TO THE OWNER

M0124

OPERATOR & PARTS MANUAL

Double Frame Planter

We at Kinze Manufacturing wish to thank you for your patronage and appreciate your confidence in Kinze farm machinery. Your Kinze planter has been carefully designed and sturdily built to provide years of dependable operation in return for your investment.

This manual has been prepared to aid you in the assembly, operation, and maintenance of the planter. Do not use or operate this equipment until this manual has been read and understood.

Throughout this manual the symbol ⚠ and the words **Note, Caution and Warning** are used to call your attention to important safety information. The definition of each of these terms used follows:

NOTE: Indicates a special point of information.

CAUTION: Indicates that a failure to observe can cause damage to the machine or equipment.

⚠ **WARNING: Indicates that a failure to observe can cause damage to equipment and/or personal injury.**

This manual is applicable to:

Double Frame Planter
Model Number DF
Serial Number 4622 and on.

Record the model number and serial number of your planter with date purchased below:

Date Purchased _____

Serial Number _____

Model Number _____

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NEW MACHINE WARRANTY

ATTENTION: Effective 12/1/87 amendments were made to the KINZE New Machine Warranty. Refer to insert W12187.

No warranties express or implied are made or will be deemed to have been made by Kinze of the products sold under this Agreement except as follows:

Kinze warrants to the original purchaser for use, on products sold and located within the boundaries of the U.S. and Canada, that if any part of the product proves to be defective in material or workmanship within one year from date of original purchase, and is reported to Kinze within 10 days after such defect is discovered, Kinze will (at our option) either replace or repair said part. Return of the defective part to Kinze and submission of a completed warranty request must be accomplished within 30 days of the date that the replacement is made available.

This warranty does not apply to damage resulting from alteration, misuse, neglect, accident or improper installation or maintenance. A part will not be considered defective if it substantially fulfills performance specifications. Labor, shipping, field service, travel or administrative expenses incurred in connection with warranty replacements are not covered. Tires are not warranted by Kinze Manufacturing, Inc. and such claims must be pursued through the tire manufacturer's warranty.

Kinze warrants all replacement parts for a period of 90 days from date of purchase by the customer. Parts warranty is subject to the same provisions, restrictions and exclusions as new machine warranty and carries the same return and reporting requirements.

The foregoing warranty is exclusive and in lieu of all other warranties of merchantability, fitness for purpose and of any other type, whether express or implied. Kinze neither assumes nor authorizes anyone to assume for it any other obligation or liability other than stated above, and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within the fifteen days for full refund of purchase price.

Kinze reserves the right to make changes or to add improvements at any time without notice or obligations.

W12187

INTRODUCTION

The double frame planter is available in various configurations with a choice of 40", 38", 36" or 30" row spacing. Optional interplant row spacing of 20", 19" 18" or 15" are obtainable. The addition of pusher type row units allow for row spacings as narrow as 10".

The double frame planter permits installation of liquid or dry fertilizer application equipment and 1" or 2" no-till coulters which can be mounted to the row unit or frame mounted. The weight of the double frame unit contributes to the effective operation of this equipment. For further information on installation and use of optional equipment on all models, refer to the assembly and operation sections of this manual and your Kinze Row Unit Manual.

GENERAL INFORMATION

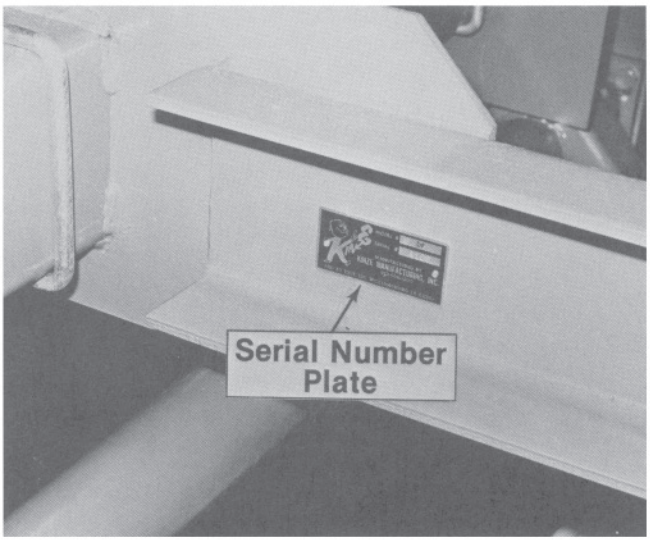
The information and photos used in this manual were current at the time of printing. However, due to Kinze's continual attempt to improve its product, possible in-line production changes may cause your machine to appear slightly different in detail. Kinze Manufacturing reserves the right to change specifications or design without notice and without incurring obligation to install the same on machines previously manufactured.

Right hand or left hand as used thoughout this manual is determined by facing in the direction the machine will travel when in use unless otherwise stated.

SERIAL NUMBER

The serial number provides important information about your planter and may be required to obtain the correct replacement part.

The serial number plate is located on the planter frame to be readily available. It is suggested that the serial number and purchased date also be recorded in the space provided on the inside front cover of this manual. Always provide the serial number and model number to your Kinze dealer when ordering parts or anytime correspondence is made with Kinze Manufacturing.



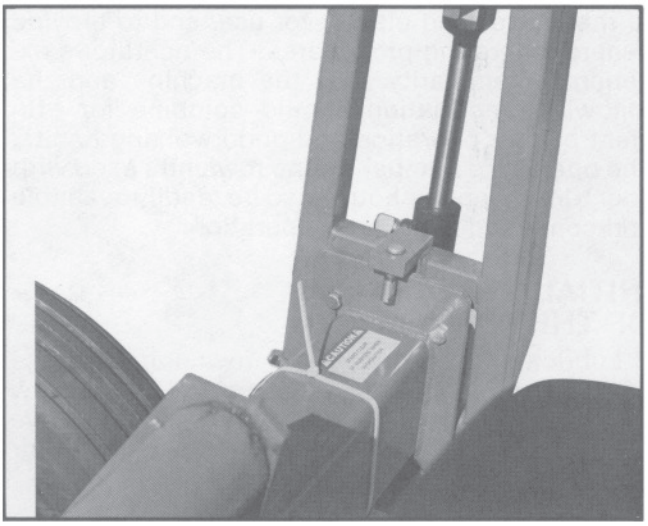
SAFETY PRECAUTIONS ⚠

Safe and careful operation of the tractor and planter at all times will contribute significantly to the prevention of accidents.

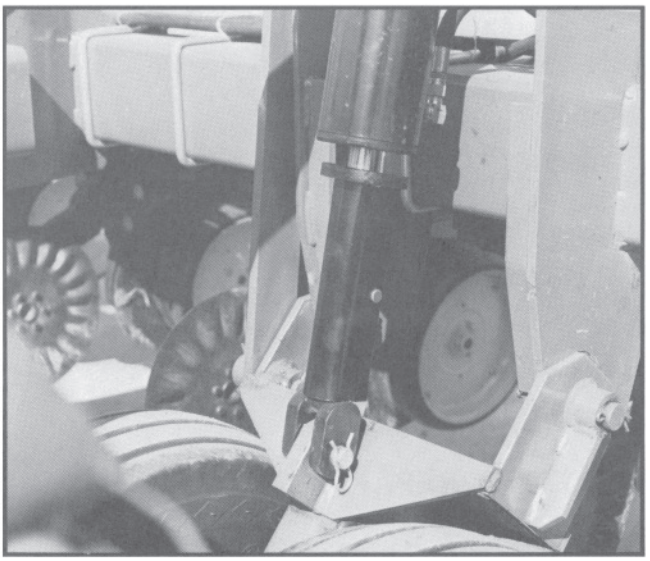
Since a large portion of farm accidents occur as a result of fatigue or carelessness, safety practices should be of utmost concern. Read and understand the instructions provided in this manual as well as those provided in your Kinze Row Unit Operator's Manual. Listed below are a few other safety suggestions that should become common practice.

- Never permit any persons other than the operator to ride on the tractor.
- Never ride on the planter frame or allow others to do so.
- Limit towing speeds to 15 MPH. Tow only with farm tractor of at least 50 H.P. size.
- Always make sure there are no persons near the planter when marker assemblies are in operation.
- Always lower the planter when not in use and cycle the hydraulic control lever to relieve pressure in cylinders and hoses.
- Always make necessary safety preparations prior to transporting the machine on public roads. This includes installing Slow Moving Vehicle (SMV) emblem and use of adequate lights or safety warnings after dark, except where prohibited by law.
- Watch for obstructions such as wires, tree limbs, etc., when folding marker assemblies.
- Always install marker lock-up/safety pins before transporting or parking any planter equipped with conventional marker assemblies.
- Always install all cylinder lock-up brackets before towing the planter or working under the unit.
- This machine has been designed and built with your safety in mind. Any alteration to the design or construction may create safety hazards. Do not make any alterations or changes to the equipment, but if any alterations or changes are made you must follow all appropriate safety standards and practices to protect you and others near this machine from injury.
- This planter is designed to be driven by ground tires only. The use of hydraulic, electric or PTO drives may create serious safety hazards to you and the people near by. If you install such drives you must follow all appropriate safety standards and practices to protect you and others near this planter from injury.

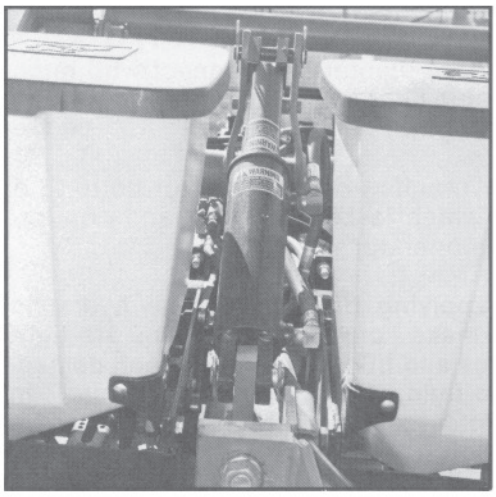
("Safety" Position Shown)



Marker Assembly Lock-Up



Planter Lift Cylinder Lock-Up



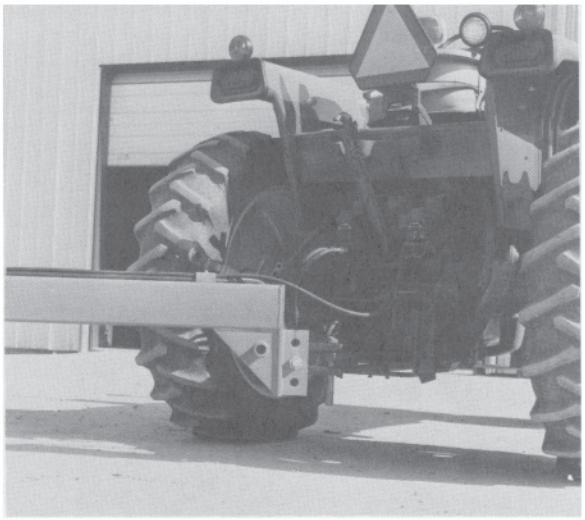
Rock Shaft Lock-Up

OPERATION

The following information is general in nature and was written to aid the operator in preparation of the tractor and planter for use, and to provide general operating procedures. The operator's experience, familiarity with the machine and the following information should combine for efficient planter operation and good working habits. The operator's manual for the row units used with your Kinze planter should also be readily available and consulted for planter operation.

INITIAL PREPARATION OF THE PLANTER

Lubricate the planter and row units per the lubrication information in this manual and the row unit operator's manual. Make sure all tires have been properly inflated. Check all drive chains for proper tension and lubrication.



TRACTOR PREPARATION AND HOOKUP

1. Adjust tractor drawbar so that it is 13 to 17 inches above the ground. Then adjust the drawbar so that the hitch pin hole is directly below the center line of the PTO shaft. Make sure the drawbar is in a stationary position.

2. Back tractor to planter and connect with hitch pin. Make sure hitch pin is secured with locking pin or cotter pin.

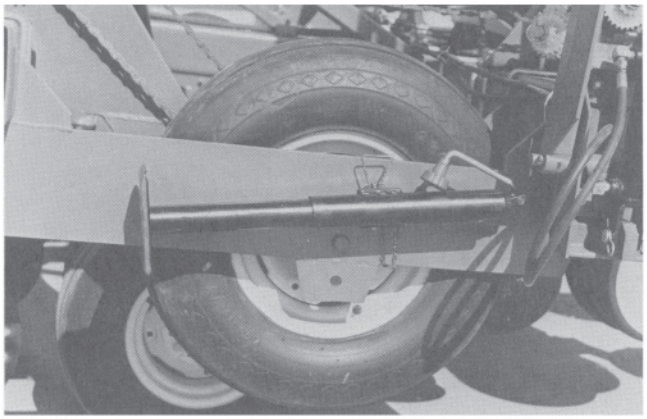
3. Connect hydraulic hoses to tractor ports in a sequence which is both familiar and comfortable to the operator.

⚠ Before applying pressure to the hydraulic system, make sure all connections are tight and that hoses and fittings have not been damaged. Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin, causing injury or infection.

IMPORTANT: Always wipe hose ends to remove any dirt before connecting couplers to tractor ports.

4. Raise jack stand and remount horizontally on storage bracket.

5. Lower planter to the planting position and check hitch for levelness. If hitch slopes up or down, disconnect planter and adjust hitch clevis up or down as necessary.



TRANSPORTING THE PLANTER

Raise the planter and markers. Install lock-up brackets on all planter lift cylinders. Also place marker safety lock-up pins in locked position on planters with conventional marker assemblies.

⚠ Always make necessary safety preparations prior to transporting the planter on public roads. This includes installing Slow Moving Vehicle (SMV) emblem and use of adequate lights or safety warning after dark.

LEVELING THE PLANTER

For proper operation of the planter and row units, it is important that the unit operate level.

Three holes in the double frame hitch bracket allow the clevis to be raised or lowered. In addition, the clevis may be turned over for a finer adjustment between mounting holes. When installing clevis mounting bolt, make sure lock nut is tightened to proper torque setting.

Always check fore and aft levelness with the planter lowered to proper operating depth. Then sight across hitch or place a bubble level on the hitch and frame.

In order to maintain lateral levelness, it is important that tire pressure be maintained at pressures specified and drive wheels are assembled in the same height adjusting holes.

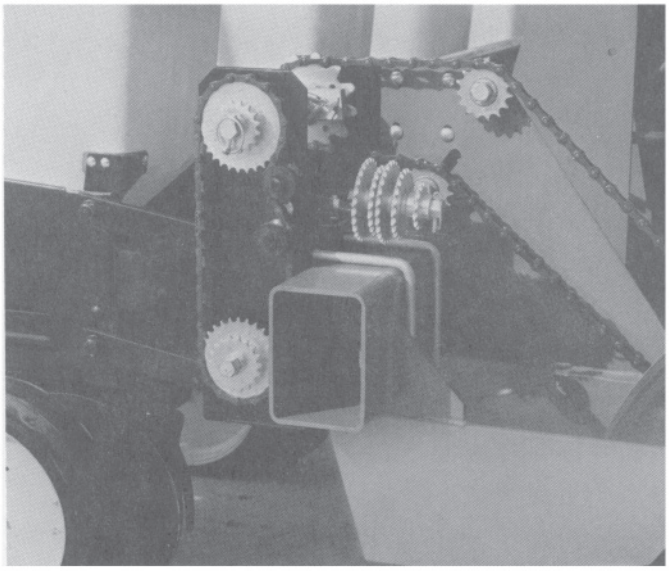
OPERATION

TIRE PRESSURE

Tire pressure should be checked regularly and maintained as follows:

Transport - 9.5L x 14" 6-ply - 35 PSI
Transport - 11L x 14" 6-Ply - 35 PSI
Drive Gauge - 7:60 x 15" 4-Ply - 40 PSI

IMPORTANT: Tire pressure must be correctly maintained in all drive wheel tires to insure level and proper operation of planter. Also all rate charts are based on rolling radius of 7:60 x 15 tires inflated to 40 PSI.



TRANSMISSION ADJUSTMENT

The transmission is designed to allow simple rapid changes in sprocket combination to obtain the desired planting population. Since both the transmission drive shaft and row unit drive shaft are hexagonal in shape, the sprockets need only be slid into alignment with the idlers after first removing the lynch pins. A combination of small sprockets may require shortening the drive chain.

A decal positioned next to the transmission provides proper chain routing. The planting rate charts found in the Operation Section of this manual will aid you in selecting the correct sprocket combinations. After positioning both sprockets, replace the lynch pins. Then restore tension on the drive chain.

OPERATION

HYDRAULIC OPERATION

All double frame planters may be equipped with either a single or dual valve hydraulic system. The dual valve system allows the markers to be operated independently of the planter lift cylinders. Each time a marker is completely raised, the sequencing valve will direct flow to lower the opposite marker.

Planters equipped with a single valve system require that the planter be raised in order to lift the markers. Each time the planter is raised, the markers will alternately be raised. If the planter is raised to cross a waterway, the opposite marker will be lowered when the planter is lowered back into the ground. Therefore, it will be necessary to stop, and again raise and lower the planter to restore correct marker operation.

⚠ **WARNING:** Always stand clear of the marker assemblies and blades when planter is operating.

Both the left and right marker assemblies on all planters, whether single or dual valve systems, have two flow control valves built into the hydraulic system. This permits the operator to manually adjust the proper speed of "raise" and "lower" for each marker as there is a valve for each direction on both cylinders.

CAUTION: The flow controls should be properly adjusted before the marker assembly is first put into use to prevent equipment damage.

To properly match the marker cylinder speed to your tractor's hydraulic system, loosen the lock nut which secures the knurled adjustment knob in place. The raise or lower time is increased by closing the valve (clockwise). This restricts oil flow and slows the speed of the marker cylinder. To increase the cylinder speed and decrease raise or lower time turn the valve counterclockwise to open the valve.

NOTE: After the flow controls have been adjusted, the marker speed will decrease with cold oil supply. Make sure that all adjustments are made with warm oil. Do not overtighten lock nut.

⚠ **WARNING:** Always position lock-ups in "Safety" position when transporting or storing planter. See Safety Precautions.

The planter lift system on the double frame planter should be operated in the fixed position. On planters equipped with a dual valve system the markers may be operated in either fixed or float position.

TRACTOR SPEED

Planters are designed to operate within a speed range of 2 to 8 M.P.H. Variations in ground speed will produce variations in rates. Corn meter populations will tend to be disproportionately higher at high ground speeds. While soybean and sorghum seed cup populations will tend to be disproportionately lower.

FIELD TEST

We recommend a field test be made to insure proper seed placement and operation of row units. See Rate Charts at end of this section.

Also check for any marker adjustment that may be needed. For additional information on marker adjustments see Assembly Section in this manual.

After the planter has been field tested, re-inspect the unit.

☐ Hoses - Fittings

☐ Bolts - Nuts

☐ Drive Chains

SHEAR PROTECTION

The planter drive line and row unit and fertilizer components are protected from damage by shear pins.

If excessive load should cause a pin to shear, it is important to determine where binding has occured before replacing the pin. Turn the shaft by hand, checking for misalignment and for the possibility of seized parts. When the shaft can be turned by hand (with the aid of a wrench) replace the pin with one of identical size.

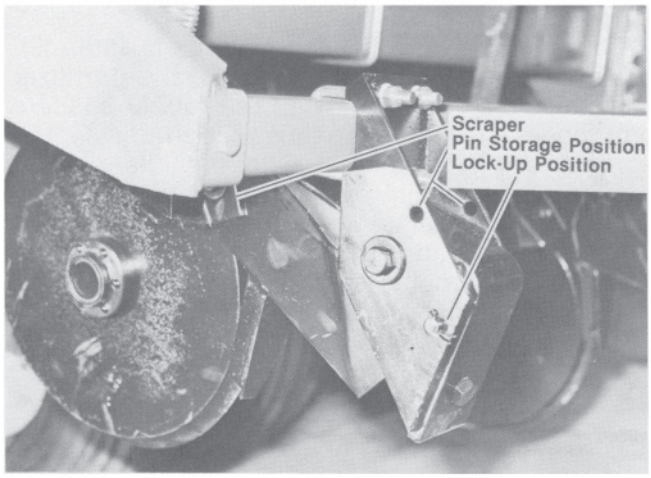
To prevent future binding or breakage of components, follow prescribed lubrication schedules.

The Grade 2 hex head cap screws used to mount each marker assembly to the planter frame also serves as a safety shear device when the marker hits an obstacle. When replacing, use identical size and grade.

OPERATION

DOUBLE DISK OPENER

The double disk openers should be positioned during assembly to place the fertilizer approximately 2" to either side of the row and from 4 to 6 inches deep depending upon soil conditions and down pressure.



The down pressure springs are factory preset at 250 pounds down pressure but may be adjusted for various soil conditions. To adjust spring tension, loosen the jam nut with a 15/16" wrench and use a 1" wrench to turn the adjustment bolt clockwise to increase tension or counterclockwise to decrease tension. Securely tighten the jam nut upon completion of tension adjustment.

⚠ **WARNING:** Do not operate the double disk openers at full down pressure tension when planting in rocky ground. Chipping of the disk blades may occur.

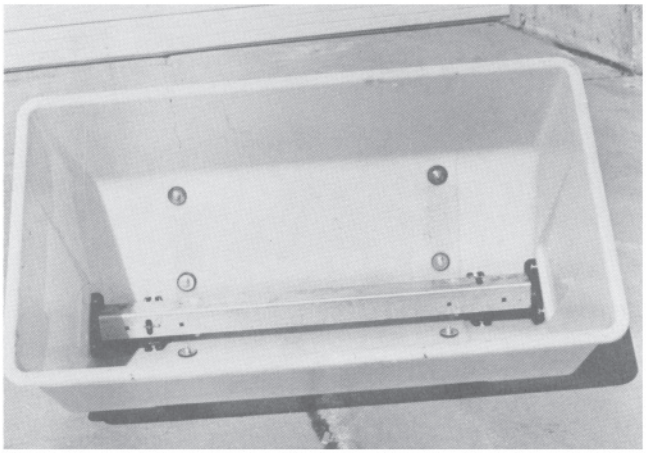
The scrapers on each side of the blade may also be adjusted to make up for wear that may occur. Make sure the scraper is adjusted as close as possible to the blade without touching.

The opener assembly is designed to be locked in a raised position when the fertilizer attachment is not in use or during storage. To lock the opener, first raise the planter and place blocks under the openers. Then lower the planter until the hole in the pivot section aligns with the hole in the mounting bracket. Remove the lock-up pin from the storage position in the mounting bracket and install it through the lock-up hole and secure with cotter pins.

OPERATION

DRY FERTILIZER ATTACHMENT

The rate of dry fertilizer application is determined by sprocket combinations in the fertilizer transmission. After removing the rubber spacers and loosening the drive chain, slide the selected sprockets into alignment with the idlers. Then restore proper chain tension and replace spacers between sprockets. Refer to the application charts at the end of the Operation Section for selection of sprocket combinations.



The dry fertilizer attachment meters granules by volume rather than weight. For this reason, and given the variances in brands and fertilizer analysis, the weight metered during actual application may vary considerably. Use the chart for reference only. It is suggested that a container be used to catch and measure application (as explained following the application chart) to obtain a closer estimate.

Since most fertilizers easily absorb moisture, it is important that fertilizer be kept dry during use and storage. In addition to waste, deposits of fertilizer left in the hopper can cause metal corrosion. Hoppers should be emptied at the end of each days use.

The dry fertilizer attachment uses two fiberglass hoppers on the 4 row models, three hoppers on the 6 row models and four hoppers on the 8 row models. Each hopper is designed to hold approximately 550 pounds depending upon the type of fertilizer being used.

⚠ **WARNING:** Agricultural chemicals can be dangerous if not selected and handled with care. Always read and follow directions supplied by the chemical manufacturer.

Cleaning

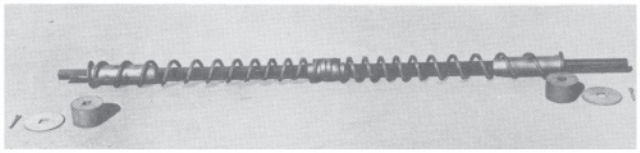
The dry fertilizer hoppers are designed to tip forward for dumping and ease of cleaning. To dump hoppers, first disconnect the drive shaft from the transmission or adjacent hopper. Loosen hose clamps and remove hoses from each hopper.

Finally, remove the two cap screws from the hopper bracket at the rear of each hopper. Rotate hopper lids to the back side of the hopper and carefully tip hopper forward. After dumping contents, flush all loose fertilizer from the hopper and hoses.

At the end of the planting season, or when fertilizer attachment is not going to be used for a period of time, the hoppers should be disasembled, cleaned and coated with a rust preventative.

To disassemble auger assemblies, remove the hairpins and baffle from the top of the auger. Then remove the cotter pin from the auger shaft adjacent to the large flat washer and pull auger assembly from the hopper. The bearings pass through the outer castings and need not be removed. Remove the cotter pin and washer from outer end of the auger shaft and remove all auger components for cleaning. Coat all parts with rust preventative before reassembly.

NOTE: Left hand and right hand springs are used on each auger shaft. Make sure springs auger fertilizer to the outer ends of the hopper when rotated in the direction of rotation they turn on the planter.

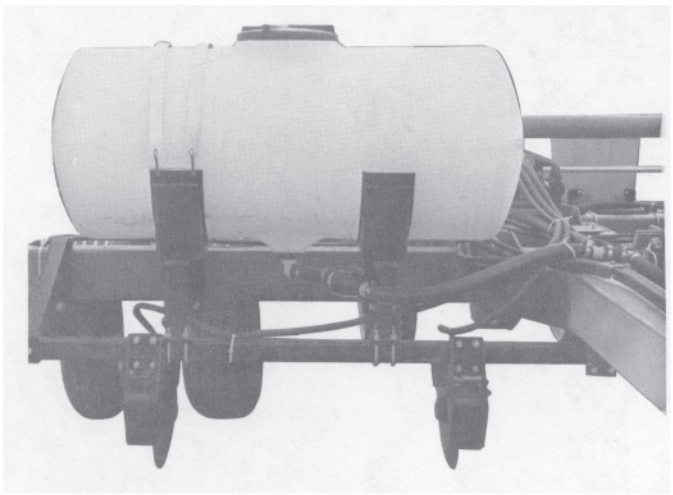


OPERATION

LIQUID FERTILIZER ATTACHMENT

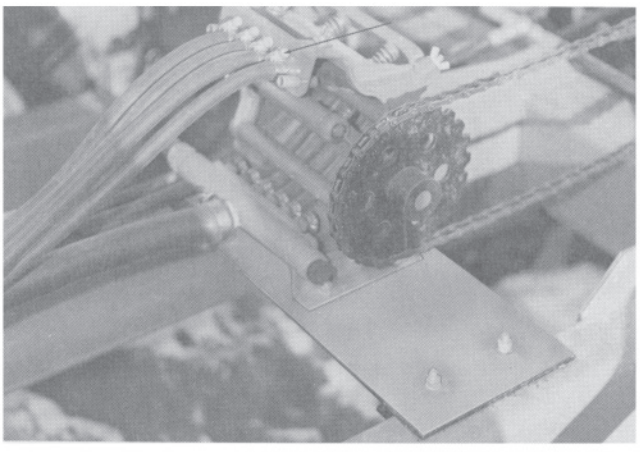
The rate of liquid fertilizer application is determined by the combination of sprockets on the squeeze pump driven and drive shaft. When changing sprocket combinations, make sure sprockets and idler are in alignment, sprocket retaining collars are tight and chain tension is sufficiently restored.

The delivery rate chart found at the end of the Operation Section provides an approximate application rate only. Actual delivery will vary with temperature and the particular fertilizer being used.



⚠ **WARNING:** Agricultural chemicals can be dangerous if not selected and handled with care. Always read and follow directions supplied by the chemical manufacturer.

Shut off valves provided under each tank, should be closed to shut off flow when the planter sets overnight or for extended periods of time. It is also important to close the tank valves whenever service on the pump or hoses is being performed. To prolong the life of the hoses in the squeeze pump, the discharge manifold must be repositioned to the rearward position to prevent hose distortion.



The discharge manifold must be in the forward position when the pump is in operation. To reposition the manifold, loosen the wing nuts and slide the manifold forward and sideways or rearward as required and retighten nuts.

CAUTION: Avoid excessive pressure when using the quick fill attachment. The rubber plugs installed in the manifold may be forced out under pressure.

If either of the end pump hoses should run off the back plate, loosen the hose clamp on the intake manifold and rotate the hose as follows.

For *the right hose* (facing the pump from front of planter) twist the hose 1/4 turn in the clockwise direction.

For the left hand hose (facing front of pump) twist the hose 1/4 turn in the counter-clockwise direction.

Retighten hose clamp.

Cleaning

The tanks and all hoses are made of sturdy plastic and rubber to resist corrosion. However, the tank should be rinsed with water after each season or extended period of non-use. Do not allow sludge to build up in the bottom of the tank or allow fertilizer to crystallize because of cold temperature or evaporation.

At the end of the planting season, thoroughly clean all parts with clean water and flush the tank's hoses and metering pump prior to storage.

PLANTING RATE FOR PLATELESS CORN METERS

SEED POPULATIONS / ACRE FOR DIFFERENT ROW WIDTHS

20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)	Average Seed Spacing In Inches
18,300	12,200	10,200	9,600	9,100	14	30	4 to 8	17.1
19,600	13,100	10,900	10,300	9,800	14	28	4 to 8	16.0
21,100	14,100	11,700	11,100	10,500	14	26	4 to 8	14.9
22,400	14,900	12,500	11,800	11,200	16	28	4 to 8	14.0
23,500	15,700	13,100	12,400	11,700	18	30	4 to 8	13.3
24,100	16,100	13,400	12,700	12,000	16	26	4 to 8	13.0
24,900	16,600	13,900	13,100	12,500	14	22	4 to 8	12.6
27,100	18,100	15,100	14,300	13,500	18	26	4 to 8	11.6
28,500	19,000	15,900	15,000	14,200	16	22	4 to 8	11.0
28,700	19,100	16,000	15,100	14,400	22	30	4 to 8	10.9
30,500	20,300	17,000	16,100	15,200	14	18	4 to 8	10.3
30,700	20,500	17,100	16,200	15,400	22	28	4 to 8	10.2
32,100	21,400	17,800	16,900	16,000	18	22	4 to 8	9.8
33,100	22,100	18,400	17,400	16,600	22	26	4 to 8	9.5
33,900	22,600	18,900	17,900	17,000	26	30	4 to 8	9.2
34,300	22,800	19,100	18,000	17,100	14	16	4 to 8	9.1
34,800	23,200	19,400	18,300	17,400	16	18	4 to 8	9.0
36,400	24,200	20,200	19,100	18,200	26	28	4 to 7 1/2	8.6
36,500	24,400	20,300	19,200	18,300	28	30	4 to 7 1/2	8.6
39,200	26,100	21,800	20,600	19,600	22	22	4 to 7	8.0
41,900	28,000	23,400	22,100	21,000	30	28	4 to 6 1/2	7.5
42,200	28,100	23,500	22,200	21,100	28	26	4 to 6 1/2	7.4
44,100	29,400	24,500	23,200	22,000	18	16	4 to 6 1/2	7.1
44,700	29,800	24,900	23,500	22,400	16	14	3 to 6	7.0
45,200	30,100	25,200	23,800	22,600	30	26	3 to 6	6.9
46,300	30,800	25,800	24,300	23,100	26	22	3 to 6	6.8
47,900	31,900	26,600	25,200	23,900	22	18	3 to 5 1/2	6.5
49,800	33,200	27,700	26,200	24,900	28	22	3 to 5 1/2	6.3
50,300	33,600	28,000	26,500	25,200	18	14	3 to 5 1/2	6.2
53,400	35,600	29,700	28,100	26,700	30	22	3 to 5	5.9
53,800	35,900	30,000	28,300	26,900	22	16	3 to 5	5.8
56,600	37,700	31,500	29,800	28,300	26	18	3 to 4 1/2	5.5
61,500	41,000	34,300	32,400	30,800	22	14	3 to 4 1/2	5.1
63,600	42,400	35,400	33,500	31,800	26	16	3 to 4 1/2	4.9
65,300	43,500	36,300	34,300	32,600	30	18	2 to 4	4.8
68,500	45,700	38,200	36,100	34,300	28	16	2 to 4	4.6
72,700	48,500	40,500	38,300	36,400	26	14	2 to 3 1/2	4.3
78,300	52,200	43,600	41,200	39,200	28	14	2 to 3 1/2	4.0
83,900	55,900	46,700	44,100	41,900	30	14	2 to 3	3.7

Above chart for planters equipped with 7:60-15 inch drive tires and 1:1 drive sprocket ratio . Recommended tire pressure 40 PSI.

IMPORTANT: The above sprocket combinations are best for average conditions. Changes in sprocket combinations may be required to obtain desired planting population.

The size and shape of seeds will effect the planting rate. Medium round corn is generally the most preferred while small flat is the least desirable. Higher than optimum speeds may result in population rate increases or higher incidence of doubles and triples, particularly with small flat seeds.

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at the desired rate.

PLANTING RATE FOR PLATELESS SOYBEAN METERS

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
96	64	48	32	27	25	24	14	30	4 to 8
102	68	51	34	28	27	26	14	28	4 to 8
109	73	55	36	30	29	27	14	26	4 to 8
115	77	57	38	32	30	29	16	28	4 to 8
119	79	60	40	33	31	30	18	30	4 to 8
121	80	60	40	33	32	30	16	26	4 to 8
123	82	62	41	34	32	31	14	22	4 to 8
129	86	64	43	36	34	32	18	26	4 to 8
135	90	68	45	38	36	34	16	22	4 to 8
136	91	68	45	38	36	34	22	30	4 to 8
145	96	72	48	40	38	36	14	18	4 to 8
146	97	73	49	41	38	37	22	28	4 to 8
152	101	76	51	42	40	38	18	22	4 to 8
157	105	79	52	44	41	39	22	26	4 to 8
161	107	81	54	45	42	40	26	30	4 to 8
163	109	81	54	45	43	41	14	16	4 to 8
165	110	83	55	46	44	41	16	18	4 to 8
173	115	86	58	48	45	43	26	28	4 to 7 1/2
174	116	87	58	48	46	43	28	30	4 to 7 1/2
186	124	93	62	52	49	47	22	22	4 to 7
199	133	100	66	55	52	50	30	28	4 to 6 1/2
200	134	100	67	56	53	50	28	26	4 to 6 1/2
209	140	105	70	58	55	52	18	16	4 to 6 1/2
213	142	106	71	59	56	53	16	14	3 to 6
215	143	107	72	60	56	54	30	26	3 to 6
220	147	110	73	61	58	55	26	22	3 to 6
227	152	114	76	63	60	57	22	18	3 to 5 1/2
237	158	118	79	66	62	59	28	22	3 to 5 1/2
239	159	120	80	66	63	60	18	14	3 to 5 1/2
254	169	127	85	70	67	63	30	22	3 to 5
256	171	128	85	71	67	64	22	16	3 to 5
269	179	134	90	75	71	67	26	18	3 to 5
286	191	143	95	79	75	72	22	14	3 to 5
294	196	147	98	82	77	73	26	16	3 to 5
301	201	151	100	84	79	75	30	18	3 to 5
312	208	156	104	87	82	78	28	16	3 to 5
327	218	164	109	91	86	82	26	14	3 to 5
348	232	174	116	97	92	87	28	14	3 to 5
369	246	184	123	102	97	92	30	14	3 to 5

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio.
Recommended tire pressure 40 PSI.

IMPORTANT: Soybeans vary in size from about 3500 seeds/lb. to about 1800 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% greater or 50% smaller than the average.

The above chart was based on uniformly sized soybeans. Your actual planting rate will vary somewhat from the above table. Generally, larger beans will give lower rates and smaller beans will give higher rates.

Your actual planting rate must be checked in the field with the beans that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

If lower rates are desired, special drive sprockets are available on a special order basis.

PLANTING RATE FOR PLATELESS SOYBEAN METERS

APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - SMALL SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
362,200	241,500	181,100	120,700	100,600	95,300	90,600	7	1.7	14	30	4 to 8
385,600	257,100	192,800	128,500	107,100	101,500	96,400	7	1.6	14	28	4 to 8
413,000	275,400	206,500	137,700	114,700	108,700	103,300	8	1.5	14	26	4 to 8
433,900	289,300	217,000	144,600	120,500	114,200	108,500	8	1.4	16	28	4 to 8
450,500	300,400	225,300	150,200	125,100	118,600	112,600	9	1.4	18	30	4 to 8
455,600	303,700	227,800	151,900	126,600	119,900	113,900	9	1.4	16	26	4 to 8
465,300	310,200	232,700	155,100	129,300	122,500	116,300	9	1.4	14	22	4 to 8
486,700	324,500	243,400	162,200	135,200	128,100	121,700	9	1.3	18	26	4 to 8
511,300	340,900	255,700	170,400	142,000	134,600	127,800	10	1.2	16	22	4 to 8
515,600	343,700	257,800	171,900	143,200	135,700	128,900	10	1.2	22	30	4 to 8
546,800	364,600	273,400	182,300	151,900	143,900	136,700	10	1.1	14	18	4 to 8
552,400	368,300	276,200	184,100	153,500	145,400	138,100	11	1.1	22	28	4 to 8
575,200	383,500	287,600	191,700	159,800	151,400	143,800	11	1.1	18	22	4 to 8
594,900	396,600	297,500	198,300	165,300	156,600	148,700	11	1.1	22	26	4 to 8
609,300	406,200	304,700	203,100	169,300	160,400	152,300	12	1.0	26	30	4 to 8
615,200	410,100	307,600	205,100	170,900	161,900	153,800	12	1.0	14	16	4 to 8
625,000	416,600	312,500	208,300	173,600	164,500	156,200	12	1.0	16	18	4 to 8
652,900	435,200	326,400	217,600	181,400	171,800	163,200	12	1.0	26	28	4 to 7 1/2
656,200	437,500	328,100	218,700	182,300	172,700	164,100	13	1.0	28	30	4 to 7 1/2
703,100	468,700	351,500	234,400	195,300	185,000	175,800	13	0.9	22	22	4 to 7
753,300	502,200	376,700	251,100	209,300	198,200	188,300	14	0.8	30	28	4 to 6 1/2
757,200	504,800	378,600	252,400	210,300	199,300	189,300	14	0.8	28	26	4 to 6 1/2
791,000	527,300	395,500	263,700	219,700	208,100	197,700	15	0.8	18	16	4 to 6 1/2
803,500	535,700	401,800	267,800	223,200	211,500	200,900	15	0.8	16	14	3 to 6
811,300	540,800	405,600	270,400	225,300	213,500	202,800	15	0.8	30	26	3 to 6
830,900	553,900	415,500	277,000	230,800	218,700	207,700	16	0.8	26	22	3 to 6
859,300	572,900	429,700	286,400	238,700	226,100	214,800	16	0.7	22	18	3 to 5 1/2
894,800	596,600	447,400	298,300	248,600	235,500	223,700	17	0.7	28	22	3 to 5 1/2
904,000	602,600	452,000	301,300	251,100	237,900	226,000	17	0.7	18	14	3 to 5 1/2
958,700	639,200	479,400	319,600	266,300	252,300	239,700	18	0.7	30	22	3 to 5
966,700	644,500	483,400	322,200	268,500	254,400	241,700	18	0.7	22	16	3 to 5
1,015,600	677,000	507,800	338,500	282,100	267,300	254,000	19	0.6	26	18	3 to 5
1,081,600	721,100	540,800	360,500	300,500	284,600	270,400	21	0.6	22	14	3 to 5
1,110,500	740,300	555,300	370,200	308,500	292,200	277,600	21	0.6	26	16	3 to 5
1,137,800	758,500	568,900	379,300	316,100	299,400	284,500	22	0.6	30	18	3 to 5
1,181,200	787,500	590,600	393,700	328,100	310,800	295,300	23	0.5	28	16	3 to 5
1,237,800	825,200	618,900	412,600	343,800	325,700	309,500	24	0.5	26	14	3 to 5
1,314,800	876,500	657,400	438,300	365,200	346,000	328,700	25	0.5	28	14	3 to 5
1,393,600	929,100	696,800	464,500	387,100	366,700	348,400	27	0.5	30	14	3 to 5

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio . Recommended tire pressure 40 PSI.

IMPORTANT: Soybeans vary in size from about 3500 seeds/lb. to about 1800 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% greater or 50% smaller than the average.

The above chart was based on uniformly sized soybeans. Your actual planting rate will vary somewhat from the above table. Generally, larger beans will give lower rates and smaller beans will give higher rates.

Your actual planting rate must be checked in the field with the beans that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

If lower rates are desired, special drive sprockets are available on a special order basis.

PLANTING RATE FOR PLATELESS SOYBEAN METERS

APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets		Recommended Speed Range (MPH)
									Drive	Driven	
239,600	159,700	119,800	79,900	66,500	63,000	59,900	5	2.6	14	30	4 to 8
255,100	170,800	127,500	85,000	70,800	67,100	63,800	5	2.5	14	28	4 to 8
273,200	182,100	136,600	91,100	75,900	71,900	68,300	5	2.3	14	26	4 to 8
287,000	191,300	143,500	95,700	79,700	75,500	71,700	5	2.2	16	28	4 to 8
298,000	198,600	149,000	99,300	82,800	78,400	74,500	6	2.1	18	30	4 to 8
301,300	200,900	150,700	100,400	83,700	79,300	75,300	6	2.1	16	26	4 to 8
307,700	205,200	153,900	102,600	85,500	81,000	76,900	6	2.0	14	22	4 to 8
321,900	214,600	161,000	107,300	89,400	84,700	80,500	6	2.0	18	26	4 to 8
338,200	225,500	169,100	112,700	93,900	89,000	84,500	6	1.9	16	22	4 to 8
341,000	227,300	170,500	113,700	94,700	89,700	85,300	7	1.8	22	30	4 to 8
361,700	241,100	180,800	120,600	100,500	95,200	90,400	7	1.7	14	18	4 to 8
365,400	243,600	182,700	121,800	101,500	96,100	91,300	7	1.7	22	28	4 to 8
380,600	253,600	190,200	126,800	105,700	100,100	95,100	7	1.7	18	22	4 to 8
393,500	262,300	196,700	131,200	109,300	103,500	98,400	8	1.6	22	26	4 to 8
403,000	268,700	201,500	134,300	111,900	106,100	100,800	8	1.6	26	30	4 to 8
406,900	271,300	203,400	135,600	113,000	107,100	101,700	8	1.5	14	16	4 to 8
413,300	275,600	206,700	137,800	114,800	108,800	103,300	8	1.5	16	18	4 to 8
431,800	287,900	215,900	143,900	119,900	113,600	107,900	8	1.5	26	28	4 to 7 1/2
434,000	289,300	217,000	144,700	120,600	114,200	108,500	8	1.4	28	30	4 to 7 1/2
465,000	310,000	232,500	155,000	129,200	122,400	116,300	9	1.4	22	22	4 to 7
498,200	332,100	249,100	166,100	138,400	131,100	124,600	10	1.3	30	28	4 to 6 1/2
500,800	333,800	250,400	166,900	139,100	131,800	125,200	10	1.3	28	26	4 to 6 1/2
523,100	348,800	261,600	174,400	145,300	137,700	130,800	10	1.2	18	16	4 to 6 1/2
531,400	354,300	265,700	177,100	147,600	139,800	132,900	10	1.2	16	14	3 to 6
536,500	357,700	268,300	178,800	149,000	141,200	134,100	10	1.2	30	26	3 to 6
549,500	366,400	274,800	183,200	152,700	144,600	137,400	10	1.1	26	22	3 to 6
568,300	378,900	284,200	189,400	157,900	149,600	142,100	11	1.1	22	18	3 to 5 1/2
591,800	394,500	295,900	197,300	164,400	155,700	148,000	11	1.1	28	22	3 to 5 1/2
597,900	398,600	298,900	199,300	166,100	157,300	149,500	11	1.1	18	14	3 to 5 1/2
634,100	422,700	317,000	211,400	176,100	166,900	158,500	12	1.0	30	22	3 to 5
639,400	426,300	319,700	213,100	177,600	168,300	159,800	12	1.0	22	16	3 to 5
671,700	447,800	335,800	223,900	186,600	176,800	167,900	13	0.9	26	18	3 to 5
715,400	476,900	357,700	238,500	198,700	188,300	178,800	14	0.9	22	14	3 to 5
734,500	489,600	367,200	244,800	204,000	193,300	183,600	14	0.9	26	16	3 to 5
752,500	501,700	376,300	250,800	209,000	198,000	188,100	14	0.8	30	18	3 to 5
781,200	520,800	390,600	260,400	217,000	205,600	195,300	15	0.8	28	16	3 to 5
818,700	545,800	409,300	272,900	227,400	215,400	204,700	16	0.8	26	14	3 to 5
869,600	579,700	434,800	289,900	241,500	228,800	217,400	17	0.7	28	14	3 to 5
921,700	614,500	460,800	307,200	256,000	242,600	230,400	18	0.7	30	14	3 to 5

IMPORTANT: Soybeans vary in size from about 3500 seeds/lb. to about 1800 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% greater or 50% smaller than the average.

The above chart was based on uniformly sized soybeans. Your actual planting rate will vary somewhat from the above table. Generally, larger beans will give lower rates and smaller beans will give higher rates.

Your actual planting rate must be checked in the field with the beans that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio . Recommended tire pressure 40 PSI.

If lower rates are desired, special drive sprockets are available on a special order basis.

