

OWNER'S MANUAL

Model 461 ***55 Gallon Preservative Applicator***



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Introduction

The Harvest Tec Model 461 applicator is designed to apply straight propionic acid and acid blends, Buffered acids The applicator can be installed on most balers with the proper installation kit. Before installing the unit on a baler, make sure you have the proper installation kit for your baler.

The installation kit is not provided with the 461 kit.

Tools Needed

- Standard wrench set
- Standard socket set
- Standard screw driver or 5/16" nut driver
- Side cutter
- Hose cutter
- Crescent wrench
- Hammer

Mounting Frame on Tractor or Baler

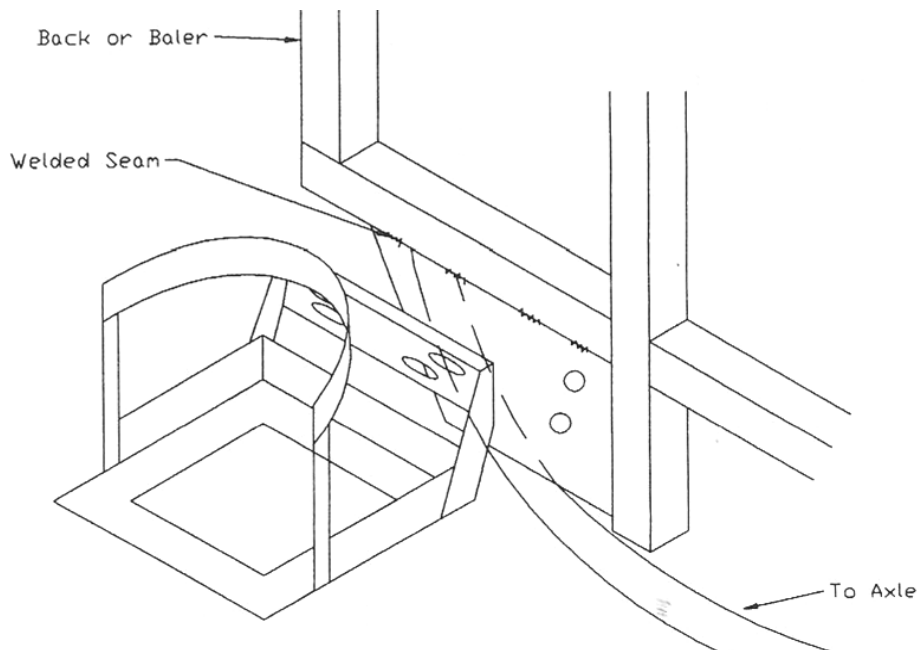
Tractor installation

Use the mounting holes on the front side of the tractor's frame or weight bracket. Use 4 of the 3/4" bolts supplied.

Baler Installation

Mounting the Applicator on the Hesston 4750, 4755, and 4900 , 4910, or the Case IH 8570, 8575, 8580, and 8590 Without Bale Ejectors

1. Place the bracket on right side of baler when looking at it from the back.
2. Slide the bracket up to the beam that supports the hydraulic cylinder for the bale compression doors.
3. Slide the top of the bracket down 3" from the welded seam of the large flat plate for the baler.
4. Mark oblong holes of the bracket onto the plate of baler with a marker.
5. Drill one 13/16" hole in each one of the oblong holes you marked, 4 total. (Note that the two slots closest to the rear of the baler have the support beam from the axle running behind them. Drill your holes so that they miss this beam.)
6. Using 3/4" bolts and hardware, secure bracket to baler.



