MODEL
ECONO-FOLD PLANTER

OPERATOR & PARTS MANUAL

M0127 12/87

This manual is applicable to: Model: Econo-Fold
Serial Number : 20001 and up

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

Model Number Econo-Fold

Serial Number _____

Date Purchased _____

NEW MACHINE WARRANTY

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 the 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, restriction 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 obligation.

W12187

TO THE OWNER

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:

Econo-Fold Planter
Model Number EF

Serial Number 20001 and on.

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

Date Purchased _____

Serial Number _____

Model Number _____

NEW MACHINE WARRANTY

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 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 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.

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The foregoing warranty is exclusive and in lieu of all other warranties or 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.

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

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INTRODUCTION

The Econo-Fold Planter is available with a choice of 8 row narrow, 8 row wide and 12 row narrow row spacings. For information on installation of heavy duty coulters and row units refer to the 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, 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.

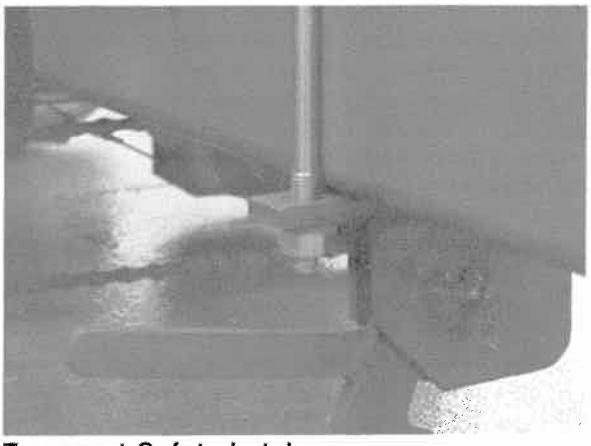
The serial number plate is located on the planter frame to be readily available. It is suggested that the serial number and purchase date also be recorded in the space provided on the inside front cover of this manual. Always provide the serial number and model number to your Kinze dealer when ordering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

SAFETY PRECAUTIONS ⚠

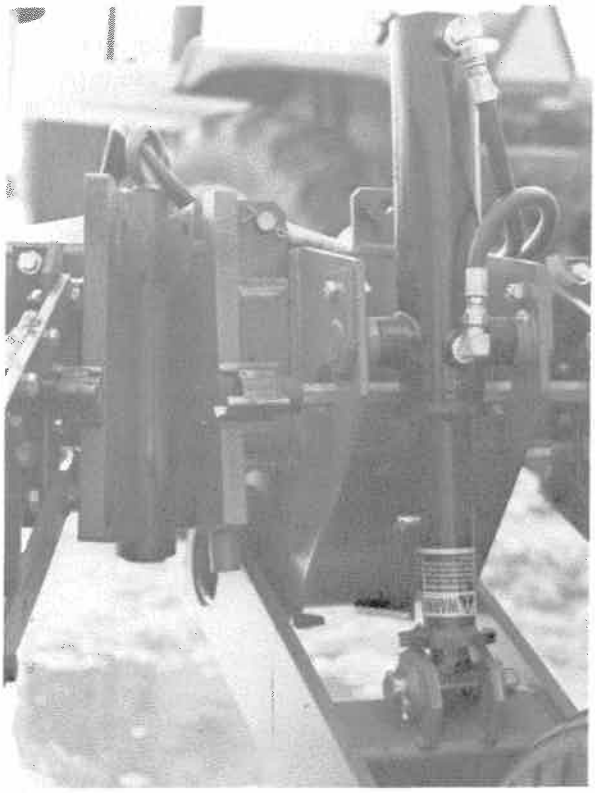
Safe and careful operation of the tractor and planter at all times will contribute significantly to the prevention of accidents.

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 Manual. Listed below are a few other safety suggestions that should become common practice.

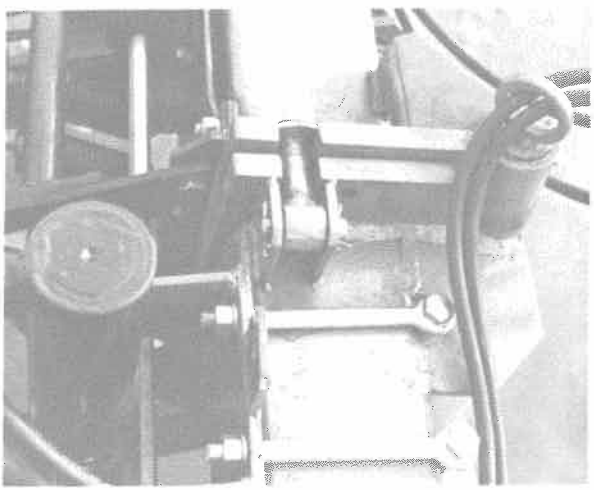
- Never permit any persons other than the operator to ride on the tractor.
- Never ride on the planter frame or allow others to do so.
- Limit towing speeds to 15 MPH. Tow only with farm tractor of at least 50 H.P. size.
- Always make sure there are no persons near the planter when marker assemblies are in operation.
- Always 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 make sure wings are secured with safety latches and wing latch safety pins before towing planter.
- Always install all cylinder lock-up brackets before towing the planter or working under the unit.
- Always secure wing safety locking pins before operating the planter.



Transport Safety Latch



Lift Cylinder Lock-Up Bracket



Wing Safety Locking Pin

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 efficent 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.

⚠ WARNING: 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.

Leveling The Planter

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

Unless the tractor drawbar is adjustable for height, the fore and aft level adjustment must be maintained by the position of the hitch clevis. Three holes in the hitch bracket allow the clevis to be raised or lowered. When installing clevis mounting bolt, tighten hex nut 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.

Tire Pressure

Tire pressure should be checked regularly and maintained as follows:

Drive/Gauge 7:50 x 20" 6 Ply 40 PSI

IMPORTANT: Tire pressure must be correctly maintained in all drive wheel tires to insure levelness and proper operation of planter. All rate charts are based on rolling radius of 7:50 x 20" tires inflated 40 PSI.

OPERATION

Hydraulic Operation

All Econo-Fold planters are equipped with a 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.

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

Both the left and right marker assemblies on all planters 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.

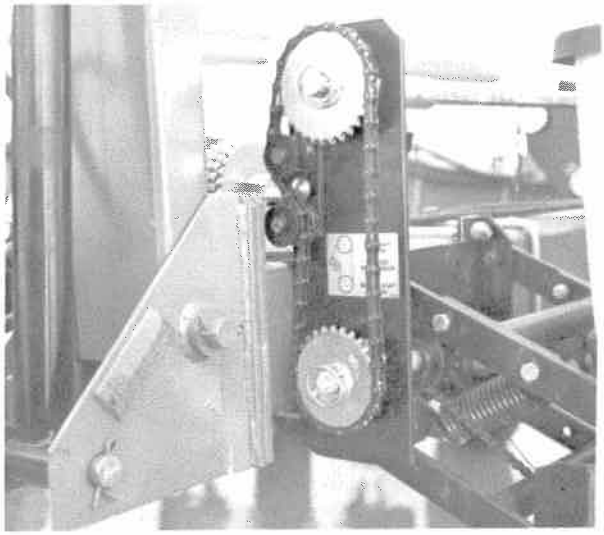
⚠ WARNING: Always position lock-ups in "Safety" position when transporting or storing planter. See Safety Precautions.

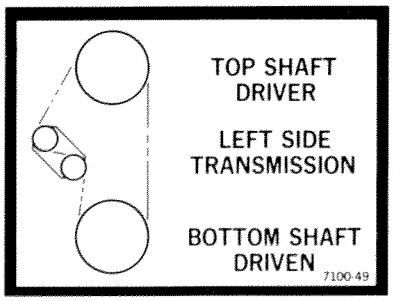
The planter lift system on the Econo-Fold planter should not be operated in the float position. The markers may be operated in either float or fixed position.

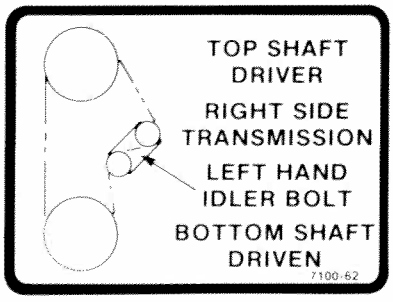
Transmission Adjustment

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 on the tranmission provides proper chain routing. The planting rate charts found at the end of this section will aid you in selecting the correct sprocket combinations. After positioning both sprockets, replace the lynch pins. Then restore tension on the drive chain.







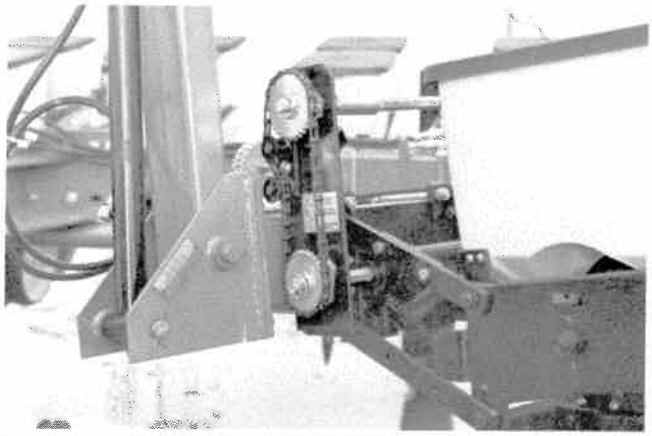
OPERATION

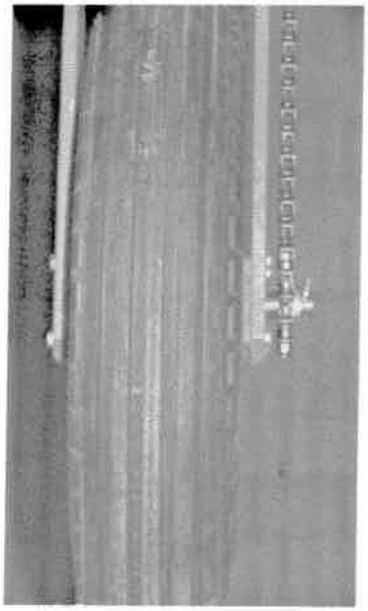
Tractor Speed

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.

Shear Pin Protection

The planter drive line is protected with a shear pin on each transmission and each drive wheel. If the seed meters on the row units fail to operate, check the 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.

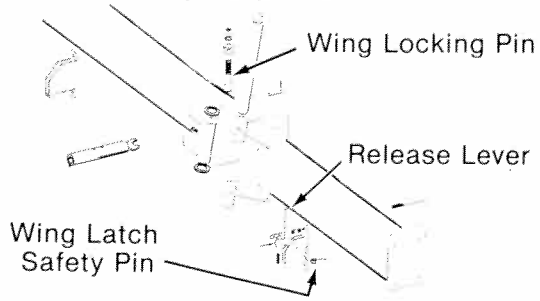
Transporting The Planter

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

Always install cylinder lock-up bracket on lift cylinders and make sure wings are latched before towing planter.

Folding The Planter Wings

The Econo-Fold planter is equipped with hinged wings that fold manually to obtain a narrower width for transporting the planter.



To fold the wing for transport, raise planter completely and install cylinder lock-ups.

NOTE: Remove the wing latch safety pin from the safety latch on the wing of the planter.

Using the special wrench which is stored on the hitch of the planter, loosen the 1 1/4" hex nut which secures the wing locking pin. Swing the wing locking pin over to release the wing of the planter. Swing the wing forward until the wing latches lock together. Reinstall wing latch safety pin in safety latch.

Fold other wing in the same manner.

NOTE: The 8 Row 30 and 8 Row Wide planters are equipped with a triple folding marker in which the 3rd stage must be folded manually before the wings are folded for transport. The 12 Row 30 planter is equipped with a triple folding marker in which chain tension automatically folds the third stage of the marker assembly.

To fold the wing into planting position, remove safety pin in wing latch, release wing latch using the release lever and swing the wing into position. Swing the wing locking pin over to catch the wing plate. Using the special wrench, tighten the 1 1/4" hex nut on the wing locking pin to secure the wing in planting postion.

Fold other wing in the same manner.

NOTE: The 3rd stage of the marker on 8 row 30 and 8 row wide planters must then be extended manually and secured in place using a stabilizer pin and lynch pin.

OPERATION

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, reinspect the unit.

- ☐ Hoses - Fittings
- ☐ Bolts - Nuts
- ☐ Drive Chains

PLANTING RATE FOR PLATELESS CORN METERS

SEED POPULATIONS / ACRE FOR DIFFERENT ROW WIDTHS

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

Above chart for planters equipped with 7:50-20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Transmission Sprockets Drive	Driven	Recommended Speed Range (MPH)
32	27	25	14	30	4 to 8
34	28	27	14	28	4 to 8
36	30	29	14	26	4 to 8
38	32	30	16	28	4 to 8
40	33	31	18	30	4 to 8
40	33	32	16	26	4 to 8
41	34	32	14	22	4 to 8
43	36	34	18	26	4 to 8
45	38	36	16	22	4 to 8
45	38	36	22	30	4 to 8
48	40	38	14	18	4 to 8
49	41	38	22	28	4 to 8
51	42	40	18	22	4 to 8
52	44	41	22	26	4 to 8
54	45	42	26	30	4 to 8
54	45	43	14	16	4 to 8
55	46	44	16	18	4 to 8
58	48	45	26	28	4 to 7 1/2
58	48	46	28	30	4 to 7 1/2
62	52	49	22	22	4 to 7
66	55	52	30	28	4 to 6 1/2
67	56	53	28	26	4 to 6 1/2
70	58	55	18	16	4 to 6 1/2
71	59	56	16	14	3 to 6
72	60	56	30	26	3 to 6
73	61	58	26	22	3 to 6
76	63	60	22	18	3 to 5 1/2
79	66	62	28	22	3 to 5 1/2
80	66	63	18	14	3 to 5 1/2
85	70	67	30	22	3 to 5
85	71	67	22	16	3 to 5
90	75	71	26	18	3 to 5
95	79	75	22	14	3 to 5
98	82	77	26	16	3 to 5
100	84	79	30	18	3 to 5
104	87	82	28	16	3 to 5
109	91	86	26	14	3 to 5
116	97	92	28	14	3 to 5
123	102	97	30	14	3 to 5

Above chart for planters equipped with 7:50 - 20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Driven	Recommended Speed Range (MPH)
120,700	100,600	95,300	7	1.7	14	30	4 to 8
128,500	107,100	101,500	7	1.6	14	28	4 to 8
137,700	114,700	108,700	8	1.5	14	26	4 to 8
144,600	120,500	114,200	8	1.4	16	28	4 to 8
150,200	125,100	118,600	9	1.4	18	30	4 to 8
151,900	126,600	119,900	9	1.4	16	26	4 to 8
155,100	129,300	122,500	9	1.4	14	22	4 to 8
162,200	135,200	128,100	9	1.3	18	26	4 to 8
170,400	142,000	134,600	10	1.2	16	22	4 to 8
171,900	143,200	135,700	10	1.2	22	30	4 to 8
182,300	151,900	143,900	10	1.1	14	18	4 to 8
184,100	153,500	145,400	11	1.1	22	28	4 to 8
191,700	159,800	151,400	11	1.1	18	22	4 to 8
198,300	165,300	156,600	11	1.1	22	26	4 to 8
203,100	169,300	160,400	12	1.0	26	30	4 to 8
205,100	170,900	161,900	12	1.0	14	16	4 to 8
208,300	173,600	164,500	12	1.0	16	18	4 to 8
217,600	181,400	171,800	12	1.0	26	28	4 to 7 1/2
218,700	182,300	172,700	13	1.0	28	30	4 to 7 1/2
234,400	195,300	185,000	13	0.9	22	22	4 to 7
251,100	209,300	198,200	14	0.8	30	28	4 to 6 1/2
252,400	210,300	199,300	14	0.8	28	26	4 to 6 1/2
263,700	219,700	208,100	15	0.8	18	16	4 to 6 1/2
267,800	223,200	211,500	15	0.8	16	14	3 to 6
270,400	225,300	213,500	15	0.8	30	26	3 to 6
277,000	230,800	218,700	16	0.8	26	22	3 to 6
286,400	238,700	226,100	16	0.7	22	18	3 to 5 1/2
298,300	248,600	235,500	17	0.7	28	22	3 to 5 1/2
301,300	251,100	237,900	17	0.7	18	14	3 to 5 1/2
319,600	266,300	252,300	18	0.7	30	22	3 to 5
322,200	268,500	254,400	18	0.7	22	16	3 to 5
338,500	282,100	267,300	19	0.6	26	18	3 to 5
360,500	300,500	284,600	21	0.6	22	14	3 to 5
370,200	308,500	292,200	21	0.6	26	16	3 to 5
379,300	316,100	299,400	22	0.6	30	18	3 to 5
393,700	328,100	310,800	23	0.5	28	16	3 to 5
412,600	343,800	325,700	24	0.5	26	14	3 to 5
438,300	365,200	346,000	25	0.5	28	14	3 to 5
464,500	387,100	366,700	27	0.5	30	14	3 to 5

