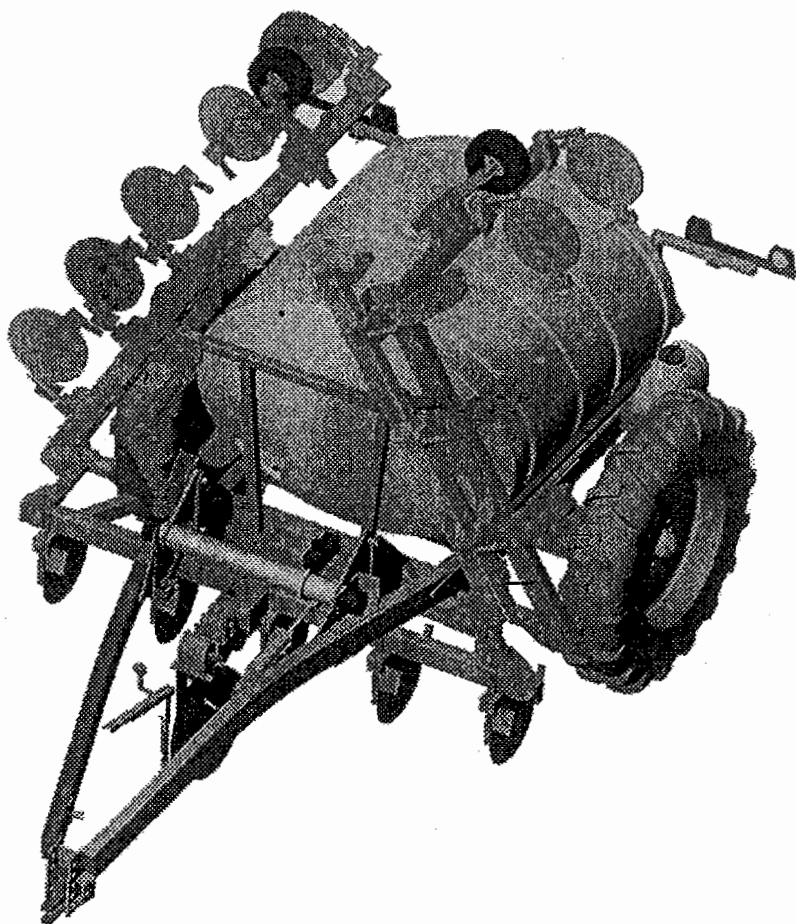


# **nutri-placr<sup>®</sup>**

## **Model 2800 - 16**

### **operator's manual**



DMI yield-till<sup>®</sup> system... Helping Plants Thrive<sup>®</sup>

600 East Peoria Street • P.O. Box 65 • Goodfield, Illinois 61742-0065

# TO THE OPERATOR

The manufacturer has built performance, features, reliability, and long life into this product, but it is your responsibility to operate and service this machine properly in order to realize these built in benefits.

The manufacturer urges you to read and understand this manual and to instruct all who will operate the implement to proper operation and service.

When ordering parts, provide the complete model number and serial number of the machine (should be filled in below), in addition the part number and part description.

MODEL NUMBER \_\_\_\_\_ SERIAL NUMBER \_\_\_\_\_

DATE PURCHASED \_\_\_\_\_ DEALER PHONE NUMBER \_\_\_\_\_

DEALER NAME \_\_\_\_\_





**NOTE:** When the term "Right" or "Left" is used, it means from a position behind the implement and facing the front.

## BOLT TORQUE

### READ THESE INSTRUCTIONS FIRST:

1. Improperly tightened bolts will result in damage, breakage, expense, and down-time.
2. Always replace bolts with the specified grade and type.
3. Torque properly before first use of the machine and every 2-4 hours of use until you are sure bolts are staying tight.
4. The chart below is a guide for proper torque. Use it unless a specified torque is called out elsewhere in the manual.
5. Torque is the force you apply to the wrench handle or the cheater bar, times the length of the handle or bar.
6. Use a torque wrench whenever possible.

The following table shows torque as measured in ft-lbs.

BOLT DIA. AND THREADS PER INCH	 GRADE 2	 GRADE 5	OR  A-325	 GRADE 8
3/8 - 16	25		35	50
7/16 - 14	35		55	80
1/2 - 13	55		85	125
9/16 - 12	75		125	175
5/8 - 11	105		170	235
3/4 - 10	185		305	425
7/8 - 9	170		445	690
1 - 8	260		670	1030
1 1/8 - 7	385		900	1460
1 1/4 - 7	515		1275	2060
1 3/8 - 6	675		1675	2700
1 1/2 - 6	900		2150	3500
1 3/4 - 5	1410		3500	5600

**NOTE:** Torque values given are for lubricated hardware. Increase values given by 10% non-lubricated hardware. Use 65% of torque value given for jam nuts.

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**NOTE:** nutri-placr<sup>®</sup> is a registered trademark of CNH America LLC.

# SAFETY SECTION

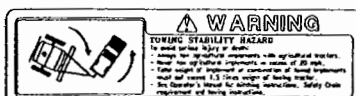
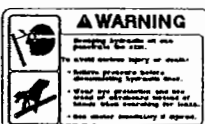

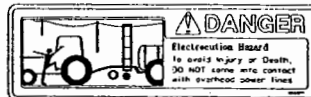
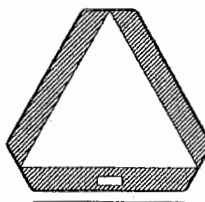

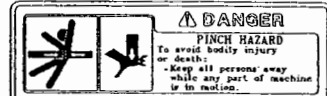
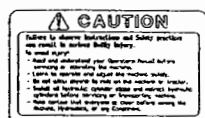

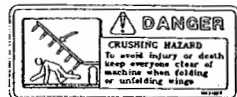
Throughout this manual, the term IMPORTANT is used to indicate that failure to observe can cause damage to equipment. The terms CAUTION, WARNING, and DANGER are used in conjunction with the Safety-Alert Symbol to indicate the degree of hazard for items of personal safety.

 This Safety-Alert Symbol means ATTENTION! BECOME ALERT!  
YOUR SAFETY IS INVOLVED!

	<b>CAUTION</b>	Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.
	<b>WARNING</b>	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.
	<b>DANGER</b>	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

- IMPORTANT:**
- Be sure to keep all safety signs clean and readable. If a safety sign is defaced or becomes unreadable, order the below safety signs per part number and refer to Page #22 and #24 for location on your **nutri-placr Model 2800-16** unit. When replacing signs or reflectors, remove loose pieces of old sign and clean surface. Peel off backing of new sign and position as closely as possible to original location.
  - The area of tank, where SMV Decal will be applied, needs to be cleaned with rubbing alcohol to remove any film prior to application.

## SAFETY SIGNS AND REFLECTORS SAFETY SECTION

		
PART NO. 18534370	PART NO. 18534282	PART NO. 18534367
		
PART NO. 18534371	PART NO. 18582800	PART NO. 18534364
		
PART NO. 18534333	PART NO. 18534228	PART NO. 18534363
		
		PART NO. 18534227

# IMPLEMENT SAFETY

In addition to design and configuration of equipment, safety and accident prevention are dependent upon the awareness, concern and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment. Failing to follow these safety messages can result in machine damage, property damage, personal injury, and/or death.

## OPERATIONAL SAFETY

- Before operating your **nutri-placr Model 2800-16** unit, thoroughly read and understand your operator's manual. If you do not understand any portion of the operators manual, contact your DMI distributor immediately for clarification.
- Machinery should be operated only by qualified persons familiar to the tractor, **nutri-placr Model 2800-16** unit, and the safety related items. Do not let children operate machinery.
- Never permit riders on **nutri-placr Model 2800-16** unit or tractor.
- Do not stand on, or straddle, the **nutri-placr Model 2800-16** tongue when unhitching.
- Never position yourself under any portion of the **nutri-placr Model 2800-16** unit with the tractor running. Lower machine to the ground, turn off tractor and remove key before making adjustments or repairs. Otherwise, block securely to prevent accidental lowering.
- Always store a wing implement with the wings down.
- Always have tractor coupled to **nutri-placr Model 2800-16** tongue when folding or unfolding tool bar wings.
- Always check for overhead obstacles if transporting tool bar and before folding or unfolding the wings of tool bar.
- Keep everyone clear while operating hydraulics or controls and also when machine is in motion.
- Do not operate at speeds in excess of 8 MPH when toolbar is engaged in operating position.
- Be sure safety decals are clean and readable. All safety related decals must be replaced if the **nutri-placr Model 2800-16** unit is painted or the decals are otherwise rendered unreadable.
- Furnish this manual to a new operator.

## TRANSPORT SAFETY

- Tow with tractor only. Never transport **nutri-placr Model 2800-16** unit in excess of 20 MPH. Maintain a safe speed.
- Proceed slowly on rough or slippery roadways, on side hills, and around curves to avoid tipping.
- Reduce speed when approaching ditches and corners. Do not make sharp turns with brakes.
- Check with state and local authorities for additional guidelines concerning lighting for implements being towed on public roads and comply.
- Test and maintain lights before towing on public roads. Make sure lights are not obstructed by residue before towing on public roads.
- Be sure unit is equipped with an unobstructed Slow-Moving-Vehicle (SMV) emblem when transporting.
- Lower tool bar if possible, when making adjustments or repairs. Otherwise block and pin securely to prevent accidental lowering.
- When transporting, always use an ASAE approved (ASAE S338) safety chain with tensile strength equal to the gross weight of the unit, plus any attachments. The proper size for the **nutri-placr Model 2800-16** unit is a 30,400 lbf rated chain which is included as standard equipment
- Be sure to comply with all state and local requirements for implement transport.
- Install transport stop before transporting.
- Always check torque on wheel bolts before transporting.



## SERVICE AND MAINTENANCE SAFETY

- Do not lubricate, adjust, or repair when **nutri-placr Model 2800-16** unit is in motion.
- Do not modify, or permit anyone to modify, this **nutri-placr Model 2800-16** unit, any of its components, or any equipment function, without first consulting a DMI equipment distributor.
- **NEVER** attempt to inspect, service, or disassemble any part of the hydraulic system, including the hydraulic hoses, until all pressure is relieved by shutting off tractor, lowering the toolbar to the ground (or secure with cylinder transport stops provided). After shutdown, move the tractor's SCV levers through a full range of motion several times to relieve pressure.
- High pressure fluid is nearly invisible, but has enough force to penetrate the skin. Never use the hands to search out a suspected leak. If injured by escaping fluid obtain medical attention at once to minimize chance of infection. Wear safety glasses or goggles to avoid eye injury when working on the hydraulic system.
- Do not attempt to mount shanks, anhydrous knives, or ground engaging points on coulters of **nutri-placr Model 2800-16** unit. Use only DMI liquid coulters assemblies.
- Use only approved replacement parts.



## FERTILIZER SAFETY

- Always read fertilizer container labels carefully and take proper precautions.
- Always wear safety goggles, gloves, and proper breathing apparatus as well as protective clothing when handling fertilizer.
- Dispose of left over fertilizer properly.
- Before eating, wash hands thoroughly. Use detergent to remove all residue. Rinse carefully and dry with disposable towels.

# GENERAL INFORMATION

Your new **nutri-placr Model 2800-16** unit is one of the most versatile machines you can own. The **nutri-placr Model 2800-16** unit will do an excellent job and give years of reliable service when used according to these simple guidelines. Guidelines are not absolute, but rather recommendations, because soil conditions will vary. These guidelines are provided as a service to our customers as a result of our testing and to help you better use your equipment for maximum performance.

## FEATURES AND SPECIFICATIONS

HORSEPOWER REQUIREMENTS	1300 Gallon Tank - 75 PTO horsepower minimum
OPERATING SPEED	5 to 8 m.p.h.
TRANSPORT SPECIFICATIONS	Overall length - 19' 11" Overall width - 140" @120" wheel width Overall height - 13' 6" Tongue weight - 2,200 lbs. full or empty
WHEEL SPACING	Adjustable 120", 144", 156"
COULTER BAR	Front mounted, flexible, 6° down, 20° up Spring cushion 20" rippled blade Hydraulic assist depth control and weight distribution
TANK	1300 gallon elliptical, bottom fill
TRANSPORT WHEELS	1300 gallon tank: <ul style="list-style-type: none"><li>• Tire - 420/80 R46, Tubeless</li><li>• Q871 hub</li></ul>
PUMP MOUNT	Ground driven Spring cushioned John Blue pump 7" x 14" traction type tire
TRACTOR ELECTRICAL REQUIREMENTS	Aux. power at pin 7 must be active
TRACTOR HYDRAULIC REQUIREMENTS	Pressure/flow compensated pump (closed center valves) - work valve needs detent (must remain detented at system pressure) 4 to 6 gpm flow rate for proper system performance.  <b>NOTE: Do not use with open center valve with fixed displacement pump configuration.</b>

# OPERATION SECTION

**CAUTION:**

Do not allow children or unqualified operators to operate equipment. In addition to design and configuration of equipment, safety and accident prevention are dependent upon the awareness, concern and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

## START UP PROCEDURES

There are a few things that need to be checked before use. A copy of this page should be kept readily available with the machine. These procedures begin with the understanding that the machine is assembled and ready to run.

1. The hoses for connection to the tractor valves are numbered at the hydraulic manifold, ports 1 through 4.
2. Hoses #1 and #2 are **working valve** control during fertilizer application.
3. Hoses #3 and #4 are the road **transport valve** control.
4. Confirm that the tractor hydraulics are operating at 4-6 gpm. Use the "turtle" setting on the flow control for both valves.
5. Confirm the tractor's 7-pin electrical connector has **12 volt supply to pin #7, the center pin**.
6. Connect hoses and 7-pin electrical connector before starting up. **If wings move too slow**, adjust the hydraulic flow up from the "turtle" setting.

### TYPICAL MACHINE BEHAVIOR:

1. Use the **transport valve**, unfold the wings. The inner wings will stop automatically and the outer wings will unfold with the center section raised.

**NOTE:** Do not use the **working valve**.

2. To begin applying fertilizer, use the **working valve** to lower the wings. The outer wings will lower first and the center section will follow.

**NOTE:** Do not use the **transport valve**.

3. During the application of fertilizer, **the working valve must remain detented** to provide constant pressure to the active hydraulic system.
4. Use the **working valve** for the **end row turn**; the toolbar will lift and stop automatically.

**NOTE:** Wings will be lifted slightly higher than the center section.

5. Use **transport valve** to complete folding the toolbar.

The **nutri-placr Model 2800-16** unit comes standard with cylinder stroke control segments to be used to limit the depth of the applicator. The segments are of various lengths so that the desired depth can be achieved.

**IMPORTANT:** Never use a cylinder stroke control segment larger or smaller than the cylinder rod as damage to the cylinder may result.

## HYDRAULICS

### Tractor Requirements

- Closed center hydraulic system set at 4 to 6 GPM rate - excess flow will cause improper function.
- System pressure: 2,000 psi, minimum
- Two directional valves; one valve can be spring centered, but the other valve needs to have detent capability (detent maintained at system pressure).

### Cylinder Functions:

Once the hydraulic circuit has been assembled, a check of the functions will be necessary. The system pressure will need to be 2,000 psi, minimum. Use the following table to check the tractor valve function against the cylinder behavior.

Directional Valve function in tractor	Desired Directional Valve Configuration	Toolbar Action	Desired Cylinder Behavior		
			Center	Middle	Outer
<b>Transport</b>	Spring centered	Fold up ready for transport	Extend	Retract	Retract
	Spring centered	Unfolded ready for work	No movement	Extend, stops when toolbar up 10°	Extend
<b>Work</b>	Spring centered (Detent is optional)	Lift for end row turns	Extend	Retract, stops when toolbar up 5°	No movement
	Detented (must retain detented throughout application cycle)	Down for fertilizer application	Retract	Extend	Extend

### NOTES:

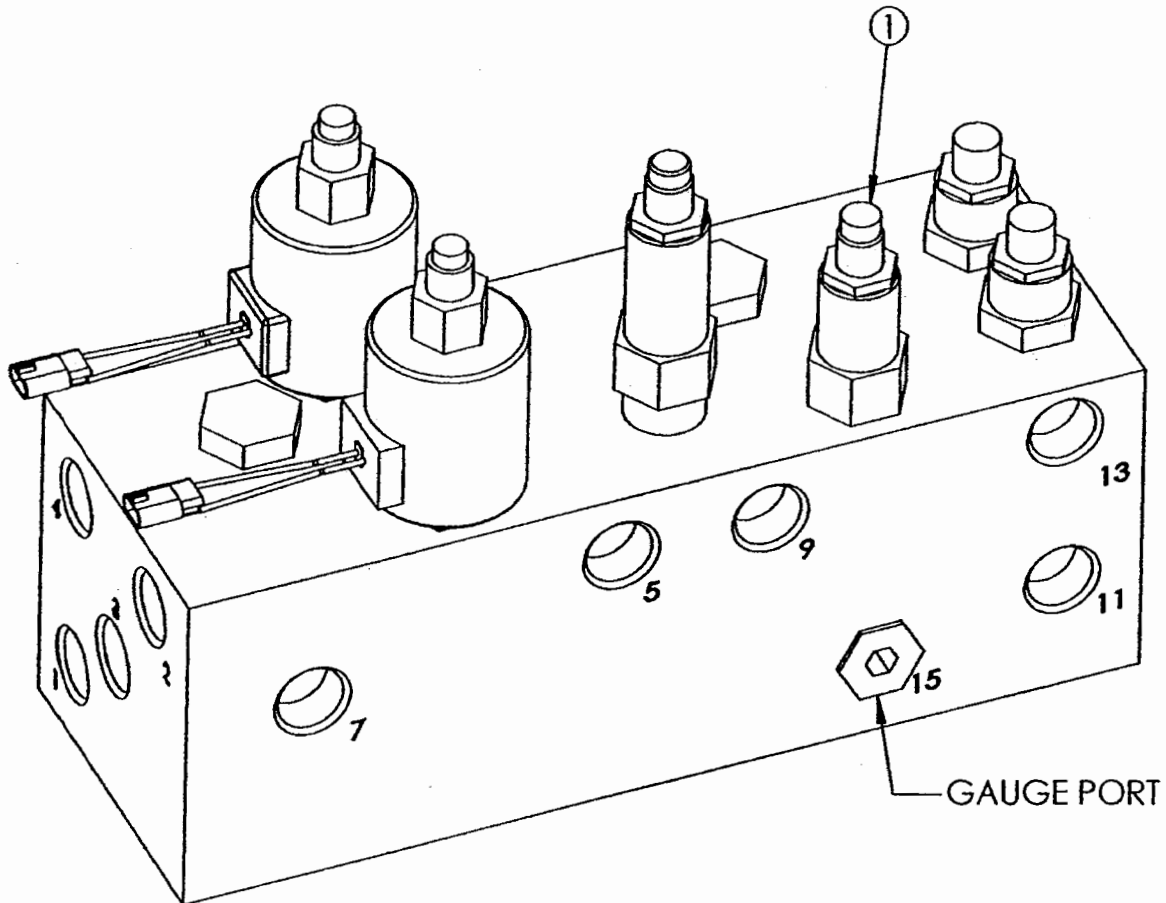
1. Operate only on a pressure compensated or flow compensated pump system. Use of an open center tractor hydraulic system will result in the hydraulic flow continuously bypassing through the relief valve resulting in an increase engine horsepower requirement to turn the pump at the relief valve pressure. This will overheat the oil and the tractor very quickly.
2. It is important to note that some older tractors will have a detented valve that will kick out when system pressure is achieved. This valve must be over-ridden. The valve must remain in detented position during application of fertilizer. Maintaining pressure will allow the system to keep the toolbar at a constant depth.

