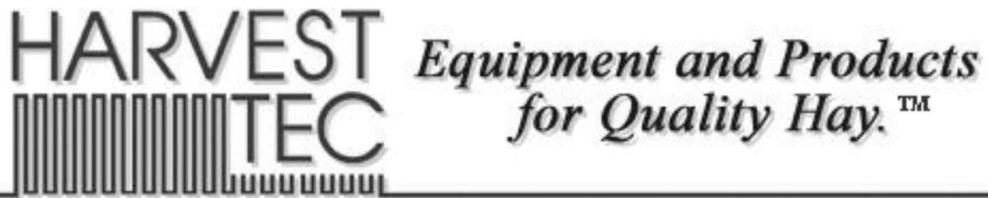


Operation Manual

Electronic XHI System **High Output Electronic Preservative Applicator** ***Metric***



P.O. Box 63 • 2821 Harvey Street • Hudson, WI 54016
800-635-7468 • www.harvesttec.com

DECLARATION OF INCORPORATION



MANUFACTURER: Harvest Tec Inc.
2821 Harvey St.
P.O. Box 63
Hudson, WI 54016, U.S.A.

REPRESENTATIVE ESTABLISHED IN COMMUNITY: Profitable Farming Company
Middle Barlington, Roborough
Winkleigh, Devon, EX19 8AG
ENGLAND

The person above certifies and declares that:

VIRTUAL MACHINE: Equipment mounted on a farm press and for the application of inoculants onto forage crops.

MODEL: Electronic XHI

BRAND: Harvest Tec

SERIAL NUMBER:

This application preservatives for hay Harvest Tec system meets the Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006 and other applicable European Directives including Directive 2004/108/EC on the Electromagnetic compatibility.

The application of preservatives for hay Harvest Tec system will be turned on after being installed on a farm press has been declared in conformity with the Machinery Directive.

Person in the community authorized to provide information on the partly completed machinery and making this statement:

Richard Snell, President, Profitable Farming Company
Signed on May 21, 2011: Middle Barlington, Roborough
Winkleigh, Devon, EX19 8AG
ENGLAND

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Introduction

Thank you and Congratulations on purchasing a Harvest Tec Applicator. This applicator is designed to apply a buffered propionic acid on to the forage crop as it is being baled. The applicator is designed to allow the operator to adjust the rate of preservative on the go for changing moisture and baler throughput.

This manual will take you through the steps of operation of the applicator and also point out all safety precautions that need to be made while using the applicator. Read this manual carefully to learn how to operate the equipment correctly. Failure to do this can result in personal injury or equipment malfunction. If you are unsure about operating the system after consulting this manual, contact your local authorized dealership for additional assistance. If you are in need of parts for the system please see the parts breakdown in the back of this manual and contact your local authorized dealer to order the parts. This applicator is designed to apply Harvest Tec buffered propionic acid.

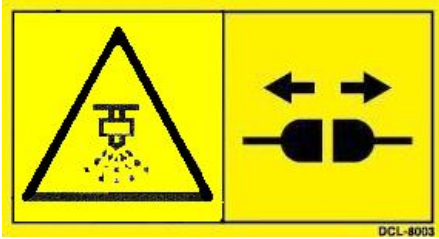
Right and Left sides are determined by facing in the direction of forward travel.

Safety

Carefully read all the safety information and decals in this manual and on the applicator before use. Keep signs clean and in good working order. Replace missing or damaged safety signs. Replacement signs are available from your local authorized dealer. See your installation manual for under the replacement parts section for the correct part numbers.

Keep your applicator in proper working condition. Unauthorized modifications to the applicator may impair the function and/or safety of the machine.

Safety Decals



Number 1
Spraying hazard. Disconnect power before servicing the applicator.
Part no. DCL-8003



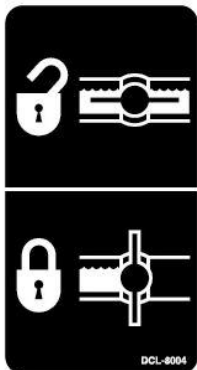
Number 2
Falling hazard. Do not step in this area.
Part no. DCL-8002



Number 3
Use caution when working around chemicals. **Wear all protective equipment according to the label of the product.**
Part no. DCL-8001



Number 4
Read and understand the operator's manual before using or working around the equipment.
Part no. DCL-8000



Number 5
Open (unlocked) and closed (locked) position of the ball valve.
Part no. DCL-8004

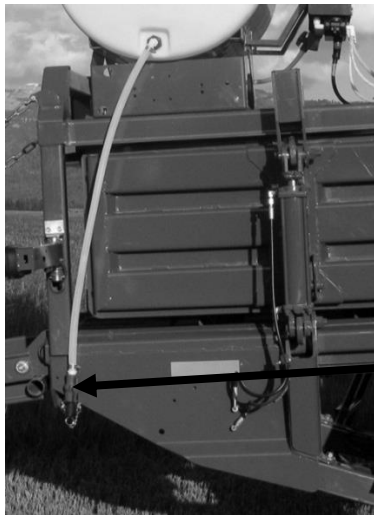
Preparing the applicator for operation

After the Applicator has been installed on the baler, follow the below steps to prepare for operating the applicator both safely and correctly.

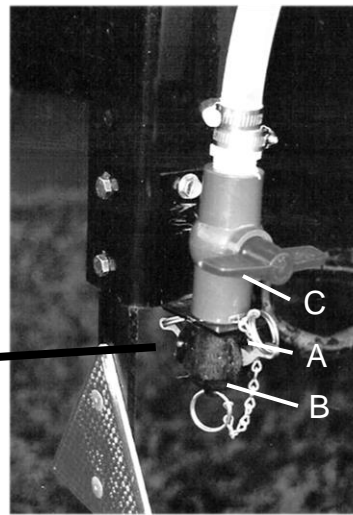
Filling the tank:

Read the label of the product being filled into the tank to determine what individual protective measures need to be taken. Locate the drain/fill line on the baler. Open the cam-couplers (A) and remove the protective plug (B). Insert the male coupler (found on transfer pump) into the female cam and close the cams (A). To open the ball valve (C) turn the handle so it is vertical. After the ball valve has been turned on switch the pump to the On position. Monitor the level on the tank visually and shut off the pump before over filling. Once the pump is turned off, close the ball valve and remove the male coupler. The handle of the ball valve (C) will be horizontal when closed. Reinstall the protective plug and close the cams. The Harvest Tec model 9212 transfer pump is recommended for this process.

Water is recommended for first time and annual start up procedures.



Drain/Fill line on the baler

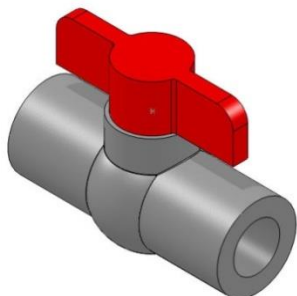


Enlarged view of the drain/fill line valve and cam-coupler assembly.

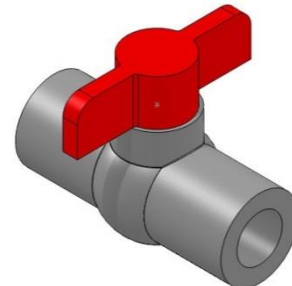
Operation of the main ball valve

The ball valve should be closed at all times when the applicator is not being used. The valve should also be closed when any service work is being done to the baler or applicator.

The valve is located next to the pump and by the applicator tank. The arrow below points at the valve.



Valve open



Valve closed

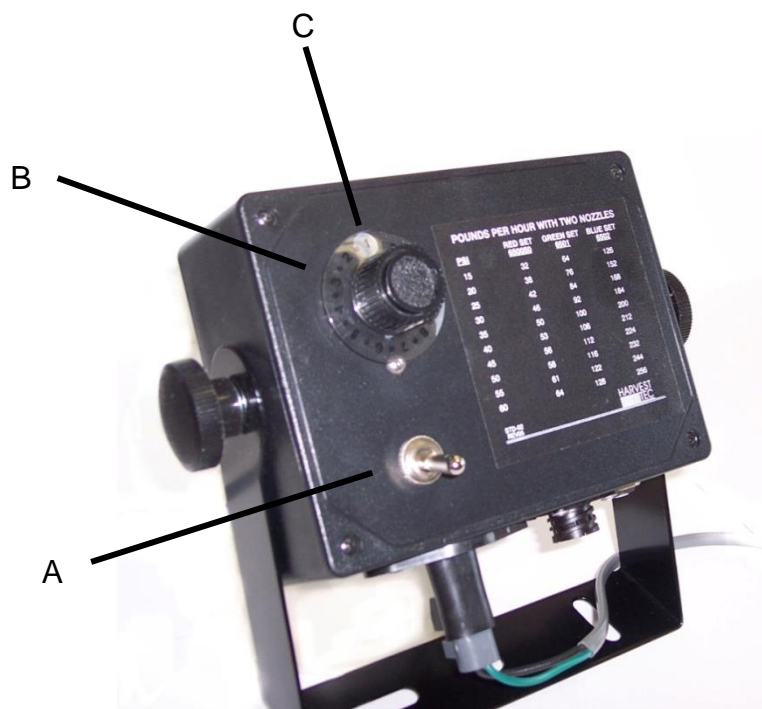
Connecting the power harness

The power harness that supplies power from the tractor battery to the applicator pump has a disconnect at the hitch. Connect the two together for operation. Always disconnect before servicing the applicator or baler.

Operation of the Control

Understanding and using the control

The model 457 control is pictured below. The toggle switch (A) is used to supply and cut off power to the pump. With the switch in down (shown) the power is off. Lift the switch up to supply power. The dial (B) is used to adjust the pressure to the tips when power is applied. Use the numbers on the dial only as reference. The PSI on the gauge determines the exact flow. Apply the correct rate decal found with your manual to the front of the control box. The message light (C) will always be illuminated when the power is on. If the light ever blinks during operation please reference the manual section "Message light".



Message Light

The LED under the speed dial will be steady on when the applicator is running under normal situations. If the light blinks on and off use the information below to interpret the message.

Slow steady on and off blink: The system is attached to hay indicators (474A) or a foot switch. This message means that the pump is paused. Light will come on constant once the baler is back in the windrow.

Two quick blinks: The pump motor or pump harness is shorted.

Three quick blinks: Pump motor is over the current limit (10 amps).

Four quick blinks: Power is under current from a bad connection.