Above chart for planters equipped with 7:50 - 20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
79,900	66,500	63,000	5	2.6	14	30	4 to 8
85,000	70,800	67,100	5	2.5	14	28	4 to 8
91,100	75,900	71,900	5	2.3	14	26	4 to 8
95,700	79,700	75,500	5	2.2	16	28	4 to 8
99,300	82,800	78,400	6	2.1	18	30	4 to 8
100,400	83,700	79,300	6	2.1	16	26	4 to 8
102,600	85,500	81,000	6	2.0	14	22	4 to 8
107,300	89,400	84,700	6	2.0	18	26	4 to 8
112,700	93,900	89,000	6	1.9	16	22	4 to 8
113,700	94,700	89,700	7	1.8	22	30	4 to 8
120,600	100,500	95,200	7	1.7	14	18	4 to 8
121,800	101,500	96,100	7	1.7	22	28	4 to 8
126,800	105,700	100,100	7	1.7	18	22	4 to 8
131,200	109,300	103,500	8	1.6	22	26	4 to 8
134,300	111,900	106,100	8	1.6	26	30	4 to 8
135,600	113,000	107,100	8	1.5	14	16	4 to 8
137,800	114,800	108,800	8	1.5	16	18	4 to 8
143,900	119,900	113,600	8	1.5	26	28	4 to 7 1/2
144,700	120,600	114,200	8	1.4	28	30	4 to 7 1/2
155,000	129,200	122,400	9	1.4	22	22	4 to 7
166,100	138,400	131,100	10	1.3	30	28	4 to 6 1/2
166,900	139,100	131,800	10	1.3	28	26	4 to 6 1/2
174,400	145,300	137,700	10	1.2	18	16	4 to 6 1/2
177,100	147,600	139,800	10	1.2	16	14	3 to 6
178,800	149,000	141,200	10	1.2	30	26	3 to 6
183,200	152,700	144,600	10	1.1	26	22	3 to 6
189,400	157,900	149,600	11	1.1	22	18	3 to 5 1/2
197,300	164,400	155,700	11	1.1	28	22	3 to 5 1/2
199,300	166,100	157,300	11	1.1	18	14	3 to 5 1/2
211,400	176,100	166,900	12	1.0	30	22	3 to 5
213,100	177,600	168,300	12	1.0	22	16	3 to 5
223,900	186,600	176,800	13	0.9	26	18	3 to 5
238,500	198,700	188,300	14	0.9	22	14	3 to 5
244,800	204,000	193,300	14	0.9	26	16	3 to 5
250,800	209,000	198,000	14	0.8	30	18	3 to 5
260,400	217,000	205,600	15	0.8	28	16	3 to 5
272,900	227,400	215,400	16	0.8	26	14	3 to 5
289,900	241,500	228,800	17	0.7	28	14	3 to 5
307,200	256,000	242,600	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 7:50 - 20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Seeds Foot	Seed Spacing (inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
53,500	44,600	42,200	3	3.9	14	30	4 to 8
56,900	47,400	44,900	3	3.7	14	28	4 to 8
61,000	50,800	48,100	3	3.4	14	26	4 to 8
64,100	53,400	50,600	4	3.3	16	28	4 to 8
66,500	55,400	52,500	4	3.2	18	30	4 to 8
67,300	56,000	53,100	4	3.1	16	26	4 to 8
68,700	57,200	54,200	4	3.1	14	22	4 to 8
71,900	59,900	56,700	4	2.9	18	26	4 to 8
75,500	62,900	59,600	4	2.8	16	22	4 to 8
76,100	63,400	60,100	4	2.8	22	30	4 to 8
80,700	67,300	63,700	5	2.6	14	18	4 to 8
81,500	68,000	64,400	5	2.6	22	28	4 to 8
84,900	70,800	67,000	5	2.5	18	22	4 to 8
87,800	73,200	69,300	5	2.4	22	26	4 to 8
90,000	75,000	71,000	5	2.3	26	30	4 to 8
90,800	75,700	71,700	5	2.3	14	16	4 to 8
92,300	76,900	72,800	5	2.3	16	18	4 to 8
96,400	80,300	76,100	6	2.2	26	28	4 to 7 1/2
96,900	80,700	76,500	6	2.2	28	30	4 to 7 1/2
103,800	86,500	81,900	6	2.0	22	22	4 to 7
111,200	92,700	87,800	6	1.9	30	28	4 to 6 1/2
111,800	93,100	88,200	6	1.9	28	26	4 to 6 1/2
116,800	97,300	92,200	7	1.8	18	16	4 to 6 1/2
118,600	98,800	93,600	7	1.8	16	14	3 to 6
119,800	99,800	94,500	7	1.7	30	26	3 to 6
122,700	102,200	96,800	7	1.7	26	22	3 to 6
126,900	105,700	100,100	7	1.7	22	18	3 to 5 1/2
132,100	110,100	104,300	8	1.6	28	22	3 to 5 1/2
133,400	111,200	105,300	8	1.6	18	14	3 to 5 1/2
141,500	117,900	111,700	8	1.5	30	22	3 to 5
142,700	118,900	112,700	8	1.5	22	16	3 to 5
149,900	124,900	118,400	9	1.4	26	18	3 to 5
159,700	133,100	126,100	9	1.3	22	14	3 to 5
164,000	136,600	129,400	9	1.3	26	16	3 to 5
168,000	140,000	132,600	10	1.2	30	18	3 to 5
174,400	145,300	137,700	10	1.2	28	16	3 to 5
182,700	152,300	144,300	10	1.1	26	14	3 to 5
194,100	161,700	153,200	11	1.1	28	14	3 to 5
205,700	171,400	162,400	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 7:50-20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
7.6	6.3	6.0	14	30	4 to 8
8.0	6.7	6.3	14	28	4 to 8
8.5	7.1	6.7	14	26	4 to 8
9.0	7.5	7.1	16	28	4 to 8
9.3	7.8	7.4	18	30	4 to 8
9.5	7.9	7.5	16	26	4 to 8
9.8	8.2	7.7	14	22	4 to 8
10.5	8.7	8.3	18	26	4 to 8
11.0	9.2	8.7	16	22	4 to 8
11.1	9.2	8.7	22	30	4 to 8
11.7	9.8	9.3	14	18	4 to 8
11.9	9.9	9.4	22	28	4 to 8
12.4	10.3	9.8	18	22	4 to 8
12.8	10.6	10.1	22	26	4 to 8
13.1	10.9	10.3	26	30	4 to 8
13.2	11.0	10.4	14	16	4 to 8
13.4	11.2	10.6	16	18	4 to 8
14.0	11.7	11.1	26	28	4 to 7 1/2
14.1	11.7	11.1	28	30	4 to 7 1/2
15.1	12.6	11.9	22	22	4 to 7
16.2	13.5	12.8	30	28	4 to 6 1/2
16.3	13.6	12.8	28	26	4 to 6 1/2
17.0	14.2	13.4	18	16	4 to 6 1/2
17.3	14.4	13.6	16	14	3 to 6
17.4	14.5	13.8	30	26	3 to 6
17.8	14.9	14.1	26	22	3 to 6
18.5	15.4	14.6	22	18	3 to 5 1/2
19.2	16.0	15.2	28	22	3 to 5 1/2
19.4	16.2	15.3	18	14	3 to 5 1/2
20.6	17.2	16.3	30	22	3 to 5
20.8	17.3	16.4	22	16	3 to 5
21.8	18.2	17.2	26	18	3 to 5
23.4	19.5	18.5	22	14	3 to 5
24.1	20.1	19.0	26	16	3 to 5
24.6	20.5	19.4	30	18	3 to 5
25.6	21.4	20.2	28	16	3 to 5
26.9	22.4	21.2	26	14	3 to 5
28.5	23.7	22.5	28	14	3 to 5
30.0	25.0	23.7	30	14	3 to 5

Above chart for planters equipped with 7:50 - 20 inch drive tires and 30:24 drive/driven 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

30 Inch	36 Inch	38 Inch	Transmission Sprockets		Recommended Speed Range (MPH)
			Drive	Driven	
1.5	1.2	1.1	14	30	4 to 8
1.5	1.3	1.2	14	28	4 to 8
1.6	1.4	1.3	14	26	4 to 8
1.7	1.4	1.4	16	28	4 to 8
1.8	1.5	1.4	18	30	4 to 8
1.8	1.5	1.4	16	26	4 to 8
1.9	1.6	1.5	14	22	4 to 8
2.0	1.7	1.6	18	26	4 to 8
2.1	1.8	1.7	16	22	4 to 8
2.1	1.8	1.7	22	30	4 to 8
2.3	1.9	1.8	14	18	4 to 8
2.3	1.9	1.8	22	28	4 to 8
2.4	2.0	1.9	18	22	4 to 8
2.5	2.0	1.9	22	26	4 to 8
2.5	2.1	2.0	26	30	4 to 8
2.5	2.1	2.0	14	16	4 to 8
2.6	2.1	2.0	16	18	4 to 8
2.7	2.2	2.1	26	28	4 to 7 1/2
2.7	2.3	2.1	28	30	4 to 7 1/2
2.9	2.4	2.3	22	22	4 to 7
3.1	2.6	2.5	30	28	4 to 6 1/2
3.1	2.6	2.5	28	26	4 to 6 1/2
3.3	2.7	2.6	18	16	4 to 6 1/2
3.3	2.8	2.6	16	14	3 to 6
3.3	2.8	2.6	30	26	3 to 6
3.4	2.9	2.7	26	22	3 to 6
3.5	3.0	2.8	22	18	3 to 5 1/2
3.7	3.1	2.9	28	22	3 to 5 1/2
3.7	3.1	2.9	18	14	3 to 5 1/2
4.0	3.3	3.1	30	22	3 to 5
4.0	3.3	3.1	22	16	3 to 5
4.2	3.5	3.3	26	18	3 to 5
4.5	3.7	3.6	22	14	3 to 5
4.6	3.9	3.7	26	16	3 to 5
4.7	3.9	3.7	30	18	3 to 5
4.9	4.1	3.9	28	16	3 to 5
5.2	4.3	4.1	26	14	3 to 5
5.5	4.6	4.3	28	14	3 to 5
5.8	4.8	4.6	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 7:50 - 20 inch drive tires and 30:24 drive/driven 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

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 7:50 - 20 inch drive tires and 30:24 drive/driven 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 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

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 7:50 - 20 inch drive tires and 30:24 drive/driven 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 incidence 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.

DRY INSECTICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS — CLAY GRANULES

Meter Setting	30 Inch	36 Inch	38 Inch
10	5.1	4.3	4.0
11	5.6	4.7	4.4
12	6.3	5.3	5.0
13	7.1	5.9	5.6
14	7.9	6.6	6.2
15	8.8	7.3	6.9
16	9.9	8.3	7.8
17	11.0	9.2	8.7
18	11.8	9.8	9.3
19	13.5	11.3	10.7
20	14.6	12.2	11.5
21	16.0	13.3	12.6
22	16.9	14.1	13.3
23	17.7	14.8	14.0
24	19.4	16.2	15.3
25	21.5	17.9	17.0
26	23.7	19.8	18.7
27	24.8	20.7	19.6
28	26.2	21.8	20.7
29	28.7	23.9	22.7
30	30.5	25.4	24.1

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - SAND GRANULES

5	3.0	2.5	2.4
6	5.0	4.2	3.9
7	5.5	4.6	4.3
8	6.5	5.4	5.1
9	8.0	6.7	6.3
10	9.2	7.7	7.3
11	10.5	8.8	8.3
12	11.5	9.6	9.1
13	13.0	10.8	10.3
14	14.5	12.1	11.4
15	16.0	13.3	12.6
16	18.0	15.0	14.2
17	20.0	16.7	15.8
18	22.5	18.8	17.8
19	25.0	20.8	19.7
20	26.5	22.1	20.9
21	28.5	23.8	22.5
22	30.5	25.4	24.1
23	33.0	27.5	26.1
24	35.5	29.6	28.0
25	38.0	31.7	30.0

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	30 Inch	36 Inch	38 Inch
10	4.8	4.0	3.8
11	5.4	4.5	4.3
12	6.0	5.0	4.7
13	6.7	5.6	5.3
14	7.5	6.3	5.9
15	8.5	7.1	6.7
16	9.3	7.8	7.3
17	10.2	8.5	8.1
18	11.0	9.2	8.7
19	12.0	10.0	9.5
20	13.0	10.8	10.3
21	14.0	11.7	11.1
22	15.0	12.5	11.8
23	16.2	13.5	12.8
24	17.5	14.6	13.8
25	18.7	15.6	14.8
26	20.0	16.7	15.8
27	21.5	17.9	17.0
28	23.3	19.4	18.4
29	25.0	20.8	19.7
30	27.5	22.9	21.7

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.

LUBRICATION

The following chart shows 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 fitting 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.

Refer to your Row Unit Manual for lubrication of all row units.

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

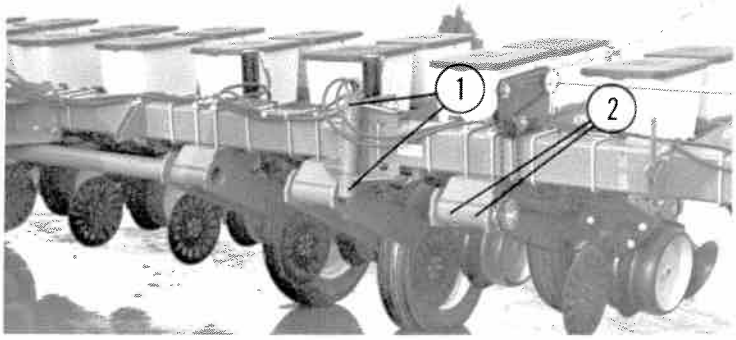
The transmission and drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 10 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may require 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.

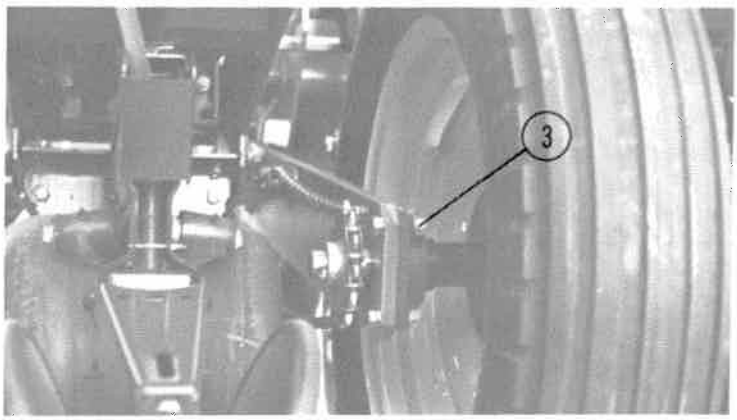
Wheel Bearings

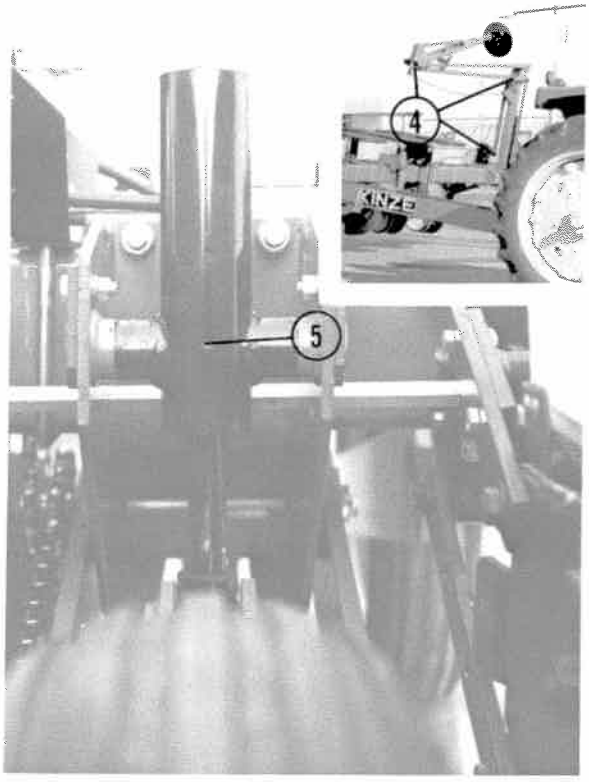
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all transport wheels and marker hubs. Follow the procedure outlined for wheel bearing replacement with the exception that bearings and bearing cups are reused.

