DOUBLE FRAME PLANTER
PULL TYPE PLANTER
MOUNTED PLANTER

OPERATOR'S MANUAL

M0120 Reprint 11/95

This manual is applicable to:

Model: 82D
Serial Number: 82D-0600 And On

Model: 82P
Serial Number: 82P-0289 And On

Model: 82M
Serial Number: 82M-0500 And On

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

Model Number _____

Serial Number _____

Date Purchased _____

We at KINZE Manufacturing, Inc. 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, WARNING and DANGER are used to call your attention to important safety information. The definition of each of these terms used follows:

NOTE: Indicates a special point of information.

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

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

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

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

TABLE OF CONTENTS

NEW MACHINE WARRANTY

KINZE MANUFACTURING, INC. warrants to the original purchaser for use that if any part of the product proves to be defective in material or workmanship within one year from date of original purchase, and is returned to KINZE within 30 days after such defect is discovered, KINZE will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident or improper installation or maintenance. Said part will not be considered defective if it substantially fulfills the performance specifications. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESSED OR IMPLIED. KINZE neither assumes nor authorizes anyone to assume for it any other obligation or liablity in connection with said part and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within 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.

INTRODUCTION

Because of the similarity between models, this manual has been written to cover the pull type and double frame planter bars as well as the mounted planter bar. All three models feature the same major components, which are largely interchangeable between each of the units.

All three models are available in various row configurations with a choice of 30″ or wide row spacing on most models. Refer to the following two pages for configurations covered in this manual. The double frame planter bar also allows installation of interplant row units for 15″, 19″, or 20″ spacing.

The double frame units permit 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 chose to add. Liquid and dry fertilizer application systems are also available on the pull-type planter bar. 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

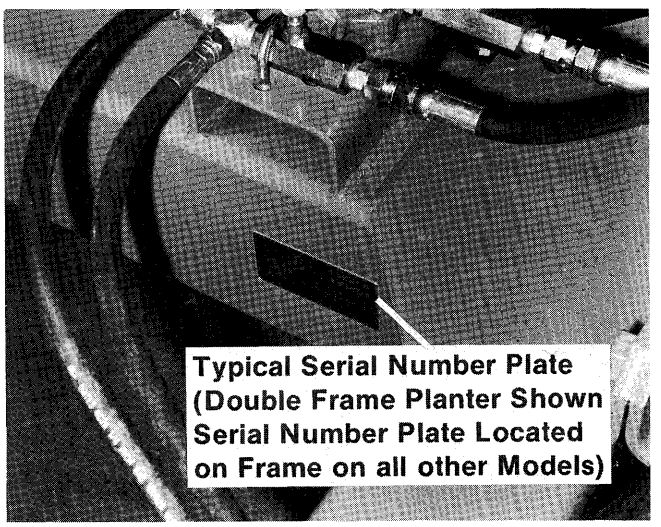
The information and photos used in this manual were current at the time of printing. However, due to Kinze's continual attempt to improve its product, possible in-line production changes may cause your machine to appear slightly different in detail. Kinze Manufacturing reserves the right to change specifications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

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

Serial Number

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

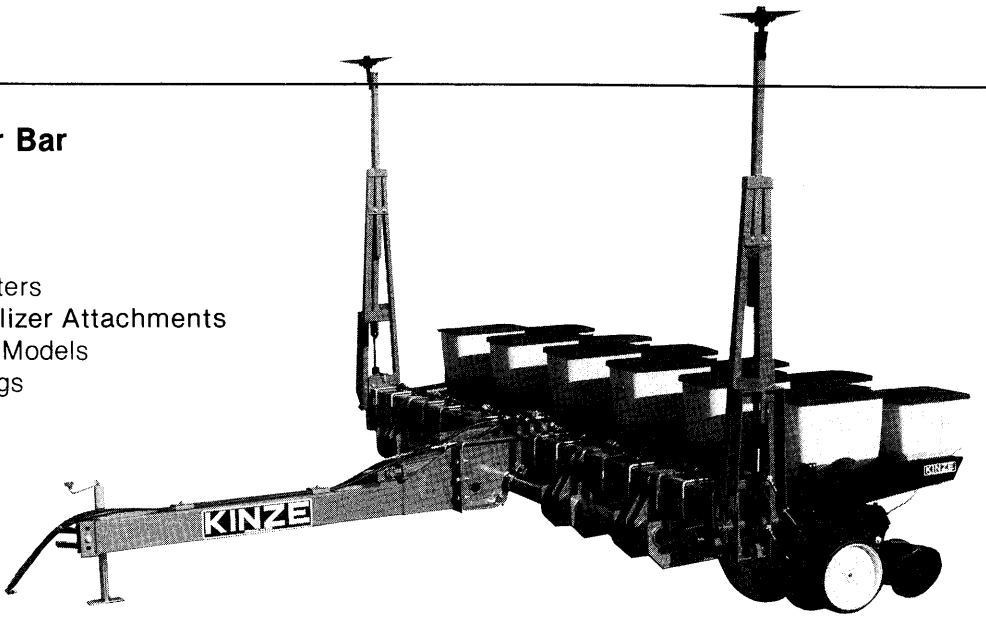
The serial number plate is located on the planter bar frame to be readily available. It is suggested that the serial number and purchased date also be recorded in the space provided on the inside front cover of this manual. Always provide the serial number and model number to your Kinze dealer when ordering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



Typical Serial Number Plate (Double Frame Planter Shown Serial Number Plate Located on Frame on all other Models)

Pull Type Planter Bar

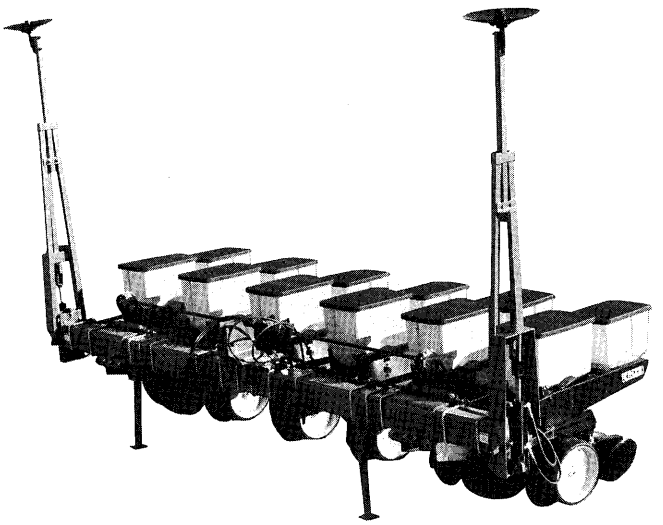
Options Available
Fluted or Ripple Coulters
Dry and Liquid Fertilizer Attachments
on 4 Row and 6 Row Models
Down Pressure Springs



Available Models	Bar Length	Marker Assembly
4 Row-30″ 4 Row-Wide 6 Row-30″ 6 Row-Wide 8 Row-30″	128″ 136″ 169″ 214″ 229″	Conventional on all models

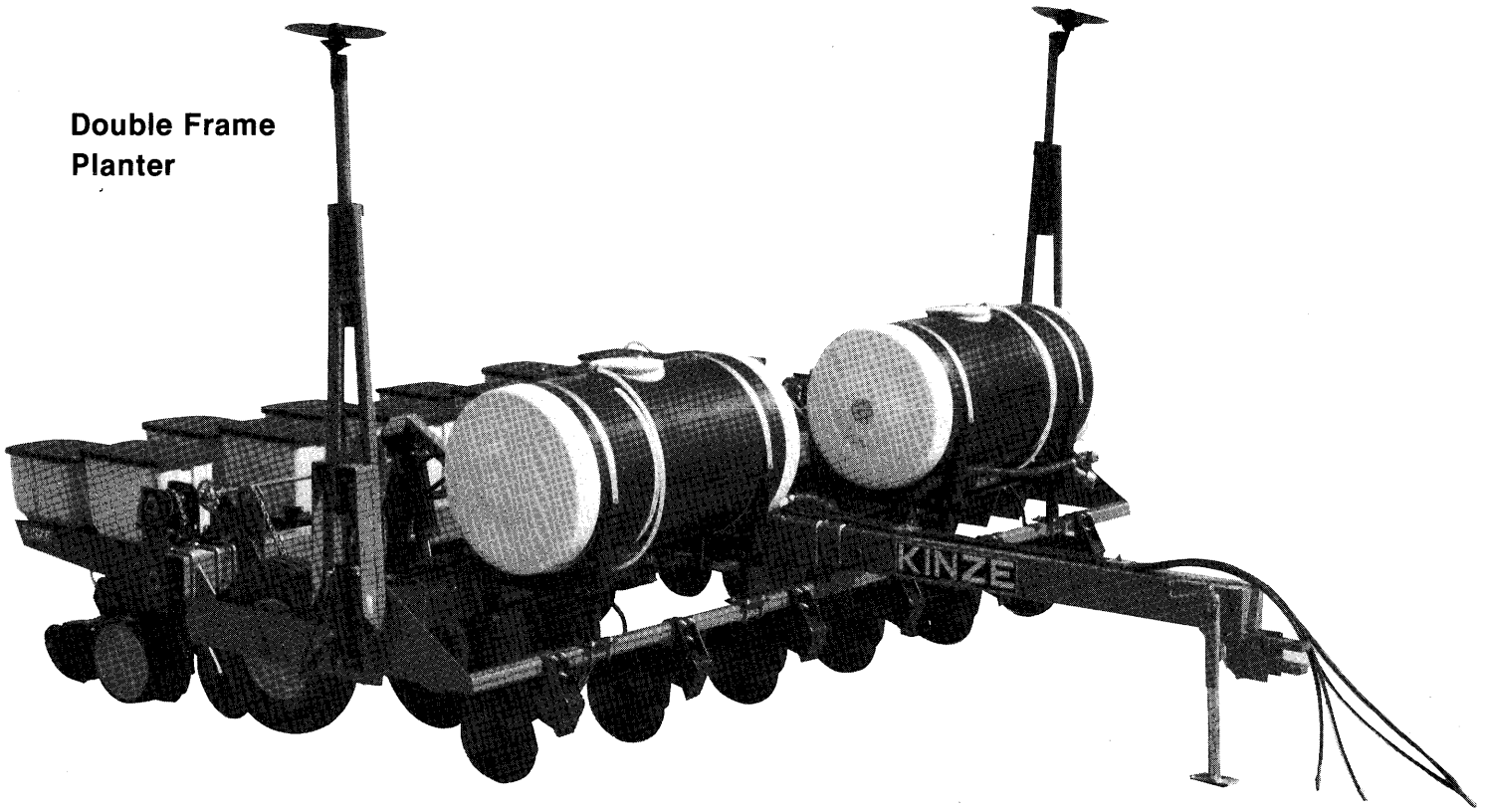
Mounted Planter Bar

Options Available
Fluted or Ripple Coulters
Automatic Marker Control
Down Pressure Springs
Interplant Rows on 6 Row-30″
6 Row-Wide and 8 Row-30″ models



Available Models	Bar Length	Marker Assembly
4 Row-30″	90″	Conventional
4 Row-Wide	136″	Conventional
6 Row-30″	169″	Conventional
6 Row-Wide	214″	Low Profile-Double Folding
8 Row-30″	229″	Low Profile-Double Folding

Double Frame Planter



Available Models	Bar Length	Marker Assembly
4 Row-Wide	146″	Conventional
6 Row-30″	182″	Conventional
6 Row-Wide	222″	Conventional
8 Row-30″	242″	Conventional
8 Row-Wide	298″	Low Profile-Double Folding

Options Available

Interplant Rows
Liquid Fertilizer Attachment
Dry Fertilizer Attachment
Ripple or Fluted Coulters
Down Pressure Springs

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 bar frame or allow others to do so.

Limit towing speeds to 15 MPH.

Always make sure there are no persons near the planter bar when gauge marker assemblies are in operation.

Always lower the planter bar when not in use and cycle the hydraulic control lever to relieve pressure in cylinders and hoses.

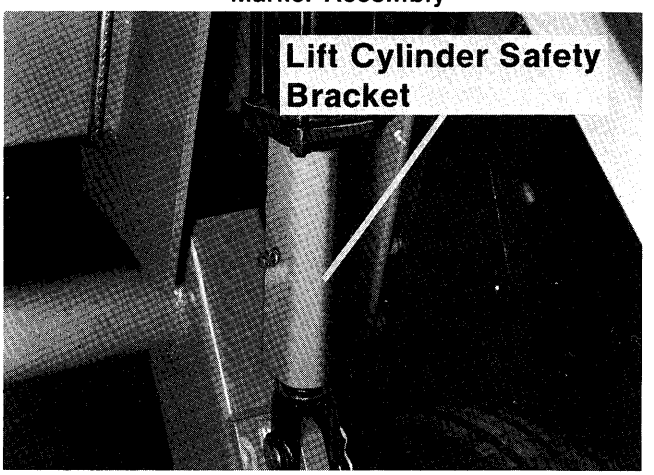
Always make necessary safety preparations prior to transporting the machine on public roads. This includes installing Slow Moving Vehicle (SMV) emblem and use of adequate lights or safety warnings after dark.

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

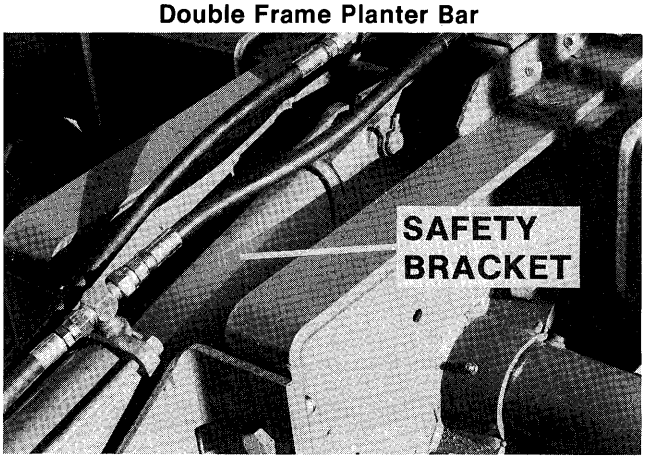
Always install marker lock up/safety pins before transporting or parking any planter bar equipped with conventional marker assemblies.

Always install lift cylinder lock up bracket before towing planter bar or working under the unit.

Marker Assembly



Double Frame Planter Bar



Pull Type Planter Lift Cylinder

ASSEMBLY

The following instructions are provided for assembly of the Kinze pull type, double frame, or mounted planter bar. 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 bar simplifies assembly as well as operation, service, and parts availability for any size and model unit.

Hardware

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

In many cases bolts have been pre-installed in the holes in which they go during assembly. It is suggested that 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.

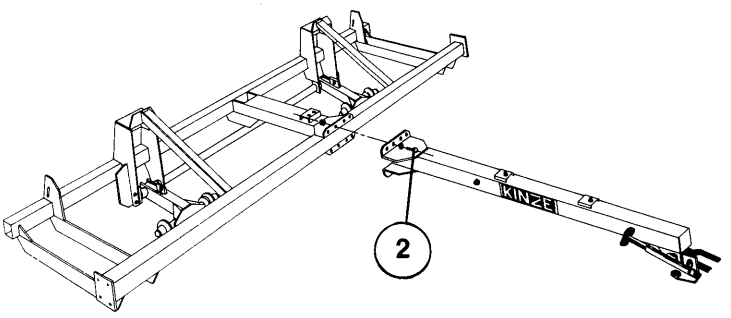
TORQUE VALUES

Bolt Diameter	Grade 5 Three Radial Dashes	Grade 8 Six Radial Dashes
	Foot-Pounds	Foot-Pounds
3/8"	30	— —
1/2"	75	— —
5/8"	150	— —
3/4"	270	— —
1"	— —	910

Double Frame Planter Bar

1. Position double frame assembly in an area which allows sufficient space for complete assembly. Keep in mind the access necessary in both height and width to remove completed machine.

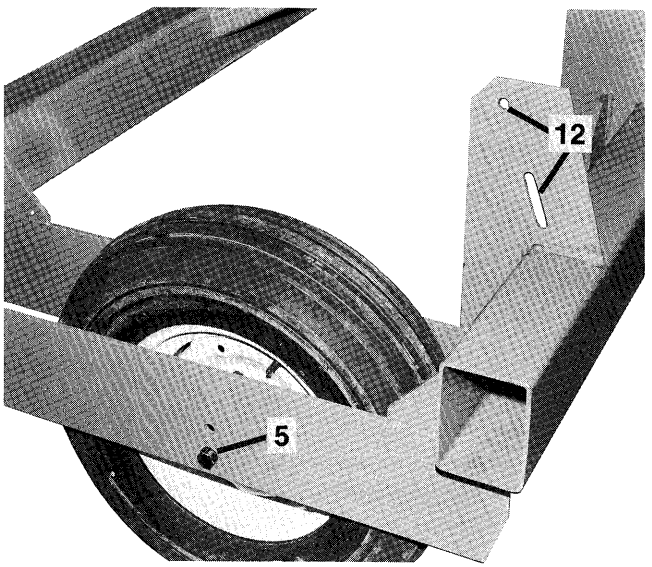
2. Bolt hitch assembly to planter frame with eight 3/4" × 2" cap screws, lock washers, and hex nuts. Tighten bolts securely (Refer to torque chart above).



3. Lift planter frame to a height that allows installation of drive wheels. Securely block up frame before proceeding further.

4. Attach 7:60 × 15 tire and wheel to drive hub with wheel bolts provided. Make sure valve stem side of wheel is opposite the drive sprocket which has been pre-installed on hub.

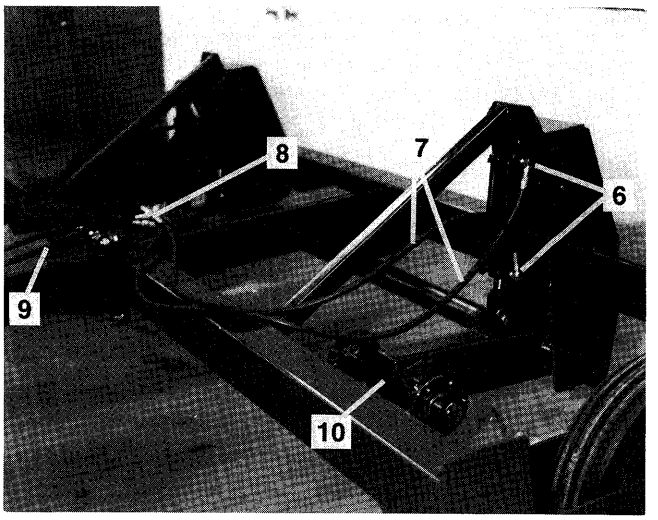
5. Install drive wheels in lower set of holes in drive wheel mounting plates with bolts provided in wheel hub. Make sure drive sprocket is positioned toward center of planter bar on each side.



6. Install two ½″ × ¾-16JIC 90° elbow fittings in each 3½″ × 10″ lift cylinder so that fittings are pointed towards the center of the cylinder tube and slightly forward. Then attach base end of cylinder onto cylinder bracket as shown. The fittings on each cylinder should be toward the outer ends of the frame.

NOTE: Clevis pins for the base end of the cylinders are 1/8″ longer than the pins for the rod end.

7. Attach hydraulic hoses to each cylinder. Hoses for each planter bar size are 90″ long except 8 row units which are 125″.



If the planter is to be operated with dual tractor hydraulics, proceed with step 8. If a single valve system is to be installed, refer to the marker assembly and marker hydraulics sections of this manual on page 21.

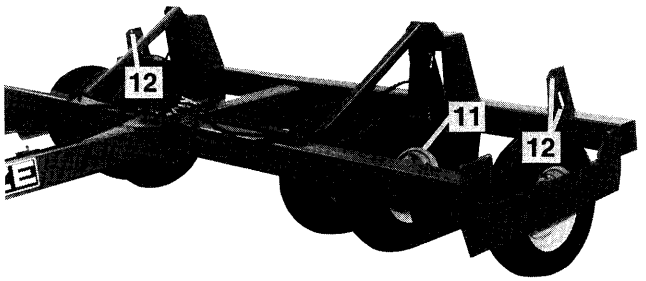
8. Connect hoses from base of each cylinder together with one ¾″-16JIC male tee provided. Do the same with the hoses from the shaft end of each cylinder.

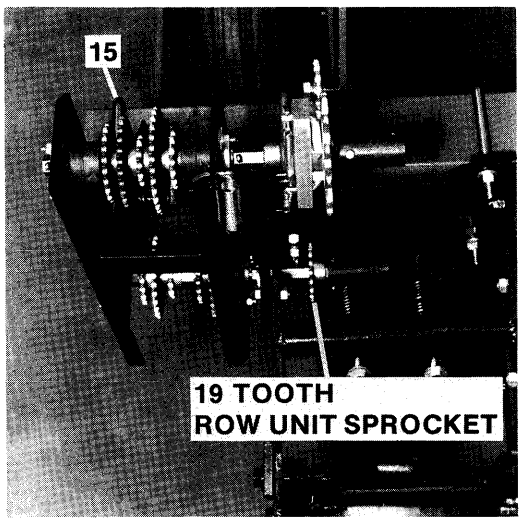
9. Attach 3/8″ × 135″ hydraulic hose to each tee. Install customer supplied coupler on tractor end of each hose. The couplers installed must be the SAE type to match the tractor being used.

10. Connect hoses to a tractor or "power pack" and cycle cylinders through at least one full stroke each way. Then use hydraulic power to extend lift cylinders until shaft clevis can be attached to the transport wheel brackets. Secure all cylinder pins with lock clips.

CAUTIONS

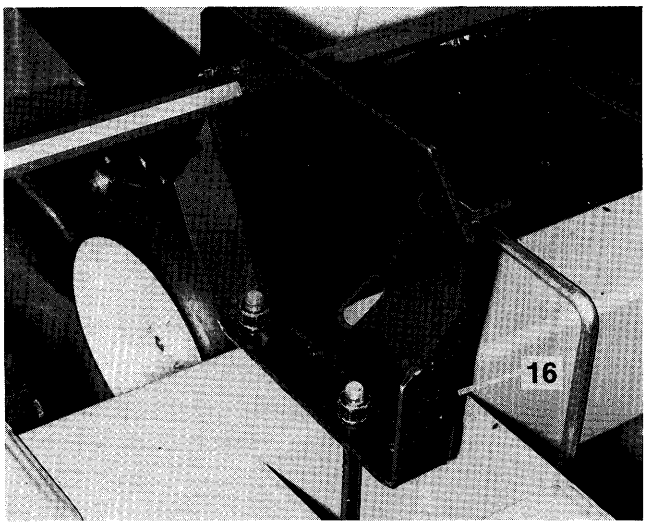
Make sure all air has been purged from the cylinder and hoses before connecting the cylinder to the axle mounting bracket.



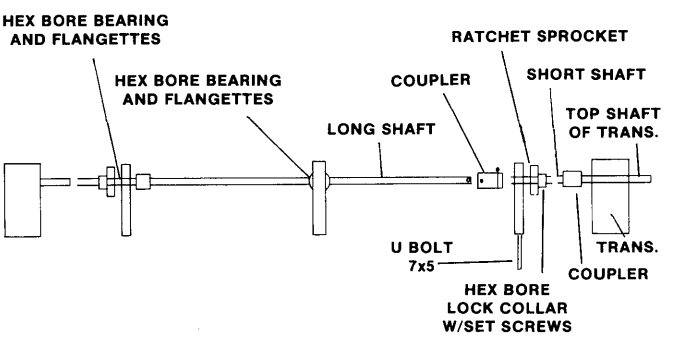


11. Again using hydraulic power, retract the lift cylinders to raise transport wheel brackets. Attach 11L × 14 transport wheels, tightening lug bolts to approximately **100** ft. lbs. torque.
12. Install drive chain idlers on frame assembly (2 on each end) as shown using 5/8″ × 2½″ hex head cap screw, flat washer, 5/8″ × ½″ bushing and lock nut. Tighten the mounting bolt on the top idler but leave the lower idler loose at this time.
13. Attach all row units as outlined in row unit installation procedure on page 14.
14. Remove plastic plugs from all row unit drive sprockets and install 9/16″ hex drill shafts through each sprocket. Ensure that the shaft end with the hole is toward the outboard side of the planter bar and that the larger of the two shafts is on the left side. Refer to the chart on page 17 for proper drill shaft for right hand and left hand side on each size unit.
15. Install left transmission by positioning it on the end of the planter bar and aligning the pre-installed drive sprocket with the idler sprockets and gauge wheel sprocket. Secure transmission in place with two 5/8″ U-bolts, lock washers, and hex nuts.
16. Attach transmission drive shaft support bracket to center of planter bar with 5/8″ U-bolts, lock washers and hex nuts. Insert drive shaft through bearing in support bracket and connect to left transmission with coupler and clevis pins (secured with cotter pins).

NOTE: The left hand row unit is driven by a 19 tooth narrow row drive sprocket in place of the standard bearing and sprocket assembly used on other row units.



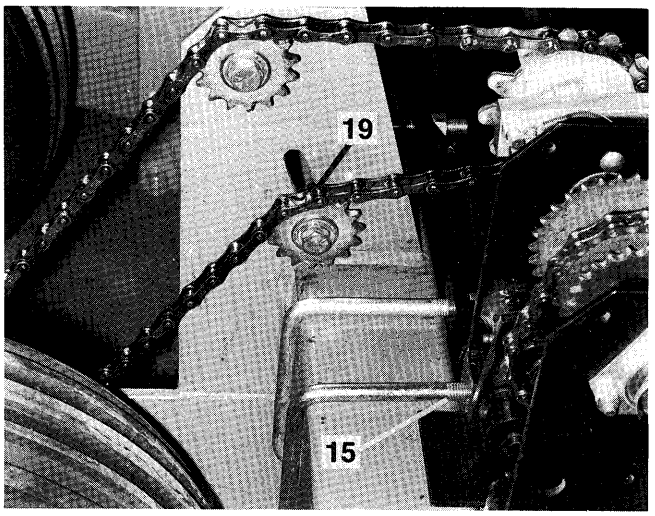
NOTE: The eight row wide planter bar has a special drive shaft arrangement which uses two short shafts and one long shaft along with separate drive sprocket/clutch assemblies to drive the transmission. This arrangement is illustrated below. Refer to transmission assembly for procedures for installing sprocket/clutch. Make sure support brackets are positioned to align drive sprockets with wheel sprockets.