Control box must have the on/off switch toggled to clear the message after the fault has been fixed to clear.

First Time and Annual Start Up - Large Square Balers

After familiarizing yourself with the model 457 control, fill the tank with 5 gallons (16L) of water. Turn on the power to the pump by pushing the toggle switch up. You might hear the buzzing of the motor. Turn the dial on the control box until the pressure gauge starts to climb. By turning the dial clockwise the pressure will go up. By turning the dial counter clockwise the pressure will decrease. With the applicator spraying at about 30 PSI, look for leaks at all the hose connections and fittings. When you are comfortable with the operation of the controls you can set the applicator to apply the amount of chemical you would like it to put on.

Field Operation

Calibration

There are three things that you need to know when calibrating your applicator. First you need know how many tons per hour you bale. Second you need to know the rate, or how many pounds of product to apply for a given ton per hour. Finally you need to know what tips to use and at what pressure to set the gauge.

Determining Tons per Hour – Large Square Balers

1. Time 3 bales and average the time it takes to make a bale.
2. Estimate the weight of the bale.
3. Use the Bale Rate Chart below to determine the tons you are harvesting per hour.

Example: You are baling 1000 pound bales, with 2 minutes of time per bale. Looking at the chart below your tons per hour is 14.

Large Square Bale Rate Chart (tons per hour)

Weight per bale

Average time to make a bale	600	800	1000	1200	1400	1600	1800	2000
1.0 MN	18	24	30	36	42	48	54	60
1.5 MN	12	16	20	24	28	32	36	40
2.0 MN	9	12	14	18	21	24	27	30
2.5 MN	7	10	12	14	17	19	22	25
3.0 MN	6	8	10	12	14	16	18	20
4.0 MN	5	6	8	9	10	12	14	16
5.0 MN	4	5	6	7	8	9	11	13
6.0 MN	3	4	5	6	7	8	9	10
8.0 MN	3	3	4	5	5	6	7	8
10.0 MN	2	3	3	4	4	5	6	7

Determine the Rate of Chemical

The number of pounds of chemical required to be applied to a given ton of hay, depends on the moisture and the type of chemical used. The moisture of the hay is important in determining how much chemical to use. By knowing the moisture, you can make sure you are treating the hay correctly. Under applying will save money but spoilage most likely occurs.

Over applying will waste money however, the hay will be saved. Some chemicals require more or less to treat the same amount of hay. To find the exact number of pounds required, for a given hay moisture, refer to the label on the drum or contact the manufacture. Harvest Tec applicators come with a set of low, medium, and high tips. If your chemical requires rates other than what these tips deliver you will need to purchase them through your dealer.

Selecting Tips and Setting Pressure – Large Square Balers

Once you have determined your tons per hour and the amount of chemical needed for the moisture you are applying at, you can select your tips and determine your gauge settings.

1. Multiply the tons per hour by the amount of chemical required for the moisture you are applying at. This sum will give you the application rate.
2. Select the proper set of tips from the application rate chart and install them.
3. For the tips you have selected, you will need to keep the gauge at the recommended PSI to achieve the proper application rate.
4. Set the pressure by adjusting the dial on the control box and by reading the pressure of the gauge to match the desired rates. The numbers on the dial are for reference only. Rate is determined by watching the pressure gauge.

Example: You are baling at 12 tons per hour with your large square baler. The moisture that you are baling at requires you to apply 6 pounds per ton. Multiply the 12 tons x 6lbs = 72 lbs per hour. Using the chart on page 28 you will notice the orange set of tips at 20 PSI will give you that output.

First Time and Annual Start Up – Round Balers

After familiarizing yourself with the model 457 control box, fill the tank with 5 gallons (16L) of water. Turn on the power to the pump by pushing the toggle switch up. You might hear the buzzing of the motor. Turn the dial on the control box until the pressure gauge starts to climb. By turning the dial clockwise the pressure will go up. By turning the dial counter clockwise the pressure will decrease. With the applicator spraying at about 30 PSI, look for leaks at all the hose connections and fittings. When you are comfortable with the operation of the controls you can set the applicator to apply the amount of chemical you would like it to put on.

Field Operation

Calibration

There are three things that you need to know when calibrating your applicator. First you need know how many tons per hour you bale. Second you need to know the rate, or how many pounds of product to apply for a given tons per hour. Finally you need to know what tips to use and at what pressure to set the gauge.

Determining Tons per Hour - Round Balers

1. Time 3 bales and average the time it takes to make a bale.
2. Estimate the weight of the bale.
3. Use the bale rate chart below to determine the tons you are baling per hour.

Example: You made 3 round bales and it took you an average of 2 minutes a piece to bale each of them. Your baler's operator manual tells you that an average bale made by your machine weighs 1000lb. (Remember if the hay is dry it will weigh less and if the hay is wet it will weigh more). Using the chart below, cross-reference 2 minutes with 1000lb. and you will come up with 15 ton per hour.

Average time to make a bale (min.)	Round Baler (Tons per Hour)								
	Weight per Bale								
	600	800	1000	1200	1400	1600	1800	2000	2200
0.5	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0	132.0
1	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0	66.0
1.5	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0	44.0
2	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.0
2.5	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4
3	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0
3.5	5.1	6.9	8.6	10.3	12.0	13.7	15.4	17.1	18.9
4	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5
4.5	4.0	5.3	6.7	8.0	9.3	10.7	12.0	13.3	14.7
5	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0	13.2
5.5	3.3	4.4	5.5	6.5	7.6	8.7	9.8	10.9	12.0
6	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
6.5	2.8	3.7	4.6	5.5	6.5	7.4	8.3	9.2	10.2
7	2.6	3.4	4.3	5.1	6.0	6.9	7.7	8.6	9.4
7.5	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8
8	2.3	3.0	3.8	4.5	5.3	6.0	6.8	7.5	8.3
8.5	2.1	2.8	3.5	4.2	4.9	5.6	6.4	7.1	7.8
9	2.0	2.7	3.3	4.0	4.7	5.3	6.0	6.7	7.3
9.5	1.9	2.5	3.2	3.8	4.4	5.1	5.7	6.3	6.9
10	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0	6.6

Determining the Rate of Chemical

The number of pounds of chemical required to be applied to a given ton of hay, depends on the moisture and the type of chemical used. The moisture of the hay is important in determining how much chemical to use. The wetter the hay the more product needed, the dryer the hay the less product is needed. By knowing the moisture, you can make sure you are treating the hay correctly. Under applying will save money but spoilage most likely occurs. Over applying will waste money however, the hay will be saved.

Some chemicals require more or less to treat the same amount of hay. To find the exact number of pounds required, for a given hay moisture, refer to the label on the drum or contact the manufacture. Harvest Tec applicators come with low, medium, and high sets of tips. If your chemical requires rates other than what these tips deliver you will need to purchase them through your dealer.

Selecting Tips and Setting Pressure for Round Balers

Once you have determined your tons per hour and the amount of chemical needed for the moisture you are applying at, you can select your tips and determine your gauge settings.

1. Multiply the tons per hour by the amount of chemical required for the moisture you are applying at. This sum will give you the application rate.
2. Select the proper set of tips from the application rate chart and install them.
3. For the tips you have selected, you will need to keep the gauge at the recommended PSI to achieve the proper application rate.
4. Set the pressure by adjusting the dial on the control box and by reading the pressure of the gauge to match the desired rates. The numbers on the dial are for reference only. Rate is determined by watching the pressure gauge.

Example: You are baling at 22 tons per hour with your round baler. The moisture you are baling at requires you to apply 8 pounds per ton. Multiply the 22 tons x 8lbs. = 176lbs. per hour.

Calibration reminders

*** Watch the pressure gauge, as the setting will vary with tractor's electrical output, temperature and other factors.**

*Check your application rate by measuring product used against actual tons baled.

REMEMBER, ONLY YOU CAN CONTROL HOW MUCH PRODUCT IS APPLIED AND THAT WILL DETERMINE IF YOUR HAY WILL KEEP!!!

General Calibration Charts

Pounds per Hour with Two Nozzles

	RED	WHITE	SILVER
	XR11004VS	XR11008VS	11015-SS
PSI			
15	254 (114L)	519 (233L)	974 (438L)
20	296 (133L)	604 (272L)	1123 (505L)
25	333 (150L)	647 (291L)	1250 (562L)
30	370 (166L)	690 (310L)	1377 (618L)
35	397 (178L)	768 (345L)	
40	424 (190L)	847 (381L)	
45	450 (202L)	895 (402L)	
50	476 (214L)	943 (424L)	
55	483 (217L)	990 (445L)	
60	490 (220L)	1038 (467L)	

Gallons per Hour with Two Nozzles

	RED	WHITE	SILVER
	XR11004VS	XR11008VS	11015-SS
PSI			
15	28.9 (114L)	59.0 (233L)	110.7 (438L)
20	33.6 (133L)	68.6 (272L)	127.6 (505L)
25	37.8 (150L)	73.5 (291L)	142.0 (562L)
30	42.0 (166L)	78.4 (310L)	156.5 (618L)
35	45.1 (178L)	87.3 (345L)	
40	48.2 (190L)	96.3 (381L)	
45	51.1 (202L)	101.7 (402L)	
50	54.1 (214L)	107.2 (424L)	
55	54.9 (217L)	112.5 (445L)	
60	55.7 (220L)	118.0 (467L)	

***ONLY THE OPERATOR CAN DETERMINE HOW MUCH PRODUCT IS APPLIED.**

Maintenance

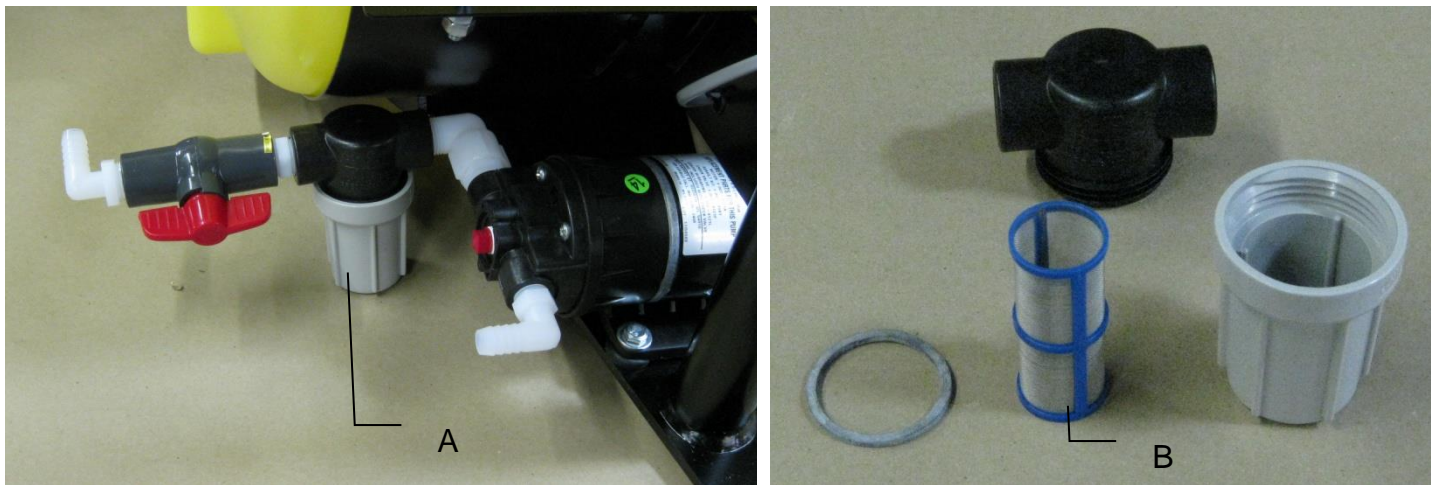
- If you are unsure how to perform any of the maintenance steps have your local authorized dealer perform the tasks.

