

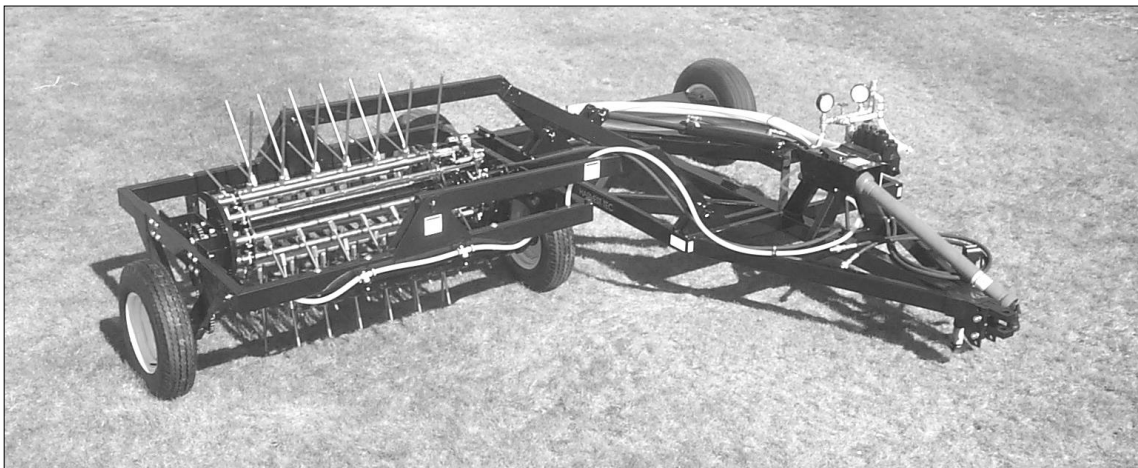
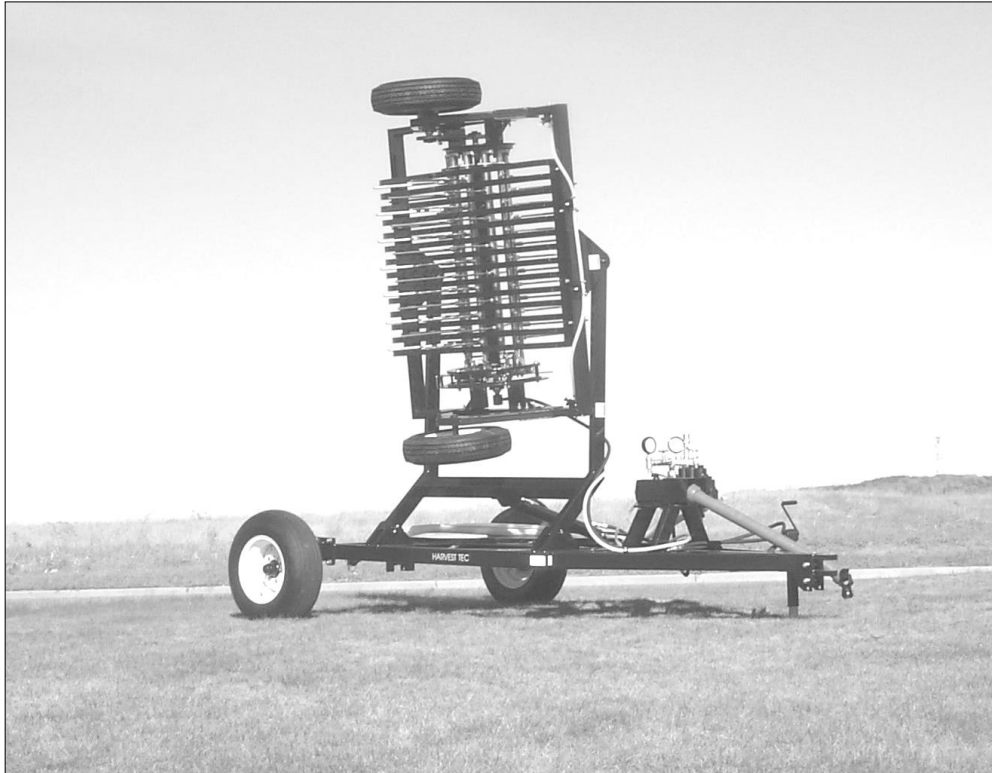
OWNER'S MANUAL

Model 710
DEW SIMULATOR

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MODEL 710- DEW SIMULATOR



ASSEMBLY AND SETUP

UNLOADING AND LINING UP THE MACHINE

To begin assembly, you will need to use a forklift or loader to lift the reel off of the cart frame. Begin by placing a $\frac{3}{4}$ " x 4" bolt with washer through the front and rear lift points with a nut and flat washer on the backside of each bolt. Then hook a chain or lift strap around the bolts. By lifting on the center of this chain, the reel frame will be fairly balanced and easy to handle. Do not lift from the bottom. Remove the reel tires from where they are banded onto the cart frame. Put the reel tires on the reel, using the lug bolts that are in the hubs. Position the cart frame on a flat surface with about twelve feet of room off to the right side. Use the jack to level the machine. Position the lift arms so they are off to the right side of the machine.

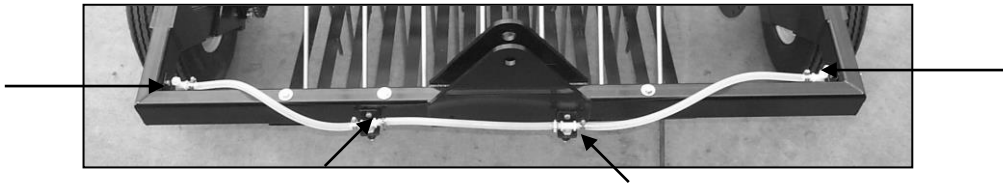


CONNECTING THE REEL

Position the reel so that the brass valve side is closest to the cart. With the help of one or two more people, roll the cart into position and drop the lift arms in between the left points in the front and rear of the reel. Use the 1-1/4" diameter pins and brass washers in the parts box to connect the lift arms to the reel frame. Insert the 3/8" diameter roll pins into the ends of the 1-1/4" pins. Next you will need to prime the cylinder. To prime the cylinder, extend and retract the cylinder until it moves in and out smoothly. After priming the hydraulic cylinder, extend the cylinder and connect it to the lift arm using the 1" diameter pin in the parts box. Once again, insert roll pins in the end of the 1" pin. Note the cylinder may move slower than you are used to. There is a restriction put in line to help eliminate dropping the reel too fast in the field.

INSTALLING THE AUXILIARY NOZZLES

Fasten the two nozzle holder brackets (001-7149) to the pre-drilled holes located inside of the front outer rails of the reel frame using 3/8"x3" bolts, locks, and two flat washers a piece. Screw a nipple (004-M14) into the swivel (004-4733) and then place this assembly up through the bottom side of the nozzle holder bracket. Screw the tee, with one hose barb attached to it, onto the top of the nipple coming through nozzle holder bracket located on the drive side. Fasten two more nozzle holder brackets to the pre-drilled holes located in the middle of the front side of the reel frame rails using 3/8" bolts, locks, and two flat washers a piece. Place a nozzle body (004-4722) up through the bottom side of each nozzle holder bracket and then screw it into a tee assembly (with two hose barbs attached.) On the side, opposite the drive side, screw a nipple (004-M14) into the swivel (004-4733) and then place this assembly up through the bottom side of the nozzle holder bracket. Screw the tee, with two hose barbs at 90 degrees attached to it, onto the top of the nipple coming through nozzle holder bracket. Finally place screens into all of the nozzle bodies followed by tips and a nozzle caps. Cut 1/2" hose provided and connect all tee assemblies together and then secure with hose clamps.

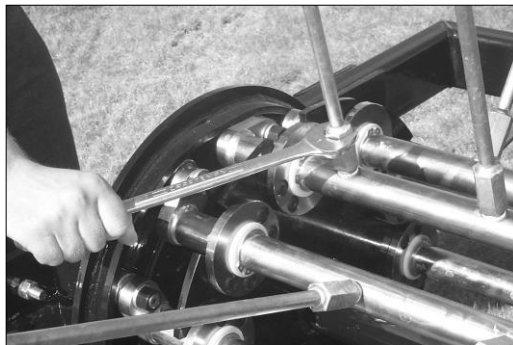


CONNECTING THE HOSES

Connect the black high pressure water hydraulic line coming from the back of the pump to the fitting connection in the rotary swivel located on the end of the reel nearest the cart. Connect the 1/2" diameter clear plastic hose from the back of the pump to the plastic auxiliary line starting on the side of the reel located nearest the cart. Using plastic ties, beginning at the rotary swivel, tie the black high-pressure line and clear plastic line to the lift arm. Follow the arm towards the pivot point at the front of the cart. Leave some slack in the lines around the pivot point so the hoses will not become pinched or kinked.

