

# Installation Manual

## ***Model 445, 450 & 451 25 & 55 gallon Automatic Preservative Applicator***



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#010-445-451-450-INST  
Revised 5/22



# Harvest Tec 445, 451 & 450 Installation Table of Contents

	<u>PAGE</u>
<b>Introduction</b>	<b>4</b>
<b>Model Reference</b>	<b>4-5</b>
<b>Tools Needed</b>	<b>5</b>
<b>Installation of Applicator</b>	<b>5-22</b>
1. Installation of mounting brackets, tank, pump manifold and hose manifold	5-10
Model 445	5-6
Model 450	7-8
Model 445 & 450	9
Model 451	10
2. Placement of spray nozzle assembly	11-15
Install kit 4409B	11
Install kit 4410B	11
Install kit 4415B	12-13
Install kit 4485B	14
Install kit 4502B	14
Install kit 4506B	15
Install kit 4507B	15
3. Installation of plumbing	16-17
Model 445 & 450	16
Model 451	17
4. Installation of star wheels and bale rate sensors	18-19
Model 454, 451, & 450 (two tie only)	18
Model 450 (three tie only)	19
5. Power cable and main wiring harness installation	20
System wiring diagram	20
6. Installation of the control	21
7. Installation of display cable harness	21
<b>Common Questions</b>	<b>22</b>
<b>Troubleshooting</b>	<b>23-24</b>
<b>Backup Fuse</b>	<b>24</b>
<b>Wiring Diagrams</b>	<b>25-26</b>
<b>Parts Breakdown</b>	<b>27-39</b>
Model 445 base kit	27
Model 450 base kit	28
Drain fill kit (450 & 451 only)	28
Model 451 base kit	29
Pump manifold	30
Star wheel sensor, bale rate sensor, & hoses	31
Control box and harnesses	32
Baler specific installation kits	33-39
<b>Notes</b>	<b>40</b>
<b>Star Wheel Template</b>	<b>41</b>
<b>4415B Guide</b>	<b>42</b>
<b>WARRANTY STATEMENT</b>	

## Introduction

Read this manual carefully to ensure correct steps are done to attach the applicator to the baler. This applicator is designed to apply Harvest Tec buffered propionic acid. The model 445, 450 & 451 base kit includes the following parts: Tank, Frame, Pumps, Hose, Baler Mounted Processor, Touchscreen Display, Moisture Sensors, and Miscellaneous Hardware. The applicator can be installed on many square balers with the proper installation kit. Before installing the unit on the baler, make sure you have the proper installation kit. (See the chart below.) If you are unsure about your installation kit contact your local authorized dealer for specifications. For your convenience we have included a parts break down for the applicator.

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

## Model Kit Reference

<b>Baler Make</b>	<b>Baler Model</b>	<b>Model Number</b>	<b>Installation Kit</b>	<b>Tank Size</b>
Case IH	SBX530, SBX540, SBX550, SB 531 – SB 551 square balers	445	4415B	25 gallon
John Deere	All small square balers	445	4410B	25 gallon
Massey Ferguson	124 / 128	445	4412B	25 gallon
New Holland	570, 575, 580 & BC 5060 – BC 5080 square balers	445	4415B	25 gallon
Case IH & New Holland & Others	Case IH SBX 520, SB 521 New Holland 200 & 300 series, 565, BC 5050 & all others	445	4409B	25 gallon
Case IH	SBX530, SBX540, SBX550, SB 531 – SB 551 Square balers	451	4415B	55 gallon
New Holland	570, 575, 580 & BC 5060 – BC 5080 Square balers	451	4415B	55 gallon
Case IH	2001 and older small square Balers (two tie)	450	4485B	55 gallon
Hesston, Massey, New Idea, & Challenger	All small square (two tie)	450	4485B	55 gallon
Hesston, Massey, New Idea, & Challenger	All three tie balers	450	4502B	55 gallon
Freeman	All three tie balers	450	4506B	55 gallon
New Holland	BB 900 & 585	450	4507B	55 gallon

## Tools Needed

Standard wrench and socket set  
Hose cutter  
Metal drilling and cutting tools  
Straight edge

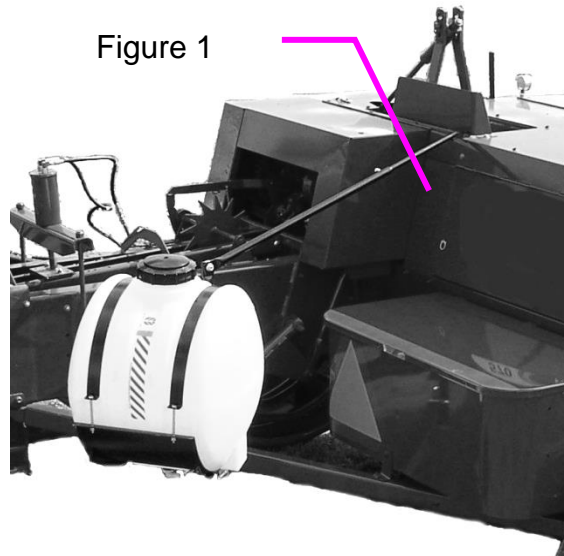
Standard screwdriver set  
Crescent wrench  
Tape measure  
1-1/2" hole saw (4415B only)

Side cutter  
Hammer  
Center punch

## Installation of Applicator

### 1. Installation of Mounting Brackets, Tank, Pump Manifold and Hose Manifold (450 & 445 only)

#### Model 445



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

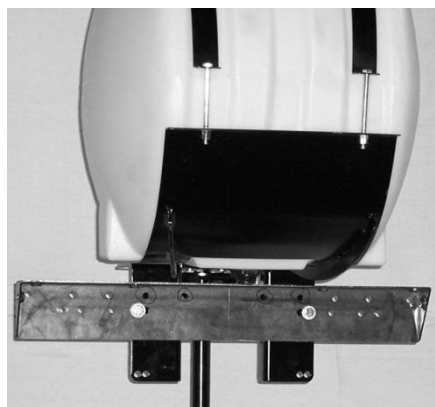


Figure 2



Figure 3

#### A. Recommended Mount

Locate parts bag 8. 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 445 continued

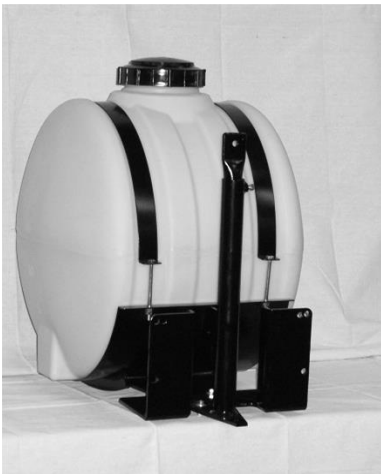


Figure 4



Figure 5



Figure 6

### **B. Alternate Location for Ground Clearance**

Locate parts bag 8. 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 450

Locate parts bag 7. 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 (13 mm) 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.

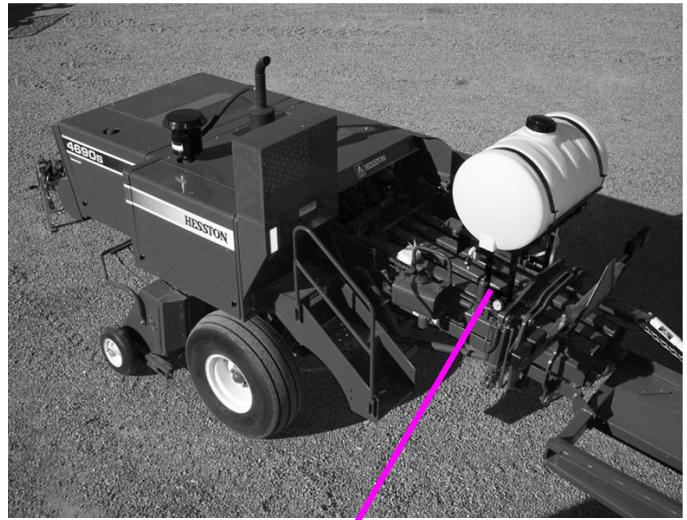
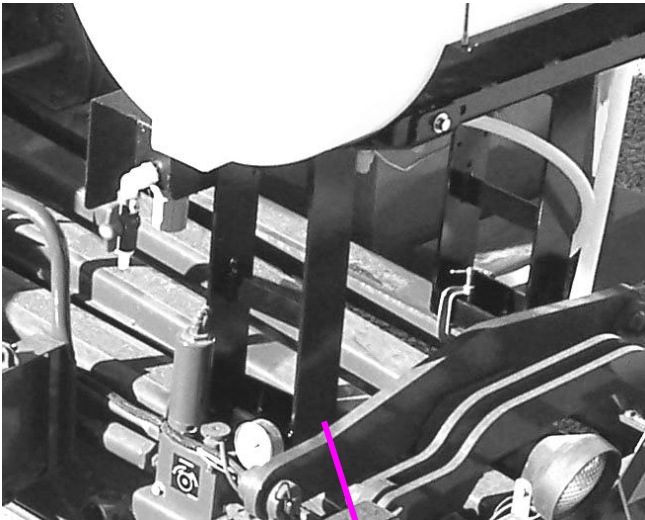


Figure 1



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



## Model 450 continued

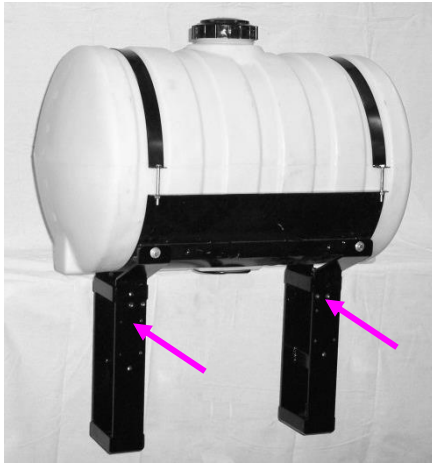


Figure 1

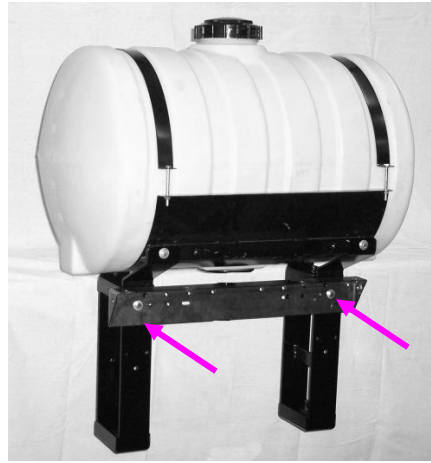


Figure 2



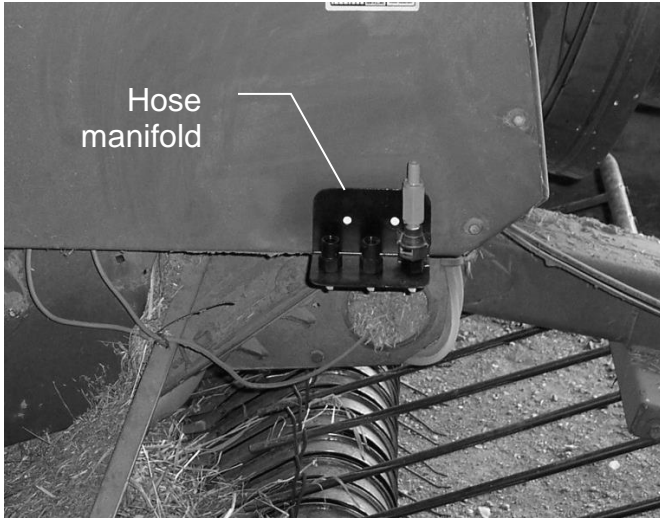
Figure 3

1. Locate parts bag 8.
2. Locate the two mounting holes as shown in Figure 1.
3. 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.
4. 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.

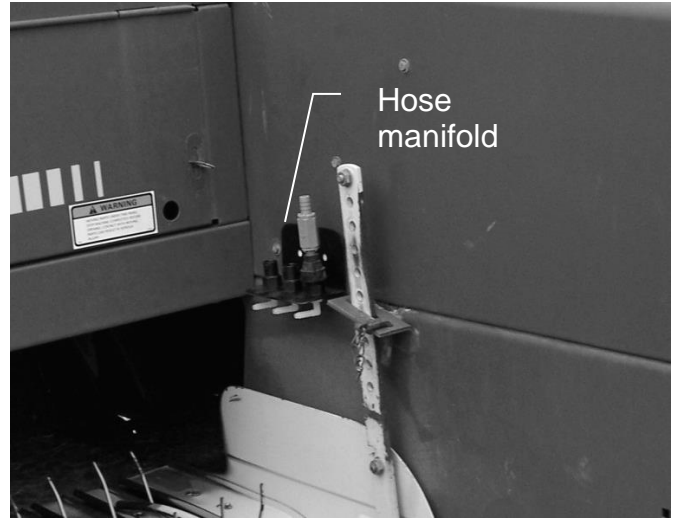


## Model 445 & 450

Mount the hose manifold on the front of the baler in the area of the spray shield. Make sure the bracket will not interfere with any baler operations.



