

MODEL 3800 FORWARD FOLDING PLANTER OPERATOR & PARTS MANUAL

M0181

Rev. 3/06

This manual is applicable to: Model: 3800 Forward Folding Planters
Serial Number: 755000 And On

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

Model Number 3800

Serial Number _____

Date Purchased _____

Monitor Serial No. _____
Measured Pulses Per Mile/Km (Radar Distance Sensor) _____
Measured Pulses Per Mile/Km (Magnetic Distance Sensor) _____

SERIAL NUMBER

The serial number plate is located on the center portion of the planter frame to be readily available. It is suggested that your 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 model number and serial number to your KINZE® Dealer when ordering parts or anytime correspondence is made with KINZE Manufacturing, Inc.

D032404106



PREDELIVERY/DELIVERY CHECKLIST

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 CHECKLIST

After the planter has been completely assembled, use the following checklist 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 are properly spaced and optional attachments are correctly assembled.
- The seed hoppers, closing wheels, row unit chains and meter drive clutches (clutches and chains shipped in hardware box) have been installed. See "Row Unit Assembly And Installation Instructions".
- Row markers are set at the correct length. See "Row Marker Length Adjustment" in the Machine Operation section of the Operator & Parts Manual. (If Applicable)
- 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 are routed correctly to prevent damage to hoses.
- Inflate tires to specified PSI air pressure. Tighten wheel lug bolts and lug nuts to specified torque.
- Check to be sure all safety decals are correctly located and legible. Replace if damaged.
- Check to be sure SMV sign is in place.
- Check to be sure safety/warning lights are installed correctly and working properly.
- Check to be sure the reflective decals are correctly located and visible when the planter is in transport position.
- Paint all parts scratched in shipment or assembly.
- Be sure all safety lockup devices are on the planter and correctly located.
- Check seed meters on test stand to ensure proper performance.

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 _____ Delivery Date _____

Street Address _____ Model No. 3800 Serial No. _____

City, State/Province _____ Dealer Name _____

ZIP/Postal Code _____ Dealer No. _____

DELIVERY CHECKLIST

At the time the planter is delivered, the following checklist is to be used as 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 reflective decals 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 CHECKLIST

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 warning signs (decals), SMV sign and reflective decals are correctly located and that decals are 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 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/or the words **NOTE, IMPORTANT, CAUTION, WARNING** or **DANGER** are used to call your attention to important information. The definition of each of these terms follows:

NOTE: Indicates a special point of information or addresses a machine adjustment.

IMPORTANT: Indicates information which, if not heeded, could result in damage to the machine.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate personal injury.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious personal injury.



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious personal injury.



WARNING: Some photos in this manual may show safety covers, shields or lockup devices removed for visual clarity. **NEVER OPERATE** the machine without all safety covers, shields and lockup devices 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. Additional copies of the Limited Warranty can be obtained through your KINZE® Dealer.

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.

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

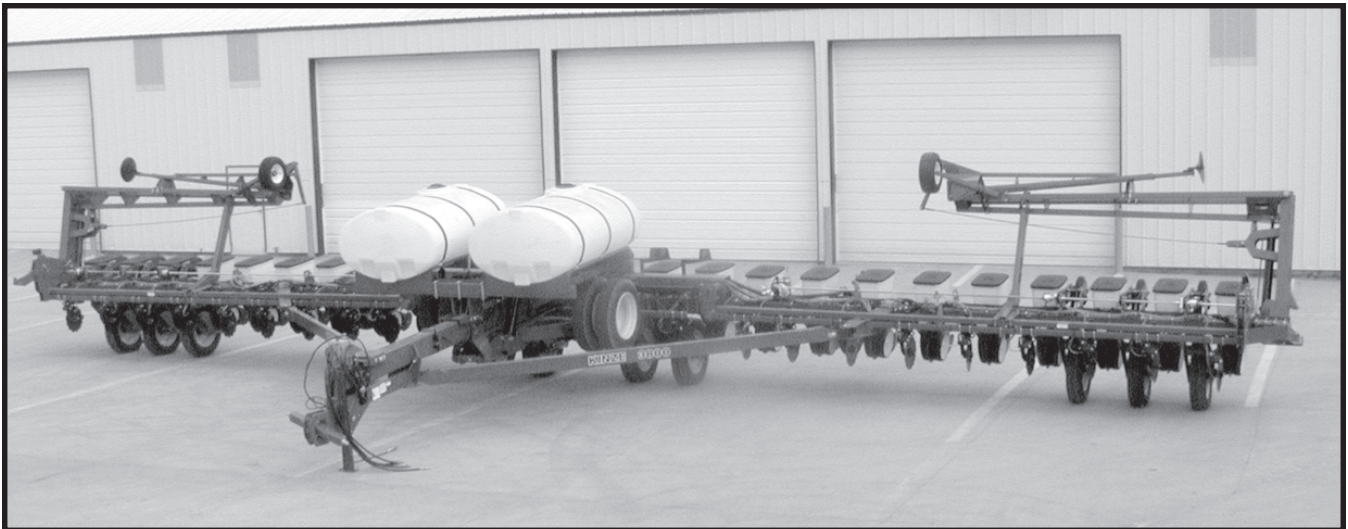
The Model 3800 Forward Folding Planter is available in various size configurations. The design permits installation of liquid fertilizer application equipment and various row unit attachments.

GENERAL INFORMATION

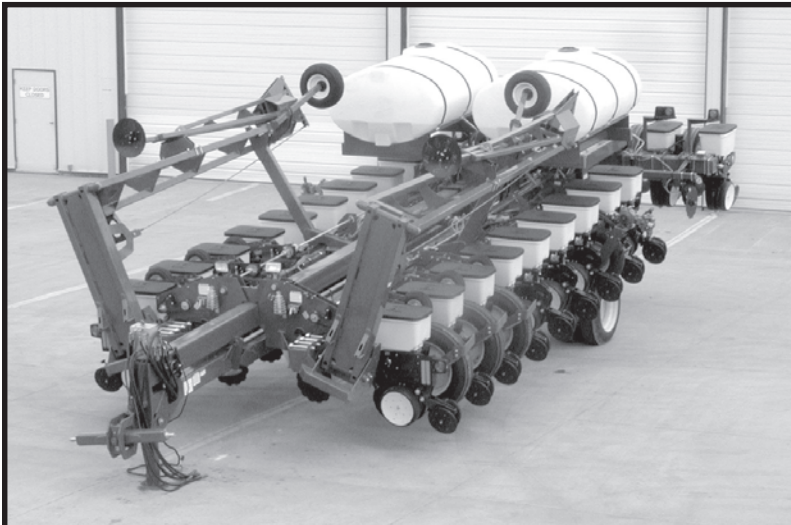
The information used in this manual was current at the time of printing. However, due to KINZE's continual attempts to improve its product, production changes may cause your machine to appear slightly different in detail. KINZE Manufacturing, Inc. reserves the right to change specifications or design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

Right hand (R.H.) and left hand (L.H.), as used throughout this manual, are determined by facing in the direction the machine will travel when in use unless otherwise stated.

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Model 3800 24 Row 30" Forward Folding Planter Shown With Optional Row Markers, Liquid Fertilizer Package, Piston Pumps And Notched Single Disc Fertilizer Openers

INTRODUCTION

SPECIFICATIONS

TYPE - Semi-Mounted/Pull Type - Forward Folding Toolbar - Hydraulic Operation

PLANTING UNIT TYPES - Pull Row Units

ROW SPACING - 24 Row Narrow - 30" Rows (Six Rows On Center Section, Nine Rows On Outer Wings)
- 32 Row Narrow - 30" Rows (Six Rows On Center Section, Seven Rows On Inner Wings, Six Rows On Outer Wings)
- 36 Row Narrow - 30" Rows (Six Rows On Center Section, Seven Rows On Inner Wings, Eight Rows On Outer Wings)

DRIVE SYSTEM - Spring-Loaded Contact Drive System
- Six 4.10" x 6" Contact Drive Tires
- No. 40 Roller Chain And Spring-Loaded Idlers
- Four Wing Mounted Transmissions/Four Equal-Drive Sections
 24 Row 30" - Four 6 Row Sections
 32 Row 30" - Four 8 Row Sections
 36 Row 30" - Four 9 Row Sections
- Point Row Clutches Standard (Four Clutches)
- $\frac{7}{8}$ " Hex Drill/Drive Shafts With U-Joint Shafts At Wing Hinges

FIELD OPERATION TIRES - Center Section - Four 255-70R 22.5 Radial Load Range H
- Wings - 7.50 x 20", 8 Ply Custom Rib Implement Adjustable Height Wheels (Six Wing Lift/Gauge Tires On 24 Row 30", Twelve Wing Lift/Gauge Tires On 32 Row 30" And 36 Row 30")

TRANSPORT TIRES - Four 9R22.5 12PR Radial Load Range F - Dedicated Transport Axle

ROW MARKERS (OPTIONAL) - Depth Band On Marker Blade
- 24 Row 30" - Three-Fold
- 32 Row 30" And 36 Row 30" - Four-Fold

HYDRAULICS - Three SCV For Independent Operation Of Field Lift, Fold Functions And Optional Row Marker Functions With 12 VDC Control Console
- Master/Slave Lift
 - Four 4" x 8" Master Cylinders, Four 3 $\frac{3}{4}$ " x 8" Slave Cylinders And Two 2 $\frac{1}{2}$ " x 8" Lift Assist Cylinders On 24 Row 30"
 - Four 4" x 8" Master Cylinders, Four 3 $\frac{3}{4}$ " x 8" Slave Cylinders, Four 3 $\frac{1}{2}$ " x 8" Slave Cylinders And Four 2 $\frac{1}{2}$ " x 8" Lift Assist Cylinders On 32 Row 30" And 36 Row 30"
- Transport Lift/Slide - One Slide Cylinder Under Tongue, Two Transport Axle Cylinders
- Wing Fold - Two Cylinders On 24 Row 30" - Four Cylinders On 32 Row 30" And 36 Row 30"
- Latch Cylinders - One Slide Latch Cylinder And One Tongue Latch Cylinder
- Row Markers - Two Primary Stage Cylinders; Two Link Assist Single Acting Cylinders On Four-Fold Markers

HITCH - Category 3, 3N

MACHINE OPTIONS

- KPM II Stack-Mode Electronic Seed Monitor With Magnetic Distance Sensor Or Radar Distance Sensor
- Half Rate (2 To 1) Drive Reduction Package
- Liquid Fertilizer Package
- Piston Pump Mount And Drive Package
- Notched Single Disc Fertilizer Openers
- Low Rate Check Valve Packages

SPECIFICATIONS

ROW UNIT OPTIONS/ATTACHMENTS

- Finger Pickup Or Brush-Type Seed Meters
- Closing Wheel Options
 - Rubber "V" Closing Wheels
 - Cast Iron "V" Closing Wheels
 - Covering Discs/Single Press Wheel
 - Drag Closing Attachment
- Granular Chemical Application
- Hopper Panel Extension Package
- Spring Tooth Incorporator
- Row Unit Extension Brackets
- 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 Coulter
- Residue Wheels For Frame Mounted Coulter

Dimensions/Operating

PLANTER SIZE	24 Row 30"	32 Row 30"	36 Row 30"
WIDTH	62' 6"	82' 6"	92' 6"
LENGTH	25' 0"	30' 0"	32' 6"

Dimensions/Transport

PLANTER SIZE	24 Row 30"	32 Row 30"	36 Row 30"
WIDTH (See NOTE Below)	14' 7"	14' 7"	14' 7"
CENTER-TO-CENTER OF OUTSIDE TIRES	8' 6"	8' 6"	8' 6"
OUTSIDE-TO-OUTSIDE TIRES	9' 4"	9' 4"	9' 4"
LENGTH	39' 0"	51' 0"	56' 0"
HITCH PIN TO CENTER OF TRANSPORT AXLE	28' 0"	34' 6"	38' 10"
HEIGHT (With Markers)	13' 6"	13' 6"	13' 6"

NOTE: Truck shipping width is 13' 9". Transport widths with optional granular chemical attachments are 15' 9".


PLANTER SIZE	24 Row 30"	32 Row 30"	36 Row 30"
WEIGHT* (Base With Markers)	25,262 Lbs.	31,640 Lbs.	35,658 Lbs.
HITCH WEIGHT IN TRANSPORT* (Base With Markers)	6,500 Lbs.	8,000 Lbs.	9,000 Lbs.

* Estimated base machine weights include planter frame, optional row markers, drive components, tires and wheels, hydraulic cylinders and hoses, 12VDC control console, KINZE® pull row units (closing wheel arms less closing wheels), seed hopper and lid, dual quick-adjustable down force springs and point row clutches.

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 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.**


 **Never permit any persons other than the operator to ride on the tractor.**


 **Never ride on the planter or allow others to do so.**


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


 **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.**

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

 **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.**


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

 **Before operating the planter for the first time and periodically thereafter, check to be sure the lug nuts on the transport wheels are properly torqued. This is especially important if the planter is to be transported for a long distance.**

 **Never work under the planter while in raised position without installing safety lockup devices.**


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


 **To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.**

 **This planter is designed to be DRIVEN BY GROUND TIRES ONLY. The use of aftermarket 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.**

 **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.**

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

 **Avoid transporting planter with hoppers loaded whenever possible. When it is necessary to transport the planter with the hoppers loaded, the added weight should be distributed evenly on the planter frame before folding the planter.**

 **Limit towing speed to 15 MPH. Tow only with farm tractor of a minimum 150 HP.**

SAFETY PRECAUTIONS



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



Allow for unit length when making turns.



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.



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



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



Avoid sudden uphill turns on steep slopes.



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



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 on the container and of the equipment manufacturer.



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



Make sure the parked machine is on a hard, level surface. Wheel chocks may be needed to prevent unit from rolling.



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

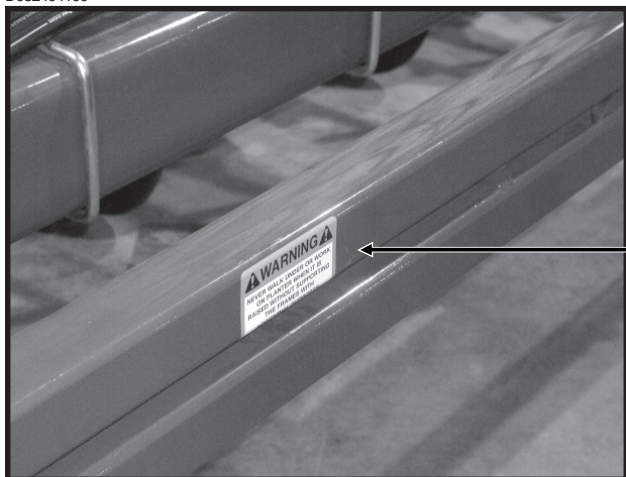
SAFETY WARNING SIGNS

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 the safety of 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 reflective decals and SMV sign periodically. Replace if they show loss of any of their reflective property.
- When replacing decals, clean the machine surface thoroughly using soap and water or cleaning solution to remove all dirt and grease.

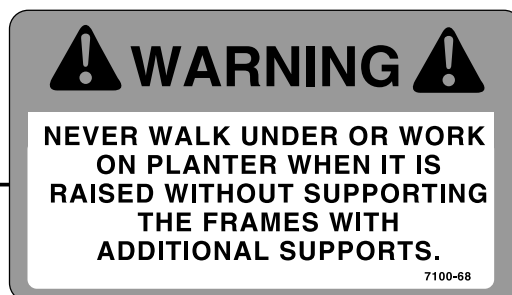
NOTE: Style and locations of SMV sign, reflective decals and safety/warning lights conform to ANSI/ASAE S279.12 DEC 02 and ANSI/ASAE S276.5 FEB 03.

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Part No. G7100-68 (Qty. 2 - One Located On Front Toolbar On Each Side Of Planter)

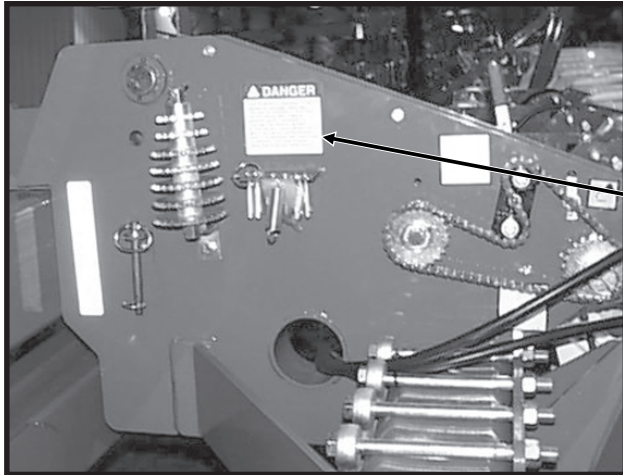
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Part No. G7100-68 (Qty. 2 - One Located On Front Toolbar On Each Side Of Planter)

SAFETY WARNING SIGNS

D11300416

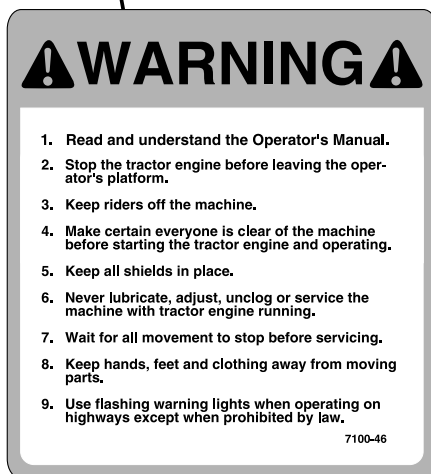


Part No. G7100-89 (Qty. 2 - One Located At End Seed Rate Transmission On Each Side Of Planter)

D11300404



Part No. G7100-56 (Qty. 1 - Located On Planter Hitch)



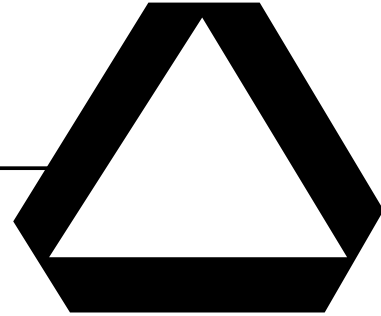
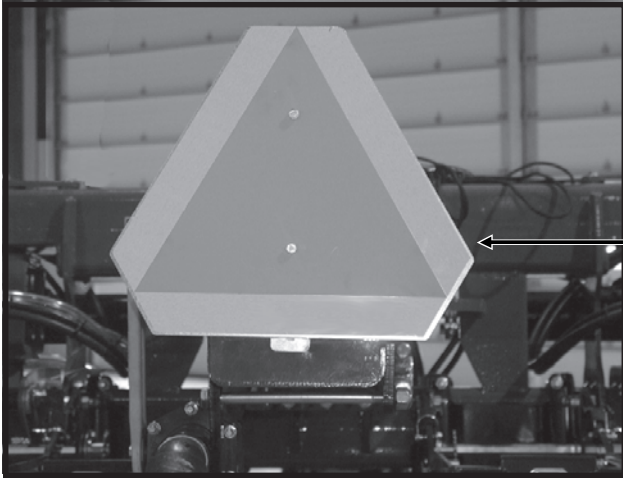
Part No. G7100-46 (Qty. 1 - Located On Planter Hitch)



Part No. G7100-117 (Qty. 1 - Located On Planter Hitch)

SAFETY WARNING SIGNS

D032404107



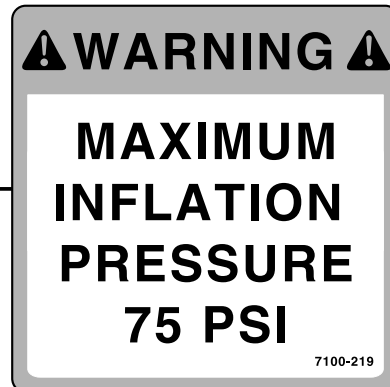
Part No. GD2199 (Qty. 1 - Located On Rear Center Section Of Planter)

D06039901



Part No. G7100-115 (Qty. 1 Per Row Unit - Located On Underside Of Optional Granular Chemical Hopper Lid)

D040204101

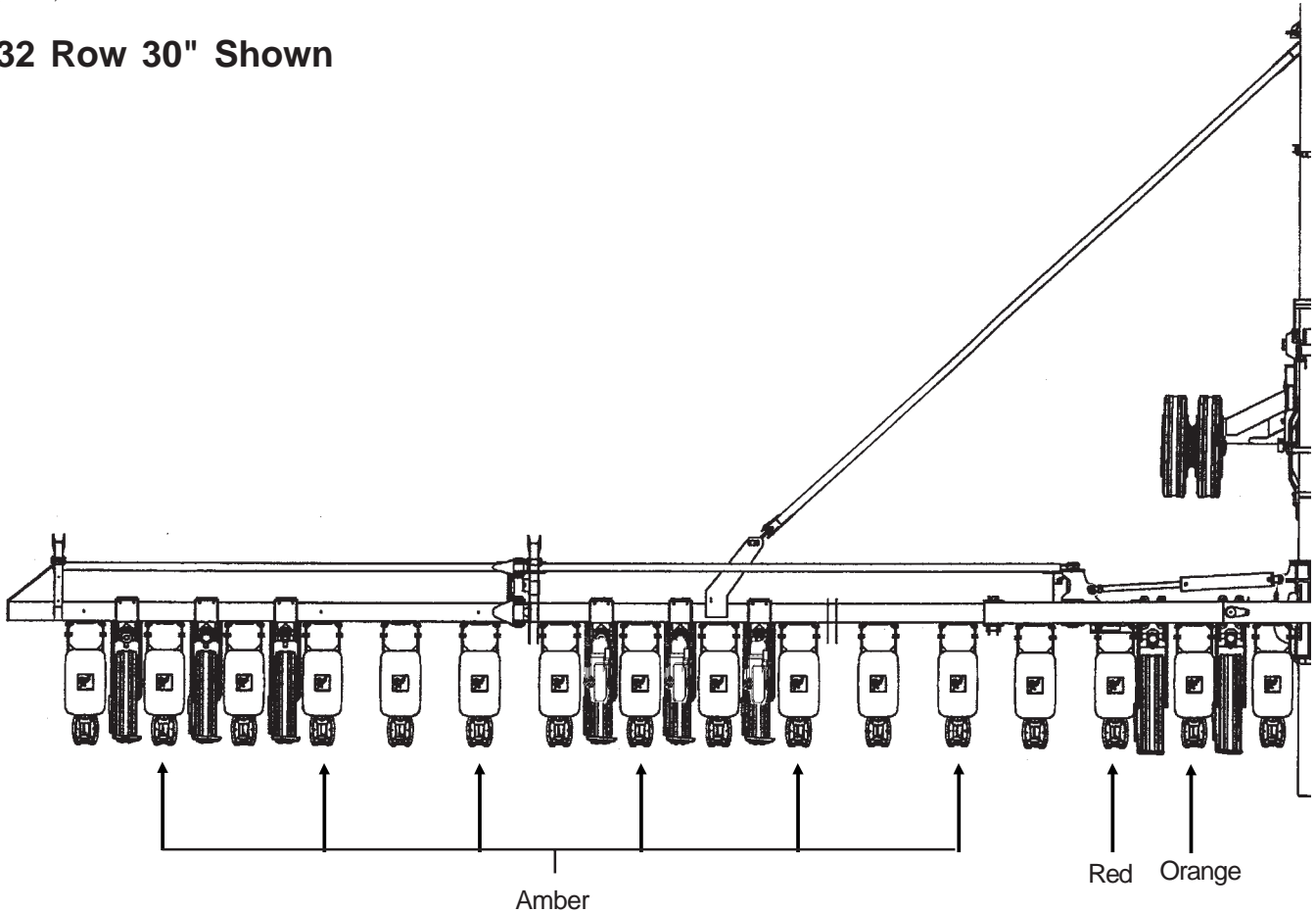


Part No. G7100-219 (Qty. 4 - One Per 255-70R22.5" Center Section Lift/Guage Tire)

SAFETY WARNING SIGNS

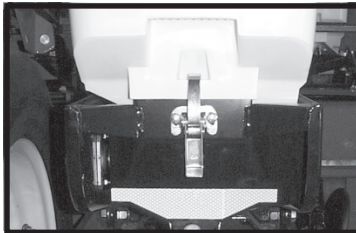
(FWD4a)

32 Row 30" Shown



Part No. G7100-262 Amber Reflective Decal (Located On The Hopper Support On Every Other Row Unit Beginning On The 2nd Row Unit In On The L.H. End Of The Planter - Side-Facing In Transport Position) **(Standard)** (If Applicable)

D060800114



Part No. G7100-261 Red Reflective Decal
Part No. G7100-260 Orange Reflective Decal (Located As Shown Above) **(Standard)** (If Applicable)



Part No. G7100-259 Amber Reflective Decal (Located On The Granular Chemical Hopper Panel Extension On Every Other Row Unit Beginning On The 2nd Row Unit In On The L.H. End Of The Planter - Side-Facing In Transport Position) **(With Optional Granular Chemical)** (If Applicable)

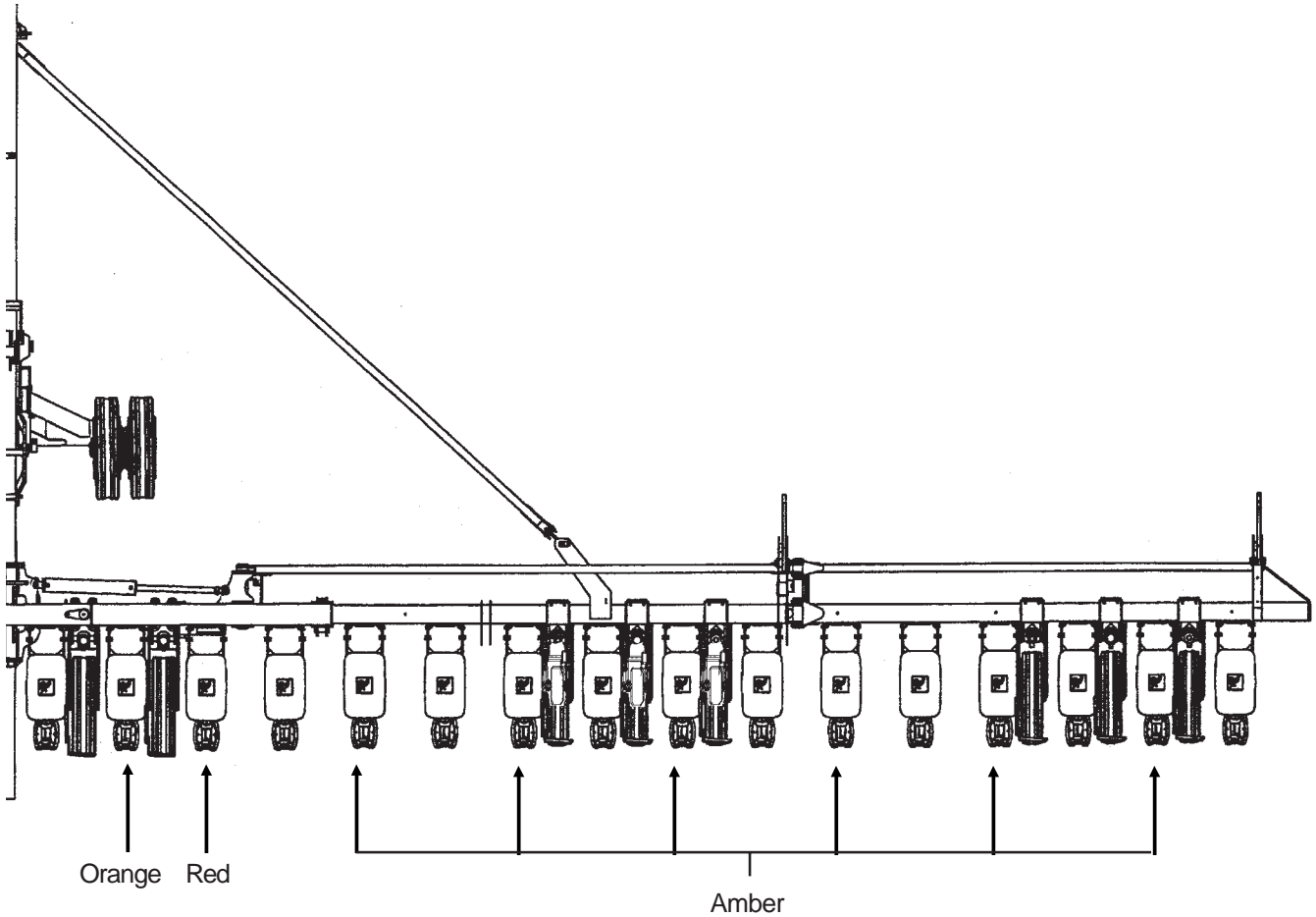
D062300102



Part No. G7100-258 Red Reflective Decal
Part No. G7100-260 Orange Reflective Decal (Located As Shown Above) **(With Optional Granular Chemical)** (If Applicable)

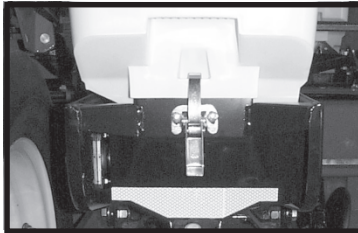
NOTE: Total 8 G7100-262 Amber Reflective Decals Used On 24 Row 30" , 12 Used On 32 Row 30" And 14 Used On 36 Row 30" Sizes

SAFETY WARNING SIGNS



Part No. G7100-261 Red Reflective Decal
 Part No. G7100-260 Orange Reflective Decal
 (Located As Shown Above)
(Standard) (If Applicable)

D060800114



Part No. G7100-262 Amber Reflective Decal (Located On The Hopper Support On Every Other Row Unit Beginning On The 2nd Row Unit In On The R.H. End Of The Planter - Side-Facing In Transport Position)
(Standard) (If Applicable)



Part No. G7100-258 Red Reflective Decal
 Part No. G7100-260 Orange Reflective Decal
 (Located As Shown Above)
(With Optional Granular Chemical)
 (If Applicable)

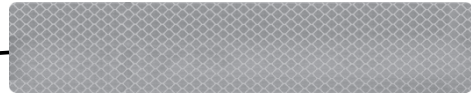
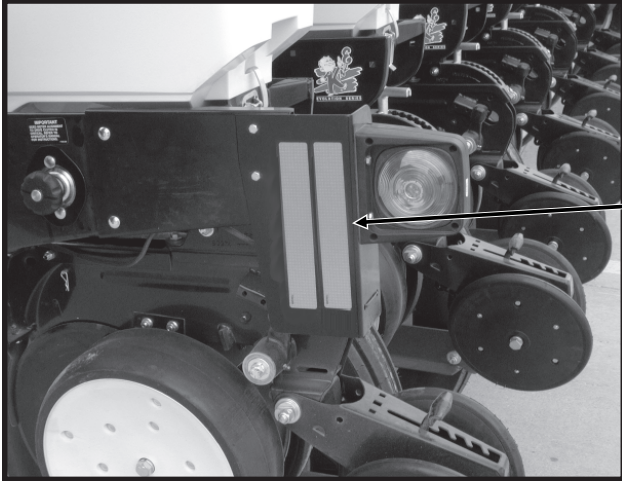
D062300102



Part No. G7100-259 Amber Reflective Decal (Located On The Granular Chemical Hopper Panel Extension On Every Other Row Unit Beginning On The 2nd Row Unit In On The R.H. End Of The Planter - Side-Facing In Transport Position) **(With Optional Granular Chemical)**
 (If Applicable)

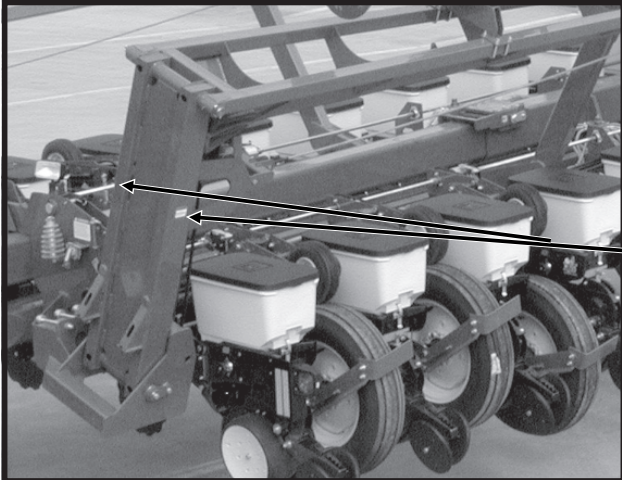
SAFETY WARNING SIGNS

D040604130a



Part No. G7100-259 Amber Reflective Decal
(Qty. 4 - Two Located On Each End Row Unit -
Forward-Facing In Transport Position)

D040604105



Part No. G7100-42 (Qty. 4 - Two Per Optional Row
Marker)

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.

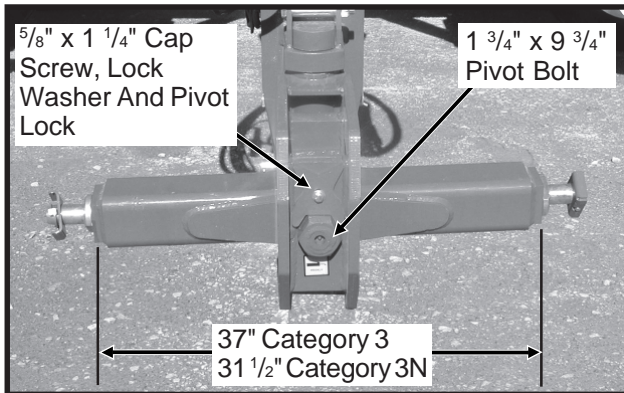
IMPORTANT: Always raise the planter out of the ground when making sharp turns or backing up.

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.

A 37" Category 3 hitch bar and a 31 1/2" Category 3N hitch bar are shipped with the planter.

D040604101



To exchange hitch bars, remove 5/8" x 1 1/4" cap screw, lock washer and pivot lock. Remove 1 3/4" x 9 3/4" pivot bolt and slide the hitch bar out of hitch pivot. Install alternate hitch bar through hitch pivot and install 5/8" x 1 1/4" cap screw, lock washer, pivot lock and 1 3/4" x 9 3/4" pivot bolt.

Torque hitch adapter pins and pivot bolt to 550 ft. lbs.

TRACTOR REQUIREMENTS

Consult your dealer for information on horsepower requirements and tractor compatibility. Requirements will vary with planter options, tillage and terrain. Three dual remote hydraulic outlets (SCV) are required on all sizes. A 12 volt DC electrical system is required on all sizes.

NOTE: The tractor's 3 point hitch must have a minimum 10,000 lbs. lift capacity to raise the hitch weight of the machine, attachments, seed and dry chemicals.

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.

NOTE: A quick-attaching coupler (quick hitch) is NOT RECOMMENDED.

NOTE: Tractor drawbar may need to be removed to provide clearance for the planter.

TRACTOR PREPARATION AND HOOKUP

Correct adjustment and operation of the tractor's 3 point hitch is very important in realizing peak performance of the planter.

The tractor's 3 point hitch must be in POSITION mode, not DRAFT mode. Operation in DRAFT mode can cause the hitch to move up and down causing unlevel operation of the planter.

The tractor's 3 point hitch response sensitivity settings should be adjusted for the correct reaction speed for raising/controlling the hitch of the planter for the fold and unfold functions.

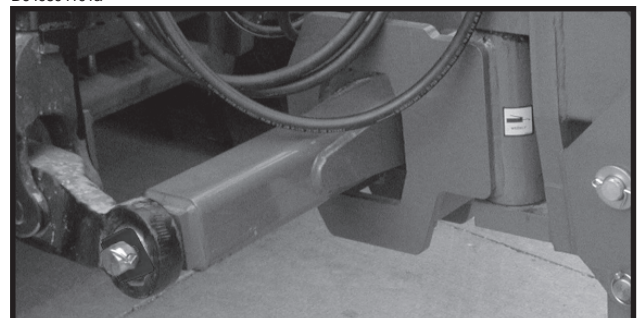
IMPORTANT: Movement of the tractor's 3 point hitch (during field operation) is undesirable and may cause poor planter performance and/or damage to the planter. Consult your tractor dealer if necessary.

1. Install control console on tractor in a convenient location within reach of the operator and close to the hydraulic controls. Mount control console securely and route power cord to the power source.

The control console operates on 12 volt DC only. If two 12 volt batteries are connected in series, ALWAYS make power connection on battery which is grounded to tractor chassis.

2. Set tractor rear wheel spacing at 60" or double the planter row spacing. The outside tire should center on 120". Check tractor operator's manual for correct front and rear tire pressures. (If Applicable)
3. Adjust lower 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.
4. Back tractor up to planter and connect planter.

D040604101a



MACHINE OPERATION

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

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

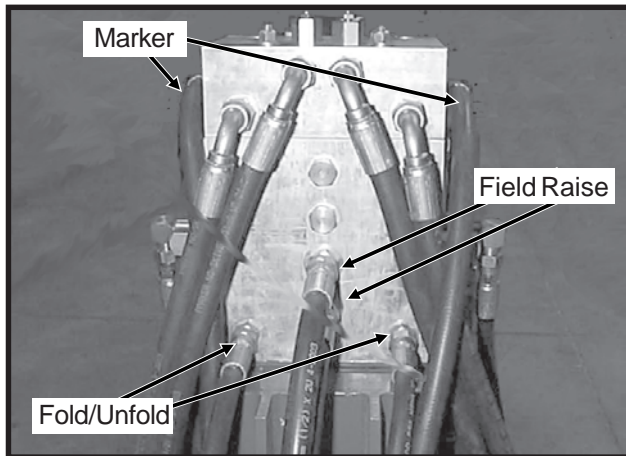
The hydraulic hoses are color-coded as follows:

Red AA - Field Raise Function (Return)
Red BB - Field Raise Function (Pressure)

Black AA - Fold/UnFold Functions (Return)
Black BB - Fold/UnFold Functions (Pressure)

Blue AA - Row Marker Functions (Return)
Blue BB - Row Marker Functions (Pressure)

D093004101



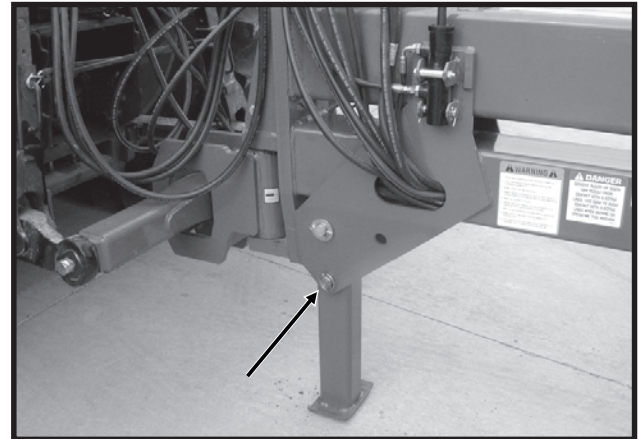
DANGER: Before applying pressure to the hydraulic system, make sure all connections are tight and hoses and fittings have not been damaged. Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin, causing injury or infection.

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

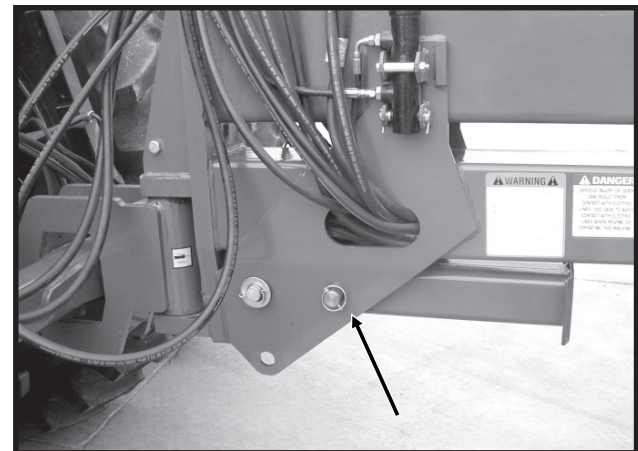
6. Connect cable on planter to control console cable on tractor. Connect ASAE Standards 7 terminal connector for safety/warning lights on planter to ASAE Standards receptacle on tractor. If your tractor is not equipped with an ASAE Standards receptacle, check with your tractor manufacturer for availability.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

7. Raise planter slowly and watch for any interference. Remove pin from jack stand and swing jack stand to the horizontal position. Install pin in storage position.

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D040604100



8. For proper operation of the planter and row units, it is important that the planter toolbars and row unit parallel arms be level side-to-side and front-to-rear. The toolbar should operate at a 20"-22" 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".

NOTE: The transport axle cylinders are equipped with counter balance valves which hydraulically lock the cylinders when not in use.



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

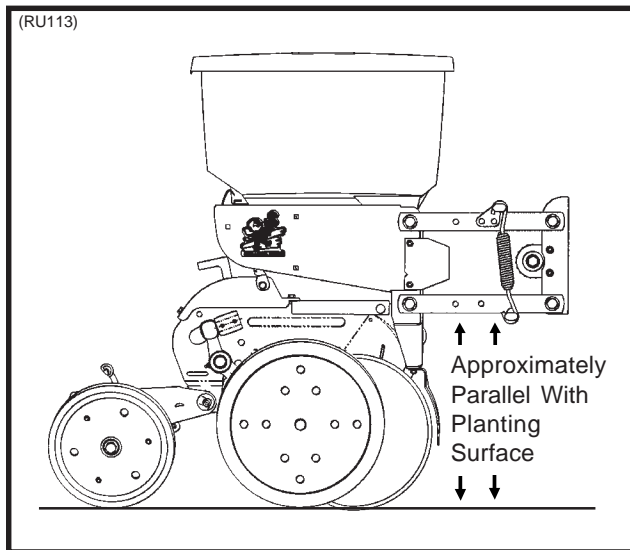
MACHINE OPERATION

LEVELING THE PLANTER

With the planter lowered to proper operating height, check to be sure the toolbar and row unit parallel arms are level fore and aft. Recheck when planter is in the field.

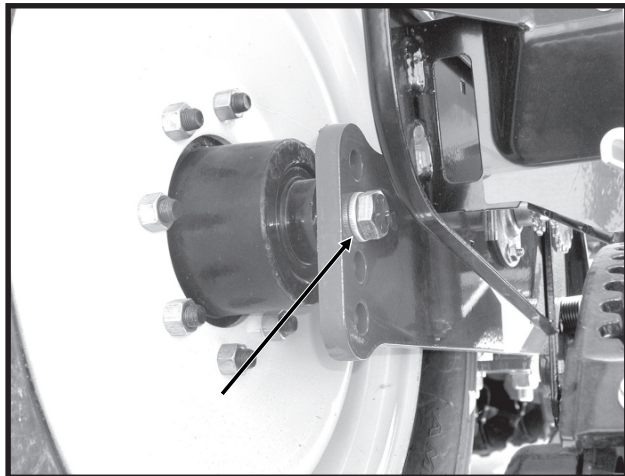
It is important for the planter to operate level laterally. Tire pressure must be maintained at pressures specified. See "Tire Pressure".

Field and actual planting conditions will dictate which of the wheel settings to use to ensure row unit parallel arms are approximately parallel with the planting surface.



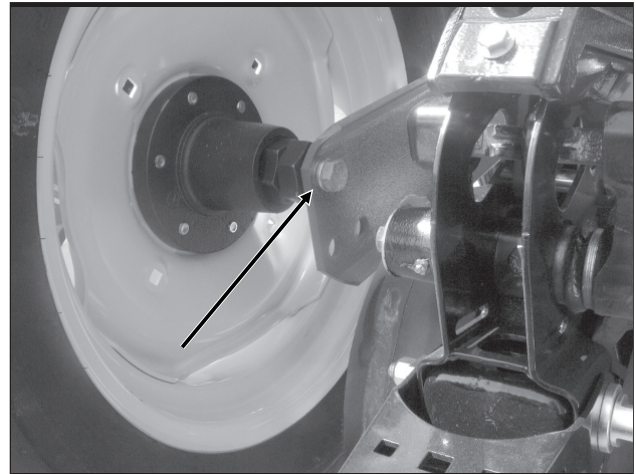
When the planter has been fully loaded with seed, granular chemicals, etc.; a field check should be made to be sure the wings are level with the center frame. If the wings are not level with the center frame, the lift/gauge wheels can be raised or lowered in the wheel arms to increase or decrease planter toolbar height. Hitch height should be raised accordingly to ensure level operation.

D040604201



Center Section Lift/Gauge Wheel (Rock Shaft Axle) - Initial Setting Shown

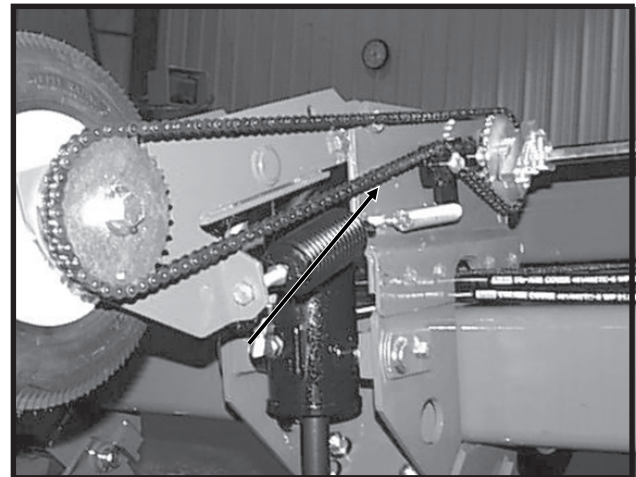
D033104202



Wing Lift/Gauge Wheel - Initial Setting Shown

NOTE: To allow adequate drive force after lowering the lift/gauge wheels, it may be necessary to lower the contact drive wheel arms and springs to the lower sets of holes in the wheel modules.

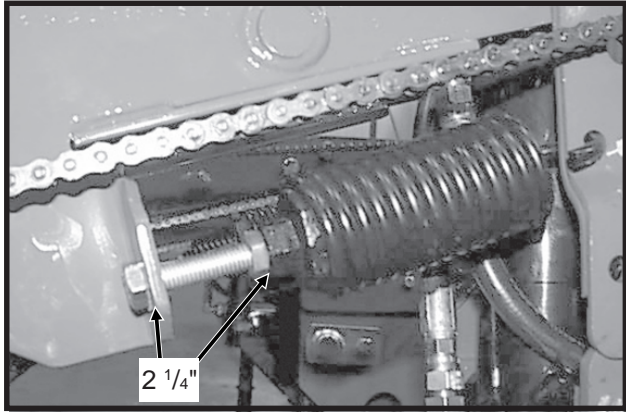
D11300414



MACHINE OPERATION

CONTACT DRIVE WHEEL SPRING ADJUSTMENT

D102704100



There are two down pressure springs on each contact drive wheel. The down pressure is factory preset and should need no further adjustment.

The spring tension is set leaving 2 1/4" between the spring plug and the bolt head.

CONTACT DRIVE WHEEL IDLER ADJUSTMENT

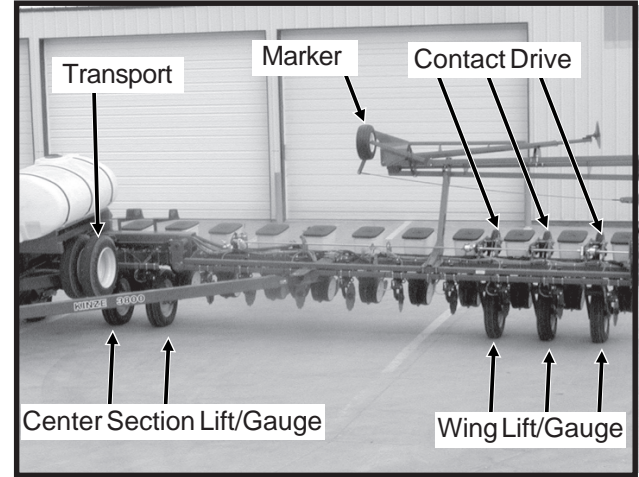
D11300414



The 3/8" nut on the bolt that attaches the drive wheel idler must be tightened so the idler is free to rotate under spring load but tight enough so the cap screw is stable.

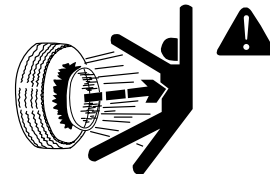
TIRE PRESSURE

D040604123



Tire pressure should be checked regularly and maintained as follows:

- (4) 255-70R 22.5" Radial Load Range H,
Center Section Lift/Gauge 75 PSI
- (6-12) 7.50" x 20" 8 Ply Custom Rib Implement,
Wing Lift/Gauge 40 PSI
- (4) 9R22.5 12PR Radial Load Range F,
Transport 105 PSI
- (6) 4.10" x 6" Contact Drive 50 PSI
- (2) 20.5" x 8.0" Marker 35 PSI
- (2) 7.60" x 15" Ground Drive,
Liquid Fertilizer Piston Pump 40 PSI



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

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. This should only be done by persons properly trained and equipped to do the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

When inflating tires, use a clip-on air chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage to enclose the tire and rim assembly when inflating.

Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

MACHINE OPERATION

SEED RATE TRANSMISSION ADJUSTMENT

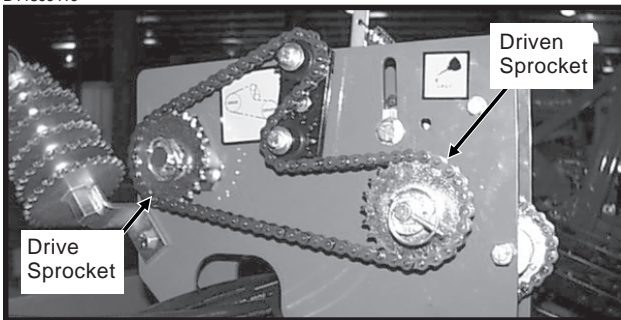
Planting population rate changes are made at each of the four transmission assemblies. The seed rate transmissions are designed to allow simple, rapid changes in sprockets to obtain the desired planting population. By removing the lynch pins on the hexagon shafts, sprockets can be interchanged with those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

Chain tension is controlled by spring-loaded, dual-sprocket idlers. The idler assembly is adjusted with a easy-release idler arm. See "Wrap Spring Wrench Operation". This arm has a release position to remove spring tension for replacing sprockets. The amount of spring tension on the chain is controlled by the idler arm.

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

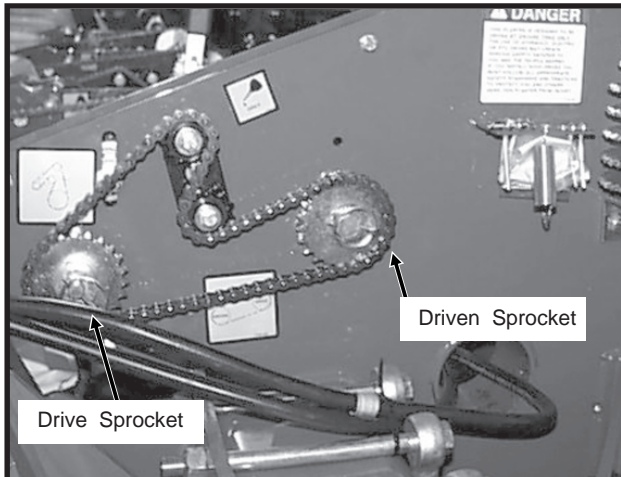
All seed rate transmissions should be set equally.

D11300410



Inner Seed Rate Transmission

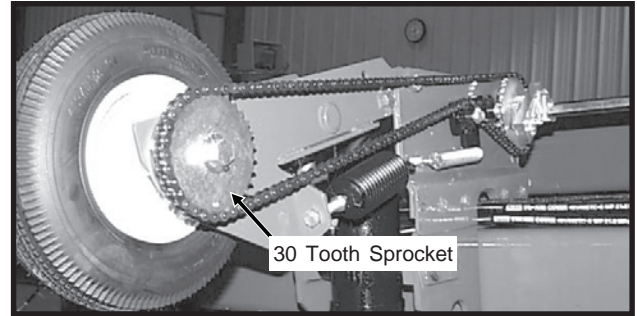
D11300417



Outer Seed Rate Transmission

STANDARD RATE DRIVE

D11300414



Seed planting rate charts are based on the standard rate drive. The standard rate drive uses a 30 tooth sprocket on each contact wheel. Using the 15 tooth reduced rate sprocket in place of the 30 tooth sprocket will reduce the planting and application rates by approximately 50%. See "Half Rate (2 To 1) Drive".

HALF RATE (2 TO 1) DRIVE

D070699113a



Half rate (2 to 1) drive is recommended only when desired population falls below that shown on planting rate charts. Replace the 30 tooth sprocket on each contact wheel with a 15 tooth sprocket. This will reduce the planter transmission speed and reduce planting and application rates by approximately 50%.

NOTE: After each sprocket combination adjustment, make a field check to be sure you are planting at the desired rate.

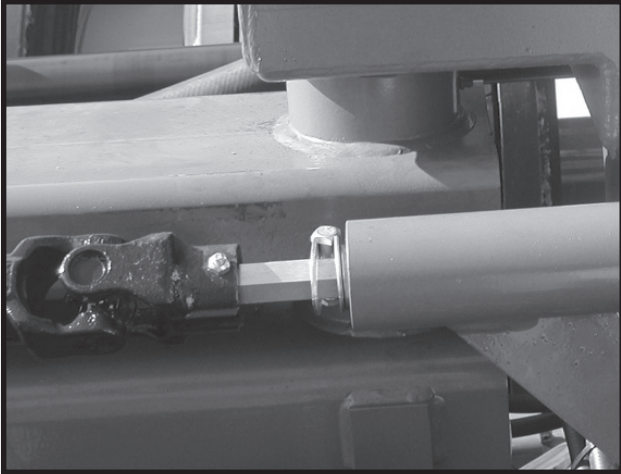
MACHINE OPERATION

U-JOINT SHAFT ASSEMBLIES

A U-joint shaft assembly is used between the center section of the planter and the wing assembly on each half of the planter to allow up and down wing movement.

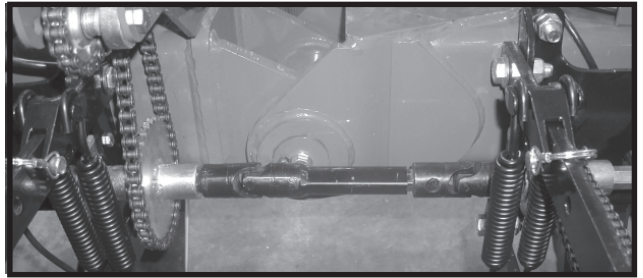
See "Grease Fittings" in the Lubrication Section of this manual.

D081905101



On 32 Row 30" and 36 Row 30" planters a U-joint shaft assembly is used to span the area between the inner and outer wing assemblies and allow up and down wing movement on each half of the planter. These U-joint shafts are lubricated for life.

D11050407



R.H. Side Of 32 Row 30" Planter Shown

MACHINE OPERATION

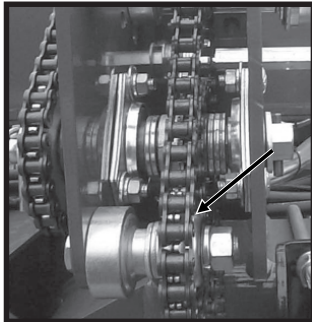
REVERSER CHAIN TENSION ADJUSTMENT

The transmission output or reverser chain is routed from the 17 tooth output sprocket on the transmission output shaft to the 34 tooth driven sprocket on the drill shaft. The chain can be tensioned by sliding the upper 18 tooth idler sprocket in the slot. Loosen the 1/2" hex head cap screw holding the idler sprocket and move the sprocket upwards to tighten the chain. Chain tension should be set to maintain 1/2" - 3/4" overall movement in the slack side of the chain. After making adjustment, tighten 1/2" cap screw.



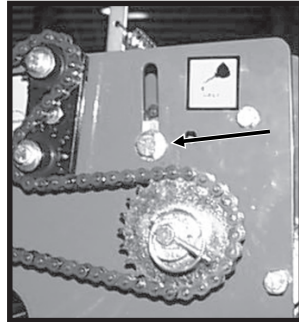
CAUTION: Reverser chain routing is critical to maintain idler alignment and to prolong idler life. Correct chain routing is shown on the decal at each location.

D102704114



18 Tooth Idler Sprocket

D11300410



To Adjust Chain Tension Slide Upper 18 Tooth Idler Sprocket In Slot

WRAP SPRING WRENCH OPERATION

The chain idler is equipped with a wrap spring wrench. Chain tension is released and/or added as shown below.

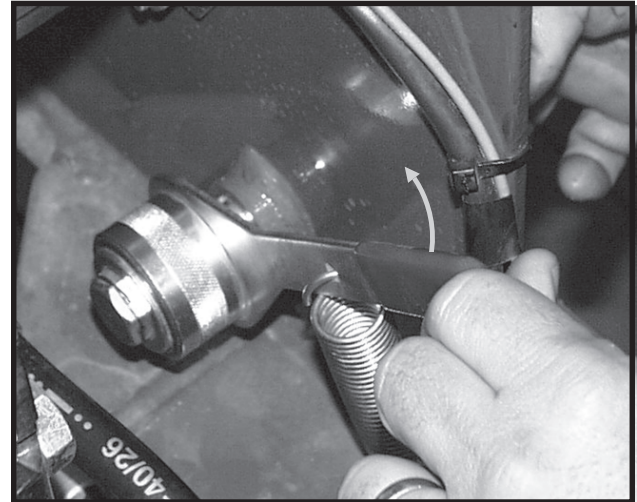
To release chain tension, rotate the knurled collar on the wrap spring wrench while rotating the chain idler away from the chain.

D10290305



To add chain tension, rotate chain idler into the chain while rotating handle to tension idler spring.

D10290304



MACHINE OPERATION

SHEAR PROTECTION

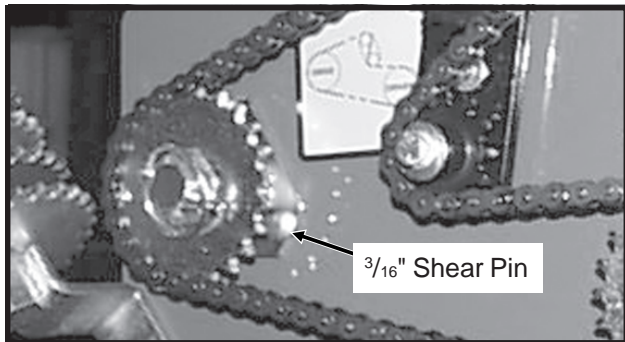
The planter driveline, row unit and fertilizer components are protected from damage by shear pins.

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.

Additional shear pins can be found in the storage area located at each end of the planter toolbar.

To prevent future binding or breakage of components, check driveline alignment and follow prescribed lubrication schedules.

D11300410



Seed Rate Transmission Shaft



DANGER: To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.

All Model 3800 planters are equipped to operate from three dual remote hydraulic outlets (SCV).

Four point row clutches are standard equipment to allow four equal sections across the planter to be engaged/disengaged.

The marker and point row selector switches are an ON-OFF-ON type.

The transport axle and wing fold switches are MOMENTARY ON-OFF-MOMENTARY ON type and must be held in position while operating the tractor hydraulic lever. Activating a fold function switch disables the marker circuit.

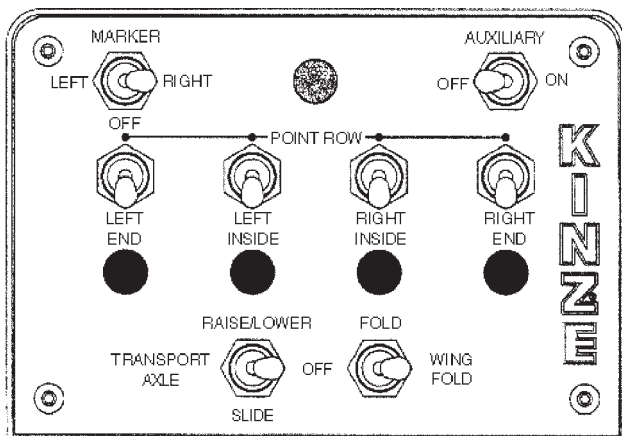


WARNING: To ensure the safety of the operator and others nearby, the marker selector switch should be placed in its OFF (center) position when not in use. An indicator light on the control box panel is ON whenever the marker circuits or point row clutch circuits are energized.

The auxiliary switch is an ON-OFF type switch which is used in conjunction with the hydraulic row marker/folding functions control lever to operate optional attachments. All 3800 planters are shipped with the auxiliary switch installed in the control console. The auxiliary switch must be in the OFF position to enable other functions.

HYDRAULIC/ELECTRIC OPERATION

(FWD30a)



The tractor's hydraulic system and switches on the control console located on the tractor are used to raise the planter to transport position, operate the fold functions and raise and lower the row markers.

NOTE: Activating the auxiliary switch disables all other control console switches except the point row clutch switches.

NOTE: The lift cylinders are (port type) rephasing cylinders. It is necessary for the cylinders to fully retract before they will rephase in the lowered position. Cylinder stops cannot be used.



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

MACHINE OPERATION

TRANSPORT TO FIELD SEQUENCE

Position the planter in a relatively flat open area. Try to avoid an area with furrows, etc.

SUMMARIZED TRANSPORT TO FIELD SEQUENCE

- Remove wing latch hook safety pin(s) from transport (locked) positions and place in storage locations provided.
- Raise field tires/wheels and hold to rephase.
- Fully raise planter using transport axle.
- Slide transport axle to rear position.
- Lower field tires/wheels.
- Lower rear of planter using transport axle until field tires touch the ground.
- Partially lower tractor 3 point hitch to release wing latch hooks.
- Fold planter into planting position.
- Fully raise transport axle tires/wheels.
- Lower 3 point to level hitch position.

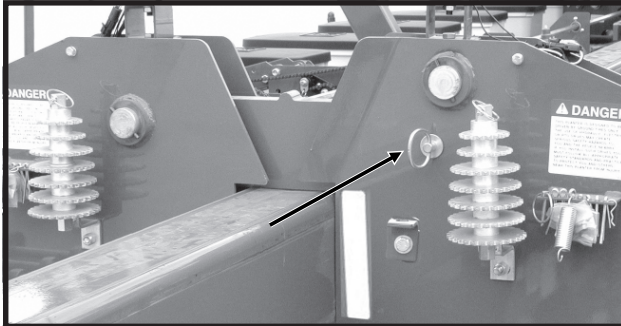
NOTE: Read the following information for more detailed instructions.

D040604102

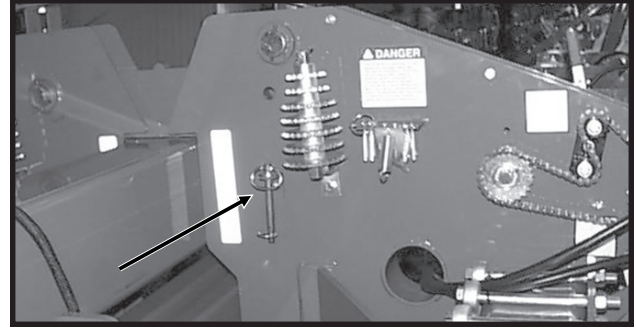


1. Remove wing latch hook safety pin(s) from transport positions and place in storage locations provided.

D040604143a

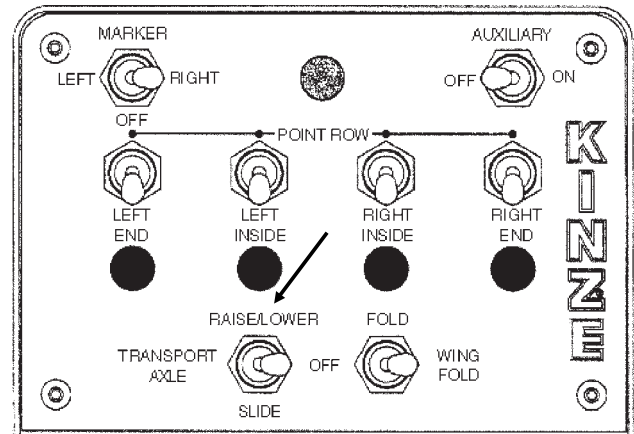


D11300416



2. Operate the field raise function hydraulic lever to raise the field tires/wheels. Hold the hydraulic lever to rephase the hydraulic system.
3. Hold the control console switch labeled TRANSPORT AXLE in **RAISE/LOWER** and operate the fold/unfold functions hydraulic lever to fully raise the rear of the planter using the transport axle.

(FWD30a)



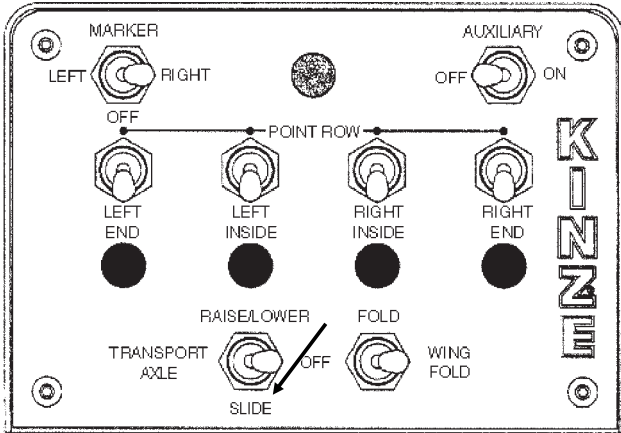
D040604107



MACHINE OPERATION

- Hold the control console switch labeled **TRANSPORT AXLE** in **SLIDE** and operate the fold/unfold functions hydraulic lever to move the transport axle to the rear position.

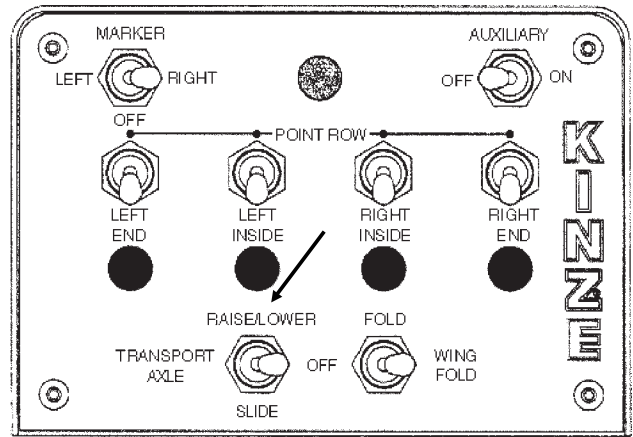
(FWD30a)



- Hold the control console switch labeled **TRANSPORT AXLE** in **RAISE/LOWER** and operate the fold/unfold functions hydraulic lever to lower the rear of the planter, with the transport axle, until the field tires touch the ground.

IMPORTANT: DO NOT retract the transport cylinders completely or damage will occur to the driveline and transport tires. The weight of the planter should be on the field tires, but the transport axle tires should remain on the ground during folding.

(FWD30a)



D040604103



- Operate the field raise function hydraulic lever to lower the field tires/wheels.

D040604106



D040604107

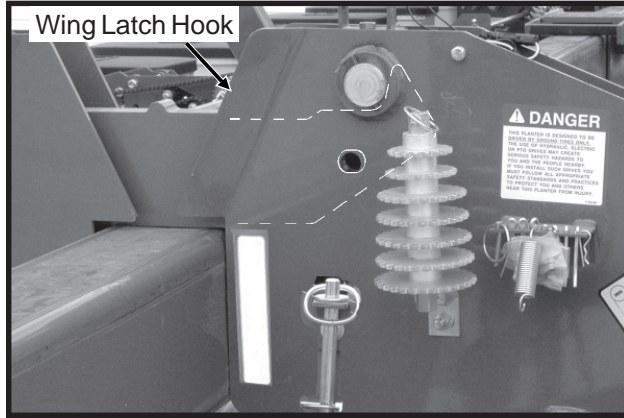


MACHINE OPERATION

- Partially lower the tractor 3 point hitch to release the wing latch hooks.

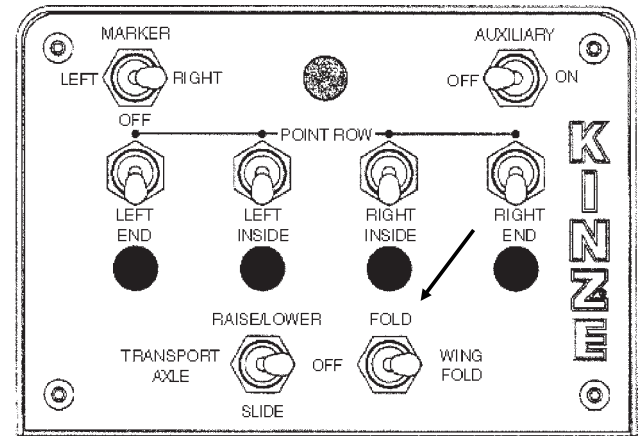
IMPORTANT: Only lower 3 point hitch until wing latch hooks release. DO NOT lower hitch further or damage will occur at the rear of the wing folding links.

D040604144/A10104a



- Hold the control console switch labeled WING FOLD in **FOLD** and operate the fold/unfold functions hydraulic lever to unfold the planter. The tongue will begin to retract and the wings will begin to unfold carried on the wing wheels. Place the tractor transmission in neutral or a low reverse gear. Allow the tractor to roll in reverse as the planter unfolds. The center axle tires should remain stationary and the wing tires should roll in a continuous arc with minimal side loading on the tires or their mounting structure.

(FWD30a)



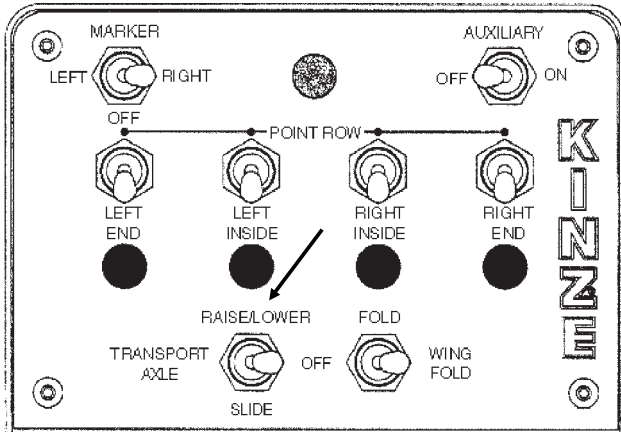
D040604108



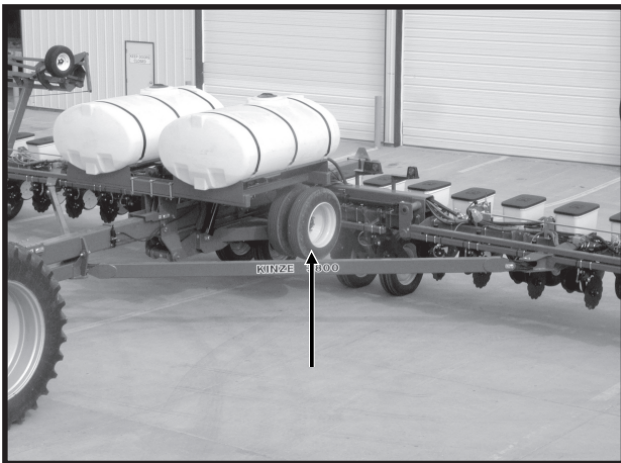
MACHINE OPERATION

- Hold the control console switch labeled TRANSPORT AXLE in **RAISE/LOWER** and operate the fold/unfold functions hydraulic lever to raise the transport axle wheels to the fully raised planting position.

(FWD30a)

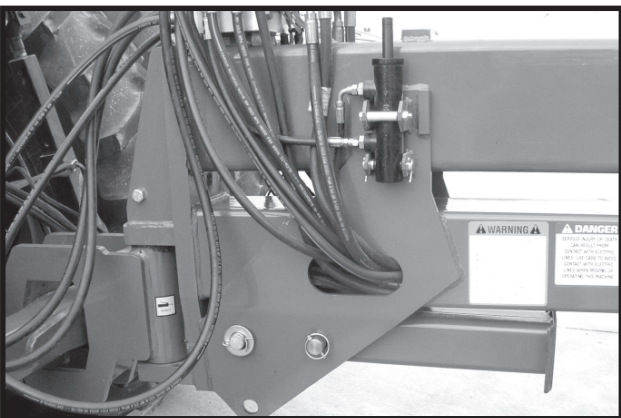


D040604111



- Lower the 3 point to level hitch position.

D040604100



FIELD OPERATION

Normal operation in the field while planting requires the use of the tractor's hydraulic lever to raise and lower the planter frame when making field turn arounds.

Operate row markers with the control console switch for that marker in the ON (LEFT or RIGHT) position and the tractor's hydraulic lever. After markers are lowered to the ground, move the hydraulic lever to operate markers in float position. Marker speed is controlled with flow control valves located in the valve block on the planter hitch. One valve controls the raise speed of both markers while the other valve controls the lower speed of both markers. See "Row Marker Speed Adjustment" and "Row Marker Operation".

D040604111



MACHINE OPERATION

FIELD TO TRANSPORT SEQUENCE

Position the planter in a relatively flat open area. Try to avoid an area with furrows, etc.

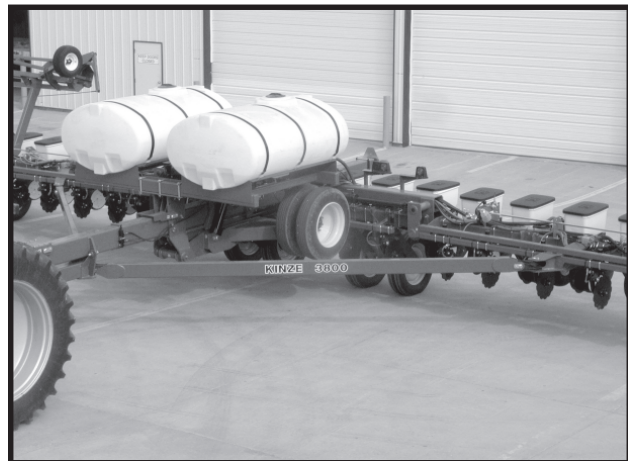
SUMMARIZED FIELD TO TRANSPORT SEQUENCE

- Raise planter to field turn height.
- Lower transport axle to the ground.
- Fold planter to transport position.
- Raise front of planter using tractor 3 point hitch.
- Raise rear of planter using transport axle.
- Slide transport axle forward into transport position.
- Raise field tires/wheels.
- Remove wing latch hook safety pin(s) from storage locations and install in locked positions.

NOTE: Read the following information for more detailed instructions.

1. Operate the field raise function hydraulic lever to raise the planter to raised field height.

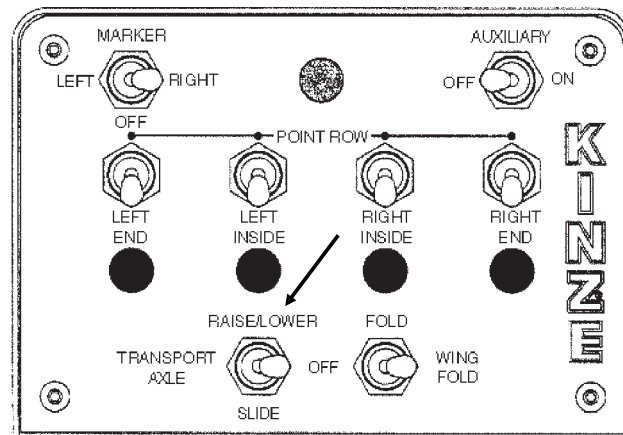
D040604111



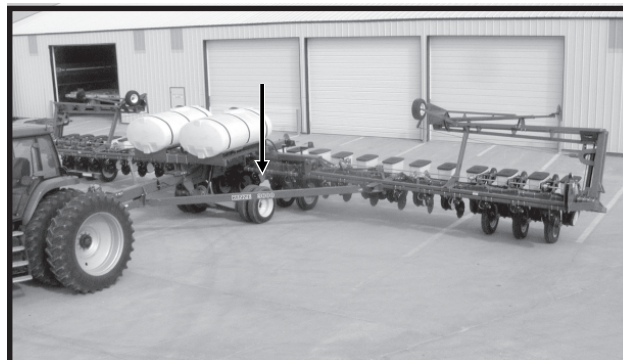
2. Hold the control console switch labeled TRANSPORT AXLE in **RAISE/LOWER** and operate the fold/unfold functions hydraulic lever to lower the transport axle wheels to the ground.

IMPORTANT: Lower transport axle tires until weight begins to transfer onto transport axle tires. DO NOT carry the full weight of the planter on the transport axle wheels during folding.

(FWD30a)



D040604109

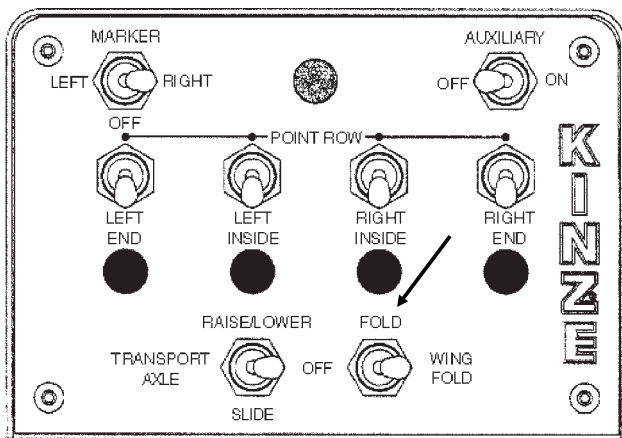


MACHINE OPERATION

3. Hold the control console switch labeled WING FOLD in **FOLD** and operate the fold/unfold functions hydraulic lever to fold the planter to transport position. It is necessary to **slowly** idle the tractor forward as you fold the planter, allowing the center axle tires to remain stationary and the wing tires to roll in a continuous arc with minimal side loading on the tires or their mounting structure.

IMPORTANT: Use the tractor 3 point control to adjust the hitch height as necessary to make sure the wing latch hooks pass over the hitch and engage the latch pins.

(FWD30a)

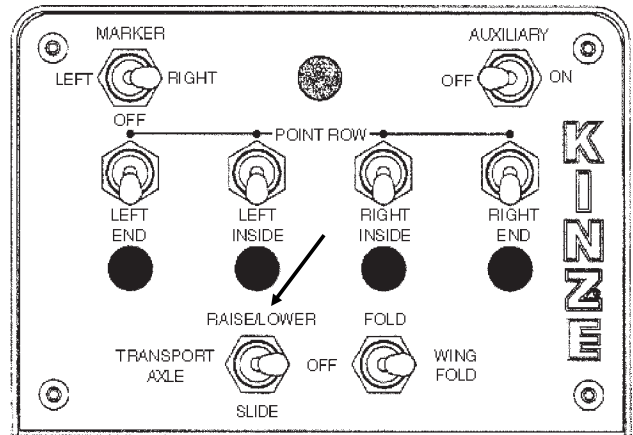


D040604108



4. Raise the front of the planter using the tractor 3 point hitch.
5. Hold the control console switch labeled TRANSPORT AXLE in **RAISE/LOWER** and operate the fold/unfold functions hydraulic lever to fully lower the transport axle wheels.

(FWD30a)



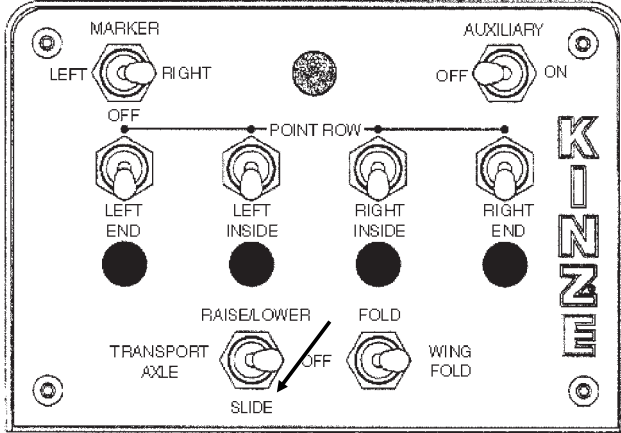
D040604107



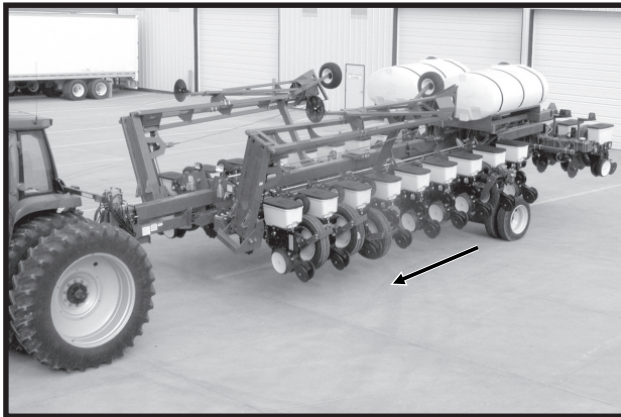
MACHINE OPERATION

6. Hold the control console switch labeled **TRANSPORT AXLE** in **SLIDE** and operate the fold/unfold functions hydraulic lever to slide the transport axle fully forward into transport position.

(FWD30a)

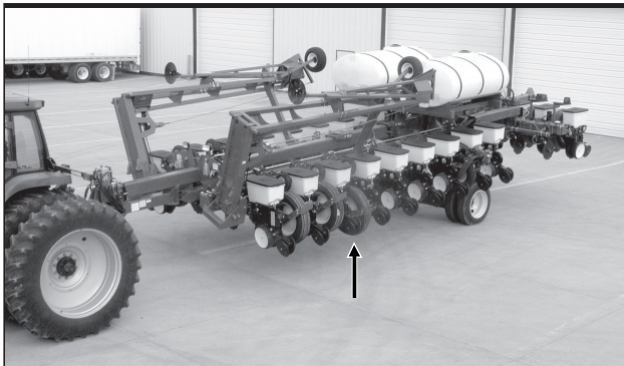


D040604103



7. Operate the field raise function hydraulic lever to raise the field tires/wheels.

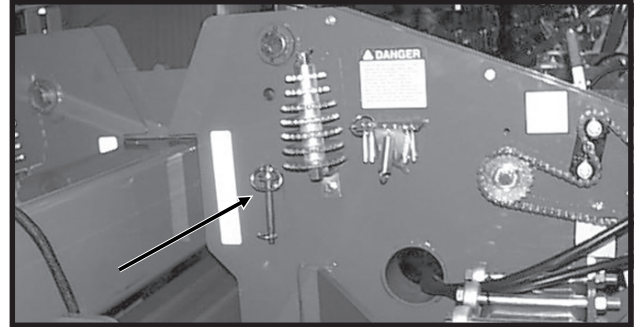
D040604102



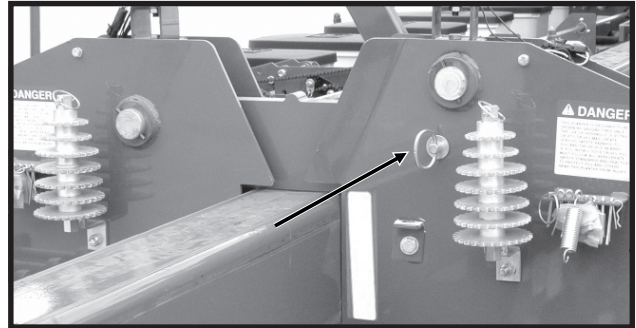
NOTE: The transport axle cylinder circuit is equipped with counter balance valves which hydraulically lock the cylinders when not in use.

8. Remove wing latch hook safety pin(s) from storage locations and install in locked positions.

D11300416



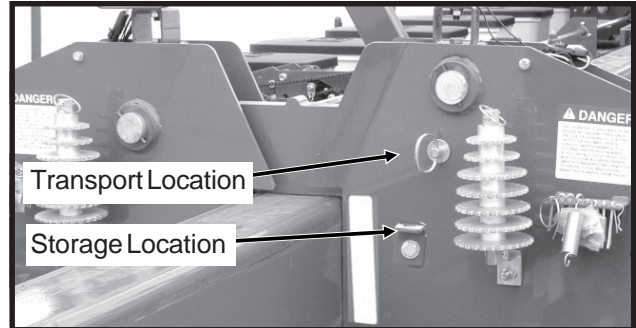
D040604143a



WING LATCH HOOK SAFETY PIN(S)

The wing latch hook safety pin(s) when installed will prevent the latch bar from disengaging and allowing the planter frame to swing away. Never transport the planter without installing the wing latch hook safety pin(s).

D040604143a

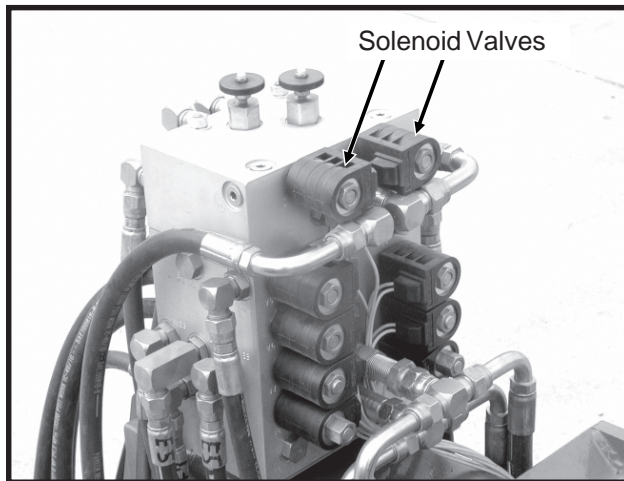


For field operation remove the wing latch hook safety pin(s) and store in the storage location(s) provided

MACHINE OPERATION

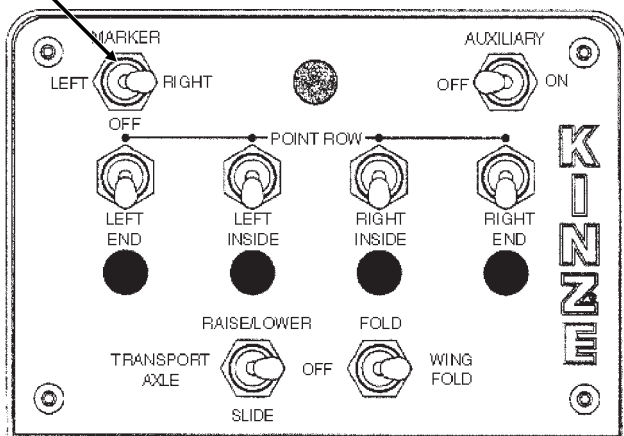
ROW MARKER OPERATION

D040604125



(FWD30a)

Marker Switch



Three Position Selector Switch On Control Console

Two solenoid valves, located on the valve block at the front of the planter, along with a three position selector switch on the control console permits the operator to lower or raise the desired marker.

See "Row Marker Speed Adjustment".

1. On the control console, select the row marker you want to lower.
2. Operate hydraulic control lever to lower marker.
3. If opposite marker is to be used next, change control switch to other side.
4. At end of field, using hydraulic control lever, raise the down marker.
5. After making the turn, using the hydraulic lever, lower the pre-selected marker.
6. Continue to follow this procedure.

NOTE: Both row markers can be lowered by operating the switch in each position and operating the hydraulic lever twice. The markers will raise simultaneously with the hydraulic lever moved to the raise position.

NOTE: Control console switch should be left in OFF position when planter is not in use. If left in ON position, the solenoids will drain the tractor battery.

If the electrical system fails to operate properly:

- Check fuse.
- Check wiring connections.
- Check control switch.
- Check solenoid. SOLENOID HOUSING WILL BE MAGNETIZED WHEN ENERGIZED.

! DANGER: To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.

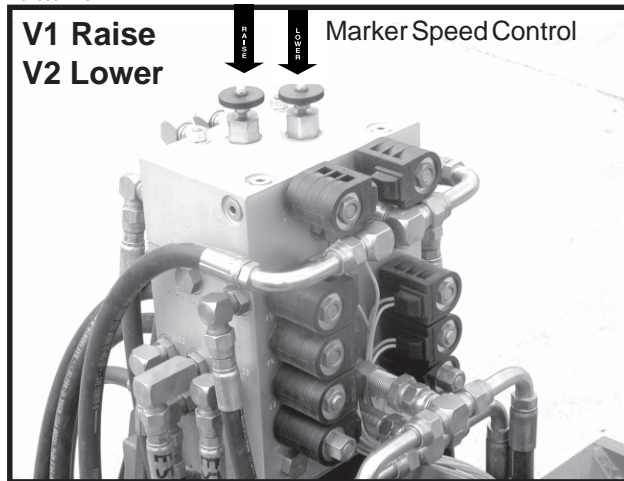
NOTE: Row markers should be run in float during field operation.

MACHINE OPERATION

ROW MARKER SPEED ADJUSTMENT

The row marker hydraulic system includes two flow control valves. One flow control valve controls the lowering speed of both markers and one controls the raising speed of both markers. To adjust marker speed, loosen the jam nut and turn the control(s) clockwise, or IN, to slow the travel speed and counterclockwise, or OUT, to increase the travel speed. The flow controls restrict the amount of oil flow through the valves, to set travel speed of the markers. Tighten jam nut after adjustments are complete.

D040604125



IMPORTANT: The flow controls should be adjusted to restrict flow before the marker assembly is first put into use. Excessive marker travel speed can damage the marker assembly.

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

NOTE: On a tractor where the oil flow can not be controlled, the rate of flow of oil from the tractor may be greater than the rate at which the marker cylinder can accept the oil. 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 equipped with flow control valves, marker speed adjustment should be made with the tractor flow controls in maximum position. After marker speed is set, the tractor flow controls can be adjusted to allow the hydraulic lever to stay in detent during the marker raise or lower cycle.



DANGER: To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.

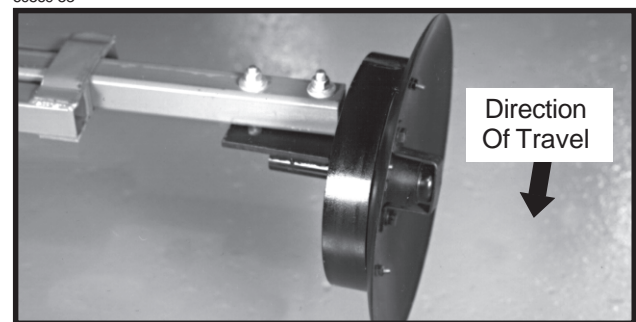
ROW MARKER LENGTH ADJUSTMENT

To determine the correct length at which to set the row 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 disc 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 measurements are being taken. The 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	Row	Dimension Between
Of Rows	x Spacing	Planter Center Line
	(Inches)	And Marker Disc Blade

24 Rows x 30" Spacing = 720" Marker Dimension

60569-53



Marker Disc Blade Shown With Depth Band.

The marker disc blade is installed so the concave side of the blade is outward to throw dirt away from the grease seals. The spindle assembly 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 assembly as required. Tighten bolts to the specified torque.

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

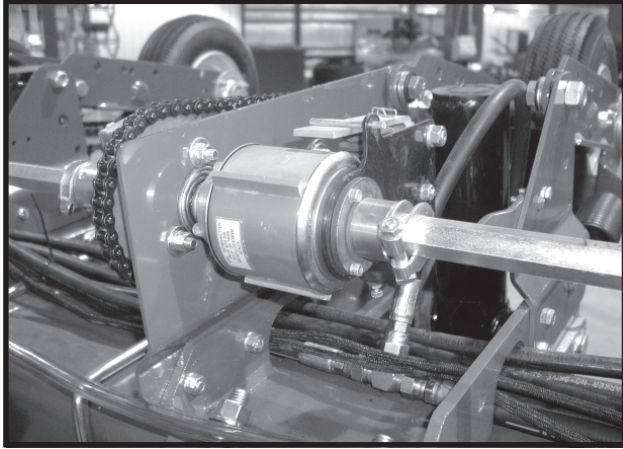
A field test is recommended to ensure the markers are properly adjusted. After the field test is made, make any minor adjustments as necessary.

A notched marker blade, for use in more severe no till conditions, is available from KINZE® through your KINZE® Dealer.

MACHINE OPERATION

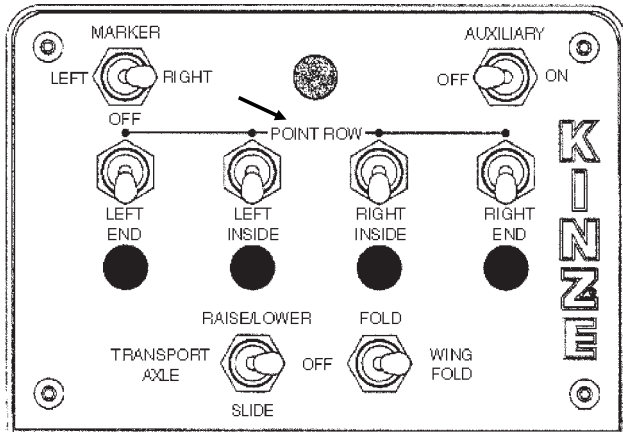
POINT ROW CLUTCHES

D032404136



All Model 3800 planters are equipped with four point row clutches. With the use of electric-activated clutches, which disengage the drive, various sections of the planter may be shut off for finishing up fields or long point row situations.

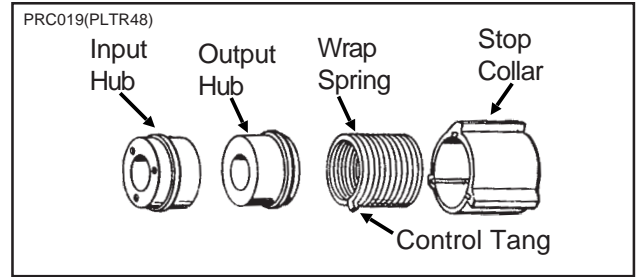
(FWD30a)



The selector switches for the clutches are located on the planter control console.

IMPORTANT: Switches should be left in OFF position when planter is not in use. If left in ON position, it will discharge the tractor battery.

NOTE: Since the liquid fertilizer piston pump has its own drive wheel, liquid fertilizer application will not be affected by use of the point row clutches.



The point row clutch consists of a wrap spring riding on an input hub and an output hub. During operation the wrap spring is wrapped tightly over the hubs connecting them in a positive engagement. The greater the force of rotation the tighter the grip of the spring on the hubs.

Rotation in the opposite direction or stopping the spring from rotating prevents the transmission of torque from the input hub to the output hub, stopping the planter drive.

The input end of the spring is bent outward and is referred to as the control tang. The control tang fits into a slot in the stop collar that is located between the input and output hubs and over the wrap spring. If the stop collar is allowed to rotate with the input hub, the clutch is engaged. If the stop collar is stopped from rotating, the control tang connected to it is forced back and the spring opens. This allows the input hub to continue rotating without transmitting torque to the output hub; therefore, stopping the planter drive.

The stop collar is controlled by the use of an electric solenoid and an actuator arm. When the selector switch on the tractor control console is in the OFF position the solenoid coil is NOT ENERGIZED and the actuator arm will not contact the stop on the stop collar allowing it to rotate with the hubs and drive the planter.

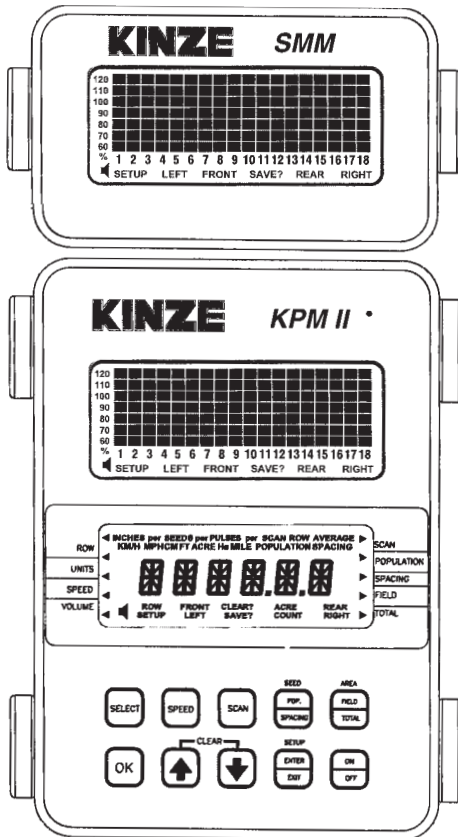
When the operational switch is in the "DISENGAGE" (right or left) position the solenoid coil is ENERGIZED and the plunger in the solenoid coil retracts, allowing the actuator arm to contact the stop on the stop collar, disengaging the wrap spring and stopping the planter drive.

MACHINE OPERATION

KPM II STACK-MODE

KPM II STACK-MODE ELECTRONIC SEED MONITOR

(MTR41e)



NOTE: SMM console may not be applicable to all models.

The KPM II Stack-Mode electronic seed monitor system consists of (a) a KPM II Stack-Mode console, which is mounted on the tractor; (b) seed tubes with sensors, one of which is installed in each planter row unit; (c) a magnetic distance sensor, which is installed on the planter, or a radar distance sensor, which is installed on the tractor; (d) shaft rotation sensors, which are installed on the planter drill shafts; and (e) a planter harness (junction Y-harness and/or extension harness where applicable), to which the individual seed tube sensors connect. The primary harness, which connects the monitor console to the planter harness, is hard-wired into the safety/warning light harness or control console harness included as standard equipment with the planter.

The software design of the KPM II Stack-Mode console allows the use of an add-on SMM console for simultaneous viewing of the seed flow bar graphs for standard and/or Interplant® System rows (up to 36 rows in two sections). A total of 72 rows may be displayed in multiple sections (rear/front, left/right or four sections). The SMM console must be used to allow utilization of the four section feature and is included with the KPM II Stack-Mode Electronic Seed Monitor Package for Model 3800 planters.

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.

The KPM II Stack-Mode console has two backlit Liquid Crystal Displays (LCD). The upper display shows the active section, the number of monitored rows per section, the relative seed rate for each row (using a bar graph display) and scrolls various alarm and warning messages when an alarm condition exists. A continuous audible alarm will sound upon system malfunction or underflow conditions for any monitored row. Alarms must be acknowledged by the user. Various warnings may sound the alarm or flash one or more icons. The lower display is used to display alphanumeric data such as row spacing, units (Metric or English), speed, volume, seed population, seed spacing, field area, total area and distance sensor pulses per mile/kilometer.

The SMM console has one backlit Liquid Crystal Display (LCD) which functions the same as the upper display on the KPM II Stack-Mode console except it does not scroll alarm and warning messages. The SMM console must be programmed into the system before printed text will display on the LCD.

The monitor system will power down if no activity is detected within one hour. No activity means there has been no new seed flow and no operator push key input.

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Lower LCD Functions	6-22
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Row-By-Row Alarm Level Setting	6-45

MONITOR KEY FUNCTIONS

Push keys allow the user to select or change the operating mode, the active displays or the current configuration. Depending on the operating mode or the current display selected, some keys are valid while some are not. Each key press, if valid, is acknowledged by a short beep and an action is taken. If the key press has no action associated, the key press is considered invalid, and the user will not get any feedback.

SELECT

- Selects the application mode (rear/front, left/right or four sections up to a maximum of 72 rows) at the beginning of installation in the setup mode.
- Selects the active section(s) (rear, rear/front, left, right or left/right) in the operation mode.
- Has no affect on a system configured to monitor only one section.
- While programming the monitor, the key will select the digit to change.

SPEED

- Immediately displays the current ground speed.

SCAN

- If the current average population or average spacing is displayed, this key sequentially displays the seed population/spacing on each row.
- If the display shows functions other than average seed population or spacing, pressing SCAN will sequentially display speed, average seed population and average seed spacing.
- Pressing a second time freezes the display on the current row.
- Pressing a third time restarts the sequential display.

SEED POPULATION/SEED SPACING

- Immediately displays the average seed POPULATION and the average seed SPACING of all active rows.
- Each press alternates between seed spacing and seed population.

AREA FIELD/AREA TOTAL

- Immediately displays the field or total area planted since the field/total area was last cleared.
- Each press alternates between field area and total area.

OK

- Ends and saves the new setup during installation.
- Acknowledges and silences alarms in the operation mode.

UP ARROW AND DOWN ARROW

- Scrolls sequentially through the display options on the lower LCD display.
- Freezes on the current row in the scan mode.
- Scrolls sequentially through the rows when the population scan is frozen.
- Used to enter programmable values in the programming mode.
- The UP and DOWN Arrow keys can be pressed at the same time to start the CLEAR function.

SETUP ENTER/SETUP EXIT

- Enters and exits the programming mode.

ON/OFF

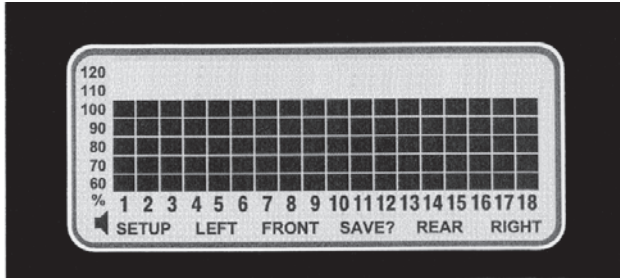
- Powers the unit on and off.

MACHINE OPERATION

KPM II STACK-MODE

UPPER LCD FUNCTIONS

(MTR29h)



The monitor collects data on the planting rates from all active rows and calculates an average. This average will determine the 100% mark. Seed rate for each row is then compared to the average value and the result is displayed on the bar graph.

With only the KPM II Stack-Mode console programmed into the system, the information regarding each section is displayed alternately every 5 seconds. While operating a system with two sections programmed, one or both sections may be selected any time. When only one section is selected, the monitor calculates the average based on the remaining active rows from that section.

With the SMM console programmed into the system, two sections are viewed at the same time. If the system configuration is for four sections, the display will alternate every 5 seconds between a pair of sections. The select key will lock the display on rear sections. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front configuration and FRONT RIGHT/ REAR RIGHT in four sections configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in four sections configuration.

STEP 1 Press SELECT key once to show one section. The flashing icon shows the section that is not selected. The selected section icon is continuously displayed on the LCD.

EXAMPLE: The system is setup to display rear section on KPM II Stack-Mode console and front section on SMM console. Press SELECT key. The FRONT icon will be flashing and the REAR section will be displayed on the bar graph. The SMM console is only backlit. After 1 minute the front row icon will stop flashing. The monitor will stay in this REAR only display through power down and power up. Each time the monitor is turned on while in REAR only mode, the FRONT icon will flash for 1 minute.

If seed flow is sensed in the FRONT section while planting, the FRONT icon will resume flashing.

When the front section is disabled, the row spacing will automatically double to maintain the proper implement width in the monitor. A 23 or 24 row 15" configuration changes to a 12 row 30" configuration with a touch of the SELECT key.

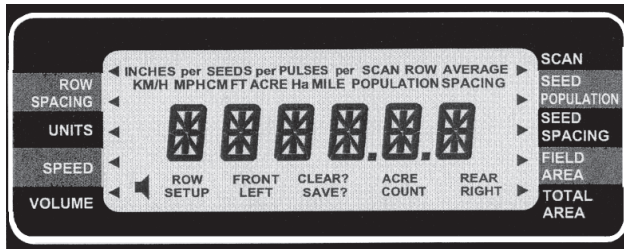
STEP 2 Press SELECT key again to activate both sections.

For simple applications, where only one section is programmed, the display will automatically lock on that section. Pressing the SELECT key will have no affect.

NOTE: When alternating between two sections, the display will lock on the section containing the first recognized alarm until the alarm is acknowledged by pressing the OK key or the alarm condition is removed.

LOWER LCD FUNCTIONS

(MTR29g)



- The UP and DOWN arrow keys will sequentially change what is being displayed on the lower LCD. Pressing the UP or DOWN arrow keys will move the arrow head icon (on the left and right hand side of the display) to another item. For example, if the arrow icon is pointing to SPEED, ground speed will be displayed on the LCD. Pressing the UP arrow key will move the icon to UNITS. The display will change to display all the icons used to represent the current (English or Metric) measurement system.
- The shortcut keys SPEED, SEED POPULATION/SPACING and AREA FIELD/TOTAL allow direct access to their respective displays. For example, no matter what is currently being displayed on the lower LCD, pressing the SPEED key will change the display to the current speed. Pressing the SEED POPULATION/SPACING or AREA FIELD/TOTAL keys will alternate between the two functions assigned to those keys.
- Pressing the SCAN key while displaying seed spacing or population will cause a sequential display of each individual row. Pressing the SCAN key a second time will freeze the display on the currently displayed row. The UP or DOWN arrow keys can be used to change the currently displayed row. Pressing the SCAN key will restart the automatic advancing of the scan function.
- Pressing the SCAN key while displaying speed will cause a sequential display of speed, average planter population and average seed spacing. Pressing the SCAN key a second time will freeze the display on the currently displayed reading.

ROW SPACING

Press the arrow keys to ROW SPACING to display the current spacing between rows in inches or centimeters. The ROW SPACING icons turn on, displaying a 3 digit, one decimal place format. In the area count mode, this function displays the implement width in feet or meters, using a 3 digit, no decimal places format.

UNITS

Press the arrow keys to UNITS to display all the icons from the currently selected English or Metric measurement system. For the English system, the icons are: INCH, MPH, FT, ACRE and MILE. For the Metric system, the icons are: M, KM/H and Ha.

SPEED

Press the SPEED key to display the current speed in MPH or KM/H, using a 3 digit, one decimal place format.

VOLUME

Press the arrow keys to VOLUME to display the presently selected audible alarm volume. The SPEAKER icon turns on.

SCAN

Press the SCAN key to display the seed spacing or seed population (see Steps 1-3 following) of each individual row. (1) Pressing the SCAN key while displaying any other function will cause the monitor to sequentially display speed, average seed population and average seed spacing. (2) Pressing the SCAN key a second time will freeze the display. (3) Pressing the SCAN key a third time restarts the sequential display. The UP and DOWN arrow keys can be used to change the current display.

MACHINE OPERATION

KPM II STACK-MODE

SEED POPULATION/SEED SPACING

Each SEED POP/SPACING key press alternates between seed population and seed spacing.

Seed population displays the average number of seeds or the row average number of seeds per acre or seeds per hectare for all the active rows. The average is displayed using a 6 digits, no decimal places format. The AVERAGE POPULATION icon will turn on. When in the scan mode, the scan arrow and SCAN ROW POPULATION will appear. The ROW number icon and the current row will be displayed on the left and the population will be displayed on the right in 1000's using 3 digits, one decimal place (e.g. 32.9 means 32,900). When in scan freeze mode, the scan arrow and ROW POPULATION will turn on (scan arrow may be flashing). The UP and DOWN keys may be used to lock on the desired row.