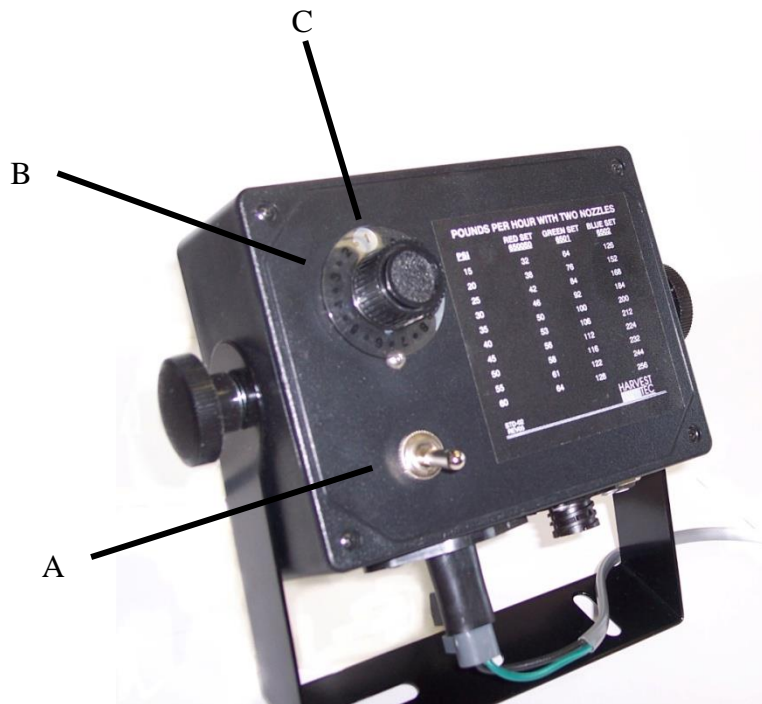
Mounting the Applicator on the Hesston 4755 and Case IH 8575 Balers with Bale Ejectors

1. Release bale ejector arm and swing toward front of baler before starting previous instructions.
2. Do previous steps for installation.
3. As you will note, the adjustment arm for the ejector are on the right side will be restricted. **To eliminate this problem follow these procedures:**
 - a. Remove rubber handle by slightly heating it up. Using a sliding lock pliers, place around pipe before rubber handle. Using a hammer, pound on the pliers to slide rubber handle off.
 - b. Cut between 1"-2" off end of pipe so lever will clear drum and holder.
 - c. Reapply handle and make sure lever has free travel

Operation of the 457 Control Box

Understanding and using the 457 Control Box

The model 457 control box 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 noted below to decipher 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. The 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.

The 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

After familiarizing yourself with the model 457 control box, fill the tank with 5 gallons 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 for small square balers (two tie)

1. Bale for three minutes.
2. Count the number of bales made in those three minutes.
3. Weigh several bales to determine the average weight.
4. Use the bale rate chart on the following page to determine the tons you are baling per hour.

Example: You baled 11 bales in three minutes. After weighing some of the bales you found the average bale weight to be 55 lbs. Using the following chart cross reference 11 bales and 55lbs and you will find the rate to be 6.0 tons per hour.

CONVENTIONAL BALE RATE CHART (TONS PER HOUR)

BALES MADE IN 3 MINUTES	WEIGHT PER BALE								
	40#	45#	50#	55#	60#	65#	70#	75#	80#
9	3.6	4.0	4.5	5.0	5.4	5.8	6.3	6.7	7.2
10	4.0	4.0	5.0	5.5	6.0	6.5	7.0	7.5	8.0
11	4.4	5.0	5.5	6.0	6.6	7.1	7.7	8.2	8.8
12	4.8	5.4	6.0	6.6	7.2	7.8	8.4	9.0	9.6
13	5.2	5.8	6.5	7.1	7.8	8.4	9.1	9.7	10.4
14	5.6	6.3	7.0	7.7	8.4	9.1	9.8	10.5	11.2
15	6.0	6.7	7.5	8.2	9.0	9.7	10.7	11.2	12.0
16	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0	12.8
17	6.8	7.6	8.5	9.3	10.2	11.0	11.9	12.7	13.6
18	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5	14.4
19	7.6	8.5	9.5	10.4	11.4	12.3	13.3	14.2	15.2
20	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0

Determining tons per hour for small square balers (three tie)

1. Bale for three minutes.
2. Count the number of bales made in those three minutes.
3. Weigh several bales to determine the average weight.
4. Use the bale rate chart on the following page to determine the tons you are baling per hour.

Example: You baled 11 bales in three minutes. After weighing some of the bales you found the average bale weight to be 90 lbs. Using the following chart cross reference 11 bales and 90lbs and you will find the rate to be 9.9 tons/hr.