PLANTING RATE FOR PLATELESS SOYBEAN METERS

APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - LARGE SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
160,400	106,900	80,200	53,500	44,600	42,200	40,100	3	3.9	14	30	4 to 8
170,800	113,900	85,400	56,900	47,400	44,900	42,700	3	3.7	14	28	4 to 8
182,900	121,900	91,500	61,000	50,800	48,100	45,700	3	3.4	14	26	4 to 8
192,200	128,100	96,100	64,100	53,400	50,600	48,000	4	3.3	16	28	4 to 8
199,500	133,000	99,800	66,500	55,400	52,500	49,900	4	3.2	18	30	4 to 8
201,800	134,500	100,900	67,300	56,000	53,100	50,400	4	3.1	16	26	4 to 8
206,100	137,400	103,000	68,700	57,200	54,200	51,500	4	3.1	14	22	4 to 8
215,600	143,700	107,800	71,900	59,900	56,700	53,900	4	2.9	18	26	4 to 8
226,400	151,000	113,200	75,500	62,900	59,600	56,600	4	2.8	16	22	4 to 8
228,300	152,200	114,200	76,100	63,400	60,100	57,100	4	2.8	22	30	4 to 8
242,200	161,400	121,100	80,700	67,300	63,700	60,500	5	2.6	14	18	4 to 8
244,600	163,100	122,300	81,500	68,000	64,400	61,200	5	2.6	22	28	4 to 8
254,800	169,800	127,400	84,900	70,800	67,000	63,700	5	2.5	18	22	4 to 8
263,500	175,600	131,700	87,800	73,200	69,300	65,900	5	2.4	22	26	4 to 8
269,800	179,900	134,900	90,000	75,000	71,000	67,500	5	2.3	26	30	4 to 8
272,400	181,600	136,200	90,800	75,700	71,700	68,100	5	2.3	14	16	4 to 8
276,800	184,500	138,400	92,300	76,900	72,800	69,200	5	2.3	16	18	4 to 8
289,100	192,700	144,600	96,400	80,300	76,100	72,300	6	2.2	26	28	4 to 7 1/2
290,600	193,700	145,300	96,900	80,700	76,500	72,700	6	2.2	28	30	4 to 7 1/2
311,400	207,600	155,700	103,800	86,500	81,900	77,800	6	2.0	22	22	4 to 7
333,600	222,400	166,800	111,200	92,700	87,800	83,400	6	1.9	30	28	4 to 6 1/2
335,300	223,500	167,700	111,800	93,100	88,200	83,800	6	1.9	28	26	4 to 6 1/2
350,300	233,500	175,100	116,800	97,300	92,200	87,600	7	1.8	18	16	4 to 6 1/2
355,800	237,200	177,900	118,600	98,800	93,600	89,000	7	1.8	16	14	3 to 6
359,300	239,500	179,600	119,800	99,800	94,500	89,800	7	1.7	30	26	3 to 6
368,000	245,300	184,000	122,700	102,200	96,800	92,000	7	1.7	26	22	3 to 6
380,600	253,700	190,300	126,900	105,700	100,100	95,100	7	1.7	22	18	3 to 5 1/2
396,300	264,200	198,100	132,100	110,100	104,300	99,100	8	1.6	28	22	3 to 5 1/2
400,300	266,900	200,200	133,400	111,200	105,300	100,100	8	1.6	18	14	3 to 5 1/2
424,600	283,100	212,300	141,500	117,900	111,700	106,100	8	1.5	30	22	3 to 5
428,100	285,400	214,100	142,700	118,900	112,700	107,000	8	1.5	22	16	3 to 5
449,700	299,800	224,900	149,900	124,900	118,400	112,400	9	1.4	26	18	3 to 5
479,000	319,300	239,500	159,700	133,100	126,100	119,800	9	1.3	22	14	3 to 5
491,800	327,900	245,900	164,000	136,600	129,400	123,000	9	1.3	26	16	3 to 5
503,900	335,900	251,900	168,000	140,000	132,600	126,000	10	1.2	30	18	3 to 5
523,100	348,700	261,500	174,400	145,300	137,700	130,800	10	1.2	28	16	3 to 5
548,200	365,500	274,100	182,700	152,300	144,300	137,000	10	1.1	26	14	3 to 5
582,300	388,200	291,100	194,100	161,700	153,200	145,600	11	1.1	28	14	3 to 5
617,200	411,400	308,600	205,700	171,400	162,400	154,300	12	1.0	30	14	3 to 5

IMPORTANT: Soybeans vary in size from about 3500 seeds/lb. to about 1800 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% greater or 50% smaller than the average.

The above chart was based on uniformly sized soybeans. Your actual planting rate will vary somewhat from the above table. Generally, larger beans will give lower rates and smaller beans will give higher rates.

Your actual planting rate must be checked in the field with the beans that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

Above chart for planters equipped with 7:60-15 inch drive tires and 1:1 drive sprocket ratio Recommended tire pressure 40 PSI.

If lower rates are desired, special drive sprockets are available on a special order basis.

PLANTING RATE FOR PLATELESS REGULAR RATE SORGHUM METERS

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS — MEDIUM SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
22.7	15.2	11.4	7.6	6.3	6.0	5.7	14	30	4 to 8
24.1	16.1	12.1	8.0	6.7	6.3	6.0	14	28	4 to 8
25.6	17.1	12.8	8.5	7.1	6.7	6.4	14	26	4 to 8
26.9	17.9	13.5	9.0	7.5	7.1	6.7	16	28	4 to 8
28.0	18.7	14.0	9.3	7.8	7.4	7.0	18	30	4 to 8
28.4	19.0	14.2	9.5	7.9	7.5	7.1	16	26	4 to 8
29.4	19.6	14.7	9.8	8.2	7.7	7.4	14	22	4 to 8
31.4	20.9	15.7	10.5	8.7	8.3	7.8	18	26	4 to 8
32.9	22.0	16.5	11.0	9.2	8.7	8.2	16	22	4 to 8
33.2	22.1	16.6	11.1	9.2	8.7	8.3	22	30	4 to 8
35.2	23.5	17.6	11.7	9.8	9.3	8.8	14	18	4 to 8
35.6	23.7	17.8	11.9	9.9	9.4	8.9	22	28	4 to 8
37.1	24.7	18.5	12.4	10.3	9.8	9.3	18	22	4 to 8
38.3	25.6	19.2	12.8	10.6	10.1	9.6	22	26	4 to 8
39.3	26.2	19.6	13.1	10.9	10.3	9.8	26	30	4 to 8
39.6	26.4	19.8	13.2	11.0	10.4	9.9	14	16	4 to 8
40.3	26.8	20.1	13.4	11.2	10.6	10.1	16	18	4 to 8
42.1	28.0	21.0	14.0	11.7	11.1	10.5	26	28	4 to 7 1/2
42.3	28.2	21.1	14.1	11.7	11.1	10.6	28	30	4 to 7 1/2
45.3	30.2	22.7	15.1	12.6	11.9	11.3	22	22	4 to 7
48.5	32.4	24.3	16.2	13.5	12.8	12.1	30	28	4 to 6 1/2
48.8	32.5	24.4	16.3	13.6	12.8	12.2	28	26	4 to 6 1/2
51.0	34.0	25.5	17.0	14.2	13.4	12.7	18	16	4 to 6 1/2
51.8	34.5	25.9	17.3	14.4	13.6	12.9	16	14	3 to 6
52.3	34.8	26.1	17.4	14.5	13.8	13.1	30	26	3 to 6
53.5	35.7	26.8	17.8	14.9	14.1	13.4	26	22	3 to 6
55.4	36.9	27.7	18.5	15.4	14.6	13.8	22	18	3 to 5 1/2
57.7	38.4	28.8	19.2	16.0	15.2	14.4	28	22	3 to 5 1/2
58.2	38.8	29.1	19.4	16.2	15.3	14.6	18	14	3 to 5 1/2
61.8	41.2	30.9	20.6	17.2	16.3	15.4	30	22	3 to 5
62.3	41.5	31.1	20.8	17.3	16.4	15.6	22	16	3 to 5
65.4	43.6	32.7	21.8	18.2	17.2	16.4	26	18	3 to 5
70.3	46.8	35.1	23.4	19.5	18.5	17.6	22	14	3 to 5
72.3	48.2	36.1	24.1	20.1	19.0	18.1	26	16	3 to 5
73.8	49.2	36.9	24.6	20.5	19.4	18.5	30	18	3 to 5
76.9	51.3	38.4	25.6	21.4	20.2	19.2	28	16	3 to 5
80.6	53.7	40.3	26.9	22.4	21.2	20.1	26	14	3 to 5
85.4	57.0	42.7	28.5	23.7	22.5	21.4	28	14	3 to 5
90.1	60.1	45.0	30.0	25.0	23.7	22.5	30	14	3 to 5

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio . Recommended tire pressure 40 PSI.

If lower rates are desired, special drive sprockets are available on a special order basis.

IMPORTANT: Seeds vary in size from about 12000 seeds/lb. to about 25000 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% larger or 50% smaller than the average.

The above chart was based on uniformly sized seeds. Your actual planting rate will vary somewhat from the above table. Generally, larger seeds will give lower rates and smaller seeds will give higher rates.

Your actual planting rate must be checked in the field with the seeds that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

PLANTING RATE FOR PLATELESS LOW RATE SORGHUM METERS

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
4.4	2.9	2.2	1.5	1.2	1.1	1.1	14	30	4 to 8
4.6	3.1	2.3	1.5	1.3	1.2	1.2	14	28	4 to 8
4.9	3.3	2.5	1.6	1.4	1.3	1.2	14	26	4 to 8
5.2	3.4	2.6	1.7	1.4	1.4	1.3	16	28	4 to 8
5.4	3.6	2.7	1.8	1.5	1.4	1.3	18	30	4 to 8
5.5	3.6	2.7	1.8	1.5	1.4	1.4	16	26	4 to 8
5.6	3.8	2.8	1.9	1.6	1.5	1.4	14	22	4 to 8
6.0	4.0	3.0	2.0	1.7	1.6	1.5	18	26	4 to 8
6.3	4.2	3.2	2.1	1.8	1.7	1.6	16	22	4 to 8
6.4	4.3	3.2	2.1	1.8	1.7	1.6	22	30	4 to 8
6.8	4.5	3.4	2.3	1.9	1.8	1.7	14	18	4 to 8
6.8	4.6	3.4	2.3	1.9	1.8	1.7	22	28	4 to 8
7.1	4.7	3.6	2.4	2.0	1.9	1.8	18	22	4 to 8
7.4	4.9	3.7	2.5	2.0	1.9	1.8	22	26	4 to 8
7.5	5.0	3.8	2.5	2.1	2.0	1.9	26	30	4 to 8
7.6	5.1	3.8	2.5	2.1	2.0	1.9	14	16	4 to 8
7.7	5.2	3.9	2.6	2.1	2.0	1.9	16	18	4 to 8
8.1	5.4	4.0	2.7	2.2	2.1	2.0	26	28	4 to 7 1/2
8.1	5.4	4.1	2.7	2.3	2.1	2.0	28	30	4 to 7 1/2
8.7	5.8	4.4	2.9	2.4	2.3	2.2	22	22	4 to 7
9.3	6.2	4.7	3.1	2.6	2.5	2.3	30	28	4 to 6 1/2
9.4	6.2	4.7	3.1	2.6	2.5	2.3	28	26	4 to 6 1/2
9.8	6.5	4.9	3.3	2.7	2.6	2.4	18	16	4 to 6 1/2
9.9	6.6	5.0	3.3	2.8	2.6	2.5	16	14	3 to 6
10.0	6.7	5.0	3.3	2.8	2.6	2.5	30	26	3 to 6
10.3	6.9	5.1	3.4	2.9	2.7	2.6	26	22	3 to 6
10.6	7.1	5.3	3.5	3.0	2.8	2.7	22	18	3 to 5 1/2
11.1	7.4	5.5	3.7	3.1	2.9	2.8	28	22	3 to 5 1/2
11.2	7.5	5.6	3.7	3.1	2.9	2.8	18	14	3 to 5 1/2
11.9	7.9	5.9	4.0	3.3	3.1	3.0	30	22	3 to 5
12.0	8.0	6.0	4.0	3.3	3.1	3.0	22	16	3 to 5
12.6	8.4	6.3	4.2	3.5	3.3	3.1	26	18	3 to 5
13.5	9.0	6.7	4.5	3.7	3.6	3.4	22	14	3 to 5
13.9	9.3	6.9	4.6	3.9	3.7	3.5	26	16	3 to 5
14.2	9.5	7.1	4.7	3.9	3.7	3.5	30	18	3 to 5
14.3	9.8	7.4	4.9	4.1	3.9	3.7	28	16	3 to 5
15.5	10.3	7.7	5.2	4.3	4.1	3.9	26	14	3 to 5
16.4	10.9	8.2	5.5	4.6	4.3	4.1	28	14	3 to 5
17.3	11.5	8.7	5.8	4.8	4.6	4.3	30	14	3 to 5

IMPORTANT: Seeds vary in size from about 12000 seeds/lb. to about 25000 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size by as much as 50% larger or 50% smaller than the average.

The above chart was based on uniformly sized seeds. Your actual planting rate will vary somewhat from the above table. Generally, larger seeds will give lower rates and smaller seeds will give higher rates.

Your actual planting rate must be checked in the field with the seeds that you are planting and the transmission sprockets changed to give you the rate that you desire, even if it is different than the above table.

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio Recommended tire pressure 40 PSI.

If lower rates are desired, special drive sprockets are available on a special order basis.

PLANTING RATE FOR PLATE TYPE DRIVE

Seed Population and Drilling Distance - 16 Cell Plate

SEED POPULATIONS/ACRE FOR DIFFERENT ROW WIDTHS

30 Inch	36 Inch	38 Inch	40 Inch	Average Seed Spacing In Inches	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range In MPH
30,500	25,400	24,000	22,900	6 3/4	30	14	2 to 3
26,400	22,000	20,900	19,800	8	26	14	2 to 3 1/2
23,700	19,700	18,700	17,000	8 3/4	30	18	3 to 4
22,400	18,600	17,700	16,800	9 1/4	22	14	3 to 4 1/2
20,600	17,100	16,200	15,400	10 1/4	26	18	3 to 5
19,400	16,100	15,300	14,500	10 3/4	30	22	3 to 5
17,400	14,500	13,700	13,000	12	22	18	3 to 6
16,800	14,000	13,300	12,600	12 1/2	26	22	3 to 6
16,400	13,700	13,000	12,300	12 3/4	30	26	3 to 6
16,300	13,500	12,800	12,200	13	16	14	3 to 6
15,200	12,700	12,000	11,400	13 3/4	30	28	4 to 6 1/2
14,200	11,800	11,200	10,700	14 3/4	22	22	4 to 7
13,200	11,000	10,400	9,900	15 3/4	26	28	4 to 7 1/2
12,600	10,500	10,000	9,500	16 1/2	16	18	4 to 8
12,000	10,000	9,500	9,000	17 1/2	22	26	4 to 8
11,200	9,300	8,800	8,400	18 3/4	22	28	4 to 8
11,000	9,200	8,700	8,300	19	14	18	4 to 8
10,900	9,000	8,200	7,800	20 1/4	16	22	4 to 8
9,000	7,500	7,100	6,800	23	14	22	4 to 8
8,700	7,300	6,900	6,600	24	16	26	4 to 8
8,100	6,800	6,400	6,100	25 3/4	16	28	4 to 8
7,700	6,400	6,000	5,700	27 1/4	14	26	4 to 8
7,100	5,900	5,600	5,300	29 1/2	14	28	4 to 8

For 32 inch rows, multiply plant population per acre in 30 inch row spacing column by 0.9375.
For 34 inch rows, multiply plant population per acre in 30 inch row spacing column by 0.8824.
For 32 cell seed plate, multiply population by 2; divide drilling distance by 2.
For 48 cell seed plate, multiply population by 3; divide drilling distance by 3.
For 64 cell seed plate, multiply population by 4; divide drilling distance by 4.

Above chart for planters equipped with 7:60 - 15 inch drive tires and 1:1 drive sprocket ratio
Recommended tire pressure 40 PSI.

IMPORTANT: The above sprocket combinations are best for average conditions. Changes in sprocket combinations may be required to obtain desired planting population.

The size and shape of seeds will effect the planting rate. Medium round corn is generally the most preferred while small flat is the least desirable. Higher than optimum speeds may result in population rate increases or higher incidents of doubles and triples, particularly with the small flat seeds.

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at the desired rate.

PLANTING RATE FOR PLATE TYPE DRIVE

Seed Population and Drilling Distance - 24 Cell Plate

SEED POPULATIONS/ACRE FOR DIFFERENT ROW WIDTHS

30 Inch	36 Inch	38 Inch	40 Inch	Average Seed Spacing In Inches	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
45,700	38,100	36,100	34,300	4 1/2	30	14	2 to 3
39,700	33,100	31,300	29,800	5 1/4	26	14	2 to 3 1/2
35,500	29,600	28,000	26,600	6	30	18	3 to 4
33,500	27,900	26,500	25,100	6 1/4	22	14	3 to 4 1/2
30,800	25,700	24,300	23,100	6 3/4	26	18	3 to 5
29,100	24,300	23,000	21,800	7 1/4	30	22	3 to 5
26,100	21,800	20,600	19,600	8	22	18	3 to 6
25,200	21,000	19,900	18,900	8 1/4	26	22	3 to 6
24,600	20,500	19,400	18,400	8 1/2	30	26	3 to 6
24,400	20,300	19,300	18,300	8 1/2	16	14	3 to 6
22,900	19,100	18,100	17,200	9 1/4	30	28	4 to 6 1/2
21,300	17,800	16,800	16,000	9 3/4	22	22	4 to 7
19,800	16,500	15,600	14,900	10 1/2	26	28	4 to 7 1/2
19,000	15,800	15,000	14,200	11	16	18	4 to 8
18,000	15,000	14,200	13,500	11 1/2	22	26	4 to 8
16,800	14,000	13,200	12,600	12 1/2	22	28	4 to 8
16,600	13,800	13,100	12,400	12 1/2	14	18	4 to 8
15,500	12,900	12,300	11,600	13 1/2	16	22	4 to 8
13,600	11,300	10,700	10,200	15 1/2	14	22	4 to 8
13,100	10,900	10,300	9,800	16	16	26	4 to 8
12,200	10,100	9,600	9,100	17 1/4	16	28	4 to 8
11,500	9,600	9,100	8,600	18 1/4	14	26	4 to 8
10,700	8,900	8,400	8,000	19 1/2	14	28	4 to 8

For 12 cell seed plate, divide population by 2; multiply drilling distance by 2.
For 36 cell seed plate, multiply population by 1:5; divide drilling distance by 1.5

Above chart for planters equipped with 7:60-15 inch drive tires and 1:1 drive sprocket ratio
Recommended tire pressure 40 PSI.

IMPORTANT: The above sprocket combinations are best for average conditions. Changes in sprocket combinations may be required to obtain desired planting populations.

The size and shape of seeds will effect the planting rate. Medium round corn is generally the most preferred while small flat is the least desirable. Higher than optimum speeds may result in population rate increases or higher incidents of doubles and triples, particulary with the small flat seeds.

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at the desired rate.

DRY INSECTICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS — CLAY GRANULES

Meter Setting	10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch
10	15.3	10.2	7.7	5.1	4.3	4.0	3.8
11	16.8	11.2	8.4	5.6	4.7	4.4	4.2
12	18.9	12.6	9.5	6.3	5.3	5.0	4.7
13	21.3	14.2	10.7	7.1	5.9	5.6	5.3
14	23.7	15.8	11.9	7.9	6.6	6.2	5.9
15	26.4	17.6	13.2	8.8	7.3	6.9	6.6
16	29.7	19.8	14.9	9.9	8.3	7.8	7.4
17	33.0	22.0	16.5	11.0	9.2	8.7	8.3
18	35.4	23.6	17.7	11.8	9.8	9.3	8.9
19	40.5	27.0	20.3	13.5	11.3	10.7	10.1
20	43.8	29.2	21.9	14.6	12.2	11.5	11.0
21	48.0	32.0	24.0	16.0	13.3	12.6	12.0
22	50.7	33.8	25.4	16.9	14.1	13.3	12.7
23	53.1	35.4	26.6	17.7	14.8	14.0	13.3
24	58.2	38.8	29.1	19.4	16.2	15.3	14.6
25	64.5	43.0	32.3	21.5	17.9	17.0	16.1
26	71.1	47.4	35.6	23.7	19.8	18.7	17.8
27	74.4	49.6	37.2	24.8	20.7	19.6	18.6
28	78.6	52.4	39.3	26.2	21.8	20.7	19.7
29	86.1	57.4	43.1	28.7	23.9	22.7	21.5
30	91.5	61.0	45.8	30.5	25.4	24.1	22.9

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - SAND GRANULES

5	9.0	6.0	4.5	3.0	2.5	2.4	2.3
6	15.0	10.0	7.5	5.0	4.2	3.9	3.8
7	16.5	11.0	8.3	5.5	4.6	4.3	4.1
8	19.5	13.0	9.8	6.5	5.4	5.1	4.9
9	24.0	16.0	12.0	8.0	6.7	6.3	6.0
10	27.6	18.4	13.8	9.2	7.7	7.3	6.9
11	31.5	21.0	15.8	10.5	8.8	8.3	7.9
12	34.5	23.0	17.3	11.5	9.6	9.1	8.6
13	39.0	26.0	19.5	13.0	10.8	10.3	9.8
14	43.5	29.0	21.8	14.5	12.1	11.4	10.9
15	48.0	32.0	24.0	16.0	13.3	12.6	12.0
16	54.0	36.0	27.0	18.0	15.0	14.2	13.5
17	60.0	40.0	30.0	20.0	16.7	15.8	15.0
18	67.5	45.0	33.8	22.5	18.8	17.8	16.9
19	75.0	50.0	37.5	25.0	20.8	19.7	18.8
20	79.5	53.0	39.8	26.5	22.1	20.9	19.9
21	85.5	57.0	42.8	28.5	23.8	22.5	21.4
22	91.5	61.0	45.8	30.5	25.4	24.1	22.9
23	99.0	66.0	49.5	33.0	27.5	26.1	24.8
24	106.5	71.0	53.3	35.5	29.6	28.0	26.6
25	114.0	76.0	57.0	38.0	31.7	30.0	28.5

IMPORTANT: The above chart represents average values and should be used only as a starting point. Your actual rate will vary depending upon the insecticide you are using, your planting speed, and your plant population.

Your actual rate must be checked in the field with the actual insecticide that you are using and at the speed and population at which you will be planting.

DRY HERBICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - CLAY GRANULES

Meter Setting	10 Inch	15 Inch	20 Inch	30 Inch	36 Inch	38 Inch	40 Inch
10	14.4	9.6	7.2	4.8	4.0	3.8	3.6
11	16.2	10.8	8.1	5.4	4.5	4.3	4.1
12	18.0	12.0	9.0	6.0	5.0	4.7	4.5
13	20.1	13.4	10.1	6.7	5.6	5.3	5.0
14	22.5	15.0	11.3	7.5	6.3	5.9	5.6
15	25.5	17.0	12.8	8.5	7.1	6.7	6.4
16	27.9	18.6	14.0	9.3	7.8	7.3	7.0
17	30.6	20.4	15.3	10.2	8.5	8.1	7.7
18	33.0	22.0	16.5	11.0	9.2	8.7	8.3
19	36.0	24.0	18.0	12.0	10.0	9.5	9.0
20	39.0	26.0	19.5	13.0	10.8	10.3	9.8
21	42.0	28.0	21.0	14.0	11.7	11.1	10.5
22	45.0	30.0	22.5	15.0	12.5	11.8	11.3
23	48.6	32.4	24.3	16.2	13.5	12.8	12.2
24	52.5	35.0	26.3	17.5	14.6	13.8	13.1
25	56.1	37.4	28.1	18.7	15.6	14.8	14.0
26	60.0	40.0	30.0	20.0	16.7	15.8	15.0
27	64.5	43.0	32.3	21.5	17.9	17.0	16.1
28	69.9	46.6	35.0	23.3	19.4	18.4	17.5
29	75.0	50.0	37.5	25.0	20.8	19.7	18.8
30	82.5	55.0	41.3	27.5	22.9	21.7	20.6

IMPORTANT: The above chart represents average values and should be used only as a starting point. Your actual rate will vary depending upon the herbicide you are using, your planting speed, and your plant population.

Your actual rate must be checked in the field with the actual herbicide that you are using and at the speed and population at which you will be planting.

OPERATION

DRY FERTILIZER APPLICATION RATES

Approximate Rate in Pounds Per Acre Regular Rate Augers					
Drive Sprocket	Driven Sprocket	30 Inch Rows	36 Inch Rows	38 Inch Rows	40 Inch Rows
18	36	87	73	68	65
18	30	101	85	79	76
24	36	127	107	99	95
24	30	151	129	118	113
18	18	181	152	141	136
18	16	208	175	162	156
36	30	215	180	168	161
24	18	242	203	189	181
24	16	269	225	210	201
36	18	357	300	278	267
36	16	390	327	304	293
High Rate Augers					
18	36	131	110	102	98
18	30	152	128	119	114
24	36	191	161	149	143
24	30	227	194	177	170
18	18	272	228	212	204
18	16	312	263	243	234
36	30	323	270	252	242
24	18	363	305	284	272
24	16	404	338	315	302
36	18	536	450	417	401
36	16	585	491	456	440

Above chart for planters equipped with Kinze drive. Recommended tire pressure 40 PSI.

This chart was calculated with a bulk density of 65 pounds per cubic foot.

IMPORTANT: Fertilizer application rates can vary from the weights calculated in the above chart. To prevent application miscalculations, make field checks to be sure you are applying fertilizer at the desired rate.

To check the exact number of pounds your fertilizer attachment will actually deliver on a 40 inch row spacing, proceed as follows:

Remove one spout from one of the fertilizer hoppers and attach a container under the opening. Engage the fertilizer attachment and drive forward for 130 feet. Weigh the amount of fertilizer caught in the container and multiply that amount by 100. The result will be the pounds of fertilizer delivered per acre when planting in 40-inch row. To convert this deliver rate for narrow rows, multiply by the following conversion factors:

30" Multiply by 1.33

36" Multiply by 1.11

38" Mulitiply by 1.05

OPERATION

LIQUID FERTILIZER APPLICATION RATES

Drive	Driven	ROW SPACE Gal. Per Acre				Drive	Driven	ROW SPACE Gal. Per Acre			
		40	38	36	30			40	38	36	30
8	9	19.1	20.4	21.0	25.3	22	8	59.1	62.9	65.0	78.0
8	10	17.2	18.3	18.9	22.7	22	9	52.4	55.8	57.7	69.2
8	15	11.4	12.1	12.5	15.0	22	10	47.3	50.3	52.0	62.4
8	22	7.7	8.2	8.5	10.2	22	15	31.4	33.4	34.5	41.4
8	23	7.5	8.0	8.3	9.6	22	23	20.6	22.0	22.7	27.2
8	26	6.7	7.1	7.3	8.8	22	26	18.3	19.4	20.1	24.1
8	31	5.6	5.9	6.1	7.4	22	31	15.0	16.0	16.6	19.9
9	8	24.1	25.6	26.5	31.8	23	8	61.9	65.9	68.1	81.7
9	10	19.3	20.6	21.3	25.5	23	9	55.0	58.6	60.5	72.6
9	15	12.9	13.7	14.2	17.0	23	10	49.4	52.6	54.4	65.3
9	22	8.8	9.4	9.7	11.6	23	15	32.8	35.0	36.2	43.4
9	23	8.4	8.9	9.2	11.1	23	22	22.6	24.0	24.8	29.8
9	26	7.5	8.0	8.3	9.9	23	26	18.9	20.1	20.8	25.0
9	31	6.2	6.6	6.9	8.2	23	31	15.9	16.9	17.5	21.0
10	8	26.9	28.6	29.6	35.5	26	8	69.8	74.3	76.8	92.2
10	9	23.9	25.4	26.2	31.5	26	9	62.1	66.1	68.3	81.7
10	15	14.4	15.3	15.8	19.0	26	10	55.9	59.5	61.5	73.8
10	22	9.7	10.3	10.6	12.8	26	15	37.2	39.6	40.9	49.1
10	23	9.2	9.8	10.2	12.2	26	22	25.4	27.0	27.9	33.5
10	26	8.2	8.7	9.0	10.8	26	23	24.3	25.8	26.7	32.1
10	31	6.9	7.3	7.6	9.1	26	31	18.1	19.0	19.6	23.5
15	8	40.4	43.0	44.5	53.3	31	8	83.2	88.5	91.5	109.8
15	9	35.9	38.2	39.5	47.4	31	9	73.9	78.7	81.3	97.6
15	10	32.2	34.3	35.5	42.6	31	10	66.6	70.9	73.3	88.0
15	22	14.6	15.6	16.1	19.3	31	15	44.5	47.1	48.7	58.4
15	23	14.0	14.9	15.4	18.4	31	22	30.3	32.0	33.1	39.7
15	26	12.5	13.3	13.7	16.5	31	23	29.0	30.6	31.7	38.0
15	31	10.3	11.0	11.3	13.6	31	26	25.6	27.2	28.1	33.8

Above chart for planters equipped with Kinze drive. Recommended tire pressure 40 PSI.

IMPORTANT: Fertilizer application rates can vary from the above chart. To prevent application miscalculations, make field checks to be sure you are applying fertilizer at the desired rate.

MAINTENANCE

MOUNTING BOLTS AND HARDWARE

Before operating the planter for the first time, check to be sure all nuts and bolts are tight. Check all nuts and bolts again after approximately the first 50 hours of operation and at the beginning of each planting season thereafter.

Most bolts used on the Kinze planter are Grade 5 (high strength) as indicated by three radial dashes on the bolt head. Refer to the torque value chart in the Assembly Section of this manual when tightening bolts.

NOTE: Overtightening bolts can cause as much damage as undertightening. Tightening a bolt beyond the recommended range can reduce its shock load capacity.

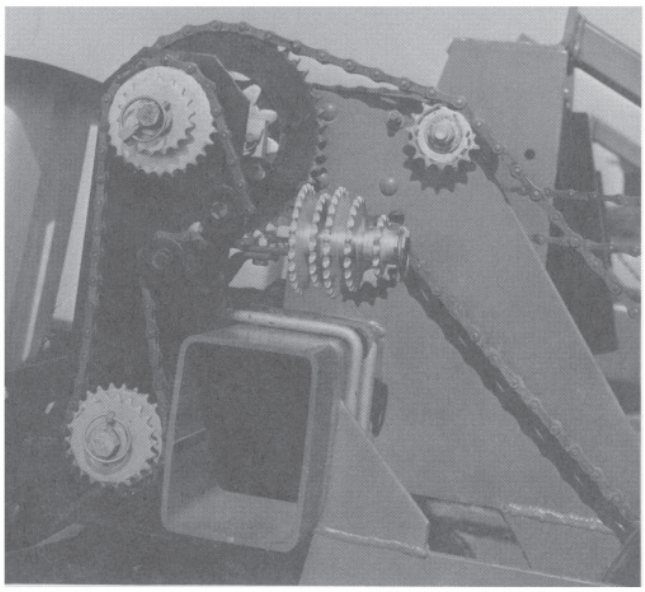
CHAIN TENSION ADJUSTMENT

To adjust gauge wheel chain, loosen idler attachment bolt. Move idler against the chain to obtain a deflection of approximately 1" on the longest span and retighten bolt.

To adjust chain tension on liquid fertilizer drive, loosen mounting nuts on squeeze pump mounting plate and slide plate to obtain approximately 1/2" deflection of the drive chain. Tighten nuts.

To adjust chain tension on all other idlers, loosen mounting nut and rotate idler bracket to obtain desired chain tension and tighten nut.

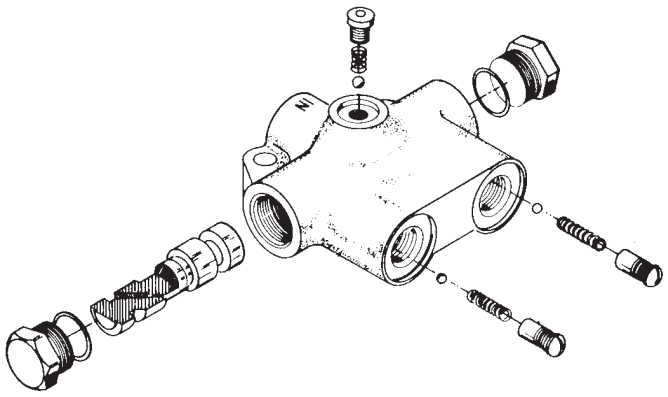
See decal located on planter for seed transmission chain routing.



SEQUENCING VALVE INSPECTION

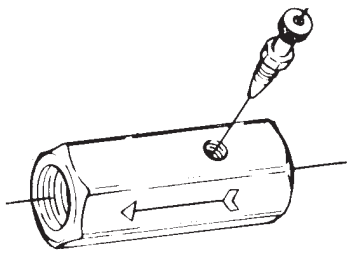
The sequencing valve consists of a chambered body containing a spool and a series of check valves to direct hydraulic flow. Should the valve malfunction, the components may be removed for inspection. The spool is accessable by removing either side plug and one check valve is accessable from the top of the valve body. It is necessary to disconnect the outlet hoses from the back of the valve to gain access to the remaining retainers and check valves. Inspect all part for pitting, contamination or foreign material. Also check seating surfaces inside the valve. Replace any parts found to be defective.

IMPORTANT: Make sure correct check ball and spring are installed in each check valve bore upon reassembly.



FLOW CONTROL VALVE

The flow control valves should be adjusted for raise and lower speed as part of the assembly procedure or upon initial operation. If the valve fails to function properly or requires frequent adjustment, the needle valve should be removed for inspection. Check for foreign material and contamination on both the valve and the seating area of the valve body.



IMPORTANT: The flow control valves must be installed with the arrows pointed toward the tractor.

MAINTENANCE

WHEEL OR MARKER BEARING LUBRICATION OR REPLACEMENT

1. Raise tire clear of ground and remove wheel or marker blade.
2. Remove hub cap from hub.
3. Remove cotter pin, axle nut, and washer.
4. Slide hub from axle or spindle.
5. Remove bearing cups and discard if bearings are being replaced. Clean hub and dry.
6. Press in new bearing cups with thickest edge facing in.
7. Pack bearings with heavy duty wheel bearing grease thoroughly forcing grease between roller cone and bearing cage. Also fill the space between the bearing cups in the hub with grease.
8. Place inner bearing in place and press in new grease seal.
9. Clean axle or spindle and install hub.
10. Install outer bearing, washer, or outer seal and slotted hex nut. Tighten slotted hex nut while rotating hub until there is some drag. This assures that all bearings surfaces are in contact. Back off slotted nut to nearest locking slot and install cotter pin.
11. Fill hub caps approximately 3/4 full of wheel bearing grease and install on hub.
12. Install wheel or blade on hub and tighten evenly and securely.

STORAGE

Store the planter in a dry sheltered area if possible.

Remove all trash that may be wrapped on sprockets or shafts and remove dirt that can draw and hold moisture.

Clean all drive chains and coat with a rust preventative spray, or better yet, remove chains and submerge in oil.

Lubricate planter and row units at all lubrication points.

If possible, remove weight from all tires particularly if the unit is stored outdoors, in which case it is best to remove wheels and tires for storage in a cool dry area.

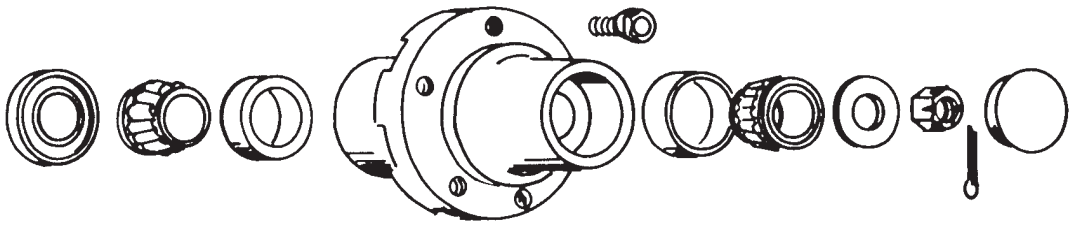
Inspect the planter and row units for parts that are in need of replacement and order during the "off" season.

If the planter is equipped with a dry fertilizer attachment, clean the fertilizer hopper, openers and all rubber spouts.

Make sure all seed, herbicide and insecticide hoppers are empty and clean.

If the planter is equipped with a liquid fertilizer attachment, open the shut off valve and flush water through the system.

Clean seed meters and store in a dry area.



LUBRICATION

The following pages show the location of all lubrication points. Proper lubrication of all moving parts will help insure efficient operation of your Kinze planter and prolong the life of friction producing parts. Those parts equipped with grease fittings should be lubricated at the frequency indicated with an SAE multipurpose type grease. Be sure to clean the fitting thoroughly before using grease gun. The frequency of lubrication recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent attention.

For row unit lubrication refer to Row Unit Manual.

SEALED BEARINGS

A number of sealed bearings are used on your Kinze planter to provide trouble free operation. These are located in such areas as the drive shaft, row units, and transmission bearings. Sealed bearings are lubricated for life, and due to the seals, relubrication is not practical.

DRIVE CHAINS

The various drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 10 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may require more frequent lubrication. If any of the chains become stiff, it should be removed and soaked and washed in solvent to loosen and remove dirt from the joints. Then soak the chain in oil so the lubricant can penetrate between the rollers and bushings.

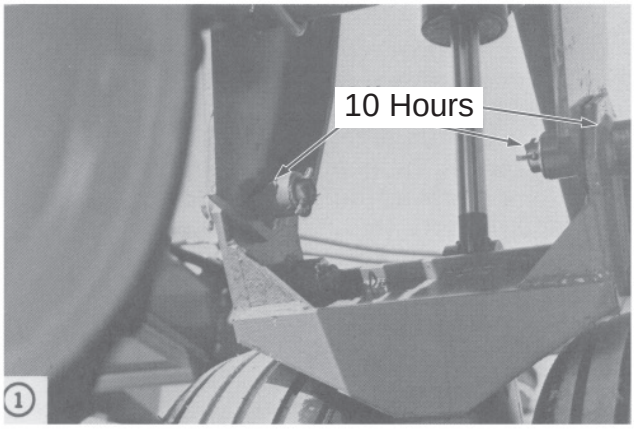
WHEEL BEARINGS

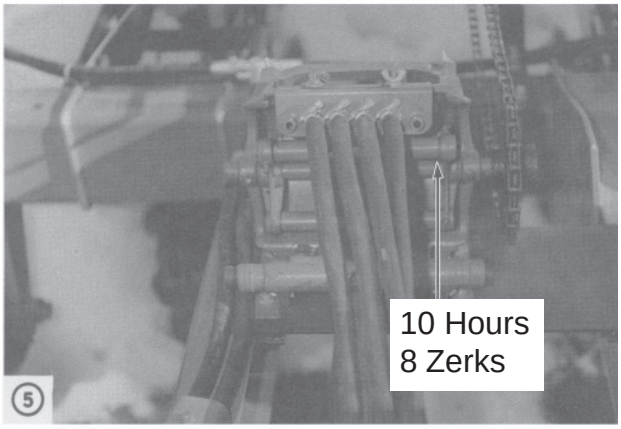
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all drive wheels, transport wheels and marker hubs. Transport wheels may require less frequent service depending upon amount of road travel. Follow the procedure outlined for wheel bearing replacement with the exception that bearings and bearing cups are reused.

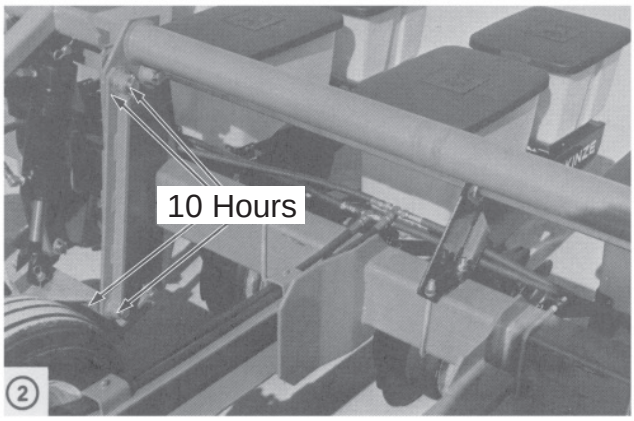
Lubrication Chart

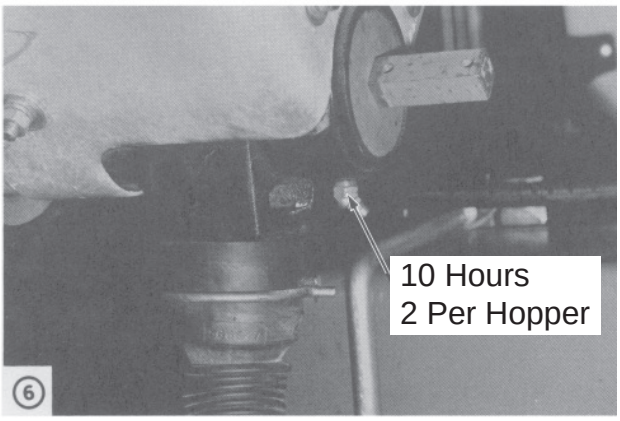
Ref. No.	Description	No. of Zerks	Frequency
1.	Axle Pivot	8	10 Hours
2.	Axle Pivot Linkage	10	10 Hours
3.	Single Fold Marker	4	10 Hours
4.	Double Fold Marker	4	10 Hours
5.	Liquid Fertilizer Pump	8	10 Hours
6.	Dry Fertilizer Hopper	2 (Per Hopper)	10 Hours
7.	(Optional) Rock Shaft	4	10 Hours
8.	(Optional) Frame Mounted Coulter	1 (Per Unit)	10 Hours

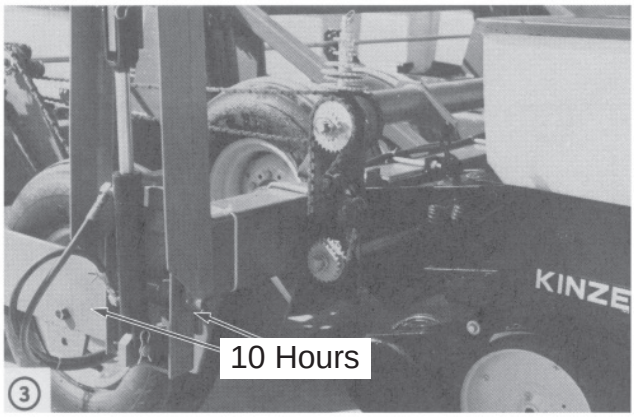
LUBRICATION

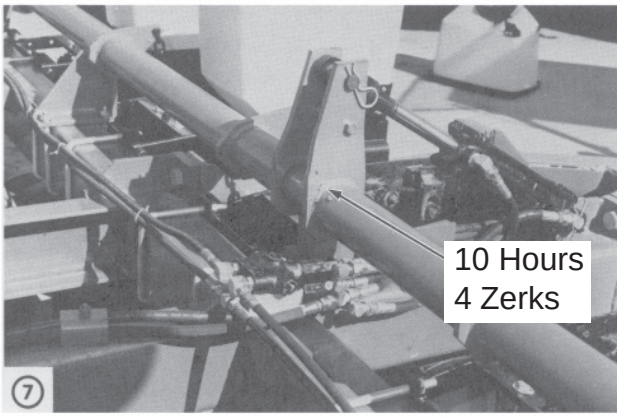


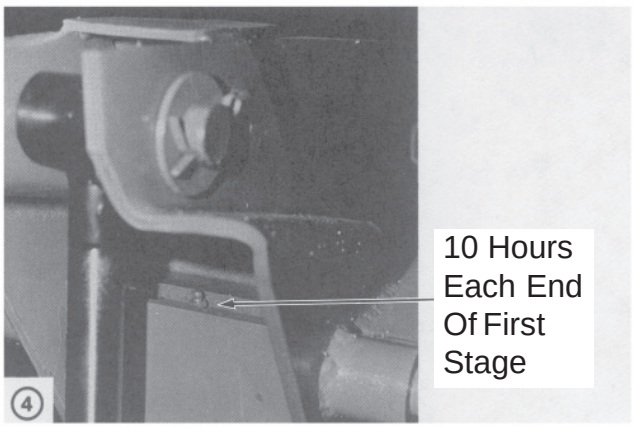


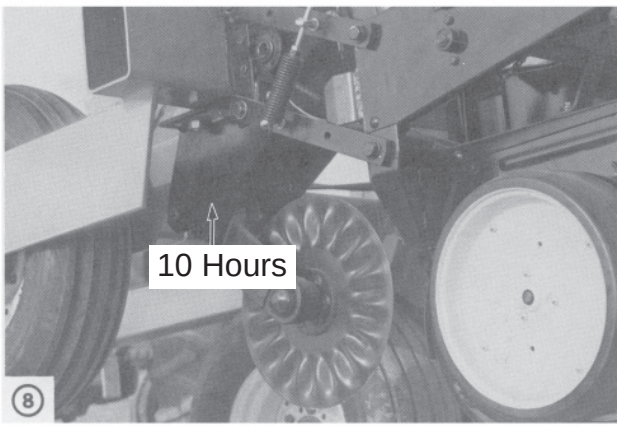












ASSEMBLY

The following instructions are provided for assembly of the Kinze double frame planter. Please read through the instructions prior to assembly. Becoming familiar with the procedures before actual set up will facilitate smoother assembly and possibly save time by eliminating backtracking. Although there may be procedures for assembly other than those shown, caution should be taken to avoid unnecessary risk to compensate for the extra time it takes to safely perform each step.

Prior to starting, inspect all components for possible damage incurred during shipment. Notify the freight or carrier agent immediately of any damage found. Any parts shortages should be noted and reported to Kinze Manufacturing, Inc. immediately.

Since the assembly instructions which follow are written for several sizes and configurations of units, they are divided into major components which are interchangeable. The interchangeability designed into each Kinze planter simplifies assembly as well as operation, service, and parts availability for any size and model unit.

HARDWARE

All bolts furnished with the planter are SAE Grade 5 unless otherwise noted. The 8 bolts used to mount the markers are SAE grade 2 for added shear protection. All bolts are distinguished by the radial lines on the bolt head. (See chart below).

In many cases bolts have been pre-installed in the holes in which they go during assembly. It is suggested that bolts be left somewhat loose until parts have been assembled. This especially applies to bearing flanges, idler sprockets, etc. Then tighten all bolts to the torque value specified below unless otherwise noted.

