# 3 PT MOUNTED PLANTER

# OPERATOR & PARTS MANUAL

**M0102** **1984**

# WARRANTY

The KINZE® Limited Warranty for your new machine is stated on the back of the retail purchaser's copy of the Warranty And Delivery Report form.

Warranty, within the warranty period, is provided as part of KINZE's support program for registered KINZE® products which have been operated and maintained as described in this manual. Evidence of equipment abuse or modification beyond original factory specifications will void the warranty. Normal maintenance, service and repair is not covered by KINZE® warranty.

To register your KINZE® product for warranty, a Warranty And Delivery Report form must be completed by the KINZE® Dealer and signed by the retail purchaser, with copies to the Dealer, to the retail purchaser and to KINZE Manufacturing, Inc. Registration must be completed and sent to KINZE Manufacturing, Inc. within 30 days of delivery of the KINZE® product to the retail purchaser. KINZE Manufacturing, Inc. reserves the right to refuse warranty on serial numbered products which have not been properly registered.

Additional copies of the Limited Warranty can be obtained through your KINZE® Dealer.

If service or replacement of failed parts which are covered by the Limited Warranty are required, it is the user's responsibility to deliver the machine along with the retail purchaser's copy of the Warranty And Delivery Report to the KINZE® Dealer for service. KINZE® warranty does not include cost of travel time, mileage, hauling or labor. Any prior arrangement made between the Dealer and the retail purchaser in which the Dealer agrees to absorb all or part of this expense should be considered a courtesy to the retail purchaser.

*KINZE® warranty does not include cost of travel time, mileage, hauling or labor.*

# 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. Refer to it when necessary to maintain the machine in efficient operating condition.

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:

3 Pt. Mounted Planter - Model Number MT

Serial Number 15723 and on

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

Date Purchased _____

Serial Number _____

Model Number _____

# TABLE OF CONTENTS

# 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.

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 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:
amendments
KINZE
Refer to
New
insert W12187
Effective
were
Machine
made
Warranty.
12/4/87
to
the

# 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 section of this manual or 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. 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 fatique 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 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.
- Always make sure there are no persons near the planter when gauge marker assemblies are in operation.
- Always lower the planter when not in use and cycle the hydraulic control lever to relieve pressure in cylinders and hoses.
- Always make necessary safety preparations prior to transporting the machine on public roads. This includes installing Slow Moving Vehicle (SMV) emblem and use of adequate lights or safety warnings after dark, except where prohibited by law.
- Watch for obstructions such as wires, tree limbs, etc., when foldng marker assemblies.
- Always install marker lock up/safety pins before transporting or parking any planter equipped with conventional marker assemblies.

("Safety" Position Shown)


# DANGER

THIS PLANTER IS DESIGNED TO BE **DRIVEN BY GROUND TIRES ONLY.** THE USE OF HYDRAULIC, ELECTRIC OR PTO DRIVES MAY CREATE SERIOUS SAFETY HAZARDS TO YOU AND THE PEOPLE NEAR BY. IF YOU INSTALL SUCH DRIVES YOU MUST FOLLOW ALL APPROPRIATE SAFETY STANDARDS AND PRACTICES TO PROTECT YOU AND OTHERS NEAR THIS PLANTER FROM INJURY.

# WARNING

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.

# 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. 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-instlled 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 valve specified below unless otherwise noted.

| DRY TORQUE VALUES - FT. LBS. | | |
|---|---|---|
| Bolt Diameter | Grade 2 No Radial Lines | Grade 5 Three Radial Lines |
| 5/16" | 11 | 17 |
| 3/8" | 23 | 35 |
| 1/2" | 55 | 85 |
| 5/8" | | 170 |
| 3/4" | | 360 |
| 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

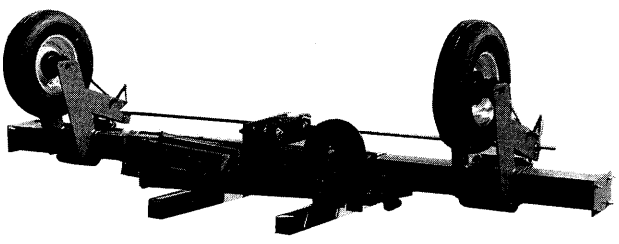
1. Place the partially assembled planter shipping bundle in your selected assembly area.

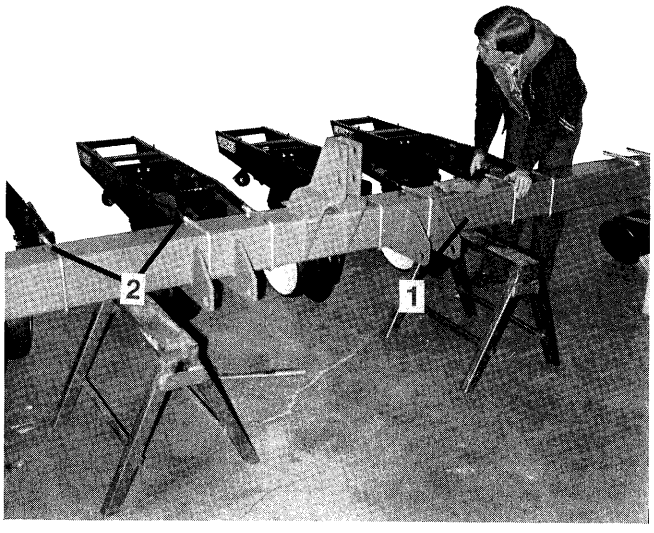
2. Unband the planter shipping bundle and inspect for damage.

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 disc. 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.

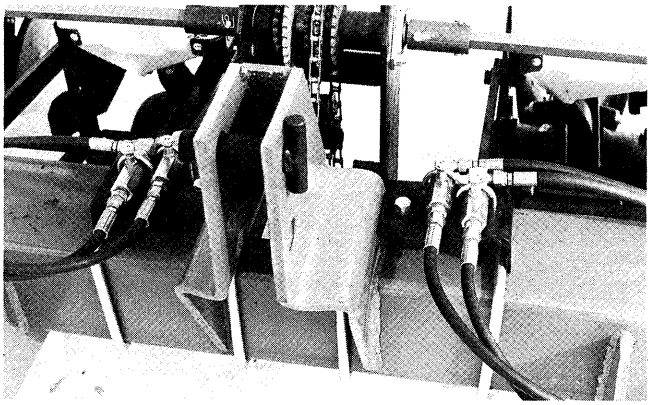
   C. Attach the pre-assembled second stage with pivot pin and cotter pins. Install markers so that spindles project forward.

**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 section 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.

# ASSEMBLY

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

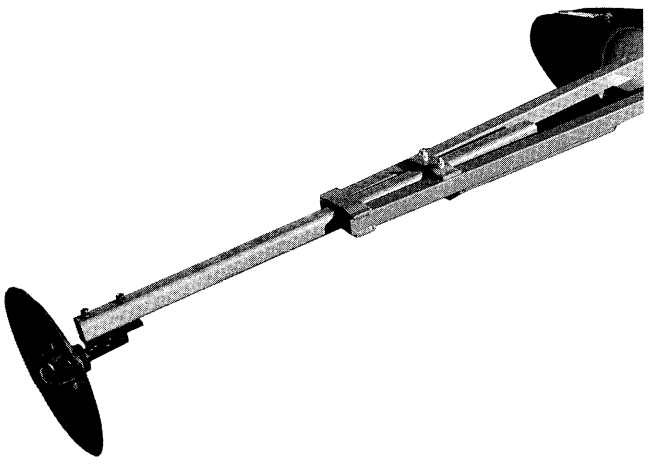
13. Attach the 16" disc to the hub using the preinstalled bolts. Be sure to alternate bolts while tightening to avoid distorting the disc's shape or breaking the marker hub.

**NOTE:** The marker disc is installed so the concave side of the disc 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 pin in "safety" position when transporting or storing the planter. See Safety Precaution.

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 disc 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 disc 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 | |



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

# 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

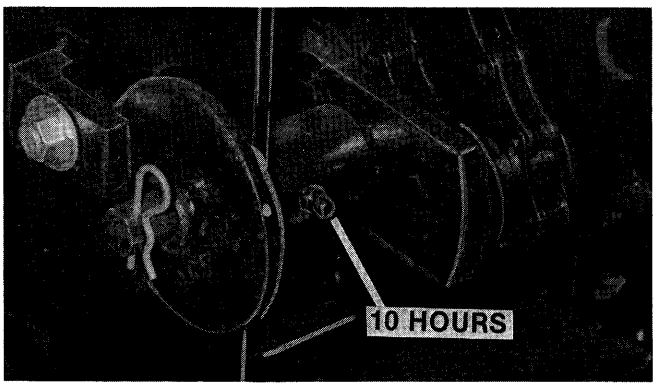
The transmission and row unit drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 10 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may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

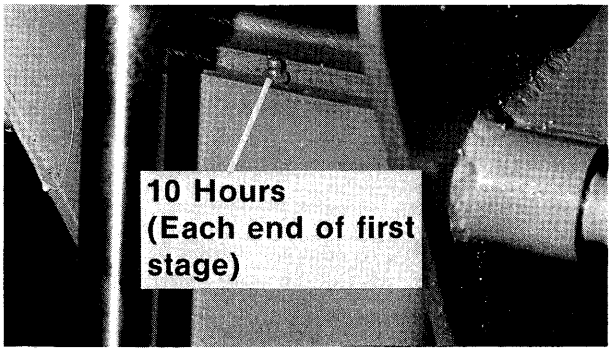
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all drive wheels and marker hubs. Follow the procedure outlined for wheel bearing replacement with the exception that bearings and bearing caps are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

### LUBRICATION CHART

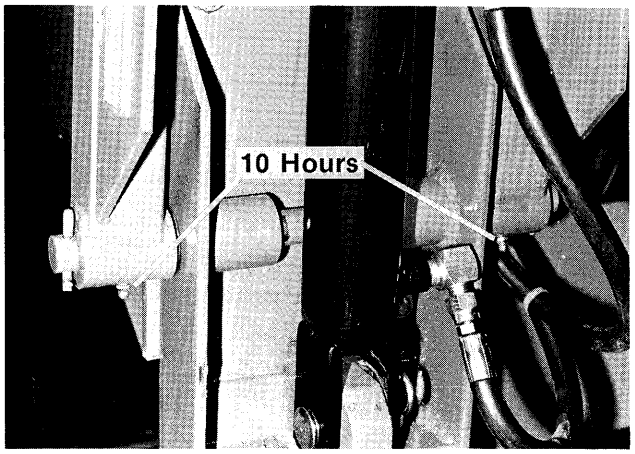
| Ref. No. | Description | No. of Zerks | Frequency |
|---|---|---|---|
| 1. | Idler Sleeve (Transmission) | 1 | 10 Hours |
| 2. | Low Profile Double Folding Marker | 2 (Per marker) | 10 Hours |
| 3. | Conventional Marker | 2 (Per marker) | 10 Hours |




1. Idler Sleeve (Transmission)




2. Low Profile Double Folding Marker Assembly.




3. Conventional Marker Assembly

# 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 lubrications 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.

## Mounted 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.

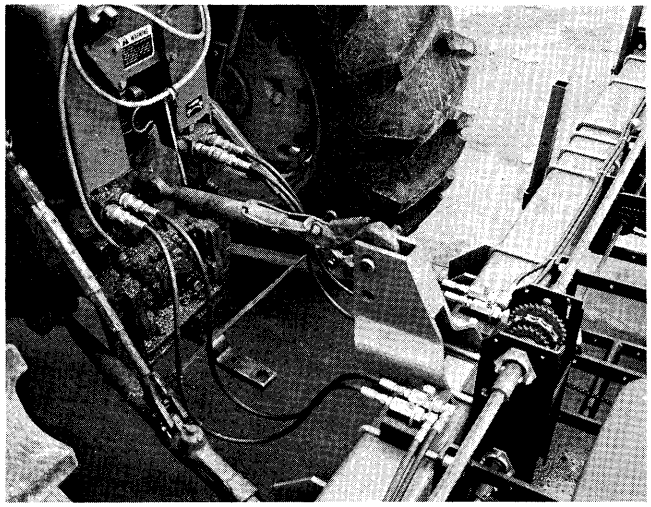
4. Connect center link to planter mast. It may be necessary to change the length of the center link with the adjusting handle.

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 gauge 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.

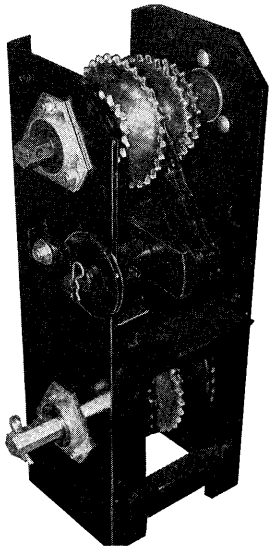
When operating the mounted planter, make sure the right and left arms are adjusted equally before attaching the planter unit. After the planter has been lowered to the correct operating depth, stop the tractor and stand behind the planter to check for level operation laterally. Then walk around to the 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

## 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 your row unit operator's manual or 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.