Bales Made in Three Minutes	Three Tie Bale Rate Chart (Tons per Hour)								
	Weight per Baler								
	70	75	80	85	90	100	110	120	130
6	4.2	4.5	4.8	5.1	5.4	6.0	6.6	7.2	7.8
7	4.9	5.3	5.6	6.0	6.3	7.0	7.7	8.4	9.1
8	5.6	6.0	6.4	6.8	7.2	8.0	8.8	9.6	10.4
9	6.3	6.8	7.2	7.7	8.1	9.0	9.9	10.8	11.7
10	7.0	7.5	8.0	8.5	9.0	10.0	11.0	12.0	13.0
11	7.7	8.3	8.8	9.4	9.9	11.0	12.1	13.2	14.3
12	8.4	9.0	9.6	10.2	10.8	12.0	13.2	14.4	15.6
13	9.1	9.8	10.4	11.1	11.7	13.0	14.3	15.6	16.9
14	9.8	10.5	11.2	11.9	12.6	14.0	15.4	16.8	18.2
15	10.5	11.3	12.0	12.8	13.5	15.0	16.5	18.0	19.5
16	11.2	12.0	12.8	13.6	14.4	16.0	17.6	19.2	20.8
17	11.9	12.8	13.6	14.5	15.3	17.0	18.7	20.4	22.1
18	12.6	13.5	14.4	15.3	16.2	18.0	19.8	21.6	23.4
19	13.3	14.3	15.2	16.2	17.1	19.0	20.9	22.8	24.7
20	14.0	15.0	16.0	17.0	18.0	20.0	22.0	24.0	26.0
21	14.7	15.8	16.8	17.9	18.9	21.0	23.1	25.2	27.3
22	15.4	16.5	17.6	18.7	19.8	22.0	24.2	26.4	28.6
23	16.1	17.3	18.4	19.6	20.7	23.0	25.3	27.6	29.9
24	16.8	18.0	19.2	20.4	21.6	24.0	26.4	28.8	31.2
25	17.5	18.8	20.0	21.3	22.5	25.0	27.5	30.0	32.5
26	18.2	19.5	20.8	22.1	23.4	26.0	28.6	31.2	33.8
27	18.9	20.3	21.6	23.0	24.3	27.0	29.7	32.4	35.1
28	19.6	21.0	22.4	23.8	25.2	28.0	30.8	33.6	36.4
29	20.3	21.8	23.2	24.7	26.1	29.0	31.9	34.8	37.7
30	21.0	22.5	24.0	25.5	27.0	30.0	33.0	36.0	39.0
31	21.7	23.3	24.8	26.4	27.9	31.0	34.1	37.2	40.3
32	22.4	24.0	25.6	27.2	28.8	32.0	35.2	38.4	41.6
33	23.1	24.8	26.4	28.1	29.7	33.0	36.3	39.6	42.9
34	23.8	25.5	27.2	28.9	30.6	34.0	37.4	40.8	44.2
35	24.5	26.3	28.0	29.8	31.5	35.0	38.5	42.0	45.5

Determining tons per hour for 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 Baler								
	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 two and three tie small 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. (Pg.19-20)
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 12.5 tons per hour with your conventional square baler. The moisture t you are baling at requires you to apply 8 pounds per ton. Multiply the 12.5 tons x 8lbs. = 100lbs. per hour. Using the chart, lbs/hr with two nozzles, found on page 22 and 23 of this manual, you will notice the medium or pink set of tips at 35 PSI will give you that output.

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!!!

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. (Pg.21)
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. Using the chart, lbs/hr with three nozzles, found on page 24 of this manual, you will notice the green set of tips at 35 PSI will give you that output.

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 CHART FOR ONE NOZZLE

Use the following chart for install kit 4415 & 4415-SO

POUNDS PER HOUR WITH ONE NOZZLE

PSI	INCLUDED IN KIT			
	<i>Blue</i>	LOW <i>Orange</i>	MEDIUM <i>Blue</i>	HIGH <i>Yellow</i>
	TX-SS-4	TX-SS-6	TX-SS-12	TX-SS-26
15	21 (9.5L)	32 (14.4L)	64 (28.8L)	105 (47.3L)
20	25 (11.2L)	38 (17.1L)	76 (34.2L)	120 (54L)
25	28 (12.6L)	42 (19L)	84 (37.8L)	135 (60.8L)
30	30 (13.5L)	46 (20.7L)	92 (41.4L)	145 (65.3L)
35	33 (14.5L)	50 (22.5L)	100 (45L)	165 (74.3L)
40	35 (15.8L)	53 (23.9L)	106 (47.7L)	174 (78.3L)
45	37 (16.7L)	56 (25.2L)	112 (50.4L)	185 (83.3L)
50	38 (17.1L)	58 (26.1L)	116 (52.2L)	195 (87.8L)
55	40 (18L)	61 (27.5L)	122 (54.9L)	200 (90L)
60	42 (19L)	64 (28.8L)	128 (57.6L)	210 (94.5L)

