



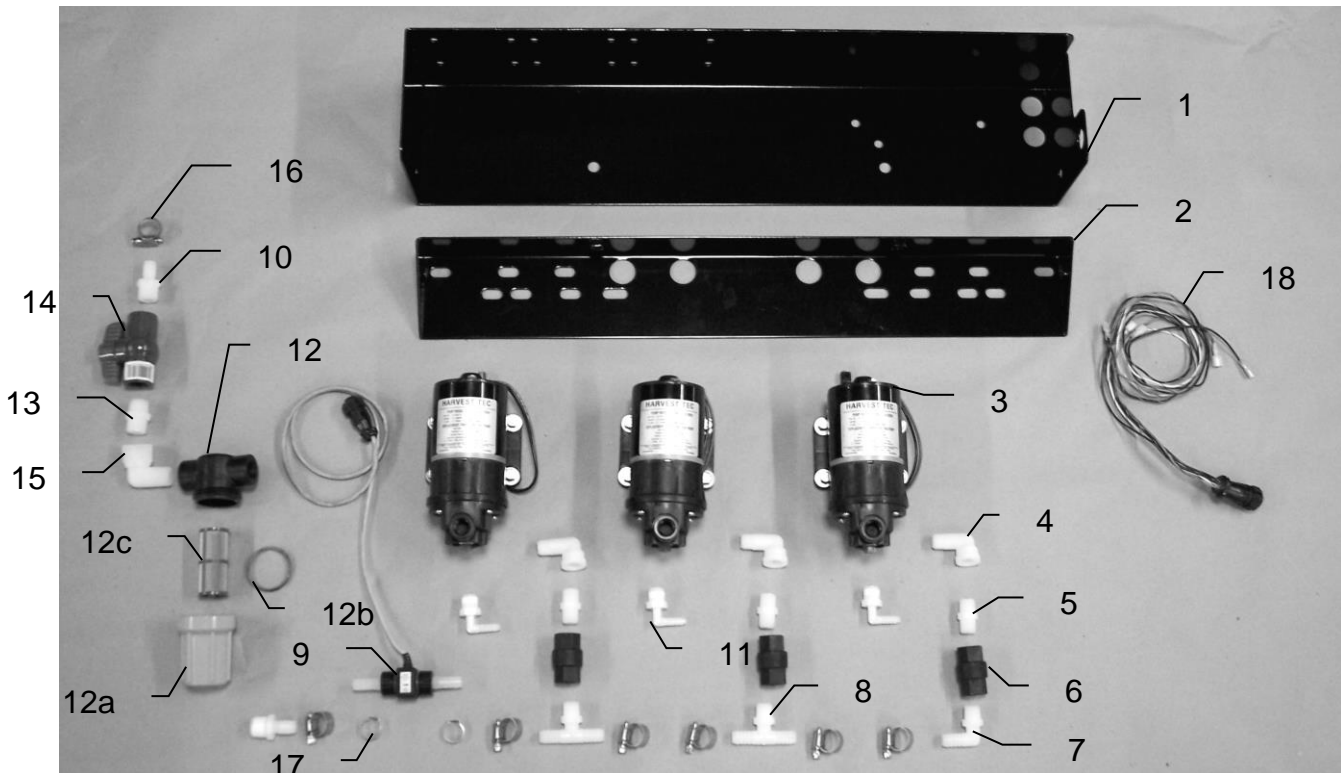
<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Tank	005-9023	1	4	Saddle	001-4703	1
2	Straps	001-4402	2	5	Tank Cap	002-9022C	1
3	Tank Fitting	005-9100	2	6	Tank Gasket	002-9022CG	1
				NP	PIP mount	001-4703BPM	2

HARVEST TEC MODEL 545 BASE KIT



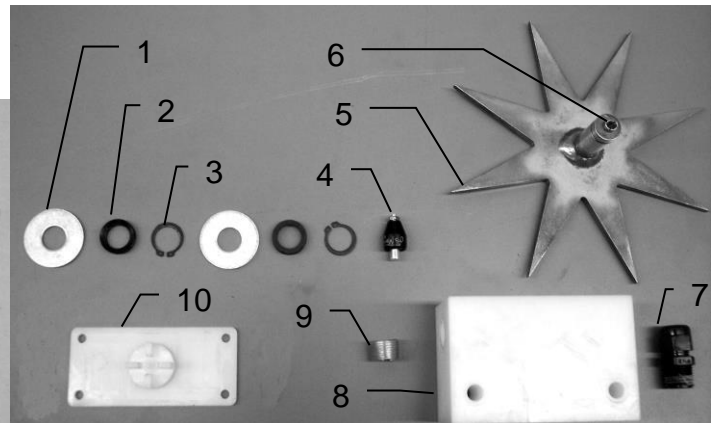
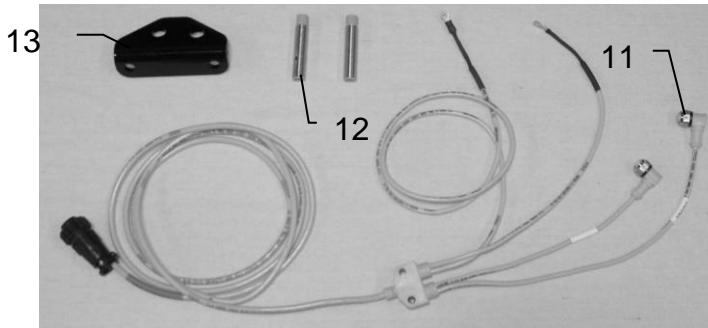
<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Tank Cap	005-9022C	1	5	Tank	005-9022	1
2	Tank Cap Gasket	005-9022CG	1	6	Saddle	001-4401	1
3	Tank Strap	001-4402	2	7	Mounting Bracket	001-4647	1
4	Stub Pipe	001-4403	1	8	Tank Fitting	005-9100	1