17. Connect hex drill shafts to each transmission by aligning holes in shaft coupler and shaft driver; then install 3/16″ × 2″ cotter pin.

18. Install right transmission in same manner as left side unit.

19. Install drive chains between drive wheels and transmission. Slide idler sprocket up to tension chain to obtain a deflection of 1″ on longest span. Do not overtighten chain.



20. Install tightener assembly and chain on transmissions. See transmission assembly on page 17 for details.

21. Install drive chains on row units as instructed in row unit installation section of this manual or refer to the operator's manual for your particular row units.

22. If marker assemblies were not installed prior to lift cylinder installation in steps 6 and 7, refer to the "Marker Assembly Installation" and "Marker Hydraulics" sections on page 20 at this time.

23. Secure all hydraulic hoses to planter bar frame with nylon tie straps. Route hoses to tractor under clamps on planter tongue and tighten clamp bolts.

24. Apply all decals and reflectors in the appropriate locations as instructed on page 25.

Pull Type Planter Bar

1. Place the pre-assembled planter bar frame in an area which provides sufficient space for complete assembly. Keep in mind the access necessary in both height and width to remove the completed machine.

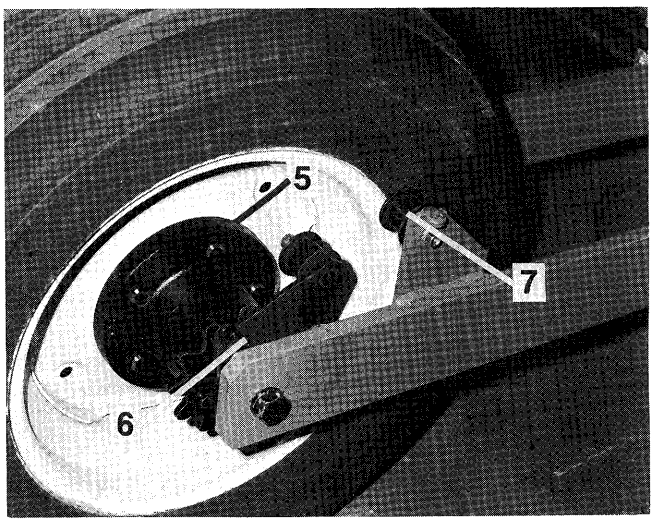
2. Unband the shipping bundle and inspect for damage.

3. Bolt hitch assembly to planter frame with six ¾" × 2½" cap screws, lock washers, and hex nuts. Tighten mounting bolts securely.

4. Lift planter frame to a height that allows installation of all wheels. Securely block-up frame before proceeding further.

5. Remove wheel hubs from shipping position on brackets and attach 7:60 × 15 tires and wheels. Four row models have two wheel assemblies, both of which are drive wheels. Six and eight row models have four wheels. However, both wheels on the left side are drive wheels. Make sure the valve stem side of the wheel is opposite the sprocket on drive wheel hubs.

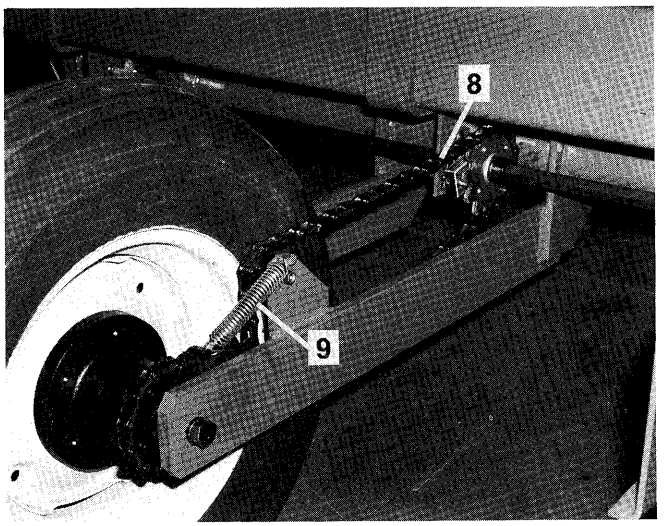
6. Install wheels and hubs to wheel bracket arms. Before installing drive wheels, slip idler bracket over shoulder nut as illustrated. Bracket should be free to rotate on shoulder nut. Drive wheel brackets are identified by spring hook tab welded to inside wheel bracket arm.



7. Attach stationary idler to each wheel bracket arm with hardware and bushing provided.

8. Install drive chain around wheel sprocket, drive shaft sprocket, and idlers as shown. Repeat steps 7 and 8 with second drive wheel.

9. Hook tension spring between spring tab and idler bracket on each drive wheel.



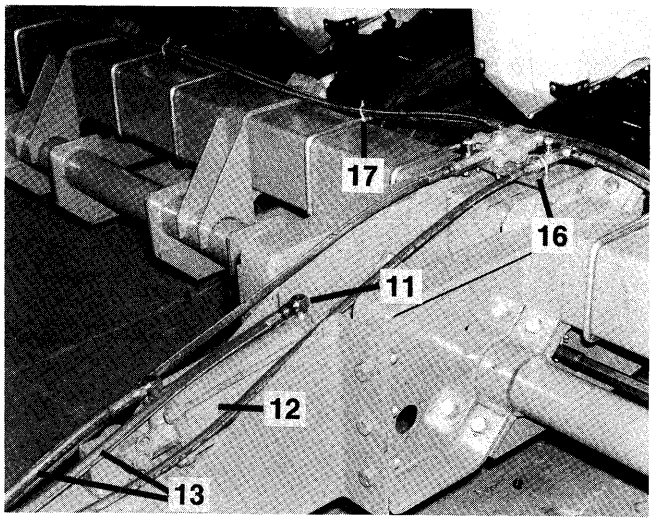
10. Mark planter bar for row spacing and install row units as instructed in "Row Unit Assembly and Installation" on page 14.

11. Install two ½" NPT × ¾"-16JIC elbow fittings in 3½" × 8" hydraulic lift cylinder so that fittings are pointed toward the cylinder base.

NOTE: If the planter bar is being plumbed for a single valve system, install two ½" NPT × ¾"-16JIC tee fittings in cylinder ports instead of elbow fittings.

12. Install cylinder as shown with shaft end pointing toward rear of planter bar. Secure in place with clevis pins and lock clips. The shorter of the two clevis pins is installed on the shaft end of the cylinder.

13. Attach 3/8″ hydraulic hoses to lift cylinder. The 117″ hose connects to rear (shaft end) fitting and 105″ hose connects to front (base end) fitting.



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

15. Assemble and install conventional marker assemblies as instructed in "Marker Assembly Installation Section" on page 20.

16. Attach sequencing valve and flow control valve mounting bracket to planter bar with four 5/16″ × 1″ cap screws, lock washers, and hex nuts. Install and connect marker cylinders and connect hoses to pre-assembled valves and fittings as instructed in the "Marker Hydraulics Section" on page 21.

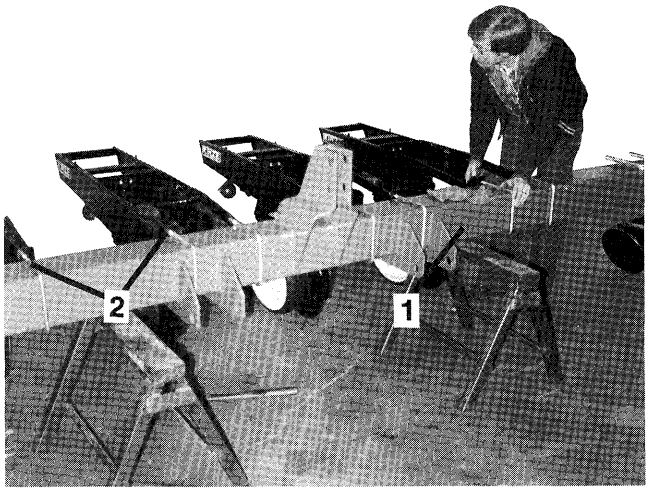
17. Secure all hydraulic hoses to planter bar frame with nylon tie straps. Route hoses to tractor under clamps on planter tongue and tighten clamp bolts.

18. Apply all decals and reflectors in the appropriate locations as instructed on page 25.

Mounted Planter Bar Assembly

1. Position planter bar on two sturdy supports which are positioned equal distance from each end of the bar so as not to interfere with row unit or wheel bracket installation.

2. Install row units as outlined in "Row Unit Installation" on page 14.

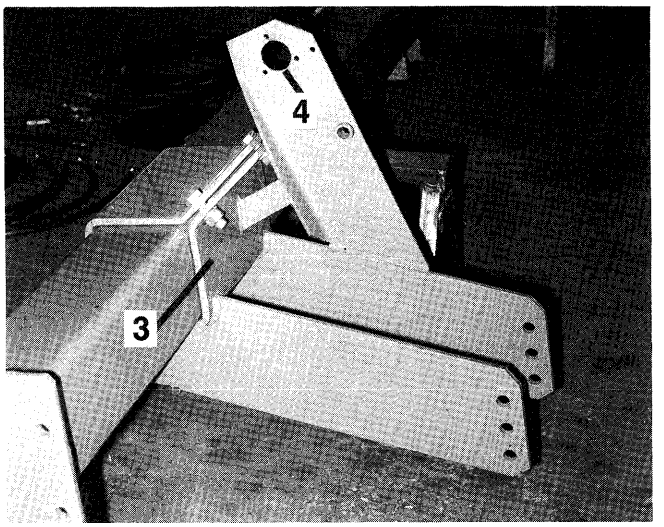


3. Lift each drive wheel bracket into position between row units. Place upper bracket on planter bar and secure both brackets together with six ¾" × 2½" cap screws, lock washers, and hex nuts.

NOTE: The 6-row 30", 6-row wide and 8-row 30" mounted planter bars may be ordered with optional front-mounted drive gauge wheels, which permits installation of interplant row units. Since the wheel brackets are welded to the front side of the planter bar, steps 3-4 and 7 are not required. A drive shaft and idler support bracket must be installed with a 5/8" U-bolt to align each sprocket/clutch assembly with wheel sprocket.

4. Assemble drive shaft bearings and flangettes and install in position on each drive gauge wheel bracket with three 5/16" × 1" carriage bolts, lock washers, and hex nuts.

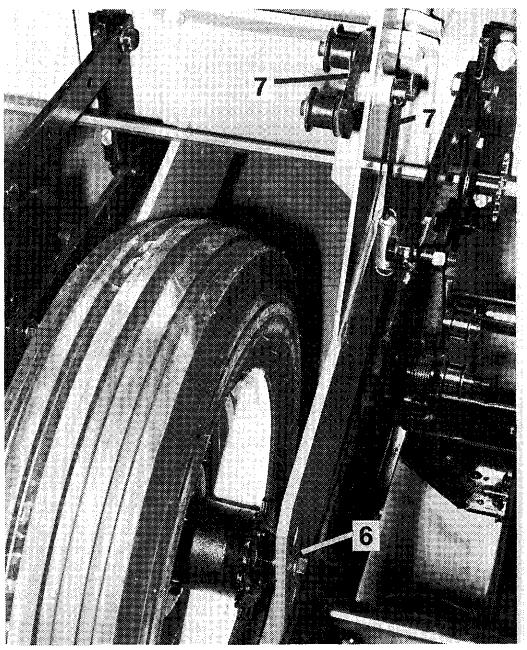
5. Install each drive wheel and tire on hub so that the valve stem is opposite the drive sprocket pre-attached to the hub.



NOTE: Illustrated without row units in place.

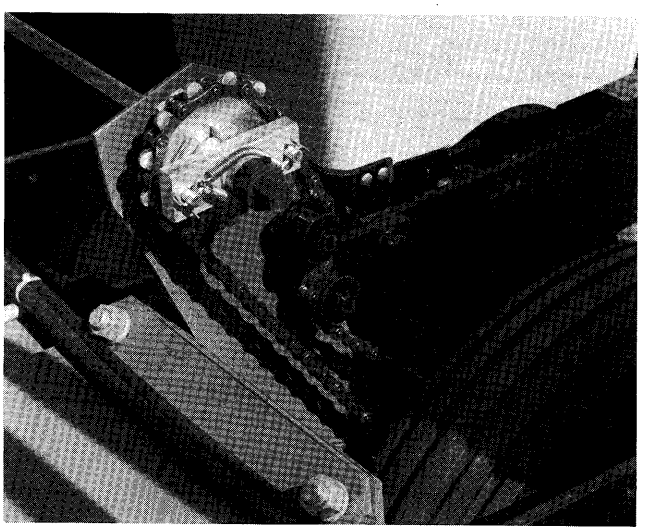
6. Install each drive wheel and hub in the center mounting holes of wheel brackets. It may be necessary to spread bracket slightly.

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

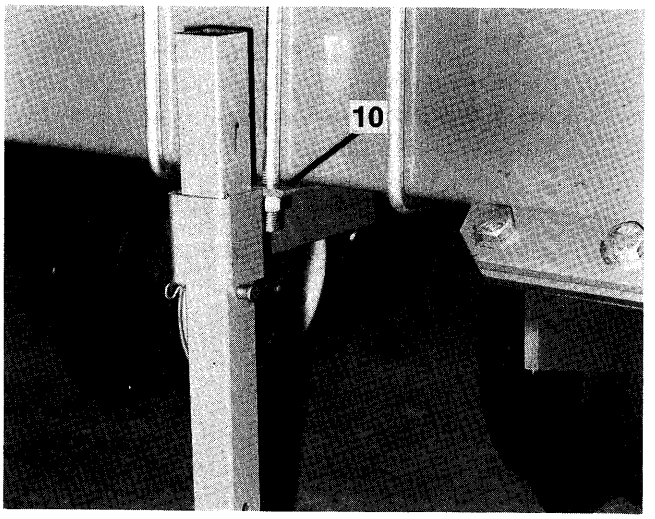


8. Install transmission as instructed in "Transmission Installation and Assembly Procedure" on page 17. Install transmission drive shaft, clutch/drive sprocket assemblies, and drill shafts.

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



10. Install planter bar stands through stand brackets and attach brackets to underside of planter bar with 5/8" "U" Bolt, lock washers and hex nuts. Support stands should be positioned approximately half way between the center and end of bar on each side.



11. Assemble markers and bolt each to frame ends as instructed on page 20.

12. Connect all marker cylinder hydraulics and plumb for either single valve or double valve system as outlined under "Marker Hydraulics" on page 21.

13. Secure all hydraulic hoses to planter bar with nylon tie straps.

14. Install all decals and reflectors in the appropriate position as instructed on page 25.

Row Unit Assembly and Installation

The frame on all of the Kinze pull type, double frame and mounted planter bars is constructed of either 5" x 7" rectangular 7" x 7" square tubing to accept most popular types of row units.

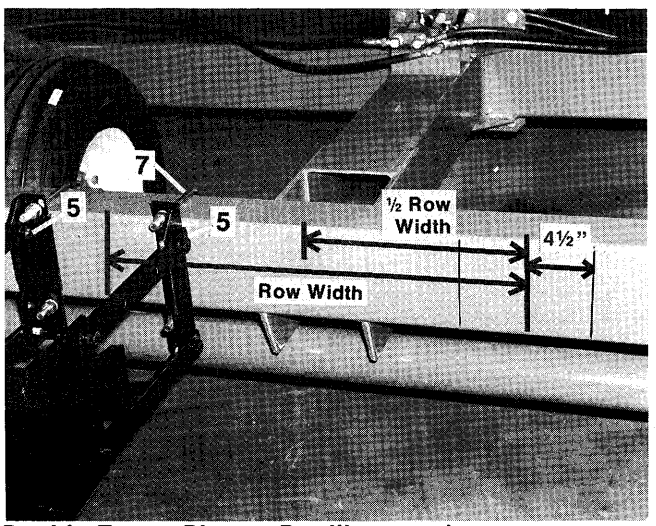
When planter units other than Kinze Precision Placement Units are being installed, it is suggested that the manual for the particular brand and model be consulted.

1. Measure the full length of the planter bar and locate center.

2. Mark center of each row by measuring to each side of bar center. The two middle units will be located half the row width from the center. For example, when units are being installed for 30" rows, measure 15" to each side from the center of the bar and every 30" thereafter to the ends of the bar.

3. **For installation of Kinze row units, mark a squared vertical line 4½" to each side of the row center. This will allow correct positioning and vertical alignment of each row unit as it is being installed.**

4. Remove 5/8" × 1¾" hex head cap screw, with bushing and lock nut from shipping position on each support bracket.



Double Frame Planter Bar Illustrated

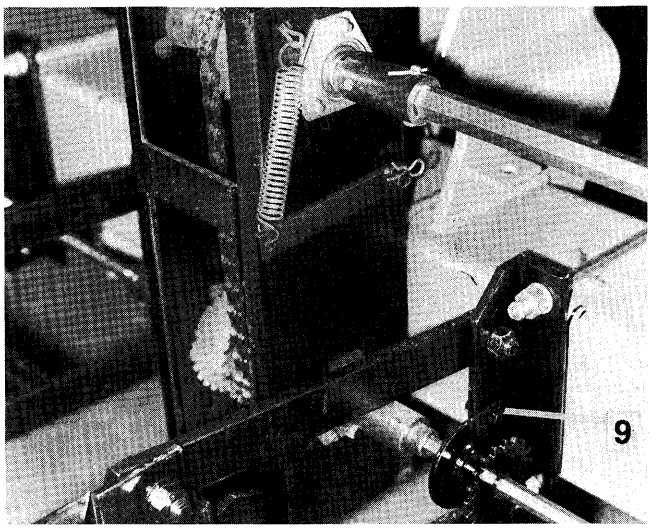
5. Swing right and left upper parallel arms to a position parallel with lower arms and attach to support brackets with bolts and bushings provided.

6. Position row unit on planter bar, aligning inside edge of support brackets with marks made earlier.

7. Attach row units using U-bolts, lock washers, and 5/8" hex nuts.

IMPORTANT: If heavy duty down pressure springs are to be installed, the front support plate must be installed on the U-bolts directly behind the row unit support angles prior to installing lock washers and nuts.

8. Remove plateless drive clutch and drive bearing and sprocket assembly from shipping position on rear of row unit. Both parts are wired to the row unit frame.

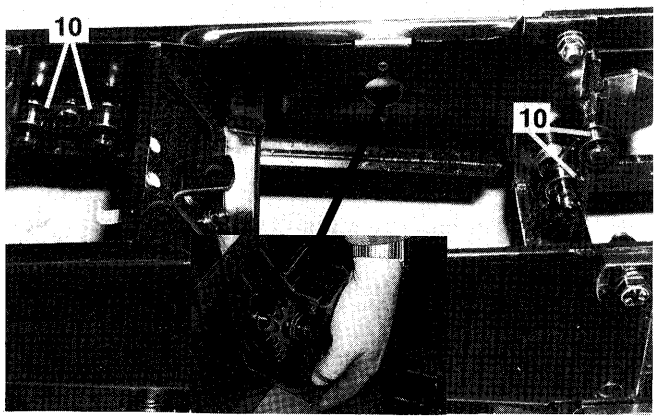


Mounted Planter Bar Illustrated

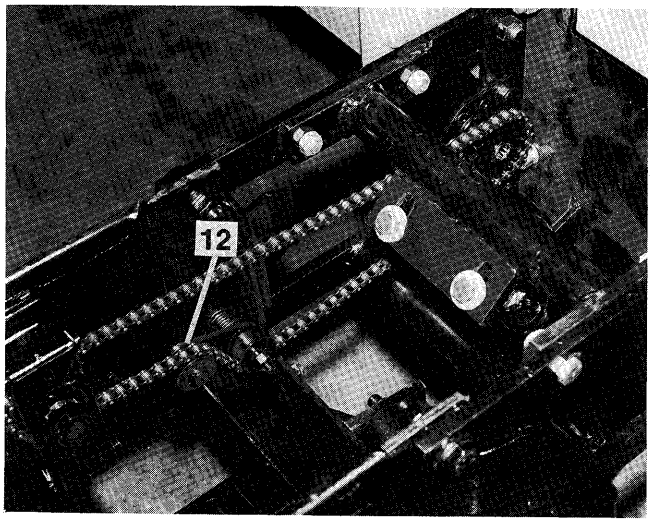
9. Attach drive bearing and sprocket to inside of left support bracket with 3/8" × 1" cap screws provided. Do not tighten at this time.

NOTE: It is not necessary to install the drive bearing/sprocket on the extreme left row unit on all double frame planter bars. This row unit is driven directly off a sprocket pre-installed on the left transmission.

10. Turn all chain idler spools to break loose any paint that may restrict movement.



11. Remove bolts which extend into bearing support on plateless drive and reuse to attach drive to left side panel of hopper support.



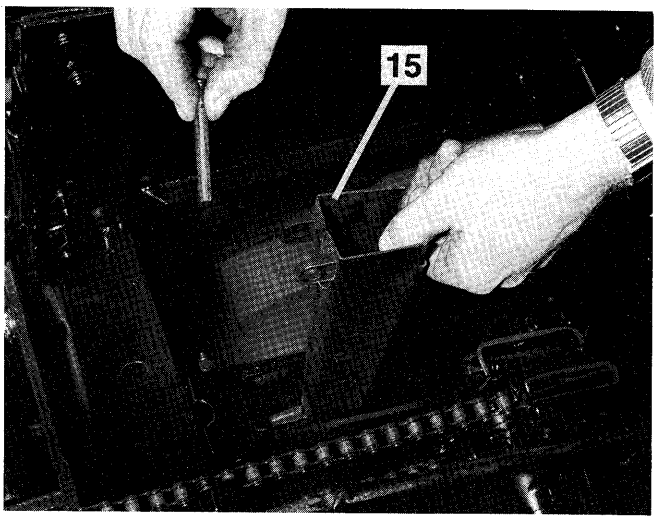
12. Install drive chains around row unit drive sprocket and plateless drive sprocket; then join with connecting link. Position drive chain over and under chain idlers as shown.

13. Route insecticide hopper drive chain around planter drive sprocket and connect with link.

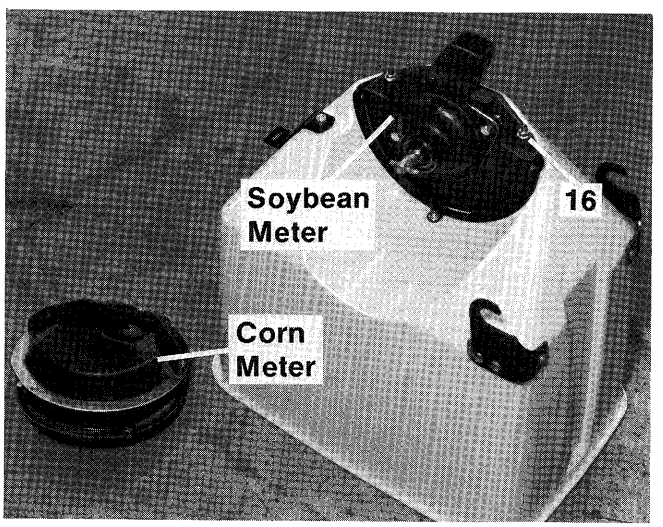
14. Remove hold down latch clip from shipping position on inside of seed hopper and reattach to outside of hopper with 3/8″ × ¾″ socket head cap screw, flat washer, lock washer, hex nut...and ¼″ × ¾″ carriage bolt, rubber washer, flat washer and self-locking flange nut.

15. Install seed tube in shank as shown. Position hook on the front of the tube over alignment pin in shank. Then pivot top of tube forward and secure with retainer pin and locking clip. Once the tube has been secured in position, tighten 3/8″ nut on bolt at front of shank cover.

    If electronic seed monitor tubes are being installed, refer to the accompanying instructions.

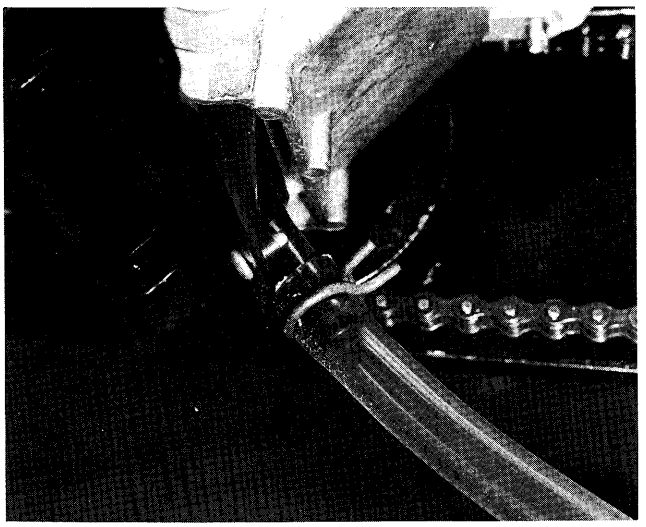


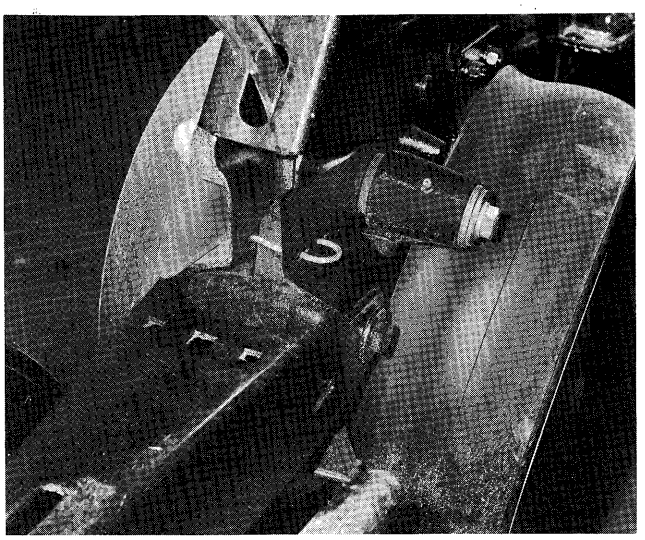
16. Install seed metering unit on hopper bottom with two 5/16″ hex flange nuts.