GALLONS PER HOUR WITH ONE NOZZLE

PSI	INCLUDED IN KIT			
	<i>Blue</i>	LOW <i>Orange</i>	MEDIUM <i>Blue</i>	HIGH <i>Yellow</i>
	TX-SS-4	TX-SS-6	TX-SS-12	TX-SS-26
15	2.4 (9.1L)	3.6 (13.6L)	7.2 (27.2L)	11.9 (45L)
20	2.6 (9.8L)	4.2 (15.9L)	8.6 (32.5L)	13.6 (51.4L)
25	3.2 (12.1L)	4.6 (17.4L)	9.4 (35.5L)	15.3 (57.8L)
30	3.4 (12.9L)	5.2 (19.7L)	10.4 (39.3L)	16.4 (62L)
35	3.8 (14.4L)	5.6 (21.2L)	11.2 (42.3L)	18.7 (70.7L)
40	4.0 (15.1L)	6.0 (22.7L)	12.0 (45.4L)	19.7 (74.5L)
45	4.2 (15.9L)	6.2 (23.4L)	12.8 (48.4L)	21.0 (79.4L)
50	4.4 (16.7L)	6.6 (24.9L)	13.4 (50.7L)	22.1 (83.5L)
55	4.6 (17.4L)	7.0 (26.5L)	14.0 (52.9L)	22.7 (85.8L)
60	4.8 (18.2L)	7.2 (27.2L)	14.8 (55.9L)	23.8 (90L)

GENERAL CALIBRATION CHART FOR TWO NOZZLES

Use the following chart for install kits 4409, 4410, 4416, 4482, 4485, 4502, 4506, & 4507

POUNDS PER HOUR WITH TWO NOZZLES

	INCLUDED IN KIT				
	<i>Silver</i> T650033-SS	LOW <i>Silver</i> T650050-SS	MEDIUM <i>Pink/Gray</i> T6501-PT	HIGH <i>Orange/Gray</i> T6502-PT	
PSI					
15	21 (9.5L)	32 (14.4L)	64 (28.8L)	128 (57.6L)	192 (86.4L)
20	25 (11.2L)	38 (17.1L)	76 (34.2L)	152 (68.L)	228 (102.6L)
25	28 (12.6L)	42 (19L)	84 (37.8L)	168 (75.6L)	252 (113.4L)
30	30 (13.5L)	46 (20.7L)	92 (41.4L)	184 (82.8L)	276 (124.2L)
35	33 (14.5L)	50 (22.5L)	100 (45L)	200 (90L)	300 (135L)
40	35 (15.8L)	53 (23.9L)	106 (47.7L)	212 (95.4L)	318 (143.1L)
45	37 (16.7L)	56 (25.2L)	112 (50.4L)	224 (100.8L)	336 (151.2L)
50	38 (17.1L)	58 (26.1L)	116 (52.2L)	232 (104.4L)	348 (156.6L)
55	40 (18L)	61 (27.5L)	122 (54.9L)	244 (109.8L)	366 (164.7L)
60	42 (19L)	64 (28.8L)	128 (57.6L)	256 (115.2L)	384 (172.8L)

