MODEL 2100
3 POINT MOUNTED PLANTER
(Rigid & Vertical Folding)

OPERATOR & PARTS MANUAL

M0161 Rev. 6/98

This manual is applicable to: Model: 2100 3 Point Mounted Planters
Serial Number: 602614 and on

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

Model Number 2100

Serial Number _____

Date Purchased _____

SERIAL NUMBER

The serial number plate is located on the planter frame to be readily available. It is suggested that the serial number and purchase date also be recorded above.

The serial number provides important information about your planter and may be required to obtain the correct replacement part. Always provide the serial number and model number to your KINZE® Dealer when ordering parts or anytime correspondence is made with KINZE Manufacturing, Inc.

76668-2

PREDELIVERY/DELIVERY CHECK LIST

TO THE DEALER

Predelivery service includes assembly, lubrication, adjustment and test. This service helps to ensure that the planter will be delivered to the customer ready for field use.

PREDELIVERY CHECK LIST

After the planter has been completely assembled, use the following check list and inspect the planter. Check off each item as it is found satisfactory or after proper adjustment is made.

- ❑ Recheck to be sure row units and optional attachments are properly spaced and assembled.
- ❑ Be sure all grease fittings are in place and lubricated.
- ❑ Check planter and make sure all working parts are moving freely, bolts are tight and cotter pins are spread.
- ❑ Check all drive chains for proper tension and alignment.
- ❑ Check for oil leaks and proper hydraulic operation.
- ❑ Check to be sure hydraulic hoses (If Applicable) are routed correctly to prevent damage to hoses.
- ❑ Inflate tires to specified PSI air pressure. Tighten wheel bolts to specified torque.
- ❑ Check to be sure all safety decals are correctly located and legible. Replace if damaged.
- ❑ Check to be sure the red reflectors and amber reflectors are correctly located and visible when the planter is in transport position.
- ❑ Check to be sure SMV sign is in place.
- ❑ Check to be sure safety/warning lights are installed correctly and working properly.
- ❑ Paint all parts scratched in shipment or assembly.
- ❑ Be sure all safety lockups are on the planter and correctly located.

This planter has been thoroughly checked and to the best of my knowledge is ready for delivery to the customer.

_____

(Signature Of Set-Up Person/Dealer Name/Date)

OWNER REGISTER

Name _____ Date Sold _____

Street Address _____ Model _____

City, State\Province & ZIP _____ Serial Number _____

Dealer Name _____ Dealer Number _____

DELIVERY CHECK LIST

At the time the planter is delivered, the following check list is a reminder of very important information which should be conveyed to the customer. Check off each item as it is fully explained to the customer.

- ❑ Advise the customer that the life expectancy of this or any other machine is dependent on regular lubrication as directed in the Operator & Parts Manual.
- ❑ Tell the customer about all applicable safety precautions.
- ❑ Along with the customer, check to be sure the red reflectors, amber reflectors and SMV sign are clearly visible with the planter in transport position and attached to the tractor. Check to be sure safety/warning lights are in working condition. Tell the customer to check federal, state/provincial and local regulations before towing or transporting on a road or highway.
- ❑ Give the Operator & Parts Manual to the customer and explain all operating adjustments.
- ❑ Read warranty to customer.
- ❑ Complete Warranty And Delivery Report form.

To the best of my knowledge this machine has been delivered ready for field use and customer has been fully informed as to proper care and operation.

_____

(Signature Of Delivery Person/Dealer Name/Date)

AFTER DELIVERY CHECK LIST

The following is a list of items we suggest to check during the first season of use of the equipment.

- ❑ Check with the customer as to the performance of the planter.
- ❑ Review with the customer the importance of proper maintenance and adherence with all safety precautions.
- ❑ Check for parts that may need to be adjusted or replaced.
- ❑ Check to be sure all safety decals, SMV sign and reflectors are correctly located and legible. Replace if damaged or missing.
- ❑ Check to be sure safety/warning lights are working properly.

_____

(Signature Of Follow-Up Person/Dealer Name/Date)

RETURN THIS COMPLETED FORM TO KINZE® IMMEDIATELY, along with Warranty And Delivery Report. Retain photocopy of this form at dealership for After Delivery Check.

Tear Along Perforation

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TO THE OWNER

KINZE Manufacturing, Inc. would like to thank you for your patronage. We appreciate your confidence in KINZE® farm machinery. Your KINZE® planter has been carefully designed and sturdily built to provide dependable operation in return for your investment.

This manual has been prepared to aid you in the operation and maintenance of the planter. It should be considered a permanent part of the machine and remain with the machine when you sell it.

It is the responsibility of the user to read and understand the Operator & Parts Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment. It is the user's responsibility to inspect and service the machine routinely as directed in the Operator & Parts Manual. We have attempted to cover all areas of safety, operation, lubrication and maintenance; however, there may be times when special care must be taken to fit your conditions.

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.**

⚠ **WARNING: Some photos in this manual may show safety covers, shields or lockups removed for visual clarity. NEVER OPERATE the machine without all safety covers, shields and lockups in place.**

NOTE: Some photos in this manual may have been taken of prototype machines. Production machines may vary in appearance.

NOTE: Some photos and illustrations in this manual show optional attachments installed. Contact your KINZE® Dealer for purchase of optional attachments.

WARRANTY

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

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

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

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

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

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

INTRODUCTION

The Model 2100 3 Point Mounted planter is available in various configurations and row spacings and permits installation of various row unit attachments.

GENERAL INFORMATION

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

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

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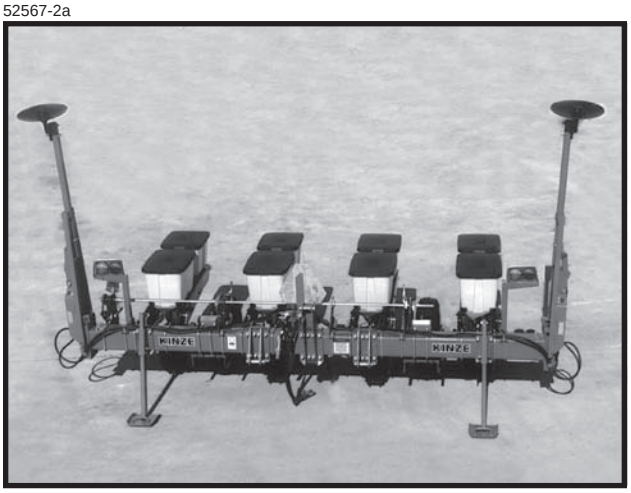

Rigid Frame

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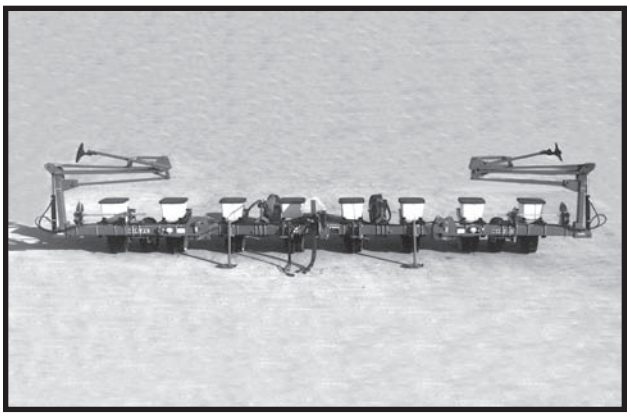

Vertical Folding Frame

SPECIFICATIONS

TYPE - 3 Point Mounted (Rigid And Vertical Folding)

PLANTING UNIT TYPE - Pull Row Units

ROW SPACING - 4 Row Narrow - 30" Rows (Rigid Frame)
4 Row Wide - 36", 38" And 40" Rows (Rigid Frame)
6 Row Narrow - 30" Rows (Rigid Frame)
6 Row Wide - 36", 38" And 40" Rows (Rigid Frame)
8 Row Narrow - 30" Rows (Rigid Frame)
8 Row Wide - 36", 38" And 40" Rows (Rigid Frame)
10 Row Narrow - 30" Rows (Rigid Frame)
8 Row Wide - 36" And 38" Rows (Vertical Folding Frame)
8 Row Wide - 40" Rows (Vertical Folding Frame)
12 Row Narrow - 30" Rows (Vertical Folding Frame)

DRIVE SYSTEM

Ground drive with 7.60" x 15", 4 ply tires.
Two drive/gauge wheels used on rigid frame machines and 8 row vertical folding machines.
Four drive/gauge wheels used on 12 row vertical folding machine.
No. 2050 roller chain with spring/ratchet idlers.

TRANSMISSION

End mounted for quick sprocket adjustment.
No. 40 chain with spring/ratchet idlers.
One on rigid frame machines. Two on vertical folding machines.

HYDRAULICS Rigid Frame/Marker Hydraulics - Single Remote With Sequencing Valve
Vertical Folding Frame/Marker Hydraulics - Single Remote With Sequencing Valve
Vertical Folding Frame/Wing Lift - Single Remote

Additional remote required for dual lift assist wheel option.

HITCH - Category 2, 3, 3N

MARKERS (OPTIONAL)

4 Row 30/Wide And 6 Row 30 - Heavy Duty Conventional Design
6 Row Wide, 8 Row 30/Wide And 10 Row 30 (Rigid Frame) - Low Profile Two-Fold
8 Row Wide And 12 Row 30 (Vertical Folding Frame) - Low Profile Three-Fold
(8 row wide and larger utilize depth band on marker discs.)

SPECIFICATIONS

DIMENSIONS & WEIGHTS

PLANTER SIZE	TRANSPORT WIDTH	OPERATING & TRANSPORT LENGTH	WEIGHT***
4 Row 30" (Rigid Frame)	12' 8"*	5' 7"	2019 lbs.
4 Row 36"/38"/40" (Rigid Frame)	15' 2"*	5' 7"	2097 lbs.
6 Row 30" (Rigid Frame)	17' 8"*	5' 7"	2630 lbs.
6 Row 36"/38"/40" (Rigid Frame)	21' 0"*	5' 7"	2864 lbs.
8 Row 30" (Rigid Frame)	21' 10"*	5' 7"	3358 lbs.
8 Row 36"/38" (Vertical Folding)	18' 6"	9' 5" **	4462 lbs.
8 Row 36"/38"/40" (Rigid Frame)	27' 8"*	5' 7"	3802 lbs.
8 Row 40" (Vertical Folding)	19' 0"	9' 5" **	4506 lbs.
10 Row 30" (Rigid Frame)	26' 10"*	5' 7"	4180 lbs.
12 Row 30" (Vertical Folding)	21' 8"	9' 5" **	6030 lbs.

* Transport width includes optional row markers.
** Length includes optional dual lift assist wheels.
*** Base machine weight includes toolbar and 3 point hitch, wheel modules with tires and wheels, seed transmission(s) with drive components, parking stands, optional row markers with hydraulic cylinders and hoses, and KINZE pull row units (closing wheel arms less closing wheels) with seed hopper and lid, quick adjustable dual down force springs.

MACHINE OPTIONS

- Marker Package
- Electronic Seed Monitors - KM1000, KM3000 With Magnetic Distance Sensor Or KM3000 With Radar Distance Sensor (KPM I/KPM II Monitor - See Assembly Instruction IS364)
- Half Rate (2 To 1) Drive Reduction Package
- Front Drive Wheel Conversion Package
- Dual Lift Assist Wheel Package (Vertical Folding Only)
- Center Section Gauge Wheel Package (Vertical Folding Only - Not compatible with dual lift assist wheels on 8 row wide planters.)

ROW UNIT OPTIONS/ATTACHMENTS

- Finger Pickup Or Brush-Type Seed Meters
- Closing Wheels - Rubber “V”, Cast Iron “V” Or Covering Discs/Single Press Wheel
- Dual Gauge Wheels
- Gauge Wheel Covers
- Granular Chemical Application
- Spring Tooth Incorporator
- Row Unit Mounted No Till Coulter
- Row Unit Mounted Disc Furrowers
- Row Unit Mounted Bed Leveler
- Row Unit Mounted Residue Wheel
- Coulter Mounted Residue Wheels
- Frame Mounted No Till Coulter
- Disc Furrowers For Frame Mounted Coulter
- Seed Firming Wheel

SAFETY PRECAUTIONS

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

Since a large portion of farm accidents occur as a result of fatigue or carelessness, safety practices should be of utmost concern. Read and understand the instructions provided in this manual and on the warning signs. Review these instructions frequently. Listed below are 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 or allow others to do so.

Be aware of bystanders, particularly children! Always look around to make sure it is safe to start the engine of the towing vehicle or move the planter. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.

Always keep hands, feet and clothing away from moving parts. Do not wear loose fitting clothing which may catch in moving parts.

Always wear protective clothing, substantial shoes and suitable hearing and eye sight protectors applicable for the situation.

Use a tractor equipped with a roll-over-protective-system and fasten your seatbelt prior to starting the engine.

Do not allow anyone to stand between the hitch and the towing vehicle when backing up to the planter.

Limit transport speed to 15 MPH. Transport only with farm tractor of sufficient size and horsepower. (See Machine Operation Section)

Never allow the planter to be operated by anyone who is unfamiliar with the operation of all functions of the unit. All operators should read and thoroughly understand the instructions given in this manual prior to moving the unit.

Always make sure safety/warning lights, SMV sign and reflectors are in place and visible prior to transporting the machine on public roads. In this regard, check federal, state/provincial and local regulations.

Never work under the planter while in raised position.

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

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

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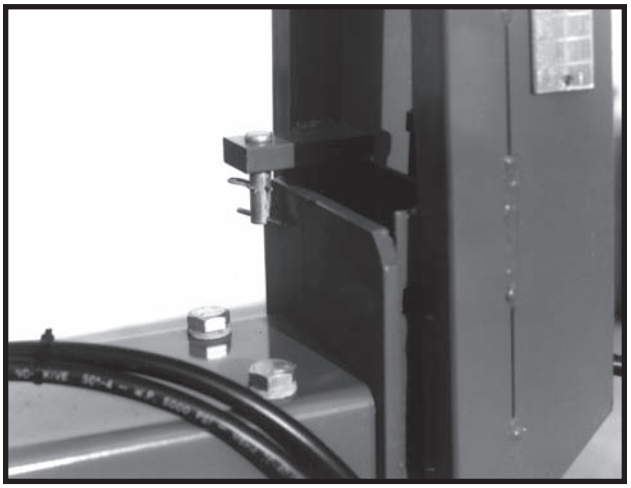

Install safety lockups on markers, as provided, prior to transporting the planter or working around the unit.

Lower the planter when not in use and cycle the hydraulic control lever to relieve pressure in hoses.

SAFETY PRECAUTIONS

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.

This planter is designed to be DRIVEN BY GROUNDTIRES ONLY.The use of hydraulic, electric or PTO drives may create serious safety hazards to you and the people near by. If you install such drives you must follow all appropriate safety standards and practices to protect you and others near this planter from injury.

Always empty or remove all hoppers before folding planter wings. (If Applicable)

Due to the transport height of the wings on vertical folding machines, watch for obstructions such as wires, tree limbs, etc.

Never transport folding machines with lift assist wheels without the floating link in place. If not in place a sudden stop could allow the toolbar to rotate forward causing personal injury or damage to the equipment.

Always make sure there are no persons near the planter when planter wings are being lowered from transport position. (If Applicable)

If a marker or wing lift cylinder has been removed for any reason, do not attach the rod end of the cylinder until the cylinder is cycled several times to remove air that may be trapped in the system.

Reduce speed prior to turns to avoid the risk of overturning.

Install wing safety lockup pins in transport position before transporting the planter or working around the unit. Install wing safety lockup pins in service position when servicing wing fold cylinders and/or wing fold linkage. (If Applicable)

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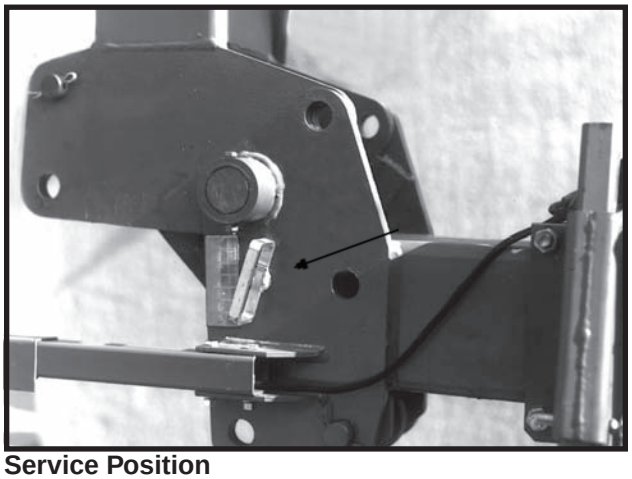
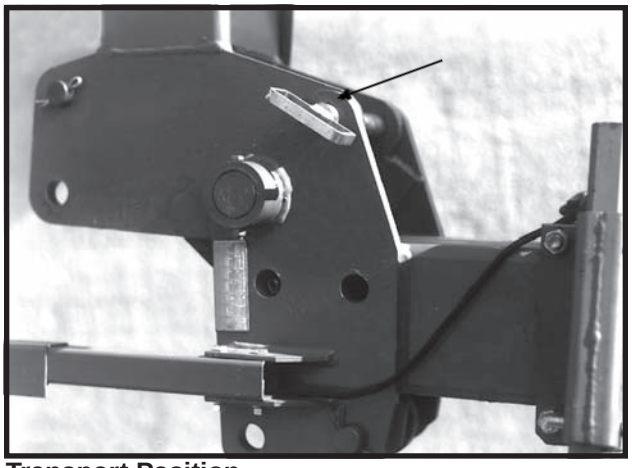


Service Position

55702-7



Transport Position

Wings must be unfolded before detaching machine from tractor. (If Applicable)

Check to be sure all safety/warning lights are working before transporting the machine on public roads.

Always drive at a safe speed relative to local conditions and ensure your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.

SAFETY PRECAUTIONS

Avoid sudden uphill turns on steep slopes.

Always keep the tractor in gear to provide engine braking when going downhill. Do not coast.

Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.

Allow for unit length when making turns.

Store the planter in an area away from human activity. DO NOT permit children to play in or around the stored unit.

Make sure the parked machine is on a hard, level surface.

Rim and tire servicing can be dangerous. Explosive separation of a tire and rim parts can cause serious injury or death.

Agricultural chemicals used with this unit can be dangerous. Improper selection or use can seriously injure persons, animals, plants, soil and other property. BE SAFE: Select the right chemical for the job. Handle it with care. Follow the instructions of the chemical manufacturer.

Serious injury or death can result from contact with electric lines. Use care to avoid contact with electric lines when moving or operating this machine.

This machine has been designed and built with your safety in mind. Do not make any alterations or changes to this machine. Any alteration to the design or construction may create safety hazards.

Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

SAFETY WARNING SIGNS

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

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

77066-14

DANGER

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

7100-89

Part No. G7100-89

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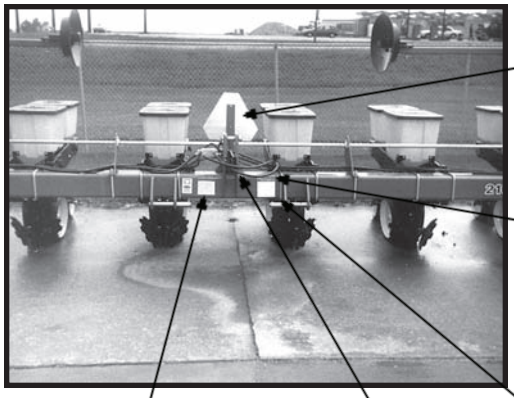


Part No. GD2199

DANGER

NEVER TRANSPORT FOLDING MODELS EQUIPPED WITH LIFT ASSIST WHEELS WITHOUT FLOATING CENTER MAST IN PLACE.

7100-132

Part No. G7100-132
Vertical Folding Machines Only

WARNING

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

7100-46

Part No. G7100-46

WARNING

WINGS MUST BE UNFOLDED BEFORE DETACHING MACHINE FROM TRACTOR.

7100-140

Part No. G7100-140
Vertical Folding Machines Only

WARNING

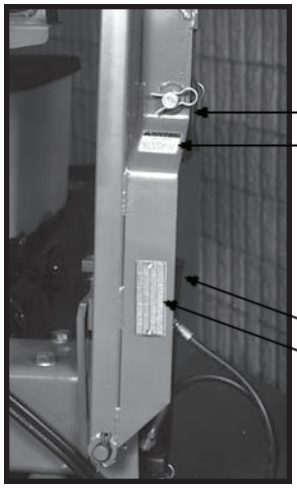
THIS MACHINE HAS BEEN DESIGNED AND BUILT WITH YOUR SAFETY IN MIND. DO NOT MAKE ANY ALTERATIONS OR CHANGES TO THIS MACHINE. ANY ALTERATION TO THE DESIGN OR CONSTRUCTION MAY CREATE SAFETY HAZARDS.

7100-90

Part No. G7100-90

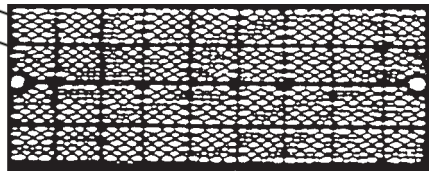
SAFETY WARNING SIGNS

77121-12



Conventional Marker

Part No. G7100-42



Part No. G7200-03
Red Reflector (Rear of Machine)
Part No. G7200-04
Amber Reflector (Front of Machine)

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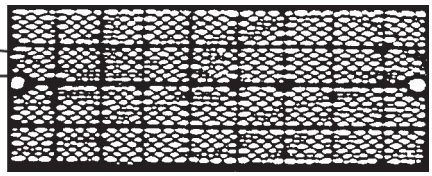
Low Profile Markers

Part No. G7100-42

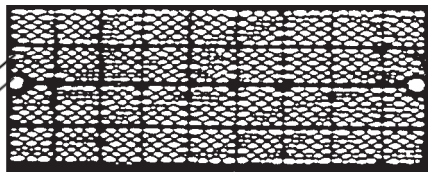


Part No. G7200-03
Red Reflector (Rear of Machine)
Part No. G7200-04
Amber Reflector (Front of Machine)

NOTE: If a rigid frame machine is not equipped with row markers, a red reflector is located on the rear side of each safety/warning light mounting bracket and an amber reflector is located on the front side of each safety/warning light mounting bracket.

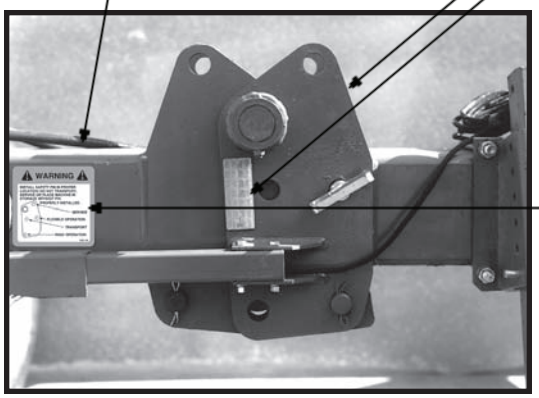
SAFETY WARNING SIGNS

Part No. G7100-25

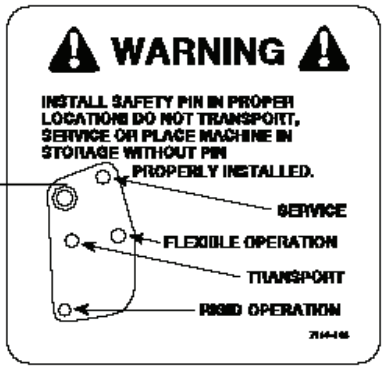


Part No. G7200-03
Red Reflector (Rear)
Part No. G7200-04
Amber Reflector (Front)

55702-20



R.H. Side Of Machine Shown
Vertical Folding Machines Only



Part No. G7100-148 Right Side (Shown)
Part No. G7100-149 Left Side

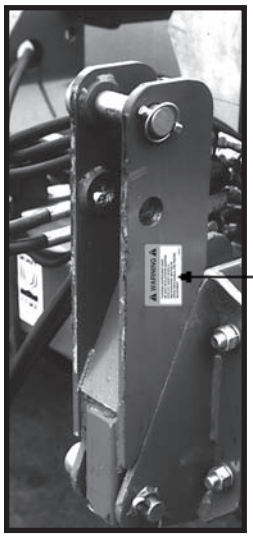
55712-9

Vertical Folding Machines Only

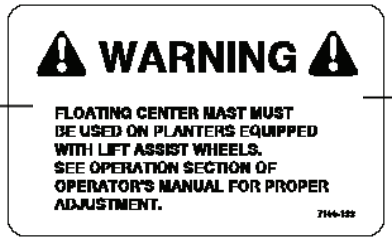
Part No. G7100-117

SAFETY WARNING SIGNS ⚠

51803-1

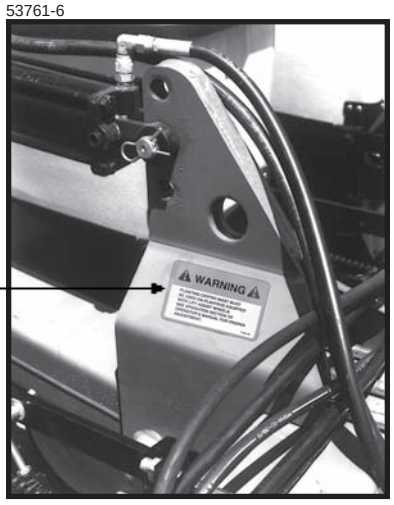


Optional Dual Lift Assist Wheel Attachment - Floating Top Mast



Part No. G7100-133

53761-6



Optional Dual Lift Assist Wheel Attachment - Wheel Tower

77178-17a

Part No. G7100-115
(Located On Under Side Of Granular Chemical Hopper Lids)

MACHINE OPERATION

The following information is general in nature and was written to aid the operator in preparation of the tractor and planter for use, and to provide general operating procedures. The operator's experience, familiarity with the machine and the following information should combine for efficient planter operation and good working habits.

CAUTION: Always raise the planter out of the ground when making sharp turns or backing up.

INITIAL PREPARATION OF THE PLANTER

Lubricate the planter and row units per the lubrication information in this manual. Make sure all tires have been properly inflated. See “Tire Pressure.” Check all drive chains for proper tension, alignment and lubrication.

TRACTOR REQUIREMENTS

Approximate required minimum tractor horsepower (H.P.) required for field work is listed below:

4 Row Models - 50-65 H.P.
6 Row Models - 55-85 H.P.
8 and 10 Row Models - 75-110 H.P.
12 Row Models - 140 & up H.P.

NOTE: The tractor must have adequate 3 point hitch lift capacity to the lift weight of the machine, attachments, seed and dry chemicals. Shipping weights do not include seed, dry chemicals or additional optional attachments.

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

The optional Dual Lift Assist Wheel Package is recommended on some sizes of planters depending on size of tractor being used with the planter. Optional dual lift assist wheels are recommended on all Model 2100 vertical folding planters.

A quick-attaching coupler (quick hitch) is recommended for safe and easy attaching and detaching.

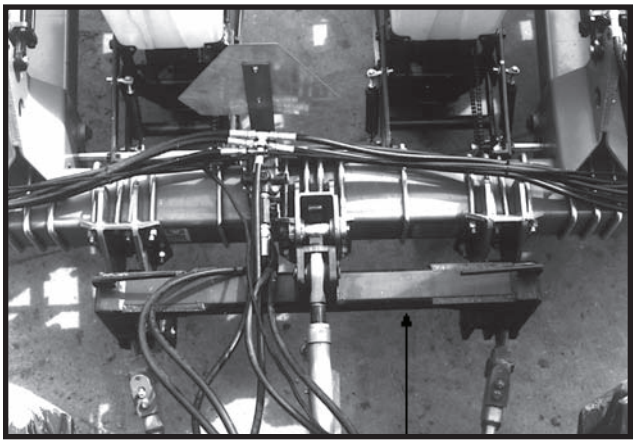
TRACTOR PREPARATION AND HOOKUP

1. Set tractor rear wheel spacing at double the planter row spacing. For example: On a planter set for 36" rows, set the tractor wheel spacing at 72". On wide front end tractors set front wheel spacing equal to rear wheel spacing. Check tractor operator's manual for correct front and rear tire pressure.

2. Adjust lift links on tractor so planter will lift level from side to side and raise high enough for planter transport clearance. Set the sway blocks on the tractor in position to prevent side sway. Be sure the individual lift link arms are in the float position.

3. Back tractor up to planter. Position lower hitch pins and bushings as shown in the following diagrams for your type of tractor hitch. Line up holes and insert hitch pins and lock in place with pins provided. It may be necessary to change the length of the tractor upper link with the adjusting handle.

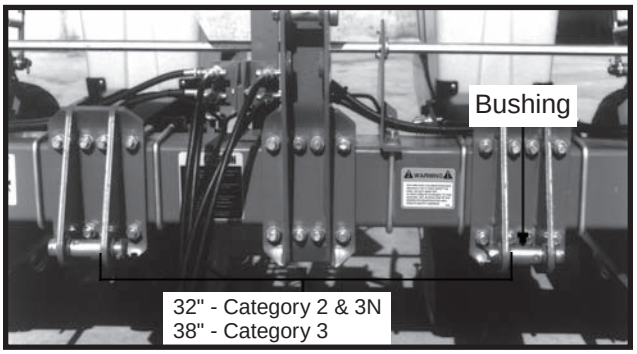
52926-4



When using a quick-attaching coupler (customer supplied), match pin location to pin spacing in quick-attaching coupler.

Lower Hitch Pins (BOLT-ON HITCH POINTS)

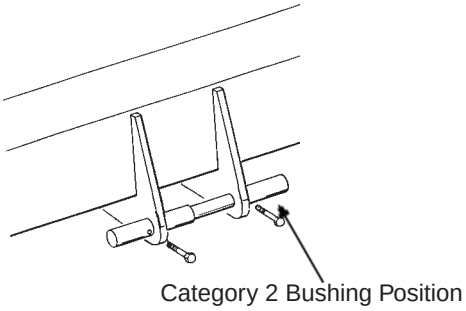
52567-45



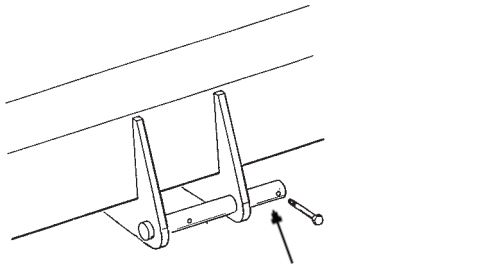
Category 2 Requires Pin Only
Category 3 And 3N Requires Pin And Bushing

Lower Hitch Pins (WELDED HITCH POINTS)

PFA065(PLTR76)



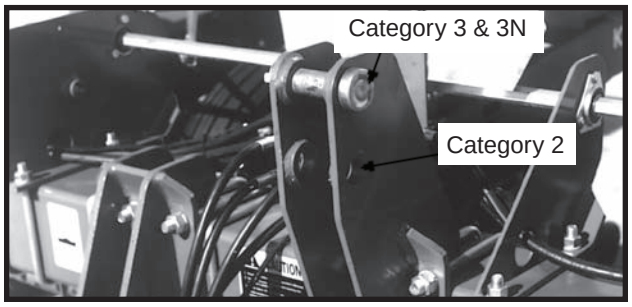
PFA066(PLTR77)



Upper Hitch Pin

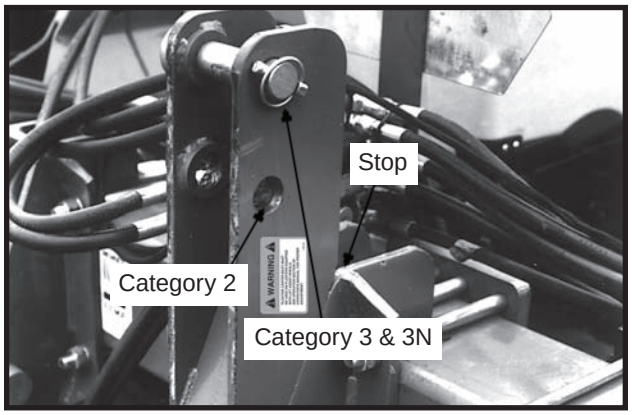
The upper hitch point has two sets of holes. The hitch pin must be positioned in the lower set of holes for use with tractors equipped with Category 2 quick-attaching coupler. The hitch pin must be positioned in the upper set of holes for use with tractors equipped with Category 3 and 3N quick-attaching coupler.

52567-49



Standard Mast - Bolt-On Mast Shown

51803-1



Floating Mast (Used on vertical folding machines equipped with the optional Dual Lift Assist Wheel Package.)

DANGER: Never transport vertical folding planters with dual lift assist wheels without floating mast in place. If not in place a sudden stop could allow the toolbar to rotate forward causing serious personal injury or damage to the equipment.

4. Connect ASAE Standards 7 terminal connector for warning lights on planter to ASAE Standards receptacle on tractor. If your tractor is not equipped with an ASAE Standards receptacle, check with your tractor manufacturer for availability. Check to be sure warning lights on planter are working in conjunction with warning lights on tractor.

5. Connect hydraulic hoses to tractor ports in a sequence that is both familiar and comfortable to the operator. See “Hydraulic Operation”.

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

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

CAUTION: Before the markers are operated, make sure all marker lockups are in working position.

DANGER: 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.

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

7. For proper operation of the planter and row units, it is important that the planter frame and row unit parallel arms be level side-to-side and front-to-rear. The toolbar should operate at a 20" (±1") height from planting surface. Tire pressure must be maintained at pressures specified and toolbar height must be adjusted equally. Check to be sure planter toolbar is level and at correct operating height. See “Leveling The Planter”.

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

NOTE: If the planter is equipped with optional Dual Lift Assist Wheels Package, be sure to lower the rear of the planter by activating the lift assist circuit prior to lowering the front of the planter with the 3 point hitch control. When raising the planter raise the front of the planter with the 3 point hitch prior to raising the rear of the planter with the lift assist wheels.

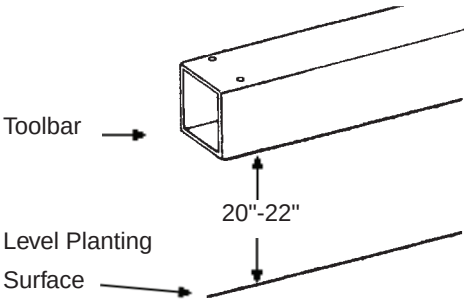
If the lift assist is plumbed into the 3 point hitch lift circuit, adjust the flow control valve so the 3 point hitch raises ahead of the lift assist wheels when lifting the planter.

LEVELING THE PLANTER

Planters Not Equipped With Dual Lift Assist Wheels

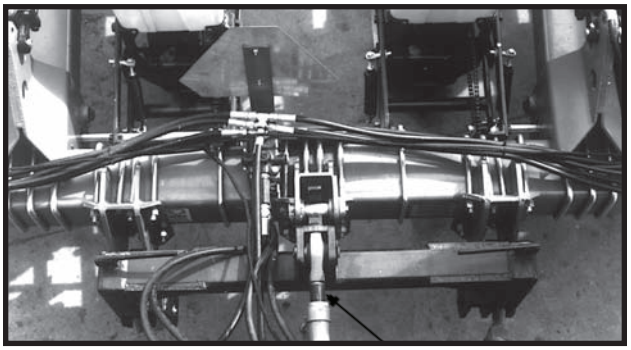
1. Drive the tractor and planter on level ground.
2. Lower the planter to the ground.
3. Check to be sure toolbar height is 20"-22". See “Toolbar Height Adjustment”.

(MT20)



4. Check to be sure planter is level front-to-rear and row unit parallel arms are level. Adjust upper link on tractor accordingly.

52926-4



Planters Equipped With Rear Or Front Mounted Drive Wheels And Dual Lift Assist Wheels

1. Drive the tractor and planter on level ground.

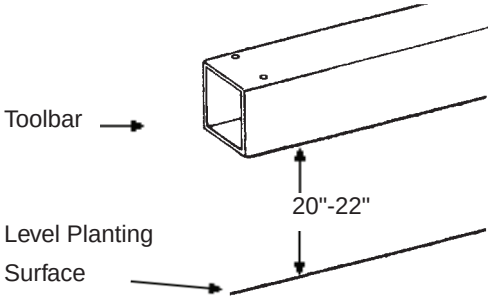
2. Begin raising the lift assist wheels by activating the lift assist circuit while at the same time lowering the planter using the 3 point hitch control.

3. Raise the dual lift assist wheels off the ground or position the lift assist circuit in float so the weight of the planter is not on the lift assist wheels.

LFD10-96

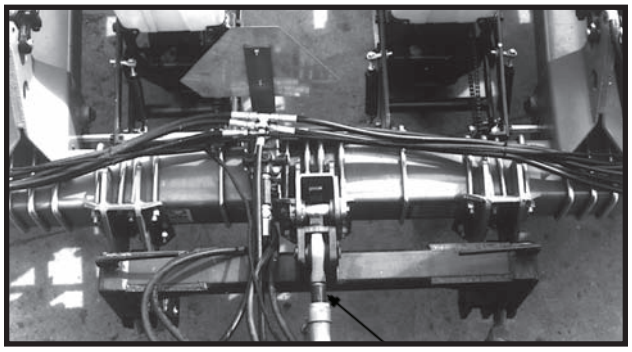
4. Check to be sure toolbar height is 20"-22". See “Toolbar Height Adjustment”.

(MT20)



5. Check to be sure planter is level front-to-rear and row unit parallel arms are level. Adjust upper link on tractor accordingly until planter toolbar is level and floating mast is against the stop.

52926-4



6. Lower dual lift asist wheels to rest on the ground.

7. Raise the front of the planter using the tractor's rockshaft.

8. Raise rear of planter using lift assist wheels.

9. Check to see if the distance between the floating mast and stop is a minimum of 3".

51803-1

If adjustment is necessary, lower the planter and reposition lift assist cylinders.

To increase distance mount lift assist cylinders in top mounting holes. To decrease distance, mount lift assist cylinders in bottom mounting holes.

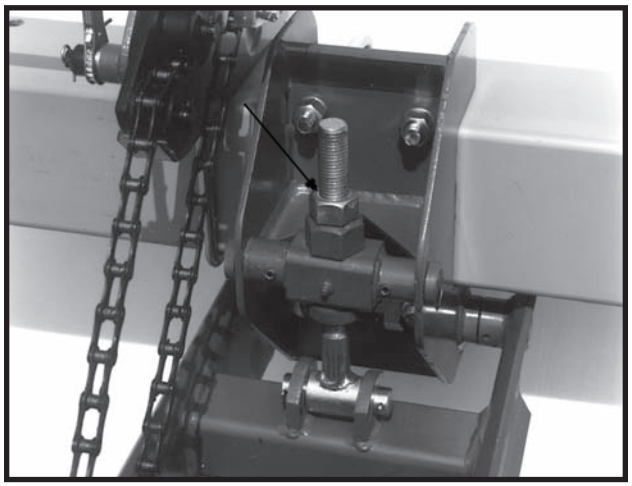
51138-6

NOTE: The floating mast should contact the stop only when the planter is in the planting position.

CAUTION: Raising the lift assist before the 3 point hitch may damage the lift assist wheels.

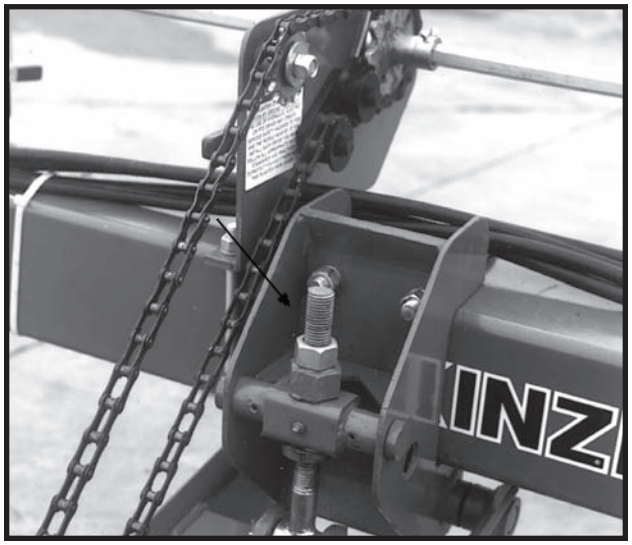
TOOLBAR HEIGHT ADJUSTMENT

53051-39



Standard Rear Mounted Drive Wheel

52607-1



Optional Front Mounted Drive Wheel

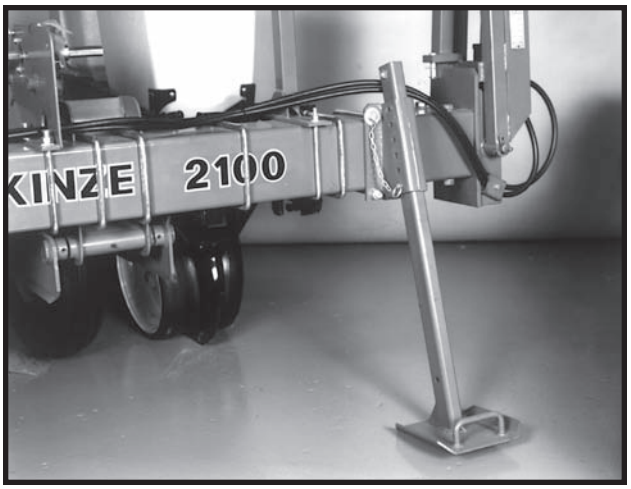
The drive wheel assembly is designed so the wheel can be adjusted to maintain a toolbar height of 20"-22" from planting surface in all planting situations. This is particularly useful when the planter is used for ridge planting or planting on beds. The drive wheel assembly has an adjustment range of 7". Offset No. 2050 chain links which are included with the planter will need to be added when the upper end of the range is used.

To adjust toolbar height:

1. Release drive wheel chain tension.
2. Loosen the jam nut using a 1 ½" wrench or a 15" adjustable wrench.
3. Turn the adjusting nut using a 1 ⅞" wrench or 15" adjustable wrench (clockwise to decrease frame height or counter clockwise to increase frame height).
4. Tighten the jam nut and adjust chain tension.

PARKING STAND ADJUSTMENT

61048-22



Two parking stands, located on the front side of the main frame, are standard on all Model 2100 planters. The stands must be positioned so they are not directly behind the tractor tire or they will hit when the planter is raised.

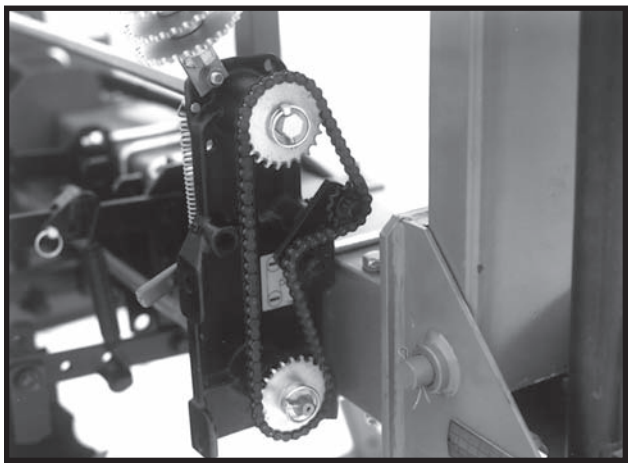
Raise to top position and pin when planting. Lower and pin for parking and storage.

On planters equipped with front mounted drive wheels, parking stands are not required.

Each parking stand has six positioning holes. By using these positioning holes, you can set the main frame height from 19" to 25".

TRANSMISSION ADJUSTMENT

61048-17



Planting population rate changes are made at the seed transmission(s). The planter transmission(s) is designed to allow simple, rapid changes in sprockets to obtain the desired planting population. By removing the lynch pins on the hexagon shafts, sprockets can be interchanged with those from the sprocket storage rod bolted to the transmission(s).

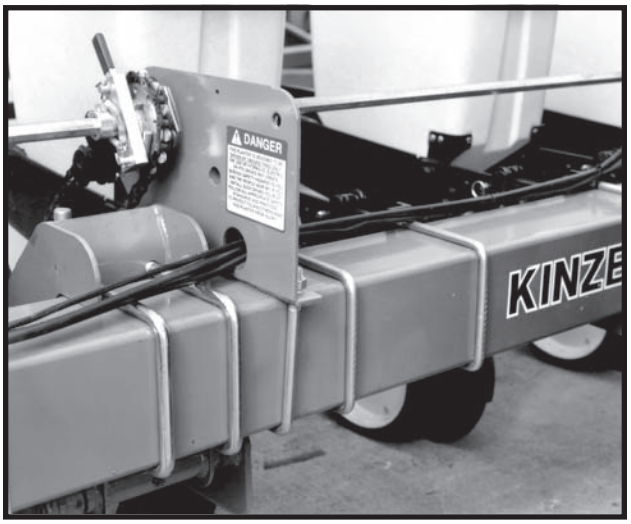
Chain tension is controlled by a spring-loaded dual-sprocket idler. The idler assembly is adjusted with a ratchet arm. This arm has a release position to remove spring tension for replacing sprockets. The amount of spring tension on the chain can be controlled by the ratchet arm.

A decal positioned on the transmission illustrates proper chain routing. The planting rate charts found at the back of this section will aid you in selecting the correct sprocket combinations.

STANDARD RATE DRIVE

Seed planting rate charts are based on the standard rate drive. The standard rate drive uses a 12 sprocket on each contact drive tire. Using the 48 half rate (2 to 1) drive reduction sprocket in place of the 12 tooth sprocket will reduce the planting rate by approximately 50%. See “Half Rate (2 To 1) Drive”.

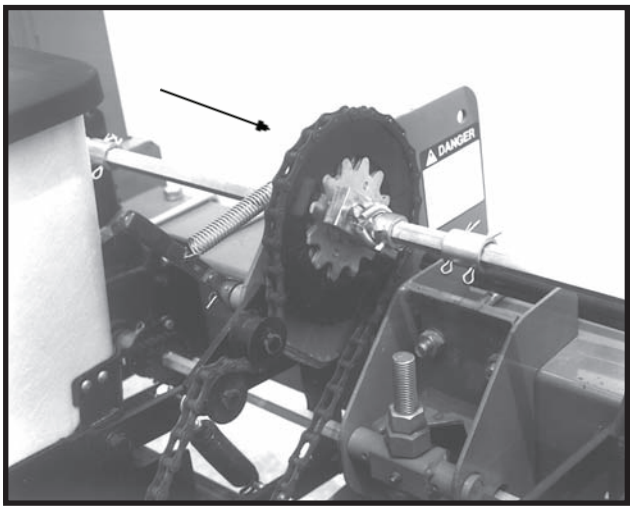
77121-36



HALF RATE (2 TO 1) DRIVE

Use of the Half Rate (2 To 1) Drive Reduction Package will reduce drive line speed and application rates to approximately 50% of standard.

53704-13

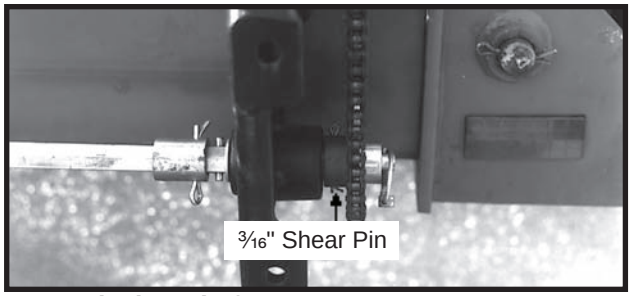


MACHINE OPERATION

SHEAR PROTECTION

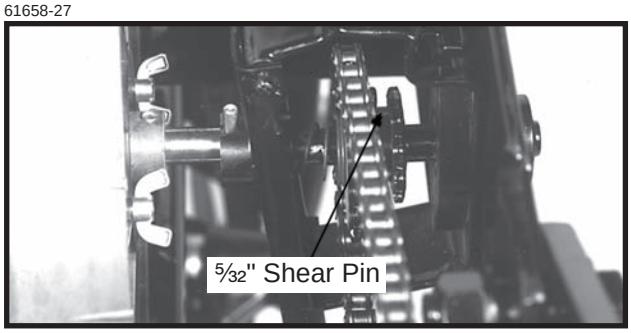
The planter driveline and row unit components are protected from damage by shear pins.

55702-10



Transmission Shaft

61658-27



Row Unit Seed Meter Drive

If excessive load should cause a pin to shear, it is important to determine where binding has occurred before replacing the pin. Replace shear pins with same size and type.

To prevent future binding or breakage of components, check driveline alignment and follow prescribed lubrication schedules.
NOTE: Drill shaft/transmission coupler alignment is critical.

TIRE PRESSURE

Tire pressure should be checked regularly and maintained as follows:

7.60" x 15" 4 Ply ..... 40 PSI

IMPORTANT: Tire pressure must be correctly maintained in all drive wheel tires to insure level and proper operation of planter. All rate charts are based on rolling radius of 7.60" x 15" tires inflated to 40 PSI.

DANGER: Rim and tire servicing can be dangerous. Explosive separation of a tire and rim parts can cause serious injury or death.

MARKER ADJUSTMENT

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

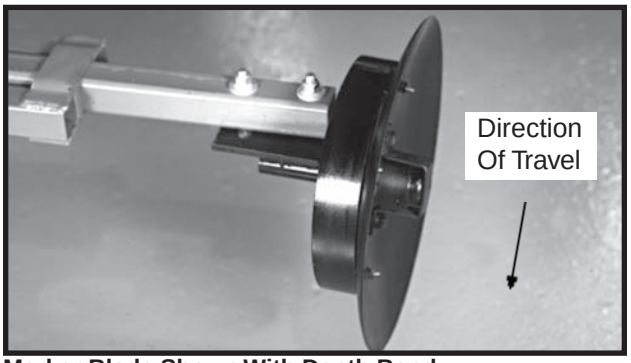
Number Of Rows	x	Row Spacing (Inches)	=	Dimension Between Planter Center Line And Marker Blade.
4 Rows	x	30" Row Spacing	=	120" Marker Dimension

The marker blade is installed so the concave side of the blade is outward to throw dirt away from the grease seals. The spindle bracket is slotted so the hub and blade can be angled to throw more or less dirt. To adjust the hub and spindle, loosen the $^1/_2$" hardware and move the bracket as required. Tighten bolts to the specified torque.

IMPORTANT: A marker blade assembly that is set at a sharper angle than necessary will add unnecessary stress to the complete marker assembly and shorten the life of bearings and blades. Set the blade angle only as needed to leave a clear mark.

A field test is recommended to ensure the markers are properly adjusted. After the field test is made, make any minor adjustments as necessary.

60569-53



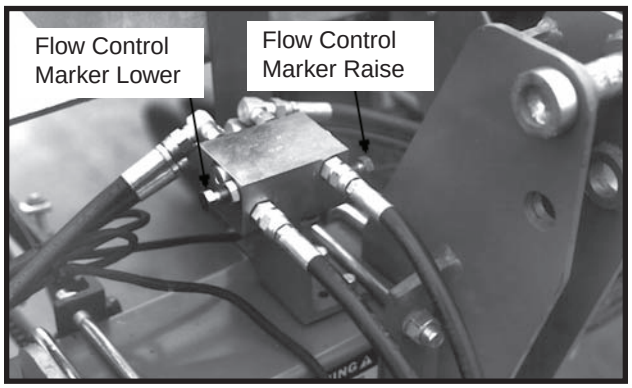
Marker Blade Shown With Depth Band (Standard On 8 Row Wide - Up)

A notched marker blade is available from KINZE® Repair Parts for use in severe no till conditions.

MARKER SPEED ADJUSTMENT

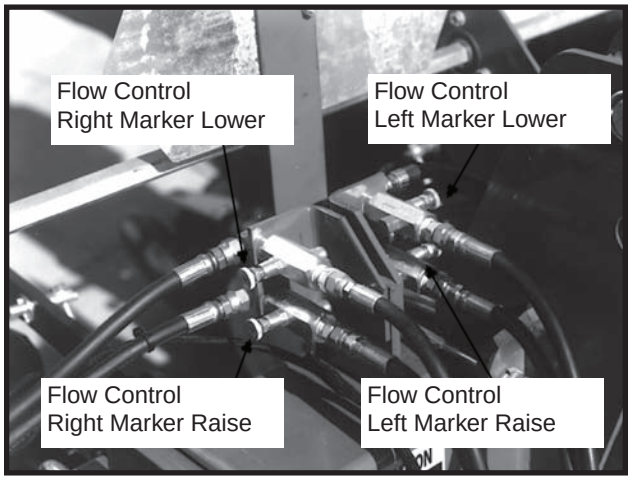
Rigid frame machines with dual valve marker hydraulic system have four flow control valves or two flow control valves if equipped with the single valve system. Vertical folding machines have two flow control valves. Flow control valves control the lowering and raising speed of the markers. To adjust marker speed, loosen the jam nut and turn the control clockwise or "in" to slow the travel speed and counterclockwise or "out" to increase the travel speed. The flow control determines the amount of oil flow restriction through the flow control valve, therefore determining travel speed of the markers.

55398-3



Rigid Frame Machine (Shown) And Vertical Folding Machine With Single Valve Marker Hydraulic System.

52567-50



Rigid Frame Machine With Dual Valve Marker Hydraulic System (Prior To Serial No. 602707)

DANGER: The flow controls should be properly adjusted before the marker assembly is first put into use. Excessive travel speed of the markers can be dangerous and/or damage the marker assembly.

NOTE: When oil is cold, hydraulics operate slowly. Make sure all adjustments are made with warm oil. Do not overtighten lock nut.

NOTE: On a tractor where the oil flow cannot be controlled, the rate of flow of oil from the tractor may be greater than the rate at which the marker cylinder can accept it. The tractor hydraulic control lever will have to be held until the cylinder reaches the end of its stroke. This occurs most often on tractors with an open center hydraulic system. On tractors with a closed center hydraulic system, the tractor's hydraulic flow control can be set so the tractor's detent will function properly.

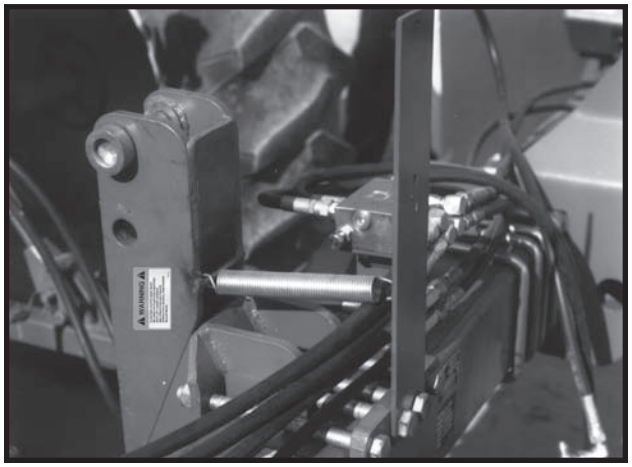
HYDRAULIC OPERATION

One, two or three control valve systems may be required depending on how the planter is equipped.

Rigid frame machines may be equipped with either a single or dual control valve system for the optional row markers.

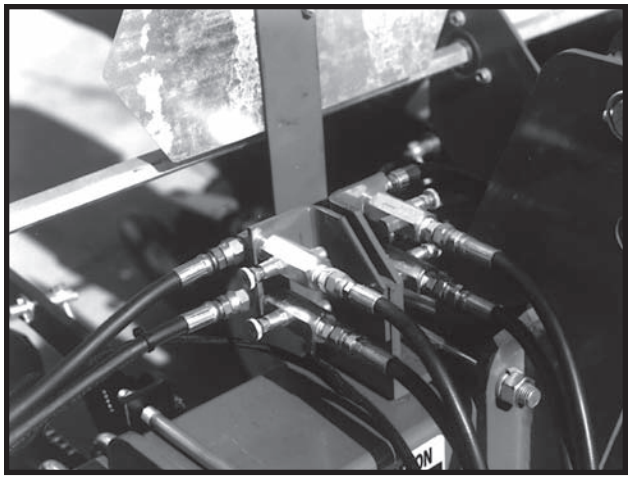
Vertical folding frame machines are equipped with a single control valve marker system plus another control valve for folding the wings.

55702-11



Vertical Folding Machine (Shown) With Single Control Valve Marker System And Rigid Frame Machine With Single Valve Hydraulic System
(Shown with SMV sign removed for visual clarity.)

52567-51



Rigid Frame With Dual Control Valve Marker System (Prior To Serial No. 602707)

An additional control is required for the optional Dual Lift Assist Wheel Package (Vertical Folding Machines Only) unless it is tied into the tractor 3 point lift system. Check with your tractor dealer for parts required.

Marker Hydraulic Operation

The dual valve marker system allows each marker to be operated independently. The single valve marker system uses a sequencing valve which directs hydraulic flow to operate the markers alternately.

With the dual valve marker system, both markers can be used at the same time by using both hydraulic control levers simultaneously. With the single valve marker system, both markers can be used at the same time by first lowering the marker and moving the hydraulic control lever to the raise position and immediately returning it to the lower position. This will shift the marker control valve spool and the remaining marker will be lowered. This is useful in planting contours and terraces.

WARNING: Always stand clear of marker assemblies and blades when planter is operating.

WARNING: Install safety lockups on markers, as provided, prior to transporting the planter or working around the machine.

DANGER: If a marker or wing lift cylinder has been removed for any reason, do not attach the rod end of the cylinder until the cylinder is cycled several times to remove any air that may be trapped in the system.

DANGER: Serious injury or death can result from contact with electric lines. Use care to avoid contact with electric lines when moving or operating this machine.

Folding Frame Hydraulic Operation

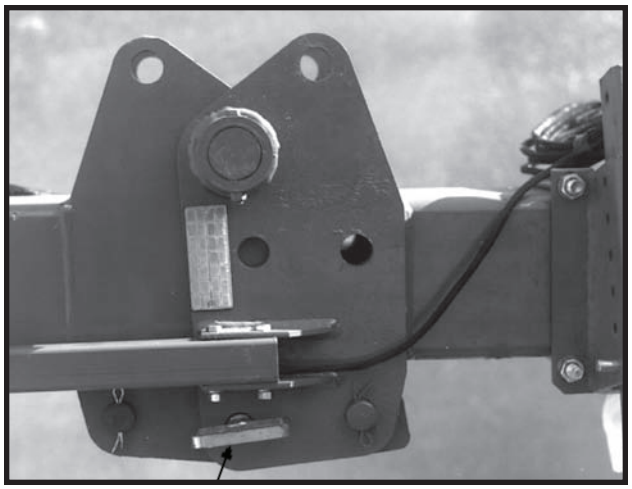
Vertical folding machines have the capability of folding the outer portion or wings of the planter toolbar vertically for narrower transport width. These models can be operated in the field with the wings either in the rigid position or flex position.

WARNING: Always make sure there are no persons near the planter when planter wings are being lowered from transport position.

DANGER: Serious injury or death can result from contact with electric lines. Use care to avoid contact with electric lines when moving or operating this machine.

Where flex in the frame is not required for proper row unit operation, pin the wings rigid.

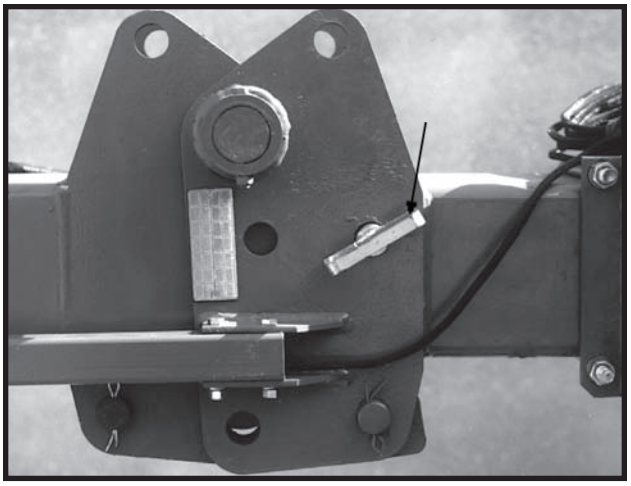
55702-2



Rigid Operation Position Shown

When planting in uneven terrain or anytime additional flex is needed, the wings can be left unpinned to allow the wings to flex.

55702-20



Flexible Operation Position Shown

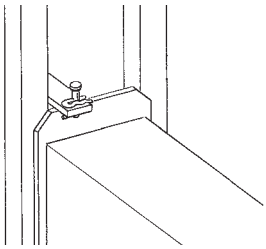
NOTE: When operating with the wings in the flex position, install the wing safety pins as shown. This will limit the flex up and down to 5° and prevent the wings from flexing up far enough to disengage the drill shaft to the center units. The wing safety pins must be removed to fold the wings into the transport position.

CAUTION: Prior to folding the wings for transport, the markers must be folded and all hoppers located on the planter's wings emptied or removed.

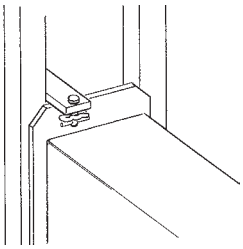
DANGER: Wings must be unfolded before detaching machine from tractor.

MARKER LOCKUPS (Conventional Markers Only)

APO041(MKR17)



Pin Stored In Raised Position For Marker Operation

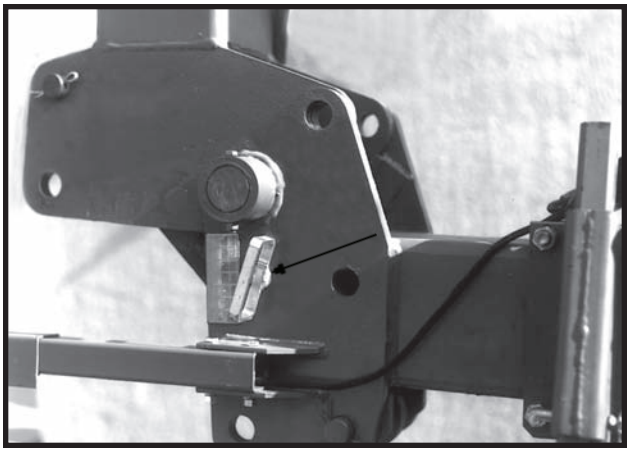


Marker Locked Up For Transport Or Working Around The Machine

When lockups are not in use, store lockup pin in raised position with hair pin clip on upper side of tab. Install marker lockups when transporting the planter or working around the planter.

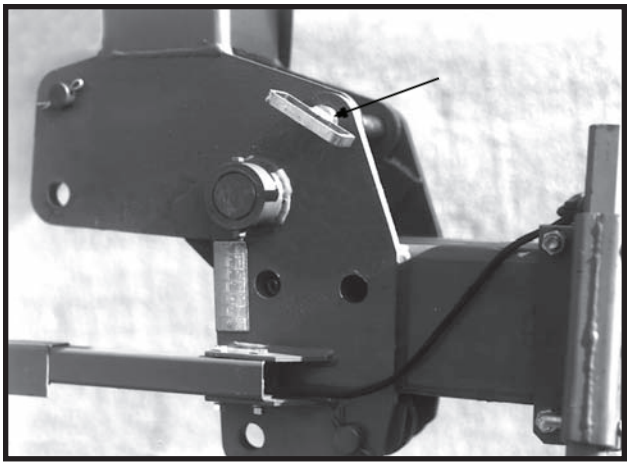
WING SAFETY PINS (If Applicable)

55702-5



Transport Position

55702-7



Service Position

The wing safety pins located in the hinge area are an added safety device. Always install the wing safety pins in the “transport” position before transporting the planter or working around the unit. Always install the wing safety pins in the “service” position when servicing the wing fold cylinder or wing fold linkage.

Install wing safety pin in “rigid” position for rigid toolbar operation and “flexible” position for wing flex operation. See “Hydraulic Operation”.

Refer to decal located near each hinge for proper safety pin position for flexible operation, rigid operation, transport and service.

TRANSPORTING THE PLANTER

WARNING: Always make sure safety/ warning lights, reflectors and SMV emblem are in place and visible prior to transporting the machine on public roads. In this regard, check and comply with all federal, state/ provincial and local regulations.

DANGER: Always install all safety lockups before transporting the planter.

PLANTING SPEED

Planters are designed to operate within a speed range of 2 to 8 MPH. See “Rate Charts”. Variations in ground speed will produce variations in rates. Finger pickup seed meter populations will tend to be disproportionately higher at high ground speeds.

NOTE: Due to a multitude of variables, seed spacing can be adversely affected at speeds above 5.5 MPH.

METRIC CONVERSION TABLE

Multiply	By	To Get
Inches (in.)	x 2.54	= centimeters (cm)
Inches (in.)	x 25.4	= millimeters (mm)
Feet (ft.)	x 30.48	= centimeters (cm)
Acres	x 0.405	= hectares (ha)
Miles per hour (mph)	x 1.609	= kilometers per hour (kmph)
Pounds (lbs.)	x 0.453	= kilograms (kg)
Bushels (bu.)	x 35.238	= liters (l)
Gallons (gal.)	x 3.785	= liters (l)
Pounds per square inch (psi)	x 6.894	= kilopascals (kPa) (100 kPa = 1 bar)
Inch pounds (in. lbs.)	x 0.113	= newtons-meters (N•m)
Foot pounds (ft. lbs.)	x 1.356	= newtons-meters (N•m)
Centimeters (cm)	x .394	= inches (in.)
Millimeters (mm)	x .0394	= inches (in.)
Centimeters (cm)	x .0328	= feet (ft.)
Hectares (ha)	x 2.469	= acres
Kilometers per hour (kmph)	x 0.621	= miles per hour (mph)
Kilograms (kg)	x 2.208	= pounds (lbs.)
Liters (l)	x 0.028	= bushels (bu.)
Liters (l)	x 0.264	= gallons (gal.)
Kilopascals (kPa) (100 kPa = 1 bar)	x 0.145	= pounds per square inch (psi)
Newtons-meters (N•m)	x 8.85	= inch pounds (in. lbs.)
Newtons-meters (N•m)	x 0.738	= foot pounds (ft. lbs.)