17. Install seed hopper and latch in position. Adjust latch up or down as necessary for a secure fit.

18. Install insecticide spreader assembly as shown in photo and illustration using clip to hold spreader in place and two #10 × 3/8″ self-tapping screws to hold funnel to row unit frame.





19. If herbicide option is being installed, attach funnel in the same manner and assemble bander and attach to row unit frame.

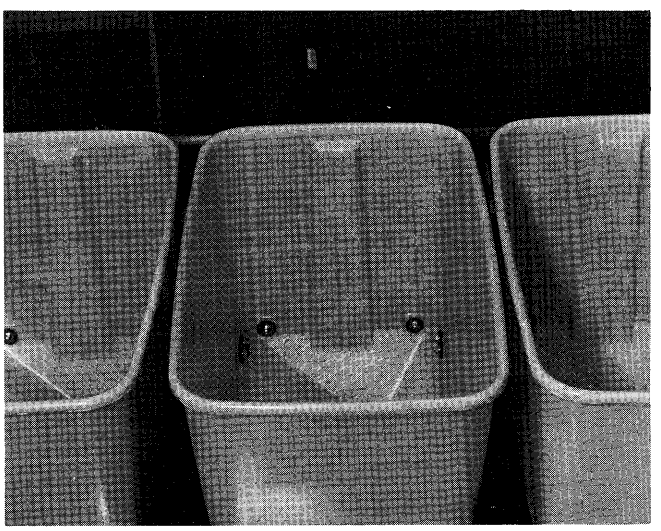
20. Loop drive chain over insecticide hopper drive sprocket and lower hopper into position. Position drive chain over and under idlers to maintain chain tension.

SPECIAL INSTRUCTIONS FOR EXTRA ROWS (DOUBLE FRAME PLANTER BAR)

When mounting extra row units between the regular 30″ or wide row units, the following special steps must be taken.

1. When assembling the parallel arms and mounting brackets, the 5/8″ × 1¾″ assembly bolts must be installed with the head to the inside. The lower arm mounting bolts must also be removed and turned around. This procedure will allow the operator to simply remove the nut from each of the four bolts and pull the bolts out from the inside. Then after removing the drive chain the extra row unit can be removed, leaving the support brackets with drive sprocket attached to the planter bar.

2. In some instances, the space between row units may not permit the installation of all hopper lids. This is particulary true when all seed hoppers are filled. Therefore, it may be necessary to install a piece of threaded rod through each side of the hopper and install a large diameter flat washer and hex nut on each side. This will permit the side of the hopper to be pulled in as required and eliminate the possibility of the hoppers rubbing against each other and causing fiberglass damage.



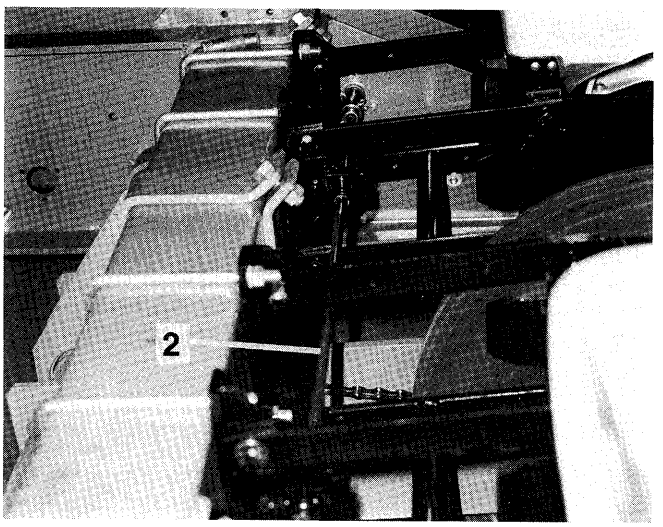
TRANSMISSION INSTALLATION

The seed drive transmission is shipped pre-assembled with the proper combinations of sprockets for most brands of shaft driven planting units. The transmission is mounted to the back side of the planter bar and between the middle two row units on mounted planter bars.

Double frame planter bars utilize two transmissions, one on each end of the unit.

The rigid frame pull type planter bar is shipped with the transmission already mounted and pre-assembled with drive shafts, clutch mechanisms and transmission drive chain and idlers. The only step necessary to complete drive assembly is the installation of drill shafts (step 2) and drive chains between drive wheels and clutch assemblies.

1. Attach transmission with two U-bolts, lock washers, and 5/8″ hex nuts.
2. Remove plastic plugs from drive sprocket on each row unit and install 9/16″ hex drill shaft through each sprocket. The lengths of the right and left drive shafts are listed below. Make sure the drilled end of each shaft is toward the transmission.



DRILL SHAFT AND DRIVE SHAFT DIMENSIONS

9/16″ Hex Drill Shaft

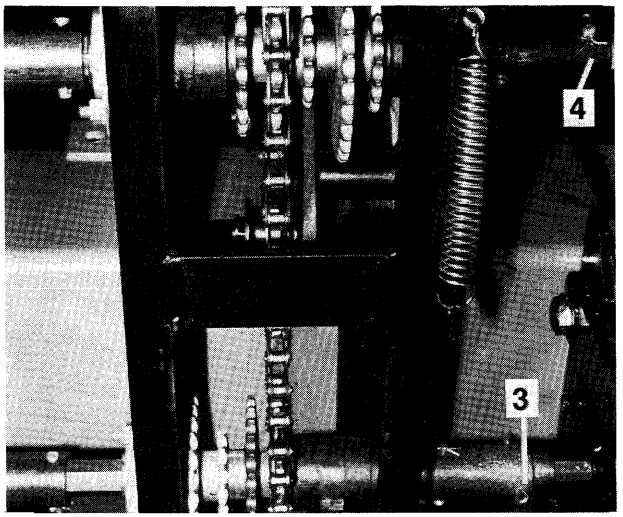
Planter Size	PULL TYPE		3-POINT MOUNTED		DOUBLE FRAME	
	Left	Right	Left	Right	Left	Right
4-30″	47″	37″	—	—	—	—
4-Wide	60″	48″	60″	48″	58″	52″
6-30″	77″	67″	77″	67″	74″	68″
6-Wide	98″	86″	98″	86″	96″	90″
8-30″	107″	98″	107″	98″	104″	98″
8-Wide	—	—	—	—	134″	128″

7/8″ Hex Drive Shaft

Planter Size	PULL TYPE		3-POINT MOUNTED		DOUBLE FRAME		
	Left	Right	Left	Right	Left	Center	Right
4-30″	25″	21″	—	—	—	—	—
4-Wide	33″	29″	33″	43″	—	119″	—
6-30″	55″	—	55″	65″	—	152″	—
6-Wide	71″	—	71″	81″	—	203″	—
8-30″	85″	—	85″	95″	—	212″	—
8-Wide	—	—	—	—	40″	190″	40″

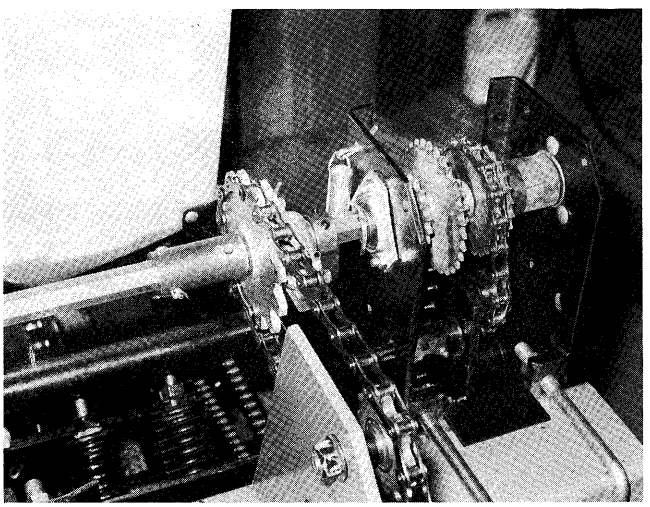
NOTE: A special purpose 3-row 60″ pull type planter bar is available that uses the following size shafts: 9/16″ drill shaft—47″ left, 67″ right; 7/8″ drive shaft—11″ left, 36″ right.

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



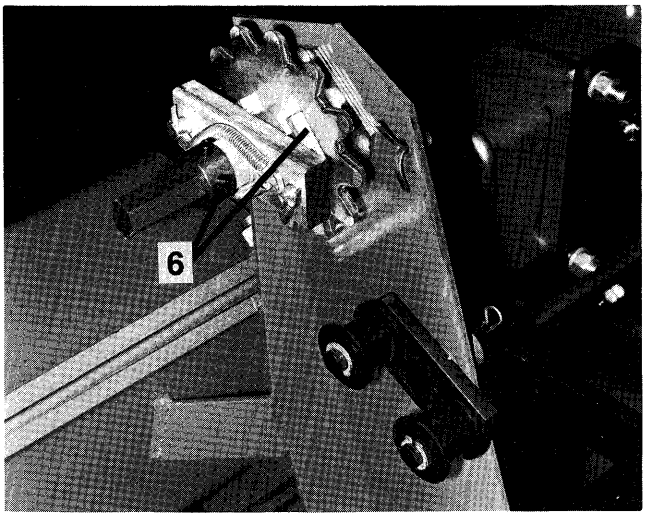
NOTE: Steps 4 through 7 apply primarily to the mounted planter bar and 8 row wide double frame unit. All other double frame planter bars have the clutch assembly pre-installed on the transmission and use a single connecting drive shaft (See Step 16 of Double Frame Assembly). Pull type planter bars have the drive shaft and clutch assemblies pre-installed.

4. Install right and left transmission drive shafts through bearings in drive gauge bracket or drive shaft support bracket. It will be necessary to slide the drive sprocket/clutch assembly and lock collar over the right hand shaft before attaching it to the transmission.



IMPORTANT: Ratchet clutch and sprocket assemblies are assembled as right hand or left hand units. Ensure that unit is installed on proper side of planter by turning clutch by hand in the direction the clutch would ratchet if the planter were moved in reverse.

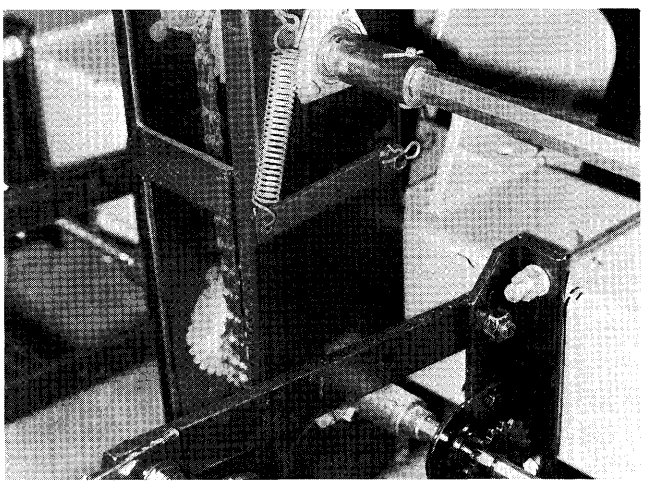
5. Connect right and left drive shafts to transmission with coupler and clevis pins (secured with cotter pins). Make sure alignment is correct and tighten bearing flangettes on drive gauge brackets.



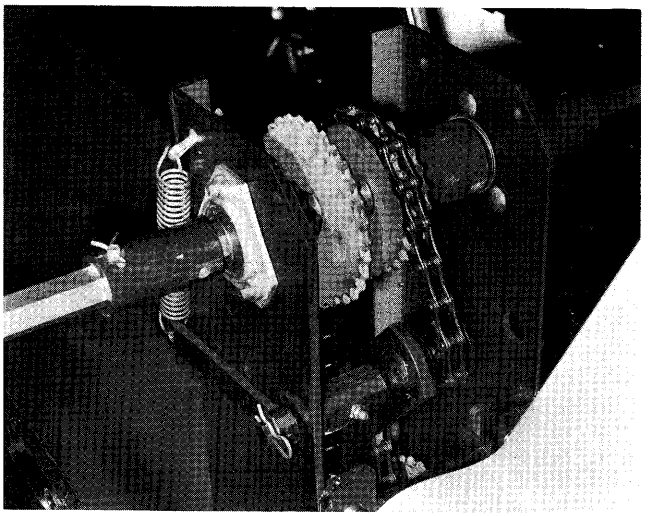
6. Slide right drive sprocket/clutch assembly into alignment with drive wheel sprocket and secure in place by tightening 5/16″ × ½″ Allen head screws in lock collar.

7. Slide the other drive sprocket/clutch assembly onto the outboard end of the left drive shaft and secure it in alignment in the same manner.

8. Install tightener assembly on transmission bracket and place tension arm over shaft as shown. Secure with spring pin. Then hook tension spring between tension arm and cotter pin installed in top of transmission frame.



9. Route transmission drive chain over center set of sprockets and join ends with connecting link. Route chain under and over idler rollers and check for sufficient chain tension. Refer to Maintenance Section of this manual for chain tension adjustment.

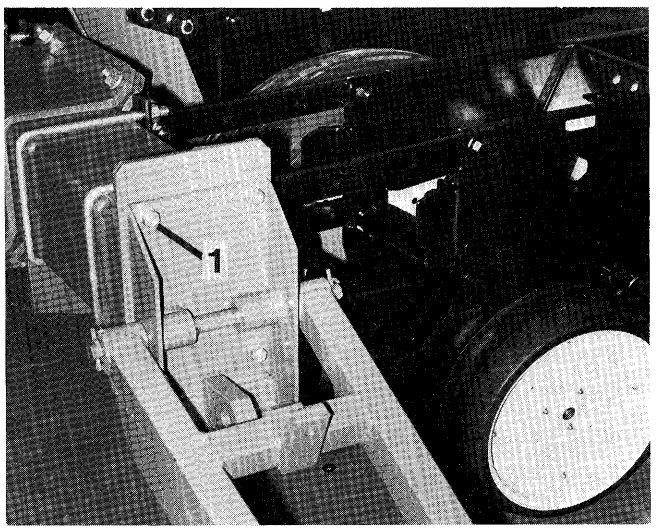


Marker Assembly Installation

Depending upon the size of the planter bar, the marker assemblies will be either a conventional or double folding low profile design. Refer to model configurations following "Introduction" for the type of marker used on each model.

Conventional Marker Assembly

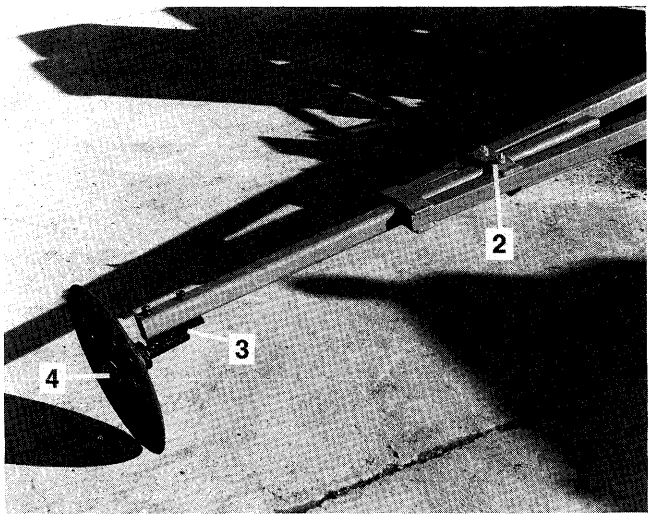
1. The marker mounting brackets and frame assemblies are preassembled and are interchangeable between the right and left sides. Attach bracket to mounting pad on end of planter bars with four ½" × 1½" hex head cap screws, lock washers, and hex nuts.



2. Slide marker extension tubes into marker assemblies and secure in place by tightening two ½" × 3½" cap screws. Final position of the extension must be set by the operator and is discussed in the operation section of this manual.

3. Attach hub and spindle assembly to the lower side of the marker extension tube with ½" × 3½" cap screws and hardware supplied with spindle.

Note: The marker hub is designed for either right or left hand installation. Make sure the spindle is mounted to angle the disk forward for normal operation. The spindle and bracket assembly has slotted mounting holes which allow the angle of the blade to be increased or decreased.

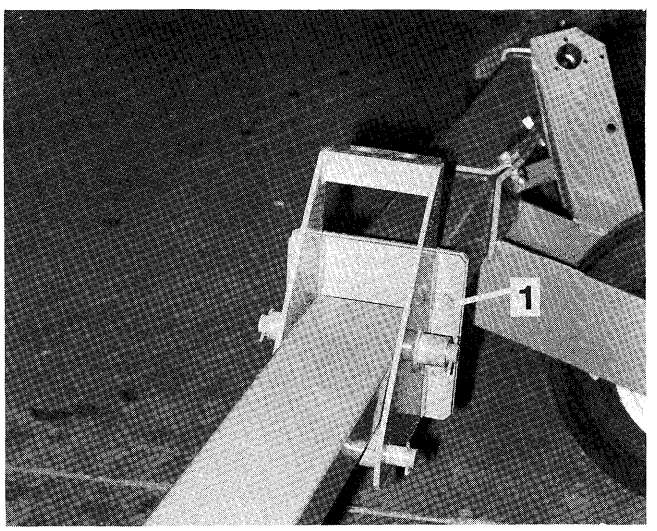


4. Using the bolts pre-assembled in the hub, attach the 16" disk to throw dirt out away from hub and grease seals. Be sure to alternate bolts while tightening to avoid distorting the disk's shape or breaking the marker hub.

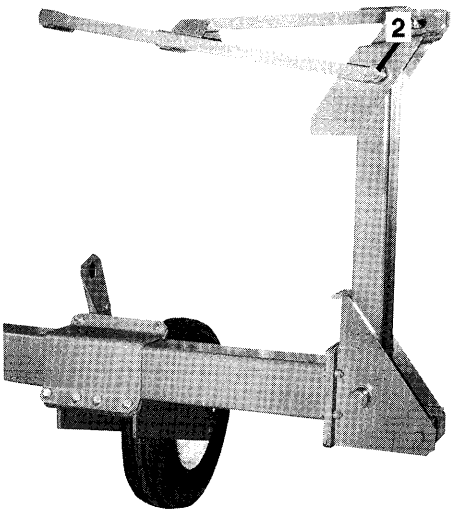
5. Install safety lock-up pins in brackets and install roll pin through bottom hole to prevent removal. Install safety hairpin through pin to retain in lock-up position.

Double Folding-Low Profile Marker Assembly

1. Install pre-assembled mounting bracket/first stage to mounting pad on end of planter bar with four ½" × 1½" cap screws, lock washers and hex nuts. This assembly is interchangeable between the right and left sides.



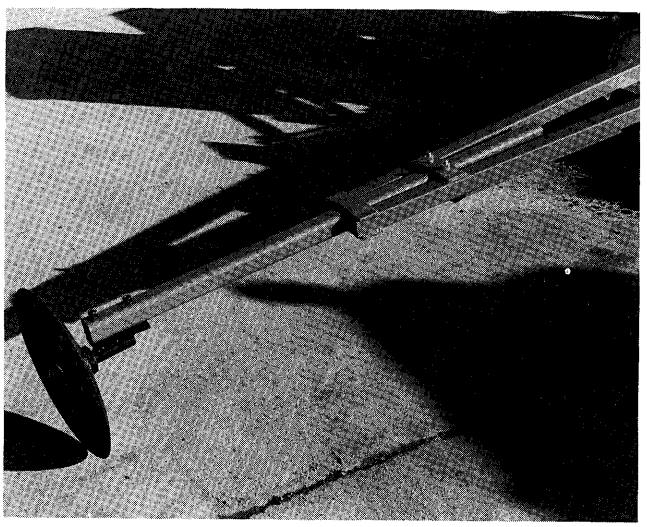
2. Attach second stage of marker to first stage with 1¼" × 9½" pivot pin and cotter pins.



3. Slide marker extension tube into second stage assembly and secure in place by installing and tightening two ½" × 3½" cap screws, lock washers and hex nuts. Final position of the extension tube must be set by the operator. Refer to the Operation Section of this manual.

4. Attach hub and spindle assembly to the lower side of the extension tube with ½" × 3½" cap screws and hardware supplied with spindle.

Note: The marker hub is designed for either right or left hand installation. Make sure the spindle is mounted to angle the disk forward for normal operation.



5. Using the bolts pre-assembled in the hub, attach the 16" disk to throw the dirt out away from the hub and grease seals. Be sure to alternate bolts while tightening to avoid distorting the disk's shape or breaking the hub.

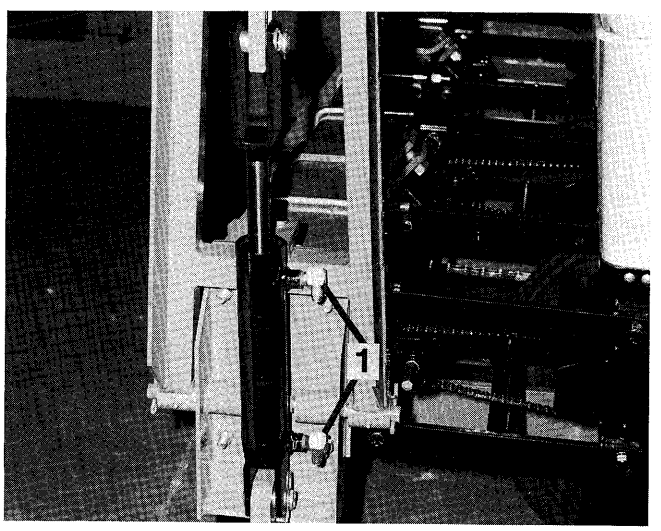
Marker Hydraulics

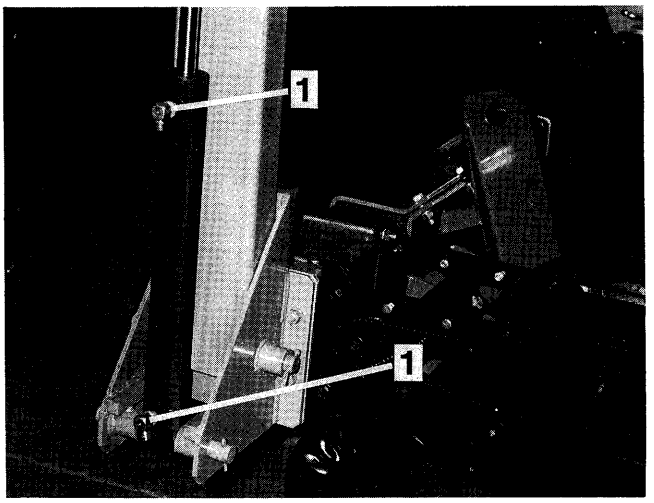
Both the single and double folding marker assemblies on all planter bars are hydraulically operated. Both pull type and mounted units may be operated with single or dual tractor outlets depending upon the planter's hydraulic system.

Mounted planter bars may be set up to use a separate pair of tractor outlets for each marker, or an optional sequencing valve may be installed to operate both markers from the same outlet. Pull type and double frame planters are available with a single or double valve hydraulic system. The double valve system requires dual hydraulic outlets on the tractor. One pair of outlets is used to power the planter lift system, while the second outlet is used entirely for the marker system. The single valve system ties the marker cylinders in with the planter bar lift system. As the planter bar is raised, one of the marker assemblies is also lifted. Marker assemblies then alternate raising and lowering each time the planter bar is raised and lowered.

Proceed with installation of the marker cylinders and hydraulic system as follows:

Warning: Always leave the marker assembly laying horizontally or secured with safety pin when installing hydraulics. Never rely on the hydraulic cylinder to hold the marker in the raised or folded position while working on or around planter.





1. Install 90° 3/8″ male pipe × 9/16″-18JIC elbow in each port of 2″ × 8″ conventional hydraulic cylinder...or 90° ½″ NPT × ¾″-16JIC elbow in each port of 2½″ × 20″ low profile hydraulic cylinder.

2. Attach base end of cylinder to marker mounting bracket. Then turn elbow fittings, if necessary, to project rearward and down.

3. Attach hoses to each elbow, routing them around the back of the marker and along the frame bar.

4. Assemble sequencing valve, flow control valves, and fittings as shown for your particular unit. Due to the variations between pull type and mounted planter bars and between single and dual valve systems, refer to the appropriate illustration for correct assembly of all hydraulic hardware.

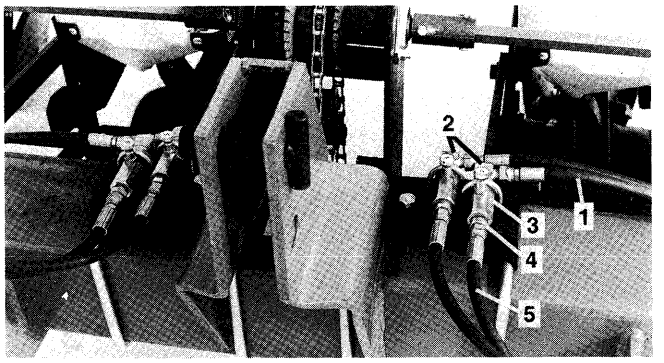
IMPORTANT: The flow control valves must be installed with the arrows pointed toward the tractor.

CAUTION: Before the marker assembly is first put into use, the flow control valves must be adjusted to prevent damage to the marker assembly. Loosen the lock nut on each knurled adjustment knob and screw the adjustment all the way closed. Then open each valve approximately ½ turn. After the marker has been cycled several times, final adjustments can be made.