# ADJUSTING HYDRAULIC PRESSURES

The reducing valve (Item #1) in the hydraulic manifold controls the amount of downward pressure applied to the outer 5 coulters on either side of the machine. It has an adjustment range of 300 to 1,500 psi. The factory preset is 800 psi, which should be adequate for most conditions. Too much pressure will put unnecessary stress on the machine, and will put more load on the gauge wheels. Too little pressure may not keep the coulters in the ground at the proper depth. The pressure can be checked with a pressure gauge on port 15 while the SCV control lever is in detent position for the work mode of the machine.

## Steps for adjustment:

1. Have the machine hitched to a tractor with all necessary hydraulic and electric connections made.
2. Lower the toolbar to the ground.
3. Detent the SCV control lever that puts the toolbar in working position.
4. Using a 3/4" wrench, loosen the lock nut on the reducing valve (Item #1).
5. While watching the pressure at port 15, adjust the set screw on the top of the valve until the desired pressure is reached. Clockwise increases pressure, counterclockwise decreases pressure.
6. Tighten the lock nut.
7. Return to normal operating procedures.



# SETTING THE DEPTH

1. Level the **nutri-placr Model 2800-16** unit as shown in Figure #2 below.

**NOTE:** For 1 1/2" increments - flip hitch clevis over.  
(See Figure #3 below.)

**NOTE:** Excessive downward force on the coulter bar may lift the hitch. Adjust for proper operation.

When hooking to the tractor, choose the position for the hitch clevis to keep the frame level. This can be checked by measuring distance "A" and "B". (See Figure #2.)

Once the frame has been leveled, step back approximately 50 feet and view the machine. The frame should appear level to the ground. If not, make certain the ground is level and then readjust the frame. (See Figure #2.)

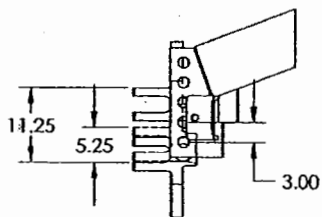
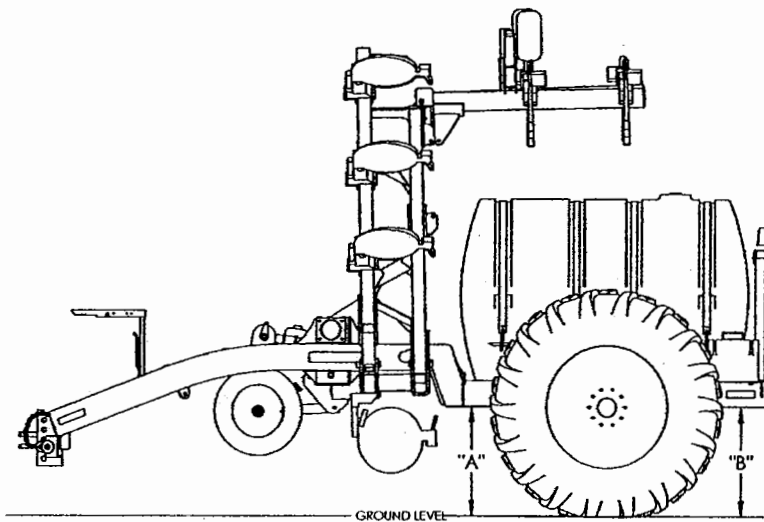


FIGURE 3



TRANSPORT POSITION

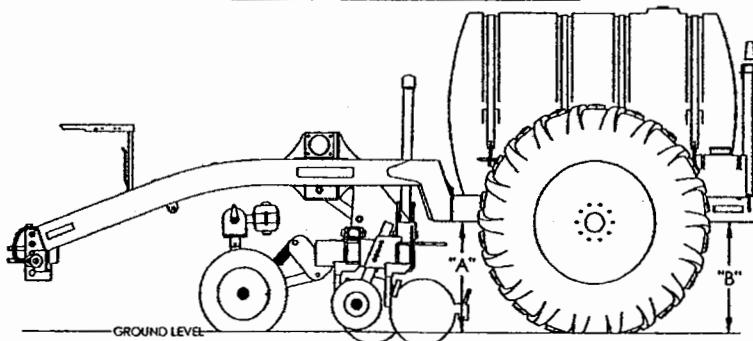
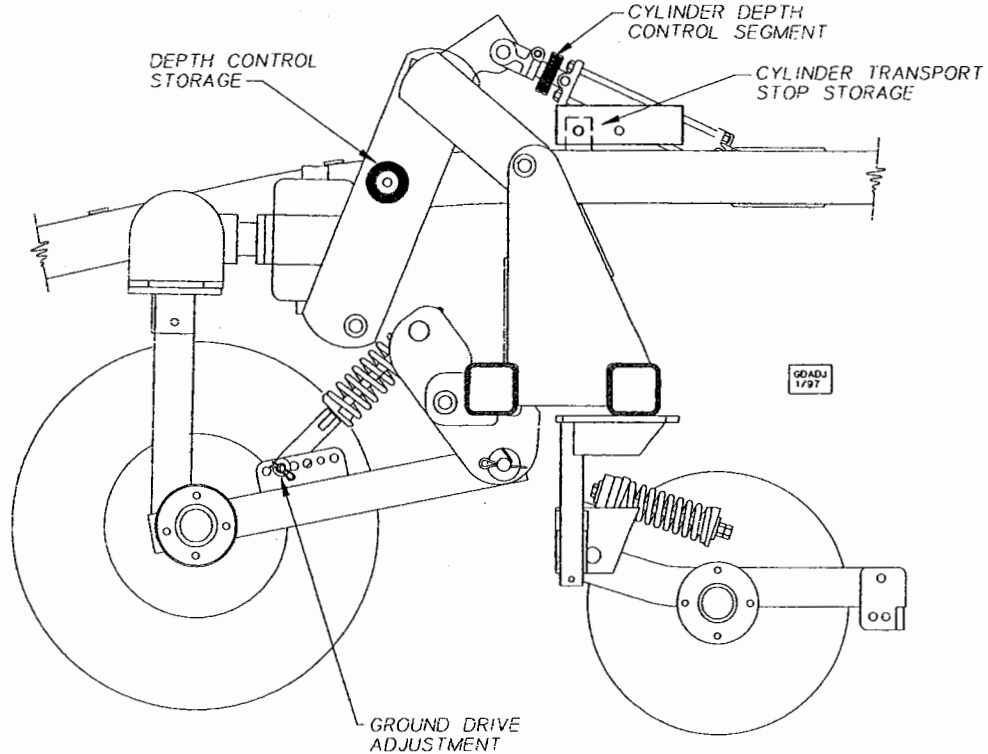


FIGURE 2

WORKING POSITION

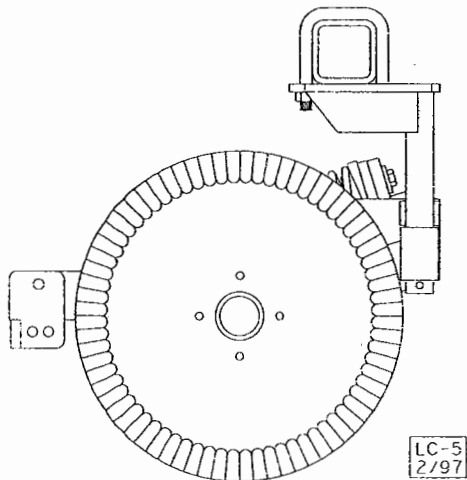
2. Set the depth by using stroke control segments on the **COULTER BAR LIFT CYLINDER**. (See Figure #4).
3. **Ground Drive:** After setting the couler depth, the ground drive wheel height may be adjusted.

A series of holes in the ground drive spindle arm is provided to vary the drive wheel height. Pin the spring linkage assembly to the hole that will provide positive wheel traction without excessive down pressure. For initial set-up, pin link to second hole as shown. (See Figure #4.)



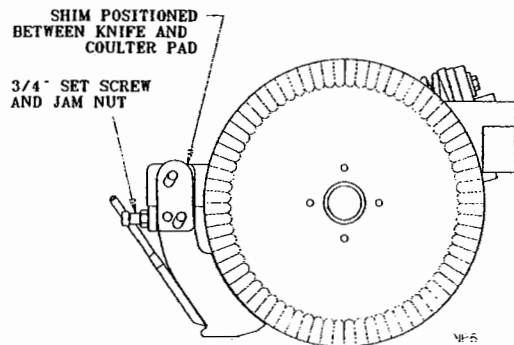
**FIGURE 4**

**4. LIQUID COULTERS:**



**FIGURE 5**

**Couler Knife.** Adjust the knife so it is running as close and in line with the couler as possible. Use the shims that are furnished to align the knife. Loosen the 3/4" jam nut and use the 3/4" set screw to adjust and hold the knife. Retighten the jam nut.



**FIGURE 6**

**Orifice Plate for Knife.** To maintain a uniform distribution, a minimum pressure must be maintained.

Order orifice depending on if putting more than or less than 80 pounds of nitrogen per acre.

DMI Part #	Spraying System Part #	Order the following orifice when applying:
34600021	4916-72	LESS than 80# per acre
34600020	4916-51	1/2 rate for LESS than 80# per acre
34600024	4916-86	1-1/2 rate for LESS than 80# per acre
34600022	4916-98	MORE than 80# per acre
34600021	4916-72	1/2 rate for MORE than 80# per acre
34600023	4916-125	1-1/2 rate for MORE than 80# per acre

**NOTE:** Rate adjustment is made by changing the pump setting.

**NOTE:** When side dressing the outer nozzle rate needs to be adjusted. Pressure is adjusted by changing nozzle size and speed of machine.

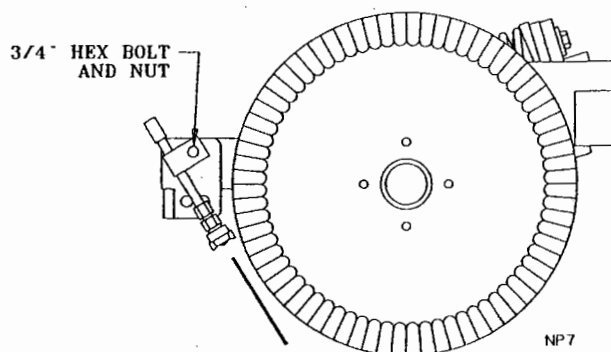
**EXAMPLE OF WHEN TO USE 1/2 RATE:** Use 1/2 rate on the outside shanks when side dressing with a 9-coulter applicator behind a 8-row planter.

**EXAMPLE OF WHEN TO USE 1-1/2 RATE:** Use 1-1/2 rate on the outside shanks when side dressing with a 11-shank applicator behind a 12-row planter.

**Coulter Injector.** The fertilizer will be injected into the ground when it is injected through a straight stream nozzle under pressure and positioned over the coulter slit; therefore it is important to keep the nozzle adjusted and pressure up.

To assure that the fertilizer is injected properly a minimum penetrating energy must be maintained that is based on pressure and volume. The following table on Page #13 will help you in selecting the proper nozzle size for your application.

Adjust the nozzle position by loosening the 5/8" x 1-1/2" NC hex bolt. (See Figure #7.)



**FIGURE 7**

- PUMP:** See supplier manual for application rate setting.

You may use the following charts or the John Blue slide rule to set rates. When using the slide rule, the following inputs are needed:

Loaded radius (7.0-14 tire)	<b>12.5"</b>
Pump Sprocket	<b>18 teeth</b>
Wheel sprocket	<b>60 teeth</b>

**Application width**

Take care to use the correct application width when figuring rates. When side-dressing, the application width is based upon the number of Rows - not the number of coulters. For example: If side-dressing 12-30" rows with 11 coulters (1-1/2 rate on outside) The application width is  $12 \times 30 = 360"$

If side-dressing 12-30" rows with 13 coulters (1/2 rate on outside) The application width is also 360"

On the other hand, if you are set up to run pre-plant with 13 coulters (all same nozzle) the application width is  $13 \times 30 = 390"$ .

**NOTE:** See Swath Width chart on page 14.

Pump Sprocket (18 Teeth)

Wheel sprocket (60 Teeth)

Loaded radius: 12.3"

Tire: Goodyear 7.0 - 14 traction

type

Application Rate: GALLONS PER ACRE

John Blue 4955 (Double Piston) Pump

Pump Setting	Swath Width (inches)										
	160	240	288	304	320	360	432	456	480	500	520
1.0	25	17	14	13	13	11	9	9	8	8	8
1.5	38	25	21	20	19	17	14	13	13	12	12
2.0	51	34	28	27	25	22	19	18	17	16	16
2.5	63	42	35	33	32	28	23	22	21	20	19
3.0	76	51	42	40	38	34	28	27	25	24	23
3.5	89	59	49	47	44	39	33	31	30	28	27
4.0	101	67	56	53	51	45	37	35	34	32	31
4.5	114	76	63	60	57	51	42	40	38	36	35
5.0	126	84	70	67	63	56	47	44	42	40	39
5.5	139	93	77	73	70	62	52	49	46	45	43
6.0	152	101	84	80	76	67	56	53	51	49	47
6.5	164	110	91	87	82	73	61	58	55	53	51
7.0	177	118	98	93	89	79	66	62	59	57	54
7.5	190	126	105	100	95	84	70	67	63	61	58
8.0	202	135	112	106	101	90	75	71	67	65	62
8.5	215	143	119	113	107	96	80	75	72	69	66
9.0	228	152	126	120	114	101	84	80	76	73	70
9.5	240	160	133	126	120	107	89	84	80	77	74
10.0	253	169	141	133	126	112	94	89	84	81	78

# LIQUID INJECTOR SYSTEM SET-UP

## 1. 28% LIQUID APPLICATION RATE

Formula to convert nitrogen (lb./acre) to 28% liquid (gal./acre)

Given that 28% liquid fertilizer is 28% nitrogen by weight, the following formula can be used to determine the approximate volume of liquid needed where *N* is the desired nitrogen placement rate in lb./acre:

$$28\% \text{ liquid application rate} = \frac{N}{3} \text{ gal./acre}$$

Example: to apply 100 lb./acre of Nitrogen on a field, the formula would be  $\frac{100}{3}$  or 33 gal./acre of 28% liquid.

**NOTE:** If a 1/2 rate is needed on the outside shanks, order two nozzles with half capacity. If a 1-1/2 rate is needed on the outside shanks, order two nozzles with 1-1/2 times the capacity.

2. TIRE LOADS

**SPEED VS. PRESSURE TO GET LIQUID CARRYING CAPACITY**

**NOTE:** By maximizing the tire pressure, load carrying capacity can be maximized with speeds not to exceed 20 mph. If maximum floatation is desired, tire pressure must be reduced to minimum. Speeds, in this case, are not to exceed 10 mph. The charts below will help determine the combination of carrying capacity and speed needed by the operator.

**Machine capacities with Firestone 420/80R46 tire (gallons of 28% liquid)**

<b>IMPORTANT:</b>						
<b>Allowable volume (gallons) of liquid (28%) for various tire pressures &amp; travel speeds.</b>						
<b>GALLONS OF LIQUID (28%)</b>				<b>FIRESTONE TIRE 420-80R-46</b>		
<b>various pressures (psi)</b>						
<b>max. speed (mph)</b>	<b>26</b>	<b>29</b>	<b>32</b>	<b>35</b>	<b>38</b>	<b>41</b>
<b>10</b>	<b>1066</b>	<b>1232</b>	<b>1300</b>	<b>1300</b>	<b>1300</b>	<b>1300</b>
<b>15</b>	<b>770</b>	<b>907</b>	<b>1005</b>	<b>1091</b>	<b>1152</b>	<b>1201</b>
<b>25</b>	<b>628</b>	<b>752</b>	<b>840</b>	<b>917</b>	<b>972</b>	<b>1016</b>

18534373

**NOTE:** These values represent the use of these tires in a non-drive wheel application and have been rated by the tire manufacture accordingly.

3. SWATH WIDTH

<b>Swath width calculation (inches)*</b>					
<b># of rows</b>	<b>Row spacing (inches)</b>				
	<b>20</b>	<b>30</b>	<b>36</b>	<b>38</b>	<b>40</b>
<b>8</b>	160	240	288	304	320
<b>12</b>	240	360	432	456	480
<b>16</b>	320	480			

\*Use this chart to determine the swath width. Then, use the swath width value to determine the application rate.

#### 4. NOZZLE SELECTION

- To select the proper nozzle size, first determine the gallons per acre and speed that is going to be used. Go to the table for the proper row spacing. Find the speed across the top; go down to the "Gallons Per Acre" and read the nozzle size in the box. Order nozzle by m.p.h. and gallons per acre.

**NOTE:** If 1/2 rate is needed on outside shanks, order two nozzles with half the capacity. If 1-1/2 rate is needed on outside shanks, order two nozzles with 1-1/2 times the capacity.

**NOTE:** The orifice size determines the pressure and the pump setting determines the rate.

**WARNING:** Do not exceed 100 psi liquid pressure. Exceeding pressure/speed/nozzle limits may cause hosing to fail and destroy the gauge with protector.

#### 30" ROWS

Straight stream nozzle DMI part#	Spraying Systems part #	Orifice Diameter	Pressure (PSI)	Gallons Per Minute (10.65 #/gal)	Gallons Per Acre			
					5 mph	6 mph	7 mph	8 mph
34600027	00015	.033	80	0.19	7.5	6.3	5.4	4.7
			90	0.20	7.9	6.6	5.7	5.0
			100	0.22	8.7	7.3	6.2	5.4
34600026	0002	.039	80	0.25	9.9	8.3	7.1	6.2
			90	0.26	10.3	8.6	7.4	6.4
			100	0.28	11.1	9.2	7.9	6.9
34600025	0003	.047	70	0.36	14.3	11.9	10.2	8.9
			80	0.37	14.7	12.2	10.5	9.2
			90	0.39	15.4	12.9	11.0	9.7
34600010	0004	.055	70	0.46	18.2	15.2	13.0	11.4
			80	0.52	20.6	17.2	14.7	12.9
			90	0.55	21.8	18.2	15.6	13.6
34600011	0005	.061	60	0.54	21.4	17.8	15.3	13.4
			70	0.58	23.0	19.1	16.4	14.4
			80	0.63	24.9	20.8	17.8	15.6
34600012	0006	.067	60	0.64	25.3	21.1	18.1	15.8
			70	0.69	27.3	22.8	19.5	17.1
			80	0.75	29.7	24.8	21.2	18.6
34600013	0008	.078	50	0.79	31.3	26.1	22.3	19.6
			60	0.87	34.5	28.7	24.6	21.5
			70	0.94	37.2	31.0	26.6	23.3
34600014	0010	.086	50	0.97	38.4	32.0	27.4	24.0
			60	1.06	42.0	35.0	30.0	26.2
			70	1.15	45.5	38.0	32.5	28.5
34600015	0015	.107	50	1.46	57.8	48.2	41.3	36.1
			60	1.59	63.0	52.5	45.0	39.4
			70	1.71	67.7	56.4	48.4	42.3
34600028	0020	.125	40	1.77	70.1	58.4	50.1	43.8
			50	2.01	79.6	66.3	56.9	49.7
			60	2.21	87.5	72.9	62.5	54.7
34600029	0030	.140	40	2.64	104.5	87.1	74.7	65.3
			50	2.90	114.8	95.7	82.0	71.8
			60	3.16	125.1	104.3	89.4	78.2

**NOTE:** If 1/2 rate is needed on outside shanks, order 2 nozzles with 1/2 the capacity.  
If 1-1/2 rate is needed on outside shanks, order 2 nozzles with 1-1/2 times the capacity.