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## Model 451

Locate parts bag 12. 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" (5 cm) 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.

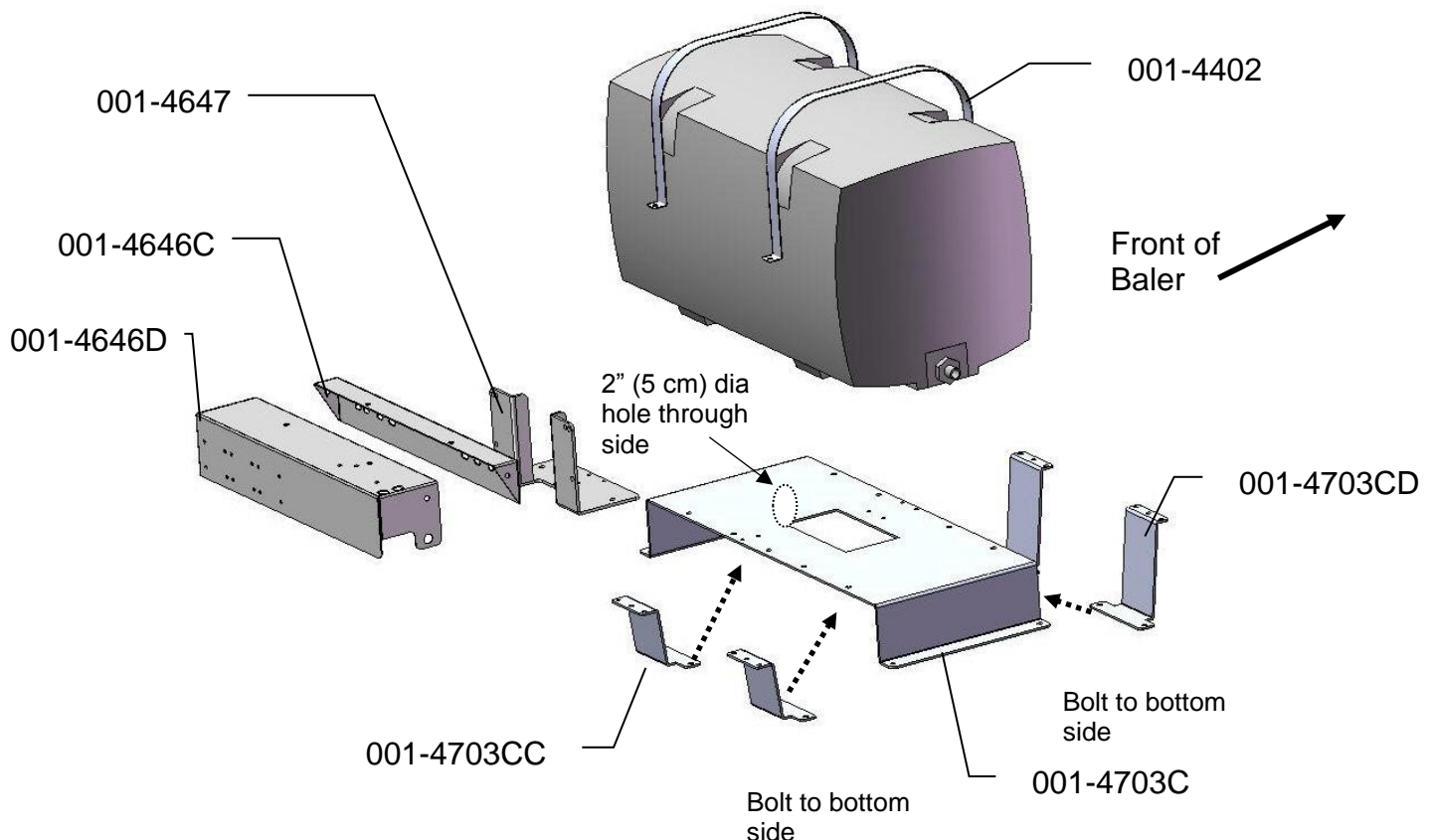
Install the "U" shaped pump plate mount (001-4647) to the top and back edge of the saddle. Secure with two 3/8" x 1-1/2" bolts on the outside that also go through the short mounting bases as listed above. Place one 3/8" x 1-1/4" bolt in the middle. Secure with washers, locks and nuts.

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.

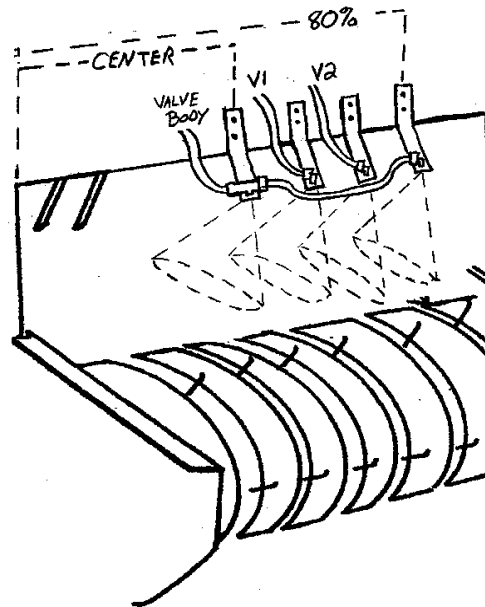
Mount the tank as shown below. The tank will be mounted as far to the right side of the baler as possible. The side tank fitting (Figure A) will be facing the right side of the baler. The pump plate assembly (Figure B) will be at the back of the baler. Place the tank on top of the baler and open the 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.



## 2. Placement Of Spray Nozzle Assembly

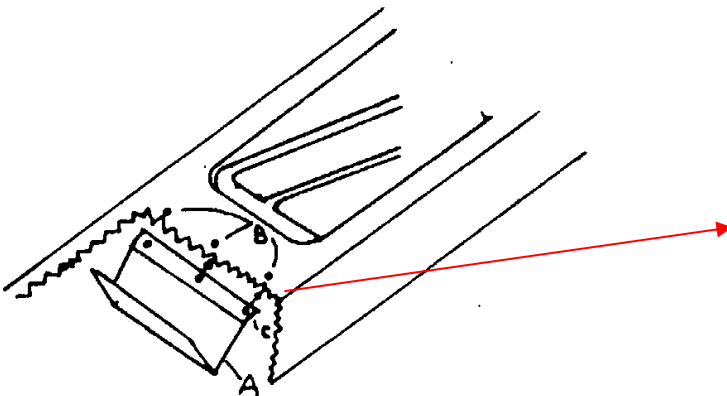
### Install Kit 4409B

1. Mount the left hand nozzle strap (it has an elbow fitting and a silver tip) so that it is approximately 80% across the width of the pick-up head. Example: if the head is 60" wide, locate the nozzle 48" from the right side of the head (60"x80".)
2. Mount the right hand nozzle strap (it has a tee fitting and a silver tip) so that it is approximately centered on the pickup head.
3. Place the two auxiliary nozzle straps in between the first two straps.
4. Bend the nozzle bar in so that the tip is pointed in toward the bottom of the gathering chamber and about 16" above the sheet metal base of the chamber. Twist the nozzle so the tip is tilted 45 degrees from horizontal.
5. Three 1/4 inch lines will need to be run from the hose manifold to the nozzle straps. 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.



### Install Kit 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.



## **Install Kit 4415B**

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 removing it for ease of installation. Consult your dealer for guidance.

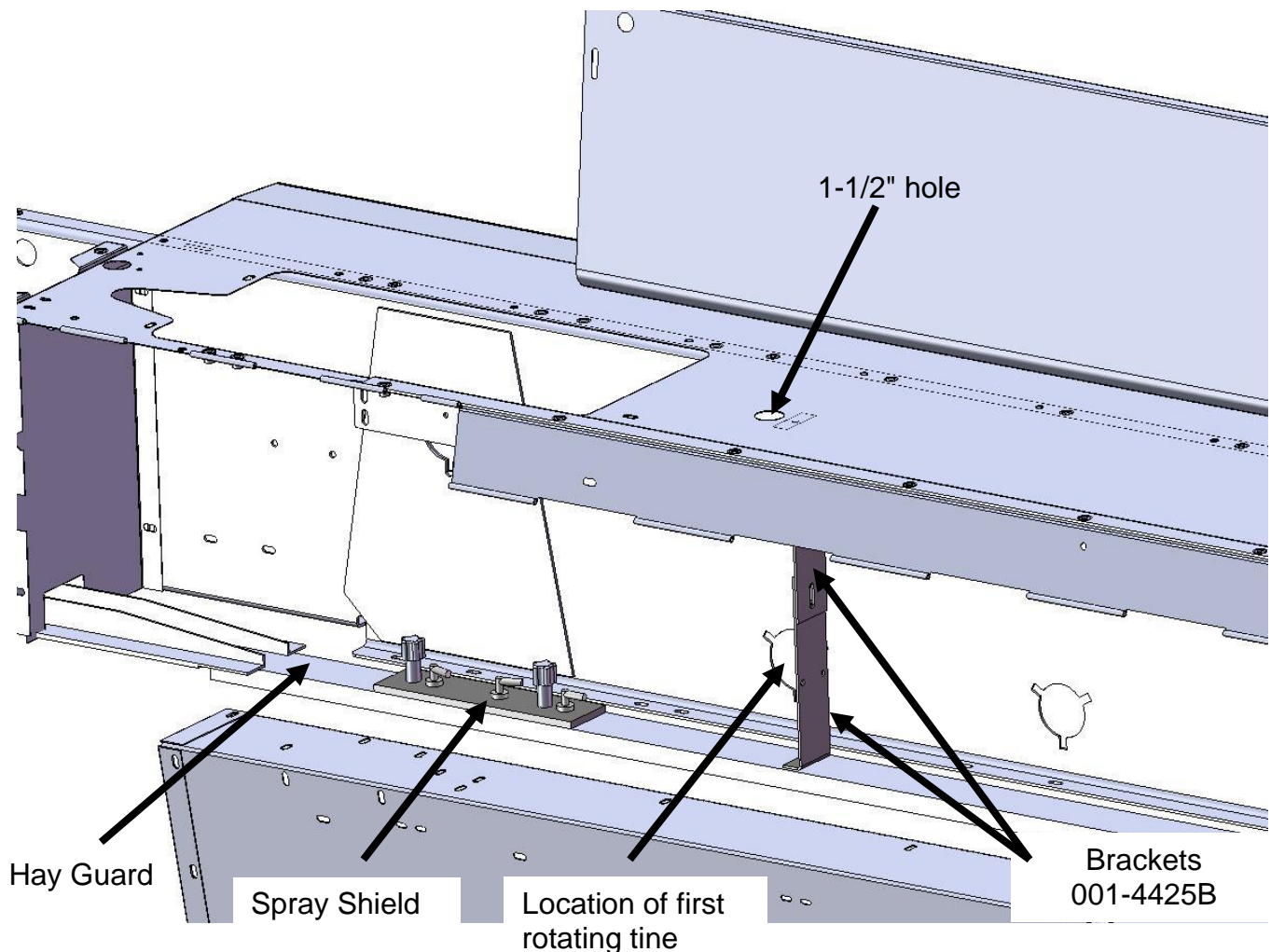
### **Installation of Spray Shield**

1. Mark a point 9-1/4" from the knife on the hay guard and draw a squared line across the width.
2. Remove hay guard from baler if possible. Mark the top and bottom of the hay guard for the correct re-installation.
3. Back out plastic drill guides until they are flush with the bottom of the spray shield. Line up the spray shield on the hay guard with the KNIFE sticker against the line just marked.
4. Center and clamp the spray shield firmly in place.
5. Using a 1/2" drill bit, mark the location of the two 1/2" holes to create a center mark. **DO NOT DRILL THROUGH STEEL.**
6. Remove spray shield. On the holes just marked, use a 1/4" drill bit and drill through both pieces of steel as squarely as possible.
7. Insert two 1/4" x 2" button head cap screws through holes in the bottom of the hay guard. The head of the screw will need to be down (in the chamber). Secure with nylon lock nut on top side.
8. Replace spray shield and secure with the hold-down knobs.
9. Drill out the three holes with the drill guides installed with a 1/4" drill bit. Drill through both pieces of steel.
10. Remove the spray shield and using a 1-1/2" hole saw, drill the three holes through the TOP STEEL ONLY.
11. Drill out the bottom holes with a 9/16" bit. Be careful not to oblong the holes. De-burr any metal filings left around the three holes on both sides of the hay guard. Use touch-up paint on bare surfaces to preserve the metal and the baler.
12. Remove plastic drill guides from the shield and thread the elbow completely into the spray shield.
13. Install the tip strainer followed by the blue tip into the LOW fitting on the shield. The MEDIUM will be the green tip, followed by brown for the HIGH fitting. Tighten nuts to secure the strainers and tips.
14. Back the threaded fittings out as far as possible. Place the shield on the hay guard and secure by pressing down. Secure the spray shield with the hold-down knobs.
15. Thread all three elbows down until they touch the bottom metal and align as needed for routing the hoses. **NOTE: Tips should protrude slightly out of the bottom of the hay guard with no space between the tip and the hole.**
16. Re-install hay guard onto the baler.