FIELD TEST

With any change of field and/or planting conditions, seed size or planter adjustment, we recommend a field test be made to ensure proper seed placement and operation of row units. See “Rate Charts”, “Checking Seed Population” and “Checking Granular Chemical Application Rate” at the end of this section.

- ❑ Check the planter for fore to aft and lateral level operation. See “Leveling The Planter”.
- ❑ Check **all** row units to be certain they are running level. When planting, the row unit parallel arms should be approximately parallel to the ground.
- ❑ Check row markers for proper operation and adjustment. See “Marker Adjustment”, “Marker Speed Adjustment” and “Marker Operation”.
- ❑ Check for proper application rates and placement of granular chemicals on **all** rows. See “Checking Granular Chemical Application Rate”.
- ❑ Check for desired depth placement and seed population on **all** rows. See “Checking Seed Population”.

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

- ❑ Hoses And Fittings
- ❑ Bolts And Nuts
- ❑ Cotter Pins And Roll Pins
- ❑ Drive Chain Alignment And Tension

ELECTRONIC SEED MONITOR SYSTEM

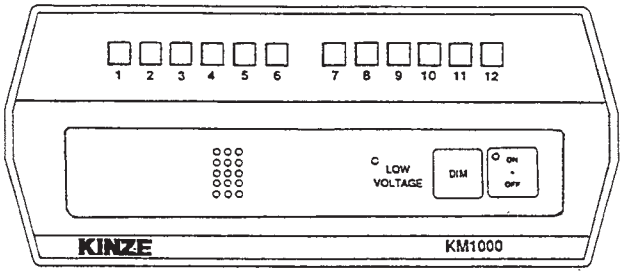
The electronic seed monitor system consists of a console, which is mounted on the tractor; seed tubes with sensors, one of which is installed in each planter row unit; and a planter harness (harness, Y-connector and/or extension cable where applicable), which connects the individual seed tube sensors to the console.

The monitor system is powered by the tractor battery (requires 12 volts DC). The console receives information from each of the sensors and translates this information for the operator, to let him know whether or not all rows are planting.

Located on the bottom of the monitor console is the sound alarm which is equipped with an adjustable sound baffle.

KM1000 MONITOR

(PLTR1)



STEP 1 **Turn the console ON by pressing the ON/OFF switch.**

Each time the console is powered up it performs a sensor check and self-check. All row indicator lamps are turned on, the alarm sounds momentarily and then the console enters the operate mode. If a row indicator lamp does not come on when the console is powered up, it indicates that a problem exists with either the sensor, planter harness or a burned out row indicator lamp. See Troubleshooting in the Maintenance Section of this manual.

STEP 2 **Begin planting and observe the row indicator lamps.**

All indicator lamps should be flashing at approximately the same rate. If one of the row lamps is flashing at a slower rate than the others it would indicate that row is planting at a slower rate and it should be checked for proper seed population. The monitor continuously checks for seed flow while planting, as indicated by the flashing row indicator lamps on the console. If any planter unit seed sensor is not detecting seeds, the alarm will sound continuously and the row indicator lamp corresponding to the planter row unit will stop flashing. When this happens, stop planting and check to see what is wrong with the row unit.

STEP 3 **Lift the planter at the end of the row.** When the seed flow stops in all planter units, the alarm will sound and all row indicator lamps will stop flashing. After approximately 2-4 seconds the alarm will stop sounding.

The intensity of the Row Indicator Lamps can be controlled by pressing and holding the switch labeled DIM. To set the intensity, press and hold the DIM switch until the lamps are at the desired intensity and then release the switch. Holding the DIM switch will cause the intensity to decrease to its lowest level and then increase to its maximum level. This cycle will continue as long as the switch is depressed. When the console is turned OFF and then ON the row lamp intensity will return to maximum.

If you are only using a portion of the number of rows on your planter, the alarm can be silenced by disconnecting the seed sensors of the unused rows and turning the monitor OFF then back ON. The monitor will then ignore these unused rows and monitor the other rows normally.

When disabling planter rows, the monitor may look at the system as a different planter setup. Example: If you have an 8 row planter and you disable the right four rows (for planting point rows, etc.) by unplugging the seed sensors and turning the monitor OFF and back to ON, the monitor will look at it as a 4 row planter and shift the row indicator lamps to the center four positions. Therefore, planter row 1 will be indicated on the monitor as row 3, planter row 2 as row 4, etc. Row lamps 1, 2, 7 and 8 will be off.

If you disable the left four rows (planter rows 1, 2, 3 and 4) the monitor will operate normally as an 8 row system. Row indicators 1, 2, 3 and 4 will be off.

10/96

KM1000 Bezel Decal Selection Chart

NO. ROWS	BEZEL DECAL	ROW LAMPS
4	12	1 2 3 4 5 6 7 8 9 10 11 12
6	6	1 2 3 4 5 6
8	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*8	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
10	12	1 2 3 4 5 6 7 8 9 10 11 12
12	12	1 2 3 4 5 6 7 8 9 10 11 12
*12	12	1 2 3 4 5 6 7 8 9 10 11 12
16	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*4 & 3 Solid Interplant®	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*6 & 3 Skip Row Interplant®	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*6 & 5 Solid Interplant®	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*8 & 5 Skip Row Interplant®	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
*8 & 7 Solid Interplant®	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

☐ Row lamp indicates planter row in use.

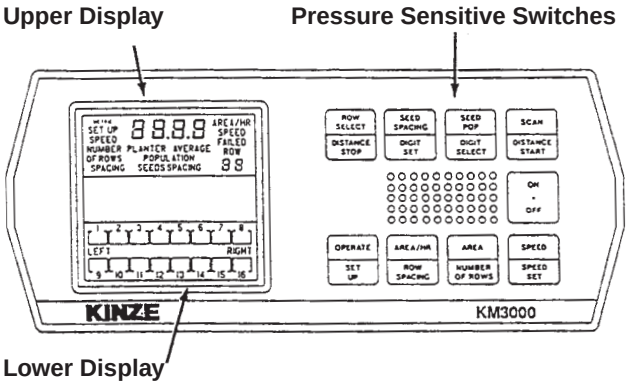
▩ Row lamp not used.

* With Y-connector.

NOTE: Interplant® diagrams assume that first Interplant® row is connected to row 1 of harness and Interplant® harness is connected to R.H. half of Y-connector.

KM3000 MONITOR

D-0841-0001(PLTR2)



The KM3000 console may be equipped with one of two optional distance sensors, a radar sensor which is mounted on the tractor or a pulse wheel (magnetic distance sensor) which is installed on the planter drive.

NOTE: The magnetic distance sensor is not compatible with the 2 To 1 Drive Reduction Package on Model 2100 planters, as driveline speed is reduced below rpm necessary to provide required speed pulse input to the console. (a) The KM3000 could be used as a seed flow monitor only without a distance sensor (See ground speed failure instructions on the following page to disable the distance sensor), (b) the KM3000 equipped with radar distance sensor may be used or (c) the KM1000 may be used.

The operator's controls on the front panel of the console consist of nine pressure sensitive switches. Eight of the nine switches are dual function switches, performing one function during the OPERATE MODE and another function during the SET UP MODE. All switch functions are color coded to define between the OPERATE and SET UP modes. The upper half of each dual function switch is olive brown in color and contains the Operate functions. The lower half of each dual function switch is tan in color and contains the Set Up functions.

NOTE: The KM3000 is shipped from the factory setup for use with American measures. To convert the console to Metric measures, cut the wire loop (red wire) adjacent to the signal cable on the back of the console and tape the ends of the cut wire to prevent the two ends making contact with each other or the vehicle.

STEP 1 **Turn console ON by pressing the ON-OFF switch.** Note that the upper display shows random segments for a short time then sequences through all entered SET UP constants (SPEED, NUMBER OF ROWS and ROW SPACING). If the constants are not valid the alarm will sound for approximately four seconds and the monitor will enter the SET UP mode. See "Entering Constants". If all constants are valid (as previously entered) the alarm will sound momentarily and the monitor will enter the OPERATE mode.

NOTE: Monitor will not go from "SET UP" to "OPERATE" unless the planter harness is connected.

STEP 2 **Select the desired OPERATE function to be displayed by pressing the labeled switch.**

In the **ROW SELECT** mode a specific row can be selected and continuously monitored.

SEED SPACING displays the seed spacing of each planter row in inches or centimeters.

SEED POP displays the seed population of each planter row in thousands of seeds per acre or hectare.

In the **SCAN** mode the display will sequence through all planter rows. The display message will be SEED POP or SEED SPACING as previously selected. With SEED POP selected after the population for the highest planter row number is displayed, the average population for the total planter is shown. With SEED SPACING selected after the seed spacing for the highest planter row number is displayed, the average seed spacing for the total planter is shown.

AREA/HR displays the predicted area in acres or hectares that will be covered in the next hour if the same planting rate is maintained. This prediction is based on the last 10 seconds of operation.

AREA displays the actual area covered in acres or hectares since the last reset. To reset area to .0, press and hold the AREA switch for approximately 5 seconds.

SPEED displays current vehicle ground speed in MPH or KmPH.

A row failure will be indicated by the FAILED ROW number being displayed in the lower right hand corner of the upper display, the corresponding segment in the lower display will be blank, and the alarm will sound continuously. Failures of more than one row will be indicated by the FAILED ROW number in the upper display sequencing through all failed rows, the corresponding segments of all failed rows in the lower display will be blank, and the alarm will sound continuously. When you lift your planter at the end of a row or stop in the field and seed flow stops in all planter units, the alarm will sound for approximately four seconds and all row indicator segments (lower display) will stop flashing. The upper display will show the FAILED ROW message and will sequence through all planter row numbers.

In the all row failure mode or immediately following power up, the operate functions (population, seed spacing and area) can be displayed by pressing the touch switch labeled with the desired function. This display condition will remain for one minute after the last time a switch is pressed or until seeds are detected by the seed sensors.

A ground speed failure will be indicated by the SPEED FAILED message being displayed in the upper display. To continue using the monitor system until a replacement ground speed sensor is obtained, disconnect the ground speed sensor cable, enter the SET UP mode and enter your normal planting speed in MPH or KmPH in place of the SPEED SET calibration number. IMPORTANT: The accuracy of the POPULATION, SEED SPACING and AREA readouts will depend on the vehicle ground speed. If you do not drive at the speed entered in SPEED SET memory these functions will not be accurate. AREA will not accumulate in this mode.

IMPORTANT: Under normal use the monitor will accumulate area whenever there is seed flow in at least one seed sensor. In the all rows failed condition, such as when turning around at the end of the field, the area accumulation will stop.

The monitor can be used to count seeds in a selected row by performing the following:

1. Place console in SET UP mode. (Before performing Step 2 make sure you have recorded the SPEED constant. See SPEED in “Entering Constants”.)
2. Set the SPEED constant to 0000. This can be done by manually setting each digit to zero using the DIGIT SELECT and DIGIT SET switches or by pressing and holding the SPEED SET switch for approximately 5 seconds.
3. Enter the OPERATE mode by pressing the OPERATE switch.
4. Press and release the ROW SELECT switch until the desired planter row number is displayed in the lower right corner of the upper display. The monitor will now show seed count for the selected row.

To reset the display to zero and continue to monitor the same row unit, press the SCAN switch then the ROW SELECT.

To select another row unit, press the ROW SELECT switch until the desired planter row number is displayed. Each time the ROW SELECT switch is pressed the row number will be incremented one unit and the four digit display will be reset to zero.

IMPORTANT: To return to normal operation, enter the SET UP mode and re-enter the SPEED constant.

The lower visual display contains up to sixteen segments with each one corresponding to a planter row unit. When the monitor is turned on the console senses the number of seed sensors connected to the planter harness and activates a segment for each one. The segment flashes dark each time a seed is detected by the seed sensor. If up to 16 seed sensors are sensed the display will show segments for all sensors all the time. If more than 16 (17-32) seed sensors are sensed, then the display is split and up to 16 sensors are shown for the LEFT and RIGHT side of the planter.

EXAMPLE: If a 24 row planter is being used and the display message LEFT is on, the segments are showing seed flow for planter rows 1 through 12. When the display message RIGHT is on, the segments are showing seed flow for planter rows 13 through 24. When the RIGHT planter half is shown, the segment numbers 1 through 12 will represent planter rows 13 through 24 (segment 1 is planter row 13, segment 2 is row 14, up to segment 12 which is row 24).

ENTERING CONSTANTS (KM3000 Only)

Upon initial power-up or whenever memory is lost the following three constants must be entered before the system will enter the “operate” mode. The following examples are for an 8 row planter with 30" row spacing.

1. ***ROW SPACING*** *- The distance between the rows on your planter.*
   Press the “row spacing” switch. The upper display will show “set up”, “row spacing” and “000.0”.
   Press the “digit select” switch (a short alarm burst will be heard each time the switch activates) until the “0” to the left of the decimal point is flashing.
   Press the “digit set” switch until a “3” is shown in this location: 030.0.
   NOTE: Holding the “digit set” switch will cause the digit to increment from 0 through 9.

2. ***NUMBER OF ROWS*** *- The number of active rows on your planter. (Example for 8 row planter)*
   Press the "number of rows" switch. The upper display will show "set up", "number of rows" and "00".
   Press the "digit select" switch until the right hand "0" is flashing.
   Press the "digit set" switch until an 8 is shown in this location: 08.

3. ***SPEED*** *- A number that is the result of the speed calibration procedure. Used with either radar or magnetic distance sensors.*
   The speed set calibration number matches the console to the ground speed sensor when calibrated over a specified measured distance. When the calibration procedure is completed and the speed set constant established, the value should be written down and retained in the event battery voltage is removed from the console and the information in memory is lost. In this event, the constant may be re-entered manually using the "digit select" and "digit set" switches. The speed set calibration procedure must be repeated and new speed set number established if the radar or magnetic distance sensor mounting is changed for any reason.

NOTE: When obtaining the following speed set number, actual in-field conditions should be simulated as close as possible.

A. Measure an accurate 400 foot (150 meter) in-field course, preferably on level ground. Mark the "start" and "finish" of the course so it will be plainly visible from the cab as you drive past.

B. With the upper display showing messages "set up" and "speed" and the four digit display showing all zeros (to reset four digit display to zeros, press and hold the "speed set" switch for approximately 5 seconds), drive up to the marked course at normal planting speed.

C. When even with the "start" marker, press the "distance start" switch. Four dashes will appear on the console display.

D. Drive at a steady speed through the entire course. When even with the "finish" marker, press the "distance stop" switch.

E. The speed set number will be displayed. Record this number for future reference.

SPEED SET NUMBER _____

IMPORTANT: This procedure may have to be repeated after performing the Radar Vibration Test. See Radar Vibration Test.

NOTE: The accuracy of the area computations, population, seed spacing and vehicle ground speed readout are dependent upon the accuracy of the operator entered constants. Use care when determining the constants which describe your planter.

RADAR VIBRATION TEST
(KM3000 With Radar Sensor Only)

To check for vibration, start vehicle engine and slowly increase engine RPM (while watching the ground speed readout) to approximately 1800 RPM. If the ground speed readings are above zero, the radar sensor must be mounted in an alternate, more stable location.

CHECKING SEED POPULATION

1. Tie up one or more sets of closing wheels by running a light chain or rubber tarp strap between the hopper support panel and closing wheels. It may be necessary to decrease closing wheel arm spring tension.

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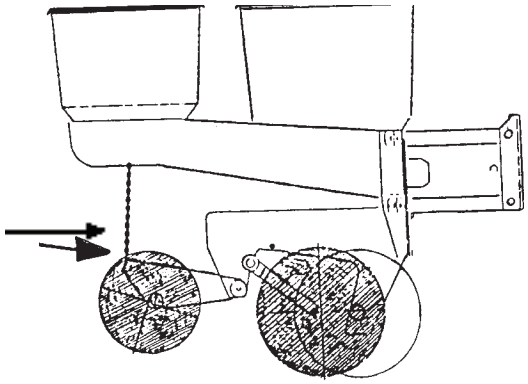
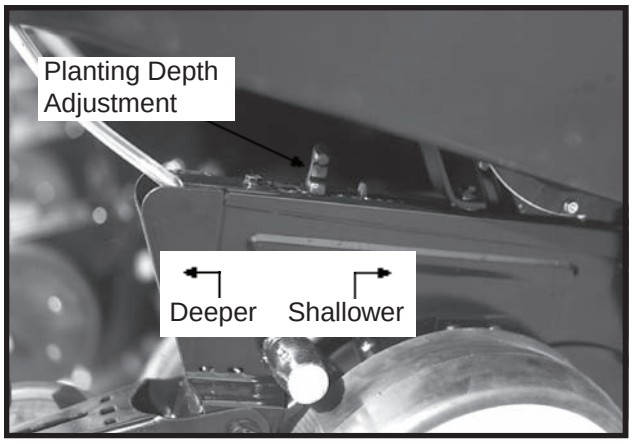


2. Plant a short distance and check to see if seed is visible in the seed trench. Adjust planting depth to a shallower setting if seed is not visible and recheck.



3. Measure 1/1000 of an acre. See chart for correct distance for row width being planted. For example, if planting 30" rows 1/1000 of an acre would be 17'5".

LENGTH OF ROW IN FEET AND INCHES				
Fraction Of Acre	Row Width			
	30"	36"	38"	40"
1/1000	17' 5"	14' 6"	13' 10"	13' 1"

NOTE: When planting with closing wheels raised and planting depth set shallow, seeds may bounce or roll affecting seed spacing accuracy.

4. Count seeds in measured distance.
5. Multiply the number of seeds placed in the 1/1000 of an acre by 1000. This will give you total population.

EXAMPLE: With 30" row spacing 17'5" equals 1/1000 acre.

26 Seeds Counted	x	1000	=	26,000 Seeds Per Acre

Seed count can be affected by drive ratio between drive wheel and seed meter, tire pressure and/or seed meter malfunction.

If seed check shows the average distance between seeds in inches is significantly different than the seed rate chart indicates, first check drive ratio between drive wheel and seed meter. Check drive wheel air pressure, check for incorrect sprocket(s) in drive line and check drive and driven sprockets on transmission for proper selection.

Second, check for seed meter malfunction. For example, if spacing between kernels of corn at the transmission setting being used is 8" and a gap of 16" is observed, a finger has lost its seed and not functioned properly. If two seeds are found within a short distance of each other, the finger has metered two seeds instead of one.

See “Finger Pickup Seed Meter Troubleshooting” and/or “Brush-Type Seed Meter Troubleshooting” in the Maintenance Section of this manual.

Determining Pounds Per Acre (Brush-Type Seed Meter)

To determine pounds per acre:

Seeds Per Acre On Chart	÷	Seeds Per Pound From Seed Tag On Bag	=	Pounds Per Acre

To determine bushels per acre:

Pounds Per Acre	÷	Unit Weight Of Seed	=	Bushels Per Acre

The unit weight of:

1 Bushel Soybeans = 60 Pounds
1 Bushel Milo = 56 Pounds
1 Bushel Cotton = 32 Pounds

If seeds per pound information is not available the following is an average:

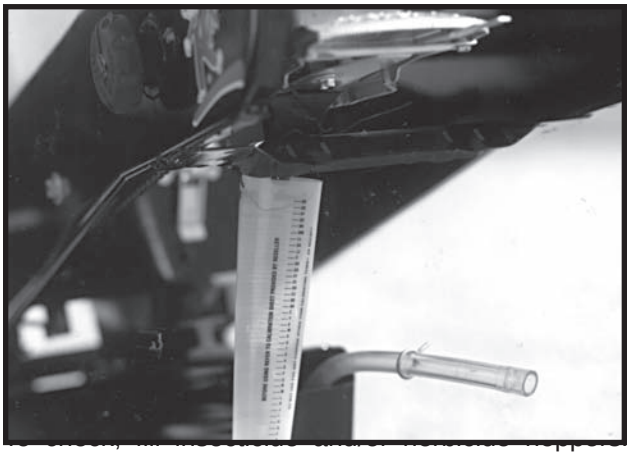
2,600 seeds per pound for medium size soybeans
15,000 seeds per pound for medium size milo
4,500 seeds per pound for medium size cotton

If seed check shows planting rate is significantly different than seed rate chart shows or if a particular meter is not planting accurately, see “Brush-Type Seed Meter Maintenance” and “Brush-Type Seed Meter Troubleshooting”.

CHECKING GRANULAR CHEMICAL APPLICATION RATE

Many things can affect the rate of delivery of granular chemicals such as temperature, humidity, speed, ground conditions, flowability of different material or any obstruction in the meter.

A field check is important to determine correct application rates.



Attach a calibrated vial to each granular chemical meter. Lower the planter and proceed as follows.

NOTE: It is not necessary for seed meter clutch to be engaged during test. Disengage clutch to avoid dropping seed.

Drive 1320 feet at planting speed. Weigh the chemical in ounces that was caught in one vial. Multiply that amount by the factor shown to determine pounds per acre.

LBS. PER ACRE FACTOR FOR GIVEN ROW WIDTH	
Row Width	Factor
30"	0.83
36"	0.69
38"	0.65
40"	0.62

EXAMPLE: You are planting 30" rows. You have planted for 1320 feet at the desired planting speed. You caught 12.0 ounces of chemical in one vial. 12.0 ounces times 0.83 equals 9.96 pounds per acre.

NOTE: It is important to check calibration of all rows.

Metering Gate

Use the metering gate setting for distributing insecticide or herbicide as a starting point. The charts are based on a 5 miles per hour planting speed. For speeds faster than 5 miles per hour a higher gate setting should be used. For speeds slower than 5 miles per hour a lower gate setting should be used.

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

GENERAL PLANTING RATE INFORMATION

These planting rate charts are applicable to KINZE® Model 2100 3 Point Mounted Planters. See “Tire Pressure” for recommended tire pressures.

Not all row spacings listed are applicable to all model planters.

IMPORTANT: The sprocket combinations listed in these charts are best for average conditions. Changes in sprocket combinations may be required to obtain desired planting population. TO PREVENT PLANTING MISCALCULATIONS, MAKE FIELD CHECKS TO BE SURE YOU ARE PLANTING AT THE DESIRED RATE.

The size and shape of seed may affect the planting rate.

Finger Pickup Seed Meter (Corn, Oil Sunflower)
Larger grades will generally plant more accurately at the high end of the ground speed range than smaller grades. Higher than optimum speeds may result in population rate increase or higher incidence of doubles, particularly with small seed. Medium round corn seed is most desirable for planting accuracy at optimum speed. Only No. 3 and No. 4 oil sunflower seed are recommended for planting accuracy at optimum speed.

NOTE: Seed additives, added to the seed in the hopper, may adversely affect performance of the finger pickup seed meter and accelerate wear. See “Finger Pickup Seed Meter” in the Row Unit Operation section.

Brush-Type Seed Meter (Soybean, Milo/Grain Sorghum, Acid-Delinted Cotton)
Rate charts are given in seeds per acre as well as seed spacing in inches rounded to the nearest tenth of an inch. Because of the large range in seed size, pounds per acre is not a suggested method of selecting transmission settings. When using smaller size seeds it may appear the pounds per acre is below what was expected and vice versa on large seed. To determine pounds per acre, use the formula given in “Determining Pounds Per Acre (Brush-Type Seed Meter)” in the “Checking Seed Population” section of this manual.

NOTE: Due to a multitude of variables, seed spacing can be adversely affected at speeds above 5.5 MPH.

NOTE: Use of the Half Rate (2 To 1) Drive Reduction Package will reduce the planter transmission speed. The seeding rate will be approximately 50% of the chart reading when using the Half Rate (2To 1) Drive Reduction Package. Planting speed can affect actual seeding rate. Make a field check and adjust setting in the transmission as needed to obtain the desired seed drop.

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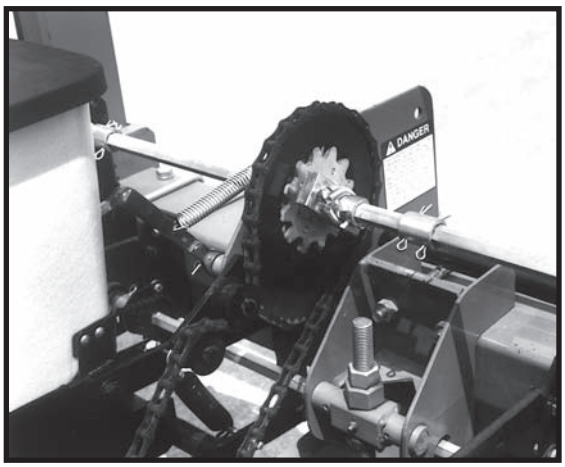

EXAMPLE: 30" row spacing using 60 cell seed discs in brush-type seed meters and 17 tooth drive/ 28 tooth driven sprockets.

84,308 ÷ 2 = 42,154 Population (2.5" Seed Spacing x 2 = 5" Seed Spacing)

PLANTING RATES FOR FINGER PICKUP SEED METERS
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

30" Rows	36" Rows	38" Rows	40" Rows	Transmission Sprockets Drive	Transmission Sprockets Driven	Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
16,862	14,051	13,312	12,646	17	28	4 to 6	12.4
17,486	14,572	13,805	13,115	17	27	4 to 6	12.0
18,159	15,132	14,336	13,619	17	26	4 to 6	11.5
18,845	15,704	14,878	14,134	19	28	4 to 6	11.1
18,885	15,737	14,909	14,164	17	25	4 to 6	11.1
19,543	16,286	15,429	14,657	19	27	4 to 6	10.7
19,672	16,393	15,530	14,754	17	24	4 to 6	10.6
20,295	16,912	16,022	15,221	19	26	4 to 6	10.3
20,527	17,106	16,206	15,395	17	23	4 to 6	10.2
21,107	17,589	16,663	15,830	19	25	4 to 6	9.9
21,986	18,322	17,357	16,490	19	24	4 to 6	9.5
22,813	19,011	18,010	17,110	23	28	4 to 6	9.2
22,942	19,118	18,112	17,207	19	23	4 to 6	9.1
23,658	19,715	18,677	17,743	23	27	4 to 6	8.8
23,805	19,837	18,793	17,853	24	28	4 to 6	8.8
24,568	20,473	19,395	18,426	23	26	4 to 6	8.5
24,686	20,572	19,489	18,515	24	27	4 to 6	8.5
24,796	20,664	19,576	18,597	25	28	4 to 6	8.4
24,849	20,707	19,617	18,636	17	19	4 to 6	8.4
25,550	21,292	20,171	19,163	23	25	4 to 6	8.2
25,636	21,363	20,239	19,227	24	26	4 to 6	8.2
25,715	21,429	20,301	19,286	25	27	4 to 6	8.1
25,788	21,490	20,359	19,341	26	28	4 to 6	8.1
26,615	22,179	21,012	19,961	23	24	4 to 6	7.9
26,661	22,218	21,048	19,996	24	25	4 to 6	7.8
26,704	22,253	21,082	20,028	25	26	4 to 6	7.8
26,743	22,286	21,113	20,058	26	27	4 to 6	7.8
26,780	22,317	21,142	20,085	27	28	4 to 6	7.8
27,772	23,143	21,925	20,829	23	23	4 to 6	7.5
28,800	24,000	22,737	21,600	28	27	4 to 6	7.3
28,840	24,033	22,769	21,630	27	26	4 to 6	7.3
28,929	24,108	22,839	21,697	25	24	4 to 6	7.2
28,979	24,150	22,879	21,735	24	23	4 to 6	7.2
29,908	24,924	23,612	22,431	28	26	4 to 6	7.0
29,994	24,995	23,679	22,495	27	25	4 to 6	7.0
30,187	25,156	23,832	22,640	25	23	4 to 6	6.9
31,039	25,866	24,505	23,279	19	17	4 to 6	6.7
31,105	25,920	24,556	23,328	28	25	4 to 6	6.7
31,243	26,036	24,666	23,433	27	24	4 to 6	6.7
31,394	26,162	24,785	23,546	26	23	4 to 6	6.7
32,401	27,001	25,579	24,300	28	24	3 to 6	6.5
32,602	27,168	25,738	24,451	27	23	3 to 6	6.4
33,619	28,016	26,541	25,214	23	19	3 to 5.5	6.2
33,809	28,174	26,692	25,357	28	23	3 to 5.5	6.2
35,080	29,234	27,695	26,310	24	19	3 to 5.5	6.0
36,542	30,452	28,849	27,407	25	19	3 to 5	5.7
37,574	31,312	29,664	28,180	23	17	3 to 5	5.6
38,004	31,670	30,003	28,503	26	19	3 to 5	5.5
39,207	32,673	30,953	29,406	24	17	3 to 5	5.3
39,465	32,888	31,157	29,599	27	19	3 to 5	5.3
40,841	34,034	32,243	30,631	25	17	3 to 4.5	5.1
40,927	34,106	32,311	30,695	28	19	3 to 4.5	5.1
42,475	35,396	33,533	31,856	26	17	3 to 4.5	4.9
44,108	36,757	34,822	33,081	27	17	3 to 4.5	4.7
45,742	38,118	36,112	34,307	28	17	3 to 4.5	4.6

IMPORTANT: See "General Planting Rate Information" and "Checking Seed Population" pages for additional information. Always check seed population in the field to ensure planting rates are correct.

PLANTING RATES FOR BRUSH-TYPE SEED METERS

APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

Transmission Sprockets		60 Cell Soybean Or High Rate Milo/ Grain Sorghum				Average Seed Spacing In Inches	48 Cell Specialty Soybean Or High Rate Acid-Delinted Cotton				Average Seed Spacing In Inches	Speed Range (MPH)
Drive	Driven	30" Rows	36" Rows	38" Rows	40" Rows		30" Rows	36" Rows	38" Rows	40" Rows		
17	28	84,308	70,256	66,559	63,231	2.5	67,446	56,205	53,246	50,584	3.1	2 to 8
17	27	87,430	72,859	69,024	65,573	2.4	69,944	58,286	55,219	52,458	3.0	2 to 8
17	26	90,793	75,661	71,679	68,095	2.3	72,634	60,528	57,342	54,475	2.9	2 to 8
19	28	94,226	78,522	74,389	70,670	2.2	75,381	62,818	59,512	56,536	2.8	2 to 8
19	27	97,716	81,430	77,144	73,287	2.1	78,173	65,144	61,715	58,630	2.7	2 to 8
17	24	98,359	81,966	77,652	73,769	2.1	78,688	65,573	62,122	59,016	2.7	2 to 8
17	23	102,636	85,530	81,028	76,977	2.0	82,109	68,424	64,822	61,581	2.5	2 to 8
19	25	105,533	87,945	83,316	79,150	2.0	84,427	70,355	66,653	63,320	2.5	2 to 8
19	24	109,931	91,609	86,787	82,448	1.9	87,944	73,286	69,430	65,958	2.4	2 to 8
23	28	114,063	95,053	90,050	85,548	1.8	91,712	76,042	72,520	68,438	2.3	2 to 8
19	23	114,710	95,592	90,561	86,033	1.8	91,768	76,474	72,448	68,826	2.3	2 to 8
24	28	119,023	99,186	93,965	89,267	1.8	95,218	79,349	75,173	71,414	2.2	2 to 8
24	27	123,431	102,859	97,445	92,573	1.7	98,744	82,288	77,957	74,059	2.1	2 to 8
17	19	124,243	103,536	98,087	93,182	1.7	99,394	82,829	78,469	74,546	2.1	2 to 8
24	26	128,178	106,815	101,193	96,134	1.6	102,542	85,453	80,955	76,907	2.0	2 to 8
26	28	128,941	107,451	101,796	96,706	1.6	103,154	85,962	81,437	77,364	2.0	2 to 8
24	25	133,305	111,088	105,241	99,979	1.6	106,645	88,870	84,194	79,984	2.0	2 to 8
26	27	133,717	111,431	105,566	100,288	1.6	106,973	89,144	84,453	80,230	2.0	2 to 8
23	23	138,860	115,717	109,626	104,145	1.5	111,088	92,573	87,701	83,315	1.9	2 to 8
27	26	144,201	120,167	113,843	108,150	1.4	115,360	96,134	91,074	86,520	1.8	2 to 8
24	23	144,897	120,748	114,393	108,673	1.4	115,918	96,598	91,514	86,938	1.8	2 to 8
25	23	150,935	125,779	119,159	113,201	1.4	120,747	100,622	95,326	90,560	1.7	2 to 8
19	17	155,196	129,330	122,523	116,397	1.3	124,157	103,464	98,019	93,118	1.7	2 to 8
27	24	156,217	130,181	123,329	117,163	1.3	124,974	104,146	98,664	93,730	1.7	2 to 8
28	24	162,003	135,003	127,897	121,502	1.3	129,603	108,002	102,318	97,202	1.6	2 to 8
23	19	168,093	140,078	132,705	126,070	1.2	134,475	112,062	106,165	100,856	1.6	2 to 8
28	23	169,047	140,872	133,458	126,785	1.2	135,237	112,698	106,766	101,429	1.5	2 to 8
24	19	175,402	146,168	138,475	131,551	1.2	140,322	116,934	110,781	105,242	1.5	2 to 8
25	19	182,710	152,259	144,245	137,033	1.1	146,168	121,806	115,395	109,626	1.4	2 to 8
23	17	187,869	156,558	148,318	140,902	1.1	150,296	125,246	118,654	112,722	1.4	2 to 8
26	19	190,019	158,349	150,015	142,514	1.1	152,014	126,678	120,011	114,011	1.4	2 to 7
27	19	197,327	164,439	155,785	147,995	1.1	157,862	131,552	124,627	118,397	1.3	2 to 7
28	19	204,635	170,530	161,554	153,477	1.0	163,709	136,424	129,243	122,781	1.3	2 to 7
26	17	212,374	176,978	167,664	159,280	0.9	169,899	141,582	134,131	127,424	1.2	2 to 7
27	17	220,542	183,785	174,112	165,407	0.9	176,434	147,029	139,289	132,325	1.2	2 to 7
28	17	228,710	190,592	180,561	171,533	0.9	182,968	152,474	144,448	137,226	1.1	2 to 7

IMPORTANT: See "General Planting Rate Information" and "Checking Seed Population" pages for additional information.

NOTE: When using the Half Rate (2 To 1) Drive Reduction Package, rates will be approximately 50% of given numbers.

IMPORTANT: Always check seed population in the field to ensure planting rates are correct.

PLANTING RATES FOR BRUSH-TYPE SEED METERS (Continued)

APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

Transmission Sprockets		36 Cell Acid-Delinted Large Cotton				Average Seed Spacing In Inches	30 Cell Milo/Grain Sorghum Or Acid-Delinted Cotton				Average Seed Spacing In Inches	Speed Range (MPH)
Drive	Driven	30" Rows	36" Rows	38" Rows	40" Rows		30" Rows	36" Rows	38" Rows	40" Rows		
17	28	50,585	42,154	39,935	37,938	4.1	42,154	35,128	33,279	31,615	5.0	2 to 8
17	27	52,458	43,715	41,414	39,343	4.0	43,715	36,429	34,512	32,786	4.8	2 to 8
17	26	54,475	45,396	43,007	40,856	3.8	45,396	37,830	35,839	34,047	4.6	2 to 8
19	28	56,536	47,113	44,634	42,402	3.7	47,113	39,261	37,195	35,335	4.4	2 to 8
19	27	58,630	48,858	46,286	43,973	3.6	48,858	40,715	38,572	36,644	4.3	2 to 8
17	24	59,016	49,180	46,591	44,262	3.5	49,180	40,983	38,826	36,885	4.3	2 to 8
17	23	61,582	51,318	48,617	46,186	3.4	51,318	42,765	40,514	38,488	4.1	2 to 8
19	25	63,320	52,766	49,990	47,490	3.3	52,767	43,972	41,658	39,575	4.0	2 to 8
19	24	65,958	54,965	52,073	49,469	3.2	54,965	45,804	43,394	41,224	3.8	2 to 8
23	28	68,438	57,031	54,030	51,329	3.1	57,032	47,526	45,025	42,774	3.7	2 to 8
19	23	68,826	57,355	54,336	51,619	3.0	57,355	47,796	45,280	43,016	3.6	2 to 8
24	28	71,413	59,512	56,380	53,561	2.9	59,511	49,593	46,983	44,634	3.5	2 to 8
24	27	74,058	61,716	58,468	55,544	2.8	61,715	51,430	48,723	46,287	3.4	2 to 8
17	19	74,545	62,122	58,852	55,909	2.8	62,121	51,768	49,043	46,591	3.4	2 to 8
24	26	76,907	64,090	60,716	57,680	2.7	64,089	53,408	50,597	48,067	3.3	2 to 8
26	28	77,365	64,471	61,078	58,024	2.7	64,471	53,726	50,898	48,353	3.2	2 to 8
24	25	79,984	66,653	63,145	59,988	2.6	66,653	55,544	52,621	49,990	3.1	2 to 8
26	27	80,230	66,858	63,340	60,173	2.6	66,858	55,715	52,783	50,144	3.1	2 to 8
23	23	83,316	69,430	65,776	62,486	2.5	69,430	57,858	54,813	52,072	3.0	2 to 8
27	26	86,520	72,101	68,305	64,890	2.4	72,100	60,084	56,921	54,075	2.9	2 to 8
24	23	86,939	72,449	68,635	65,203	2.4	72,449	60,374	57,196	54,336	2.9	2 to 8
25	23	90,560	75,467	71,495	67,920	2.3	75,467	62,889	59,579	56,600	2.8	2 to 8
19	17	93,118	77,598	73,514	69,839	2.3	77,598	64,665	61,262	58,199	2.7	2 to 8
27	24	93,731	78,109	73,998	70,297	2.2	78,109	65,091	61,665	58,581	2.7	2 to 8
28	24	97,202	81,001	76,739	72,901	2.2	81,002	67,501	63,949	60,751	2.6	2 to 8
23	19	100,856	84,047	79,624	75,642	2.1	84,047	70,039	66,353	63,035	2.5	2 to 8
28	23	101,428	84,523	80,075	76,072	2.1	84,523	70,436	66,729	63,393	2.5	2 to 8
24	19	105,241	87,701	83,086	78,931	2.0	87,701	73,084	69,238	65,776	2.4	2 to 8
25	19	109,626	91,355	86,546	82,219	1.9	91,355	76,129	72,122	68,516	2.3	2 to 8
23	17	112,722	93,935	88,991	84,541	1.9	93,935	78,279	74,159	70,451	2.2	2 to 8
26	19	114,011	95,009	90,008	85,508	1.8	95,009	79,174	75,007	71,257	2.2	2 to 7
27	19	118,397	98,664	93,470	88,798	1.8	98,664	82,220	77,892	73,998	2.1	2 to 7
28	19	122,782	102,318	96,932	92,086	1.7	102,318	85,265	80,777	76,738	2.0	2 to 7
26	17	127,424	106,187	100,598	95,568	1.6	106,187	88,489	83,832	79,640	2.0	2 to 7
27	17	132,325	110,272	104,467	99,244	1.6	110,271	91,893	87,056	82,703	1.9	2 to 7
28	17	137,226	114,355	108,336	102,919	1.5	114,355	95,296	90,280	85,766	1.8	2 to 7

IMPORTANT: See "General Planting Rate Information" and "Checking Seed Population" pages for additional information.

NOTE: When using the Half Rate (2 To 1) Drive Reduction Package, rates will be approximately 50% of given numbers.

IMPORTANT: Always check seed population in the field to ensure planting rates are correct.

PLANTING RATES FOR BRUSH-TYPE SEED METERS (Continued)
APPROXIMATE HILLS/ACRE FOR VARIOUS ROW WIDTHS

Due to variations in cotton seed size, meters equipped with the 12 cell acid-delinted hill-drop cotton discs will plant from 3 to 6 seeds per cell. Select proper disc for seed size range to be planted.

To determine planter transmission setting, **determine desired hill spacing and select the transmission ratio closest to the hill spacing in inches on the chart. To decrease population increase spacing. To increase population decrease spacing.**

To determine population per acre, **determine average seeds per hill and hills per acre by doing a field check. Measure 1/1000 of an acre (1/1000 acre = Length of row 17' 5" for 30" row widths, 14' 6" for 36" row widths, 13' 10" for 38" row widths and 13' 1" for 40" row widths). Multiply average seeds per hill by hills per acre. EXAMPLE: 4 seeds per hill x (13 hills x 1000) = 52,000**

Transmission Sprockets		NUMBER OF HILLS PER ACRE 12 Cell Hill-Drop Cotton, Acid-Delinted				Average Hill Spacing In Inches	Speed Range (MPH)
Drive	Driven	30" Rows	36" Rows	38" Rows	40" Rows		
17	28	16,862	14,051	13,312	12,646	12.4	2 to 8
17	27	17,486	14,572	13,805	13,114	12.2	2 to 8
17	26	18,158	15,132	14,336	13,619	11.5	2 to 8
19	28	18,845	15,704	14,878	14,134	11.1	2 to 8
19	27	19,543	16,286	15,429	14,658	10.7	2 to 8
17	24	19,672	16,393	15,530	14,754	10.6	2 to 8
17	23	20,527	17,106	16,206	15,395	10.2	2 to 8
19	25	21,107	17,589	16,663	15,830	9.9	2 to 8
19	24	21,986	18,322	17,358	16,490	9.5	2 to 8
23	28	22,813	19,010	18,010	17,110	9.2	2 to 8
19	23	22,942	19,118	18,112	17,206	9.1	2 to 8
24	28	23,804	19,837	18,793	17,854	8.8	2 to 8
24	27	24,686	20,572	19,489	18,515	8.5	2 to 8
17	19	24,848	20,707	19,617	18,596	8.4	2 to 8
24	26	25,636	21,363	20,239	19,227	8.2	2 to 8
26	28	25,788	21,490	20,359	19,341	8.1	2 to 8
24	25	26,661	22,218	21,048	19,996	7.8	2 to 8
26	27	26,743	22,286	21,113	20,058	7.8	2 to 8
23	23	27,772	23,143	21,925	20,829	7.5	2 to 8
27	26	28,840	24,034	22,768	21,630	7.3	2 to 8
24	23	28,980	24,150	22,878	21,734	7.2	2 to 8
25	23	30,187	25,156	23,832	22,640	6.9	2 to 8
19	17	31,039	25,866	24,505	23,280	6.7	2 to 8
27	24	31,244	26,036	24,666	23,432	6.7	2 to 8
28	24	32,401	27,000	25,580	24,300	6.5	2 to 8
23	19	33,619	28,016	26,541	25,214	6.2	2 to 8
28	23	33,809	28,174	26,692	25,357	6.2	2 to 8
24	19	35,080	29,234	27,695	26,310	6.0	2 to 8
25	19	36,542	30,452	28,849	27,406	5.7	2 to 8
23	17	37,574	31,312	29,664	28,180	5.6	2 to 8
26	19	38,004	31,670	30,003	28,503	5.5	2 to 7
27	19	39,466	32,888	31,157	29,599	5.3	2 to 7
28	19	40,927	34,106	32,311	30,695	5.1	2 to 7
26	17	42,475	35,396	33,533	31,856	4.9	2 to 7
27	17	44,108	36,757	34,822	33,081	4.7	2 to 7
28	17	45,742	38,118	36,112	34,306	4.6	2 to 7

IMPORTANT: See "General Planting Rate Information" and "Checking Seed Population" pages for additional information.

NOTE: When using the Half Rate (2 To 1) Drive Reduction Package, rates will be approximately 50% of given numbers.

IMPORTANT: Always check seed population in the field to ensure planting rates are correct.

DRY INSECTICIDE APPLICATION RATES
APPROXIMATE POUNDS/ACRE AT 5 MPH FOR VARIOUS ROW WIDTHS

Meter Setting	30" Rows	36" Rows	38" Rows	40" Rows
CLAY GRANULES				
10	5.1	4.3	4.0	3.8
11	5.6	4.7	4.4	4.2
12	6.3	5.3	5.0	4.7
13	7.1	5.9	5.6	5.3
14	7.9	6.6	6.2	5.9
15	8.8	7.3	6.9	6.6
16	9.9	8.3	7.8	7.4
17	11.0	9.2	8.7	8.3
18	11.8	9.8	9.3	8.9
19	13.5	11.3	10.7	10.1
20	14.6	12.2	11.5	11.0
21	16.0	13.3	12.6	12.0
22	16.9	14.1	13.3	12.7
23	17.7	14.8	14.0	13.3
24	19.4	16.2	15.3	14.6
25	21.5	17.9	17.0	16.1
26	23.7	19.8	18.7	17.8
27	24.8	20.7	19.6	18.6
28	26.2	21.8	20.7	19.7
29	28.7	23.9	22.7	21.5
30	30.5	25.4	24.1	22.9
SAND GRANULES				
5	3.0	2.5	2.4	2.3
6	5.0	4.2	3.9	3.8
7	5.5	4.6	4.3	4.1
8	6.5	5.4	5.1	4.9
9	8.0	6.7	6.3	6.0
10	9.2	7.7	7.3	6.9
11	10.5	8.8	8.3	7.9
12	11.5	9.6	9.1	8.6
13	13.0	10.8	10.3	9.8
14	14.5	12.1	11.4	10.9
15	16.0	13.3	12.6	12.0
16	18.0	15.0	14.2	13.5
17	20.0	16.7	15.8	15.0
18	22.5	18.8	17.8	16.9
19	25.0	20.8	19.7	18.8
20	26.5	22.1	20.9	19.9
21	28.5	23.8	22.5	21.4
22	30.5	25.4	24.1	22.9
23	33.0	27.5	26.1	24.8
24	35.5	29.6	28.0	26.6
25	38.0	31.7	30.0	28.5

IMPORTANT: The above chart represents average values and should be used only as a starting point. The granular chemical flows through the given meter opening at a nearly uniform rate regardless of roller speed. Your actual rate will vary depending upon the insecticide you are using, your planting speed and your plant population. Planting speed/ground speed has the greatest effect on application rate.

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

DRY HERBICIDE APPLICATION RATES
APPROXIMATE POUNDS/ACRE AT 5 MPH FOR VARIOUS ROW WIDTHS

CLAY GRANULES

Meter Setting	30" Rows	36" Rows	38" Rows	40" Rows
10	4.8	4.0	3.8	3.6
11	5.4	4.5	4.3	4.1
12	6.0	5.0	4.7	4.5
13	6.7	5.6	5.3	5.0
14	7.5	6.3	5.9	5.6
15	8.5	7.1	6.7	6.4
16	9.3	7.8	7.3	7.0
17	10.2	8.5	8.1	7.7
18	11.0	9.2	8.7	8.3
19	12.0	10.0	9.5	9.0
20	13.0	10.8	10.3	9.8
21	14.0	11.7	11.1	10.5
22	15.0	12.5	11.8	11.3
23	16.2	13.5	12.8	12.2
24	17.5	14.6	13.8	13.1
25	18.7	15.6	14.8	14.0
26	20.0	16.7	15.8	15.0
27	21.5	17.9	17.0	16.1
28	23.3	19.4	18.4	17.5
29	25.0	20.8	19.7	18.8
30	27.5	22.9	21.7	20.6

IMPORTANT: The above chart represents average values and should be used only as a starting point. The granular chemical flows through the given meter opening at a nearly uniform rate regardless of roller speed. Your actual rate will vary depending upon the herbicide you are using, your planting speed and your plant population. Planting speed/ground speed has the greatest effect on application rate.

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

ROW UNIT OPERATION

PLANTING DEPTH

Planting depth is maintained by the row unit gauge wheels. To increase or decrease the planting depth, first raise the planter 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 setting initially. Then lower the planter and check operation and planting depth of all row units. It may be necessary to readjust some rows to obtain uniform operation.

WARNING: Never work under the planter while in raised position without using safety lockups.

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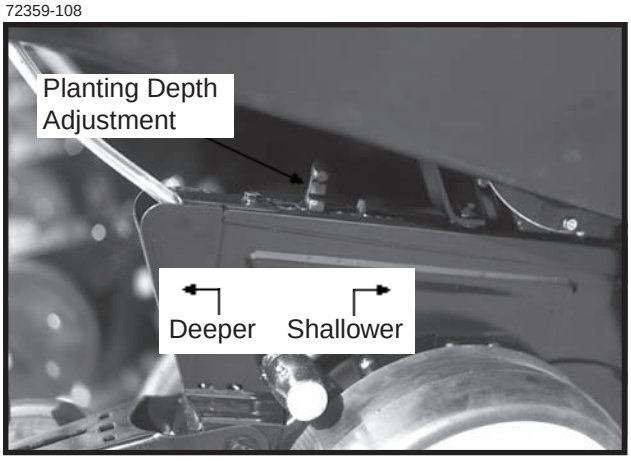


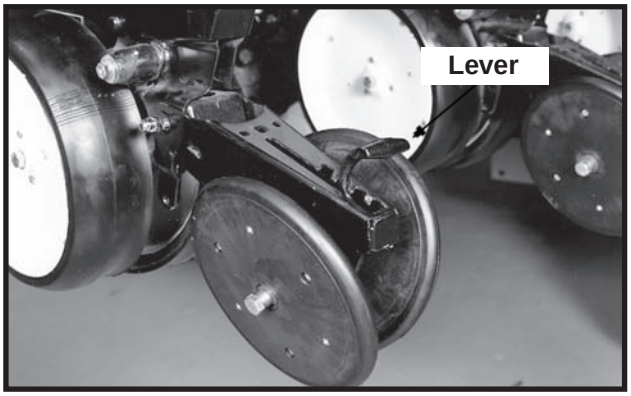
"V" CLOSING WHEEL ADJUSTMENT (Rubber And Cast Iron)

WARNING: Raise planter and install safety lockups before making closing wheel adjustments.

After adjusting planting depth, check the operation of the "V" closing wheels. The "V" closing wheels should have enough down pressure to close the seed trench and ensure good soil to seed contact. To increase spring pressure on the closing wheels, move the 5-position quick adjustable down force lever located at the rear of the closing wheel arm to the rear. Moving the lever forward decreases spring tension.

Adjust all row units to a similar setting.

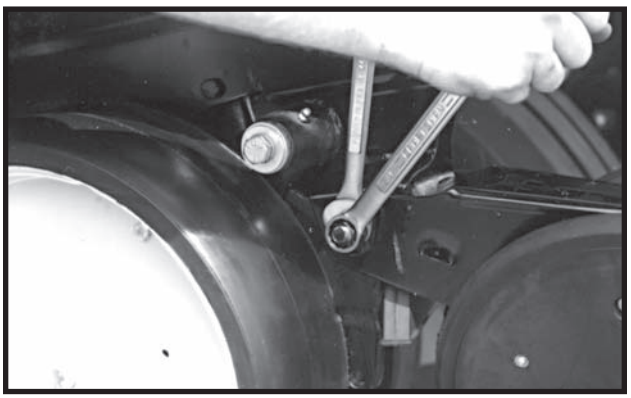
77121-10



Light soil usually requires less down force at average depth (approximately 2") while heavy soil requires increased down force.

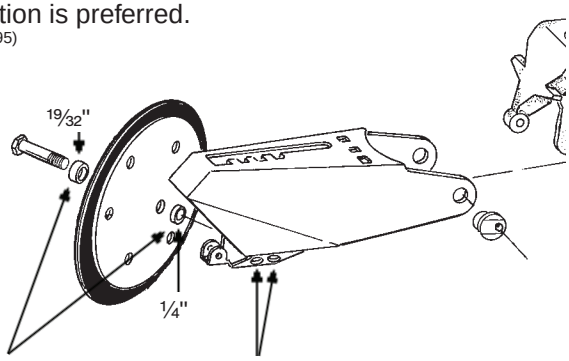
Eccentric bushings in the wheel arm stop allow for lateral adjustment of the "V" closing wheel assembly. Using a ¾" wrench, loosen the hardware which attaches the closing wheel arm to the wheel arm stop. Using another ¾" wrench turn the eccentric bushings until the **closing wheels are aligned with the seed trench**. Tighten hardware.

72359-129



Bushings used for installation of the closing wheels can be moved from side to side for closing wheel spacing adjustment and the closing wheels can be installed in two locations either "offset" (to improve residue flow) or "directly" opposite. Under normal conditions the narrow position is preferred.

(PLTR95)



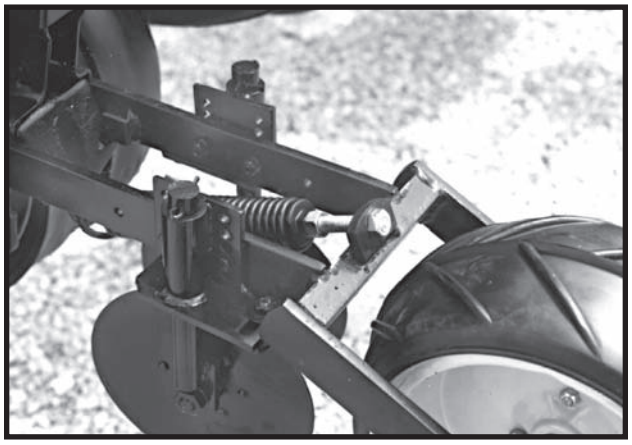
Suggested Bushing Locations

Installation Holes

COVERING DISCS/SINGLE PRESS WHEEL ADJUSTMENT

WARNING: Raise planter and install safety lockups before making covering discs/ single press wheel adjustments.

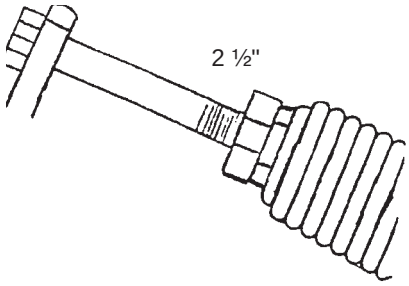
72359-31



After adjusting planting depth, check the operation of the covering discs/single press wheels.

Initial press wheel down force setting should be with 2 ½" between mounting arm tab and locking nut. To adjust down force spring, loosen ½" locking nut and turn adjusting bolt in to increase down force and out to decrease down force. Tighten locking nut against spring plug. Adjust all row units to a similar setting.

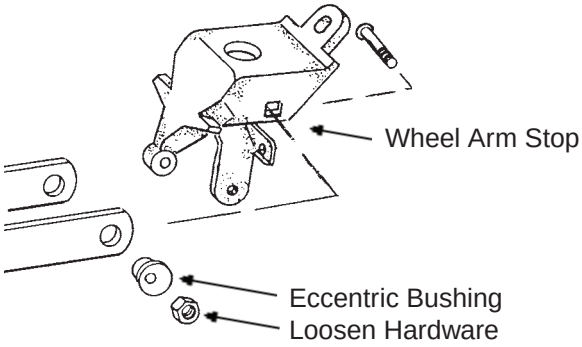
RH993(PLTR12)



Adjusting Bolt Tab ½" Locking Nut

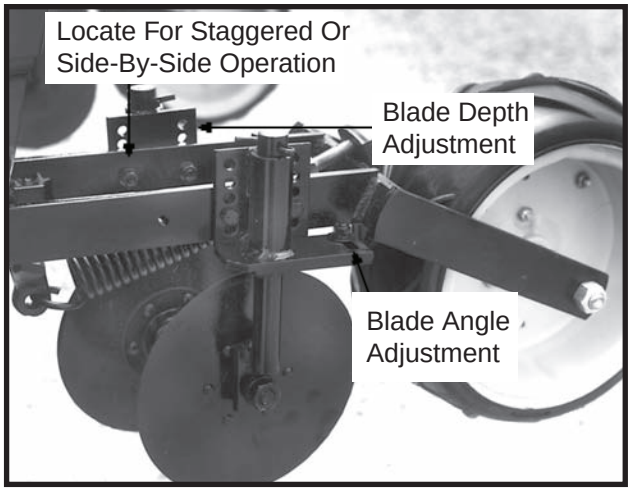
Eccentric bushings in the wheel arm stop allow for lateral adjustment of the covering discs/single press wheel assembly. Using a ¾" wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another ¾" wrench, turn the eccentric bushings until the press wheel is aligned with the seed trench.

(PLTR96)



Two sets of holes in the mounting arm allow the covering discs to be located for staggered or side-by-side operation as desired.

72359-35



Five sets of holes in each disc bracket allow for ½" incremental blade depth adjustment.

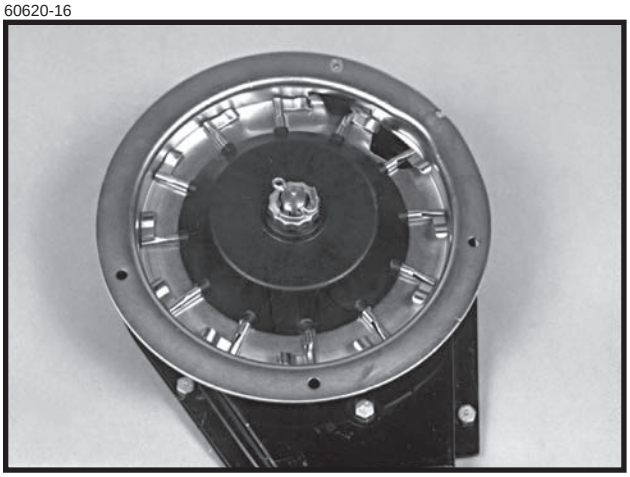
Slotted holes in the disc mount and bracket allow for 0° - 15° blade angle adjustment.

Adjust covering discs on all row units to similar settings.

FINGER PICKUP SEED METER

Refer to the planting rate chart for recommended seed drive transmission sprocket combinations.

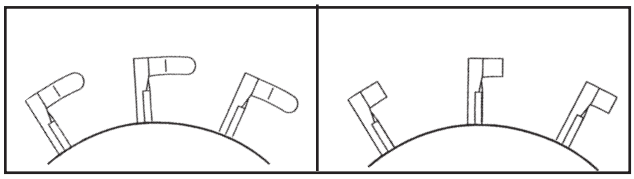
60620-16



Shown With Corn Fingers Installed

The following seed fingers are available for use with the finger pickup seed meter:

(PLTR91/PLTR92)



Corn Fingers **Oil Sunflower Fingers**

No. 3 and/or No. 4 size oil sunflower seeds are recommended for use in the finger pickup seed meter equipped with oil sunflower fingers.

IMPORTANT: Always check seed population in the field to ensure planting rates are correct.

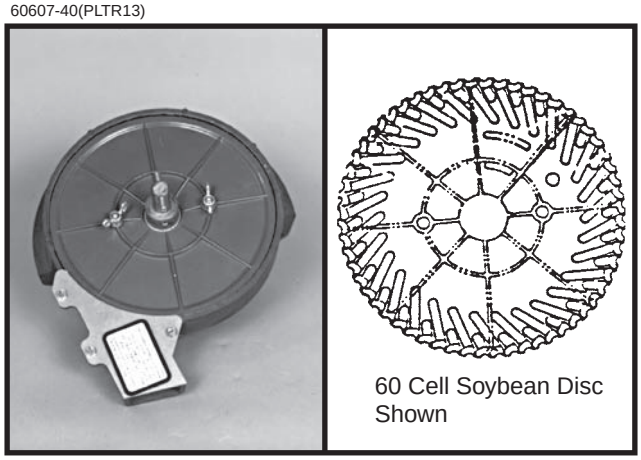
IMPORTANT: To ensure efficient operation of the finger pickup seed meter and extend the life of its components, mix one teaspoon of powdered graphite with the seed twice daily. Even distribution of the graphite with the seed is critical with newer seed coatings to provide lubrication for the seed pickup mechanism. Graphite application frequency may need to be increased if using additional seed additives.

82354-1

See "General Planting Rate Information", "Finger Pickup Seed Meter Troubleshooting" and "Finger Pickup Seed Meter Inspection/Adjustment" for additional information.

BRUSH-TYPE SEED METER

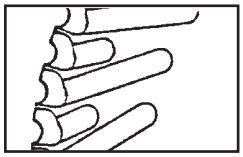
60607-40(PLTR13)



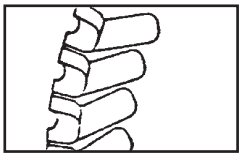
60 Cell Soybean Disc Shown

The following seed discs are available for use with the brush-type seed meter:

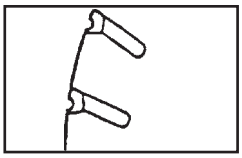
Soybean: *60 cells to meter seed sizes from 2200 to 4000 seeds per pound (Black color-coded).* (PLTR14)



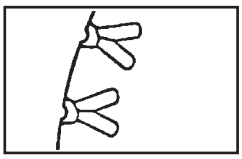
Specialty soybean: *48 cells to meter seed sizes from 1400 to 2200 seeds per pound (Dark blue color-coded).* (PLTR15)



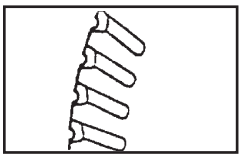
Small milo/grain sorghum: *30 cells to meter seed sizes from 14,000 to 20,000 seeds per pound (Red color-coded).* (PLTR16)



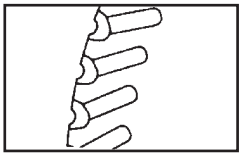
Large milo/grain sorghum: *30 cells to meter seed sizes from 10,000 to 16,000 seeds per pound (Light blue color-coded).* (PLTR17)



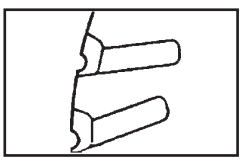
High rate small milo/grain sorghum: *60 cells to meter seed sizes from 12,000 to 18,000 seeds per pound (Red color-coded).* (PLTR18)



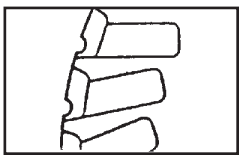
High rate large milo/grain sorghum: *60 cells to meter seed sizes from 10,000 to 14,000 seeds per pound (Yellow color-coded).* (PLTR19)



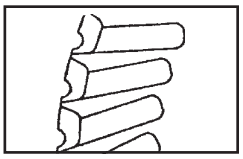
Cotton, acid-delinted: *30 cells to meter seed sizes from 4200 to 5200 seeds per pound (White color-coded).* (PLTR20)



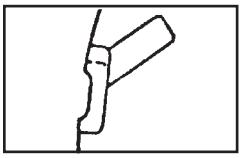
Large cotton, acid-delinted: *36 cells to meter seed sizes from 3800 to 4400 seeds per pound (Tan color-coded).* (PLTR21)



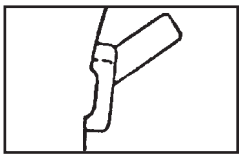
High rate cotton, acid-delinted: *48 cells to meter seed sizes from 4200 to 5200 seeds per pound (Light green color-coded).* (PLTR22)



Hill-drop cotton, acid-delinted: *12 cells, 3 to 6 seeds/cell, to meter seed sizes from 4000 to 5200 seeds per pound (Brown color-coded).* (PLTR23)



Small hill-drop cotton, acid-delinted: *12 cells, 3 to 6 seeds/cell, to meter seed sizes from 5000 to 6200 seeds per pound (Dark green color-coded).* (PLTR23)



When installing the seed disc onto the meter hub, turn the disc counterclockwise while tightening the two wing nuts that retain the disc. The seed disc should have only slight resistance when rotated counterclockwise after wing nuts are tight.

The brush-type seed meter attaches to the seed hopper in the same manner as the finger pickup seed meter. Secure to bottom of seed hopper with two $^{5}/_{16}$" flanged hex nuts. DO NOT OVER TIGHTEN.

Erratic seed spacing may result from misalignment between the drive coupler and seed meter input shaft. Misalignment may cause momentary stoppage of seed disc. Check alignment after initial installation. If adjustment is required, refer to "Meter Drive Adjustment" for correct procedure.

Refer to the planting rate charts in this manual for recommended seed drive transmission sprocket combinations.

IMPORTANT: Use powdered graphite or talc with each hopper fill of seed. Additional graphite or talc may be required to retard buildup of seed treatments on meter components. Frequency of monitor seed tube cleaning may be affected due to use of additional graphite or talc.

82354-1

One tablespoon of **powdered graphite** per hopper fill of seed should be mixed with the seed each time the hopper is filled. This prolongs the life of the brush-type seed meter components, reduces buildup of seed treatment on components in the meter and improves seed spacing.

Talc seed lubricant may be used in lieu of or in addition to graphite to reduce seed treatment buildup on seed disc and meter components and will improve meter performance. Coat seed disc and brushes with talc before installing meter. Fill hopper ½ full of seed, add ¼ cup of talc and mix thoroughly. Finish filling hopper, add another ¼ cup of talc and mix thoroughly. Adjust rate of talc use as needed so all seeds are coated, while avoiding a buildup of talc in the bottom of the hopper. Humid conditions and/or small sized seeds with extra seed treatment may require as much as one cup of talc per hopper to prevent seed treatment buildup on seed disc and/or brushes.