PARTS BREAKDOWN FOR PUMP PLATE

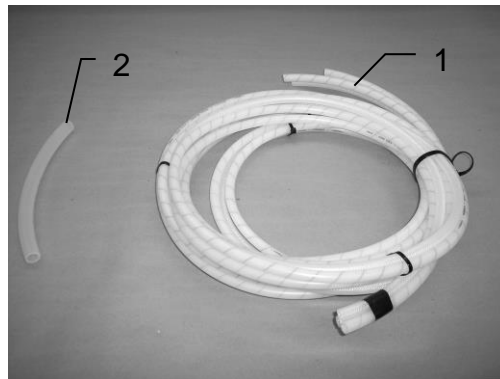


<u>Ref#</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Pump plate	001-4646D	1
2	Mounting Bracket	001-4646C	1
3	Pump	007-4120H	3
4	Street elbow fitting	003-SE38	3
5	Nipple fitting	003-M3838	3
6	Check valve	002-4566F	3
7	Elbow fitting	003-EL3812	1
8	Tee fitting	003-T3812HB	2
9	Flow meter assembly	006-4725A	1
10	Straight fitting	003-A1212	2
11	Elbow fitting	003-JEL1238	3
12	Filter bowl assembly	002-4315	1
12a	Filter bowl only	002-4315F	1
12b	Filter bowl gasket	002-4315D	1
12c	Filter bowl screen	002-4315B	1
13	Nipple fitting	003-M1212	1
14	Ball valve	002-2212	1
15	Street elbow fitting	003-SE12	1
16	Hose clamp	003-9003	7
17	Hose clamp (Flow Meter)	003-9005	2
18	Pump Cable	006-4660Z	1
NP	Pump rebuild kit (1 per pump)	007-4581	1
NP	Elbow	003-EL1212	1
NP	Not Pictured		

PARTS BREAKDOWN FOR STAR WHEEL SENSOR, BALE RATE SENSOR, AND HOSES

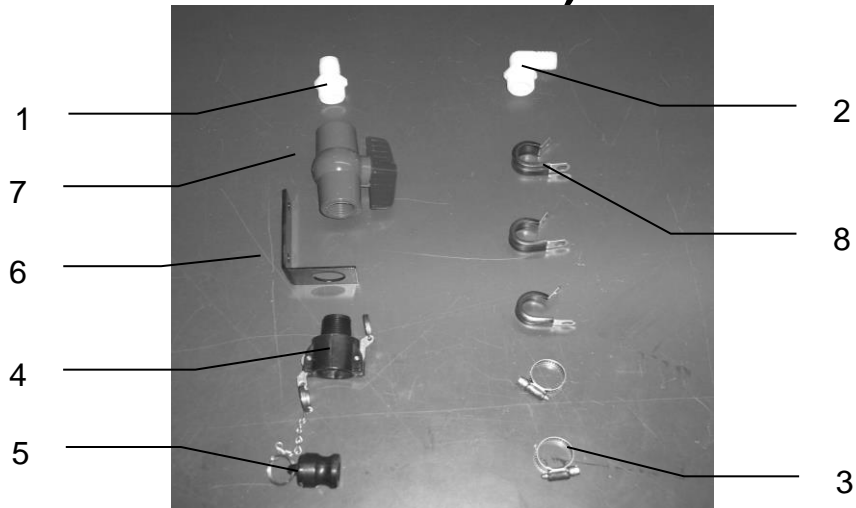


<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Washer (per side)	006-4642K	2	11	Bale rate & moisture cable	006-7303HS	1
2	Dust Seal (per side)	w/006-4642K	1	12	Bale rate sensor	006-7303S	2
3	Snap Ring (per side)	w/006-4642K	2	13	Bale rate sensor holder	001-4644SS	1
4	Swivel	006-4642A	2				
5	Star Wheel	030-4641E	2				
6	Insert	w/ Ref # 5	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				
1-10	Star wheel assembly	030-4642	2				



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Triple weld hose (from pumps to tips)	002-9016	15ft
		002-9016B	15ft
		002-9016G	15ft
	Hose assembly (3 hose assembly)	030-9016SS	1
2	½" Hose (tank to filter)	002-9001	6ft

PARTS BREAKDOWN FOR DRAIN FILL KIT (MODEL 551 & 550 ONLY)



