MODEL DF
DOUBLE FRAME PLANTER

OPERATOR & PARTS MANUAL

M0101 Reprint 05/96

This manual is applicable to: Model: DF
Serial Number: 4252 and on

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

Model Number DF

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

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

NOTE: Indicates a special point of information.

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

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

This manual is applicable to:

Double Frame Pull Type Planter - Model Number DF, Serial Number 4252 and on.

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

Date Purchased _____

Serial Number _____

Model Number _____

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.

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INTRODUCTION

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

The double frame unit permits installation of liquid or dry fertilizer application equipment, trash coulters, field cultivator shanks, rolling incorporators, etc., on the front bar for full no-till planting. The weight of the double frame unit also contributes to effective operation of coulters and other minimum till equipment that the operator may choose to add. For further information on installation and use of optional equipment on all models, refer to the assembly and operation sections of this manual.

General Information

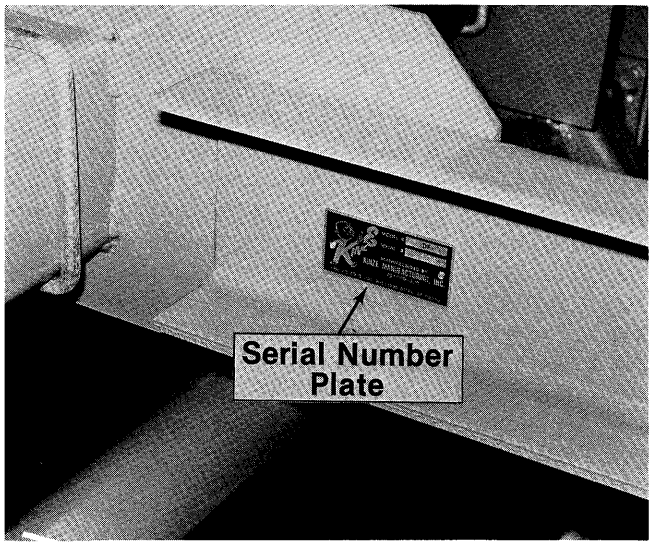
The information and photos used in this manual were current at the time of printing. However, due to Kinze's continual attempt to improve its product, possible in-line production changes may cause your machine to appear slightly different in detail. Kinze Manufacturing reserves the right to change specifications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

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

Serial Number

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

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



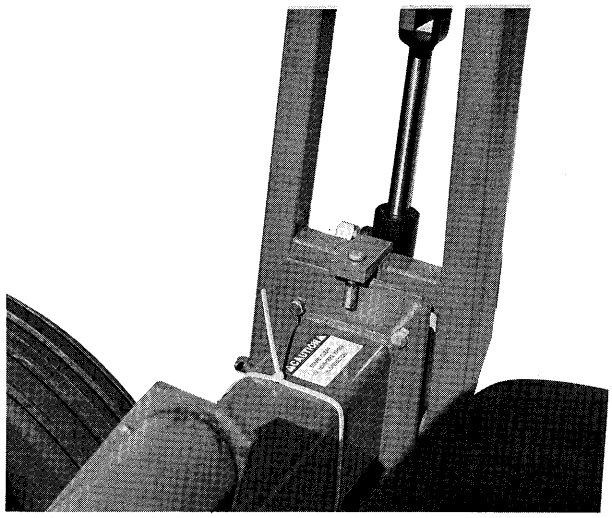
SAFETY PRECAUTIONS ⚠

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

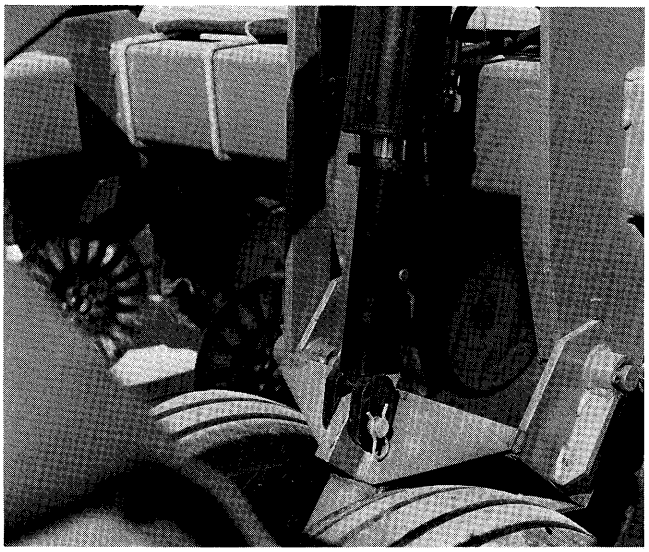
Since a large portion of farm accidents occur as a result of fatigue or carelessness, safety practices should be of utmost concern. Read and understand the instructions provided in this manual as well as those provided in your row unit operator's manual. Listed below are a few other safety suggestions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

- Never permit any persons other than the operator to ride on the tractor.
- Never ride on the planter frame or allow others to do so.
- Limit towing speeds to 15 MPH. Tow only with farm tractor of at least 50 H.P. size.
- Always make sure there are no persons near the planter bar when gauge marker assemblies are in operation.
- Always lower the planter when not in use and cycle the hydraulic control lever to relieve pressure in cylinders and hoses.
- Always make necessary safety preparations prior to transporting the machine on public roads. This includes installing Slow Moving Vehicle (SMV) emblem and use of adequate lights or safety warnings after dark, except where prohibited by law.
- Watch for obstructions such as wires, tree limbs, etc., when folding marker assemblies.
- Always install marker lock up/safety pins before transporting or parking any planter equipped with conventional marker assemblies.
- Always install all cylinder lock up brackets before towing the planter bar or working under the unit.

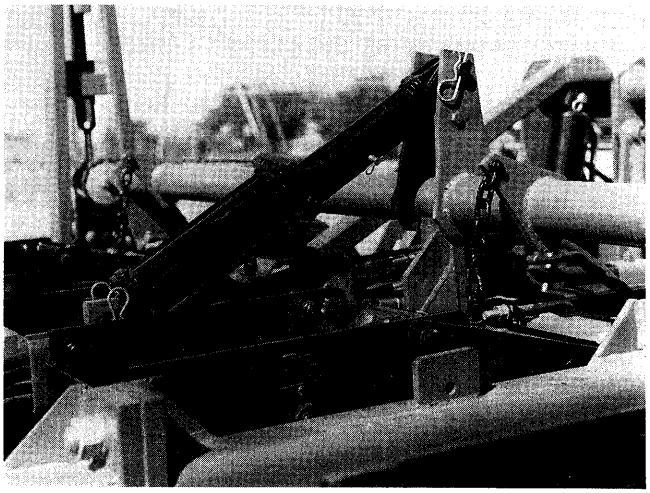
("Safety" Position Shown)



Marker Assembly



Double Frame Planter Bar



Rock Shaft

ASSEMBLY

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

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

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

Hardware

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

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

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

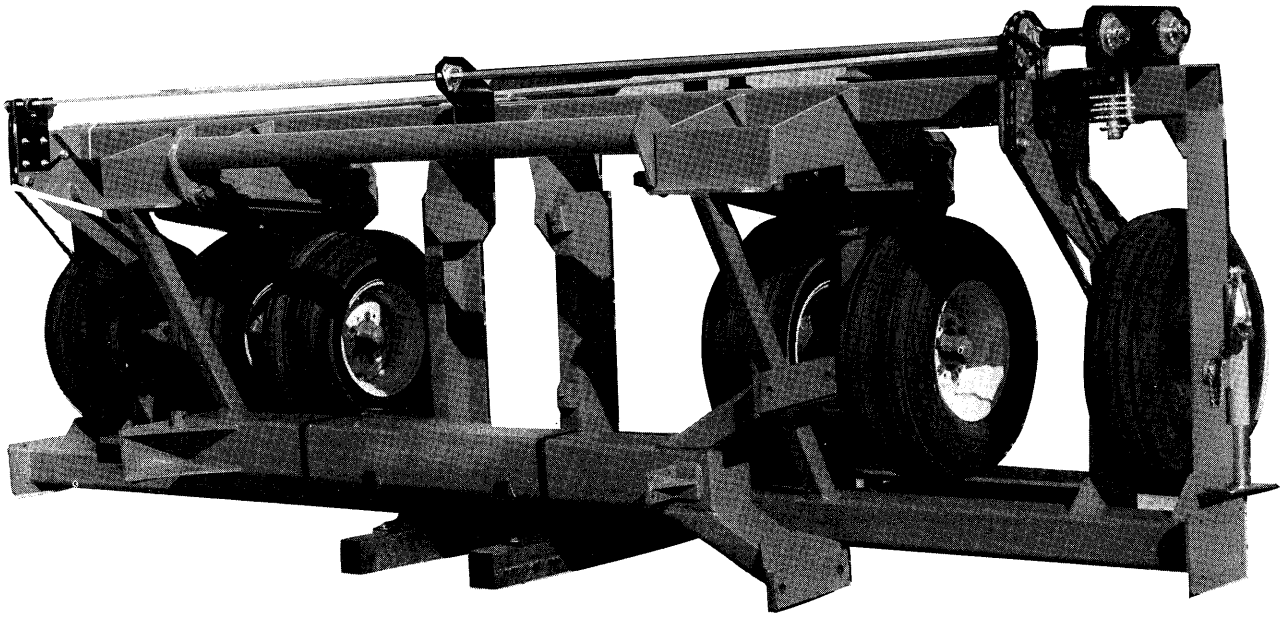
1. Place the partially assembled planter shipping bundle in your selected assembly area.

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

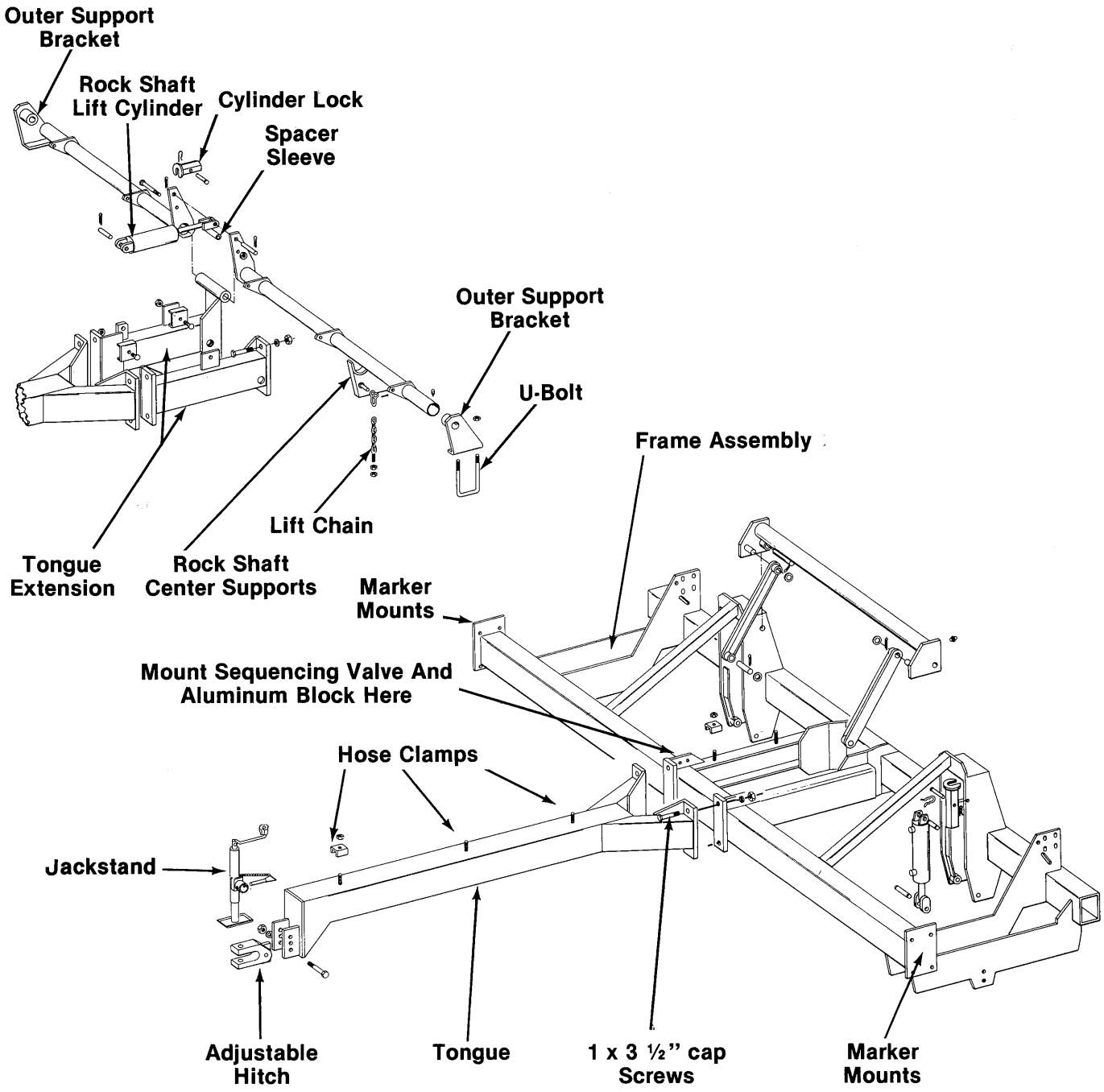
Each bundle should contain:

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

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



ASSEMBLY


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

ASSEMBLY

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

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

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

   B. Install center pusher row unit.

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

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

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

6. Mount the marker assemblies to the planter frame.

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

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

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

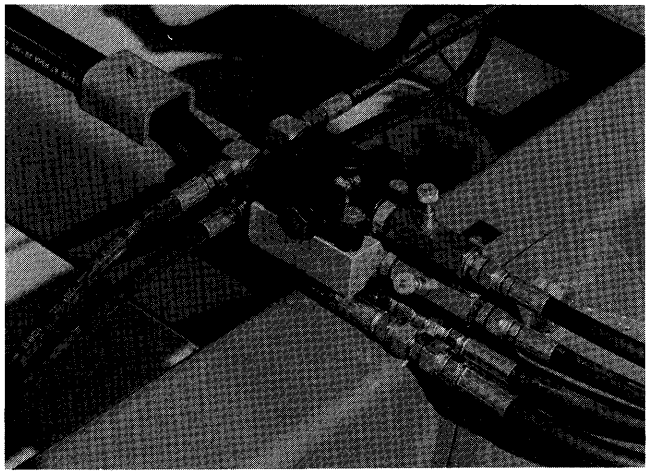
   C. Attach the pre-assembled second stage with pivot pin and cotter pins. Right and left is determined by the blade spindle projecting forward.

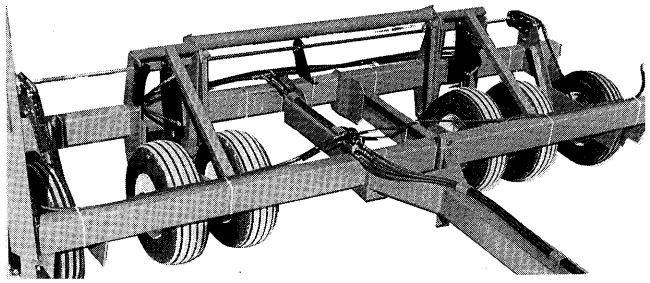
NOTE: We recommend that you do not connect the rod end of the cylinder to the second stage until the hydraulic hoses have been assembled and cycled.

7. Remove the plugs from all cylinder ports. Depending upon the planter model you are assembling, see pages 56 thru 87 in the parts section of this manual for fitting and hose information.

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

8. Mount the sequencing valve and aluminum manifold block assembly on the right side of the planter frame using the holes provided. (See diagram below for proper position of parts.)





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

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

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

11. Connect the hoses from both lift cylinders using the "T" fitting as shown. Route the hose from the left side lift cylinder through the hole in the bearing support bracket and secure with nylon tie straps.

12. Using the specified hoses connect the "T" fittings to the proper coupling at the hitch as shown in the parts section of this manual.

13. Connect the marker hoses to the proper fittings on the sequence valve and aluminum manifold block.

14. Route the hoses along the planter frame and attach marker cylinders using the correct fittings.

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

Secure hoses with nylon tie straps.

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

15. Prime the hydraulic system.

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

16. The sequencing valve is used to alternate the marker raise and lowering automatically.

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

WARNING: Always stand clear of the markers assembly when in operation.

18. 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. To provide further variation in the width of the marker, the spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt.

WARNING: Always position marker lock up pin in "safety" position when transporting or storing planter bar. See Safety Precaution.

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

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

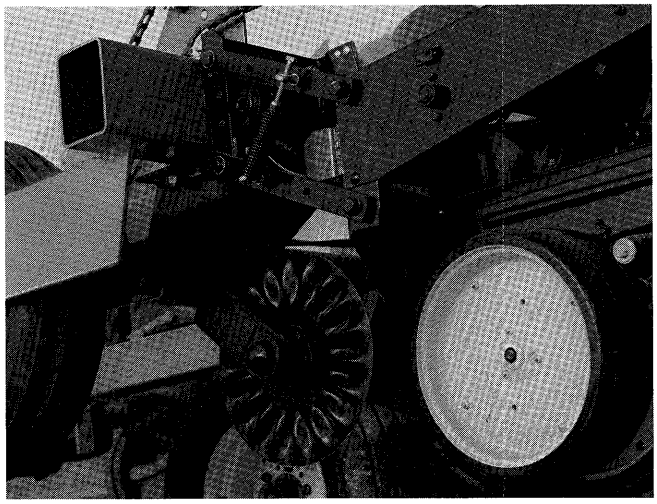
ASSEMBLY

Frame Mounted Coulter Assembly

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

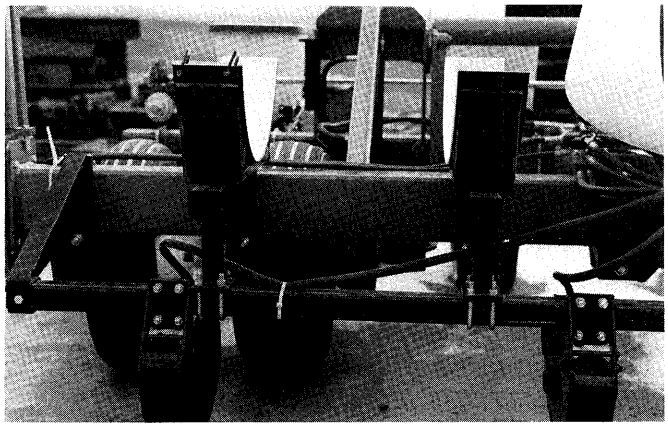
The coulter blade can be adjusted laterally by repositioning the shims.

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

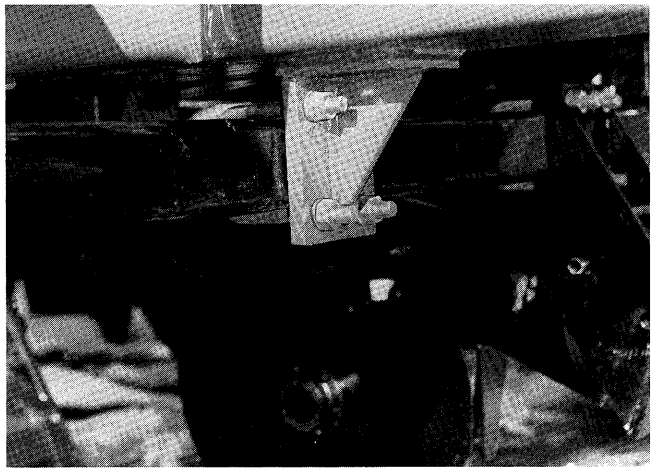


DRY AND LIQUID FERTILIZER ATTACHMENT

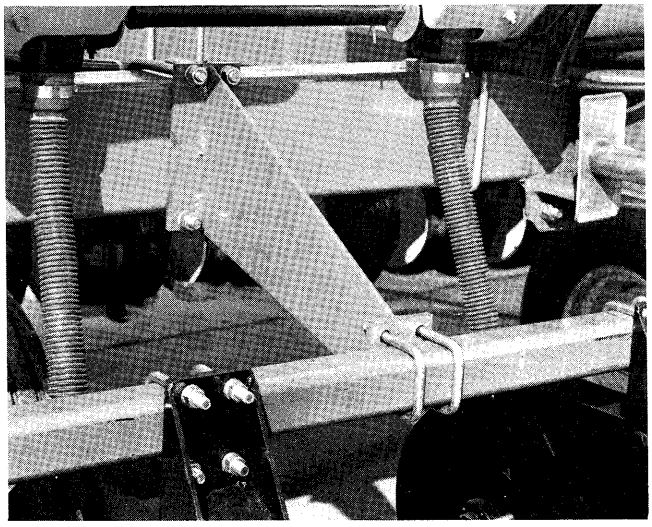
Fertilizer Bar Installation - Double Frame Planter



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



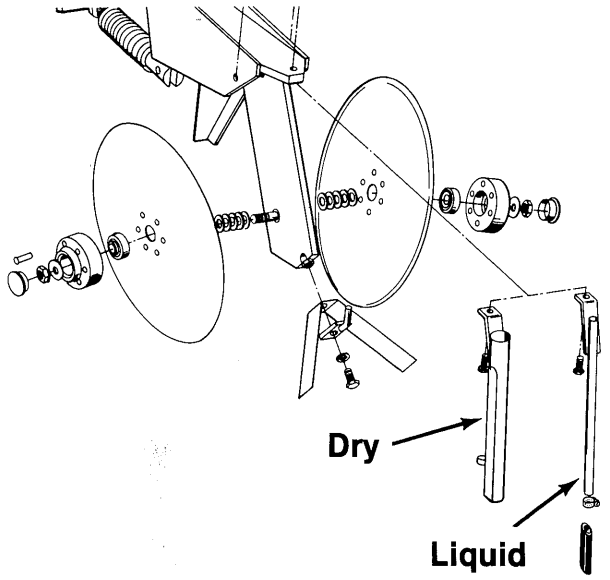
On 6 row wide and all 8 row units, a fertilizer bar stabilizer is installed midway between the tongue and the end of the planter of each side. Each stabilizer bar is attached to the tool bar with two 5" x 7" x 5/8" U-bolts, lock washers and hex nuts. Attach the opener bar end with two 2 1/2" x 2 1/2"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



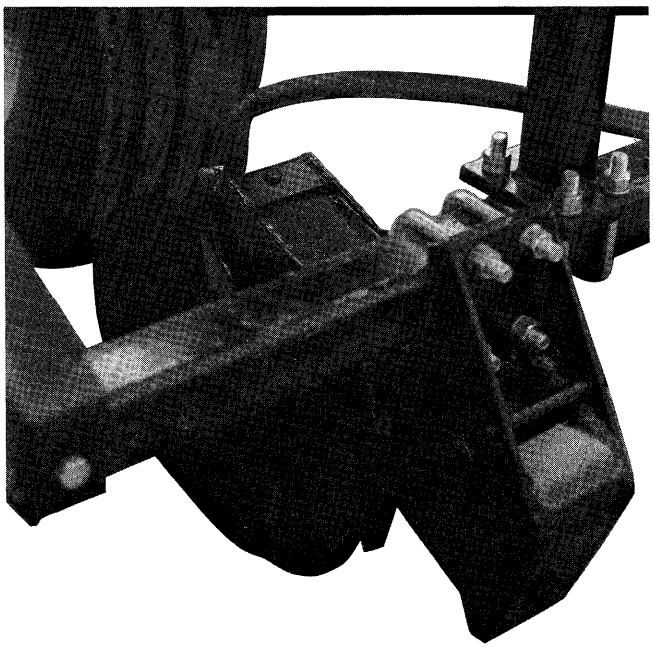
ASSEMBLY

Double Disk Openers

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

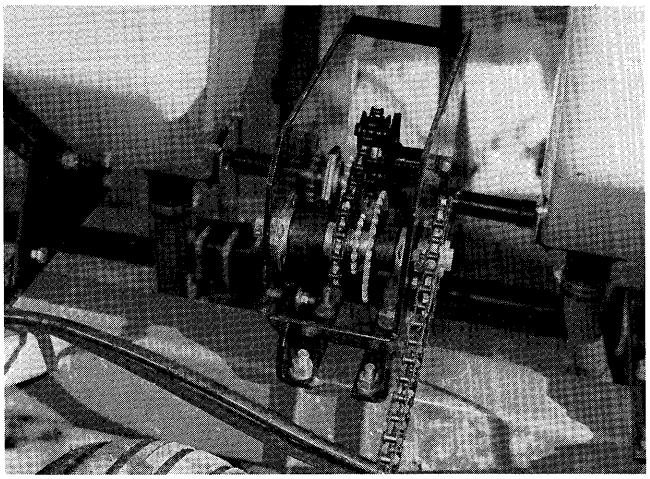


Attach disk openers to the fertilizer bar so that disks are positioned two inches to the side of the row unit openers. When installing openers for dry fertilizer, position the opener on the side nearest the hopper outlet.



Transmission and Drive Installation

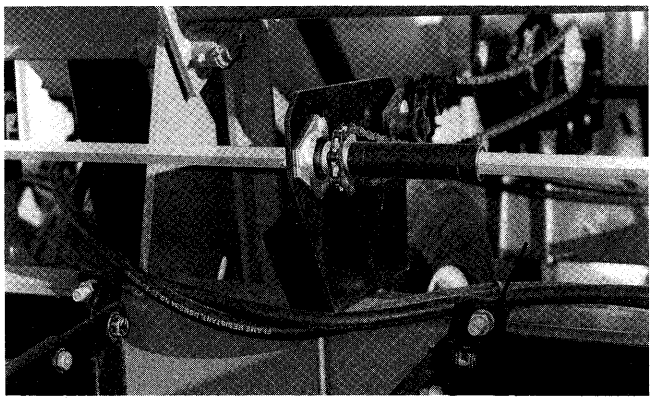
1. Attach fertilizer transmission to front toolbar with two 7" x 5" x 5/8" U-bolts, lock washers and hex nuts. The transmission is positioned on the planter center line of 4 and 8 row models and to the left of center on 6 row models.



2. Locate a point on the hex drive shaft in direct alignment with the transmission sprocket. Cut the shaft approximately 4" to the right of this mark. Loosen the lock collars and slide the left hand piece of the shaft out.

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

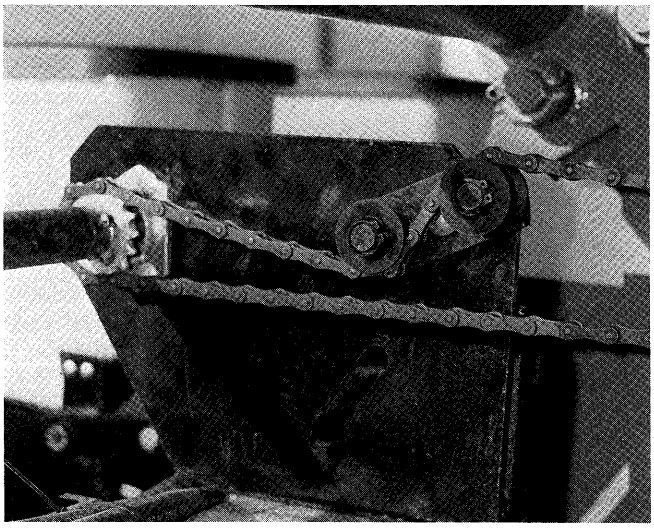
3. Assemble 7/8" hex bore bearing and flangettes on drive shaft support bracket supplied. Slide bearing and bracket onto the left shaft portion followed by the 16 tooth drive sprocket and lock collar. Slide sprocket against bearing and position bracket on the rear tool bar so that drive sprocket and transmission driven sprocket are in alignment. Secure bracket with 5/8" U-bolt.



4. Join the cut portions of the hex shaft with a 7/8" hex bore coupler and secure with lock collars.

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

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



Hopper Installation - All Models

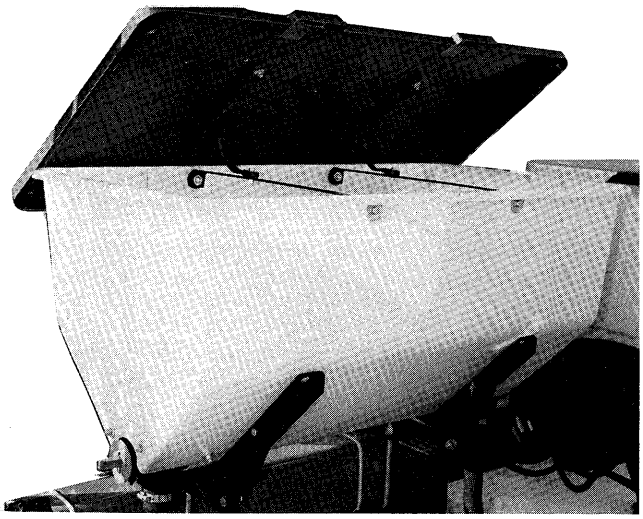
1. Install the hopper mounting brackets on the planter bar in the locations illustrated on the following pages. Do not tighten attachment bolts at this time.

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

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

3. Install auger shields over augers a 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.



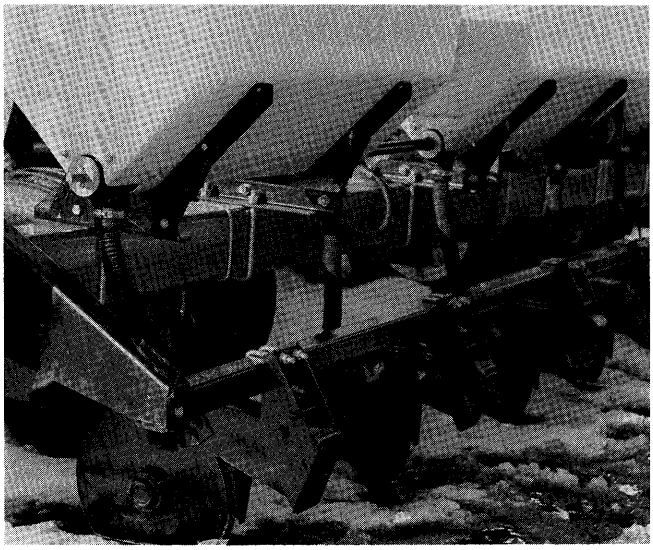
5. Position the hopper lid so the latches will be to the front of the hopper and install two rubber straps between hopper braces and underside of lid. Install a rubber washer between the bolt head and the rubber strap...and a lock washer and nut on the underside of the braces. The bolt holding the strap 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.

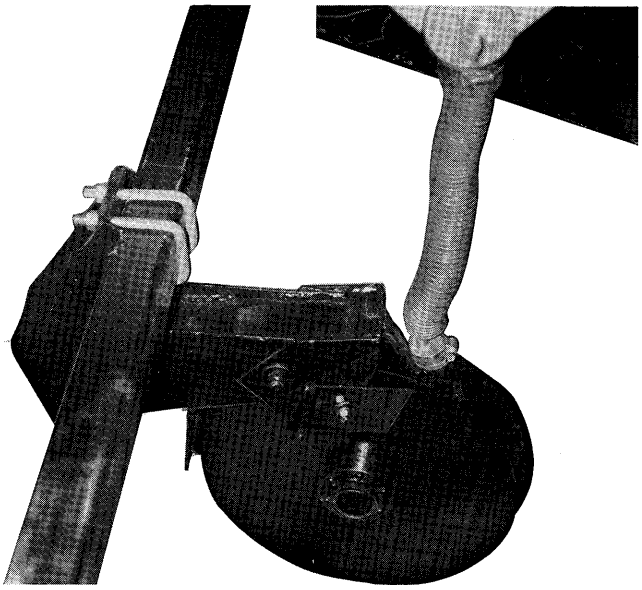
8. Once the coupler/drive shafts have been connected, bolt the rear of the hopper saddle to the hopper support with two 1/2" x 1 1/4" cap screws.

ASSEMBLY

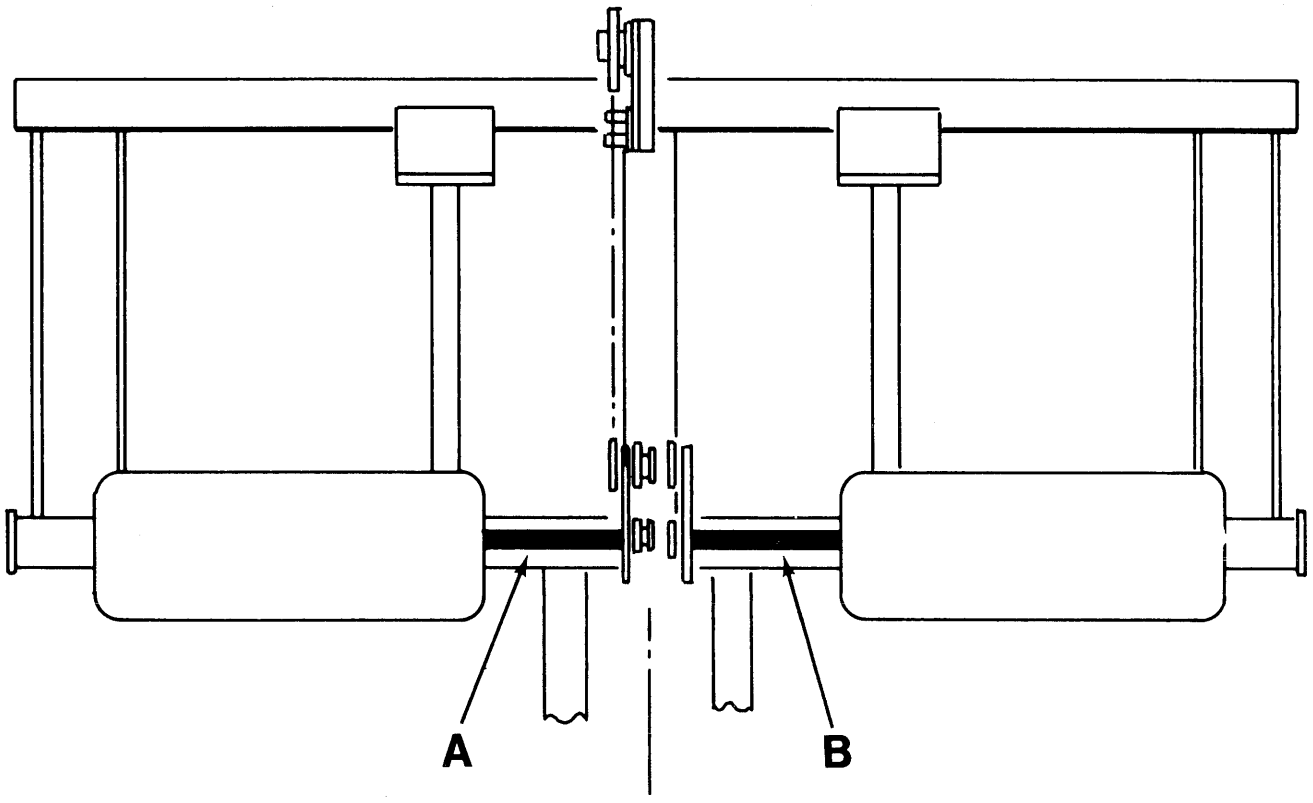


9. Align all hoppers and the transmission both horizontally and vertically and tighten all mounting bolts. Slots in the transmission and mounting bracket allow for up and down and forward and backward adjustment.

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.