Seed spacing displays the average distance or the row average distance between seeds for all active rows in inches per seed or centimeters per seed using a 3 digit, one decimal place format. When the average is displayed the AVERAGE SPACING icons are turned on. When in the scan mode, the scan arrow and SCAN ROW SPACING icons will appear. The ROW number icon and the current row will be displayed on the left and the spacing will be displayed on the right. The display will sequence to the next row every 5 seconds. When in scan freeze mode, the scan arrow and SPACING will turn on (scan arrow may be flashing). The UP and DOWN keys may be used to lock on the desired row.

FIELD AREA/TOTAL AREA

Each AREA FIELD/TOTAL key press alternates between field area and total area.

Field area displays the total number of acres or hectares using a 6 digit, one decimal place format.

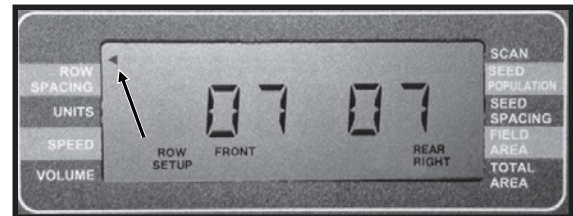
NOTE: When FIELD AREA is selected, the UP or DOWN key must be held in slightly longer than normal so the monitor will not mistake this action with a CLEAR, which consists of the UP and DOWN arrow keys pressed simultaneously. A beep will sound when the function activates.

Total area displays the total number of acres or hectares using a 6 digit, one decimal place format. The total area counter updates every time the field area counter increments. Clearing the total area counter will also clear the field area counter.

When the monitor is programmed as a rear only or rear/front configuration and shaft rotation sensors are installed, pressing the UP arrow to move beyond row spacing lights an arrow on an unlabeled area above ROW SPACING. This is the automatically set division line between the L.H. shaft sensor and the R.H. shaft sensor. The display shows the first row on the rear section and the front section assigned to the R.H. shaft rotation sensor.

EXAMPLE: On a 12 Row 30" planter with Interplant® Package, the display would appear as follows:

092597-21



THIS DISPLAY IS NOT ACCESSIBLE ON LEFT/RIGHT CONFIGURATIONS OR SYSTEMS WITHOUT SHAFT ROTATION SENSORS.

PROGRAMMING - Changing The Audible Alarm Volume

STEP 1 To enter the programming mode, press and hold the SETUP key. The monitor will emit several short beeps, followed by a long beep. On the lower LCD, the SETUP icon turns on and the arrow head icon will flash, indicating that the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, units, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 2 Press the UP or DOWN arrow keys to move the flashing arrow to VOLUME. As the arrow icon moves, the lower LCD will display the current setting of the item selected.

STEP 3 Press the OK key and the flashing arrow becomes solid and the audible alarm will sound.

NOTE: The lower LCD will display the current volume and the SPEAKER icon is turned on. Settings are from 0 to 9.

- Use the UP or DOWN arrow keys to change the setting. With every UP arrow key push, the alarm will increment by one step between the minimum and the maximum. If the maximum level (9) is reached the volume rolls over to the minimum level (0).
- Pressing the DOWN arrow key lowers the volume until the minimum level (0) is reached, at which point the volume rolls over to the maximum level (9).

STEP 4 To exit without saving, press and release the OK key. The monitor will restore the lower LCD to show the setting of the item, and the arrow icon will flash, allowing the user to select another item to program.

To exit and save, press and hold the OK key. The monitor will emit several short beeps and SAVE? icon is turned on. After a short time a long beep is heard, and the lower LCD will display the word "DONE". Release the OK key. If the OK key is released BEFORE the word "DONE" is displayed, the changes WILL NOT BE SAVED. The word "DONE" MUST be displayed in order for the save to have occurred.

NOTE: The programming mode may be exited at any time, by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

MACHINE OPERATION

KPM II STACK-MODE

PROGRAMMING - Units (Metric Or English)

STEP 1 To enter the programming mode, press and hold the SETUP key. The monitor will emit several short beeps, followed by a long beep. On the lower LCD, the SETUP icon turns on and the arrow head icon will flash, indicating that the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, units, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 2 Press the UP or DOWN arrow keys to move the flashing arrow to UNITS. As the arrow icon moves, the lower LCD will display the current setting of the item selected.

STEP 3 Press the OK key and the flashing arrow becomes solid and the audible alarm will sound.

NOTE: The lower LCD will alternately display all Metric icons or all English icons, indicating the Metric or English mode respectively.

- Use the UP or DOWN arrow keys to change the setting.

STEP 4 To exit without saving, press and release the OK key. The monitor will restore the lower LCD to show the setting of the item, and the arrow icon will flash, allowing the user to select another item to program.

To exit and save, press and hold the OK key. The monitor will emit several short beeps and SAVE? icon is turned on. After a short time a long beep is heard, and the lower LCD will display the word "DONE". Release the OK key. If the OK key is released BEFORE the word "DONE" is displayed, the changes WILL NOT BE SAVED. The word "DONE" MUST be displayed in order for the save to have occurred.

NOTE: The programming mode may be exited at any time, by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

PROGRAMMING - Row Spacing

STEP 1 Prior to entering the programming mode, the application mode (rear/front, left/right or four sections) must be active. If the monitor is programmed in a rear/front configuration, both sections will be active (alternating every 5 seconds if the SMM console is not used). You can then set the row spacing to the Interplant® System row spacing.

EXAMPLE: On a 12 Row 30" with Interplant® Package set the row spacing to 15.0 with front active.

When the monitor is in normal field operation mode, disabling the front section will automatically change the row spacing to 30".

STEP 2 To enter the programming mode, press and hold the SETUP key. The monitor will emit several short beeps, followed by a long beep. On the lower LCD, the SETUP icon turns on and the arrow head icon will flash, indicating that the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, units, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 3 Press the UP or DOWN arrow keys to move the flashing arrow to ROW SPACING. As the arrow icon moves, the lower LCD will display the current setting of the item selected.

STEP 4 Press the OK key and the flashing arrow becomes solid and the audible alarm will sound.

NOTE: The lower LCD will display the current row spacing (in inches or centimeters) and ROW SPACING icon is turned on.

- The least significant digit of the displayed value will be blinking.
- This value can be changed by pressing either the UP or DOWN arrow keys.
- Once this digit is correct, press the MODE SELECT key and the blinking digit will move to the next significant digit, where the process can be repeated.

NOTE: The monitor limits the entry of row spacing to a minimum of 10.0 inches (25.4 cm) and to a maximum of 99.9 inches (253.7 cm). If the monitor is configured to a rear/front configuration, the limits change to a minimum of 5.0 inches (12.7 cm) and a maximum of 49.9 inches (126.8 cm).

STEP 5 To exit without saving, press and release the OK key. The monitor will restore the lower LCD to show the setting of the item and the arrow icon will flash, allowing the user to select another item to program.

To exit and save, press and hold the OK key. The monitor will emit several short beeps and SAVE? icon is turned on. After a short time a long beep is heard, and the lower LCD will display the word "DONE". Release the OK key. If the OK key is released BEFORE the word "DONE" is displayed, the changes WILL NOT BE SAVED. The word "DONE" MUST be displayed in order for the save to have occurred.

To exit setup mode, press the SETUP key.

NOTE: The programming mode may be exited at any time, by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

PROGRAMMING - Speed

STEP 1 To enter the programming mode, press and hold the SETUP key. The monitor will emit several short beeps, followed by a long beep. On the lower LCD, the SETUP icon turns on and the arrow head icon will flash, indicating that the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, units, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 2 Press the UP or DOWN arrow keys to move the flashing arrow to SPEED. As the arrow icon moves, the lower LCD will display the current setting of the item selected.

STEP 3 Press the OK key and the flashing arrow becomes solid and the audible alarm will sound. The R.H. digit on the display will be blinking.

The speed constant is used to record how many pulses are generated per mile (or kilometer) from the ground speed sensor. The lower LCD will display the current pulses per mile (or kilometer) using a 6 digit, no decimal place format. The PULSES per MILE (or PULSES per KM) icons are turned on.

NOTE: It is highly recommended that a field calibration be done to establish the PPM/PPKM (Pulses Per Mile/Kilometer) number on a new machine installation. Several factors can affect this value such as wheel slip on the magnetic distance sensor, mounting angle and height on the radar distance sensor, etc. IT IS NOT UNCOMMON FOR THE SPEED ON THE MONITOR TO VARY SLIGHTLY FROM THE TRACTOR SPEEDOMETER. Adjusting the PPM/PPKM in the monitor to make the speed agree can cause serious errors in acre/hectare and population counts. Do field checks to verify populations and seed spacings.

NOTE: On new system installations, the monitor will default to 500 PPM (310 PPKM). This will have to be changed to obtain accurate readings from the monitor.

- In field conditions, measure 330 feet ($\frac{1}{16}$ mile) or 100 meters, depending on the unit of measurement selected.

- Pull the tractor up to the starting line.

- Press the UP and DOWN arrow keys at the same time and hold them down until the CLEAR? icon is displayed and the monitor beeps several times. When the data is actually cleared, the monitor will emit a long beep and the number of pulses is cleared.

NOTE: If the PPM/PPKM number starts to count pulses with the tractor not moving, check the radar for vibration or other kinds of interference.

- Drive the tractor for 330 feet ($\frac{1}{16}$ mile) or 100 meters and stop.

- The monitor will count the number of pulses and display them.

STEP 4 To exit without saving, press and release the OK key. The monitor will restore the lower LCD to show the previous setting of the item, and the arrow icon will flash, allowing the user to select another item to program.

To exit and save, press and hold the OK key. The monitor will emit several short beeps and SAVE? icon is turned on. After a short time a long beep is heard, and the lower LCD will display the word "DONE". Release the OK key. If the OK key is released BEFORE the word "DONE" is displayed, the changes WILL NOT BE SAVED. The word "DONE" MUST be displayed in order for the save to have occurred.

NOTE: The programming mode may be exited at any time, by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

NOTE: If a discrepancy occurs and digits must be changed, follow STEPS 1 and 2 to enter the programming mode and proceed as follows:

- Press the OK key and the flashing arrow becomes solid. The least significant digit of the displayed value will be blinking.
- This value can be changed by pressing either the UP or DOWN arrow keys.
- Once this digit is correct, press the SELECT key and the blinking digit will move to the next significant digit, where the process can be repeated.

The monitor limits the entry of pulses per mile or kilometer to a minimum of 500 PPM (310 PPKM), and to a maximum of 500,000 PPM (310,686 PPKM).

KEY Action	Flashing Digit	Display Value
Press The UP Key	Right Most Digit	2031, 2032, 2033
Press The SELECT Key	Second Digit From Right	2033
Press The DOWN Key	Second Digit From Right	2023, 2013, 2003, 2093, 2083
Press The SELECT Key Twice	Left Most Digit	2083
Press The DOWN Key	Left Most Digit	1083, 0500 (Min. Value), 9500, 8500

PROGRAMMING - Clearing Total Area

NOTE: Clearing the total area counter will also clear the field area counter.

STEP 1 To enter the programming mode, press and hold the SETUP key. The monitor will emit several short beeps followed by a long beep. On the lower LCD, the SETUP icon turns on and the arrow head icon will flash, indicating that the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, units, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 2 Press the UP or DOWN arrow keys to move the flashing arrow to TOTAL AREA. As the arrow icon moves, the lower LCD will display the current setting of the item selected.

STEP 3 Press the OK key and the flashing arrow becomes solid and the audible alarm will sound.

- The lower LCD will display the total area and the ACRE (or Ha) icon turns on.
- With the flashing arrow on TOTAL AREA, press the OK key.

• To reset the counter, press the UP and DOWN arrow keys at the same time and hold them down for a short period of time to clear the data. The CLEAR? icon will be displayed and the monitor will beep several times. When the data is actually cleared, the monitor will emit a long beep, and the total area is reset to zeros. After the long beep, the previous recorded total area is not retrievable. Once cleared, the user **may not** choose to exit programming mode without saving as described in STEP 4.

STEP 4 To exit and save, press and hold the OK key. The monitor will emit several short beeps and SAVE? icon is turned on. After a short time a long beep is heard, and the lower LCD will display the word "DONE". Release the OK key. If the OK key is released BEFORE the word "DONE" is displayed, the changes WILL NOT BE SAVED. The word "DONE" MUST be displayed in order for the save to have occurred.

NOTE: The programming mode may be exited at any time, by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

MACHINE OPERATION

KPM II STACK-MODE

AREA COUNTER/SPEEDOMETER MODE

If the monitor is installed with only a radar distance sensor (no seed tubes attached), the monitor becomes a speedometer. If (a) the monitor is connected to a radar distance sensor, (b) the signal cable from the back of the console is connected to a sensing switch (Part No. G1K249 Acre Counter Switch Kit) instead of the seed tubes and (c) the implement width in feet (or meters) is programmed into the monitor, the monitor will function as an area counter.

The seed spacing and seed population functions are not available in this mode. If the monitor is powered down, the seed tubes connected and the monitor powered up, the monitor will again show seed population and seed spacing in inches or centimeters. Row spacing reverts back to its programmed setting.

WARNINGS AND ALARMS

- 1. System Alarms** - A system alarm is activated when the monitor detects a faulty sensor or one of several other communication faults.

The corresponding row number starts flashing and the audible alarm sounds. All segments on the corresponding bar graph are turned off. Pushing the OK key to acknowledge the warning will turn the alarm off. The row number will continue to flash until the alarm condition is removed. If the monitor detects a faulty sensor and there is no planting activity present, the monitor will scroll "CHECK CONNECTION".

If the distance sensor is detected as faulty, the monitor will display either "PICKUP" or "RADAR", depending on the type of sensor installed, and the audible alarm will sound. The user can push the OK key to acknowledge the alarm. When the distance sensor is faulty, the monitor will change to a bar graph only mode where the rows are still displayed relative to each other. No area related information (speed, field area, total area, seed spacing or seed population) will be accumulated or displayed.

If a rotation shaft sensor is faulty, "SHAFT1", "SHAFT2", "SHAFT3" or "SHAFT4" will display.

Another type of system alarm occurs when the monitor detects a data communication bus error.

The four possible data communication bus errors are:

LCD Display	Error Condition
SYS HI	The data communication lead (green) has been shorted to the power lead (white).
SYS LO	The data communication lead (green) has been shorted to the ground lead (black).
SYS EC	An internal error has been detected.
COP	Cycled power ON/OFF to quickly.

- 2. Under Flow Alarms** - If the seed rate for one or more rows is less than 55% of the calculated average, the corresponding 60% segment will stay on, the corresponding row number starts flashing and the alarm sounds. Pushing the OK key to acknowledge the warning will turn the alarm off. The 60% segment of the bar graph remains on and the row number continues to flash until the alarm condition is corrected.

NOTE: All alarms present within a short time before planting stops are frozen on the screen and the text LOW or FAIL will display on the LCD. If the under flow is between 0% and 10%, this warrants a "FAIL" condition. If the under flow is between 10% and 55%, a "LOW" condition is generated. If multiple rows have an under flow condition, "FAIL" will display if any one or more rows is between 0% and 10%. This allows the user to identify and fix the problem rows.

NOTE: This warning will not trigger unless a minimum time of continuous planting has passed.

NOTE: If all the rows show a seed rate of zero, the condition will not generate an alarm. It will be assumed the planter has stopped. The row numbers and the bottom 60% segment will remain on for all selected rows.

- 3. Multiple Alarms** - If more than one alarm condition occurs at the same time, pushing the OK key will acknowledge all alarms that are currently displayed. For example, if one row on the front and one row on the rear are alarming, pushing the OK key will only acknowledge one of them. However, if there are two alarms on the front, both alarms would be acknowledged with one push of the OK key.

4. **Section Not Selected Warning** - If the monitor was programmed for two sections and only one is currently selected for display (by pressing the SELECT key), the icon of the disabled section will flash for a period of 1 minute, then turn off at each power up. If seed flow is sensed in the disabled section, the icon for that section (front, left or right) will begin to flash.
5. **Seed Planting Stopped Warning** - When the monitor detects no seed flow on all rows, the monitor will emit 3 short beeps to alert the user. This warning will occur each time the planter is stopped, each time the planter is raised at the end of a row or if the mechanical drive fails while planting.

NOTE: This warning will not trigger unless a minimum time of continuous planting has passed.

6. **Seed Counting Sensor In Calibration Warning** - All seed counting sensors run a self-calibration sequence on power up. While in calibration the bottom segment of each corresponding bar graph will flash if the monitor detects movement or planting activity. If the monitor does not detect this, the message "WAIT CALIBRATION" will be scrolled.
7. **Seed Counting Sensor Too Dirty Warning** - After the seed counting sensors end their internal self-calibration, the monitor may detect one or more sensors are either too dirty or blocked. If the monitor detects planting or movement, the corresponding bar graph remains flashing. The monitor will display "CLEAN SENSORS" on the top LCD if no movement or planting is detected, prompting the user to clean the tubes. If the tubes are dirty, they will still show seed flow with less accuracy. If the tubes are blocked the user will get an alarm as soon as planting starts. The corresponding bar graph will remain flashing until the problem is corrected and the monitor is powered down and then powered back up.
8. **Low Battery Warning** - The monitor is constantly monitoring its input voltage to quickly detect low power conditions. If the monitor detects that the input voltage has dropped below 11.0V, it will display "LO SYS" on the lower LCD on the KPM II Stack-Mode console, provided that the monitor does not detect speed or planting.

NOTE: After the alarms have been acknowledged and if the alarm condition is still present, the LCD will continue to display the alarm condition.

REPLACING A FAULTY SENSOR

NOTE: Stack-Mode Seed Sensors are identified by a blue 3-pin connector. Replace Stack-Mode Seed Sensors with like components only.

To replace a faulty sensor; (a) disconnect the faulty sensor and check the monitor to be sure the correct sensor was disconnected, (b) turn the monitor off, (c) after a few seconds, turn the monitor back on and (d) plug in the replacement sensor. The monitor will chirp twice to acknowledge the new sensor was learned and saved.

To replace more than one faulty sensor, proceed as stated above for rear/front or left/right configurations beginning with the lowest numbered row in the rear or left section and continue to replace sensors in ascending order. Then move on to the front or right section and continue in ascending order. For four section configurations, begin with rear/left and continue to rear/right, then front/left and ending with front/right.

If the monitor detects a faulty distance sensor, the lower LCD will immediately move to the speed display, show the word "PICKUP" or "RADAR" depending on the distance sensor installed, and the alarm will sound.

NOTE: If the monitor is not turned off and then on, the replacement sensor(s) will be ignored until the next power on, at which point the sensors will be randomly learned by the monitor.

MACHINE OPERATION

KPM II STACK-MODE

FIELD OPERATION

Press the ON/OFF key to turn the monitor on.



(MTR28e)

Information regarding each section is displayed alternately every 5 seconds.

REAR/FRONT CONFIGURATION (Without SMM Console Installed)

- Press the SELECT key once to show REAR section only. (Monitor sets correct row spacing.)
- Press the SELECT key a second time to return to each section being displayed alternately every 5 seconds on KPM II Stack-Mode console. (Monitor sets correct row spacing.)
- Press the SELECT key a third time to show REAR section only again.



(MTR28c)

REAR/FRONT CONFIGURATION (With SMM Console Installed)

- Press the SELECT key once to show REAR section only on KPM II Stack-Mode console. (Monitor sets correct row spacing.)
- Press the SELECT key a second time to show FRONT section on SMM console and REAR section on KPM II Stack-Mode console. (Monitor sets correct row spacing.)
- Press the SELECT key a third time to show REAR section only again.



(MTR28c)

FOUR SECTION CONFIGURATION (With SMM Console Installed)

- Press the SELECT key once to show REAR and LEFT sections on KPM II Stack-Mode console and REAR and RIGHT sections on SMM console. (Monitor sets correct row spacing.)
- Press the SELECT key a second time to return to all four sections, alternating right front and right rear on SMM console and alternating left front and left rear on KPM II Stack-Mode console. (Monitor sets correct row spacing.)
- Press the SELECT key a third time to show REAR and LEFT sections on KPM II Stack-Mode console and REAR and RIGHT sections on SMM console again.

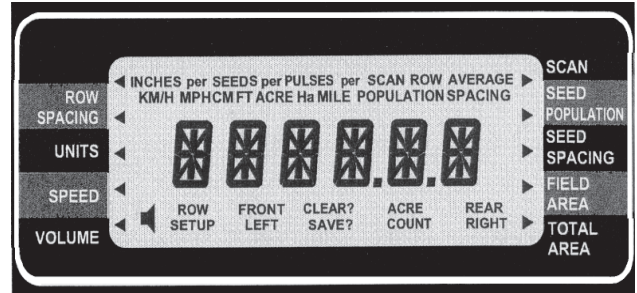


(MTR28c)

NOTE: SELECT key has no function when only a single section is being used.

At power up, the lower LCD will show speed (MPH or KM/H).

(MTR29g/MTR29b/MTR29a/MTR29c/MTR29f/MTR29c/MTR29f)



Press the UP or DOWN arrow keys to move the flashing arrow on the lower LCD to change what is displayed on the lower LCD.



Press the shortcut keys SPEED, SEED POPULATION/SEED SPACING or AREA FIELD/TOTAL for direct access to these displays.



(MTR29c/MTR29d/MTR29b/MTR29c)

Press the SEED POPULATION/SEED SPACING or AREA FIELD/TOTAL keys to alternate between the two functions assigned to that key.



Press the SEED POPULATION/SEED SPACING key to choose average seed spacing/population per acre.



Press the SCAN key to display individual rows starting at row 1.



Press the SCAN key again to lock on current row.

Press the SCAN key again to resume scrolling.

Use the UP or DOWN arrow keys to move to a particular row.



Press the SEED POPULATION/SEED SPACING key to go back to planter average.



CLEARING FIELD AREA

(MTR29n/MTR28b)

To reset the counter, press the UP or DOWN arrow keys to move the arrow in the lower display to FIELD AREA.



Press the UP and DOWN arrow keys at the same time and hold them down for a short period of time to clear the data. The CLEAR? icon will be displayed and the monitor will beep several times. When the data is actually cleared, the monitor will emit a long beep, and the field area is reset to zero. After the long beep, the previous field area recorded is not retrievable.



NOTE: Clearing the field area counter will not clear the total area counter. See “Programming-Clearing Total Area” for clearing total area.

Press the OK key to silence alarms. See “Warnings And Alarms”.



MACHINE OPERATION

KPM II STACK-MODE

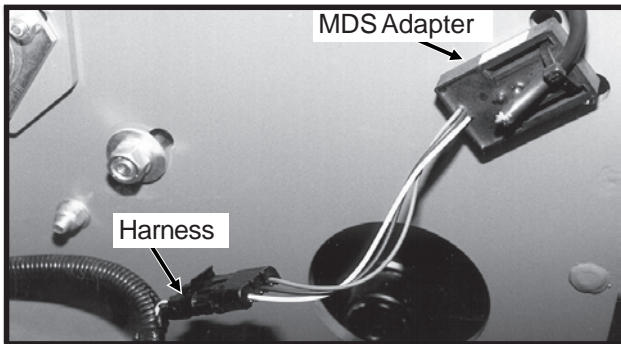
PROGRAMMING/CONNECTING SMM CONSOLE, SHAFT ROTATION SENSORS, SEED TUBES AND/OR RADAR/MAGNETIC DISTANCE SENSORS

STEP 1 All sensors (including the seed tubes w/ sensors, radar, magnetic distance, SMM console and shaft rotation sensors) must be unplugged from the harness and/or console and the monitor must be off.

NOTE: If the monitor detects a radar sensor but no seed tubes at power up, it will automatically go into AREA COUNT mode. See “Area Counter/Speedometer Mode”.

NOTE: Disconnect magnetic distance sensor between MDS adapter and planter harness. DO NOT disconnect between MDS and MDS adapter.

01189909



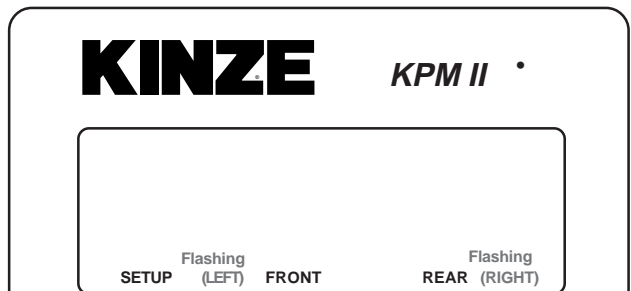
01189910



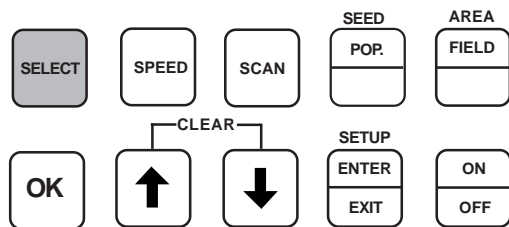
STEP 2 Press the ON key. The monitor automatically enters the setup procedure. Monitor will scroll “NO SENSOR” on top LCD of KPM II Stack-Mode console.

STEP 3 The monitor automatically defaults to rear/front. Press the SELECT key once for left/right and twice for four sections (front right/front left/rear right/rear left). The selected display will be solid and the configuration not currently selected will be flashing.

12060211



ROW	SETUP	SCAN
UNITS		SEED
SPEED		SEED
VOLUME		FIELD
		TOTAL

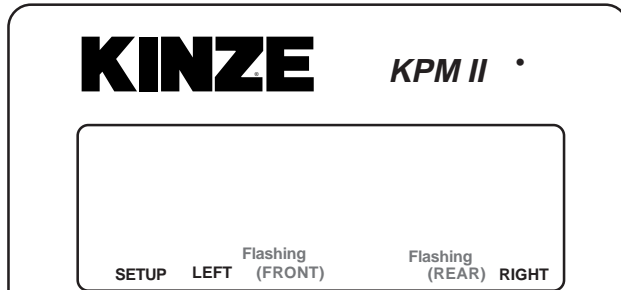


NOTE: SMM console may not be applicable to all models.

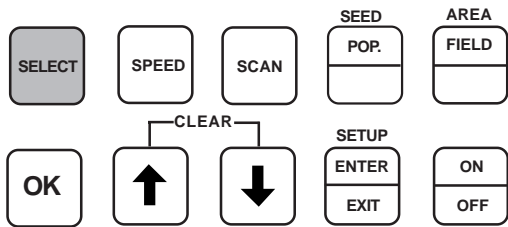
MACHINE OPERATION

KPM II STACK-MODE

12060211



ROW	SETUP	SCAN
UNITS		SEED
SPEED		SEED
VOLUME		TOTAL



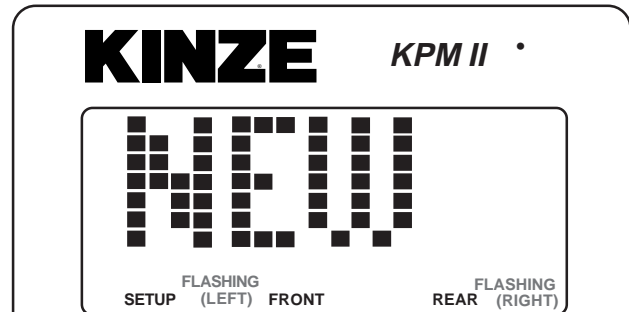
NOTE: SMM console may not be applicable to all models.

NOTE: Model 3800 planters select left/right configuration.

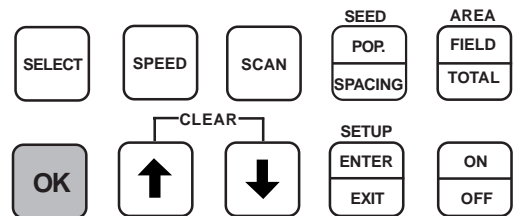
STEP 4 Press and hold the OK key to confirm selection. The upper display will alternate between “NEW” and “SYS?”.

The alarm will sound four short beeps followed by one long beep. At this point your selection has been saved and row numbers will appear flashing on the upper display.

12060211



ROW SPACING	SETUP	SCAN
UNITS		SEED POPULATION
SPEED		SEED SPACING
VOLUME		TOTAL AREA



NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

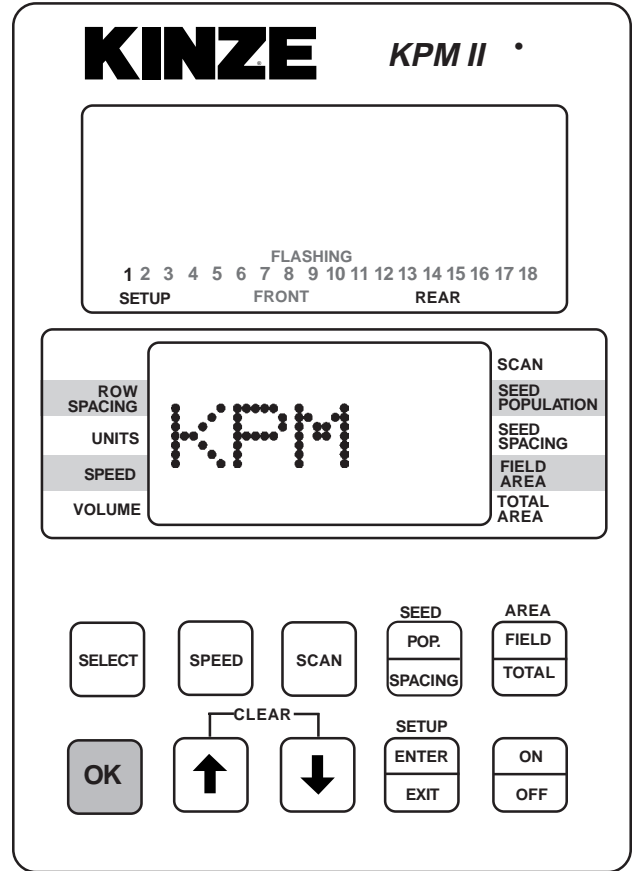
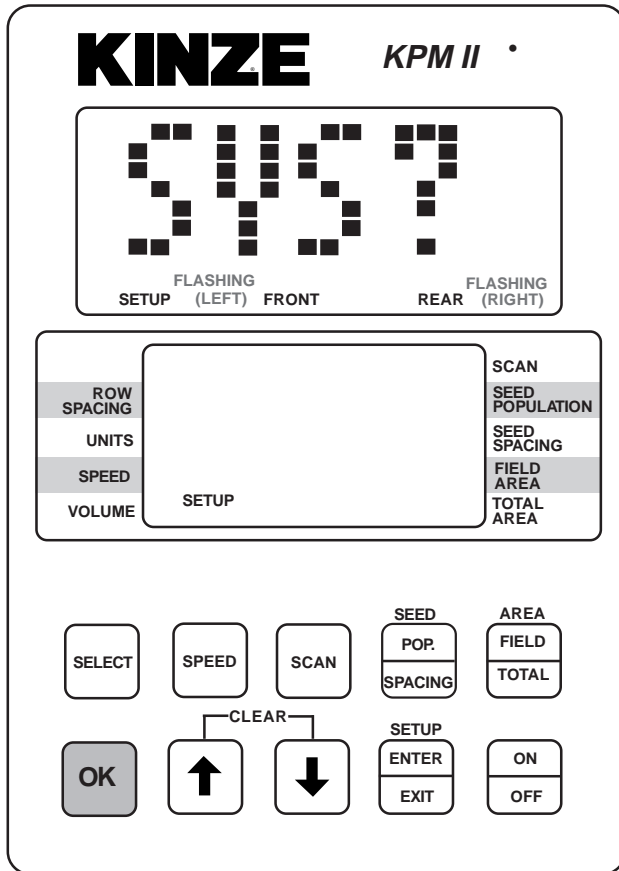
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration.

STEP 5 (If Applicable) Connect SMM console into junction Y-harness which was installed between the KPM II Stack-Mode console and the primary harness. The SMM console will show a lighted screen and KPM will show on the lower LCD.

12060211



12060211



NOTE: SMM console may not be applicable to all models.

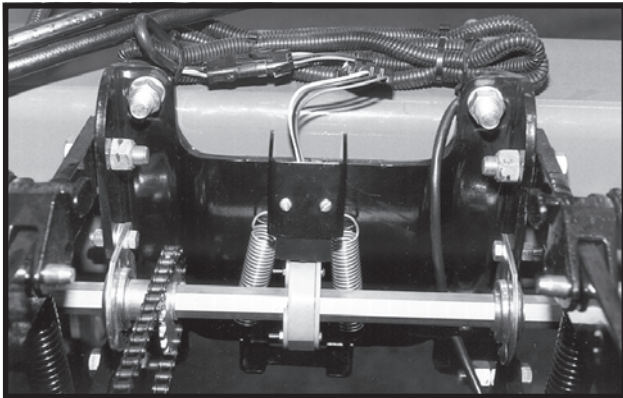
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

STEP 6 If the monitor system includes shaft rotation sensors, these should be installed at this time as the seed tubes are connected. The first shaft rotation sensor installed will be assigned to the rows on the outer L.H. half of the planter and the second shaft rotation sensor connected will be assigned to the rows on the inner L.H. half of the planter.

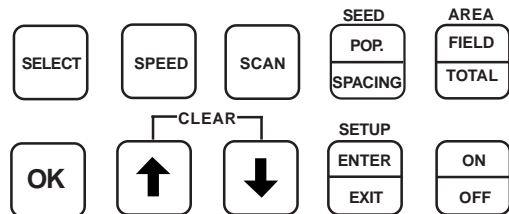
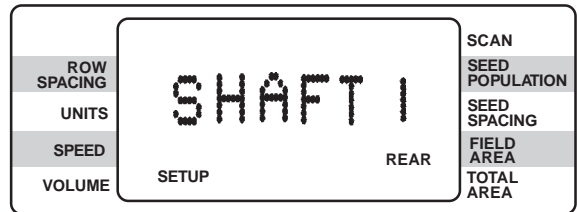
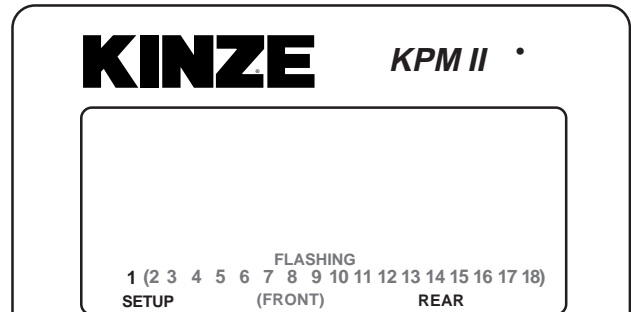
01189906



“SHAFT 1” will display on the lower LCD when the first shaft rotation sensor is installed. “SHAFT 2” will display when the second shaft rotation sensor is installed. “SHAFT 3” will display on the lower LCD when the third shaft rotation sensor is installed on the inner R.H. half of the planter. “SHAFT 4” will display when the fourth shaft rotation sensor is installed on the outer R.H. half of the planter.

NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and REAR LEFT/FRONT LEFT in the four sections configuration.

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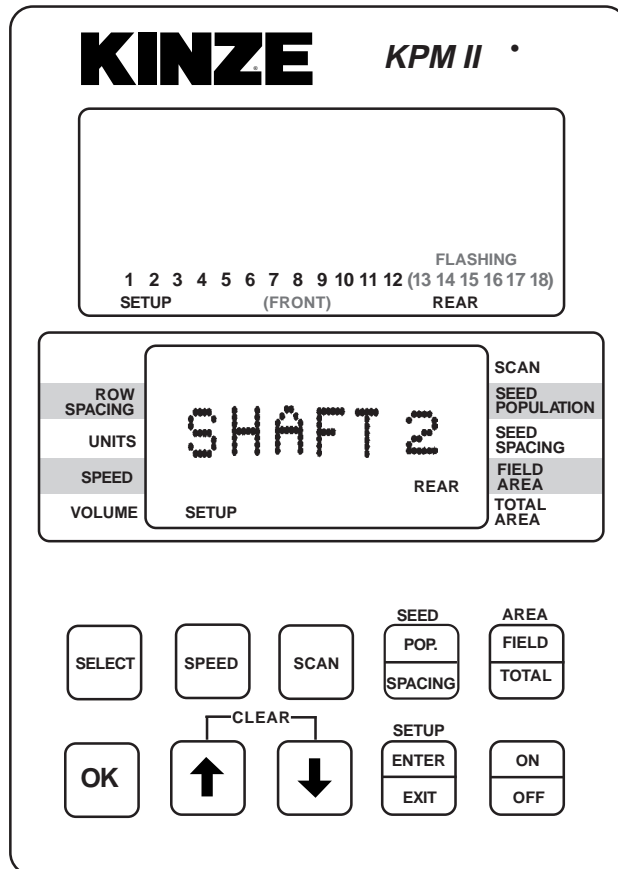
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

STEP 6 (Continued)

12060211

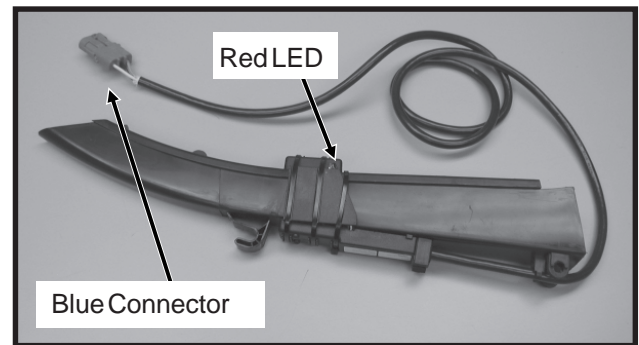


NOTE: SMM console may not be applicable to all models.

STEP 7 Determine which row you want as number one and plug the seed tube w/sensor into the harness.

Continue plugging in sensors along with shaft rotation sensors if so equipped. Row 1 first, row 2 second and so on up to 18 rows. When a sensor is plugged in, the corresponding row number on the upper LCD display will stay solid, the monitor will chirp twice and a red LED (Light Emitting Diode) on the seed tube sensor will turn on for approximately 30 seconds to show connection is made.

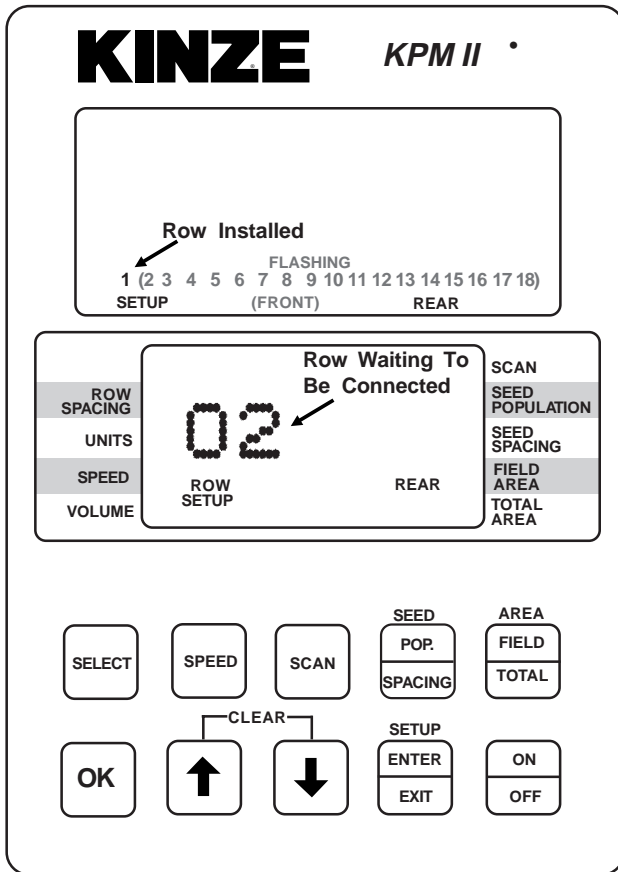
D120602101



NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and REAR LEFT/FRONT LEFT in the four sections configuration.

STEP 7 (Continued)

12060211



NOTE: SMM console may not be applicable to all models.

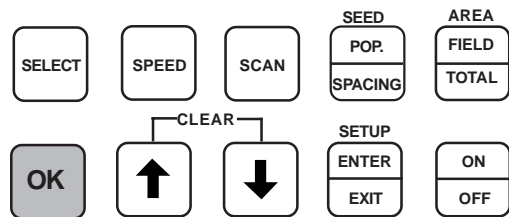
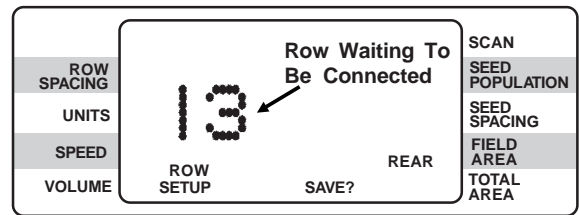
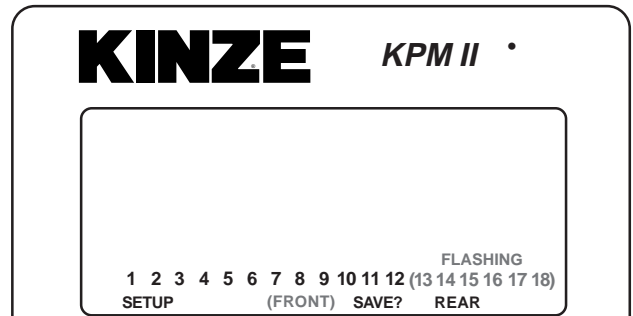
MACHINE OPERATION

KPM II STACK-MODE

STEP 8 When all the seed tubes for the current section (rear/front, left/right or four section) are installed, check to be sure the upper LCD on the KPM II Stack-Mode console displays solid numbers for the number of seed tubes connected. Press and hold the OK key to save the setup for the current section. The SAVE? icon will display followed by continuous short beeps indicating the monitor is preparing to save. The installer has 5 seconds to decide to save the current configuration. During this time, four short beeps will sound followed by a long beep and the SAVE? icon will turn off and the word "DONE" shows on the screen. The monitor will continue to the second section installation (If Applicable).

NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration.

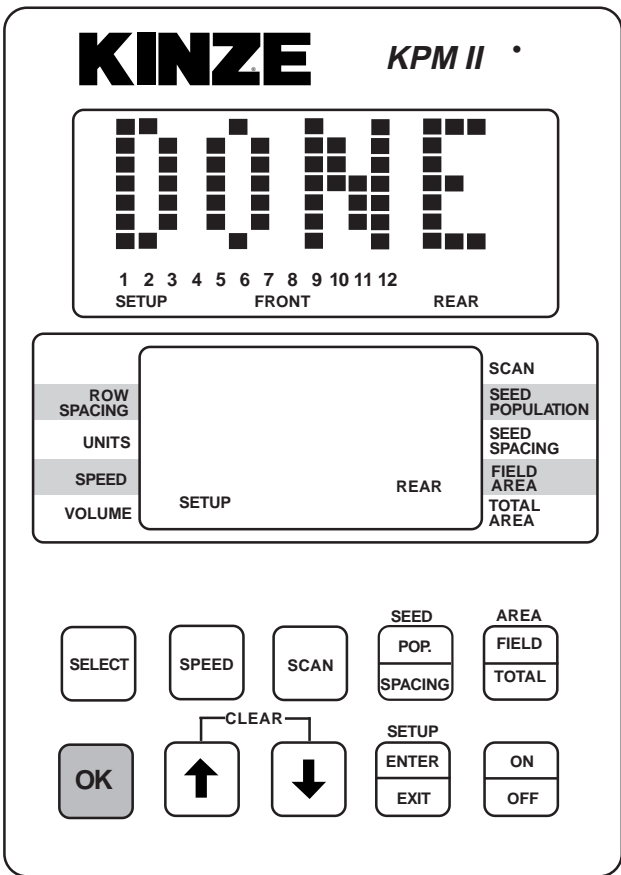
12060211



NOTE: SMM console may not be applicable to all models.

STEP 8 (Continued)

12060211



NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

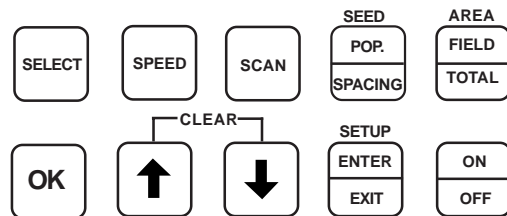
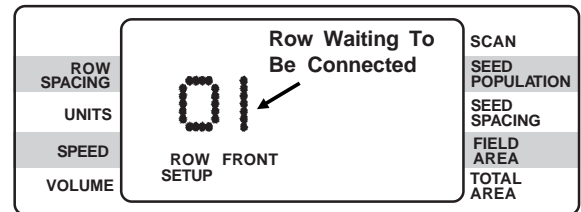
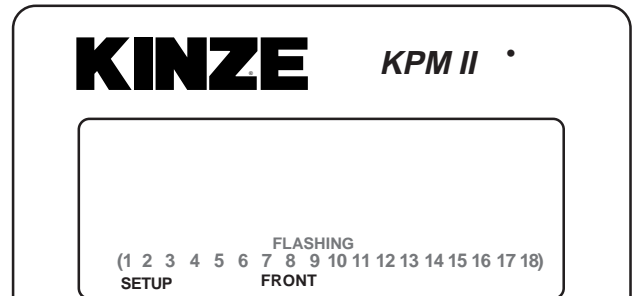
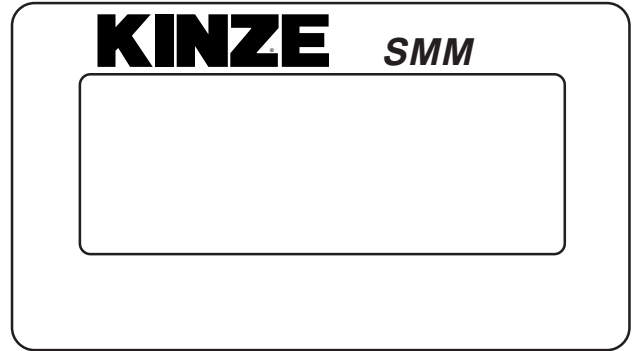
KPM II STACK-MODE

STEP 9 Follow STEPS 6, 7 and 8 to install the second section. If no seed tubes are installed on the second section, press and hold the OK key. The word "DONE" will appear on upper display. The alarm will sound four short beeps followed by one long beep and the SAVE? icon turns off. The monitor has exited the setup mode. When you release the OK key the upper display will scroll "WAITING CALIBRATION". The lower display will show "GNDSPD" and the alarm will sound continually until the distance sensor is connected. See STEP 10.

NOTE: The SMM console LCD remains blank (except the backlighting screen) until the entire system is saved.

NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the front/rear configuration and FRONT RIGHT/REAR RIGHT in four sections configuration.

12060212



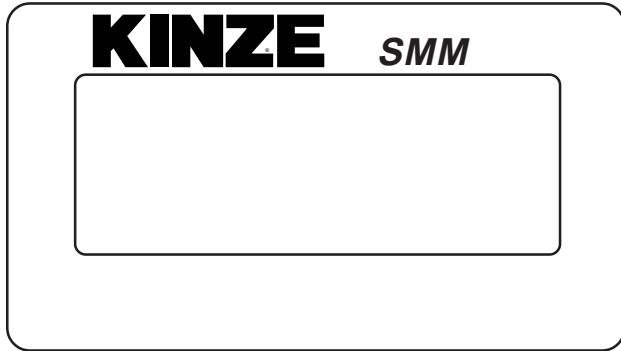
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

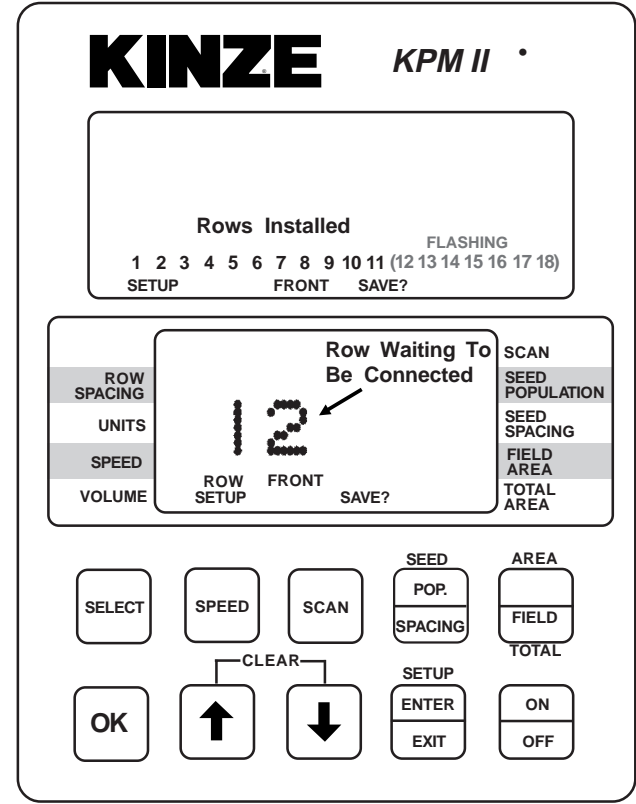
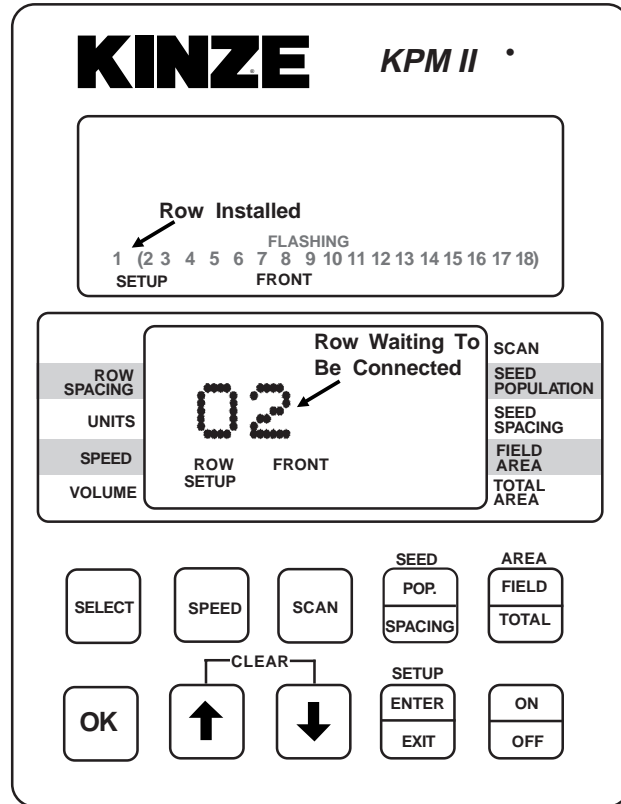
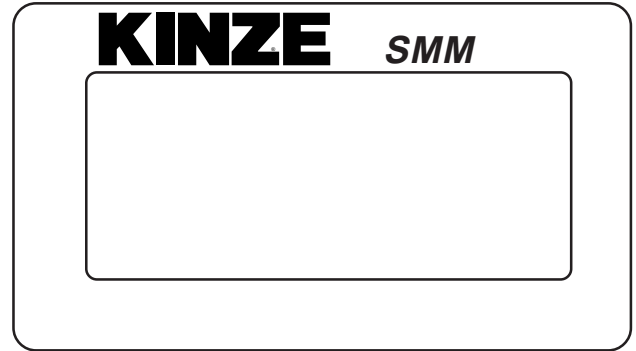
KPM II STACK-MODE

STEP 9 (Continued)

12060213



12060214



NOTE: SMM console may not be applicable to all models.

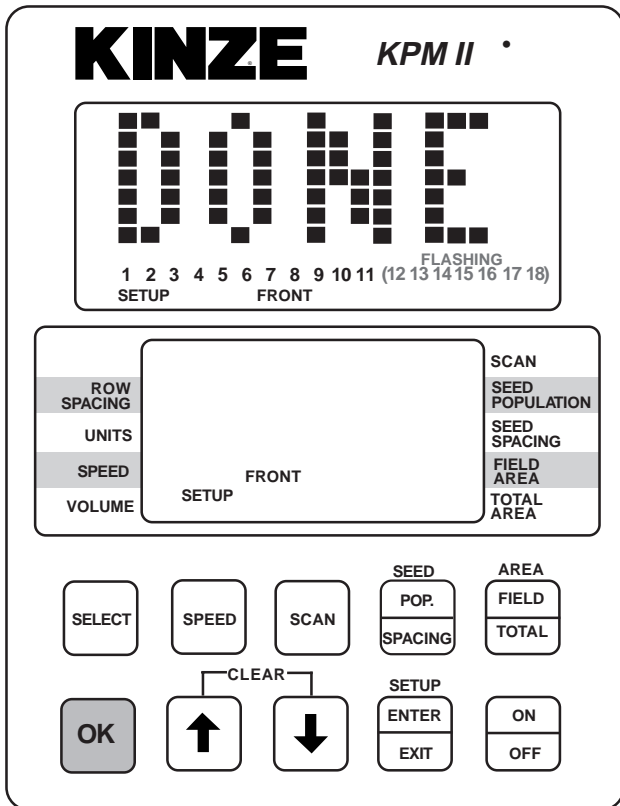
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

STEP 9 (Continued)

12060215



NOTE: SMM console may not be applicable to all models.

STEP 10 With the lower display showing “GNDSPD”, connect the distance sensor. The monitor will display “PICKUP” if a magnetic distance sensor is connected or “RADAR” if a radar distance sensor is installed. Only one distance sensor can be connected at a time.

NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front configuration and FRONT RIGHT/REAR RIGHT in four sections configuration.

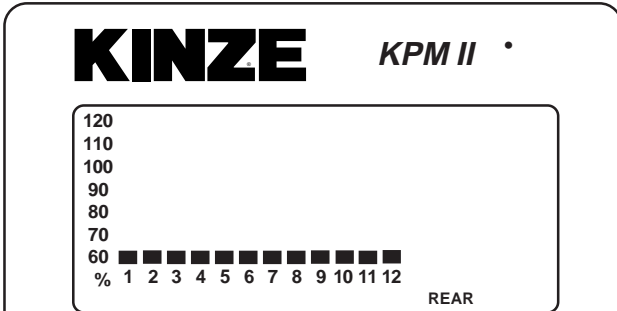
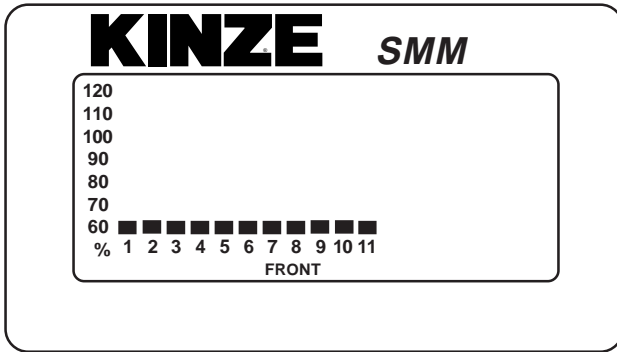
NOTE: To connect the radar distance sensor, install the 10" monitor/radar adapter between the console and radar distance sensor to adapt the monitor system to various tractor radar systems. DO NOT CONNECT 10" MONITOR/RADAR ADAPTER PRIOR TO THIS STEP.

MACHINE OPERATION

KPM II STACK-MODE

STEP 10 (Continued)

12060216



ROW SPACING	GNDSPD	SCAN
UNITS		SEED POPULATION
SPEED		SEED SPACING
VOLUME		FIELD AREA
		TOTAL AREA

REAR

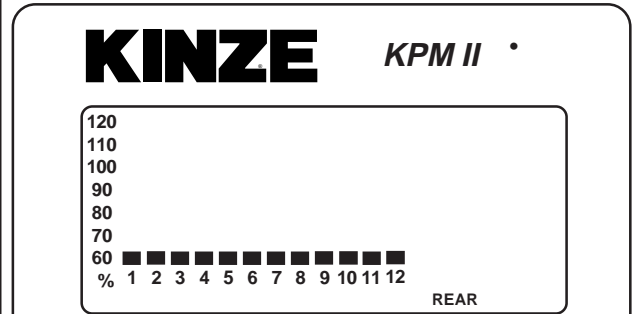
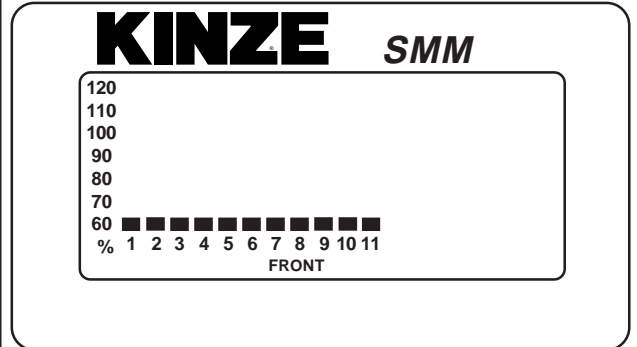
SELECT	SPEED	SCAN	SEED POP. SPACING	AREA FIELD TOTAL
OK	CLEAR		SETUP ENTER EXIT	ON OFF
	↑	↓		

NOTE: SMM console may not be applicable to all models.

NOTE: To reprogram the system to monitor more or less rows (up to the maximum of 18 per section, 72 total in four section configuration), all sensors must be unplugged, followed by the complete setup procedure.

NOTE: Individual seed tubes may be unplugged for special situations. An alarm will sound which can be silenced by touching the OK key. The monitor will recognize the seed tube(s) when reconnected.

12060217



ROW SPACING	MPH 0.0	SCAN
UNITS		SEED POPULATION
SPEED		SEED SPACING
VOLUME		FIELD AREA
		TOTAL AREA

SELECT	SPEED	SCAN	SEED POP. SPACING	AREA FIELD TOTAL
OK	CLEAR		SETUP ENTER EXIT	ON OFF
	↑	↓		

NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

ROW-BY-ROW ALARM LEVEL SETTING
*(Requires Version V2.05 Or Higher Software -
 KPM II Stack-Mode Monitors Only)*

This feature allows the audio alarm to be disabled on selected rows in applications such as planting seed corn.

NOTE: The system should be programmed to monitor all planter rows prior to performing these steps.

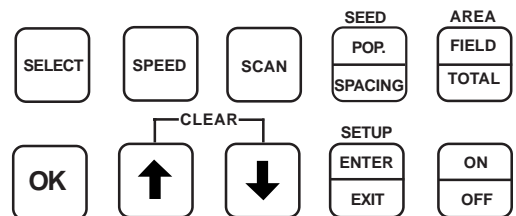
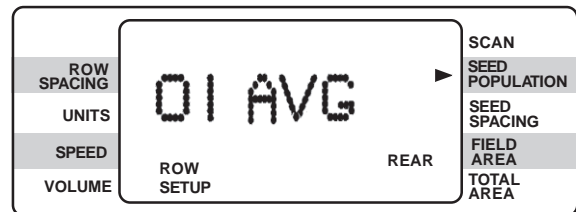
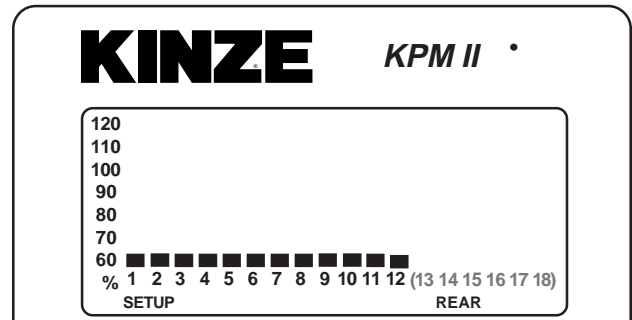
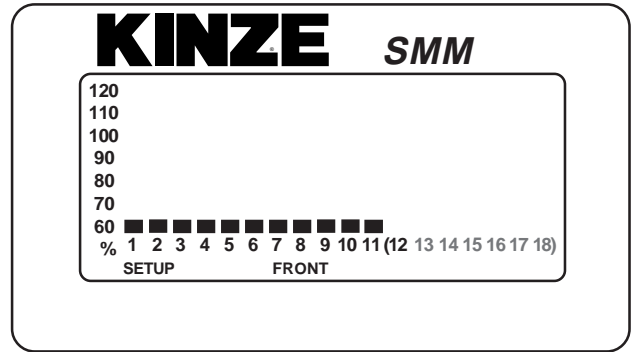
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front configuration and FRONT RIGHT/REAR RIGHT in four sections configuration.

STEP 1 Enter the programming mode by pressing and holding the SETUP key. The monitor will emit several short beeps, followed by a long beep. On the lower LCD, the SETUP icon will turn on and the arrow head icon will flash, indicating the user can select an item to program.

NOTE: The monitor must be in a programmable function (row spacing, unit, speed, volume or area) to enter setup. The monitor will not enter setup in seed population or seed spacing.

STEP 2 Press the UP or DOWN arrow keys to move the flashing arrow to SEED POPULATION. As the arrow icon moves, the lower LCD will display the current setting of each item selected.

12060218



NOTE: SMM console may not be applicable to all models.

STEP 3 Press the OK key. Row number starts flashing.

STEP 4 Arrow UP or DOWN to desired row.

STEP 5 Press SELECT key. "AVG" starts flashing.

STEP 6 Arrow UP or DOWN to choose one of the following options.

HIGH - For Early Alarm (70%)
AVG - For Standard Alarm Setting (55%)
LOW - For Failed Alarm Only (25%)
OFF - To Disable Row Alarm

STEP 7 Press and hold the OK key to save alarm setting. There will be four short beeps, one long beep and the word "DONE" will appear when the save is completed.

STEP 8 Repeat STEPS 3 through 7 for each row on which you wish to adjust the alarm setting.

STEP 9 When finished, press the SETUP key to exit setup mode.

NOTE: The programming mode may be exited at any time by pressing the SETUP key. Pressing this key will return the monitor to its normal operation. All items changed and saved will come into effect immediately. Any items changed, but not saved will revert to the original programmed value.

NOTE: Repeat STEPS 3 through 7 to change seed monitor back to the original settings when special row-by-row alarm level settings are no longer required.

NOTE:

See "Programming - Row Spacing" for programming applicable row spacing.

See "KPM II Stack-Mode Electronic Seed Monitor Troubleshooting" in the Maintenance Section.

MACHINE OPERATION

NOTCHED SINGLE DISC FERTILIZER OPENER

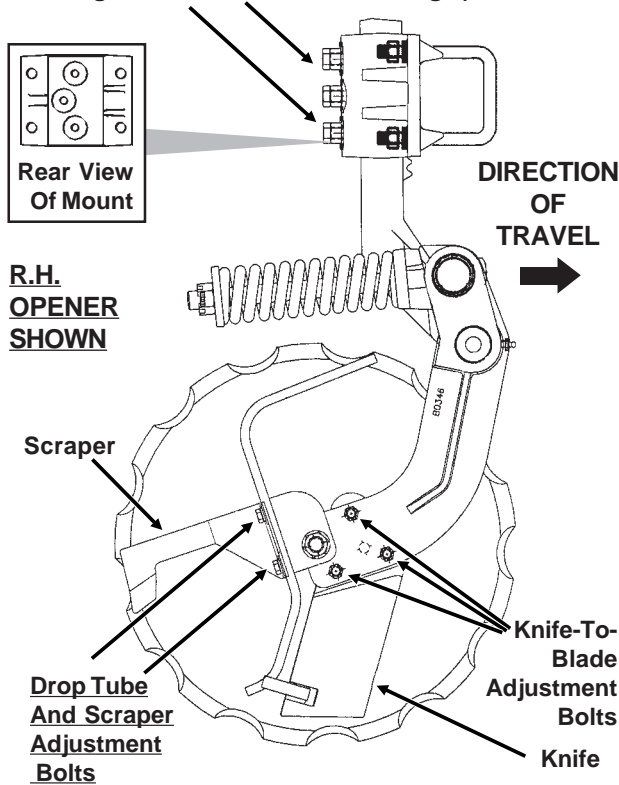
The notched single disc fertilizer opener is designed for use in minimum and no till planting conditions. Placement of fertilizer with the 16 3/4" diameter notched single disc fertilizer opener is recommended at 2 1/2" - 3" from the row. The opener is designed to hold the blade at a set-angle so the knife and drop tube run in the shadow of the blade. **Never locate the opener to place fertilizer closer than 2".**



WARNING: Spring under pressure. DO NOT disassemble.

(B0297/A10216b)

Depth Adjustment Cap Screws - Recommended Maximum Operating Depth 4" (Middle Cap Screw Holds Blade Angle But Must Be Loosened To Adjust Depth And Tightened First To Set Blade Angle)



Adjust knife-to-blade contact on each fertilizer opener so blade will turn by hand with slight resistance, but will not coast or freewheel. In dry, loose soil the knife adjustment is critical. If adjustment is not maintained, soil or residue may wedge between knife and blade, resulting in the blade not turning. If the knife is adjusted too tight, the blade will not turn causing the blade to push soil and residue. **Knife adjustment is made using the three 3/8" mounting carriage bolts** and pivot pad on the knife. Because of blade runout, rotate blade one full revolution after adjustment. Readjust knife to the blade's tight spot as needed. **Never strike the knife with a heavy object or damage may occur.**

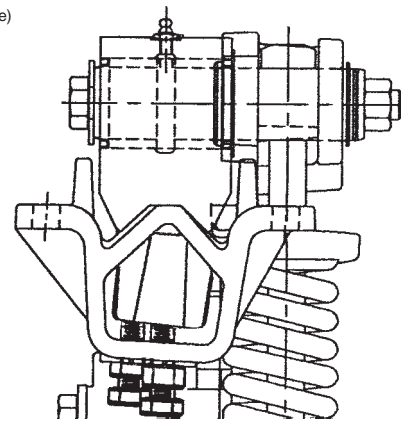
Using the slotted mounting holes in the drop tube mount, **adjust fertilizer drop tube** behind the knife so it is protected from soil contact and wear. The liquid drop tube should be adjusted 1/4 - 3/8" from the opener blade while keeping it behind the knife. **Adjust scraper** to just touch the opener blade. As the mounting hardware is tightened, the scraper is drawn tighter to the blade. After adjustment, rotate opener blade to be sure blade will turn by hand with slight resistance, but will not coast or freewheel.

Adjust blade depth on each row using the cap screws and jam nuts located on the opener mount. The blade can be adjusted to allow a maximum 4" blade depth. Check fertilizer hose clearance (If Applicable) after adjusting opener depth. Torque cap screws and jam nuts to 57 ft. lbs.

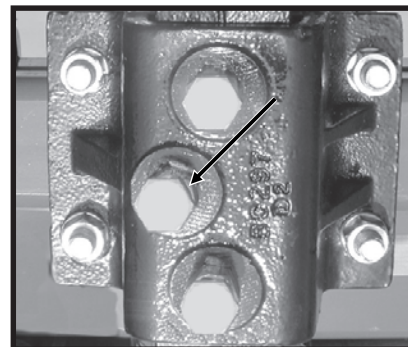
NOTE: The blade runs through the ground at an angle relative to the direction of travel. For this reason and to ensure proper operation, the cast mount should be oriented so the double ribs are on the same side of the blade as the drop tube.

NOTE: Recommended maximum operating depth is 4". To adjust depth: (a) Loosen depth adjustment cap screws. (b) Adjust depth to desired setting. (c) Tighten upper and lower cap screws slightly to hold opener arm in place. (d) Tighten middle cap screw to set the opener arm angle. (e) Tighten upper and lower cap screws and all jam nuts.

(A10216ee)



D070103100



NOTE: Middle cap screw must be tightened prior to tightening depth adjustment cap screws.

MACHINE OPERATION

LIQUID FERTILIZER ATTACHMENT

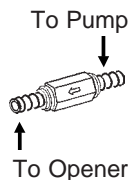
D040604122



Model 3800 24 Row 30" Planter

NOTE: An optional low rate check valve is available for installation in-line between the liquid fertilizer piston pump and the liquid fertilizer openers to ensure equal distribution of product at low rates. The check valve also eliminates the need for an anti-siphon loop if the valve is installed as close as possible to the fertilizer opener drop tube.

(FRTZ208)



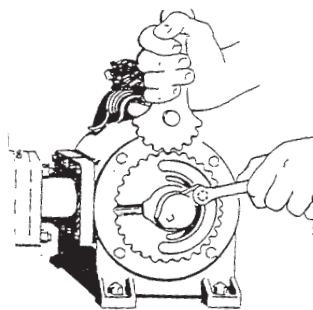
PISTON PUMP

If the machine is equipped with the piston pump option, the rate of liquid fertilizer application is determined by the piston pump settings.

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

To adjust delivery rate, loosen the $\frac{3}{8}$ " lock nut that secures the arm with the pointer and rotate the scale flange until the pointer is over the desired scale setting. The adjustment wrench will facilitate rotation of the scale flange. Tighten the $\frac{3}{8}$ " lock nut being careful not to over tighten.

(PLTR9)



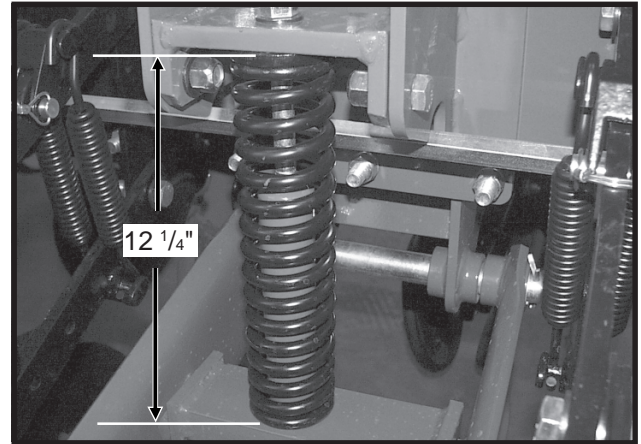
The operator and instruction manual shipped with the pump and flow divider should be kept and stored with this manual for future reference.

NOTE: Periodically check flow to all rows. If one or more lines are plugged, set rate will be delivered to remaining rows.

PISTON PUMP GROUND DRIVE WHEEL SPRING ADJUSTMENT

Initial spring tension of the down pressure spring on the piston pump ground drive wheel is set leaving $12 \frac{1}{4}$ " between the bottom of the mounting plate and the plug on top of the spring. This dimension is taken with the planter in raised position (tire not contacting the ground). Further adjustment can be made to fit conditions.

D012304101



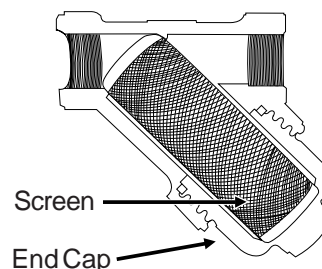
NOTE: The piston pump ground drive wheel assembly is designed to allow the assembly to be locked in raised position when not in use. Remove the two cap screws that attach the upper end of the spring to the spring mount. Reattach the spring using the upper holes in the spring mount. Reverse procedure to reset for field use.

CLEANING

The tanks and all hoses are made of sturdy plastic and rubber to resist corrosion. However, the tanks, hoses and metering pump should be thoroughly cleaned with water at the end of the planting season or prior to an extended period of non-use. Do not allow fertilizer to crystalize due to cold temperature or evaporation.

The strainer, located between the piston pump and ball valve (On machines equipped with the piston pump.), should be taken apart and cleaned daily. Remove the end cap to clean the screen.

(INS220)



See "Piston Pump Storage" (If Applicable) in the Maintenance Section of this manual.

MACHINE OPERATION

REAR TRAILER HITCH

The Rear Trailer Hitch is used to tow a 3 or 4 wheel wagon behind the planter. Any hoses routed to the rear trailer hitch should follow hydraulic hose routings on the planter to allow the planter to be raised and folded to and from the transport position without stretching the hoses.

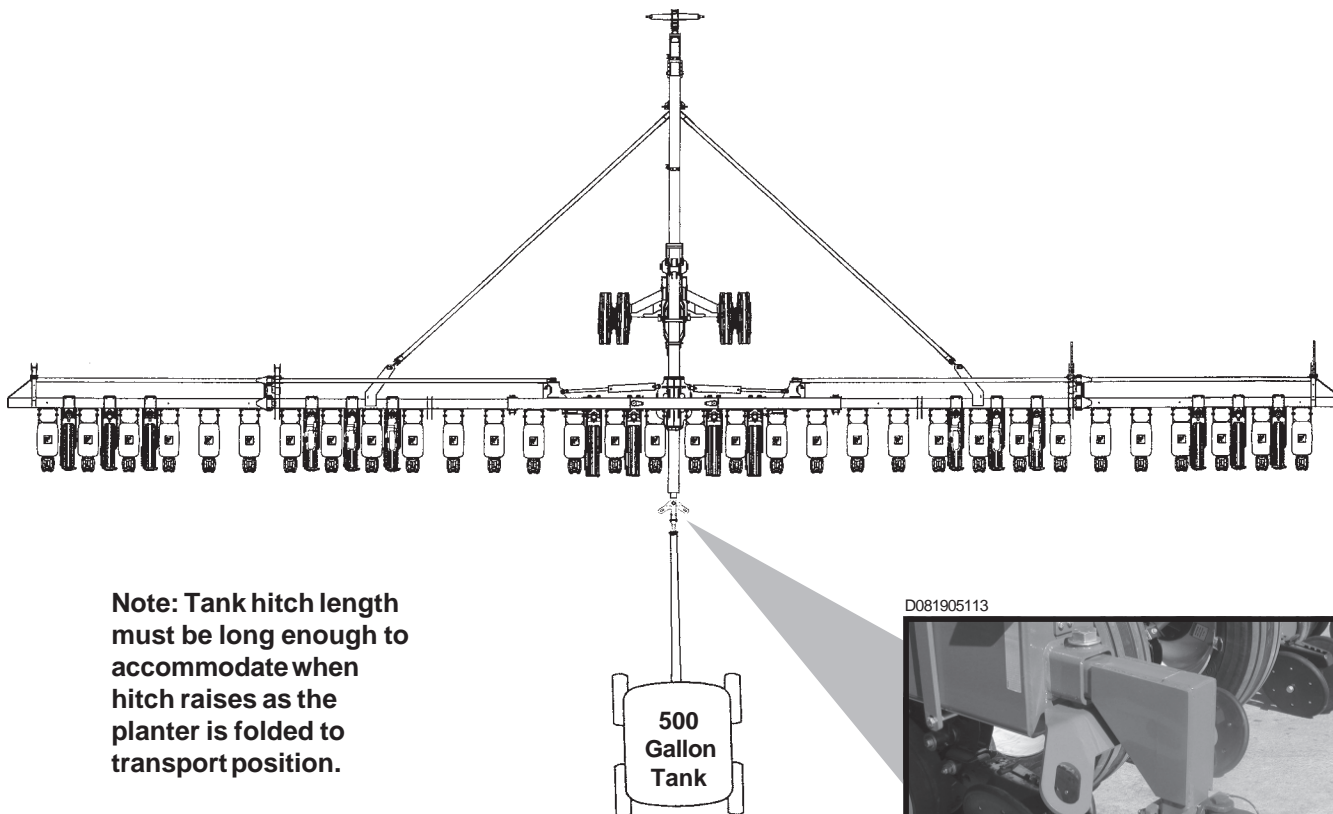
(FWD4b)

32 Row 30" Shown

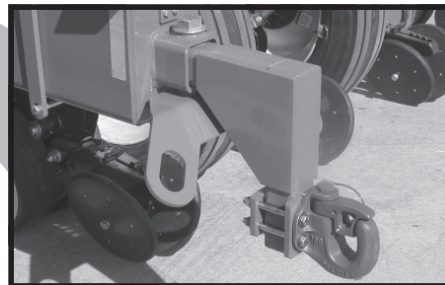
IMPORTANT: Maximum allowable hitch weight is 200 lbs. Gross towing weight should not exceed 6000 lbs. or the equivalent of a loaded 500 gallon tank and running gear.

IMPORTANT: Connection points are provided on the rear trailer hitch for connection of customer-supplied transport safety chains.

NOTE: Periodically check feed hose for kinks to prevent restricted delivery rate.



D081905113



MACHINE OPERATION

TRANSPORTING THE PLANTER



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

IMPORTANT: Avoid transporting planter with hoppers loaded whenever possible. When it is necessary to transport the planter with the hoppers loaded, the added weight should be distributed evenly on the planter frame before folding the planter.

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 (Km/h)
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 (Km/h)	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.)

PLANTING SPEED

Planters are designed to operate within a speed range of 2 to 8 MPH. See “Planting And Application 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.

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 end of this section.

- Check the planter for fore to aft and lateral level operation. See “Leveling The Planter” and “Leveling The Planter Wings”.
- 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 “Row Marker Length Adjustment”, “Row Marker Speed Adjustment” and “Row 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”.
- Check for proper application rates of fertilizer on **all** rows. See “Fertilizer Application Rate Chart”.

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

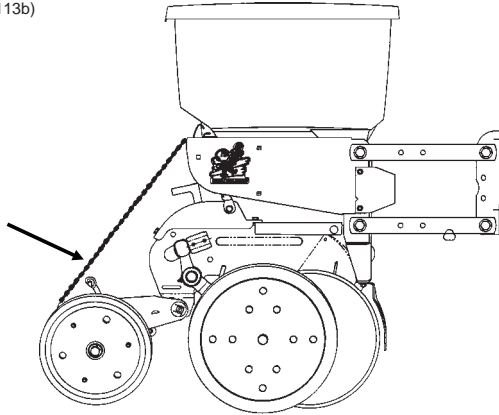
- Hoses And Fittings
- Bolts And Nuts
- Cotter Pins And Spring Pins
- Drive Chain Alignment

MACHINE OPERATION

CHECKING SEED POPULATION

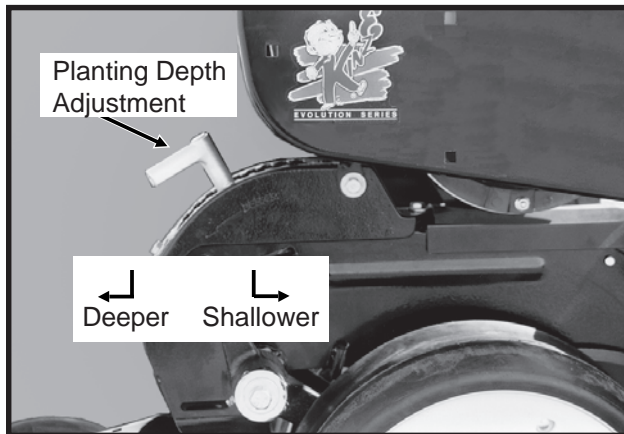
1. Tie up one or more sets of closing wheels by running a chain or rubber tarp strap between the hopper support panel and closing wheels. It may be necessary to decrease closing wheel arm spring tension.

(RU113b)



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.

04059914a



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

LENGTH OF ROW IN FEET AND INCHES	
Fraction Of Acre	30" Row Width
$\frac{1}{1000}$	17' 5"

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 $\frac{1}{1000}$ of an acre by 1000. This will give you total population.

EXAMPLE: With 30" row spacing 17' 5" equals $\frac{1}{1000}$ acre.

26 Seeds Counted	x	1000	=	26,000 Seeds Per Acre
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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 driveline and check drive and driven sprockets on transmission(s) 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.

MACHINE OPERATION

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/Grain Sorghum = 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/
grain sorghum
- 4,500 seeds per pound for medium size cotton

If seed population 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

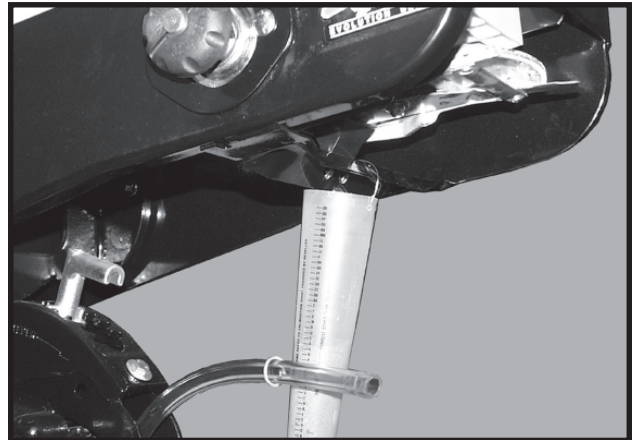
Many things can affect the rate of delivery of granular chemicals such as temperature, humidity, speed, ground conditions, flowability of different material or any obstruction in the meter.



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

A field check is important to determine correct application rates.

D05149901



To check, fill insecticide and/or herbicide hoppers. 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.

POUNDS PER ACRE FACTOR FOR GIVEN ROW WIDTH	
Row Width	Factor
30"	0.83

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.

MACHINE OPERATION

GENERAL PLANTING RATE INFORMATION

These planting rate charts are applicable to KINZE® Model 3800 Forward Folding Planters. See “Tire Pressure” for recommended tire pressures.

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 Corn Meter

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.

Finger Pickup Oil Sunflower Meter

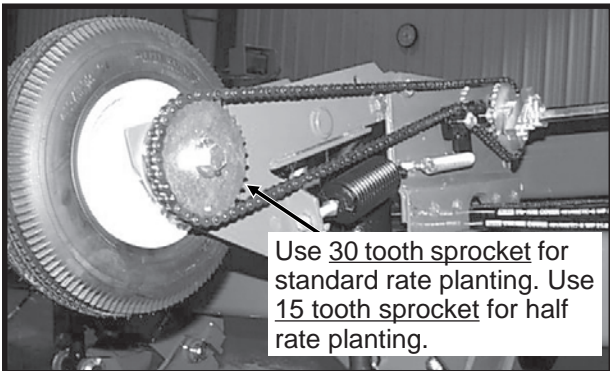
Larger grades will generally plant more accurately at the high end of the ground speed range than smaller grades. Higher than optimum speeds may result in population rate increase or higher incidence of doubles, particularly with small seed. No. 3 and/or No. 4 size oil sunflower seeds are recommended for use in the finger pickup seed meter equipped with oil sunflower fingers. No. 1 and/or No. 2 size confectionery sunflower seeds are recommended for use in the finger pickup seed meter equipped with corn fingers.

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)

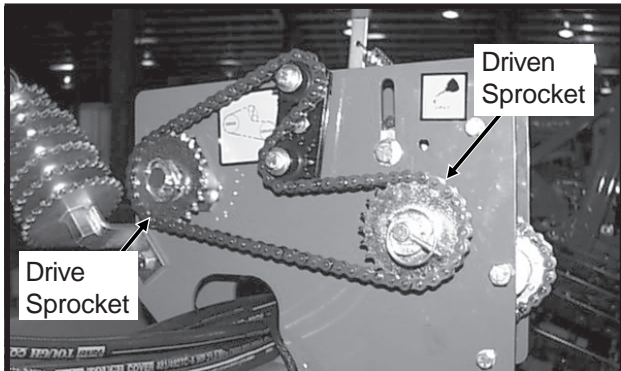
Rate charts are given in seeds per acre as well as seed spacing in inches rounded to the nearest tenth of an inch. Because of the large range in seed size, pounds per acre is not a suggested method of selecting transmission settings. When using smaller size seeds it may appear the pounds per acre is 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.



D11300414

Use 30 tooth sprocket for standard rate planting. Use 15 tooth sprocket for half rate planting.



D11300410

Driven Sprocket

Drive Sprocket

In some cases, a **Half Rate (2 To 1) Drive Reduction Package** may be required to obtain the desired population and seed spacing.

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 (2 To 1) Drive Reduction Package. Planting speed can affect actual seeding rate. Make a field check and adjust setting in the transmissions as needed to obtain the desired seed drop.

MACHINE OPERATION

PLANTING RATES FOR FINGER PICKUP SEED METERS (STANDARD DRIVE) APPROXIMATE SEEDS/ACRE

30" Rows	Transmission Sprockets		Recommended Speed Range (MPH)	Average Seed Spacing In Inches
	Drive	Driven		
16,186	17	28	4 to 6	12.9
16,785	17	27	4 to 6	12.5
17,431	17	26	4 to 6	12.0
18,090	19	28	4 to 6	11.6
18,128	17	25	4 to 6	11.5
18,760	19	27	4 to 6	11.1
18,883	17	24	4 to 6	11.1
19,481	19	26	4 to 6	10.7
19,704	17	23	4 to 6	10.6
20,261	19	25	4 to 6	10.3
21,104	19	24	4 to 6	9.9
21,898	23	28	4 to 6	9.5
22,022	19	23	4 to 6	9.5
22,709	23	27	4 to 6	9.2
22,850	24	28	4 to 6	9.2
23,583	23	26	4 to 6	8.9
23,697	24	27	4 to 6	8.8
23,802	25	28	4 to 6	8.8
23,853	17	19	4 to 6	8.8
24,526	23	25	4 to 6	8.5
24,608	24	26	4 to 6	8.5
24,684	25	27	4 to 6	8.5
24,755	26	28	4 to 6	8.4
25,548	23	24	4 to 6	8.2
25,592	24	25	4 to 6	8.2
25,633	25	26	4 to 6	8.2
25,671	26	27	4 to 6	8.1
25,707	27	28	4 to 6	8.1
26,659	23	23	4 to 6	7.8
27,646	28	27	4 to 6	7.6
27,684	27	26	4 to 6	7.6
27,770	25	24	4 to 6	7.5
27,818	24	23	4 to 6	7.5
28,709	28	26	4 to 6	7.3
28,791	27	25	4 to 6	7.3
28,977	25	23	4 to 6	7.2
29,795	19	17	4 to 6	7.0
29,858	28	25	4 to 6	7.0
29,991	27	24	4 to 6	7.0
30,136	26	23	4 to 6	7.0
31,102	28	24	3 to 6	6.7
31,295	27	23	3 to 6	6.7
32,271	23	19	3 to 5.5	6.5
32,454	28	23	3 to 5.5	6.5
33,674	24	19	3 to 5.5	6.2
35,077	25	19	3 to 5	6.0
36,068	23	17	2 to 5	5.8
36,480	26	19	3 to 5	5.7
37,636	24	17	3 to 5	5.6
37,883	27	19	3 to 5	5.5
39,204	25	17	3 to 4.5	5.3
39,287	28	19	3 to 4.5	5.3
40,772	26	17	3 to 4.5	5.1
42,340	27	17	3 to 4.5	4.9
43,908	28	17	3 to 4.5	4.8

NOTE: 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.

MACHINE OPERATION

PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE)

APPROXIMATE SEEDS/ACRE

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		30" Rows		
17	28	80,928	2.6	64,742	3.2	2 to 8
17	27	83,926	2.5	67,141	3.1	2 to 8
17	26	87,154	2.4	69,723	3.0	2 to 8
19	28	90,449	2.3	72,359	2.9	2 to 8
19	27	93,799	2.2	75,039	2.8	2 to 8
17	24	94,416	2.2	75,533	2.8	2 to 8
17	23	98,521	2.1	78,817	2.7	2 to 8
19	25	101,303	2.1	81,042	2.6	2 to 8
19	24	105,524	2.0	84,419	2.5	2 to 8
23	28	109,491	1.9	87,593	2.4	2 to 8
19	23	110,112	1.9	88,090	2.4	2 to 8
24	28	114,252	1.8	91,402	2.3	2 to 8
24	27	118,483	1.8	94,786	2.2	2 to 8
17	19	119,263	1.8	95,410	2.2	2 to 8
24	26	123,040	1.7	98,432	2.1	2 to 8
26	28	123,773	1.7	99,018	2.1	2 to 8
24	25	127,962	1.6	102,370	2.0	2 to 8
26	27	128,357	1.6	102,686	2.0	2 to 8
23	23	133,294	1.6	106,635	2.0	2 to 8
27	26	138,420	1.5	110,736	1.9	2 to 8
24	23	139,089	1.5	111,271	1.9	2 to 8
25	23	144,884	1.4	115,907	1.8	2 to 8
19	17	148,975	1.4	119,180	1.8	2 to 8
27	24	149,955	1.4	119,964	1.7	2 to 8
28	24	155,509	1.3	124,407	1.7	2 to 8
23	19	161,355	1.3	129,084	1.6	2 to 8
28	23	162,270	1.3	129,816	1.6	2 to 8
24	19	168,371	1.2	134,696	1.6	2 to 8
25	19	175,386	1.2	140,309	1.5	2 to 8
23	17	180,338	1.2	144,270	1.5	2 to 8
26	19	182,402	1.1	145,922	1.4	2 to 7
27	19	189,417	1.1	151,534	1.4	2 to 7
28	19	196,433	1.1	157,146	1.3	2 to 7
26	17	203,861	1.0	163,089	1.3	2 to 7
27	17	211,702	0.9	169,362	1.2	2 to 7
28	17	219,542	0.9	175,634	1.2	2 to 7

NOTE: 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.

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

MACHINE OPERATION

PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE)

APPROXIMATE SEEDS/ACRE

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		30" Rows		
17	28	48,557	4.3	40,464	5.2	2 to 8
17	27	50,356	4.2	41,963	5.0	2 to 8
17	26	52,292	4.0	43,577	4.8	2 to 8
19	28	54,269	3.9	45,225	4.6	2 to 8
19	27	56,279	3.7	46,900	4.5	2 to 8
17	24	56,650	3.7	47,208	4.4	2 to 8
17	23	59,113	3.5	49,261	4.2	2 to 8
19	25	60,782	3.5	50,652	4.1	2 to 8
19	24	63,314	3.3	52,762	4.0	2 to 8
23	28	65,695	3.2	54,746	3.8	2 to 8
19	23	66,067	3.2	55,056	3.8	2 to 8
24	28	68,551	3.0	57,126	3.7	2 to 8
24	27	71,090	2.9	59,242	3.5	2 to 8
17	19	71,558	2.9	59,631	3.5	2 to 8
24	26	73,824	2.8	61,520	3.4	2 to 8
26	28	74,264	2.8	61,886	3.4	2 to 8
24	25	76,772	2.7	63,981	3.3	2 to 8
26	27	77,014	2.7	64,178	3.3	2 to 8
23	23	79,976	2.6	66,647	3.1	2 to 8
27	26	83,052	2.5	69,210	3.0	2 to 8
24	23	83,453	2.5	69,544	3.0	2 to 8
25	23	86,930	2.4	72,442	2.9	2 to 8
19	17	89,385	2.3	74,488	2.8	2 to 8
27	24	89,973	2.3	74,978	2.8	2 to 8
28	24	93,305	2.2	77,755	2.7	2 to 8
23	19	96,813	2.2	80,678	2.6	2 to 8
28	23	97,362	2.1	81,135	2.6	2 to 8
24	19	101,023	2.1	84,185	2.5	2 to 8
25	19	105,232	2.0	87,693	2.4	2 to 8
23	17	108,233	1.9	90,169	2.3	2 to 8
26	19	109,441	1.9	91,201	2.3	2 to 7
27	19	113,650	1.8	94,709	2.2	2 to 7
28	19	117,860	1.8	98,216	2.1	2 to 7
26	17	122,317	1.7	101,930	2.1	2 to 7
27	17	127,021	1.6	105,851	2.0	2 to 7
28	17	131,725	1.6	109,771	1.9	2 to 7

NOTE: 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.

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

MACHINE OPERATION

PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE) APPROXIMATE HILLS/ACRE

Due to variations in cotton seed size, meters equipped with 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 $\frac{1}{1000}$ of an acre (1/1000 acre = Length of row 17' 5" for 30" 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 30" Rows	Average Hill Spacing In Inches	Speed Range (MPH)
Drive	Driven			
17	28	16,186	12.9	2 to 8
17	27	16,785	12.5	2 to 8
17	26	17,431	12.0	2 to 8
19	28	18,090	11.6	2 to 8
19	27	18,760	11.1	2 to 8
17	24	18,883	11.1	2 to 8
17	23	19,704	10.6	2 to 8
19	25	20,261	10.3	2 to 8
19	24	21,105	9.9	2 to 8
23	28	21,898	9.5	2 to 8
19	23	22,022	9.5	2 to 8
24	28	22,850	9.2	2 to 8
24	27	23,697	8.8	2 to 8
17	19	23,853	8.8	2 to 8
24	26	24,608	8.5	2 to 8
26	28	24,755	8.4	2 to 8
24	25	25,592	8.2	2 to 8
26	27	25,671	8.1	2 to 8
23	23	26,659	7.8	2 to 8
27	26	27,684	7.6	2 to 8
24	23	27,818	7.5	2 to 8
25	23	28,977	7.2	2 to 8
19	17	29,795	7.0	2 to 8
27	24	29,991	7.0	2 to 8
28	24	31,102	6.7	2 to 8
23	19	32,271	6.5	2 to 8
28	23	32,454	6.5	2 to 8
24	19	33,674	6.2	2 to 8
25	19	35,077	6.0	2 to 8
23	17	36,068	5.8	2 to 8
26	19	36,480	5.7	2 to 7
27	19	37,883	5.5	2 to 7
28	19	39,287	5.3	2 to 7
26	17	40,772	5.1	2 to 7
27	17	42,340	4.9	2 to 7
28	17	43,908	4.8	2 to 7

NOTE: 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.

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

MACHINE OPERATION

DRY INSECTICIDE APPLICATION RATES APPROXIMATE POUNDS/ACRE AT 5 MPH

Meter Setting	30" Rows
CLAY GRANULES	
10	4.9
11	5.4
12	6.1
13	6.9
14	7.7
15	8.5
16	9.6
17	10.7
18	11.4
19	13.1
20	14.2
21	15.5
22	16.4
23	17.2
24	18.8
25	20.9
26	23.0
27	24.1
28	25.4
29	27.8
30	29.6
SAND GRANULES	
5	2.9
6	4.9
7	5.3
8	6.3
9	7.8
10	8.9
11	10.2
12	11.2
13	12.6
14	14.1
15	15.5
16	17.5
17	19.4
18	21.8
19	24.3
20	25.7
21	27.6
22	29.6
23	32.0
24	34.4
25	36.9

NOTE: 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. See "Checking Granular Chemical Application Rate" page for additional information.



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

MACHINE OPERATION

DRY HERBICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE AT 5 MPH

CLAY GRANULES

Meter Setting	30" Rows
10	4.7
11	5.2
12	5.8
13	6.5
14	7.3
15	8.2
16	9.0
17	9.9
18	10.7
19	11.6
20	12.6
21	13.6
22	14.6
23	15.7
24	17.0
25	18.1
26	19.4
27	20.9
28	22.6
29	24.3
30	26.7

NOTE: 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. See "Checking Granular Chemical Application Rate" page for additional information.



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

MACHINE OPERATION

LIQUID FERTILIZER PISTON PUMP APPLICATION RATES GALLONS PER ACRE

Applies To Model L-4405 Pump With 18 Tooth Sprocket
(Planter Equipped With Two Piston Pumps)

Pump Setting	1	2	3	4	5	6	7	8	9	10
24 Row 30"	3.7	7.4	11.1	14.8	18.5	22.1	25.8	29.5	33.2	36.9
32 Row 30"	2.8	5.5	8.3	11.1	13.9	16.6	19.4	22.2	24.9	27.7
36 Row 30"	2.5	4.9	7.3	9.8	12.2	14.6	17.0	19.5	21.9	24.4

Above chart is for planters equipped with 7.60" x 15" drive wheel, based on 91" forward travel per wheel revolution, 48 tooth drive sprocket and 18 tooth driven sprocket on metering pump. Chart is based on average wheel slippage and liquid viscosities.

Measure and weigh one gallon of actual fertilizer solution to determine exact application rate. This chart was calculated based on a solution weighing ten pounds per gallon.

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

NOTE: Flow to all rows should be checked periodically. If one or more lines are plugged, the desired rate will be delivered to the remaining rows keeping total application rate at desired rate.

To check the exact number of gallons your fertilizer attachment will actually deliver on a 30" row spacing, proceed as follows:

Remove the hose from one of the fertilizer openers and insert it into a collection container which has been secured to the planter frame. Engage the fertilizer attachment and drive forward for 174'. Measure the fluid ounces caught in the container and multiply that amount by 100. Divide that amount by 128. The result will be the gallons of fertilizer delivered per acre when planting in 30" rows. Rinse the collection container and repeat test on other rows if necessary.

ROW UNIT OPERATION

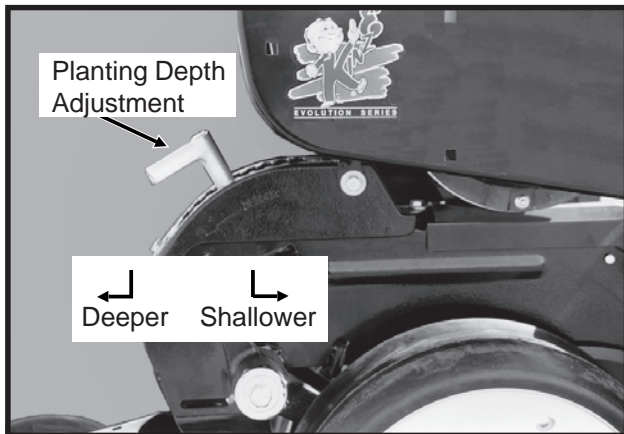
PLANTING DEPTH

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 push down on 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. Available depth adjustment range is approximately 1/2" to 3 1/2".



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

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

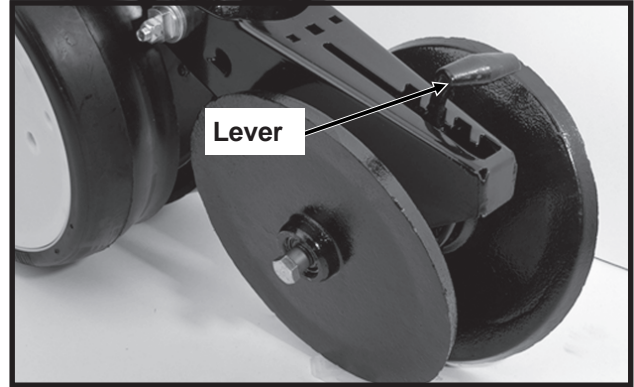


WARNING: Raise planter and install safety lockup devices before making closing wheel adjustments.

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 on the top of the closing wheel arm to the rear. Moving the lever forward decreases spring tension.

Adjust all row units to a similar setting.

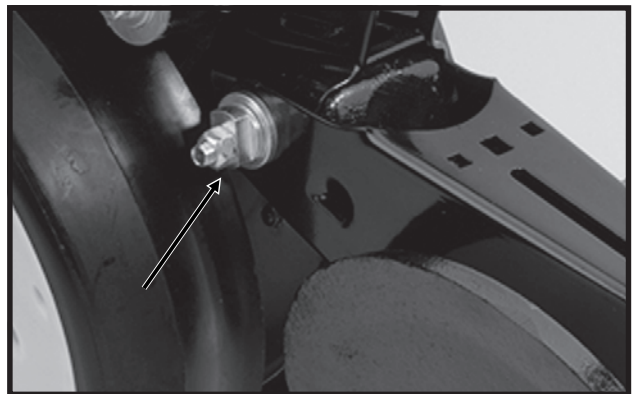
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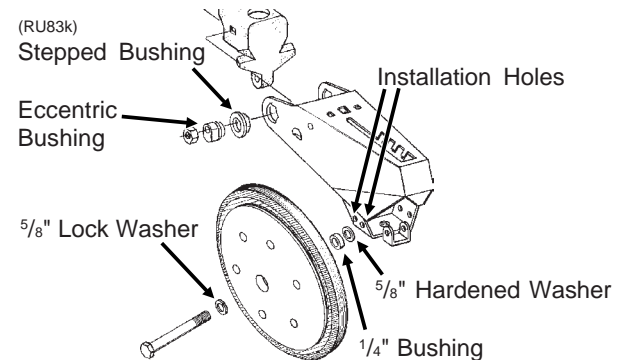
Light soil usually requires less down force at average depth (approximately 2") while heavy soil requires increased down force.

Eccentric bushings in the wheel arm stop allow for lateral adjustment of the "V" closing wheel assembly. Using a 3/4" wrench, loosen the hardware which attaches the closing wheel arm to the wheel arm stop. Using another 3/4" wrench turn the eccentric bushings until the **closing wheels are aligned with the seed trench**. Tighten hardware.

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The closing wheels can be installed in two locations either "offset" (to improve residue flow) or "directly" opposite. If set "directly" opposite, the forward installation holes should be used.

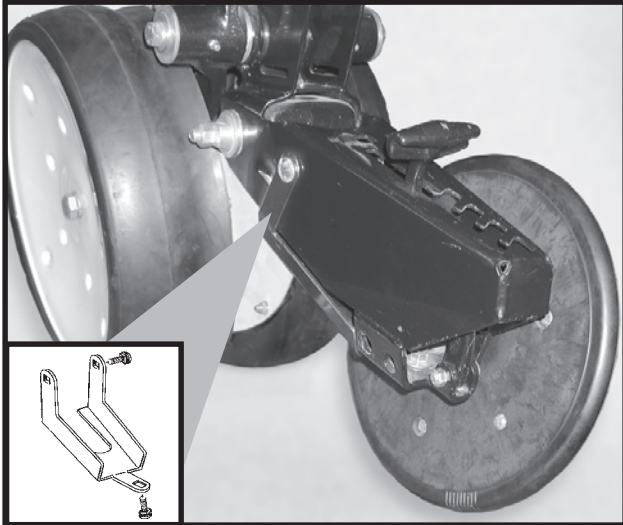


ROW UNIT OPERATION

CLOSING WHEEL SHIELD

(Rubber And Cast Iron "V" Closing Wheels)

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Shown With Closing Wheel Removed For Visual Clarity

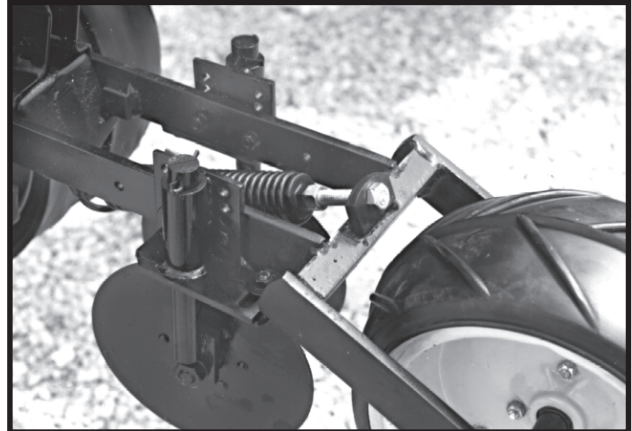
The optional closing wheel shield is designed to be installed onto the underside of the closing wheel arm to help prevent root balls and stalks from plugging the closing wheels.

COVERING DISCS/SINGLE PRESS WHEEL ADJUSTMENT



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

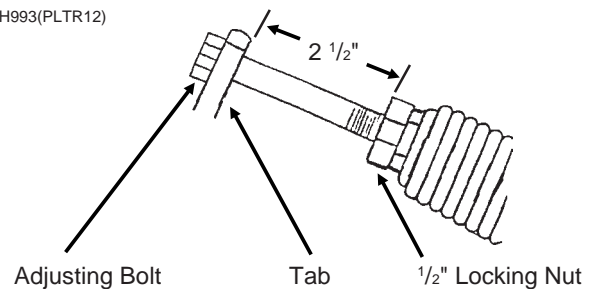
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After adjusting planting depth, check the operation of the covering discs/single press wheels.

Initial press wheel down force setting should be with 2 1/2" between mounting arm tab and locking nut. To adjust down force spring, loosen 1/2" locking nut and turn adjusting bolt in to increase down force or out to decrease down force. Tighten locking nut against spring plug. Adjust all row units to a similar setting.

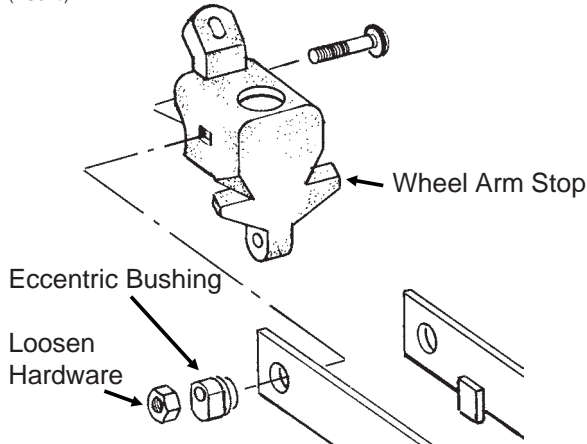
RH993(PLTR12)



ROW UNIT OPERATION

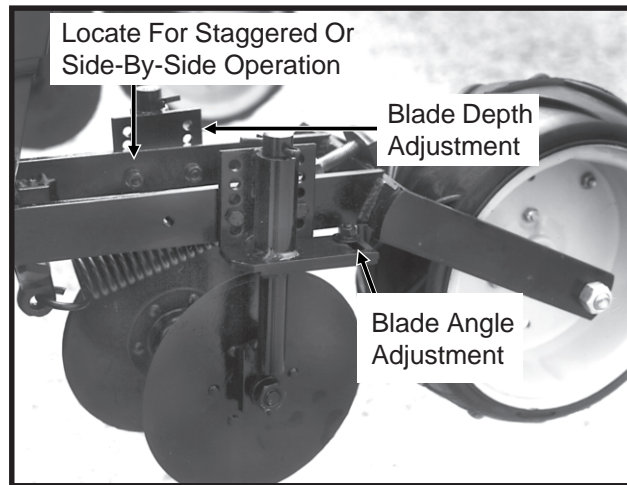
Eccentric bushings in the wheel arm stop allow for lateral adjustment of the covering discs/single press wheel assembly. Using a $\frac{3}{4}$ " wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another $\frac{3}{4}$ " wrench, turn the eccentric bushings until the press wheel is aligned with the seed trench.

(RU94b)



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



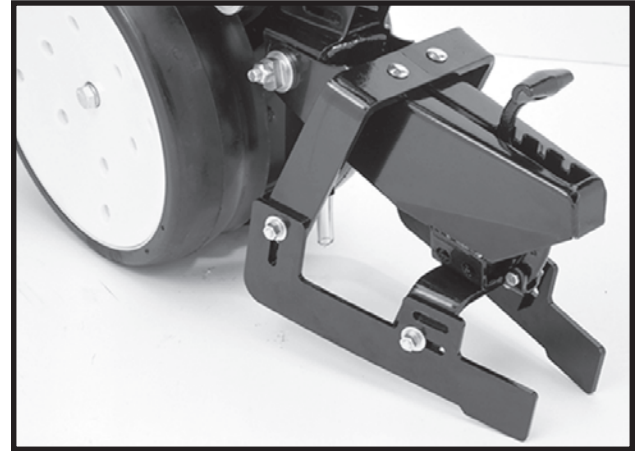
Five sets of holes in each disc bracket allow for $\frac{1}{2}$ " incremental blade depth adjustment.

Slotted holes in the disc mount and bracket allow for $0^\circ - 15^\circ$ blade angle adjustment.

Adjust covering discs on all row units to similar settings.

