

**MODEL RF
REAR FOLDING PLANTER
OPERATOR & PARTS
MANUAL**

M0105

Rev. 1/88

This manual is applicable to: Model: RF
Serial Number : 1561 and on

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

Model Number _____ RF _____

Serial Number _____

Date Purchased _____

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

NEW MACHINE WARRANTY

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

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

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

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

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


KINZE reserves the right to make changes or to add improvements at any time without notice or obligation.

W12187

TO THE OWNER

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


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

Throughout this manual the symbol  and the words NOTE, CAUTION, 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.

This manual is applicable to:
Rear Folding Planter
Model Number RF
Serial Number 1561 and on

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.

NEW MACHINE WARRANTY

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warranty replacements are NOT covered. Tires are not warranted by KINZE MANUFACTURING, INC. and such claims must be pursued through the tire manufacturer's warranty.

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INTRODUCTION

General Information

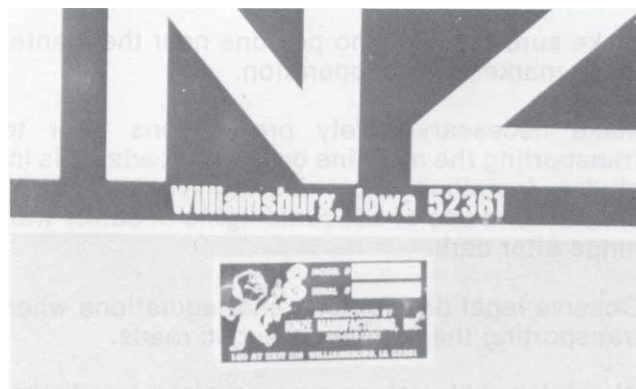
The information and photos used in this manual were current at the time of printing. However, due to Kinze's continual attempt to improve its product, possible in-line production changes may cause your machine to appear slightly different in detail. Kinze Manufacturing reserves the right to change specifications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

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

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



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.

SAFETY PRECAUTIONS

A large portion of farm accidents occur as a result of fatigue or carelessness. Safety practices should be of utmost concern. Please 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.

Limit towing speeds to 15 MPH. Tow only with farm tractor of at least 50 HP size.

Make sure there are no persons near the planter when markers are in operation.

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 planter on public roads.

Watch for obstructions such as wires, tree limbs, etc., when folding marker assemblies.

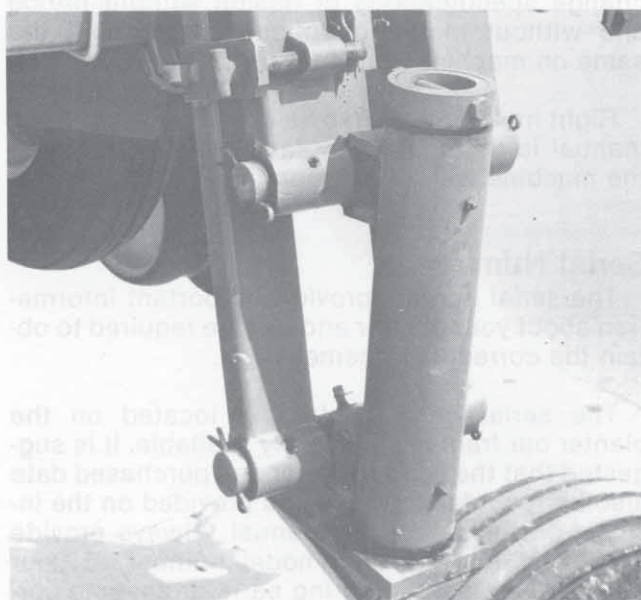
Install safety lockup pins before towing planter or working under the unit.

Never release the wing or transport latches when anyone is standing near the wing assembly. Releasing the wing on uneven ground may set it into motion without any movement of the tractor.

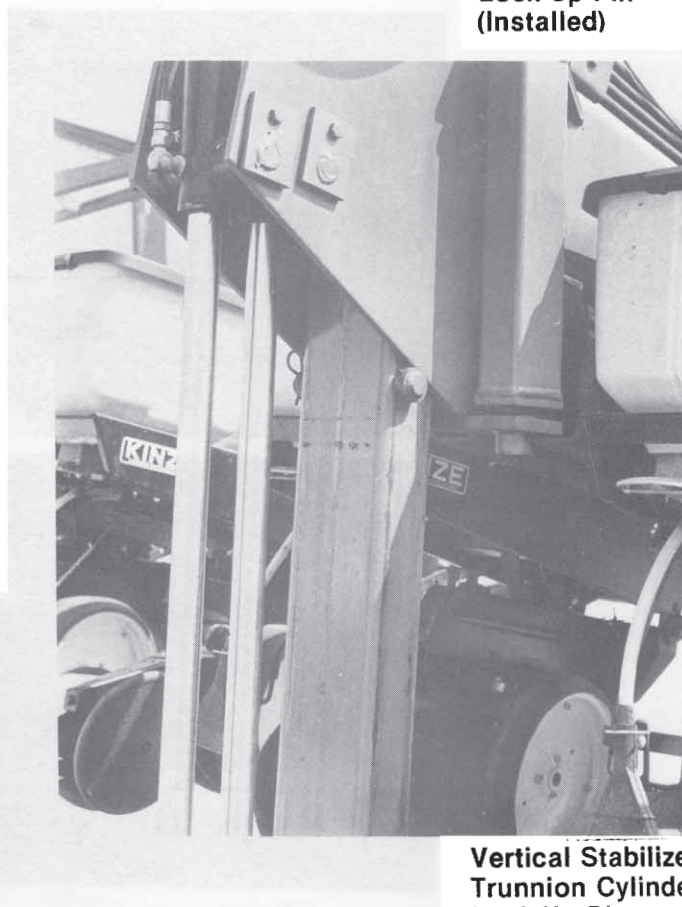
Make sure the planter is fully raised prior to any attempt to fold the unit.

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.

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 planter from injury.



**Transport Wheel
Lock-Up Pin
(Installed)**



**Vertical Stabilizer
Trunnion Cylinder
Lock-Up Pin
(Installed)**



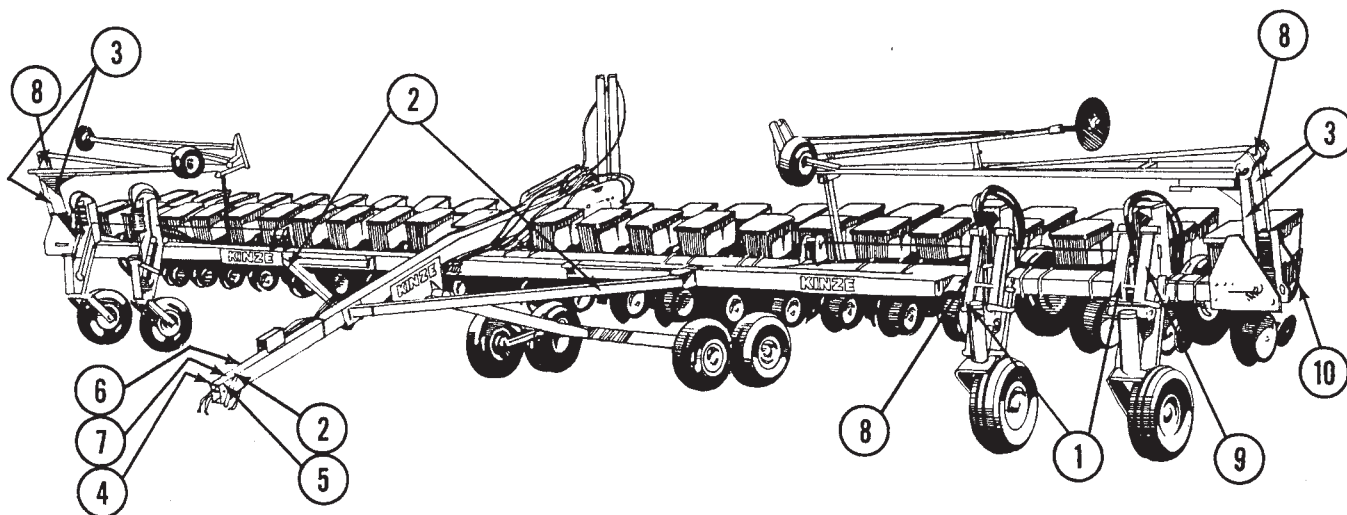
**Folding Link
Lock Pin**

**(Wings Locked In
Planting Position)**

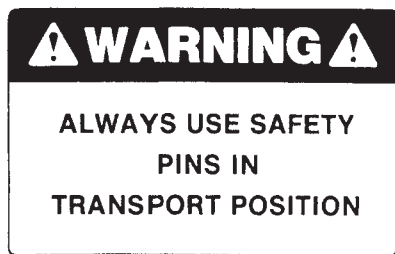
SAFETY WARNING SIGNS

The "WARNING" signs illustrated on this page are placed on the machine to warn of hazards. The warnings found on these signs are for your personal safety and those around you. **OBSERVE THESE WARNINGS!**

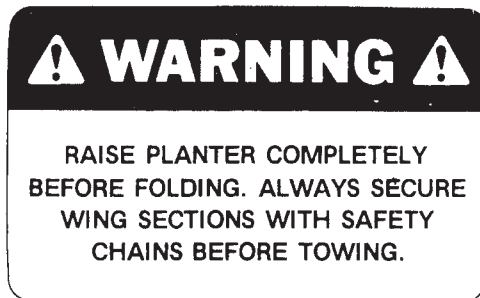
- Keep these signs clean so they can be observed readily. Wash with soap and water or cleaning solution as required.
- Replace "WARNING" signs should they become damaged, painted over or if they are missing.
- Check the SMV decal periodically. Replace if it shows loss of any of its reflective property.
- When replacing decals, clean the machine surface thoroughly using soap and water or cleaning solution to remove all dirt and grease.



SAFETY WARNING SIGNS



1. Part No. 7100-02
Located on upper parallel arm of each lift wheel module.



2. Part No. 7100-05
Located on top front section of hitch and on front folding links on both sides of the planter.



3. Part No. 7100-42
Located on front and rear sides of the first stage on each marker assembly.



4. Part No. 7100-46
Located on front R.H. side of hitch.



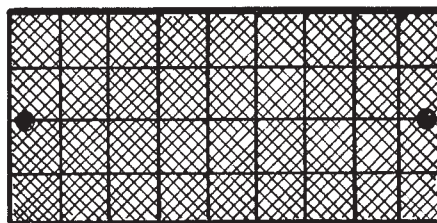
5. Part No. 7100-56
Located on top front section of hitch.



6. Part No. 7100-89
Located on front R.H. side of hitch.



7. Part No. 7100-90
Located on front R.H. side of hitch.



8. Part No. 7200-03
Red Reflector-On each side of planter located on upper portion on parallel arm of lift wheel module closest to rear when planter is in transport position. Also on upper portion of the first stage on each marker assembly. (Behind marker cylinder rod)



9. Part No. 7200-04
Amber Reflector-On each side of planter located on upper portion on parallel arm of lift wheel module closest to front when planter is in transport.

10. Part No. 1K160
SMV Kit w/Mounting Bracket for 8 Row-16 Row 30.

Part No. 1K161
SMV Kit w/Mounting Bracket For 16 Row Wide - 24 Row.

Located to the rear of the marker mount on the L.H. side of the planter.

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 be readily available and consulted for planter operation.

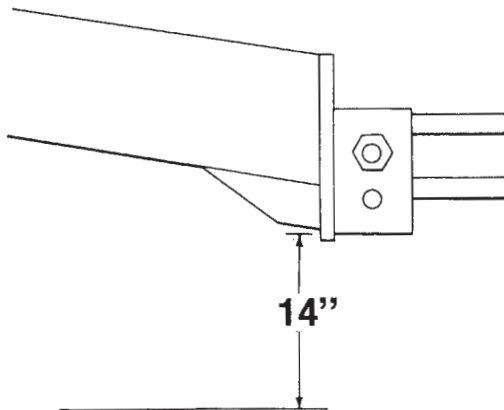
INITIAL PREPARATION OF THE PLANTER

Lubricate the Planter and row units per the lubrication information in this manual and the Row Unit Operator's Manual. Make sure all tires have been properly inflated. Check all drive chains for proper tension and lubrication.

TRACTOR PREPARATION AND HOOKUP

1. Adjust tractor drawbar so that it is 13 to 17 inches above the ground. Then adjust the drawbar so that the hitch pin hole is directly below the center line of the PTO shaft. Make sure the drawbar is in a stationary position.
2. Back tractor up to planter and connect with hitch pin. Make sure hitch pin is secured with locking pin or cotter pin.

NOTE: Bottom of the planter hitch should be approximately 14" from the ground when the planter is in planting position.



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

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

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

4. Ensure electrical control harness is securely connected on those models so equipped.
5. Raise and remove jack stand.

LEVELING THE PLANTER

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

Unless the tractor drawbar is adjustable for height, level adjustment must be maintained by the position of the hitch clevis. Several holes in the tongue hitch bracket allow the clevis to be raised or lowered. When installing clevis mounting bolt, make sure lock nut is tightened to proper torque.

Lower the planter to the planting position and check for levelness. If hitch is too high, the planter wings will slope down on the outer ends. If hitch is too low, the planter wings will slope down toward the hitch center section.

For the proper wing height, the distance from the bottom of the 7 square wing tube to the ground should be approximately 20". Check to be sure the height on each end of the wing is the same.

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

TIRE PRESSURE

Tire pressure should be checked regularly and maintained as follows:

Transport - 11L x 14" 6 Ply 35 PSI
Drive Gauge - 7.60 x 15" 4 Ply 40 PSI

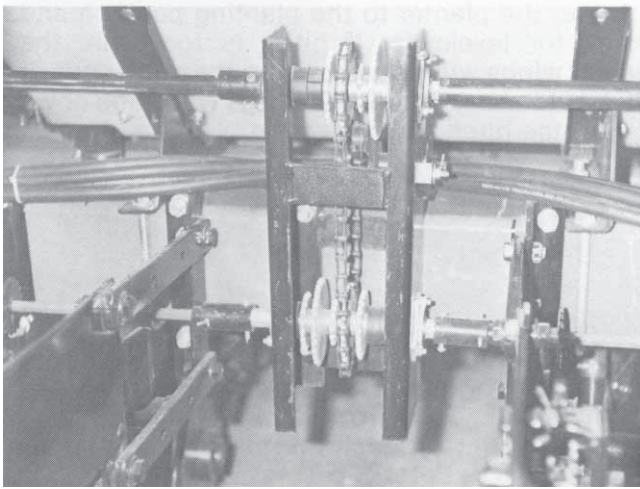
IMPORTANT: Tire pressure must be correctly maintained in all drive wheel tires to insure levelness of planter bar and proper operation of planter. Also, all rate charts are based on rolling radius 7:60 x 15 tires inflated to 40 PSI.

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 chart 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.



DRIVE LINE

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

FOLDING THE PLANTER

The planter is folded with a simple mechanical linkage and the forward and rearward movement of the tractor. The planter will normally fold into the planting position more easily than into the transport position due to the fact that the wing gate must rise slightly as it swings back into the transport position. Therefore, it is important that proper hitch height be maintained. With proper hitch height the vertical pin in the wing gate is higher or closer to vertical and will not have to raise as much during fold. A low hitch height will make folding more difficult.

You will find it is much easier to fold the planter into transport position in soft field conditions as this increases the rolling resistance on the caster wheels. The weight of the seed, chemicals, etc., on the planter wing will also create rolling resistance. Larger models tend to fold more easily than small models.

Should it become necessary to fold the planter on a hard flat surface, each wing latch may be released separately to fold one wing at a time. After an individual latch is released, the tractor can be driven away from the wing until it latches in the folded position. Then repeat the procedure for the other wing.

NOTE: It is helpful to take advantage of a slight grade when folding the planter into the transport position. Backing the unit down the grade and then pulling the unit back up the slope will produce enough resistance to fold the wings easily.

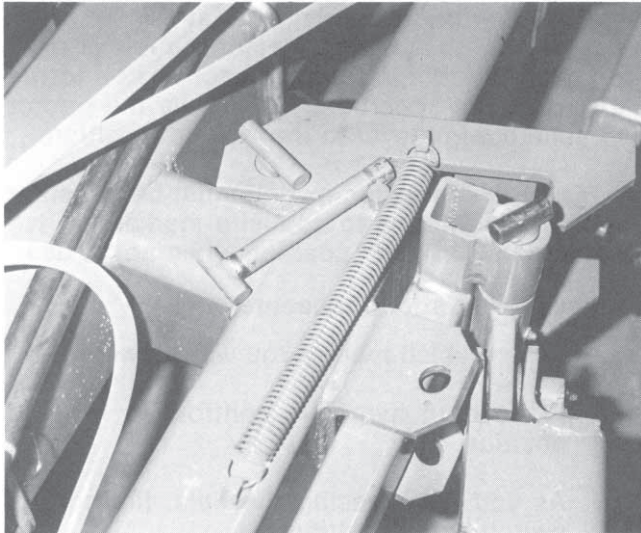
WARNING: Never release the wing latches when anyone is standing near the wing assembly. On uneven ground the wing may automatically rotate into either position without movement of the tractor.

CAUTION: The planter must be fully raised prior to folding. Attempting to fold the unit in any other position will result in damage to the row units and/or the rear axle assembly.

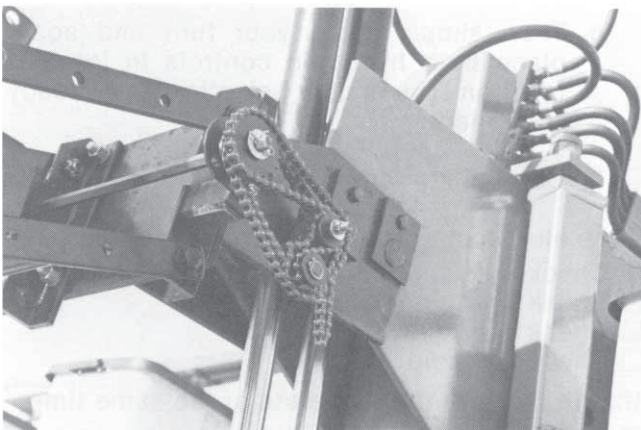
OPERATION

Procedure: Folding To Transport Position

1. Raise the planter and install safety pins in vertical stabilizer bar and caster wheel assemblies. At this time you may also remove the wing latch safety pin. Trip latch and position pin between the latch and latch stop to hold the latch in a tripped position.



CAUTION: On planter equipped with the special center row drive, the rear drive chain must be removed in order to fold the planter. Damage to the drive line and planter unit will result if the planter is folded with this chain left installed.

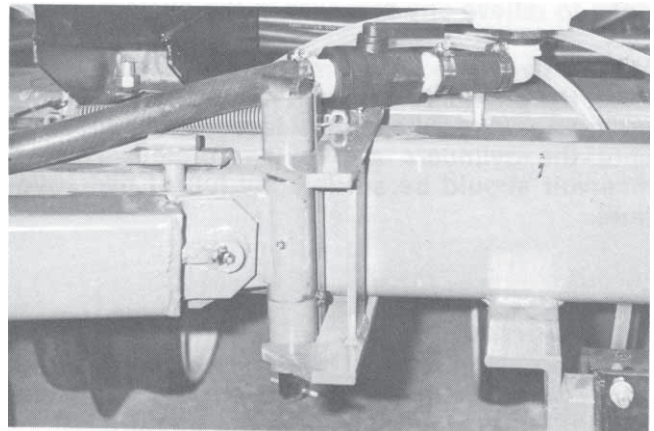


2. Back the tractor until the caster wheels are completely reversed. This puts the caster wheels into position to roll backward and inward.
3. Drive the tractor slowly forward. The resistance of the caster wheel to rotate acts as a brake causing the wings to fold into transport position.

4. If a caster wheel should rotate and roll back toward planting position, simply stop and back the tractor until the caster wheel is again in the forward position and drive forward and away from the unfolded wing.
5. When both wings have folded and latched into transport position, install safety pin in each wing latch.

Procedure: Folding To Planting Position

1. Remove safety pin from the wing assemblies and release latches.
2. Slowly and steadily back the tractor and planter to rotate wings into the planting position.
3. The wing assemblies will latch in position automatically when wings reach fully extended position.
4. Install safety pins to secure folding linkage in planting position.



5. Remove pin from vertical stabilizer and each caster wheel assembly.
6. After the planter is lowered to planting position, replace lift safety pin in vertical stabilizer and in pin storage location on caster wheel assemblies. With the vertical stabilizer pin reinstalled the planter will raise only to the pin and kick out the tractor hydraulic detent.

CAUTION: The pin must be removed and the planter raised completely and the pin reinstalled before folding the planter.

NOTE: On planters equipped with the special center row drive, the rear drive chain must be reinstalled on the sprocket located on the wing hinge assembly.

OPERATION

HYDRAULIC OPERATION

All rear folding planters are equipped for either a dual or triple valve hydraulic system and double or triple folding markers.

CAUTION: Due to the rigid construction of the triple folding marker assembly 16W, 18W and 24N planters must be operated with the marker hydraulic system in the float position. Failure to do so may result in damage to the marker assembly.

Planters equipped with the double folding marker assembly may be operated with the marker hydraulic system in either the float or fixed position.

The planter lift system may be operated in the float position or fixed position.

WARNING: Make sure all hydraulic hoses are properly connected before operating the planter. Never connect or disconnect hydraulic hoses without first stopping the tractor engine and moving the hydraulic operating levers in both directions to relieve any pressure in the system.

NOTE: To purge air from the hydraulic hoses, lower the planter to the planting position and hold the tractor hydraulic control lever in that position until the cylinders are fully retracted. Tractor reservoir should be sufficiently full of hydraulic fluid.

Flow Control

The arrow on all flow controls should be pointing toward the tractor. The system is designed to restrict the flow of oil back to the tractor.

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

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

NOTE: After the flow controls have been adjusted, the marker speed will decrease with cold oil supply. Make sure all adjustments are made with warm oil.

Dual Valve System

On planter models equipped with a dual valve system, two outlets are used to power the planter lift system while the other two outlets are used entirely for the marker system.

An electric solenoid valve along with a three position selector switch permits the operator to raise or lower the desired marker at will. To lower either marker individually, select the left or right marker by positioning the selector switch to the "left" or "right" position. Then move the tractor hydraulic control lever to the "lower" position.

NOTE: To raise marker, switch must be in center position or switched to opposite marker. Switch should be left in "off" position when not in use.

Hydraulic Operation Procedure:

1. Select which marker you want lowered.
2. Place both hydraulic controls in lowered position.
3. As you are crossing the field, flip control switch to off position.
4. When you come to the end of the field, flip the control switch to the other side and place the hydraulic control into raised position.
5. This will raise both planter and marker.
6. Then simply make your turn and again place both hydraulic controls in lowered position. The marker selection has already been made.
7. Continue to follow this procedure.

If the electrical system fails to operate properly:

- Check fuse
- Check wiring connections
- Check control switch
- Check solenoid

If both markers try to operate at the same time:

- Check for proper hose assembly
- Check o-rings in solenoid valve

Triple Valve System

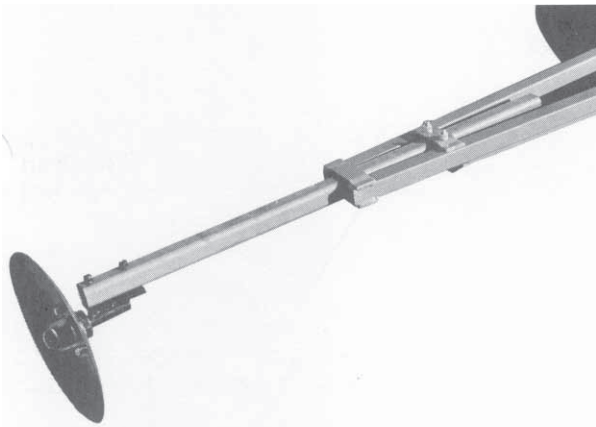
On planter models equipped with a triple valve hydraulic system, two outlets are used to power the planter lift system while the other four are used for the marker system. The lift system is normally placed on the center valves while the two individual marker systems are connected to the respective left and right valves.

OPERATION

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 disk 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 disk contacts the ground. Adjust right and left marker assemblies equally and securely tighten clamping bolts. An example of marker length adjustment follows:

| | | |
|-------------------|--------------------------------|---|
| Number or Rows | X Row Spacing (Inches) = | Dimension between planter center line and marker blade |
| 12 x 30" | = 360" Marker Dimension | |



The marker disk is installed so the concave side of the disk is outward to throw dirt away from the grease seals. To provide further variation in the size of the mark, the spindle bracket is slotted so the hub and blade can be angled forward or rearward to throw more or less dirt. To adjust the hub and spindle, loosen the 1/2" x 3 1/2" capscrews and move the bracket as required. Then tighten bolts to the specified torque.

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.

TRANSPORTING THE PLANTER

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

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.

MARKER CHAIN ADJUSTMENT

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

OPERATION

DOUBLE DISK OPENER

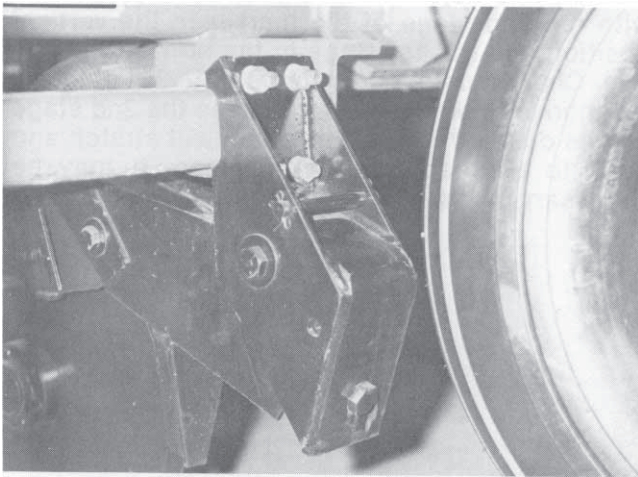
The double disk openers should be positioned during assembly to place the fertilizer approximately 2" to either side of the row and from 4 to 6 inches deep depending upon soil conditions and down pressure.

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

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

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

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

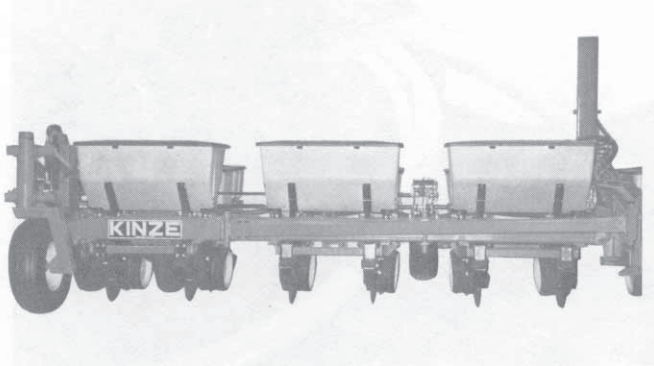


CAUTION: Opener assemblies must be located so they will clear caster wheel tire at all times.

OPERATION

DRY FERTILIZER ATTACHMENT

The rate of dry fertilizer application is determined by the drive and driven sprocket combinations on the fertilizer transmission. Sprocket combinations are changed in the same manner as the row unit transmission. After removing the rubber spacers and loosening the drive chain, slide the selected sprockets into alignment with the idlers. Then restore proper chain tension and replace spacers between sprockets. Refer to the application charts at the end of this section for selection of sprocket combinations.



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

Since most fertilizers easily absorb moisture, it is important that fertilizer be kept dry during use and storage. In addition to waste, deposit of fertilizer left in the hopper can cause metal corrosion.

The dry fertilizer attachment uses one fiberglass hopper for every 2 rows. Each hopper is designed to hold approximately 550 pounds depending upon the type of fertilizer being used.

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

Cleaning

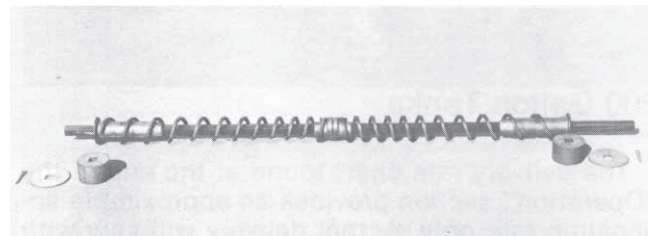
The dry fertilizer hoppers are designed to tip forward for dumping and ease of cleaning. To dump hoppers, first disconnect the drive shaft from the transmission or adjacent hopper. Loosen hose clamps and remove hoses from each hopper.

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

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

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

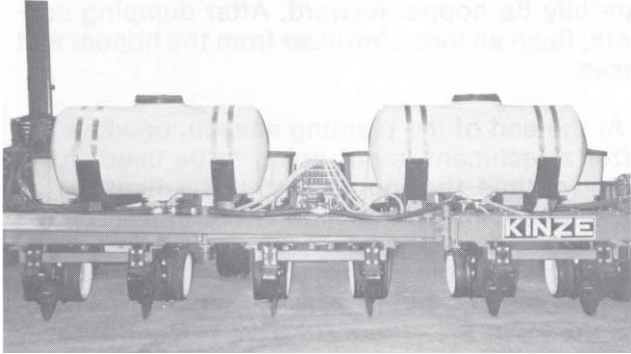
NOTE: Left hand and right hand springs are used on each auger shaft. Make sure springs auger fertilizer to the outer ends of the hopper when rotated in the direction of rotation they turn on the planter.



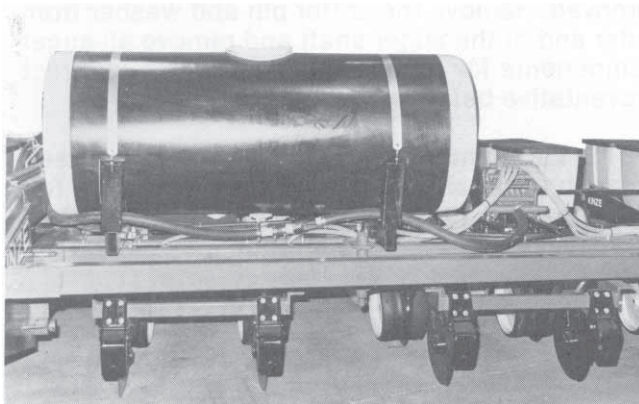
OPERATION

LIQUID FERTILIZER ATTACHMENT

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



100/110 Gallon Tanks



200 Gallon Tanks

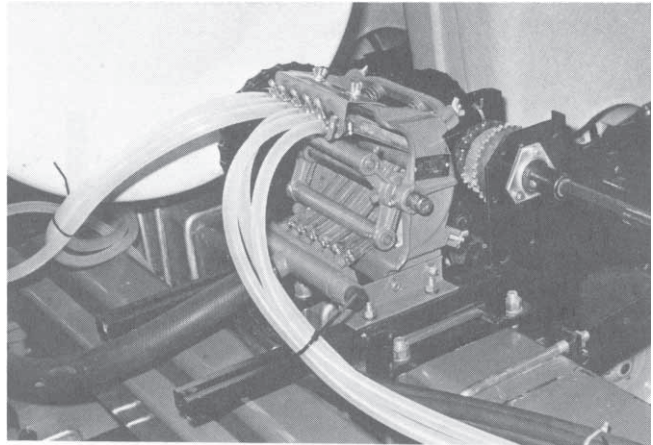
The delivery rate chart found at the end of the "Operation" section provides an approximate application rate only. Actual delivery will vary with temperature and the particular fertilizer being used.

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

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

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

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



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

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

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

Retighten hose clamp.

Cleaning

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

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

OPERATION

PLANTING RATE FOR PLATELESS CORN METERS SEED POPULATIONS/ACRE FOR DIFFERENT ROW WIDTHS

| 20 Inch | 30 Inch | 36 Inch | 38 Inch | Transmission Sprockets | | Recommended Speed Range (MPH) | Average Seed Spacing In Inches |
|---------|---------|---------|---------|------------------------|--------|-------------------------------|--------------------------------|
| | | | | Drive | Driven | | |
| 19,600 | 13,100 | 10,900 | 10,300 | 14 | 28 | 4 to 8 | 16.0 |
| 21,100 | 14,100 | 11,700 | 11,100 | 14 | 26 | 4 to 8 | 14.9 |
| 22,400 | 14,900 | 12,500 | 11,800 | 16 | 28 | 4 to 8 | 14.0 |
| 24,100 | 16,100 | 13,400 | 12,700 | 16 | 26 | 4 to 8 | 13.0 |
| 24,900 | 16,600 | 13,900 | 13,100 | 14 | 22 | 4 to 8 | 12.6 |
| 28,500 | 19,000 | 15,900 | 15,000 | 16 | 22 | 4 to 8 | 11.0 |
| 30,500 | 20,300 | 17,000 | 16,100 | 14 | 18 | 4 to 8 | 10.3 |
| 30,700 | 20,500 | 17,100 | 16,200 | 22 | 28 | 4 to 8 | 10.2 |
| 33,100 | 22,100 | 18,400 | 17,400 | 22 | 26 | 4 to 8 | 9.5 |
| 34,800 | 23,200 | 19,400 | 18,300 | 16 | 18 | 4 to 8 | 9.0 |
| 36,400 | 24,200 | 20,200 | 19,100 | 26 | 28 | 4 to 7 1/2 | 8.6 |
| 39,200 | 26,100 | 21,800 | 20,600 | 22 | 22 | 4 to 7 | 8.0 |
| 41,900 | 28,000 | 23,400 | 22,100 | 30 | 28 | 4 to 6 1/2 | 7.5 |
| 44,700 | 29,800 | 24,900 | 23,500 | 16 | 14 | 3 to 6 | 7.0 |
| 45,200 | 30,100 | 25,200 | 23,800 | 30 | 26 | 3 to 6 | 6.9 |
| 46,300 | 30,800 | 25,800 | 24,300 | 26 | 22 | 3 to 6 | 6.8 |
| 47,900 | 31,900 | 26,600 | 25,200 | 22 | 18 | 3 to 5 1/2 | 6.5 |
| 53,400 | 35,600 | 29,700 | 28,100 | 30 | 22 | 3 to 5 | 5.9 |
| 56,600 | 37,700 | 31,500 | 29,800 | 26 | 18 | 3 to 4 1/2 | 5.5 |
| 61,500 | 41,000 | 34,300 | 32,400 | 22 | 14 | 3 to 4 1/2 | 5.1 |
| 65,300 | 43,500 | 36,300 | 34,300 | 30 | 18 | 2 to 4 | 4.8 |
| 72,700 | 48,500 | 40,500 | 38,300 | 26 | 14 | 2 to 3 1/2 | 4.3 |
| 83,900 | 55,900 | 46,700 | 44,100 | 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 populations.

The size and shape of seeds will effect the planting rate. Medium round corn is generally the most preferred while small flat is 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.

OPERATION

PLANTING RATE FOR PLATELESS SOYBEAN METERS APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Transmission | | Recommended Speed Range (MPH) |
|---------|---------|---------|---------|---------|--------------|--------|-------------------------------------|
| | | | | | Sprockets | | |
| | | | | | Drive | Driven | |
| 68 | 51 | 34 | 28 | 27 | 14 | 28 | 4 to 8 |
| 73 | 55 | 36 | 30 | 29 | 14 | 26 | 4 to 8 |
| 77 | 57 | 38 | 32 | 30 | 16 | 28 | 4 to 8 |
| 80 | 60 | 40 | 33 | 32 | 16 | 26 | 4 to 8 |
| 82 | 62 | 41 | 34 | 32 | 14 | 22 | 4 to 8 |
| 90 | 68 | 45 | 38 | 36 | 16 | 22 | 4 to 8 |
| 96 | 72 | 48 | 40 | 38 | 14 | 18 | 4 to 8 |
| 97 | 73 | 49 | 41 | 38 | 22 | 28 | 4 to 8 |
| 105 | 79 | 52 | 44 | 41 | 22 | 26 | 4 to 8 |
| 110 | 83 | 55 | 46 | 44 | 16 | 18 | 4 to 8 |
| 115 | 86 | 58 | 48 | 45 | 26 | 28 | 4 to 7 1/2 |
| 124 | 93 | 62 | 52 | 49 | 22 | 22 | 4 to 7 |
| 133 | 100 | 66 | 55 | 52 | 30 | 28 | 4 to 6 1/2 |
| 142 | 106 | 71 | 59 | 56 | 16 | 14 | 3 to 6 |
| 143 | 107 | 72 | 60 | 56 | 30 | 26 | 3 to 6 |
| 147 | 110 | 73 | 61 | 58 | 26 | 22 | 3 to 6 |
| 152 | 114 | 76 | 63 | 60 | 22 | 18 | 3 to 5 1/2 |
| 169 | 127 | 85 | 70 | 67 | 30 | 22 | 3 to 5 |
| 179 | 134 | 90 | 75 | 71 | 26 | 18 | 3 to 5 |
| 191 | 143 | 95 | 79 | 75 | 22 | 14 | 3 to 5 |
| 201 | 151 | 100 | 84 | 79 | 30 | 18 | 3 to 5 |
| 218 | 164 | 109 | 91 | 86 | 26 | 14 | 3 to 5 |
| 246 | 184 | 123 | 102 | 97 | 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: Soybean 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 transmiss 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.

OPERATION

PLANTING RATE FOR PLATELESS SOYBEAN METERS

APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - SMALL SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Seeds/ Foot | Seed Spacing (Inches) | Transmission Sprockets | | Reccomended Speed Range (MPH) |
|---------|---------|---------|---------|---------|----------------|-----------------------------|---------------------------|--------|-------------------------------------|
| | | | | | | | Drive | Driven | |
| 257,100 | 192,800 | 128,500 | 107,100 | 101,500 | 7 | 1.6 | 14 | 28 | 4 to 8 |
| 275,400 | 206,500 | 137,700 | 114,700 | 108,700 | 8 | 1.5 | 14 | 26 | 4 to 8 |
| 289,300 | 217,000 | 144,600 | 120,500 | 114,200 | 8 | 1.4 | 16 | 28 | 4 to 8 |
| 303,700 | 227,800 | 151,900 | 126,600 | 119,900 | 9 | 1.4 | 16 | 26 | 4 to 8 |
| 310,200 | 232,700 | 155,100 | 129,300 | 122,500 | 9 | 1.4 | 14 | 22 | 4 to 8 |
| 340,900 | 255,700 | 170,400 | 142,000 | 134,600 | 10 | 1.2 | 16 | 22 | 4 to 8 |
| 364,600 | 273,400 | 182,300 | 151,900 | 143,900 | 10 | 1.1 | 14 | 18 | 4 to 8 |
| 368,300 | 276,200 | 184,100 | 153,500 | 145,400 | 11 | 1.1 | 22 | 28 | 4 to 8 |
| 396,600 | 297,500 | 198,300 | 165,300 | 156,600 | 11 | 1.1 | 22 | 26 | 4 to 8 |
| 416,600 | 312,500 | 208,300 | 173,600 | 164,500 | 12 | 1.0 | 16 | 18 | 4 to 8 |
| 435,200 | 326,400 | 217,600 | 181,400 | 171,800 | 12 | 1.0 | 26 | 28 | 4 to 7 1/2 |
| 468,700 | 351,500 | 234,400 | 195,300 | 185,000 | 13 | 0.9 | 22 | 22 | 4 to 7 |
| 502,200 | 376,700 | 251,100 | 209,300 | 198,200 | 14 | 0.8 | 30 | 28 | 4 to 6 1/2 |
| 535,700 | 401,800 | 267,800 | 223,200 | 211,500 | 15 | 0.8 | 16 | 14 | 3 to 6 |
| 540,800 | 405,600 | 270,400 | 225,300 | 213,500 | 15 | 0.8 | 30 | 26 | 3 to 6 |
| 553,900 | 415,500 | 277,000 | 230,800 | 218,700 | 16 | 0.8 | 26 | 22 | 3 to 6 |
| 572,900 | 429,700 | 286,400 | 238,700 | 226,100 | 16 | 0.7 | 22 | 18 | 3 to 5 1/2 |
| 639,200 | 479,400 | 319,600 | 266,300 | 252,300 | 18 | 0.7 | 30 | 22 | 3 to 5 |
| 677,000 | 507,800 | 338,500 | 282,100 | 267,300 | 19 | 0.6 | 26 | 18 | 3 to 5 |
| 721,100 | 540,800 | 360,500 | 300,500 | 284,600 | 21 | 0.6 | 22 | 14 | 3 to 5 |
| 758,500 | 568,900 | 379,300 | 316,100 | 299,400 | 22 | 0.6 | 30 | 18 | 3 to 5 |
| 825,200 | 618,900 | 412,600 | 343,800 | 325,700 | 24 | 0.5 | 26 | 14 | 3 to 5 |
| 929,100 | 696,800 | 464,500 | 387,100 | 366,700 | 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.

OPERATION

PLANTING RATE FOR PLATELESS SOYBEAN METERS APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Seeds/ Foot | Seed Spacing (Inches) | Transmission Sprockets Drive Driven | | Recommended Speed Range (MPH) |
|---------|---------|---------|---------|---------|----------------|-----------------------------|---|----|-------------------------------------|
| 170,800 | 127,500 | 85,000 | 70,800 | 67,100 | 5 | 2.5 | 14 | 28 | 4 to 8 |
| 182,100 | 136,600 | 91,100 | 75,900 | 71,900 | 5 | 2.3 | 14 | 26 | 4 to 8 |
| 191,300 | 143,500 | 95,700 | 79,700 | 75,500 | 5 | 2.2 | 16 | 28 | 4 to 8 |
| 200,900 | 150,700 | 100,400 | 83,700 | 79,300 | 6 | 2.1 | 16 | 26 | 4 to 8 |
| 205,200 | 153,900 | 102,600 | 85,500 | 81,000 | 6 | 2.0 | 14 | 22 | 4 to 8 |
| 225,500 | 169,100 | 112,700 | 93,900 | 89,000 | 6 | 1.9 | 16 | 22 | 4 to 8 |
| 241,100 | 180,800 | 120,600 | 100,500 | 95,200 | 7 | 1.7 | 14 | 18 | 4 to 8 |
| 243,600 | 182,700 | 121,800 | 101,500 | 96,100 | 7 | 1.7 | 22 | 28 | 4 to 8 |
| 262,300 | 196,700 | 131,200 | 109,300 | 103,500 | 8 | 1.6 | 22 | 26 | 4 to 8 |
| 275,600 | 206,700 | 137,800 | 114,800 | 108,800 | 8 | 1.5 | 16 | 18 | 4 to 8 |
| 287,900 | 215,900 | 143,900 | 119,900 | 113,600 | 8 | 1.5 | 26 | 28 | 4 to 7 1/2 |
| 310,000 | 232,500 | 155,000 | 129,200 | 122,400 | 9 | 1.4 | 22 | 22 | 4 to 7 |
| 332,100 | 249,100 | 166,100 | 138,400 | 131,100 | 10 | 1.3 | 30 | 28 | 4 to 6 1/2 |
| 354,300 | 265,700 | 177,100 | 147,600 | 139,800 | 10 | 1.2 | 16 | 14 | 3 to 6 |
| 357,700 | 268,300 | 178,800 | 149,000 | 141,200 | 10 | 1.2 | 30 | 26 | 3 to 6 |
| 366,400 | 274,800 | 183,200 | 152,700 | 144,600 | 10 | 1.1 | 26 | 22 | 3 to 6 |
| 378,900 | 284,200 | 189,400 | 157,900 | 149,600 | 11 | 1.1 | 22 | 18 | 3 to 5 1/2 |
| 422,700 | 317,000 | 211,400 | 176,100 | 166,900 | 12 | 1.0 | 30 | 22 | 3 to 5 |
| 447,800 | 335,800 | 223,900 | 186,600 | 176,800 | 13 | 0.9 | 26 | 18 | 3 to 5 |
| 476,900 | 357,700 | 238,500 | 198,700 | 188,300 | 14 | 0.9 | 22 | 14 | 3 to 5 |
| 501,700 | 376,300 | 250,800 | 209,000 | 198,000 | 14 | 0.8 | 30 | 18 | 3 to 5 |
| 545,800 | 409,300 | 272,900 | 227,400 | 215,400 | 16 | 0.8 | 26 | 14 | 3 to 5 |
| 614,500 | 460,800 | 307,200 | 256,000 | 242,600 | 18 | 0.7 | 30 | 14 | 3 to 5 |

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

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

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

Above chart for planters equipped with 7:60 - 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.

