MODEL 3 PT. MOUNTED PLANTER

OPERATOR & PARTS MANUAL

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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 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, WARNING and DANGER** 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.**

⚠ **DANGER: Indicates that a failure to observe can cause most serious damage to the machine or equipment and/or most serious personal injury.**

To register your new Kinze product for warranty, a Warranty And Delivery Report form must be completed by the Kinze dealer and signed by the purchaser, with copies to the dealer, to the purchaser and to Kinze. Registration must be completed and sent to Kinze within 30 days of delivery of the Kinze product to the purchaser.

This manual is applicable to:

3 Pt. Mounted Planter
Model Number MT
Serial Number 15828 and on

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

Date Purchased _____

Serial Number _____

Model Number _____

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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 alteration, misuse, neglect, accident or improper installation or maintenance. A part will not be considered defective if it substantially fulfills the 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.

INTRODUCTION

The 3 point mounted planter is available with a choice of 40", 38", 36" or 30" row spacing, dry herbicide and insecticide application equipment and heavy duty coulters. For information on installation and use of optional equipment on all models, refer to the Assembly and Operation Sections of this manual and 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 throughout 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. If 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 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.
- Make sure there are no persons near the planter when markers are in operation.
- Lower the planter when not in use and cycle the hydraulic control lever to relieve pressure in cylinders and hoses.
- 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.
- Observe legal prohibitions and regulations when transporting the machine on public roads.
- Watch for obstructions such as wires, tree limbs, etc., when folding markers.
- Install marker lockup/safety pins before transporting or parking any planter equipped with conventional markers.
- 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 nearby. If you install such drives you must follow all appropriate safety standards and practices to protect you and others near this planter from injury.
- 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.

("Safety" Position Shown)

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 Kinze Row Unit Operator's Manual. Make sure all tires have been properly inflated. Check all drive chains for proper tension and lubrication.

PLANTER ATTACHMENT

1. Tractor front end stability is necessary for safe efficient operation. Therefore, it may be necessary to add front ballast to your tractor for satisfactory field operation, as well as adequate transport stability. Refer to your tractor operator's manual for front ballast recommendations.

2. Adjust the length of the lift links.

3. Back tractor up to planter and raise draft links between hitch plates. Line up holes and insert hitch pins. Lock hitch pins in place with pins provided.

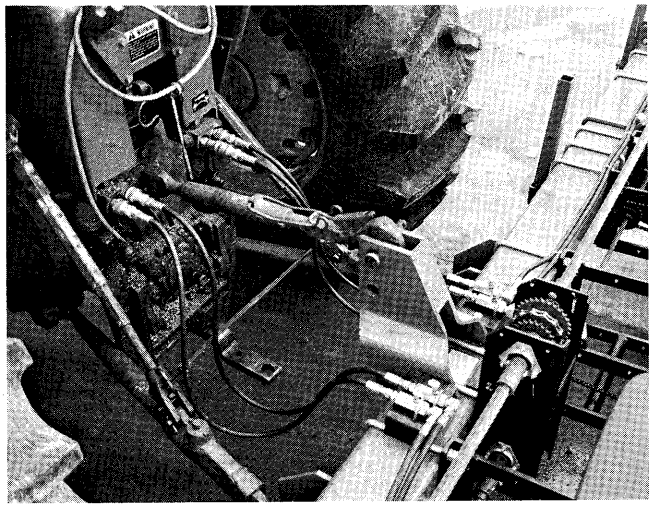
4. Connect center link to planter mast. It may be necessary to change the length of the center link with the adjusting handle.

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

Before attaching hoses, move remote hydraulic levers back and forth to relieve any pressure in the tractor hydraulic system.

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

Caution: Before the markers are hydraulically operated, make sure that all hydraulic hoses are properly connected and marker lock-up pins are in working position.



6. Raise planter slowly and watch for any interference. Remove pin from each support stand and raise each to the transport position. Secure stands in raised position with pin in lowest hole.

7. Lower planter so that drive wheels rest on ground and check for planter levelness. Readjust top link as required to level row units.

CAUTION: As a general safety practice and to avoid damage to the tractor hydraulic system, always lower the planter when not in use.

TRANSPORTING THE PLANTER

Always make necessary safety preparations prior to transporting the planter on public roads. This includes installing Slow Moving Vehicles (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.

When operating the mounted planter, make sure the right and left arms are adjusted equally before attaching the planter unit. After the planter has been lowered to the correct operating depth, stop the tractor and stand behind the planter to check for level operation laterally. Then walk around to the side and check fore and aft levelness. If the row units seem to angle up or downward, adjust the center link on the tractor accordingly.

In order to maintain lateral levelness, it is important that tire pressure be maintained at pressures specified.

OPERATION

TIRE PRESSURE

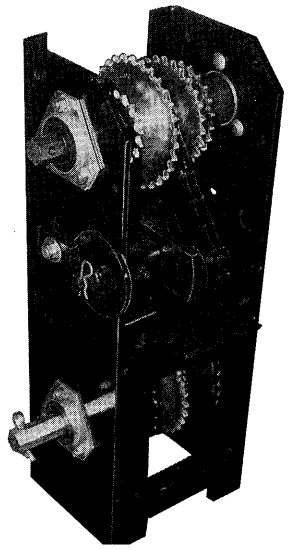
Tire pressure should be checked regularly and maintained as follows:

Drive Gauge - 7:60 x 15" 4-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 7:60 x 15" tires inflated to 40 PSI.

TRANSMISSION ADJUSTMENT

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



A decal positioned next to the transmission and the information provided in the planting rate charts in this manual will aid you in the selection of the correct sprocket combinations. After positioning both sprockets, replace rubber spacers between sprockets or on the ends as necessary. Then restore tension on the drive chain.

HYDRAULIC OPERATION

All 3 point mounted planters may be equipped with either a single or dual valve hydraulic system. The dual valve system allows each marker to be operated independently. The markers on a single valve system operate alternately. If one marker assembly is lowered and raised, the opposite marker assembly will lower during the next operation.

⚠ **WARNING:** Always stand clear of 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 turn the valve counterclockwise, opening 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 marker system can be operated in either float or fixed position.

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.

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 adjustment see Assembly Section in this manual.

After the planter has been field tested, reinspect the unit.

☐ Hoses - Fittings

☐ Bolts - Nuts

☐ Drive Chains

SHEAR PROTECTION

The planter drive line and row unit 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.

PLANTING RATE FOR PLATELESS CORN METERS

SEED POPULATIONS / ACRE FOR DIFFERENT ROW WIDTHS

30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)	Average Seed Spacing In Inches
13,100	10,900	10,300	9,800	14	28	4 to 8	16.0
14,100	11,700	11,100	10,500	14	26	4 to 8	14.9
14,900	12,500	11,800	11,200	16	28	4 to 8	14.0
16,100	13,400	12,700	12,000	16	26	4 to 8	13.0
16,600	13,900	13,100	12,500	14	22	4 to 8	12.6
19,000	15,900	15,000	14,200	16	22	4 to 8	11.0
20,300	17,000	16,100	15,200	14	18	4 to 8	10.3
20,500	17,100	16,200	15,400	22	28	4 to 8	10.2
22,100	18,400	17,400	16,600	22	26	4 to 8	9.5
23,200	19,400	18,300	17,400	16	18	4 to 8	9.0
24,200	20,200	19,100	18,200	26	28	4 to 7 1/2	8.6
26,100	21,800	20,600	19,600	22	22	4 to 7	8.0
28,000	23,400	22,100	21,000	30	28	4 to 6 1/2	7.5
29,800	24,900	23,500	22,400	16	14	3 to 6	7.0
30,100	25,200	23,800	22,600	30	26	3 to 6	6.9
30,800	25,800	24,300	23,100	26	22	3 to 6	6.8
31,900	26,600	25,200	23,900	22	18	3 to 5 1/2	6.5
35,600	29,700	28,100	26,700	30	22	3 to 5	5.9
37,700	31,500	29,800	28,300	26	18	3 to 4 1/2	5.5
41,000	34,300	32,400	30,800	22	14	3 to 4 1/2	5.1
43,500	36,300	34,300	32,600	30	18	2 to 4	4.8
48,500	40,500	38,300	36,400	26	14	2 to 3 1/2	4.3
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

30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Driven	Recommended Speed Range (MPH)
34	28	27	26	14	28	4 to 8
36	30	29	27	14	26	4 to 8
38	32	30	29	16	28	4 to 8
40	33	32	30	16	26	4 to 8
41	34	32	31	14	22	4 to 8
45	38	36	34	16	22	4 to 8
48	40	38	36	14	18	4 to 8
49	41	38	37	22	28	4 to 8
52	44	41	39	22	26	4 to 8
55	46	44	41	16	18	4 to 8
58	48	45	43	26	28	4 to 7 1/2
62	52	49	47	22	22	4 to 7
66	55	52	50	30	28	4 to 6 1/2
71	59	56	53	16	14	3 to 6
72	60	56	54	30	26	3 to 6
73	61	58	55	26	22	3 to 6
76	63	60	57	22	18	3 to 5 1/2
85	70	67	63	30	22	3 to 5
90	75	71	67	26	18	3 to 5
95	79	75	72	22	14	3 to 5
100	84	79	75	30	18	3 to 5
109	91	86	82	26	14	3 to 5
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

30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
128,500	107,500	101,500	96,400	7	1.6	14	28	4 to 8
137,700	114,700	108,700	103,300	8	1.5	14	26	4 to 8
144,600	120,500	114,200	108,500	8	1.4	16	28	4 to 8
151,900	126,600	119,900	113,900	9	1.4	16	26	4 to 8
155,100	129,300	122,500	116,300	9	1.4	14	22	4 to 8
170,400	142,000	134,600	127,800	10	1.2	16	22	4 to 8
182,300	151,900	143,900	136,700	10	1.1	14	18	4 to 8
184,100	153,500	145,400	138,100	11	1.1	22	28	4 to 8
198,300	165,300	156,600	148,700	11	1.1	22	26	4 to 8
208,300	173,600	164,500	156,200	12	1.0	16	18	4 to 8
217,600	181,400	171,800	163,200	12	1.0	26	28	4 to 7 1/2
234,400	195,300	185,000	175,800	13	0.9	22	22	4 to 7
251,100	209,300	198,200	188,300	14	0.8	30	28	4 to 6 1/2
267,800	223,200	211,500	200,900	15	0.8	16	14	3 to 6
270,400	225,300	213,500	202,800	15	0.8	30	26	3 to 6
277,000	230,800	218,700	207,700	16	0.8	26	22	3 to 6
286,400	238,700	226,100	214,800	16	0.7	22	18	3 to 5 1/2
319,600	266,300	252,300	239,700	18	0.7	30	22	3 to 5
338,500	282,100	267,300	254,000	19	0.6	26	18	3 to 5
360,500	300,500	284,600	270,400	21	0.6	22	14	3 to 5
379,300	316,100	299,400	284,500	22	0.6	30	18	3 to 5
412,600	343,800	325,700	309,500	24	0.5	26	14	3 to 5
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

30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
85,000	70,800	67,100	63,800	5	2.5	14	28	4 to 8
91,100	75,900	71,900	68,300	5	2.3	14	26	4 to 8
95,700	79,700	75,500	71,700	5	2.2	16	28	4 to 8
100,400	83,700	79,300	75,300	6	2.1	16	26	4 to 8
102,600	85,500	81,000	76,900	6	2.0	14	22	4 to 8
112,700	93,900	89,000	84,500	6	1.9	16	22	4 to 8
120,600	100,500	95,200	90,400	7	1.7	14	18	4 to 8
121,800	101,500	96,100	91,300	7	1.7	22	28	4 to 8
131,200	109,300	103,500	98,400	8	1.6	22	26	4 to 8
137,800	114,800	108,800	103,300	8	1.5	16	18	4 to 8
143,900	119,900	113,600	107,900	8	1.5	26	28	4 to 7 1/2
155,000	129,200	122,400	116,300	9	1.4	22	22	4 to 7
166,100	138,400	131,100	124,600	10	1.3	30	28	4 to 6 1/2
177,100	147,600	139,800	132,900	10	1.2	16	14	3 to 6
178,800	149,000	141,200	134,100	10	1.2	30	26	3 to 6
183,200	152,700	144,600	137,400	10	1.1	26	22	3 to 6
189,400	157,900	149,600	142,100	11	1.1	22	18	3 to 5 1/2
211,400	176,100	166,900	158,500	12	1.0	30	22	3 to 5
223,900	186,900	176,800	167,900	13	0.9	26	18	3 to 5
238,500	198,700	188,300	178,800	14	0.9	22	14	3 to 5
250,800	209,000	198,000	188,100	14	0.8	30	18	3 to 5
272,900	227,400	215,400	204,700	16	0.8	26	14	3 to 5
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