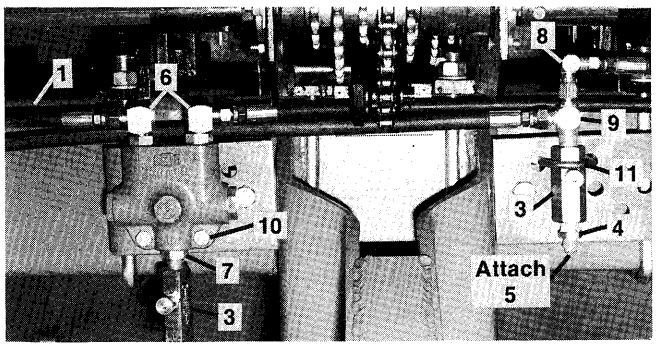
Before operating the marker assemblies, first connect all hydraulic hoses and cycle the cylinder several times with the ram end disconnected to purge air from the system. After the cylinders are operating smoothly, attach the ram end clevis to the marker arm.

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

Mounted Planter Bar Hydraulic System



Dual Valve System

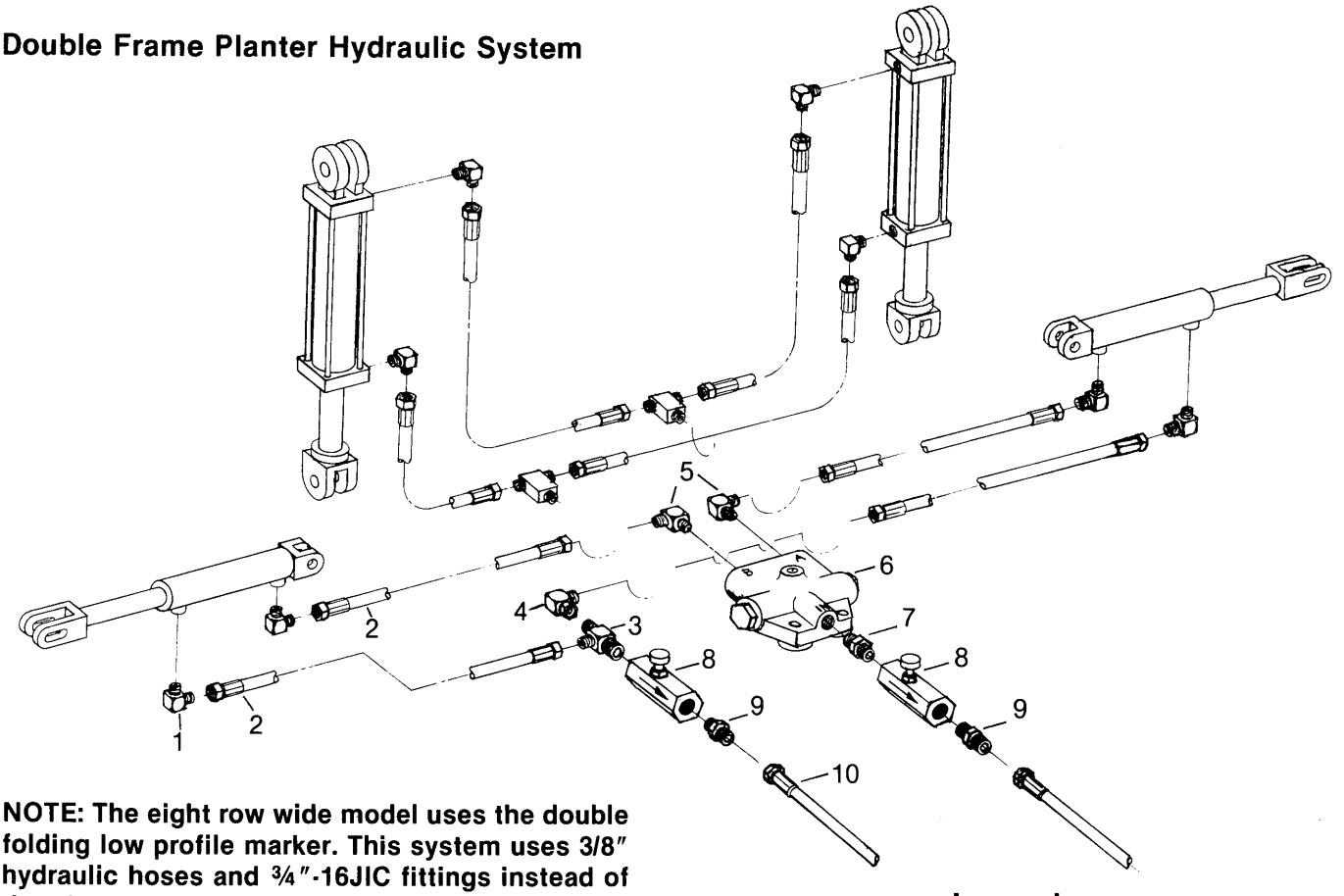


Single Valve System

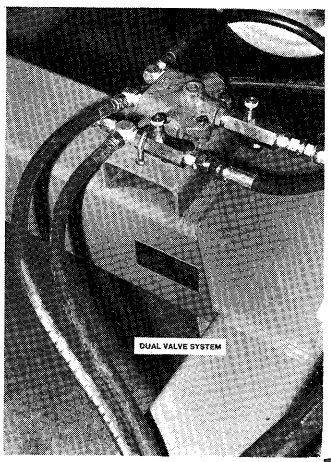
Legend

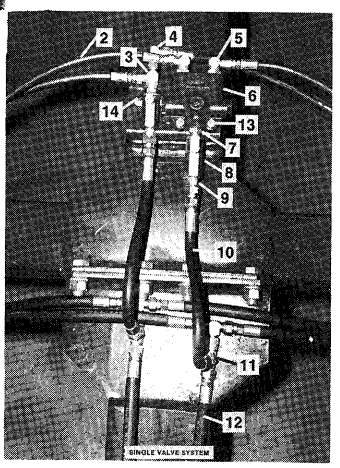
1. 1/4" Hydraulic Hose w/9/16"-18JIC Swivel Both Ends (4 used)
   4 Row Wide-95" 6 Row 30"-110"
   3/8" Hydraulic Hose w/¾"-16JIC Swivel Both Ends (4 used)
   6 Row Wide-146" 8 Row 30"-156"
2. 90° 3/8" NPT x 9/16"-18JIC Elbow (4 Row Wide and 6 Row 30")
   90° 3/8" NPT-3/4"-16JIC Elbow (6 Row Wide and 8 Row 30")
3. KLF 375 Flow Control Valve
4. 3/8" NPT x 9/16"-18JIC Straight Adapter
   3/8" NPT x 3/4"-18JIC Straight Adapter
5. 1/4" x 48" Hose 1/2" NPT-9/16"-18JIC Swivel (4 Row and 6 Row 30")
   3/8" x 48" Hose 1/2" NPT-3/4"-16JIC Swivel (6 Row Wide and 8 Row 30")
6. 90° 3/4"-16 O-Ring x 9/16"-18JIC Elbow (4 Row and 6 Row 30")
   90° 3/4"-16 O-Ring x 3/4"-16JIC Elbow (6 Row Wide and 8 Row 30")
7. 3/4"-16 O-Ring x 3/8" NPT Straight Adapter
8. 90° 9/16"-18JIC Swivel Elbow (4 Row and 6 Row 30")
   90° 3/4"-16JIC Swivel Elbow (6 Row Wide and 8 Row 30")
9. 3/8" NPT x 9/16"-18JIC Tee (4 Row and 6 Row 30")
   3/8" NPT x 3/4"-16JIC Tee (6 Row Wide and 8 Row 30")
10. 3/8" x 2" Cap Screw
11. 5/16" U-bolt, Flat Washer, Lock Washer, Hex Nut

Double Frame Planter Hydraulic System



NOTE: The eight row wide model uses the double folding low profile marker. This system uses 3/8" hydraulic hoses and ¾"-16JIC fittings instead of the 9/16"-18JIC fittings called out below.

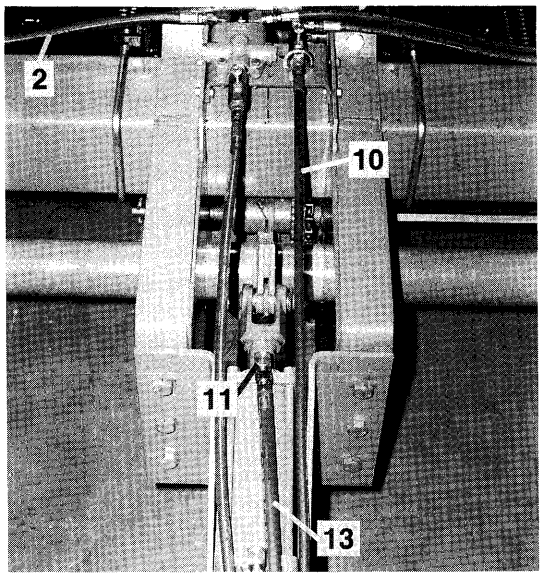




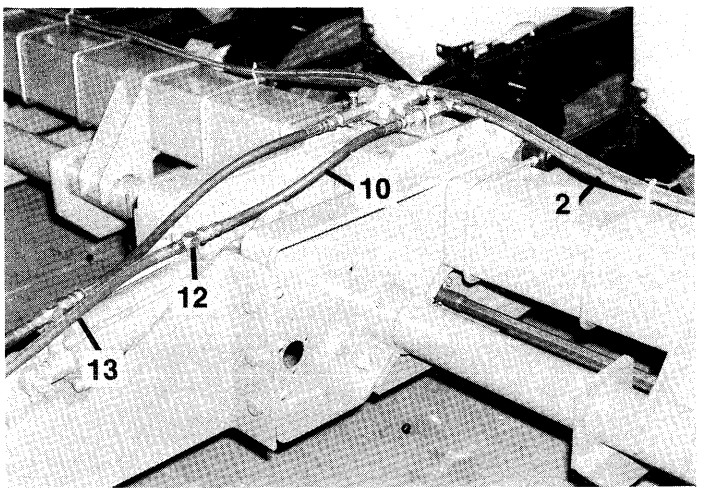
Legend

1. 3/8" NPT x 9/16"-18JIC Elbow
2. 1/4" Hydraulic Hose w/9/16"-18JIC Swivel Both Ends
   4 Row Wide-110" 8 Row 30"-150"
   6 Row 30"-125" 8 Row Wide-
   6 Row Wide-145" 186" (3/8" Hose)
3. 3/8" NPT x 9/16"-18JIC Male Tee
4. 90° 9/16"-18JIC Swivel x 9/16"-18JIC Male Elbow
5. 90° 3/4"-16 O-Ring x 9/16"-18JIC Elbow
6. Sequencing Valve
7. 3/4"-16 O-Ring x 3/8" NPT Straight Adapter
8. KLF 375 Flow Control Valve
9. 3/8" NPT x 9/16"-18JIC Straight Adapter (Dual Valve Except 8 Row Wide)
   3/8" NPT x 3/4"-16JIC Straight Adapter (Single Valve/All 8 Row Wide)
10. 1/4" x 140" Hydraulic Hose 1/2" NPT-9/16"-18JIC Swivel (Dual Valve Except 8 Row Wide)
    3/8" x 140" Hydraulic Hose 1/2" NPT-3/4"-16JIC Swivel (8 Row Wide Dual Valve)
    3/8" x 15" Hydraulic Hose 3/4"-16JIC Swivel, Both Ends (All Single Valve)
11. 3/4"-16JIC Swivel Tee
12. 3/8" x 135" 1/2" NPT to 3/4"-16JIC Swivel Hydraulic Hose
13. 3/8" x 2" Cap Screw
14. 5/16" U-bolt, Flat Washers, Lock Washers, Hex Nuts

Pull Type Planter Hydraulic System

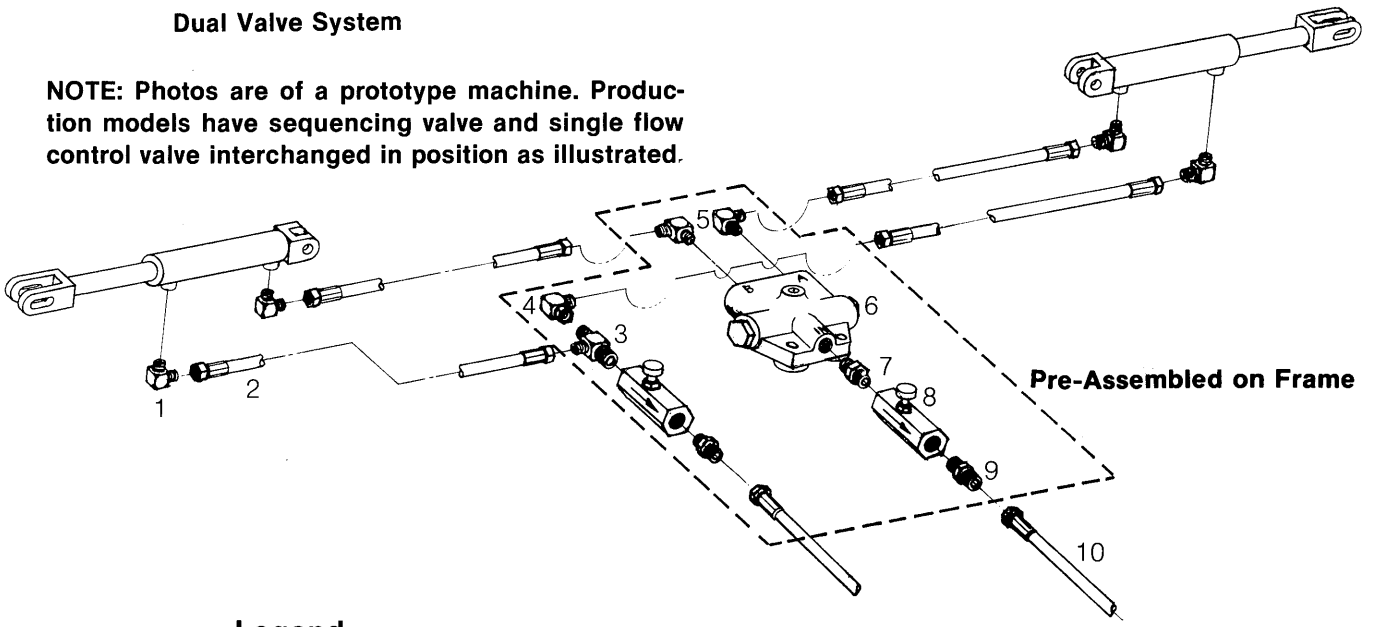


Dual Valve System



Single Valve System

NOTE: Photos are of a prototype machine. Production models have sequencing valve and single flow control valve interchanged in position as illustrated.



Pre-Assembled on Frame

Legend

1. 3/8" NPT x 9/16"-18JIC Swivel Elbow
2. 1/4" Hydraulic Hose w/9/16"-18JIC Swivel Both Ends
   4 Row 30"-95" — 6 Row Wide-130"
   4 Row Wide-95" — 8 Row 30"-140"
   6 Row 30"-110"
3. 3/8" NPT x 9/16"-18JIC Male Tee
4. 90° 9/16"-18JIC Swivel x 9/16"-18JIC Male Elbow
5. 90° 3/4"-16 O-Ring x 9/16"-18JIC Elbow
6. Sequencing Valve
7. 3/4"-16 O-Ring x 3/8" NPT Straight Adapter
8. KLF 375 Flow Control Valve
9. 3/8" NPT x 3/4"-16JIC Straight Adapter (Single Valve)
   3/8" NPT x 9/16"-18JIC Straight Adapter (Dual Valve)
10. Double Valve Systems-1/4" x 140" Hose w/9/16"-18JIC x 1/2" NPT
    Single Valve System-3/8" x 20" Hose 3/4"-16JIC Swivel, Both Ends (Connected to Flow Control Valve)
    3/8" x 27" Hose 3/4"-16JIC Swivel, Both Ends (Connected to Sequencing Valve)
11. 1/2" NPT x 3/4"-16JIC Elbow
12. 1/2" NPT x 3/4"-16JIC Tee
13. 3/8" x 105" and 3/8" x 117" Hose w/1/2" NPT x 3/4"-16JIC Swivel
14. 3/8" x 2" Cap Screw
15. 5/16" U-bolt, Flat Washers, Lock Washers, Hex Nuts

Decal Installation

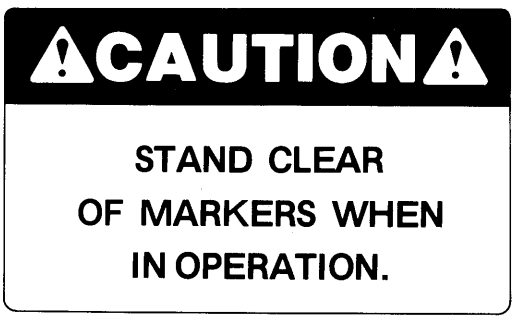
Upon completion of the planter bar set up, the decals should be installed in the locations specified below for each model.

"WARNING: Tow Only With Farm Tractor" (Double Frame and Pull Type Planter Bar Only)

Apply to top of tongue directly behind hitch clevis.

"CAUTION: Stand Clear of Markers When In Operation"

Apply decal to the front side of the toolbar just inside of the marker mounting plate on each side. The decal should be centered on the bar.



Kinze Decal (Mounted Planter Bar Only)
Center between U-bolts of outside row units on front of 7″ × 7″ toolbar.

Serial Number Plate

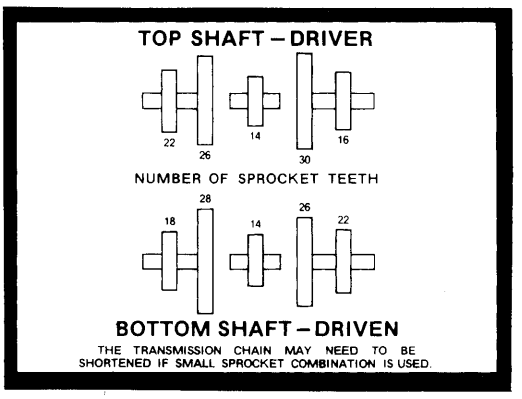
Double Frame Planter—Install on right hand side of 7″ × 7″ frame connecting tube directly below marker assembly sequencing and flow control valves.

Pull Type Planter Bar—Install on front side of 7″ × 7″ toolbar between center section side panels, directly behind lift linkage.

Mounted Planter Bar—Install on front side of 7″ × 7″ toolbar directly below top link mounting bracket.

Transmission Sprocket Diagram (Double Frame and Mounted Planter Bars only)

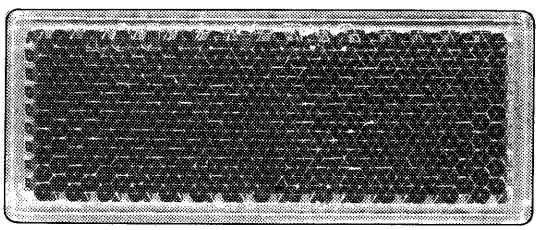
Apply decal to the top of the planter bar, centered between the transmission mounting U-bolts so the decal may be read while standing behind the planter. The double frame planter has one decal provided for each transmission.



Reflectors

Amber—Apply to front lower portion of marker arm on each side.

Red—Apply to rear corner of hopper support on outside row unit on each side.



OPTIONAL EQUIPMENT ASSEMBLY

Regular Duty Down Pressure Springs

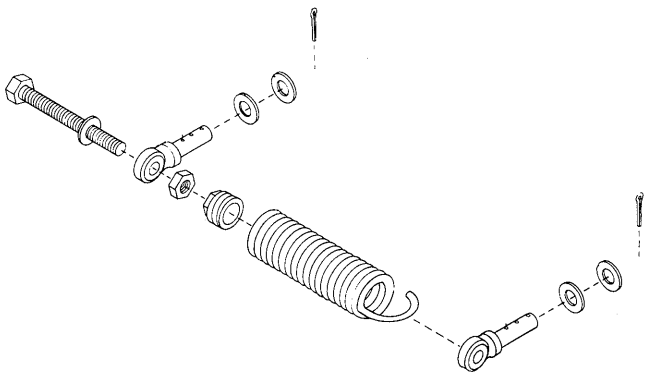
If extra row units are to be installed between the regularly spaced planter units, the springs should be installed on the inside of the row unit frame. Otherwise, they should be installed on the outside of the frame as instructed below:

1. Install eyebolt in top and bottom support arms with a flat washer on each side of support and secure in place with cotter pin.

2. Hook down pressure spring in lower eyebolt.

3. Place flat washer on 7/16″ × 4″ full thread capscrew and install through top eyebolt, 7/16″ jam nut and spring plug. Tighten bolt until sufficient down pressure is obtained.

Important: Make sure length of stretched spring is equal on each side of row unit. Spring tension must be further adjusted by the operator to match ground conditions.



Heavy Duty Down Pressure Springs

1. Install support plate on U-bolts directly behind support angles as part of row unit installation procedure. (The support plate is held in place with the same hardware that is used to attach row unit.)

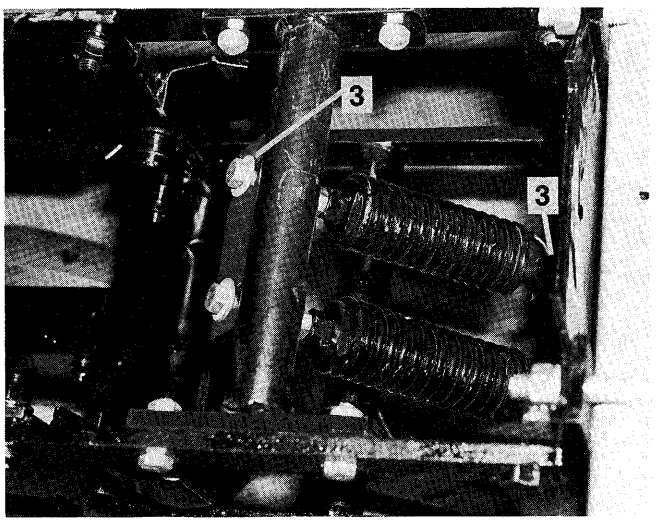
2. Attach spring tube to upper row unit support arms with four-½″ × 1½″ cap screws and locknuts.

3. Hook tension springs to support plates. Then install ½″ × 3″ cap screws, flat washers, and jam nuts as shown; threading cap screw into spring plug.

Note: It may be necessary to lift planter bar to start the bolts into the spring plugs.

4. Equally tighten both adjustment bolts to obtain the desired amount of down pressure tension.

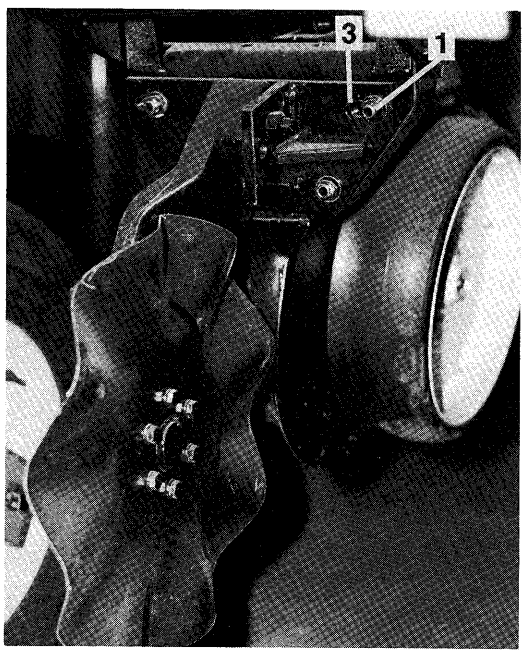
IMPORTANT: It is necessary for the operator to adjust springs for ground conditions. If springs are overtightened , it is possible in some cases that the row units actually lift the planter bar to the point that the drive wheels do not contact the ground sufficiently for proper operation.



Coulters

The heavy duty coulter attachment is available with either a 16″ fluted blade or rippled blade for no till or minimum till planting.

1. Attach coulter bracket to row unit frame with four ½″ × 1¼″ cap screws and locknuts, but do not tighten completely at this time.
2. Install coulter blade with six-3/8″ × 1″ cap screws. Tighten bolts alternately to avoid distorting the blade.
3. Shift mounting bracket within the limits of the adjustment slots until coulter is aligned with row opener disks. Then finish tightening mounting bolts.
4. Three positions are provided for adjustment of coulter operating depth. To change depth position, loosen the locknut that secures the ¾″ × 3½″ cap screw. Then loosen and remove 5/8″ × 4″ cap screw and reposition coulter as desired. Reinstall 5/8″ cap screw and tighten both locknuts securely.



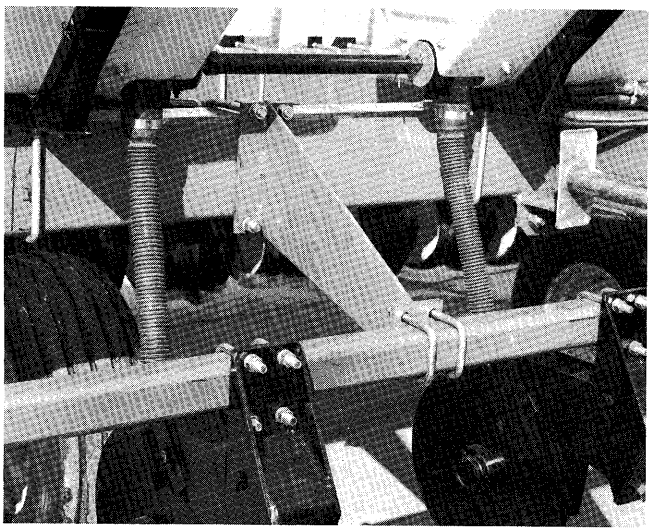
DRY AND LIQUID FERTILIZER ATTACHMENT

The dry and liquid fertilizer attachments on both the double frame and pull type planter bars require the installation of the disk opener bar on the planter frame. Installation of this bar should be done as part of planter assembly, as the bar is positioned between the marker assemblies and the ends of the bar. Attach the disk opener bar as follows for each model.

Fertilizer Bar Installation-Double Frame Planter

Install each end of the single piece bar between the planter bar ends and the marker assemblies. Install two 7″ × 7″ × 5/8″ U-bolts around the planter bar tongue and through the opener bar bracket to support the center of the opener bar.