GALLONS PER HOUR WITH TWO NOZZLES

	INCLUDED IN KIT				
	<i>Silver</i> T650033-SS	<i>Silver</i> T650050-SS	<i>Pink/Gray</i> T6501-PT	<i>Orange/Gray</i> T6502-PT	
PSI					
15	2.4 (9.1L)	3.6 (13.6L)	7.2 (27.2L)	14.4 (54.4L)	21.6 (81.6L)
20	2.6 (9.8L)	4.2 (15.9L)	8.6 (32.5L)	17.2 (65L)	25.8 (97.5L)
25	3.2 (12.1L)	4.6 (17.4L)	9.4 (35.5L)	18.8 (71.1L)	28.2 (106.6L)
30	3.4 (12.9L)	5.2 (19.7L)	10.4 (39.3L)	20.8 (78.6L)	31.2 (117.9L)
35	3.8 (14.4L)	5.6 (21.2L)	11.2 (42.3L)	22.4 (84.7L)	33.6 (127L)
40	4.0 (15.1L)	6.0 (22.7L)	12.0 (45.4L)	24.0 (90.7L)	36.0 (136.1L)
45	4.2 (15.9L)	6.2 (23.4L)	12.8 (48.4L)	25.6 (96.8L)	38.4 (145.2L)
50	4.4 (16.7L)	6.6 (24.9L)	13.4 (50.7L)	26.8 (101.3L)	40.2 (152L)
55	4.6 (17.4L)	7.0 (26.5L)	14.0 (52.9L)	28.0 (105.8L)	42.0 (158.8L)
60	4.8 (18.2L)	7.2 (27.2L)	14.8 (55.9L)	29.6 (111.9L)	44.4 (167.8L)

GENERAL CALIBRATION CHART FOR JOHN DEERE 8 & 9 SERIES

Use the following chart for install kits 4516 and 4517

POUNDS PER HOUR WITH TWO NOZZLES

	Yellow 800067	INCLUDED IN KIT			Black XR11001
		Red XR11001	Green XR11002	Blue XR11003	
PSI					
15	53 (23.9L)	64 (28.8L)	112 (50.4L)	192 (86.4L)	320 (144L)
20	63 (28.4L)	76 (34.2L)	133 (59.9L)	228 (102.6L)	380 (171L)
25	70 (31.5L)	84 (37.8L)	147 (66.2L)	252 (113.4L)	420 (189L)
30	77 (34.7L)	92 (41.4L)	161 (72.5L)	276 (124.2L)	460 (207L)
35	84 (37.8L)	100 (45L)	175 (78.8L)	300 (135L)	N/A
40	89 (40.1L)	106 (47.7L)	186 (83.7L)	318 (143.1L)	N/A
45	94 (42.3L)	112 (50.4L)	196 (88.2L)	336 (151.2L)	N/A
50	97 (43.7L)	116 (52.2L)	203 (91.4L)	348 (156.6L)	N/A
55	102 (45.9L)	122 (54.9L)	214 (96.3L)	366 (164.7)	N/A
60	107 (128L)	128 (57.6L)	224 (100.8L)	384 (172.8L)	N/A

GALLONS PER HOUR WITH TWO NOZZLES

	Yellow 800067	INCLUDED IN KIT			Black XR11005
		Red XR11001	Green XR11002	Blue XR11003	
PSI					
15	5.2 (19.7L)	7.3 (27.6L)	12.9 (48.8L)	22.0 (83.2L)	31.9 (120.6L)
20	5.6 (21.2L)	8.4 (31.8L)	15.1 (57.1L)	24.1 (91.1L)	42.2 (159.5L)
25	6.3 (23.8L)	9.5 (35.9L)	16.7 (63.1L)	28.3 (107L)	47.3 (178.8L)
30	7.0 (26.5L)	10.6 (40.1L)	18.6 (70.3L)	31.0 (117.2L)	52.2 (197.3L)
35	7.5 (28.4L)	11.3 (42.7)	19.7 (74.5L)	33.5 (126.6L)	N/A
40	8.0 (30.2L)	12.0 (45.4L)	21.0 (79.4L)	36.0 (136.1L)	N/A
45	8.4 (31.8L)	12.6 (47.6L)	22.3 (84.3L)	38.3 (144.8L)	N/A
50	8.9 (33.6L)	13.2 (49.9L)	23.6 (89.2L)	40.7 (153.8L)	N/A
55	9.3 (35.2L)	13.8 (52.2L)	24.5 (92.6L)	42.5 (160.7L)	N/A
60	9.7 (36.7L)	14.4 (54.4L)	25.6 (96.8L)	44.4 (167.8L)	N/A

GENERAL CALIBRATION CHART FOR THREE NOZZLES

Use the following chart for all install kits 442-SO, 4483, 4484, 4486, 4503, 4504, 4505, 4508, 4516, 4517, 4523, 4524, 4526, & 4400C