### **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. Route the hoses from the pumps down the cross member the tank is mounted on towards the right side tire. The hose will go up the right side of the baler towards the top and center of the baler towards the hole that will be made in the next step.
7. 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.
8. Attach the hose, to the elbows, securing with hose clamps. Clear hose to low, green to med., and blue to high.
9. 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.
10. Install the hose from the shield under the hay tine, to the bracket, and out the top.
11. 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.**
12. Run the hose through the top of the baler and down towards the tank. Use the supplied jiffy clips (008-9009) to secure in route to the tank.
13. 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

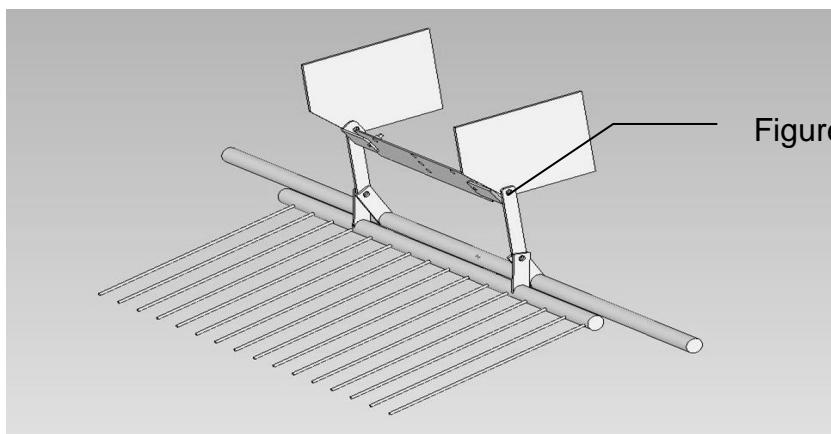
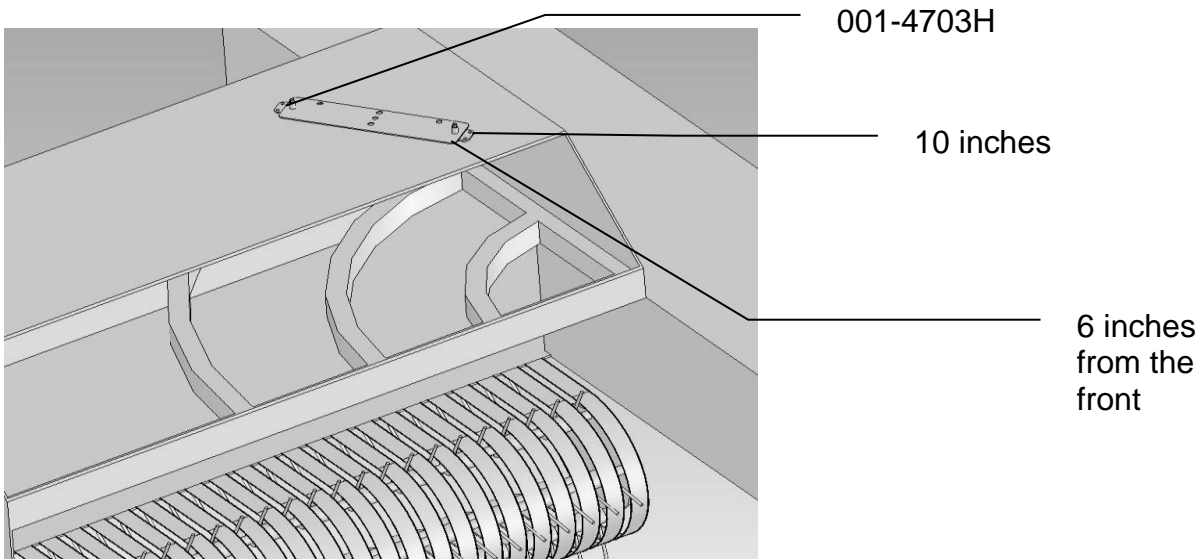


Figure 1

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.

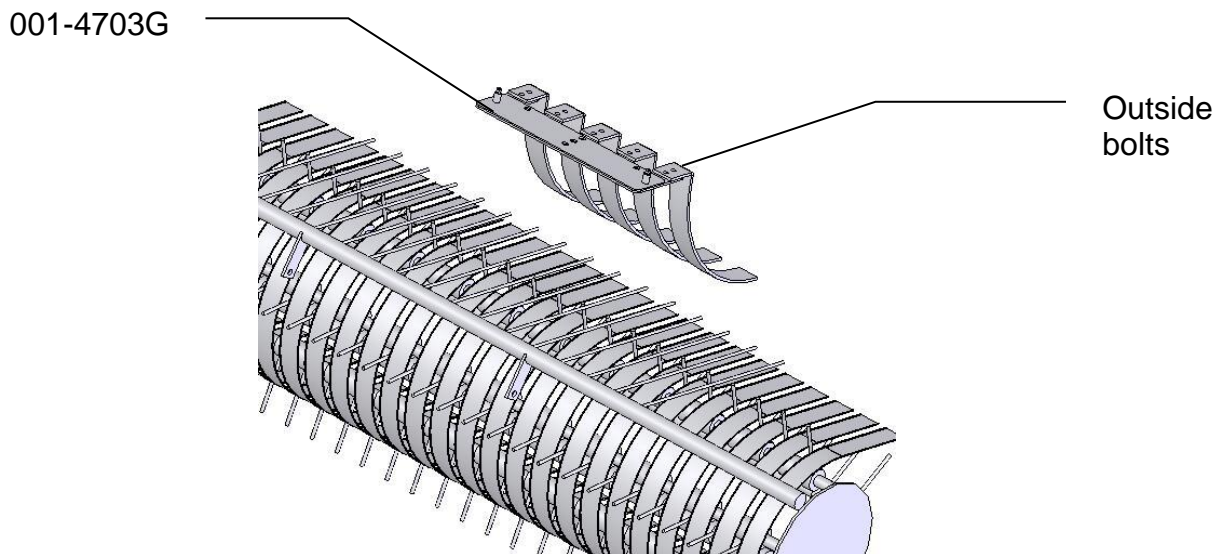


## Install Kit 4506B



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 1/4 x 1 1/4" self-tapping bolts. Place shield of 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 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 3/8 x 1-1/2" into bracket 001-4703G, through wrap guard, and into threaded holes on baler frame that the bolts were removed from.



### 3. Installation of Plumbing

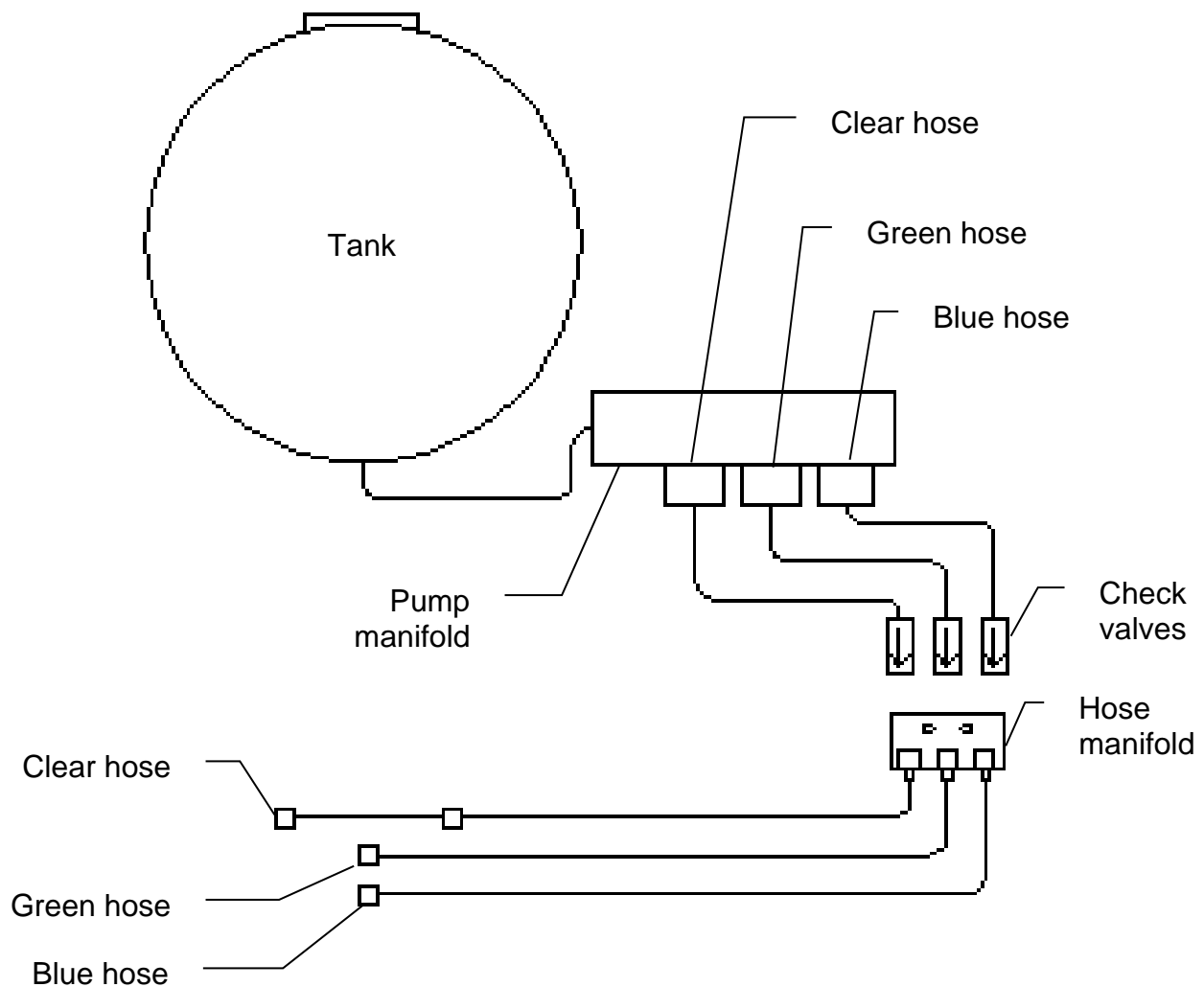
#### Model 445 & 450

##### A. Intake

Locate parts bag 15. 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 bracket. 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.)



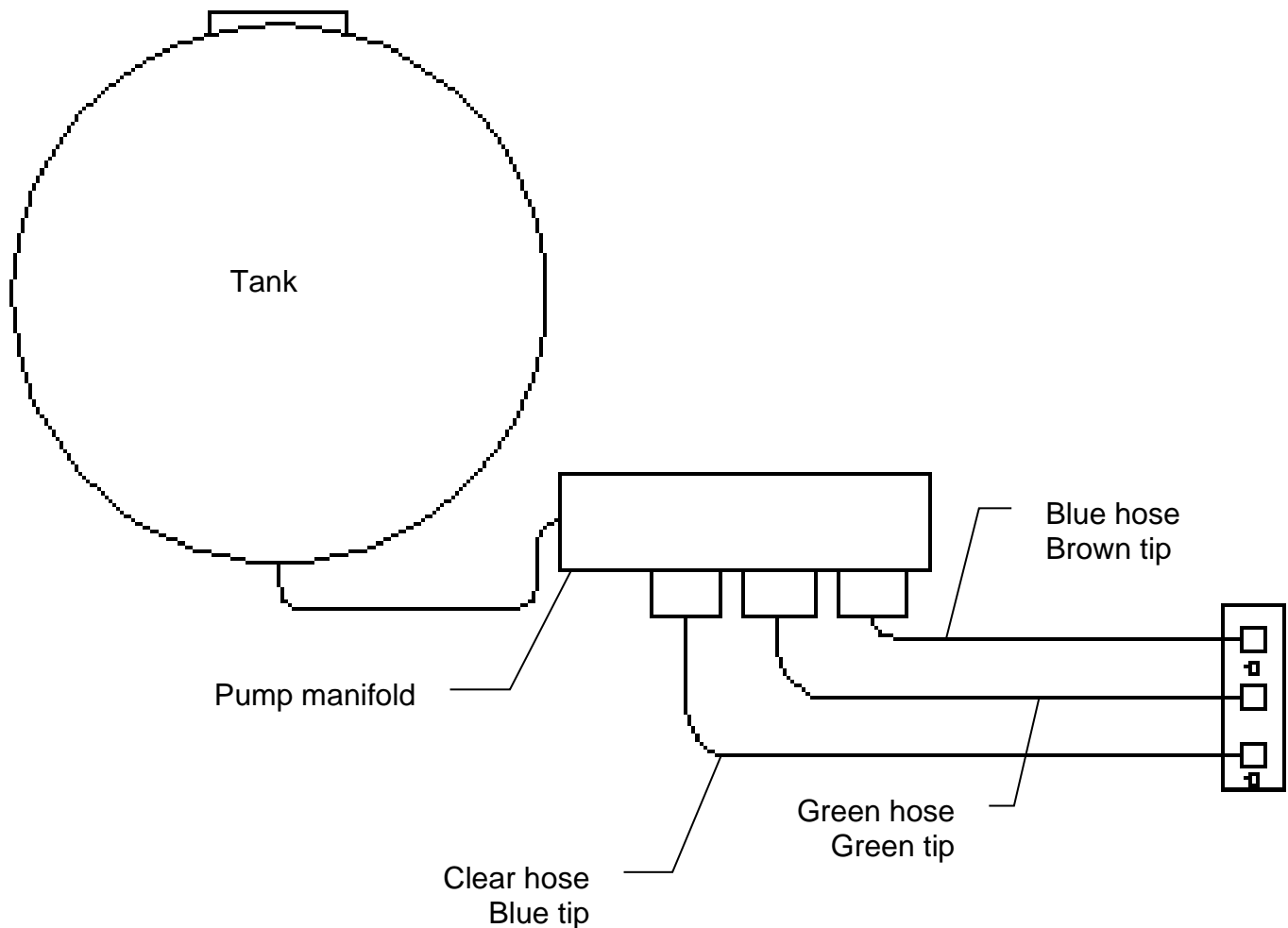
## Model 451

### A. Intake

Locate parts bag 15. 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.)