## 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.**

## Hydraulic Marker Operation

⚠ **WARNING:** Always stand clear of the gauge marker assembly and blade when it is in operation.

**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. To increase the cylinder speed turn the valve counterclockwise, opening the valve. To decrease the cylinder speed turn the valve clockwise.

**NOTE:** Marker speed will decrease with cold oil supply. Make sure that all adjustments are made with warm oil. Do not overtighten locknut.

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

## Marker Adjustment

We recommend a field test be made to insure the markers are properly adjusted. After the field test is made, make any minor adjustments necessary.

## Tractor Speed

Planters are designed to operate within a speed range of 2 to 7 M.P.H. Optimum speed for most conditions is 5 to 6 M.P.H. Rate charts provided in this manual and in the Kinze Row Unit Manual are based on this optimum speed.

Variations in ground speed will produce variations in rates. Corn meter populations will tend to be disproportionately higher at high ground speeds. Soybean and sorghum seed cup populations will tend to be disproportionately lower.

We recommend a field test be made to insure proper seed placement and operation of row units.

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

☐ Hoses - Fittings

☐ Bolts - Nuts

☐ Drive Chains

**NOTE:** The planter drive line is protected with shear pins. If seed meters on row units fail to operate, check shear pins.

# OPERATION

## PLANTING RATE FOR PLATELESS CORN METERS

| Seed Populations Per Acre | | | Average Seed Placement In Inches | Sprocket Combinations | | Recommended Speed Range In MPH |
|---|---|---|---|---|---|---|
| 30 Inch Rows | 36 Inch Rows | 38 Inch Rows | | Drive Sprocket | Driven Sprocket | |
| 56,200 | 46,800 | 44,300 | 3-3/4 | 30 | 14 | 2 to 3 |
| 48,700 | 40,600 | 38,510 | 4-¼ | 26 | 14 | 2 to 3½ |
| 43,700 | 36,400 | 34,500 | 4 ¾ | 30 | 18 | 3 to 4 |
| 41,300 | 34,400 | 32,600 | 5 1/8 | 22 | 14 | 3 to 4½ |
| 37,800 | 31,600 | 29,900 | 5 ½ | 26 | 18 | 3 to 4½ |
| 35,700 | 29,800 | 28,200 | 5 7/8 | 30 | 22 | 3 to 5 |
| 32,100 | 26,800 | 25,400 | 6 ½ | 22 | 18 | 3 to 5½ |
| 30,700 | 25,800 | 24,400 | 6 ¾ | 26 | 22 | 3 to 6 |
| 30,100 | 25,200 | 23,900 | 7 | 30 | 26 | 3 to 6 |
| 29,950 | 24,950 | 23,700 | 7 1/8 | 16 | 14 | 3 to 6 |
| 27,800 | 23,200 | 21,950 | 7 ½ | 30 | 28 | 4 to 6½ |
| 26,200 | 21,900 | 20,600 | 8 | 22 | 22 | 4 to 7 |
| 24,300 | 20,300 | 19,200 | 8 5/8 | 26 | 28 | 4 to 7 |
| 23,300 | 19,400 | 18,400 | 9 | 16 | 18 | 4 to 7 |
| 22,200 | 18,500 | 17,600 | 9½ | 22 | 26 | 4 to 7 |
| 20,700 | 17,200 | 16,300 | 10 1/8 | 22 | 28 | 4 to 7 |
| 20,400 | 16,900 | 16,100 | 10 ¼ | 14 | 18 | 4 to 7 |
| 19,100 | 15,900 | 15,100 | 11 | 16 | 22 | 4 to 7 |
| 16,700 | 13,950 | 13,200 | 12 5/8 | 14 | 22 | 4 to 7 |
| 16,200 | 13,500 | 12,800 | 13 | 16 | 26 | 4 to 7 |
| 14,950 | 12,500 | 11,900 | 14 | 16 | 28 | 4 to 7 |
| 14,200 | 11,800 | 11,200 | 14 7/8 | 14 | 26 | 4 to 7 |
| 13,200 | 10,950 | 10,400 | 16 | 14 | 28 | 4 to 7 |

Above chart for planters equipped with 7.60-15 inch drive tires and 1:1 drive sprocket ratios. 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 incedents of doubles and triples, particulary with small flat seeds.

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

# OPERATION

## PLANTING RATE FOR PLATELESS SOYBEAN METERS

| Approximate Pounds Per Acre | | | | | Sprocket Combinations | | | Recommended Speed Range In MPH |
|---|---|---|---|---|---|---|---|---|
| Rows | | | | | Drive Sprocket | | Driven Sprocket | |
| 10" | 15" | 18"-20" | 30" | 36"-40" | | | | |
| 375 | 250 | 196 | 125 | 98 | 30 | | 14 | 3 to 5 |
| 330 | 220 | 176 | 110 | 88 | 26 | | 14 | 3 to 5 |
| 300 | 200 | 160 | 100 | 80 | 30 | | 18 | 3 to 5 |
| 288 | 192 | 152 | 96 | 76 | 22 | | 14 | 3 to 5 |
| 276 | 184 | 146 | 92 | 73 | 26 | | 18 | 3 to 5 |
| 258 | 172 | 136 | 86 | 68 | 30 | | 22 | 3 to 5 |
| 234 | 156 | 122 | 78 | 61 | 22 | | 18 | 3 to 5½ |
| 225 | 150 | 118 | 75 | 59 | 26 | | 22 | 3 to 6 |
| 216 | 144 | 116 | 72 | 58 | 30 | | 26 | 3 to 6 |
| 213 | 142 | 114 | 71 | 57 | 16 | | 14 | 3 to 6 |
| 201 | 134 | 106 | 67 | 53 | 30 | | 28 | 4 to 6½ |
| 189 | 126 | 100 | 63 | 50 | 22 | | 22 | 4 to 7 |
| 174 | 116 | 92 | 58 | 46 | 26 | | 28 | 4 to 7 |
| 165 | 110 | 88 | 55 | 44 | 16 | | 18 | 4 to 7 |
| 162 | 108 | 86 | 54 | 43 | 22 | | 26 | 4 to 7 |
| 150 | 100 | 80 | 50 | 40 | 22 | | 28 | 4 to 7 |
| 147 | 98 | 78 | 49 | 39 | 14 | | 18 | 4 to 7 |
| 144 | 96 | 76 | 48 | 38 | 16 | | 22 | 4 to 7 |
| 129 | 86 | 68 | 43 | 34 | 14 | | 22 | 4 to 7 |
| 123 | 82 | 66 | 41 | 33 | 16 | | 26 | 4 to 7 |
| 120 | 80 | 64 | 40 | 32 | 16 | | 28 | 4 to 7 |
| 111 | 74 | 60 | 37 | 30 | 14 | | 26 | 4 to 7 |
| 105 | 70 | 56 | 35 | 28 | 14 | | 28 | 4 to 7 |

Above chart for planters equipped with 7.60-15 inch drive tires and 1:1 drive sprocket ratios. Recommended tire pressure 40 PSI.

**IMPORTANT: Soybean rates may vary widely depending upon size of the seed.**

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

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

# OPERATION

## PLANTING RATE FOR PLATELESS REGULAR RATE SORGHUM METERS

| Approximate Pounds Per Acre | | Sprocket Combinations | | Recommended Speed Range In MPH |
|---|---|---|---|---|
| 30 Inch Rows | 36 Inch To 40 Inch Rows | Drive Sprocket | Driven Sprocket | |
| 21.0 | 16.7 | 30 | 14 | 2 to 3 |
| 17.5 | 13.9 | 26 | 14 | 2 to 3½ |
| 16.2 | 12.9 | 30 | 18 | 3 to 4 |
| 15.1 | 12.0 | 22 | 14 | 3 to 4½ |
| 13.8 | 10.9 | 26 | 18 | 3 to 4½ |
| 12.9 | 10.2 | 30 | 22 | 3 to 5 |
| 11.8 | 9.4 | 22 | 18 | 3 to 5½ |
| 11.2 | 8.9 | 26 | 22 | 3 to 6 |
| 11.1 | 8.8 | 30 | 26 | 3 to 6 |
| 10.9 | 8.6 | 16 | 14 | 3 to 6 |
| 10.0 | 7.9 | 30 | 28 | 4 to 6½ |
| 9.6 | 7.6 | 22 | 22 | 4 to 7 |
| 9.1 | 7.2 | 26 | 28 | 4 to 7½ |
| 8.8 | 7.0 | 16 | 18 | 4 to 8 |
| 8.5 | 6.7 | 22 | 26 | 4 to 8 |
| 8.0 | 6.3 | 22 | 28 | 4 to 8 |
| 7.9 | 6.3 | 14 | 18 | 4 to 8 |
| 7.6 | 6.0 | 16 | 22 | 4 to 8 |
| 7.0 | 5.6 | 14 | 22 | 4 to 8 |
| 6.8 | 5.4 | 16 | 26 | 4 to 8 |
| 6.3 | 5.0 | 16 | 28 | 4 to 8 |
| 6.2 | 4.9 | 14 | 26 | 4 to 8 |
| 5.9 | 4.7 | 14 | 28 | 4 to 8 |

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

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

# OPERATION

## PLANTING RATE FOR PLATELESS LOW RATE SORGHUM METERS

| Approximate Pounds Per Acre | | Sprocket Combinations | | Recommended Speed Range In MPH |
|---|---|---|---|---|
| 30 Inch Rows | 36 Inch to 40 Inch Rows | Drive Sprocket | Driven Sprocket | |
| 6.2 | 4.9 | 30 | 14 | 2 to 3 |
| 5.4 | 4.3 | 26 | 14 | 2 to 3½ |
| 4.8 | 3.8 | 30 | 18 | 3 to 4 |
| 4.6 | 3.6 | 22 | 14 | 3 to 4½ |
| 4.2 | 3.3 | 26 | 18 | 3 to 4½ |
| 4.0 | 3.1 | 30 | 22 | 3 to 5 |
| 3.6 | 2.8 | 22 | 18 | 3 to 5½ |
| 3.4 | 2.7 | 26 | 22 | 3 to 6 |
| 3.4 | 2.7 | 30 | 26 | 3 to 6 |
| 3.3 | 2.6 | 16 | 14 | 3 to 6 |
| 3.1 | 2.4 | 30 | 28 | 4 to 6½ |
| 2.9 | 2.3 | 22 | 22 | 4 to 7 |
| 2.7 | 2.1 | 26 | 28 | 4 to 7 |
| 2.6 | 2.1 | 16 | 18 | 4 to 7 |
| 2.5 | 2.0 | 22 | 26 | 4 to 7 |
| 2.3 | 1.8 | 22 | 28 | 4 to 7 |
| 2.3 | 1.8 | 14 | 18 | 4 to 7 |
| 2.1 | 1.7 | 16 | 22 | 4 to 7 |
| 1.9 | 1.5 | 14 | 22 | 4 to 7 |
| 1.8 | 1.4 | 16 | 26 | 4 to 7 |
| 1.7 | 1.3 | 16 | 28 | 4 to 7 |
| 1.6 | 1.2 | 14 | 26 | 4 to 7 |
| 1.5 | 1.2 | 14 | 28 | 4 to 7 |

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

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

# OPERATION

## PLANTING RATE FOR PLATE TYPE DRIVE

**Seed Population and Drilling Distance - 16 Cell Plate**

| Seed Populations Per Acre | | | | Average Seed Placement In Inches | Sprocket Combinations | | Recommended Speed Range In MPH |
|---|---|---|---|---|---|---|---|
| 30" | 36" | 38" | 40" | | Drive Sprocket | Driven Sprocket | |
| 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 | 17,800 | 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 ratios. 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 incedents 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 Per Acre | | | | Average Seed Placement In Inches | Sprocket Combinations | | Recommended Speed Range In MPH |
|---|---|---|---|---|---|---|---|
| 30" | 36" | 38" | 40" | | Drive Sprocket | Driven Sprocket | |
| 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 ratios. 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 incedents of doubles and triples, particulary with the small flat seeds.