POUNDS PER HOUR WITH THREE NOZZLES

	Yellow 650067 650033	INCLUDED IN KIT			Black XR11004 6503	CENTER OUTSIDE
		Red XR11001 650050	Green XR110015 6501	Blue XR11002 6502		
PSI						
15	53 (23.9L)	64 (28.8L)	112 (50.4L)	192 (86.4L)	320 (144L)	
20	63 (28.4L)	76 (34.2L)	133 (59.9L)	228 (102.6L)	380 (171L)	
25	70 (31.5L)	84 (37.8L)	147 (66.2L)	252 (113.4L)	420 (189L)	
30	77 (34.7L)	92 (41.4L)	161 (72.5L)	276 (124.2L)	460 (207L)	
35	84 (37.8L)	100 (45L)	175 (78.8L)	300 (135L)	N/A	
40	89 (40.1L)	106 (47.7L)	186 (83.7L)	318 (143.1L)	N/A	
45	94 (42.3L)	112 (50.4L)	196 (88.2L)	336 (151.2L)	N/A	
50	97 (43.7L)	116 (52.2L)	203 (91.4L)	348 (156.6L)	N/A	
55	102 (45.9L)	122 (54.9L)	214 (96.3L)	366 (164.7)	N/A	
60	107 (128L)	128 (57.6L)	224 (100.8L)	384 (172.8L)	N/A	

GALLONS PER HOUR WITH THREE NOZZLES

	Yellow 650067 650033	INCLUDED IN KIT			Black XR11004 6503	CENTER OUTSIDE
		Red XR11001 650050	Green XR110015 6501	Blue XR11002 6502		
PSI						
15	5.2 (19.7L)	7.3 (27.6L)	12.9 (48.8L)	22.0 (83.2L)	31.9 (120.6L)	
20	5.6 (21.2L)	8.4 (31.8L)	15.1 (57.1L)	24.1 (91.1L)	42.2 (159.5L)	
25	6.3 (23.8L)	9.5 (35.9L)	16.7 (63.1L)	28.3 (107L)	47.3 (178.8L)	
30	7.0 (26.5L)	10.6 (40.1L)	18.6 (70.3L)	31.0 (117.2L)	52.2 (197.3L)	
35	7.5 (28.4L)	11.3 (42.7)	19.7 (74.5L)	33.5 (126.6L)	N/A	
40	8.0 (30.2L)	12.0 (45.4L)	21.0 (79.4L)	36.0 (136.1L)	N/A	
45	8.4 (31.8L)	12.6 (47.6L)	22.3 (84.3L)	38.3 (144.8L)	N/A	
50	8.9 (33.6L)	13.2 (49.9L)	23.6 (89.2L)	40.7 (153.8L)	N/A	
55	9.3 (35.2L)	13.8 (52.2L)	24.5 (92.6L)	42.5 (160.7L)	N/A	
60	9.7 (36.7L)	14.4 (54.4L)	25.6 (96.8L)	44.4 (167.8L)	N/A	

Maintenance

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

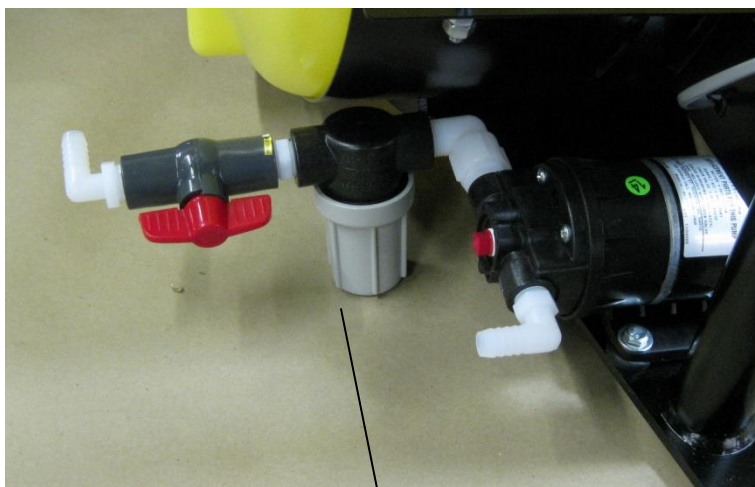
Maintenance Schedule

	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.



A



B

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.

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.