CAUTION: Some liquid seed treatments or inoculants may create buildup on the seed disc or brushes. Check frequently for proper population and/or seed delivery when using any liquid seed treatment. All seed treatment should be thoroughly mixed with the seed per the manufacturers' recommendations. Seed treatment dumped on top of the seed after the hopper is filled, and not mixed properly will cause bridging of the seed in the meter, reducing population or stopping the meter from planting. Additional graphite or talc may be required to retard buildup of seed treatments on meter components.

IMPORTANT: Foreign material, such as hulls, stems, etc., may affect seed delivery. Clean seed is required to ensure accurate seed metering from the brush-type seed meter. Seed discs should be removed daily to check for buildup of foreign material, such as hulls, in the seed meter or the brushes.

SEED HOPPER

60620-69

The seed hopper has a capacity of 1.6 bushels.

When filling the seed hopper use clean seed and make certain there are no foreign objects in the hopper. **Replace hopper lids after hoppers are filled to prevent the accumulation of dust or dirt in the seed meter which will cause premature wear.** See "Finger Pickup Seed Meter Lubrication" and/or "Brush-Type Seed Meter Lubrication".

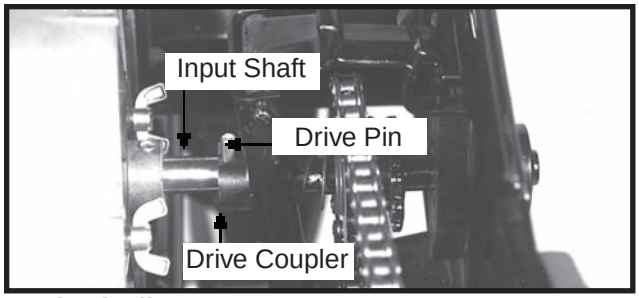
Periodically empty the hoppers completely to remove any foreign objects and to ensure proper seed meter operation. To empty hopper, disengage drive release and hopper latch and lift hopper off the hopper support. See "Meter Drive Release".

SEED METER DRIVE ADJUSTMENT

IMPORTANT: The seed meter drive coupler must be properly aligned with the meter input shaft.

Improper alignment between the drive coupler and input shaft of the meter can cause the meter housing to flex as the meter rotates. This continual flexing of the meter housing can cause damage to the housing. Any time the hopper support panel is removed or replaced, vertical and horizontal alignment should be checked.

61658-27



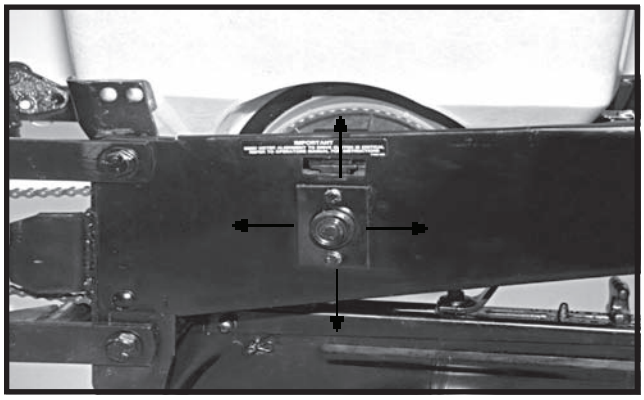
To check alignment:

- Inspect meter input shaft to make sure drive pin is centered.
- Install hopper with meter onto support panel and latch hopper.
- Rotate meter input shaft so drive pin is vertical.
- Rotate drive clutch so slots in coupler are vertcal.
- Engage clutch.
- Clutch coupler should engage meter shaft freely with equal amount of pin extending beyond each side of drive coupler.
- Disengage clutch.
- Rotate both meter shaft and drive clutch to the horizontal position.
- Re-engage clutch.
- Clutch coupler should engage meter shaft freely with equal amount of pin extending beyond each side of drive coupler.

To adjust drive clutch:

- Slightly loosen both 5⁄16" cap screws.
- Move clutch assembly to correct any misalignment.
- Tighten both 5⁄16" cap screws.

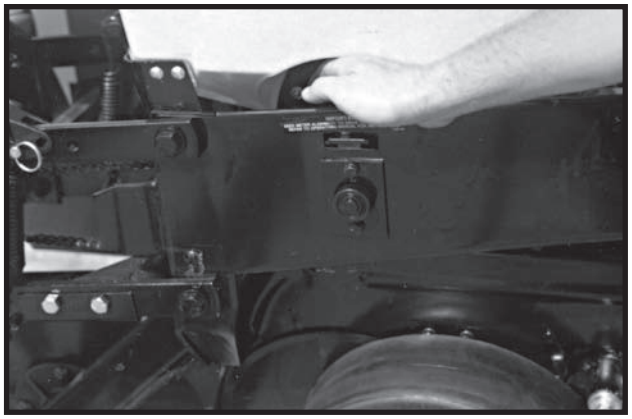
72794-24



SEED METER DRIVE RELEASE

The seed meter drive is equipped with a clutch release mechanism that allows the drive to be disconnected from the seed metering unit for removal of seed hopper. Disconnecting the drive allows the operator to check granular chemical application rates without dropping seed. It also allows one or more of the rows to be disconnected when finishing fields.

72359-164



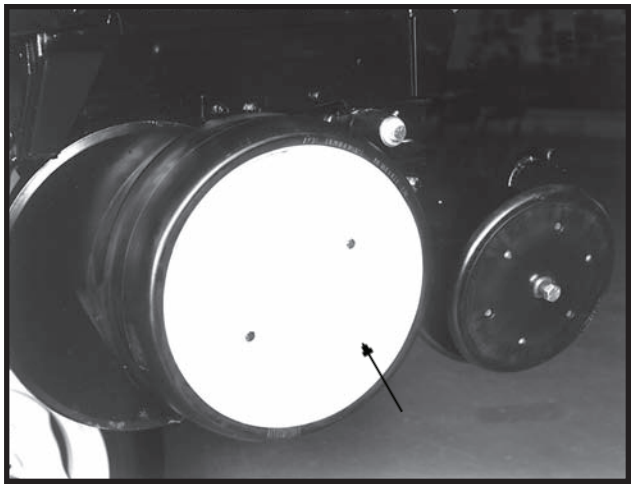
To disengage the drive, lift the release handle and pull outward until the handle locks in the slot in the side of the hopper side panel. To engage the row unit, lift and unlatch the handle. Spring tension will return the mechanism to the drive position.

Erratic seed spacing may result from misalignment between the drive coupler and seed meter input shaft. Misalignment may cause momentary stoppage of brush-type meter seed disc. Check alignment after initial installation. If adjustment is required, refer to “Meter Drive Adjustment” for correct procedure.

ROW UNIT OPERATION

ROW UNIT GAUGE WHEEL COVER

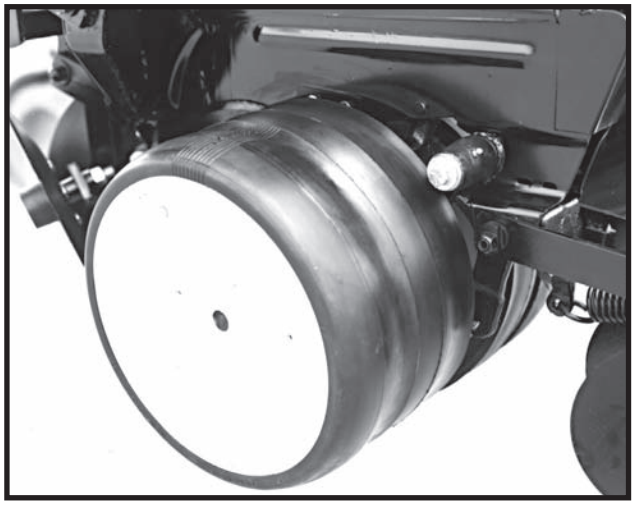
78896-6



The row unit gauge wheel cover when installed on the gauge wheels next to the transport and/or drive wheels of the planter will aid in protecting the row units from rock damage.

DUAL GAUGE WHEEL

72359-53



The dual gauge wheel is used to provide added width for additional row unit flotation in light sandy soil.

In some applications such as narrow row widths (less than 36") or where clearance is a problem, the added width of the dual gauge wheel may prevent its use.

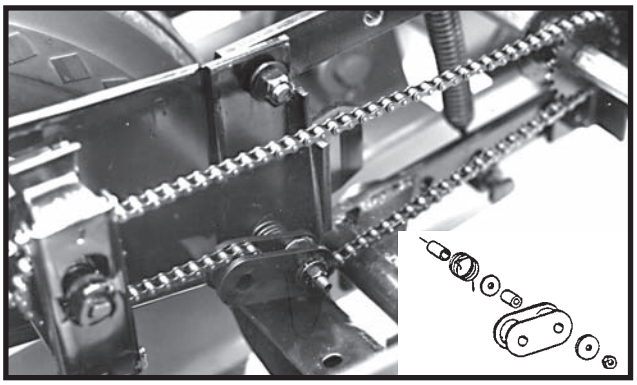
ROW UNIT CHAIN ROUTING

For proper operation and to minimize wear, the row unit drive chains must be properly tensioned and aligned.

Inspect and replace weak, worn or broken springs and/or idlers and idler bushings.

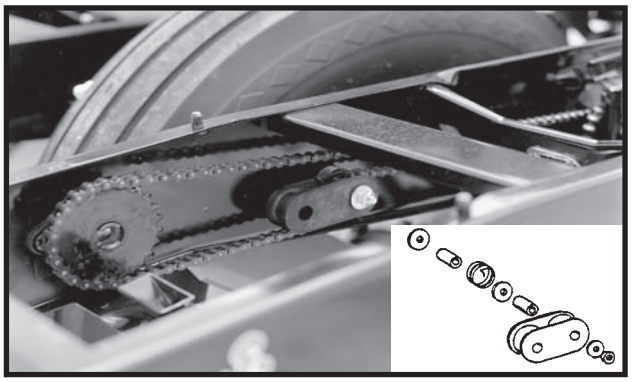
NOTE: When idler shows signs of wear, it can be reversed for prolonged use.

72359-124(PLTR25)



Row Unit Meter Drive

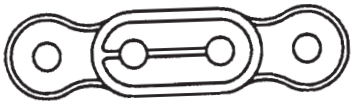
72359-97(PLTR26)



Row Unit Granular Chemical Drive

NOTE: Make sure connector link is installed with closed end located as shown below.

(PLTR24)



Closed End

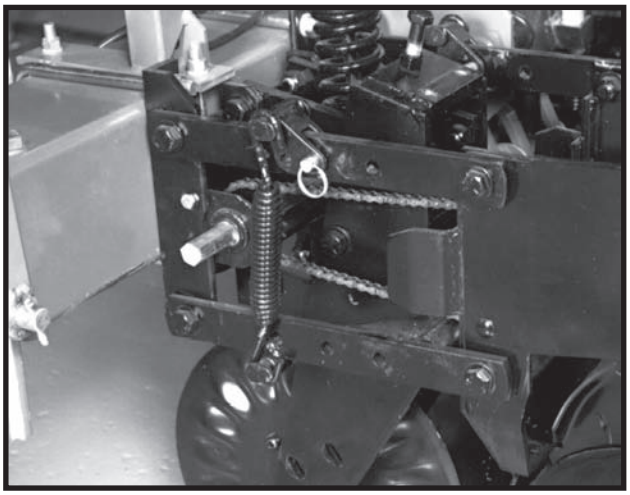
Direction Of Chain Travel →

QUICK ADJUSTABLE DOWN FORCE SPRINGS

Quick adjustable down force springs are designed to increase penetration in hard soil and keep the row unit from bouncing in rough field conditions.

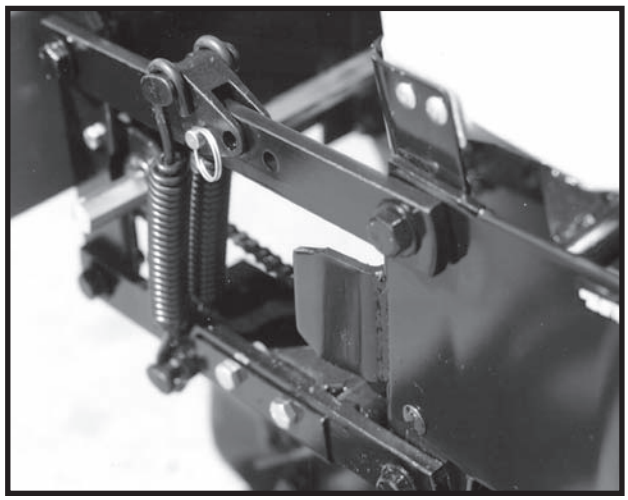
Two springs per row, one on the L.H. parallel arms and one on the R.H. parallel arms, are used unless equipped with row unit mounted no till coulters. Four springs per row are used with row unit mounted no till coulters.

61703-4



Two Springs Per Row (Dual)

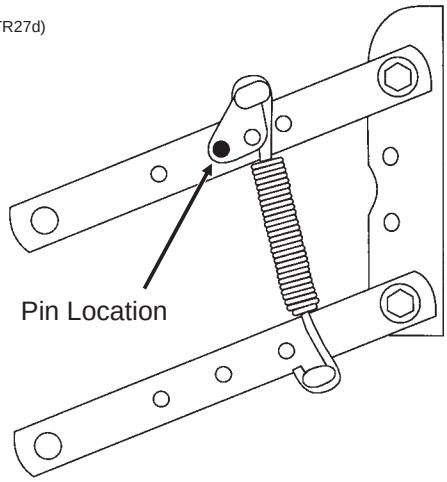
72359-4



Four Springs Per Row (Quad)
(Used Only In Conjunction With Row Unit Mounted No Till Coulters)

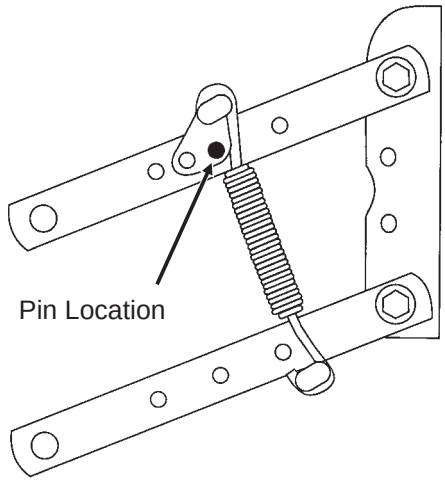
There are four positions for spring tension adjustment. Position 1 allows for minimum down pressure and position 4 for maximum down pressure.

L0096(PLTR27d)



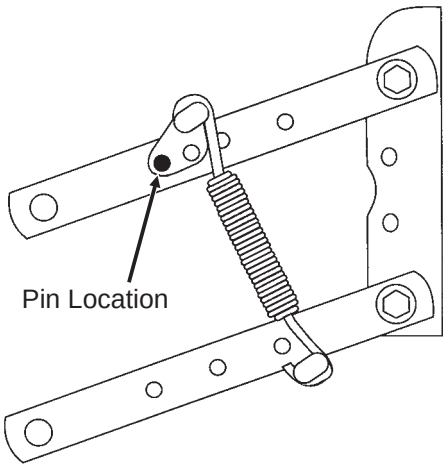
Position 1 (Minimum)

(PLTR28d)



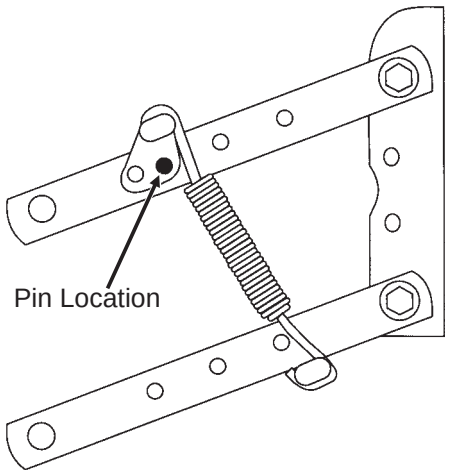
Position 2

(PLTR29d)



Position 3

(PLTR30d)



Position 4 (Maximum)

To adjust spring tension, raise planter and remove spring mount pin at top of spring. Slide mount to desired position and install pin.

NOTE: It is necessary for the operator to adjust springs according to field conditions. If springs are adjusted for too much down pressure for field conditions, it is possible for the row units to lift the planter to the extent that the drive wheels do not make sufficient contact. Too much down pressure in soft field conditions can cause the row unit to run too deep.

DANGER: Always install safety lockups or lower machine to the ground before working under or around the machine.

NOTE: Springs must always be installed with open side of spring hooks toward seed hopper to prevent binding on spring mount adjustment pin.

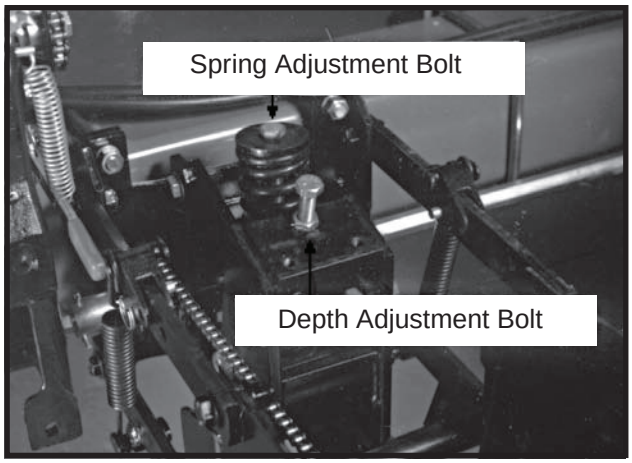
FRAME MOUNTED COULTER

Frame mounted coulters with 1" bubbled, 1" fluted (8 flutes) or ¾" fluted (13 flutes) blades may be used on pull row units only.

The frame mounted coulter is designed to allow required spring down pressure on the coulter for maximum penetration while exerting less shock load on the row unit.

The frame mounted coulter can be used with or without the depth control bar installed. In most applications, especially in rocky planting conditions, the depth control bar **should not be used**. Use of the depth control bar transfers down force from the coulter to the row unit making less down force available to the coulter blade.

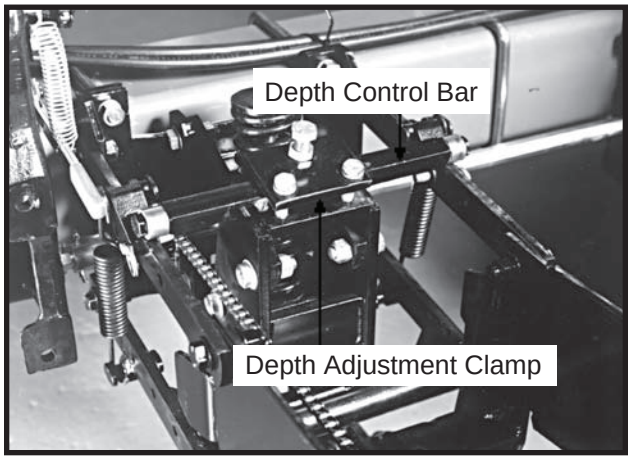
56314-14



DEPTH ADJUSTMENT
(Without Depth Control Bar Installed)

When the depth control bar is not used, operating depth of the coulter blade is determined by adjusting the depth adjustment bolt and positioning of the blade assembly in the fork mount. The depth adjustment bolt will stop downward travel of the coulter arm assembly. One turn of the adjusting bolt will change depth setting approximately ¼". Initial setting of the depth adjustment bolt should be with approximately 1 ⅜" of thread showing. With this setting and the bar height at 20", the coulter depth will be approximately 2" with coulter mounting spindle in top hole. Turn the adjustment bolt clockwise to decrease operating depth. Turn the depth adjustment bolt counterclockwise to increase operating depth.

56314-16

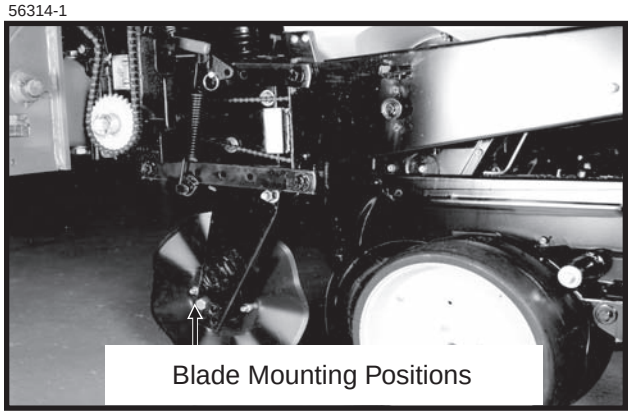


In certain applications it is desirable to use the depth control bar. In uneven terrain, use of the depth control bar allows greater depth control. The up and down movement of the row unit allows the coulter to move up and down at a rate of approximately $^1/_2$ that of the row unit, maintaining a more uniform operating depth. When using the disc furrower attachment, the depth control bar should always be used, as operating depth of the coulter is critical for the disc furrowers to operate with minimal gouging.

DEPTH ADJUSTMENT
(With Depth Control Bar Installed)

When using the depth control bar, down force springs must be located in the forward position and the depth adjustment bolt used only to attach the depth adjustment clamp to the coulter assembly. Operating depth of the coulter blade is adjusted by positioning the blade assembly in the fork mount. Four blade mounting adjustment positions are available at ½" increments. Initial position of the blade assembly should be in the top hole. This position will locate the coulter blade approximately ¼" deeper than the row unit opener blade. In heavy residue it may be desirable to position the blade assembly in the second position to insure that the residue is cut and not forced down into the seed zone. Additional holes are used to compensate for coulter blade wear.

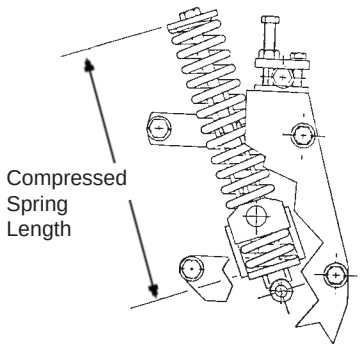
56314-1



Down force adjustment is made by tightening or loosening the spring adjustment bolt. With the planter in the raised position, turn the bolt clockwise to increase down force or counterclockwise to decrease down force. Set all rows equally.

Compressed Spring Length (Including Washer)	Pounds Down Pressure With Blade ½" Above Maximum Down Position	Pounds Down Pressure With Blade 4" Above Maximum Down Position
13 5/16"	90	230
12 5/16"	190	330
Suggested initial setting.		
11 5/16"	300	430

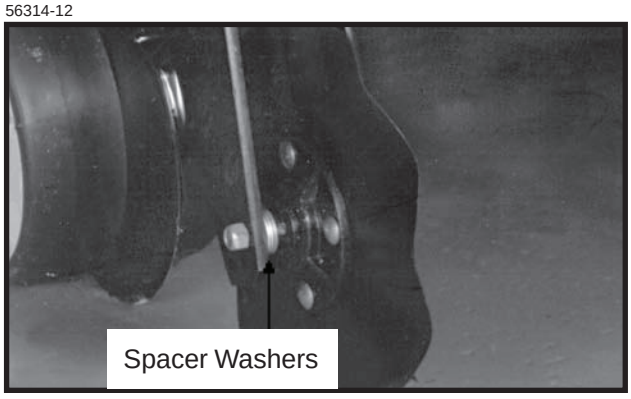
A5649rev.(PLTR44)



NOTE: Excessive down force may cause increased wear on components.

The coulter blade can be aligned with the row unit disc opener by moving the spacer washers from one side of the coulter blade hub to the other.

56314-12



Field adjustment should be made as needed. Operating height of the planter frame will affect operating depth of the frame mounted coulter.

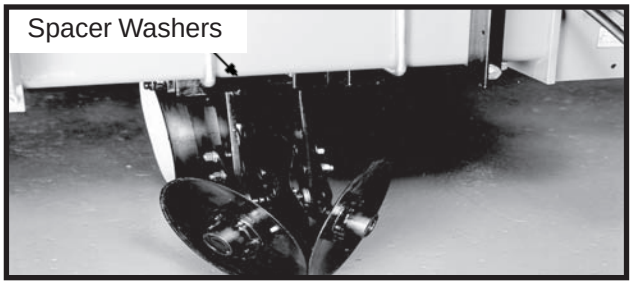
NOTE: Torque ⅝" spindle bolts to 120 ft. lbs.

DISC FURROWERS
(For Use With Frame Mounted Coulter)

Disc furrowers for use with the frame mounted coulter may be equipped with either 12" solid blades or 12" notched blades.

Disc furrowers are used to clear crop residue, dirt clods and dry soil from in front of the row units for a clean and smooth seed bed. Notched blades are used for heavier residue conditions. The notched blades cut crop residue and move it aside to prevent plugging or pushing.

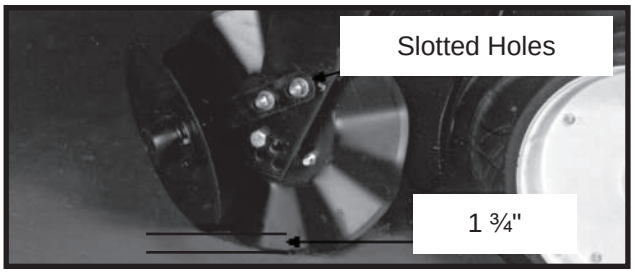
56314-19



Blades can be adjusted so front edges meet by adding spacer washers between the disc furrower arm and frame mounted coulter fork mount.

Slotted holes in the frame mounted coulter fork mount and in the disc furrower arm allow for vertical and horizontal adjustment. Blades can be adjusted so the front edges meet or one blade can be moved to the rear and the other to the front of the slot so the cutting edge of one blade overlaps the edge of the other blade.

56314-17



Initial setting for the disc furrowers is 1 ¾" shallower than the coulter blade. Further adjustment may be desired for various applications.

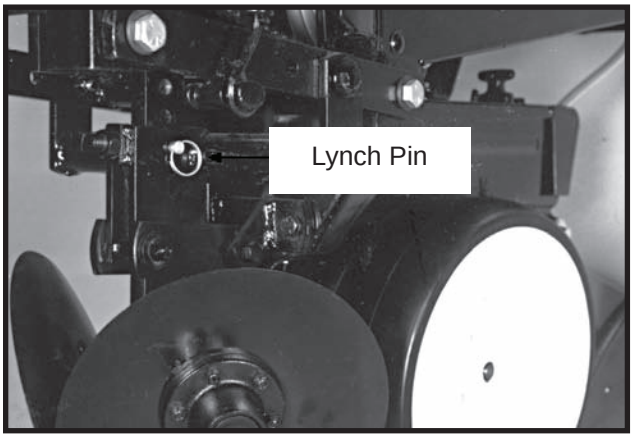
NOTE: The depth control bar should always be used when the frame mounted coulter is equipped with disc furrowers.

ROW UNIT MOUNTED DISC FURROWER

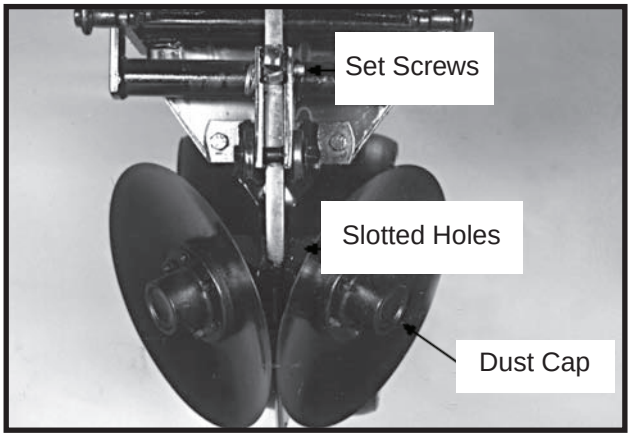
The row unit mounted disc furrower, for use on pull row units only, may be equipped with either 12" solid blades or 12" notched blades.

Disc furrowers are used to clear crop residue, dirt clods and dry soil from in front of the row units for a clean and smooth seed bed. Notched blades are used for heavier residue conditions. The notched blades cut crop residue and move it aside to prevent plugging or pushing.

59386-23



59386-20



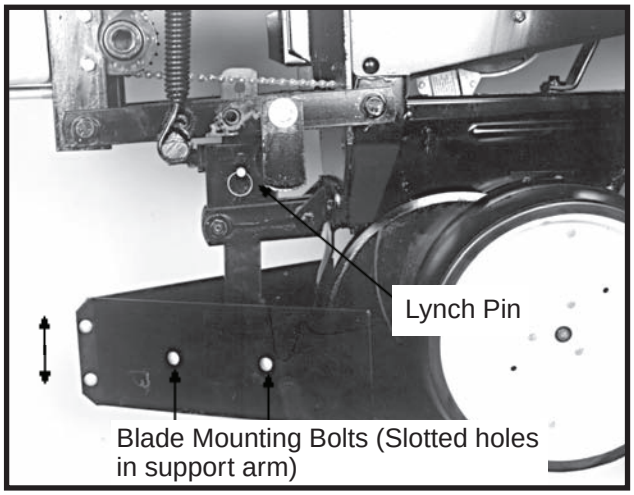
Vertical adjustment in ⅓" increments is possible by removing the lynch pin which secures the vertical support arm and moving the support arm up or down as required. Re-install lynch pin. Finer adjustment can be attained by removing the lynch pin and using the ⅝" x 2 ¼" set screw to clamp the support arm in the required position.

Slotted holes in the support arm where the blades are mounted allow fore and aft adjustment of the discs. Blades can be adjusted so the front edges meet or one blade can be moved to the rear and the other to the front of the slot so the cutting edge of one blade overlaps the edge of the other blade. The dust cap must be removed to make these adjustments.

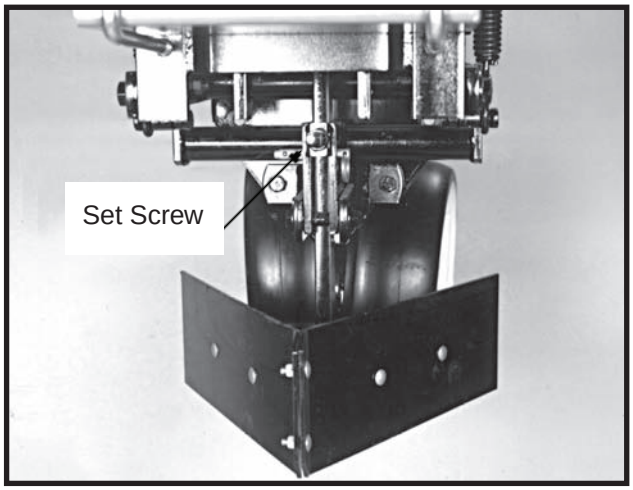
ROW UNIT OPERATION

ROW UNIT MOUNTED BED LEVELER

59386-26



59386-30



Row unit mounted bed levelers may be used on pull row units only.

Vertical adjustment in ⅓" increments is possible by removing the lynch pin which secures the vertical support arm and moving the support arm up or down as required. Re-install lynch pin. Finer adjustment can be attained by removing the lynch pin and using the ⅝" x 2 ¼" set screw to clamp the support arm in the required position.

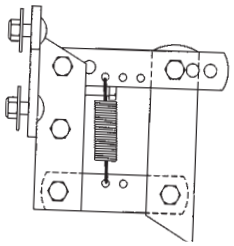
Slotted holes in the support arm where the blades are mounted allow tilting of the blades. The blades can be tilted up or down at the front for desired adjustment.

NOTE: The row unit mounted bed leveler is not compatible with row spacings less than 36".

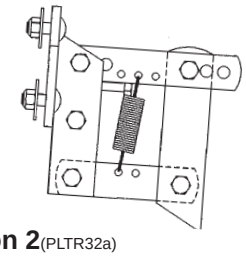
ROW UNIT MOUNTED RESIDUE WHEEL

The row unit mounted residue wheel is designed for use on pull row units.

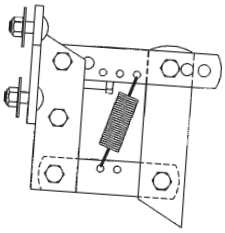
Two adjustable springs on the parallel links on each residue wheel allow for down force adjustment. Position 1 as shown below provides minimum down pressure and position 3 maximum down pressure.



Position 1 *(Minimum)*(PLTR31a)



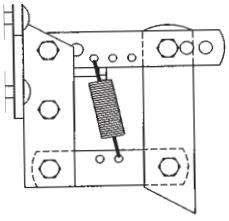
Position 2(PLTR32a)



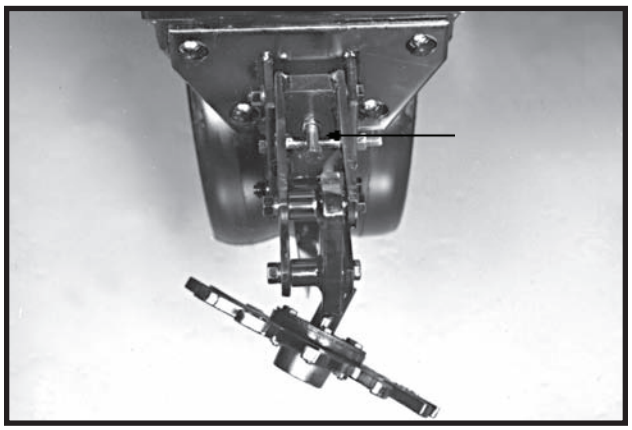
Position 3 *(Maximum)*(PLTR33a)

For additional uplift or float, position springs as shown below.

(PLTR34a)



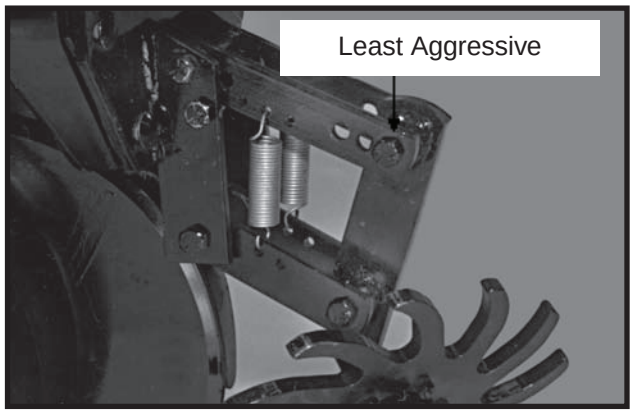
To adjust down force springs, raise the row unit out of the ground and reposition springs as shown for the desired down pressure.



A full threaded bolt and jam nut located on the upper link allows maximum depth to be set for loose soil conditions. Initial setting should be 1 ¾" above the depth of the row unit double disc opener.

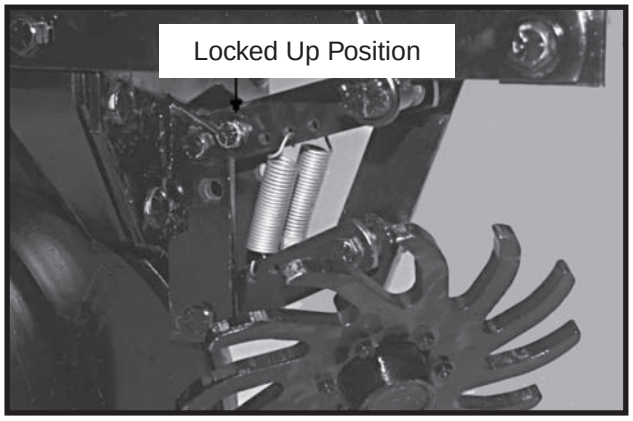
Three holes in the upper link allow for wheel angle adjustment. With the wheel mount in the most vertical position, using the rear hole in the upper link, the residue wheel is most aggressive. Moving the wheel mount to one of the forward holes reduces the aggressiveness of the wheel for use in mulch till applications where the soil is loose.

72794-29



To lock the residue wheel up out of the ground, remove the ½" x 5" lockup bolt, raise the residue wheel and install bolt.

72794-31



ROW UNIT MOUNTED NO TILL COULTER

80367-10

Row unit mounted no till coulters with 1" bubbled, 1" fluted (8 flutes) or ¾" fluted (13 flutes) blades may be used on pull row units. (¾" fluted shown)

Four quick adjustable down force springs are required per row when using row unit mounted no till coulters. See “Quick Adjustable Down Force Springs”.

For proper operation the coulter blade should be aligned in relation to the row unit double disc openers. The coulter assembly can be adjusted by loosening the four attaching bolts, moving coulter arm to align and tightening the four attaching bolts.

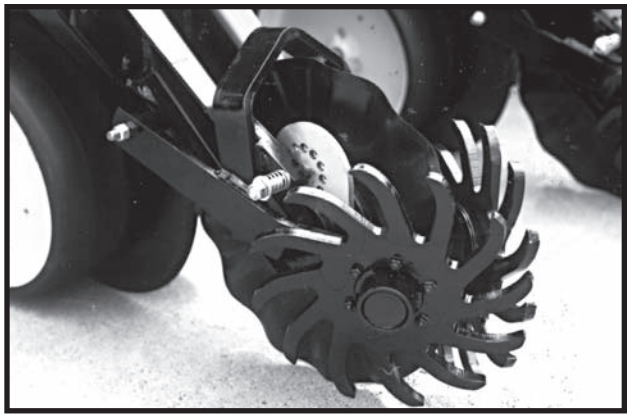
The coulter blade can be adjusted to one of four ½" incremental settings in the forked arm. Initial location of the coulter is in the top hole. As the coulter blade wears, the blade should be adjusted downward to one of the three lower settings to maintain the coulter blade at or slightly below the opener discs. In very hard soil conditions such as compacted wheel tracks, opener penetration and cutting of surface residue may be improved by adjusting the coulter to operate below the depth of the double disc opener blades.

Operating depth can be checked by setting the planter down on a level concrete floor and checking the relationship between the coulter blade and row unit opener blade. Make sure the planter is level and coulter is square with the planter frame and aligned with the row unit disc opener.

NOTE: Torque ⅝" spindle bolts to 120 ft. lbs.

COULTER MOUNTED RESIDUE WHEELS

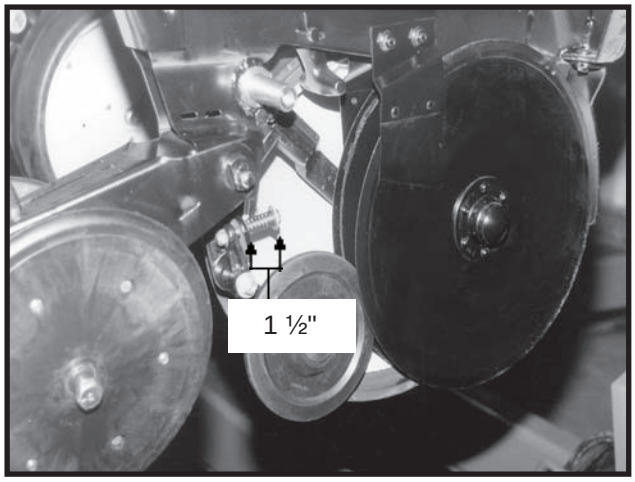
80376-15



Coulter mounted residue wheels are designed for use on pull row units. The coulter mounted residue wheels are attached to the row unit mounted no till coulter with one cap screw and sleeve allowing the unit to free-float. A 2-position spindle bolt mounting allows the tined wheels to be mounted interlocked or staggered. Depth adjustment is made using a spring-loaded cam and pin with 11 positions in ¼" increments. A high point on the cam allows the wheels to be locked up so they do not contact the ground.

SEED FIRMING WHEEL

02209715



Shown With Gauge Wheel Removed

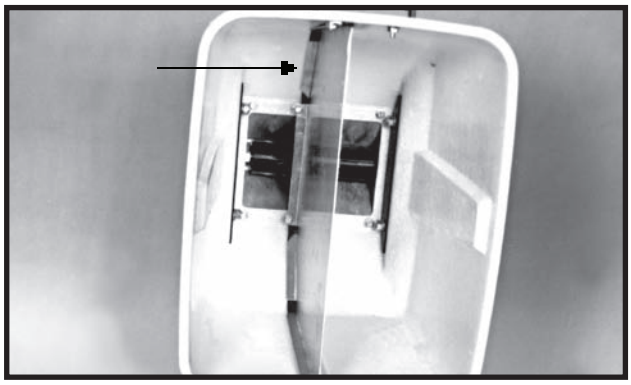
The seed firming wheel is designed for use on pull row units. Seed firming wheels are for use in dry loose soil conditions to gently and firmly press the seed into the seed bed before the closing wheels close the seed trench.

NOTE: Certain soil types and moisture conditions may lead to erratic performance resulting in irregular seed placement.

Initial spring tension is set leaving 1 ½" between the washers.

GRANULAR CHEMICAL HOPPER

61766-2



The granular chemical hopper has a 70 pound capacity. With the use of a hopper divider the hopper has two compartments with a 35 pound capacity in each.

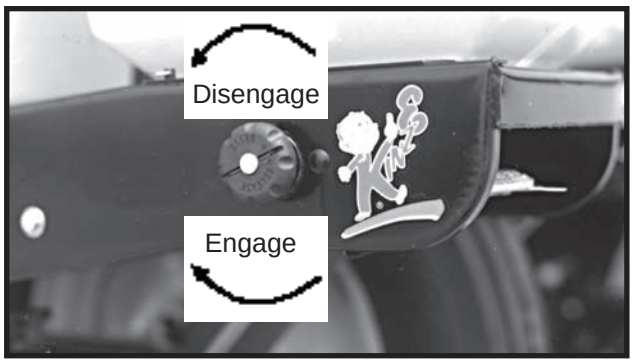
Be sure no foreign objects get into the hopper when it is being filled. Replace the hopper lids after filling the hoppers to prevent the accumulation of dirt and moisture.

The metering gate located on the bottom of the hopper regulates the application rate. See “Dry Insecticide And Dry Herbicide Application Rate Charts” in this manual. Calibrate using the chemical manufacturers' instructions.

DANGER: Agricultural chemicals can be dangerous. Improper selection or use can seriously injure persons, animals, plants, soil or other property. BE SAFE: Select the right chemical for the job. Handle it with care. Follow the instructions on the container label.

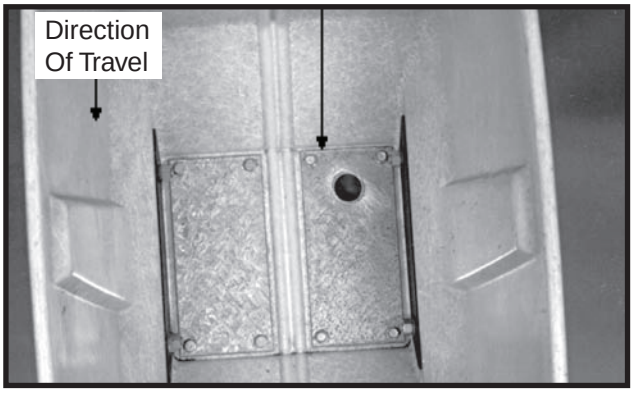
The granular chemical clutch drive coupler and meter shaft can be disengaged and engaged by turning the throwout knob located at the rear of the hopper support panel. To engage the drive, turn the knob ¼ turn clockwise. To disengage the drive, turn the knob ¼ turn counterclockwise. Slotted holes in the hopper support panel and clutch housing allow for alignment adjustment between the clutch drive coupler and meter shaft.

72359-183



GRANULAR CHEMICAL RESTRICTOR PLATE

65249-17



The granular chemical restrictor plate is designed for use in the granular chemical hopper when granular chemical application rates below 4 pounds per acre are desired. The plate restricts chemical flow to the meter outlet to prevent grinding of the material.

IMPORTANT: Check application rate of all rows in the field with the granular chemical you are using and at the speed and population at which you will be planting. See “Checking Granular Chemical Application Rate”.

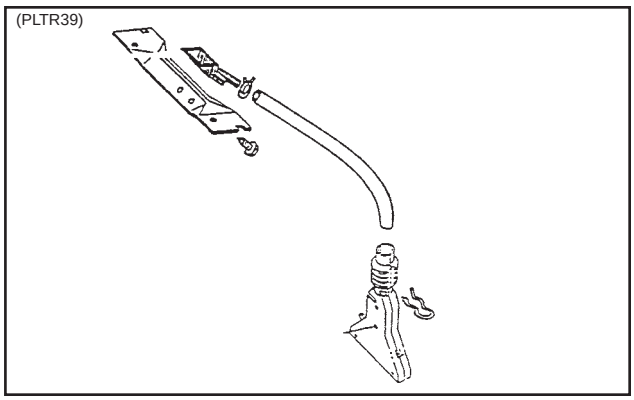
DANGER: Agricultural chemicals can be dangerous. Improper selection or use can seriously injure persons, animals, plants, soil or other property. BE SAFE: Select the right chemical for the job. Handle it with care. Follow the instructions on the container label.

GRANULAR CHEMICAL BANDING OPTIONS

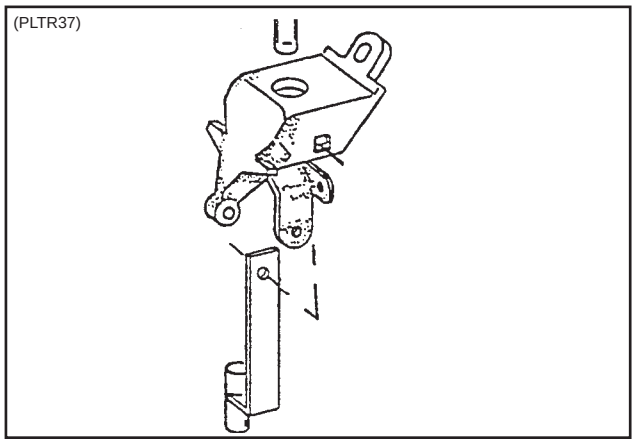
Granular chemical banding options allow front and/or rear banding.

With use of the granular chemical hopper divider and second meter, two banding applications may be utilized.

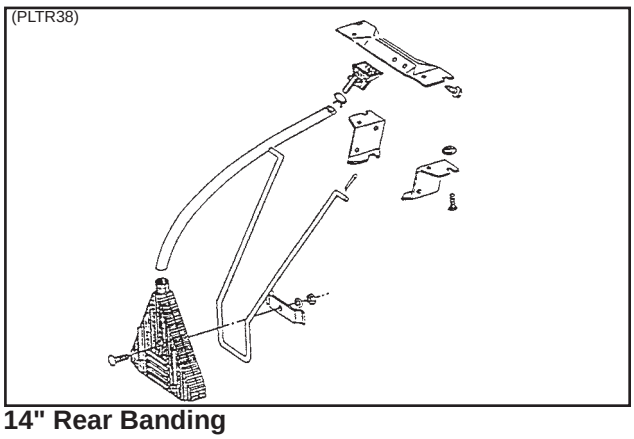
NOTE: The granular chemical rear bander is not compatible with the covering discs/single press wheel option.



4 ½" Slope-Compensating Bander



Straight Drop In-Furrow Placement



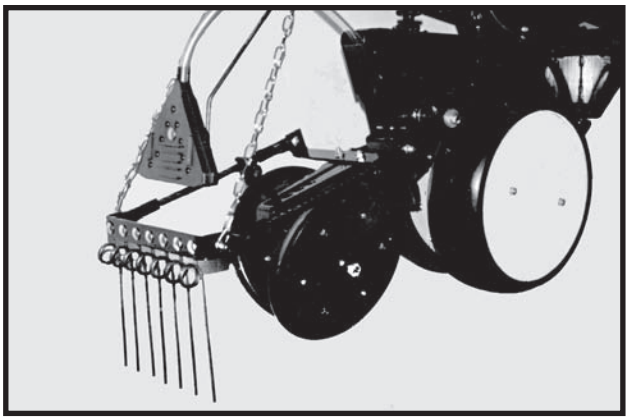
14" Rear Banding

SPRING TOOTH INCORPORATOR

The spring tooth incorporator smooths the soil behind the row unit and incorporates granular chemicals. The two mounting chains on each spring tooth incorporator should be adjusted so there is approximately ⅛" slack in the chain when the unit is lowered to planting position.

NOTE: The spring tooth incorporator is not compatible with the covering discs/single press wheel option.

73090-4a



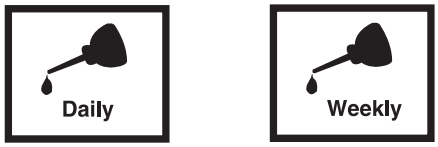
LUBRICATION

The following pages show the locations of all lubrication points. Proper lubrication of all moving parts will help ensure efficient operation of your KINZE® planter and prolong the life of friction producing parts.

DANGER: Always install safety lockups or lower to the ground before working under the machine.

LUBRICATION SYMBOLS

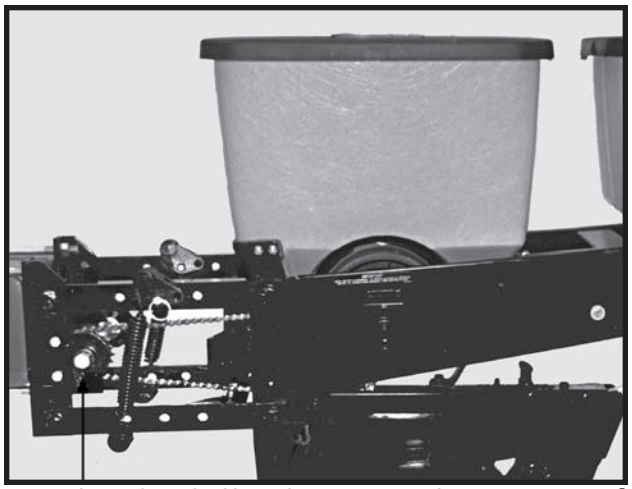
Lubricate at frequency indicated with an SAE multipurpose type grease.



Lubricate at frequency indicated with a high quality SAE 10 weight oil or a quality spray lubricant.

SEALED BEARINGS

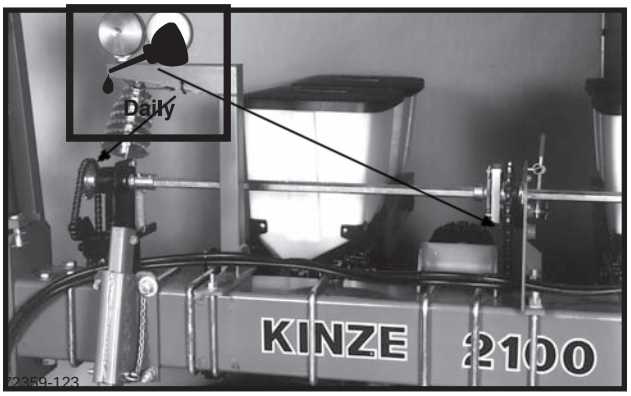
72794-21a

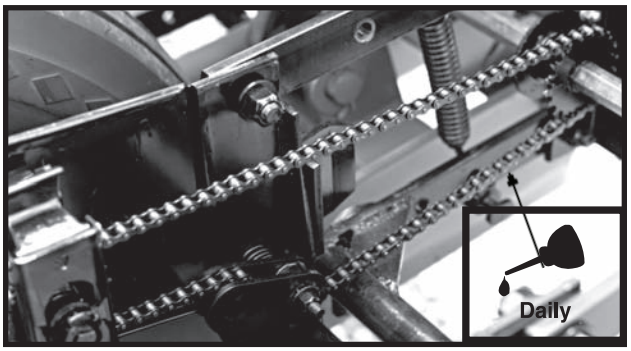


A number of sealed bearings are used on your KINZE® planter to provide trouble free operation. These are located in such areas as the drive shaft, row units and transmission bearings. Sealed bearings are lubricated for life, and due to the seals, relubrication is not practical.

DRIVE CHAINS

61048-25





All transmission and drive chains should be lubricated daily with a high quality SAE 10 weight oil or a quality spray lubricant. Extreme operating conditions such as dirt, temperature or speed may require more frequent lubrication. If a chain becomes stiff, it should be removed, 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 checked annually. Inspect for lubrication. Pump grease into the hub until grease comes out around the seals.

Lift wheel off the ground. Check for endplay in the bearings by moving the tire in and out. Rotate the tire to check for roughness in the bearings. If bearings sound rough, the hub should be removed and the bearings inspected and replaced if necessary. See “Wheel Bearing Packing Or Replacement.”

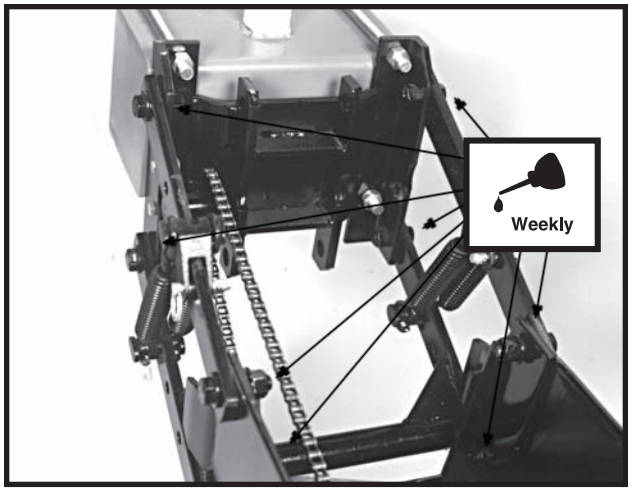
LUBRICATION

BUSHINGS

Lubricate bushings at the frequency indicated.

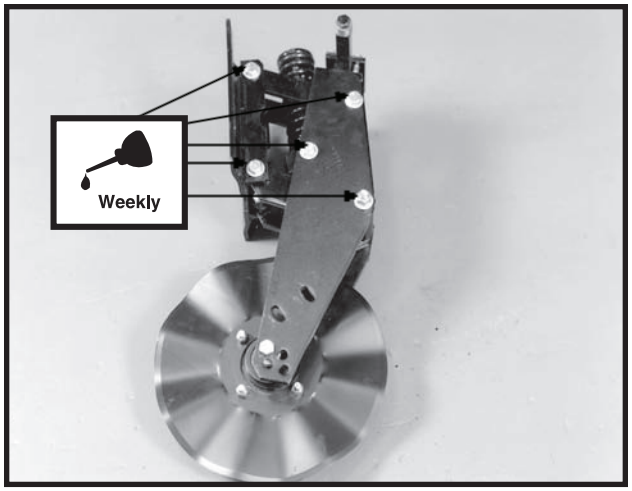
Using a torque wrench, check each bolt for proper torque. If bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushing if necessary. **Only hardened flat washers should be used. Replace damaged flat washers with proper part. Torque bolts to 130 ft. lbs.**

59386-43



Row Unit Parallel Linkage (8 per row)

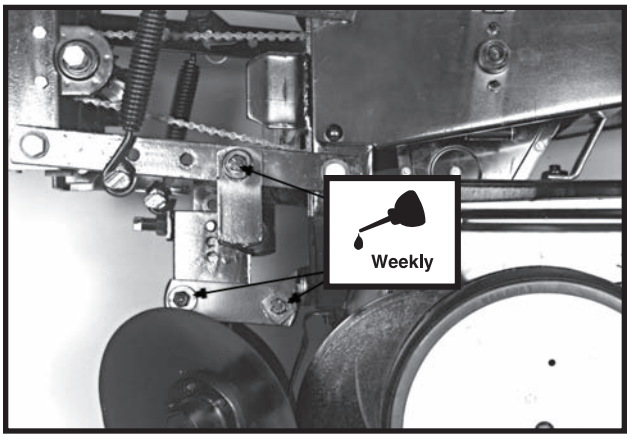
56314-8



Frame Mounted Coulter Parallel Linkage (10 per row)

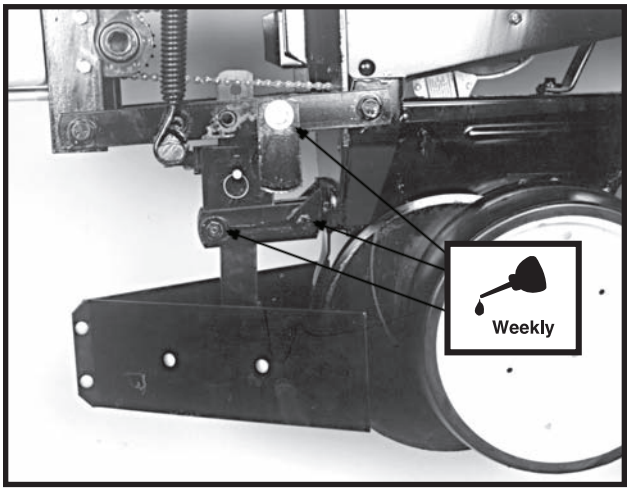
Shown not installed on row unit for visual clarity.

59386-18



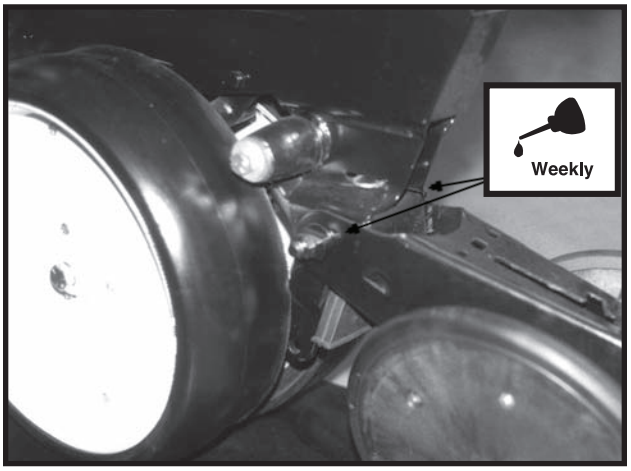
Row Unit Mounted Disc Furrower Parallel Linkage (6 per row)

59386-26



Row Unit Mounted Bed Leveler Parallel Linkage (6 per row)

8/30/93-4



Row Unit Closing Wheel and/or Covering Discs/ Single Press Wheel Eccentric Bushings (2 per row)

LUBRICATION

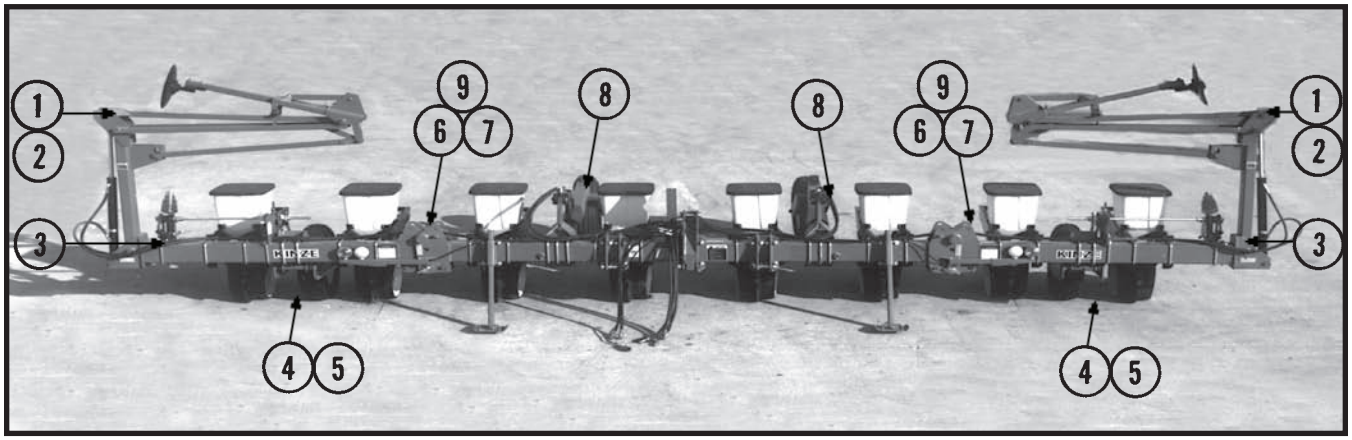
GREASE FITTINGS

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.

NOTE: Numbers on below photo correspond to photos below and on following pages showing lubrication frequencies.

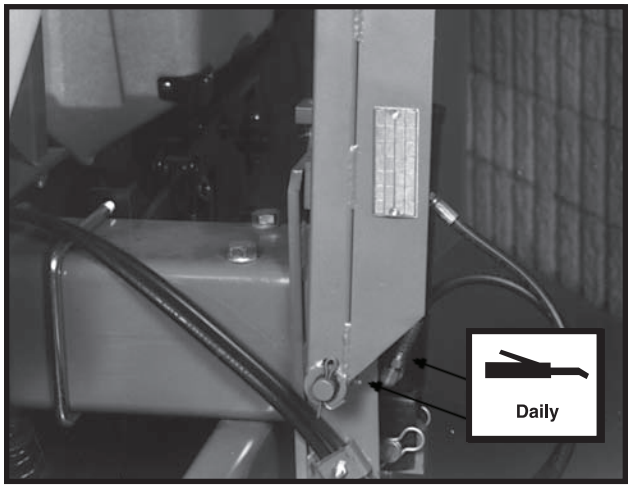
8 Row Folding Machine With Low Profile Markers Shown

55702-17A



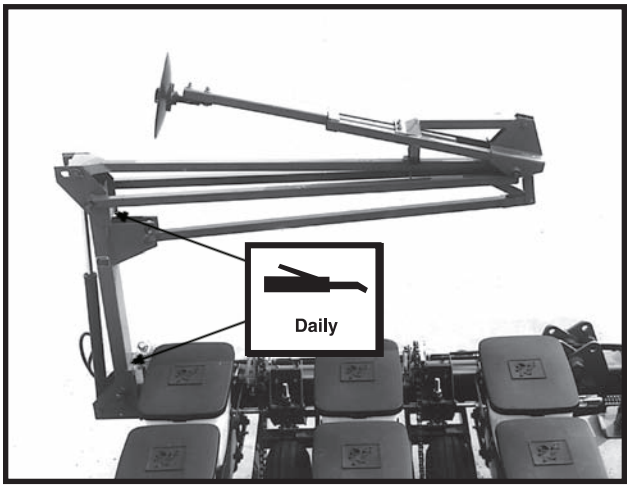
DANGER: Always install safety stands or lower to the ground before working under or around the machine.