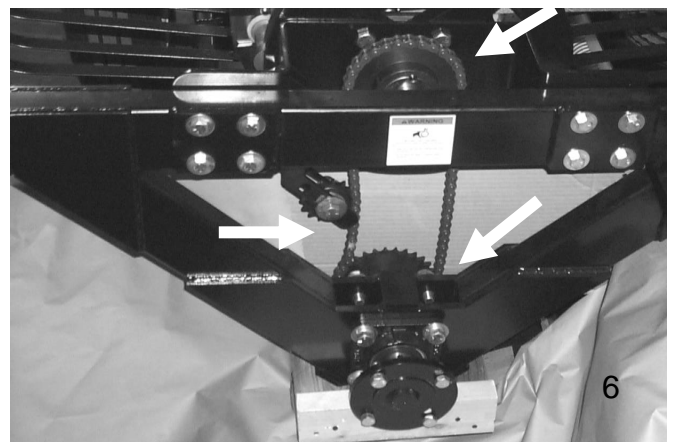
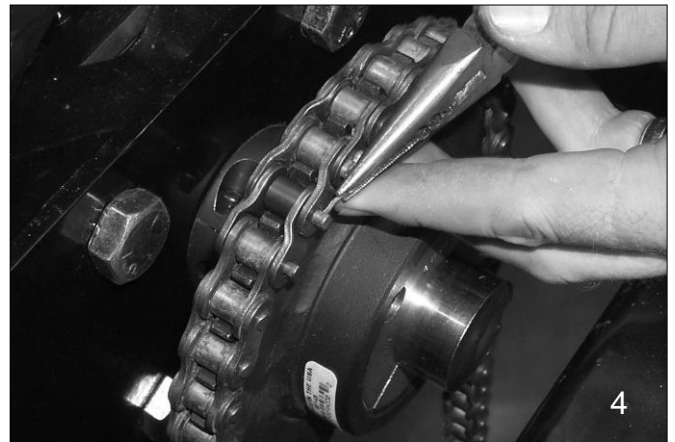
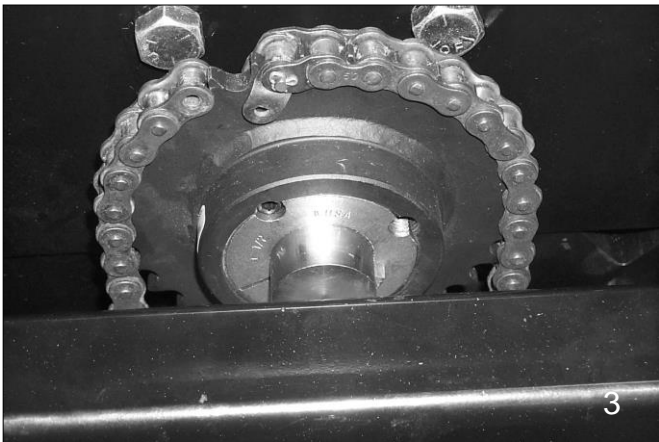
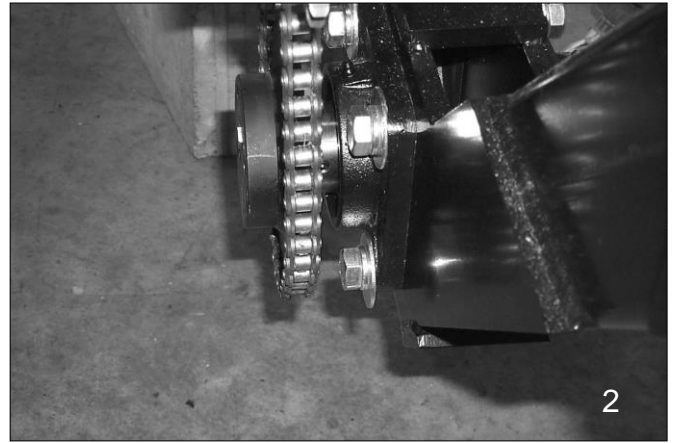
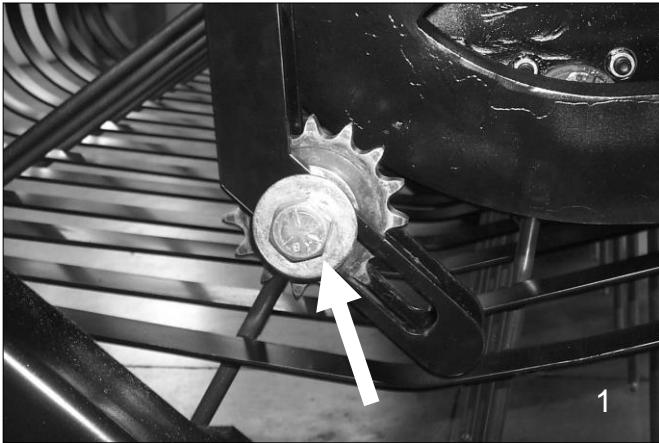
INSTALLING THE TINES

Use the small blue bottle of thread lock to install the tines from the parts box. Put a drop or two of thread lock on the threads of each tine before screwing the tines into the cross tubes. The threads on the tines are a tapered pipe thread so it is normal for them to start feeling tight within a turn or two, and they should not bottom out. Tighten to approximately 150 ft-lbs. The thread lock will help retain the tines and seal the treads. It works best to install the tine before installing the ground driven drive chain. This enables you to rotate the reel as you move from one cross tube to the next.



INSTALLING THE DRIVE CHAIN

Remove the drive chain from the parts box. Begin installing the drive chain assembly by loosening and sliding up the idler sprocket. Install the drive chain and complete the installation by moving the idler down against the chain until it is tight and tighten the idler.



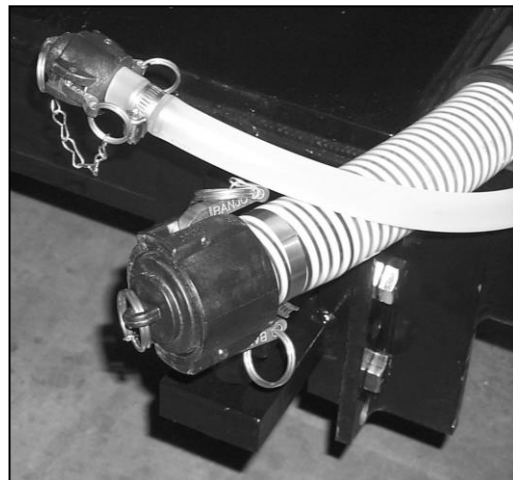
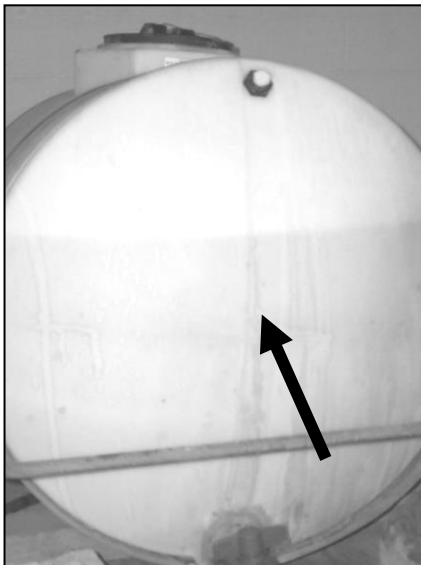
MOUNTING THE WIRE HARNESS

A 7-pole wire harness is included in the parts box that is designed to go between the tractor and water trailer should you decide that you want road lights on the water trailer. The metal bracket should be mounted at the rear of the cart frame. It can either be fastened to the cart using self-tapping screws or welding to the frame. The wire can be routed forward on the center beam of the cart frame and fastened with plastic ties up to the front of the cart frame.



PREPARING THE TANK

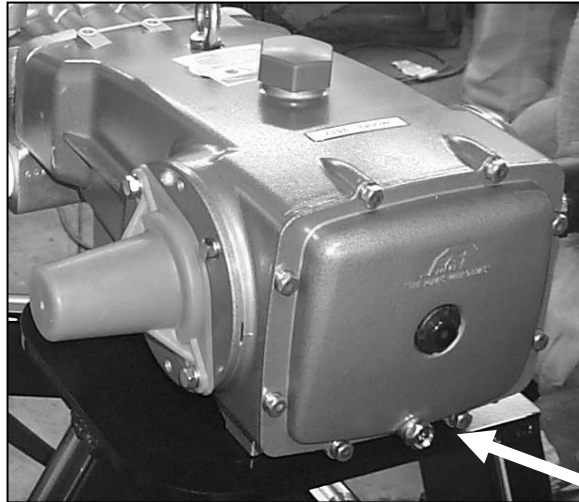
Prepare the water trailer by hooking it to the rear of the cart frame. The dew simulator requires a two inch diameter suction line so if the trailer is not already set up with a two inch tank fitting, you will need to install one. The parts and hose for the 2" line are included in the parts box. The suction line on the trailer should be set up so the line can also be used as a fill line by positioning the 2" ball valve right after the quick connect. You then need to install a $\frac{3}{4}$ " tank fitting in the tank for the return line. Mount the tank fitting on the front of the tank near the top. This return line is designed to aid in the priming process by allowing the air in a dry line to cycle through the system. Use the fittings and hose in the parts box to connect down to the quick connect at the rear of the cart frame.