Note: Bolts having lock nuts should be tightened to approximately 50% of amounts shown in chart. Bolts lubricated prior to installation should be torqued to 70% of value shown in chart.

DRY TORQUE VALUES - Ft. Lbs.

Bolt Dia.	Grade 2 No Radial Lines	Grade 5 Three Radial Lines	Grade 8 Six Radial Lines
5/16"	11	17	25
3/8"	23	35	45
1/2"	55	85	
5/8"		170	
3/4"		300	
1"		670	
1 1/4"		910	

FRAME ASSEMBLY

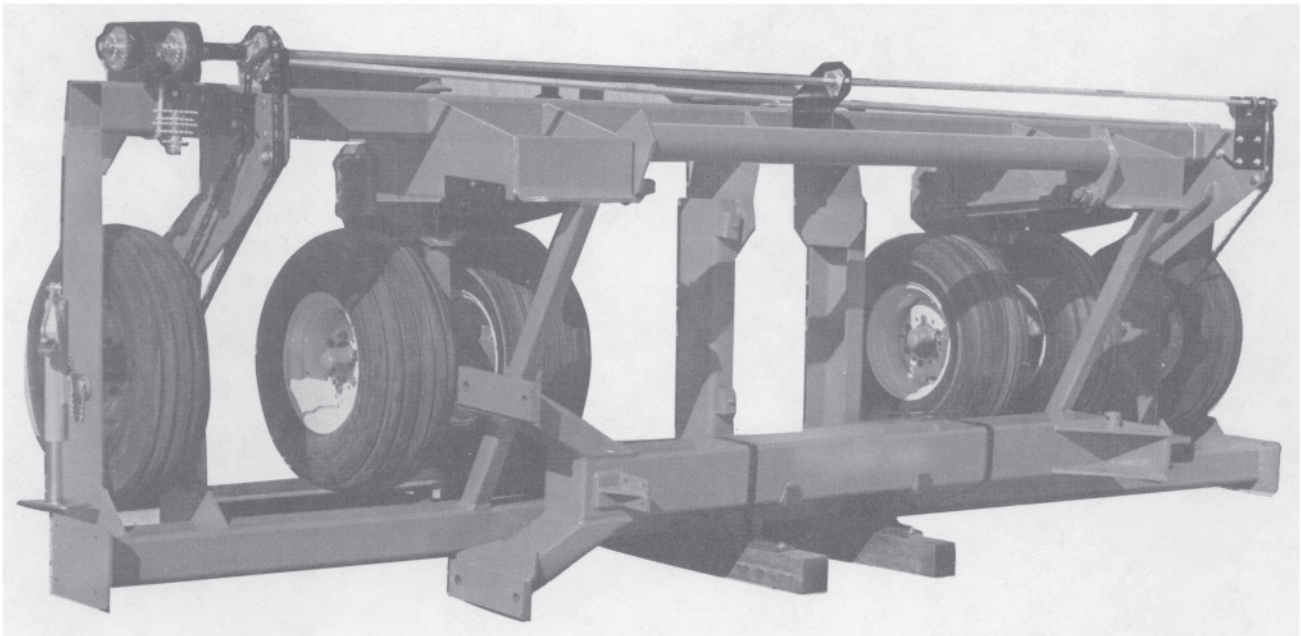
1. Place the partially assembled planter shipping bundle in your selected assembly area.

2. Unband the planter shipping bundle and inspect for damage.

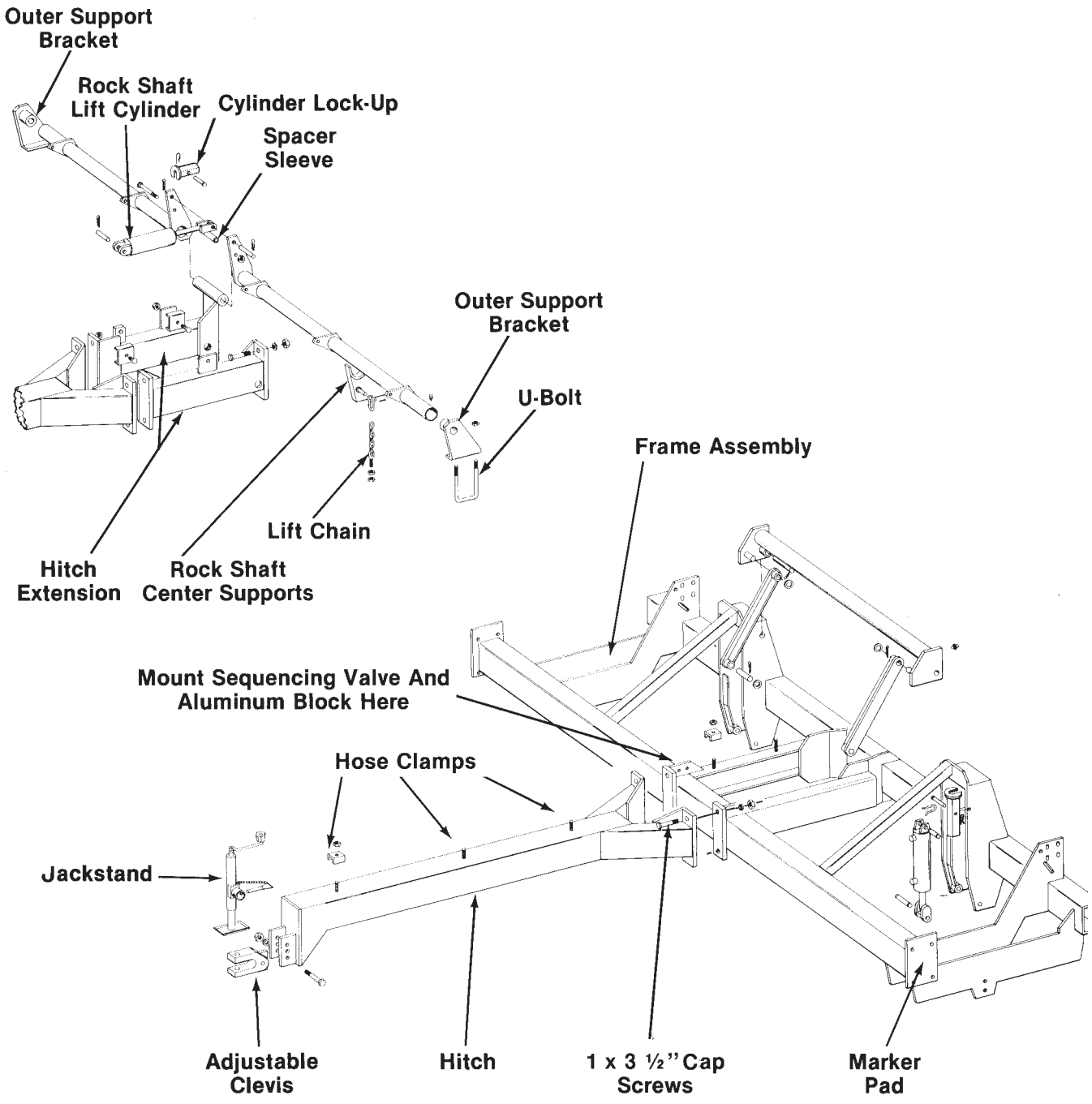
Each bundle should contain:

A. Basic frame assembly
B. Hitch assembly
C. Two marker assemblies
D. Two marker blades

Also open the two boxes containing the hydraulic hoses and hardware.



ASSEMBLY


Outer Support Bracket
Rock Shaft Lift Cylinder
Cylinder Lock-Up
Spacer Sleeve
Outer Support Bracket
U-Bolt
Frame Assembly
Lift Chain
Hitch Extension
Rock Shaft Center Supports
Mount Sequencing Valve And Aluminum Block Here
Hose Clamps
Jackstand
Adjustable Clevis
Hitch
1 x 3 ½" Cap Screws
Marker Pad

3. While supporting the frame with an overhead hoist or front end loader, remove the bolts which fasten the frame to the skid. Carefully lower the planter frame assembly to a horizontal position. Level the planter frame

4. Support the front of the planter frame and bolt on the tongue assembly using 1" x 3 1/2" cap screws, lock washers and hex nuts. Tighten bolts securely to specified torque value.

   A. When optional pusher units are being used, bolt the tongue extension in place using 1" x 3 1/2" cap screws, lock washers and hex nuts.

   B. Install center pusher row unit.

   C. Bolt tongue to hitch extension using 1" x 3 1/2" cap screws, lock washers and hex nuts.

5. Remove the jackstand from the storage position and place it on the hitch to support the planter.

NOTE: Depending upon the planter size the planter is equipped with either single or double folding markers.

6. Mount the marker assemblies to the planter frame.

   A. Single fold markers are preassembled with the exception of the marker blade. Bolt the single fold marker assembly to the mounting pad using four 1/2" x 2" Grade 2 cap screws, lock washers and hex nuts on each side. Right and left is determined by the blade spindle projecting forward.

⚠ **WARNING:** Always leave the marker assembly laying in the horizontal position or secure with the safety lock-up pin, when the markers are in up position.

   B. On planters using double fold markers, bolt the first stage with the pre-assembled cylinder to the mounting pad using four 1/2" x 2" Grade 2 cap screws, lock washers and hex nuts on each side.

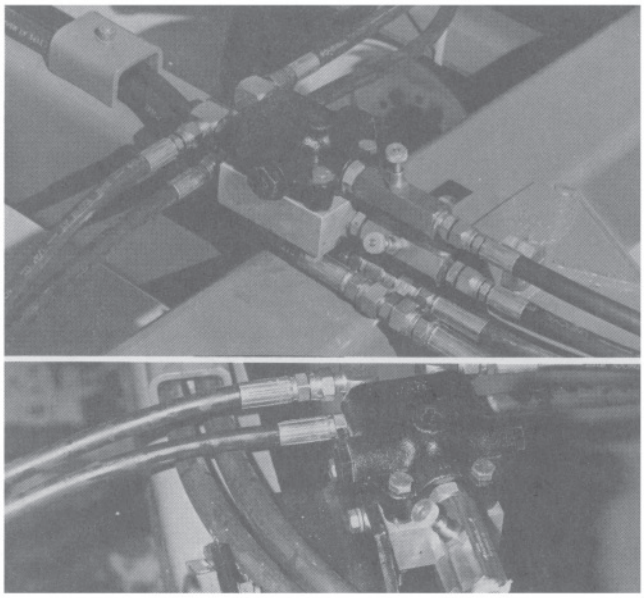
   C. Attach the pre-assembled second stage with pivot pin and cotter pins. Right and left is determined by the blade spindle projecting forward.

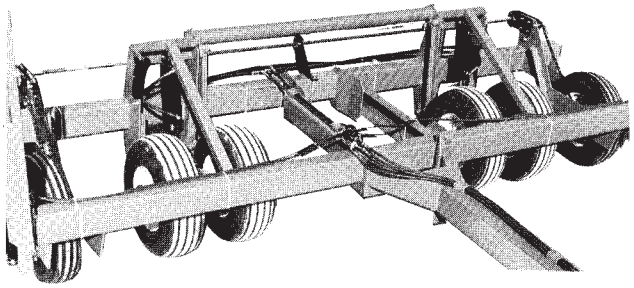
NOTE: We recommend that you do not connect the rod end of the cylinder to the second stage until the hydraulic hoses have been assembled and cycled.

7. Remove the plugs from all cylinder ports. Depending upon the planter model you are assembling, see Hydraulic System pages in the Parts Section of this manual for fitting and hose information.

NOTE: Refer to dual or single valve system as applicable.

IMPORTANT: The flow control valves must be installed with arrows pointed toward tractor.





8. Mount the sequencing valve, flow control and aluminum manifold block assembly on the planter frame center section using the holes provided. 4 row 30, 6 row 30 and wide and 8 row 30 models with the dry fertilizer attachment require the use of a special offset bracket for mounting the manifold block. This bracket is included in the dry fertilizer package.

9. Connect the hoses that run from the sequencing valve and aluminum manifold block to the tractor. On dual valve units route the specified hoses for the lift cylinders around valve and along the hitch using the hose clamps to secure all hoses.

10. Install the proper fittings into the lift cylinders and connect the correct hoses as shown in the Parts Section of this manual.

NOTE: The fittings should be angled to allow for movement during operation.

11. Connect the hoses from both lift cylinders using the "T" fitting as shown. Route the hose from the left side lift cylinder through the hole in the bearing support bracket and secure with nylon tie straps.
12. Using the specified hoses connect the "T" fittings to the proper coupling at the hitch as shown in the Parts Section of this manual.
13. Connect the marker hoses to the proper fittings on the sequence valve and aluminum manifold block.
14. Route the hoses along the planter frame and attach marker cylinders using the correct fittings.

NOTE: Angle the marker cylinder fittings to allow for movement during operation.

Secure hoses with nylon tie straps.

NOTE: When pusher unit rockshaft lift package is used additional hoses and fittings are required.

15. Prime the hydraulic system.

⚠ **CAUTION:** Disconnect the rod end of both marker cylinders before cycling the cylinders. The flow control valves must be adjusted to prevent damage to the marker assembly. Loosen the lock nut on each knurled adjustment knob and screw the adjustment all the way closed. Open each valve approximately 1/2 turn. Cycle the hydraulic systems several times with the cylinder rods disconnected to purge all air from the hydraulic system. After the cylinders are operating smoothly, attach the rod end of each cylinder.

16. The sequencing valve is used to alternate the marker raise and lowering automatically.
17. The flow control valves are used to regulate the speed of the marker.

IMPORTANT: The flow control valves must be installed with the arrow pointed toward the tractor.

⚠ **WARNING:** Always stand clear of the marker assemblies when in operation.

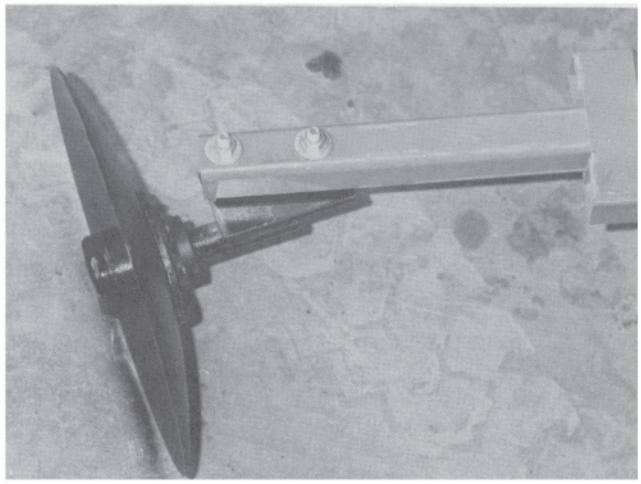
18. Attach the 16" blade to the hub using the preinstalled bolts. Be sure to alternate bolts while tightening to avoid distorting the blades shape or breaking the marker hub.

NOTE: The marker blade is installed so the concave side of the blade is outward to throw dirt away from the grease seals. To provide further variation in the width of the marker, the spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt.

⚠ **WARNING:** Always position marker lock-ups in "safety" position when transporting or storing planter. See Safety Precaution.

19. Marker Adjustment
    To determine the correct length at which to set the marker assemblies, multiply the number of rows by the row spacing in inches. This provides the total planting width. Then adjust the marker extension so that the distance from the marker blade to the center line of the planter is equal to the total planting width previously obtained. Both the planter and marker assembly should be lowered to the ground when measurements are being taken. Also, the measurement should be taken from the point where the blade contacts the ground. Adjust right and left marker assemblies equally and securely tighten clamping bolts. An example of marker length adjustment follows:

Number of Rows X Row Spacing (Inches) =	Dimension between planter center line and marker blade
6 x 30" = 180" marker dimension	



ROW UNITS
See Kinze Row Unit Manual for row unit mounting instructions.

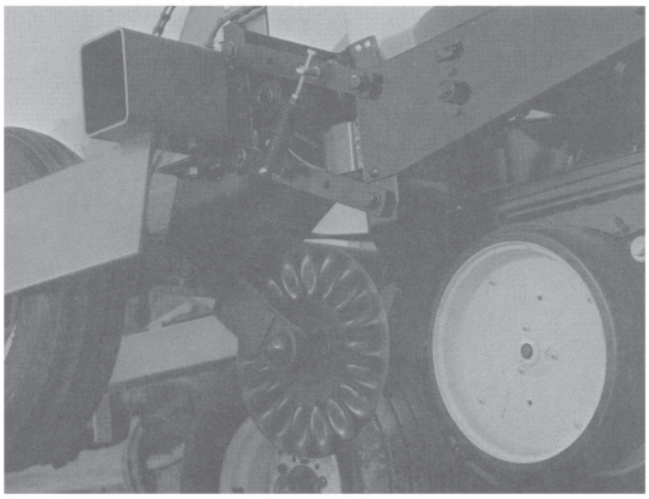
ASSEMBLY

FRAME MOUNTED COULTER ASSEMBLY

Mark out row spacing. Bolt the coulter mounting bracket to the frame. See illustration for proper location of parts. Remove the unit mounting angles from the row unit. Bolt the parallel arms of the row unit to the coulter mounting bracket. Mount coulter blade on the hub with bolts provided.

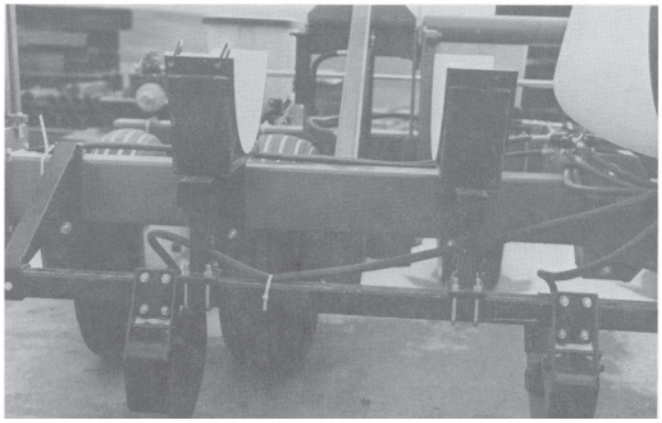
The coulter blade can be adjusted laterally by repositioning the shims.

⚠ **WARNING:** The coulter arm is under spring tension. That tension must be released before the coulter blade is adjusted laterally. Measure spring length so the proper tension can be attained when the unit is reassembled.

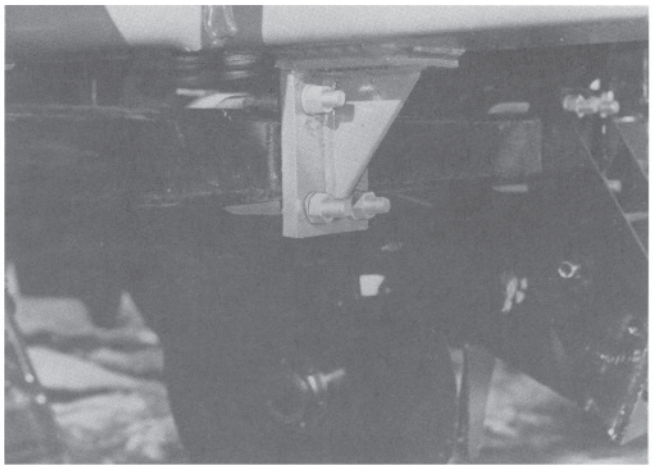


DRY AND LIQUID FERTILIZER ATTACHMENT

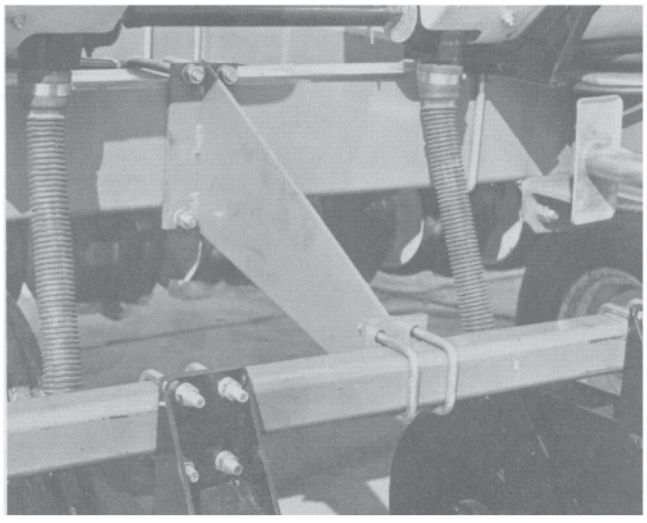
Fertilizer Bar Installation -



1. Attach bar end brackets to the fertilizer bar with 1/2 x 4" cap screws, lock washers and hex nuts.
2. Lift bar into position and attach end mounting brackets to toolbar with 5" x 7" x 3/4" U-bolts, lock washers and hex nuts.
3. Secure center of fertilizer bar to the mounting bracket located on the underside of the hitch using 2½" x 2½" U-bolts, lock washers and hex nuts provided.



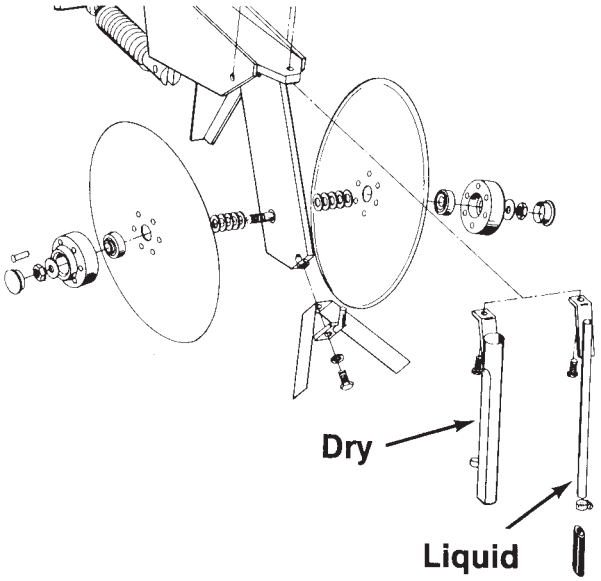
On 6 row wide and all 8 row units, a fertilizer bar stabilizer is installed midway between the hitch and the end of the planter of each side. Each stabilizer bar is attached to the toolbar with two 5" x 7" x 5/8" U-bolts, lock washers and hex nuts. Attach the opener bar end with two 2 1/2" x 2 1/2" U-bolts.



ASSEMBLY

Double Disk Openers

Both the liquid and dry fertilizer attachments use the same 15" double disk openers. Attach drop tubes to each opener by positioning the bottom of the tube on the drop tube retainer and attaching the top of the tube with one 5/16" x 1 1/2" cap screw and locknut.



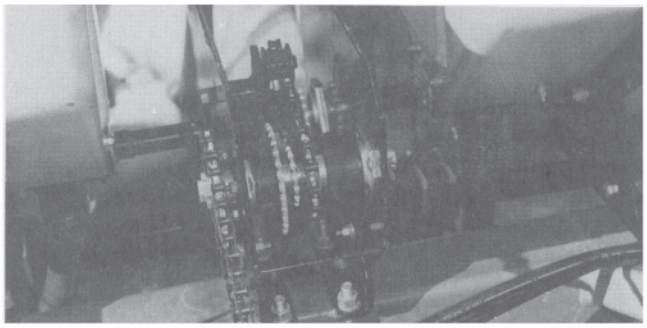
Attach disk openers to the fertilizer bar so that disks are positioned two inches to the side of the row unit openers. When installing openers for dry fertilizer, position the opener on the side nearest the hopper outlet.

The down pressure springs on the double disk openers are factory preset at 250 pounds, but may be further adjusted for various soil conditions. To adjust spring tension, loosen the jam nut with a 15/16" wrench and adjust the tension adjustment bolt with a 1" wrench. Turning the adjustment bolt clockwise increases down pressure. Retighten the jam nut upon completion of tension adjustment.

WARNING: Do not operate the double disk openers at full down pressure tension when planting in rocky ground. Chipping of the disk blades may occur.

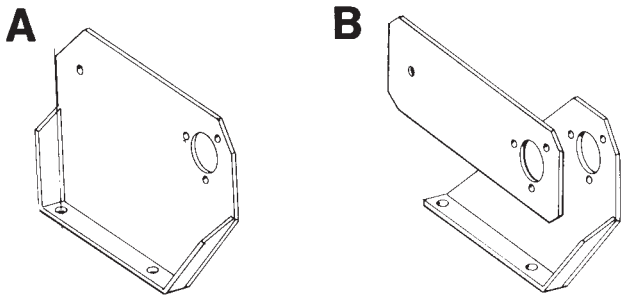
Dry Fertilizer Transmission And Drive Installation

1. Attach fertilizer transmission to front toolbar with two 7" x 5" x 5/8" U-bolts, lock washers and hex nuts. The transmission is positioned on the planter center line on 4 and 8 row models and to the left of center on 6 row models.



2. Loosen lock collars and slide drive shaft to the left to allow for installation of mounting support bracket and 16 tooth drive sprocket.

NOTE: On 8 row wide models the shaft is in two pieces and the left side need only be removed.



3. Either of two styles of support bracket may be supplied. To determine which style you have, locate either a 10" x 14" bearing support bracket or a 5" x 10 1/4" idler mounting bracket in your dry fertilizer package. Style A uses the bearing support bracket while Style B uses the idler mounting bracket. 6 row models always use Style A. 4 and 8 row models may use Style A or B.

4. On Style A models assemble 7/8" hex bore bearing and flangettes on new bearing support bracket supplied. On 6 row models install the new bearing support bracket to the left of center line and behind the fertilizer transmission. On 4 and 8 row models replace the center bearing support with the new one provided. The idler bracket and the 16 tooth drive and 32 tooth driven sprocket located on the outer side of the fertilizer tranmission must be in alignment. The idler assembly will be located on the support bracket on the side opposite the U-bolt mounting angle.

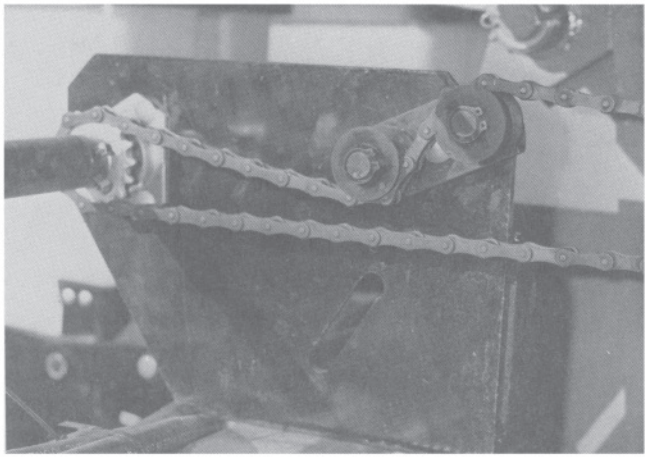
On Style B models install idler mounting bracket to existing center bearing support bracket using same hardware used to mount flangettes to center bearing support. Locate so idler which will be mounted to the idler mounting brakcet and 16 tooth drive and 32 tooth driven sprocket located on the outer side of the fertilzer tranmission will be in alignment. The mounting bracket and idler assembly may be located on either side of the bearing support bracket depending on location access and alignment.

5. Slide drive shaft through bearing support bracket and install 16 tooth drive sprocket and lock collar. After drive shaft is back in place slide lock collars into position and tighten.

6. Install idler assembly on the mounting support bracket with 1/2" x 1 1/2" carriage bolt. Position internal-external lock washer, flat washer and second internal-external lock washer between idler and drive support.

7. Install drive chain between drive shaft and transmission. Pivot idler to provide sufficient tension and tighten mounting bolt. Make sure rollers turn freely.

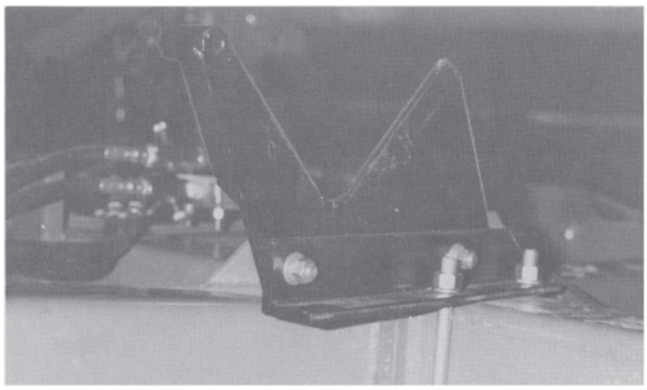
8. **Tighten all hardware.**



Hopper Installation - All Models

1. Install the hopper mounting brackets on the planter so hoppers will be centered over every two rows. Do not tighten attachment bolts at this time.

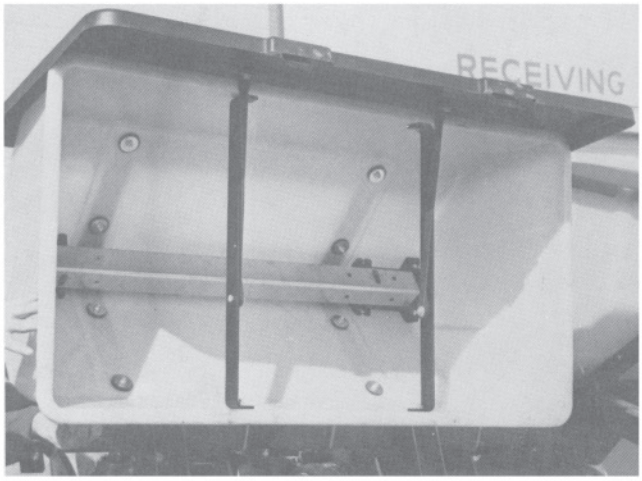
NOTE: On 6 row models the hopper mounting brackets for the center hopper assembly must be changed around to accomodate the hitch.



2. Remove the cotter pin and flat washer from one end of the fertilizer shaft and slide the entire assembly through the outlet housing into the hopper. Secure in place by reinstalling the washer and cotter pin. Check rotation to make sure the auger springs will carry fertilizer to the outer ends of the hopper when in operation. If rotation is wrong, remove the auger assembly, turn it 180° and reinstall. Be certain auger turns freely.

3. Install auger shields over augers and secure in place with two hair pin clips on each.

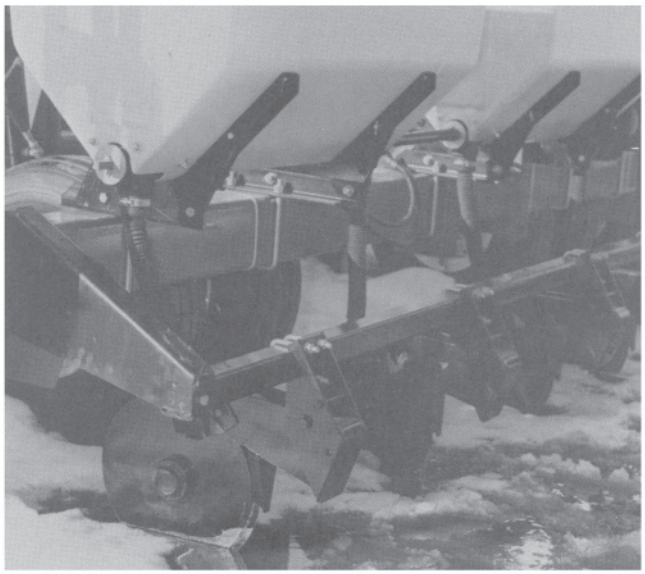
4. Install two hopper braces in each hopper with bolts provided. Each brace is drilled for installation of a rubber lid strap. Make sure this hole is closest to the front of the hopper. Place one of the rubber washers between each end of the brace and the inside surface of the hopper. Attaching bolts should be installed with the head to the outside of the hopper and a flat washer between the head and the outside hopper surface.



5. Position the hopper lid so the latches will be to the front of the hopper and install two rubber straps between hopper braces and underside of lid. Install a rubber washer between the bolt head and the rubber strap...and a lock washer and nut on the underside of the braces. The bolt holding the strap to the lid should have a flat washer under the bolt head on the lid top...and a flat washer, lock washer and hex nut next to the strap on the bottom side of the lid.

6. Install the hoppers on the hopper mounts with the round hole in the saddle toward the front. Attach the front side of the hopper to the mount with two 7/16" x 3" clevis pins and cotter pins.

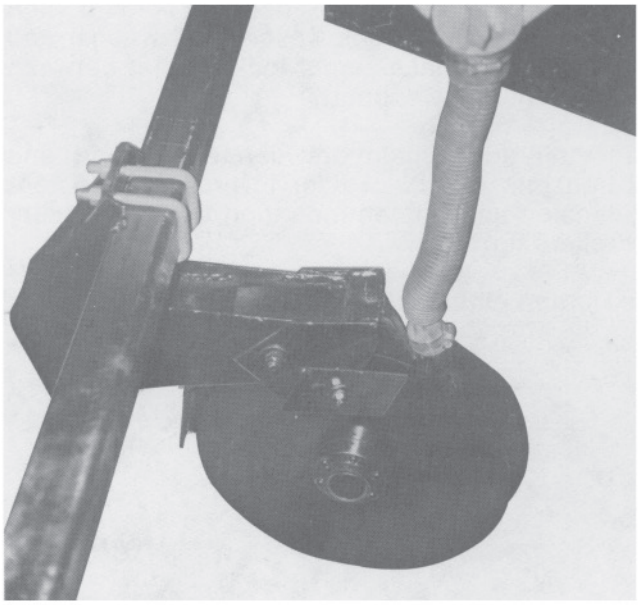
7. Install coupler/drive shafts beginning at the transmission and working outward toward each end. Refer to Dry Fertilizer Coupler pages in Parts Section of this manual for coupler sizes and locations. Slide the square end of the coupler over the auger shaft so that at least 3/4" of the shaft extends into the coupler. Attach opposite end of the coupler/drive and round insect with a 3/16" cotter pin. Four holes in the auger shaft allows for 1 1/2" or 3" to extend beyond the end of the hopper. In most installations the short end is toward the transmission. On coupler/drive shafts between two hoppers, a square insert is used in place of the round insert. Make sure all coupler/drive shafts are installed with the cotter pin nearest the transmission.



8. Once the coupler/drive shafts have been connected, bolt the rear of the hopper saddle to the hopper support with two 1/2" x 1 1/4" cap screws.

9. Align all hoppers and the transmission both horizontally and vertically and tighten all mounting bolts. Slots in the transmission and mounting bracket allow for up and down and forward and backward adjustment.

10. Connect all fertilizer drop tubes between hopper outlets and double disk opener drop tubes. Make sure tubes are straight; and secure with hose clamps.

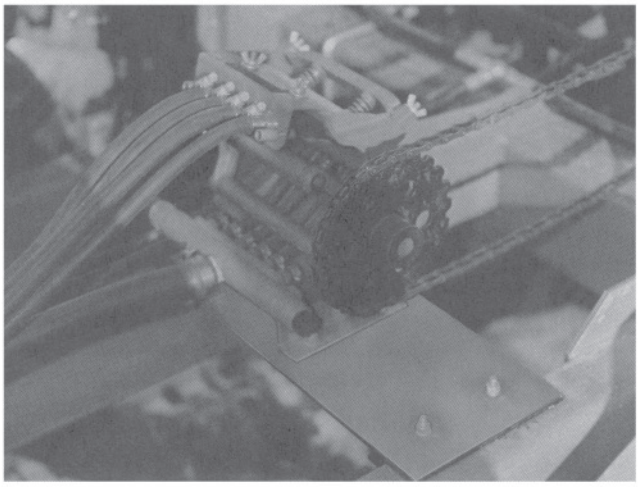


ASSEMBLY

Liquid Fertilizer

Squeeze Pump and Drive Installation

1. Attach squeeze pump mounting plate to center section of planter as shown, using 3/8" x 1 3/4" cap screws, flat washers, lock washers and nuts. Two smaller 3" x 8 1/2" plates are used on the under side of the frame to sandwich the plate onto the frame. The right hand hardware also mounts the squeeze pump. On 8 row models the left hand hardware mounts the squeeze pump, but on 4 and 6 row models 3/8" x 1" cap screws are used to bolt the narrower pump onto the plate using special holes in the plate.



2. Do not tighten bolts at this time.

3. Install sprocket adapter, selected driver sprocket and sprocket retainer on left side of squeeze pump.

4. Placing a straight edge ruler along the side of the driven sprocket, mark a point on the hex drive shaft in direct alignment with the squeeze pump sprocket.

5. Cut the hex drive shaft approximately 4" to the left of the mark. Loosen the lock collars and slide the left hand piece of the shaft out.

NOTE: On 8 row wide models the shaft is already in two pieces and the coupler is provided.

6. Install sprocket adapter, selected drive sprocket and sprocket retainer on the hex shaft.

7. Install 3" coupler with set screws and center over cut shaft. Tighten set screws.

8. Install drive chain between squeeze pump drive and driven sprockets. Slide squeeze pump and mounting bracket forward to obtain approximately 1/2" deflection of the drive chain.

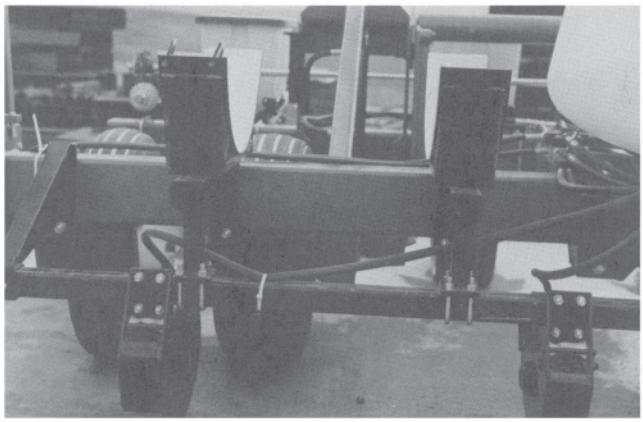
9. Tighten all hardware.

Tank and Hose Installation

1. Attach two tank saddle brackets for each tank on toolbar and fertilizer bar with 1/2" U-bolts around fertilizer bar and 5/8" U-bolts around tool bar.

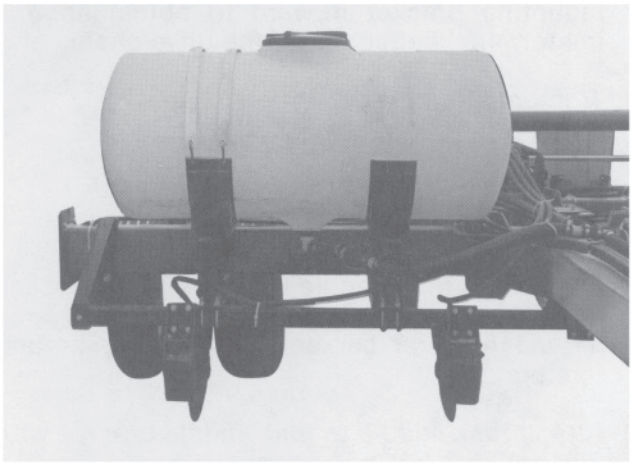
2. Attach tank saddle to tank saddle bracket with four 1/2" x 1 1/2" cap screws.

NOTE: Two sets of front mounting holes are provided for installation of 100 or 150 gallon tank saddles.



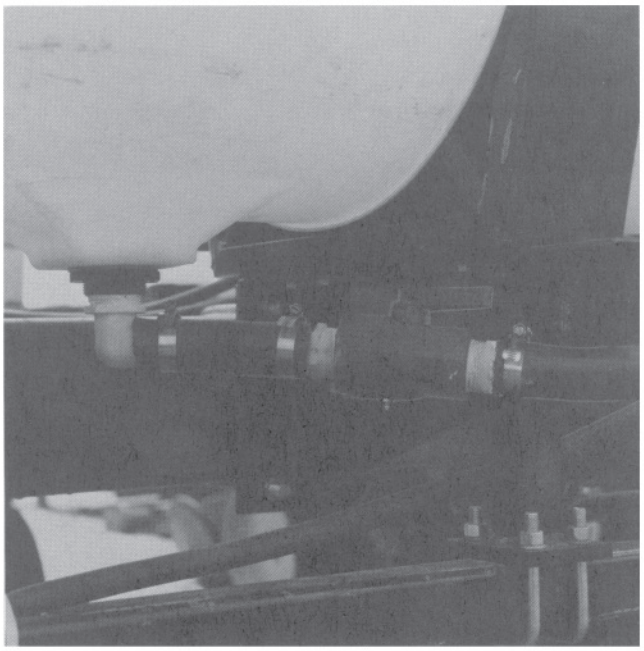
3. Install outlet elbow in bottom of each tank.

4. Install tanks and tank pads on tank saddles with straps and J-bolts, lock washers and hex nuts as shown.



5. Attach a short piece of 1 1/4" hose to each outlet elbow and then install adapter fittings and shut-off ball valve.

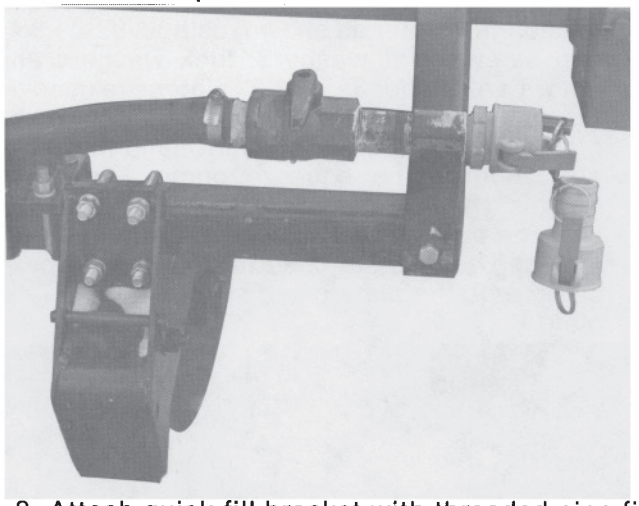
NOTE: The 1 1/4" hose for connecting tanks to squeeze pumps is provided in a roll and must be cut to length. Attach hose to each fitting or connection with hose clamps provided.



6. Attach additional 1 1/4" hose to each ball valve to extend to center of planter. Then join hoses from each tank with 1 1/4" hose barb tee.

NOTE: Make sure hoses between tanks and front of squeeze pump are long enough to allow forward movement of the squeeze pump. This is important to allow for chain tension adjustment.

7. Cut approximately 2" out of left hose and install second 1 1/4" hose barb tee. Then attach sufficient length of hose to extend to outer end of tank for quick fill attachment.



8. Attach quick fill bracket with threaded pipe fitting to fertilizer bar end bracket as shown.

9. Assemble male adapter, 1 1/4" ball valve, pipe nipple and quick fill fitting to bracket as shown.

10. Connect 1 1/4" hose between squeeze pump intake manifold and barb tee which connects tanks. Install rubber plugs in unused manifold inlets.

11. Connect fertilizer hoses between squeeze pump outlet manifold and double disk openers. The plastic hose comes in a roll and must be cut to length for each row. Begin with the two outside first, allowing enough hose for up and down movement of disk openers.

12. Secure all hoses to the planter frame with nylon tie straps.

OPTIONAL PUSHER ROW UNIT

Use the following additional assembly instructions when the Kinze Double Frame Planter is equipped with optional pusher row units.

1. The mounting of the center row unit and tongue extension was covered in item 4 of the general assembly instructions.

2. When the pusher row unit lift assist is to be used, insert both rock shafts into the pivot bushing on the tongue extension. The shorter rock shaft goes on the right side of the planter. Grease at this time.

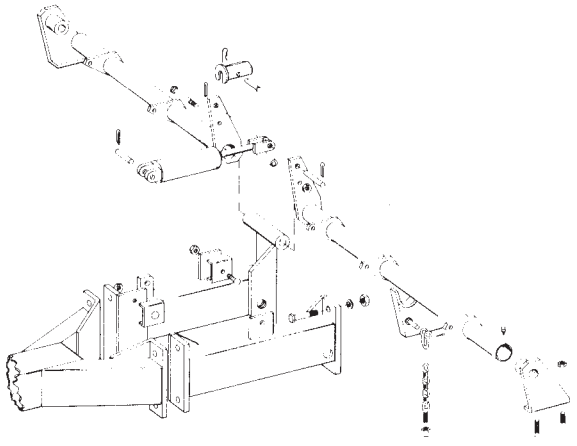
3. Slide the outer support brackets into the rock shafts and clamp to frame with U-bolts provided. Grease at this time.

NOTE: Do not tighten nuts at this time.

4. Clamp rock shaft center supports to frame in approximate equal spacing with U-bolts provided. Adjustment of the center supports will have to be made after pusher units are mounted to the front of the planter bar.

5. Bolt the two sections of the rock shaft together using a 1/2" x 4 1/2" cap screw, spacer sleeve and lock nut.

6. Insert the rod end of the cylinder and secure with cylinder pin and cotter keys.



7. Refer to the corresponding page of the parts section and connect the hydraulic hoses and fittings to the rock shaft cylinder.

8. Mount the pusher units to the planter frame as per instructions in Kinze Row Unit Manual.

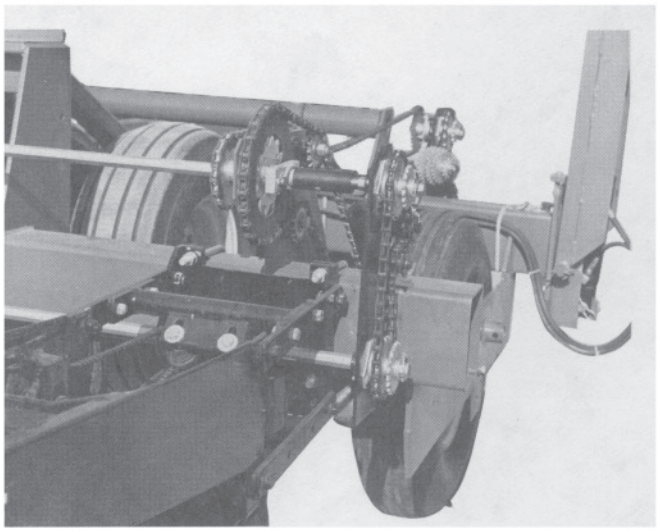
9. Assemble and connect lift chains to the pusher row units.