30 Inch	36 Inch	38 Inch	40 Inch	Seeds/ Foot	Seed Spacing (Inches)	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
56,900	47,400	44,900	42,700	3	3.7	14	28	4 to 8
61,000	50,800	48,100	45,700	3	3.4	14	26	4 to 8
64,100	53,400	50,600	48,000	4	3.3	16	28	4 to 8
67,300	56,000	53,100	50,400	4	3.1	16	26	4 to 8
68,700	57,200	54,200	51,500	4	3.1	14	22	4 to 8
75,500	62,900	59,600	56,600	4	2.8	16	22	4 to 8
80,700	67,300	63,700	60,500	5	2.6	14	18	4 to 8
81,500	68,000	64,400	61,200	5	2.6	22	28	4 to 8
87,800	73,200	69,300	65,900	5	2.4	22	26	4 to 8
92,300	76,900	72,800	69,200	5	2.3	16	18	4 to 8
96,400	80,300	76,100	72,300	6	2.2	26	28	4 to 7 1/2
103,800	86,500	81,900	77,800	6	2.0	22	22	4 to 7
111,200	92,700	87,800	83,400	6	1.9	30	28	4 to 6 1/2
118,600	98,800	93,600	89,000	7	1.8	16	14	3 to 6
119,800	99,800	94,500	89,800	7	1.7	30	26	3 to 6
122,700	102,200	96,800	92,000	7	1.7	26	22	3 to 6
126,900	105,700	100,100	95,100	7	1.7	22	18	3 to 5 1/2
141,500	117,900	111,700	106,100	8	1.5	30	22	3 to 5
149,900	124,900	118,400	112,400	9	1.4	26	18	3 to 5
159,700	133,100	126,100	119,800	9	1.3	22	14	3 to 5
168,000	140,000	132,600	126,000	10	1.2	30	18	3 to 5
182,700	152,300	144,300	137,000	10	1.1	26	14	3 to 5
205,700	171,400	162,400	154,300	12	1.0	30	14	3 to 5

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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

30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Transmission Sprockets Driven	Recommended Speed Range (MPH)
8.0	6.7	6.3	6.0	14	28	4 to 8
8.5	7.1	6.7	6.4	14	26	4 to 8
9.0	7.5	7.1	6.7	16	28	4 to 8
9.5	7.9	7.5	7.1	16	26	4 to 8
9.8	8.2	7.7	7.4	14	22	4 to 8
11.0	9.2	8.7	8.2	16	22	4 to 8
11.7	9.8	9.3	8.8	14	18	4 to 8
11.9	9.9	9.4	8.9	22	28	4 to 8
12.8	10.6	10.1	9.6	22	26	4 to 8
13.4	11.2	10.6	10.1	16	18	4 to 8
14.0	11.7	11.1	10.5	26	28	4 to 7 1/2
15.1	12.6	11.9	11.3	22	22	4 to 7
16.2	13.5	12.8	12.1	30	28	4 to 6 1/2
17.3	14.4	13.6	12.9	16	14	3 to 6
17.4	14.5	13.8	13.1	30	26	3 to 6
17.8	14.9	14.1	13.4	26	22	3 to 6
18.5	15.4	14.6	13.8	22	18	3 to 5 1/2
20.6	17.2	16.3	15.4	30	22	3 to 5
21.8	18.2	17.2	16.4	26	18	3 to 5
23.4	19.5	18.5	17.6	22	14	3 to 5
24.6	20.5	19.4	18.5	30	18	3 to 5
26.9	22.4	21.2	20.1	26	14	3 to 5
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

30 Inch	36 Inch	38 Inch	40 Inch	Transmission Sprockets Drive	Driven	Recommended Speed Range (MPH)
1.5	1.3	1.2	1.2	14	28	4 to 8
1.6	1.4	1.3	1.2	14	26	4 to 8
1.7	1.4	1.4	1.3	16	28	4 to 8
1.8	1.5	1.4	1.4	16	26	4 to 8
1.9	1.6	1.5	1.4	14	22	4 to 8
2.1	1.8	1.7	1.6	16	22	4 to 8
2.3	1.9	1.8	1.7	14	18	4 to 8
2.3	1.9	1.8	1.7	22	28	4 to 8
2.5	2.0	1.9	1.8	22	26	4 to 8
2.6	2.1	2.0	1.9	16	18	4 to 8
2.7	2.2	2.1	2.0	26	28	4 to 7 1/2
2.9	2.4	2.3	2.2	22	22	4 to 7
3.1	2.6	2.5	2.3	30	28	4 to 6 1/2
3.3	2.8	2.6	2.5	16	14	3 to 6
3.3	2.8	2.6	2.5	30	26	3 to 6
3.4	2.9	2.7	2.6	26	22	3 to 6
3.5	3.0	2.8	2.7	22	18	3 to 5 1/2
4.0	3.3	3.1	3.0	30	22	3 to 5
4.2	3.5	3.3	3.1	26	18	3 to 5
4.5	3.7	3.6	3.4	22	14	3 to 5
4.7	3.9	3.7	3.5	30	18	3 to 5
5.2	4.3	4.1	3.9	26	14	3 to 5
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 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

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 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	40 Inch
10	5.1	4.3	4.0	3.8
11	5.6	4.7	4.4	4.2
12	6.3	5.3	5.0	4.7
13	7.1	5.9	5.6	5.3
14	7.9	6.6	6.2	5.9
15	8.8	7.3	6.9	6.6
16	9.9	8.3	7.8	7.4
17	11.0	9.2	8.7	8.3
18	11.8	9.8	9.3	8.9
19	13.5	11.3	10.7	10.1
20	14.6	12.2	11.5	11.0
21	16.0	13.3	12.6	12.0
22	16.9	14.1	13.3	12.7
23	17.7	14.8	14.0	13.3
24	19.4	16.2	15.3	14.6
25	21.5	17.9	17.0	16.1
26	23.7	19.8	18.7	17.8
27	24.8	20.7	19.6	18.6
28	26.2	21.8	20.7	19.7
29	28.7	23.9	22.7	21.5
30	30.5	25.4	24.1	22.9

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - SAND GRANULES

5	3.0	2.5	2.4	2.3
6	5.0	4.2	3.9	3.8
7	5.5	4.6	4.3	4.1
8	6.5	5.4	5.1	4.9
9	8.0	6.7	6.3	6.0
10	9.2	7.7	7.3	6.9
11	10.5	8.8	8.3	7.9
12	11.5	9.6	9.1	8.6
13	13.0	10.8	10.3	9.8
14	14.5	12.1	11.4	10.9
15	16.0	13.3	12.6	12.0
16	18.0	15.0	14.2	13.5
17	20.0	16.7	15.8	15.0
18	22.5	18.8	17.8	16.9
19	25.0	20.8	19.7	18.8
20	26.5	22.1	20.9	19.9
21	28.5	23.8	22.5	21.4
22	30.5	25.4	24.1	22.9
23	33.0	27.5	26.1	24.8
24	35.5	29.6	28.0	26.6
25	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	30 Inch	36 Inch	38 Inch	40 Inch
10	4.8	4.0	3.8	3.6
11	5.4	4.5	4.3	4.1
12	6.0	5.0	4.7	4.5
13	6.7	5.6	5.3	5.0
14	7.5	6.3	5.9	5.6
15	8.5	7.1	6.7	6.4
16	9.3	7.8	7.3	7.0
17	10.2	8.5	8.1	7.7
18	11.0	9.2	8.7	8.3
19	12.0	10.0	9.5	9.0
20	13.0	10.8	10.3	9.8
21	14.0	11.7	11.1	10.5
22	15.0	12.5	11.8	11.3
23	16.2	13.5	12.8	12.2
24	17.5	14.6	13.8	13.1
25	18.7	15.6	14.8	14.0
26	20.0	16.7	15.8	15.0
27	21.5	17.9	17.0	16.1
28	23.3	19.4	18.4	17.5
29	25.0	20.8	19.7	18.8
30	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.

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.

CHAIN TENSION ADJUSTMENT

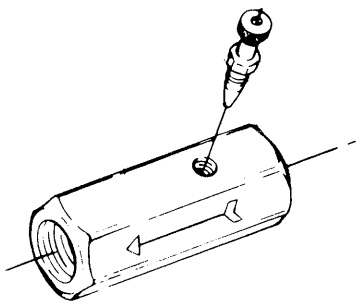
Drive chains from the drive gauge wheels to the clutch assembly are equipped with spring tensioned idlers to minimize chain adjustment.

To increase chain tension on transmission idler, loosen mounting nut and rotate idler to desired tension and retighten nut.

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.

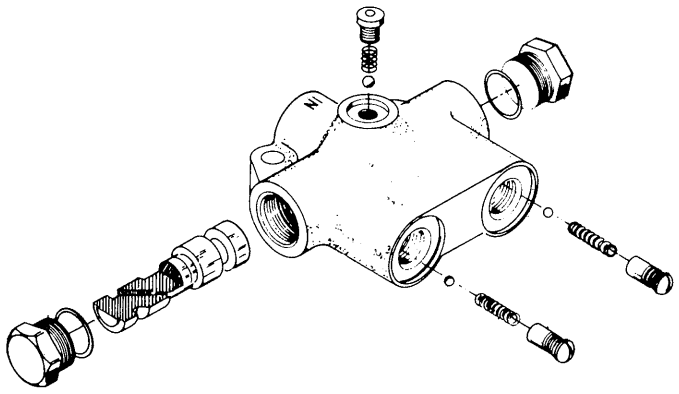
NOTE: The flow control valve must be installed with the arrow pointed toward the tractor.



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.



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 bearing 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.

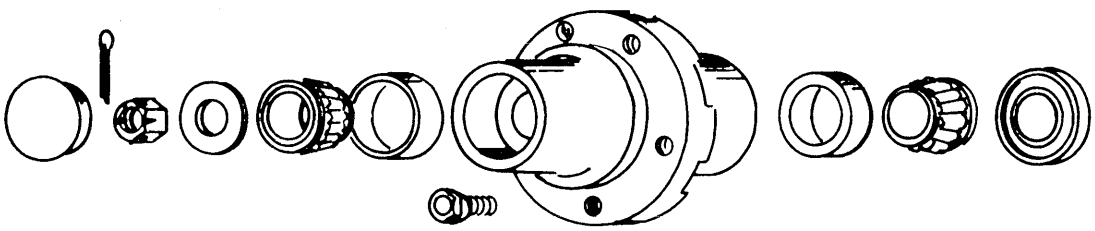
Lubricate planter and row units at all lubrication points.

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.

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

Clean seed meters and store in a dry area.



LUBRICATION

This page 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 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.

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

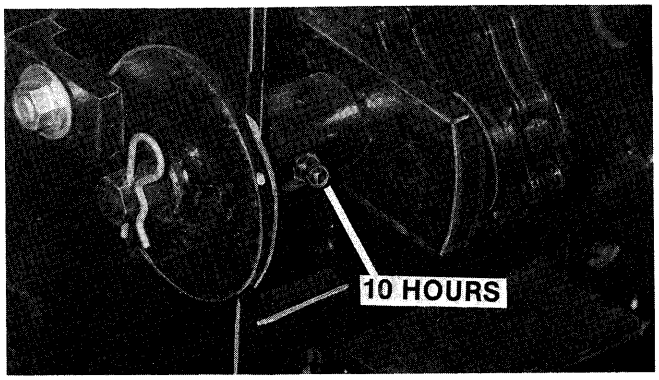
The transmission and drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 10 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may require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

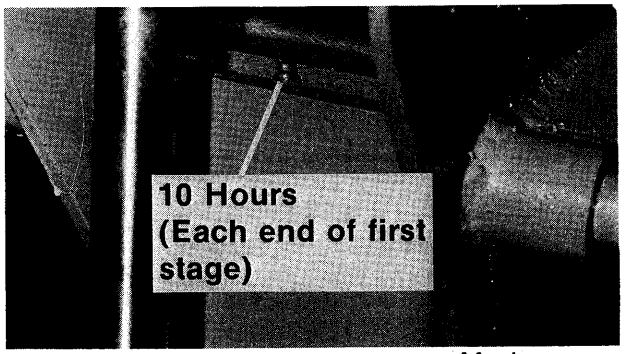
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all drive wheels and marker hubs. Follow the procedure outlined for wheel bearing replacement with the exception that bearings and bearing cups are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

LUBRICATION CHART

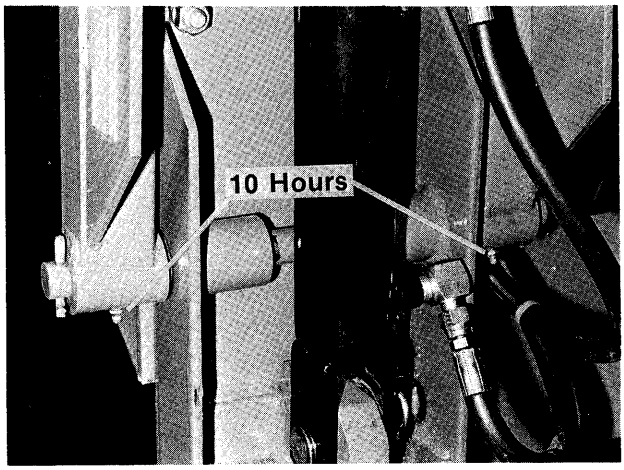
Ref. No.	Description	No. of Zerks	Frequency
1.	Idler Sleeve (Transmission)	1	10 Hours
2.	Low Profile Double Fold Marker	2 (Per marker)	10 Hours
3.	Conventional Marker	2 (Per marker)	10 Hours



1. Idler Sleeve (Transmission)



2. Low Profile Double Fold Marker Assembly.



3. Conventional Marker Assembly

ASSEMBLY

The following instructions are provided for assembly of the Kinze 3 Point Mounted 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 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. 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 interchangeablility 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.)