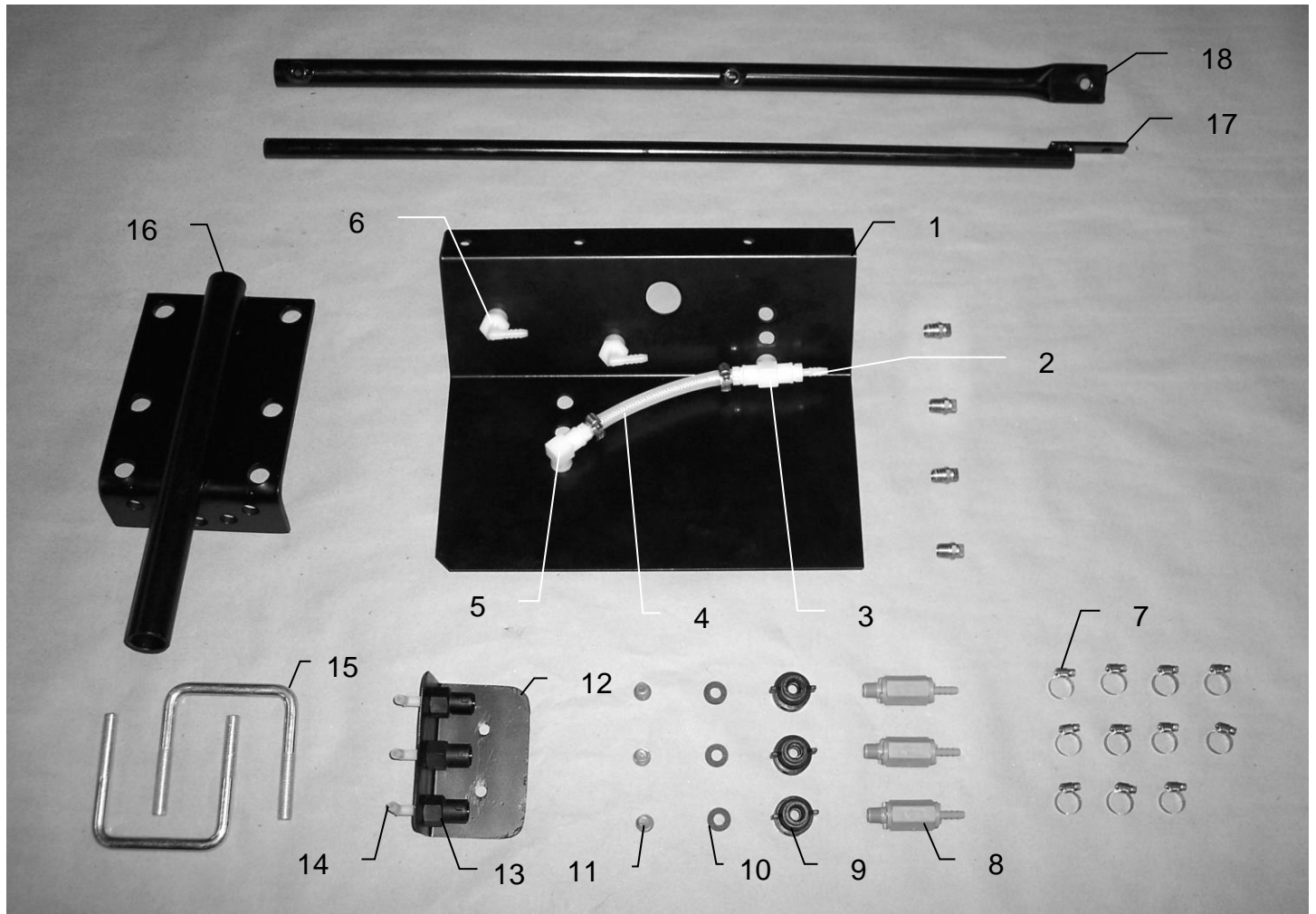
<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Straight Fitting	003-A3434	1	5	Male Coupler	002-2205G	1
2	Elbow	003-EL3434	1	6	Valve Holder	001-6702H	1
3	Hose Clamps	003-9004	2	7	Ball valve	002-2200	1
4	Female Coupler	002-2204A	1	8	Jiffy Clip	008-9010	3

PARTS BREAKDOWN FOR CONTROL BOXES AND WIRING HARNESES



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Power & communication tractor	006-5650T	1
2	Pump controller harness (550 & 545)	006-5650FC	1
2	Pump controller harness (551)	006-5650F2	1
3	Power & communication baler	006-5650SS	1
4	Pump controller	006-5672	1
5	Precision Information Processor (PIP)	006-5671SS	1
6	Terminating resistor	006-5660Z	1
7	Ram mount	001-2012H	1
8	Display	006-5670	1
9	End of bale & stroke counter sensor	006-7400	2
10	End of bale bracket (Model 551 & 545)	001-4648SS	1
10	End of bale bracket (Model 550)	001-4648SC	1
NP	Stroke counter bracket (Model 545)	001-4648RB	1
NP	Stroke counter bracket (Model 550)	001-4648SI	1
NP	Splitter	006-7400Y	1
NP	Key switch wire	006-5650K	1
NP	Dust plug kit	006-5651PLUGS	1
NP	Suction cup mount	001-2012SCM	1
NP	PIP shield	001-5650X	1
NP	Not pictured		