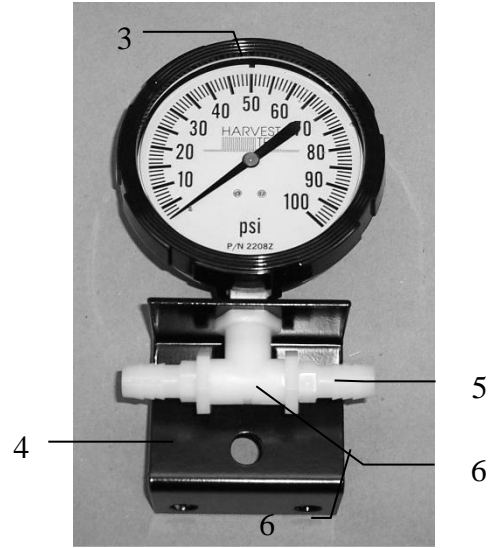
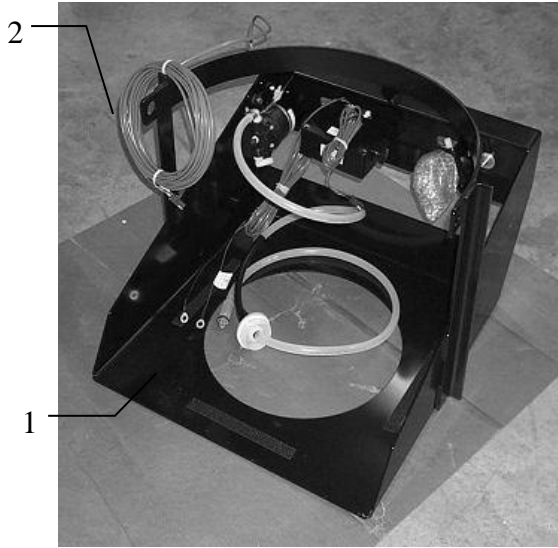
Miscellaneous maintenance:

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.

Winter Storage

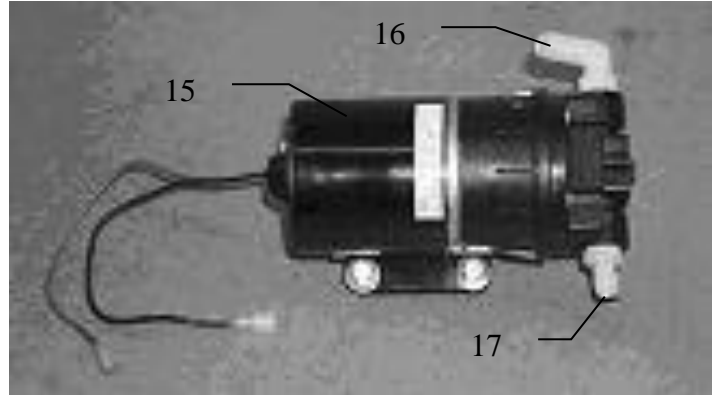
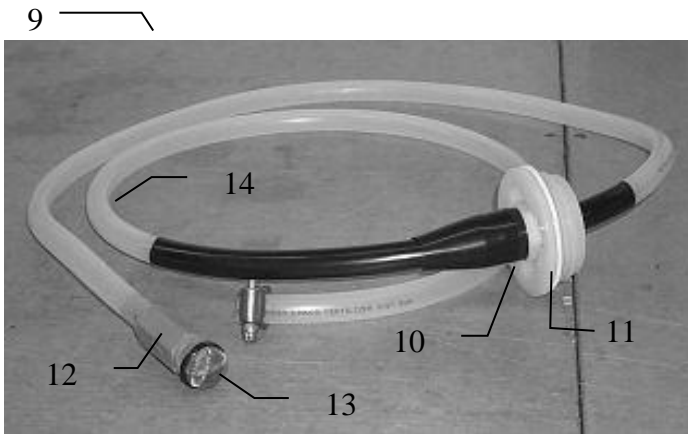
1. Thoroughly flush the system with water.
2. Remove the filter bowl and run dry until the water has cleared out of the intake side.
3. Remove the red plug from the bottom of the pump, drain, and run the pump for 30 seconds or until it is dry.
4. Drain all lines on the outlet side.
5. Never use oils or alcohol based anti-freeze in the system.
6. 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 Precision Information Processor.
8. Remove display from tractor and store in a warm, dry place.