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 chart. Also bolts lubricated prior to installation should be torqued to 70% of value shown on chart.

FRAME ASSEMBLY

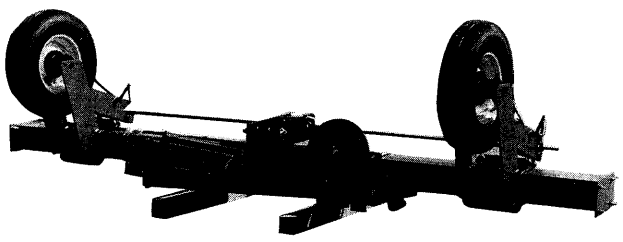
1. Place the partially assembled planter shipping bundle in your selected assembly area.

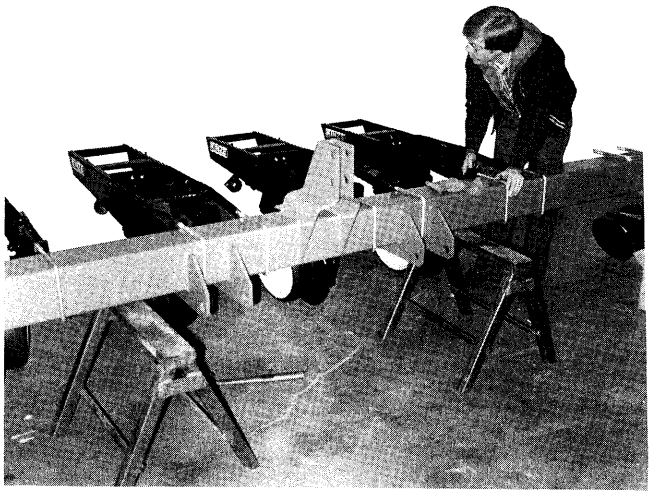
2. Unband the planter shipping bundle and inspect for damage.

Each bundle should contain:

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

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





3. While supporting the frame, remove the bolts which fasten the frame to the skid. Carefully lower the planter frame assembly to a horizontal position.

4. Lower parking stands to support the planter.

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

5. 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. Install markers so that spindles project forward.

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

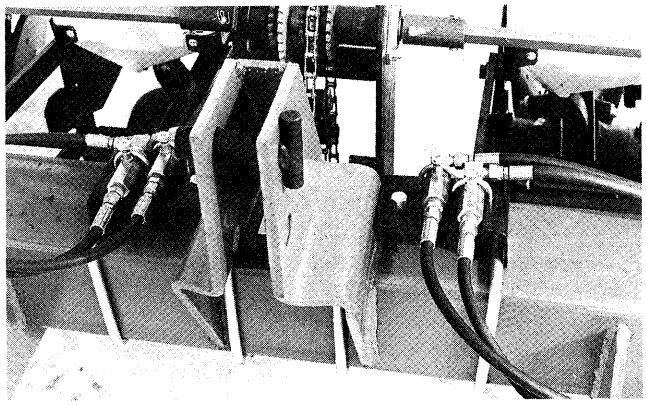
   B. On planters using double fold markers, bolt the first stage with the preassembled cylinder to the mounting pad using four 1/2" x 2" Grade 2 cap screws, lock washers and hex nuts on each side.
   C. Attach the pre-assembled second stage with pivot pin and cotter pins. Install markers so that spindles project forward.

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

6. 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.

7. Mount left hand valve plate assembly on left side of center section and right hand valve plate assembly on right hand side of center section using holes provided.



8. Secure hydraulic hoses to planter with nylon tie straps.

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

10. 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 hydraulic system. After the cylinders are operating smoothly, attach the rod end of each cylinder.

11. The sequencing valve on single valve systems is used to alternate the marker raise and lowering automatically.

12. The flow control valves are used to regulate the speed of the marker.

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

ASSEMBLY

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

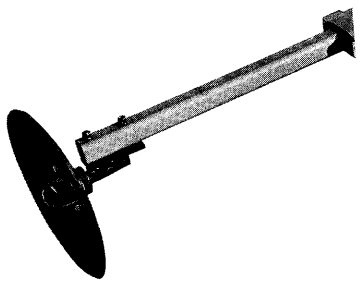
13. Attach the 16" blade to the hub using the preinstalled bolts. Be sure to alternate bolts while tightening to avoid distorting the blade's shape or breaking the marker hub.

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.

WARNING: Always position marker lock-up pins in "safety" position when transporting or storing the planter. See Safety Precautions.

14. 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 UNIT

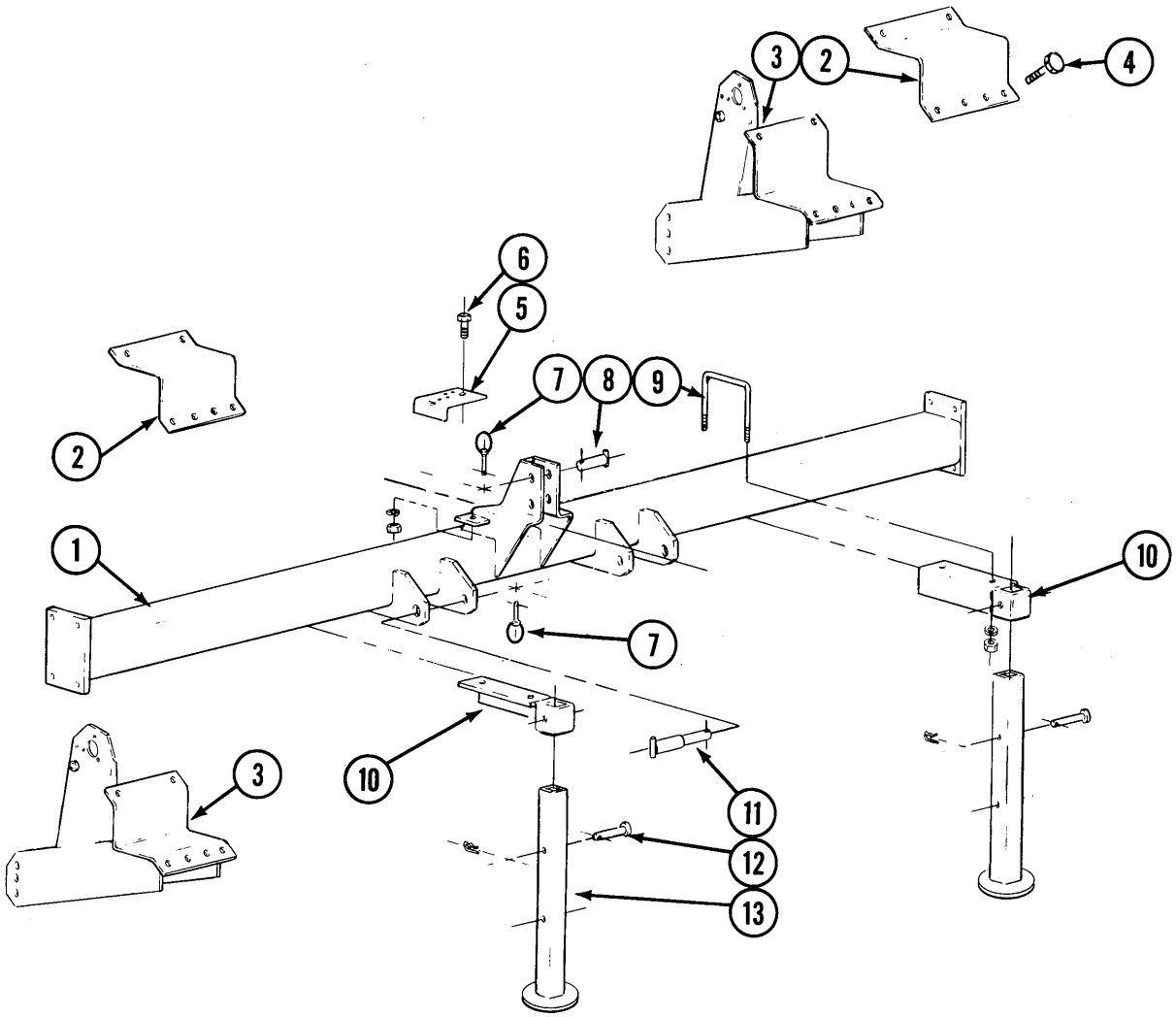
See Kinze Row Unit Manual for row unit mounting instructions.

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 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 hydraulics to insure all the air has been purged from the hydraulic system.

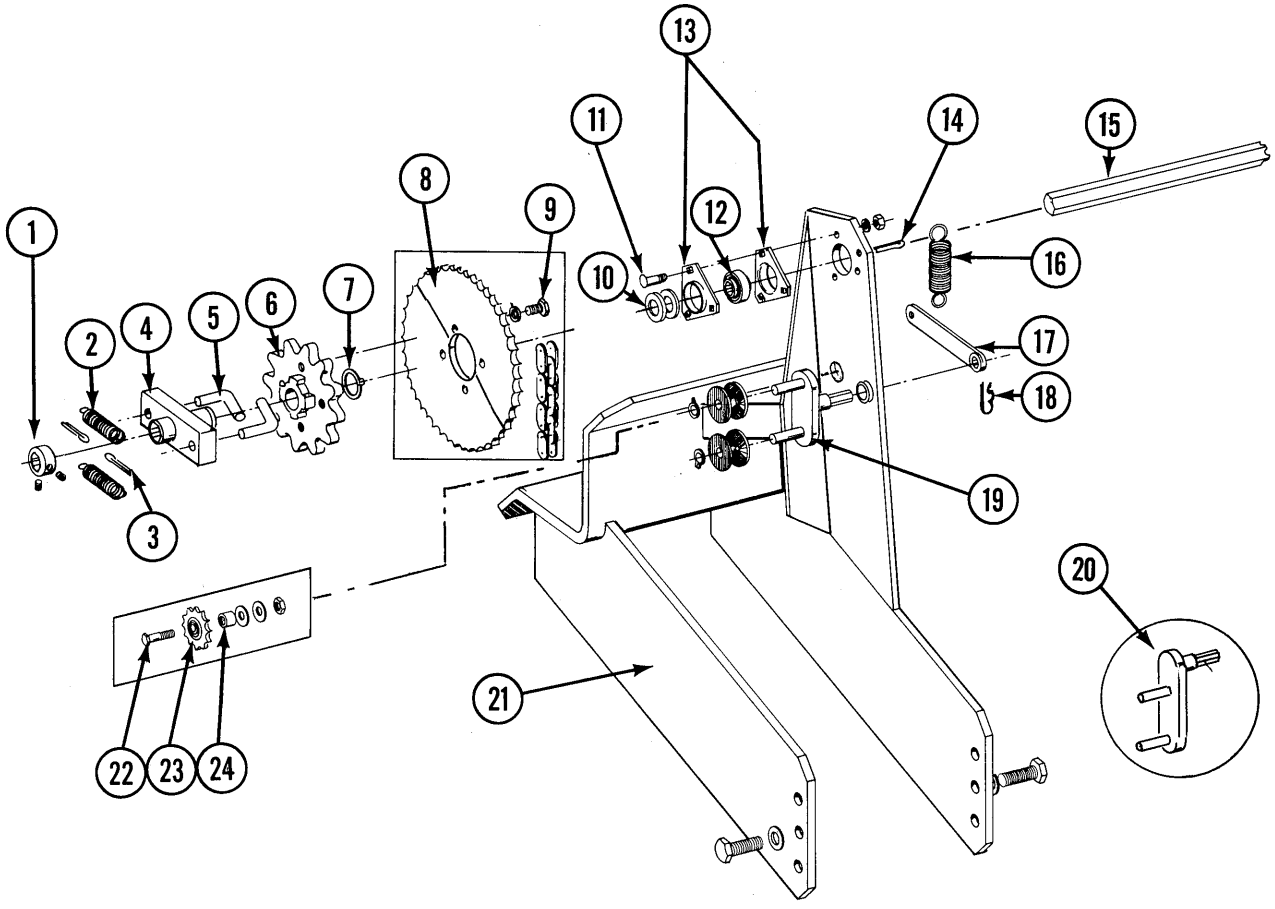
PARTS LIST INDEX

PLANTER FRAME



ITEM	PART NO.	DESCRIPTION
1.		Frame, 90", 2 Row 30 and 2 Row Wide (Not Illustrated)
		Frame, 128" 4 Row 30
		Frame, 136, 4 Row Wide
		Frame, 169", 6 Row 30
		Frame, 214", 6 Row Wide
		Frame, 224", 6 Row Wide (Serial 16003-) (Not Illustrated)
		Frame, 229", 8 Row 30
		Frame, 229", 8 Row 30 (Serial 16003-) (Not Illustrated)
2.	D503	Clamp
3.	A1915	Bracket, Drive
4.	10027	HHCS, 3/4" - 10 x 2 1/2"
	10231	Lock Washer, 3/4"
	10105	Hex Nut, 3/4" - 10
5.	D2637	Plate, Valve, R.H., Single Valve
	D978	Plate, Valve, R.H. (Shown), Dual Valve
	D979	Plate, Valve, L.H. Dual/Single Valve
6.	10037	HHCS, 1/2" - 13 x 1 1/4"
	10228	Lock Washer, 1/2"
7.	D2557	Pin, Lynch, 7/16"
8.	A1818	Pin, Center Link
9.	D1114	U-Bolt, 5/8" - 11 x 7" x 7"
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
10.	A667	Bracket, Support Stand
11.	A1817	Pin, Lower Link
12.	10561	Clevis Pin, 1/2" x 3"
	10670	Clip Pin, No. 3
13.	A668	Stand