Lubrication Chart

Ref. No.	Description	No. of Zerks	Frequency
1.	Wing Hinge	2 Per Side	10 Hours
2.	Wheel Module Pivot	2 Per Module	10 Hours
3.	Flange Bearing (Wheel Modules)	4	10 Hours
4.	Marker Assembly, 8 Row 30 and Wide	3 Per Marker	10 Hours
	Marker Assembly, 12 Row 30	3 Per Marker	10 Hours
5.	Canister Assembly	1 Per Canister	10 Hours







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.

All bolts used on the Kinze planter are Grade 5 (high strength) unless otherwise noted. 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.

NOTE: R.H. hardware is used to mount drive chain idler bracket to wheel module on L.H. side of planter and L.H. hardware is used to mount drive chain idler bracket on R.H. side of planter.

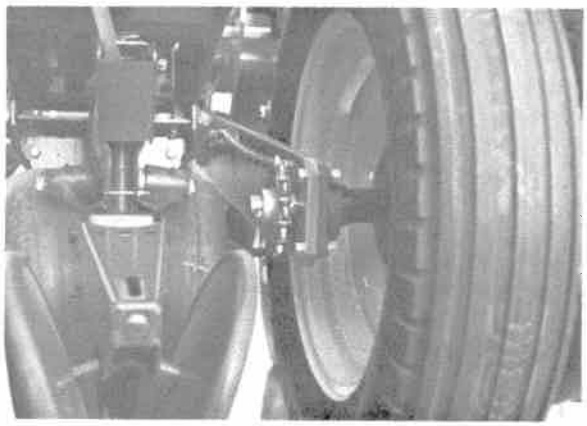
Chain Tension Adjustment

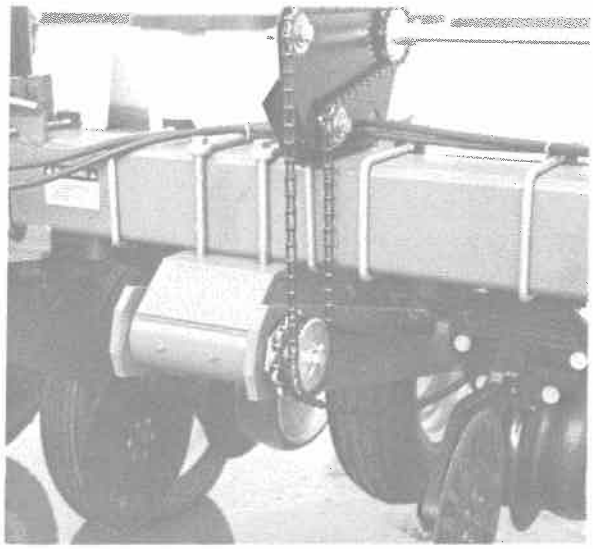
The drive chain from the drive gauge wheel to the module counter shaft as well as the drive chain in the seed drive transmission is equipped with an idler assembly which is held in a fixed position with a carriage bolt.To increase tension loosen nut and pivot idler assembly against the chain to obtain sufficient tension on the longest span. Retighten hex nut.

See decal located on planter for seed transmission chain routing.

The drive chain from the module counter shaft to the main drive shaft is equipped with an idler sprocket. To adjust tension loosen sprocket mounting hardware and move idler sprocket against the chain to obtain proper adjustment. Retighten hardware.

On planters equipped with markers that have chain linkage for folding the 3rd stage of the marker, this adjustment is critical. Adjust chain with the 2nd stage of the marker in the vertical position and the 1st stage in the horizontal position. Chain must be adjusted so the 3rd stage of the marker is pulled out as soon as the 2nd stage begins outward travel. The chain will stretch and need to be readjusted with usage. It may be necessary to twist the chain for a finer adjustment.

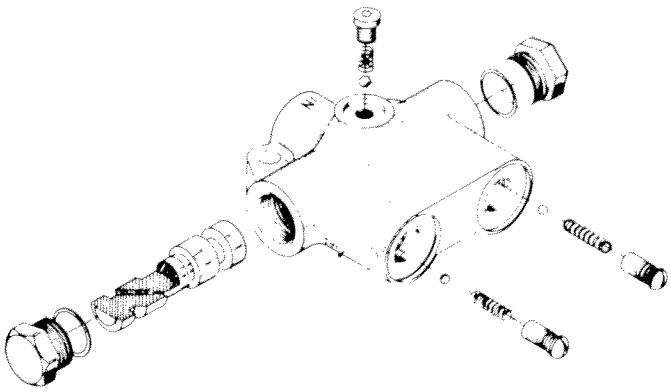




MAINTENANCE

Sequencing Valve Inspection

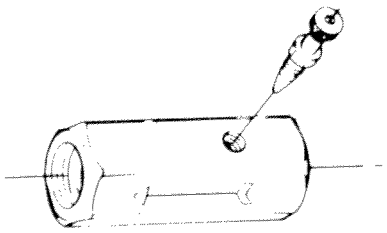
The sequencing valve consists of a chambered body containing a spool and a series of check valves to direct hydraulic flow. Should the valve malfunction, the components may be removed for inspection. The spool is accessable by removing either side plug and one check valve is accessable from the top of 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 parts 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 Inspection

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. Replace any components found to be defective.



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

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. (Where applicable)
3. Remove cotter pin, axle nut(s) and washer. (Where applicable)
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 bearing surfaces are in contact. Back off slotted nut to nearest locking slot and install cotter pin. On hub assemblies assembled with jam nuts instead of slotted hex nut, reinstall and tighten jam nuts.
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.

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

Clean seed meters and store in a dry area.

ASSEMBLY

The following instructions are provided for assembly of the Kinze Econo-Fold 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.

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. through your dealer 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. All bolts are distinguished by the radial lines on the bolt head. (See chart). Hardware is R.H. thread unless otherwise noted.

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, idlers, etc. Then tighten all bolts to the torque value specified below unless otherwise noted.

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	

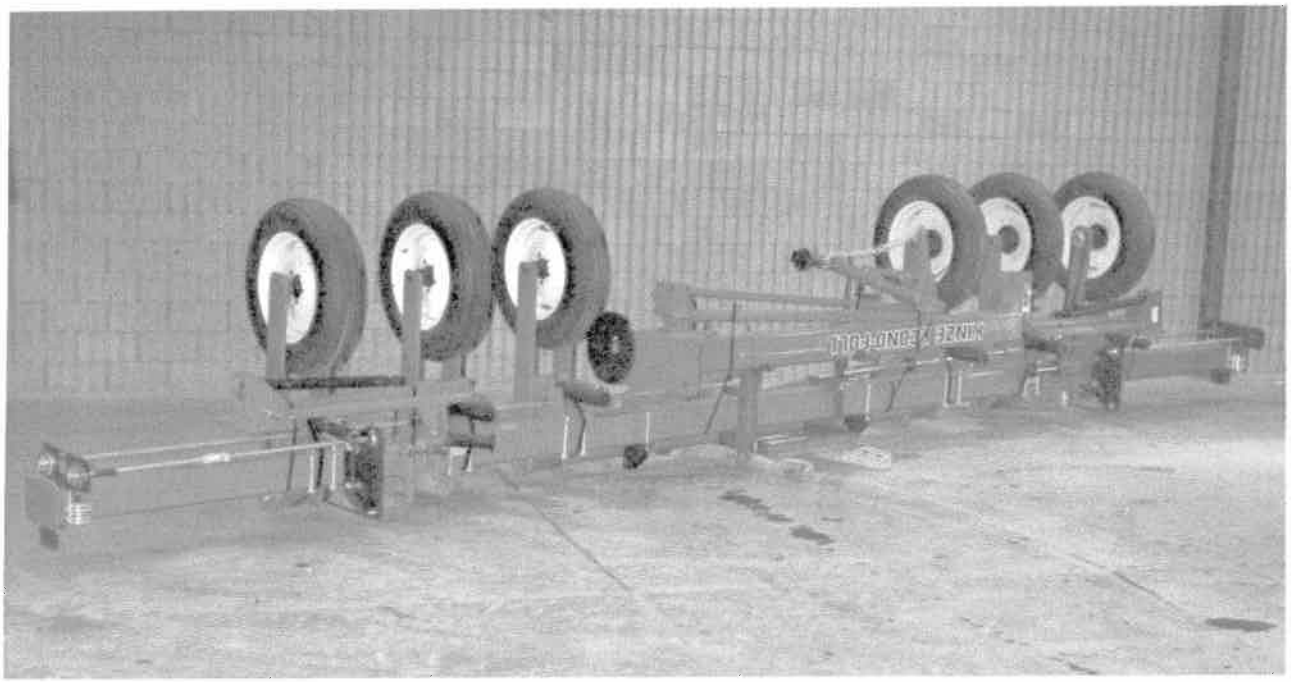
NOTE: Bolts having lock nuts should be tightened to approximately 50% of amounts shown in above chart. Also bolts lubricated prior to installation should be torqued to 70% of value shown on chart.

FRAME ASSEMBLY

Each bundle should contain:

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

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



ASSEMBLY

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

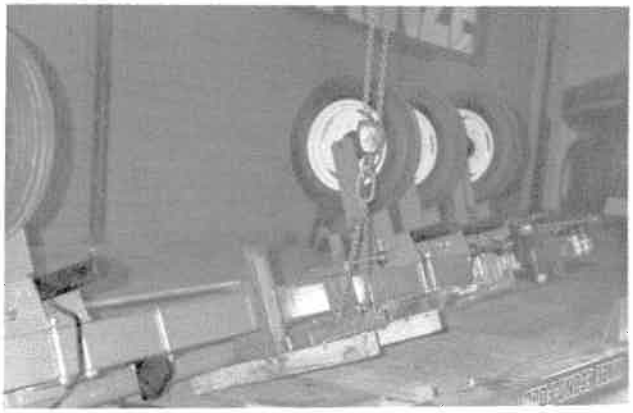
CAUTION: Do not cut bands supporting wheel modules until frame has been lowered to the horizontal position.

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

⚠ WARNING: Use caution when cutting bands. Support markers so they cannot fall when bands are cut.

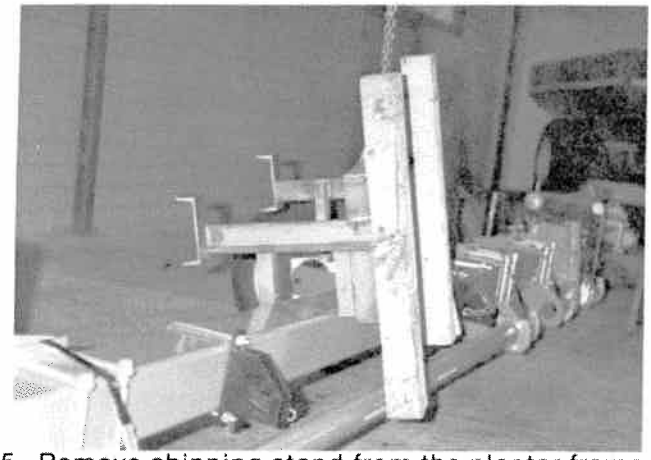
3. Remove the markers from the shipping stand.

NOTE: Unbolt marker blades from the hitch before taking the hitch off of the shipping stand.



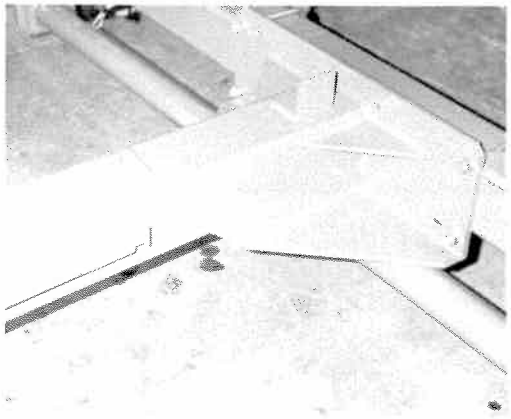
4. By lifting the front of the shipping stand, rotate the planter frame to a horizontal position.

⚠ WARNING: Stand clear of planter frame when rotating to the horizontal position.



5. Remove shipping stand from the planter frame.

6. Cut shipping bands on wheel modules. Remove and discard the 2 sets of 3/4" cap screws, lock washers and hex nuts on each wing plate which hold the frame rigid for shipping.



7. Support the planter frame, center and bolt on the hitch assembly using two 7" x 7" x 3/4" U-bolts. Tighten U-bolts evenly to assure the hitch draws up securely to the frame. Complete the hitch installation by adding the four 3/4" x 9 1/2" cap screws, lock washers, hex nuts and two 1 3/4" x 9 3/4" mounting bars.

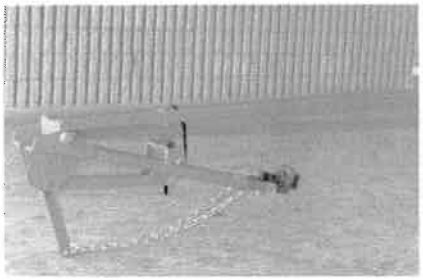
NOTE: Hex bolts rather than U-bolts are used to mount the inside angle-iron support for the center row units.

ASSEMBLY

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

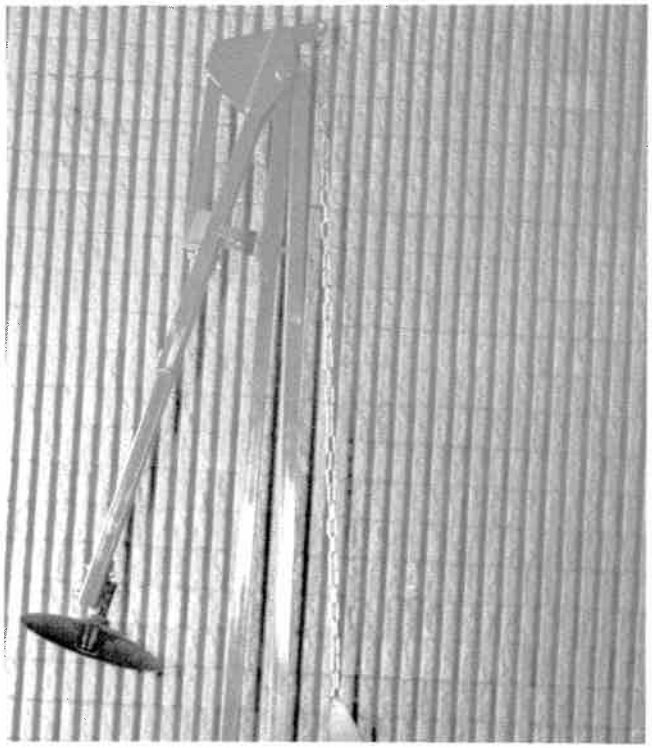
9. Mount marker mount and first stage assembly to the planter frame using four 1/2" x 1 3/4" grade 5 cap screws, lock washers and hex nuts per marker.

10. Mount second and third stage of marker assembly to first stage. Right and left is determined by the hub spindle projecting forward. On 12 row 30 models install chain between first stage and third stage of marker assembly.