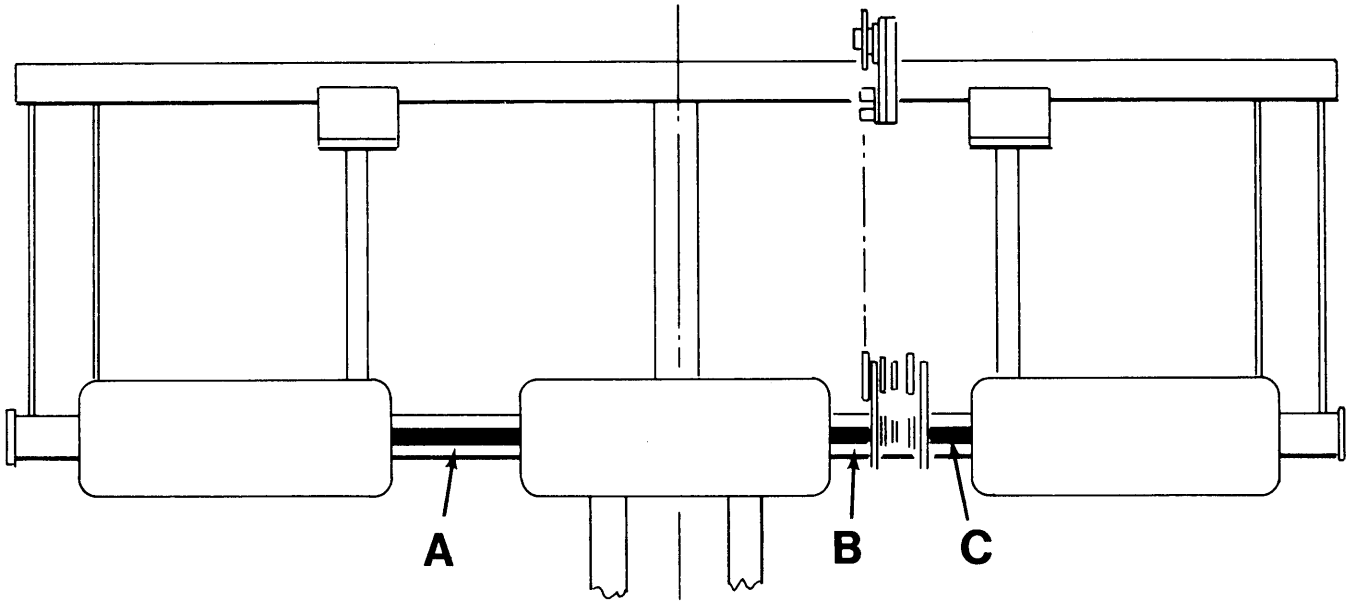
4 Row 30", 4 Row Wide Dry Fertilizer Coupler



	Coupler A	Coupler B
4 Row 30"	A554-4 5/8"	A554-4 5/8"
4 Row Wide	A555-16 1/2"	A555-16 1/8"

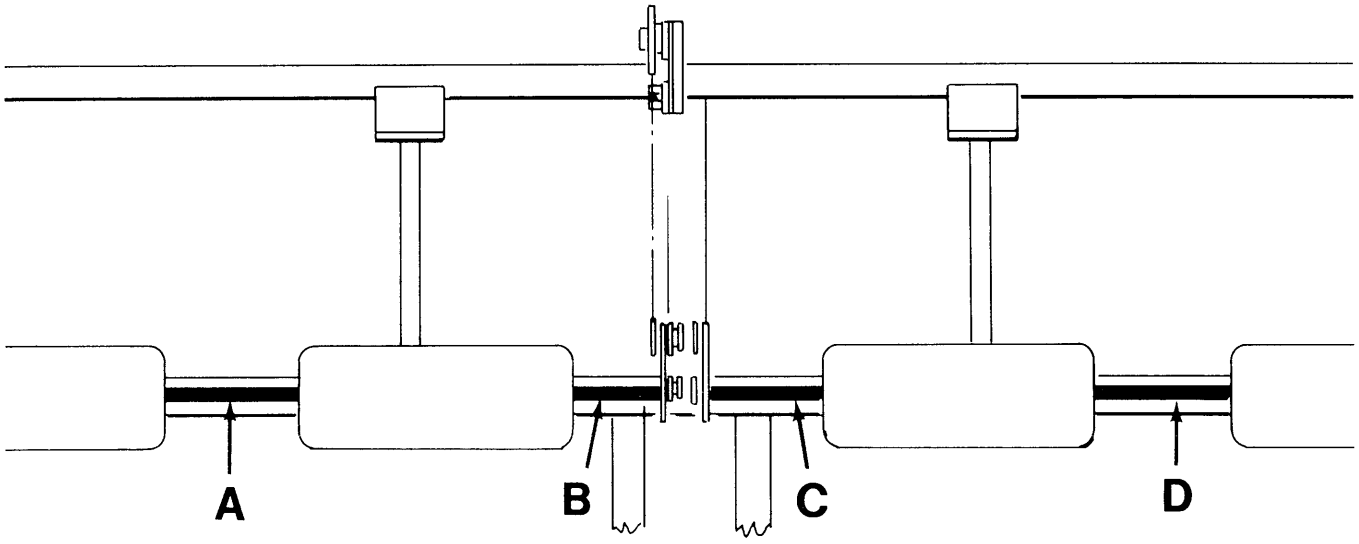
ASSEMBLY

6 Row 30", 6 Row Wide Dry Fertilizer Couplers



	Coupler A	Coupler B	Coupler C
6 Row 30" **6 Row Wide**	A555-16 1/8" A561-30 5/8"	A554-4 5/8" A554-4 5/8"	A554-4 5/8" A560-18 5/8"

8 Row 30", 8" Row Wide Dry Fertilizer Couplers



	Coupler A	Coupler B	Coupler C	Coupler D
8 Row 30" **8 Row Wide**	A555-16 1/8" A561-30 5/8"	A554-4 5/8" A555-16 1/8"	A554-4 5/8" A555-16 1/8"	A555-16 1/8" A561-30 5/8"

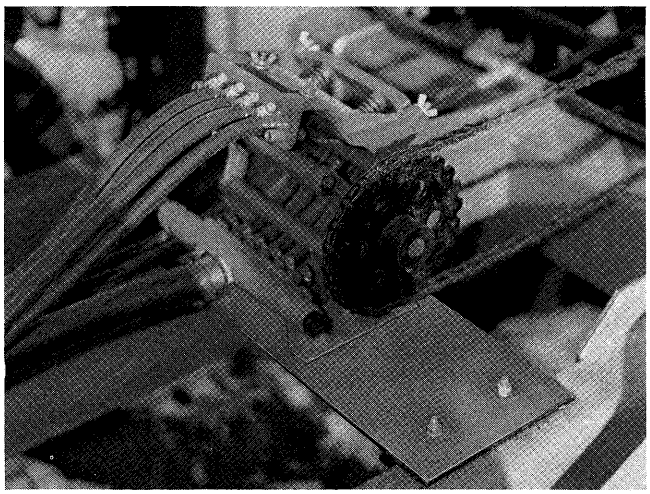
ASSEMBLY

LIQUID FERTILIZER ATTACHMENT
Squeeze Pump and Drive Installation

1. Attach squeeze pump to base plate of mounting bracket with four 3/8" cap screws, flat washers, lock washers and hex nuts. The bolts on the right side join the base plate, squeeze pump and lower mounting bracket plate.

2. Position base and pump between frame braces as shown and install right hand lower plate. Do not tighten bracket clamp bolts at this time.

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

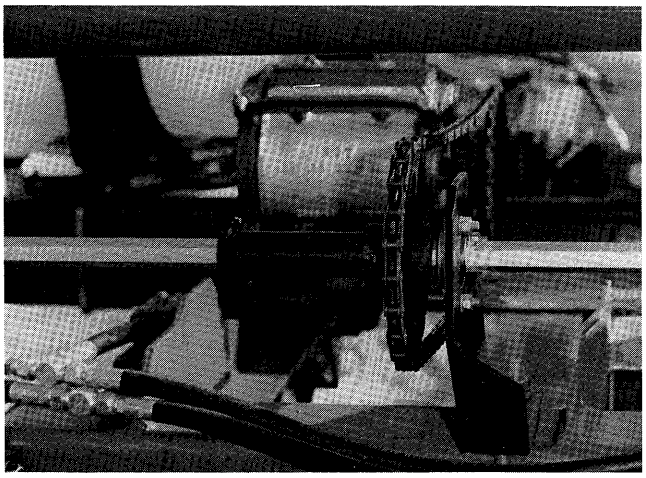


4. Placing a straight edge ruler along the side of the driven sprocket, mark a point on the hex drive sprocket in direct alignment with the squeeze pump sprocket.

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

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

6. Install sprocket adapter, selected drive sprocket and sprocket retainer on the hex shaft. If may be necessary to loosen and slide the center shaft support bracket to the left to attain sprocket alignment.



7. Install one lock collar on each portion of the cut drive shaft and slide the shaft coupler onto either side. Align the shaft ends and slide the coupler to reconnect the drive. Slide lock collars against each side of the coupler and secure in place.

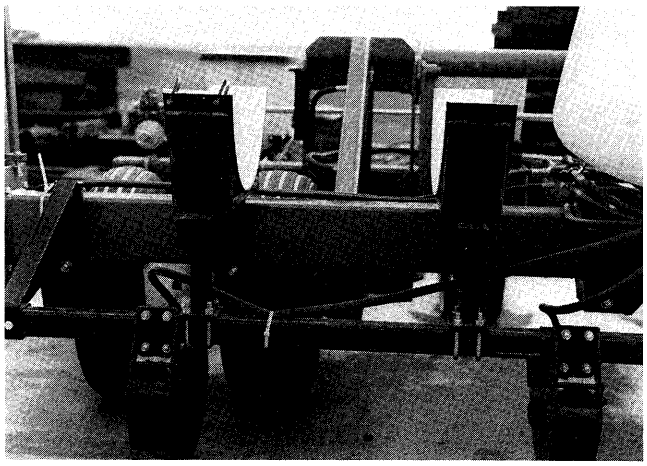
8. Install drive chain between squeeze pump drive and driven sprockets. Slide squeeze pump and mounting bracket forward to obtain approximately 1/2" deflection of the drive chain.

Tank and Hose Installation

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

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

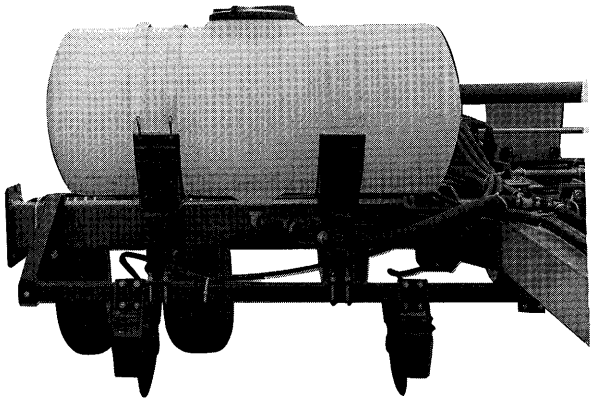
NOTE: Two sets of front mounting holes are provided for installation of 100 or 150 gallon tank saddles.



ASSEMBLY

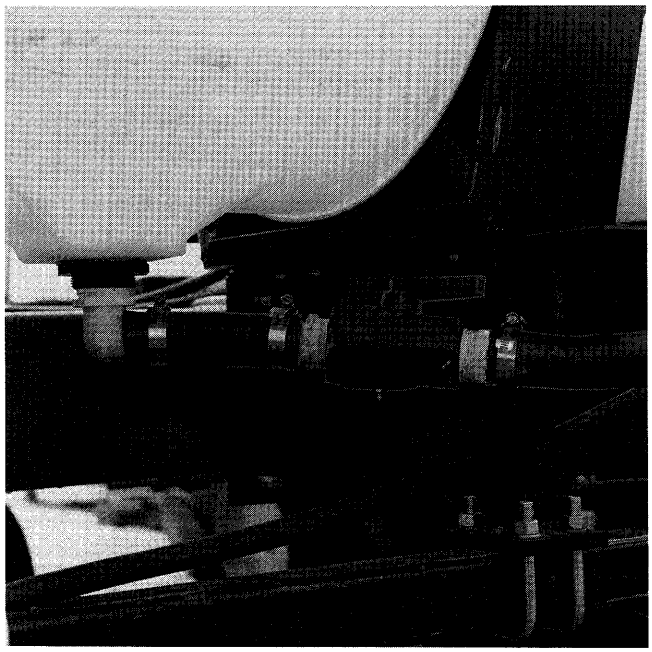
3. Install outlet elbow in bottom of each tank.

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



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

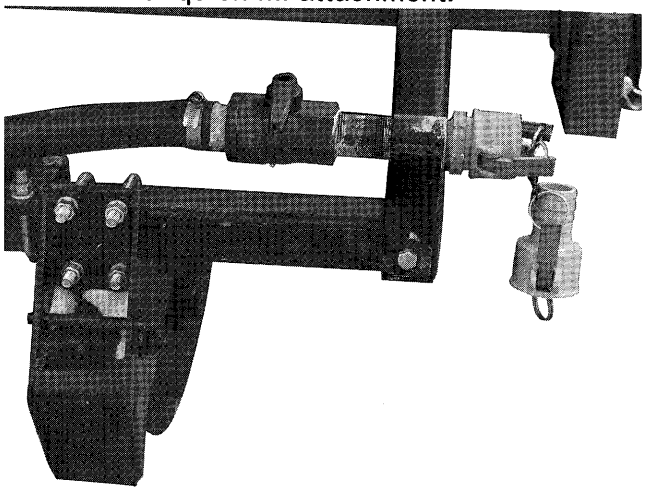
NOTE: The 1 1/4" hose for connecting tanks to squeeze pumps is provided in a roll and must be cut to length. Attach hose to each fitting or connection with hose clamps provided.



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

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

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



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

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

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

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

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

Make a final inspection of the assembled planter.

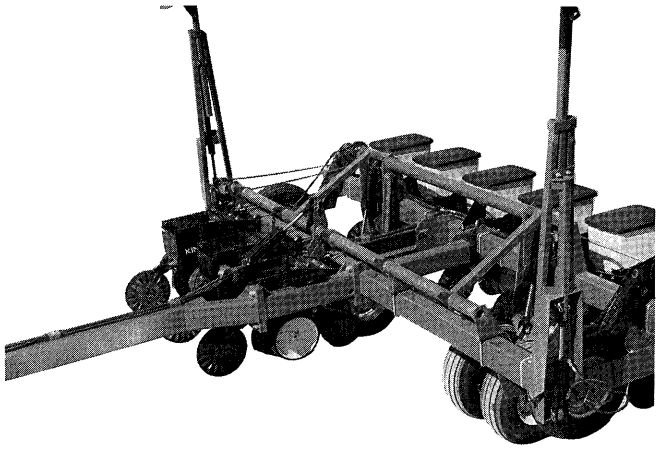
- ☐ Lubricate per instructions.
- ☐ Check for loose hydraulic hoses and fittings.
- ☐ Check for loose bolts, nuts, etc.
- ☐ Check all drive chains for proper alignment and tension.
- ☐ Make sure all drive shafts rotate freely and do not bind.
- ☐ Make sure all row units are mounted properly and that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

Optional Pusher Row Unit

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

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

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



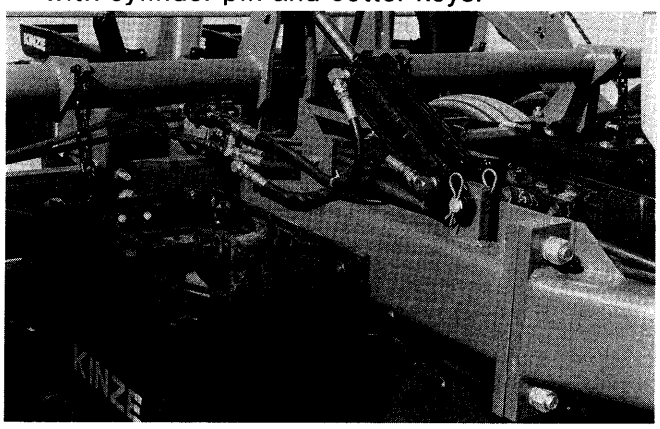
3. Slide the outer support brackets into the rock shafts and clamp to frame with U-bolts provided. Grease at this time.

NOTE: Do not tighten nuts at this time.

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

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

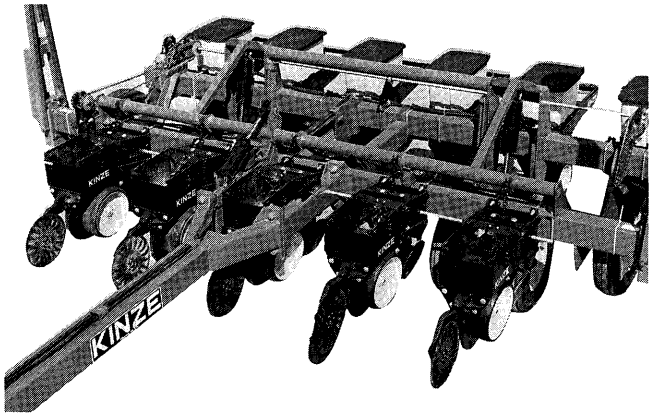
6. Insert the rod end of the cylinder and secure with cylinder pin and cotter keys.



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

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

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



10. Attach the front pusher unit transmission to the right hand outer end of the front frame.

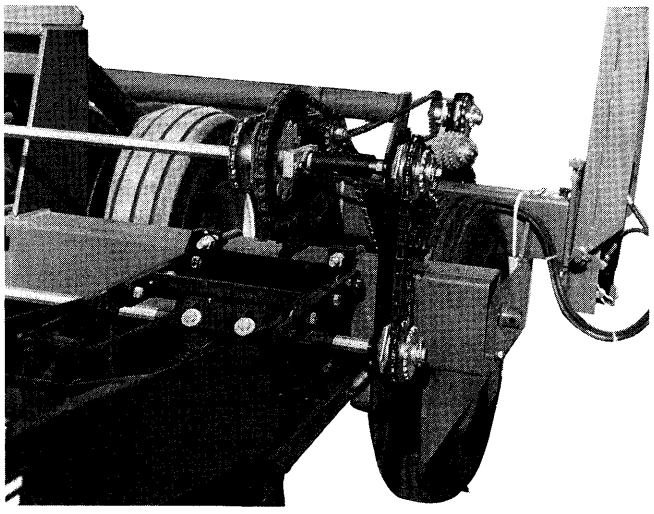
11. Remove main drive shaft from rear transmission.

    A. Loosen lock collars on main drive shaft.

    B. Slide shaft to left side of planter so the shaft has cleared bearing support.

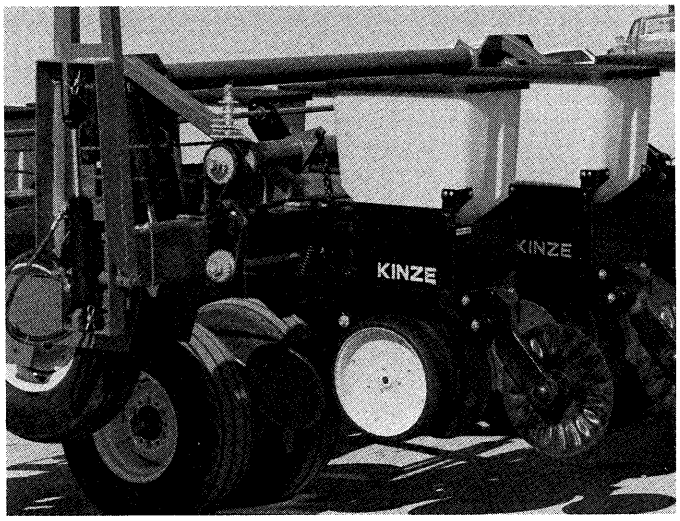
12. Insert lock collar, 32T sprocket, with hub on the right, and add three machine bushings.

13. Remove the top stationary idler sprocket bolt and replace with idler assembly, three machine bushings and internal-external lock washer.



14. Align the 32T sprocket on the main drive shaft with 32T sprocket preassembled on the front pusher drive transmission.

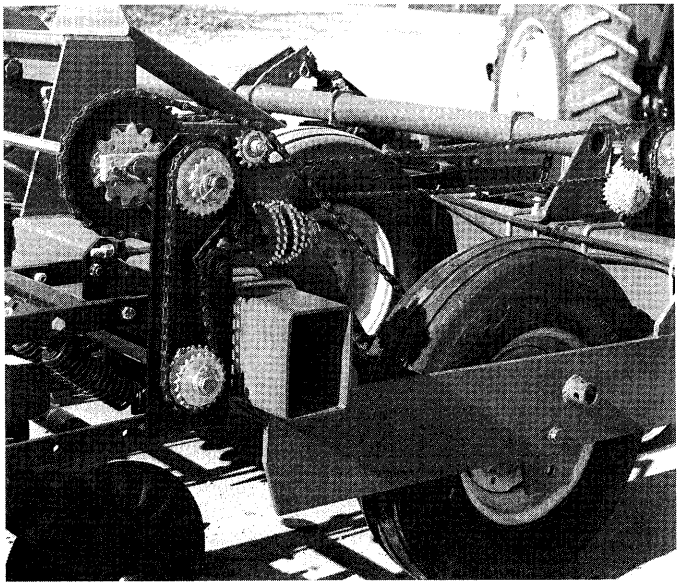
15. Connect the two sprockets with the chain provided.



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

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

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



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

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

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

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

LUBRICATION

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

For row unit lubrication refer to Row Unit Manual.

Sealed Bearings

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

Drive Chains

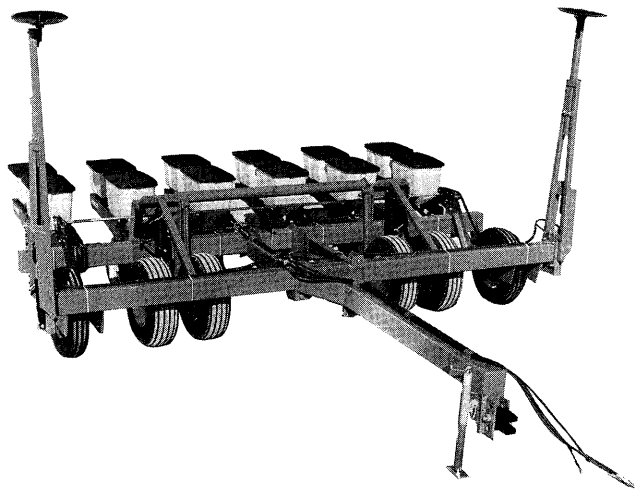
The transmission and row unit drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 10 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may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

Wheel Bearings

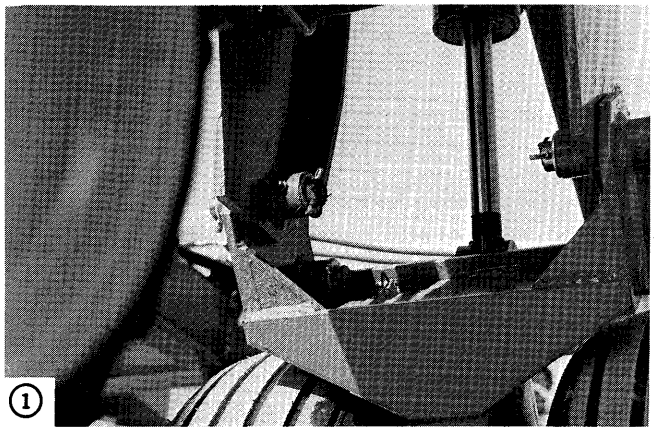
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all drive wheels, transport wheels and marker hubs. Transport wheels may require less frequent service depending upon amount of road travel. Follow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

Lubrication Chart

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



LUBRICATION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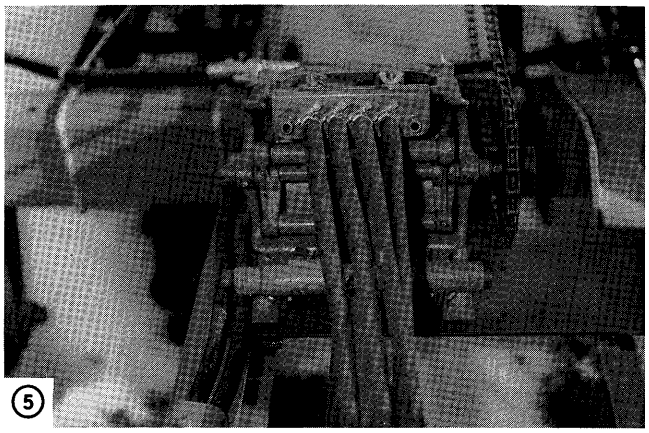
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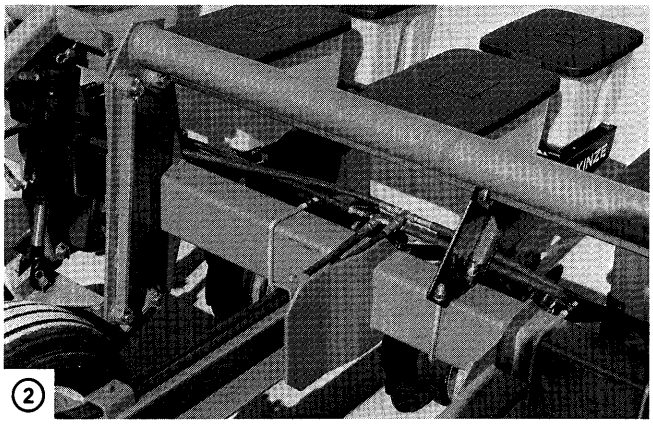

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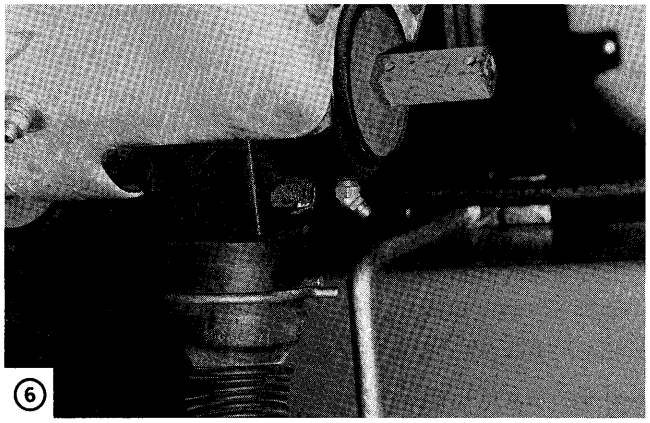
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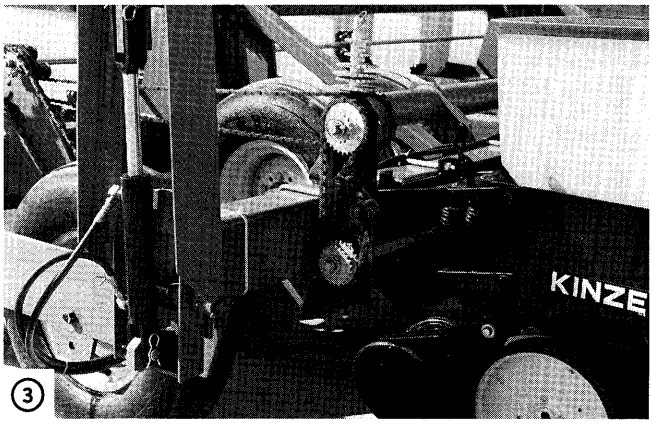

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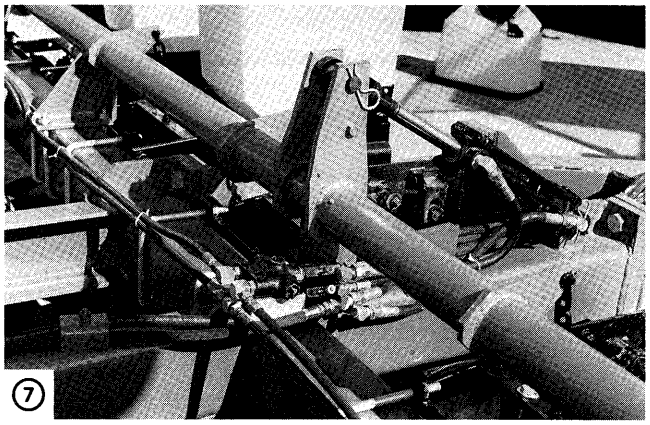
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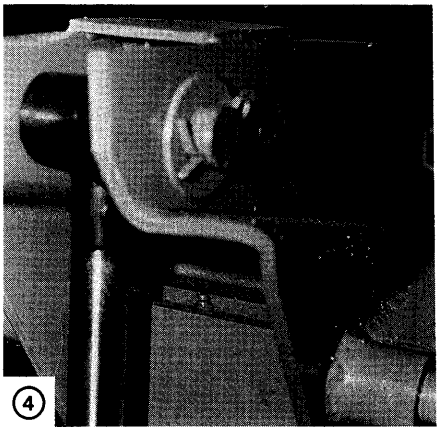
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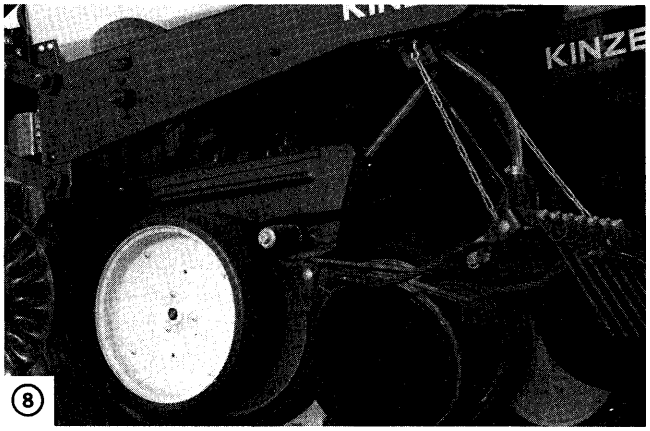

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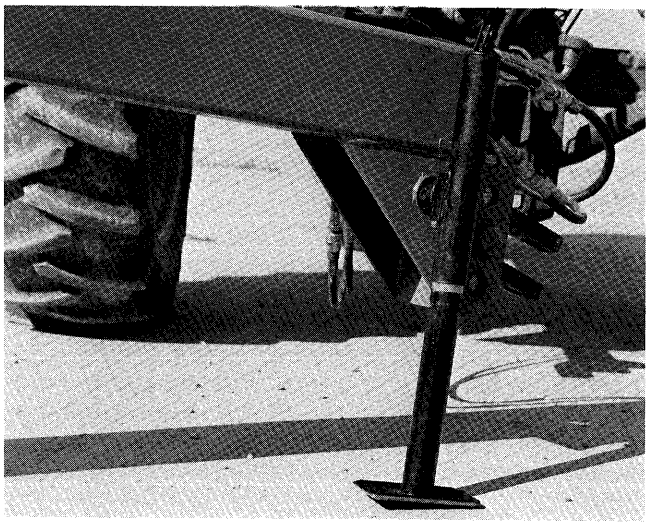
OPERATION

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

Initial Preparation of the Planter

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



Tractor Preparation and Hookup

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

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

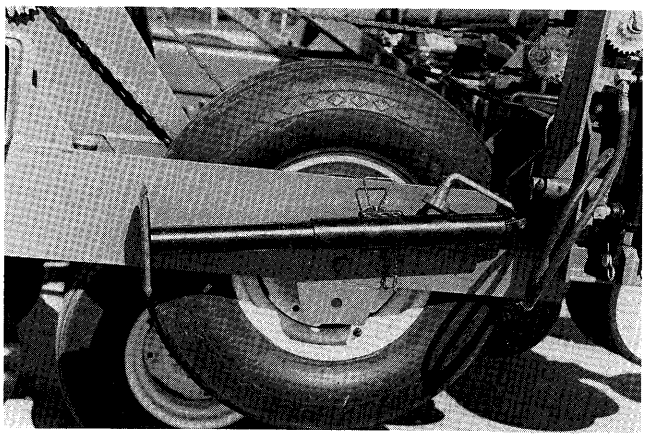
3. Connect hydraulic hoses to tractor ports in a sequence which is both familiar and comfortable to the operator.

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

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

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

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



Transporting The Planter

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

Leveling The Planter

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

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

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

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

OPERATION

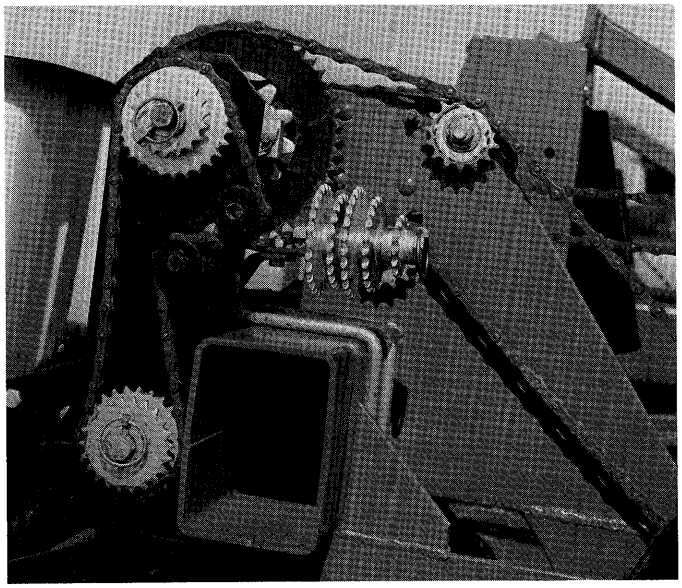
Tire Pressure

Tire pressure should be checked regularly and maintained as follows:

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

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

Transmission Adjustment



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

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

Hydraulic Marker Operation

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

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

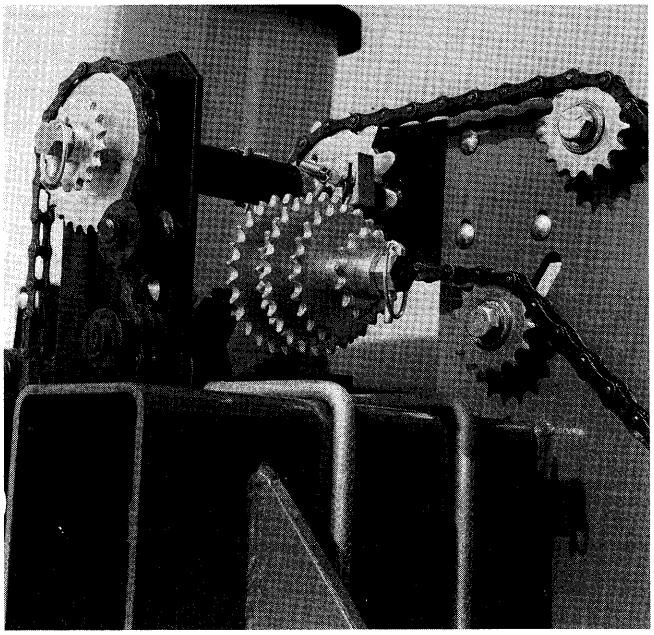
To properly match the marker cylinder speed to your tractor's hydraulic system, loosen the lock nut which secures the knurled adjustment knob in place. To increase the cylinder speed turn the valve counterclockwise opening the valve. To decrease the cylinder speed turn the valve clockwise. This action has no effect on the transport wheel cylinders on single valve systems.

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

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

Marker Adjustment

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



Tractor Speed

Planters are designed to operate within a speed range of 2 to 7 M.P.H. Optimum speed for most conditions is 5 to 6 M.P.H. Rate charts provided in this manual and in the Kinze Row Unit Manual are based on this optimum speed. Variations in ground speed will produce variations in rates. Corn meter populations will tend to be disproportionately higher at high ground speeds. While 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. See Row Unit Manual for making adjustments.

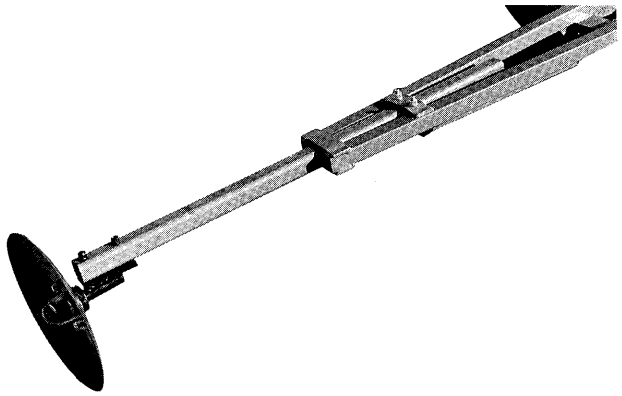
After the planter has been field tested, reinspect the unit.

☐ Hoses - Fittings

☐ Bolts - Nuts

☐ Drive Chains

NOTE: The planter drive line is protected with a shear pin. If seed meter on row unit fails to operate, check shear pin.

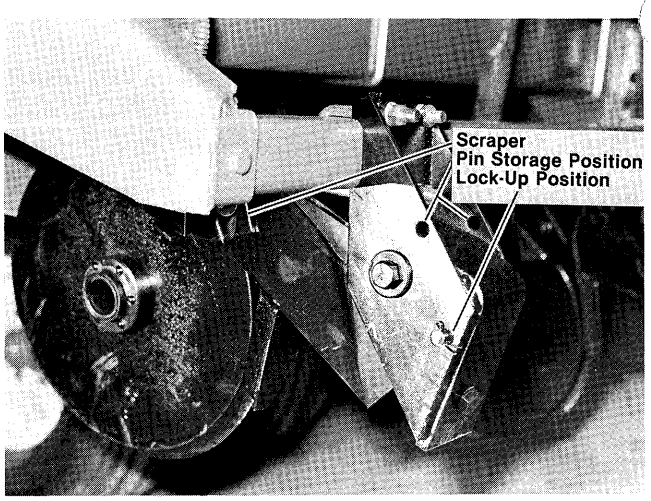


OPERATION

Double Disk Opener

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

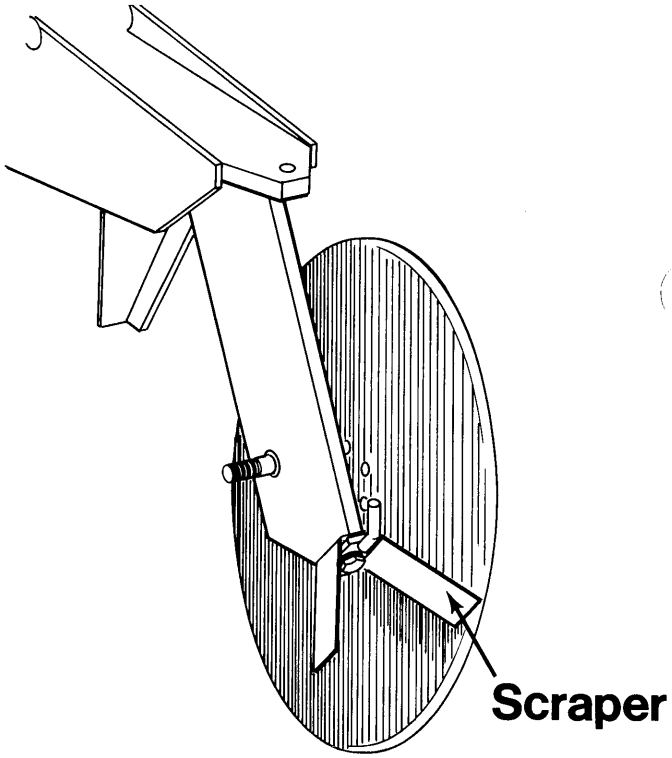
The down pressure springs are factory preset at 250 pounds down pressure but may be adjusted for various soil conditions. To adjust spring tension, loosen the jam nut with a 15/16" wrench and use a 1" wrench to turn the adjustment bolt clockwise to increase tension or counterclockwise to decrease tension.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



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

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

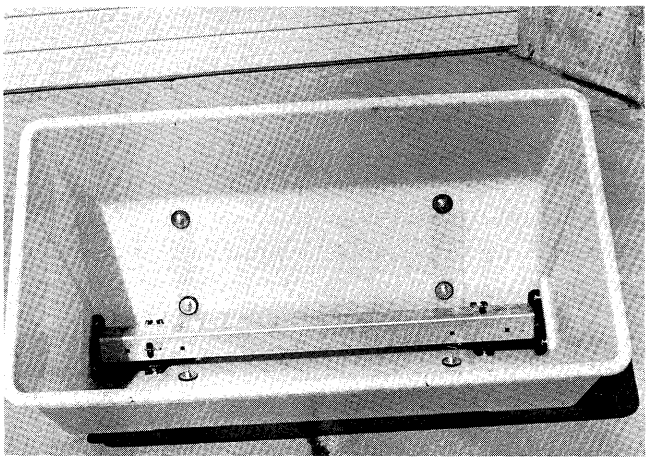
The opener assembly is designed to be locked in a raised position when the fertilizer attachment is not in use or during storage. To lock the opener, first raise the planter and place blocks under the openers. Then lower the planter until the hole in the pivot section aligns with the hole in the mounting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



OPERATION

Dry Fertilizer Attachment

The rate of dry fertilizer application is determined by sprocket combinations in the fertilizer transmission. 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 the "Operation" section for selection of sprocket combinations.