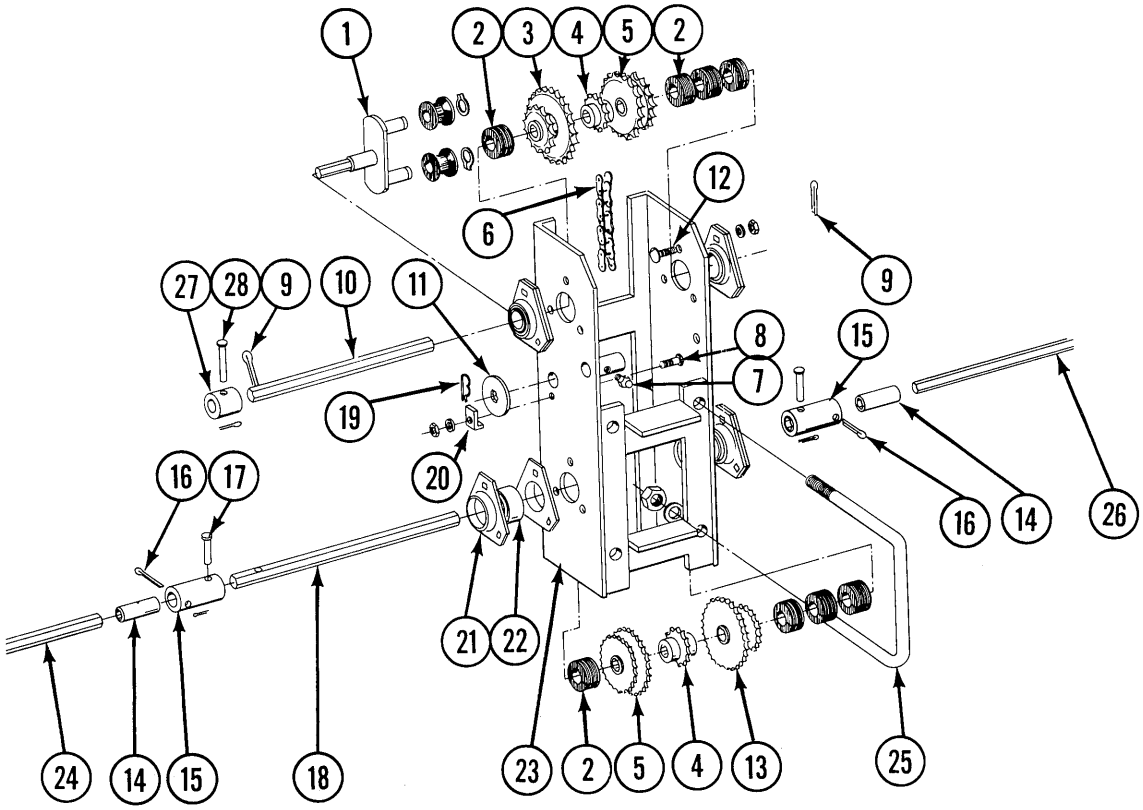
DRIVE GAUGE BRACKET ASSEMBLY



DRIVE GAUGE BRACKET ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	D917	Lock Collar, Less Set Screws
	10145	Set Screw, 5/16" x 1/2"
2.	D1256	Spring
3.	10464	Cotter Pin, 3/16" x 1"
4.	A378	Block and Hub Assembly
5.	D1255	"L" Pin
6.	A376	Hub/Sprocket Assembly
7.	10430	Ring, Retaining, 1 1/4"
8.	A2359	Sprocket, 48T, Extended Drill
9.	10002	HHCS, 3/8" - 16 x 3/4"
	10229	Lock Washer, 3/8"
10.	10233	Bushing, Machinery
11.	10303	Carriage Bolt, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
12.	2100-3	Bearing, 7/8" Hex
13.	3400-1	Flangette
14.	10466	Cotter Pin, 1/4" x 3/4"
15.	D914-30	Drive Shaft, 7/8" Hex, L.H., 2 Row 30 and 4 Row 30
	D914-35	Drive Shaft, 7/8" Hex, R.H., 2 Row 30 and 4 Row 30
	D914-35	Drive Shaft, 7/8" Hex, L.H., 2 Row Wide and 4 Row Wide
	D914-45	Drive Shaft, 7/8" Hex, R.H., 2 Row Wide and 4 Row Wide
	D914-55	Drive Shaft, 7/8" Hex, L.H., 6 Row 30
	D914-65	Drive Shaft, 7/8" Hex, R.H., 6 Row 30
	D914-75	Drive Shaft, 7/8" Hex, L.H., 6 Row Wide
	D914-85	Drive Shaft, 7/8" Hex, R.H., 6 Row Wide
	D914-85	Drive Shaft, 7/8" Hex, L.H., 8 Row 30
	D914-95	Drive Shaft, 7/8" Hex, R.H., 8 Row 30
16.	D913	Spring
17.	A272	Arm, Idler
18.	10670	Hairpin Clip, No. 3
19.	A901	Idler w/Spools and Rings
	D916	Spool
	10435	Ring
20.	A852	Bracket, Idler, for use with Extended Drill Sprocket
21.	A1915	Bracket, Drive Gauge
22.	10009	HHCS, 5/8" - 11 x 2 1/2" for use with Extended Drill Sprocket
	10205	Washer, 5/8" SAE
	10107	Lock Nut, 5/8" - 11
23.	A262	Sprocket, Idler, 15T, for use with Extended Drill Sprocket
24.	B123	Bushing, for use with Extended Drill Sprocket
A.	A261L	Ratchet and Sprocket Assembly, L.H. (Items 2 thru 7)
B.	6441X	Extended Drill Sprocket Package Includes: (2) A2359 (2) A852 (2) 3200-6 (8) 10002 (8) 10229 (2) A262 (2) 10009 (2) B123 (4) 10205 (2) 10107

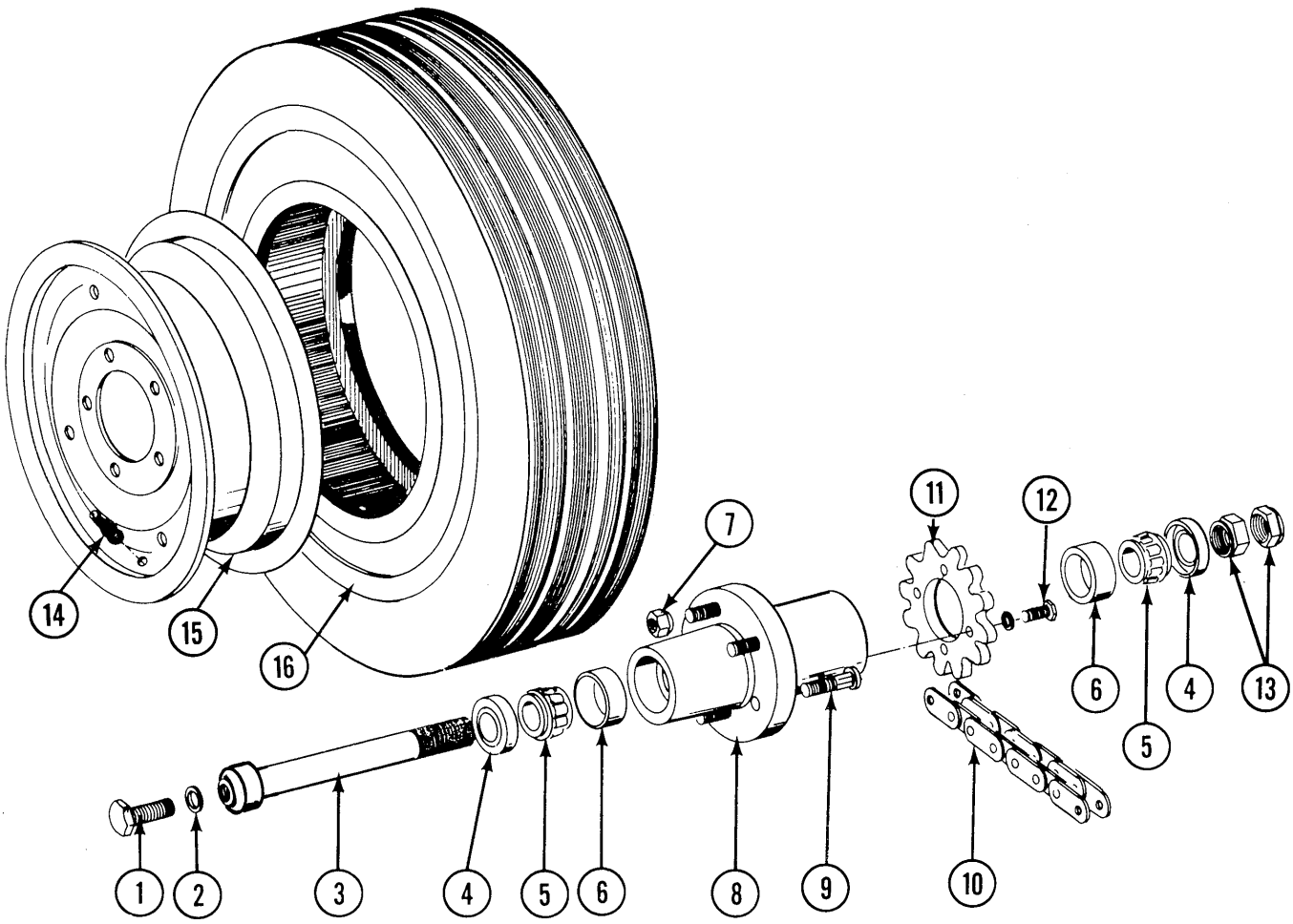
TRANSMISSION ASSEMBLY



TRANSMISSION ASSEMBLY

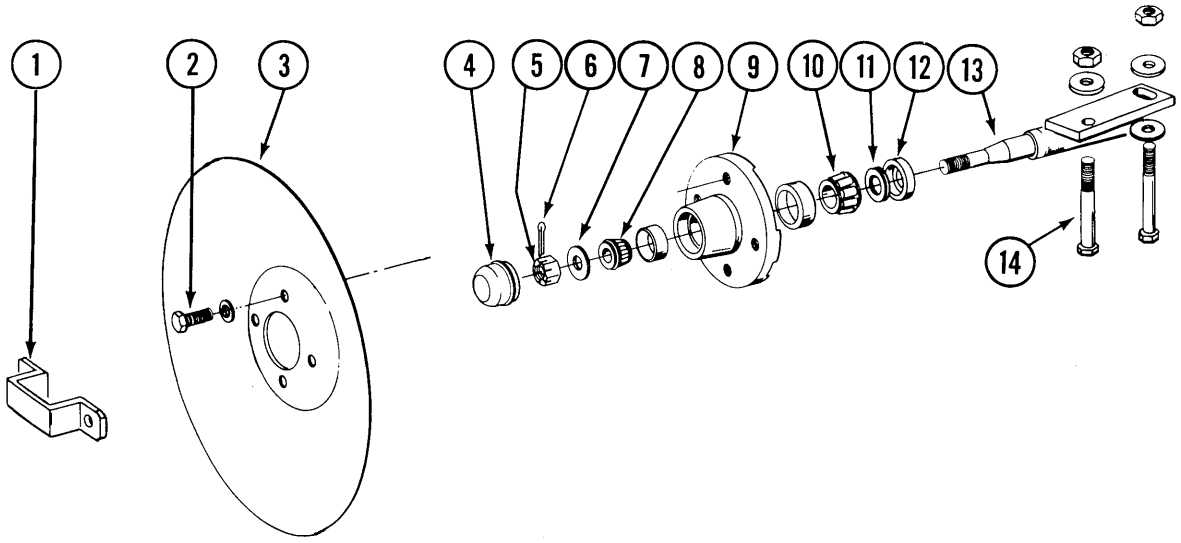
ITEM	PART NO.	DESCRIPTION
1.	A503	Idler w/Spools and Rings
	D1067	Spool
	10435	Ring
2.	D832	Spacer, Rubber
3.	2500-3	Sprocket, 16T-30T
4.	2500-1	Sprocket, 14T
5.	2500-2	Sprocket, 22T-26T
6.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link, No. 2040
7.	10640	Fitting, Grease, 1/4"
8,	10301	Carriage Bolt, 3/8" - 16 x 1 1/2"
	10210	Washer, 3/8" USS
	10101	Hex Nut, 3/8" - 16
9.	10463	Cotter Pin, 1/4" - 1 1/2"
10.	D925	Shaft, Upper
11.	A1668	Lock, Idler
12.	10303	Carriage Bolt, 5/16" - 18 x 1"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18
13.	2500-6	Sprocket, 18T - 28T
14.	D747	Coupler, 9/16"
15.	D748	Coupler, 7/8"
16.	10462	Cotter Pin, 3/16" x 2"
17.	10548	Clevis Pin, 1/4" x 1 3/4"
	10455	Cotter Pin, 1/16" x 1/2"
18.	D926	Shaft, Lower
19.	10670	Hair Pin Clip, No. 3
20.	D2495	Angle, Idler Lock
21.	3400-1	Flangette
22.	2100-3	Bearing, 7/8" Hex Bore
23.	A177	Case, Transmission
24.	D739-15	Drill Shaft, 9/16" Hex, R.H. 2 Row 30
	D739-20	Drill Shaft, 9/16" Hex, R.H., 2 Row Wide
	D739-40	Drill Shaft, 9/16" Hex, R.H. 4 Row 30
	D739-50	Drill Shaft, 9/16" Hex, R.H. 4 Row Wide
	D739-70	Drill Shaft, 9/16" Hex, R.H., 6 Row 30
	D739-90	Drill Shaft, 9/16" Hex, R.H., 6 Row Wide
	D739-100	Drill Shaft, 9/16" Hex, R.H., 8 Row 30
25.	D1114	U-Bolt, 5/8" - 11 x 7" x 7"
	10230	Lock Washer, 5/8"
	10104	Hex Nut, 5/8" - 11
26.	D739-25	Drill Shaft, 9/16" Hex, L.H., 2 Row 30
	D739-30	Drill Shaft, 9/16" Hex, L.H., 2 Row Wide
	D739-50	Drill Shaft, 9/16" Hex, L.H., 4 Row 30
	D739-60	Drill Shaft, 9/16" Hex, L.H., 4 Row Wide
	D739-80	Drill Shaft, 9/16" Hex, L.H., 6 Row 30
	D739-100	Drill Shaft, 9/16" Hex, L.H., 6 Row Wide
	D739-110	Drill Shaft, 9/16" Hex, L.H., 8 Row 30
27.	D1649	Coupler
28.	10558	Clevis Pin, 5/16" x 1 3/4"
	10456	Cotter Pin, 1/8" x 3/4"
A.	A1816	Transmission Assembly (Items 1 thru 23)