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 on each side. Each stabilizer bar is attached to the tool bar with two 5″ × 7″ × 5/8″ U-bolts, lock washers and hex nuts. Attach the opener bar end with two 2½″ × 2½″ × ½″ U-bolts.



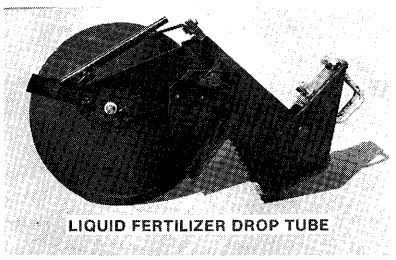
Fertilizer Bar Installation-Pull Type Planter

Attach right and left disk opener bars by installing the outer end of each bar between the planter bar end and the marker assembly. The inside end of each opener bar is attached to the tongue and center section with the ¾″ tongue mounting bolts.

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″ × 1″ cap screw and locknut.

DRY FERTILIZER DROP TUBE

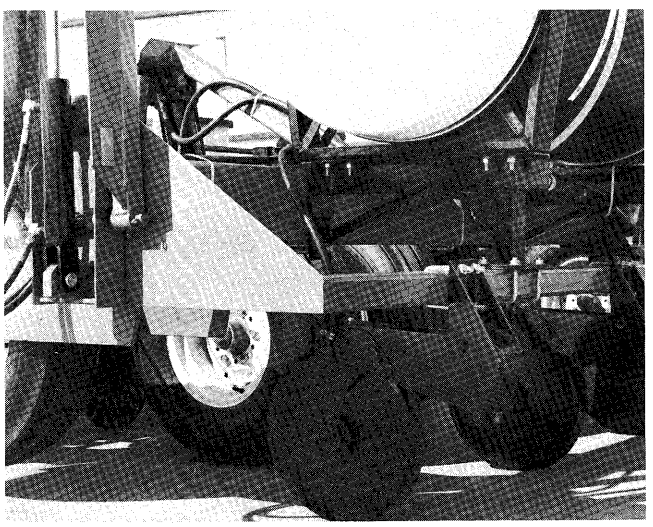


LIQUID FERTILIZER DROP TUBE

Note: One disk removed for clarity

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

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



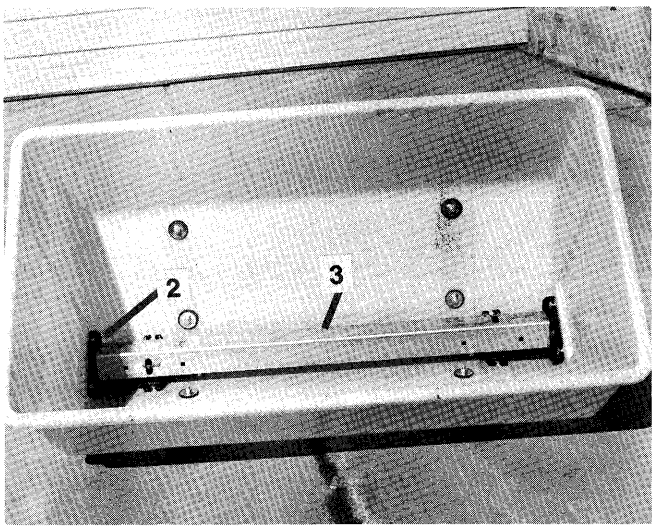
Installation of Dry Fertilizer Attachment

Hopper and Transmission Installation

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

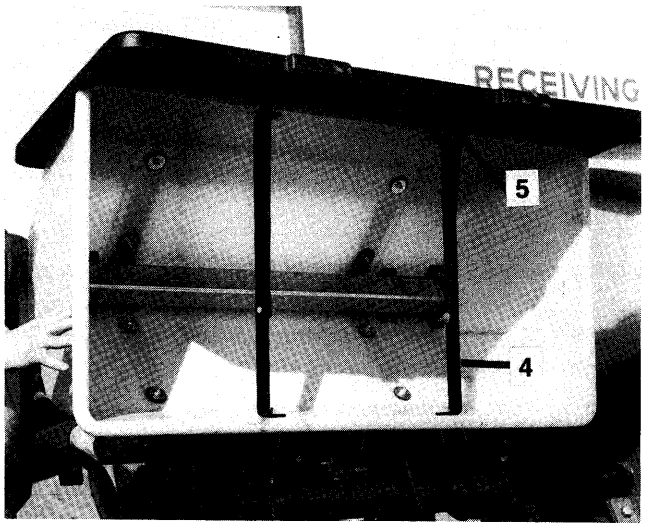
NOTE: On pull type planters equipped with heavy duty down pressure springs, it may be necessary to notch the top corner of the spring plate in order to bolt the hopper support bracket in place.

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.



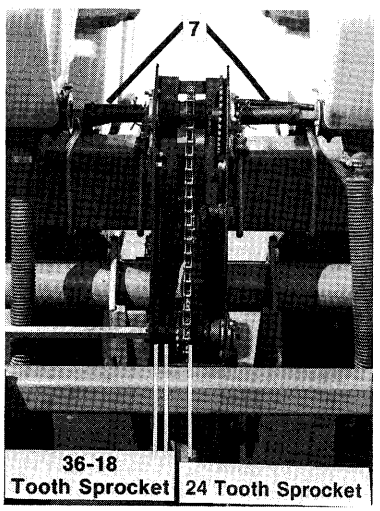
3. Install auger shields over augers and secure in place with two hair pins on each.

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 outside 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″ × 3″ clevis pins and cotter pins.

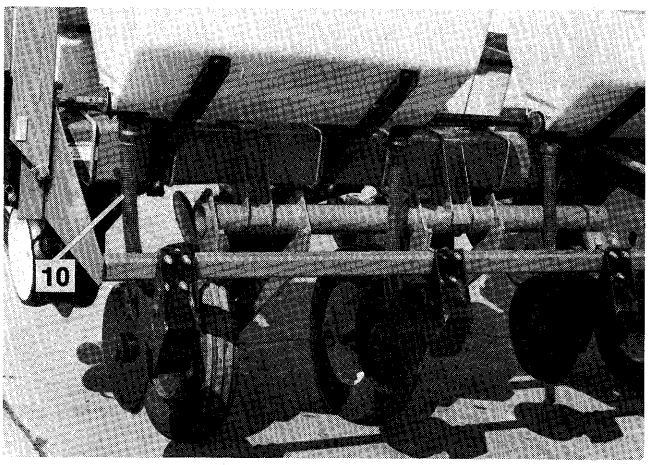


7. Install coupler/drive shafts beginning at the transmission and working outward toward each end. Slide the square end of the coupler over the auger shaft so that at least ¾″ or more of the shaft extends into the coupler. Attach opposite end of the coupler/drive shaft with 3/16″ cotter pin. Four holes in the auger shaft allows for 1½″ 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 toward the transmission.

8. Once the coupler/drive shafts have been connected, bolt the rear of the hopper saddle to the hopper support with two ½″ × 1¼″ cap screws.

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

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

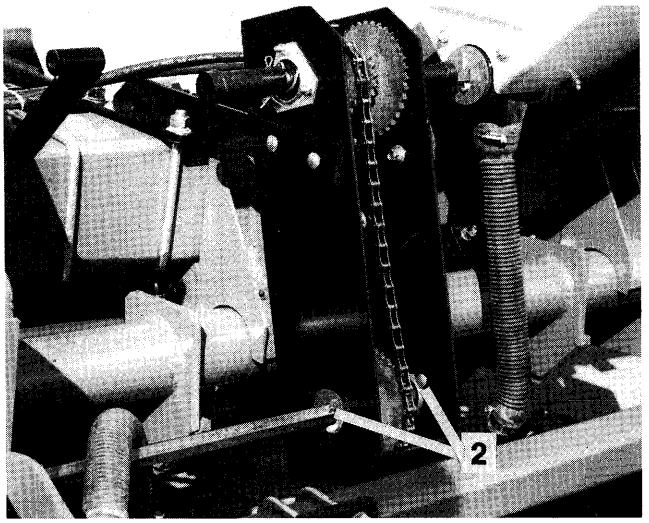


Transmission Drive-Pull Type Planter (4 Row Models)

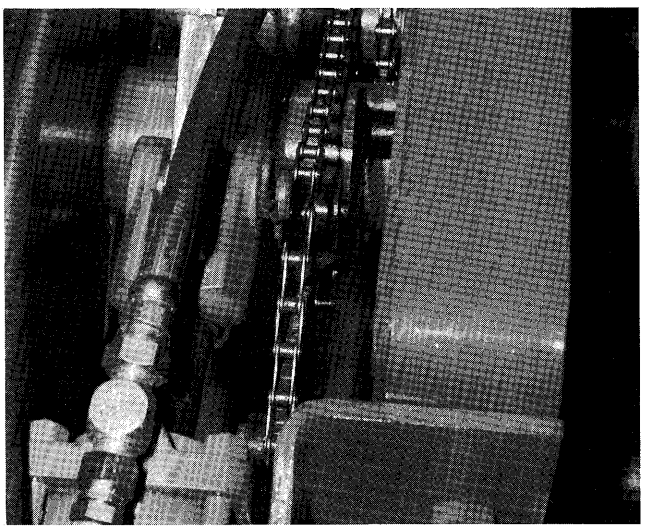
The lower transmission shaft is installed after the transmission is positioned on the frame. The lower shaft extends from the transmission to just inside the side plate of the center section of the planter.

1. Install flangettes and bearing on the inside of the left center section side plate.

2. Install lower transmission shaft through transmission sprockets and center section side plate bearing. Only one flangette bearing is used on the lower transmission shaft (positioned on the outboard side). The sprockets and rubber spacers are held in position by a large flat washer and ¼″ cotter pin installed on the inboard side of the transmission.



3. From inside the center section, install ¾" spacer, 46 tooth sprocket and ¼" × 1½" cotter pin. The sprocket should line up with the 12 tooth drive sprocket in the clutch assembly on the planter drive shaft.



4. Attach chain idler to the left side plate (in hole provided) with ½" × 2½" carriage bolt.

5. Install 48 link #2040 drive chain between clutch assembly and fertilizer transmission drive. Route chain under the planter axle, around the clutch sprocket and over the idler on side plate. Pivot idler bracket upward to sufficiently tension chain.

Transmission Drive-Pull Type Planter (6 Row Models)

The 6 row 30" pull type planter bar requires a special transmission drive configuration which permits proper installation and operation of the double disk openers.

1. Attach right and left transmission mounting brackets to planter bar with 7" × 7" × 5/8" U-bolts.

2. Attach top of transmission case to mounting brackets. Then use 2½" × 2½" × ½" U-bolt and bracket to attach bottom of transmission to fertilizer bar. (Attach mounting bracket to the inboard side of the transmission case.)

3. Attach "L" shaped bearing support and idler bracket to the rear side of the center section mounting flange using the top ¾" × 2½" tongue mounting bolt.

4. Assemble two 7/8" hex bore bearings and flangettes and install on the inside of both right and left center section side panels.

5. Install 7/8" × 16" hex shaft through left side panel bearing and slide ¾" spacer, 46 tooth sprocket and 7/8" lock collar onto shaft. Then extend shaft on through right side panel bearing. Slide 3½" spacer, 32 tooth sprocket and 7/8" lock collar onto the end of the shaft that protrudes from the left side of the center section. (See accompanying illustration.)

6. Install chain idler with bracket to inside of left center section side plate (in hole provided) with ½" × 2½" carriage bolt.

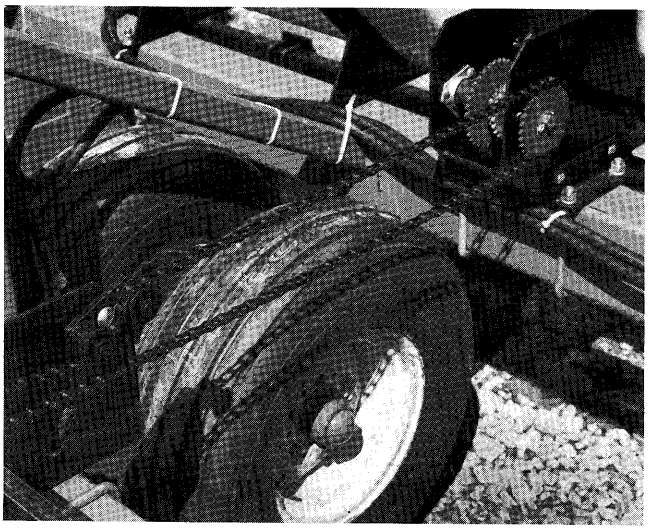
7. Assemble bearings and flangettes on outboard side of "L" shaped bearing support. Then install lower transmission shaft and 32 tooth drive sprocket and lock collar. Refer to step 2 of preceeding procedure which applies to transmission drive on other pull type models.

8. Install 48 link drive chain between clutch assembly and fertilizer transmission drive. Route chain under the planter axle, around the clutch sprocket and over the idler on side panel. Pivot idler bracket upward to sufficiently tension chain.

9. Install transmission drive chain as instructed on the following page.

Transmission Drive-Double Frame Planter

1. Disconnect planter drive shaft from left row unit transmission and slide 16 tooth sprocket and lock collar onto shaft. Slide sprocket against bearing support bracket in center of rear bar and secure in place with lock collar. If necessary, loosen U-bolts on support bracket and reposition to align sprocket with fertilizer transmission.



2. Install idler bracket on bearing support bracket with ½" × 1½" cap screw. Position internal-external washer, flat washer and second internal-external washer between idler and bearing support and tension the top span of the drive chain.

3. Install 105 link #2040 drive chain between drive shaft and transmission as shown. Adjust idler to tension drive chain. Readjust alignment if necessary.

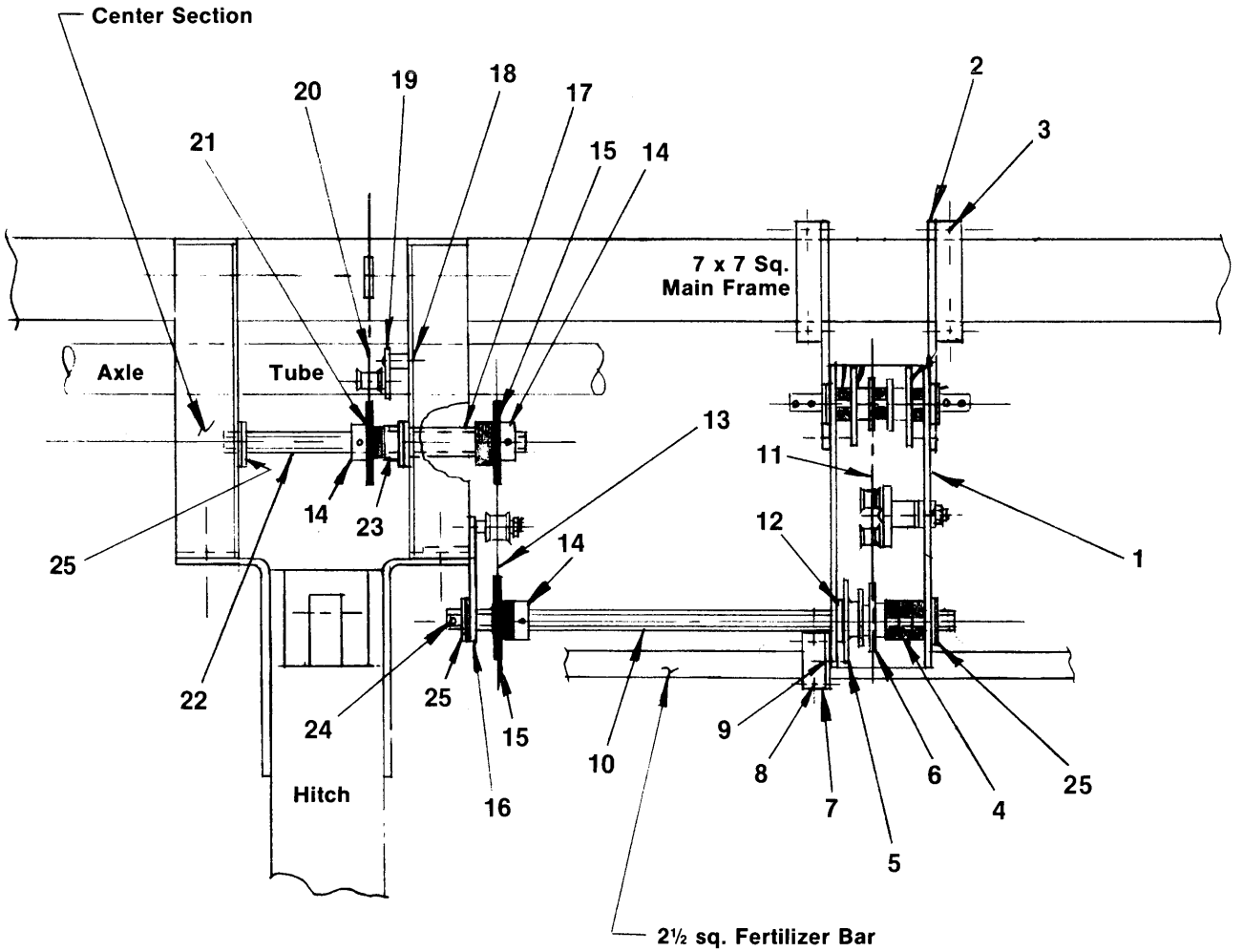
Transmission Drive Chain

1. Select desired sprocket combination with the aid of the fertilizer application rate chart in the "Operation" section.

2. Align selected drive and driven sprockets and install transmission drive chain.

3. Pivot idler against drive chain and tighten securely.

6 ROW PULL TYPE PLANTER
DRY FERTILIZER DRIVE SET UP

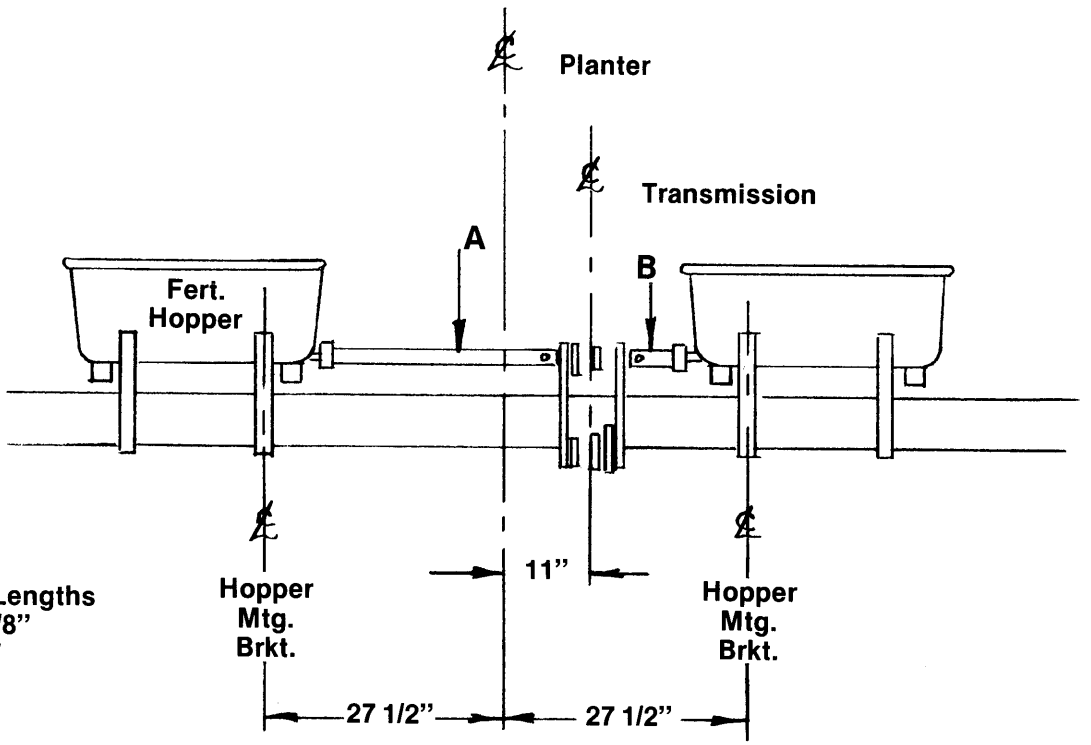


Legend

1. Transmission
2. Mounting Brackets
3. U-Bolts 7 × 7 × 5/8″, Lock Washer & Hex Nut
4. Rubber Spacers
5. Sprocket 18T—36T
6. Sprocket 24T
7. Transmission Support Bracket
8. 2½ × 2½ U-Bolt, Lock Washer & Hex Nut
9. Hex Head Capscrew 3/8″ × 1″, Flat Washer, Lock Washer & Hex Nut
10. Shaft Transmission—Lower 28″—6-Row 30″ Shaft Transmission—Lower 32″—6-Row Wide
11. Chain Assembly 51 Pitch 2040
12. Washer 1″
13. Chain Assembly 40 Pitch 2040
14. Lock Collar Assembly
15. Sprocket 32T
16. Idler Spool and Bearing Bracket
17. Spacer 3½″
18. ½ × 2½ Carriage Bolt
19. Idler Assembly
20. Chain Assembly 48 Pitch 2040
21. 48T Sprocket
22. Hex Shaft 16″
23. Spacer ¾″
24. ¼ × 1¼ Cotter Pin
25. Hex Bore Bearing, Flangettes, and 5/16 × ¾″ Carriage Bolts

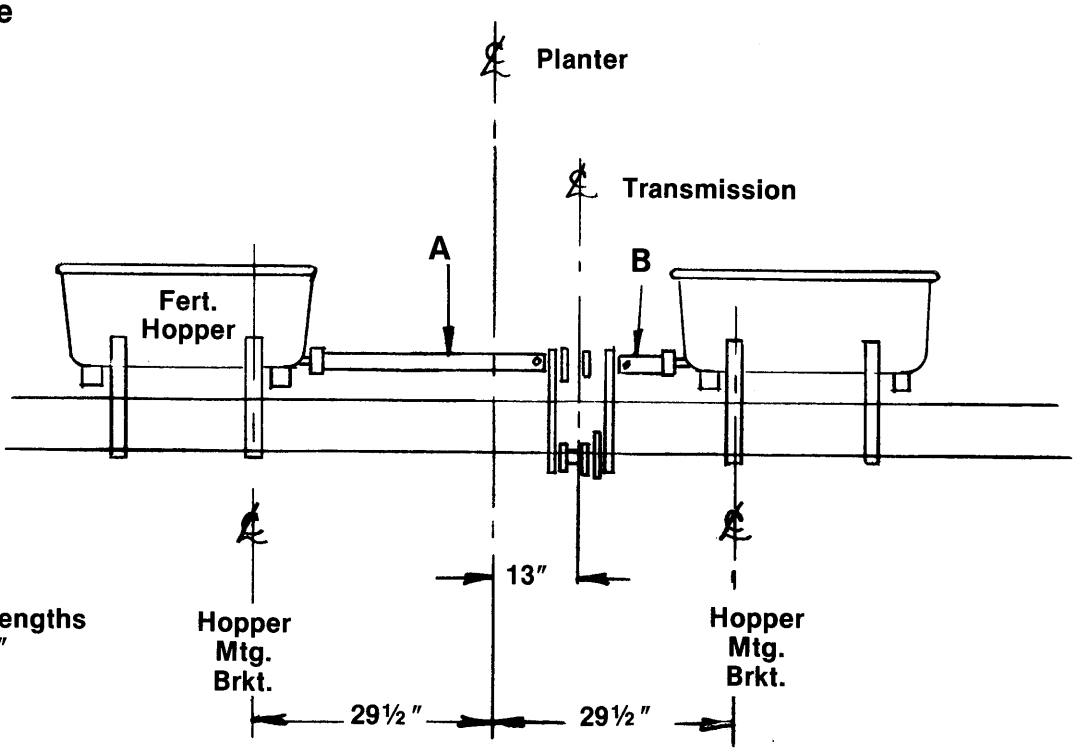
Approximate Dry Fertilizer Hopper & Transmission Locations