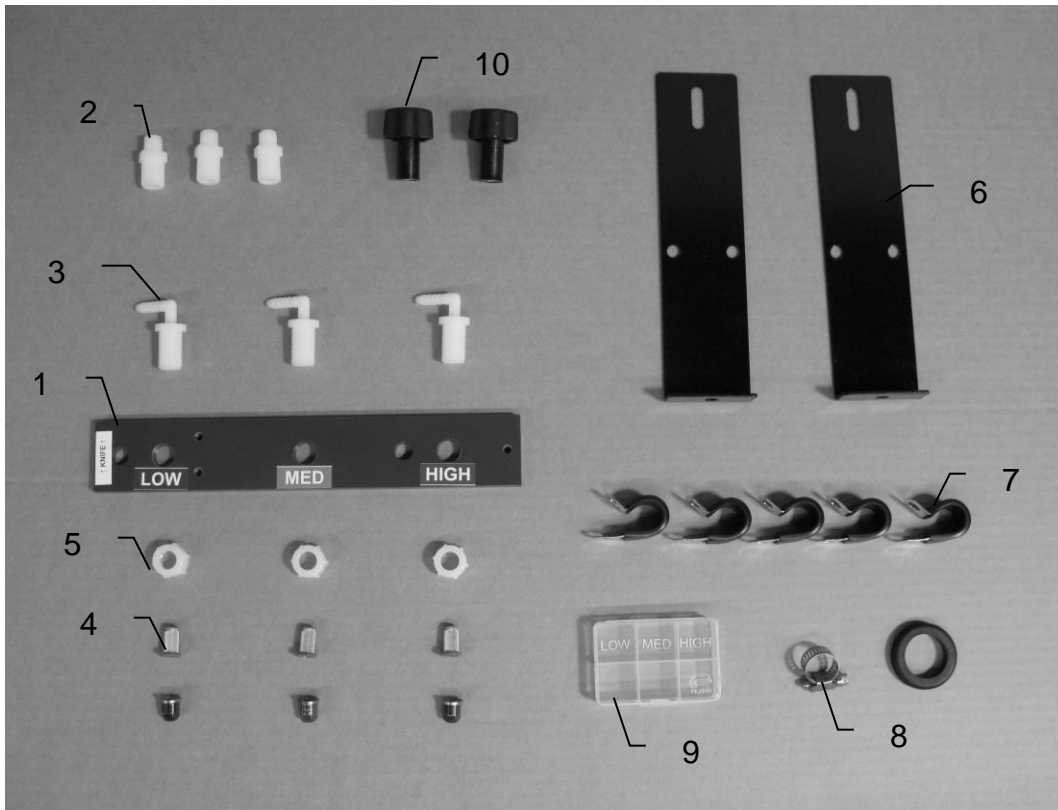
HARVEST TEC MODEL 4410B INSTALLATION KIT FOR JOHN DEERE CONVENTIONAL SQUARE, AUTOMATIC CONTROL



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray shield	001-4426	1	Tip	004-T650033-SS	2
2	Straight fitting	003-A1414	3	Tip	004-T110015-SS	1
3	Tee	003-TT14SQ	1	Tip	004-T11003-SS	1
4	Hose	002-9016	9 ft			
5	Elbow	003-SE14F	1			
6	Elbow	003-EL1414F	2			
7	Hose clamp	003-9002	11			
8	Check valve	002-4564XB	3			
9	Female disconnect	004-1207H	3			
10	Washer	004-1207W	3			
11	Tip strainer	004-1203-200	3			
12	Hose bracket	001-4720	1			
13	Female coupler	004-1207G	3			
14	Elbow	003-EL1414	3			
15	U bolt	001-4406A	2			
16	Mounting bracket	001-4406	1			
17	Inside reach rod	001-4405	1			