## 4. Installation of Star Wheels and Bale Rate Sensors

### Model 451, 450 & 445 (Two-Tie only)

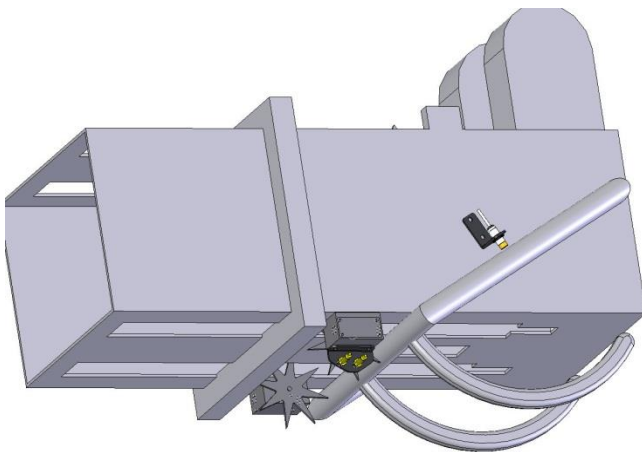
Locate parts bag B. The pair of star wheels will need to mount on the bottom side as close to the front of the bale chute as possible and at least 10 mm away from any metal. They will need to maintain a safe distance away from the twine.

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.

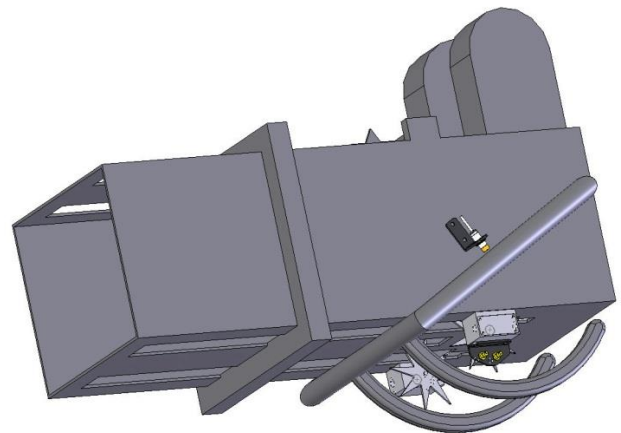
Use the supplied bolts and place the carriage head inside of the bale chamber followed by lock and nut. Next attach the star wheels to the bolts followed by flat washer, lock washer and nut. The right side star wheel will have the bale rate sensor bolted to the bottom of the block.

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 3mm away from the star wheel teeth and no less than 1 mm 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 BMP. See wiring system diagram.



Model 451 & 445 (CNH Only)



Model 450 & 445

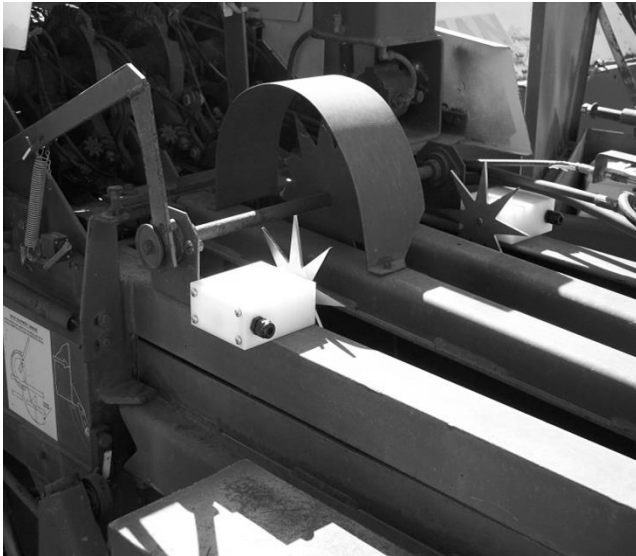
## Model 450 (Three-Tie only)

Locate parts bag B. The pair of star wheels will need to mount on the top as close to the knotters as possible and at least 10 mm away from any metal. They will need to maintain a safe distance away from the twine.

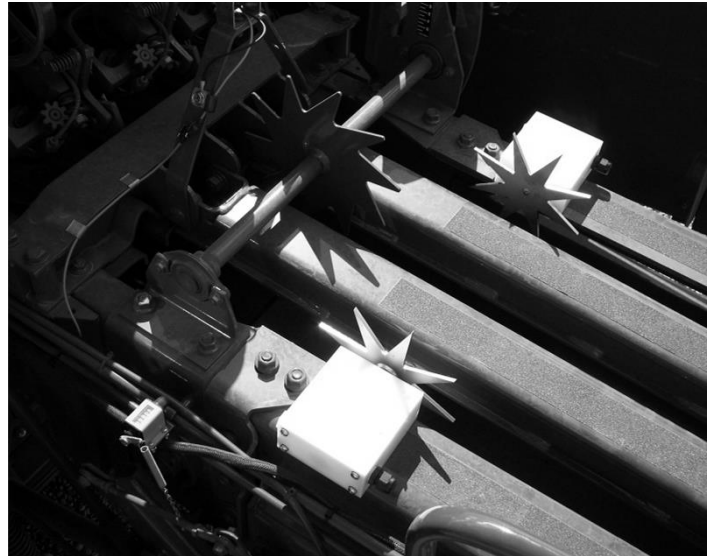
The star wheels will require two holes to be drilled per block, when drilling, make sure to keep the wheel square to the bale chamber. Any angle will cause stress on the wheel and will eventually cause the wheel to work itself out of the block. A template can be found in the back of the manual to help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

## 5. Power Cable and Main Wiring Harness Installation

1. Locate the power harness.
2. Connect the power harness (006-4640A) 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. **CONTACT HARVEST TEC IF MODIFICATION IS REQUIRED!**

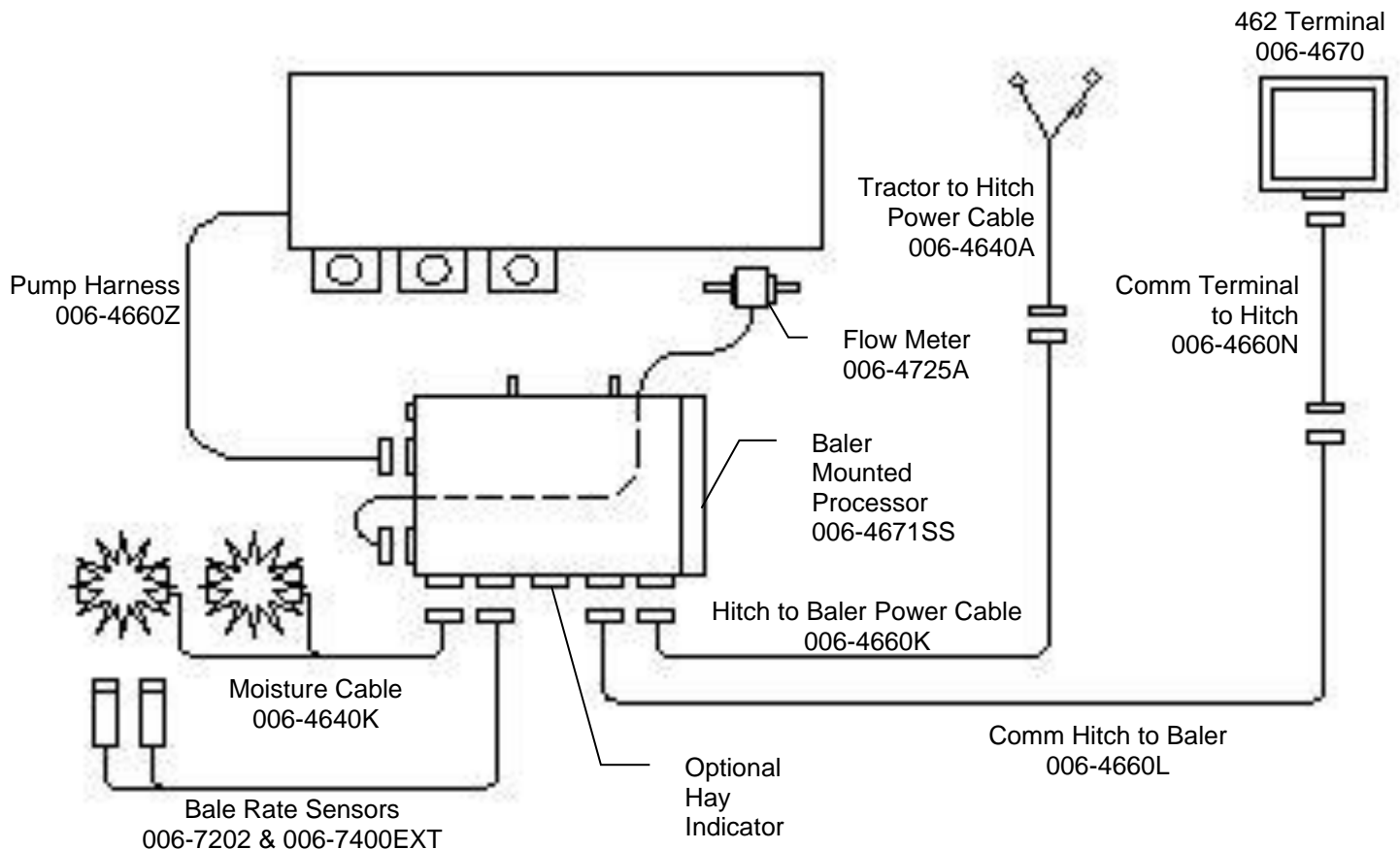
**B. This unit will not function on positive ground tractors.**

**C. If the unit loses power while operating it will not keep track of accumulated pounds of product used.**

3. The power harness (006-4640A) will run from the tractor battery to the hitch. The power harness (006-4660K) will connect to the tractor power harness (006-4640A) at the hitch. Run the Communication harness (006-4660N) from the cab to the hitch. This wire will connect to the Communication harness (006-4660KE). These wires will run together to the Baler Mounted Processor (006-4671SS).
4. Connect Flow Meter (006-4725A) to the Baler Mounted Processor.
5. Connect Pump Harness (006-4660Z) to the Baler Mounted Processor.
6. If you have the optional Hay Indicator connect it to the Baler Mounted Processor.
7. Attach moisture cable (006-4640K) to Baler Mounted Processor.
8. Connect bale rate sensors cable (006-7202) to the extension harness (006-7400EXT) and then to the Baler Mounted Processor.
9. Install Baler Mounted Processor in pump plate using 5/16" lock, nut and flat washers.

**NOTE: The plugs on the Baler Mounted Processor must face down. Failure to mount correctly will void systems warranty.**

### System Wiring Diagram



## **6. Installation of the Control**

Use the supplied suction cup mount to position the monitor in the cab. Make sure the glass is clean before installing the suction cup mount. If a non-cabbed tractor is used, use the supplied #10 screws for installation on the 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

## **7. Installation of Display Cable Harness**

On the bottom of the touch screen display you will find the main display wire plug. The harness (006-4660N) will need to be attached to this plug and run through the cab towards the hitch where it will connect with its matching harness (006-4660L) from the PIP.

## Common Questions

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

To turn the system ON, simply press anywhere on the right side of the screen followed by pushing the 'Press to Start' key. To turn the system OFF, return to the Main Menu screen and press the POWER OFF key

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

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

### 3. The unit is stuck in the Application Rate screen.

In the Application Rate 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.