NOTE: If using special 10" row spacing refer to "Special 10" Row Spacing" assembly instructions at this time.

10. Loosen lock collars and slide 7/8" drive shaft to left side of planter so the shaft clears right hand bearing support plate.

11. Install lock collar, 32 tooth sprocket with hub on the right and three machine bushings on right hand end of shaft.

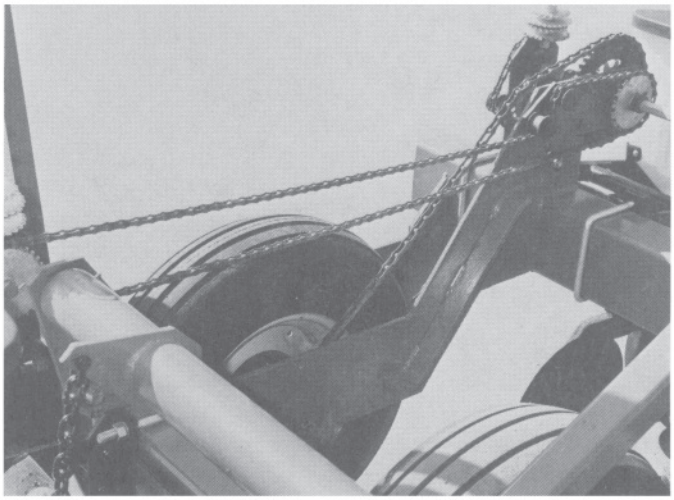
12. Slide shaft back through bearing sprocket plate, machine bushings, ratchet sprocket, and into coupler. Press 32 tooth sprocket against plate and tighten lock collar.



ASSEMBLY

13. Remove the top stationary idler sprocket bolt and replace with idler assembly and three machine bushings.

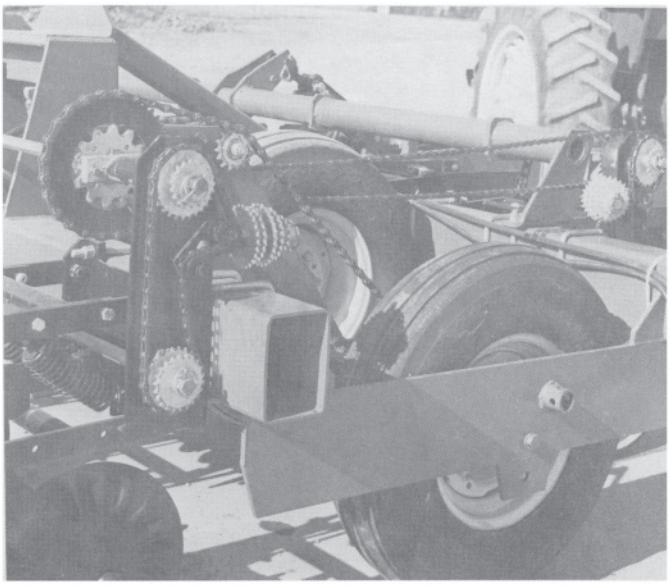
14. Attach the front pusher unit transmission to the right hand outer end of the front frame. The 32 tooth sprocket on the main drive shaft and the 32 tooth sprocket preassembled on the front pusher drive transmission must align with each other.



15. Connect the two sprockets with the chain provided.

16. Insert the front drill shaft thru 7/8" hex bore bearing sprockets on pusher units from the left side.

17. Put a lock collar on the front drill shaft before inserting shaft into the bottom bearing assembly on the front transmission. On the shaft extending into the transmission, mount the desired drive sprocket and insert lynch pin.



18. Press the lower transmission shaft with sprocket against the bearing and tighten lock collar.

19. Connect the upper and lower sprockets of the front transmission with drive chain. See decal on transmission for chain routing.

20. On 8 row wide models two front drill shafts are used with a coupler and lock collars connecting and securing the two sections of shaft.

21. Align the front drill shaft for the pusher row unit and tighten the bearing sprocket on each row unit.

22. Rotate drive and drill lines and check for binding shafts, sprockets and chains. Make sure nylon rollers turn freely.

23. Recheck and tighten all hardware.

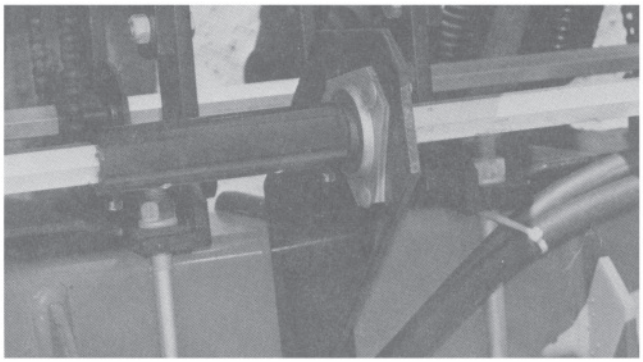
Special 10" Row Spacing

1. Cut 7/8" hex drive shaft 1 1/2" to right of center bearing.

2. Loosen lock collars on drive and drill shafts and slide rear transmission to end of bar.

3. Slide right side of drive shaft to the right.

4. Insert 6" coupler into drive shaft where shaft was cut.



5. Shift drive shaft to the left.

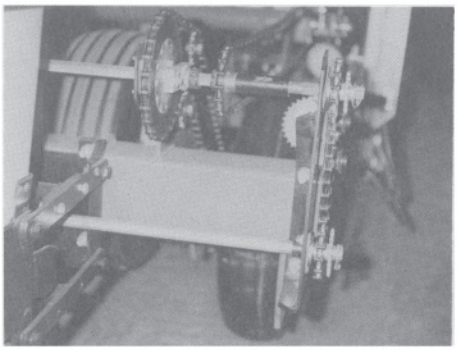
6. Install lock collar then 32 tooth sprocket with hub on right side onto the right end of the drive shaft.

7. Slide drive shaft back to the right.

8. Install two 1/4" x 1 1/2" spring pins in 6" coupler and slide drive shaft to the left as far as possible. Tighten the two 5/16" x 1/2" set screws to secure the 6" coupler.

ASSEMBLY

9. Slide ratchet sprocket against bearing support and tighten lock collar.

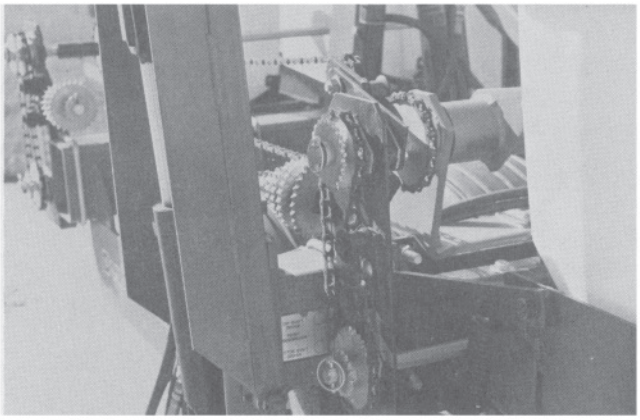


10. Slide rear transmission into place and tighten U-bolts.

11. Slide 32 tooth sprocket against transmission coupler on right side and secure with lock collar on left side.

12. Press the lower transmission shaft with sprocket against the bearing and tighten lock collar.

13. Attach the front pusher unit transmission to the right hand outer end of the front frame. Preassembled 32 tooth sprocket on front transmission must align with 32 tooth sprocket on rear drive shaft.



14. Remove preassembled 32 tooth sprocket on front transmission. Install idler mounting bracket using flangette mounting bolts. Reinstall 32 tooth sprocket on top transmission shaft.

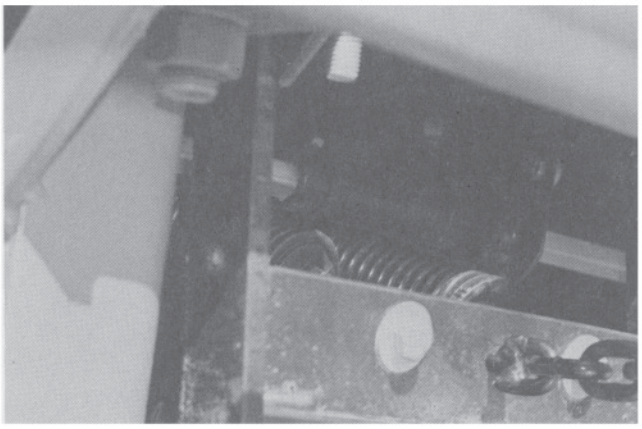
15. Install idler on idler mounting bracket using 1/2" x 1 1/2" carriage bolts, two internal/external washers, a flat washer and hex nut.

16. Connect the two 32 tooth sprockets with chain provided.

17. Insert front drill shaft thru 7/8" hex bore bearing sprockets on pusher units from the left side.

18. Put a lock collar on the front drill shaft before inserting shaft into the bottom bearing assembly on the front transmission. On the shaft extending into the transmission, mount the desired drive sprocket and insert lynch pin.

19. Press the lower transmission shaft with sprocket against the bearing and tighten lock collar.



20. Couple the extra length of 7/8 hex shaft provided on the left hand side of the drill shaft using two lock collars and a 2 1/2" coupler. Insert 1/4" x 1 1/2" spring pin through coupler. Secure coupler and shaft with lock collars.

21. Connect the upper and lower sprockets of the front transmission with drive chain. See decal on transmission for chain routing.

22. Align the front drill shaft for the pusher row unit and tighten the bearing sprocket on each row unit.

23. Rotate all drive and drill lines and check for binding shafts, sprocket and chains. Make sure nylon rollers turn freely.

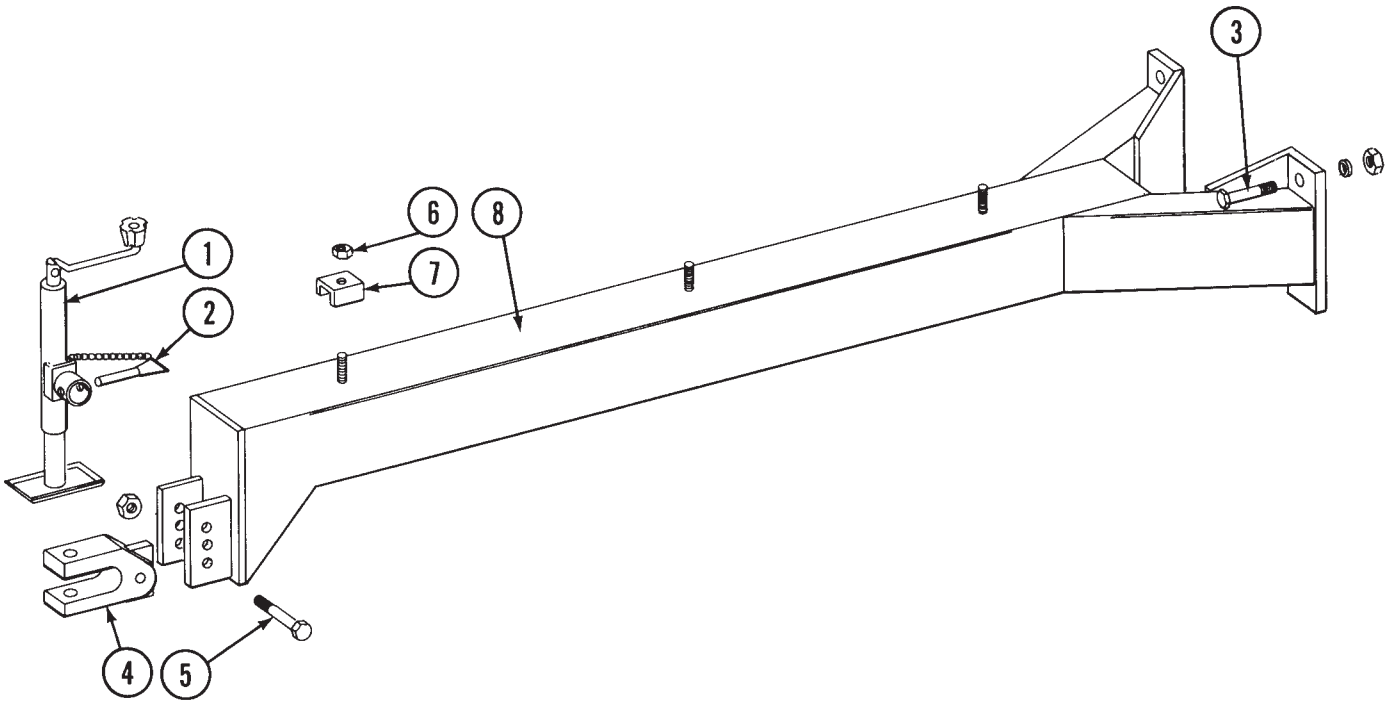
24. Recheck and tighten all hardware.

FINAL INSPECTION

- ☐ Lubricate per instructions.
- ☐ Check for loose hydraulic hoses and fittings.
- ☐ Check for loose bolts, nuts, etc.
- ☐ Check all drive chains for proper alignment and tension.
- ☐ Make sure all drive shafts rotate freely and do not bind.
- ☐ Make sure all row units are mounted properly and that they are squared on the frame.
- ☐ Cycle all hydraulics to insure all the air has been purged from the hydraulic system.

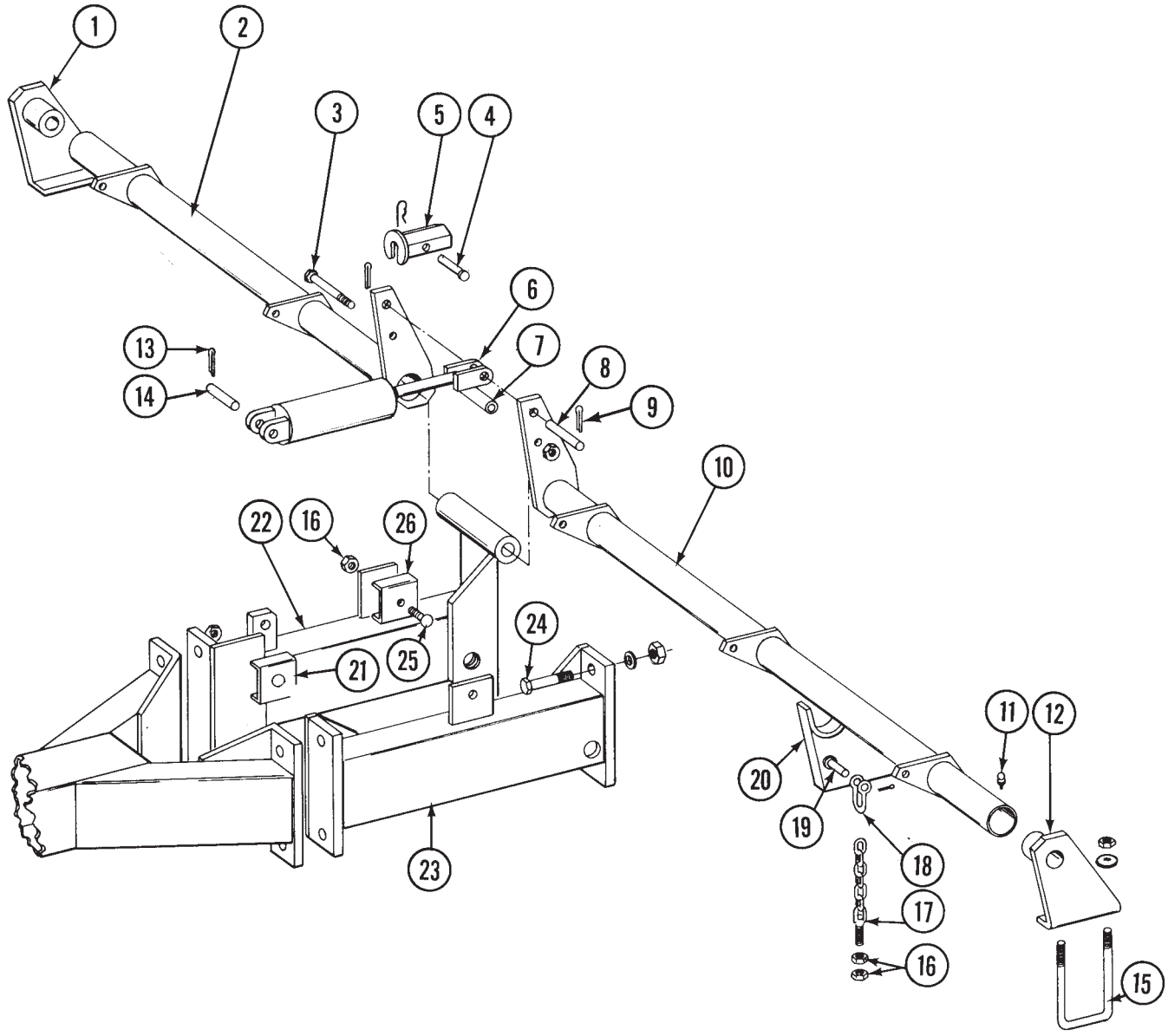
PART LIST INDEX

HITCH ASSEMBLY



ITEM	PART NO.	DESCRIPTION
1.	4100-2	Jack
2.	R255	Repair Kit (Chain and pin)
3.	10076	HHCS, 1" - 8 x 3 1/2"
	10118	Lock Washer, 1"
	10117	Hex Nut, 1" - 8
4.	B156	Clevis
5.	10169	HHCS, 1 1/4"-7 x 6"
	10157	Lock Nut, 1 1/4" - 7
6.	10108	Lock Nut, 3/8"-16
7.	D1656	Clamp, Hose
8.	A1622	Hitch

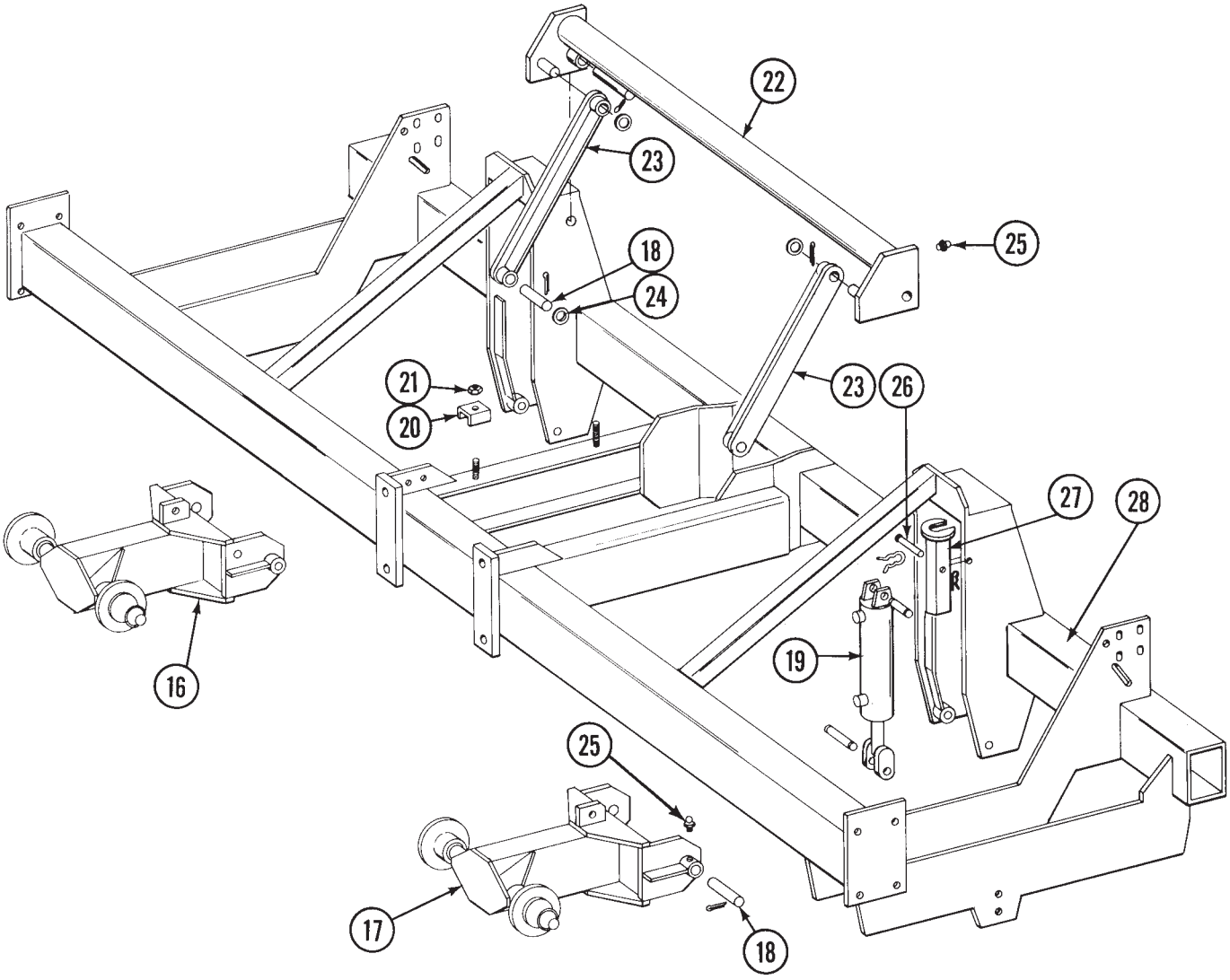
ROCK SHAFT ASSEMBLY - HITCH EXTENSION

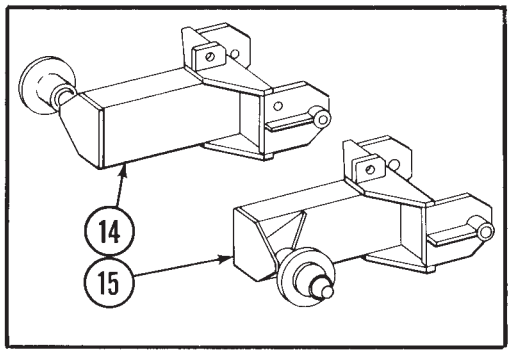


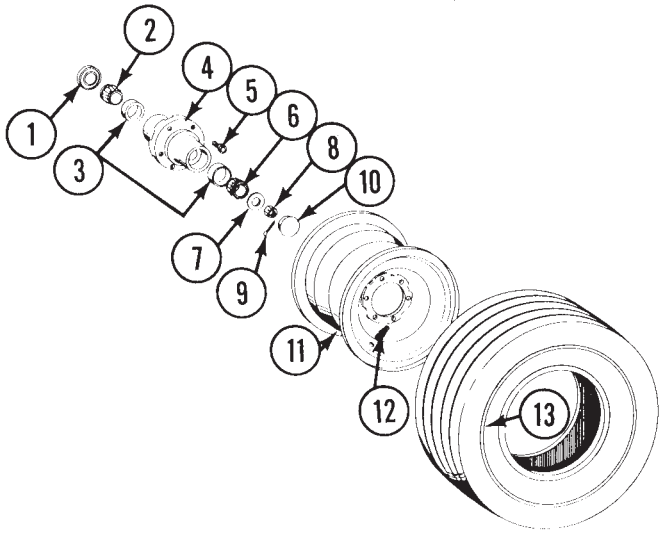
ROCK SHAFT ASSEMBLY - HITCH EXTENSION

ITEM	PART NO.	DESCRIPTION
1.	A1774	Rock Shaft Support, R.H.
2.	A1750	Rock Shaft, R.H., 27 1/8", 4 Row 30
	A1752	Rock Shaft, R.H., 33 1/8", 4 Row 36
	A1754	Rock Shaft, R.H., 35 1/8", 4 Row 38
	A1756	Rock Shaft, R.H., 57 1/8", 6 Row 30
	A1758	Rock Shaft, R.H., 69 1/8", 6 Row 36
	A1760	Rock Shaft, R.H., 73 1/8", 6 Row 38
	A1762	Rock Shaft, R.H., 87 1/8", 8 Row 30
	A1764	Rock Shaft, R.H., 105 1/8", 8 Row 36
	A1766	Rock Sraft, R.H., 111 1/8", 8 Row 38
3.	10045	HHCS, 1/2" - 13 x 4 1/2"
	10111	Lock Nut, 1/2" - 13
4.	10561	Clevis Pin, 1/2" x 3"
	10670	Hair Pin Clip, No. 3
5.	A2244	Lock Up, Cylinder
6.	A1696	Cylinder, 3" x 8"
7.	D2531-1	Sleeve, Spacer
8.	D2589	Pin
9.	10137	Hair Pin Clip, No. 8
10.	A1751	Rock Shaft, L.H., 49 1/8", 4 Row 30
	A1753	Rock Shaft, L.H., 55 1/8", 4 Row 36
	A1755	Rock Shaft, L.H., 57 1/8", 4 Row 38
	A1757	Rock Shaft, L.H., 79 1/8", 6 Row 30
	A1759	Rock Shaft, L.H., 91 1/8", 6 Row 36
	A1761	Rock Shaft, L.H., 95 1/8", 6 Row 38
	A1763	Rock Shaft, L.H., 109 1/8", 8 Row 30
	A1765	Rock Shaft, L.H., 127 1/8", 8 Row 36
	A1767	Rock Shaft, L.H., 133", 8 Row 38
11.	10641	Grease Fitting, 1/8" NPT
12.	A1773	Support, Rock Shaft, L.H.
13.	R193	Clip
14.	R375	Pin
15.	D1134	U-Bolt, 5/8" - 11 x 7" x 5"
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
16.	10102	Hex Nut, 1/2" - 13"
17.	A1747	Chain
18.	D2551	Clevis
19.	10166	Clevis Pin, 3/8" x 1 1/2"
	10467	Cotter Pin, 5/32" x 3/4"
20.	A1738	Center Support, Used on 6 & 8 Row Models Only
21.	A184	Clamp
22.	A1748	Hitch Extension, R.H., For Use With Push Units
23.	A1749	Hitch Extension, L.H., For Use With Push Units
24.	10076	HHCS, 1" - 8 x 3 1/2"
	10118	Lock Washer, 1"
	10117	Hex Nut, 1" - 8
25.	10016	HHCS, 1/2" - 13 x 2"
	10102	Hex Nut, 1/2" - 13
26.	D740	Clamp, Hose
A.	6368X	Kit, Hitch Extension (Items 16, 21-23, 25 and 26)

FRAME AND AXLE ASSEMBLY



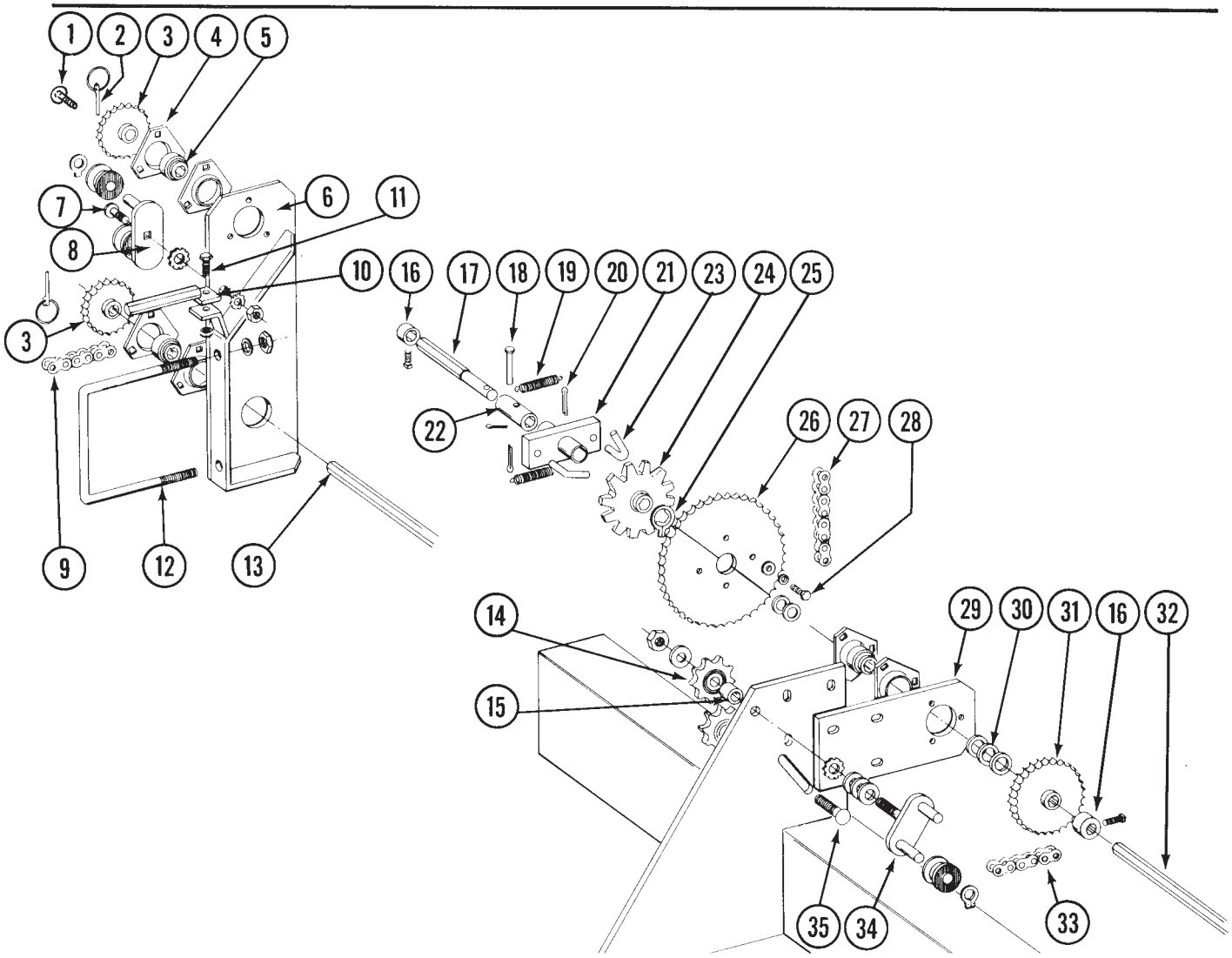




FRAME AND AXLE ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	A239	Seal
2.	A238	Bearing, Inner
3.	R189	Cup, Inner
	R188	Cup, Outer
4.	2700-7	Hub w/bearing cups, 6 bolt, Less bolts
5.	R270	Bolt
6.	A237	Bearing, Outer
7.	10224	Washer, 3/4", Special
8.	10723	Slotted Hex Nut, 3/4" - 16
9.	10459	Cotter Pin, 3/16" x 1 1/2"
10.	2800-1	Cap
11.	A240	Wheel, 14" x 8", 6 bolt
12.	D1165	Valve Stem
13.	D839	Tire, 11L x 14", 4 Row Wide and 6 and 8 Row Models, 6 Ply
	D1896	Tire, 9.5L x 14", 6 ply, 4 Row 30
14.	A1734	Axle less hub, R.H., 4 Row 30, 4 Row Wide
15.	A1735	Axle less hub, L.H., 4 Row 30, 4 Row Wide
16.	A1654	Axle less hubs, R.H., 4 Row Wide (Heavy Duty), 6 Row 30 & Wide, 8 Row 30 & Wide
17.	A1655	Axle less hubs, L.H., 4 Row Wide (Heavy Duty), 6 Row 30 & Wide, 8 Row 30 & Wide
18.	D826	Pin, 1 1/4" x 5 1/2"
	10460	Cotter Pin, 1/4" x 2"
19.	A1739	Cylinder, Lift, 3 1/2" x 10", 4 Row 30 and 4 RowWide
	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30, 6 Row Wide, 8 Row 30, 8 Row Wide and 4 Row Wide (Heavy Duty)
20.	D1656	Clamp, Hose
21.	10108	Lock Nut, 3/8" - 16
22.	A1730	Tube , 4 Row 30, 43"
	A1731	Tube, 4 Row 36, 38 & 40, 59 1/4"
	A1647	Tube, 6 Row 30, and 8 Row 30, 73"
	A1799	Tube, 6 Row 36, 91"
	A1732	Tube, 6 Row 38, 97"
	A1800	Tube, 6 Row 40, 103"
	A1801	Tube, 8 Row 36, 127"
	A1733	Tube, 8 Row 38, 135"
	A1802	Tube, 8 Row 40, 143"
23.	A1646	Link
24.	10159	Machine Bushing, 1 1/4", 10 Ga.
25.	10641	Grease Fitting, 1/8", NPT
26.	10561	Clevis Pin, 1/2" x 3"
	10670	Hair Pin Clip, No. 3
27.	A1785	Lock Up, Cylinder
28.	A1660	Frame, 4 Row 30, 123"
	A1661	Frame, 4 Row 36, 38 and 40, 149"
	A1662	Frame, 6 Row 30, 183"
	A1793	Frame, 6 Row 36, 227"
	A1663	Frame, 6 Row 38, 227"
	A1794	Frame, 6 Row 40, 237"
	A1664	Frame, 8 Row 30, 243"
	A1795	Frame, 8 Row 36, 299"
	A1665	Frame, 8 Row 38, 299"
	A1796	Frame, 8 Row 40, 299"
A.	A541	Wheel and Tire Assembly, 11L x 14" (Items 11-13) 4 Row Wide, 6 Row Models and 8 Row Models
B.	A942	Wheel and Tire Assembly, 9.5L x 14" (Items 11-13) 4 Row 30

REAR TRANSMISSION — DRIVE LINE (R.H. SIDE)

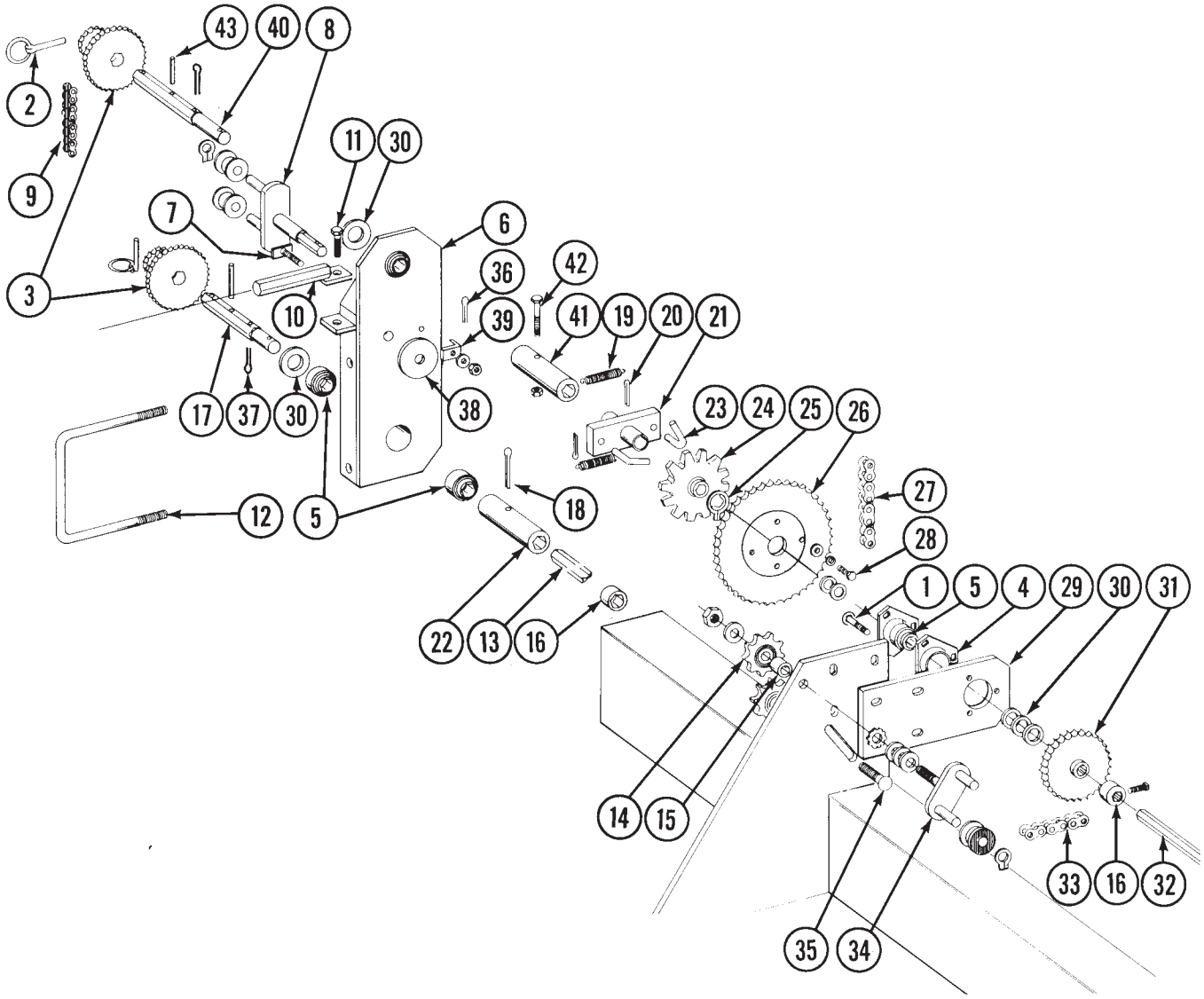


ITEM	PART NO.	DESCRIPTION
1.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
2.	D2558	Pin, Lynch, 1/4"
3.	2500-25	Sprocket, 14 Tooth
	2500-26	Sprocket, 18-28 Tooth
	2500-27	Sprocket, 16-30 Tooth
	2500-28	Sprocket, 22-26 Tooth
4.	3400-1	Flangette
5.	2100-3	Bearing, 7/8 Hex Bore
6.	A1729	Plate, Transmission
7.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
	10527	Lock Washer, Int./Ext., 1/2"
	10216	Washer, 1/2" USS
	10102	Hex Nut, 1/2" - 13
8.	A289	Idler w/Spools and Retaining Rings
	D1067	Spool
	10435	Ring, 5/8"
9.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link, No. 2040
10.	A1786	Rod, Sprocket Storage
11.	10019	HHCS, 5/16" - 18 x 1"
	10106	Hex Nut, 5/16" - 18
	10232	Lock Washer, 5/16"

REAR TRANSMISSION — DRIVE LINE (R.H. SIDE) Style A

ITEM	PART NO.	DESCRIPTION
12.	D1113	U-Bolt, 5" x 7" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
13.	D2548-112	Drill Shaft, 7/8 Hex, 4 Row 30
	D2548-140	Drill Shaft, 7/8 Hex, 4 Row Wide
	D2548-172	Drill Shaft, 7/8 Hex, 6 Row 30
	D2548-215	Drill Shaft, 7/8 Hex, 6 Row Wide
	D2548-222	Drill Shaft, 7/8 Hex, 6 Row 40
	D2548-232	Drill Shaft, 7/8 Hex, 8 Row 30
	D2548-144	Drill Shaft, 7/8 Hex, 8 Row Wide
	D914-144	Drill Shaft, 7/8 Hex, 8 Row Wide
14.	A262	Sprocket, Idler, 15T
15.	B123	Bushing
16.	D917	Lock Collar, less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
17.	D2543	Shaft, Top Transmission
18.	10558	Clevis Pin, 5/16" x 1 3/4"
	10456	Cotter Pin, 1/8" x 3/4"
19.	D1256	Spring
20.	10464	Cotter Pin, 3/16" x 1"
21.	A378	Block and Hub Assembly
22.	D2567	Coupler
23.	D1255	"L" Pin
24.	A376	Hub/Sprocket Assembly
25.	10430	Ring 1 1/4"
26.	A2359	Sprocket, 4;T (Extended Drill Sprocket)
27.	3200-76	Chain, No. 2050, 76 Pitch Including Connector Link
	3200-6	Chain, No. 2050, (Add to chain when using extended drill sprocket)
	R195	Connector Link, No. 2050
28.	10002	HHCS, 3/8" - 16 x 3/4"
	10229	Lock Washer, 3/8"
29.	D1663	Plate
30.	10233	Machinery Bushing, 1"
31.	2500-15	Sprocket, 32T
32.	D914-102	Drive Shaft, 7/8 Hex, 4 Row 30
	D914-130	Drive Shaft, 7/8 Hex, 4 Row Wide
	D914-162	Drive Shaft, 7/8 Hex, 6 Row 30
	D914-206	Drive Shaft, 7/8 Hex, 6 Row Wide
	D914-218	Drive Shaft, 7/8 Hex, 6 Row 40
	D914-222	Drive Shaft, 7/8 Hex, 8 Row 30
	D914-105	Drive Shaft, 7/8 Hex, 8 Row Wide
	D914-138	Drive Shaft, 7/8 Hex, 8 Row Wide
33.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
34.	A1777	Idler w/Spools and Retaining Rings
	D1067	Spool
	10435	Ring, 5/8"
	10107	Lock Nut, 5/8" - 11
	10205	Washer, 5/8" SAE
35.	10009	HHCS, 5/8" - 11 x 2 1/2"
	10107	Lock Nut, 5/8" - 11
	10205	Washer, 5/8" SAE
A.	A261R	Ratchet Clutch Assembly, R.H. (Items 19, 20, 21, 23, 24, and 25)
B.	6211X	Extended Drill Sprocket Package Includes: (2) A2359 (2) 3200-6 (8) 10002 (8) 10229

REAR TRANSMISSION — DRIVE LINE (R.H. SIDE) Style B

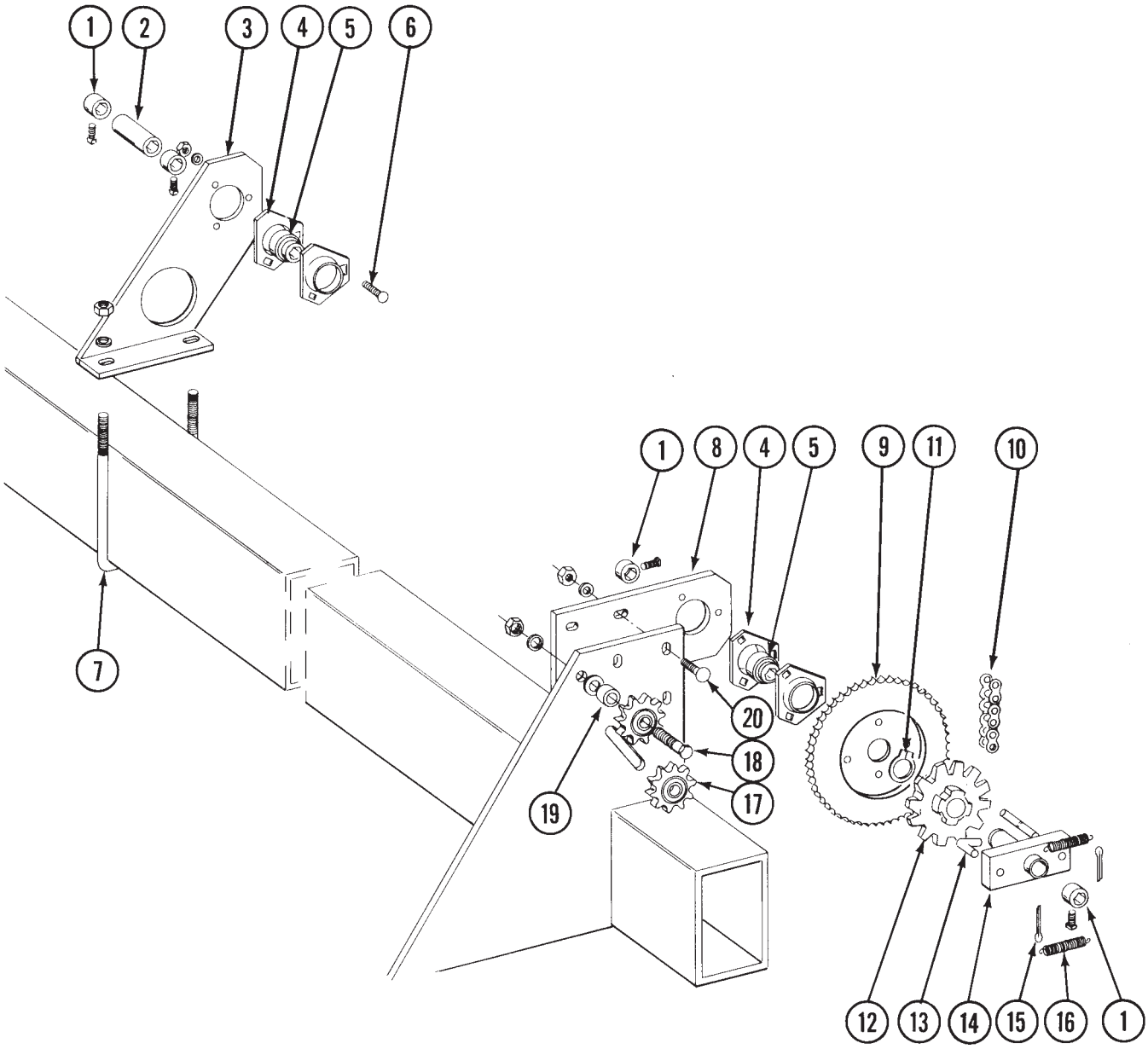


ITEM	PART NO.	DESCRIPTION
1.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
2.	D2558	Pin, Lynch, 1/4"
3.	2500-25	Sprocket, 14 Tooth
	2500-26	Sprocket, 18-28 Tooth
	2500-27	Sprocket, 16-30 Tooth
	2500-28	Sprocket, 22-26 Tooth
4.	3400-1	Flangette
5.	2100-3	Bearing, 7/8" Hex Bore
6.	A3420	Plate, Transmission
7.	A3428	T-Bolt
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
8.	A503	Idler w/Spools and Retaining Rings
	D1067	Spool
	10435	Ring, 5/8"
9.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link, No. 2040
10.	A1786	Rod, Sprocket Storage
11.	10019	HHCS, 5/16" - 18 x 1"
	10106	Hex Nut, 5/16" - 18
	10232	Lock Washer, 5/16"