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

# OPERATION

## DRY INSECTICIDE APPLICATION RATES

| Clay Granules<br>Approximate Rate In Pounds Per Acre At 5 MPH | | | |
|---|---|---|---|
| Meter Setting | 30 Inch Rows | 36 Inch Rows | 38 Inch Rows |
| 10 | 4.1 | 3.4 | 3.3 |
| 12 | 5.4 | 4.5 | 4.3 |
| 14 | 6.8 | 5.7 | 5.4 |
| 16 | 8.1 | 6.8 | 6.5 |
| 18 | 9.4 | 7.9 | 7.5 |
| 20 | 10.7 | 9.0 | 8.5 |
| 22 | 12.1 | 10.1 | 9.6 |
| 24 | 13.4 | 11.2 | 10.6 |
| 26 | 14.7 | 12.3 | 11.6 |
| 28 | 16.1 | 13.4 | 12.7 |
| 30 | 18.1 | 15.1 | 14.3 |
| 32 | 20.1 | 16.8 | 15.8 |
| 34 | 22.7 | 19.0 | 18.0 |
| 36 | 25.4 | 21.2 | 20.1 |

| Sand Granules<br>Approximate Rate In Pounds Per Acre At 5 MPH | | | |
|---|---|---|---|
| Meter Setting | 30 Inch Rows | 36 Inch Rows | 38 Inch Rows |
| 6 | 4.8 | 4.0 | 3.8 |
| 8 | 6.8 | 5.7 | 5.4 |
| 10 | 8.6 | 7.2 | 6.8 |
| 12 | 10.5 | 8.7 | 8.3 |
| 14 | 12.1 | 10.1 | 9.6 |
| 16 | 13.7 | 11.4 | 10.8 |
| 18 | 16.1 | 13.4 | 12.7 |
| 20 | 18.5 | 15.4 | 14.6 |
| 22 | 21.4 | 17.9 | 16.9 |
| 24 | 24.1 | 20.1 | 19.1 |
| 26 | 28.1 | 23.4 | 22.2 |

Variations in pounds per acre may occur with changes in seed planting rates.

Rate is affected by changes in temperature and climatic conditions. Changes in speed or field conditions may also affect metering rates.

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

# DRY HERBICIDE APPLICATION RATES

| Clay Granules<br>Approximate Rate In Pounds Per Acre At 5 MPH | | | |
|---|---|---|---|
| Meter Setting | 30 Inch Rows | 36 Inch Rows | 38 Inch Rows |
| 6 | 4.1 | 3.4 | 3.3 |
| 8 | 5.4 | 4.5 | 4.3 |
| 10 | 6.7 | 5.6 | 5.3 |
| 12 | 8.1 | 6.7 | 6.4 |
| 14 | 9.4 | 7.9 | 7.5 |
| 16 | 10.7 | 8.1 | 8.6 |
| 18 | 12.1 | 10.1 | 9.6 |
| 20 | 13.4 | 11.2 | 10.6 |
| 22 | 14.4 | 12.3 | 11.7 |
| 24 | 16.1 | 14.5 | 12.7 |
| 26 | 18.7 | 15.6 | 14.8 |
| 28 | 20.4 | 17.1 | 16.2 |
| 30 | 23.4 | 19.5 | 18.5 |

Variations in pounds per acre may occur with changes in seed planting rates.

Rate is affected by changes in temperature and climatic conditions. Changes in speed or field conditions may also affect metering rates.

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

# MAINTENANCE

## Mounting Bolts and Hardware

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

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

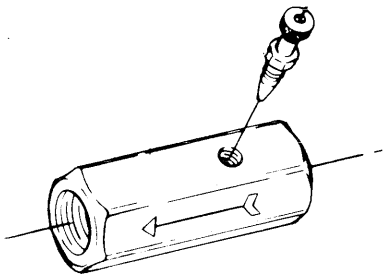
Drive chains from the drive gauge wheels to the clutch assembly are equipped with spring tensioned idlers to minimize chain adjustment.

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.

## Flow Control Valve

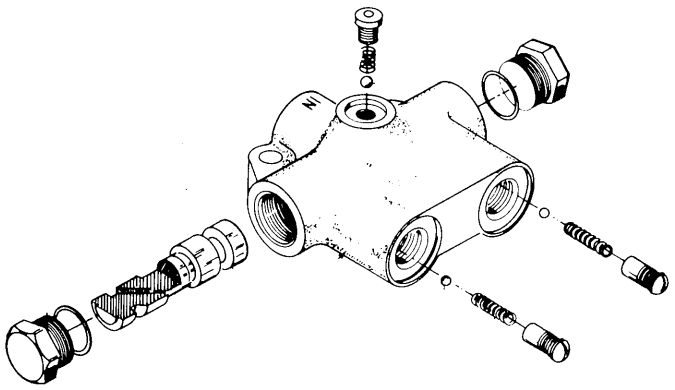


## Sequencing Valve Inspection

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.**

## Sequencing Valve



# MAINTENANCE

## Wheel or Marker Bearing Lubrication or Replacement

1. Raise tire clear of ground and remove wheel or marker disk.
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 disk 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.

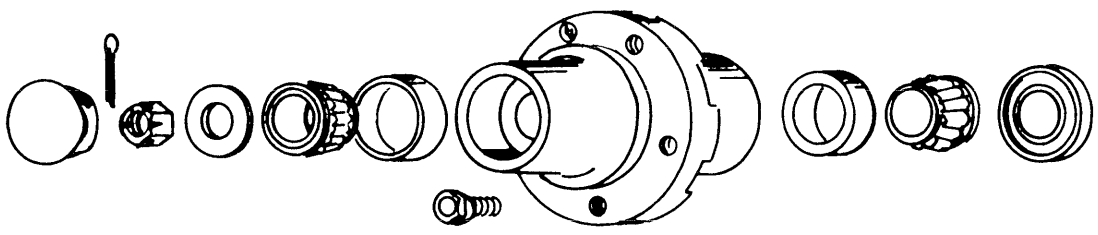
Lubricate planter and row units at all lubrications points.

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.

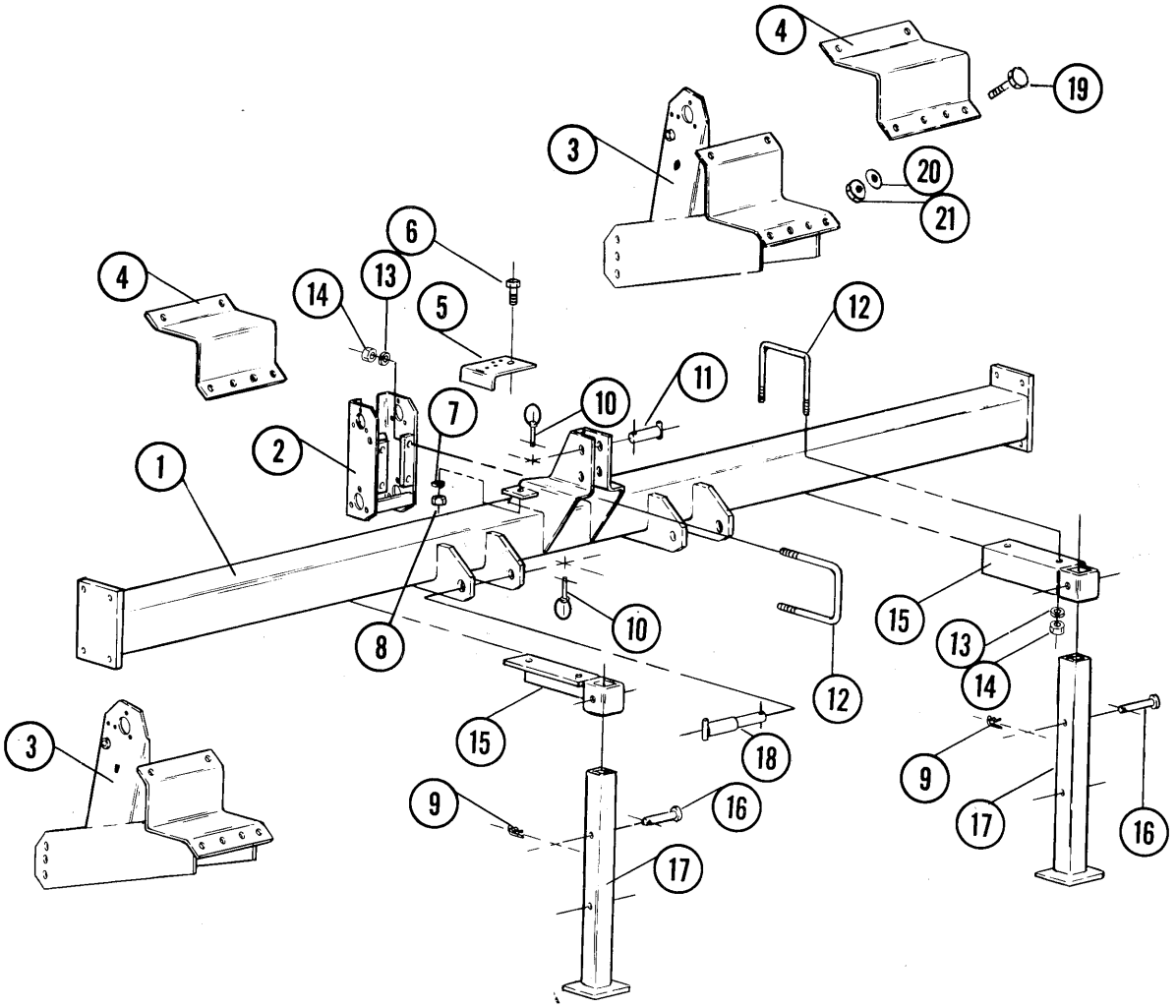
Make sure all seed, herbicide and insecticide hoppers are empty and clean.

Clean plateless seed meters and store in a dry area.



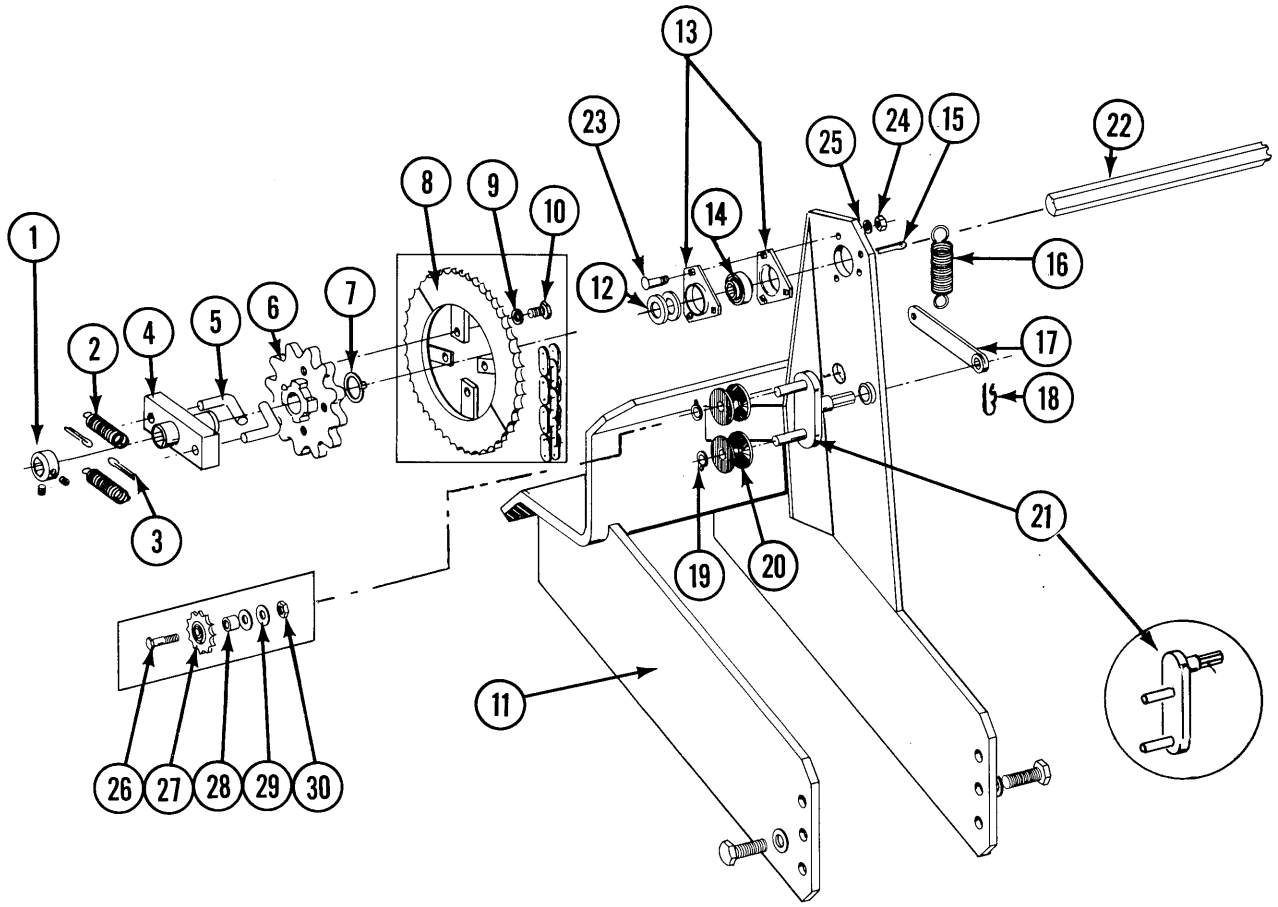
# PARTS LIST INDEX

# PLANTER FRAME




| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A727 | Frame, 90", 2R30 and 2R Wide |
| | A669 | Frame, 128", 4R30 |
| | A670 | Frame, 136", 4R Wide |
| | A671 | Frame, 169", 6R30 |
| | A923 | Frame, 214", 6R Wide |
| | A924 | Frame, 229", 8R30 |
| 2. | A1816 | Transmission Assembly |
| 3. | A1915 | Bracket, Drive Gauge |
| 4. | D503 | Clamp |
| 5. | D2637 | Plate, Valve, L.H. |
| | D978 | Plate, Valve, R.H. (Shown) |
| 6. | 10037 | HHCS, 1/2" - 13 x 1 1/4" |
| 7. | 10228 | Lock Washer, 1/2" |
| 8. | 10102 | Hex Nut, 1/2" - 13 |
| 9. | 10670 | Clip No. 3 |
| 10. | D2557 | Pin, Lynch, 7/16" |
| 11. | A1818 | Pin, Center Link |
| 12. | D1114 | U-Bolt, 5/8" - 11 x 7" x 7" |
| 13. | 10230 | Lock Washer, 5/8" |
| 14. | 10104 | Hex Nut, 5/8" - 11 |
| 15. | A667 | Bracket, Support Stand |
| 16. | 10561 | Clevis Pin, 1/2" x 3" |
| 17. | A668 | Stand |
| 18. | A1817 | Pin, Lower Link |
| 19. | 10027 | HHCS, 3/4" - 10 x 2 1/2" |
| 20. | 10231 | Lock Washer, 3/4" |
| 21. | 10105 | Hex Nut, 3/4" - 10 |