77121-12



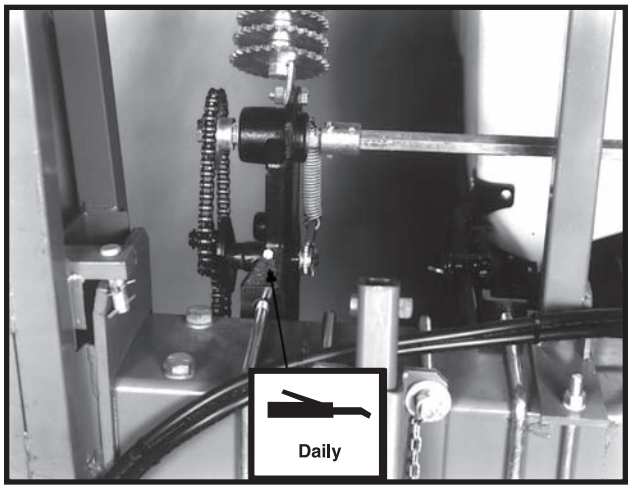
1. Conventional Markers - 4 Zerks Per Assembly

53555-8



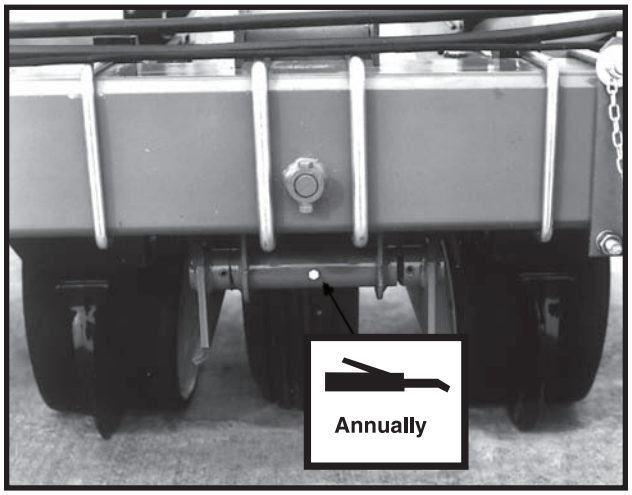
2. Low Profile Markers - 2 Zerks Per Assembly

61048-48



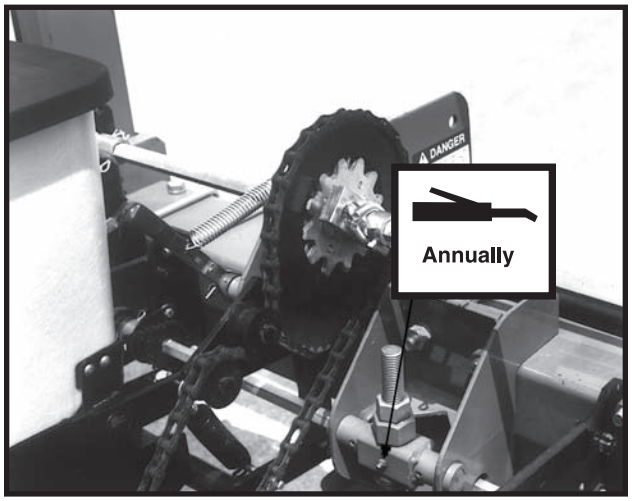
3. Transmission Assembly - 1 Zerk Per Idler Assembly

52567-7



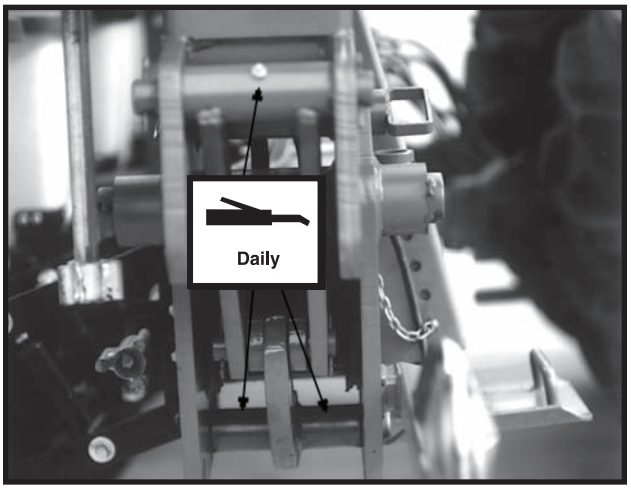
4. Wheel Module Shaft - 1 Zerk Per Module

53704-12



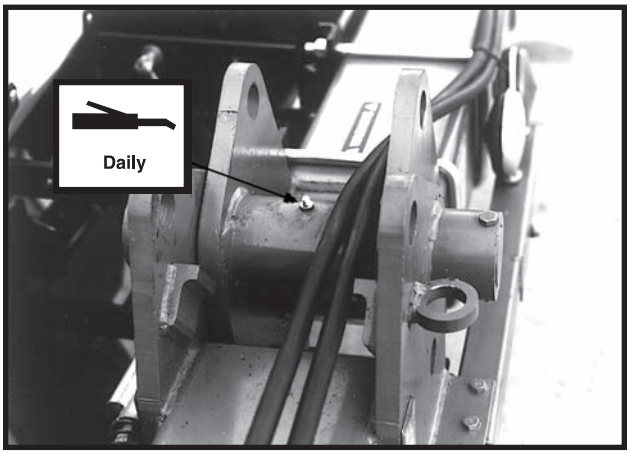
5. Wheel Module Jack Screw - 1 Zerk Per Module

51138-13



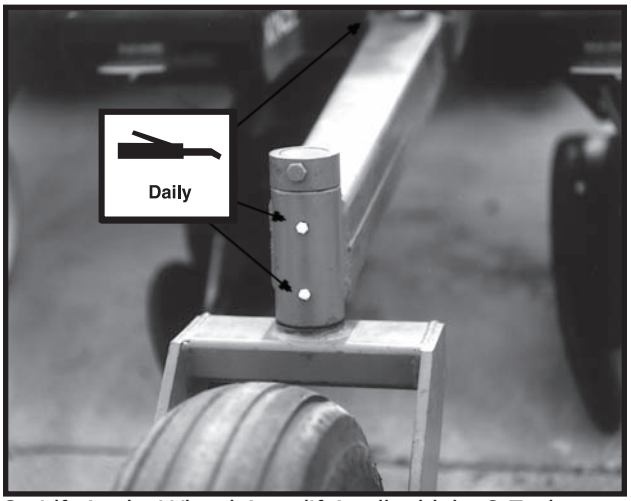
6. Wing Hinge Linkage (Vertical Folding Machines) - 3 Zerks Per Hinge

52567-28



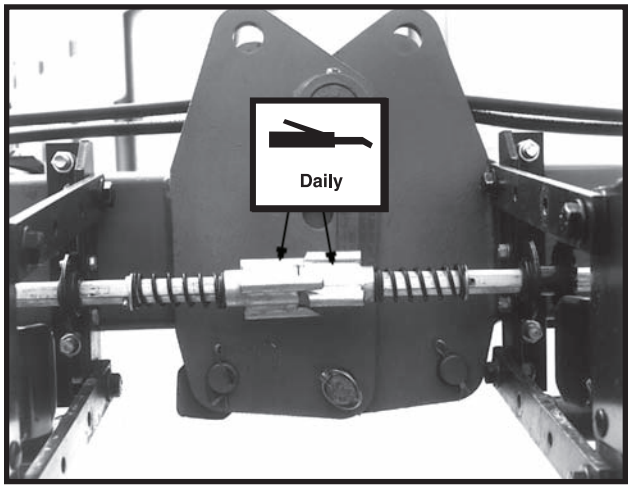
7. Wing Hinge Pin (Vertical Folding Machines) - 1 Zerk Per Hinge

51138-4



8. Lift Assist Wheel Arm (If Applicable) - 3 Zerks Per Arm Assembly(One at wheel tower pivot-Not Shown)

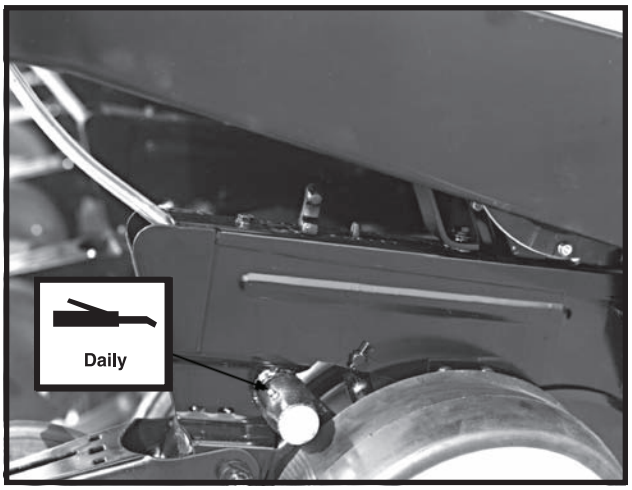
53704-3



9. Drill Shaft Coupler (Vertical Folding Machines) - 2 Zerks Per Hinge Area

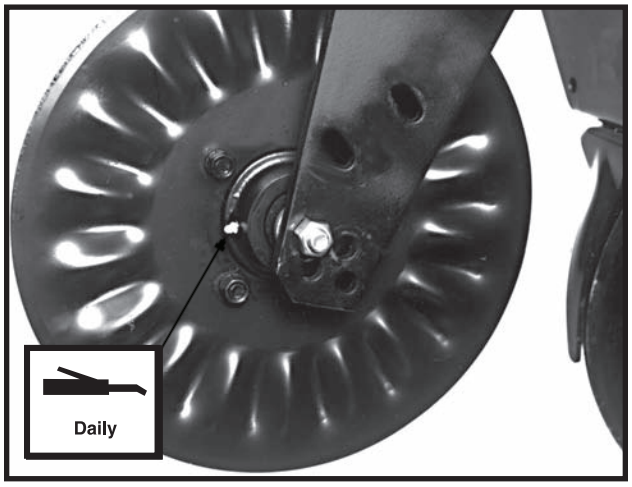
Row Unit

72359-106



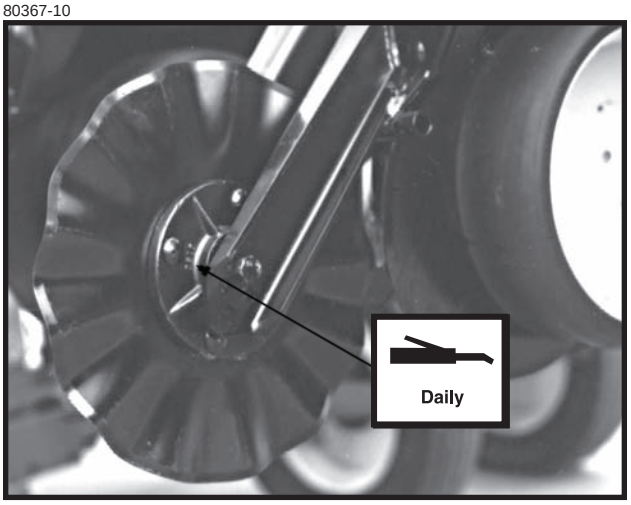
Gauge Wheel Arms - 1 Zerk Per Arm

56673-6



Frame Mounted Coulter Hubs - 1 Zerk Per Hub. (Pump grease into hub until grease comes out around the seals. Spin hub while filling with grease.)

80367-10



Row Unit Mounted No Till Coulter Hubs - 1 Zerk Per Hub. (Pump grease into hub until grease comes out around the seals. Spin hub while filling with grease.)

MAINTENANCE

MOUNTING BOLTS AND HARDWARE

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

All bolts used on the KINZE® planter are Grade 5 (high strength) unless otherwise noted. Refer to the torque values chart when tightening bolts.

Row unit parallel linkage bushing bolts - 130 Ft. Lbs. (See "Bushings" in the Lubrication Section of this manual.)

⅝" No Till Coulter Spindle Bolts - 120 Ft. Lbs.

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

TORQUE VALUES CHART - PLATED HARDWARE

Bolt Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
¼"	50 In. Lbs.	56 In. Lbs.	76 In. Lbs.	87 In. Lbs.	9 Ft. Lbs.	10 Ft. Lbs.
5⁄16"	8 Ft. Lbs.	9 Ft. Lbs.	13 Ft. Lbs.	14 Ft. Lbs.	18 Ft. Lbs.	20 Ft. Lbs.
⅜"	15 Ft. Lbs.	17 Ft. Lbs.	23 Ft. Lbs.	26 Ft. Lbs.	33 Ft. Lbs.	37 Ft. Lbs.
7⁄16"	25 Ft. Lbs.	27 Ft. Lbs.	37 Ft. Lbs.	41 Ft. Lbs.	52 Ft. Lbs.	58 Ft. Lbs.
½"	35 Ft. Lbs.	40 Ft. Lbs.	57 Ft. Lbs.	64 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.
9⁄16"	50 Ft. Lbs.	60 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.	115 Ft. Lbs.	130 Ft. Lbs.
⅝"	70 Ft. Lbs.	80 Ft. Lbs.	110 Ft. Lbs.	125 Ft. Lbs.	160 Ft. Lbs.	180 Ft. Lbs.
¾"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.
⅞"	125 Ft. Lbs.	140 Ft. Lbs.	320 Ft. Lbs.	350 Ft. Lbs.	450 Ft. Lbs.	500 Ft. Lbs.
1"	190 Ft. Lbs.	205 Ft. Lbs.	480 Ft. Lbs.	530 Ft. Lbs.	675 Ft. Lbs.	750 Ft. Lbs.
1 ⅛"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.
1 ¼"	375 Ft. Lbs.	415 Ft. Lbs.	840 Ft. Lbs.	930 Ft. Lbs.	1360 Ft. Lbs.	1500 Ft. Lbs.
1 ⅜"	490 Ft. Lbs.	560 Ft. Lbs.	1100 Ft. Lbs.	1250 Ft. Lbs.	1780 Ft. Lbs.	2030 Ft. Lbs.
1 ½"	650 Ft. Lbs.	730 Ft. Lbs.	1450 Ft. Lbs.	1650 Ft. Lbs.	2307 Ft. Lbs.	2670 Ft. Lbs.

NOTE: Unplated hardware and bolts with lock nuts should be torqued approximately ⅓ higher than the above values. Bolts lubricated prior to installation should be torqued to 70% of value shown in chart.

GRADE 2
No Marks

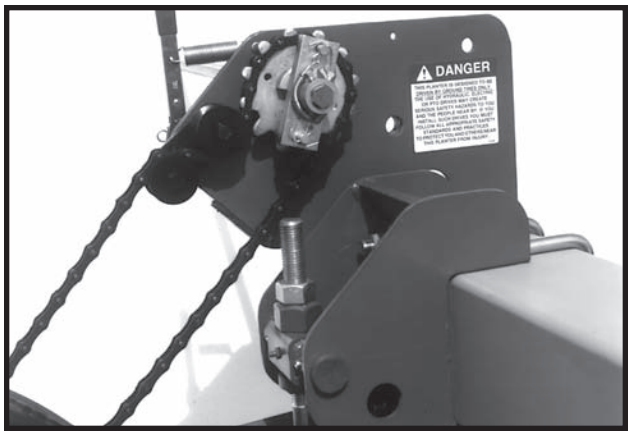
GRADE 5
3 Marks

GRADE 8
6 Marks

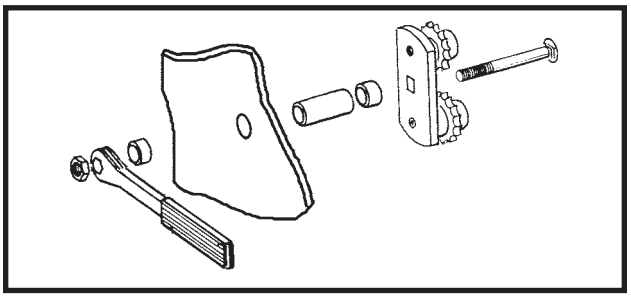
CHAIN TENSION ADJUSTMENT

The drive chains have a spring loaded idler and therefore are self-adjusting. The only adjustment needed is to shorten the chain if wear stretches the chain and reduces spring tension. The pivot point of these idlers should be checked periodically to ensure they rotate freely.

53051-17



(MT18a)

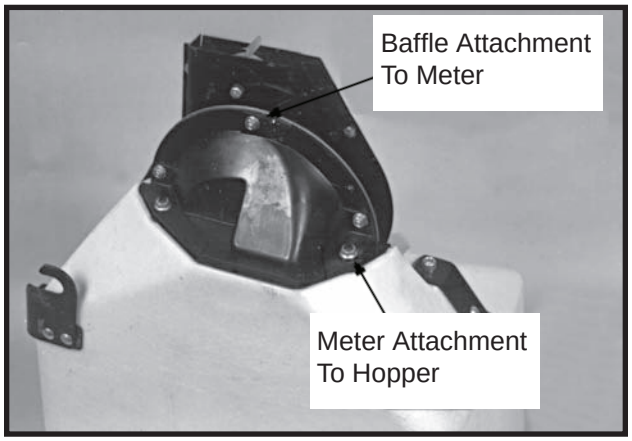


NOTE: The nut on the mounting bolt (on applicable idler assemblies) must be kept tight or chain tension will not be maintained and adjustment wrench will not function properly.

FINGER PICKUP SEED METER INSPECTION/ADJUSTMENT

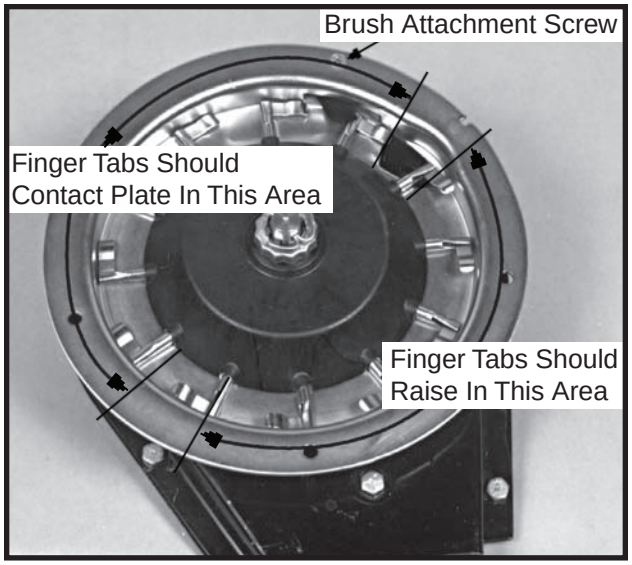
To inspect or service the finger pickup seed meter, remove the meter from the seed hopper by removing the two nuts which secure the mechanism to the hopper. Remove the baffle from the meter assembly by removing three cap screws. This will permit access to the finger pickup.

60620-8



Rotate the seed meter drive by hand to ensure that the springs are holding the tabs of the fingers against the carrier plate where indicated in the photo and that the fingers are being raised in the correct area.

60620-17

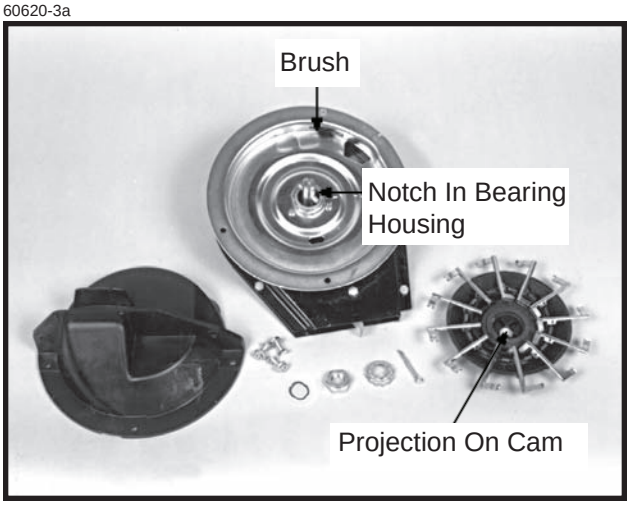


A build-up of debris or chaff may prevent proper finger operation and will require disassembly and cleaning of the corn meter as follows:

1. Remove cotter pin, cover nut, adjusting nut, and wave washer (If Applicable) from drive shaft.

2. Carefully lift finger holder, along with fingers and cam, off of the shaft and clean.

60620-3a



3. Check brush for wear and replace if necessary or following every 100 acres per row of operation.

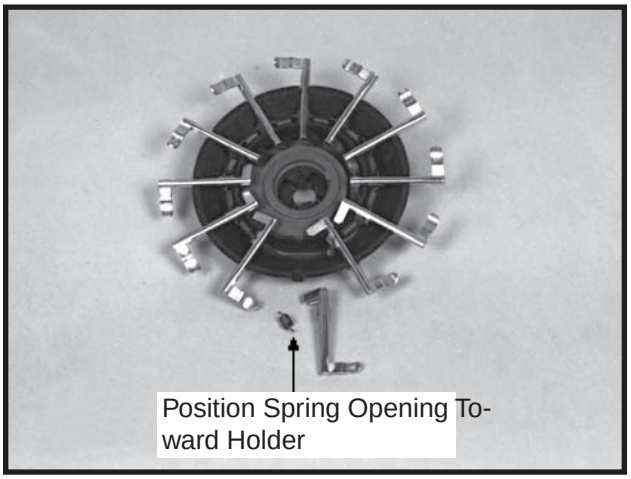
EXAMPLE: Approximately 600 acres of corn on an 6 row machine or 800 acres on a 8 row machine.

NOTE: It is not necessary to remove finger holder to remove brush.

4. To replace fingers or springs, remove springs from fingers and remove finger from holder by lifting it out of the friction fit slot. Under average conditions, life expectancy of these parts should be 600-900 acres per row of operation.

5. After cleaning and/or replacing defective parts, reassemble the meter in the reverse order. When replacing fingers, make sure the open end of the spring loop is toward the inside of the finger holder.

60620-22



6. Make sure fingers are installed in holder so that holder will be positioned flush with the carrier plate when assembled. A projection on the cam is designed to align with a mating notch in the bearing housing to ensure proper operation when assembled.

50725-4

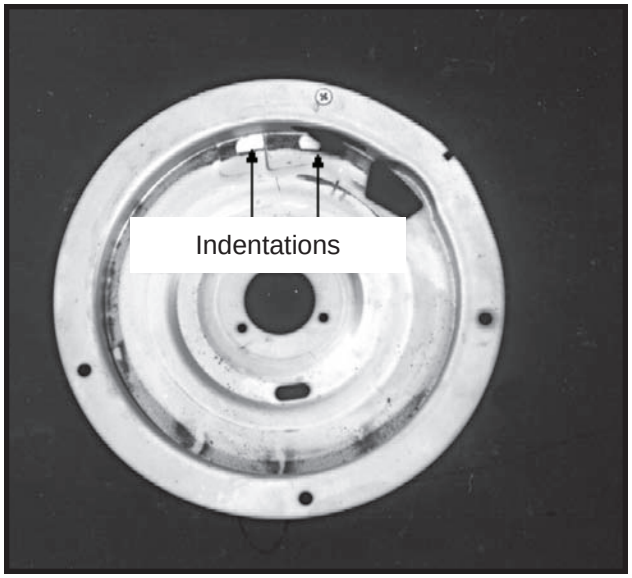


Photo Shows Worn Plate

7. Before installing the finger holder on the carrier plate, check the indentations on the carrier plate for wear. Excessive wear of the carrier plate at the indentations will cause over planting especially when using small sizes of seed corn.

   Inspect the carrier plate annually. Under average conditions, the life expectancy of the carrier plate should be 250-300 acres per row of operation.

8. With the finger holder flush against the carrier, install wave washer and adjusting nut. Tighten adjusting nut to fully compress wave washer, then back off nut ½ to 2 flats (1/12 to ⅓ turn) to obtain rolling torque of 14 to 22 inch pounds.

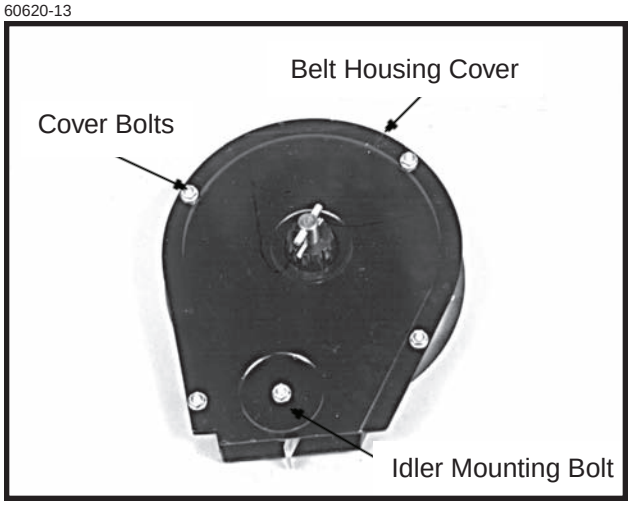
9. Turn finger holder by hand to make sure it is positioned firmly against the carrier, but is not over tightened and can be rotated with moderate force.

10. Install cage nut and cotter pin and reinstall housing.

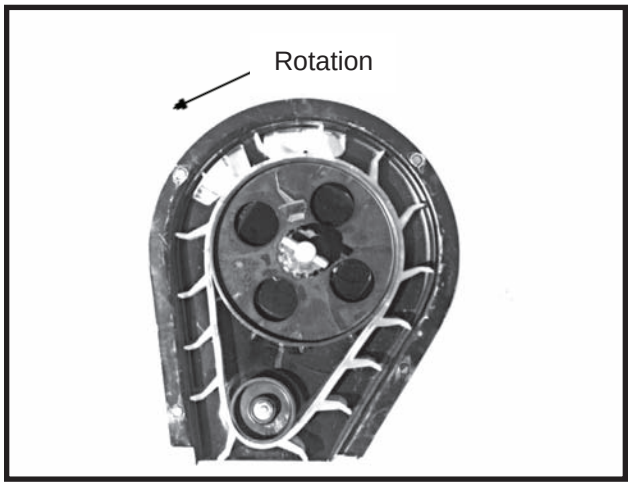
NOTE: Check tightness of adjusting nut on each unit after first day of use and periodically thereafter.

To inspect or replace the seed belt, remove the four cap screws around the edge of the housing cover and the nut from the belt idler mounting bolt.

60620-13



60887-97



If the belt is being replaced, make sure it is installed to correctly orient the paddles as shown. A diagram molded into the drive sprocket also illustrates the correct orientation.

CAUTION: Do not over tighten hardware.

FINGER PICKUP SEED METER CLEANING

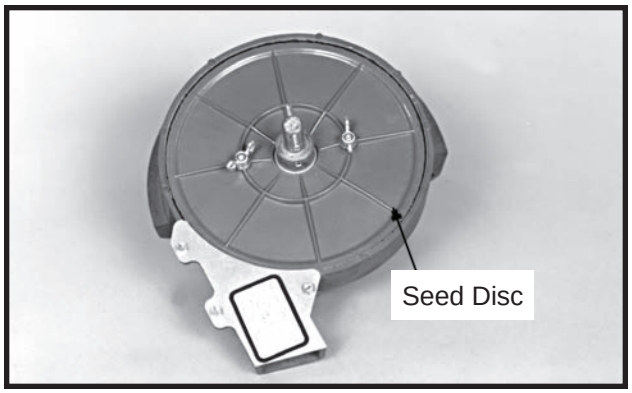
1. Disassemble meter.
2. Blow out any foreign material present in the meter mechanism.
3. Wash in mild soap and water. DO NOT USE GASOLINE, KEROSENE OR ANY OTHER PETROLEUM BASED PRODUCT.
4. Dry thoroughly.
5. Coat lightly with a rust inhibiter.
6. Reassemble and store in a dry place.

FINGER PICKUP SEED METER TROUBLESHOOTING

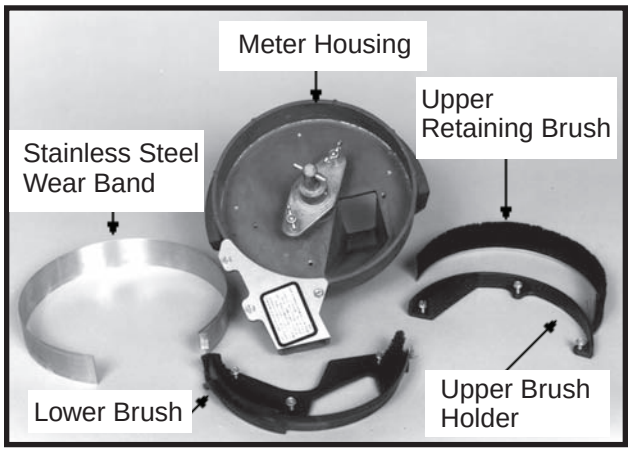
PROBLEM	POSSIBLE CAUSE	SOLUTION
One row not planting seed.	Drive release not engaged.	Engage drive release mechanism.
	Foreign material in hopper. Seed hopper empty.	Clean hopper and finger carrier mechanism. Fill seed hopper.
	Pin sheared in drive release sprocket.	Replace pin. Inspect meter for obstructions or defective parts.
	Row unit drive chain off of sprocket or broken.	Check drive chain.
Drive release does not engage properly.	Drive release shaft is not aligned properly with meter drive shaft.	Align drive mechanism. See “Seed Meter Drive Adjustment”.
Unit is skipping.	***Foreign material or obstruction in meter.***	***Clean out and inspect.***
	Finger holder improperly adjusted.	***Adjust to proper setting. (22 to 25 in. lbs. rolling torque)***
	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. (22 to 25 in. lbs. rolling torque)***
	Worn brush in carrier plate.	***Inspect and replace if necessary.***
Over planting.	***Worn carrier plate.***	***Inspect and replace if necessary.***
	Seed hopper additive being used.	Reduce or eliminate additive or increase graphite.
Under planting.	***Belt installed backwards.***	***Remove and install correctly.***
	Weak or broken springs.	***Replace.***
	Spring not properly installed.	***Remove finger holder and correct.***
	Seed belt catching or dragging.	***Replace belt.***
	Brush dislodging seed.	***Replace brush.***
Irregular or incorrect seed spacing.	Driving too fast.	Check chart for correct speed.
	Wrong tire pressure.	Inflate tires to correct air pressure.
	Drive wheels slipping.	Reduce down pressure on row unit down force springs.
	Wrong sprockets.	Check seed rate charts for correct sprocket combinations.
Seed spacing not as indicated in charts.	Wrong tire pressure.	Inflate tires to correct air pressure.
	Inconsistent seed size.	Do field check and adjust sprockets accordingly.
	Wrong sprockets.	Check chart for correct sprocket combination.
	Charts are approximate.	Slight variations due to wear in meter components and tire slippage due to field conditions may produce seed spacing variations.
	Stiff or worn drive chains.	Replace chains.
Scattering of seeds.	Planting too fast.	Reduce planting speed.
	Seed tube improperly installed.	Check seed tube installation.
	Seed tube worn or damaged.	Replace seed tube.
Seed tubes and/or openers plugging.	Allowing planter to roll backward when lowering.	Lower planter only when tractor is moving forward.
Inconsistent seed depth.	Rough seed bed.	Adjust down pressure springs. Reduce planting speed.
	Partially plugged seed tube.	Inspect and clean.
	Seed tube improperly installed.	Install properly.

BRUSH-TYPE SEED METER MAINTENANCE

60607-10

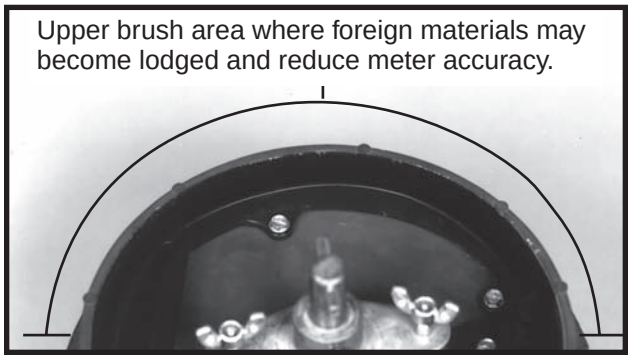


60607-3



Only clean, high quality seed should be used for maximum meter accuracy. Damaged or cracked seed, hulls or foreign materials may become lodged in the upper seed retaining brush and greatly reduce meter accuracy. It is suggested that the seed disc be removed daily, inspected and cleaned. Check for buildup of foreign material on the seed disc, particularly in the seed loading slots. Clean the disc by washing it with soap and water. Check for cracked seed, hulls, etc. lodged between the brush holder and stainless steel wear band which can greatly reduce the accuracy of the meter because the retaining brush will not be able to retain the seed in the seed disc pocket. Use compressed air to clean the brush areas of the meter housing.

60607-8/60607-8L



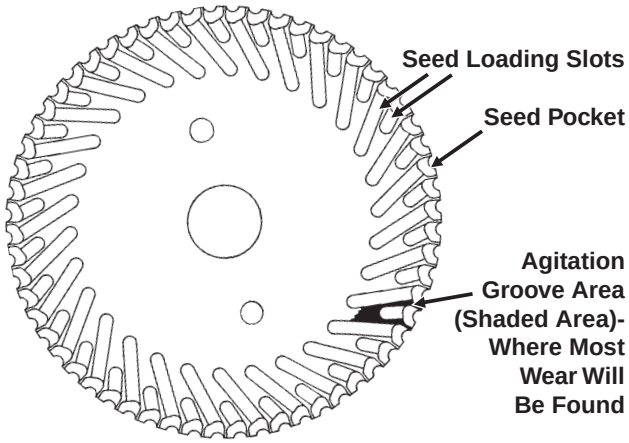
to prevent accumulation of dust or dirt in the seed meter which will cause premature wear.

Cleaning brush-type seed meter for storage:

1. Remove meter from seed hopper by removing the two nuts which secure the meter to the hopper.
2. Remove seed disc and wash with soap and water and dry thoroughly.
3. Remove upper retaining brush by removing the three hex head screws from the brush holder and removing brush holder and retaining brush.
4. Remove the three hex head screws from the lower brush and remove lower brush and stainless steel wear band.
5. Wash all parts and meter housing with soap and water and dry thoroughly.
6. Inspect all parts for wear and replace worn parts.
7. Reassemble meter except for seed disc. **Meter should be stored in a rodent-free space with seed disc removed.**

Seed Disc Wear

HD112690(PLTR40a)

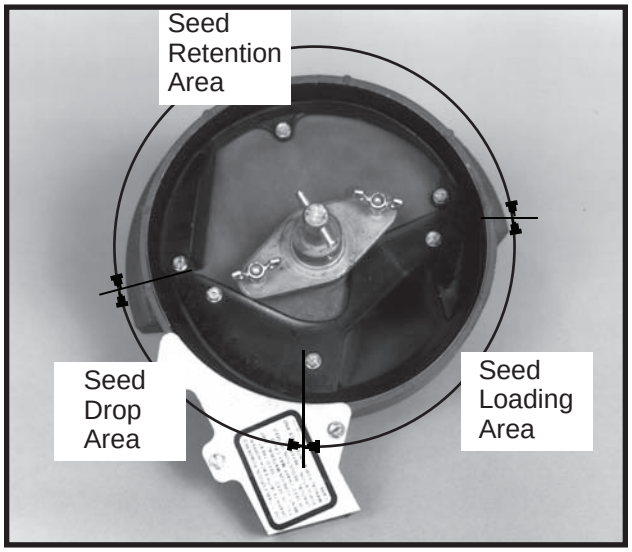


Most wear on the seed disc will be found in the agitation groove area (area between the seed loading slots). Wear will affect planting accuracy at high RPM. To measure for wear, lay a straight edge across the surface of the disc and measure the gap between the disc (at the agitation groove area) and the straight edge. If the agitation groove areas are worn in excess of .030" and accuracy starts to drop off at higher meter RPM, the seed disc should be replaced.

Estimated life expectancy of the seed disc under normal operating conditions should be approximately 200 acres per row. Severe operating conditions such as dust, lack of lubrication or abrasive seed coating could greatly reduce life expectancy of the seed disc.

Upper Retaining Brush

60607-21



The upper retaining brush holds seed in the seed disc pocket in the seed retention area.

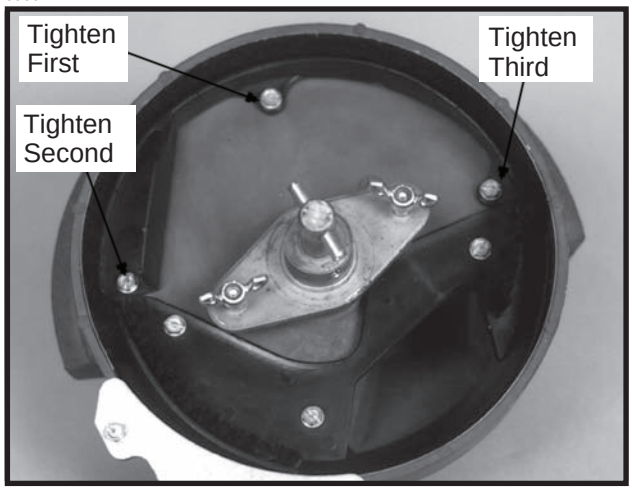
The retaining brush must apply enough pressure against the seed in the seed disc pocket as the disc rotates through the seed retention area to prevent the seed from dropping out of the disc pocket. A damaged spot, excessive wear on the brush or foreign material lodged in the brush may greatly reduce meter performance.

The upper retaining brush should be replaced at approximately 120-400 acres per row of use or sooner if damage or excessive wear is found.

Installation Of Upper Retaining Brush

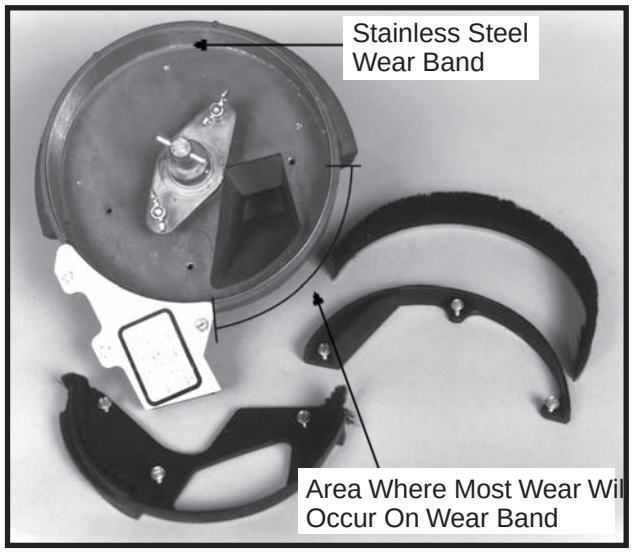
Position retaining brush into inner perimeter of seed retention area. Make sure the base of the brush is tight against the bottom of the meter housing. Install brush holder and three hex head screws. Tighten center screw first, left screw second and right screw last.

60607-21



Stainless Steel Wear Band

60607-38a

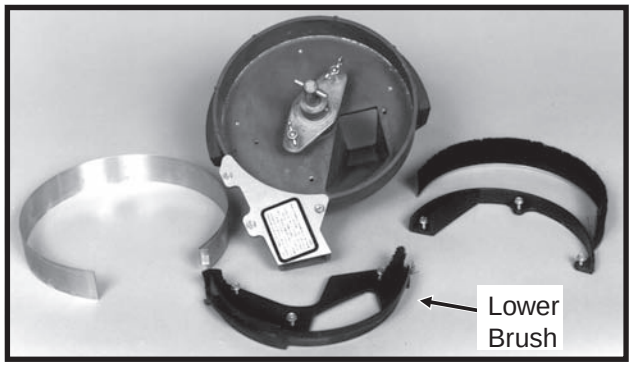


The purpose of the stainless steel wear band is to protect the meter housing from wear. The band is .030" thick and should be replaced when approximately .020" of wear is found in the primary area of wear. If the wear band is allowed to wear through or if the meter is used without the wear band in place, damage to the meter housing may occur.

Estimated life expectancy of the stainless steel wear band is 240-800 acres per row.

Lower Brush

60607-3



The lower brush has several functions. One function is to move seed down the seed loading slots to the seed pockets. The second function is to isolate seed in the reservior from entering the seed tube and a third is to clean the seed loading slots.

Estimated life expectancy of the lower brush is 240-800 acres per row. The lower brush should be replaced if the bristles are deformed or missing or if there are cracks in the brush holder.

MAINTENANCE

BRUSH-TYPE SEED METER TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Low count.	Meter RPM too high.	Reduce planting speed.
	Misalignment between drive clutch and meter.	See “Seed Meter Drive Adjustment”.
	Seed sensor not picking up all seeds dropped.	Clean seed tube. Switch meter to different row. If problem stays with same row, replace sensor.
	Lack of lubrication causing seeds not to release from disc properly.	Use graphite or talc as recommended.
	Seed size too large for seed disc being used.	Switch to smaller seed or appropriate seed disc. See “Brush-Type Seed Meter” for proper seed disc for size of seed being used.
	Seed treatment buildup in meter.	Reduce amount of treatment used and/or thoroughly mix treatment with seed.
Low count at low RPM and higher count at higher RPM.	Foreign material lodged in upper retaining brush.	Remove seed disc and remove foreign material from between brush holder and bristles. Clean with compressed air.
	Worn upper retaining brush.	Replace. See “Maintenance”.
Low count at higher RPM and normal count at low RPM.	Seed disc worn in the agitation groove area.	Replace disc. See “Maintenance”.
High count.	Seed size too small for seed disc.	Switch to larger seed or appropriate seed disc.
	Incorrect seed rate transmission setting. manual.	Reset transmission. Refer to proper rate chart in “Machine Operation” section of
	Upper brush too wide (fanned out) for small seed size.	Replace upper brush.
Upper retaining brush laid back.	Seed treatment buildup on brush.	Remove brush. Wash with soap and water. Dry thoroughly before reinstalling. See “Maintenance”.
	Buildup of foreign material at base of brush.	Remove brush holder and brush. Clean with compressed air. Reinstall.

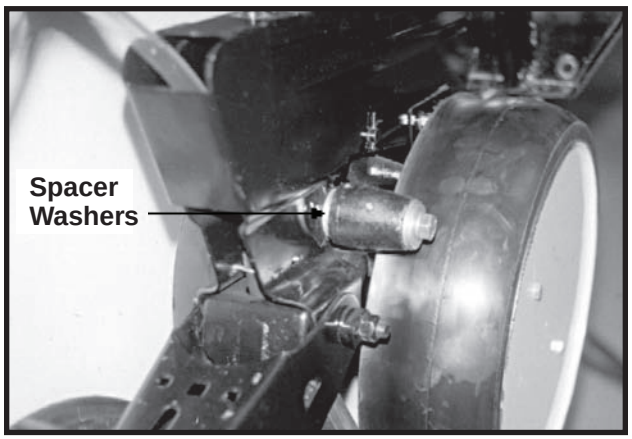
CLOSING WHEEL TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Closing wheel(s) leave severe imprint in soil.	Too much closing wheel down pressure.	Adjust closing wheel pressure.
Closing wheel(s) not firming soil around seed.	Insufficient closing wheel down pressure.	Adjust closing wheel pressure. Severe no till conditions may require use of cast iron closing wheels.
“V” closing wheel running on top of seed furrow.	Improper centering.	Align. See “V” Closing Wheel Adjustment.
Single closing wheel not directly over seed.	Improper centering.	Align. See “Covering Discs/Single Press Wheel Adjustment”.

GAUGE WHEEL ADJUSTMENT

To prevent an accumulation of dirt or trash, gauge wheels should lightly contact the opener blades. Gauge wheels and opener blades should turn with only slight resistance.

73090-24



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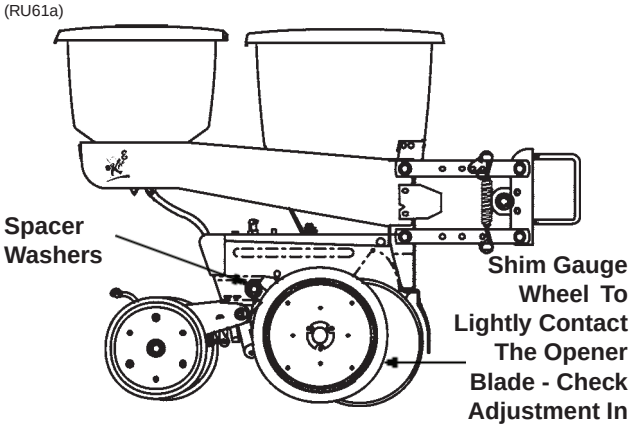


To adjust clearance between gauge wheels and opener blades, add or remove spacer washers between the shank and gauge wheel arm. Store remaining spacer washers between gauge wheel arm and flat washer on outer side of gauge wheel arm.

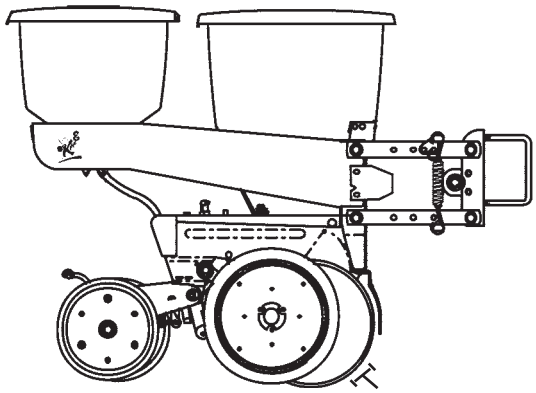
NOTE: It may be desirable to space gauge wheel further from blade when operating in sticky soils.

15" SEED OPENER DISC/BEARING ASSEMBLY

1"-2" of blade-to-blade contact should be maintained to properly open and form the seed trench. As the blade diameter decreases due to wear, it will be necessary to remove spacer washers to maintain 1"-2" of contact.

If 1"-2" of blade-to-blade contact cannot be maintained after removing spacer washers or if blade diameter falls below 14 ½", the blade should be replaced.

(RU61a)



To replace disc/bearing assembly:

1. Remove gauge wheel.
2. Remove scraper.
3. Remove bearing dust cap.
4. Remove jam nut and washer from outside of disc/bearing assembly.

NOTE: Left hand side of opener uses a left hand threaded nut. DO NOT OVER TIGHTEN. Damage to mounting spindle will require replacement of row unit shank assembly.

5. Remove disc/bearing assembly. The spacer bushings between the shank and disc are used to maintain the 1"-2" blade-to-blade contact.
6. After installing new disc/bearing assembly, install washer and jam nut to secure disc/bearing assembly. Torque ⅝"-11 Grade 2 nut to value shown in "Torque Values Chart".
7. Replace bearing dust cap.
8. Install scraper.
9. Install gauge wheel.

It may be necessary to replace only the bearing if there is excessive endplay or if the bearing sounds rough when the disc is rotated.

To replace bearing:

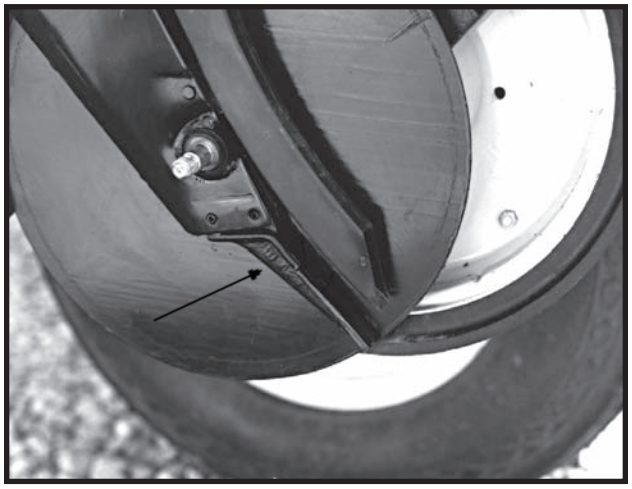
1. Remove gauge wheel, scraper, bearing cap, jam nut, washer and disc/bearing assembly.
2. Remove ¼" rivets from bearing housing to expose bearing.
3. After installing new bearing, install three evenly spaced ¼" bolts into three of the six holes in the bearing housing to hold the bearing and bearing housing in place. Install rivets in the other three holes. Remove ¼" bolts and install rivets in those three holes.
4. Reinstall disc/bearing assembly, washer and jam nut. Torque ⅝"-11 Grade 2 nut to value shown in "Torque Values Chart" at the beginning of this section.
5. Replace bearing dust cap.
6. Install scraper and gauge wheel.

SEED TUBE GUARD/INNER SCRAPER

The seed tube guard protects the seed tube and acts as the inner scraper for the disc opener blades.

Remove the seed tube and check for wear. Excessive wear on the seed tube indicates a worn seed tube guard.

50881-9



No till planting or planting in hard ground conditions will increase seed tube guard wear and necessitate more frequent inspection.

The gauge wheels and seed opener discs must be removed before the seed tube guard can be replaced.

ROW UNIT MOUNTED NO TILL COULTER

80367-10

Lubricate at frequency indicated in the Lubrication Section of this manual. Check periodically to be sure nuts and hardware are tightened to proper torque specification.

NOTE: Torque ⅝" spindle bolts to 120 ft. lbs.

Be sure the coulter is positioned square with the row unit and aligned in front of row unit disc opener.

The coulter blade can be adjusted to one of four settings. Initially the blade is set in the highest position. As the blade wears it can be adjusted to one of the three lower settings. See “Row Unit Mounted No Till Coulter” in Operation Section of this manual.

When the 16" diameter coulter blade is worn to a 14 ½" diameter (maximum allowable wear), it should be replaced.

Timely lubrication at the frequency indicated in the Lubrication Section of this manual is necessary to purge moisture and dirt from bearing and seal. This will also lubricate the seal.

NOTE: Add grease until it comes out around the seal. Spin hub while filling with grease.

ELECTRONIC SEED MONITOR SYSTEM TROUBLESHOOTING

LFD2-96/LFD1-96

The general procedure to use, if a problem occurs, is to isolate the cause to a sensor, sensor lead, planter harness, console cable or the console, in that order. Make necessary repairs after problem has been isolated.

1. Sensors

Check for excessive dirt inside sensor. Check for cut or damaged wires. Connect sensor to the planter harness in a row that is operating properly. If it then operates correctly, sensor is good.

In some cases static electricity may cause dust and seed treatment to accumulate on the sensing elements in the sensor. Enough may accumulate to cause the sensor to malfunction, which can cause monitor to indicate a fault condition. Low humidity and dry soil conditions tend to cause this condition. When this occurs, clean the inside of the sensors, using a dry bottle brush.

If, for any reason a sensor becomes inoperative and a replacement sensor is not immediately available, disconnect the sensor lead connector from the planter harness, turn monitor OFF and then back ON. This will keep the alarm from sounding for this row only. Replace the defective seed sensor (using high rate seed sensor only) as soon as possible. After sensor is replaced make certain the monitor is turned OFF and back ON to reactivate the sensor position.

If sensor leads are damaged, carefully cut away the cable covering at the damaged area. Repair damaged wire or wires by soldering wires together with rosin core solder, being sure to match wire colors, then tape each repaired wire. Finally, tape over cut portion of the cable cover. If necessary, relocate and secure cable so that the same type of damage will not occur again.

2. Planter Harness And Console Cable

Carefully examine planter harness and console cable for damage. If harness and/or cable is cut or pinched, carefully cut away the harness/cable covering. Repair cut or damaged wire by soldering wires together with rosin core solder, being sure to match wire colors. Tape each repaired wire, then tape over cut harness/cable covering. If necessary, relocate and secure harness/cable so that the same type damage will not occur again.

3. Console

Check for a blown fuse, located on the console rear panel. Check battery connections and make certain they are clean and tight. Make certain battery is fully charged.

If console fuse is blown replace with a 5 amp, type AGC. If fuse blows again, console needs repair or replacement.

CAUTION: DO NOT REPLACE FUSE WITH A FUSE HAVING A HIGHER AMPERAGE RATING.

If the battery cable is not damaged, battery connections are clean and tight and the battery is fully charged, the console is defective and needs to be repaired or replaced.

KM1000 TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Low Voltage Indicator is ON.	Connected to 6 volt battery.	Connect to 12 volt battery.
	System voltage insufficient.	Insure greater than 11.0 volts.
	Battery connection corroded.	Inspect battery connections. If corroded, clean terminals as console power cable terminals or battery terminals are dirty or required.
	Console defective. Contact your KINZE® Dealer.	Repair or replace console.
2. One row indicator lamp fails to flash when planting. Alarm does not sound.	Burned out row indicator lamp.	Replace row indicator lamp with a No. 1892 lamp only. (Part No. GR0595).
3. One row indicator lamp fails to flash when planting. Alarm sounds continuously. Seeds are being planted by the row unit.	Sensing elements inside seed sensor are dirty.	Clean sensing elements using a dry bottle brush. NOTE: Some seed treatment chemicals are detrimental to the operation of seed sensors and refuse to be removed by dry brushing. To remove such treatment from the inside of a sensor, proceed as follows: Wet a bottle brush with water, then apply a moderate amount of kitchen cleanser (such as Ajax® or Comet®) to the brush. Scrub inside of sensor until treatment is removed, then rinse sensor in clear cold water. Dry thoroughly.
	Defective sensor.	Plug suspect sensor cable into an adjacent row that is operating correctly. If sensor does not operate, sensor is defective. If you wish to continue planting and a replacement sensor is not available, disconnect the defective sensor cable from the planter harness, turn the monitor OFF and then back ON. The monitor will ignore the disconnected row sensor and you can continue to monitor all other rows.

KM1000 TROUBLESHOOTING CHART (Continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
4. One row indicator lamp fails to come on when the console is powered up.	Burned out row indicator lamp.	Replace row indicator lamp with a No. 1892 lamp only. (Part No. GR0595)
	Defective seed sensor or planter harness.	Disconnect the suspected sensor from the planter harness row lead. Disconnect the sensor from the planter harness of an adjacent row. Reverse the harness row leads to the sensors (connect the suspected sensor to the adjacent row planter harness lead and the adjacent sensor to the suspected row harness lead). Turn console power OFF then back ON. If the symptom moves to the adjacent row, the seed sensor is defective and needs replaced. If the symptom does not move, the planter harness or console is defective and needs repaired. Visually inspect the planter harness for cuts, pinching, etc. If damage is found, repair by cutting away the cable covering and splicing the wires (being sure to match wire colors). Solder the splices and tape each wire individually. Tape over repaired cable.
	Console defective. ~~Contact your KINZE® Dealer.~~	Repair or replace console.
5. Monitor completely “dead”.	Blown fuse.	Check fuse, located on rear panel of console. If fuse is blown, replace with a 5 amp, type AGC. If fuse blows again, check power connection to battery. If connections are reversed fuse will blow. If battery connections are correct, console needs repair or replacement. Contact your ~~KINZE® Dealer.~~
	Poor battery connections. Connections must be clean and tight.	Check battery connections.

KM1000 TROUBLESHOOTING CHART (Continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
5. (Cont'd.)	Cut or broken battery cable.	Visually inspect the battery cable for a cut or broken wire. If wires are cut or broken, splice the wires being sure to match wire colors. Solder the splices and tape each wire individually. USE ONLY ROSIN CORE SOLDER.
	Console defective.	Repair or replace console. Contact your KINZE Dealer.
6. When monitor is turned ON, row indicator lamps are dark, green power indicator is ON and monitorwill not enter operate mode.	Console not connected to planter harness.	Connect console cable to planter harness.
	Defective (shorted) seed sensor.	Leave monitor turned on. Unplug seed sensors one at a time starting with row 1. When you disconnect a sensor and the remaining row indicator lamps come on, the sensor or its cable is defective. Visually inspect the sensor cable. If damaged, repair. If no cable damage is found, the sensor is defective and needs to be replaced. If all but the last sensor is disconnected and the problem still exists, reconnect a sensor before disconnecting the last sensor. If the last sensor is disconnected and the problem still exists, the planter harness, console cable or console is at fault.
	Planter harness shorted.	Visually inspect the planter harness (including all row unit cables) for cuts, pinching and other types of damage. If damage is found, cut away cable covering and repair the individual wires. Tape over repaired wire and cable.
	Console defective.	If the console cable, planter harness, and seed sensors are normal, the console is at fault and needs to be repaired or replaced. Contact your KINZE® Dealer.

KM3000 TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Display readout incomplete (fragmented) alarm sounds continuously.	Low battery voltage.	Recharge or replace battery.
	Battery connections corroded.	Inspect battery connection. If console power cable terminals or battery terminals are dirty or corroded, clean terminals as required.
	Console defective. Contact your KINZE® Dealer.	Repair or replace console.
2. One row indicator segment (lower display) fails to flash when planting. Population readout for the planter row is .0. Alarm sounds continuously. Seeds are being planted by the row unit.	Sensing elements inside seed sensor are dirty.	Clean sensing elements using a dry bottle brush. NOTE: Some seed treatment chemicals are detrimental to the operation of seed sensors and refuse to be removed by dry brushing. To remove such treatment from the inside of a sensor proceed as follows: Wet a bottle brush with water, then apply a moderate amount of kitchen cleanser (such as Ajax® or Comet®) to the brush. Scrub inside of sensor until treatment is removed, then rinse sensor in clear cold water. Dry thoroughly.
	Defective sensor.	Plug suspect sensor cable into an adjacent row that is operating correctly. If sensor does not operate, sensor is defective. If you wish to continue planting and a replacement sensor is not available, disconnect the defective sensor cable from the planter harness, turn the monitor OFF and then back ON. The monitor will ignore the disconnected row sensor and you can continue to monitor all other rows.
3. Display will not accumulate area planted.	Both radar ground and magnetic distance sensors are connected to the monitor at the same time.	Disconnect either the radar ground sensor or the magnetic distance sensor.

KM3000 TROUBLESHOOTING CHART (Continued)

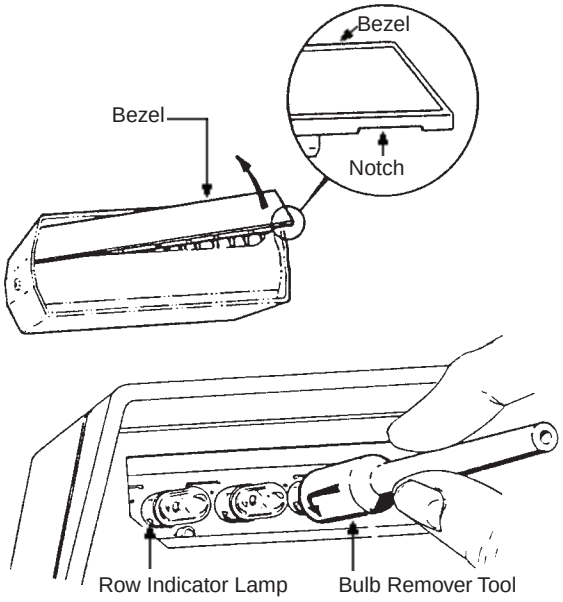
PROBLEM	POSSIBLE CAUSE	SOLUTION
4. Monitor completely “dead”.	Blown console fuse.	Check fuse, located on rear panel of console. If fuse is blown, replace with a 5 amp, type AGC. If fuse blows again, check power connection to battery. If connections are reversed fuse will blow. If battery connections are correct, console needs to be repaired or replaced. Contact your KINZE® Dealer.
	Poor battery connections.	Check battery connections. Connections must be clean and tight.
	Cut or broken battery cable.	Visually inspect the battery cable for a cut or broken wire. If wires are cut or broken, splice the wires being sure to match wire colors. Solder the splices and tape each wire individually. USE ONLY ROSIN CORE SOLDER.
	Low battery voltage.	Check battery voltage. Must be at least 12 volts. If not, recharge or replace battery.
	Console defective.	Repair or replace console. Contact your KINZE® Dealer.
5. When monitor is turned ON, row display (lower display) remains blank.Upper display shows SPEED,NUMBER OF ROWS, and ROW SPACING constants. Monitor will not enter OPERATE mode.	Console not connected to planter harness.	Connect console cable to planter harness.
	Defective (shorted) seed sensor.	Leave monitor turned ON. Unplug seed sensors one at a time starting with row 1. When you disconnect a sensor and the remaining row display segments come on and the monitor enters the operate mode, the sensor or its cable is defective. Visually inspect the sensor cable. If damaged repair. If no cable damage is found, the sensor is defective and needs replaced. If all sensors are disconnected and problem still exists, the planter harness, console cable or console is at fault.

KM3000 TROUBLESHOOTING CHART (Continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
5. (Cont'd.) When monitor is turned ON, row display (lower display) remains blank. Upper display shows SPEED, NUMBER OF ROWS and ROW SPACING constants. Monitor will not enter OPERATE mode.	Planter harness shorted.	Visually inspect the planter harness (including all row unit cables) for cuts, pinching and other types of damage. If damage is found, cut away cable covering and repair the individual wires. Tape over repaired wire and cable.
	Console cable shorted.	Visually inspect the console cable for cuts, pinching and other types of damage. If damage is found, cut away cable covering and repair the individual wires. Tape over repaired wire and cable.
	Console defective.	If the console cable, planter harness and seed sensors are normal, the console is at fault and needs to be repaired or replaced. Contact your KINZE® Dealer.

SEED MONITOR ROW INDICATOR BULB REPLACEMENT (KM1000 Only)

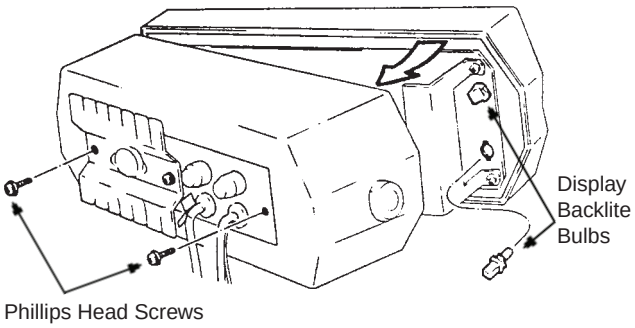
D-0802-0002/D-0802-0003(PLTR41)



Carefully remove the row indicator bezel as shown. Use your fingernail to pry up along the lower outside edge of the bezel. Remove bezel. Remove burned out bulb using a bulb remover tool. Press in on bulb, turn ¼ turn counterclockwise and remove bulb. Replace bulb with a No. 1892 (Part No. GR0595) only. Install bezel.

SEED MONITOR DISPLAY BACKLITE BULB REPLACEMENT (KM3000 Only)

D-0841-0006(PLTR42)



Remove the two outside Phillips head screws. NOTE: DO NOT REMOVE THE CENTER PHILLIPS HEAD SCREW. Carefully separate the console case from the front panel. Remove the defective bulb by turning the lamp assembly ¼ turn counterclockwise and pulling straight out. Replace bulb with a GE No. 73 bulb (Part No. GR1084). Carefully assemble the console front panel, case and rear panel and install the two Phillips head screws. **CAUTION: Make sure that all wires are located where they will not be pinched or cut.**

FLOW CONTROL VALVE INSPECTION

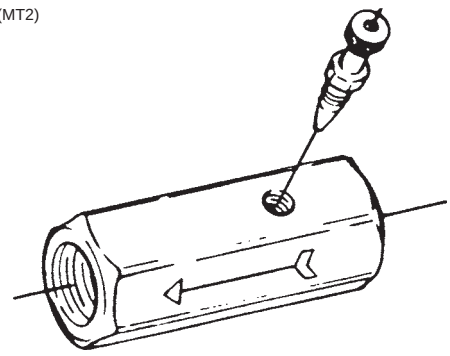
The row marker flow control valves should be adjusted for raise and lower speed as part of the assembly procedure or upon initial operation. The flow control used in the optional dual lift assist wheel hydraulic system, when the dual lift assist cylinders are plumbed into the 3 point hitch lift circuit, should be adjusted for operation speed also.

If the valve fails to function properly or requires frequent adjustment, the needle valve should be removed for inspection. Check for foreign material and contamination on both the valve and the seating area of the valve body. Replace any components found to be defective.

NOTE: The row marker flow control valve must be installed with the arrow pointed toward the tractor. The dual lift assist wheels flow control must be installed with the arrow pointed toward the planter.

NOTE: When oil is cold, hydraulics operate slowly. Make sure all adjustments are made with warm oil.

VVB001(MT2)



VALVE BLOCK ASSEMBLY INSPECTION
(Marker Sequencing & Flow Control Valves)

The valve block assembly consists of the marker sequencing and flow control valves in one assembly.

The sequencing valve portion consists of a chambered body containing a spool and series of check valves to direct hydraulic oil flow. Should the valve malfunction, the components may be removed for inspection.

1. Remove valve block assembly from planter.
2. Remove detent assembly and port adapter assemblies from rear of valve block.

IMPORTANT: Damage to the spool may occur if the detent assembly and port adapter assemblies are not removed prior to removal of the spool.

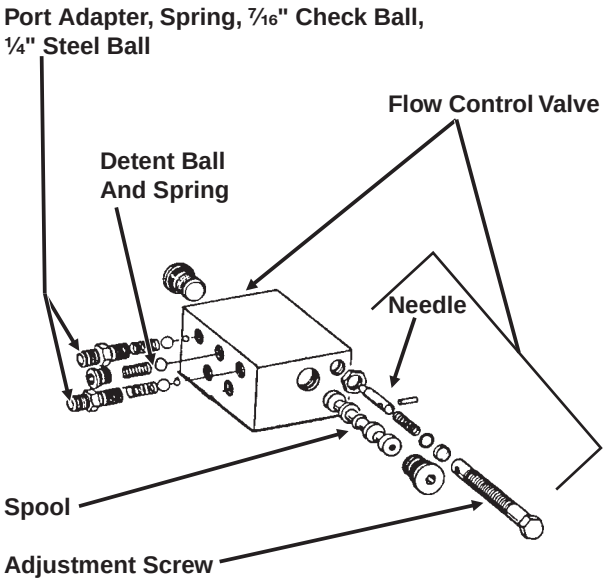
3. Remove plug from both sides of valve block and remove spool.
4. Inspect all parts for pitting, contamination or foreign material. Also check seating surfaces inside the valve. Replace any parts found to be defective.
5. Lubricate spool with a light oil and re-install. Check to be sure spool moves freely in valve body.

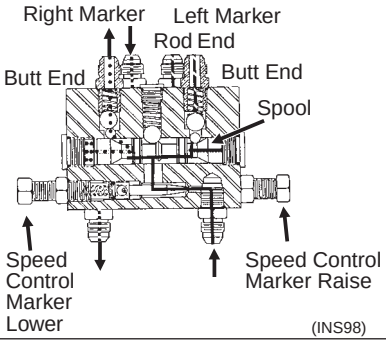
IMPORTANT: Make sure correct check ball(s) and spring are installed in each valve bore upon reassembly.

A flow control valve is located on each side of the block assembly. The flow control valves should be adjusted for raise and lower speed as part of the assembly procedure or upon initial operation. If the valve fails to function properly or requires frequent adjustment, the needle valve should be removed for inspection. Check for foreign material and contamination. Be sure needle moves freely in adjustment screw. Replace any components found to be defective.

NOTE: When oil is cold, hydraulics operate slowly. Make sure all adjustments are made with warm oil.

VVB025(PLTR43)

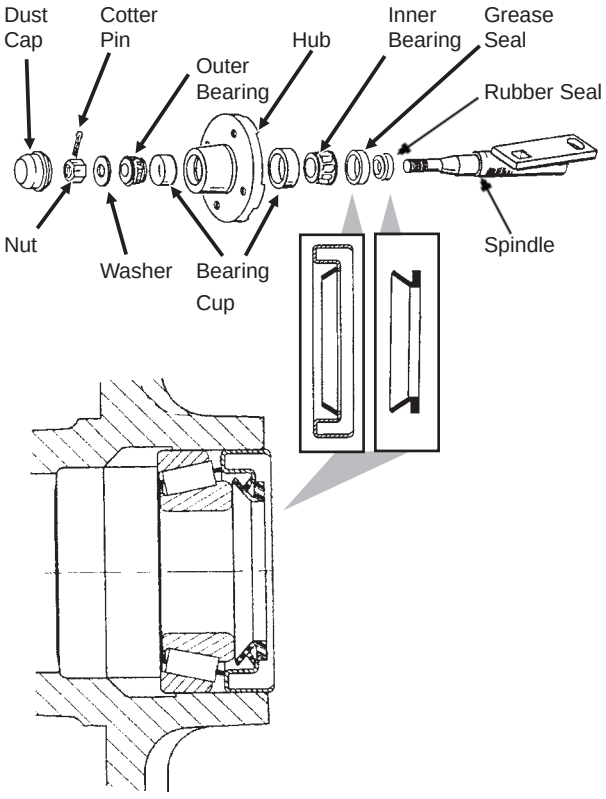


MARKER OPERATION TROUBLESHOOTING		
PROBLEM	**POSSIBLE CAUSE**	**SOLUTION**
Both markers lowering and only one raising at a time.	Hoses from cylinders to valve connected backwards.	Check hosing diagram in manual and correct.
Same marker always operating.	Spool in sequencing valve not shifting.  	Remove spool, inspect for foreign material, making sure all ports in spool are open. Clean and re-install.
Both markers lower and raise at same time.	Foreign material under check ball in sequencing valve.	Remove hose fitting, spring and balls and clean. May be desirable to remove spool and clean as well.
	Check ball missing or installed incorrectly in sequencing valve.	Disassemble and correct. See illustration in Parts Section.
Marker (in raised position) settling down.	Damaged o-ring in marker cylinder or cracked piston.	Disassemble cylinder and inspect for damage and repair.
	Spool in sequencing valve not shifting completely because detent ball or spring is missing.	Check valve assembly and install parts as needed.
	Spool in sequencing valve shifting back toward center position.	Restrict flow of hydraulic oil from tractor to sequencing valve.
Neither marker will move.	Flow control closed too far. counterclockwise until desired	Loosen locking nut and turn flow control adjustment bolt out or speed is set.
Markers moving too fast.	Flow control open too far.	Loosen locking nut and turn flow control adjustment bolt in or clockwise until desired speed is set.
Sporadic marker operation speed.	Needle sticking open in flow control valve.	Remove flow control, inspect and repair or replace.