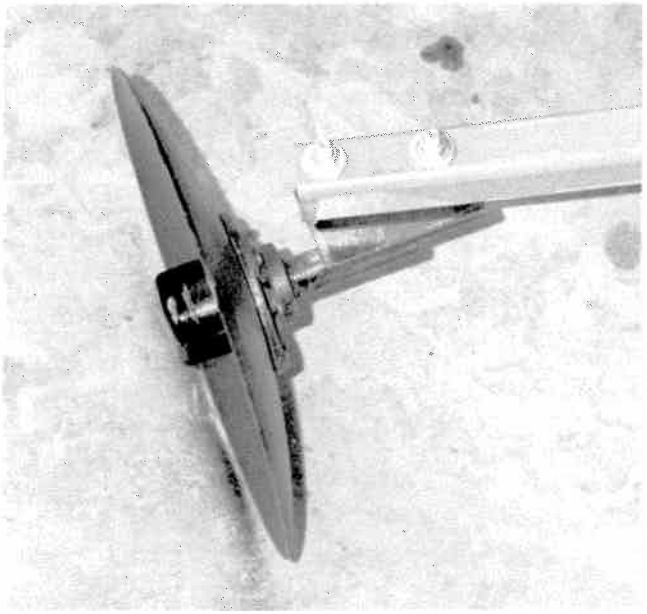


NOTE: Chain adjustment is critical. Adjust chain with the second stage of the marker in the vertical position and the first stage in the horizontal position. Chain must be adjusted so the third stage of the marker is pulled out as soon as the second stage begins outward travel. Chain will stretch and need to be readjusted with usage. It may be necessary to twist the chain for a finer adjustment.

NOTE: Do not connect the rod end of the cylinder to the second stage until the hydraulic hoses have been assembled and cycled.



11. Attach the 16" blade to the hub using the preinstalled bolts. Be sure to alternate bolts while tightening to avoid distorting the blade's 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. The spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt.

12. **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		Dimension
X	=	between planter
Row Spacing (Inches)		center line and marker blade

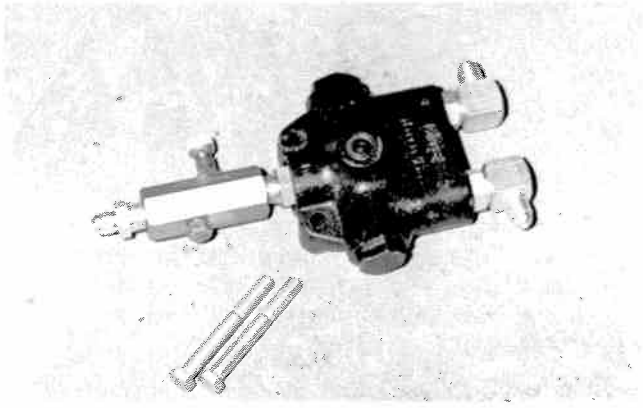
8 x 30" = 240" Marker Dimension

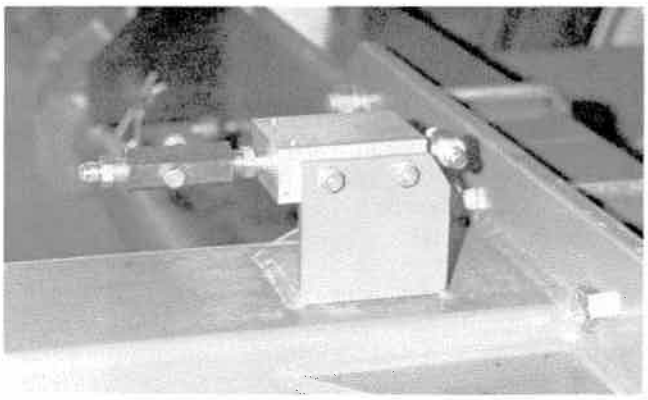
13. Remove the plugs from all cylinder parts.

NOTE: Depending upon the planter model you are assembling, see Hydraulic Section pages in the Parts Section for fitting and hose information.

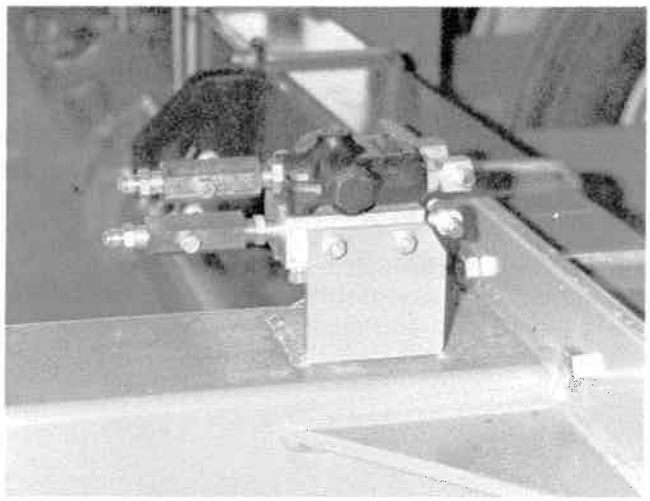
14. Install an adapter and a flow control to the front side of the sequencing valve and an adapter and a flow control to the front side of the mounting block.

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



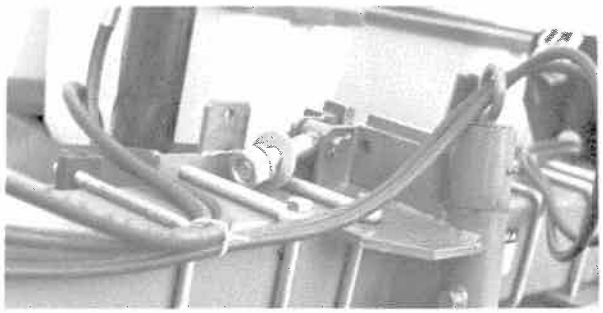


NOTE: The flow control valves are used to regulate the speed of the marker. To properly match the marker cylinder speed to your tractor's hydraulic system, loosen the lock nut which secures the knurled adjustment knob in place. To increase the cylinder speed turn the valve counter-clockwise opening the valve. To decrease the cylinder speed turn the valve clockwise. 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.

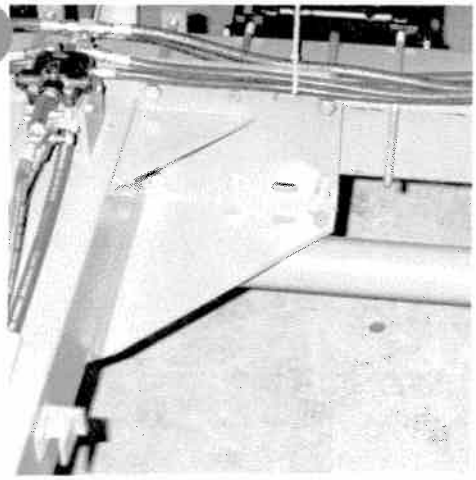


15. Mount mounting block on hitch using two 3/8" x 1 1/4" cap screws and lock washers. Mount sequencing valve to mounting block with two 3/8" x 3" cap screws, lock washers and hex nuts. The sequencing valve is used to alternate the marker raise and lowering automatically.

16. Install hoses and fittings and secure hydraulic hoses to planter with hose clamps and nylon tie straps.



ASSEMBLY



17. Install customer supplied coupler on tractor end of each hose. The couplers installed must be the SAE type to match the tractor being used.

18. 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 system several times with the cylinder rods disconnected to purge all air from the system. After the cylinders are operating smoothly, attach the rod end of each cylinder.

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

19. Raise the planter and mount the top end of the spring canister on each drive gauge wheel using two cylinder pins mounted to the module with 1/2" x 1 1/2" cap screws, lock washers and hex nuts.

20. Before mounting the row units, remove the drill shafts on the planter frame. Starting with the drill shaft from the folding wing.

    A. Remove drill shaft sprocket on the transmission.

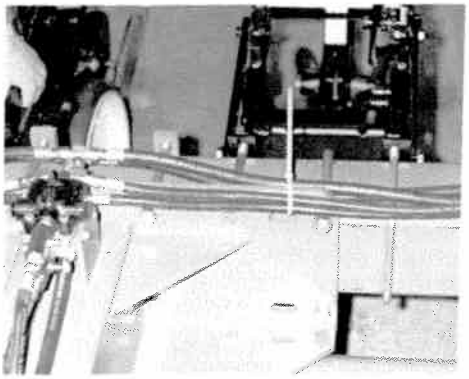
    B. Push roll pin out of drill shaft coupler.

    C. Remove coupler, spacer and shaft.

    D. Release the folding wing latch and fold to transport position.

    E. Remove roll pin, loosen lock collars, and slide inside drill shaft out.

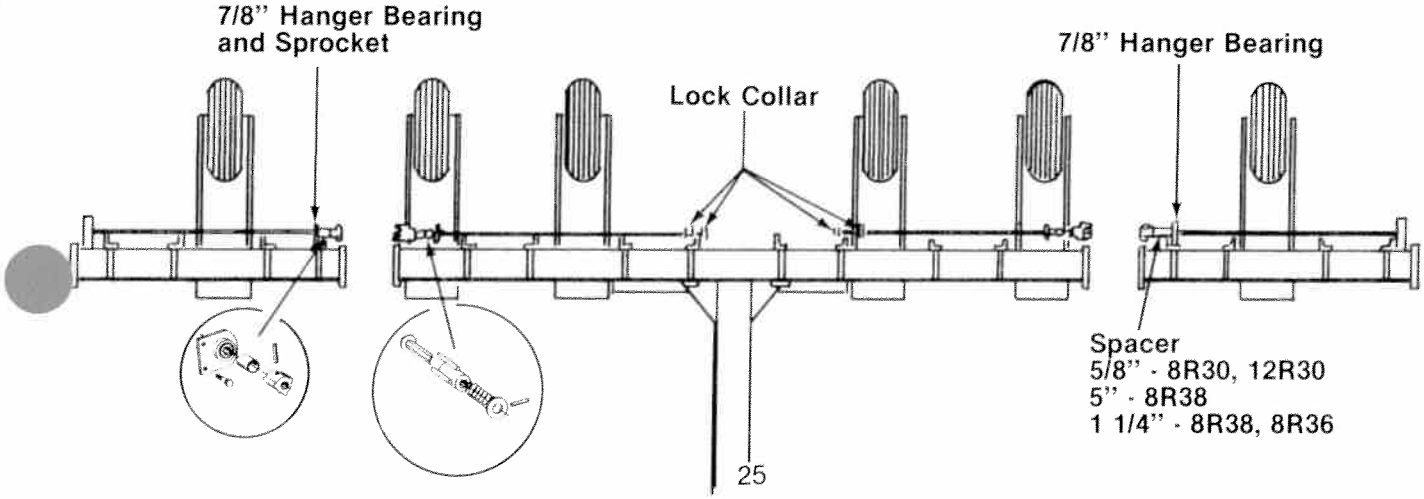
    F. Remove drill shafts on other side of planter frame in the same manner.



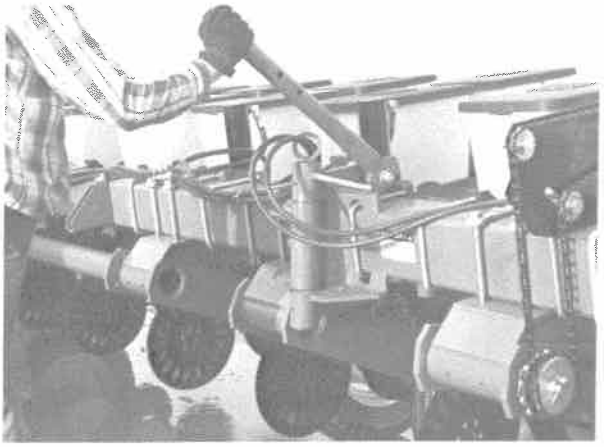
21. Install the two center row units first. Holes are provided in the hitch to accomodate bolting on the inside row units.

22. Install the remaining row units on the planter frame center section and install drill shafts with couplers, springs, machinery bushings, roll pins and lock collars. Lock collars are provided to keep shaft from moving when engaging and disengaging couplers. Position so drill shafts will not shift.

NOTE: See Row Unit Manual for additional row unit mounting instructions.



23. Return the folding wing to the operating position and secure with wing locking pins.

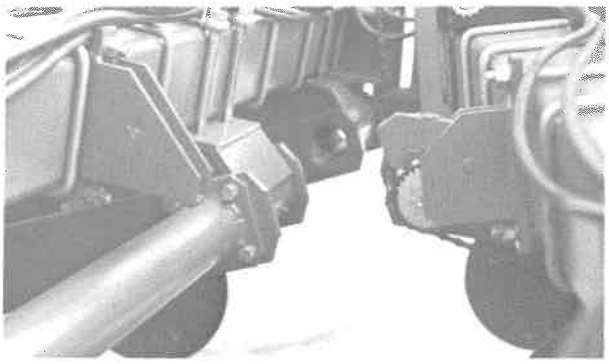


24. Mount row units on folding wings and insert drill shafts. Install drill shaft coupler and spacer and secure with roll pin. On the L.H. wing the spacer will be butted against the hanger bearing which is mounted to the R.H. row unit support angle. On the R.H. wing the spacer will be butted against the row unit hanger bearing sprocket.

25. Install drill shaft sprockets on transmissions and secure with lynch pins.

26. Adjust transport lock latch on each wing and planter center section so they match up. Location of latch will differ from planter to planter.

NOTE: We recommend rechecking all bolts after the first day of operation.

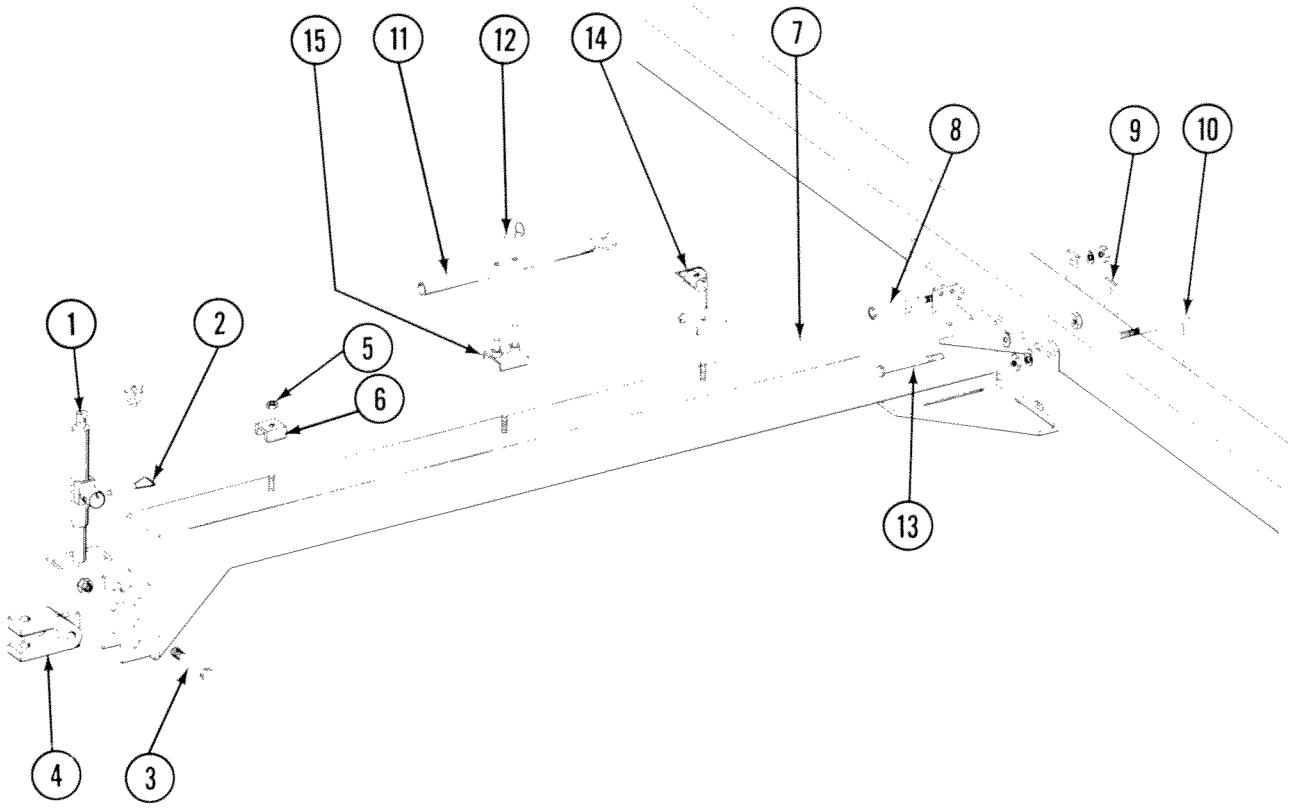


Make a final inspection of the assembled planter

- ☐ 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 and idlers 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.