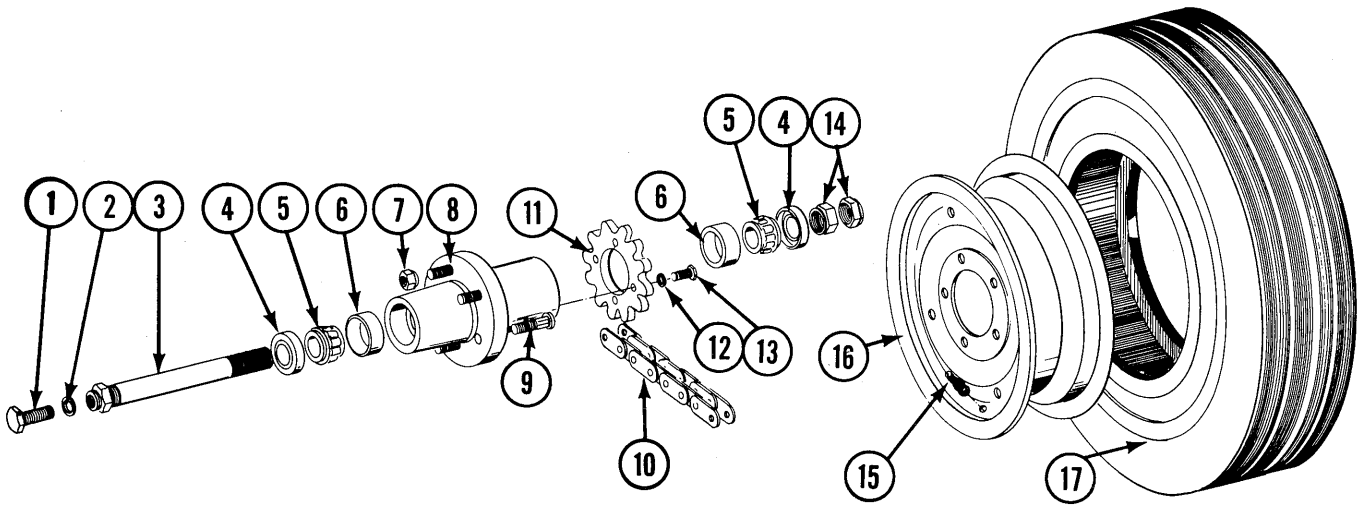
# DRIVE GAUGE BRACKET ASSEMBLY



# DRIVE GAUGE BRACKET ASSEMBLY

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A271 | Lock Collar, Hex Bore |
| 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. | A849 | Sprocket, 48T, Extended Drill |
| 9. | 10229 | Lock Washer, 3/8" |
| 10. | 10002 | HHCS, 3/8" - 16 x 3/4" |
| 11. | A1915 | Bracket, Drive Gauge |
| 12. | 10233 | Bushing, Machinery |
| 13. | 3400-1 | Flangette |
| 14. | 2100-3 | Bearing, 7/8" Hex |
| 15. | 10466 | Cotter Pin, 1/4" x 3/4" |
| 16. | D913 | Spring |
| 17. | A272 | Arm, Idler |
| 18. | 10670 | Hairpin Clip, No. 3 |
| 19. | 10435 | Ring, Snap |
| 20. | D916 | Spool |
| 21. | A182 | Bracket, Idler |
| | A852 | Bracket, Idler, For Use With Extended Drill Sprocket |
| 22. | D914-30 | Drive Shaft, 7/8" Hex, L.H., 2R30 and 4R30 |
| | D914-35 | Drive Shaft, 7/8" Hex, R.H., 2R30 adn 4R30 |
| | D914-35 | Drive Shaft, 7/8" Hex, L.H., 2RW and 4RW |
| | D914-45 | Drive Shaft, 7/8" Hex, R.H., 2RW and 4RW |
| | D914-55 | Drive Shaft, 7/8" Hex, L.H., 6R30 |
| | D914-65 | Drive Shaft, 7/8" Hex, R.H., 6R30 |
| | D914-75 | Drive Shaft, 7/8" Hex, L.H., 6RW |
| | D914-85 | Drive Shaft, 7/8" Hex, R.H., 6RW |
| | D914-85 | Drive Shaft, 7/8" Hex, L.H., 8R30 |
| | D914-95 | Drive Shaft, 7/8" Hex, R.H., 8R30 |
| 23. | 10303 | Carriage Bolt, 5/16" - 18 x 1" |
| 24. | 10106 | Hex Nut, 5/16" - 18 |
| 25. | 10232 | Lock Washer, 5/16" |
| 26. | 10009 | HHCS 5/8" - 11 x 2 1/2" For use with extended drill sprocket |
| 27. | A262 | Sprocket, Idler, 15T, For use with extended drill sprocket |
| 28. | B123 | Bushing, For use with extended drill sprocket |
| 29. | 10205 | Washer, 5/8" SAE, For use with extended drill sprocket |
| 30. | 10107 | Lock Nut, 5/8"- 11, For use with extended drill sprocket |
| A. | A261L | Ratchet and Sprocket Assembly, L.H. (Items 2 thru 7) |
| B. | R444 | Idler Assembly (Items 15 thru 21) |
| C. | R4004 | Extended Drill Sprocket Package<br>Includes:<br>(2) A849<br>(2) A852<br>(2) 3200-6<br>(8) 10002<br>(8) 10229<br>(2) A262<br>(2) 10009<br>(2) B123<br>(4) 10205<br>(2) 10107 |

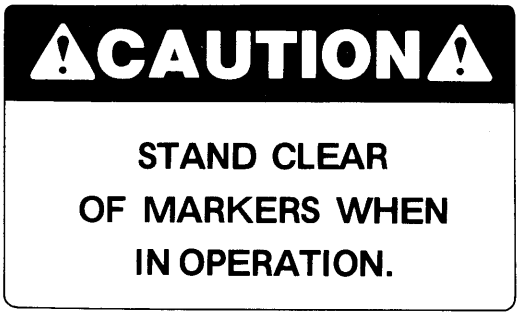
# DRIVE GAUGE WHEEL ASSEMBLY




## ITEM PART NO. DESCRIPTION

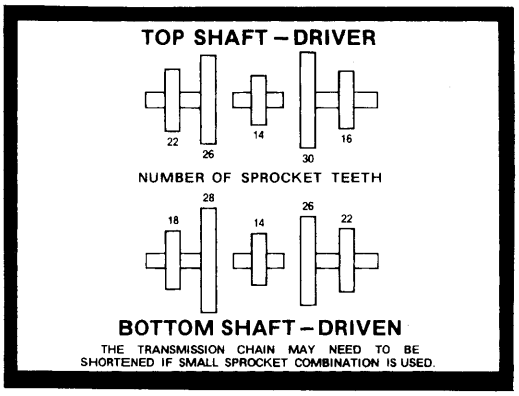
| | | |
|---|---|---|
| 1. | 10026 | HHCS, 3/4" - 10 x 2" |
| 2. | 10231 | Lock Washer, 3/4" |
| 3. | A652 | Spindle Weld |
| 4. | A252 | Seal, Grease |
| 5. | A251 | Bearing |
| 6. | R190 | Cup |
| 7. | R267 | Nut, Wheel, 1/2" - 20 UNF |
| 8. | A547 | Hub, w/Cups and Studs |
| 9. | R204 | Stud, Wheel, 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. | 10232 | Lock Washer, 5/16" |
| 13. | 10019 | HHCS, 5/16" - 18 x 1" |
| 14. | D831 | Nut, Shoulder, 1 1/4" |
| 15. | D1166 | Valve Stem |
| 16. | A241 | Wheel, 15" x 5", 5 bolt |
| 17. | D844 | Tire, 7.60 x 15", 4 ply |
| A. | A683 | Drive Hub Assembly (Items 1-9 and 11-14) |
| B. | A374 | Tire and Rim Assembly, 7.60 x 15" (Item 15-17) |

# DECALS AND REFLECTORS



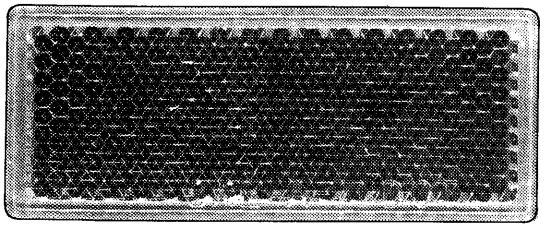

1


2




3

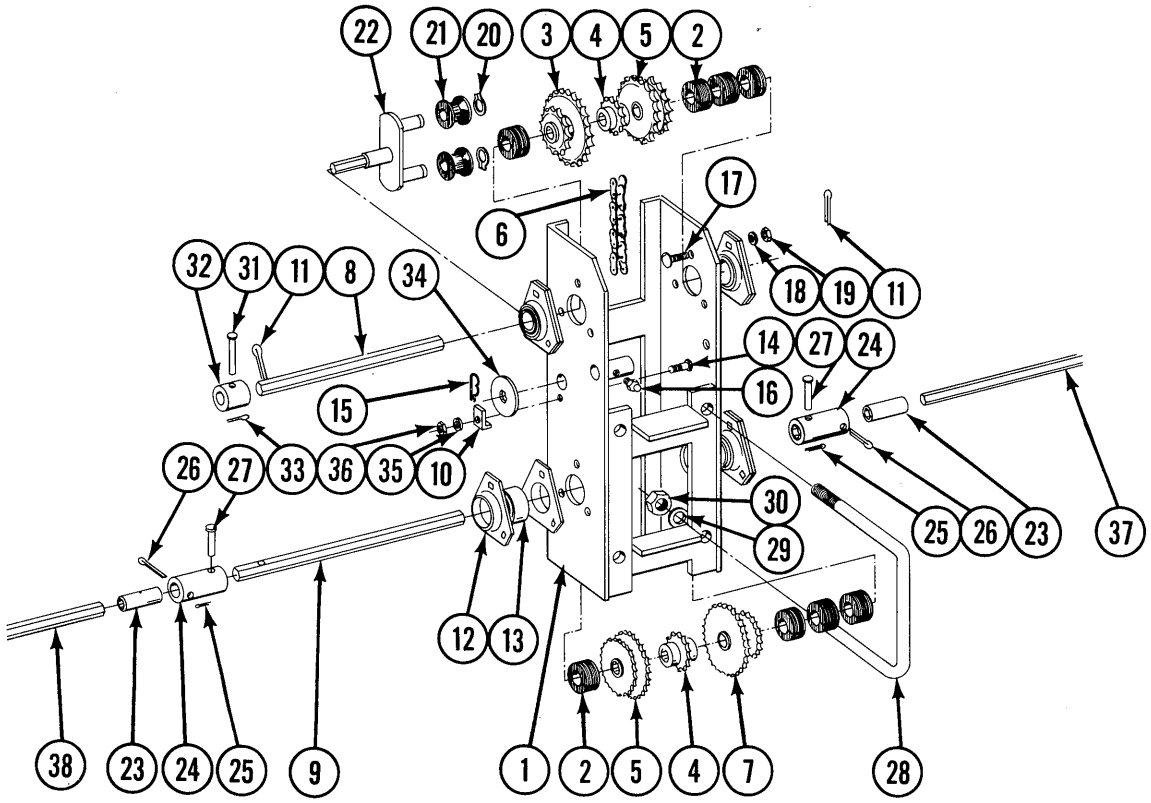

4



5

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | 7100-4 | Decal, Caution-Markers |
| 2. | 7100-14 | Decal, Kinze |
| 3. | 7100-6 | Decal, Sprocket Combination - Seed Drive Transmission. |
| 4. | D937 | Serial Number Plate |
| 5. | 7200-1 | Reflector, Red (Used on Rear of Planter Box) |
| | 7200-2 | Reflector, Amber (Used on Front of Toolbar) |