Maintenance Schedule

	Daily	10 hrs	400 hrs	Weekly	Monthly	Season
Filter bowl cleaning		X				X
Tips & tip screen cleaning		X				X
Tank lid cleaning		X				X
Dielectric grease connections					X	X
Rebuild pump			X			
Battery connections				X		X
Visually inspect hoses				X		X

Filter bowl cleaning: Before cleaning the filter bowl all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

Verify that the ball valve located next to the pump is turned off. Locate the filter bowl on the side of the pump manifold (A). Unscrew the bottom section of the filter bowl and remove the strainer (B). Clean off any debris and soak in warm water with a mild soap if necessary. Once the screen is clean reinstall by following the directions in reverse.



Miscellaneous Maintenance:

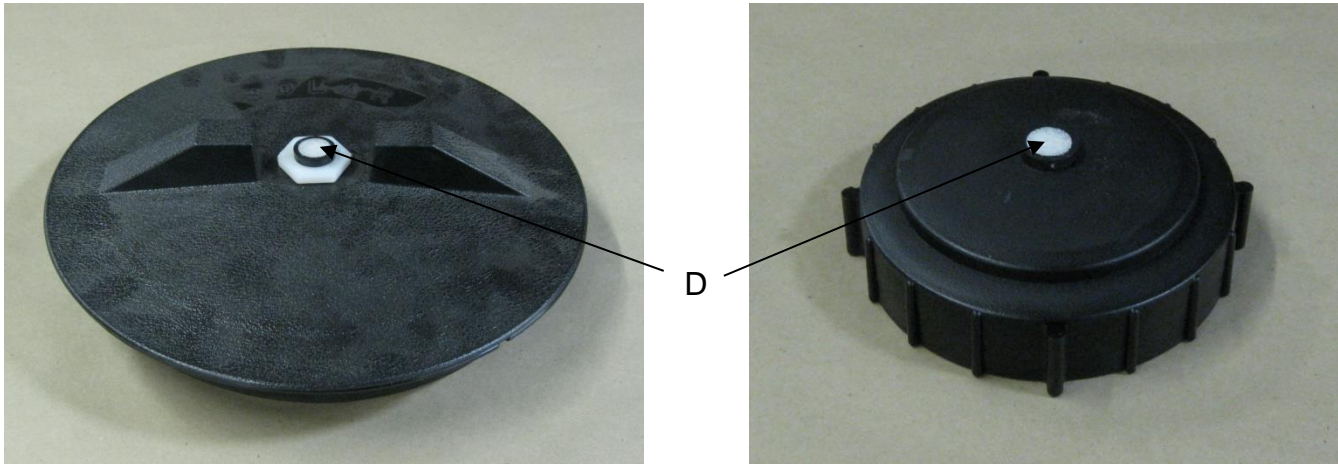
1. Depending on the product being used, the system may need to be flushed with water at a regular interval (consult with manufacturer of the chemical). If Harvest Tec product is being used, flushing is not necessary.
2. Although the pump can run dry, extended operation of a dry pump will increase wear. Watch the preservative level in the tank.
3. If you are using bacterial inoculants, flush your system daily after every use.

Tips & tip screen cleaning: Before cleaning the tips and screens all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

Verify that the ball valve located next to the pump is turned off. Disconnect spray shield from hangers if possible or remove tips in place. Remove the tip, and screen. Some models may require a wrench to remove. Clean off any debris and soak tip and screen in warm water with a mild soap if necessary. Once the tips and screens are cleaned reinstall by following the directions in reverse.

Tank lid cleaning: Before cleaning the tank lid all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves).

The tank lid is located on the top of the tank. Use the supplied handle on the tank to secure your person and use the other hand to remove any debris from the top of the tank. Unscrew the tank lid and bring down ground level. Use compressed air clean out the tank screen (D). If the screen cannot be thoroughly cleaned with compressed air, replace fitting (005-9022B3). Once the screen is cleaned reinstall the cover.



Dielectric grease connections: Disconnect all harnesses on the applicator, clean the connections, and repack with dielectric grease.

Rebuild pump: If the pump is not working up to specifications a pump rebuild kit may fix the problems. Verify that the ball valve is turned off. Before working around the pump all personal protective equipment must be worn (Face shield or goggles, chemically resistant apron, boots, and gloves). Disconnect all pump fittings and remove pump from saddle. Follow rebuild instructions supplied with pump rebuild kit. Reinstall after rebuild is complete.

Battery connections: Follow the batteries safety warnings and clean the battery connections. If the connections cannot be cleaned, replace harness.

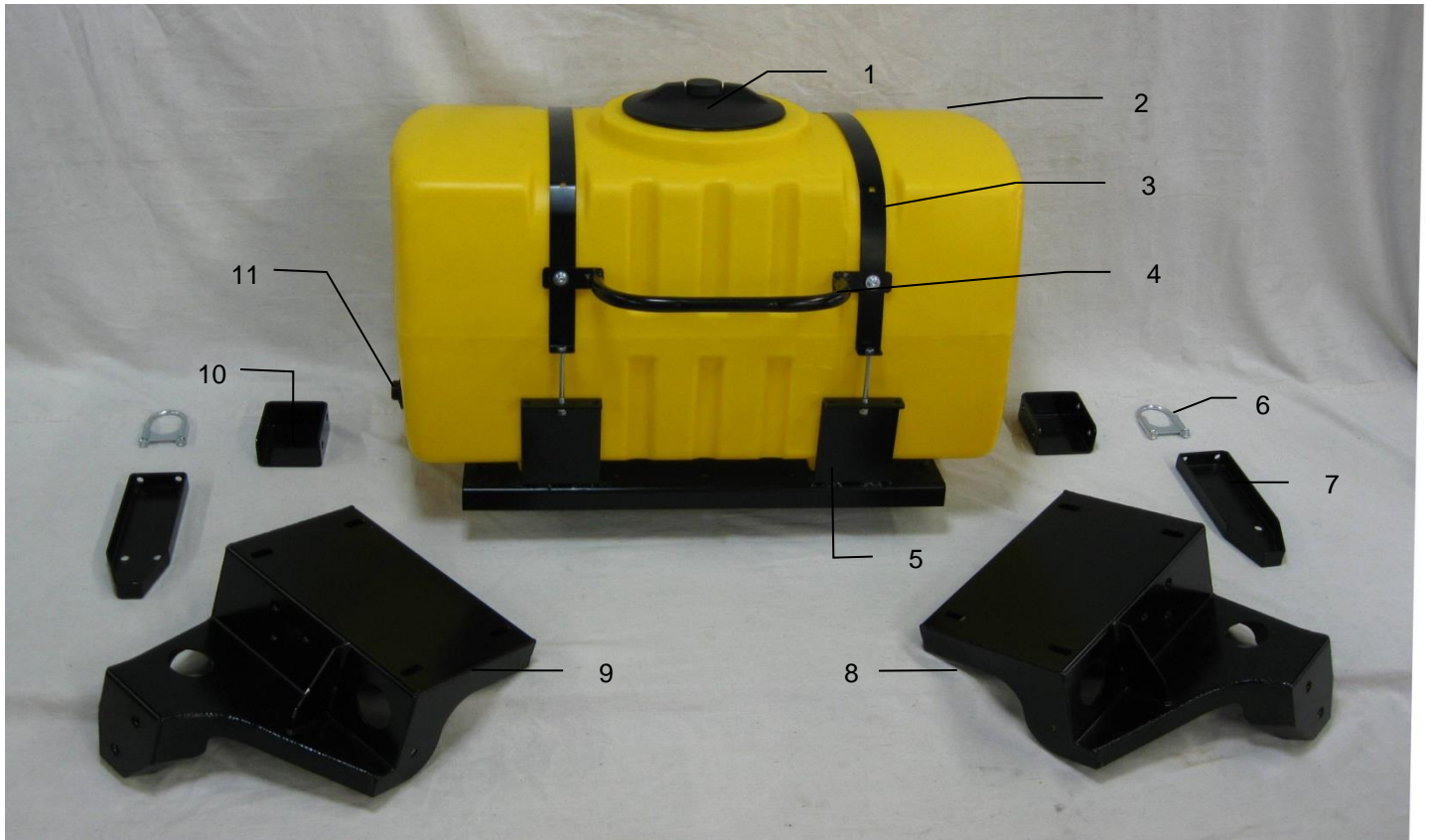
Winter Storage

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 pump, drain, and run the pump for 30 seconds or until dry.
4. Drain all lines on the outlet side.
5. Never use oils or alcohol based anti-freeze in the system.
6. For spring start-up, if the pump is frozen, turn off the power immediately to avoid burning the motor out or blowing a fuse. The pump head can be disassembled and freed or rebuilt in most cases. Check the fuses after the pump has been freed.
7. Disconnect power from the applicator
8. Remove display from tractor and store in a warm, dry place.