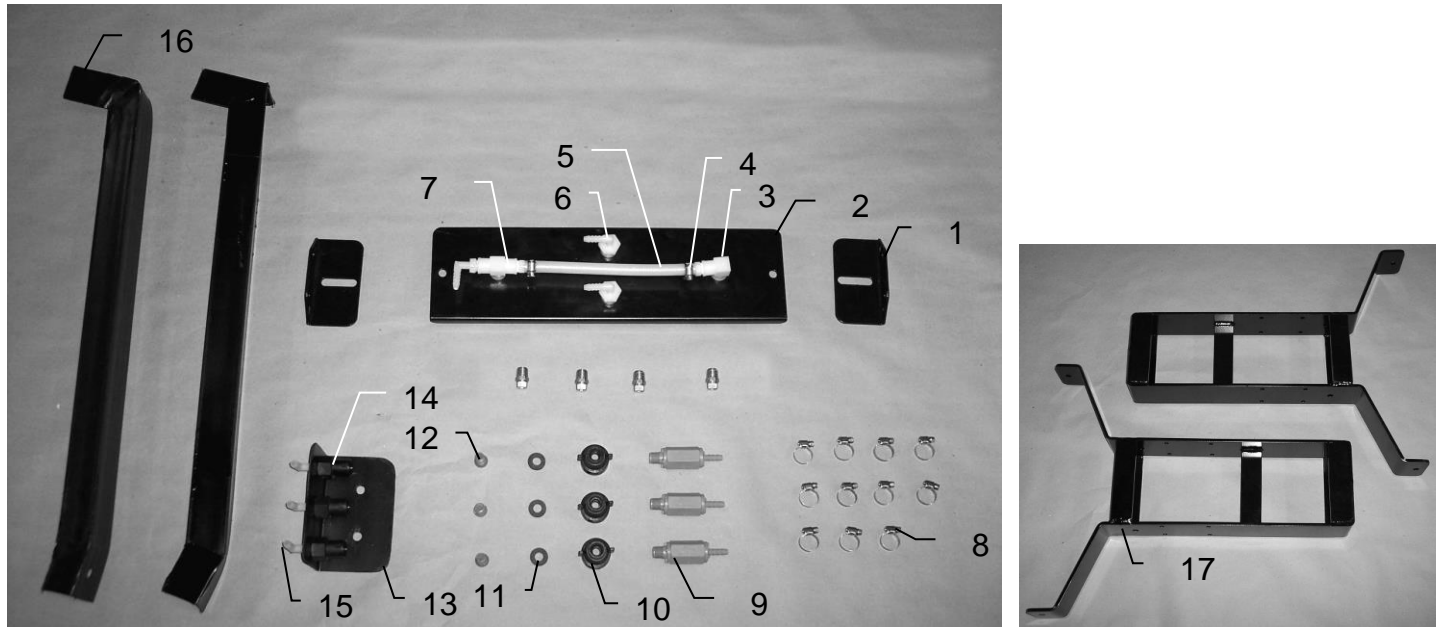
18 Outside reach rod 001-4404 1

HARVEST TEC MODEL 4415B-SO INSTALLATION KIT FOR NEW HOLLAND 570 – 580, BC5060 – BC5080 AND CASE SBX 530 – 550, SB531 – SB551 CONVENTIONAL SQUARE BALERS, AUTOMATIC CONTROL



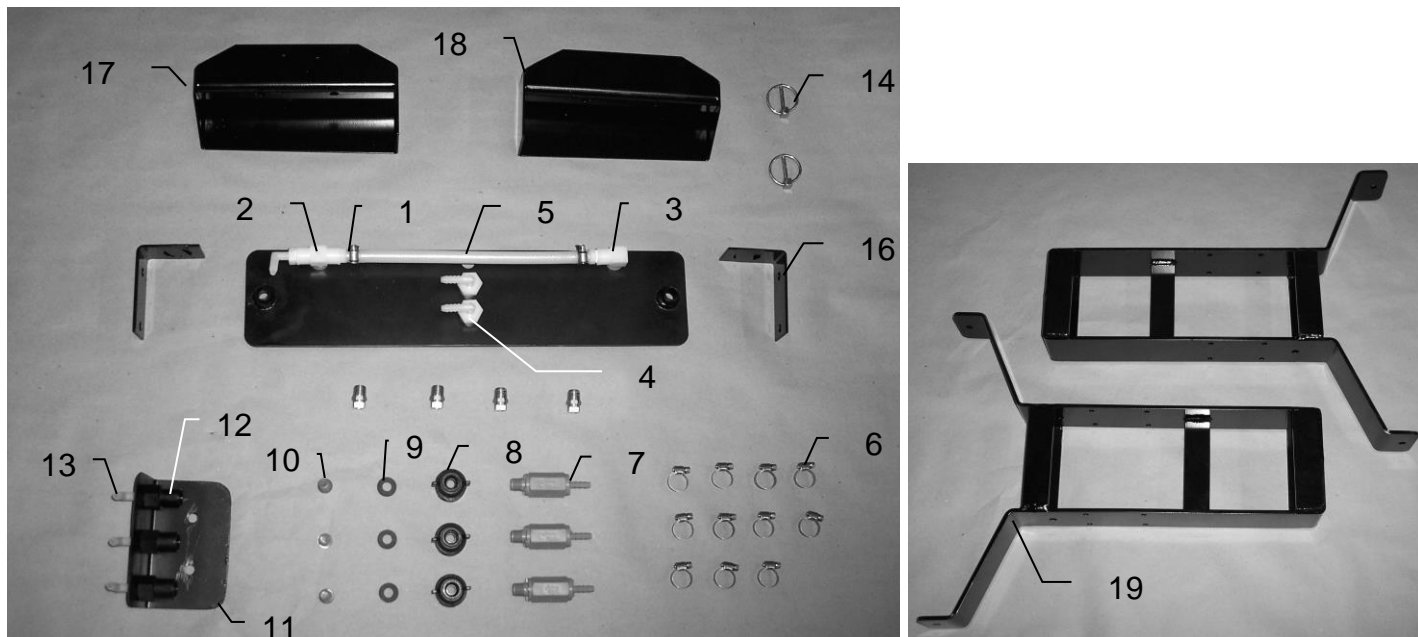
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray shield	001-4425C	1	Tip	004-TX-SS-4 (Blue)	1
2	Drill guide	003-M3814NB	3	Tip	004-TX-SS-10 (Green)	1
3	Elbow	003-EL3814NB	3	Tip	004-TX-SS-18 (Brown)	1
4	Tip strainer	004-4213-100	3			
5	Nozzle cap	004-BC12	3			
6	Hose bracket	001-4425B	2			
7	Jiffy clip	008-9010	5			
8	Hose clamp	003-9003	3			
9	Tip box	008-9001	1			
10	Knob	008-0925	2			

HARVEST TEC MODEL 4485B INSTALLATION KIT FOR CASE IH, AGCO, HESSTON, MASSEY FERGUSON, NEW IDEA, AND CHALLENGER INLINE CONVENTIONAL SQUARE BALERS, AUTOMATIC CONTROL