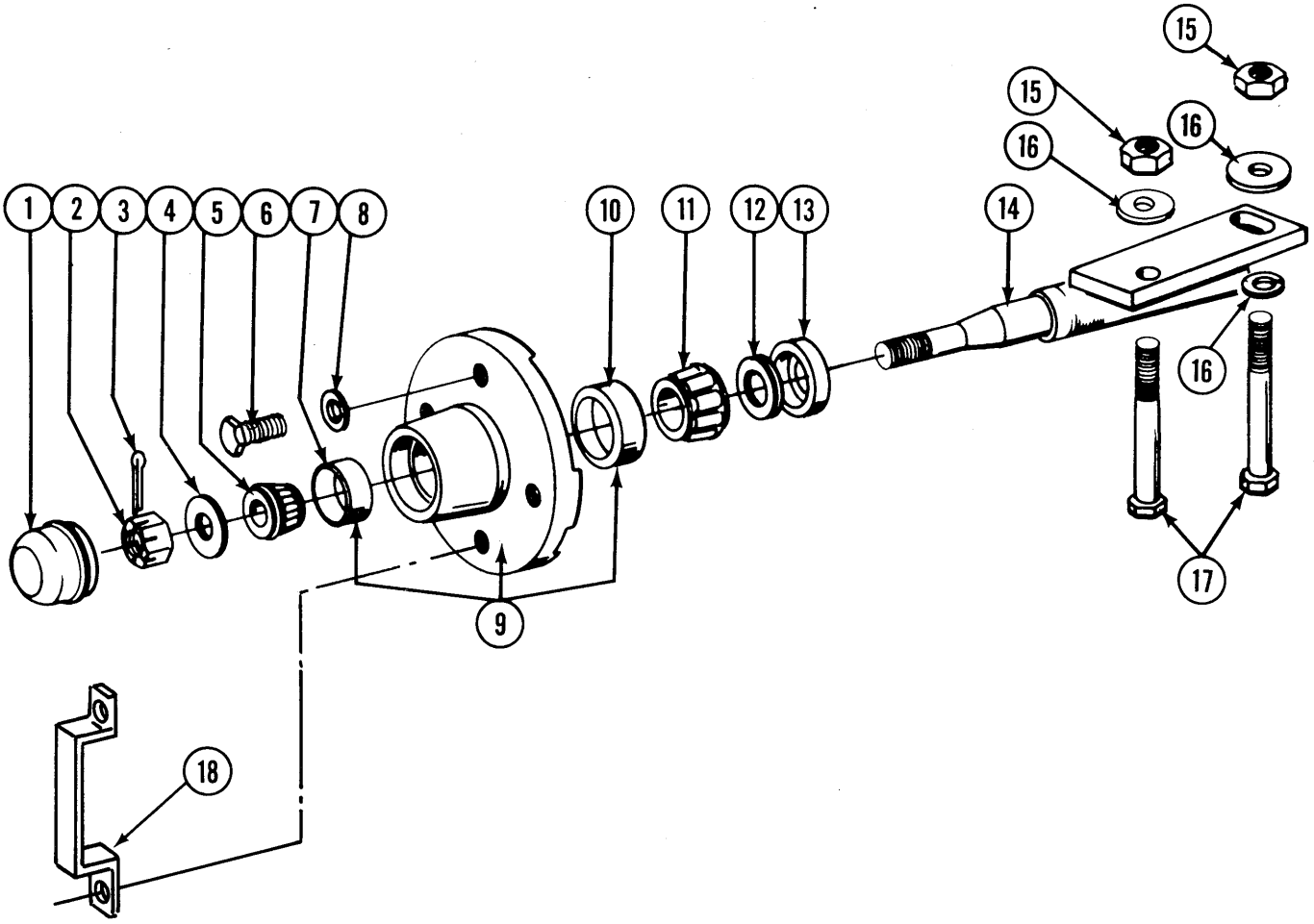
# TRANSMISSION ASSEMBLY



# TRANSMISSION ASSEMBLY

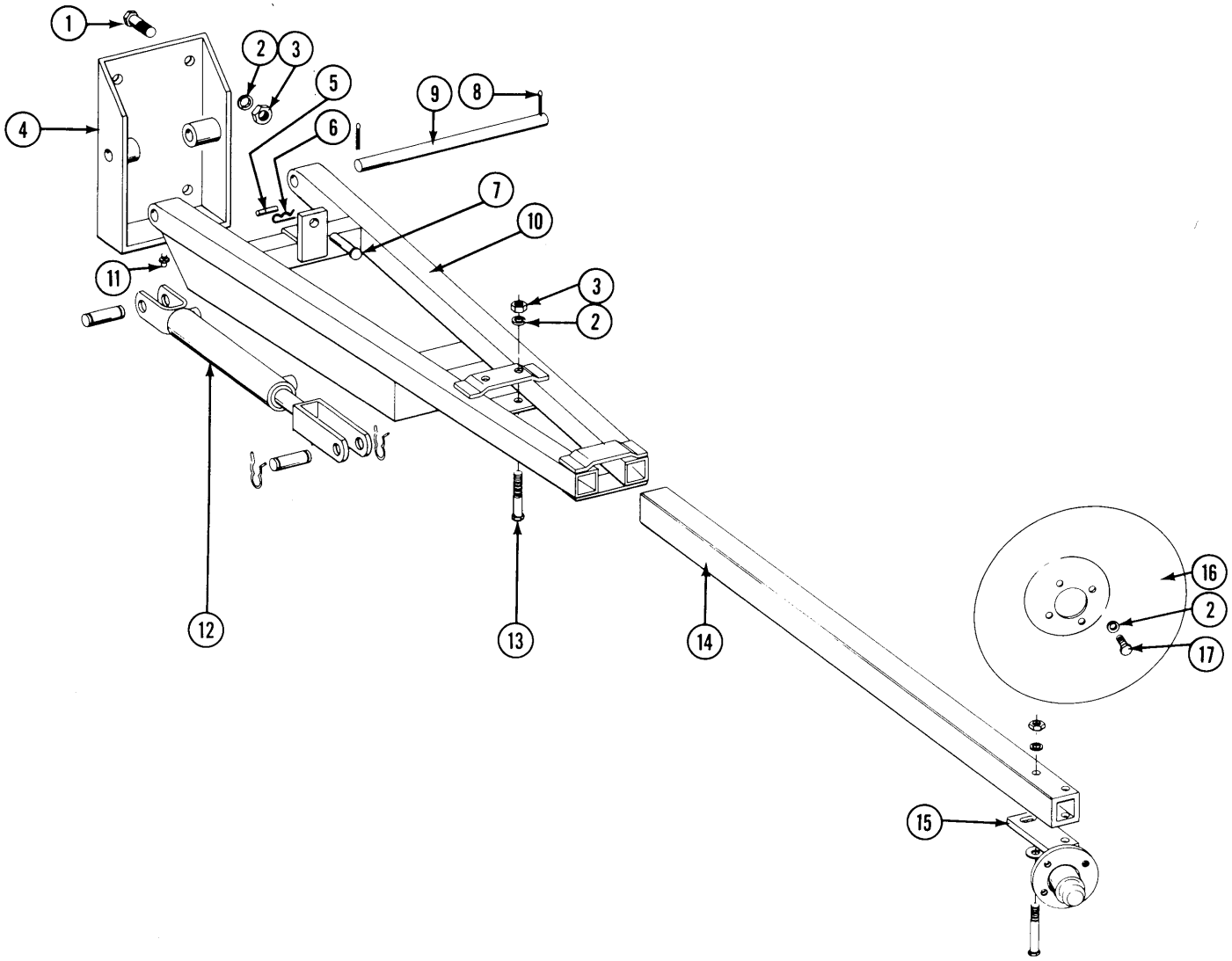
| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A177 | Case, Transmission |
| 2. | D832 | Spacer, Rubber |
| 3. | 2500-3 | Sprocket, 16-30T |
| 4. | 2500-1 | Sprocket, 14T |
| 5. | 2500-2 | Sprocket, 22-26T |
| 6. | 3300-40 | Chain, No. 2040, 40 Pitch Including Connector Link |
| | R194 | Connector Link, No. 2040 |
| 7. | 2500-6 | Sprocket, 18-28T |
| 8. | D925 | Shaft, Upper |
| 9. | D926 | Shaft, Lower |
| 10. | D2495 | Angle, Idler Lock |
| 11. | 10463 | Cotter Pin, 1/4" x 1 1/2" |
| 12. | 3400-1 | Flangette |
| 13. | 2100-3 | Bearing, 7/8" Hex Bore |
| 14. | 10301 | Carriage Bolt, 3/8" - 16 x 1 1/2" |
| 15. | 10670 | Hair Pin Clip, No. 3 |
| 16. | 10640 | Fitting, Grease, 1/4" |
| 17. | 10303 | Carriage Bolt, 5/16" - 18 x 1" |
| 18. | 10232 | Lock Washer, 5/16" |
| 19. | 10106 | Hex Nut, 5/16" - 18 |
| 20. | 10435 | Ring, Retaining |
| 21. | D1067 | Spool |
| 22. | A242 | Bracket, Idler |
| 23. | D747 | Coupler, 9/16" |
| 24. | D748 | Coupler, 7/8" |
| 25. | 10455 | Cotter Pin, 1/16" x 1/2" |
| 26. | 10462 | Cotter Pin, 3/16" x 2" |
| 27. | 10548 | Clevis Pin, 1/4" x 1 3/4" |
| 28. | D1114 | U-Bolt, 5/8" - 11 x 7" x 7" |
| 29. | 10230 | Lock Washer, 5/8" |
| 30. | 10104 | Hex Nut, 5/8" - 11 |
| 31. | 10558 | Clevis Pin, 5/16" x 1 3/4" |
| 32. | D1649 | Coupler |
| 33. | 10456 | Cotter Pin, 1/8" x 3/4" |
| 34. | A1668 | Lock, Idler |
| 35. | 10210 | Flat Washer, 3/8" |
| 36. | 10101 | Hex Nut, 3/8" - 16 |
| 37. | D739-25 | Drill Shaft, 9/16" Hex, L.H., 2R30 |
| | D739-30 | Drill Shaft, 9/16" Hex, L.H., 2RW |
| | D739-50 | Drill Shaft, 9/16" Hex, L.H., 4R30 |
| | D739-60 | Drill Shaft, 9/16" Hex, L.H., 4RW |
| | D739-80 | Drill Shaft, 9/16" Hex, L.H., 6R30 |
| | D739-100 | Drill Shaft, 9/16" Hex, L.H., 6RW |
| | D739-110 | Drill Shaft, 9/16" Hex, L.H., 8R30 |
| 38. | D739-15 | Drill Shaft, 9/16" Hex, R.H., 2R30 |
| | D739-20 | Drill Shaft, 9/16" Hex, R.H., 2RW |
| | D739-40 | Drill Shaft, 9/16" Hex, R.H., 4R30 |
| | D739-50 | Drill Shaft, 9/16" Hex, R.H., 4RW |
| | D739-70 | Drill Shaft, 9/16" Hex, R.H., 6R30 |
| | D739-90 | Drill Shaft, 9/16" Hex, R.H., 6RW |
| | D739-100 | Drill Shaft, 9/16" Hex, R.H., 8R30 |
| A. | A503 | Idler Assembly (Items 20 thru 22) |
| B. | A1816 | Transmission Assembly (Items 1 thru 27 and 34 thru 36) |