MARKER BEARING LUBRICATION OR REPLACEMENT

1. Remove marker blade.
2. Remove dust cap from hub.
3. Remove cotter pin, nut and washer.
4. Slide hub from spindle.
5. Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
6. Press in new bearing cups with thickest edge facing in. (Bearing replacement procedure only.)
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. Install rubber seal into grease seal. Place inner bearing in place and press in new rubber seal/ grease seal.
9. Clean 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 dust caps approximately ¾ full of wheel bearing grease and install on hub.
12. Install blade and dust cap retainer on hub and tighten evenly and securely.

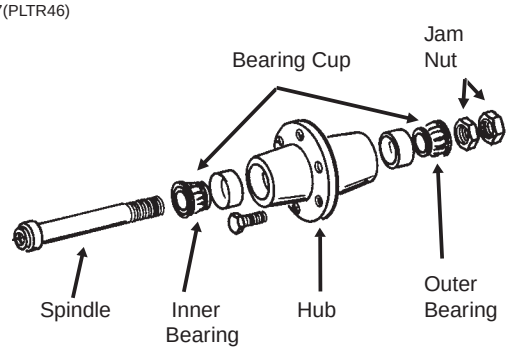
(PLTR45/PLTR99/PLTR98/PLTR102)



WHEEL BEARING LUBRICATION OR REPLACEMENT

1. Raise tire clear of ground and remove wheel.
2. Remove double jam nuts and slide hub from spindle.
3. Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
4. Press in new bearing cups with thickest edge facing in. (Bearing replacement procedure only.)
5. 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.
6. Place inner bearing in place.
7. Clean spindle and install hub.
8. Install outer bearing and jam nut. Tighten jam nut while rotating hub until there is some drag. This assures that all bearing surfaces are in contact. Back off jam nut ¼ turn or until there is only slight drag when rotating the hub. Install second jam nut to lock against first.
9. Install wheel on hub and tighten evenly and securely.

PTD057(PLTR46)



PREPARATION FOR STORAGE

Store the planter in a dry sheltered area if possible.

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

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

Lubricate planter and row units at all lubrication points.

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

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

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

Clean seed meters and store in a dry rodent-free area.

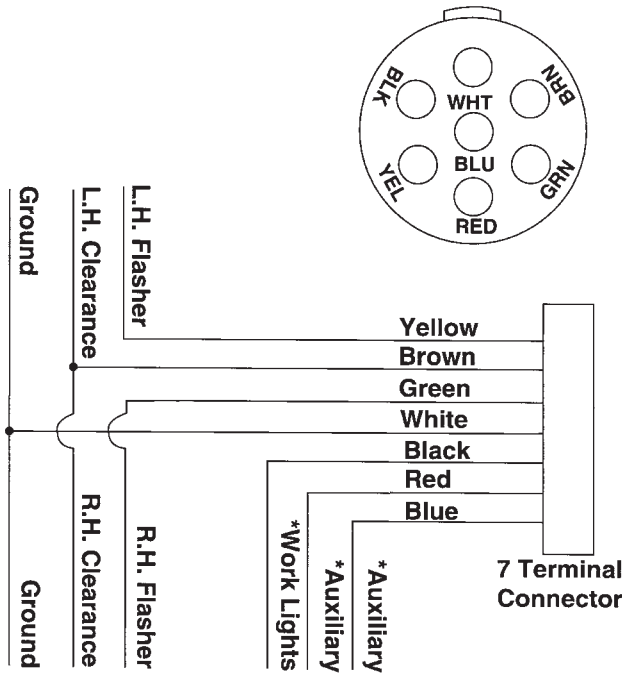
Remove seed discs from brush-type seed meter. Clean and store meters with discs removed.

Grease exposed areas of cylinder rods before storing planter.

Grease or paint disc openers and marker blades to prevent rust.

ELECTRICAL WIRING DIAGRAM FOR LIGHT PACKAGE

(WGN66a)

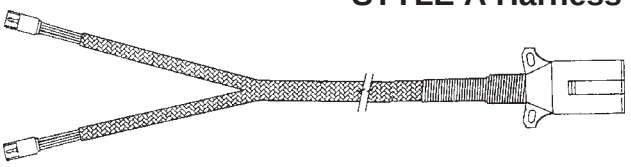


*Optional lights and wires (to be supplied by customer) may be wired into existing plug terminals.

Light package supplied on the Model 2100 planter meets ASAE Standards. For the correct wiring harness to be wired into the lights on your tractor, check with the tractor manufacturer.

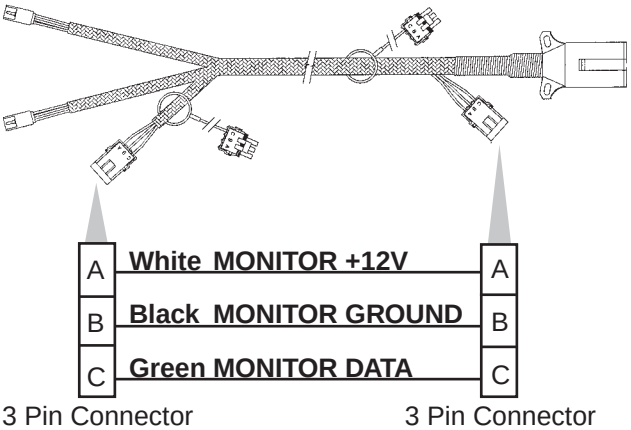
(PT50)

STYLE A Harness



(ELC9)

STYLE B Harness

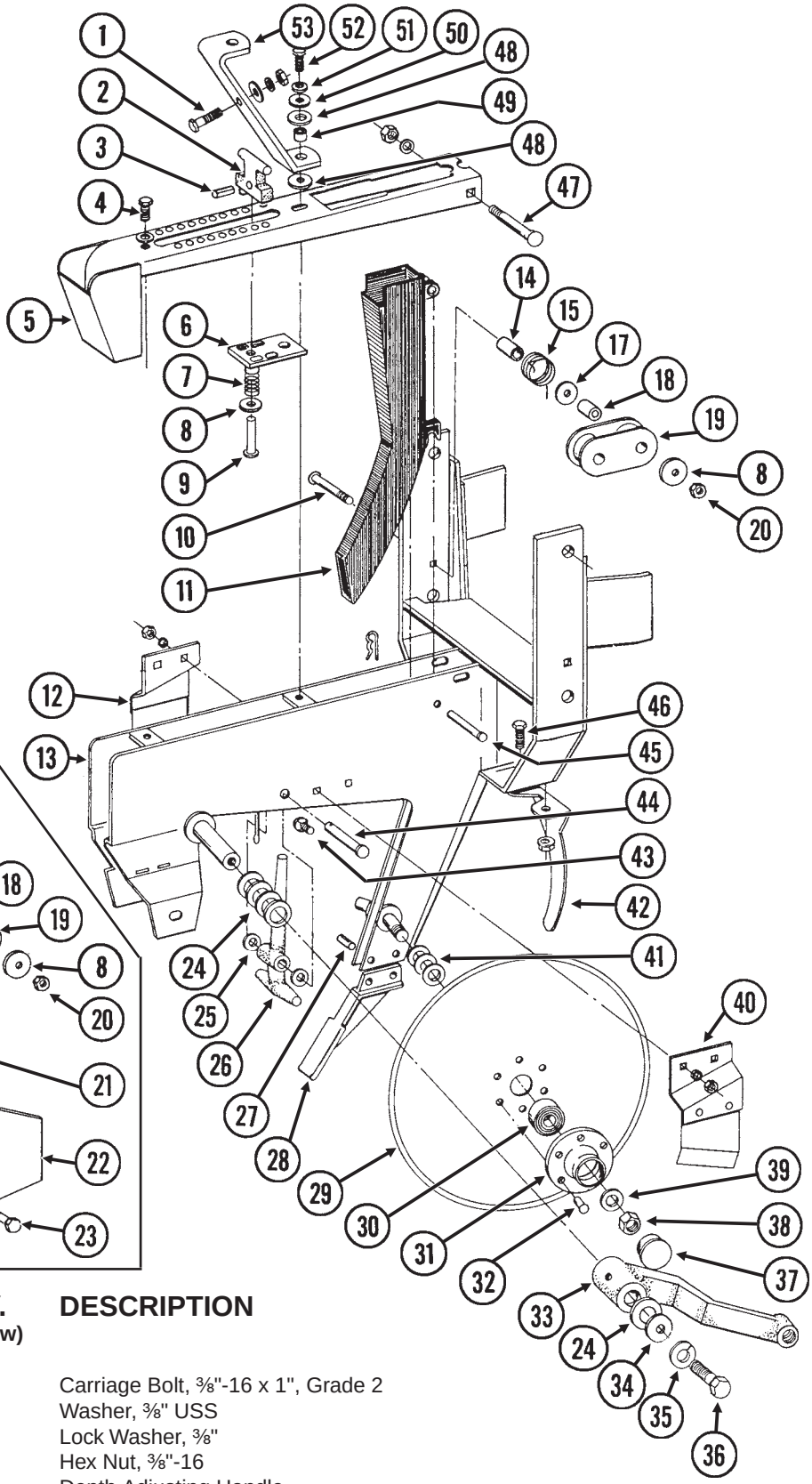


PARTS LIST INDEX

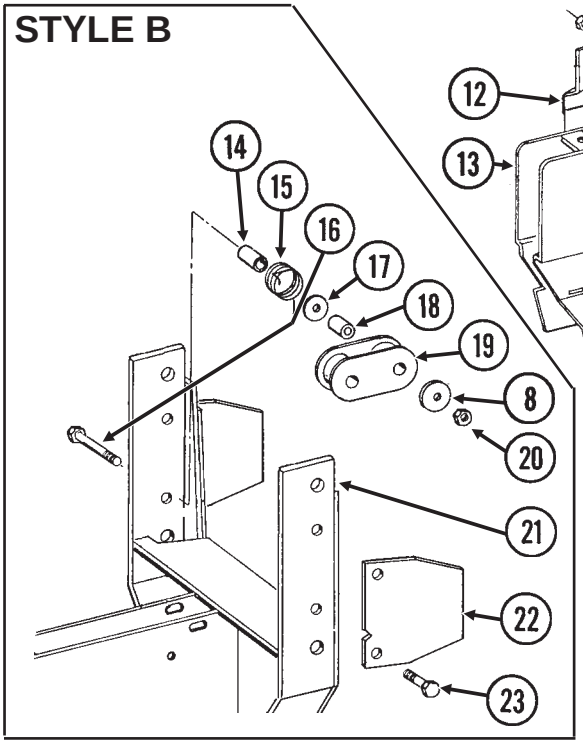
SHANK ASSEMBLY

RUB006/RUA044(RU1c/RU1d)

STYLE A



STYLE B



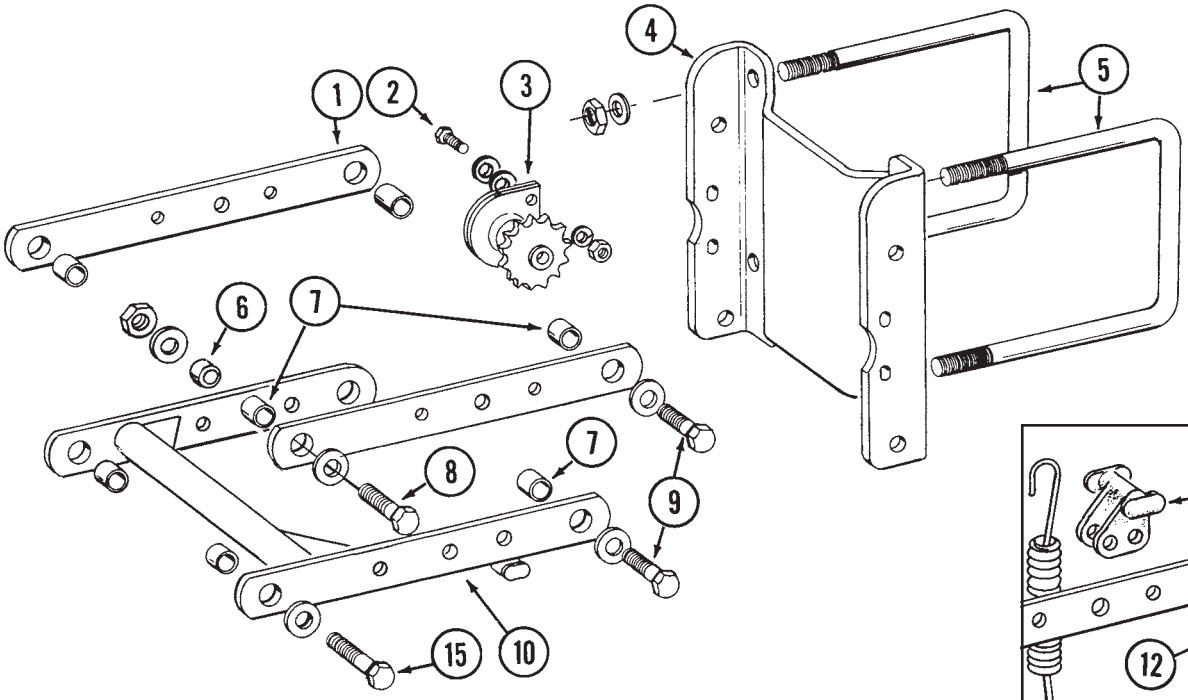
ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10305	2	Carriage Bolt, ⅜"-16 x 1", Grade 2
	G10210	2	Washer, ⅜" USS
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
2.	GB0102	1	Depth Adjusting Handle
3.	G10605	1	Spring Pin, 5⁄32" x ¾"
4.	G10001	1	Hex Head Cap Screw, ⅜"-16 x 1"
	G10229	1	Lock Washer, ⅜"
5.	GA0811	1	Shank Cover
6.	GB0105	1	Depth Adjusting Slide

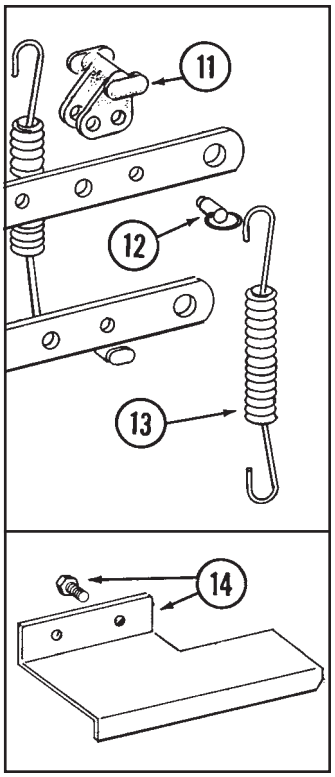
SHANK ASSEMBLY

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
7.	GD1066	1	Compression Spring
8.	G10210	1	Washer, 3/8" USS
9.	G10552	1	Clevis Pin, 3/8" x 2"
10.	G10307	1	Carriage Bolt, 3/8"-16 x 3 1/2", Grade 2
11.	GD1130	-	Seed Tube, Regular
	GA5880	-	Seed Tube W/High Rate Sensor
	GR1062	-	Seed Tube (With Holes For High Rate Sensor Installation)
	GR1087	-	Sensor Only (For GA5880)
12.	GA2012L	1	Disc Scraper, L.H.
13.	GA0860	1	Shank **(Sub G1K272)**
14.	GD7318	1	Bushing, 1"
15.	GD1065	1	Idler Spring
16.	G10326	1	Hex Head Cap Screw, 3/8"-16 x 3 3/4"
17.	G10201	1	Special Washer
18.	GD1026	1	Spacer, 1 3/16"
19.	GD9240	1	Idler
20.	G10108	1	Lock Nut, 3/8"-16
21.	GA1306	1	Shank
22.	GD10867	2	Stop
23	G10004	3	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	3	Lock Washer, 3/8"
	G10101	3	Hex Nut, 3/8"-16
24.	G10526	-	Spacer Washer, .048" Gauge (As Required)
25.	G10206	2	Washer, 1/2" SAE
26.	GB0104	1	Depth Adjusting Stop
27.	G10814	2	Spring Pin, 1/4" x 7/8"
28.	GB0103	1	Seed Tube Guard/Inner Scraper
29.	GD1030	2	Disc, 15"
30.	GA2014	2	Bearing
31.	GD10473	2	Housing
32.	G10427	12	Rivet, 1/4" x 1/2"
33.		-	See “Gauge Wheel”, Page P5
34.	G10216	2	Washer, 1/2" USS
35.	G10228	2	Lock Washer, 1/2"
36.	G10014	2	Hex Head Cap Screw, 1/2"-13 x 1"
37.	GD6533	2	Dust Cap
38.	G10503	1	Jam Nut, 5/8"-11, R.H.
	G10504	1	Jam Nut, 5/8"-11, L.H.
39.	G10204	2	Machine Bushing, 21/32"
40.	GA2012R	1	Disc Scraper, R.H.
41.	G10213	-	Machine Bushing, .030" Gauge (As Required)
42.	GD1033	1	Shield
43.	G10328	4	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10622	4	Flange Nut, 3/8"-16
44.	G10555	1	Clevis Pin, 1/2" x 2 1/2"
	G10451	1	Cotter Pin, 1/8" x 1"
45.	G10551	1	Clevis Pin, 1/4" x 2 1/2"
	G10669	1	Hair Pin Clip, No. 22
46.	G10312	2	Carriage Bolt, 5/16"-18 x 3/4", Grade 2
	G10620	2	Flange Nut, 5/16"-18
47.	G10304	1	Carriage Bolt, 3/8"-16 x 3", Grade 2
	G10108	1	Lock Nut, 3/8"-16
48.	GD1120	2	Rubber Washer
49.	GD1110	1	Bushing, 1/2"
50.	G10208	1	Special Washer, 13/32"
51.	G10229	1	Lock Washer, 3/8"
52.	G10003	1	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
53.	GD1027	1	Stabilizer Bracket
A.	GA2013	-	Disc And Bearing Assembly, Less Bearing Cap (Items 29-32)
B.	G1K212	-	Meter Drive Idler Kit (Items 8 And 14-20)
C.	G1K272	-	Row Unit Shank Replacement Kit (Items 16 And 20-23)

PARALLEL ARMS, MOUNTING SUPPORT PLATE AND QUICK ADJUSTABLE DOWN FORCE SPRINGS

RUB007/RUB015/RUB016/RUB013/RUB019/RUB020(RU2a/RU3/RU4)

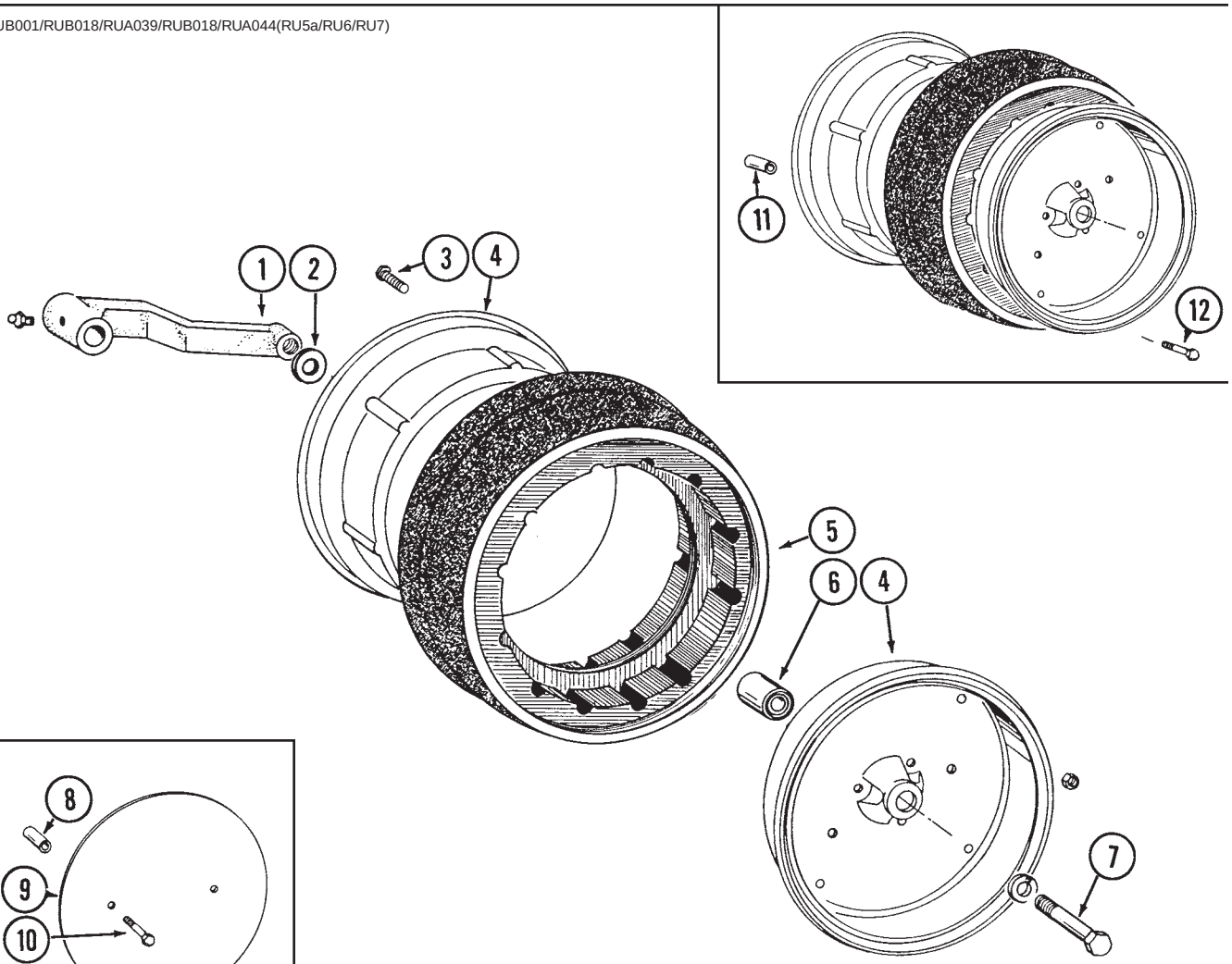




ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD7619	2	Upper Parallel Arm
2.	G10004	2	Hex Head Cap Screw, ⅜"-16 x 1 ¼"
	G10210	-	Washer, ⅜" USS (As Required)
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
3.	GA1720	1	Bearing/Sprocket, ⅞" Bore
4.	GD10036	1	Mounting Support Plate
5.	GD1114	2	U-Bolt, 7" x 7" x ⅝"-11
	G10177	-	Hex Head Cap Screw, ⅝"-11 x 9 ½"
	G10230	4	Lock Washer, ⅝"
	G10104	4	Hex Nut, ⅝"-11
6.	GD1109	2	Pivot Bushing, ¼"
7.	GB0218	8	Bushing, 19⁄32"
8.	G10752	2	Hex Head Cap Screw, ⅝"-18 x 2 ¼"
	GD7805	4	Special Washer
	G10412	2	Lock Nut, ⅝"-18
9.	G10732	4	Hex Head Cap Screw, ⅝"-18 x 2"
	GD7805	4	Special Washer
	G10412	4	Lock Nut, ⅝"-18
10.	GA5651	1	Lower Parallel Arm
11.	GB0186	2	Spring Anchor
12.	G10545	2	Detent Pin, 1" Grip
13.	GD8249	-	Spring
14.	G7192X	-	Chain Shield Package With Hardware
	G10037	-	Hex Head Cap Screw, ½"-13 x 1 ¼"
	G10228	-	Lock Washer, ½"
	G10102	-	Hex Nut, ½"-13
15.	G10751	2	Hex Head Cap Screw, ⅝"-18 x 1 ¾"
	GD7805	2	Special Washer
	G10412	2	Lock Nut, ⅝"-18

GAUGE WHEEL

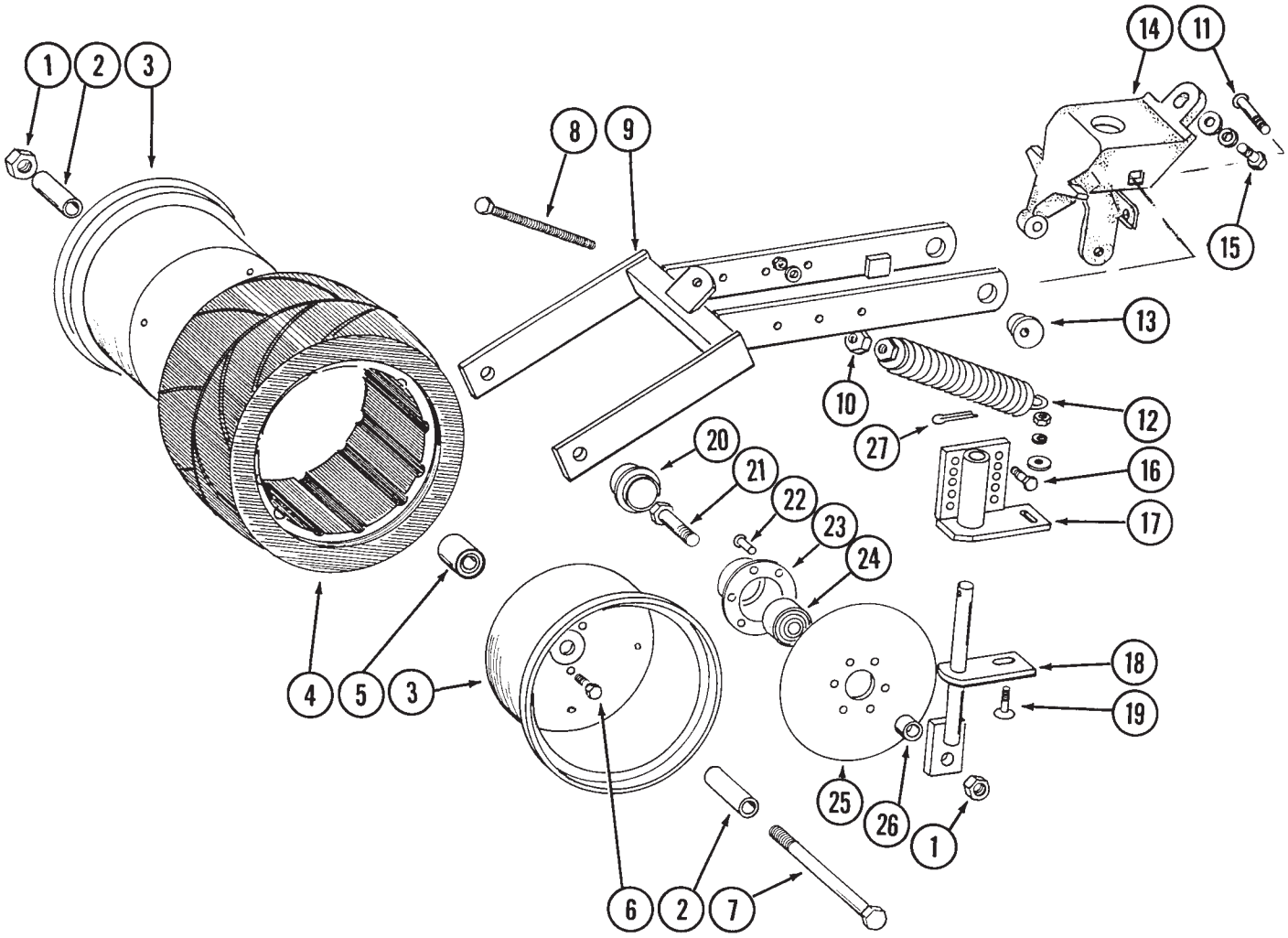
RUB001/RUB018/RUA039/RUB018/RUA044(RU5a/RU6/RU7)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GA6614	2	Wheel Arm With Grease Fitting
	G10640	2	Grease Fitting, ¼"-28
2.	G10204	1	Machine Bushing, 21/32"
3.	G10018	14	Hex Head Cap Screw, 5/16"-18 x 5/8"
	G10109	14	Lock Nut, 5/16"-18
4.	GD1048	4	Half Wheel
5.	GD1086	2	Tire
6.	GA6171	2	Bearing
7.	G10010	2	Hex Head Cap Screw, 5/8"-11 x 3"
	G10230	2	Lock Washer, 5/8"
8.	GD0973	4	Wheel Cover Sleeve, 1 ½" (Optional)
9.	GD1353	2	Wheel Cover (Optional)
10.	G10069	4	Hex Head Cap Screw, 5/16"-18 x 2 ¼"
	G10232	4	Lock Washer, 5/16"
	G10106	4	Hex Nut, 5/16"-18
11.	GD8811	8	Dual Gauge Wheel Sleeve, 4 ⅛" (Optional)
12.	G10764	8	Hex Head Cap Screw, 5/16"-18 x 5"
	G10109	8	Lock Nut, 5/16"-18
A.	GA6615	-	Gauge Wheel Complete (Items 3-6)

COVERING DISCS/SINGLE PRESS WHEEL

RUA042/RUA044(RU8)

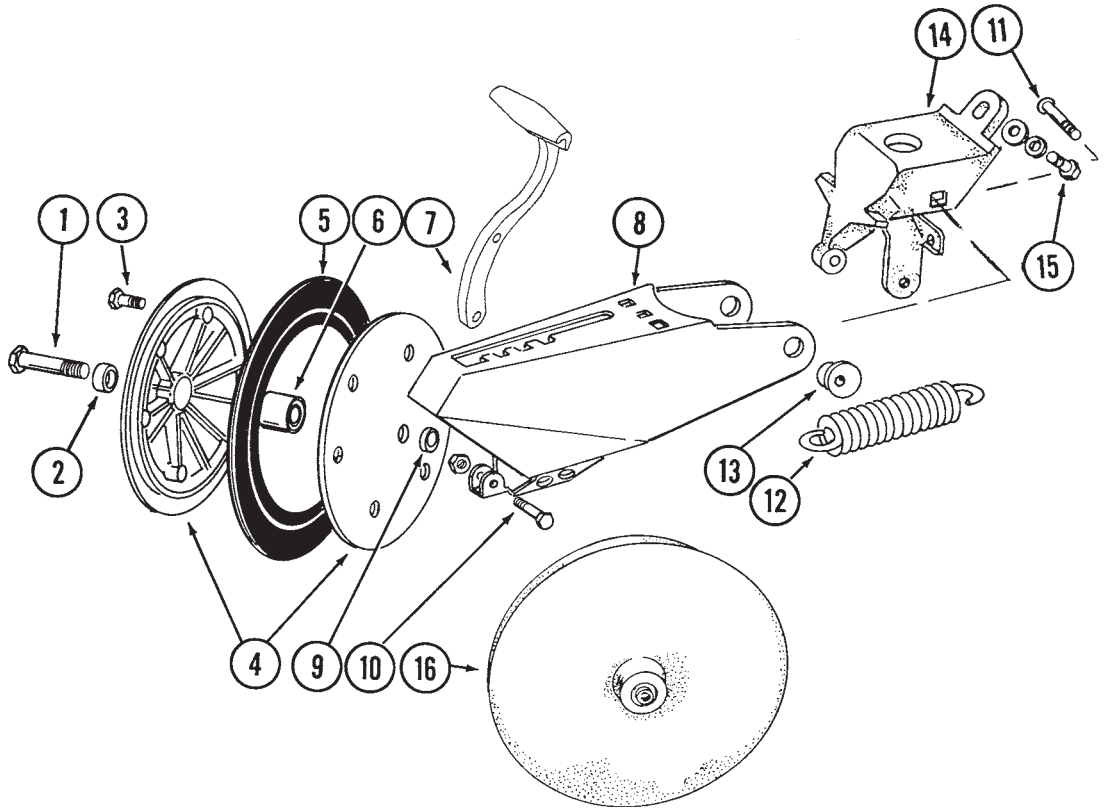


COVERING DISCS/SINGLE PRESS WHEEL

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10107	3	Lock Nut, 5/8"-11
2.	GD3181-12	2	Spacer, 2 7/8"
3.	GD9562	2	Half Wheel
4.	GD9305	1	Tire
5.	GA6171	1	Bearing
6.	G10018	7	Hex Head Cap Screw, 5/16"-18 x 5/8"
	G10109	7	Lock Nut, 5/16"-18
7.	G10152	1	Hex Head Cap Screw, 5/8"-11 x 9"
8.	G10015	1	Adjusting Bolt, 1/2"-13 x 5"
9.	GA6619	1	Mounting Arm
10.	G10102	1	Hex Nut, 1/2"-13
11.	G10801	2	Carriage Bolt, 1/2"-13 x 2 1/4"
	G10315	-	Carraige Bolt, 1/2"-13 x 2 1/2"
	G10216	2	Washer, 1/2" USS
	G10102	2	Hex Nut, 1/2"-13
12.	GA2054	1	Spring
13.	GB0239	2	Eccentric Bushing
14.	GB0233	1	Wheel Arm Stop
15.	G10003	1	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G10229	1	Lock Washer, 3/8"
	G10210	2	Washer, 3/8" USS
16.	G10171	4	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
	G10232	4	Lock Washer, 5/16"
	G10106	4	Hex Nut, 5/16"-18
17.	GA6620	2	Bracket
18.	GA6618	2	Mount
19.	G10303	2	Carriage Bolt, 5/16"-18 x 1"
	G10219	2	Washer, 5/16" USS
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, 5/16"-18
20.	GD6533	2	Cap
21.	G10006	2	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
22.	G10427	12	Rivet, 1/4" x 1/2"
23.	GD10473	2	Bearing Housing
24.	GA2014	2	Bearing
25.	GD9290	2	Blade, 8" Diameter
26.	GD1109	2	Spacer, 1/4"
27.	G10463	2	Cotter Pin, 1/4" x 1 1/2"
A.	GA6733	-	Single Press Wheel Complete With Bearing (Items 3-6)
B.	GA6801	-	Covering Disc Complete With Bearing (Items 22-25)

“V” CLOSING WHEELS

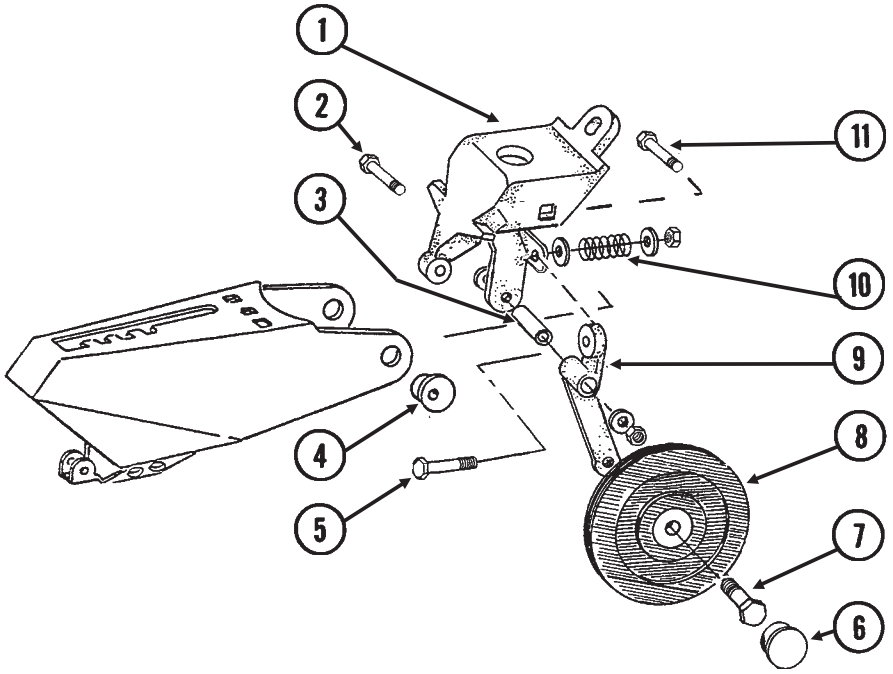
RUB004/RUA044/RUA046(RU9)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10013	2	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G10107	2	Lock Nut, 5/8"-11
2.	GB0218	2	Bushing, 19/32"
3.	G10064	6	Hex Head Cap Screw, 1/4"-20 x 1"
	G10103	6	Hex Nut, 1/4"-20
4.	GD9120	4	Nylon Half Wheel
5.	GD1085	2	Rubber Tire, 1" x 12"
6.	GA6171	2	Bearing
7.	GB0254	1	Lever
8.	GA6613	1	Arm
9.	GD1109	2	Bushing, 1/4"
10.	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10109	1	Lock Nut, 5/16"-18
11.	G10747	2	Carriage Bolt, 1/2"-13 x 2"
	G10111	2	Lock Nut, 1/2"-13
12.	GD8460	1	Spring
13.	GB0219	2	Eccentric Bushing
14.	GB0233	1	Wheel Arm Stop
15.	G10003	1	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G10229	1	Lock Washer, 3/8"
	G10210	2	Washer, 3/8" USS
16.	GA6597	-	Cast Iron Closing Wheel W/Bearing
	GA6171	-	Bearing
A.	GA6434	-	Rubber Closing Wheel Complete With Bearing (Items 3-6)

SEED FIRMING WHEEL

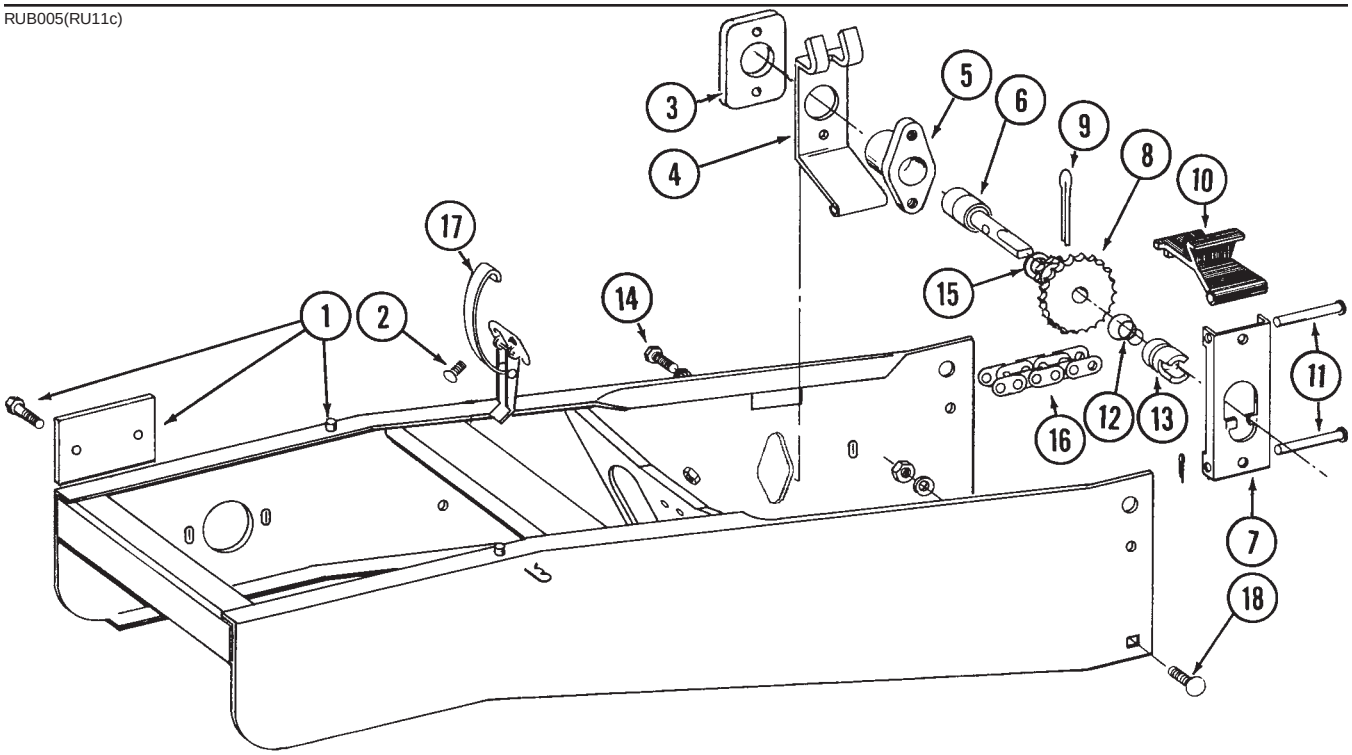
RUB006/RUA044(RU10b)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GB0233	1	Wheel Arm Stop
2.	G10049	1	Hex Head Cap Screw, ⅜"-16 x 2 ½"
	G10210	2	Washer, ⅜" USS
	G10108	1	Lock Nut, ⅜"-16
3.	GD9786	1	Bushing
4.	GB0219	2	Eccentric Bushing
5.	G10062	1	Hex Head Cap Screw, ⅜"-16 x 3"
	G10210	2	Washer, ⅜" USS
	G10108	1	Lock Nut, ⅜"-16
6.	GD1079	1	Dust Cap
7.	G10055	1	Hex Head Cap Screw, ⅝"-11 x 1 ¼"
8.	GA7580	1	Seed Firming Wheel W/Bearing And Snap Ring
	GA2014	-	Bearing
	G10770	-	Snap Ring
9.	GB0245	1	Arm
10.	GD9787	1	Spring
11.	G10747	2	Carriage Bolt, ½"-13 x 2"
	G10111	2	Lock Nut, ½"-13
A.	GA6937	-	Seed Firming Wheel Retrofit Package (Items 1-11)

HOPPER SUPPORT AND METER DRIVE

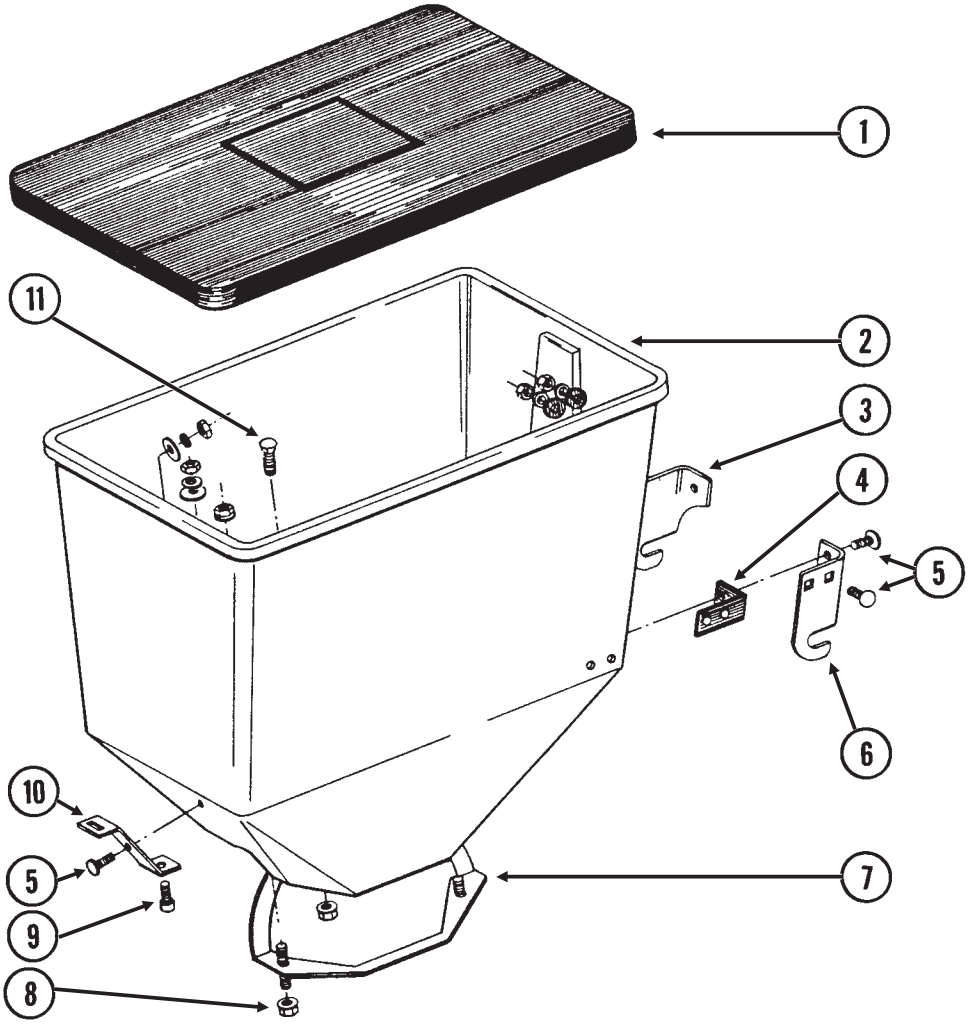
RUB005(RU11c)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GR1066	1	Hopper Support W/Cover And Hardware
	GD7618	1	Cover
	G10312	2	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	2	Flange Nut, 5/16"-18
2.	G10309	2	Carriage Bolt, 1/4"-20 x 5/8", Grade 2
	G10621	2	Flange Nut, 1/4"-20
3.	GD2128	1	Plate
4.	GD1037	1	Bearing Support
5.	GB0108	1	Bearing Housing
6.	GA2016	1	Bearing
7.	GD1036	1	Drive Release Lever
8.	GB0107	1	Sprocket, 11/19 Tooth
9.	G10457	1	Cotter Pin, 5/32" x 1 1/2"
10.	GD1035	1	Release Handle
11.	G10553	2	Clevis Pin, 1/4" x 2 5/8"
	G10455	2	Cotter Pin, 1/16" x 1/2"
12.	GD10464	1	Compression Spring
13.	GB0243	1	Drive Coupler
14.	G10019	2	Hex Head Cap Screw, 5/16"-18 x 1"
	G10232	2	Lock Washer, 5/16"
15.	G10204	-	Machinery Bushing, 21/32" (As Required)
16.	G3303-98	1	Roller Chain, No. 41, 98 Links Including Connector Link
	G3303-16	-	Roller Chain, No. 41, 16 Links Including Connector Link (Used W/Row Unit Extension Brackets)
	GR0196	1	Connector Link, No. 41
17.	GA2007	1	Hopper Hold Down Latch
18.	G10305	1	Carriage Bolt, 3/8"-16 x 1", Grade 2
	G10004	-	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
A.	GA4822	-	Meter Drive Assembly Complete (Items 3-14)

SEED HOPPER

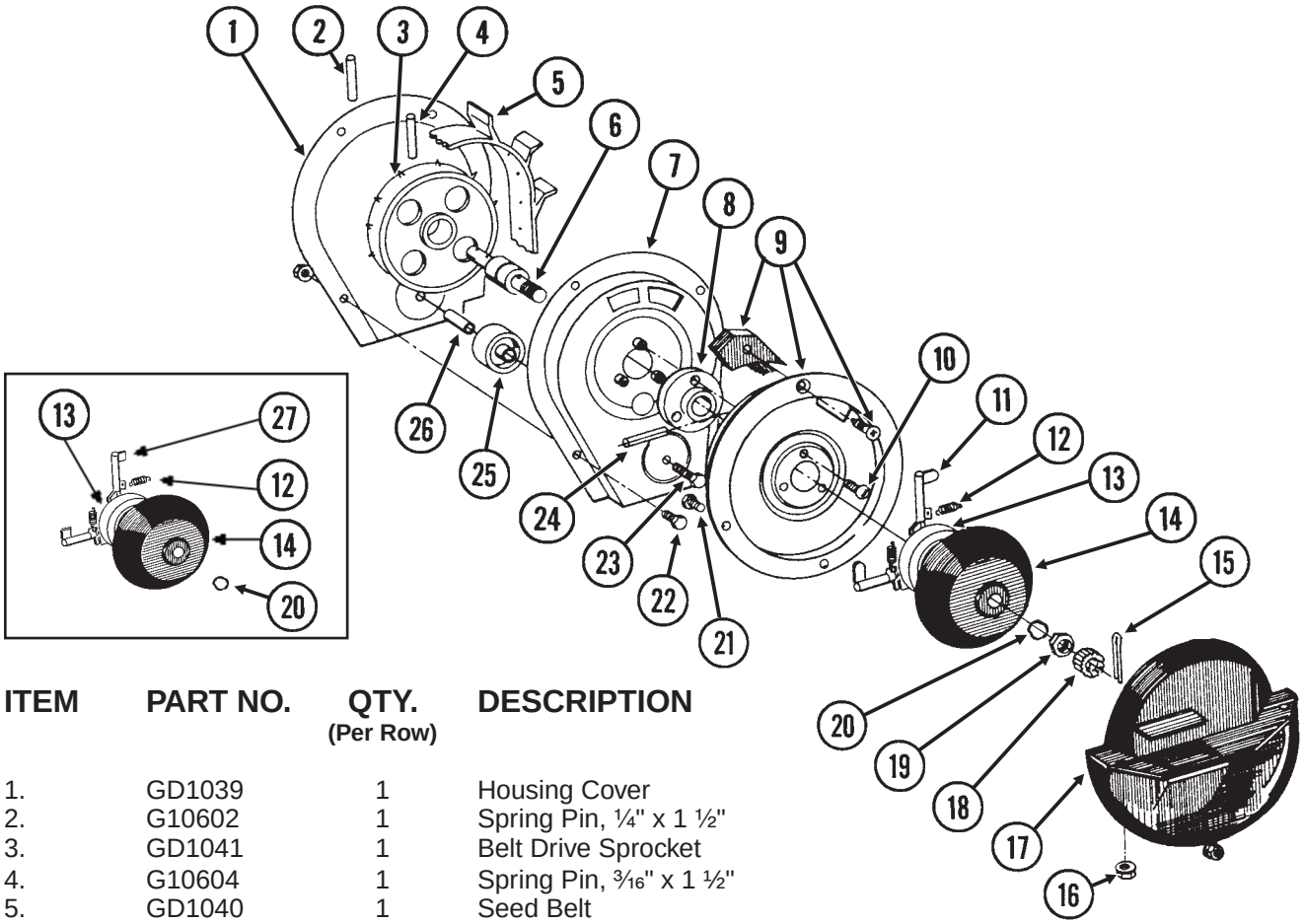
RUA015(RU12b)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GA2327	1	Lid With Clip
2.	GD1053	1	Seed Hopper
3.	GD1051L	1	Bracket, Left Hand
4.	GD1054	2	Mounting Pad
5.	G10310	7	Carriage Bolt, ¼"-20 x ¾", Grade 2
	GD1121	7	Rubber Washer
	G10209	7	Washer, ¼" USS
	G10110	7	Self Locking Nut, ¼"-20
6.	GD1051R	1	Bracket, Right Hand
7.	GA2027	1	Retainer
8.	G10620	4	Flange Nut, 5⁄16"-18
9.	G10520	1	Hex Socket Head Cap Screw, ⅜"-16 x ¾", Grade 8
	G10210	1	Washer, ⅜" USS
	G10229	1	Lock Washer, ⅜"
	G10101	1	Hex Nut, ⅜"-16
10.	GD1055	1	Clip
11.	G10310	1	Carriage Bolt, ¼"-20 x ¾", Grade 2
	G10621	1	Flange Nut, ¼"-20
A.	GA2058	-	Seed Hopper With Hardware, Less Lid (Items 2-11)

FINGER PICKUP SEED METER

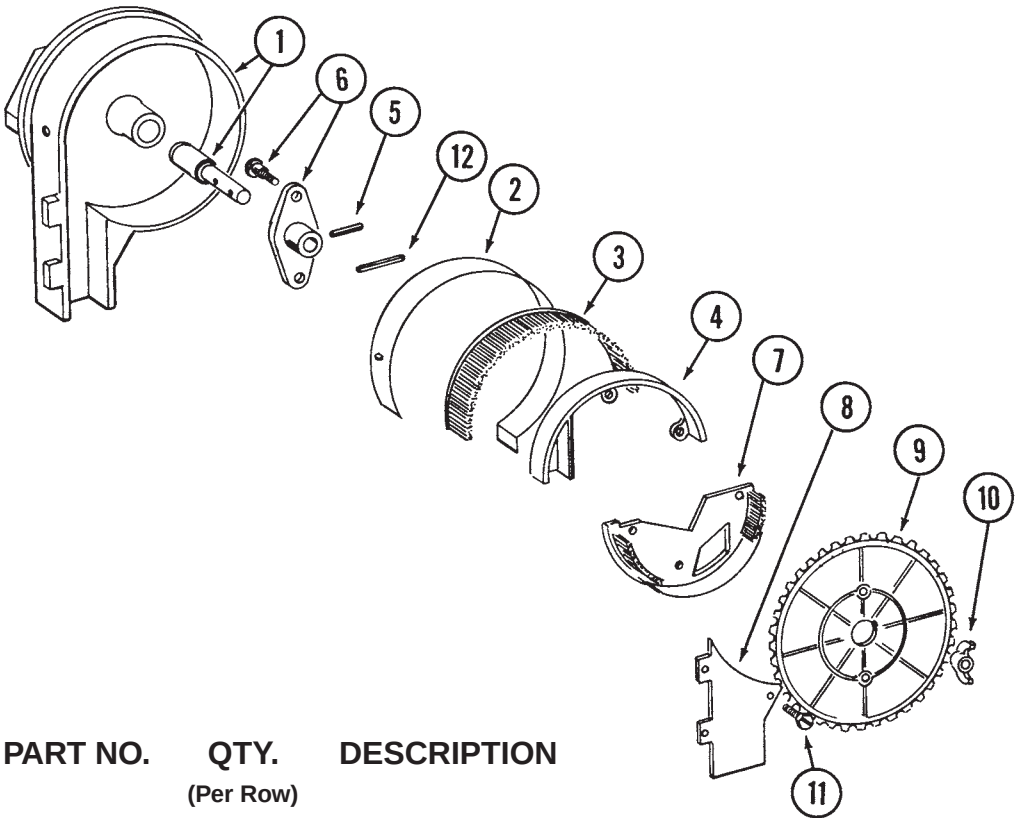
RUA015(RU13a/RU37b)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1039	1	Housing Cover
2.	G10602	1	Spring Pin, ¼" x 1 ½"
3.	GD1041	1	Belt Drive Sprocket
4.	G10604	1	Spring Pin, 3⁄16" x 1 ½"
5.	GD1040	1	Seed Belt
6.	GA2019	1	Bearing
7.	GA2018	1	Conveyor Housing
8.	GB0110	1	Bearing Housing
9.	GR0664	1	Carrier With Brush And Screw
	GA2020	-	Brush
	G10690	-	Rolling Thread Screw, No. 10 x ¾"
10.	G10401	3	Screw, No. 10-32 x ⅝"
11.	GD10733	12	Finger, Corn
12.	GD6501	12	Spring
13.	GB0111	1	Cam
14.	GD1045	1	Finger Holder
15.	G10470	1	Cotter Pin, 5⁄32" x 1"
16.	G10620	2	Flange Nut, 5⁄16"-18
17.	GD1046	1	Seed Baffle
18.	GD1083	1	Cover Nut, ⅝"-18
19.	G10500	1	Jam Nut, ⅝"-18 UNF
20.	GA8343	1	Wave Washer, ⅝" (Triple Wave)
21.	G10020	3	Hex Head Cap Screw, ¼"-20 x ⅝"
	G10323	3	Hex Flange Nut, ¼"-20
22.	G10022	4	Hex Head Cap Screw, ¼"-20 x ½"
	G10621	4	Flange Nut, ¼"-20
23.	G10021	1	Hex Head Cap Screw, ¼"-20 x 1 ½"
	G10621	1	Flange Nut, ¼"-20
24.	G10603	1	Spring Pin, ¼" x 1 ¼"
25.	GD1042	1	Idler
26.	GB0120	1	Bushing
27.	GD10226	12	Finger, Oil Sunflower
A.	GR0933	-	Finger Assembly, Corn (Items 11-14 And 20)
B.	GR1327	-	Finger Assembly, Oil Sunflower (Items 12-14, 20 And 27)

BRUSH-TYPE SEED METER

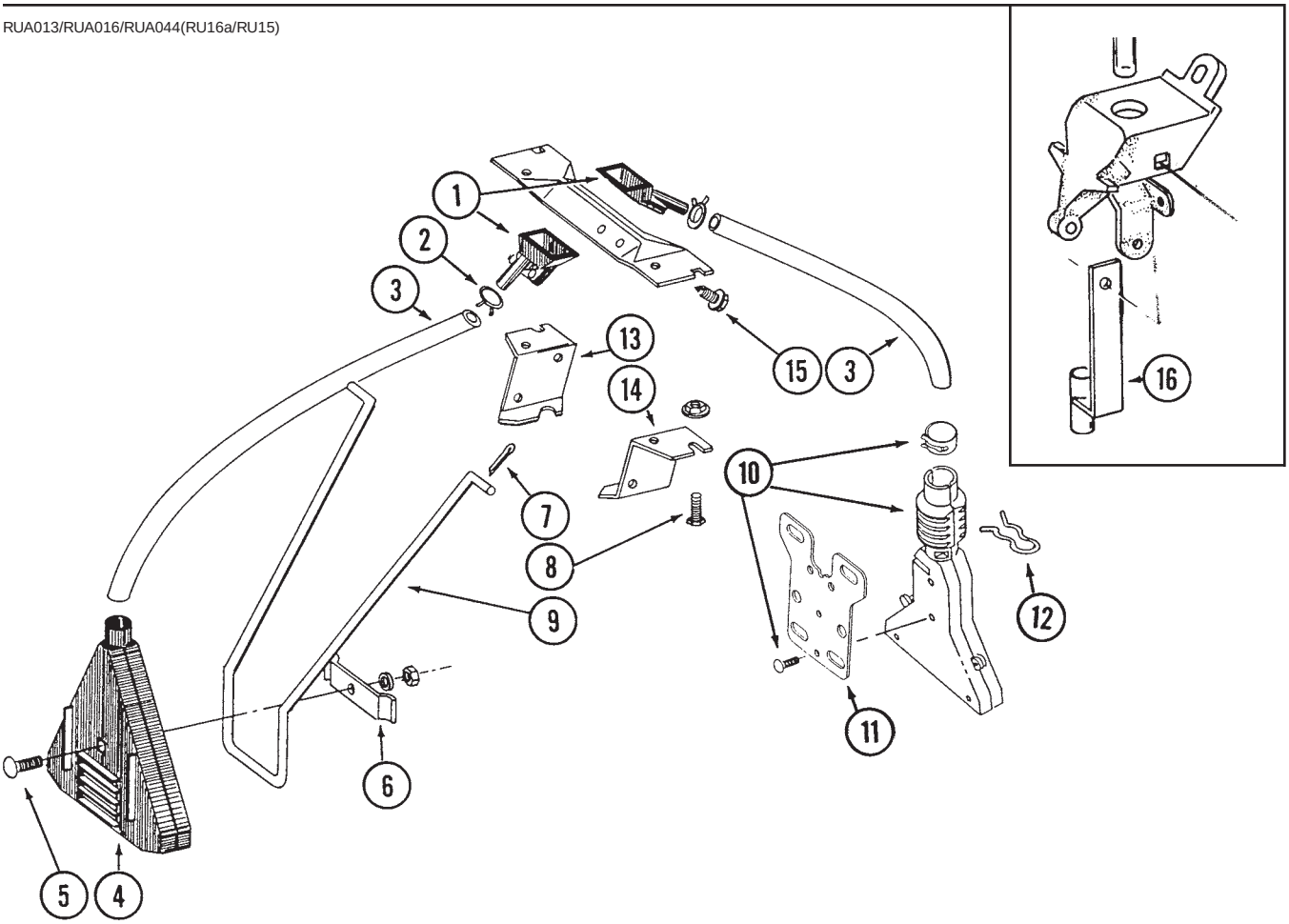
RUA037(RU14)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GA6027	1	Housing W/Bearing
	GA5698	-	Bearing
2.	GD8778	1	Wear Strip
3.	GA5699	1	Upper Retaining Brush
4.	GD8237	1	Retaining Brush Holder
5.	G10603	1	Spring Pin, ¼" x 1 ¼"
6.	GA6038	1	Hub W/Shoulder Bolts
	GD1755	-	Shoulder Bolt, ¼"-20 (2 Used)
7.	GA5834	1	Lower Brush
8.	GD7878	1	Cover
9.	GA5794	-	Seed Disc, Soybean, 60 Cell, Black Color-Coded
	GA6184	-	Seed Disc, Specialty Soybean, 48 Cell, Dark Blue Color-Coded
	GA5982	-	Seed Disc, Small Milo/Grain Sorghum, 30 Cell, Red Color-Coded
	GA6187	-	Seed Disc, Large Milo/Grain Sorghum, 30 Cell, Light Blue Color-Coded
	GA5795	-	Seed Disc, High Rate Small Milo/Grain Sorghum, 60 Cell, Red Color-Coded
	GA6633	-	Seed Disc, High Rate Large Milo/Grain Sorghum, 60 Cell, Yellow Color-Coded
	GA5796	-	Seed Disc, Cotton, Acid-Delinted, 30 Cell, White Color-Coded
	GA6168	-	Seed Disc, Large Cotton, Acid-Delinted, 36 Cell, Tan Color-Coded
	GA6478	-	Seed Disc, High Rate Cotton, Acid-Delinted, 48 Cell, Light Green Color-Coded
	GA6182	-	Seed Disc, Hill-Drop Cotton, Acid-Delinted, 12 Cell, Brown Color-Coded
	GA7255	-	Seed Disc, Small Hill-Drop Cotton, Acid-Delinted, 12 Cell, Dark Green Color-Coded
10.	G10531	2	Nylon Insert Wing Nut, ¼"-20
11.	G10584	9	Slotted Tap Screw, No. 10-24 x ½"
12.	G10602	1	Spring Pin, ¼" x 1 ½"

GRANULAR CHEMICAL BANDERS

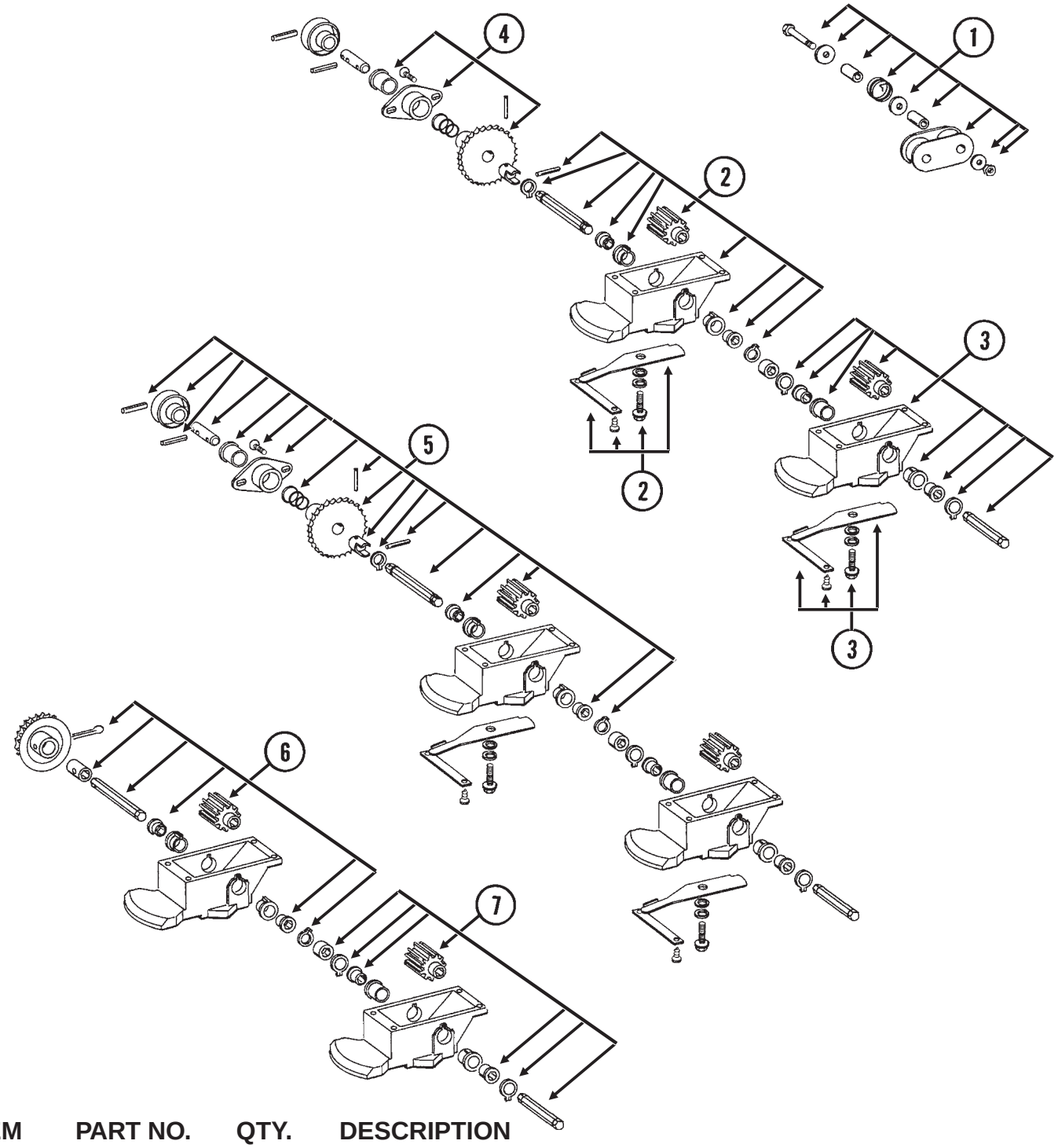
RUA013/RUA016/RUA044(RU16a/RU15)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD2423	-	Funnel
2.	G10680	-	Hose Clamp, 7⁄16"
3.	GD2947	-	Hose, 7⁄16" x 28"
4.	GA2075	-	Diffuser, 14" Band
5.	G10306	-	Carriage Bolt, 3⁄8"-16 x 2", Grade 2
	G10229	-	Lock Washer, 3⁄8"
	G10101	-	Hex Nut, 3⁄8"-16
6.	GD1118	-	Clamp
7.	G10452	-	Cotter Pin, 1⁄8" x 1⁄2"
8.	G10310	-	Carriage Bolt, 1⁄4"-20 x 3⁄4", Grade 2
	G10227	-	Lock Washer, 1⁄4"
	G10103	-	Hex Nut, 1⁄4"-20
9.	GD1116	-	Hanger
10.	GA6907	-	Slope-Compensating Bander W/Hardware (4 1⁄2" Band Width)
	G10864	-	Uni-Clamp
	G10757	2	Screw, No. 10-32 x 1 1⁄4"
	G10758	2	Hex Nut, No. 10-32
11.	GD9816	-	Bander Mounting Bracket (For Some Non-KINZE® Applications)
12.	GD1090	-	Spring Clip
13.	GD1115L	-	Hanger Bracket, L.H.
14.	GD1115R	-	Hanger Bracket, R.H.
15.	G10523	-	Self Tapping Screw, No. 10 x 1⁄2"
16.	GA6741	-	Bracket (Straight Drop In-Furrow)