OPERATION

CHECK OIL LEVEL IN THE PUMP

After the first 50 hours of operation, it is recommended the crankcase oil be changed. After the first 50 hours, change the oil every 500 hours. The pump is filled with oil prior to being shipped from the factory. You can use the sight gauge located on the side of the pump to check the oil level. Fill the pump crankcase with approximately 4.75 quarts of pump oil from Harvest Tec (part #009-7127OIL) or until the oil has reached the top of the sight gauge. Check the oil level daily before operation by looking at the sight glass located on the side of the pump. Read the pump owners manual.



PREVENTATIVE MAINTENANCE CHECK LIST

<u>CHECK</u>	<u>DAILY</u>	<u>WEEKLY</u>	<u>50 HRS.*</u>	<u>500 HRS.*</u>	<u>1500 HRS.**</u>	<u>3000 HRS.**</u>
Intake filter	X					
Oil level/Quality	X					
Oil leaks	X					
Water leaks	X					
PTO		X				
Plumbing		X				
Initial oil change			X			
Oil change				X		
Seal change					X	
Valve change						X

** Each system's maintenance cycle will be exclusive, If system performance decreases, check immediately. If no wear at 1500 hours, check again at 2000 hours and each 500 hours until wear until wear is observed. Valves typically require changing every other seal change.

Duty cycle, temperature, quality of pumped liquid and inlet feed conditions all effect the life of pump wear parts and service cycle.

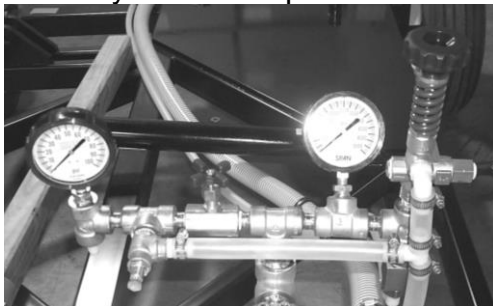
** Remember to service the regulator/ unloader at each seal servicing and check all system accessories and connections before resuming operation.

PRIMING

Begin by connecting the suction & return lines from the water trailer to the suction & return lines of the 710 Dew Simulator with the quick couplers. The first step of operation is priming the pump. To prime the pump, locate the brass ball valve at the rear of the pump manifold. This valve is on the discharge side of the pump. Position the handle on the ball valve in the vertical position (pull up and towards you). This opens the discharge line to the return line and will allow the pump to quickly get the air out of the system. It is also a good idea to remove and clean the strainer located on the backside of the pump.

Open the 2" ball valve between the trailer and the pump. **WARNING: MAKE SURE THE RETURN LINE IS OPEN TO THE TANK. IF THERE IS A RESTRICTION OR THE LINE IS PLUGGED. IT COULD BURST AND CAUSE INJURY.** Turn the PTO of the tractor on and run at approximately 700 PTO rpm. It often helps to loosen partially the strainer bowl until water begins coming out. This is a good way to remove the air from the suction line. Tighten the strainer.

The pump should then begin to circulate the water out the discharge side of the pump and back to the tank. Let the pump circulate for one to two minutes. You can slowly begin to close the brass ball valve by pushing the handle down and away from you. This will direct flow to the reel. It is common for the pump to make a little more noise and the lines to vibrate because the pump is working to push the remaining air from the system. It helps to open and close the brass ball valve to "pulse" the air out. While priming the pump, keep an eye on the 5000-psi pressure gauge. As you close the brass ball valve, the pressure should increase and the reel should start spraying. Once that you feel you have the majority of the air out of the system, increase the speed of the PTO to between 800 and 900 PTO RPM. **"Don't run over 900 PTO RPM."** This will result in a pressure increase. The pump should be operated at between 2300-2500 PSI when the brass ball valve is closed (all the way from you and down). As you slowly close the brass ball valve you will see that the pressure rises. As the pressure approaches 2500 PSI, reduce the pressure by turning the black handle on the relief valve counter clockwise. Adjust the pressure relief valve until the system is at 2500 PSI with the ball valve closed. You will need to adjust the high pressure relief valve each time you use the perimeter nozzles or adjust the valve trip setting.



You may notice that after priming and driving forward, the pressure will drop off. This is the result of the air not getting pushed out of the line in the tubes that were not turned on at the time. Open and close the brass ball valve a few times and that should push the air out and pressure should be regained. An easy way to prime the system completely without having to drive ahead is to lift the reel up slightly so the drive wheel is off the ground. This enables you to easily spin the reel in place.

FIELD OPERATION

When the reel is on the ground, the hydraulics should be in the **FLOAT POSITION** to enable the hydraulic cylinder to float. This allows the lift arms and reel to pivot and follow the contours of the ground and eliminates having “down pressure” on the reel frame.

Before beginning to spray, approximate the amount of moisture that needs to be applied. Adjust the valve trips to the desired setting for application and windrow shape and determine the ground speed required. To operate the machine, drive along side the windrow that is being treated with the PTO on at approximately 800-900 PTO rpm. With the pressure set correctly, the high pressure gauge should read between 2300-2500 PSI. During operation, the pressure on the high pressure gauge should not vary more than 50 PSI. If you want to stop spraying while in the field or while turning around, shut off the PTO.

The machine is designed to straddle the windrow while the tractor drives along side of it. While operating in the field, it is not advised to turn while the reel is in the down position. You don't have to raise the reel completely, while turning around in the field, only lift the reel 1-2 ft off of the ground.

During some operating conditions, you may be required to use perimeter nozzle to reduce the effects of evaporation or wind on the outside surface of the windrow. To operate the perimeter nozzles, either for daytime operation or for just wetting the outside of the windrow, begin with the machine spraying at 2500 PSI. Slowly open the brass needle valve located on the left side of the pump manifold by turning it counter clockwise until the 100-PSI gauge reaches approximately 75 PSI. The perimeter tips should then be on when the PTO is on. Because the low-pressure perimeter nozzles are taking pressure away from the high pressure side, readjust the high pressure relief located above the strainer to bring the pressure back up to around 2500 PSI by turning clockwise. Depending upon your valve trip setting, you may also be required to increase the RPM at which the pump is running, **NOT TO EXCEED 900 PTO RPM**. Whenever you switch from operating with perimeter nozzles, to without and back again, you will need to adjust the high pressure relief valve to prevent over pressuring of the system.



Keep an eye on the level of the fluid in the tank. It is much easier and less time consuming to stop before running the tank dry and refill, than it is to run out and have to prime the pump again. If you stop before you run out of solution to refill, it is possible to disconnect the quick coupling and use the tank suction line as a fill line.

Before disconnecting the quick coupler, close the 2" ball valve on the trailer. Disconnect the coupler and connect to the fill source. Harvest Tec recommends that you have an inline screen on your fill source. Open the ball valve and begin filling. When filling is completed, shut off the fill source and close the 2" ball valve. Reconnect the quick connect and open the 2" ball valve. This should allow the pump to begin without priming. If you are filling directly from a well or riser, fill from top of the tank to prevent water contamination.



APPLICATION RATES

SOFTENING AGENT

The Harvest Tec 710 Dew Simulator is designed to add moisture to windrowed hay with the aid of a chemical softening agent mixed with water. This confidentially formulated chemical, HS2002, has a silicone base and is designed to help the water added soak into the hay more completely and quicker. This chemical is safe for all livestock. For daytime operation mix the HS2002 at a rate of 1 ½ gallons per 100 gallons of water. For night time operation mix the HS2002 at a rate of ¾ gallons per 100 gallons of water.

It works well to add the chemical to the tank while filling the tank. The chemical mixes easily and will not settle out.

SOLUTION APPLICATION RATES

The amount of water needed primarily depends on two factors, the estimated tons/acre and the estimated moisture content of the cured hay. By closely estimating what the tonnage of the field would be baled at the ideal 15% moisture content, and estimating what the starting moisture is, we can follow the charts and determine a valve trip setting and travel speed that will put us very close to the correct application rate.

TIMING OF OPERATION

The Harvest Tec 710 Dew Simulator is capable of operating during the day or at night. The machine works very well at night when evaporative conditions have less of an effect. During operation when evaporation is not a concern, the application tables on the next page are very close. It is possible to have anywhere between 15-45 minutes between treatment and baling. Although this time frame is close, it is recommended that the baler operator use the feel of the hay rather than a certain set time to determine when the hay is ready to bale. This wide window results in the 710 Dew Simulator having the capacity to treat in front of two large square balers.

Timing is crucial during the day and it is important that the hay is baled between 10-15 minutes after treatment. Once again, the operator should bale when the hay feels right. This window allows the 710 Dew Simulator to be used in combination with one large square baler. Because evaporation is higher during the heat of the day, it is necessary to over-apply to compensate for evaporation loss between the treatment and baling.