## Troubleshooting

<b>Problem</b>	<b>Possible cause(s)</b>	<b>Solution(s)</b>
Pump will not run.	1. No voltage to Baler Mounted Processor.	1. Check for short, low voltage, and replace fuse if necessary.
	2. Pump locked up.	2. Clean or rebuild pump if motor is OK.
	3. Damaged wire.	3. Repair damaged wire.
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 outlet 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 baler mounted processor.	1. Reconnect wire.
	2. Low power supply to baler mounted processor.	2. Check voltage at box. (Min of 12 volts required.) See Diagnostics section of manual.
	3. Wet hay over 32% moisture	
	4. Ground contact with one or both star wheels and baler mounted processor.	4. Reconnect.
	5. Short in wire between star wheels and baler mounted processor.	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.
<b>Flow meter readings do not match up with product usage.</b>		
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 baler mounted processor.
	2. Wiring short in signal to baler mounted processor.	2. Inspect wire and replace if necessary.
	4. Using product other than Harvest Tec	4. 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 baler mounted processor. 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 multi-meter actual voltage. Voltage range should be between 12-14 volts.	1. Clean connections and make sure applicator is hooked to battery. See Diagnostics section of manual.
System always displays "End of Row Pause".	1. Flow meter connector plug is plugged into Hay Indicator port on Baler Mounted Processor.	1. Switch ports.
System does not pause at the end of a row.	1. Short in cable.	1. Replace cable.
Bale rate displays zero.	1. Bale rate sensors are reversed. 2. Short in cable.	1. Switch the sensors next to the star wheel. 2. Replace cable.
Display will not power up.	1. Display connector plug and bale rate sensors plug are switched on the Baler Mounted Processor. 2. Short in display cable.	1. Switch plugs. 2. Replace cable.
Display is too dark or light	1. Change in temperature or light conditions.	1. Use the monitors contrast control.
	2. Display and BMP not communicating.	2. Disconnect 12 volt power cable at hitch. DO NOT DISCONNECT DISPLAY CABLE. Wait 5 minutes and reconnect.
Display says waiting for BMP	1. Display and BMP not communicating.	1. Disconnect 12 volt power cable at hitch. DO NOT DISCONNECT DISPLAY CABLE. Wait 5 minutes and reconnect.

## Backup Fuse

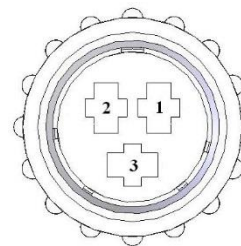
The Model 462 is equipped with a backup system if your display is not functioning. This function is intended for use only as a temporary means for application and not as a way to apply preservative over multiple fields or for a lengthy amount of time. The baler mounted processor has a location for a backup fuse on the same side as the pump and flow meter harness that bypasses all other system inputs and applies preservative using one pump (Pump Three) at a constant lbs/hour shown below. These values are based upon an input voltage of 13.5 DC. Insert at least a 10 amp up to 20 amp fuse (3 AG style) into the backup fuse port to activate the bypass. The system will not turn off or pause until the fuse is removed. The main fuse must also be functional for the backup fuse to work.

	Tip Set	Output (lbs/hour)
462	<b>High</b>	<b>180</b>
	<b>Low</b>	<b>150</b>

## Pin Outs for Wiring Diagram

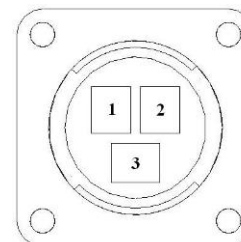
### **A. Main power connector mounted on battery**

Pin 1	Red	+ 12 V input from tractor supply
Pin 2	Black	Ground from tractor supply
Pin 3	Not used	



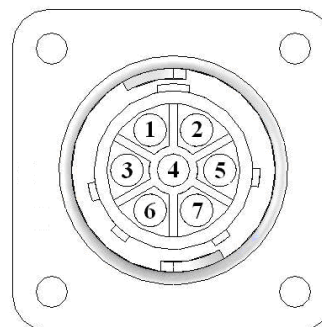
### **B. Main power connector mounted on BMP**

Pin 1	Red	+ 12 V input from tractor supply
Pin 2	Black	Ground from tractor supply
Pin 3	Not used	



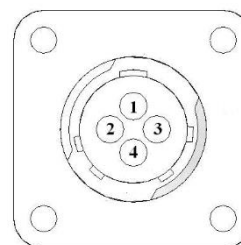
### **C. Pump connection colors**

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 BMP**

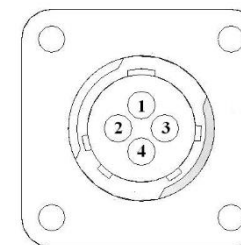
Pin 1	White	5 - 12 V (+) supply
Pin 2	Green	Ground
Pin 3	Brown	Signal
Pin 4	Black	Shield



### **E. Connector for Hay Indicator option on BMP**

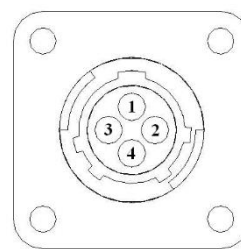
*Note: Hay indicators are an option that will turn the system on and off automatically as hay enters the pickup of the baler.*

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



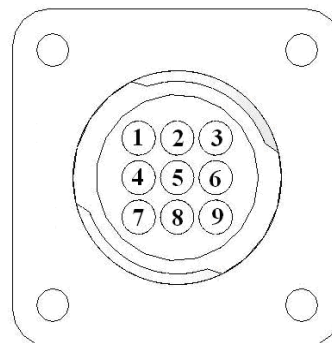
#### **F. Bale rate sensors on BMP**

Pin1	Brown	Sensor power
Pin2	Black	Signal for front prox. sensor
Pin3	Blue	Sensor ground
Pin4	Black	Signal for back prox. sensor



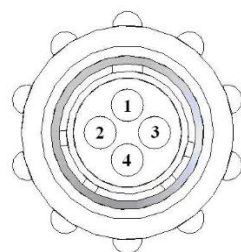
#### **G. Star wheel connector mounted on BMP**

Pin 1	Brown	Star wheel input 1
Pin 2	Blue	Star wheel input 2
Pin 3	Brown	Diagnostic 1
Pin 4	Blue	Diagnostic 2
Pin 5	Silver	Shield
Pin 6	Silver	Shield
Pin 7	Not used	
Pin 8	Not used	
Pin 9	Not used	



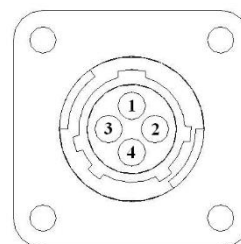
#### **H. Communication harness display to hitch**

Pin 1	Red	Power to display
Pin 2	Black	Ground to display
Pin 3	Blue	Comm channel OH
Pin 4	Orange	Comm channel OL



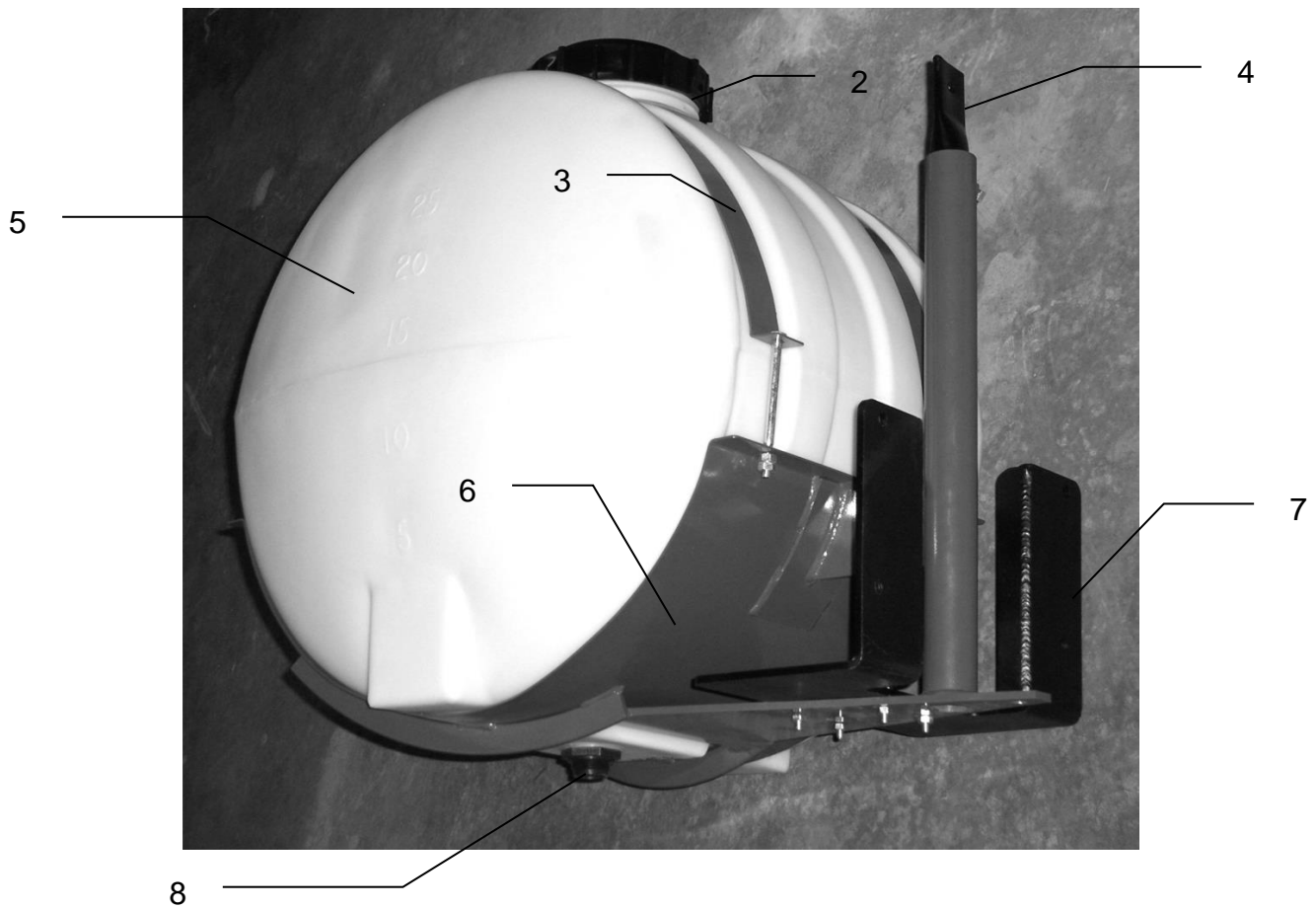
#### **I. Communication harness hitch to baler mounted processor**

Pin 1	Red	Power to display
Pin 2	Black	Ground to display
Pin 3	Blue	Comm channel OH
Pin 4	Orange	Comm channel OL



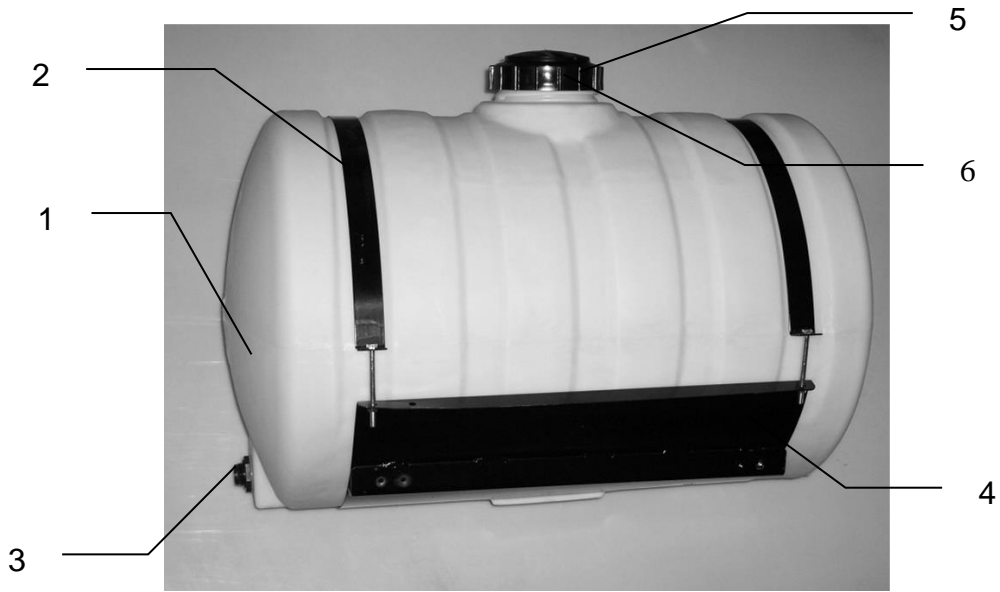
# Parts Breakdowns

## Harvest Tec Model 445 Base Kit



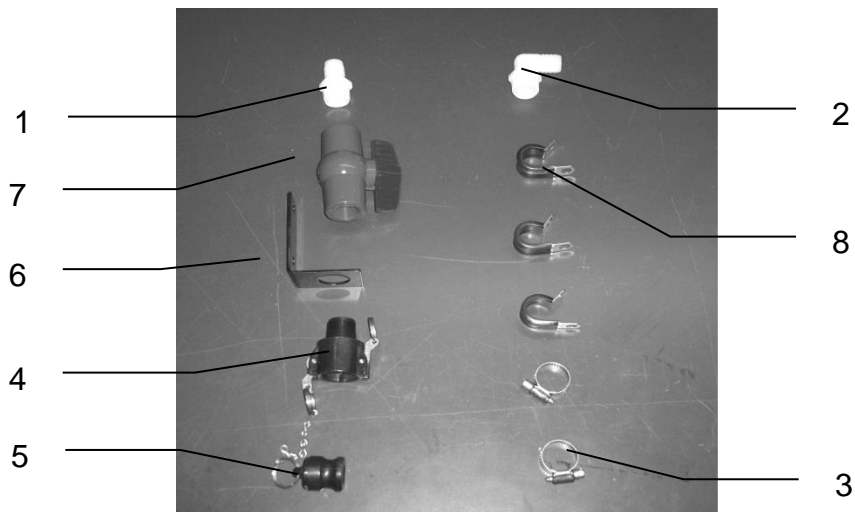
<u>Ref#</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Tank Cap	005-9022C	1
2	Tank Cap Gasket	005-9022CG	1
3	Tank Strap	001-4402	2
4	Stub Pipe	001-4403	1
5	Tank	005-9022	1
6	Saddle	001-4401	1
7	Mounting Bracket	001-4647	1
8	Tank Fitting	005-9100	1