DRAG CLOSING ATTACHMENT

LF212299-18



The drag closing attachment is designed to pull loose soil over the seed trench.

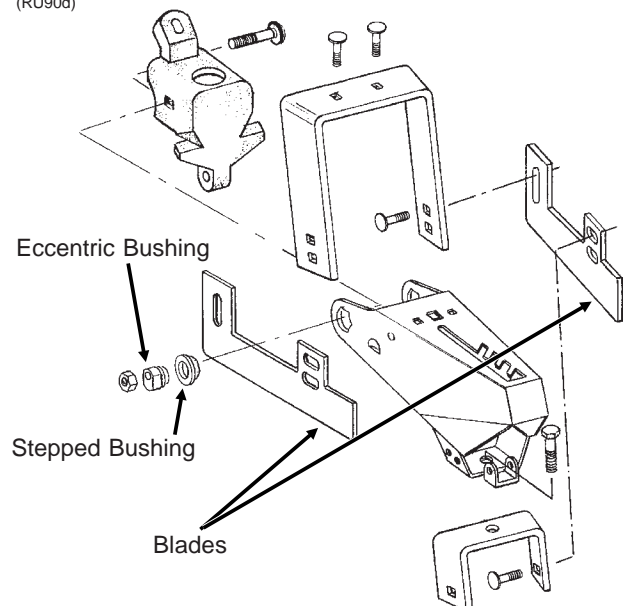
Front and rear adjustment is made using the slotted holes in the blades. Adjust all rows the same.

NOTE: Use of a seed firming wheel or other seed firming device is recommended with the drag closing attachment.



WARNING: Raise planter and install safety lockup devices before making drag closing attachment adjustments.

(RU90d)



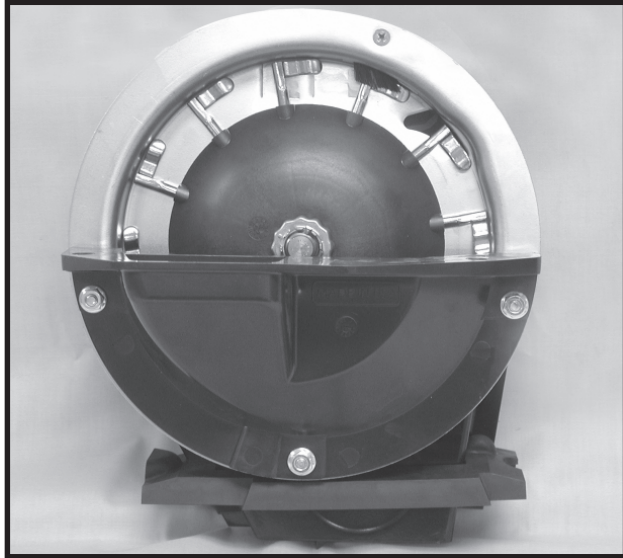
Eccentric bushings allow for lateral adjustment of the drag closing attachment. Using a $\frac{3}{4}$ " wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another $\frac{3}{4}$ " wrench, turn the eccentric bushings until the drag closing attachment is aligned with the seed trench.

ROW UNIT OPERATION

FINGER PICKUP SEED METER

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

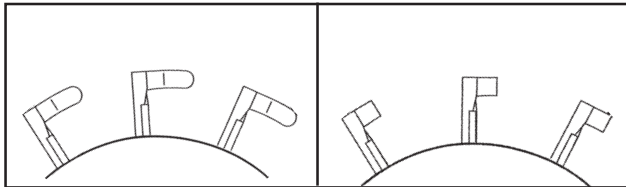
D12220401



Shown With Corn Fingers Installed

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

(PLTR91/PLTR92/PLTR91a)

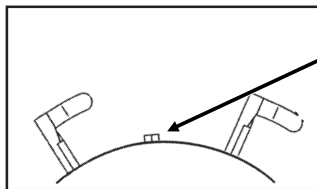


Corn Fingers

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.

No. 1 and/or No. 2 size confectionery sunflower seeds are recommended for use in the finger pickup seed meter equipped with corn fingers.



Half Rate Blank Finger

Blank fingers are used to replace alternate fingers in the finger wheel to reduce the planting rate by half while allowing the finger wheel to maintain a minimum of 40 RPM when planting low rates.

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

NOTE: Powdered graphite is recommended for finger pickup seed meter lubrication to ensure efficient operation of the mechanism and to extend the life of its components. Mix one teaspoon of powdered graphite with the seed twice daily. Apply graphite on top of seed around the outer perimeter of the hopper as shown below. Graphite application frequency and volume may need to be increased if using additional seed treatments.

NOTE: Do NOT apply graphite only in the center of the hopper. It will filter too quickly through the seed and not distribute as evenly as desired.

D05230121b



NOTE: Follow manufacturer's recommendations when applying and mixing other seed treatments. If the additive is to be applied on top of the seed, apply around the outer perimeter of the hopper as with graphite.

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

CLEANOUT

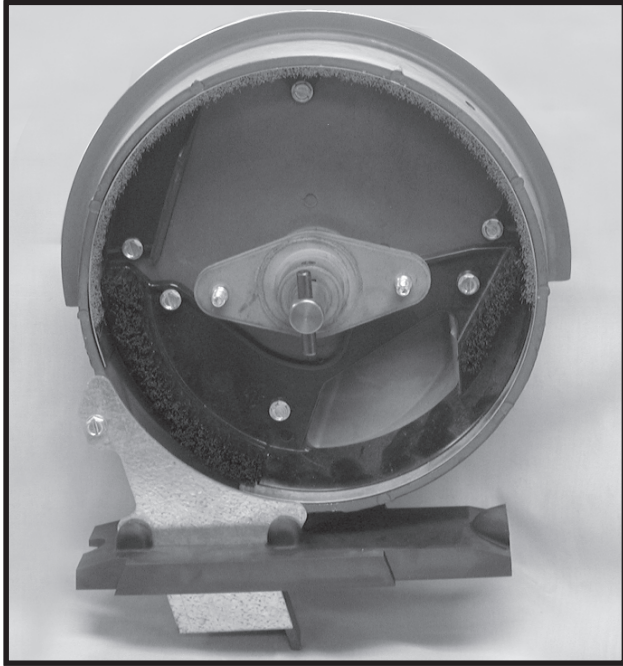
To maintain genetic purity, thorough seed meter cleanout is important.

To clean the seed meter, disengage the seed drive and remove the seed hopper and meter. Dump the seed from the right rear corner of the hopper into a container. Turn the seed drive several times. Invert hopper to dump seed again. Shake the hopper and listen for any remaining seed. Turn seed drive and shake and dump hopper until all seed is removed.

ROW UNIT OPERATION

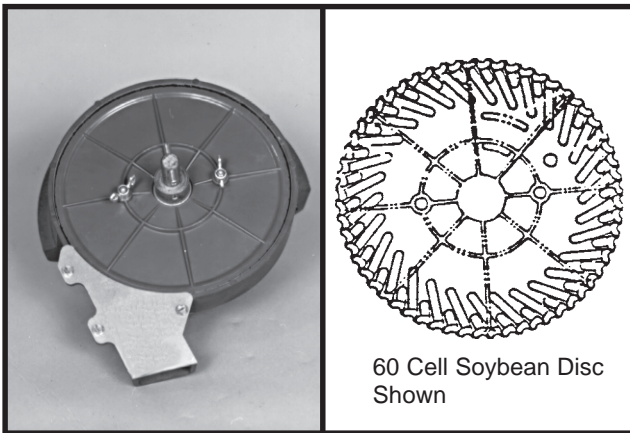
BRUSH-TYPE SEED METER

D12220403



Shown Without Seed Disc Installed

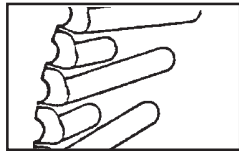
60607-40a(PLTR13)



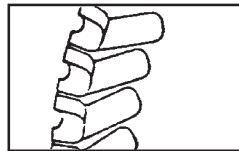
60 Cell Soybean Disc Shown

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)



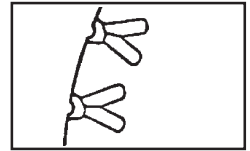
Specialty soybean: 48 cells to meter seed sizes from 1400 to 2200 seeds per pound (Dark blue color-coded). (PLTR15)



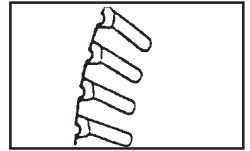
Small milo/grain sorghum: 30 cells to meter seed sizes from 14,000 to 20,000 seeds per pound (Red color-coded). (PLTR16)



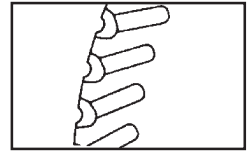
Large milo/grain sorghum: 30 cells to meter seed sizes from 10,000 to 16,000 seeds per pound (Light blue color-coded). (PLTR17)



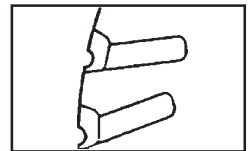
High-rate small milo/grain sorghum: 60 cells to meter seed sizes from 12,000 to 18,000 seeds per pound (Red color-coded). (PLTR18)



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)



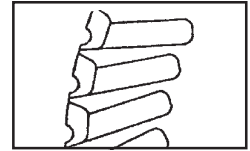
Cotton, acid-delinted: 30 cells to meter seed sizes from 4200 to 5200 seeds per pound (White color-coded). (PLTR20)



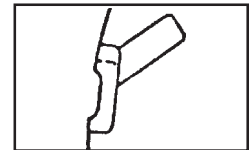
Large cotton, acid-delinted: 36 cells to meter seed sizes from 3800 to 4400 seeds per pound (Tan color-coded). (PLTR21)



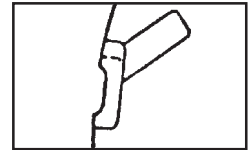
High-rate cotton, acid-delinted: 48 cells to meter seed sizes from 4200 to 5200 seeds per pound (Light green color-coded). (PLTR22)



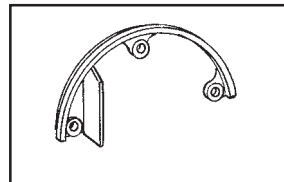
Hill-drop cotton, acid-delinted: 12 cells, 3 to 6 seeds/cell, to meter seed sizes from 4000 to 5200 seeds per pound (Brown color-coded). (PLTR23)



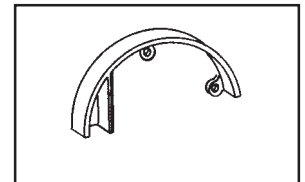
Small hill-drop cotton, acid-delinted: 12 cells, 3 to 6 seeds/cell, to meter seed sizes from 5000 to 6200 seeds per pound (Dark green color-coded). (PLTR23)



(RU14c)



Use GD11122 upper brush retainer when using soybean and cotton discs.



Use GD8237 upper brush retainer when using milo/grain sorghum discs.

ROW UNIT OPERATION

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 $\frac{5}{16}$ " thumbscrews. Tighten thumbscrews slightly with pliers. **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.

One tablespoon of **powdered graphite** should be mixed with the seed each time the hoppers are filled. Regular graphite use will prolong the life of the brush-type seed meter components, improve seed spacing, and may reduce buildup of seed treatments. Apply graphite around the outer perimeter of the hopper as shown below.

D05300104b



NOTE: Do NOT apply graphite only in the center of the hopper. It will filter too quickly through the seed and not distribute as evenly as desired.

NOTE: 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.

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. Coat seed disc and brushes with talc before installing meter. Fill hopper $\frac{1}{2}$ full of seed, add $\frac{1}{4}$ cup of talc and **mix thoroughly**. Finish filling hopper, add another $\frac{1}{4}$ 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.

NOTE: 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 may cause bridging of the seed in the meter, reducing population or stopping the meter from planting.

NOTE: 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.

CLEANOUT

To maintain genetic purity, thorough seed meter cleanout is important.

To clean the seed meter, disengage the seed drive and remove the seed hopper and meter. Dump the seed from the right rear corner of the hopper into a container. Disassemble seed disc by removing wing nuts. Empty the meter. Thoroughly inspect brushes in meter to ensure all seed is removed. Replace seed disc and install wing nuts.

ROW UNIT OPERATION

SEED HOPPER

LF212199-7a



The seed hopper has a capacity of 1.9 bushels.

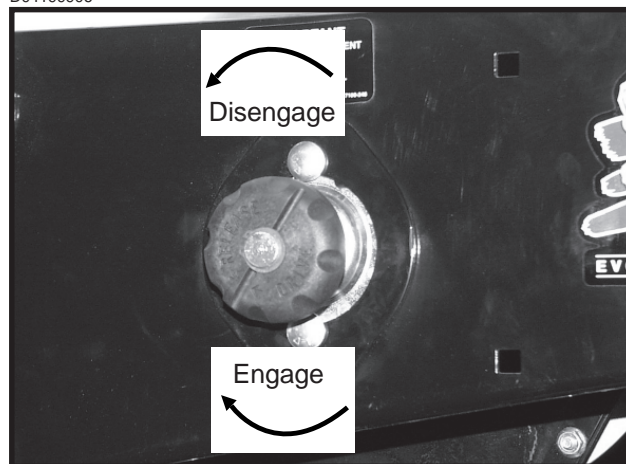
When filling the seed hopper use clean seed and make certain there are no foreign objects in the hopper. **Replace hopper lids after hoppers are filled to prevent the accumulation of dust or dirt in the seed meter which will cause premature wear.** See "Finger Pickup Seed Meter" and/or "Brush-Type Seed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

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

SEED METER DRIVE RELEASE

The seed meter drive is equipped with a clutch release mechanism that allows the drive to be disengaged from the seed metering unit for removal of the 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.

D04199906



To disengage the drive, turn the knob $\frac{1}{4}$ turn counter-clockwise. To engage the drive, turn the knob $\frac{1}{4}$ turn clockwise.

ROW UNIT OPERATION

SEED METER DRIVE ADJUSTMENT

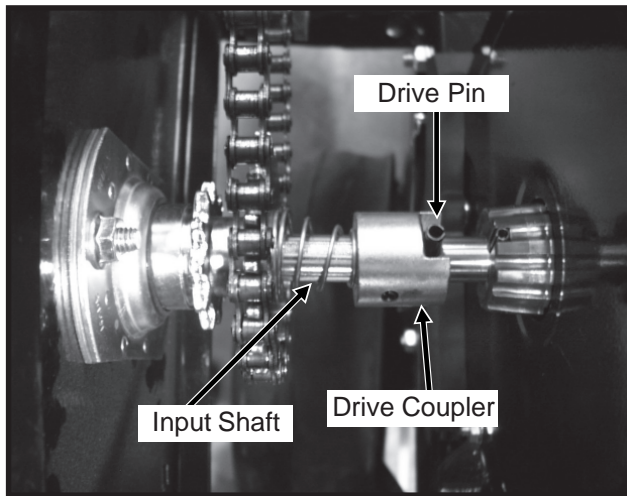
NOTE: The seed meter drive coupler must be properly aligned with the meter input shaft.

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.

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.

Although the meter drive has a self-aligning feature, the slotted mounting hole in the hopper support panel and clutch plate allow for alignment adjustment between the drive coupler and meter shaft. If the drive clutch is centered in the hole in the hopper support panel the drive should be in alignment.

D04209903



To check alignment:

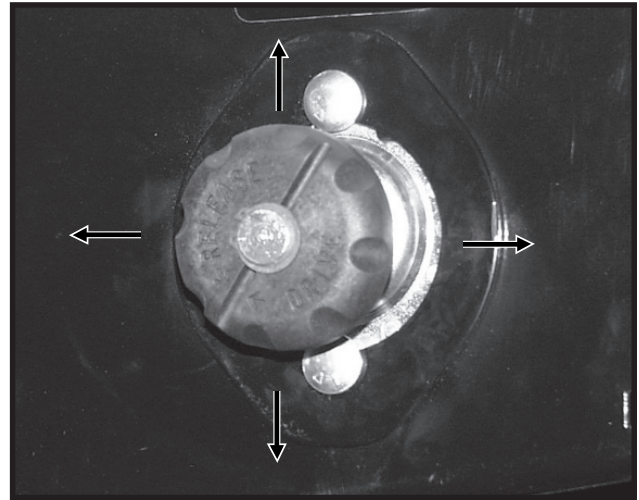
- Engage drive coupler over pin on meter shaft.
- Drive shaft on clutch should be centered in sprocket bore.
- If adjustment is needed, proceed as follows.

To adjust drive clutch:

- Slightly loosen both $\frac{5}{16}$ " carriage bolts.
- Move clutch assembly to correct any misalignment.
- Tighten both $\frac{5}{16}$ " carriage bolts.

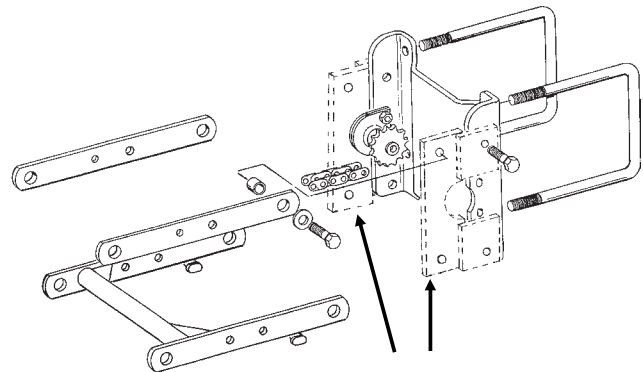
NOTE: Removing chain idler tension will allow easier clutch alignment adjustments.

D04199906



ROW UNIT EXTENSION BRACKETS

RUB005/RUB007/RUB015(INS33a)



Row unit extension brackets are required on all row units if the Model 3800 planter is equipped with coulters mounted residue wheels and notched single disc fertilizer openers. The brackets extend the row units rearward 4" to provide required clearance.

Model 3800 planters equipped with coulters mounted residue wheels only, require the use of row unit extension brackets on the six center section rows to provide clearance at the axle rock shaft.

ROW UNIT OPERATION

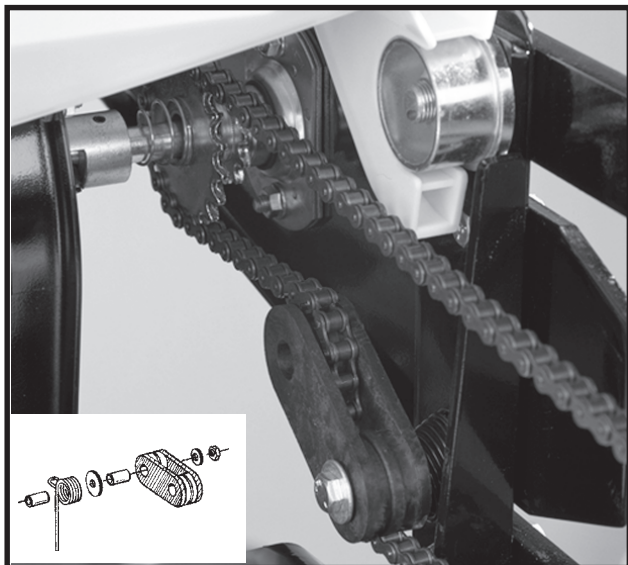
ROW UNIT CHAIN ROUTING

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.

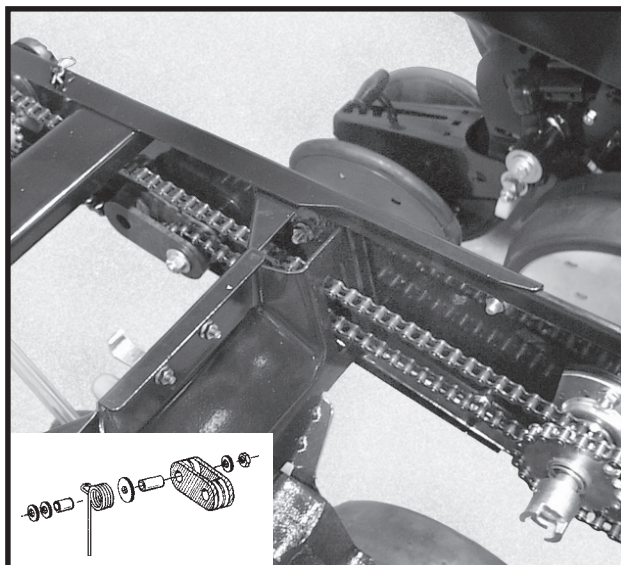
NOTE: When idler shows signs of wear, it can be reversed for prolonged use.

LF212199-5a(RU80g)



Pull Row Unit Meter Drive

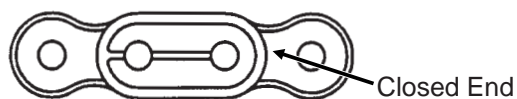
D05139901b(RU92l)



Row Unit Granular Chemical Drive

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

(PLTR24)



Direction Of Chain Travel →

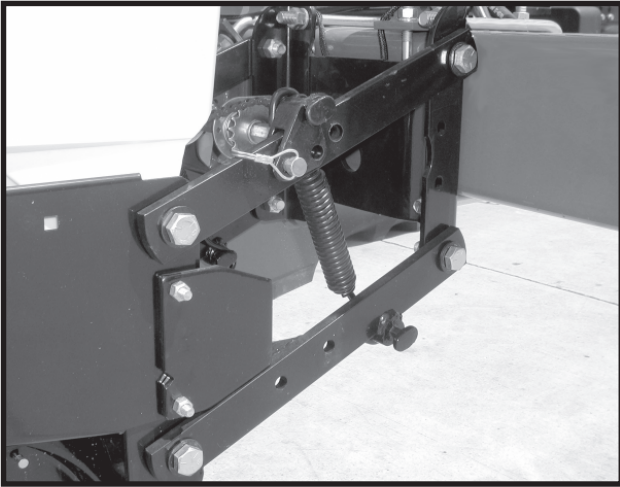
ROW UNIT OPERATION

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.

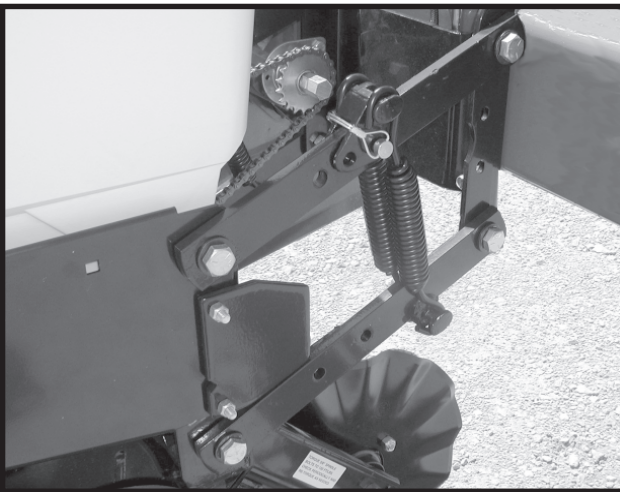
Two springs per row, one on the L.H. parallel arms and one on the R.H. parallel arms, are used unless equipped with row unit mounted no till coulters. Four springs per row are used with row unit mounted no till coulters.

D06300305



Two Springs Per Row (Dual)

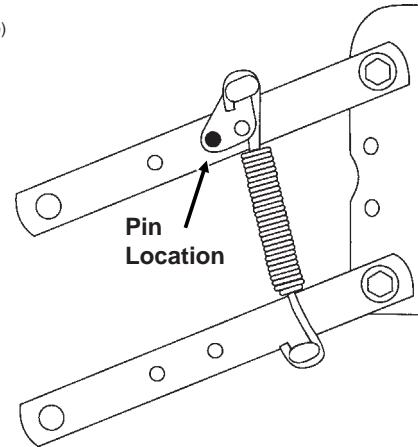
D07010301



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

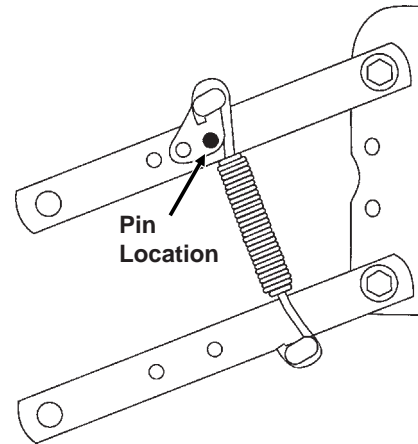
There are four positions for spring tension adjustment. Position 1 allows for minimum down pressure and position 4 for maximum down pressure.

L0096(PLTR27e)



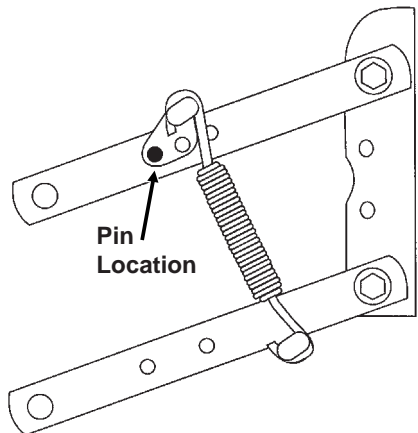
Position 1 (Minimum)

(PLTR28e)



Position 2

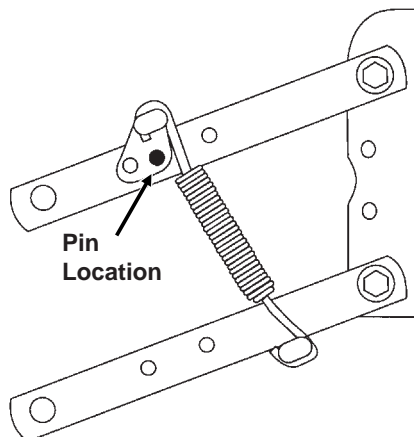
(PLTR29e)



Position 3

ROW UNIT OPERATION

(PLTR30e)



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.



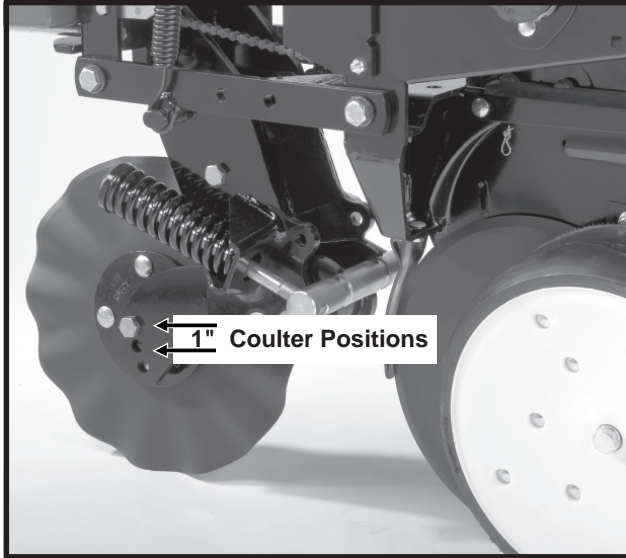
WARNING: Always install safety lockup devices or lower machine to the ground before working under or around the machine.

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

ROW UNIT OPERATION

FRAME MOUNTED COULTER

LF083002101

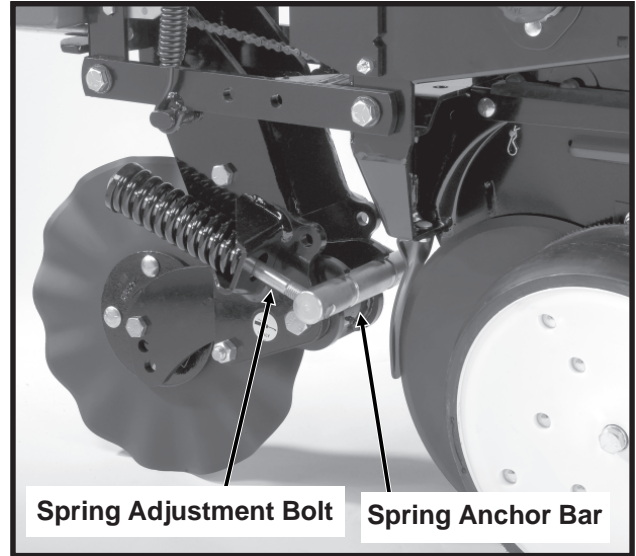


Frame mounted coulters with 1" bubbled, 1" fluted (8 flutes) or 3/4" fluted (13 flutes) blades may be used on pull row units only. (Not compatible with push row units.)

The frame mounted coulters is designed to apply necessary spring down pressure on the coulters for maximum penetration while exerting less shock load on the row unit.

The initial location of the coulters blade is in the top hole. The blade can be relocated to one of the lower two holes (1" increments) as wear occurs or if deeper operation of the blade is desired.

LF083002101



DOWN PRESSURE ADJUSTMENT

Down force adjustment is made by tightening or loosening the two spring adjustment bolts. With the planter in raised position, turn the bolts clockwise to increase down pressure or counterclockwise to decrease down force. Set both springs the same.

Down force on the blade is shown below in lbs.

End Of Spring Adjustment Bolt Flush With Spring Anchor Bar (Shown Above)	End Of Spring Adjustment Bolt Extended 1/2" Through Spring Anchor Bar	All Threads Used (Maximum)
275 lbs.	400 lbs.	500 lbs.

NOTE: Avoid setting down pressure higher than is required for consistent soil penetration. Excessive pressure will increase the chances of damage to coulters components when the coulters strikes an obstacle.

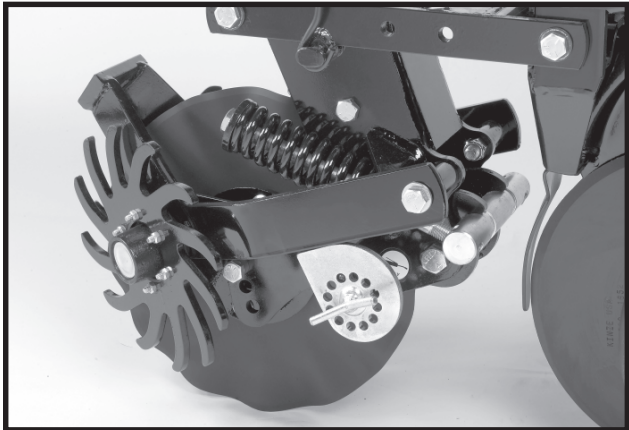
ROW UNIT OPERATION

RESIDUE WHEELS

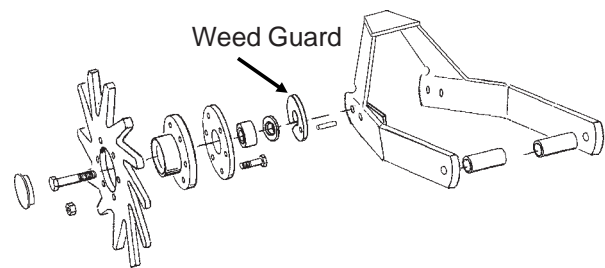
(For Use With Frame Mounted Coulter)

The residue wheels for use with the frame mounted coulter may be used on pull row units only.

LF083002102



(RU135k)



NOTE: Opening in weed guard must point down.

The residue wheels are attached to the frame mounted coulter with two cap screws and sleeves 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 $\frac{1}{4}$ " increments. A high point on the cam allows the wheels to be locked up so they do not contact the ground. A weed guard, located on the inboard side of each wheel, aids in the prevention of weed wrap which can cause premature bearing failure.

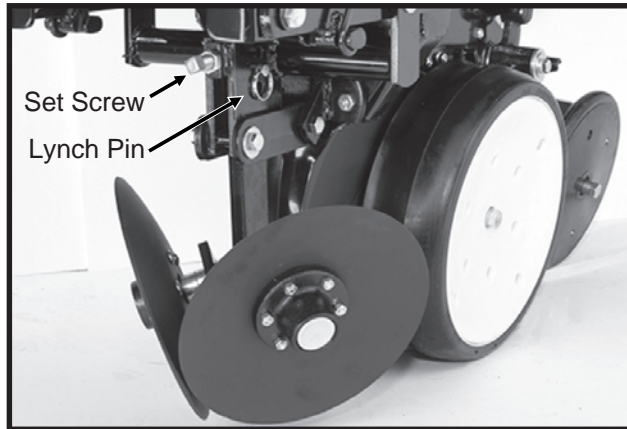
ROW UNIT OPERATION

ROW UNIT MOUNTED DISC FURROWER

The row unit mounted disc furrower is for use on pull row units only (not compatible with Interplant® push row units). The disc furrower may be equipped with either 12" solid blades or 12" notched blades.

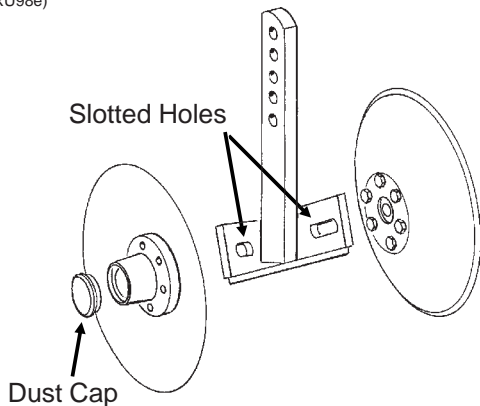
Disc furrowers are used to clear crop residue, dirt clods and dry soil from in front of the row units for a clean and smooth seed bed. Notched blades are used for heavier residue conditions. The notched blades cut crop residue and move it aside to prevent plugging or pushing.

LF212299-22



Vertical adjustment in $\frac{1}{3}$ " increments is possible by removing the lynch pin which secures the vertical support arm and moving the support arm up or down as required. Reinstall lynch pin. Finer adjustment can be attained by removing the lynch pin and using the $\frac{5}{8}$ " x $2 \frac{1}{4}$ " set screw to clamp the support arm in the required position.

(RU98e)



Slotted holes in the support arm where the blades are mounted allow fore and aft adjustment of the disc blades. 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.

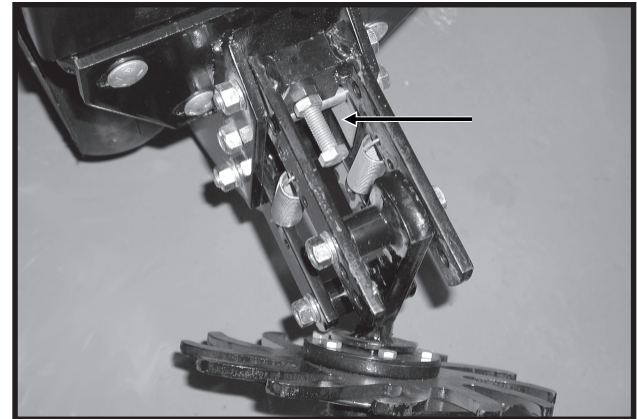
ROW UNIT MOUNTED RESIDUE WHEEL

The row unit mounted residue wheel may be used on pull row units and push row units.

D10170113



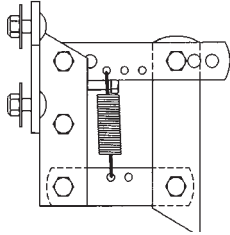
D10170112



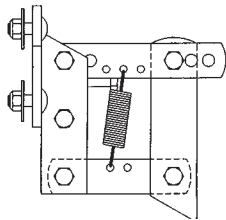
A full threaded bolt and jam nut located on the upper link allows maximum depth to be set for loose soil conditions. Initial setting should be $1 \frac{3}{4}$ " above the depth of the row unit double disc opener.

ROW UNIT OPERATION

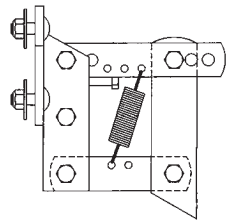
Two adjustable springs on the parallel links on each residue wheel allow for down force adjustment. Position 1 as shown below provides minimum down pressure and position 3 maximum down pressure.



Position 1 (Minimum)(PLTR31a)



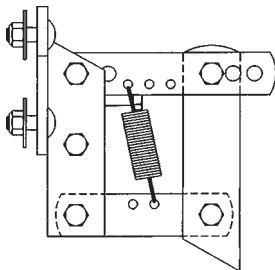
Position 2 (PLTR32a)



Position 3 (Maximum)(PLTR33a)

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

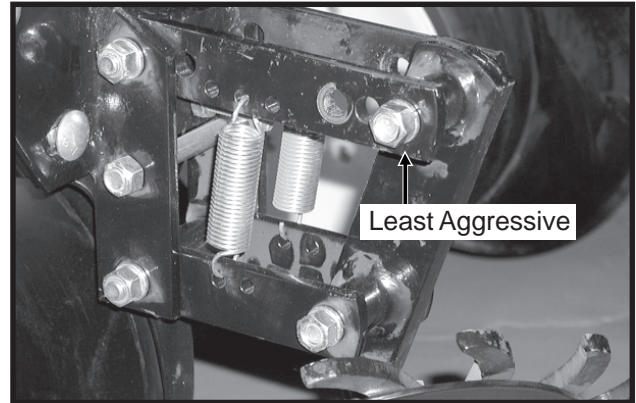
(PLTR34a)



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

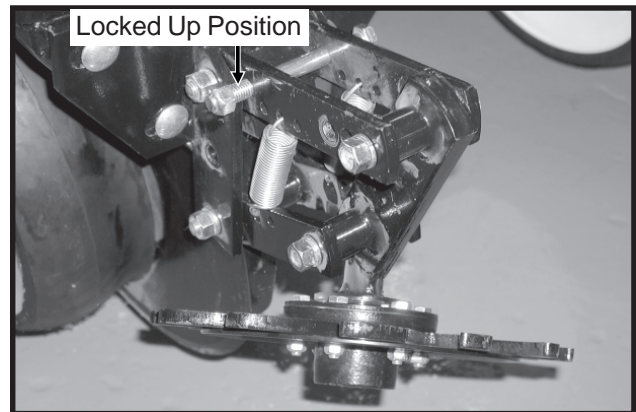
Three holes in the upper link allow for wheel angle adjustment. With the wheel mount in the most vertical position, using the rear hole in the upper link, the residue wheel is most aggressive. Moving the wheel mount to one of the forward holes reduces the aggressiveness of the wheel for use in mulch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

D101701202



To lock the residue wheel up out of the ground, remove the 1/2" x 5" lockup bolt, raise the residue wheel and install bolt.

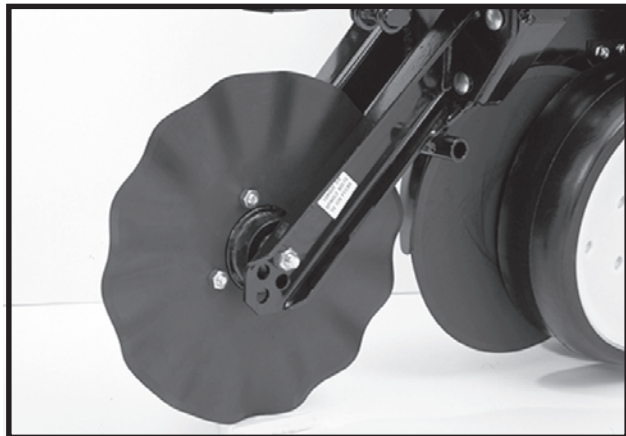
D011701203



ROW UNIT OPERATION

ROW UNIT MOUNTED NO TILL COULTER

LF212299-19a



Row unit mounted no till coulters with 1" bubbled, 1" fluted (8 flutes) or $\frac{3}{4}$ " fluted (13 flutes) blades may be used on pull row units and push row units. ($\frac{3}{4}$ " 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 coulters blade should be aligned in relation to the row unit double disc openers. The coulters assembly can be adjusted by loosening the four attaching bolts, moving coulters arm to align and tightening the four attaching bolts.

The coulters blade can be adjusted to one of four $\frac{1}{2}$ " incremental settings in the forked arm. Initial location of the coulters is in the top hole. As the coulters blade wears, the blade should be adjusted downward to one of the three lower settings to maintain the coulters 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 coulters 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 coulters blade and row unit opener blade. Make sure the planter is level and coulters is square with the planter frame and aligned with the row unit disc opener.

NOTE: Torque $\frac{5}{8}$ " spindle bolts to 120 ft. lbs.

ROW UNIT OPERATION

COULTER MOUNTED RESIDUE WHEELS

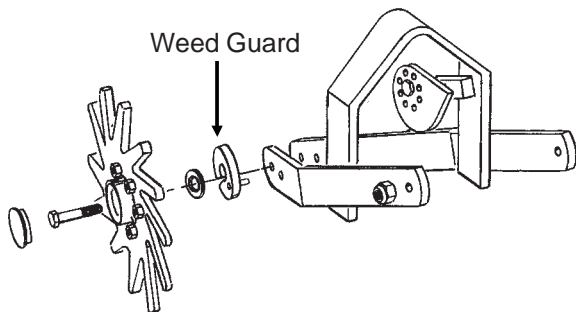
LF212299-23



Coultter mounted residue wheels are designed for use on pull row units and push row units. Row unit extension brackets are required on the four center pull row units if the planter is equipped with coultter mounted residue wheels.

The coultter mounted residue wheels are attached to the row unit mounted no till coultter 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 1/4" increments. A high point on the cam allows the wheels to be locked up so they do not contact the ground. A weed guard, located on the inboard side of each wheel, aids in the prevention of weed wrap which can cause premature bearing failure.

(RU1041)



NOTE: Opening in weed guard must point down.

GRANULAR CHEMICAL HOPPER AND DRIVE

LF212299-6



The granular chemical hopper has a 1.4 cubic feet capacity.

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.

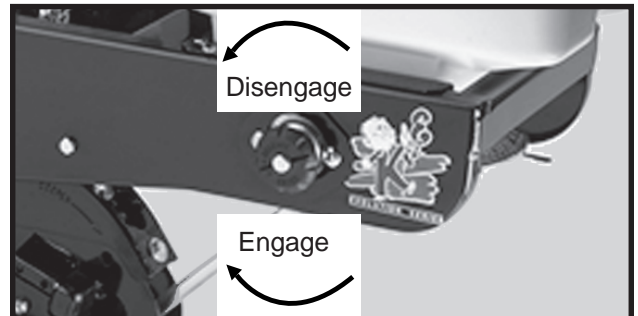
The metering gate located on the bottom of the hopper regulates the application rate. See "Dry Insecticide And Dry Herbicide Application Rate Charts" in this manual. Calibrate using the chemical manufacturers' instructions.



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 it with care. Follow the instructions on the container label and of the equipment manufacturer.

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 1/4 turn clockwise. To disengage the drive, turn the knob 1/4 turn counterclockwise. Slotted holes in the hopper support panel and clutch housing allow for alignment adjustment between the clutch drive coupler and meter shaft.

LF212299-4

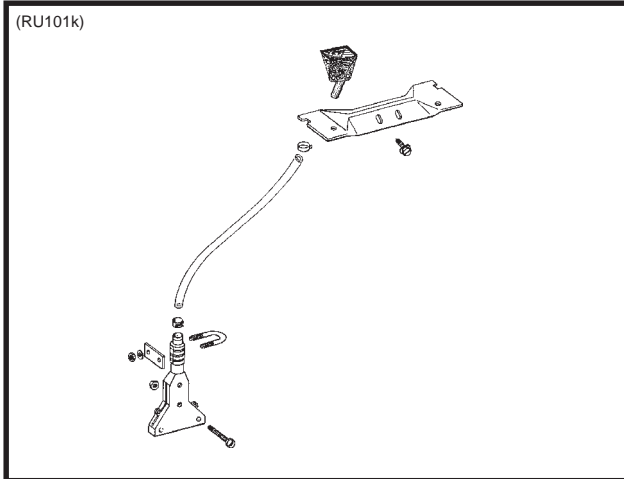


ROW UNIT OPERATION

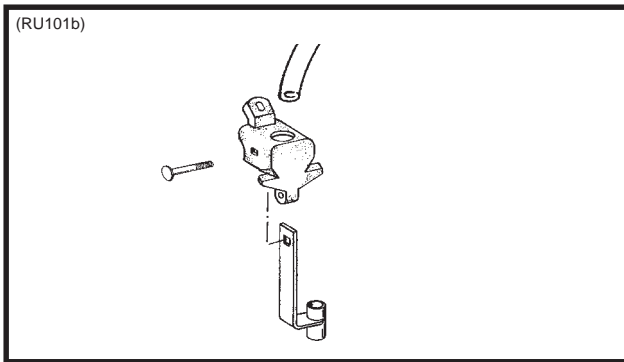
GRANULAR CHEMICAL BANDING OPTIONS

Granular chemical banding options allow 4 1/2" slope-compensating banding, straight drop in-furrow placement or 14" rear banding.

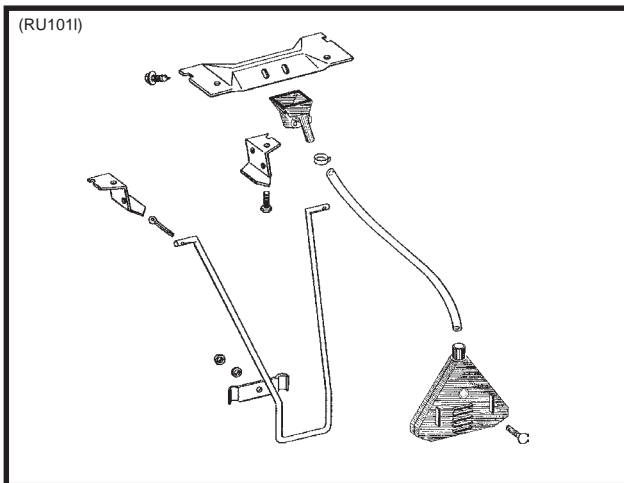
NOTE: The granular chemical rear bander is not compatible with the covering discs/single press wheel option.



4 1/2" Slope-Compensating Bander



Straight Drop In-Furrow Placement

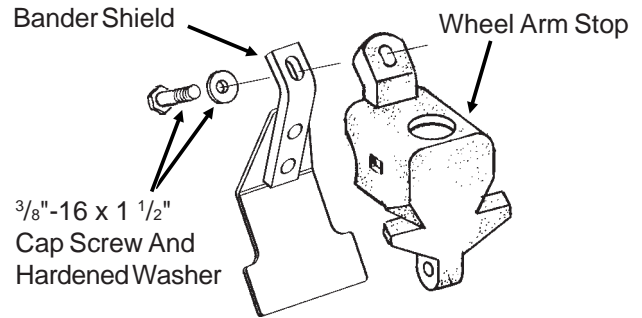


14" Rear Banding

GRANULAR CHEMICAL BANDER SHIELD

The optional granular chemical bander shield is designed to be installed onto the underside of the wheel arm stop to shield crop residue from lodging in the granular chemical bander.

(RU83m)

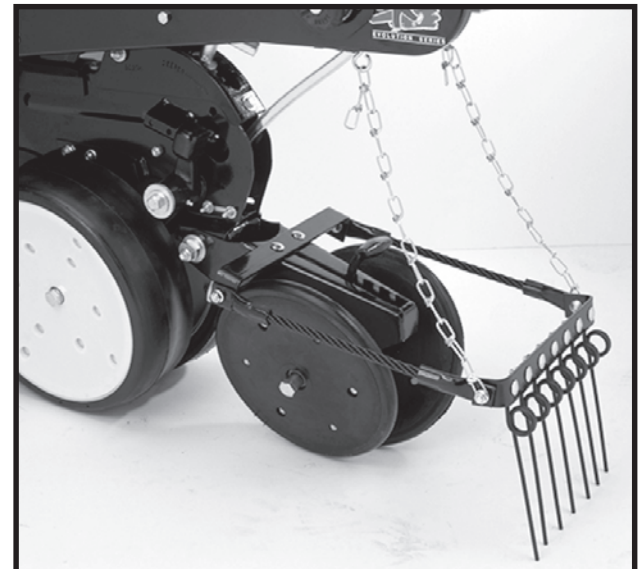


SPRING TOOTH INCORPORATOR

The spring tooth incorporator smoothes 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 1/8" 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.

LF212299-26



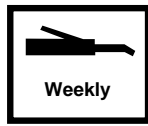
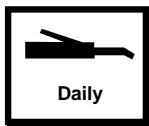
LUBRICATION

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.



WARNING: Always install safety lockup devices or lower the planter to the ground before working under or around the machine.

LUBRICATION SYMBOLS



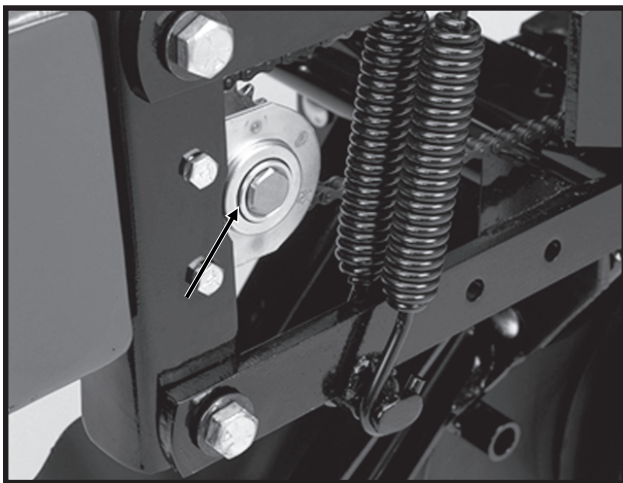
Lubricate at frequency indicated with an SAE multipurpose type grease.



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

SEALED BEARINGS

LF212199-3

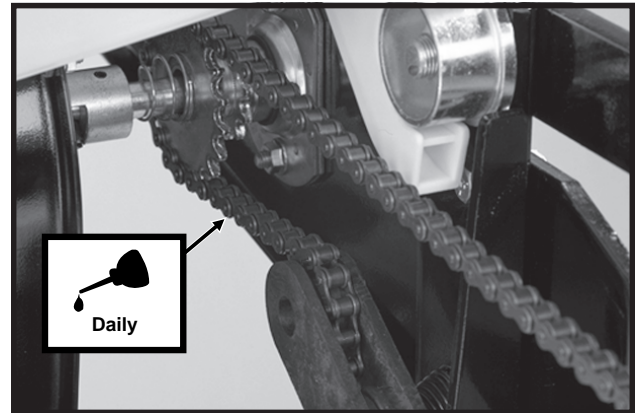


A number of sealed bearings are used on your KINZE® planter to provide trouble free operation. These are located in such areas as the drive shaft, row units and transmission bearings. Sealed bearings are lubricated for life. Due to the seals, relubrication is not practical.

DRIVE CHAINS

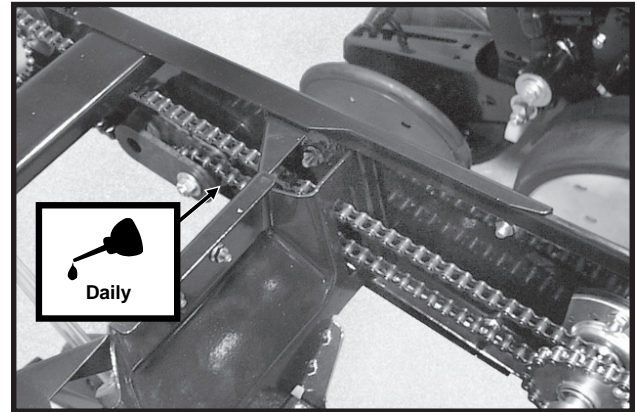
All transmission and drive chains should be lubricated daily with a high quality chain lubricant. Extreme operating conditions such as dirt, temperature or speed may require more frequent lubrication. If a chain becomes stiff, it should be removed, soaked and washed in solvent to loosen and remove dirt from the joints. Then soak the chain in oil so the lubricant can penetrate between the rollers and bushings.

LF212199-5a



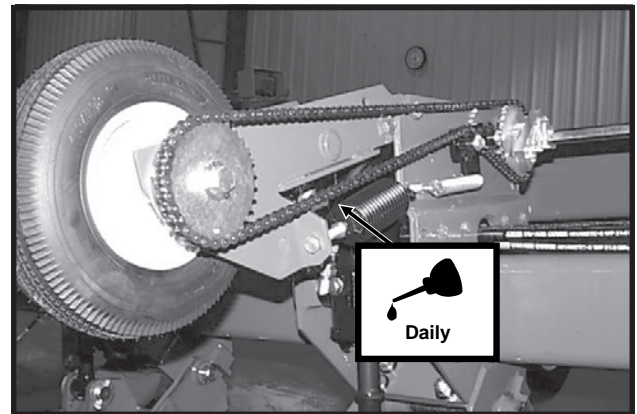
Pull Row Unit Drive Chains

D05139901b



Row Unit Granular Chemical Drive Chains

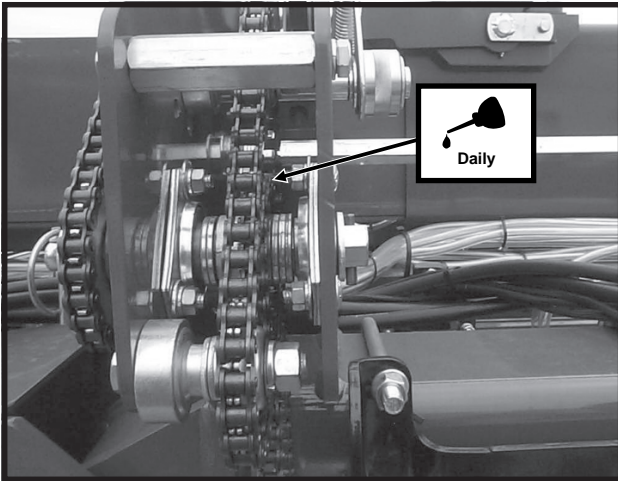
D11300414



Contact Drive Wheel Chains

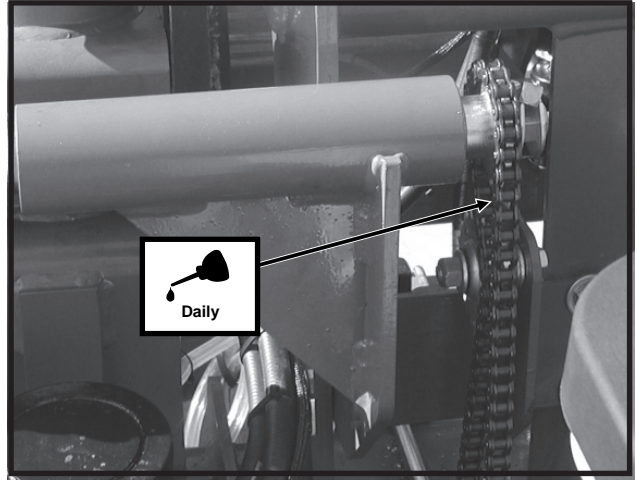
LUBRICATION

D102704114



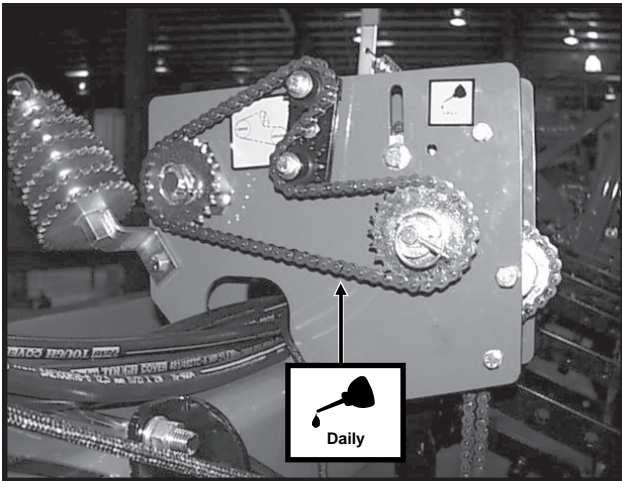
Wheel Module Reverser Drive Chains

D081905101



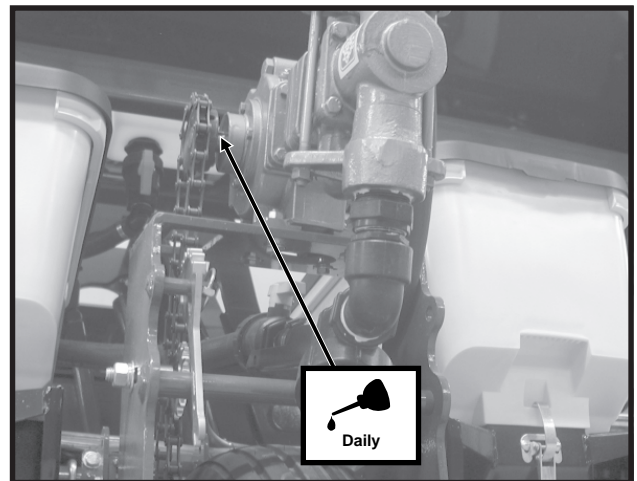
Center Section Drive Chains

D11300410



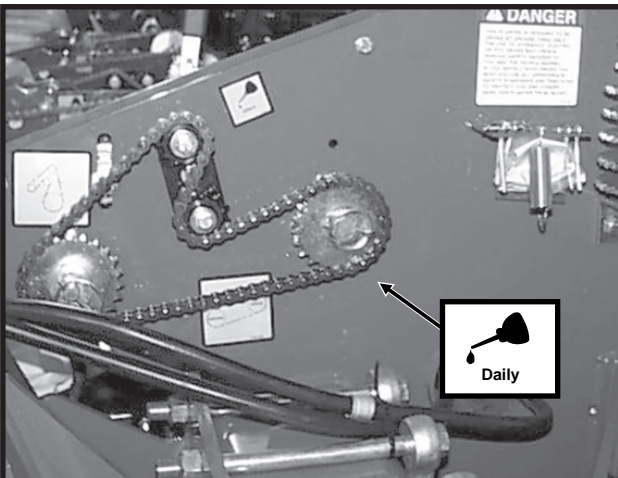
Inner Seed Rate Transmission Drive Chains

D11240401



Liquid Fertilizer Drive Chain (Piston Pump)

D11300417



Outer Seed Rate Transmission Drive Chains

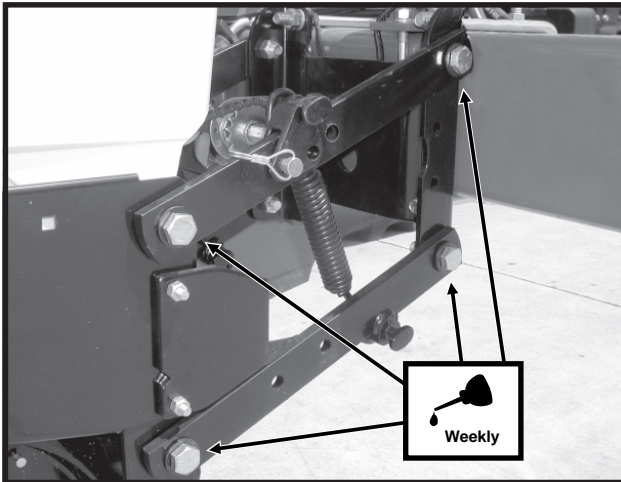
LUBRICATION

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.**

D06300305



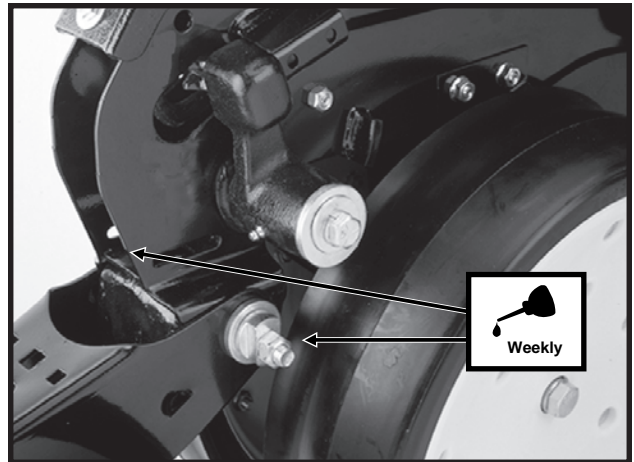
Pull Row Unit Parallel Linkages (8 Per Row)

LF212299-22



Row Unit Mounted Disc Furrower Parallel Linkages (6 Per Row)

LF212199-2



**Row Unit "V" Closing Wheel, Covering Discs/
Single Press Wheel And/Or Drag Closing Wheel
Eccentric Bushings (2 Per Row)**

LUBRICATION

WRAP SPRING WRENCH ASSEMBLY

The chain idler is equipped with a wrap spring wrench. The wrench components may require occasional lubrication to operate correctly. Disassembly is required to lubricate. (a) Remove the 1/4"-20 x 1/2" cap screw that secures the idler with sprockets to the wrench tightener shaft. (b) Remove the wrap spring wrench from the planter. (c) Tip the wrap spring wrench on its side and lubricate using a high quality spray lubricant. Lubricant must be absorbed into the wrap spring area. (d) Reinstall wrench on planter.

D101303102



WHEEL BEARINGS

The transport wheel hubs are equipped with grease fittings. Pump grease into the hub until grease comes out around the seals. See "Grease Fittings" for lubrication frequency.

All wheel bearings should be repacked annually and checked for wear. This applies to all drive wheels, transport wheels and marker hubs.

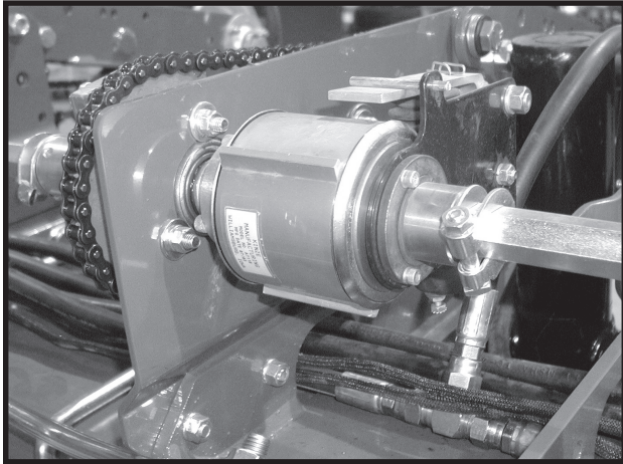
To check for wear, lift the wheel off the ground. Check for endplay in the bearings by moving the tire in and out. Rotate the tire to check for roughness in the bearings. If bearings sound rough, the hub should be removed and the bearings inspected and replaced if necessary. See "Wheel Bearing Lubrication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

To repack wheel hubs, follow the procedure outlined for wheel bearing replacement with the exception that bearings and bearing cups are reused.

LUBRICATION

POINT ROW CLUTCHES

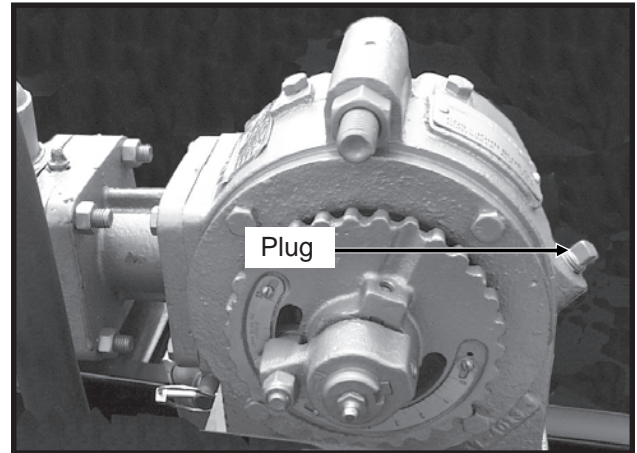
D032404136



The point row clutches are permanently lubricated and sealed and require no periodic maintenance. **DO NOT LUBRICATE. KEEP CLUTCHES CLEAN.**

LIQUID FERTILIZER PISTON PUMP CRANKCASE OIL LEVEL

D071504102a



Check crankcase oil daily and maintain at plug level. Fill as needed with EP 90 weight gear oil. Total oil capacity is approximately $\frac{3}{4}$ pint.

Refer to operator and instruction manual supplied with the pump and flow divider for additional information.

GREASE FITTINGS

Those parts equipped with grease fittings should be lubricated at the frequency indicated with an SAE multipurpose 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.

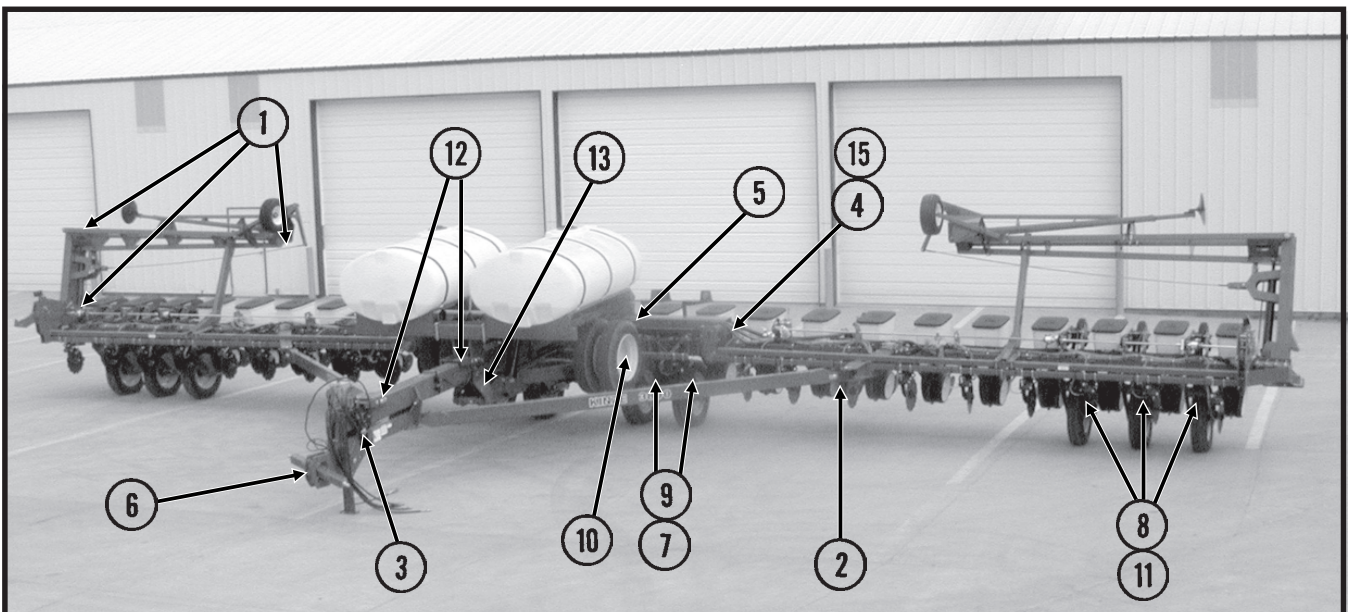


WARNING: Always install safety lockup devices or lower the planter to the ground before working under or around the machine.

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

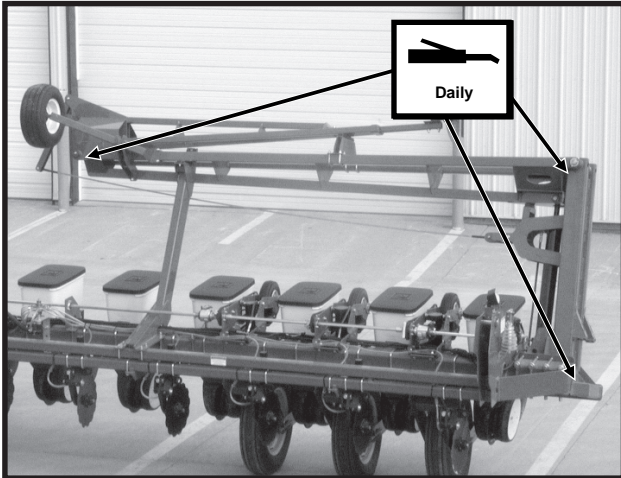
D040604122

24 Row 30" Shown



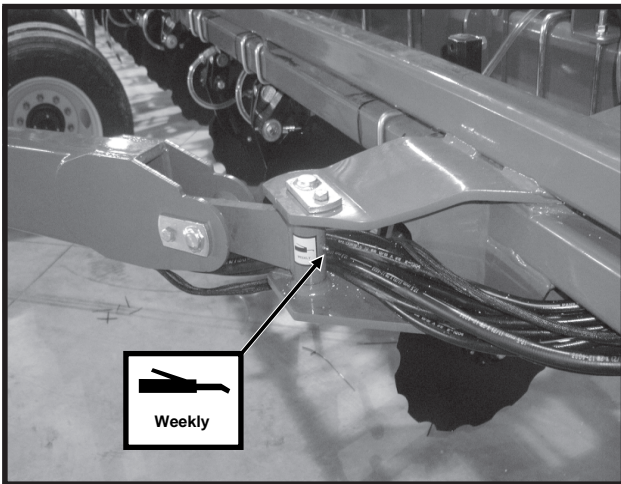
LUBRICATION

D040604112



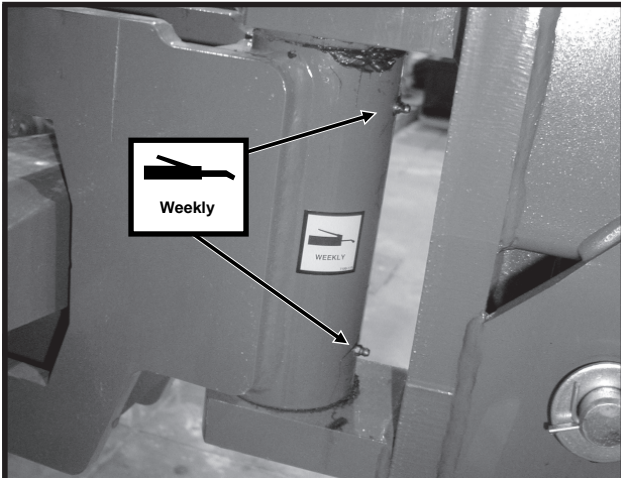
1. Row Marker Assemblies - 10 Zerks Per Assembly On 24 Row 30" - 14 Zerks Per Assembly On 32 Row 30" And 36 Row 30" (24 Row 30" Shown)

D032404119



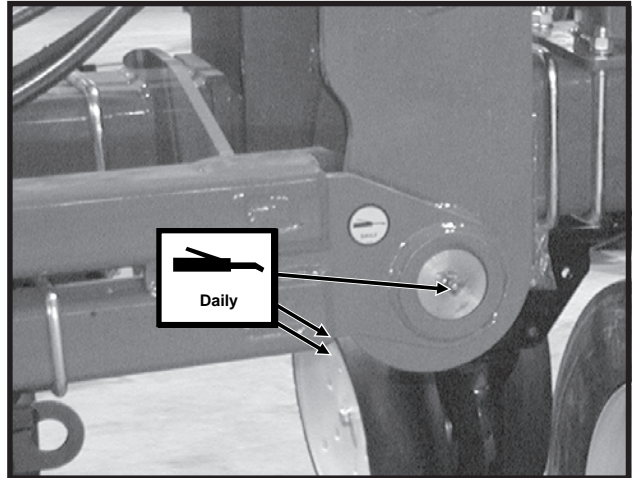
2. Wing Linkage Pivot - 1 Zerk Per Wing

D033104100



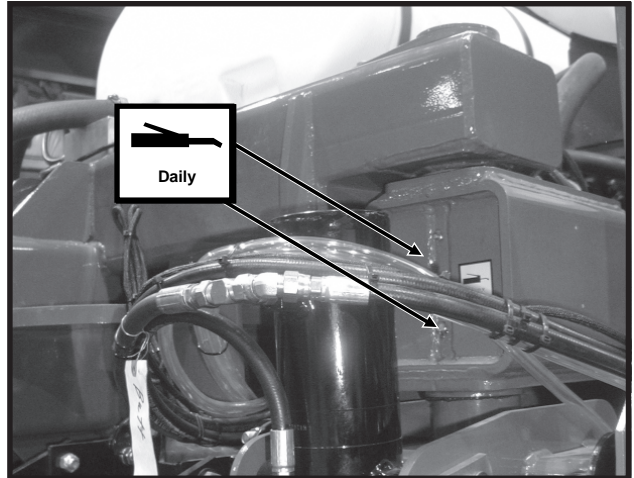
3. Hitch Pivot - 2 Zerks

D032404126



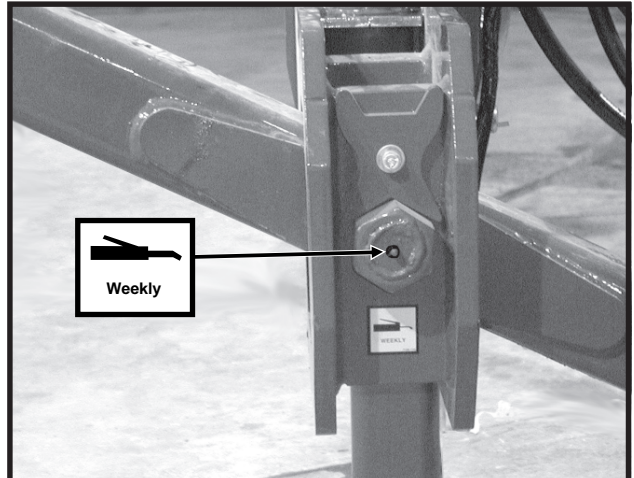
4. Outer End Of Stub Wing - 3 Zerks Per Assembly

D033104115



5. Inner End Of Stub Wing - 2 Zerks Per Assembly

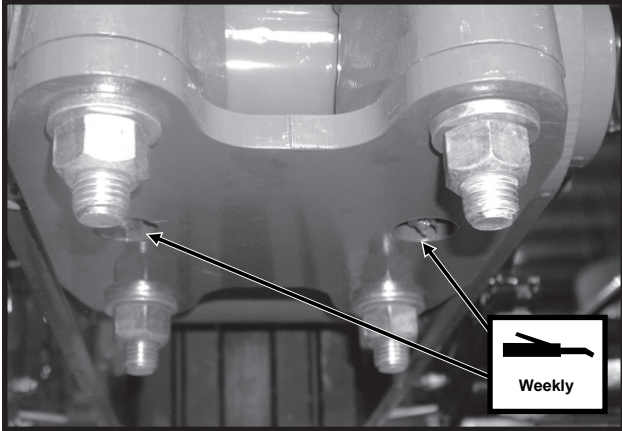
D032404143



6. Hitch Pivot Pin - 1 Zerk

LUBRICATION

D040204102



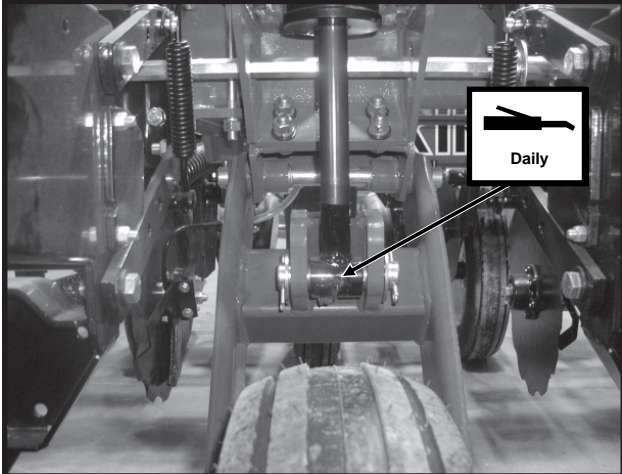
7. Center Section Lift Axle Pivot - 2 Zerks Per Wheel Assembly

D040204104



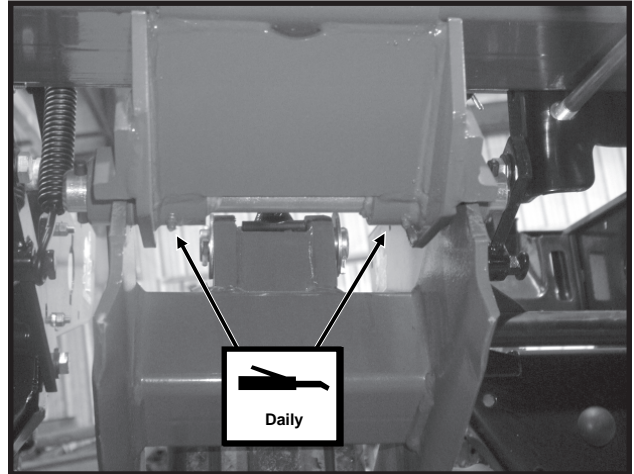
10. Transport Wheel Bearings - 1 Zerk Per Hub

D033104113



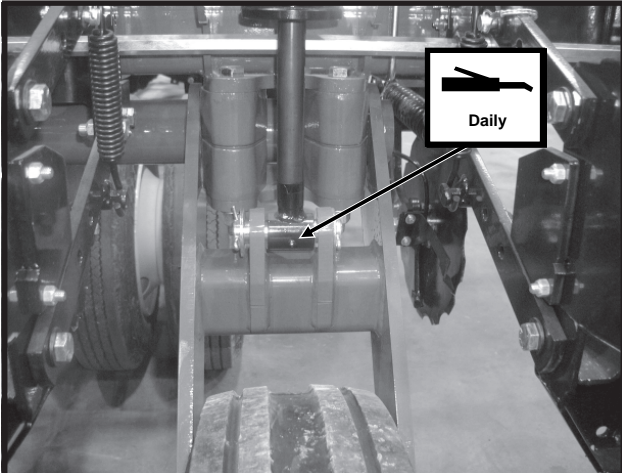
8. Wing Lift Cylinders - 1 Zerk Per Cylinder

D040204105



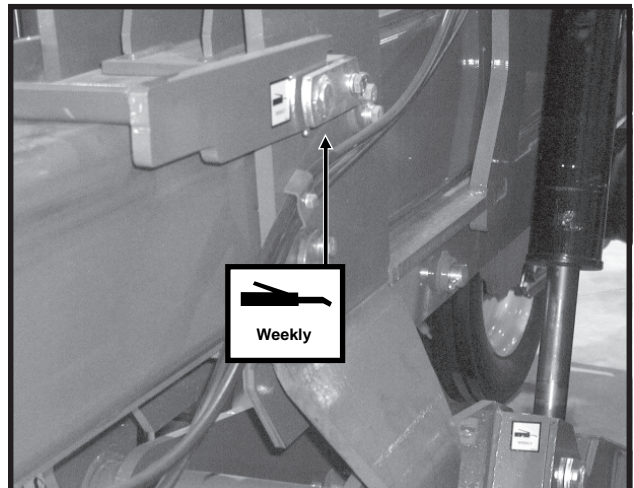
11. Wing Wheel Pivot - 2 Zerks Per Wheel Module

D033104112



9. Center Section Lift Cylinders - 1 Zerk Per Cylinder

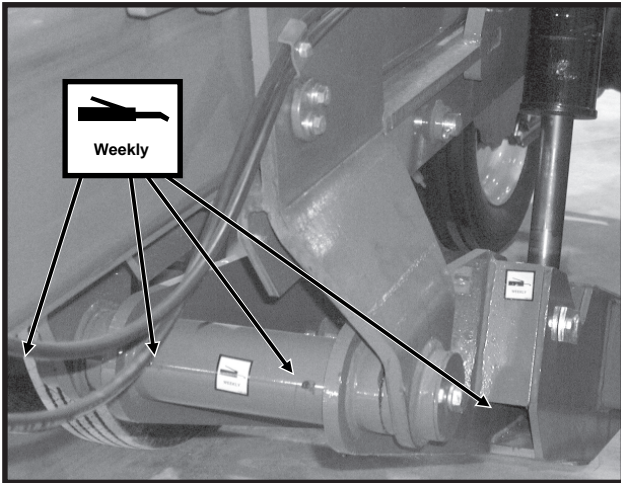
D032404124



12. Slide Stop - 2 Zerks Per Stop

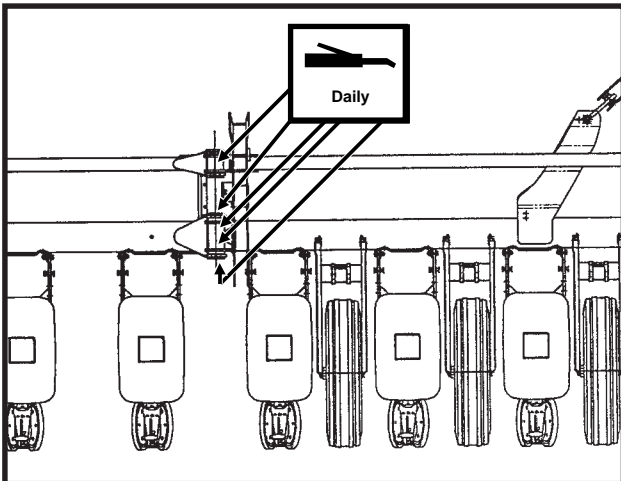
LUBRICATION

D032404124



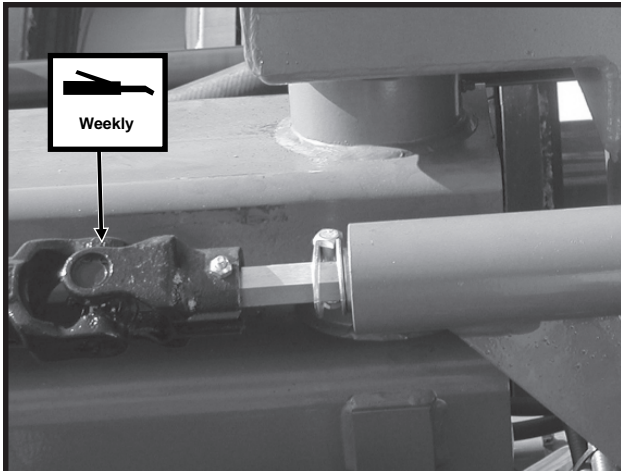
13. Transport Axle Pivot - 4 Zerks

(FWD52)



14. Outer Wing Hinge - 5 Zerks Per Assembly
(32 Row 30" And 36 Row 30" Only)

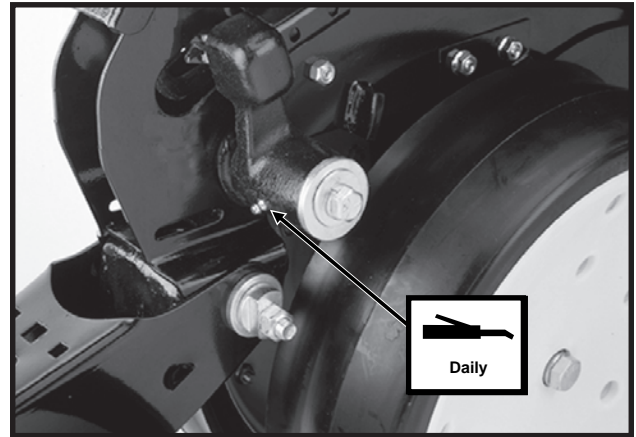
D081905101



15. U-Joint Shaft Between Center Section And Wing - 1 Zerk On Each End Of U-Joint Shafts (2 Per U-Joint Shaft)

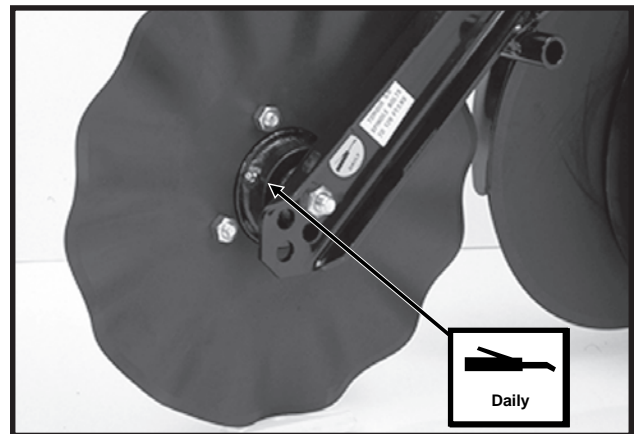
Row Unit

LF212199-2



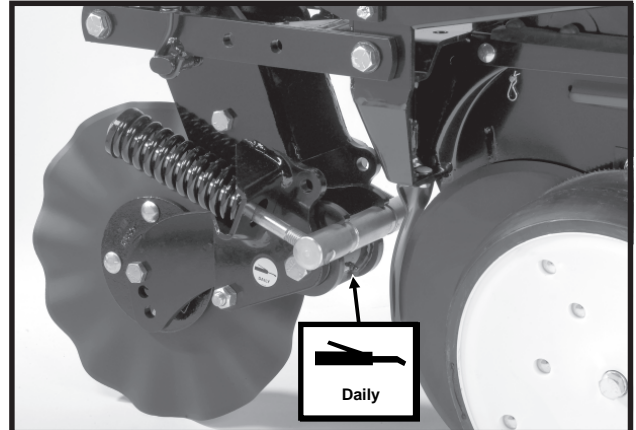
Gauge Wheel Arms - 1 Zerk Per Arm
(Seals in gauge wheel arm are installed with lip facing out to allow grease to purge dirt away from seal. Pump grease into arm until fresh grease appears between washers and arm.)

LF212299-19



(If Applicable) 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.)

LF083002101

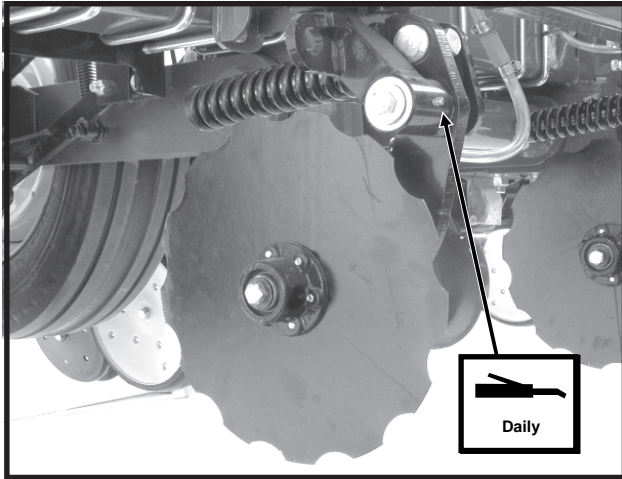


(If Applicable) Frame Mounted Coulter - 1 Zerk Per Arm

LUBRICATION

Fertilizer Openers

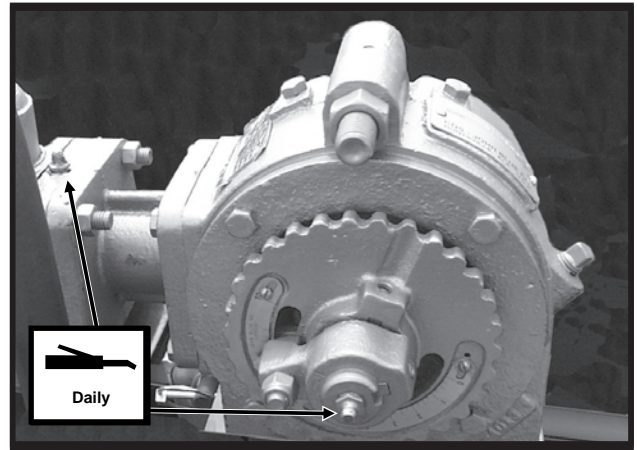
D040704104



Notched Single Disc Fertilizer Opener - 1 Zerk

Liquid Fertilizer Attachment

D071504102a



Piston Pump - 2 Zerks (Fill zerk on outboard stuffing box until lubricant seeps out of drain hole in bottom.)

LUBRICATION

MAINTENANCE

MOUNTING BOLTS AND HARDWARE

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

All hardware used on the KINZE® planter is Grade 5 (high strength), unless otherwise noted. Grade 5 cap screws are marked with three radial lines on the head. If hardware must be replaced, be sure to replace it with hardware of equal size, strength and thread type. Refer to the torque values chart when tightening hardware.

Row Unit Parallel Linkage Bushing Bolts/Lock Nuts - 130 Ft. Lbs. (See "Bushings" in the Lubrication Section of this manual.)

5/8" No Till Coulter Spindle Bolts - 120 Ft. Lbs.

IMPORTANT: Over tightening hardware can cause as much damage as under tightening. Tightening hardware beyond the recommended range can reduce its shock load capacity.



WARNING: Before operating the planter for the first time and periodically thereafter, check to be sure the lug nuts on the transport wheels are tight. This is especially important if the planter is to be transported for a long distance.

Transport Tire Inner Budd Nuts - 220 Ft. Lbs/

Outer Budd Nuts - 670 Ft. Lbs.

Center Section Lift/Gauge Tire Lug Nuts - 90 Ft. Lbs.

Wing Lift/Gauge Tire Lug Bolts - 125 Ft. Lbs.

3 Point Hitch Adapter Pins And Pivot Bolt - 550 Ft. Lbs.

TORQUE VALUES CHART - PLATED HARDWARE

Bolt Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	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.
3/8"	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.
1/2"	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.
5/8"	70 Ft. Lbs.	80 Ft. Lbs.	110 Ft. Lbs.	125 Ft. Lbs.	160 Ft. Lbs.	180 Ft. Lbs.
3/4"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.
7/8"	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 1/8"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.
1 1/4"	375 Ft. Lbs.	415 Ft. Lbs.	840 Ft. Lbs.	930 Ft. Lbs.	1360 Ft. Lbs.	1500 Ft. Lbs.
1 3/8"	490 Ft. Lbs.	560 Ft. Lbs.	1100 Ft. Lbs.	1250 Ft. Lbs.	1780 Ft. Lbs.	2030 Ft. Lbs.
1 1/2"	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 1/3 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



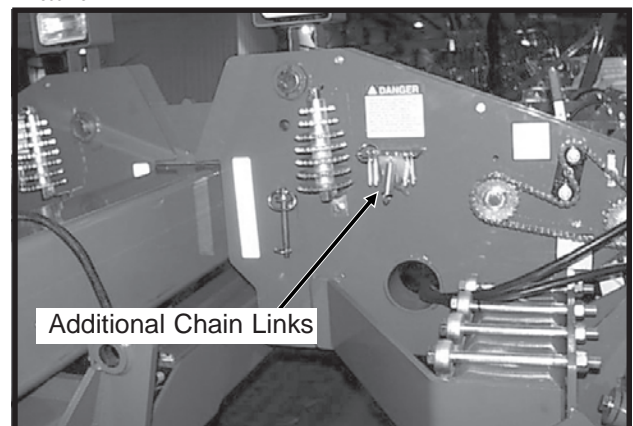
GRADE 8
6 Marks

CHAIN TENSION ADJUSTMENT

The drive chains have spring loaded idlers 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. See "Wrap Spring Wrench Assembly" in Lubrication Section for additional information.

Additional chain links can be found in the storage areas located at each end of the planter toolbar.

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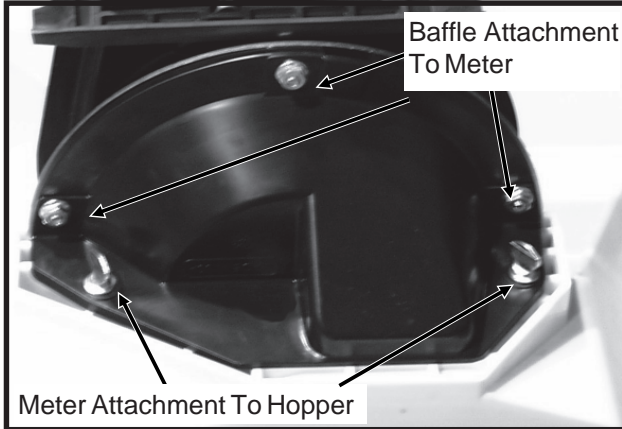


MAINTENANCE

FINGER PICKUP SEED METER INSPECTION/ADJUSTMENT

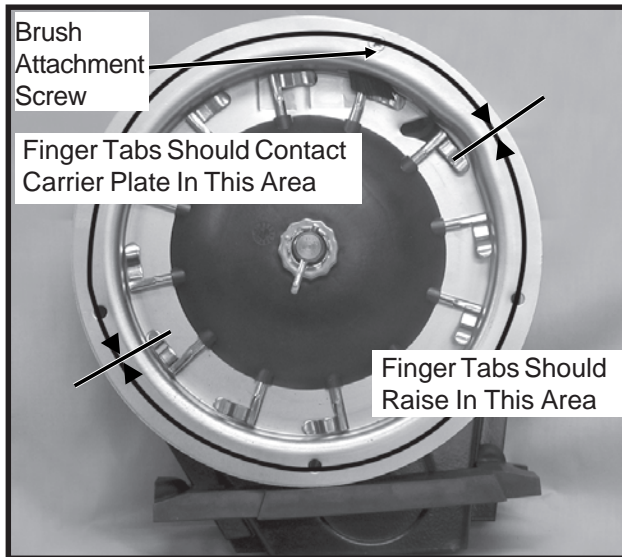
To inspect or service the finger pickup seed meter, remove the meter from the seed hopper by removing the two thumbscrews which secure the mechanism to the hopper. Remove the baffle from the meter assembly by removing three cap screws. This will permit access to the finger pickup.

D04229901



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.

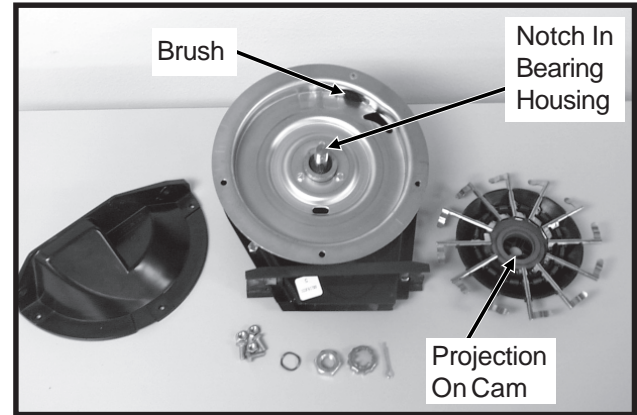
D1220402a



A buildup of debris or chaff may prevent proper finger operation and will require disassembly and cleaning of the finger pickup meter as follows:

1. Remove cotter pin, cover nut and adjusting nut and wave washer (If Applicable) from drive shaft.
2. Carefully lift finger holder, along with fingers and cam, off of the shaft. Clean.

D092004102



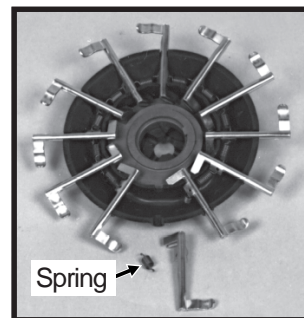
3. Check brush for wear and replace if necessary or following every 100 acres per row of operation.

EXAMPLE: Approximately 800 acres of corn or sunflowers on a 8 row machine or 1200 acres on an 12 row machine.

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

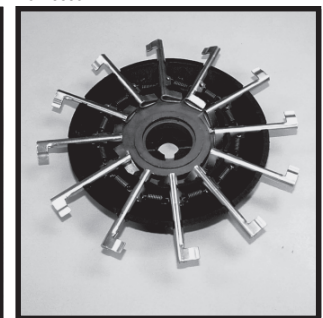
4. To replace fingers or springs, remove springs from fingers and remove finger from holder by lifting it out of the friction fit slot. Under average conditions, life expectancy of these parts should be 600-900 acres per row of operation.
5. After cleaning and/or replacing defective parts, reassemble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



Corn Finger Assembly
(Position Spring Opening Toward Holder)

D07299902



Oil Sunflower Finger Assembly

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.

MAINTENANCE

D092004103a

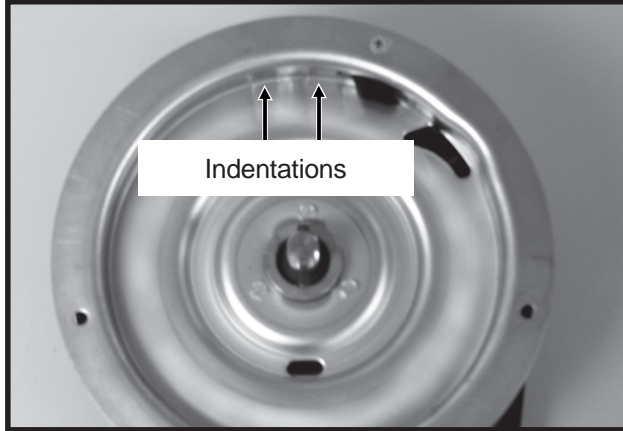


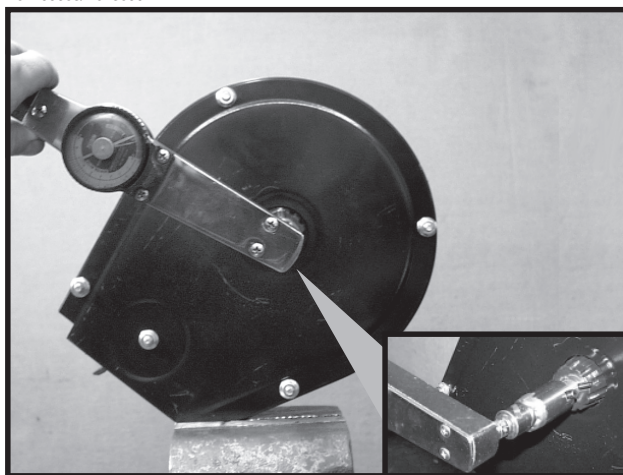
Photo Shows Worn Carrier Plate

- 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.

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

- With finger holder flush against the carrier, install wave washer and adjusting nut. Tighten adjusting nut to fully compress wave washer. Then back off nut $\frac{1}{2}$ to 2 flats ($\frac{1}{12}$ to $\frac{1}{3}$ turn) to obtain rolling torque of 22 to 25 inch pounds.

D07299903/D07309912

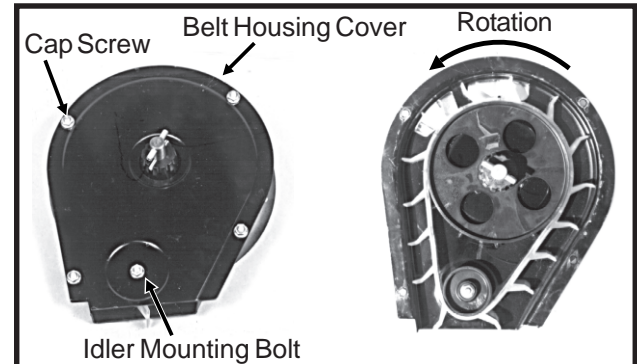


- Turn finger holder by hand to make sure it is positioned firmly against the carrier plate, but is not over tightened and can be rotated with moderate force.
- Install cover nut and cotter pin and reinstall baffle.

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.

60620-13a/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.

Reinstall the housing cover. **DO NOT TIGHTEN** hardware at this time. Wedge a screwdriver between the sprocket hub and housing cover as shown below. Pry cover down until it is centered on the belt housing and tighten hardware. Check idler alignment by rotating meter drive shaft. The seed belt should "run" centered on the idler or with only slight contact with the belt housing or cover.

IMPORTANT: Do not over tighten hardware.

D06200030



FINGER PICKUP SEED METER CLEANING

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

MAINTENANCE

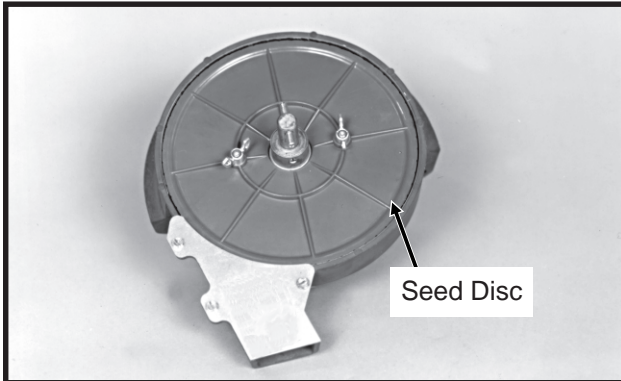
FINGER PICKUP SEED METER TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
One row not planting seed.	Drive release not engaged.	Engage drive release mechanism.
	Foreign material in hopper.	Clean hopper and finger carrier mechanism.
	Seed hopper empty.	Fill seed hopper.
	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 and inspect.
	Finger holder improperly adjusted.	Adjust to specifications. (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 specifications. (22 to 25 in. lbs. rolling torque)
	Worn brush in carrier plate.	Inspect and replace if necessary.
Overplanting.	Worn carrier plate.	Inspect and replace if necessary.
	Seed hopper additive being used.	Reduce or eliminate additive or increase graphite.
Underplanting.	Seed 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.

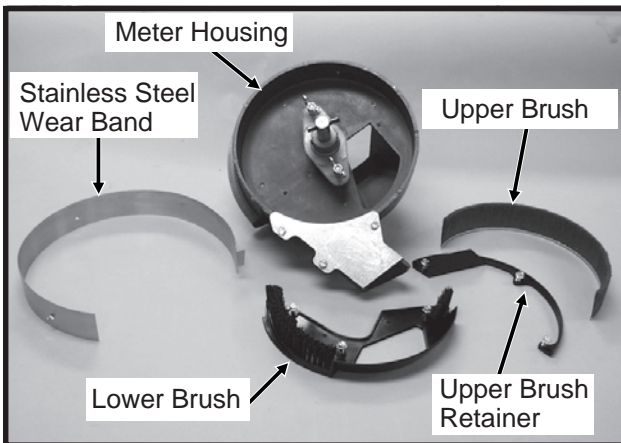
MAINTENANCE

BRUSH-TYPE SEED METER MAINTENANCE

60607-10a



D04239911



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 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 retainer and stainless steel wear band which can greatly reduce the accuracy of the meter because the upper brush will not be able to retain the seed in the seed disc pocket. Clean the brush areas of the meter housing thoroughly.

D04239912a



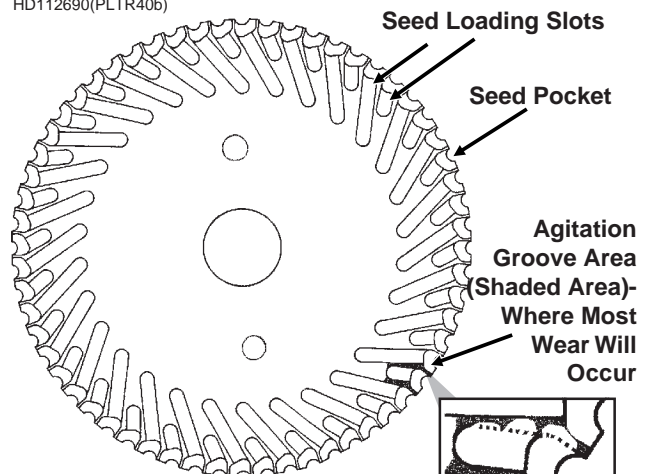
IMPORTANT: Replace hopper lids after hoppers are filled to prevent accumulation of dust or dirt in the seed meter which will cause premature wear.

Cleaning brush-type seed meter for storage:

1. Remove meter from seed hopper by removing the two thumbscrews which secure the meter to the hopper.
2. Remove seed disc and wash with soap and water and dry thoroughly.
3. Remove upper brush by removing the three hex head screws from the brush retainer and removing brush retainer and upper 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(PLTR40b)



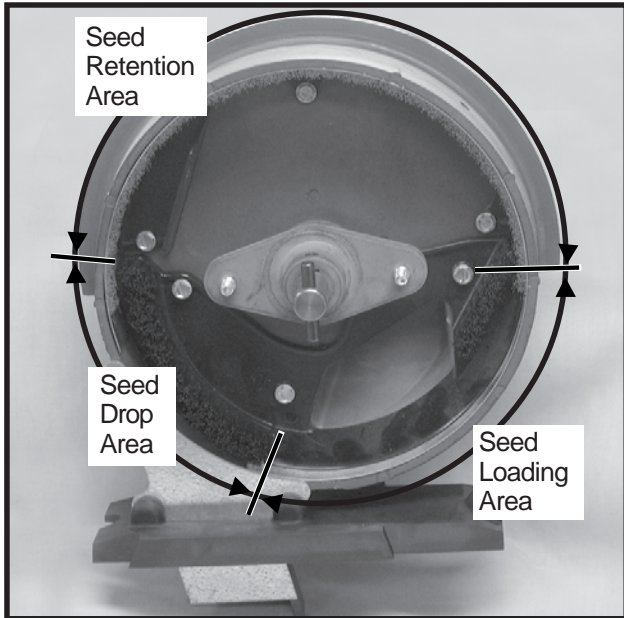
Most wear on the seed disc will be found in the agitation groove area (area between the seed loading slots). Wear will affect planting accuracy at high RPM. To measure for wear, lay a straight edge across the surface of the disc and measure the gap between the disc (at the agitation groove area) and 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 reduce life expectancy of the seed disc to under 100 acres per row.

MAINTENANCE

Upper Brush

D12220403



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

The 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.

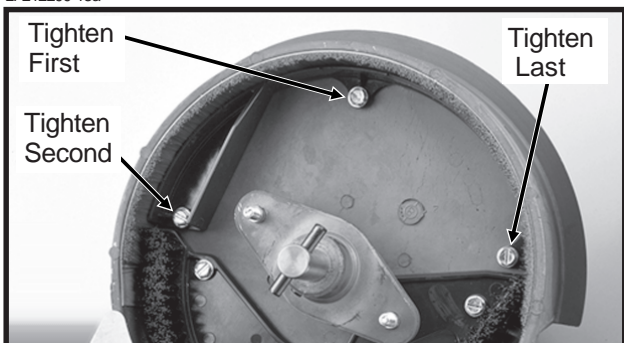
The upper brush should be replaced at approximately 120-400 acres per row of use or sooner if damage or excessive wear is found.

Installation Of Upper Brush

Position upper 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 retainer and three hex head screws. Tighten center screw first, left screw second and right screw last.

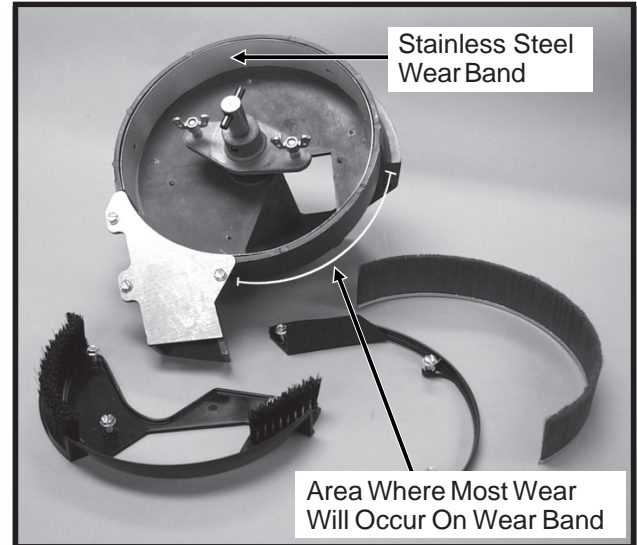
NOTE: Use GD11122 upper brush retainer when using soybean and cotton discs. Use GD8237 upper brush retainer when using milo/grain sorghum discs. GD11122 brush retainer shown.