To help moisten the entire windrow during the day, there are four perimeter nozzles mounted on the front of the reel frame that spray a lower pressure, coarse mist on the top and sides of the windrow. The supply for this line is “bled” off of the main pressure line, thus requiring the 10-20% compensation of flow. This compensation can either be made by adjusting the valve trip or by slowing your travel speed by approximately one gear.

APPLICATION RATE TABLES

- * Determine what ground speed you want to go. It works well to choose a ground speed that is comparable to the ground speed at which you'll be baling at.

Table 1

Acres/Hour

width of swath
of windrow (Ft)

Tractor Speed (Mile/Hr)

	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
24	8.7	10.2	11.6	13.1	14.5	16.0	17.5	18.9	20.4	21.8	23.3	24.7	26.2	27.6	29.1
28	10.2	11.9	13.6	15.3	17.0	18.7	20.4	22.1	23.8	25.5	27.2	28.8	30.5	32.2	33.9
30	10.9	12.7	14.5	16.4	18.2	20.0	21.8	23.6	25.5	27.3	29.1	30.9	32.7	34.5	36.4
32	11.6	13.6	15.5	17.5	19.4	21.3	23.3	25.2	27.2	29.1	31.0	33.0	34.9	36.8	38.8
34	12.4	14.4	16.5	18.5	20.6	22.7	24.7	26.8	28.8	30.9	33.0	35.0	37.1	39.2	41.2
36	13.1	15.3	17.5	19.6	21.8	24.0	26.2	28.4	30.5	32.7	34.9	37.1	39.3	41.5	43.6

- * After determining the Acres/Hr to be covered, find how many Tons/ Hr you will be doing.

Table 2

Tons/Hour

Acres/Hr

Ton/Acre	8	11	14	17	20	23	26	29	32	35	38	41	44
0.75	6	8	11	13	15	17	20	22	24	26	29	31	33
1.00	8	11	14	17	20	23	26	29	32	35	38	41	44
1.25	10	14	18	21	25	29	33	36	40	44	48	51	55
1.50	12	17	21	26	30	35	39	44	48	53	57	62	66
1.75	14	19	25	30	35	40	46	51	56	61	67	72	77
2.00	16	22	28	34	40	46	52	58	64	70	76		

- * Cross reference the Ton/Hr you with the estimated pretreated moisture content to get the number of (Gal/Hr) you will need to apply.

Table 3

Gallons/Hour Required

Pretreated
Moisture
Content

Ton/Hour

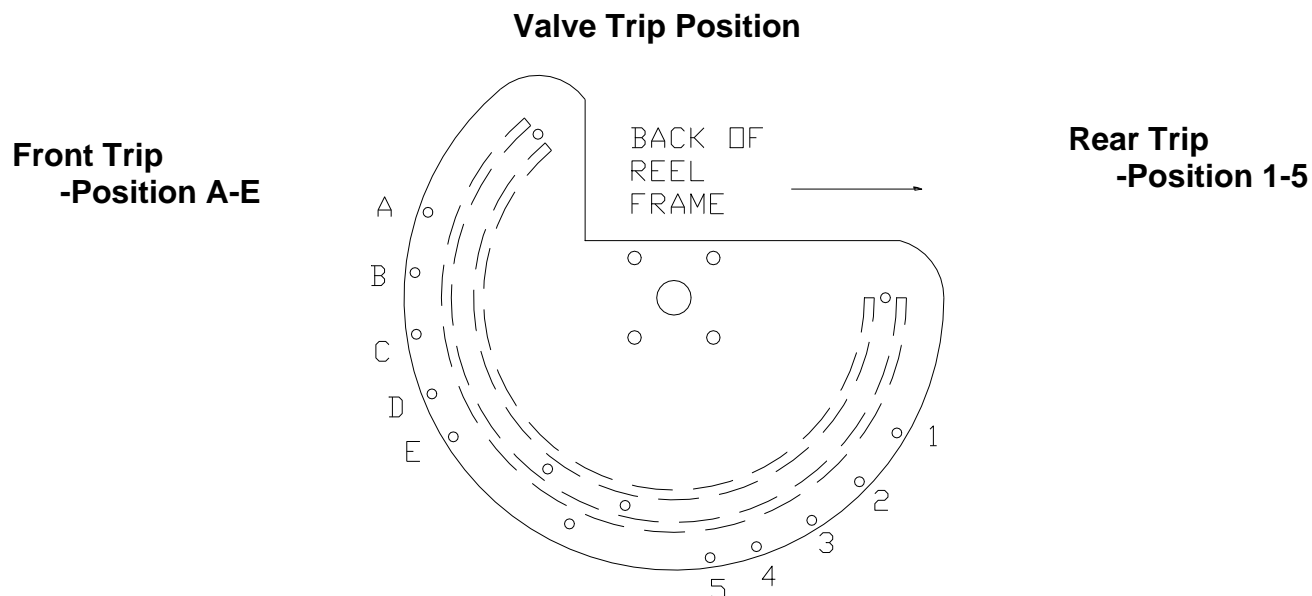
	8	16	24	32	40	48	56	64	72	80
6	238	475	713							
7	217	434	650							
8	197	394	590	787						
9	176	352	528	704						
10	156	312	468	624	780					
11	135	270	406	541	676	811				
12	115	230	346	461	576	691	806			
13	94	189	283	378	472	566	661	755		
14	74	149	223	298	372	446	521	595	670	744

- * The appropriate valve trip setting is located in Table 4 below. You should look for a combination that will give you the desired application and also work with the shape of the windrow.

Table 4

Valve Trip Setting

Trip Setting	Rate Gal/Hr	Trip Setting	Rate Gal/Hr	Trip Setting	Rate Gal/Hr	Trip Setting	Rate Gal/Hr	Trip Setting	Rate Gal/Hr
A1	800	B1	730	C1	730	D1	648	E1	648
A2	800	B2	730	C2	730	D2	648	E2	567
A3	730	B3	648	C3	648	D3	567	E3	486
A4	648	B4	567	C4	567	D4	486	E4	405
A5	648	B5	486	C5	486	D5	405	E5	324



APPLICATION RATE EXAMPLE

If you have a 30-foot swath raked together and estimate that the hay is 8% moisture, what setting would you use if you estimated the crop would go 1-1/2 ton/acre at 15% moisture and you wanted to travel at 6 mph? Given this information, begin by looking in Table 1 to determine how many acres/hour you would be covering. Table 1 shows that you would be covering about 22 acres/hour. Next, use Table 2 to determine how many tons/hour this would equal. For this situation with 22 acres/hour being covered and a yield of approximately 1-1/2 ton/acre, you would be doing around 33 ton/hr. Now look at Table 3 and find approximately where 33 ton/hr and 8% moisture meet, and this number will give you approximately how many gallons/hour are needed to raise the windrow from 8% to 15% moisture. Table 3 shows that you will need slightly over 787 gallons/hour of solution to raise the moisture to 15%. Table 4 shows the gallon/hour rates for the different valve trip settings. For this example, you should set the valve trip to have an output of around 800 gallons/hour. The trip setting should be “A1.” Front trip is in position “A” and rear trip is in position “1” (see diagram above.) This is slightly higher than the rate that is required (787 gallons/hour), so it may be necessary for you to increase your driving speed slightly to 6.5 miles/hour. You may also want to adjust the overall position of your valve trip according to the shape of your windrow. For daytime operation, you will need to turn your perimeter nozzles on and reduce your travel speed to around 5.5 miles/hour to compensate for evaporation during daytime operation.

APPLICATION ADJUSTMENT

As noted previously, it is possible to adjust the output (gallons/acre) by adjusting the setting of the valve trip or by adjusting ground speed. An operator should adjust the valve trip for each field and adjust ground speed in the field for changing conditions. The valve trip has two telescoping sections that not only allow for adjustment of flow, but for windrow shape and density. The valve trip arc determines the duration the cross-tubes are supplied with flow. This arc can be adjusted for the shape of the windrow to allow the operator to turn the cross-tubes on and off when they like in the windrow. See figure 4. The valve trip is adjusted by removing the lynch pin and sliding the section in the track to a different position. The lynch pin is then replaced to secure the trip section.

TROUBLE SHOOTING

PUMP WILL NOT PRIME

Check that the bypass valve is open, the strainer is clean, and the valve on trailer is open. The pump should now circulate water back to the tank when the bypass valve is open.

A dirty strainer will result in reduced flow that leads to a lack of pressure. If the pump will not go over 2000 PSI, check and clean the strainer.

PRESSURE VARIES MORE THAN 50 PSI DURING OPERATION

Check that all fittings and tines are tight, and there are no other leaks on the reel.

A ROW OF TINES STAYS ON ALL THE TIME

This is the result of a stuck valve. Loosen the hose connected to the elbow in the bottom of the valve. Loosen the hose from the elbow that is screwed into the brass standoff extending out the side of the valve. Unbolt and remove the valve. Remove the elbow from the bottom of the valve noting its previous position. Use the appropriate tool to remove the retainer, spring and ball. Inspect the internal parts and replace the spring. Reassemble by reversing the order of the previous instructions.