REAR TRANSMISSION — DRIVE LINE (R.H. SIDE) Style B

ITEM	PART NO.	DESCRIPTION
12.	D1113	U-Bolt, 5" x 7" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
13.	D914-105	Drill Shaft, 7/8 Hex, 4 Row 30
	D914-133	Drill Shaft, 7/8 Hex, 4 Row Wide
	D914-165	Drill Shaft, 7/8 Hex, 6 Row 30
	D914-208	Drill Shaft, 7/8 Hex, 6 Row 36 and 38
	D914-215	Drill Shaft, 7/8 Hex, 6 Row 40
	D914-225	Drill Shaft, 7/8 Hex, 8 Row 30
	D914-137	Drill Shaft, 7/8 Hex, 8 Row Wide
	D914-144	Drill Shaft, 7/8 Hex, 8 Row Wide
14.	A262	Sprocket, Idler, 15T
15.	B123	Bushing
16.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
17.	D4484	Shaft, Bottom
18.	10462	Cotter Pin, 3/16" x 2"
19.	D1256	Spring
20.	10464	Cotter Pin, 3/16" x 1"
21.	A378	Block and Hub Assembly
22.	D4504	Coupler
23.	D1255	"L" Pin
24.	A376	Hub/Sprocket Assembly
25.	10430	Ring 1 1/4"
26.	A2359	Sprocket, 48T (Extended Drill Sprocket)
27.	3200-76	Chain, No. 2050, 76 Pitch Including Connector Link
	3200-6	Chain, No. 2050, (Add to chain when using extended drill sprocket)
	R195	Connector Link, No. 2050
28.	10002	HHCS, 3/8" - 16 x 3/4"
	10229	Lock Washer, 3/8"
29.	D1663	Plate
30.	10233	Machinery Bushing, 1"
31.	2500-15	Sprocket, 32T
32.	D914-105	Drive Shaft, 7/8 Hex, 4 Row 30
	D914-133	Drive Shaft, 7/8 Hex, 4 Row Wide
	D914-165	Drive Shaft, 7/8 Hex, 6 Row 30
	D914-208	Drive Shaft, 7/8 Hex, 6 Row, 36 and 38
	D914-220	Drive Shaft, 7/8 Hex, 6 Row 40
	D914-225	Drive Shaft, 7/8 Hex, 8 Row 30
	D914-107	Drive Shaft, 7/8 Hex, 8 Row Wide
	D914-138	Drive Shaft, 7/8 Hex, 8 Row Wide
33.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
34.	A1777	Idler w/Spools and Retaining Rings
	D1067	Spool
	10435	Ring, 5/8"
	10107	Lock Nut, 5/8" - 11
	10205	Washer, 5/8" SAE
35.	10009	HHCS, 5/8" - 11 x 2 1/2"
	10107	Lock Nut, 5/8" - 11
	10205	Washer, 5/8" SAE
36.	10670	Hair Pin Clip, No. 3
37.	10465	Cotter Pin, 1/4" x 1 1/4"
38.	A1668	Lock, Idler
39.	D2495	Angle, Idler Lock
40.	D4748	Shaft, Top
41.	D4749	Coupler
42.	10339	HHCS, 1/2" - 13 x 2", Grade 2
	10109	Lock Nut, 1/2" - 13
43.	10602	Spring Pin, 1/4" x 1 1/2"
A.	A261R	Ratchet Clutch Assembly, R.H. (Items 19, 20, 21, 23, 24, and 25)
B.	6211X	Extended Drill Sprocket Package Includes: (2) A2359 (8) 10002 (2) 3200-6 (8) 10229

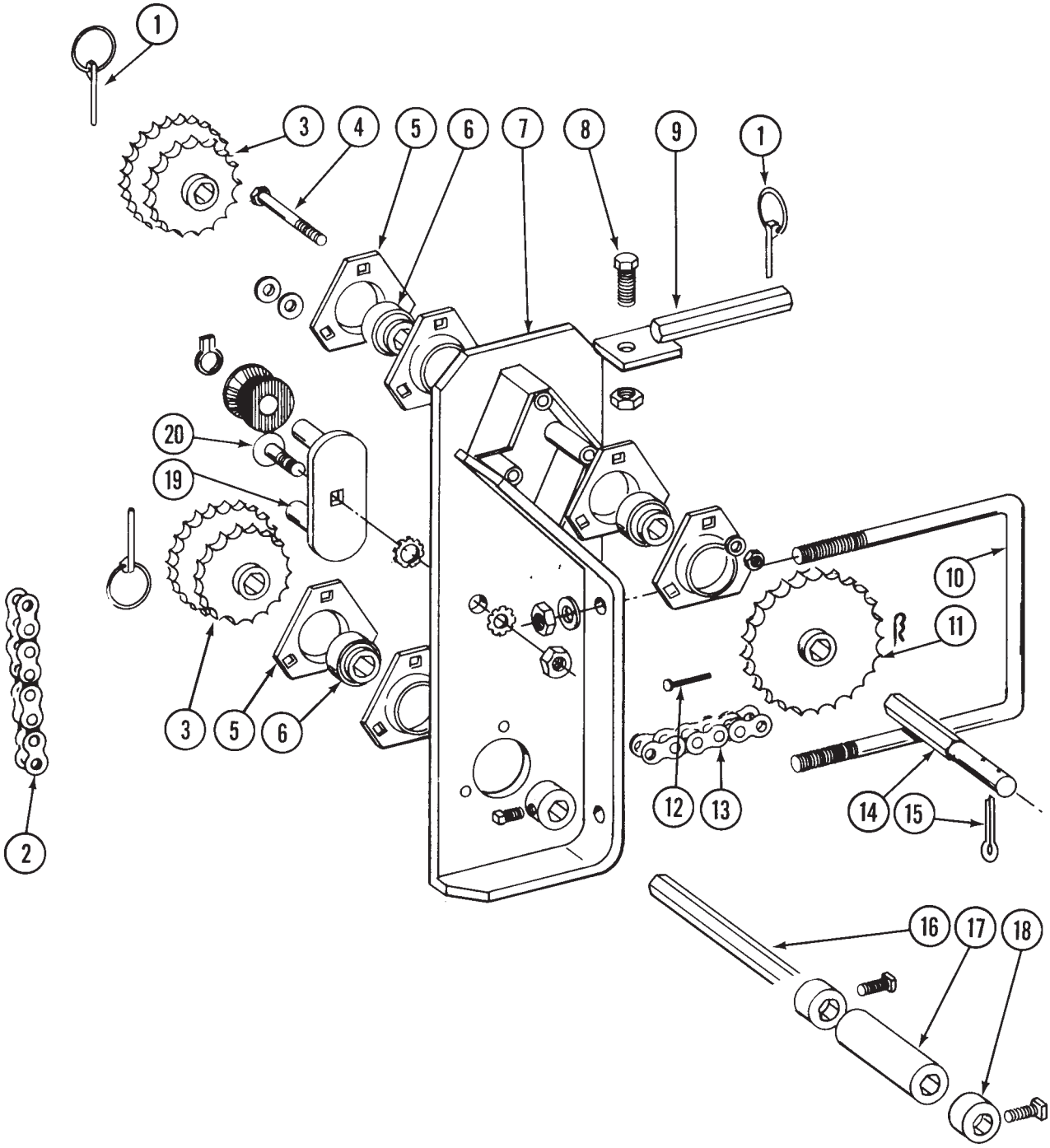
DRIVE LINE (L.H. SIDE)



DRIVE LINE (L.H. SIDE)

ITEM	PART NO.	DESCRIPTION
1.	D917	Lock Collar, less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
2.	D1719	Coupler, Used on 8R Wide Only
3.	A1784	Support, Center Bearing
4.	3400-1	Flangette
5.	2100-3	Bearing, 7/8 Hex Bore
6.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
7.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
8.	D1663	Plate
9.	A2359	Sprocket, 48T (Extended Drill Sprocket)
10.	3200-76	Chain, No. 2050, 76 Pitch Including Connector Link
	3200-6	Chain, No. 2050, (Add to chain when using extended drill sprocket)
	R195	Connector Link, No. 2050
11.	10430	Ring, 1 1/4"
12.	A376	Hub/Sprocket Assembly
13.	D1255	"L" Pin
14.	A378	Block and Hub Assembly
15.	10464	Cotter Pin, 3/16" x 1"
16.	D1256	Spring
17.	A262	Sprocket, Idler, 15T
18.	10009	HHCS, 5/8" - 11 x 2 1/2"
	10205	Washer, 5/8", SAE
	10107	Lock Nut, 5/8" - 11
19.	B123	Bushing
20.	10301	Carriage Bolt, 3/8" - 16 x 1½", Grade 2
	10210	Washer, 3/8" USS
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
A.	A261L	Ratchet Clutch Assembly Complete, L.H. (Items 11-16)
B.	6211X	Extended Drill Sprocket Package Includes: (2) A2359 (2) 3200-6 (8) 10002 (8) 10229

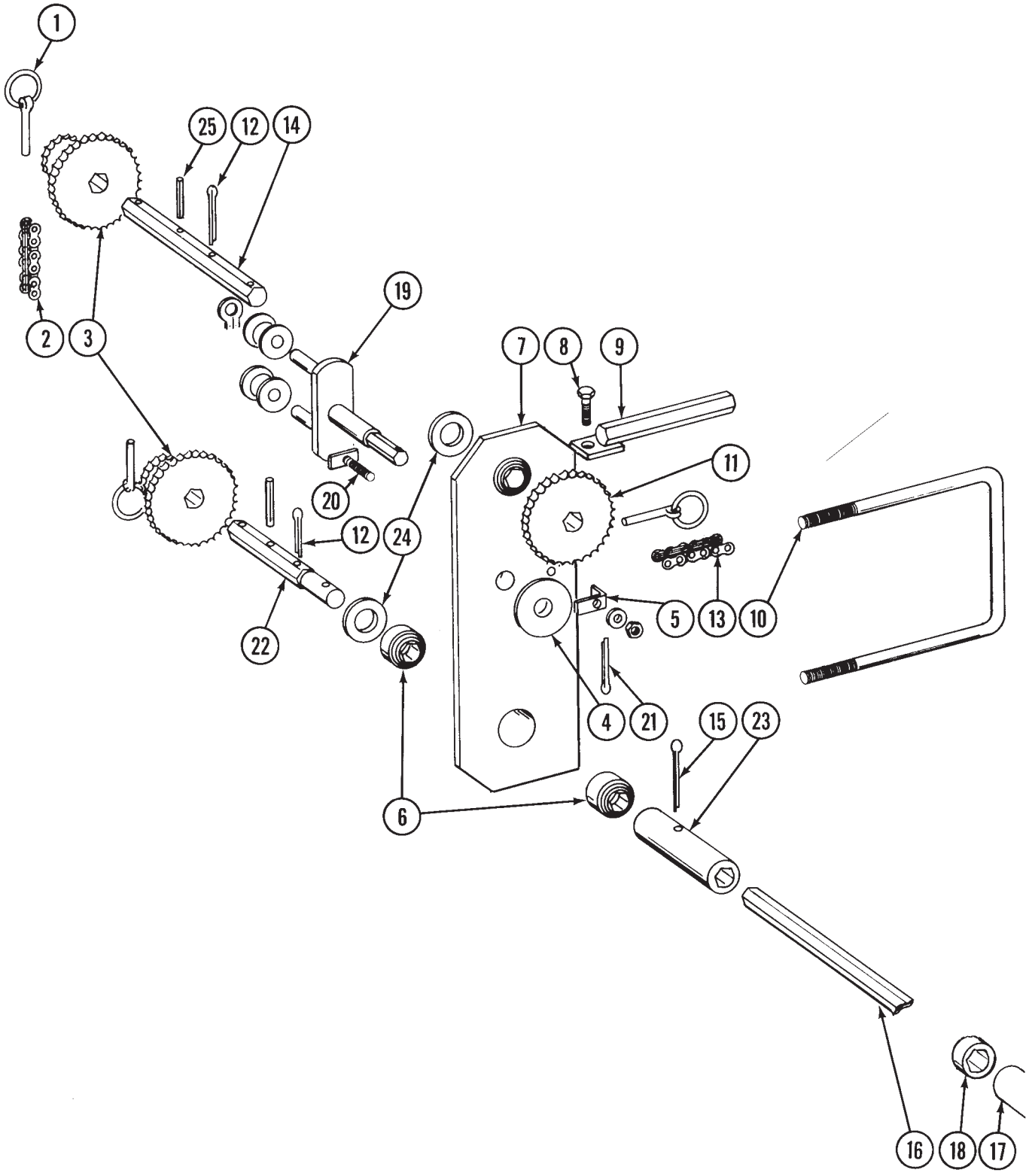
FRONT TRANSMISSION - PUSH UNIT



FRONT TRANSMISSION - PUSH UNIT — Style A

ITEM	PART NO.	DESCRIPTION
1.	D2558	Pin, Lynch, 1/4"
2.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link
3.	2500-25	Sprocket, 14 Tooth
	2500-26	Sprocket, 18-28 Tooth
	2500-27	Sprocket, 16-30 Tooth
	2500-28	Sprocket, 22-26 Tooth
4.	10069	HHCS, 5/16" - 18 x 2 1/4"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16"
5.	3400-1	Flangette
6.	2100-3	Bearing, 7/8 Hex Bore
7.	A1728	Plate, Transmission
8.	10019	HHCS, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16"
9.	A1786	Rod, Sprocket Storage
10.	D1113	U-Bolt, 7" x 5" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
11.	2500-21	Sprocket, 32 Tooth
12.	10558	Clevis Pin, 5/16" x 1 3/4"
	10456	Cotter Pin, 5/16" x 1 3/4"
13.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
14.	D2961	Shaft, Top Transmission, Push Unit
15.	10463	Cotter Pin, 1/4" x 1 1/2"
16.	D2548-90	Drill Shaft, 7/8 Hex, 4 Row 30
	D2548-100	Drill Shaft, 7/8 Hex, 4 Row Wide
	D2548-150	Drill Shaft, 7/8 Hex, 6 Row 30
	D2548-185	Drill Shaft, 7/8 Hex, 6 Row Wide
	D2548-210	Drill Shaft, 7/8 Hex, 8 Row 30
	D2548-84	Drill Shaft, 7/8 Hex, 8 Row Wide
	D2548-180	Drill Shaft, 7/8 Hex, 8 Row Wide
17.	D1719	Coupler, 8 Row Wide Only
18.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
19.	A289	Idler with Spools and Rings
	D1067	Spool
	10435	Ring, 5/8"
20.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
	10527	Lock Washer, Int./Ext., 1/2"
	10216	Washer, 1/2" USS
	10102	Hex Nut, 1/2" - 13

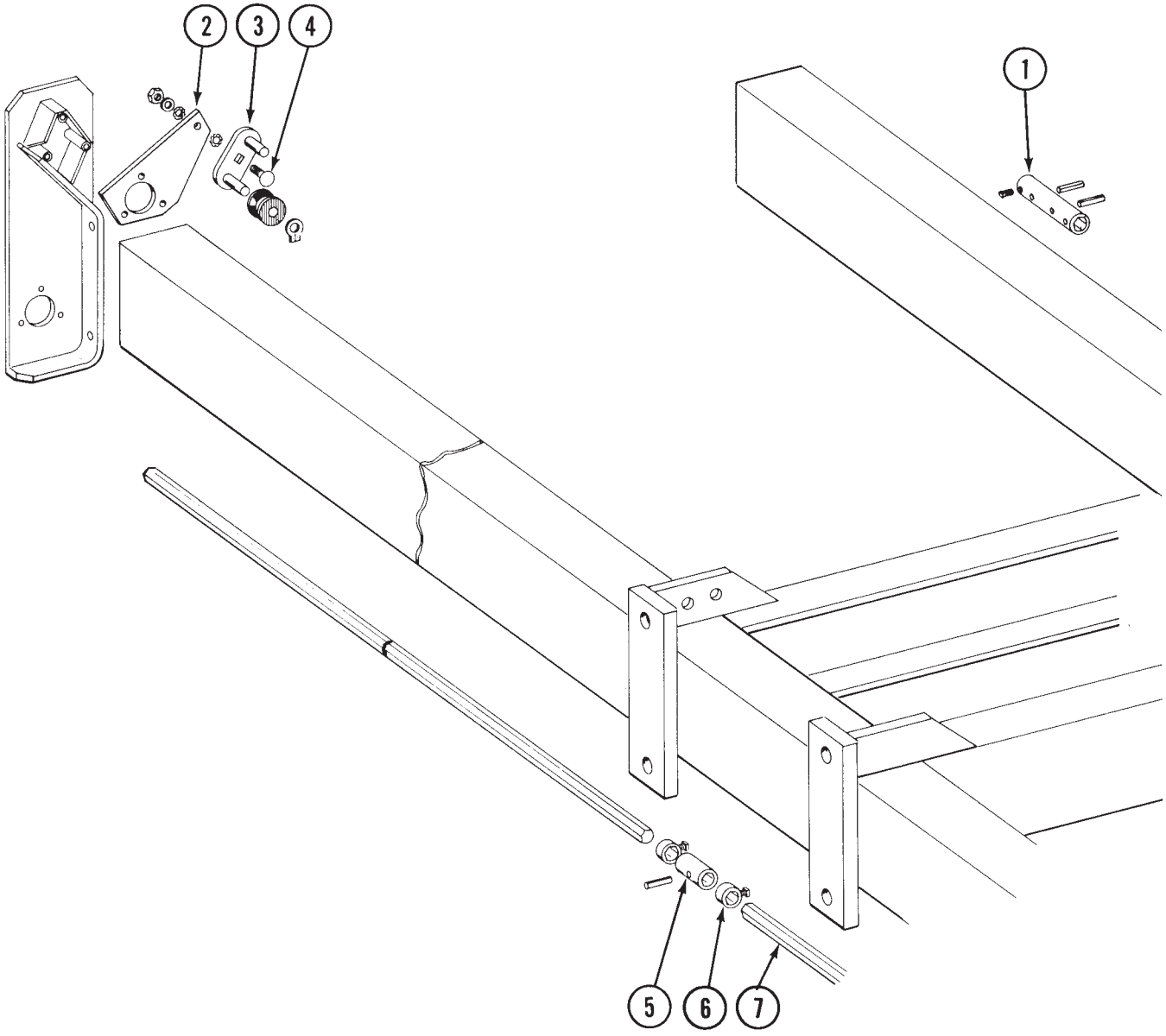
FRONT TRANSMISSION - PUSH UNIT STYLE B



FRONT TRANSMISSION - PUSH UNIT STYLE B

ITEM	PART NO.	DESCRIPTION
1.	D2558	Pin, Lynch, 1/4"
2.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link
3.	2500-25	Sprocket, 14 Tooth
	2500-26	Sprocket, 18-28 Tooth
	2500-27	Sprocket, 16-30 Tooth
	2500-28	Sprocket, 22-26 Tooth
4.	A1668	Lock, Idler
5.	D2495	Angle, Idler Lock
6.	2100-3	Bearing, 7/8 Hex Bore
7.	A3424	Plate, Transmission
8.	10019	HHCS, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16"
9.	A1786	Rod, Sprocket Storage
10.	D1113	U-Bolt, 7" x 5" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
11.	2500-15	Sprocket, 32 Tooth
12.	10465	Cotter Pin, 1/4" x 1 1/4"
13.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
14.	D4537	Shaft, Top
15.	10462	Cotter Pin, 3/16" x 2"
16.	D2548-90	Drill Shaft, 7/8 Hex, 4 Row 30
	D2548-100	Drill Shaft, 7/8 Hex, 4 Row Wide
	D914-145	Drill Shaft, 7/8 Hex, 6 Row 30
	D914-180	Drill Shaft, 7/8 Hex, 6 Row Wide
	D914-205	Drill Shaft, 7/8 Hex, 8 Row 30
	D2548-84	Drill Shaft, 7/8 Hex, 8 Row Wide
	D914-175	Drill Shaft, 7/8 Hex, 8 Row Wide
17.	D1719	Coupler, 8 Row Wide Only
18.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
19.	A503	Idler with Spools and Rings
	D1067	Spool
	10435	Ring, 5/8"
20.	A3428	T-Bolt
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
21.	10670	Hair Pin Clip, No. 3
22.	D4484	Shaft, Bottom
23.	D4504	Coupler
24.	10233	Bushing, Machine
25.	10602	Spring Pin, 1/4" x 1 1/2"

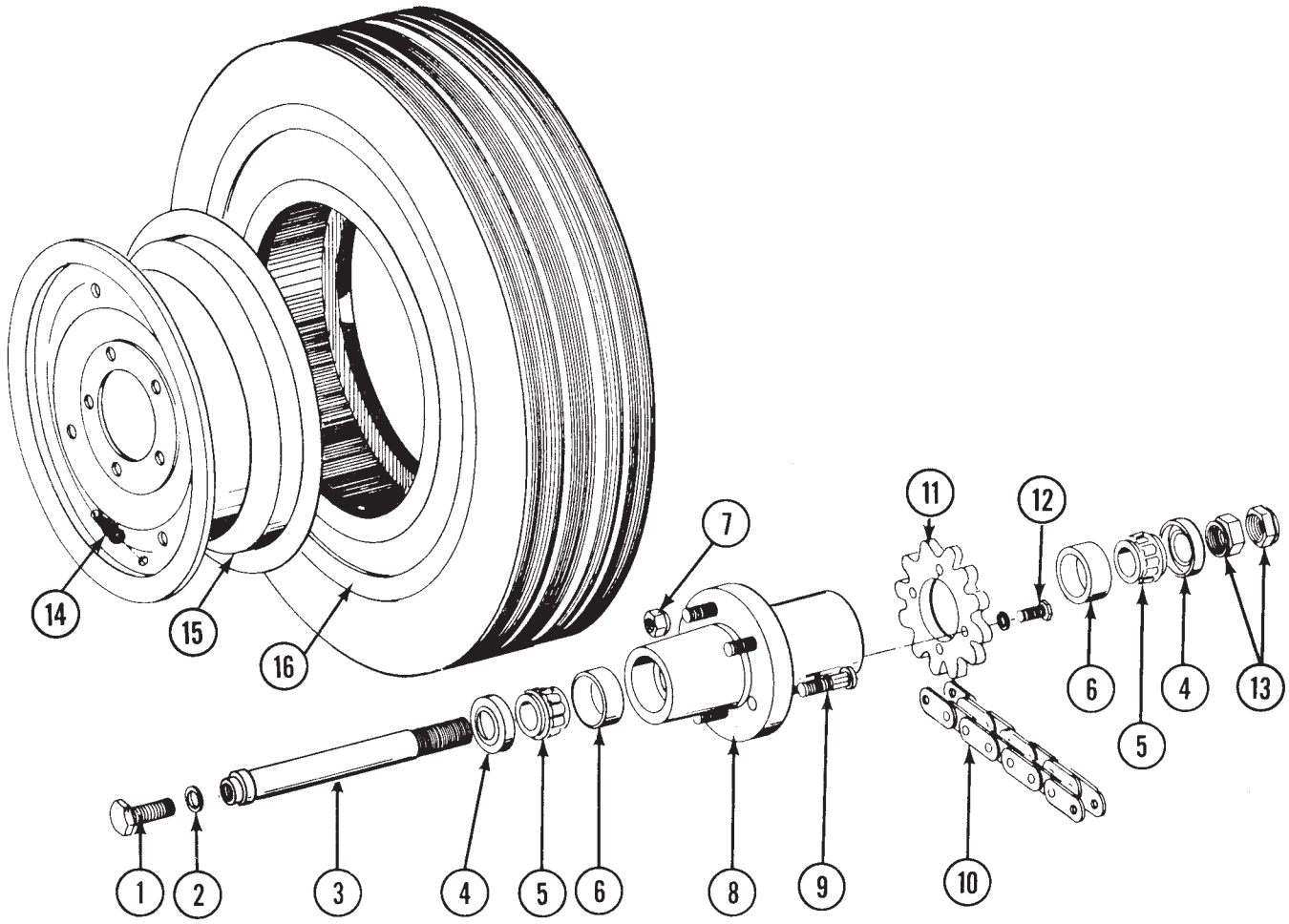
SPECIAL 10" ROW SPACING DRIVE — Style A



SPECIAL 10" ROW SPACING DRIVE

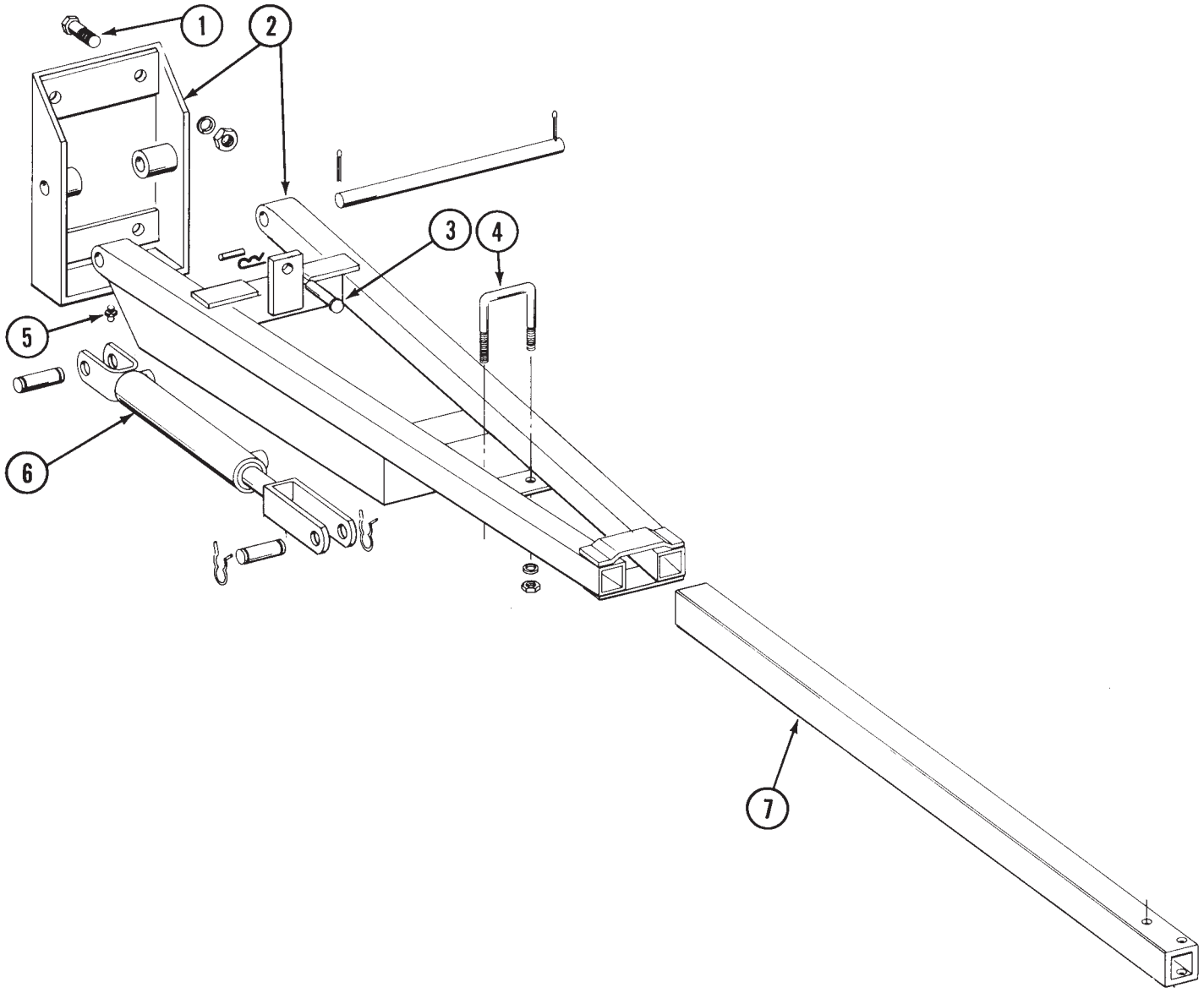
ITEM	PART NO.	DESCRIPTION
1.	D2781	Coupler, Less Pins and Screws
	10145	Set Screw, 5/16" x 18 x 1/2"
	10602	Spring Pin, Slotted, 1/4" x 1 1/2"
2.	D2780	Plate, Idler Mount
3.	A289	Idler with Spools and Rings
	D1067	Spool
	10435	Ring
4.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
	10527	Lock Washer, Internal/External, 1/2"
	10216	Flat Washer, 1/2" USS
	10102	Hex Nut, 1/2" - 13
5.	D2782	Coupler, Less Pin
	10602	Spring Pin, Slotted, 1/4" x 1 1/2"
6.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
7.	D914-48	Drill Shaft, 7/8 Hex, 4 Row Wide
A.	6462X	Special 10" Row Spacing Kit (Items 1 thru 6)

DRIVE GAUGE WHEEL ASSEMBLY



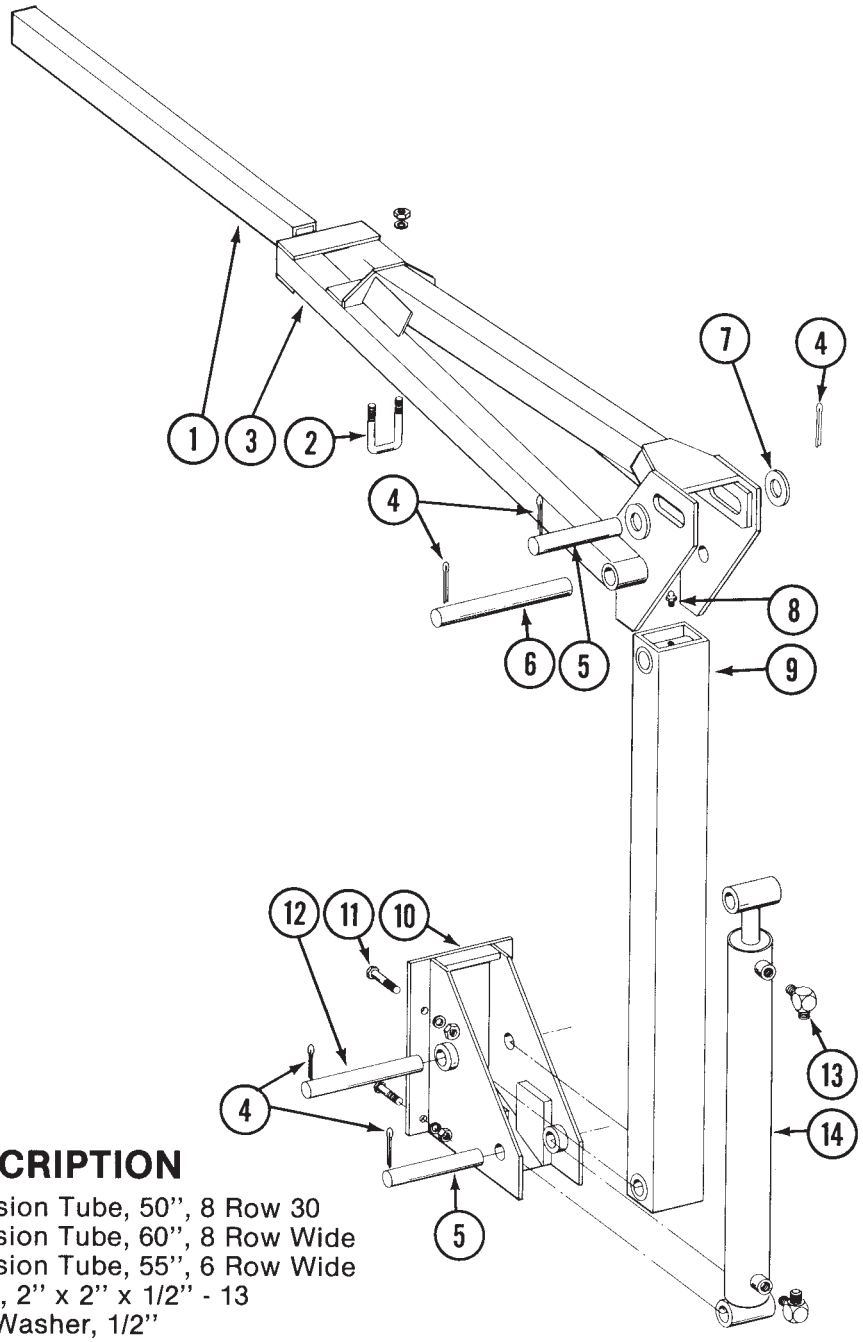
ITEM	PART NO.	DESCRIPTION
1.	10026	HHCS, 3/4" - 10 x 2"
2.	10231	Lock Washer, 3/4"
3.	A2257	Spindle
4.	A252	Seal, Grease
5.	A251	Bearing
6.	R190	Cup
7.	R267	Nut, Wheel, 1/2" - 20 UNF
8.	A547	Hub, w/Cups and Studs
9.	R204	Stud, 1/2" - 20 UNF x 1 7/8"
10.	3200-77	Chain, No. 2050, 76 Pitch Including Connector Link
	3200-6	Chain, No. 2050 (Add to chain when using extended drill sprocket)
	R195	Connector Link, No. 2050
11.	2500-17	Sprocket, Bolt-on, 12 Tooth
12.	10019	HHCS, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
13.	D831	Nut, Shoulder, 1 1/4"
14.	D1166	Valve Stem
15.	A241	Wheel, 15" x 5, 5 bolt
16.	D844	Tire, 7.60 x 15", 4 ply
A.	A683	Drive Hub Assembly (Items 1-9 and 11-13)
B.	A374	Tire and Rim Assembly, 7.60 x 15" (Items 14-16)

CONVENTIONAL MARKER ASSEMBLY



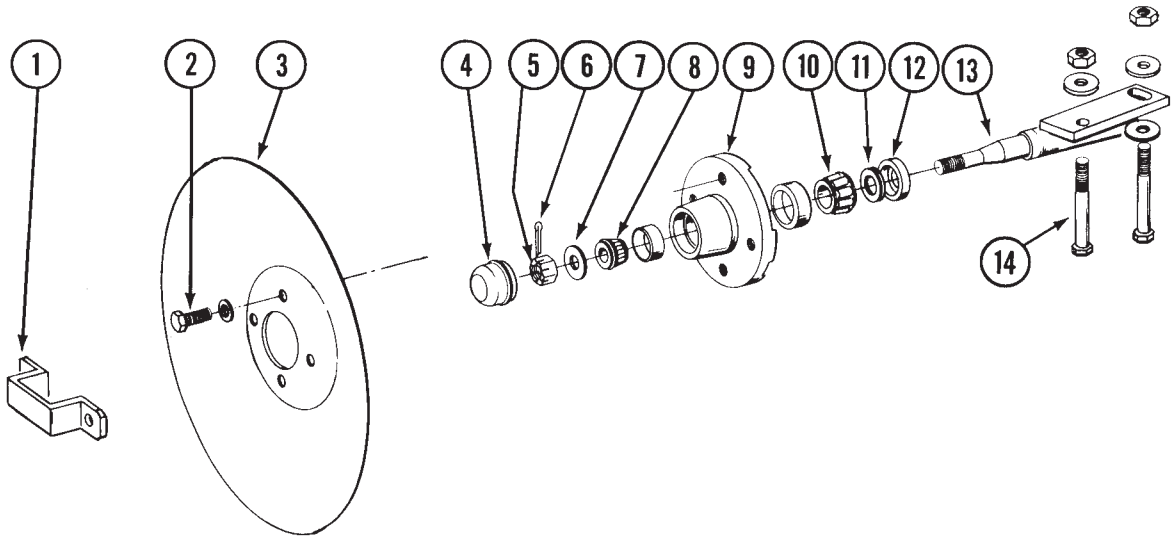
ITEM	PART NO.	DESCRIPTION
1.	10167	HHCS, 1/2" - 13 x 2", Grade 2
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
2.	A2292	Arm w/Mount and Pin, 45", 4 Row 30 and 4 Row Wide
	A2293	Arm w/Mount and Pin, 64", 6 Row 30
	A2294	Mount
	D438	Pin, 13 1/2"
	10460	Cotter Pin, 1/4" x 2"
3.	D462	Pin, Lock-Up
	10670	Hair Pin Clip, No. 3
	10187	Roll Pin, 5/32" x 1"
4.	D2721	U-Bolt, 2" x 2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
5.	10640	Grease Fitting, 1/4" - 28
6.	A1674A	Cylinder, 2" x 8"
	A1674B	Cylinder, 2" x 8"
7.	D453-6	Extension Tube, 30", 4 Row 30
	D453-2	Extension Tube, 40", 6 Row 30
	D453-3	Extension Tube, 50", 4 Row Wide

DOUBLE FOLD MARKER ASSEMBLY



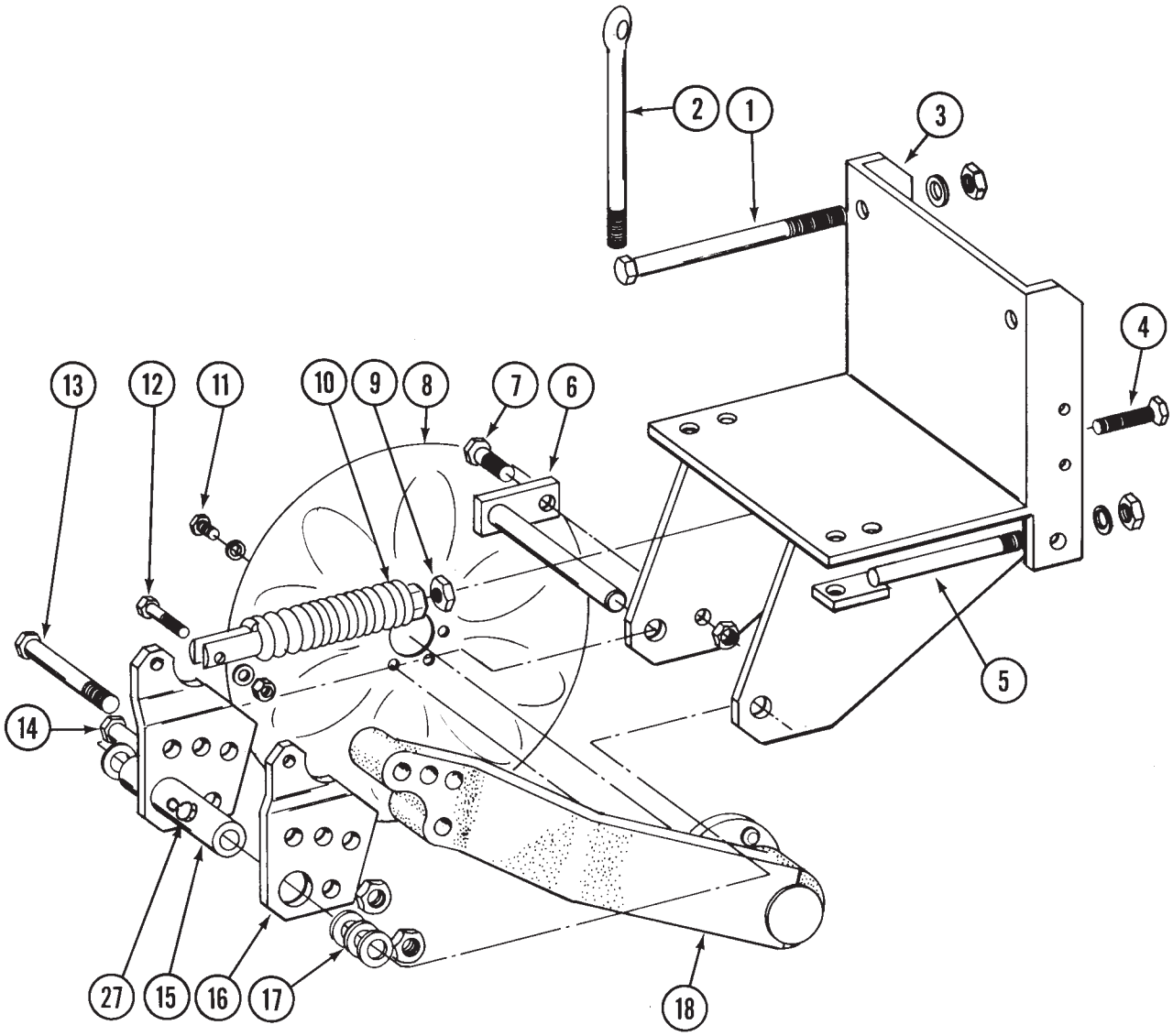
ITEM	PART NO.	DESCRIPTION
1.	D453-3	Extension Tube, 50", 8 Row 30
	D453-4	Extension Tube, 60", 8 Row Wide
	D453-5	Extension Tube, 55", 6 Row Wide
2.	D2721	U-Bolt, 2" x 2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
3.	A2299	Arm, Second Stage, 35", 6 Row Wide
	A2300	Arm, Second Stage, 46", 8 Row 30
	A2301	Arm, Second Stage, 67", 8 Row Wide
4.	10460	Cotter Pin, 1/4" x 2"
5.	D1701	Pin, 1 1/4" x 6 1/2"
6.	D1702	Pin, 1 1/4" x 10 1/4"
7.	10226	Washer, 1 1/4" SAE
8.	10641	Grease Fitting, 1/8" NPT
9.	A828	Arm, First Stage, 38"
10.	A827	Mount
11.	10167	HHCS, 1/2" - 13 x 2", Grade 2
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
12.	D653	Pin, 1 1/4" x 7 3/4"
13.	2501-8-8	Elbow, 90°
14.	A1659	Cylinder, 2" x 20"

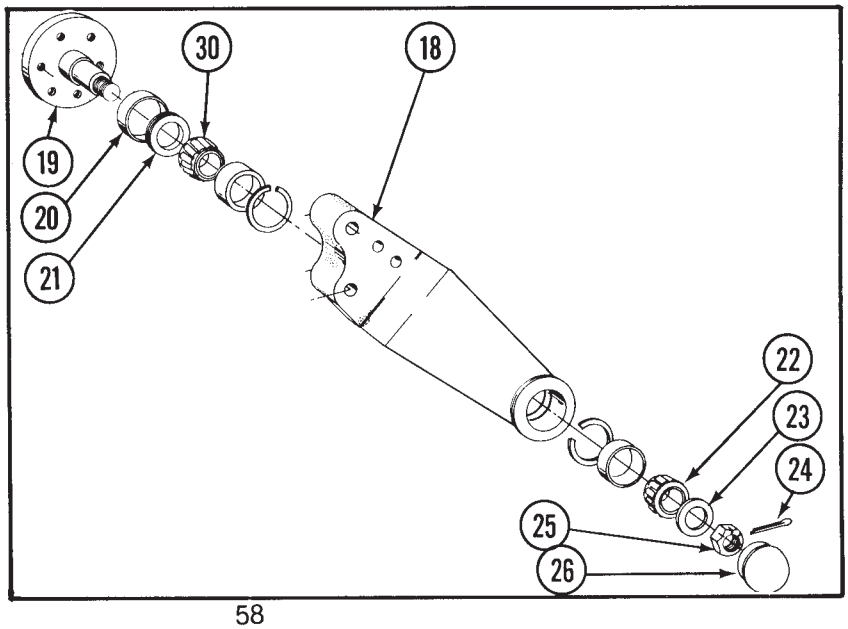
MARKER HUB ASSEMBLY



ITEM	PART NO.	DESCRIPTION
1.	D2597	Retainer
2.	10722	HHCS, 1/2" - 20 x 1"
	10228	Lock Washer, 1/2"
3.	D746	Blade, 16"
4.	D840	Cap
5.	10725	Hex Nut, Slotted, 5/8" - 18
6.	10470	Cotter Pin, 5/32" x 1"
7.	10724	Washer, 5/8"
8.	A257	Bearing, Outer
9.	A167	Hub w/cups
	R151	Cup, Outer
	R150	Cup, Inner
10.	A245	Bearing Inner
11.	A899	Seal, Rubber
12.	A243	Seal, Grease
13.	A1677	Spindle, L.H., Less Hardware (Shown)
	A1676	Spindle, R.H. Less Hardware
14.	10033	HHCS, 1/2" - 13 x 3 1/2"
	10168	Machinery Bushing, 1/2", 7 Ga.
	10102	Hex Nut, 1/2" - 13
A.	A1679	Hub and Spindle Assembly L.H. (Items 2 and 4-13)
	A1678	Hub and Spindle Assembly R.H. (Items 2 and 4-13)

FRAME MOUNTED COULTER ASSEMBLY

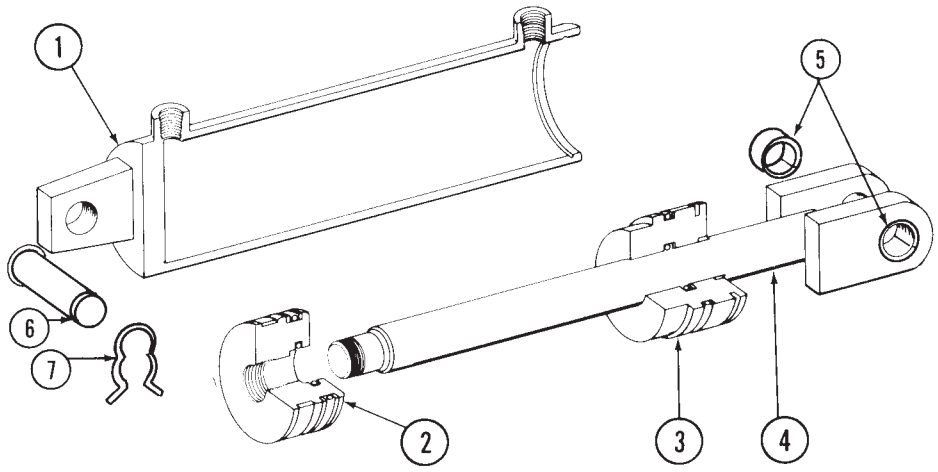




FRAME MOUNTED COULTER ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	10057	HHCS, 3/4" - 10 x 7"
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
2.	D830	Eye Bolt, 3/4" - 10 x 9"
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
3.	A1695	Coulter Mount
4.	D962	Hex Head Adjusting Bolt, 5/8" - 18
5.	A1688	Tie Bolt
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
6.	A1689	Hammer Strap
7.	10017	HHCS, 1/2" - 13 x 1 1/2"
	10111	Lock Nut, 1/2" - 13
8.	D1105	Fluted Blade, 16"
	D1106	Ripple Blade, 16"
9.	10499	Jam Nut, 5/8" - 18
10.	A2356	Spring
11.	10002	HHCS, 3/8" - 16 x 3/4"
	10229	Lock Washer, 3/8"
12.	10016	HHCS, 1/2" - 13 x 2"
	10216	Flat Washer, 1/2" USS
	10111	Lock Nut, 1/2" - 13
13.	10036	HHCS, 5/8" - 11 x 4"
	10107	Lock Nut, 5/8" - 11
14.	10044	HHCS, 3/4" - 10 x 4"
	10112	Lock Nut, 3/4" - 10
15.	A1692	Mount
16.	D2511	Plate
17.	10526	Machine Bushing
18.		Coulter Arm, Includes Cups and Snap Rings (See Kinze Row Unit Manual)
19.		Spindle (See Kinze Row Unit Manual)
20.		Seal Ring (See Kinze Row Unit Manual)
21.		Seal (See Kinze Row Unit Manual)
22.		Bearing (See Kinze Row Unit Manual)
23.		Flat Washer, 1" SAE (See Kinze Row Unit Manual)
24.		Cotter Pin, 3/16" x 1 1/2" (See Kinze Row Unit Manual)
25.		Slotted Jam Nut, 1" UNF (See Kinze Row Unit Manual)
26.		Cap (See Kinze Row Unit Manual)
27.	10641	Grease Fitting, 1/8" NPT, 45°

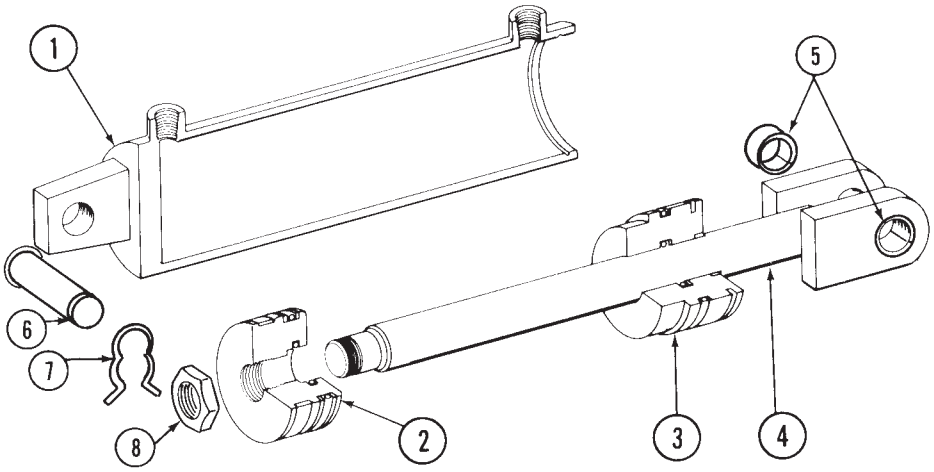
LIFT CYLINDER -PUSH UNIT



ITEM	PART NO.	DESCRIPTION
1.	R554	Tube Assembly
2.	R556	Piston
3.	R555	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
*A.	A1696	Cylinder, Lift, Complete 3" x 8"
B.	R557	Seal Kit

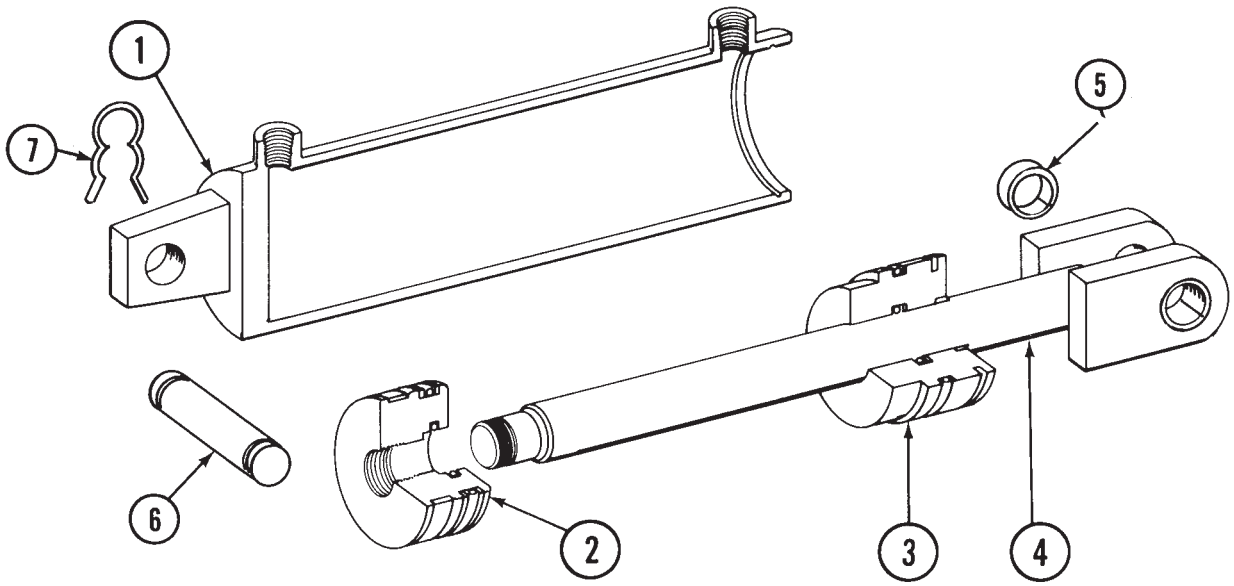
* To identify - DN 13114 stamped on barrel.