## Harvest Tec Model 450 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

## Parts Breakdown for Drain Fill Kit (Model 451 & 450 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

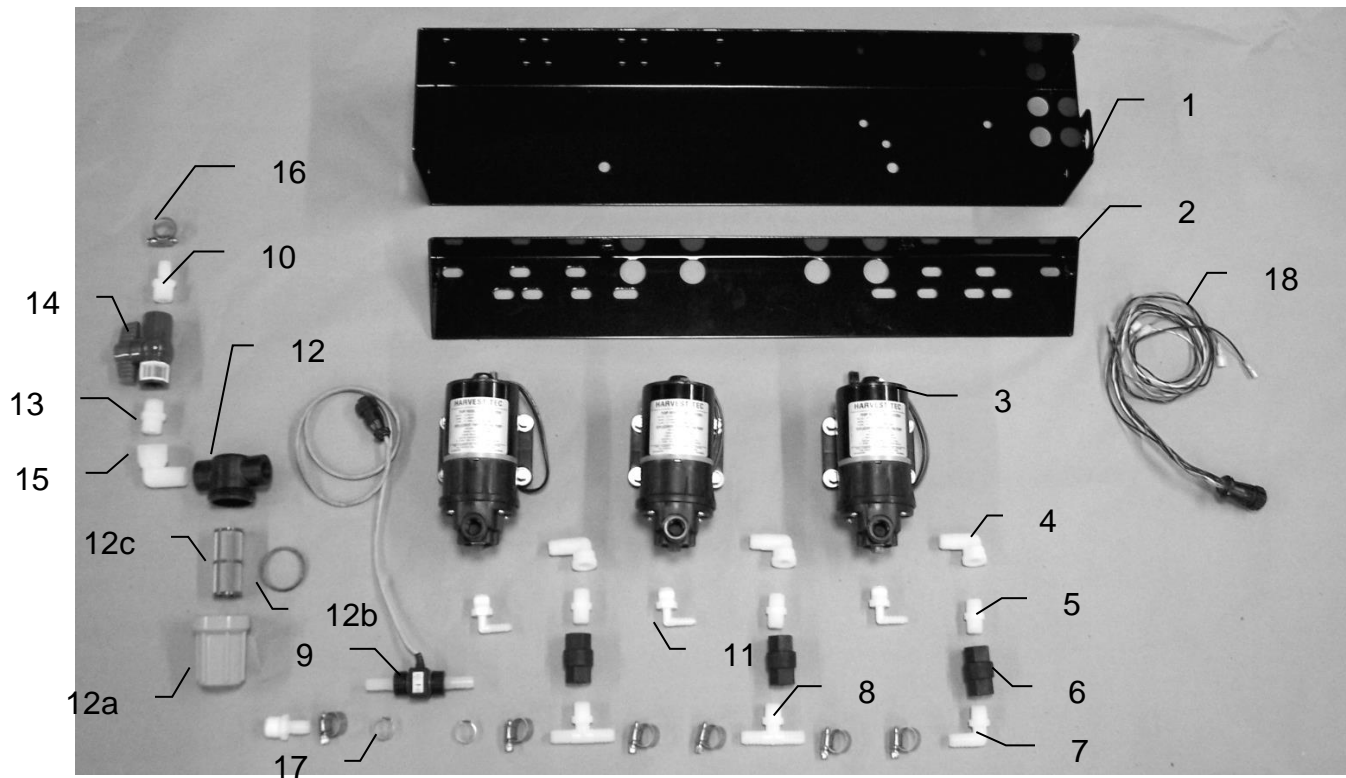
## Harvest Tec Model 451 Base Kit



<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		

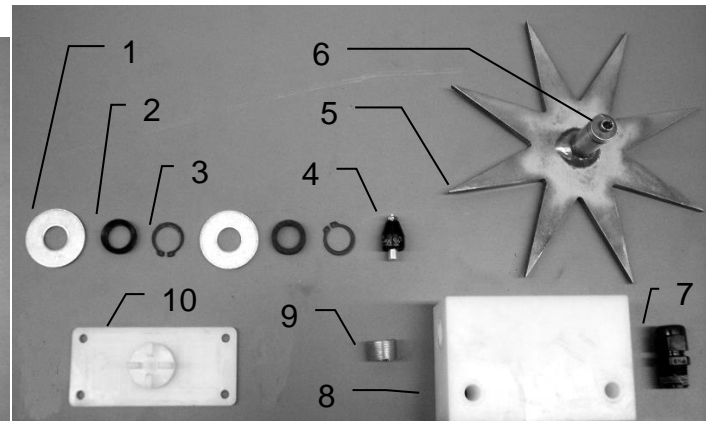
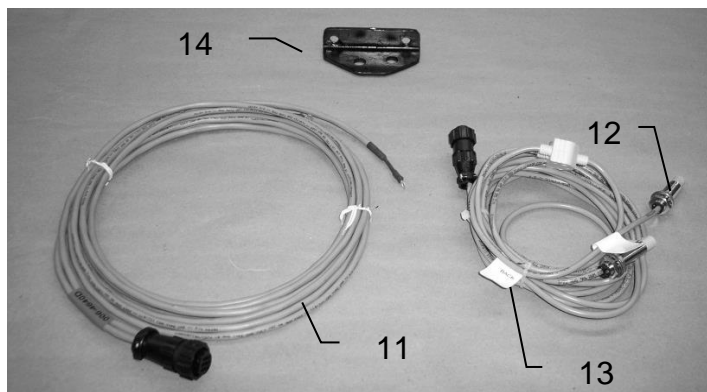


## Parts Breakdown for Pump Manifold

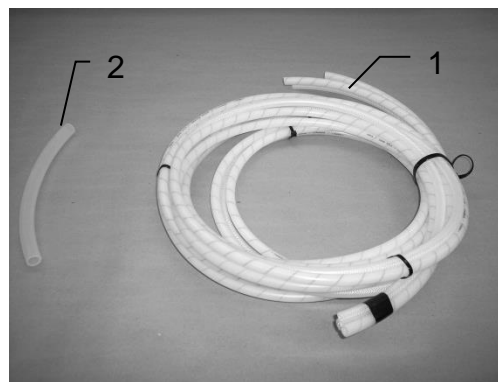


<u>Ref#</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Pump plate	001-4646D	1
2	Mounting Bracket	001-4646C	1
3	Pump	007-4120H	3
4	Street elbow fitting	003-SE38	3
5	Nipple fitting	003-M3838	3
6	Check valve	002-4566F	3
7	Elbow fitting	003-EL3812	1
8	Tee fitting	003-T3812HB	2
9	Flow meter assembly	006-4725A	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	2
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	Union	003-M1212F	1
NP	Not pictured		

## Parts Breakdown for Star Wheel Sensor, Bale Rate Sensor & Hoses

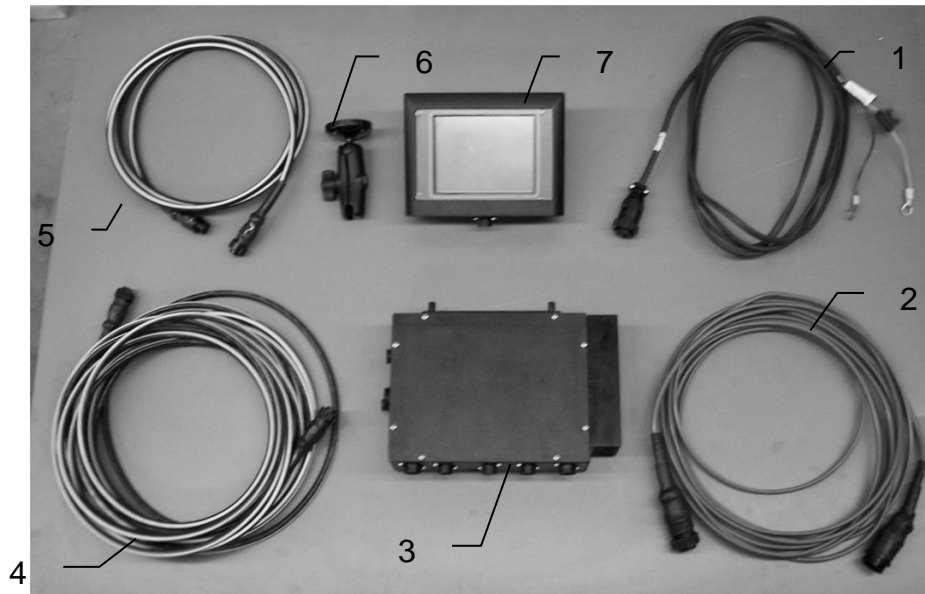


<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Washer (per side)	006-4642K	2	11	Moisture Cable (445,450)	006-4640D	1
2	Dust Seal (per side)	w/006-4642K	1		Or		
3	Snap Ring (per side)	w/006-4642K	2	11	Moisture Cable (—451)	006-4640K	1
4	Swivel	006-4642A	2	12	Bale rate sensor	006-7303S	2
5	Star Wheel	030-4641E	2	13	Bale rate sensor harness	006-7202H	1
6	Insert	w/ Ref # 5	2	12-13	Bale rate sensor assembly	006-7202	1
7	Wiring grommet	008-0821A	2	14	Bale rate sensor holder	001-4644SS	1
8	Star wheel block	006-4641A	2	NP	Bale rate sensor extension	006-7400EXT	1
9	Plug Fitting	003-F38	2				
10	Block Cover	006-4641B	2				
1-10	Star wheel assembly	030-4642	2				



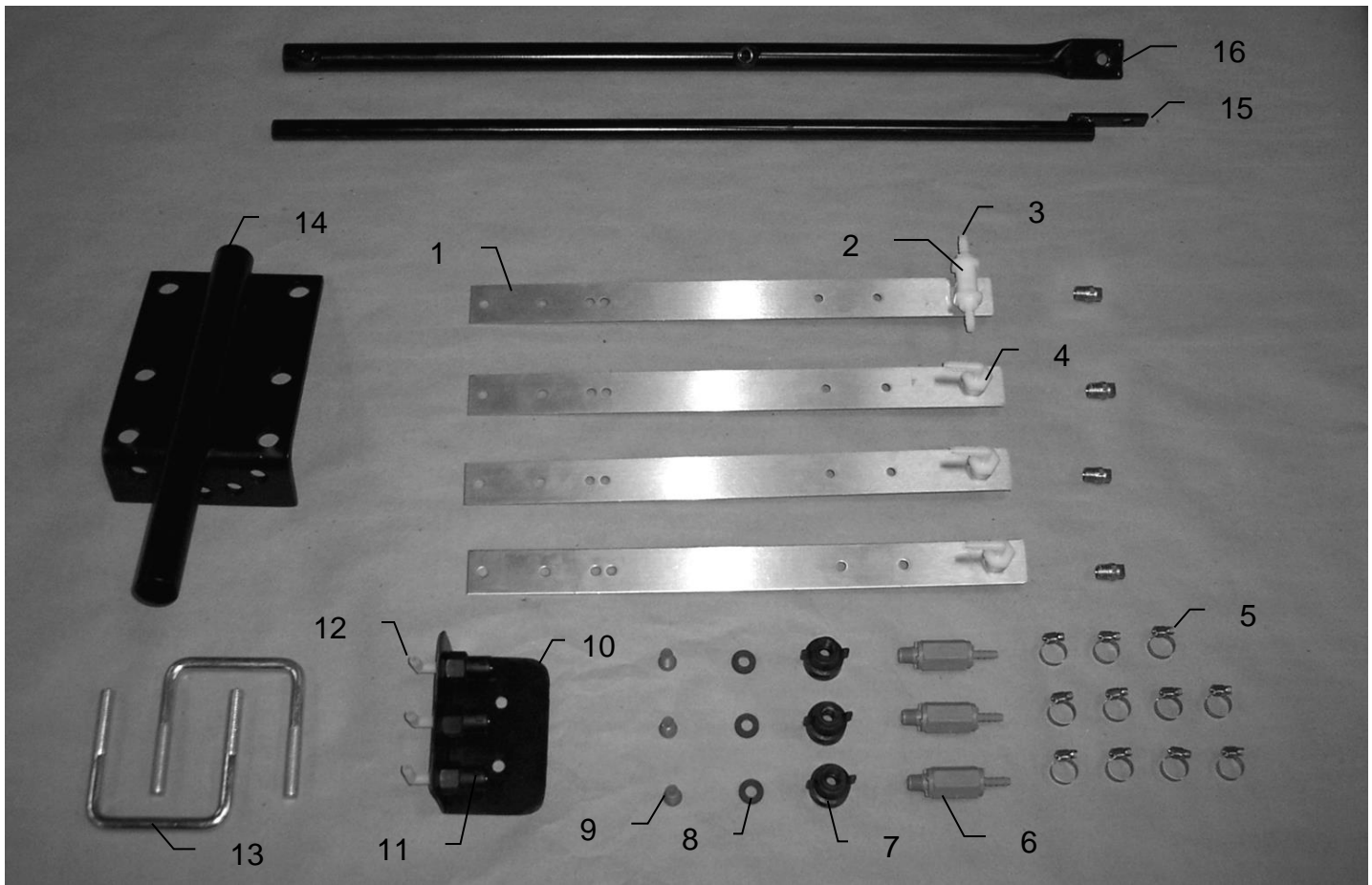
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Triple weld hose (from pumps to tips)	002-9016	15ft
		002-9016B	15ft
		002-9016G	15ft
	Hose assembly (3 hose assembly)	030-9016SS	1
2	½" Hose (tank to filter)	002-9001	6ft