PULL TYPE PLANTER
4-Row 30″



Coupler Lengths
A = 24 5/8"
B = 3 1/8″

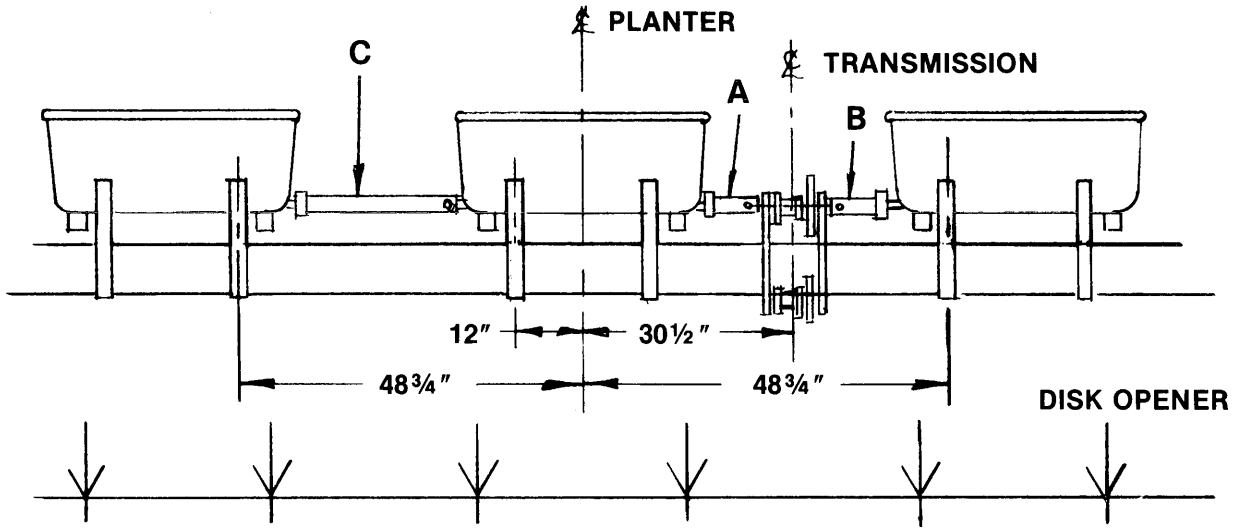
PULL TYPE PLANTER
4 Row-Wide



Coupler Lengths
A = 28 5/8″
B = 3 1/8″

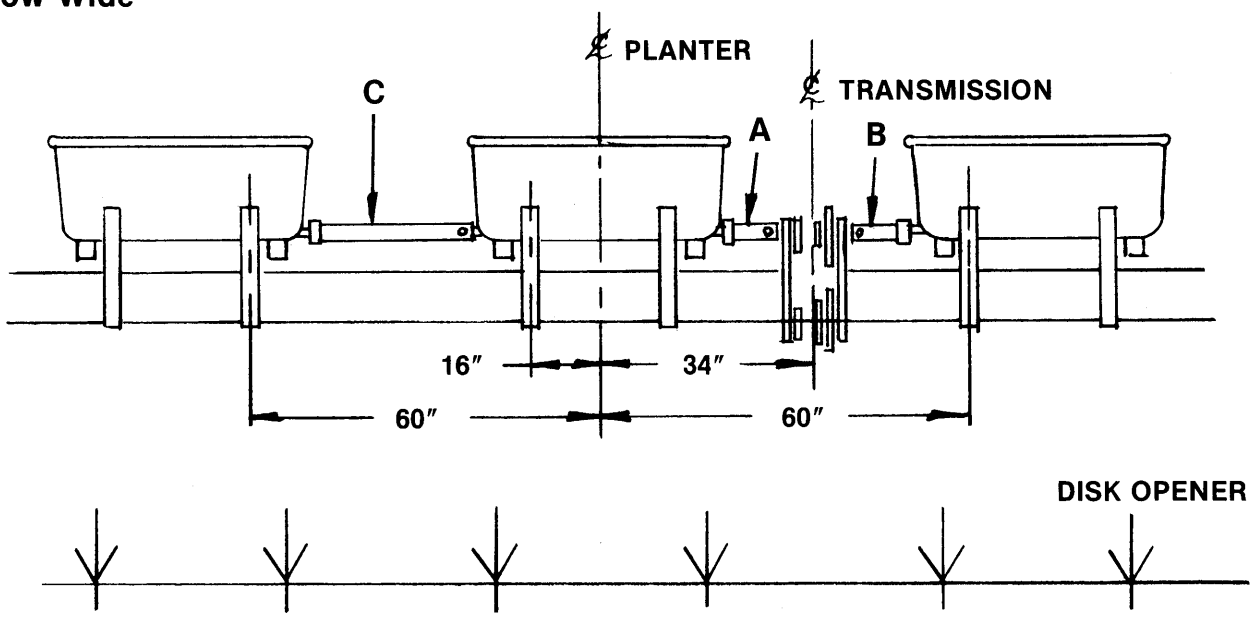
Approximate Dry Fertilizer Hopper & Transmission Location

PULL TYPE PLANTER
6-Row 30″



Coupler Lengths:
A = 4 5/8″
B = 4 5/8″
C = 16 1/8″

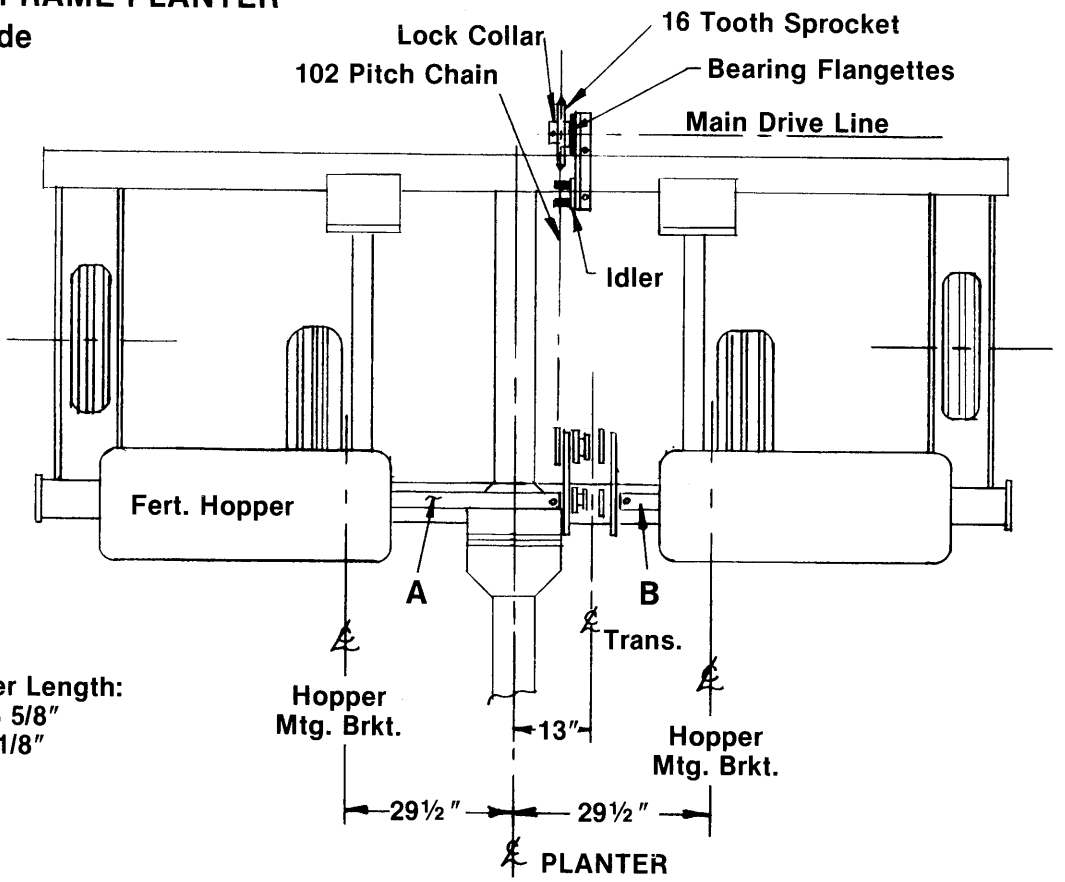
PULL TYPE PLANTER
6-Row Wide



Coupler Lengths:
A = 7 5/8″
B = 7 5/8″
C = 23 1/8″

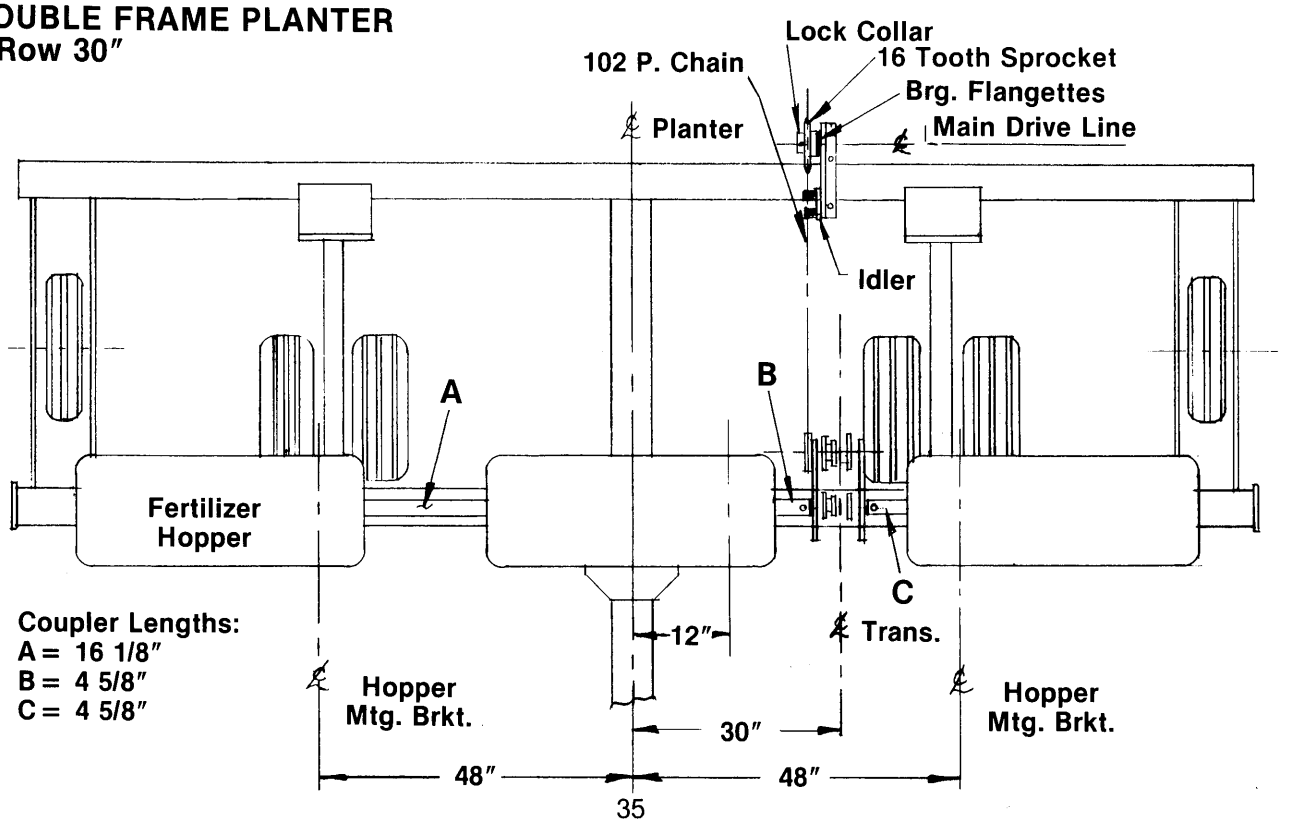
Approximate Dry Fertilizer Hopper & Transmission Location

DOUBLE FRAME PLANTER
4 Row-Wide



Coupler Length:
A = 28 5/8"
B = 3 1/8"

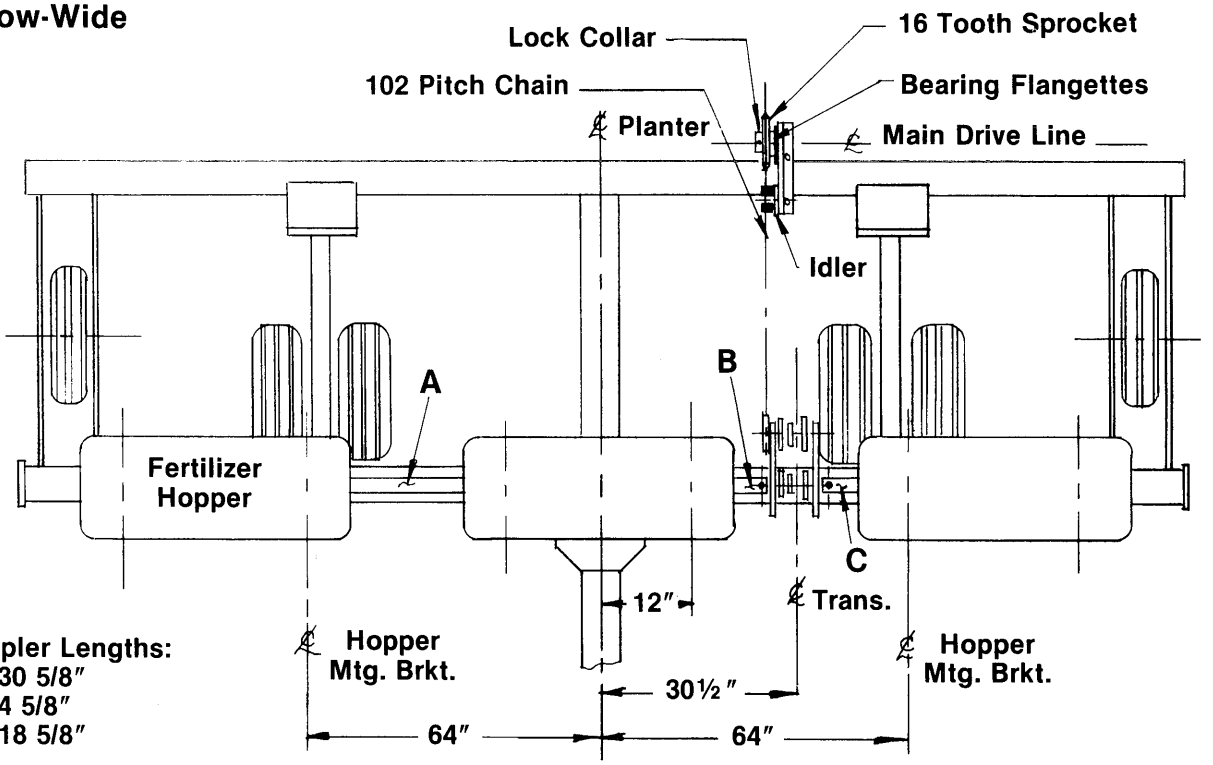
DOUBLE FRAME PLANTER
6-Row 30"



Coupler Lengths:
A = 16 1/8"
B = 4 5/8"
C = 4 5/8"

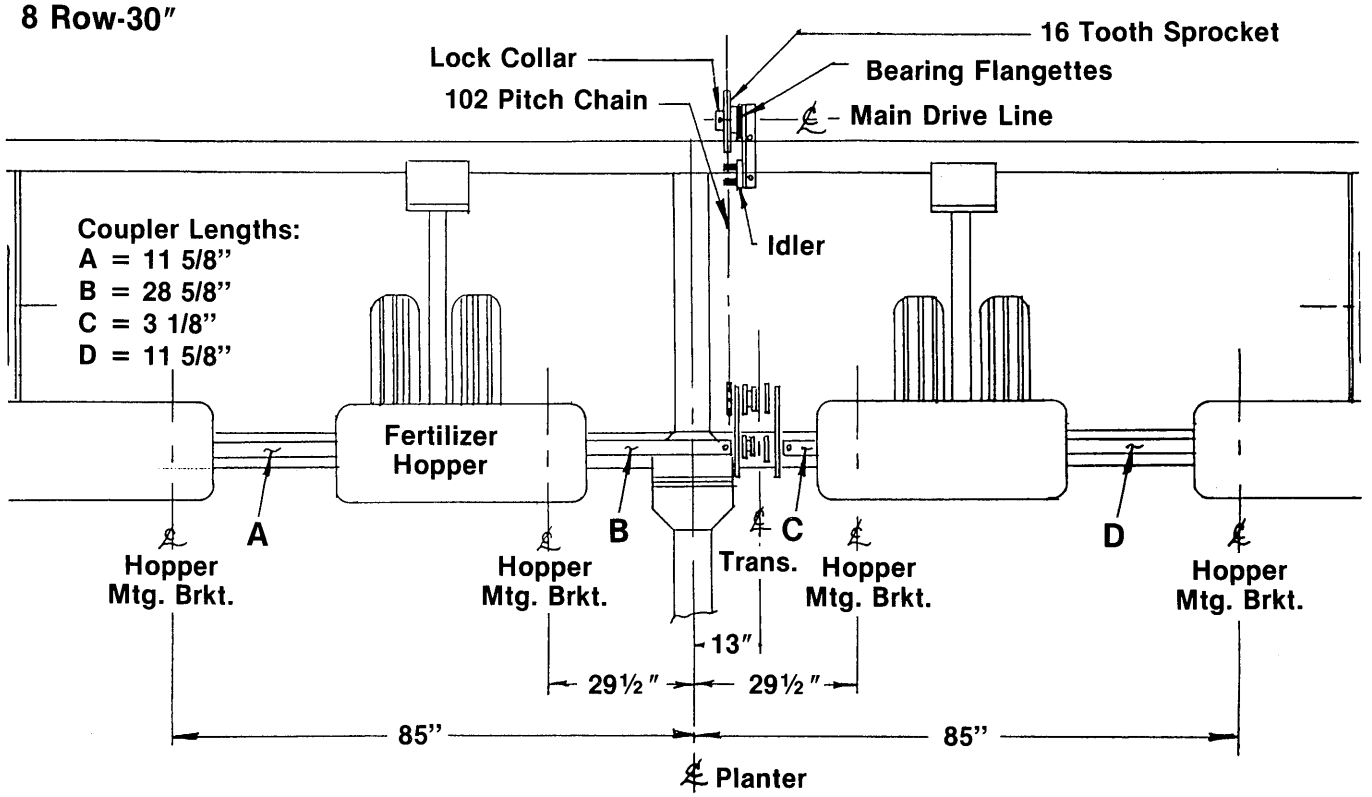
Approximate Dry Fertilizer Hopper & Transmission Locations

DOUBLE BAR PLANTER
6 Row-Wide



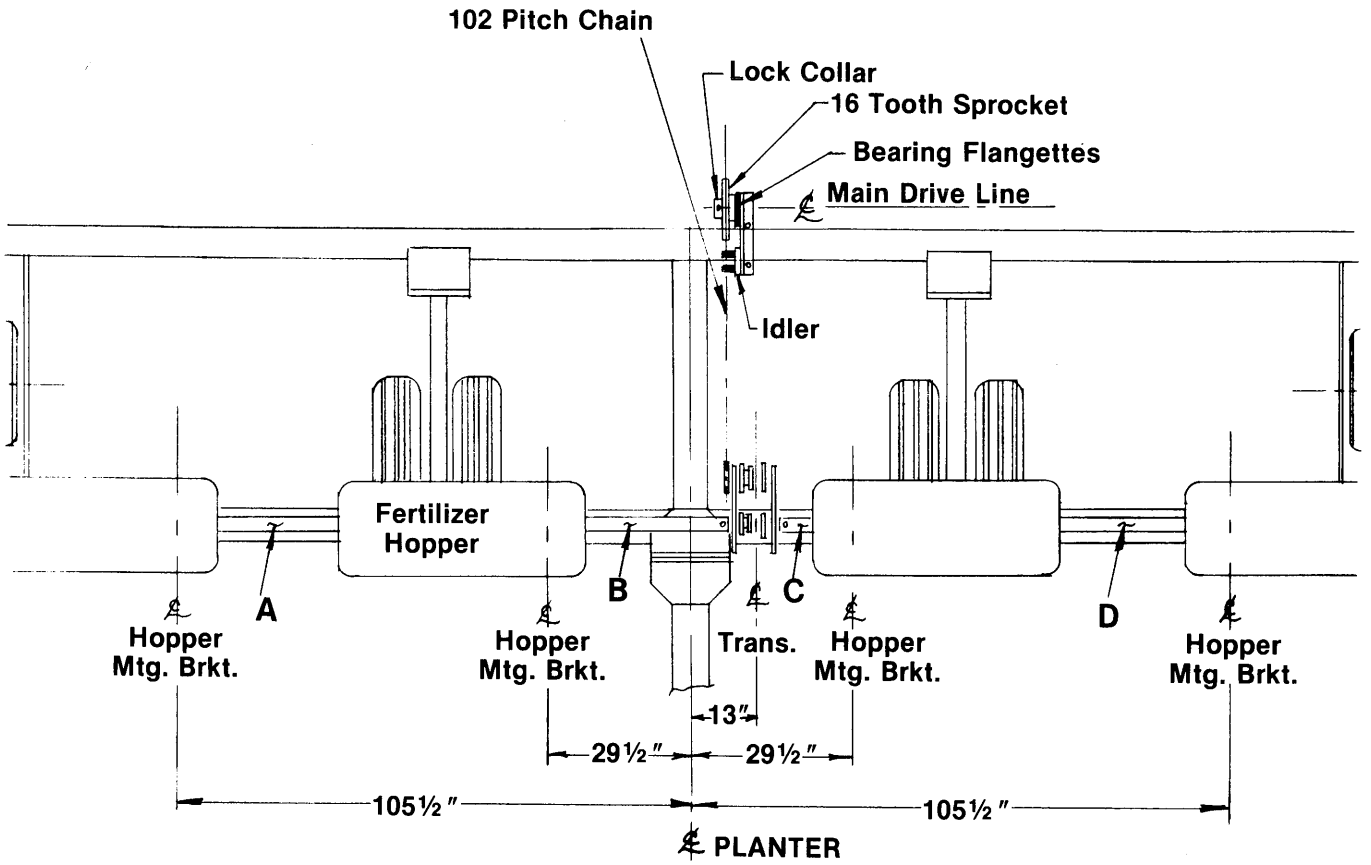
Coupler Lengths:
A = 30 5/8"
B = 4 5/8"
C = 18 5/8"

DOUBLE FRAME PLANTER
8 Row-30"



Approximate Dry Fertilizer Hopper & Transmission Locations

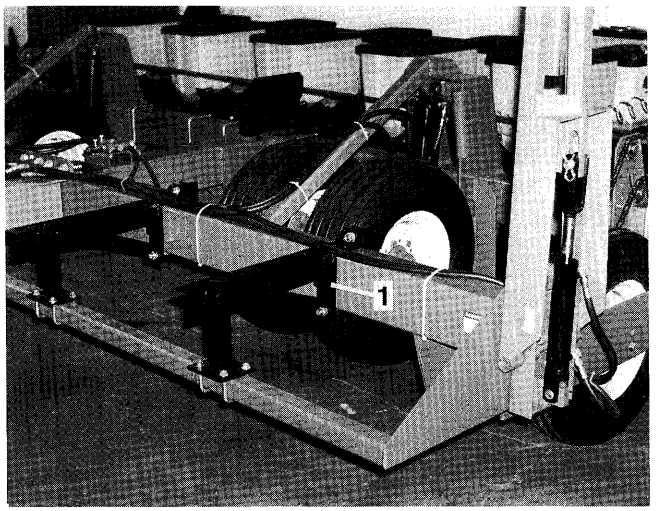
DOUBLE FRAME PLANTER
8 Row-Wide



Coupler Lengths:
A = 30 5/8″
B = 28 5/8″
C = 3 1/8″
D = 30 5/8″

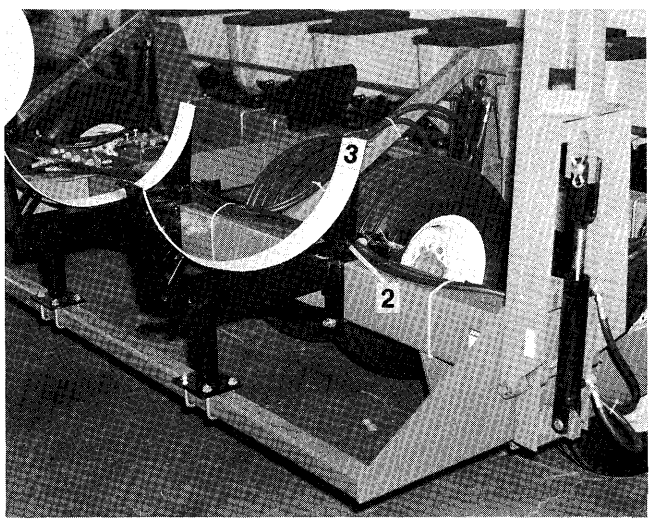
Liquid Fertilizer Attachment—Double Frame Planter Only

Attach two tank saddle brackets for each tank on tool bar and disk opener bar with ½" U-bolts around fertilizer bar and angle bracket and ¾" × 2½" and ¾" × 6" cap screws around tool bar as shown.



2. Attach tank saddle to tank saddle bracket with four ½" × 1½" cap screws.

3. Apply foam tape supplied to surface of tank saddles.



4. Install top and bottom elbows for sight gauge hose in each tank. Attach sight gauge hose to lower fitting and drop sight ball into tube; then attach tube to top fitting.

5. Install outlet elbow in bottom of each tank.

6. Install tank on tank saddle with straps and adjustment bolts as shown.

7. Apply sight gauge tape to each tank as instructed on the end of the tape.

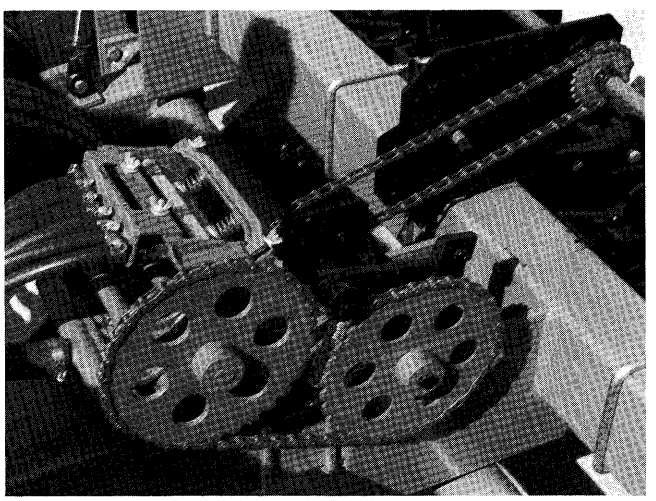
8. Attach squeeze pump and mounting bracket to center tube with two 5/8" U-bolts as shown. Do not tighten at this time.

9. Disconnect drive shaft from left row unit transmission and slide 24 tooth drive sprocket and lock collar onto shaft. Position sprocket against bearing support bracket and secure in place with lock collar.

IMPORTANT: If drive sprocket does not align with squeeze pump drive, loosen U-bolt on bearing support bracket and reposition as necessary.

10. Install drive and driven sprockets on squeeze pump and drive shaft and secure in place with lock collars.

11. Install 50 link chain (#2040) between 24 tooth drive shaft sprocket and squeeze pump drive. Then slide squeeze pump mounting bracket forward to tension drive chain. Tighten mounting bracket U-bolts.



12. Install drive chain between squeeze pump drive and driven sprockets. Swing idler arm down to tension chain and attach tension spring between idler arm and mounting bracket.