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

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

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

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

Cleaning

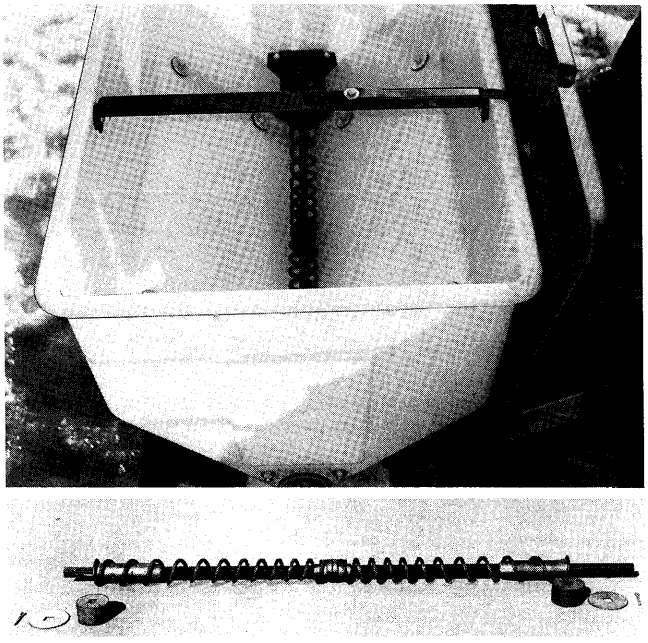
The dry fertilizer hoppers are designed to tip forward for dumping and ease of cleaning. To dump hoppers, first disconnect the drive shaft from the transmission or adjacent hopper. Loosen hose clamps and remove hoses from each hopper.

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

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

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

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

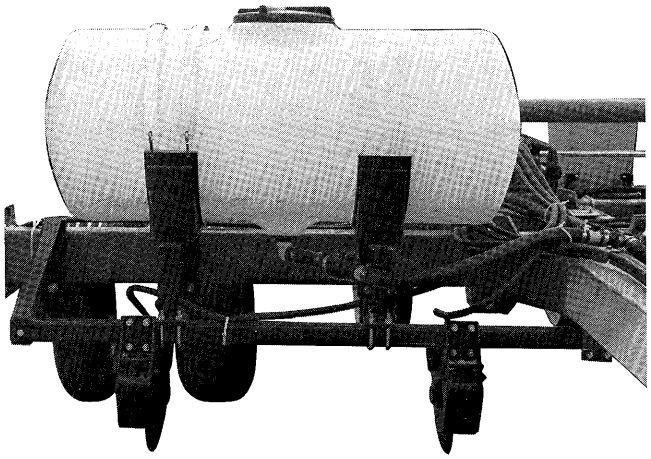


OPERATION

Liquid Fertilizer Attachment

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

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



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

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

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

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

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

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

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

Retighten hose clamp.

Cleaning

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

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

OPERATION

DRY FERTILIZER APPLICATION RATES

Approximate Rate in Pounds Per Acre					
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

NOTE: Calculated using 7:60 x 15 inch drive tire with 40 PSI and averaging 95" of planter travel per revolution of drive gauge tire.

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

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 rows. To convert this delivery rate for narrow rows, multiply by the following conversion factors:

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

OPERATION

LIQUID FERTILIZER APPLICATION RATES

Driver	Driven	ROW SPACE Gal. Per Acre				Driver	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	23	20.6	22.0	22.7	27.2
8	10	17.2	18.3	18.9	22.7	22	26	18.3	19.4	20.1	24.1
8	15	11.4	12.1	12.5	15.0						
8	22	7.7	8.2	8.5	10.2						
8	23	7.5	8.0	8.3	9.6	23	8	61.9	65.9	68.1	81.7
8	26	6.7	7.1	7.3	8.8	23	9	55.0	58.6	60.5	72.6
						23	10	49.4	52.6	54.4	65.3
						23	15	32.8	35.0	36.2	43.4
9	8	24.1	25.6	26.5	31.8	23	22	22.6	24.0	24.8	29.8
9	10	19.3	20.6	21.3	25.5	23	26	18.9	20.1	20.8	25.0
9	15	12.9	13.7	14.2	17.0						
9	22	8.8	9.4	9.7	11.6						
9	23	8.4	8.9	9.2	11.1	26	8	69.8	74.3	76.8	92.2
9	26	7.5	8.0	8.3	9.9	26	9	62.1	66.1	68.3	81.7
						26	10	55.9	59.5	61.5	73.8
						26	15	37.2	39.6	40.9	49.1
10	8	26.9	28.6	29.6	35.5	26	22	25.4	27.0	27.9	33.5
10	9	23.9	25.4	26.2	31.5	26	23	24.3	25.8	26.7	32.1
10	15	14.4	15.3	15.8	19.0						
10	22	9.7	10.3	10.6	12.8						
10	23	9.2	9.8	10.2	12.2						
10	26	8.2	8.7	9.0	10.8						
15	8	40.4	43.0	44.5	53.3						
15	9	35.9	38.2	39.5	47.4						
15	10	32.2	34.3	35.5	42.6						
15	22	14.6	15.6	16.1	19.3						
15	23	14.0	14.9	15.4	18.4						
15	26	12.5	13.3	13.7	16.5						
22	8	59.1	62.9	65.0	78.0						
22	9	52.4	55.8	57.7	69.2						
22	10	47.3	50.3	52.0	62.4						
22	15	31.4	33.4	34.5	41.4						

Approximate application rates using 7.60 x 15 inch drive tire at 40 PSI and averaging 95" of planter travel per revolution of drive gauge tire.
Based on a solution weighing 10 pounds per gallon.

MAINTENANCE

Mounting Bolts and Hardware

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

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

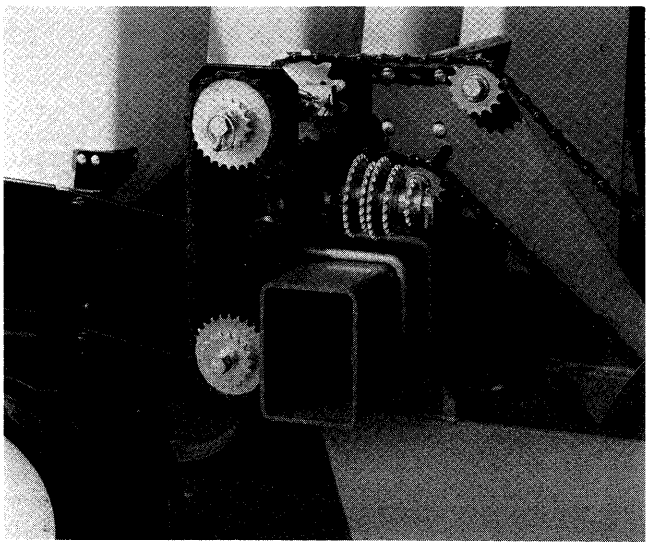
NOTE: Overtightening bolts can cause as much damage as undertightening. Tightening a bolt beyond the recommended range can reduct its shock load capacity.

Chain Tension Adjustment

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

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

See decal located on planter for seed transmission chain routing.

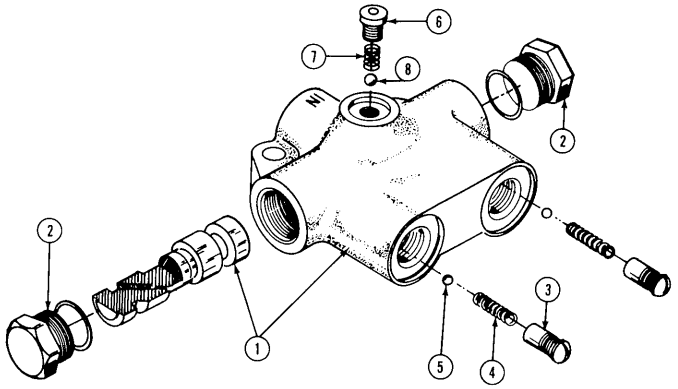


Sequencing Valve Inspection

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

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

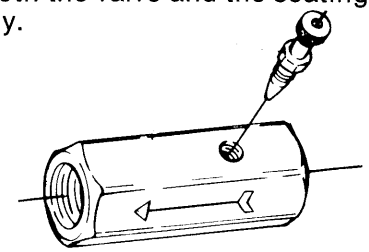
SEQUENCING VALVE



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

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.



MAINTENANCE

Wheel or Marker Bearing Lubrication or Replacement

1. Jack 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 bearings surfaces are in contact. Back off slotted nut to nearest locking slot and install cotter pin.
11. Fill hub caps approximately 3/4 full of wheel bearing grease and install on hub.
12. Install wheel or disk on hub and tighten evenly and securely.

Storage

Store the planter in a dry sheltered area if possible.

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

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

Lubricate planter and row units at all lubrications points.

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

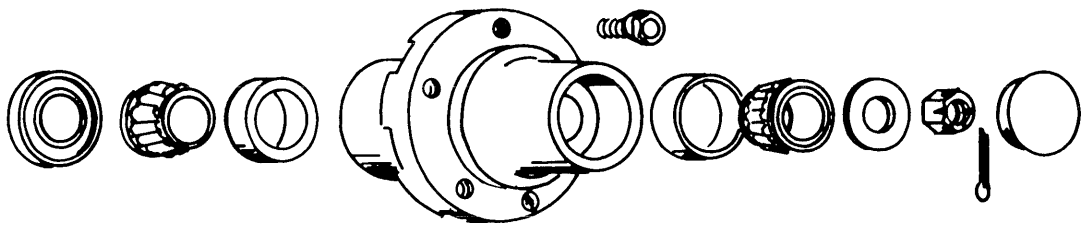
Inspect the planter and row units for parts that are in need of replacement and order during the "off" season.

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

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

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

Clean plateless seed meters and store in a dry area.



OPERATION

DRY INSECTICIDE APPLICATION RATES

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

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

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

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

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

DRY HERBICIDE APPLICATION RATES

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

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

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

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

OPERATION

PLANTING RATE FOR PLATELESS CORN METERS

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

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

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

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

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

OPERATION

PLANTING RATE FOR PLATELESS SOYBEAN METERS

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

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

IMPORTANT: Soybean rates may vary widely depending upon size of the seed. The above chart was developed using uniform soybeans sized to 2,600 seeds per pound and should be used only as a guide for initial planter settings.

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

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

OPERATION

PLANTING RATE FOR PLATELESS REGULAR RATE SORGHUM METERS

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

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

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

OPERATION

PLANTING RATE FOR PLATELESS LOW RATE SORGHUM METERS

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

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

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

OPERATION

PLANTING RATE FOR PLATE TYPE DRIVE

Seed Population and Drilling Distance - 24 Cell Plate

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

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

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

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

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

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

OPERATION

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	27-1/2	14	26	4 to 8
7,100	5,900	5,600	5,300	29-1/2	14	28	4 to 8

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

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

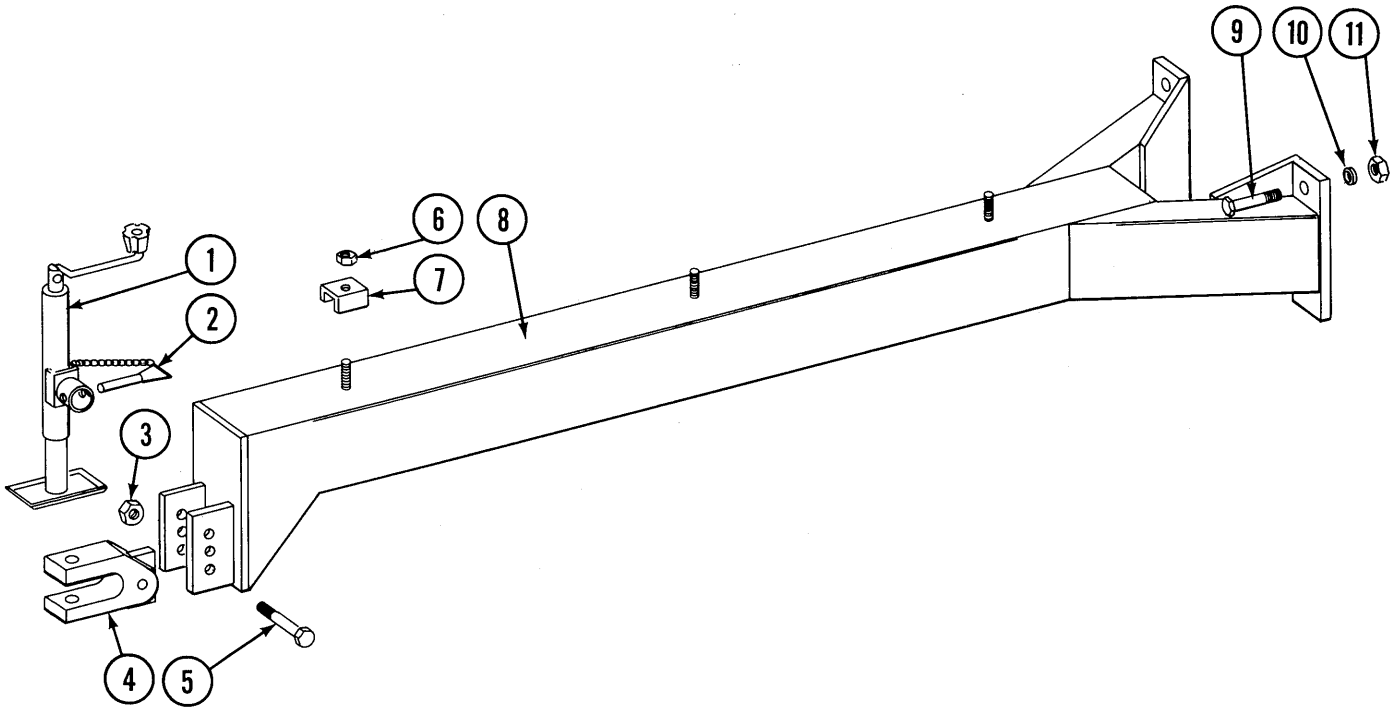
IMPORTANT: The above sprocket combinations are best for average conditions. Changes in sprocket combinations may be required to obtain desired planting population.

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

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

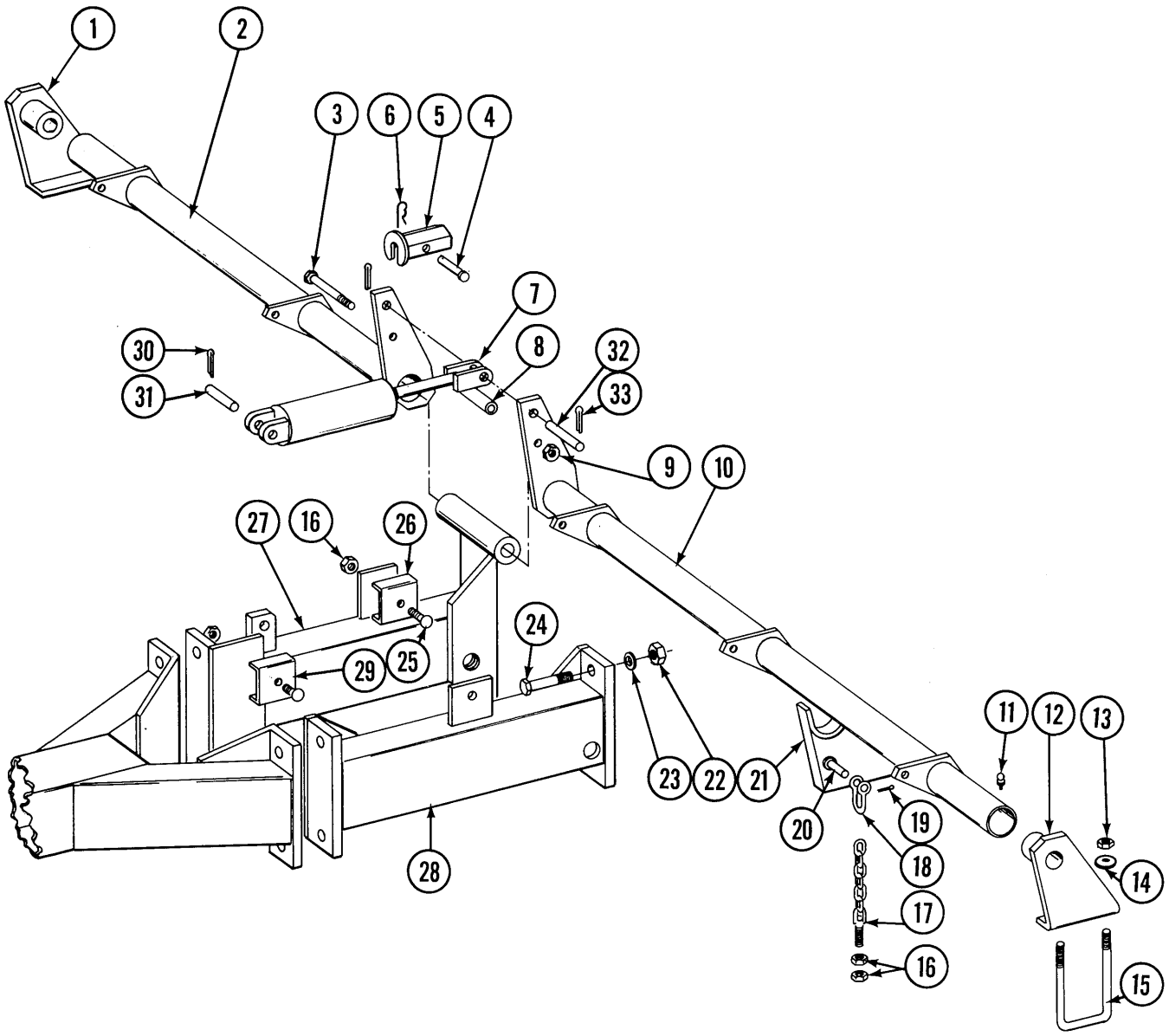
PARTS LIST INDEX

TONGUE ASSEMBLY



ITEM	PART NO.	DESCRIPTION
1.	4100-2	Jack
2.	R255	Repair Kit (Chain and pin)
3.	10157	Lock Nut, 1 1/4" -7
4.	B156	Clevis
5.	10169	HHCS, 1 1/4"-7 x 6"
6.	10108	Lock Nut, 3/8"-16
7.	D1656	Hose Clamp
8.	A1622	Hitch Weld
9.	10076	HHCS, 1" - 8 x 3 1/2"
10.	10118	Lockwasher, 1"
11.	10117	Hex Nut, 1" - 8

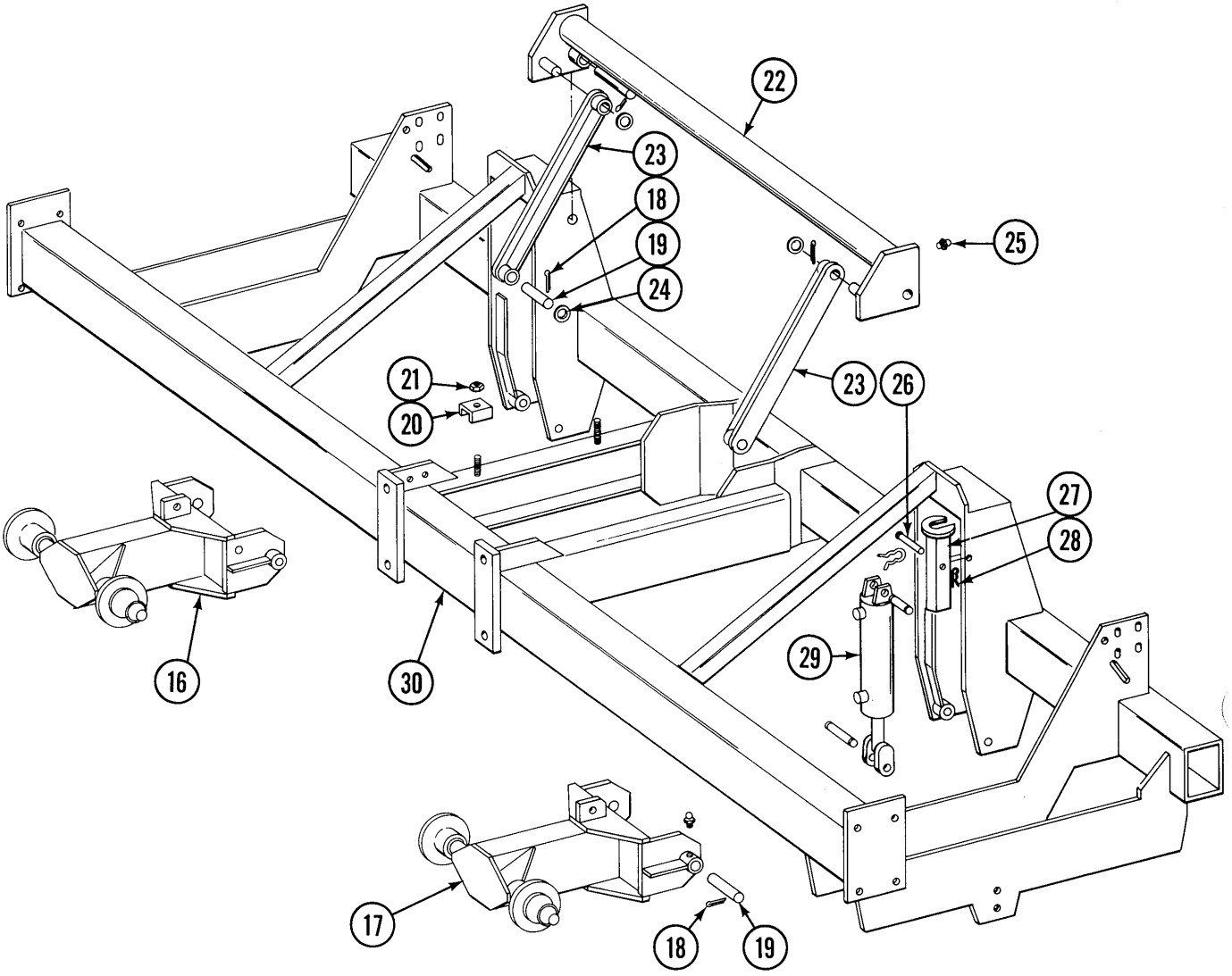
ROCK SHAFT ASSEMBLY - HITCH EXTENSION

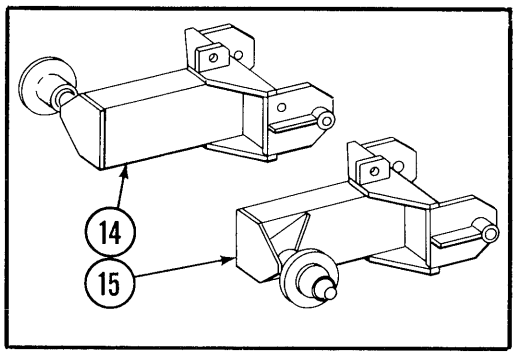


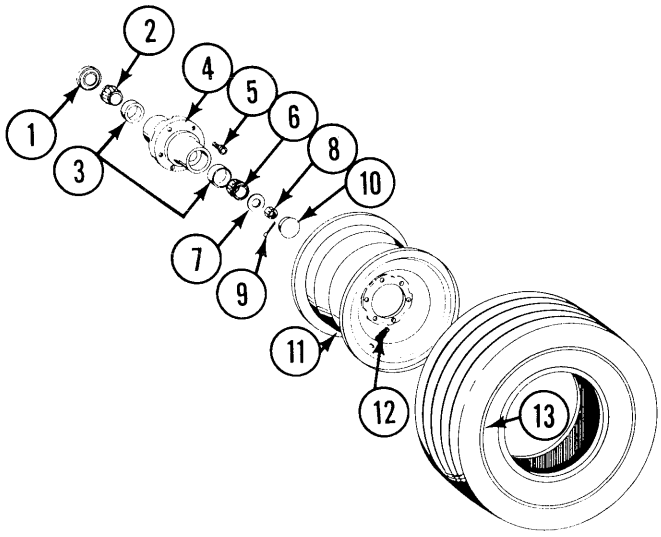
ROCK SHAFT ASSEMBLY - HITCH EXTENSION

ITEM	PART NO.	DESCRIPTION
1.	A1773	Rock Shaft Support, L.H.
2.	A1750	Rock Shaft Weld, R.H., 4R30
	A1752	Rock Shaft Weld, R.H., 4R36
	A1754	Rock Shaft Weld, R.H., 4R38
	A1756	Rock Shaft Weld, R.H., 6R30
	A1758	Rock Shaft Weld, R.H., 6R36
	A1760	Rock Shaft Weld, R.H., 6R38
	A1762	Rock Shaft Weld, R.H., 8R30
	A1764	Rock Shaft Weld, R.H., 8R36
	A1766	Rock Shaft Weld, R.H., 8R38
3.	10045	HHCS, 1/2" - 13 x 4 1/2"
4.	10561	Clevis Pin, 1/2" x 3"
5.	A1785	Lock Up, Cylinder
6.	10670	Hair Pin Clip, No. 3
7.	A1696	Cylinder, 3" x 8"
8.	D2531-1	Pipe, 1"
9.	10111	Lock Nut, 1/2" - 13
10.	A1751	Rock Shaft Weld, L.H., 4R30
	A1753	Rock Shaft Weld, L.H., 4R36
	A1755	Rock Shaft Weld, L.H., 4R38
	A1757	Rock Shaft Weld, L.H., 6R30
	A1759	Rock Shaft Weld, L.H., 6R36
	A1761	Rock Shaft Weld, L.H., 6R38
	A1763	Rock Shaft Weld, L.H., 8R30
	A1765	Rock Shaft Weld, L.H., 8R36
	A1767	Rock Shaft Weld, L.H., 8R38
11.	10641	Grease Fitting, 1/8" NPT
12.	A1774	Rock Shaft Support, R.H.
13.	10104	Hex Nut, 5/8" - 11
14.	10230	Lockwasher, 5/8"
15.	D1134	U-Bolt, 5/8" - 11 x 7" x 5"
16.	10102	Hex Nut, 1/2" - 13"
17.	A1747	Chain Weld
18.	D2551	Clevis
19.	10467	Cotter Pin, 5/32" x 3/4"
20.	10166	Clevis Pin
21.	A1738	Center Support, Used on 6 & 8 Row Models Only
22.	10117	Hex Nut, 1" - 8
23.	10118	Lockwasher, 1"
24.	10076	HHCS, 1" - 8 x 3 1/2"
25.	10016	HHCS, 1/2" - 13 x 2"
26.	D740	Clamp, Hose
27.	A1748	Hitch Extension Weld, R.H., for use with push units.
28.	A1749	Hitch Extension Weld, L.H., for use with push units
29.	A184	Clamp Weld
30.	R193	Clip
31.	R375	Pin
32.	D2598	Pin
33.	10137	Pin, Hair Clip

FRAME AND AXLE ASSEMBLY



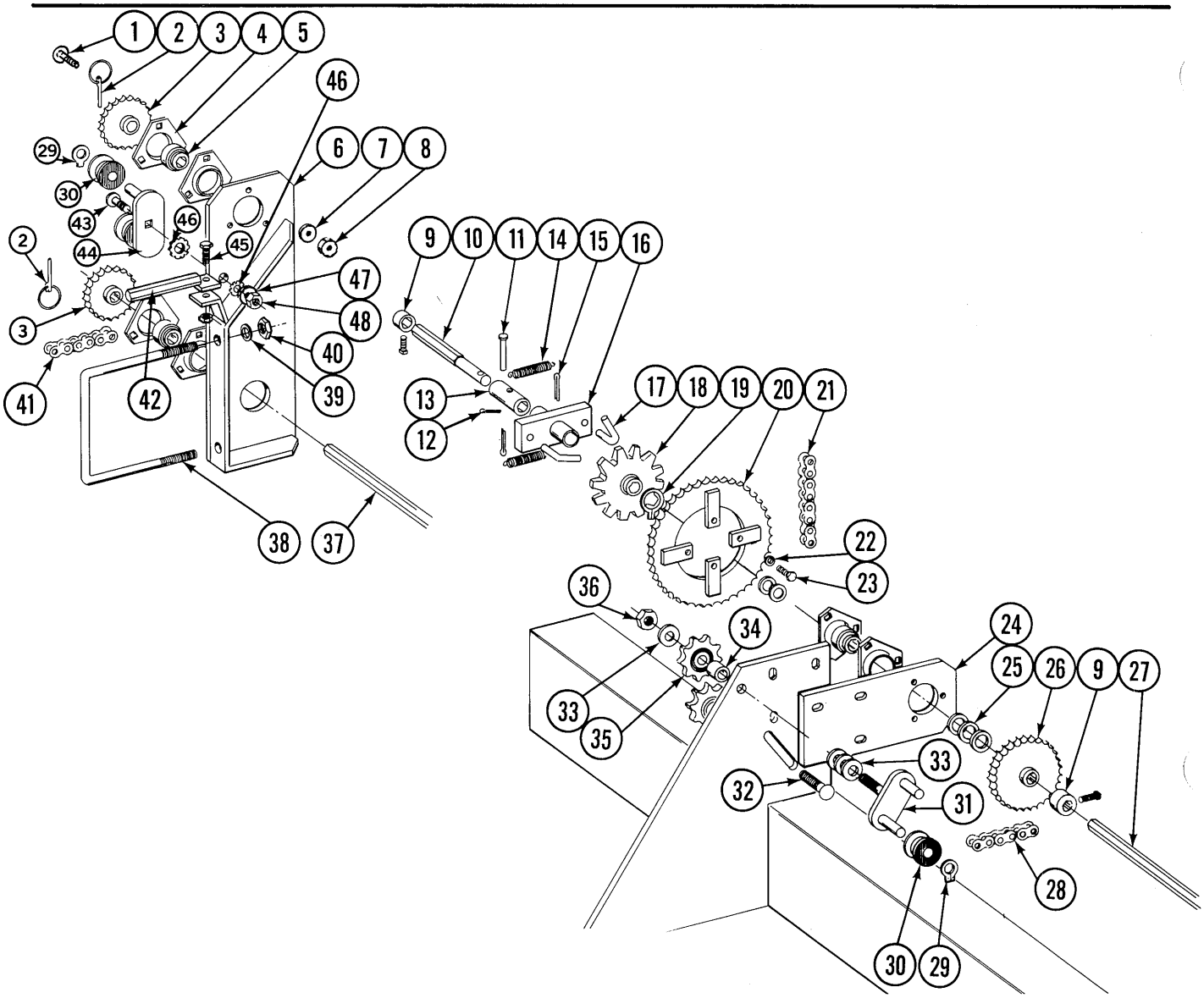




FRAME AND AXLE ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	A239	Grease Seal
2.	A238	Wheel Bearing, Inner
3.	R189	Bearing Cup, Inner
	R188	Bearing Cup, Outer
4.	2700-7	Wheel Hub w/bearing cups, 6 bolt, Less bolts
5.	R270	Hub Bolt
6.	A237	Wheel Bearing, Outer
7.	10224	Spindle Washer, 3/4"
8.	10723	Slotted Hex Nut, 3/4" - 16
9.	10459	Cotter Pin, 3/16" x 1 1/2"
10.	2800-1	Hub Cap
11.	A240	Wheel, 14" x 8", 6 bolt
12.	D1165	Valve Stem
13.	D839	Tire, 11L x 14", 4RW, 6 R's, 8 R's
	D1896	Tire, 9.5L x 14", 6 ply, 4R30
14.	A1734	Axle Weld less hub, R.H., 4R30, 4R Wide
15.	A1735	Axle Weld less hub, L.H., 4R30, 4R Wide
16.	A1654	Axle Weld less hub, R.H., 4RW (Heavy Duty), 6R30 & W, 8R30 & W
17.	A1655	Axle Weld less hub, L.H., 4RW (Heavy Duty), 6R30 & W, 8R30 & W
18.	10460	Cotter Pin, 1/4" x 2"
19.	D826	Pin, 1 1/4" x 5 1/2"
20.	D1656	Clamp, Hose
21.	10108	Lock Nut, 3/8" - 16
22.	A1730	Tube Weld, 4R30, 43"
	A1731	Tube Weld, 4R36, 38 & 40, 59 1/4"
	A1647	Tube Weld, 6R30, and 8R30, 73"
	A1799	Tube Weld, 6R36, 91"
	A1732	Tube Weld, 6R38, 97"
	A1800	Tube Weld, 6R40, 103"
	A1801	Tube Weld, 8R36, 127"
	A1733	Tube Weld, 8R38, 135"
	A1802	Tube Weld, 8R40, 143"
23.	A1646	Link Weld
24.	10159	Machine Bushing
25.	10641	Grease Fitting, 1/8", NPT
26.	10561	Clevis Pin, 1/2" x 3"
27.	A1785	Lock Up, Cylinder
28.	10670	Hair Pin Clip, No. 3
29.	A1739	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4 R Wide
	A746	Cylinder, Lift, 3½" x 10", 4R30 and 4R Wide
	A1583A	Cylinder, Lift, 4" x 10", 6R30, 6R Wide, 8R30, 8R Wide
30.	A1660	Frame Weld, 4R30
	A1661	Frame Weld, 4R36, 38 and 40
	A1662	Frame Weld, 6R30
	A1793	Frame Weld, 6R36
	A1663	Frame Weld, 6R38
	A1794	Frame Weld, 6R40
	A1664	Frame Weld, 8R30
	A1795	Frame Weld, 8R36
	A1665	Frame Weld, 8R38
	A1796	Frame Weld, 8R40
A.	A541	Transport Wheel and Tire, 11L x 14" (Items 11, 12, 13) 4 R Wide, 6 Row Models & 8 Row Models
B.	A942	Transport Wheel & Tire, 9.5L x 14" (Items 11, 12, 13) 4R30

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

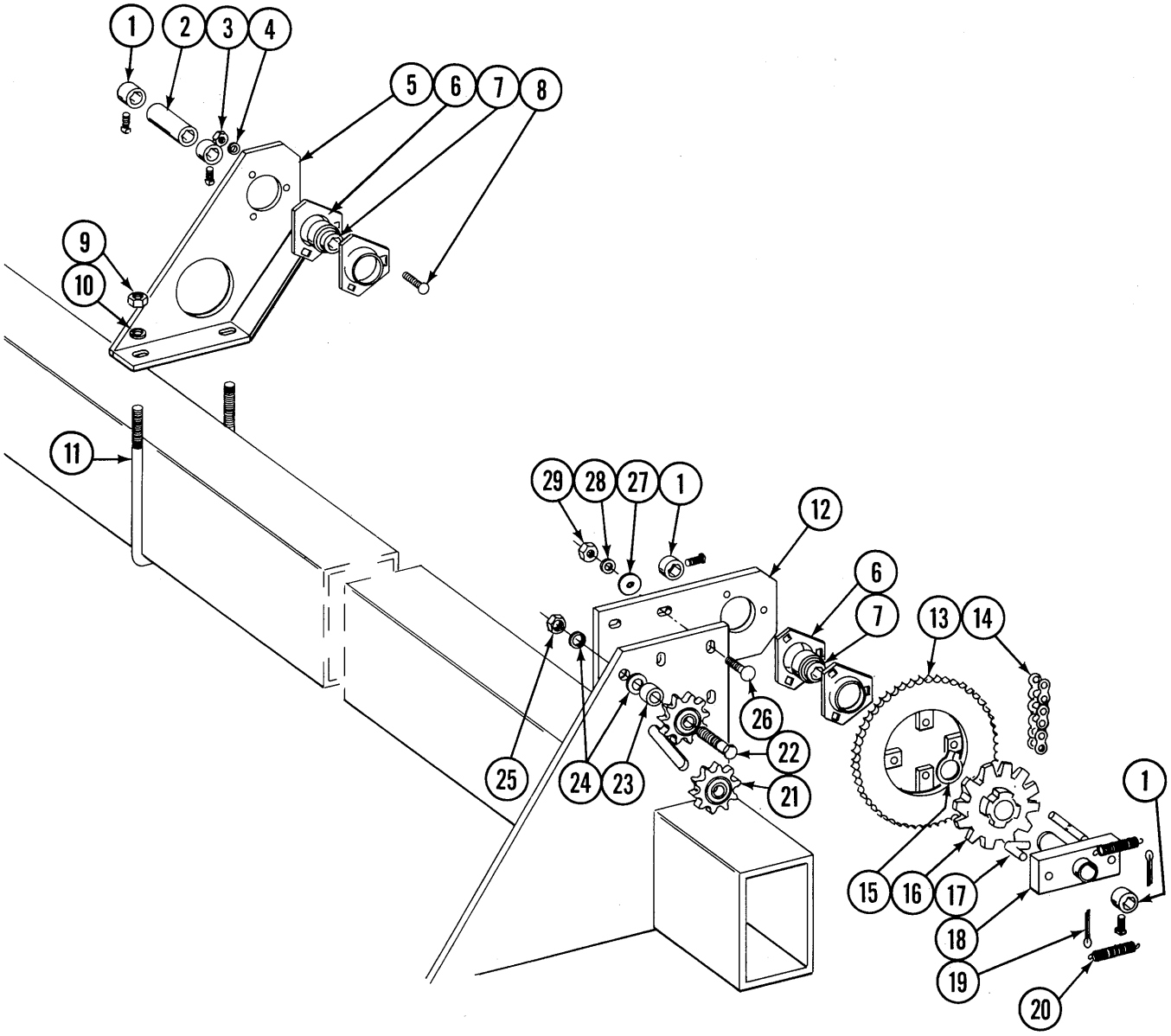


ITEM	PART NO.	DESCRIPTION
1.	10303	Carriage Bolt, 5/16" - 18 x 1" Grade 2
2.	D2558	Pin, Lynch, 1/4"
3.	2500-1	Sprocket, 14 Tooth
	2500-2	Sprocket, 22-26 Tooth
	2500-3	Sprocket, 16-30 Tooth
	2500-6	Sprocket, 18-28 Tooth
4.	3400-1	Flangette
5.	2100-3	Bearing, 7/8 Hex Bore
6.	A1729	Transmission Side Plate
7.	10232	Lockwasher, 5/16"
8.	10106	Hex Nut, 5/16" - 18
9.	A271	Lock Collar
10.	D2543	Shaft, Top Transmission
11.	10558	Clevis Pin, 5/16" x 1 3/4"
12.	10456	Cotter Pin, 1/8" x 3/4"
13.	D2567	Coupler, Drive
14.	D1256	Spring
15.	10464	Cotter Pin, 3/16" x 1"
16.	A378	Block and Hub Assembly
17.	D1255	"L" Pin
18.	A376	Hub/Sprocket Assembly