## Parts Breakdown for Control Box and Wiring Harnesses



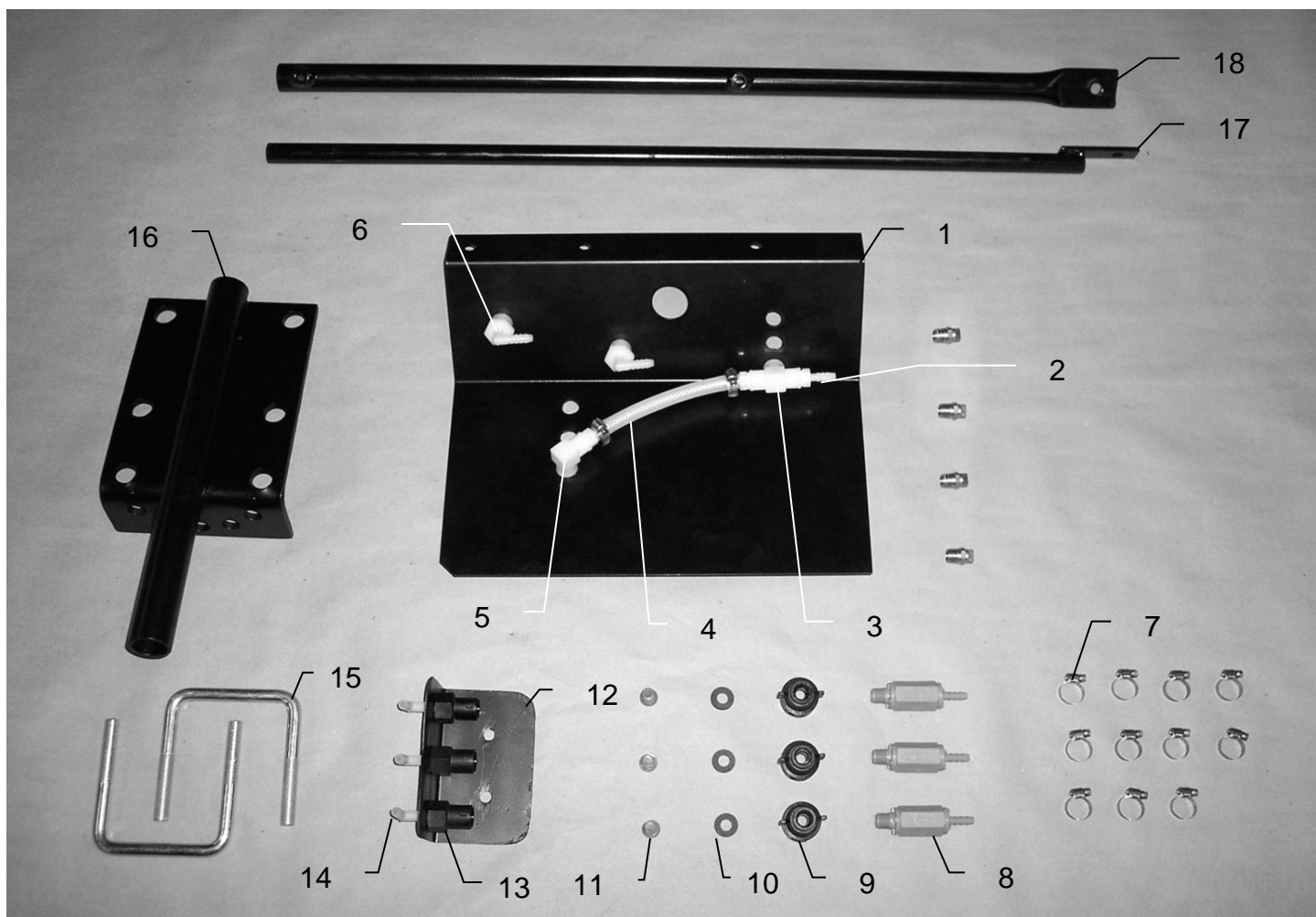
<u>Ref.</u>	<u>Description</u>	<u>Part#</u>
1	Power lead tractor	006-4640A
2	Power lead baler (451)	006-4660K
	Or	
2	Power lead baler (445, 450)	006-4660R
3	Baler mounted processor	006-4671SS
4	Communication harness baler (451)	006-4660L
	Or	
4	Communication Harness (445,450)	006-4660S
5	Communication harness (tractor)	006-4660N
6	Ram mount	001-2012H
7	462 Terminal	006-4670
NP	Dust Plugs	006-4660PLUGS
NP	Suction cup mount	001-2012SCM

# Harvest Tec Model 4409B Installation Kit



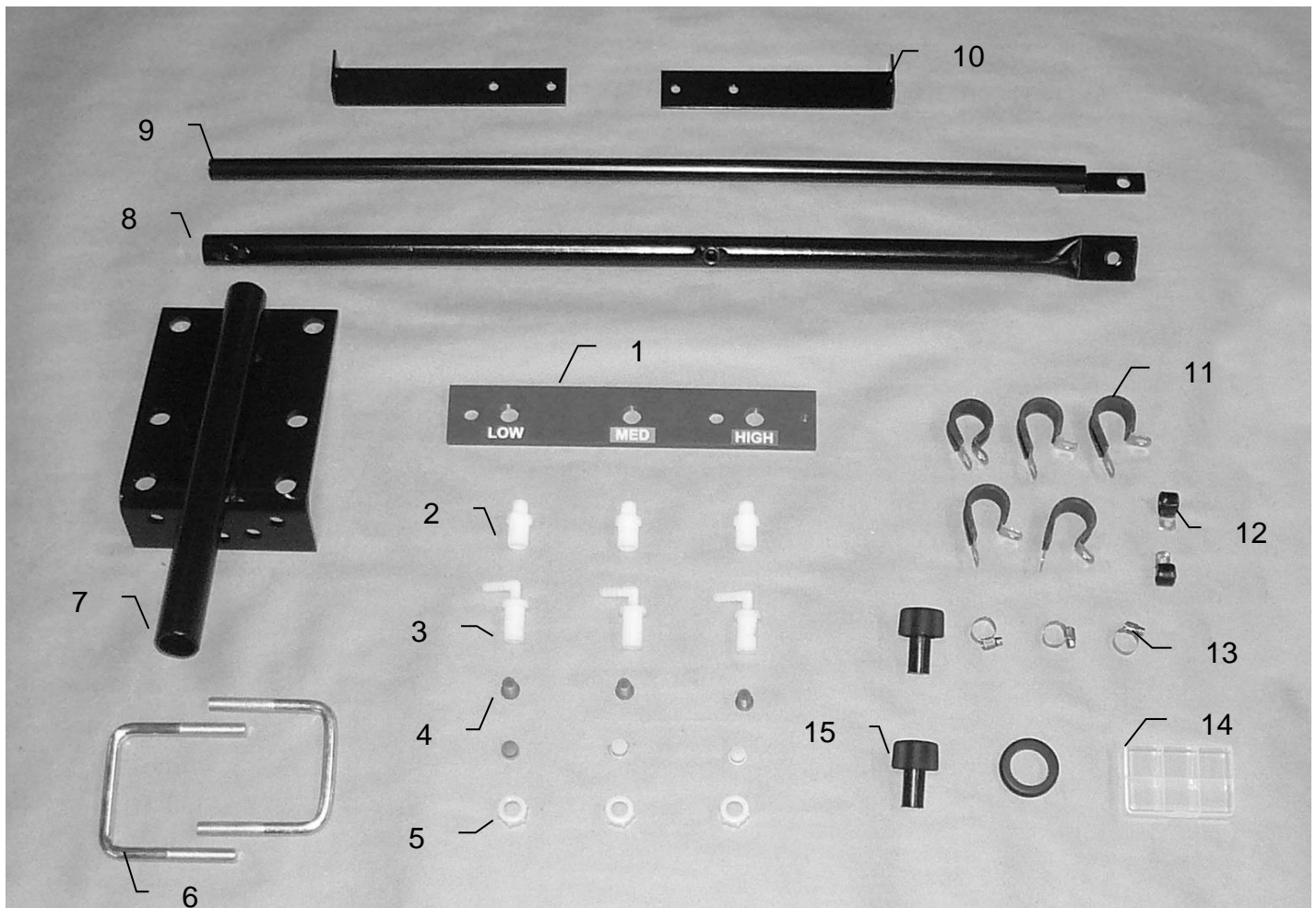
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Nozzle strap	001-4215	4	Tip	004-T650033-SS	2
2	Tee	003-TT14SQ	1	Tip	004-T110015-SS	1
3	Straight fitting	003-A1414	2	Tip	004-T11003-SS	1
4	Elbow	003-EL1414F	3	Hose	002-9016	9 ft
5	Hose clamp	003-9002	11			
6	Check valve	002-4564XB	3			
7	Female disconnect	004-1207H	3			
8	Washer	004-1207W	3			
9	Tip screen	004-1203-200	3			
10	Hose bracket	001-4720	1			
11	Female coupler	004-1207G	3			
12	Elbow	003-EL1414	3			
13	U bolt	001-4406A	2			
14	Mounting bracket	001-4406	1			
15	Inside reach rod	001-4405	1			
16	Outside reach rod	001-4404	1			

## Harvest Tec Model 4410B Installation Kit



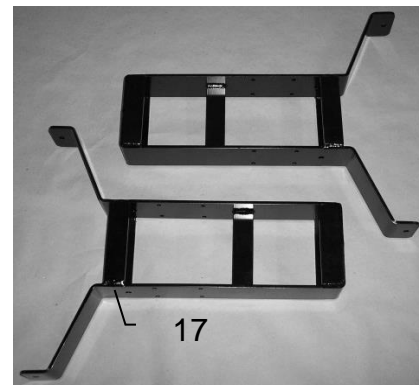
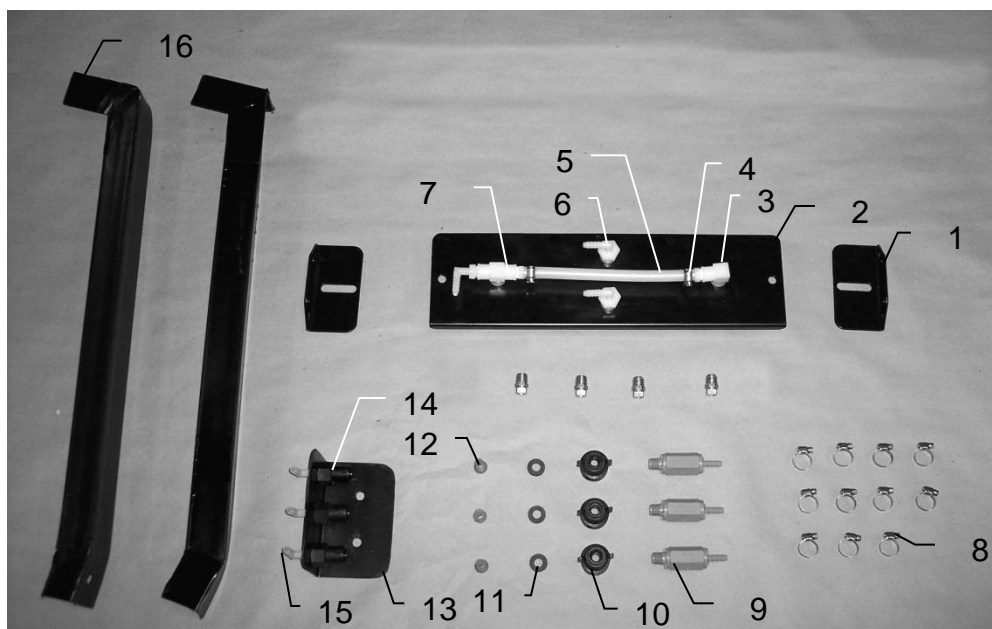
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray shield	001-4426	1	Tip	004-T650033-SS	2
2	Straight fitting	003-A1414	3	Tip	004-T110015-SS	1
3	Tee	003-TT14SQ	1	Tip	004-T11003-SS	1
4	Hose	002-9016	9 ft			
5	Elbow	003-SE14F	1			
6	Elbow	003-EL1414F	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 Installation Kit