Hose and Fitting Installation

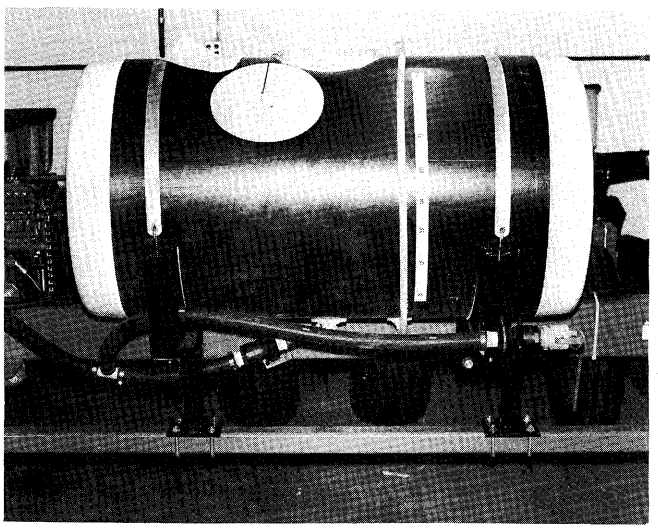
The 1¼" hose for connecting tanks to squeeze pumps is provided in a roll and must be cut to length. Attach hose to each fitting or connection with hose clamps provided.

13. Attach a short piece of 1¼" hose to each outlet elbow and then install adapter fittings and shut-off ball valve.

14. Attach additional 1¼" hose to each ball valve to extend to center of planter bar. Then join hoses from each tank with 1¼" hose barb tee.

15. Cut approximately 2" out of left hose and install second 1¼" hose barb tee. Then attach sufficient length of hose to extend to outer end of tank for quick fill attachment.

16. Install male adapter, 1¼" ball valve and remaining quick fill attachment fittings. Secure quick fill ball valve to tank saddle with ½" U-bolt.



17. Connect 1¼" hose between squeeze pump intake manifold and barb tee which connects tanks. Install rubber plugs in unused manifold inlets.

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

18. 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 rows, first allowing enough hose for up and down movement of disk openers.

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

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 unit and prolong the life of friction producing parts. Those parts equipped with grease fittings should be lubricated at the frequency indicated with an SAE multipurpose type grease. Be sure to clean the fitting thoroughly before using grease gun. The frequency of lubrication recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent attention.

Sealed Bearings

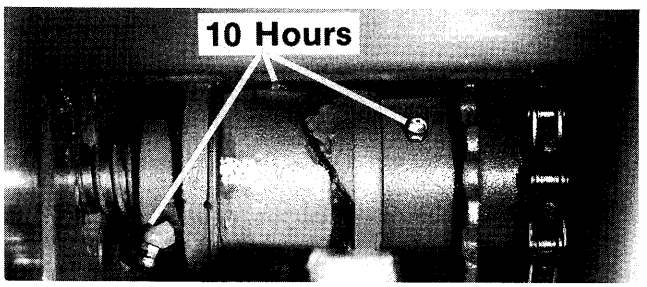
A number of sealed bearings are used on your Kinze Planter Bar to provide trouble free operation. These are located in such areas as the drive shaft, row units, and transmission bearings. Sealed bearings are lubricated for life, and due to the seals, relubrication is not practical.

Drive Chains

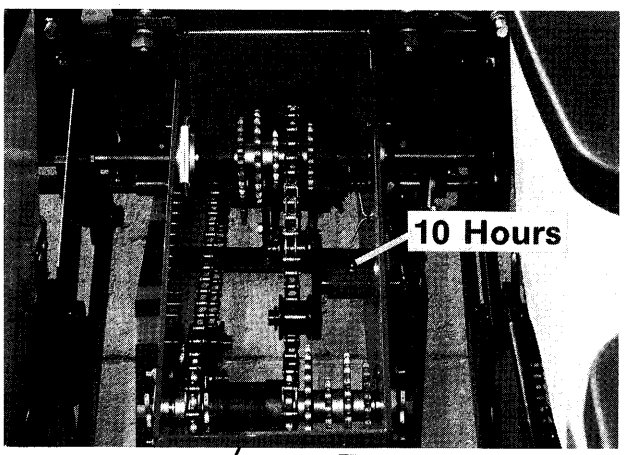
The transmission and row unit drive chains should be lubricated approximately every 8-10 hours with a quality engine oil or equivalent SAE 30 weight oil. A good quality spray lubricant may also be used for periodic chain lubrication. Extreme operating conditions such as dirt, temperature, or speed may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

Wheel Bearings

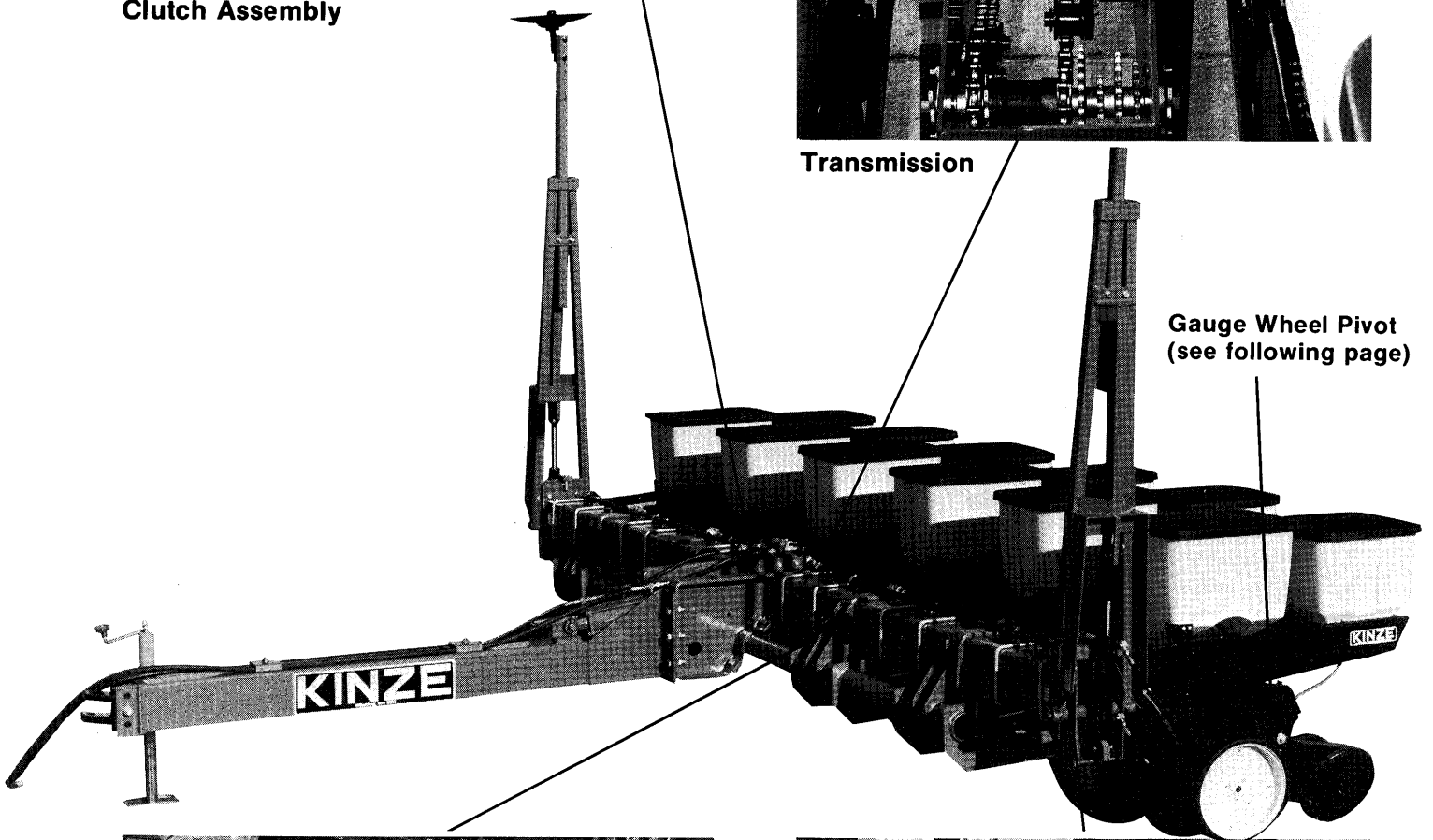
Wheel bearings should be repacked with clean heavy duty axle grease approximately once a year or at the beginning of each planting season. This applies to all drive wheels, transport wheels and marker hubs. Transport wheels on the double frame planter bar may require less frequent service depending upon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



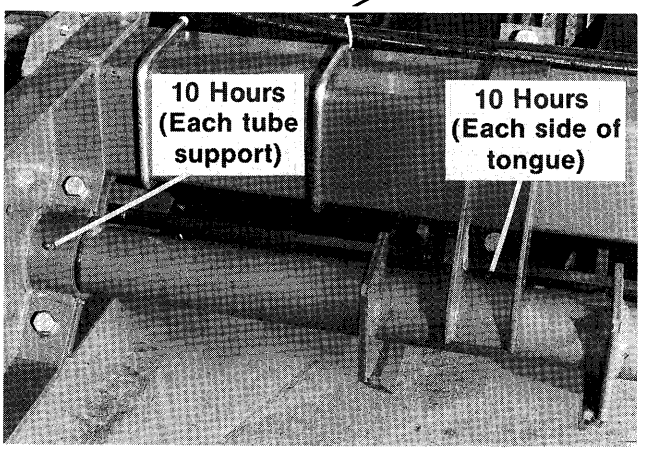
Clutch Assembly



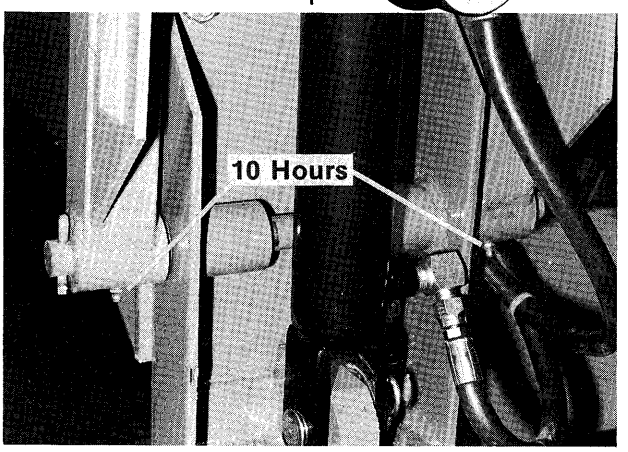
Transmission



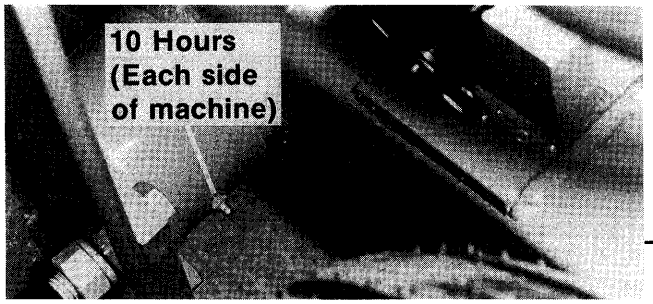
Gauge Wheel Pivot
(see following page)



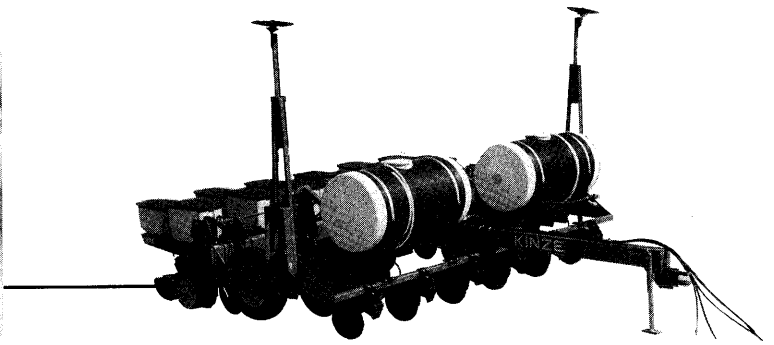
Wheel Bracket Supports

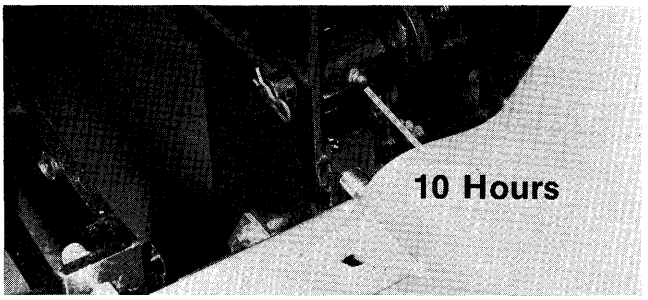


Conventional Marker Assembly
(All applicable models)

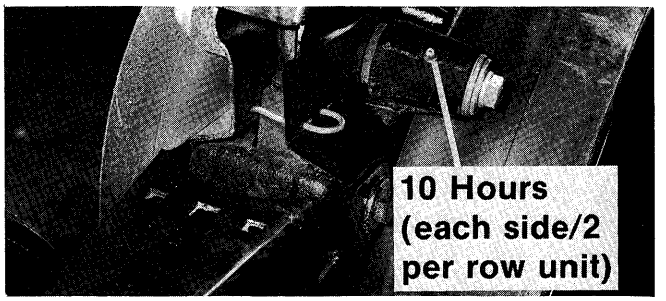


Transport Wheel Assembly Pivot
(Double Frame Only)



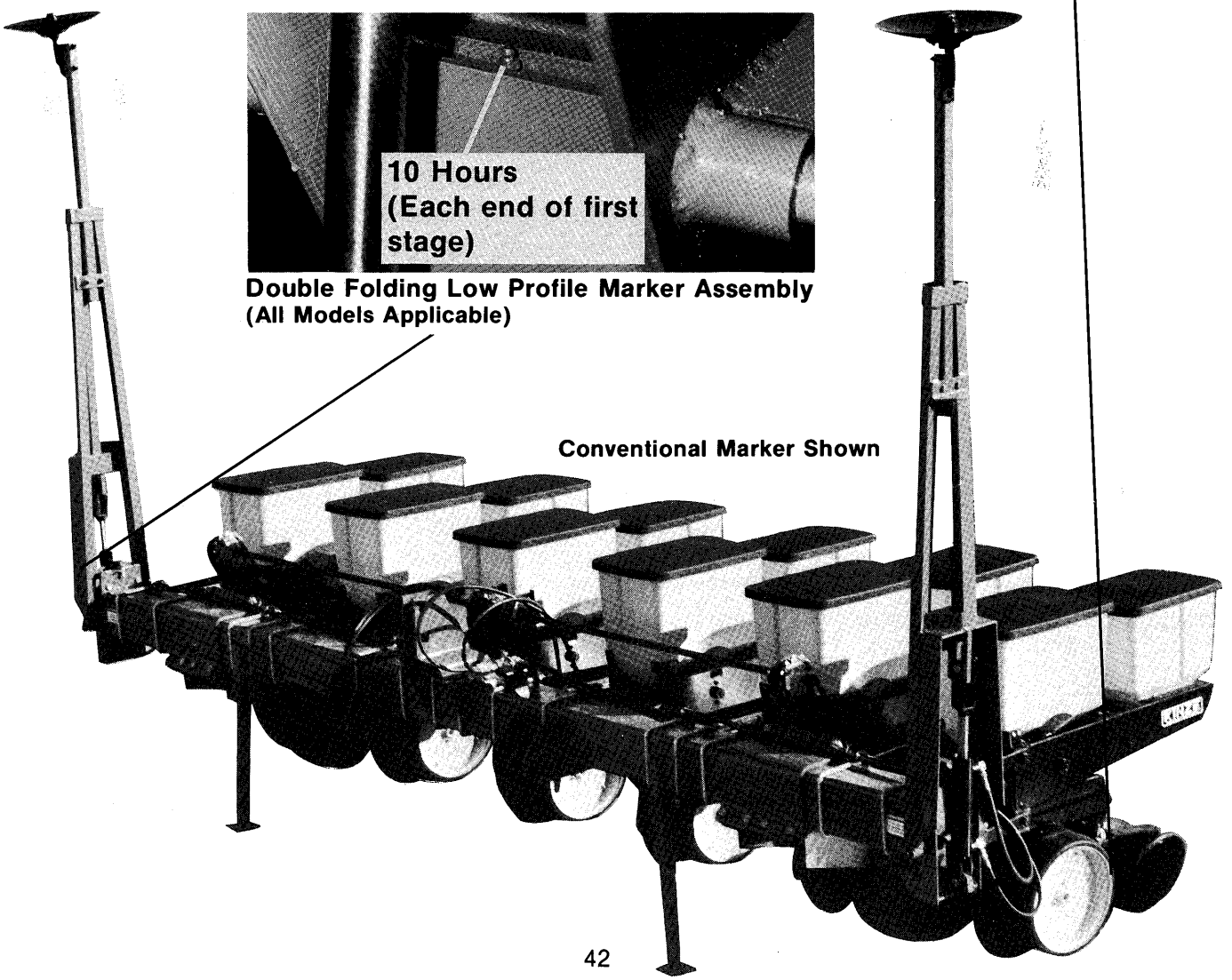


Transmission
(Mounted and Double Frame Models)

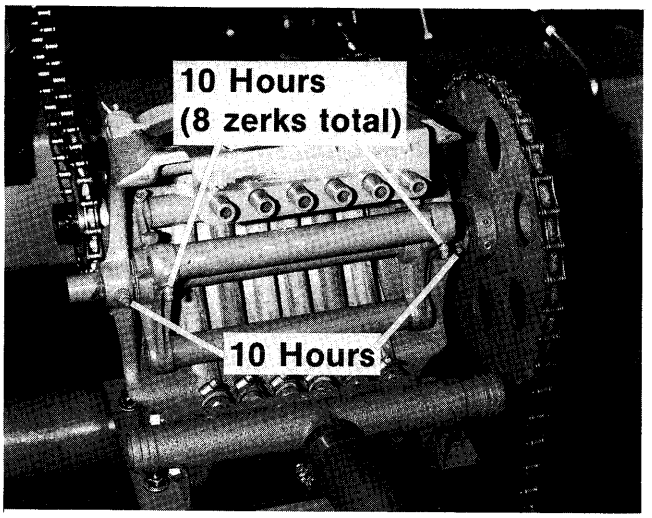


Gauge Wheel Pivot
(All models)

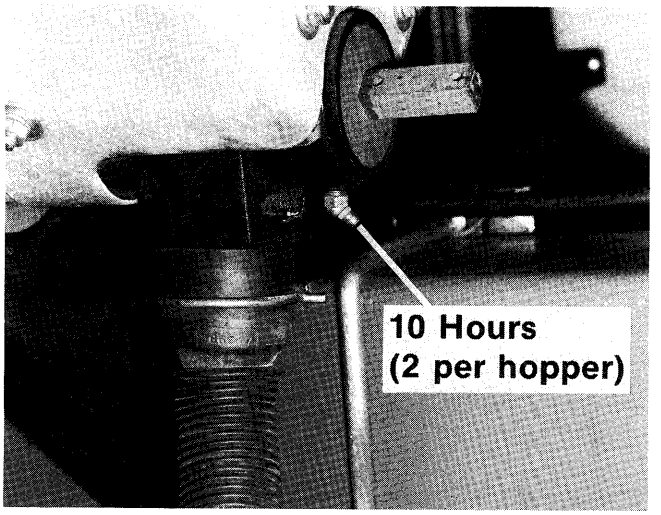
Double Folding Low Profile Marker Assembly
(All Models Applicable)



Conventional Marker Shown



Liquid Fertilizer Pump
Note: Shown partially assembled for clarity.



Dry Fertilizer Hopper

OPERATION

The following information is general in nature and was written to aid the operator in preparation of the tractor and planter bar 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 Bar should also be readily available and consulted for planter operation.

Initial Preparation of the Planter Bar

Lubricate the Planter Bar 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. (See page 46). Check all drive chains for proper tension and lubrication. (See page 61).

Tractor Preparation and Hookup— Pull Type and Double Frame Planter Bar

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

2. Back tractor up to planter bar 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 on side of planter bar tongue.

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. (See hitch adjustment on page 45).

Mounted Planter Bar Attachment

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

2. Adjust the length of the lift links.

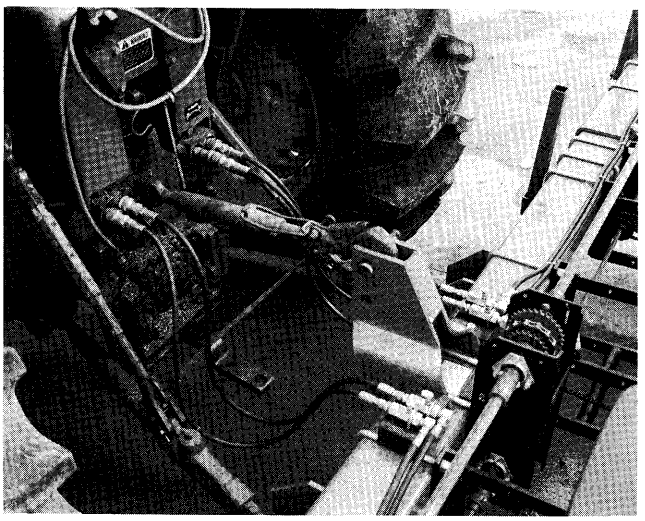
3. Back tractor up to planter bar and raise draft links between hitch plates. Line up holes and insert hitch pins. Lock hitch pins in place with pins provided.

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

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

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

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



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

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

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

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

Transporting The Planter Bar

⚠ 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.

The pull type planter bar is equipped with a clutch that disconnects the drive when the unit is raised for transportation. However, for safety and to decrease wear, the drive chains should be removed to the inside of the drive wheel sprocket prior to towing the machine for any distance.

Leveling The Planter Bar

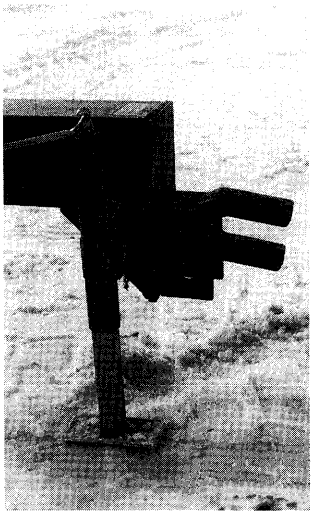
For proper operation of the planter bar and row units, it is important that the unit operate level.

Mounted Planter Bar

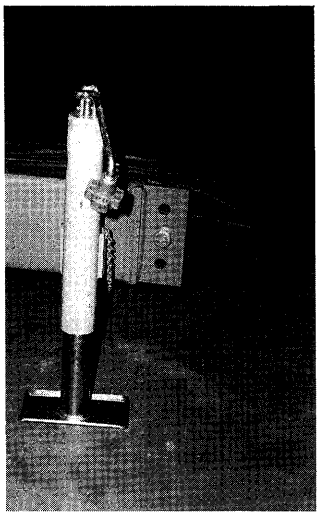
When operating the mounted planter bar, make sure the right and left arms are adjusted equally before attaching the planter unit. After the planter bar has been lowered to the correct operating depth, stop the tractor and stand behind the planter to check for level operation laterally. Then walk around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

Pull Type Planter Bar and Double Frame Planter Bar

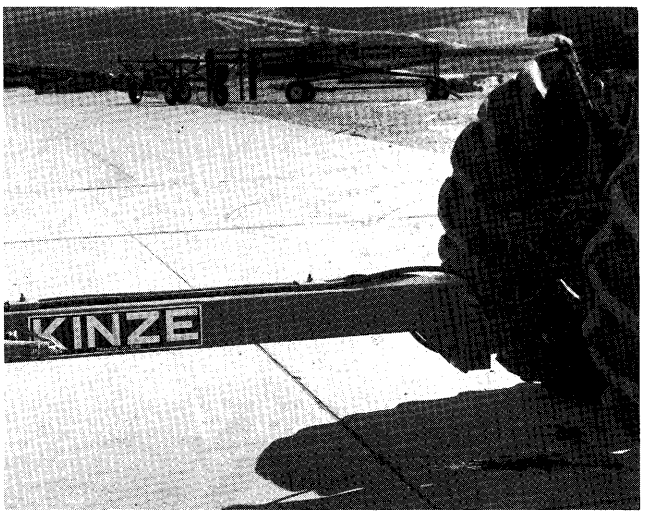
Unless the tractor drawbar is adjustable for height, the fore and aft level adjustment must be maintained by the position of the hitch clevis. Three holes in the pull type tongue hitch bracket and two holes in the double frame tongue hitch bracket allow the clevis to be raised or lowered. In addition, the clevis on the double frame planter bar 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.



Double Frame Planter



Pull Type Planter



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

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

Tire Pressure

Tire pressure should be checked regularly and maintained as follows:

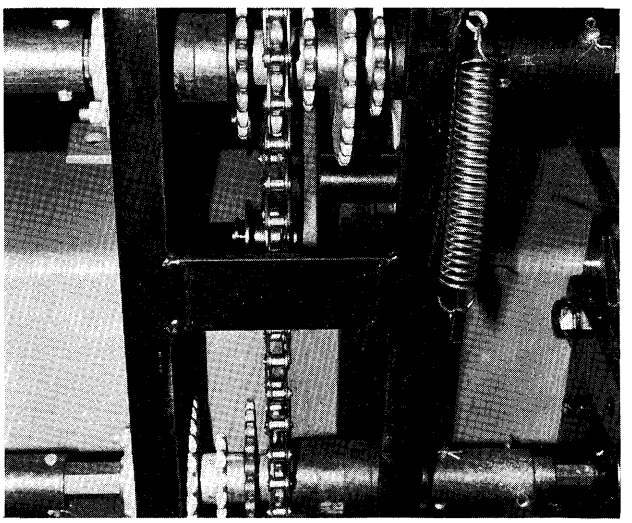
Transport-11L × 14″ 6-Ply-35 lbs. PSI
Drive Gauge-7:60 × 15″ 4-Ply-40 lbs. PSI

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

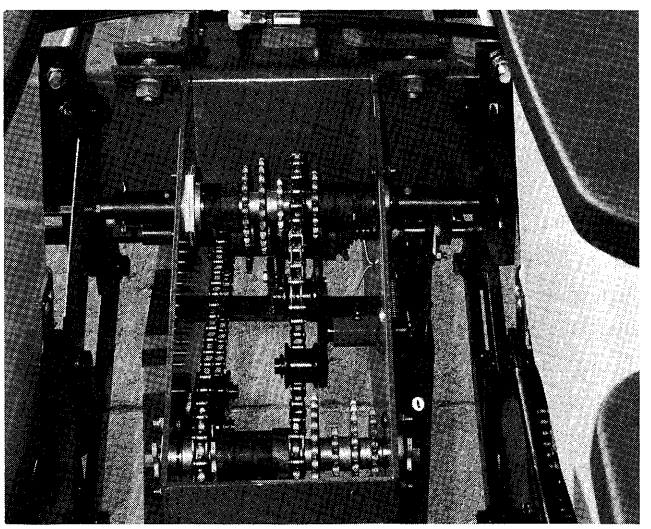
Transmission Adjustment

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

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



Double Frame and Mounted Planter Bar



Pull Type Planter Bar Transmission

Hydraulic Marker Operation

The pull type and double frame planter bars are equipped with either a single or double valve hydraulic system. The double valve system allows the markers to be operated independently of the planter lift cylinders. Each time a marker is completely raised, the sequencing valve will direct flow to lower the opposite marker.