LF212299-13a



Stainless Steel Wear Band

D04239917a

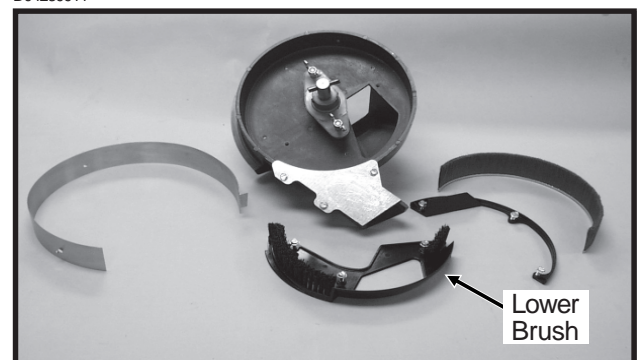


The purpose of the stainless steel wear band is to protect the meter housing from wear. The band is .030" thick and should be replaced when approximately .020" of wear is found in the primary area of wear. If the wear band is allowed to wear through or if the meter is used without the wear band in place,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

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

Lower Brush

D04239911



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 reservoir 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 retainer.

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. Add talc.
Low count at low RPM and higher count at higher RPM.	Foreign material lodged in upper brush.	Remove seed disc and remove foreign material from between brush retainer and bristles. Clean thoroughly.
	Worn upper 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.	Reset transmission. Refer to proper rate chart in "Machine Operation" section of manual.
	Upper brush too wide (fanned out) for small seed size.	Replace upper brush.
High count. (Milo/Grain Sorghum)	Incorrect brush retainer being used.	Make sure GD8237 brush retainer is installed to keep upper brush from fanning out.
Upper 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 retainer and brush. Clean thoroughly. Reinstall.

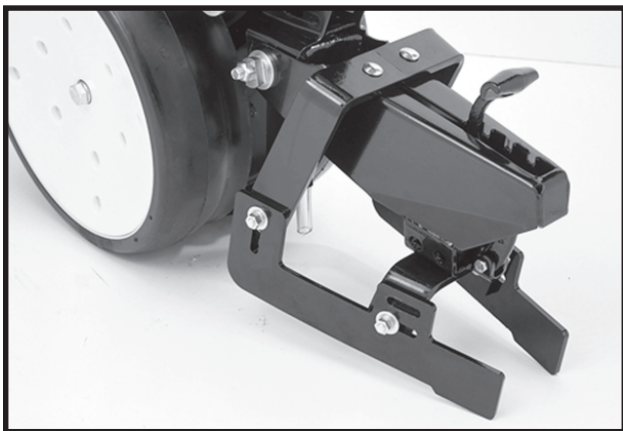
MAINTENANCE

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".

DRAG CLOSING ATTACHMENT

LF212299-18



Prior to storage of the planter, inspect each drag closing attachment and replace any worn or broken parts. Check for loose hardware and tighten as needed.

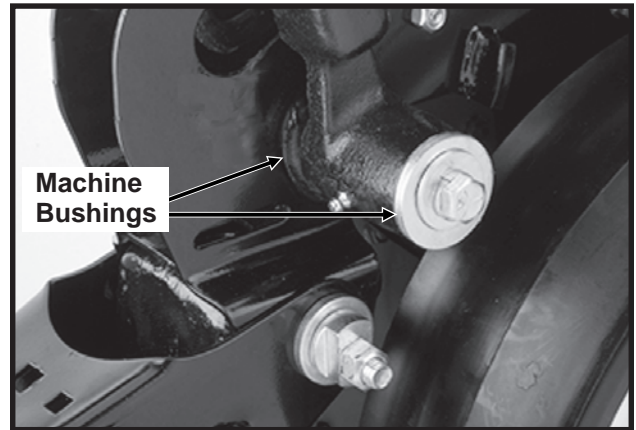
GAUGE WHEEL ADJUSTMENT

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.

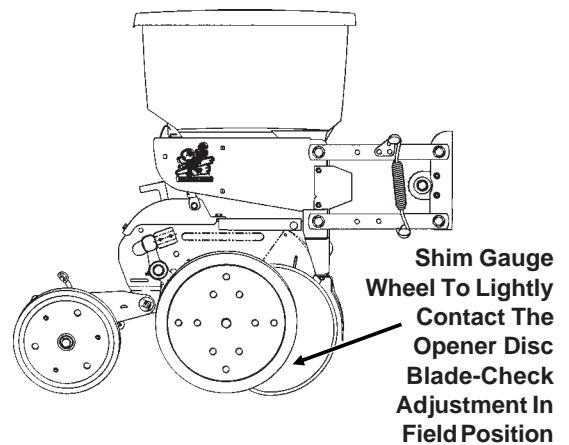
To adjust clearance between gauge wheels and opener blades, add or remove machine bushings between the shank and gauge wheel arm. Store remaining machine bushings between gauge wheel arm and flat washer on outer side of gauge wheel arm.

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

LF212199-2



(RU113)

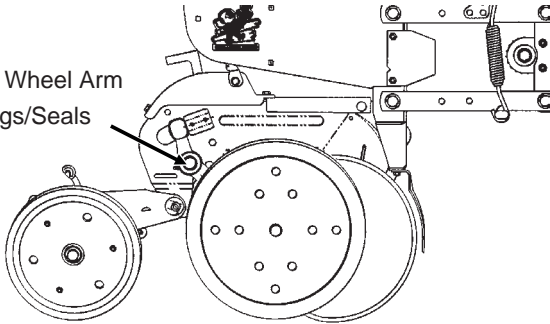


MAINTENANCE

GAUGE WHEEL ARM BUSHING AND/OR SEAL REPLACEMENT

(RU113)

Gauge Wheel Arm Bushings/Seals

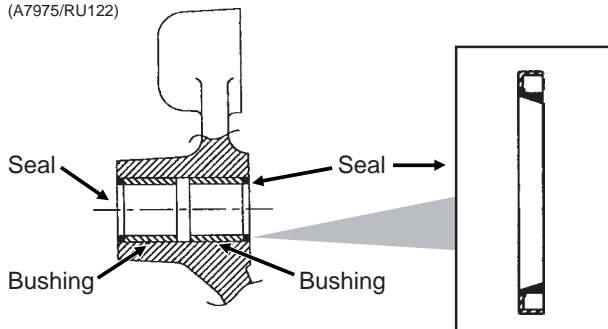


NOTE: A Gauge Wheel Arm Bushing And Seal Driver Kit (G1K296), for use in bushing and seal replacement, is available through your KINZE® Dealer.

To replace gauge wheel arm assembly bushing(s) and/or seal(s):

1. Remove gauge wheel from arm.
2. Remove the gauge wheel arm assembly from the shank assembly.
3. Remove seal and bushing and discard. Clean and dry inner bore.

(A7975/RU122)



4. Drive/press replacement bushing inside bore of arm to a depth of .125" below flush.
5. Coat wiping edge of seal with grease.
6. Drive/press seal into place with lip to the outside as shown above.

NOTE: Use extra care to protect the sealing lip during installation. Apply uniform pressure to assemble the seal into the bore of the arm. Never apply a direct hammer blow to the seal surface.

7. Inspect gauge wheel pivot spindle.
8. Reinstall gauge wheel arm assembly and gauge wheel.

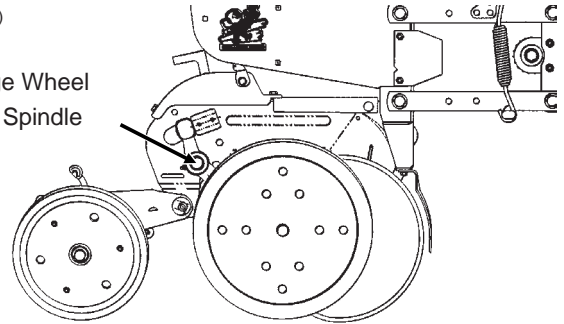
NOTE: Special machine bushing between gauge wheel arm and gauge wheel.

9. Shim for proper gauge wheel tire/disc blade clearance.
10. Lubricate with an SAE multipurpose grease.

GAUGE WHEEL ARM PIVOT SPINDLE REPLACEMENT

(RU113)

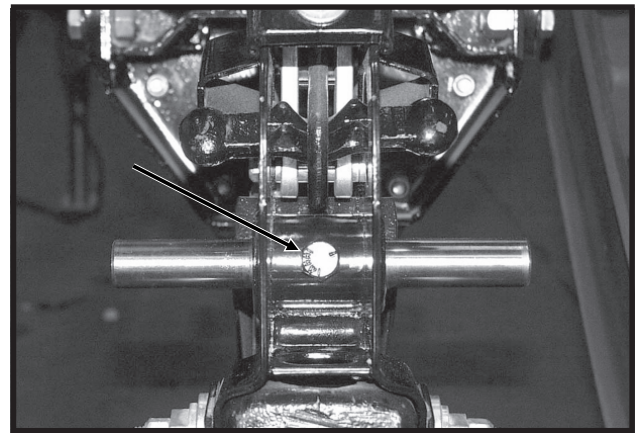
Gauge Wheel Pivot Spindle



To replace gauge wheel pivot spindle:

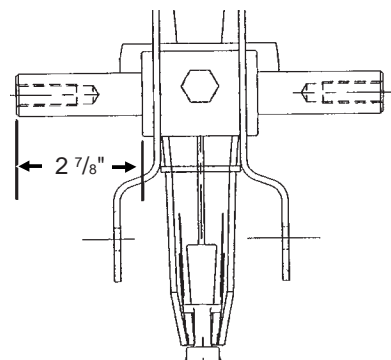
1. Remove the gauge wheel and arm assemblies from the shank assembly.
2. Remove 1/2" x 3/4" cap screw that locks the pivot spindle in place and remove the spindle.

D06189902



3. Install the replacement spindle and position as shown below. Exact centering is critical.

(A7966)



4. Install 1/2" x 3/4" cap screw and torque to lock pivot spindle in place.
5. Install gauge wheel and arm assemblies. Shim for proper gauge wheel tire/disc blade clearance.

MAINTENANCE

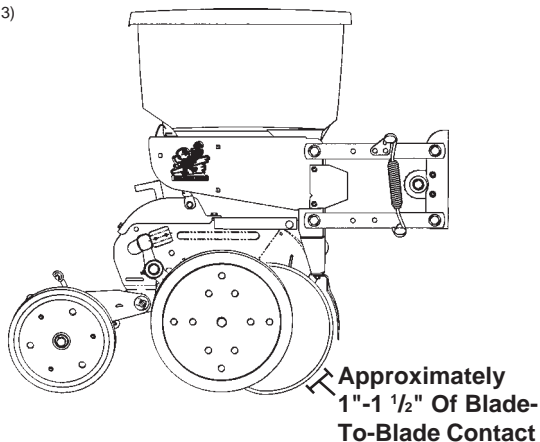
15" SEED OPENER DISC BLADE/ BEARING ASSEMBLY

Approximately 1"-1 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 relocate machine bushings from inside to outside to maintain approximately 1"-1 1/2" of contact.

NOTE: If proper blade-to-blade contact cannot be maintained after relocating machine bushings or if blade diameter wears below 14 1/2", the blade should be replaced.

IMPORTANT: Excessive blade contact may result in premature disc opener bearing/hub failures and excessive wear on seed tube guard/inner scraper. When properly adjusted, if one blade is held in fixed position, the opposite blade should be able to be rotated with minimal force (Less than 5 pounds force at outer edge of blade).

(RU113)



To replace disc blade/bearing assembly:

1. Remove gauge wheel.
2. Remove scraper.
3. Remove bearing dust cap.
4. Remove cap screw, washer and disc blade/bearing assembly. The machine bushings between the shank and disc blade are used to maintain the approximate 1"-1 1/2" of blade-to-blade contact.

IMPORTANT: Left hand side of opener uses a left hand threaded cap screw. DO NOT OVER TIGHTEN. Damage to shank threads will require replacement of row unit shank assembly.

5. Install machine bushing(s), new disc blade/bearing assembly, washer and cap screw. Torque 5/8"-11 Grade 5 cap screw to value shown in "Torque Values Chart".

NOTE: Replace disc blade only with disc blade of equal thickness.

6. Replace bearing dust cap.
7. Install scraper.
8. Install gauge wheel.

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

To replace bearing:

1. Remove gauge wheel, scraper, bearing cap, cap screw, washer and disc blade/bearing assembly.
2. Remove 1/4" rivets from bearing housing to expose bearing.
3. After installing new bearing, install three evenly spaced 1/4" cap screws 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 1/4" cap screws and install rivets in those three holes.
4. Reinstall disc blade/bearing assembly, washer and cap screw. Torque 5/8"-11 cap screw to value shown in "Torque Values Chart" at the beginning of this section.
5. Replace bearing dust cap.
6. Install scraper and gauge wheel.

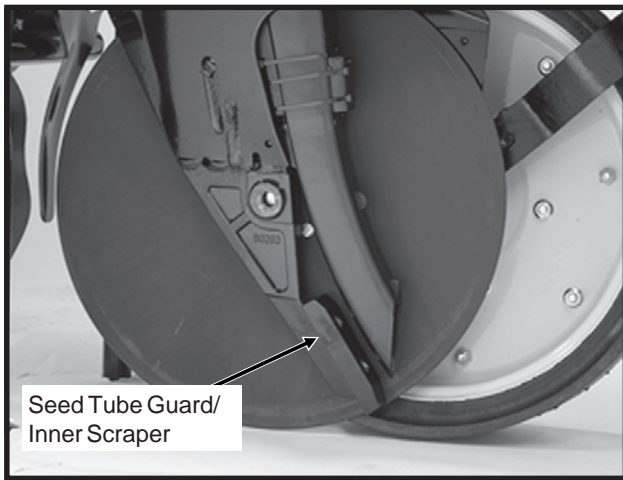
MAINTENANCE

SEED TUBE GUARD/INNER SCRAPER

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

Remove the seed tube and check for wear. Excessive wear on the seed tube indicates a worn seed tube guard. Replace the seed tube guard if it measures $\frac{5}{8}$ " or less at the lower end. A new seed tube guard measures approximately $\frac{7}{8}$ ".

LF212199-12



Shown With Gauge Wheel And Seed Opener Disc Blade Removed For Visual Clarity

IMPORTANT: No till planting or planting in hard ground conditions, especially when the planter is not equipped with no till coulters, and/or excessive blade-to-blade contact will increase seed tube guard wear and necessitate more frequent inspection and/or replacement.

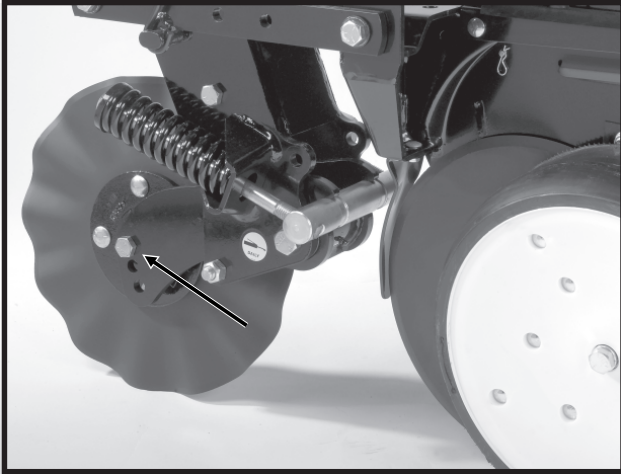
To replace the seed tube guard, remove the seed tube and the two hex socket head cap screws which attach the seed tube guard. Hold the replacement seed tube guard centered between the seed opener disc blades. Install, but DO NOT tighten, the hex socket head cap screws. Using a clamp or vise-grip, squeeze the opener blades together in front of the seed tube guard. Tighten the seed tube guard retaining screws. Remove the clamps. The distance between the seed tube guard and opener blades should be equal on both sides. Reinstall seed tube.

IMPORTANT: Over tightening the hex socket head cap screws may damage the threads in the shank and require replacement of the shank. A seed tube guard that is worn excessively may allow the blades to wear into the row unit shank, also requiring replacement of the shank.

MAINTENANCE

FRAME MOUNTED COULTER

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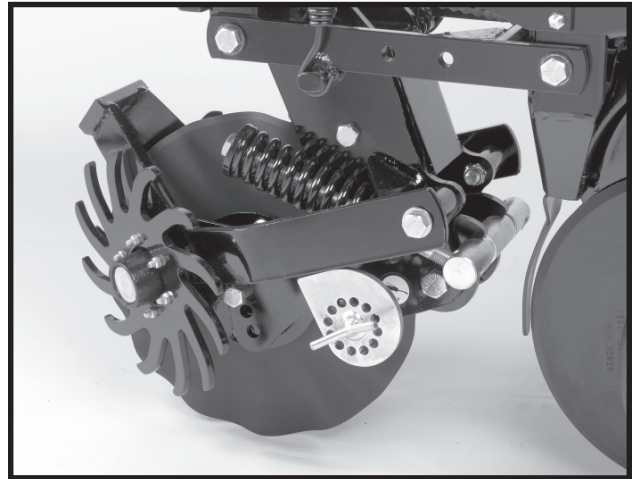
NOTE: Torque $\frac{5}{8}$ " spindle bolts to 120 ft. lbs.

See "Frame Mounted Coulters" in Row Unit Operation Section of this manual for depth and spring adjustment.

When the 16" diameter coulters blade (1" fluted, 1" bubbled or $\frac{3}{4}$ " fluted) is worn to 14 $\frac{1}{2}$ " (maximum allowable wear), it should be replaced.

RESIDUE WHEELS (For Use With Frame Mounted Coulters)

LF083002102

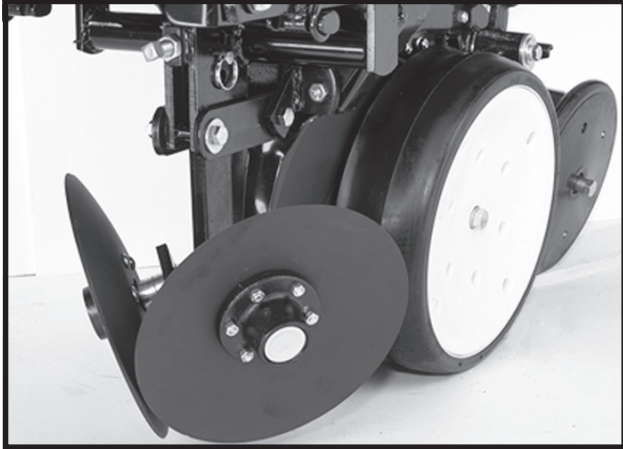


The wheel hub is equipped with sealed bearings. If bearings sound or feel rough when the wheel is rotated, replace the bearings.

MAINTENANCE

ROW UNIT MOUNTED DISC FURROWER

LF212299-22



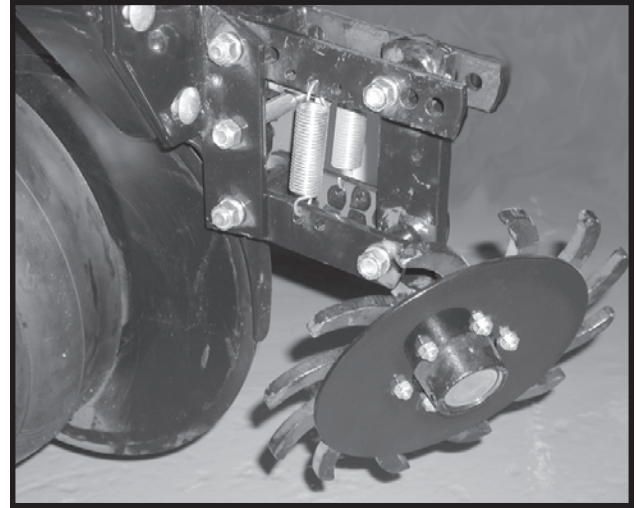
Lubricate the bushings in the support arm and mounting bracket at the frequency indicated in the Lubrication Section of this manual. Using a torque wrench, check each bolt for proper torque. If the bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushings as necessary. **Only hardened flat washers should be used. Replace damaged flat washers with proper part. Torque bolts to 130 ft. lbs.**

The blade hubs are equipped with sealed bearings. If bearings sound or feel rough when the blade is rotated, replace the bearings.

When the 12" diameter blades (solid or notched) are worn to 11", they should be replaced.

ROW UNIT MOUNTED RESIDUE WHEEL

D101701113

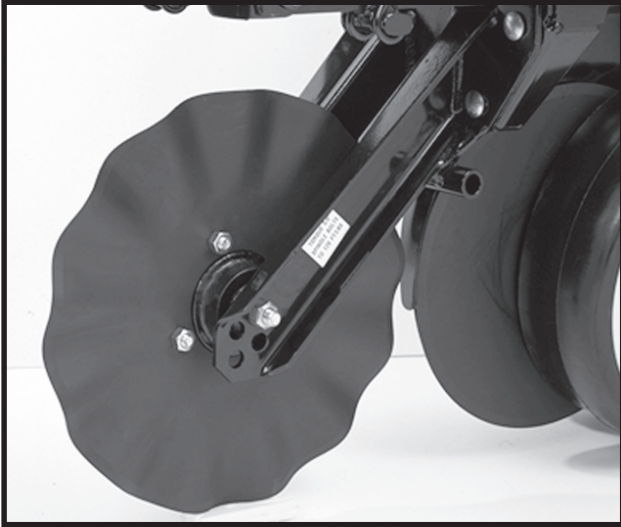


The wheel hub is equipped with sealed bearings. If bearings sound or feel rough when the wheel is rotated, replace the bearings.

MAINTENANCE

ROW UNIT MOUNTED NO TILL COULTER

LF212299-19a



Lubricate (If Applicable) 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 $\frac{5}{8}$ " spindle bolts to 120 ft. lbs.

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

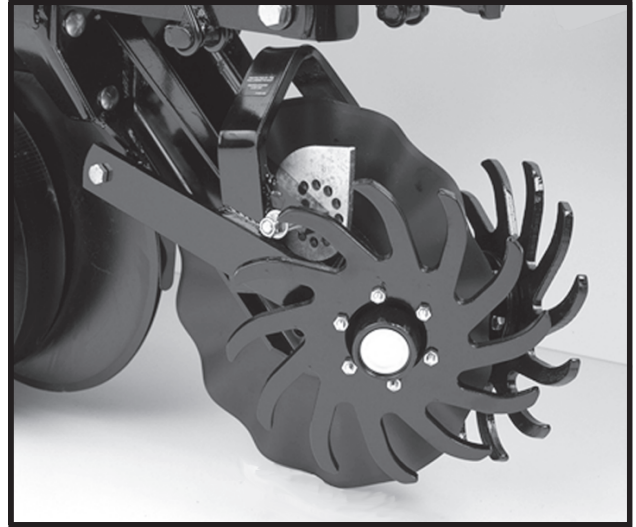
The coulters blade can be adjusted to one of four settings. Initially the blade is set in the highest position. As the blade wears it can be adjusted to one of the three lower settings. See "Row Unit Mounted No Till Coulters" in Row Unit Operation Section of this manual.

When the 16" diameter coulters blade is worn to 14 $\frac{1}{2}$ " (maximum allowable wear), it should be replaced.

(If Applicable) Timely lubrication at the frequency indicated in the Lubrication Section of this manual is necessary to purge moisture and dirt from bearings and seals. This will also lubricate the seals. Add grease until it comes out around the seals. Spin hub while filling with grease.

COULTER MOUNTED RESIDUE WHEELS

LF212299-23



The wheel hubs are equipped with sealed bearings. If bearings sound or feel rough when the wheel is rotated, replace the bearings.

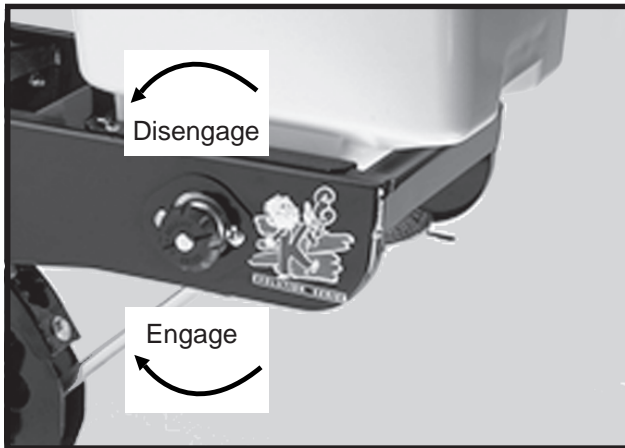
MAINTENANCE

GRANULAR CHEMICAL ATTACHMENT

Prior to storage of the planter, disengage the granular chemical drive by rotating the throwout knob 1/4 turn counterclockwise. Remove the drive chain and empty and clean all granular chemical hoppers. Clean the drive chains and coat them with a rust preventive spray or submerge chains in oil. Inspect and replace any worn or broken parts.

Install hoppers and chains. Check chain alignment.

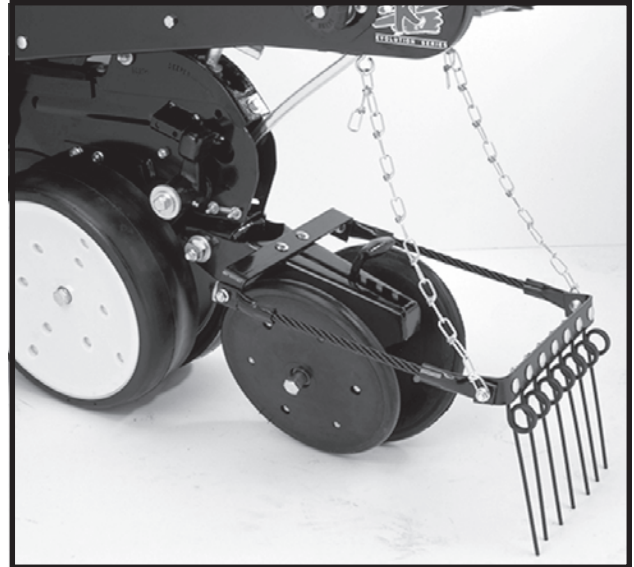
LF212299-4



SPRING TOOTH INCORPORATOR

Prior to storage of the planter, inspect each spring tooth incorporator and replace any worn or broken parts. Check for loose hardware and tighten as needed.

LF212299-26



MAINTENANCE

KPM II STACK-MODE ELECTRONIC SEED MONITOR TROUBLESHOOTING

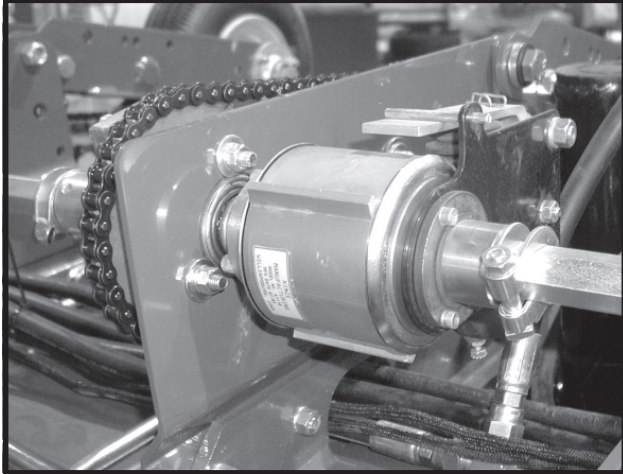
PROBLEM	POSSIBLE CAUSE	SOLUTION
Single sensor communication alarm comes on (alarm on with no bar graph and a flashing row number on a single row).	Faulty seed tube sensor.	Replace sensor.
	Break in the harness just before the seed tube sensor.	Inspect for break in harness and repair. If break can't be found, replace harness section.
	Dirty or corroded connector.	Clean connector.
Sensor communication alarms come on for all sensors (alarm on with no bar graphs and flashing row numbers on all rows).	Faulty monitor console.	Replace console.
	Break in the harness just after the monitor console.	Inspect for break in harness and repair. If break can't be found, replace harness section.
	Dirty or corroded connector.	Clean connector.
Sensor communication alarms come on for some sensors (alarm on with no bar graphs and flashing row numbers on all rows).	Break in the harness.	Inspect for break in harness and repair. If break can't be found, replace harness section corresponding with the alarming sensors.
	Dirty or corroded connector.	Clean connector.
Faulty measurements (such as speed, area, etc.) being displayed.	Incorrect settings.	Change settings to properly correspond to the system.
	Faulty radar/magnetic distance sensor.	Replace sensor.
	Improperly mounted radar sensor.	Properly mount sensor.
Underplanting or no planting alarm on a single sensor when planting (alarm on with a single bar graph segment on and a flashing row number on a single row).	Seed tube sensor is blocked.	Clean sensor.
	Faulty seed tube sensor.	Replace sensor.
Seed tube sensor dirty or blocked warning comes on (after calibration, bar graph keeps flashing for a single row).	Seed tube sensor is dirty.	Clean sensor.
	Faulty seed tube sensor.	Replace sensor.
LED on the seed tube sensor will not come on.	Faulty seed tube sensor.	Replace sensor.
	Dirty or corroded connector.	Clean connector.
	Break in the harness just before the sensor.	Repair harness.
Erroneous MPH readings at idle. (Radar Distance Sensor Only)	Radar sensor not located in a stable location.	Relocate to a more stable location.

MAINTENANCE

POINT ROW CLUTCH INSPECTION

The point row clutches are permanently lubricated and sealed and require no periodic maintenance.

D032404136



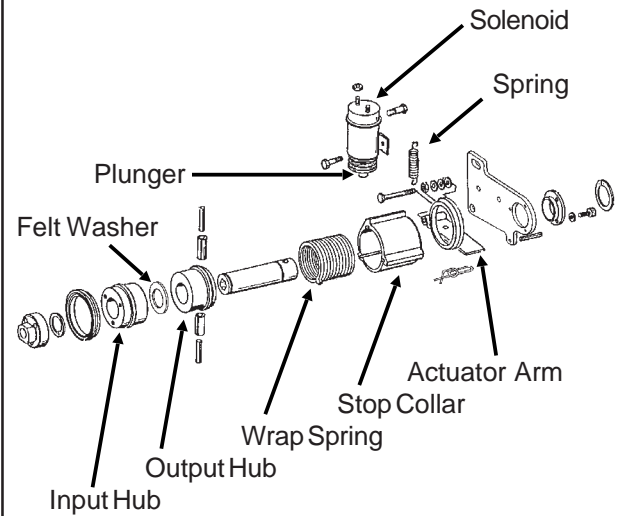
The clutches on the outer L.H. wing and inner R.H. wing operate clockwise and the clutches on the outer R.H. wing and inner L.H. wing operate counterclockwise. Therefore, some of the parts of the clutches such as the wrap springs differ from one location on the planter to another. Be sure to use the correct repair part if a clutch must be repaired.

NOTE: The point row clutches on the outer L.H. wing and inner R.H. wing are R.H. point row clutches. The point row clutches on the outer R.H. wing and inner L.H. wing are L.H. point row clutches. The input shaft on a L.H. clutch will have "R" stamped on it and a R.H. clutch will have "L" stamped on it.

If the clutch or clutches fail to operate, first determine if the problem is electrical or mechanical. Place the operational switch in the RIGHT INSIDE, RIGHT END, LEFT INSIDE or LEFT END position. When the switch is in the RIGHT INSIDE, RIGHT END, LEFT INSIDE or LEFT END position and the fuse on the rear of the control console is in working condition, the red indicator light on the control console should be lighted. If light does not come on, check the fuses on the front of the control console. See "Point Row Clutch Troubleshooting" chart. If fuses are not blown, check the clutch and wiring harness for power with a test light or volt meter. If the solenoid is operating properly, the plunger on the solenoid will retract causing a clicking sound. The plunger will also be magnetized which can be checked by touching the plunger with a metal object.

NOTE: Always replace fuse with proper size and type when replacing fuse. Use MDL 10 amp slow blow fuse on front of control console.

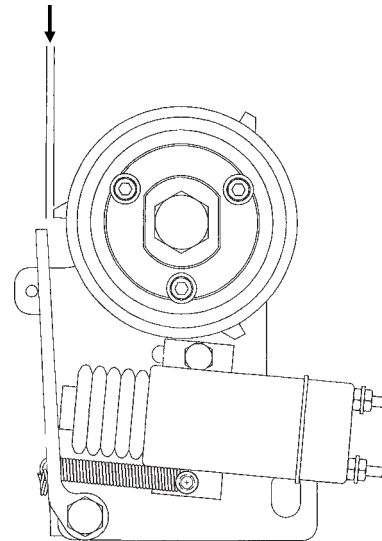
(TWL70c)



(A7110)

ACTUATOR ARM ADJUSTMENT

NOTE: Gap between actuator arm and stop on stop collar should be $\frac{1}{8}$ " ($\pm \frac{1}{32}$ ") when the solenoid is NOT engaged.



NOTE: To adjust gap between actuator arm and stop, loosen nut on mounting pin and move pin in slot until there is $\frac{1}{8}$ " ($\pm \frac{1}{32}$ ") gap between arm and stop on stop collar. Retighten nut.

MAINTENANCE

POINT ROW CLUTCH TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
None of the clutches will disengage.	Main fuse blown in control console.	Replace defective fuse.
	Poor terminal connection in wiring harness.	Repair or replace.
	Wiring damage in wiring harness.	Repair or replace.
	Low voltage at coil. (12 volts required)	Check battery connections.
One section of planter will not re-engage.	Shear pin at seed drive transmission(s) sheared.	Replace pin with one of equal size and grade.
One clutch will not engage.	Fuses blown.	Replace defective fuses.
	Actuator arm and plunger stuck in disengaged position.	Remove, free up and reinstall.
	Actuator arm out of adjustment.	Adjust actuator arm mounting pin in slot so that actuator arm clears stop on stop collar by approximately 1/8" when clutch is rotated.
	Wrap spring broken or stretched.	Disassemble clutch and replace spring.
	Something touching the stop collar.	Check to ensure collar is free to turn with clutch.
	Clutch assembled incorrectly.	Check clutch and diagram for correct assembly.
Clutch slipping.	Wrap spring stretched.	"Lock" clutch output shaft from turning. Place torque wrench on input shaft and rotate in direction of drive. After input shaft has rotated a short distance the wrap spring should tighten onto the input hub. If slippage occurs at less than 100 ft. lbs. replace spring. If spring still slips after installing new spring, replace input hub.
Planter section will not re-engage while planter is moving forward.	Spring in actuator arm not strong enough to push arm away from stop collar when operational switch is turned to the ON position.	Remove spring from inside solenoid and stretch spring slightly or replace. Reinstall spring. If that fails, file the stop on the stop collar slightly so that the stop is not as aggressive.
Frequent solenoid burnout.	Fuses too large.	Replace fuses on front panel with 10 amp slow blow fuses.
Frequent fuse burnout.	Low voltage (12 volts required).	Check power source voltage for partially discharged battery, etc.
	Damage to wiring harness.	Locate damage and repair or replace harness.
Clutch or clutches will not disengage.	Input and output shafts out of alignment.	Align input and output shafts to prevent drag.
	Input or output shaft is pushed in too far creating a coupler.	Reposition input and output shafts.

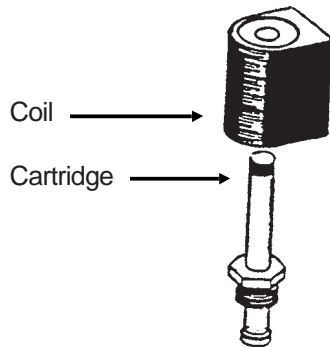
MAINTENANCE

SOLENOID VALVE INSPECTION

The solenoid valve consists of a chambered body containing a cartridge valve which is activated by an electrical coil.

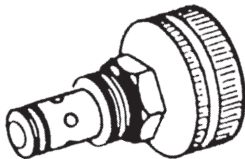
If the solenoid or solenoids fail to operate, first determine if the problem is electrical or hydraulic. If the valve is working properly, a click will be heard when the solenoid coil is energized. This will be the valve stem opening up. If no sound is heard, check the solenoid coil by touching the top of the coil housing with a metallic object such as a pliers or screwdriver. If the coil is working properly, the coil housing will be strongly magnetized when energized. If the voltage to the coil is low, the coil will be weakly magnetized when energized and no click will be heard.

VVB019(PLTR55)



FLOW CONTROL VALVE INSPECTION

VVB020(TWL28)



The flow control valves should be adjusted for row marker 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, it 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.

PRESSURE RELIEF VALVE VALVE INSPECTION (Located At Center Of Rear H-Frame)

(FWD23)



The pressure relief valve limits the available hydraulic pressure to the transport axle cylinder when the cylinder is retracting. Consult your KINZE® Dealer for service.

COUNTER BALANCE VALVE INSPECTION (Located At Center Of Rear H-Frame)

(FWD21)



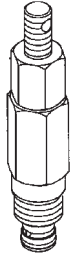
The counter balance valve is used for hydraulic load holding. This is a safety feature to prevent the planter from being unintentionally lowered. The valve is factory set and should require no additional adjustments. Consult your KINZE® Dealer for service.

MAINTENANCE

PRESSURE RELIEF VALVE INSPECTION (Located At At Each Row Marker)

32 Row 30" And 36 Row 30" Only

(FWD26)

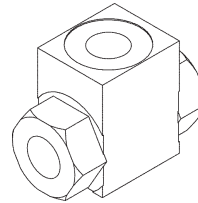


The pressure relief valve functions during the operation of the marker cylinder to equalize the hydraulic pressure applied to the row marker lift assist cylinder. The valve is factory set and should require no additional adjustments. Consult your KINZE® Dealer for service.

FLOW REGULATOR VALVE INSPECTION (Located At At Each Row Marker)

32 Row 30" And 36 Row 30" Only

(A10645)



The flow regulator valve directs hydraulic pressure to the row marker lift assist cylinder.

MAINTENANCE

SOLENOID VALVE TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
None of the solenoids will operate.	Low voltage.	Must be connected to 12 volt DC only. Negative ground.
	Blown fuse.	Replace fuse in control console on tractor with AGC-15 amp only.
	Battery connection.	Clean and tighten.
	Wiring harness damaged.	Repair or replace.
One solenoid valve will not operate.	Bad switch.	Replace on control panel.
	Cut wire in harness.	Locate and repair.
	Bad coil.	Replace.
	Poor connection at coil.	Check.
Valve operating when not energized.	Valve stem stuck open.	Replace cartridge.
	O-ring leaking.	Install new o-ring kit.
	Foreign material under poppet.	Remove cartridge and clean.

MAINTENANCE

ROW MARKER CIRCUIT TROUBLESHOOTING

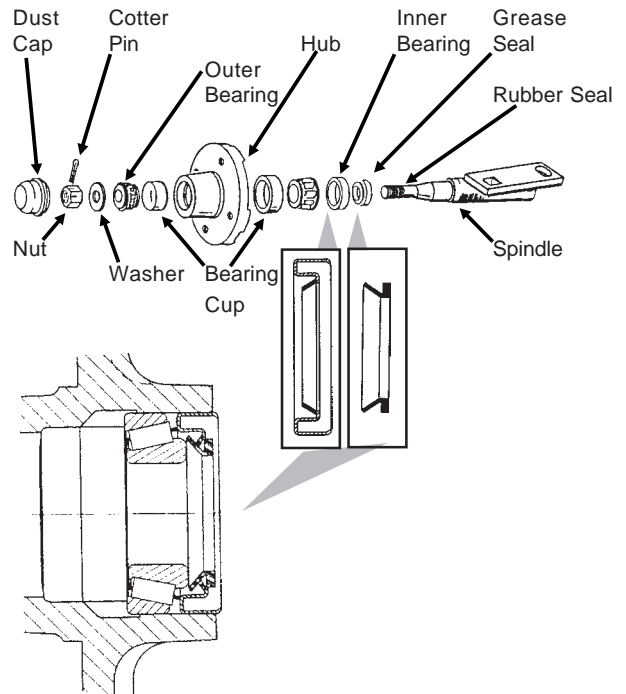
PROBLEM	POSSIBLE CAUSE	SOLUTION
Right marker lowering slower than left marker.	Solenoid valve cartridge in port V3 not opening completely.	Switch cartridge with one in port V4. If problem follows cartridge, replace cartridge.
	Hose pinched or collapsed.	Inspect hose routing. Replace or repair hoses as required.
Left marker lowering slower than right marker.	Solenoid valve cartridge in port V4 not opening completely.	Switch cartridge with one in port V3. If problem follows cartridge, replace cartridge.
	Hose pinched or collapsed.	Inspect hose routing. Replace or repair hoses as required.
Both markers lowering.	Solenoid valve cartridge stuck open. If marker switch is in the left marker position, the right cartridge (V3) is defective. If the marker switch is in the right marker position, the left cartridge (V4) is defective.	Replace solenoid valve cartridge.
Neither marker will lower.	Blown fuse.	Check red light on control console. It should be on if switch is ON. If light is not on, switch to opposite marker position. If light comes on, switch may be defective. Replace switch. Otherwise replace fuse.
	Coils at V3 and V4 not energized.	Poor ground on wire, bad wire connection or damaged wire. Repair as required.
	Marker flow control valve closed too far.	See Operation Section for adjustment.
Neither marker will raise.	Marker flow control valve closed too far.	See Operation Section for adjustment.
Right marker will not lower.	Solenoid coil in port V3 not energized.	Check switch on control console. Replace if defective. Check coil ground wire. Check for poor connection or damaged wire.
	Solenoid cartridge in port V3 stuck closed.	Switch cartridge with one on the planter you know is operating properly. If right marker lowers, replace defective cartridge.
Left marker will not lower.	Solenoid coil in port V4 not energized.	Check switch on control console. Replace if defective. Check coil ground wire. Check for poor connection or damaged wire.
	Solenoid cartridge in port V4 stuck closed.	Switch cartridge with one on the planter you know is operating properly. If right marker lowers, replace defective cartridge.
Markers traveling too fast and damaging row marker stands and/or damaging pivot at rod end of marker cylinders.	Marker flow control valve out of adjustment.	See Machine Operation Section for adjustment.

MAINTENANCE

ROW 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 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 $\frac{3}{4}$ full of wheel bearing grease and install on hub.
12. Install blade and dust cap retainer on hub and tighten evenly and securely.

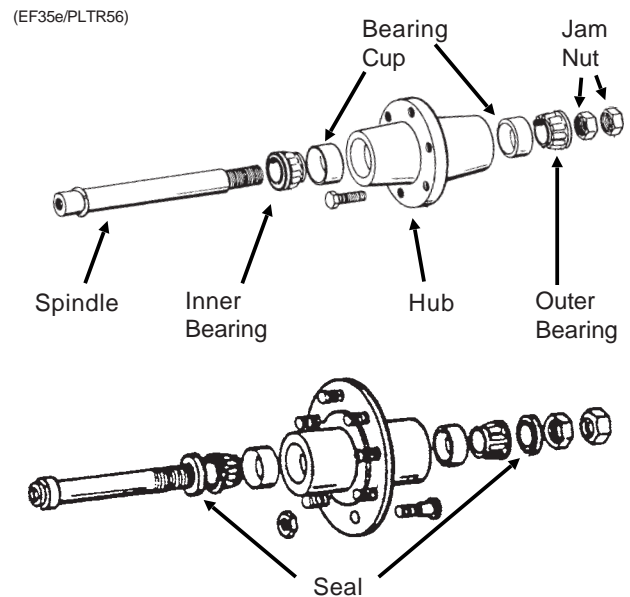
(PLTR45/PLTR99/PLTR98/PLTR102)



MAINTENANCE

LIFT/GROUND DRIVE WHEEL BEARING LUBRICATION OR REPLACEMENT

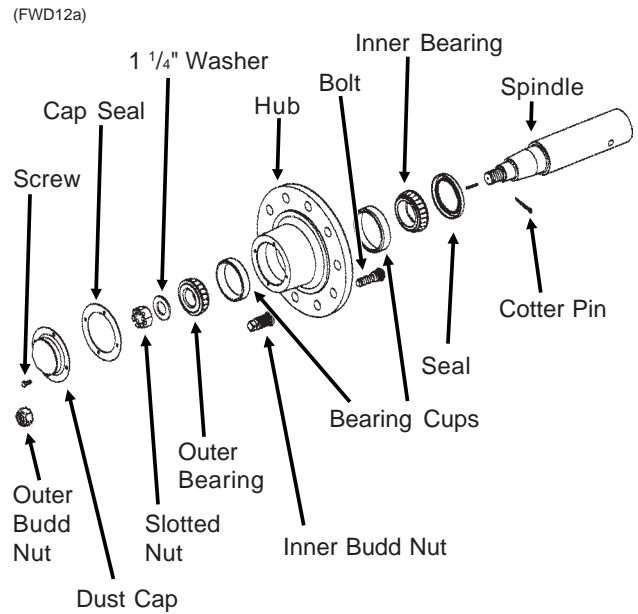
1. Raise tire clear of ground and remove wheel.
2. Remove double jam nuts and slide hub from spindle.
3. Remove bearings, seals (Where Applicable) and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
4. Press in new bearing cups with 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 and seal (If Applicable) in place.
7. Clean spindle and install hub.
8. Install outer bearing, seal (If Applicable) and stepped 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 $\frac{1}{4}$ 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. Torque wheel bolts to specified torque.



MAINTENANCE

TRANSPORT WHEEL BEARING REPLACEMENT

1. Raise tires clear of ground and remove wheels.
2. Remove dust cap attachment hardware and remove cap from wheel hub.
3. Remove cotter pin, axle nut and 1 1/4" washer.
4. Slide hub from axle spindle, using a hub puller if necessary.
5. Remove bearings and cups from hub and discard. Thoroughly clean and dry wheel hub.
6. Press in new bearing cups with thickest edges facing in.
7. Pack bearing with heavy-duty wheel bearing grease, thoroughly forcing grease between roller cone and bearing cage. Also fill the space between the bearing cups in the hub with grease.
8. Place inner bearing in hub and press in new grease seal with lip pointing towards bearing.
9. Clean axle spindle and install hub.
10. Install outer bearing, 1 1/4" washer and slotted hex nut. Tighten slotted hex nut while rotating the 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. Check for endplay in bearings.
11. Fill dust cap half full of wheel bearing grease and install on hub with attachment bolts.
12. Install wheels and remove jack. Torque inner budd nuts to 220 ft. lbs. and outer budd nuts to 670 ft. lbs.



MAINTENANCE

PISTON PUMP STORAGE

IMPORTANT: KEEP AIR OUT OF PUMP! This is the only way to prevent corrosion. Even for short periods of storage, the entrance of air into the pump, will cause RAPID AND SEVERE CORROSION.

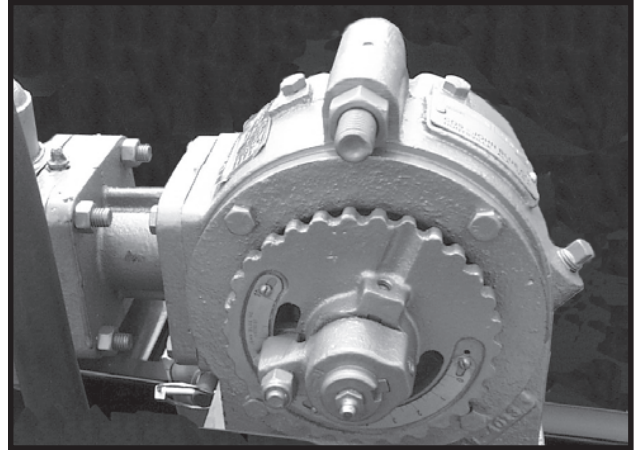
Overnight Storage

SUSPENSION FERTILIZER must be flushed from the pump for ANY storage period.

Winter Storage

1. Flush pump thoroughly with 5 to 10 gallons of fresh water and circulate until all corrosive salts are dissolved in the pump.
2. With the pump set on 10, draw in a mixture of half diesel fuel and half 10 weight oil until the discharge is clean. Then plug inlet and outlet.

D071504102a



PISTON PUMP TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump hard or impossible to prime.	Valves fouled or in wrong place.	Inspect and clean valves.
	Air leak in suction line.	Repair leak.
	Pump set too low.	Adjust pump setting.
	Packing washers worn out.	Replace.
Low metering.	Valves fouled or in wrong place.	Inspect and clean valves.
	Air leak in suction line.	Repair leak.
	Pump set too low.	Adjust pump setting.
	Broken valve spring.	Replace spring.
Over meters.	Broken discharge valve spring.	Replace spring.
	Trash under valves.	Inspect and clean valves.
	Improper rate setting.	Adjust pump setting.
Leaks through when stopped.	Broken discharge valve spring.	Replace spring.
	Trash under valves.	Inspect and clean valves.
Fertilizer solution leaking under stuffing box.	Packing washers worn out.	Replace.
Pump using excessive oil.	Oil seals or o-ring worn and leaking.	Replace.
Pump operates noisily.	Crankcase components worn excessively.	Inspect and replace if necessary.

MAINTENANCE

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

Make sure all seed and granular chemical hoppers are empty and clean.

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

Remove seed discs from brush-type seed meters, clean and store meters with discs removed.

Grease exposed areas of cylinder rods before storing planter.

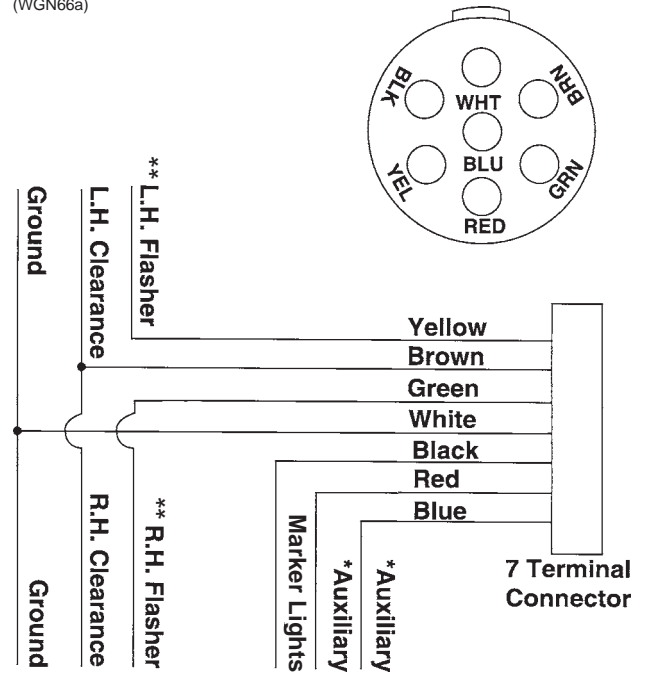
Disassemble, clean and grease all U-joint slides.

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

Flush liquid fertilizer metering pump with clean water. See "Piston Pump Storage".

ELECTRICAL WIRING DIAGRAM FOR 7-TERMINAL LIGHT CONNECTOR

(WGN66a)

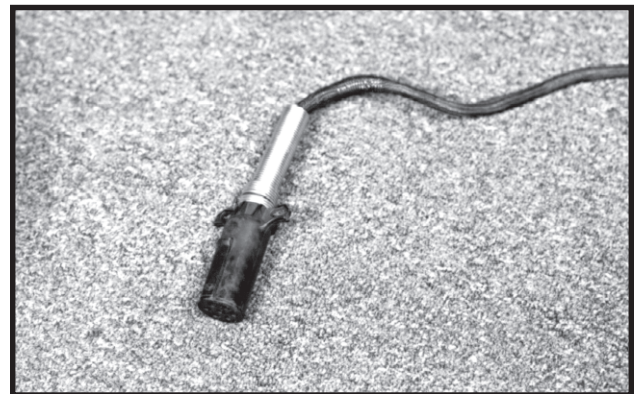


* Optional customer-supplied auxiliary lights and wires may be wired into existing plug terminals.

** Rear and side flashers.

Light package supplied on the Model 3800 Forward Folding Planter meets ASAE Standards. For the correct wiring harness to be wired into the lights on your tractor, check with the tractor manufacturer.

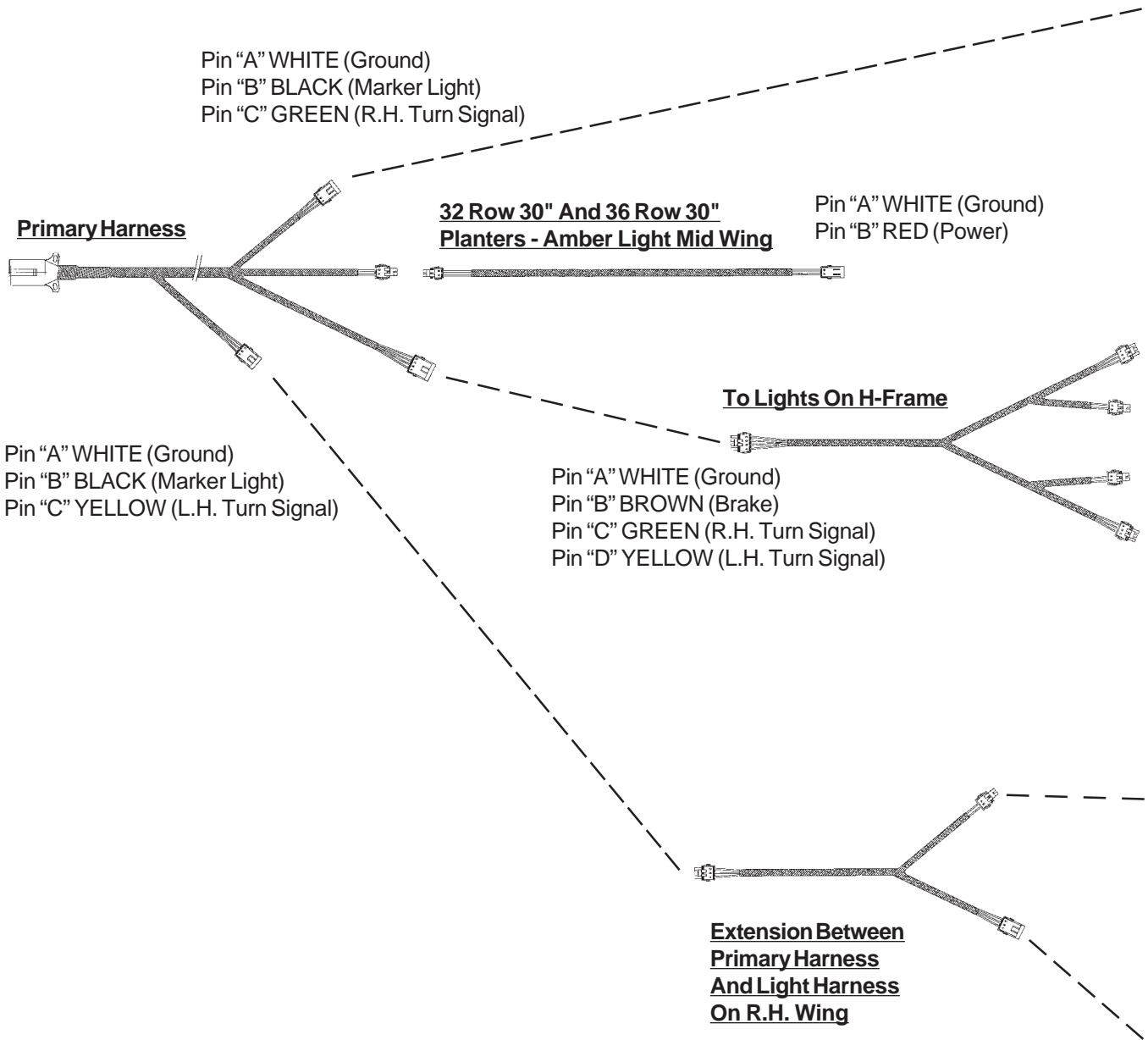
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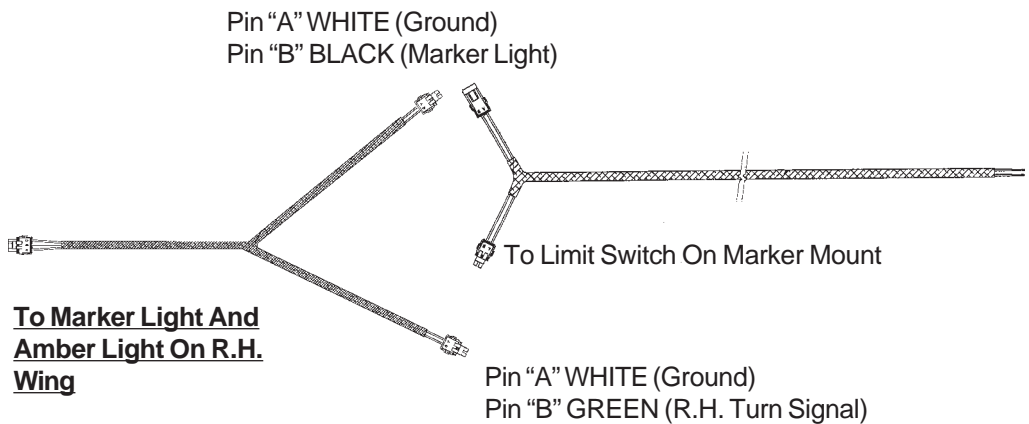
MAINTENANCE

ELECTRICAL LIGHT HARNESS SCHEMATICS

(A10315/A10316/A10317/A10318/A10319)



MAINTENANCE



Pin "A" WHITE (Ground)
Pin "B" BROWN (Brake)
Pin "C" GREEN (R.H. Turn Signal)

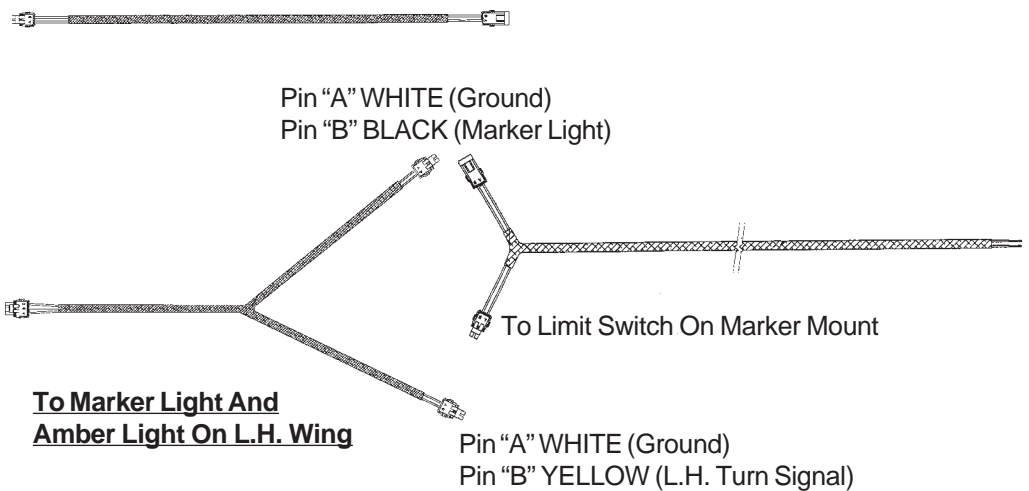
Pin "A" WHITE (Ground)
Pin "B" GREEN (R.H. Turn Signal)

Pin "A" WHITE (Ground)
Pin "B" YELLOW (L.H. Turn Signal)

Pin "A" WHITE (Ground)
Pin "B" BROWN (Brake)
Pin "C" YELLOW (L.H. Turn Signal)

32 Row 30" And 36 Row 30" Planters - Amber Light Mid Wing

Pin "A" WHITE (Ground)
Pin "B" RED (Power)

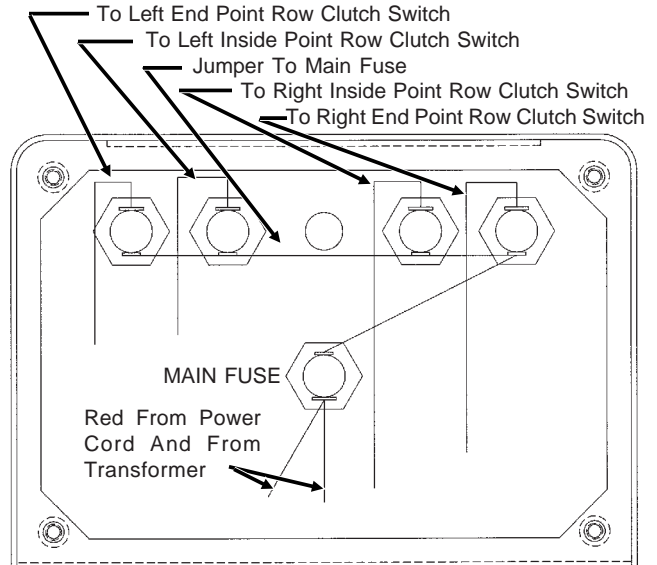
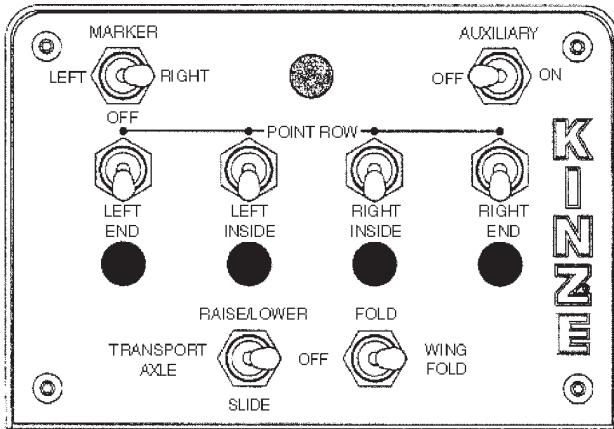


MAINTENANCE

ELECTRICAL CONTROL CONSOLE SCHEMATIC

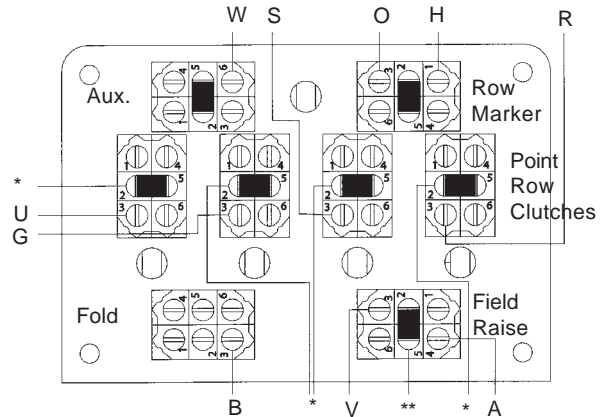
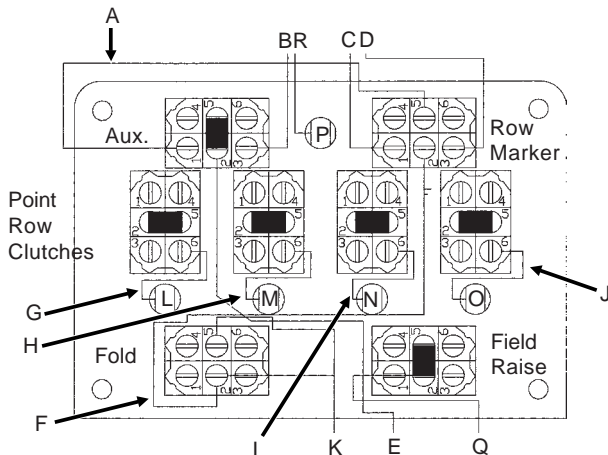
IMPORTANT: Before doing any electrical work, disconnect the control console from the tractor battery. Keep wiring harnesses away from high temperature areas or sharp edges. **DO NOT** route the wiring harnesses along battery cables. Use tie straps to keep wire harnesses away from moving parts on tractor and planter. Be sure ground connections to the tractor frame are clean to provide good electrical contact.

(FWD30a/FWD36a/FWD37/FWD36)



- A. 6" White Jumper
- B.-D. 4" White Jumper (3)
- E. 4" Yellow Jumper
- F. 7 1/4" Green Jumper
- G.-J. 3" White Jumper (4)
- K. 5" Black Jumper
- L.-P. 7" Purple Jumper
- Q. 4" Red Jumper
- R. 4" White Jumper

- Pin "A" ORANGE/RED (Slide)
- Pin "R" BROWN (L.H. End Point Row Clutch)
- Pin "G" ORANGE (R.H. Inside Point Row Clutch)
- Pin "H" BLUE (L.H. Marker)
- Pin "B" BLUE/RED (Fold)
- Pin "U" RED/BLACK (R.H. End Point Row Clutch)
- Pin "S" YELLOW (L.H. Inside Point Row Clutch)
- Pin "O" RED (R.H. Marker)
- Pin "V" BLUE/BLACK (Raise To Transport)
- Pin "T" BLACK (Ground)(12 Gauge)
- Pin "C" BLACK/RED (Ground)
- Pin "W" ORANGE/BLACK (Auxiliary)
- * To Point Row Clutch Fuses
- ** To Main Fuse



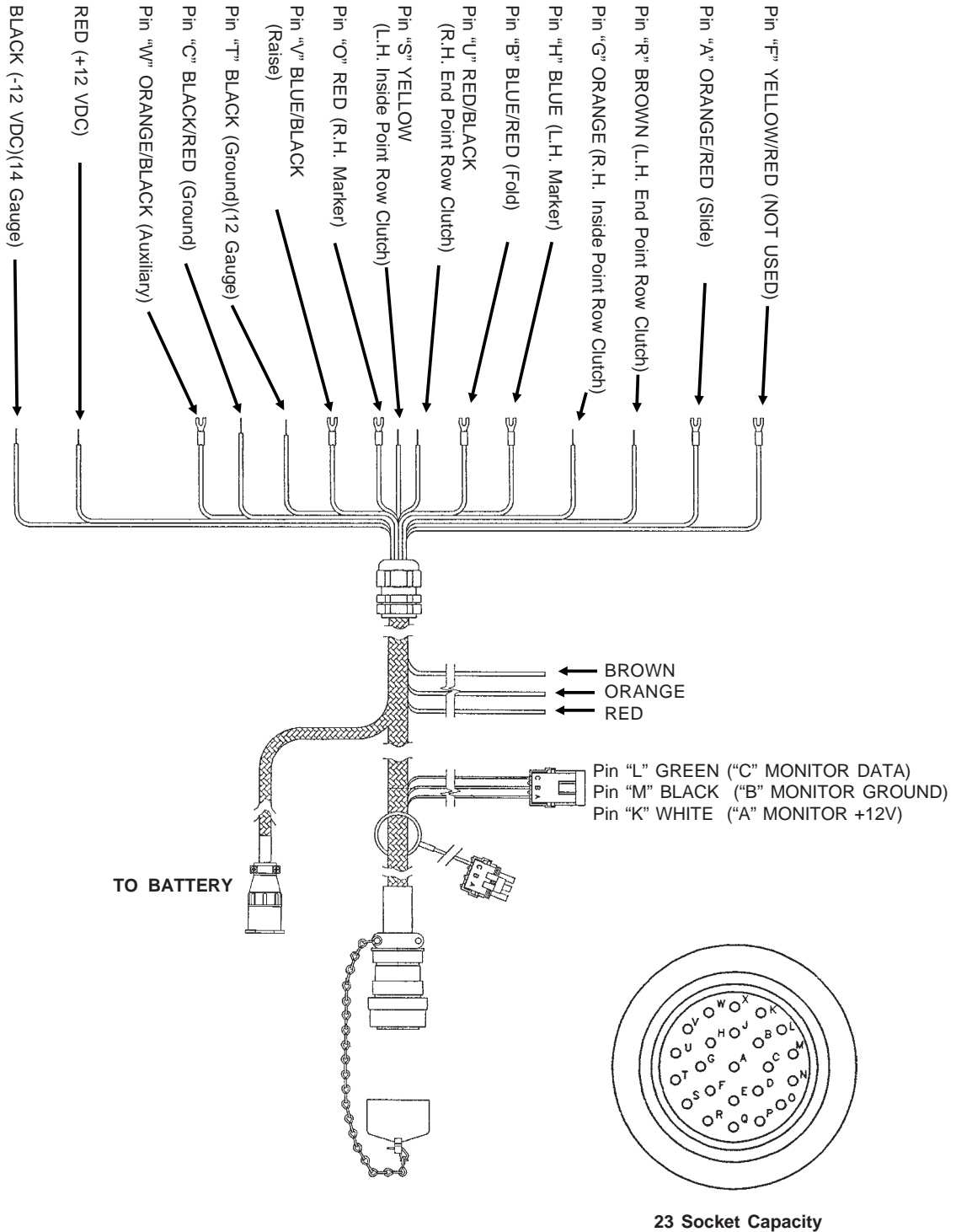
NOTE:

1. Operating marker or point row switches in either direction lights panel light.
2. Point row clutch switches operate independently of the rest of the control box.
3. Power to the marker switch is fed through the auxiliary switch and the two transport function switches. Operating any of the switches in the lower row disables the marker function and turns off the panel light. (If the point row clutch switches are in the "OFF" position.)

MAINTENANCE

ELECTRICAL WIRING HARNESS SCHEMATIC (On Tractor)

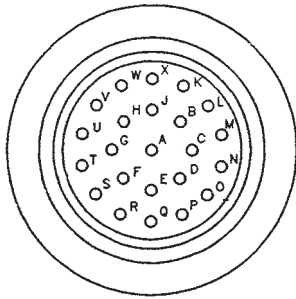
(ELC10c/ELC13)



MAINTENANCE

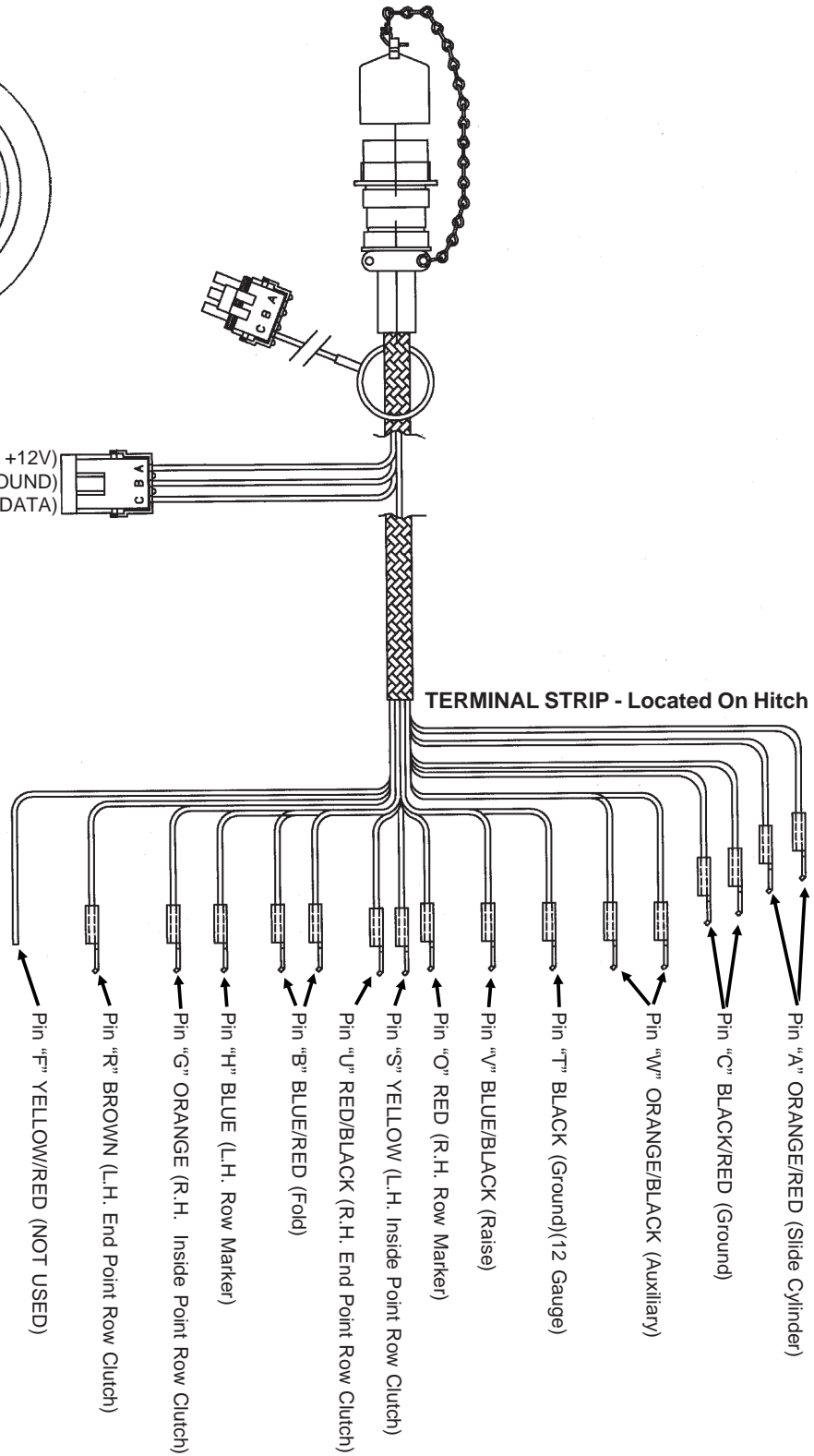
ELECTRICAL WIRING HARNESSES SCHEMATIC (On Planter)

(ELC13/A10308)



23 Pin Capacity

- Pin "K" WHITE ("A" MONITOR +12V)
- Pin "M" BLACK ("B" MONITOR GROUND)
- Pin "L" GREEN ("C" MONITOR DATA)

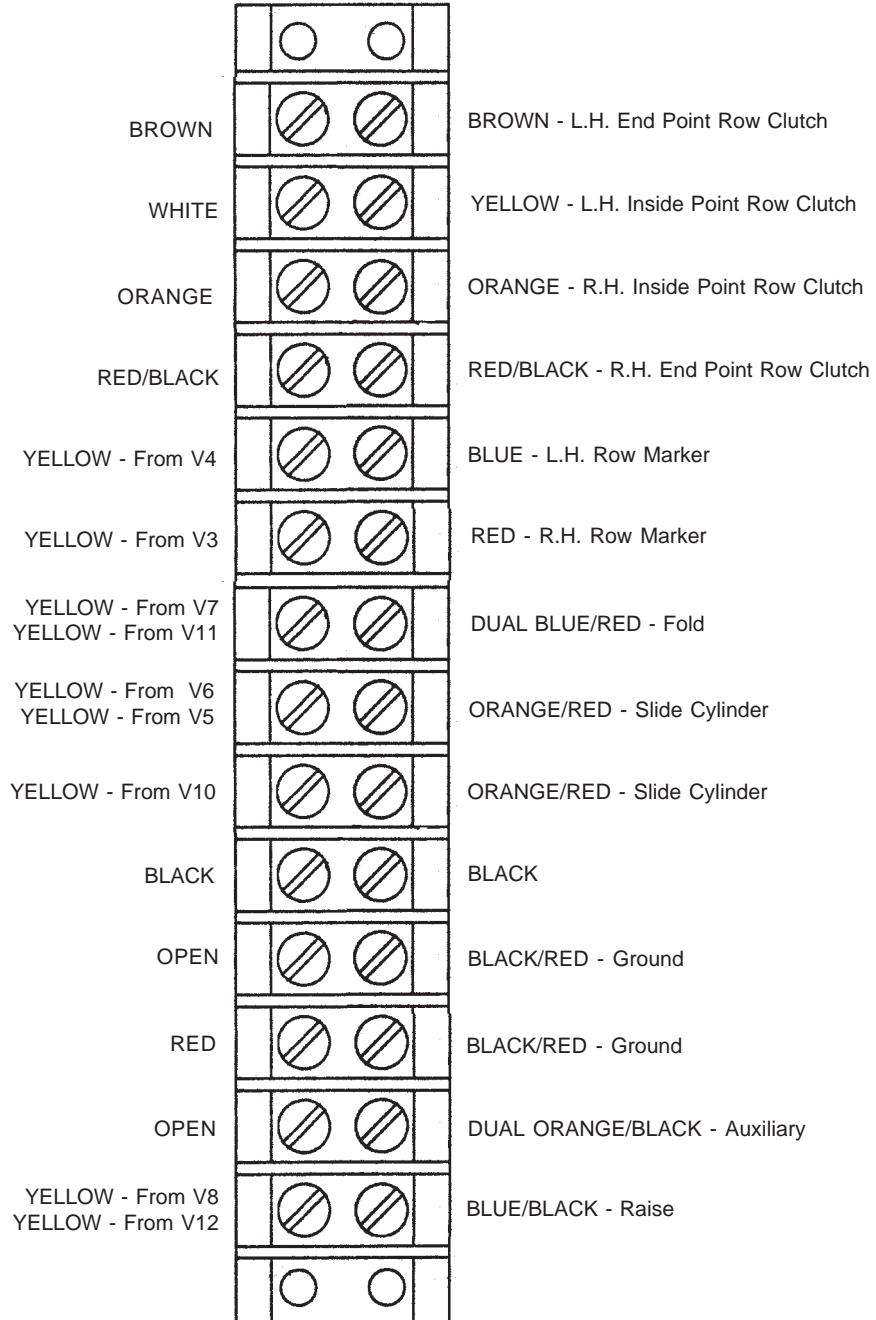


MAINTENANCE

ELECTRICAL WIRING HARNESSES SCHEMATIC (Continued) (On Planter)

(A9097)

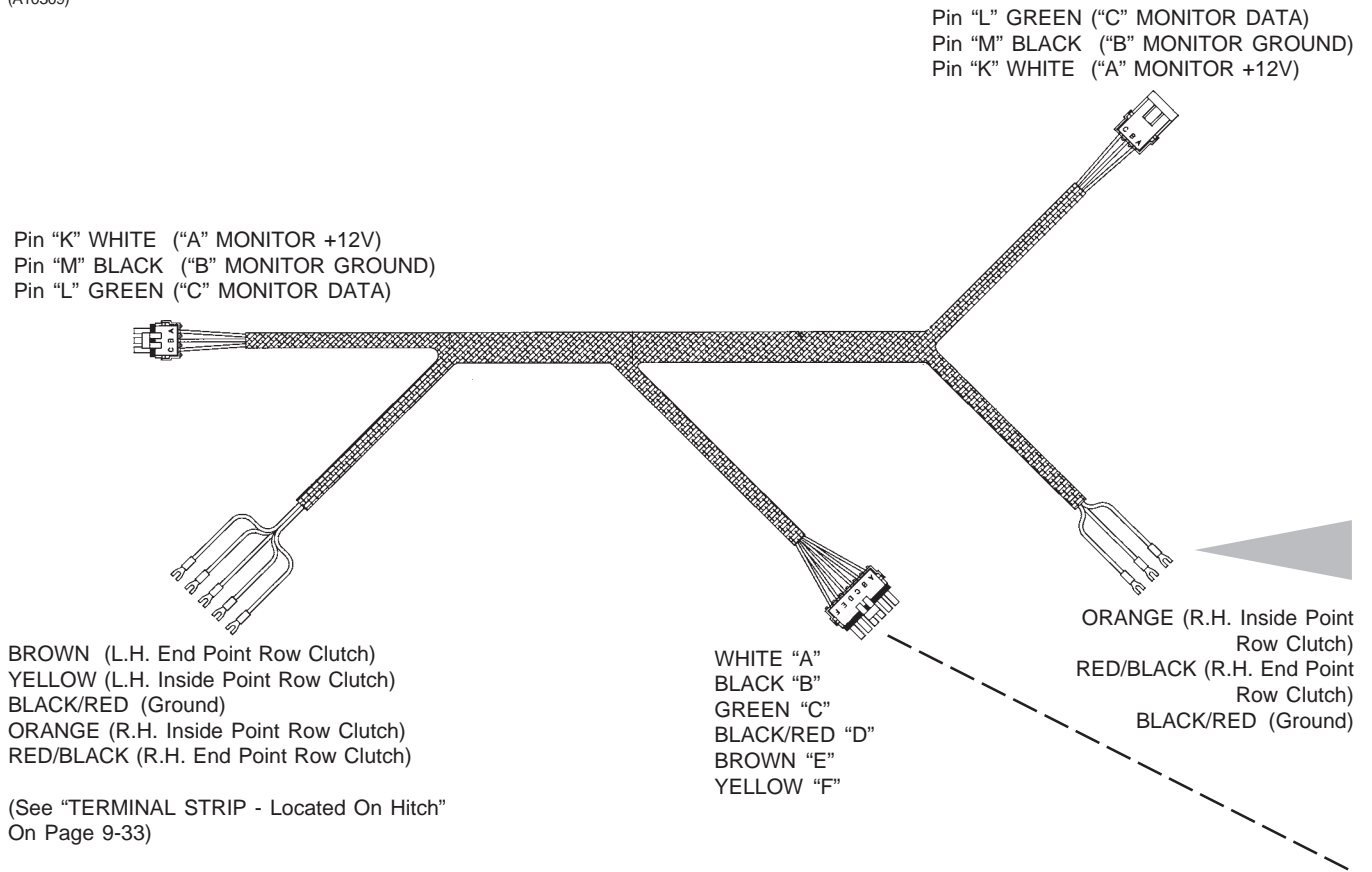
TERMINAL STRIP - Located On Hitch



MAINTENANCE

ELECTRICAL WIRING HARNESSES SCHEMATIC (Continued) (On Planter)

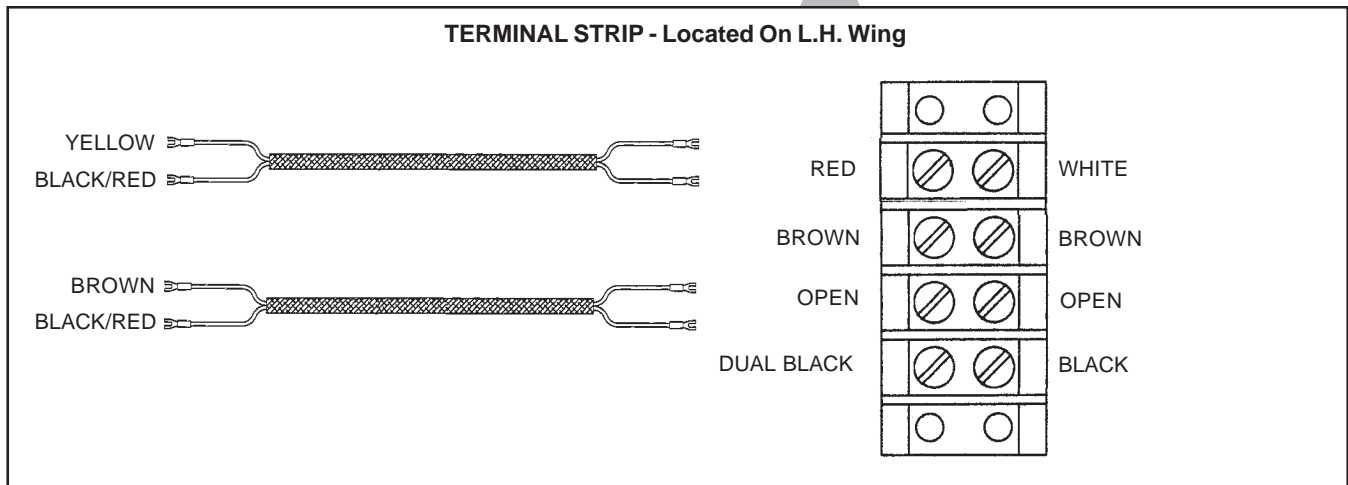
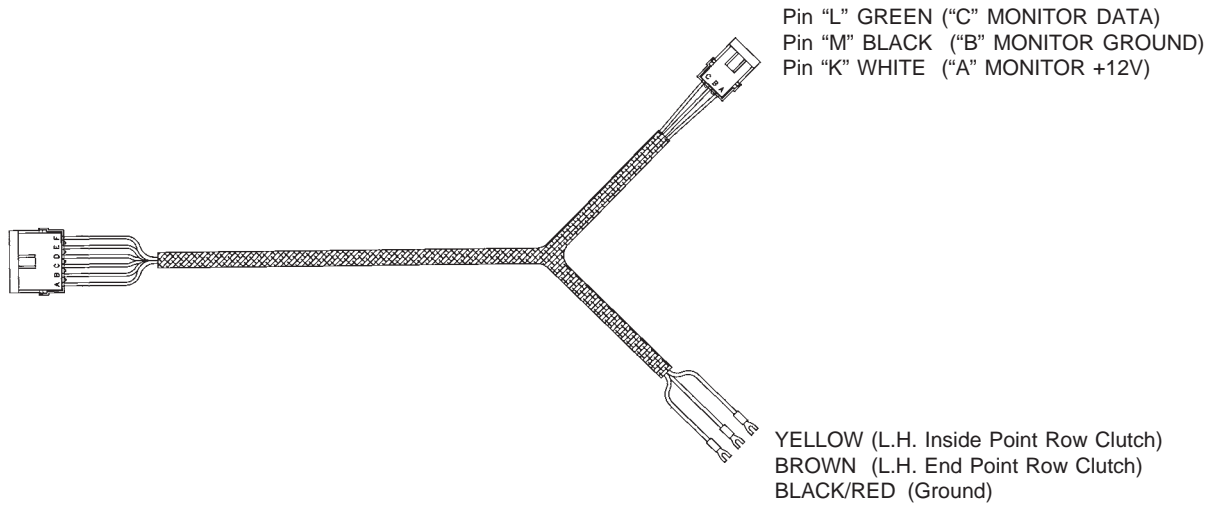
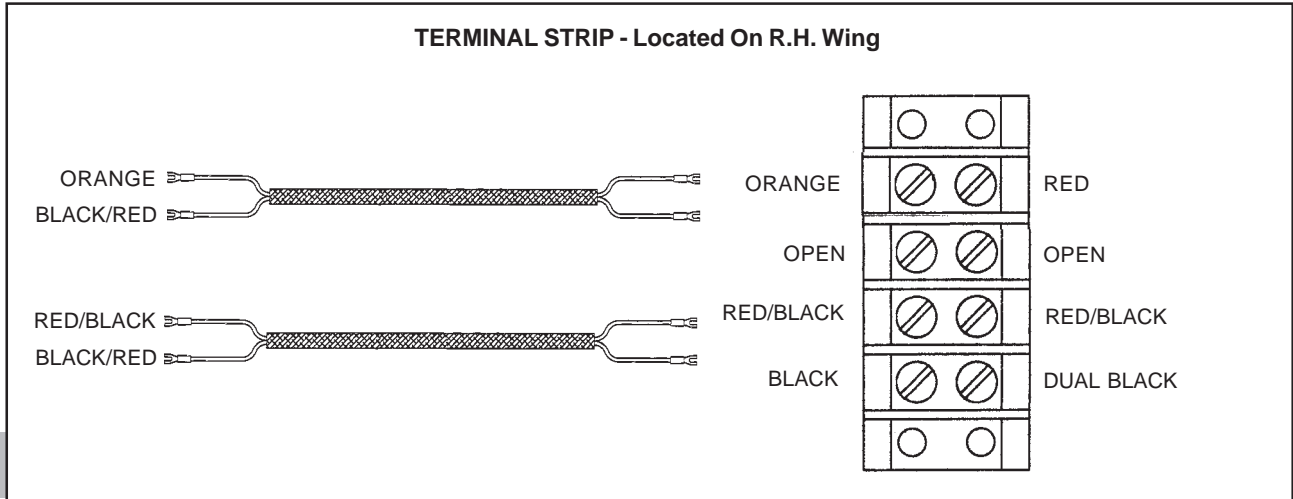
(A10309)



MAINTENANCE

ELECTRICAL WIRING HARNESSES SCHEMATIC (Continued) (On Planter)

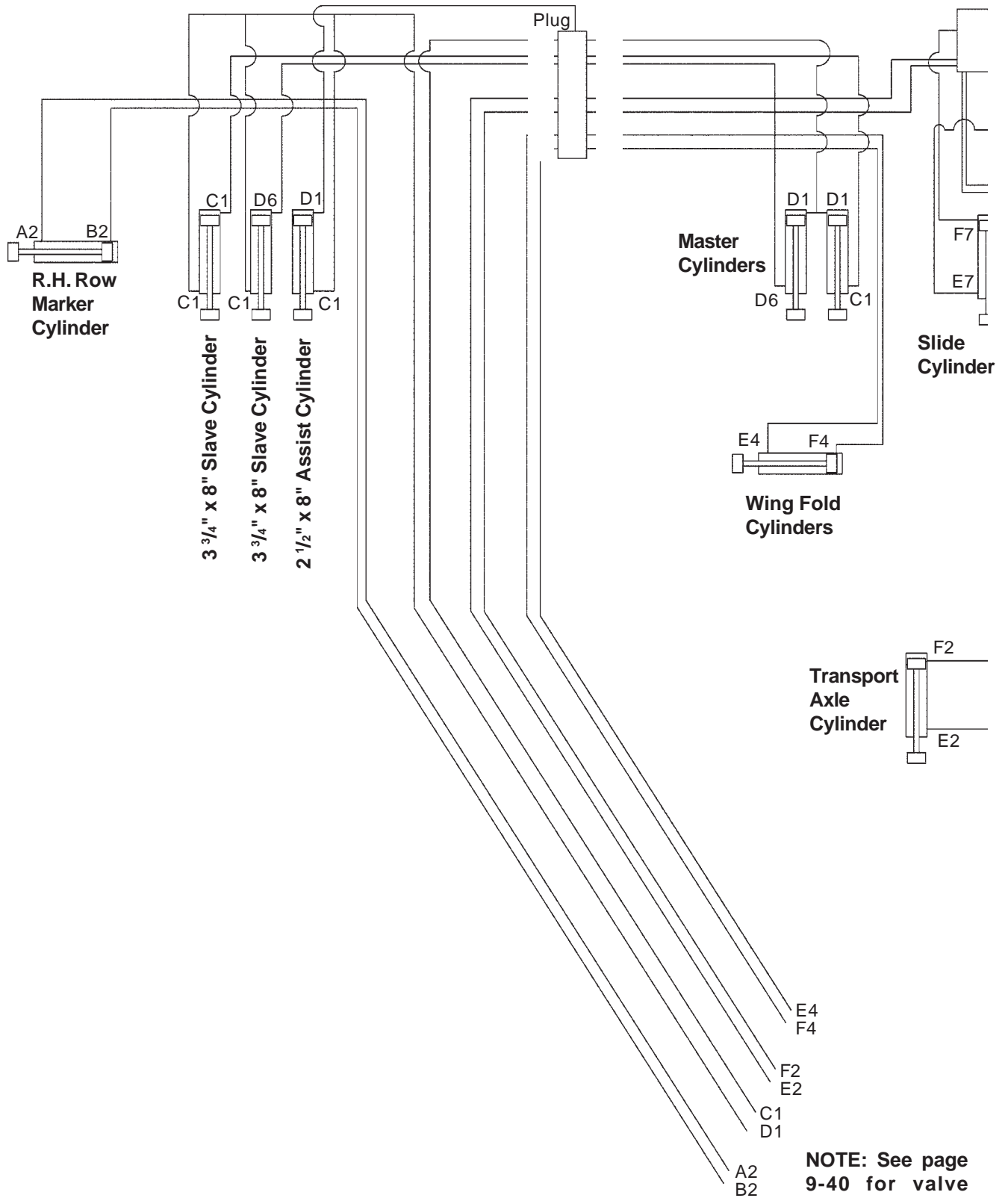
(A10311/A9510/A10310)



MAINTENANCE

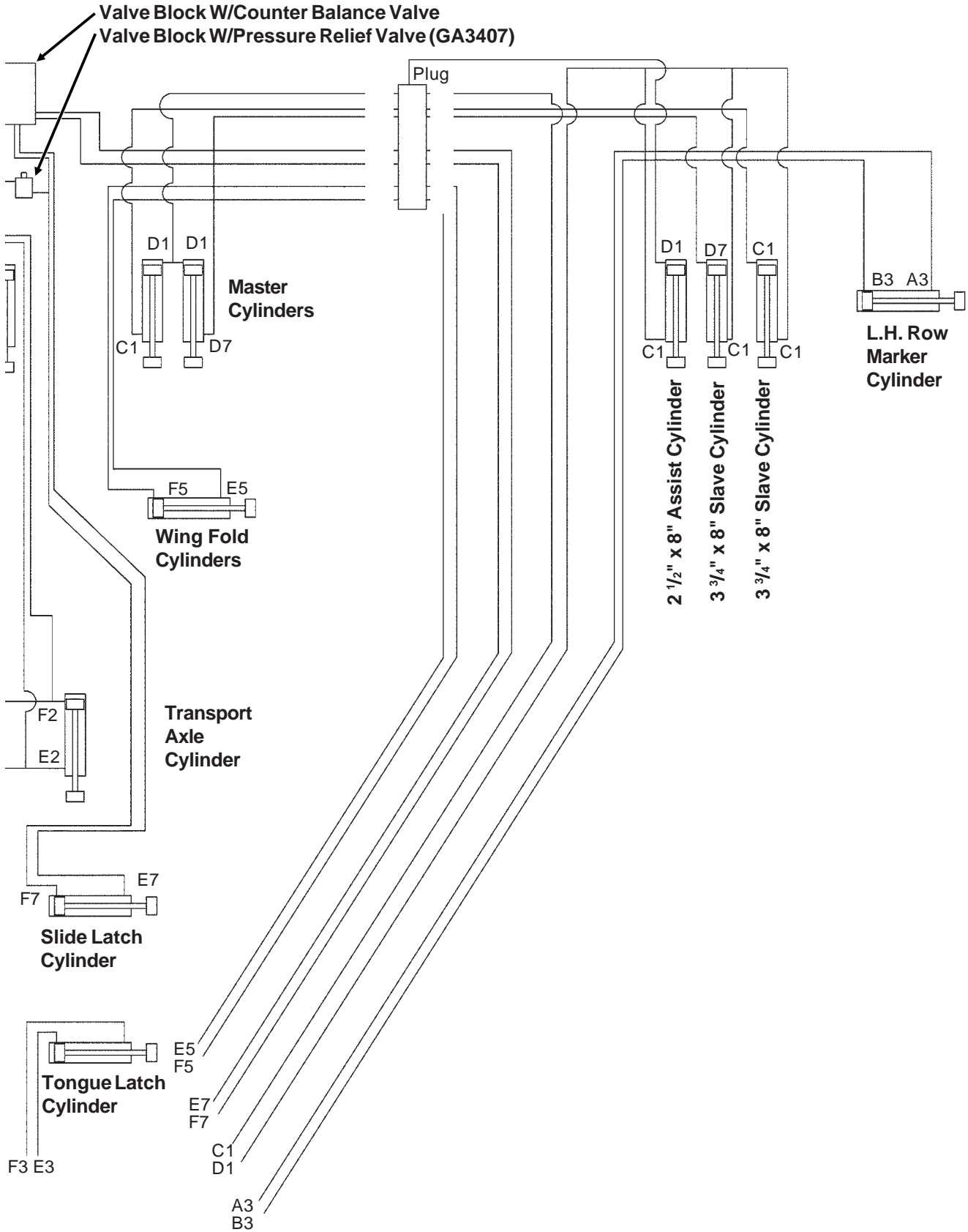
HYDRAULIC SYSTEM SCHEMATIC (24 Row 30")

(FWD25)



NOTE: See page 9-40 for valve blocks located at front of hitch.

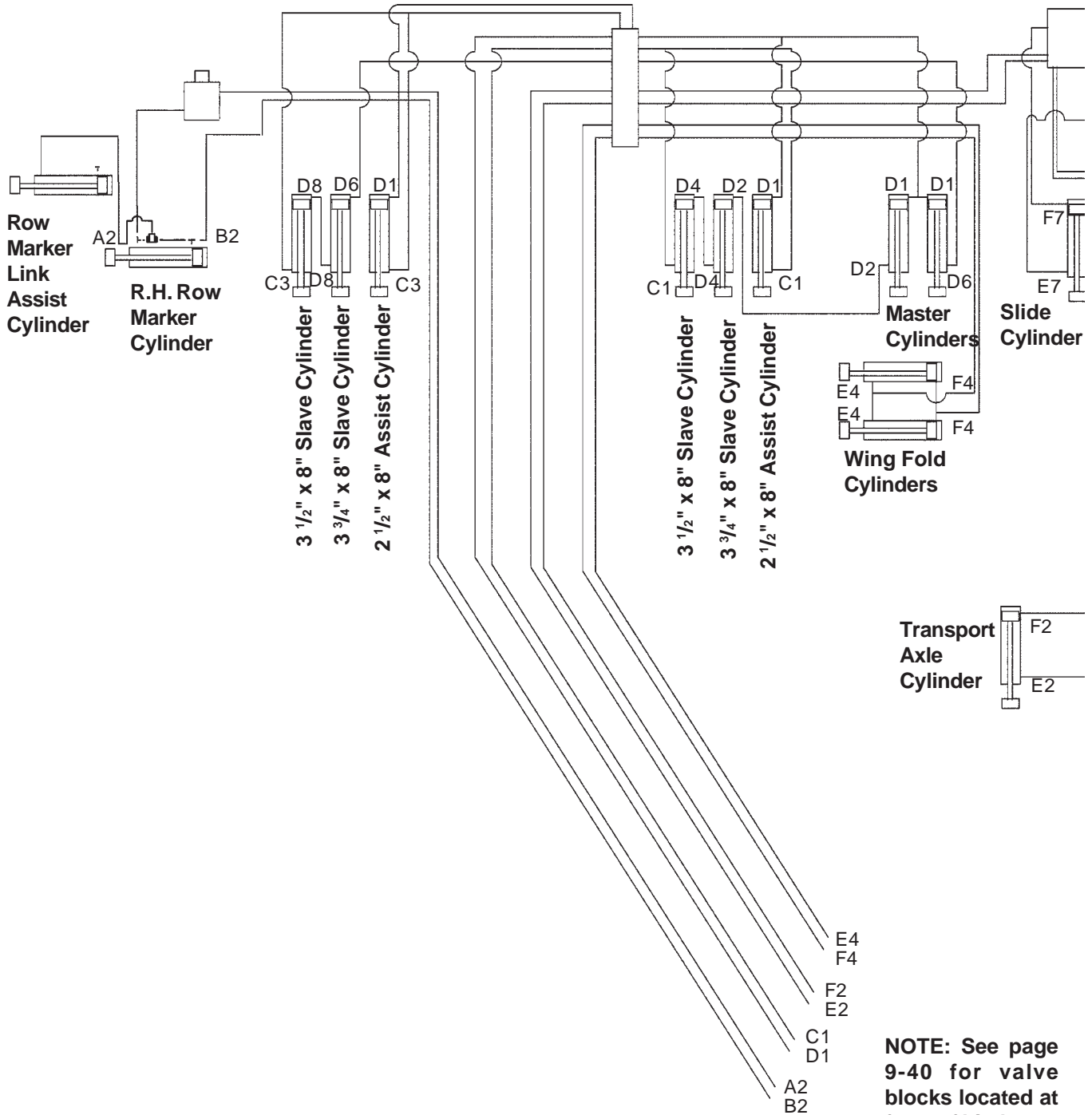
MAINTENANCE



MAINTENANCE

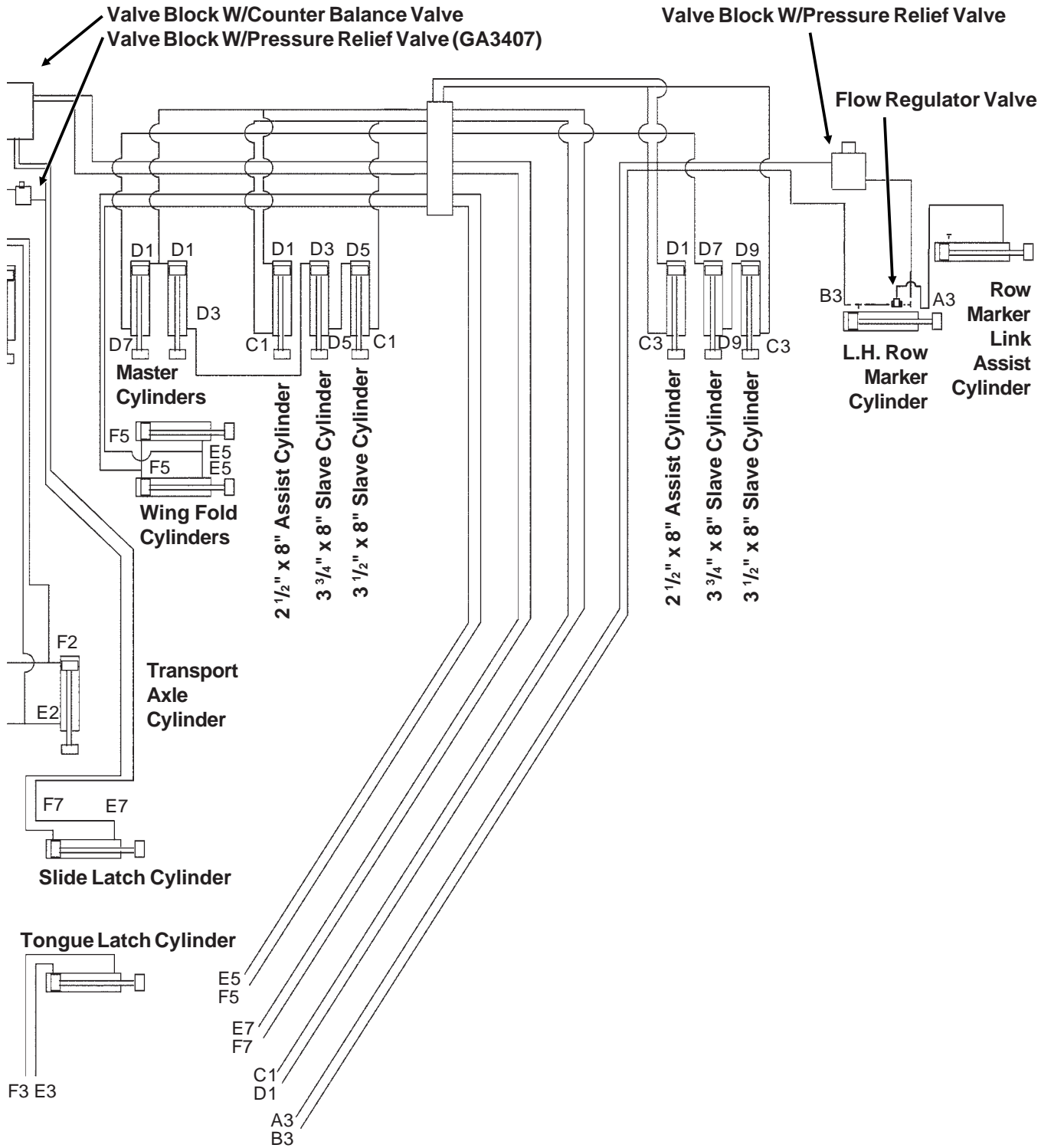
HYDRAULIC SYSTEM SCHEMATIC (32 Row 30" And 36 Row 30")

(FWD7e)



NOTE: See page 9-40 for valve blocks located at front of hitch.