Model 461 Base Kit – Electronic Control



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
1	Drum holder	001-4601	1
2	Pump lead	006-4575	1
3	Gauge	002-2208Z	1

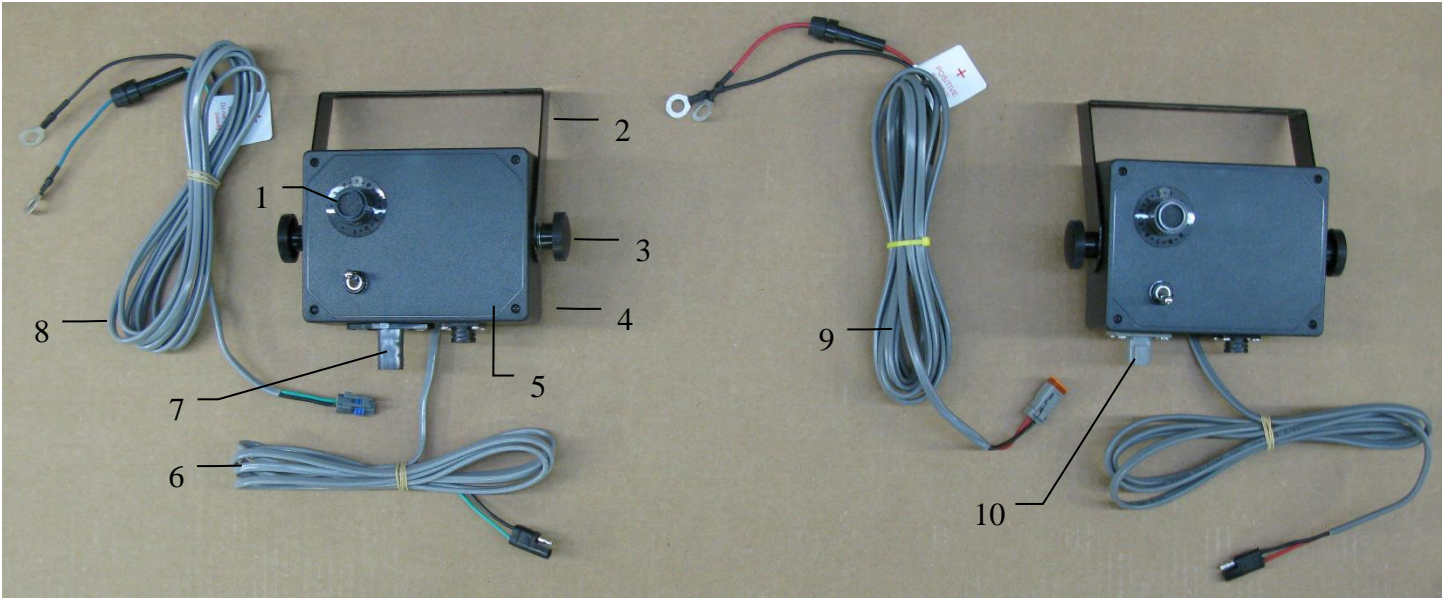
<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
4	Gauge bracket	001-4717	1
5	Straight fitting	003-A1412	2
6	Tee	003-TT14	1



<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
9	Intake assembly	030-4500E	1
10	Nipple fitting	003-M3434	1
11	Bung cap	003-4532A	1
12	Check valve	002-4566	1
13	Suction screen	002-4565	1
14	3/8" Hose	002-9003	7
15	Pump	007-4120S	1
16	Elbow fitting	003-EL3812	1
17	Straight fitting	003-A3838	1

<u>Ref</u>	<u>Description</u>	<u>Part#</u>	<u>Qty</u>
18	Elbow fitting	003-EL1412	1
19	Straight fitting	003-A1412	2
20	Hose clamp	003-9003	6
21	Jiffy clip	008-9010	3
22	Shut-off cap	004-1207F	1
23	Quick connect	004-1207G	1
24	Female disconnect	004-1207H	2
NP	1/2" Hose	002-9001	30ft
NP	Not Pictured		

Model 457 Control Box



<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	Speed dial	006-2022A	1	8	Power lead	006-4580C	1
2	U-bracket	001-2012E	1		Pre-Serial # 4549		
3	Control box knob	008-0923	2	9	Power lead	006-4580M	1
4	Control box enclosure	006-2015A	1		After Serial # 4550		
5	Control box cover	006-2015B	1	10	Box Plug	006-4581M	1
6	Pump lead	006-4583	1		After Serial # 4550		
7	Box Plug	006-4581					
	Pre-Serial # 4549						

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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