TIPS DO NOT SPRAY WHEN THEY SHOULD

If an entire row doesn't spray, check the valve. If it is only one or two tips, remove the tips by unscrewing from the ends of the tines and clean the small strainer of debris or dirt. You may need to unscrew the strainer from the tip to clean the end of the tip. Hold the tip up to a light to determine if it is clean.

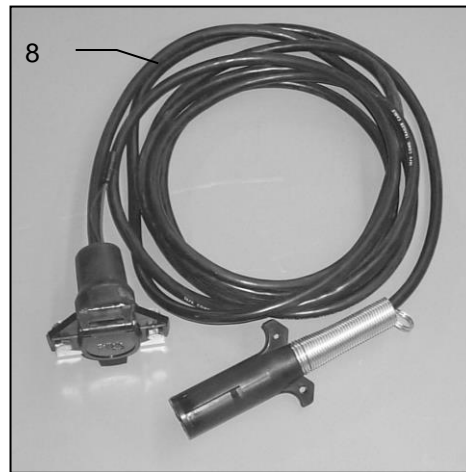
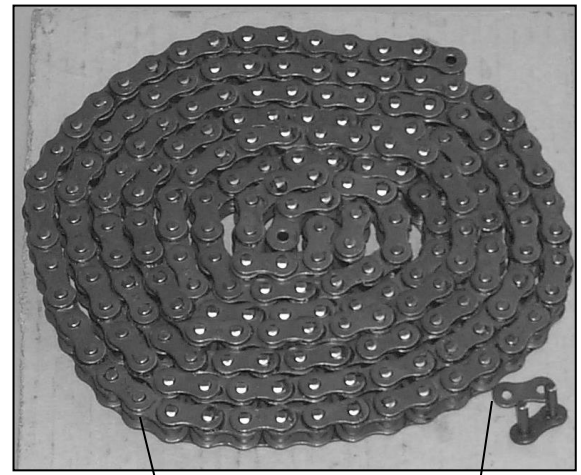
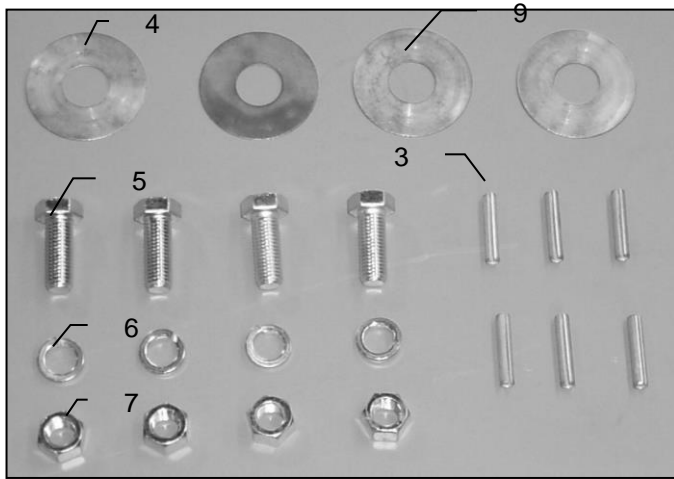
STORAGE

No special procedures are needed for storage between cuttings. The machine can be easily stored with the wing in the upright position. It is recommended that the machine be stored inside to minimize the effects of UV on the hydraulic hoses. Remove the plugs from the front of the pump and the strainer to drain the suction line and pump. Disconnect the high-pressure hose from the swivel at the end of the reel. Remove all of the tips from the tines and clean with part cleaner and a small brush. After removing the tips, rotate the reel to get any excess moisture worked out. Fold the wing up and store indoors if possible. For storage in cold climates where freezing may occur, circulate RV antifreeze through the pump and manifold.

MAINTENANCE

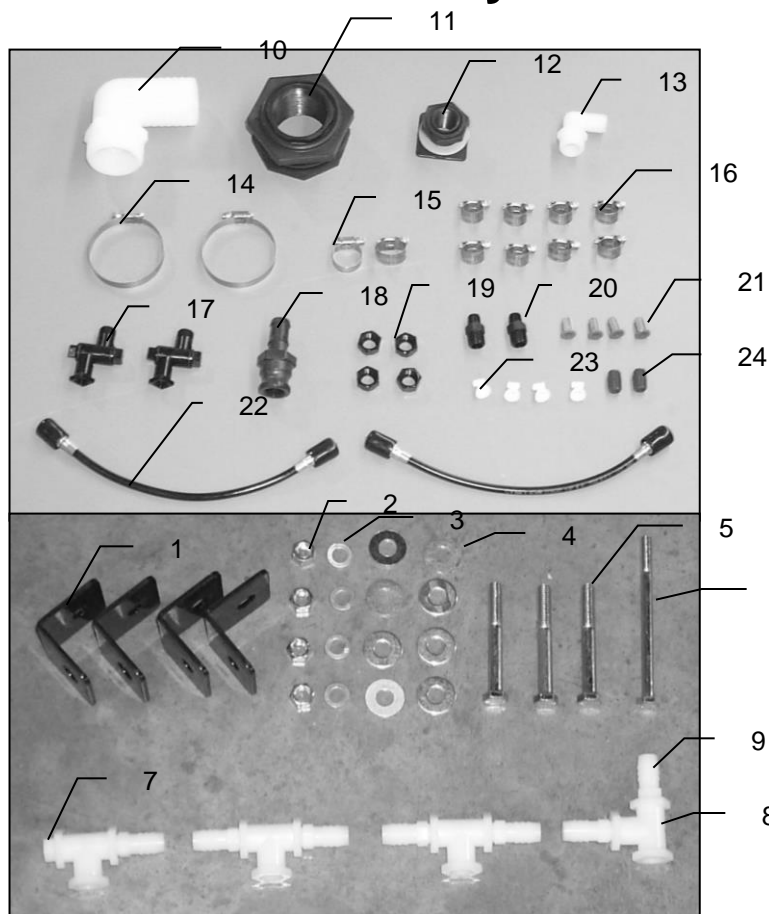
- Grease the bearings
- Change the oil
- Clean the entire unit

Parts Breakdown – Hardware, Oil, Chain, and Wiring Harness



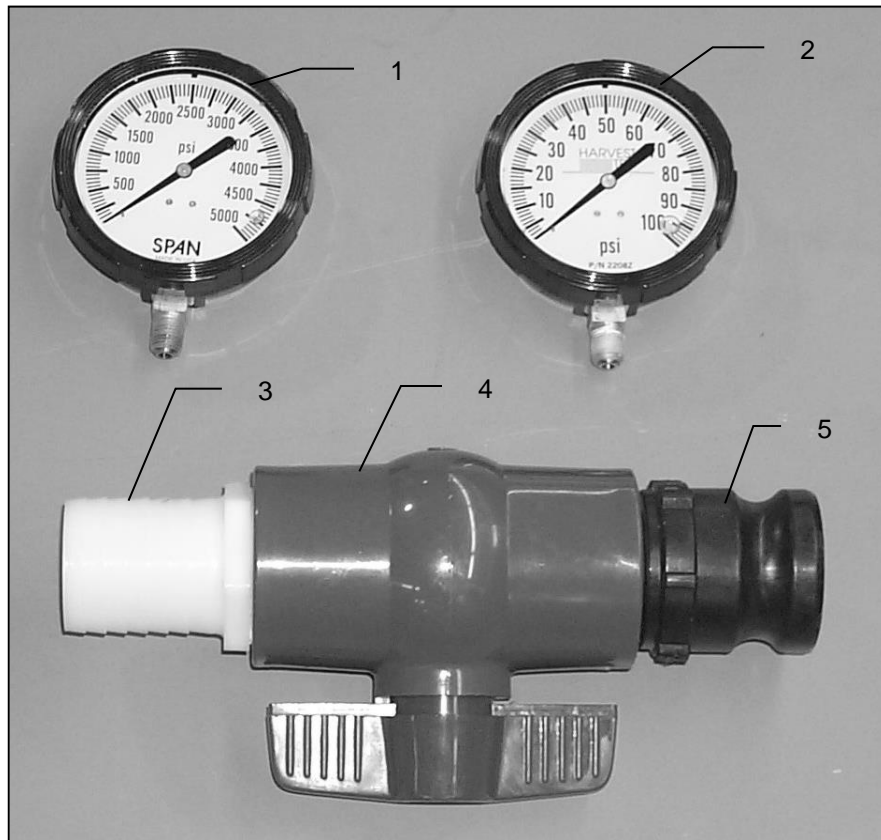
Ref #	Description	Part #	Qty
1	Roller chain #50	008-7142	5 ft
2	Roller chain splice #50	008-7142A	1
2	Roller chain splice #50	008-7142B	1
3	Zinc roll pin	001-7144	10
4	Thrust bushing – 1/16" thickness	008-7146A	4
5	3/4" X 2" Bolts		
6	3/4" Lock washers		
7	3/4" Nuts		
8	Wiring harness	006-7999	1
9	Thrust bushing – 1/8" thickness	008-7146B	4
10NP	1" X 6 1/2" lift cylinder pin	001-7116E	1
11NP	1 1/4" X 4 7/8" reel mounting pin	001-7116A	2
12NP	1 1/4" X 5 3/4" cart mounting pin	001-7116B	2
13NP	Pump oil	008-7127OIL	4.8 quarts