GRANULAR CHEMICAL SUB-ASSEMBLIES AND KITS

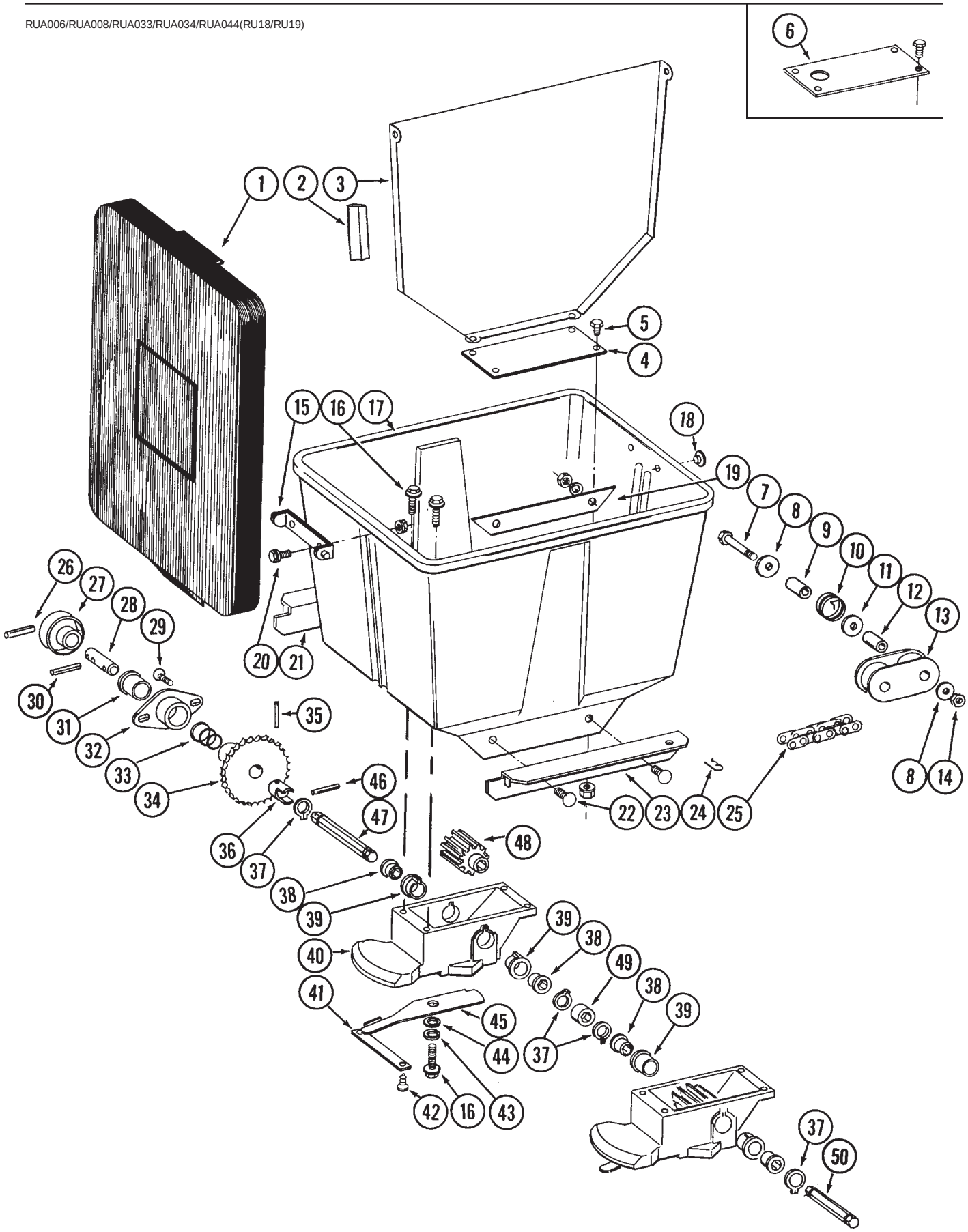
(RU65/RU66/RU67)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G1K213	1	Granular Chemical Idler Kit W/Instruction
2.	GA5553	1	Insecticide Housing Sub-Assembly
3.	GA5554	1	Herbicide Housing Sub-Assembly
4.	GA5746	1	Sprocket Sub-Assembly
5.	GA5623	1	Throwout Update Kit W/Instructions And Template
6.	GA5560	1	Primary Meter Roller Replacement Kit W/Instruction (Update For Non-Current Design)
7.	GA5561	1	Secondary Meter Roller Replacement Kit W/Instruction (Update For Non-Current Design)

GRANULAR CHEMICAL HOPPER WITH METER(S) & THROWOUT

RUA006/RUA008/RUA033/RUA034/RUA044(RU18/RU19)

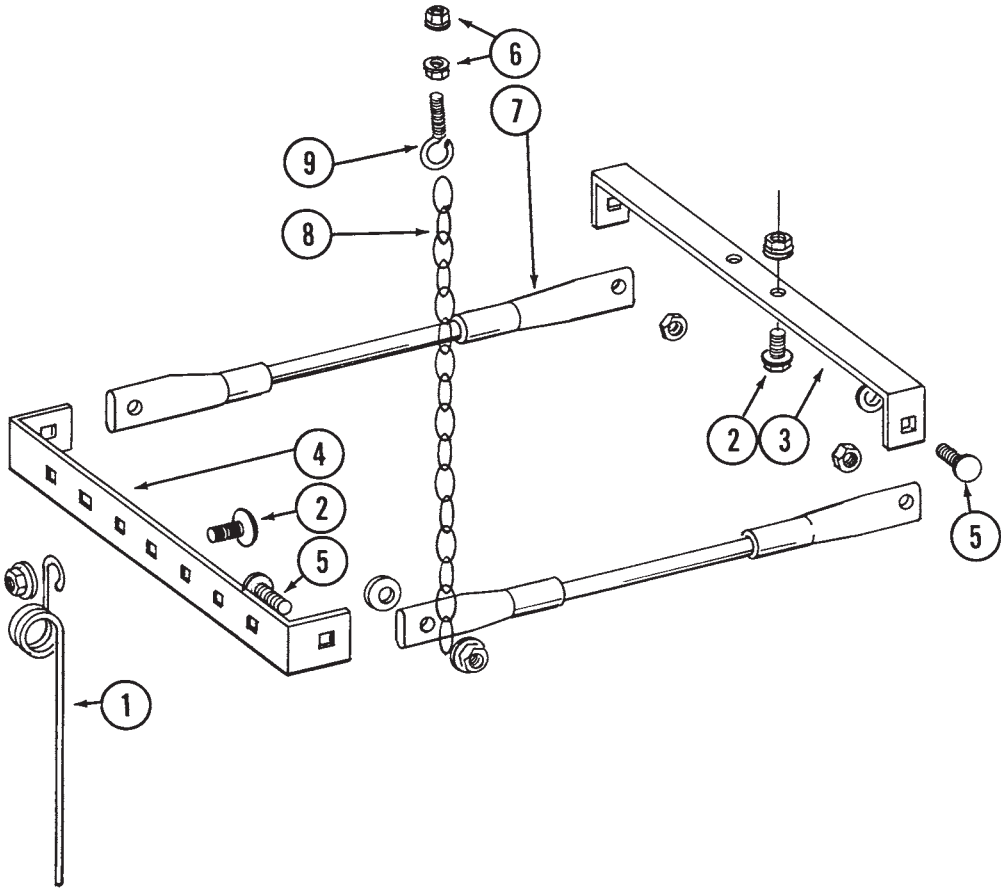


GRANULAR CHEMICAL HOPPER WITH METER(S) & THROWOUT

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GA4444	1	Lid
2.	G3314-40	-	Foam Strip, 40"
3.	GA2076	1	Divider (Used With Two Meters)
4.	GD1056	-	Cover Plate (1 Used With One Meter)
5.	G10022	4	Hex Head Cap Screw, ¼"-20 x ½"
	G10621	4	Flange Nut, ¼"-20
6.	GD8750	-	Restrictor Plate (Optional)
7.	G10049	1	Hex Head Cap Screw, ⅜"-16 x 2 ½"
8.	G10210	2	Washer, ⅜" USS
9.	GD2971-10	1	Bushing, 9/16"
10.	GD11219	1	Spring
11.	G10201	1	Special Washer
12.	GD1026	1	Spacer, 1 3/16"
13.	GD9240	1	Idler
14.	G10108	1	Lock Nut, ⅜"-16
15.	GD1060	1	Hinge
16.	G10570	-	Self Tapping Screw, ¼" x ¾" (4 Used Per Meter)
17.	GD1058	1	Hopper
18.	GD1089	2	Plug
19.	GD1072	2	Strap
20.	G10023	2	Hex Head Cap Screw, ¼"-20 x ¾"
	G10621	2	Flange Nut, ¼"-20
21.	GD1059L	1	Support, L.H.
22.	G10311	4	Carriage Bolt, ⅜"-16 x ¾" Short Necked, Grade 2
	G10229	4	Lock Washer, ⅜"
	G10101	4	Hex Nut, ⅜"-16
23.	GD1059R	1	Support, R.H.
24.	G10670	2	Spring Locking Pin, No. 3
25.	G3303-114	1	Roller Chain, No. 41, 114 Pitch Including Connector Link
	GR0196	1	Connector Link, No. 41
26.	G10637	1	Spring Pin, ⅛" x 1 ½"
27.	GD11239	1	Knob
28.	GD7589	1	Throwout Pin
29.	G10312	2	Carriage Bolt, 5/16"-18 x ¾"
	G10620	2	Flange Nut, 5/16"-18
30.	G10602	1	Spring Pin, ¼" x 1 ½"
31.	GB0121	1	Bearing
32.	GB0183	1	Bearing Mount
33.	GD10464	1	Spring
34.	GA5533	1	Sprocket, 24 Tooth
35.	G10609	1	Spring Pin, 5/32" x 1"
36.	GB0184	1	Coupling
37.	G10567	1	Retaining Ring
38.	GD7258	-	Hex Bushing (2 Used Per Meter)
39.	GB0115	-	Bearing (2 Used Per Meter)
40.	GB0116	-	Granular Housing (1 Used Per Meter)
41.	GD1061	-	Support Strap (1 Used Per Meter)
42.	G10521	1	Self Tapping Screw, No. 10 x ⅜" (2 Used Per Meter)
43.	G10209	-	Washer, ¼" USS (1 Used Per Meter)
44.	G10660	-	Wave Washer (1 Used Per Meter)
45.	GD1063	-	Metering Gate (1 Used Per Meter)
46.	G10546	1	Spring Pin, 3/16" x 1 ¼"
47.	GD7588	1	Shaft
48.	GD7148	-	Feed Roller, Hex Bore (1 Used Per Meter)
49.	GD7592	1	Coupler, Hex Bore (With 2nd Meter)
50.	GD7591	-	Shaft (1 Used In 2nd Meter)

SPRING TOOTH INCORPORATOR

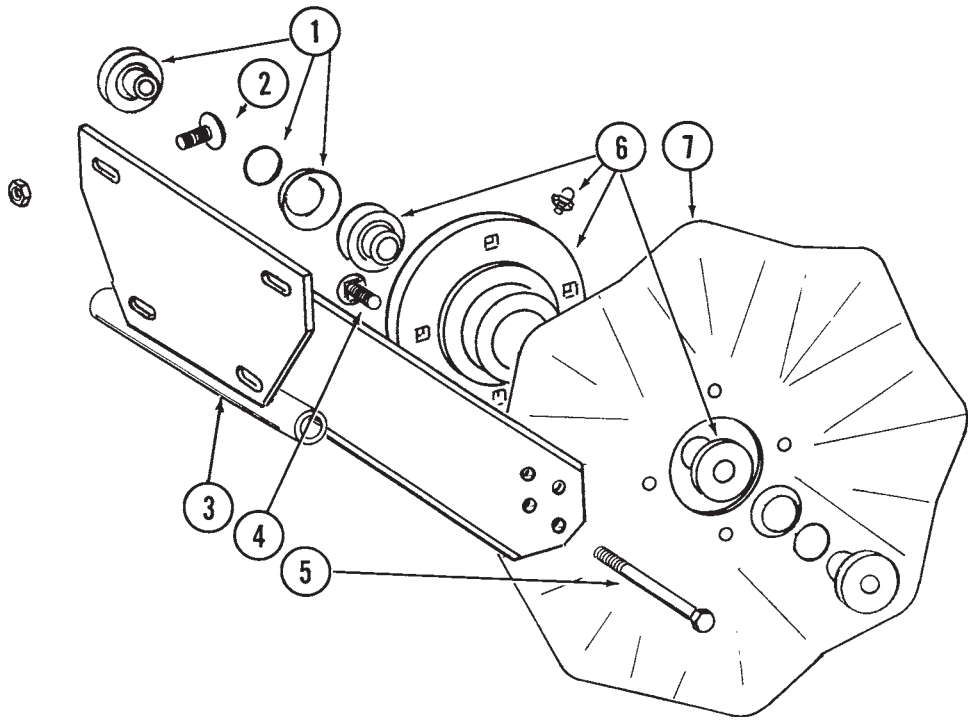
RUA011(RU20)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1145	7	Spring Tooth
2.	G10308	9	Carriage Bolt, ⅜"-16 x ¾", Grade 2
	G10622	9	Flange Nut, ⅜"-16
3.	GD1143	1	Front Bracket
4.	GD1144	1	Rear Bracket
5.	G10305	4	Carriage Bolt, ⅜"-16 x 1", Grade 2
	G10529	4	External Tooth Lock Washer, ⅜"
	G10622	4	Flange Nut, ⅜"-16
6.	G10621	4	Flange Nut, ¼"-20
7.	GA2094	2	Cable Assembly
8.	G3305-01	4	Chain
9.	GD2460	2	Eyebolt, ¼"-20

NO TILL COULTER, ROW UNIT MOUNTED

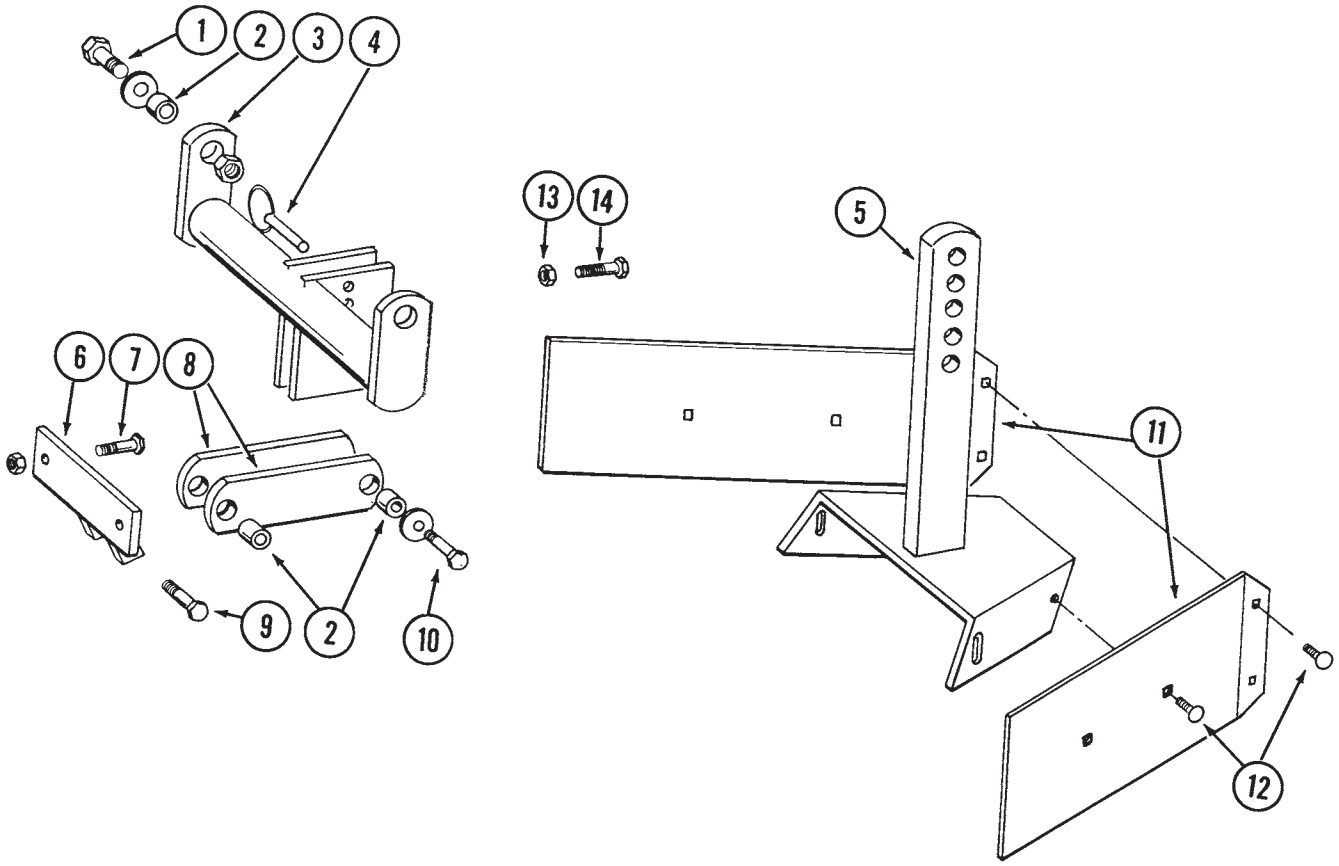
RUA036(RU21a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GB0227	2	Adapter W/O-Ring And Spring Washer
	GD8844	2	O-Ring
	GD8843	2	Spring Washer
2.	G10574	4	Carriage Bolt, ½"-13 x 1 ¼"
	G10111	4	Lock Nut, ½"-13
3.	GA5625	1	Arm
4.	G10574	4	Carriage Bolt, ½"-13 x 1 ¼"
	G10111	4	Lock Nut, ½"-13
5.	G10036	1	Hex Head Cap Screw, ⅝"-11 x 4"
	G10107	1	Lock Nut, ⅝"-11
6.	GA5640	1	Hub W/Bearings And Grease Fitting
	GA5622	-	Bearing (2 Used)
	G10640	-	Grease Fitting, ¼"-28
7.	GD7803	-	Fluted Blade, 1", 8 Flutes (Shown)
	GD7804	-	Bubbled Blade, 1"
	GD9254	-	Fluted Blade, ¾", 13 Flutes

BED LEVELER, ROW UNIT MOUNTED

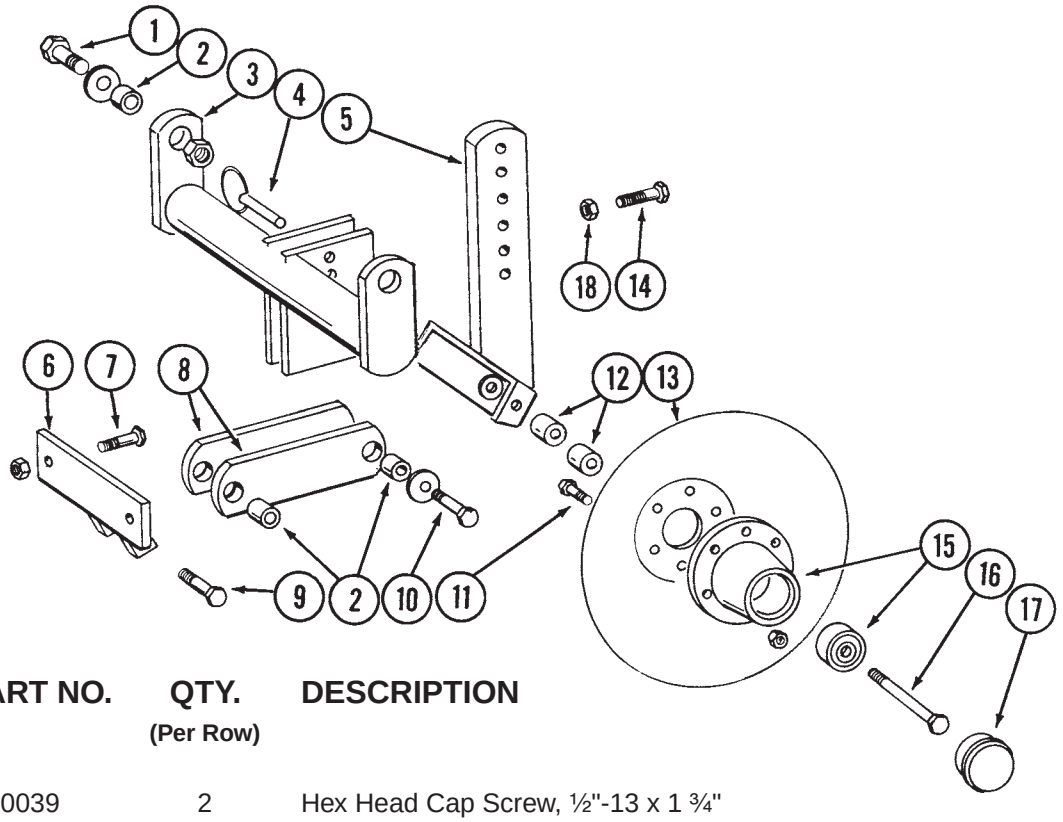
RUA038/RUA040(RU22)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10039	2	Hex Head Cap Screw, ½"-13 x 1 ¾"
	G10216	2	Washer, ½" USS
	G10111	2	Lock Nut, ½"-13
2.	GD7889	6	Bushing
3.	GA5719	1	Mounting Bracket
4.	G10536	1	Pin
5.	GA5892	1	Leveler
6.	GA5715	1	Anchor
7.	G10017	2	Hex Head Cap Screw, ½"-13 x 1 ½"
	G10111	2	Lock Nut, ½"-13
8.	GD7890	2	Link
9.	G10017	2	Hex Head Cap Screw, ½"-13 x 1 ½"
	G10216	2	Washer, ½" USS
	G10111	2	Lock Nut, ½"-13
10.	G10585	1	Hex Head Cap Screw, ½"-13 x 3 ¼"
	G10216	2	Washer, ½" USS
	G10111	1	Lock Nut, ½"-13
11.	GD8266	2	Blade
12.	G10303	6	Carriage Bolt, 5⁄16"-18 x 1"
	G10219	4	Washer, 5⁄16" USS
	G10109	6	Lock Nut, 5⁄16"-18
13.	G10503	1	Jam Nut, ⅝"-11
14.	G10597	1	Set Screw, ⅝"-11 x 2 ¼"

DISC FURROWER, ROW UNIT MOUNTED

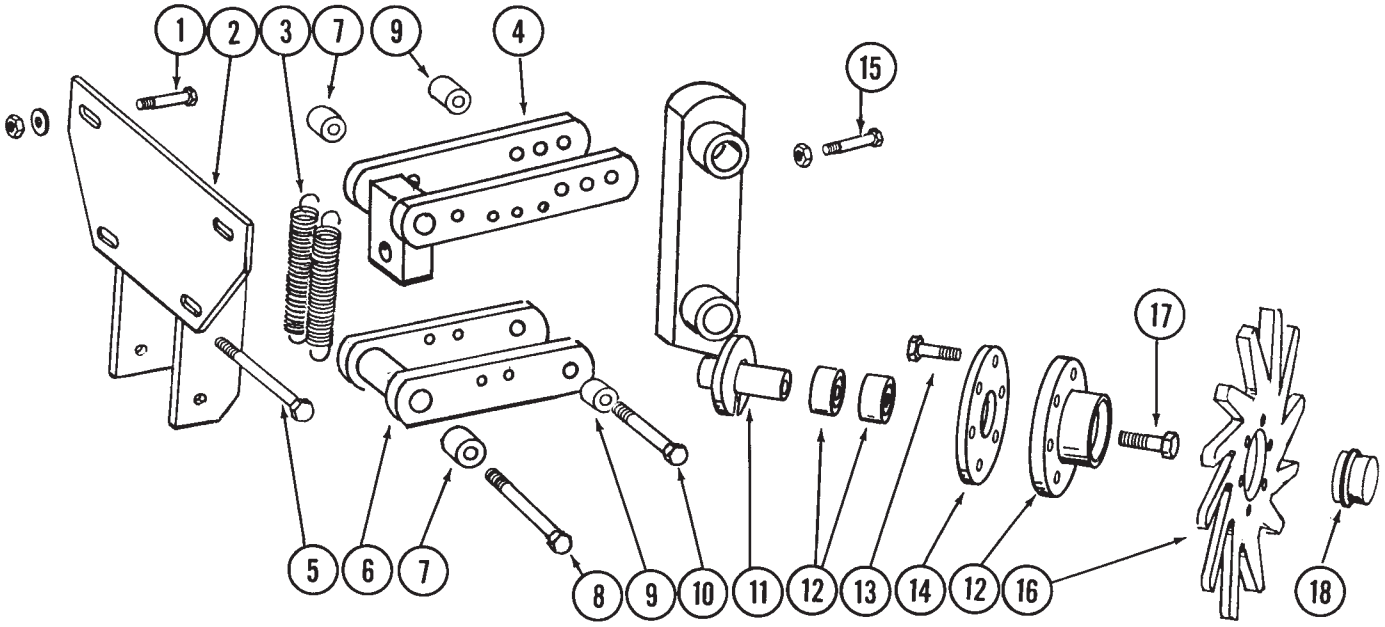
RUA038/RUA040(RU23)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10039	2	Hex Head Cap Screw, ½"-13 x 1 ¾"
	G10216	2	Washer, ½" USS
	G10111	2	Lock Nut, ½"-13
2.	GD7889	6	Bushing
3.	GA5719	1	Mounting Bracket
4.	G10536	1	Pin
5.	GA5718	1	Support Arm
6.	GA5715	1	Anchor
7.	G10017	2	Hex Head Cap Screw, ½"-13 x 1 ½"
	G10111	2	Lock Nut, ½"-13
8.	GD7890	2	Link
9.	G10017	2	Hex Head Cap Screw, ½"-13 x 1 ½"
	G10216	2	Washer, ½" USS
	G10111	2	Lock Nut, ½"-13
10.	G10585	1	Hex Head Cap Screw, ½"-13 x 3 ¼"
	G10216	2	Washer, ½" USS
	G10111	1	Lock Nut, ½"-13
11.	G10572	6	Truss Head Slotted Machine Screw, 5⁄16"-18 x 7⁄8"
	G10106	6	Hex Nut, 5⁄16"-18
12.	GD7817-01	2	Spacer, ¾"
	GD7817-04	2	Spacer, ½"
13.	GD7823	-	Solid Blade, 12" (Shown)
	GD8307	-	Notched Blade, 12"
14.	G10597	1	Set Screw, ⅝"-11 x 2 ¼"
15.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
16.	G10318	2	Hex Head Cap Screw, ⅝"-11 x 4 ½"
	GD7805	2	Special Washer
	G10107	2	Lock Nut, ⅝"-11
17.	GD1132	2	Dust Cap
18.	G10503	1	Jam Nut, ⅝"-11

RESIDUE WHEEL, ROW UNIT MOUNTED

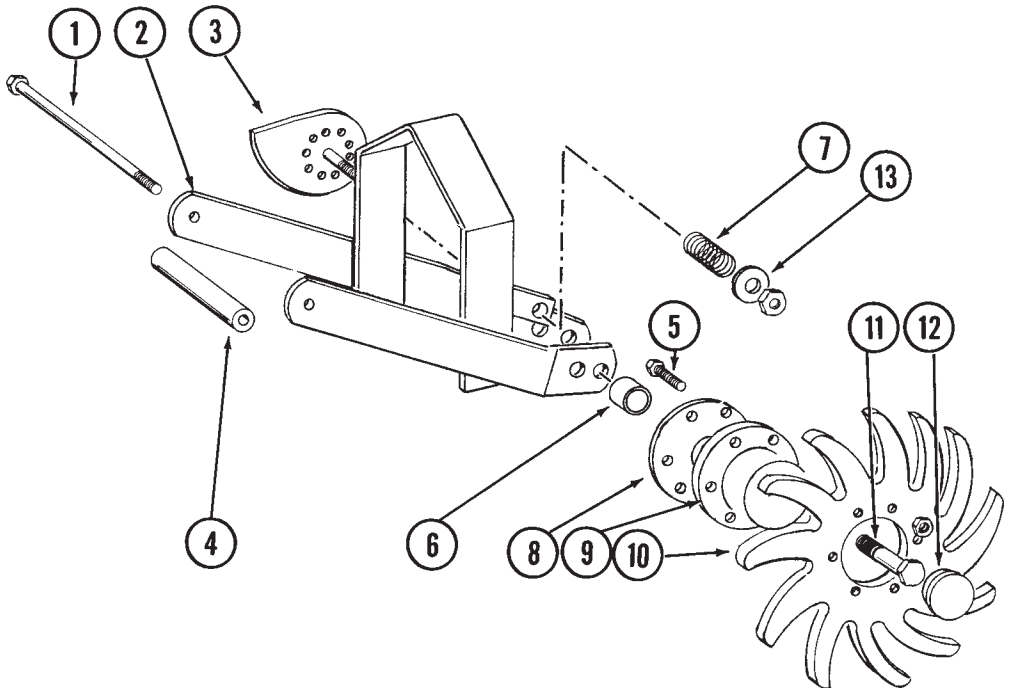
RUA041/RUA045(RU24a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10574	4	Carriage Bolt, ½"-13 x 1 ¼"
	G10216	4	Washer, ½" USS
	G10111	4	Lock Nut, ½"-13
2.	GA6832	1	Mount
3.	GD5857	2	Spring
4.	GA6833	1	Upper Link
5.	G10348	1	Hex Head Cap Screw, ½"-13 x 5" (Lockup Bolt)
	G10111	1	Lock Nut, ½"-13
6.	GA6834	1	Lower Link
7.	GD9715	2	Spacer, 3"
8.	G10045	2	Hex Head Cap Screw, ½"-13 x 4 ½"
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
9.	GD9720	2	Spacer, 2 3⁄16"
10.	G10033	2	Hex Head Cap Screw, ½"-13 x 3 ½"
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
11.	GA6838	1	Wheel Mount
12.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
13.	G10133	6	Hex Head Cap Screw, 5⁄16"-18 x 1 ½"
	G10109	6	Lock Nut, 5⁄16"-18
14.	GD10552	1	Backing Plate
15.	G10371	1	Hex Head Cap Screw, ⅜"-13 x 3", Full Thread
	G10501	1	Jam Nut, ½"-13
16.	GD10552	1	Wheel, ⅜" x 12"
17.	G10006	1	Hex Head Cap Screw, ⅝"-11 x 2 ¼"
18.	GD1132	1	Dust Cap
A.	GA7446	-	Wheel Assembly (Items 12-14 And 16)

RESIDUE WHEELS, COULTER MOUNTED

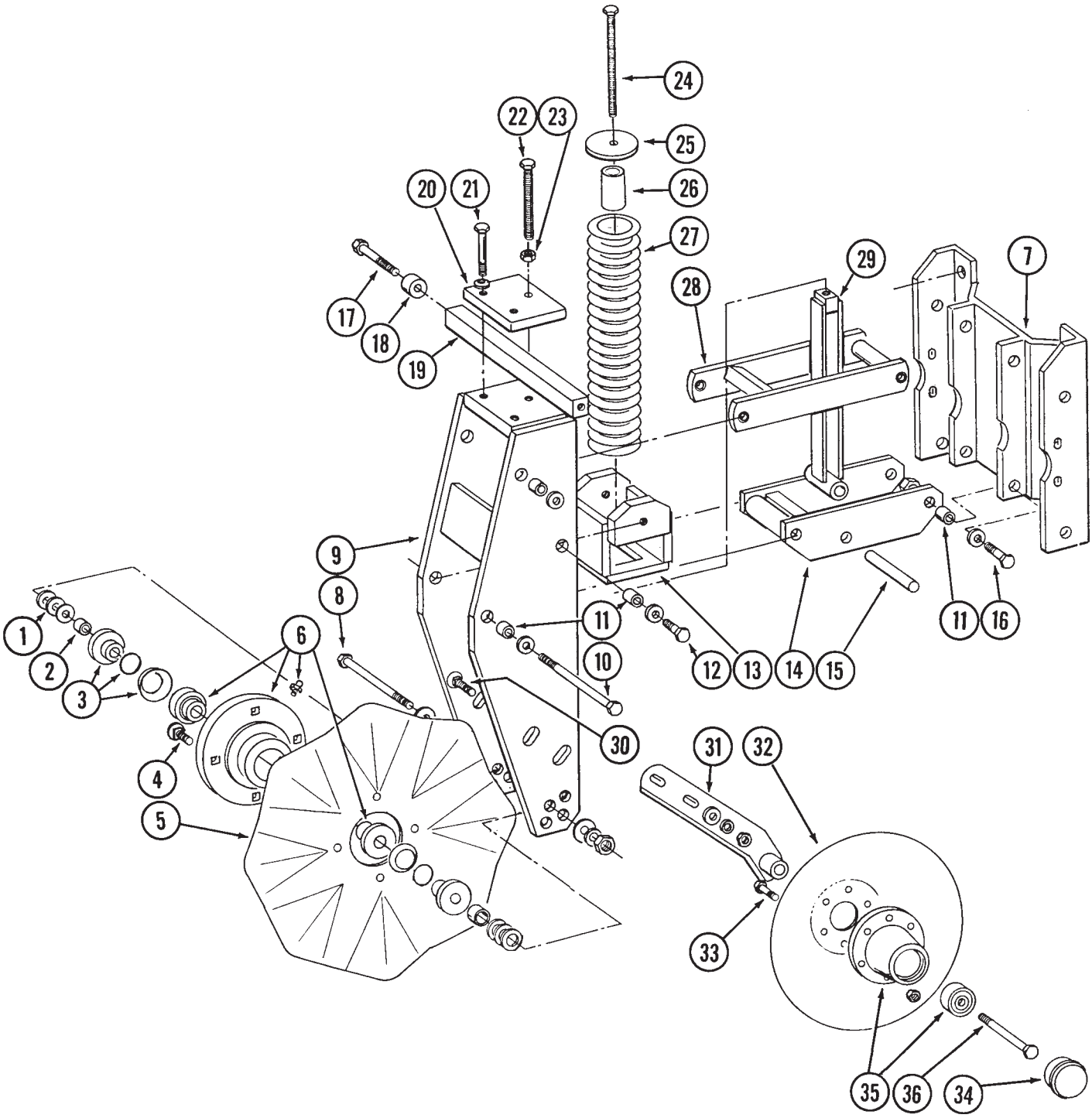
RUA047(RU31a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10148	1	Hex Head Cap Screw, ½"-13 x 9 ½"
	G10111	1	Lock Nut, ½"-13
2.	GA7271	1	Mount
3.	GA7412	1	Cam
4.	GD10526	1	Sleeve, 7 ½"
5.	G10133	12	Hex Head Cap Screw, 5⁄16"-18 x 1 ½"
	G10109	12	Lock Nut, 5⁄16"-18
6.	GD7817-04	2	Spacer, 1 ¼" O.D. x ½" Long
7.	GD10519	1	Spring
8.	GD9724	2	Backing Plate
9.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
10.	GD10552	2	Wheel, ⅜" x 12"
11.	G10009	2	Hex Head Cap Screw, ⅝"-11 x 2 ½"
12.	GD1132	2	Dust Cap
13.	G10206	1	Washer, ½" SAE
	G10111	1	Lock Nut, ½"-13
A.	GA7446	-	R.H. Wheel Assembly (Items 5 And 8-10) (Shown)
	GA7445	-	L.H. Wheel Assembly (Items 5 And 8-10)

FRAME MOUNTED COULTER W/DISC FURROWER

RUA035/RUB016(RU25)



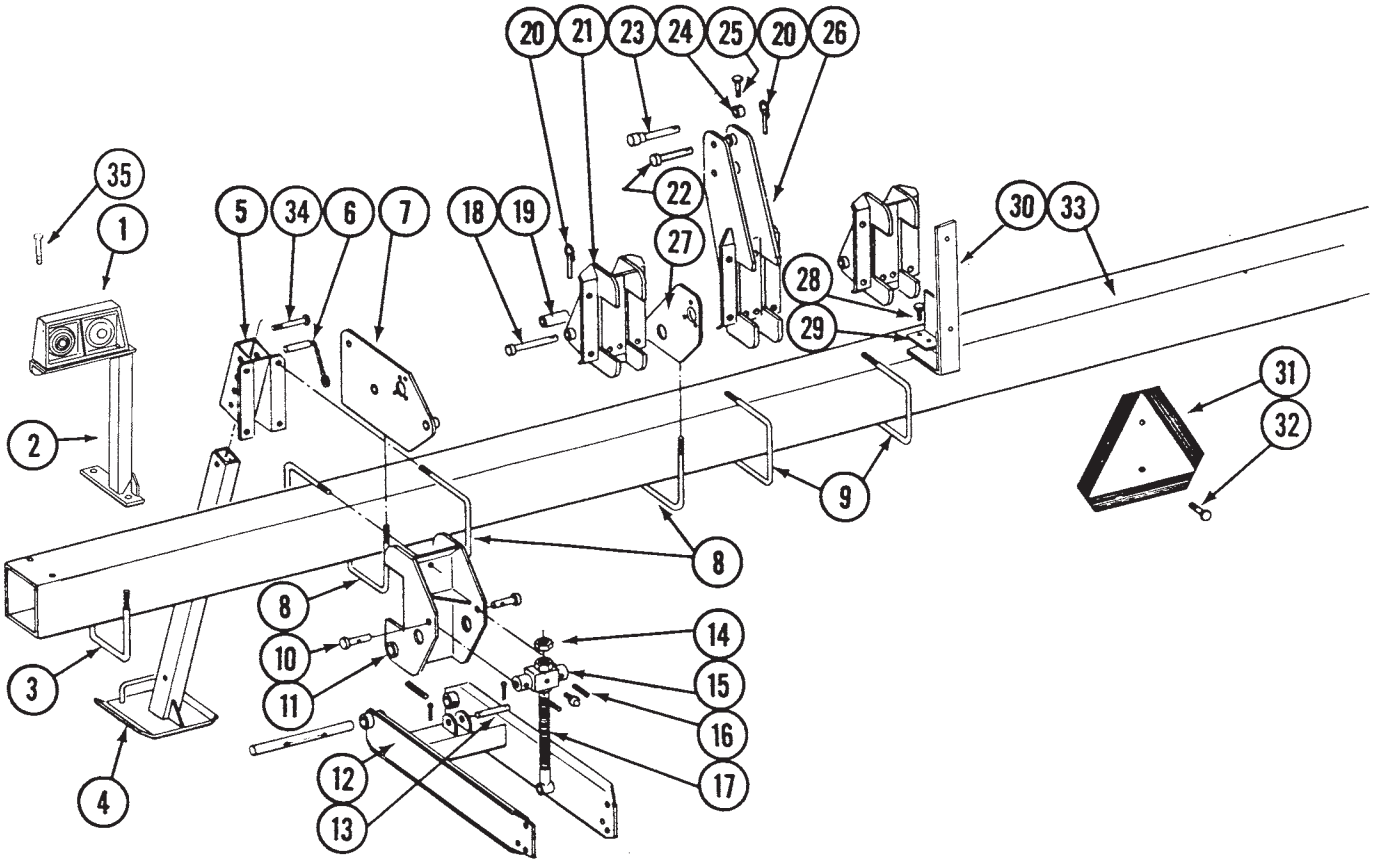
FRAME MOUNTED COULTER W/DISC FURROWER

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10217	-	Washer, ⅝" USS (As Required)
2.	GD7817-04	2	Spacer, ½"
3.	GB0227	2	Adapter W/O-Ring And Spring Washer
	GD8844	-	O-Ring
	GD8843	-	Spring Washer
4.	G10574	4	Carriage Bolt, ½"-13 x 1 ¼"
	G10111	4	Lock Nut, ½"-13
5.	GD7803	-	Fluted Blade, 1", 8 Flutes (Shown)
	GD7804	-	Bubbled Blade, 1"
	GD9254	-	Fluted Blade, ¾", 13 Flutes
6.	GA5640	1	Hub W/Bearings And Grease Fitting
	GA5622	-	Bearing (2 Used Per Hub)
	G10640	-	Grease Fitting, ¼"-28
7.	GA5798	1	Support Plate
8.	G10068	1	Hex Head Cap Screw, ⅝"-11 x 6"
	G10107	1	Lock Nut, ⅝"-11
9.	GA5643	1	Fork Mount
10.	G10012	1	Hex Head Cap Screw, ⅝"-11 x 6 ½"
	GD7805	2	Washer
	G10107	1	Lock Nut, ⅝"-11
11.	GB0218	10	Bushing, 19⁄32"
12.	G10055	2	Hex Head Cap Screw, ⅝"-11 x 1 ¼"
	GD7805	2	Washer
13.	GA5637	1	Spring Socket
14.	GA5631	1	Lower Parallel Link
15.	GD7815	1	Pin, ⅝" x 4 ¼"
16.	G10008	6	Hex Head Cap Screw, ⅝"-11 x 2"
	GD7805	6	Washer
	G10107	4	Lock Nut, ⅝"-11 (As Required)
17.	GD7818	2	Special Bolt
18.	GD7817-01	2	Roller, ¾"
19.	GD7816	1	Depth Control Bar
20.	GD7811	1	Depth Adjustment Clamp
21.	G10581	2	Hex Head Cap Screw, ½"-13 x 2 ¼"
	G10228	2	Lock Washer, ½"
22.	G10582	1	Hex Head Cap Screw, ⅝"-11 x 4", Full Thread
23.	G10104	1	Hex Nut, ⅝"-11
24.	G10573	1	Hex Head Cap Screw, ⅝"-11 x 5 ½", Full Thread
25.	GB0196	1	Washer
26.	GD7817-09	1	Stop, 1 ¾"
27.	GD7831	1	Compression Spring
28.	GA5630	1	Upper Parallel Link
29.	GA5635	1	Spring Guide
30.	G10747	4	Carriage Bolt, ½"-13 x 2"
	G10206	-	Washer, ½" SAE (As Required)
	G10228	4	Lock Washer, ½"
	G10102	4	Hex Nut, ½"-13
31.	GA5636	2	Arm
32.	GD7823	-	Solid Blade, 12" (Shown)
	GD8307	-	Notched Blade, 12"
33.	G10572	12	Truss Head Slotted Machine Screw, 5⁄16"-18 x ⅞"
	G10106	12	Hex Nut, 5⁄16"-18
34.	GD1132	2	Dust Cap
35.	GA5654	2	Hub W/Bearings
	GA2014	4	Bearing
36.	G10036	2	Hex Head Cap Screw, ⅝"-11 x 4"
	G10107	2	Lock Nut, ⅝"-11

RIGID TOOLBAR ASSEMBLY

PFA043/PFA055(MT3)

STYLE A BOLT-ON HITCH POINTS



ITEM	PART NO.	QTY.	DESCRIPTION
1.			See “Electrical Components”, Page P66
2.	GA6823	1	Bracket, L.H. Side (Shown)
	GA6824	1	Bracket, R.H. Side
3.	GD7145	2	U-Bolt, 7" x 7" x ½"-13
	G10228	4	Lock Washer, ½"
	G10102	4	Hex Nut, ½"-13
4.	GA4732	2	Jack Stand
5.	GA4707	2	Mount
6.	GA4733	2	Detent Pin W/Chain
7.	GA4699	1	Drive Plate, L.H. (Shown)
	GA4700	1	Drive Plate, R.H.

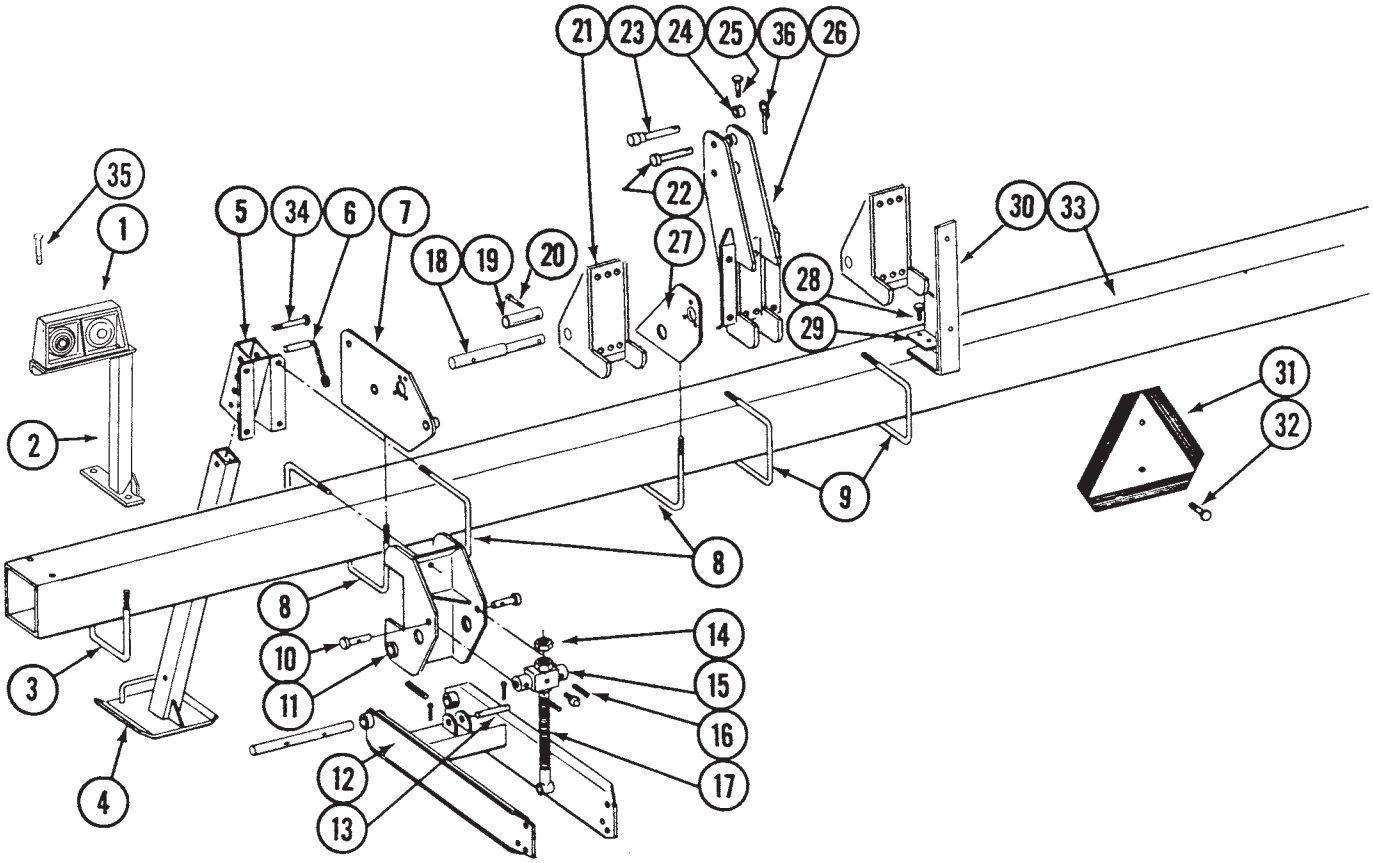
RIGID TOOLBAR ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
8.	GD1114	7	U-Bolt, 7" x 7" x 5/8"-11
	G10230	14	Lock Washer, 5/8"
	G10104	14	Hex Nut, 5/8"-11
9.	GD1748	16	U-Bolt, 7" x 7" x 3/4"-10
	G10231	32	Lock Washer, 3/4"
	G10105	32	Hex Nut, 3/4"-10
10.	GA4704	-	Pin
11.	A4703	-	Module W/Grease Fitting **(Non-Stock Item)**
	G10641	-	Grease Fitting, 1/8" NPT
12.	A4706	-	Arm W/Shaft And Spring Pin **(Non-Stock Item)**
	GD7042	-	Shaft, 1 1/4" x 12 1/8"
	G10610	-	Spring Pin, 3/8" x 2"
13.	GD7041	2	Pin, 1" x 4"
	G10459	4	Cotter Pin, 3/16" x 1 1/2"
14.	G10117	2	Hex Nut, 1"-8, Grade 2
15.	GA4711	2	Jack Screw Mount W/Grease Fitting
	G10641	-	Grease Fitting, 1/8" NPT
16.	G10489	4	Spring Pin, 3/8" x 1 1/2"
17.	GA4705	2	Adjusting Screw
18.	GA4665	2	Pin
19.	GD7090	2	Bushing, Category 3
20.	GD2557	3	Lynch Pin, 7/16"
21.	GA4701	-	Lower Hitch Point
22.	GA4666	1	Pin, 1 1/4", Category 3
23.	GA4938	1	Pin, 1", Category 2
24.	GD7338	1	Bushing, Category 2
25.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
26.	GA4702	1	Mast
27.	GA4709	1	Carrier Bearing Mount, L.H. (Shown), 4 Row 36"/38"/40" Through 10 Row 30"
	GA5466	1	Carrier Bearing Mount, R.H., 8 Row 40" and 10 Row 30" Only
28.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
29.	GD5807	1	Valve Mounting Bracket
30.	GD7152	1	SMV Mounting Bracket
31.		-	See “SMV Sign, Decals, Reflectors And Tie Straps”, Pages P64 And P65
32.	G10023	2	Hex Head Cap Screw, 1/4"-20 x 3/4"
	G10110	2	Lock Nut, 1/4"-20
33.	D5873-02	1	Toolbar, 7" x 7" x 120", 4 Row 30" **(Non-Stock Item)**
	D5873-04	-	Toolbar, 7" x 7" x 150", 4 Row 36"/38"/40" **(Non-Stock Item)**
	D5873-01	-	Toolbar, 7" x 7" x 180", 6 Row 30" **(Non-Stock Item)**
	D5873-06	-	Toolbar, 7" x 7" x 230", 6 Row 36"/38"/40" **(Non-Stock Item)**
	D5873-07	-	Toolbar, 7" x 7" x 240", 8 Row 30" **(Non-Stock Item)**
	D9257-02	-	Toolbar, 7" x 7" x 310", 8 Row 40" **(Non-Stock Item)**
	D9257-01	-	Toolbar, 7" x 7" x 300", 10 Row 30" **(Non-Stock Item)**
34.	G10016	2	Hex Head Cap Screw, 1/2"-13 x 2"
	G10111	2	Lock Nut, 1/2"-13
35.	G10064	8	Hex Head Cap Screw, 1/4"-20 x 1"
	G10209	8	Washer, 1/4" USS
	G10110	8	Lock Nut, 1/4"-20

RIGID TOOLBAR ASSEMBLY

PFA043/PFA055(MT3a)

STYLE B BOLT-ON HITCH POINTS



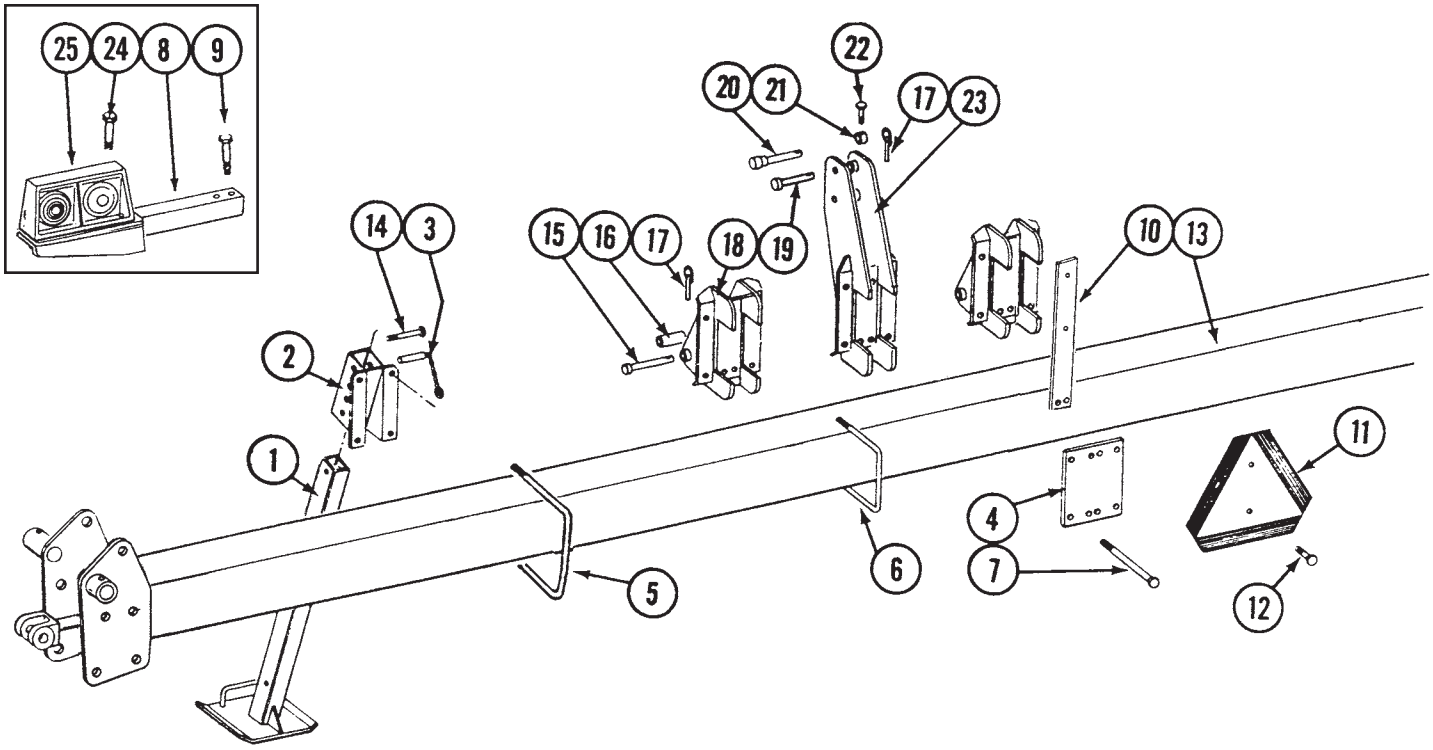
ITEM	PART NO.	QTY.	DESCRIPTION
1.			See “Electrical Components”, Page 66
2.	GA6823	1	Bracket, L.H. Side (Shown)
	GA6824	1	Bracket, R.H. Side
3.	GD7145	2	U-Bolt, 7" x 7" x ½"-13
	G10228	4	Lock Washer, ½"
	G10102	4	Hex Nut, ½"-13
4.	GA4732	2	Jack Stand
5.	GA4707	2	Mount
6.	GA4733	2	Detent Pin W/Chain
7.	GA4699	1	Drive Plate, L.H. (Shown)
	GA4700	1	Drive Plate, R.H.

RIGID TOOLBAR ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
8.	GD1114	7	U-Bolt, 7" x 7" x 5/8"-11
	G10230	14	Lock Washer, 5/8"
	G10104	14	Hex Nut, 5/8"-11
9.	GD1748	16	U-Bolt, 7" x 7" x 3/4"-10
	G10231	32	Lock Washer, 3/4"
	G10105	32	Hex Nut, 3/4"-10
10.	GA4704	-	Pin
11.	A4703	-	Module W/Grease Fitting **(Non-Stock Item)**
	G10641	-	Grease Fitting, 1/8" NPT
12.	A4706	-	Arm W/Shaft And Spring Pin **(Non-Stock Item)**
	GD7042	-	Shaft, 1 1/4" x 12 1/8"
	G10610	-	Spring Pin, 3/8" x 2"
13.	GD7041	2	Pin, 1" x 4"
	G10459	4	Cotter Pin, 3/16" x 1 1/2"
14.	G10117	2	Hex Nut, 1"-8, Grade 2
15.	GA4711	2	Jack Screw Mount W/Grease Fitting
	G10641	-	Grease Fitting, 1/8" NPT
16.	G10489	4	Spring Pin, 3/8" x 1 1/2"
17.	GA4705	2	Adjusting Screw
18.	GD9750	2	Pin, 11 3/4"
19.	GD9749	2	Bushing, 3 3/4"
20.	G10048	4	Hex Head Cap Screw, 3/8"-16 x 2"
	G10108	4	Lock Nut, 3/8"-16
21.	GA6581	-	Lower Hitch Point, L.H.
	GA6582	-	Lower Hitch Point, R.H.
22.	GA4666	1	Pin, 1 1/4", Category 3
23.	GA4938	1	Pin, 1", Category 2
24.	GD7338	1	Bushing, Category 2
25.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
26.	GA4702	1	Mast
27.	GA4709	1	Carrier Bearing Mount, L.H. (Shown), 4 Row 36"/38"/40" Through 10 Row 30"
	GA5466	1	Carrier Bearing Mount, R.H., 8 Row 40" and 10 Row 30" Only
28.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
29.	GD5807	1	Valve Mounting Bracket
30.	GD7152	1	SMV Mounting Bracket
31.		-	See “SMV Sign, Decals, Reflectors And Tie Straps”, Pages P64 And P65
32.	G10023	2	Hex Head Cap Screw, 1/4"-20 x 3/4"
	G10110	2	Lock Nut, 1/4"-20
33.	D5873-02	1	Toolbar, 7" x 7" x 120", 4 Row 30" **(Non-Stock Item)**
	D5873-04	-	Toolbar, 7" x 7" x 150", 4 Row 36"/38"/40" **(Non-Stock Item)**
	D5873-01	-	Toolbar, 7" x 7" x 180", 6 Row 30" **(Non-Stock Item)**
	D5873-06	-	Toolbar, 7" x 7" x 230", 6 Row 36"/38"/40" **(Non-Stock Item)**
	D5873-07	-	Toolbar, 7" x 7" x 240", 8 Row 30" **(Non-Stock Item)**
	D9257-02	-	Toolbar, 7" x 7" x 310", 8 Row 40" **(Non-Stock Item)**
	D9257-01	-	Toolbar, 7" x 7" x 300", 10 Row 30" **(Non-Stock Item)**
34.	G10016	2	Hex Head Cap Screw, 1/2"-13 x 2"
	G10111	2	Lock Nut, 1/2"-13
35.	G10064	8	Hex Head Cap Screw, 1/4"-20 x 1"
	G10209	8	Washer, 1/4" USS
	G10110	8	Lock Nut, 1/4"-20
36.	GD2557	1	Lynch Pin, 7/16"

CENTER FRAME ASSEMBLY (VERTICAL FOLDING TOOLBAR)

PFA043/PFA048/PFA055(MT4a)

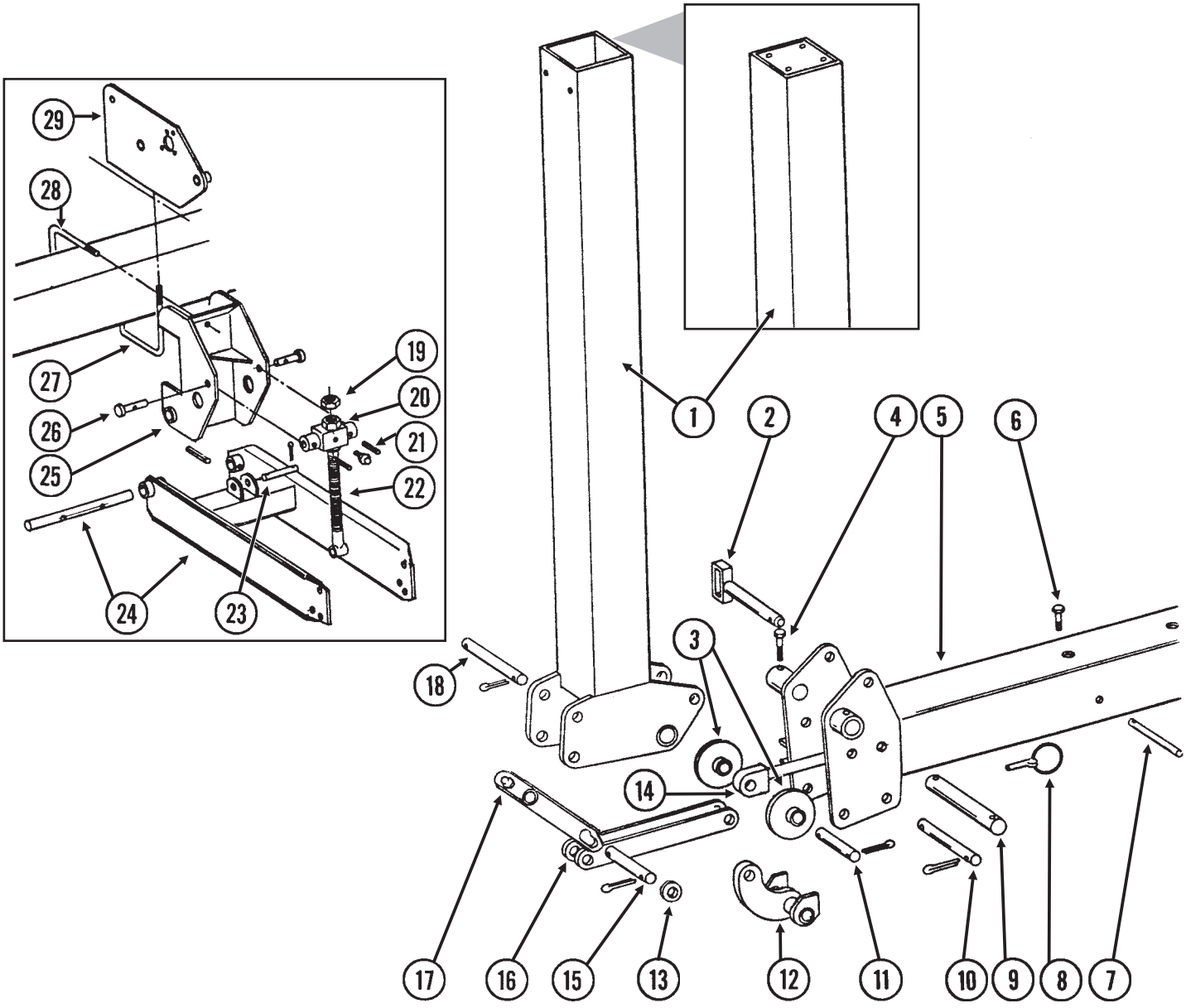


CENTER FRAME ASSEMBLY (VERTICAL FOLDING TOOLBAR)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA4732	2	Jack Stand
2.	GA4707	2	Mount
3.	GA4733	2	Detent Pin W/Chain
4.	D7191	-	Mounting Bar **(Non-Stock Item)**
5.	GD1114	4	U-Bolt, 7" x 7" x ⅝"-11
	G10230	8	Lock Washer, ⅝"
	G10104	8	Hex Nut, ⅝"-11
6.	GD1748	12	U-Bolt, 7" x 7" x ¾"-10
	G10231	24	Lock Washer, ¾"
	G10105	24	Hex Nut, ¾"-10
7.	G10059	8	Hex Head Cap Screw, ¾"-10 x 9 ½"
	G10231	8	Lock Washer, ¾"
	G10105	8	Hex Nut, ¾"-10
8.	GA6827	1	Bracket, R.H. Side
	GA6828	1	Bracket, L.H. Side (Shown)
9.	G10325	4	Hex Head Cap Screw, ⅜"-16 x 2 ¾"
	G10229	4	Lock Washer, ⅜"
	G10101	4	Hex Nut, ⅜"-16
10.	GA5714	1	SMV Mounting Bracket
11.		-	See “SMV Sign, Decals, Reflectors And Tie Straps”, Pages P64 And P65
12.	G10023	2	Hex Head Cap Screw, ¼"-13 x ¾"
	G10110	2	Lock Nut, ¼"-13
13.	A5658	1	Center Toolbar, 7" x 7" x 144", 8 Row 36"/38" **(Non-Stock Item)**
	A6538	-	Center Toolbar, 7" x 7" x 150 ½", 8 Row 40" **(Non-Stock Item)**
	A5661	-	Center Toolbar, 7" x 7" x 183", 12 Row 30" **(Non-Stock Item)**
14.	G10016	2	Hex Head Cap Screw, ½"-13 x 2"
	G10111	2	Lock Nut, ½"-13
15.	GA4665	2	Pin
16.	GD7090	2	Bushing, Category 3
17.	GD2557	3	Lynch Pin, 7⁄16"
18.	GA4701	-	Lower Hitch Point
19.	GA4666	1	Pin, 1 ¼", Category 3
20.	GA4938	1	Pin, 1", Category 2
21.	GD7338	1	Bushing, Category 2
22.	G10048	1	Hex Head Cap Screw, ⅜"-16 x 2"
	G10229	1	Lock Washer, ⅜"
	G10101	1	Hex Nut, ⅜"-16
23.	GA4702	1	Mast
24.	G10064	8	Hex Head Cap Screw, ¼"-20 x 1"
	G10209	8	Washer, ¼" USS
	G10110	8	Lock Nut, ¼"-20
25.			See “Electrical Components”, Page P66

WING AND HINGE ASSEMBLY (VERTICAL FOLDING TOOLBAR)

PFA044/PFA043/PFA049(MT5b)

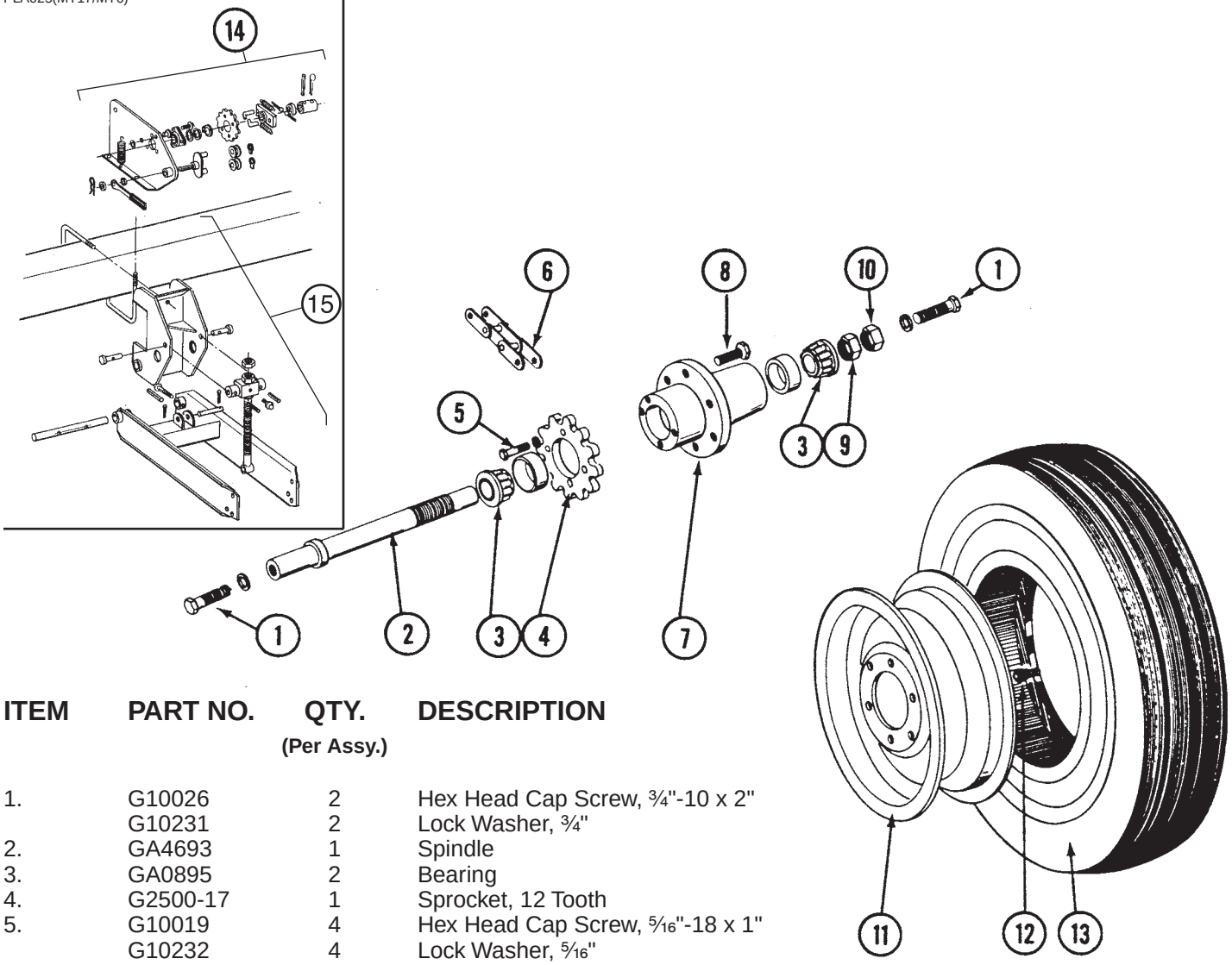


WING AND HINGE ASSEMBLY (VERTICAL FOLDING TOOLBAR)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	A4849	2	Wing W/Grease Fitting, 76", 8 Row 36"/38" **(Non-Stock Item)**
	A6537	-	Wing W/Grease Fitting, 80", 8 Row 40" **(Non-Stock Item)**
	A4851	-	Wing W/Grease Fitting, 88 ½", 12 Row 30" **(Non-Stock Item)**
	G10641	-	Grease Fitting, ⅛" NPT
2.	GA4402	2	Safety Pin
3.	GA5659	4	Wheel
4.	G10061	4	Hex Head Cap Screw, ⅜"-16 x 3 ½"
	G10229	4	Lock Washer, ⅜"
	G10101	4	Hex Nut, ⅜"-16
5.		-	See “Center Frame Assembly”, Pages P30 And P31
6.	G10048	2	Hex Head Cap Screw, ⅜"-16 x 2"
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
7.	GD7302	2	Cylinder Pin, 1" x 6"
8.	GD2557	4	Lynch Pin, 7⁄16"
9.	GD7282	2	Hinge Pin, 2 ⅛" x 13"
10.	GD4724	2	Pin, 1 ¼" x 10"
	G10460	4	Cotter Pin, ¼" x 2"
11.	GD7861	2	Pin, 1 ¼" x 6 ⅛"
	G10460	4	Cotter Pin, ¼" x 2"
12.	GA4883	2	Link
13.	G10159	8	Machine Bushing
14.		-	See “Wing Lift Cylinder”, Page P59
15.	GD5841	2	Pin, 1 ¼" x 5 ⅝"
	G10460	4	Cotter Pin, ¼" x 2"
16.	GA5660	2	Link
17.	GA5805	2	Link
18.	GD3737	2	Pin, 1 ¼" x 8 ½"
	G10460	4	Cotter Pin, ¼" x 2"
19.	G10117	2-4	Hex Nut, 1"-8, Grade 2
20.	GA4711	2-4	Jack Screw Mount W/Grease Fitting
	G10641	-	Grease Fitting, ⅛" NPT
21.	G10489	4-8	Spring Pin, ⅜" x 1 ½"
22.	GA4705	2-4	Adjusting Screw
23.	GD7041	-	Pin, 1" x 4"
	G10459	-	Cotter Pin, 3⁄16" x 1 ½"
24.	A4706	-	Arm W/Shaft And Spring Pin **(Non-Stock Item)**
	GD7042	-	Shaft, 1 ¼" x 12 ⅛"
	G10610	-	Spring Pin, ⅜" x 2"
25.	A4703	-	Module W/Grease Fitting **(Non-Stock Item)**
	G10641	-	Grease Fitting, ⅛" NPT
26.	GA4704	-	Pin
27.	GD1114	-	U-Bolt, 7" x 7" x ⅝"-11
	G10230	-	Lock Washer, ⅝"
	G10104	-	Hex Nut, ⅝"-11
28.	GD1748	-	U-Bolt, 7" x 7" x ¾"-10
	G10231	-	Lock Washer, ¾"
	G10105	-	Hex Nut, ¾"-10
29.	GA4699	1-2	Drive Plate, L.H. (Shown)
	GA4700	1-2	Drive Plate, R.H.