OPERATION

PLANTING RATE FOR PLATELESS SOYBEAN METERS APPROXIMATE BEANS/ACRE FOR DIFFERENT ROW WIDTHS - LARGE SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Seeds/ Foot | Seed Spacing (Inches) | Transmission Sprockets | | Recommended Speed Range (MPH) |
|---------|---------|---------|---------|---------|----------------|-----------------------------|---------------------------|--------|-------------------------------------|
| | | | | | | | Drive | Driven | |
| 113,900 | 85,400 | 56,900 | 47,400 | 44,900 | 3 | 3.7 | 14 | 28 | 4 to 8 |
| 121,900 | 91,500 | 61,000 | 50,800 | 48,100 | 3 | 3.4 | 14 | 26 | 4 to 8 |
| 128,100 | 96,100 | 64,100 | 53,400 | 50,600 | 4 | 3.3 | 16 | 28 | 4 to 8 |
| 134,500 | 100,900 | 67,300 | 56,000 | 53,100 | 4 | 3.1 | 16 | 26 | 4 to 8 |
| 137,400 | 103,000 | 68,700 | 57,200 | 54,200 | 4 | 3.1 | 14 | 22 | 4 to 8 |
| 151,000 | 113,200 | 75,500 | 62,900 | 59,600 | 4 | 2.8 | 16 | 22 | 4 to 8 |
| 161,400 | 121,100 | 80,700 | 67,300 | 63,700 | 5 | 2.6 | 14 | 18 | 4 to 8 |
| 163,100 | 122,300 | 81,500 | 68,000 | 64,400 | 5 | 2.6 | 22 | 28 | 4 to 8 |
| 175,600 | 131,700 | 87,800 | 73,200 | 69,300 | 5 | 2.4 | 22 | 26 | 4 to 8 |
| 184,500 | 138,400 | 92,300 | 76,900 | 72,800 | 5 | 2.3 | 16 | 18 | 4 to 8 |
| 192,700 | 144,600 | 96,400 | 80,300 | 76,100 | 6 | 2.2 | 26 | 28 | 4 to 7 1/2 |
| 207,600 | 155,700 | 103,800 | 86,500 | 81,900 | 6 | 2.0 | 22 | 22 | 4 to 7 |
| 222,400 | 166,800 | 111,200 | 92,700 | 87,800 | 6 | 1.9 | 30 | 28 | 4 to 6 1/2 |
| 237,200 | 177,900 | 118,600 | 98,800 | 93,600 | 7 | 1.8 | 16 | 14 | 3 to 6 |
| 239,500 | 179,600 | 119,800 | 99,800 | 94,500 | 7 | 1.7 | 30 | 26 | 3 to 6 |
| 245,300 | 184,000 | 122,700 | 102,200 | 96,800 | 7 | 1.7 | 26 | 22 | 3 to 6 |
| 253,700 | 190,300 | 126,900 | 105,700 | 100,100 | 7 | 1.7 | 22 | 18 | 3 to 5 1/2 |
| 283,100 | 212,300 | 141,500 | 117,900 | 111,700 | 8 | 1.5 | 30 | 22 | 3 to 5 |
| 299,800 | 224,900 | 149,900 | 124,900 | 118,400 | 9 | 1.4 | 26 | 18 | 3 to 5 |
| 319,300 | 239,500 | 159,700 | 133,100 | 126,100 | 9 | 1.3 | 22 | 14 | 3 to 5 |
| 335,900 | 251,900 | 168,000 | 140,000 | 132,600 | 10 | 1.2 | 30 | 18 | 3 to 5 |
| 365,500 | 274,100 | 182,700 | 152,300 | 144,300 | 10 | 1.1 | 26 | 14 | 3 to 5 |
| 411,400 | 308,600 | 205,700 | 171,400 | 162,400 | 12 | 1.0 | 30 | 14 | 3 to 5 |

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

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

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

Above chart for planters equipped with 7:60 - 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.

OPERATION

PLANTING RATE FOR PLATELESS REGULAR RATE SORGHUM METERS

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Transmission | | Recommended Speed Range (MPH) |
|---------|---------|---------|---------|---------|--------------|--------|-------------------------------|
| | | | | | Drive | Driven | |
| 16.1 | 12.1 | 8.0 | 6.7 | 6.3 | 14 | 28 | 4 to 8 |
| 17.1 | 12.8 | 8.5 | 7.1 | 6.7 | 14 | 26 | 4 to 8 |
| 17.9 | 13.5 | 9.0 | 7.5 | 7.1 | 16 | 28 | 4 to 8 |
| 19.0 | 14.2 | 9.5 | 7.9 | 7.5 | 16 | 26 | 4 to 8 |
| 19.6 | 14.7 | 9.8 | 8.2 | 7.7 | 14 | 22 | 4 to 8 |
| 22.0 | 16.5 | 11.0 | 9.2 | 8.7 | 16 | 22 | 4 to 8 |
| 23.5 | 17.6 | 11.7 | 9.8 | 9.3 | 14 | 18 | 4 to 8 |
| 23.7 | 17.8 | 11.9 | 9.9 | 9.4 | 22 | 28 | 4 to 8 |
| 25.6 | 19.2 | 12.8 | 10.6 | 10.1 | 22 | 26 | 4 to 8 |
| 26.8 | 20.1 | 13.4 | 11.2 | 10.6 | 16 | 18 | 4 to 8 |
| 28.0 | 21.0 | 14.0 | 11.7 | 11.1 | 26 | 28 | 4 to 7 1/2 |
| 30.2 | 22.7 | 15.1 | 12.6 | 11.9 | 22 | 22 | 4 to 7 |
| 32.4 | 24.3 | 16.2 | 13.5 | 12.8 | 30 | 28 | 4 to 6 1/2 |
| 34.5 | 25.9 | 17.3 | 14.4 | 13.6 | 16 | 14 | 3 to 6 |
| 34.8 | 26.1 | 17.4 | 14.5 | 13.8 | 30 | 26 | 3 to 6 |
| 35.7 | 26.8 | 17.8 | 14.9 | 14.1 | 26 | 22 | 3 to 6 |
| 36.9 | 27.7 | 18.5 | 15.4 | 14.6 | 22 | 18 | 3 to 5 1/2 |
| 41.2 | 30.9 | 20.6 | 17.2 | 16.3 | 30 | 22 | 3 to 5 |
| 43.6 | 32.7 | 21.8 | 18.2 | 17.2 | 26 | 18 | 3 to 5 |
| 46.8 | 35.1 | 23.4 | 19.5 | 18.5 | 22 | 14 | 3 to 5 |
| 49.2 | 36.9 | 24.6 | 20.5 | 19.4 | 30 | 18 | 3 to 5 |
| 53.7 | 40.3 | 26.9 | 22.4 | 21.2 | 26 | 14 | 3 to 5 |
| 60.1 | 45.0 | 30.0 | 25.0 | 23.7 | 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 12000 seeds/lb. The size marked on each bag is an average. Seeds within each bag may vary in size 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.

OPERATION

PLANTING RATE FOR PLATELESS LOW RATE SORGHUM METERS

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - MEDIUM SEEDS

| 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch | Transmission Sprockets | | Recommended Speed Range (MPH) |
|---------|---------|---------|---------|---------|------------------------|--------|-------------------------------|
| | | | | | Drive | Driven | |
| 3.1 | 2.3 | 1.5 | 1.3 | 1.2 | 14 | 28 | 4 to 8 |
| 3.3 | 2.5 | 1.6 | 1.4 | 1.3 | 14 | 26 | 4 to 8 |
| 3.4 | 2.6 | 1.7 | 1.4 | 1.4 | 16 | 28 | 4 to 8 |
| 3.6 | 2.7 | 1.8 | 1.5 | 1.4 | 16 | 26 | 4 to 8 |
| 3.8 | 2.8 | 1.9 | 1.6 | 1.5 | 14 | 22 | 4 to 8 |
| 4.2 | 3.2 | 2.1 | 1.8 | 1.7 | 16 | 22 | 4 to 8 |
| 4.5 | 3.4 | 2.3 | 1.9 | 1.8 | 14 | 18 | 4 to 8 |
| 4.6 | 3.4 | 2.3 | 1.9 | 1.8 | 22 | 28 | 4 to 8 |
| 4.9 | 3.7 | 2.5 | 2.0 | 1.9 | 22 | 26 | 4 to 8 |
| 5.2 | 3.9 | 2.6 | 2.1 | 2.0 | 16 | 18 | 4 to 8 |
| 5.4 | 4.0 | 2.7 | 2.2 | 2.1 | 26 | 28 | 4 to 7 1/2 |
| 5.8 | 4.4 | 2.9 | 2.4 | 2.3 | 22 | 22 | 4 to 7 |
| 6.2 | 4.7 | 3.1 | 2.6 | 2.5 | 30 | 28 | 4 to 6 1/2 |
| 6.6 | 5.0 | 3.3 | 2.8 | 2.6 | 16 | 14 | 3 to 6 |
| 6.7 | 5.0 | 3.3 | 2.8 | 2.6 | 30 | 26 | 3 to 6 |
| 6.9 | 5.1 | 3.4 | 2.9 | 2.7 | 26 | 22 | 3 to 6 |
| 7.1 | 5.3 | 3.5 | 3.0 | 2.8 | 22 | 18 | 3 to 5 1/2 |
| 7.9 | 5.9 | 4.0 | 3.3 | 3.1 | 30 | 22 | 3 to 5 |
| 8.4 | 6.3 | 4.2 | 3.5 | 3.3 | 26 | 18 | 3 to 5 |
| 9.0 | 6.7 | 4.5 | 3.7 | 3.6 | 22 | 14 | 3 to 5 |
| 9.5 | 7.1 | 4.7 | 3.9 | 3.7 | 30 | 18 | 3 to 5 |
| 10.3 | 7.7 | 5.2 | 4.3 | 4.1 | 26 | 14 | 3 to 5 |
| 11.5 | 8.7 | 5.8 | 4.8 | 4.6 | 30 | 14 | 3 to 5 |

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

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

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

Above chart for planters equipped with 7:60 - 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.

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 incidents of doubles and triples, particularly with the small flat seeds.

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

OPERATION

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 incidents of doubles and triples, particulary with the small flat seeds.

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

OPERATION

DRY INSECTICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS — CLAY GRANULES

| Meter Setting | 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch |
|---------------|---------|---------|---------|---------|---------|
| 10 | 10.2 | 7.7 | 5.1 | 4.3 | 4.0 |
| 11 | 11.2 | 8.4 | 5.6 | 4.7 | 4.4 |
| 12 | 12.6 | 9.5 | 6.3 | 5.3 | 5.0 |
| 13 | 14.2 | 10.7 | 7.1 | 5.9 | 5.6 |
| 14 | 15.8 | 11.9 | 7.9 | 6.6 | 6.2 |
| 15 | 17.6 | 13.2 | 8.8 | 7.3 | 6.9 |
| 16 | 19.8 | 14.9 | 9.9 | 8.3 | 7.8 |
| 17 | 22.0 | 16.5 | 11.0 | 9.2 | 8.7 |
| 18 | 23.6 | 17.7 | 11.8 | 9.8 | 9.3 |
| 19 | 27.0 | 20.3 | 13.5 | 11.3 | 10.7 |
| 20 | 29.2 | 21.9 | 14.6 | 12.2 | 11.5 |
| 21 | 32.0 | 24.0 | 16.0 | 13.3 | 12.6 |
| 22 | 33.8 | 25.4 | 16.9 | 14.1 | 13.3 |
| 23 | 35.4 | 26.6 | 17.7 | 14.8 | 14.0 |
| 24 | 38.8 | 29.1 | 19.4 | 16.2 | 15.3 |
| 25 | 43.0 | 32.3 | 21.5 | 17.9 | 17.0 |
| 26 | 47.4 | 35.6 | 23.7 | 19.8 | 18.7 |
| 27 | 49.6 | 37.2 | 24.8 | 20.7 | 19.6 |
| 28 | 52.4 | 39.3 | 26.2 | 21.8 | 20.7 |
| 29 | 57.4 | 43.1 | 28.7 | 23.9 | 22.7 |
| 30 | 61.0 | 45.8 | 30.5 | 25.4 | 24.1 |

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - SAND GRANULES

| | | | | | |
|----|------|------|------|------|------|
| 5 | 6.0 | 4.5 | 3.0 | 2.5 | 2.4 |
| 6 | 10.0 | 7.5 | 5.0 | 4.2 | 3.9 |
| 7 | 11.0 | 8.3 | 5.5 | 4.6 | 4.3 |
| 8 | 13.0 | 9.8 | 6.5 | 5.4 | 5.1 |
| 9 | 16.0 | 12.0 | 8.0 | 6.7 | 6.3 |
| 10 | 18.4 | 13.8 | 9.2 | 7.7 | 7.3 |
| 11 | 21.0 | 15.8 | 10.5 | 8.8 | 8.3 |
| 12 | 23.0 | 17.3 | 11.5 | 9.6 | 9.1 |
| 13 | 26.0 | 19.5 | 13.0 | 10.8 | 10.3 |
| 14 | 29.0 | 21.8 | 14.5 | 12.1 | 11.4 |
| 15 | 32.0 | 24.0 | 16.0 | 13.3 | 12.6 |
| 16 | 36.0 | 27.0 | 18.0 | 15.0 | 14.2 |
| 17 | 40.0 | 30.0 | 20.0 | 16.7 | 15.8 |
| 18 | 45.0 | 33.8 | 22.5 | 18.8 | 17.8 |
| 19 | 50.0 | 37.5 | 25.0 | 20.8 | 19.7 |
| 20 | 53.0 | 39.8 | 26.5 | 22.1 | 20.9 |
| 21 | 57.0 | 42.8 | 28.5 | 23.8 | 22.5 |
| 22 | 61.0 | 45.8 | 30.5 | 25.4 | 24.1 |
| 23 | 66.0 | 49.5 | 33.0 | 27.5 | 26.1 |
| 24 | 71.0 | 53.3 | 35.5 | 29.6 | 28.0 |
| 25 | 76.0 | 57.0 | 38.0 | 31.7 | 30.0 |

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

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

OPERATION

DRY HERBICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE FOR DIFFERENT ROW WIDTHS - CLAY GRANULES

| Meter Setting | 15 Inch | 20 Inch | 30 Inch | 36 Inch | 38 Inch |
|---------------|---------|---------|---------|---------|---------|
| 10 | 9.6 | 7.2 | 4.8 | 4.0 | 3.8 |
| 11 | 10.8 | 8.1 | 5.4 | 4.5 | 4.3 |
| 12 | 12.0 | 9.0 | 6.0 | 5.0 | 4.7 |
| 13 | 13.4 | 10.1 | 6.7 | 5.6 | 5.3 |
| 14 | 15.0 | 11.3 | 7.5 | 6.3 | 5.9 |
| 15 | 17.0 | 12.8 | 8.5 | 7.1 | 6.7 |
| 16 | 18.6 | 14.0 | 9.3 | 7.8 | 7.3 |
| 17 | 20.4 | 15.3 | 10.2 | 8.5 | 8.1 |
| 18 | 22.0 | 16.5 | 11.0 | 9.2 | 8.7 |
| 19 | 24.0 | 18.0 | 12.0 | 10.0 | 9.5 |
| 20 | 26.0 | 19.5 | 13.0 | 10.8 | 10.3 |
| 21 | 28.0 | 21.0 | 14.0 | 11.7 | 11.1 |
| 22 | 30.0 | 22.5 | 15.0 | 12.5 | 11.8 |
| 23 | 32.4 | 24.3 | 16.2 | 13.5 | 12.8 |
| 24 | 35.0 | 26.3 | 17.5 | 14.6 | 13.8 |
| 25 | 37.4 | 28.1 | 18.7 | 15.6 | 14.8 |
| 26 | 40.0 | 30.0 | 20.0 | 16.7 | 15.8 |
| 27 | 43.0 | 32.3 | 21.5 | 17.9 | 17.0 |
| 28 | 46.6 | 35.0 | 23.3 | 19.4 | 18.4 |
| 29 | 50.0 | 37.5 | 25.0 | 20.8 | 19.7 |
| 30 | 55.0 | 41.3 | 27.5 | 22.9 | 21.7 |

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

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

OPERATION

DRY FERTILIZER APPLICATION RATES

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

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

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

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

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

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

- 30" Multiply by 1.33
- 36" Multiply by 1.11
- 38" Multitply by 1.05

OPERATION

LIQUID FERTILIZER APPLICATION RATES

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

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

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

MAINTENANCE

MOUNTING BOLTS AND HARDWARE

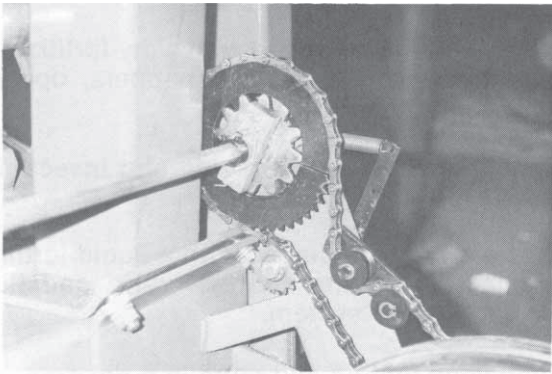
Before operating the planter for the first time, check to be sure all nuts and bolts are tight. Check all nuts and bolts again after approximately the first 50 hours of operation and at the beginning of each planting season thereafter.

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.

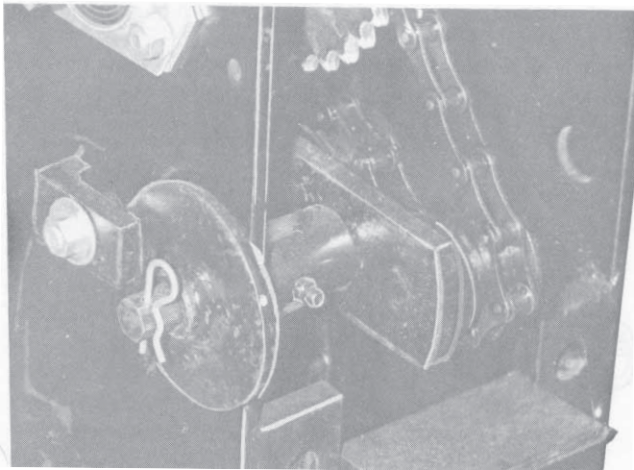
NOTE: Overtightening bolts can cause as much damage as undertightening. Tightening a bolt beyond the recommended range can reduce its shock load capacity.

CHAIN TENSION ADJUSTMENT

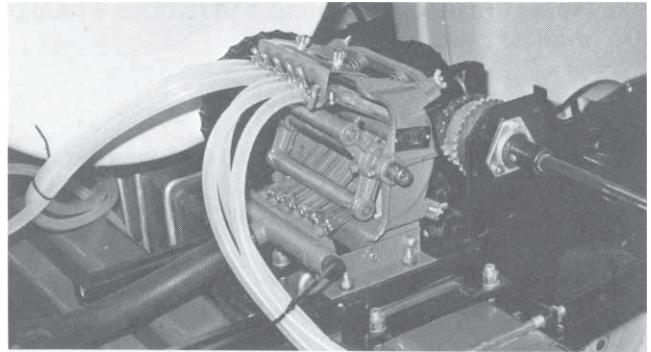
Drive chains from the drive gauge wheels to the drive line and the rear drive chain on the special center row drive are equipped with spring tension idlers to minimize chain adjustment.



The drive chain on the transmission is equipped with an idler bracket which needs only to be rotated to desired tension after the mounting nut is loosened. After rotating idler bracket retighten nut.



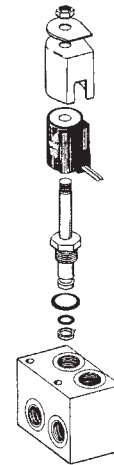
On planters equipped with liquid fertilizer the squeeze pump must be slid forward or backward after loosening mounting hardware to obtain the proper chain tension.



SOLENOID VALVE INSPECTION

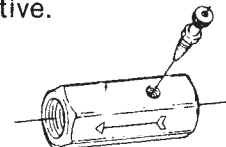
The solenoid valve consists of a chambered body containing cartridge valves which are activated by electrical coils. If the coil fails to become magnetized when activated it may need to be replaced. If the cartridge does not “click” open when activated by the coil, it may be faulty and need to be replaced.

NOTE: If the coil has poor magnetic attraction, this would indicate low voltage or poor wiring connections.



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.



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 lubrication points.

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

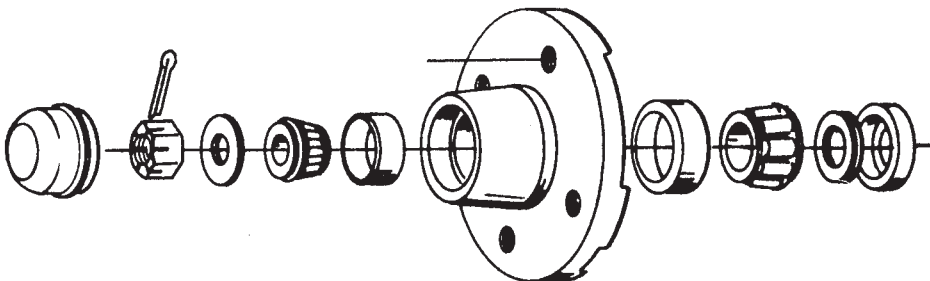
Inspect the planter and row units for parts that are in need of replacement and order during the "off" season.

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

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

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

Clean seed meters and store in a dry area. (Refer to row unit manual for proper procedures)



LUBRICATION

The following 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.

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

Sealed Bearings

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

Drive Chains

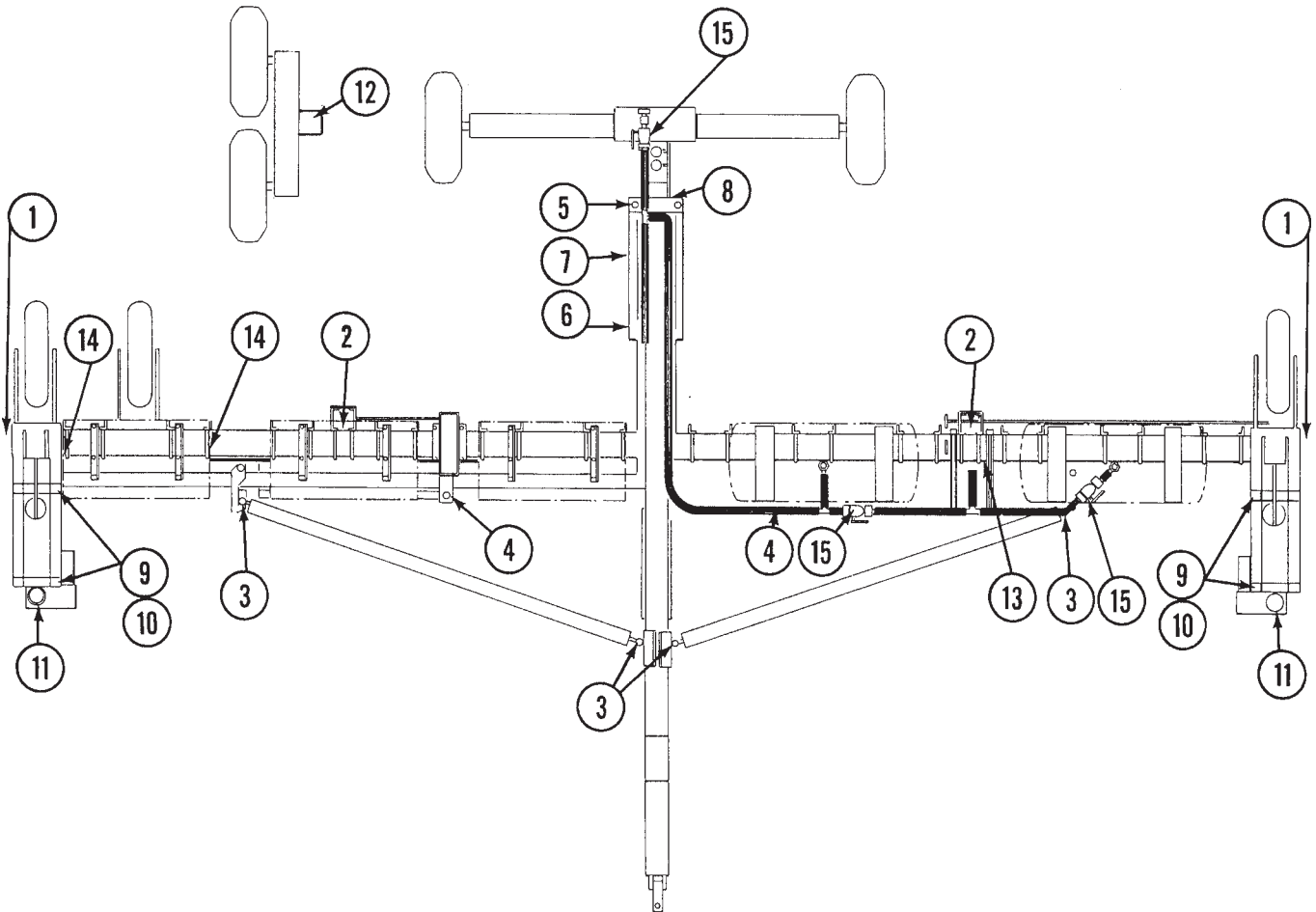
The transmission and drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 30 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may require more frequent lubrication. If any of the chains become stiff, it should be removed and soaked and washed in solvent to loosen and remove dirt from the joints. Then soak the chain in oil so the lubricant can penetrate between the rollers and bushings.

Wheel Bearings

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

LUBRICATION

| Lubrication Chart | | | |
|-------------------|-------------------------------------|----------------|-----------|
| Ref. No. | Description | No. of Zerks | Frequency |
| 1. | Low Profile Marker, 1st Stage | 2 Per Marker | 10 Hours |
| 2. | Transmission Idler Sleeve | 1 | 10 Hours |
| 3. | Folding Link Assembly | 4 Per Assembly | 10 Hours |
| 4. | Articulated Link Assembly | 1 Per Assembly | 10 Hours |
| 5. | Wing Gate Pivot | 2 Per Side | 10 Hours |
| 6. | Wing Gate Hinge | 1 Per Hinge | 10 Hours |
| 7. | Wing Assembly | 1 Per Wing | 10 Hours |
| 8. | Vertical Brace | 1 | 10 Hours |
| 9. | Parallel Arm, Upper | 2 Per Arm | 10 Hours |
| 10. | Parallel Arm, Lower | 4 Per Arm | 10 Hours |
| 11. | Caster Wheel Pivot Tube | 2 Per Wheel | 10 Hours |
| 12. | Tandem Axle (All Applicable Models) | 2 | 10 Hours |
| 13. | Squeeze Pump | 8 | 10 Hours |
| 14. | Dry Fertilizer Hopper | 2 Per Hopper | 10 Hours |
| 15. | Shut-Off Valve (Liquid Fertilizer) | 1 Per Valve | As Needed |



Equipped With
Dry Fertilizer

Equipped With
Liquid Fertilizer

ASSEMBLY

The following instructions are provided for assembly of the Kinze Rear Folding Planter. Please read through the instructions prior to assembly. Becoming familiar with the procedures before actual set up will facilitate smoother assembly and possible save time by eliminating backtracking. Although there may be procedures for assembly other than those shown, caution should be taken to avoid unnecessary risk.



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

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

HARDWARE

All bolts furnished with the planter bar unless otherwise noted are SAE Grade 5. These high strength bolts are distinguished by these radial lines on the head. If bolts must be relaced, be sure to replace them with bolts of equal size and strength.

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

| DRY TORQUE VALUES - Ft. Lbs. | | |
|------------------------------|---|--|
| Bolt Diameter | Grade 2 | Grade 5 |
| | No Radial Lines  | Three Radial Lines  |
| 5/16" | 11 | 17 |
| 3/8" | 23 | 35 |
| 1/2" | 55 | 85 |
| 5/8" | | 170 |
| 3/4" | | 300 |
| 9/16" | | 120 |
| 1" | | 670 |
| 1 1/4" | | 910 |

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

FRAME ASSEMBLY

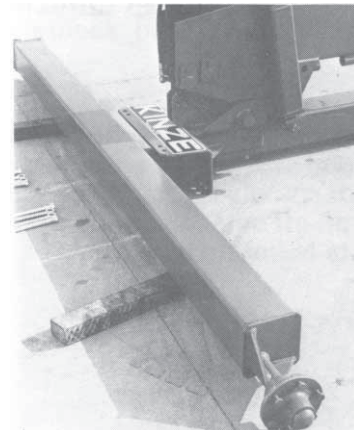
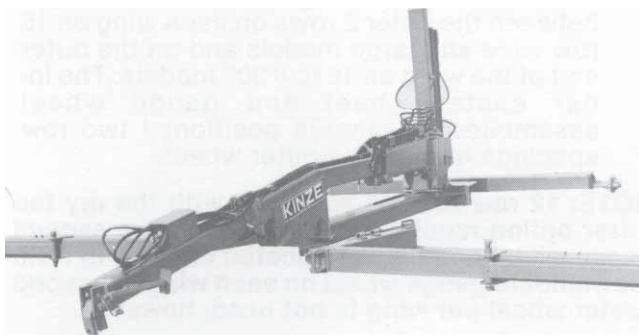
- Place the hitch assembly in an area which provides sufficient space for complete assembly. Keep in mind the access necessary in both height and width to remove the completed planter.

NOTE: To speed assembly, the wing gates, trunnion lift cylinders and hydraulic hoses have been preassembled on the hitch assembly.

WARNING: The hitch assembly may scissor apart during unloading or assembly if not secured. Always fasten a safety chain around the hitch assembly before lifting.

- Measure length of rear axle assembly and mark for center. Then locate center of mounting plate on tongue assembly.

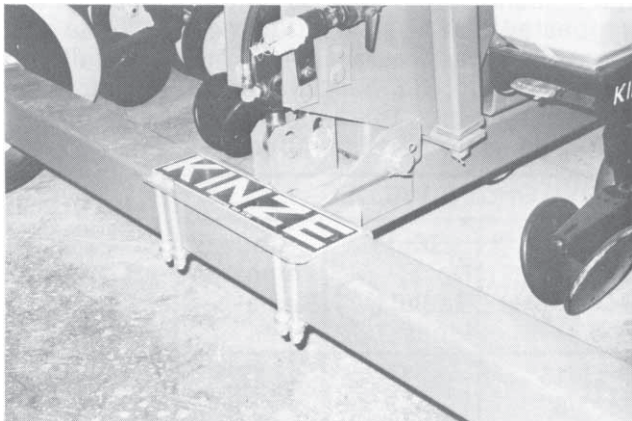
NOTE: Make sure axle assembly on single axle models is positioned so axle hubs are on the lower rear side as shown. On tandem axle models the tube for mounting the axle should be on the rear side of the walking beam.



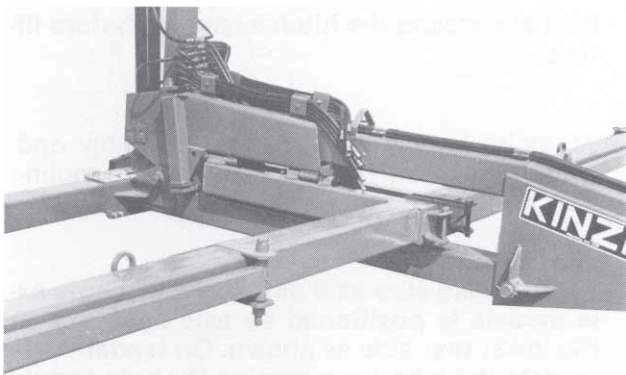
ASSEMBLY

3. Align center marks on axle assembly and mounting plate and install rear axle with four 3/4" x 9" eye bolts and four 3/4" x 9" cap screws as shown.

NOTE: The tandem axle assembly is installed in the same manner as the single axle assembly. A tandem axle is standard on the 16 row 30" thru 24 row 30" models and optional on all smaller units.



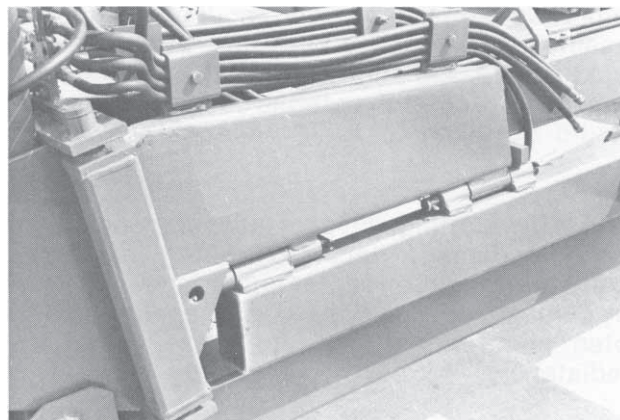
4. Lift hitch assembly and install right and left transport tires and wheels.
5. Using the lift ring near the center of the wing, lift either right or left wing assembly into position to align pivot bushings on wing and wing gate assemblies.



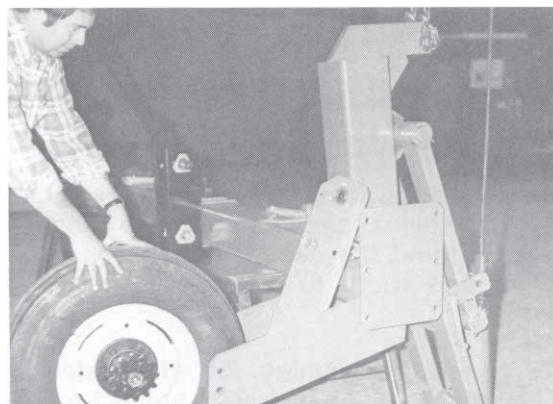
6. Install two 1 1/4" x 12 3/4" pivot pins through bushing as shown and secure with cotter pins.

CAUTION: Before unhooking hoist from lift ring, block outer end of wing. This will facilitate easier installation of spindle and gauge wheel assembly and prevent an off balance situation while the opposite wing is being installed.

7. Check clearance between wing assembly and bumper on hitch assembly. Due to the variation between wing assemblies and the hitch assembly it may be necessary to grind down additional clearance on the bumper stop.



8. Repeat steps 5 through 7 to attach opposite wing assembly.
9. Attach a clevis to the upper lift cylinder mounting hole and use hoist to lift caster wheel assembly into position.



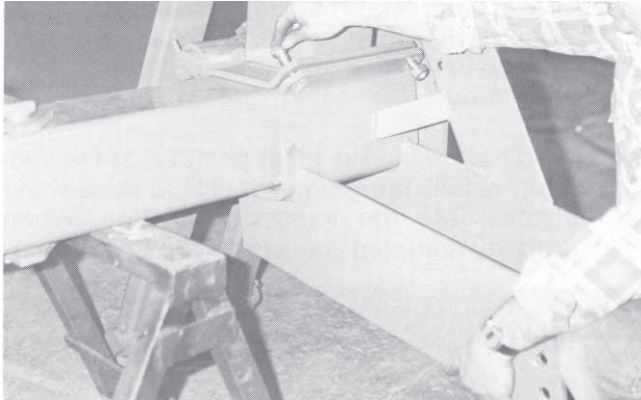
10. A single caster wheel and gauge wheel are used on each wing of the 8 row and 12 row planter. The caster wheel is positioned on the outer end of each wing.

Two additional caster wheel/gauge wheel assemblies per planter are furnished for all 16 row 30" and larger planters. The outer caster wheel and gauge wheel are centered between the outer 2 rows on each wing on 16 row wide and large models and on the outer end of the wing on 16 row 30" models. The inner caster wheel and gauge wheel assemblies are always positioned two row spacings in from the outer wheel.

NOTE: 12 row models equipped with the dry fertilizer option require the installation of a second gauge wheel and bracket located one row in from the standard gauge wheel on each wing. A second caster wheel per wing is not used, however.

ASSEMBLY

11. To install caster wheel assemblies, lift each assembly into position and align drive gauge wheel bracket on opposite side. Secure both brackets to wing with six 3/4" x 2 1/2" cap screws, lock washers, and hex nuts. On models equipped with extended wheel tower brackets or extended gauge wheel brackets, install 3/4" x 9" cap screws on each side of bracket through top and bottom brackets and secure with lock washers and nuts.



12. Assemble drive shaft bearings and flanges and install in position on each drive gauge wheel bracket with three 5/16" x 1" carriage bolts, lock washers, and hex nuts.
13. Install each drive gauge wheel and tire on hub so that the valve stem is opposite the drive sprocket pre-attached to the hub.
14. Install each drive wheel and hub in the center mounting holes of wheel brackets. It may be necessary to spread bracket slightly.

IMPORTANT: Drive sprocket must be positioned on the inboard (toward center of planter) side on left wing and toward the outboard (away from center of planter) side on the right wing.

NOTE: The drive gauge wheel and hub assembly may be mounted in either the upper or lower position if height adjustment is necessary.

15. Install chain tightener assemblies on wheel mounting brackets and place tension arm over shaft. Secure with spring pin. Then hook tension spring between tension arm and cotter pin installed in wheel bracket side plate.

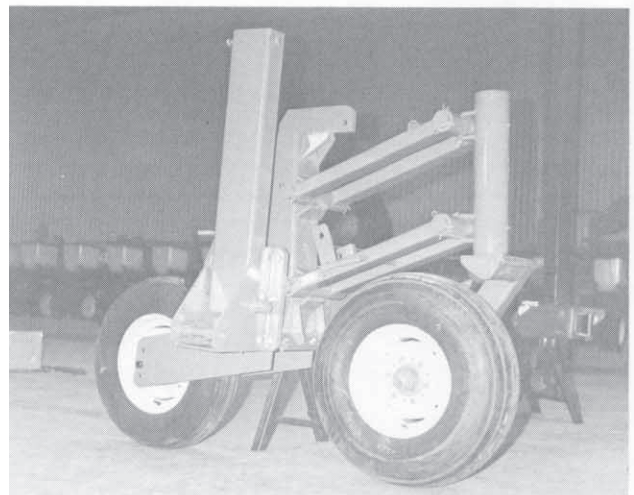
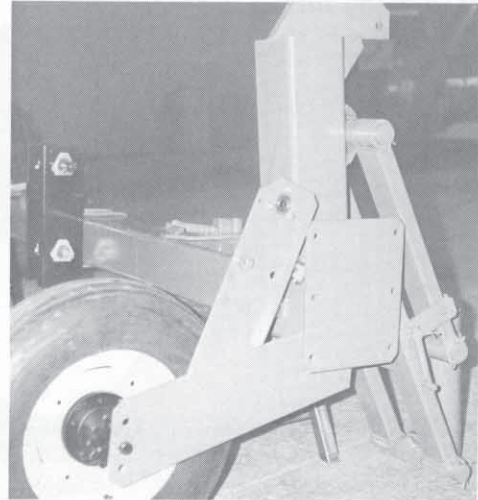
NOTE: On planters equipped with an extended drill sprocket, a different idler arm is used along with a 15 tooth idler sprocket. Refer to Parts Section for idler information.

16. Separate right and left caster wheel spindles prior to installation. When correctly installed, the wheel bracket will project rearward with the hub to the outboard side as illustrated.

CAUTION: Improper installation of the spindle assemblies will result in a wider than normal transport width.

17. Install wear ring on each spindle assembly. Insert right and left spindle assemblies into appropriate wheel tower as shown.

WARNING: Wheel tower lift arms may pivot if not secured while installing spindle.



ASSEMBLY

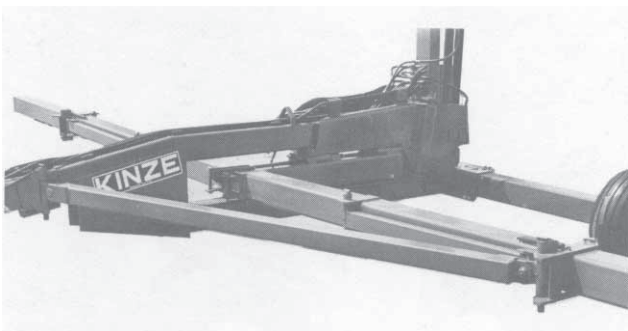
CAUTION: Make sure zerks on spindle tube are well greased during assembly. Then rotate spindle assembly to distribute the grease.

18. Install retaining ring on upper end of spindle and secure in place with 5/8" x 5 1/2" cap screw, lock washer and hex nut.
19. Mount 11L x 14" tire and wheel on each spindle hub and torque lug bolts.



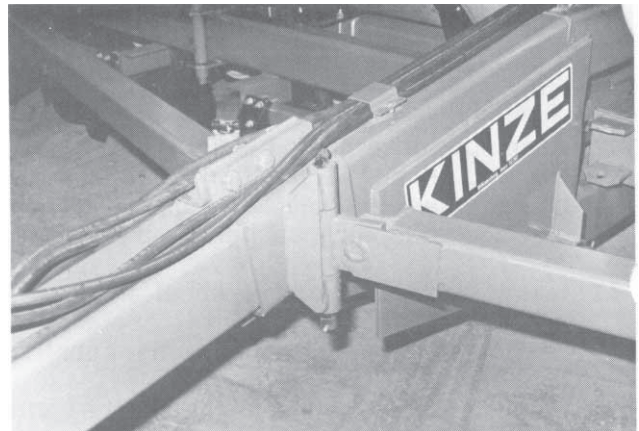
20. The wings may either be lowered to rest on the drive gauge wheels or raised to the point that the safety pins can be installed to hold the caster wheels assemblies in the raised position.
21. Attach either end of the folding link to outer end of the articulated link which is pre-installed on the wing assembly.

IMPORTANT: Make sure hinge portion of the link is nearest the wing.



22. Release latch to pivot the articulated link forward until the other end of the link can be attached to the center section.
23. Attach the inboard end of the folding link to the saddle bracket, or directly to the hitch assembly on the 8 row, 30 model.
24. The saddle bracket (used on all except the 8 row 30") is attached with six 3/4" x 3" cap screws and requires proper adjustment to avoid a wider than normal transport width or damage to the row units due to collision during folding.

To determine the ideal position of the saddle bracket, the planter must be raised and pivoted into the transport position. When properly adjusted the wings will be parallel.



ROW UNIT INSTALLATION

1. Install row units on each wing as instructed in Row Unit Manual.
2. To determine row unit locations make certain both wings are in the actual planting position and locate the center of the hitch assembly. This is 3 1/2 inch in from each side of the main frame beam.
3. From this point the first row center, using a standard 30 inch row spacing, will be located 15 inches to both the left and right side of center.
4. The row center on wide row planters will be 18 inches or 19 inches from center. (for 36 inch or 38 inch row spacings as required)
5. The rest of the row centers can be measured and marked as required for 30 inch, 36 inch or 38 inch spacings on the entire length of each wing.

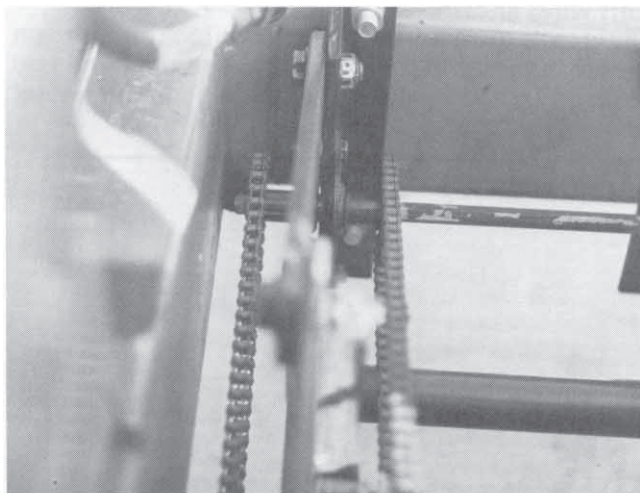
ASSEMBLY

SPECIAL CENTER ROW UNIT INSTALLATION

1. On planters using the center row unit a special 3" x 3" block must be centered and welded 1" from the bottom on the wing hinge pivot. (Special instructions for location are included with the assembly.)