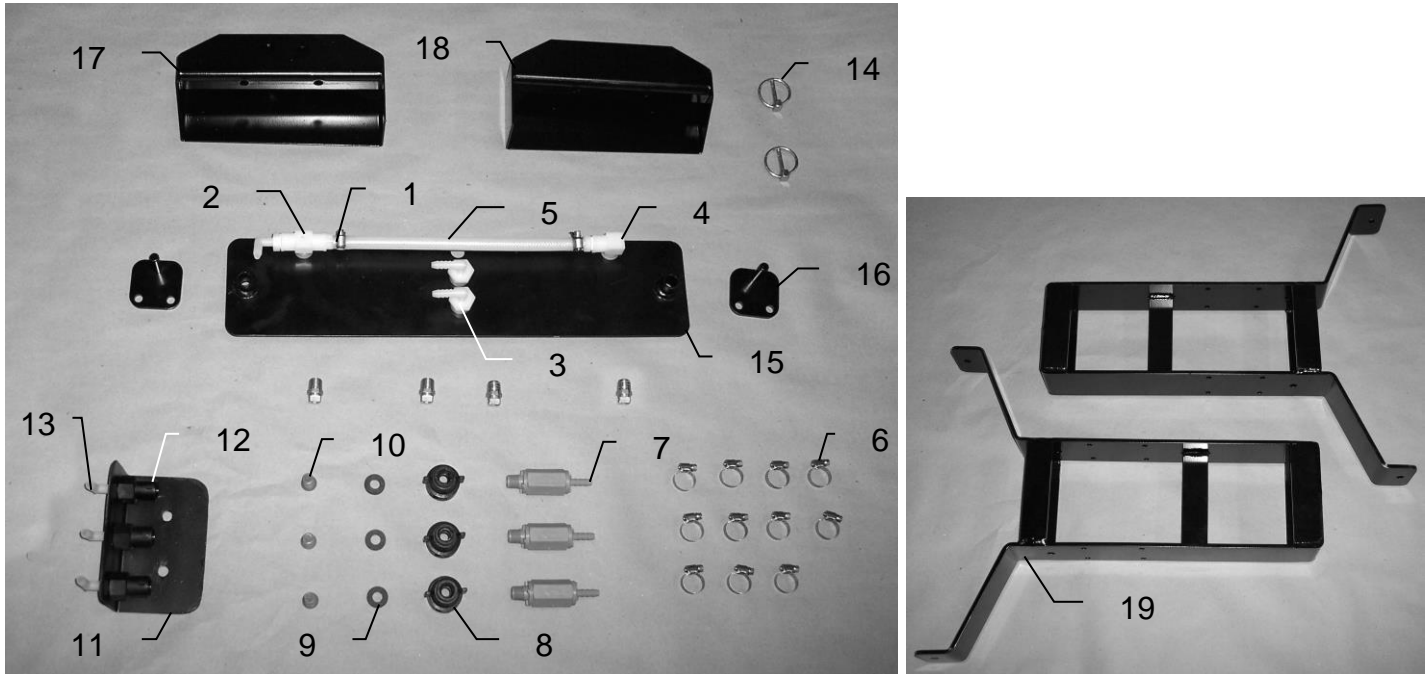
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Shield holder	001-4424B	2		Tip	004-T650033-SS	2
2	Spray shield	001-4424A	1		Tip	004-T110015-SS	1
3	Elbow	003-SE14F	1		Tip	004-T11003-SS	1
4	Straight fitting	003-A1414	2				
5	Hose	002-9016	9 ft				
6	Elbow	003-EL1414F	2				
7	Tee	003-TT14SQ	1				
8	Hose clamp	003-9002	11				
9	Check valve	002-4564XB	3				
10	Female disconnect	004-1207H	3				
11	Washer	004-1207W	3				
12	Tip strainer	004-1203-200	3				
13	Hose bracket	001-4720	1				
14	Female coupler	004-1207G	3				
15	Elbow	003-EL1414	4				
16	Leg support	001-4424C	2				
17	Saddle leg	001-4703B	2				