36" ROWS

Straight stream nozzle DMI part#	Spraying Systems part #	Orifice Diameter	Pressure (PSI)	Gallons Per Minute (10.65 #/gal)	Gallons Per Acre			
					5 mph	6 mph	7 mph	8 mph
34600027	00015	.033	80	0.19	6.3	5.2	4.5	3.9
			90	0.20	6.6	5.5	4.7	4.1
			100	0.22	7.3	6.1	5.2	4.5
34600026	0002	.039	80	0.25	8.3	6.9	5.9	5.2
			90	0.26	8.6	7.2	6.1	5.4
			100	0.28	9.2	7.7	6.6	5.8
34600025	0003	.047	70	0.36	11.9	9.9	8.5	7.4
			80	0.37	12.2	10.2	8.7	7.6
			90	0.39	12.9	10.7	9.2	8.0
34600010	0004	.055	70	0.46	15.2	12.7	10.8	9.5
			80	0.52	17.2	14.3	12.3	10.7
			90	0.55	18.2	15.1	13.0	11.3
34600011	0005	.061	60	0.54	17.8	14.9	12.7	11.1
			70	0.58	19.1	16.0	13.7	12.0
			80	0.63	20.8	17.3	14.9	13.0
34600012	0006	.067	60	0.64	21.1	17.6	15.1	13.2
			70	0.69	22.8	19.0	16.3	14.2
			80	0.75	24.8	20.6	17.7	15.5
34600013	0008	.078	50	0.79	26.1	21.7	18.6	16.3
			60	0.87	28.7	23.9	20.5	17.9
			70	0.94	31.0	25.9	22.2	19.4
34600014	10	0.086	50	0.97	32.0	26.7	22.9	20.0
			60	1.06	35.0	29.2	25.0	21.9
			70	1.15	38.0	31.6	27.1	23.7
34600015	0015	.107	50	1.46	48.2	40.2	34.4	30.1
			60	1.59	52.5	43.7	37.5	32.8
			70	1.71	56.4	47.0	40.3	35.3
34600028	0020	.125	40	1.77	58.4	48.7	41.7	36.5
			50	2.01	66.3	55.3	47.4	41.5
			60	2.21	72.9	60.8	52.1	45.6
34600029	0030	.140	40	2.64	87.1	72.6	62.2	54.5
			50	2.90	95.7	79.8	68.4	59.8
			60	3.16	104.3	86.9	74.5	65.2

**NOTE:** If 1/2 rate is needed on outside shanks, order 2 nozzles with 1/2 the capacity.  
 If 1-1/2 rate is needed on outside shanks, order 2 nozzles with 1-1/2 times the capacity.

38" ROWS

Straight stream nozzle DMI part#	Spraying Systems part #	Orifice Diameter	Pressure (PSI)	Gallons Per Minute (10.65 #/gal)	Gallons Per Acre			
					5 mph	6 mph	7mph	8 mph
34600027	00015	.033	80	0.19	5.9	5.0	4.2	3.7
			90	0.20	6.3	5.2	4.5	3.9
			100	0.22	6.9	5.7	4.9	4.3
34600026	0002	.039	80	0.25	7.8	6.5	5.6	4.9
			90	0.26	8.1	6.8	5.8	5.1
			100	0.28	8.8	7.3	6.3	5.5
34600025	0003	.047	70	0.36	11.3	9.4	8.0	7.0
			80	0.37	11.6	9.6	8.3	7.2
			90	0.39	12.2	10.2	8.7	7.6
34600010	0004	.055	70	0.46	14.4	12.0	10.3	9.0
			80	0.52	16.3	13.5	11.6	10.2
			90	0.55	17.2	14.3	12.3	10.7
34600011	0005	.061	60	0.54	16.9	14.1	12.1	10.6
			70	0.58	18.1	15.1	13.0	11.3
			80	0.63	19.7	16.4	14.1	12.3
34600012	0006	.067	60	0.64	20.0	16.7	14.3	12.5
			70	0.69	21.6	18.0	15.4	13.5
			80	0.75	23.4	19.5	16.7	14.7
34600013	0008	.078	50	0.79	24.7	20.6	17.6	15.4
			60	0.87	27.2	22.7	19.4	17.0
			70	0.94	29.4	24.5	21.0	18.4
34600014	0010	.086	50	0.97	30.3	25.3	21.7	19.0
			60	1.06	33.1	27.6	23.7	20.7
			70	1.15	36.0	30.0	25.7	22.5
34600015	0015	.107	50	1.46	45.6	38.0	32.6	28.5
			60	1.59	49.7	41.4	35.5	31.1
			70	1.71	53.5	44.6	38.2	33.4
34600028	0020	.125	40	1.77	55.3	46.1	39.5	34.6
			50	2.01	62.8	52.4	44.9	39.3
			60	2.21	69.1	57.6	49.4	43.2
34600029	0030	.140	40	2.64	82.5	68.8	59.0	51.6
			50	2.90	90.7	75.6	64.8	56.7
			60	3.16	98.8	82.3	70.6	61.7

NOTE: If 1/2 rate is needed on outside shanks, order 2 nozzles with 1/2 the capacity.  
 If 1-1/2 rate is needed on outside shanks, order 2 nozzles with 1-1/2 times the capacity.

# TROUBLE SHOOTING

**TO THE NUTRI-PLACR MODEL 2800-16 OWNER:** DMI equipment is designed for tough conditions. Our products have innovative features that greatly improve performance and reduce operating costs if the product is properly used.

Improper use of these same features can result in excessive costs, premature failure, and poor field performance. The key to proper use is knowledge and awareness on your part. This section is designed to give you that awareness.

THIS SECTION COVERS FIELD PROBLEMS, CAUSES, AND REMEDIES. A FOLLOWING SECTION DISCUSSES CONDITIONS THAT CAN LEAD TO COMPONENT BREAKAGE, ALONG WITH THE PROBABLE CAUSES AND HOW TO PREVENT OR REMEDY THE PROBLEM.

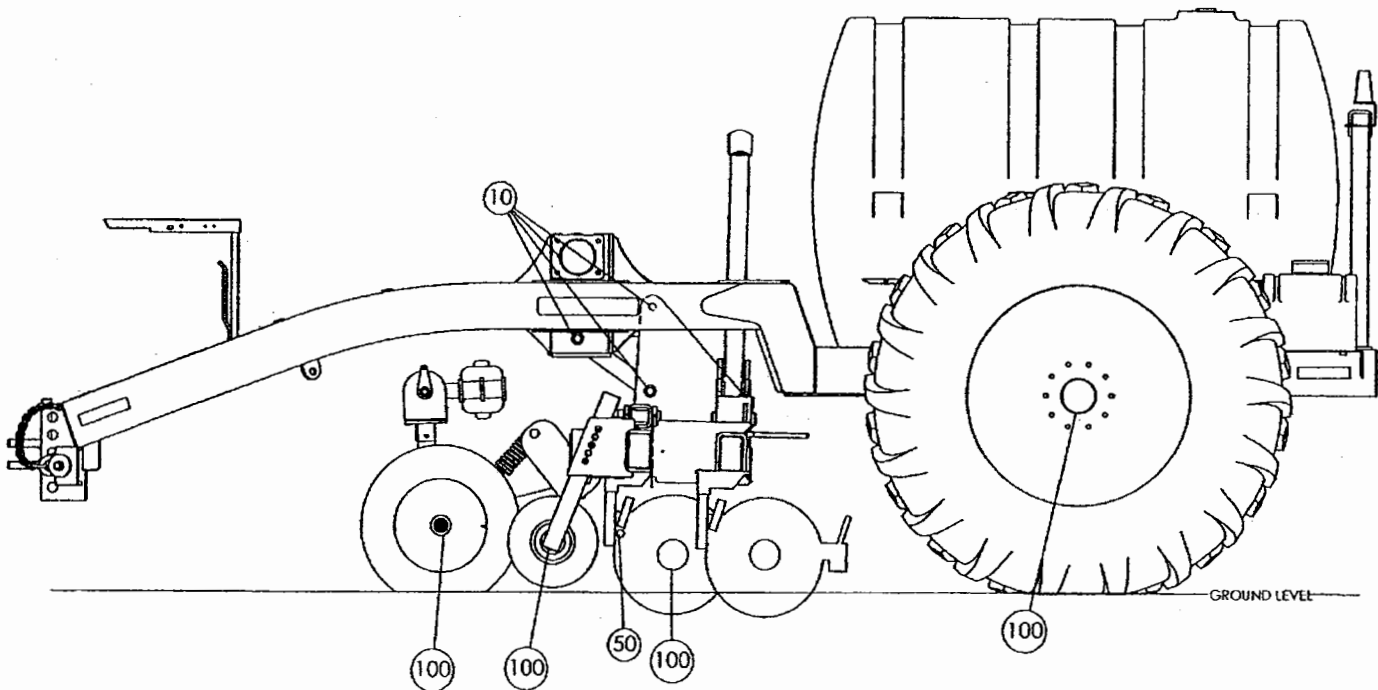
## FIELD PROBLEM REMEDIES

POTENTIAL PROBLEM	PROBABLE CAUSES	REMEDIES
COULTERS FLOAT OUT OF THE GROUND OR OUTER WINGS DRIFT BACK DURING APPLICATION OF FERTILIZER	Tractor hydraulic valve is not placed into detent.  Reducing/relieving valve pressure is not set high enough for soil conditions.	Make sure that the work valve is in detent during the entire work cycle.  Adjust the valve pressure up by 100 p.s.i. increments until gauge wheels maintain constant contact with the ground.
WINGS DO NOT RAISE OR LOWER EVENLY	Flow divider is not functioning properly.	Check, replace if necessary.
WHEN THE WINGS ARE HORIZONTAL AND THE DIRECTIONAL VALVES ARE NOT BEING USED, THE WINGS DRIFT OPPOSITELY, ONE UP, ONE DOWN	The pilot operated check valves are not operating properly.	Check, replace if necessary.
DURING THE INITIAL UNFOLD WITH WINGS COMPLETELY FOLDED, THE OUTER WING CYLINDERS BEGIN TO EXTEND IMMEDIATELY	Tractor flow set too high.  Sequence valve enabling pressure is set too low.	Reduce tractor flow until wings fold properly. (4 to 6 gpm.)  Adjust the valve pressure by 1/2 turns until outer wings remain fixed during the initial unfold stage.
DURING TRANSPORT UNFOLD, TOOLBAR DOES NOT STOP WHEN TOOLBAR ACHIEVES THE UNFOLDED, LEVEL POSITION	Limit switch is improperly adjusted.  No power to limit switch, solenoid valve 2 is not enabled.  Solenoid valve 2 is not functioning properly.	Adjust limit switch position to enable solenoid valves at the correct height.  Check to make sure all electrical connections are good.  Check, replace if necessary.

POTENTIAL PROBLEM	PROBABLE CAUSES	REMEDIES
DURING WORK LIFT ACTION, THE WINGS DO NOT STOP AT LEVEL	<p>No power to limit switch, solenoid valve 1 is not enabled.</p> <p>Limit switch is improperly adjusted.</p> <p>Solenoid valve 1 is not functioning properly.</p>	<p>Check to make sure all electrical connections are good.</p> <p>Adjust limit switch position to enable solenoid valves at the correct height.</p> <p>Check, replace if necessary.</p>
WHEN LOWERING TOOLBAR TO WORK POSITION, THE CENTER CYLINDER CHATTERS OR DOES NOT LOWER.	<p>Check valve is cycling in rapid succession, insufficient oil flow.</p> <p>Broken pilot operated check valve.</p>	<p>Increase the tractor engine rpm to increase hydraulic oil flow.</p> <p><b>NOTE:</b> use the pink throttle valve (25407502) to restrict the flow into port #6 of manifold. Add SAE O-ring (21920641) to JICM end of throttle valve and screw directly to manifold, use SAE male/JICM adapter, then hose.</p> <p>Replace valve (25410005 Reference #7, page 33).</p>
OUTER COULTERS RUN TOO DEEP OR CENTER SECTION RUNS TOO SHALLOW. THE TOOLBAR DOES NOT SEEM TO BE PARALLEL TO THE SOIL PROFILE	Improper depth settings.	Reset depth setting of the center cylinder and gauge wheels.
DURING TRANSPORT UNFOLD, TOOLBAR DOES NOT MOVE FROM FOLDED POSITION	Reducing/relieving valve pressure set beneath pressure needed to extend mid-wing cylinders.	Increase valve setting by turning set screw clockwise by quarter turns until toolbar unfolds.
DURING TRANSPORT UNFOLD, TOOLBAR CHATTERS AND/OR BOUNCES	Tractor oil flow too high.	Reduce tractor flow rate until chatter or bounce stops (4 to 6 gpm).

# MAINTENANCE SECTION

## LUBRICATION



- ⑩ = LUBRICATE EVERY 10 HOURS OR ONCE DAILY
- ⑤① = LUBRICATE EVERY 50 HOURS OR ONCE WEEKLY
- ①①① = LUBRICATE EVERY 100 HOURS OR ONCE A SEASON

- \* Always lubricate your implement thoroughly before taking it to the field.
- \* Always stop the tractor engine prior to lubricating the machine.
- \* Grease fittings are provided at all points indicated in the illustration above.
- \* Be sure all fittings are free from dirt and paint so the lubricant is certain to enter the proper areas.
- \* If any grease fittings are damaged or missing, replace them immediately. Clean the fittings thoroughly before using the grease gun.
- \* Use a lubricating gun and No. 2 multi-purpose lithium grease at the hourly intervals indicated on the symbols.

# PREVENTATIVE MAINTENANCE

**WHEEL HUB BEARINGS:** Repack once a year or every 250 hours of use, whichever occurs first, with a good multi-purpose wheel bearing grease. Tighten slotted nut on spindle, draw up the nut tight, and then back off to first slot in nut and install cotter pin.

**FOR Coulter HUBS:** Grease bearing cones before assembly. Assemble and torque nut to 10-20 ft-lbs. then back off one slot checking to be sure hub rotates freely. Rotate or oscillate hub when tightening. Fill hub cavity and hub cap with bearing grease.

**FOR TRANSPORT HUBS:** Grease bearing cones before assembly. Assemble and torque slotted nut to 75 ft-lbs. while rotating or oscillating hub to seat bearing assembly. Loosen slotted nut and retorque nut to 45 ft-lbs. while rotating or oscillating hub. Install cotter pin through nut and spindle. Do not tighten slotted nut to install cotter pin. Loosen slotted nut no more than 30° maximum to install cotter pin. Fill hub cavity and hub cap with bearing grease.

**CYLINDER RODS:** When not in use for some time, coat the exposed portion of cylinder rods with grease (or disconnect one end of wing lift cylinder and fully retract the rod). This will protect rod surfaces against corrosion.

## PRE-SEASON CHECK

1.  Carefully review the safety suggestions in this manual.
2.  Check all bolts for proper tightness. See Bolt Torque Chart. When the implement is new, check after one hour and every few hours of operation.
3.  Replace ground tools that are severely worn, broken or damaged.
4.  Check tires for proper inflation. All tires should be inflated equally to avoid side draft.
5.  Inflate tires to:  
  
7.0 - 14 4-ply tire to 26 p.s.i.  
  
420/80 R46 tubeless tires - See Tire Pressure Chart on page 14.
6.  Check the wheel nuts daily, keep wheel bolts tight. Torque to 350 ft-lbs.
7.  Grease all fittings. Refer to Lubrication Section.
8.  Inspect, repack, or replace (if necessary) wheel bearings and seals.
9.  Check hoses, hose routing and hydraulic cylinders. Any indication of leakage or fraying of hoses should be corrected.
10.  Check warning and tail lights for proper function.

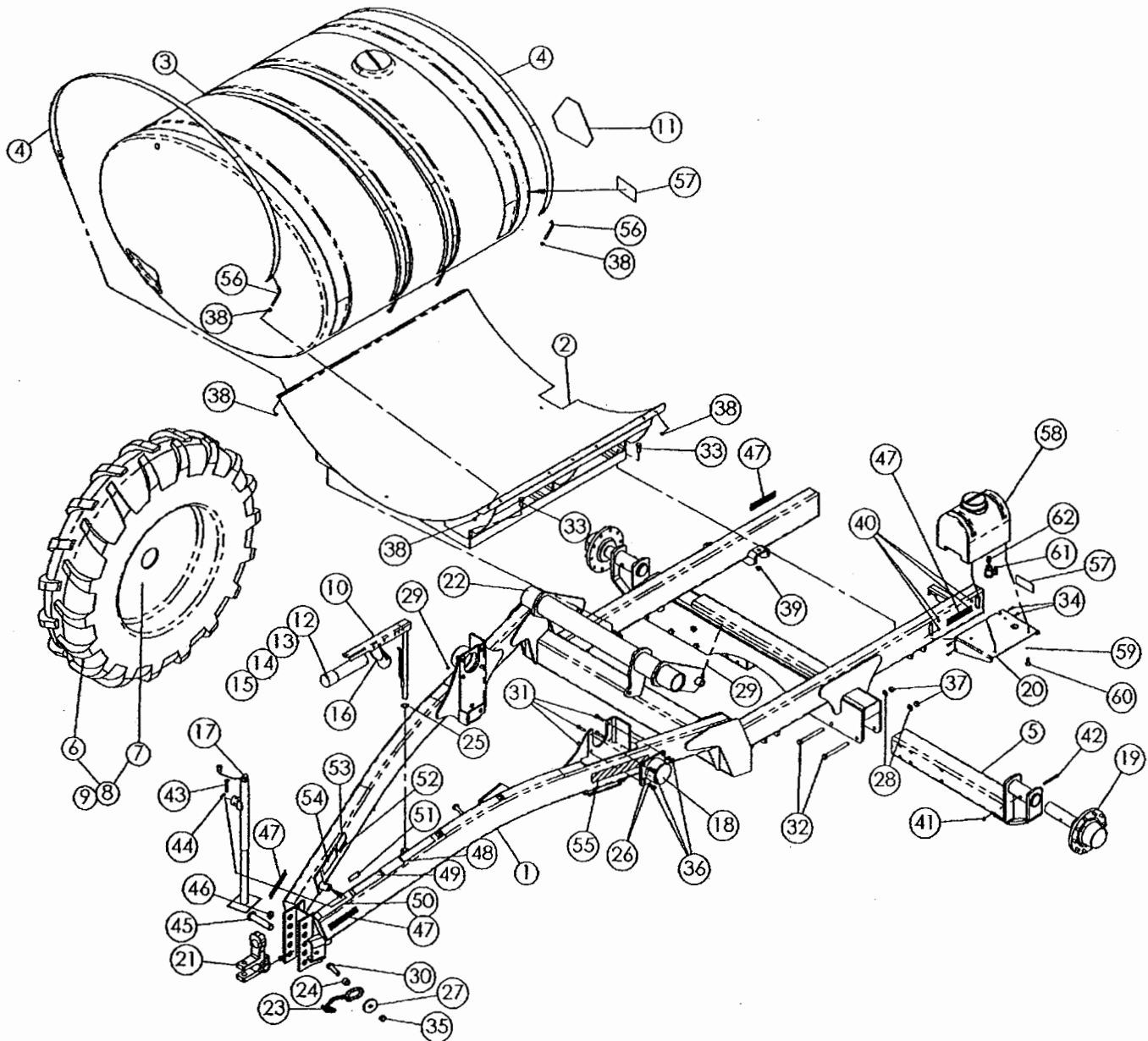
## OFF-SEASON STORAGE

Service life and satisfaction will be extended by following these suggestions:

1.  The chief enemies of your **nutri-placr Model 2800-16**, rust and corrosion, are busy year around. A little time and effort spent cleaning your machine before storing will repay in longer service, easier operation, and higher resale value.
2.  Inspect for worn or damaged parts. Replace, if required, and avoid delays the next season.
3.  Repaint all areas where the original paint is worn off.
4.  Lubricate your implement. (See Lubrication Section.)
5.  Grease all exposed metal surfaces of ground tools.
6.  Store the unit inside a shed to protect from weather, and on a level area with wings down. The ground working parts should rest on boards.
7.  Disconnect the rod end of the lift cylinders and retract the rod into cylinder to prevent cylinder rod from rusting.
8.  Cap or plug all hydraulic oil lines if the cylinders are removed. This is to prevent any contaminants from entering the hydraulic system.
9.  Raise tires off ground, or remove and store in cool dry location out of sunlight.