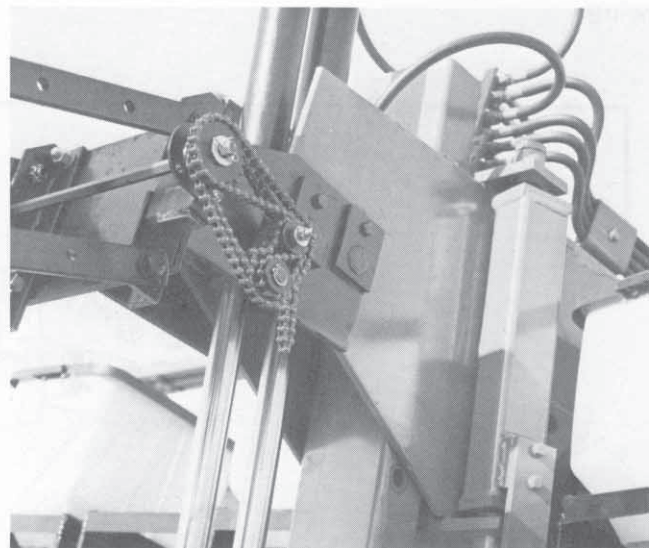
2. Using 1/2" x 1 1/4" cap screws and lock washers mount 3" x 11" bar to 3" x 3" block.
3. Bolt a bearing/sprocket extending forward on each side of bar using 3/8" x 2" cap screws, 3/8" spacer washers, lock washers and nuts.
4. Install 9/16" x 5 3/4" hex shaft through bearing sprockets and install a 1" flat washer and 3/16" x 1 1/2" cotter pin on each end.



nuts.

6. Install 214 pitch front drive chain between sprocket on inside right wing and inner most bearing/sprocket on wing gate hinge.

7. Mount row unit mounting bracket to trunion cylinder mount using pin mounts, 1/2" x 1 3/4" cap screws, lock washers and nuts.
8. The right and left hand center row unit supports can then be installed using 5/8" x 2" cap screws, lock washers and nuts.
9. Attach bearing/sprockets to left hand support using 3/8" x 1" cap screws, lock washers and nuts.
10. Using 3/8" x 5" cap screws, lock washers and nuts, attach bearing/sprocket and chain idler assembly to right hand support with channel spacer then chain idler assembly between outer edge of support bracket and bearing/sprocket.
11. Insert 9/16" x 19 3/4" hex shaft through both bearing/sprockets with 1" flat washer on outer ends of shaft. Secure each end with 1/4" x 1 1/2" cotter pins.
12. Install 158 pitch rear drive chain around outer bearing/sprocket on wing gate hinge, around idler spools and bearing/sprocket mounted on right hand row unit support.
13. Mount center row unit in same manner as other row units.
14. On center row units equipped with heavy duty coulters, special extended parallel arms are required to extend the row unit back 5 inches.



CAUTION: The rear drive chain must be removed in order to fold the planter for transport. Damage to the drive line and planter unit will result if the planter frame is folded with this chain left installed.

ASSEMBLY

TRANSMISSION AND DRIVE LINE INSTALLATION

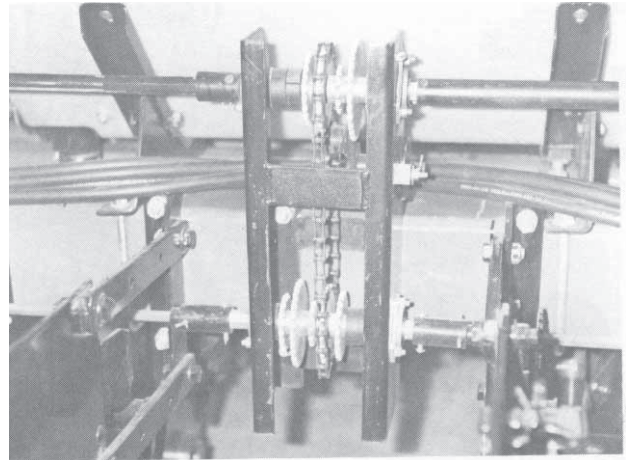
The unique folding feature of the rear folding planter requires two separate drive mechanisms. Consequently each half or wing assembly, of the planter is furnished with its own drive gauge wheel assembly (s), drive shaft, transmission and drill shaft.

| PLANTER SIZE | MOUNT TRANSMISSION BETWEEN ROWS |
|-----------------------------|---------------------------------|
| 8 Row 30" | 2 and 3 |
| 8 Row Wide | 2 and 3 |
| 12 Row 30" | 3 and 4 |
| 12 Row Wide | 3 and 4 |
| 16 Row 30" | 3 and 4 |
| 16 Row 30" w/dry fertilizer | 5 and 6 |
| 16 Row Wide | 4 and 5 |
| 18 Row 30" | 5 and 6 |
| 24 Row 30" | 6 and 7 |

NOTE: Row units are counted from the center of the planter.

The seed drive transmission is shipped pre-assembled. One transmission is mounted to the back side of each planter wing and centered between two row units as indicated below.

1. Remove plastic plugs from drive sprocket on each row unit and install 9/16" hex drill shaft through each sprocket. The lengths of the inner and outer drive shafts for each wing are listed in the parts section. Install drill shaft so drilled end of each shaft is toward the transmission.
2. Attach each transmission in specified location with two U-bolts, lock washers and 5/8" hex nuts.

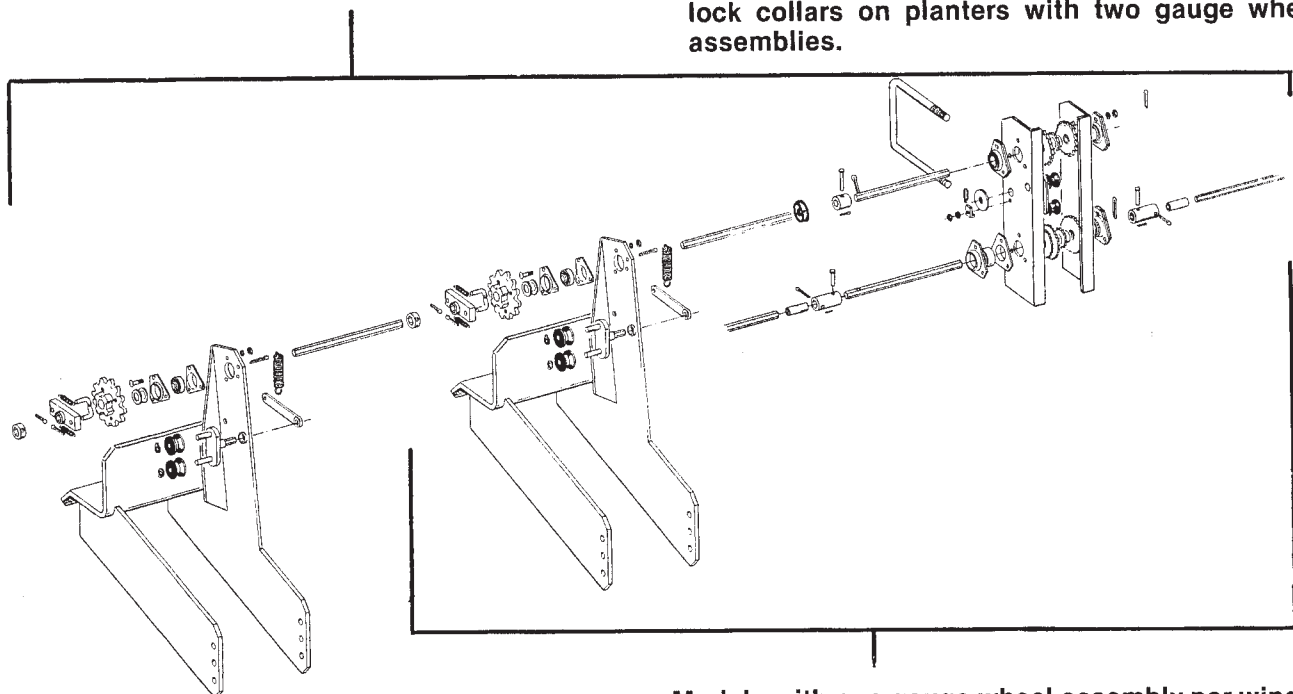


3. Attach drill shaft to transmission by aligning the holes in shaft, coupler and shaft driver and installing 3/16" x 2" cotter pin.

Models with two gauge wheel assemblies per wing.

Left wing shown.

Right wing requires only one lock collar on planters with one gauge wheel assembly and two lock collars on planters with two gauge wheel assemblies.



Models with one gauge wheel assembly per wing.

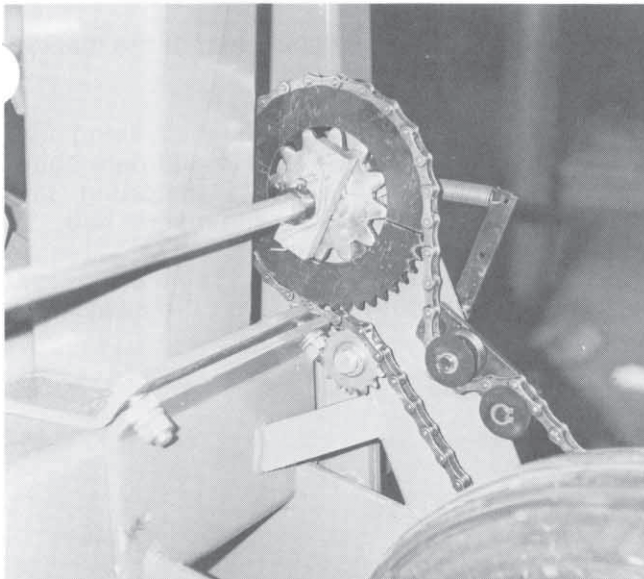
ASSEMBLY

4. Install right and left wing transmission drive shafts through bearings in drive gauge bracket. It will be necessary to slide the drive sprocket or clutch assembly and lock collars over the wing shaft before installing the shaft through the bearings.

NOTE: A ratchet clutch assembly is required on all planter models equipped with two drive gauge wheels per planter wing. A ratchet clutch or 19 tooth sprocket is used on models equipped with a single drive gauge wheel per wing.

IMPORTANT: The ratchet clutch assemblies can be assembled as right hand or left hand units. Ensure that the unit is installed properly to ratchet if the planter were moved in reverse.

5. Connect drive shafts to transmission with coupler and secure with cotter pin. Make sure alignment is correct and tighten bearing flangettes on drive gauge brackets.



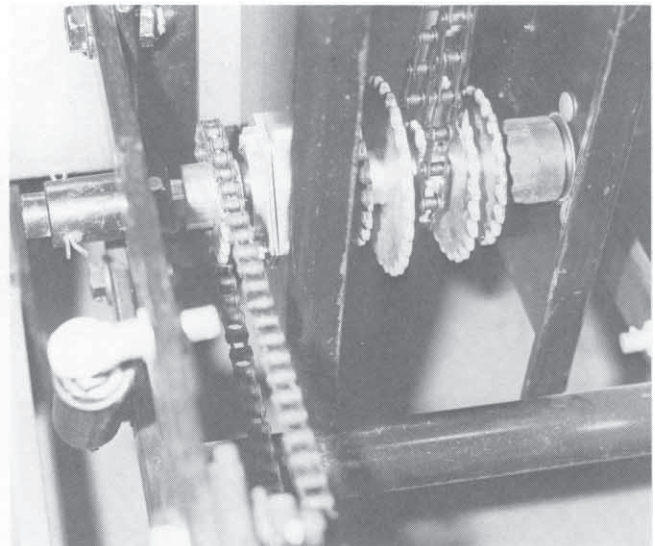
7. Install drive chains between drive wheels and sprocket/clutch assemblies. Route under and over idler rollers as shown and check for proper tension. If necessary, adjust tension of idlers as instructed in the Operation Section of this manual.

NOTE: On planters equipped with the extended drilling sprocket an additional tightener sprocket is used on the front side of the chain.

SPECIAL ROW UNIT DRIVE SPROCKET

NOTE: For narrow row applications or special uses that require additional planting units, the seed drive transmission may be straddled by an additional row unit. To properly drive the additional row unit, a special machined unit drive sprocket must be installed.

1. To install remove drill shaft coupler on lower left side of transmission.
2. The 5/16" x 1" carriage bolts holding flangettes may need to be reversed. They should be installed with the heads on outside of transmission.
3. Install the 19 tooth sprocket with long side of hub facing outside.
4. Reinstall drive shaft coupler.



ASSEMBLY

MARKER ASSEMBLY INSTALLATION

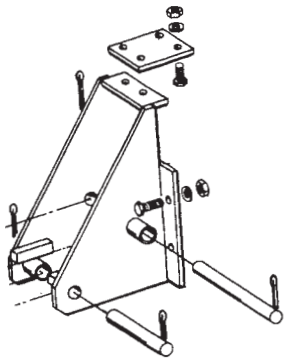
Depending upon the size of the rear folding planter, the marker assemblies will be either a double or triple folding low-profile design. Refer to the model configuration and instructions which follow for marker installation.

Double Folding Low Profile Marker Assembly

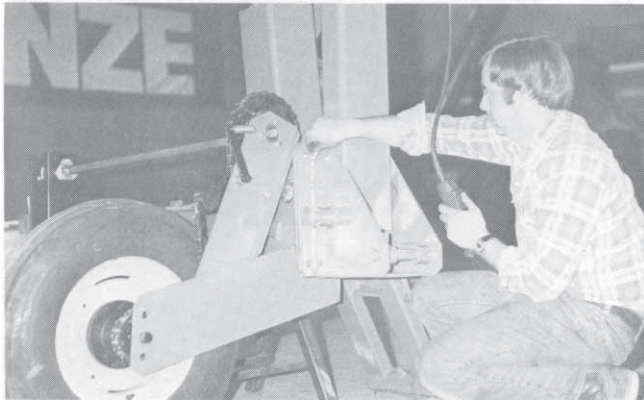
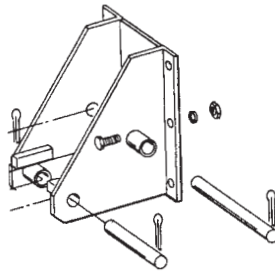
1. Install pre-assembled first stage to mounting pad on each wing with grade two 5/8" cap screws, lock washers and hex nuts.

NOTE: On style 1 marker assembly mounts an additional plate and mounting hardware is required.

Style 1



Style 2



2. Attach second stage of marker to first stage with 1 1/4" x 1 3/4" pivot pin and cotter pins.
3. Slide marker extension tube into second stage assembly and secure in place by installing and tightening two 1/2" x 3 1/2" cap screws, lock washers and hex nuts. Final position of the extension tube must be set by the operator. Refer to the Operation Section of this manual.

4. Attach hub and spindle assembly to the lower side of the extension tube with 1/2" x 3 1/2" cap screws and hardware.

NOTE: The marker hub is designed for either right or left hand installation. Make sure the spindle is mounted to angle the disk forward for normal operation. The spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt.



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

5. 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.

ASSEMBLY

Triple Folding Low Profile Marker Assembly

1. Slide first stage or mounting bracket into position over the end of each wing assembly and secure in place with six 3/4" x 9" cap screws, lock washers and hex nuts.

NOTE: It is not important to determine either right or left sides as all marker components are interchangeable from side to side with the exception of the spindle assembly and gauge wheel bracket.

2. Attach second stage section to first stage with 2 1/8" x 15 1/2" pivot pin and cotter pins.



3. Attach third stage to second stage with 1 1/4" x 14" pivot pin and cotter pins.
4. Slide marker extension tube into third stage assembly and secure in place by installing and tightening two 1/2" x 3 1/2" cap screws, lock washers and hex nuts. Final position of the extension tube must be set by the operator. Refer to the Operation Section of this manual.



5. Attach hub and spindle assembly to the lower side of the extension tube with two 1/2" x 3 1/2" cap screws and hardware.

NOTE: The marker hub is designed for either right or left hand installation. Make sure the spindle is mounted to angle the disk forward for normal operation. The spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt.

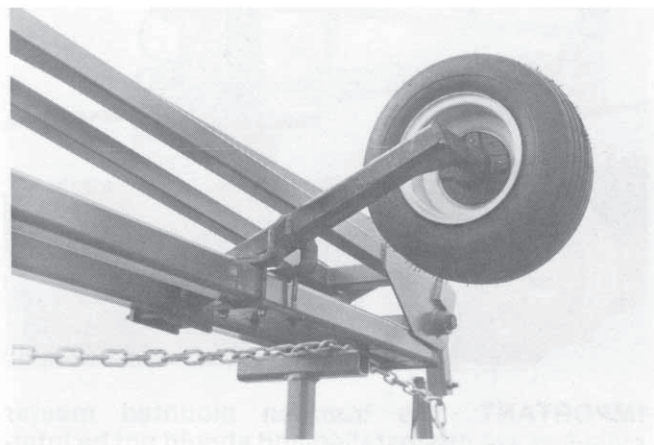
WARNING: Always stand clear of the marker assemblies when in operation.

6. 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.



7. Attach marker gauge wheel mounting bracket to front side of second stage with eight 3/8" x 4" cap screws, lock washers and hex nuts.



Although the bracket is normally positioned near the hinge point of the second and third stage, it can be positioned to match row centers as required.

ASSEMBLY

IMPORTANT: The gauge wheel brackets are furnished in left and right configurations. When installed the wheel should project toward the outer end of the wing.

8. Install chain adjustment bracket and chain with four 1/2" x 3 1/2" cap screws, lock washers and hex nuts. Adjustment bracket is mounted to the first stage section of the marker assembly.
9. Attach marker support stand to each wing assembly with 7" U-bolt, lock washers and hex nuts.
10. Chain linkage adjustment for folding the 3rd stage of the markers is critical. Adjust chain with the 2nd stage of the marker in the vertical position and the 1st stage in the horizontal position. Chain must be adjusted so the 3rd stage of the marker is pulled out as soon as the 2nd stage begins outward travel. The chain will stretch and need to be readjusted with usage. It may be necessary to twist the chain for a finer adjustment.

HYDRAULIC SYSTEM ASSEMBLY

The hydraulic system used on all rear folding planters consists of the planter lift system and a separate system for the low profile marker assemblies.

The planter lift system consists of two trunnion mounted master cylinders and either two or four individually mounted 4" x 10" slave cylinders. Those models which use two slave cylinders are equipped with two 2 1/2" x 50 3/16" master cylinders, while large planter bar models which are equipped with four slave cylinders utilize two 3" x 50 5/16" trunnion master cylinders.



IMPORTANT: The trunnion mounted master cylinders are pre-installed and should not be interchanged with or replaced by an incorrectly sized cylinder.

The planter hitch assembly is shipped with all hydraulic hoses and fittings installed. Each hitch will be preassembled for either a two-valve or three-valve hydraulic system.

For a two-valve system, the planter hitch will be furnished with four hoses at the tractor end. Two hoses will be used to operate the separate planter lift system. The second set of hoses is used in conjunction with an electric solenoid selector valve to operate the individual gauge markers. The solenoid valve is preassembled on the planter hitch, while the tractor mounted operator switch for the marker solenoid valve is furnished in the planter electrical kit.

For a three-valve hydraulic system, the hitch will be preassembled with six hoses at the tractor end. The planter lift system and each marker will connect to a separate hydraulic outlet on the tractor. The electric solenoid selector valve is not required with three-valve hydraulic systems.

In addition to the pre-installed hoses and fittings, each planter is shipped with a separate hydraulic hose kit. This kit contains the proper hoses for the planter transport wheel cylinders and gauge marker assemblies. An additional hydraulic fittings kit is furnished to make the necessary hose connections.

Select the appropriate diagram in parts section of this manual for the size planter being assembled.

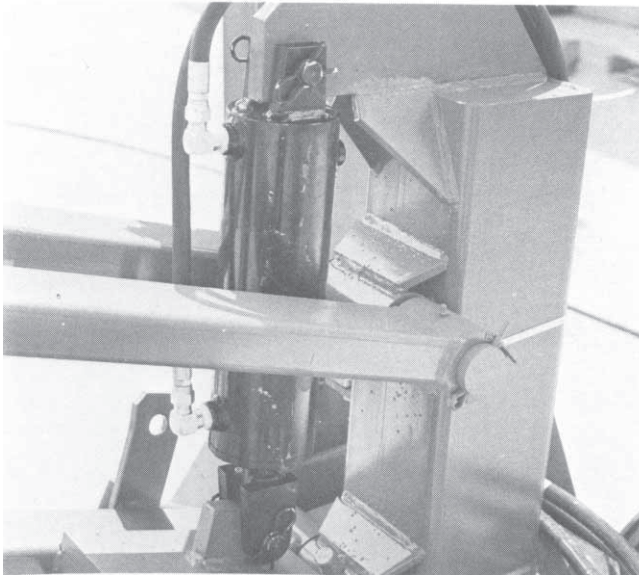
IMPORTANT: Make certain diagram specifies "dual" or "triple" valve outlets and "single" "double" transport wheel cylinders as required.

ASSEMBLY

Slave Cylinder Installation and Connection

1. Remove plastic shipping plugs from the ports in each slave cylinder and install 90° elbows.
2. Attach 44" hose to base end of each cylinder and 56" hose to shaft end of each cylinder.
3. Refer to hydraulic diagrams in parts section for appropriate model to attach slave cylinders, couplings and hoses to master cylinder via junction box.

NOTE: To purge air from the hydraulic hoses, lower the planter to the planting position and hold the tractor hydraulic control lever in that position until the cylinders are fully retracted. Tractor reservoir should be sufficiently full of hydraulic fluid.



Marker Cylinder Installation And Connection

1. Install 90° elbow in each port of marker hydraulic cylinder.
2. Attach base end of cylinder to marker mounting bracket or first stage. Then turn elbow fittings, if necessary, to project toward the center of the cylinder.
3. Attach 36" hose to each fitting on marker cylinders.



4. Refer to appropriate hydraulic diagram in part section to attach remaining hoses and connect marker cylinders to junction box on planter bar hitch assembly.
5. Secure all hydraulic hoses to planter wings with nylon tie straps.

WARNING: Always stand clear of marker assembly and blade when in operation.

CAUTION: Before the marker assembly is first put into use, 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. Then open each valve approximately 1/2 turn. After the marker has been cycled several times, final adjustments can be made.

Before operating the marker assemblies, first connect all hydraulic hoses and cycle the cylinder several times with the ram end disconnected to purge air from the system. After the cylinders are operating smoothly, attach the ram end clevis to the marker arm.

ASSEMBLY

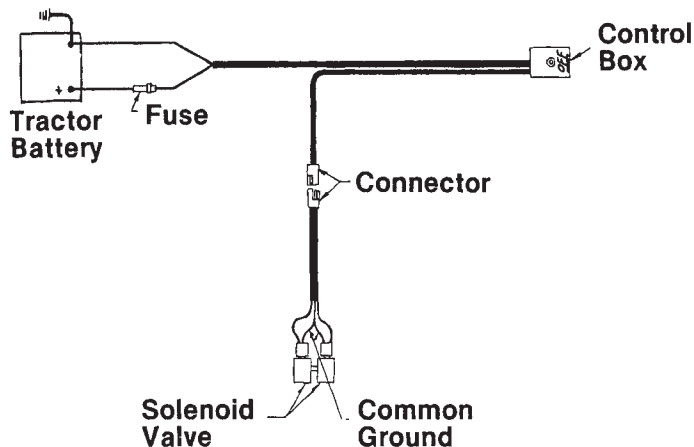
ELECTRICAL SYSTEM CONNECTION

All planters equipped for dual valve outlets will require the installation of a TWO VALVE electrical system.

NOTE: Planters equipped with triple valve outlets do not require an electrical harness.

1. Install the electrical harness with the fuse lead connected to the positive side of the battery. On tractors having two 6-volt batteries, make certain a 12 volt connection is made.
2. Attach the white ground wire to the negative side of the battery only.
3. Once the fuse lead and ground have been connected, place the marker control switch in the center of "off" position.
4. Each coil on the solenoid is equipped with two wires. The "hot" lead on the electrical harness for the "left" marker can be connected to either lead on the left solenoid coil. Connect the "right" side in the same manner.
5. The second wire on each solenoid coil is attached to the same "common" white ground wire on the electrical harness.
6. To test the electrical system, turn control box switch for the markers to the "left" position. With the switch in the "left" position, that side of the solenoid will "click" open. The left coil will be magnetized when energized. Poor magnetic attraction would indicate low voltage.

NOTE: Control switch must then be switched to center or opposite position to raise marker.

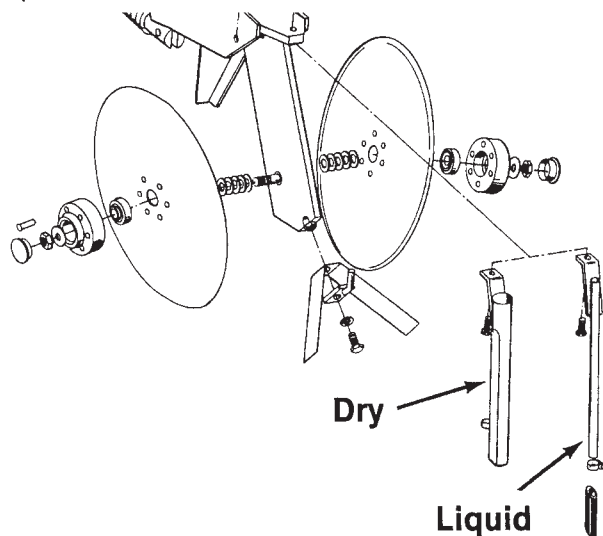


ASSEMBLY

DRY AND LIQUID FERTILIZER ATTACHMENT

Double Disk Openers

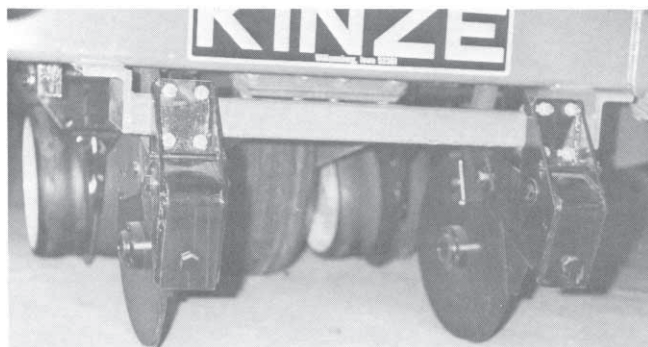
Both the liquid and dry fertilizer attachments use the same 15" double disk openers. Attach drop tubes to each opener by positioning the bottom of the tube on the drop tube retainer and attaching the top of the tube with one 5/16" x 1 1/2" cap screw and locknut.



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

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

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



CAUTION: Opener assemblies must be located so they will clear caster wheel tire at all times.

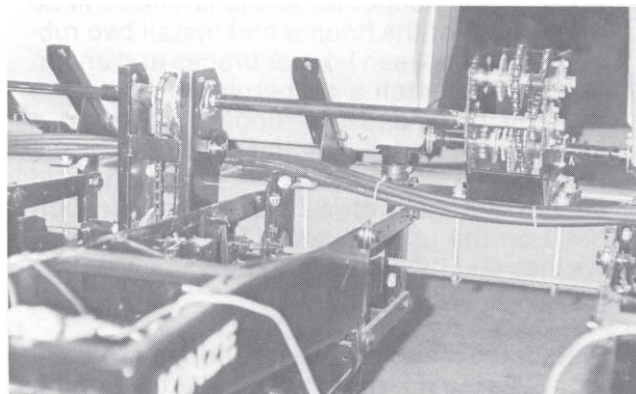
Dry Fertilizer Attachment

Transmission and Drive

1. Mount fertilizer transmission to each wing using U-bolts, lock washers and nuts. Do not tighten mounting bolts at this time.
2. Install coupler between row unit transmission and fertilizer transmission.

NOTE: The fertilizer transmission is located on the inner side of the row unit transmission and between fertilizer hoppers. On 16R30 models with dry fertilizer, the row unit transmission is located between rows 5 and 6 rather than the regular location between rows 3 and 4.

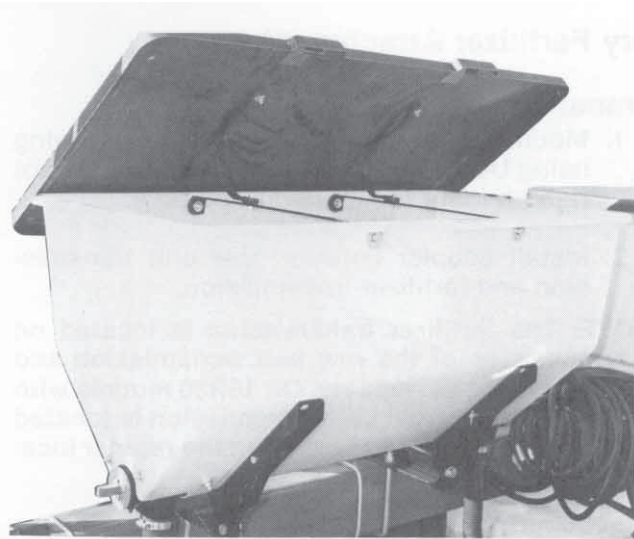
3. Secure coupler with clevis pins and cotter pins.



Hopper Installation

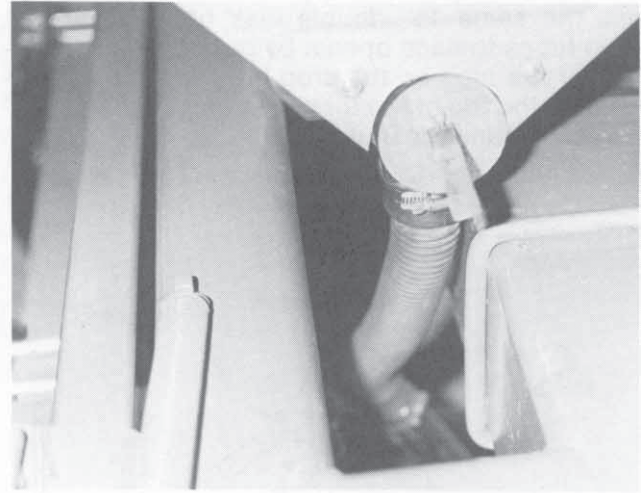
1. Install the hopper mounting brackets on the planter so hoppers will be centered over every two rows. Do not tighten attachment bolts at this time.
2. Remove the cotter pin and flat washer from one end of the fertilizer shaft and slide the entire assembly through the outlet housing into the hopper. Secure in place by reinstalling the washer and cotter pin. Check rotation to make sure the auger springs will carry fertilizer to the outer ends of the hopper when in operation. If rotation is wrong, remove the auger assembly, turn it 180° and reinstall. Be certain auger turns freely.
3. Install auger shields over augers and secure in place with two hair pin clips on each.
4. Install two hopper braces in hopper with bolts provided. Each brace is drilled for installation of a rubber lid strap. Make sure this hole is closest to the front of the hopper. Place one of the rubber washers between each end of the brace and the inside surface of the hopper. Attaching bolts should be installed with the head to the outside of the hopper and a flat washer between the head and the outside hopper surface.

ASSEMBLY



5. Position the hopper lid so the latches will be to the front of the hopper and install two rubber straps between hopper braces and underside of lid. Install a rubber washer between the bolt head and the rubber strap...and a lock washer and nut on the underside of the braces. The bolt holding the strap to the lid should have a flat washer under the bolt head on the lid top...and a flat washer, lock washer and hex nut next to the strap on the bottom side of the lid.
6. Install the hoppers on the hopper mounts with the round hole in the saddle toward the front. Attach the front side of the hopper to the mount with two 7/16" x 3" clevis pins and cotter pins.
7. Install coupler/drive shafts beginning at the transmission and working outward toward each end. Slide the square end of the coupler over the auger shaft so that at least 3/4" of the shaft extends into the coupler. Attach opposite end of the coupler/drive shaft with 3/16" cotter pin. Four holes in the auger shaft allows for 1 1/2" or 3" to extend beyond the end of the hopper. In most installations the short end is toward the transmission. Make sure all coupler/drive shafts are installed with the cotter pin nearest the transmission.
8. Once the coupler/drive shafts have been connected, bolt the rear of the hopper saddle to the hopper support with two 1/2" x 1 1/4" cap screws.
9. Align all hoppers and the transmission both horizontally and vertically and tighten all mounting bolts. Slots in the transmission and mounting bracket allow for up and down and forward and backward adjustment.

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



ASSEMBLY

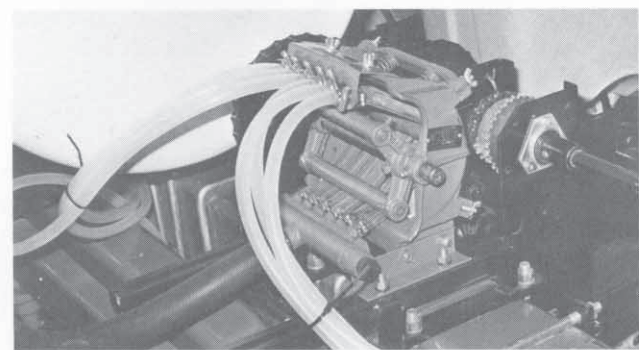
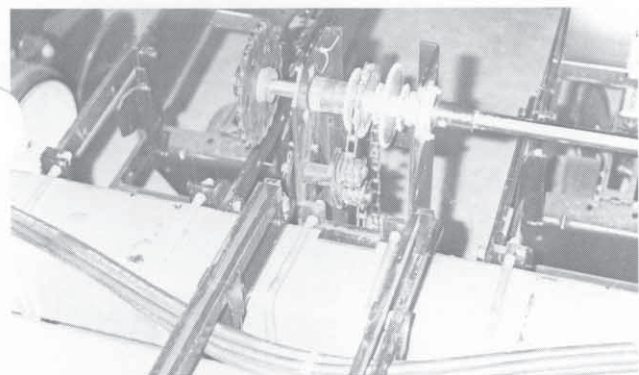
Liquid Fertilizer Attachment

Squeeze Pump and Drive Installation

1. Install squeeze pump mounting brackets on each wing assembly using 7" x 7" U-bolts, lock washers and nuts. See picture for proper location.
2. Mount squeeze pump to brackets with four 7/16" x 2" cap screws, flat washers, lock washers and nuts. Do not tighten at this time.

NOTE: Squeeze pump shaft must be turned around on pump mounted on left wing. Squeeze pump shaft must project toward center of planter.

3. Install squeeze pump sprocket adapter, selected drive sprocket and sprocket retainer on squeeze pump.
4. Replace top shaft in row unit transmission with shaft supplied in kit. Round end of shaft should project toward center of planter.



5. Install squeeze pump sprocket adapter, selected drive sprocket and sprocket retainer on round end of transmission shaft.
6. Install 51 link drive chain between squeeze pump drive and driven sprockets.
7. Slide squeeze pump forward to obtain approximately 1/4" deflection on the drive chain. Tighten mounting hardware.

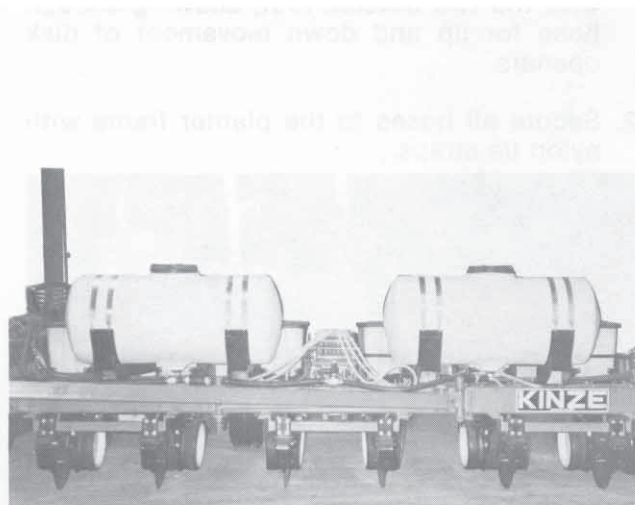
Tank and Hose Installation

1. Attach two tank saddle brackets for each tank on planter with 5/8" U-bolts.
2. Install outlet elbow in bottom of each tank.
3. Install tanks with tank pads on tank saddles with bands, J-Bolts, lock washers and hex nuts.

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

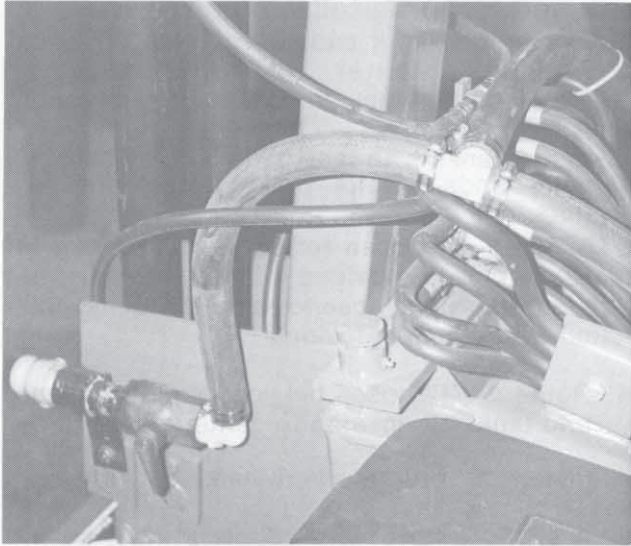
4. Route 1 1/4" hoses between squeeze pump and tanks along wing to center of planter.
5. Install "T" fittings where needed.
6. A shut-off valve with adapters must be installed between each tank and squeeze pump.

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

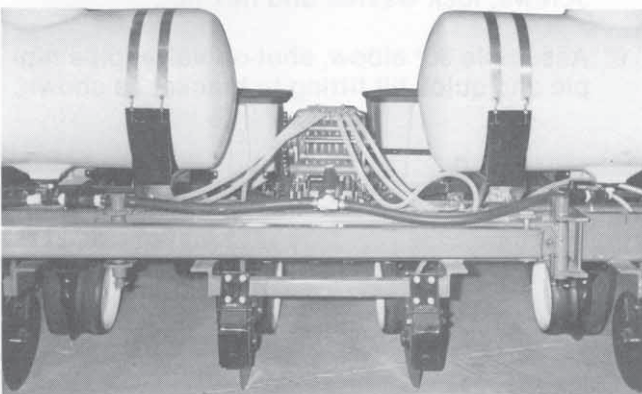
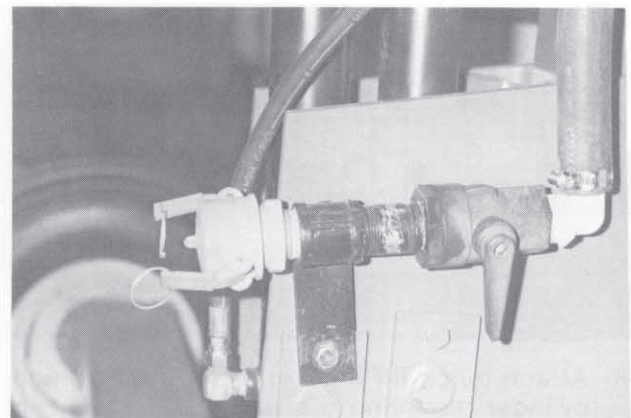


9. Assemble 90° elbow, shut-off valve, pipe nipple and quick fill fitting to bracket as shown.

ASSEMBLY



10. Connect 1 1/4" hose to squeeze pump intake manifold. Install rubber plugs in unused manifold inlets.
11. Connect fertilizer hoses between squeeze pump outlet manifold and double disk openers. The plastic hose comes in a roll and must be cut to length for each row. Begin with the two outside first, allowing enough hose for up and down movement of disk openers.
12. Secure all hoses to the planter frame with nylon tie straps.