DRIVE WHEEL ASSEMBLY

PLA025(MT17/MT6)

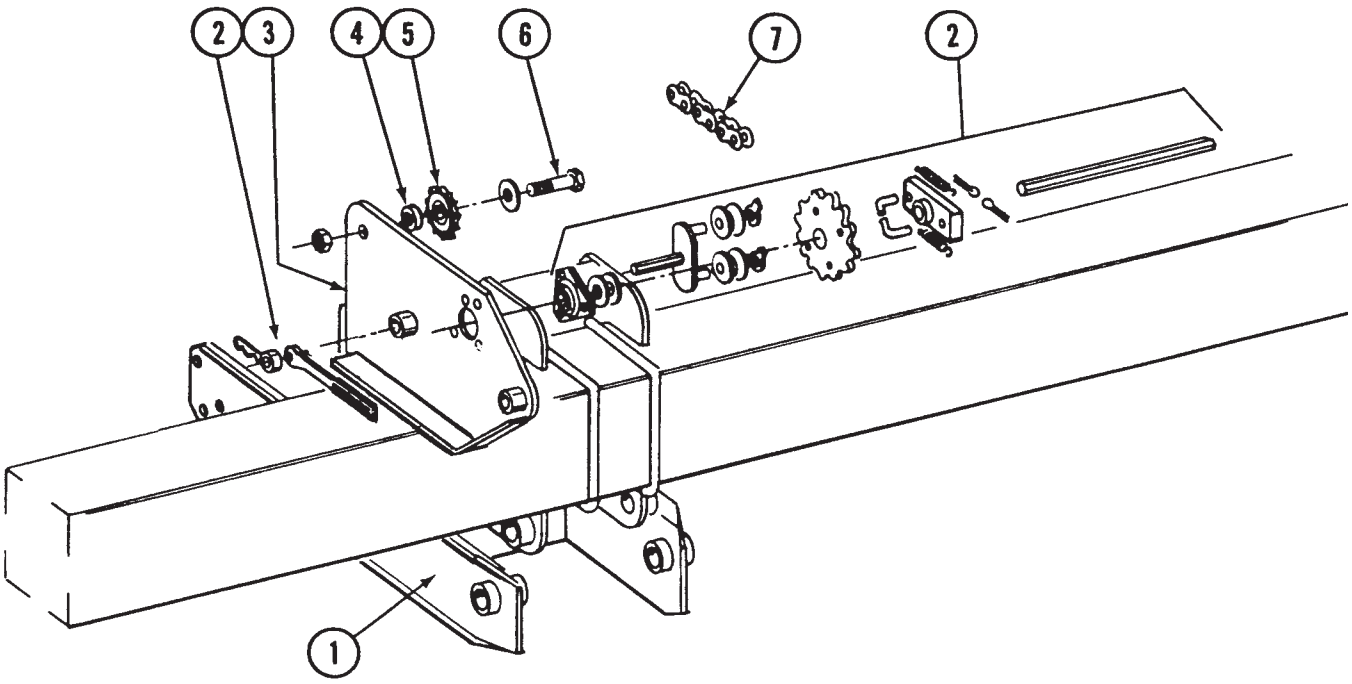


ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10026	2	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	2	Lock Washer, ¾"
2.	GA4693	1	Spindle
3.	GA0895	2	Bearing
4.	G2500-17	1	Sprocket, 12 Tooth
5.	G10019	4	Hex Head Cap Screw, 5⁄16"-18 x 1"
	G10232	4	Lock Washer, 5⁄16"
6.	G3200-62	1	Chain, No. 2050, 62 Pitch Including Connector Link
	G3200-06	-	Chain, No. 2050 (Add To Chain When Using Half Rate (2 To 1) Drive Reduction Sprockets)
	GR0195	-	Connector Link, No. 2050
	GR0200	-	Offset Link, No. 2050
7.	GA0926	1	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
8.	GR0270	6	Bolt, 9⁄16"-18
9.	G10092	1	Hex Nut, 1 ½"-12, Grade 2
10.	G10087	1	Jam Nut, 1 ½"-12, Grade 2
11.	GA4696	1	Wheel, 5" x 15"
12.	GD1166	1	Valve Stem
13.	GD0844	1	Tire, 7.60" x 15", 4 Ply (Specify Brand*)
14.		-	See “Driveline (Rigid Toolbar)”, Pages P38-P41
15.		-	See “Rigid Toolbar Assembly”, Pages P26-P29
A.	GA4695	-	Hub Assembly (Items 1-5 And 7-10)
B.	GA4694	-	Tire And Rim Assembly (Items 11-13)
C.	GA5496	-	Drive Wheel Assembly, R.H. (Items 1-15)
	GA5497	-	Drive Wheel Assembly, L.H. (Items 1-15)

*** Specific brand requests will be supplied only as available from current KINZE® stock. If a specific brand as requested is not on hand, the brand available will be supplied.**

FRONT MOUNTED DRIVE WHEEL (OPTIONAL)

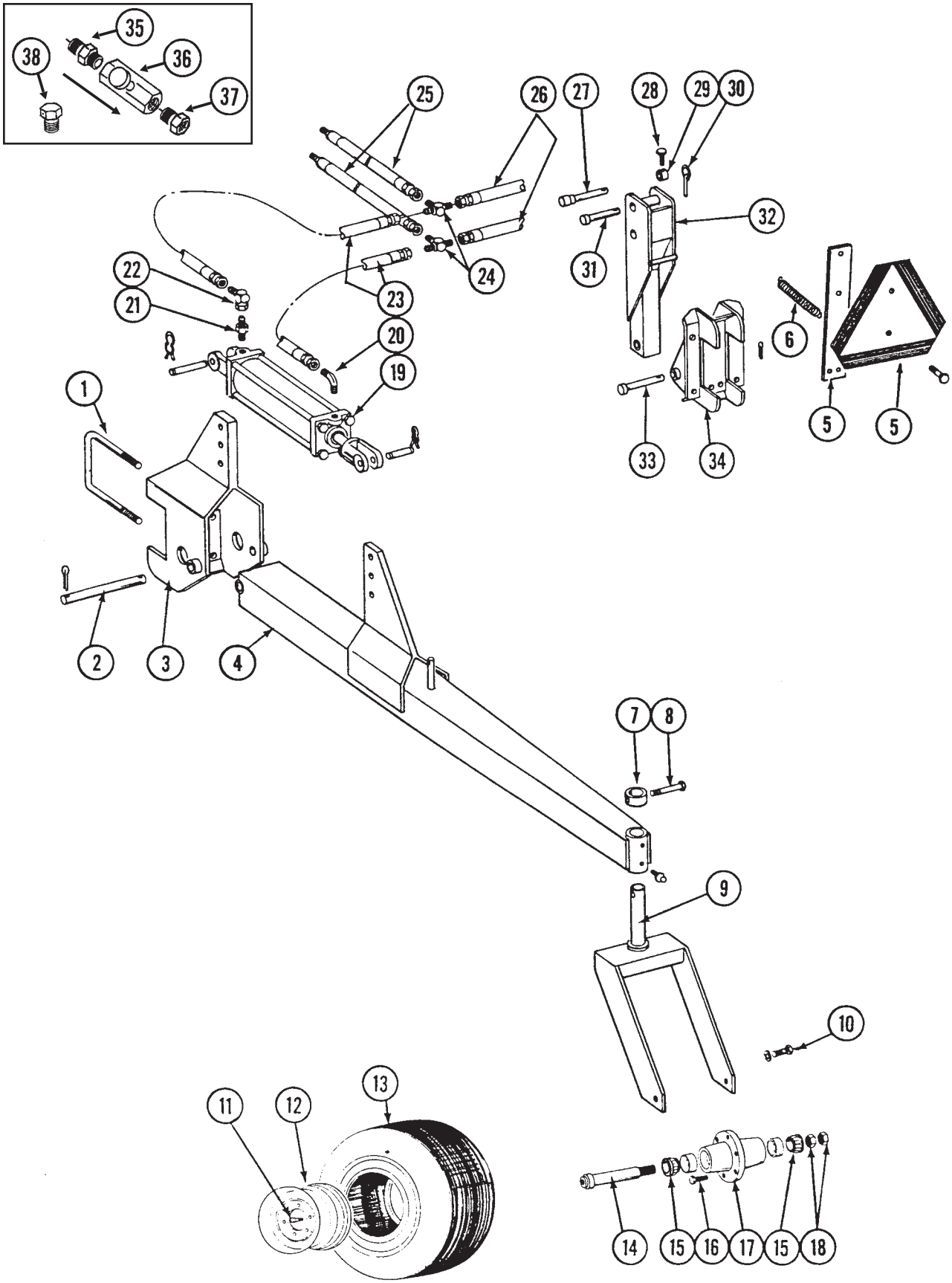
PTD064(MT7)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.		-	See “Rigid Toolbar Assembly” Pages P26-P29, Or “Wing And Hinge Assembly, Vertical Folding Toolbar”, Pages P32 And P33
2.		-	See “Driveline, Rigid Toolbar” Pages P38-P41, Or “Driveline, Vertical Folding Toolbar”, Pages P42 And P43
3.		-	See “Rigid Toolbar Assembly” Pages P26-P29, Or “Wing And Hinge Assembly, Vertical Folding Toolbar” Pages P30-P33
4.	GD7101	1	Sleeve
5.	GA0262	1	Idler Sprocket W/Bearing, 15 Tooth
6.	G10009	1	Hex Head Cap Screw, ⅝"-11 x 2 ½"
	G10217	-	Washer, ⅝" USS (As Required)
	G10107	1	Lock Nut, ⅝"-11
7.	G3200-22	1	Chain, No. 2050, 22 Pitch Including Connector Link (Add To Chain When Using Front Mounted Drive. See “Drive Wheel Assembly” Page P34.)
	GR0195	-	Connector Link, No. 2050

DUAL LIFT ASSIST W/FLOATING CENTER MAST (OPTIONAL - VERTICAL FOLDING PLANTER)

PFA045/PLA015/HTA014/PFA043(MT8a)



DUAL LIFT ASSIST W/FLOATING CENTER MAST (OPTIONAL - VERTICAL FOLDING PLANTER)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD1748	6	U-Bolt, 7" x 7" x ¾"-10
	G10231	12	Lock Washer, ¾"
	G10105	12	Hex Nut, ¾"-10
2.	GD8311	2	Pin, 1 ¼" x 10 ½"
	G10460	4	Cotter Pin, ¼" x 2"
3.	A5513	-	Wheel Tower **(Non-Stock Item)**
4.	A4713	-	Tube W/Grease Fittings **(Non-Stock Item)**
	G10641	-	Grease Fitting, ⅛" NPT
5.		-	See “Center Frame Assembly (Vertical Folding Toolbar)”, Pages P30 And P31
6.	GD0829	1	Spring
7.	GD7068	2	Cap
8.	G10032	2	Hex Head Cap Screw, ½"-13 x 3 ¾"
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
9.	GA4715	2	Caster Wheel
10.	G10026	4	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	4	Lock Washer, ¾"
11.	GD1166	2	Valve Stem
12.	GA5196	2	Wheel W/Valve Protector, 5" x 15"
13.	GD0844	2	Tire, 7.60" x 15", 4 Ply (Specify Brand**)
14.	GA2558	2	Spindle
15.	GA0895	4	Bearing
16.	GR0270	12	Bolt, 9⁄16"-18
17.	GA2148	2	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
18.	G10087	-	Jam Nut, 1 ½"-10, Grade 2
19.		-	See “Dual Lift Assist Cylinder”, Page P60
20.	G2501-08-08	2	Elbow, ¾"-16 JIC To ½" NPT
21.	G2404-08-08	2	Adapter, ¾"-16 JIC To ½" NPT
22.	G6500-08	2	Elbow, ¾"-16 JIC Male To Female
23.	*A1039	2	Hose Assembly, ⅜" x 76"
24.	G2603-08	2	Tee, ¾"-16 JIC
25.	*A1005	2	Hose Assembly, ⅜" x 48"
26.	*A1055	2	Hose Assembly, ⅜" x 66"
27.	GA4938	1	Pin, 1 ¼", Category 2
28.	G10048	1	Hex Head Cap Screw, ⅜"-16 x 2"
	G10229	1	Lock Washer, ⅜"
	G10101	1	Hex Nut, ⅜"-16
29.	GD7338	1	Bushing, 1", Category 2
30.	GD2557	2	Lynch Pin, 7⁄16"
31.	GA4666	1	Pin, 1 ¼", Category 3
32.	GA4972	1	Floating Mast
33.	GA4665	2	Pin
	G10468	2	Cotter Pin, ⅜" x 2"
34.	GA4701	-	Lower Hitch Point
35.	G2404-08-06	1	Adapter, ¾"-16 SIC To ⅜" NPT Male
36.		-	See "Flow Control Valve", Page P61
37.	G6505-06-08	1	Adapter, ¾"-16 JIC Female To ⅜" NPT Male
38.	GA7861	1	Breather Plug, ½" NPT
A.	GA2147	-	Hub Assembly (Items 10 And 14-18)

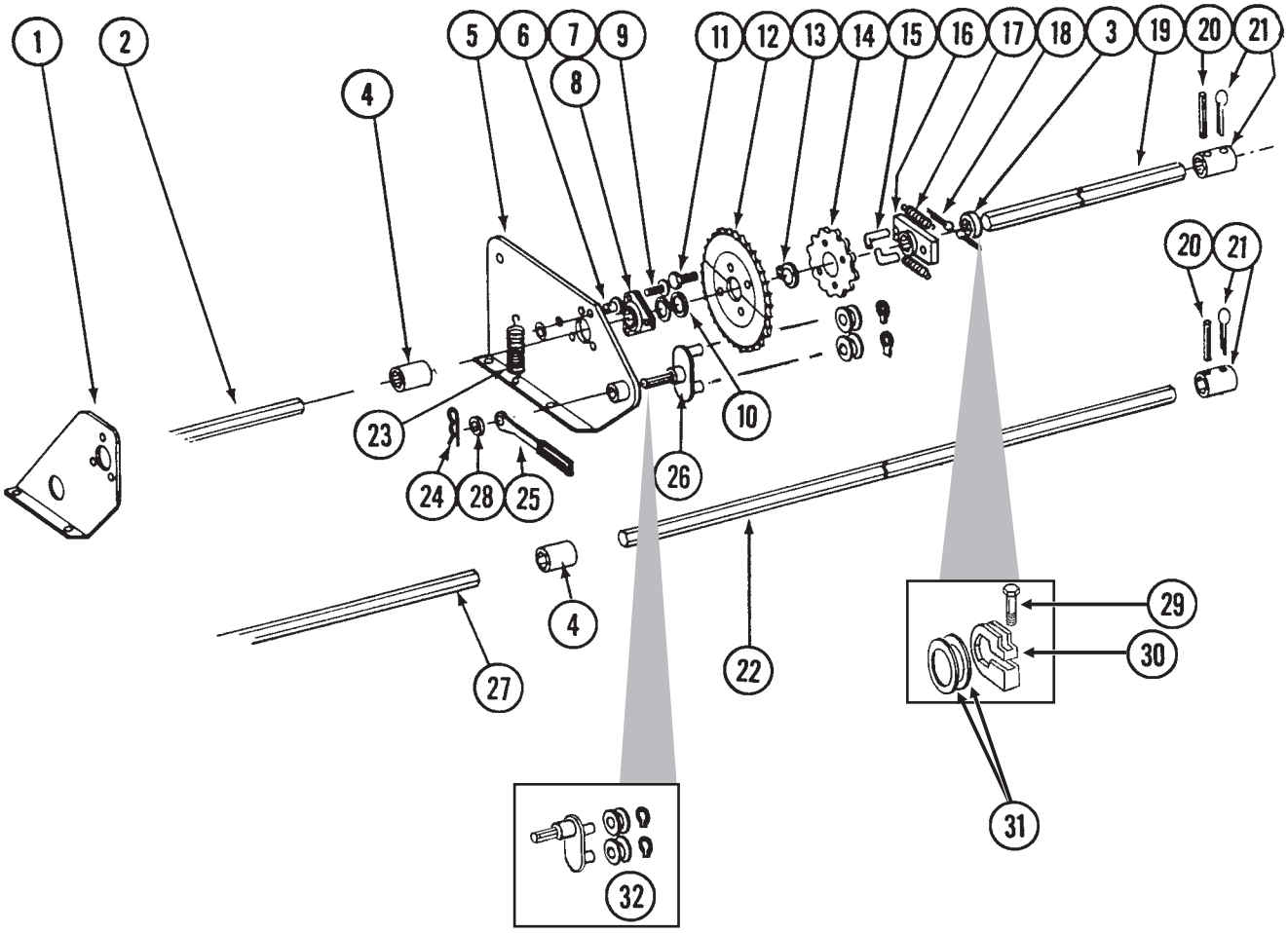
*** Hydraulic hose is not stocked by KINZE® repair parts, but can be made available on a special order basis. Call for quote.**

**** Specific brand requests will be supplied only as available from current KINZE® stock. If a specific brand is not on hand, the brand available will be supplied.**

DRIVELINE (RIGID TOOLBAR)

PTD062(MT9/PLTR128/MT28)

STYLE A (Used With All Style A Bolt-On Hitch Points And With Style B Bolt-On Hitch Points Prior To Serial No. 602707.)



ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Rigid Toolbar Assembly”, Pages P26-P29
2.	GD0914-120	1	Drive Shaft, 8 Row 36"/38"/40" And 10 Row 30" Only
3.	GD0917	2	Lock Collar, ⅞" Hex, Less Set Screws **(Sub G1K269)**
	G10145	-	Set Screw, ⅝"-18 x ½"
4.	GD2219	2	Lock Collar, 3", Less Set Screws, 8 Row 36"/38"/40" And 10 Row 30" Only
	G10145	-	Set Screw, ⅝"-18 x ½"
5.		-	See “Rigid Toolbar Assembly”, Pages P26-P29
6.	G10478	2	Clevis Pin, ⅝" x 1"
	G10409	2	Retaining Ring
7.	G2100-03	2	Bearing, ⅞" Hex Bore, Spherical
8.	G3400-01	4	Flangette
9.	G10303	6	Carriage Bolt, ⅝"-18 x 1"
	G10232	6	Lock Washer, ⅝"
	G10106	6	Hex Nut, ⅝"-18
10.	G10233	-	Machine Bushing
11.	G10002	-	Hex Head Cap Screw, ⅜"-16 x ¾"
	G10229	-	Lock Washer, ⅜"

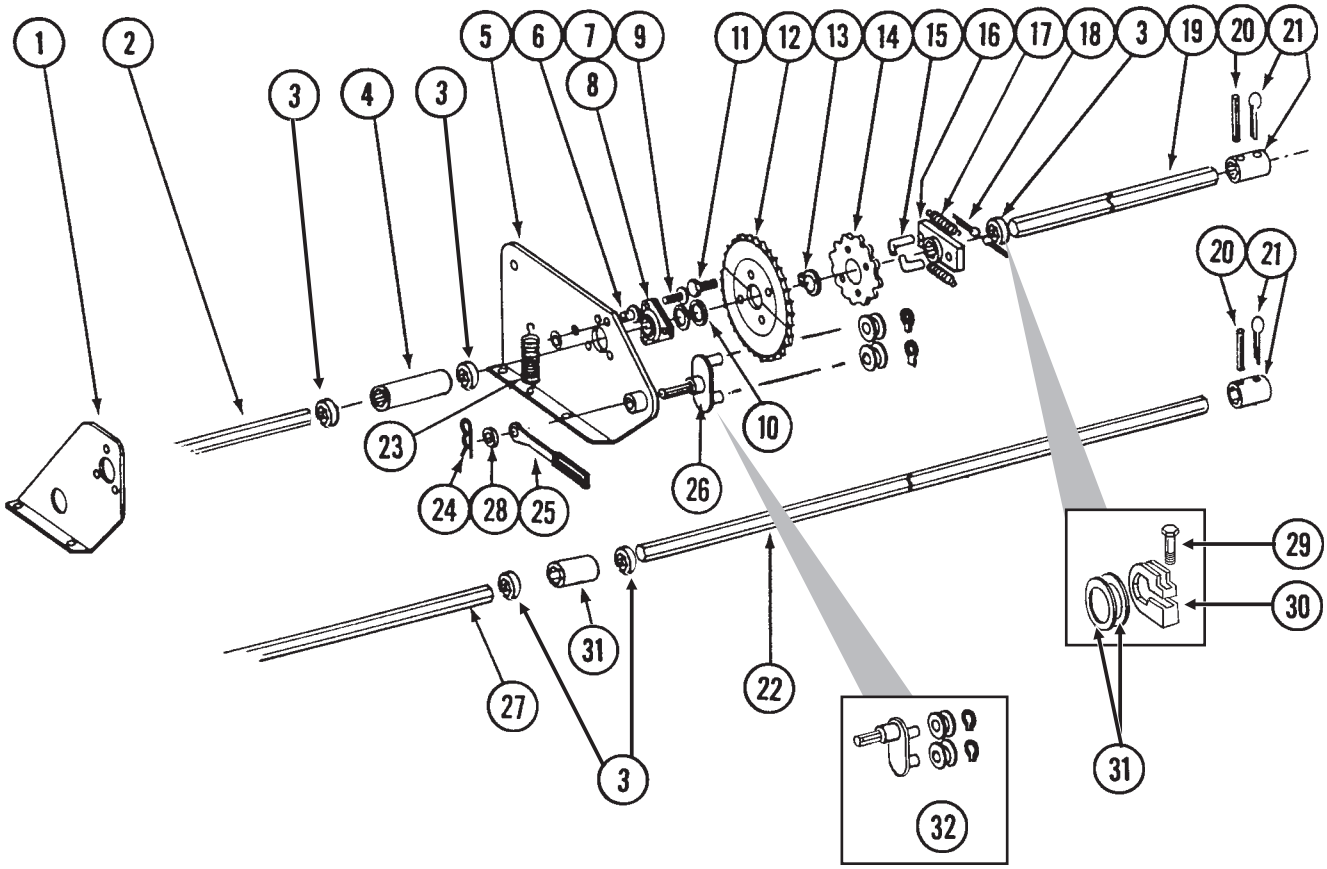
DRIVELINE (RIGID TOOLBAR)

ITEM	PART NO.	QTY.	DESCRIPTION
12.	GA2359	2	Sprocket, 48 Tooth, Half Rate (2 To 1) Drive Reduction
13.	G10430	2	Ring
14.	GA0376	2	Sprocket, 12 Tooth Ratchet
15.	GD1255	4	“L” Pin
16.	GA0378	2	Block
17.	GD1256	4	Spring
18.	G10464	4	Cotter Pin, 3⁄16" x 1"
19.	GD5887-82	1	Drive Shaft, 4 Row 30"
	GD5887-106	-	Drive Shaft, 4 Row 36"/38"/40"
	GD5887-142	-	Drive Shaft, 6 Row 30"
	GD5887-186	-	Drive Shaft, 6 Row 36"/38"/40"
	GD5887-202	-	Drive Shaft, 8 Row 30"
	GD5887-144	-	Drive Shaft, 8 Row 36"/38"/40"
	GD5887-140	-	Drive Shaft, 10 Row 30"
20.	G10602	2	Spring Pin, ¼" x 1 ½"
21.			See “Transmission Assembly”, Pages P44 And P45
22.	GD5887-105	1	Drill Shaft, 4 Row 30"
	GD5887-135	-	Drill Shaft, 4 Row 36"/38"/40"
	GD5887-165	-	Drill Shaft, 6 Row 30"
	GD5887-215	-	Drill Shaft, 6 Row 36"/38"/40"
	GD5887-225	-	Drill Shaft, 8 Row 30"
	GD5887-148	-	Drill Shaft, 8 Row 36"/38"/40"
	GD5887-144	-	Drill Shaft, 10 Row 30"
23.	GD5857	2	Spring
24.	G10670	2	Hair Pin Clip, No. 3
25.	GA4235	2	Ratchet Wrench W/Protective Closure
	G10445	-	Protective Closure
26.	GA0901	2	Idler W/Spools And Rings
	GD0916	-	Spool
	G10435	-	Ring
27.	GD5887-148	2	Drill Shaft, 8 Row 36"/38"/40" Only
	GD5887-144	-	Drill Shaft, 10 Row 30" Only
28.	GD6819	2	Sleeve
29.	G10031	-	Hex Head Cap Screw, 5⁄16"-18 x 1 ¾"
	G10620	-	Flange Nut, 5⁄16"-18
30.	GD11045	-	Lock Clamp
31.	G10233	-	Machine Bushing
32.	GA5545	-	Idler W/Spools And Rings, Half Rate (2 To 1) Drive Reduction
	GD0916	-	Spool
	G10435	-	Ring
A.	GA0261R	-	Ratchet Sprocket Assembly, R.H. (Items 13-18)
	GA0261L	-	Ratchet Sprocket Assembly, L.H. (Items 13-18)
B.	G1K269	-	Lock Clamp Kit (Items 29 And 30)

DRIVELINE (RIGID TOOLBAR)

PTD062(MT9a/PLTR124a/MT28)

STYLE B (Used With Style B Bolt-On Hitch Points Serial No. 602707 & On)



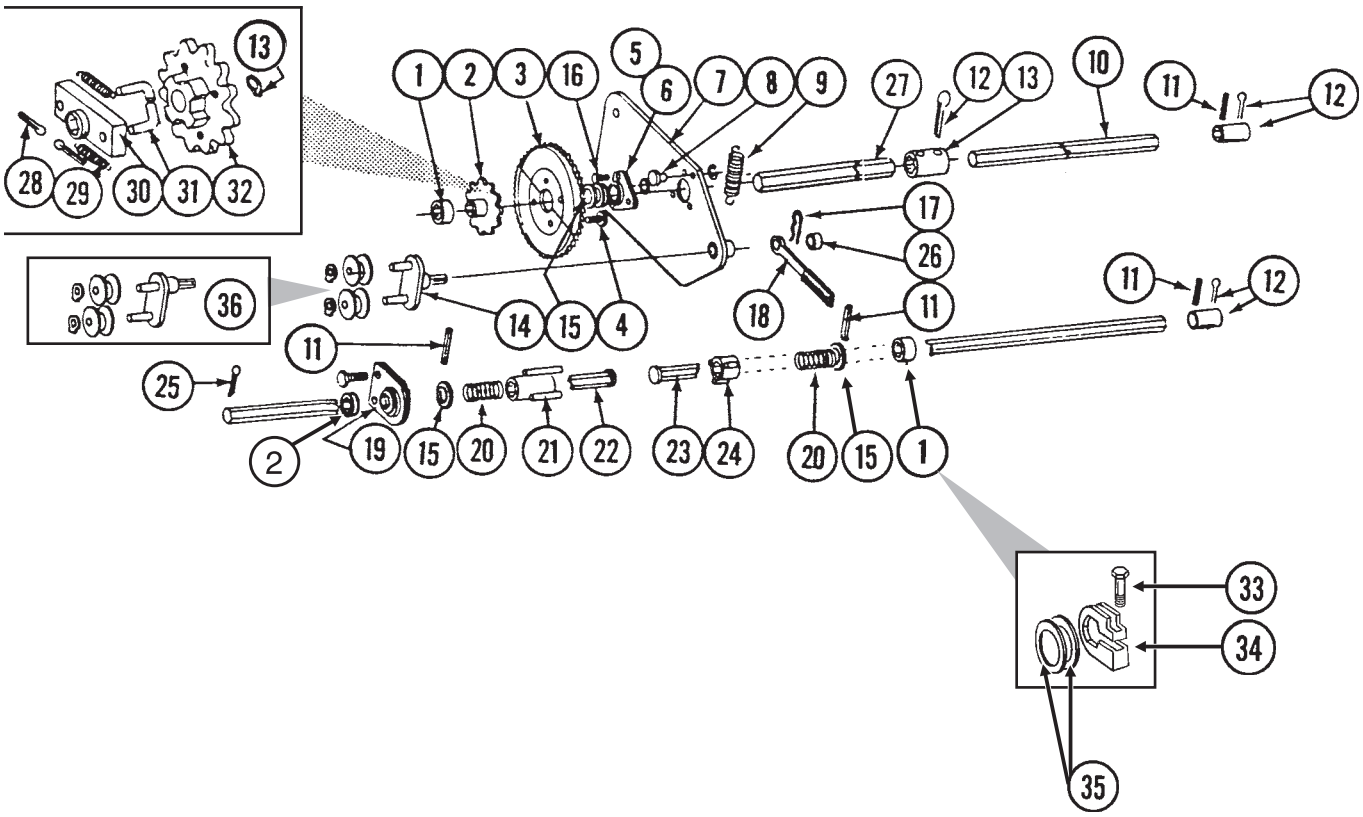
ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Rigid Toolbar Assembly”, Pages P28 And P29
2.	GD0914-120	1	Drive Shaft, 8 Row 36"/38"/40" And 10 Row 30" Only
3.	GD0917	6	Lock Collar, ⅞" Hex, Less Set Screws **(Sub G1K269)**
	G10145	-	Set Screw, 5⁄16"-18 x ½"
4.	GD7153	1	Coupler, 12"
5.		-	See “Rigid Toolbar Assembly”, Pages P28 And P29
6.	G10478	2	Clevis Pin, 5⁄16" x 1"
	G10409	2	Retaining Ring
7.	G2100-03	2	Bearing, ⅞" Hex Bore, Spherical
8.	G3400-01	4	Flangette
9.	G10303	6	Carriage Bolt, 5⁄16"-18 x 1"
	G10232	6	Lock Washer, 5⁄16"
	G10106	6	Hex Nut, 5⁄16"-18

DRIVELINE (RIGID TOOLBAR)

ITEM	PART NO.	QTY.	DESCRIPTION
10.	G10233	-	Machine Bushing
11.	G10002	-	Hex Head Cap Screw, ⅜"-16 x ¾"
	G10229	-	Lock Washer, ⅜"
12.	GA2359	2	Sprocket, 48 Tooth, Half Rate (2 To 1) Drive Reduction
13.	G10430	2	Ring
14.	GA0376	2	Sprocket, 12 Tooth Ratchet
15.	GD1255	4	"L" Pin
16.	GA0378	2	Block
17.	GD1256	4	Spring
18.	G10464	4	Cotter Pin, 3⁄16" x 1"
19.	GD5887-82	1	Drive Shaft, 4 Row 30"
	GD5887-106	-	Drive Shaft, 4 Row 36"/38"/40"
	GD5887-142	-	Drive Shaft, 6 Row 30"
	GD5887-186	-	Drive Shaft, 6 Row 36"/38"/40"
	GD5887-202	-	Drive Shaft, 8 Row 30"
	GD5887-144	-	Drive Shaft, 8 Row 36"/38"/40"
	GD5887-140	-	Drive Shaft, 10 Row 30"
20.	G10602	2	Spring Pin, ¼" x 1 ½"
21.			See "Transmission Assembly", Pages P44 And P45
22.	GD5887-105	1	Drill Shaft, 4 Row 30"
	GD5887-135	-	Drill Shaft, 4 Row 36"/38"/40"
	GD5887-165	-	Drill Shaft, 6 Row 30"
	GD5887-215	-	Drill Shaft, 6 Row 36"/38"/40"
	GD5887-225	-	Drill Shaft, 8 Row 30"
	GD5887-148	-	Drill Shaft, 8 Row 36"/38"/40"
	GD5887-144	-	Drill Shaft, 10 Row 30"
23.	GD5857	2	Spring
24.	G10670	2	Hair Pin Clip, No. 3
25.	GA4235	2	Ratchet Wrench W/Protective Closure
	G10445	-	Protective Closure
26.	GA0901	2	Idler W/Spools And Rings
	GD0916	-	Spool
	G10435	-	Ring
27.	GD5887-148	2	Drill Shaft, 8 Row 36"/38"/40" Only
	GD5887-144	-	Drill Shaft, 10 Row 30" Only
28.	GD6819	2	Sleeve
29.	G10031	6	Hex Head Cap Screw, 5⁄16"-18 x 1 ¾"
	G10620	6	Flange Nut, 5⁄16"-18
30.	GD11045	6	Lock Clamp
31.	G10233	1	Machine Bushing
32.	GA5545	-	Idler W/Spools And Rings, Half Rate (2 To 1) Drive Reduction
	GD0916	-	Spool
	G10435	-	Ring
A.	GA0261R	-	Ratchet Sprocket Assembly, R.H. (Items 13-18)
	GA0261L	-	Ratchet Sprocket Assembly, L.H. (Items 13-18)
B.	G1K269	-	Lock Clamp Kit (Items 29 And 30)

DRIVELINE (VERTICAL FOLDING TOOLBAR)

PTD063/PLA008(MT10/MT29)



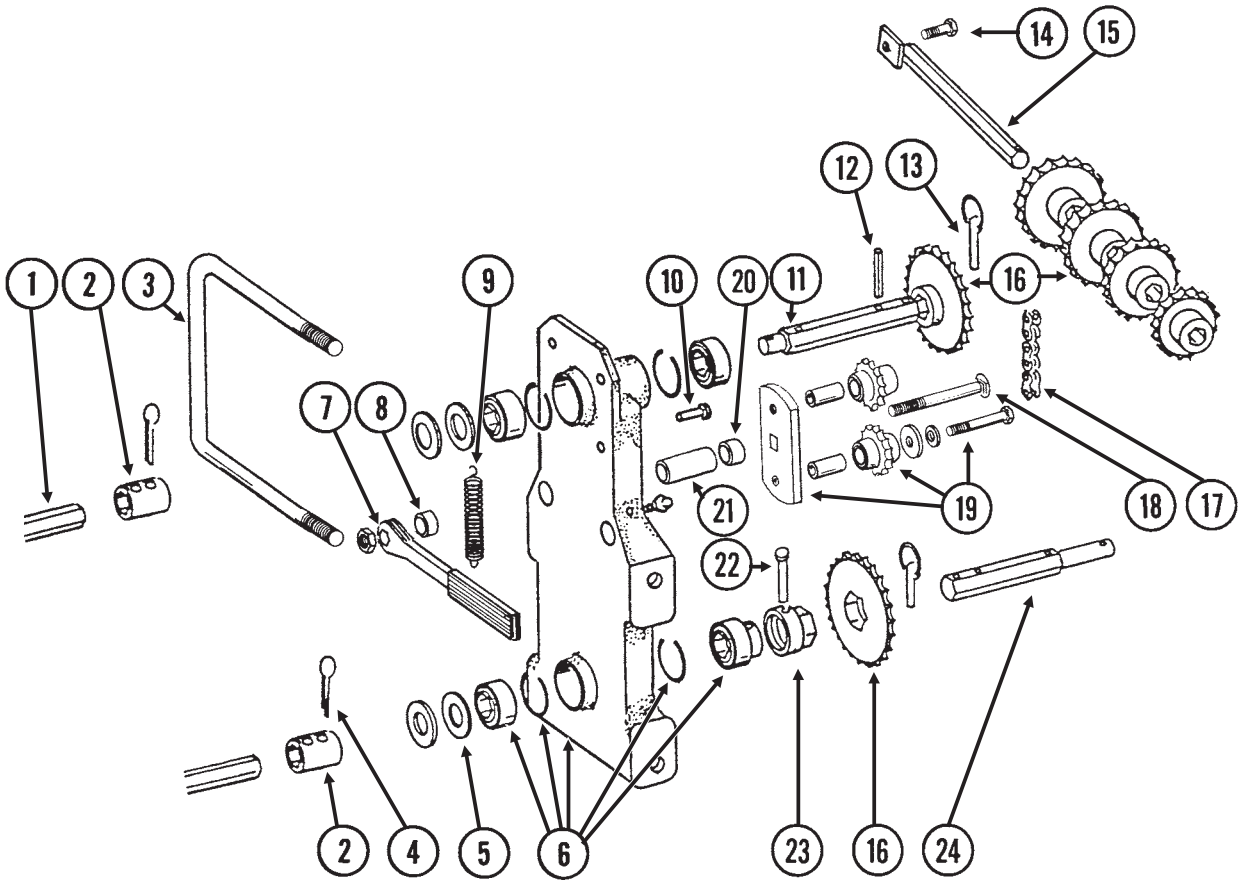
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD0917	4	Lock Collar, ⅞" Hex, Less Set Screws **(Sub G1K269)**
	G10145	-	Set Screw, 5⁄16"-18 x ½"
2.	G2500-18	-	Sprocket, 12 Tooth
3.	GA2359	-	Sprocket, 48 Tooth, Half Rate (2 To 1) Drive Reduction
4.	G10002	-	Hex Head Cap Screw, ⅜"-16 x ¾"
	G10229	-	Lock Washer, ⅜"
5.	G2100-03	-	Bearing, ⅞" Hex Bore, Spherical
6.	G3400-01	-	Flangette
7.		-	See “Wing And Hinge Assembly, Vertical Folding Toolbar”, Pages P32 And P33
8.	G10478	-	Clevis Pin, 5⁄16" x 1"
	G10409	-	Retaining Ring
9.	GD5857	-	Spring
10.	GD5887-36	2	Drive Shaft, 8 Row 36"/38"/40"
	GD6825-24	2	Drive Shaft, 12 Row 30"

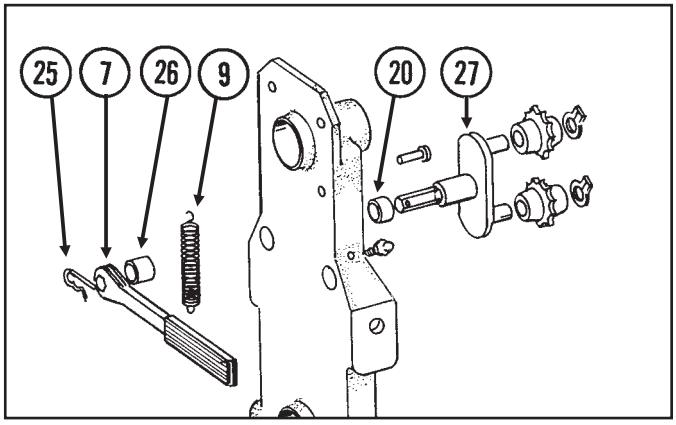
DRIVELINE (VERTICAL FOLDING TOOLBAR)

ITEM	PART NO.	QTY.	DESCRIPTION
11.	G10602	-	Spring Pin, ¼" x 1 ½"
12.			See “Transmission Assembly”, Pages P44 And P45
13.	G10430	-	Ring
14.	GA0901	-	Idler W/Spools And Rings (Shown)
	GD0916	-	Spool
	G10435	-	Ring
15.	G10233	-	Machine Bushing
16.	G10303	-	Carriage Bolt, 5⁄16"-18 x 1"
	G10232	-	Lock Washer, 5⁄16"
	G10106	-	Hex Nut, 5⁄16"-18
17.	G10670	-	Hair Pin Clip, No. 3
18.	GA4235	-	Ratchet Wrench W/Protective Closure
	G10445	-	Protective Closure
19.	GA2180	-	Bearing Hanger, 7⁄8" Hex
20.	GD2962	-	Spring
21.	GA5713	2	Coupler W/Grease Fitting, 6"
	G10641	-	Grease Fitting, 1⁄8" NPT
22.	GA5705	1	Center Section Drill Shaft, 60", R.H., 8 Row 36"/38"/40"
	GA5706	1	Center Section Drill Shaft, 50", L.H., 8 Row 36"/38"
	GA6540	-	Center Section Drill Shaft, 51", L.H., 8 Row 40"
	GA5708	-	Center Section Drill Shaft, 82", R.H., 12 Row 30"
	GA5709	-	Center Section Drill Shaft, 72", L.H., 12 Row 30"
23.	GA5704	2	Wing Drill Shaft, 68 ½", 8 Row 36"/38"
	GA6539	-	Wing Drill Shaft, 72 ½", 8 Row 40"
	GA5707	-	Wing Drill Shaft, 81", 12 Row 30"
24.	GA5712	2	Coupler W/Grease Fitting, 5"
	G10641	-	Grease Fitting, 1⁄8" NPT
25.	G10463	-	Cotter Pin, ¼" x 1 ½"
26.	GD6819	-	Sleeve
27.	GD5887-30	-	Drive Shaft, 12 Row 30" Only
28.	G10464	-	Cotter Pin, 3⁄16" x 1"
29.	GD1256	-	Spring
30.	GA0378	-	Block
31.	GD1255	-	“L” Pin
32.	GA0376	-	Sprocket, 12 Tooth Ratchet
33.	G10031	-	Hex Head Cap Screw, 5⁄16"-18 x 1 ¾"
	G10620	-	Flange Nut, 5⁄16"-18
34.	GD11045	-	Lock Clamp
35.	G10233	-	Machine Bushing
36.	GA5545	-	Idler W/Spools And Rings, Half Rate (2 to 1) Drive Reduction
	GD0916	-	Spool
	G10435	-	Ring
A.	GA0261R	-	Ratchet Sprocket Assembly, R.H. (Items 13 And 28-32)
	GA0261L	-	Ratchet Sprocket Assembly, L.H.
B.	G1K269	-	Lock Clamp Kit (Items 33 and 34)

TRANSMISSION ASSEMBLY

PTD041/PTD066(MT18/PT8b)





ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.		-	See “Driveline”, Pages P38-P43
2.	GD5886	2	Coupler, 1 ¾"
3.	GD1114	1	U-Bolt, 7" x 7" x ⅝"-11
	G10107	2	Lock Nut, ⅝"-11
4.	G10460	2	Cotter Pin, ¼" x 2"
5.	G10233	4	Machine Bushing

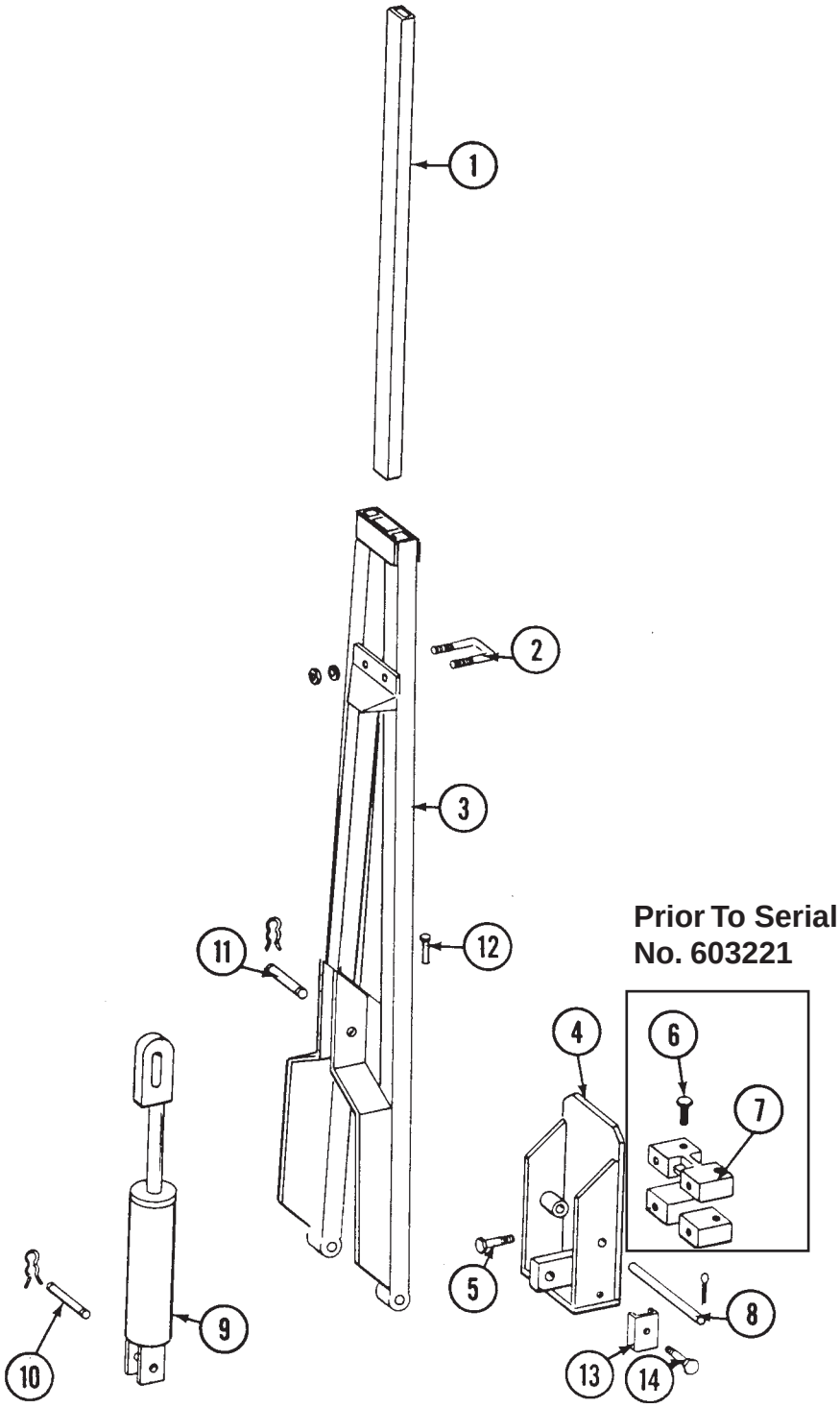
TRANSMISSION ASSEMBLY

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
6.	GA5629	1	Transmission Plate W/Bearings, Grease Fittings And Retaining Rings
	GA5116	3	Bearing, 7/8" Hex Bore, Cylindrical
	GA5624	1	Special Bearing, 7/8" Hex Bore x 1.6"
	GD6551	4	Ring
	G10641	-	Grease Fitting, 1/8" NPT
7.	GA4235	1	Ratchet Wrench W/Protective Closure
	G10445	-	Protective Closure
8.	GD10161	1	Spacer, 3/8"
9.	GD5857	1	Spring
10.	G10478	1	Clevis Pin, 5/16" x 1"
	G10409	1	Retaining Ring, 5/16"
11.	GD5215	1	Shaft, 7/8" x 6 3/8"
12.	G10602	3	Spring Pin, 1/4" x 1 1/2"
13.	GD2558	3	Lynch Pin, 1/4"
14.	G10037	1	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10228	1	Lock Washer, 1/2"
	G10102	1	Hex Nut, 1/2"-13
15.	GA5146	1	Sprocket Storage Rod
16.	GA5106	1	Sprocket, 17 Tooth
	GA5107	1	Sprocket, 19 Tooth
	GA5108	2	Sprocket, 23 Tooth
	GA5109	1	Sprocket, 24 Tooth
	GA5110	1	Sprocket, 25 Tooth
	GA5111	1	Sprocket, 26 Tooth
	GA5112	1	Sprocket, 27 Tooth
	GA5113	1	Sprocket, 28 Tooth
17.	G3310-80	1	Chain, No. 40, 80 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
18.	G10867	1	Carriage Bolt, 1/2"-13 x 5"
	G10111	1	Lock Nut, 1/2"-13
19.	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket
	GD1026	-	Spacer, 1 3/16"
	G10210	-	Washer, 3/8" USS
	G10229	-	Lock Washer, 3/8"
	G10047	-	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
20.	GD2734-01	1	Sleeve, 1/2"
21.	GD3180-16	1	Sleeve, 2 13/15"
22.	G10821	1	Clevis Pin, 3/16" x 2"
	G10099	1	Cotter Pin, 3/32" x 1/2"
23.	GD7127	1	Shear Coupler
24.	GD7822	1	Shaft, 7/8" x 7"
25.	G10670	1	Hair Pin Clip, No. 3
26.	GD6819	1	Sleeve
27.	GA5628	1	Idler W/Sprockets And Rings
	GD7426	-	Sprocket
	G10435	-	Ring
A.	GA5495	-	Transmission Assembly (Items 2-24)

MARKER ASSEMBLY, CONVENTIONAL
4 ROW 30"/36"/38"/40" AND 6 ROW 30"

MKR010(MKR1)

RIGID FRAME TOOLBAR



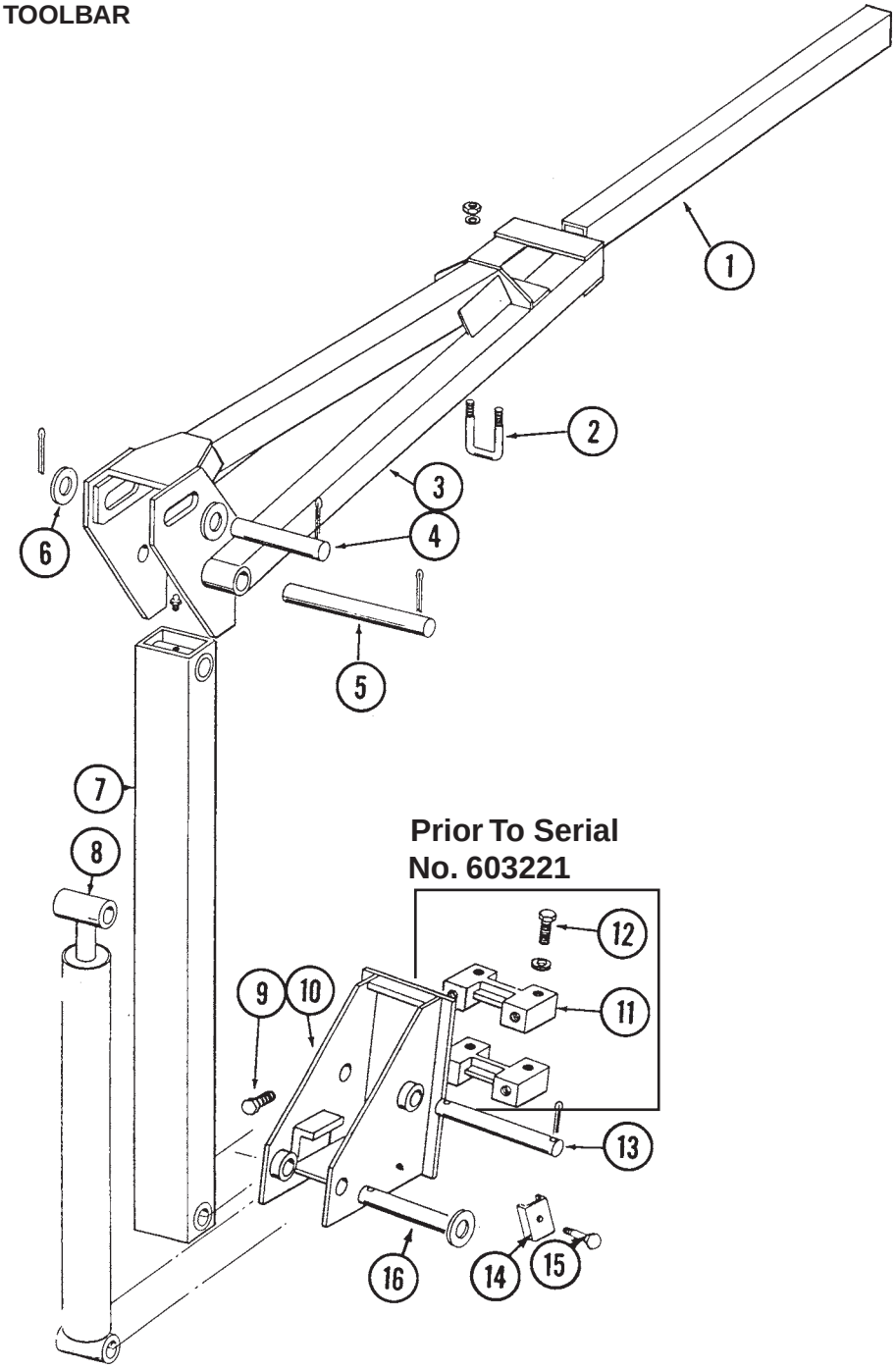
MARKER ASSEMBLY, CONVENTIONAL
4 ROW 30"/36"/38"/40" AND 6 ROW 30"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD0453-02	1	Extension Tube, 40", 4 Row 30" And 6 Row 30"
	GD0453-03	-	Extension Tube, 50", 4 Row 36"/38"/40"
2.	GD2721	1	U-Bolt, 2" x 2" x ½"-13
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
3.	GA5175	1	Arm W/Grease Fittings, 31 ½", 4 Row 30"
	GA5184	-	Arm W/Grease Fittings, 44 ½", 4 Row 36"/38"/40"
	GA5183	-	Arm W/Grease Fittings, 58 ½", 6 Row 30"
	G10640	-	Grease Fitting, ¼"-28
4.	GA5177	1	Mount W/Grease Fittings, 4 Row 30"
	GA5178	-	Mount, 4 Row 36"/38"/40" And 6 Row 30"
	G10640	-	Grease Fitting, ¼"-28
5.	G10008	4	Hex Head Cap Screw, ⅝"-11 x 2"
	G10230	4	Lock Washer, ⅝"
6.	G10026	4	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	4	Lock Washer, ¾"
7.	GB0177	2	Tap Block
8.	GD0438	1	Pin, 13 ½"
	G10460	2	Cotter Pin, ¼" x 2"
9.		-	See “Marker Cylinder”, Page P58
10.	GR0367	1	Pin, 2 ⅞"
	GR0193	2	Clip
11.	GR0375	1	Pin, 3 ½"
	GR0193	2	Clip
12.	GD0462	1	Safety Lockup Pin
	G10670	1	Hair Pin Clip, No. 3
	G10187	1	Spring Pin, 5⁄32" x 2"
13.	GD5892	1	Hose Clamp, ⅝" x 1 ½" x 1 ½"
14.	G10133	1	Hex Head Cap Screw, 5⁄16"-18 x 1 ½"
	G10232	1	Lock Washer, 5⁄16"
	G10106	1	Hex Nut, 5⁄16"-18

MARKER ASSEMBLY, TWO-FOLD LOW PROFILE 6 ROW 36"/38"/40", 8 ROW 30"/36"/38"/40" AND 10 ROW 30"

MKR019/MKR008(MKR2)

RIGID FRAME TOOLBAR



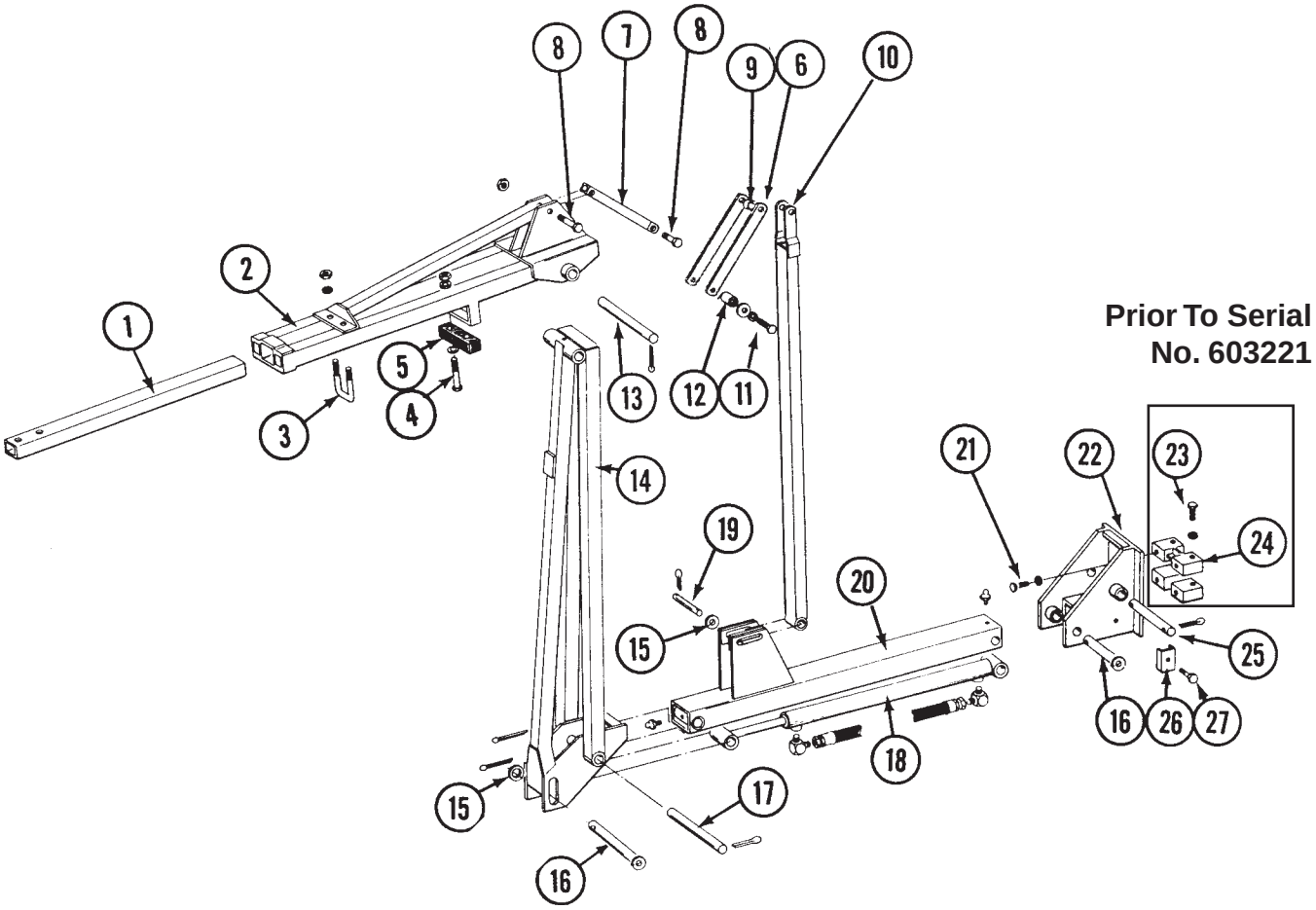
MARKER ASSEMBLY, TWO-FOLD LOW PROFILE 6 ROW 36"/38"/40", 8 ROW 30"/36"/38"/40" AND 10 ROW 30"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD0453-04	1	Extension Tube, 60", 6 Row 36"/38"/40"
	GD0453-03	-	Extension Tube, 50", 8 Row 30"
	GD0453-08	-	Extension Tube, 65", 8 Row 36"/38"/40" And 10 Row 30"
2.	GD2721	1	U-Bolt, 2" x 2" x ½"-13
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
3.	GA5190	1	Arm, Second Stage, 41 ½", 6 Row 36"/38"/40"
	GA5188	-	Arm, Second Stage, 52 ½", 8 Row 30"
	GA5192	-	Arm, Second Stage, 73 ⅛", 8 Row 36"/38"/40" And 10 Row 30"
4.	GD2161	1	Pin, 1 ¼" x 8 ½"
	G10460	2	Cotter Pin, ¼" x 2"
5.	GD3214	1	Pin, 1 ¼" x 12 $^{1}/_{4}$"
	G10460	2	Cotter Pin, ¼" x 2"
6.	G10226	2	Washer, 1 ¼" SAE
7.	GA5173	1	Arm W/Grease Fittings, First Stage
	G10641	-	Grease Fitting, ⅛" NPT
8.		-	See “Marker Cylinder”, Page P58
9.	G10879	4	Flanged 12 Point Bolt, ⅝"-11 x 2", Special Hardened
10.	GA5130	1	Mount
11.	GB0177	2	Tap Block
12.	G10026	4	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	4	Lock Washer, ¾"
13.	GD0652	1	Pin, 1 ¼" x 9 ½"
	G10460	2	Cotter Pin, ¼" x 2"
14.	GD5875	1	Hose Clamp, ⁹⁄₁₆" x 2 ½" x 2"
15.	G10133	1	Hex Head Cap Screw, ⁵⁄₁₆"-18 x 1 ½"
	G10232	1	Lock Washer, ⁵⁄₁₆"
	G10106	1	Hex Nut, ⁵⁄₁₆"-18
16.	GA6532	1	Pin, 1 ¼" x 7 ⅝"
	G10460	1	Cotter Pin, ¼" x 2"