# PARTS SECTION

## MAIN FRAME



### Transport Hub Assembly

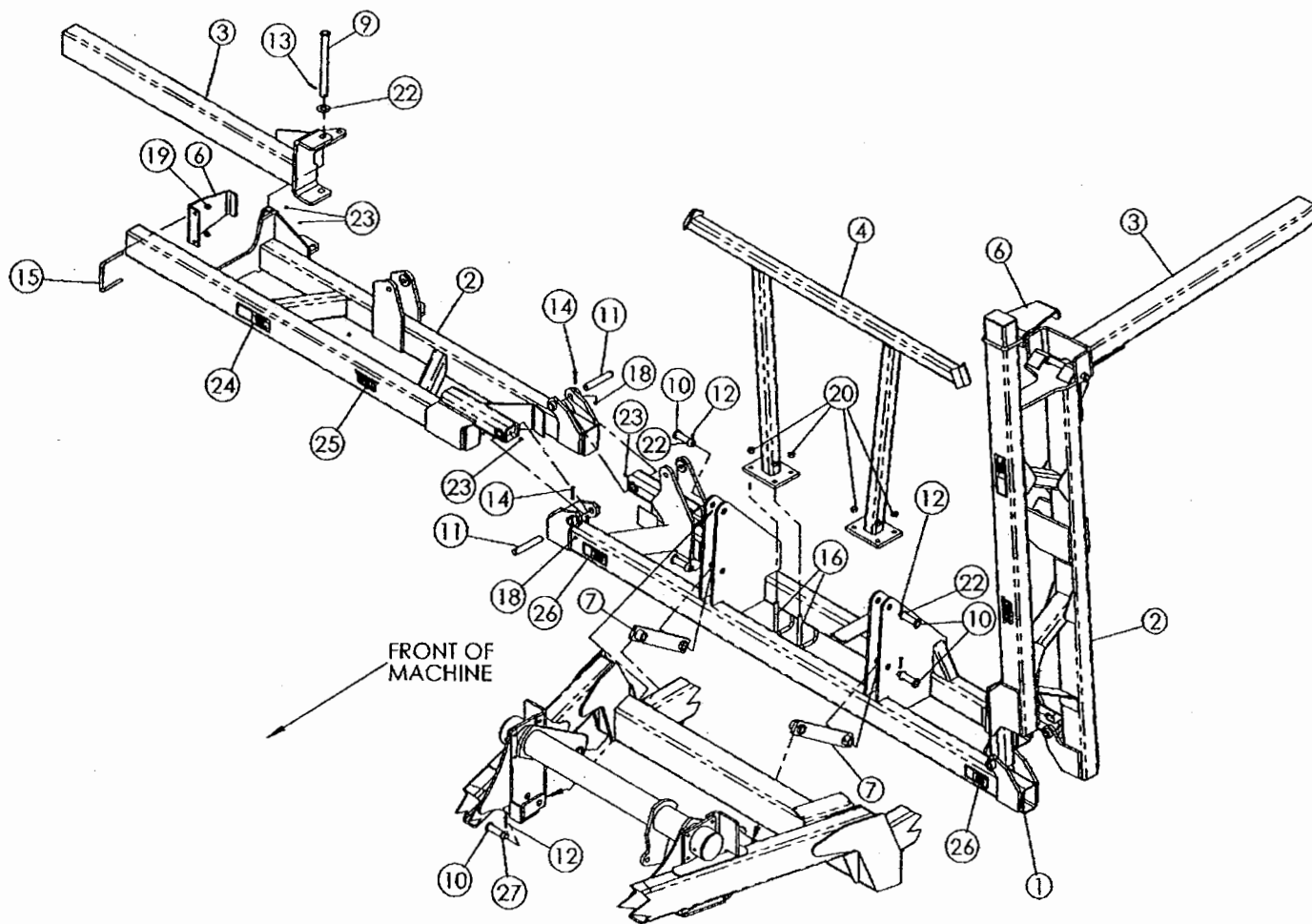
- Grease bearing cones before assembly.
- Assemble and torque slotted nut to 75 Ft-Lbs. while rotating or oscillating hub - to seat bearing assembly.
- Loosen slotted nut and retorque slotted nut to 45 Ft-Lbs. while rotating or oscillating hub.
- Install cotter pin through slotted nut and spindle. Do not tighten slotted nut to install cotter pin. Loosen slotted nut no more than 30° maximum to install cotter pin.
- Fill hub cavity and hub cap with bearing grease.

# MAIN FRAME (CONTINUED)

REF. PART NO.	PART NO.	QTY. NO.	DESCRIPTION	REF. PART NO.	PART NO.	QTY. NO.	DESCRIPTION
1	05302800	1	A-frame Weld	30	413-1664	1	1" x 4" NC Hex Bolt, Gd. 5
2	05302945	1	1300 Gallon Tank Mount Weld	31	413-1032	8	5/8" x 2" Hex Bolt, Gd. 5 ZP
3	30001350	1	1300 Gallon Tank	32	413-14136	8	7/8" x 8-1/2" NC Hex Bolt, Gd. 5 ZP
4	05302888	4	Tank Strap				
5	05302840	2	Adjustable Wheel Mount Assembly	33	413-1232	4	3/4" x 2" NC Hex Bolt, Gd. 5 ZP
6	NSI	2	420/80 R46, 3", Tubeless Tire (11015460)	34	413-620	4	3/8" x 1-1/4" NC Hex Bolt, Gd. 5
7	10112460	2	46 x 12 on 11-1/4" Dia. Wheel	35	86992219	1	1" NC Lock Nut, Gd. 5
8	10015460	1	46 X 12 Wheel Assembly, White, RH	36	231-42410	8	5/8" NC Lock Nut, Gd. 5
9	10015461	1	46 x 12 Wheel Assembly, White, LH	37	86992218	8	7/8" NC Stover Lock Nut
10	05302150	1	Swinging Hose Boom	38	425-108	16	1/2" NC Nut Gd. 5 Z.P.
11	311858A1	1	SMV Sign Decal	39	86992217	4	3/4" NC Stover Lock Nut
12	30026030	1	Manual Canister	40	86992213	4	3/8" NC Stover Lock Nut
13	00100717	1	<b>nutri-placr</b> Model 2800-16 Operator's Manual	41	231-4248	2	1/2" NC Lock Nut
14	12000135	1	6 oz. Aerosol Paint (DMI Blue)	42	413-880	2	1/2" x 5" NC Hex Bolt, Gd. 5 ZP
15	12000145	1	6 oz. Aerosol Paint (Black)	43	14810251	1	5/8" x 3-1/8" Clevis Pin
16	214-1452	1	Worm Gear Clamp, No. 52	44	NSI	1	1/8" x 2" Hair Pin (14720411)
17	32230000	1	3,000# Jack	45	14820521	1	1-5/8" O.D. Hitch Pin
18	05302880	2	Bearing Mount Assembly	46	D33805	1	7/16" x 2" Klik Pin
19	28087101	2	Q781 Hub & Spindle Assembly	47	311864A1	4	Amber Reflector
20	05302845	1	Bolt-on Wash Tank Support	48	18534282	1	Warning Sign
21	20092311	1	Combo Clevis Hitch	49	18534371	1	Danger Sign (Power Lines)
22	05302820	1	Lift Tube Weldment	50	18534370	1	Warning Sign (Transport)
23	63506C3	1	20,200 lbf Safety Chain	51	NSI	1	Serial Number Plate (18510009)
24	04681211	1	Spacer	52	18534174	1	"Other Patents Applied For" Decal
25	17620030	1	1-1/4" Mach. Bushing, 10 Ga.	53	18534107	1	Patent Decal
26	492-11062	8	5/8" Lock Washer, ZP	54	18534228	1	Caution Decal (Pull Type)
27	06400065	1	Heavy Washer	55	18534272	2	<b>nutri-placr</b> Decal
28	495-11094	8	7/8" SAE Flat Washer	56	16998285	8	J-bolt, 1/2" x 7" NC Gd. 5 Z.P.
29	219-86	4	1/8" NPT Grease Zerk	57	18534373	1	Decal, Liquid Fert/Speed
				58	30000008	1	8 Gallon Tank
				59	495-21031	4	1/4" Standard Washer
				60	413-412	4	1/4" x 3/4" Hex Bolt Gd. 5
				61	34308003	1	1/2" NPT Poly Ball Valve
				62	34308004	1	1/2" NPT Short Poly Nipple

NSI - NOT A SERVICE ITEM

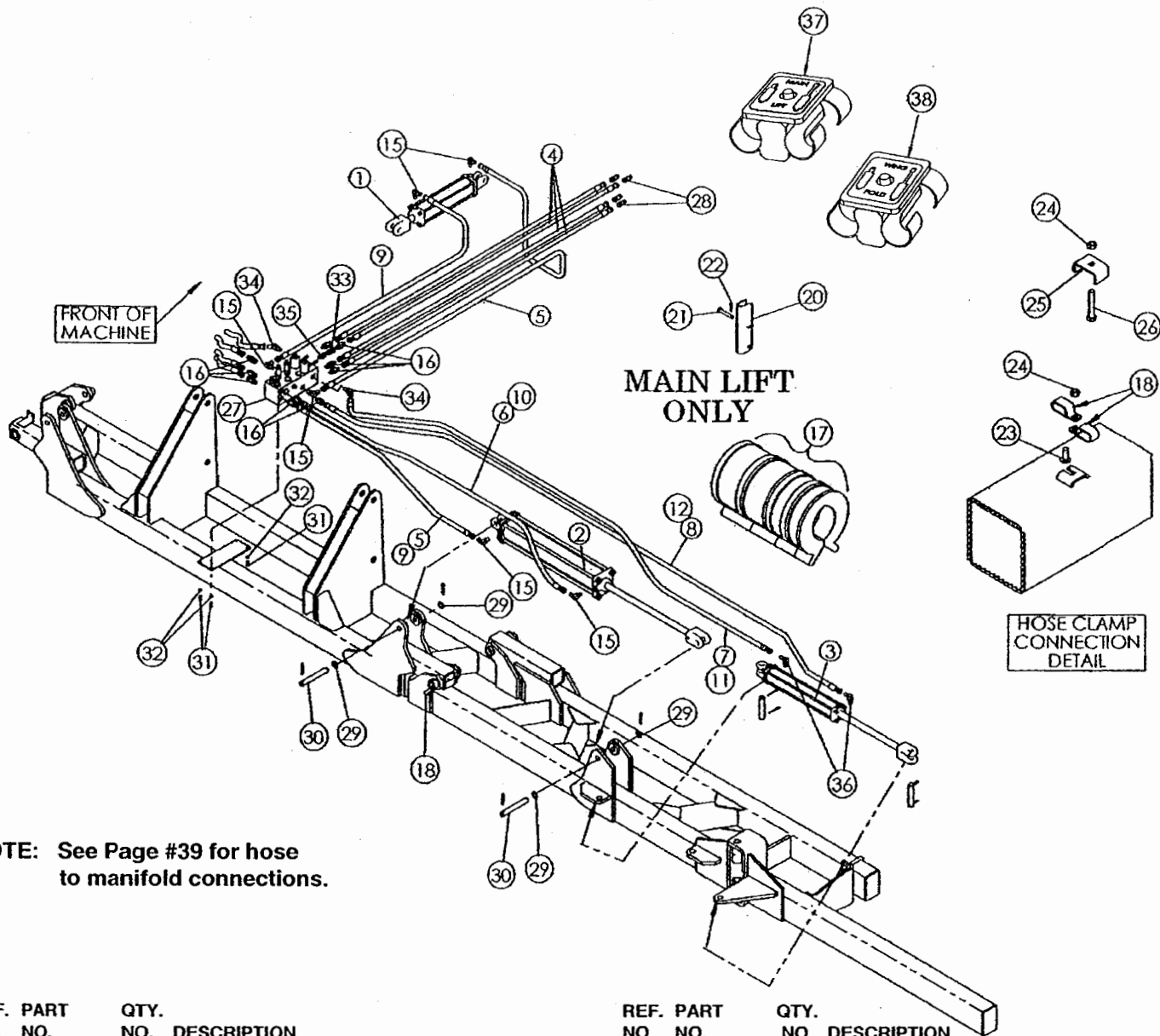
# COULTER BAR



REF. NO.	PART NO.	QTY. NO.	DESCRIPTION	REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
1	05302770	1	Center Section Weldment	11	14892077	4	1-1/4" Dia. x 7-1/2" Long Pin
2	05302790	1	Mid-Section Weldment, R.H.	12	413-1632	8	1/4" x 2" Cotter Pin
	05302780	1	Mid-Section Weldment, L.H.	14	413-640	4	3/8" x 2-1/2" NC Hex Bolt
3	05302990	1	Outer Wing Weldment, R.H. 15 Coulters - 66-3/4" Long	15	87427168	2	5/8" x 6" x 5-1/2" U-bolt - 13 & 15 Coulters
	05302995	1	Outer Wing Weldment, L.H. 15 Coulters - 66-3/4" Long	16	87427182	4	3/4" x 4" x 7-1/2" U-bolt
	05302910	1	Outer Wing Weldment, R.H. 13 Coulters - 34-1/4" Long	18	86992213	4	3/8" NC Stover Lock Nut
	05302920	1	Outer Wing Weldment, L.H. 13 Coulters - 34-1/4" Long	19	86992216	4	5/8" NC Stover Lock Nut - 13 & 15 Coulters
				20	86992217	8	3/4" NC Stover Lock Nut
4	05302890	1	Toolbar Support Weldment	22	17421021	6	1-1/4" I.D. x 1/4" Thk Washer 13 & 15 Coulters
6	05302899	2	Wing Stop - 13 & 15 Coulters	23	219-86	8	1/8" NPT Self-Tapping Zerk
7	05302850	2	Parallel Link Weldment	24	18534333	2	Danger Sign
9	14820107	2	1-1/4" Dia. x 14-1/4" Long Pin 13 & 15 Coulters	25	18534261	2	DMI Logo Decal
10	14820355	6	1-1/4" Dia. x 4-3/8" Long Pin	26	18534227	2	Danger Sign
				27	17620020	2	1-1/4" Machine Bushing, 14 Ga.

NSI - NOT A SERVICE ITEM

# HYDRAULIC ASSEMBLY

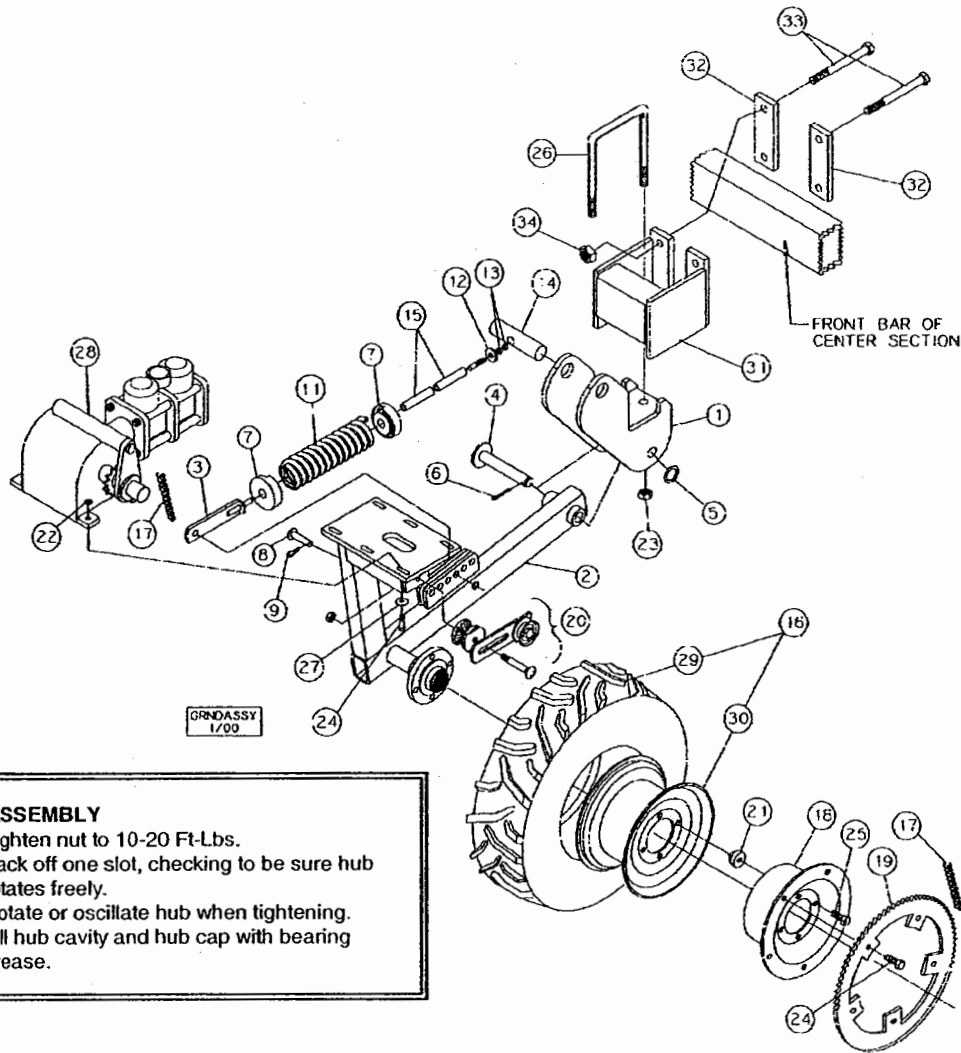


**NOTE:** See Page #39 for hose to manifold connections.

REF. PART NO.	PART NO.	QTY. NO.	DESCRIPTION	REF. PART NO.	PART NO.	QTY. NO.	DESCRIPTION
1	25330121	1	3" x 12" Hydraulic Cylinder - 3,000 p.s.i.	21	14810251	1	5/8" x 3-1/8" Pin
2	25340242	2	4" x 24" Hydraulic Cylinder - 3,000 p.s.i.	22	NSI	1	1/8" x 3" Hair Pin (14720411)
3	25325161	2	2-1/2" X 16" Hydraulic Cylinder - 3,000 p.s.i.	23	433-616	2	3/8" x 1" Carriage Bolt
4	25600718	4	3/8" Hyd. Hose x 178" Long to Ports #1 - #4	24	86992213	4	3/8" Stover Lock Nut
5	25600670	2	3/8" Hyd. Hose x 68" Long to Port #14 & Port #5	25	06200125	4	Hose Clamp
6	25600704	1	3/8" Hyd. Hose x 97" Long to Port #12	26	413-636	2	3/8" x 2-1/4" NC Hex Bolt
7	25600650	1	3/8" Hyd. Hose x 128" to Port #8	27	05302848	1	Hydraulic Manifold
8	25600814	1	3/8" Hyd. Hose x 148" to Port #10	28	25705041	4	ISO-3/4" SAEF Coupler
9	25600655	2	3/8" Hyd. Hose x 55" to Port #6 & Port #13	29	17616021	8	1" Mach. Bushing - 14 ga.
10	25600739	1	3/8" Hyd. Hose x 86-1/2" to Port #11	30	14891663	4	1" Dia. Pin
11	25600669	1	3/8" Hyd. Hose x 114" to Port #7	31	413-512	4	5/16" x 3/4" Hex Bolt
12	25600684	1	3/8" Hyd. Hose x 132" to Port #9	32	492-11031	4	5/16" Lock Washer
15	218-5106	12	3/4" SAEM x 3/4" JICM 90° Adapter	33	25407502	1	Pink Throttle Valve
16	218-5059	10	3/4" SAEM x 3/4" JICM Adapter	34	218-5136	2	3/4" JICM x 3/4" SAEM 45° Adapter
17	25800010	1	Stroke Control Kit	35	25707534	1	3/4" SAEM x 3/4" JICF Adapter
18	22510700	6	Hose Clamp	36	218-5280	4	9/16" SAEM x 3/4" JICM 90° Adapter
19	30007000	4	20" Hose Tie (Not Shown)	37	401536A1	1	Hose Clip, Main Lift
20	09967021	1	Transport Stop	38	401537A1	1	Hose Clip, Wing Fold