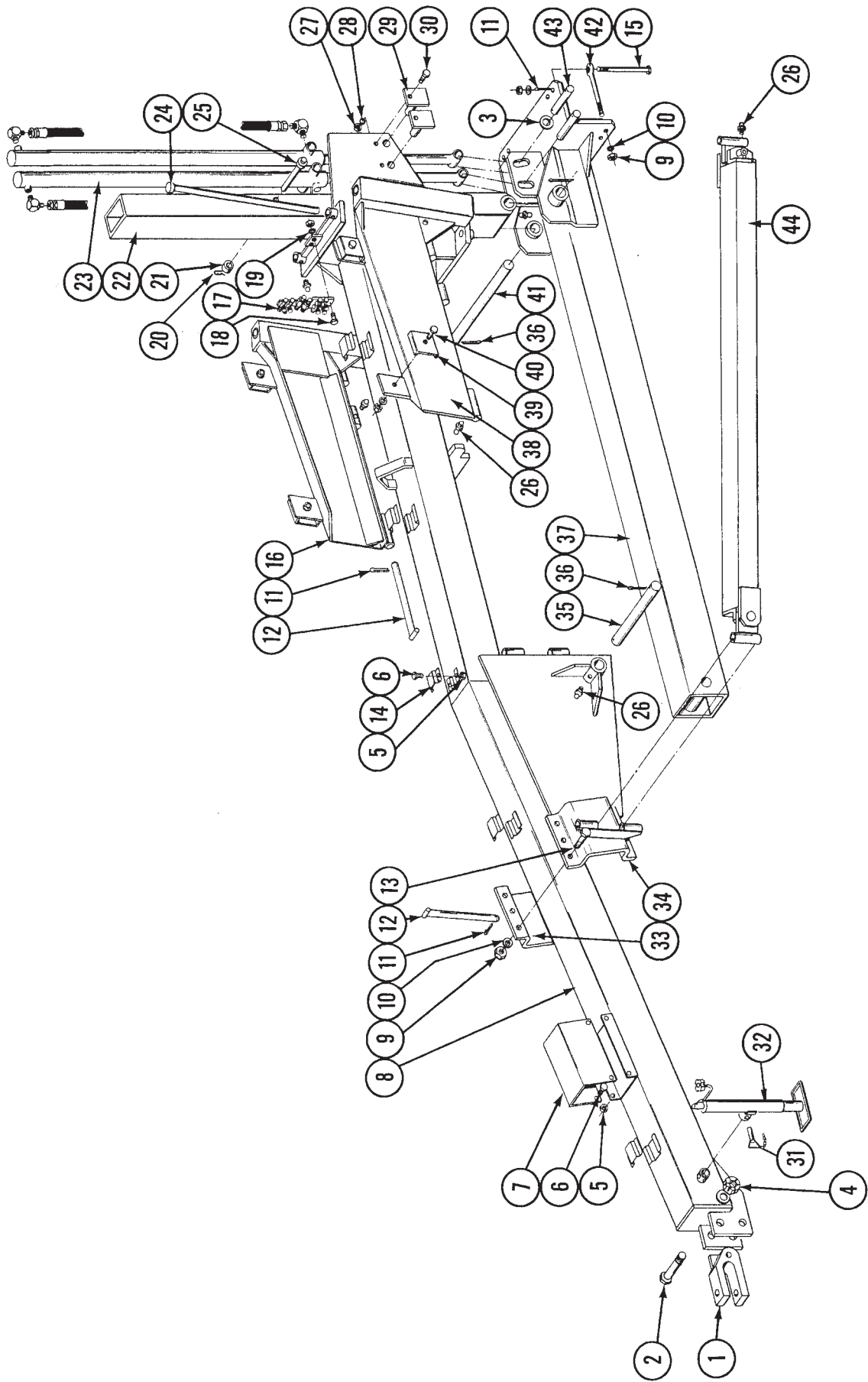
MAKE A FINAL INSPECTION OF THE ASSEMBLED PLANTER

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

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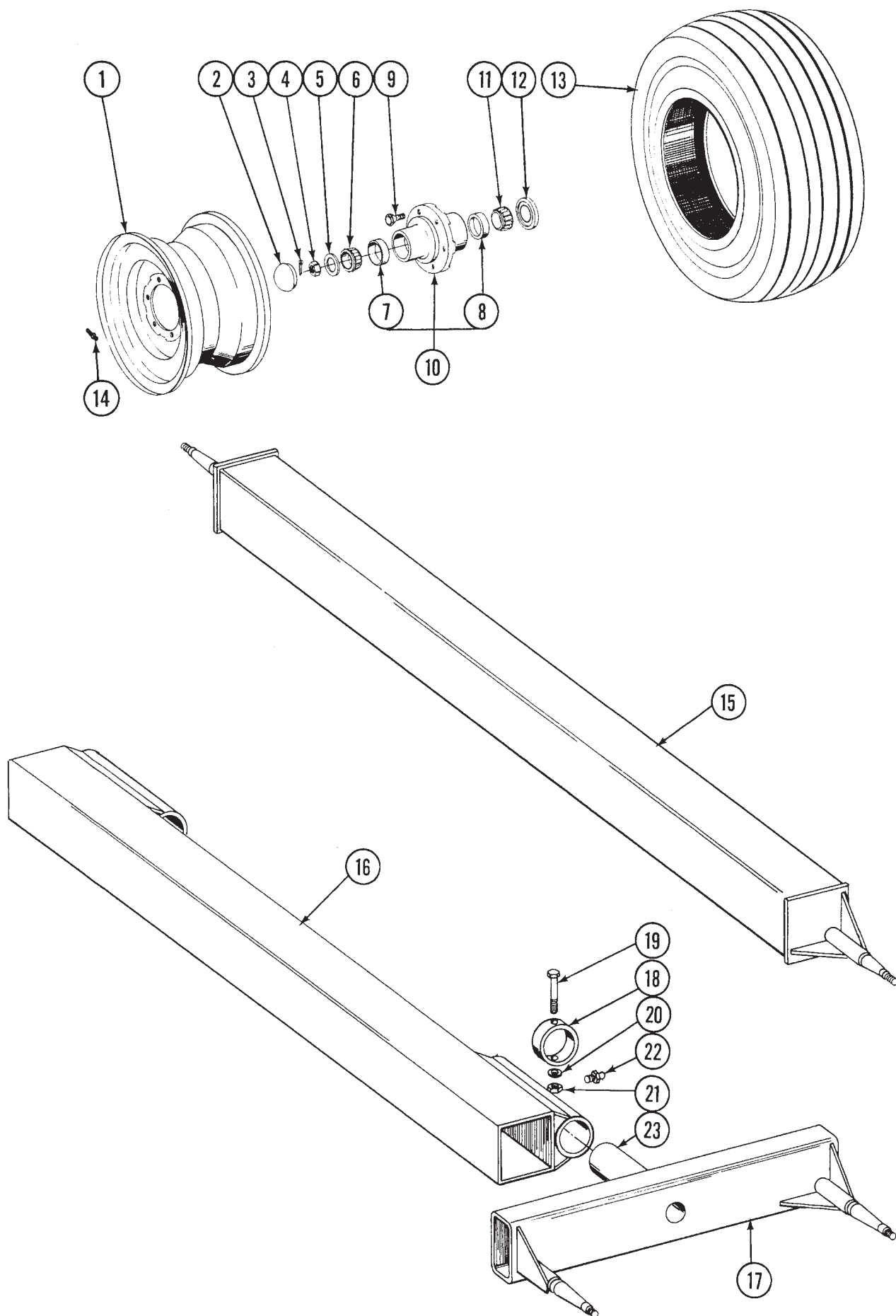
HITCH ASSEMBLY



HITCH ASSEMBLY

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | B156 | Clevis, Double |
| | D558 | Clevis, Single (Optional) |
| 2. | 10169 | HHCS, 1 1/4" x 6" |
| 3. | 10139 | Flat Washer, 1 1/4" USS |
| 4. | 10157 | Lock Nut, 1 1/4" - 7 |
| 5. | 10101 | Hex Nut, 3/8" - 16 |
| 6. | 10002 | HHCS, 3/8" - 16 x 3/4" |
| 7. | D793 | Lid, Valve |
| 8. | A1889 | Center Section, Upper, 8R30 |
| | A1890 | Center Section, Upper, 8R Wide thru 12R Wide |
| | A1891 | Center Section, Upper, 16R30 w/std. or extended wing |
| | A1892 | Center Section, Upper, 16R Wide, 18R30, 24R30 |
| 9. | 10105 | Hex Nut, 3/4" - 10 |
| 10. | 10231 | Lock Washer, 3/4" |
| 11. | 10460 | Cotter Pin, 1/4" x 2" |
| 12. | A135 | Pin, Folding Link, 1 1/4" x 12 3/4" |
| 13. | 10028 | HHCS, 3/4" - 10 x 3" |
| 14. | D786 | Clamp, Hose |
| 15. | 10030 | HHCS, 3/4" - 10 x 9" |
| 16. | A1652 | Hinge, Wing, R.H. |
| 17. | A186 | Junction Block |
| 18. | 10003 | HHCS, 3/8" - 16 x 1 1/2" |
| 19. | 10229 | Lock Washer, 3/8" |
| 20. | D2558 | Pin, Lynch, 1/4" |
| 21. | D526-1 | Sleeve |
| 22. | A116 | Brace, Vertical Stabilizer |
| 23. | A230 | Cylinder, Trunion, 2 1/2" x 50 3/16", 8R30 thru 12R Wide |
| | A231 | Cylinder, Trunion, 3" x 50 5/16", 16R30 thru 24R30 |
| 24. | A113 | Pin, Vertical Pivot, 1 1/4" x 27" |
| 25. | A112 | Pin, Safety |
| 26. | 10641 | Fitting, Grease, 1/8" NPT |
| 27. | 10102 | Hex Nut, 1/2" - 13 |
| 28. | 10228 | Lock Washer, 1/2" |
| 29. | A115 | Pin, Cylinder |
| 30. | 10017 | HHCS, 1/2" - 13 x 1 1/2" |
| 31. | R255 | Repair Kit (Chain and Pin)(For 4100-1A) |
| | R765 | Repair Kit, Pin (For 4100-1B) |
| 32. | 4100-1A | Jack (Shown) |
| | 4100-1B | Jack |
| 33. | A148R | Clamp, Saddle, R.H., 8R Wide, 12R and 16R Models and 24R30 |
| 34. | A148L | Clamp, Saddle, L.H., 8R Wide, 12R and 16R Models and 24R30 |
| 35. | D551 | Pin, Axle Pivot, 2 1/8" x 16 1/8" |
| 36. | 10461 | Cotter Pin, 3/8" x 3" |
| 37. | A1918 | Center Section, Lower, 8R30 thru 16R30 |
| | A1919 | Center Section, Lower, 16R Wide thru 24R30 |
| 38. | A1653 | Hinge, Wing, L.H. |
| 39. | D740 | Clamp, Hose |
| 40. | 10053 | HHCS, 1/2" - 13 x 2 1/2" |
| 41. | D536 | Pin, Stabilizer Brace, 2 1/8" x 13 5/8" |
| 42. | D830 | Eye Bolt, 3/4" - 10 x 9" |
| 43. | D535 | Pin, Cylinder |
| 44. | A147-1 | Link Assembly, Front Folding, 80 1/2", 8R Models w/std. Wing |
| | A147-2 | Link Assembly, Front Folding, 113", 12R30 thru 16R30 and 18R30 w/std. Wing |
| | A147-3 | Link Assembly, Front Folding, 139", 16R Wide and 24R30, Braced Models |
| | A147-4 | Link Assembly, Front Folding, 114 1/2", Extended Wing Models |

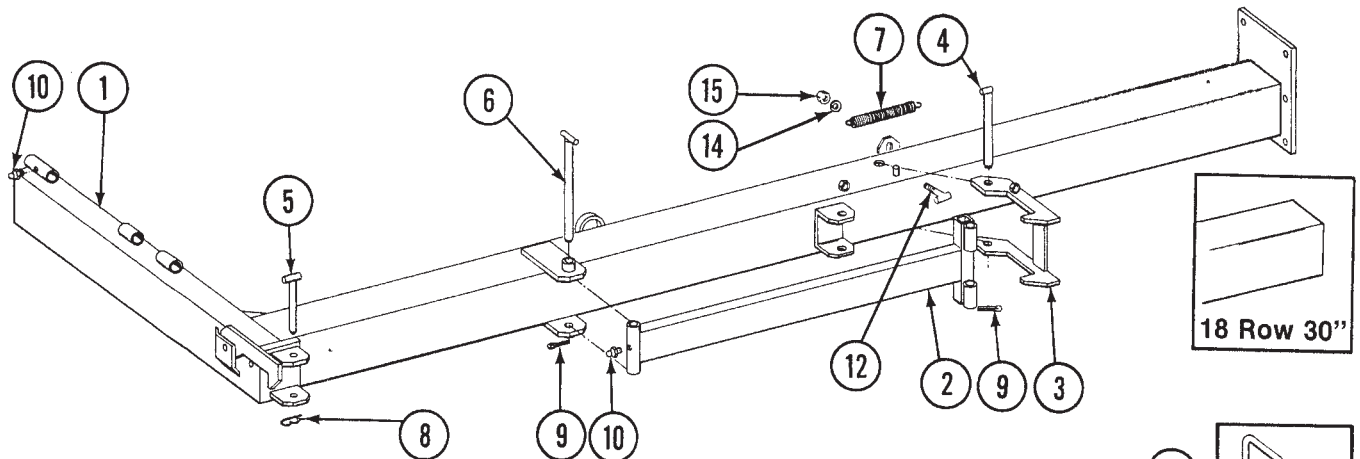
STANDARD/TANDEM AXLE ASSEMBLY



STANDARD/TANDEM AXLE ASSEMBLY

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | A240 | Wheel, 14" x 8", 6 Bolt |
| 2. | 2800-1 | Hub Cap |
| 3. | 10459 | Cotter Pin, 3/16" x 1 1/2" |
| 4. | 10723 | Slotted Hex Nut, 3/4" - 16 |
| 5. | 10224 | Spindle Washer, 3/4" |
| 6. | A237 | Bearing Outer |
| 7. | R188 | Cup, Outer |
| 8. | R189 | Cup, Inner |
| 9. | R270 | Hub Bolt, 9/16" - 18 x 1" |
| 10. | 2700-7 | Hub, 6 Bolt, w/cups |
| 11. | A238 | Bearing, Inner |
| 12. | A239 | Grease Seal |
| 13. | D839 | Tire, 11L x 14" |
| 14. | D1165 | Valve Stem |
| 15. | A902 | Single Axle w/Spindle less Hubs, 106", 30" Rows, 8R - 12 R |
| | A903 | Single Axle w/Spindle less Hubs, 121", 30" Rows w/interplant, 8R - 12R |
| | A904 | Single Axle w/Spindle less Hubs, 112", 36" rows w/Interplant 8R-12R |
| | A905 | Single Axle w/Spindle less Hubs, 119", 38" Rows w/Interplant 8R-12R |
| | A906 | Single Axle w/Spindle less Hubs, 138", All Standard Wide Rows, 8R-12R |
| 16. | A124-1 | Tandem Axle Tube, 96", 30" Rows, 16R-24R |
| | A125 | Tandem Axle Tube, 128", All Wide Row Models, 16R-24R |
| 17. | A1286 | Walking Beam w/Spindles less Hubs |
| 18. | D575 | Cap |
| 19. | 10011 | HHCS, 5/8" - 11 x 5 1/2" |
| 20. | 10230 | Lockwasher, 5/8" |
| 21. | 10104 | Hex Nut, 5/8" |
| 22. | 10641 | Grease Fitting |
| 23. | D1819-2 | Sleeve |
| A. | A541 | Tire and Rim Assembly (Items 1, 13 and 14) |

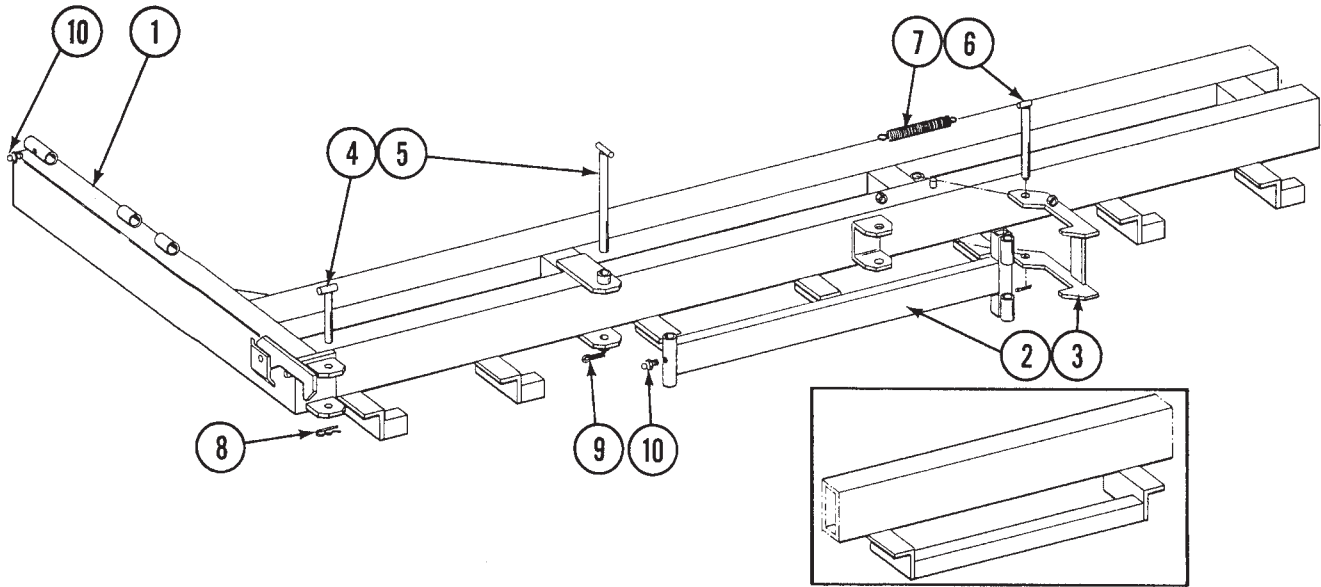
STANDARD WING ASSEMBLY - 8R30 THRU 16R30 & 18R30



| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A1932 | Wing, R.H., 8R30, 123", Uses 47 1/2" Art. Link |
| | A1933 | Wing, L.H., 8R30, 123", Uses 47 1/2" Art. Link |
| | A1934 | Wing, R.H., 8R36, 147", Uses 47 1/2" Art. Link |
| | A3064 | Wing, R.H., 8R36, 147", Uses 58 1/2" Art. Link |
| | A1935 | Wing, L.H., 8R36, 147", Uses 47 1/2" Art. Link |
| | A3063 | Wing, L.H., 8R36, 147", Uses 58 1/2" Art. Link |
| | A1937 | Wing, L.H., 8R38, 155", Uses 47 1/2" Art. Link |
| | A3062 | Wing, L.H. 8R38, 155", Uses 58 1/2" Art. Link |
| | A1936 | Wing, R.H., 8R38, 155", Uses 47 1/2" Art. Link |
| | A3061 | Wing, R.H., 8R38, 155", Uses 58 1/2" Art. Link |
| | A1938 | Wing, R.H., 12R30, 183", Uses 58 1/2" Art. Link |
| | A1939 | Wing, L.H., 12R30, 183", Uses 58 1/2" Art. Link |
| | A1940 | Wing, R.H., 12R36, 219", Uses 58 1/2" Art. Link |
| | A1941 | Wing, L.H., 12R36, 219", Uses 58 1/2" Art. Link |
| | A1942 | Wing, R.H., 12R38, 231", Uses 58 1/2" Art. Link |
| | A1943 | Wing, L.H., 12R38, 231", Uses 58 1/2" Art. Link |
| | A1994 | Wing, R.H., 16R20, 183", Uses 58 1/2" Art. Link |
| | A1993 | Wing, L.H., 16R20, 183", Uses 58 1/2" Art. Link |
| | A1944 | Wing, R.H., 16R30, 243", Uses 58 1/2" Art. Link |
| | A1945 | Wing, L.H., 16R30, 243", Uses 58 1/2" Art. Link |
| 2. | A133-10R | Wing, R.H., 18R30, 270", Uses 68 1/2" Art. Link |
| | A133-10L | Wing, L.H., 18R30, 270", Uses 68 1/2" Art. Link |
| | A149-1L | Link, Articulated, 47 1/2" |
| | A149-1R | Link, Articulated, 47 1/2" |
| 3. | A149-2L | Link, Articulated, 58 1/2" |
| | A149-2R | Link, Articulated, 58 1/2" |
| | A149-4L | Link, Articulated, 68 1/2" |
| | A149-4R | Link, Articulated, 68 1/2" |
| 4. | A137L | Latch, Outer, L.H., 8R30, 8R38, 12R30, 12R38, 16R30 and 18R30 |
| | A137R | Latch, Outer, R.H., 8R30, 8R38, 12R30, 12R38, 16R30 and 18R30 |
| | A145L | Latch, Outer, L.H., 8R36, 12R36 and 16R20 |
| 5. | A145R | Latch, Outer, R.H., 8R36, 12R36 and 16R20 |
| | A136 | Pin, Pivot, 1 1/4" x 9", Use with A137L and R |
| 6. | A144 | Pin, Pivot, 1 1/16" x 9", Use with A145L and R |
| | A166 | Pin, Safety, 7/8" x 7" |
| 7. | A135 | Pin, Pivot, 1 1/4" x 12 3/4" |
| 8. | D829 | Spring |
| 9. | 10671 | Hair Pin Clip, No. 6 |
| 10. | 10460 | Cotter Pin, 1/4" x 2" |
| 11. | 10641 | Fitting, Grease, 1/8" NPT |
| 12. | A945 | Bracket, Fertilizer Opener Mount, L.H., Liquid Fertilizer Only |
| | A946 | Bracket, Fertilizer Opener Mount, R.H., Liquid Fertilizer Only |
| 13. | A736 | Tee Bolt (8R36 Only) |
| 14. | D1114 | U-Bolt, 7" x 7" x 5/8" - 11 |
| 15. | 10230 | Lockwasher, 5/8" |
| | 10104 | Nut, Hex, 5/8" - 11 |

EXTENDED WING ASSEMBLY - 8 ROW WIDE AND ALL 12R MODELS

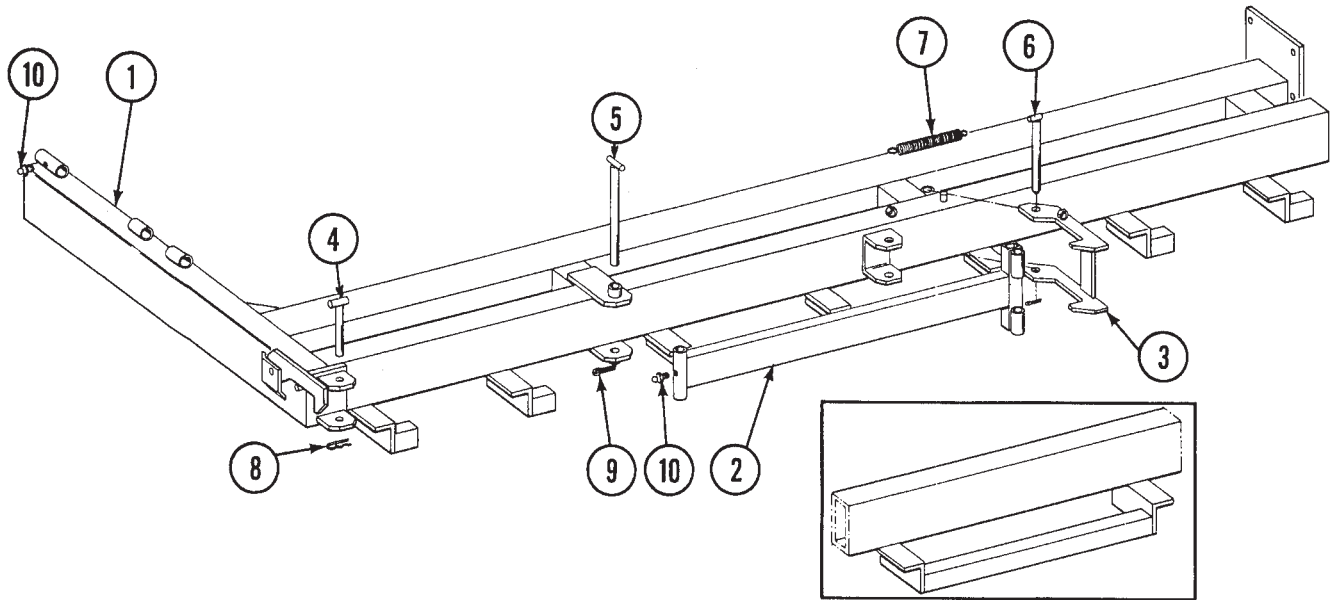
STYLE 1



| ITEM | PART NO. | DESCRIPTION |
|------|----------|----------------------------------|
| 1. | A1710 | Extended Wing, R.H. 8R36, 144" |
| | A1711 | Extended Wing, L.H., 8R36, 144" |
| | A1712 | Extended Wing, R.H., 8R38, 152" |
| | A1713 | Extended Wing, L.H., 8R38, 152" |
| | A1714 | Extended Wing, R.H., 12R30, 180" |
| | A1715 | Extended Wing, L.H., 12R30, 180" |
| | A1716 | Extended Wing, R.H., 12R36, 216" |
| | A1717 | Extended Wing, L.H., 12R36, 216" |
| | A1718 | Extended Wing, R.H., 12R38, 226" |
| | A1719 | Extended Wing, L.H., 12R38, 228" |
| 2. | A149-3L | Link, Articulated, 61 1/2" |
| | A149-3R | Link, Articulated, 61 1/2" |
| 3. | A140R | Latch, Outer, R.H. |
| | A140L | Latch, Outer, L.H. |
| 4. | A166 | Pin, Safety, 7/8" x 7" |
| 5. | A135 | Pin, Pivot, 1 1/4" x 12 3/4" |
| 6. | A136 | Pin, Pivot, 1 1/4" x 9" |
| 7. | D829 | Spring |
| 8. | 10671 | Hair Pin Clip, No. 6 |
| 9. | 10460 | Cotter Pin, 1/4" x 2" |
| 10. | 10641 | Fitting, Grease, 1/8" NPT |

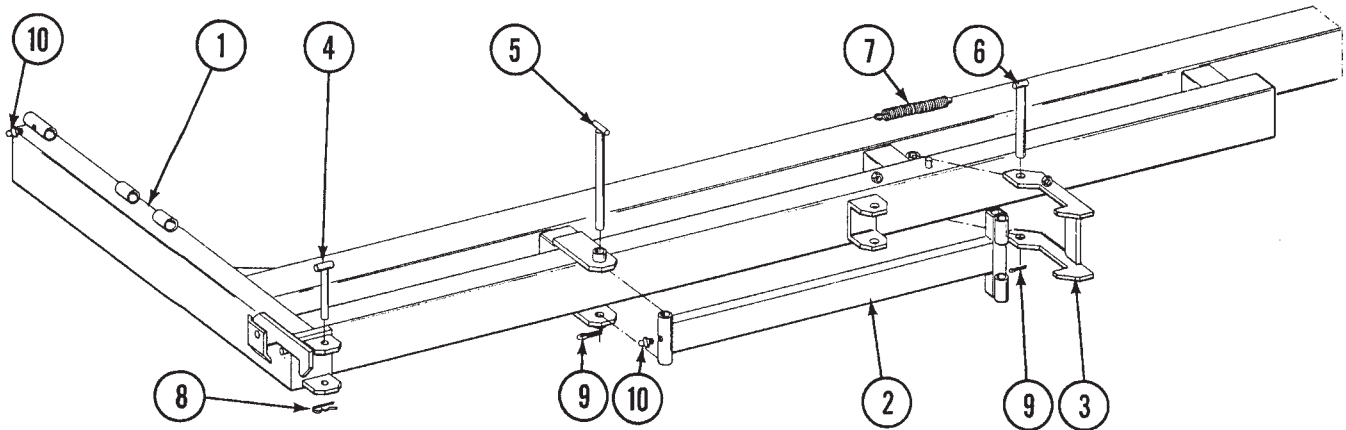
EXTENDED WING ASSEMBLY 8 ROW WIDE ALL 12R MODELS AND 16R30

STYLE 2



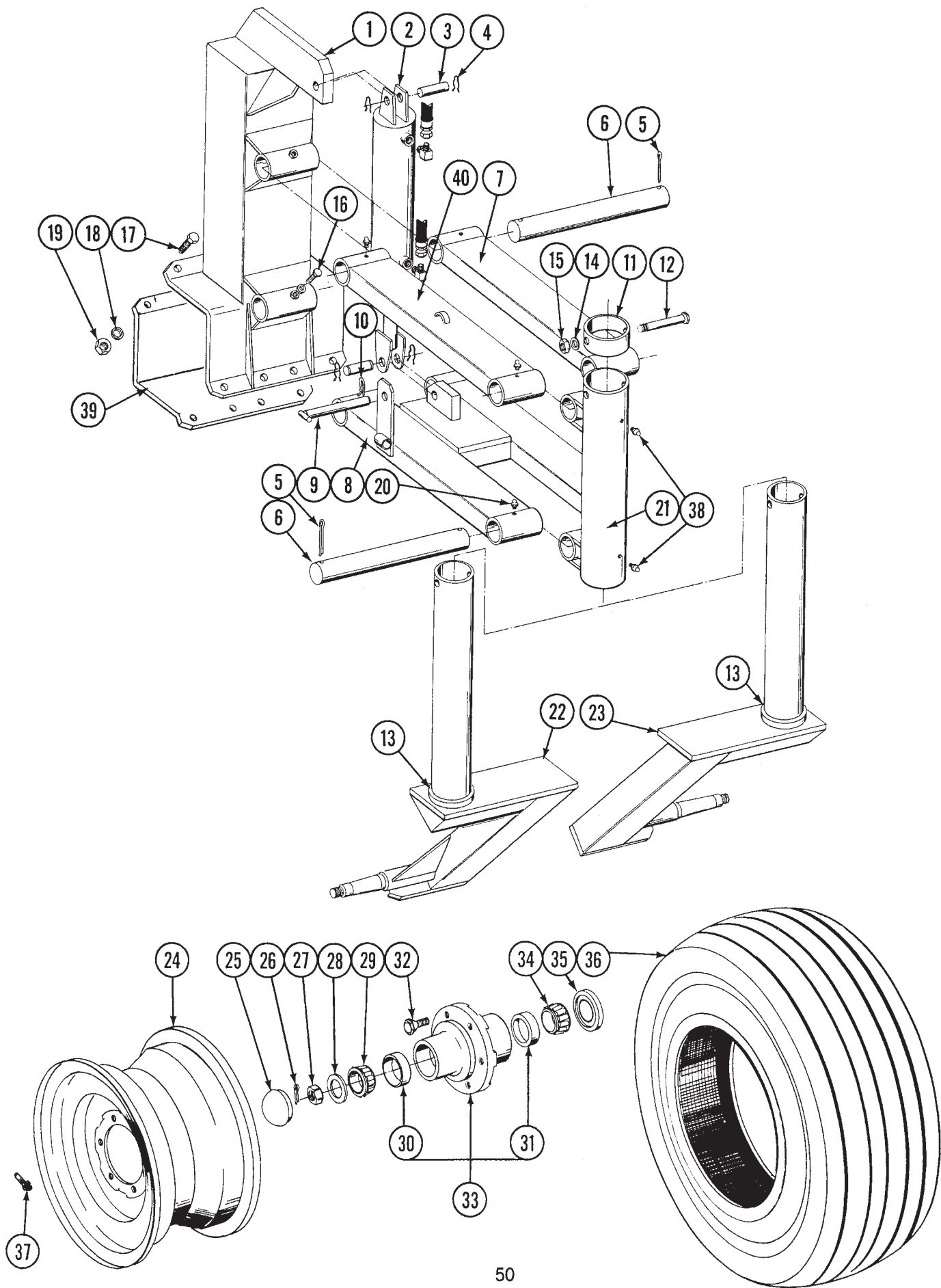
| ITEM | PART NO. | DESCRIPTION | |
|------|----------|-----------------------------------|----------------------------|
| 1. | A1960 | Wing, Extended, R.H., 8R36, 147" | |
| | A1961 | Wing, Extended, L.H., 8R36, 147" | |
| | A1962 | Wing, Extended, R.H., 8R38, 155" | |
| | A1963 | Wing, Extended, L.H., 8R38, 155" | |
| | A1964 | Wing, Extended, R.H., 12R30, 183" | |
| | A1965 | Wing, Extended, L.H., 12R30, 183" | |
| | A1966 | Wing, Extended, R.H., 12R36, 219" | |
| | A1967 | Wing, Extended, L.H., 12R36, 219" | |
| | A1968 | Wing, Extended, R.H., 12R38, 231" | |
| | A1969 | Wing, Extended, L.H., 12R38, 231" | |
| | A1970 | Wing, Extended, R.H., 16R30, 243" | |
| | A1971 | Wing, Extended, L.H., 16R30, 243" | |
| | 2. | A149-3L | Link, Articulated, 61 1/2" |
| | | A149-3R | Link, Articulated, 61 1/2" |
| 3. | A140R | Latch, Outer, R.H. | |
| | A140L | Latch, Outer, L.H. | |
| 4. | A166 | Pin, Safety, 7/8" x 7" | |
| 5. | A135 | Pin, Pivot, 1 1/4" x 12 3/4" | |
| 6. | A136 | Pin, Pivot, 1 1/4" x 9" | |
| 7. | D829 | Spring | |
| 8. | 10671 | Hair Pin Clip, No. 6 | |
| 9. | 10460 | Cotter Pin, 1/4" x 2" | |
| 10. | 10641 | Fitting, Grease, 1/8" NPT | |

STANDARD WING ASSEMBLY - 16R36, 16R38 AND 24R30 WITH BRACE



| ITEM | PART NO. | DESCRIPTION |
|------|----------|---------------------------------|
| 1. | A142-1R | Wing w/Brace, R.H., 16R36, 288" |
| | A142-1L | Wing w/Brace, L.H., 16R36, 288" |
| | A142-2R | Wing w/Brace, R.H., 16R38, 304" |
| | A142-2L | Wing w/Brace, L.H., 16R38, 304" |
| | A142-3R | Wing w/Brace, R.H., 24R30, 360" |
| | A142-3L | Wing w/Brace, L.H., 24R30, 360" |
| 2. | A149-4L | Articulated Link, 68 1/2", L.H. |
| | A149-4R | Articulated Link, 68 1/2", R.H. |
| 3. | A140R | Latch, Outer, R.H. |
| | A140L | Latch, Outer, L.H. |
| 4. | A166 | Pin, Safety, 7/8" x 7" |
| 5. | A135 | Pin, Pivot, 1 1/4" x 12 3/4" |
| 6. | A136 | Pin, Pivot, 1 1/4" x 9" |
| 7. | D829 | Spring |
| 8. | 10671 | Hair Pin Clip, No. 6 |
| 9. | 10460 | Cotter Pin, 1/4" x 2" |
| 10. | 10641 | Fitting, Grease, 1/8" NPT |

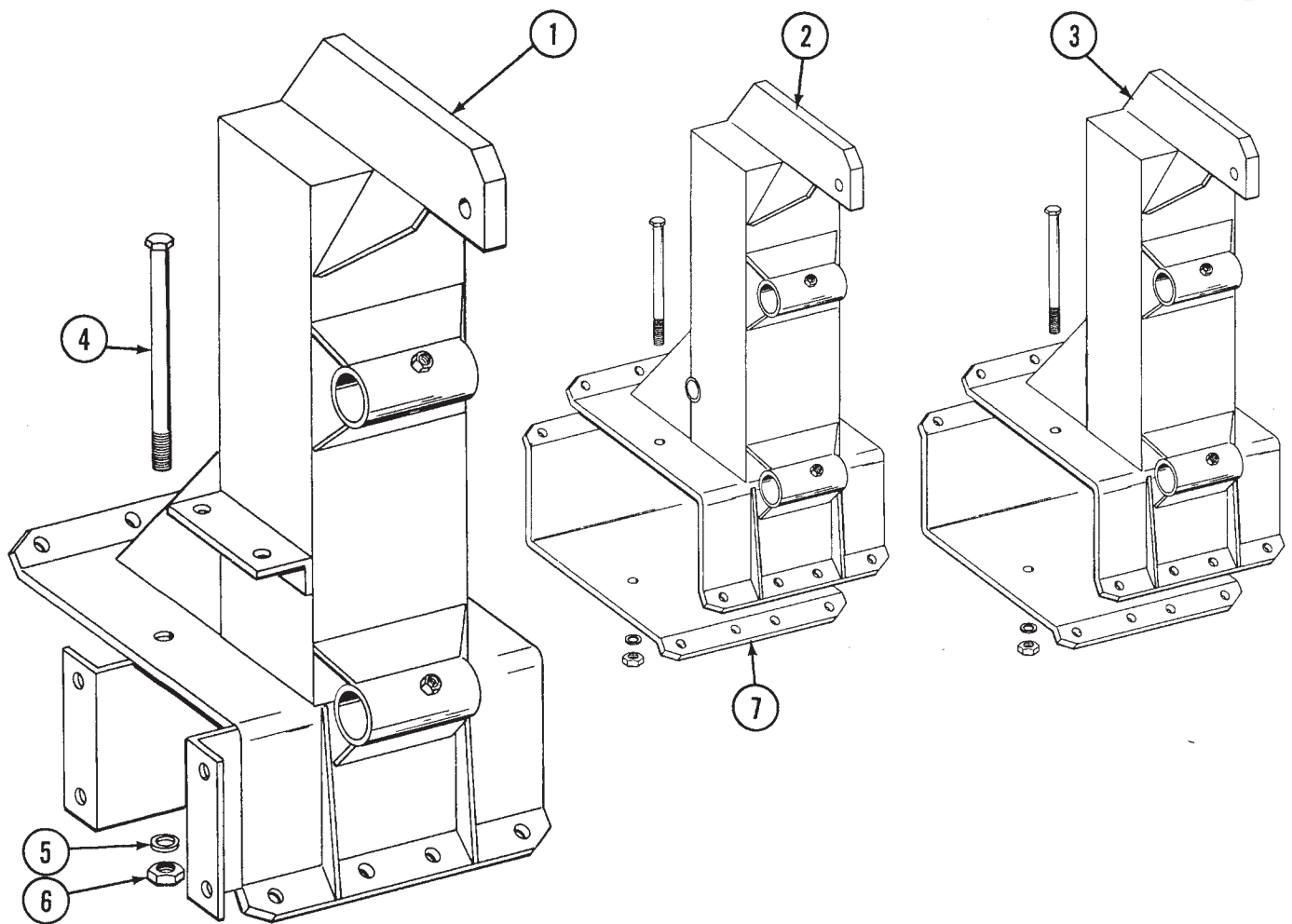
WHEEL TOWER ASSEMBLY



WHEEL TOWER ASSEMBLY

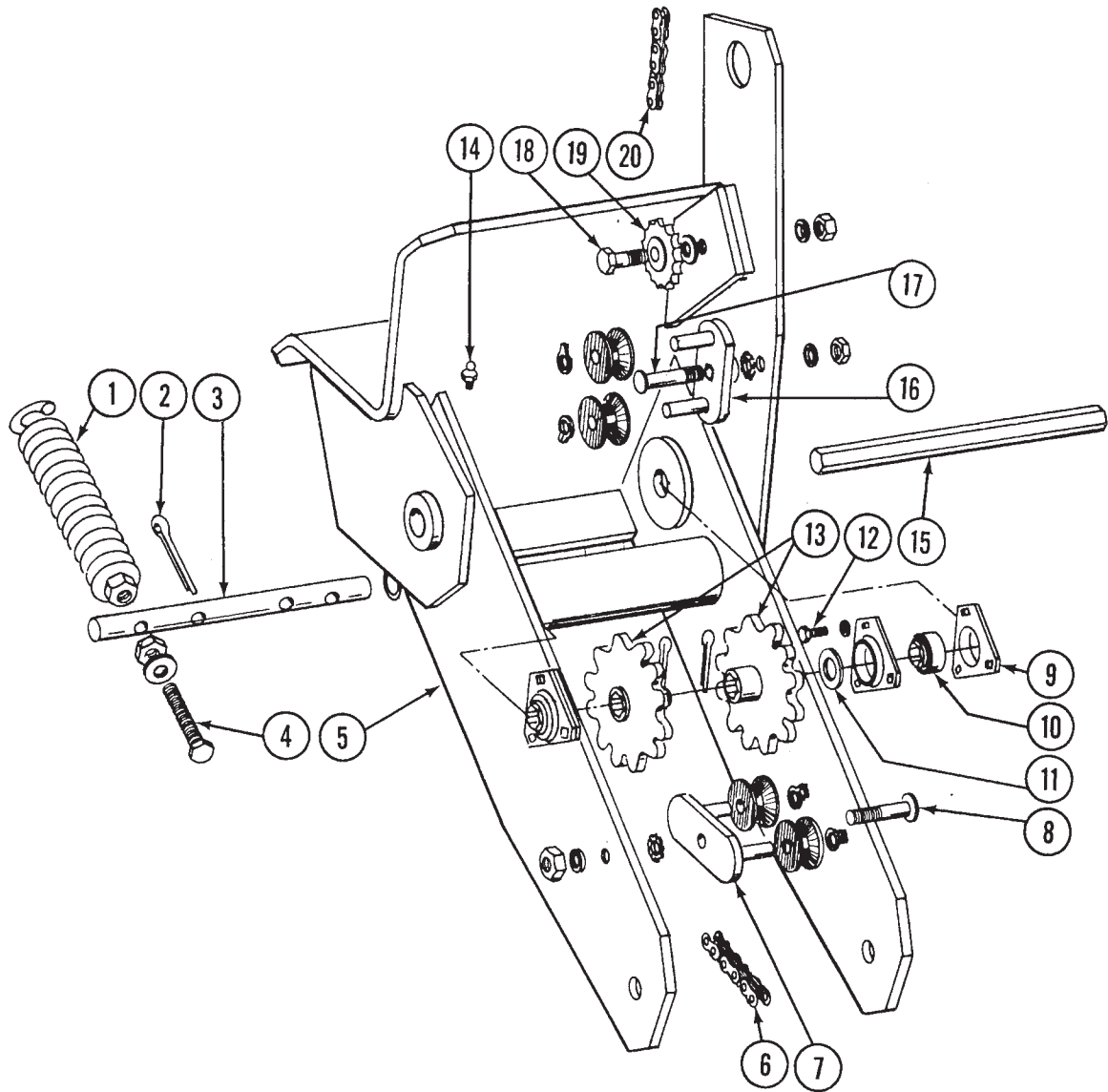
| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A102 | Wheel Tower, Standard (Shown) |
| | A1842 | Extended, w/Dry Fertilizer (Page 52) |
| | A2161 | Wheel Tower, Extended (Page 52) |
| | A1843 | Wheel Tower, Extended, L.H. w/Compact Marker (Page 52) |
| | A1844 | Wheel Tower, Extended, R.H. w/Compact Marker (Page 52) |
| 2. | A232 | Cylinder, Transport Wheel Lift, 4" x 10" |
| 3. | R375 | Clevis Pin |
| 4. | R193 | Clips |
| 5. | 10461 | Cotter Pin, 3/8" x 3" |
| 6. | D519 | Pin, 2 1/8" x 15 1/2" |
| 7. | A103 | Arm, Parallel, L.H. |
| 8. | A104 | Arm Assembly, Lower Parallel |
| 9. | A166 | Pin, Safety, 7/8" x 6 1/2" |
| 10. | 10671 | Hair Pin Clip, No. 6 |
| 11. | D575 | Cap |
| 12. | 10011 | HHCS, 5/8" - 11 x 5 1/2" |
| 13. | D1819-2 | Sleeve |
| 14. | 10230 | Lock Washer, 5/8" |
| 15. | 10104 | Hex Nut, 5/8" - 11 |
| 16. | 10005 | HHCS, 5/8" - 11 x 3/4" |
| 17. | 10027 | HHCS, 3/4" - 10 x 2 1/2" |
| 18. | 10231 | Lock Washer, 3/4" |
| 19. | 10105 | Hex Nut, 3/4" - 10 |
| 20. | 10641 | Fitting, Grease, 1/8" NPT |
| 21. | A105 | Tube, Pivot |
| 22. | A1620 | Spindle Assembly, Less Hub, R.H. |
| 23. | A1619 | Spindle Assembly, Less Hub, L.H. |
| 24. | A240 | Wheel, 14" x 8", 6 Bolt |
| 25. | 2800-1 | Cap |
| 26. | 10459 | Cotter Pin, 3/16" x 1 1/2" |
| 27. | 10723 | Nut, Slotted Hex, 3/4" - 16 |
| 28. | 10224 | Washer, Spindle, 3/4" |
| 29. | A237 | Bearing, Outer |
| 30. | R188 | Cup, Outer |
| 31. | R189 | Cup, Inner |
| 32. | R270 | Bolt, Hub, 9/16" - 18 x 1" |
| 33. | 2700-7 | Hub, 6 Bolt w/Cups |
| 34. | A238 | Bearing, Inner |
| 35. | A239 | Seal |
| 36. | D839 | Tire, 11L x 14" |
| 37. | D1165 | Valve Stem |
| 38. | 10640 | Fitting, Grease, 1/4" |
| 39. | D503 | Clamp, Half, Standard Wing |
| 40. | A1782 | Arm, Parallel, R.H. |
| A. | A541 | Tire and Rim Assembly (Items 24, 36 & 37) |

WHEEL TOWER MOUNT - EXTENDED WING



| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A1843 | Wheel Tower, Extended, L.H., w/Compact Markers |
| | A1844 | Wheel Tower, Extended, R.H., w/Compact Markers (Shown) |
| 2. | A1842 | Wheel Tower Extended, w/Dry Fertilizer |
| 3. | A2161 | Wheel Tower, Extended |
| 4. | 10030 | HHCS, 3/4" -10 x 9" |
| 5. | 10231 | Lock Washer, 3/4" |
| 6. | 10105 | Hex Nut, 3/4" - 10 |
| 7. | D802 | Clamp, Half |