LIFT CYLINDER - PUSH UNIT



ITEM	PART NO.	DESCRIPTION
1.	A3640	Tube Assembly
2.	D4803	Piston
3.	D4802	Head Gland
4.	A3641	Shaft Assembly w/Bushings
5.	R374	Bushing
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
8.	10281	Hex Nut, 1 1/4" - 12
A.	A3639	Cylinder, 3" x 8" (Less Pins and Clips)
B.	R829	Seal Kit

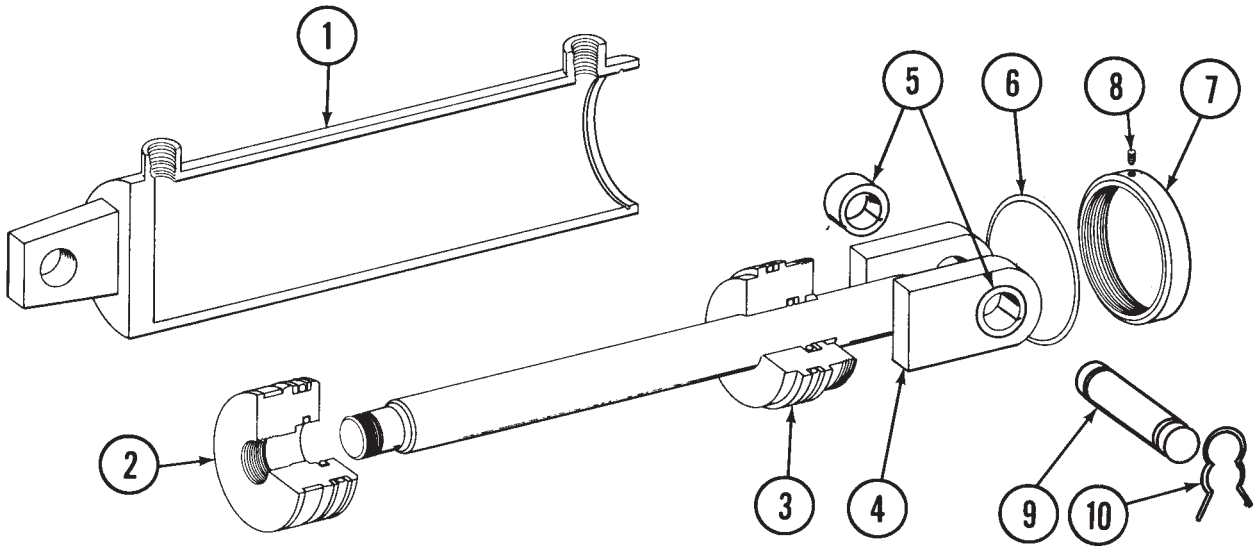
LIFT CYLINDER - 4 ROW MODELS



ITEM	PART NO.	DESCRIPTION
1.	R369	Tube Assembly
2.	R561	Piston
3.	R371	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
*A.	A1739	Cylinder, Lift, Complete, 3 1/2" x 10
	R606	Seal Kit Includes: (4) O-Rings (4) Back Up Washers (1) Rod Wiper (1) Retaining Ring, Int. 3 1/2" (1) Wear Ring, 3 1/2" O.D.

* To identify - DN 13108 stamped on barrel

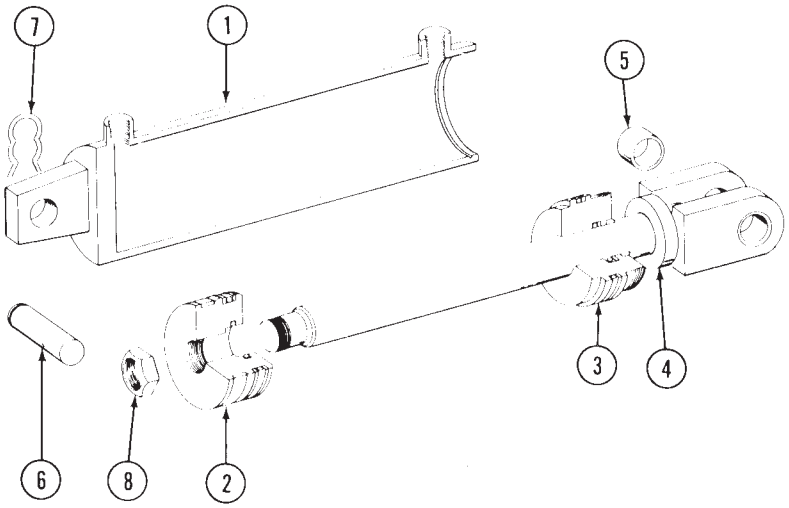
LIFT CYLINDER - 6 & 8 ROW MODELS
(4 Row Wide Heavy Duty)



ITEM	PART NO.	DESCRIPTION
1.	R550	Tube
2.	R108	Piston
3.	R107	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing
6.	R110	Wire Ring
7.	R106	Head Gland Nut
8.	10114	Set Screw, No. 10-32
9.	R375	Pin
10.	R193	Clip, Hair Pin
	R111	Seal Kit, Includes (1) Wear Ring (3) O-Rings (4) BU Washers (1) Poly O-Ring
*A.	A1583A	Cylinder Complete, 4" x 10"

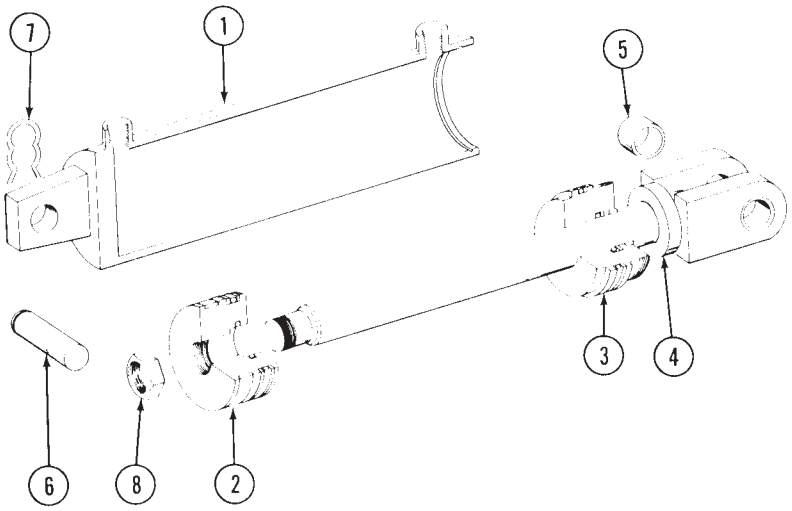
* To identify - DN13109 stamped on barrel.

LIFT CYLINDER 4 and 6 Row Models



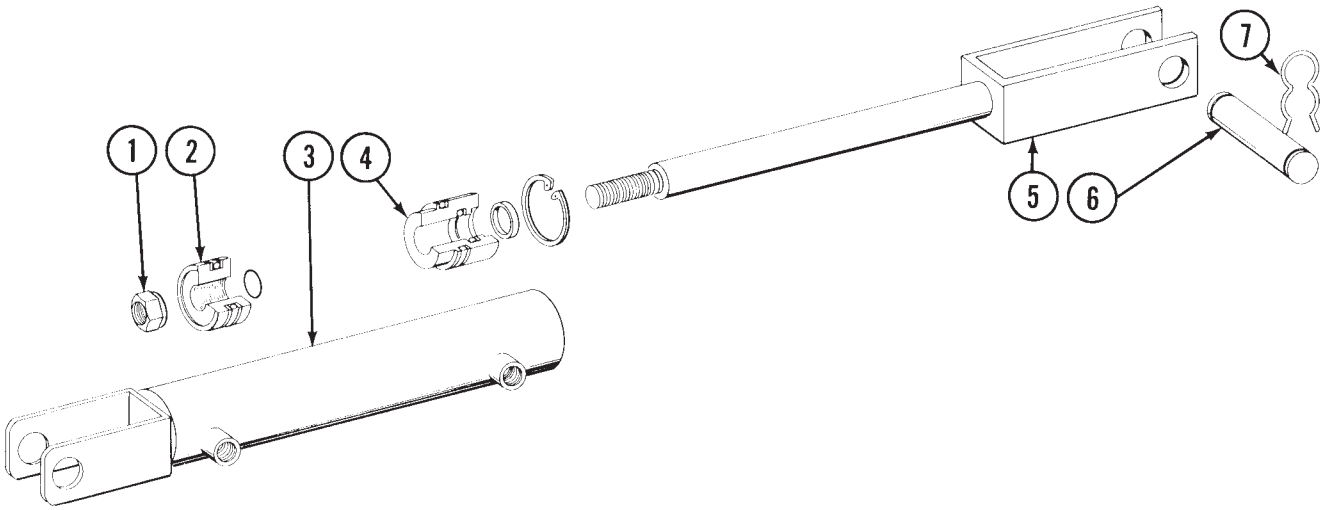
ITEM	PART NO.	DESCRIPTION
1.	A3432	Tube Assembly
2.	D4510	Piston
3.	D4509	Head Gland
4.	A3431	Shaft Assembly w/Bushings
5.	R374	Bushing
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
8.	10509	Hex Jam Nut, 1 1/4" - 12
A.	A3434	Cylinder, 3 1/2" x 10" (Less Pins and Clips)
B.	R774	Seal Kit

LIFT CYLINDER 8 Row Models



ITEM	PART NO.	DESCRIPTION
1.	A3590	Tube Assembly
2.	D4752	Piston
3.	D4542	Head Gland
4.	A3431	Shaft Assembly w/Bushings
5.	R374	Bushing
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
8.	10509	Hex Jam Nut, 1 1/4" - 12
A.	A3435	Cylinder, 4" x 10" (Less Pins and Clips)
B.	R827	Seal Kit

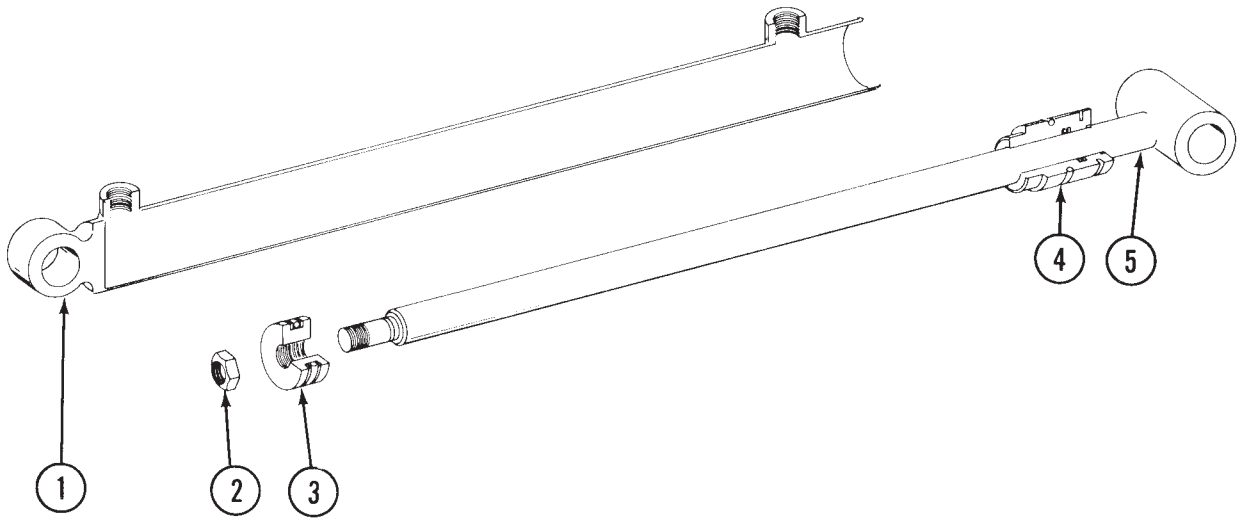
CONVENTIONAL MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	10327	Hex Nut, 3/4" - 16 UNF
2.	D4632	Piston
3.	A3512	Tube Assembly
4.	D4633	Head Gland
5.	A3513	Shaft Assembly
6.	R367	Clevis Pin
7.	R193	Clip, Hair Pin
*A.	A3438	Cylinder, 2" x 8" (Less Pins and Clips)
B.	R808	Seal Kit

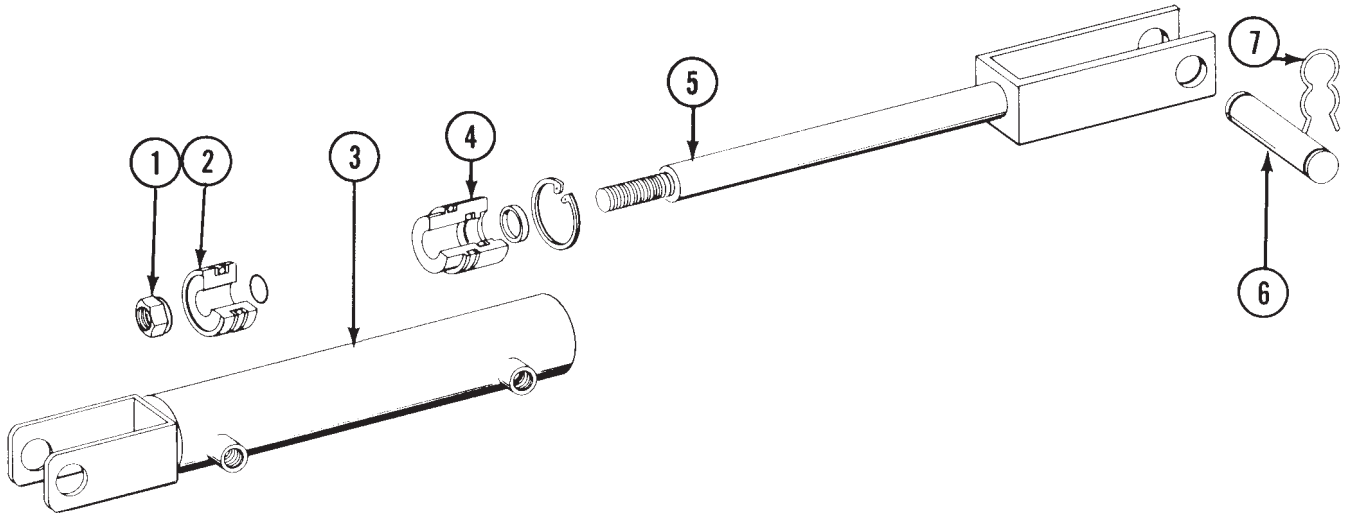
To identify Kinze part number stamped on barrel.

DOUBLE FOLDING MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	A3514	Tube Assembly
2.	10327	Hex Nut, 3/4" - 16 UNF
3.	D4632	Piston
4.	D4634	Head Gland
5.	A3515	Shaft Assembly
*A.	A3439	Cylinder, 2" x 20"
B.	R808	Seal Kit

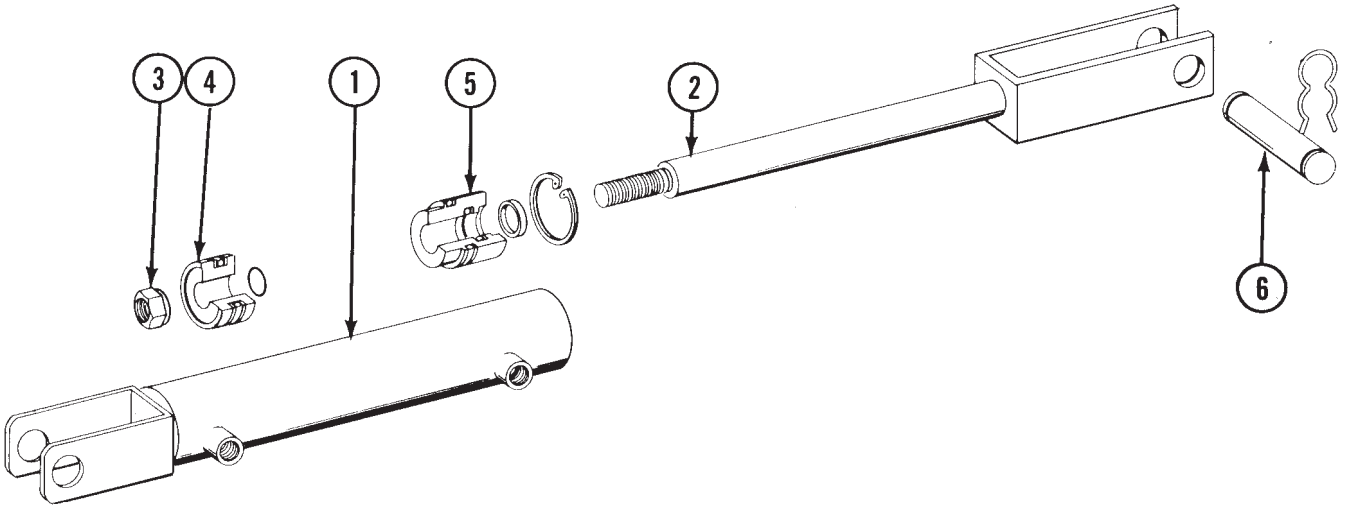
CONVENTIONAL MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	R366	Hex Nut, 3/4" NF
2.	R365	Piston
3.	R362	Tube Assembly
4.	R364	Head Gland
5.	R363	Shaft Assembly
6.	R367	Clevis Pin
	R193	Clip, Hair Pin
	R368	Seal Kit Includes (1) O-Ring .614 I.D. x .754 O.D. (1) O-Ring 1.109 I.D. x 1.387 O.D. (2) O-Ring 1.600 I.D. x 2.200 O.D. (1) Back Up Washer 1 1/8" I.D. x 1 3/8" O.D. (1) Rod Wiper 2" I.D. (1) Retaining Ring Internal 2" (2) Back Up Washer 1 5/8" O.D. x 2 O.D.
*A.	A1674A	Cylinder, Complete, 2" x 8"

* To identify - DN 13081 stamped on barrel

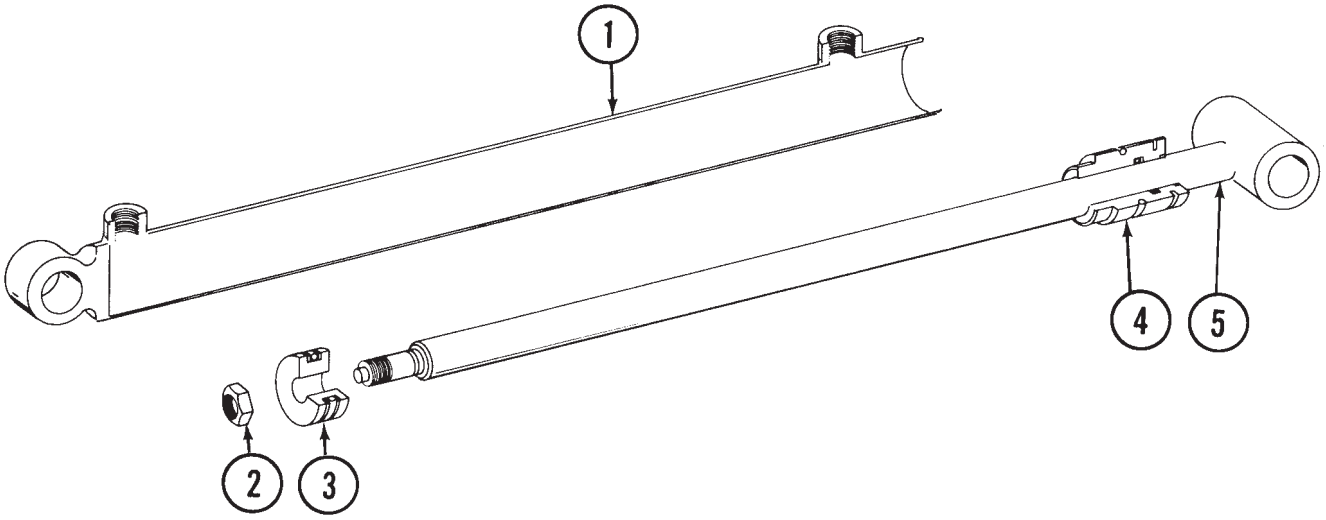
CONVENTIONAL MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	R157	Cylinder Body
2.	R158	Piston Rod
3.	R159	Hex Nut, 7/8" UNF
4.	R160	Piston
5.	R161	Piston Rod Guide
6.	R162	Clevis Pin w/Clip
	R193	Clip, Hair Pin,
	R154	Seal Kit Includes (1) O-Ring, 3/4" I.D. x 7/8" O.D. (1) O-Ring, 1 1/8" I.D. x 1 3/8" O.D. (1) Back Up Washer (1) Rod Wiper (2) Back Up Washer (2) O-Ring, 1 5/8" I.D. x 2" O.D. (1) Retaining Ring
*A.	A1674B	Cylinder - Complete 2" x 8",

* To identify - No markings on barrel.

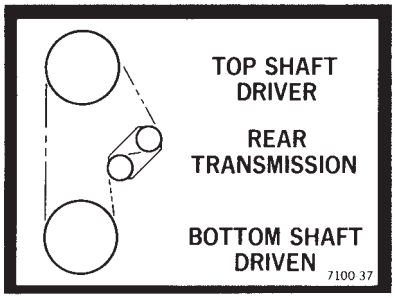
DOUBLE FOLDING MARKER CYLINDER



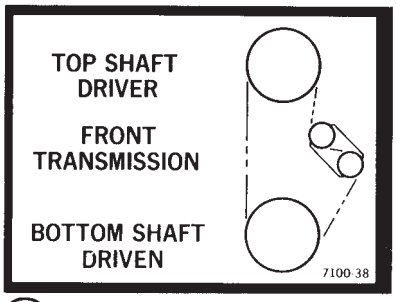
ITEM	PART NO.	DESCRIPTION
1.	R553	Tube Assembly
2.	R366	Nut, 3/4 - 16 NF
3.	R365	Piston
4.	R552	Head Gland
5.	R551	Shaft Assembly
*A.	A1659	Cylinder Assembly, Complete 2" x 20"
	R368	Seal Kit Includes (1) O-Ring, 614 I.D. x .754 O.D. (1) O-Ring, 1.109 I.D. x 1.387 O.D. (2) O-Ring, 1.600 I.D. x 2.200 O.D. (1) Back Up Washer, 1 1/8" I.D. x 1 3/8" O.D. (1) Rod Wiper 2" I.D. (1) Retaining Ring Internal 2" (2) Back Up Washer 1 5/8" I.D. x 2" O.D.

* To identify - DN 13107 stamped on barrel.

DECALS, REFLECTORS AND TIE STRAPS



1



2

WARNING

TO AVOID INJURY- -
Never work under raised planter unless hydraulic cylinder ***safety lockout channels*** are installed.

3

WARNING

TO AVOID INJURY- -
Stand clear- - Keep others away when raising or lowering ***markers.*** Before transporting planter fully extend hydraulic cylinders and install ***locking pins*** where provided.

4

WARNING

TO AVOID INJURY - -
Always lower planting units to the ground before unhitching planter. Tongue can raise suddenly.

5

CAUTION

6

1. Read and understand the Operator's Manual.
2. Stop the tractor engine before leaving the operator's platform.
3. Keep riders off the machine.
4. Make certain everyone is clear of the machine before starting the tractor engine and operating.
5. Keep all shields in place.
6. Never lubricate, adjust, unclog or service the machine with tractor engine running.
7. Wait for all movement to stop before servicing.
8. Keep hands, feet and clothing away from moving parts.
9. Use flashing warning lights when operating on highways except when prohibited by law.

WARNING

TO AVOID INJURY- -
Always use the hydraulic cylinder ***safety lockout channel*** when ***servicing*** planter in raised position or when ***transporting*** planter on the road. After use return to storage location.

7

WARNING

TOW ONLY WITH FARM TRACTOR.

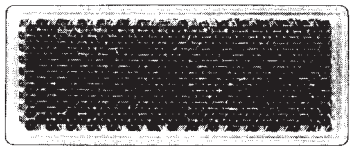
7100-56

9

8

KINZE®

Double Frame 10



11

12

13

DECALS, REFLECTORS AND TIE STRAPS

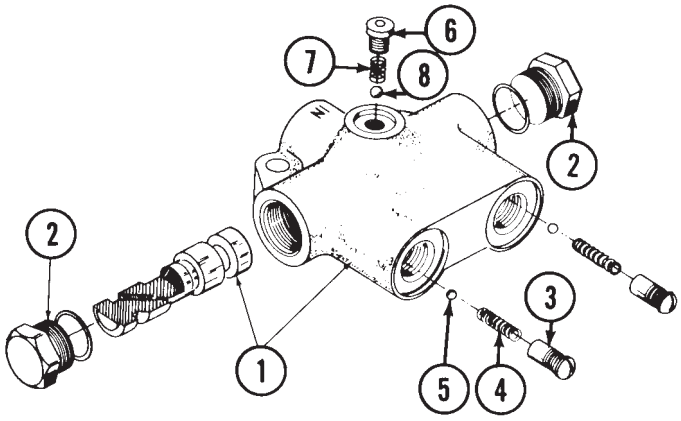
(15)

(16)

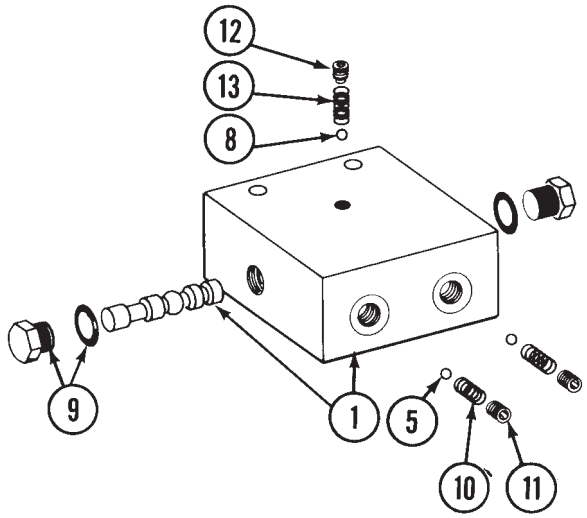
ITEM	PART NO.	DESCRIPTION
1.	7100-37	Decal, Rear Transmission
2.	7100-38	Decal, Front Transmission
3.	7100-41	Decal, Warning
4.	7100-42	Decal, Warning
5.	7100-43	Decal, Warning
6.	7100-46	Decal, Caution
7.	7100-47	Decal, Warning
8.	7100-54	Decal, Kinze
9.	7100-56	Decal, Warning
10.	7100-60	Decal, Double Frame
11.	7200-3	Reflector, Red
	7200-4	Reflector, Amber
12.		Serial Number Plate
13.	D1512	Tie Strap, 6"
	D2117	Tie Strap, 14 1/2"
	D1162	Tie Strap, 28"
	D2984	Tie Strap, 33"
14.	R155	Blue Pain, Aerosol (not shown)
	R439	Blue Paint, Quart
	R440	Blue Paint, Gallon
15.	7100-89	Decal, Danger
16.	7100-90	Decal, Warning

SEQUENCING VALVE

Style A

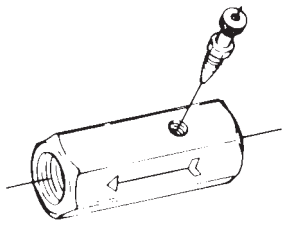


Style B



ITEM	PART NO.	DESCRIPTION
1.		Valve Body and Spool
2.	R271	Plug Assembly, O-Ring Boss
3.	R273	Retainer, Check Valve
4.	R277	Spring, Check Valve
5.	R275	Ball, Check 3/16" Diameter
6.	R274	Plug Assembly, O-Ring Boss
7.	R278	Spring
8.	R276	Ball, 1/4" Diameter
9.	R811	Plug Assembly, O-Ring Boss
10.	R812	Spring
11.	R813	Set Screw, Special
12.	10334	Hex Socket Pipe Plug, 1/16"
13.	R814	Spring
A.	A282A	Sequencing Valve, Complete, Style A
B.	A282B	Sequencing Valve, Complete, Style B

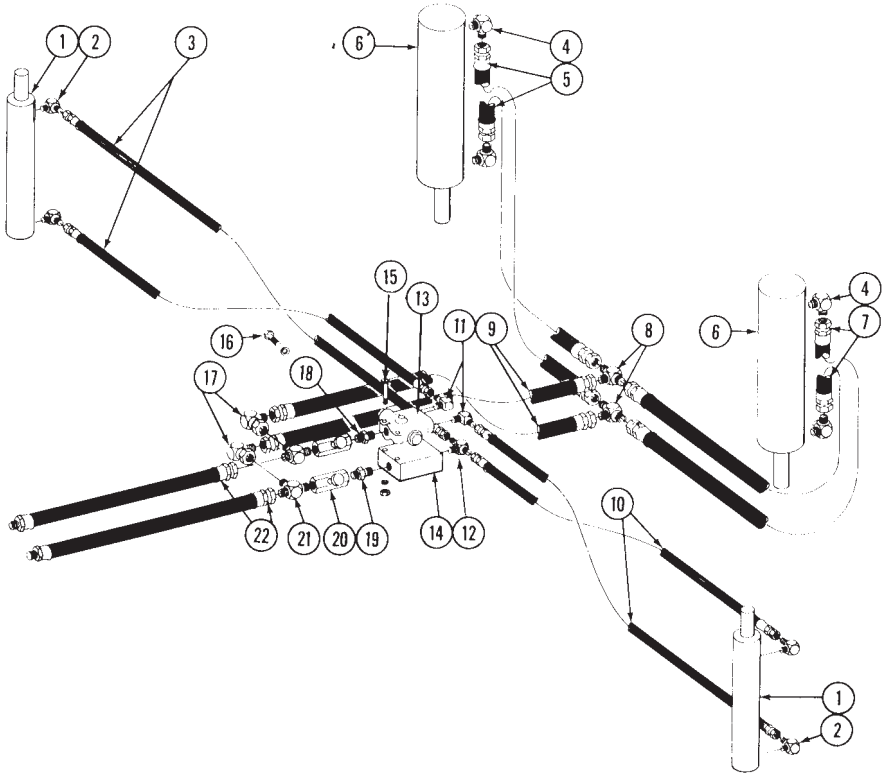
FLOW CONTROL VALVE



ITEM	PART NO.	DESCRIPTION
*A.	A270A	Flow Control Valve Assembly
	R103	Needle Valve Only
**B.	A270B	Flow Control Valve Assembly
	R642	Needle Valve Only
***C.	A270C	Flow Control Valve Assembly
	R767	Needle Valve Only

* To identify - RegoKLF375 stamped on valve body.
** To identify - Deltrol stamped on valve body.
*** To identify - Partrol stamped on valve body.

4 ROW 30, 4 ROW WIDE & 6 ROW 30

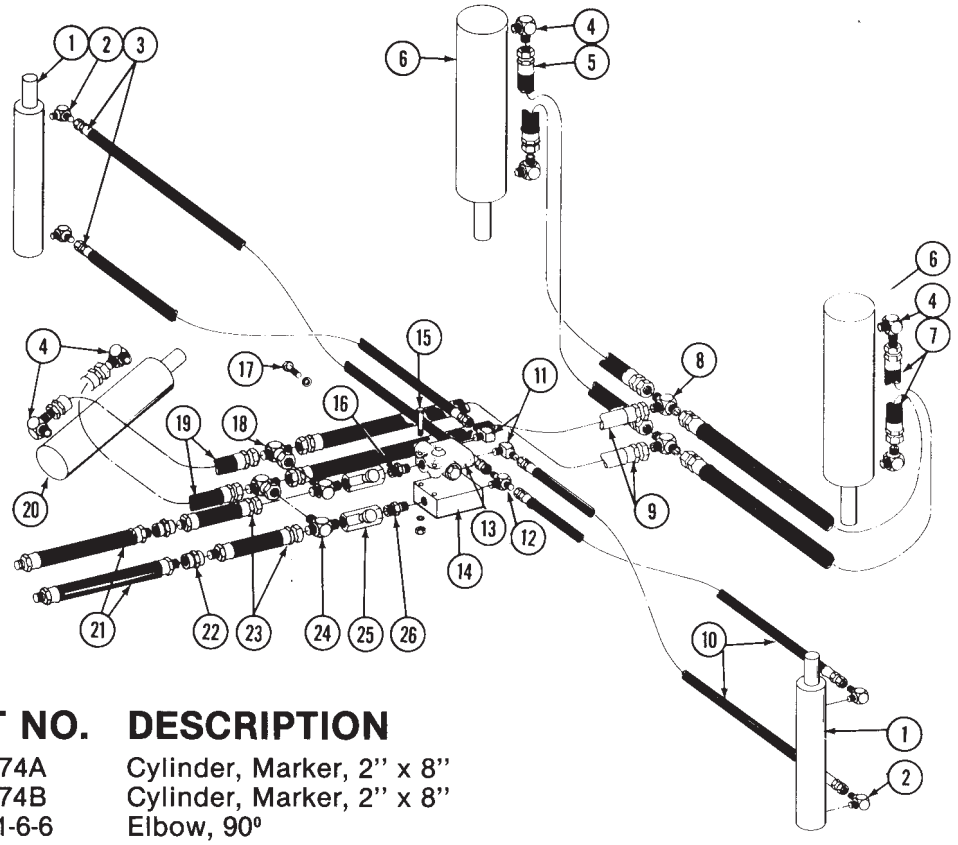


ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
	A1102	Hose Assembly, 1/4" x 95", 4 Row Wide
	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4 Row 30 x 4 Row Wide
	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30 and 4 Row Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4 Row 30
	A1105	Hose Assembly, 1/4" x 125", 4 Row Wide
	A1107	Hose Assembly, 1/4" x 140", 6 Row 30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
17.	6500-8	Elbow, Swivel
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	A1012	Hose Assembly, 3/8" x 140"

HYDRAULIC SYSTEM

CONVENTIONAL MARKERS
PUSH UNIT LIFT
SINGLE VALVE

4 ROW 30, 4 ROW WIDE & 6 ROW 30

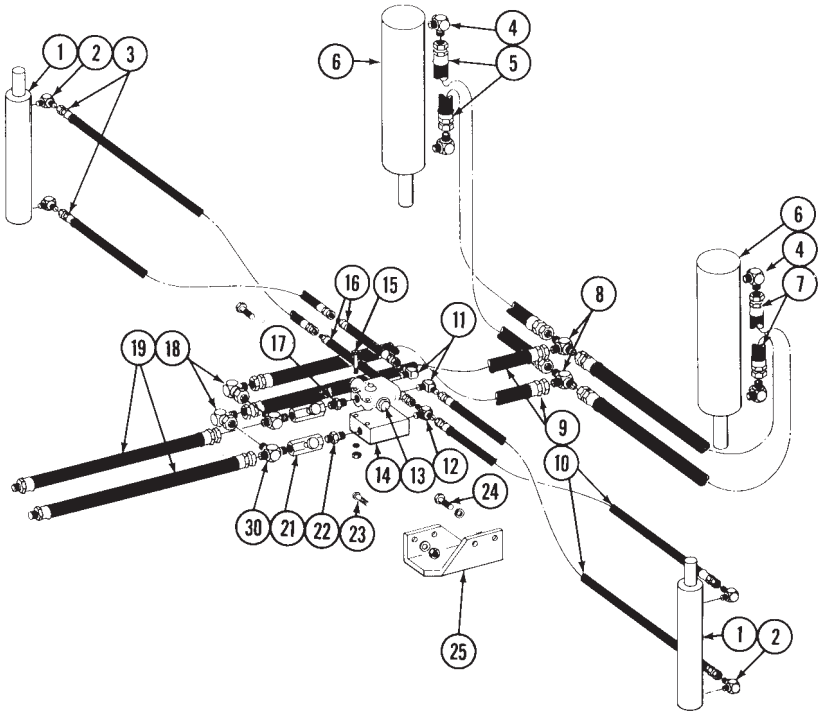


ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
	A1102	Hose Assembly, 1/4" x 95", 4 Row Wide
	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4 Row 30, 4 Row Wide
	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30 and 4 Row Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4 Row 30
	A1105	Hose Assembly, 1/4" x 125", 4 Row Wide
	A1107	Hose Assembly, 1/4" x 140", 6 Row 30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	6401-8-6	Adapter, Straight
17.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer 3/8"
18.	6600-8	Swivel Tee
19.	A1002	Hose Assembly, 3/8" x 20"
20.	A1696	Cylinder, Push Unit Lift, 3" x 8"
21.	A1074	Hose Assembly, 3/8" x 36"
22.	5000-8-8	Pipe Coupler, 1/2" NPT
23.	A1012	Hose Assembly, 3/8" x 140"
24.	2605-8-6	Run Tee
25.	A270	Valve, Flow Control
26.	5404-6-6	Pipe Coupler, Male

HYDRAULIC SYSTEM

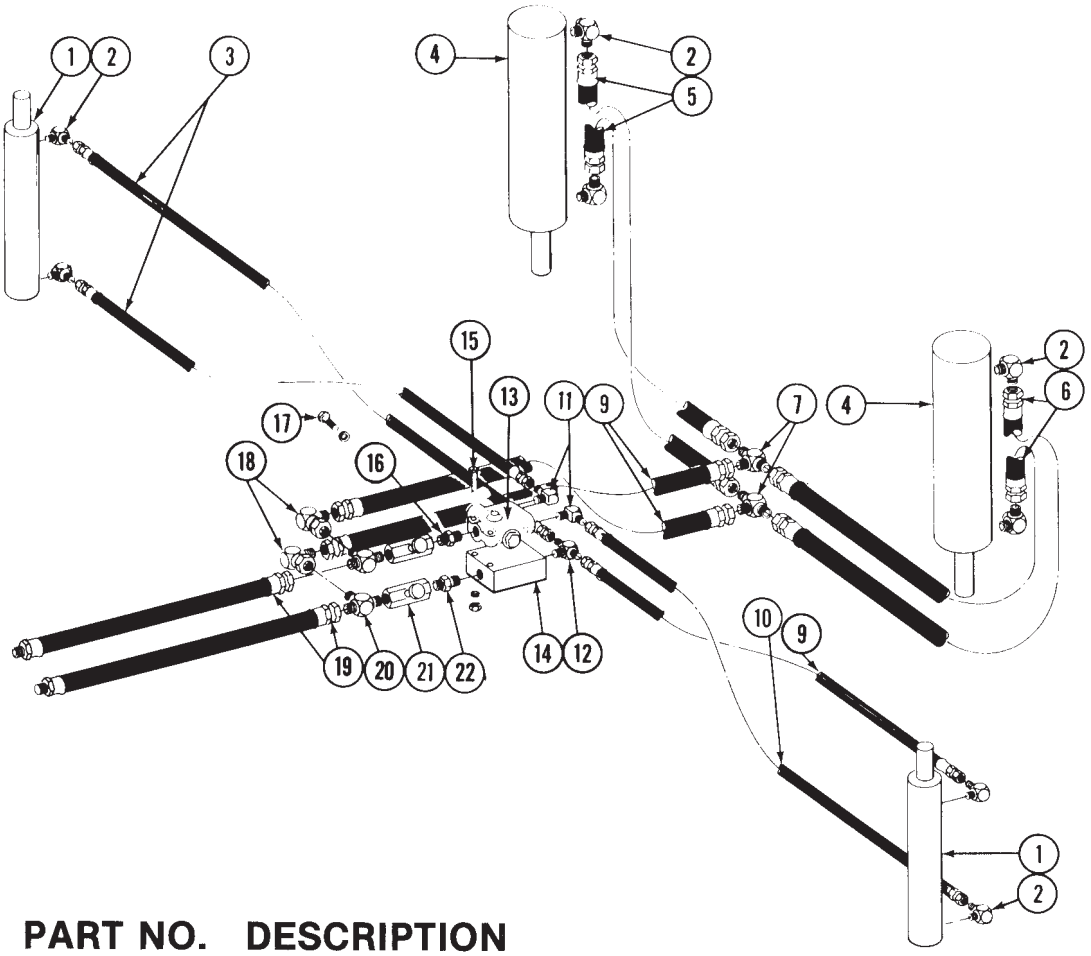
CONVENTIONAL MARKERS WITH DRY FERTILIZER SINGLE VALVE

6 ROW 30 & 4 ROW 30



ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30
	A1739	Cylinder, Lift, 3 1/2" x 10", 4 Row 30
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1107	Hose Assembly 1/4" x 140", 6 Row 30
	A1103	Hose Assembly, 1/4" x 110", 4 Row 30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	A1124	Hose Assembly, 1/4" x 12", 6 Row 30 Only
17.	6401-8-6	Adapter, Straight
18.	6500-8	Elbow, Swivel
19.	A1012	Hose Assembly, 3/8" x 140"
20.	2605-8-6	Run Tee
21.	A270	Valve, Flow Control
22.	5404-6-6	Pipe Coupling, Male
23.	10003	HHCS, 3/8" - 16 x 1 1/2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
24.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
25.	D2533	Bracket, Valve Mount