Parts Breakdown-Parts Bag and Auxiliary Nozzle Assembly



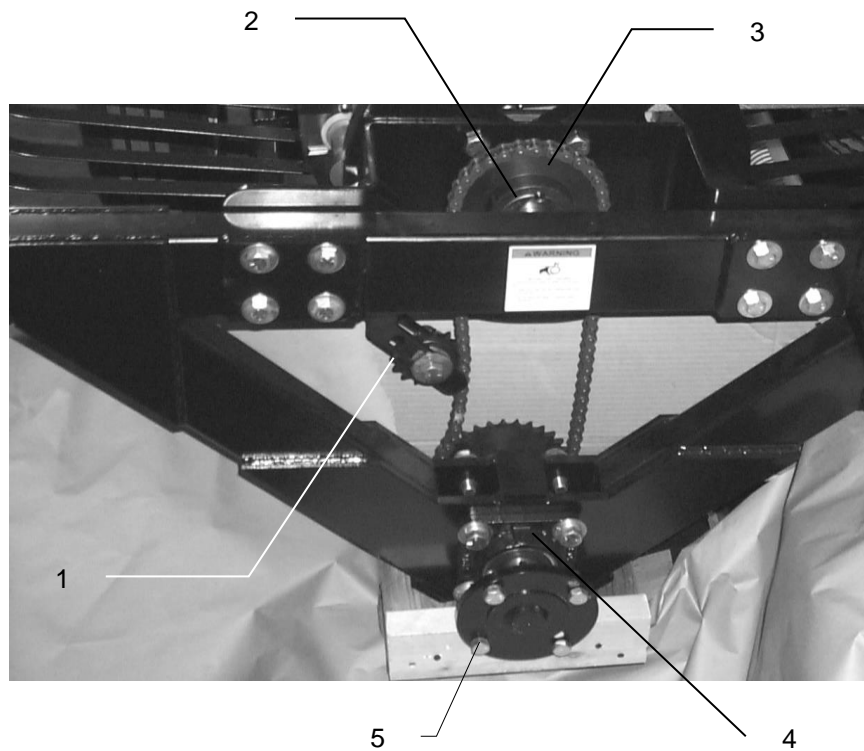
<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>	<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Aux. Nozzle mounts	001-7149	4	16	#6 hose clamp	003-9003	8
2	3/8" nuts			17	Swivel body	004-4733	2
3	3/8" lock washers			18	3/4" cam coupler	002-2204D	1
4	3/8" washers			19	Nozzle caps	004-4723	4
5	3/8" X 3" bolts			20	Nozzle body	004-4722	2
6	3/8" X 4" bolts			21	Tip strainer	004-1203-100	4
7	1/4" plug	003-F14	1	22	Cross tube hose	002-7104B	12
8	1/4" tee	003-TT14	4	23	Tips	004-TT11008VP	4
9	1/4" MPT x 1/2" hose barb	003-A1412	8	24	1/4" nipple	003-M14	2
10	2" elbow	003-EL2020	1	NP	Grease gun adap.	008-7121G	1
11	2" tank fitting	005-9102	1	NP	Loc Tight	008-7147LT	1
12	3/4" tank fitting	005-9100	1	NP	Jiffy clip 1"	008-9009	2
13	3/4" elbow fitting	003-EL3434	1	NP	Jiffy clip 3/4"	008-9010	4
14	#40 hose clamp	003-9006	4	NP	Jiffy clip 2-3/8"	008-9238	2
15	#10 hose clamp	003-9004	12				

Parts Breakdown-Gauges and Ball Valve Assembly



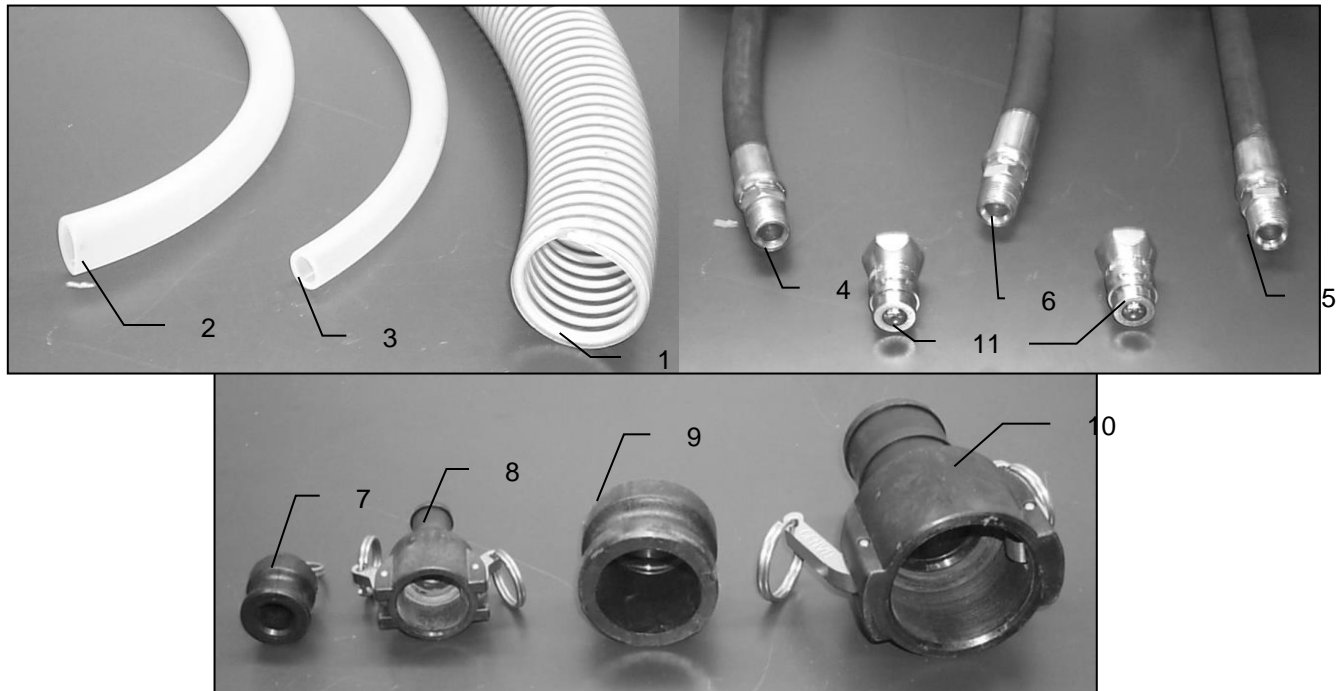
<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	GAUGE 0-5000 PSI	002-7136	1
2	4" GAUGE 100 PSI	002-2208Z	1
3	2" STRAIGHT FITTING	003-A2020	1
4	2" VALVE	002-2220	1
5	CAM COUPLER 2"MPT	002-2204I	1