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

ITEM	PART NO.	DESCRIPTION
19.	10430	Retaining Ring, 1 1/4"
20.	A849	Sprocket, 48T (Extended Drill Sprocket)
21.	3200-76	Chain, No. 2050, 76 Pitch Including Connector and Offset Link
	3200-6	Chain, No. 2050 (Add to chain when using extended dril sprocket)
	R200	Offset Link, No. 2050
	R195	Connector Link, No. 2050
22.	10229	Lockwasher, 3/8"
23.	10002	HHCS, 3/8" - 16 x 3/4"
24.	D1663	Plate, Adjustment
25.	10233	Machinery Bushing, 1"
26.	2500-15	Sprocket, 32T
27.	D914-102	Drive Shaft, 7/8 Hex 4R30
	D914-130	Drive Shaft, 7/8 Hex, 4R Wide
	D914-162	Drive Shaft, 7/8 Hex, 6R30
	D914-206	Drive Shaft, 7/8 Hex, 6R Wide
	D914-222	Drive Shaft, 7/8 Hex, 8R30
	D914-105	Drive Shaft, 7/8 Hex, 8R Wide
	D914-138	Drive Shaft, 7/8 Hex, 8R Wide
28.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
29.	10435	Retaining Ring, 5/8"
30.	D1067	Chain Idler
31.	A1776	Idler Weld
32.	10009	HHCS, 5/8" - 11 x 2 1/2"
33.	10205	Washer, 5/8" SAE
34.	B123	Bushing
35.	A262	Sprocket, Idler, 15T
36.	10107	Lock Nut, 5/8" - 11
37.	D2548-112	Drill Shaft, 7/8 Hex, 4R30
	D2548-140	Drill Shaft, 7/8 Hex, 4R Wide
	D2548-170	Drill Shaft, 7/8 Hex, 6R30
	D2548-215	Drill Shaft, 7/8 Hex, 6R Wide
	D2548-232	Drill Shaft, 7/8 Hex, 8R30
	D2548-144	Drill Shaft, 7/8 Hex, 8R Wide
	D914-144	Drill Shaft, 7/8 Hex, 8R Wide
38.	D1113	U-Bolt, 5" x 7" x 5/8" - 11
39.	10230	Lockwasher, 5/8"
40.	10104	Hex Nut, 5/8" - 11
41.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link, No. 2040
42.	A1786	Rod, Sprocket Storage
43.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
44.	A288	Idler Weld
45.	10019	HHCS, 5/16" - 18 x 1"
46.	10527	Lockwasher, Internal/External, 1/2"
47.	10216	Washer, 1/2" USS
48.	10102	Hex Nut, 1/2" - 13
A.	A261R	Ratchet Clutch Assembly Complete, R.H. (Items 14-19)
B.	A1777	Idler Assmebly (Items 29-31)
C.	A289	Idler Assembly (Items 29, 30 & 44)
D.	R4000	Extended Drill Sprocket Package Includes: (2) A849 (2) 3200-6 (8) 10002 (8) 10229

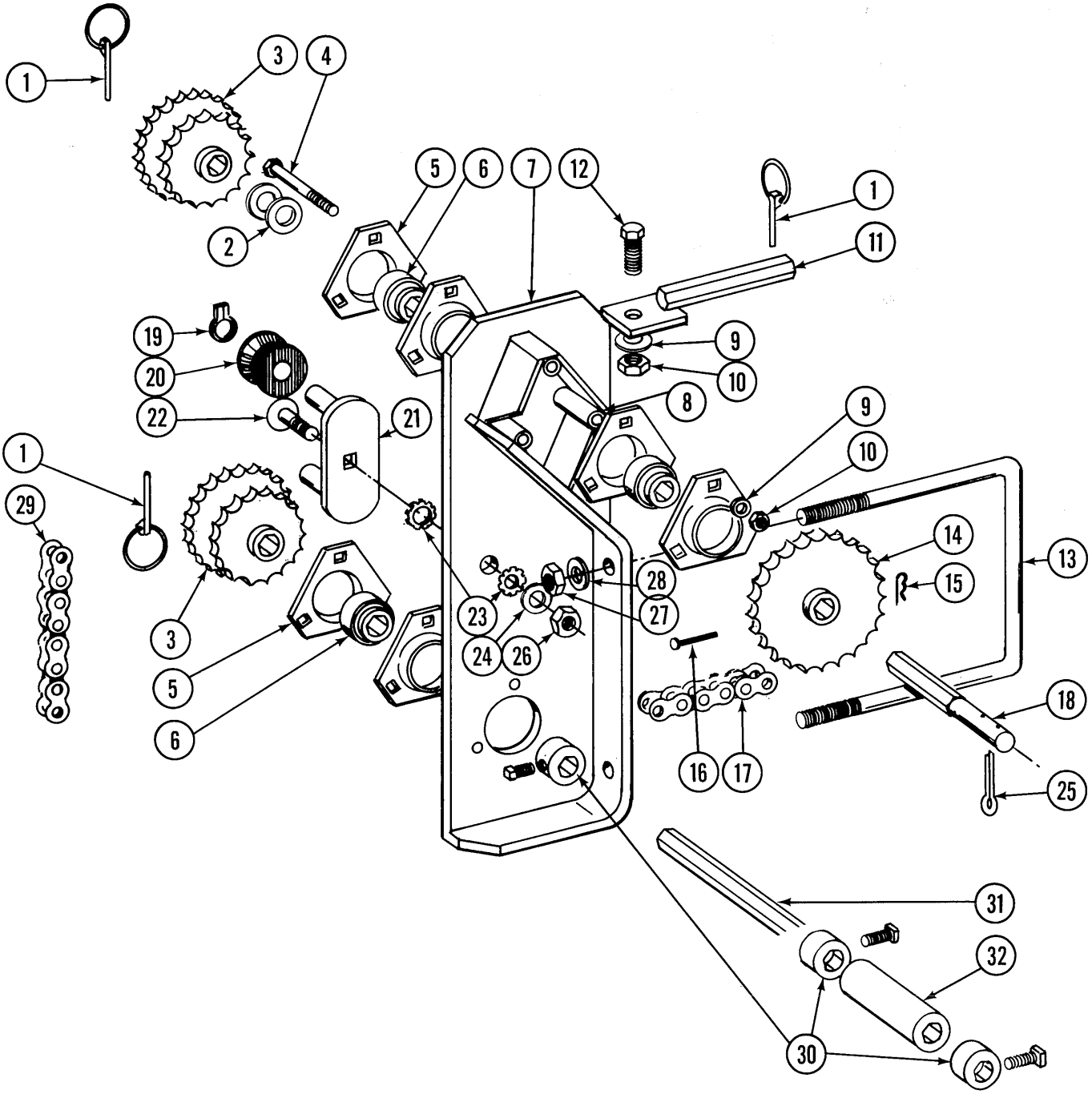
DRIVE LINE (L.H. SIDE)



DRIVE LINE (L.H. SIDE)

ITEM	PART NO.	DESCRIPTION
1.	A271	Lock Collar
2.	D1719	Coupler, Used on 8R Wide Only
3.	10106	Hex Nut, 5/16" - 8
4.	10232	Lockwasher, 5/16"
5.	A1784	Support, Center Bearing
6.	3400-1	Flangette
7.	2100-3	Bearing, 7/8 Hex Bore
8.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
9.	10104	Hex Nut, 5/8" - 11
10.	10230	Lockwasher, 5/8"
11.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
12.	D1663	Plate Adjustment
13.	A849	Sprocket, 48T (Extended Drill Sprocket)
14.	3200-76	Chain, No. 2050, 76 Pitch Including Connector and Offset Link
	3200-6	Chain, No. 2050 (Add to chain when using extended drill sprocket)
	R200	Offset Link, No. 2050
	R195	Connector Link, No. 2050
15.	10430	Retaining Ring, 1 1/4"
16.	A376	Hub, Sprocket Assembly
17.	D1255	"L" Pin
18.	A378	Block and Hub Assembly
19.	10464	Cotter Pin, 3/16" x 1"
20.	D1256	Spring
21.	A262	Sprocket, Idler, 15T
22.	10009	HHCS, 5/8" - 11 x 2 1/2"
23.	B123	Bushing
24.	10205	Washer, 5/8" SAE
25.	10107	Lock Nut, 5/8" - 11
26.	10301	Carriage Bolt, 3/8" - 16 x 1½", Grade 2
27.	10210	Washer, 3/8" USS
28.	10229	Lockwasher, 3/8"
29.	10101	Hex Nut, 3/8" - 16
A.	A261L	Ratchet Clutch Assembly Complete, L.H. (Items 15-20)
B.	R4000	Extended Drill Sprocket Package Includes: (2) A849 (2) 3200-6 (8) 10002 (8) 10229

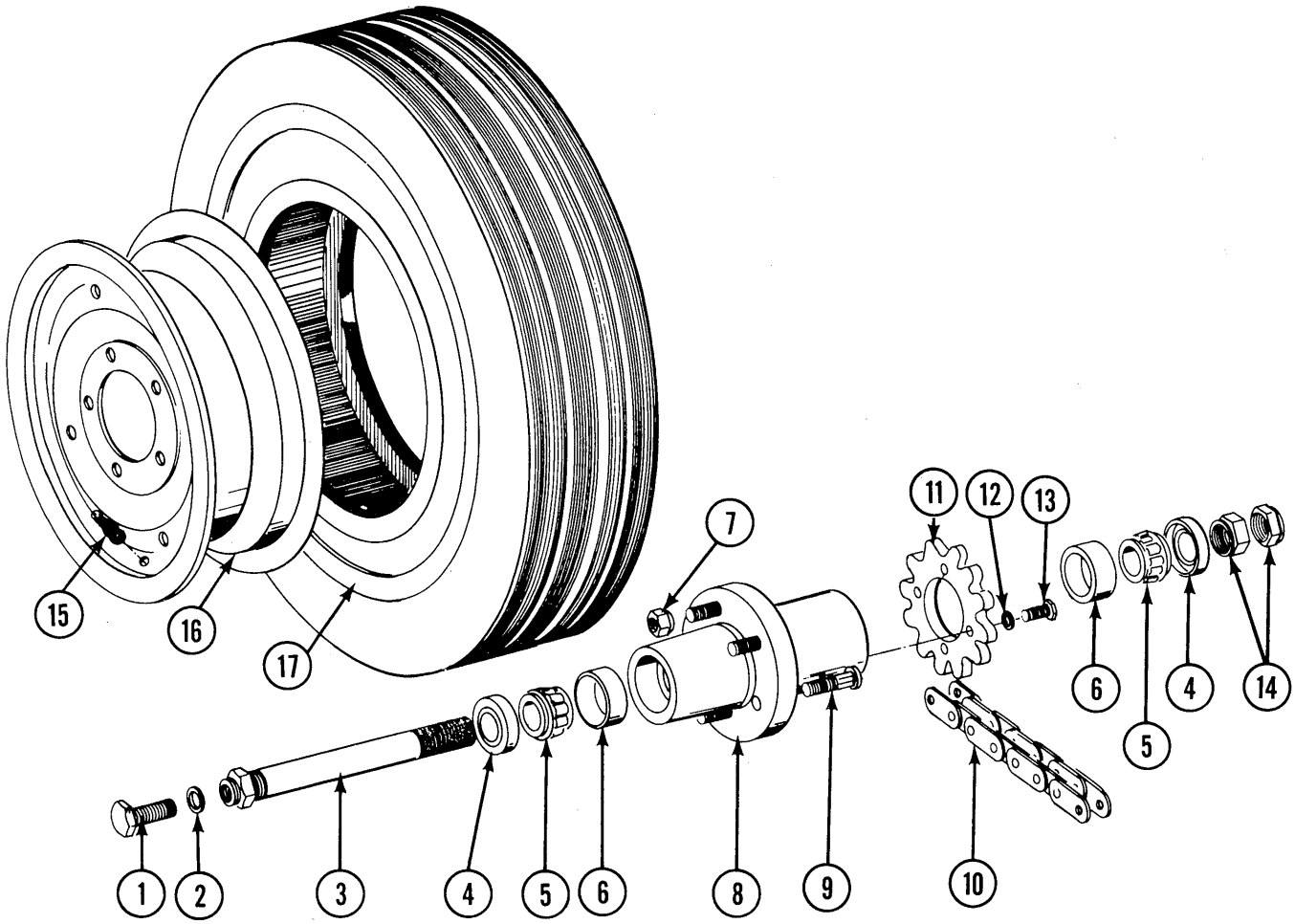
FRONT TRANSMISSION - PUSH UNIT



FRONT TRANSMISSION - PUSH UNIT

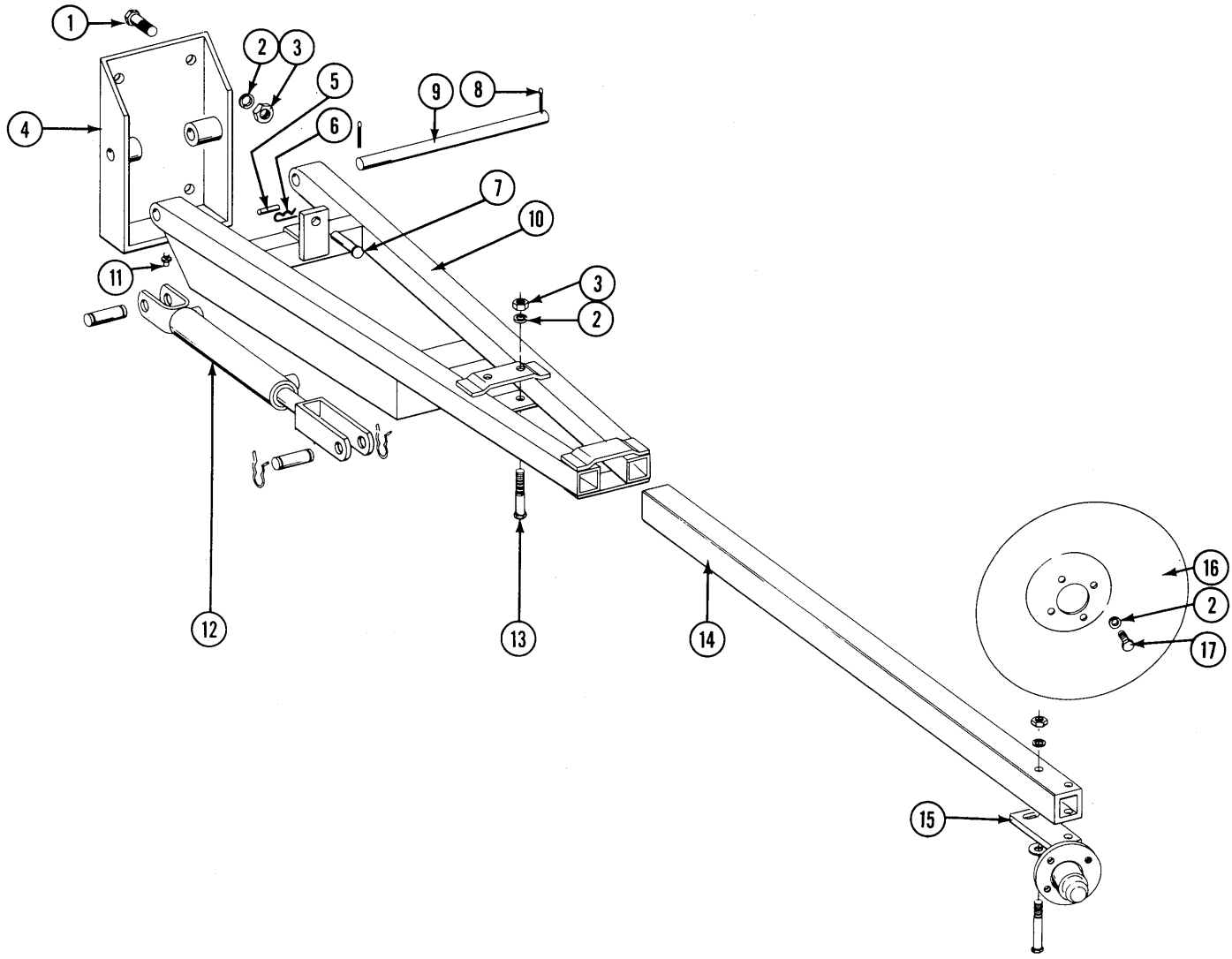
ITEM	PART NO.	DESCRIPTION
1.	D2558	Pin, Lynch, 1/4"
2.	10233	Machinery Bushing, 1"
3.	2500-1	Sprocket, 14 Tooth
	2500-2	Sprocket, 22-26 Tooth
	2500-3	Sprocket, 16 - 30 Tooth
	2500-6	Sprocket, 18 - 28 Tooth
4.	10069	Carriage Bolt, 5/16" - 18 x 2 1/4"
5.	3400-1	Flangette
6.	2100-3	Bearing, 7/8 Hex Bore
7.	A1728	Transmission Side Plate Weld
8.	D2563	Spacer
9.	10232	Lockwasher, 5/16"
10.	10106	Hex Nut, 5/16" - 18
11.	A1786	Rod, Sprocket Storage
12.	10019	HHCS, 5/16" - 18 x 1"
13.	D1113	U-Bolt, 7" x 5" x 5/8" - 11
14.	2500-21	Sprocket, 32 Tooth
15.	10456	Cotter Pin, 1/8" x 3/4"
16.	10558	Clevis Pin, 5/16" x 1 3/4"
17.	3300-132	Chain, No. 2040, 132 Pitch Including Connector Link
	R194	Connector Link, No. 2040
18.	D2542	Shaft, Top Tranmission, Push Unit
19.	10435	Retaining Ring, 5/8"
20.	D1067	Spool, Idler
21.	A288	Idler Weld
22.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2" Grade 2
23.	10527	Lockwasher, Internal/External, 1/2"
24.	10216	Washer, 1/2" USS
25.	10463	Cotter Pin, 1/4" x 1 1/2"
26.	10102	Hex Nut, 1/2" - 13
27.	10104	Hex Nut, 5/8" - 11
28.	10230	Lockwasher, 5/8"
29.	3300-40	Chain, No. 2040, 40 Pitch Including Connector Link
	R194	Connector Link No. 2040
30.	A271	Lock Collar
31.	D2548-90	Drill Shaft, 7/8 Hex, 4R30
	D2548-95	Drill Shaft, 7/8 Hex, 4R Wide
	D2548-150	Drill Shaft, 7/8 Hex, 6R30
	D2548-170	Drill Shaft, 7/8 Hex, 6R Wide
	D2548-210	Drill Shaft, 7/8 Hex, 8R30
	D2548-84	Drill Shaft, 7/8 Hex, 8R Wide
	D2548-162	Drill Shaft, 7/8 Hex, 8R Wide
32.	D1719	Coupler, 8R Wide Only
A.	A289	Idler Assembly (Items 19, 20 & 21)

DRIVE GAUGE WHEEL ASSEMBLY



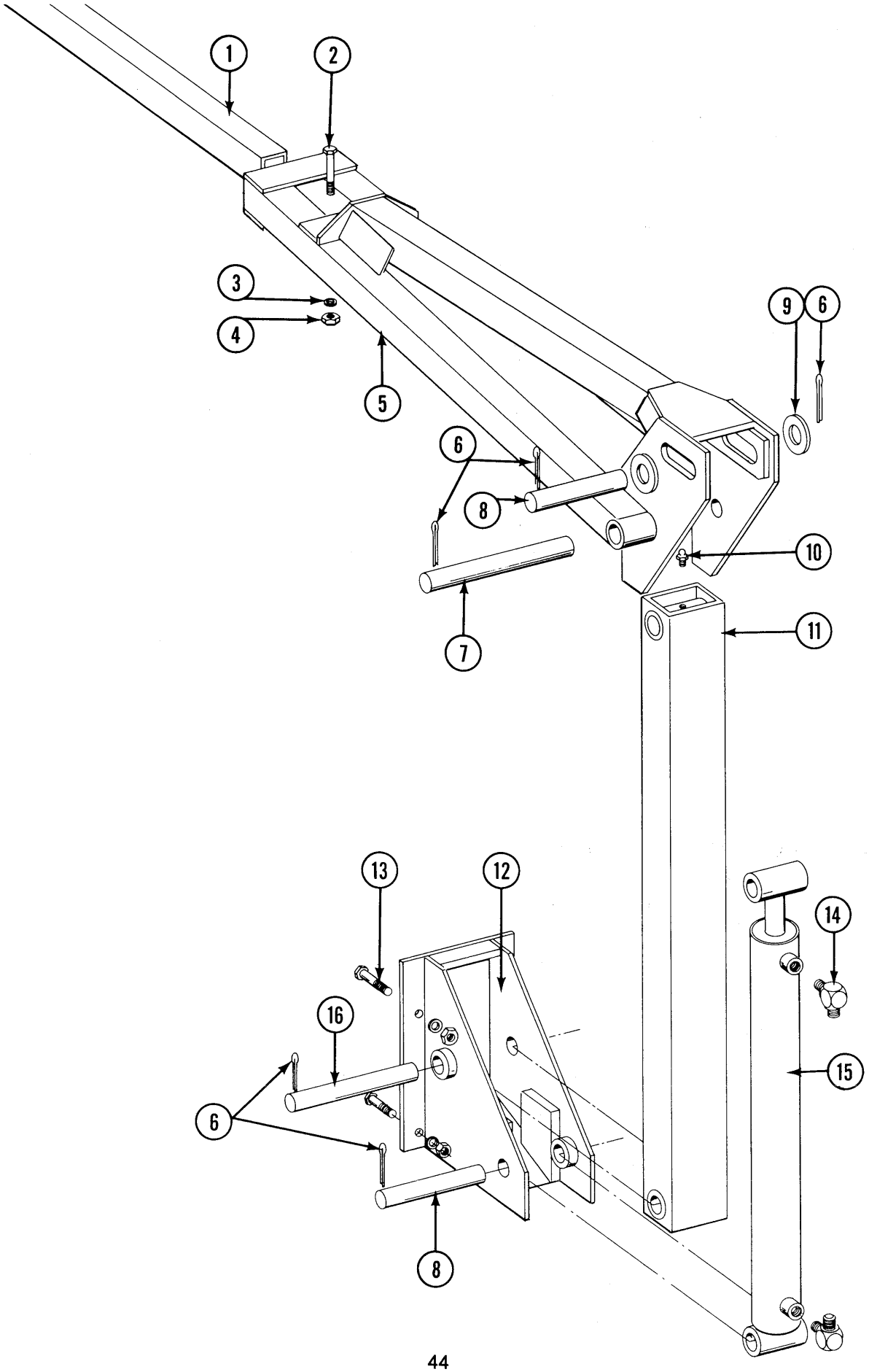
ITEM	PART NO.	DESCRIPTION
1.	10026	HHCS, 3/4" - 10 x 2"
2.	10231	Lockwasher, 3/4"
3.	A652	Spindle Weld
4.	A252	Seal, Grease
5.	A251	Bearing
6.	R190	Cup
7.	R267	Nut, Wheel, 1/2" - 20 UNF
8.	A547	Hub, w/Cups and Studs
9.	R204	Stud Wheel, 1/2" - 20 UNF x 1 7/8"
10.	3200-76	Chain, No. 2050, 76 Pitch Including Connector and Offset Link
	3200-6	Chain, No. 2050 (Add to chain when using extended drill sprocket)
	R195	Connector Link, No. 2050
	R200	Offset Link, No. 2050
11.	2500-17	Sprocket, Bolt-on, 12 Tooth
12.	10232	Lockwasher, 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 Assmebly, 7.60 x 15" (Items 15-17)

CONVENTIONAL MARKER ASSEMBLY



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

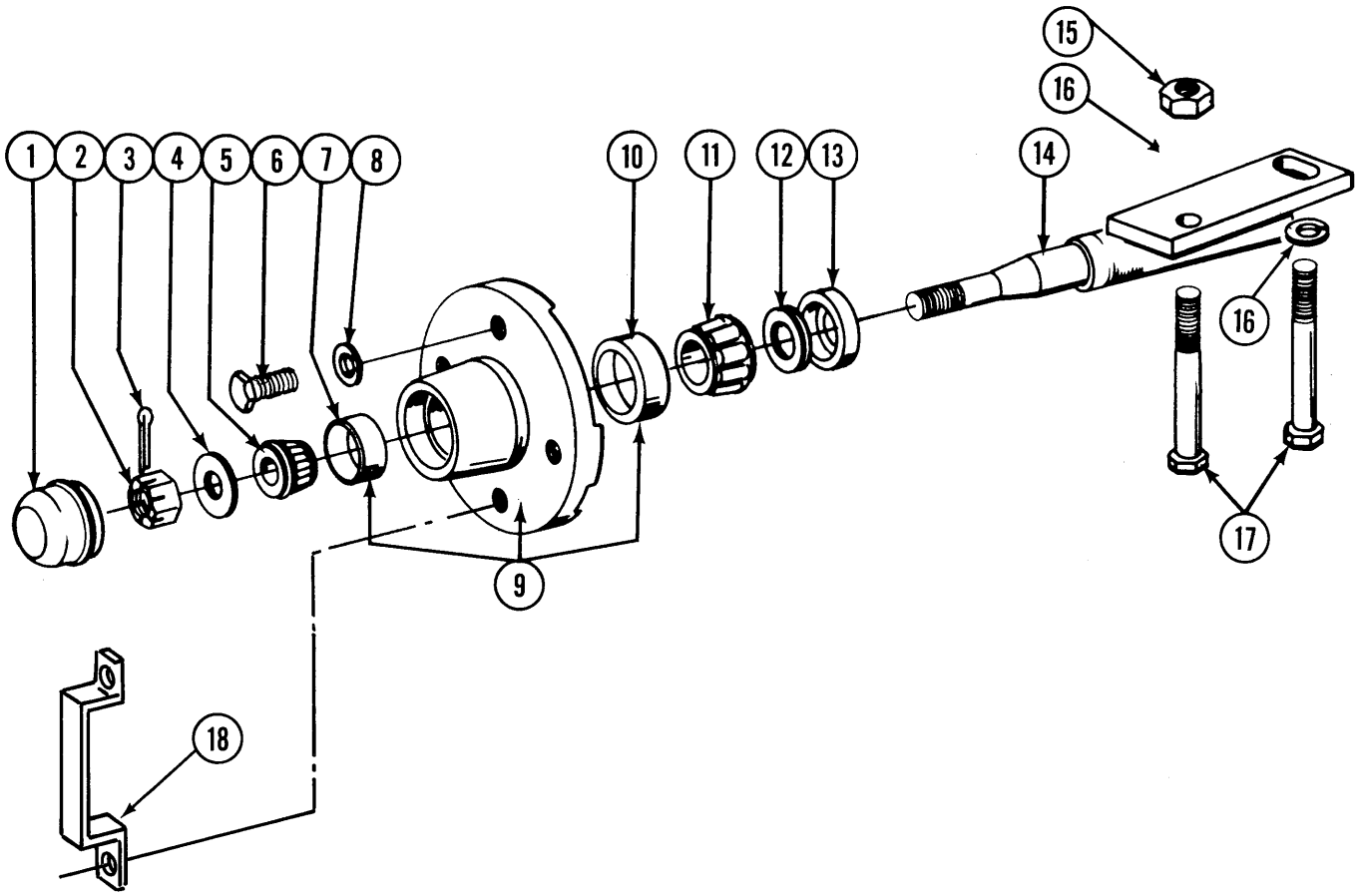
DOUBLE FOLD MARKER ASSEMBLY



DOUBLE FOLD MARKER ASSEMBLY

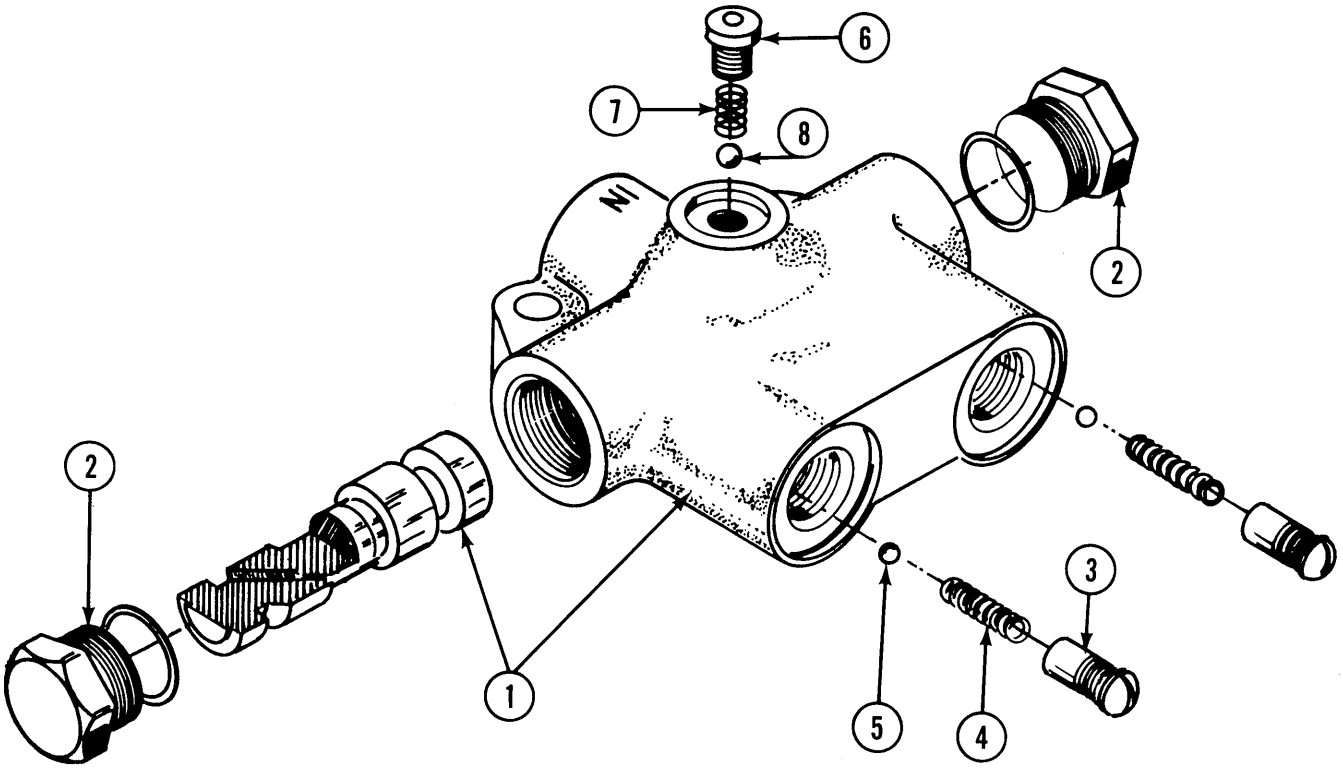
ITEM	PART NO.	DESCRIPTION
1.	D453-3	Extension Tube, 50", 8R30
	D453-4	Extension Tube, 60", 8RW
	D453-5	Extension Tube, 55", 6RW
2.	10033	HHCS, 1/2" - 13 x 3 1/2"
3.	10228	Lockwasher, 1/2"
4.	10102	Hex Nut, 1/2" - 13
5.	A831	Marker Arm, 34", 6RW
	A832	Marker Arm, 45", 8R30
	A833	Marker Arm, 66", 8RW
6.	10460	Cotter Pin, 1/4" x 2"
7.	D1702	Pivot Pin
8.	D1701	Pin, Cylinder
9.	10226	Washer, 1 1/4" SAE
10.	10641	Grease Fitting, 1/8" NPT
11.	A828	Arm, First Stage
12.	A827	Marker Mount
13.	10167	HHCS, 1/2" - 13 x 2", Grade 2
14.	2501-8-8	Elbow, 90°, 1/2" NPT to 37° 3/4 - 16JIC
15.	A1659	Cylinder, 2" x 20"
16.	D653	Pin

MARKER HUB ASSEMBLY



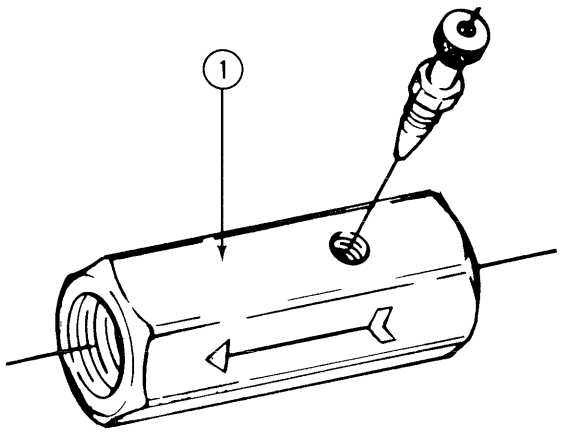
ITEM	PART NO.	DESCRIPTION
1.	D840	Hub Cap
2.	10725	Hex Nut, Slotted, 5/8" - 18
3.	10470	Cotter Pin, 5/32" x 1"
4.	10724	Washer, 5/8"
5.	A257	Bearing, Outer
6.	10722	HHCS, 1/2" - 20 x 1"
7.	R151	Cup, Outer
8.	10228	Lockwasher, 1/2"
9.	A167	Hub w/cups
10.	R150	Cup, Inner
11.	A245	Bearing Inner
12.	A899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

SEQUENCING VALVE



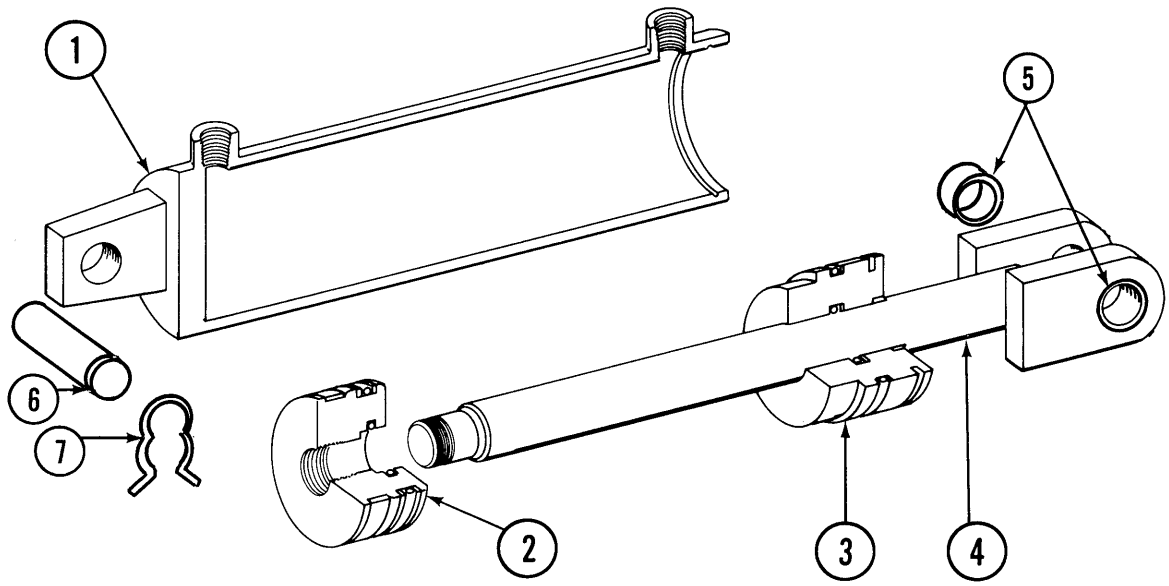
ITEM	PART NO.	DESCRIPTION
1.		Valve Body and Spool
2.	R271	Plug Assembly, O-Ring Boss
3.	R273	Retainer, Check Valve
4.	R277	Spring, Check Valve
5.	R275	Ball, Check, 3/16" Diameter
6.	R274	Plug Assembly, O-Ring Boss
7.	R278	Spring
8.	R276	Ball, 1/4" Diameter
A.	A282	Sequencing Valve, Complete

FLOW CONTROL VALVE



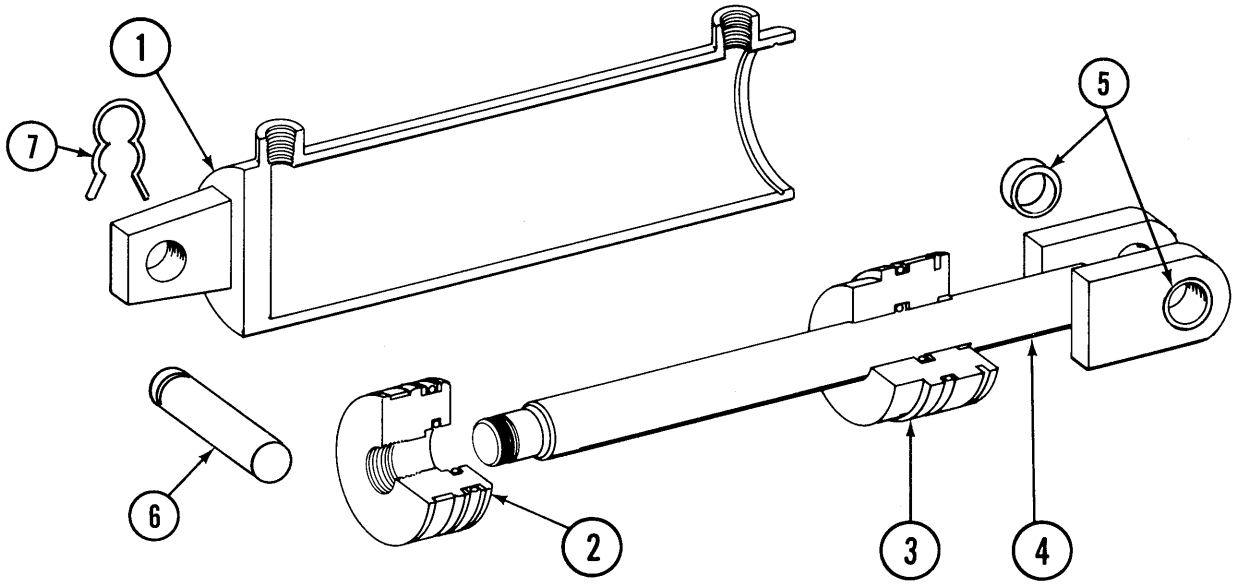
ITEM	PART NO.	DESCRIPTION
1.	A270	Flow Control Valve Assembly, 3/8" NPT (KLF 375)

LIFT CYLINDER -PUSH UNIT



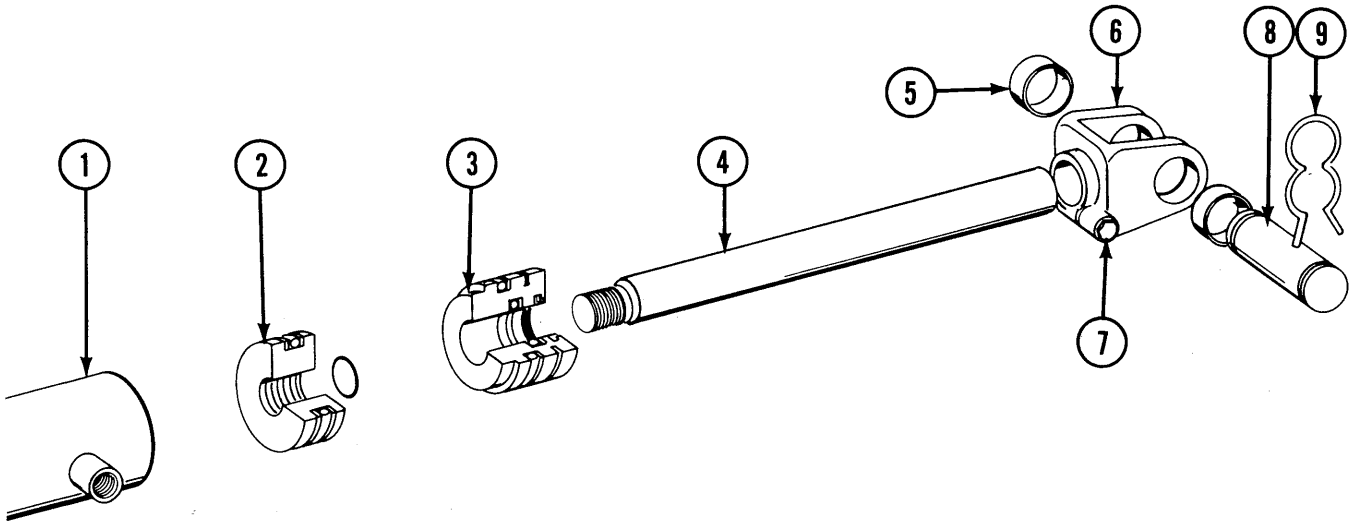
ITEM	PART NO.	DESCRIPTION
1.	R554	Tube Assembly
2.	R556	Piston
3.	R555	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing, Steel
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
A.	A1696	Cylinder, Lift, Complete 3" x 8"
	R557	Seal Kit
		Includes
		(1) Wear Ring, Piston
		(3) Backup Ring, Piston
		(2) O-Ring Piston
		(1) Snap Ring
		(1) Rod Wiper
		(1) Backup Ring, Gland-Rod
		(1) O-Ring Gland-Rod
		(1) O-Ring Piston-Rod

LIFT CYLINDER - 4 ROW MODELS



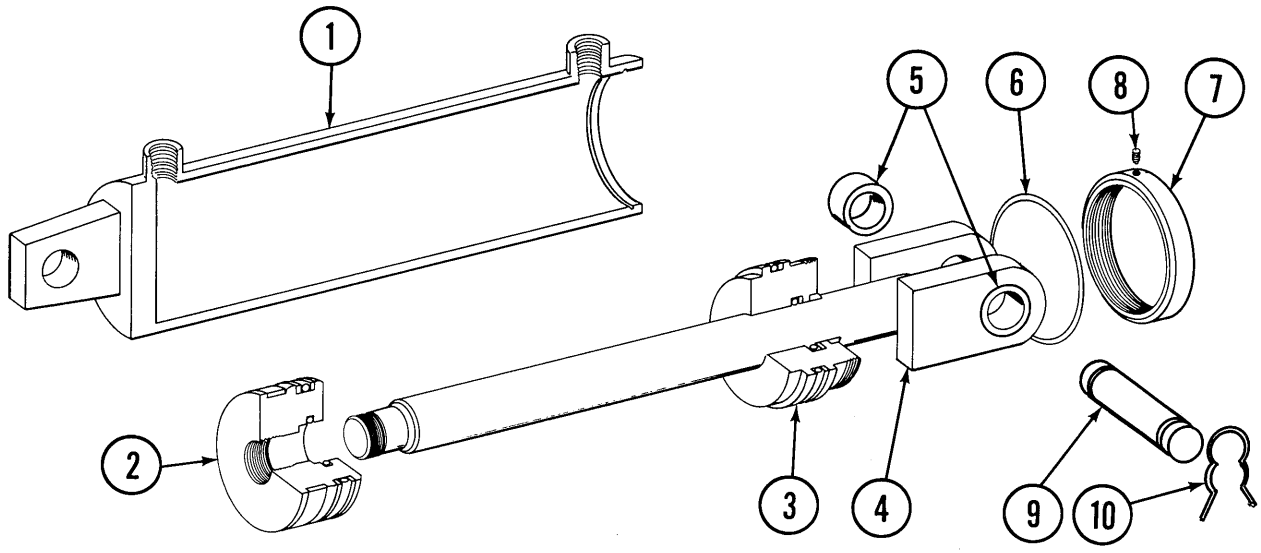
ITEM	PART NO.	DESCRIPTION
1.	R369	Tube Assembly
2.	R561	Piston
3.	R371	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing, Steel
6.	R375	Clevis Pin
7.	R193	Clip, Hair Pin
A.	A1739	Cylinder, Lift, Complete, 3 1/2 x 10
	R562	Seal Kit Includes (1) O-Ring 1.14 I.D. x 1.254. O.D. (1) O-Ring 1.475 I.D. x 1.895 O.D. (2) O-Ring 3.10 I.D. x 3.52 O.D. (1) Back Up Washer 1 1/2 I.D. x 1 7/8 O.D. (3) Back Up Washer 3 1/8 I.D. x 3 1/2 O.D. (1) Rod Wiper (1) Retaining Ring, Int. 3 1/2" (1) Wear Ring 3½" O.D.