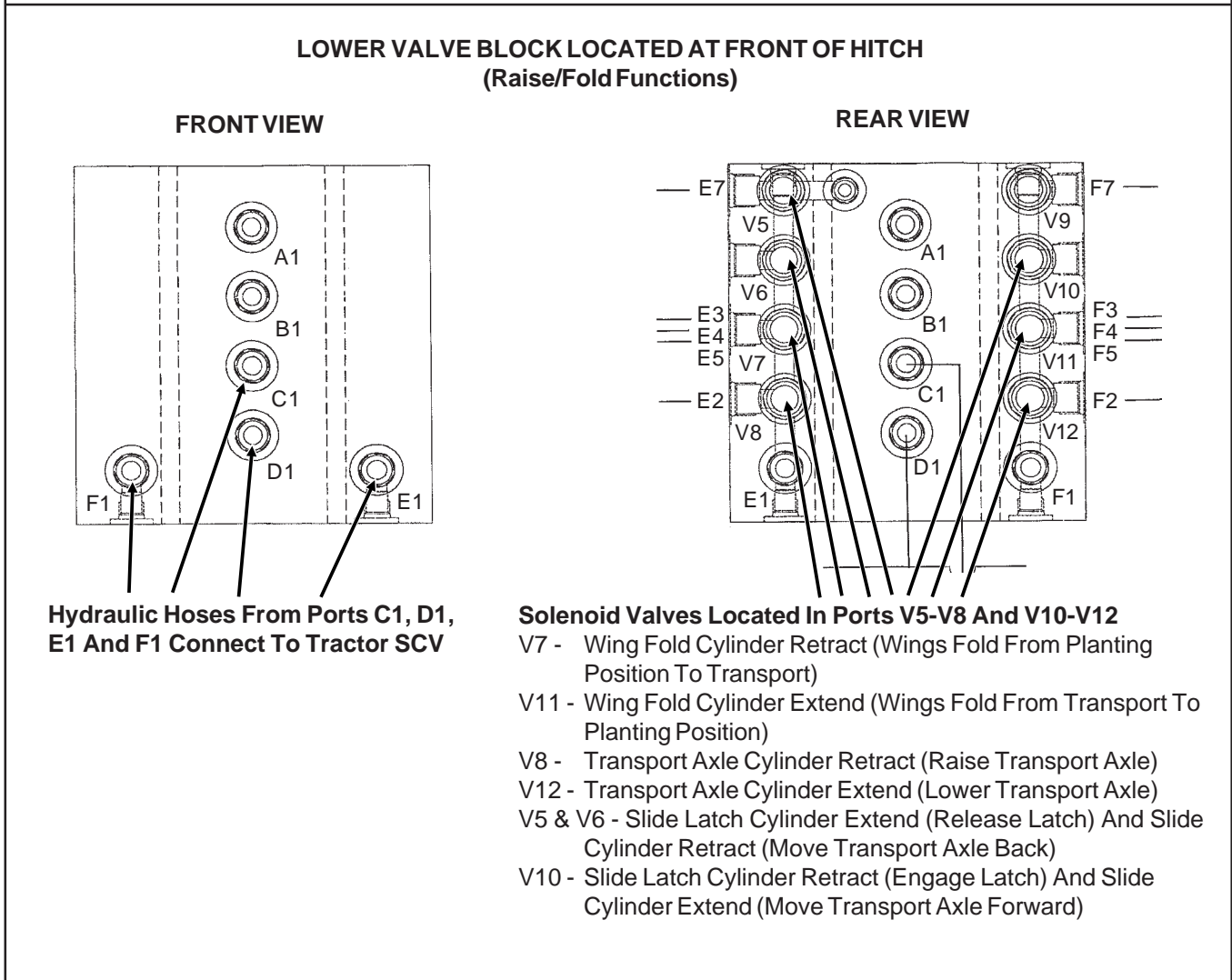
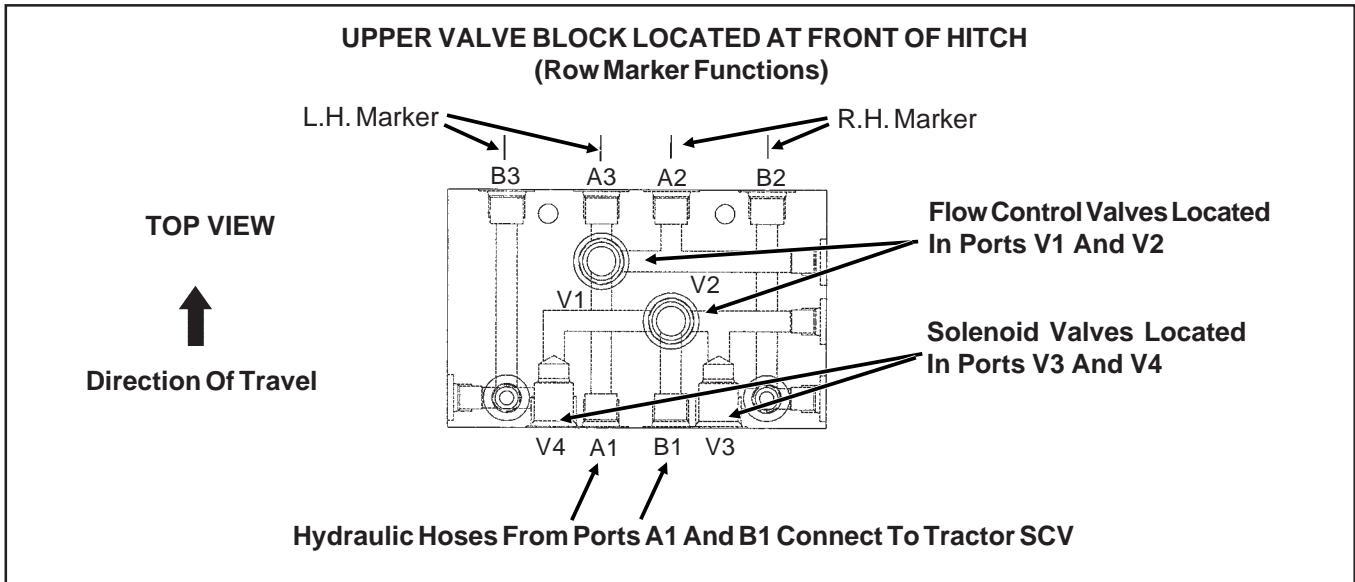
MAINTENANCE



MAINTENANCE

HYDRAULIC SYSTEM SCHEMATIC (Continued)

(FWD3e/FWD3f)



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Granular Chemical Meter And Meter Drive	P18
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ELECTRONIC SEED MONITOR

KPM II Stack-Mode Electronic Seed Monitor	P108
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FERTILIZER

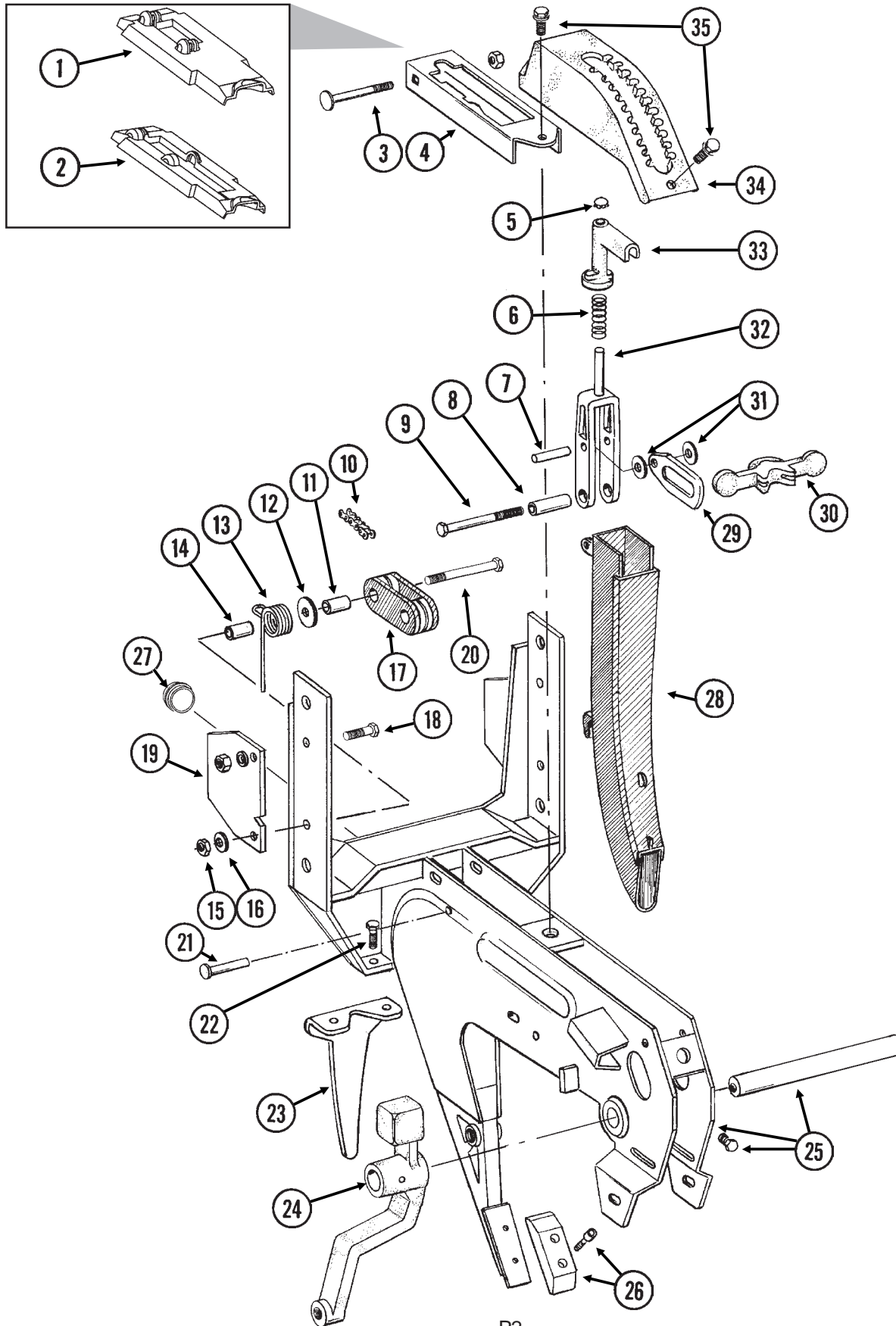
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SHANK ASSEMBLY, SEED TUBE AND DEPTH ADJUSTMENT

RUB023/RUB024RUB022(RU80II)

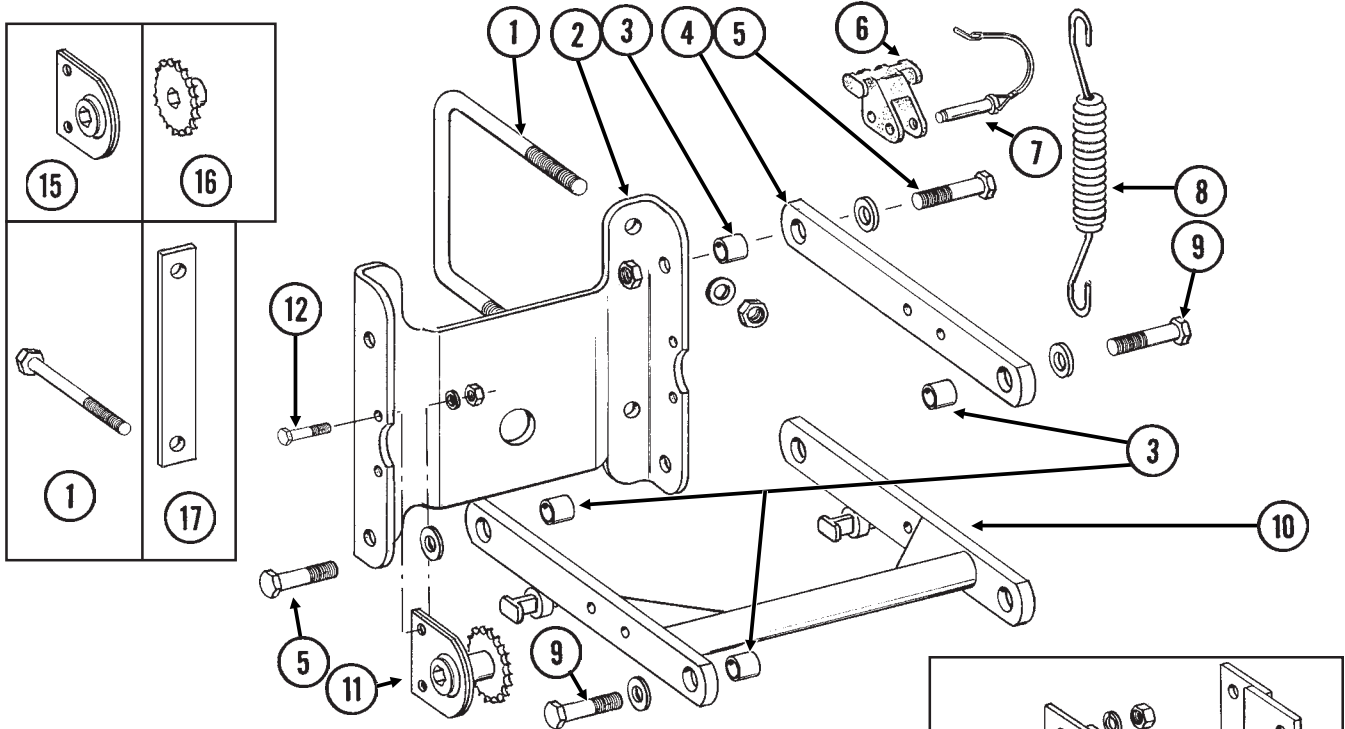


SHANK ASSEMBLY, SEED TUBE AND DEPTH ADJUSTMENT

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.		-	Shank Cover, See "Brush-Type Seed Meter", Page P15
2.		-	Shank Cover, See "Finger Pickup Seed Meter", Page P14
3.	G10304	1	Carriage Bolt, $\frac{3}{8}$ "-16 x 3"
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
4.	GD10986	1	Cover
5.	GD3612	1	Cap Plug
6.	GD10993	1	Spring
7.	GD13361	1	Pin, $\frac{3}{8}$ " x 1 $\frac{2}{3}$ "
8.	GD11259	1	Sleeve, $\frac{3}{8}$ " I.D. x $\frac{5}{8}$ " O.D. x 1 $\frac{25}{32}$ " Long
9.	G11008	1	Hex Head Cap Screw, $\frac{3}{8}$ "-24 x 2 $\frac{1}{2}$ ", Grade 8
	G11007	1	Lock Nut, $\frac{3}{8}$ "-24, Grade C
10.	G3303-98	1	Chain, No. 41, 98 Pitch Including Connector Link
	G3303-16	-	Chain, No. 41, 16 Pitch Including Connector Link (Used W/Row Unit Extension Brackets)
	GR0196	1	Connector Link, No. 41
11.	GD1026	1	Sleeve, 1 $\frac{3}{16}$ " Long
12.	G10201	1	Special Washer, $\frac{3}{8}$ " x 1 $\frac{1}{2}$ " O.D.
13.	GD1065	1	Idler Spring
14.	GD7318	1	Sleeve, 1" Long
15.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
16.	G10210	1	Washer, $\frac{3}{8}$ " USS
17.	GD11962	1	Idler
18.	G10003	3	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10108	3	Lock Nut, $\frac{3}{8}$ "-16
19.	GD10867	2	Stop
20.	G10326	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 3 $\frac{3}{4}$ "
21.	G10551	1	Clevis Pin, $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "
	G10669	1	Hair Pin Clip, No. 22
22.	G10312	2	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10620	2	Serrated Flange Nut, $\frac{5}{16}$ "-18
23.	GD1033	1	Shield
24.		-	See "Gauge Wheels", Pages P6 And P7
25.	GA8600	1	Shank W/Gauge Wheel Pivot Spindle And Set Screw
	GD11001	-	Spindle
	G10438	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x $\frac{3}{4}$ "
26.		-	See "15" Seed Opener Disc Blade/Bearing Assembly And Scrapers", Page P5
27.	GD11845	1	Dust Cap
28.	GD1130	-	Seed Tube (No Monitor) See "KPM II Stack-Mode Electronic Seed Monitor" For Seed Tube With Sensor, Pages P108 And P109
29.	GB0285	1	Collar, Depth Adjustment
30.	GB0265	1	Pivot Link, Depth Adjustment
31.	G10207	2	Washer, $\frac{7}{8}$ " O.D. x $\frac{13}{32}$ " I.D. x .134" (If Applicable)
32.	GB0267	1	Lever, Depth Adjustment
33.	GB0266	1	Handle, Depth Adjustment
34.	GB0274	1	Cover, Depth Adjustment
35.	G11015	2	Hex Washer Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{4}$ "

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

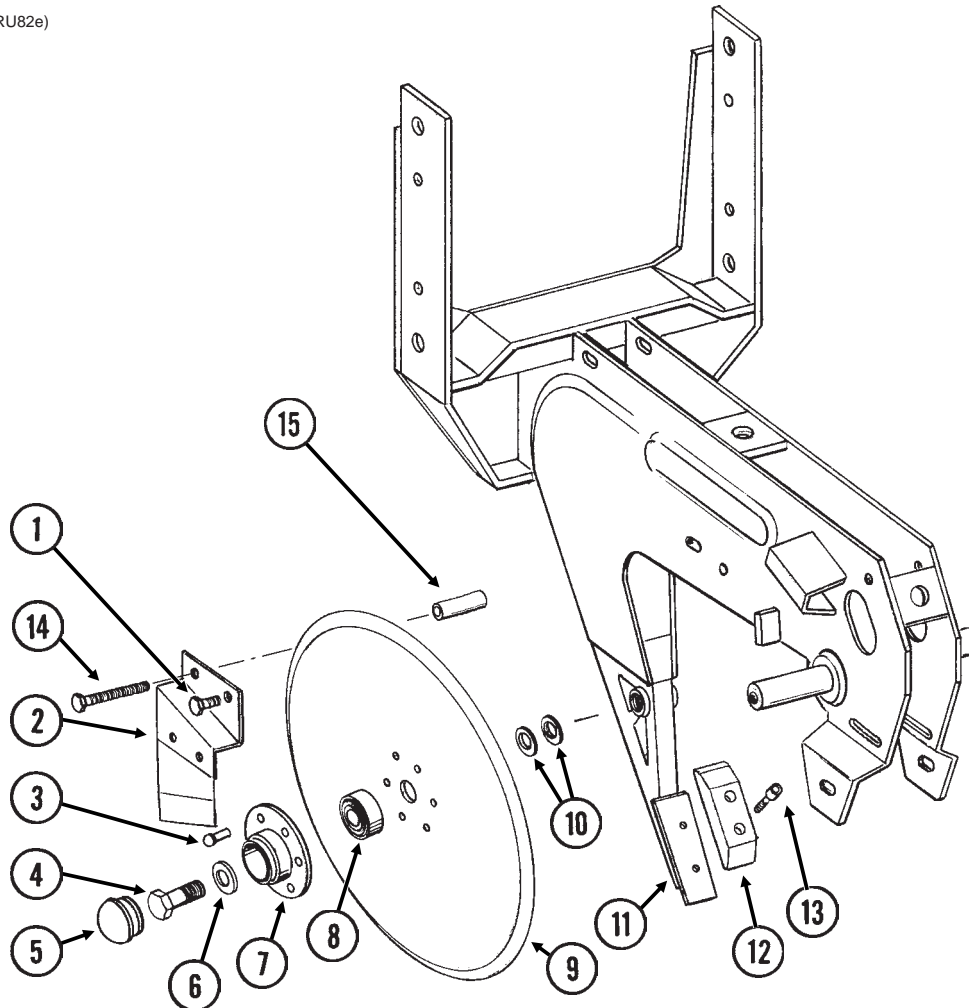
(RU147/RU148a/RU78f/RU79a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1114	2	U-Bolt, 7" x 7" x 5/8"-11
	G10152	-	Hex Head Cap Screw, 5/8"-11 x 9"
	G10217	-	Washer, 5/8" USS
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
2.	GD10036	1	Mounting Support Plate
3.	GB0218	4	Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long
4.	GD11422	2	Upper Parallel Arm
5.	G10732	4	Hex Head Cap Screw, 5/8"-18 x 2"
	GD7805	4	Special Washer, 5/8", Hardened
	G10412	4	Lock Nut, 5/8"-18
6.	GB0186	2	Spring Anchor
7.	GD14217	2	Tab Lock Pin, 7/16" x 1 1/2"
8.	GD8249	2-4	Spring
9.		-	See "Hopper Support And Meter Drive", Page P12
10.	GA5651	1	Lower Parallel Arm
11.	GA1720	1	Bearing/Sprocket, 7/8" Hex Bore
12.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
13.	G10007	4	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
14.	GA7410	2	Extension Bracket
15.	GA2180	-	Hanger Bearing, 7/8" Hex Bore
16.	GA11255	-	Sprocket, 19 Tooth
17.	GD1908	-	Mounting Bracket
A.	G6326X	-	U-Bolt Package For 7" x 7" Toolbar, Includes: (2) GD1114, (4) G10230, (4) G10104

15" SEED OPENER DISC BLADE/BEARING ASSEMBLY AND SCRAPERS

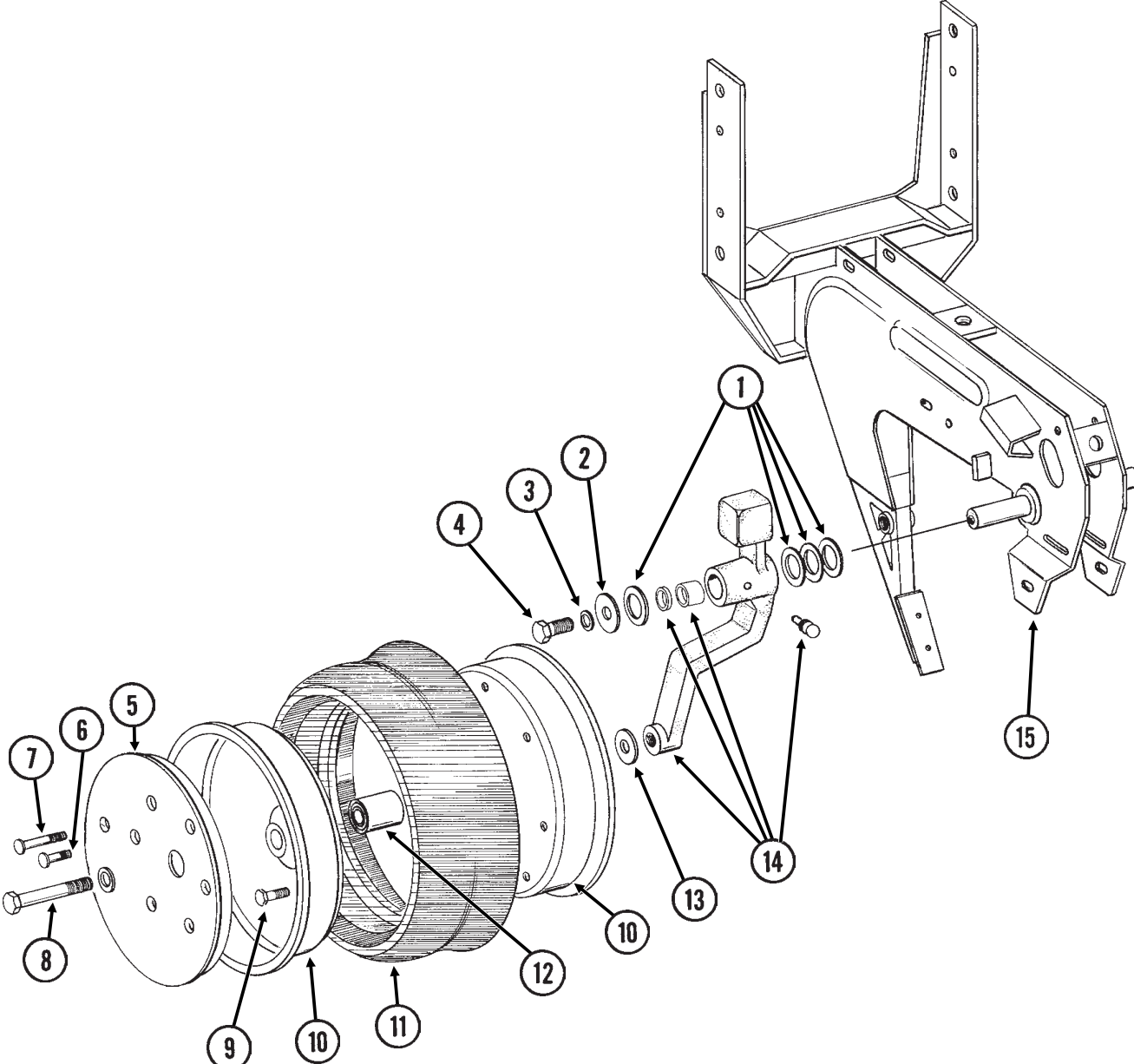
RUB023/RUB025(RU82e)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10328	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $\frac{5}{8}$ "
	G10622	2	Serrated Flange Nut, $\frac{3}{8}$ "-16
2.	GA2012R	1	Disc Scraper, R.H.
	GA2012L	-	Disc Scraper, L.H. (Shown)
3.	G10427	12	Rivet, $\frac{1}{4}$ " x $\frac{1}{2}$ "
4.	GD11017	1	Special Hex Head Cap Screw, $\frac{5}{8}$ "-11 x $1\frac{1}{2}$ ", L.H. Threads
	G10007	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x $1\frac{1}{2}$ "
5.	GD11845	2	Dust Cap
6.	G10204	2	Special Machine Bushing, $\frac{5}{8}$ " x 1" O.D.
7.	GD10473	2	Bearing Housing
8.	GA2014	2	Bearing
9.	GD11306	2	Disc Blade, 3.5 mm x 15"
10.	G10213	-	Machine Bushing, $\frac{5}{8}$ " (.030" Thick)(As Required)
11.		-	See "Shank Assembly, Seed Tube And Depth Adjustment", Pages P2 And P3
12.	GB0301	1	Seed Tube Guard/Inner Scraper
13.	G10912	2	Hex Socket Head Cap Screw, $\frac{5}{16}$ "-18 x 1", Grade 8
14.	G10325	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $2\frac{3}{4}$ "
	G10622	1	Serrated Flange Nut, $\frac{3}{8}$ "-16
15.	GD11259	1	Sleeve, $\frac{3}{8}$ " I.D. x $\frac{5}{8}$ " O.D. x $1\frac{25}{32}$ " Long
A.	GA8324	-	Disc Blade/Bearing Assembly, Less Dust Cap (Items 3 And 7-9)

GAUGE WHEELS

RUB027/RUB023(RU84a/RU84b)

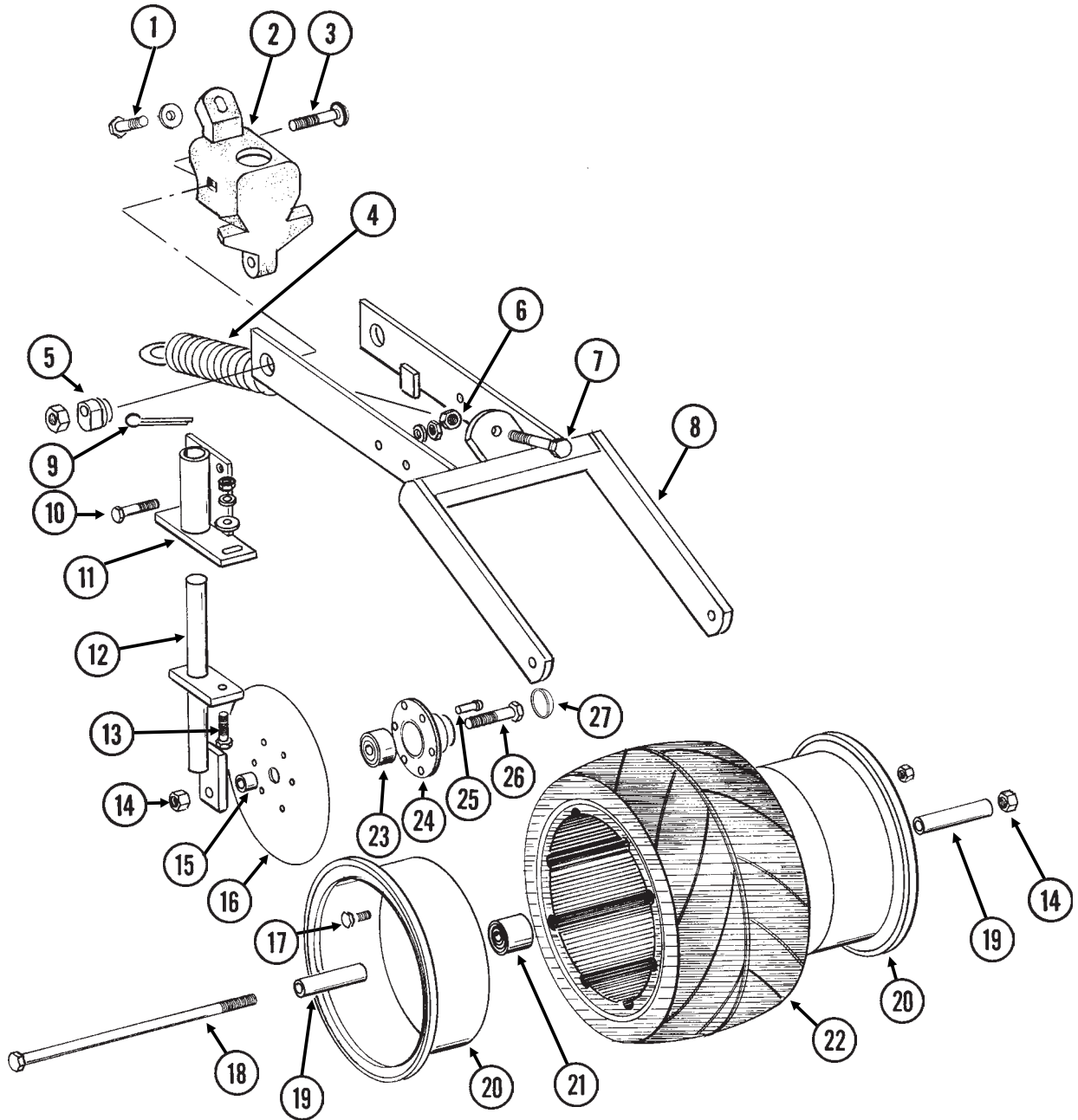


GAUGE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10940	-	Machine Bushing, 1" (.048" Thick)
2.	G10216	2	Washer, 1/2" USS
3.	G10228	2	Lock Washer, 1/2"
4.	G10014	1	Hex Head Cap Screw, 1/2"-13 x 1"
5.	GD11453	2	Cover
6.	G10338	12	Carriage Bolt, 5/16"-18 x 1 1/4"
	G10620	12	Serrated Flange Nut, 5/16"-18
7.	G10924	8	Carriage Bolt, 5/16"-18 x 1 3/4"
	G10620	8	Serrated Flange Nut, 5/16"-18
8.	G10010	2	Hex Head Cap Screw, 5/8"-11 x 3"
	G10230	2	Lock Washer, 5/8"
9.	G10018	14	Hex Head Cap Screw, 5/16"-18 x 5/8"
	G10109	14	Lock Nut, 5/16"-18, Grade 8
10.	GD11423	4	Half Wheel
11.	GD1086	2	Tire
12.	GA6171	2	Bearing
13.	G10204	2	Special Machine Bushing, 5/8" x 1" O.D.
14.	GA7975	1	Wheel Arm W/Grease Fitting, Bushings And Seals, L.H. (Shown)
	GA7976	1	Wheel Arm W/Grease Fitting, Bushings And Seals, R.H.
	G10640	1	Grease Fitting, 1/4"-28 (Per Arm)
	GB0276	2	Bushing, 1" I.D. x 1 1/4" O.D. x 1" Long (Per Arm)
	GD10991	2	Seal (Per Arm)
15.		-	See "Shank Assembly, Seed Tube And Depth Adjustment", Pages P2 And P3
A.	GA7949	-	Gauge Wheel Complete (Items 5-7 And 9-12)

COVERING DISCS/SINGLE PRESS WHEEL

RUA054/RUB026(RU94d)

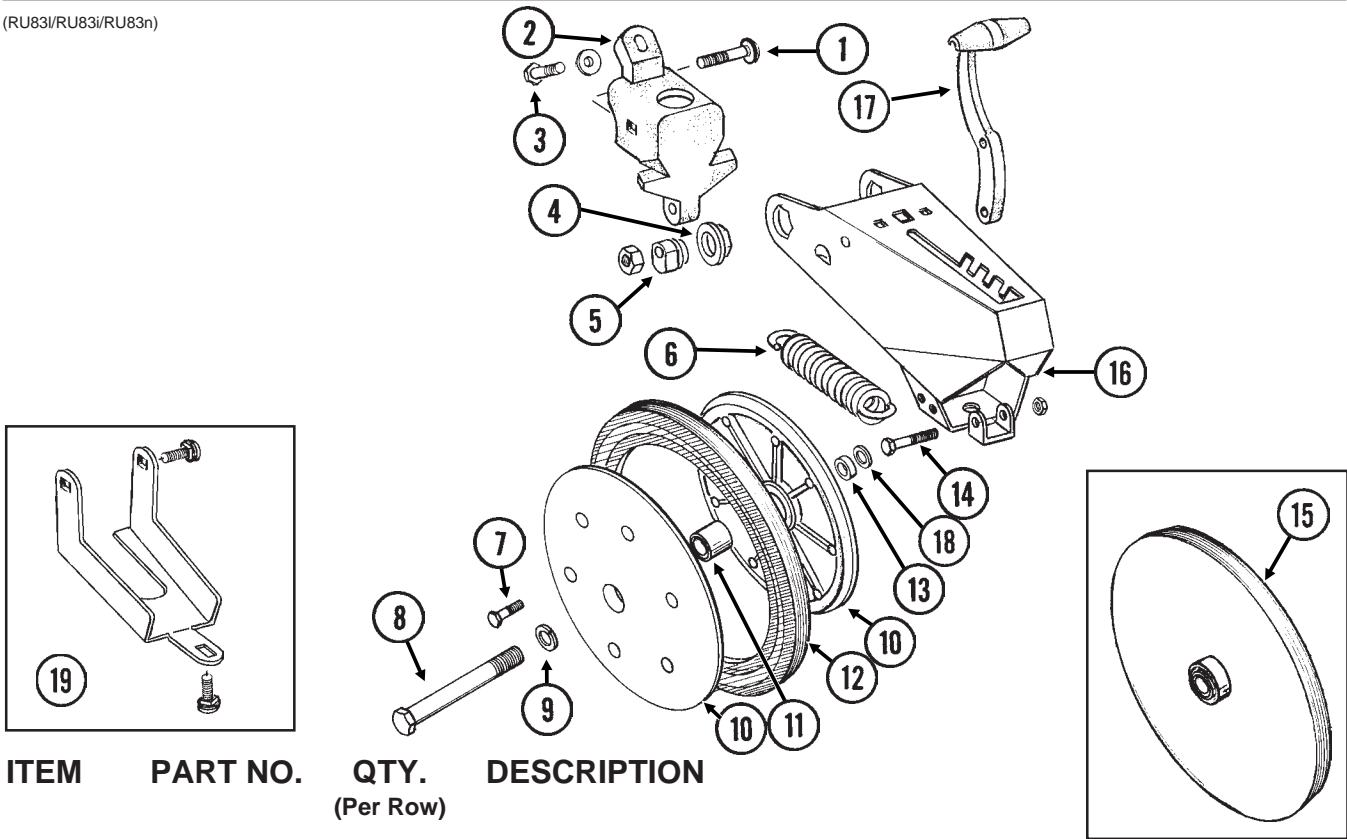


COVERING DISCS/SINGLE PRESS WHEEL

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10001	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1"
	G10210	1	Washer, $\frac{3}{8}$ " USS
2.	GB0268	1	Wheel Arm Stop
3.	G10801	2	Carriage Bolt, $\frac{1}{2}$ "-13 x 2 $\frac{1}{4}$ "
	G10315	-	Carriage Bolt, $\frac{1}{2}$ "-13 x 2 $\frac{1}{2}$ " (Used W/Straight Drop In-Furrow Granular Chemical Bracket)
4.	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
	GA2054	1	Spring
5.	GB0239	2	Eccentric Bushing
6.	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
7.	G10015	1	Adjusting Bolt, $\frac{1}{2}$ "-13 x 5"
8.	GA6619	1	Mounting Arm
9.	G10463	2	Cotter Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
10.	G10171	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{4}$ "
	G10232	4	Lock Washer, $\frac{5}{16}$ "
	G10106	4	Hex Nut, $\frac{5}{16}$ "-18
11.	GA6620	2	Bracket
12.	GA6618	2	Mount
13.	G10303	2	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G10219	2	Washer, $\frac{5}{16}$ " USS
	G10232	2	Lock Washer, $\frac{5}{16}$ "
	G10106	2	Hex Nut, $\frac{5}{16}$ "-18
14.	G10107	3	Lock Nut, $\frac{5}{8}$ "-11
15.	GD1109	2	Bushing, $\frac{41}{64}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{1}{4}$ " Long
16.	GD9290	2	Disc Blade, 8"
17.	G10018	7	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{5}{8}$ "
	G10109	7	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
18.	G10152	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 9"
19.	GD3180-12	2	Sleeve, $\frac{5}{8}$ " I.D. x $\frac{7}{8}$ " O.D. x 2 $\frac{7}{8}$ " Long
20.	GD9562	2	Half Wheel
21.	GA6171	1	Bearing
22.	GD9305	1	Tire
23.	GA2014	2	Bearing
24.	GD10473	2	Bearing Housing
25.	G10427	12	Rivet, $\frac{1}{4}$ " x $\frac{1}{2}$ "
26.	G10006	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2 $\frac{1}{4}$ "
27.	GD11845	2	Dust Cap
A.	GA6733	-	Single Press Wheel Complete W/Bearing (Items 17 And 20-22)
B.	GA6801	-	Covering Disc Blade Complete W/Bearing (Items 16 And 23-25)

"V" CLOSING WHEELS

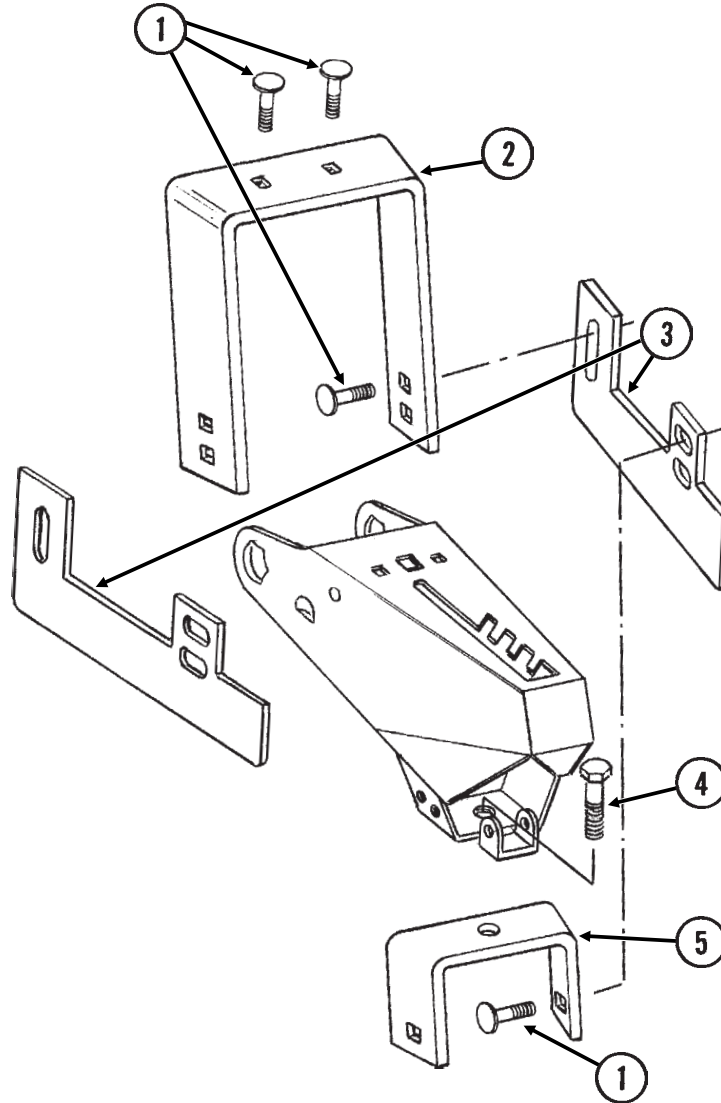
(RU83/RU83i/RU83n)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10801	2	Carriage Bolt, 1/2"-13 x 2 1/4"
	G10315	-	Carriage Bolt, 1/2"-13 x 2 1/2" (Used W/Straight Drop In-Furrow Granular Chemical Bracket)
	G10111	2	Lock Nut, 1/2"-13
2.	GB0268	1	Wheel Arm Stop
3.	G10001	1	Hex Head Cap Screw, 3/8"-16 x 1"
	G10210	1	Washer, 3/8" USS
4.	GB0282	2	Stepped Bushing
5.	GB0239	2	Eccentric Bushing
6.	GD8460	1	Spring
7.	G10064	6	Hex Head Cap Screw, 1/4"-20 x 1"
8.	G10013	2	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G10107	2	Lock Nut, 5/8"-11
9.	G10230	2	Lock Washer, 5/8"
10.	GD9120	4	Nylon Half Wheel
11.	GA6171	2	Bearing
12.	GD1085	2	Rubber Tire, 1" x 12"
13.	GD1109	2	Bushing, 41/64" I.D. x 7/8" O.D. x 1/4" Long
14.	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10109	1	Lock Nut, 5/16"-18, Grade 8
15.	GA6597	-	Cast Iron Closing Wheel W/Bearing
	GA6171	-	Bearing
16.	GA8322	1	Arm
17.	GB0254	1	Lever
18.	GD7805	2	Special Washer, 5/8", Hardened
19.	G1K345	-	Closing Wheel Shield Kit W/Hardware And Instruction
	G10308	3	Carriage Bolt, 3/8"-16 x 3/4"
	G10210	1	Washer, 3/8" USS
	G10229	3	Lock Washer, 3/8"
	G10101	3	Hex Nut, 3/8"-16
A.	GA6434	-	Rubber Closing Wheel Complete W/Bearing (Items 7 And 10-12)

DRAG CLOSING ATTACHMENT

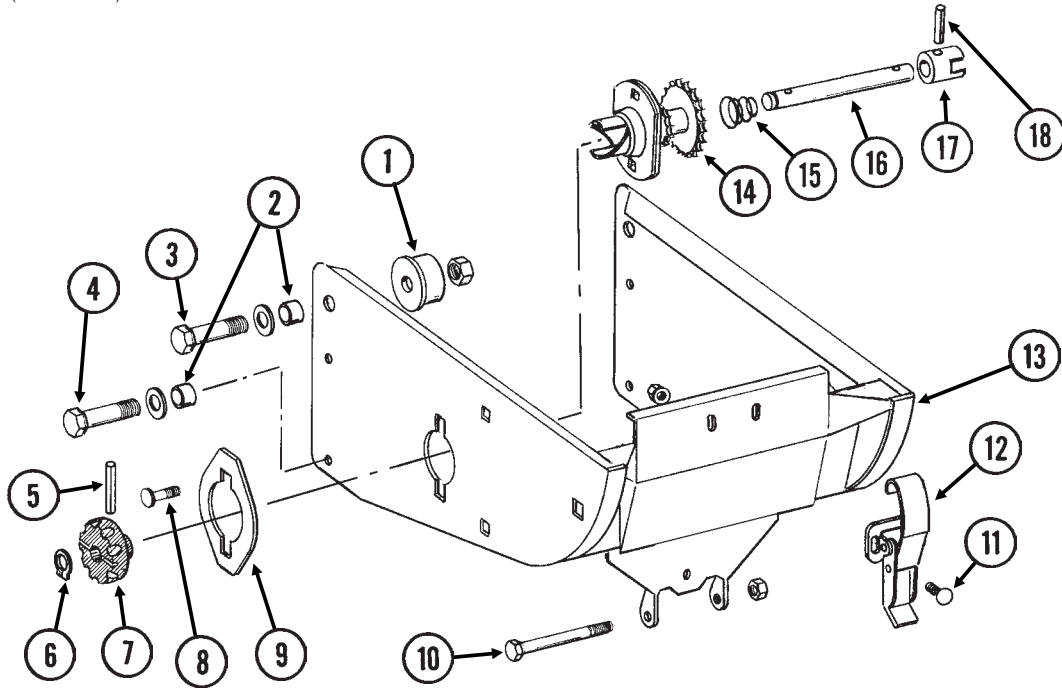
RUB050(RU90c)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1.	G10599	6	Carriage Bolt, $\frac{3}{8}$ "-16 x 1 $\frac{1}{4}$ "
	G10210	6	Washer, $\frac{3}{8}$ " USS
	G10229	6	Lock Washer, $\frac{3}{8}$ "
	G10101	6	Hex Nut, $\frac{3}{8}$ "-16
2.	GD11508	1	Front Bracket
3.	GD11313	2	Blade
4.	G10007	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{2}$ "
	G10230	1	Lock Washer, $\frac{5}{8}$ "
	G10104	1	Hex Nut, $\frac{5}{8}$ "-11
5.	GD11509	1	Rear Bracket
A.	G7566X	-	Drag Closing Attachment Complete (Items 1-5)

HOPPER SUPPORT AND METER DRIVE

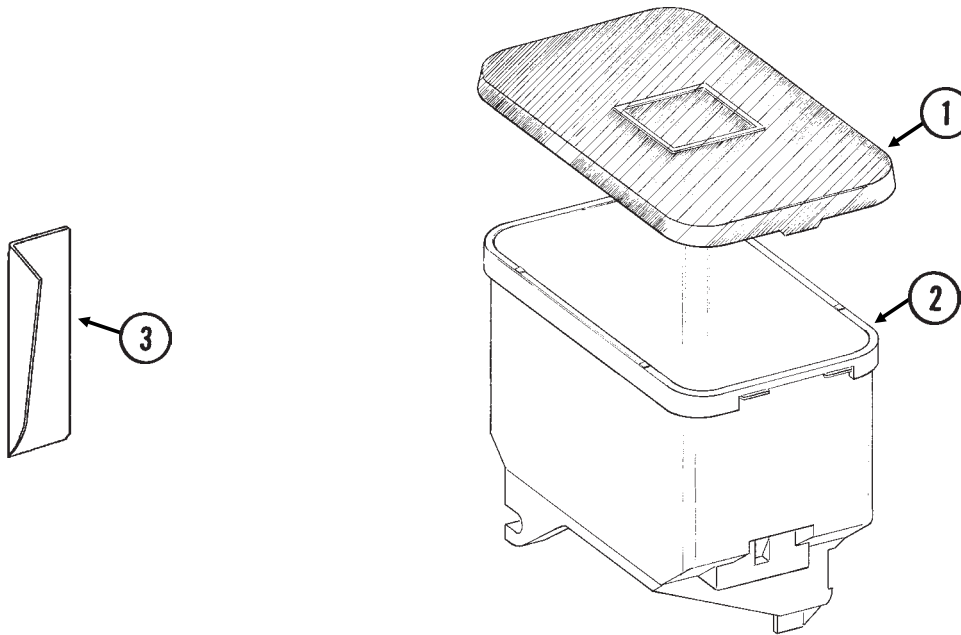
RUB028/RUB029(RU86h/RU86f)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GB0314	2	Hopper Mount
2.	GB0218	4	Bushing, $2\frac{1}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
3.	G10752	2	Hex Head Cap Screw, $\frac{5}{8}$ "-18 x $2\frac{1}{4}$ "
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10412	2	Lock Nut, $\frac{5}{8}$ "-18
4.	G10751	2	Hex Head Cap Screw, $\frac{5}{8}$ "-18 x $1\frac{3}{4}$ "
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10412	2	Lock Nut, $\frac{5}{8}$ "-18
5.	G10602	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{2}$ "
6.	G10567	1	External Retaining Ring, $\frac{5}{8}$ "
7.	GD11239	1	Knob
8.	G10338	2	Carriage Bolt, $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ "
	G10302	-	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{7}{8}$ "
	G10620	2	Serrated Flange Nut, $\frac{5}{16}$ "-18
9.	GD11305	1	Plate
10.	G10061	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $3\frac{1}{2}$ "
	G10210	2	Washer, $\frac{3}{8}$ " USS
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
11.	G10309	2	Carriage Bolt, $\frac{1}{4}$ "-20 x $\frac{5}{8}$ ", Grade 2
	G10621	2	Serrated Flange Nut, $\frac{1}{4}$ "-20
12.	GA2007	1	Hopper Hold Down Latch
13.	GA8304	1	Hopper Support
14.	GA9538	1	Double Sprocket And Bearing, Drive Clutch, 11/19 Tooth
15.	GD11413	1	Spring
16.	GD10958	1	Shaft
17.	GB0278	1	Coupler
18.	G10546	1	Spring Pin, $\frac{3}{16}$ " x $1\frac{1}{4}$ "
A.	GA9539	-	Meter Drive Assembly Complete (Items 5-7 And 14-18)

SEED HOPPER AND LID

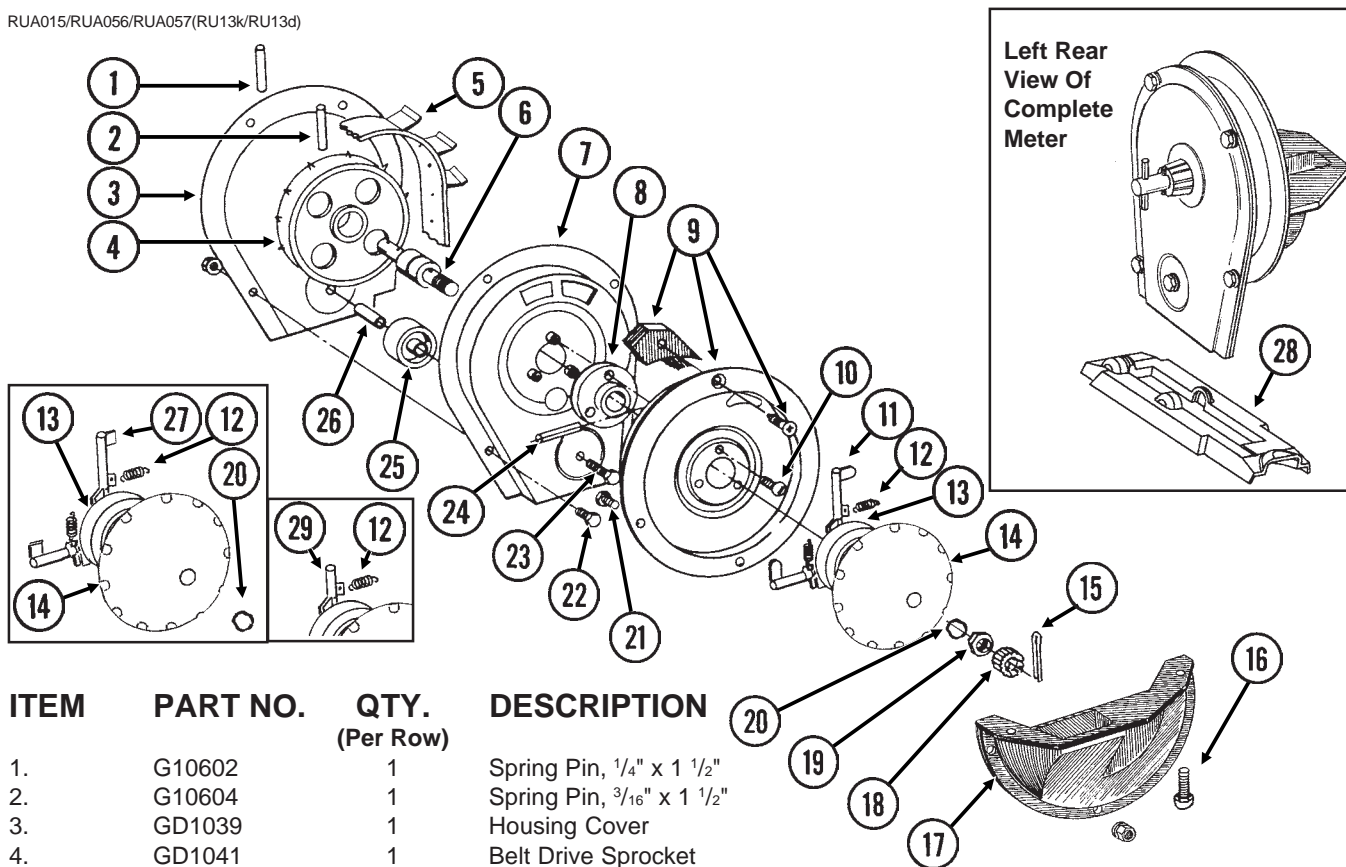
(RU87a/RU87e)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD11279	1	Lid
2.	GA9714	1	Seed Hopper, Reinforced
3.	GD11747	1	Seed Reserve Baffle (Optional)

FINGER PICKUP SEED METER

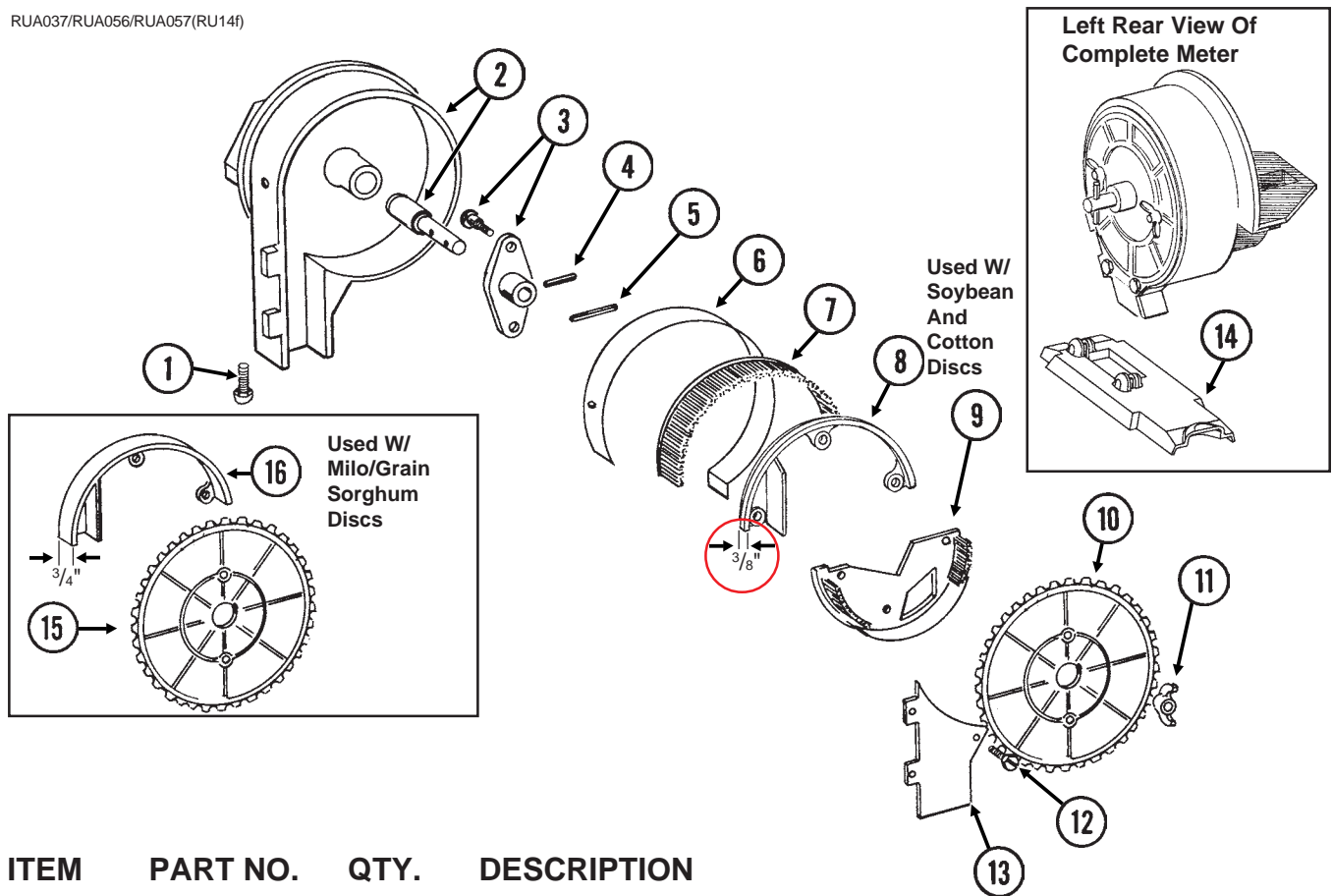
RUA015/RUA056/RUA057(RU13k/RU13d)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10602	1	Spring Pin, 1/4" x 1 1/2"
2.	G10604	1	Spring Pin, 3/16" x 1 1/2"
3.	GD1039	1	Housing Cover
4.	GD1041	1	Belt Drive Sprocket
5.	GD11286	1	Seed Belt
6.	GA2019	1	Bearing
7.	GA2018	1	Conveyor Housing
8.	GB0110	1	Bearing Housing
9.	GR1569	1	Carrier Plate W/Brush And Screw
	GA2020	-	Brush
	G10690	-	Rolling Thread Screw, No. 10 x 3/4"
10.	G10401	3	Slotted Hex Washer Head Screw, No. 10-32 x 5/8"
11.	GD10733	12	Finger, Corn
12.	GD6501	12	Spring
13.	GB0111	1	Cam
14.	GD11528	1	Finger Holder
15.	G10470	1	Cotter Pin, 5/32" x 1"
16.	G11009	2	Locking Thumbscrew, 5/16"-18 x 3/4"
17.	GD11311	1	Seed Baffle
18.	GD1083	1	Cover Nut
19.	G10500	1	Jam Nut, 5/8"-18 UNF
20.	GA8343	1	Wave Washer, 5/8" (Triple Wave)
21.	G10020	3	Hex Head Cap Screw, 1/4"-20 x 5/8"
	G10323	3	Hex Flange Nut, 1/4"-20
22.	G10022	4	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10621	4	Serrated Flange Nut, 1/4"-20
23.	G10021	1	Hex Head Cap Screw, 1/4"-20 x 1 1/2"
	G10621	1	Serrated Flange Nut, 1/4"-20
24.	G10603	1	Spring Pin, 1/4" x 1 1/4"
25.	GD1042	1	Idler
26.	GB0120	1	Bushing, 17/64" I.D. x 1 1/32" Long
27.	GD10226	12	Finger, Oil Sunflower
28.	GD15698	1	Shank Cover, Finger Pickup Seed Meter
29.	GD11787	-	Half Rate Blank Finger
A.	GR1487	-	Finger Assembly, Corn (Items 11-14 And 20)
B.	GR1327	-	Finger Assembly, Oil Sunflower (Items 12-14, 20 And 27)

BRUSH-TYPE SEED METER

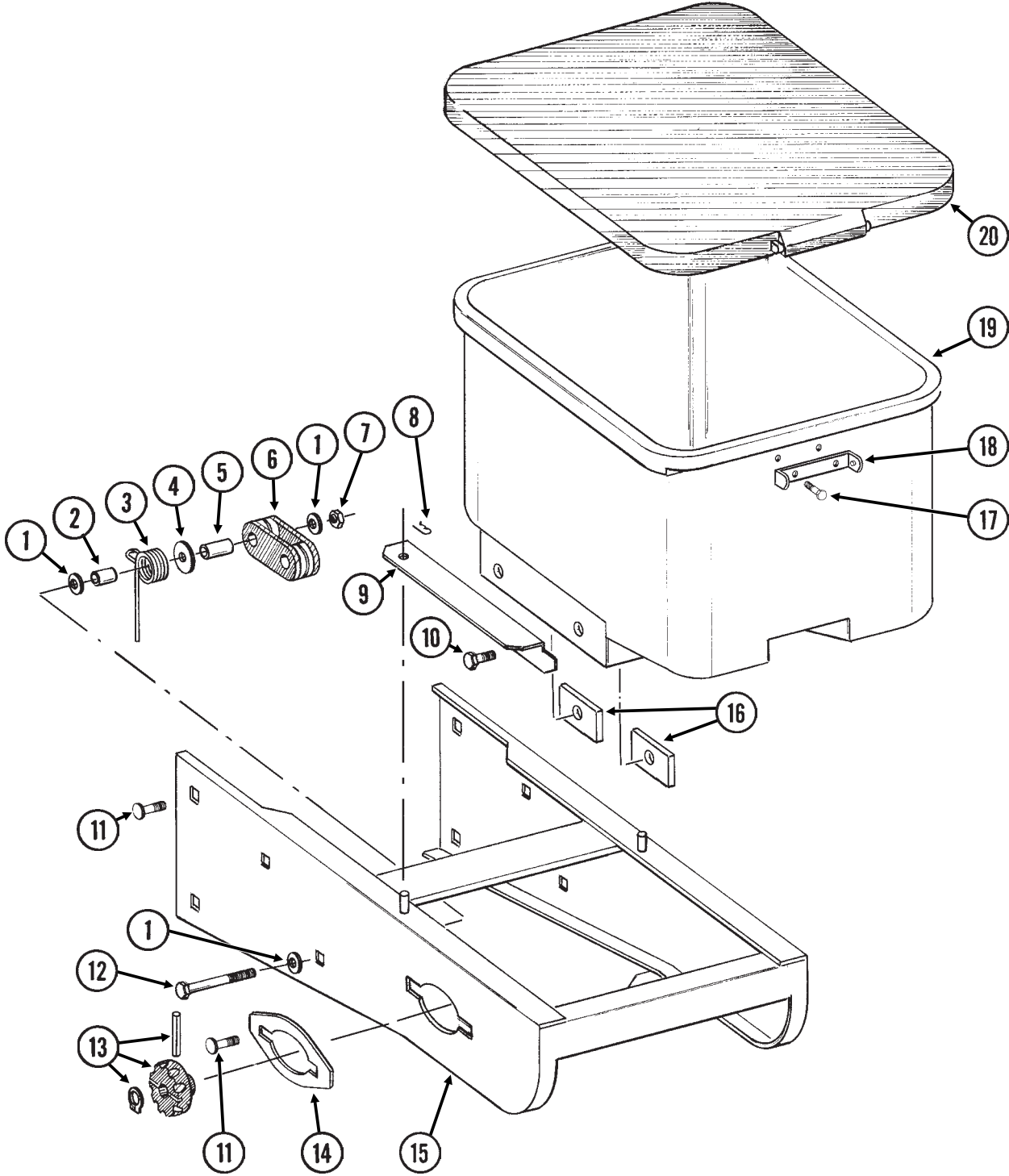
RUA037/RUA056/RUA057(RU14f)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1.	G11009	2	Locking Thumbscrew, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
2.	GA6027	1	Housing W/Bearing
	GA5698	-	Bearing
3.	GA6038	1	Hub W/Shoulder Bolts
	GD1755	-	Shoulder Bolt, $\frac{1}{4}$ "-20 (2 Used)
4.	G10603	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{4}$ "
5.	G10602	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{2}$ "
6.	GD8778	1	Wear Strip
7.	GA5699	1	Upper Brush
8.	GD11122	1	Upper Brush Retainer (Used W/Soybean And Cotton Discs)
9.	GA5834	1	Lower Brush
10.	GA5794	-	Seed Disc, Soybean, 60 Cell, Black Color-Coded
	GA6184	-	Seed Disc, Specialty Soybean, 48 Cell, Dark Blue 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
11.	G10531	2	Wing Nut W/Nylon Insert, $\frac{1}{4}$ "-20
12.	G10584	9	Slotted Tap Screw, No. 10-24 x $\frac{1}{2}$ "
	G10634	-	Slotted Tap Screw, No. 10-24 x $\frac{5}{8}$ " (Use As Required)
13.	GD7878	1	Cover
14.	GD15699	1	Shank Cover, Brush-Type Seed Meter
15.	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
16.	GD8237	-	Upper Brush Retainer (Used W/Milo/Grain Sorghum Discs)

GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION

RUA052/RUA053/RUB028(RU92n)

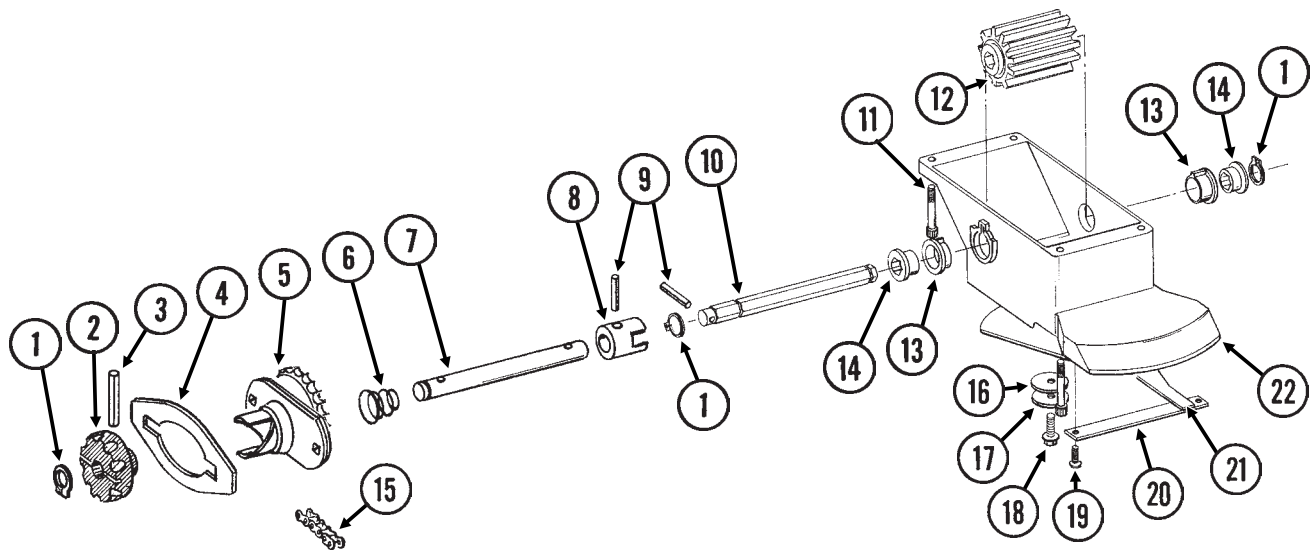


GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10210	3	Washer, $\frac{3}{8}$ " USS
2.	GD2971-10	1	Sleeve, $\frac{9}{16}$ " Long
3.	GD11219	1	Spring
4.	G10201	1	Special Washer, $\frac{3}{8}$ " x 1 $\frac{1}{2}$ " O.D.
5.	GD1026	1	Sleeve, 1 $\frac{3}{16}$ " Long
6.	GD11962	1	Idler
7.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
8.	G10670	2	Hair Pin Clip, No. 3
9.	GD1059L	1	Support, L.H. (Shown)
	GD1059R	1	Support, R.H.
10.	G10002	4	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $\frac{3}{4}$ "
	G10229	4	Lock Washer, $\frac{3}{8}$ "
11.	G10312	8	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10620	8	Serrated Flange Nut, $\frac{5}{16}$ "-18
12.	G10325	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{3}{4}$ "
13.		-	See "Granular Chemical Meter And Meter Drive", Page P18
14.	GD11305	1	Plate
15.	A8422	1	Hopper Panel Extension (Non-Stock Item) (Sub Wholegoods Order Code 700-01080)
16.	GD11424	4	Block
17.	G10023	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{3}{4}$ "
	G10621	2	Serrated Flange Nut, $\frac{1}{4}$ "-20
18.	GD1060	1	Hinge
19.	GA8371	1	Hopper
20.	GA4444	1	Lid

GRANULAR CHEMICAL METER AND METER DRIVE

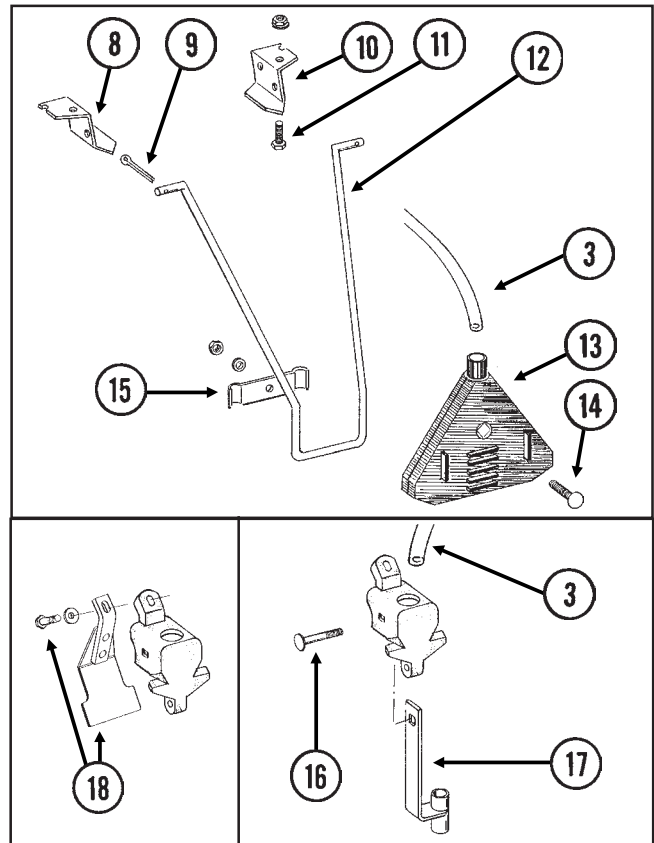
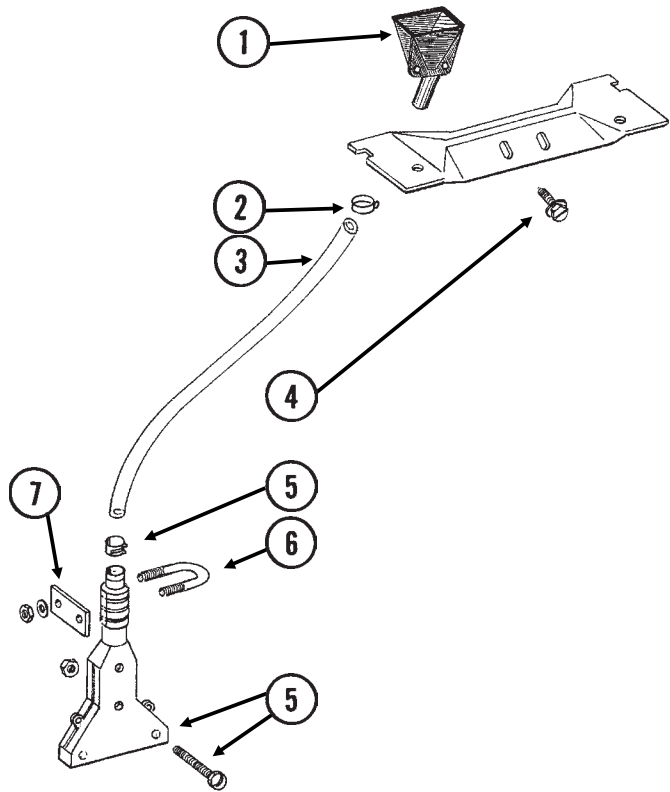
RUA051/RUB028(RU91a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10567	3	External Retaining Ring, $\frac{5}{8}$ "
2.	GD11239	1	Knob
3.	G10602	1	Spring Pin, $\frac{1}{4}$ " x $1 \frac{1}{2}$ "
4.		-	See "Granular Chemical Hopper And Hopper Panel Extension", Pages P16 And P17
5.	GA8364	1	Sprocket And Bearing, Drive Clutch, 24 Tooth
6.	GD11413	1	Spring
7.	GD11240	1	Shaft
8.	GB0278	1	Coupler
9.	G10546	2	Spring Pin, $\frac{3}{16}$ " x $1 \frac{1}{4}$ "
10.	GD11297	1	Shaft
11.	G10921	4	Hex Socket Head Cap Screw, No. 10-24 x $\frac{7}{8}$ "
	G10257	4	Lock Washer, No. 10
12.	GD7148	1	Feed Roller, Hex Bore
13.	GB0115	2	Bearing
14.	GD7258	2	Hex Bushing
15.	G3303-114	1	Chain, No. 41, 114 Pitch Including Connector Link
	GR0196	1	Connector Link, No. 41
16.	G10660	1	Wave Washer, $\frac{1}{2}$ "
17.	G10209	1	Washer, $\frac{1}{4}$ " USS
18.	G10570	1	Slotted Hex Self-Tapping Screw, $\frac{1}{4}$ "-20 x $\frac{3}{4}$ "
19.	G11073	2	Slotted Hex Self-Tapping Screw, No. 10 x $\frac{3}{8}$ "
20.	GD1061	1	Support Strap
21.	GD1063	1	Metering Gate
22.	GB0116	1	Granular Housing
A.	GA8326	-	Granular Chemical Meter Complete (Items 1, 9, 10, 12-14 And 16-22)

GRANULAR CHEMICAL BANDING OPTIONS

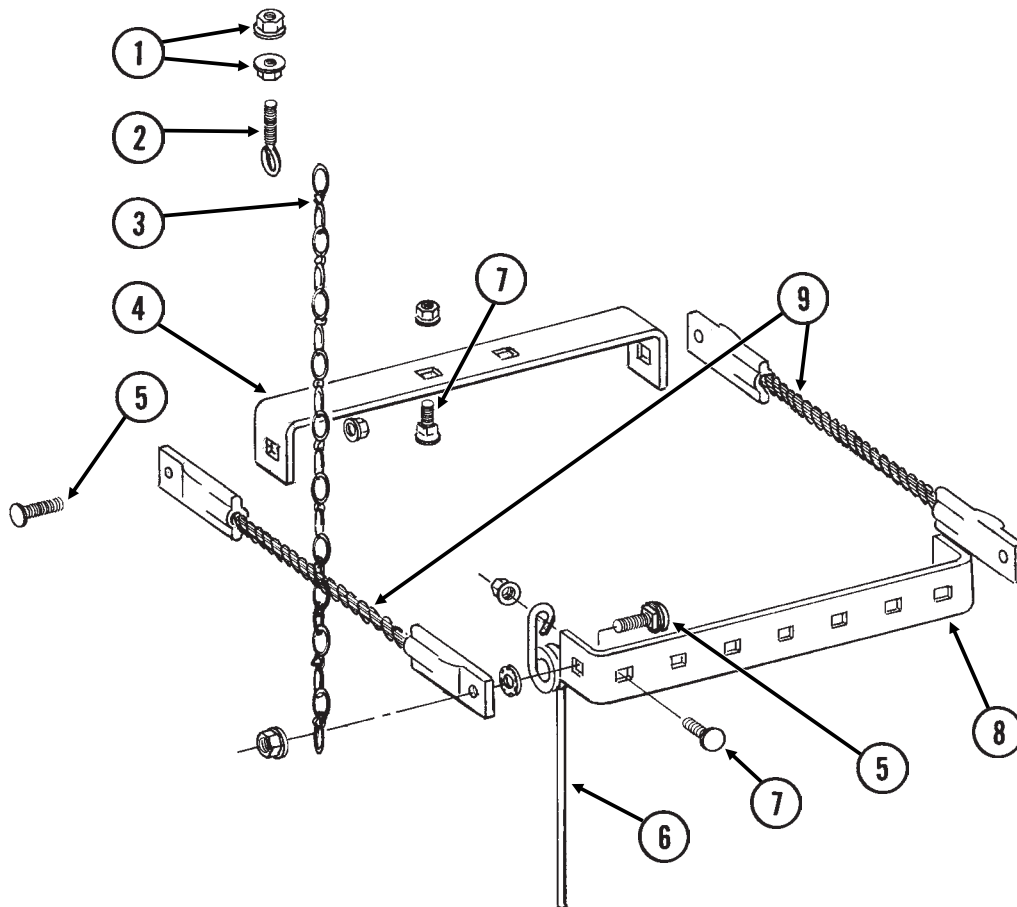
RUA061/RUA073(RU101m/RU83m)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD2423	1	Funnel
2.	G10673	1	Hose Clamp, No. 8
3.	GD2947	1	Hose, 7/16" x 28"
4.	G10523	2	Slotted Pan Head Self-Tapping Screw, No. 10 x 1/2"
5.	GA6907	1	Slope-Compensating Bander W/Hardware (4 1/2" Band Width)
	G10864	1	Uni-Clamp
	G10757	2	Pan Head Screw, No. 10-32 x 1 1/4"
	G10758	2	Hex Nut, No. 10-32
6.	GD10963	1	U-Bolt, 1 1/2" x 1 5/16" x 1/4"-20
	G10209	2	Washer, 1/4" USS
	G10110	2	Lock Nut, 1/4"-20, Grade B
7.	GD10984	1	Spacer
8.	GD1115L	-	Hanger Bracket, L.H.
9.	G10452	-	Cotter Pin, 1/8" x 1/2"
10.	GD1115R	-	Hanger Bracket, R.H.
11.	G10310	-	Carriage Bolt, 1/4"-20 x 3/4", Grade 2
	G10227	-	Lock Washer, 1/4"
	G10103	-	Hex Nut, 1/4"-20
12.	GD1116	-	Hanger
13.	GA2075	-	Diffuser, 14" Band
14.	G10306	-	Carriage Bolt, 3/8"-16 x 2"
	G10229	-	Lock Washer, 3/8"
	G10101	-	Hex Nut, 3/8"-16
15.	GD1118	-	Clamp
16.	G10315	1	Carriage Bolt, 1/2"-13 x 2 1/2" (Replaces Existing 1/2" x 2 1/4" Hardware)
17.	GA6741	1	Bracket (Straight Drop In-Furrow)
18.	G1K385	-	Bander Shield Kit W/Hardware And Instruction
	G10003	1	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	GD14659	1	Special Washer, 3/8", Hardened

SPRING TOOTH INCORPORATOR

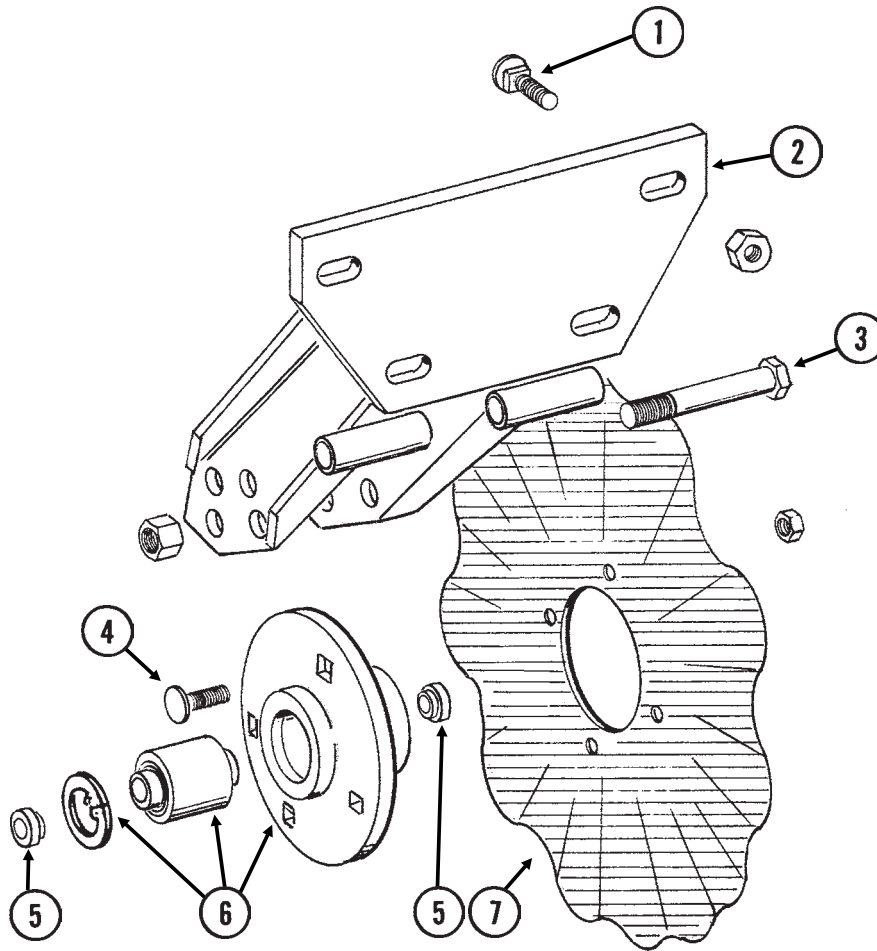
RUA055(RU95)



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

ROW UNIT MOUNTED NO TILL COULTER

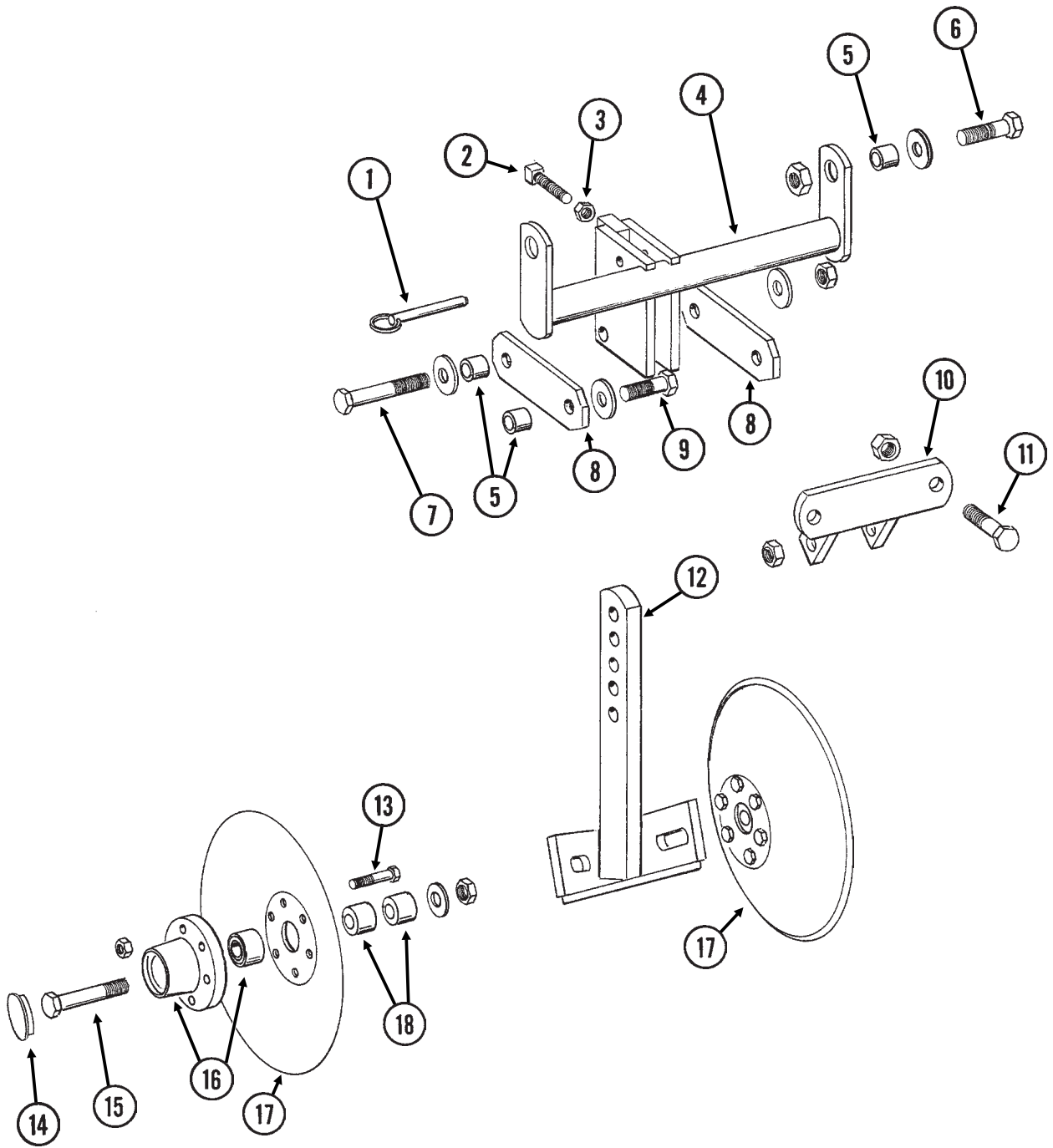
RUA061(RU102/RU102c)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
	G10111	4	Lock Nut, 1/2"-13
2.	GA5625	1	Arm
3.	G10036	1	Hex Head Cap Screw, 5/8"-11 x 4"
	G10107	1	Lock Nut, 5/8"-11
4.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
	G10111	4	Lock Nut, 1/2"-13
5.	GD11677	2	Adapter
6.	GA8641	1	Hub W/Bearing And Retaining Ring
	GA8603	-	Double Row Bearing
	GD11652	-	Retaining Ring, 2 7/16"
7.	GD7803	-	Disc Blade, Fluted, 1", 8 Flutes (Shown)
	GD7804	-	Disc Blade, Bubbled, 1"
	GD9254	-	Disc Blade, Fluted, 3/4", 13 Flutes

ROW UNIT MOUNTED DISC FURROWER

RUA059/RUA058(RU99/RU98g)

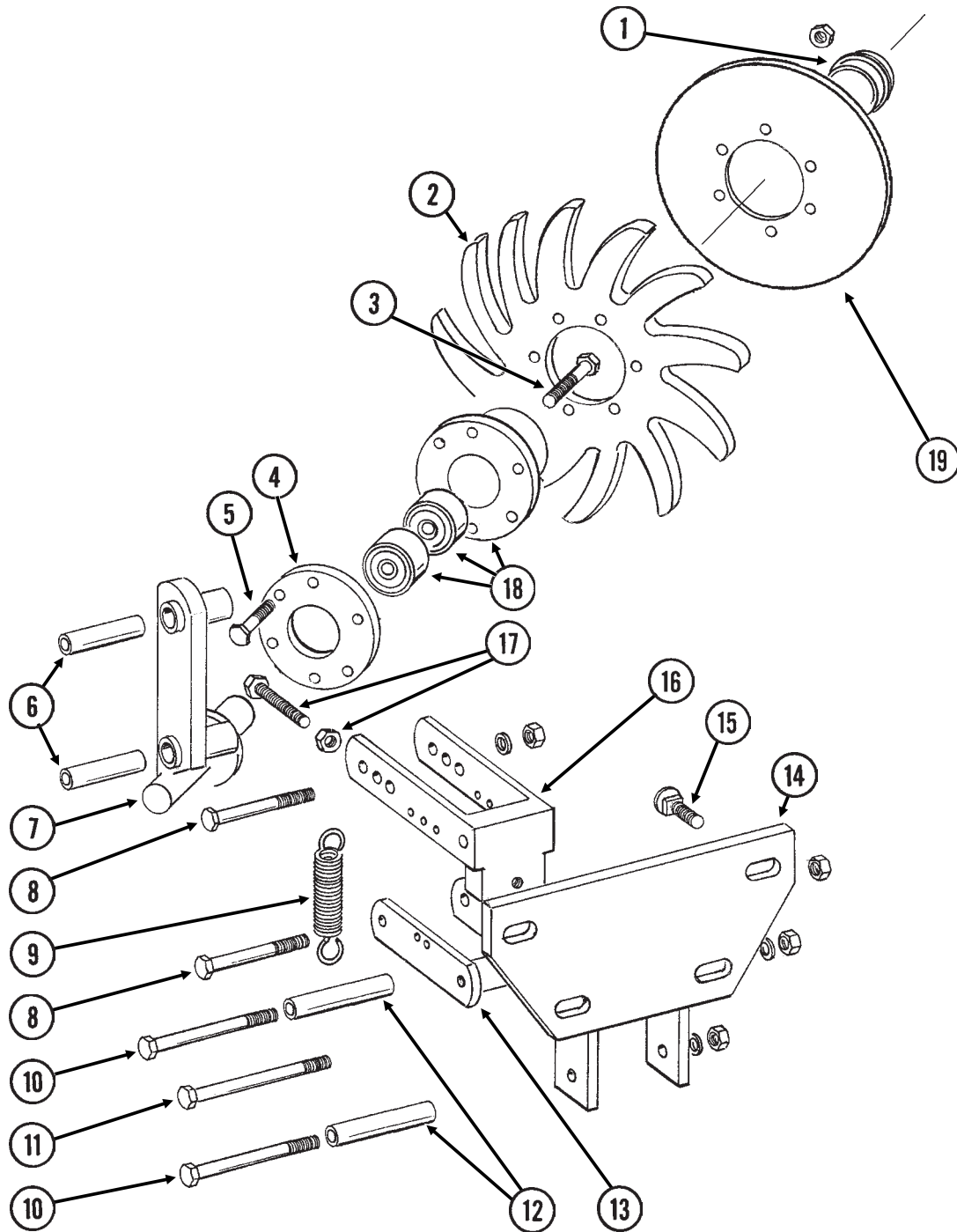


ROW UNIT MOUNTED DISC FURROWER

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

ROW UNIT MOUNTED RESIDUE WHEEL

(RU103d)

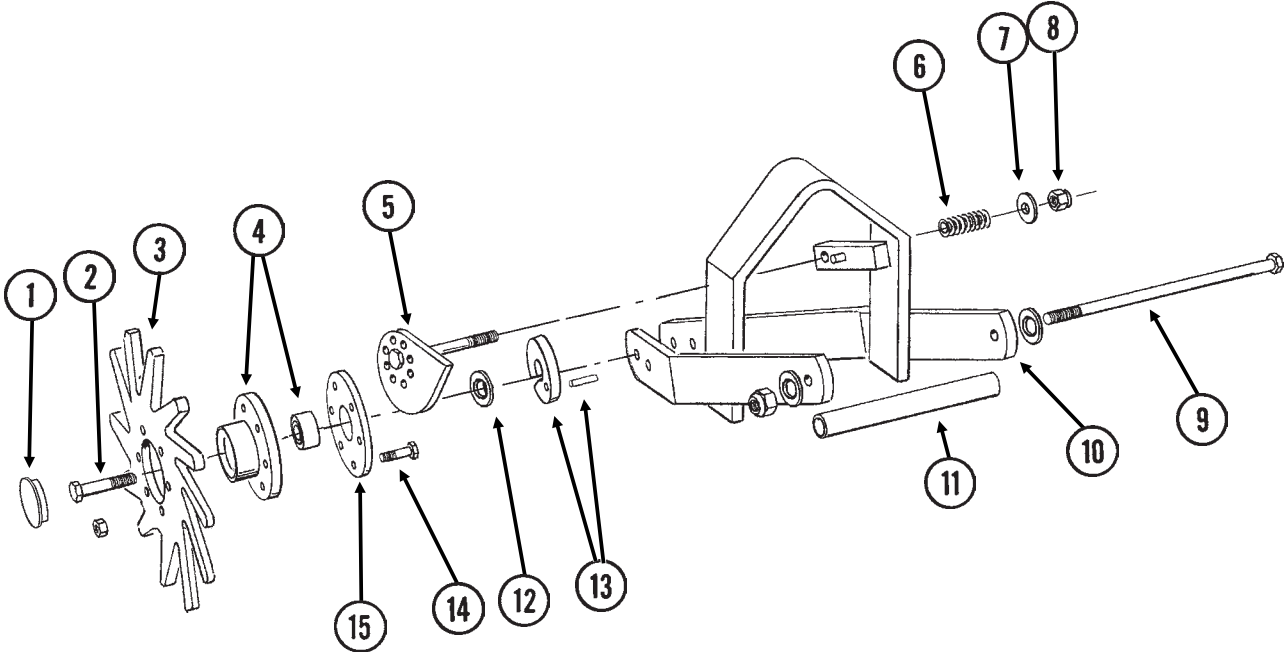


ROW UNIT MOUNTED RESIDUE WHEEL

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1132	1	Dust Cap
2.	GD10552	1	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
3.	G10006	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2 $\frac{1}{4}$ "
4.	GD9724	1	Backing Plate
5.	G10133	6	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10109	6	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
6.	GD9720	2	Spacer, $\frac{1}{2}$ " x 2 $\frac{3}{16}$ " Long
7.	GA6838	1	Wheel Mount
8.	G10033	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 3 $\frac{1}{2}$ "
	G10228	2	Lock Washer, $\frac{1}{2}$ "
	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
9.	GD5857	2	Spring
10.	G10045	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 4 $\frac{1}{2}$ "
	G10228	2	Lock Washer, $\frac{1}{2}$ "
	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
11.	G10348	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 5" (Lockup Bolt)
	G10111	1	Lock Nut, $\frac{1}{2}$ "-13
12.	GD9715	2	Spacer, $\frac{1}{2}$ " x 3" Long
13.	GA6834	1	Lower Link
14.	GA6832	1	Mount
15.	G10574	4	Carriage Bolt, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G10111	4	Lock Nut, $\frac{1}{2}$ "-13
16.	GA6833	1	Upper Link
17.	G10371	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 3", Full Thread
	G10501	1	Hex Jam Nut, $\frac{1}{2}$ "-13, Grade 2
18.	GA5654	1	Hub W/Bearings
	GA2014	-	Bearing
19.	GD12534	-	Cover
A.	GA7446	-	Wheel Assembly, 12 Tine (Items 2, 4, 5 And 18)

COULTER MOUNTED RESIDUE WHEELS

RUA063(RU104u)

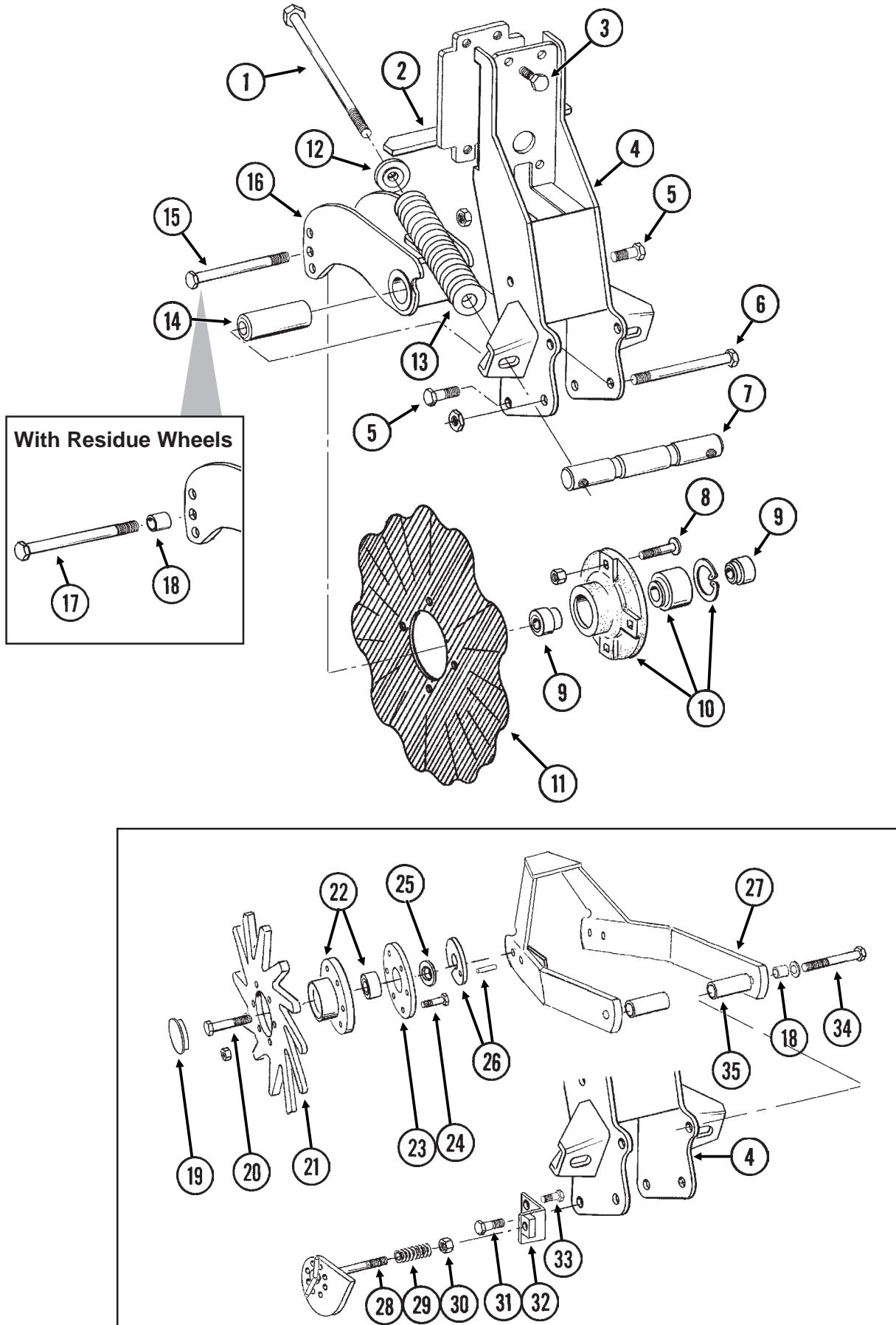


COULTER MOUNTED RESIDUE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1132	2	Dust Cap
2.	G10010	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 3"
	G10503	2	Hex Jam Nut, $\frac{5}{8}$ "-11, Grade 2
3.	GD10552	2	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
4.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
5.	GA7412	1	Cam
6.	GD10519	1	Spring
7.	G10206	1	Washer, $\frac{1}{2}$ " SAE
8.	G10974	1	Lock Nut W/Nylon Insert, $\frac{1}{2}$ "-13
9.	G11098	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 9 $\frac{1}{2}$ ", Grade 8
	GD14674	2	Special Washer, $\frac{1}{2}$ ", Hardened
	G10974	1	Lock Nut W/Nylon Insert, $\frac{1}{2}$ "-13
10.	GA7271	1	Mount
11.	GD10526	1	Sleeve, 7 $\frac{1}{2}$ "
12.	G10213	2	Machine Bushing, $\frac{5}{8}$ " (.030" Thick)
13.	GA8760	2	Weed Guard W/Spring Pin
	G10765	-	Spring Pin, $\frac{1}{4}$ " x 1"
14.	G10133	12	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10109	12	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
15.	GD9724	2	Backing Plate
A.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 3, 4, 14 And 15) (Shown)
	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 3, 4, 14 And 15)

FRAME MOUNTED COULTER W/RESIDUE WHEELS

(RU135c/RU135g/RU135h)

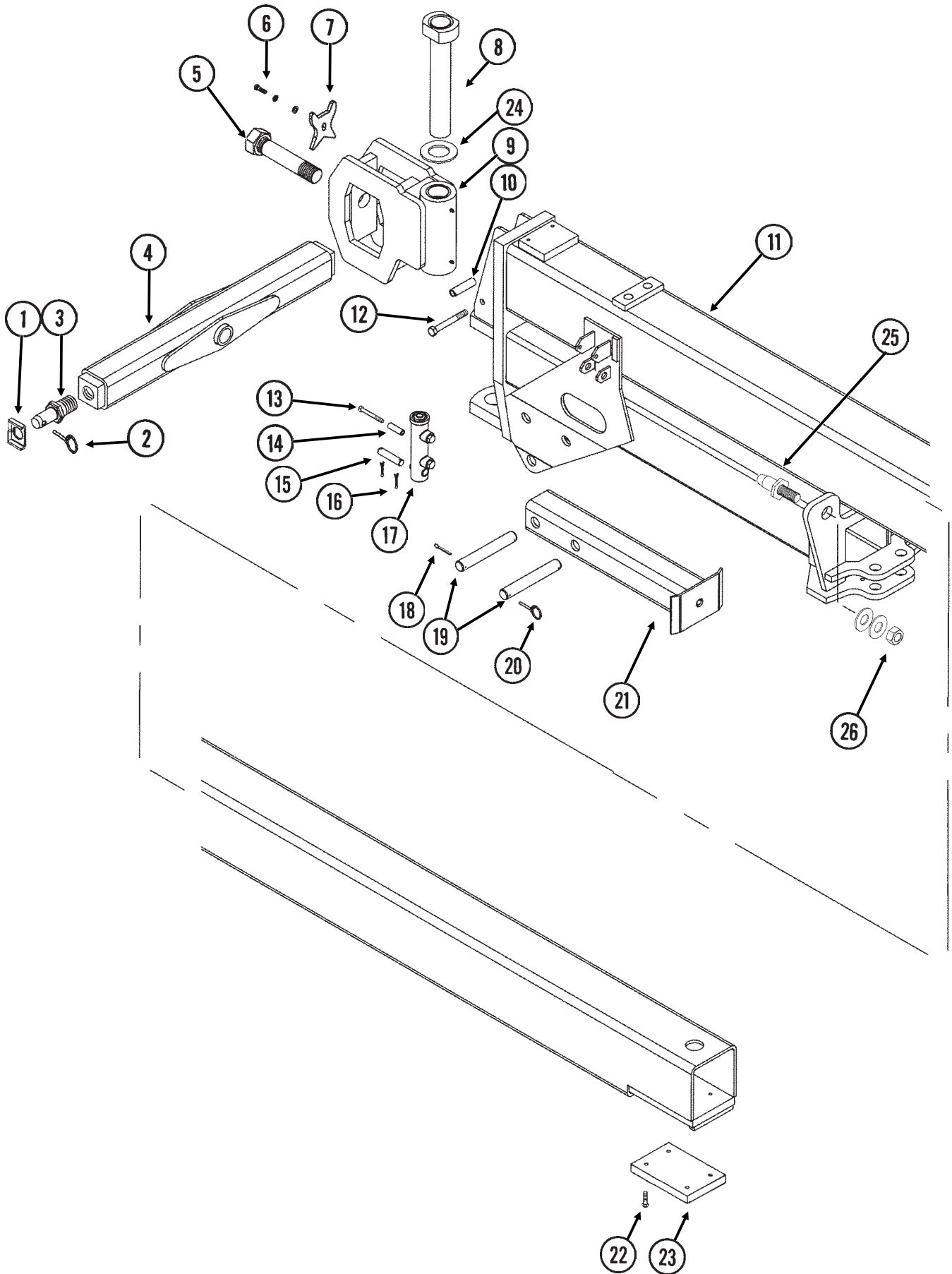


FRAME MOUNTED COULTER W/RESIDUE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G11010	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 12"
2.	GA9844	1	Plate W/Angle
3.	G10039	4	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{3}{4}$ "
4.	GA9131	1	Coulter Frame
5.	G10007	4	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{2}$ "
	G10107	4	Lock Nut, $\frac{5}{8}$ "-11
6.	G10400	1	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 6 $\frac{1}{2}$ "
	G10112	1	Lock Nut, $\frac{3}{4}$ "-10
7.	GD12826	1	Spring Anchor Bar
8.	G10574	4	Carriage Bolt, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G10111	4	Lock Nut, $\frac{1}{2}$ "-13
9.	GD12827	2	Adapter
10.	GA8641	1	Hub W/Bearing And Retaining Ring
	GA8603	1	Double Row Bearing
	GD11652	1	Retaining Ring, 2 $\frac{7}{16}$ "
11.	GD7803	1	Disc Blade, Fluted, 1", 8 Flutes (Shown)
	GD7804	-	Disc Blade, Bubbled, 1"
	GD9254	-	Disc Blade, Fluted, $\frac{3}{4}$ ", 13 Flutes
12.	GB0213	2	Spring Seat
13.	GD12817	2	Compression Spring
14.	GD12829	1	Sleeve
15.	G10046	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5"
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
16.	GA9845	1	Coulter Arm W/Grease Fitting
	G10643	-	Grease Fitting, 45°, $\frac{1}{4}$ "-28
17.	G10011	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5 $\frac{1}{2}$ "
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
18.	GB0218	3	Bushing, $\frac{21}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
19.	GD1132	2	Dust Cap
20.	G10010	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 3"
	G10503	2	Hex Jam Nut, $\frac{5}{8}$ "-11, Grade 2
21.	GD10552	2	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
22.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
23.	GD9724	2	Backing Plate
24.	G10133	12	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10109	12	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
25.	G10213	2	Machine Bushing, $\frac{5}{8}$ " (.030" Thick)
26.	GA9862	2	Weed Guard W/Spring Pin
	G10765	-	Spring Pin, $\frac{1}{4}$ " x 1"
27.	GA9865	1	Mount
28.	GA9861	1	Cam
29.	GD10519	1	Spring
30.	G10974	1	Lock Nut W/Nylon Insert, $\frac{1}{2}$ "-13
31.	G10005	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{3}{4}$ "
	G10107	4	Lock Nut, $\frac{5}{8}$ "-11
32.	GA9864	1	Support
33.	G10014	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1"
	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
34.	G10011	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5 $\frac{1}{2}$ "
	G10205	2	Washer, $\frac{5}{8}$ " SAE
	G10730	2	Lock Nut W/Nylon Insert, $\frac{5}{8}$ "-11
35.	GD14170	2	Sleeve, 3"
A.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 21-24) (Shown)
	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 21-24)

INNER HITCH

(FWD8a)

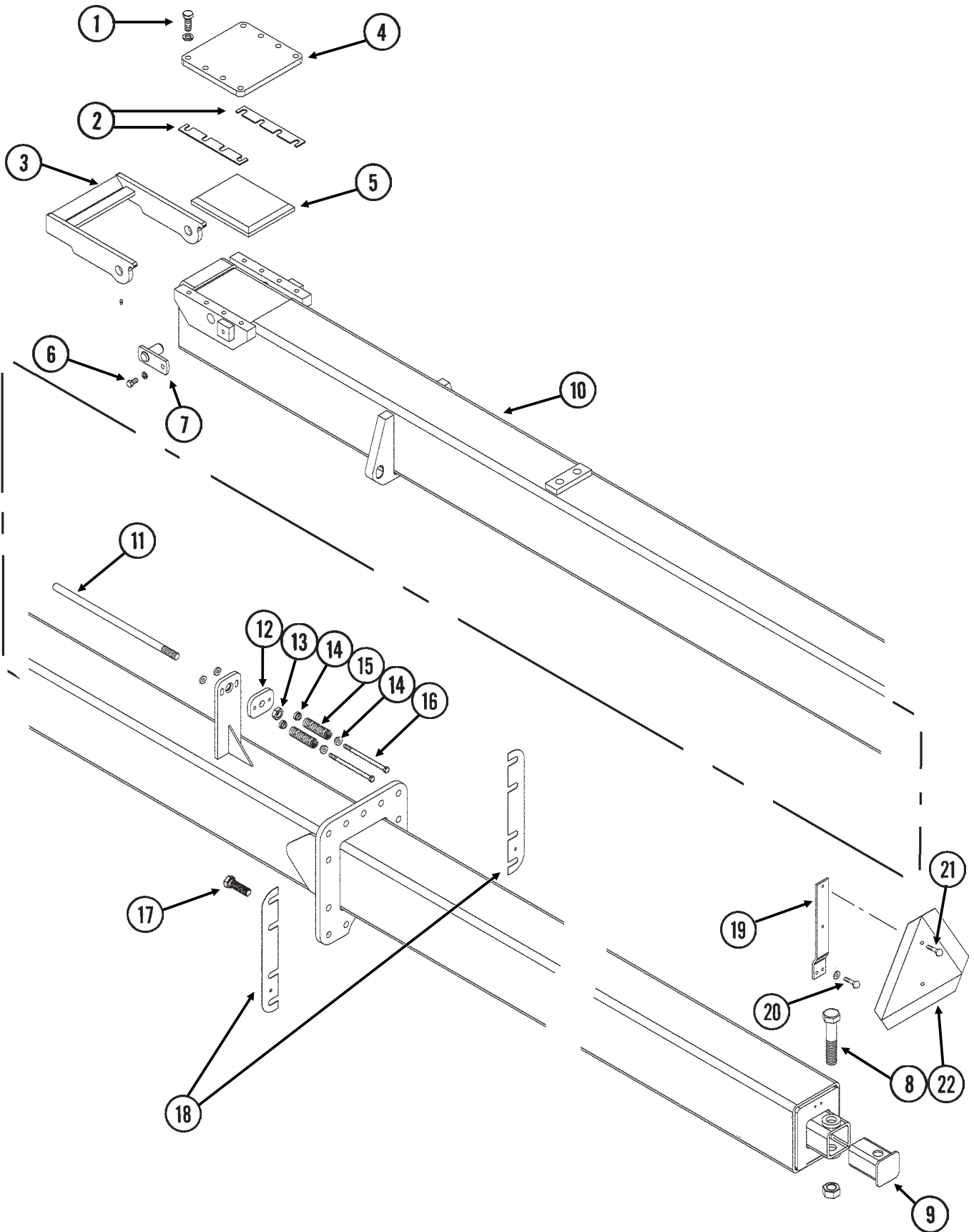


INNER HITCH

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD15125	2	Link Plate
2.	GD2557	1	Lynch Pin, $\frac{7}{16}$ "
3.	GD15098	2	Adapter Pin, 5 $\frac{3}{4}$ " (1 $\frac{3}{4}$ "-12 Threads)
4.	GA10290	1	Hitch Bar, 37", Category 3
	GA10289	-	Hitch Bar, 31 $\frac{1}{2}$ ", Category 3N
5.	GA10293	1	Pivot Bolt W/Grease Fitting, 1 $\frac{3}{4}$ " x 9 $\frac{3}{4}$ "
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
6.	G10005	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{4}$ "
	G10230	1	Lock Washer, $\frac{5}{8}$ "
7.	GD15100	1	Pivot Lock
8.	GA10346	1	Pin, 15"
9.	GA10488	1	Hitch Pivot W/Bushings And Grease Fittings
	GD14562	-	Hardened Bushing, 2 $\frac{3}{4}$ " O.D. x 2 $\frac{1}{4}$ " I.D. x 3"
	G10640	-	Grease Fittings, $\frac{1}{4}$ "-28
10	GD3180-10	1	Sleeve, $\frac{5}{8}$ " I.D. x $\frac{7}{8}$ " O.D. x 3 $\frac{1}{4}$ " Long
11.	GA10420	1	Inner Hitch, 287 $\frac{1}{4}$ ", 24 Row 30"
	GA10210	-	Inner Hitch, 347 $\frac{1}{4}$ ", 32 Row 30"
	GA10271	-	Inner Hitch, 377 $\frac{1}{4}$ ", 36 Row 30"
12.	G10046	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5"
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
13.	G10809	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 3 $\frac{1}{4}$ "
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
14.	GD7137	1	Pin, $\frac{3}{4}$ " x 3 $\frac{3}{8}$ "
15.	GD2971-09	1	Sleeve, 2" Long
16.	G10457	2	Cotter Pin, $\frac{5}{32}$ " x 1 $\frac{1}{2}$ "
17.		1	See "Tongue Latch Cylinder", Page P87
18.	G10460	3	Cotter Pin, $\frac{1}{4}$ " x 2"
19.	GD3737	2	Pin, 1 $\frac{1}{4}$ " x 8 $\frac{1}{2}$ "
20.	GD2558	1	Lynch Pin, $\frac{1}{4}$ "
21.	GA10280	1	Hitch Stand
22.	G11099	4	Hex Socket Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ ", Grade 8
23.	GD14812	1	Wear Pad, 5 $\frac{7}{8}$ " x 6 $\frac{1}{2}$ " x 1"
24.	GD15725	1	Washer, 4" O.D. x 2 $\frac{1}{4}$ " I.D. x $\frac{1}{4}$ "
25.	GD14840	1	Hitch Lock Pin
26.	G11132	2	Washer, 1 $\frac{1}{8}$ " SAE
	G11097	1	Hex Nut, 1 $\frac{1}{8}$ "-12