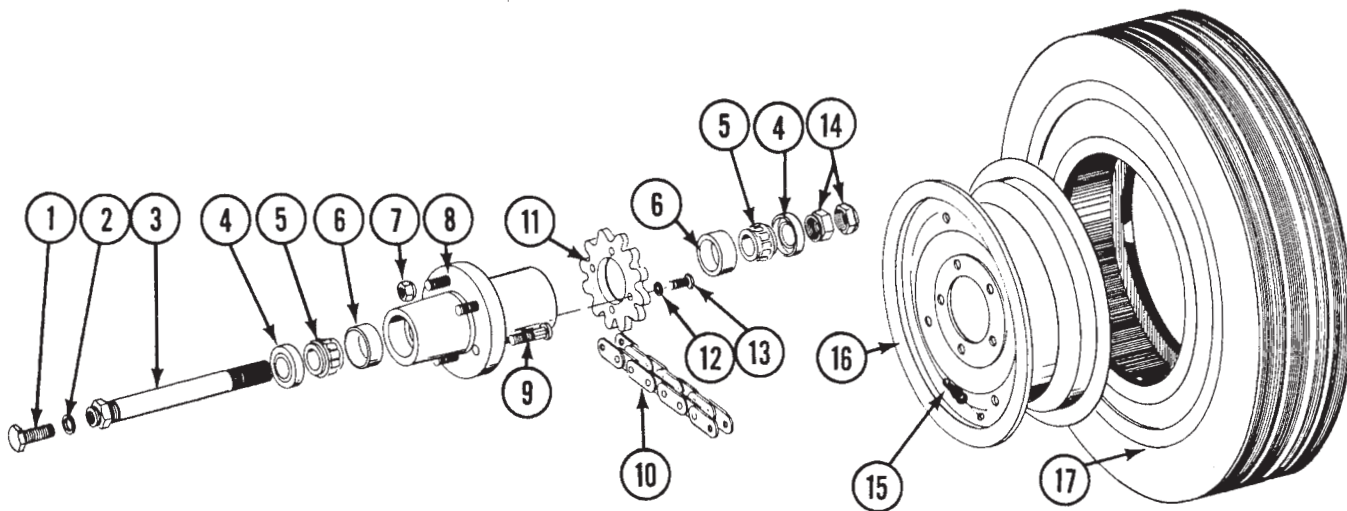
SPRING LOADED GAUGE WHEEL ASSEMBLY



SPRING LOADED GAUGE WHEEL ASSEMBLY

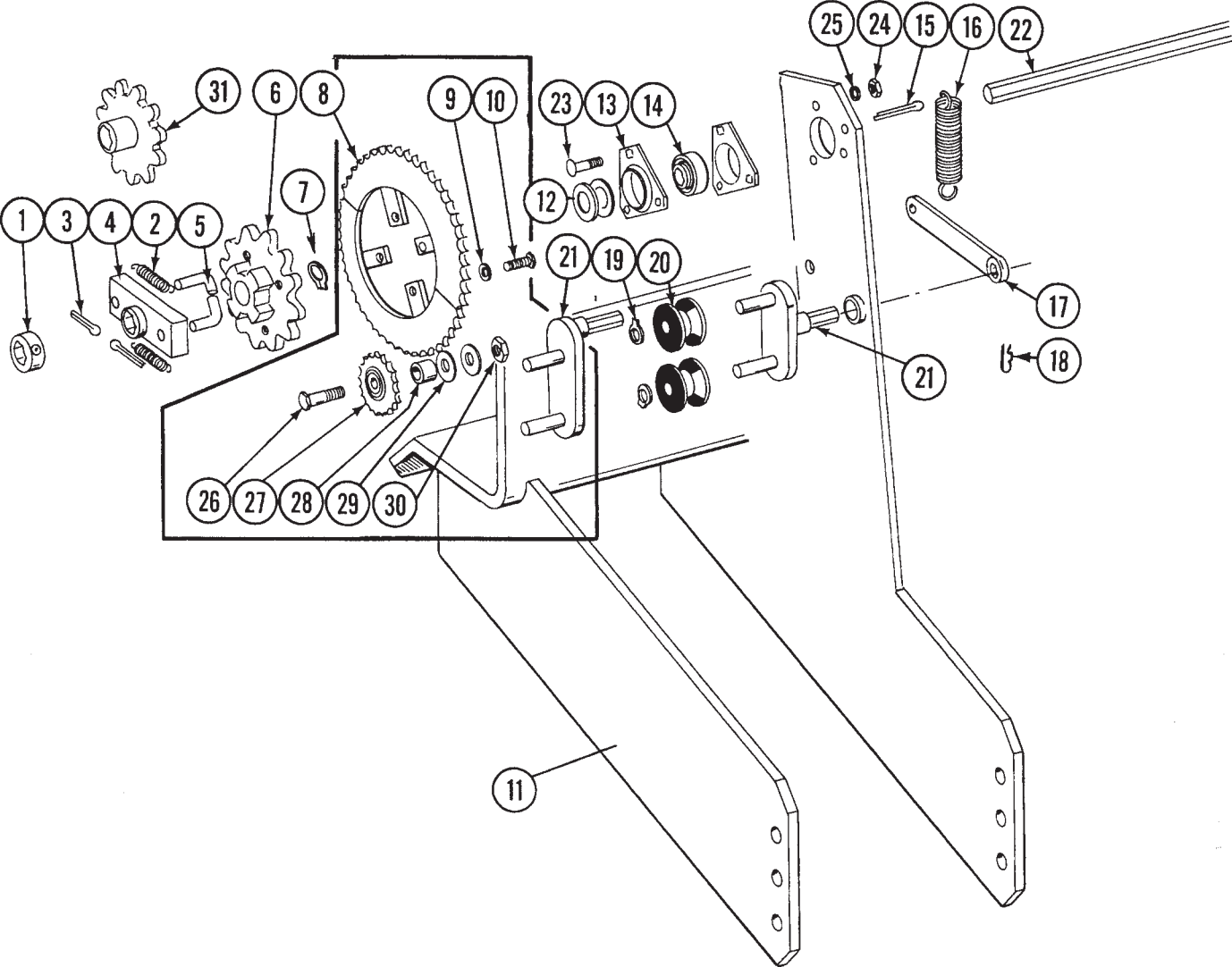
| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A2068 | Spring |
| 2. | 10463 | Cotter Pin, 1/4" x 1 1/2" |
| 3. | D3321 | Pin, 7/8" x 10" |
| 4. | 10051 | HHCS, 1/2" - 13 x 3" |
| | 10216 | Washer, 1/2" USS |
| | 10501 | Jam Nut, 1/2" - 13 |
| 5. | A2439 | Bracket, Standard Wing |
| | A2440 | Bracket, Extended Wing |
| 6. | 3200-50 | Chain, No. 2050, 50 Pitch Including Connector Link |
| | R195 | Connector Link, No. 2050 |
| 7. | A289 | Idler w/Spools and Rings |
| | D1067 | Spool |
| | 10435 | Ring |
| 8. | 10313 | Carriage Bolt, 1/2" - 13 x 1 1/2" |
| | 10527 | Washer, 1/2", Int/Ext. |
| | 10228 | Lockwasher, 1/2" |
| | 10102 | Hex Nut, 1/2" - 13 |
| 9. | 3400-1 | Flangette |
| 10. | 2100-3 | Bearing, 7/8" Hex |
| 11. | 10200 | Washer, 1" USS |
| 12. | 10043 | HHCS, 5/16" - 18 x 3/4" |
| | 10232 | Lock Washer, 5/16" |
| 13. | 2500-18 | Sprocket, 12 Tooth |
| 14. | 10640 | Grease Fitting, 1/4" - 28 |
| 15. | D2867 | Shaft, 7/8" x 12 1/2" |
| | 10463 | Cotter Pin, 1/4" x 1 1/2" |
| 16. | A294 | Idler w/Spools and Rings |
| | D1067 | Spool |
| | 10435 | Ring |
| 17. | 10315 | Carriage Bolt, 1/2" - 13 x 2 1/2" |
| | 10527 | Washer, 1/2", Int./Ext. |
| | 10228 | Lock Washer, 1/2" |
| | 10102 | Hex Nut, 1/2" - 13 |
| 18. | 10008 | HHCS, 5/8" - 11 x 2" |
| | 10205 | Washer, 5/8" SAE |
| | 10107 | Lock Nut, 5/8" - 11 |
| 19. | A262 | Sprocket, 15 Tooth |
| 20. | 3200-42 | Chain, No. 2050, 42 Pitch Including Connector Link |
| | R195 | Connector Link, No. 2050 |
| A. | 6536X | Spring Loaded Gauge Wheel Package, Standard Wing |
| B. | 6537X | Spring Loaded Gauge Wheel Package, Extended Wing |

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 |
| 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 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" (Items 15-17) |

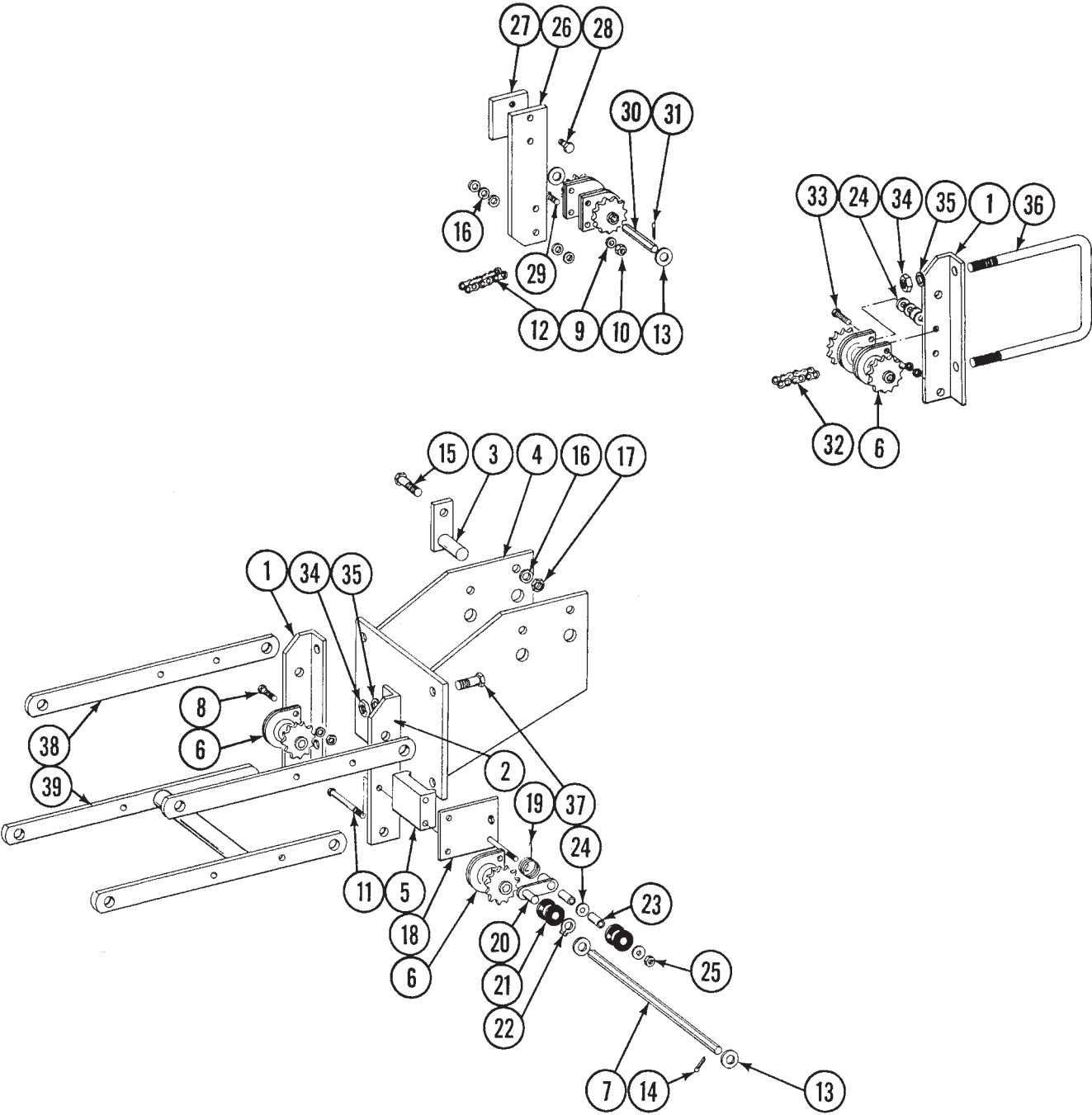
DRIVE GAUGE BRACKET ASSEMBLY



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 |
| 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, Standard Wing |
| | A2122 | Bracket, Drive Gauge, Extended Wing |
| 12. | 10233 | Bushing, Machinery (As Required) |
| 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 | Hair Pin Clip, No. 3 |
| 19. | 10435 | Ring, Snap |
| 20. | D916 | Spool |
| 21. | A182 | Bracket, Idler |
| | A852 | Bracket, Idler, For Use With Extended Drill Sprocket |
| 22. | | Drive Shaft, 7/8" Hex |
| 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 |
| 31. | 2500-18 | Sprocket, 12T, 8 thru 12 Row (Optional) |
| 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 Includes: (2) A849, (2) A852, (2) 3200-6, (8) 10002, (8) 10229, (2) A262, (2) 10009 (2) B123, (4) 10205, (2) 10107 |

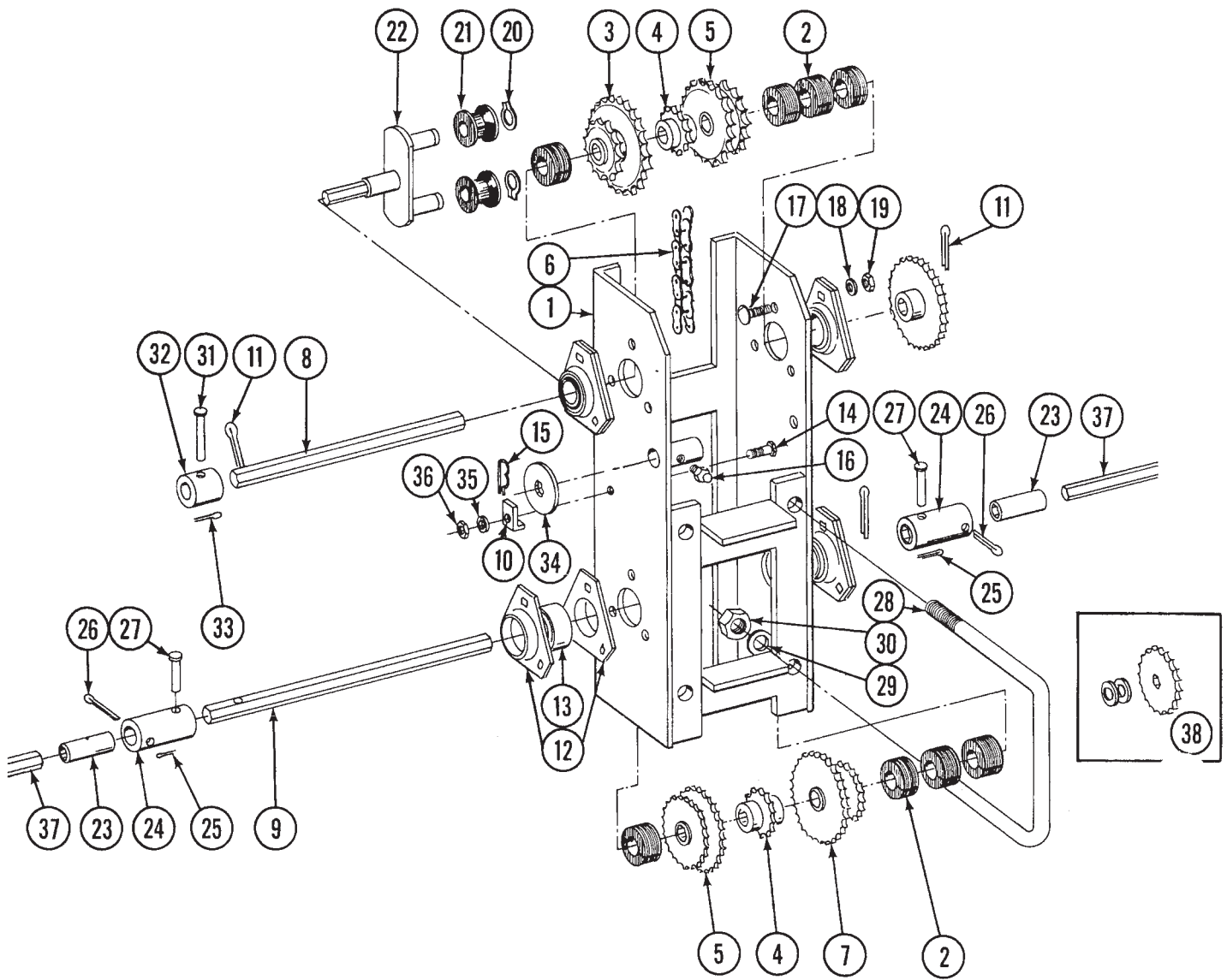
DRILL SHAFT DRIVE LINE - CENTER ROW



DRILL SHAFT DRIVE LINE - CENTER ROW

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | D1022L | Support, L.H. |
| 2. | D2298 | Support, R.H., Special |
| 3. | A1901 | Bracket, Trunion Cylinder Mounting |
| 4. | A260 | Bracket, Mounting |
| 5. | A2139 | Channel |
| 6. | A2057 | Bearing and Sprocket |
| 7. | D2275 | Shaft, 9/16" x 19 3/4" |
| 8. | 10001 | HHCS, 3/8" - 16 x 1" |
| 9. | 10229 | Lock Washer, 3/8" |
| 10. | 10101 | Hex Nut, 3/8" - 16 |
| 11. | 10172 | HHCS, 3/8"-16 x 5" |
| 12. | 3303-158 | Chain, No. 41, 158 Pitch Including Connector Link |
| | R196 | Connector Link, No. 41 |
| 13. | 10200 | Flat Washer, 1" USS |
| 14. | 10465 | Cotter Pin, 1/4" x 1 1/2" |
| 15. | 10039 | HHCS, 1/2" - 13 x 1 3/4" |
| 16. | 10228 | Lock Washer, 1/2" |
| 17. | 10102 | Hex Nut, 1/2"-13 |
| 18. | A2138 | Plate, Idler Mount |
| 19. | D1065 | Spring, Idler |
| 20. | A2056 | Arm, Idler |
| 21. | D1068 | Spool |
| 22. | 10435 | Ring, Retaining |
| 23. | D1026 | Sleeve |
| 24. | 10210 | Washer, 3/8" USS |
| 25. | 10108 | Lock Nut, 3/8" - 16 |
| 26. | D2643 | Bar |
| 27. | D2642 | Block (To Be Welded In Place) |
| 28. | 10037 | HHCS, 1/2" - 13 x 1 1/4" |
| 29. | 10048 | HHCS, 3/8" - 16 x 2" |
| 30. | D2257 | Shaft, 9/16" x 5 3/4" |
| 31. | 10459 | Cotter Pin, 3/16" x 1 1/2" |
| 32. | 3303-214 | Chain, No. 41, 214 Pitches Including Connector Link |
| | R196 | Connector Link, No. 41 |
| 33. | 10003 | HHCS, 3/8" - 16 x 1 1/2" |
| 34. | 10104 | Hex Nut, 5/8" - 11 |
| 35. | 10230 | Lock Washer, 5/8" |
| 36. | D1114 | U-Bolt, 5/8" - 11 x 7" x 7" |
| 37. | 10008 | HHCS, 5/8" - 11 x 2" |
| 38. | D2356 | Upper Arm, Extended, Optional |
| 39. | A1387 | Lower Arm, Extended, Optional |
| A. | A2140 | Idler Assembly (Items 18 thru 25) |
| B. | R4003 | Kit, Center Row, Less Mounting Bracket, Includes: (1) 3303-158 (1) 3303-214 (4) A2057 (1) A2139 (1) A2140 (1) D2257 (1) D2275 (1) D2298 (1) D2642 (1) D2643 and Misc. Hardware |

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 Includes 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. | | Drill Shaft, 9/16" Hex |
| 38. | 2500-19 | Sprocket, Unit Drive, 19T (Special) |
| A. | A503 | Idler Assembly (Items 20 thru 22) |
| B. | A1816 | Transmission Assembly (Items 1 thru 27 and 34 thru 36) |

HEX DRILL SHAFTS

9/16" Hex Drill Shaft (D739-XX)

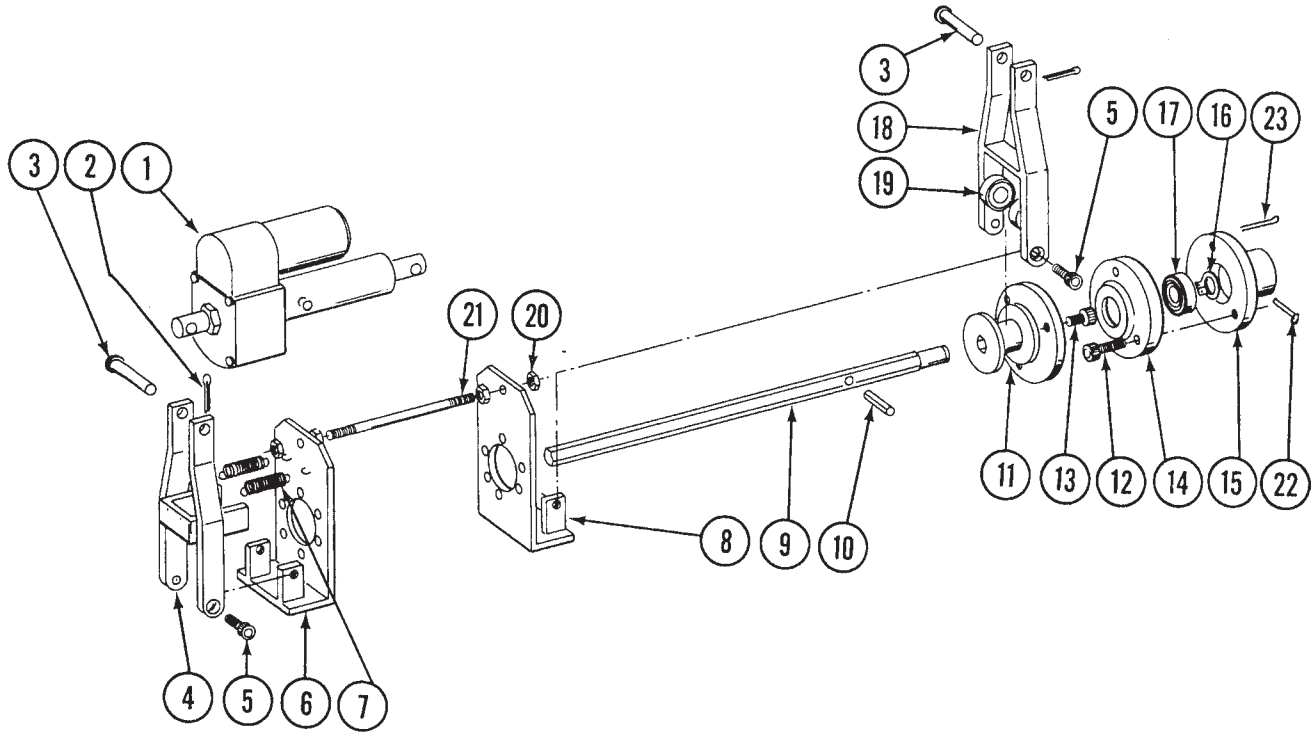
| Planter Size | Left Wing | | Right Wing | |
|---------------------------|-----------|-------|------------|-------|
| | Inner | Outer | Inner | Outer |
| 8 Row 30" | 37" | 47" | 47" | 37" |
| 8 Row Wide | 48" | 60" | 60" | 48" |
| 12 Row 30" | 67" | 77" | 77" | 67" |
| 12 Row Wide | 86" | 98" | 98" | 86" |
| 16 Row 30" | 66" | 137" | 77" | 127" |
| 16 Row 30" w/Dry Fert. | 127" | 77" | 137" | 66" |
| 16 Row Wide | 127" | 137" | 137" | 127" |
| 18 Row 30" | 127" | 107" | 137" | 98" |
| 24 Row 30" | 157" | 167" | 167" | 157" |

7/8" Hex Drive Shaft (D914-XX)

| Planter Size | Left Wing | Right Wing | Wheel To Wheel Shaft |
|---------------------------|-----------|------------|----------------------|
| 8 Row 30" | 55" | 65" | |
| 8 Row Wide | 71" | 81" | |
| 12 Row 30" | 85" | 95" | |
| 12 Row Wide | 109" | 119" | |
| 16 Row 30" | 85" | 95" | 60" Both Sides |
| 16 Row 30" w/Dry Fert. | 25" | 35" | 60" Both Sides |
| 16 Row Wide | 33" | 43" | 76" Both Sides |
| 18 Row 30" | 25" | 35" | 60" Both Sides |
| 24 Row 30" | 85" | 95" | 60" Both Sides |

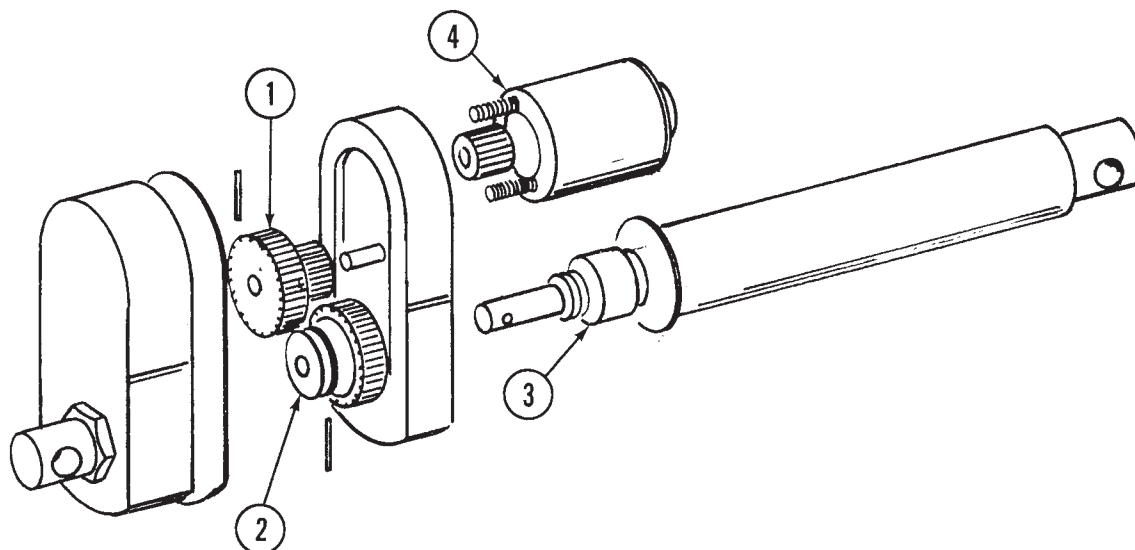
* A1237 Lock Collar w/Set Screws
Used to couple 7/8" hex drive shaft.

POINT ROW CLUTCH ASSEMBLY



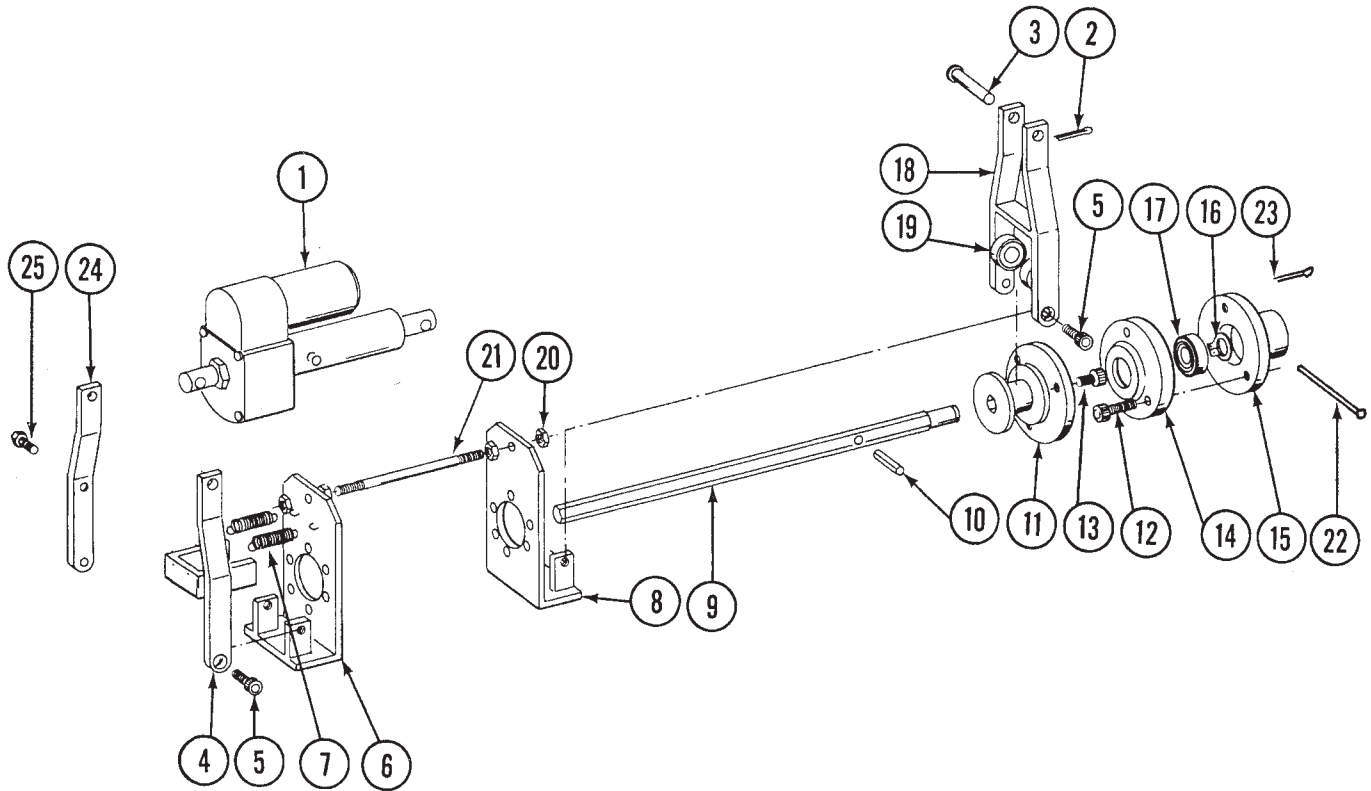
| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A2267 | Actuator |
| 2. | 10451 | Cotter Pin, 1/8" x 1" |
| 3. | 10555 | Clevis Pin, 1/2" x 2 1/2" |
| 4. | A2268 | Arm |
| 5. | 10183 | Shoulder Screw, 3/8" x 3/8" x 5/16" - 18 |
| 6. | A2276 | Plate |
| 7. | D2805 | Spring |
| 8. | A2270 | Plate |
| 9. | D2806 | Shaft |
| 10. | 10603 | Roll Pin, 1/4" x 1" |
| 11. | A2273 | Hub |
| 12. | 10181 | Socket Head Cap Screw, 1/2" - 13 x 1" |
| 13. | 10182 | Socket Head Cap Screw, 1/2" - 13 x 1/2" |
| 14. | D2792 | Plate |
| 15. | A2274 | Hub |
| 16. | 10180 | Snap Ring, External |
| 17. | A2272 | Bearing |
| 18. | A2269 | Arm, Throw Out |
| 19. | A2271 | Bearing |
| 20. | 10101 | Hex Nut, 3/8" - 16 |
| 21. | D2804 | Rod |
| 22. | 10547 | Clevis Pin, 5/16" x 2 3/4" |
| 23. | 10456 | Cotter Pin, 1/8" x 3/4" |

ACTUATOR



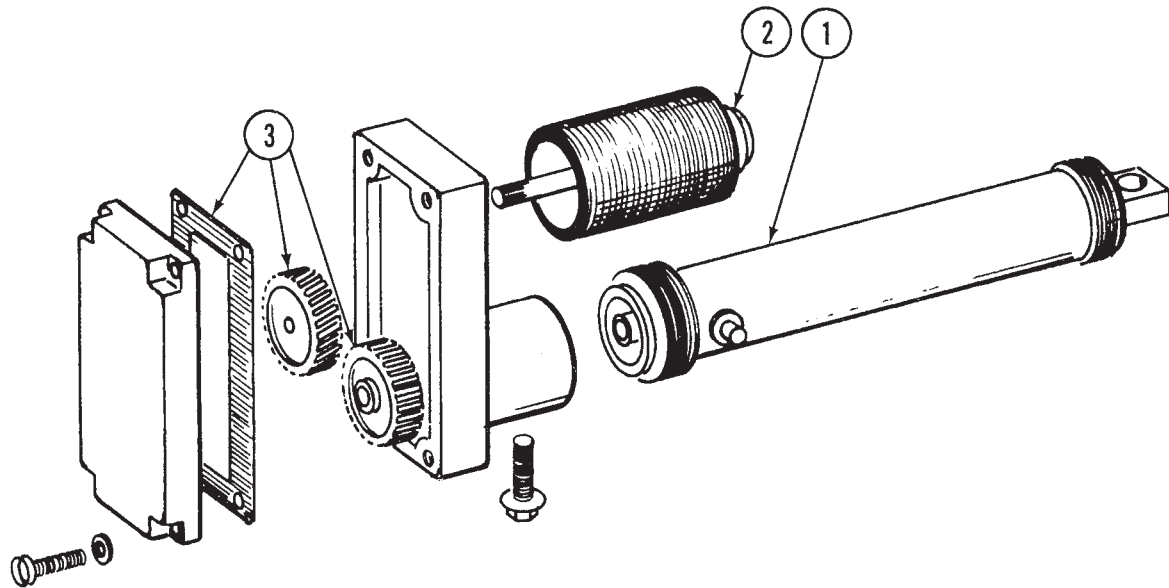
| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R723 | Gear Set w/Washers |
| 2. | R724 | Clutch Assembly w/Pin and Washers |
| 3. | R725 | Drive Screw w/Pin and Washers |
| 4. | R726 | Motor |
| A. | A2267 | Actuator Complete |
| B. | R727 | Seal and Gasket Kit, Includes: Cover Tube Seal Gasket Between Housings Motor Seal O-Ring Lip Seal |

POINT ROW CLUTCH ASSEMBLY



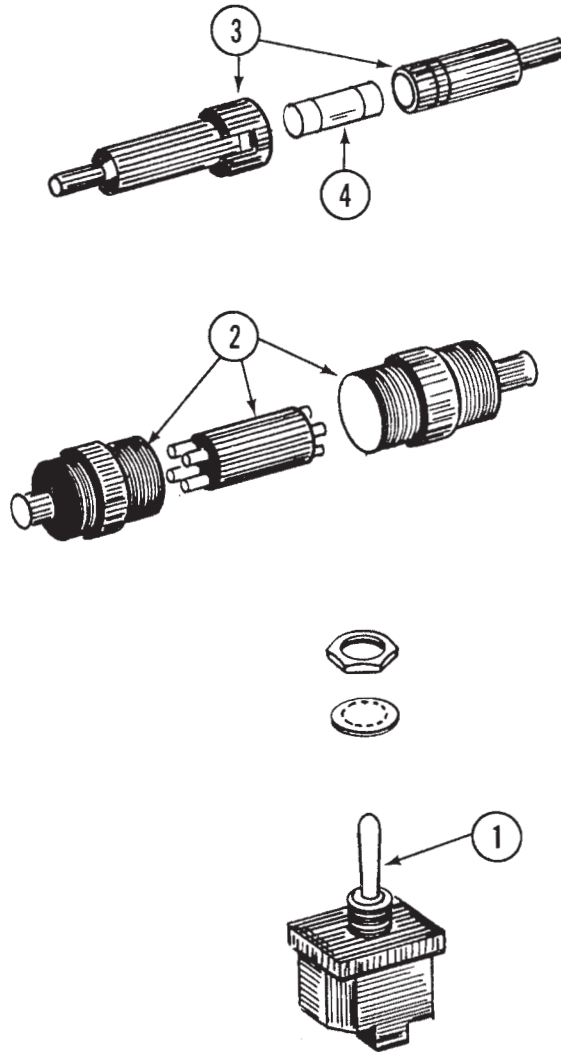
| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | A2514 | Actuator |
| 2. | 10451 | Cotter Pin, 1/8" x 1" |
| 3. | 10555 | Clevis Pin, 1/2" x 2 1/2" |
| 4. | A3049 | Arm |
| 5. | 10183 | Shoulder Screw, 3/8" x 3/8" x 5/16" - 18 |
| 6. | A2276 | Plate |
| 7. | D2805 | Spring |
| 8. | A2270 | Plate |
| 9. | D2806 | Shaft |
| 10. | 10603 | Roll Pin, 1/4" x 1" |
| 11. | A2273 | Hub |
| 12. | 10181 | Socket Head Cap Screw, 1/2" - 13 x 1" |
| 13. | 10182 | Socket Head Cap Screw, 1/2" - 13 x 1/2" |
| 14. | D2792 | Plate |
| 15. | A2274 | Hub |
| 16. | 10180 | Snap Ring, External |
| 17. | A2272 | Bearing |
| 18. | A2269 | Arm, Throw Out |
| 19. | A2271 | Bearing |
| 20. | 10101 | Hex Nut, 3/8" - 16 |
| 21. | D2804 | Rod |
| 22. | 10547 | Clevis Pin, 5/16" x 2 3/4" |
| 23. | 10456 | Cotter Pin, 1/8" x 3/4" |
| 24. | D4449 | Arm |
| 25. | 10001 | HHCS, 3/8" - 16 x 1" |
| | 10108 | Lock Nut, 3/8" - 16 |
| A. | 6613X | Point Row Clutch Package, 8 Row Wide thru 12 Row 30 |
| | 6614X | Point Row Clutch Package, 12 Row Wide |
| | 6615X | Point Row Clutch Package, 16 Row 30 |
| | 6616X | Point Row Clutch Package, 24 Row 30 |
| | | (Includes 2 Point Row Clutch Assemblies and Box and Harness Assemblies) |

ACTUATOR



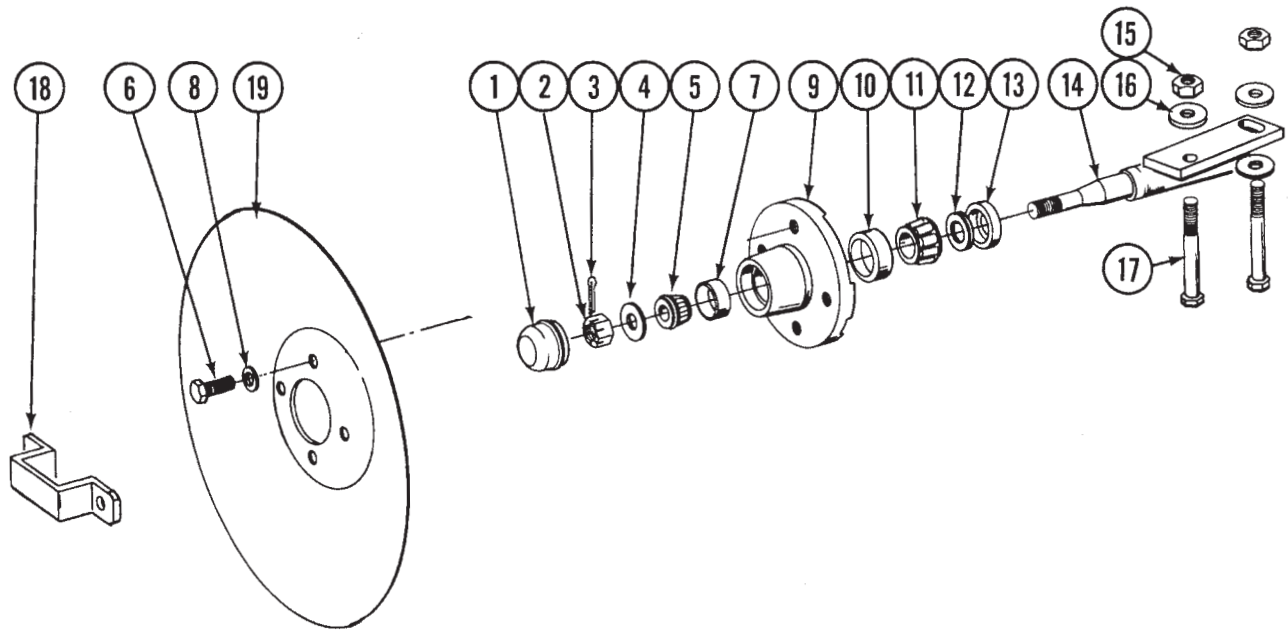
| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R719 | Actuator Kit, 4" |
| 2. | R720 | Motor, Electric 12V DC |
| 3. | R721 | Gear Set |
| A. | A2514 | Actuator Complete |
| B. | R722 | Motor and Gearbox Complete, Less Item 1 Acuator Kit |

ELECTRICAL ASSEMBLY - POINT ROW CLUTCH



| ITEM | PART NO. | DESCRIPTION |
|------|----------|----------------------------|
| 1. | A2526 | Switch |
| 2. | A1911 | Trailer Connector, 4 Prong |
| 3. | A1917 | Fuse Holder |
| 4. | D2829 | Fush, AGC-15 |

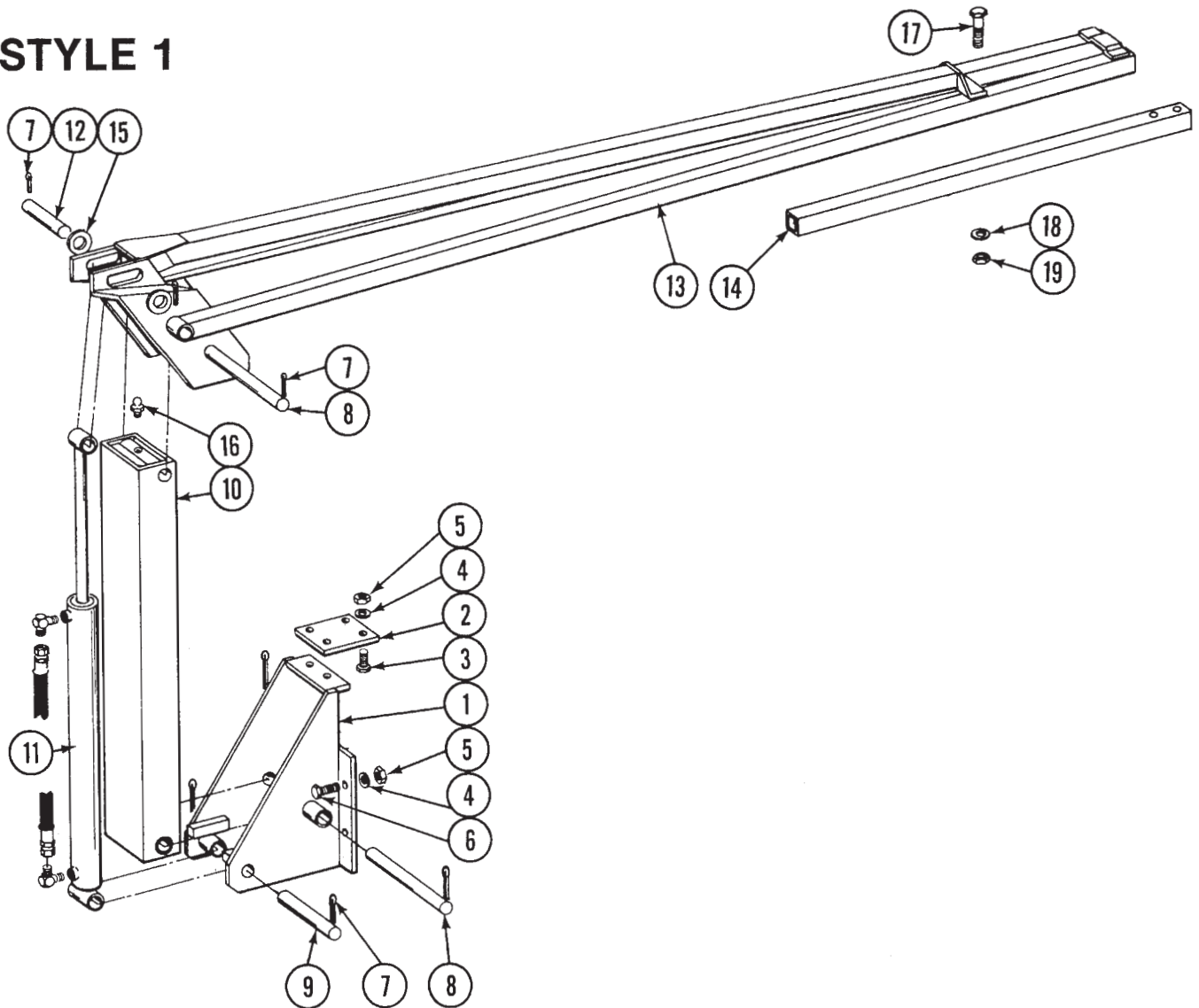
MARKER HUB ASSEMBLY



| TEM | 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 | Lock Washer, 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 |
| 19. | D746 | Disc, 16" |
| A. | A1679 | Hub and Spindle Assembly L.H. (Items 1-14) |
| | A1678 | Hub and Spindle Assembly R.H. (Items 1-14) |