LIFT CYLINDER - 4 ROW MODELS



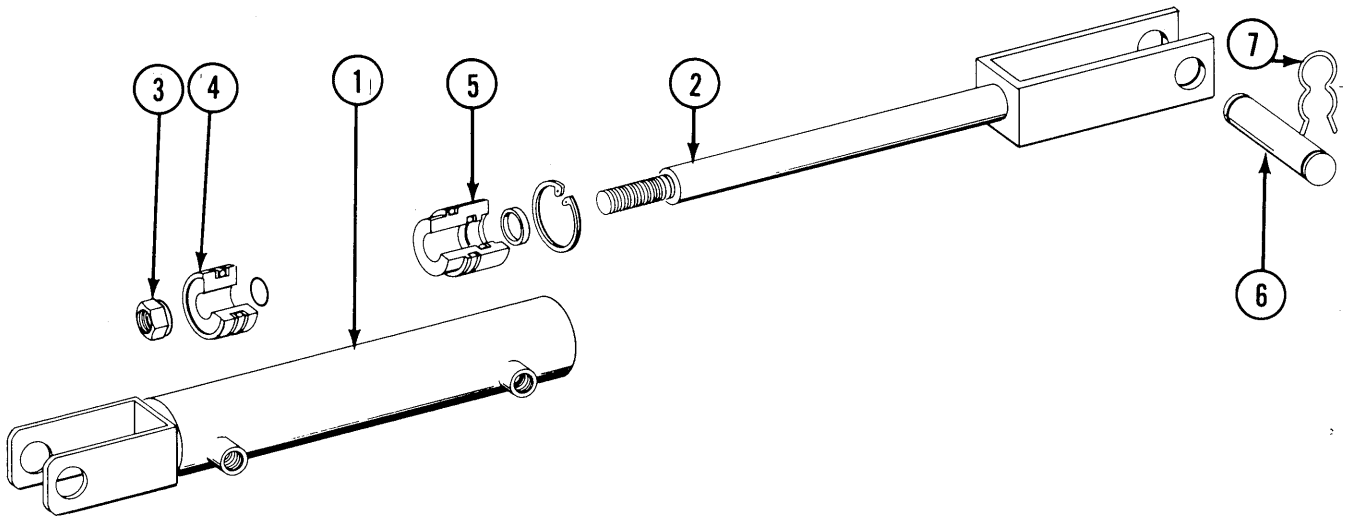
ITEM	PART NO.	DESCRIPTION
1.	R369	Tube Assembly
2.	R372	Piston
3.	R371	Head Gland
4.	R370	Shaft Assembly
5.	R374	Bushing, Steel
6.	R373	Clevis
7.	10075	Clevis Bolt 3/8"-24x1¾"
8.	R375	Clevis Pin
9.	R193	Clip, Hair Pin
A.	A746	Cylinder, Lift, Complete, 3½x10
	R376	Seal Kit Includes (1) O-Ring 1.14 I.D.x1.254.O.D. (1) O-Ring 1.475 I.D.x1.895 O.D. (2) O-Ring 3.10 I.D.x3.52 O.D. (1) Back Up Washer 1½ I.D.x1 7/8 O.D. (3) Back Up Washer 3 1/8 I.D. x 3½ O.D. (1) Rod Wiper (1) Retaining Ring, Int. 3½"

LIFT CYLINDER - 6 & 8 ROW MODELS (4R Wide HD)



ITEM	PART NO.	DESCRIPTION
1.	R550	Tube Weld
2.	R108	Piston
3.	R107	Head Gland
4.	R560	Shaft Assembly
5.	R374	Bushing
6.	R110	Wire Ring
7.	R106	Head Gland Nut
8.	10114	Set Screw, No. 10-30
9.	R375	Pin
10.	R193	Clip, Hair Pin
	R111	Seal Kit, Includes (1) Wear Ring (3) O-Rings (4) BU Washers (1) Poly O-Ring
A.	A1583A	Cylinder Complete, 4" x 10", Style No. 1

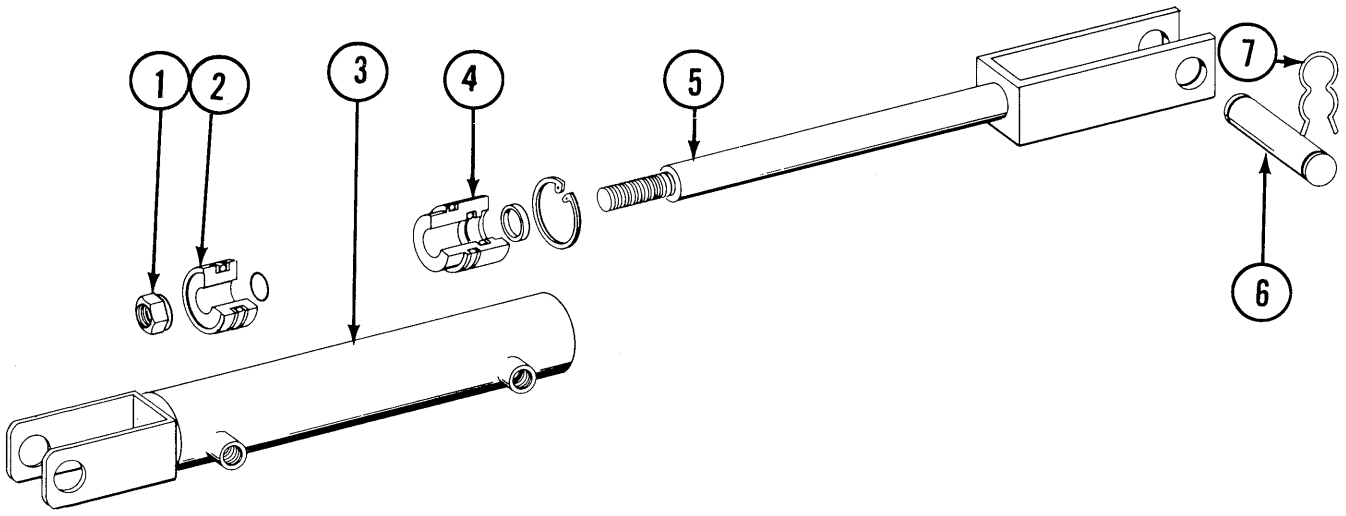
CONVENTIONAL MARKER CYLINDER



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

* To identify - No markings on barrel

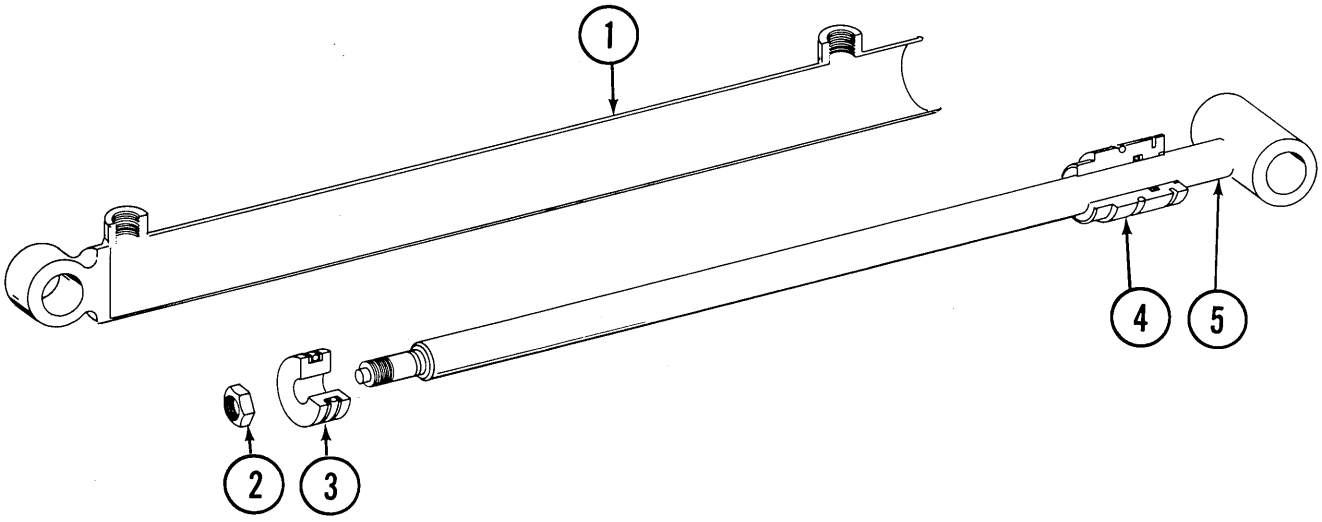
CONVENTIONAL MARKER CYLINDER



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

* To identify - Super Draulic Stamped on Barrel

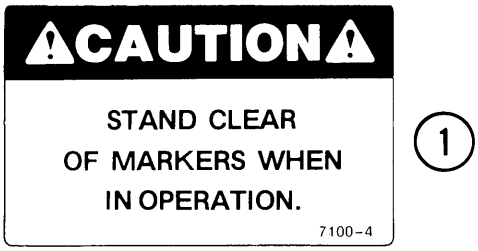
DOUBLE FOLDING MARKER CYLINDER



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

DECALS AND REFLECTORS

4



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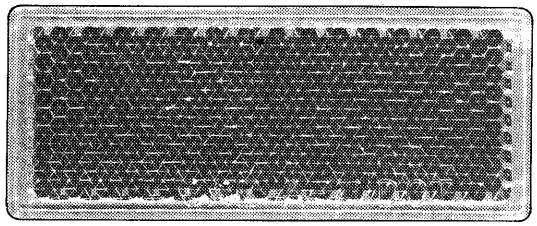

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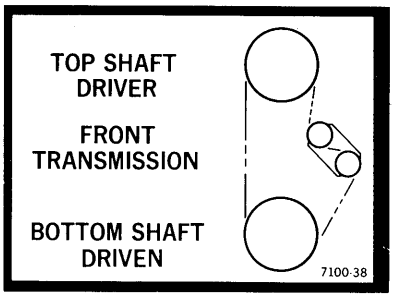
2



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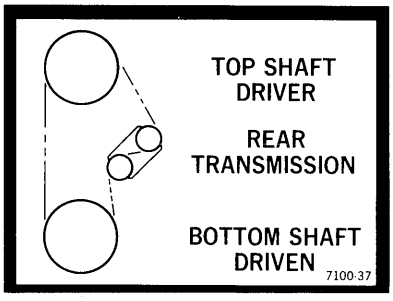
3

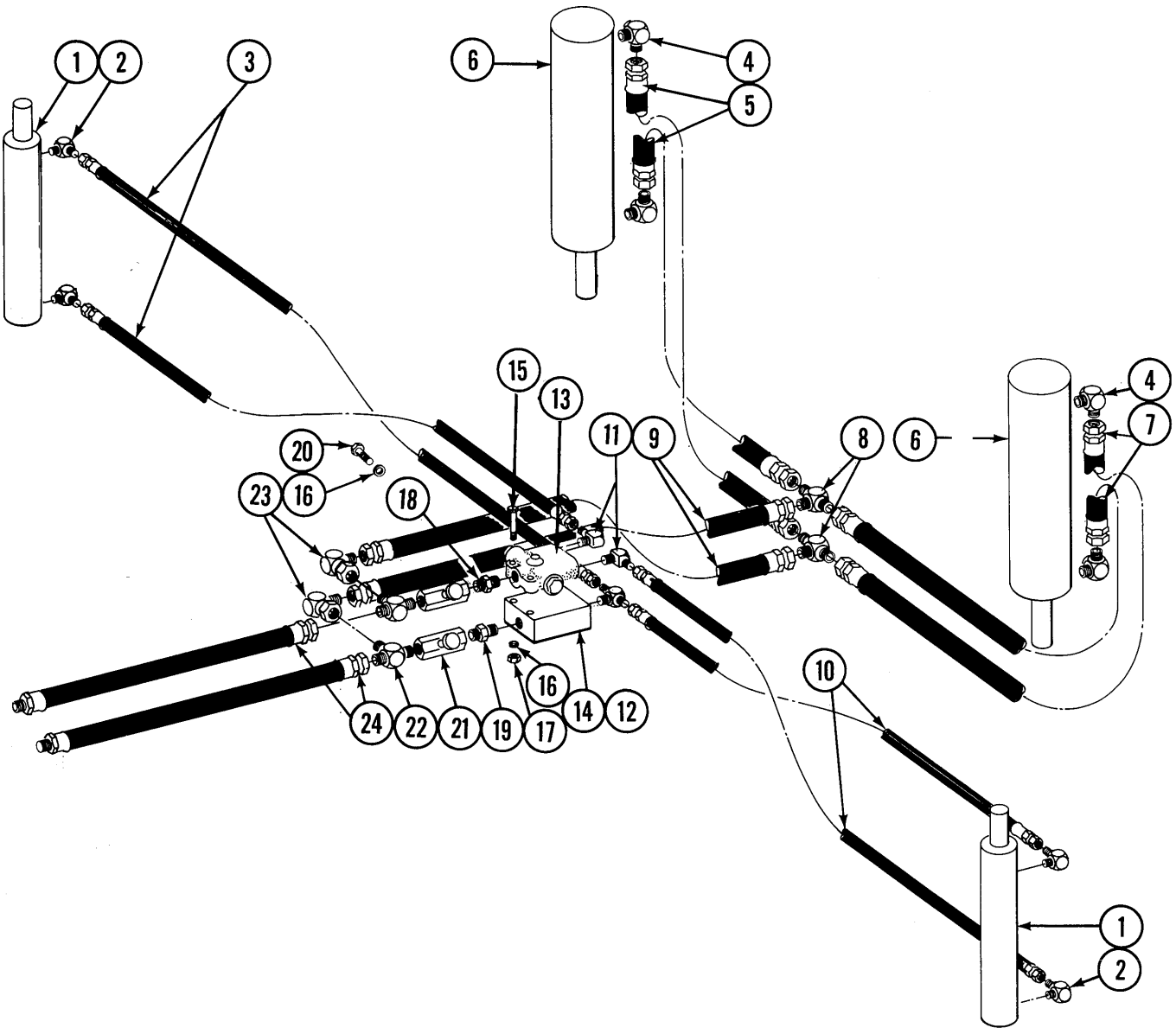


6

ITEM	PART NO.	DESCRIPTION
1.	7100-4	Decal, Caution-Markers
2.	7100-3	Decal, Warning-Hitch
3.	D937	Serial Number Plate
4.	7100-1	Kinze Decal
5.	7200-1	Reflector, Red (Used on Rear of Planter Box)
	7200-2	Reflector, Amber (Used on Front of Toolbar)
6.	7100-37	Decal, Rear Trans.
7.	7100-38	Decal, Front Trans.

HYDRAULIC SYSTEM - 4R30, 4R Wide & 6R30

CONVENTIONAL MARKERS
SINGLE VALVE



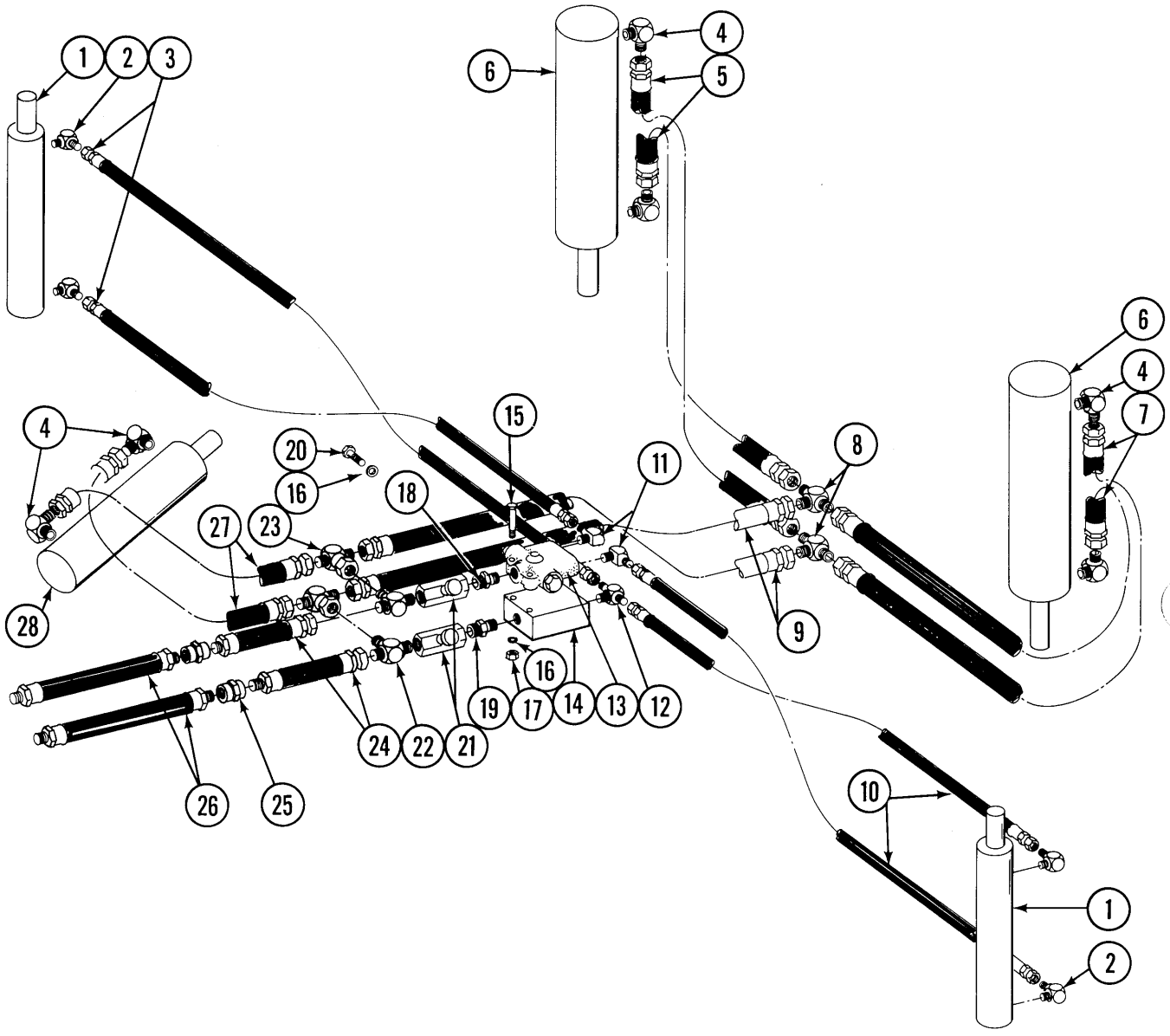
HYDRAULIC SYSTEM - 4R30, 4R Wide and 6R30

CONVENTIONAL MARKERS
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4R30
	A1102	Hose Assembly, 1/4" x 95", 4R Wide
	A1103	Hose Assembly, 1/4" x 110", 6R30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A746	Cylinder, Lift, 3 1/2" x 10" 4R30 and 4R Wide
	A1583A	Cylinder, Lift, 4" x 10", 6R30 and 4R Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4R30
	A1105	Hose Assembly, 1/4" x 125", 4R Wide
	A1107	Hose Assembly, 1/4" x 140", 6R30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupler, Male
20.	10004	HHCS, 3/8' - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6500-8	Elbow, Swivel
24.	A1012	Hose Assembly, 3/8" x 140"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 4R30, 4R Wide and 6R30

CONVENTIONAL MARKERS
PUSH UNIT LIFT
SINGLE VALVE



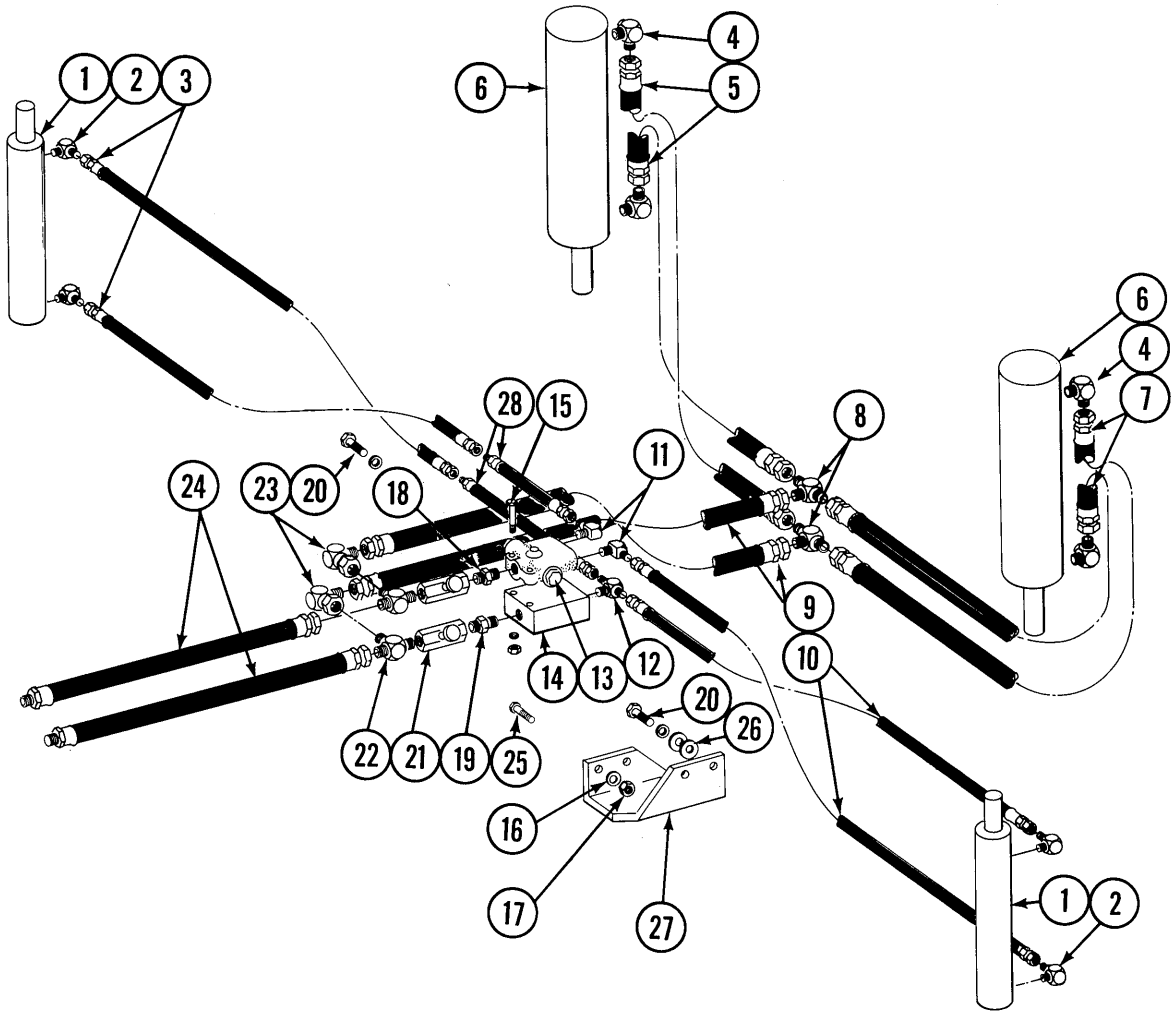
HYDRAULIC SYSTEM - 4R30, 4R Wide and 6R30

CONVENTIONAL MARKERS
PUSH UNIT LIFT
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4R30
	A1102	Hose Assembly, 1/4" x 95", 4R Wide
	A1103	Hose Assembly, 1/4" x 110", 6R30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A746	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A1583A	Cylinder, Lift, 4" x 10", 6R30 and 4R Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4R30
	A1105	Hose Assembly, 1/4" x 125", 4R Wide
	A1107	Hose Assembly, 1/4" x 140", 6R30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupler, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6600-8	Swivel Tee
24.	A1012	Hose Assembly, 3/8" x 140"
25.	5000-8-8	Pipe Coupler, 1/2" NPT
26.	A1074	Hose Assembly, 3/8" x 36"
27.	A1073	Hose Assembly, 3/8" x 18"
28.	A1696	Cylinder, Push Unit Lift, 3" x 8"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R30

CONVENTIONAL MARKERS W/DRY FERTILIZER SINGLE VALVE



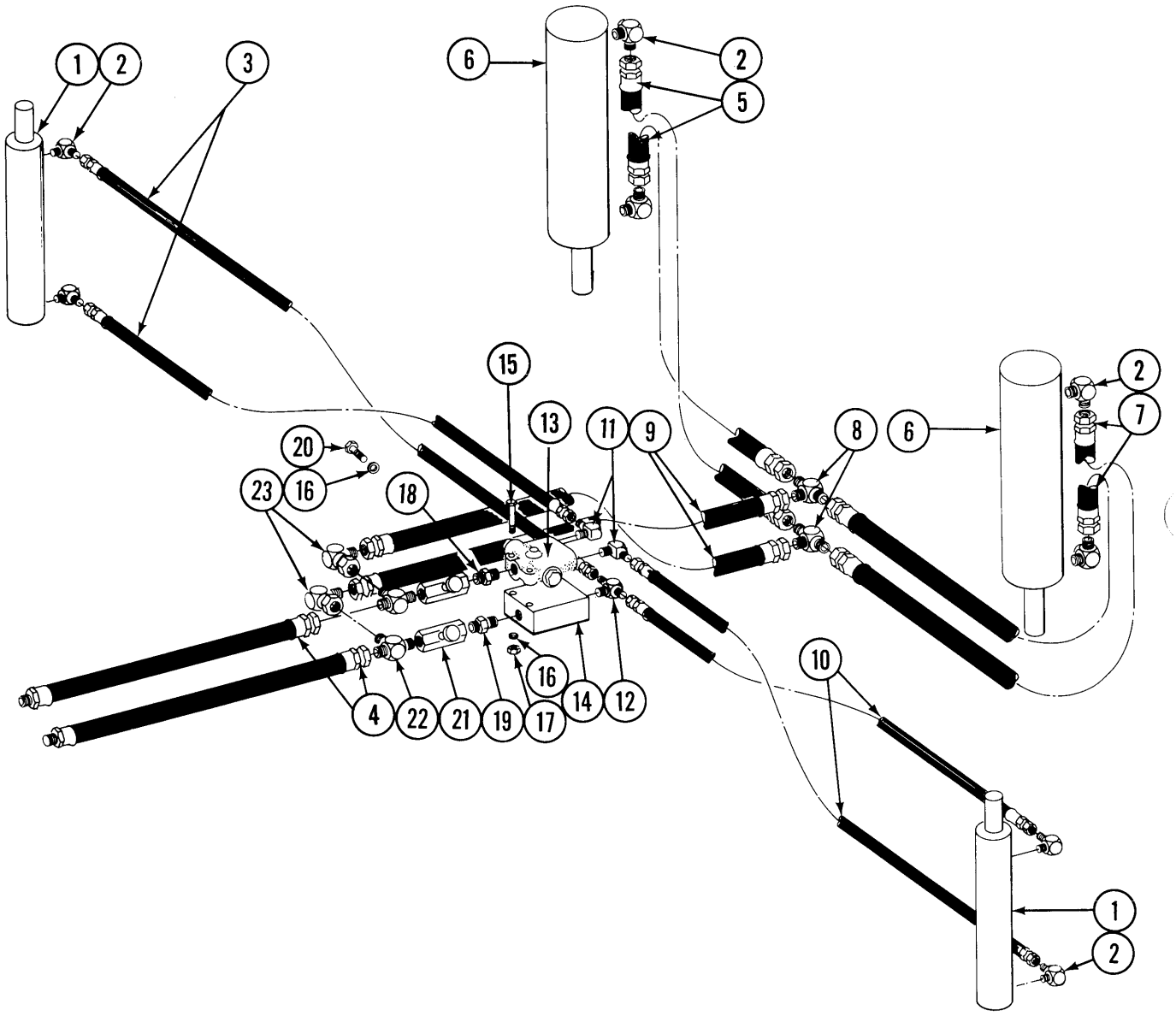
HYDRAULIC SYSTEM - 6R30

CONVENTIONAL MARKERS W/DRY FERTILIZER SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1103	Hose Assembly, 1/4" x 110"
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1583A	Cylinder, Lift, 4" x 10"
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1107	Hose Assembly, 1/4" x 140"
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6500-8	Elbow, Swivel
24.	A1012	Hose Assembly, 3/8" x 140"
25.	10003	HHCS, 3/8" - 16 x 1 1/2"
26.	10210	Washer, 3/8" USS
27.	D2533	Bracket, Valve Mount
28.	A1124	Hose Assembly, 1/4" x 12"
	D1162	Tie Strap 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide & 8R30

LOW PROFILE MARKERS
SINGLE VALVE



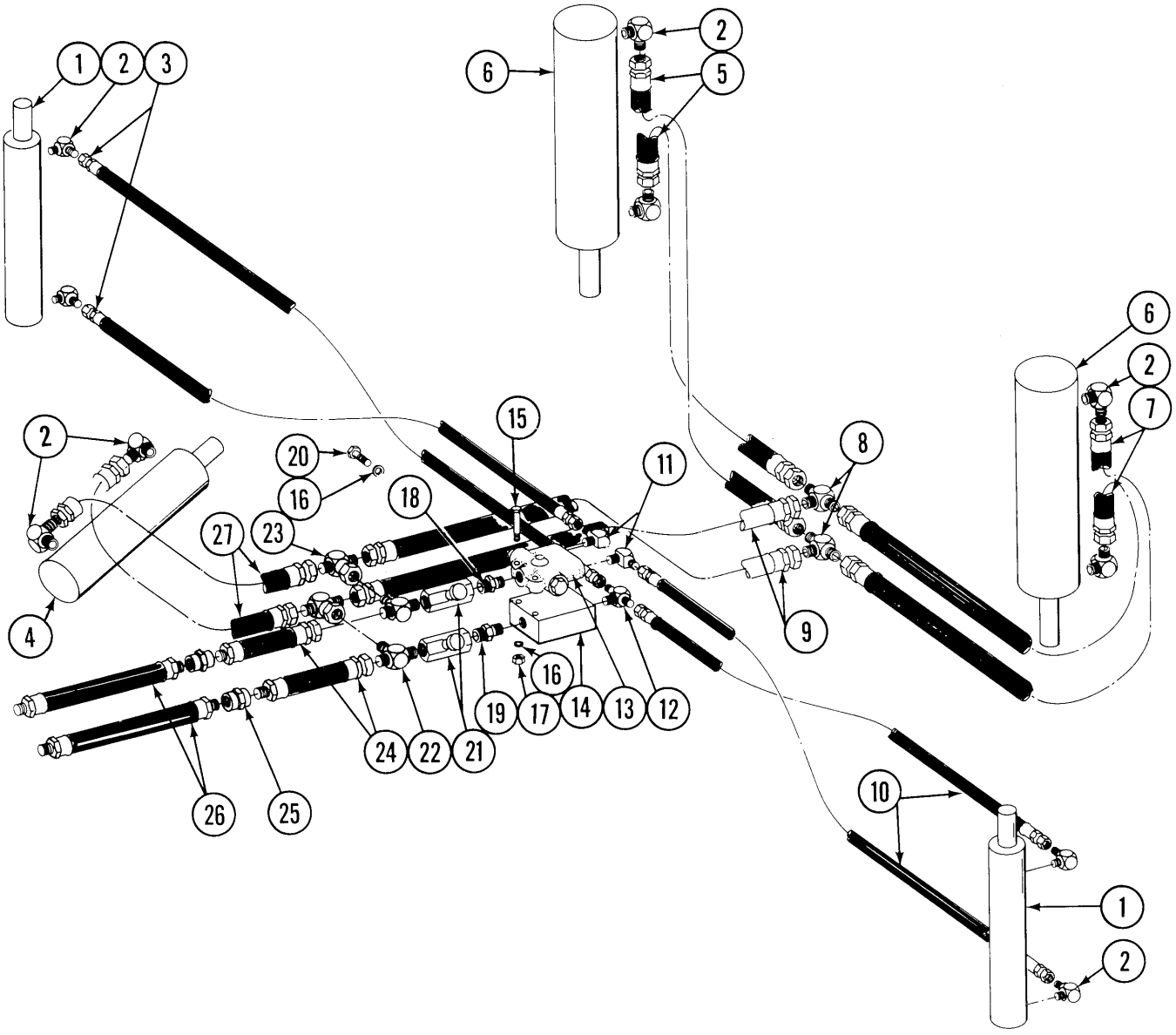
HYDRAULIC SYSTEM - 6R Wide & 8R30

LOW PROFILE MARKERS
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6R Wide
	A1025	Hose Assembly, 3/8" 148", 8R30
4.	A1012	Hose Assembly, 3/8" x 140"
5.	A1006	Hose Assembly, 3/8" x 90", 6R Wide
	A1021	Hose Assembly, 3/8" x 56", 8R30
6.	A1583A	Cylinder, 4" x 10"
7.	A1008	Hose Assembly, 3/8" x 110" 6R Wide
	A1039	Hose Assembly, 3/8" x 76", 8R30
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1049	Hose Assembly, 3/8" x 160"
11.	6801-8	Elbow, 90°
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupler, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6500-8	Elbow, Swivel
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide & 8R30

LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE



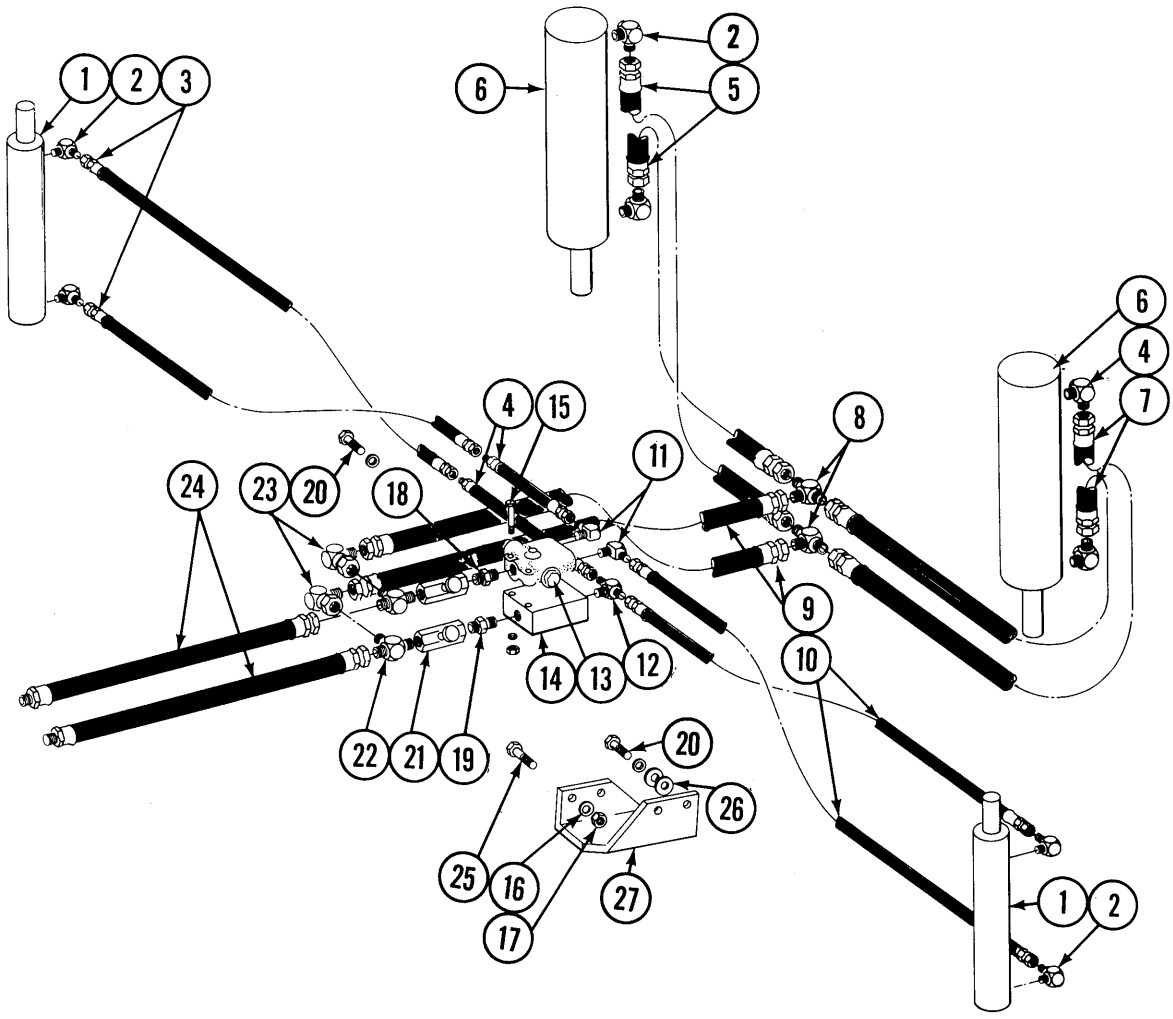
HYDRAULIC SYSTEM - 6R Wide & 8R30

LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6R Wide
	A1025	Hose Assembly, 3/8" 148", 8R30
4.	A1696	Cylinder, Push Unit Lift, 3" x 8"
5.	A1006	Hose Assembly, 3/8" x 90", 6R Wide
	A1021	Hose Assembly, 3/8" x 56", 8R30
6.	A1583A	Cylinder, 4" x 10"
7.	A1008	Hose Assembly, 3/8" x 110", 6R Wide
	A1039	Hose Assembly, 3/8" x 76", 8R30
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1049	Hose Assembly, 3/8" x 160"
11.	6801-8	Elbow, 90°
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupler, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6600-8	Tee, Swivel
24.	A1012	Hose Assembly, 3/8" x 140"
25.	5000-8-8	Pipe Coupler, 1/2" NPT
26.	A1074	Hose Assembly, 3/8" x 36"
27.	A1073	Hose Assembly, 3/8" x 18"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide

LOW PROFILE MARKERS W/DRY FERTILIZER SINGLE VALVE



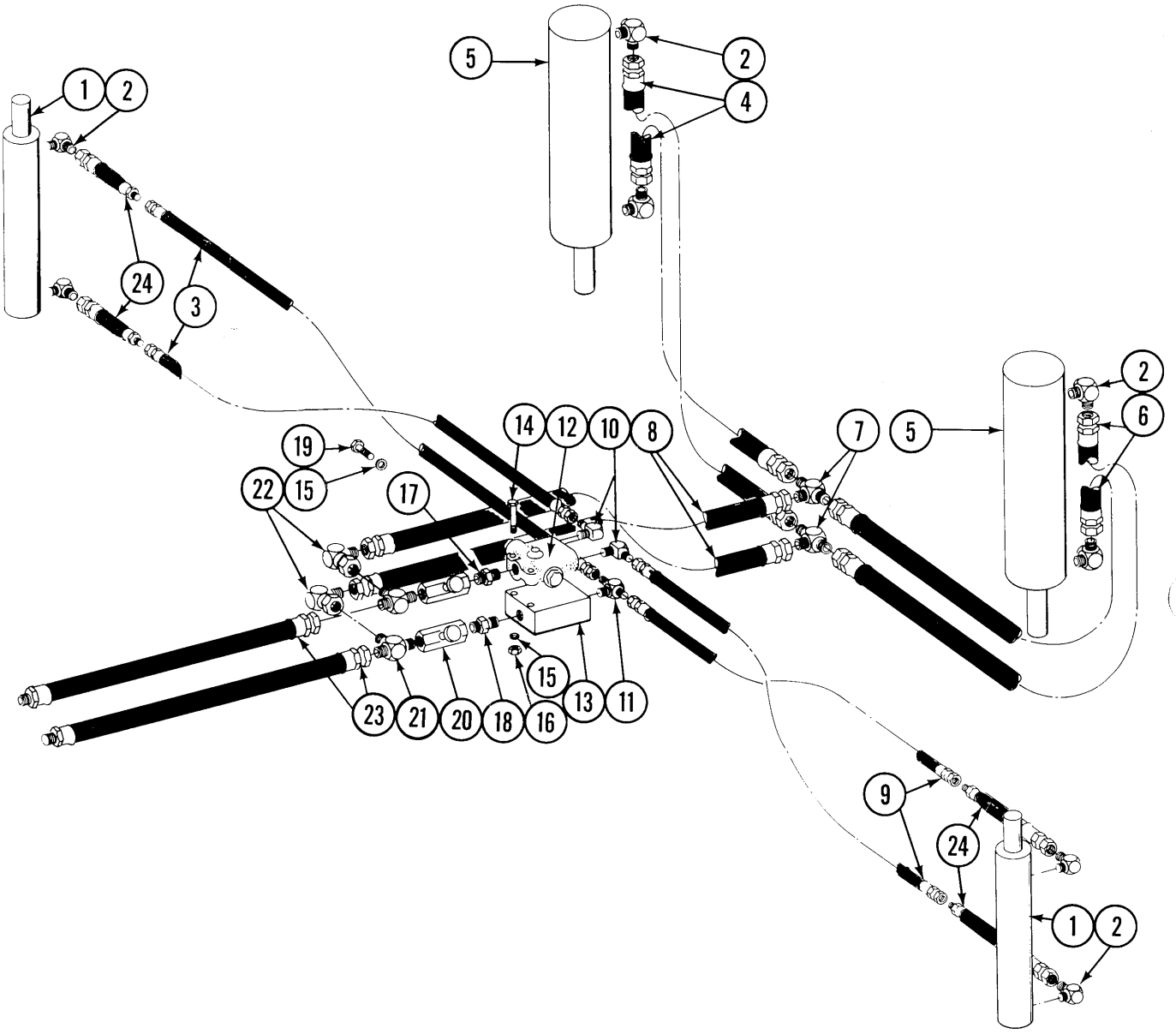
HYDRAULIC SYSTEM - 6R Wide

LOW PROFILE MARKERS W/DRY FERTILIZER SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1048	Hose Assembly, 3/8" x 12"
5.	A1006	Hose Assembly, 3/8" x 90"
6.	A1583A	Cylinder, 4" x 10"
7.	A1008	Hose Assembly, 3/8" x 110"
8.	2603-8	Tube Tee
9.	A1020	Hose Assembly, 3/8" x 48"
10.	A1049	Hose Assembly, 3/8" x 160"
11.	6801-8	Elbow, 90°
12.	2601-8-6	Side Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupler, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	A270	Valve, Flow Control
22.	2605-8-6	Run Tee
23.	6500-8	Elbow, Swivel
24.	A1012	Hose Assembly, 3/8" x 140"
25.	10003	HHCS, 3/8" - 16 x 1 1/2"
26.	10210	Washer, 3/8" USS
27.	D2533	Bracket, Valve Mount
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
SINGLE VALVE



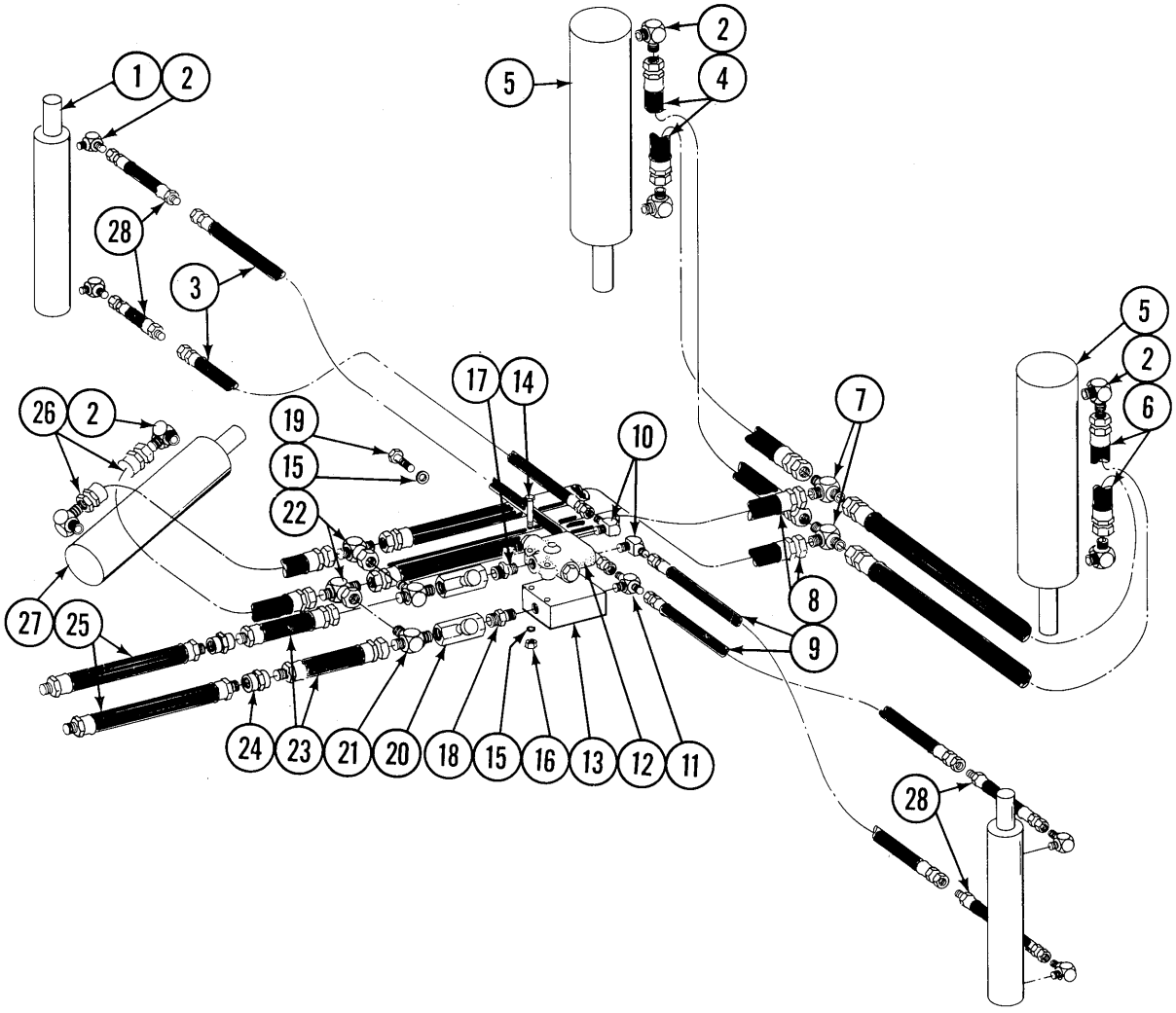
HYDRAULIC SYSTEM - 8R Wide

LOW PROFLE MARKERS
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1020	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Side Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" -16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupler, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	6500-8	Elbow, Swivel
23.	A1012	Hose Assembly, 3/8" x 140"
24.	A1004	Hose Assembly, 3/8" x 36"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE



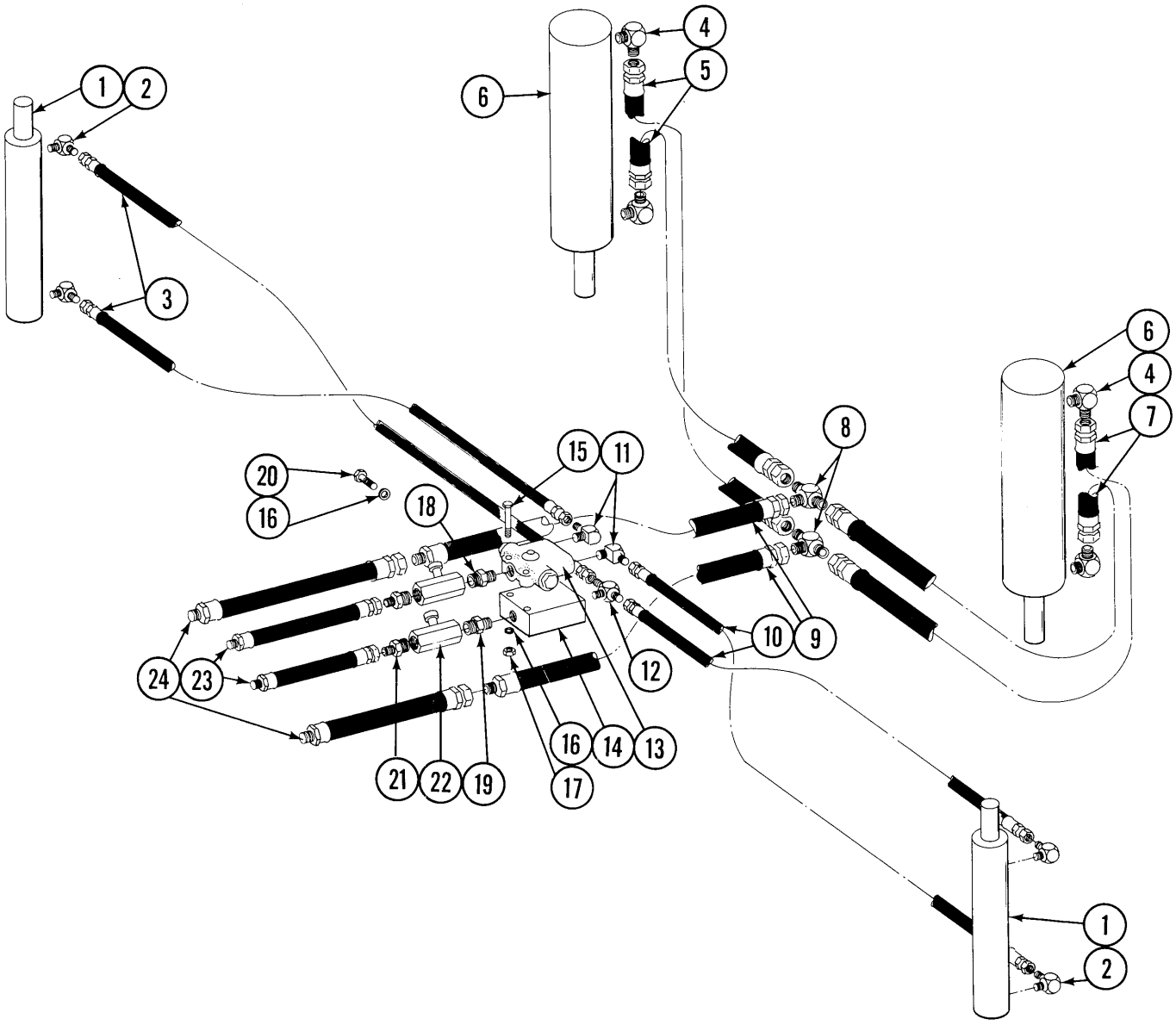
HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
PUSH UNIT LIFT
SINGLE VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1020	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Side Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupler, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	A270	Valve, Flow Control
21.	2605-8-6	Run Tee
22.	6600-8	Tee, Swivel
23.	A1012	Hose Assembly, 3/8" x 140"
24.	5000-8-8	Pipe Coupler, 1/2" NPT
25.	A1074	Hose Assembly, 3/8" x 36"
26.	A1073	Hose Assembly, 3/8" x 18"
27.	A1696	Cylinder, Push Unit Lift, 3" x 8"
28.	A1004	Hose Assembly, 3/8" x 36"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 4R30, 4R Wide & 6R30

CONVENTIONAL MARKERS
DUAL VALVE



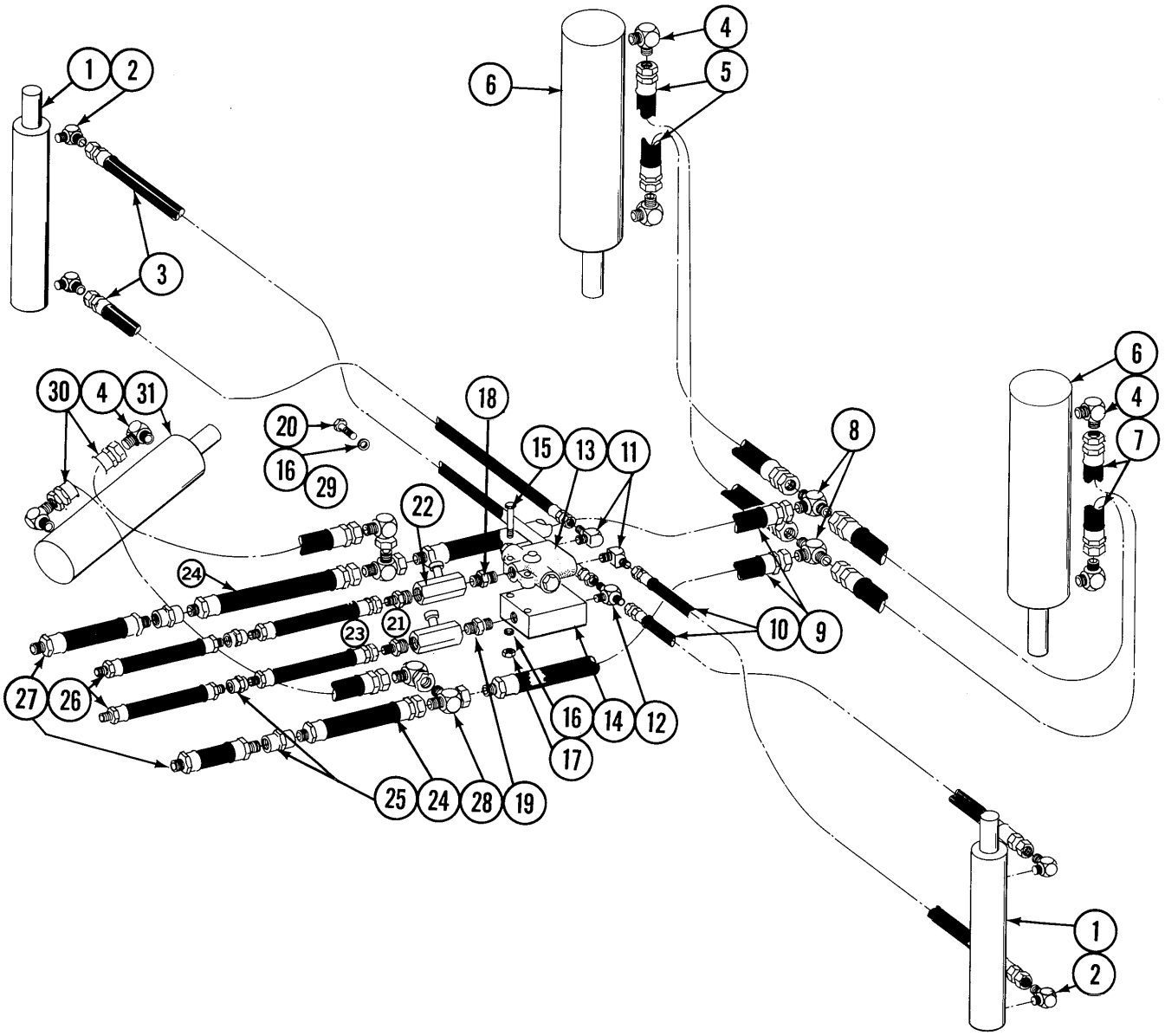
HYDRAULIC SYSTEM - 4R30, 4R Wide & 6R30

CONVENTIONAL MARKERS
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4R30
	A1102	Hose Assembly, 1/4" x 95", 4R Wide
	A1103	Hose Assembly, 1/4" x 110", 6R30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A746	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A1583A	Cylinder, Lift, 4" x 10", 6R30 and 4R Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4R30
	A1105	Hose Assembly, 1/4" x 125", 4R Wide
	A1107	Hose Assembly, 1/4" x 140", 6R30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	2404-6-6	Adapter, Straight
22.	A270	Valve, Flow Control
23.	A1108	Hose Assembly, 1/4" x 140"
24.	A1012	Hose Assembly, 3/8" x 140"
	D1162	Tie Strap 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 4R30, 4R Wide & 6R30

CONVENTIONAL MARKERS
PUSH UNIT LIFT
DUAL VALVE



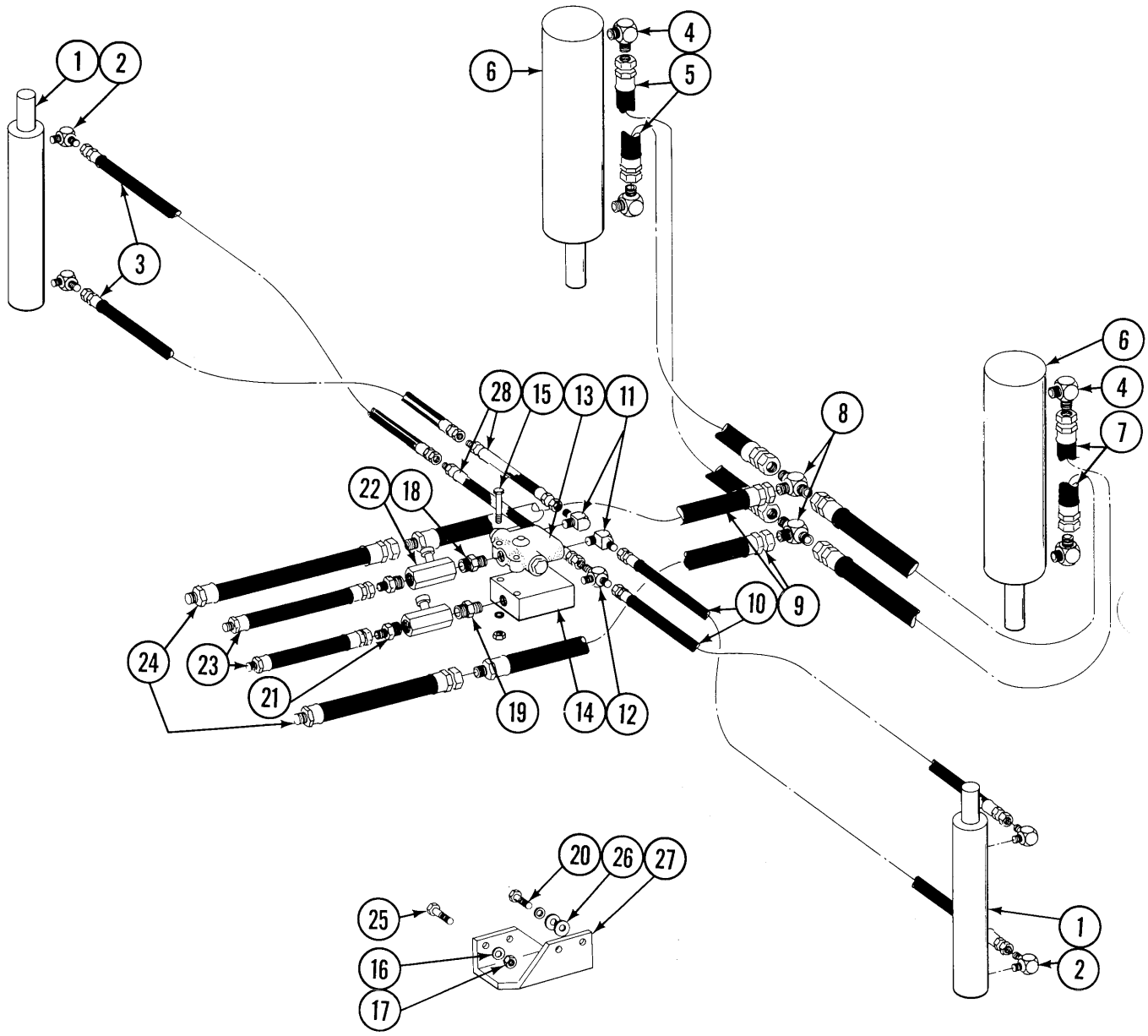
HYDRAULIC SYSTEM - 4R30, 4R Wide & 6R30

CONVENTIONAL MARKERS
PUSH UNIT LIFT
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1113	Hose Assembly, 1/4" x 80", 4R30
	A1102	Hose Assembly, 1/4" x 95", 4R Wide
	A1103	Hose Assembly, 1/4" x 110", 6R30
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1739	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A746	Cylinder, Lift, 3 1/2" x 10", 4R30 and 4R Wide
	A1583A	Cylinder, Lift, 4" x 10", 6R30, 4R Wide (Heavy Duty)
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1103	Hose Assembly, 1/4" x 110", 4R30
	A1105	Hose Assembly, 1/4" x 125", 4R Wide
	A1107	Hose Assembly, 1/4" x 140", 6R30
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	2404-6-6	Adapter, Straight
22.	A270	Valve, Flow Control
23.	A1108	Hose Assembly, 1/4" x 140"
24.	A1012	Hose Assembly, 3/8" x 140"
25.	5000-8-8	Pipe Coupler, 1/2" NPT
26.	A1126	Hose Assembly, 1/4" x 36"
27.	A1074	Hose Assembly, 3/8" x 36"
28.	6602-8	Run Tee, Swivel
29.	6500-8	Elbow, 90° Swivel
30.	A1073	Hose Assembly, 3/8" x 18"
31.	A1696	Cylinder, Push Unit Lift, 3" x 8"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R30

CONVENTIONAL MARKERS W/DRY FERTILIZER DUAL VALVE



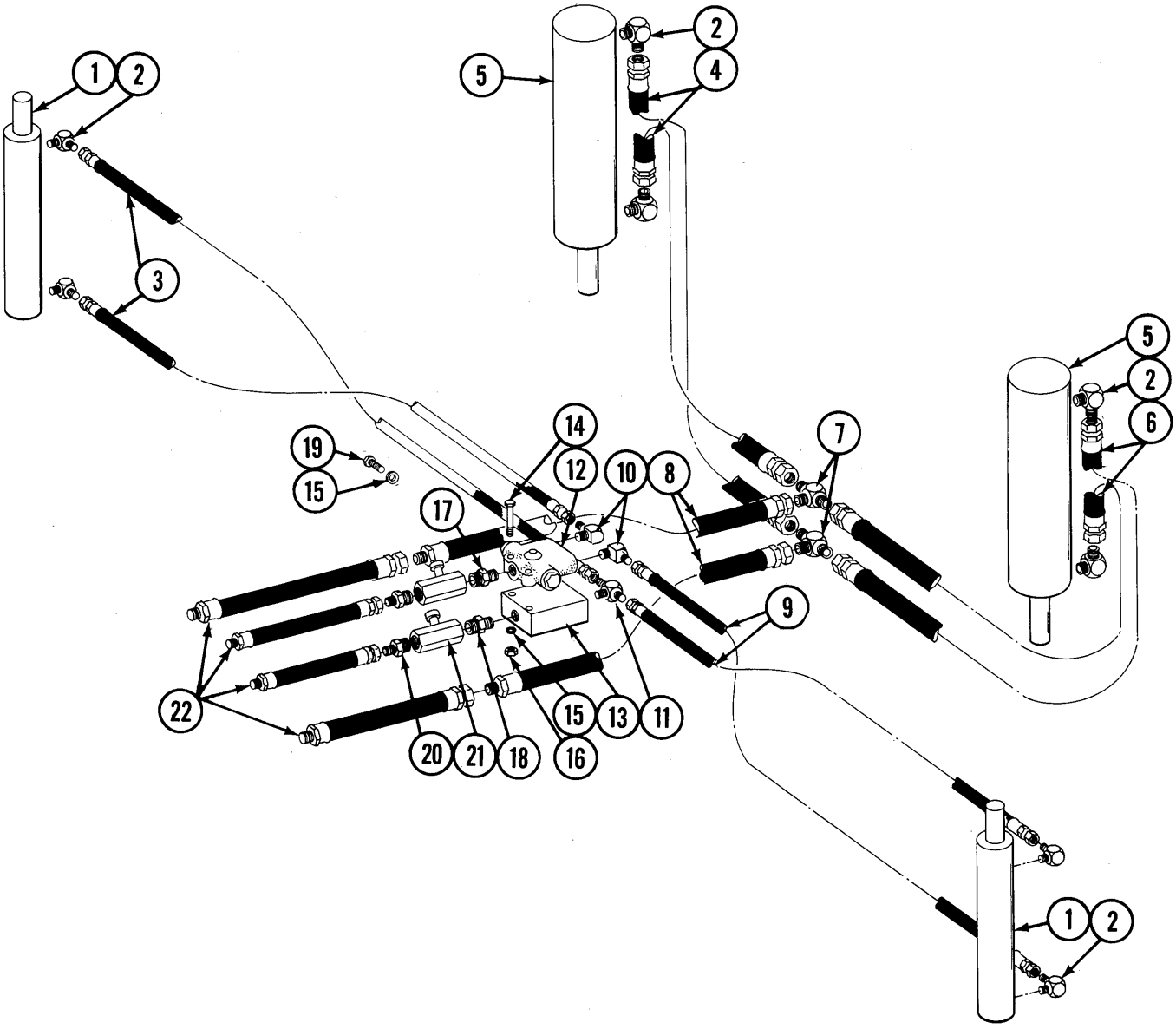
HYDRAULIC SYSTEM - 6R30

CONVENTIONAL MARKERS W/DRY FERTILIZER DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1674A	Cylinder, Marker, 2" x 8"
	A1674B	Cylinder, Marker, 2" x 8"
2.	2501-6-6	Elbow, 90°
3.	A1103	Hose Assembly, 1/4" x 110"
4.	2501-8-8	Elbow, 90°
5.	A1021	Hose Assembly, 3/8" x 56"
6.	A1583A	Cylinder, Lift, 4" x 10"
7.	A1039	Hose Assembly, 3/8" x 76"
8.	2603-8	Tube Tee
9.	A1072	Hose Assembly, 3/8" x 48"
10.	A1107	Hose Assembly, 1/4" x 140"
11.	6801-6-8	Elbow, 90°
12.	2601-6-6	Run Tee, Male
13.	A282	Valve, Sequence
14.	D2530	Mounting Block
15.	10061	HHCS, 3/8" - 16 x 3 1/2"
16.	10229	Lockwasher, 3/8"
17.	10101	Hex Nut, 3/8" - 16
18.	6401-8-6	Adapter, Straight
19.	5404-6-6	Pipe Coupling, Male
20.	10004	HHCS, 3/8" - 16 x 1 1/4"
21.	2404-6-6	Adapter, Straight
22.	A270	Valve, Flow Control
23.	A1108	Hose Assembly, 1/4" x 140"
24.	A1012	Hose Assembly, 3/8" x 140"
25.	10003	HHCS, 3/8" - 16 x 1 1/2"
26.	10210	Washer, 3/8" USS
27.	D2533	Bracket, Valve Mount
28.	A1124	Hose Assembly, 1/4" x 12"
	D1162	Tie Strap 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide, 8R30

LOW PROFILE MARKERS
DUAL VALVE



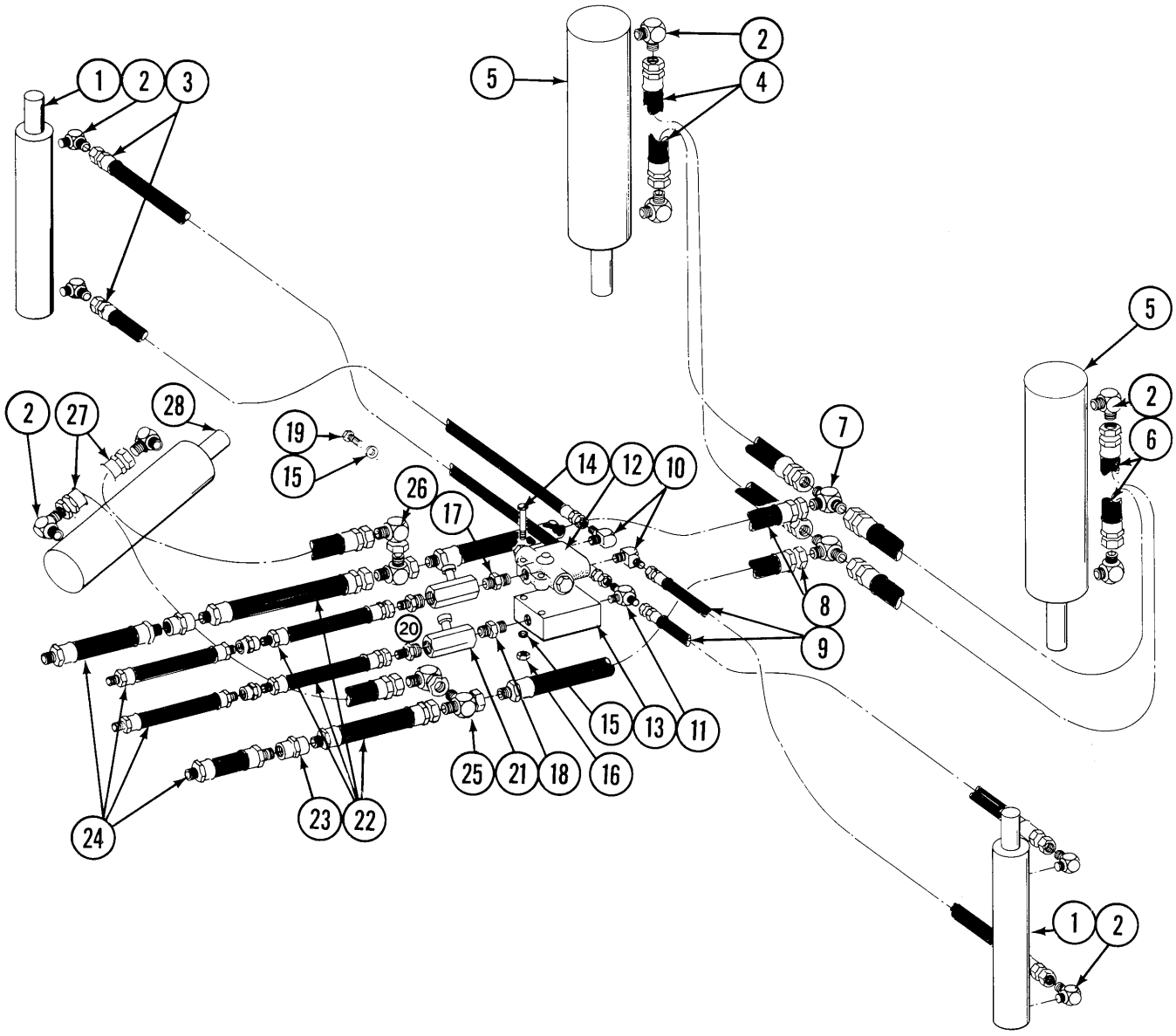
HYDRAULIC SYSTEM - 6R Wide, 8R30

LOW PROFILE MARKERS
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6R Wide
	A1025	Hose Assembly, 3/8" x 148", 8R30
4.	A1006	Hose Assembly, 3/8" x 90", 6R Wide
	A1021	Hose Assembly, 3/8" x 56", 8R30
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1039	Hose Assembly, 3/8" x 76", 8R30
	A1008	Hose Assembly, 3/8" x 110", 6R Wide
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide and 8R30