Troubleshooting

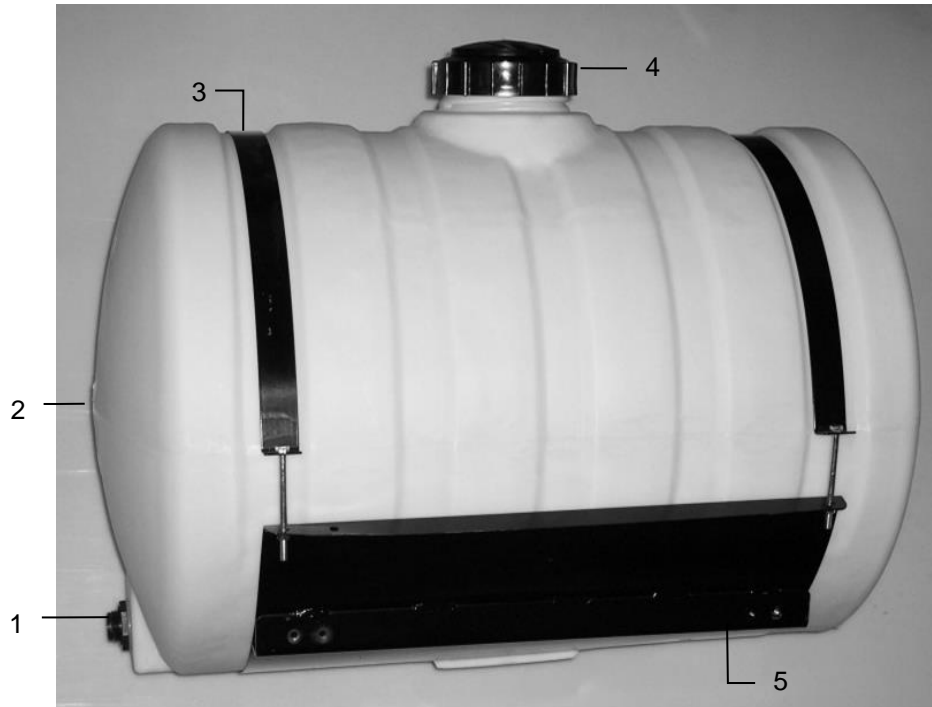
PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump will not run.	1. Circuit breaker tripped on electronic unit.	1. Check for short, low voltage, and reset breaker.
	2. Pump locked up.	2. Clean or rebuild pump.
	3. Damaged wire.	3. Repair damaged wire.
	4. Vapor locked.	4. Loosen hose by check valve at gauge and bleed air.
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. Electronic box out of adjustment.	2. Refer to box adjustment page.
	3. Pump worn or dirty.	3. Rebuild pump.
	4. Low supply voltage.	4. Check voltage at connection with voltmeter.
	5. Bad gauge.	5. Gauge should read less than 10 PSI when not in use. Also tips should lose spray pattern below 10 PSI. Check accuracy.
Pump output varies.	1. Clogged or restricted inlet.	1. Clean
	2. Worn pump parts.	2. Rebuild pump.
Message light blinks two times	1. Pump or wire harness shorted.	1. Check harness running to pump and verify no shorts or problems. 2. Check to see if pump motor is locked up. Repair or replace.
Message light blinks three times	1. Pump is drawing greater than 10 amps.	1. Check to see if motor is running correctly. Repair or replace.
Message light blinks four times	1. Undercurrent coming to control box.	1. Check all battery connections and connections running up to control box.

Tank Kit 442C-TK



<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 lid	005-9022H	1	7	Anchor Bracket	001-4703XA	2
2	55 Gallon tank	005-9203SQ	1	8	Left Leg Rollbelt	001-4703XL	1
3	Tank strap	001-4402	2	9	Right Leg Rollbelt	001-4703XR	1
4	Hand Rail	001-6707HRS	1	10	Anchor Bracket Ext.	001-4703XAX	2
5	Tank Saddle	001-4703X	1	11	Tank Fitting	005-9100	1
6	U-Bolt Rollbelt	001-4703XAB	2				
					Tank Kit Assembly	030-0442C-TK (Includes Ref# 1-11)	

Tank Kit 448-TK



<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	3/4" Fitting	005-9100	1	4	Tank Cap	005-9022C	1
2	Tank	005-9203	1	5	Tank Saddle	001-4703	1
3	Tank Strap	001-4402	2		Complete Assembly	030-0448-TK	

Tank Kit 491BB-TK



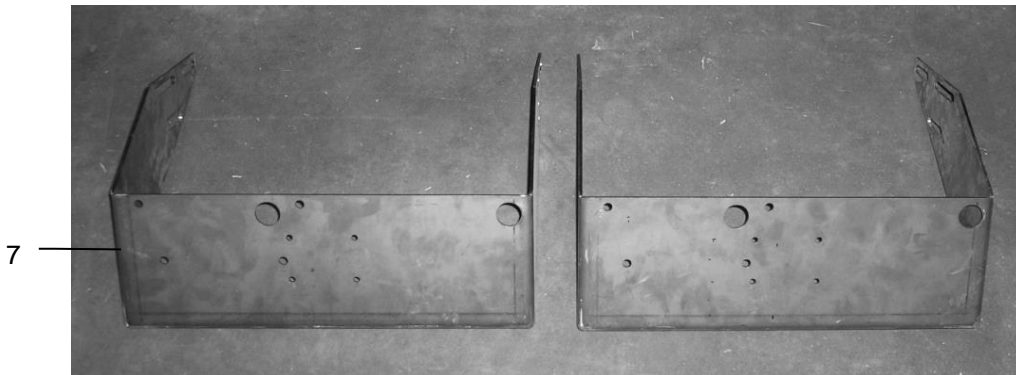
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Tank	005-9218	1	8	1/2" hose	002-9001	2
2	1/2" tank fitting	005-9104	2	9	Left Tank Leg	001-6707ML	1
3	Elbow	003-EL1212	2	10	Right Tank Leg	001-6707MR	1
4	Tank straps	001-6707P	2	NP	Tank lid strainer	005-9022HBS	1
5	Handrail	001-6707HR	1	NP	3/4" tank fitting	005-9100	2
6	Tank lid	005-9022H	1	NP	Hose Clamp	003-9003	2
7	Tank saddle	001-6707N	1		Complete Assembly	030-0491BB-TK	



Tank Kit 491A-TK



<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	110 Gal Tank	005-9208	1	5	Tank Saddle	001-6707A	1
2	Tank Straps	001-4402B	2	6	Bottom & Side Fitting	003-EL3434	2
3	Tank Cap	005-9022E	1	7	Tank Legs	001-6707C	2
4	Handrail	001-6707HR	1				
Complete Assembly						030-0491A-TK	

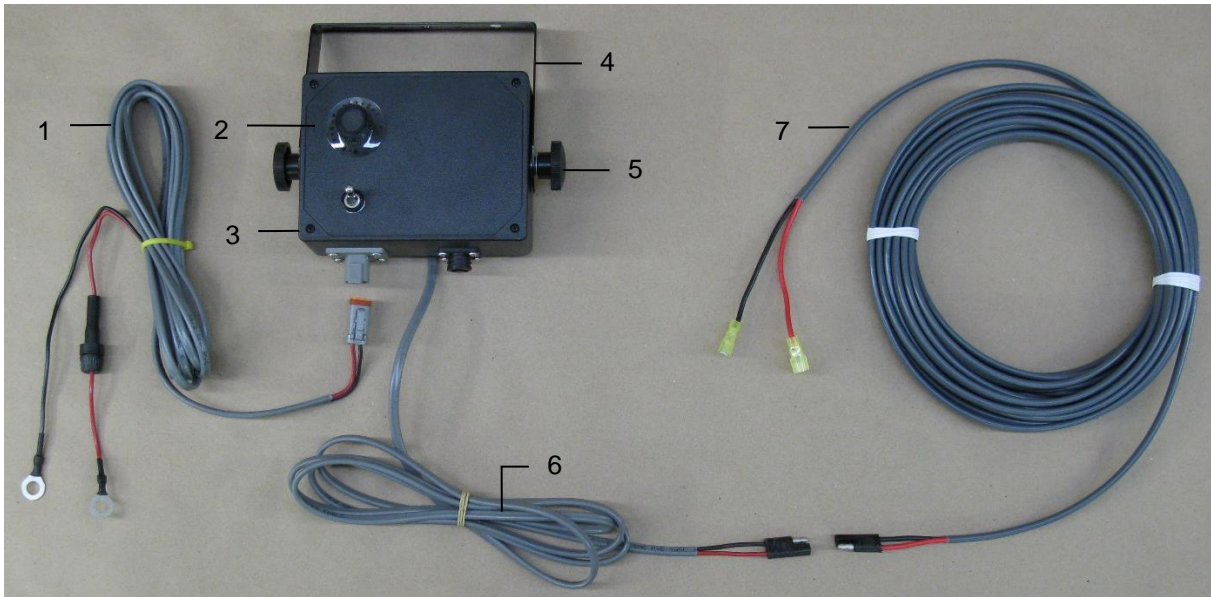


Tank Kit 460-TK



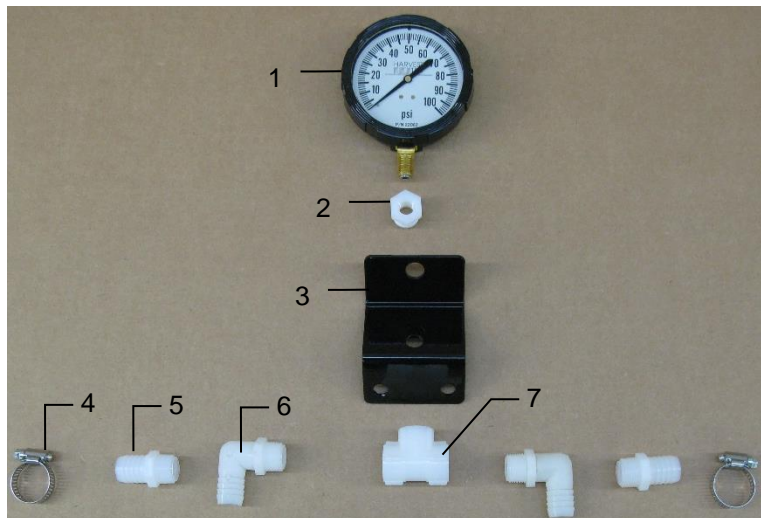
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	110 Gal Tank	005-9208	1	4	Tank Saddle	001-6707A	1
2	Tank Straps	001-4402B	2	5	Bottom Fitting	003-EL3434	1
3	Tank Cap	005-9022E	1				
					Complete Assembly	030-0460-TK	