LOW PROFILE - DOUBLE FOLD MARKER ASSEMBLY, COMPACT MARKER MOUNT 8R WIDE, 12R30, 12R36/38

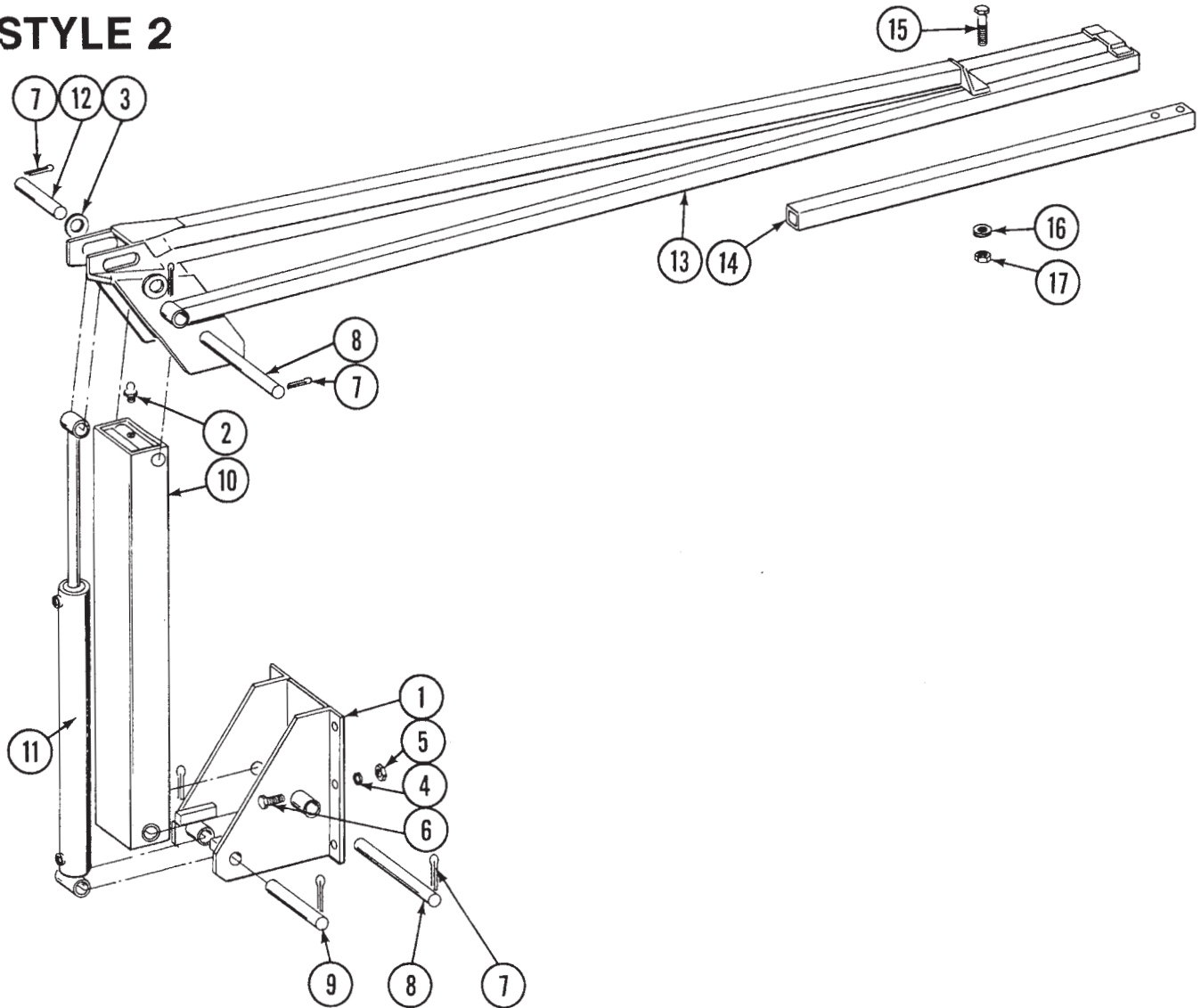
STYLE 1



| ITEM | PART NO. | DESCRIPTION |
|------|----------|---------------------------------|
| 1. | A371 | Mount, Compact |
| 2. | D668 | Plate |
| 3. | 10005 | HHCS 5/8" - 11 x 1 3/4" |
| 4. | 10230 | Lock Washer, 5/8" |
| 5. | 10104 | Hex Nut, 5/8" - 11 |
| 6. | 10007 | HHCS, 5/8" - 11 x 1 1/2" |
| 7. | 10460 | Cotter Pin, 1/4" x 2" |
| 8. | D737 | Pin, Pivot, 1 1/4" x 13 1/4" |
| 9. | D652 | Pin, Cylinder, 1 1/4" x 9 1/2" |
| 10. | A151 | Arm, First Stage |
| 11. | A233 | Cylinder, 2 1/2" x 20" |
| 12. | D826 | Pin, Cylinder, 1 1/4" x 5 1/2" |
| 13. | A587 | Arm, Second Stage, 8R Wide, 66" |
| | A171-2 | Arm, Second Stage, 12R30, 105" |
| | A171-3 | Arm, Second Stage, 12R36, 138" |
| 14. | D453-3 | Extension Tube, 50" |
| 15. | 10226 | Washer, 1 1/4" SAE |
| 16. | 10641 | Fitting, Grease, 1/8" NPT |
| 17. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 18. | 10228 | Lock Washer, 1/2" |
| 19. | 10102 | Hex Nut, 1/2" - 13 |

LOW PROFILE - DOUBLE FOLD MARKER ASSEMBLY, 8R30, 8R WIDE, 12R30, 12R36/38 AND 16R30

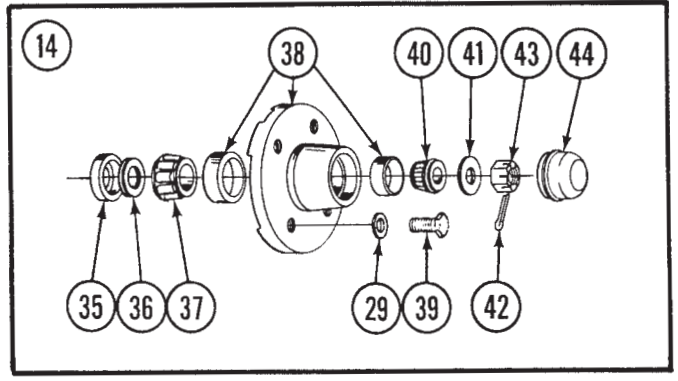
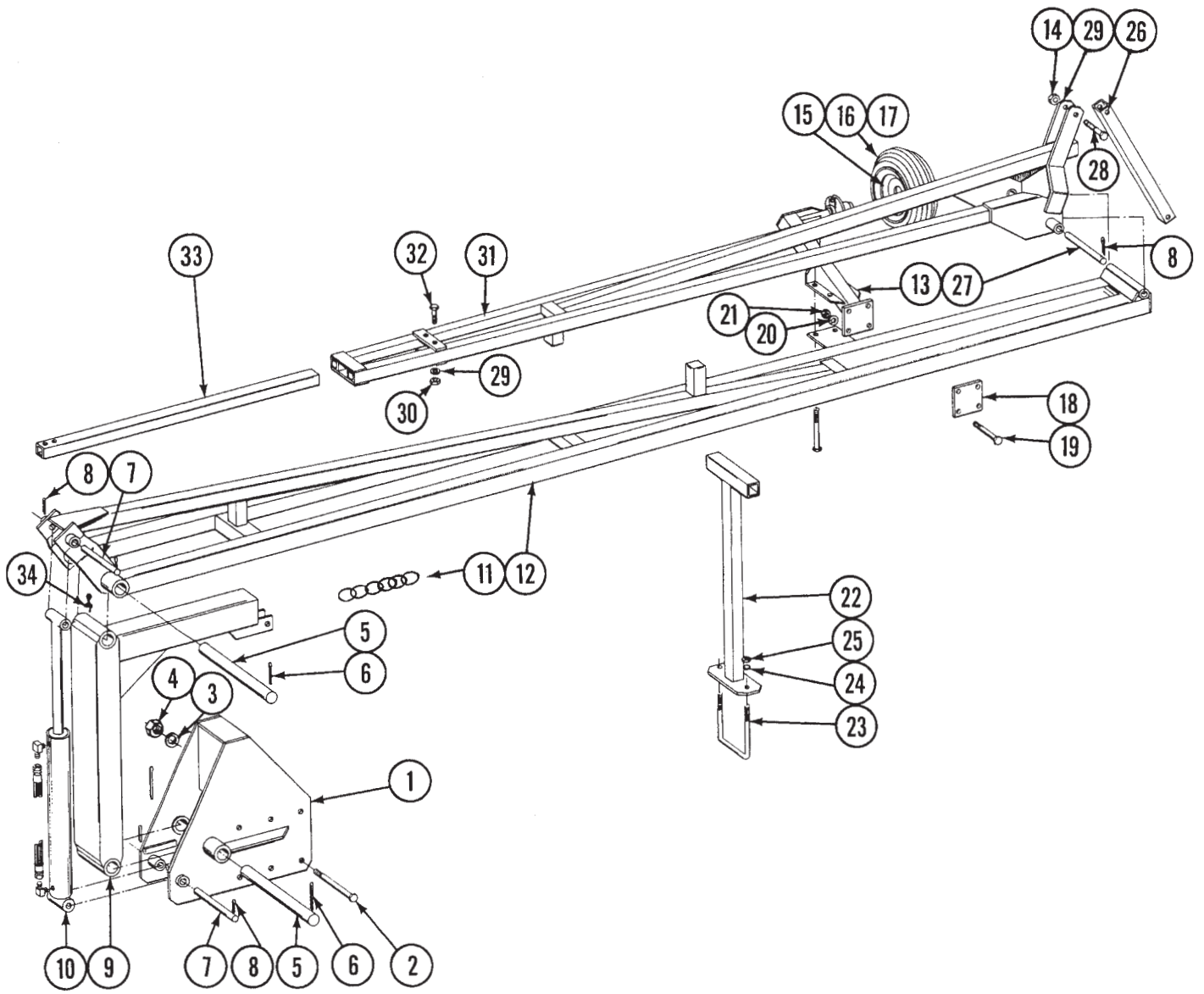
STYLE 2



ITEM PART NO. DESCRIPTION

| | | |
|-----|--------|---------------------------------|
| 1. | A1910 | Mount |
| 2. | 10641 | Fitting, Grease, 1/8" NPT |
| 3. | 10226 | Washer, 1 1/4" SAE |
| 4. | 10230 | Lock Washer, 5/8" |
| 5. | 10104 | Hex Nut, 5/8" - 11 |
| 6. | 10008 | HHCS, 5/8" - 11 x 2" |
| 7. | 10460 | Cotter Pin, 1/4" x 2" |
| 8. | D737 | Pin, Pivot, 1 1/4" x 13 1/4" |
| 9. | D652 | Pin, Cylinder, 1 1/4" x 9 1/2" |
| 10. | A151 | Arm, First Stage |
| 11. | A233 | Cylinder, 2 1/2" x 20" |
| 12. | D826 | Pin, Cylinder, 1 1/4" x 5 1/2" |
| 13. | A666 | Arm, Second Stage, 8R30, 45" |
| | A587 | Arm, Second Stage, 8R Wide, 66" |
| | A171-2 | Arm, Second Stage, 12R30, 105" |
| | A171-3 | Arm, Second Stage, 12R36, 138" |
| | A171-4 | Arm, Second Stage, 12R38, 150" |
| | A171-5 | Arm, Second Stage, 16R30, 165" |
| 14. | D453-3 | Extension Tube, 50" |
| 15. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 16. | 10228 | Lock Washer, 1/2" |
| 17. | 10102 | Hex Nut, 1/2" |

LOW PROFILE - TRIPLE FOLD MARKER ASSEMBLY 16R36/38, 18R30 AND 24R30

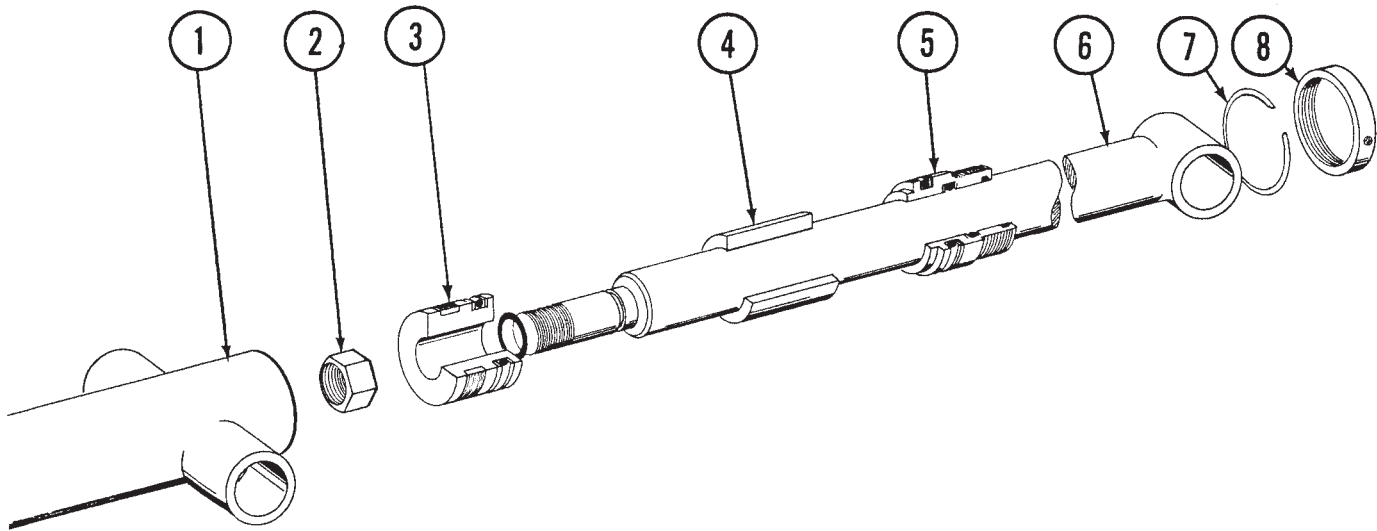


LOW PROFILE - TRIPLE FOLD MARKER ASSEMBLY

16R36/38, 18R30 AND 24R30

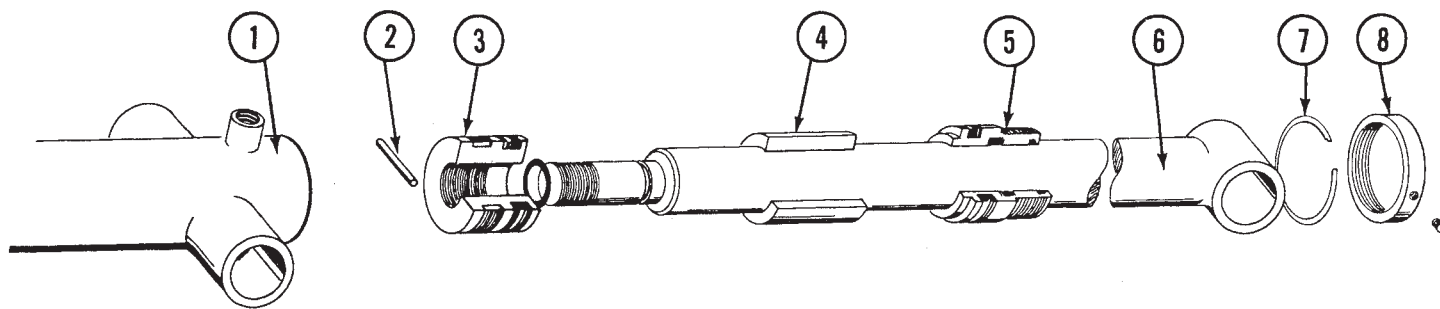
| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A157 | Mount |
| 2. | 10030 | HHCS, 3/4" - 10 x 9" |
| 3. | 10231 | Lock Washer, 3/4" |
| 4. | 10105 | Hex Nut, 3/4" - 10 |
| 5. | D677 | Pin, Pivot, 2 1/8" x 15 1/2" |
| 6. | 10461 | Cotter Pin, 3/8" x 3" |
| 7. | D671 | Pin, Cylinder, 1 1/4" x 10 3/4" |
| 8. | 10460 | Cotter Pin, 1/4" x 2" |
| 9. | A158 | Arm, First Stage |
| 10. | A234 | Cylinder, 3 1/2" x 20" |
| 11. | 3302-1 | Chain, 7-OS, 70 Links, 16R36 and 18R30 |
| | 3302-2 | Chain, 7-OS, 80 Links, 16R38 |
| | 3302-3 | Chain, 7-OS, 100 Links, 24R30 |
| 12. | A175-1 | Arm, Second Stage, 16R36 and 18R30, 136" |
| | A175-2 | Arm, Second Stage, 16R38, 150" |
| | A175-3 | Arm, Second Stage, 24R30, 184" |
| 13. | A160R | Support, w/Spindle, Less Hub, R.H. |
| | A160L | Support, w/Spindle, Less Hub, L.H. |
| 14. | 10111 | Lock Nut, 1/2"-13 |
| 15. | A246 | Rim, T8 x 7 x 4 |
| 16. | D841 | Tire, 16 x 6.5 x 8 |
| 17. | D1364 | Tube, 16 x 6.5 x 8 |
| 18. | D692 | Pad, Support Wheel |
| 19. | 10063 | HHCS, 3/8" - 16 x 4" |
| 20. | 10229 | Lock Washer, 3/8" |
| 21. | 10101 | Hex Nut, 3/8" - 16 |
| 22. | A179 | Stand |
| 23. | D1114 | U-Bolt, 7" x 7" x 5/8" - 11 |
| 24. | 10230 | Lock Washer, 5/8" |
| 25. | 10104 | Hex Nut, 5/8" - 11 |
| 26. | D703 | Bracket, Marker Chain |
| 27. | D704 | Pin, Pivot, 1 1/4" x 14" |
| 28. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 29. | 10228 | Lock Washer, 1/2" |
| 30. | 10102 | Hex Nut, 1/2" - 13 |
| 31. | A178-1 | Arm, Third Stage, 16R36, 90 1/2" |
| | A178-2 | Arm, Third Stage, 16R38, 92 1/2" |
| | A178-3 | Arm, Third Stage, 18R30, 72 1/2" |
| | A178-4 | Arm, Third Stage, 24R30, 114 1/2" |
| 32. | 10033 | HHCS, 1/2" - 13 x 3 1/2" |
| 33. | D453-3 | Extension Tube, 50" |
| 34. | 10641 | Fitting, Grease, 1/8" NPT |
| 35. | A243 | Seal |
| 36. | A899 | Seal |
| 37. | A245 | Bearing |
| 38. | A167 | Hub w/Cups |
| | R151 | Cup, Outer |
| | R150 | Cup, Inner |
| 39. | 10722 | HHCS, 1/2" - 20 x 1" |
| 40. | A257 | Bearing |
| 41. | 10724 | Washer, 5/8" SAE |
| 42. | 10470 | Cotter Pin, 5/32" x 1" |
| 43. | 10725 | Hex Nut, Slotted, 5/8" - 18 |
| 44. | D840 | Cap |
| A. | A542 | Tire and Rim Assembly (Item 15 - 17) |

TRUNION CYLINDER - 8 ROW THRU 12 ROW WIDE



| ITEM | PART NO. | DESCRIPTION |
|---|----------|---|
| 1. | R117 | Tube Assembly |
| 2. | R124 | Nut, 1 1/4" - 12 |
| 3. | R120 | Piston |
| 4. | R121 | Stroke Collar |
| 5. | R119 | Head Gland |
| 6. | R118 | Shaft Assembly |
| 7. | R123 | Wire Ring |
| 8. | R122 | Head Gland Nut |
| | R125 | Seal Kit, Includes (1) Wear Ring (3) O-Ring (1) Poly O-Ring (4) BU Washer (1) Wiper |
| *A. | A230 | Cylinder Complete, 2 1/2" x 50 3/16" |
| * To identify - 13052 Stamped on barrel | | |

TRUNION CYLINDER - 16 ROW THRU 24 ROW

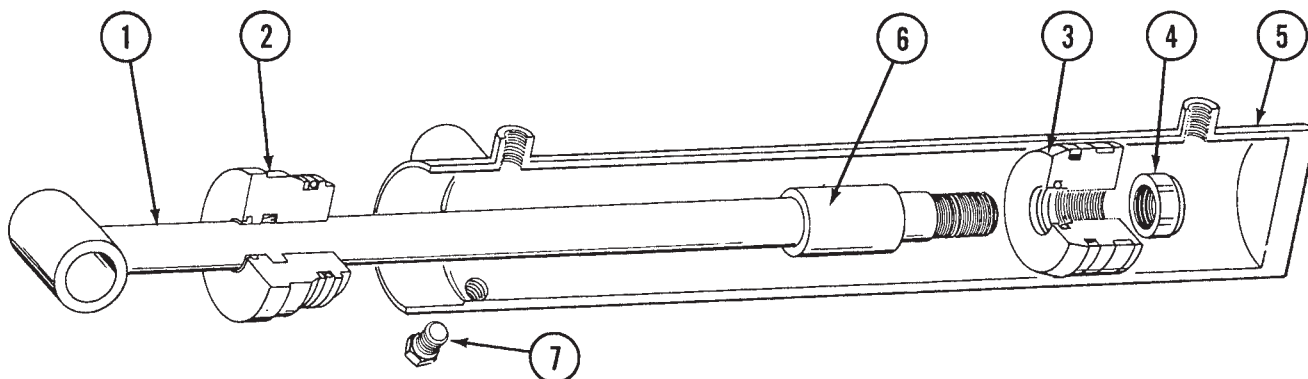


| ITEM | PART NO. | DESCRIPTION |
|------|----------|-------------|
|------|----------|-------------|

| | | |
|-----|-------|--|
| 1. | R0126 | Barrel |
| 2. | 10604 | Roll Pin |
| 3. | R0129 | Piston |
| 4. | R0130 | Stroke Collar |
| 5. | R0128 | Gland |
| 6. | R0127 | Rod |
| 7. | R0132 | Wire Ring |
| 8. | R0131 | Head Gland Nut |
| *A. | A0231 | Cylinder, 3" x 50 5/16" |
| B. | R0133 | Seal Kit, Includes: (1) Wear Ring, (3) O-Rings, (1) Poly O-Ring, (4) BU Washers, (1) Wiper |

* 13053 stamped on barrel.

TRUNION CYLINDER - 16 ROW THRU 24 ROW

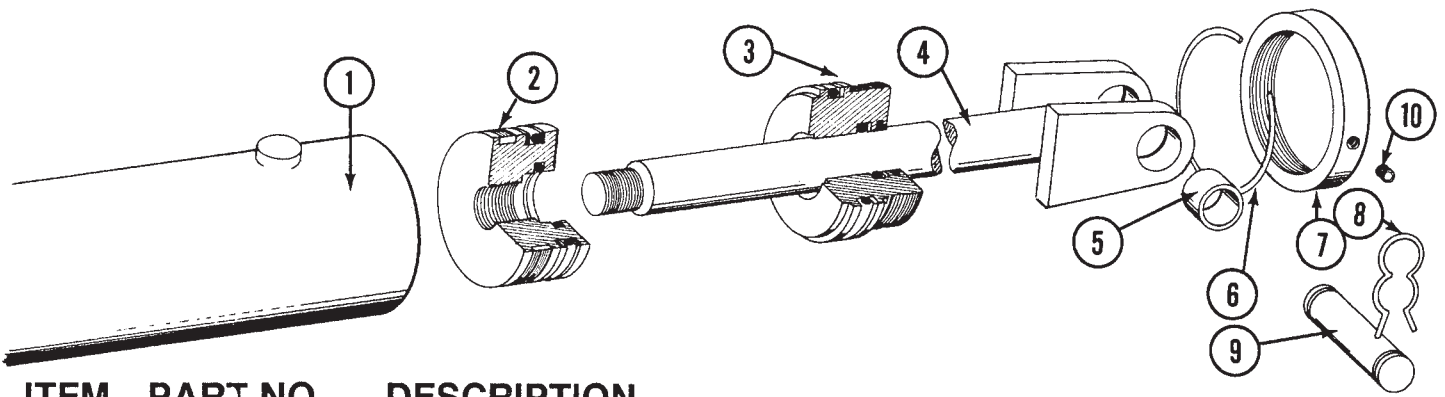


| ITEM | PART NO. | DESCRIPTION |
|------|----------|-------------|
|------|----------|-------------|

| | | |
|-----|---------|--|
| 1. | A4316 | Rod |
| 2. | D6574 | Gland |
| 3. | D6572 | Piston |
| 4. | R0987 | Lock Nut, 1 1/4" - 12 |
| 5. | A4315 | Barrel |
| 6. | D6573 | Spacer |
| 7. | 6408-10 | O-Ring Plug, 7/8" - 14 |
| *A. | A4247 | Cylinder, 3" x 50 5/16" |
| B. | R0990 | Seal Kit, Includes: (2) Wear Rings, (2) O-Rings, (1) BU Ring, (1)U Ring, (1) Wiper |

*Kinze part number stamped on barrel.

LIFT CYLINDER



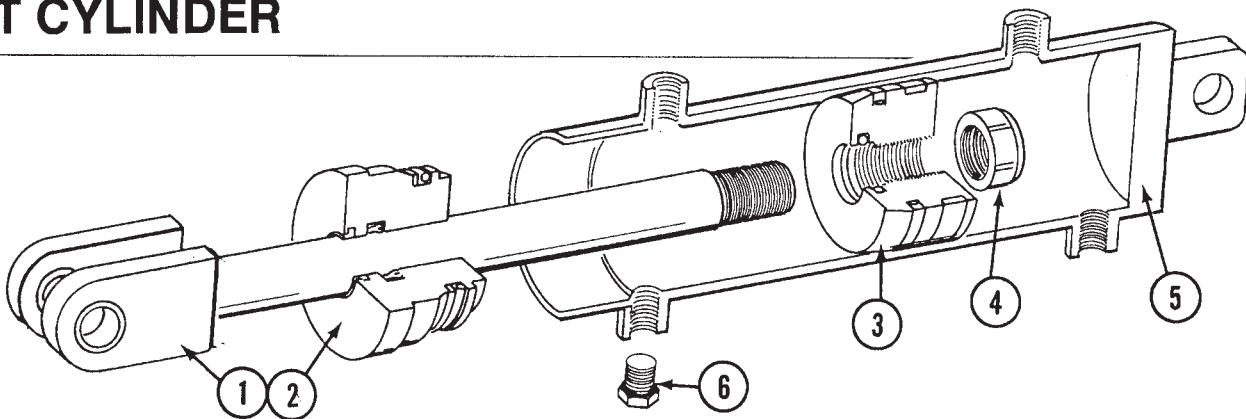
ITEM PART NO. DESCRIPTION

| | | |
|-----|-------|----------------------|
| 1. | R0104 | Barrel |
| 2. | R0108 | Piston |
| 3. | R0107 | Gland |
| 4. | R0560 | Rod |
| 5. | R0374 | Bushing |
| 6. | R0110 | Wire Ring |
| 7. | R0106 | Head Nut |
| 8. | R0193 | Clip |
| 9. | R0375 | Pin |
| 10. | 10114 | Set Screw, No. 10-32 |

- *A. A0232 Cylinder, 4" x 10" (With Pins)
- B. R0111 Seal Kit, Includes: (1) Wear Ring, (3) O-Rings, (4) BU Washer, (1) Poly O-Ring, (1) Wiper

*13005 stamped on barrel.

LIFT CYLINDER



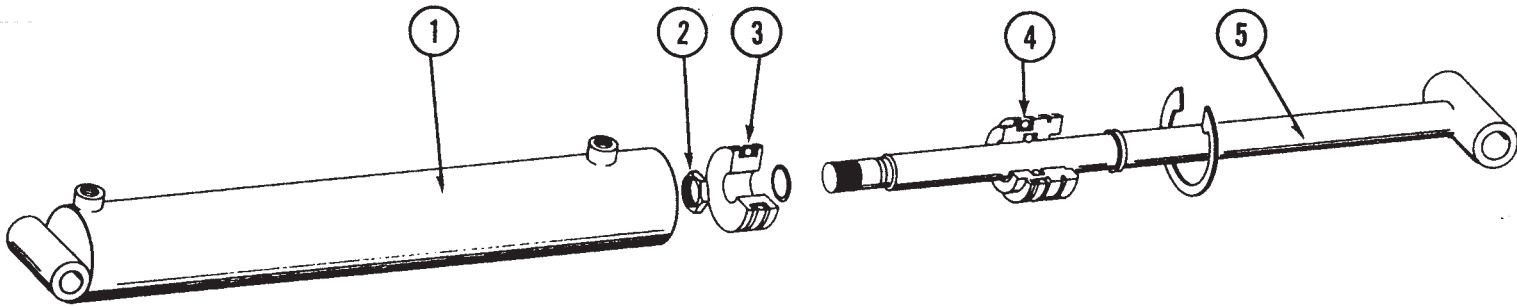
ITEM PART NO. DESCRIPTION

| | | |
|----|---------|-------------------------|
| 1. | A4314 | Rod Assembly w/Bushings |
| | R0374 | Bushing |
| 2. | D6571 | Gland |
| 3. | D6570 | Piston |
| 4. | R0987 | Lock Nut, 1 1/4" - 12 |
| 5. | A4313 | Barrel |
| 6. | 6408-10 | O-Ring Plug, 7/8" - 14 |

- *A. A4248 Cylinder, 4" x 10"
- B. R0989 Seal Kit, Includes: (2) Wear Rings, (2) O-Rings, (1) BU Ring, (1) U Ring, (1) Wiper

* Kinze part number stamped on barrel.

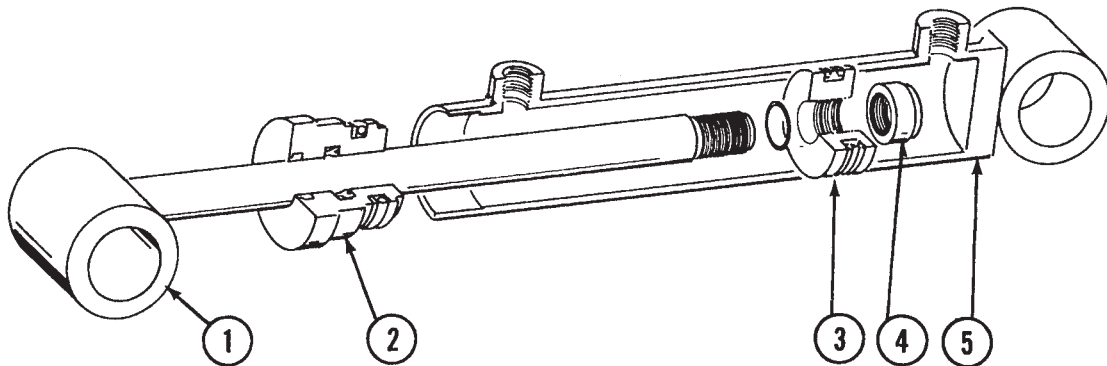
LOW PROFILE - DOUBLE FOLDING MARKER CYLINDER



| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R0134 | Barrel |
| 2. | R0138 | Hex Nut, 87/8" UNF |
| 3. | R0137 | Piston |
| 4. | R0136 | Gland |
| 5. | R0135 | Rod |
| *A. | A0233 | Cylinder, 2 1/2" x 20" |
| B. | R0139 | Seal Kit, Includes: (4) O-Rings, (4) BU Washers, (1) Wiper, (1) Lock Ring |

* 13057 stamped on barrel.

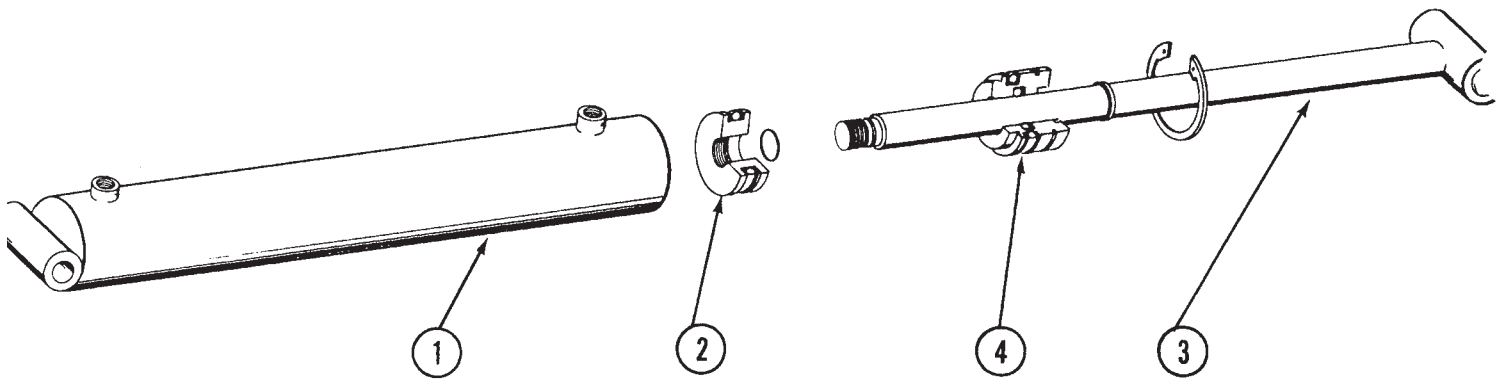
LOW PROFILE - DOUBLE FOLDING MARKER CYLINDER



| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A4193 | Rod Assembly |
| 2. | D5954 | Gland |
| 3. | D4525 | Piston |
| 4. | R0964 | Special Jam Nut |
| 5. | A4192 | Barrel |
| *A. | A4115 | Cylinder, 2 1/2" x 20 1/16" |
| B. | R0963 | Seal Kit, Includes: (1) T Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper |

* Kinze part number stamped on barrel.

LOW PROFILE - TRIPLE FOLDING MARKER CYLINDER



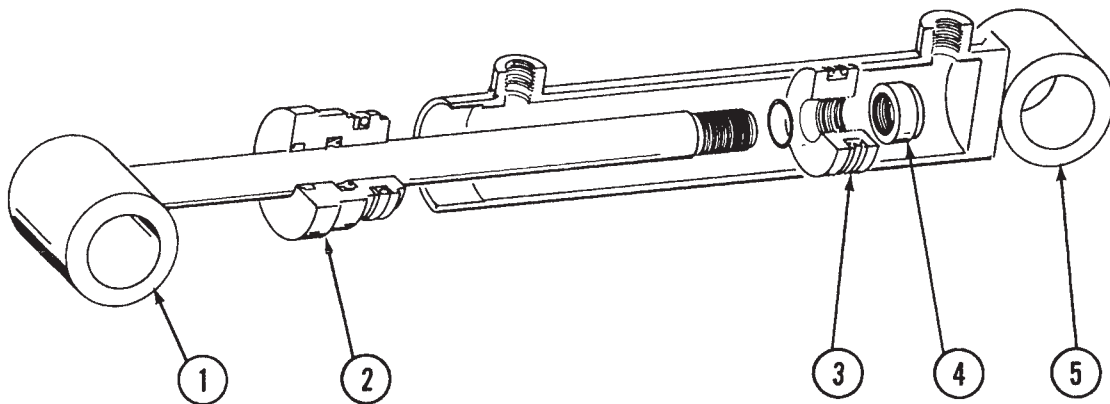
| ITEM | PART NO. | DESCRIPTION |
|------|----------|-------------|
|------|----------|-------------|

- | | | |
|----|-------|--------|
| 1. | R0112 | Barrel |
| 2. | R0115 | Piston |
| 3. | R0113 | Rod |
| 4. | R0371 | Gland |

- | | | |
|-----|-------|---|
| *A. | A0234 | Cylinder, 3 1/2" x 20" |
| B. | R0116 | Seal Kit, Includes: (4) O-Rings, (4) BU Washers, (1) Wiper, (1) Lock Ring |

*13056 stamped on barrel.

LOW PROFILE - TRIPLE FOLDING MARKER CYLINDER



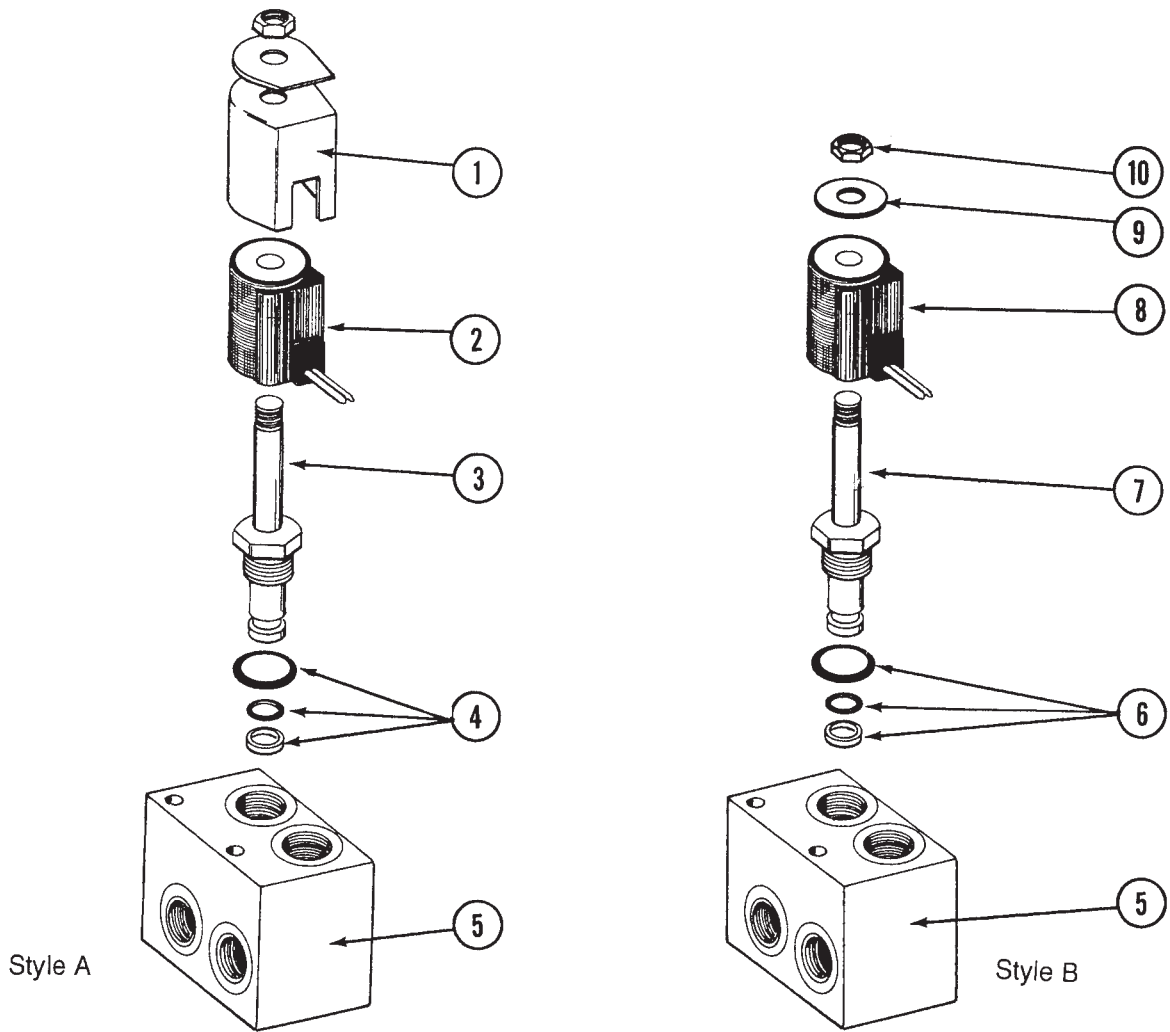
| ITEM | PART NO. | DESCRIPTION |
|------|----------|-------------|
|------|----------|-------------|

- | | | |
|----|-------|-----------------------|
| 1. | A4312 | Rod Assembly |
| 2. | D6569 | Gland |
| 3. | D6568 | Piston |
| 4. | R0987 | Lock Nut, 1 1/4" - 12 |
| 5. | A4311 | Barrel |

- | | | |
|-----|-------|--|
| *A. | A4249 | Cylinder, 3 1/2" x 20" |
| B. | R0988 | Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) U Cup, (1) Wiper, (1) Uni-Ring |

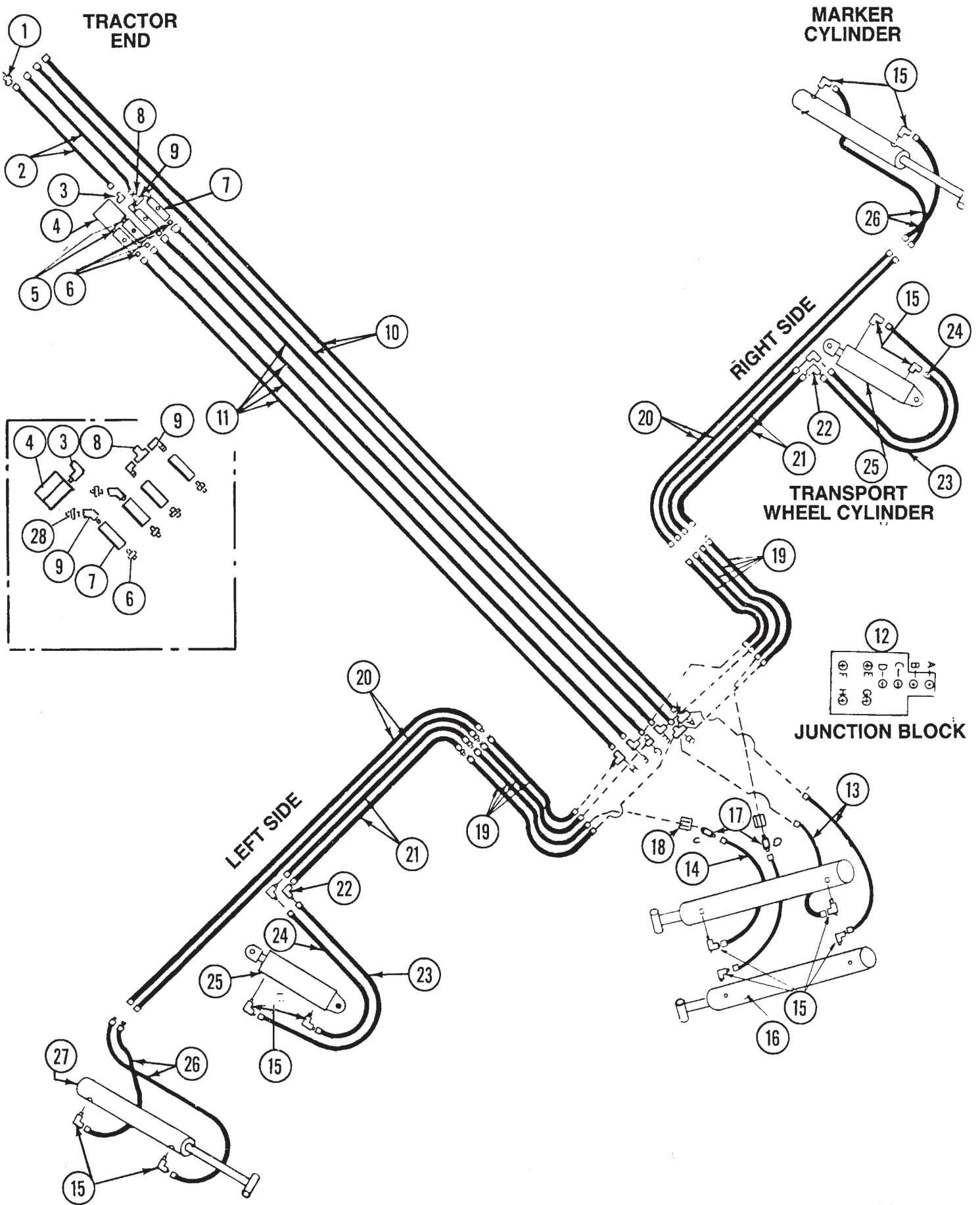
* Kinze part number stamped on barrel.