MARKER ASSEMBLY, THREE-FOLD LOW PROFILE 8 ROW 36"/38"/40" AND 12 ROW 30"

MKR021/MKR012/MKR008(MKR8)

VERTICAL FOLDING TOOLBAR



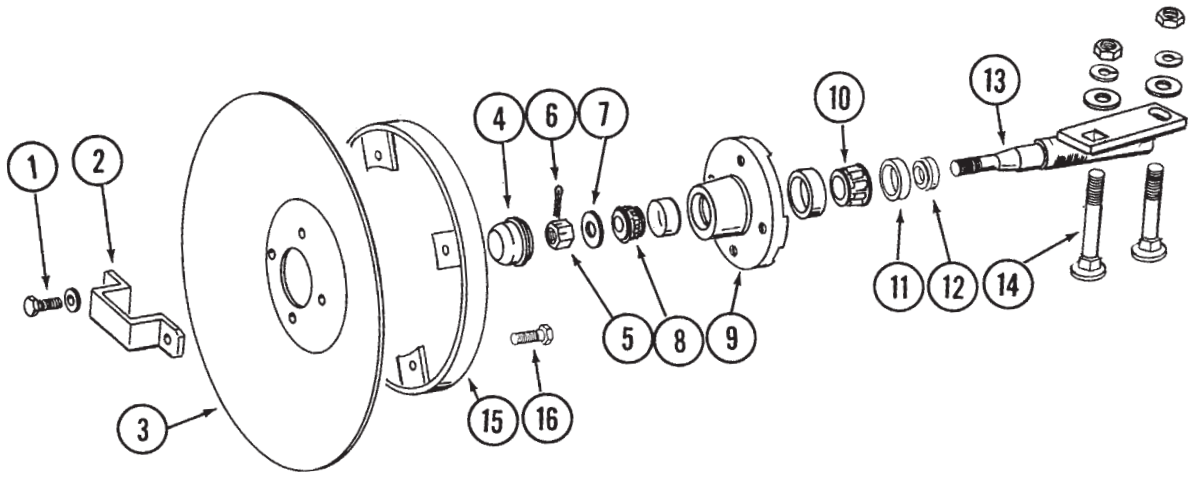
Prior To Serial No. 603221

MARKER ASSEMBLY, THREE-FOLD LOW PROFILE 8 ROW 36"/38"/40" AND 12 ROW 30"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD0453-05	1	Extension Tube, 55", 8 Row 36"/38"/40"
	GD0453-03	-	Extension Tube, 50", 12 Row 30"
2.	GA4905	1	Arm, Third Stage, 19 ½", 8 Row 36"/38"/40"
	GA4887	-	Arm, Third Stage, 35",12 Row 30"
3.	GD2721	1	U-Bolt, 2" x 2" x ½"-13
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
4.	G10047	2	Hex Head Cap Screw, ⅜"-16 x 1 ¾"
	G10048	-	Hex Head Cap Screw, ⅜"-16 x 2"
	G10210	2	Washer, ⅜" USS
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
5.	GD2698	1	Rubber Stop
	GD7902	-	Spacer Bar (If Applicable) (Not Shown)
6.	GD8290	2	Bar
7.	GA4894	1	Linkage, 15 ¼"
8.	G10013	2	Hex Head Cap Screw, ⅝"-11 x 3 ½"
	G10107	2	Lock Nut, ⅝"-11
9.	GD3180-08	1	Sleeve
10.	GA4910	1	Linkage Tube, 54 ¾", 8 Row 36"/38"/40"
	GA4893	-	Linkage Tube, 72 ¾", 12 Row 30"
11.	G10002	1	Hex Head Cap Screw, ⅜"-16 x ¾"
	G10229	1	Lock Washer, ⅜"
	G10210	1	Washer, ⅜" USS
12.	GD7398	1	Pin
13.	GD2697	1	Pin, ⅞" x 11"
	G10463	2	Cotter Pin, ½" x 1 ½"
14.	GA4903	1	Arm, Second Stage, 60", 8 Row 36"/38"/40"
	GA4885	-	Arm, Second Stage, 78", 12 Row 30"
15.	G10226	3	Washer, 1 ¼" SAE
16.	GA6532	2	Pin, 1 ¼" x 7 ⅝"
	G10460	2	Cotter Pin, ¼" x 2"
17.	GD3214	1	Pin, 1 ¼" x 12 ¼"
	G10460	2	Cotter Pin, ¼" x 2"
18.		-	See “Marker Cylinder”, Page P59
19.	GD6136	1	Pin, 1 ¼" x 5"
	G10460	2	Cotter Pin, ¼" x 2"
20.	GA4884	1	Arm W/Grease Fittings, First Stage
	G10641	-	Grease Fitting, ⅛" NPT
21.	G10879	4	Flanged 12 Point Bolt, ⅝"-11 x 2", Special Hardened
22.	GA5130	1	Mount
23.	G10026	4	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	4	Lock Washer, ¾"
24.	GB0177	2	Tap Block
25.	GD0652	1	Pin, 1 ¼" x 9 ½"
	G10460	2	Cotter Pin, ¼" x 2"
26.	GD5875	1	Hose Clamp, 9⁄16" x 2 ½" x 2"
27.	G10133	1	Hex Head Cap Screw, 5⁄16"-18 x 1 ½"
	G10232	1	Lock Washer, 5⁄16"
	G10106	1	Hex Nut, 5⁄16"-18

MARKER SPINDLE/HUB/BLADE

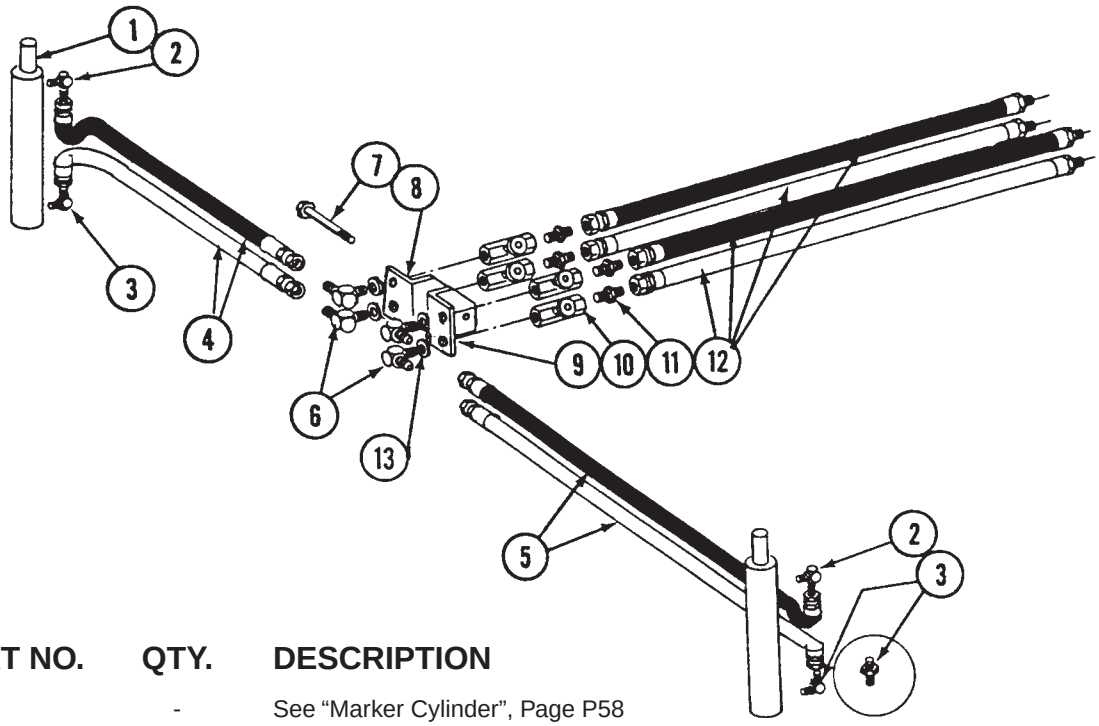
MKR020(MKR4)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10722	4	Hex Head Cap Screw, ½"-20 x 1"
	G10228	4	Lock Washer, ½"
2.	GD2597	1	Retainer
3.	GD0746	1	Solid Blade, 16" (Shown)
	GD10283	-	Notched Blade, 16" (Optional)
4.	GD0840	1	Cap
5.	G10725	1	Hex Slotted Nut, ⅝"-18
6.	G10544	1	Cotter Pin, 5⁄32" x 1"
7.	G10724	1	Washer, ⅝"
8.	GA0257	1	Outer Bearing
9.	GA0167	1	Hub With Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
10.	GA0245	1	Inner Bearing
11.	GA0243	1	Grease Seal
12.	GA0899	1	Rubber Seal
13.	GA1677	1	Spindle, L.H. (Shown)
	GA1676	-	Spindle, R.H.
14.	G10844	2	Carriage Bolt, ½"-13 x 3 ½"
	G10168	2	Machine Bushing, ½", 7 Gauge
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
15.	GA5853	1	Depth Band
16.	G10019	4	Hex Head Cap Screw, 5⁄16"-18 x 1"
	G10109	4	Lock Nut, 5⁄16"-18
A.	GA1679	-	Hub And Spindle Assembly, L.H. (Items 1, 2 And 4-13)
	GA1678	-	Hub And Spindle Assembly, R.H. (Items 1, 2 And 4-13)

HYDRAULIC SYSTEM (RIGID TOOLBAR), DUAL VALVE (Prior To Serial No. 602707)

PHS033(MT12)

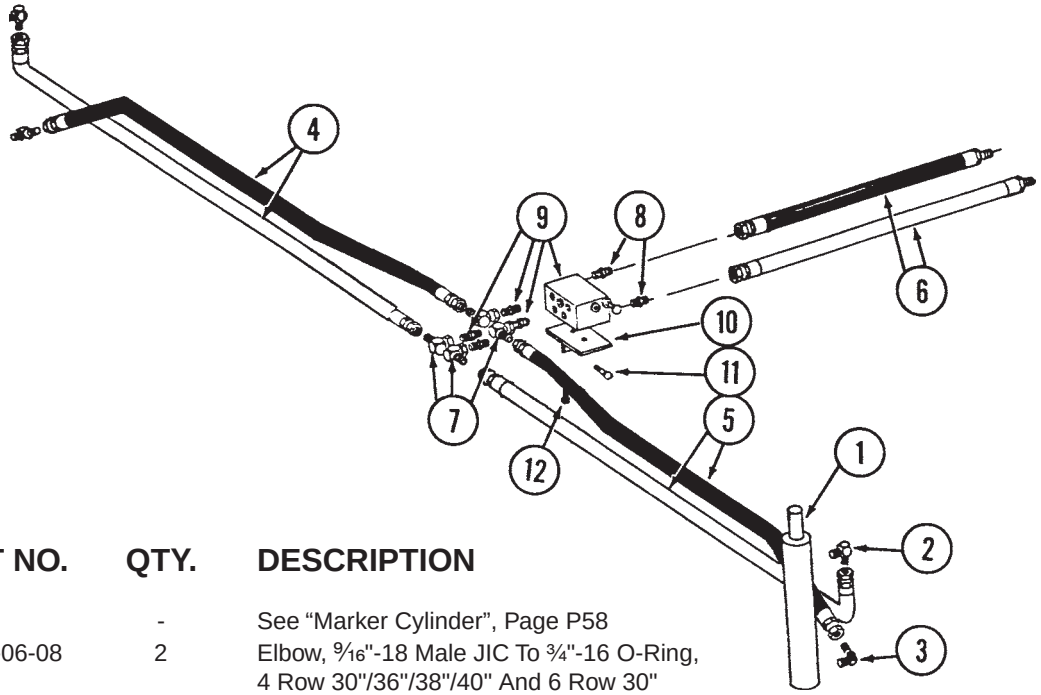


ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Marker Cylinder”, Page P58
2.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6801-08	-	Elbow, 3/4"-16 Male JIC To 3/4"-16 O-Ring, 6 Row 36"/38"/40" And 8 Row 30"/40"
3.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6400-08	-	Connector, 3/4"-16 Male O-Ring To JIC, 6 Row 36"/38"/40" And 8 Row 30"/40"
4.	*A1150	2	Hose Assembly, 1/4" x 103", 4 Row 30"
	*A1134	-	Hose Assembly, 1/4" x 116", 4 Row 36"/38"/40"
	*A1106	-	Hose Assembly, 1/4" x 130", 6 Row 30"
	*A3114	-	Hose Assembly, 3/8" x 156", 6 Row 36"/38"/40"
	*A1049	-	Hose Assembly, 3/8" x 160", 8 Row 30"
	*A3154	-	Hose Assembly, 3/8" x 196", 8 Row 40" And 10 Row 30"
5.	*A1170	2	Hose Assembly, 1/4" x 90", 4 Row 30"
	*A1172	-	Hose Assembly, 1/4" x 105", 4 Row 36"/38"/40"
	*A1168	-	Hose Assembly, 1/4" x 120", 6 Row 30"
	*A3115	-	Hose Assembly, 3/8" x 146", 6 Row 36"/38"/40"
	*A1013	-	Hose Assembly, 3/8" x 150", 8 Row 30"
	*A1028	-	Hose Assembly, 3/8" x 186", 8 Row 40" And 10 Row 30"
6.	G5701-06-06	4	Swivel Elbow, 90°, 9/16"-18 Male JIC To 3/8" NPT, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G5701-08-06	-	Swivel Elbow, 90°, 3/4"-16 Male JIC To 3/8" NPT, 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
7.	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
8.	D7037	-	Mounting Bracket, L.H. **(Non-Stock Item)**
9.	D7036	-	Mounting Bracket, R.H. **(Non-Stock Item)**
10.		-	See “Flow Control Valve”, Page P61
11.	G2404-06-06	4	Adapter, 9/16"-18 Male JIC To 3/8" NPT, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G2404-08-06	-	Adapter, 3/4"-16 Male JIC To 3/8" NPT, 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
12.	*A1101	4	Hose Assembly, 1/4" x 48", 4 Row 30"/36"/38"/40" And 6 Row 30"
	*A1005	-	Hose Assembly, 3/8" x 48", 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
13.	G10215	4	Machine Bushing, 1 1/4" O.D.

*** Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.**

HYDRAULIC SYSTEM (RIGID TOOLBAR), OPTIONAL SINGLE VALVE (Prior To Serial No. 602707)

PHS034(MT13)

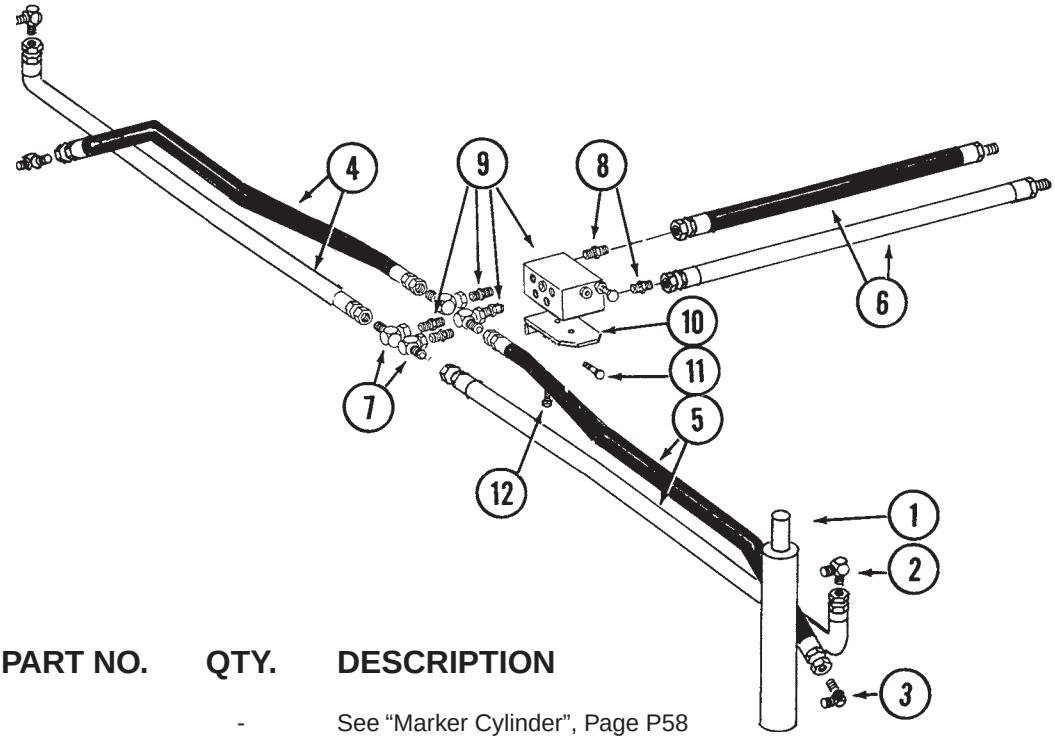


ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Marker Cylinder”, Page P58
2.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6801-08	-	Elbow, 3/4"-16 Male JIC To 3/4"-16 O-Ring, 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
3.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6400-08	-	Connector, 3/4"-16 Male O-Ring To JIC, 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30"
4.	*A1150	2	Hose Assembly, 1/4" x 103", 4 Row 30"
	*A1134	-	Hose Assembly, 1/4" x 116", 4 Row 36"/38"/40"
	*A1106	-	Hose Assembly, 1/4" x 130", 6 Row 30"
	*A3114	-	Hose Assembly, 3/8" x 156", 6 Row 36"/38"/40"
	*A1049	-	Hose Assembly, 3/8" x 160", 8 Row 30"
	*A3154	-	Hose Assembly, 3/8" x 196", 8 Row 40" And 10 Row 30"
5.	*A1170	2	Hose Assembly, 1/4" x 90", 4 Row 30"
	*A1172	-	Hose Assembly, 1/4" x 105", 4 Row 36"/38"/40"
	*A1168	-	Hose Assembly, 1/4" x 120", 6 Row 30"
	*A3115	-	Hose Assembly, 3/8" x 146", 6 Row 36"/38"/40"
	*A1013	-	Hose Assembly, 3/8" x 150", 8 Row 30"
	*A1028	-	Hose Assembly, 3/8" x 186", 8 Row 40" And 10 Row 30"
6.	*A1101	2	Hose Assembly, 1/4" x 48", 4 Row 30"/36"/38"/40" And 6 Row 30"
	*A1005	-	Hose Assembly, 3/8" x 48", 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
7.	G6500-06	4	Elbow, 9/16"-18 Male JIC To Female, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6500-08-06	-	Elbow, 3/4"-16 Male JIC To 9/16"-18 Female JIC, 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
8.	G6400-06	2	Connector, 9/16"-18 Male JIC To 9/16"-18 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6400-08-06	-	Connector, 3/4"-16 Male JIC To 9/16"-18 O-Ring, 6 Row 36"/38"/40", 8 Row 30"/40" And 10 Row 30"
9.			See “Marker Sequencing/Flow Control Valve”, Page P61
10.	GA5632	1	Mounting Angle
11.	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10210	2	Washer, 3/8" USS
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
12.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"

*** Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.**

HYDRAULIC SYSTEM (RIGID TOOLBAR), SINGLE VALVE (Serial No. 602707 & On)

PHS034(MT11)

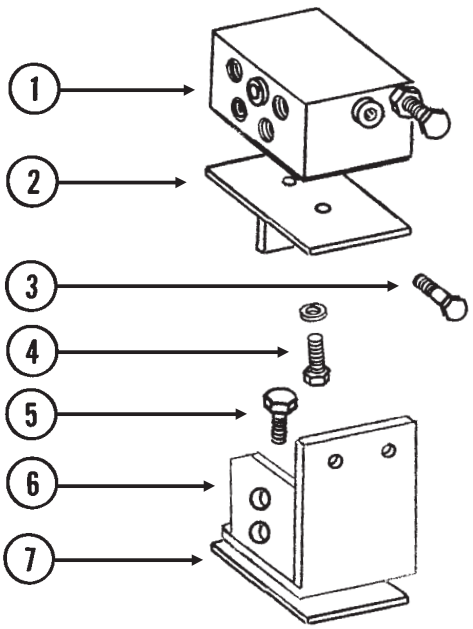


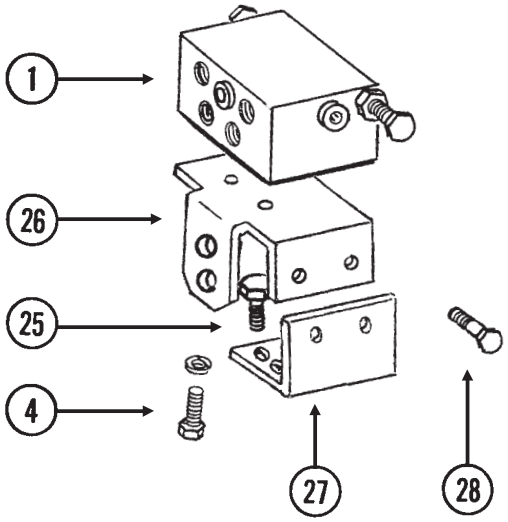
ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Marker Cylinder”, Page P58
2.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6801-08	-	Elbow, 3/4"-16 Male JIC To 3/4"-16 O-Ring, 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30"
3.	G6801-06-08	2	Elbow, 9/16"-18 Male JIC To 3/4"-16 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6400-08	-	Connector, 3/4"-16 Male O-Ring To JIC, 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30"
4.	*A1150	2	Hose Assembly, 1/4" x 103", 4 Row 30"
	*A1134	-	Hose Assembly, 1/4" x 116", 4 Row 36"/38"/40"
	*A1106	-	Hose Assembly, 1/4" x 130", 6 Row 30"
	*A3114	-	Hose Assembly, 3/8" x 156", 6 Row 36"/38"/40"
	*A1049	-	Hose Assembly, 3/8" x 160", 8 Row 30"
	*A3154	-	Hose Assembly, 3/8" x 196", 8 Row 36"/38"/40" And 10 Row 30"
5.	*A1170	2	Hose Assembly, 1/4" x 90", 4 Row 30"
	*A1172	-	Hose Assembly, 1/4" x 105", 4 Row 36"/38"/40"
	*A1168	-	Hose Assembly, 1/4" x 120", 6 Row 30"
	*A3115	-	Hose Assembly, 3/8" x 146", 6 Row 36"/38"/40"
	*A1013	-	Hose Assembly, 3/8" x 150", 8 Row 30"
	*A1028	-	Hose Assembly, 3/8" x 186", 8 Row 36"/38"/40" And 10 Row 30"
6.	*A3186	2	Hose Assembly, 3/8" x 56"
7.	G6500-06	4	Elbow, 9/16"-18 Male JIC To Female, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6500-08-06	-	Elbow, 3/4"-16 Male JIC To 9/16"-18 Female JIC, 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30"
8.	G6400-06	2	Connector, 9/16"-18 Male JIC To 9/16"-18 O-Ring, 4 Row 30"/36"/38"/40" And 6 Row 30"
	G6400-08-06	-	Connector, 3/4"-16 Male JIC To 9/16"-18 O-Ring, 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30"
9.			See “Marker Sequencing/Flow Control Valve”, Page P61
10.	GD10205	1	Mounting Angle
11.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10111	2	Lock Nut, 1/2"-13
12.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"

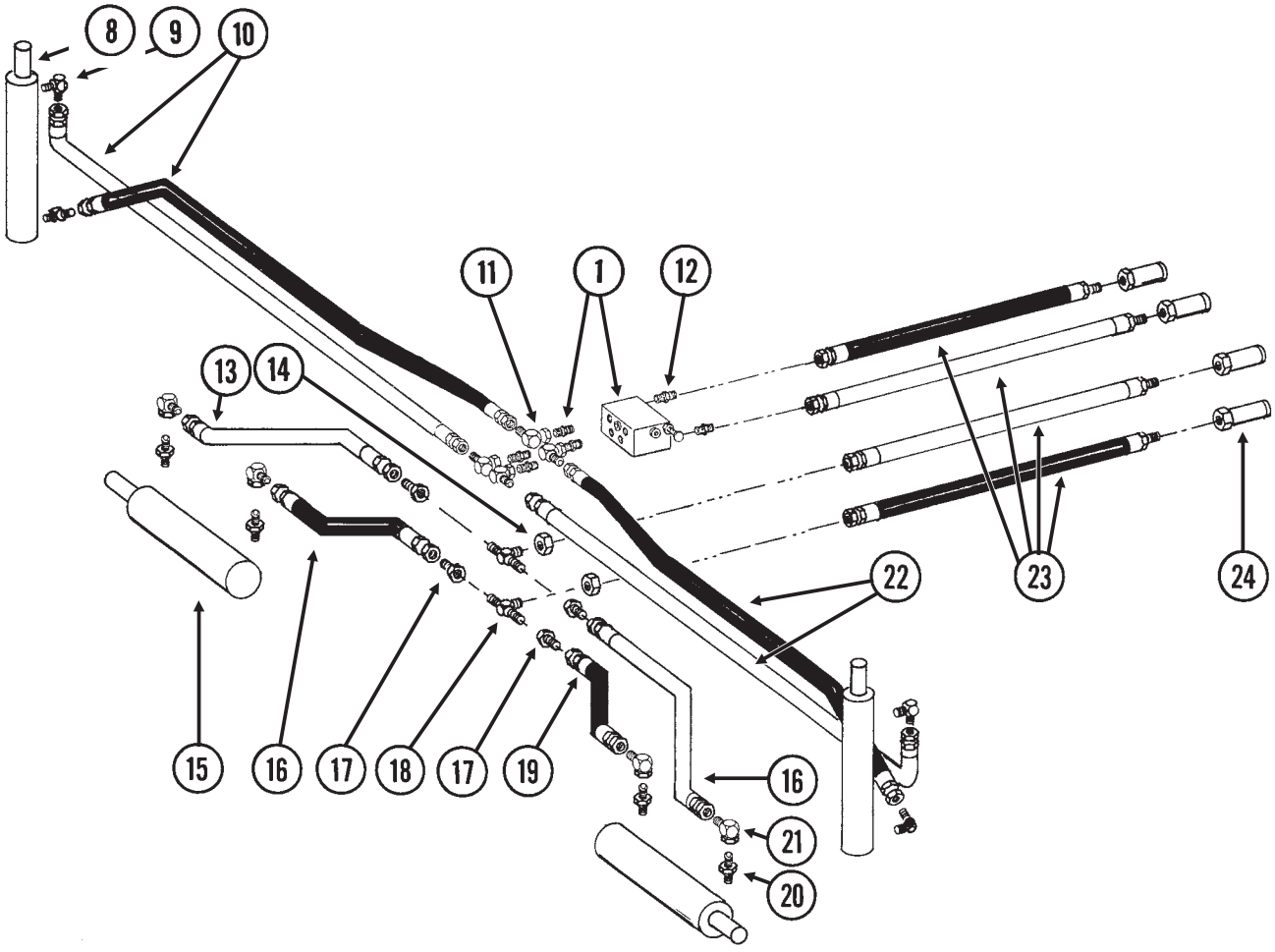
*** Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.**

HYDRAULIC SYSTEM
(VERTICAL FOLDING TOOLBAR), DUAL VALVE

PHS034/PHS002(MT16/PT11/MT19)







HYDRAULIC SYSTEM (VERTICAL FOLDING TOOLBAR), DUAL VALVE

ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See “Marker Sequencing/Flow Control Valve”, Page P61
2.	GA5632	1	Mounting Angle
3.	G10004	2	Hex Head Cap Screw, ⅜"-16 x 1 ¼"
	G10210	2	Washer, ⅜" USS
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
4.	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1"
	G10229	2	Lock Washer, ⅜"
5.	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1" (As Required)
	G10047	2	Hex Head Cap Screw, ⅜"-16 x 1 ¾" (As Required)
	G10229	2	Lock Washer, ⅜"
6.	GA5141	1	Valve Mounting Bracket
7.	GD7628	-	Spacer
8.		-	See “Marker Cylinder”, Page P59
9.	G6801-08	4	Elbow, ¾"-16 Male JIC To ¾"-16 O-Ring
10.	*A1054	2	Hose Assembly, ⅜" x 204", 8 Row 36"/38"/40"
	*A1093	-	Hose Assembly, ⅜" x 230", 12 Row 30"
11.	G6500-08-06	4	Elbow, ¾"-16 Male JIC To 9⁄16"-18 Female JIC
12.	G6400-08-06	2	Connector, ¾"-16 Male JIC To 9⁄16"-18 O-Ring
13.	*A1155	1	Hose Assembly, ¼" x 48", 8 Row 36"/38"
	*A1153	-	Hose Assembly, ¼" x 56", 8 Row 40"
	*A1188	-	Hose Assembly, ¼" x 66", 12 Row 30"
14.	G306-08	2	Nut, ¾"-16
15.			See “Wing Lift Cylinder (4" x 11"), Page P59
16.	*A1189	2	Hose Assembly, ¼" x 36", 8 Row 36"/38"
	*A1132	-	Hose Assembly, ¼" x 44", 8 Row 40"
	*A1144	-	Hose Assembly, ¼" x 54", 12 Row 30"
17.	G2406-08-06	4	Reducer, ¾"-16 Female JIC To 9⁄16"-18 Male JIC
18.	G2703-08	2	Bulkhead Tee, ¾"-16 Male JIC
19.	*A1169	1	Hose Assembly, ¼" x 24", 8 Row 36"/38"
	*A1181	-	Hose Assembly, ¼" x 32", 8 Row 40"
	*A1132	-	Hose Assembly, ¼" x 44", 12 Row 30"
20.	G6400-06-08	4	Adapter, 9⁄16"-18 Male JIC To ¾"-16 O-Ring
21.	G6500-06	4	Elbow, 9⁄16"-18 Male JIC To Female
22.	*A1030	2	Hose Assembly, ⅜" x 192", 8 Row 36"/38"/40"
	*A1057	-	Hose Assembly, ⅜" x 216", 12 Row 30"
23.	*A3164	4	Hose Assembly, ⅜" x 52"
24.	GD4086	4	Pioneer (ISO) Tip
25.	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1"
	G10210	2	Washer, ⅜" USS
	G10229	2	Lock Washer, ⅜"
26.	GD10224	1	Valve Mount
27.	GD10223	1	Valve Mount Bracket
28.	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1"
	G10203	2	Washer, ⅜" SAE
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16

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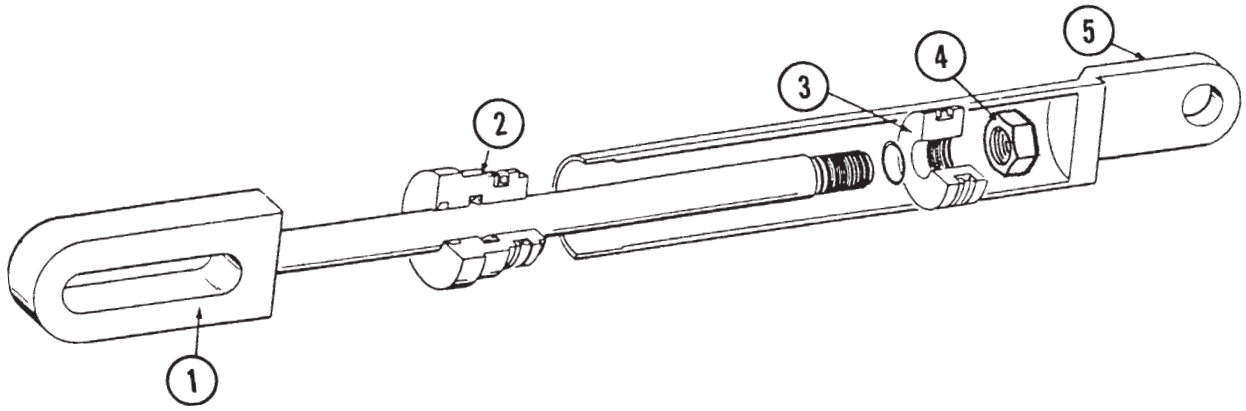
MARKER CYLINDER, CONVENTIONAL
4 ROW 30"/36"/38"/40" AND 6 ROW 30"

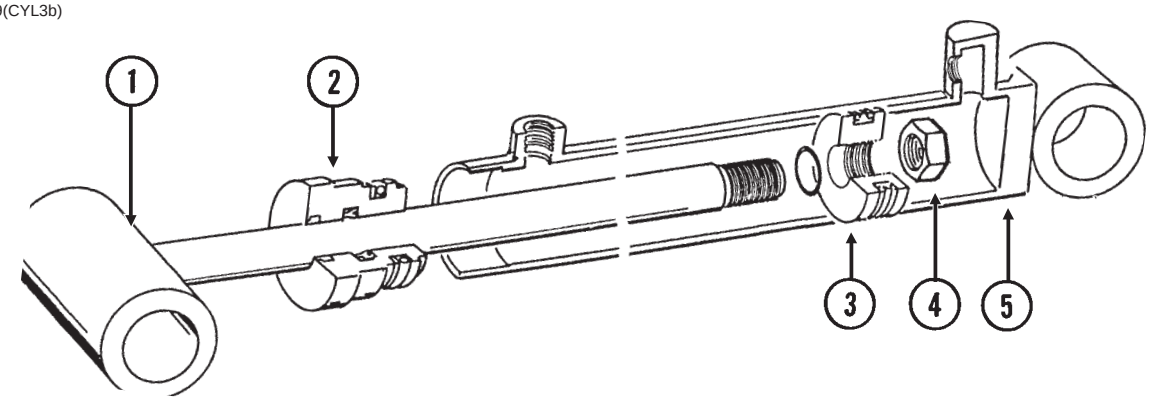
CYL030(CYL2a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA5453	1	Rod Assembly
2.	GD5949	1	Gland
3.	GD4632	1	Piston
4.	GR0959	1	Lock Nut, ¾"-16
5.	GA5454	1	Barrel
A.	GA5095	-	Cylinder Complete, 2" x 8"
B.	GR0927	-	Seal Kit, Includes: (1) T Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper

MARKER CYLINDER, TWO-FOLD LOW PROFILE
6 ROW 36"/38"/40", 8 ROW 30"/36"/38"/40" And 10 ROW 30"

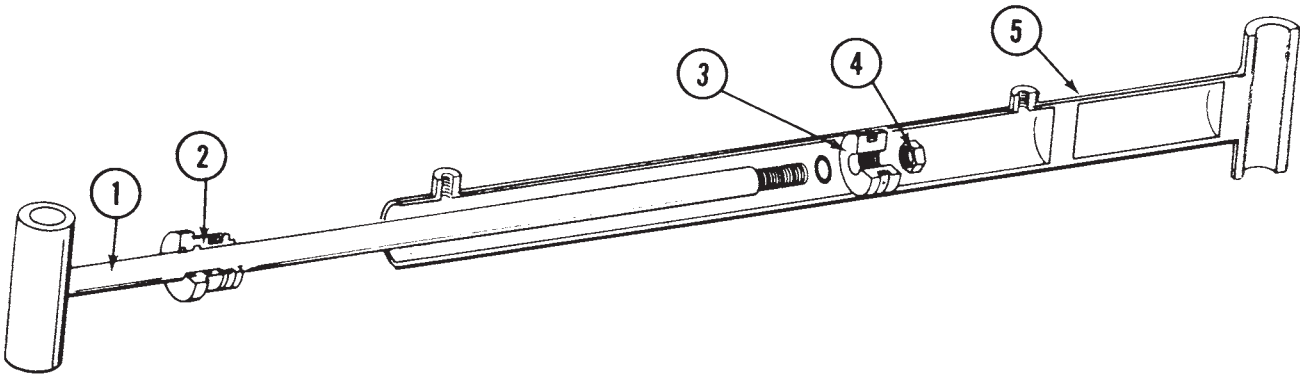
CYL039(CYL3b)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA5459	1	Rod Assembly
2.	GD5949	1	Gland
3.	GD4632	1	Piston
4.	GR0959	1	Lock Nut, ¾"-16
5.	GA5460	1	Barrel
A.	GA5097	-	Cylinder Complete, 2" x 20 1/16"
B.	GR0927	-	Seal Kit, Includes: (1) T Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper

MARKER CYLINDER, THREE-FOLD LOW PROFILE 8 ROW 36"/38"/40" AND 12 ROW 30"

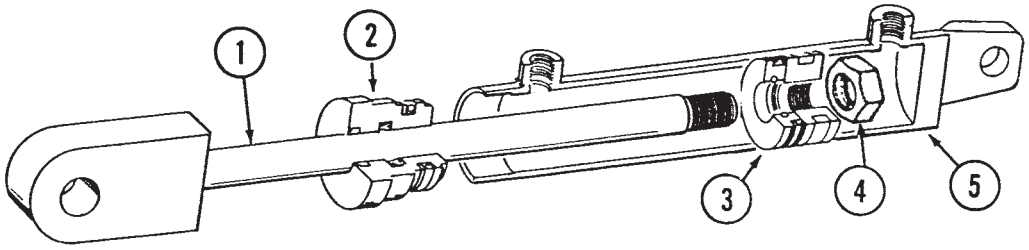
CYL039(CYL13)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA5459	1	Rod Assembly
2.	GD5949	1	Gland
3.	GD4632	1	Piston
4.	GR0959	1	Lock Nut, ¾"-16
5.	GA5458	1	Barrel
A.	GA5096	-	Cylinder Complete, 2" x 20 1/16"
B.	GR0927	-	Seal Kit, Includes: (1) T Seal, (2) O-Ring, (1) BU Ring, (1) U-Cup, (1) Wiper

WING LIFT CYLINDER (VERTICAL FOLDING TOOLBAR)

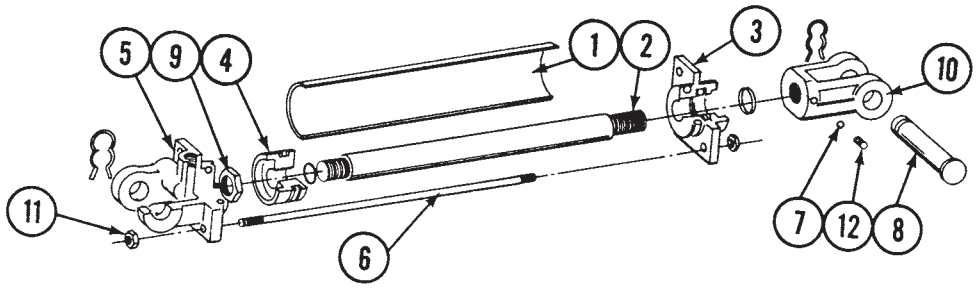
CYL032/CYL047(CYL21a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA5702	1	Rod Assembly
2.	GD6576	1	Gland
3.	GD7884	1	Piston
4.	GR0987	1	Lock Nut, 1 ¼"-12
5.	GA5703	1	Barrel
A.	GA5662	-	Cylinder Complete, 4" x 11"
B.	GR1057	-	Seal Kit, Includes: (1) T Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) Wear Ring

OPTIONAL DUAL LIFT ASSIST CYLINDER

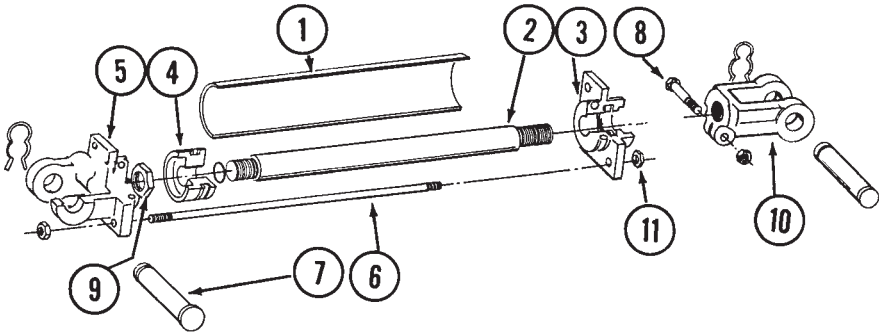
CYL048(CYL22)



ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	Barrel (Non-stock Item)
2.	GR0709	1	Shaft
3.	GR1025	1	Gland
4.	GR1026	1	Piston
5.	GR1027	1	Clevis
6.	GR1024	4	Tie Rod
7.	GR0716	1	Nylon Ball
8.	GR0717	1	Pin W/Clip
9.	GR0663	1	Nut
10.	GR0714	1	Clevis
11.	GR0181	8	Hex Nut, ½"-13
12.	G10210	1	Set Screw, ⅜"-16 x ⅜"
A.	GA5482A	-	Cylinder Complete W/Pins And Clips, 3 ½" x 8" ("Energy" Cast In Base End Clevis.)
B.	GR1028	-	Seal Kit, Includes: (1) Wiper, (4) BU Rings, (5) O-Rings, (1) U-Cup

OPTIONAL DUAL LIFT ASSIST CYLINDER

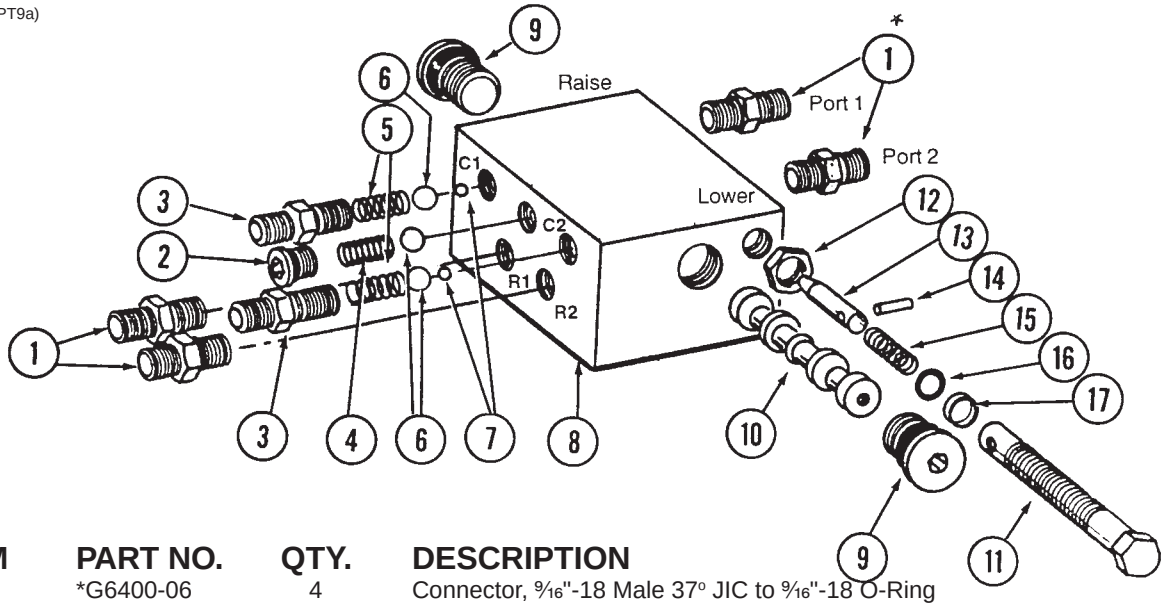
CYL009/CYL048(CYL23)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1274	1	Barrel
2.	GR1273	1	Shaft
3.	GR1271	1	Gland
4.	GR1272	1	Piston
5.	GR1270	1	Clevis
6.	GR1024	4	Tie Rod
7.	GR0717	2	Pin W/Clip
8.	G10047	1	Hex Head Cap Screw, ⅜"-16 x 1 ¾"
	G10101	1	Hex Nut, ⅜"-16
9.	GR1278	1	Nut
10.	GR1276	1	Clevis
11.	GR0181	8	Tie Rod Nut
A.	GA5482B	-	Cylinder Complete W/Pins And Clips, 3 ½" x 8" ("Lion Hydraulics" Decal On Barrel)
B.	GR1279	-	Seal Kit, Includes: (3) BU Seals, (5) O-Rings, (1) C/R Seal)

MARKER SEQUENCING/FLOW CONTROL VALVE

VVB025(PT9a)

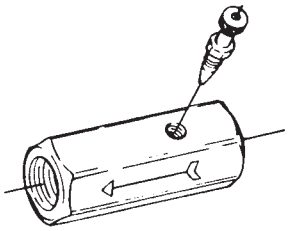


ITEM	PART NO.	QTY.	DESCRIPTION
1.	*G6400-06	4	Connector, 9/16"-18 Male 37° JIC to 9/16"-18 O-Ring
	GR1045	-	O-Ring
2.	GR1034	1	Hex Socket O-Ring Plug
	GR1035	-	O-Ring
3.	GR1032	2	Port Adapter
	GR1045	-	O-Ring
4.	GR1033	1	Detent Spring
5.	GR1036	2	Spring
6.	GR1044	3	9/16" Check Ball
7.	GR1043	2	1/4" Steel Ball
8.		-	Valve Body **(Non-Stock Item)**
9.	GR1047	2	Hex Socket Plug
	GR1037	-	O-Ring
10.		-	Spool **(Non-Stock Item)**
11.	GR1042	2	Adjustment Screw
12.	GR1048	2	Hex Jam Nut, 1/2"-20
13.	GR1038	2	Needle
14.	GR1039	2	Spring Pin
15.	GR1046	2	Compression Spring
16.	GR1040	2	O-Ring
17.	GR1041	2	Teflon BU Ring
A.	GA5552	-	Valve Assembly Complete (Items 1-17)
B.	GA5572	-	Flow Control Portion Only (Items 11-17)

*Not used on sizes with 3/8" hoses.

FLOW CONTROL VALVE

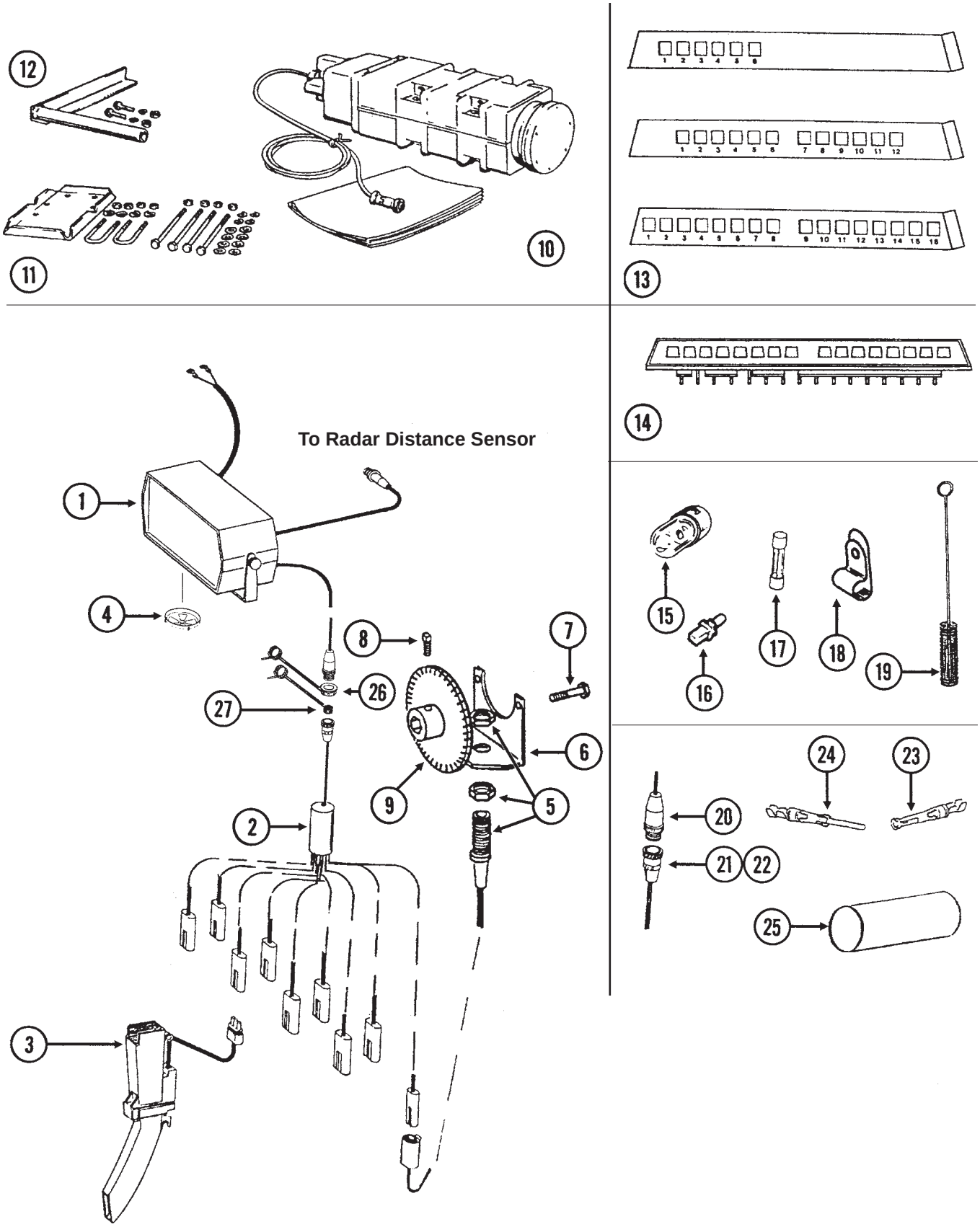
VVB001(MT2)



ITEM	PART NO.	QTY.	DESCRIPTION
A.	GA0270	-	Flow Control Valve ("Parker" Stamped On Valve Body)
	GR0767	-	Needle Valve Only

ELECTRONIC SEED MONITOR

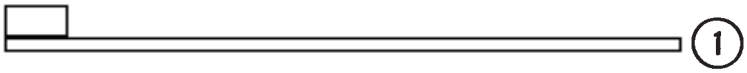
ECP017/D-0640-0001/D-0640-0003/D-0640-0004/D-1172-0001/D-1172-0002/ECP019/ECP020/ECP021/ECP022(MTR6/MTR4/MTR7)



ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA5873	1	Console W/Mounting Bracket, KM1000
	GA5874	-	Console W/Mounting Bracket, KM3000
	GR1077	-	Mounting Bracket, KM1000
	GR1078	-	Mounting Bracket, KM3000
	GR1079	-	Console Mounting Bracket Hardware Package (Includes 2 Wellnuts, 2 Knobs And ¼" Hardware)
2.	GA5875	1	Planter Harness, 4 Row
	GA5876	-	Planter Harness, 6 Row
	GA5877	-	Planter Harness, 8 Row
	GA5878	-	Planter Harness, 10 Row And 12 Row
3.	GA5880	-	Seed Tube W/High Rate Sensor
	GR1062	-	Seed Tube (With Holes For High Rate Sensor Installation)
	GR1087	-	Sensor Only (For GA5880)
	GR0676	-	Sunshade
	GD2117	-	Tie Strap, 14 ½"
4.	GR1348	-	Sound Baffle W/Pin
5.	GA5600	1	Magnetic Distance Sensor (Used W/KM3000 Console Only)
6.	GD7632	1	Magnetic Distance Sensor Bracket
7.	G10171	2	Hex Head Cap Screw, 5/16"-18 x 1 ¼"
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, 5/16"-18
8.	G10145	1	Set Screw, 5/16"-18 x ½"
9.	GA5549	1	Magnetic Distance Sensor Pulse Wheel (Used W/KM3000 Console Only)
10.	GA4223	-	Radar Distance Sensor (Used W/KM3000 Console Only)
11.	GA4229	-	Radar Sensor Mounting Bracket Package
12.	GA4230	-	Radar Sensor Pipe Mounting Package
13.	GR1081	1	KM1000 Bezel Decal, 6 Row (Used On 6 Row)
	GR1082	-	KM1000 Bezel Decal, 12 Row (Used On 4 Row, 10 Row And 12 Row)
	GR1083	-	KM1000 Bezel Decal, 16 Row (Used On 8 Row)
14.	GR1080	1	KM1000 Bezel
15.	GR0595	1	Bulb, KM1000 Row Lamp (Not Shown)
16.	GR1084	1	Bulb, KM3000 Backlite (Not Shown)
17.	GR0866	1	Fuse, 5 Amp, Type AGC
	GR1085	1	Fuse, 2 Amp, Type AGC
18.	GD6291	-	Insulated Clamp
19.	GR0594	-	Brush
20.	GR0583	-	Console Connector Kit W/37 Pins And Shrink Tube
21.	GR0582	-	Harness Connector Kit W/37 Female Socket Contacts, Coupling Ring And Shrink Tube
22.	GR0807	-	Coupling Ring
23.	GR1171	-	Female Socket Contact
24.	GR1067	-	Pin
25.	GR1069	-	Shrink Tube, 2 ½"
26.	GD4563	-	Dust Cap
27.	GD4564	-	Dust Cover
A.	GA5606	-	Magnetic Distance Sensor And Mounting Package, Includes Items 5-9

SMV SIGN, DECALS, REFLECTORS AND TIE STRAPS



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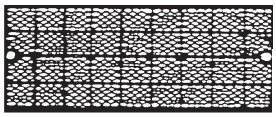


2

⚠ WARNING ⚠

EMPTY ALL HOPPERS AND INSTALL TRANSPORT PINS BEFORE TRANSPORTING.

7100-96

3

⚠ WARNING

TO AVOID INJURY –
STAND CLEAR–KEEP OTHERS AWAY WHEN RAISING OR LOWERING MARKERS. BEFORE TRANSPORTING PLANTER FULLY EXTEND HYDRAULIC CYLINDERS AND INSTALL LOCKING PINS WHERE PROVIDED.

7144-99

4

⚠ WARNING ⚠

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

7100-46

5

⚠ DANGER

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

7100-89

6

⚠ WARNING ⚠

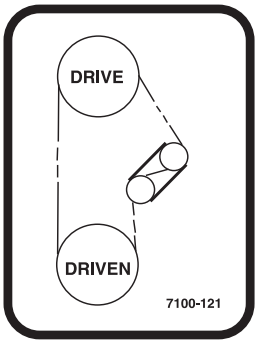
THIS MACHINE HAS BEEN DESIGNED AND BUILT WITH YOUR SAFETY IN MIND. DO NOT MAKE ANY ALTERATIONS OR CHANGES TO THIS MACHINE. ANY ALTERATION TO THE DESIGN OR CONSTRUCTION MAY CREATE SAFETY HAZARDS.

7100-99

7

KINZE

8



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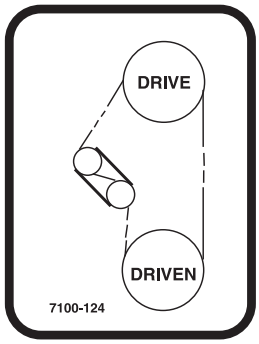

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12

IMPORTANT
SEED METER ALIGNMENT TO DRIVE CLUTCH IS CRITICAL
REFER TO OPERATOR'S MANUAL FOR INSTRUCTIONS

7144-102

⚠ DANGER

NEVER TRANSPORT FOLDING MODELS EQUIPPED WITH LIFT ASSIST WHEELS WITHOUT FLOATING CENTER MAST IN PLACE.

7100-102

13

⚠ WARNING ⚠

AGRICULTURAL CHEMICALS CAN BE DANGEROUS. IMPROPER SELECTION OR USE CAN SERIOUSLY INJURE PERSONS, ANIMALS, PLANTS, SOIL OR OTHER PROPERTY. BE SAFE. SELECT THE RIGHT CHEMICAL FOR THE JOB. HANDLE WITH CARE. FOLLOW THE INSTRUCTIONS ON THE CONTAINER LABEL AND OF THE EQUIPMENT MANUFACTURER.

7100-115

14

⚠ WARNING ⚠

FLOATING CENTER MAST MUST BE USED ON PLANTERS EQUIPPED WITH LIFT ASSIST WHEELS. SEE OPERATION SECTION OF OPERATOR'S MANUAL FOR PROPER ADJUSTMENT.

7144-122

15

⚠ WARNING ⚠

WINGS MUST BE UNFOLDED BEFORE DETACHING MACHINE FROM TRACTOR.

7144-149

16

USE 1 TABLESPOON POWDERED GRAPHITE WITH EACH HOPPER FILL OF SEED. SEED TREATMENT, FOREIGN MATERIAL, DIRT, OR SEED CHAFF MAY CAUSE GRADUAL REDUCTION OF SEED POPULATION. REFER TO MANUAL FOR MAINTENANCE AND CARE.

7100-153

17

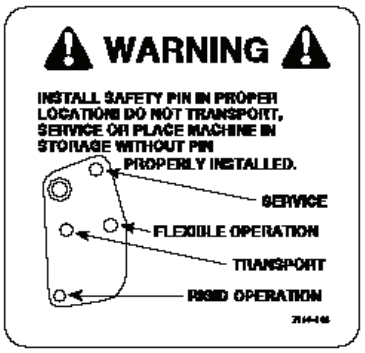
⚠ DANGER

SERIOUS INJURY OR DEATH CAN RESULT FROM CONTACT WITH ELECTRICAL LINES. USE CARE TO AVOID CONTACT WITH ELECTRIC LINES WHEN MOVING OR OPERATING THIS MACHINE.

7144-117

18

SMV SIGN, DECALS, REFLECTORS AND TIE STRAPS



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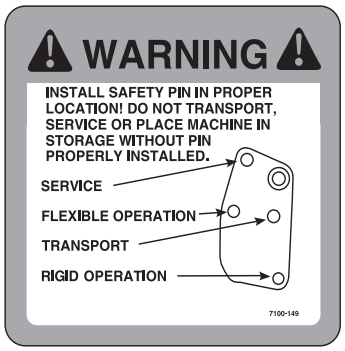

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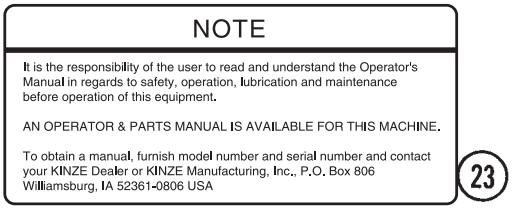

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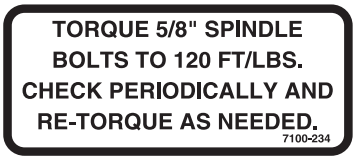

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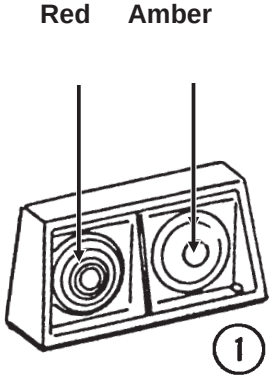
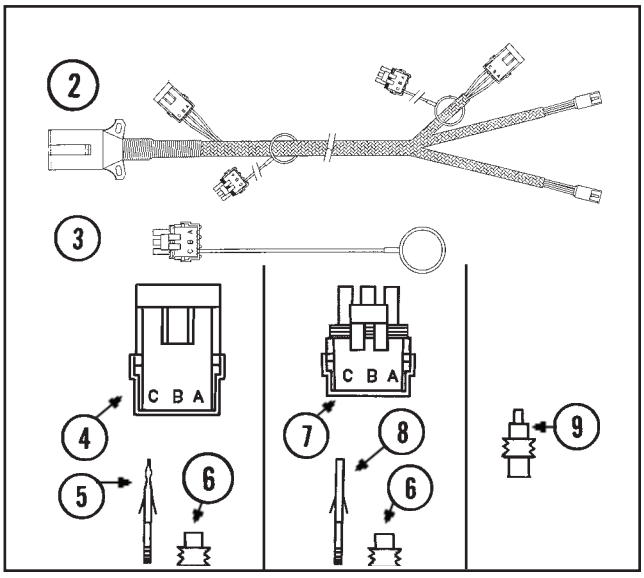
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD1512	-	Tie Strap, 6"
	GD2117	-	Tie Strap, 14 ½"
2.	G7200-03	2-4	Reflector, Red
	G7200-04	2-4	Reflector, Amber
3.	G7100-25	2	Decal, Warning
4.	G7100-42	4	Decal, Warning
5.	G7100-46	1	Decal, Warning
6.	G7100-89	2-4	Decal, Danger
7.	G7100-90	1	Decal, Warning
8.	G7100-104	1	Decal, KINZE®, 3" x 12"
9.	G7100-121	1	Decal, Transmission
10.	G7100-124	1	Decal, Transmission
11.	G7100-195	-	Decal, Logo (2 Per Row Unit)
12.	G7100-182	-	Decal, Meter Alignment (1 Per Row Unit)
13.	G7100-132	1	Decal, Danger
14.	G7100-115	-	Decal, Caution (1 Per Granular Chemical Hopper)
15.	G7100-133	1-3	Decal, Warning
16.	G7100-140	1	Decal, Warning (Vertical Folding Machines Only)
17.	G7100-153	-	Decal, Information (1 Per Brush-Type Seed Meter)
18.	G7100-117	1	Decal, Danger
19.	G7100-148	1	Decal, Warning
20.	G7100-149	1	Decal, Warning
21.	G7100-157	1	Decal, 2100
22.	GD2199	1	SMV Sign
23.	G7100-217	-	Decal, Note
24.	GR0146	-	Powdered Graphite, 1 Pound
25.	GR1367	-	Talc Seed Lubricant, 8 Pounds
26.	GR0155	-	Blue Paint, Aerosol
27.	G7100-111	-	Decal, Oil Daily
28.	G7100-116	-	Decal, Grease Daily
29.	G7100-234	-	Decal, Bolt Torque

ELECTRICAL COMPONENTS

PFA043(PT49a/ELC9/MTR27a/ELC8)





ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA6699	1	Double Light Assembly (Shown)
	GA6700	1	Double Light Assembly
	GR1203	-	Red Lens
	GR1204	-	Amber Lens
	GR1205	-	Cover
	GR1206	-	Rubber Grommet (4)
	GR1207	-	Lamp Unit
	GR1208	-	Bulb
2.	GA6816	-	Light Wiring Harness W/7 Terminal Female Connector, 185", 4 Row 30"/36"/38"/40" And 6 Row 30" Rigid Toolbars/All Vertical Folding Toolbars
	GA6817	-	Light Wiring Harness W/7 Terminal Female Connector, 263", 6 Row 36"/38"/40", 8 Row 30"/36"/38"/40" And 10 Row 30" Rigid Toolbars
	GA5385	-	7 Terminal Female Connector
3.	GA8047	-	Dust Plug
4.	GD11079	-	Housing
5.	GD11080	-	Pin Contact, No. 18
6.	GD11081	-	Seal
7.	GD11090	-	Housing
8.	GD11091	-	Socket Contact, No. 18
9.	GD11089	-	Sealing Plug
A.	G1K248	-	Harness Ends Repair Kit, Includes: (3) GD11079, (9) GD11081 And (9) GD11080 (Items 4-6)
B.	G1K252	-	Harness Ends Repair Kit, Includes: (3) GD11090, (9) GD11081, And (9)GD10091 (Items 6-8)

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