Planter bars equipped with a single valve system will require that the planter be raised in order to lift the marker. Each time the unit is raised, the markers will alternately be raised. Then, as the planter bar is lowered, the opposite marker will lower. It is possible to experience an inconvenience with this system if the unit must be raised at points other than at the end of the field. For example, if the planter bar is raised to cross a waterway, the opposite marker will be lowered when the unit is dropped back into the ground. Therefore, it will be necessary to stop, and again raise and lower the bar to restore correct marker operation.

Mounted planter bars are equipped for either single or dual control operation. Units designed for single valve operation are equipped with a sequencing valve and operate the same as the dual valve pull type units. The markers alternately raise and lower as the tractor valve is activated. The single valve system requires that each marker be operated independently with the appropriate tractor control.

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

Both the left and right marker assemblies on all planter bars, whether single or dual valve systems, have two flow control valves built into the hydraulic system. This permits the operator to manually adjust the proper speed of "lift" and "lower" for each marker as there is a valve for each direction on both cylinders.

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

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

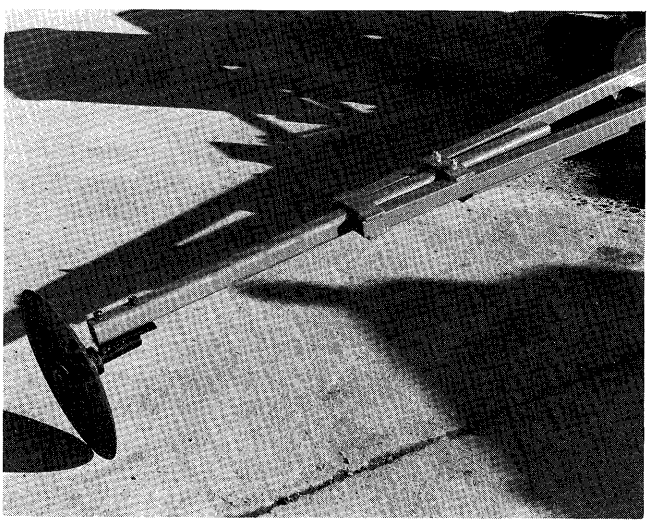
⚠ WARNING: Always position marker lock-up pin in "safety" position when transporting or storing planter bar. See Safety Precaution.

Marker Adjustment

To determine the correct length at which to set the marker assemblies, multiply the number of rows by the row spacing in inches. This provides the total planting width. Then adjust the marker extension so that the distance from the marker disk to the centerline 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 disk 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 × Row Spacing (inches) = Dimension between planter bar CL and marker blade

6 × 30″ = 180″ marker dimension



The marker disk is installed so the concave side of

the disk is outward to throw dirt away from the grease seals. To provide further variation in the size of the mark, the spindle bracket is slotted so the hub and blade can be angled forward or rearward to throw more or less dirt. To adjust the hub and spindle, loosen the ½" × 3½" capscrews and move the bracket as required. Then tighten bolts to the specified torque.

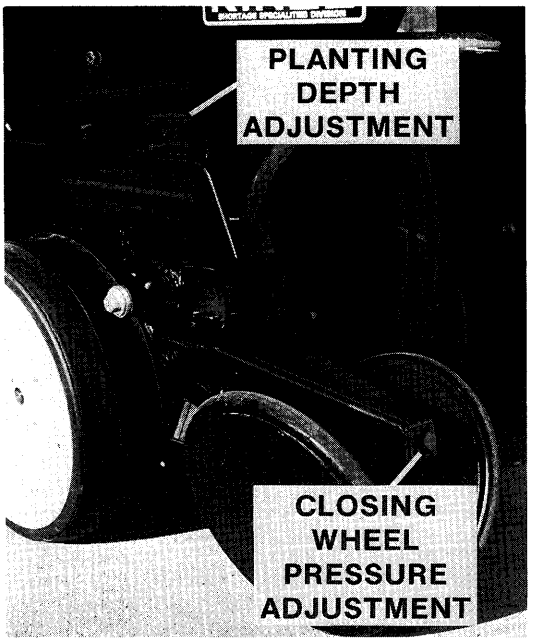
Tractor Speed

Depending upon seed population being planted and sprocket combinations, ground speeds may range from 2 to 7 miles per hour. However, optimum speed for most conditions is 5 to 5.5 MPH. Seed population may increase at higher planting speeds, particularly at higher population rate settings.

Consult the operator's manual and planting rate charts for your row units for further tractor speed information. Planting rate charts for Kinze row units equipped with plateless corn or soybean meters can be found at the end of the operation section of this manual.

Planting Depth

Planting depth is maintained by the row unit gauge wheels. To increase or decrease the planting depth, first raise the planter bar to remove weight from the wheels. Then lift the depth adjustment handle and reposition it forward to decrease depth or rearward to increase planting depth. Adjust all units to the same depth initially. Then lower the planter bar and check operation and planting depth of all row units. It may be necessary to readjust certain rows to obtain consistant operation.



Closing Wheel Pressure

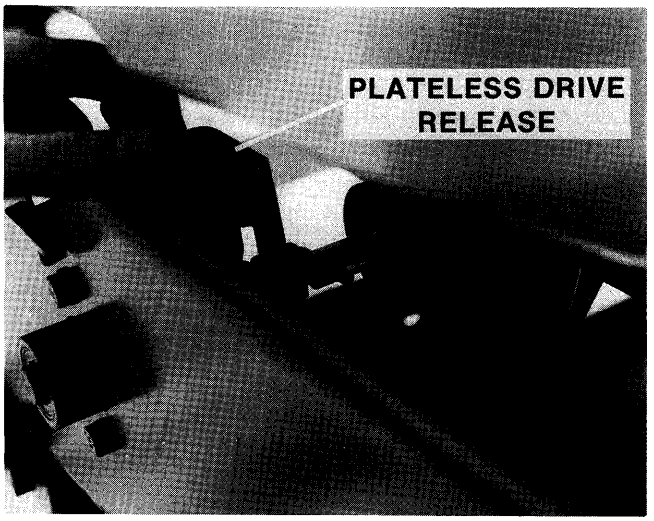
After adjusting for planting depth, check the operation of the closing wheels. The closing wheels should gently close the row without sinking in or compacting the soil. To increase spring pressure on the closing wheels, turn the adjustment bolt, located at the rear of the closing wheel arm, in a clockwise direction. Turning the bolt in the counterclockwise direction decreases spring tension.

Adjust all row units to a similiar setting. Tension setting can be determined by checking the position of the tension spring through the viewing slot on top of the closing wheel arm.

Plateless Drive Release

The plateless drive clutch is equipped with a release mechanism that allows the drive to be disconnected from the seed metering unit. Disconnecting the drive allows the operator to check insecticide and/or herbicide application rates without dropping seed. It also allows one or more of the rows to be disconnected when finishing fields.

To disengage the drive, lift the release handle and pull outward until the handle locks in the slot in the side of the hopper side panel. To engage the row unit, simply lift and unlatch the handle. Spring tension will return the mechanism to the drive position.

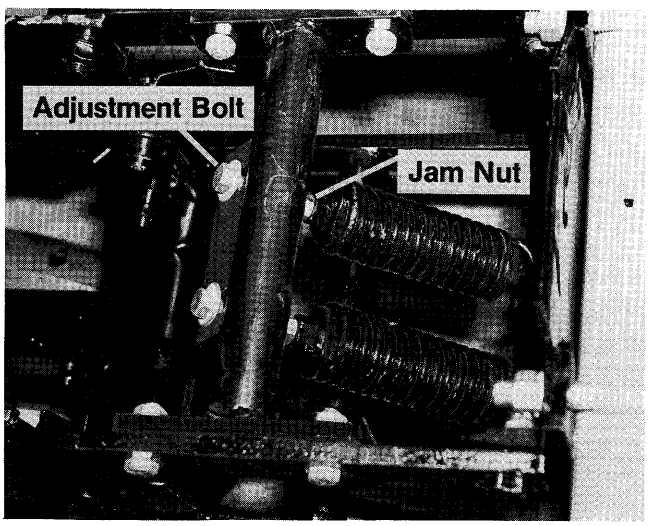


Down Pressure Spring Adjustment

The optional conventional or heavy duty down pressure springs are designed to increase penetration in hard soil and keep the row unit from bouncing in rough field conditions.

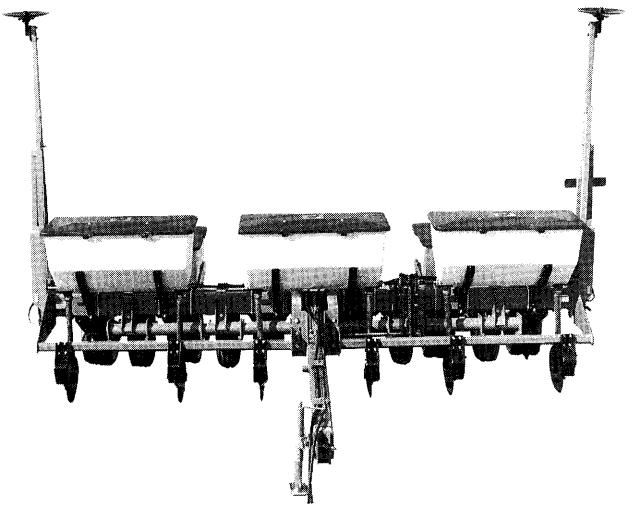
To increase down pressure with either type of system, loosen the jam nuts and turn the adjusting bolts clockwise. Tighten lock nuts as soon as desired down pressure is obtained to maintain setting.

IMPORTANT: Do not attempt to set down pressure at maximum pressure in hard soil conditions. This can cause the row units to carry the planter and raise the drive wheels to the point that excessive slippage may occur.



Dry Fertilizer Attachment

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

NOTE: Spring tension on the double disk openers is factory set for 250 pounds. Further spring tension adjustment can be made if necessary to match ground conditions. Turn the adjustment bolt clockwise to increase down pressure or counter clockwise to decrease pressure. Tighten locknut upon completion.

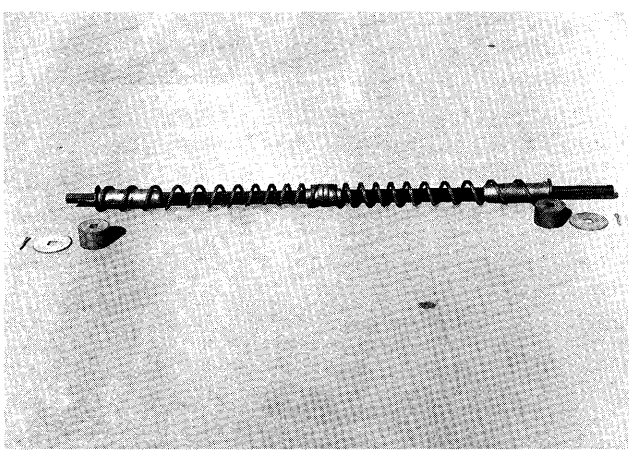
Cleaning

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 disassembled, cleaned and coated with a rust preventative.

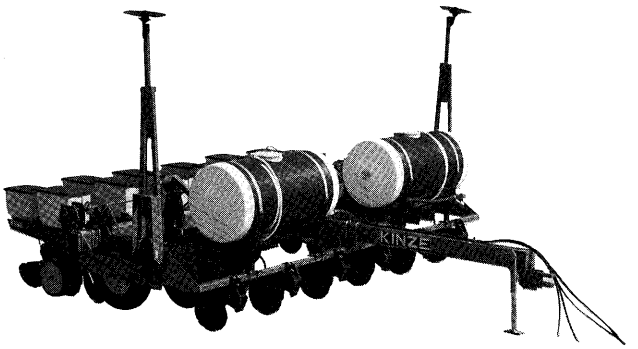
To disassemble spreader assemblies, remove the hairpins and baffle from the top of the auger. Then remove the cotter pin from the auger shaft adjacent to the large flat washer and pull auger assembly from the hopper. The bearings pass through the outer castings and need not be removed. Remove the cotter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



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

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.

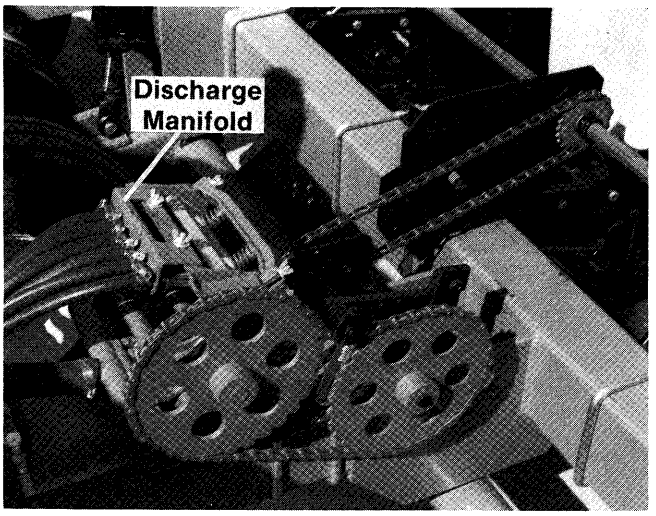


The delivery rate chart found at the end of the "Operation" section provides an approximate application rate only. Actual delivery will vary with temperature and the particular fertilizer being used.

⚠ 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.



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

For the right hand hose (facing the pump from front of planter) twist the hose ¼ turn in the clockwise direction.

For the left hand hose (facing front of pump) twist the hose ¼ 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.

Planting Rate for Plateless Corn Meter

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	4-1/4	26	14	2 To 3-1/2
43,700	36,400	34,500	4-3/4	30	18	3 To 4
41,300	34,400	32,600	5-1/8	22	14	3 To 4-1/2
37,800	31,600	29,900	5-1/2	26	18	3 To 4-1/2
35,700	29,800	28,200	5-7/8	30	22	3 To 5
32,100	26,800	25,400	6-1/2	22	18	3 To 5-1/2
30,700	25,800	24,400	6-3/4	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	7-1/2	30	28	4 To 6-1/2
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	9-1/2	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	10-1/4	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 the small flat seeds.

Planting Rate For Plateless Soybean 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	
125	98	30	14	3 To 5
110	88	26	14	3 To 5
100	80	30	18	3 To 5
96	76	22	14	3 To 5
92	73	26	18	3 To 5
86	68	30	22	3 To 5
78	61	22	18	3 To 5-½
75	59	26	22	3 To 6
72	58	30	26	3 To 6
71	57	16	14	3 To 6
67	53	30	28	4 To 6-½
63	50	22	22	4 To 7
58	46	26	28	4 To 7
55	44	16	18	4 To 7
54	43	22	26	4 To 7
50	40	22	28	4 To 7
49	39	14	18	4 To 7
48	38	16	22	4 To 7
43	34	14	22	4 To 7
41	33	16	26	4 To 7
40	32	16	28	4 To 7
37	30	14	26	4 To 7
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.

Approximate rates for row spacings, other than those shown above, may be calculated using the rate setting that is one half the desired setting. Refer to the following example:

15-inch rows at a desired planting rate of 80 lbs. per acre. Use the 30″ chart since 15″ spacing is ½ of 30″. Then follow the column down to the 40 lbs. per acre setting, which is ½ of the desired 80 lbs. per acre rate. This indicates that the 16 tooth drive sprocket/28 tooth driven sprocket will provide the desired planting rate.

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

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.

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.

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″ drive tire with 40 PSI.

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 row. 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

LIQUID FERTILIZER APPLICATION RATES

Driver	Driven	ROW SPACE Gal. Per Acre 40	38	36	30	Driver	Driven	ROW SPACE Gal. Per Acre 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	22	30	15.1	16.7	17.3	20.7
8	22	7.7	8.2	8.5	10.2	22	31	15.0	16.0	16.6	19.9
8	23	7.5	8.0	8.3	9.9	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
8	30	5.8	6.2	6.4	7.7	23	10	49.4	52.6	54.4	65.3
8	31	5.6	5.9	6.1	7.4	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	23	30	16.5	17.6	18.2	21.8
9	22	8.8	9.4	9.7	11.6	23	31	15.9	16.9	17.5	21.0
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
9	30	6.4	6.9	7.1	8.5	26	10	55.9	59.5	61.5	73.8
9	31	6.2	6.6	6.9	8.2	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	26	30	19.3	19.7	20.3	24.4
10	22	9.7	10.3	10.6	12.8	26	31	18.1	19.0	19.6	23.5
10	23	9.2	9.8	10.2	12.2	30	8	80.1	85.8	88.7	106.4
10	26	8.2	8.7	9.0	10.8	30	9	71.6	76.2	78.7	94.5
10	30	7.1	7.5	7.8	9.4	30	10	64.5	68.6	70.9	85.1
10	31	6.9	7.3	7.6	9.1	30	15	43.0	45.7	47.3	56.7
15	8	40.4	43.0	44.5	53.3	30	22	29.2	31.1	32.2	38.6
15	9	35.9	38.2	39.5	47.4	30	23	27.9	29.7	30.7	36.9
15	10	32.2	34.3	35.5	42.6	30	26	24.7	26.3	27.2	32.6
15	22	14.6	15.6	16.1	19.3	30	31	20.8	22.0	22.7	27.2
15	23	14.0	14.9	15.4	18.4	31	8	83.2	88.5	91.5	109.8
15	26	12.5	13.3	13.7	16.5	31	9	73.9	78.7	81.3	97.6
15	30	10.7	11.4	11.8	14.2	31	10	66.6	70.9	73.3	88.0
15	31	10.3	11.0	11.3	13.6	31	15	44.5	47.1	48.7	58.4
22	8	59.1	62.9	65.0	78.0	31	22	30.3	32.0	33.1	39.7
22	9	52.4	55.8	57.7	69.2	31	23	29.0	30.6	31.7	38.0
22	10	47.3	50.3	52.0	62.4	31	26	25.6	27.2	28.1	33.8
22	15	31.4	33.4	34.5	41.4	31	30	22.1	23.6	24.5	29.2

Approximate application rates using 7.60 × 15 drive tire at 40 PSI and based on a solution weighing 10 pounds per gallon.

SEED METER TROUBLESHOOTING

Finger Pick-Up Meter

Problem	Possible Cause	Probable Remedy
One row not planting seed	Drive release not engaged	Engage drive release mechanism
	Foreign material in hopper	Clean hopper and finger pick-up mechanism
	Pin sheared in drive release sprocket	Replace pin—inspect meter for obstructions or defective parts
Drive release does not engage properly	Drive release shaft is not aligned properly with finger pick-up drive shaft	Align drive mechanism by shifting hopper support
Unit is skipping	Foreign material or obstruction in meter	Clean out and inspect
	Finger holder improperly adjusted	Adjust to proper setting
	Broken fingers	Replace fingers and/or springs as required
	Planting too slowly	Increase planting speed to within recommended range
Planting too many doubles	Planting too fast	Stay within recommended speed range
	Loose finger holder	Adjust to specs.
	Worn brush in finger pick-up	Replace brush

Feed Cup Meter

Problem	Possible Cause	Probable Remedy
One row not planting seed	Drive release not engaged	Engage drive release mechanism
	Pin sheared in drive release sprocket	Replace pin—inspect for obstructions in meter
	Foreign material in hopper	Inspect hopper & meter for foreign material (such as paper)

Feed Cup Meter

(continued)

Problem	Possible Cause	Probable Remedy
Drive release parts breaking	Drive coupler not aligned properly with feed cup shaft	Align drive mechanism by shifting hopper support
	Feed cup not turning freely	Inspect feed cup and bushings carefully
Planting lower rate than desired	Worn feed cup	Replace feed cup
	Obstruction in feed cup or hopper	Clean and inspect
	Wrong feed cup	Replace with proper feed cup for seed being planted
	Seed treatment building up in feed cup	Clean thoroughly
	Wrong seed guide plate used with bean cup	Replace with proper guide/ cup combination
	Improper number of shims used with low-rate sorghum feed cup	Adjust number of shims as required
Planting higher rate than desired	Wrong feed cup	Replace with proper feed cup
	Feed cup housing not installed correctly	Inspect feed cup installation Check for proper seating of feed cup housing
	Improper number of shims used with low-rate sorghum feed cup	Adjust number of shims as required
Bunching of seed	Drive coupler not aligned properly	Align drive mechanism by shifting hopper support
	Feed cup housing not seated properly	Check installation of feed cup housing
	Weak idler spring	Replace as required
	Obstruction in hopper	Clean hopper and meter of all foreign material

Feed Cup Meter

(continued)

Problem	Possible Cause	Probable Remedy
Feed cup meters hard driving	Build up of seed treatment in feed cups	Clean feed cups and housings
	Drive not properly aligned with meter input shaft	Align drive mechanism by shifting hopper support
	Planter drive rusty and dirty	Clean and lubricate or replace drive chain

MAINTENANCE

Mounting Bolts and Hardware

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

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

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

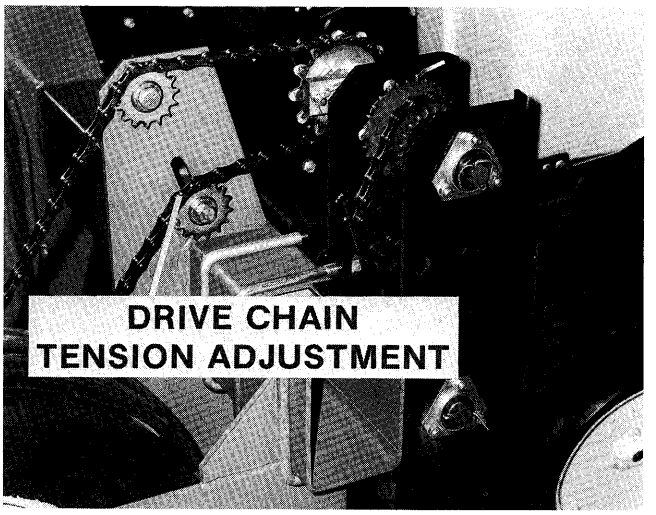
Chain Tension Adjustment

All drive chains with the exception of the drive chain between the drive gauge wheel and the transmission on the double frame planter bar are equipped with spring tensioned idlers.

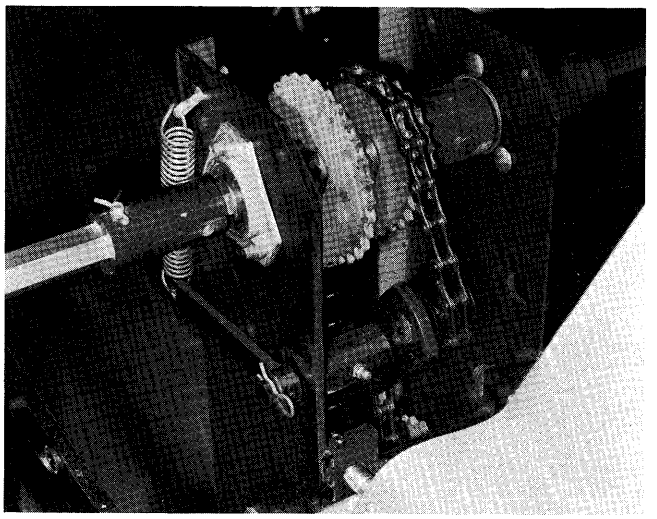
To tighten the transmission drive chain on all double frame units, use a 15/16" wrench to loosen the idler attachment bolt. Then move it against the chain to obtain a deflection of approximately 1" on the longest span and retighten.

To increase the tension on spring tensioned idlers, proceed as follows.

1. Remove clip pin from tightener assembly shaft and remove spring arm.
2. Rotate arm counterclockwise to the next notch for increased tension. The arm can be turned over for half notch increments.
3. Replace arm and spring clip and reconnect tension spring to check chain tension.



Double Frame Planter Bar Drive Chain

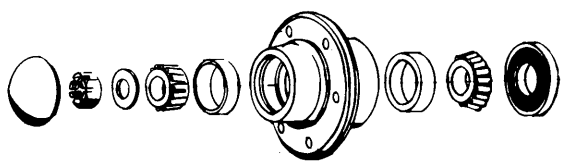


Spring Adjusted Idlers

CAUTION: Do not attempt to shorten the drive chains betweem the drive wheels and drive shaft on the pull type planter bar. If the chain is being replaced, ensure replacement is the same length. If a shorter chain is used, there is a possibility that the drive shaft could be bent or drive chain broken when the planter bar is fully raised.

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 bearing surfaces are in contact. Back off slotted nut to nearest locking slot and install cotter pin.
11. Fill hub caps approximately ¾ full of wheel bearing grease and install on hub.
12. Install wheel or disk on hub and tighten evenly and securely.



Preparation for Storage

Store the planter bar 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 bar and row units at all lubrication points.

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

Inspect the planter bar 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 hoppers, openers and all rubber spouts.

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

If the planter bar 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.

NOTES