OUTER HITCH

(FWD9)

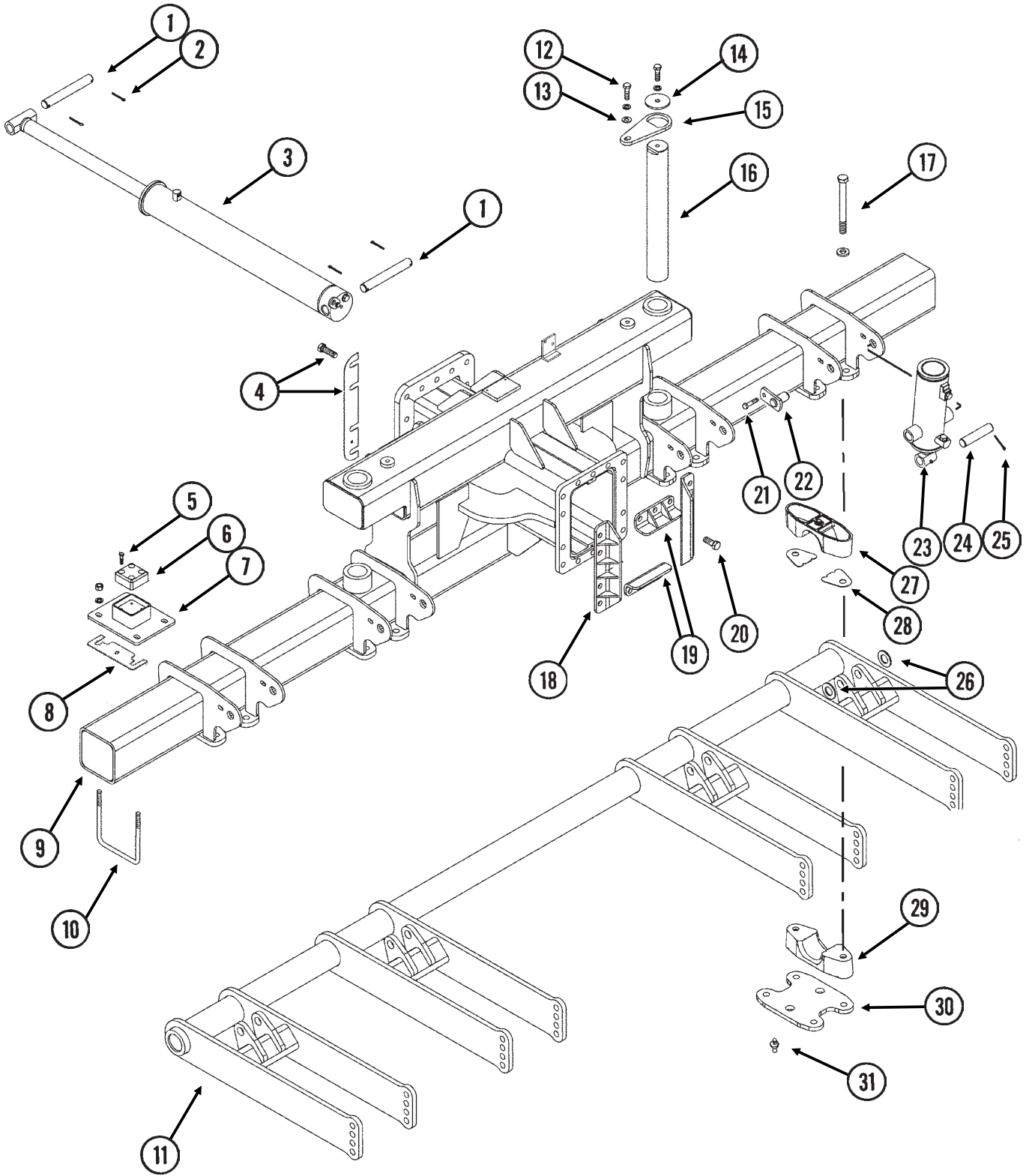


OUTER HITCH

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10026	8	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2"
	G10231	8	Lock Washer, $\frac{3}{4}$ "
2.	GD14842	4	Shim, 1 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ ", 10 Gauge
3.	GA10281	1	Catch W/Grease Fittings
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
4.	GD14841	1	Cover, 10 $\frac{1}{2}$ " x 11" x $\frac{3}{4}$ "
5.	GD14843	1	Wear Pad
6.	G10014	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1"
	G10228	2	Lock Washer, $\frac{1}{2}$ "
7.	GA10282	2	Pin, 2 $\frac{1}{4}$ "
8.	G10042	1	Hex Head Cap Screw, 1 $\frac{1}{4}$ "-7 x 6 $\frac{1}{2}$ "
	G10239	1	Hex Nut, 1 $\frac{1}{4}$ "-7
9.	GA10483	1	Hitch Endcap
10.	GA10421	1	Outer Hitch, 265 $\frac{5}{8}$ ", 24 Row 30"
	GA10221	1	Outer Hitch, 325 $\frac{5}{8}$ ", 32 Row 30"
	GA10269	1	Outer Hitch, 355 $\frac{5}{8}$ ", 36 Row 30"
11.	GD15669	1	Rod, $\frac{7}{8}$ " x 21"
12.	GD15668	1	Tap Block, 4" x 3" x $\frac{1}{2}$ "
13.	G10189	1	Hex Jam Nut, $\frac{7}{8}$ "-14
14.	GD15674	4	Spring Seat
15.	GD15675	2	Compression Spring
16.	G10756	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 6"
	G10203	2	Washer, $\frac{3}{8}$ " SAE
	G10108	2	Lock Nut, $\frac{3}{8}$ "-16
17.	G10027	8	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2 $\frac{1}{2}$ "
	G10026	-	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2"
	G10231	8	Lock Washer, $\frac{3}{4}$ "
	G10105	8	Hex Nut, $\frac{3}{4}$ "-10
18.	GD15451	-	Shim, 2 $\frac{3}{4}$ " x 18", 16 Gauge, 24 Row 30"
	GD15780	-	Shim, 1 $\frac{7}{8}$ " x 18", 22 Gauge, 24 Row 30"
	GD14842	-	Shim, 1 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ ", 10 Gauge, 32 Row 30" And 36 Row 30"
	GD15796	-	Shim, 2 $\frac{3}{4}$ " x 24", 22 Gauge, 32 Row 30" And 36 Row 30"
19.	GD15624	1	Bracket
20.	G10043	2	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10232	2	Lock Washer, $\frac{5}{16}$ "
21.	G10020	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{5}{8}$ "
	G10227	2	Lock Washer, $\frac{1}{4}$ "
	G10103	2	Hex Nut, $\frac{1}{4}$ "-20
22.	GD2199	1	SMV Sign

CENTER TOOLBAR/REAR H-FRAME ASSEMBLY

(FWD10)

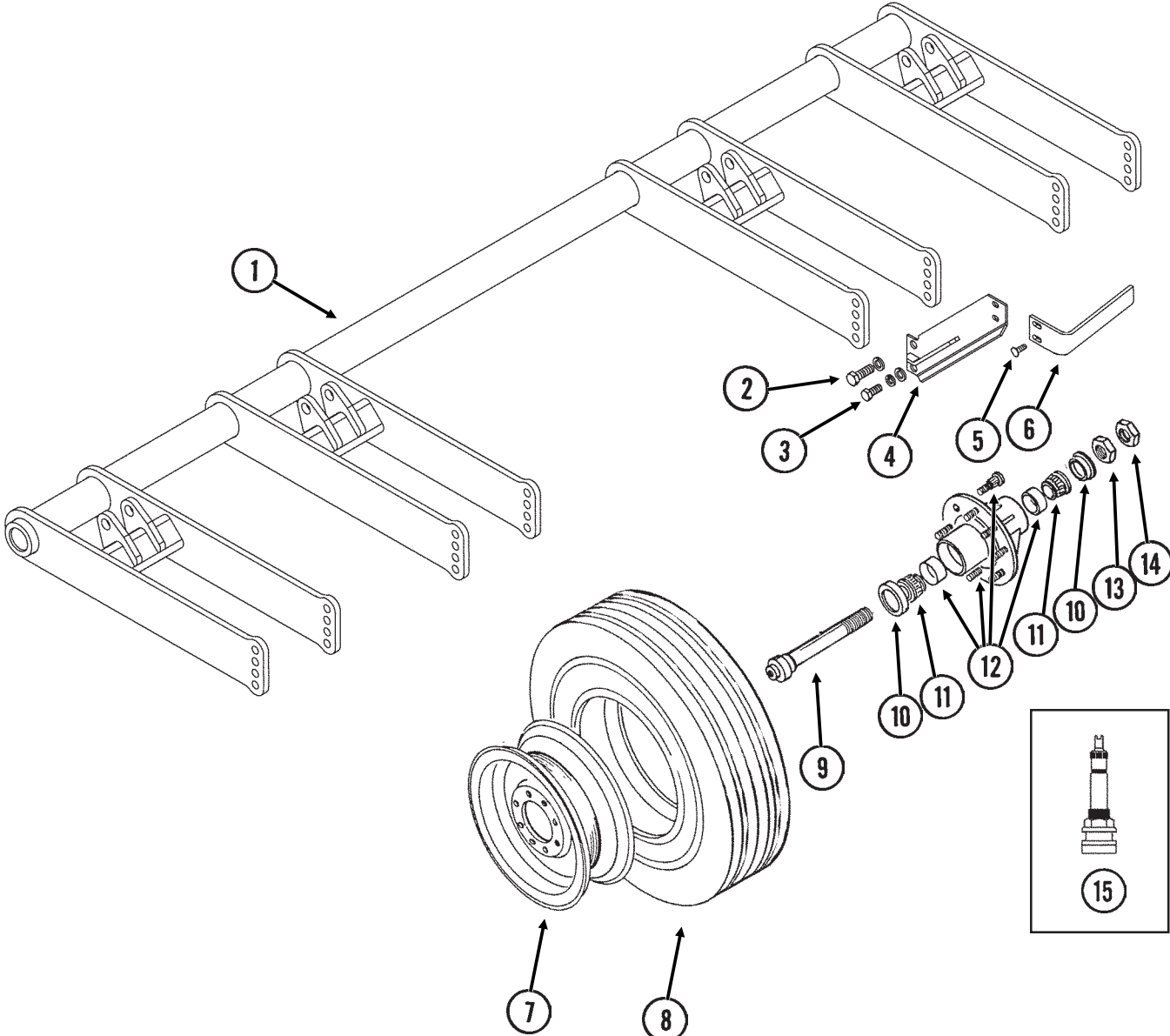


CENTER TOOLBAR/REAR H-FRAME ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD15051	2	Pin, 1 1/4" x 9 1/4"
2.	G10460	4	Cotter Pin, 1/4" x 2"
3.		-	See "Axle Slide Cylinder", Pages P85 And P86
4.		-	See "Outer Hitch", Pages P32 And P33
5.	G11099	8	Hex Socket Head Cap Screw, 3/8"-16 x 1 1/2", Grade 8
6.	GD15169	2	Wear Block
7.	GA10343	2	Mount, 8" x 10"
8.	GD15170	-	Shim, 3 1/4" x 10", 16 Gauge (As Required)
9.	GA10416	1	H-Frame Assembly, 24 Row 30"
	GA10347	-	H-Frame Assembly, 32 Row 30" And 36 Row 30"
10.	GD1114	4	U-Bolt, 7" x 7" x 5/8"-11
	G10230	8	Lock Washer, 5/8"
	G10104	8	Hex Nut, 5/8"-11
11.			See "Rock Shaft Axle Assembly And Wheels", Pages P36 And P37
12.	G10008	4	Hex Head Cap Screw, 5/8"-11 x 2"
	G10230	4	Lock Washer, 5/8"
13.	G10217	2	Washer, 5/8" USS
14.	GD15046	2	Washer, 2 1/32" I.D. x 4" O.D. x 1/4"
15.	GD15045	2	Capture Plate
16.	GD15369	2	Pivot Pin, 3" x 22 1/2", 24 Row 30"
	GD15047	2	Pivot Pin, 3" x 28 1/2", 32 Row 30" And 36 Row 30"
17.	G11095	16	Hex Head Cap Screw, 7/8"-9 x 9"
	GD10063	16	Hardened Washer, 7/8"
	G10418	16	Lock Nut, 7/8"-9
18.	GB0357	2	Keeper, 24 Row 30"
	GB0356	-	Keeper, 32 Row 30" And 36 Row 30"
19.	GB0355	2	Keeper
20.	G10802	16	Hex Head Cap Screw, 3/4"-10 x 2 3/4"
	G10231	16	Lock Washer, 3/4"
	G10105	16	Hex Nut, 3/4"-10
21.	G10017	8	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10111	8	Lock Nut, 1/2"-13
22.	GA5121	8	Pin, 2 1/8"
23.		-	See "Master Cylinder", Page P82
24.	GD5841	4	Pin, 1 1/4" x 5 5/8"
25.	G10460	8	Cotter Pin, 1/4" x 2"
26.	G10226	8	Washer, 1 1/4" SAE
27.	GB0332	8	Bearing
28.	GD15172	16	Shim
29.	GD14941	8	Bearing
30.	GD14926	4	Clamp Plate
31.	G10640	8	Grease Fitting, 1/4"-28

ROCK SHAFT AXLE ASSEMBLY AND WHEELS

(FWD10a)



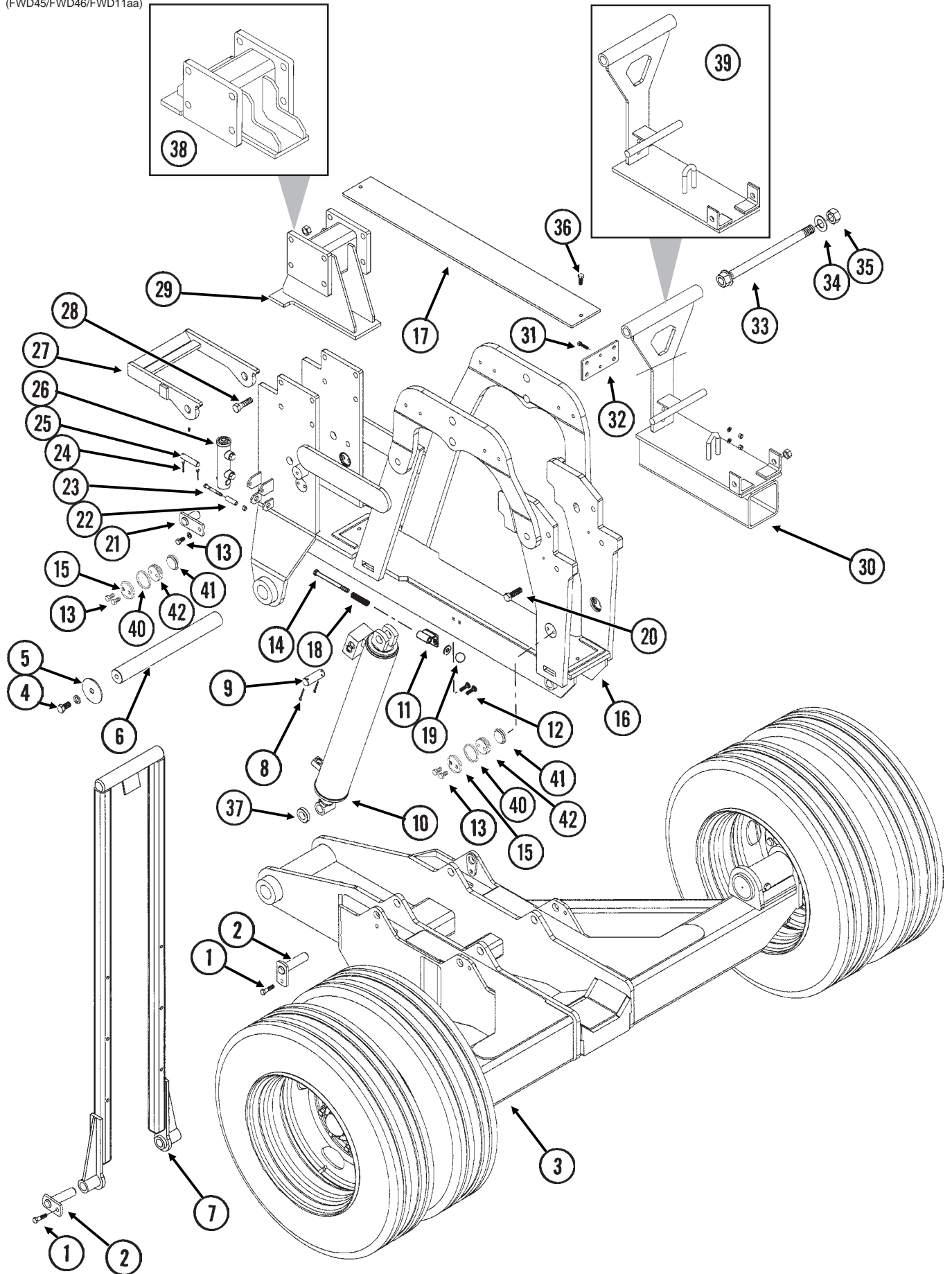
ROCK SHAFT AXLE ASSEMBLY AND WHEELS

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10263	1	Rock Shaft Axle, 133 1/2"
2.	G10448	8	Hex Head Cap Screw, 7/8"-9 x 2 1/2", Grade 8
	G10330	8	Lock Washer, 7/8"
3.	G11071	4	Hex Head Cap Screw, 3/4"-10 x 2 1/4"
	G10194	8	Washer, 3/4" SAE
	G10231	4	Lock Washer, 3/4"
	G10105	4	Hex Nut, 3/4"-10
4.	GA10425	4	Scraper Mount
5.	G10636	8	Carriage Bolt, 1/2"-13 x 1 1/2"
	G10216	8	Washer, 1/2" USS
	G10228	8	Lock Washer, 1/2"
	G10102	8	Hex Nut, 1/2"-13
6.	GD12543	4	Scraper
7.	GA9544	4	Rim, 5.5" x 22.5"
8.	GD13409	4	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)
9.	GA4727	4	Spindle W/Retaining Ring, 1 3/4"
	G10913	-	External Retaining Ring, 2 1/2"
10.	GA4722	8	Seal
11.	GA4723	8	Bearing
12.	GA4729	4	Hub W/Cups, Bolts, Nuts And Grease Fitting, 8 Bolt, 1 3/4" Bore
	G10640	-	Grease Fitting, 1/4"-28
	GD7079	-	Cup
	GR0528	-	Hub Bolt, 5/8"-12 x 2 1/4", Grade 8
	GR0531	-	Lug Nut, 5/8"-18 UNF
13.	GD7089	4	Special Nut, 1 3/4"-12 UNF
14.	GD7864	4	Special Hex Nut, 1 3/4"-12 UNF
15.	GA7434	4	Valve Stem
A.	GA9545	-	Tire And Rim Assembly (Items 7, 8 And 15) (Specify Brand*)

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

SLIDE ASSEMBLY

(FWD45/FWD46/FWD11aa)



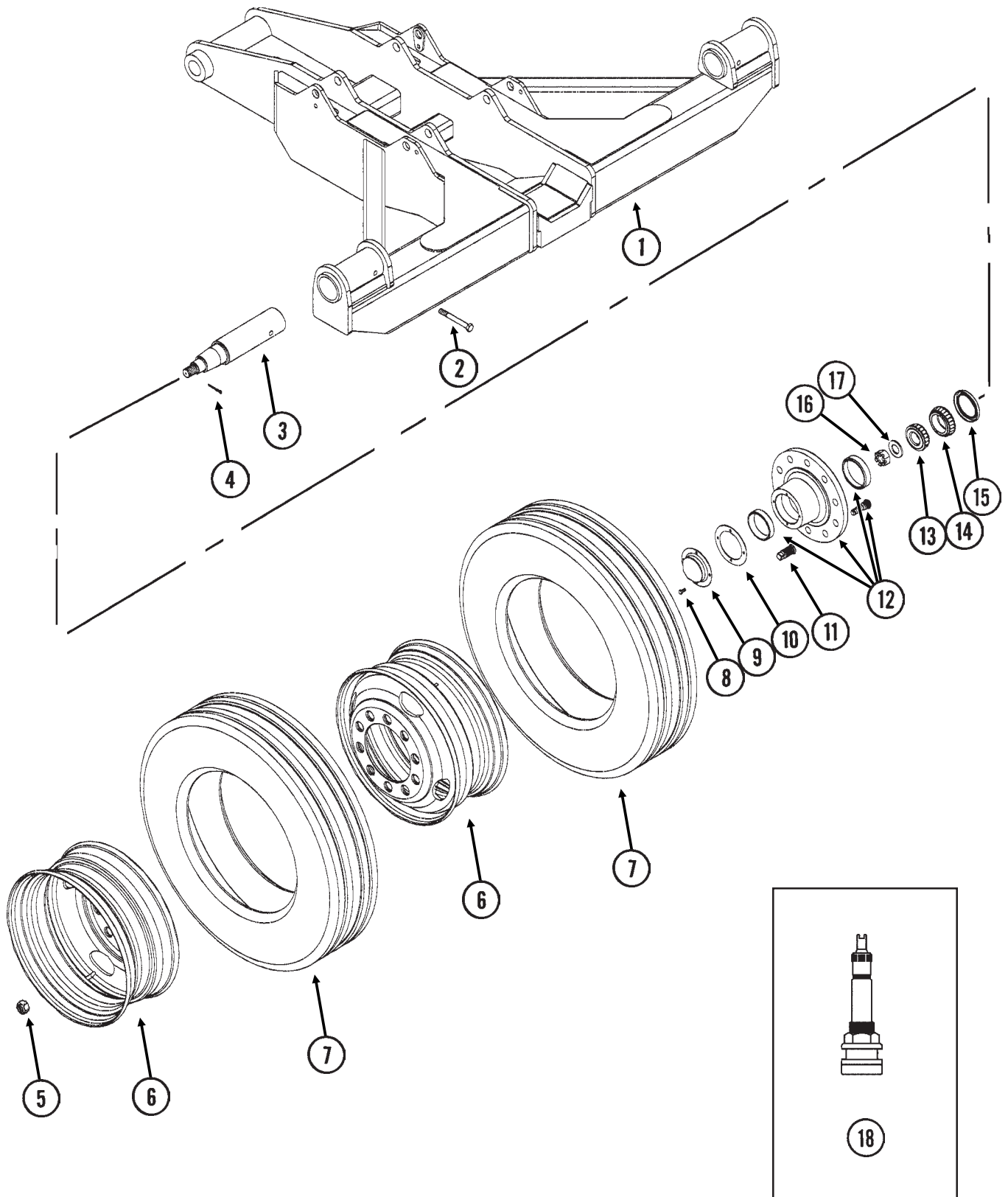
SLIDE ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10016	4	Hex Head Cap Screw, 1/2"-13 x 2"
	G10111	4	Lock Nut, 1/2"-13
2.	GA10279	4	Pin, 5 1/4"
3.		-	See "Transport Axle Assembly And Wheels", Pages P40 And P41
4.	G10025	2	Hex Head Cap Screw, 3/4"-10 x 1 1/2"
	G10231	2	Lock Washer, 3/4"
5.	GD15041	2	Washer, 13/16" I.D. x 4" O.D., 7 Gauge
6.	GD15042	1	Pin, 2 1/4" x 20 1/16"
7.	GA10503	1	Lockup, 70 1/2"
8.	G10460	4	Cotter Pin, 1/4" x 2"
9.	GD12790	2	Pin, 1 1/4" x 3 1/2"
10.		-	See "Transport Axle Cylinder", Page P88
11.	GA10504	2	Support
12.	G10301	4	Carriage Bolt, 3/8"-16 x 1 1/2"
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
13.	G10014	10	Hex Head Cap Screw, 1/2"-13 x 1"
	G10228	10	Lock Washer, 1/2"
14.	G10871	2	Hex Head Cap Screw, 1/2"-13 x 6"
	G10216	2	Washer, 1/2" USS
	G10111	2	Lock Nut, 1/2"-13
15.	GB0230	4	Cap
16.	GA10442	1	Slide Assembly, 24 Row 30"
	GA10261	-	Slide Assembly, 32 Row 30" And 36 Row 30"
17.	GD15492	1	Wear Pad, 6" x 48"
18.	GD15677	2	Compression Spring
19.	GD15679	2	Ball Knob
20.	G10027	2	Hex Head Cap Screw, 3/4"-10 x 2 1/2"
	G10112	2	Lock Nut, 3/4"-10
21.	GA10282	2	Pin, 2 1/4"
22.	GD2971-09	1	Sleeve, 2" Long
23.	G10809	1	Hex Head Cap Screw, 3/8"-16 x 3 1/4"
	G10108	1	Lock Nut, 3/8"-16
24.	G10457	2	Cotter Pin, 5/32" x 1 1/2"
25.	GD7137	1	Pin, 3/4" x 3 3/8"
26.		-	See "Slide Latch Cylinder", Page P87
27.	GA10466	1	Catch W/Grease Fittings
	G10640	-	Grease Fitting, 1/4"-28
28.	G10802	8	Hex Head Cap Screw, 3/4"-10 x 2 3/4"
	G10112	8	Lock Nut, 3/4"-10
29.	GA10595	1	Slide Bracket, 24 Row 30"
30.	GA10502	1	Rear Bracket, 24 Row 30"
31.	G10003	8	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G10229	8	Lock Washer, 3/8"
	G10101	8	Hex Nut, 3/8"-16
32.	GD15664	1	Plate, 3 9/16" x 7 1/4"
33.	GA10455	1	Cross Pin, 19"
34.	G10226	1	Washer, 1 1/4" SAE
35.	G10157	1	Lock Nut, 1 1/4"-7
36.	G11130	2	Hex Socket Head Cap Screw, 5/16"-18 x 1 1/2", Grade 8
	G10109	2	Lock Nut, 5/16"-18, Grade 8
37.	GD0752-53	2	Sleeve, 3/8"
38.	GA10584	1	Slide Bracket, 32 Row 30" And 36 Row 30"
39.	GA10508	1	Rear Bracket, 32 Row 30" And 36 Row 30"
40.	GD15783	4	Spacer, 2 3/4" O.D. x 2 7/16" x 1/4", 24 Row 30"
41.	GD9093	4	Poly Wear Pad
42.	GB0234	4	Adjustment Plug

TRANSPORT AXLE ASSEMBLY AND WHEELS

(FWD12/A7434)

24 ROW 30" SHOWN



TRANSPORT AXLE ASSEMBLY AND WHEELS

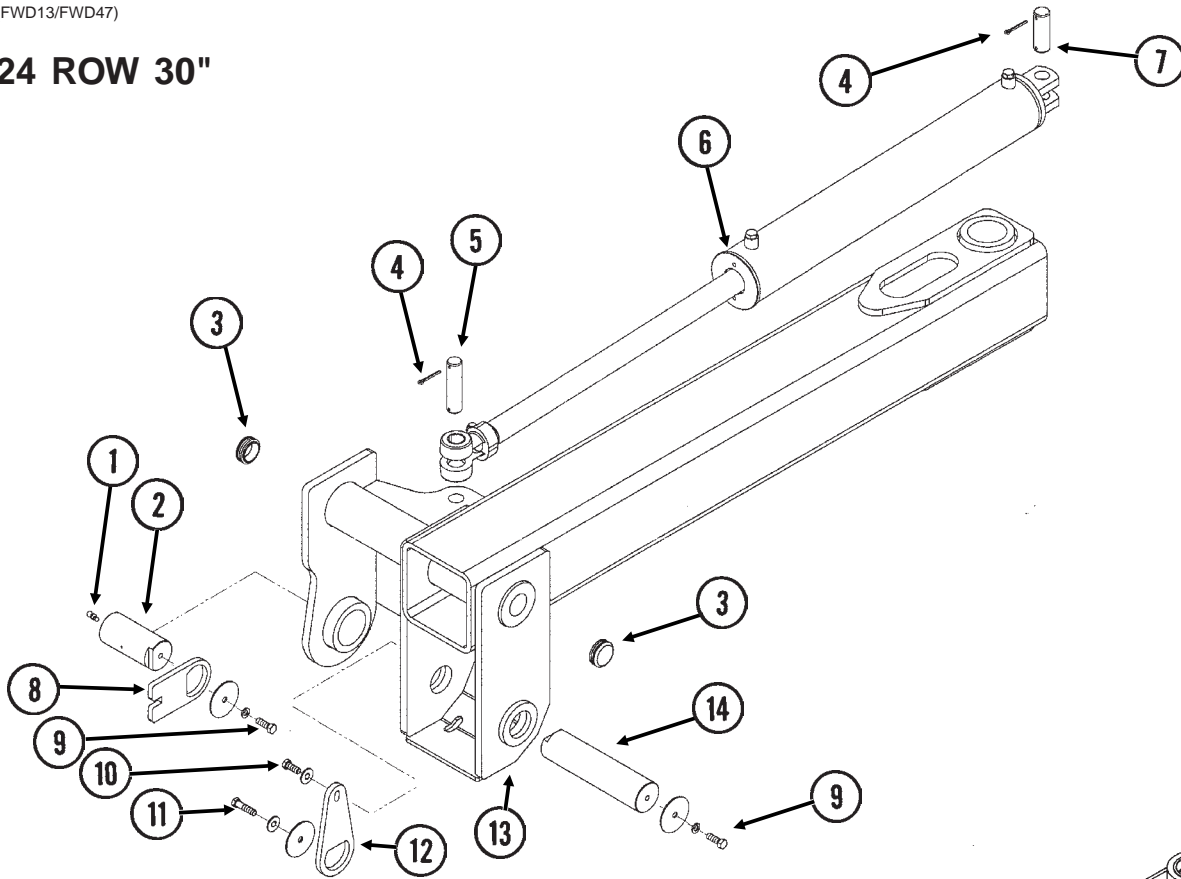
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10286	1	Axle W/Grease Fittings, 24 Row 30"
	GA10225	1	Axle W/Grease Fittings, 32 Row 30" And 36 Row 30"
	G10640	-	Grease Fitting, 1/4"-28
2.	G10011	2	Hex Head Cap Screw, 5/8"-11 x 5 1/2"
	G10107	2	Lock Nut, 5/8"-11
3.	GD15092	2	Spindle
4.	G10460	2	Cotter Pin, 1/4" x 2"
5.	GD9509	20	Outer Budd Nut
6.	GD10045	4	Rim, 8.25" x 22.5"
7.	GD11092	4	Tire, 9" x 22.5", 12 Ply, Tubeless Treaded (Specify Brand*)
8.	G10376	8	Hex Head Cap Screw, 5/16"-18 x 3/4"
9.	GD1529	2	Dust Cap
10.	GD1536	2	Seal
11.	GD12567	20	Inner Budd Nut, 2 5/8" Long
12.	GA10437	2	Hub W/Cups, Grease Fitting And Stud Bolts (10 Bolt)
	GR0322	-	Outer Cup
	GD8532	-	Inner Cup
	G10373	-	Grease Fitting, 45°, 1/8"-27
	GR0257	-	Bolt, 3/4"-16 x 2 1/2"
13.	GA0705	2	Outer Bearing
14.	GA5987	2	Inner Bearing
15.	GA5988	2	Seal
16.	G10070	2	Slotted Hex Nut, 1 1/4"-12
17.	G10139	2	Washer, 1 1/4" USS
18.	GA7434	4	Valve Stem
A.	GA8055	-	Tire And Rim Assembly (Items 6, 7, And 18)
B.	GA10732	-	Hub And Spindle Assembly (Items 3, 4, 8, 9, 10, 12 And 13-17)

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

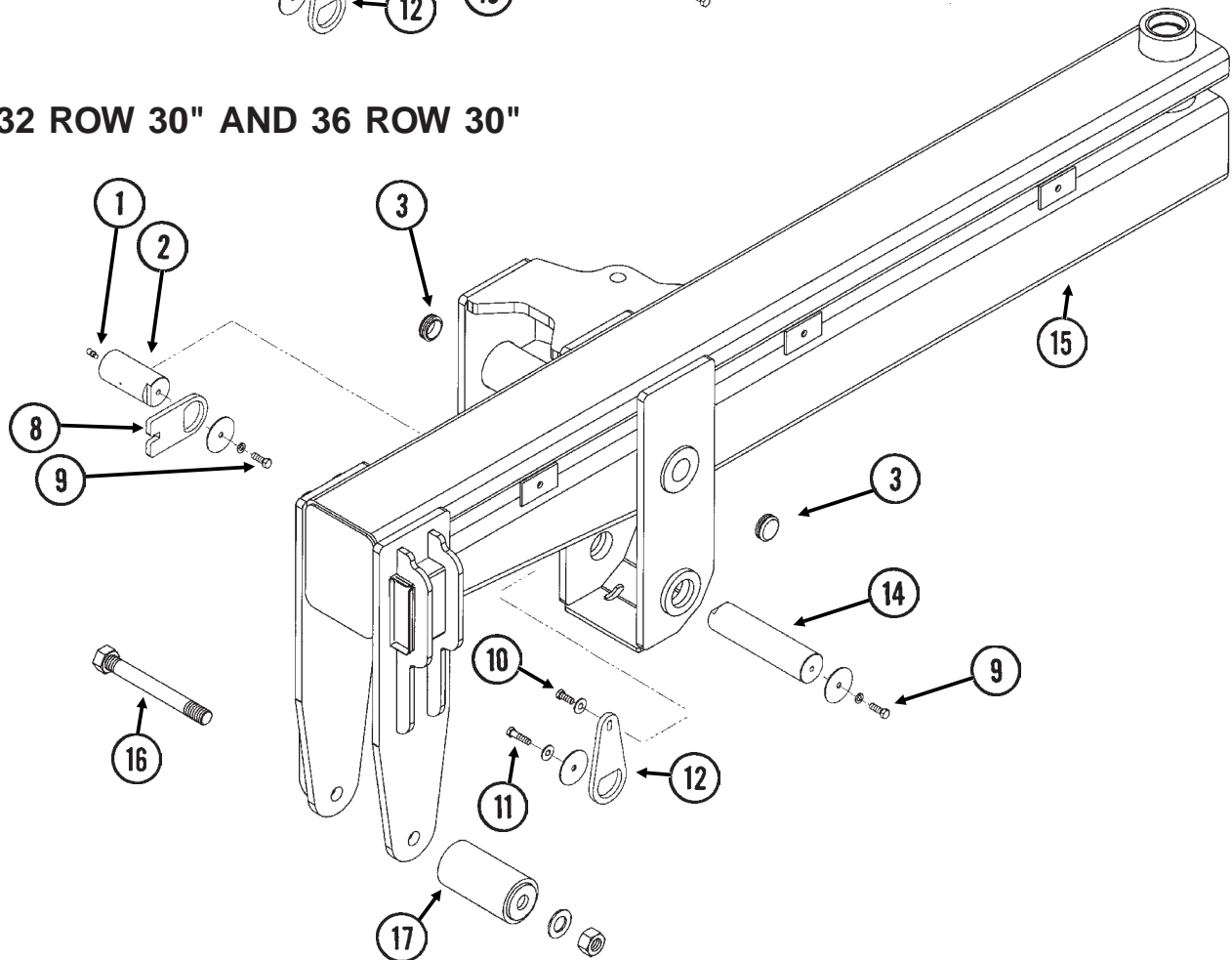
STUB WING

(FWD13/FWD47)

24 ROW 30"



32 ROW 30" AND 36 ROW 30"



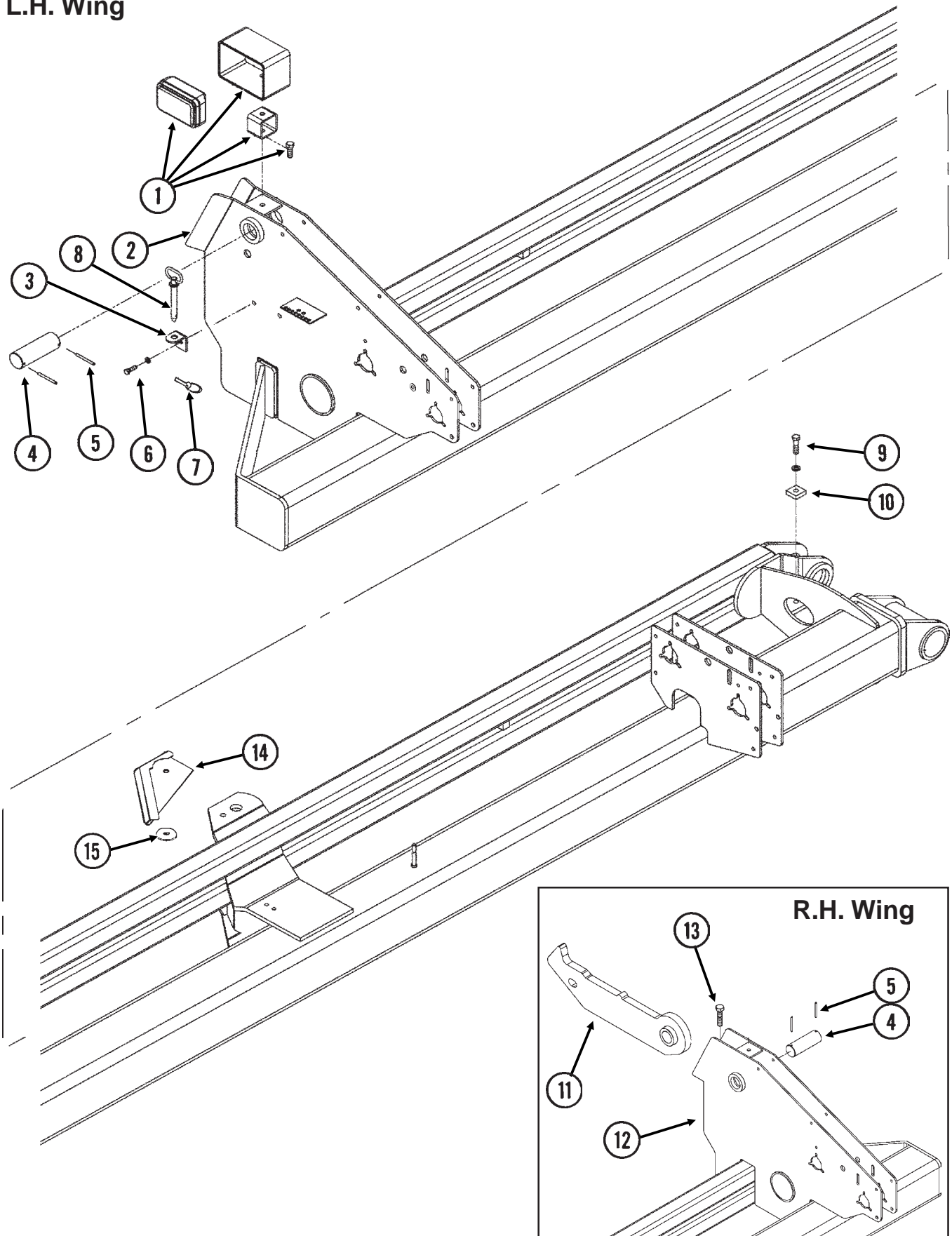
STUB WING

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	G10640	1	Grease Fitting, 1/4"-28
2.	GD15067	1	Pin, 2 3/4" x 5 13/16"
3.	G11105	2	Cap
4.	G10460	4	Cotter Pin, 1/4" x 2"
5.	GD15048	1-2	Pin, 1 1/4" x 5 1/16"
6.		-	See "Wing Fold Cylinder", Page P84
7.	GD15049	1-2	Pin, 1 1/4" x 4 5/16"
8.	GD15069	1	Capture Plate
9.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	2	Lock Washer, 1/2"
	GD15068	2	Washer, 3 3/4" O.D. x 1/2" I.D. x 1/4"
10.	G10037	1	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10216	1	Washer, 1/2" USS
11.	G10016	1	Hex Head Cap Screw, 1/2"-13 x 2"
	G10216	1	Washer, 1/2" USS
	GD15068	1	Washer, 3 3/4" O.D. x 1/2" I.D. x 1/4"
12.	GD15072	1	Capture Plate
13.	GA10489	1	Stub Wing W/Bushings And Grease Fittings, L.H., 24 Row 30" (Shown)
	GA10490	-	Stub Wing W/Bushings And Grease Fittings, R.H., 24 Row 30"
	GD14565	-	Hardened Bushing, 3 1/2" O.D. x 3" I.D. x 4"
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	G10640	-	Grease Fitting, 1/4"-28
14.	GD15070	1	Pin, 2 3/4" x 11 1/4"
15.	GA10717	1	Stub Wing W/Bushings And Grease Fittings, L.H., 32 Row 30" And 36 Row 30" (Shown)
	GA10716	-	Stub Wing W/Bushings And Grease Fittings, R.H., 32 Row 30" And 36 Row 30"
	GD14565	-	Hardened Bushing, 3 1/2" O.D. x 3" I.D. x 4"
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	G10640	-	Grease Fitting, 1/4"-28
16.	GA10456	1	Roller Pin, 1 1/4"-7 x 12"
	G10226	1	Washer, 1 1/4" SAE
	G10239	1	Hex Nut, 1 1/4"-7
17.	GA10287	1	Roller

OUTER WING, 24 ROW 30"

(FWD14a/FWD15b)

L.H. Wing



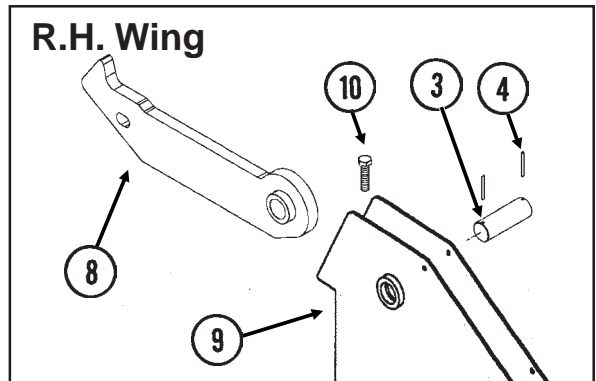
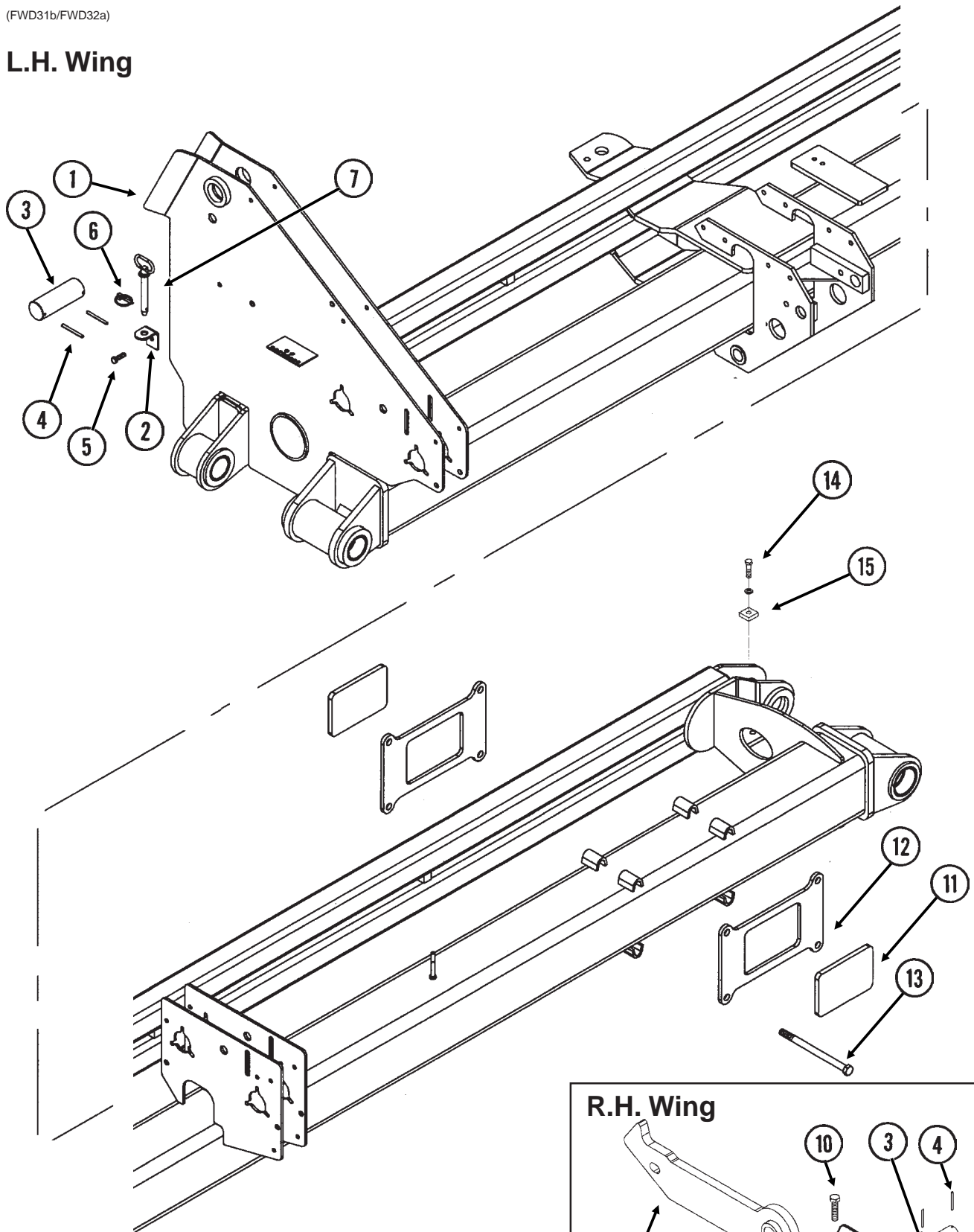
OUTER WING, 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.		-	See "Light Assemblies And Brackets", Pages P106 And P107
2.	GA10491	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, L.H., 284 1/8"
	G10640	-	Grease Fitting, 1/4"-28
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	GD15110	-	Sleeve, 3 1/4" I.D. x 2 7/8" O.D. x 1 7/8" Long
3.	GD15285	1	Storage Bracket
4.	GD15074	1	Pin, 2" x 5 3/4"
5.	G10191	2	Spring Pin, 1/4" x 2 3/4"
6.	G10004	1	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
7.	GD5625	1	Lynch Pin, 3/16"
8.	GD15282	1	Pin, 5/8" x 4"
9.	G10016	1	Hex Head Cap Screw, 1/2"-13 x 2"
	G10228	1	Lock Washer, 1/2"
	G10111	1	Lock Nut, 1/2"-13
10.	GD15066	1	Stop
11.	GA10404	1	Outer Hook, 29 13/16" Long
12.	GA10492	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, R.H., 284 1/8"
	G10640	-	Grease Fitting, 1/4"-28
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	GD15110	-	Sleeve, 3 1/4" I.D. x 2 7/8" O.D. x 1 7/8" Long
13.	G10543	1	Hex Head Cap Screw, 3/4"-10 x 3", Full Thread
	G10105	1	Hex Nut, 3/4"-10
14.	GA10910	1	Shield, R.H.
	GA10909	-	Shield, L.H.
15.	GD15235	1	Washer, 2 1/4" O.D. x 1/2" I.D. x 1/4"

INNER WING, 32 ROW 30" AND 36 ROW 30"

(FWD31b/FWD32a)

L.H. Wing



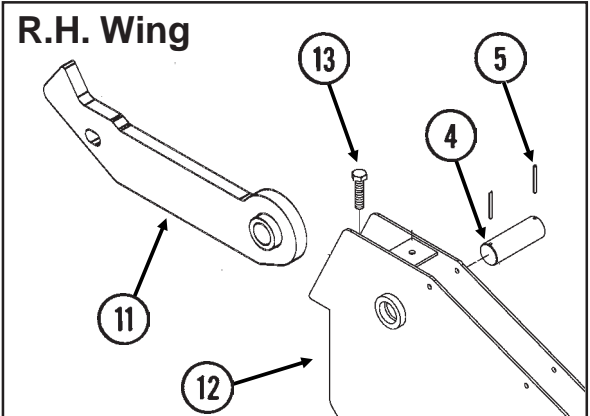
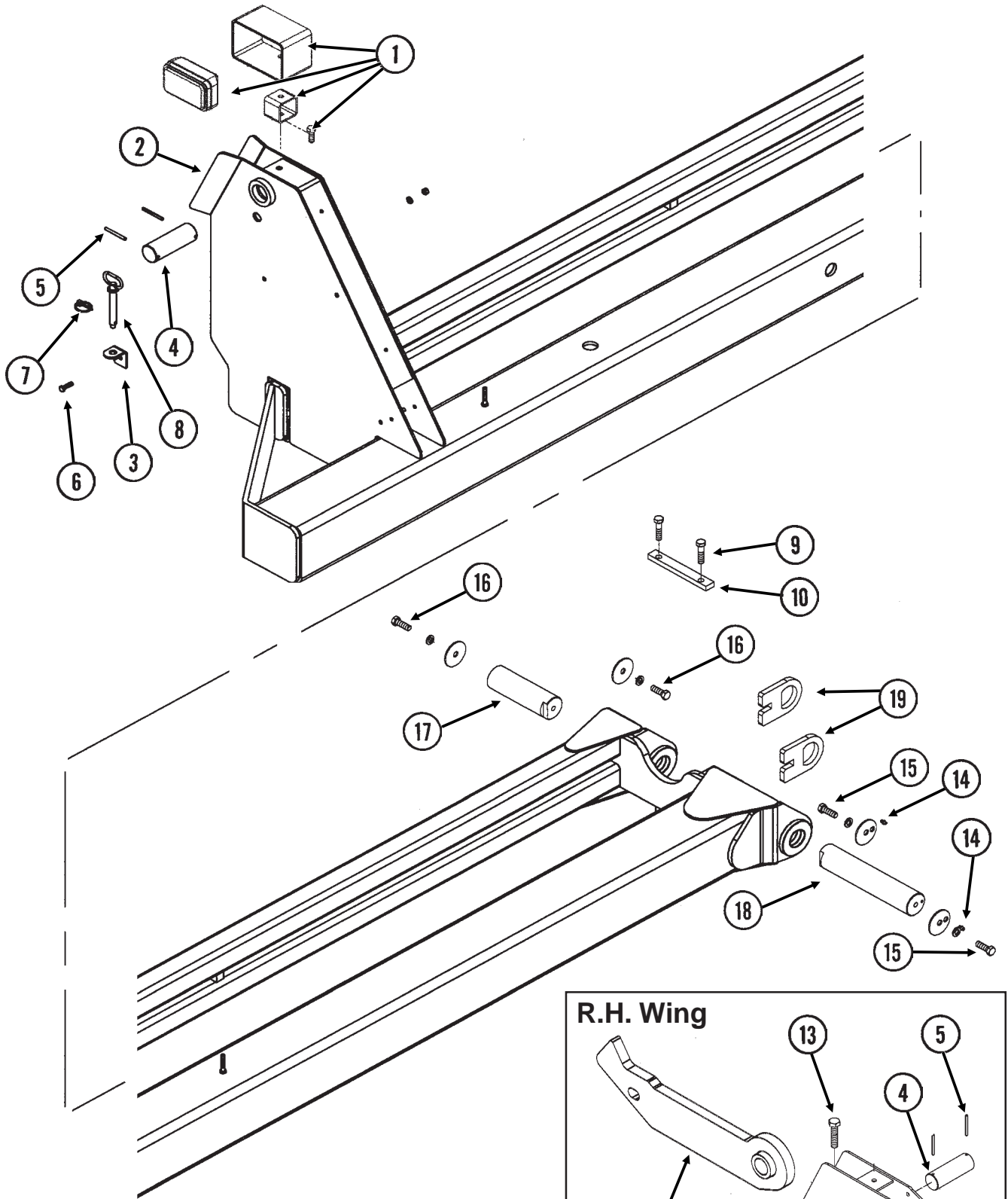
INNER WING, 32 ROW 30" AND 36 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA10719	1	Inner Wing W/Grease Fittings, Bushings, Spacer And Sleeve, L.H., 209 ⁵ / ₈ ", 32 Row 30"
	GA10727	-	Inner Wing W/Grease Fittings, Bushings, Spacer And Sleeve, L.H., 209 ⁵ / ₈ ", 36 Row 30"
	G10640	-	Grease Fitting, ¹ / ₄ "-28
	GD14564	-	Hardened Bushing, 2 ³ / ₄ " O.D. x 2 ¹ / ₄ " I.D. x 4 ¹ / ₂ "
	GD15109	-	Spacer, 2 ³ / ₄ " O.D. x 2 ³ / ₈ " I.D. x 2 ³ / ₈ "
	GD14562	-	Hardened Bushing, 2 ³ / ₄ " O.D. x 2 ¹ / ₄ " I.D. x 3"
	GD15110	-	Sleeve, 3 ¹ / ₄ " O.D. x 2 ⁷ / ₈ " I.D. x 1 ⁷ / ₈ "
	GD14563	-	Hardened Bushing, 3 ¹ / ₄ " O.D. x 2 ³ / ₄ " I.D. x 3"
2.	GD15285	1	Storage Bracket
3.	GD15074	1	Pin, 2" x 5 ³ / ₄ "
4.	G10191	2	Spring Pin, ¹ / ₄ " x 2 ³ / ₄ "
5.	G10004	1	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ¹ / ₄ "
	G10229	1	Lock Washer, ³ / ₈ "
	G10101	1	Hex Nut, ³ / ₈ "-16
6.	GD5625	1	Lynch Pin, ³ / ₁₆ "
7.	GD15282	1	Pin, ⁵ / ₈ " x 4"
8.	GA10378	1	Inner Hook, 29 ¹ / ₄ " Long
9.	GA10718	-	Inner Wing W/Grease Fittings, Bushings, Spacer And Sleeve, R.H., 209 ⁵ / ₈ ", 32 Row 30"
	GA10726	-	Inner Wing W/Grease Fittings, Bushings, Spacer And Sleeve, R.H., 209 ⁵ / ₈ ", 36 Row 30"
	G10640	-	Grease Fitting, ¹ / ₄ "-28
	GD14564	-	Hardened Bushing, 2 ³ / ₄ " O.D. x 2 ¹ / ₄ " I.D. x 4 ¹ / ₂ "
	GD15109	-	Spacer, 2 ³ / ₄ " O.D. x 2 ³ / ₈ " I.D. x 2 ³ / ₈ "
	GD14562	-	Hardened Bushing, 2 ³ / ₄ " O.D. x 2 ¹ / ₄ " I.D. x 3"
	GD15110	-	Sleeve, 3 ¹ / ₄ " O.D. x 2 ⁷ / ₈ " I.D. x 1 ⁷ / ₈ "
	GD14563	-	Hardened Bushing, 3 ¹ / ₄ " O.D. x 2 ³ / ₄ " I.D. x 3"
10.	G10543	1	Hex Head Cap Screw, ³ / ₄ "-10 x 3", Full Thread
	G10105	1	Hex Nut, ³ / ₄ "-10
11.	GD15720	2	Bronze Pad, 5" x 7 ¹ / ₂ "
12.	GD15719	2	Capture Plate
13.	G10152	4	Hex Head Cap Screw, ⁵ / ₈ "-11 x 9"
	G10217	4	Washer, ⁵ / ₈ " USS
	G10107	4	Lock Nut, ⁵ / ₈ "-11
14.	G10016	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 2"
	G10228	1	Lock Washer, ¹ / ₂ "
	G10111	1	Lock Nut, ¹ / ₂ "-13
15.	GD15066	1	Stop

OUTER WING, 32 ROW 30" AND 36 ROW 30"

(FWD48/FWD49)

L.H. Wing

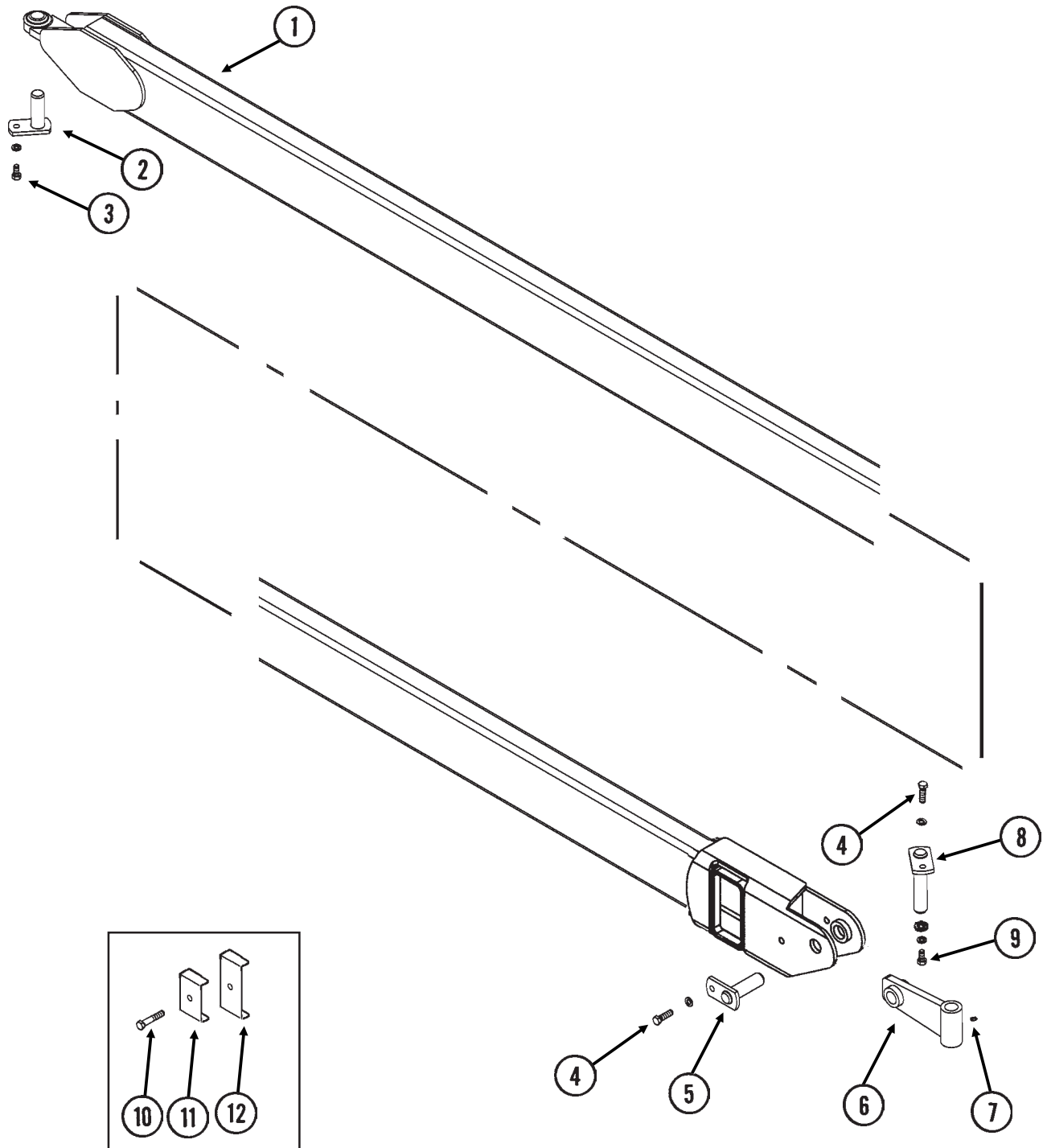


OUTER WING, 32 ROW 30" AND 36 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.		-	See "Light Assemblies And Brackets", Pages P106 And P107
2.	GA10353	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, L.H., 194 1/2", 32 Row 30"
	GA10413	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, L.H., 254 1/2", 36 Row 30"
	G10640	-	Grease Fitting, 1/4"-28
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	GD15110	-	Sleeve, 3 1/4" O.D. x 2 7/8" I.D. x 1 7/8" Long
3.	GD15285	1	Storage Bracket
4.	GD15074	1	Pin, 2" x 5 3/4"
5.	G10191	2	Spring Pin, 1/4" x 2 3/4"
6.	G10004	1	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
7.	GD5625	1	Lynch Pin, 3/16"
8.	GD15282	1	Pin, 5/8" x 4"
9.	G10016	2	Hex Head Cap Screw, 1/2"-13 x 2"
	G10228	2	Lock Washer, 1/2"
	G10111	2	Lock Nut, 1/2"-13
10.	GD15065	1	Capture Plate
11.	GA10743	-	Outer Hook, 29 15/16" Long
12.	GA10352	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, R.H., 194 1/2", 32 Row 30"
	GA10414	1	Outer Wing W/Grease Fittings, Bushings And Sleeve, R.H., 254 1/2", 36 Row 30"
	G10640	-	Grease Fitting, 1/4"-28
	GD14563	-	Hardened Bushing, 3 1/4" O.D. x 2 3/4" I.D. x 3"
	GD15110	-	Sleeve, 3 1/4" O.D. x 2 7/8" I.D. x 1 7/8" Long
13.	G10543	1	Hex Head Cap Screw, 3/4"-10 x 3", Full Thread
	G10105	1	Hex Nut, 3/4"-10
14.	G10640	2	Grease Fitting, 1/4"-28
15.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	2	Lock Washer, 1/2"
	GD15062	2	Washer, 2 1/2" O.D. x 17/32" I.D. x 1/4"
16.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	2	Lock Washer, 1/2"
	GD15063	2	Washer, 2 1/2" O.D. x 17/32" I.D. x 1/4"
17.	GD15061	1	Pin, 2 1/4" x 7 1/8"
18.	GD15060	1	Pin, 2 1/4" x 11 1/8"
19.	GD15064	2	Capture Plate

DRAFT LINK

(FWD16aa/FWD74)

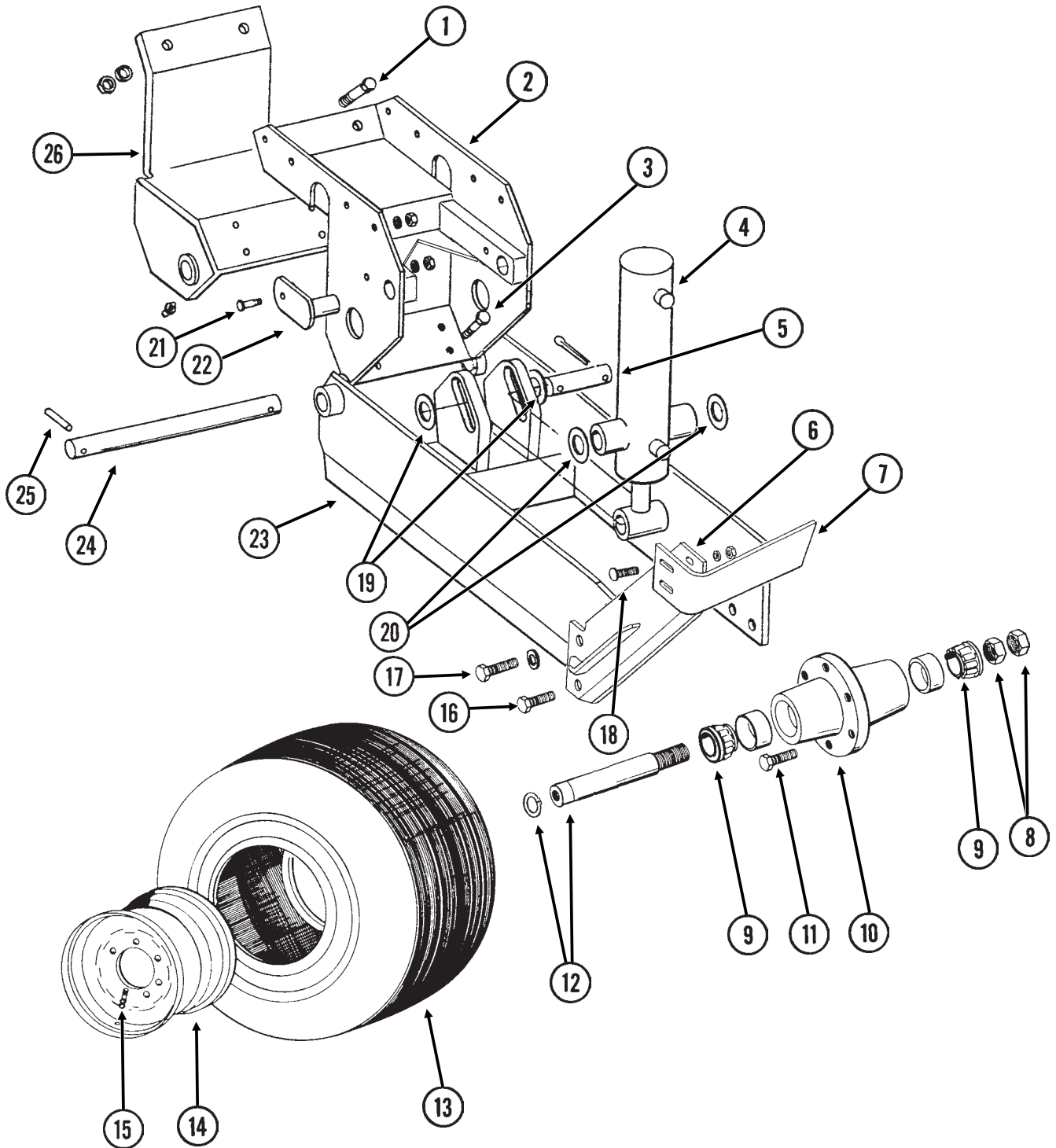


DRAFT LINK

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA11015	1	Draft Link, L.H., 202 ³ / ₈ ", 24 Row 30"
	GA11016	1	Draft Link, R.H., 202 ³ / ₈ ", 24 Row 30"
	GA11025	1	Draft Link, L.H., 277", 32 Row 30"
	GA11026	1	Draft Link, R.H., 277", 32 Row 30"
	GA11027	1	Draft Link, L.H., 314 ¹ / ₈ ", 36 Row 30"
	GA11028	1	Draft Link, R.H., 314 ¹ / ₈ ", 36 Row 30"
2.	GA10276	1	Pin, 3 ⁵ / ₈ "
3.	G10014	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 1"
	G10228	1	Lock Washer, ¹ / ₂ "
4.	G10039	2	Hex Head Cap Screw, ¹ / ₂ "-13 x 1 ³ / ₄ "
	G10228	2	Lock Washer, ¹ / ₂ "
	G10102	2	Hex Nut, ¹ / ₂ "-13
5.	GA10277	1	Pin, 4"
6.	GA10275	1	Link Yoke
7.	G10640	1	Grease Fitting, ¹ / ₄ "-28
8.	GA10278	1	Pin, 6"
9.	G10037	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 1 ¹ / ₄ "
	G10228	1	Lock Washer, ¹ / ₂ "
	GD15235	1	Washer, 2 ¹ / ₄ " O.D. x ¹ / ₂ " I.D. x ¹ / ₄ "
10.	G10053	-	Hex Head Cap Screw, ¹ / ₂ "-13 x 2 ¹ / ₂ "
	G10111	-	Lock Nut, ¹ / ₂ "-13
11.	GD0740	-	Hose Clamp, ³ / ₄ " x 4" x 3 ¹ / ₂ "
12.	GD8188	-	Hose Clamp, ⁷ / ₈ " x 3" x 5 ³ / ₈ "

LIFT/GAUGE WHEEL

(PT2j)



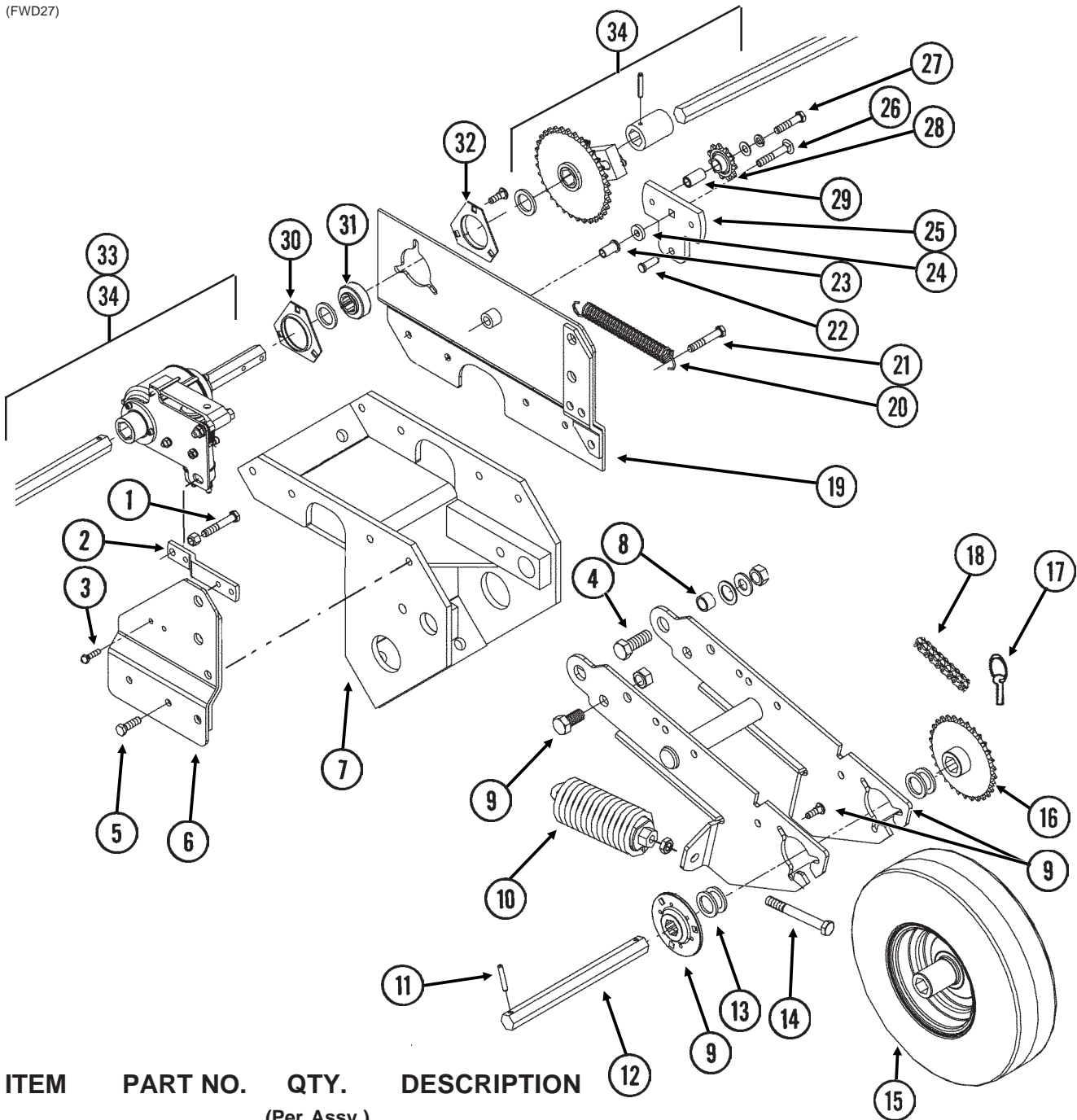
LIFT/GAUGE WHEEL

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	G10009	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2 $\frac{1}{2}$ "
	G10230	2	Lock Washer, $\frac{5}{8}$ "
	G10104	2	Hex Nut, $\frac{5}{8}$ "-11
2.	GA5122	1	Wheel Tower Clamp
3.	G10008	4	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2"
	GD7805	4	Special Washer, $\frac{5}{8}$ ", Hardened
	G10230	4	Lock Washer, $\frac{5}{8}$ "
	G10104	4	Hex Nut, $\frac{5}{8}$ "-11
4.		-	See "Master/Slave/Lift Assist Cylinders", Pages P82 And P83
5.	GD5841	1	Pin, 1 $\frac{1}{4}$ " x 5 $\frac{5}{8}$ "
	G10460	2	Cotter Pin, $\frac{1}{4}$ " x 2"
6.	GA7376	1	Scraper Mount
7.	GD10010	1	Scraper
8.	G11081	2	Hex Jam Nut, 1 $\frac{1}{2}$ "-12, Grade 2
9.	GA0895	2	Bearing
10.	GA2148	1	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
11.	GR0270	6	Lug Bolt, $\frac{9}{16}$ "-18
12.	GA2558	1	Spindle W/Round External Retaining Ring, 9 $\frac{1}{2}$ "
	GD11490	-	Round External Retaining Ring
13.	GD13401	-	Tire, 7.50" x 20", 8 Ply, Tubeless W/O Center Rib (Specify Brand*)
14.	GA2142	1	Rim, 5.50" x 20"
15.	GA7434	1	Valve Stem
16.	G10025	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 1 $\frac{1}{2}$ "
	G10231	2	Lock Washer, $\frac{3}{4}$ "
	G10105	2	Hex Nut, $\frac{3}{4}$ "-10
17.	G10026	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2"
	G10231	2	Lock Washer, $\frac{3}{4}$ "
18.	G10636	4	Carriage Bolt, $\frac{1}{2}$ "-13 x 1 $\frac{1}{2}$ "
	G10228	4	Lock Washer, $\frac{1}{2}$ "
	G10216	4	Washer, $\frac{1}{2}$ " USS
	G10102	4	Hex Nut, $\frac{1}{2}$ "-13
19.	G10139	2	Washer, 1 $\frac{1}{4}$ " USS
20.	G10159	-	Machine Bushing, 1 $\frac{1}{4}$ ", 10 Gauge (As Required)
21.	G10581	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 2 $\frac{1}{4}$ "
	G10111	2	Lock Nut, $\frac{1}{2}$ "-13
22.	GA5121	2	Pin, 2 $\frac{1}{8}$ "
23.	GA8839	1	Arm
24.	GD11695	1	Pin, 1 $\frac{1}{4}$ " x 13 $\frac{1}{4}$ "
25.	G10610	2	Spring Pin, $\frac{3}{8}$ " x 2"
26.	GA9877	1	Clamp W/Grease Fittings
	G10640	2	Grease Fitting, $\frac{1}{4}$ "-28
A.	GA2147	-	Hub And Spindle Assembly (Items 8-10 And 12)
B.	GA7409	-	Scraper Assembly (Items 6, 7, 16 And 18)

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

CONTACT DRIVE WHEEL AND ARM ASSEMBLY

(FWD27)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10101	1	Hex Nut, 3/8"-16
	G10108	1	Lock Nut, 3/8"-16
2.	GD15153	1	Mount
3.	G10064	2	Hex Head Cap Screw, 1/4"-20 x 1"
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
4.	G10751	2	Hex Head Cap Screw, 5/8"-18 x 1 3/4"
	G10235	6	Machine Bushing, 7/8", 14 Gauge
	GD7805	2	Special Washer, 5/8", Hardened
	G10412	2	Lock Nut, 5/8"-18
5.	G10004	6	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	6	Lock Washer, 3/8"
	G10101	6	Hex Nut, 3/8"-16
6.	GA10295	1	Mount

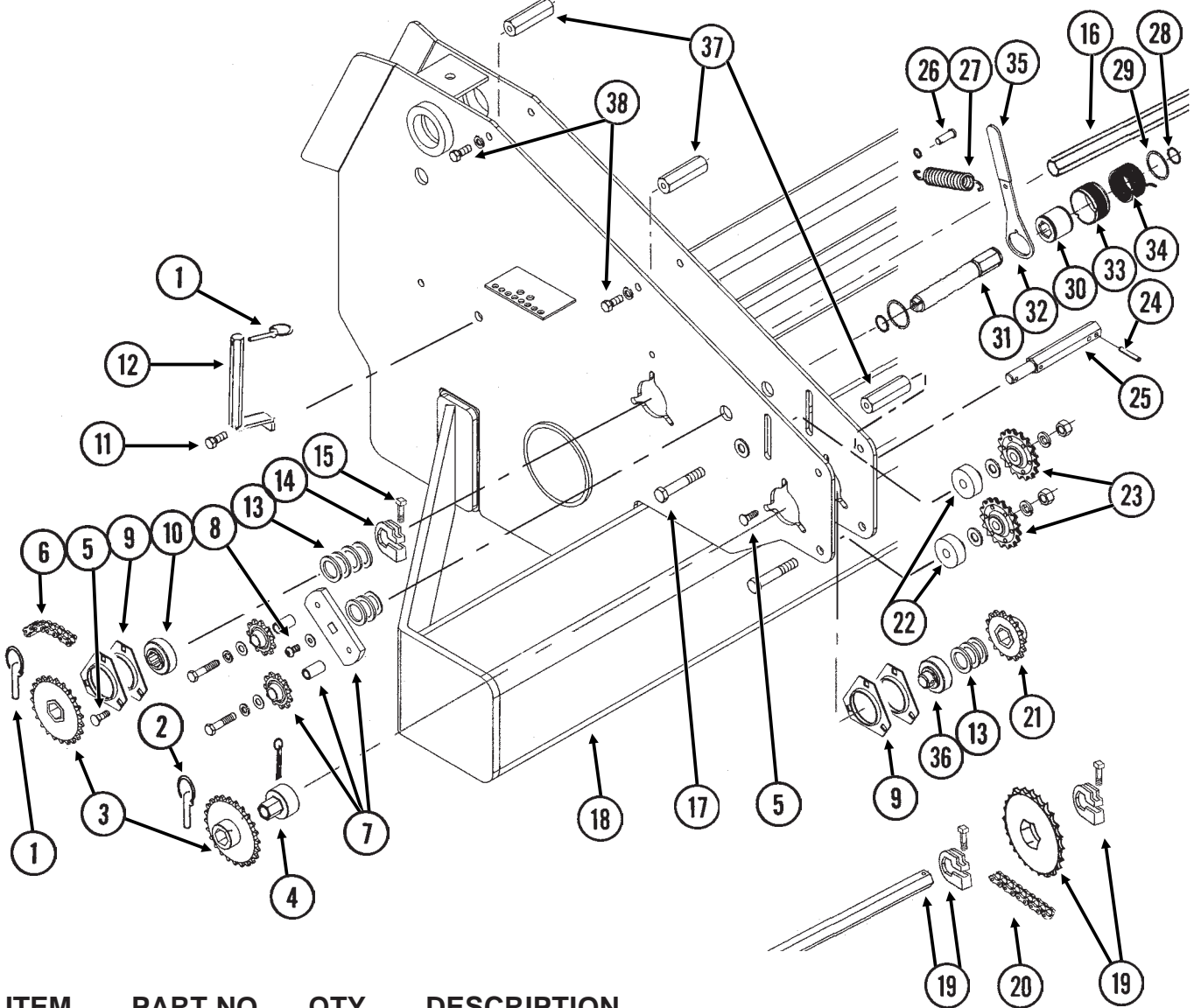
CONTACT DRIVE WHEEL AND ARM ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
7.		-	See "Lift/Gauge Wheel", Pages P52 And P53
8.	GB0218	2	Bushing, $2\frac{1}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
9.	A7370	1	Arm W/Flanged Bearings And Hardware (Non-Stock Item) (Sub G1K253)
	G10303	6	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G10232	6	Lock Washer, $\frac{5}{16}$ "
	G10106	6	Hex Nut, $\frac{5}{16}$ "-18
	GA9846	2	Flanged Bearing, $\frac{7}{8}$ " Hex Bore
	G10055	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{4}$ " (Stop Bolt)
	G10107	2	Lock Nut, $\frac{5}{8}$ "-11
10.	GA2068	2	Spring W/Plug
11.	G10602	2	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
12.	GD6825-10.375	1	Hex Shaft, $\frac{7}{8}$ " x 10 $\frac{3}{8}$ " (2 Holes)
13.	G10233	6	Machine Bushing, 1", 10 Gauge
14.	G10890	2	Hex Head Adjusting Bolt, $\frac{1}{2}$ "-13 x 4", Grade 2
	G10501	2	Hex Jam Nut, $\frac{1}{2}$ "-13, Grade 2
15.	GA5090	1	Tire And Rim Assembly (Specify Brand*)
	GD5753	-	Tire, 4.10" x 6" (Specify Brand*)
	GD5752	-	Inner Tube
16.	GA5114	1	Sprocket, 30 Tooth
	GA5105	-	Sprocket, 15 Tooth, Half Rate (2 To 1) Drive
17.	GD2558	1	Lynch Pin, $\frac{1}{4}$ "
18.	G3310-150	1	Chain, No. 40, 150 Pitch Including Connector Link
	G3310-142	-	Chain, No. 40, 142 Pitch Including Connector Link, Half Rate (2 To 1) Drive
	GR0912	-	Connector Link, No. 40
19.	GA10294	1	Mount
20.	GD5857	1	Spring
21.	G10939	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10210	1	Washer, $\frac{3}{8}$ " USS
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
22.	G11118	1	Clevis Pin, $\frac{3}{8}$ " x $\frac{3}{4}$ "
	G10860	1	Retaining Ring, $\frac{3}{8}$ "
23.	GD15532	1	Bronze Bushing, 1"
24.	GD15538	1	Spacer, $\frac{3}{8}$ " I.D. x $\frac{7}{8}$ " O.D., 7 Gauge
25.	GD15537	1	Bracket
26.	G11119	1	Carriage Bolt, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10203	1	Washer, $\frac{3}{8}$ " SAE
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
27.	G10047	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
	G10210	1	Washer, $\frac{3}{8}$ " USS
	G10229	1	Lock Washer, $\frac{3}{8}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
28.	GD7426	2	Sprocket, 12 Tooth
29.	GD1026	2	Sleeve, 1 $\frac{3}{16}$ " Long
30.	G3400-01	-	Flangette
31.	G2100-03	-	Bearing, $\frac{7}{8}$ " Hex Bore, Spherical
32.	G10303	3	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G10232	3	Lock Washer, $\frac{5}{16}$ "
	G10106	3	Hex Nut, $\frac{5}{16}$ "-18
33.		-	See "Point Row Clutch", Pages P66 And P67
34.		-	See "Drive Shafts", Pages P60 And P61
A.	G1K253	-	Contact Wheel Arm Replacement Kit, (Items 9, 11, 12 And 14)

* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied. Different brand tires may have different diameters. Change in tire brand may affect rates. Field checks are recommended after any change in contact tires.

SEED RATE TRANSMISSION (Outer)

(FWD33)



ITEM	PART NO.	QTY.	DESCRIPTION
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(Per Assy.)

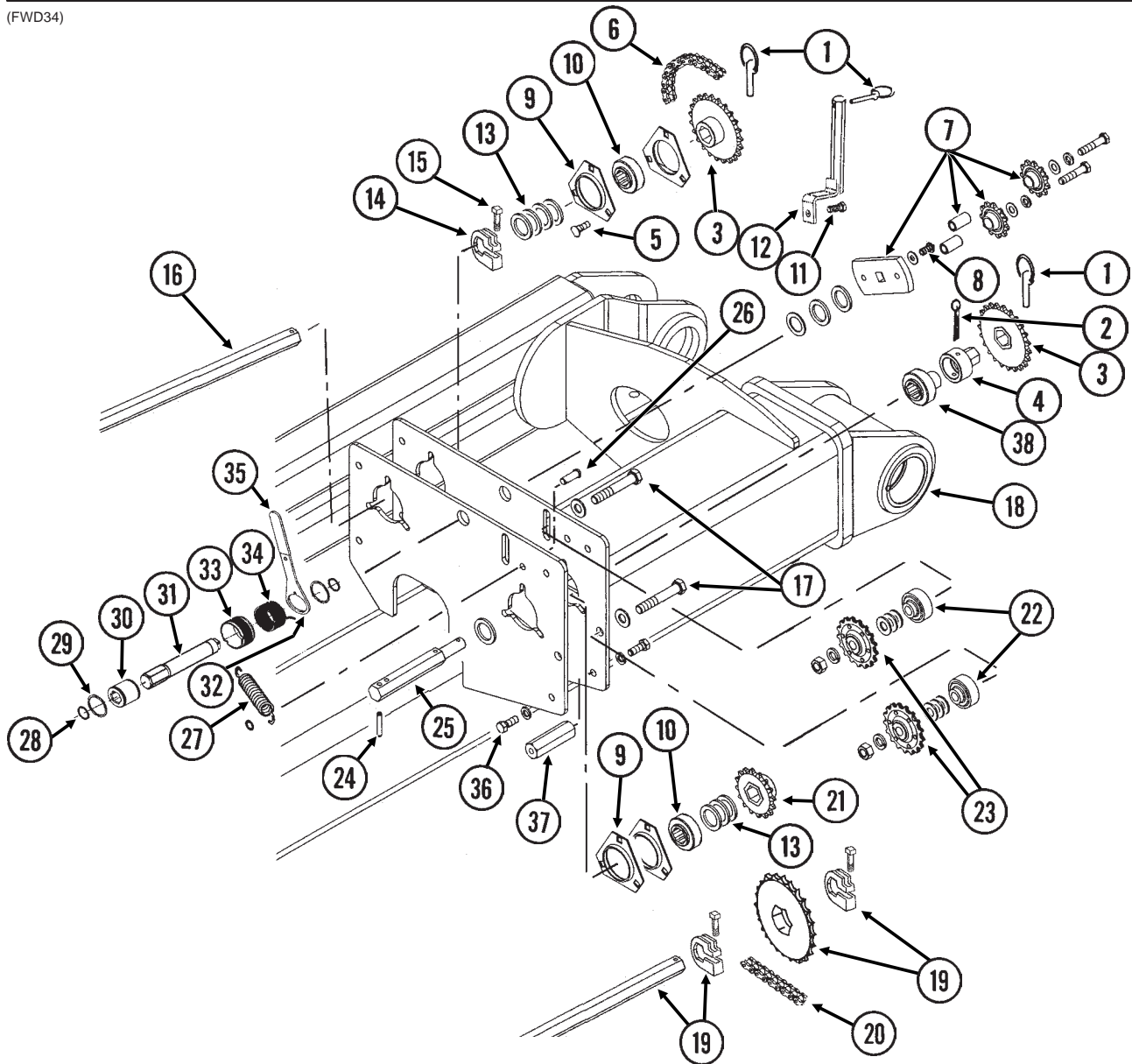
1.	GD2558	3	Lynch Pin, 1/4"
2.	G10462	1	Cotter Pin, 3/16" x 2"
3.	GA5106	1	Sprocket, 17 Tooth
	GA5107	1	Sprocket, 19 Tooth
	GA5108	2	Sprocket, 23 Tooth
	GA5109	1	Sprocket, 24 Tooth
	GA5110	1	Sprocket, 25 Tooth
	GA5111	1	Sprocket, 26 Tooth
	GA5112	1	Sprocket, 27 Tooth
	GA5113	1	Sprocket, 28 Tooth
4.	GD7127	1	Shear Coupler
5.	G10303	9	Carriage Bolt, 5/16"-18 x 1"
	G10219	9	Washer, 5/16" USS
	G10232	9	Lock Washer, 5/16"
	G10106	9	Hex Nut, 5/16"-18
6.	G3310-80	1	Chain, No. 40, 80 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40

SEED RATE TRANSMISSION (Outer)

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
7.	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 ³ / ₁₆ " Long
	G10210	-	Washer, ³ / ₈ " USS
	G10229	-	Lock Washer, ³ / ₈ "
	G10047	-	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ³ / ₄ "
8.	G11100	1	Hex Socket Button Head Cap Screw, ¹ / ₄ "-20 x ¹ / ₂ ", Grade 8
	G10233	2	Machine Bushing, 1", 10 Gauge
	G10235	1	Machine Bushing, ⁷ / ₈ ", 14 Gauge
	G10211	1	Washer, ¹ / ₄ " SAE
9.	G3400-01	6	Flangette
10.	G2100-03	3	Bearing, ⁷ / ₈ " Hex Bore, Spherical
11.	G10037	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 1 ¹ / ₄ "
	G10216	1	Washer, ¹ / ₂ " USS
	G10228	1	Lock Washer, ¹ / ₂ "
	G10102	1	Hex Nut, ¹ / ₂ "-13
12.	GA4630	1	Sprocket Storage Rod
13.	G10233	13	Machine Bushing, 1", 10 Gauge (As Required)
14.	GD11045	1	Lock Clamp
15.	G10130	1	Square Head Machine Bolt, ⁵ / ₁₆ "-18 x 1 ³ / ₄ "
	G10923	1	Flange Nut, ⁵ / ₁₆ "-18, No Serration
16.		-	See "Drive Shafts", Page P60 And P61
17.	G10038	2	Hex Head Cap Screw, ¹ / ₂ "-13 x 3"
	G10206	8	Washer, ¹ / ₂ " SAE
	G10228	2	Lock Washer, ¹ / ₂ "
	G10102	2	Hex Nut, ¹ / ₂ "-13
18.		-	See "Outer Wing", Pages P46-P49
19.		-	See "Drill Shafts", Pages P62-P65
20.	G3310-110	1	Chain, No. 40, 110 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
21.	GA5106	1	Sprocket, 17 Tooth
22.	GB0259	2	Spacer, 1"
23.	GA7154	2	Sprocket W/Bearing, 18 Tooth
24.	G10602	1	Spring Pin, ¹ / ₄ " x 1 ¹ / ₂ "
25.	GD7822	1	Shaft, ⁷ / ₈ " x 7"
26.	G10870	1	Clevis Pin, ³ / ₈ " x 1"
	G10860	1	Retaining Ring, ³ / ₈ "
27.	GD5857	2	Spring
28.	G11075	2	External Inverted Snap Ring, ⁷ / ₈ "
29.	G10496	2	External Inverted Snap Ring, 1 ¹ / ₂ "
30.	GD14432	1	Sleeve
31.	GD14596	1	Tightener Shaft, 6 ⁹ / ₁₆ "
32.	GD14431	1	Handle
33.	GD14430	1	Release Collar, Gold, R.H. (Shown)
	GD14429	-	Release Collar, Silver, L.H.
34.	GD14414	1	Torsion Spring, R.H.
	GD14413	-	Torsion Spring, L.H. (Shown)
35.	G11078	1	Vinyl Cap
36.	GA5548	1	Special Bearing
37.	GD15114	3	Hex Shaft Spacer
38.	G10001	6	Hex Head Cap Screw, ³ / ₈ "-16 x 1"
	G10229	6	Lock Washer, ³ / ₈ "
A.	GA10179	-	Wrap Spring Wrench Assembly, Silver Collar, L.H. (Items 28-34)
	GA10180	1	Wrap Spring Wrench Assembly, Gold Collar, R.H. (Items 28-34) (Shown)

SEED RATE TRANSMISSION (Inner)

(FWD34)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD2558	3	Lynch Pin, 1/4"
2.	G10462	1	Cotter Pin, 3/16" x 2"
3.	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
4.	GD7127	1	Shear Coupler
5.	G10303	9	Carriage Bolt, 5/16"-18 x 1"
	G10219	9	Washer, 5/16" USS
	G10232	9	Lock Washer, 5/16"
	G10106	9	Hex Nut, 5/16"-18
6.	G3310-80	1	Chain, No. 40, 80 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40

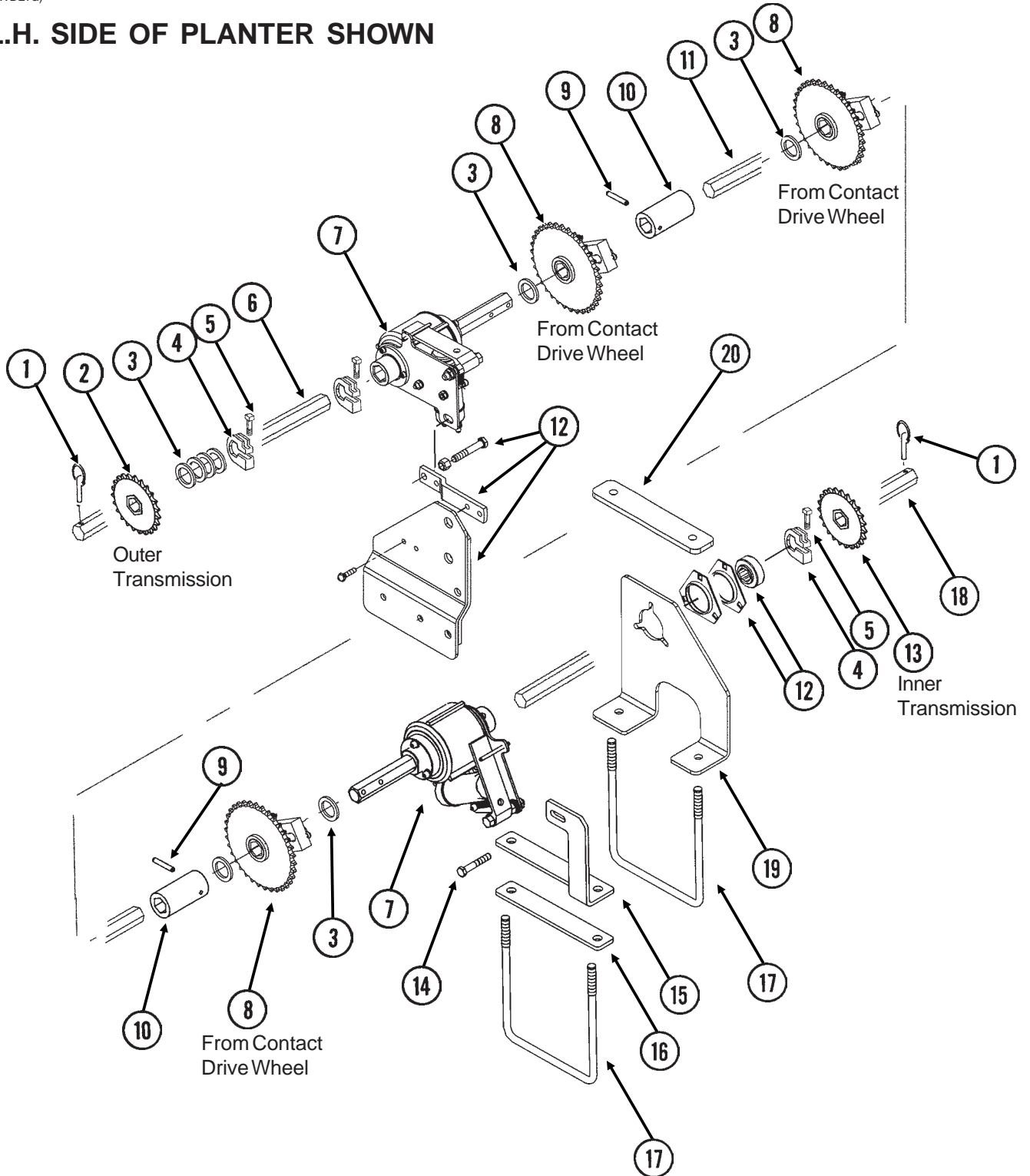
SEED RATE TRANSMISSION (Inner)

ITEM	PART NO.	QTY.	DESCRIPTION
(Per Assy.)			
7.	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 3/16" Long
	G10210	-	Washer, 3/8" USS
	G10229	-	Lock Washer, 3/8"
	G10047	-	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
8.	G11100	1	Hex Socket Button Head Cap Screw, 1/4"-20 x 1/2", Grade 8
	G10233	2	Machine Bushing, 1", 10 Gauge
	G10235	1	Machine Bushing, 7/8", 14 Gauge
	G10227	1	Lock Washer, 1/4"
	G10211	1	Washer, 1/4" SAE
9.	G3400-01	6	Flangette
10.	G2100-03	3	Bearing, 7/8" Hex Bore, Spherical
11.	G10037	1	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10216	1	Washer, 1/2" USS
	G10228	1	Lock Washer, 1/2"
	G10102	1	Hex Nut, 1/2"-13
12.	GA4630	1	Sprocket Storage Rod
13.	G10233	13	Machine Bushing, 1", 10 Gauge (As Required)
14.	GD11045	1	Lock Clamp
15.	G10130	3	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	3	Flange Nut, 5/16"-18, No Serration
16.		-	See "Drive Shafts", Page P60 And P61
17.	G10038	2	Hex Head Cap Screw, 1/2"-13 x 3"
	G10206	8	Washer, 1/2" SAE
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
18.		-	See "Outer Wing", Pages P46-P49
19.		-	See "Drill Shafts", Pages P62-P65
20.	G3310-110	1	Chain, No. 40, 110 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
21.	GA5106	1	Sprocket, 17 Tooth
22.	GB0259	2	Spacer, 1"
23.	GA7154	2	Sprocket W/Bearing, 18 Tooth
24.	G10602	1	Spring Pin, 1/4" x 1 1/2"
25.	GD7822	1	Shaft, 7/8" x 7"
26.	G10870	1	Clevis Pin, 3/8" x 1"
	G10860	1	Retaining Ring, 3/8"
27.	GD5857	2	Spring
28.	G11075	2	External Inverted Snap Ring, 7/8"
29.	G10496	2	External Inverted Snap Ring, 1 1/2"
30.	GD14432	1	Sleeve
31.	GD14597	1	Tightener Shaft, 6 9/16"
32.	GD14431	1	Handle
33.	GD14430	1	Release Collar, Gold, R.H. (Shown)
	GD14429	-	Release Collar, Silver, L.H.
34.	GD14414	1	Torsion Spring, R.H.
	GD14413	-	Torsion Spring, L.H. (Shown)
35.	G11078	1	Vinyl Cap
36.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
37.	GD15114	1	Hex Shaft Spacer
38.	GA5548	1	Special Bearing
A.	GA10179	-	Wrap Spring Wrench Assembly, Silver Collar, L.H. (Items 28-34)
	GA10180	1	Wrap Spring Wrench Assembly, Gold Collar, R.H. (Items 28-34) (Shown)

DRIVE SHAFTS ON WINGS

(FWD27a)

L.H. SIDE OF PLANTER SHOWN



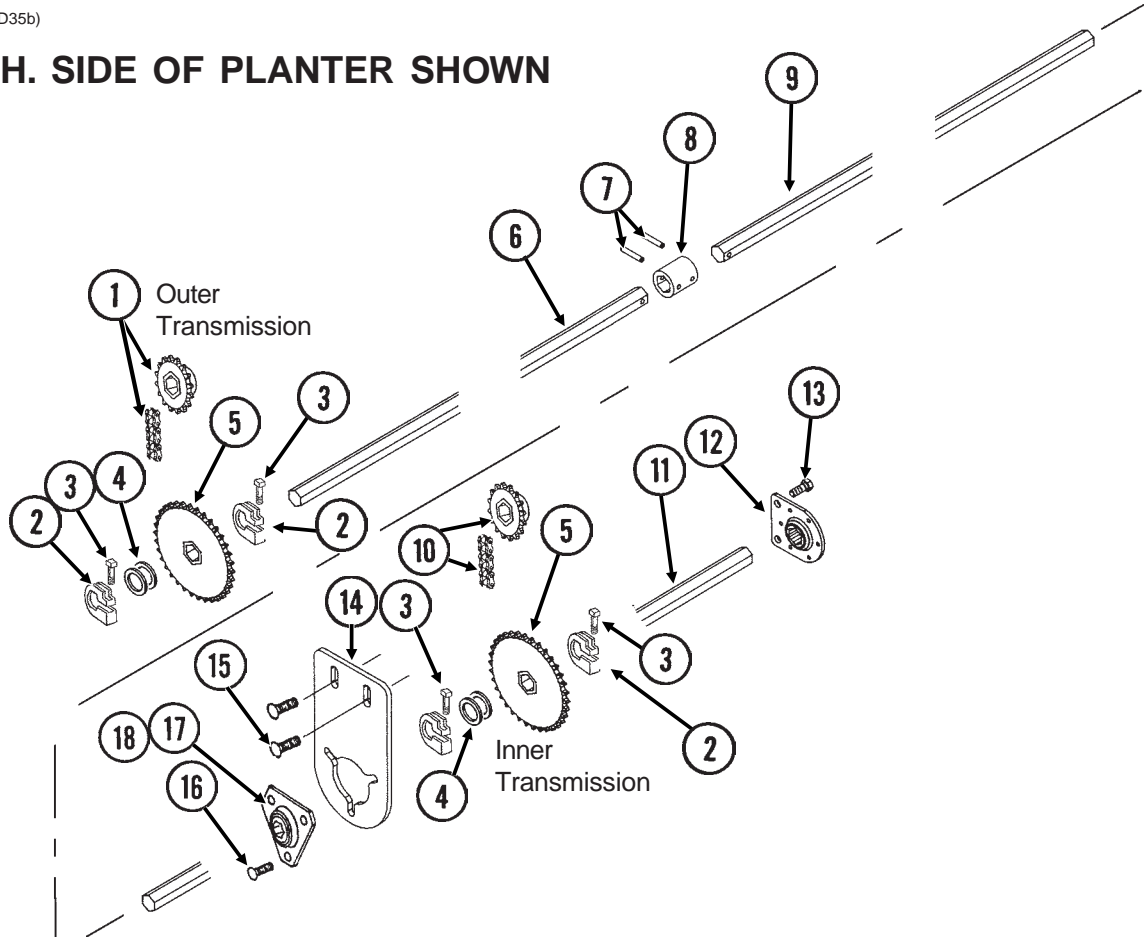
DRIVE SHAFTS ON WINGS

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD2558	2	Lynch Pin, 1/4"
2.		-	See "Seed Rate Transmission (Outer)", Pages P56 And P57
3.	G10233	10	Machine Bushing, 1", 10 Gauge
4.	GD11045	4	Lock Clamp
5.	G10130	4	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	4	Flange Nut, 5/16"-18, No Serration
6.	GD15115-01	1	Hex Shaft, 7/8" x 28 1/2", L.H. Side (1 Hole)
	GD15115-02	-	Hex Shaft, 7/8" x 19", R.H. Side (1 Hole)
7.		-	See "Point Row Clutch", Pages P66 And P67
8.	GA10173	3	Ratchet/Sprocket Assembly, L.H.
	GD1256	2	Spring
	G10464	2	Cotter Pin, 3/16" x 1"
	GA0378	1	Block And Hub Assembly
	GD1255	2	L-Pin
	GA7572	1	Sprocket, 34 Tooth
	G10430	1	External Retaining Ring, 1 1/4"
9.	G10602	1	Spring Pin, 1/4" x 1 1/2"
10.	GD7867	2	Coupler, 3"
11.	GD0914-54.75	1	Hex Shaft, 7/8" x 54 3/4" (No Holes)
12.		-	See "Contact Drive Wheel And Arm Assembly, Pages P54 And P55
13.		-	See "Seed Rate Transmission (Inner)", Pages P58 And P59
14.	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10101	2	Hex Nut, 3/8"-16
15.	GD15003	1	Bracket
16.	GD15281	1	Plate, 1 1/2" x 9"
17.	GD7145	-	U-Bolt, 7" x 7" x 1/2"-13
	G10206	-	Washer, 1/2" SAE
	G10228	-	Lock Washer, 1/2"
	G10102	-	Hex Nut, 1/2"-13
18.	GD15115-05	1	Hex Shaft, 7/8" x 141", L.H. Side (1 Hole), 24 Row 30"
	GD15115-06	-	Hex Shaft, 7/8" x 151", R.H. Side (1 Hole), 24 Row 30"
	GD15115-03	-	Hex Shaft, 7/8" x 21", L.H. Side (1 Hole), 32 Row 30" And 36 Row 30"
	GD15115-04	-	Hex Shaft, 7/8" x 31", R.H. Side (1 Hole), 32 Row 30" And 36 Row 30"
19.	GD15370	2	Bearing/Support Bracket
20.	GD15587	1	Plate, 2" x 10"

DRILL SHAFTS ON WINGS, 24 ROW 30"

(FWD35b)