DRIVE GAUGE WHEEL ASSEMBLY



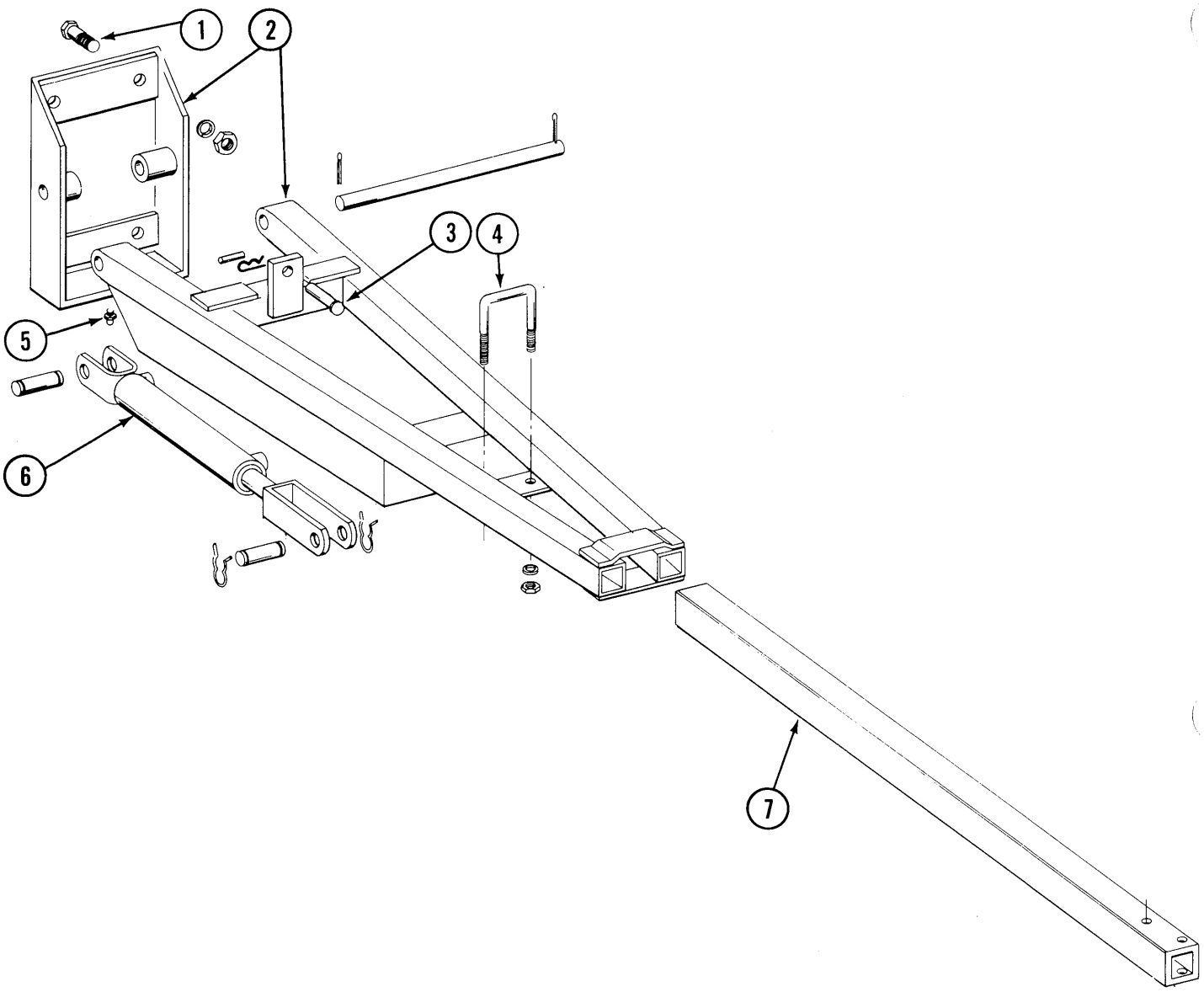
ITEM	PART NO.	DESCRIPTION
1.	10026	HHCS, 3/4" - 10 x 2"
2.	10231	Lock Washer, 3/4"
3.	A2257	Spindle
4.	A252	Seal, Grease
5.	A251	Bearing
6.	R190	Cup
7.	R267	Nut, 1/2" - 20 UNF
8.	A547	Hub, w/Cups and Studs
9.	R204	Stud, 1/2" - 20 UNF x 1 7/8"
10.	3200-58	Chain, No. 2050, 58 Pitch Including Connector 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)

MARKER HUB ASSEMBLY



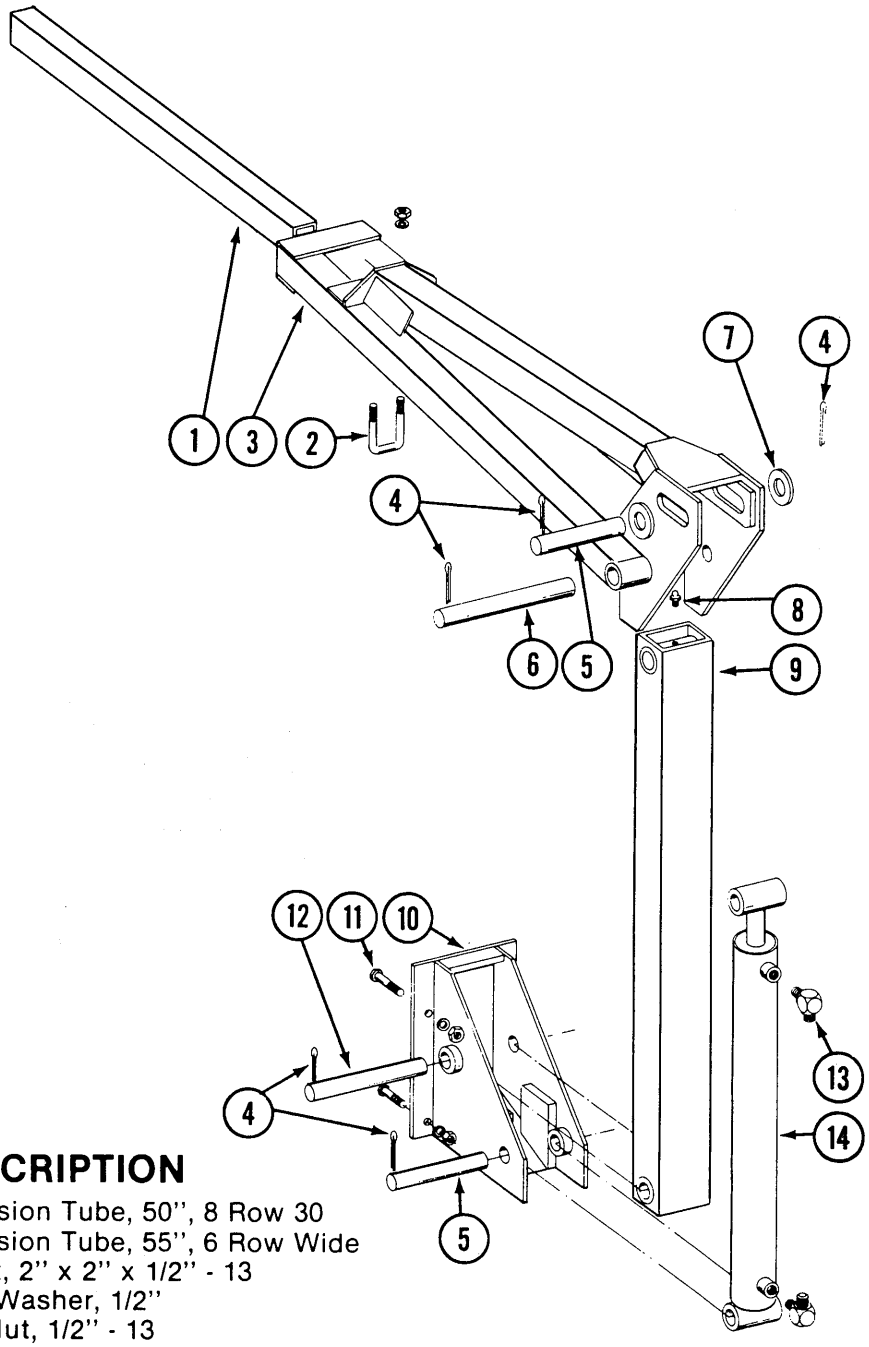
ITEM	PART NO.	DESCRIPTION
1.	D2597	Retainer
2.	10722	HHCS, 1/2" - 20 x 1"
	10228	Lock Washer, 1/2"
3.	D746	Blade, 16"
4.	D840	Cap
5.	10725	Hex Nut, Slotted, 5/8" - 18
6.	10470	Cotter Pin, 5/32" x 1"
7.	10724	Washer, 5/8"
8.	A257	Bearing, Outer
9.	A167	Hub w/cups
	R151	Cup, Outer
	R150	Cup, Inner
10.	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)

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

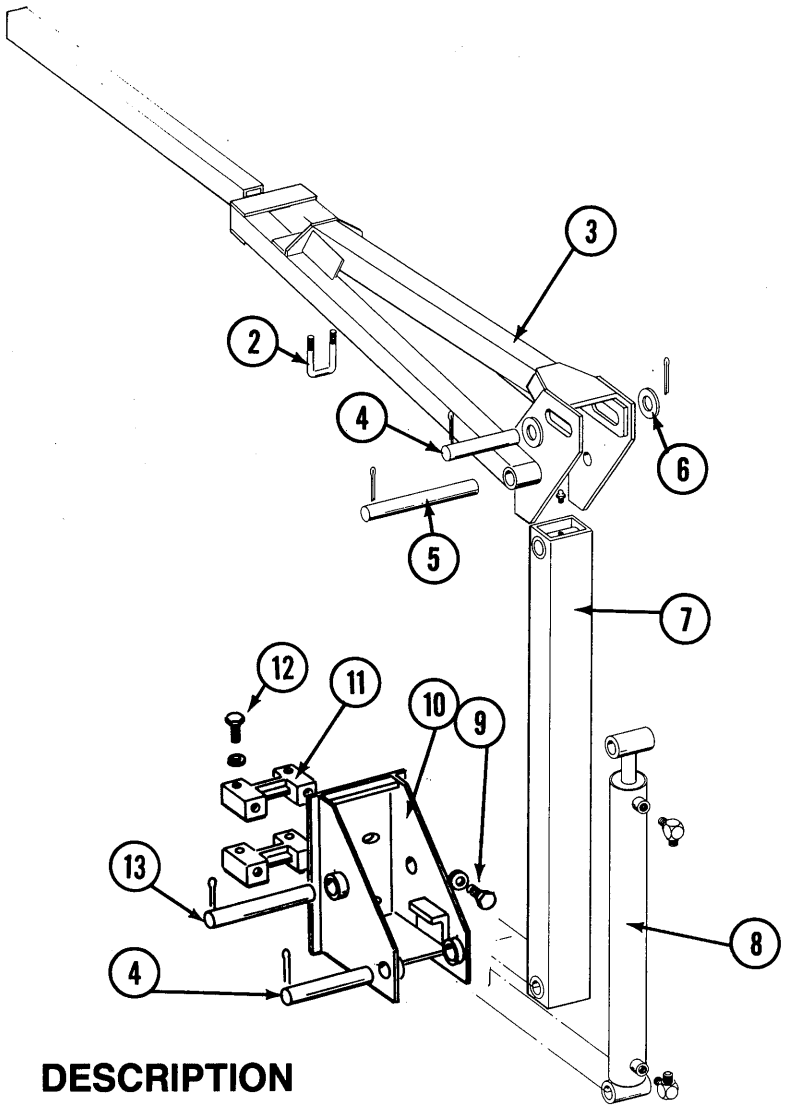
LOW PROFILE DOUBLE FOLD MARKER



ITEM	PART NO.	DESCRIPTION
1.	D453-3	Extension Tube, 50", 8 Row 30
	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
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.		Cylinder, 2" x 20"