Control Box and Wiring Harnesses



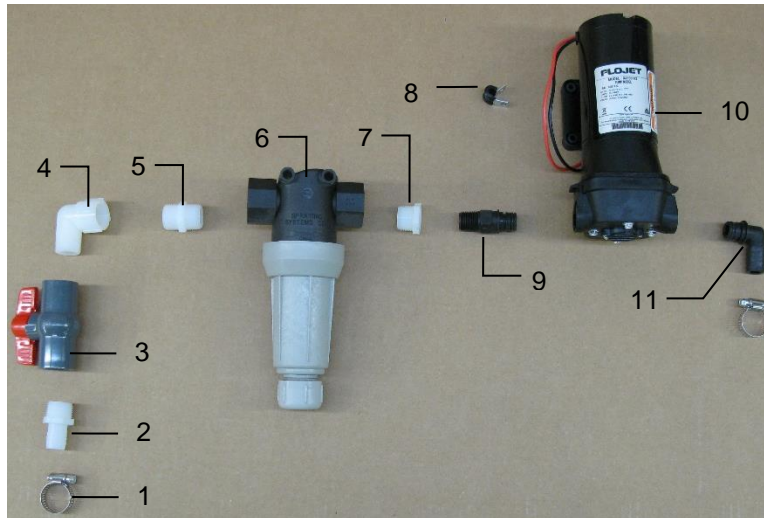
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Power Cord	006-4580M	1	5	Knobs	008-0923	2
2	Speed Dial	006-2022A	1	6	Pump Lead	006-4583M	1
3	Control Box	030-0457M	1	7	Pump Lead Ext.	006-4575M	1
4	U-Bracket	001-2012E	1				

Gauge



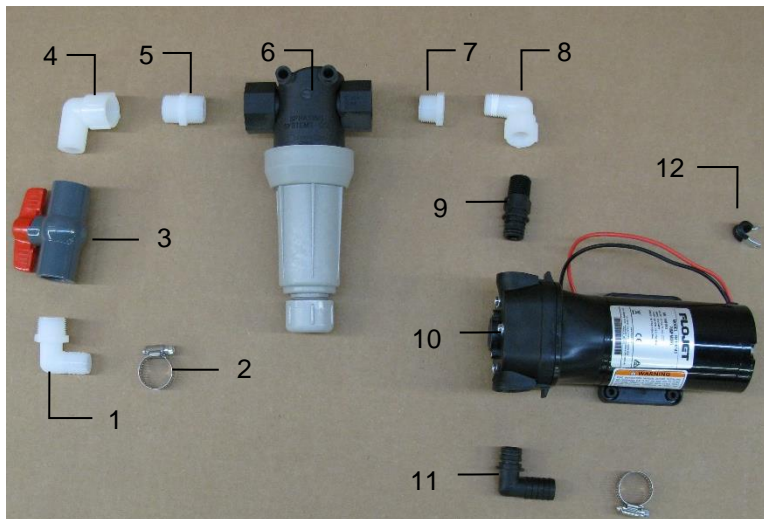
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Gauge	002-2208Z	1	5	1/2" x 3/4" Straight	003-A1234	2
2	1/2" x 1/4" Reducer	003-RB1214	2	6	1/2" x 3/4" Elbow	003-EL1234	2
3	Gauge Holder	001-4717	1	7	1/2" Tee	003-TT12	1
4	Hose Clamp	003-9004	2				

Pump Assembly PMP-4210X-A



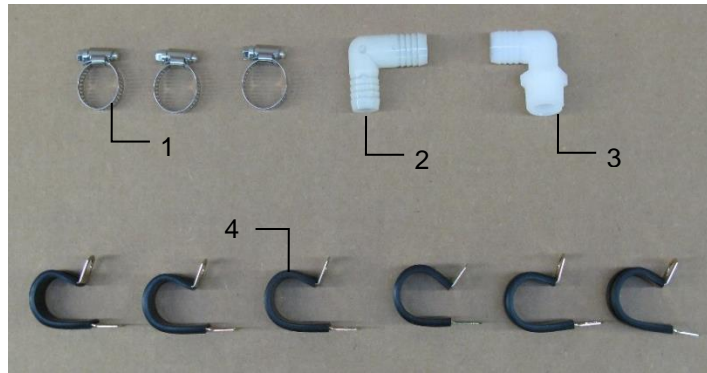
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Hose Clamp	003-9004	2	7	3/4" x 1/2" Reducer	003-RB3412	1
2	3/4" x 3/4" Straight	003-A3434	1	8	1/4" Jiffy Clip	008-9011	1
3	3/4" Ball Valve	002-2200	1	9	1/2" Straight Coupler	007-4121KS	1
4	3/4" Street Elbow	003-SE34	1	10	Pump	007-4210CE	1
5	3/4" Union	003-M3434	1	11	3/4" Elbow Coupler	007-4121K	1
6	3/4" Filter	002-4318	1				

Pump Assembly PMP-4210X-B



<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	3/4" x 3/4" Elbow	003-EL3434	1	7	3/4" x 1/2" Reducer	003-RB3412	1
2	Hose Clamp	003-9004	2	8	1/2" Street Elbow	003-SE12	1
3	3/4" Ball Valve	002-2200	1	9	1/2" Straight Coupler	007-4121KS	1
4	3/4" Street Elbow	003-SE34	1	10	Pump	007-4210CE	1
5	3/4" Union	003-M3434	1	11	3/4" Elbow Coupler	007-4121K	1
6	3/4" Filter	002-4318	1	12	1/4" Jiffy Clip	008-9011	1

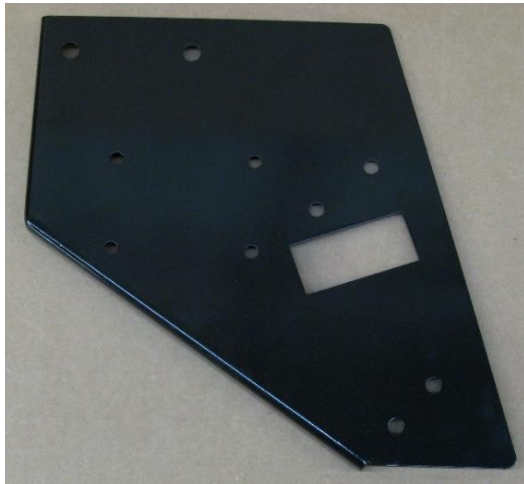
Parts Bag #18



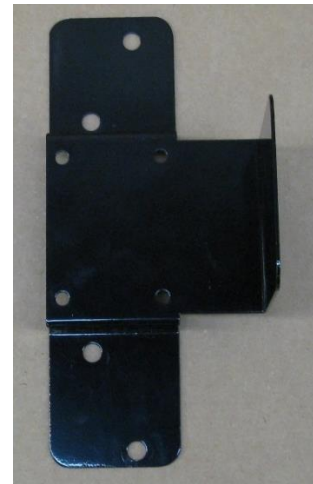
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Hose Clamp	003-9004	3	3	3/4" x 3/4" Elbow	003-EL3434	1
2	3/4" Elbow	003-EL34	1	4	1" Jiffy Clip	008-9009	1

Complete Assembly PMP-#18

442C Pump Plate

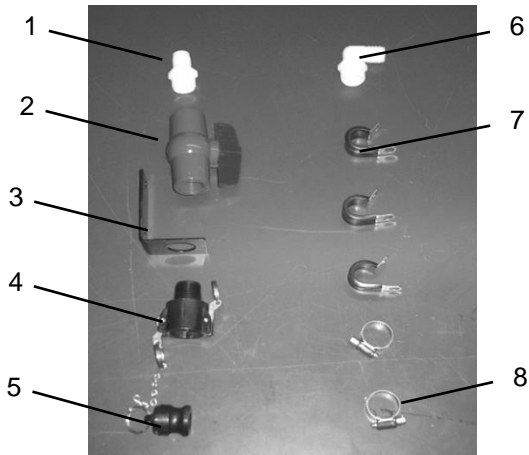


BBXHI Pump Mount



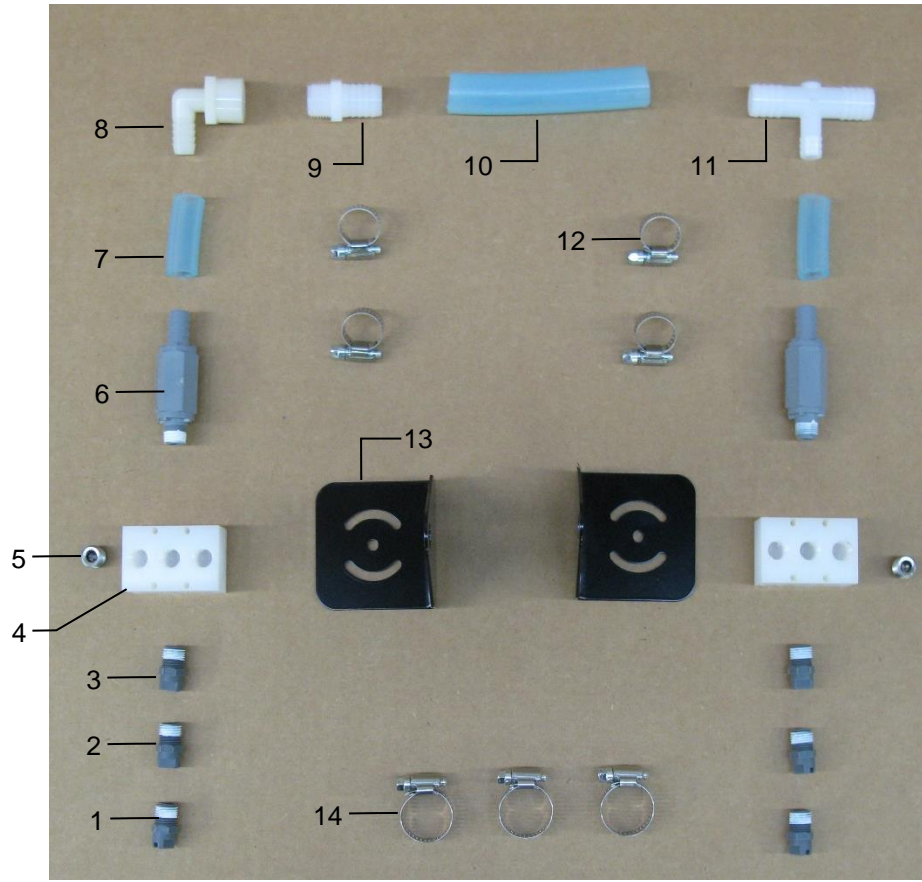
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Front Pump Plate Mount	001-4703XE	1	1	BB Pump Plate Mount	001-46707Q	1