NSI - NOT A SERVICE ITEM

# GROUND DRIVE



## HUB ASSEMBLY

- Tighten nut to 10-20 Ft-Lbs.
- Back off one slot, checking to be sure hub rotates freely.
- Rotate or oscillate hub when tightening.
- Fill hub cavity and hub cap with bearing grease.

REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
	<b>05302680</b>	<b>1</b>	<b>Ground Drive Ass'y (Includes Items #1 through 15)</b>
1	05302690	1	Pump Mount Weld
2	05302640	1	Spindle Mount Weld
3	05302660	1	Spring Linkage Weld
4	14816466	1	1" O.D. x 5.81" E.L. Pin
5	495-21106	1	1" Standard Washer
6	432-1624	1	1/4" x 1-1/2" Cotter Pin
7	20090100	2	Spring Casting
8	14810090	1	5/8" O.D. x 1-5/8" E.L. Pin
9	NSI	1	1/8" Hair Pin (14720411)
10	495-21069	1	5/8" Standard Washer
11	24143901	1	Compression Spring
12	17409010	1	Special Washer
13	425-168	2	1/2" Heavy Hex Nut
14	05302670	1	Trunnion
15	06210370	2	Bushing
16	10005147	1	7.0 x 14 (4-ply) Tire & Wheel Assembly
17	21205020	1	#50 SS Roller Chain

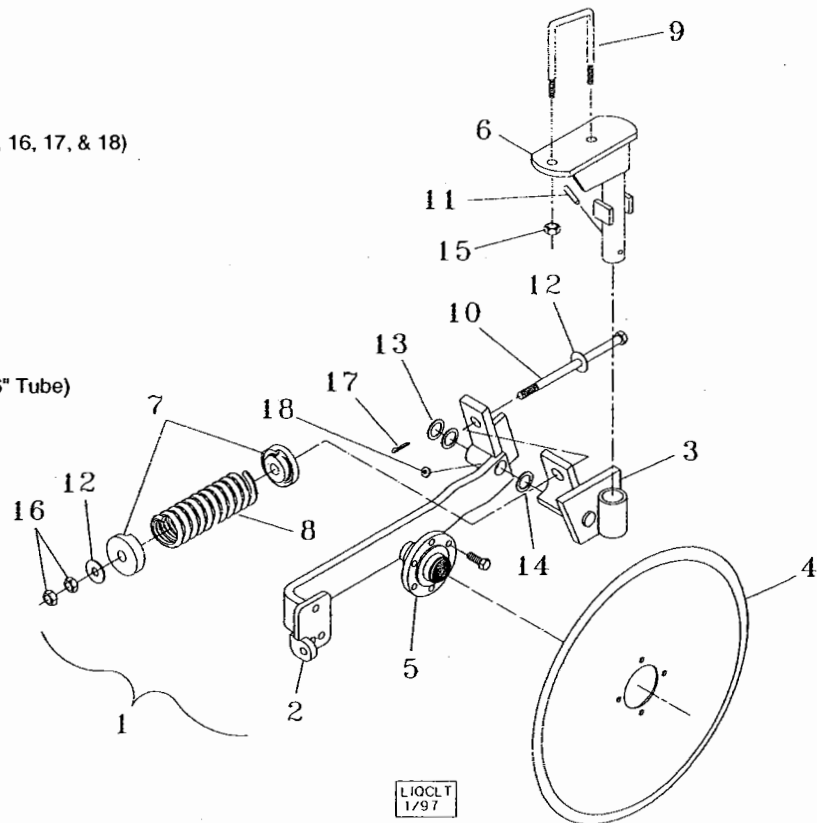
REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
18	34120010	1	Hub Sprocket Adapter
19	34120011	1	60T Roller Chain Sprocket
20	34120012	1	Single Spool Idler W/Bracket
21	34120013	4	Spacer
22	425-106	4	3/8" NC Hex Nut, Gd. 5
23	425-1012	2	3/4" NC Hex Nut
24	413-620	5	3/8" x 1-1/4" NC Hex Bolt, Gd. 5
25	414-840	4	1/2" x 2-1/2" NF Wheel Bolt
26	16312230	1	3/4" x 4" x 5-1/2" U-bolt
27	495-21044	4	3/8" Standard Washer
28	34120002	1	Double Pump - John Blue LM4955
	34120014	1	Crankcase for LM4955 Pump (Not Shown)
	34120015	1	Repair Kit for LM4955 Pump (Not Shown)
29	NSI	1	7.00 x 14 (4-ply) Traction Tire (11007144)
30	10105146	1	14" x 5KB SAE #401 Wheel
31	09576757	1	Extension Bar
32	09576790	2	Strap
33	413-14104	4	7/8" x 6-1/2" Hex Bolt
34	86992218	4	7/8" Stover Lock Nut

NSI - NOT A SERVICE ITEM

# LIQUID COULTER

REF. PART NO.	QTY. NO.	DESCRIPTION
1	05310100	1 Coultter Arm Assembly 20" (include #2, 3, 7, 8, 10, 12, 13, 14, 16, 17, & 18)
2	05310200	1 Coultter Arm 20" (Incl. #5)
3	04663200	1 Coultter Pivot
4	443627A1	1 Coultter Blade 20", rippled
5	28063331	1 633 Hub and Spindle (see Below)
6	05302700	1 Coultter Mount
7	20090050	2 Spring Holder Casting
8	24143880	1 Compression Spring
9	87427182	1 3/4" NC x 4" x 7-1/2" U-Bolt (4" x 6" Tube)
10	413-10176	1 5/8" NC x 11" Hex Bolt
11	438-32840	2 7/16" x 2-1/2" Roll Pin
12	17411012	2 5/8" x 1-1/4" thick Washer
13	17620020	2 1 1/4" Machine Bushing - 14 ga.
14	17620030	1 1 1/4" Maching Bushing - 10 ga.
15	86992217	2 3/4" NC Stover Lock Nut
16	425-1010	2 5/8" NC Hex Nut
17	432-1632	1 1/4" x 2" Cotter Pin
18	219-86	1 1/8" NPT Grease Zerk

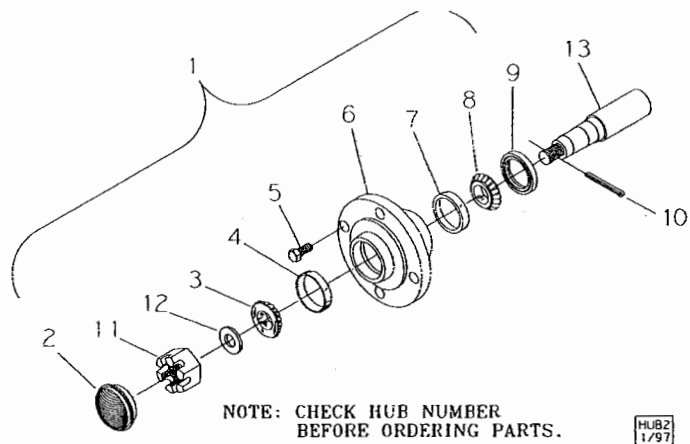
NSI - NOT A SERVICE ITEM



## 633 HUB & SPINDLE USED ON GROUND DRIVE AND LIQUID COULTER

REF. PART NO.	NO.	REQ. DESCRIPTION
28063361	1	Hub & Spindle Assembly (Pump Mount)
28063331	1	Hub & Spindle Assembly (20" Coultter Arm)
1	28163311	1 633 4-Bolt Hub Assy.
2	28463300	1 Hub Cap
3	651815R91	1 .75" Bore Cone - Timken #LM11949
4	651814R1	1 1.78" O.D. Cup - Timken #LM11910
5	414-820	4 1/2" x 1-1/4" NF Flat Head Bolt
6	NSI	1 633 Hub (28263340)
7	651817R1	1 2.33" O.D. Cup - Timken #LM67010
8	651818R91	1 1.25" Bore Cone - Timken #LM67048
9	126621C1	1 1.50" I.D x 2.33" O.D. Seal - CR #14975
10	432-1024	1 5/32" x 1-1/2" Cotter Pin
11	425-1312	1 3/4" NF Slotted Nut
12	495-11081	1 3/4" SAE Washer
13	NSI	1 Spindle (28363331)

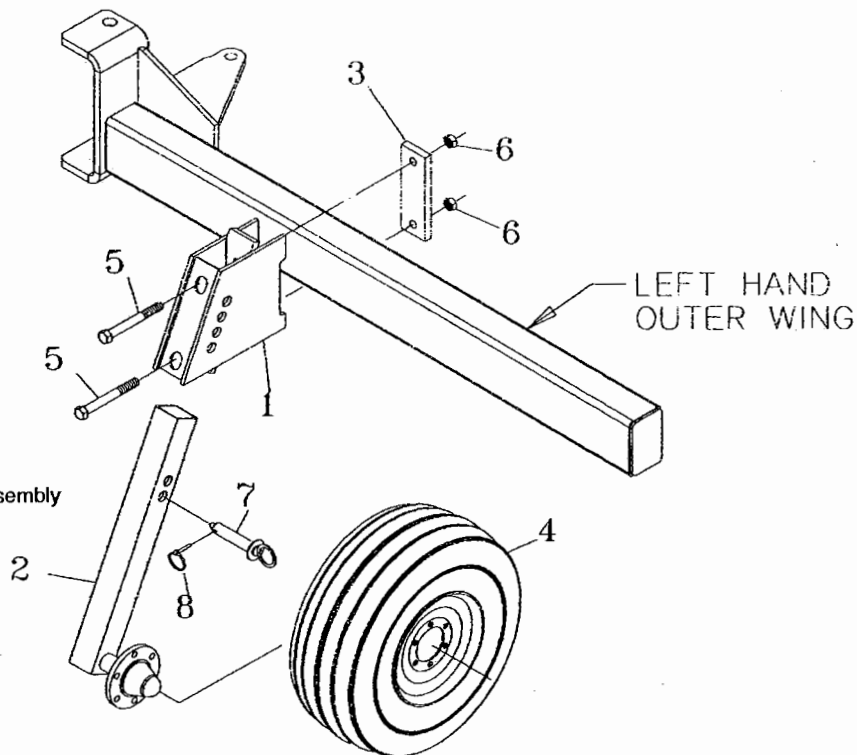
NSI NOT A SERVICE ITEM



### HUB ASSEMBLY

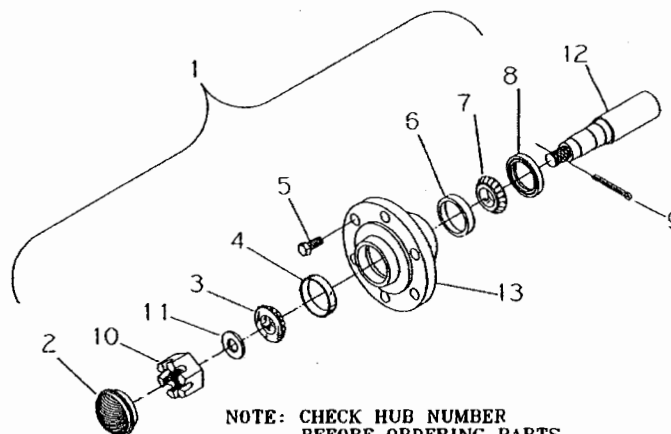
- Tighten nut to 10-20 Ft-Lbs.
- Back off one slot, checking to be sure hub rotates freely.
- Rotate or oscillate hub when tightening.
- Fill hub cavity and hub cap with bearing grease.

# GAUGE WHEEL



REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
1	04661320	2	Gauge Wheel Mounting Bracket
2	02380400	2	Gauge Wheel Weldment W/710 Hub Assembly
3	09576610	2	Flat
4	10008160	2	20.5 x 8-10 Tire and Wheel Assembly
5	413-12104	4	3/4" x 6-1/2" NC Hex Bolt, Gd. 5
6	86992217	4	3/4" NC Stover Lock Nut
7	14816348	2	Pin
8	A30338	2	1/4" Dia. x 1-3/4" Klik Pin

# 710 HUB & SPINDLE



REF. NO.	PART NO.	NO. REQ.	DESCRIPTION
1	28171000	1	Q-710 6-Bolt Hub Assembly
2	28477700	1	Hub Cap
3	651818R91	1	1.25" Bore Cone - Timken #LM67048
4	651817R1	1	2.33" O.D. Cup - Timken #LM67010
5	549962R1	6	1/2" NF x 1-15/32" Lug Bolt
6	618024R1	1	2.56" O.D. Cup - Timken #LM48510
7	618023R91	1	1/38" Bore Cone - Timken #LM48548
8	614410R91	1	1.63" I.D. x 2.63" O.D. Seal - CR #16322
9	432-1024	1	5/32" x 1-1/2" Cotter Pin
10	425-1314	1	7/8" NF Slotted Nut
11	17915000	1	7/8" Washer, H.T.
12	NSI	1	Spindle (28371001)
13	NSI	1	Hub (28270900)
	28071001	1	Hub & Spindle Assembly (9-3/8")

NOTE: CHECK HUB NUMBER BEFORE ORDERING PARTS.

NSI NOT A SERVICE ITEM

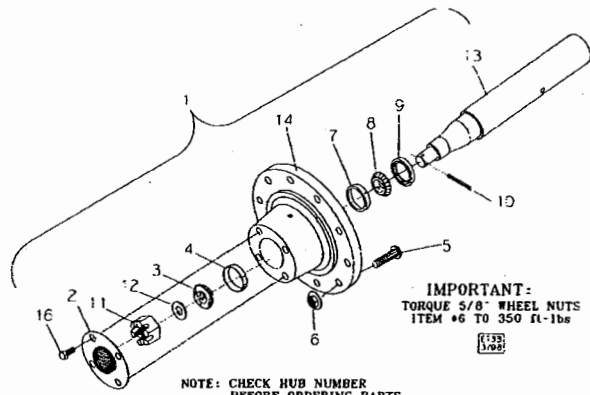
### HUB ASSEMBLY

- Grease bearing cones before assembly.
- Tighten slotted nut to 30 ft.-lbs. Rotate or oscillate hub while tightening.
- Retorque to 15 ft.-lbs. Rotate or oscillate while tightening.
- Install cotter pin.
  - If a slot aligns with a pin hole, insert cotter pin.
  - If no slot aligns with a pin hole, tighten to next slot or cross pin hole alignment and insert cotter pin.
- Fill hub cavity and hub cap with bearing grease.