6 ROW WIDE & 8 ROW 30

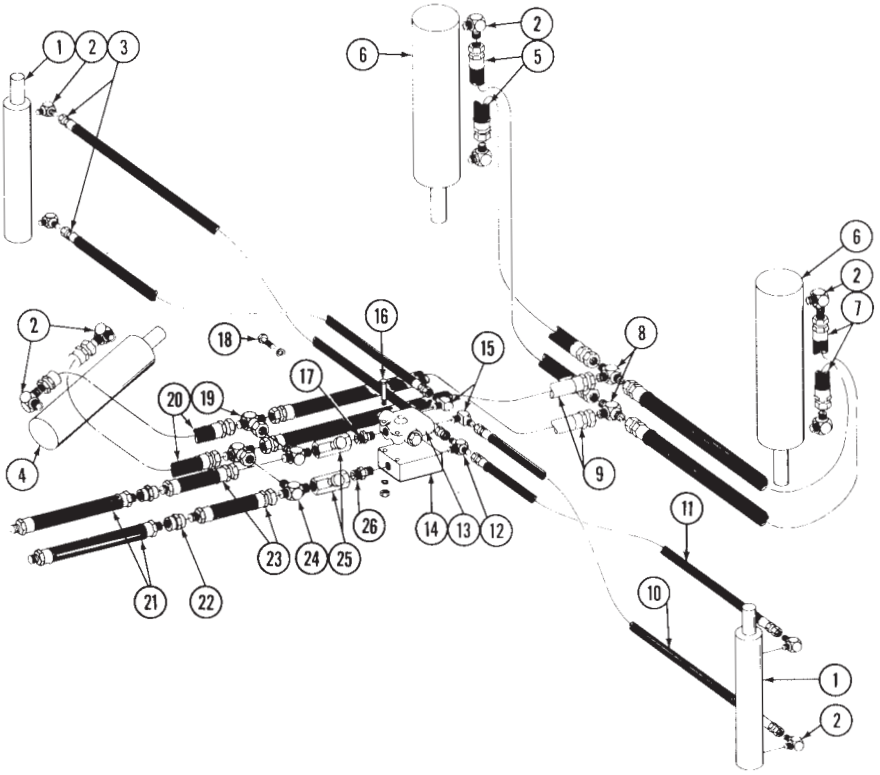


ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row Wide
4.	A1583A	Cylinder, Lift, 4" x 10"
5.	A1006	Hose Assembly, 3/8" x 90", 6 Row Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
6.	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
7.	2603-8	Tube Tee
8.	A1020	Hose Assembly, 3/8" x 48"
9.	A1078	Hose Assembly, 3/8" x 174", 8 Row 30
	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide
10.	A1049	Hose Assembly, 3/8" x 160"
11.	6801-8	Elbow, 90°
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	6401-8-6	Adapter, Straight
17.	10004	HHCS, 3/8" x 1 1/4"
	10229	Lock Washer, 3/8"
18.	6500-8	Elbow, Swivel
19.	A1012	Hose Assembly, 3/8" x 140"
20.	2605-8-6	Run Tee
21.	A270	Valve, Flow Control
22.	5404-6-6	Pipe Coupler, Male

HYDRAULIC SYSTEM

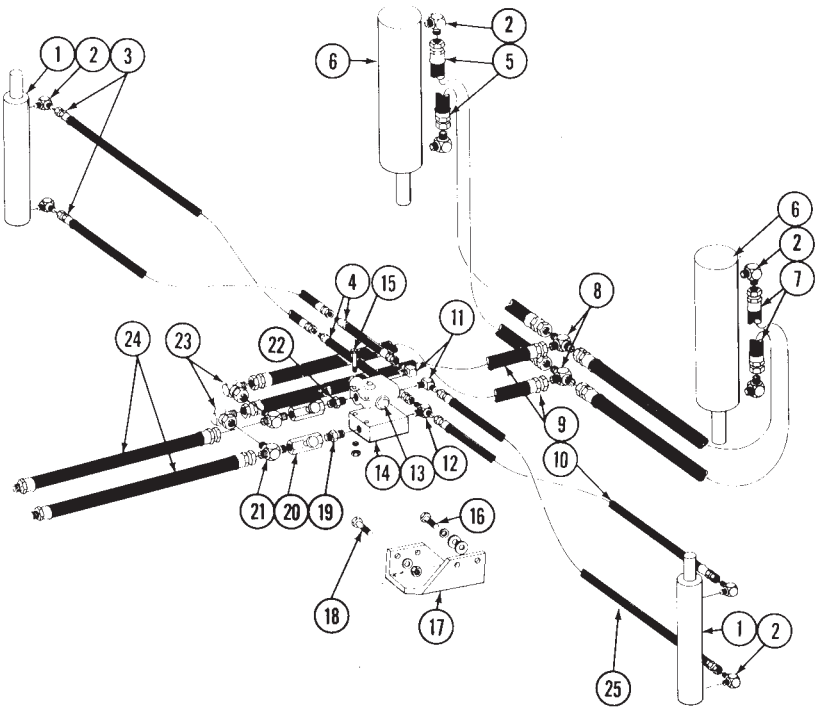
LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE

6 ROW WIDE & 8 ROW 30



ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row 30
4.	A1696	Cylinder, Push Unit Lift, 3" x 8"
5.	A1006	Hose Assembly, 3/8" x 90", 6 Row Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
6.	A1583A	Cylinder Lift, 4" x 10"
7.	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1049	Hose Assembly, 3/8" x 160"
11.	A1078	Hose Assembly, 3/8" x 174", 8 Row 30
	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	6801-8	Elbow, 90°
16.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
19.	6600-8	Tee, Swivel
20.	A1002	Hose Assembly, 3/8" x 20"
21.	A1074	Hose Assembly, 3/8" x 36"
22.	5000-8-8	Pipe Coupler, 1/2" NPT
23.	A1012	Hose Assembly, 3/8" x 140"
24.	2605-8-6	Run Tee
25.	A270	Valve, Flow Control
26.	5404-6-6	Pipe Coupler, Male

6 ROW WIDE & 8 ROW 30

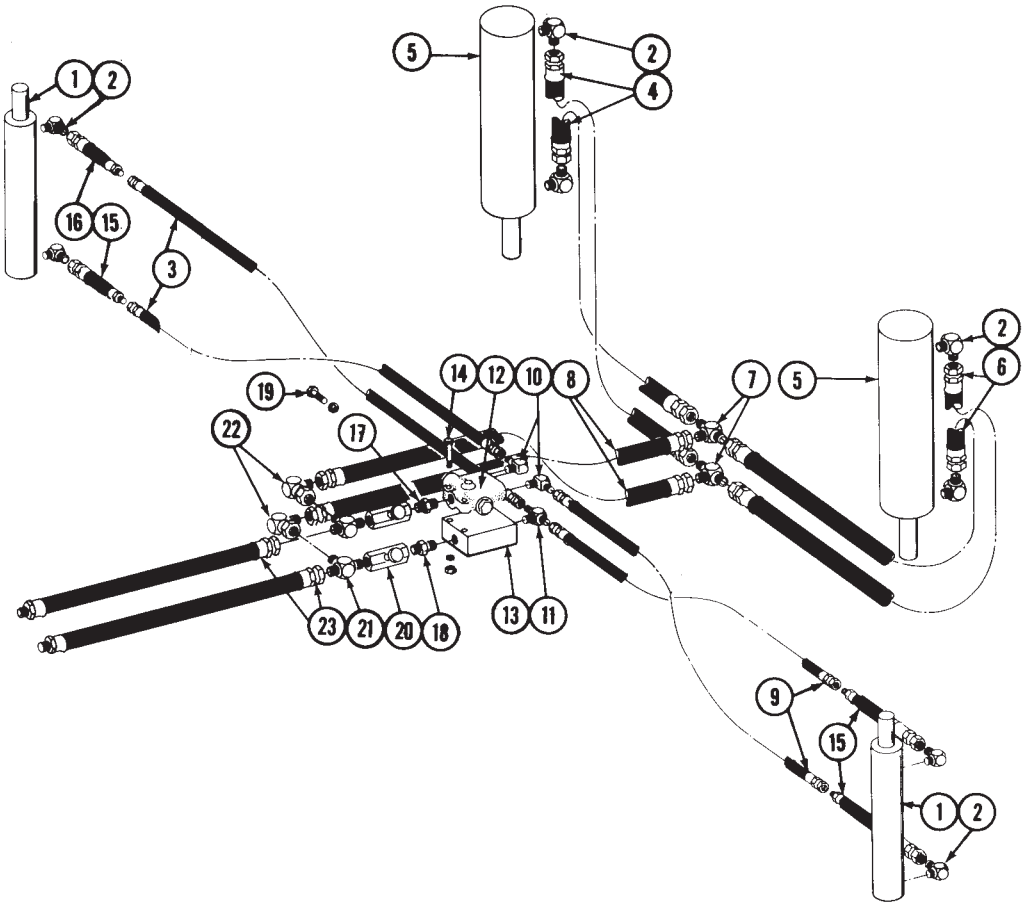


ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row 30
4.	A1048	Hose Assembly, 3/8" x 12", 6 Row Wide Only
5.	A1006	Hose Assembly, 3/8" x 90", 6 Row Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
6.	A1583A	Cylinder Lift, 4" x 10"
7.	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide
	A1078	Hose Assembly, 3/8" x 174", 8 Row Wide
11.	6801-8	Elbow, 90°
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
17.	D2533	Bracket, Valve Mount
18.	10003	HHCS, 3/8" - 16 x 1 1/2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
19.	5404-6-6	Pipe Coupler, Male
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	6401-8-6	Adapter, Straight
23.	6500-8	Elbow, Swivel
24.	A1012	Hose Assembly, 3/8" x 140"
25.	A1049	Hose Assembly, 3/8" x 160"

HYDRAULIC SYSTEM

LOW PROFILE MARKERS SINGLE VALVE

8 ROW WIDE

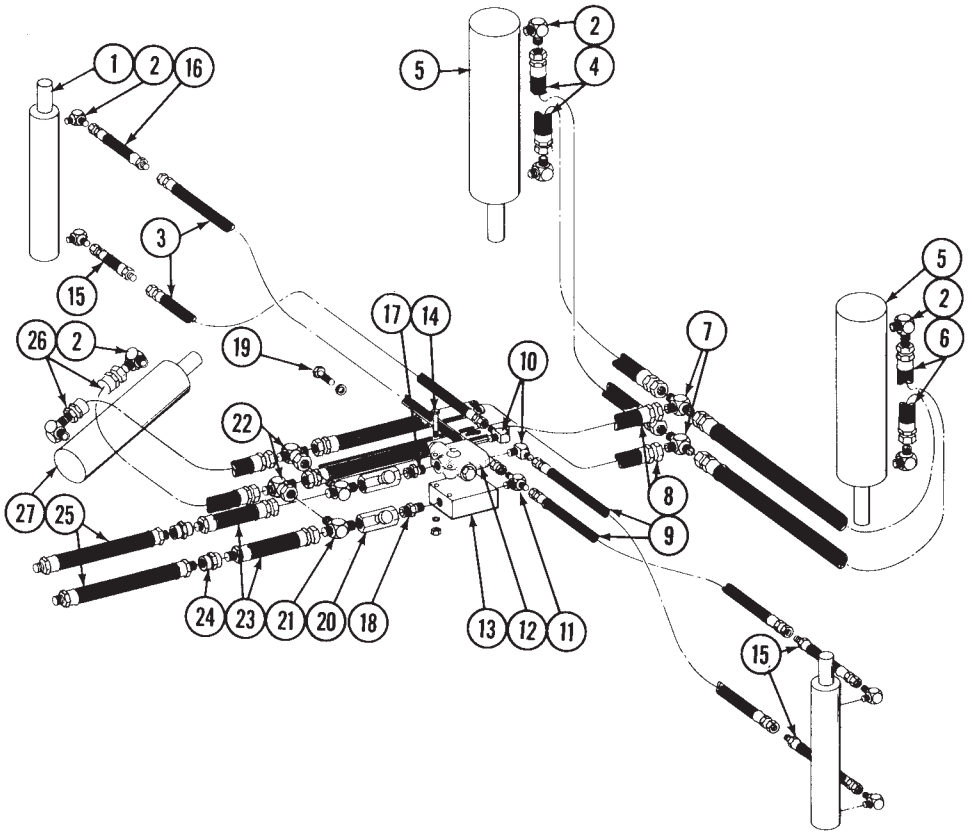


ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1020	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Side Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1004	Hose Assembly, 3/8" x 36"
16.	A1072	Hose Assembly, 3/8" x 48"
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupler, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	6500-8	Elbow, Swivel
23.	A1012	Hose Assembly, 3/8" x 140"

HYDRUALIC SYSTEM

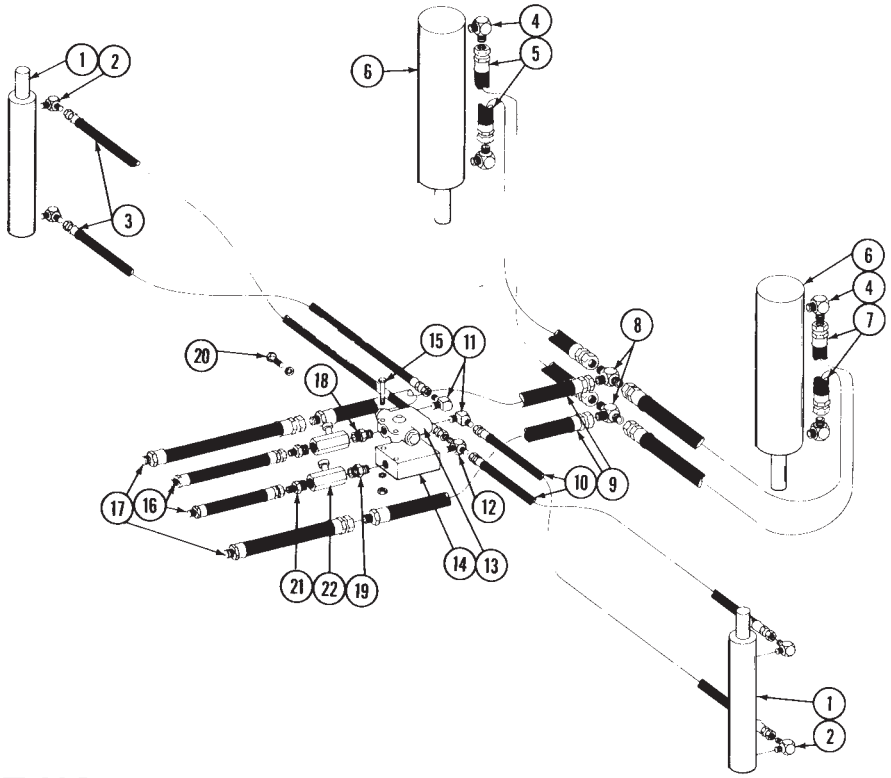
LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE

8 ROW WIDE



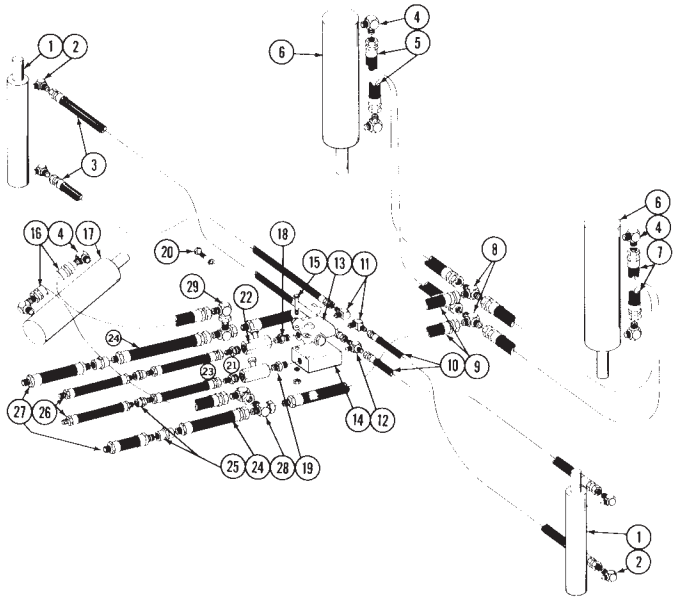
ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1020	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Side Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1004	Hose Assembly, 3/8" x 36"
16.	A1072	Hose Assembly, 3/8" x 48"
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupler, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	6600-8	Tee, Swivel
23.	A1012	Hose Assembly, 3/8" x 140"
24.	5000-8-8	Pipe Coupler, 1/2" NPT
25.	A1074	Hose Assembly, 3/8" x 36"
26.	A1002	Hose Assembly, 3/8" x 20"
27.	A1696	Cylinder, Push Unit Lift, 3" x 8"

4 ROW 30, 4 ROW WIDE & 6 ROW 30



ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
	A1102	Hose Assembly, 1/4" x 95", 4 Row Wide
	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4 Row 30 and 4 Row Wide
	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30 and 4 Row Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4R30
	A1105	Hose Assembly, 1/4" x 125", 4R Wide
	A1107	Hose Assembly, 1/4" x 140", 6R30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	A1108	Hose Assembly, 1/4" x 140"
17.	A1012	Hose Assembly, 3/8" x 140"
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
21.	2404-6-6	Adapter, Straight
22.	A270	Valve, Flow Control

4 ROW 30, 4 ROW WIDE & 6 ROW 30

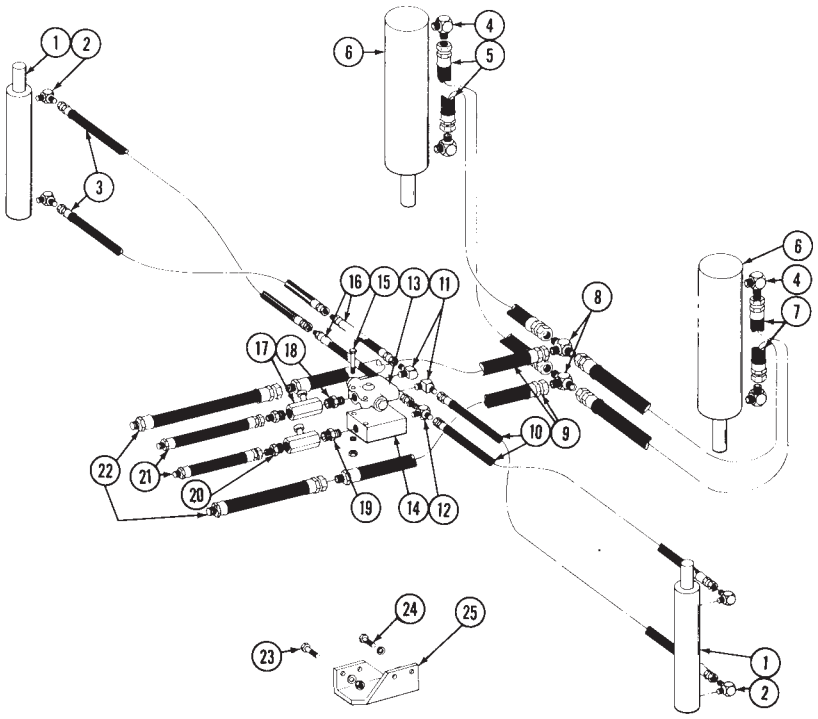


ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
	A1102	Hose Assembly, 1/4" x 95", 4 Row Wide
	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10" 4 Row 30 and 4 Row Wide
	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30 and 4 Row Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4 Row 30
	A1105	Hose Assembly, 1/4" x 125", 4 Row Wide
	A1107	Hose Assembly, 1/4" x 140", 6 Row 30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer 3/8"
	10101	Hex Nut, 3/8" - 16
16.	A1002	Hose Assembly, 3/8" x 20"
17.	A1696	Cylinder, Push Unit Lift, 3" x 8"
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
21.	2404-6-6	Adapter, Straight
22.	A270	Valve, Flow Control
23.	A1108	Hose Assembly, 1/4" x 140"
24.	A1012	Hose Assembly, 3/8" x 140"
25.	5000-8-8	Pipe Coupler, 1/2" NPT
26.	A1126	Hose Assembly, 1/4" x 36"
27.	A1074	Hose Assembly, 3/8" x 36"
28.	6602-8	Run Tee, Swivel
29.	6500-8	Elbow, 90° Swivel

HYDRAULIC SYSTEM

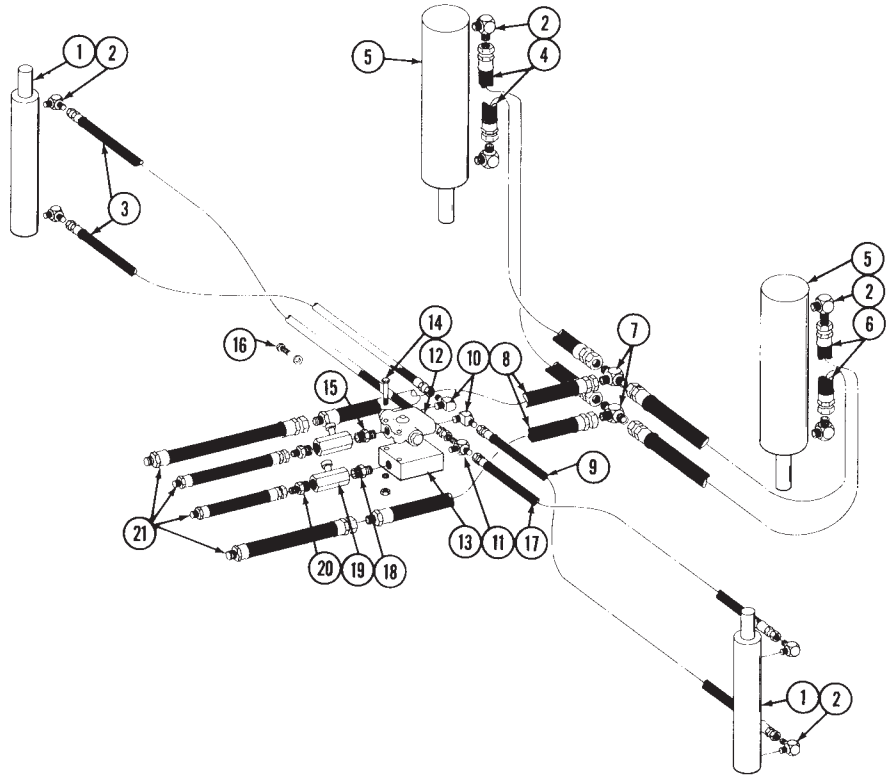
CONVENTIONAL MARKERS WITH DRY FERTILIZER DUAL VALVE

6 ROW 30 & 4 ROW 30



ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1103	Hose Assembly, 1/4" x 110", 6 Row 30
	A1113	Hose Assembly, 1/4" x 80", 4 Row 30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1583A	Cylinder, Lift, 4" x 10", 6 Row 30
	A1739	Cylinder, Lift 3 1/2" x 10", 4 Row 30
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1107	Hose Assembly, 1/4" x 140", 6 Row 30
	A1103	Hose Assembly, 1/4" x 110", 4 Row 30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
16.	A1124	Hose Assembly, 1/4" x 12", 6 Row 30 Only
17.	A270	Valve, Flow Control
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	2404-6-6	Adapter, Straight
21.	A1108	Hose Assembly, 1/4" x 140"
22.	A1012	Hose Assembly, 3/8" x 140"
23.	10003	HHCS, 3/8" - 16 x 1 1/2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
24.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
25.	D2533	Bracket, Valve Mount

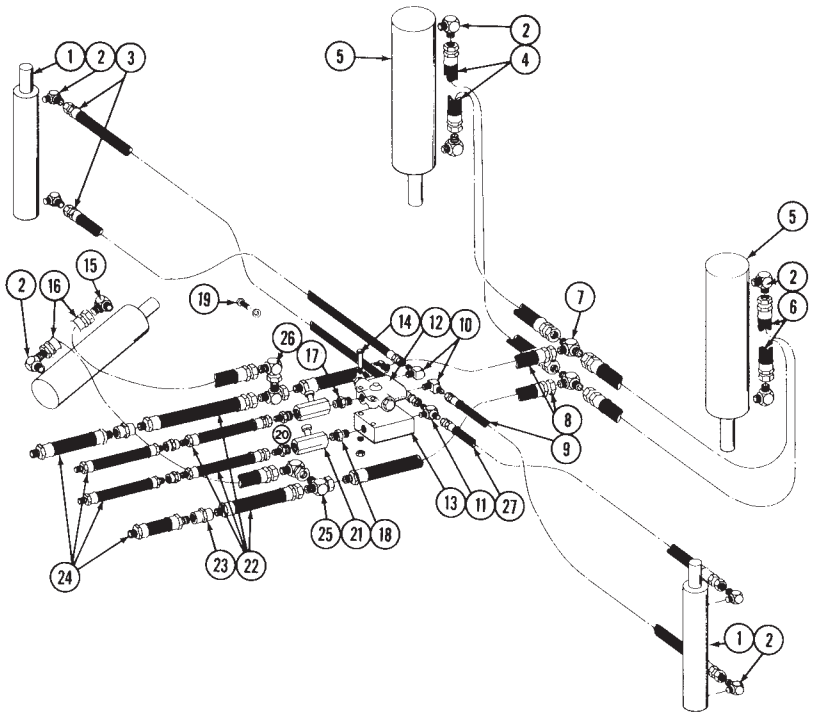
6 ROW WIDE & 8 ROW 30



ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row 30
4.	A1006	Hose Assembly, 3/8" x 90", 6R Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	6401-8-6	Adapter, Straight
16.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
17.	A1078	Hose Assembly, 3/8" x 174", 8 Row 30
	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide
18.	5404-6-6	Pipe Coupling, Male
19.	A270	Valve, Flow Control
20.	2404-8-6	Adapter, Straight
21.	A1012	Hose Assembly, 3/8" x 140"

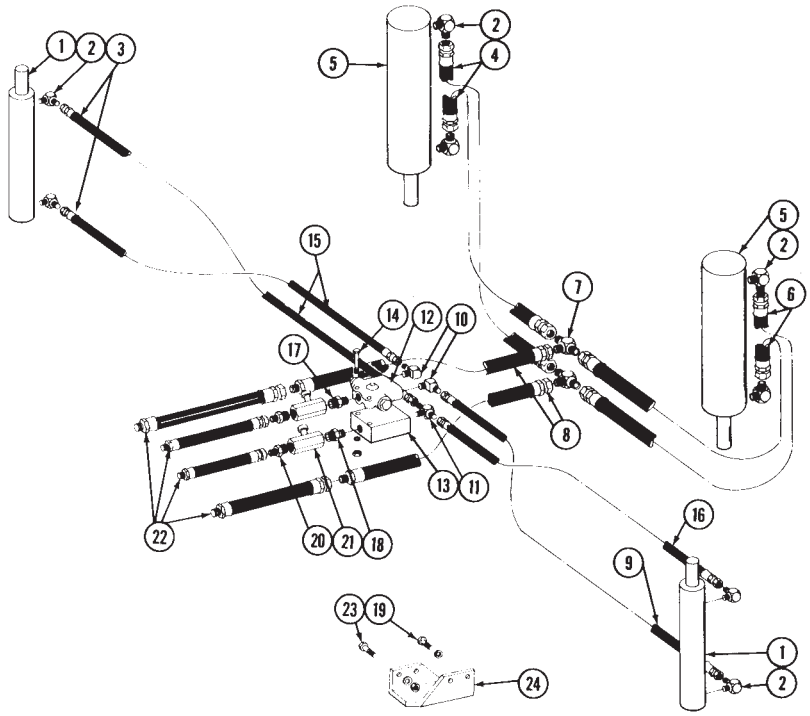
HYDRAULIC SYSTEM

6 ROW WIDE & 8 ROW 30



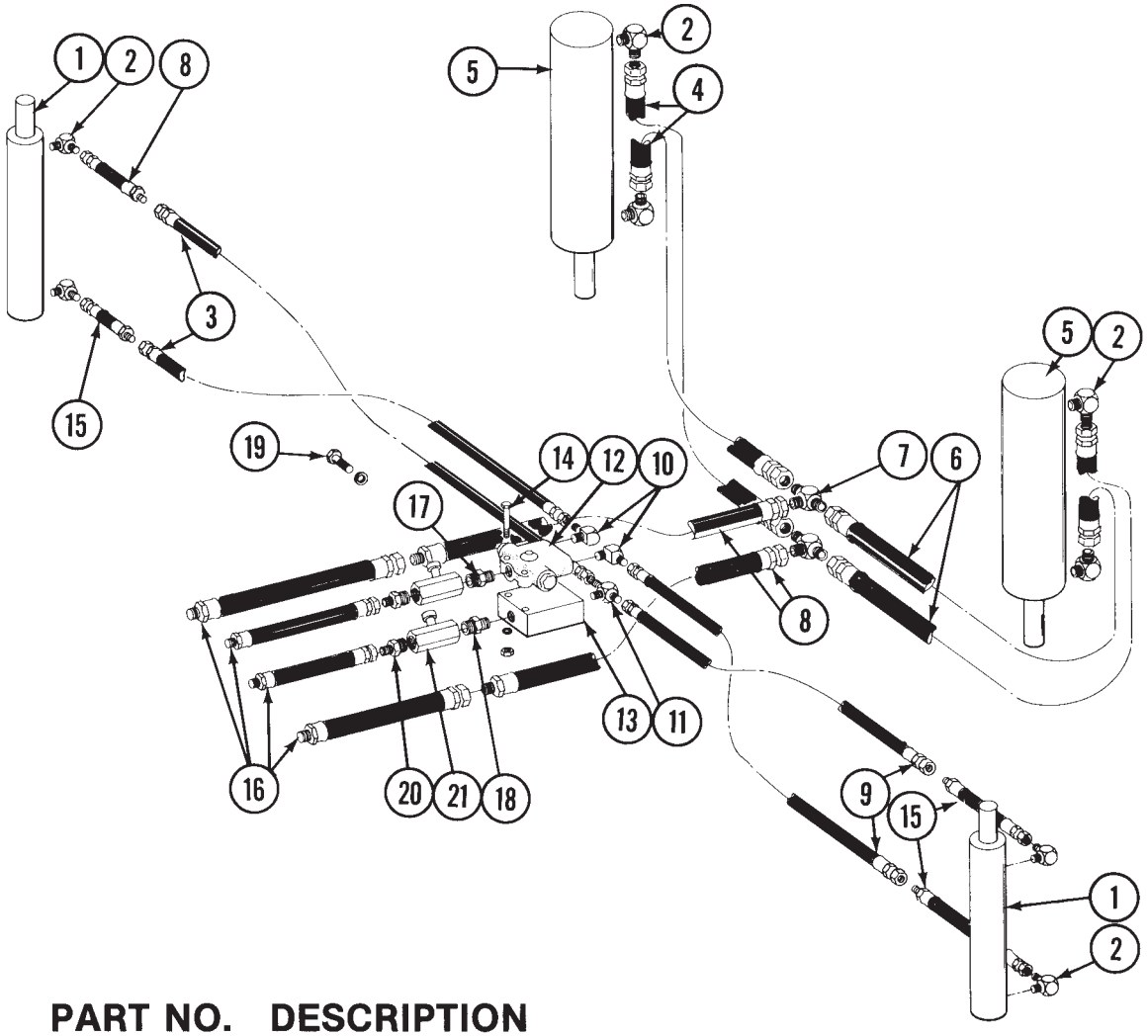
ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row 30
4.	A1006	Hose Assembly, 3/8" x 90", 6 Row Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1696	Cylinder, Push Unit Lift, 3" x 8"
16.	A1002	Hose Assembly, 3/8" x 20"
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
23.	5000-8-8	Pipe Coupler, 1/2" NPT
24.	A1074	Hose Assembly, 3/8" x 36"
25.	6602-8	Run Tee, Swivel
26.	6500-8	Elbow, 90° Swivel
27.	A1078	Hose Assembly, 3/8" x 174", 8 Row 30
	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide

6 ROW WIDE & 8 ROW 30



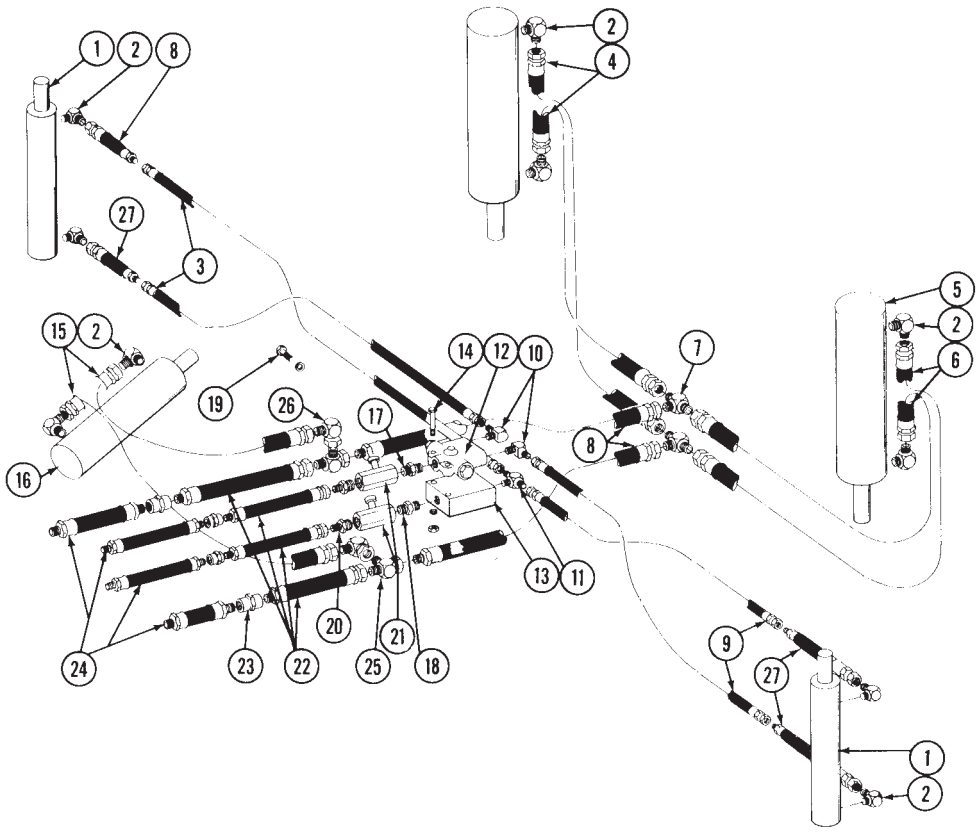
ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6 Row Wide
	A1025	Hose Assembly, 3/8" x 148", 8 Row 30
4.	A1006	Hose Assembly, 3/8" x 90", 6 Row Wide
	A1021	Hose Assembly, 3/8" x 56", 8 Row 30
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110", 6 Row Wide
	A1039	Hose Assembly, 3/8" x 76", 8 Row 30
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1048	Hose Assembly, 3/8" x 12", 6 Row Wide Only
16.	A1078	Hose Assembly, 3/8" x 174", 8 row 30
	A1049	Hose Assembly, 3/8" x 160", 6 Row Wide
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
23.	10003	HHCS, 3/8" - 16 x 1 1/2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
24.	D2533	Bracket, Valve Mount

8 ROW WIDE



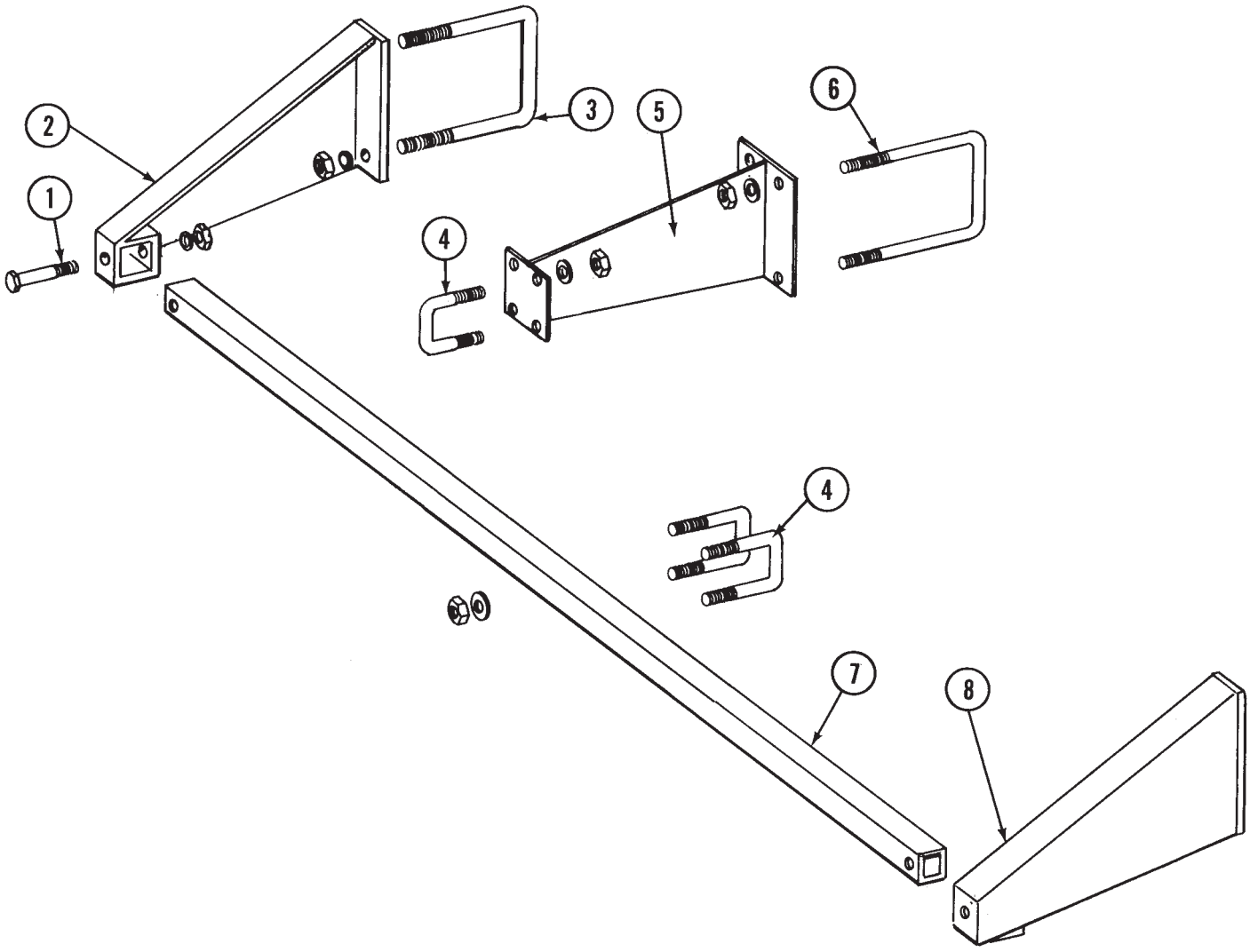
ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1004	Hose Assembly, 3/8" x 36"
16.	A1012	Hose Assembly, 3/8" x 140"
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control

8 ROW WIDE



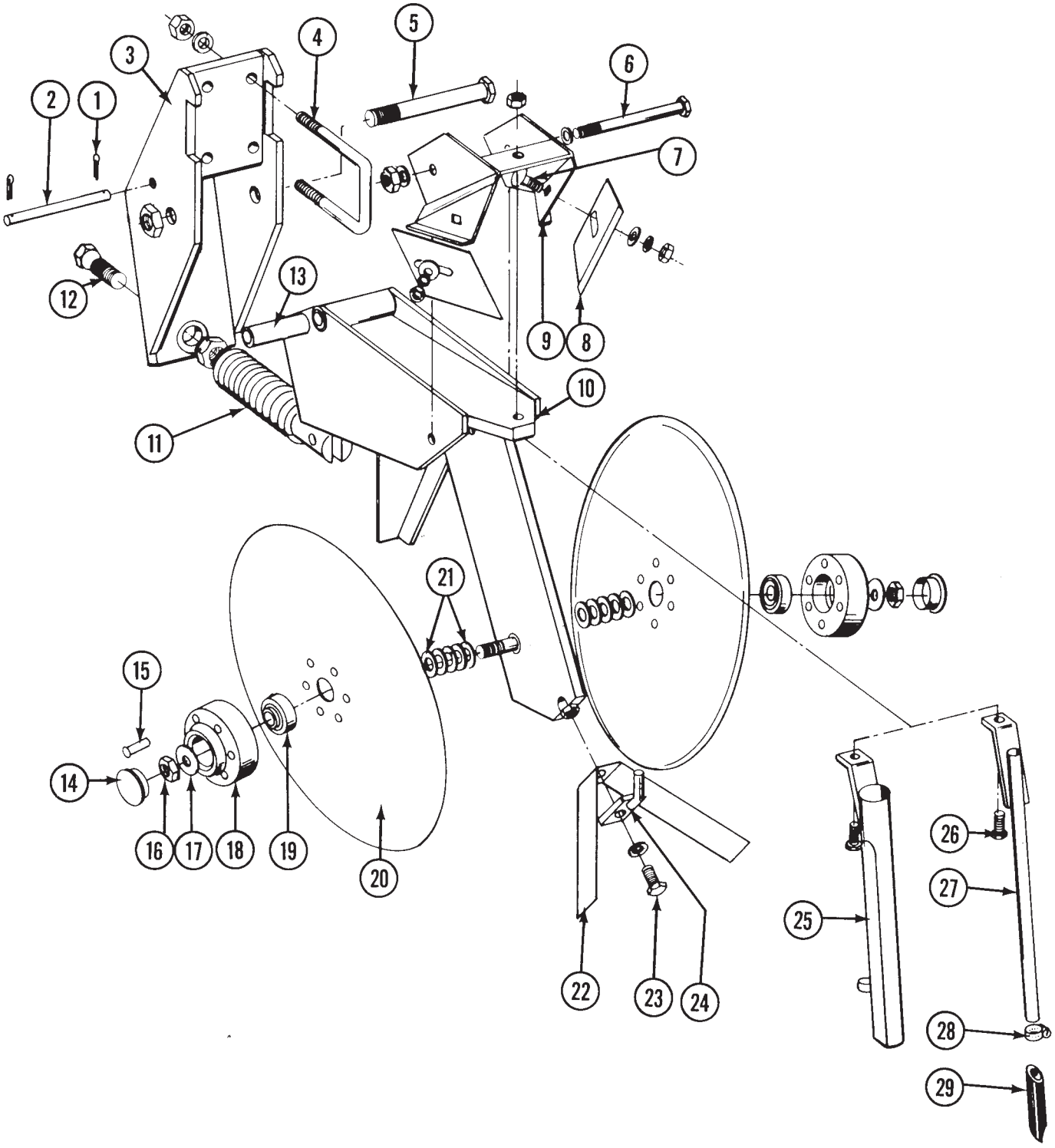
ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10062	HHCS, 3/8" - 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
15.	A1002	Hose Assembly, 3/8" x 20"
16.	A1696	Cylinder, Push Unit Lift, 3"x 8"
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8' - 16 x 1 1/4"
	10229	Lock Washer, 3/8"
20.	2404-8-6	Adapter, Staight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
23.	5000-8-8	Pipe Coupler, 1/2" NPT
24.	A1074	Hose Assembly, 3/8" x 36"
25.	6602-8	Run Tee, Swivel
26.	6500-8	Elbow, 90° Swivel
27.	A1004	Hose Assembly, 3/8" x 36"

FERTILIZER BAR



ITEM	PART NO.	DESCRIPTION
1.	10035	HHCS, 1/2" - 13 x 4"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
2.	A1896	Bracket, Fertilizer Bar, R.H.
3.	D1747	U-Bolt, 5" x 7" x 3/4" - 10
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
4.	D1339	U-Bolt, 2 1/2" x 2 1/2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
5.	A925	Support, 8 Row 30 and Wide Optional 6 Row Models
6.	D1113	U-Bolt, 5" x 7" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
7.	D1685-1	Bar, 4 Row 30, 112"
	D1685-2	Bar, 4 Row Wide, 136"
	D1685-3	Bar, 6 Row 30", 172"
	D1685-4	Bar, 6 Row Wide, 212"
	D1685-5	Bar, 8 Row 30, 232"
	D1685-6	Bar, 8 Row Wide, 288"
8.	A1895	Bracket, Fertilizer Bar, L.H.