L.H. SIDE OF PLANTER SHOWN

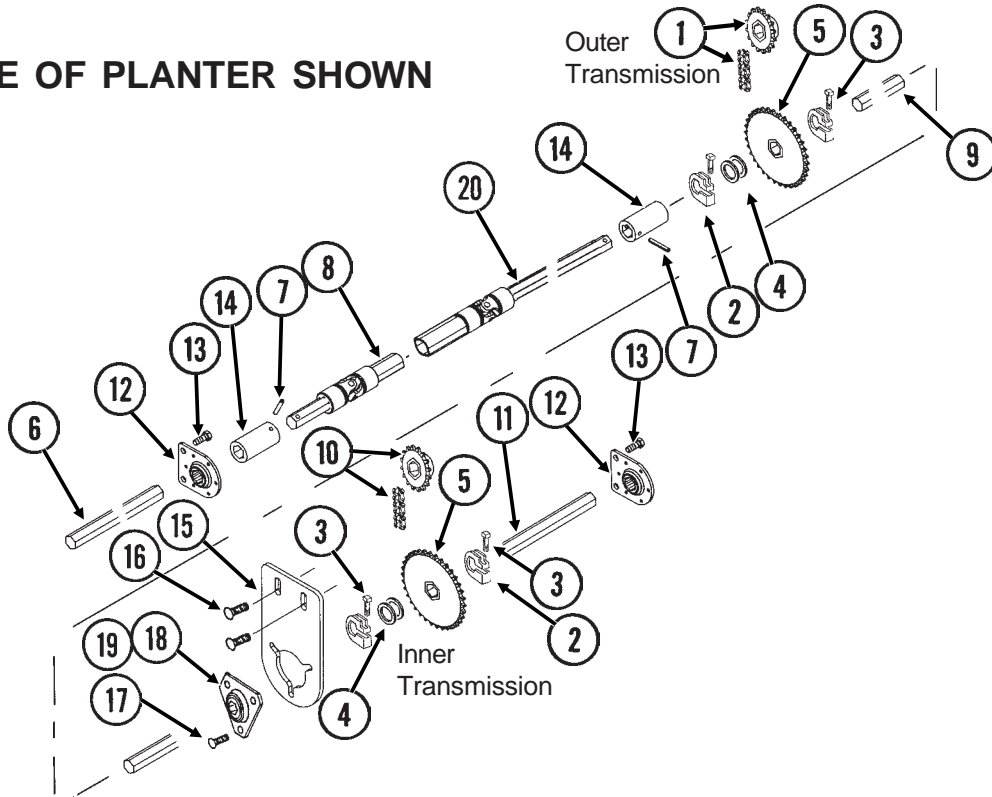


ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1.		-	See "Seed Rate Transmission (Outer)", Pages P56 And P57
2.	GD11045	-	Lock Clamp
3.	G10130	-	Square Head Machine Bolt, $\frac{5}{16}$ "-18 x $1 \frac{3}{4}$ "
	G10923	-	Flange Nut, $\frac{5}{16}$ "-18, No Serration
4.	G10233	4	Machine Bushing, 1", 10 Gauge
5.	GA5202	2	Sprocket, 34 Tooth
6.	GD15117-08	1	Hex Shaft, $\frac{7}{8}$ " x $113 \frac{3}{8}$ " (1 Hole), L.H. Side Of Planter
	GD15117-07	-	Hex Shaft, $\frac{7}{8}$ " x 103 " (1 Hole), R.H. Side Of Planter
7.	G10602	3	Spring Pin, $\frac{1}{4}$ " x $1 \frac{1}{2}$ "
8.	GD5886	1	Coupler, $1 \frac{3}{4}$ "
9.	GD15117-09	1	Hex Shaft, $\frac{7}{8}$ " x $47 \frac{3}{4}$ " (1 Hole), L.H. Side Of Planter
	GD15117-17	-	Hex Shaft, $\frac{7}{8}$ " x $67 \frac{3}{4}$ " (1 Hole), R.H. Side Of Planter
10.		-	See "Seed Rate Transmission (Inner)", Pages P58 And P59
11.	GD15117-19	1	Hex Shaft, $\frac{7}{8}$ " x 76 " (1 Hole), L.H. Side Of Planter
	GD15117-18	-	Hex Shaft, $\frac{7}{8}$ " x $66 \frac{1}{2}$ " (1 Hole), R.H. Side Of Planter
12.	GA2180	-	Hanger Bearing, $\frac{7}{8}$ " Hex Bore
13.	G10001	-	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1"
	G10229	-	Lock Washer, $\frac{3}{8}$ "
	G10101	-	Hex Nut, $\frac{3}{8}$ "-16
14.	GD15851	2	Bearing Support Plate
15.	G10301	4	Carriage Bolt, $\frac{3}{8}$ "-16 x $1 \frac{1}{2}$ "
	G10622	4	Serrated Flange Nut, $\frac{3}{8}$ "-16
16.	G10312	6	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10232	6	Lock Washer, $\frac{5}{16}$ "
	G10106	6	Hex Nut, $\frac{5}{16}$ "-18
17.	G3400-01	2	Flangette
18.	G2100-03	2	Bearing, $\frac{7}{8}$ " Hex Bore, Spherical

DRILL SHAFTS ON WINGS, 32 ROW 30" AND 36 ROW 30"

(FWD35c)

L.H. SIDE OF PLANTER SHOWN

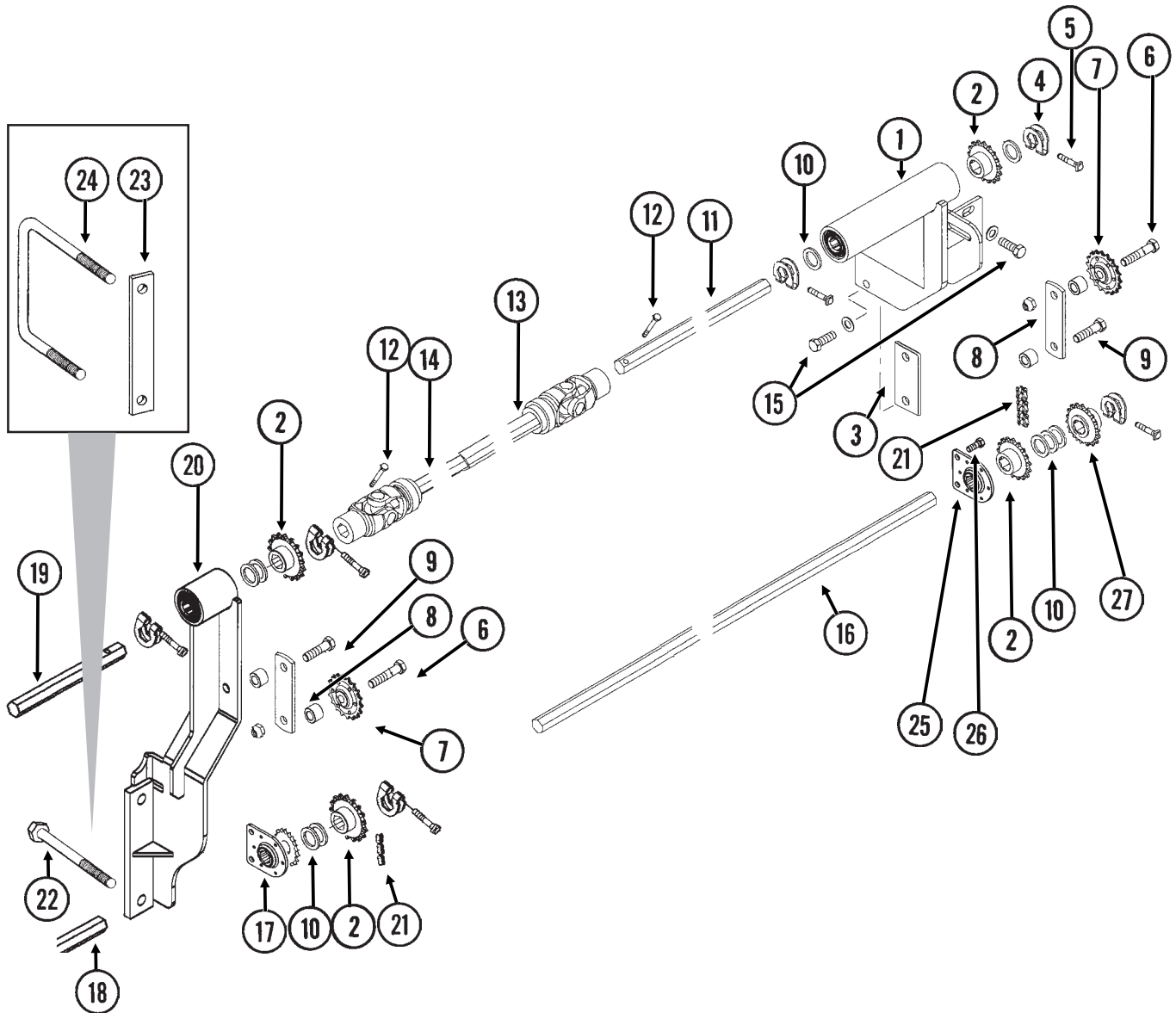


ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1.		-	See "Seed Rate Transmission (Outer)", Pages P56 And P57
2.	GD11045	-	Lock Clamp
3.	G10130	-	Square Head Machine Bolt, $\frac{5}{16}$ "-18 x 1 $\frac{3}{4}$ "
	G10923	-	Flange Nut, $\frac{5}{16}$ "-18, No Serration
4.	G10233	4	Machine Bushing, 1", 10 Gauge
5.	GA5202	2	Sprocket, 34 Tooth
6.	GD15117-01	1	Hex Shaft, $\frac{7}{8}$ " x 165 $\frac{3}{8}$ " (1 Hole), L.H. Side Of Planter, 32 Row 30"
	GD15117-04	-	Hex Shaft, $\frac{7}{8}$ " x 158" (1 Hole), R.H. Side Of Planter, 32 Row 30"
	GD15117-06	-	Hex Shaft, $\frac{7}{8}$ " x 225 $\frac{3}{8}$ " (1 Hole), L.H. Side Of Planter, 36 Row 30"
	GD15117-05	-	Hex Shaft, $\frac{7}{8}$ " x 118" (1 Hole), R.H. Side Of Planter, 36 Row 30"
7.	G10602	3	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
8.	GA10810	1	U-Joint, 9 $\frac{13}{16}$ "
9.	GD15117-12	1	Hex Shaft, $\frac{7}{8}$ " x 37 $\frac{3}{4}$ " (1 Hole), L.H. Side Of Planter, 32 Row 30"
	GD15117-09	-	Hex Shaft, $\frac{7}{8}$ " x 47 $\frac{3}{4}$ " (1 Hole), R.H. Side Of Planter, 32 Row 30"
	GD15117-13	-	Hex Shaft, $\frac{7}{8}$ " x 17" (1 Hole), L.H. And R.H. Side Of Planter, 36 Row 30"
10.		-	See "Seed Rate Transmission (Inner)", Pages P58 And P59
11.	GD15117-11	1	Hex Shaft, $\frac{7}{8}$ " x 136 $\frac{3}{4}$ " (1 Hole), L.H. Side Of Planter, 32 Row 30"
	GD15117-10	-	Hex Shaft, $\frac{7}{8}$ " x 126 $\frac{3}{4}$ " (1 Hole), R.H. Side Of Planter, 32 Row 30"
	GD15117-15	-	Hex Shaft, $\frac{7}{8}$ " x 167 $\frac{1}{2}$ " (1 Hole), L.H. Side Of Planter, 36 Row 30"
	GD15117-14	-	Hex Shaft, $\frac{7}{8}$ " x 155 $\frac{1}{2}$ " (1 Hole), R.H. Side Of Planter, 36 Row 30"
12.	GA2180	-	Hanger Bearing, $\frac{7}{8}$ " Hex Bore
13.	G10001	-	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1"
	G10229	-	Lock Washer, $\frac{3}{8}$ "
	G10101	-	Hex Nut, $\frac{3}{8}$ "-16
14.	GD7867	1	Coupler, 3"
15.	GD15851	2	Bearing Support Plate
16.	G10301	4	Carriage Bolt, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10622	4	Serrated Flange Nut, $\frac{3}{8}$ "-16
17.	G10312	6	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10232	6	Lock Washer, $\frac{5}{16}$ "
	G10106	6	Hex Nut, $\frac{5}{16}$ "-18
18.	G3400-01	2	Flangette
19.	G2100-03	2	Bearing, $\frac{7}{8}$ " Hex Bore, Spherical
20.	GA10805	1	U-Joint, 19 $\frac{3}{4}$ "

DRIVEN AND DRILL SHAFTS ON CENTER SECTION

(FWD73a)

L.H. SIDE SHOWN



ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1.	GA11187	1	Mount W/Bearings And Rings, L.H. Side (Shown)
	GA11186	-	Mount W/Bearings And Rings, R.H. Side
	GA5116	-	Bearing, 7/8" Hex Bore, Cylindrical
	GD6551	-	Ring
2.	GA5107	2	Sprocket, 19 Tooth
3.	GD16355-01	-	Shim, 2" x 4", 16 Gauge
	GD16355-02	-	Shim, 2" x 4", 10 Gauge
	GD16355-03	-	Shim, 2" x 4" x 1/4" Thick
4.	GD11045	-	Lock Clamp
5.	G10130	-	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	-	Flange Nut, 5/16"-18, No Serration

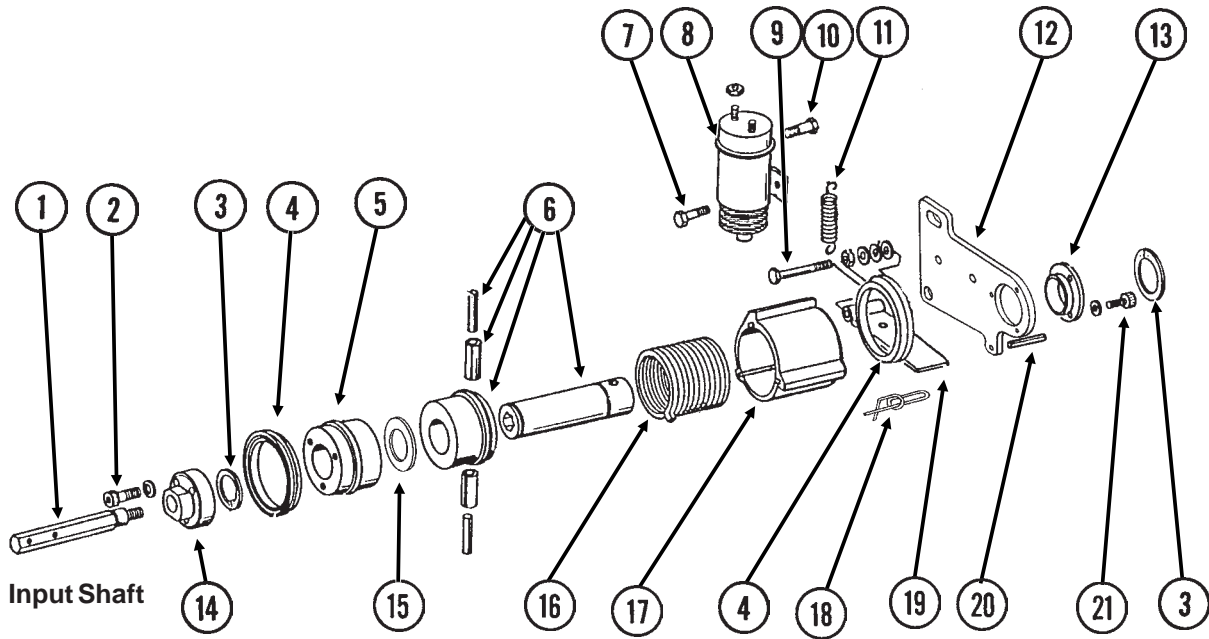
DRIVEN AND DRILL SHAFTS ON CENTER SECTION

ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
6.	G10053	2	Hex Head Cap Screw, 1/2"-13 x 2 1/2"
	GD10356	2	Bushing, 3/4" Long
	G10111	2	Lock Nut, 1/2"-13
7.	GA7154	2	Sprocket W/Bearing, 18 Tooth
8.	GD16362	2	Plate
9.	G10053	2	Hex Head Cap Screw, 1/2"-13 x 2 1/2"
	GD10356	4	Bushing, 3/4" Long
	G10206	2	Washer, 1/2" SAE
	G10111	2	Lock Nut, 1/2"-13
10.	G10233	-	Machine Bushing, 1", 10 Gauge
11.	GD2548-16	2	Hex Shaft, 7/8" x 16" (1 Hole)
12.	G10880	4	Hex Head Cap Screw, 1/4"-20 x 2 1/4"
	G10110	4	Lock Nut, 1/4"-20, Grade B
13.	GA11169	2	U-Joint W/Grease Fitting, Female, 61 15/32"
	GR1294	-	Cross And Bearing Kit
	GR1352	-	Inboard Yoke
	GR1300	-	Grease Fitting, 67.5°, Metric
	GR1301	-	Spring Pin, 8 mm x 50 mm
	GR1365	-	Yoke, 7/8" Hex
	GR1741	-	Outer Profile
	14.	GA8001	2
14.	GR1294	-	Cross And Bearing Kit
	GR1295	-	Inboard Yoke
	GR1300	-	Grease Fitting, 67.5°, Metric
	GR1301	-	Spring Pin, 8 mm x 50 mm
	GR1365	-	Yoke, 7/8" Hex
	GR1377	-	Inner Profile
	15.	G10017	8
G10206		8	Washer, 1/2" SAE
G10228		8	Lock Washer, 1/2"
G10102		8	Hex Nut, 1/2"-13
16.	GD0914-78	1	Hex Shaft, 7/8" x 78" (No Holes), L.H. Side
	GD15117-03	-	Hex Shaft, 7/8" x 73" (1 Hole), R.H. Side
17.	-	-	See "Parallel Arms, Mounting Support Plate And Quick Adjustable Down Force Springs", Page P4
18.	-	-	See "Drill Shafts On Wings", Pages P62 And P63
19.	GD2548-09	1	Hex Shaft, 7/8" x 9" (1 Hole)
20.	GA11191	1	Chain Mount W/Bearings And Rings, L.H.
	GA11190	1	Chain Mount W/Bearings And Rings, R.H.
	GA5116	-	Bearing, 7/8" Hex Bore, Cylindrical
	GD6551	-	Ring
21.	G3310-101	2	Chain, No. 40, 101 Pitch Including Connector Link And Offset Link
	GR0912	-	Connector Link, No. 40
	GR0911	-	Offset Link, No. 40
22.	G10152	2	Hex Head Cap Screw, 5/8"-11 x 9", 32 Row 30" And 36 Row 30"
	G10217	2	Washer, 5/8" USS
	G10107	2	Lock Nut, 5/8"-11
23.	GD1908	1	Mounting Bracket, 24 Row 30"
24.	GD1114	1	U-Bolt, 7" x 7" x 5/8"-11, 24 Row 30"
	G10217	2	Washer, 5/8" USS
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
25.	GA2180	1	Hanger Bearing, 7/8" Hex Bore
26.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
27.	G2500-19	1	Sprocket, 19 Tooth (L.H. Side Only)

POINT ROW CLUTCH

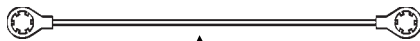
PRC019(TWL70d/TWL71d/TWL71/TWL18/A10054)

L.H. Point Row Clutch Shown



Connects To
Clutch Solenoid

Connects To Planter
Harness At Valve Block
On Wing



On Point Row Clutch

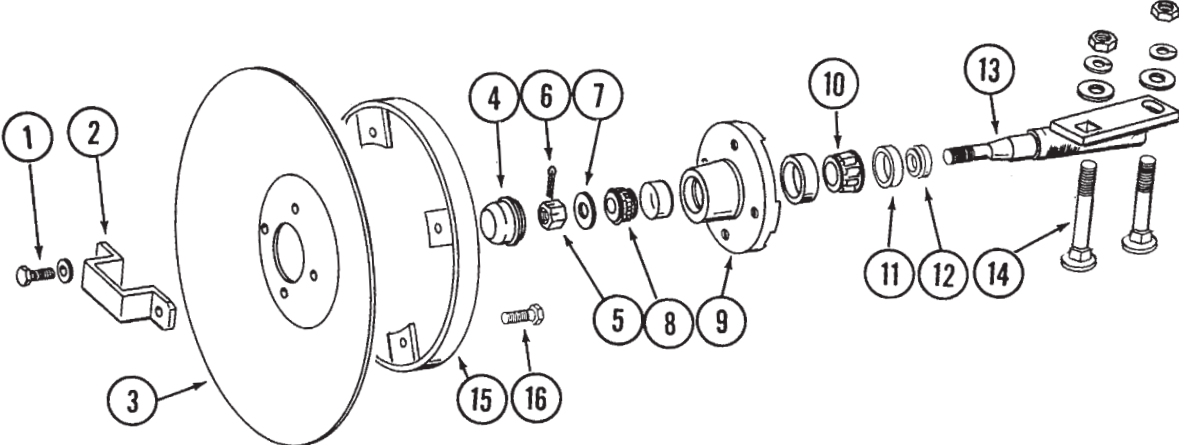


POINT ROW CLUTCH

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD10068	1	Input Shaft, R.H. Threads (Shown)
	GD10069	1	Input Shaft, L.H. Threads
2.	G10374	3	Hex Socket Head Screw, 1/4"-20 x 1"
	G10227	3	Lock Washer, 1/4"
3.	G10496	2	External Inverted Snap Ring, 1 1/2"
4.	GD14512	2	V-Ring Seal
5.	GD10104	1	Input Hub
6.	GA7137	1	Hub/Sleeve Assembly W/Spring Pins
	G10765	-	Spring Pin, 1/4" x 1"
	G10804	-	Spring Pin, 5/32" x 7/8"
7.	G10023	1	Hex Head Cap Screw, 1/4"-20 x 3/4"
	G10227	1	Lock Washer, 1/4"
	G10103	1	Hex Nut, 1/4"-20
8.	GA8393	1	Solenoid Complete
	GR1306	1	Snap Ring
	GR1303	1	Spring
	GR1304	1	Boot
	GR1305	1	Plunger
9.	G10049	1	Hex Head Cap Screw, 3/8"-16 x 2 1/2"
	G10101	1	Hex Nut, 3/8"-16
	G10203	1	Washer, 3/8" SAE
	G10229	2	Lock Washer, 3/8"
	G10497	1	Hex Jam Nut, 3/8"-16, Grade 2
10.	G10900	1	Hex Socket Head Cap Screw, 1/4"-20 x 1 3/4", Grade 8
	G10227	1	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
11.	GD10123	1	Spring
12.	GD10103	1	Mounting Plate
13.	GD9667	1	Bushing
14.	GD10070	1	Coupler W/R.H. Threads (Shown)
	GD10071	1	Coupler W/L.H. Threads
15.	GD14513	1	Felt Washer
16.	GD9671	-	Spring, L.H. (Shown)
	GD9672	-	Spring, R.H.
17.	GD10102	1	Stop Collar
18.	GD11120	1	Rue Ring Cotter, 5/16"
19.	GD10510	1	Actuator Arm
20.	G10859	1	Spring Pin, 3/16" x 2 1/4"
21.	G10253	3	Hex Socket Head Screw, No. 10-32 x 1/2"
	G10257	3	Lock Washer, No. 10
22.	GA10311	1	Wiring Harness, 163" (Brown-Black/Red Ends), L.H. Outside End, 24 Row 30"
	GA10312	1	Wiring Harness, 94" (Yellow-Black/Red Ends), L.H. Inside, 24 Row 30"
	GA10313	1	Wiring Harness, 94" (Orange-Black/Red Ends), R.H. Inside, 24 Row 30"
	GA10314	1	Wiring Harness, 163" (Red/Black-Black/Red Ends), R.H. Outside End, 24 Row 30"
	GA10322	1	Wiring Harness, 54" (Brown-Black/Red Ends), L.H. Outside End, 32 Row 30"
	GA10339	1	Wiring Harness, 54" (Yellow-Black/Red Ends), L.H. Inside, 32 Row 30"
	GA10340	1	Wiring Harness, 54" (Orange-Black/Red Ends), R.H. Inside, 32 Row 30"
	GA10341	1	Wiring Harness, 64" (Red/Black-Black/Red Ends), R.H. Outside End, 32 Row 30"
	GA10330	1	Wiring Harness, 39" (Brown-Black/Red Ends), L.H. Outside End, 36 Row 30"
	GA10331	1	Wiring Harness, 69" (Yellow-Black/Red Ends), L.H. Inside, 36 Row 30"
	GA10332	1	Wiring Harness, 69" (Orange-Black/Red Ends), R.H. Inside, 36 Row 30"
	GA10333	1	Wiring Harness, 39" (Red/Black-Black/Red Ends), R.H. Outside End, 36 Row 30"
23.	G10996	-	Fork Terminal
24.	GA10054	-	Ground Cable, Green
A.	GA7110	-	Point Row Clutch Assembly, R.H. (Used On Outer L.H. Wing And Inner R.H. Wing) (Items 1-21 And 24)
	GA7111	-	Point Row Clutch Assembly, L.H. (Used On Outer R.H. Wing And Inner L.H. Wing) (Items 1-21 And 24)

ROW MARKER SPINDLE/HUB/BLADE

MKR020(MKR4)

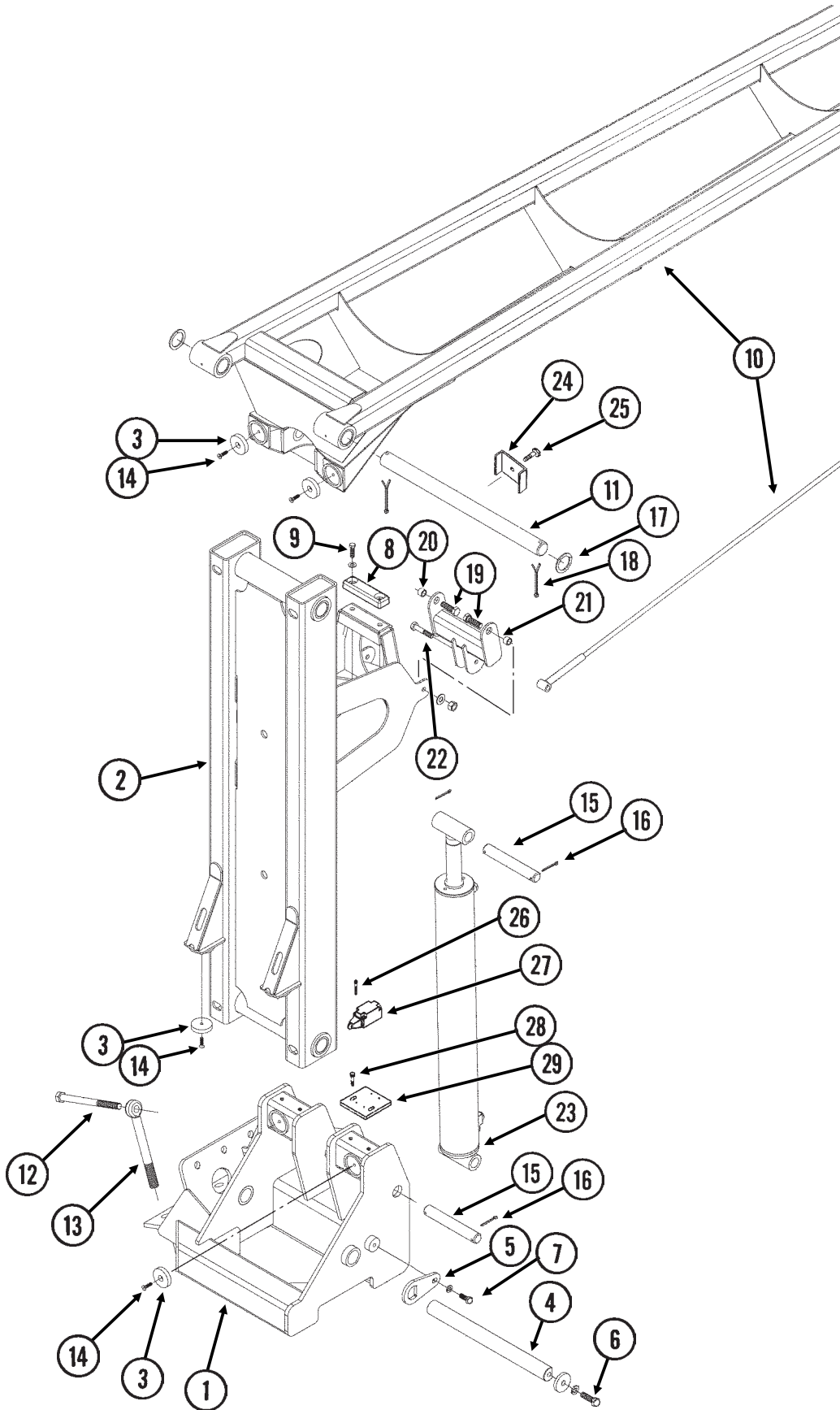


ROW MARKER SPINDLE/HUB/BLADE

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
2.	GD2597	1	Retainer
3.	GD0746	1	Disc Blade, Solid, 16" (Shown)
	GD10283	-	Disc Blade, Notched, 16" (Optional)
4.	GD0840	1	Dust Cap
5.	G10725	1	Slotted Hex Nut, 5/8"-18
6.	G10544	1	Cotter Pin, 5/32" x 1"
7.	G10724	1	Washer, 5/8" SAE
8.	GA0257	1	Bearing
9.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
10.	GA0245	1	Bearing
11.	GA0243	1	Grease Seal
12.	GA0899	1	Rubber Seal
13.	GA1676	1	Spindle, R.H.
	GA1677	-	Spindle, L.H. (Shown)
14.	G10844	2	Carriage Bolt, 1/2"-13 x 3 1/2"
	G10168	2	Machine Bushing, 1/2", 7 Gauge
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-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, Grade 8
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)

ROW MARKER ASSEMBLY (Mount And First Stage), 24 ROW 30"

(FWD17dd)

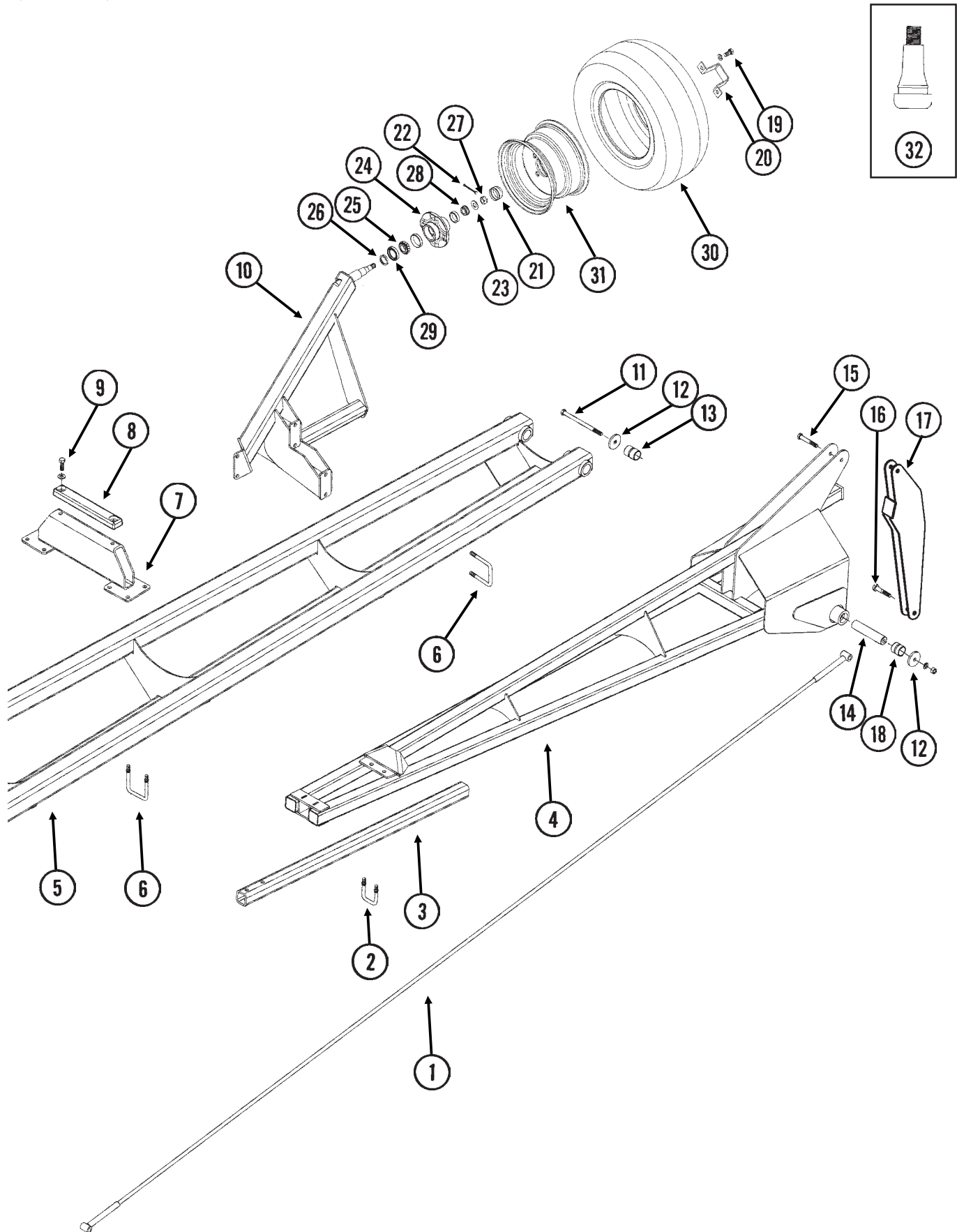


ROW MARKER ASSEMBLY (Mount And First Stage), 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA10395	1	Mount, L.H. (Shown)
	GA10394	-	Mount, R.H.
2.	GA10493	1	Arm W/Grease Fittings And Bushings, 66", First Stage
	GD15131	-	Bushing, 2 1/4" O.D. x 1 3/4" I.D. x 4"
	G10640	-	Grease Fitting, 1/4"-28
3.	GD15140	6	Bumper Pad
4.	GD15194	1	Pin, 1 3/4" x 19 1/4"
5.	GD15192	1	Capture Plate
6.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	G10230	2	Lock Washer, 5/8"
	GD15193	2	Washer, 2 3/8" O.D. x 2 1/32" I.D. x 3/8"
	GD15742	2	Thrust Washer, 2 1/2" O.D. x 1 3/4" I.D. x 1/8"
7.	G10037	1	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10228	1	Lock Washer, 1/2"
	G10216	1	Washer, 1/2" USS
8.	GA9145	1	Rubber Stop
9.	G10644	2	Hex Head Cap Screw, 7/16"-14 x 1 1/2"
	G10199	2	Washer, 7/16" SAE
	G10237	2	Lock Washer, 7/16"
	G10100	2	Hex Nut, 7/16"-14
10.		-	See "Row Marker Assembly (Second And Third Stages)", Pages P72 And P73
11.	GD15228	1	Pin, 1 3/4" x 26"
12.	G10477	4	Hex Head Cap Screw, 3/4"-10 x 10"
	G10112	4	Lock Nut, 3/4"-10
13.	GD15283	4	Eye Bolt, 1"-14 x 10"
	G11108	4	Lock Nut, 1"-14
14.	G11110	6	Hex Socket Cap Screw, 5/16"-18 x 1 1/4", Grade 8
	G10109	6	Lock Nut, 5/16"-18, Grade 8
15.	GD15227	2	Pin, 1 1/4" x 8 3/8"
16.	G10460	4	Cotter Pin, 1/4" x 2"
17.	G10356	2	Machine Bushing, 1 3/4", 10 Gauge
	GD15742	2	Thrust Washer, 2 1/2" O.D. x 1 3/4" I.D. x 1/8"
18.	G10362	2	Cotter Pin, 1/4" x 3"
19.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	GD7805	2	Special Washer, 5/8", Hardened
	G10107	2	Lock Nut, 5/8"-11
20.	GB0218	2	Bushing, 2 1/32" I.D. x 7/8" O.D. x 19/32" Long
21.	GA10400	1	Mount
22.	G10397	1	Hex Head Cap Screw, 1/2"-13 x 2 3/4"
	G10111	1	Lock Nut, 1/2"-13
23.		-	See "Row Marker Cylinder", Page P89
24.	GD5875	1	Hose Clamp, 9/16" x 2 1/2" x 2"
25.	G10047	1	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	G10108	1	Lock Nut, 3/8"-16
26.	G11167	4	Hex Socket Head Cap Screw, No. 10-32 x 1 1/2"
27.	GA11066	1	Limit Switch
28.	G10171	2	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
	G10232	2	Lock Washer, 5/16"
	G10221	2	Washer, 5/16" SAE
29.	GD16175	1	Mount

ROW MARKER ASSEMBLY (Second And Third Stages), 24 ROW 30"

(FWD17c/A10458)



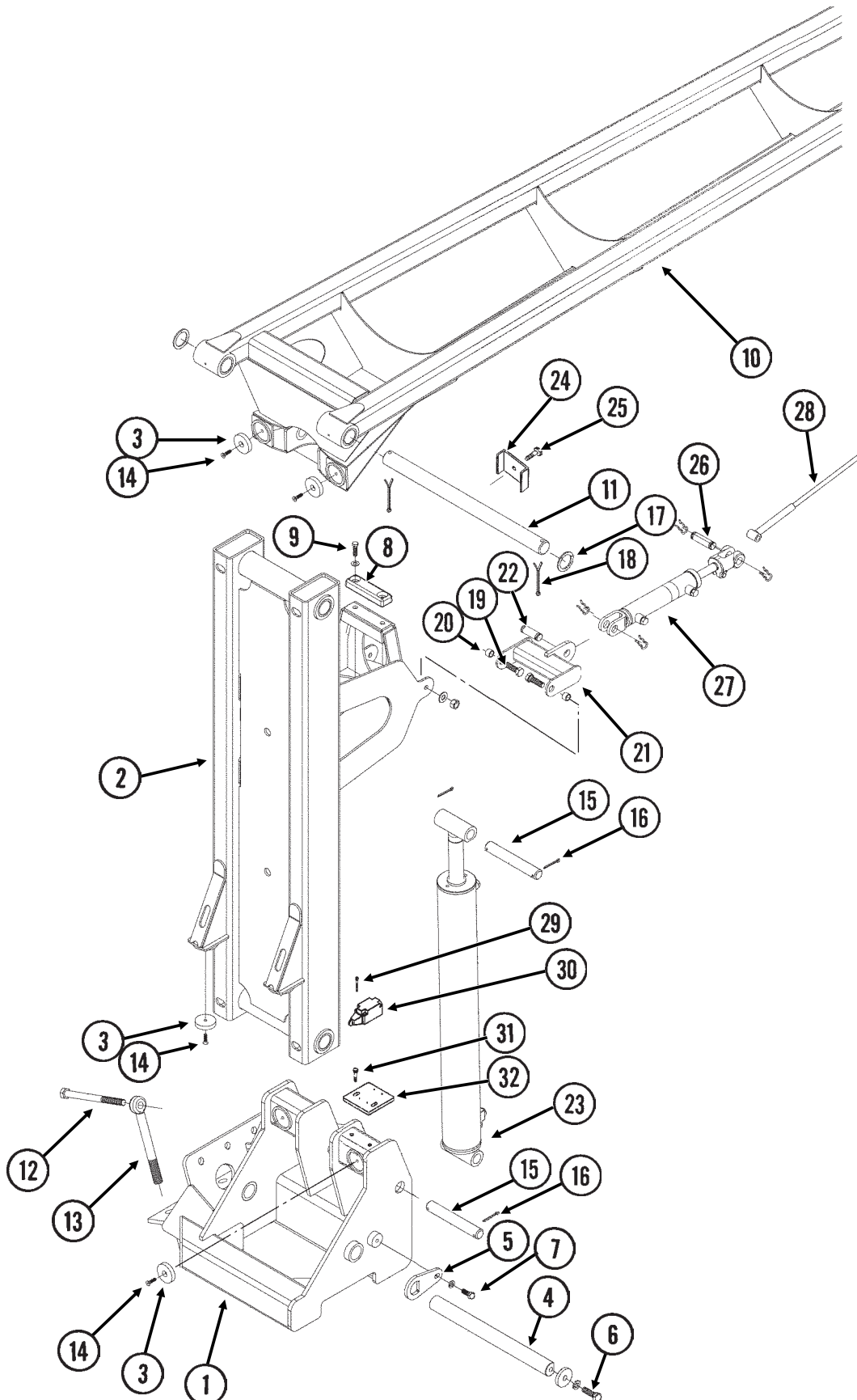
ROW MARKER ASSEMBLY (Second And Third Stages), 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA10445	1	Cable, 155"
2.	GD2721	1	U-Bolt, 2" x 2" x 1/2"-13
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
3.	GD0453-07	1	Extension Tube, 45"
4.	GA10391	1	Arm W/Grease Fittings, Third Stage, 108 1/8"
	G10640	-	Grease Fitting, 1/4"-28
5.	GA10494	1	Arm W/Grease Fittings And Bushings, Second Stage, 164 1/16"
	GD15131	-	Bushing, 2 1/4" O.D. x 1 3/4" I.D. x 4"
	G10640	-	Grease Fitting, 1/4"-28
6.	GD4743	7	U-Bolt, 3" x 3" x 1/2"-13
	G10228	14	Lock Washer, 1/2"
	G10102	14	Hex Nut, 1/2"-13
7.	GA10436	1	Bumper Mount
8.	GA9088	1	Molded Stop, 12 1/4" Long
9.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10206	2	Washer, 1/2" SAE
10.	GA10396	1	Wheel Mount, L.H. (Shown)
	GA10397	1	Wheel Mount, R.H.
11.	G11109	2	Hex Head Cap Screw, 1/2"-13 x 7 1/2"
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
12.	GD15235	4	Washer, 2 1/4" O.D. x 1/2" I.D. x 1/4"
13.	GD12613	4	Spring Bushing, 1 1/2" O.D. x 1 1/4" I.D. x 2"
14.	GD15229	2	Sleeve, 1 1/4" O.D. x 1/2" I.D. x 5 15/16"
15.	G10585	1	Hex Head Cap Screw, 1/2"-13 x 3 1/4"
	G10111	1	Lock Nut, 1/2"-13
16.	G10397	1	Hex Head Cap Screw, 1/2"-13 x 2 3/4"
	G10111	1	Lock Nut, 1/2"-13
17.	GA10902	1	Swing Link
18.	GD15290	2	Spring Bushing, 1 1/2" Long
19.	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
20.	GD2597	1	Retainer
21.	GD0840	1	Dust Cap
22.	G10544	1	Cotter Pin, 5/32" x 1"
23.	G10724	1	Washer, 5/8" SAE
24.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
25.	GA0245	1	Bearing
26.	GA0899	1	Rubber Seal
27.	G10725	1	Slotted Hex Nut, 5/8"-18
28.	GA0257	1	Bearing
29.	GA0243	1	Grease Seal
30.	GD15489	1	Tire, 20.5" x 8.0"(Specify Brand*)
31.	GA10457	1	Rim, 10" x 6"
32.	GA10458	-	Valve Stem
A.	GA10409	-	Tire And Rim Assembly (Items 30-32)

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

ROW MARKER ASSEMBLY (Mount And First Stage), 32 ROW 30" AND 36 ROW 30"

(FWD51aa)

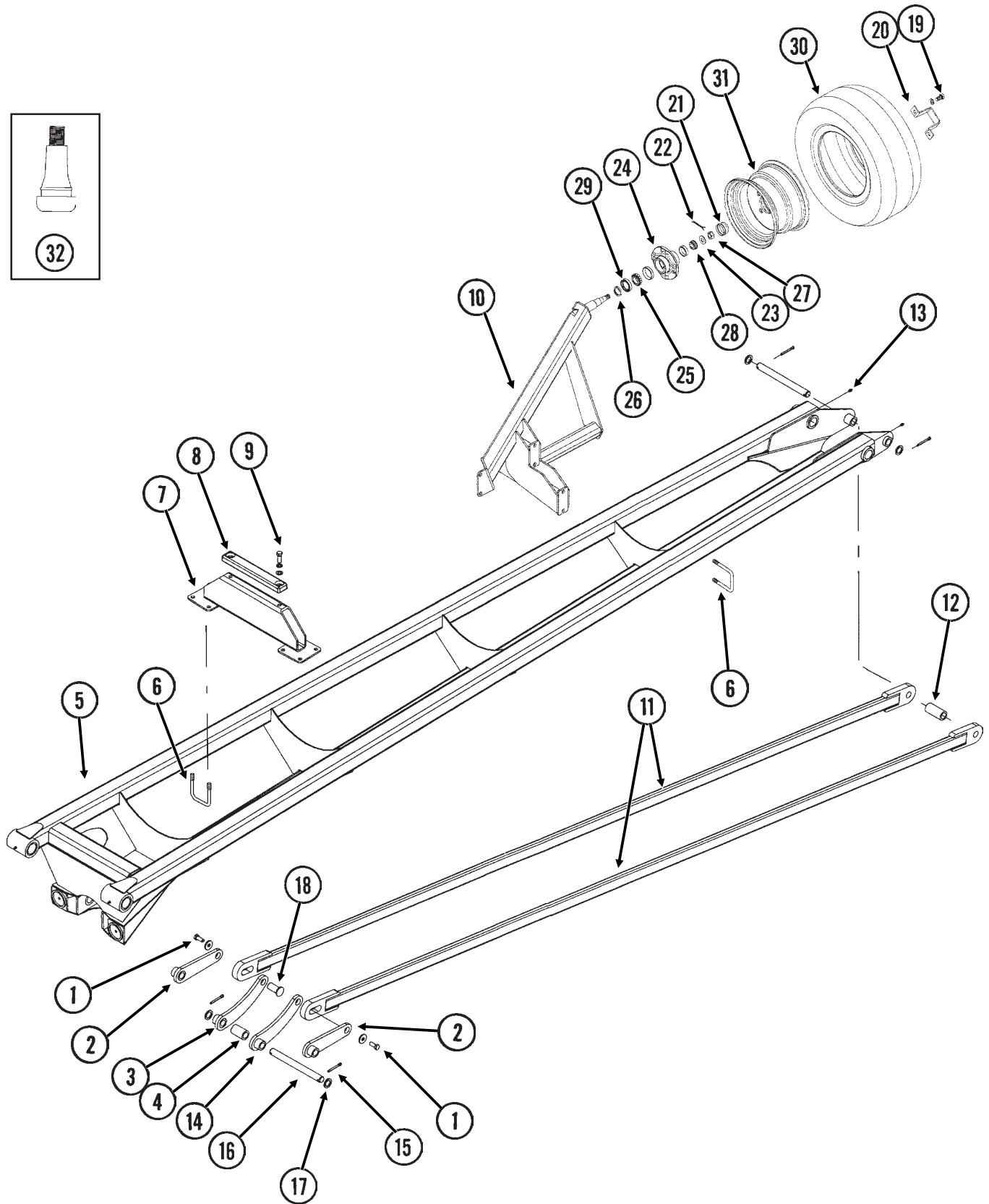
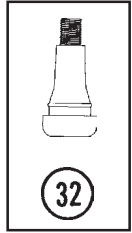


ROW MARKER ASSEMBLY (Mount And First Stage), 32 ROW 30" AND 36 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA10395	1	Mount, L.H. (Shown)
	GA10394	-	Mount, R.H.
2.	GA10493	1	Arm W/Grease Fittings And Bushings, 66", First Stage
	GD15131	-	Bushing, 2 1/4" O.D. x 1 3/4" I.D. x 4"
	G10640	-	Grease Fitting, 1/4"-28
3.	GD15140	6	Bumper Pad
4.	GD15194	1	Pin, 1 3/4" x 19 1/4"
5.	GD15192	1	Capture Plate
6.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	G10230	2	Lock Washer, 5/8"
	GD15193	2	Washer, 2 3/8" O.D. x 2 1/32" I.D. x 3/8"
	GD15742	2	Thrust Washer, 2 1/2" O.D. x 1 3/4" I.D. x 1/8"
7.	G10037	1	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10228	1	Lock Washer, 1/2"
	G10216	1	Washer, 1/2" USS
8.	GA9145	1	Rubber Stop
9.	G10644	2	Hex Head Cap Screw, 7/16"-14 x 1 1/2"
	G10199	2	Washer, 7/16" SAE
	G10113	2	Lock Nut, 7/16"-14
10.		-	See "Row Marker Assembly (Second Stage)", Pages P76 And P77
11.	GD15228	1	Pin, 1 3/4" x 26"
12.	G10477	4	Hex Head Cap Screw, 3/4"-10 x 10"
	G10112	4	Lock Nut, 3/4"-10
13.	GD15283	4	Eye Bolt, 1"-14 x 10"
	G11108	4	Lock Nut, 1"-14
14.	G11110	6	Hex Socket Cap Screw, 5/16"-18 x 1 1/4", Grade 8
	G10109	6	Lock Nut, 5/16"-18, Grade 8
15.	GD15227	2	Pin, 1 1/4" x 8 3/8"
16.	G10460	4	Cotter Pin, 1/4" x 2"
17.	G10356	2	Machine Bushing, 1 3/4", 10 Gauge
	GD15742	2	Thrust Washer, 2 1/2" O.D. x 1 3/4" I.D. x 1/8"
18.	G10362	2	Cotter Pin, 1/4" x 3"
19.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	GD7805	2	Special Washer, 5/8", Hardened
	G10107	2	Lock Nut, 5/8"-11
20.	GB0218	2	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
21.	GA10401	1	Mount
22.	GR0367	1	Pin, 1" x 2 7/8"
	GR0193	2	Hair Pin Clip
23.		-	See "Row Marker Cylinder", Page P89
24.	GD5875	1	Hose Clamp, 9/16" x 2 1/2" x 2"
25.	G10047	1	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	G10108	1	Lock Nut, 3/8"-16
26.	GR0375	1	Pin, 1" x 3 1/2"
	GR0193	2	Hair Pin Clip
27.		-	See "Row Marker Link Assist Cylinder", Page P89
28.		-	See "Row Marker Assembly (Third And Fourth Stages)", Pages P78 And P79
29.	G11167	4	Hex Socket Head Cap Screw, No. 10-32 x 1 1/2"
30.	GA11066	1	Limit Switch
31.	G10171	2	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
	G10232	2	Lock Washer, 5/16"
	G10221	2	Washer, 5/16" SAE
32.	GD16175	1	Mount

ROW MARKER ASSEMBLY (Second Stage), 32 ROW 30" AND 36 ROW 30"

(FWD50/A10458)



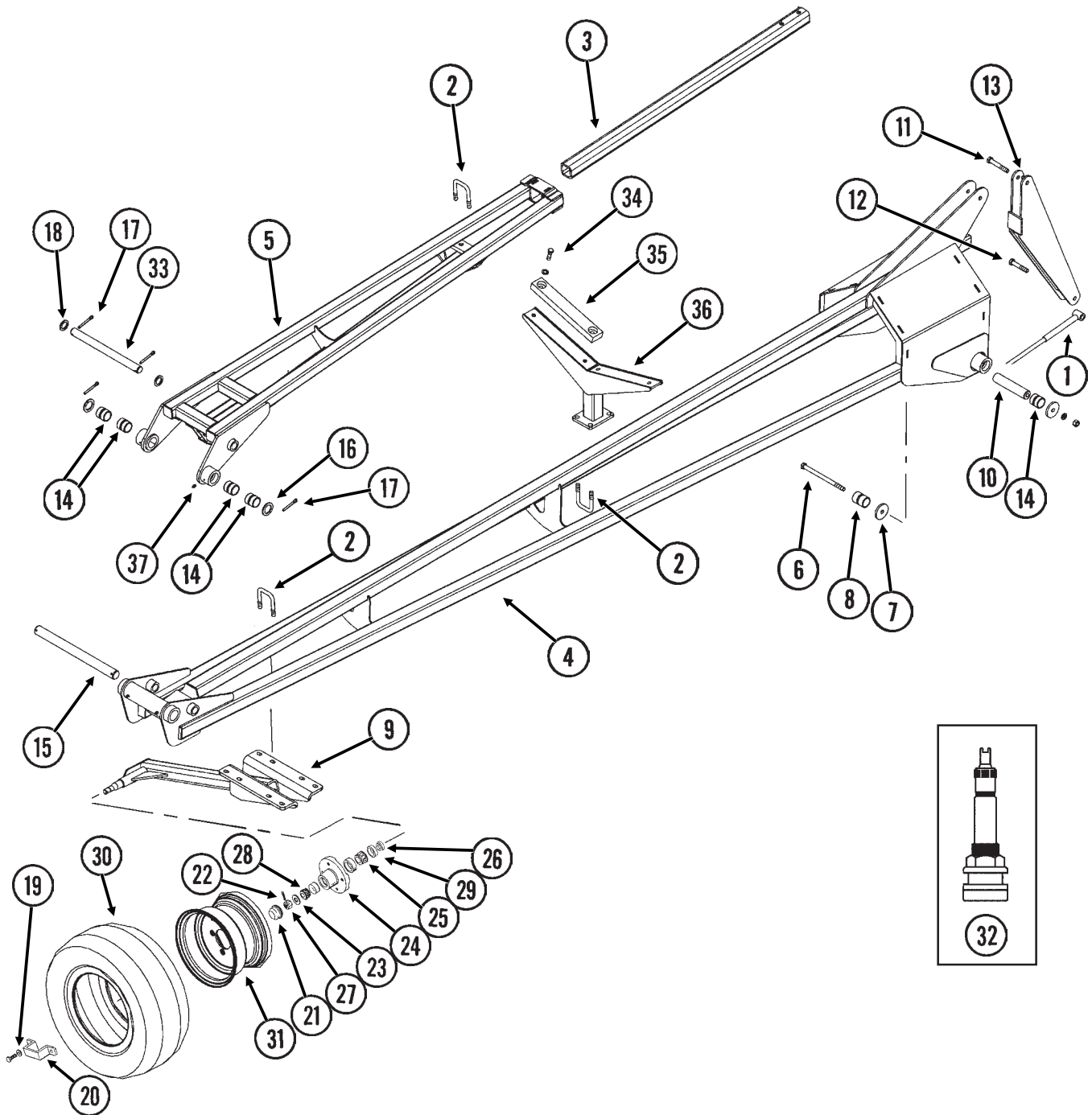
ROW MARKER ASSEMBLY (Second Stage), 32 ROW 30" AND 36 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	G10037	2	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	GD15234	2	Washer, 1 1/2" O.D. x 1/2" I.D., 7 Gauge
2.	GA10383	2	Short Link
3.	GA10384	1	Long Link
4.	GD5900-21	1	Sleeve, 2 3/8"
5.	GA10720	1	Arm W/Grease Fittings And Bushings, Second Stage, 164"
	GD15131	-	Bushing, 2 1/4" O.D. x 1 3/4" I.D. x 4"
	G10640	-	Grease Fitting, 1/4"-28
6.	GD4743	6	U-Bolt, 3" x 3" x 1/2"-13
	G10228	12	Lock Washer, 1/2"
	G10102	12	Hex Nut, 1/2"-13
7.	GA10392	1	Bumper Mount
8.	GA9088	1	Molded Stop, 12 1/4" Long
9.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10206	2	Washer, 1/2" SAE
10.	GA10396	1	Wheel Mount, L.H. (Shown)
	GA10397	1	Wheel Mount, R.H.
11.	GA10386	2	Link, 143 3/4"
12.	GD5900-20	1	Sleeve, 3 3/16"
13.	G10640	4	Grease Fitting, 1/4"-28
14.	GA10385	1	Long Link
15.	G10460	4	Cotter Pin, 1/4" x 2"
16.	GD15230	2	Pin, 1" x 10 3/4"
17.	G10233	4	Machine Bushing, 1", 10 Gauge
18.	GD15233	2	Pin, 1 1/2" x 2 19/64"
19.	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
20.	GD2597	1	Retainer
21.	GD0840	1	Dust Cap
22.	G10544	1	Cotter Pin, 5/32" x 1"
23.	G10724	1	Washer, 5/8" SAE
24.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
25.	GA0245	1	Bearing
26.	GA0899	1	Rubber Seal
27.	G10725	1	Slotted Hex Nut, 5/8"-18
28.	GA0257	1	Bearing
29.	GA0243	1	Grease Seal
30.	GD15489	1	Tire, 20.5" x 8.0"(Specify Brand*)
31.	GA10457	1	Rim, 10" x 6"
32.	GA10458	-	Valve Stem
A.	GA10409	-	Tire And Rim Assembly (Items 30-32)

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

ROW MARKER ASSEMBLY (Third And Fourth Stages), 32 ROW 30" AND 36 ROW 30"

(FWD50a/A3474)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA10507	1	Cable, 132 1/2"
2.	GD2721	7	U-Bolt, 2" x 2" x 1/2"-13
	G10228	14	Lock Washer, 1/2"
	G10102	14	Hex Nut, 1/2"-13
3.	GD0453-07	1	Extension Tube, 45"
4.	GA10375	1	Arm W/Grease Fittings, Third Stage, 148 1/2"
	G10640	-	Grease Fitting, 1/4"-28

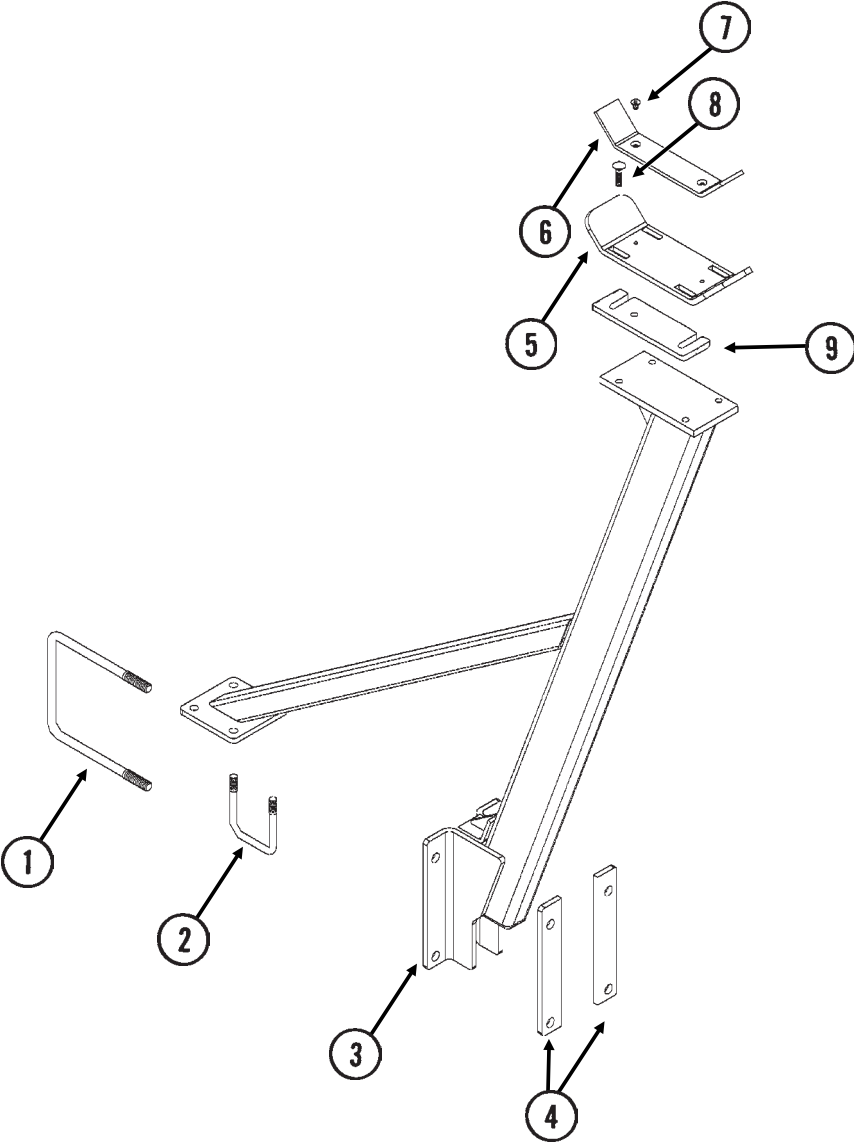
ROW MARKER ASSEMBLY (Third And Fourth Stages), 32 ROW 30" AND 36 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
5.	GA10376	1	Arm, Fourth Stage, 70 ⁵ / ₃₂ ", 32 Row 30"
	GA10426	-	Arm, Fourth Stage, 130", 36 Row 30"
6.	G11109	2	Hex Head Cap Screw, ¹ / ₂ "-13 x 7 ¹ / ₂ "
	G10228	2	Lock Washer, ¹ / ₂ "
	G10102	2	Hex Nut, ¹ / ₂ "-13
7.	GD15235	4	Washer, 2 ¹ / ₄ " O.D. x ¹ / ₂ " I.D. x ¹ / ₄ " Thi
8.	GD12613	4	Spring Bushing, 1 ¹ / ₂ " O.D. x 1 ¹ / ₄ " I.D. x 2"
9.	GA10398	1	Wheel Arm, R.H. (Shown)
	GA10399		Wheel Arm, L.H.
10.	GD15229	2	Sleeve, 1 ¹ / ₄ " O.D. x ¹ / ₂ " I.D. x 5 ¹⁵ / ₁₆ "
11.	G10585	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 3 ¹ / ₄ "
	G10111	1	Lock Nut, ¹ / ₂ "-13
12.	G10397	1	Hex Head Cap Screw, ¹ / ₂ "-13 x 2 ³ / ₄ "
	G10111	1	Lock Nut, ¹ / ₂ "-13
13.	GA10382	1	Swing Link
14.	GD15290	6	Spring Bushing, 1 ¹ / ₂ " Long
15.	GD15231	1	Pin, 1 ¹ / ₄ " x 14 ⁷ / ₈ "
16.	G10159	2	Machine Bushing, 1 ¹ / ₄ ", 10 Gauge
17.	G10460	4	Cotter Pin, ¹ / ₄ " x 2"
18.	G10233	2	Machine Bushing, 1", 10 Gauge
19.	G10722	4	Hex Head Cap Screw, ¹ / ₂ "-20 x 1"
	G10228	4	Lock Washer, ¹ / ₂ "
20.	GD2597	1	Retainer
21.	GD0840	1	Dust Cap
22.	G10544	1	Cotter Pin, ⁵ / ₃₂ " x 1"
23.	G10724	1	Washer, ⁵ / ₈ " SAE
24.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
25.	GA0245	1	Bearing
26.	GA0899	1	Rubber Seal
27.	G10725	1	Slotted Hex Nut, ⁵ / ₈ "-18
28.	GA0257	1	Bearing
29.	GA0243	1	Grease Seal
30.	GD15489	1	Tire, 20.5" x 8.0"(Specify Brand*)
31.	GA10457	1	Rim, 10" x 6"
32.	GA10458	-	Valve Stem
33.	GD15232	1	Pin, 1" x 12 ³ / ₄ "
34.	G10644	4	Hex Head Cap Screw, ⁷ / ₁₆ "-14 x 1 ¹ / ₂ "
	G10199	4	Washer, ⁷ / ₁₆ " SAE
	G10237	4	Lock Washer, ⁷ / ₁₆ "
	G10100	4	Hex Nut, ⁷ / ₁₆ "-14
35.	GD15649	2	Wear Pad
36.	GA10496	1	Support
37.	G10640	1	Grease Fitting, ¹ / ₄ "-28
A.	GA10409	-	Tire And Rim Assembly (Items 30-32)

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

ROW MARKER STAND, ALL SIZES

(FWD18a)

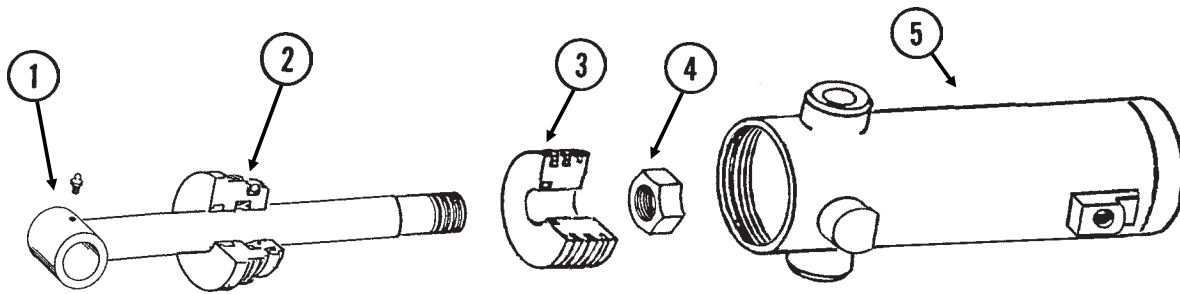


ROW MARKER STAND, ALL SIZES

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD1114	2	U-Bolt, 7" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
2.	GD4743	2	U-Bolt, 3" x 3" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
3.	GA10468	1	Stand
4.	GD15545	2	Bar, 1 3/4" x 10"
5.	GD15552	1	Plate
6.	GD15560	1	Pad
7.	G11133	2	Hex Socket Head Cap Screw, 5/16"-18 x 3/4", Grade 8
8.	G11134	4	Carriage Bolt, 3/8"-16 x 1 3/4"
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
9.	GD15784	-	Shim (As Required)

MASTER CYLINDER, ALL SIZES

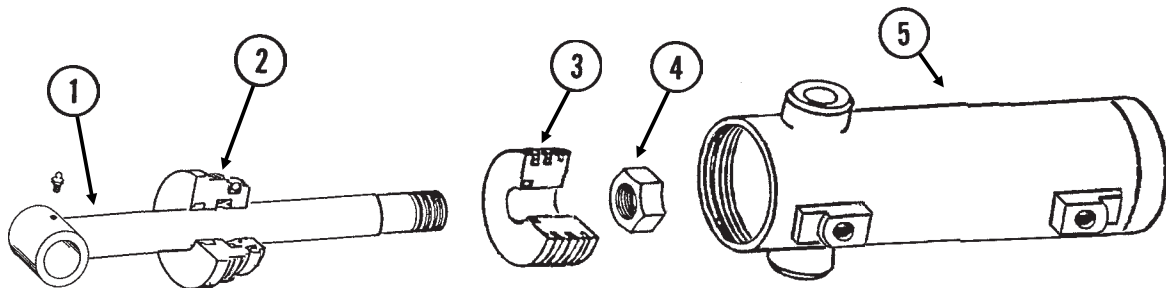
(CYL58)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10359	1	Rod Assembly W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
2.	GD14898	1	Gland
3.	GD14897	1	Piston
4.	G10958	1	Lock Nut, 1"-14
5.	A10361	1	Barrel (Non-Stock Item)
A.	GA10362	-	Cylinder Complete, 4" x 8" <i>(Part Number Stamped On Barrel)</i>
B.	GR1688	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) Expander, (2) Cast Iron Rings, (1) BU Ring, (1) Piston Seal

SLAVE CYLINDER, 32 ROW 30" AND 36 ROW 30"

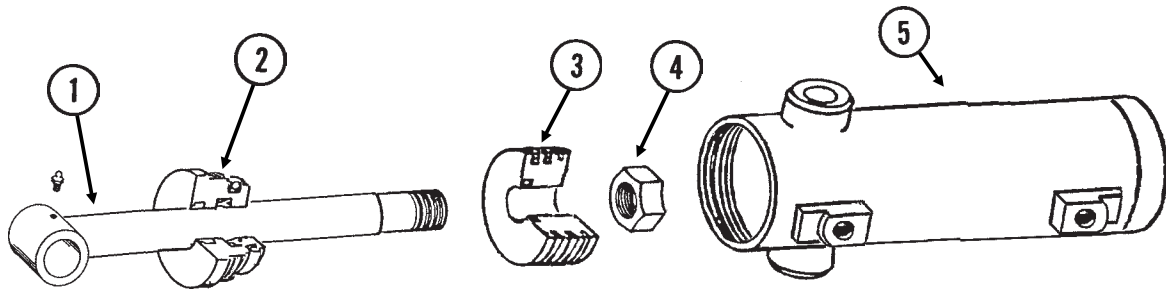
(CYL59)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10367	1	Rod Assembly W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
2.	GD12507	1	Gland
3.	GD14907	1	Piston
4.	G10958	1	Lock Nut, 1"-14
5.	A10369	1	Barrel (Non-Stock Item)
A.	GA10370	-	Cylinder Complete, 3 1/2" x 8" <i>(Part Number Stamped On Barrel)</i>
B.	GR1690	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (2) Seals, (1) Cast Iron Ring, (1) BU Ring

SLAVE CYLINDER, ALL SIZES

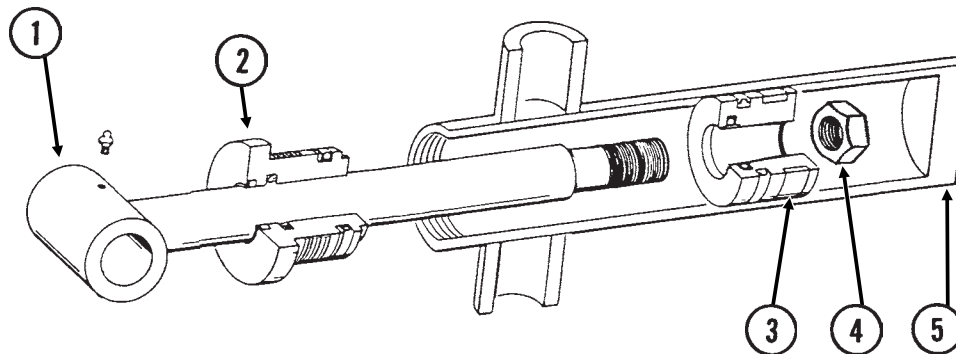
(CYL59)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10363	1	Rod Assembly W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
2.	GD14902	1	Gland
3.	GD14901	1	Piston
4.	G10958	1	Lock Nut, 1"-14
5.	A10365	1	Barrel (Non-Stock Item)
A.	GA10366	-	Cylinder Complete, 3 3/4" x 8" <i>(Part Number Stamped On Barrel)</i>
B.	GR1689	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) Seal, (2) Cast Iron Rings, (1) BU Ring, (1) Expander

LIFT ASSIST CYLINDER, ALL SIZES

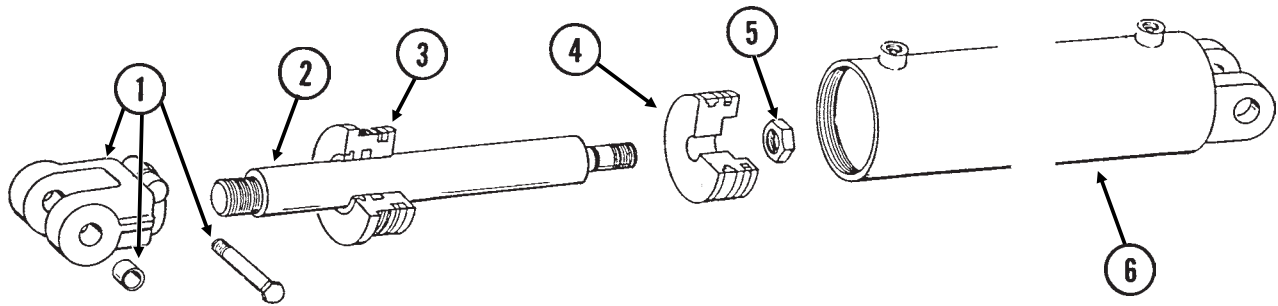
CYL026(CYL4d)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8831	1	Rod Assembly W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
2.	GD11926	1	Gland
3.	GD5956	1	Piston
4.	G10958	1	Lock Nut, 1"-14
5.	A8827	1	Barrel (Non-Stock Item)
A.	GA8828	-	Cylinder Complete, 2 1/2" x 8" <i>(Part Number Stamped On Barrel)</i>
B.	GR1522	-	Seal Kit, Includes: (1) T-Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper

WING FOLD CYLINDER, ALL SIZES

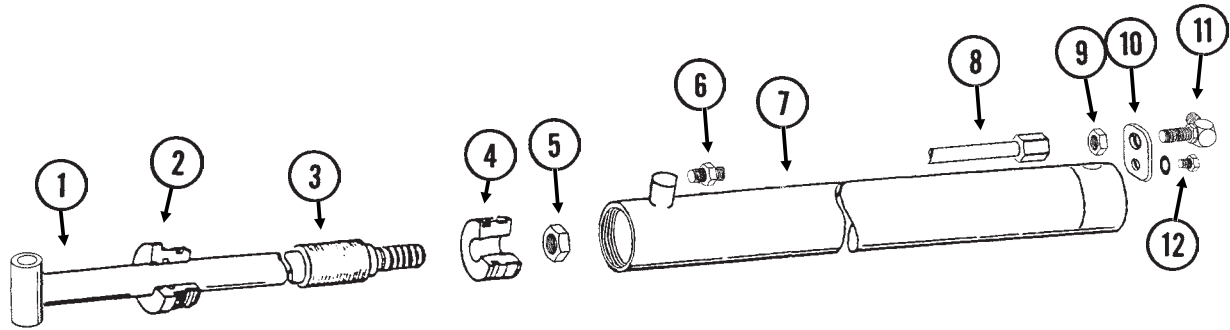
(CYL15e)



ITEM	PART NO.	QTY	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Hex Head Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
2.	GD14908	1	Rod
3.	GD12522	1	Gland
4.	GD14910	1	Piston
5.	G10972	1	Lock Nut, 1 $\frac{1}{4}$ "-12
6.	A10372	1	Barrel (Non-Stock Item)
A.	GA10373	-	Cylinder Complete, 4 $\frac{1}{2}$ " x 30" (<i>Part Number Stamped On Barrel</i>)
B.	GR1691	-	Seal Kit (For Cylinder And Counter Balance Valve), Includes: (1) Wiper, (1) U-Cup, (3) O-Rings, (1) BU Ring, (1) T-Seal, (1) Wear Ring

AXLE SLIDE CYLINDER, 24 ROW 30"

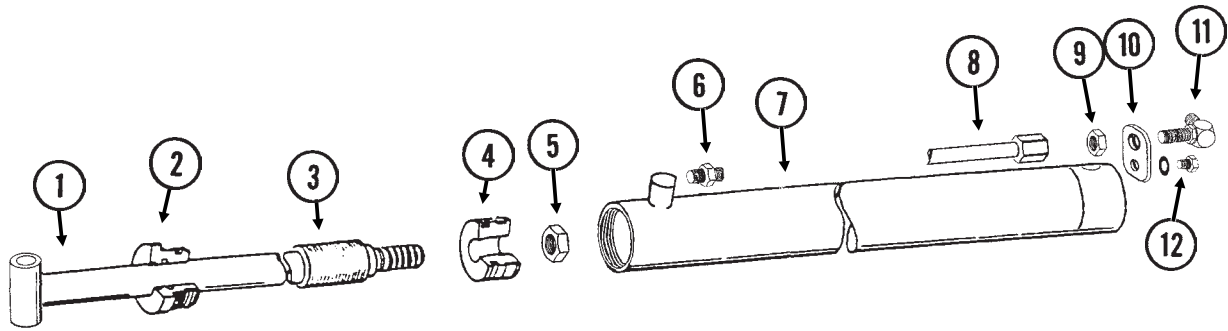
(CYL12g)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10248	1	Rod Assembly
2.	GD12670	1	Gland
3.	GD14915	1	Sleeve, 6 1/2"
4.	GD12672	1	Piston
5.	G10972	1	Lock Nut, 1 1/4"-12
6.	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
7.	A10250	1	Barrel (Non-Stock Item)
8.	GA10242	1	Steel Hydraulic Line, 66 7/16"
9.	G306-08	1	Lock Nut, 3/4"-16
10.	GD12597	1	Bracket
11.	G2701-08	1	Bulkhead Elbow, 90°, 3/4"-16 Male JIC
12.	G10328	1	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10229	1	Lock Washer, 3/8"
A.	GA10251	-	Cylinder Complete, 4" x 24" <i>(Part Number Stamped On Barrel)</i>
B.	GR1552	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) Wear Ring, (1) Wiper, (1) U-Cup, (1) T-Seal

AXLE SLIDE CYLINDER, 32 ROW 30" AND 36 ROW 30"

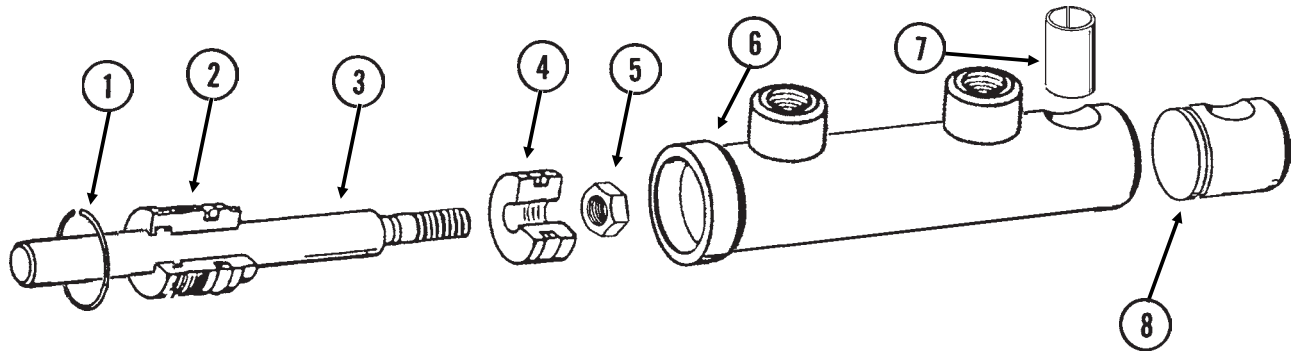
(CYL12g)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10243	1	Rod Assembly
2.	GD12670	1	Gland
3.	GD14915	1	Sleeve, 6 1/2"
4.	GD12672	1	Piston
5.	G10972	1	Lock Nut, 1 1/4"-12
6.	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
7.	GA10245	1	Barrel
8.	GA10242	1	Steel Hydraulic Line, 66 7/16"
9.	G306-08	1	Lock Nut, 3/4"-16
10.	GD12597	1	Bracket
11.	G2701-08	1	Bulkhead Elbow, 90°, 3/4"-16 Male JIC
12.	G10328	1	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10229	1	Lock Washer, 3/8"
A.	GA10246	-	Cylinder Complete, 4" x 60" (<i>Part Number Stamped On Barrel</i>)
B.	GR1552	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) Wear Ring, (1) Wiper, (1) U-Cup, (1) T-Seal

TONGUE LATCH AND SLIDE LATCH CYLINDER, ALL SIZES

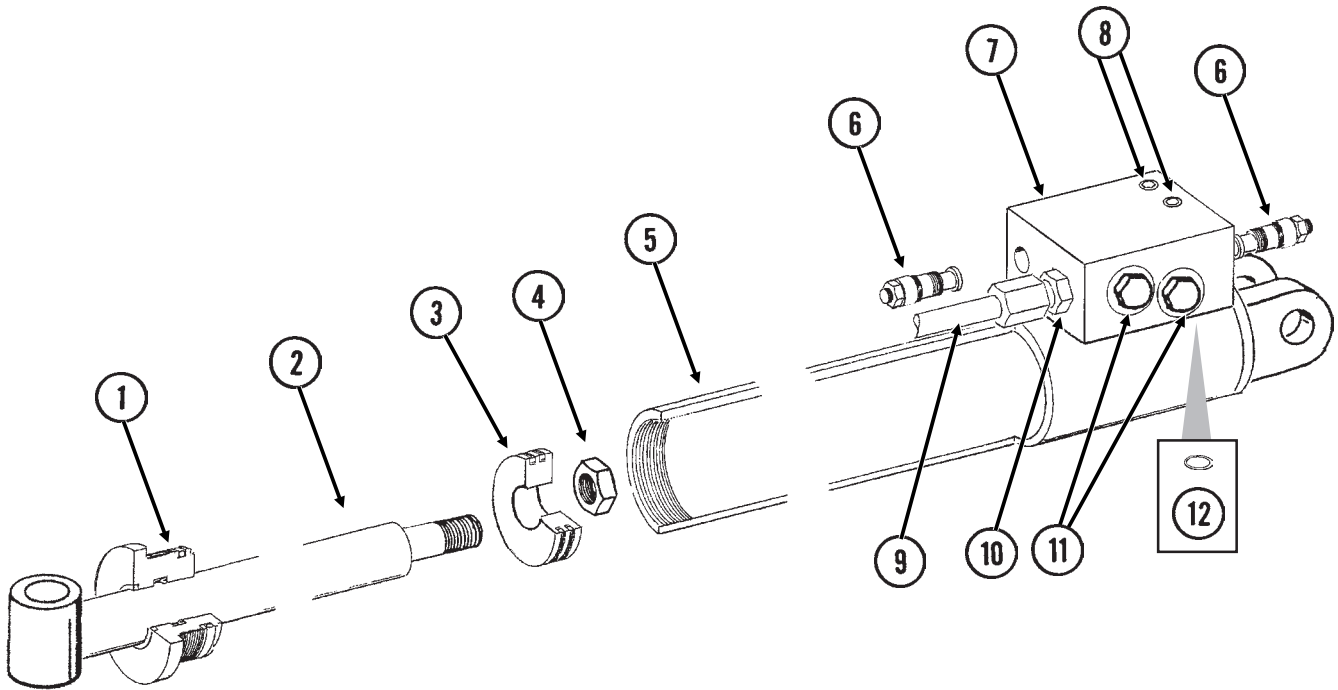
CYL035(CYL9d)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10770	1	Internal Retaining Ring, 1 ¹¹ / ₁₆ "
2.	GD13170	1	Gland
3.	GD13171	1	Rod
4.	GD13172	1	Piston
5.	G11016	1	Lock Nut, ¹ / ₂ "-20
6.	D13169	1	Barrel (Non-Stock Item)
7.	GD13400	1	Tension Bushing, 1" x 2" Long
8.	GD13173	1	End Cap
A.	GA9205	-	Cylinder Complete, 1 ¹ / ₂ " x 2 ¹ / ₂ " (<i>Part Number Stamped On Barrel</i>)
B.	GR1598	-	Seal Kit, Includes: (3) O-Rings, (2) BU Rings, (1) Wiper, (1) T-Seal, (1) Bronze Bushing, (1) U-Cup

TRANSPORT AXLE CYLINDER, ALL SIZES

(CYL54d/D12239)



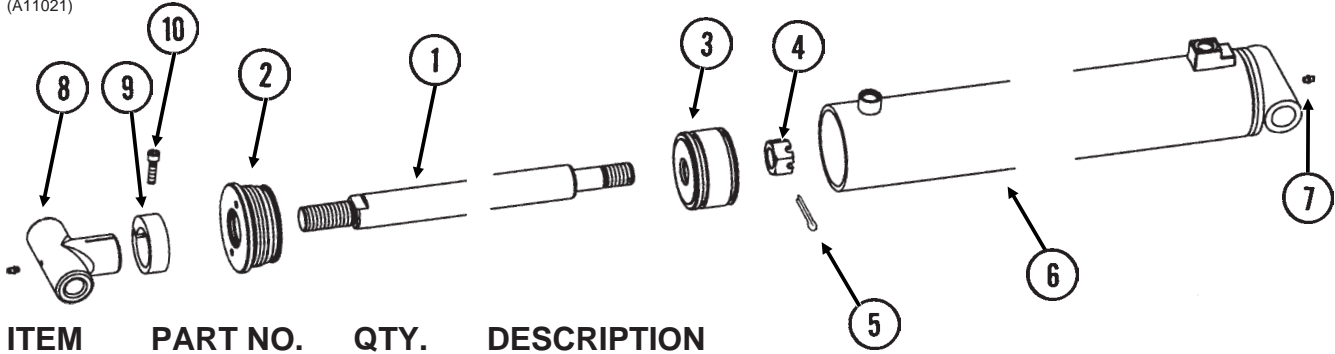
ITEM	PART NO.	QTY.	DESCRIPTION
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(Per Cylinder)

1.	GD12522	1	Gland
2.	GA10253	1	Rod Assembly
3.	GD15774	1	Piston
4.	G10972	1	Lock Nut, 1 1/4"-12
5.	A10255	1	Barrel (Non-Stock Item)
6.	GA10714	2	Counter Balance Valve
7.	GD15623	1	Block
8.	G10932	2	Hex Socket Head Cap Screw, 5/16"-18 x 2", Grade 8
9.	GA10623	1	Steel Hydraulic Line, 23 1/4"
10.	G6400-08	2	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
11.	G6408-08	-	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
12.	GD12239	1	O-Ring, No. 016
A.	GA10256	-	Cylinder Complete, 4 1/2" x 28" <i>(Part Number Stamped On Barrel)</i>
B.	GR1691	-	Seal Kit (For Cylinder And Counter Balance Valve), Includes: (1) Wiper, (1) U-Cup, (3) O-Rings, (1) BU Ring, (1) T-Seal, (1) Wear Ring
C.	GR1517	-	Seal Kit For Counter Balance Valve, Includes: (3) O-Rings, (3) BU Rings

ROW MARKER CYLINDER, ALL SIZES

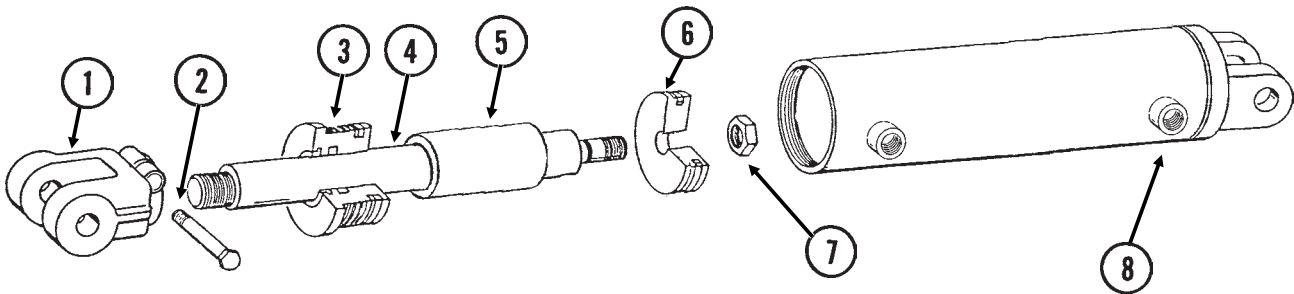
(A11021)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD16147	1	Rod
2.	GD12539	1	Gland
3.	GD14089	1	Piston
4.	G10983	1	Slotted Hex Nut, 1 1/8"-12
5.	G10984	1	Cotter Pin, 3/16" x 2 1/2"
6.	A11020	1	Barrel (Non-Stock Item)
7.	G10640	2	Grease Fitting, 1/4"-28
8.	GD16184	1	Clamp
9.	GD16060	1	Sleeve
10.	G11099	1	Hex Socket Head Cap Screw, 3/8"-16 x 1 1/2", Grade 8
A.	GA11021	-	Cylinder Complete, 4" x 32" <i>(Part Number Stamped On Barrel)</i>
B.	GR1630	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) Wiper, (1) T-Seal, (1) Cast Iron Ring, (1) U-Cup Seal

ROW MARKER LINK ASSIST CYLINDER, 32 ROW 30" AND 36 ROW 30"

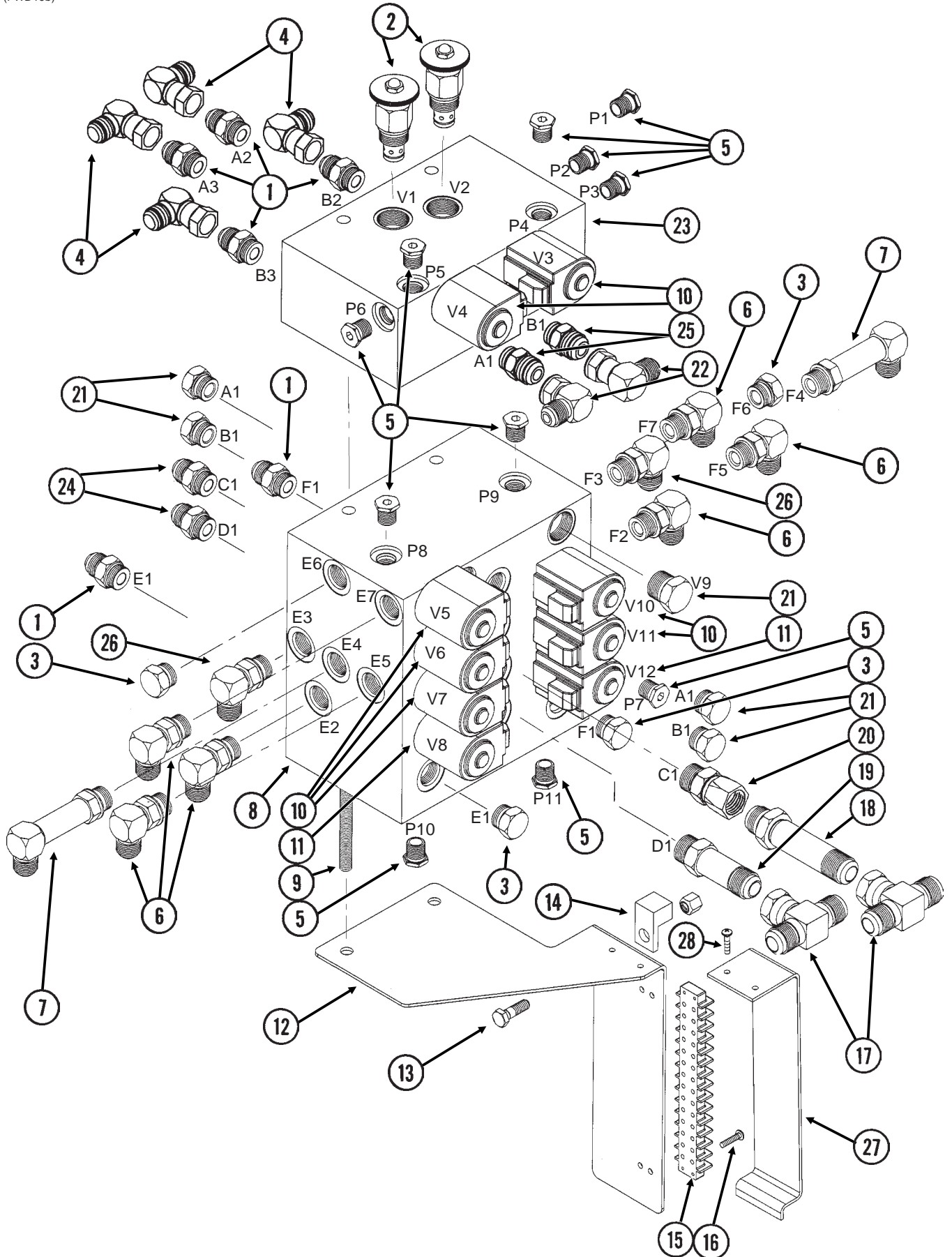
(CYL33)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD11950	1	Clevis
2.	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10108	1	Lock Nut, 3/8"-16
3.	GD12510	1	Gland
4.	GD14233	1	Rod
5.	GD5900-19	1	Sleeve, 4"
6.	GD12511	1	Piston
7.	G10967	1	Lock Nut, 3/4"-16
8.	A8775	1	Barrel (Non-Stock Item)
A.	GA10410	-	Cylinder Complete, 2" x 4" <i>(Part Number Stamped On Barrel)</i>
B.	GR1529	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) Wiper, (1) T-Seal, (2) U-Cup Seals, (1) Instruction

VALVE BLOCKS - LOCATED ON HITCH

(FWD19b)

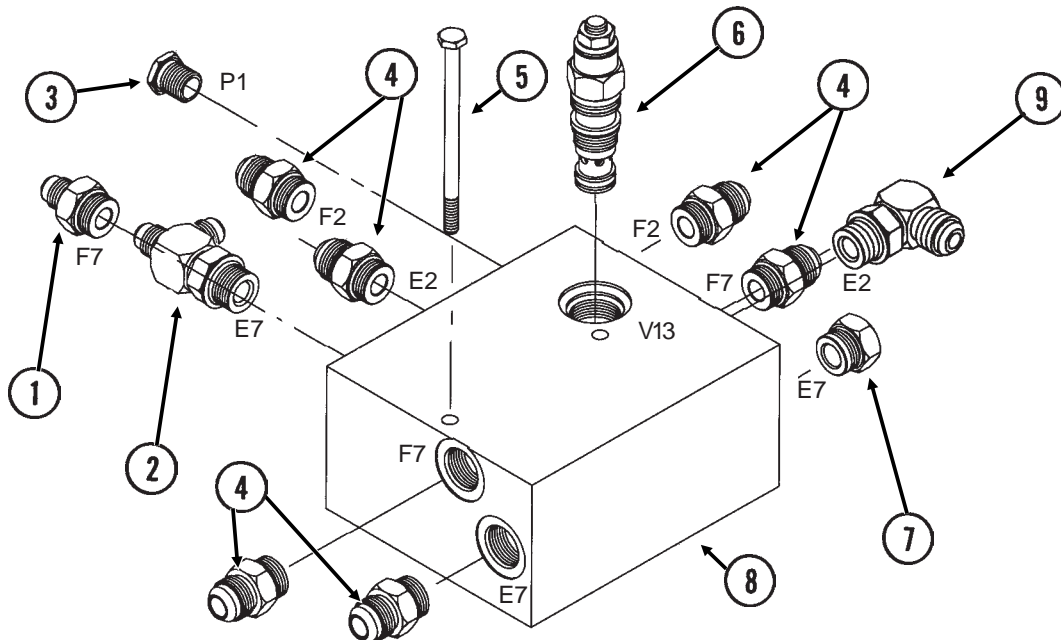


VALVE BLOCKS - LOCATED ON HITCH

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6400-08	6	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
2.	GA3413	2	Flow Control Valve
	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
3.	G6408-08	4	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
4.	G6500-08	4	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
5.	G6408-H06-0	11	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
6.	G6801-08	6	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
7.	G6801-LL-08	2	X-Long Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
8.	GD14922	1	Block
9.	GD15187-01	2	Threaded Rod, 3/8"-16 x 13"
	G10203	2	Washer, 3/8" SAE
	G10108	2	Lock Nut, 3/8"-16
10.		-	See "G1K275 Solenoid Valve", Page 95
11.		-	See "G1K276 Solenoid Valve", Page 95
12.	GD15634	1	Mount
13.	G10019	1	Hex Head Cap Screw, 5/16"-18 x 1"
	G10109	1	Lock Nut, 5/16"-18, Grade 8
14.	GA3584	1	Ground Clamp
15.	GA9097	1	Terminal Strip W/Screws, No. 6, 14 Terminal
	GR1635	-	Screw, No. 6-32 x 1/4"
16.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
17.	G6600-10	2	Swivel Tee, 7/8"-14 JIC
18.	G2700-10	1	Bulkhead Tube Union, 7/8"-14 Male JIC
19.	G6400-L-10	1	Long Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring
	GR1466	-	O-Ring
20.	G6402-10	1	Connector W/O-Ring, 7/8"-14 Female JIC To Male O-Ring
	GR1466	-	O-Ring
21.	G6408-10	5	Plug W/O-Ring, 7/8"-14 O-Ring
	GR1466	-	O-Ring
22.	G6500-10	2	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
23.	GD14923	1	Block
24.	G6400-10	2	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring
	GR1466	-	O-Ring
25.	G6400-10-08	2	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
26.	G6801-06-08	2	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
27.	GD16146	1	Cover
28.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
	G10928	2	Hex Nut, No. 8-32, Stainless Steel

VALVE BLOCK - LOCATED AT CENTER OF REAR H-FRAME

(FWD21)

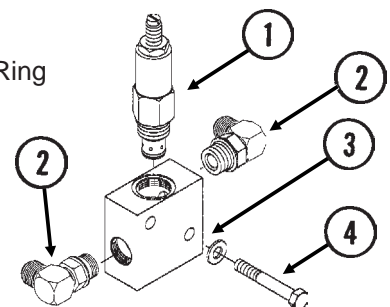


ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6400-06-08 GR1037	1 -	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring O-Ring
2.	G6804-06-08-06 GR1037	1 -	Adjustable Tee, 9/16"-18 Male JIC To 3/4"-16 O-Ring O-Ring
3.	G6408-H06-0 GR1045	1 -	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring O-Ring
4.	G6400-08 GR1037	6 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
5.	G10943 G10227	2 2	Hex Head Cap Screw, 1/4"-20 x 4" Lock Washer, 1/4"
6.	GA10632	1	Counter Balance Valve
7.	G6408-08 GR1037	1 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
8.	GD14924	1	Block
9.	G6801-08 GR1037	1 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
A.	GR1517	-	Seal Kit For Counter Balance Valve, Includes: (3) O-Rings, (3) BU Rings

VALVE BLOCK - LOCATED AT CENTER OF REAR H-FRAME

(FWD23)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA3407 GR0764	1 -	Pressure Relief Valve, 1000 PSI Seal Kit, Includes: (2) O-Rings, (1) BU Ring
2.	G6801-08 GR1037	2 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
3.	GD14528	1	Valve Block
4.	G10069 G10221 G10109	2 2 2	Hex Head Cap Screw, 5/16"-18 x 2 1/4" Washer, 5/16" SAE Lock Nut, 5/16"-18, Grade 8

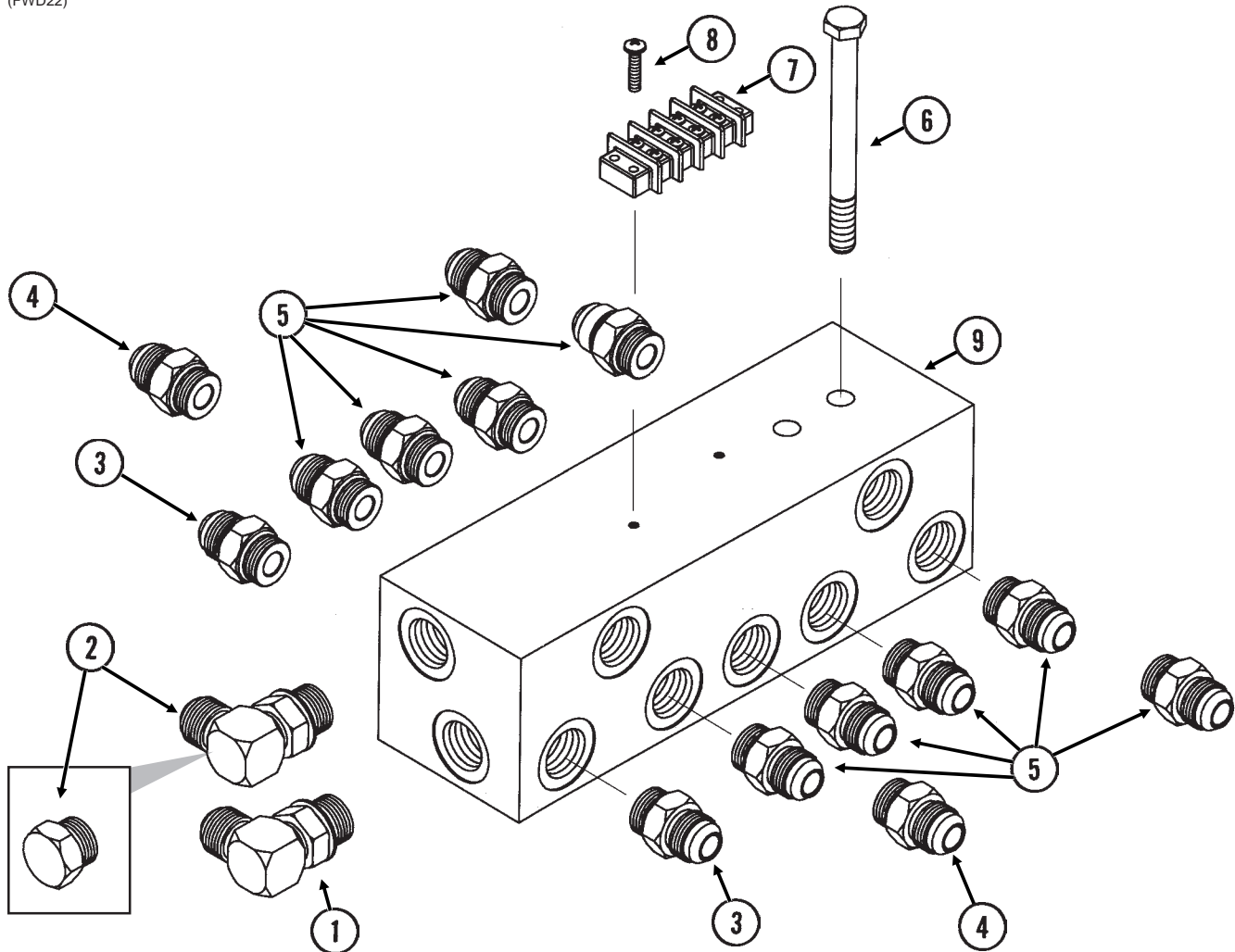


P92

Rev. 3/06

JUNCTION BLOCK - LOCATED ON EACH WING

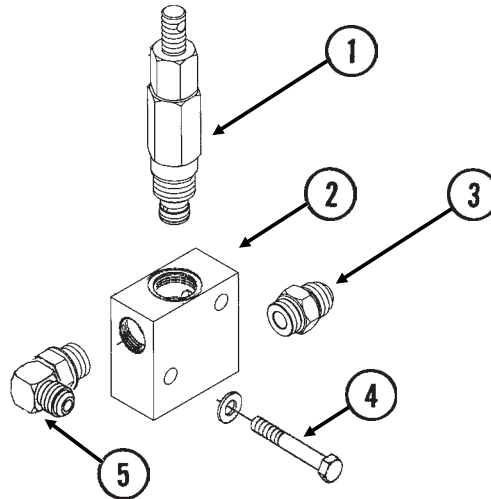
(FWD22)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	G6801-08 GR1037	1 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
2.	G6801-08 G6408-08 GR1037	1 - -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring, 32 Row 30" And 36 Row 30" Plug W/O-Ring, 3/4"-16 O-Ring, 24 Row 30"
3.	G6400-10-08 GR1037	2 -	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring
4.	G6400-08 G6400-10-08 GR1037	2 - -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring, 24 Row 30" Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring, 32 Row 30" And 36 Row 30" O-Ring
5.	G6400-08 GR1037	10 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
6.	G10063 G10203 G10108	2 2 2	Hex Head Cap Screw, 3/8"-16 x 4" Washer, 3/8" SAE Lock Nut, 3/8"-16
7.	GA9510 GR1635	1 -	Terminal Strip W/Screws, No. 6, 4 Terminal Screw, No. 6-32 x 1/4"
8.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
9.	GD14925	1	Block

VALVE BLOCK - LOCATED AT EACH ROW MARKER ON OUTER WING, 32 ROW 30" AND 36 ROW 30"

(FWD26a)

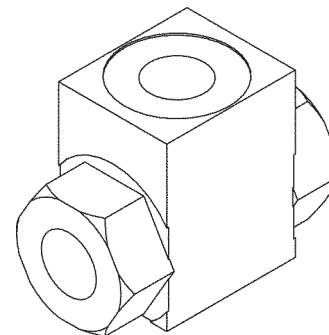


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA3407	-	Pressure Relief Valve, 1000 PSI
	GR1515	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
2.	GD14528	1	Valve Block
3.	G6400-08	1	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
4.	G10069	2	Hex Head Cap Screw, 5/16"-18 x 2 1/4"
	G10221	2	Washer, 5/16" SAE
	G10109	2	Lock Nut, 5/16"-18, Grade 8
5.	G6801-08	1	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring

FLOW REGULATOR VALVE - LOCATED AT EACH ROW MARKER ON OUTER WING, 32 ROW 30" AND 36 ROW 30"

(A10645)

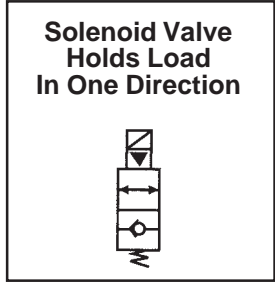
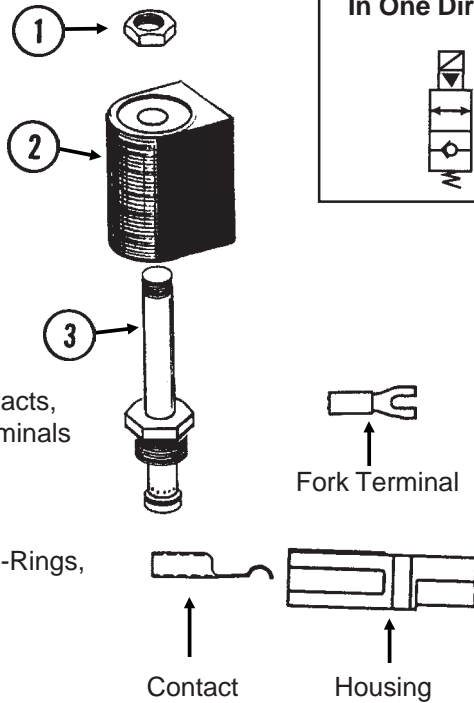
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA10645	-	Flow Regulator Valve



SOLENOID VALVE (G1K275)

VVB019(TWL27c/TWL18/PLTR75c/A9481)

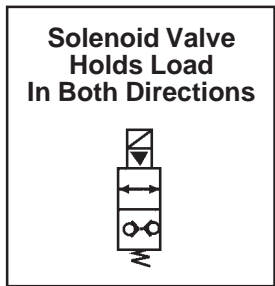
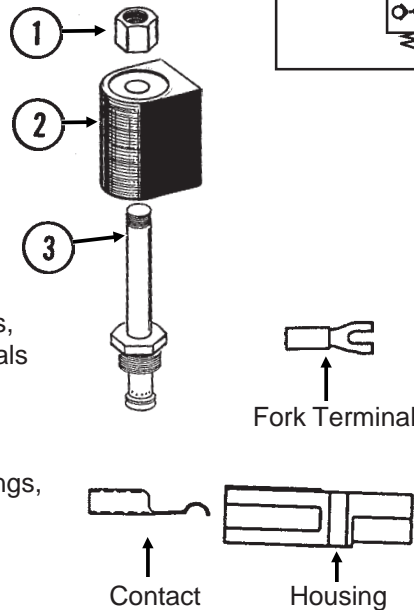
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR0761	1	Special Hex Nut, 1/2"-20
2.	G1K274	1	Coil Kit W/Coil, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
3.	GR0763	1	Cartridge
A.	G1K275	-	Solenoid Valve Kit W/Solenoid Valve, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring



SOLENOID VALVE (G1K276)

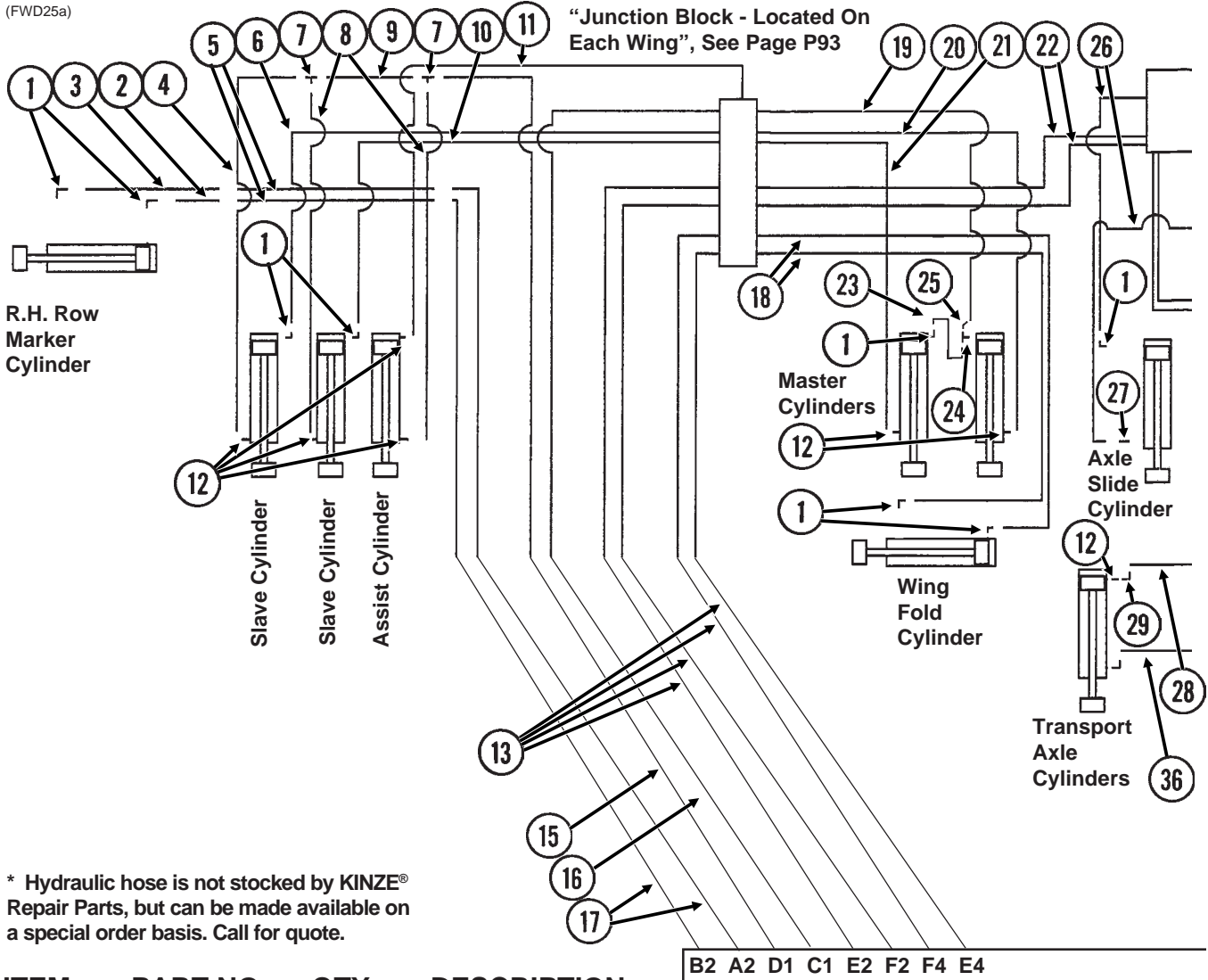
VVB019(FF25/TWL18/PLTR75c)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1322	1	Special Hex Nut, 1/2"-20
2.	G1K274	1	Coil Kit W/Coil, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
3.	GR1321	1	Cartridge
A.	G1K276	-	Solenoid Valve Kit W/Solenoid Valve, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring