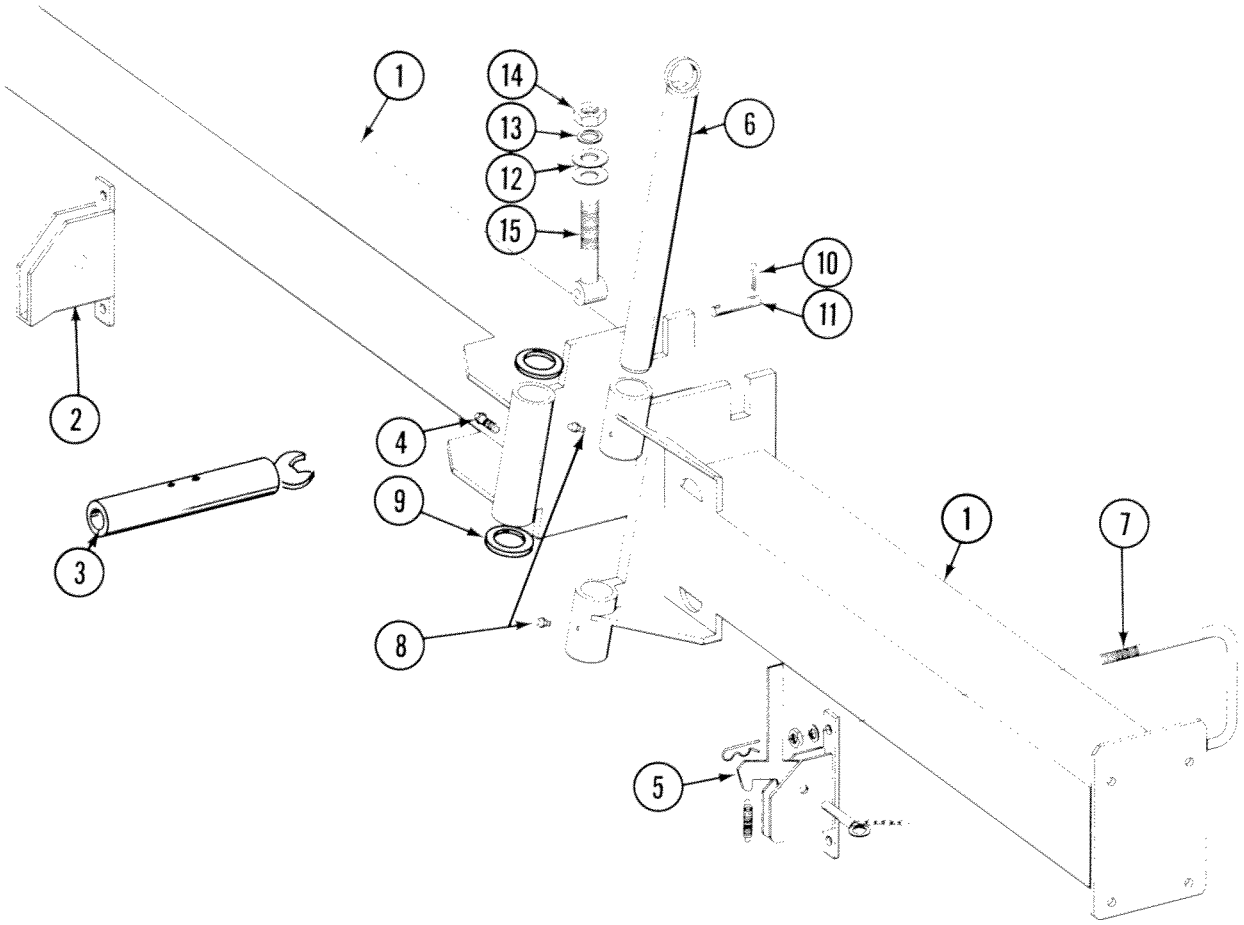
PARTS LIST INDEX

HITCH ASSEMBLY



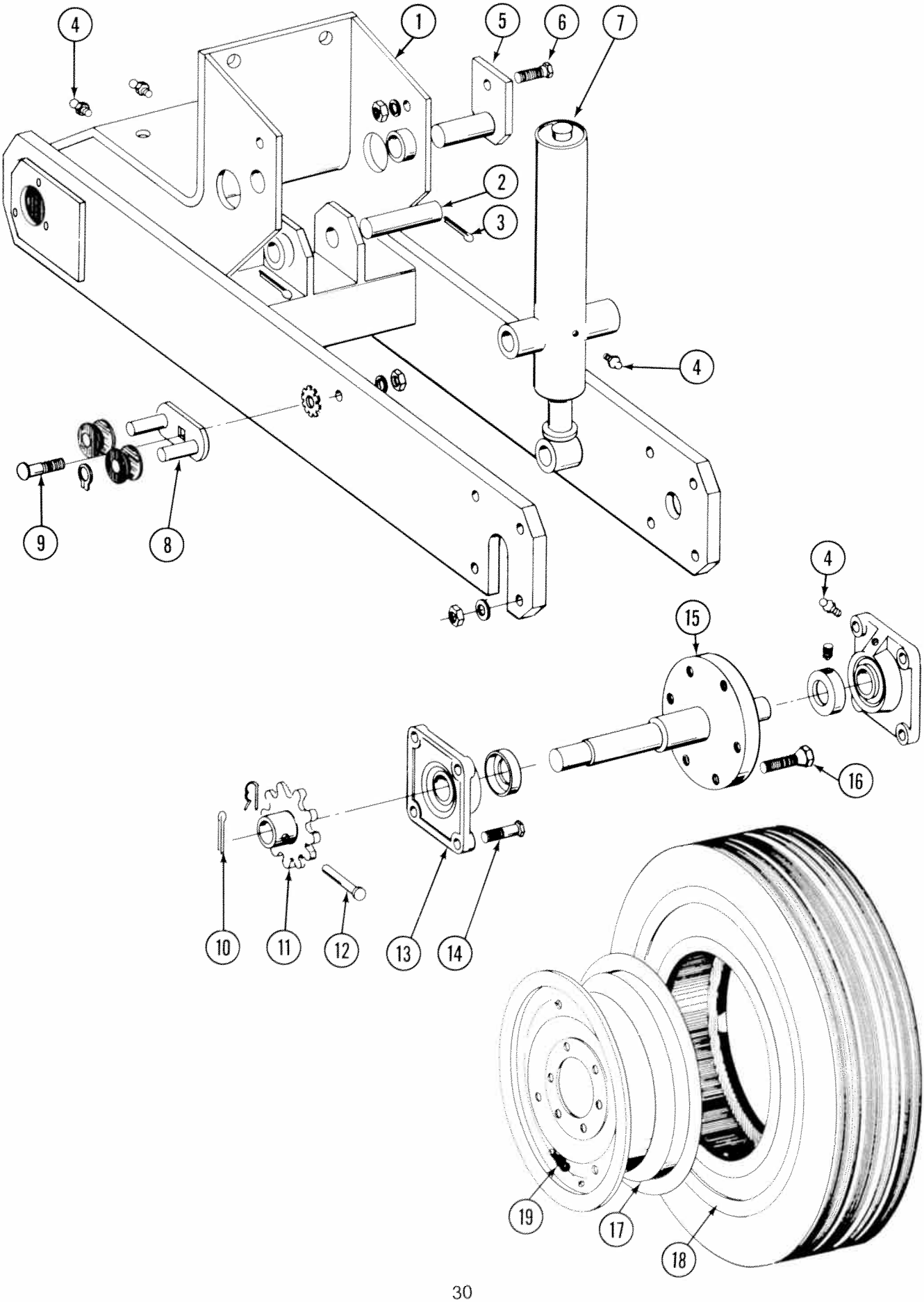
ITEM	PART NO.	DESCRIPTION
1.	4100-2	Jack
2.	R255	Repair Kit (Chain and pin)
3.	10169	HHCS, 1 1/4" - 7 x 6"
	10157	Lock Nut, 1 1/4" - 7
4.	B156	Clevis
5.	10111	Lock Nut, 1/2" - 13
6.	D740	Clamp
7.	A2469	Hitch, 133 3/8", 8 Row 30 and 12 Row 30
	A2471	Hitch, 151 3/8", 8 Row Wide
8.	10059	HHCS, 3/4" - 10 x 9 1/2"
	10231	Lock Washer - 3/4"
	10105	Hex Nut, 3/4" - 10
9.	D2713	Bar
10.	D1748	U-Bolt, 7" x 7" x 3/4" - 10
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
11.	A2460	Wrench
12.	D2558	Pin, Lynch, 1/4"
13.	10177	HHCS, 5/8" - 11 x 9 1/2"
	10190	Special Washer, 5/8"
	10107	Lock Nut, 5/8" - 11
14.	A2451	Clamp, Hose and Jack Storage
15.	A2452	Clamp, Hose and Wrench Storage

FRAME ASSEMBLY



ITEM	PART NO.	DESCRIPTION
1.	A2463	Frame, 236 1/2", 8 Row 30
	A2464	Frame, 292", 8 Row Wide
	A2465	Frame, 356 1/2", 12 Row 30
2.	A2461	Latch, Transport
3.	A2460	Wrench
4.	10007	HHCS, 5/8" - 11 x 1 1/2"
5.	A2523	Latch With Spring and Pin W/Clip
	D3177	Spring
	A2532	Pin With Chain
	10670	Hair Pin Clip, No. 3
6.	A2468	Pin, R.H.
	A2493	Pin, L.H. (Shown)
7.	D1114	U-Bolt, 7" x 7" x 5/8" - 11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
8.	10641	Fitting, Grease, 1/8" NPT
9.	10234	Machinery Bushing, 2 5/32 I.D.
10.	10457	Cotter Pin, 5/32" x 1 1/2"
11.	D3311	Pin, Hinge Latch
12.	10139	Washer, 1 1/4" USS
13.	10236	Lock Washer, 1 1/4"
14.	10239	Hex Nut, 1 1/4"
15.	D3373	Eye Bolt

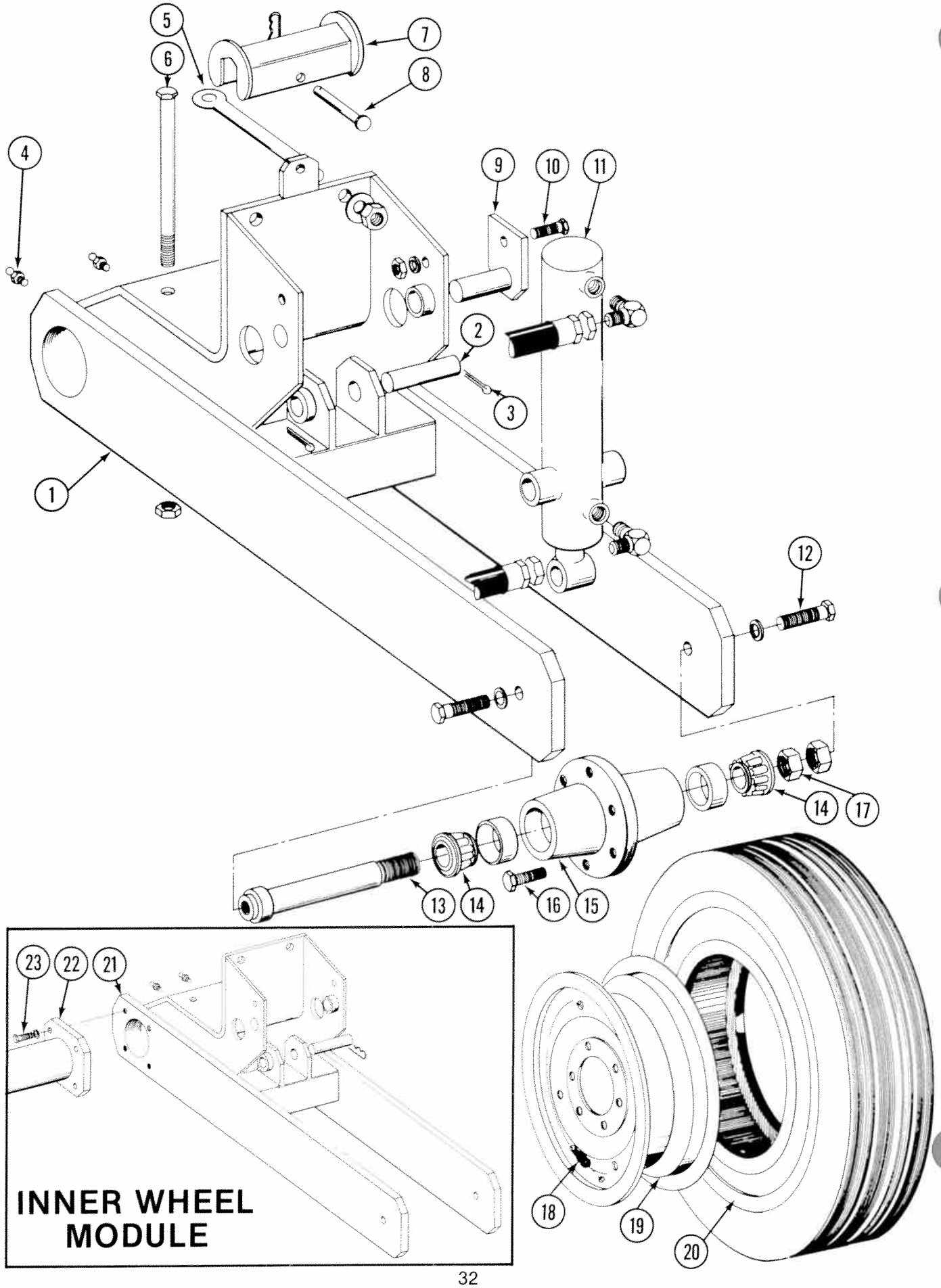
DRIVE WHEEL MODULE



DRIVE WHEEL MODULE

ITEM	PART NO.	DESCRIPTION
1.	A2211	Module and Bearing Plate Assembly
	A2212	Module and Bearing Plate Assembly, (Shown)
2.	D826	Pin
3.	10460	Cotter Pin, 1/4" x 2"
4.	10641	Fitting, Grease, 1/8" NPT
5.	A2152	Pin, Cylinder
6.	10017	HHCS, 1/2"-13 x 1 1/2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2"-13
7.	A2169	Canister Assembly, Down Pressure
8.	A289	Idler With Spools and Rings
	10435	Ring
	D1067	Spool
9.	10197	Carriage Bolt, 1/2"-13 x 2"
	10196	Carriage Bolt, 1/2"-13 x 2", L.H. Thread
	10527	Lock Washer, 1/2", Internal/External
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2"-13
	10086	Hex Nut, 1/2"-13, L.H. Thread
10.	10460	Cotter Pin, 1/4" x 2"
11.	2500-23	Sprocket, 12T
12.	10566	Clevis Pin, 5/16" x 2 1/4"
	10455	Cotter Pin, 1/16" x 1/2"
13.	A450	Bearing w/Lock Collar, 1 1/2"
	R266	Lock Collar
14.	10016	HHCS, 1/2"-13 x 2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2"-13
15.	A2156	Spindle
16.	R270	Bolt
17.	A2142	Rim, 20 x 5.50F
18.	D2648	Tire, 7:50 x 20", 6 Ply Tubeless
19.	D1166	Valve Stem
A.	A2207	Tire and Wheel Assembly (Items 17 thru 19)