Parts Breakdown for Drain / Fill Kit



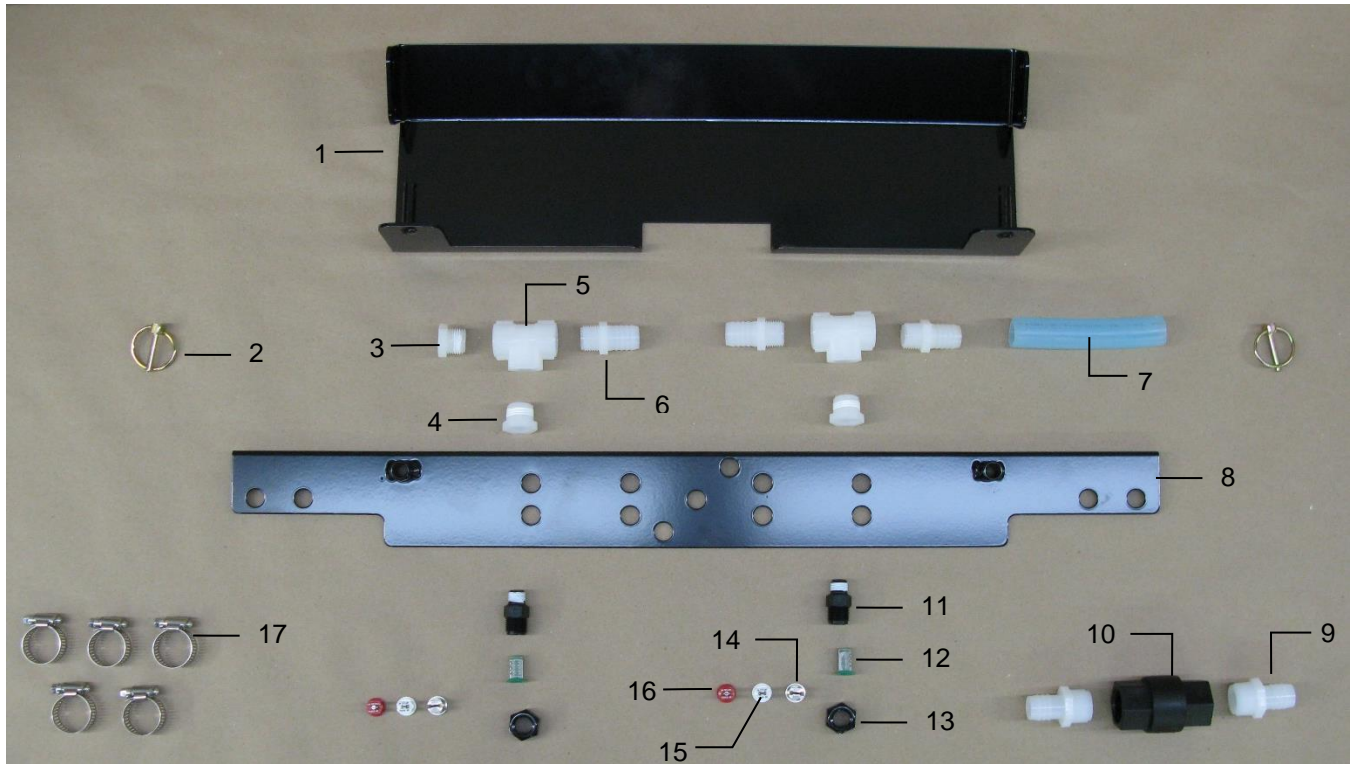
<u>Ref</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Straight fitting	003-A3434	1
2	Ball valve	002-2200	1
3	Valve holder	001-6702H	1
4	Female coupler	002-2204A	1
5	Male coupler	002-2205G	1
6	Elbow	003-EL3434	1
7	Jiffy clip	008-9010	3
8	Hose clamp	003-9004	2
NP	3/4" Hose	002-9002	10ft

Install Kit 442CXHI-SO



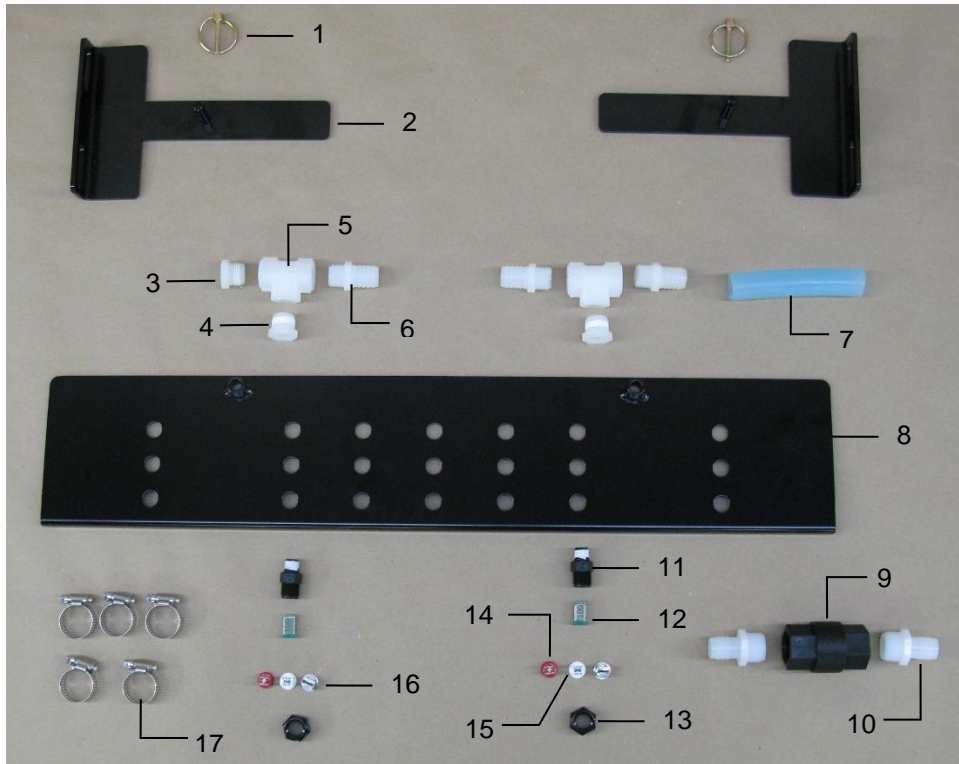
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Low Output Tip	004-T8004-PT	2	8	1/2" x 1/2" Elbow	003-EL1212F	1
2	Med Output Tip	004-T8008-PT	2	9	1/2" x 3/4" Straight	003-A1234	1
3	High Output Tip	004-T8015-PT	2	10	3/4" Hose	002-9002	3
4	Spray Shield Block	001-4435NSB	2	11	3/4" x 1/2" Tee	003-T3412HB	1
5	1/4" Plug	003-F14A	2	12	#6 Hose Clamp	003-9003	4
6	Check Valve	002-4564X	2	13	Spray Shield Holder	001-4703XD	2
7	1/2" Hose	002-9001	2	14	#10 Hose Clamp	003-9004	3
Complete Assembly						030-0442CXHI-SO	

Install Kit 44255XHI-SO



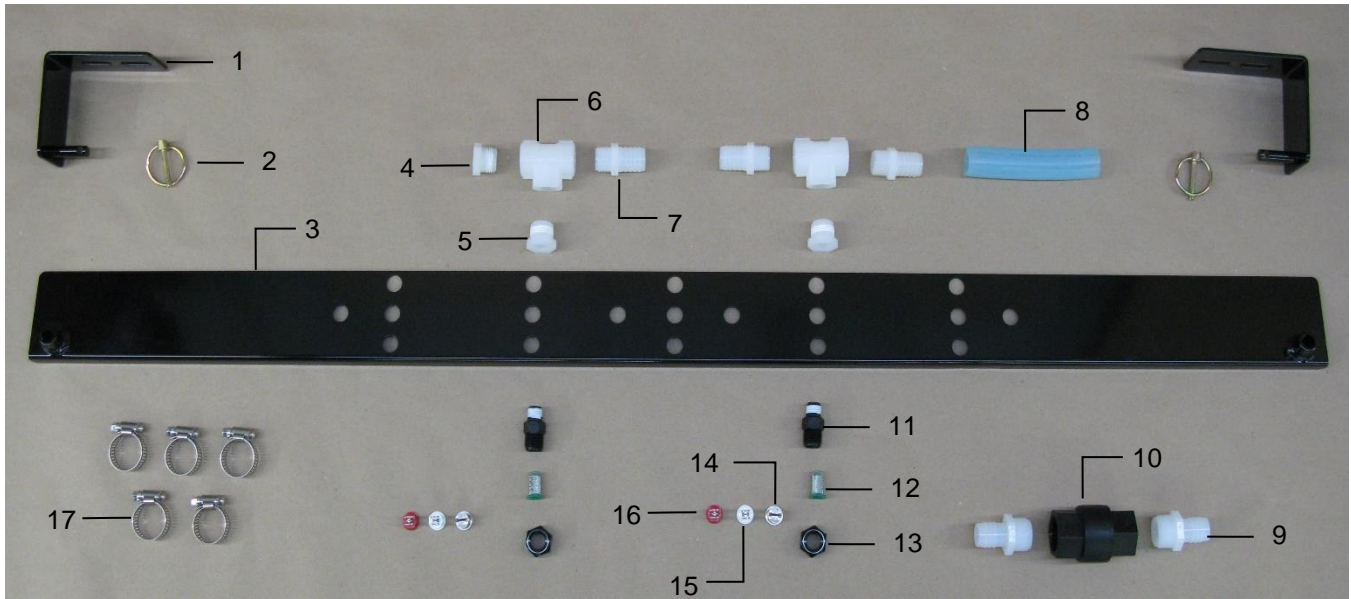
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray Shield Holder	001-4810BRH	1	10	3/4" Check Valve	002-4566X	1
2	Lynch Pin	008-4576	2	11	Nozzle Body	004-4722	2
3	1/2" Plug	003-F12	1	12	Tip Screen	004-1203-100	2
4	1/2" x 1/4" Reducer	003-RB1214	2	13	Nozzle Cap	004-4723	2
5	1/2" Tee	003-TT12	2	14	Low Tip – Silver	004-11015-SS	2
6	1/2" x 3/4" Straight	003-A1234	3	15	High Tip – White	004-XR11008VS	2
7	3/4" Hose	002-9002	2	16	Med Tip – Red	004-XR11004VS	2
8	Spray Shield	001-4810B	1	17	Hose Clamp	003-9004	5
9	3/4" x 3/4" Straight	003-A3434	2				
					Complete Assembly	030-044255XHI-SO	