MODEL 4502B INSTALLATION KIT FOR AGCO, HESSTON, MASSEY FERGUSON 3-TIE SQUARE BALERS, AUTOMATIC CONTROL



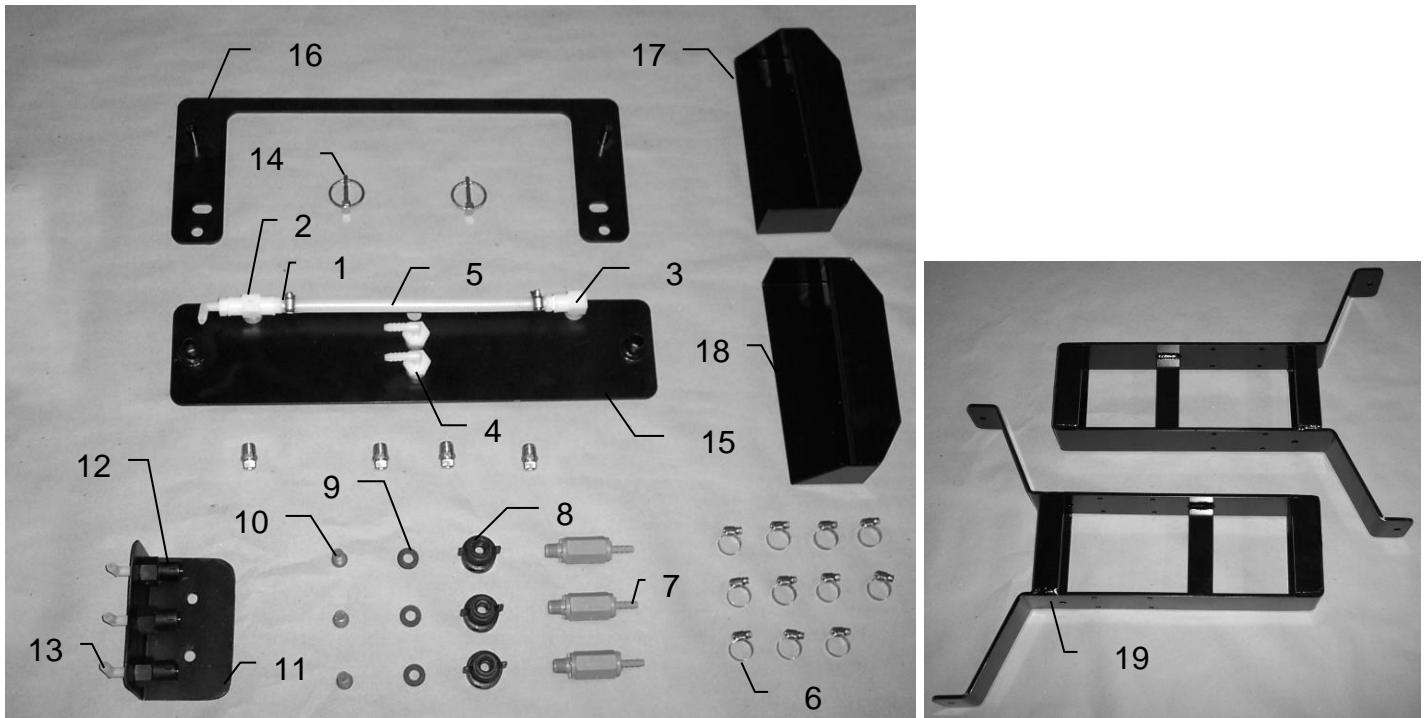
<u>Ref</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-SE14F	1	Tip	004-T11004-SS	1
4	Elbow	003-EL1414F	2			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9002	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703I	2			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

MODEL 4506B INSTALLATION KIT FOR FREEMAN 370 THREE TIE BALERS, AUTOMATIC CONTROL



<u>Ref</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-EL1414F	2	Tip	004-T11004-SS	1
4	Elbow	003-SE14F	1			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9002	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703H	2			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

MODEL 4507B INSTALLATION KIT FOR NEW HOLLAND 585 & BB900 THREE TIE BALERS AUTOMATIC CONTROL



<u>Ref</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Straight fitting	003-A1414	2	Tip	004-T650050-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Elbow	003-SE14F	1	Tip	004-T11004-SS	1
4	Elbow	003-EL1414F	2			
5	Hose	002-9016	9 ft			
6	Hose clamp	003-9003	11			
7	Check valve	002-4564XB	3			
8	Female disconnect	004-1207H	3			
9	Washer	004-1207W	3			
10	Tip strainer	004-1203-200	3			
11	Hose bracket	001-4720	1			
12	Female coupler	004-1207G	3			
13	Elbow	003-EL1414	4			
14	Lynch pin	008-4576	2			
15	Spray shield	001-4703G	1			
16	Shield holder	001-4703J	1			
17	Twine diverter (prox)	001-4644	1			
18	Twine diverter	001-4645	1			
19	Saddle leg	001-4703B	2			

NOTES:

Drill 5/16" Diameter holes (x2)

2.00"

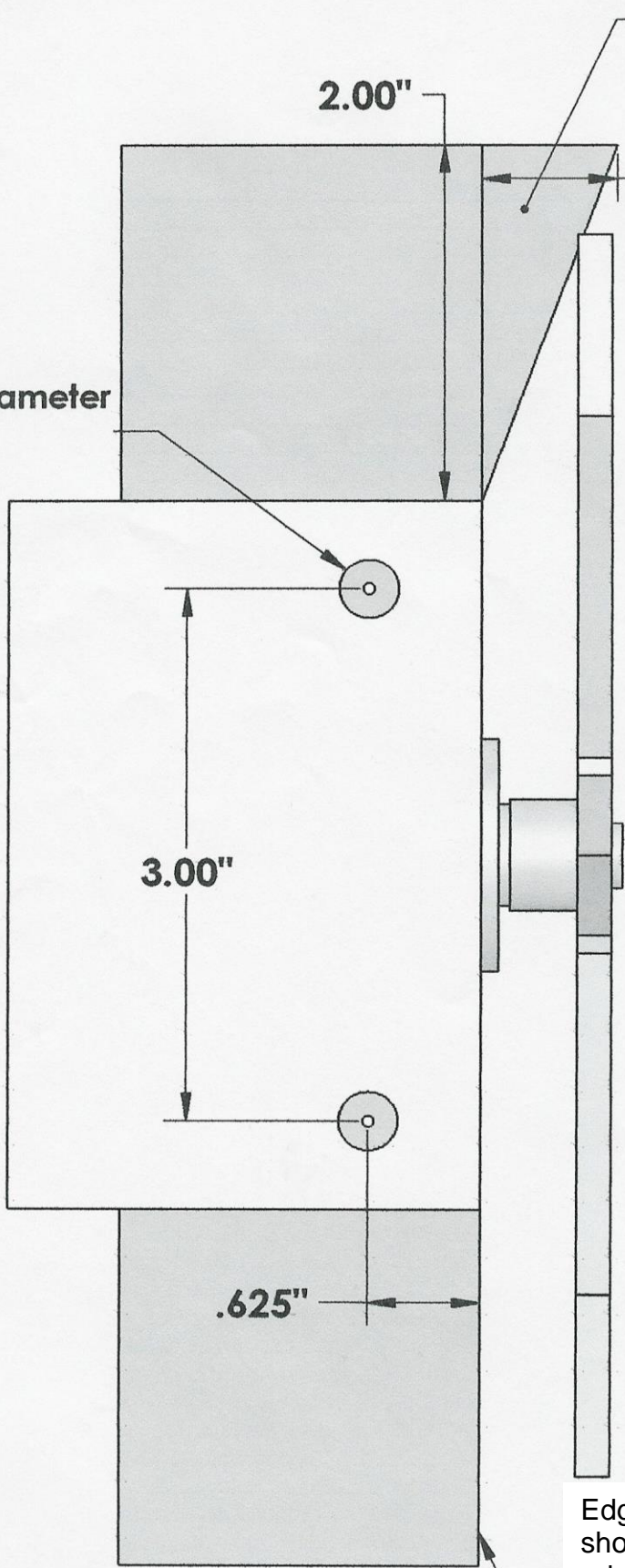
It may be necessary to make a notch for the Star Wheel on some balers.