# MARKER HUB ASSEMBLY



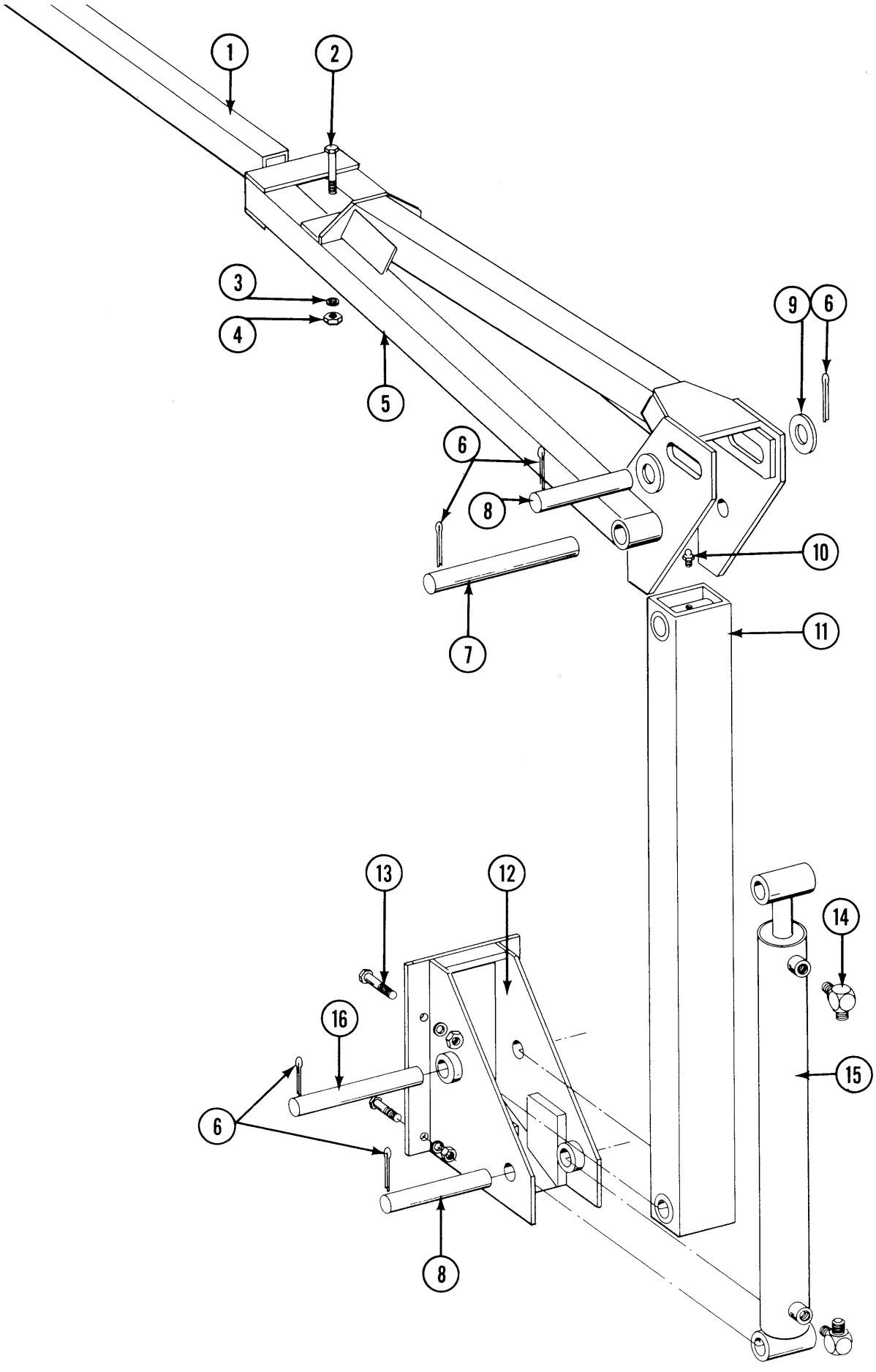

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | D840 | Hub Cap |
| 2. | 10725 | Hex Nut, Slotted, 5/8" - 18 |
| 3. | 10470 | Cotter Pin, 5/32" x 1" |
| 4. | 10724 | Washer, 5/8" |
| 5. | A257 | Bearing, Outer |
| 6. | 10722 | HHCS, 1/2" - 20 x 1" |
| 7. | R151 | Cup, Outer |
| 8. | 10228 | Lockwasher, 1/2" |
| 9. | A167 | Hub w/cups |
| 10. | R150 | Cup, Inner |
| 11. | A245 | Bearing Inner |
| 12. | A899 | Seal, Rubber |
| 13. | A243 | Seal, Grease |
| 14. | A1677 | Spindle Weld, L.H., Less Hardware (Shown) |
| | A1676 | Spindle Weld, R.H. Less Hardware |
| 15. | 10102 | Hex Nut, 1/2" - 13 |
| 16. | 10168 | Machinery Bushing, 1/2" x 7 Ga. |
| 17. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 18. | D2597 | Retainer |
| A. | A1679 | Hub and Spindle Assembly L.H. (Items 1-14) |
| | A1678 | Hub and Spindle Assembly R.H. (Items 1-14) |

# CONVENTIONAL MARKER ASSEMBLY




| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | 10167 | HHCS, 1/2" - 13 x 2", Grade 2 |
| 2. | 10228 | Lockwasher, 1/2" |
| 3. | 10102 | Hex Nut, 1/2" - 13 |
| 4. | A224 | Marker Mount |
| 5. | 10609 | Roll Pin, 5/32" x 1" |
| 6. | 10670 | Hair Pin Clip, No. 3 |
| 7. | D462 | Marker Lockup Pin |
| 8. | 10460 | Cotter Pin, 1/4" x 2" |
| 9. | D438 | Shaft |
| 10. | A225 | Marker Arm Weld, 45", 4R30 and 4RW |
| | A538 | Marker Arm Weld, 64", 6R30 |
| 11. | 10640 | Grease Fitting, 1/4" - 28 |
| 12. | A1674A | Cylinder Assembly, 2 x 8 |
| | A1674B | Cylinder Assembly, 2 x 8 |
| 13. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 14. | D453-1 | Extension Tube, 20", 4R30 |
| | D453-2 | Extension Tube, 40", 6R30 |
| | D453-3 | Extension Tube, 50", 4RW |
| 15. | A1679 | Marker Hub Assembly, L.H. (Less Hardware) |
| | A1678 | Marker Hub Assembly, R.H. (Less Hardware) |
| 16. | D746 | Disc., 16" |
| 17. | 10722 | HHCS, 1/2" - 20 x 1" |

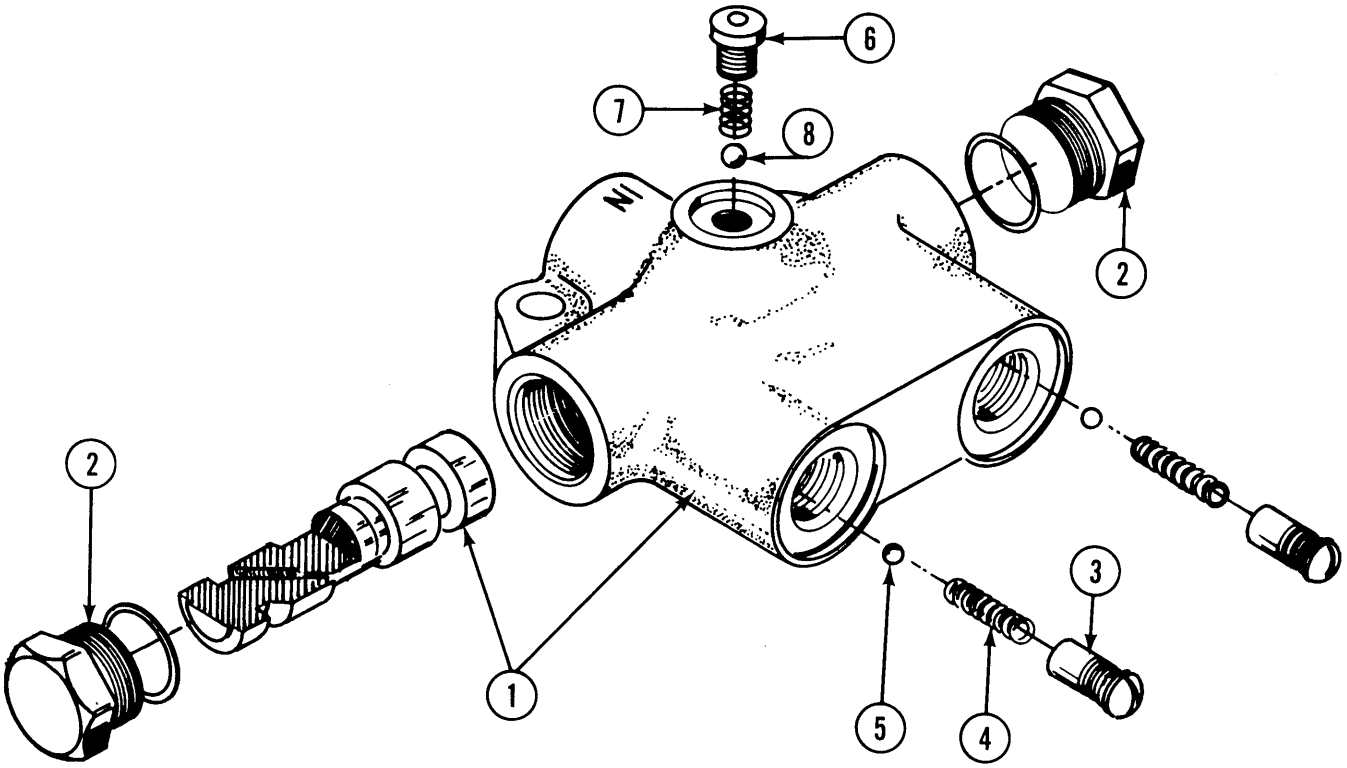
# LOW PROFILE - DOUBLE FOLD MARKER ASSEMBLY



# LOW PROFILE - DOUBLE FOLD MARKER ASSEMBLY

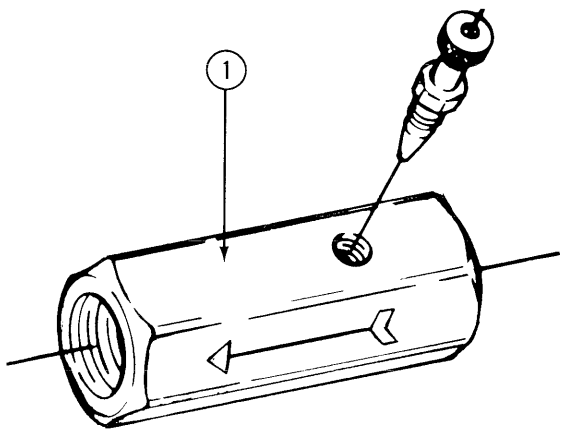
| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | D453-3 | Extension Tube, 50", 8R30 |
| | D453-5 | Extension Tube, 55", 6RW |
| 2. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 3. | 10228 | Lockwasher, 1/2" |
| 4. | 10102 | Hex Nut, 1/2" - 13 |
| 5. | A831 | Marker Arm, 34", 6RW |
| | A832 | Marker Arm, 45", 8R30 |
| 6. | 10460 | Cotter Pin, 1/4" x 2" |
| 7. | D1702 | Pivot Pin |
| 8. | D1701 | Pin |
| 9. | 10226 | Washer, 1 1/4" SAE |
| 10. | 10641 | Grease Fitting, 1/8" NPT |
| 11. | A828 | Arm, First Stage |
| 12. | A827 | Marker Mount |
| 13. | 10167 | HHCS, 1/2" - 13 x 2", Grade 2 |
| 14. | 2501-8-8 | Elbow, 90°, 1/2" NPT to 37° 3/4" - 16 JIC |
| 15. | A1659 | Cylinder, 2" x 20" |
| 16. | D653 | Pin |