# Q871 HUB & SPINDLE

REF. NO.	PART NO.	NO. REQ.	DESCRIPTION
	28087102	1	Q871 Hub and Spindle Assembly
1	28187101	1	Q871 10-Bolt Hub Assembly
2	28487101	1	Hub Cap
3	21871750	1	1.75" Bore Cone - Timken #460
4	21884250	1	4.25" O.D. Cup - Timken #453A
5	16412418	10	3/4" x 2-9/16" NF Wheel Stud Gd. 8
6	14091203	10	3/4" NF Flanged Wheel Nut
7	21884430	1	4.435" O.D. Cup - Timken #39520
8	21872505	1	2.50" Bore Cone - Timken #39585
9	21933000	1	3.00" Seal - CR30087
10	432-1232	1	3/16" x 2" Cotter Pin (14700600)
11	25-1320	1	1-1/4" NF Slotted Nut (14052003)
12	17952632	1	3.25" Dia. Special Heavy Washer
13	28387101	1	Q871 Drilled Spindle
14	NSI	1	Q871 Hub with Cups (28487101)
16	413-512	4	5/16" x 3/4" Hex Bolt

NSI - NOT A SERVICE ITEM



**IMPORTANT:**  
TORQUE 5/8" WHEEL NUTS  
ITEM #6 TO 350 Ft.-lbs



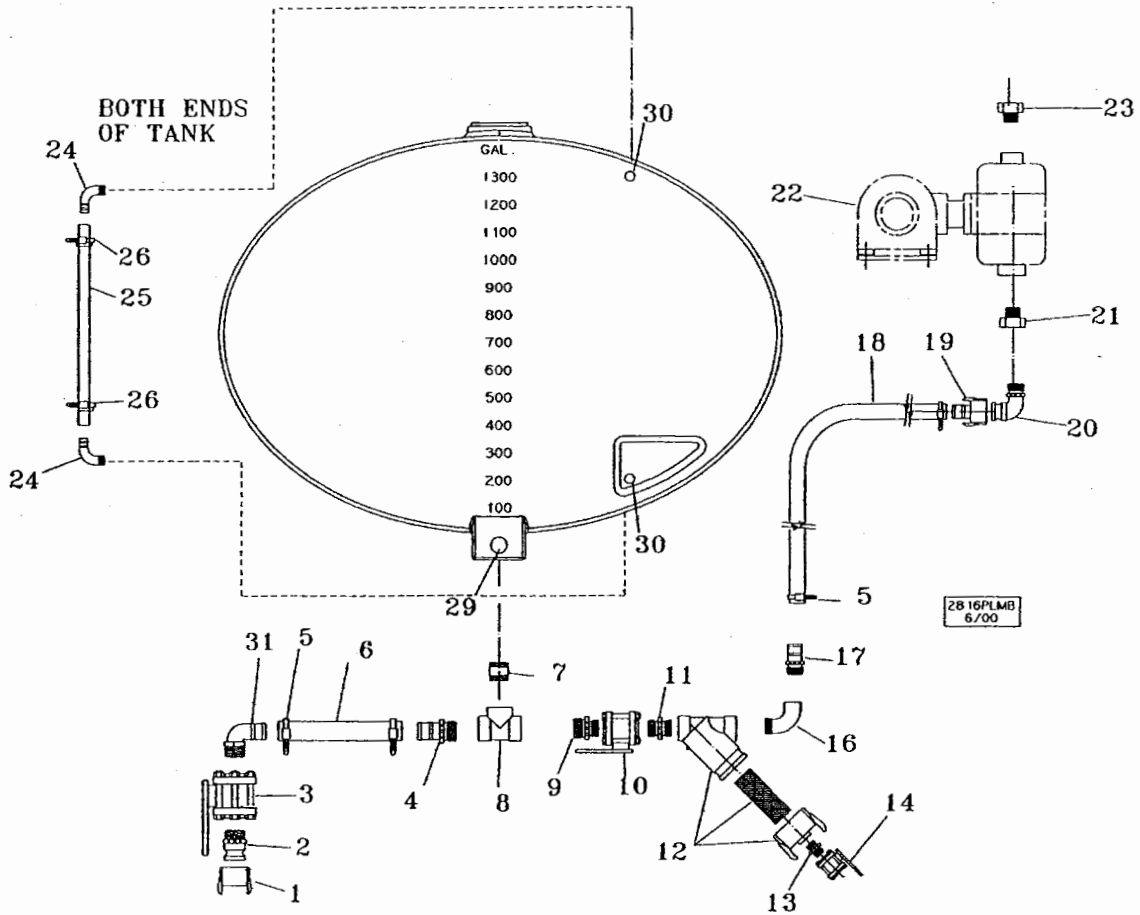
NOTE: CHECK HUB NUMBER  
BEFORE ORDERING PARTS.

## TRANSPORT HUB ASSEMBLY

- Grease bearing cones before assembly.
- Assemble and torque slotted nut to 75 Ft.-Lbs. while rotating or oscillating hub to seat bearing assembly.
- Loosen slotted nut and retorque slotted nut to 45 Ft.-Lbs. while rotating or oscillating hub.
- Install cotter pin through slotted nut and spindle. Do not tighten slotted nut to install cotter pin. Loosen slotted nut no more than 30° maximum to install cotter pin.
- Fill hub cavity and hub cap with bearing grease.



# 1300 GALLON TANK FITTINGS



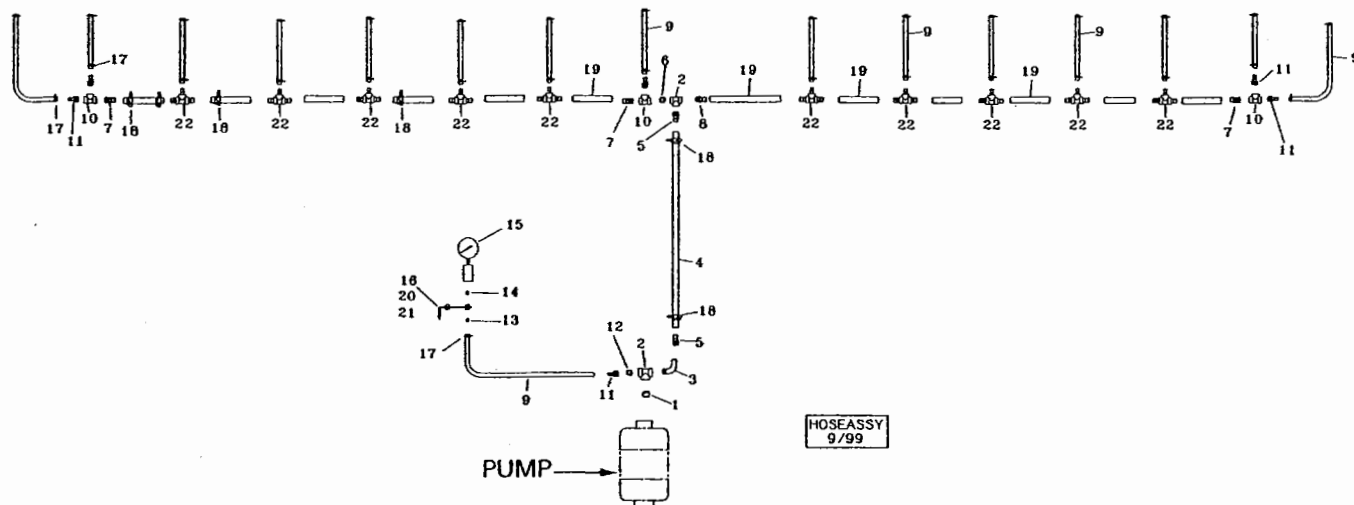
28 16PLMB  
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REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
1	34416022	1	Cap 2"
2	34416002	1	2" Male Coupler
3	34216001	1	Ball Valve 2" NPT Full Port
4	34316003	1	2" Poly Barb
5	214-1432	4	#32 Worm Gear Clamp
6	25732003	1	2" Plastic Hose x 2'
7	34316006	1	2" Short Nipple
8	34316005	1	2" Tee
9	34316001	1	2" x 1-1/2" Reducer
10	34212001	1	1-1/2" Ball Valve
11	34312002	1	1-1/2" Short Poly Nipple
12	34212002	1	1-1/2" Inline Strainer
13	34306041	1	3/4" X 1/2" Poly Reducer Nipple
14	34308003	1	1/2" Ball Valve
16	34312005	1	1-1/2" Street E.L.
17	34312001	1	1-1/2" Poly Barb

REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
18	25731504	1	1-1/2" Dia. Hose
19	34412012	1	1-1/2" Coupler
20	34312012	1	1-1/2" Male Adapter
21	34316007	1	2" x 1-1/2" Reducer Bushing
22	34120002	1	John Blue Double Pump LM4955
	34120014	1	Crankcase for LM4955 Pump (Not Shown)
	34120015	1	Repair Kit for LM4955 Pump (Not Shown)
23	34312004	1	1-1/2" x 1" Pipe Reducer
24	34306061	4	3/4" x 90° Hose Barb
25	25631206	2	3/4" Sight Tube
26	214-1416	4	#16 Stainless Steel Worm Gear Clamp
29	30000010	1	2" Bulkhead Fitting
30	30000011	4	3/4" Bulkhead Fitting
31	34316008	1	Poly Hose Barb 90°

NSI - NOT A SERVICE ITEM  
A/R - AS REQUIRED

# HOSE ASSEMBLY



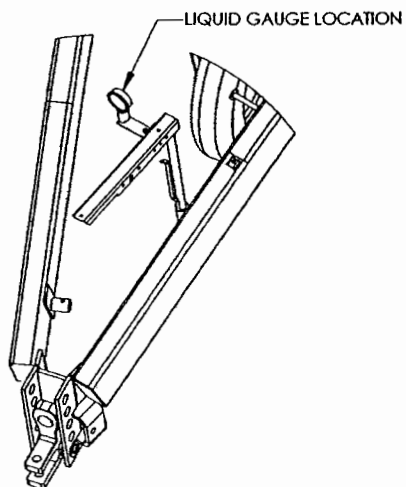
REF. PART QTY.  
NO. NO. NO. DESCRIPTION

1	34308000	1	1" NPT Nipple
2	34308005	2	1" Tee
3	34308002	1	1" Street E.L.
4	25674945	1	1" EPDM Hose x 7'
5	34308001	2	1" Hose Barb
6	34308042	1	1" x 1/2" Reducer Nipple
7	34304061	A/R	1/2" NPT x 3/4" Hose Barb
8	34308060	1	1" NPT - 3/4" Hose Barb
9	25630805	1	1/2" Hose x 75'
10	34304002	A/R	1/2" Tee
11	34304032	A/R	1/2" x 1/2" Hose Barb

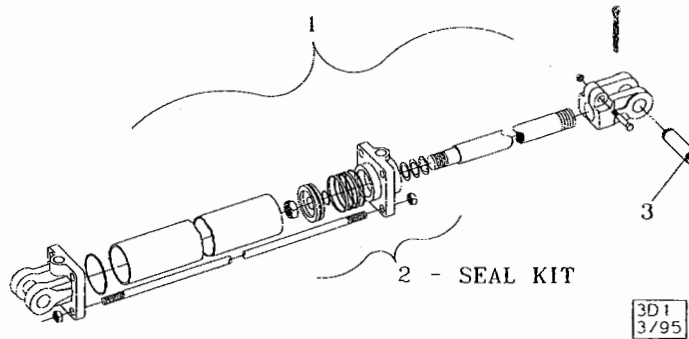
REF. PART QTY.  
NO. NO. NO. DESCRIPTION

12	34308041	1	1" x 1/2" Reducer Bushing
13	15040251	1	1/4" NPT x 3/8" Barb
14	15010251	1	1/4" NPT Nipple
15	34599015	1	Gauge w/Protector
16	04681830	1	Bracket
17	214-1406	A/R	3/8" & 1/2" Hose Clamp
18	214-1416	A/R	#16 Worm Gear Clamp
19	25661232	1	3/4" EPDM Hose x 32'
20	413-616	1	3/8" x 1" NC Hex Bolt
21	425-106	1	3/8" NC Hex Nut
22	34306051	10	3/4" x 1/2" Tee
23	30007000	A/R	20" Hose Tie

NSI - NOT A SERVICE ITEM  
A/R - AS REQUIRED



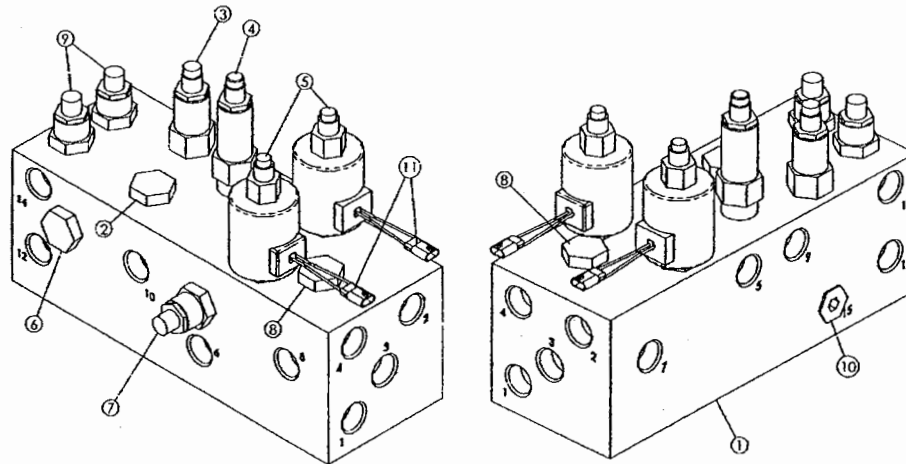
# HYDRAULIC CYLINDER



REF. NO.	2-1/2" x 16	3" x 12"	4" x 24"	QTY.	DESCRIPTION
1	25325161			1	2-1/2" Dia. x 16" Stroke Cylinder -3,000 P.S.I.
		25330121			3" Dia. x 12" Stroke Cylinder - 3,000 P.S.I.
			25340242	1	4" Dia. x 24" Stroke Cylinder - 3,000 P.S.I.
2	25832510				Seal Kit - 1-1/8" Dia. Rod - 2-1/2"
		25833007		1	Seal Kit - 1-1/4" Dia. Rod -3"
			25834023	1	Seal Kit - 1-1/2" Dia. Rod - 4"
3	25890100	25890100	25890100	1	1" Dia. x 3" E.L. Clevis Pin Assembly (Includes 2-pins and 2-cotter pins)

SAE - STRAIGHT O-RING THREADS

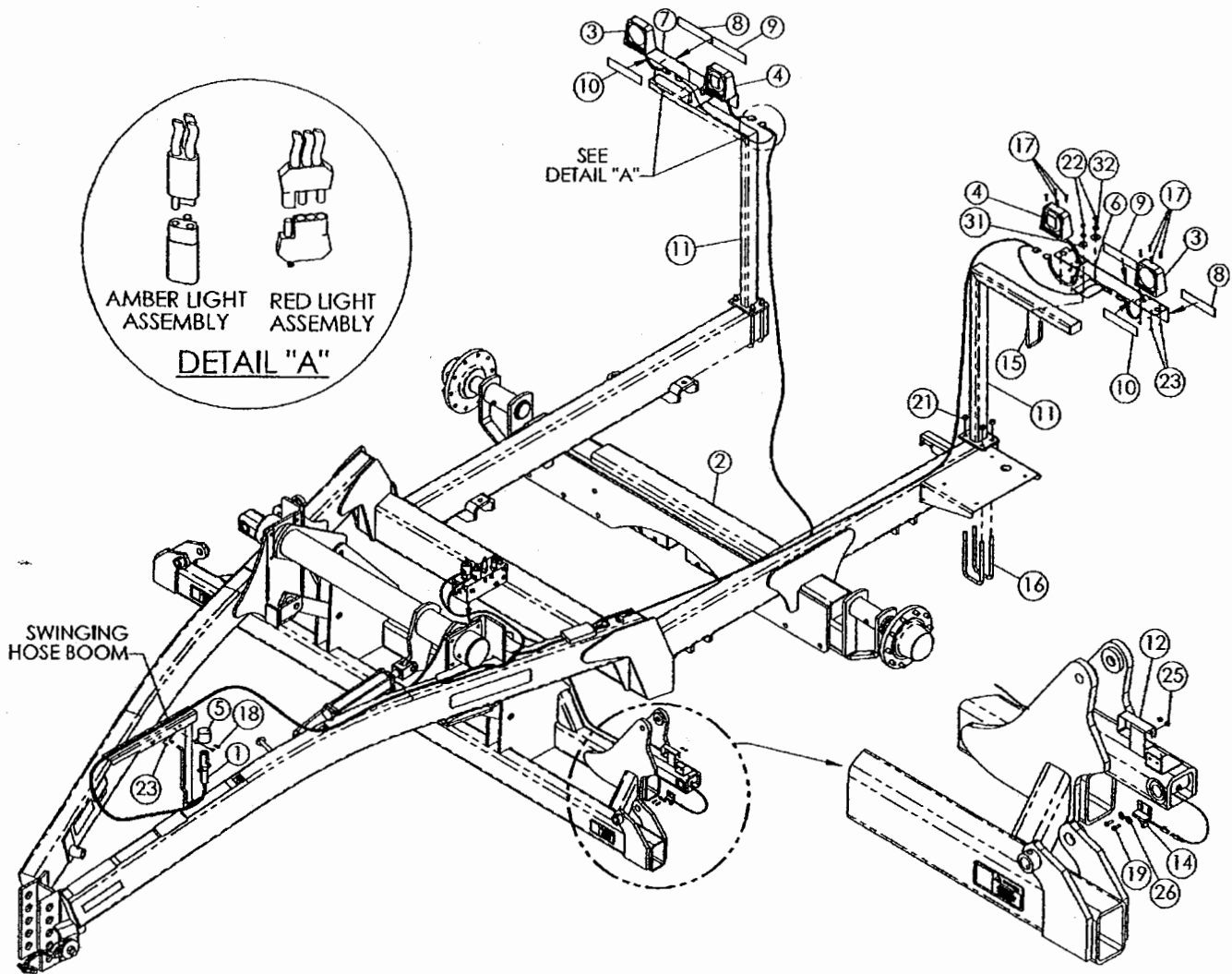
# COMBINATION VALVE



REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
	05302848	1	Combination Valve (Incl. Items #1 - 11)
1	25910001	1	Block 7XXXXXX
2	25410004	1	Check Pilot, PC10-30-0-N, 4:1
3	25410006	1	Pressure Reducing/Relieving Valve, PR10-36A-0-N-15/10
4	25410007	1	Sequence Valve, PS10-34A-0-N-17/08

REF. NO.	PART NO.	QTY. NO.	DESCRIPTION
5	25410008	2	Solenoid Valve, SV10-23W-0-N-00
6	25410003	1	Flow Divider, FD10-41-0-N-33
7	25410011	1	Valve, CBCA-LHN
8	25410001	1	Check Valve, CD10-20-0-N-05
9	25410002	2	Counter Balance Valve, CBCH-LKN
10	25410010	1	Plug, 6108080
11	25410009	2	Coil Lead, 18 Ga., 6359412

# WARNING AND TAILLIGHT KIT



REF. NO.	PART NO.	QTY NO.	DESCRIPTION
1	27602227	1	Front Wiring Harness
2	27602223	1	Rear Wiring Harness
3	27602201	2	Light Assembly, Amber
4	27602202	2	Light Assembly, Red
5	27601214	1	Plug Storage Container
6	05302953	1	Light Bracket, LH
7	05302952	1	Light Bracket, RH
8	311863A1	2	Red Reflector
9	311865A1	2	Fluorescent Strip
10	311864A1	2	Amber Reflector
11	05302957	2	Light Tower Weldment
12	05302926	1	Limit Switch Cover
14	05302925	1	Limit Switch
15	16308125	2	1/2" x 3" x 4" U-bolt

REF. NO.	PART NO.	QTY NO.	DESCRIPTION
16	16310060	4	5/8" x 4" x 9-3/4" U-bolt
17	413-420	8	1/4" x 1-1/4" NC Hex Bolt
18	413-412	2	1/4" x 3/4" NC Hex Bolt
19	14520303	2	#12 Screw
21	86992216	8	5/8" NC Stover Lock Nut
22	25-108	4	1/2" NC Hex Nut
23	86992211	18	1/4" NC Hex Nut
25	225-14112	2	#12 Nut
26	495-21031	4	1/4" Standard Washer
27	30007000	A/R	20" Plastic Hose Tie (Not Shown)
28	386170C1	A/R	30" Plastic Hose Tie (Not Shown)
29	27601215	A/R	Replacement Lens, Amber
30	27601216	A/R	Replacement Lens, Red
31	495-21069	4	5/8" Standard Washer
32	492-11050	4	1/2" Lock Washer

\*See Page #44 for Light Kit installation instructions.

A/R - AS REQUIRED  
NSI - NOT A SERVICE ITEM

# ASSEMBLY SECTION

The following text describes procedure for assembling the **nutri-placr Model 2800-16** unit. Place all bundles where they will be convenient. Part numbers are stamped on each bag. It may be helpful to open the bags for easier identification, but do not mix parts from different bags, and keep the bag number with the bundle of loose parts. Study and refer to the assembly drawings in this manual and proceed with the step-by-step instructions. All bolts should be torqued to the recommended torque shown on Bolt Torque Chart on inside of cover unless otherwise specified.