Drive Line Assembly



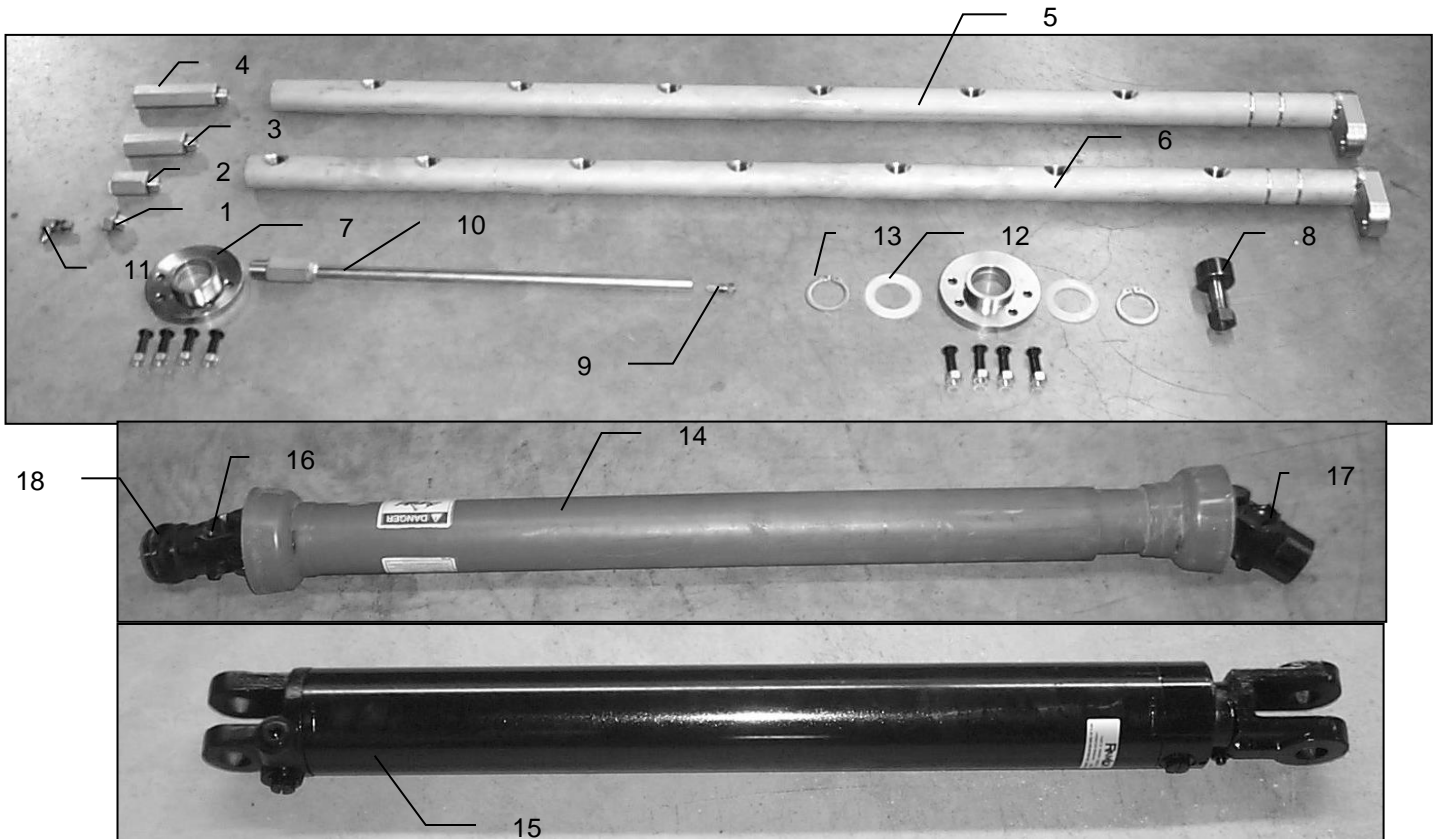
<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Idler sprocket	001-7125	1
2	Collar	001-7150	2
3	Drive sprocket	001-7124B	2
4	Four bolt bearing	008-7137	4
5	Rim bolts	008-7130B	4

Parts Breakdown-Hose and Hose Couplers



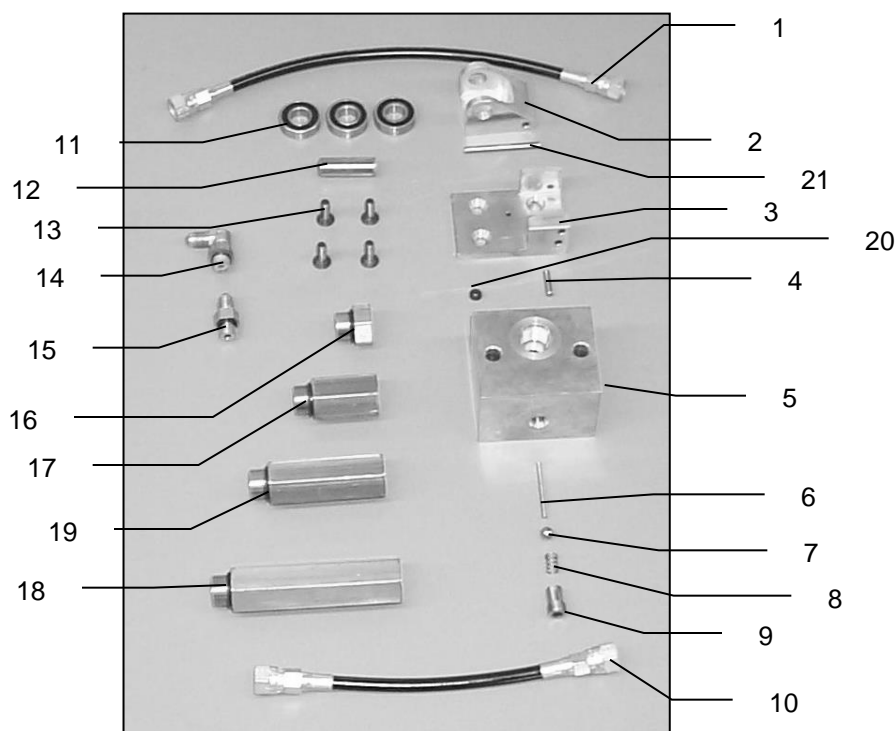
<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Ribbed hose-2"	002-9004	25
2	EVA hose-3/4"	002-9002	28
3	EVA hose-1/2"	002-9001	11
4	Hydraulic hose-12'	002-9712	1
5	High pressure water hose 11'	002-9713	1
6	Hydraulic hose-11'	002-9714	1
7	3/4" cam plug	002-2205G	1
8	3/4" female cam coupler	002-2204F	1
9	2" cam plug	002-2205F	1
10	2" female cam coupler	002-2205Y	1
11	Universal hydraulic fittings	003-9715	2
12NP	Hydraulic flow restrictor	003-9716	1

Parts Breakdown- Cross Tube Assembly & PTO Shaft and Hydraulic Ram



<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Brass standoff 3/8"	001-7105A	4
2	Brass standoff 1 1/2"	001-7105B	6
3	Brass standoff 2 5/8"	001-7105C	6
4	Brass standoff 3 3/4"	001-7105D	4
5	Six tine cross tube	001-7106	5
6	Seven tine cross tube	001-7107	5
7	Cross tube bearing insert	001-7143B	40
7	Cross tube bearing holder left	001-7143AL	20
7	Cross tube bearing holder right	001-7143AR	20
8	Cam bearing 1-1/2"	008-7121	10
9	Tip for time	004-7123	65
10	Tines	001-7102	65
11	1/4" high pressure elbow	003-DSL1414EL	30
12	Plastic bearing	008-4527	22
13	11/2" snap ring roto clip	008-4577	20
14	PTO shaft	008-7126	1
15	Hydraulic ram	008-7132	1
16	PTO cross bearing	008-7126CB	1
17	PTO machine yoke	008-7126MY	1
18	PTO tractor yoke	008-7126TY	1
NP	1 1/2" hydraulic swivel elbow	003-DSEL1212	2

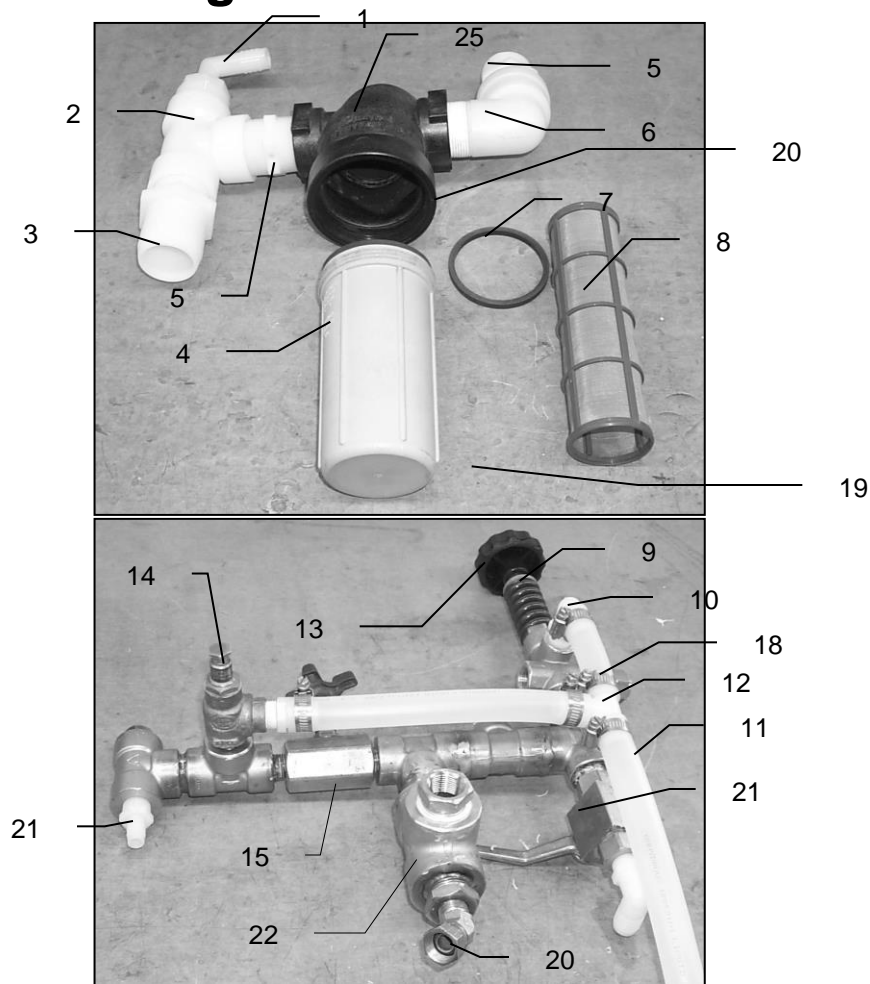
Parts Breakdown- Valve Assembly



<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Valve to cross tube hose	002-7104B	12
2	Valve actuator	001-7104VA	1
3	Valve actuator support plate	001-7104VB	1
4	Valve actuator stop pin	001-7104VC	1
5	Valve block	001-7104VD	1
6	Flow pin	001-7104VE	1
7	Ball	001-7104VF	1
8	Spring	001-7104VG	1
9	Spring retainer	001-7104VH	1
10	Hub to valve hose	002-7104A	10
11	Valve rollers	001-7104VI	1
12	Valve roller pin	001-7104VJ	1
13	Screw	001-7104VK	4
14	1/4" high pressure elbow	003-DS1414EL	30
15	1/4" high pressure straight fitting	003-DS1414A	10
16	Brass standoff 3/8"	001-7105A	4
17	Brass standoff 1 1/2"	001-7105B	6
18	Brass standoff 3 3/4"	001-7105D	4
19	Brass standoff 2 5/8"	001-7105C	6
20	Quad ring	001-7104VL	1
21	Pivot pin & retainer clip	001-7104VM	1
22	Valve block assembly 2-9,11-13,20-21	001-7104	10
23	Valve rebuild kit-4,6-9, 20-21	001-7104R	1