LOW PROFILE DOUBLE FOLD MARKER

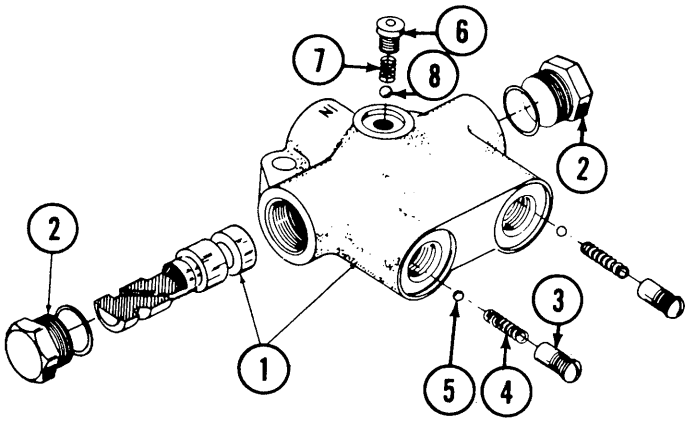
(Serial No. 16003)



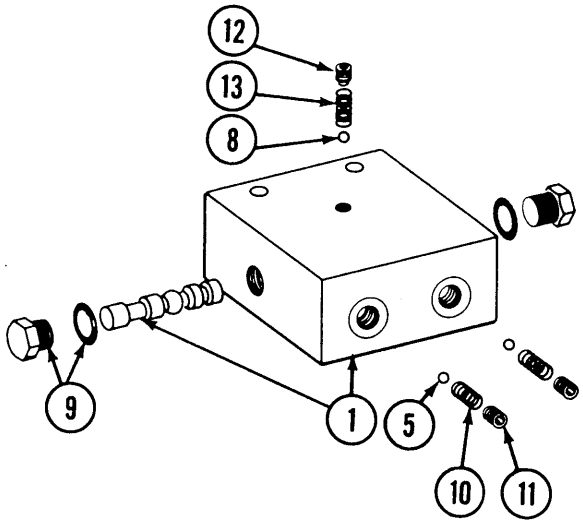
ITEM	PART NO.	DESCRIPTION
1.	D0453-03	Extension Tube, 50"
2.	D2721	U-Bolt, 2" x 2" x 1/2" - 13
	10228	Lock Washer, 1/2"
	10102	Hex Nut, 1/2" - 13
3.	A5190	Arm, Second Stage, 35", 6 Row Wide
	A5188	Arm, Second Stage, 46", 8 Row 30
4.	D2161	Pin, 1 1/4" x 8 1/4"
	10460	Cotter Pin, 1/4" x 2"
5.	D3214	Pin, 1 1/4" x 12 1/4"
	10460	Cotter Pin, 1/4" x 2"
6.	10226	Washer, 1 1/4" SAE
7.	A5173	Arm W/Grease Fittings, First Stage
	10641	Grease Fittings, 1/8"
8.		Cylinder (See Marker Cylinder)
9.	10008	HHCS, 5/8" - 11 x 2", Grade 2
	10230	Lock Washer, 5/8"
10.	A5130	Mount
11.	B0177	Tap Block
12.	10026	HHCS, 3/4" - 10 x 2"
	10231	Lock Washer, 3/4"
13.	D0652	Pin, 1 1/4" x 9 1/2"
	10460	Cotter Pin, 1/4" x 2"

SEQUENCING VALVE

Style A

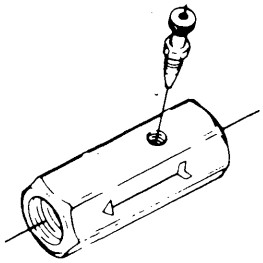


Style B



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

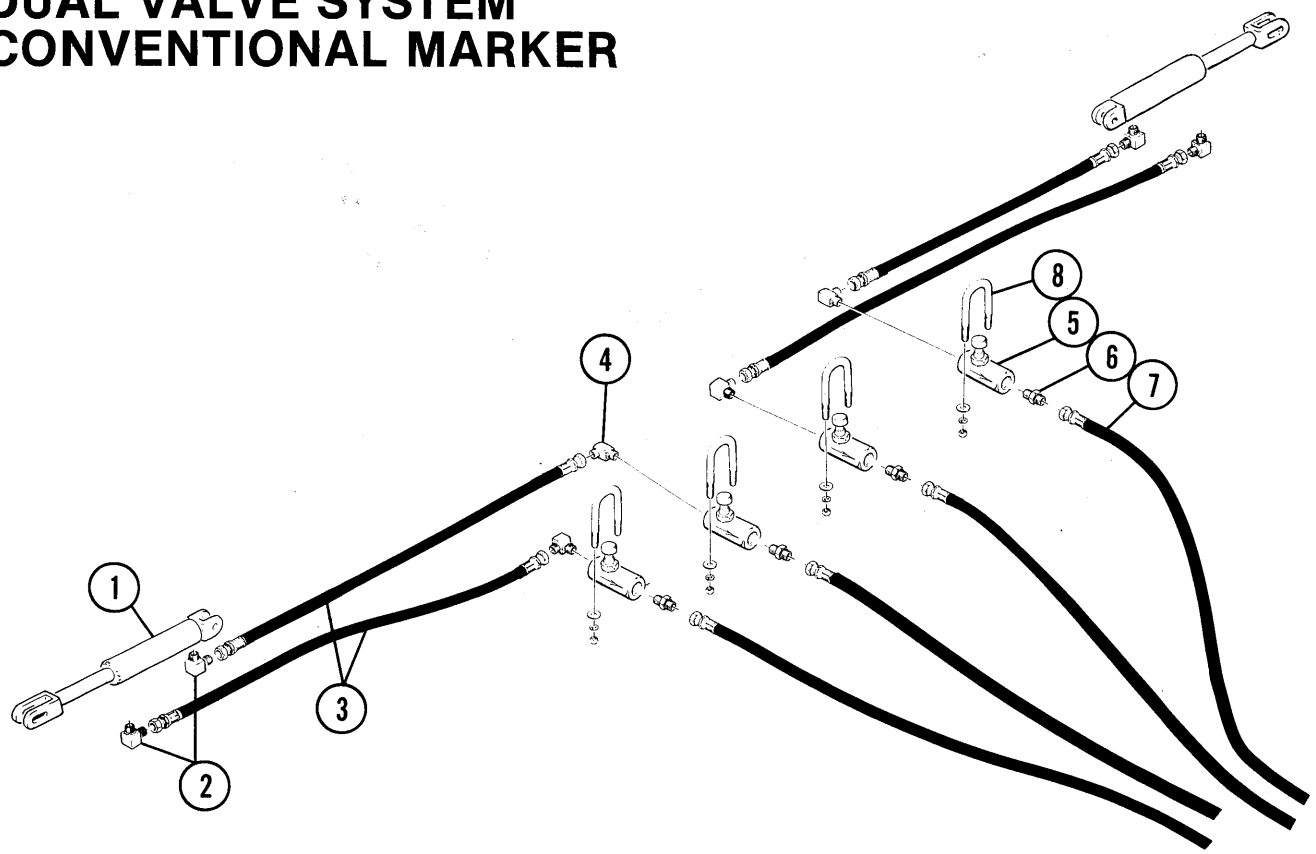
FLOW CONTROL VALVE



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

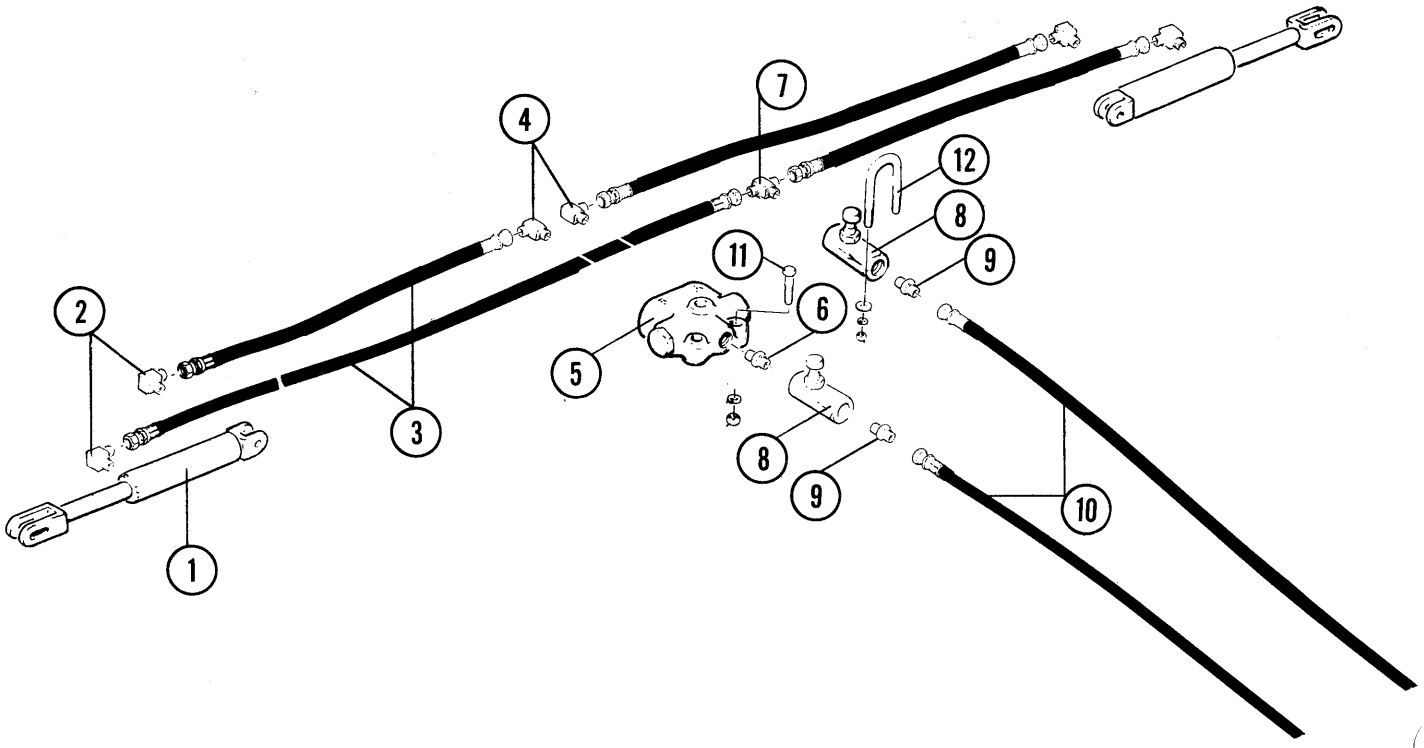
*To identify - Rego KLF375 stamped on valve body.
** To identify - Deltrol stamped on valve body.
***To identify - Partrol stamped on valve body.