LOW PROFILE MARKERS
PUSH UNIT LIFT
DUAL VALVE



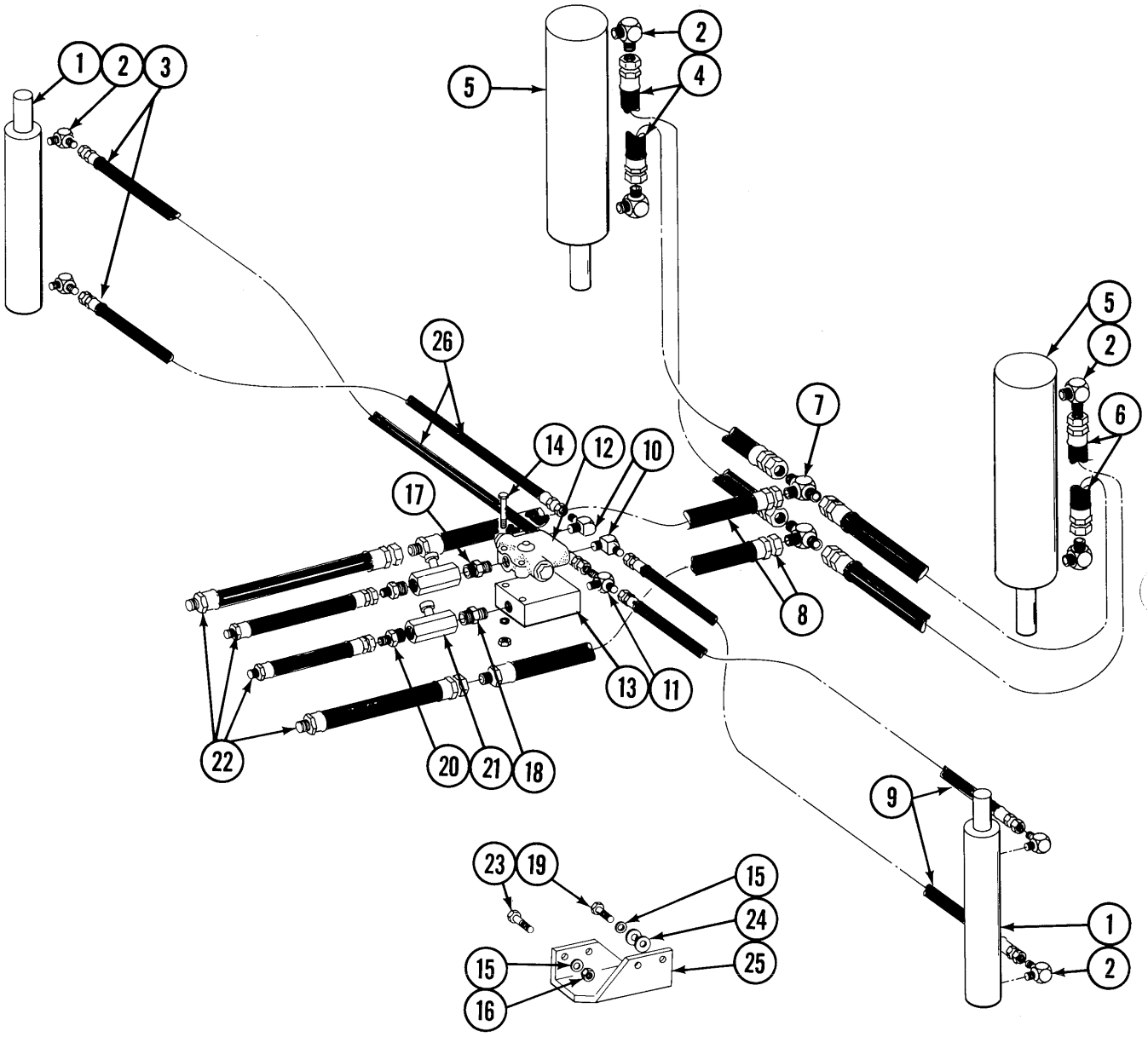
HYDRAULIC SYSTEM - 6R Wide and 8R30

LOW PROFILE MARKERS
PUSH UNIT LIFT
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130", 6R Wide
	A1025	Hose Assembly, 3/8" x 148", 8R30
4.	A1006	Hose Assembly, 3/8" x 90", 6R Wide
	A1021	Hose Assembly, 3/8" x 56", 8R30
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1039	Hose Assembly, 3/8" x 76", 8R30
	A1008	Hose Assembly, 3/8" x 110", 6R Wide
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 38" x 140"
23.	5000-8-8	Pipe Coupler, 1/2" NPT
24.	A1074	Hose Assembly, 3/8" x 36"
25.	6602-8	Run Tee, Swivel
26.	6500-8	Elbow, 90° Swivel
27.	A1073	Hose Assembly, 3/8" x 18"
28.	A1696	Cylinder, Push Unit Lift, 3" x 8"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 6R Wide

LOW PROFILE MARKERS W/DRY FERTILIZER DUAL VALVE



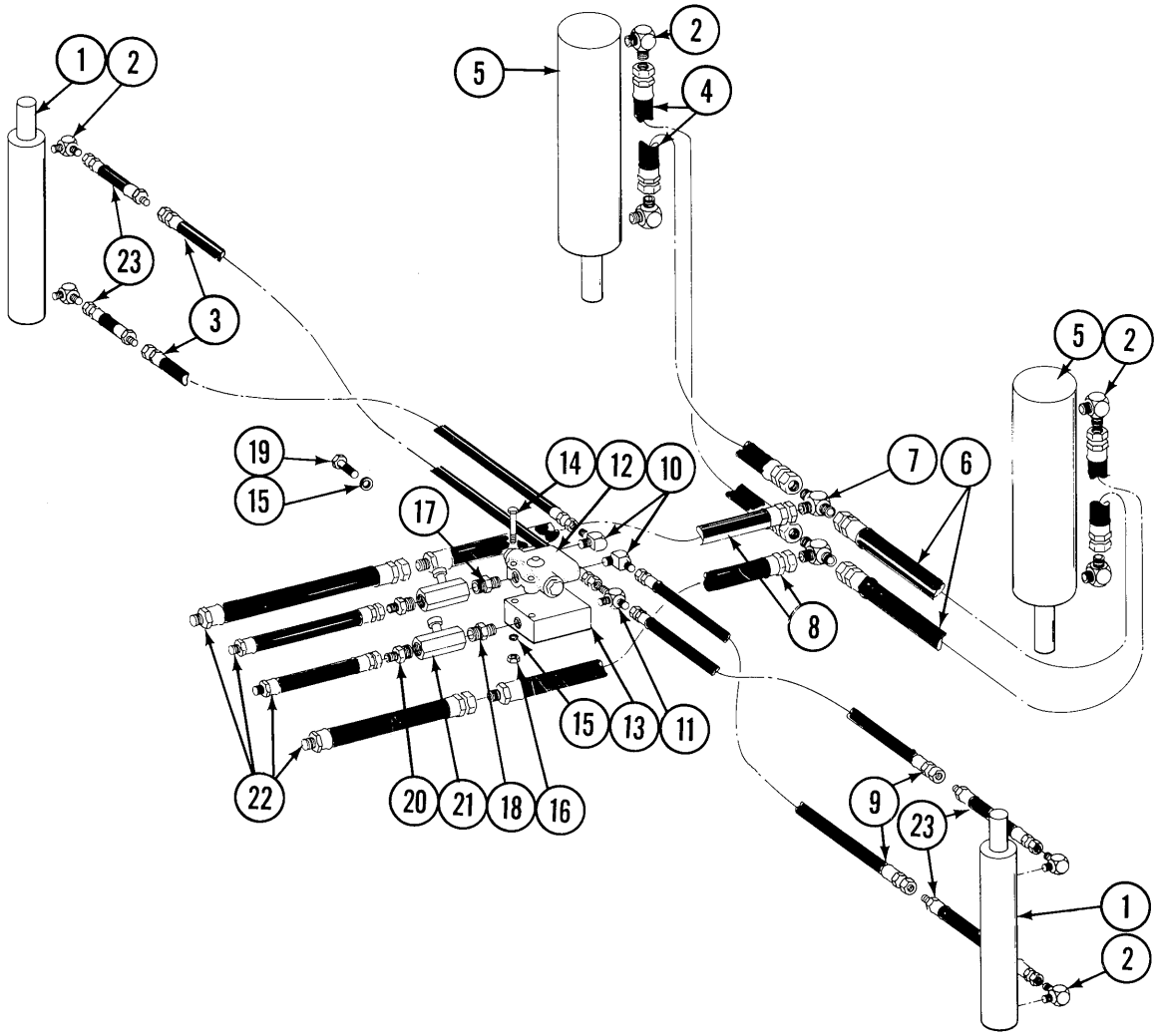
HYDRAULIC SYSTEM - 6R Wide

LOW PROFILE MARKERS W/DRY FERTILIZERS DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose assembly, 3/8" x 140"
23.	10003	HHCS, 3/8" - 16 x 1 1/2"
24.	10210	Washer, 3/8" USS
25.	D2533	Bracket, Valve Mount
26.	A1048	Hose Assembly, 3/8" x 12"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
DUAL VALVE



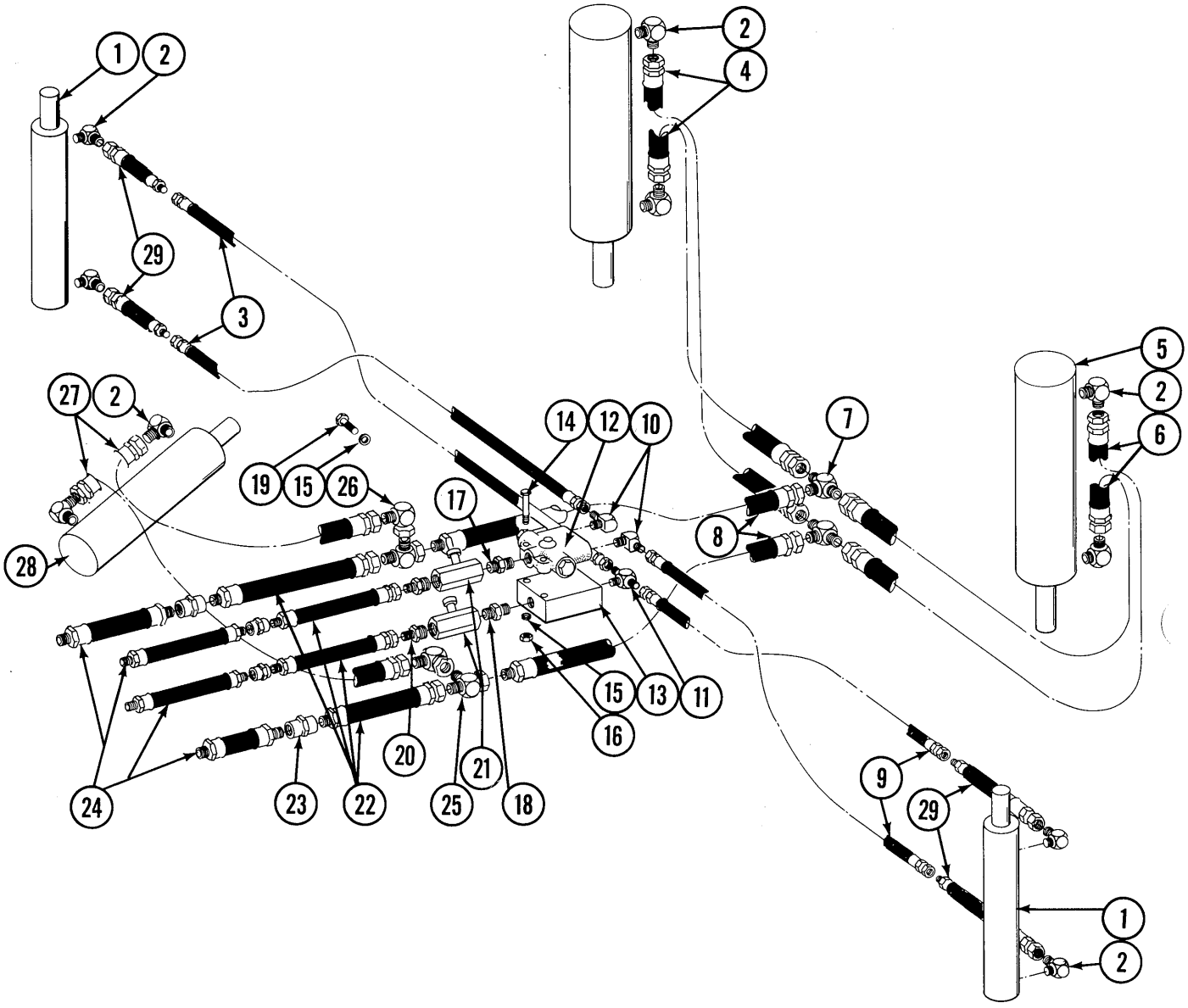
HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
23.	A1004	Hose Assembly, 3/8" x 36"
	D1162	Tie Strap, 28" (Not Shown)
	D1512	Tie Strap, 6" (Not Shown)

HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
PUSH UNIT LIFT
DUAL VALVE

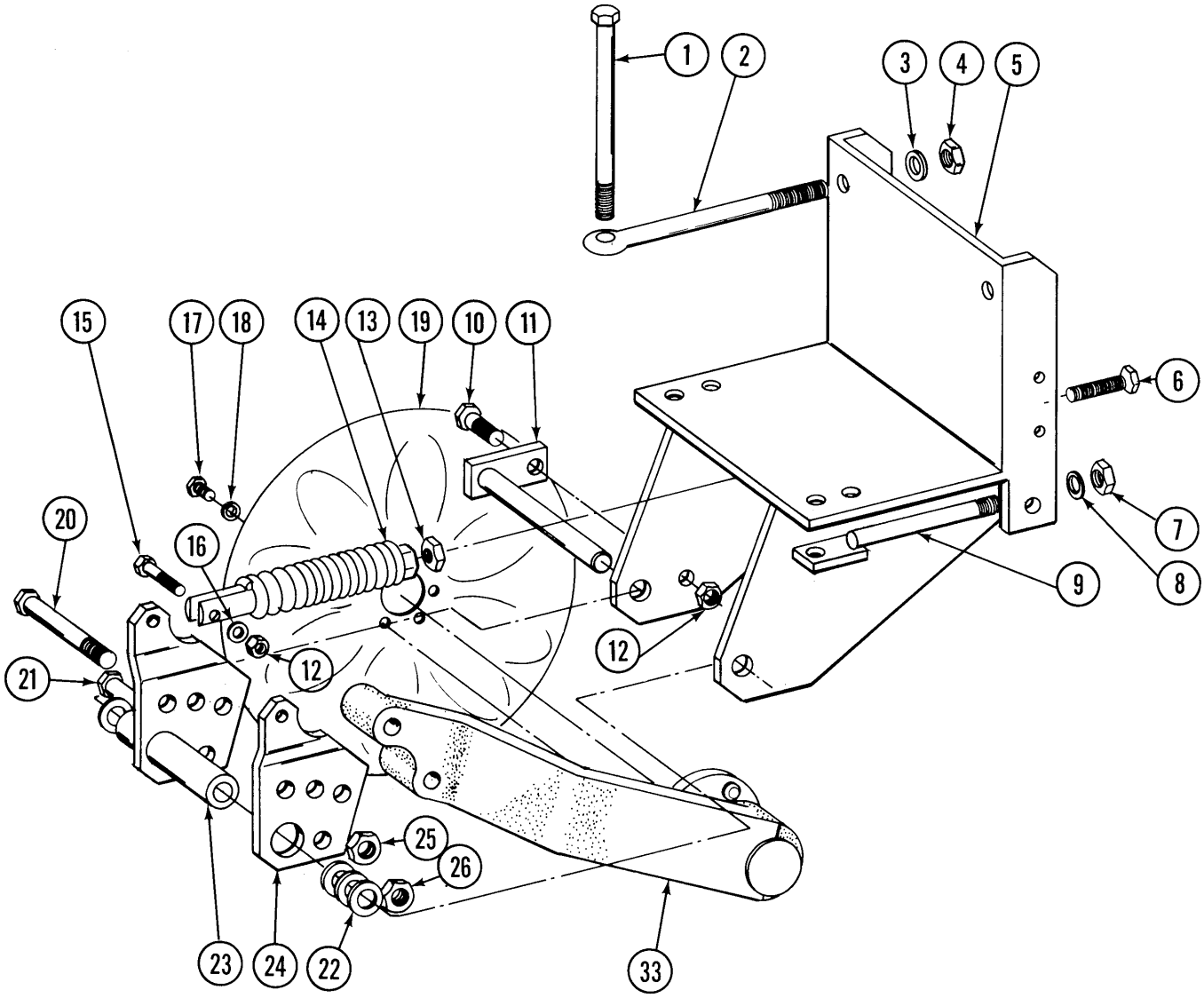


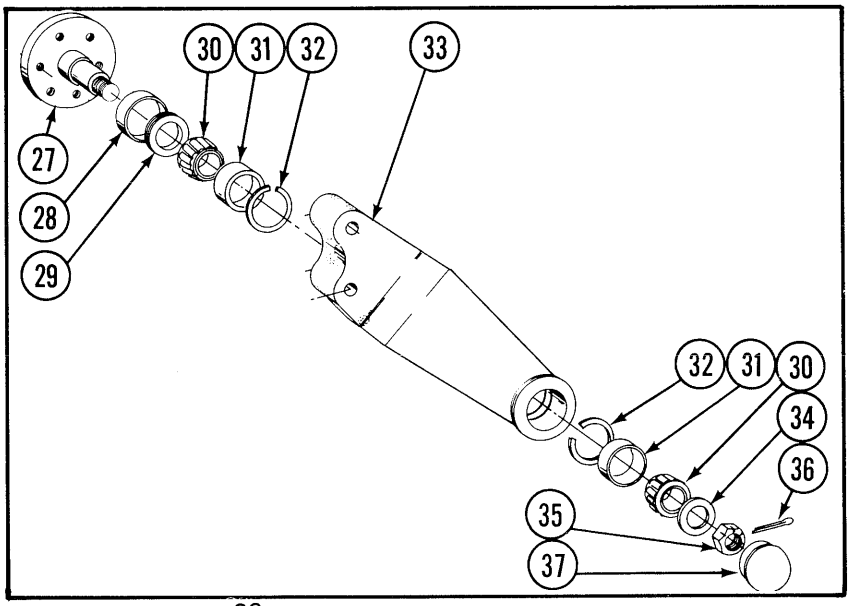
HYDRAULIC SYSTEM - 8R Wide

LOW PROFILE MARKERS
PUSH UNIT LIFT
DUAL VALVE

ITEM	PART NO.	DESCRIPTION
1.	A1659	Cylinder, Marker, 2" x 20"
2.	2501-8-8	Elbow, 90°
3.	A1041	Hose Assembly, 3/8" x 130"
4.	A1006	Hose Assembly, 3/8" x 90"
5.	A1583A	Cylinder, Lift, 4" x 10"
6.	A1008	Hose Assembly, 3/8" x 110"
7.	2603-8	Tube Tee
8.	A1072	Hose Assembly, 3/8" x 48"
9.	A1049	Hose Assembly, 3/8" x 160"
10.	6801-8	Elbow, 90°
11.	2601-8-6	Run Tee, Male
12.	A282	Valve, Sequence
13.	D2530	Mounting Block
14.	10061	HHCS, 3/8" - 16 x 3 1/2"
15.	10229	Lockwasher, 3/8"
16.	10101	Hex Nut, 3/8" - 16
17.	6401-8-6	Adapter, Straight
18.	5404-6-6	Pipe Coupling, Male
19.	10004	HHCS, 3/8" - 16 x 1 1/4"
20.	2404-8-6	Adapter, Straight
21.	A270	Valve, Flow Control
22.	A1012	Hose Assembly, 3/8" x 140"
23.	5000-8-8	Pipe Coupler, 1/2" NPT
24.	A1074	Hose Assembly, 3/8" x 36"
25.	6602-8	Run Tee, Swivel
26.	6500-8	Elbow, 90° Swivel
27.	A1073	Hose Assembly, 3/8" x 18"
28.	A1696	Cylinder, Push Unit Llft, 3" x 8"
29.	A1004	Hose Assembly, 3/8" x 36"

FRAME MOUNTED COULTER ASSEMBLY

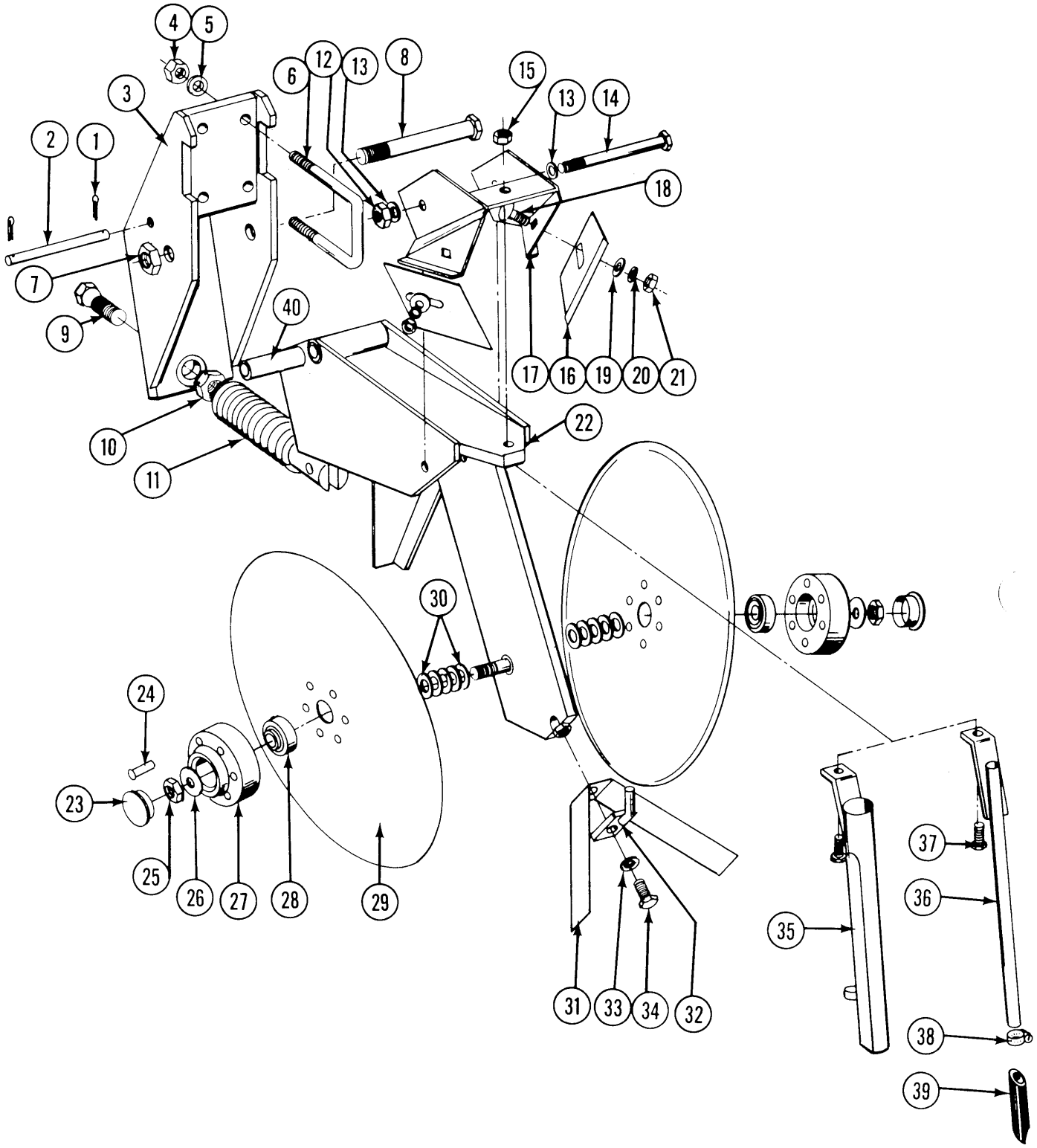




FRAME MOUNTED COULTER ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1.	10057	HHCS, 3/4" - 10 x 9"
2.	D830	Eye Bolt, 3/4" - 10 x 9"
3.	10231	Lockwasher, 3/4"
4.	10105	Hex Nut, 3/4" - 10
5.	A1695	Coulter Mount Weld
6.	D962	Hex Head Adjusting Bolt, 5/8" - 18
7.	10102	Hex Nut, 1/2" - 13
8.	10228	Lockwasher, 1/2"
9.	A1688	Tie Bolt
10.	10017	HHCS, 1/2" - 13 x 1 1/2"
11.	A1689	Hammer Strap Weld
12.	10111	Lock Nut, 1/2" - 13
13.	10499	Jam Nut, 5/8" - 18
14.	A1725	Spring
15.	10016	HHCS, 1/2" - 13 x 2"
16.	10216	Flat Washer, 1/2" USS
17.	10002	HHCS, 3/8" - 16 x 3/4"
18.	10229	Lockwasher, 3/8"
19.	D1105	Fluted Blade, 16"
	D1106	Ripple Blade, 16"
20.	10013	HHCS, 5/8" - 11 x 3 1/2"
21.	10044	HHCS, 3/4" - 10 x 4"
22.	10526	Machine Bushing
23.	A1692	Mount, Plate Weld
24.	D2511	Plate, Mount L.H.
25.	10107	Lock Nut, 5/8" - 11
26.	10112	Lock Nut, 3/4" - 10
27.	B144	Spindle
28.	D1100	Seal Ring
29.	A2073	Seal
30.	A237	Bearing
31.	R188	Bearing Race
32.	D1102	Snap Ring
33.	A862	Coulter Arm, Includes bearing Cups and Snap Rings
34.	10082	Flat Washer, 1" SAE
35.	10507	Slotted Jam Nut, 1" - 14 UNF
36.	10459	Cotter Pin, 3/16" - 1 1/2"
37.	D1104	Hub Cap
A.	A1722	Frame Mounted Coulter Assembly w/Bracket Less Blade (Items 5, 6, 10-18 & 20-37)

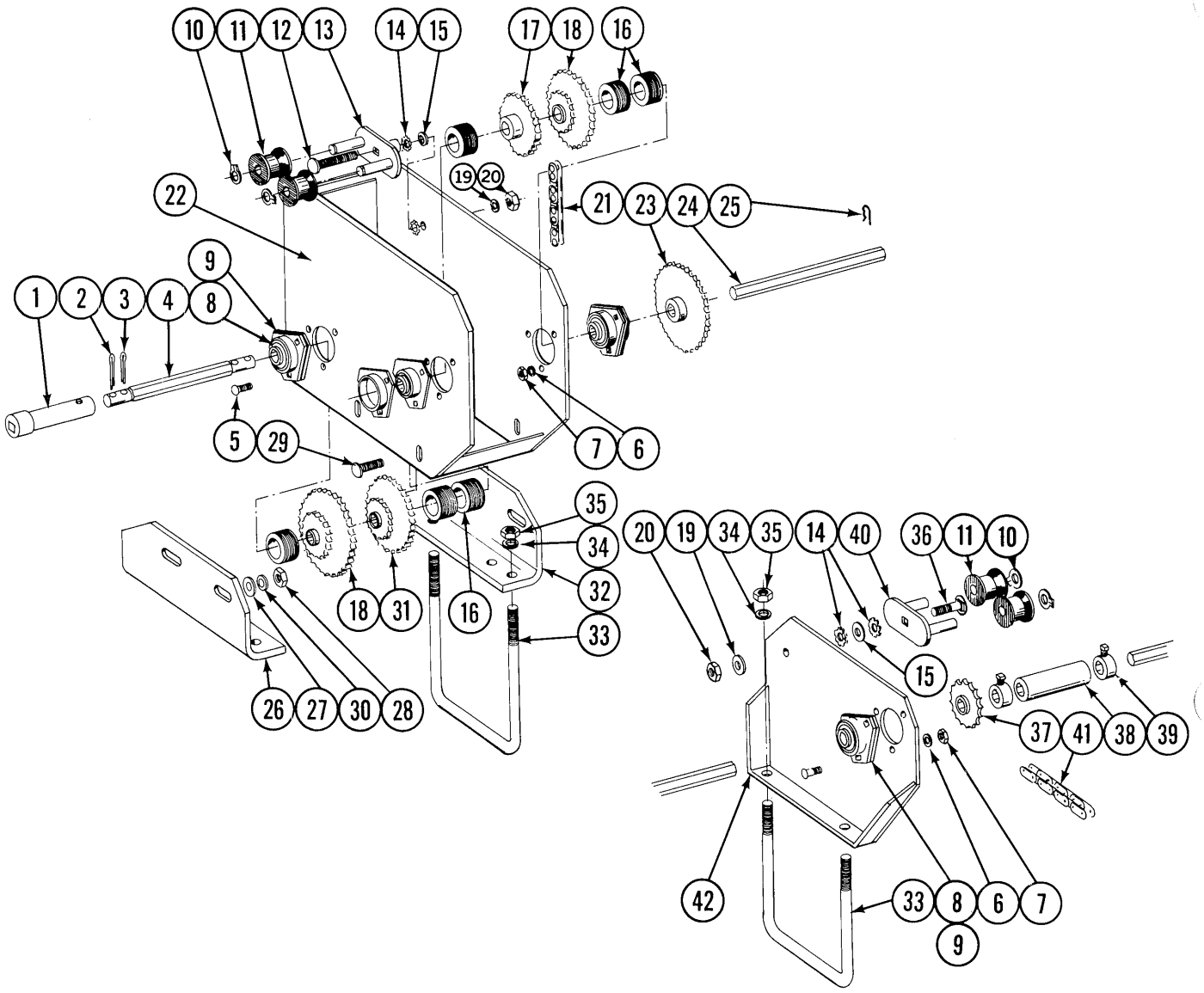
DOUBLE DISK FERTILIZER OPENER



DOUBLE DISK FERTILIZER OPENER

ITEM	PART NO.	DESCRIPTION
1.	10451	Cotter Pin, 1/8" x 1"
2.	D1657	Lock Up Pin
3.	A785	Mounting Bracket Weld
4.	10102	Hex Nut, 1/2" - 13
5.	10228	Lockwasher, 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	Flatwasher, 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	Scraper Mount
18.	10305	Carriage Bolt, 3/8" - 16 x 1"
19.	10210	Flat Washer, 3/8" USS
20.	10229	Lockwasher, 3/8"
21.	10101	Hex Nut, 3/8" - 16
22.	A308	Fertilizer Opener Weld
23.	D1132	Hub Cap
24.	10651	Rivet, 1/4" x 1 3/8"
25.	10503	Jam Nut, R.H., 5/8" - 11
	10504	Jam Nut, L.H. 5/8" - 11
26.	10204	Bushing, Machinery
27.	B134	Bearing Hub
28.	A2014	Bearing
29.	D1030	Disk Blade
30.	10213	Machine Bushing, 1 3/64 x 11/16 x .030
31.	D2589	Scraper, Inner
32.	A312	Mount, Tube, Weld
33.	10232	Lockwasher, 5/16"
34.	10019	HHCS, 5/16" - 18 x 1"
35.	A310	Drop Tube, Dry Fertilizer
36.	A318	Drop Tube, Liquid Fertilzer
37.	10133	HHCS, 5/16" - 18 x 1 1/2"
38.	10673	Hose Clamp
39.	D1797	Drop Tube Extension
40.	D487	Bushing
A.	A320	Disk and Brg. Assembly (Items 24, 27 - 29)
B.	A786	Double Disk Fertilizer Opener, Less Drop Tubes and U-Bolts

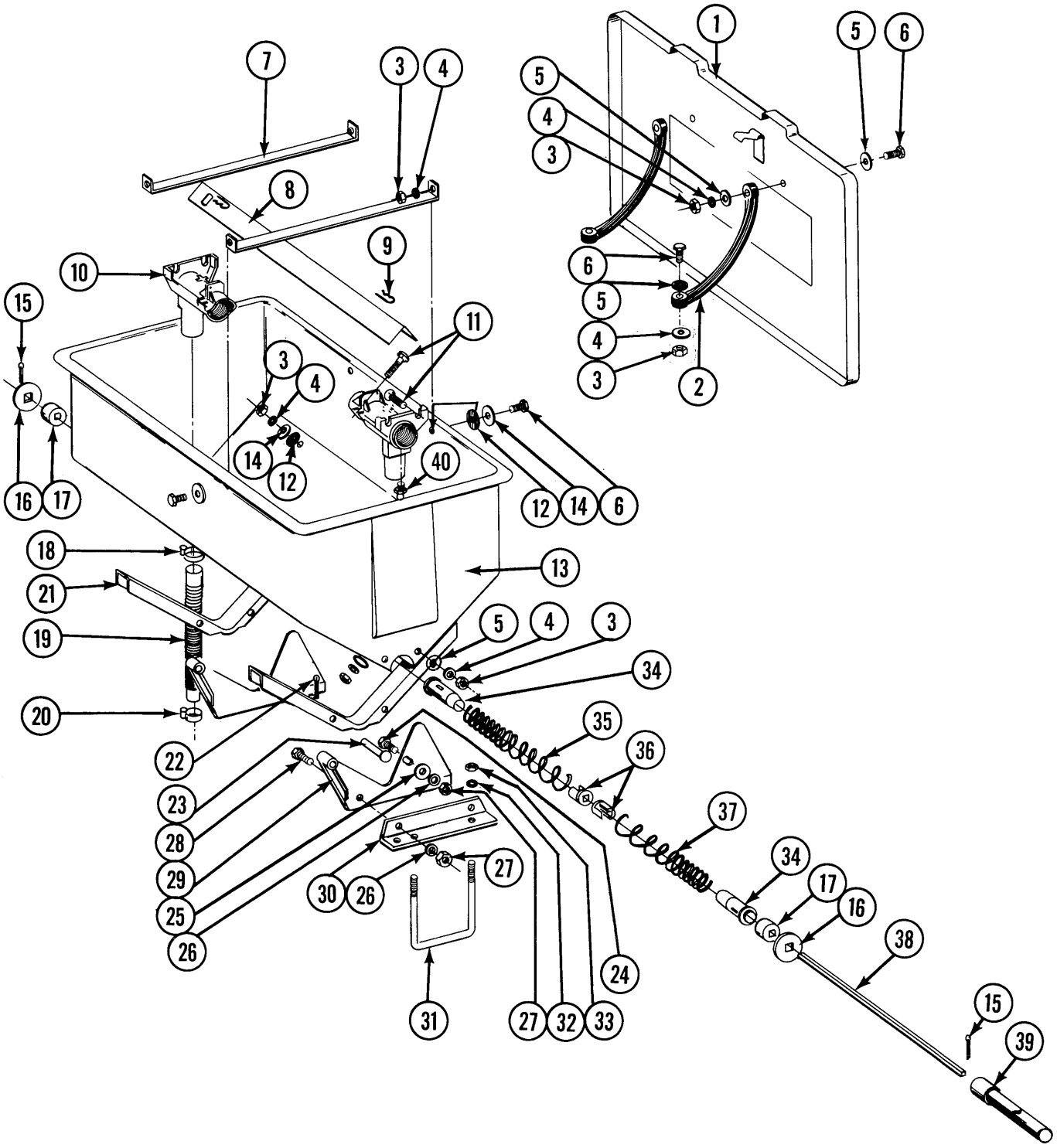
DRY FERTILIZER TRANSMISSION



DRY FERTILIZER TRANSMISSION

ITEM	PART NO.	DESCRIPTION
1.		Drive Coupling
2.	10462	Cotter Pin, 3/16" x 2"
3.	10459	Cotter Pin, 3/16" x 1 1/2"
4.	D943	Shaft, Driven
5.	10312	Carriage Bolt, 5/16" - 18 x 3/4", Grade 2
6.	10232	Lockwasher, 5/16"
7.	10106	Hex Nut, 5/16" - 18
8.	2100-3	Bearing 7/8" Hex Bore
9.	3400-1	Flangette
10.	10435	Ring, Retainer
11.	D1067	Spool, Idler
12.	10314	Carriage Bolt, 1/2" - 13 x 3", Grade 2
13.	A285	Bracket, Idler
14.	10527	Lock Washer, Internal/External, 1/2"
15.	10216	Washer, 1/2"
16.	D832	Spacer, Rubber
17.	2500-14	Sprocket, 24 Tooth
18.	2500-12	Sprocket, 18-36 Tooth
19.	10228	Lockwasher, 1/2"
20.	10102	Nut, 1/2" - 13
21.	3300-43	Chain, No. 2040, 43 Links
		Includes Conn. and Offset Link
	R194	Conn. Link, No. 2040
	R199	Offset Link, No. 2040
22.	A249	Transmission Case
23.	2500-15	Sprocket, 32 Tooth
24.	D942	Shaft, Drive
25.	10465	Cotter Pin, 1/4" x 1 1/4"
26.	D1715	Angle Support L.H.
27.	10210	Flat Washer, 3/8" USS
28.	10101	Hex Nut, 3/8" - 16
29.	10301	Carriage Bolt, 3/8" - 16 x 1 1/2", Grade 2
30.	10229	Lockwasher, 3/8"
31.	2500-3	Sprocket, 16-30 Tooth
32.	D1716	Angle Support, R.H.
33.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
34.	10230	Lockwasher, 5/8"
35.	10104	Hex Nut, 5/8" - 11
36.	10313	Carriage Bolt, 1/2" - 13 x 1 1/2", Grade 2
37.	2500-16	Sprocket, 16 Tooth
38.	D1719	Coupler
39.	A271	Lock Collar
40.	A288	Bracket, Idler
41.	3300-107	Chain, No. 2040, 107 Links
		Includes Connector and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
42.	A326	Bracket, Brg. Support
A.	A284	Idler Assembly (Items 10, 11 and 13)
B.	A289	Idler Assembly, (Items 10, 11 and 40)