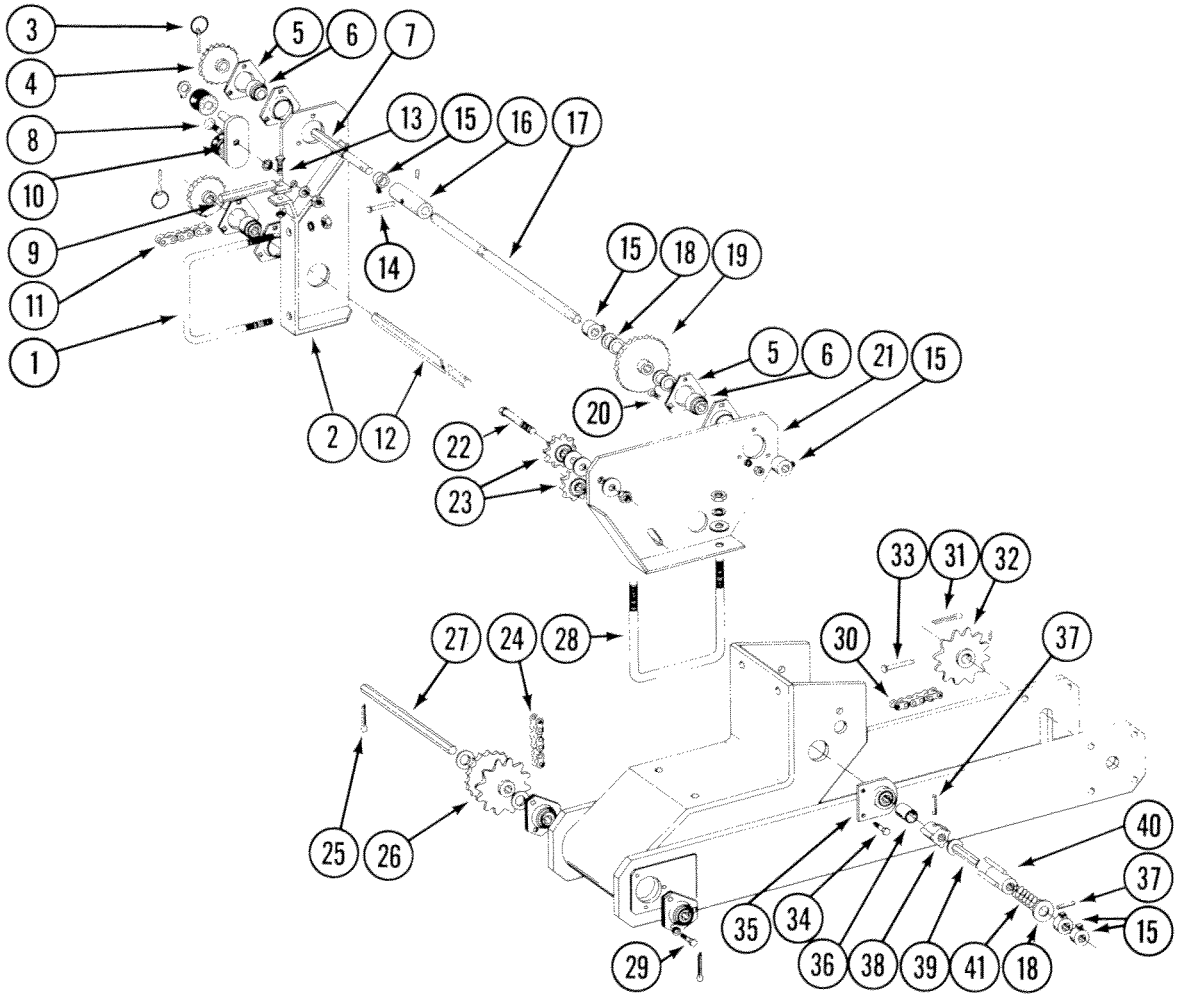
LIFT WHEEL MODULE



LIFT WHEEL MODULE

ITEM	PART NO.	DESCRIPTION
1.	A2182	Module, Outer Lift Wheel
2.	D826	Pin
3.	10460	Cotter Pin, 1/4" x 2"
4.	10641	Fitting, Grease, 1/8" NPT
5.	D830	Bolt, Eye, 3/4" - 10 x 9"
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
6.	10030	HHCS, 3/4" - 10 x 9"
	10112	Lock Nut, 3/4" - 10
7.	A2201	Lock-up
8.	10061	Clevis Pin, 1/2" x 3"
	10670	Hair Pin Clip, No. 3
9.	A2152	Pin, Cylinder
10.	10017	HHCS, 1/2" - 13 x 1 1/2"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
11.	A921	Cylinder, 3" x 10"
12.	10026	HHCS, 3/4" - 10 x 2"
	10231	Lock Washer, 3/4"
13.	D3303	Spindle
14.	A895	Cone
15.	A2148	Hub w/Cups, 6 Bolt
	R434	Cup
16.	R270	Lug Bolt, 9/16" - 18
17.	10087	Jam Nut, 1 1/2" - 12
18.	D1166	Valve Stem
19.	A2142	Rim, 20 x 5.50F
20.	D2648	Tire, 7:50 x 20", 6 Ply Tubeless
21.	A2491	Module, Inner Lift Wheel, L.H.
	A2490	Module, Inner Lift Wheel, R.H. (Shown)
22.	A2187	Tube, Torque, 47", 8 Row 30
	A2188	Tube, Torque, 64", 8 Row Wide
	A2189	Tube, Torque, 107", 12 Row 30
23.	10007	HHCS, 5/8" - 11 x 1 1/2"
	10230	Lock Washer, 5/8"
A.	A2207	Tire and Wheel Assembly (Items 18 thru 20)

TRANSMISSION AND DRIVE LINE

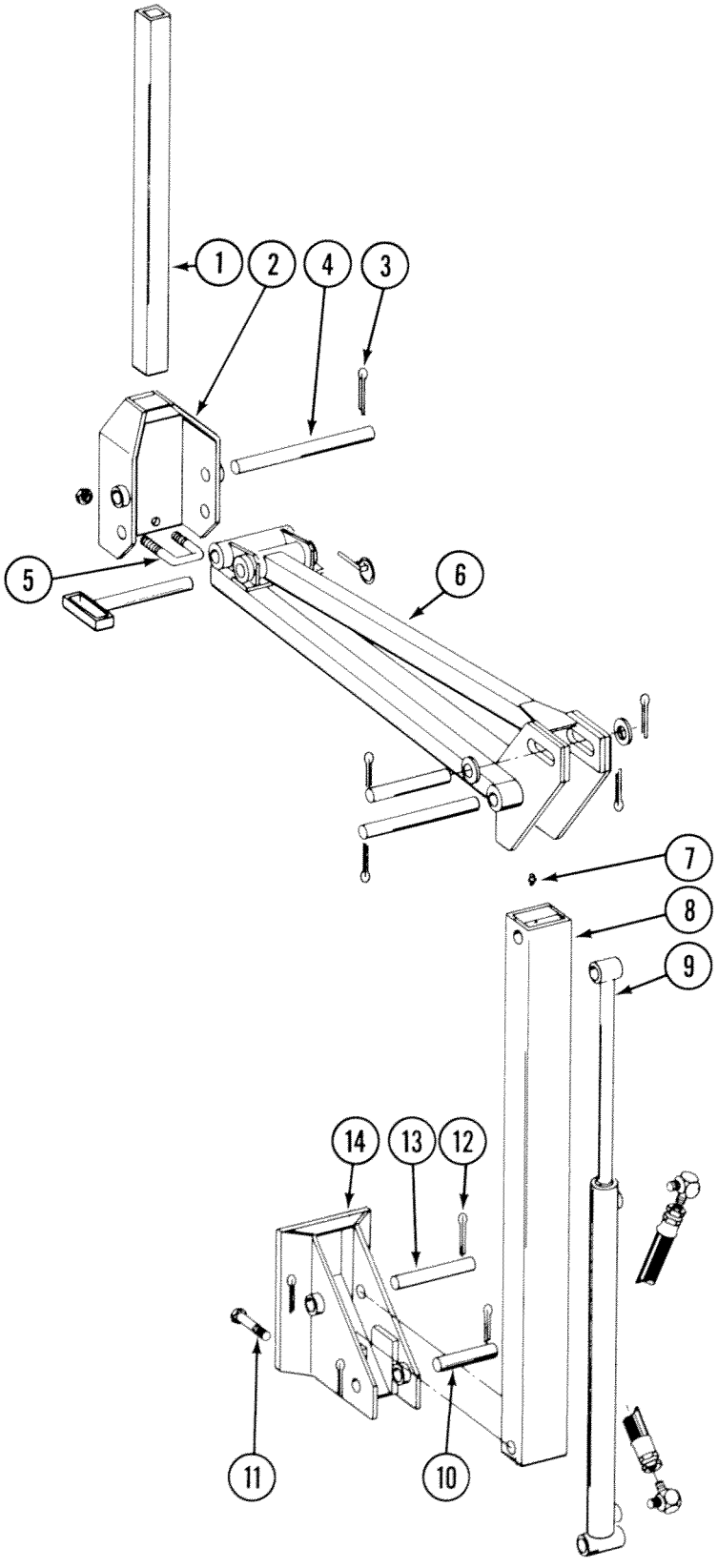


ITEM	PART NO.	DESCRIPTION
1.	D1114	U-Bolt, 7" x 7" x 5/8"-11
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8"-11
2.	A1729	Transmission Side Plate (Shown)
	A2202	Transmission Side Plate
3.	D2558	Lynch Pin, 1/4"
4.	2500-25	Sprocket, 14 Tooth
	2500-28	Sprocket, 22/26 Tooth
	2500-27	Sprocket, 16/30 Tooth
	2500-26	Sprocket, 18/28 Tooth
5.	3400-1	Flangette
6.	2100-3	Bearing, 7/8 Hex Bore
7.	D2543	Shaft
8.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2"
	10527	Lock Washer, Internal-External, 1/2"
	10102	Hex Nut, 1/2" - 13
9.	A1786	Rod, Sprocket Storage
10.	A289	Idler With Spools and Rings
	10435	Ring
	D1067	Spool
11.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link, 2040
12.	D2753	Drill Shaft, Wing, 7/8 Hex, 51", R.H. and L.H. 8 Row 30
	D2754	Drill Shaft, Wing, 78 Hex, 64 1/2", R.H. and L.H., 8 Row Wide
	D2720	Drill Shaft, Wing, 7/8 Hex, 81", R.H. and L.H., 12 Row 30
13.	10019	HHCS, 5/16" - 18 x 1"
	10109	Hex Lock Nut, 5/16" - 18

TRANSMISSION AND DRIVE LINE

ITEM	PART NO.	DESCRIPTION
14.	10558	Clevis Pin, 5/16" x 1 3/4"
	10456	Cotter Pin, 1/8" x 3/4"
15.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" - 18 x 1/2"
16.	D2567	Coupler
17.	D914-16	Drive Shaft, 7/8 Hex, R.H. and L.H., 8 Row 30
	D2548-35	Drive Shaft, 7/8 Hex, R.H. and L.H., 8 Row Wide
	D914-46	Drive Shaft, 7/8 Hex, R.H. and L.H., 12 Row 30
18.	10233	Machinery Bushing (As Required)
19.	2500-14	Sprocket, 24 Tooth
	2500-15	Sprocket, 32 Tooth, Extended Drill
20.	10303	Carriage Bolt, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
21.	A2172	Plate, Bearing Support,
	A2173	Plate, Bearing Support, (Shown)
22.	10008	HHCS, 5/8" - 11 x 2"
	10205	Washer, 5/8" SAE
	10107	Lock Nut, 5/8" - 11
23.	A268	Sprocket, 16 Tooth
24.	3300-77	Chain, No. 2040, 77 Pitch Including Connector Link and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
25.	10460	Cotter Pin, 1/4" x 2"
26.	2500-24	Sprocket, 30T No. 40 - 12T/No. 2050
	2500-29	Sprocket, 16T/No. 40-12T/No. 2050, Extended Drill
27.	D2707	Shaft, 7/8" x 15 1/2"
28.	D1114	U-Bolt, 7" x 7" x 5/8" - 11
	10217	Washer, 5/8" USS
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
29.	10019	HHCS, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
30.	3200-80	Chain, No. 2050, 80 Pitch Including Connector Link
	R195	Connector Link, No. 2050
31.	10460	Cotter Pin, 1/4" x 2"
32.	2500-23	Sprocket, 12 Tooth
33.	10566	Clevis Pin, 5/16" x 2 1/4"
	10455	Cotter Pin, 1/16" x 1/2"
34.	10001	HHCS, 3/8" - 16 x 1"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
35.	A2180	Bearing, 7/8" Hex Hanger, L.H. Side
	A1720	Bearing and Sprocket, 7/8" Hex Hanger, R.H. Side
36.	D1199-3	Spacer, 5/8", 8 Row 30 and 12 Row 30
	D1199-5	Spacer, 5", 8 Row 38
	D1199-6	Spacer, 1 1/4", 8 Row 38 and 8 Row 36
37.	10602	Pin, Spring, 1/4" x 1 1/2"
38.	A2374	Coupler
39.	A2446	Drill Shaft, Main Frame, 7/8 Hex, 60", R.H., 8 Row 30
	A2445	Drill Shaft, Main Frame, 7/8 Hex, 49", L.H., 8 Row 30
	A2448	Drill Shaft, Main Frame, 7/8 Hex, 73", R.H., 8 Row Wide
	A2447	Drive Shaft, Main Frame, 7/8 Hex, 63", L.H., 8 Row Wide
	A2450	Drive Shaft, Main Frame, 7/8 Hex, 90", R.H. 12 Row 30
	A2449	Drive Shaft, Main Frame, 7/8 Hex, 79", L.H. 12 Row 30
40.	A2373	Coupler
41.	D2962	Spring
A.	6545X	Extended Drill Sprocket, Includes: (2) 2500-15 (2) 2500-29

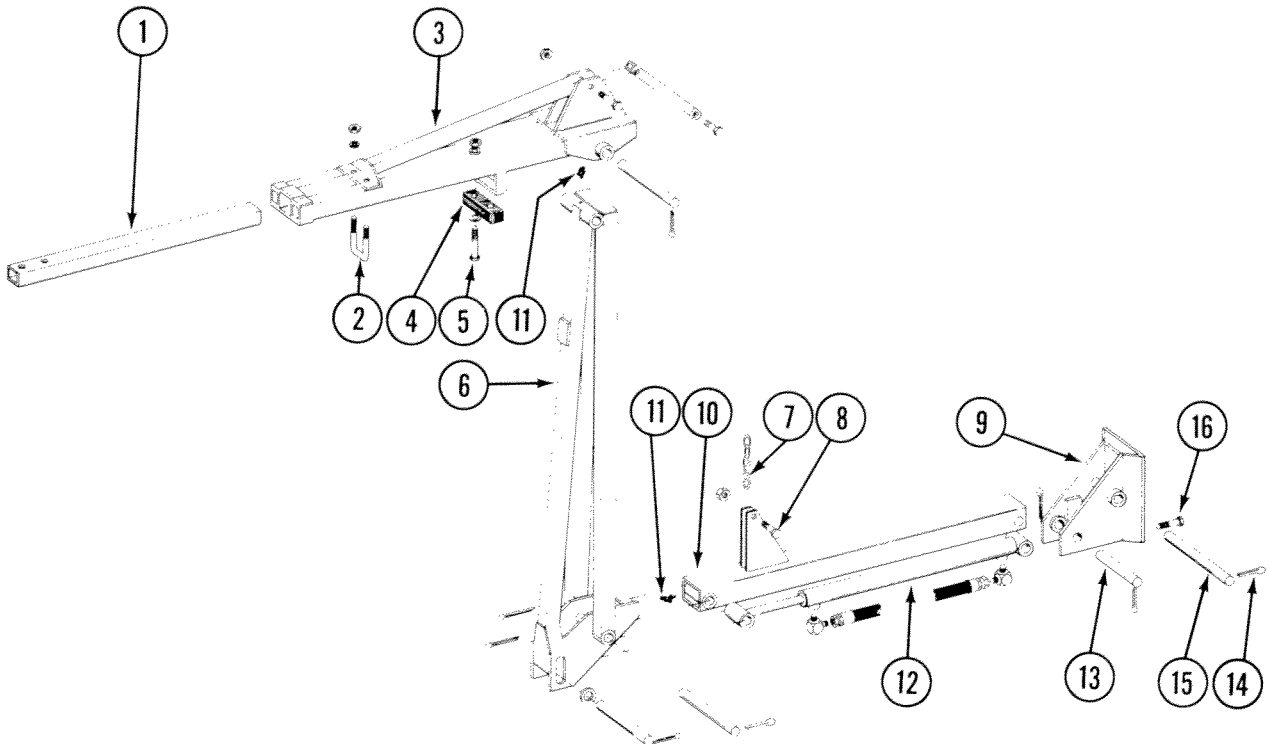
MARKER ASSEMBLY, 8 Row 30 and WIDE



MARKER ASSEMBLY, 8 Row 30 AND WIDE

ITEM	PART NO.	DESCRIPTION
1.	D453-3	Tube, Extension, 50", 8 Row 30
	D453-4	Tube, Extension, 60", 8 Row Wide
2.	A2492	Bracket
3.	10463	Cotter Pin, 1/4" x 1 1/2"
4.	D2697	Pin, 7/8" x 11"
5.	D2721	U-Bolt, 2" x 2" x 1/2" - 13
	10111	Lock Nut, 1/2" - 13
6.	A2474	Arm W/Pins and Washers, Second Stage, 43", 8 Row 30
	A2479	Arm W/Pins and Washers, Second Stage, 60", 8 Row Wide
	D2558	Lynch Pin, 1/4"
	A2498	Pin
	10460	Cotter Pin, 1/4" x 2"
	D2161	Pin, 1 1/4" x 8 1/4"
	D3214	Pin, 1 1/4" x 12 1/4"
	10226	Washer, 1 1/4" SAE
7.	10641	Fitting, Grease, 1/8" NPT
8.	A2482	Link, First Stage, 44"
9.	A2444	Cylinder, 2" x 20"
10.	D2161	Pin, 1 1/4" x 8 1/4"
11.	10039	HHCS, 1/2" - 13 x 1 3/4"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
12.	10460	Cotter Pin, 1/4" x 2"
13.	D652	Pin, 1 1/4" x 9 1/2"
14.	A2481	Mount