DUAL VALVE SYSTEM CONVENTIONAL MARKER



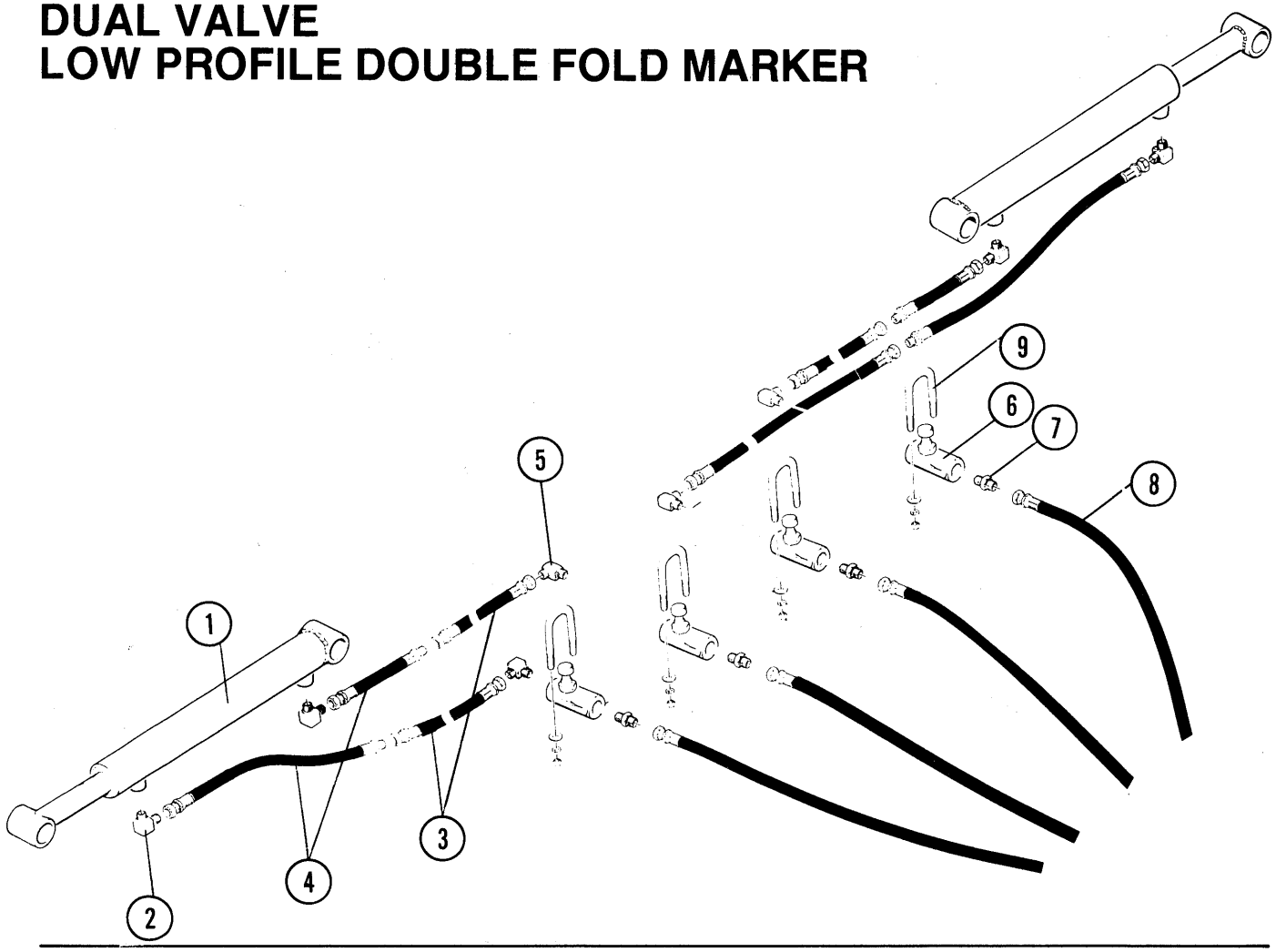
ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1102	Hose Assembly, ¼" x 95", 4R30 and 4 RW
	A1103	Hose Assembly, ¼" x 110", 6R30
4.	2501-6-6	Elbow, 90°
5.	A270	Valve, Flow Control
6.	2404-6-6	Adapter, Straight
7.	A1101	Hose Assembly, ¼" x 48"
8.	D1253	U-Bolt, 5/16" - 18 x 2¼" x 1½"
	10219	Flat Washer, 5/16"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18

SINGLE VALVE CONVENTIONAL MARKER



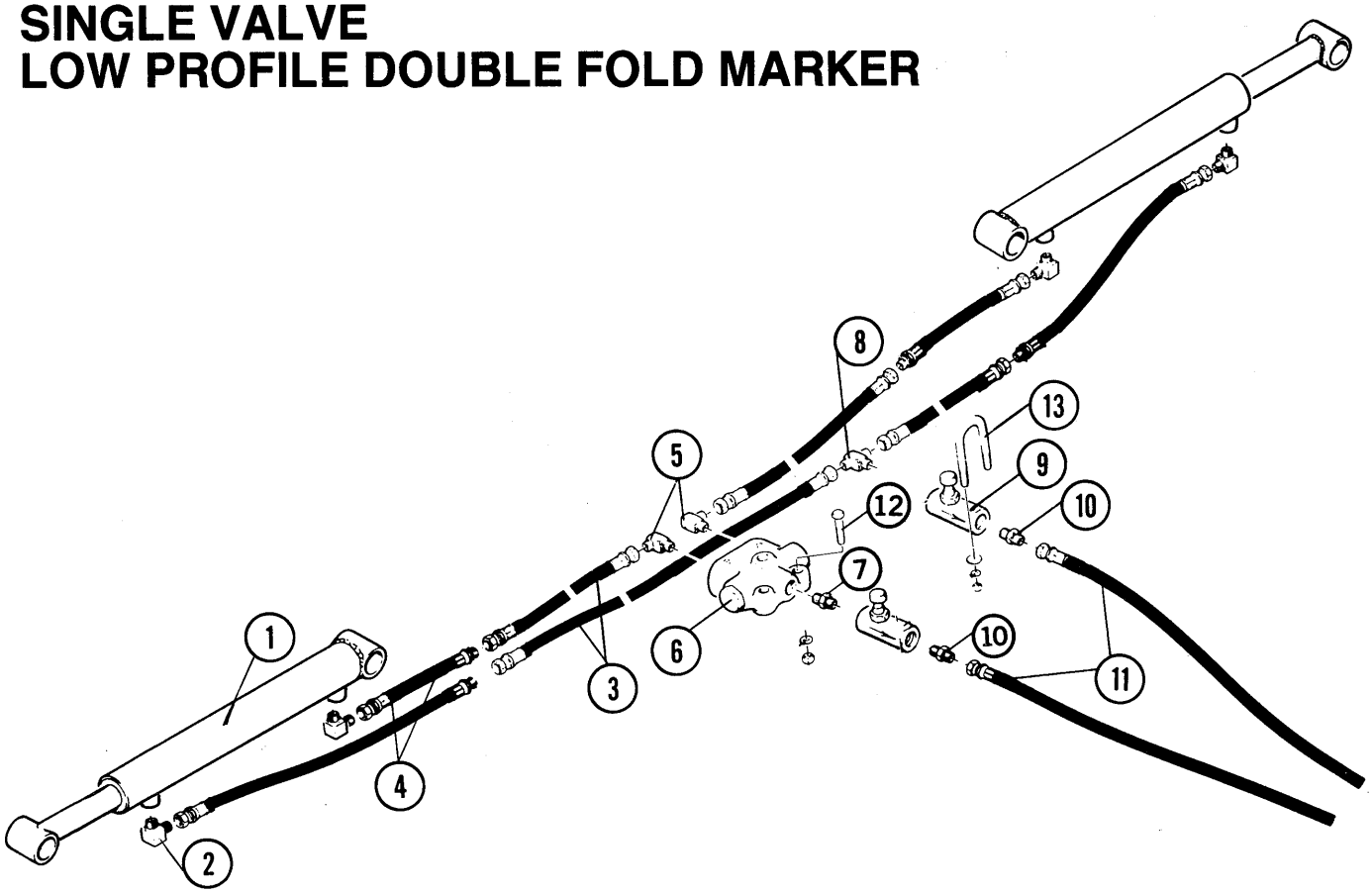
ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1102	Hose Assembly, ¼" x 95", 4R30, 4RW
	A1103	Hose Assembly, ¼" x 110", 6R30
4.	6801-6-8	Elbow, 90°
5.	A282	Valve, Sequencing
6.	6401-8-6	Adapter Straight
7.	2601-6-6	Side Tee, Male
8.	A270	Valve, Flow Control
9.	2404-6-6	Adapter, Straight
10.	A1101	Hose Assembly, ¼" x 48"
11.	10048	HHCS, 3/8" - 16 x 2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
12.	D1253	U-Bolt, 5/16" - 18 x 2¼" x 1½"
	10219	Flat Washer, 5/16"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18

DUAL VALVE
LOW PROFILE DOUBLE FOLD MARKER



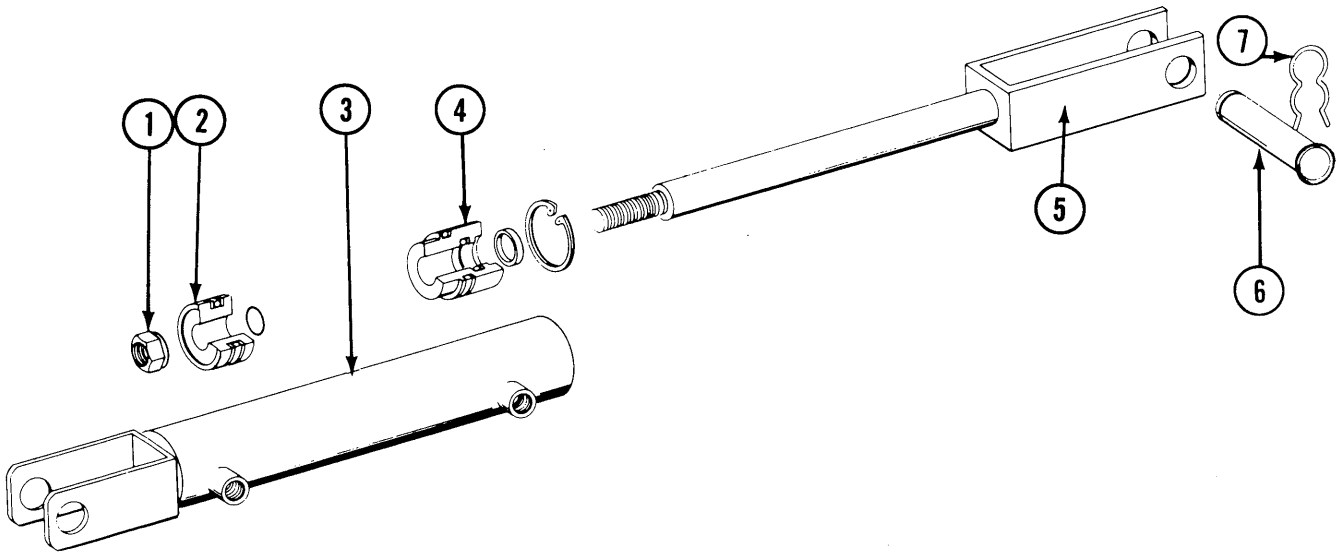
ITEM	PART NO.	DESCRIPTION
1.		Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°, 3/4" - 16 JIC to 1/2" NPT (Used with cylinder requiring 1/2" Pipe Thread Fitting)
	6801-8	Elbow, 90°, 3/4" - 16 JIC to 3/4" O-Ring (Used With Cylinder Requiring 3/4" O-Ring Fitting)
3.	A1008	Hose Assembly, 3/8" x 110", 6RW
	A1010	Hose Assembly, 3/8" x 120", 8R30
4.	A1004	Hose Assembly, 3/8" x 36"
5.	2501-8-6	Elbow, 90°
6.	A270	Valve, Flow Control
7.	2404-8-6	Adapter, Straight
8.	A1005	Hose Assembly, 3/8" x 48"
9.	D1253	U-Bolt, 5/16" - 18 x 2 1/4" x 1 1/2"
	10219	Flat Washer, 5/16"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18

SINGLE VALVE
LOW PROFILE DOUBLE FOLD MARKER



ITEM	PART NO.	DESCRIPTION
1.		Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°, 3/4" - 16 JIC to 1/2" NPT (Used With Cylinder Requiring 1/2" Pipe Thread Fitting)
	6801-8	Elbow, 90°, 3/4" - 16 JICe to 3/4" O-Ring (Used With Cylinder Requiring 3/4" O-Ring Fitting)
3.	A1008	Hose Assembly, 3/8" x 110", 6 RW
	A1010	Hose Assembly, 3/8" x 120", 8R30
4.	A1004	Hose Assembly, 3/8" x 36"
5.	6801-8	Elbow, 90°
6.	A282	Valve, Sequencing
7.	6401-8-6	Adapter, Straight
8.	2601-8-6	Side Tee, Male
9.	A270	Valve, Flow Control
10.	2404-8-6	Adapter, Straight
11.	A1005	Hose Assembly, 3/8" x 48"
12.	10048	HHCS, 3/8" - 16 x 2"
	10229	Lock Washer, 3/8"
	10101	Hex Nut, 3/8" - 16
13.	D1253	U-Bolt, 5/16" - 18 x 2 1/4" x 1 1/2"
	10219	Flat Washer, 5/16"
	10232	Lock Washer, 5/16"
	10106	Hex Nut, 5/16" - 18