Install Kit 4518XHI



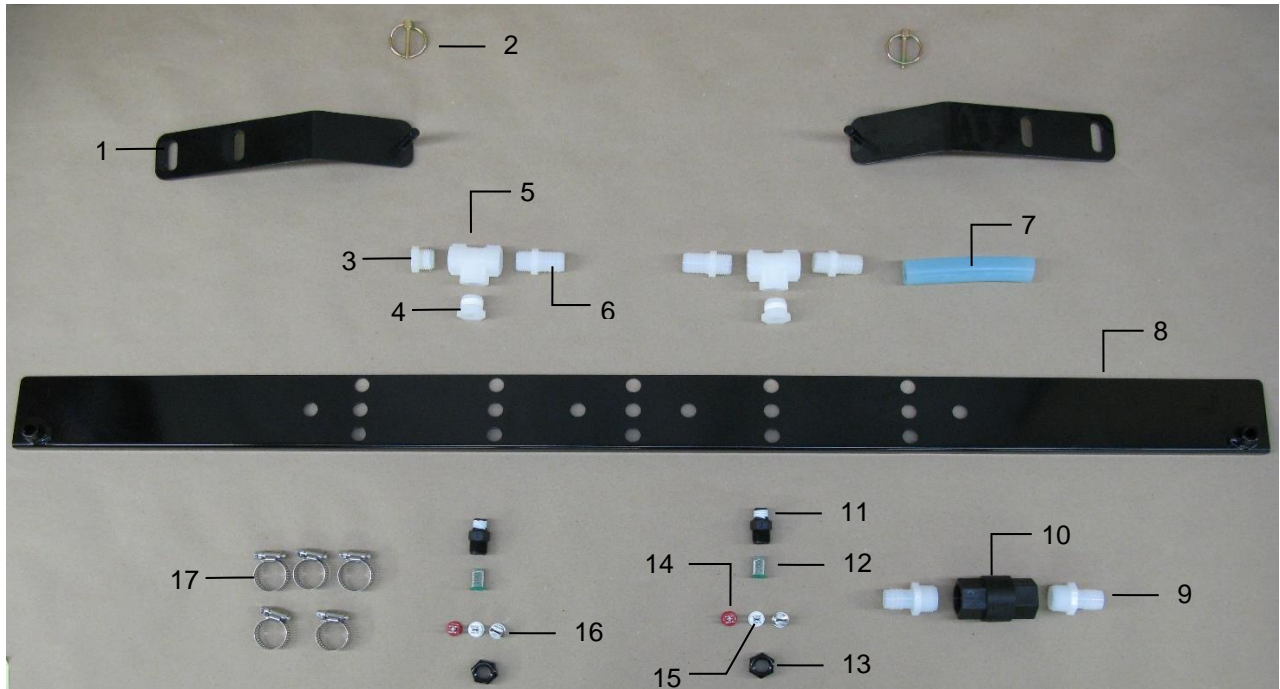
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1	Lynch Pin	008-4576	2	10	3/4" x 3/4" Straight	003-A3434	2
2	Spray Shield Holder	001-4435H	2	11	Nozzle Body	004-4722	2
3	1/2" Plug	003-F12	1	12	Tip Screen	004-1203-100	2
4	1/2" x 1/4" Reducer	003-RB1214	2	13	Nozzle Cap	004-4723	2
5	1/2" Tee	003-TT12	2	14	Med Tip – Red	004-XR11004VS	2
6	1/2" x 3/4" Straight	003-A1234	3	15	High Tip – White	004-XR11008VS	2
7	3/4" Hose	002-9002	2	16	Low Tip – Silver	004-11015-SS	2
8	Spray Shield	001-4435ES	1	17	Hose Clamp	003-9004	5
9	3/4" Check Valve	002-4566X	1				
					Complete Assembly	030-4518XHI	

Install Kit 4523XHI-SO



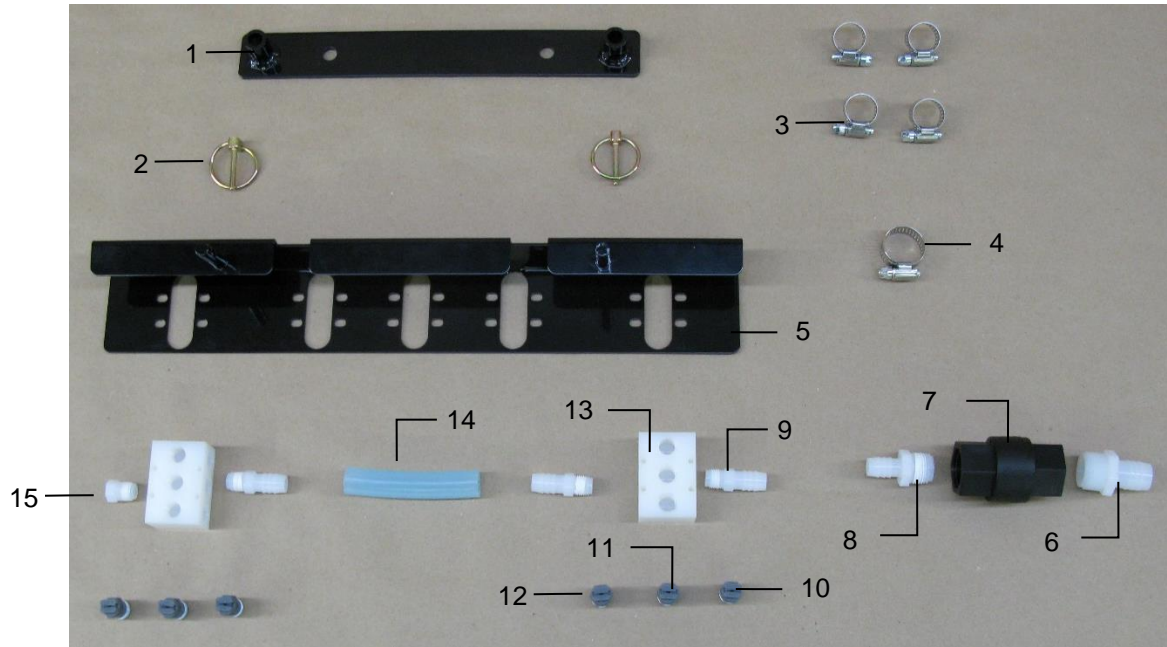
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray Shield Holder	001-4704H	2	10	3/4" Check Valve	002-4566X	1
2	Lynch Pin	008-4576	2	11	Nozzle Body	004-4722	2
3	Spray Shield	001-4704G	1	12	Tip Screen	004-1203-100	2
4	1/2" Plug	003-F12	1	13	Nozzle Cap	004-4723	2
5	1/2" x 1/4" Reducer	003-RB1214	2	14	Low Tip – Silver	004-11015-SS	2
6	1/2" Tee	003-TT12	2	15	High Tip – White	004-XR11008VS	2
7	1/2" x 3/4" Straight	003-A1234	3	16	Med Tip – Red	004-XR11004VS	2
8	3/4" Hose	002-9002	2	17	Hose Clamp	003-9004	5
9	3/4" x 3/4" Straight	003-A3434	2				
					Complete Assembly	030-4523XHI-SO	

Install Kit 4526XHI-SO



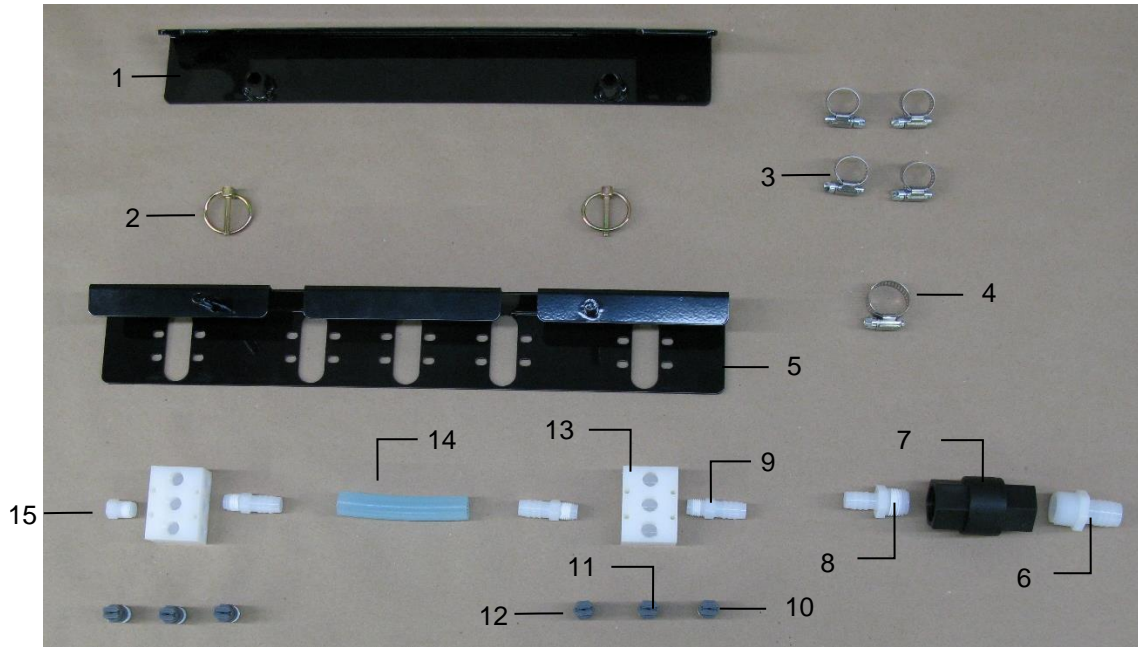
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Spray Shield Holder	001-4704MC	2	10	3/4" Check Valve	002-4566X	1
2	Lynch Pin	008-4576	2	11	Nozzle Body	004-4722	2
3	1/2" Plug	003-F12	1	12	Tip Screen	004-1203-100	2
4	1/2" x 1/4" Reducer	003-RB1214	2	13	Nozzle Cap	004-4723	2
5	1/2" Tee	003-TT12	2	14	Med Tip – Red	004-XR11004VS	2
6	1/2" x 3/4" Straight	003-A1234	3	15	High Tip – White	004-XR11008VS	2
7	3/4" Hose	002-9002	2	16	Low Tip – Silver	004-11015-SS	2
8	Spray Shield	001-4704G	1	17	Hose Clamp	003-9004	5
9	3/4" x 3/4" Straight	003-A3434	2		Complete Assembly	030-4526XHI-SO	