SOLENOID VALVE



| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | R0507 | Coil Housing |
| 2. | R0506 | Coil w/Yellow Wires |
| 3. | R0505 | Cartridge |
| 4. | R0504 | Seal Kit |
| 5. | R0502 | Body |
| 6. | R0764 | Seal Kit |
| 7. | R0763 | Cartridge |
| 8. | R0762 | Coil |
| 9. | R0760 | Name Plate |
| 10. | R0761 | Hex Nut |
| A. | A0238A | Solenoid Valve, Complete, Style A |
| | A0238B | Solenoid Valve, Complete, Style B |
| B. | A2213 | Cartridge Assembly, Style A (Items 1-4) |
| | A2484 | Cartridge Assembly, Style B (Items 6-10) |

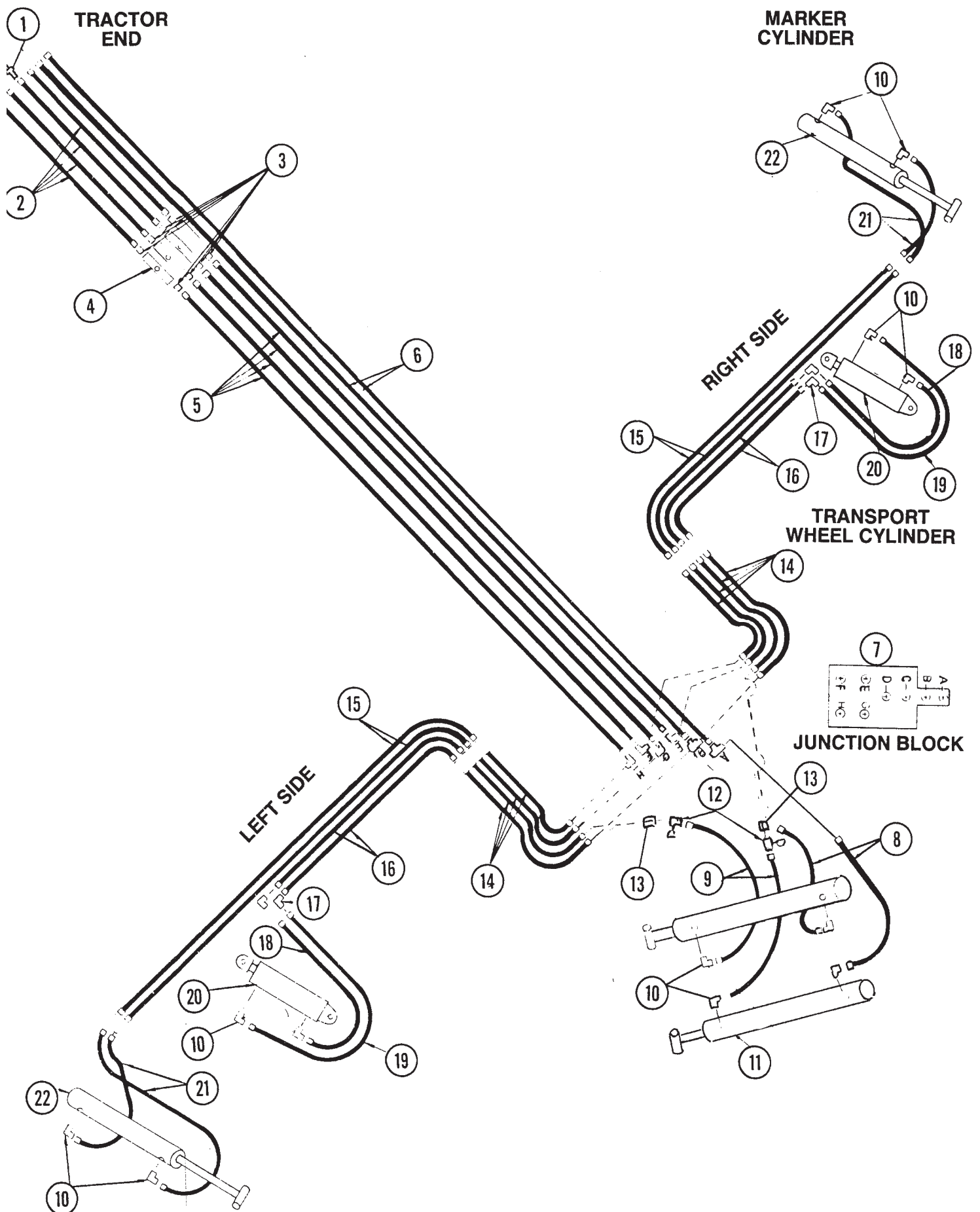
DUAL VALVE - SINGLE TRANSPORT WHEEL



DUAL VALVE - SINGLE TRANSPORT WHEEL

| ITEM | PART NO. | DESCRIPTION |
|------|------------|---|
| 1. | D4086 | Male Pioneer Tip |
| 2. | A1023 | Hose Assembly, 3/8" x 76" |
| 3. | 6801-08 | Elbow, 90° Male |
| 4. | | See Solenoid valve |
| 5. | 6401-08-08 | Adapter, Male O-Ring |
| 6. | 2404-0808 | Adapter, Male Straight |
| 7. | | See Flow Control Valve |
| 8. | 2603-08 | Tee, Tube |
| 9. | 6501-08-08 | Adapter, 90° |
| 10. | A1032 | Hose Assembly, 3/8" x 240" |
| 11. | A1013 | Hose Assembly, 3/8" x 150" |
| 12. | A0186 | Manifold |
| 13. | A1020 | Hose Assembly, 3/8" x 48" |
| 14. | A1018 | Hose Assembly, 3/8" x 40" |
| 15. | 2501-08-08 | Elbow, 90°, 3/4" - 16 JIC to 1/2" NPT (Used with cylinder requiring 1/2" pipe thread fitting) |
| | 6801-08 | Elbow, 90°, 3/4" - 16 JIC to 3/4" O-Ring (Used with cylinder requiring 3/4" O-ring fitting) |
| 16. | | See Trunion Cylinder |
| 17. | 2700-08 | Union, Bulkhead Tube |
| 18. | 306-08 | Nut, Lock, 3/4" - 16 |
| 19. | A1022 | Hose Assembly, 3/8" x 60" |
| 20. | A1059 | Hose Assembly, 3/8" x 130", 8R30 |
| | A1061 | Hose Assembly, 3/8" x 148", 8R Wide, Style 1 Markers Only |
| | A1077 | Hose Assembly, 3/8" x 160", 8R Wide, Style 2 Markers Only |
| | A1063 | Hose Assembly, 3/8" x 190", 12R30 |
| | A1065 | Hose Assembly, 3/8" x 234", 12R Wide |
| 21. | A1058 | Hose Assembly, 3/8" x 122", 8R30 |
| | A1060 | Hose Assembly, 3/8" x 116", 8R Wide, Style 1 Markers Only |
| | A1077 | Hose Assembly, 3/8" x 160", 8R Wide, Style 2 Markers Only |
| | A1062 | Hose Assembly, 3/8" x 152", 12R30, Style 1 Markers Only |
| | A1063 | Hose Assembly, 3/8" x 190", 12R30, Style 2 Markers Only |
| | A1064 | Hose Assembly, 3/8" x 192", 12R Wide, Style 1 Marker Only |
| | A1065 | Hose Assembly, 3/8" x 234", 12R Wide, Style 2 Markers Only |
| | A1076 | Hose Assembly, 3/8" x 30", All Models w/Style 1 Markers |
| | 2403-08 | Union, Straight Tube, Used w/A1076 on Models w/Style 1 Markers |
| 22. | 2500-08 | Elbow, 90° |
| 23. | A1021 | Hose Assembly, 3/8" x 56" |
| 24. | A1019 | Hose Assembly, 3/8" x 44" |
| 25. | | See Lift Cylinder |
| 26. | A1004 | Hose Assembly, 3/8" x 36" |
| 27. | | See Marker Cylinder |
| 28. | 6400-08 | Adapter, Male O-Ring |

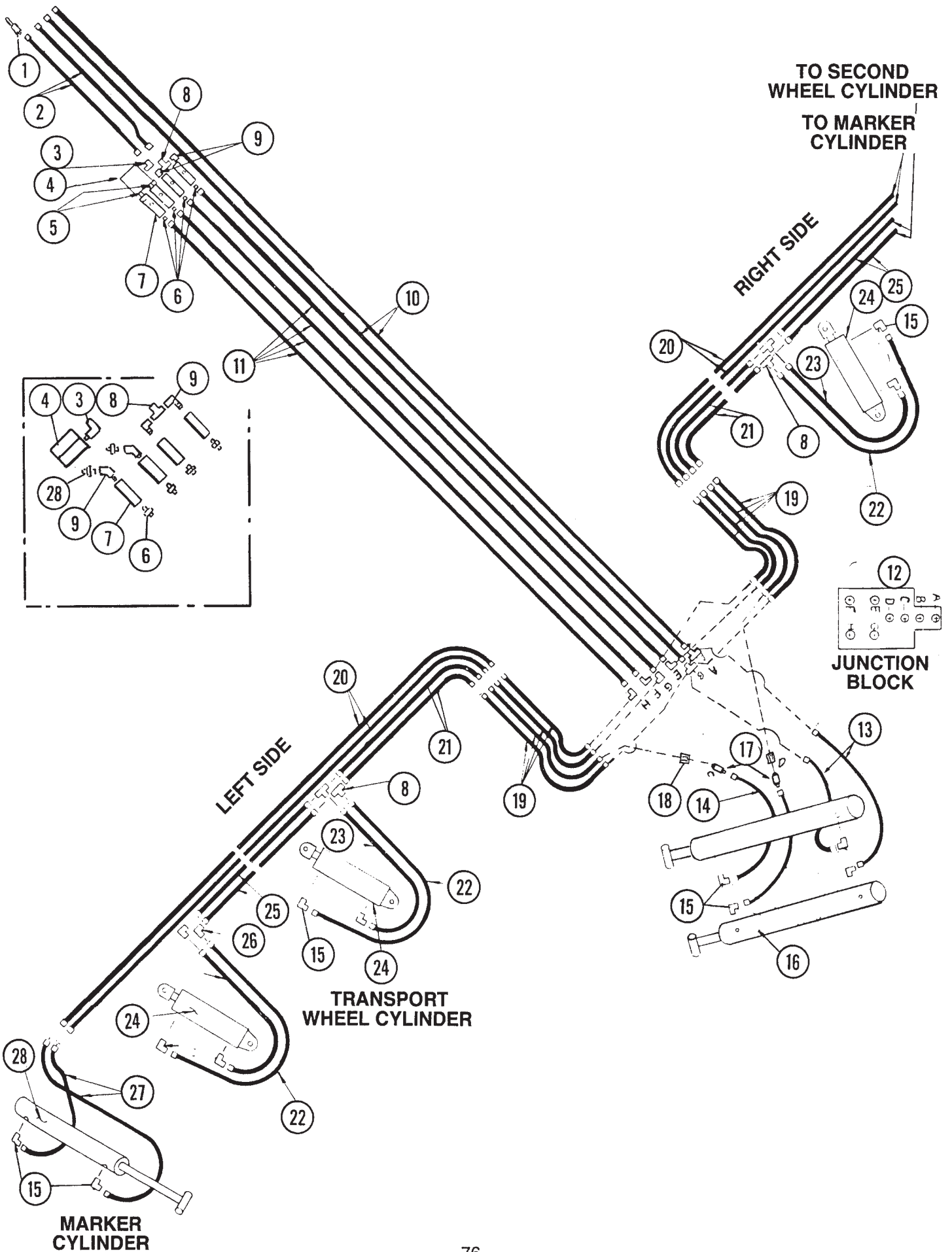
TRIPLE VALVE - SINGLE TRANSPORT WHEEL



TRIPLE VALVE - SINGLE TRANSPORT WHEEL

| ITEM | PART NO. | DESCRIPTION |
|------|------------|---|
| 1. | D4086 | Male Pioneer Tip |
| 2. | A1023 | Hose Assembly, 3/8" x 76" |
| 3. | 2404-08-08 | Adapter, Male Straight |
| 4. | | See Flow Control Valve |
| 5. | A1013 | Hose Assembly, 3/8" x 150" |
| 6. | A1032 | Hose Assembly, 3/8" x 240" |
| 7. | A0186 | Manifold |
| 8. | A1020 | Hose Assembly, 3/8" x 48" |
| 9. | A1018 | Hose Assembly, 3/8" x 40" |
| 10. | 2501-08-08 | Elbow, 90°, 3/4" - 16 JIC to 1/2" NPT (Used With Cylinder Requiring 1/2" Pipe Thread Fitting) |
| | 6801-08 | Elbow, 90°, 3/4" - 16 JIC to 3/4" O-Ring (Used With Cylinder Requiring 3/4" O-Ring Fitting) |
| 11. | | See Trunion Cylinder |
| 12. | 2700-08 | Union, Bulkhead Tube |
| 13. | 306-08 | Nut, Lock, 3/4" - 16 |
| 14. | A1022 | Hose Assembly, 3/8" x 60" |
| 15. | A1059 | Hose Assembly, 3/8" x 130", 8R30 |
| | A1061 | Hose Assembly, 3/8" x 148", 8R Wide, Style 1 Markers Only |
| | A1077 | Hose Assembly, 3/8" x 160", 8R Wide, Style 2 Markers Only |
| | A1063 | Hose Assembly, 3/8" x 190", 12R30 |
| | A1065 | Hose Assembly, 3/8" x 234", 12R Wide |
| 16. | A1058 | Hose Assembly, 3/8" x 122", 8R30 |
| | A1060 | Hose Assembly, 3/8" x 116", 8R Wide, Style 1 Markers Only |
| | A1077 | Hose Assembly, 3/8" x 160", 8R Wide, Style 2 Markers Only |
| | A1062 | Hose Assembly, 3/8" x 152", 12R30, Style 1 Markers Only |
| | A1063 | Hose Assembly, 3/8" x 190", 12R30, Style 2 Markers Only |
| | A1064 | Hose Assembly, 3/8" x 192", 12R Wide, Style 1 Markers Only |
| | A1065 | Hose Assembly, 3/8" x 234", 12R Wide, Style 2 Markers Only |
| | A1076 | Hose Assembly, 3/8" x 30", All Models w/Style 1 Markers |
| | 2403-08 | Union, Straight Tube, Used w/A1076 on Models w/Style 1 Markers |
| 17. | 2500-08 | Elbow, 90° |
| 18. | A1019 | Hose Assembly, 3/8" x 44" |
| 19. | A1021 | Hose Assembly, 3/8" x 56" |
| 20. | | See Lift Cylinder |
| 21. | A1004 | Hose Assembly, 3/8" x 36" |
| 22. | | See Marker Cylinder |

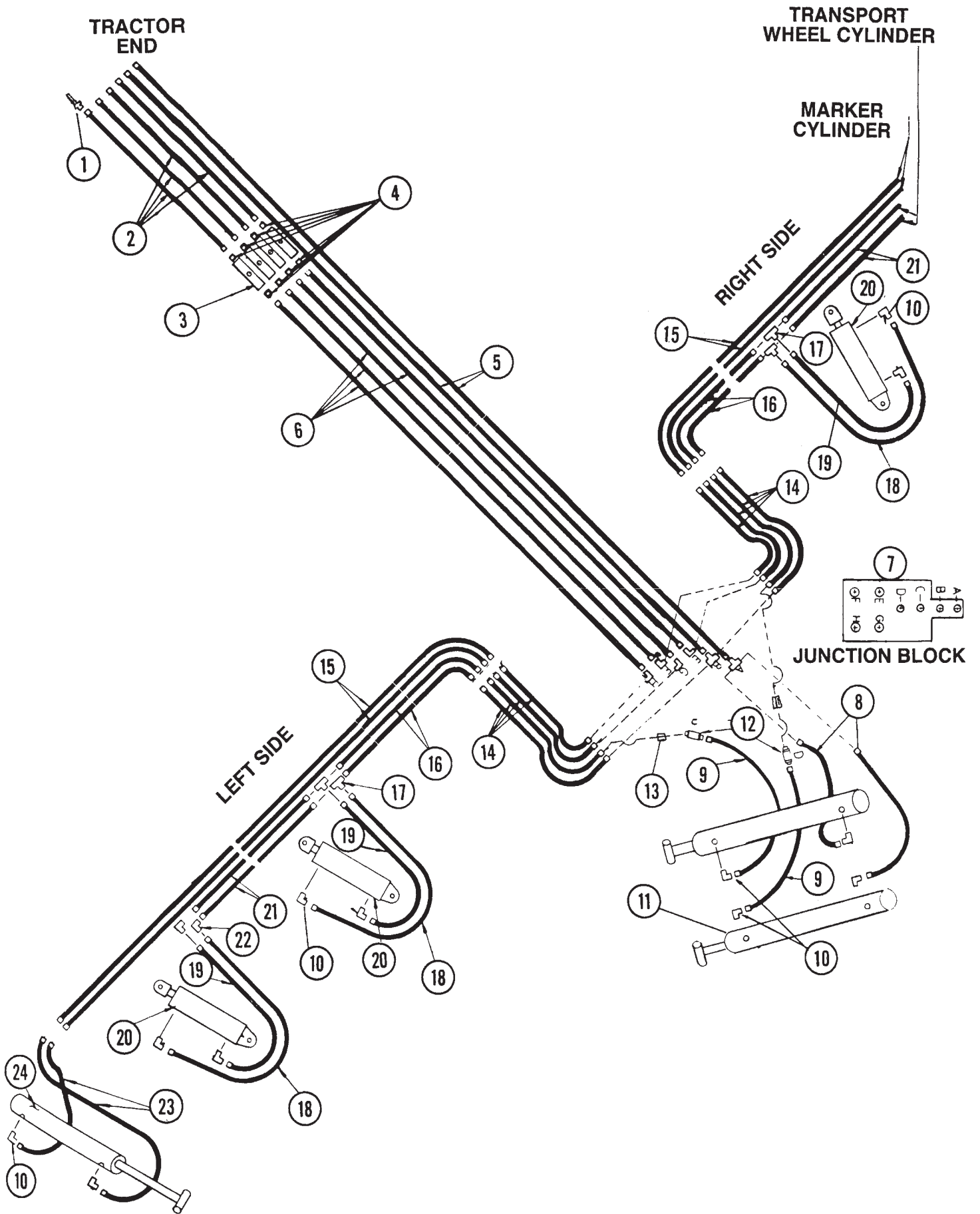
DUAL VALVE - DOUBLE TRANSPORT WHEEL



DUAL VALVE - DOUBLE TRANSPORT WHEEL

| ITEM | PART NO. | DESCRIPTION |
|------|------------|---|
| 1. | D4086 | Male Pioneer Tip |
| 2. | A1023 | Hose Assembly, 3/8" x 76" |
| 3. | 6801-08 | Elbow, 90° Male |
| 4. | | See Solenoid Valve |
| 5. | 6401-08-08 | Adapter, Male O-Ring |
| 6. | 2404-08-08 | Adapter, Male Straight |
| 7. | | See Flow Control Valve |
| 8. | 2603-08 | Tee, Tube |
| 9. | 6501-08-08 | Adapter, 90° |
| 10. | A1032 | Hose Assembly, 3/8" x 240", 16R30 |
| | A1035 | Hose Assembly, 3/8" x 276", 16R Wide, 18R30, 24R30 |
| 11. | A1013 | Hose Assembly, 3/8" x 150", 16R30 |
| | A1028 | Hose Assembly, 3/8" x 186", 16R Wide, 18R30, 24R30 |
| 12. | A0186 | Manifold |
| 13. | A1020 | Hose Assembly, 3/8" x 48" |
| 14. | A1018 | Hose Assembly, 3/8" x 40" |
| 15. | 2501-08-08 | Elbow, 90°, 3/4" - 16 JIC to 1/2" NPT (Used With Cylinder Requiring 1/2" Pipe Thread Fitting) |
| | 6801-08 | Elbow, 90°, 3/4" - 16 JIC to 3/4" O-Ring (Used With Cylinder Requiring 3/4" O-Ring Fitting) |
| 16. | | See Trunion Cylinder |
| 17. | 2700-08 | Union, Bulkhead Tube |
| 18. | 306-08 | Nut, Lock, 3/4" - 16 |
| 19. | A1022 | Hose Assembly, 3/8" x 60" |
| 20. | A1066 | Hose Assembly, 3/8" x 250", 16R30 |
| | A1069 | Hose Assembly, 3/8" x 280", 18R30 |
| | A1067 | Hose Assembly, 3/8" x 310", 16R Wide |
| | A1071 | Hose Assembly, 3/8" x 370", 24R30 |
| 21. | A1068 | Hose Assembly, 3/8" x 182", 16R30 and 18R30 |
| | A1064 | Hose Assembly, 3/8" x 192", 16R Wide |
| | A1070 | Hose Assembly, 3/8" x 272", 24R30 |
| 22. | A1021 | Hose Assembly, 3/8" x 56" |
| 23. | A1019 | Hose Assembly, 3/8" x 44" |
| 24. | | See Lift Cylinder |
| 25. | A1022 | Hose Assembly, 3/8" x 60", 16R30, 18R30, 24R30 |
| | A1039 | Hose Assembly, 3/8" x 76", 16R Wide |
| 26. | 2500-08 | Elbow, 90° |
| 27. | A1004 | Hose Assembly, 3/8" x 36" |
| 28. | | See Marker Cylinder |
| 29. | 6400-08 | Adapter, Male O-Ring |

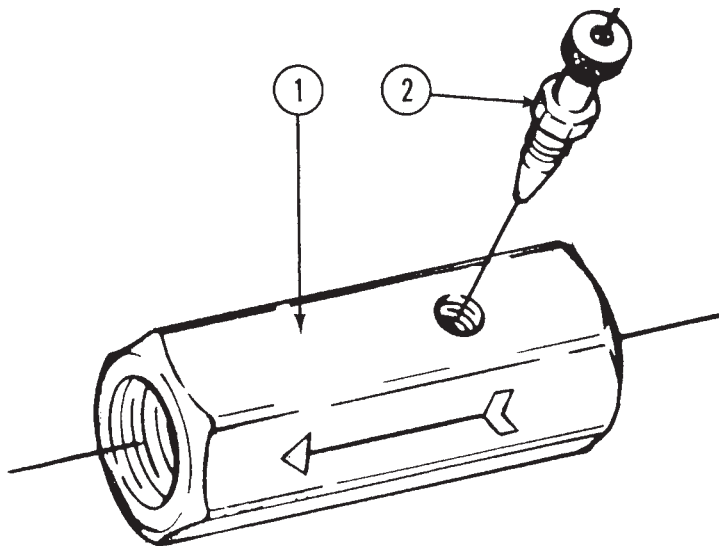
TRIPLE VALVE - DOUBLE TRANSPORT WHEEL



TRIPLE VALVE - DOUBLE TRANSPORT WHEEL

| ITEM | PART NO. | DESCRIPTION |
|------|------------|--|
| 1. | D4086 | Male Pioneer Tip |
| 2. | A1023 | Hose Assembly, 3/8" x 76" |
| 3. | | See Flow Control Valve |
| 4. | 2404-08-08 | Adapter, Male Straight |
| 5. | A1032 | Hose Assembly, 3/8" x 240", 16R30 |
| | A1035 | Hose Assembly, 3/8" x 267", 16R Wide, 18R30, 24R30 |
| 6. | A1013 | Hose Assembly, 3/8" x 150", 16R30 |
| | A1028 | Hose Assembly, 3/8" x 186", 16R Wide, 18R30, 24R30 |
| 7. | A0186 | Manifold |
| 8. | A1020 | Hose Assembly, 3/8" x 48" |
| 9. | A1018 | Hose Assembly, 3/8" x 40" |
| 10. | 2501-08-08 | Elbow 90°, 3/4" - 16 JIC to 1/2" NPT (Used With Cylinder Requiring 1/2" Pipe Thread Fitting) |
| | 6801-08 | Elbow, 90°, 3/4" 16 JIC to 3/4" O-Ring (Used With Cylinder Requiring 3/4" O-Ring Fitting) |
| 11. | | See Trunion Cylinder |
| 12. | 2700-08 | Union, Bulkhead Tube |
| 13. | 306-08 | Nut, Lock, 3/4" - 16 |
| 14. | A1022 | Hose Assembly, 3/8" x 60" |
| 15. | A1066 | Hose Assembly, 3/8" x 250", 16R30 |
| | A1069 | Hose Assembly, 3/8" x 280", 18R30 |
| | A1067 | Hose Assembly, 3/8" x 310", 16R Wide |
| | A1071 | Hose Assembly, 3/8" x 370", 24R30 |
| 16. | A1068 | Hose Assembly, 3/8" x 182", 16R30 and 18R30 |
| | A1064 | Hose Assembly, 3/8" x 192", 16R Wide |
| | A1070 | Hose Assembly, 3/8" x 272", 24R30 |
| 17. | 2603-08 | Tee, Tube |
| 18. | A1021 | Hose Assembly, 3/8" x 56" |
| 19. | A1019 | Hose Assembly, 3/8" x 44" |
| 20. | | See Lift Cylinder |
| 21. | A1022 | Hose Assembly, 3/8" x 60", 16R30, 18R30, 24R30 |
| | A1039 | Hose Assembly, 3/8" x 76", 16R Wide |
| 22. | 2500-08 | Elbow, 90° |
| 23. | A1004 | Hose Assembly, 3/8" x 36" |
| 24. | | See Marker Cylinder |

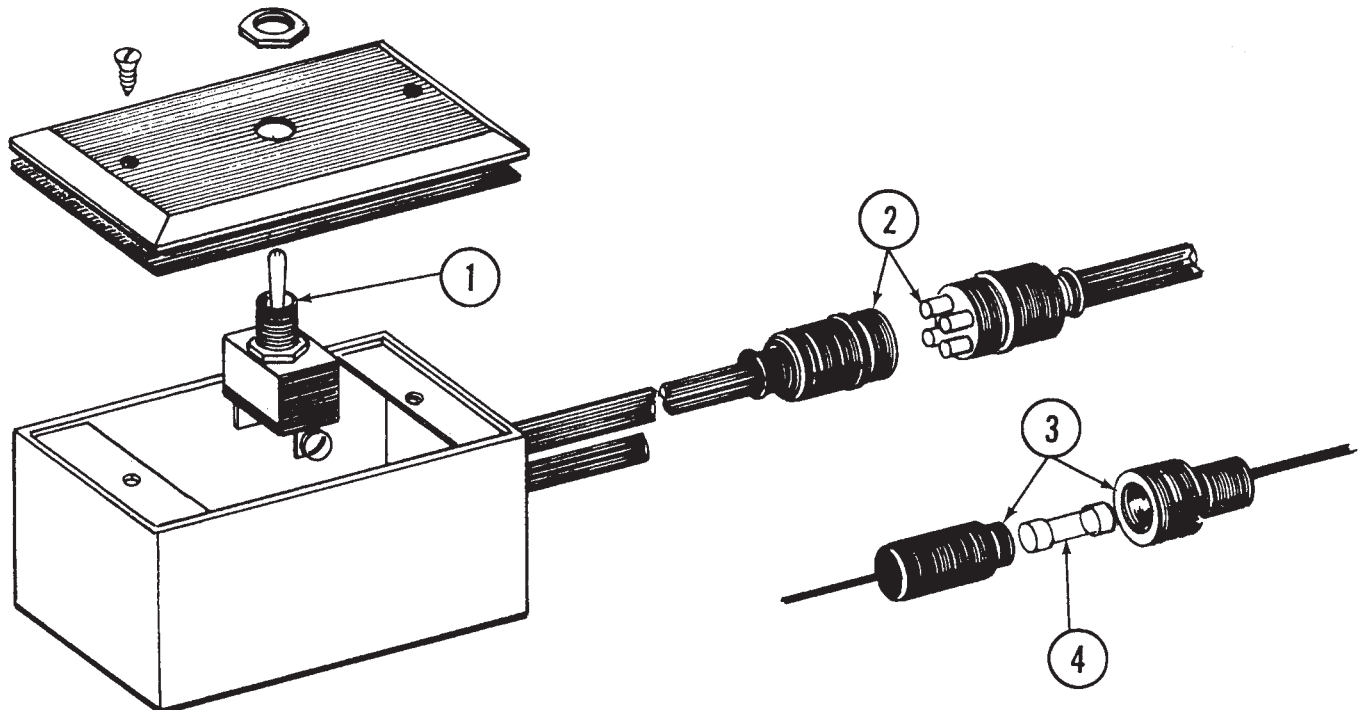
FLOW CONTROL VALVE



| ITEM | PART NO. | DESCRIPTION |
|------|----------|-------------|
|------|----------|-------------|

- | | | |
|----|------|---------------------------------------|
| 1. | A248 | Flow Control Valve Assembly (KLF 500) |
| 2. | R101 | Needle Valve Assembly |

TWO VALVE ELECTRICAL KIT



| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | A533 | Toggle Switch, 3 Position |
| 2. | A1911 | 4 Prong Trailer Connector |
| 3. | A1917 | Fuse Holder |
| 4. | | 10 AMP Fuse |
| A. | A838 | 2 Valve Electrical Kit w/Wiring Harness, Less Solenoid Valve |
| | D1215 | Tie Straps, 6" (Not Shown) |
| | D2117 | Tie Straps, 14" (Not Shown) |

DECALS AND REFLECTORS

KINZE® ¹

⚠ WARNING ⚠

ALWAYS USE SAFETY PINS IN TRANSPORT POSITION

2

⚠ WARNING

TOW ONLY WITH FARM TRACTOR.

3

7100-56

⚠ WARNING

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

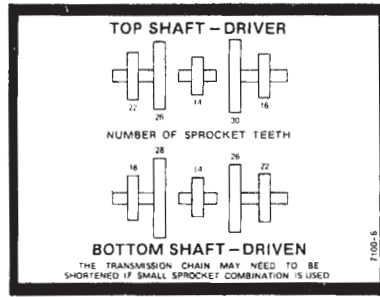
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7100-42 017168

⚠ WARNING ⚠

RAISE PLANTER COMPLETELY BEFORE FOLDING. ALWAYS SECURE WING SECTIONS WITH SAFETY CHAINS BEFORE TOWING.

5



⚠ 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.

8

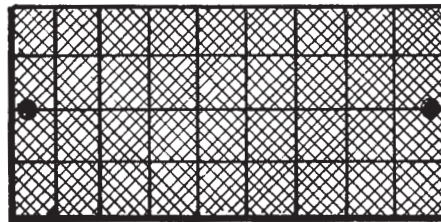
7100-89

⚠ 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 PRACTICE TO PROTECT YOU AND OTHERS NEAR THIS MACHINE FROM INJURY.

9

7100-90



⚠ CAUTION

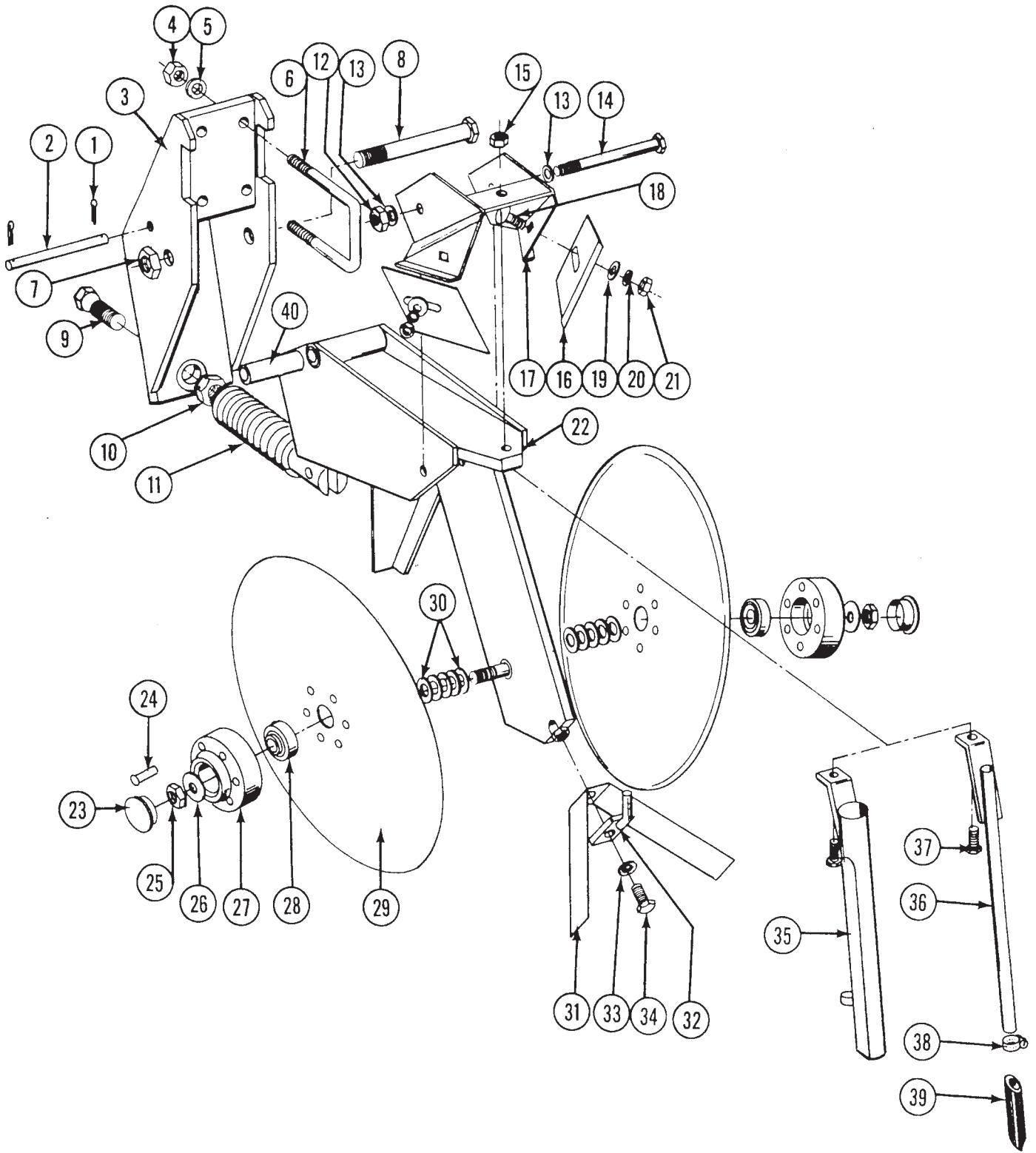
1. Read and understand the Operator's Manual.
2. Stop the tractor engine before leaving the operator's platform.
3. Keep riders off the machine.
4. Make certain everyone is clear of the machine before starting the tractor engine and operating.
5. Keep all shields in place.
6. Never lubricate, adjust,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

10

11

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---------------------|
| 1. | 7100-54 | Decal, Kinze |
| 2. | 7100-2 | Decal, Warning |
| 3. | 7100-56 | Decal, Warning |
| 4. | 7100-42 | Decal, Caution |
| 5. | 7100-5 | Decal, Warning |
| 6. | 7100-6 | Decal, Transmission |
| 7. | 7200-3 | Reflector, Red |
| | 7200-4 | Reflector, Amber |
| 8. | 7100-89 | Decal, Danger |
| 9. | 7100-90 | Decal, Warning |
| 10. | 7100-46 | Decal, Caution |
| 11. | D1512 | Tie Strap, 6" |
| | D2117 | Tie Strap, 14 1/2" |

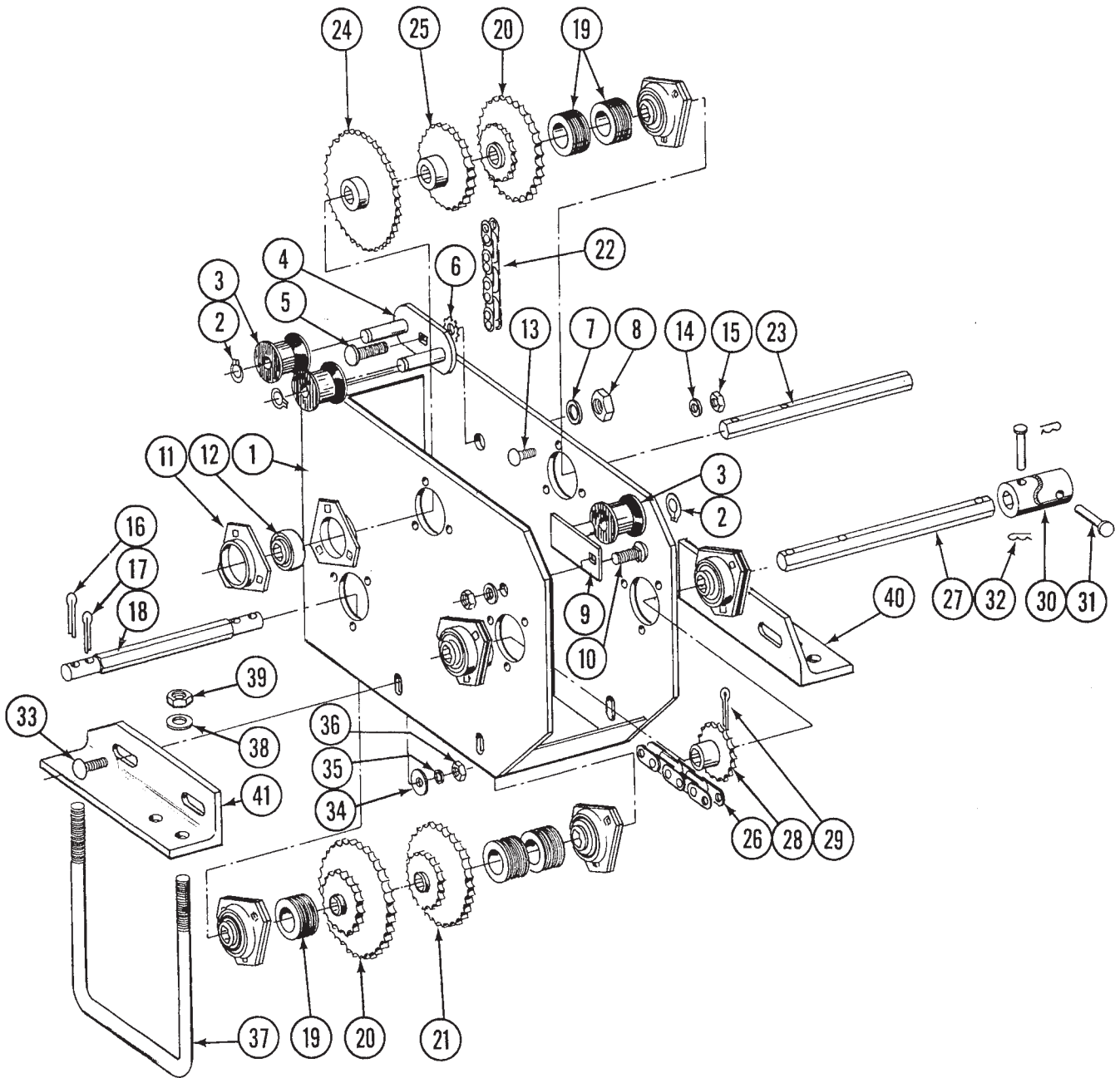
DOUBLE DISK FERTILIZER OPENER



DOUBLE DISK FERTILIZER OPENER

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | 10451 | Cotter Pin, 1/8" x 1" |
| 2. | D1657 | Pin, Lock Up |
| 3. | A785 | Bracket, Mounting |
| 4. | 10102 | Hex Nut, 1/2" - 13 |
| 5. | 10228 | Lock Washer, 1/2" |
| 6. | D1138 | U-Bolt, 2 1/2" x 2 1/2" x 1/2" - 13 |
| 7. | 10107 | Hex Lock Nut, 5/8" - 11 |
| 8. | 10046 | HHCS, 5/8" - 11 x 5" |
| 9. | D962 | Hex Head Adjusting Bolt, 5/8" - 18 |
| 10. | 10499 | Jam Nut, 5/8" - 18 |
| 11. | A328 | Spring |
| 12. | 10111 | Lock Nut, 1/2" - 13 |
| 13. | 10216 | Flat Washer, 1/2" |
| 14. | 10045 | HHCS, 1/2" - 13 x 4 1/2" |
| 15. | 10109 | Hex Lock Nut, 5/16" - 18 |
| 16. | D1673 | Scraper |
| 17. | A810 | Mount |
| 18. | 10305 | Carriage Bolt, 3/8" - 16 x 1" |
| 19. | 10210 | Flat Washer, 3/8" USS |
| 20. | 10229 | Lock Washer, 3/8" |
| 21. | 10101 | Hex Nut, 3/8" - 16 |
| 22. | A308 | Fertilizer Opener |
| 23. | D1132 | Cap |
| 24. | 10651 | Rivet, 1/2" x 1 3/8" |
| 25. | 10503 | Jam Nut, R.H. 5/8" - 11 |
| | 10504 | Jam Nut, L.H. 5/8" - 11 |
| 26. | 10217 | Washer, 5/8" USS |
| 27. | B134 | Hub, Bearing |
| 28. | A2014 | Bearing (Sub IK139) |
| 29. | D1030 | Blade |
| 30. | 10213 | Machine Bushing, 1 3/64 x 11/16 x .030 |
| 31. | D2589 | Scraper, Inner |
| 32. | A312 | Mount, Tube, Weld |
| 33. | 10232 | Lock Washer, 5/16" |
| 34. | 10019 | HHCS, 5/16" - 18 x 1" |
| 35. | A310 | Drop Tube, Dry Fertilizer, Use w/D1214 Drop |
| | A1369 | Drop Tube, Dry Fertilizer, Use w/D3790 Drop |
| 36. | A318 | Drop Tube, Liquid Fertilizer |
| 37. | 10133 | HHCS, 5/16" - 18 x 1 1/2" |
| 38. | 10673 | Clamp, Hose |
| 39. | D1797 | Extension, Drop Tube |
| 40. | D487 | Bushing |
| A. | A320 | Disk and Brg. Assembly (Items 24, 27-29) |
| B. | 6156X | Double Disk Fertilizer Opener, Less Drop Tubes, w/U-Bolts |
| C. | IK139 | Bearing Repair Kit, Includes: (1) A2014, (1) D1132, and (6) 10651 |

DRY FERTILIZER TRANSMISSION



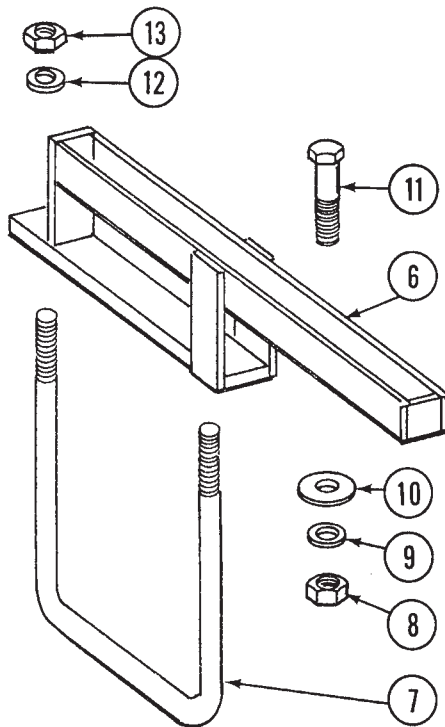
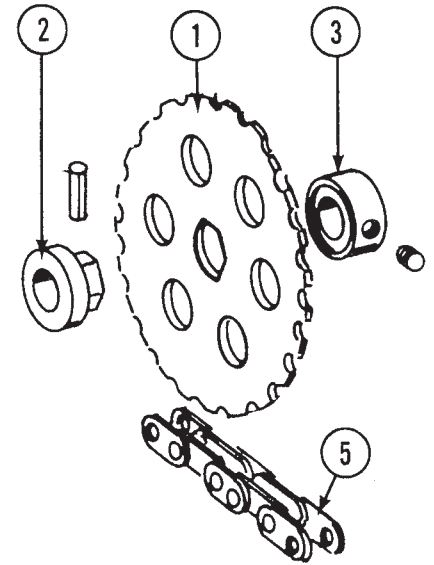
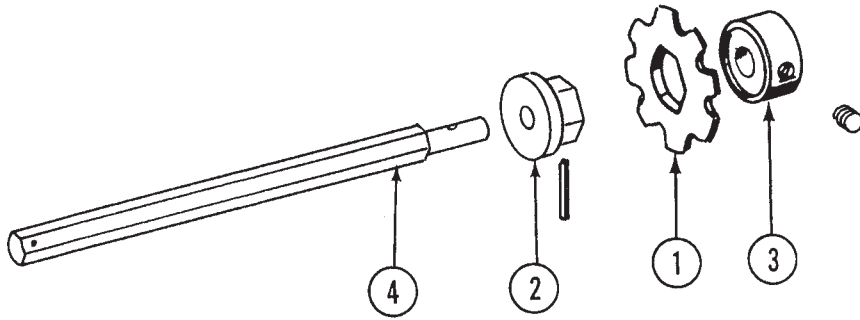
DRY FERTILIZER TRANSMISSION