.75"

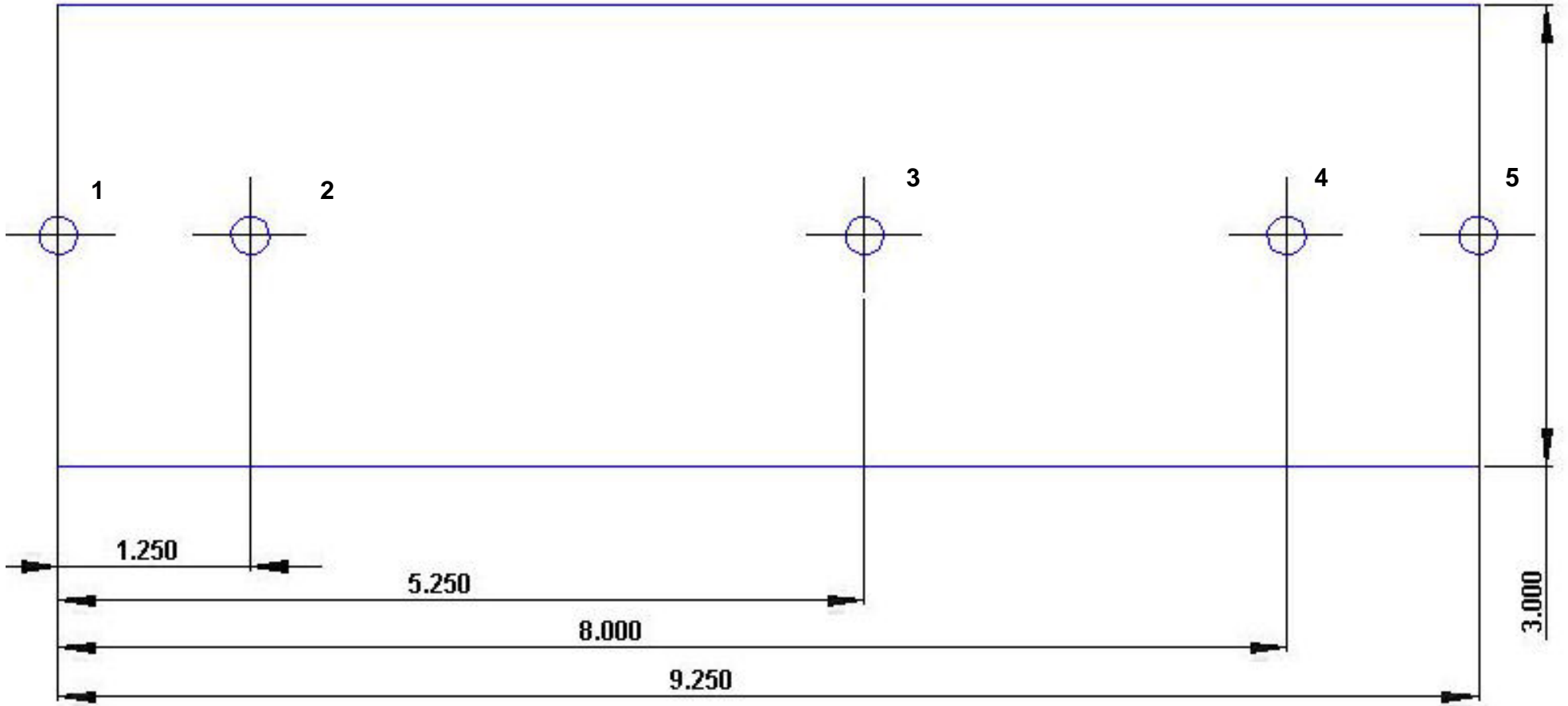
3.00"

.625"

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



← Knife



4415B Spray shield
template

Harvest Tec 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.

Revised 5/22

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