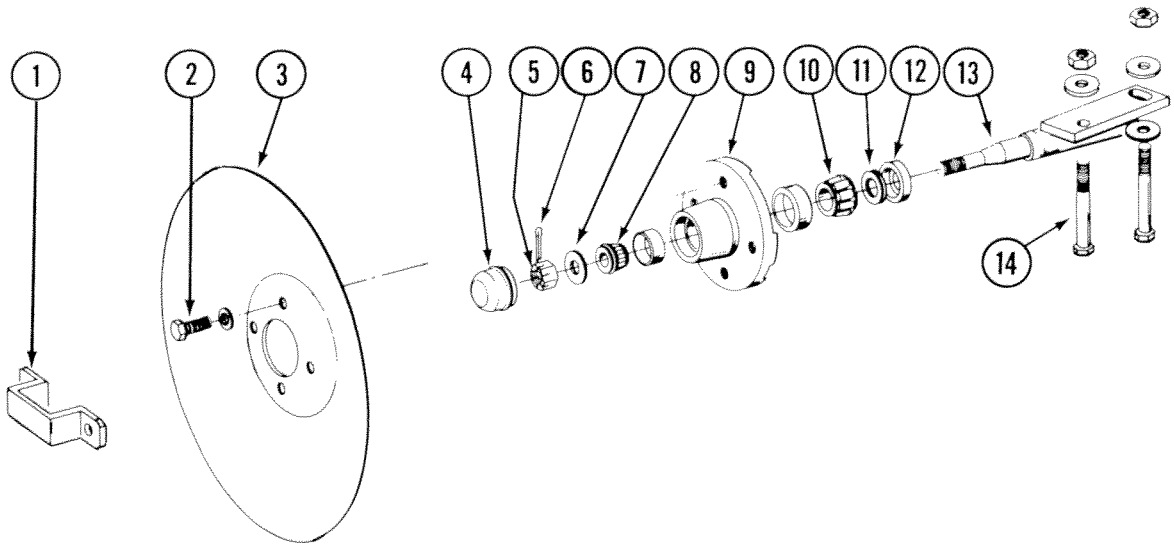
MARKER ASSEMBLY, 12 Row 30



MARKER ASSEMBLY, 12 Row 30

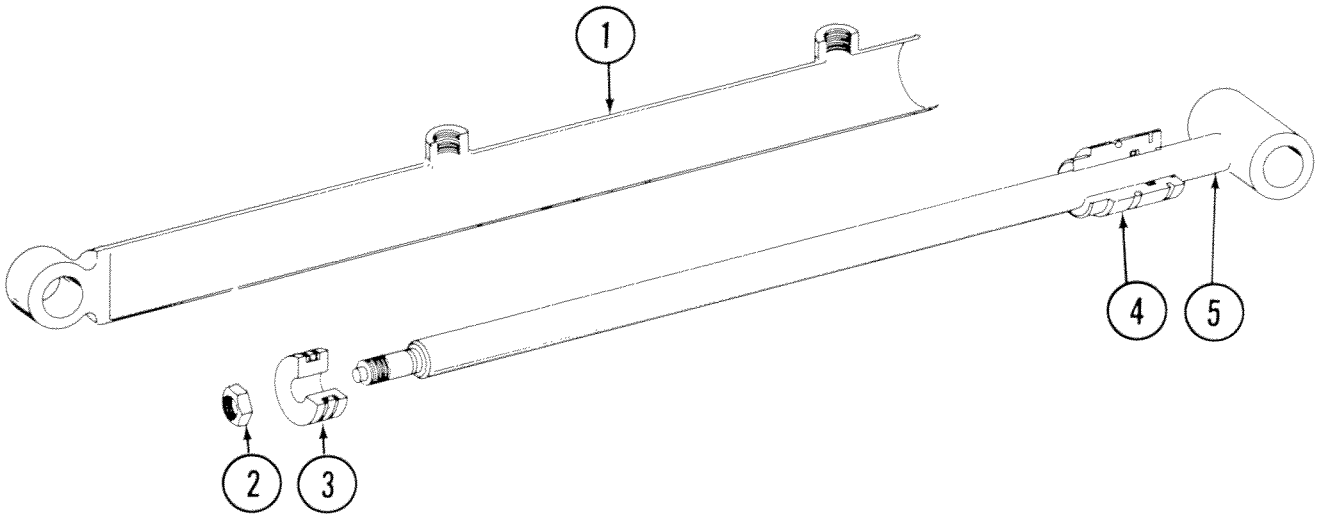
ITEM	PART NO.	DESCRIPTION
1.	D453-2	Tube, Extension, 40"
2.	D2721	U-Bolt, 2" x 2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
3.	A2475	Arm W/Pin and Link Arm, Third Stage, 35"
	10038	HHCS, 1/2" - 13 x 3"
	10111	Lock Nut, 1/2" - 13
	A2145	Arm, Link
	10016	HHCS, 1/2" - 13 x 2"
	D2697	Pin, 7/8" x 11"
	10463	Cotter Pin, 1/4" x 11"
4.	D2698	Stop, Rubber
5.	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
6.	A2476	Arm W/Pins and Washers, Second Stage, 78"
	10226	Washer, 1 1/4" SAE
	D2161	Pin, 1 1/4" x 8 1/2"
	10460	Cotter Pin, 1/4" x 2"
	D3214	Pin, 1 1/4" x 12 1/4"
7.	3302-4	Chain
8.	10039	HHCS, 1/2" - 13 x 1 3/4"
	10111	Lock Nut, 1/2" - 13
9.	A2481	Mount
10.	A2483	Arm, First Stage, 44"
11.	10641	Fitting, Grease, 1/8" NPT
12.	A2444	Cylinder, 2" x 20"
13.	D2161	Pin, 1 1/4" x 8 1/2"
14.	10460	Cotter Pin, 1/4" x 2"
15.	D652	Pin, 1 1/4" x 9 1/2"
16.	10039	HHCS, 1/2" - 13 x 1 3/4"
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13

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)

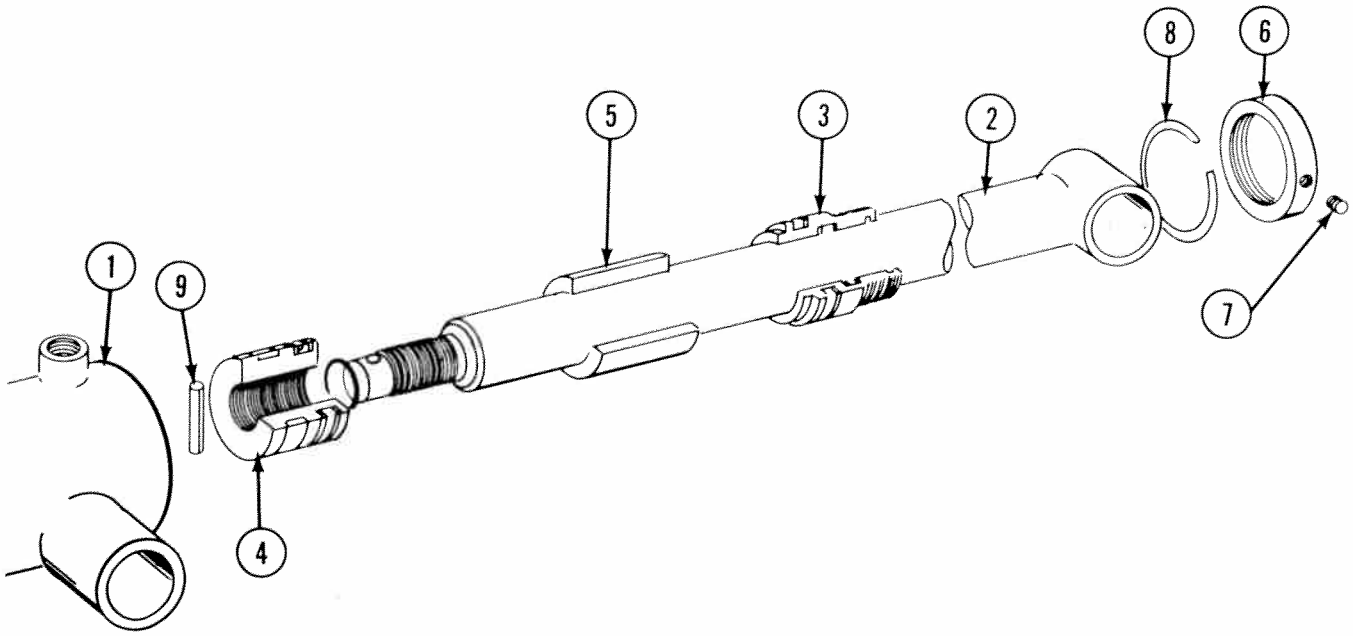
MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	R640	Tube Assembly
2.	R366	Nut, 3/4 - 16 NF
3.	R365	Piston
4.	R552	Head Gland
5.	R641	Shaft Assembly
*A.	A2444	Cylinder Assembly, 2" x 20"w/Ext. Case
B	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 - A2444 stamped on barrel.

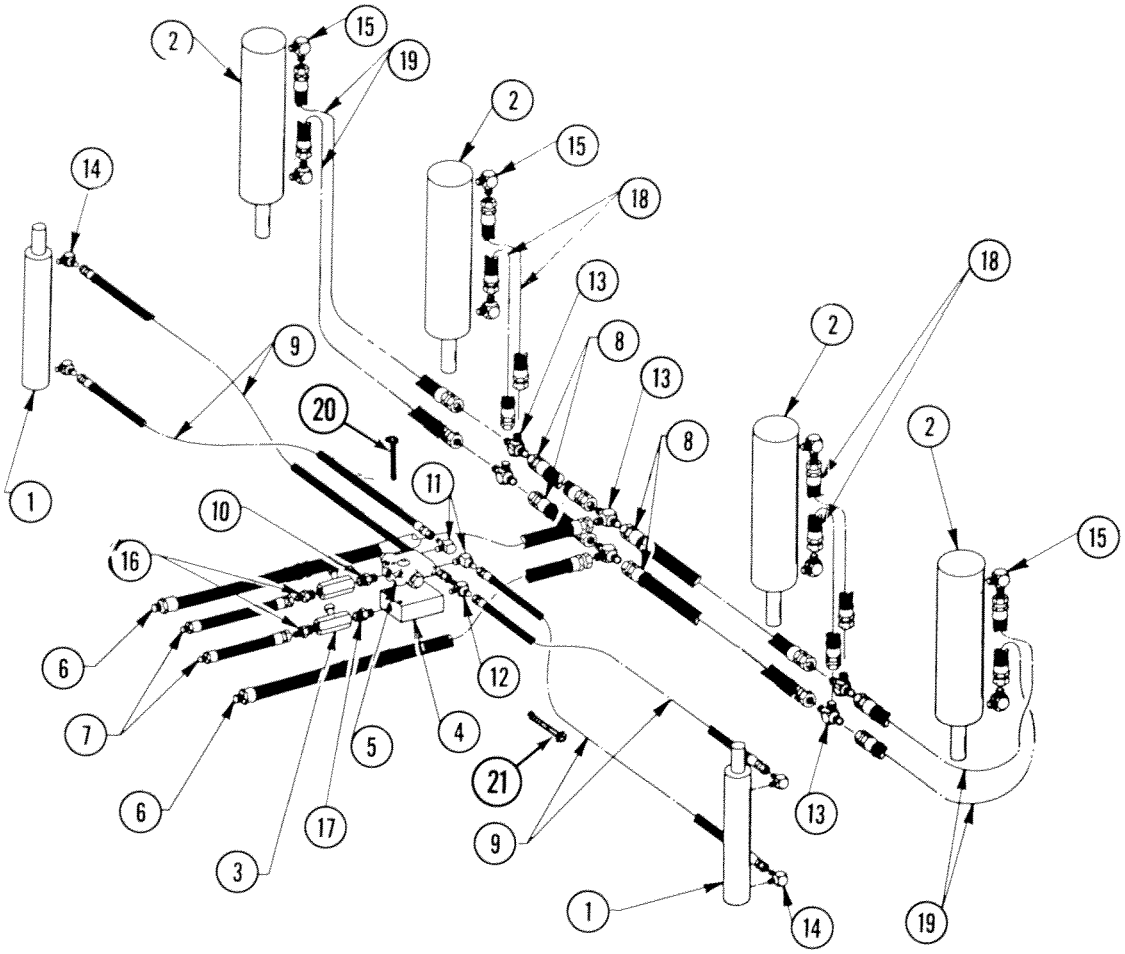
LIFT CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	R521	Tube Assembly
2.	R520	Shaft Assembly
3.	R128	Head Gland
4.	R129	Piston
5.	R130	Stroke Collar
6.	R131	Head Gland Nut
7.	10114	Set Screw, No. 10-32 x 1/4
8.	R132	Wire Ring
9.	10604	Roll Pin
*A.	A921	Cylinder Assembly Complete, 3" x 10"
B.	R133	Seal Kit

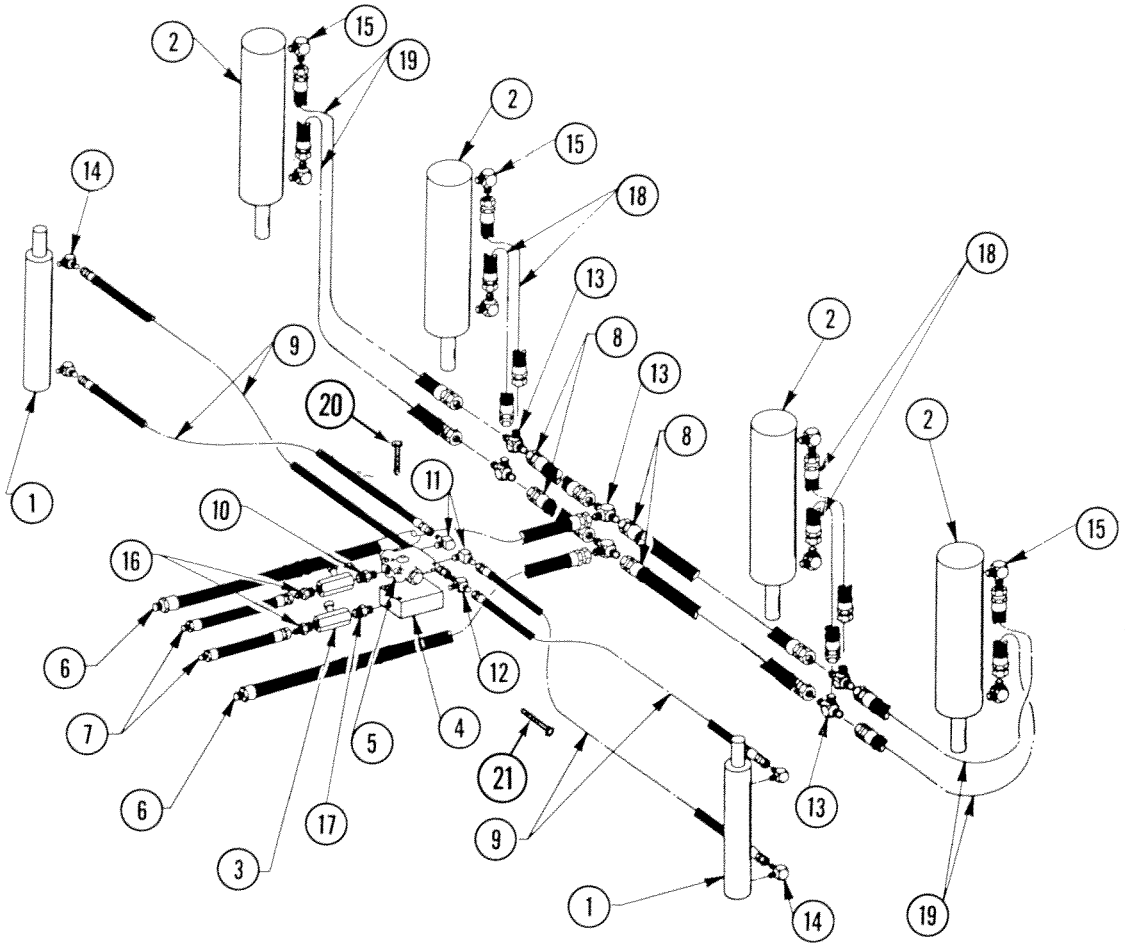
* To identify - 13090 stamped on barrel.