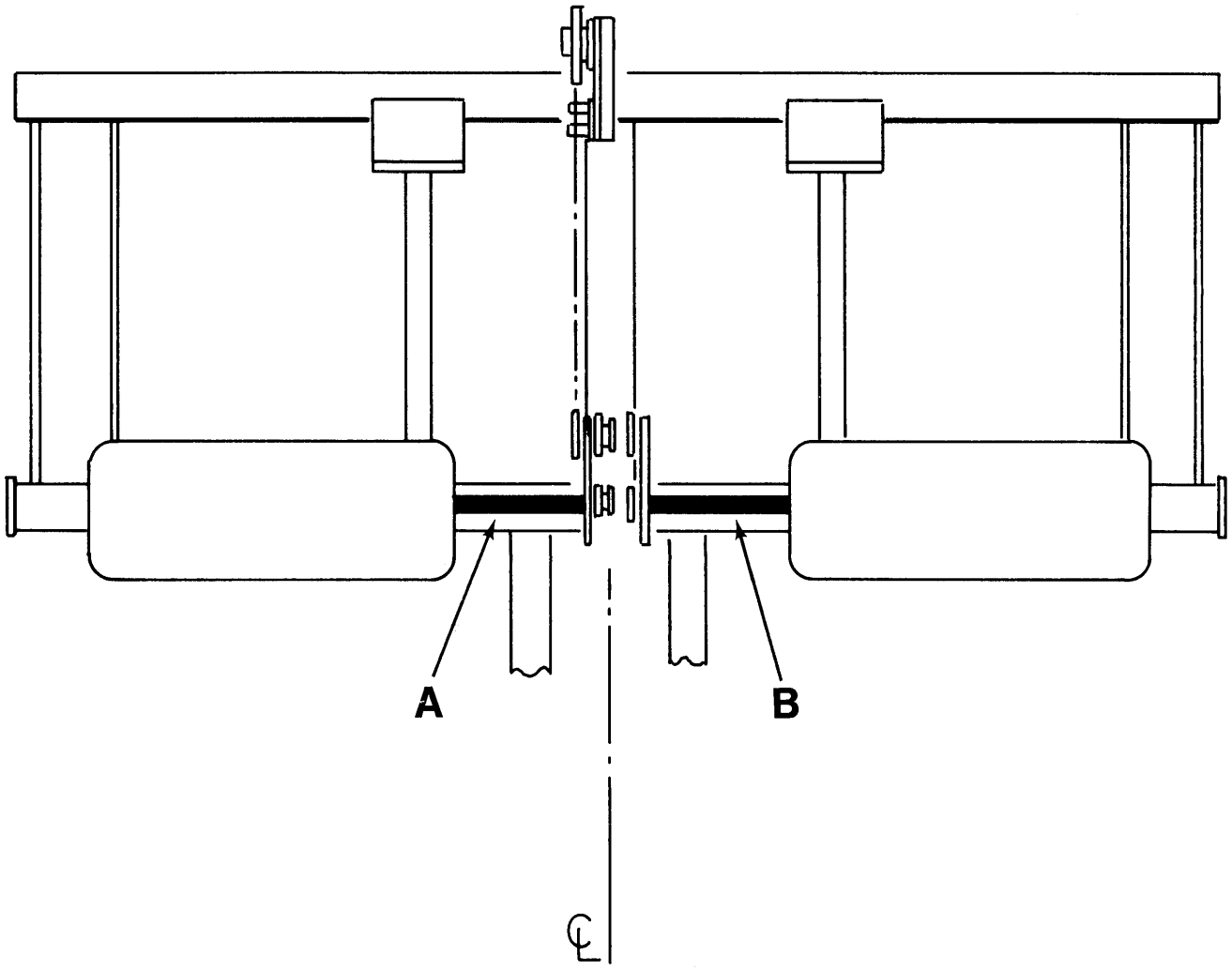
DRY FERTILIZER HOPPER AND MOUNT



DRY FERTILIZER HOPPER AND MOUNT

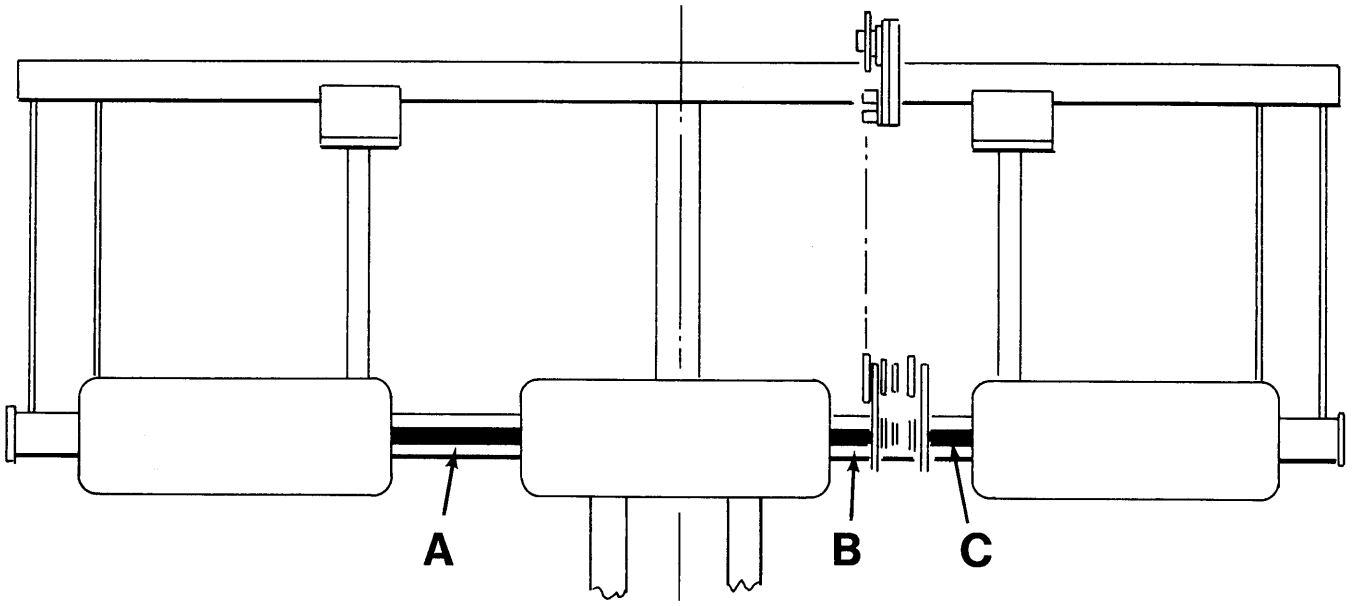
ITEM	PART NO.	DESCRIPTION
1.	A2101	Lid, Includes clips and pop rivets
	D1380	Clip
	10655	Pop rivet, 3/16" x 13/32"
2.	D1210	Strap, Rubber
3.	10106	Hex Nut, 5 1/16" - 18
4.	10232	Lockwasher, 5/16"
5.	10219	Washer, 5/16" USS
6.	10171	HHCS, 5/16" - 18 x 1¼"
7.	D1209	Strap, Reinforcing
8.	D1207	Baffle
9.	10670	Hair Pin Clip, No. 3
10.	D1200	Housing, Outlet
11.	10303	Carriage Bolt, 5/16" - 18 x 1", Grade 2
12.	D1213	Washer, Rubber
13.	D1379	Hopper, Dry Fertilizer
14.	10201	Washer Special
15.	10464	Cotter Pin, 3/16" x 1"
16.	D1212	Washer Special
17.	D1206	Bearing, Shaft
18.	10676	Hose Clamp, No. 36
19.	D1214	Tube, Rubber
20.	10675	Hose Clamp, No. 20
21.	D1208	Saddle
22.	10456	Cotter Pin, 1/8" x 3/4"
23.	10562	Clevis Pin, 7/16" x 3"
24.	10037	HHCS, 1/2" - 13 x 1 1/4"
25.	10206	Washer, 1/2" - SAE
26.	10228	Lockwasher, 1/2"
27.	10102	Hex Nut, 1/2" - 13
28.	10017	HHCS, 1/2" - 13 x 1 1/2"
29.	A839	Mount, Hopper L.H.
	A840	Mount Hopper R.H.
30.	D1707	Angle, L.H.
	D1706	Angle, R.H.
31.	D1134	U-Bolt, 7" x 5" x 5/8" - 11
32.	10230	Lockwasher, 5/8"
33.	10104	Hex Nut, 5/8" - 11
34.	D1202	Guide, Auger
35.	D1204	Spring, Auger, R.H.
36.	D1203	Plug, Spring
37.	D1205	Spring, Auger, L.H.
38.	D1201	Shaft, Auger
39.		Drive Coupler
40.	10641	Grease Fitting, 1/8" NPT x 45°

4 Row 30", 4 Row Wide Dry Fertilizer Coupler



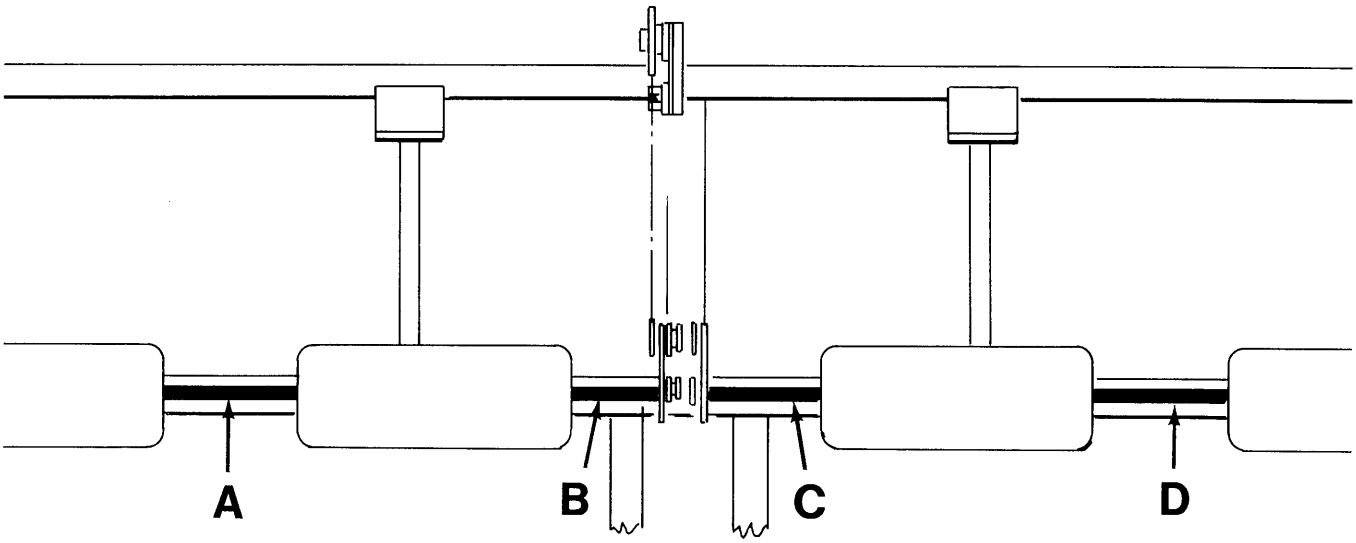
	Coupler A	Coupler B
4 Row 30"	A554-4 5/8"	A554-4 5/8"
4 Row Wide	A555-16 1/8"	A555-16 1/8"

6 ROW 30", 6 ROW WIDE DRY FERTILIZER COUPLERS



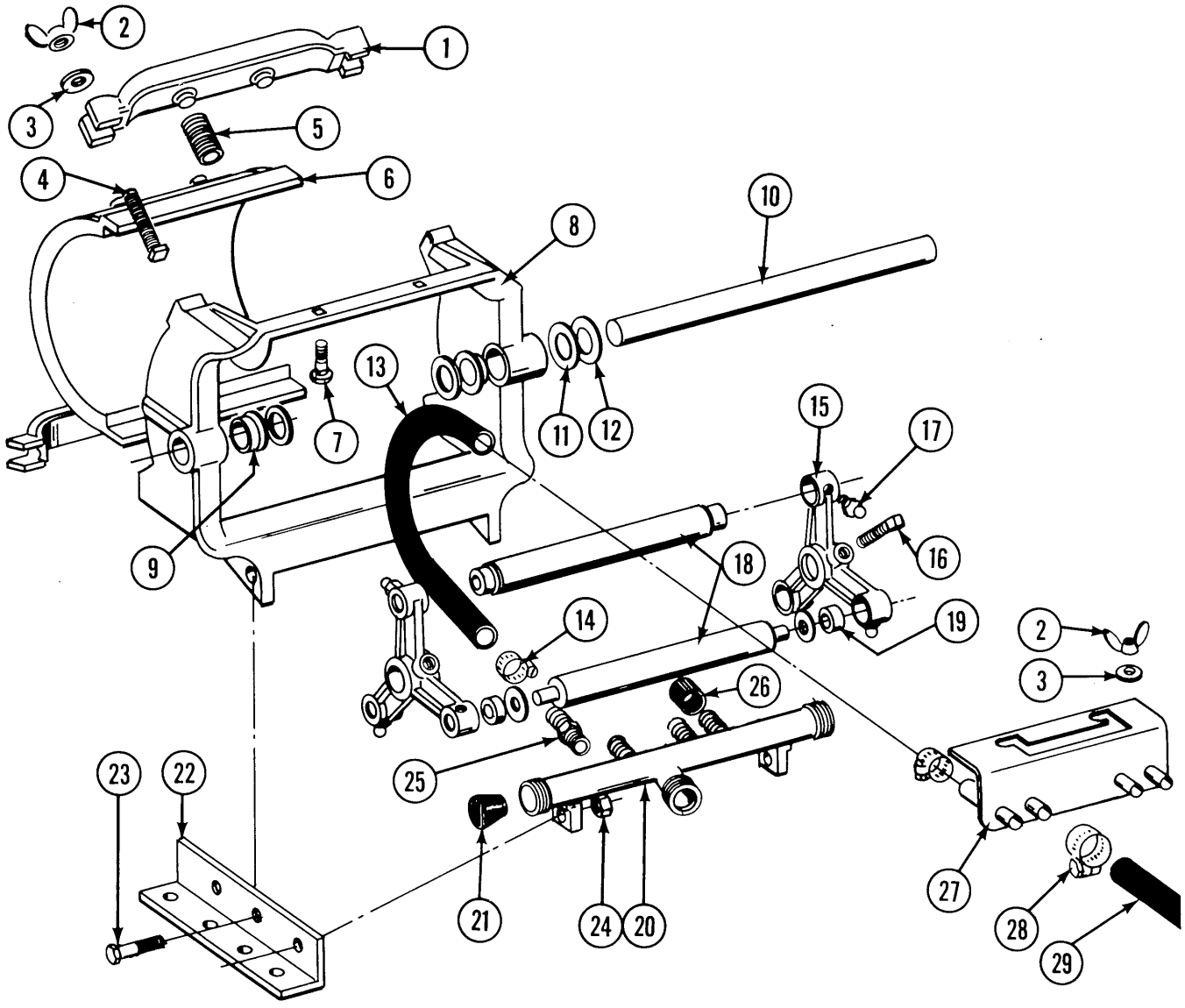
	Coupler A	Coupler B	Coupler C
6 Row 30"	A555-16 1/8"	A554-4 5/8"	A554-4 5/8"
6 Row Wide	A561-30 5/8"	A554-4 5/8"	A560-18 5/8"

8 ROW 30", 8" ROW WIDE DRY FERTILIZER COUPLERS



	Coupler A	Coupler B	Coupler C	Coupler D
8 Row 30"	A555-16 1/8"	A554-4 5/8"	A554-4 5/8"	A555-16 1/8"
8 Row Wide	A561-30 5/8"	A555-16 1/8"	A555-16 1/8"	A561-30 5/8"

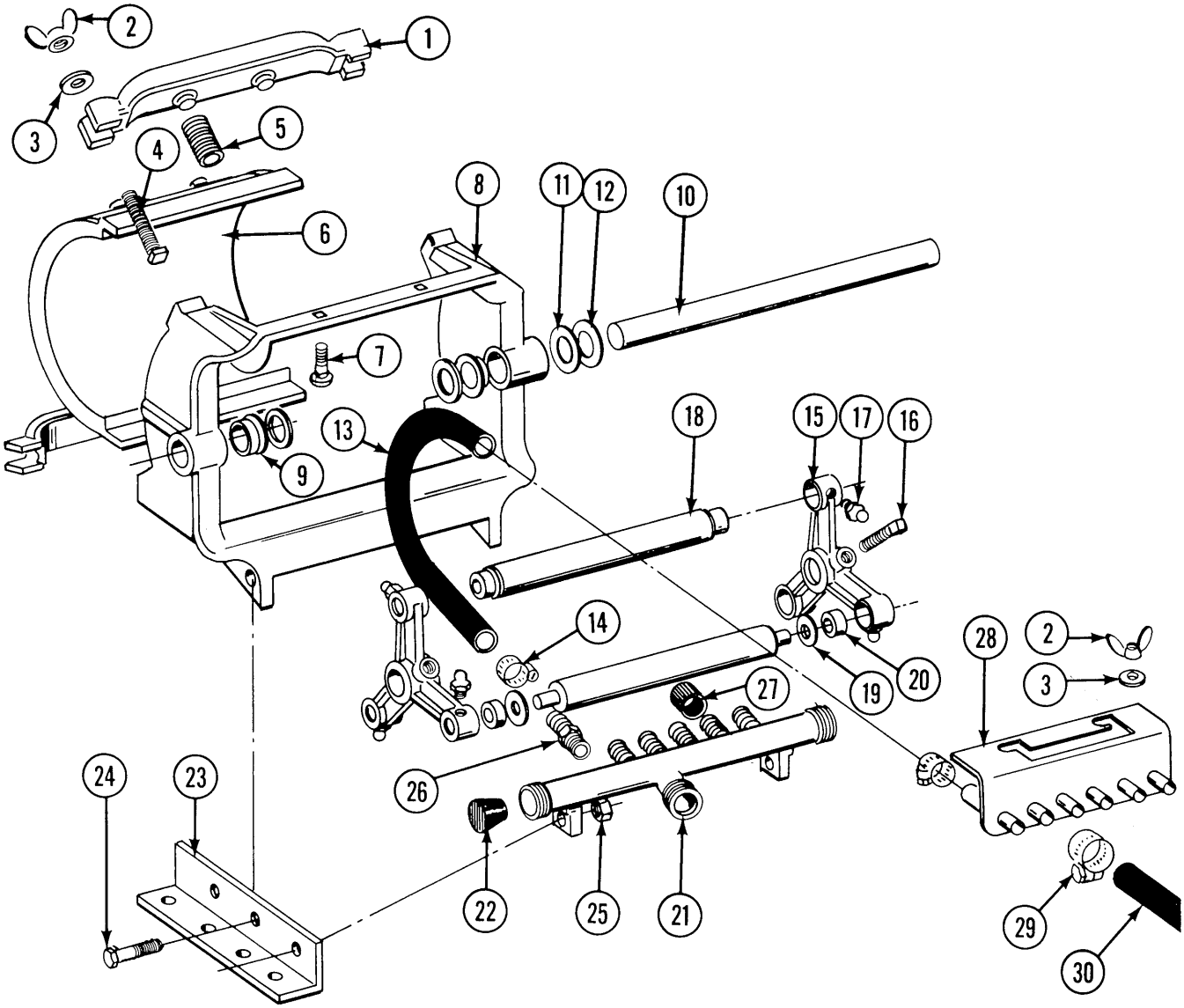
LIQUID FERTILIZER SQUEEZE PUMP - 4 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 4 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.	R223	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.	4300-3	Hose, 1/2" x 30'
A.	A321	Squeeze Pump Complete

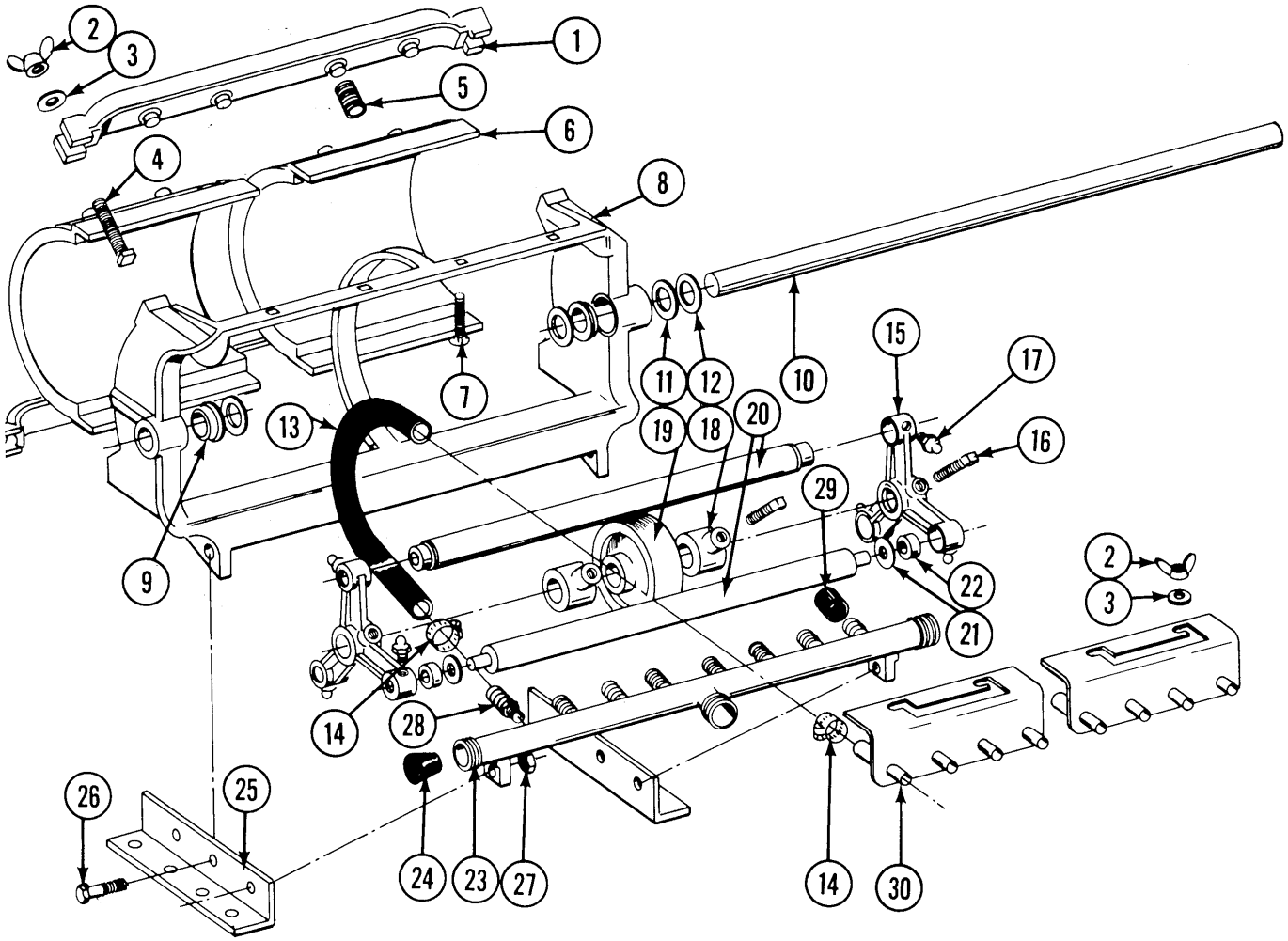
LIQUID FERTILIZER SQUEEZE PUMP - 6 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 6 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 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.	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.	4300-4	Hose, 1/2" x 50
A.	A322	Squeeze Pump Complete

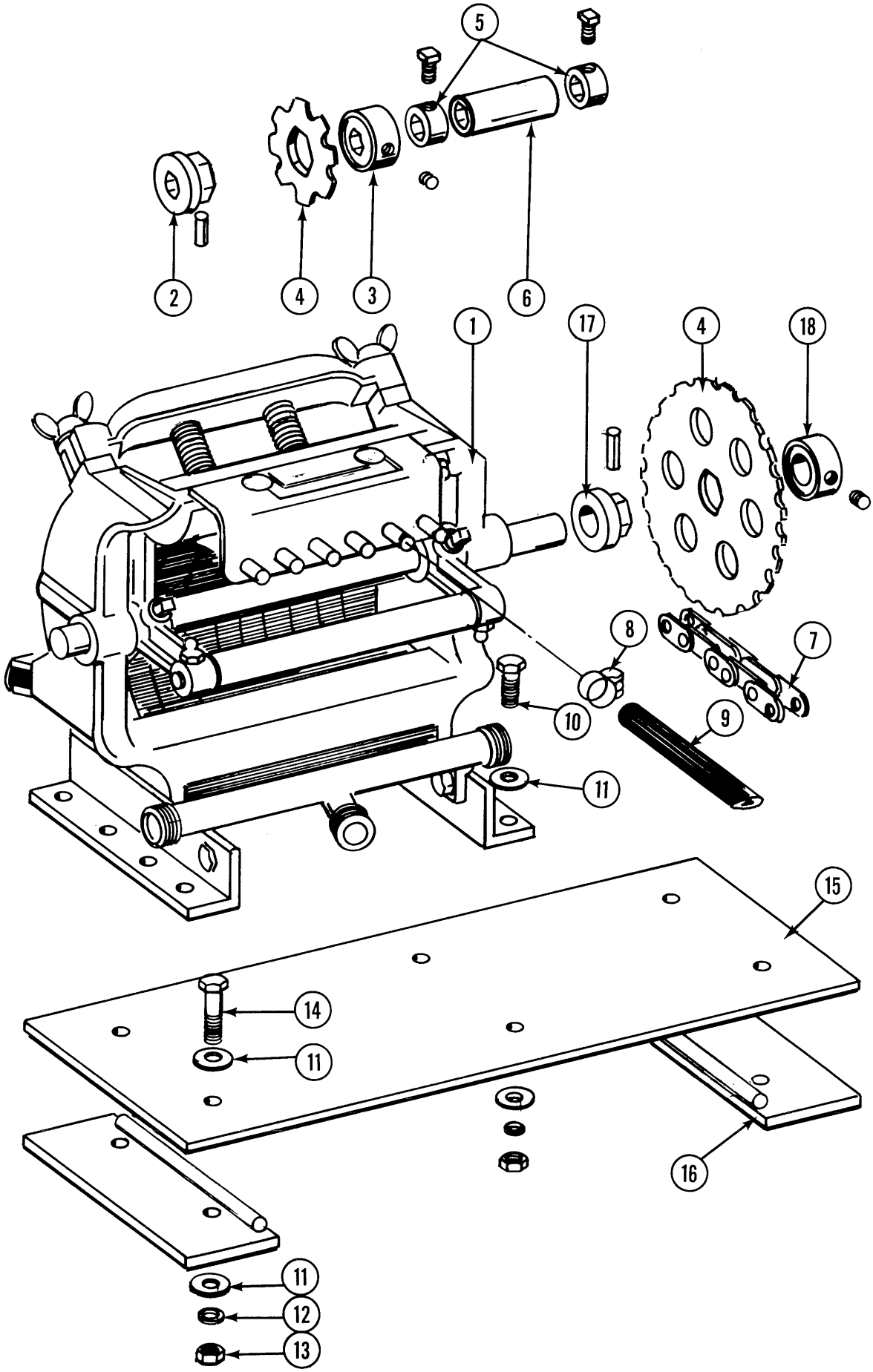
LIQUID FERTILIZER SQUEEZE PUMP - 8 ROW MODEL



LIQUID FERTILIZER SQUEEZE PUMP - 8 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	Hose Clamp, No. 8
32.	4300-5	Hose, 1/2' x 100'
A.	A323	Squeeze Pump Complete

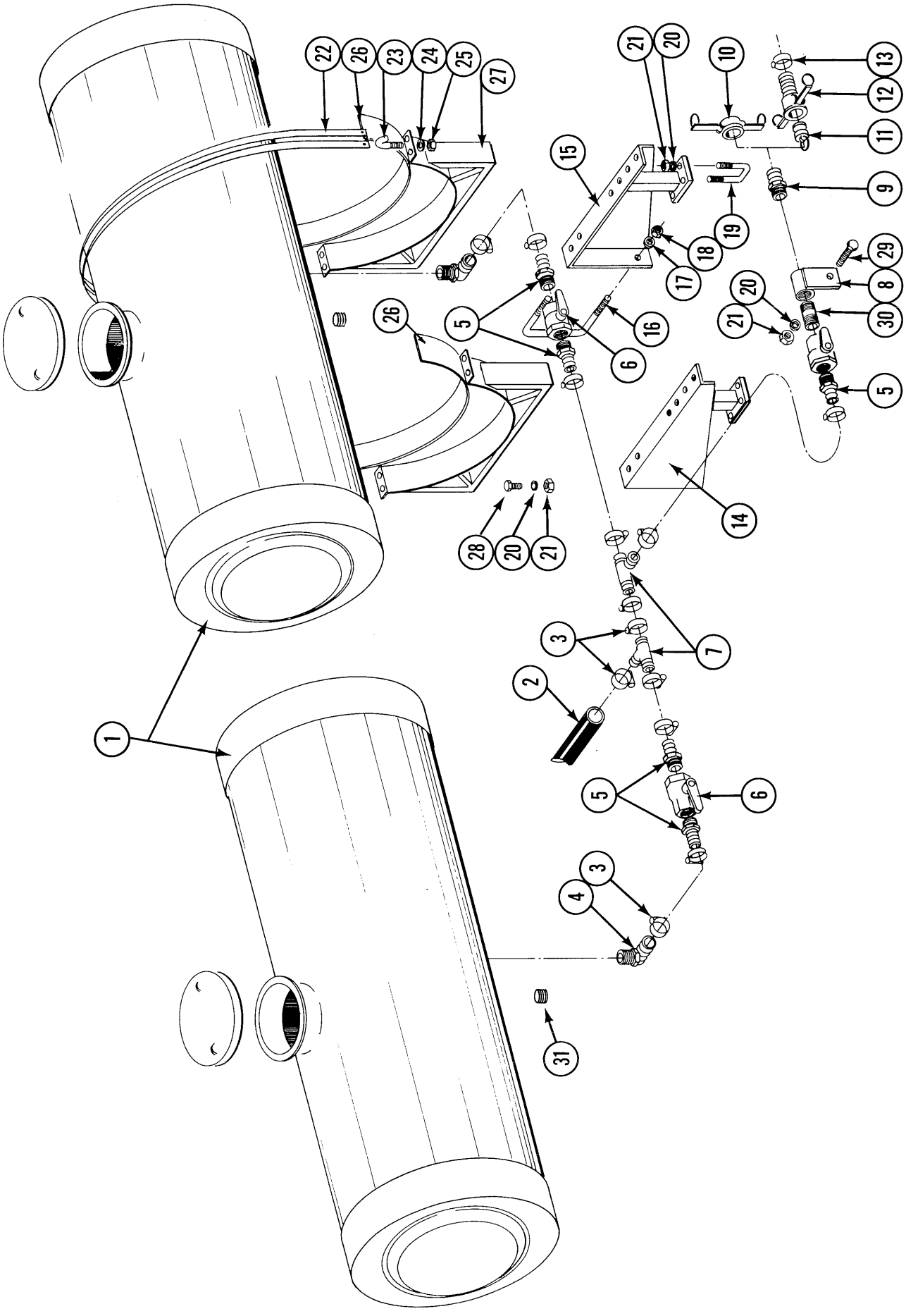
SQUEEZE PUMP MOUNTING BRACKET AND ADAPTER PACKAGE



SQUEEZE PUMP MOUNTING BRACKET AND ADAPTER PACKAGE

ITEM	PART NO.	DESCRIPTION
1.	A321	Squeeze Pump, 4 Row
	A322	Squeeze Pump, 6 Row
	A323	Squeeze Pump, 8 Row
2.	D1720	Sprocket Adapter (Less Roll Pin)
	10600	Roll Pin, 5/16" x 2 1/4"
3.	D1724	Link Collar w/Set Screws
	10120	Set Screw, 3/8" - 16 x 1/2"
4.	D1217	Sprocket, 8 Tooth
	D1218	Sprocket, 9 Tooth
	D1219	Sprocket, 10 Tooth
	D1220	Sprocket, 15 Tooth
	D1221	Sprocket, 22 Tooth
	D1222	Sprocket, 23 Tooth
	D1223	Sprocket, 26 Tooth
5.	A271	Lock Collar Assembly
6.	D1719	Coupler
7.	3300-75	Chain, No. 2040, 75 Pitch Including Connector and Offset Link
	R194	Connector Link, No. 2040
	R199	Offset Link, No. 2040
8.	10673	Hose Clamp
9.	4300-3	Hose, 1/2" x 30', 4R
	4300-4	Hose, 1/2" x 50', 6R
	4300-5	Hose, 1/2" x 100', 8R
10.	10001	HHCS, 3/8" - 16 x 1"
11.	10210	Flat Washer, 3/8" USS
12.	10229	Lock Washer, 3/8"
13.	10101	Hex Nut, 3/8" - 16
14.	10047	HHCS, 3/8" - 16 x 1 3/4"
15.	D1714	Plate, Squeeze Pump Mount
16.	A846	Clamp, Squeeze Pump Bracket Weld
17.	D1216	Sprocket Adapter (Less Roll Pin)
	10600	Roll Pin
18.	D1215	Lock Collar w/Set Screws
	10120	Sew Screw, 3/8" - 16 x 1/2"

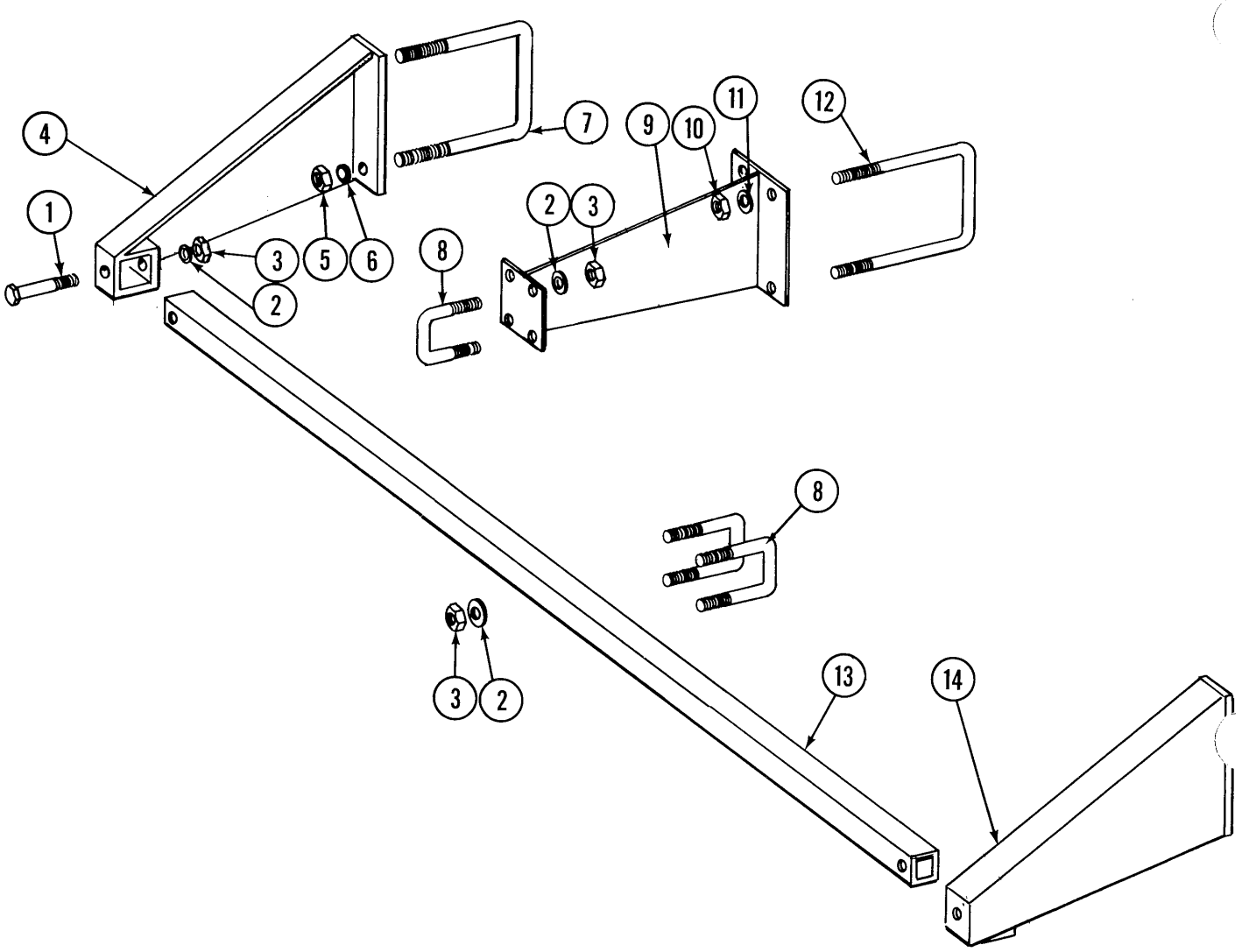
LIQUID FERTILIZER TANKS AND MOUNTING BRACKETS



LIQUID FERTILIZER TANKS AND MOUNTING BRACKETS

ITEM	PART NO.	DESCRIPTION
1.	D1808	Tank w/lid and 1 1/4 Pipe Boss, 24" x 100 gallon, used on 4R Models
	R511	1 1/4 Pipe Boss
	R512	Lid, 13"
	D1812	Tank w/lid and 1 1/4 Pipe Boss, 30" x 150 Gal., Used on 6 and 8R Models
	R513	3/4 Nylon E-Fitting
	R508	1 1/4 E-Fitting
	R509	Fillwell (Flat)
	R510	Lid
2.	4200-1	Hose, 1 1/4" x 22', 4R
	4200-2	Hose, 1 1/4" x 27', 6R
	4200-3	Hose, 1 1/4" x 32' 8R
3.	10674	Hose Clamp, No. 24
4.	10742	Elbow, 90°, 1 1/4" NPT to 1 1/4" Barb
5.	10745	Adapter, 1 1/4" NPT to 1 1/4" Barb Fitting
6.	A499	Ball Valve, 1 1/4" Nylon
7.	10750	Tee, 1 1/4", Plastic
8.	A918	Quick Fill Adapter Mount
9.	D1514	Q Cam, 1 1/4"
10.	D1515	Dust Cap, 1 1/4"
11.	D1517	Dust Plug
12.	D1516	QCHB, 1 1/2"
13.	10672	Hose Clamp, No. 28
14.	A844	Tank Mounting Bracket, R.H.
15.	A843	Tank Mounting Bracket, L.H.
16.	D1113	U-Bolt, 5/8" - 11 x 5" x 7"
17.	10230	Lock Washer, 5/8"
18.	10104	Hex Nut, 5/8" - 11
19.	D1339	U-Bolt, 1/2" - 13 x 3" x 2 1/2"
20.	10228	Lock Washer, 1/2"
21.	10102	Hex Nut, 1/2" - 13
22.	D1335	Tank Band, 24", 4R Models
	D1520	Tank Band, 30", 6 and 8 R Models
23.	D1337	J-Bolt, 5/16"
24.	10232	Lock Washer, 5/16"
25.	10106	Hex Nut, 5/16" - 18
26.	D1807	Tank Pad, 6" width (14' Roll) 4R Models
	D1862	Tank Pad, 8" width (14' Roll) 6 and 8R Models
27.	A919	Tank Saddle, 24", 4R Models
	A937	Tank Saddle, 30" 6 and 8R Models
28.	10017	HHCS, 1/2" - 13 x 1 1/2"
29.	10032	HHCS, 1/2" - 13 x 3 3/4"
30.	10094	Pipe Nipple, 1 1/4" x 3"
31.	10096	Pipe Plug, 3/4" Nylon (Used on 150 Gallon Tank Only)
	D1162	28" Tie Strap (Not Shown)
	D1512	6" Tie Strap (Not Shown)
	D2117	14 1/2" Tie Strap (Not Shown)

FERTILIZER BAR



ITEM	PART NO.	DESCRIPTION
1.	10035	HHCS, 1/2" - 13 x 4"
2.	10228	Lockwasher, 1/2"
3.	10102	Hex Nut, 1/2" - 13
4.	A1896	Bracket, Fertilizer Bar R.H.
5.	10105	Hex Nut, 3/4" - 10
6.	10231	Lockwasher, 3/4"
7.	D1747	U-Bolt, 5" x 7" x 3/4" - 10
8.	D1138	U-Bolt, 2 1/2" x 2 1/2" x 1/2" - 13
9.	A925	Fertilizer Bar Support, 8R30 and W Optional 6R Models
10.	10104	Hex Nut, 5/8" - 11
11.	10230	Lockwasher, 5/8"
12.	D1113	U-Bolt, 5" x 7" x 5/8" - 11
13.	D1685-1	Fertilizer Bar, 4R30, 112"
	D1685-2	Fertilizer Bar, 4RW 136"
	D1685-3	Fertilizer Bar, 6R30, 172"
	D1685-4	Fertilizer Bar, 6RW, 212"
	D1685-5	Fertilizer Bar, 8R30, 232"
	D1685-6	Fertilizer Bar, 8RW, 288"
14.	A1895	Bracket, Fertilizer Bar, L.H.