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | A749 | Case, Transmission |
| 2. | 10435 | Ring, Retainer |
| 3. | D1067 | Spool |
| 4. | A285 | Bracket, Idler |
| 5. | 10314 | Carriage Bolt, 1/4" - 13 x 3" |
| 6. | 10527 | Lock Washer, Internal/External, 1/2" |
| 7. | 10228 | Lock Washer, 1/2" |
| 8. | 10102 | Nut, 1/2" - 13 |
| 9. | A290 | Idler |
| 10. | 10313 | Carriage Bolt, 1/2" - 13 x 1 1/2" |
| 11. | 3400-1 | Flangette |
| 12. | 2100-3 | Bearing, 7/8" Hex Bore |
| 13. | 10312 | Carriage Bolt, 5/16" - 18 x 3/4" |
| 14. | 10232 | Lock Washer, 5/16" |
| 15. | 10106 | Hex Nut, 5/16" - 18 |
| 16. | 10462 | Cotter Pin, 3/16" x 2" |
| 17. | 10460 | Cotter Pin, 1/4" x 2" |
| 18. | D943 | Shaft, Driven, 7/8" x 9" |
| 19. | D832 | Spacer, Rubber |
| 20. | 2500-12 | Sprocket, 18-36 Tooth |
| 21. | 2500-3 | Sprocket, 16-30 Tooth |
| 22. | 3300-37 | Chain, No. 2040, 37 Pitch Including Connector and Offset Link |
| | R194 | Connector Link, No. 2040 |
| | R199 | Offset Link, No. 2040 |
| 23. | D1236 | Shaft, 7/8" x 8 1/2" |
| 24. | 2500-15 | Sprocket, 32 Tooth |
| 25. | 2500-14 | Sprocket, 24 Tooth |
| 26. | 3300-26 | Chain, No. 2040, 26 Pitch Including Connector Link |
| 27. | D953 | Shaft, 7/8" x 10 1/2" |
| 28. | 2500-16 | Sprocket, 16 Tooth |
| 29. | 10465 | Cotter Pin, 1/4" x 1 1/4" |
| 30. | D1269 | Coupler, 8R Wide, 7 1/4" |
| | D1258 | Coupler, 12R30, and 16R30, 22" |
| | D2630 | Coupler, 12R Wide, 33 1/2" |
| 31. | 10558 | Clevis Pin, 5/16" x 1 3/4" |
| 32. | 10456 | Cotter Pin, 1/8" x 3/4" |
| 33. | 10301 | Carriage Bolt, 3/8" - 16 x 1 1/2" |
| 34. | 10210 | Flat Washer, 3/8" |
| 35. | 10229 | Lock Washer, 3/8" |
| 36. | 10101 | Hex Nut, 3/8" - 16 |
| 37. | D1114 | U-Bolt, 7" x 7" x 5/8" - 11 |
| 38. | 10230 | Lock Washer, 5/8" |
| 39. | 10104 | Hex Nut, 5/8" - 11 |
| 40. | D948R | Angle, R.H. |
| 41. | D948L | Angle, L.H. |
| A. | A284 | Idler Assembly, (Items 2 thru 4) |
| B. | A291 | Idler Assembly, (Items 2, 3, and 9) |

DRY FERTILIZER HOPPER AND MOUNT

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | D1379 | Hopper, Dry Fertilizer |
| 2. | A2101 | Lid, includes Clips and Pop Rivets |
| 3. | D1380 | Clip |
| 4. | 10655 | Pop Rivet, 3/16" x 13/32" |
| 5. | D1210 | Strap, Rubber |
| 6. | 10171 | Screw, Hex Head Cap, 5/16" - 18 x 1 1/4" |
| 7. | 10219 | Washer, 5/16" USS |
| 8. | 10232 | Lock Washer, 5/16" |
| 9. | 10106 | Nut, 5/16" - 18 |
| 10. | D1209 | Strap, Reinforcing |
| 11. | D1213 | Washer, Rubber |
| 12. | D1207 | Baffle |
| 13. | 10670 | Hair Pin Clip, No. 3 |
| 14. | D1200 | Housing, Outlet |
| 15. | 10303 | Carriage Bolt, 5/16" - 18 x 1" |
| 16. | D1201 | Shaft, Auger |
| 17. | D1206 | Bearing Shaft |
| 18. | D1212 | Washer, Shaft (Special) |
| 19. | 10464 | Cotter Pin, 3/16" x 1" |
| 20. | D1202 | Guide, Auger |
| 21. | D1205 | Spring, Auger, Left Hand, Regular Rate |
| | D4477 | Spring, L.H., High Rate |
| 22. | D1203 | Plug, Spring |
| 23. | D1204 | Spring, Auger, Right Hand, Regular Rate |
| | D4476 | Spring, R.H., High Rate |
| 24. | D1208 | Saddle |
| 25. | 10037 | Screw, Hex Head Cap, 1/2" - 13 x 1 1/4" |
| 26. | 10228 | Lock Washer, 1/2" |
| 27. | 10102 | Hex Nut, 1/2" - 13 |
| 28. | 10561 | Clevis Pin, 1/2" x 3" |
| 29. | 10451 | Cotter Pin, 1/8" x 1" |
| 30. | 10641 | Grease Fitting, 1/8" NPT x 45° |
| 31. | 10201 | Washer, Special |
| 32. | 10672 | Hose Clamp, No. 28 |
| 33. | A267 | Mount, Hopper |
| 34. | D1114 | U-Bolt, 7" x 7" x 5/8" - 11 |
| 35. | 10230 | Lock Washer, 5/8" |
| 36. | 10104 | Hex Nut, 5/8" - 11 |
| 37. | D1214 | Tube, Rubber, 1 1/2" Bottom Drop |
| | D3790 | Tube, Rubber, 2" Bottom Drop |
| 38. | 10676 | Clamp, No. 36 |
| 39. | A552 | Drive Coupler, 3 1/8", 8R Wide |
| | A553 | Drive Coupler, 28 5/8", 8R Wide |
| | A554 | Drive Coupler, 4 5/8", 12R30, 16R30 |
| | A555 | Drive Coupler, 16 1/8", 12R30, 16R30 |
| | A561 | Drive Coupler, 30 5/8", 12R Wide |
| | A562 | Drive Coupler, 11 5/8", 12R Wide |
| | D2949 | Drive Coupler, 3 1/8", Uses Insert |
| | A2314 | Drive Coupler, 28 5/8", Uses Insert |
| | A2305 | Drive Coupler, 4 5/8", Uses Insert |
| | A2309 | Drive Coupler, 16 1/8", Uses Insert |
| | A2315 | Drive Coupler, 30 5/8", Uses Insert |
| | A2307 | Drive Coupler, 11 5/8" Uses Insert |
| | D2769 | Insert, Round (Not Shown) |
| | D2768 | Insert, Square (Not Shown) |

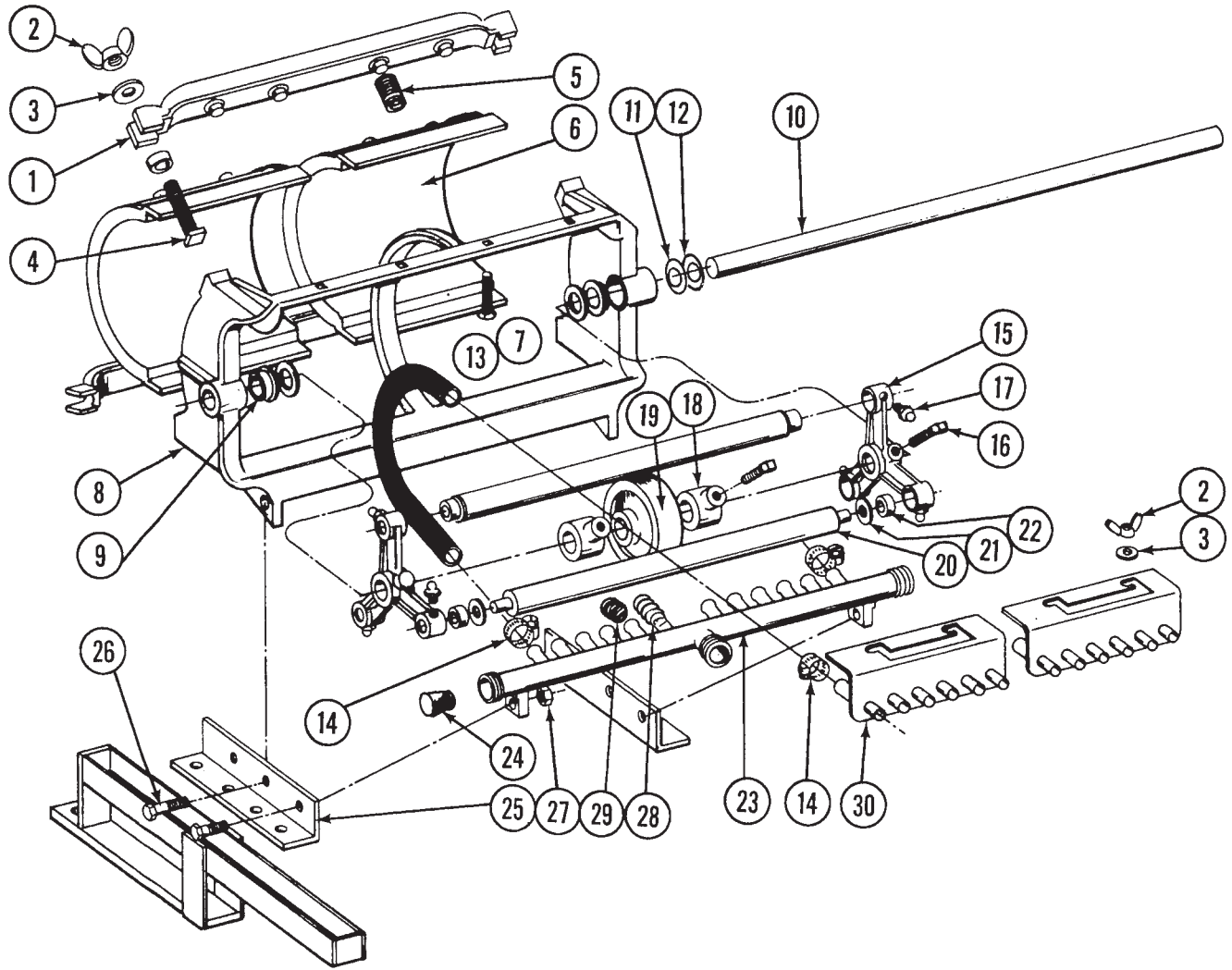
LIQUID FERTILIZER DRIVE



LIQUID FERTILIZER DRIVE

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | D1217 | Sprocket, 8 Tooth (1) |
| | D1218 | Sprocket, 9 Tooth (1) |
| | D1219 | Sprocket, 10 Tooth (1) |
| | D1220 | Sprocket, 15 Tooth (1) |
| | D1221 | Sprocket, 22 Tooth (1) |
| | D1222 | Sprocket, 23 Tooth (1) |
| | D1223 | Sprocket, 26 Tooth (1) |
| 2. | D1216 | Adapter |
| | 10600 | Roll Pin, 5/16" x 2 1/4" |
| 3. | D1215 | Retainer |
| 4. | D1194 | Shaft, Top Transmission, 13 1/2" |
| 5. | 3300-51 | Chain, No. 2040, Includes Connector Link and Offset Link |
| | R199 | Offset Link, No. 2040 |
| | R194 | Connector Link, No. 2040 |
| 6. | A258 | Bracket, Squeeze Pump Mounting |
| 7. | D1114 | U-Bolt, 7" x 7" x 5/8" - 11 |
| 8. | 10100 | Hex Nut, 7/16" - 14 |
| 9. | 10237 | Lock Washer, 7/16" |
| 10. | 10199 | Flat Washer, 7/16" SAE |
| 11. | 10666 | HHCS, 7/16" - 14 x 2" |
| 12. | 10230 | Lock Washer, 5/8" |
| 13. | 10104 | Hex Nut, 5/8" - 11 |

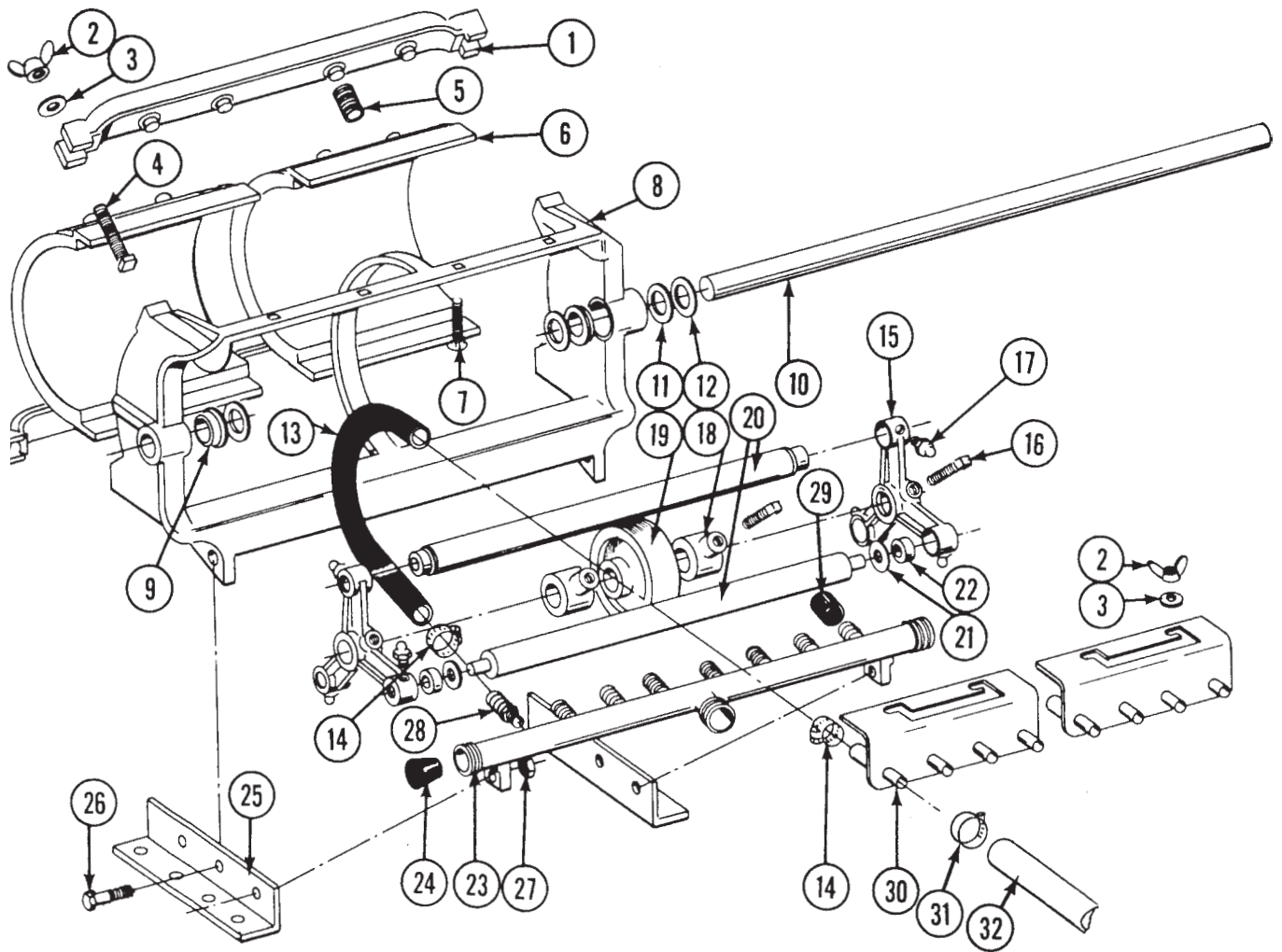
LIQUID FERTILIZER SQUEEZE PUMP - 24 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 24 ROW MODEL

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R221 | Spring Anchor Bar |
| 2. | 10144 | Wing Nut, 5/16" - 18 |
| 3. | 10219 | Flat Washer, 5/16" |
| 4. | 10130 | Square Head Machine Bolt, 5/16" - 18 x 1 3/4" |
| 5. | R214 | Bottom Spring |
| | R603 | Top Spring, Heavy Duty |
| 6. | R212 | Back Plate |
| 7. | 10303 | Round Head Machine Bolt 5/16" - 18 x 1" |
| 8. | R222 | Pump Frame |
| 9. | R207 | Bushing, Nylon |
| 10. | R220 | Pump Shaft |
| 11. | R225 | Shim, 1/32" |
| 12. | R226 | Shim, 3/64" |
| 13. | R215 | Metering Hose, 1/2" x 13" |
| 14. | 10681 | Hose Clamp |
| 15. | R231 | Roller Arm |
| 16. | 10131 | Set Screw, 5/16" - 18 x 3/4" |
| 17. | 10640 | Grease Fitting, 1/4" - 28 |
| 18. | R282 | Set Collar |
| 19. | R281 | Back Up Roller |
| 20. | R283 | Roller |
| 21. | R229 | Washer, Nylon |
| 22. | R230 | Bearing, Roller |
| 23. | R566 | Intake Manifold |
| 24. | R217 | Manifold Plug |
| 25. | R279 | Base Angle, Left |
| | R280 | Base Angle, Right |
| 26. | 10004 | HHCS, 3/8" - 16 x 1 1/4" |
| 27. | 10101 | Hex Nut, 3/8" - 16 |
| 28. | R232 | Hose Adapter |
| 29. | R211 | Rubber Cap |
| 30. | R565 | Discharge Manifold |
| A. | A324 | Squeeze Pump Complete, 12 Rows |

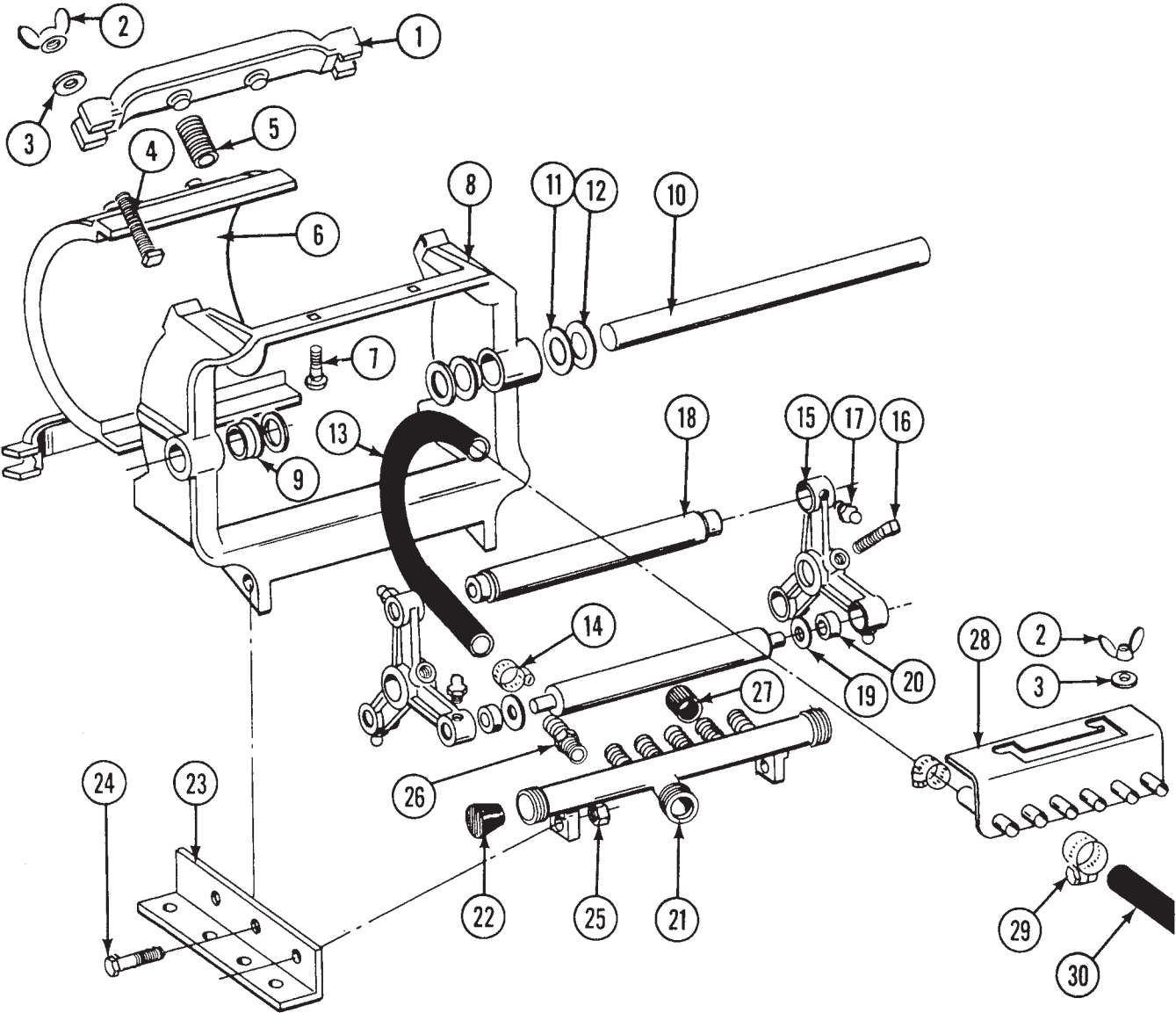
LIQUID FERTILIZER SQUEEZE PUMP - 16 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 16 ROW MODEL

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R221 | Spring Anchor Bar |
| 2. | 10144 | Wing Nut, 5/16" - 18 |
| 3. | 10219 | Flat Washer, 5/16" |
| 4. | 10130 | Square Head Machine Bolt, 5/16" - 18 x 1 3/4" |
| 5. | R214 | Back Spring |
| 6. | R212 | Back Plate |
| 7. | 10303 | Round Head Machine Bolt, 5/16" - 18 x 1" |
| 8. | R222 | Pump Frame |
| 9. | R207 | Bushing, Nylon |
| 10. | R220 | Pump Shaft |
| 11. | R225 | Shim, 1/32" |
| 12. | R226 | Shim, 3/64" |
| 13. | R215 | Metering Hose, 1/2" x 13" |
| 14. | 10681 | Hose Clamp |
| 15. | R231 | Roller Arm |
| 16. | 10131 | Set Screw, 5/16" - 18 x 3/4" |
| 17. | 10640 | Grease Fitting, 1/4" - 28 |
| 18. | R282 | Set Collar |
| 19. | R281 | Back Up Roller |
| 20. | R283 | Roller |
| 21. | R229 | Washer, Nylon |
| 22. | R230 | Bearing Roller |
| 23. | R284 | Intake Manifold |
| 24. | R217 | Manifold Plug |
| 25. | R279 | Base Angle, Left |
| | R280 | Base Angle, Right |
| 26. | 10004 | HHCS, 3/8" - 16 x 1 1/4" |
| 27. | 10101 | Hex Nut, 3/8" - 16 |
| 28. | R232 | Hose Adapter |
| 29. | R211 | Rubber Cap |
| 30. | R236 | Discharge Manifold |
| 31. | 10673 | Clamp, Hose |
| 32. | 4300-5 | Hose, 1/2" x 100' |
| A. | A323 | Squeeze Pump Complete, 8 Rows |

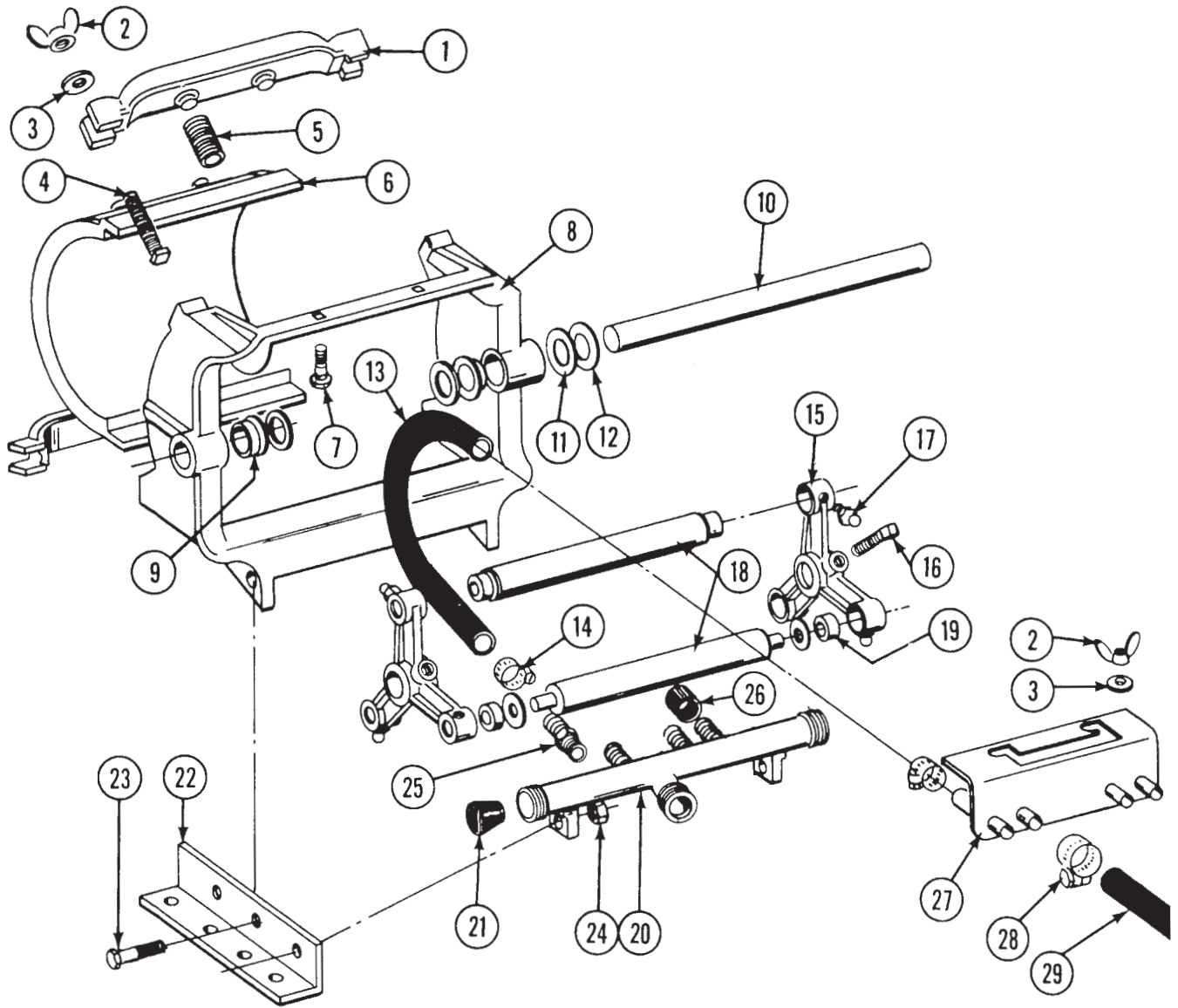
LIQUID FERTILIZER SQUEEZE PUMP - 12 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 12 ROW MODEL

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | R216 | Spring Anchor Bar |
| 2. | 10144 | Wing Nut, 5/16" - 18 |
| 3. | 10219 | Flat Washer, 5/16" |
| 4. | 10130 | Square Head Machine Bolt, 5/16" - 18 x 1 3/4" |
| 5. | R214 | Back Spring |
| 6. | R212 | Back Plate |
| 7. | 10303 | Round Head Machine Bolt, 5/16" - 18 - 1" |
| 8. | R208 | Pump Frame |
| 9. | R207 | Bushing, Nylon |
| 10. | R210 | Pump Shaft |
| 11. | R225 | Shim, 1/32" |
| 12. | R226 | Shim, 3/64" |
| 13. | R215 | Metering Hose, 1/2" x 13" |
| 14. | 10681 | Hose Clamp |
| 15. | R231 | Roller Arm |
| 16. | 10131 | Set Screw, 5/16" - 18 x 3/4" |
| 17. | 10640 | Grease Fitting, 1/4" - 28 |
| 18. | R233 | Roller |
| 19. | R229 | Washer, Nylon |
| 20. | R230 | Bearing, Roller |
| 21. | R228 | Intake Manifold |
| 22. | R217 | Manifold Plug |
| 23. | R213 | Base Angle |
| 24. | 10004 | HHCS, 3/8" - 16 x 1 1/4" |
| 25. | 10101 | Hex Nut, 3/8" - 16 |
| 26. | R232 | Hose Adapter |
| 27. | R211 | Rubber Cap |
| 28. | R224 | Discharge Manifold |
| 29. | 10673 | Hose Clamp, No. 8 |
| 30. | 4300-5 | Hose, 1/2" x 100' |
| A. | A322 | Squeeze Pump Complete, 6 Rows |

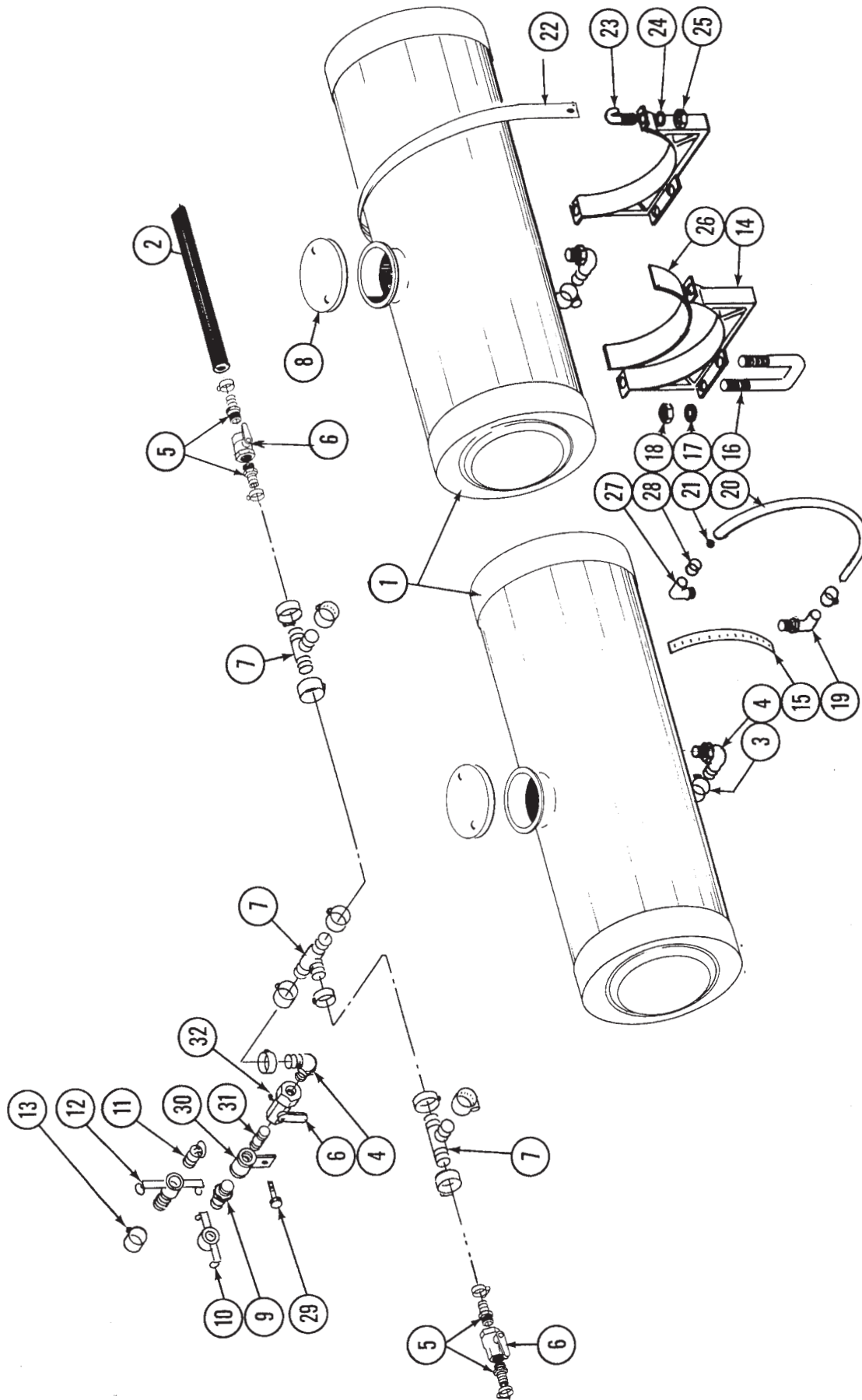
LIQUID FERTILIZER SQUEEZE PUMP - 8 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 8 ROW MODEL

| ITEM | PART NO. | DESCRIPTION |
|------|----------|--|
| 1. | R216 | Spring Anchor Bar |
| 2. | 10144 | Wing Nut, 5/16" - 18 |
| 3. | 10219 | Flat Washer, 5/16" USS |
| 4. | 10130 | Sq. Head Machine Bolt, 5/16" - 18 x 1 3/4" |
| 5. | R214 | Back Spring |
| 6. | R212 | Back Plate |
| 7. | 10303 | Round Head Machine Bolt, 5/16" - 18 x 1" |
| 8. | R208 | Pump Frame |
| 9. | R207 | Bushing (Nylon) |
| 10. | R210 | Pump Shaft |
| 11. | R225 | Shim 1/32" |
| 12. | R226 | Shim, 3/64" |
| 13. | R215 | Metering Hose, 1/2" x 13" |
| 14. | 10681 | Hose Clamp |
| 15. | R233 | Roller Arm |
| 16. | 10131 | Set Screw, 5/16" - 18 x 3/4" |
| 17. | 10640 | Grease Fitting, 1/4" - 28 |
| 18. | R209 | Roller |
| 19. | R227 | Bushing, Nylon |
| 20. | R228 | Intake Manifold |
| 21. | R217 | Manifold Plug |
| 22. | R213 | Base Angle |
| 23. | 10004 | HHCS, 3/8" - 16 x 1 1/4" |
| 24. | 10101 | Hex Nut, 3/8" - 16 |
| 25. | R232 | Hose Adapter |
| 26. | R211 | Rubber Cap |
| 27. | R224 | Discharge Manifold |
| 28. | 10673 | Hose Clamp, No. 8 |
| 29. | 4300-4 | Hose, 1/2" x 50' |
| A. | A321 | Squeeze Pump Complete, 4 Rows |

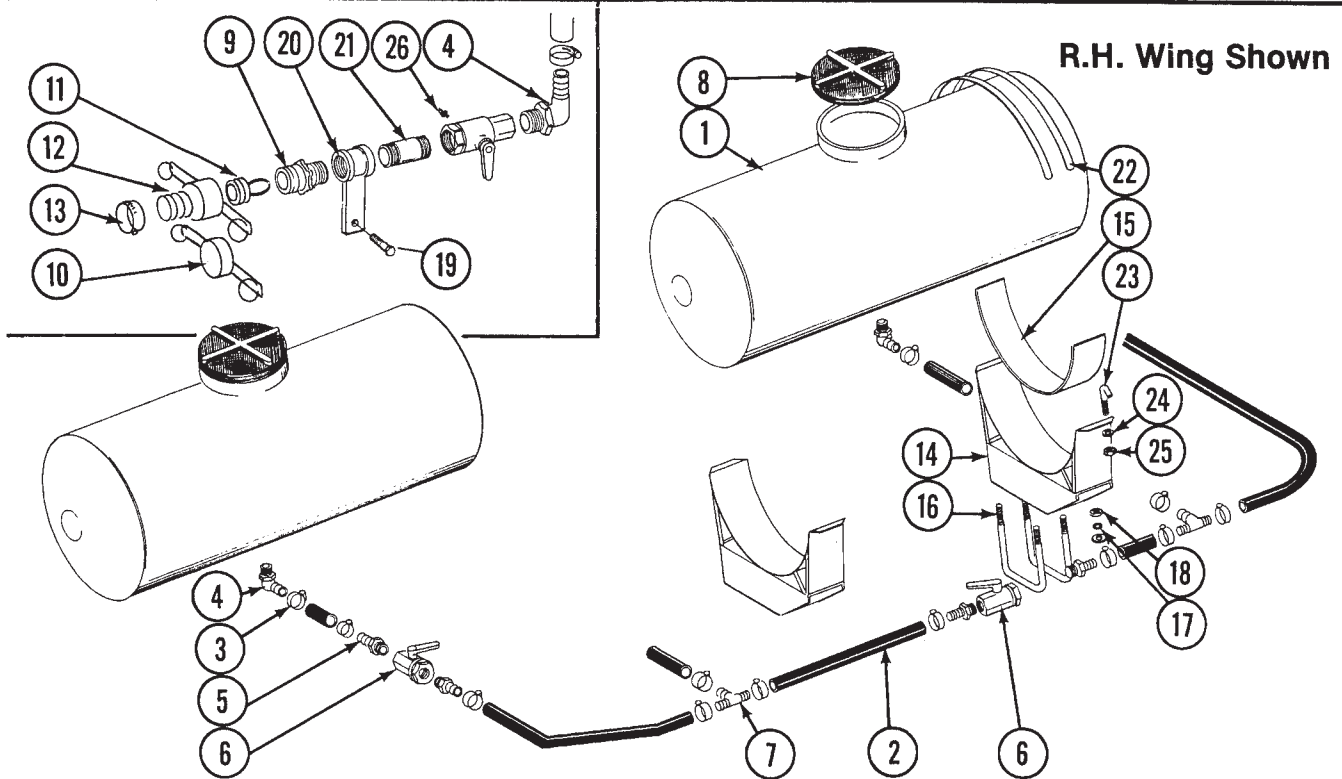
LIQUID FERTILIZER TANK ASSEMBLY 200 GALLON TANKS



LIQUID FERTILIZER TANK ASSEMBLY 200 GALLON TANKS

| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | D2600 | Tank and 1 1/4 Pipe Boss 30" x 200 Gallon |
| 2. | 4200-6 | Hose, 1 1/4" x 40', 8 and 12 Row Models |
| 3. | 10674 | Hose Clamp, No. 24 |
| 4. | 10742 | Elbow, 90°, 1 1/4" NPT to 1 1/4" Barb Fitting |
| 5. | 10745 | Adapter, 1 1/4" NPT to 1 1/4" Barb Fitting |
| 6. | A499 | Ball Valve, 1 1/4" Nylon |
| 7. | 10750 | Tee, 1 1/4", Plastic |
| 8. | D1522 | Lid, Tank, 10" |
| 9. | D1514 | Q Cam, 1 1/4" |
| 10. | D1515 | Dust Cap, 1 1/4" |
| 11. | D1517 | Dust Plug |
| 12. | D1516 | Q CHB, 1 1/2" |
| 13. | 10672 | Hose Clamp, NO. 28 |
| 14. | A3034 | Tank Mounting Bracket w/Saddle |
| 15. | D2601 | Indicator Tape |
| 16. | D1114 | U-Bolt, 5/8" - 11 x 7" x 7" |
| 17. | 10230 | Lock Washer, 5/8" |
| 18. | 10104 | Hex Nut, 5/8" - 11 |
| 19. | 10740 | Elbow, 90°, 1/2 NPT to 1/2" Barb |
| 20. | 4300-2 | Hose, Site |
| 21. | D1513 | Ball, Site |
| 22. | D1520 | Tank Band |
| 23. | D1337 | J-Bolt, 5/16" |
| 24. | 10232 | Lock Washer, 5/16" |
| 25. | 10106 | Hex Nut, 5/16" - 18 |
| 26. | D1334 | Tank Pad, 4" Width (14' Roll) |
| 27. | 10741 | Elbow, 90° w/Nut and Washer |
| 28. | 10673 | Hose Clamp, No. 8 |
| 29. | 10016 | HHCS, 1/2" - 13 x 2" |
| 30. | A918 | Mount, Quick Fill Adapter |
| 31. | 10094 | Nipple, Pipe, 1 1/4" x 3" |
| 32. | 10641 | Fitting, Grease, 1/8", NPT |
| | D1162 | 28" Tie Strap (Not Shown) |
| | D1512 | 6" Tie Strap (Not Shown) |
| | D2117 | 14 1/2" Tie Strap (Not Shown) |

LIQUID FERTILIZER TANK ASSEMBLY 100/110 GALLON TANKS



| ITEM | PART NO. | DESCRIPTION |
|------|----------|---|
| 1. | D1808 | Tank w/Lid and 1 1/4" Pipe Boss, 24" x 100 Gallon |
| | A2203 | Tank w/Lid and Outlet, 24" x 110 Gallon |
| | R511 | Pipe Boss, 100 Gallon Tank |
| | D2728 | Outlet, 110 Gallon Tank |
| 2. | 4200-5 | Hose, 1 1/4" x 50', 8 Row Models |
| | 4200-4 | Hose, 1 1/4" x 55', 12 and 16 Row Models |
| 3. | 10674 | Clamp, Hose, No. 24 |
| 4. | 10742 | Elbow, 90°, 1 1/4" NPT to 1 1/4" Barb |
| 5. | 10745 | Adapter, 1 1/4" NPT to 1 1/4" Barb |
| 6. | A499 | Ball Valve, 1 1/4" Nylon |
| 7. | 10750 | Tee, 1 1/4", Plastic |
| 8. | R512 | Lid, 13" 100 Gallon Tank |
| | D1340 | Lid, 5", 110 Gallon Tank |
| 9. | D1514 | Q Cam, 1 1/4" |
| 10. | D1515 | Cap, Dust, 1 1/4" |
| 11. | D1517 | Plug, Dust |
| 12. | D1516 | Q CHB, 1 1/2" |
| 13. | 10672 | Clamp, Hose, No. 28 |
| 14. | A2136 | Saddle, Tank, 24" |
| 15. | D1807 | Pad, Tank, 6" x 14' |
| 16. | D1114 | U-Bolt, 5/8" - 11 x 7" x 7" |
| 17. | 10230 | Lock Washer, 5/8" |
| 18. | 10104 | Hex Nut, 5/8" - 11 |
| 19. | 10016 | HHCS, 1/2" - 13 x 2" |
| 20. | A918 | Mount, Quick Fill Adapter |
| 21. | 10094 | Nipple, Pipe, 1 1/4" x 3" |
| 22. | D1335 | Band, Tank, 24" |
| 23. | D1337 | J-Bolt, 5/16" |
| 24. | 10232 | Lock Washer, 5/16" |
| 25. | 10106 | Hex Nut, 5/16" - 18 |
| 26. | 10641 | Fitting, Grease, 1/8 NPT |
| | D1162 | Tie Strap, 28" (Not Shown) |
| | D1512 | Tie Strap, 6" (Not Shown) |
| | D2117 | Tie Strap, 14 1/2" (Not Shown) |

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