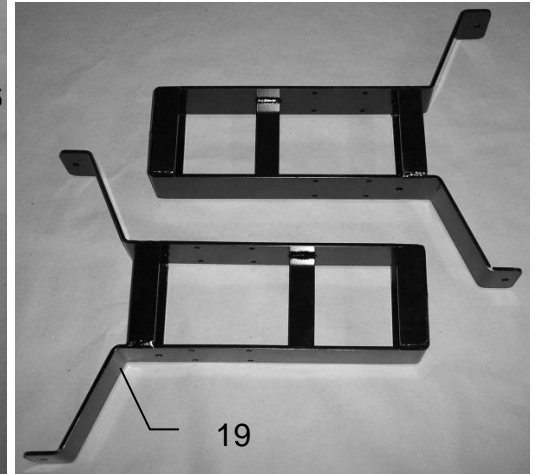
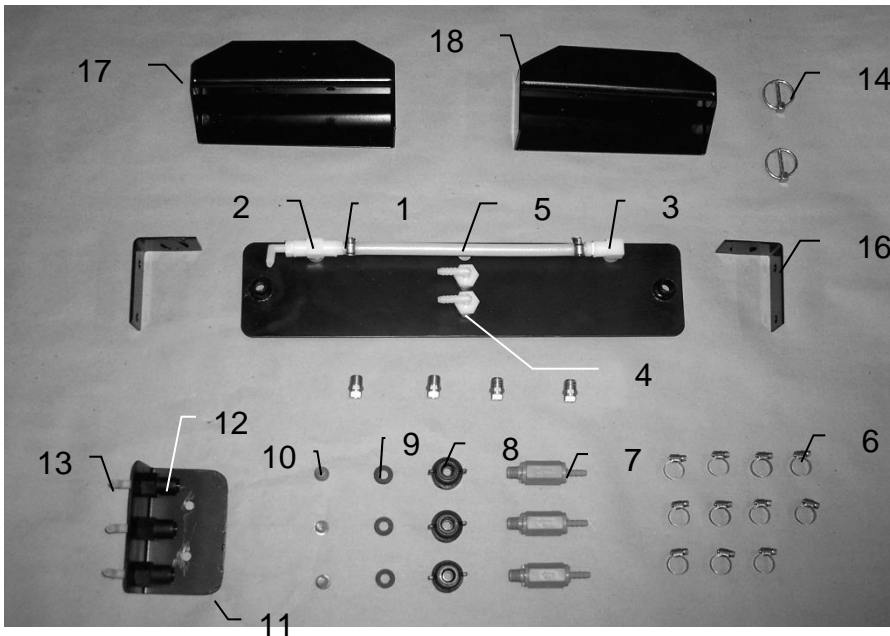
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray shield	001-4425C	1	Tip	004-30HCX4	1
2	Drill guide	003-M3814NB	3	Tip	004-30HCX9	1
3	Elbow	003-EL3814NB	3	Tip	004-30HCX18	1
4	Tip strainer	004-4213-100	3			
5	Nozzle cap	004-BC12	3			
6	U bolt	001-4406A	2			
7	Mounting bracket	001-4406	1			
8	Outside reach rod	001-4404	1			
M	Inside reach rod	001-4405	1			
10	Hose bracket	001-4425B	2			
11	Jiffy clip	008-9010	5			
12	Jiffy clip	008-9014	2			
13	Hose clamp	003-9003	3			
14	Tip box	008-9001	1			
15	Knob	008-0925	2			

## Harvest Tec Model 4485B Installation 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	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				

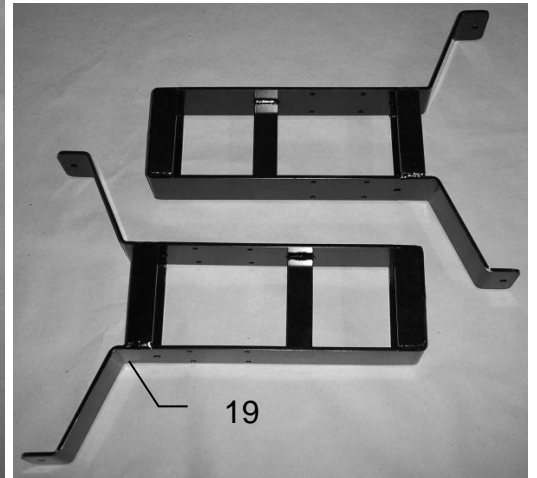
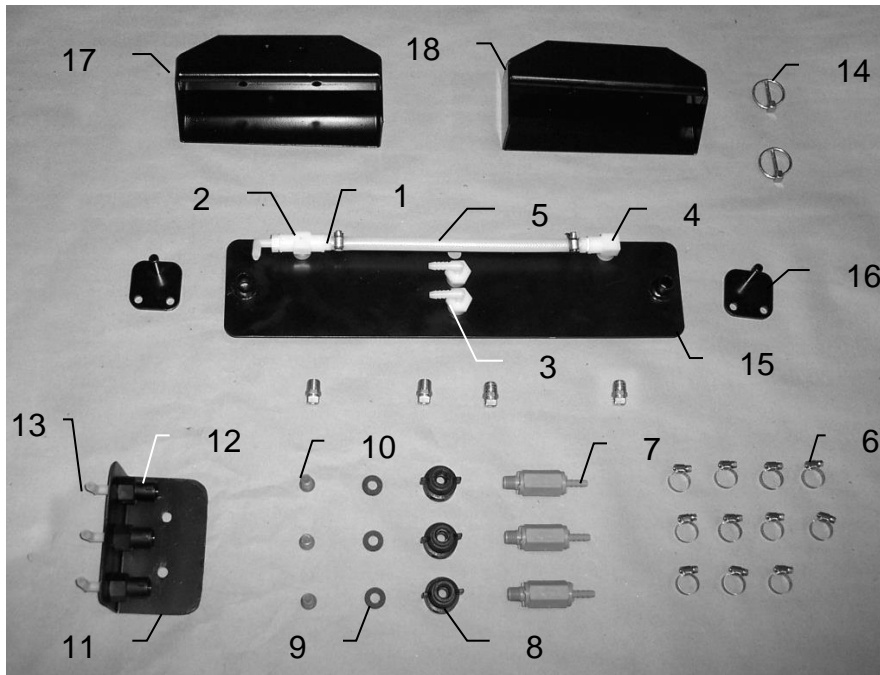
## Harvest Tec Model 4502B Installation Kit



<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			

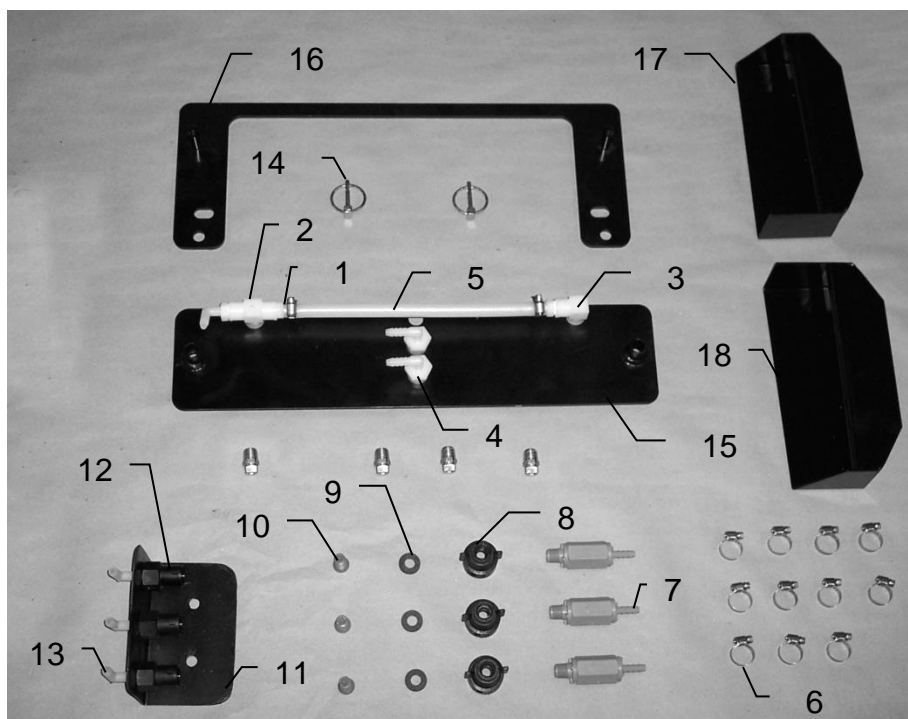


## Harvest Tec Model 4506B Installation Kit



<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			

## Harvest Tec Model 4507B Installation Kit



<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"

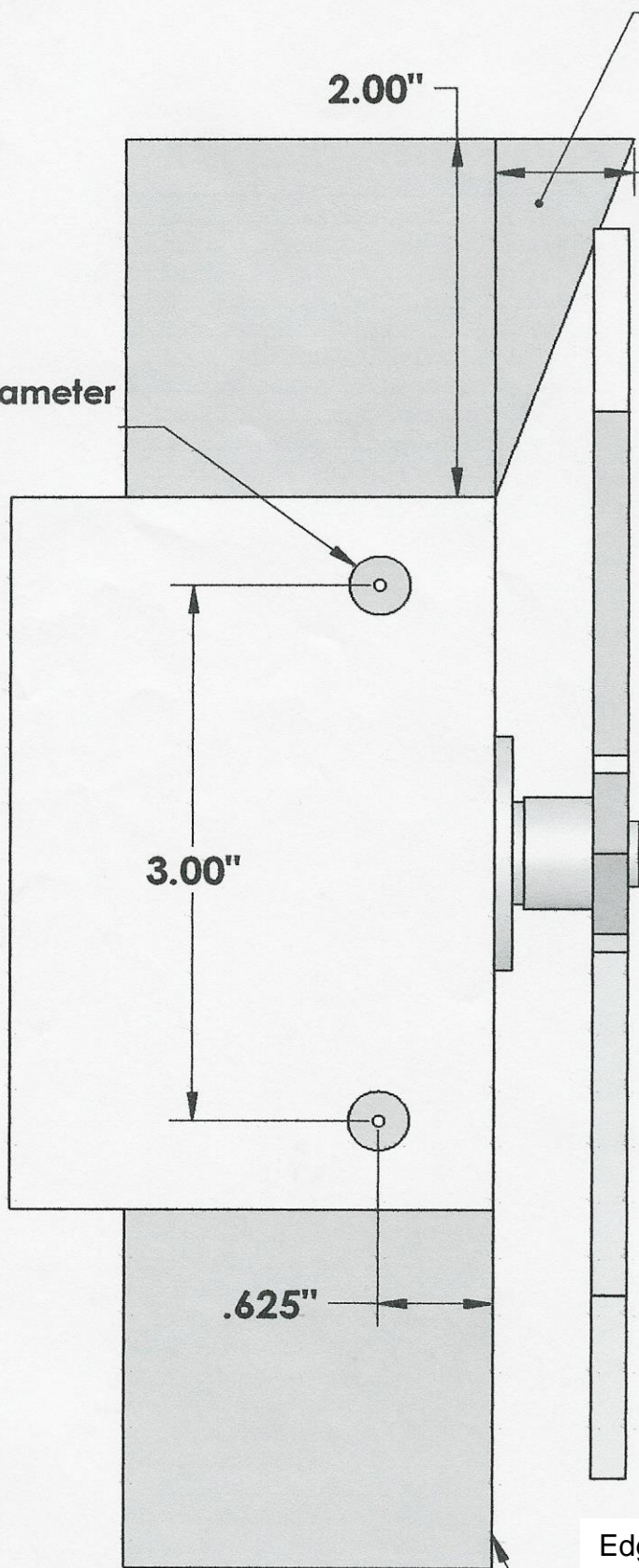
It may be necessary to make  
a notch for the Star Wheel on  
some balers.

.75"

3.00"

.625"

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





## **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.

Revised 5/22

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