# SEQUENCING VALVE



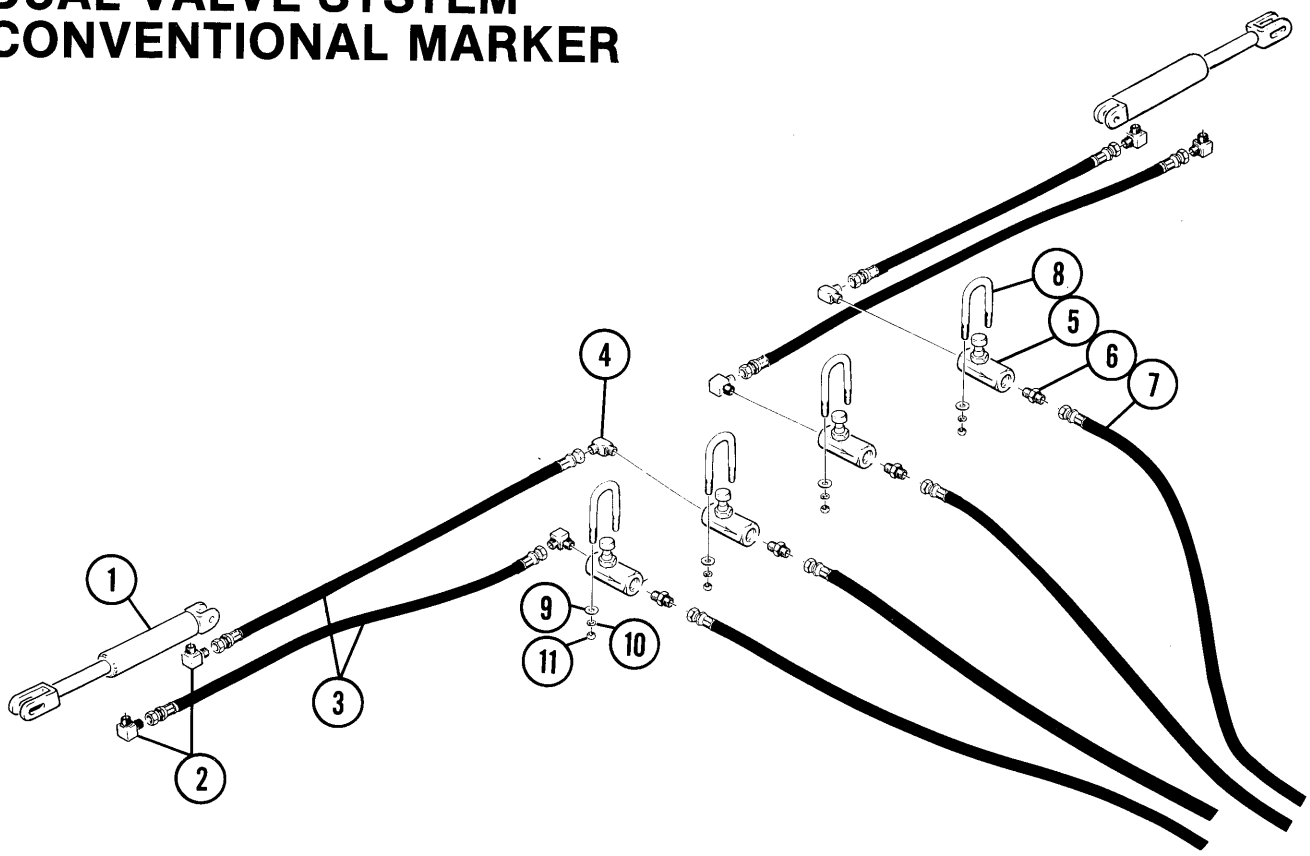

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | R272 | Valve Body and Spool |
| 2. | R271 | Plug Assembly, O-Ring Boss |
| 3. | R273 | Retainer, Check Valve |
| 4. | R277 | Spring, Check Valve |
| 5. | R275 | Ball, Check, 3/16" Diameter |
| 6. | R274 | Plug Assembly, O-Ring Boss |
| 7. | R278 | Spring |
| 8. | R276 | Ball, 1/4" Diameter |
| A. | A282 | Sequencing Valve, Complete |

# FLOW CONTROL VALVE



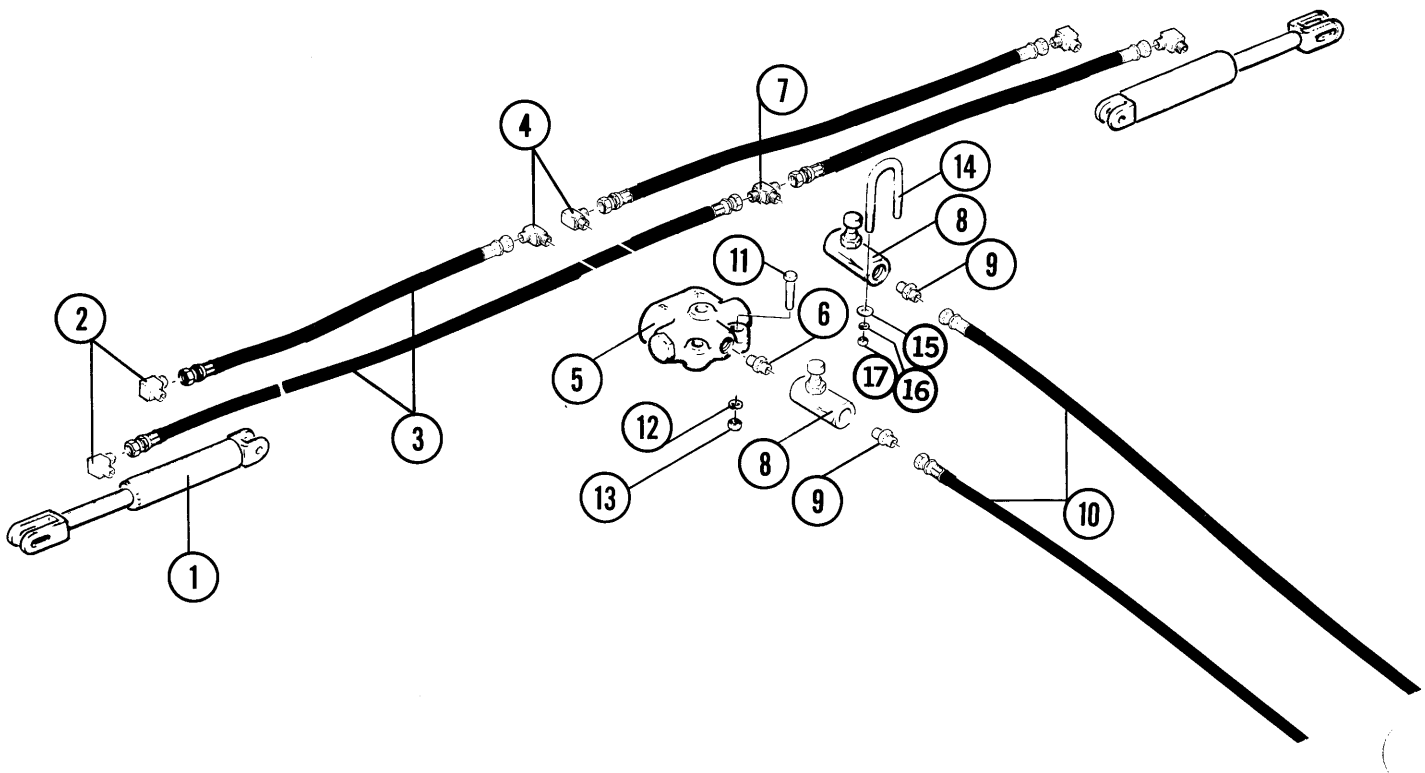

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A270 | Flow Control Valve Assembly, 3/8" NPT (KLF 375) |

# DUAL VALVE SYSTEM CONVENTIONAL MARKER



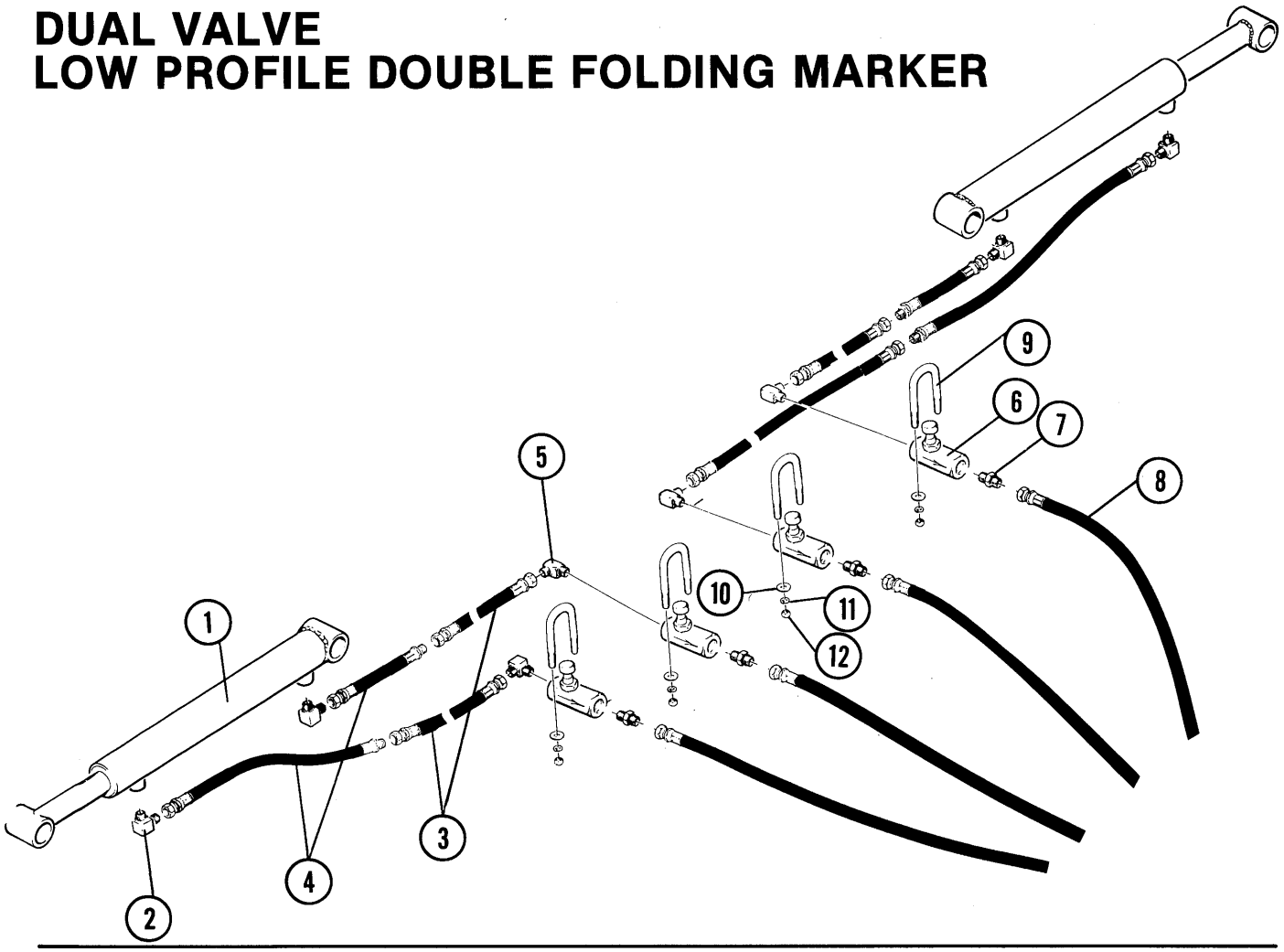

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A1674A | Cylinder, Marker, 2" x 8" |
| | A1674B | Cylinder, Marker, 2" x 8" |
| 2. | 2501-6-6 | Elbow, 90° |
| 3. | A1102 | Hose Assembly, ¼" x 95", 4R30 and 4 RW |
| | A1103 | Hose Assembly, ¼" x 110", 6R30 |
| 4. | 2501-6-6 | Elbow, 90° |
| 5. | 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" |
| 9. | 10219 | Flat Washer, 5/16" |
| 10. | 10232 | Lock Washer, 5/16" |
| 11. | 10106 | Hex Nut, 5/16" - 18 |
| | D1512 | Tie Strap, 6" (Not Shown) |