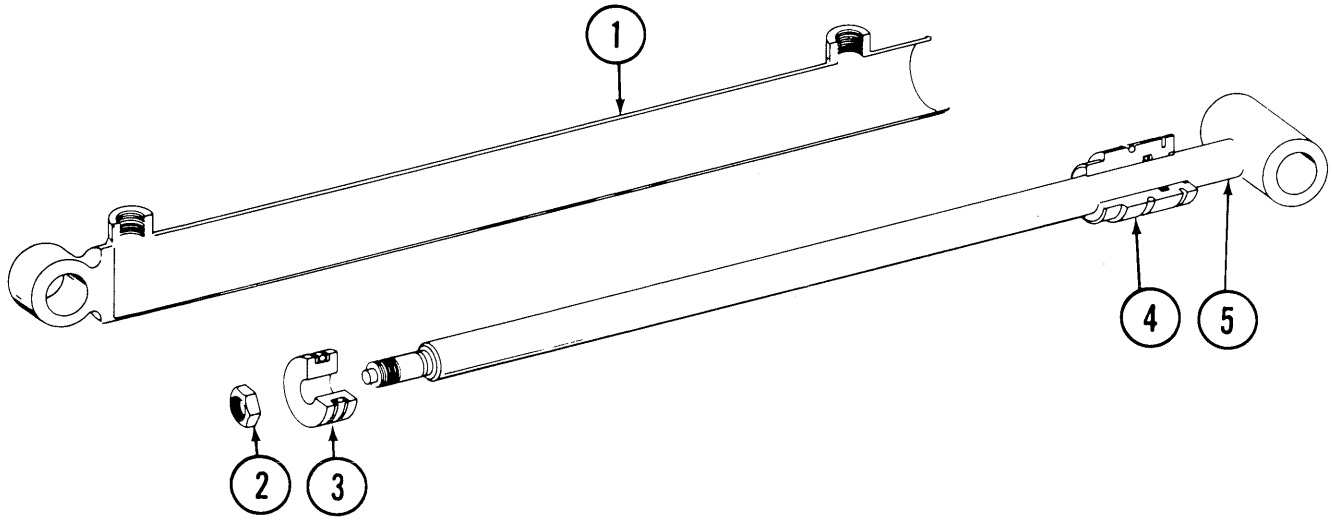
CONVENTIONAL MARKER CYLINDER



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

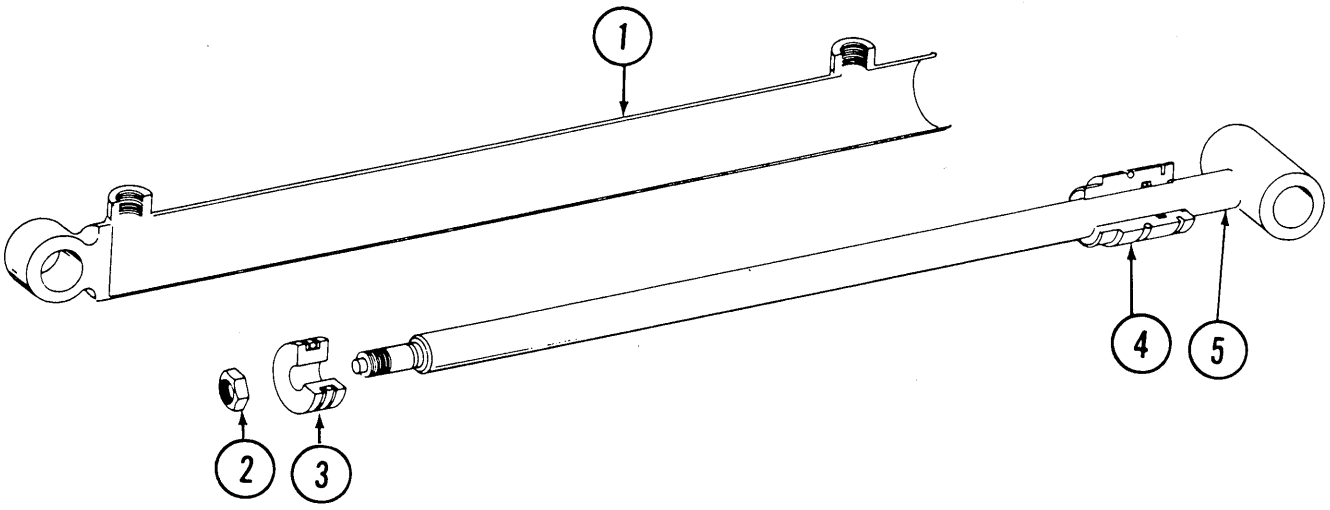
To identify Kinze part number stamped on barrel.

LOW PROFILE 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

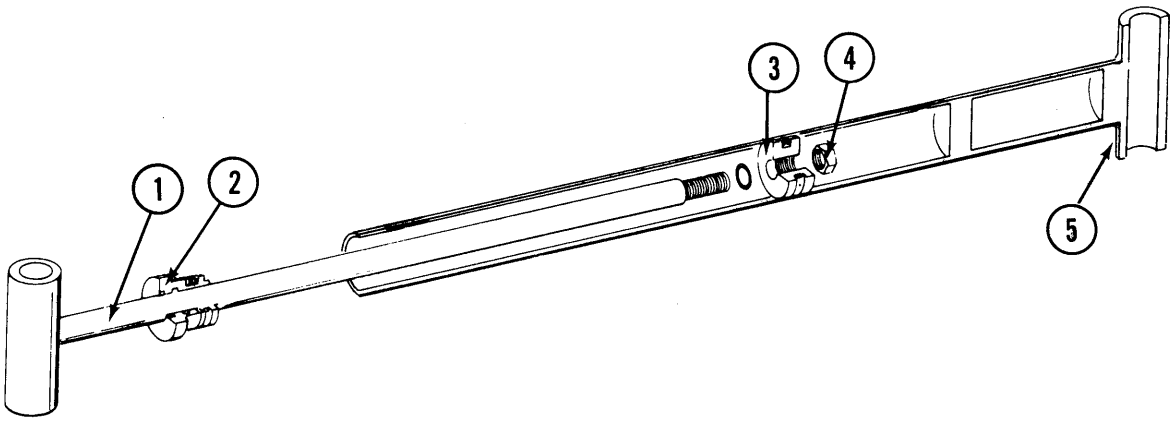
LOW PROFILE DOUBLE FOLD MARKER CYLINDER



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"
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.

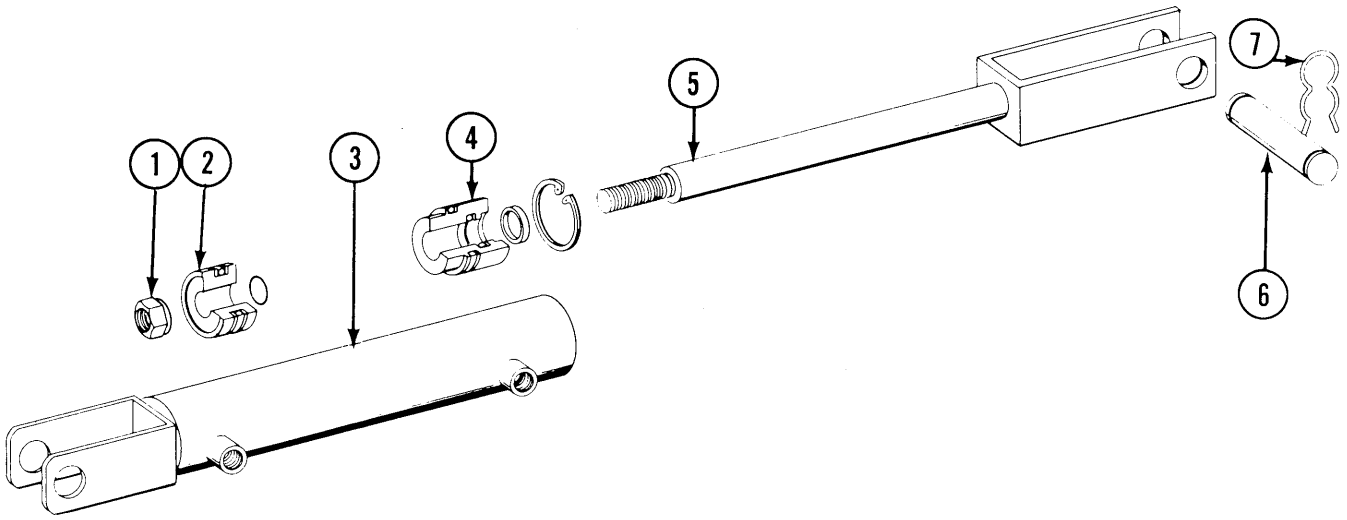
* To identify - DN 13107 stamped on barrel.

LOW PROFILE DOUBLE FOLD MARKER CYLINDER



ITEM	PART NO.	DESCRIPTION
1.	A5459	Rod Assembly
2.	D5949	Gland
3.	D4632	Piston
4.	R0959	Lock Nut, 3/4" - 16
5.	A5460	Barrel
A.	A5097	Cylinder Complete, 2" x 20"
B.	R0927	Seal Kit, Includes: (1) T Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper

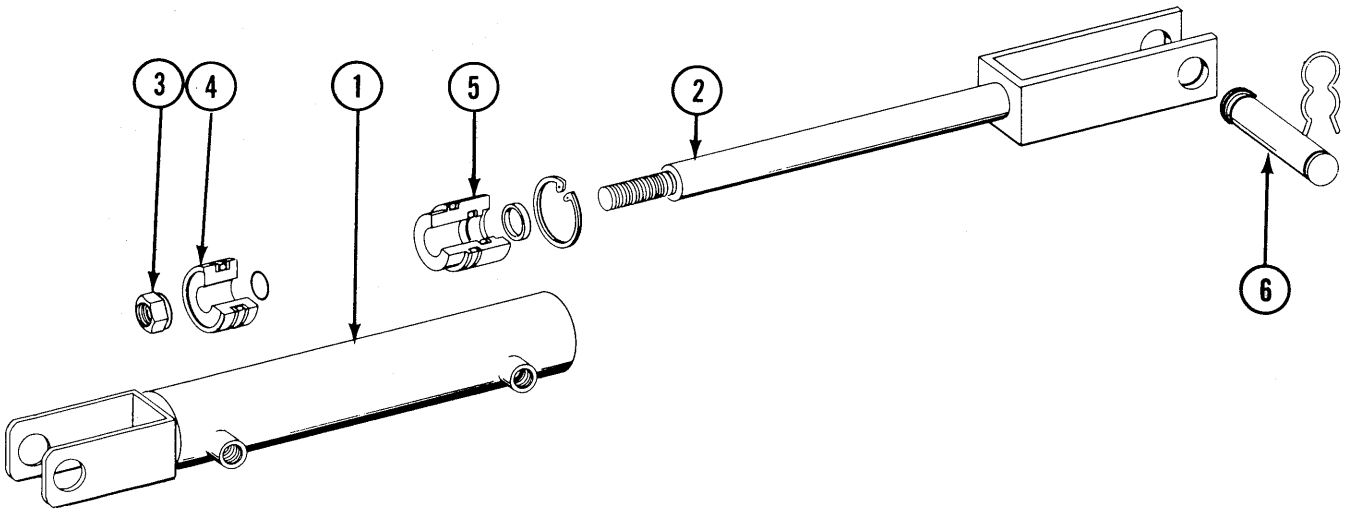
CONVENTIONAL MARKER CYLINDER



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
7.	R193	Clip, Hair Pin
A.	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.
*B.	A1674A	Cylinder, Complete, 2" x 8"

* To identify - DN 13081 stamped on barrel

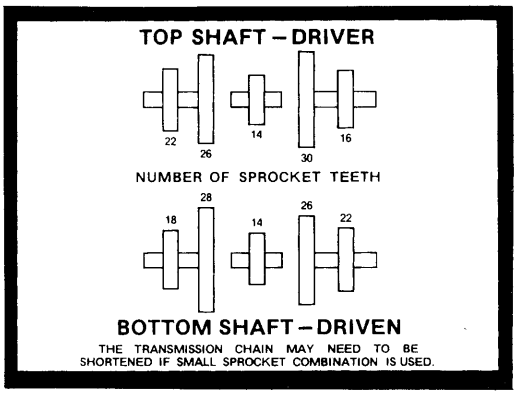
CONVENTIONAL MARKER CYLINDER



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,
A.	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
*B.	A1674B	Cylinder - Complete 2" x 8",

* To identify - No markings on barrel.

DECALS, REFLECTORS, AND TIE STRAPS



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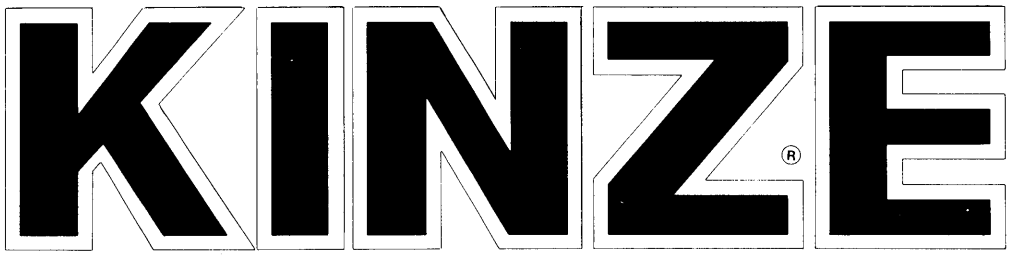

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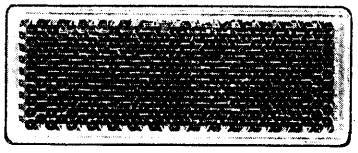

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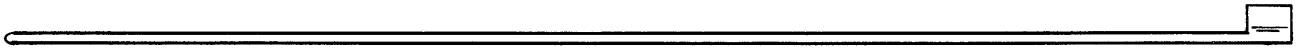
6



ITEM	PART NO.	DESCRIPTION
1.	7100-6	Decal, Sprocket Combination
2.	7100-42	Decal, Warning
3.	7100-46	Decal, Caution
4.	7100-57	Decal, Kinze
5.	7200-3	Reflector, Red
	7200-4	Reflector, Amber
6.	D1162	Tie Strap, 28"
	D1512	Tie Strap, 6"
7.	R155	Blue Paint, Aerosol (Not Shown)
	R439	Blue Paint, Quart
	R440	Blue Paint, Gallon

NUMERICAL INDEX