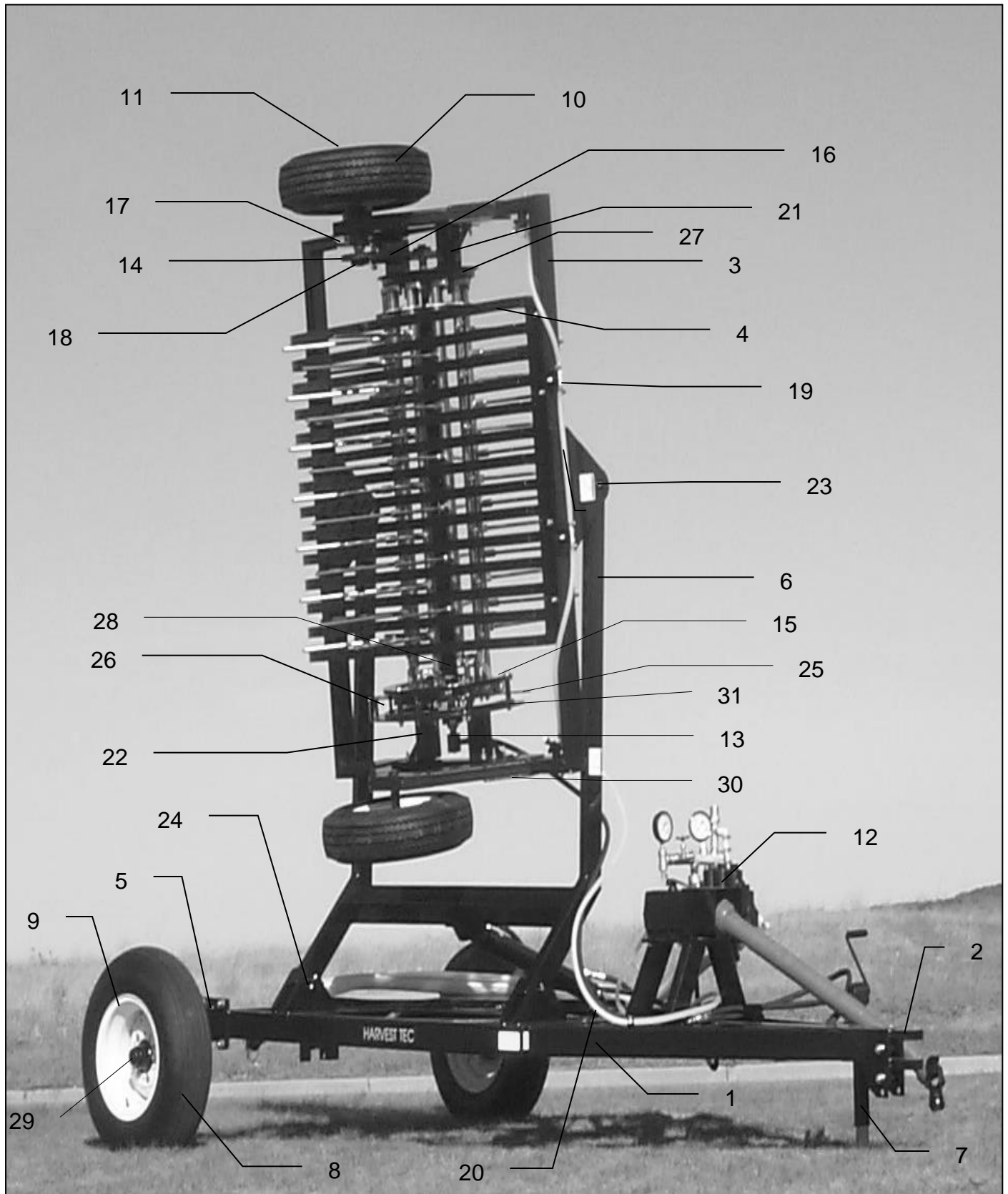
Quantities for parts 1,10, 14-19 & 22 are the total for the machine. All others parts are quantity per valve.

Parts Breakdown-High and Low Pressure Manifold



Ref #	Description	Part #	Qty	Ref #	Description	Part #	Qty
1	Elbow-3/4"HBX11/2"MPT	003-EL11234	1	13	Knob	002-7135K	1
2	Tee-11/2"	003-TT112	1	14	Adjustable relief valve	002-7137	1
3	Straight-2"HBX11/2"MPT	003-A20112	1	15	Needle valve	002-7134	1
4	Filter bowl	002-4319F	1	16	45° hyd. swivel	003-DSHA1212	2
5	Nipple-11/2"MPT	003-M112112	2	17	Straight fitting-1/2"	003-A1212	1
6	Street elbow-11/2"	003-SE112112	1	18	Hose clamp-3/4"	003-9004	12
7	Filter bowl gasket	002-4319D	1	19	Filter bowl assembly	002-4319	1
8	Filter bowl strainer	002-4319A	1	20	Filter bowl head	002-4319H	1
9	Regulator	002-7135	1	21	High pressure valve	002-2221	1
10	Elbow-1/2"MPTX3/4"HB	003-EL1234	2	22	Manifold assembly	030-0710M	1
11	Hose- 3/4"	002-9002	25	NP	3/4" hose barb elbow	003-EL34	1
12	Tee-3/4"	003-T3434	1	NP	Regulator plug	003-DSP12	1

Parts Breakdown- Tires, Rims and Frame



<u>Ref #</u>	<u>Description</u>	<u>Part #</u>	<u>Qty</u>
1	Cart frame	001-7120	1
2	Clevis hitch	001-7119	2
3	Reel frame	001-7118	1
4	Wrap guard	001-7117	1
5	Wheel extension	001-7120RXT	1
6	Reel bracing arm	001-7111	1
7	Jack 5000#	008-7133	1
8	Cart frame tire	008-7140	2
9	Cart frame rim	008-7131	2
10	Reel frame tire	008-7139	2
11	Reel frame rim	008-7130	2
12	Pump	007-7127	1
13	Swivel	001-7122	1
14	Drive sprocket	001-7124B	2
15	Valve actuator support rail	001-7110E	1
16	Idler sprocket	001-7125	1
17	Bearing	008-7137	4
18	Drive hub	001-7141	1
19	Auxiliary nozzle mount	001-7149	4
20	½" water hose	002-9713	1
21	Cam side mounting bracket	001-7109	1
22	Valve side mounting bracket	001-7108	1
23	PIN 1.25" X 4.875"	001-7116A	2
24	PIN 1.25" X 5.75"	001-7116B	2
25	Front trip adjuster	001-7110B	1
26	Rear trip adjuster	001-7110C	1
27	Cam track	001-7103	1
28	Reel	001-7101	1
29	Spindle	001-7120RR	1
30	Support plate	001-7109E	4
31	Valve actuator plate	001-7110A	1
NP	Stationary trip section	001-7110D	1
NP	Standoff spacer-1-5/16"	001-7110F	2
NP	Standoff spacer-3-7/16"	001-7110G	3
NP	½" 3000 psi nipple	003-DSM1212	1
NP	1" plug	003-DSP100	1
NP	Pin 1" X 6.5" (ram to arm)	001-7116E	1
NP	PTO shield	001-7148	1
NP	Pump plug	003-F112	1
NP	Trip rollers	008-7145	8
NP	Trip pin	001-7147	2

NOTES:

Harvest Tec, LLC. Warranty and Liability Agreement.

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

Our obligation under this warranty is limited to repairing or replacing free of charge to the original purchaser any part that in our judgment shows evidence of defective or improper workmanship, provided the part is returned to Harvest Tec, LLC. within 30 days of the failure. Parts must be returned through the selling dealer and distributor, transportation charges prepaid.

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

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

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

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

Revised 6/22

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