## FRAME

Refer to the parts drawing on Pages #22 and #23.

1. Place A-frame (Item #1) on stands approximately 40" high.
2. Install the adjustable spindle arms or fixed axles (Item #5) to the A- frame (Item #1) with six 7/8" x 8-1/2" hex bolts (Item #40), and six 7/8" hex nuts (Item #41). Torque hardware to 445 Ft-Lbs.

**NOTE:** The adjustable spindle arms have three (3) spacings, 120" tread width when mounted in the inside holes, to 144" tread width, to 156" tread width when mounted in the outside holes (See Figure #8 below).

3. Mount tire and wheel assemblies (Items #8 and 9) to hubs on adjustable spindle arms (Item #5).

**NOTE:** Mount 420/80 R46 tire and wheel assemblies with valve stems **OUT**.

**IMPORTANT:** Torque wheel nuts to 350 Ft-Lbs, and retorque after one hour of usage. Inflate tires to proper pressure - see tire pressure chart on page 14.

5. Attach combo clevis hitch (Item #21) to A-frame with 1-5/8" hitch pin (Item #45) and 7/16" klik pin (Item #46).
6. Install jack (Item #17) on pivot tube on A-frame. Secure with 5/8" clevis pin (Item #43).

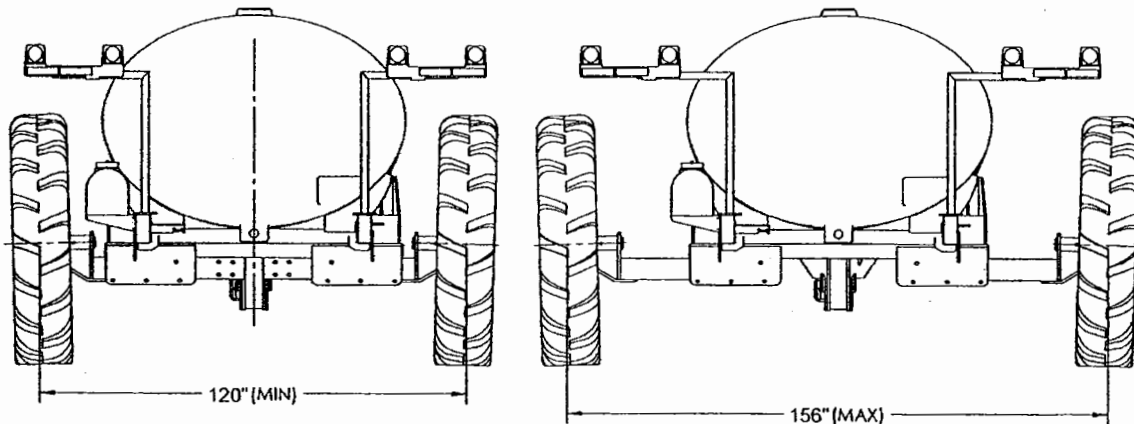


FIGURE 8

# TANK MOUNT

• Refer to parts drawing on Pages #22 and 23.

1. Position tank mount (Item #2) with sump hole to the rear and place on pads of A-frame. Align holes in tank mount and in pad on A-frame and secure with 3/4" x 2" hex bolts (Item #33) and 3/4" nuts (Item #39). When properly aligned, torque 3/4" hardware to 305 Ft-Lbs.

**NOTE:** Retorque hardware after first hour of use.

2. Place tank (Item #3) on mount and secure with tank straps (Item #4), 1/2" nuts (Item #38), and J-bolts (Item #56).

**NOTE:** The tank will settle into mount once tank has been filled and unit has been operated. Retighten hardware on tank straps after first hour of use.

3. Apply SMV decal (Item #11) to rear end of tank.

# COULTER FRAME

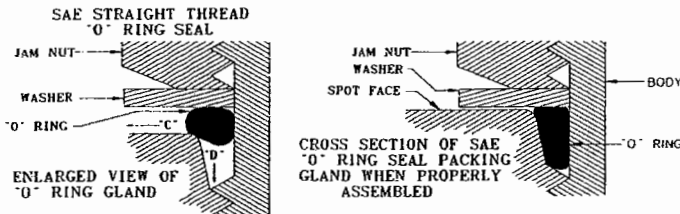
Refer to parts drawing on Page #24 unless otherwise noted.

1. Slide center section (Item #1) under A-frame. Pin the upper center section holes to the lift tube using (2) 1-1/4" dia. x 4-3/8" clevis pin (Item #10), (2) 1" standard washer (Item #22), and (2) 1/4" x 1-1/2" cotter pin (Item #12).
2. Pin lower lower center section holes to the parallel link weldments (Item #7) using (2) 1-1/4" dia. x 4-3/8" clevis pin (Item #10), (2) 1" standard washer (Item #22), and (2) 1/4" x 1-1/2" cotter pin (Item #12).
3. Install 3" x 12" hydraulic cylinder (Item #1, Page #25), with the butt end of cylinder to lug on A-frame and rod to the lift tube with 1" dia. pins and cotter pins provided with cylinder. Install the transport stop (Items #20, 21, & 22, Page #25) on the extended cylinder to secure the center section position.
4. Attach right hand mid-section weldment and left hand mid-section weldment (Item #2) to center section with (4) 1-1/4" hinge pin (Item #11), (4) 3/8" x 2-1/2" hex bolts (Item #14), and 3/8" stover lock nuts (Item #18).
5. Attach 13 or 15 coulters outer wings (Item #3) to right and left hand mid-section weldments with 1-1/4" x 14-1/4" pin (Item #9), 1-1/4" I.D. washer (Item #22), and 1/4" x 2" cotter pin (Item #13).
6. Install (2) 4" x 24" hydraulic cylinders (Item #2, Page #25) (between center section and mid-sections) with cylinder ports to the back of the toolbar. Place the butt end of the cylinders between the center section lugs and pin with 1" dia. pin (Item #30), 1" machine bushing (Item #29) and 1/4" x 2" cotter pin. Extend cylinders and pin the rod end to the mid-section lugs with 1" dia. pin (Item #30), 1" machine bushing (Item #29) and 1/4" x 2" cotter pin.
7. Position toolbar support weldment (Item #4) on rear bar of center section weldment (Item #1). Attach support weldment with 3/4" U-bolts (Item #16) and 3/4" stover lock nuts (Item #20).

# HYDRAULIC SAE ADAPTER INSTALLATION

**IMPORTANT:** Read this before installing adapters

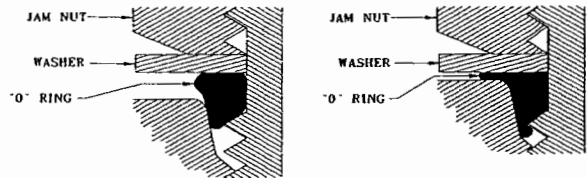
1. Jam nut and washer must be to the back side of the smooth portion of the elbow adapter.
2. Lubricate the "O" Ring - **VERY IMPORTANT!**



## WHY "O" RING LUBRICATION IS IMPORTANT:

1. Fitting engaged to point where "O" Ring touches face of boss. Lubrication on "O" Ring permits it to move in direction "D".
2. When "O" Ring and boss are dry, rotary motion of assembly can cause friction and "O" Ring can move in direction "C".
3. Jam nut and washer cannot bottom fully if the "O" Ring is between the washer and the face of the boss.

3. Thread into port until washer bottoms onto spot face.  
**NOTE:** Is the spot face large enough for the washer?  
Does hex of the straight adapter fit into spot face?
4. Position elbows by backing up the adapter.
5. Tighten jam nut.



## WHAT HAPPEN WHEN THE JAM NUT AND WASHER ARE NOT BACKED UP PRIOR TO ASSEMBLY:

1. When jam nut and washer have not been backed up, there is not enough room for the "O" Ring Seal when the squeeze takes place.
2. Washer can't seat properly on the face of the boss. The compressed rubber between the washer and the boss face will cold flow out from compression and the fitting will be loose and usually leak.

# HYDRAULIC SYSTEM

Refer to parts drawing on Page #25 and hydraulic fittings are located in hydraulic hardware bag #05302837.

1. Remove and identify the fourteen hydraulic hoses from the shipping crate. **NOTE:** The hydraulic hoses have the part number stamped in the fitting ends for easy identification. Remove fittings from hardware bag #05302837 and identify by descriptions listed on Page #25.
2. Mount the hydraulic manifold (Item #27) to the mounting plate on the coultter bar using the 5/16" hex bolts (Item #31) and lock washers (Item #32). Make sure that ports 1 and 4 on the manifold are facing the front of the machine.
3. Attach (4) 3/4" SAEM x 3/4" JICM adapters (Item #16) to ports 1 through 4 on the hydraulic manifold. Attach the pink throttle valve (Item #33) to the adapter on port 4 with the poppet toward the manifold into port 4, by first installing 3/4" SAEM x 3/4" JICF adapter (Item #35), followed by the pink throttle valve (Item #33), and finally the 3/4" SAEM x 3/4" SAEM adapter (Item #16). Attach (4) 3/8" x 178" hydraulic hoses (Item #4) to the adapters and extend hoses toward front of the machine. Connect (4) ISO-3/4" SAEF couplers (Item #28) to the hydraulic hoses.
4. Route the (4) 3/8" x 178" hydraulic hoses (Item #4) along the left side of the A-frame. Attach the hydraulic hoses to A-frame using hose clamps (Item #18), 3/8" x 1" carriage bolt (Item #23) and 3/8" stover lock nut (Item #24). Adjust hydraulic hoses for proper clearance and tighten hardware on hose clamps.
5. Assemble hose clips to hydraulic hoses 24" back from ISO-3/4" SAEF couplers (Item #28). The "Main Lift" clip (Item #37) is used to clamp the two hoses that attach to ports 1 and 2 of the hydraulic manifold (Item #27). The "Wing Fold" clip (Item #38) is used to clamp the two hoses that attach to ports 3 and 4 of the hydraulic manifold (Item #27).
6. Install hydraulic cylinders in locations as shown on page #25. Assemble (2) 3/4" SAEM x 3/4" JICM 90° adapters (Item #15) or 3/4" x 9/16" adapters (Item #36) to each hydraulic cylinder. **NOTE:** leave adapter lock nuts loose until hydraulic hoses have been routed and attached to adapters.

**NOTE:** Make sure steel plug with cylinder is used to plug unused port (outer cylinders only).

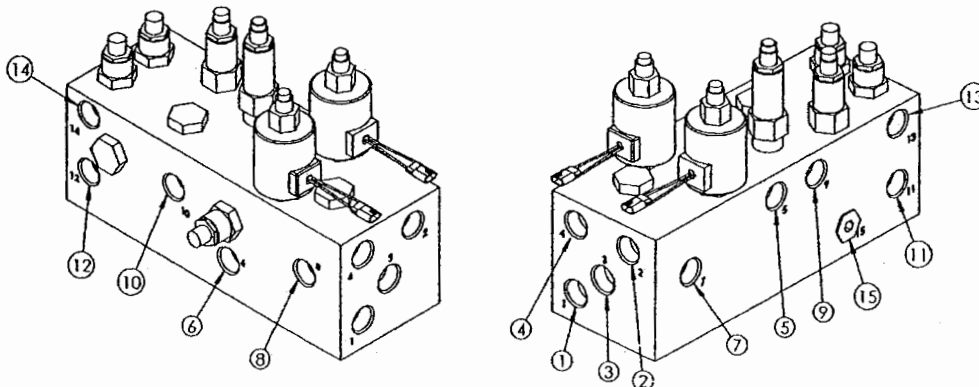
7. Route hydraulic hoses from hydraulic manifold (Item #27) to coultter bar fold cylinders as listed on Connection Chart for Hydraulic Hoses on page #39. Route the mid wing cylinder (Item #2) hydraulic hoses (Items #6, 10, 5, 9) from the manifold along the rear bar of the coultter bar frame and attach hoses to frame with hose ties. Continue mid wing cylinder hoses to the butt end of cylinder (Item #2). Hoses (Item #6 & 10) that go to the rod end of the cylinder need to be tied to the fitting at the butt end of the cylinder. Route the outer wing cylinder (Item #3) hydraulic hoses (Item #12, 8, 7, 11) through the hose clamp (Item #18). Attach hoses to rear of mid wing, then tie the rod end hoses to the fitting at the butt end.

8. Connect hydraulic hoses to hydraulic manifold and attach to 3/4" SAEM x 3/4" JICM 90° adapters or 9/16" SAEM x 3/4" JICM 90° adaptors on each cylinder. Position hoses to allow enough slack to avoid pulling when coultter bar is folded. After positioning hoses, tighten all lock nuts on 3/4" SAEM x 3/4" JICM 90° adapters (Item #15). Tighten 3/8" hardware on all hose clamps.
9. Install 1-1/4" machine bushing (Item #35, Page #22) over end of hose stand (Item #10, Page #22) and place assembly into holder on A-Frame (Item #1, Page #22).

## CONNECTION CHART FOR HYDRAULIC HOSES

PORT # ON MANIFOLD	CONNECTED TO	FUNCTION
1	Hose (Item #4, 178" lg.) from extend port on SCV1 on tractor	Work mode, toolbar down
2	Hose (Item #4, 178" lg.) from retract port on SCV1 on tractor	Work mode, toolbar raise
3	Hose (Item #4, 178" lg.) from extend port of SCV2 on tractor	Transport fold
4	Hose (Item #4, 178" lg.) from retract port of SCV2 on tractor	Transport unfold
5	Hose (Item #5, 68" lg.) going to butt end of main lift cylinder	
6	Hose (Item #9, 55" lg.) going to rod end of main lift cylinder	
7	Hose (Item #11, 114" lg.) going to butt end of left hand outer wing cylinder	
8	Hose (Item #7, 128" lg.) going to butt end of right hand outer wing cylinder	
9	Hose (Item #12, 132" lg.) going to rod end of left hand outer wing cylinder	
10	Hose (Item #8, 148" lg.) going to rod end of right hand outer wing cylinder	
11	Hose (Item #10, 86.5" lg.) going to rod end of left hand middle wing cylinder	
12	Hose (Item #6, 97" lg.) going to rod end of right hand middle wing cylinder	
13	Hose (Item #9, 55" lg.) going to butt end of left hand middle wing cylinder	
14	Hose (Item #5, 68" lg.) going to butt end of right hand middle wing cylinder	
15	Port for connecting a gauge to check down pressure	

**NOTE:** See below for port # locations on combination valve.



PORT NUMBER LOCATIONS  
ON COMBINATION VALVE

# GROUND DRIVE

Refer to the parts drawing on Page #26.

1. Install extension bar (Item #31) to center of front tube of coultter main frame using 7/8" hex bolts (Item #33), straps (Item #32), and 7/8" stover lock nuts (Item #34). Torque hardware to 445 ft-lbs.
2. The ground drive comes assembled from DMI. Locate the pump mount (Item #1) on extension bar (Item #31). Secure with 3/4" x 4" x 5-1/2" U-bolt (Item #26) and 3/4" nuts (Item #23). Torque hardware to 185 Ft-Lbs.
3. Loosely mount pump (Item #28) to ground drive assembly. Secure with four 3/8" x 1-3/4" hex bolt (Item #32), 3/8" washer (Item #33) and 3/8" hex nut (Item #37).
4. Mount 7.00 x 14" tire and wheel assembly (Item #16) to hub sprocket adapter (Item #18). Secure with four 1/2" x 2" NF hex bolt (Item #25).
5. Align 7" x 14" tire with center of coultter main frame. Torque 7/8" hardware to 445 Ft-Lbs.
6. Mount 60-tooth sprocket (Item #19) to hub sprocket adapter. Secure with five 3/8" x 1-1/4" hex bolts (item #24).
7. Loosely assemble single spool idler (Item #20) to pump mount.
8. Line sprocket on pump with sprocket on ground wheel. Tighten 3/8" hex bolt.
9. Install #50 single roller chain (Item #17) on sprockets. Connect by using connecting link and/or offset connecting link as required.
10. Tighten chain by using a single spool idler placed outside of chain. Idler can be slid in and out in slot and also can be indexed with the casting.

**NOTE:** Use machined spacers (Item #21) between sprocket adapter (Item #18) and wheel rim (Item #30).

# TANK FITTINGS

Refer to the parts drawing on Page #31.

All fittings are furnished for the **nutri-placr Model 2800-16** unit from the filling Quic-Coupler to the pump. Assemble according to part drawing. Filling and discharging are both done from the tank sump.

1. Coat all threads with a good sealant before using.
  2. Assemble fitting according to part drawing on Page #31.
  3. Install 2" short nipple (Item #7) and 2" tee (Item #8) into tank sump. Leave tee (Item #8) oriented left to right.
  4. Install 1-1/2" ball valve (Item #10) and 1-1/2" inline strainer assembly (Item #12) on right side of 2" tee (Item #8) as shown on Page #31.
  5. Mount 2" ball valve (Item #3) on hanger provided on the left rear corner of the A-frame. Cut 2" hose (Item #6) to fit.
  6. Cut 1-1/2" hose (Item #18) as needed to run from 1-1/2" inline strainer (Item #12) to bottom of pump (Item #22).
  7. Remove plug from 1-1/2" inline strainer (Item #12) and install 1" nipple (Item #13), 1" ball valve (Item #14) and 1" barb (item #15).
- NOTE:** A 1" hose (not furnished) can be installed on the strainer if desired.
8. Install (2) 3/4" x 90° hose barbs (Item #24) into the top bulk head fittings on each end of tank. Install (2) 3/4" x 45° poly street e.l. (Item #27) and 3/4" poly barbs (Item #28) into the bottom bulk head fittings on each end of the tank, cut to fit and install 3/4" clear sight tubes (Item #25).

# GROUND DRIVE FITTING

Refer to parts drawing on Page #31.

1. Install 1-1/2" male adapter (Item #20) into base of pump (Item #22), use 2" x 1-1/2" reducer bushing (Item #21) for double pump only.. Connect 1-1/2" dia. hose (Item #18) to 1-1/2" coupler (Item #19). Secure with gear clamp (Item #5).
2. On double pump only, install 1-1/2" x 1" pipe reducer (Item #23) into top outled of pump.

# PRESSURE GAUGE

Assemble gauge mounting bracket (Item #16, Page #32) to the swivel hose stand (Item #10, Page #22). Assemble gauge (Item #15) to gauge mounting bracket as per drawing on Page #32.

# LIQUID COULTER

Refer to the Liquid Coulter parts drawing on Page #27.

1. Mark the desired location for the coulter assembly on the tool bar using diagram on Page #43 as a reference.

**NOTE:** The center of the 3/4" U-bolt is the center of the coulter when assembled.

2. Attach coulter mount (Item #6) to coulter bar using 3/4" x 4" x 5-1/2" U-bolt (Item #9) and 3/4" heavy nut (Item #16). Torque hardware to 185 Ft-Lbs.

**NOTE:** Coulter mounts (Item #6) will have to be turned 180° to allow clearance at gauge wheel locations (180° coulter location as shown on page #43).