# SINGLE VALVE CONVENTIONAL MARKER



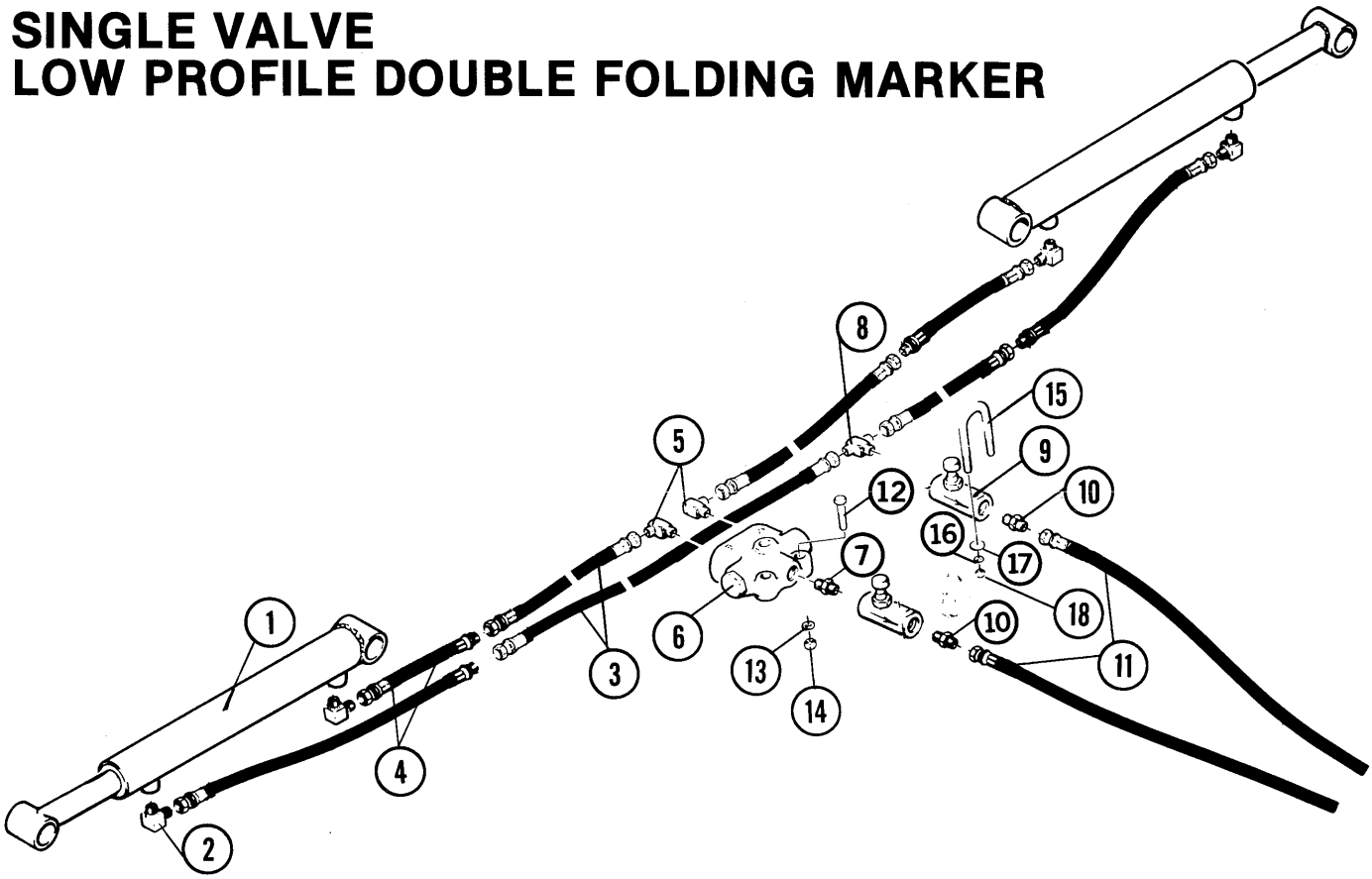

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A1674A | Cylinder, Marker, 2" x 8" |
| | A1674B | Cylinder, Marker 2" x 8" |
| 2. | 2501-6-6 | Elbow, 90° |
| 3. | A1102 | Hose Assembly, ¼" x 95", 4R30, 4RW |
| | A1103 | Hose Assembly, ¼" x 110", 6R30 |
| 4. | 6801-6-8 | Elbow, 90° |
| 5. | A282 | Valve, Seq. |
| 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" |
| 12. | 10229 | Lock Washer, 3/8" |
| 13. | 10101 | Hex Nut, 3/8" - 16 |
| 14. | D1253 | U-Bolt, 5/16" - 18 x 2¼" x 1½" |
| 15. | 10219 | Flat Washer, 5/16" |
| 16. | 10232 | Lock Washer, 5/16" |
| 17. | 10106 | Hex Nut, 5/16" - 18 |
| | D1512 | Tie Strap, 6" (Not Shown) |

# DUAL VALVE
# LOW PROFILE DOUBLE FOLDING MARKER



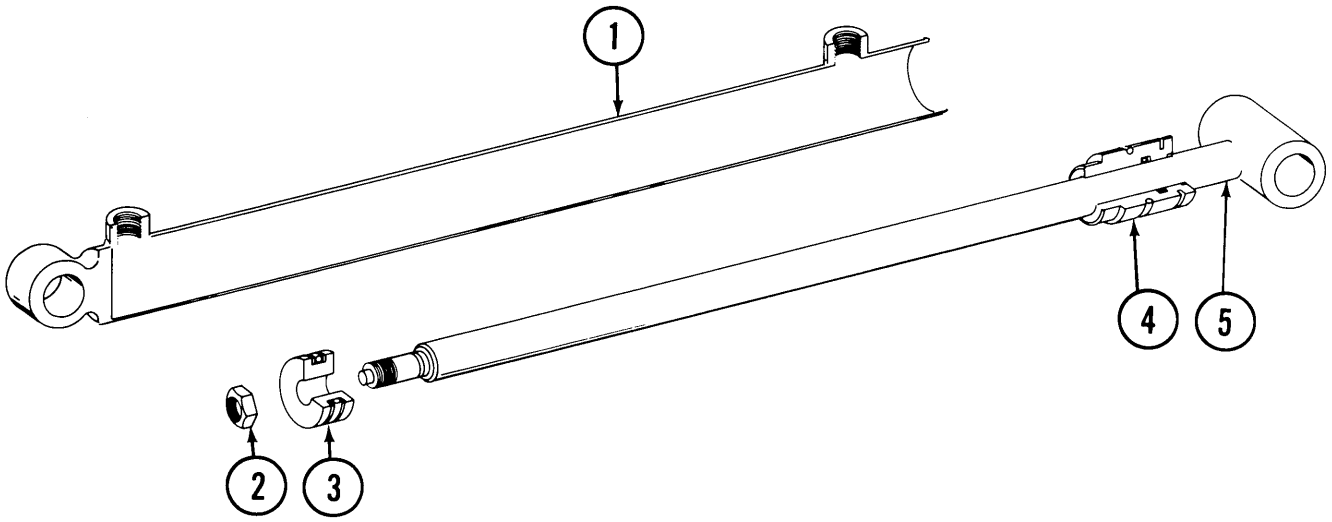

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A1659 | Cylinder, Marker, 2" x 20" |
| 2. | 2501-8-8 | Elbow, 90° |
| 3. | A1008 | Hose Assembly, 3/8" x 110", 6RW |
| | A1010 | Hose Assembly, 3/8" x 120", 8R30 |
| 4. | A1004 | Hose Assembly, 3/8" x 36" |
| 5. | 2501-8-6 | Elbow, 90° |
| 6. | A270 | 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 2¼" x 1½" |
| 10. | 10219 | Flat Washer, 5/16" |
| 11. | 10232 | Lock Washer, 5/16" |
| 12. | 10106 | Hex Nut, 5/16" - 18 |
| | D1512 | Tie Straps, 6" (Not Shown) |

# SINGLE VALVE
# LOW PROFILE DOUBLE FOLDING MARKER



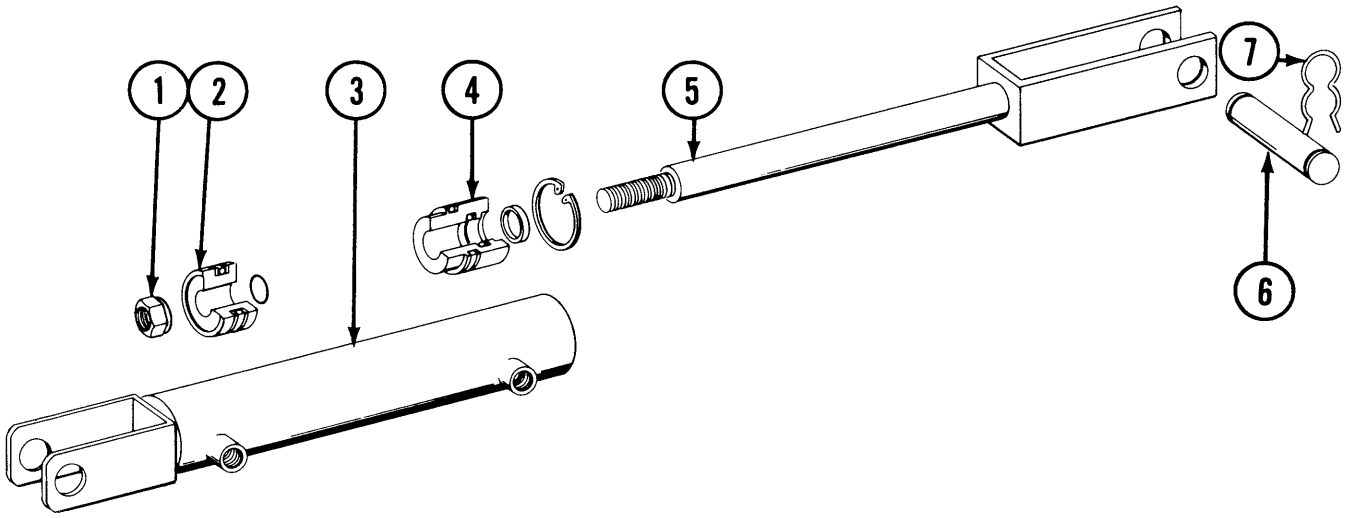

| ITEM | PART NO. | DESCRIPTION |
|---|---|---|
| 1. | A1659 | Cylinder, Marker, 2 " x 20" |
| 2. | 2501-8-8 | Elbow, 90° |
| 3. | A1008 | Hose Assembly, 3/8" x 110", 6RW |
| | A1010 | Hose Assembly, 3/8" x 120", 8R30 |
| 4. | A1004 | Hose Assembly, 3/8" x 36" |
| 5. | 6801-8 | Elbow, 90° |
| 6. | A282 | Valve, Seq. |
| 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" |
| 13. | 10229 | Lock Washer, 3/8" |
| 14. | 10101 | Hex Nut, 3/8" - 16 |
| 15. | D1253 | U-Bolt, 5/16" - 18 x 2¼" x 1½" |
| 16. | 10219 | Flat Washer, 5/16" |
| 17. | 10232 | Lock Washer, 5/16" |
| 18. | 10106 | Hex Nut, 5/16" - 18 |
| | D1512 | Tie Strap, 6" (Not Shown) |

# LOW PROFILE DOUBLE FOLDING MARKER CYLINDER




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

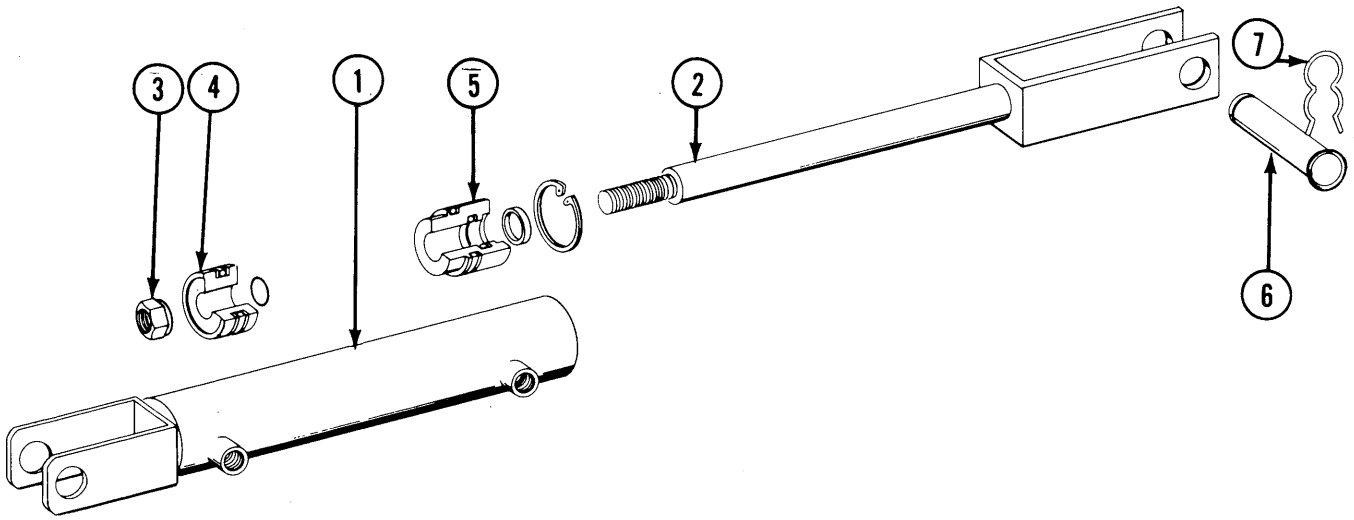
# CONVENTIONAL MARKER CYLINDER




| 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 Only |
| | R368 | Seal Kit Includes<br>(1) O-Ring .614 I.D. x .754 O.D.<br>(1) O-Ring 1.109 I.D. x 1.387 O.D.<br>(2) O-Ring 1.600 I.D. x 2.200 O.D.<br>(1) Back Up Washer 1 1/8" I.D. x 1 3/8" O.D.<br>(1) Rod Wiper 2" I.D.<br>(1) Retaining Ring Internal 2"<br>(2) Back Up Washer 1 5/8" O.D. x 2 O.D. |
| *A. | A1674A | Cylinder, Complete, 2" x 8", Style No. 1 |

* To identify - Super Draulic 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 |
| 7. | R193 | Clip, Hair Pin, Only |
| | R154 | Seal Kit Includes<br>(1) O-Ring, 3/4" I.D. x 7/8" O.D.<br>(1) O-Ring, 1 1/8" I.D. x 1 3/8" O.D.<br>(1) Back Up Washer<br>(1) Rod Wiper<br>(2) Back Up Washer<br>(2) O-Ring, 1 5/8" I.D. x 2" O.D.<br>(1) Retaining Ring |
| *A. | A1674B | Cylinder - Complete 2" x 8", Style No. 2 |

* To identify - No marking on barrel

# NUMERICAL INDEX

## A



## B



## D



## R