Install Kit 4534XHI



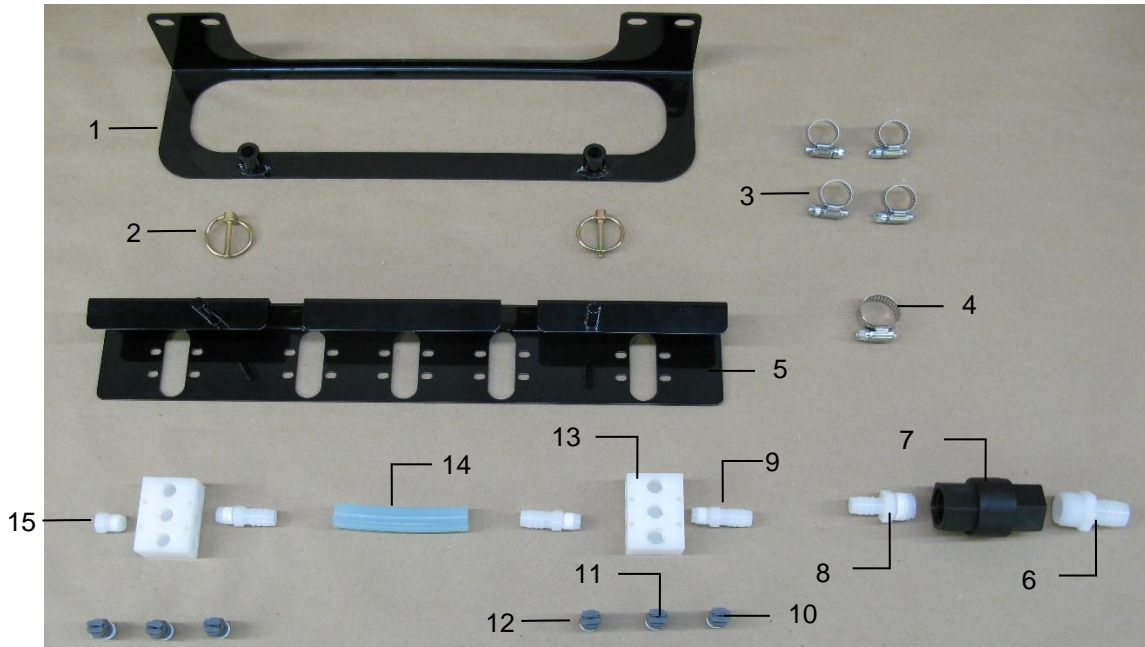
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>	<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Shield Holder	001-4435NCX	1	9	1/4" x 1/2" Straight	002-A1412	3
2	Lynch Pin	008-4576	2	10	Low Tip	004-T8015-PT	2
3	Hose Clamp	003-9003	4	11	Med Tip	004-T8004-PT	2
4	Hose Clamp	003-9004	1	12	High Tip	004-T8008-PT	2
5	Spray Shield	001-4435NSX	1	13	Manifold Block	001-4435NSB	2
6	3/4" x 3/4" Straight	003-A3434	2	14	1/2" Hose	002-9001	4
7	Check Valve	002-4566X	1	15	Plug	003-F14	1
8	3/4" x 1/2" Straight	003-A3412	1				
					Complete Assembly	030-4534XHI	

Install Kit 4536XHI



<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	001-4435NC	1	9	1/4" x 1/2" Straight	002-A1412	3
2	Lynch Pin	008-4576	2	10	Low Tip	004-T8015-PT	2
3	Hose Clamp	003-9003	4	11	Med Tip	004-T8004-PT	2
4	Hose Clamp	003-9004	1	12	High Tip	004-T8008-PT	2
5	Spray Shield	001-4435NSX	1	13	Manifold Block	001-4435NSB	2
6	3/4" x 3/4" Straight	003-A3434	2	14	1/2" Hose	002-9001	4
7	Check Valve	002-4566X	1	15	Plug	003-F14	1
8	3/4" x 1/2" Straight	003-A3412	1				
					Complete Assembly	030-4536XHI	

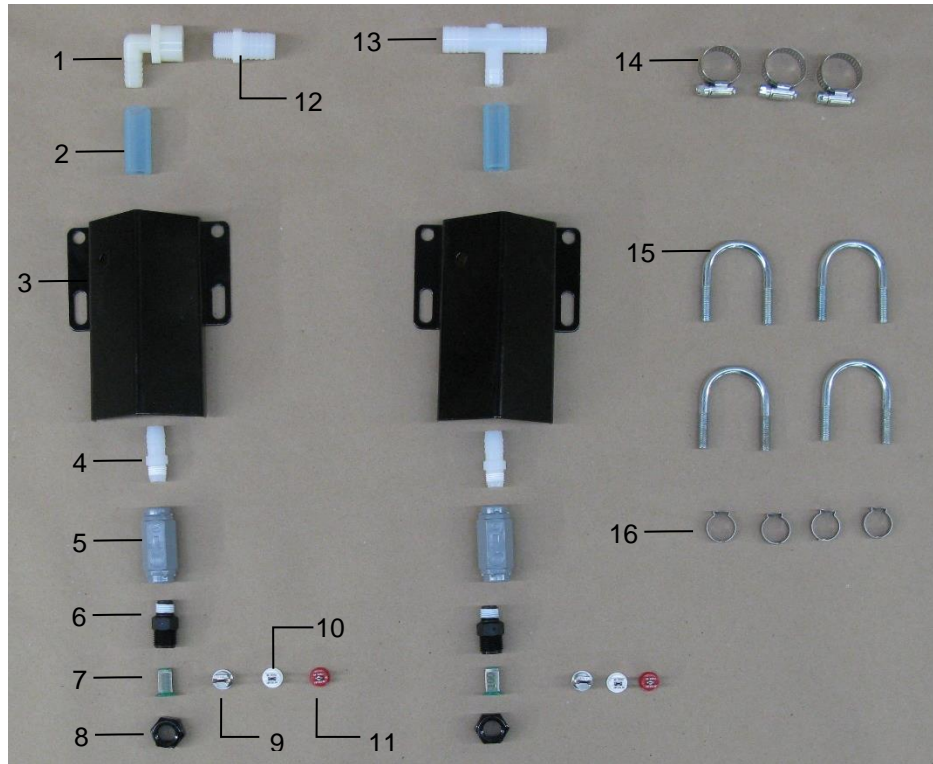
Install Kit 4542XHI



<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	001-4435NAX	1	9	1/4" x 1/2" Straight	002-A1412	3
2	Lynch Pin	008-4576	2	10	Low Tip	004-T8015-PT	2
3	Hose Clamp	003-9003	4	11	Med Tip	004-T8004-PT	2
4	Hose Clamp	003-9004	1	12	High Tip	004-T8008-PT	2
5	Spray Shield	001-4435NSX	1	13	Manifold Block	001-4435NSB	2
6	3/4" x 3/4" Straight	003-A3434	2	14	1/2" Hose	002-9001	4
7	Check Valve	002-4566X	1	15	Plug	003-F14	1
8	3/4" x 1/2" Straight	003-A3412	1				

Complete Assembly 030-4542XHI

Install Kit 4714JSX-SO



<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	1/2" x 1/2" Elbow	003-EL1212F	1	9	Low Tip – Silver	004-11015-SS	2
2	1/2" Hose	002-9001	1	10	High Tip – White	004-XR11008VS	2
3	Nozzle Shield Short	001-4714JS	2	11	Med Tip – Red	004-XR11004VS	2
4	1/4" x 1/2" Straight	002-A1412	2	12	1/2" x 3/4" Straight	003-A1234	1
5	Check Valve	002-4564X	2	13	3/4" x 1/2" Tee	003-T3412HB	1
6	Nozzle Body	004-4722	2	14	3/4" Hose Clamp	003-9004	3
7	Tip Screen	004-1203-100	2	15	U-Bolt	001-4714UBS	4
8	Nozzle Cap	004-4723	2	16	1/2" Otiker Clamp	003-9008	4
					Complete Assembly	030-4714JSX-SO	

Notes

Notes

Harvest Tec Inc. Warranty and Liability Agreement

Harvest Tec, Inc. will repair or replace components that are found to be defective within 12 months from the date of manufacture. Under no circumstances does this warranty cover any components which in the opinion of Harvest Tec, Inc. have been subjected to negligent use, misuse, alteration, accident, or if repairs have been made with parts other than those manufactured and obtainable from Harvest Tec, Inc.

Our obligation under this warranty is limited to repairing or replacing free of charge to the original purchaser any part that in our judgment shows evidence of defective or improper workmanship, provided the part is returned to Harvest Tec, Inc. within 30 days of the failure. If it is determined that a non-Harvest Tec branded hay preservative has been used inside the Harvest Tec applicator system where the failure occurred, then Harvest Tec reserves the right to deny the warranty request at their discretion. Parts must be returned through the selling dealer and distributor, transportation charges prepaid.

This warranty shall not be interpreted to render Harvest Tec, Inc. liable for injury or damages of any kind, direct, consequential, or contingent, to persons or property. Furthermore, this warranty does not extend to loss of crop, losses caused by delays or any expense prospective profits or for any other reason. Harvest Tec, Inc. shall not be liable for any recovery greater in amount than the cost or repair of defects in workmanship.

There are no warranties, either expressed or implied, of merchantability or fitness for particular purpose intended or fitness for any other reason.

This warranty cannot guarantee that existing conditions beyond the control of Harvest Tec, Inc. will not affect our ability to obtain materials or manufacture necessary replacement parts.

Harvest Tec, Inc. reserves the right to make design changes, improve design, or change specifications, at any time without any contingent obligation to purchasers of machines and parts previously sold.

Revised 4/17

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