3. Slide coulter arm assembly (Item #1) on to coulter shaft and secure with 7/16" x 2" roll pin (Item #11).
4. Attach 20" rippled coulter blade (Item #4) to 633 hub (Item #5) on coulter arm assembly.

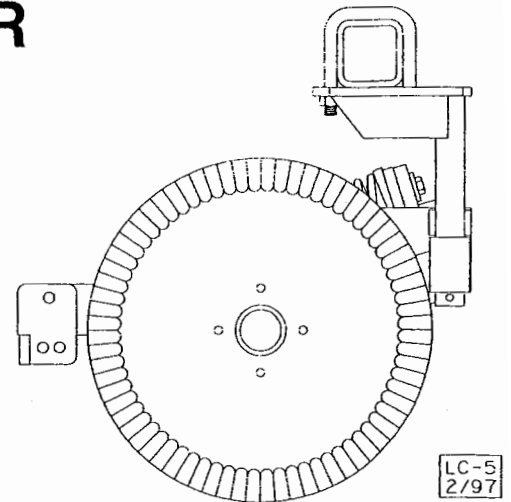


FIGURE 12

# KNIFE

Mount the knife to coulter arm using 5/8" x 2" bolt and 5/8" nut. Shim the knife until it is in line with the coulter. Adjust the bottom of the knife so it will nick but not drag when the coulter is rotated. The end of the knife must be no more than 1/32" away from the coulter. Then adjust the knife so the gap between the knife and coulter gets larger as it goes upward. This will allow any material that gets between the knife and coulter to move up and out.

## KNIFE CHECK VALVE

Assemble check valve with female thread on top, insert ball into bottom side of check valve body first, followed by spring, orifice plate, and 1/2" hose barb. Screw on nozzle cap. Cut a 7-1/2" long 3/8" hose and connect barb to knife tube. Then, install barb into top of check valve assembly.

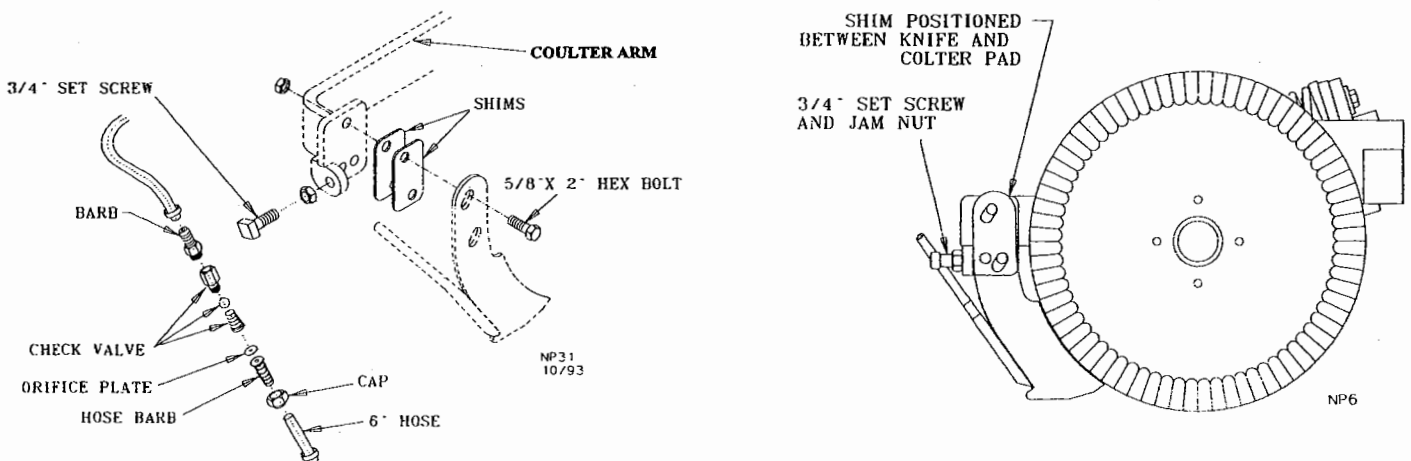


FIGURE 13

# INJECTOR ASSEMBLY

Assemble 3/8" hose barb, 1/4" coupler (or elbow) and check valve body to 1/4" x 6" nipple. (Refer to Page #32) Clamp assembly to the top hole in the coulter arm using outer clamp, inner clamp, 5/8" x 2" bolt, and 5/8" nut. Choose the proper size nozzle from table to maintain 80 to 100 p.s.i. for the rate and speed that will be used. Insert check valve, ball, and spring into the body. Select nozzle (from table) and secure with nozzle cap. (See Figure #14.)

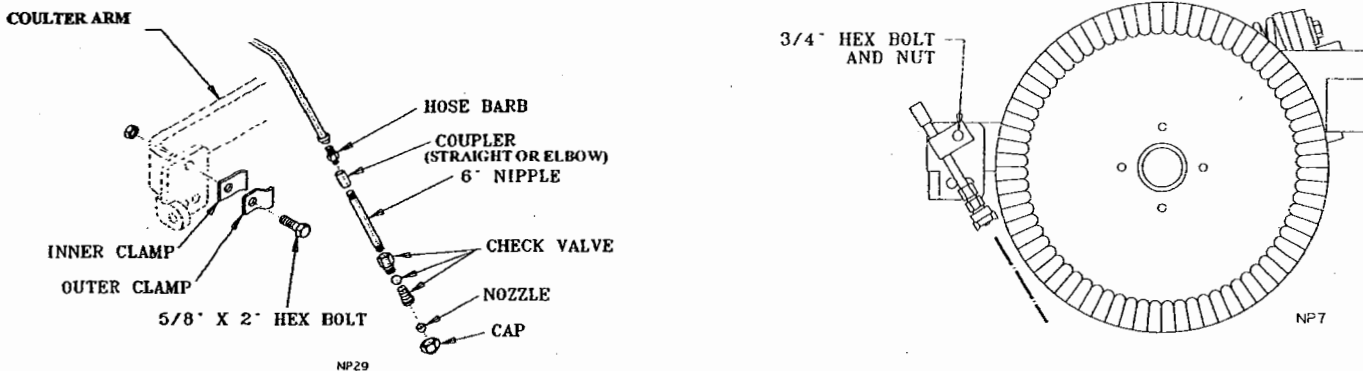
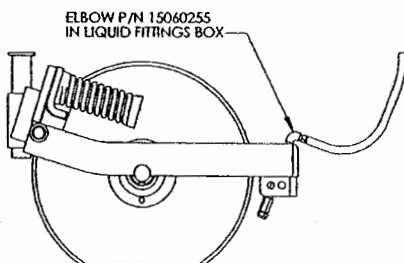


FIGURE 14

# LIQUID HOSE ASSEMBLY

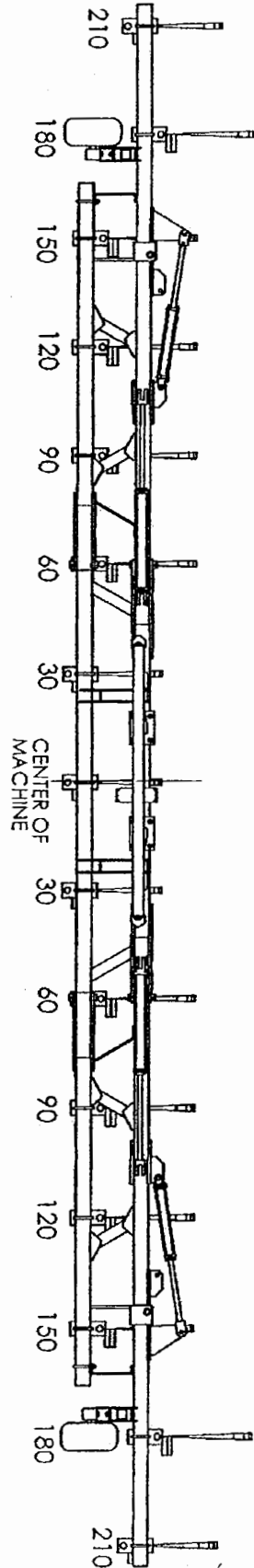
1. Refer to parts drawing on Page #32 to complete hose assembly from pump to nozzles.
2. Use 1-1/2" x 1" pipe reducer (Item #23, Page #31) in outlet port.
3. Install 1" nipple (Item #1) to outlet port of pump, then add 1" tee (Item #2) with the tee cross-ways, parallel to coulter bar.
4. Install 1" street e.l. (Item #3) to tee leaving elbow pointed down and back.
5. Connect 1" hose (Item #4), using 1" hose barbs (Item #5) and #16 worm gear clamps (Item #18) to the elbow (Item #3) and run back under the rock shaft and along inside of left hand A-frame tube.
6. Connect 1" hose (Item #4) to 1" tee (Item #2) and complete plumbing installation to nozzles as shown on Page #32.
7. Secure run of hose and fittings to back side of coulter bar using 24" hose ties (Item #22). Attach 3/4" liquid hose to outer wing hydraulic hose at hinge. Allow enough slack in hose to let wings fold. At center section/mid wing, tie 3/4" liquid hose (Item #19) to the outer wing hydraulic hoses. Also check the clearance of the 3/4" hose and tee between the main frame and coulter bar, position hose and tee so they do not catch when raising or lowering the coulter bar.
8. Cut 1/2" hoses (Item #9) to from tee (Item #10) to nozzles with enough slack to allow coulter swivel and vertical trip. On middle (3) coulter, use 90° elbow instead of 1/4" nipple (Item #6, Page #30), per "DETAIL ELBOW POSITION" graphic below.
9. Use 24" cable ties (Item #22) around tees (Item #10) to coulter bar.



DETAIL ELBOW POSITION

**NOTE:** Place hose ties around tees (Item #10) and not 1/2" hoses (Item #9) to prevent restrictive flow.

# COULTER LOCATION



# WARNING AND TAILLIGHT

## INSTALLATION INSTRUCTIONS

See Page #34 for parts list and diagrams.

### 1. Lay out parts:

- A. Unroll the wiring harness. The seven pin connector will plug into the receptacle on the rear of the tractor. The longer of the two wiring harness leads will go to the left hand light assembly. The shorter lead goes to the right hand assembly. The seven pin receptacle goes to the rear of the machine.
- B. Identify the left hand and right hand light assemblies by referring to the connector diagram. (Note the different pin locations.)
- C. Identify the light brackets.
- D. Locate and identify hardware:
  - The light parts box includes all 1/4" fasteners for both light assemblies and the plug storage container.
  - Light mounting kit contains right hand and left hand brackets, 5/8" U-bolts and 5/8" hex nuts.

### 2. Test System

- A. Lay out the wiring harness on the machine with the longer lead to the left light assembly.
- B. Plug the two light assemblies into the plugs on the two leads.

**IMPORTANT:** Left hand and right hand light assemblies must be mounted on their respective sides or the warning lamps will not work properly as turn signals. Refer to the connector diagrams.

To make sure that light assemblies will be mounted correctly, check the following:

  - From the rear of machine, amber lights should be on top and red lights on the bottom of both light assemblies.
  - From the front of machine, only the amber lights should be visible.
- C. Clean the tractor receptacle and plug the seven pin connector into the tractor receptacle.
- D. Test the light system.
  - Red tail lights should work with the red tail lights on the tractor and the tractor head lights.
  - Amber lights should flash with the amber warning lights on the tractor and flash correctly with the tractor turn signals.

**NOTE:** If you experience a problem with the lights operating properly, besides checking the lights and wire harness, you will want to:

- Check for loose wires on the tractor receptacle.
  - Have the tractor ignition key in the "running" position or have the tractor engine "running" to have the lights work correctly.
3. Attach light brackets (#5 & #6) to the rear frame tube of the machine with the 5/8" U-bolts (#12) and 5/8" hex nuts (#13). Then attach lights (#2 & #3) to the correct light bracket using 1/4" x 1-1/4" hex bolts (#7) and 1/4" lock nuts (#9). **Do not over tighten fasteners on the plastic light assemblies.**
  4. Plug left hand and right hand harness leads. Route leads along the rear frame tube until reaching the right hand Aframe tubes. Then route to the front of the machine similar to hydraulic hoses.
  5. Secure wiring harness with hose ties **after** hydraulic hoses have been installed.

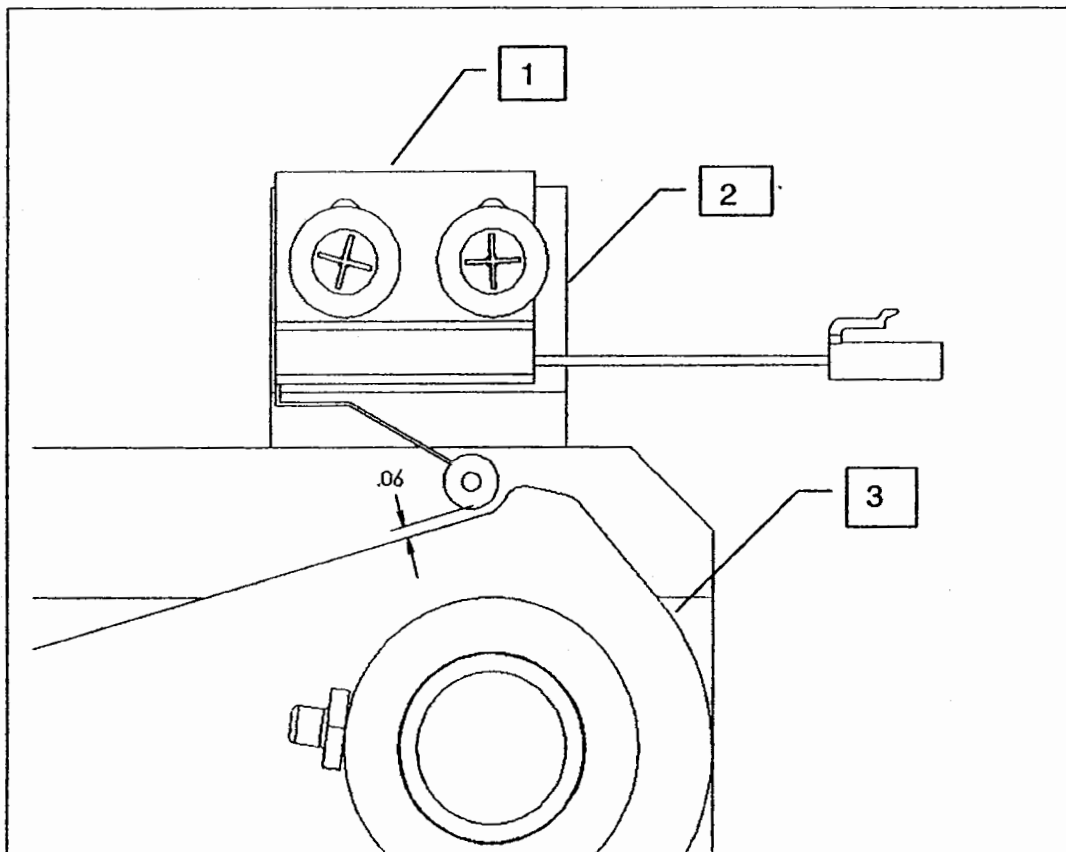
**IMPORTANT:** Wiring harness must be routed as shown and secured to prevent damage.

    - Do not stretch leads too tight.
    - Secure leads so they cannot be snagged.
    - Use plenty of plastic hose ties.
  6. Plug the seven pin connector into the tractor receptacle and allow enough slack for tractor maneuvering.
  7. Attach plug storage container (#4) to the hose stand (#16) using 1/4" x 3/4" hex bolts (#8) and 1/4" lock nuts (#9). **Do not over tighten fasteners on the plastic container.**
  8. Retest the light system.
  9. When not in use, store the seven pin connector in the plug storage container to keep it clean. Align the rib on the connector with one of the slots in the bottom of the container, push the connector up into the container and turn one-quarter turn for storage.

# INSTRUCTIONS FOR MOUNTING AND ADJUSTING LIMIT SWITCH

See Item #14, Page #34 for limit switch. The switch prevents the coultter bar from folding completely when lifting for end row turns, and must be adjusted for proper operation.

1. Assemble limit switch (Item #1 below) and switch cover (Item #12, not shown) to the bracket (Item #2 below) as shown, leaving bolt slightly loose.
2. With all coultter bar sections lined up in a horizontal position, adjust the switch so the roller is about 1/16" above the lug (Item #3 below).
3. Tighten hardware.
4. Connect the pair of plugs on the wiring harness to the solenoids on the hydraulic manifold, and connect the single plug to the limit switch.
5. When coultter bar is operational and the limit switch and solenoid valves are plugged into the wiring harness, the limit switch should stop the coultter bar wings from lifting beyond 5° above horizontal.
6. If the coultter bar lifts beyond 5° above horizontal, lower the switch slightly.
7. If the coultter bar does not lift enough, raise the switch slightly.
8. Position wiring as not to catch or pull too tight during folding and secure with plastic hose ties.



**NOTE: SWITCH COVER (ITEM 12, P. 34) NOT SHOWN**

# WARRANTY

## FIVE YEAR LIMITED WARRANTY

The manufacturer warrants to the original purchaser of each new **DMI nutri-placr Model 2800-16** unit that the product will be free from defects in material and workmanship for the following periods:

<b>Basic, Main Frame, Wheel Support</b> .....	<b>Five (5) years</b>
<b>All Other Components, except Tires</b> .....	<b>One (1) Year</b>

This Warranty does not cover replacement parts or tires. Tires on **DMI** equipment are warranted through the respective tire manufacturer. Contact a dealer of the manufacturer in your local area. Parts are warranted to be free of defects in material and workmanship for a period of ninety (90) days from the date of delivery.

This Warranty covers only defective material or workmanship. It does not cover normal wear or maintenance or repair resulting from accidents, improper maintenance, improper use, or alteration of the product. The cost of normal maintenance, service, and repair items shall be paid by the owner.

Under this Warranty, the manufacturer shall, at its option, either repair or replace, free of charge, any defective part or parts. The part or parts must be returned to the manufacturer, through the dealer from whom the product was purchased, within thirty (30) days from the date of failure. Transportation charges are paid. The only remedies are those which are outlined herein. The manufacturer will not be liable for incidental or consequential damages, including, but not limited to, loss of crops, loss because of delay in harvesting, or any expense or loss incurred for labor, supplies, substitute machinery or rental.

This Warranty is subject to any existing conditions of supply which affect the manufacturer's ability to obtain materials or manufacture replacement parts.

The manufacturer reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners of products previously sold.

No one is authorized to alter, modify, or enlarge this Warranty nor its exclusions, limitations, and reservations.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE.

**FIRESTONE FARM TIRES:** The owner-user's obligation to operate tires within tire load and speed limits (at cool air pressures specified by Firestone for load and speed according to individual tire size, type, and load capacity) and to maintain proper alignment of wheels.

In case of an adjustment claim, the owner-user must present the tire to an authorized Firestone dealer or store, complete and sign the customer section of the Firestone adjustment claim form, provide a copy of proof of purchase date and pay the appropriate replacement price, taxes and service charges for a new, current equivalent Firestone brand tire.

Firestone's Farm Tire customer hot line is ready to help you locate the dealer or store nearest you.

FOR ASSISTANCE CALL:  
 1-515-262-6073 Firestone Technical Service Center  
 1-800-847-3364 Sales Engineering