HYDRAULIC SYSTEM, 8 ROW 30



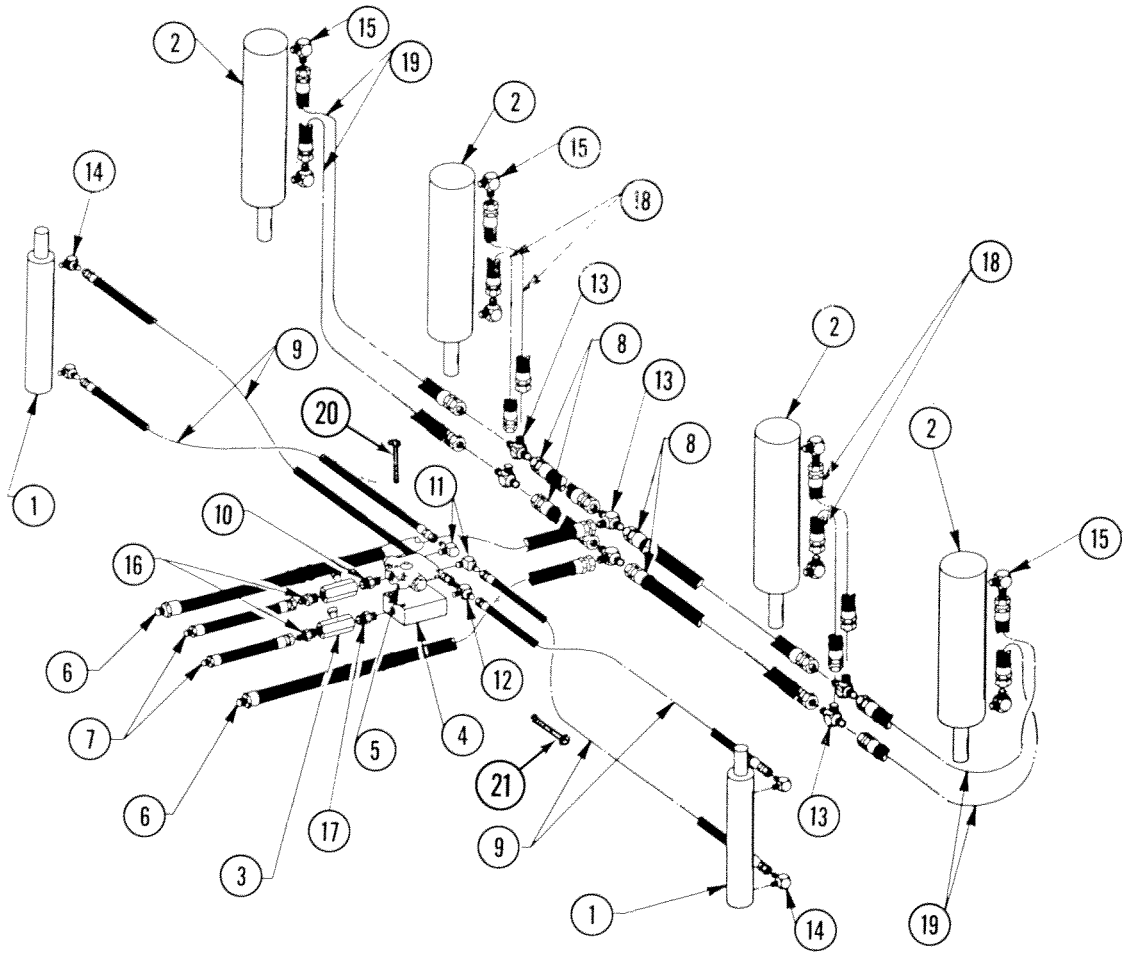
ITEM	PART NO.	DESCRIPTION
1.	A2444	Cylinder, Marker, 2" x 20"
2.	A921	Cylinder, Lift, 3" x 10"
3.	A270A	Valve, Flow Control
	A270B	Valve, Flow Control
4.	D2530	Block, Mounting
5.	A282	Valve, Sequencing
6.	A1081	Hose Assembly, 3/8" x 168"
7.	A1131	Hose Assembly, 1/4" x 162"
8.	A1003	Hose Assembly, 3/8" x 27"
9.	A1129	Hose Assembly, 1/4" x 168"
10.	6401-8-6	Adapter, 3/8 MPT to 3/4-16
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Tee, Run
13.	2603-8	Tee, 3/4-16 JIC
14.	2501-6-8	Elbow, 90°
15.	2501-8-8	Elbow, 90°
16.	2404-6-6	Adapter
17.	5404-6-6	Adapter
18.	A1002	Hose Assembly, 3/8" x 20"
19.	A1019	Hose Assembly, 3/8" x 44"
20.	10062	HHCS, 3/8"-16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8"-16
21.	10004	HHCS, 3/8"-16 x 1 1/4"
	10229	Lock Washer, 3/8"

HYDRAULIC SYSTEM, 8 ROW WIDE



ITEM	PART NO.	DESCRIPTION
1.	A2444	Cylinder, Marker, 2" x 20"
2.	A921	Cylinder, Lift, 3" x 10"
3.	A270A	Valve, Flow Control
	A270B	Valve, Flow Control
4.	D2530	Block, Mounting
5.	A282	Valve, Sequencing
6.	A1080	Hose Assembly, 3/8" x 186"
7.	A1130	Hose Assembly, 1/4" x 180"
8.	A1019	Hose Assembly, 3/8" x 44"
9.	A1117	Hose Assembly, 1/4" x 192"
10.	6401-8-6	Adapter, 3/8 MPT to 3/4-16
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Tee, Run
13.	2603-8	Tee, 3/4-16 JIC
14.	2501-6-8	Elbow, 90°
15.	2501-8-8	Elbow, 90°
16.	2404-6-6	Adapter
17.	5404-6-6	Adapter
18.	A1002	Hose Assembly, 3/8" x 20"
19.	A1022	Hose Assembly, 3/8" x 60"
20.	10062	HHCS, 3/8" 16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8"-16
21.	10004	HHCS, 3/8"-16 x 1 1/4"
	10229	Lock Washer, 3/8"

HYDRAULIC SYSTEM, 12 ROW 30

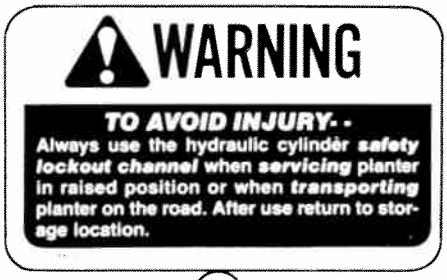


ITEM	PART NO.	DESCRIPTION
1.	A2444	Cylinder, Marker, 2" x 20"
2.	A921	Cylinder, Lift, 3" x 10"
3.	A270A	Valve, Flow Control
	A270B	Valve, Flow Control
4.	D2530	Block, Mounting
5.	A282	Valve, Sequencing
6.	A1081	Hose Assembly, 3/8" x 168"
7.	A1131	Hose Assembly, 1/4" x 162"
8.	A1022	Hose Assembly, 3/8" x 60"
9.	A1127	Hose Assembly, 1/4" x 240"
10.	6401-8-6	Adapter, 3/8 MPT to 3/4-16
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Tee, Run
13.	2603-8	Tee, 3/4-16 JIC
14.	2501-6-8	Elbow, 90°
15.	2501-8-8	Elbow, 90°
16.	2404-6-6	Adapter
17.	5404-6-6	Adapter
18.	A1002	Hose Assembly, 3/8" x 20"
19.	A1019	Hose Assembly, 3/8" x 44"
20.	10062	HHCS, 3/8"-16 x 3"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8"-16
21.	10004	HHCS, 3/8"-16 x 1 1/4"
	10229	Lock Washer, 3/8"

DECALS, REFLECTORS AND TIE STRAPS

1

2



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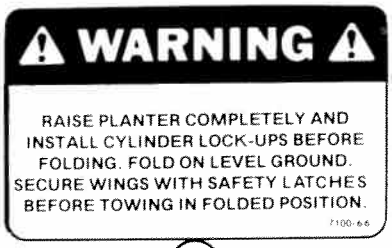

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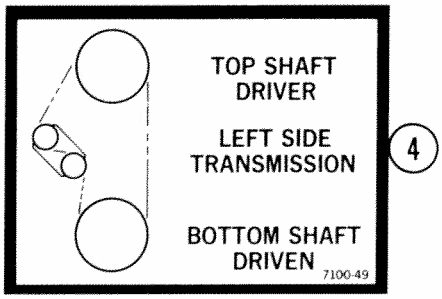

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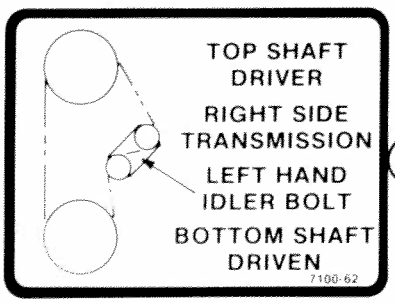
7

KINZE®

6

Econo • Fold

8



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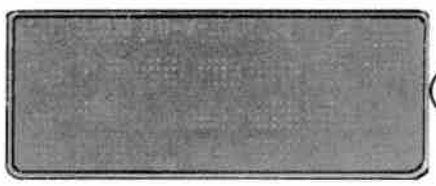


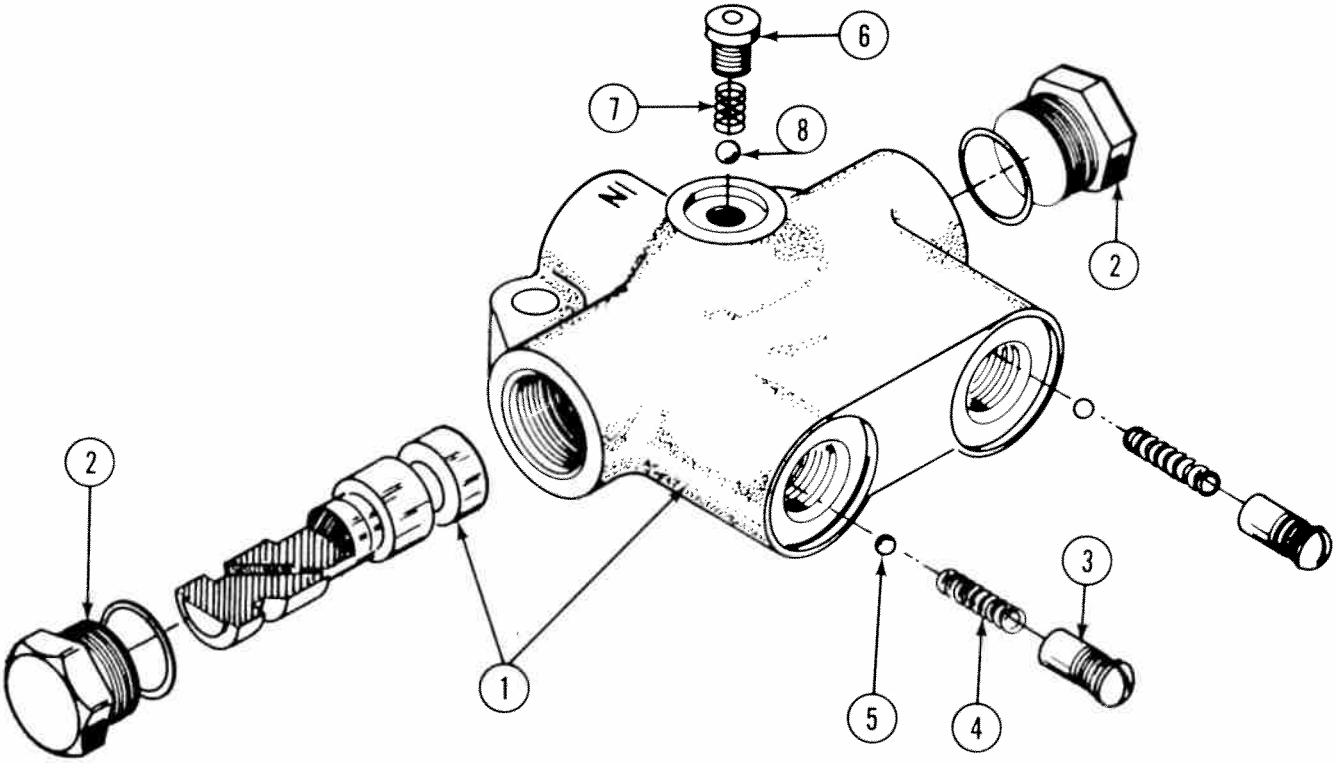
10

11

DECALS, REFLECTORS AND TIE STRAPS

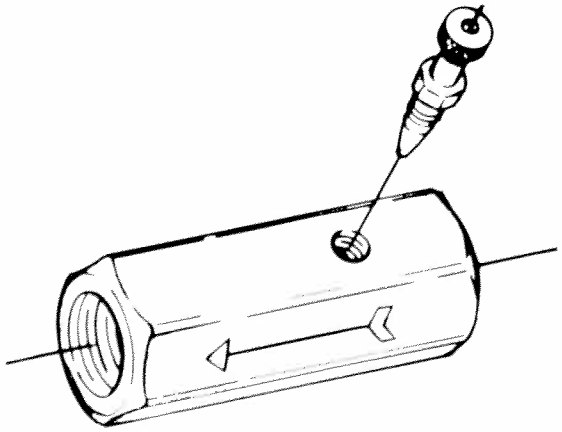
ITEM	PART NO.	DESCRIPTION
1.	7100-42	Decal, Warning
2.	7100-46	Decal, Caution
3.	7100-47	Decal, Warning
4.	7100-49	Decal, Left Side Transmission
5.	7100-66	Decal, Warning
6.	7100-54	Decal, Kinze
7.	7100-56	Decal, Warning
8.	7100-61	Decal, Identification
9.	7100-62	Decal, Right Side Transmission
10.	7200-3	Reflector, Red
	7200-4	Reflector, Amber
11.	D1162	Tie Strap, 28"
	D2117	Tie Strap, 14 1/2"
12.	R155	Blue Paint, Aerosol (Not Shown)
	R439	Blue Paint, Quart
	R440	Blue Paint, Gallon

SEQUENCING VALVE



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
A.	A282	Sequencing Valve, Complete

FLOW CONTROL VALVE



ITEM	PART NO.	DESCRIPTION
*A.	A270A	Flow Control Valve Assembly W/Needle Valve
	R103	Kit, Needle Valve
B.	A270B	Flow Control Valve Assembly W/Needle Valve
	R642	Kit, Needle Valve

* To identify - KLF375 stamped on valve body.

NUMERICAL INDEX