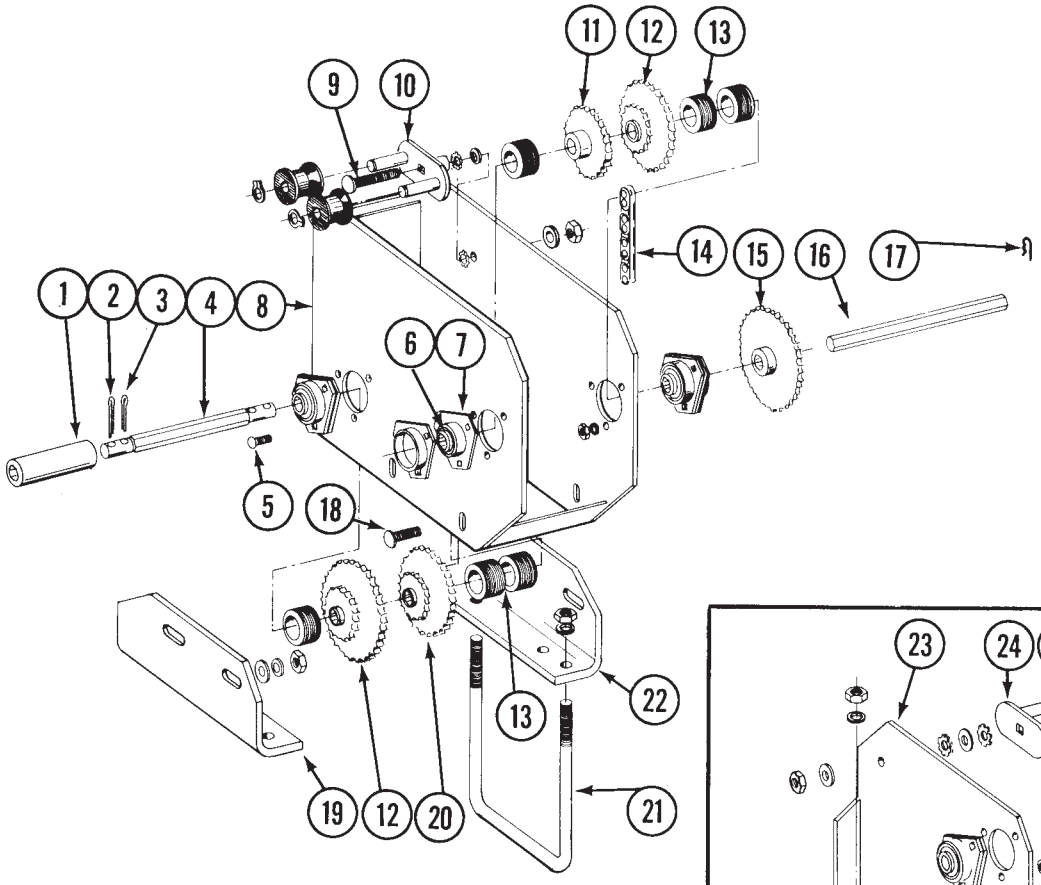
DOUBLE DISK FERTILIZER OPENER

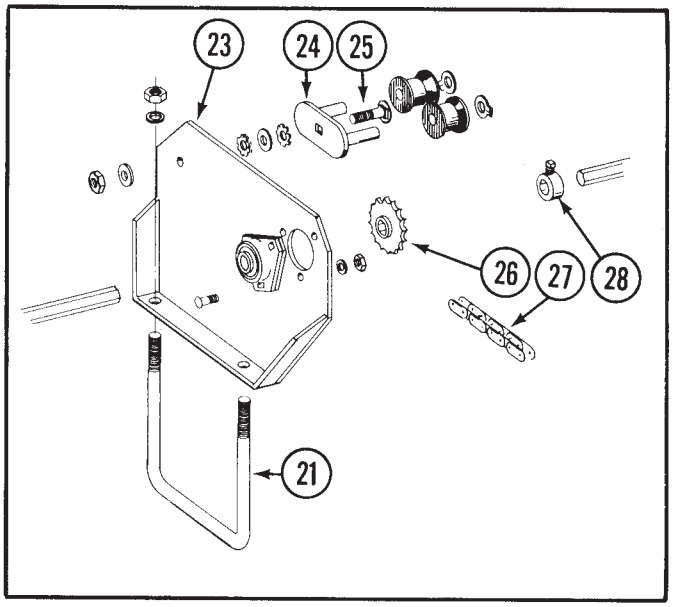


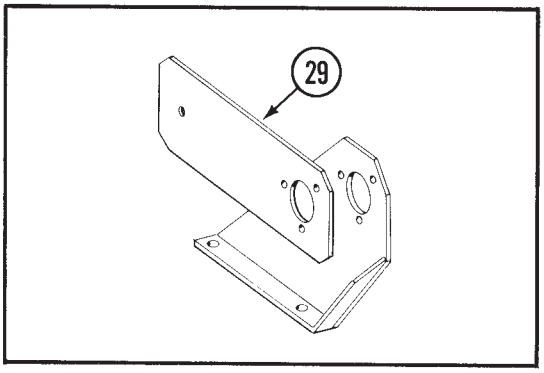
DOUBLE DISK FERTILIZER OPENER

ITEM	PART NO.	DESCRIPTION
1.	10451	Cotter Pin, 1/8" x 1"
2.	D1657	Pin, Lock-Up
3.	A785	Bracket, Mounting
4.	D1339	U-Bolt, 2 1/2" x 2 1/2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
5.	10046	HHCS, 5/8" - 11 x 5"
	10107	Lock Nut, 5/8" - 11
6.	10045	HHCS, 1/2" - 13 x 4 1/2"
	10216	Flat Washer, 1/2"
	10111	Lock Nut, 1/2" - 13
7.	10305	Carriage Bolt, 3/8" - 16 x 1"
	10210	Flat Washer, 3/8" USS
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
8.	D1673	Scraper
9.	A810	Mount, Scraper
10.	A308	Shank
11.	A328	Spring
12.	D962	Hex Head Adjusting Bolt, 5/8" - 18
	10499	Jam Nut, 5/8" - 18
13.	D487	Bushing
14.	D1132	Cap
15.	10651	Rivet, 1/4" x 1 3/8"
16.	10503	Jam Nut, R.H., 5/8" - 11
	10504	Jam Nut, L.H. 5/8" - 11
17.	10204	Machinery Bushing, 21/32"
18.	B134	Hub
19.	A2014	Bearing
20.	D1030	Blade
21.	10213	Machine Bushing, 11/16"
22.	D2589	Scraper, Inner
23.	10019	HHCS, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
24.	A312	Mount
25.	A1369	Drop Tube, Dry Fertilizer
26.	10133	HHCS, 5/16" - 18 x 1 1/2"
	10109	Lock Nut, 5/16" - 18
27.	A318	Drop Tube, Liquid Fertilizer
28.	10673	Clamp, Hose
29.	D1797	Extension
A.	A320	Disk and Bearing Assembly (Items 15, 18-20)
B.	6156X	Double Disk Fertilizer Open with U-Bolts, less Drop Tubes

DRY FERTILIZER TRANSMISSION



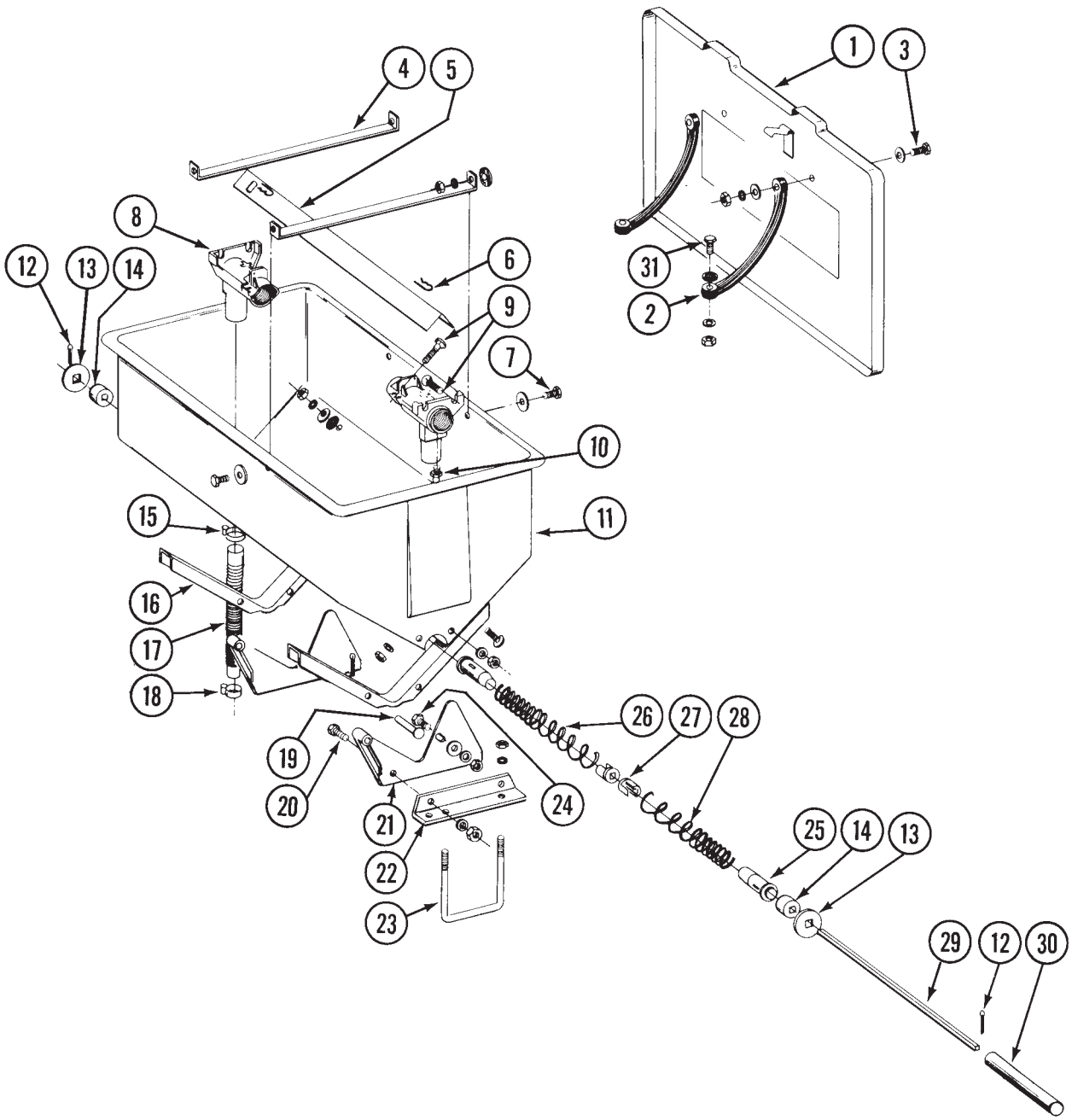




DRY FERTILIZER TRANSMISSION

ITEM	PART NO.	DESCRIPTION
1.		Drive Coupling (See Dry Fertilizer Coupler pages)
2.	10462	Cotter Pin, 3/16" x 2"
3.	10459	Cotter Pin, 3/16" x 1 1/2"
4.	D943	Shaft, Driven
5.	10312	Carriage Bolt, 5/16" - 18 x 3/4", Grade 2
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
6.	2100-3	Bearing 7/8" Hex Bore
7.	3400-1	Flangette
8.	A249	Case
9.	10314	Carriage Bolt, 1/2" - 13 x 3", Grade 2
	10527	Lock Washer, Int./Ext., 1/2"
	10216	Washer, 1/2" USS
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
10.	A284	Idler w/Spools and Retaining Rings
	D1067	Spool
	10435	Ring
11.	2500-14	Sprocket, 24 Tooth
12.	2500-12	Sprocket, 18-36 Tooth
13.	D832	Spacer, Rubber
14.	3300-43	Chain, No. 2040, 43 Links Including Connector and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
15.	2500-15	Sprocket, 32 Tooth
16.	D942	Shaft, Drive
17.	10465	Cotter Pin, 1/4" x 1 1/4"
18.	10301	Carriage Bolt, 3/8" - 16 x 1 1/2", Grade 2
	10210	Washer, 3/8" USS
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
19.	D1715	Bracket, L.H.
20.	2500-3	Sprocket, 16-30 Tooth
21.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
22.	D1716	Bracket, R.H.
23.	A326	Bracket, R.H.
	A327	Bracket, L.H. (Shown)
24.	A289	Idler with Spools and Retaining Rings
	D1067	Spool
	10435	Ring
25.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
	10527	Lock Washer, Int./Ext., 1/2"
	10216	Washer, 1/2" USS
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
26.	2500-16	Sprocket, 16 Tooth
27.	3300-107	Chain, No. 2040, 107 Links, Including Connector and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
28.	D917	Lock Collar, less set screws
	10145	Set Screw, 5/16" - 18 x 1/2"
29.	D2972	Bracket

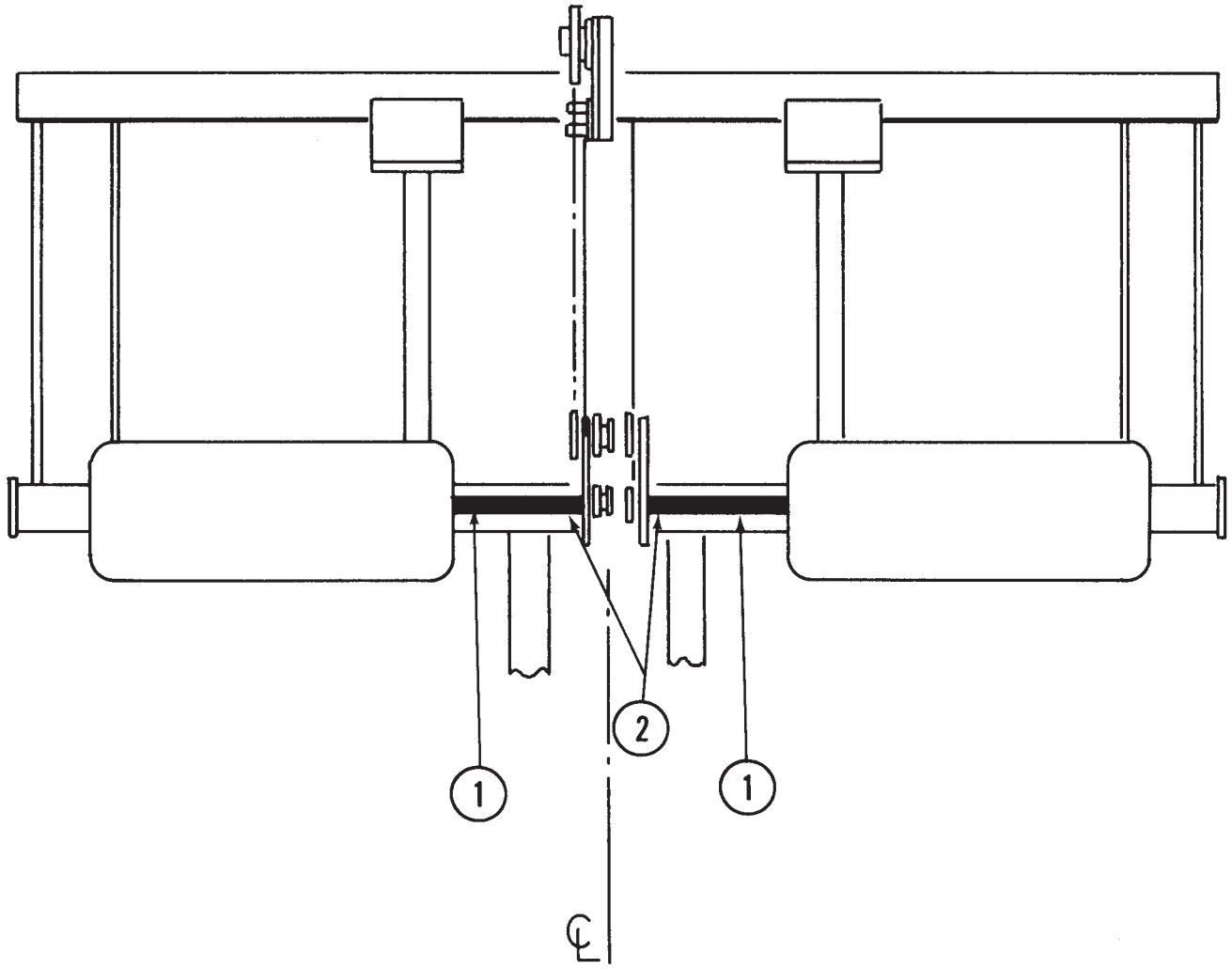
DRY FERTILIZER HOPPER AND MOUNT



DRY FERTILIZER HOPPER AND MOUNT

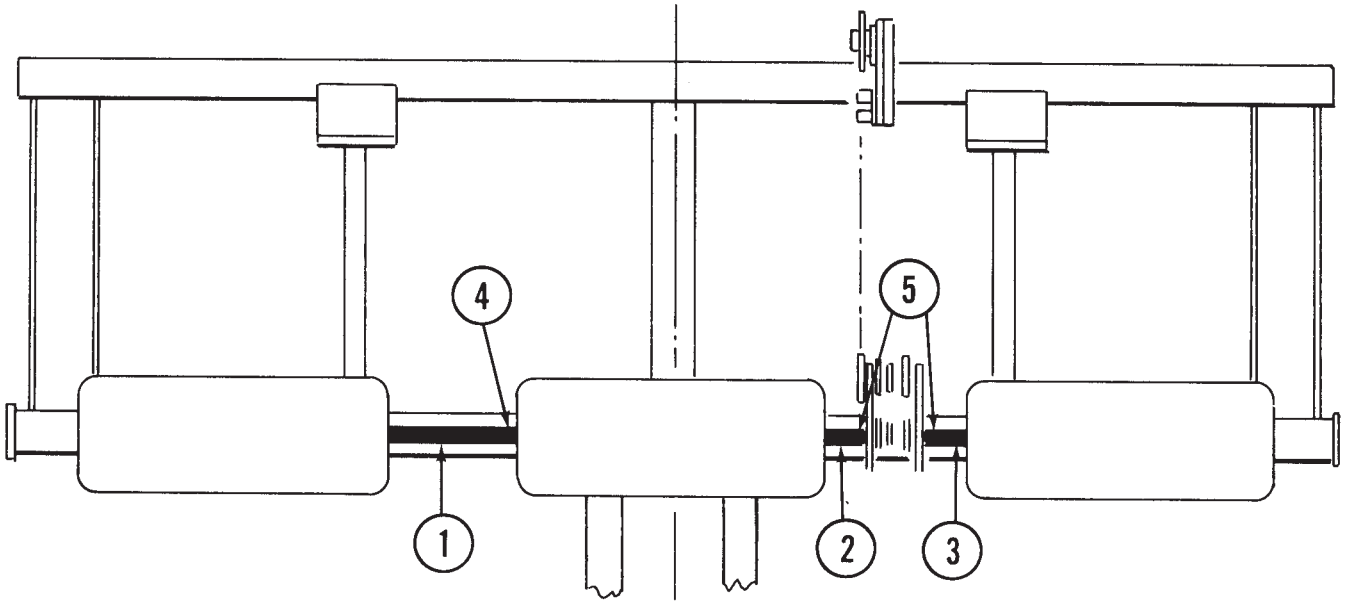
ITEM	PART NO.	DESCRIPTION
1.	A2101	Lid, Includes Clips and Pop Rivets
	D1380	Clip
	10655	Pop Rivet, 3/16" x 13/32"
2.	D1210	Strap, Rubber
3.	10171	HHCS, 5/16" - 18 x 1 1/4"
	10219	Washer, 5/16" USS
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5 1/16" - 18
4.	D1209	Strap, Reinforcing
5.	D1207	Baffle
6.	10670	Hair Pin Clip, No. 3
7.	10171	HHCS, 5/16" - 18 x 1¼"
	10201	Washer, Special
	D1213	Washer, Rubber
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
8.	D1200	Housing, Outlet
9.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
	10219	Washer, 5/16" USS
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
10.	10641	Grease Fitting, 1/8" NPT, 45°
11.	D1379	Hopper
12.	10464	Cotter Pin, 3/16" x 1"
13.	D1212	Washer, Special
14.	D1206	Bearing
15.	10676	Clamp, No. 36
16.	D1208	Saddle
17.	D3790	Tube, Rubber
18.	10672	Clamp, No. 28
19.	10561	Clevis Pin, 1/2" x 3"
	10451	Cotter Pin, 1/8" x 1"
20.	10017	HHCS, 1/2" - 13 x 1 1/2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
21.	A839	Mount, Hopper L.H.
	A840	Mount Hopper R.H.
22.	D1707	Angle, L.H. (Shown)
	D1706	Angle, R.H.
23.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
24.	10037	HHCS, 1/2" - 13 x 1 1/4"
	10206	Washer, 1/2" SAE
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
25.	D1202	Guide
26.	D1204	Spring, R.H., Regular Rate
	D4476	Spring, R.H., High Rate
27.	D1203	Plug
28.	D1205	Spring, L.H., Regular Rate
	D4477	Spring, L.H., High Rate
29.	D1201	Shaft
30.		Drive Coupler, See Dry Fertilizer Coupler pages
31.	10133	HHCS, 5/16" - 18 x 1 1/2"
	10219	Washer, 5/16" USS
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18

4 ROW 30", 4 ROW WIDE DRY FERTILIZER COUPLERS

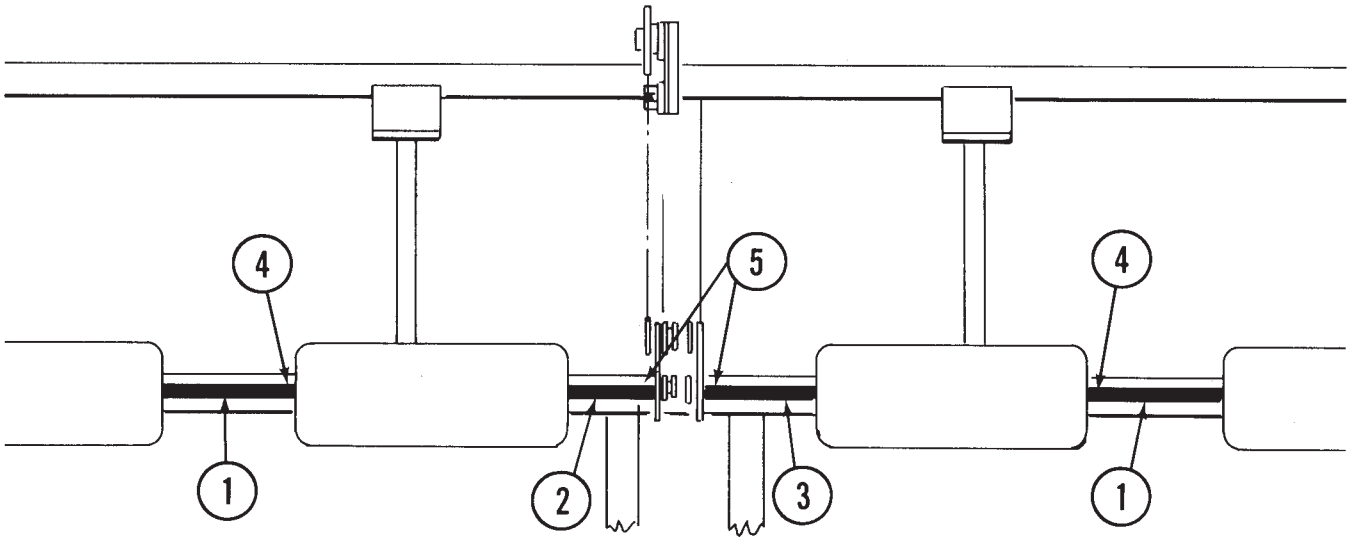


ITEM	PART NO.	DESCRIPTION
1.	A2305	Coupler, 4 5/8", 4 Row 30
	A2309	Coupler, 16 1/8", 4 Row Wide
2.	D2769	Insert, Round

6 ROW 30", 6 ROW WIDE DRY FERTILIZER COUPLERS

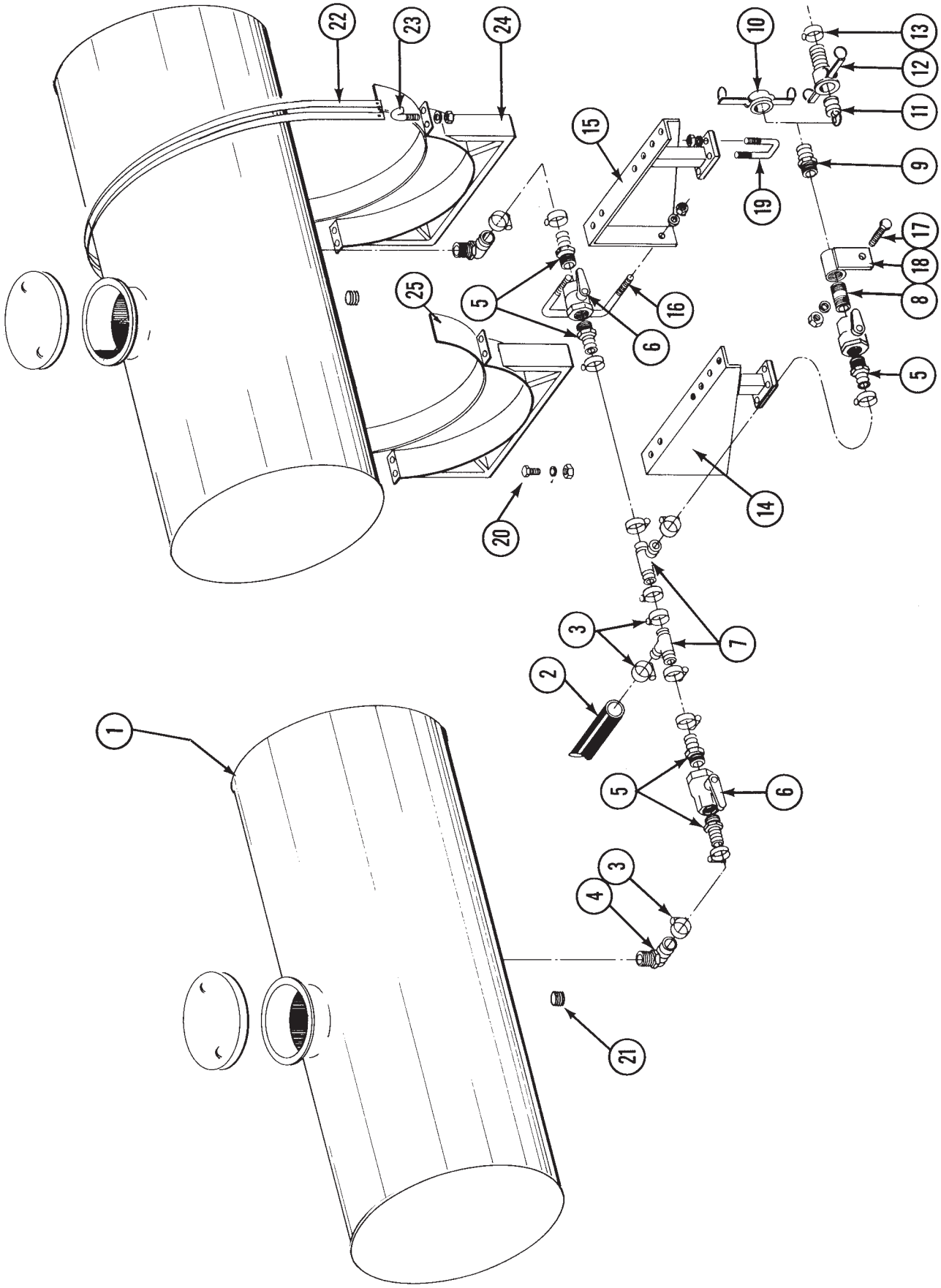


8 ROW 30", 8 ROW WIDE DRY FERTILIZER COUPLERS



ITEM	PART NO.	DESCRIPTION
1.	A2309	Coupler, 16 1/8" 6 Row 30, 8 Row 30
	A2315	Coupler, 30 5/8", 6 Row Wide, 8 Row Wide
2.	A2305	Coupler, 4 5/8", 6 Row 30, 6 Row Wide, 8 Row 30
	A2309	Coupler, 16 1/8", 8 Row Wide
3.	A2305	Coupler, 4 5/8" 6 Row 30, 8 Row 30
	A2310	Coupler, 18 5/8", 6 Row Wide
	A2309	Coupler, 16 1/8", 8 Row Wide
4.	D2768	Insert, Square
5.	D2769	Insert, Round

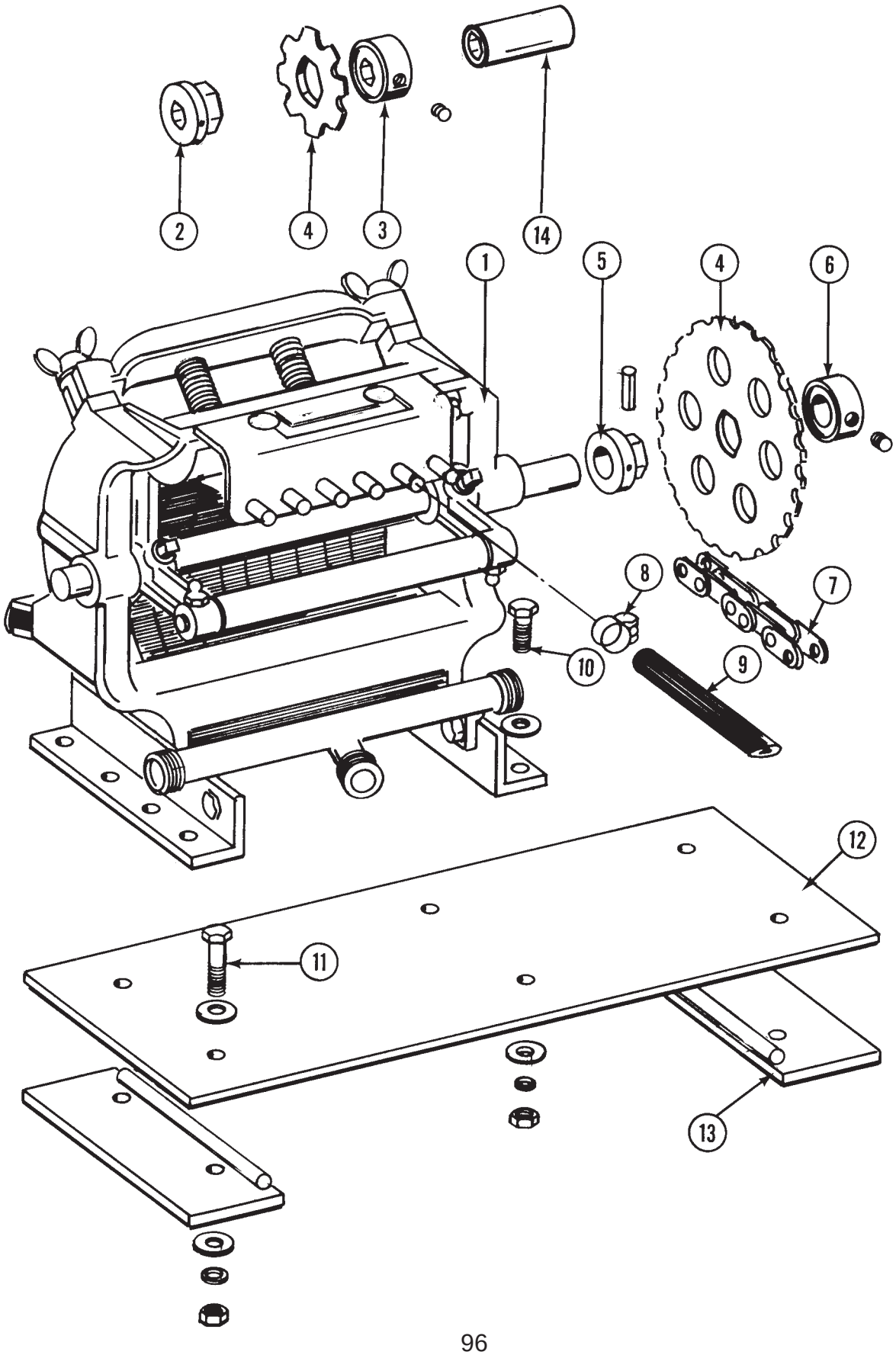
LIQUID FERTILIZER TANKS AND MOUNTING BRACKETS



LIQUID FERTILIZER TANKS AND MOUNTING BRACKETS

ITEM	PART NO.	DESCRIPTION
1.	A2203	Tank w/Lid and 1 1/4 Tank Fitting Assembly, 24" x 110 gallon, used on 4 Row Models
	D2728	1 1/4 Tank Fitting Assembly
	D1340	Lid, 5" w/Splash Guard
	D1812	Tank w/Lid and Fittings, 30" x 150 Gallon used on 6 Row and 8 Row Models
	R513	3/4 Nylon E-Fitting
	R508	1 1/4 Nylon E-Fitting
	R509	Fillwell (Flat)
	R510	Lid, 10"
2.	4200-1	Hose, 1 1/4" x 22', 4 Row
	4200-2	Hose, 1 1/4" x 27', 6 Row
	4200-3	Hose, 1 1/4" x 32', 8 Row
3.	10674	Clamp, No. 24
4.	10742	Elbow, 90°, 1 1/4" NPT to 1 1/4" Barb
5.	10745	Adapter, 1 1/4" NPT to 1 1/4" Barb Fitting
6.	A499	Ball Valve, 1 1/4" Nylon
7.	10750	Tee, 1 1/4", Plastic
8.	10094	Pipe Nipple, 1 1/4" x 3"
9.	D1514	Q Cam, 1 1/4"
10.	D1515	Cap, 1 1/4"
11.	D1517	Plug
12.	D1516	QCHB, 1 1/4"
13.	10672	Clamp, No. 28
14.	A844	Bracket, R.H.
15.	A843	Bracket, L.H.
16.	D1113	U-Bolt, 5/8 - 11 x 5" x 7"
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
17.	10032	HHCS, 1/2" - 13 x 3 3/4"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
18.	A918	Mount, Quick Fill
19.	D1339	U-Bolt, 1/2" - 13 x 2 1/2" x 2 1/2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
20.	10017	HHCS, 1/2" - 13 x 1 1/2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
21.	10096	Pipe Plug, 3/4" Nylon (Used on 150 Gallon Tank Only)
22.	D1335	Band, 24", 4 Row Models
	D1520	Band, 30", 6 Row and 8 Row Models
23.	D1337	J-Bolt, 5/16"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
24.	A919	Saddle, 24", 4 Row Models
	A937	Saddle, 30", 6 Row and 8 Row Models
25.	D1807	Tank Pad, 6" width (14' Roll) 4 Row Models
	D1862	Tank Pad, 8" Width (14' Roll) 6 Row and 8 Row Models

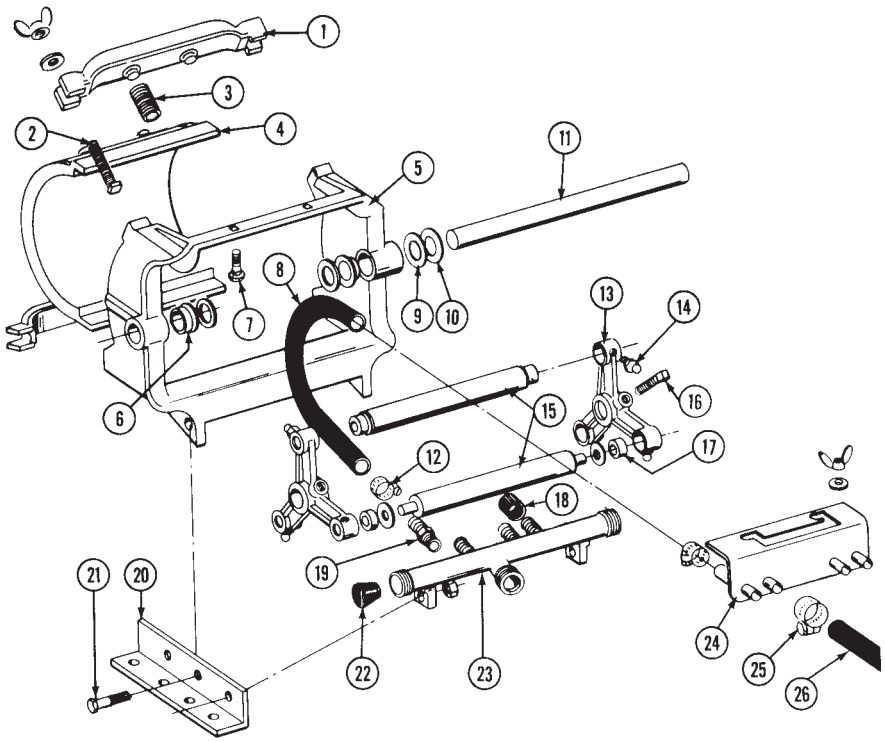
SQUEEZE PUMP MOUNTING BRACKET AND ADAPTER PACKAGE



SQUEEZE PUMP MOUNTING BRACKET AND ADAPTER PACKAGE

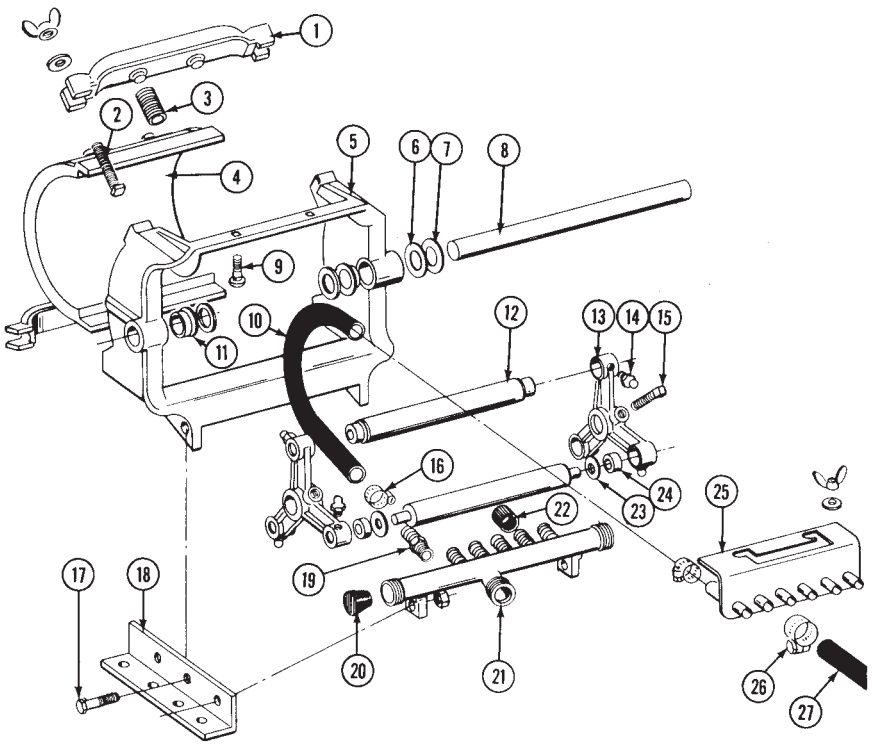
ITEM	PART NO.	DESCRIPTION
1.	A321	Squeeze Pump, 4 Row
	A322	Squeeze Pump, 6 Row
	A323	Squeeze Pump, 8 Row
2.	A2354	Adapter w/Set Screws
	10120	Set Screw, 3/8" - 16 x 1/2"
3.	A2355	Lock Collar w/Set Screws
	10120	Set Screw, 3/8" - 16 x 1/2"
4.	D1217	Sprocket, 8 Tooth
	D1218	Sprocket, 9 Tooth
	D1219	Sprocket, 10 Tooth
	D1220	Sprocket, 15 Tooth
	D1221	Sprocket, 22 Tooth
	D1222	Sprocket, 23 Tooth
	D1223	Sprocket, 26 Tooth
	D1225	Sprocket, 31 Tooth
5.	D1216	Adapter (less Roll Pin) w/Set Screws
	10600	Roll Pin, 5/16" x 2 1/4"
	10120	Set Screw, 3/8" - 16 1/2"
6.	D1215	Lock Collar w/Set Screws
	10120	Set Screw, 3/8" - 16 x 1/2"
7.	3300-75	Chain, No. 2040, 75 Pitch Including Connector and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
8.	10673	Clamp, No. 8
9.	4300-3	Hose, 1/2" x 30', 4 Row
	4300-4	Hose, 1/2" x 50', 6 Row
	4300-5	Hose, 1/2" x 100', 8 Row
10.	10001	HHCS, 3/8" - 16 x 1"
	10210	Flat Washer, 3/8" USS
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
11.	10047	HHCS, 3/8" - 16 x 1 3/4"
	10210	Washer, 3/8" USS
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
12.	D1714	Plate
13.	A846	Clamp
14.	D2219	Coupler 3", Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
A.	6485X	Sprocket & Adapter Package Includes: (1) 10600, (1) D1215, (1) D1216, (1) D1217, (1) D1218, (1) D1219, (1) D1220, (1) D1221, (1) D1222, (1) D1223, (1) D1225, (1) A2354, (1) A2355

LIQUID FERTILIZER SQUEEZE PUMP - 4 ROW MODEL



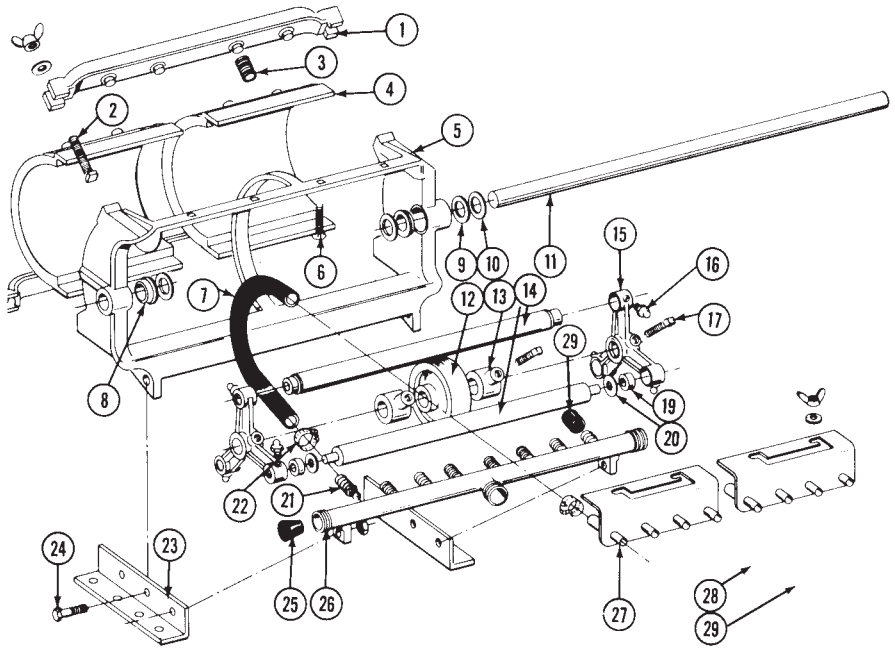
ITEM	PART NO.	DESCRIPTION
1.	R216	Spring Anchor Bar
2.	10130	Sq. Head Machine Bolt, 5/16" - 18 x 1 3/4"
	10219	Washer, 5/16" USS
	10144	Wing Nut, 5/16" - 18
3.	R214	Spring
4.	R212	Plate
5.	R208	Frame
6.	R207	Bushing (Nylon)
7.	10303	Round Head Machine Bolt, 5/16" - 18 x 1"
	10219	Washer, 5/16" USS
	10144	Wing Nut, 5/16" - 18
8.	R215	Metering Hose, 1/2" x 13"
9.	R225	Shim 1/32"
10.	R226	Shim, 3/64"
11.	R210	Shaft
12.	10681	Clamp, No. 6
13.	R223	Roller Arm
14.	10640	Grease Fitting, 1/4" - 28
15.	R209	Roller
16.	10131	Set Screw, 5/16" - 18 x 3/4"
17.	R227	Bushing, Nylon
18.	R211	Rubber Cap
19.	R232	Hose Adapter
20.	R213	Base Angle
21.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10101	Hex Nut, 3/8" - 16
22.	R217	Manifold Plug
23.	R228	Intake Manifold
24.	R224	Discharge Manifold
25.	10673	Clamp, No. 8
26.	4300-3	Hose, 1/2" x 30'
A.	A321	Squeeze Pump Complete

LIQUID FERTILIZER SQUEEZE PUMP - 6 ROW MODEL



ITEM	PART NO.	DESCRIPTION
1.	R216	Spring Anchor Bar
2.	10130	Square Head Machine Bolt, 5/16" - 18 x 1 3/4"
	10219	Washer, 5/16" USS
	10144	Wing Nut, 5/16" - 18
3.	R214	Spring
4.	R212	Plate
5.	R208	Frame
6.	R225	Shim, 1/32"
7.	R226	Shim, 3/64"
8.	R210	Shaft
9.	10303	Round Head Machine Bolt, 5/16" - 18 x 1"
	10219	Washer, 5/16" USS
	10144	Wing Nut, 5/16" - 18
10.	R215	Metering Hose, 1/2" x 13"
11.	R207	Bushing, Nylon
12.	R233	Roller
13.	R231	Roller Arm
14.	10640	Grease Fitting, 1/4" - 28
15.	10131	Set Screw, 5/16" - 18 x 3/4"
16.	10681	Clamp, No. 6
17.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10101	Hex Nut, 3/8" - 16
18.	R213	Base Angle
19.	R232	Hose Adapter
20.	R217	Manifold Plug
21.	R228	Intake Manifold
22.	R211	Rubber Cap
23.	R229	Washer, Nylon
24.	R230	Bearing, Roller
25.	R224	Discharge Manifold
26.	10673	Clamp, No. 8
27.	4300-4	Hose, 1/2" x 50'
A.	A322	Squeeze Pump Complete

LIQUID FERTILIZER SQUEEZE PUMP - 8 ROW MODEL



ITEM	PART NO.	DESCRIPTION
1.	R221	Spring Anchor Bar
2.	10130	Square Head Machine Bolt, 5/16" - 18 x 1 3/4"
	10219	Flat Washer, 5/16'
	10144	Wing Nut, 5/16" - 18
3.	R214	Spring
4.	R212	Plate
5.	R222	Frame
6.	10303	Round Head Machine Bolt, 5/16" - 18 x 1"
	10219	Washer, 5/16" USS
	10144	Wing Nut, 5/16" - 18
7.	R215	Metering Hose, 1/2" x 13"
8.	R207	Bushing, Nylon
9.	R225	Shim, 1/32"
10.	R226	Shim, 3/64"
11.	R220	Shaft
12.	R281	Back Up Roller
13.	R282	Set Collar
14.	R283	Roller
15.	R231	Roller Arm
16.	10640	Grease Fitting, 1/4" - 28
17.	10131	Set Screw, 5/16" - 18 x 3/4"
18.	R211	Rubber Cap
19.	R230	Bearing
20.	R229	Washer, Nylon
21.	R232	Hose Adapter
22.	10681	Clamp, No. 6
23.	R279	Base Angle, Left
	R280	Base Angle, Right
24.	10004	HHCS, 3/8" - 16 x 1 1/4"
	10101	Hex Nut, 3/8" - 16
25.	R217	Manifold Plug
26.	R284	Intake Manifold
27.	R236	Discharge Manifold
28.	10673	Clamp, No. 8
29.	4300-5	Hose, 1/2" x 100'
A.	A323	Squeeze Pump Complete

NUMERICAL INDEX