HYDRAULIC HOSES AND FITTINGS, 24 ROW 30"

(FWD25a)



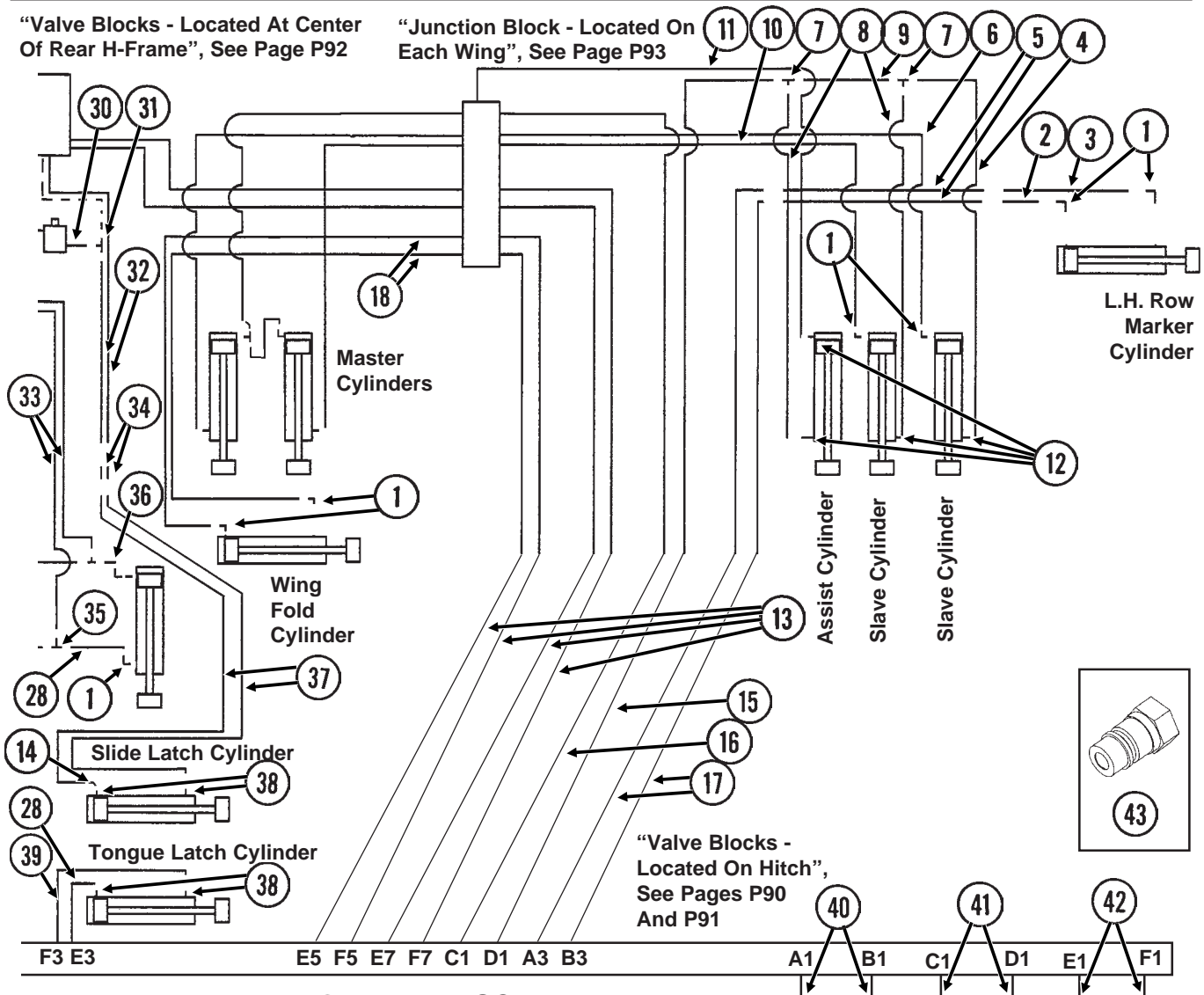
* Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6801-08 GR1037	15 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
2.	*A3220	2	Hose Assembly, 3/8" x 82"
3.	*A3149	2	Hose Assembly, 3/8" x 46"
4.	*A1020	2	Hose Assembly, 3/8" x 48"
5.	*A3247	4	Hose Assembly, 3/8" x 156" (Male To Female)
6.	*A1090	2	Hose Assembly, 3/8" x 162"
7.	G2603-08	4	Tee, 3/4"-16 Male JIC
8.	*A1079	4	Hose Assembly, 3/8" x 24"
9.	*A1086	2	Hose Assembly, 3/8" x 28"
10.	*A3249	2	Hose Assembly, 3/8" x 132"
11.	*A3136	2	Hose Assembly, 3/8" x 100"
12.	G6400-08 GR1037	14 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
13.	*A3268	8	Hose Assembly, 3/8" x 324"
14.	G6502-06	1	Swivel Elbow, 45°, 9/16"-18 Male JIC To Female
15.	*A8254	2	Hose Assembly, 1/2" x 400" (Elbow End)
16.	*A8278	2	Hose Assembly, 1/2" x 312" (Elbow End)
17.	*A3269	4	Hose Assembly, 3/8" x 340"
18.	*A3206	4	Hose Assembly, 3/8" x 184"
19.	*A8237	2	Hose Assembly, 1/2" x 202"
20.	*A3161	2	Hose Assembly, 3/8" x 210"
21.	*A3139	2	Hose Assembly, 3/8" x 254"
22.	*A3154	4	Hose Assembly, 3/8" x 196"

HYDRAULIC HOSES AND FITTINGS, 24 ROW 30"

"Valve Blocks - Located At Center Of Rear H-Frame", See Page P92

"Junction Block - Located On Each Wing", See Page P93

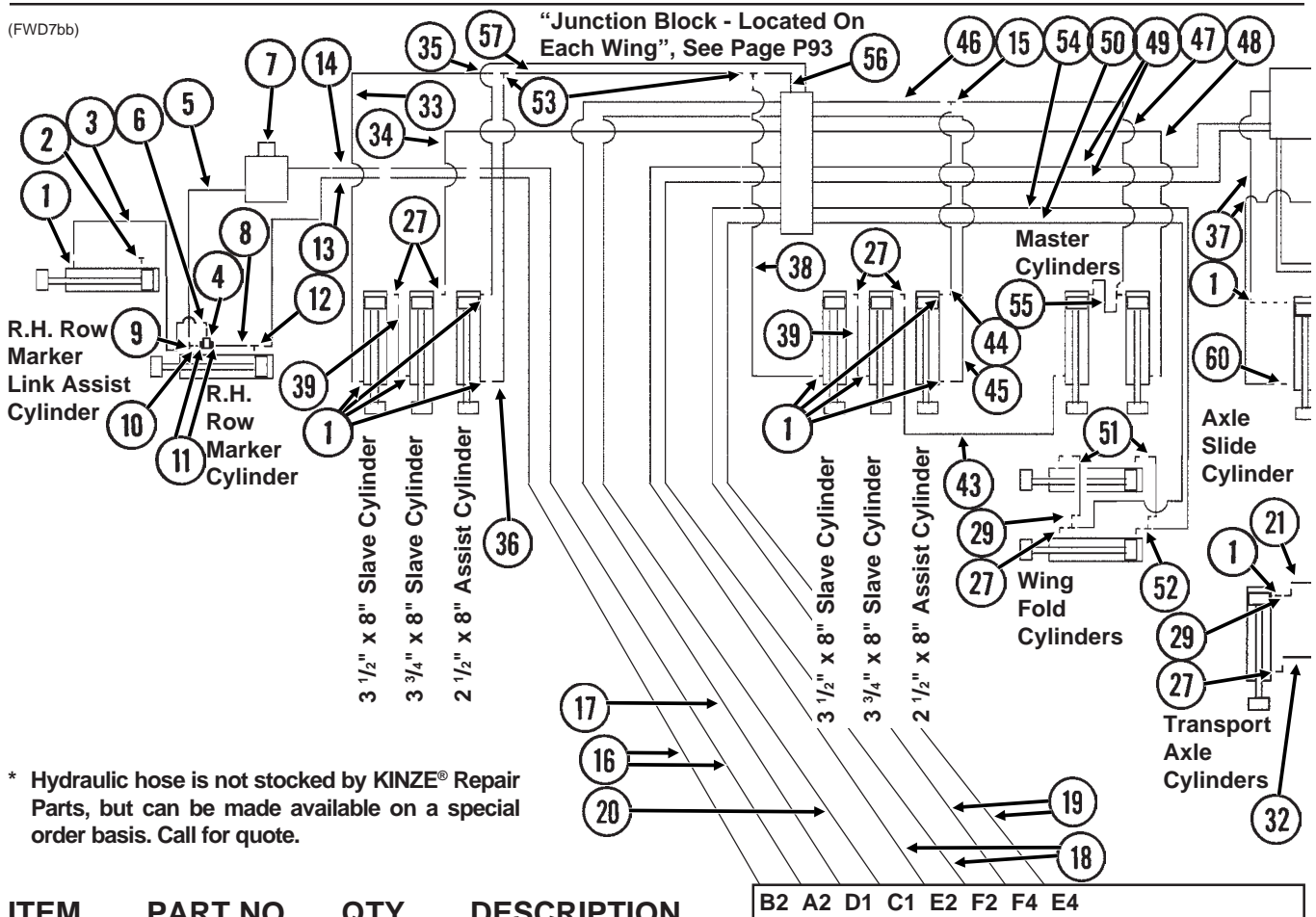


ITEM PART NO. QTY. DESCRIPTION

23.	*A3158	2	Hose Assembly, 3/8" x 46"
24.	G6803-08	2	Tee, 3/4"-16 Male NPT To O-Ring
	GR1037	-	O-Ring
25.	G6502-08	2	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female
26.	*A3248	2	Hose Assembly, 3/8" x 48" (Elbow End)
27.		-	See "Axle Slide Cylinder", Page P85
28.	*A1192	3	Hose Assembly, 1/4" x 20"
29.	G6500-08	2	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
30.	*A3121	1	Hose Assembly, 3/8" x 18"
31.		-	See "Valve Block - Located At Center Of Rear H-Frame", Page P92
32.	*A1102	2	Hose Assembly, 1/4" x 95"
33.	*A3257	2	Hose Assembly, 3/8" x 86"
34.	G2700-06-06	2	Bulkhead Tube Union, 9/16"-18 Male JIC
35.	G2704-06	2	Bulkhead Tee, 9/16"-18 JIC
36.	*A7614	2	Hose Assembly, 1/4" x 17"
37.	*A1132	2	Hose Assembly, 1/4" x 44"
38.	G6400-06-08	4	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
39.	*A7613	1	Hose Assembly, 1/4" x 44" (Elbow End)
40.	*A8230	2	Hose Assembly, 1/2" x 84" (Elbow End)
41.	*A8231	2	Hose Assembly, 1/2" x 72"
42.	*A3236	2	Hose Assembly, 3/8" x 72"
43.	GD4086	6	ISO Coupler

HYDRAULIC HOSES AND FITTINGS, 32 ROW 30"

(FWD7bb)



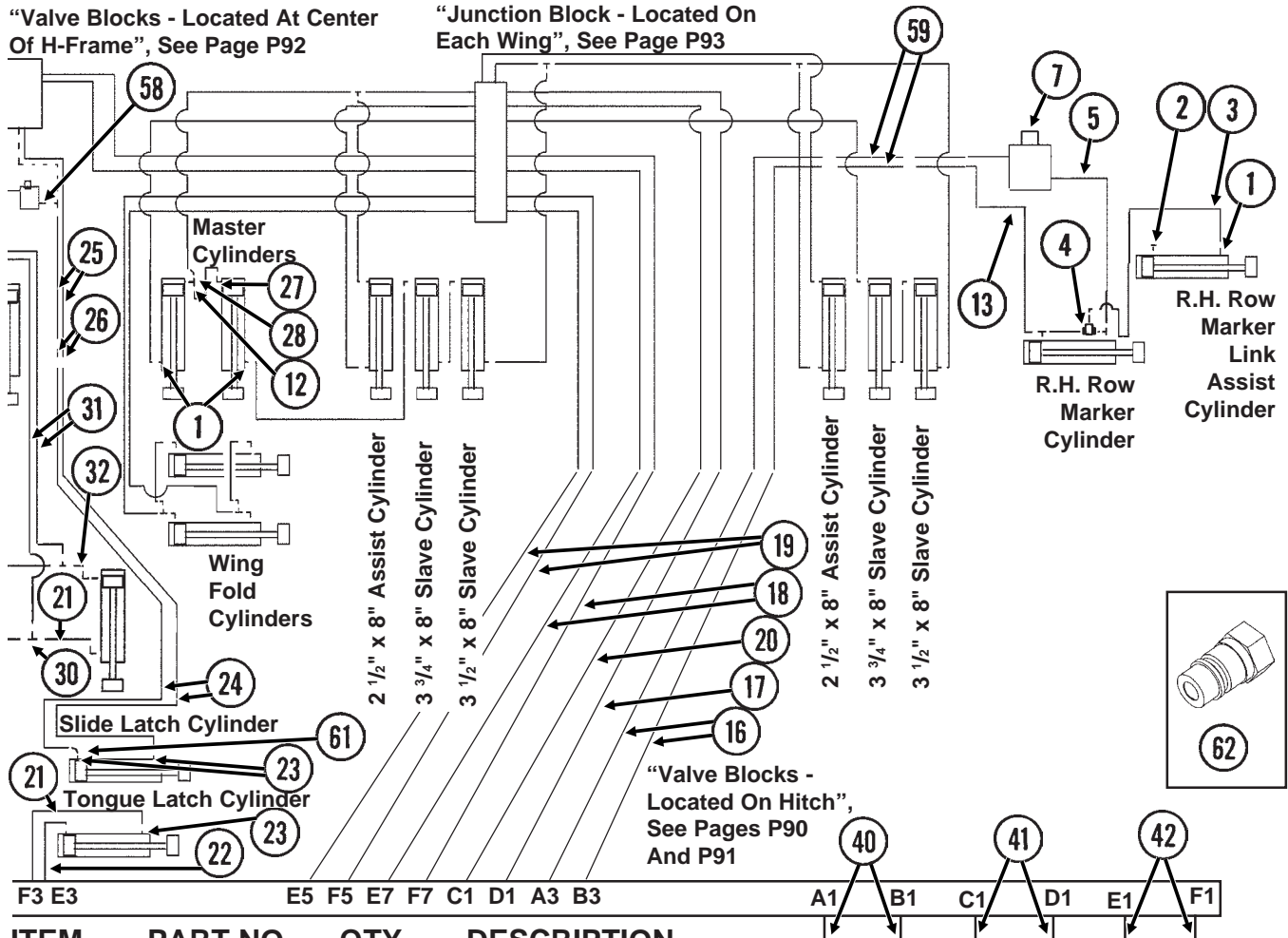
* Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6400-08 GR1037	24 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
2.	GA5531 GR1037	2 -	Breather Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3.	*A1020	2	Hose Assembly, 3/8" x 48"
4.		-	See "Flow Regulator Valve", Page P94
5.	*A8242	2	Hose Assembly, 1/2" x 67"
6.	G6801-08-06 GR1045	2 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To 9/16"-18 O-Ring O-Ring
7.		-	See "Valve Block - Located At Each Row Marker", Page 94
8.	*A3153	2	Hose Assembly, 3/8" x 22"
9.	G6804-08 GR1037	2 -	Adjustable Tee, 3/4"-16 Male JIC To O-Ring O-Ring
10.	*A3258	2	Hose Assembly, 3/8" x 9" (Elbow End)
11.	G6400-08-06 GR1045	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To 9/16"-18 O-Ring O-Ring
12.	G6803-08 GR1037	2 -	Tee, 3/4"-16 Male NPT To O-Ring O-Ring
13.	*A8243	2	Hose Assembly, 1/2" x 76"
14.	*A8244	2	Hose Assembly, 1/2" x 36"
15.	G2603-10	2	Tee, 7/8"-14 Male JIC
16.	*A8260	4	Hose Assembly, 1/2" x 424"
17.	*A8227	2	Hose Assembly, 1/2" x 408" (Elbow Ends)
18.	*A3273	4	Hose Assembly, 3/8" x 400"
19.	*A3271	4	Hose Assembly, 3/8" x 402"
20.	*A8259	2	Hose Assembly, 1/2" x 408" (Elbow End)
21.	*A1192	3	Hose Assembly, 1/4" x 20"
22.	*A7612	1	Hose Assembly, 1/4" x 52" (Elbow End)
23.	G6400-06-08 GR1037	4 -	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring O-Ring
24.	*A1132	2	Hose Assembly, 1/4" x 44"
25.	*A7615	2	Hose Assembly, 1/4" x 122"
26.	G2700-06-06	2	Bulkhead Tube Union, 9/16"-18 Male JIC
27.	G6801-08 GR1037	16 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
28.	G6502-08	4	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female

HYDRAULIC HOSES AND FITTINGS, 32 ROW 30"

"Valve Blocks - Located At Center Of H-Frame", See Page P92

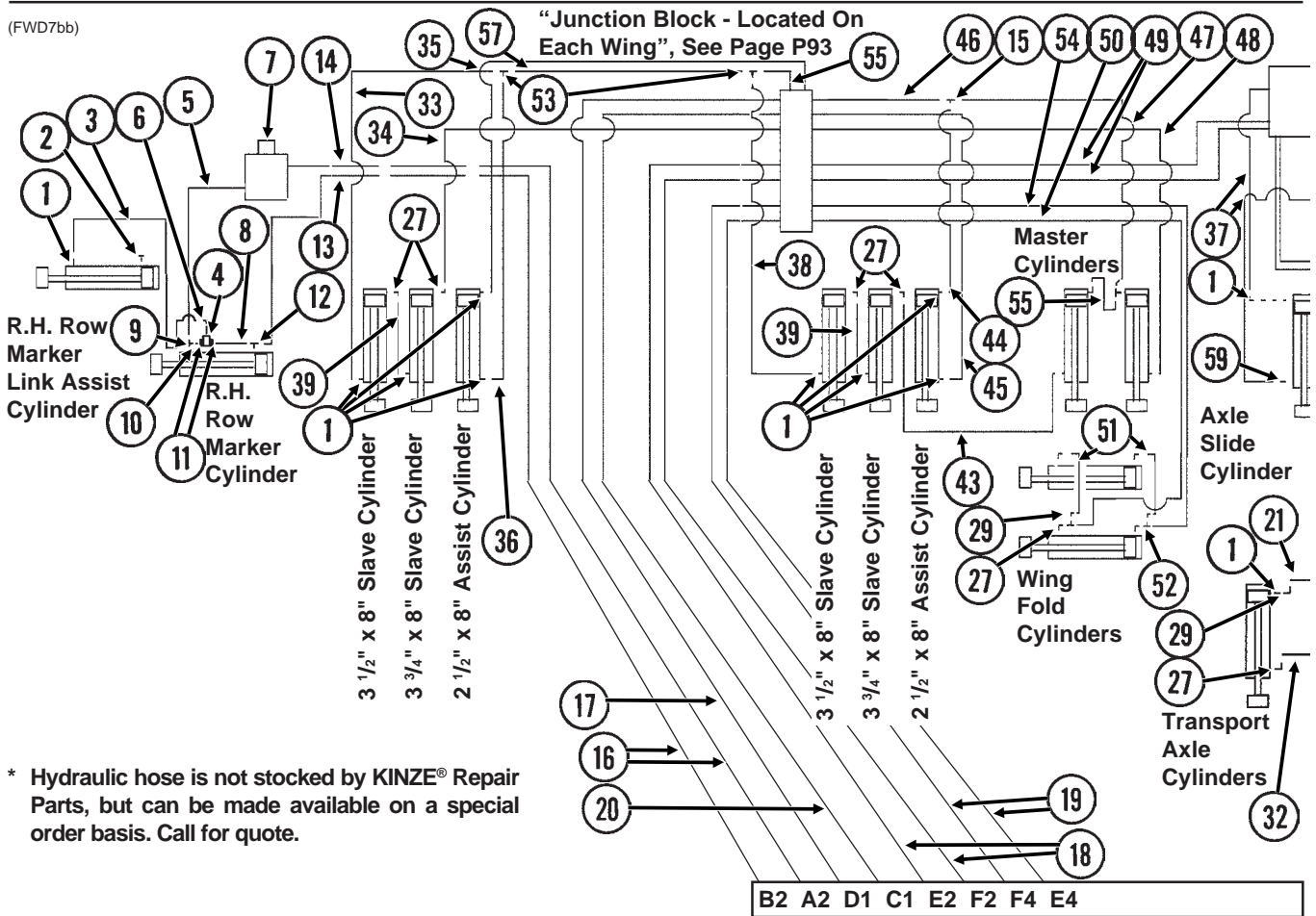
"Junction Block - Located On Each Wing", See Page P93



ITEM	PART NO.	QTY.	DESCRIPTION
29.	G6500-08	4	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
30.	G2704-06	2	Bulkhead Tee, 9/16"-18 JIC
31.	*A3259	2	Hose Assembly, 3/8" x 122"
32.	*A7614	2	Hose Assembly, 1/4" x 17"
33.	*A1039	2	Hose Assembly, 3/8" x 76"
34.	*A1057	2	Hose Assembly, 3/8" x 216"
35.	*A1029	2	Hose Assembly, 3/8" x 190"
36.	*A1082	2	Hose Assembly, 3/8" x 19"
37.	*A3225	2	Hose Assembly, 3/8" x 56" (Elbow End)
38.	*A1098	2	Hose Assembly, 3/8" x 26"
39.	*A1055	4	Hose Assembly, 3/8" x 66"
40.	*A8230	2	Hose Assembly, 1/2" x 84" (Elbow End)
41.	*A8231	2	Hose Assembly, 1/2" x 72"
42.	*A3236	2	Hose Assembly, 3/8" x 72"
43.	*A3228	2	Hose Assembly, 3/8" x 306"
44.	*A3223	2	Hose Assembly, 3/8" x 24"
45.	*A3224	2	Hose Assembly, 3/8" x 28"
46.	*A8229	2	Hose Assembly, 1/2" x 15"
47.	*A8226	2	Hose Assembly, 1/2" x 26"
48.	*A1031	2	Hose Assembly, 3/8" x 234"
49.	*A1033	4	Hose Assembly, 3/8" x 250"
50.	*A3154	2	Hose Assembly, 3/8" x 196"
51.	*A3153	4	Hose Assembly, 3/8" x 22"
52.	G6602-08	2	Swivel Tee, 3/4"-16 JIC
53.	G2603-08	4	Tee, 3/4"-16 Male JIC
54.	*A3163	2	Hose Assembly, 3/8" x 225"
55.	*A1022	2	Hose Assembly, 3/8" x 60"
56.	*A1018	2	Hose Assembly, 3/8" x 40"
57.	*A3199	2	Hose Assembly, 3/8" x 132"
58.	*A3121	1	Hose Assembly, 3/8" x 18"
59.	*A8225	4	Hose Assembly, 1/2" x 209"
60.		-	See "Axle Slide Cylinder", Page P86
61.	G6502-06	1	Swivel Elbow, 45°, 9/16"-18 Male JIC To Female
62.	GD4086	6	ISO Coupler

HYDRAULIC HOSES AND FITTINGS, 36 ROW 30"

(FWD7bb)



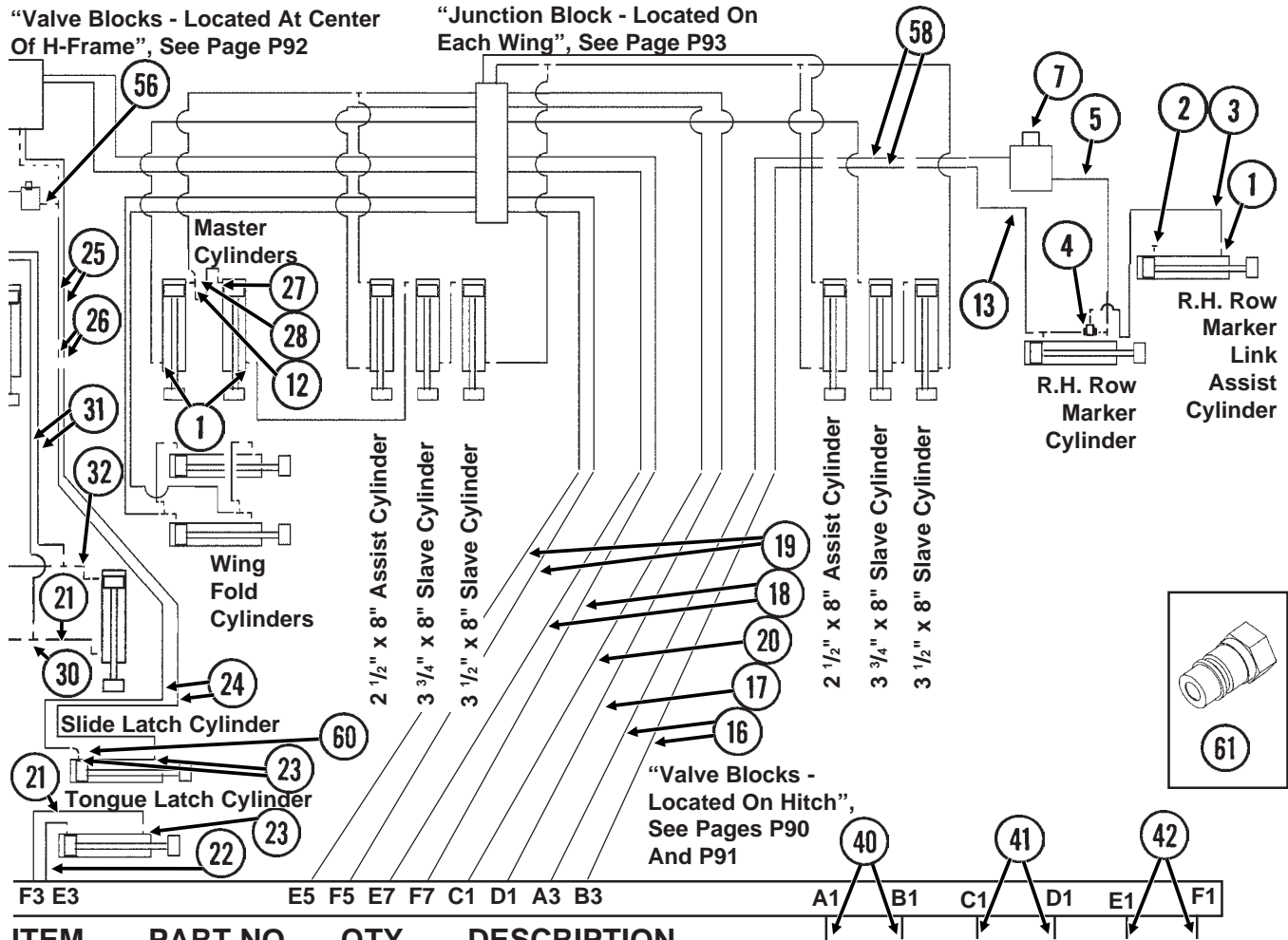
* Hydraulic hose is not stocked by KINZE® Repair Parts, but can be made available on a special order basis. Call for quote.

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6400-08 GR1037	24 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
2.	GA5531 GR1037	2 -	Breather Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3.	*A1020	2	Hose Assembly, 3/8" x 48"
4.		-	See "Flow Regulator Valve", Page P94
5.	*A8242	2	Hose Assembly, 1/2" x 67"
6.	G6801-08-06 GR1045	2 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To 9/16"-18 O-Ring O-Ring
7.		-	See "Valve Block - Located At Each Row Marker", Page 94
8.	*A3153	2	Hose Assembly, 3/8" x 22"
9.	G6804-08 GR1037	2 -	Adjustable Tee, 3/4"-16 Male JIC To O-Ring O-Ring
10.	*A3258	2	Hose Assembly, 3/8" x 9" (Elbow End)
11.	G6400-08-06 GR1045	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To 9/16"-18 O-Ring O-Ring
12.	G6803-08 GR1037	2 -	Tee, 3/4"-16 Male NPT To O-Ring O-Ring
13.	*A8243	2	Hose Assembly, 1/2" x 76"
14.	*A8244	2	Hose Assembly, 1/2" x 36"
15.	G2603-10	2	Tee, 7/8"-14 Male JIC
16.	*A8258	4	Hose Assembly, 1/2" x 454"
17.	*A8256	2	Hose Assembly, 1/2" x 436" (Elbow End)
18.	*A3270	4	Hose Assembly, 3/8" x 431"
19.	*A3272	4	Hose Assembly, 3/8" x 426"
20.	*A8257	2	Hose Assembly, 3/8" x 436" (Elbow End)
21.	*A1192	3	Hose Assembly, 1/4" x 20"
22.	*A7612	1	Hose Assembly, 1/4" x 52" (Elbow End)
23.	G6400-06-08 GR1037	4 -	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring O-Ring
24.	*A1132	2	Hose Assembly, 1/4" x 44"
25.	*A7615	2	Hose Assembly, 1/4" x 122"
26.	G2700-06-06	2	Bulkhead Tube Union, 9/16"-18 Male JIC
27.	G6801-08 GR1037	16 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring

HYDRAULIC HOSES AND FITTINGS, 36 ROW 30"

"Valve Blocks - Located At Center Of H-Frame", See Page P92

"Junction Block - Located On Each Wing", See Page P93

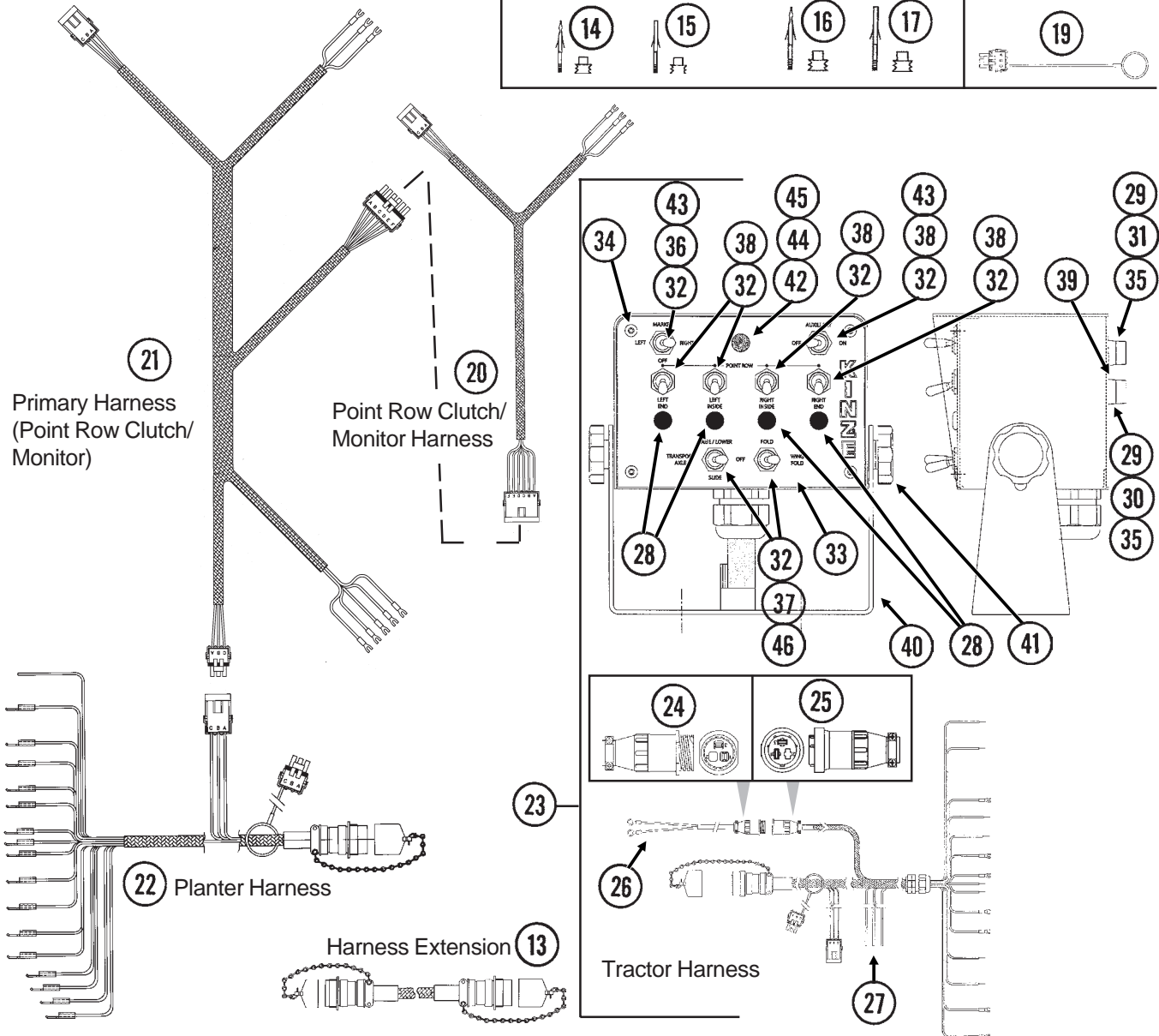
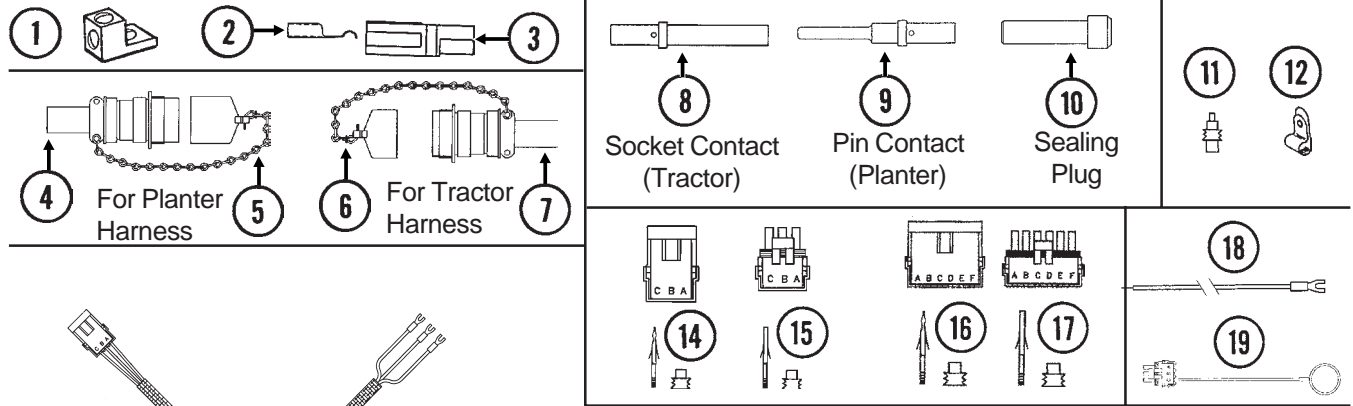


ITEM PART NO. QTY. DESCRIPTION

28.	G6502-08	4	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female
29.	G6500-08	4	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
30.	G2704-06	2	Bulkhead Tee, 9/16"-18 JIC
31.	*A3259	2	Hose Assembly, 3/8" x 122"
32.	*A7614	2	Hose Assembly, 1/4" x 17"
33.	*A1039	2	Hose Assembly, 3/8" x 76"
34.	*A3261	2	Hose Assembly, 3/8" x 276"
35.	*A3139	4	Hose Assembly, 3/8" x 254"
36.	*A1082	2	Hose Assembly, 3/8" x 19"
37.	*A3225	2	Hose Assembly, 3/8" x 56" (Elbow End)
38.	*A1098	2	Hose Assembly, 3/8" x 26"
39.	*A1055	4	Hose Assembly, 3/8" x 66"
40.	*A8230	2	Hose Assembly, 1/2" x 84" (Elbow End)
41.	*A8231	2	Hose Assembly, 1/2" x 72"
42.	*A3236	2	Hose Assembly, 3/8" x 72"
43.	*A3228	2	Hose Assembly, 3/8" x 306"
44.	*A3223	2	Hose Assembly, 3/8" x 24"
45.	*A3242	2	Hose Assembly, 3/8" x 43"
46.	*A8202	2	Hose Assembly, 1/2" x 17"
47.	*A8226	2	Hose Assembly, 1/2" x 26"
48.	*A1089	2	Hose Assembly, 3/8" x 240"
49.	*A3139	4	Hose Assembly, 3/8" x 254"
50.	*A3111	2	Hose Assembly, 3/8" x 200"
51.	*A3153	4	Hose Assembly, 3/8" x 22"
52.	G6602-08	2	Swivel Tee, 3/4"-16 JIC
53.	G2603-08	4	Tee, 3/4"-16 Male JIC
54.	*A3265	2	Hose Assembly, 3/8" x 164"
55.	*A1022	4	Hose Assembly, 3/8" x 60"
56.	*A3121	1	Hose Assembly, 3/8" x 18"
57.	*A1057	2	Hose Assembly, 3/8" x 216"
58.	GA8234	4	Hose Assembly, 1/2" x 254"
59.	-	-	See "Axle Slide Cylinder", Page P86
60.	G6502-06	1	Swivel Elbow, 45°, 9/16"-18 Male JIC To Female
61.	GD4086	6	ISO Coupler

ELECTRICAL COMPONENTS (Control Console)

(TWL19a/TWL18/ELC3a/ELC5c/ELC14/MTR27a/ELC39/TWL26e/MTR27a/MTR45/A9481/ELC8/A10310/A10309/A10308/ELC34/ELC35/FWD30)



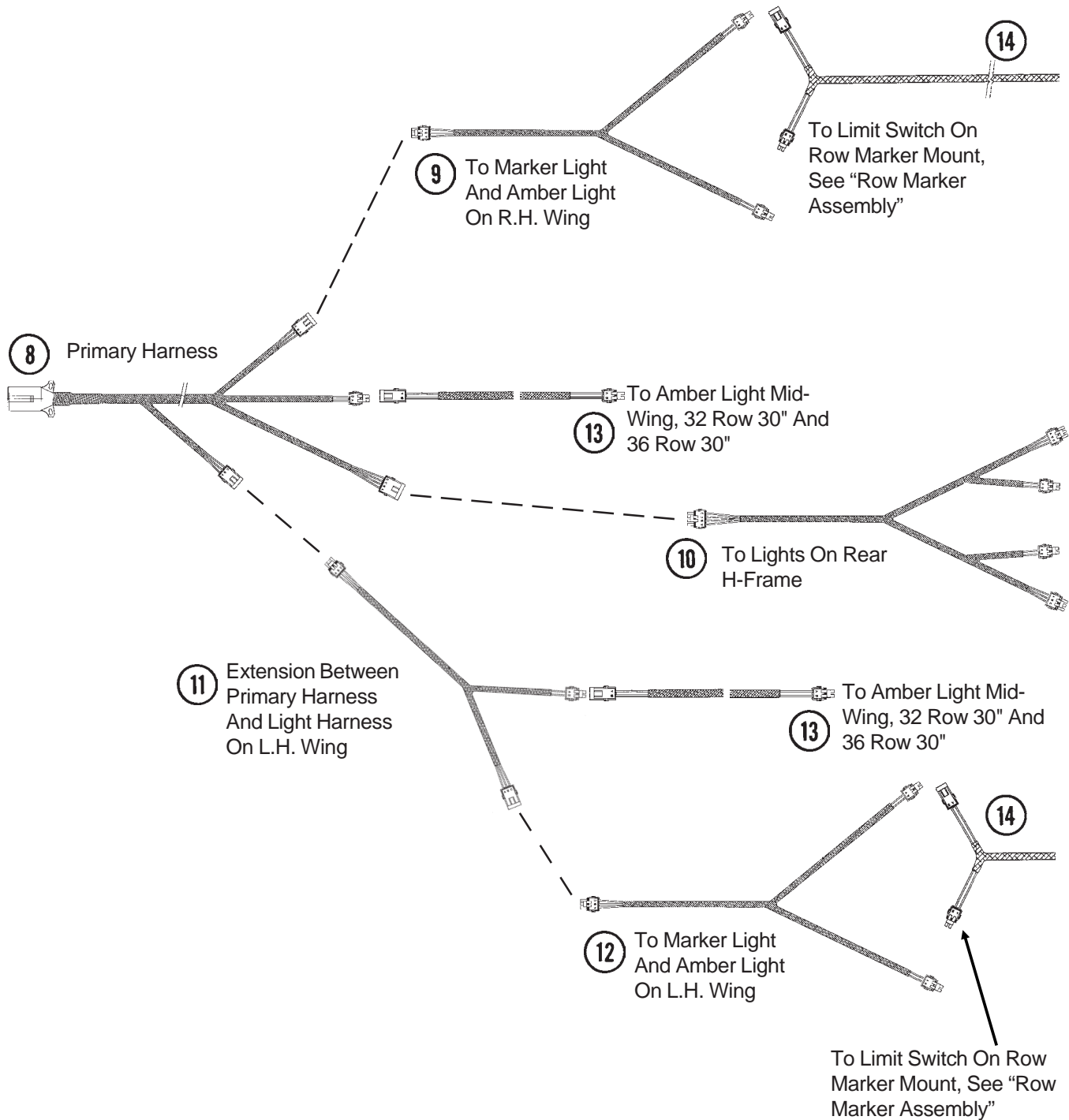
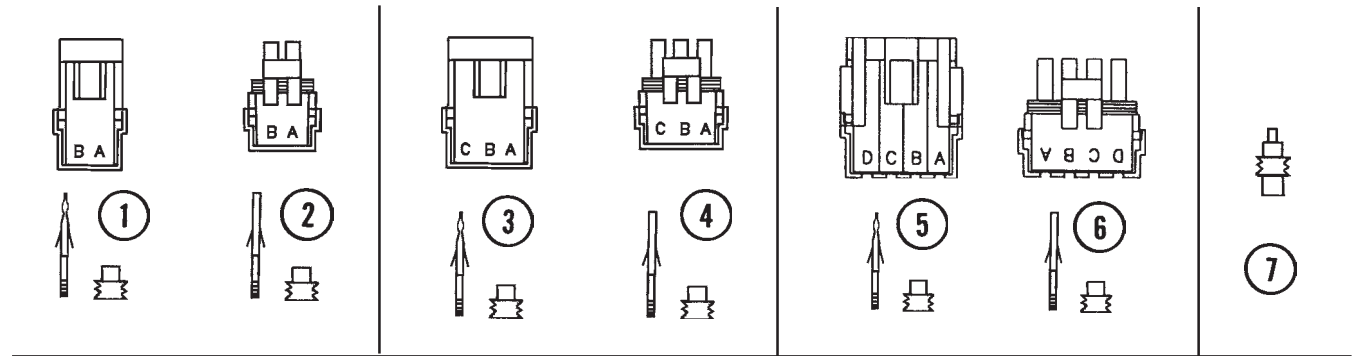
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA3584	-	Ground Clamp
2.	GD9530	-	Contact
3.	GD9529	-	Housing, Black
	GD12726	-	Housing, Red
4.	GA6109	1	Connector W/Cable Clamp, 23 Pin Capacity
5.	GA7862	-	Dust Cap W/Chain
6.	GA7863	-	Dust Cap W/Chain

ELECTRICAL COMPONENTS (Control Console)

ITEM	PART NO.	QTY.	DESCRIPTION
7.	GA6108	1	Connector W/Cable Clamp, 23 Socket Capacity
8.	GD8740	-	Socket Contact, No. 14
9.	GD8741	-	Pin Contact, No. 14
10.	GD8739	-	Sealing Plug, No. 12
11.	GD11089	-	Sealing Plug
12.	GD6291	-	Insulated Clamp, $\frac{3}{8}$ "
13.	GA7399	-	Harness Extension W/Dust Caps, 180"
14.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
15.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
16.	G1K396	-	6-Pin Female Connector Kit (Black), Includes: (3) 6-Pin Female Housings, (18) Pin Contacts, (18) Seals
17.	G1K395	-	6-Pin Male Connector Kit (Black), Includes: (3) 6-Pin Male Housings, (18) Socket Contacts, (18) Seals
18.	GA9481	-	Jumper Wire W/Fork Terminal, 13"
	G10996	-	Fork Terminal
19.	GA8047	-	Dust Plug (Black)
20.	GA10310	1	Wiring Harness, 254", 24 Row 30"
	GA10321	1	Wiring Harness, 327", 32 Row 30"
	GA10329	1	Wiring Harness, 359", 36 Row 30"
21.	GA10309	1	Wiring Harness, 392", 24 Row 30"
	GA10320	1	Wiring Harness, 465", 32 Row 30"
	GA10328	1	Wiring Harness, 397", 36 Row 30"
22.	GA10308	1	Wiring Harness W/Dust Cap, 96"
23.	G7848X	-	Backlit Control Console Assembly W/Mounting Brackets, Short Harness W/Dust Cap And Power Cable
24.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (3) Male Terminal Pins
25.	G1K268	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (1) Lock Ring, (3) Female Terminal Pins
26.	GA7856	1	Power Lead Adapter
27.	GA10307	1	Wiring Harness W/Dust Cap And Power Cable
28.	GA10194	4	Indicator Light, Red
29.	GA2612	5	Fuse Holder W/Spade, 1 $\frac{33}{50}$ "
30.	GD2829	1	Fuse, 15 Amp, Type AGC
31.	GD10243	4	Fuse, MDL 10 Amp Delay Action
32.	GR1363	8	Hex Face Nut, $\frac{15}{32}$ "-32
	GR1364	8	Internal Tooth Lock Washer, $\frac{15}{32}$ "
33.	GA10686	1	Cover Plate
34.	GR1292	4	Pan Head Screw, No. 8-32 x $\frac{1}{2}$ "
35.	GD3860	5	O-Ring (If Applicable)
36.	GA2528	1	Switch, 3 Position Toggle, On-Off-On
37.	GA6978	2	Switch, 3 Position Toggle, Momentary On-Off-Momentary On
38.	GA6977	5	Switch, 2 Position Toggle, On-Off
39.	GA8731	1	Switch, Push Button W/Transformer
40.	GD9896	1	Mounting Bracket
41.	GA6975	2	Knob
	G10211	4	Washer, $\frac{1}{4}$ " SAE
	GR1290	2	Cage Nut, $\frac{1}{4}$ "-20
42.	GA10206	1	Indicator Light, Green
43.	GA10682	2	Jumper Wire, 3", Gray
44.	GA10683	1	Jumper Wire, 5", White
45.	GA10684	1	Jumper Wire, 3", Red
46.	GA10685	4	Jumper Wire, 5", White

ELECTRICAL COMPONENTS (Lights)

(MTR27v/MTR27a/ELC27b/MTR27a/A10315/A10318/A10317/A10316/A10452/A11042)

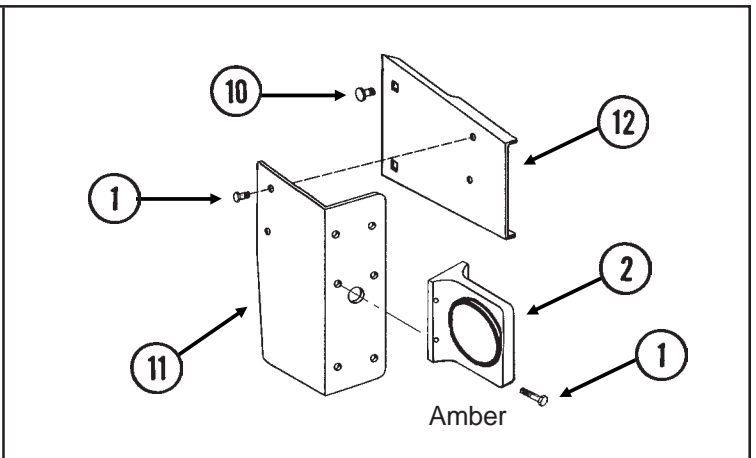
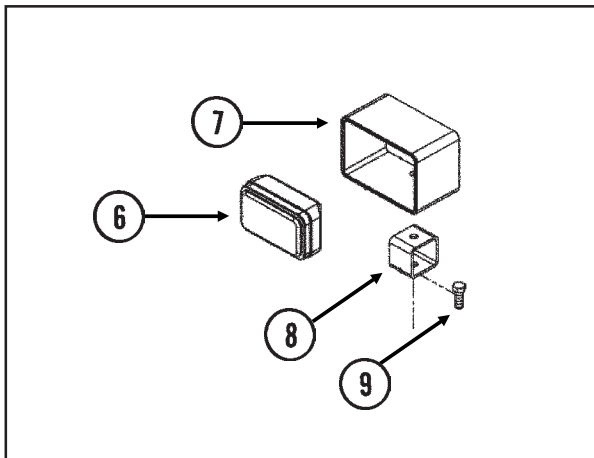
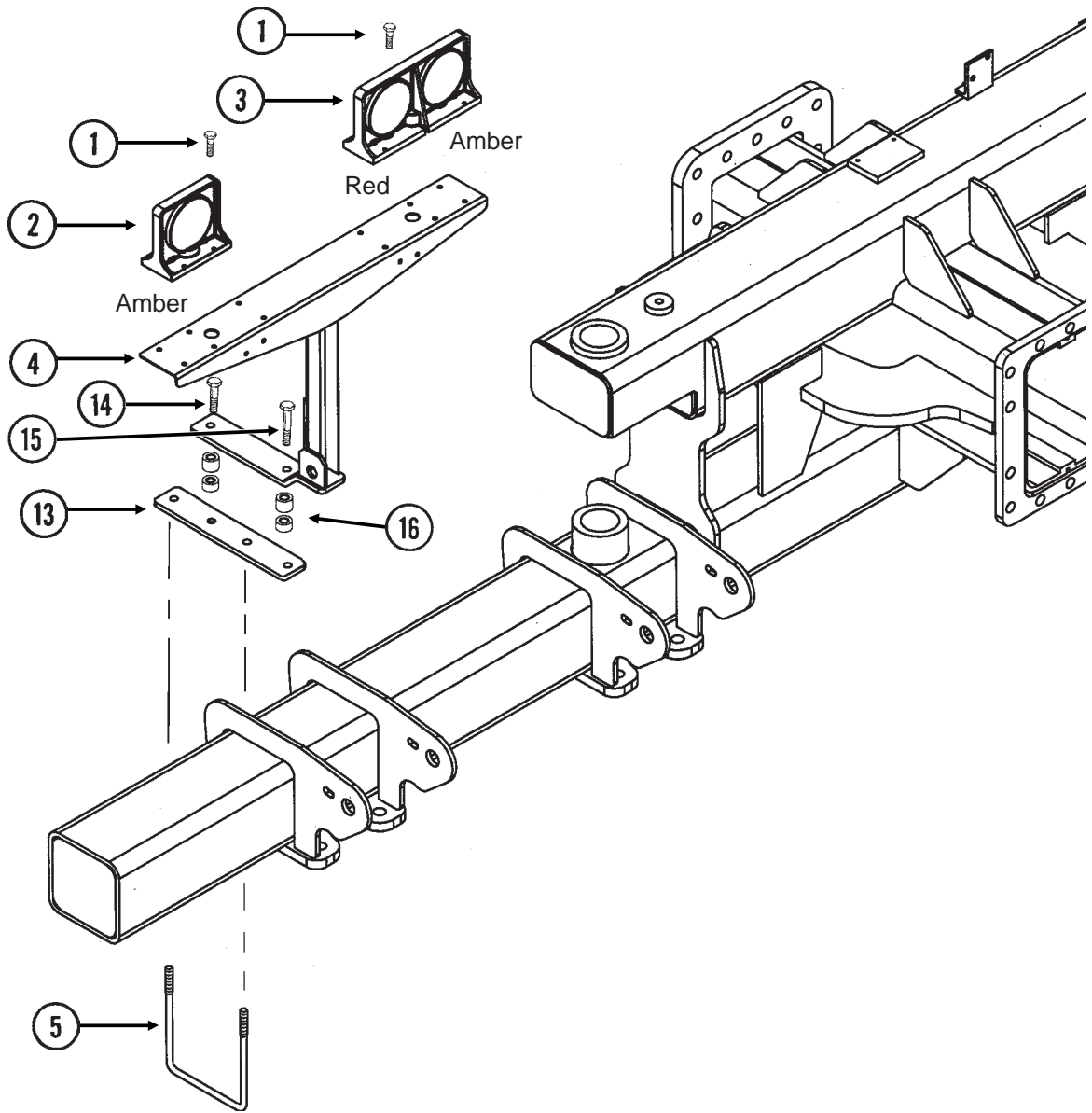


ELECTRICAL COMPONENTS (Lights)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
2.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
3.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
4.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
5.	GA8328	-	4-Pin Connector W/Female Housing, 4 Seals And 4 Pin Contacts
6.	GA8329	-	4-Pin Connector W/Male Housing, 4 Seals And 4 Socket Contacts
7.	GD11089	-	Sealing Plug
8.	GA10315	1	Wiring Harness, 390", 24 Row 30"
	GA10323	1	Wiring Harness, 463", 32 Row 30"
	GA10334	1	Wiring Harness, 495", 36 Row 30"
9.	GA10318	1	Wiring Harness, 156", 24 Row 30"
	GA10326	1	Wiring Harness, 231", 32 Row 30"
	GA10338	1	Wiring Harness, 276", 36 Row 30"
10.	GA10317	1	Wiring Harness, 198", 24 Row 30"
	GA10325	1	Wiring Harness, 243", 32 Row 30"
	GA10336	1	Wiring Harness, 258", 36 Row 30"
11.	GA10316	1	Wiring Harness, 254", 24 Row 30"
	GA10324	1	Wiring Harness, 327", 32 Row 30"
	GA10335	1	Wiring Harness, 359", 36 Row 30"
12.	GA10319	1	Wiring Harness, 156", 24 Row 30"
	GA10327	1	Wiring Harness, 231", 32 Row 30"
	GA10337	1	Wiring Harness, 276", 36 Row 30"
13.	GA10452	2	Wiring Harness, 63", 32 Row 30" And 36 Row 30"
14.	GA11299	2	Wiring Harness, 63", All Sizes

LIGHT ASSEMBLIES AND BRACKETS

(FWD24b/FWD14/RU131b)

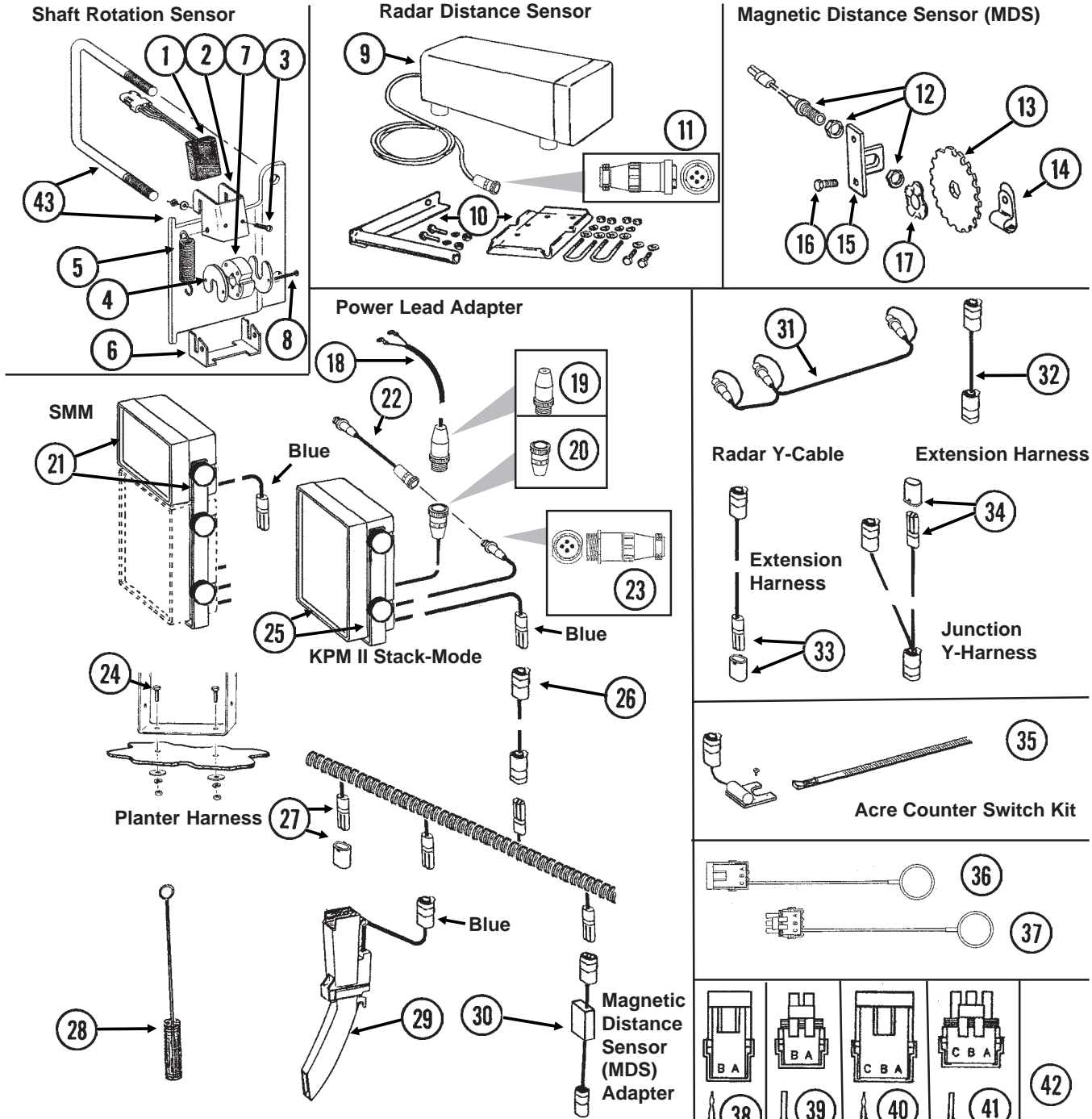


LIGHT ASSEMBLIES AND BRACKETS

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10064	-	Hex Head Cap Screw, 1/4"-20 x 1"
	G10227	-	Lock Washer, 1/4"
	G10103	-	Hex Nut, 1/4"-20
2.	GA10576	4	Single Amber Light Assembly
	GR1731	-	Amber Lens
	GR1208	-	Bulb
3.	GA10571	1	Double Light Assembly (Shown)
	GA10572	-	Double Light Assembly
	GR1733	-	Red Lens
	GR1731	-	Amber Lens
	GR1732	-	Cover
	GR1208	-	Bulb
4.	GA10291	2	Light Bracket
5.	GD7145	2	U-Bolt, 7" x 7" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
6.	GA10297	2	Work Light Assembly W/Halogen Lamp
	GR1707	-	Halogen Lamp, 3" x 5"
7.	GD15582	1	Light Protector
8.	GD14987	1	Light Bracket
9.	G10017	1	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	1	Lock Washer, 1/2"
	G10102	1	Hex Nut, 1/2"-13
10.	G10312	-	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	-	Serrated Flange Nut, 5/16"-18
11.	GD12725	1	Bracket (L.H. Wing) (Shown)
	GD12724	1	Bracket (R.H. Wing)
12.	GD12723	1	Light Mount Extension (L.H. Wing) (Shown)
	GD12722	1	Light Mount Extension (R.H. Wing)
13.	GD16327	2	Bracket
14.	G10397	2	Hex Head Cap Screw, 1/2"-13 x 2 3/4"
15.	G10033	2	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
	G10102	2	Hex Nut, 1/2"-13
16.	GD10356	4	Spacer, 3/4" Long
	GD10007	4	Spacer, 1 1/8" Long

KPM II STACK-MODE ELECTRONIC SEED MONITOR

(MTR43i)



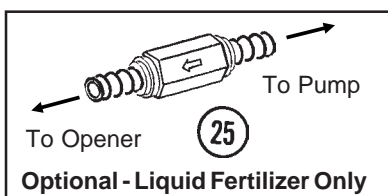
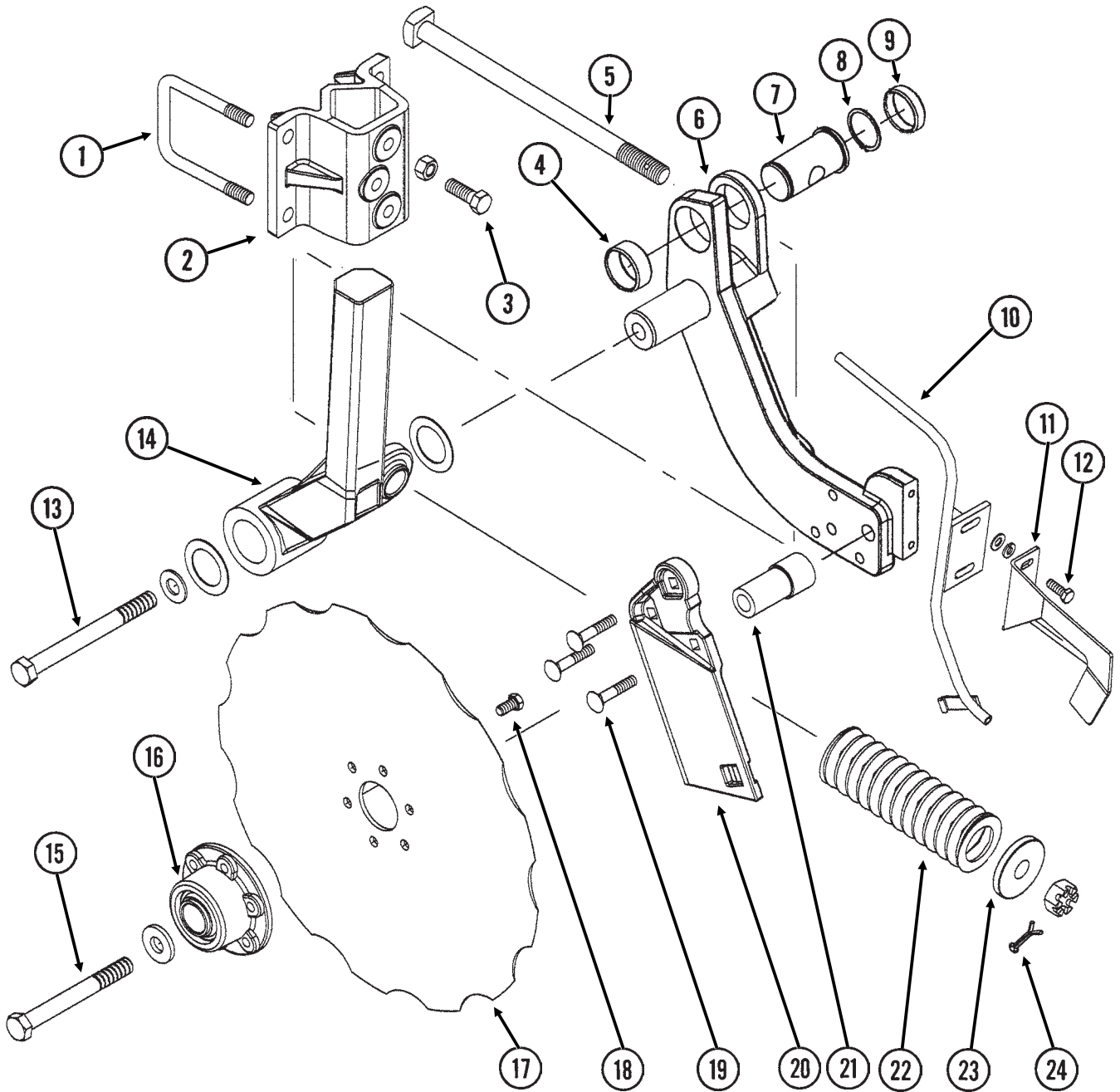
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1415	1	Rotation Sensor
2.	GD11169	1	Mount
3.	G10757	2	Pan Head Screw, No. 10-32 x 1 1/4"
	G10243	2	Washer, No. 10 SAE
	G10758	2	Hex Nut, No. 10-32
4.	GD11474	2	Cover
5.	GD5857	2	Spring
6.	GD11170	1	Spring Mount
7.	GR1414	1	Actuator
8.	G10927	2	Pan Head Machine Screw, No. 8-32 x 1 1/4", Stainless Steel
	G10931	2	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	2	Hex Nut, No. 8-32, Stainless Steel
9.	GA7858	-	Radar Distance Sensor W/20' Cable
10.	GA8026	-	Radar Sensor Pipe/Mounting Bracket Package
11.	G1K323	-	4-Pin Connector Kit W/Female Housing, 4 Pins And Cable Clamp

KPM II STACK-MODE ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
12.	GA5600	1	Magnetic Distance Sensor
13.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
14.	GD6291	-	Insulated Clamp, 3/8"
15.	GD8770	1	Bracket
16.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
17.	GD8771	1	Spring Wave Washer
18.	GA7856	1	Power Lead Adapter
19.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (3) Male Terminal Pins
20.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
21.	GA9857	1	SMM Backlit Console W/Mounting Bracket And Dust Plug (Item 36)
	GR1631	-	Mounting Bracket, KPM II Stack-Mode And SMM Consoles
	GR1632	-	Console Mounting Bracket Hardware Package (Includes 2 Knobs And 1/4" Hardware)
22.	GA9144	-	Monitor/Radar Adapter Cable, 10"
23.	G1K322	-	4-Pin Connector Kit W/Male Housing, 4 Female Socket Contacts And Cable Clamp
24.	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10211	2	Washer, 1/4" SAE
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
25.	GA10575	-	KPM II Backlit Console W/Mounting Bracket, Fuse Holder With Fuse, Power Lead Adapter (Item 18), Brush (Item 28), Dust Plug (Item 36) And Monitor/Radar Adapter, 10" (Item 22)
	GR1391	-	Mounting Bracket, KPM II
	GR1393	-	Console Mounting Bracket Hardware Package (Includes 4 Knobs And 1/4" Hardware)
	GA10601	-	Fuse Holder
	GD7639	-	Fuse
26.		-	Included In Control Console Wiring Harnesses, See "Electrical Components (Control Console)", Pages P102 And P103
27.	GA8022	-	Planter Harness W/Dust Caps, 6 Row (7 Connectors)
	GA7851	-	Planter Harness W/Dust Caps, 12 Row (16 Connectors)
	GA7852	-	Planter Harness W/Dust Caps, 16 Row (20 Connectors)
	GD11993	-	Dust Cap
28.	GR0594	-	Brush
29.	GA9847	-	Seed Tube W/Computerized Sensor (KPM II Stack-Mode)
	GR1629	-	Sensor Only (KPM II Stack-Mode)
	GR1461	-	Seed Tube (With Holes For Computerized Sensor Installation)
	GD2117	-	Tie Strap, 14 1/2"
30.	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
31.	GR0586	1	Radar Y-Cable (Used To Connect Radar Distance Sensor For Multiple Functions)
32.	GA7849	-	Extension Harness, 15'
33.	GA7854	-	Extension Harness W/Dust Cap, 15'
	GA7855	-	Extension Harness W/Dust Cap, 30'
	GD11993	-	Dust Cap
34.	GA7853	-	Junction Y-Harness W/Dust Cap
	GD11993	-	Dust Cap
35.	G1K249	-	Acre Counter Switch Kit
36.	GA8046	-	Dust Plug (Black)
	GA9978	-	Dust Plug (Blue)
37.	GA8047	-	Dust Plug (Black)
	GA9979	-	Dust Plug (Blue)
38.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
39.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
40.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
41.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
42.	GD11089	-	Sealing Plug
43.	G1K364	-	Rotation Sensor Mount Kit, Includes: (2) Mounts, (2) GD1113
			5" x 7" U-Bolts, (4) G10230 Lock Washers, (4) G10104 Hex Nuts, (1) Instruction
A.	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 12-17)

NOTCHED SINGLE DISC FERTILIZER OPENER

(A10216a)

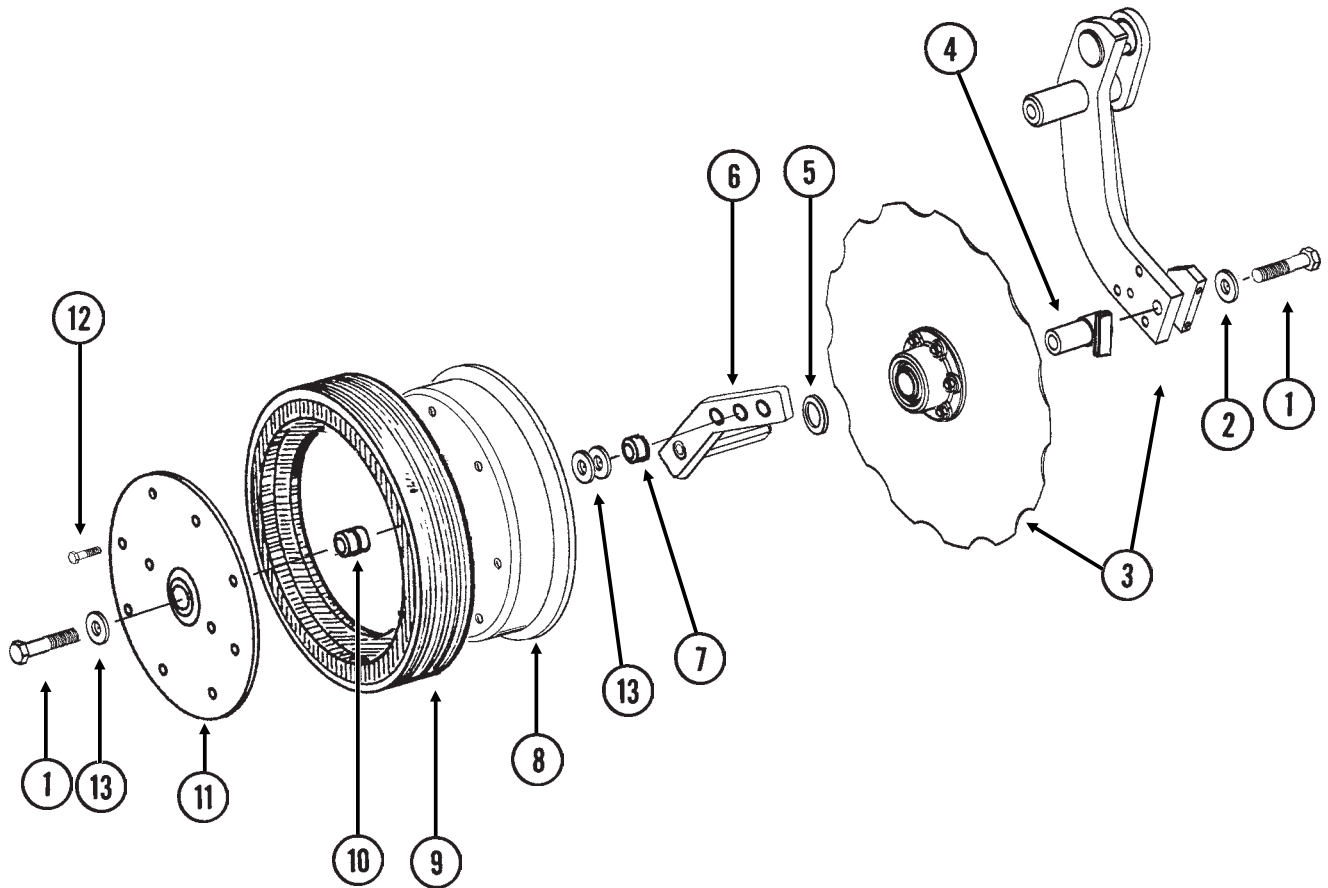


NOTCHED SINGLE DISC FERTILIZER OPENER

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD4743	2	U-Bolt, 3" x 3" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
2.	GB0343	1	Mount
3.	G10017	3	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10102	3	Hex Nut, 1/2"-13
4.	GD14672	1	Spring Bushing, 3/4"
5.	GD15226	1	Special Bolt, 3/4"-10 x 12"
	G11116	1	Slotted Hex Nut, 3/4"-10
6.	GA10704	1	Pivot Arm W/Shaft, R.H. (Shown)
	GA10705	-	Pivot Arm W/Shaft, L.H.
	GD14651	-	Shaft
7.	GD14649	-	Pin
8.	G10283	1	External Retaining Ring, 1 1/2"
9.	GD14673	1	Spring Bushing, 1/2"
10.	GA10214	1	Drop Tube, R.H., Liquid Fertilizer (Shown)
	GA10213	-	Drop Tube, L.H., Liquid Fertilizer
11.	GD11558	-	Scraper, R.H. (Shown)
	GD11557	1	Scraper, L.H.
12.	G10991	2	Hex Head Cap Screw, 5/16"-18 x 7/8"
	G10232	2	Lock Washer, 5/16"
	G10219	2	Washer, 5/16" USS
13.	G10012	1	Hex Head Cap Screw, 5/8"-11 x 6 1/2"
	G10450	2	Machine Bushing, 1 1/2", 18 Gauge
	G10217	1	Washer, 5/8" USS
	G10107	1	Lock Nut, 5/8"-11
14.	GA10646	1	Arm Mount W/Grease Fitting, Bushing And Seal, R.H. (Shown)
	GA10647	-	Arm Mount W/Grease Fitting, Bushing And Seal, L.H.
	G10640	-	Grease Fitting, 1/4"-28
	GD15600	-	Bushing
	GD15568	-	Seal
15.	G10011	1	Hex Head Cap Screw, 5/8"-11 x 5 1/2"
	GD12677	1	Washer, 1 1/2" O.D., 7 Gauge, Hardened
	G10107	1	Lock Nut, 5/8"-11
16.	GA9437	1	Hub W/Bearing
	GA8603	-	Double Row Bearing
17.	GD12676	1	Disc Blade, Notched, 16 3/4"
18.	G10002	6	Hex Head Cap Screw, 3/8"-16 x 3/4"
19.	G10306	3	Carriage Bolt, 3/8"-16 x 2"
	G10108	3	Lock Nut, 3/8"-16
20.	GB0322	-	Knife, R.H. (Shown)
	GB0323	1	Knife, L.H.
21.	GD12679	1	Stepped Spacer, 3" Long
22.	GD12817	1	Compression Spring
23.	GB0213	1	Spring Seat
24.	G10462	1	Cotter Pin, 3/16" x 2"
25.	GA8983	-	Check Valve, Low Rate

DEPTH/GAUGE WHEEL ATTACHMENT FOR NOTCHED SINGLE DISC FERTILIZER OPENER

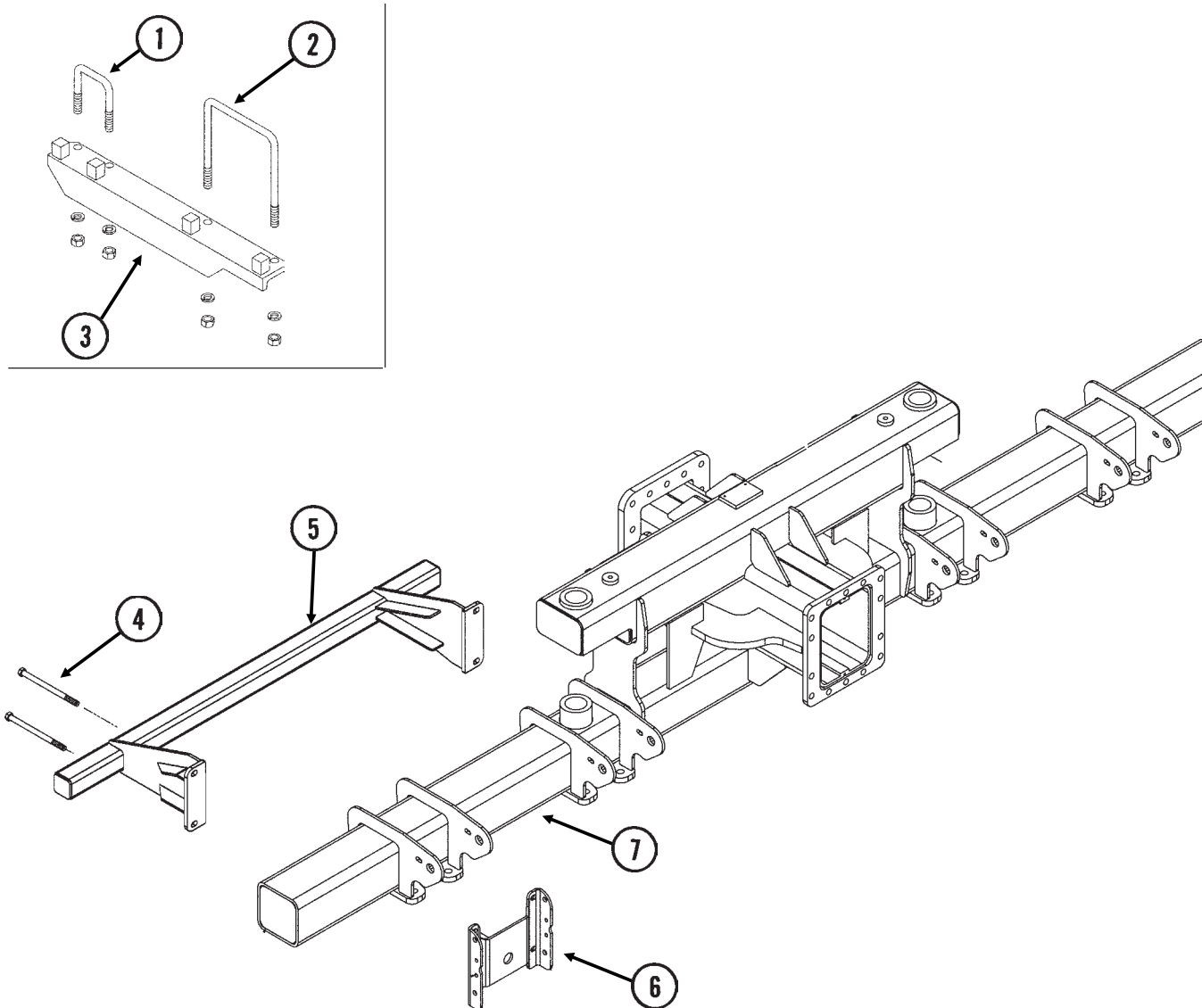
(FRTZ257)



ITEM	PART NO.	QTY.	DESCRIPTION
(Per Assy.)			
1.	G10010	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 3"
2.	GD7805	1	Special Washer, $\frac{5}{8}$ ", Hardened
3.		-	See "Notched Single Disc Fertilizer Opener", Pages P110 And P111
4.	GA9472	1	Blade Mount
5.	G10233	1	Machine Bushing, 1", 10 Gauge
6.	GA10037	1	Wheel Mount, L.H. (Shown)
	GA10036	1	Wheel Mount, R.H.
7.	GD13309	1	Spacer
8.	GD11423	1	Half Wheel
9.	GD11953	1	Offset Tire
10.	GA6171	1	Bearing
11.	GD11954	1	Half Wheel Cover, Nylon
12.	G10961	11	Flanged Whiz-Lock Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ ", No Serration
	G10620	11	Serrated Flange Nut, $\frac{5}{16}$ "-18
13.	G10204	-	Special Machine Bushing, $\frac{5}{8}$ " x 1" O.D. (As Required)
A.	GA8877	-	Gauge Wheel Complete (Items 8-12)

FERTILIZER OPENER MOUNTS

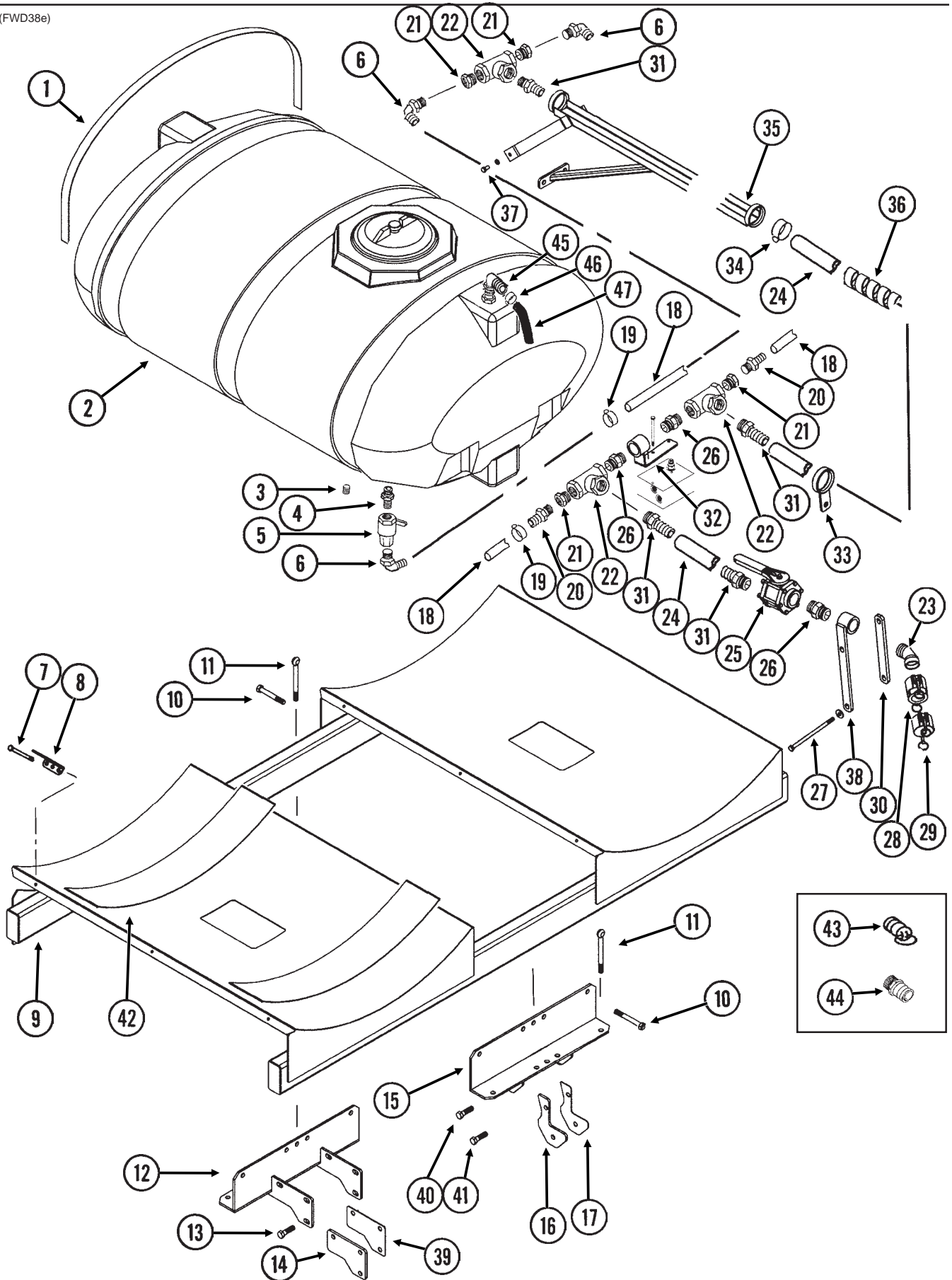
(FWD28/FWD29a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD14671	-	U-Bolt, 3" x 3" x 5/8"-11
	G10230	-	Lock Washer, 5/8"
	G10104	-	Hex Nut, 5/8"-11
2.	GD1114	-	U-Bolt, 7" x 7" x 5/8"-11
	G10230	-	Lock Washer, 5/8"
	G10104	-	Hex Nut, 5/8"-11
3.	GB0365	-	Brace, L.H. (Shown)
	GB0370	-	Brace, R.H.
4.	G10177	-	Hex Head Cap Screw, 5/8"-11 x 9 1/2"
	G10230	-	Lock Washer, 5/8"
	G10104	-	Hex Nut, 5/8"-11
5.	GA10923	2	Mount
6.		-	See "Parallel Arms, Mounting Support Plate And Quick Adjustable Down Force Springs", Page P4
7.		-	See "Center Toolbar/Rear H-Frame Assembly", Pages P34 And P35

LIQUID FERTILIZER TANKS, SADDLES, SADDLE MOUNTS AND HOSES

(FWD38e)

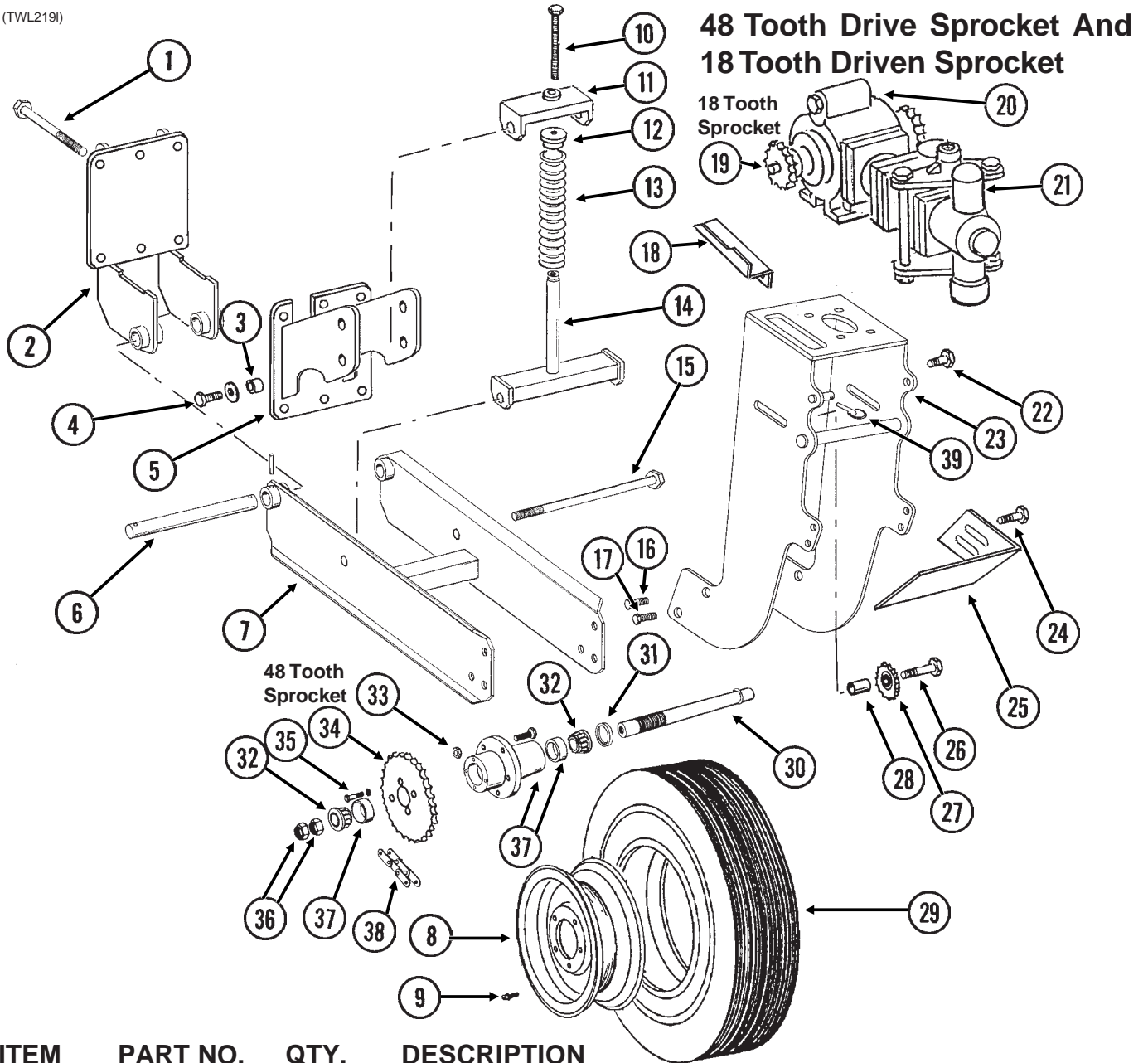


LIQUID FERTILIZER TANKS, SADDLES, SADDLE MOUNTS AND HOSES

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD15605	3	Band (3 Per Tank)
2.	GA10201	2	Tank W/Lid And Fittings, 500 Gallon
	GR1702	-	Lid/Fillwell, 8" (Top Of Tank)
	GR1708	-	3/4" Bulkhead Fitting Assembly (Overflow Fitting, Nut, Bushing And O-Ring) (Top And Bottom Of Tank)
	GR1709	-	1 1/4" Bulkhead Fitting Assembly (Nut, Bushing And O-Ring) (End Of Tank)
	GR1686	-	Lanyard, 12 1/2" (Top Of Tank)
3.	G10096	2	Pipe Plug, 3/4" NPT
4.	G10619	2	Close Nipple, 1 1/4" NPT
5.	GA4976	2	Shutoff Valve, 1 1/4" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
6.	G10629	4	Elbow, 90°, 1 1/4" NPT To Barb
7.	G10485	6	Hex Head Tap Bolt, 3/8"-16 x 5" (6 Per Tank)
	G10901	6	Lock Nut, 3/8"-16 (6 Per Tank)
8.	GD11123	6	Anchor (Sub GA8114)
9.	GA10356	1	Tank Mount
10.	G10058	7	Hex Head Cap Screw, 3/4"-10 x 5 1/2"
	G10112	7	Lock Nut, 3/4"-10
11.	GD14645	7	Eye Bolt, 3/4"-10 x 8"
	G10112	7	Lock Nut, 3/4"-10
12.	GA10358	1	Tank Mount
13.	G10044	6	Hex Head Cap Screw, 3/4"-10 x 4"
	G10112	6	Lock Nut, 3/4"-10
14.	GD15472	2	Shim, 3/8"
15.	GA10357	1	Tank Mount
16.	GD15474	2	Shim, 3/8"
17.	GD15475	2	Shim, 12 Gauge
18.	G4200-05	2	Hose, 1 1/4" x 50'
19.	G10674	48	Hose Clamp, No. 24
20.	G10626	2	Adapter, 1 1/4" NPT To Barb
21.	G10616	4	Reducing Bushing, 2" Male NPT To 1 1/4" Female
22.	G10888	3	Tee, 2" Female NPT
23.	G10889	1	Elbow, 45°, 2" Male NPT To Female
24.	G4201-07	1-2	Hose, 2" x 30'
25.	GA2660	1	Shutoff Valve, 2" NPT
26.	G10623	3	Close Nipple, 2" NPT
27.	G10148	2	Hex Head Cap Screw, 1/2"-13 x 9 1/2"
	G10216	2	Washer, 1/2" USS
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
28.	GD3622	1	Adapter, 2" Female NPT To Cam Lock
29.	GD3951	1	Dust Cap, 2" Cam Lock
30.	GD15703	1	Bracket, 1 1/2" x 12 1/2", 24 Row 30"
	GD15706	-	Bracket, 1 1/2" x 18 1/2", 32 Row 30" And 36 Row 30"
31.	G10628	4	Adapter, 2" NPT To Barb
32.	GA10606	1	Quick Fill Mounting Angle
33.	GA10664	1	Hose Protector
34.	G10676	4	Hose Clamp, No. 36
35.	GA10663	1	Hose Support
36.	GD15711-01	1	Spiral Hose Wrap, 5/8" x 96"
37.	G10014	2	Hex Head Cap Screw, 1/2"-13 x 1"
	G10228	2	Lock Washer, 1/2"
38.	GA10509	1	Straight Mount, Quick Fill, 14 19/32", 24 Row 30"
	GA10510	-	Straight Mount, Quick Fill, 20 19/32", 32 Row 30" And 36 Row 30"
39.	GD15473	2	Shim, 12 Gauge
40.	G10028	2	Hex Head Cap Screw, 3/4"-10 x 3"
	G10112	2	Lock Nut, 3/4"-10
41.	G10056	2	Hex Head Cap Screw, 3/4"-10 x 3 1/2"
	G10112	2	Lock Nut, 3/4"-10
42.	GD1862	4	Pad, 8" x 14'
43.	GD10777	1	Dust Plug, 2" Male Cam Lock
44.	GD3623	1	Adapter, 2" Male NPT To Cam Lock
45.	G10917	2	Elbow, 90°, 3/4" NPT To Barb
46.	G10278	2	Hose Clamp, No. 16
47.	G4205-10	1	Hose, 3/4" x 200" (100" Per Tank)

LIQUID FERTILIZER PISTON PUMP MOUNT AND GROUND DRIVE WHEEL

(TWL219)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10152	6	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 9"
	G10230	6	Lock Washer, $\frac{5}{8}$ "
	G10104	6	Hex Nut, $\frac{5}{8}$ "-11
2.	GA10355	1	Wheel Arm Mount
3.	GB0218	2	Bushing, $\frac{21}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
4.	G10005	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x $1\frac{3}{4}$ "
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10107	2	Lock Nut, $\frac{5}{8}$ "-11
5.	GA9712	1	Spring Mount
6.	GD2681	1	Pin, $1\frac{1}{4}$ " x $13\frac{1}{2}$ "
	G10460	2	Cotter Pin, $\frac{1}{4}$ " x 2"
7.	GA10621	1	Arm W/Grease Fittings
	G10641	2	Grease Fitting, $\frac{1}{8}$ " NPT
8.	GA0241	1	Wheel, 5" x 15"
9.	GD1166	1	Valve Stem

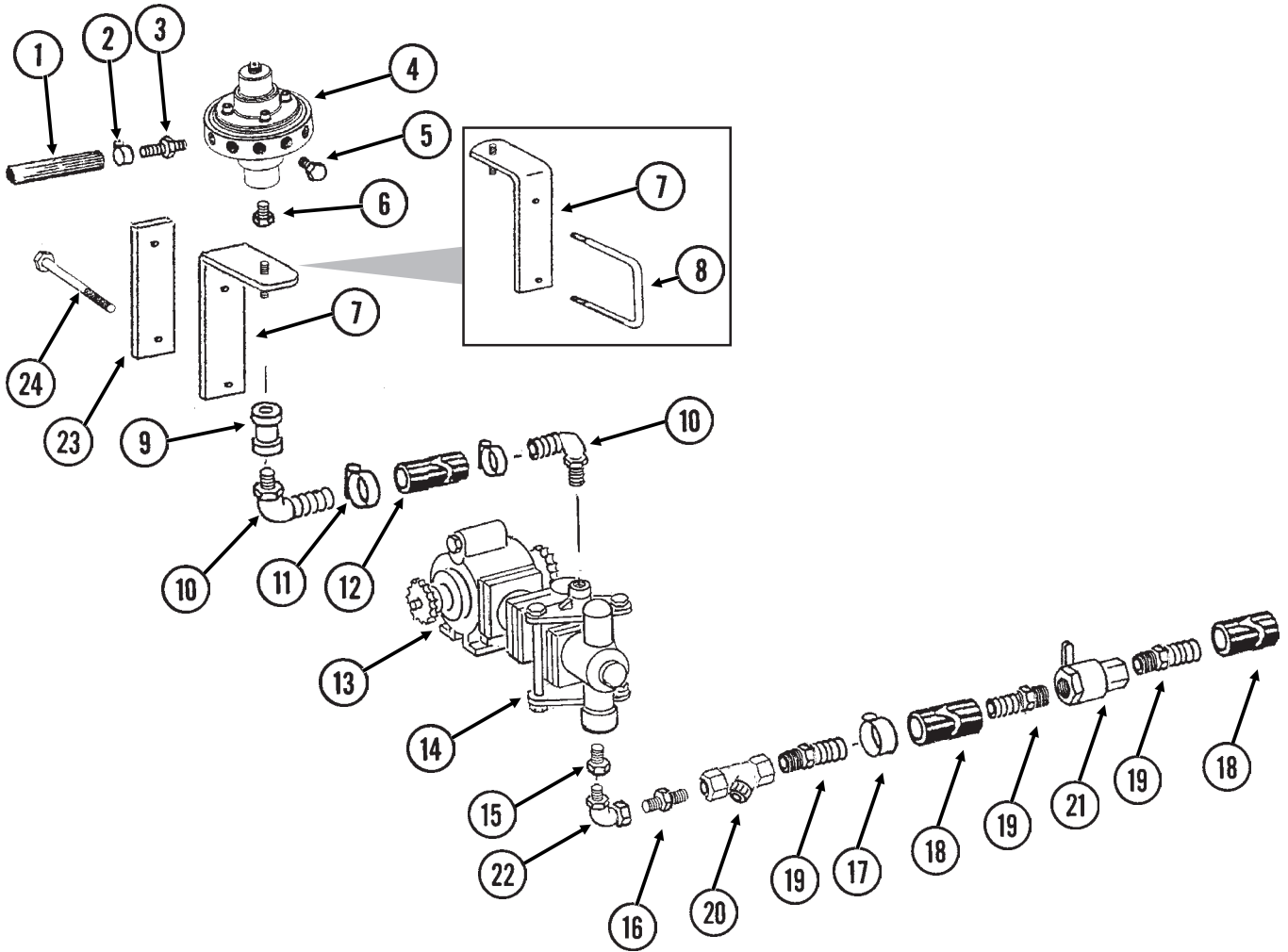
LIQUID FERTILIZER PISTON PUMP MOUNT AND GROUND DRIVE WHEEL

ITEM	PART NO.	QTY.	DESCRIPTION
10.	G10012	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 6 $\frac{1}{2}$ "
	GD7805	1	Special Washer, $\frac{5}{8}$ ", Hardened
11.	GA6308	1	Spring Mount
12.	GB0196	1	Washer
13.	GD7831	1	Compression Spring
14.	GA6309	1	Spring Guide
15.	G11122	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 12"
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
16.	G10026	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2"
	G10231	2	Lock Washer, $\frac{3}{4}$ "
17.	G11042	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 1 $\frac{3}{4}$ "
	G10231	2	Lock Washer, $\frac{3}{4}$ "
	G10105	2	Hex Nut, $\frac{3}{4}$ "-10
18.	GD13744	1	Hose Holder
19.	GR1146	1	Sprocket, 18 Tooth
20.		-	See "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages P120 And P121
	GR0200	1	Offset Link, No. 2050
21.		-	See "Liquid Fertilizer Piston Pump (Cylinder Assembly)", Pages P122 And P123
22.	G10007	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{2}$ "
	G10217	2	Washer, $\frac{5}{8}$ " USS
	G10230	2	Lock Washer, $\frac{5}{8}$ "
	G10104	2	Hex Nut, $\frac{5}{8}$ "-11
23.	GA10480	1	Pump Mount
24.	G10017	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{2}$ "
	G10216	2	Washer, $\frac{1}{2}$ " USS
	G10228	2	Lock Washer, $\frac{1}{2}$ "
	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
25.	GD13328	1	Scraper
26.	G10013	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 3 $\frac{1}{2}$ "
	G10205	1	Washer, $\frac{5}{8}$ " SAE
	G10230	1	Lock Washer, $\frac{5}{8}$ "
	G10104	1	Hex Nut, $\frac{5}{8}$ "-11
27.	GA0262	1	Idler Sprocket W/Bearing, 15 Tooth
28.	GD7817-05	1	Spacer, $\frac{11}{16}$ " I.D. x 1 $\frac{1}{4}$ " Long
29.	GD0844	1	Tire, 7.60" x 15", 8 Ply (Specify Brand*)
30.	GA2559	1	Spindle
31.	GA0252	2	Seal
32.	GA0251	2	Bearing
33.	GR0267	5	Lug Nut, $\frac{1}{2}$ "-20
34.	G2500-84	1	Sprocket, 48 Tooth
35.	G10019	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1"
	G10232	4	Lock Washer, $\frac{5}{16}$ "
36.	GD0831	2	Shoulder Nut, 1 $\frac{1}{4}$ "-12 UNF-2A
37.	GA0547	1	Hub W/Cups And Studs, 5 Bolt
	GR0190	2	Cup
	GR0204	5	Stud
38.	G3200-62	1	Chain, No. 2050, 62 Pitch Including Connector Link And Offset Link
	GR0195	1	Connector Link, No. 2050
39.	GD2558	1	Lynch Pin, $\frac{1}{4}$ "

* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied. Different brand tires may have different diameters. Change in tire brand may affect rates. Field checks are recommended after any change in tires.

LIQUID FERTILIZER FLOW DIVIDER MOUNT AND HOSES

(FRTZ215)



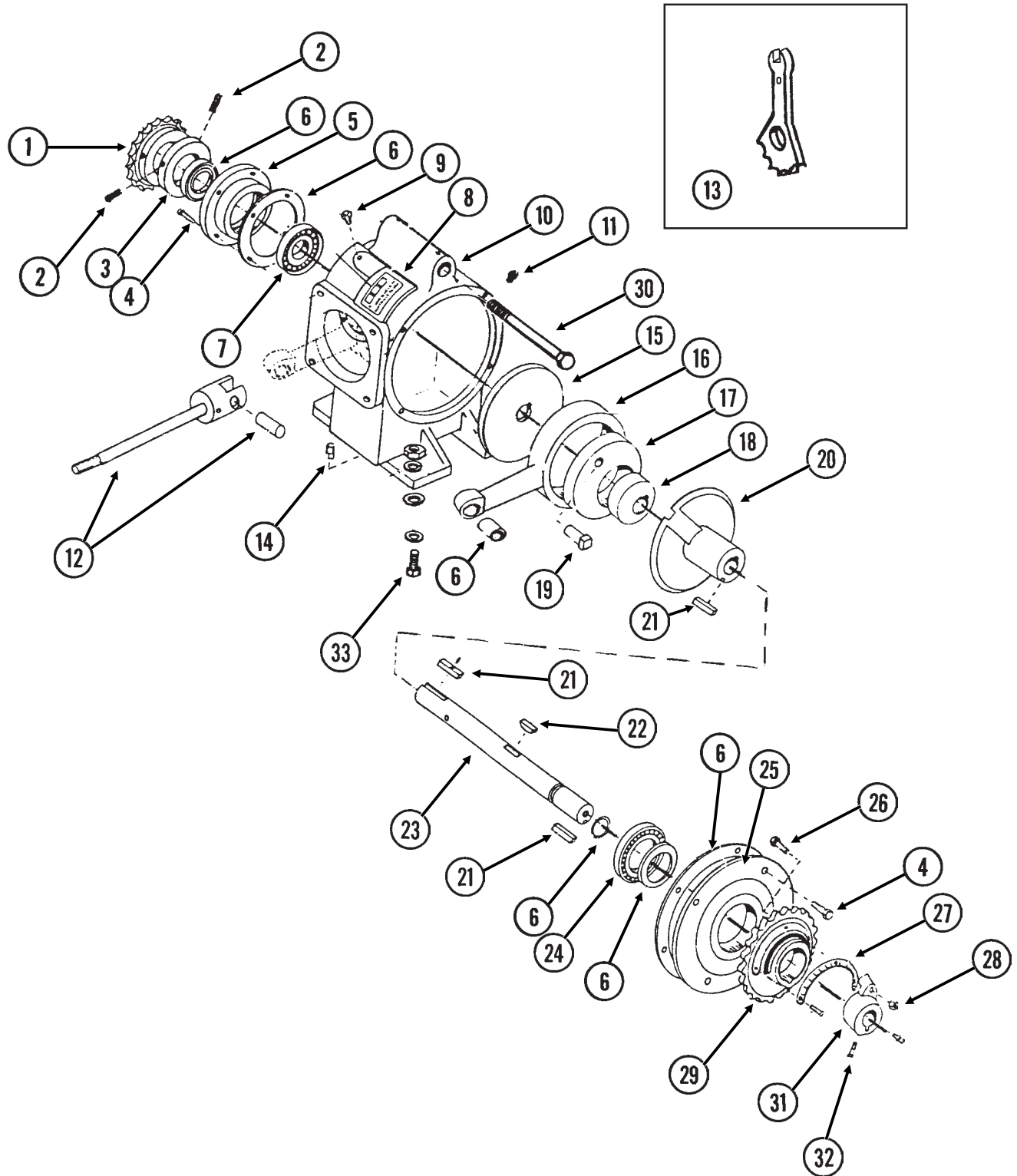
LIQUID FERTILIZER FLOW DIVIDER MOUNT AND HOSES

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G4301-02	-	Hose, 3/8" x 50'
	G4301-04	-	Hose, 3/8" x 100'
	G4301-08	-	Hose, 3/8" x 250'
2.	G10681	24-32	Hose Clamp, No. 6
3.	GD11700	12-16	Adapter, 1/4" NPT To 3/8" Barb
4.		-	See "Liquid Fertilizer Piston Pump Flow Divider", Pages P124 And P125
5.	G10292	-	Pipe Plug, 1/4" NPT
6.	G10995	1	Reducing Bushing, 1" Male NPT To 3/4" Female, Stainless Steel, 32 Row 30" And 36 Row 30"
7.	GA6527	1	Support, 3/4" NPT
8.	GD1114	1	U-Bolt, 7" x 7" x 5/8"-11
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
9.	G11083	1	Coupler, 3/4" Female NPT
10.	G10917	2	Elbow, 90°, 3/4" NPT To Barb
11.	G10278	2	Hose Clamp, No. 16
12.	G4205-10	-	Hose, 3/4" x 200"
13.		-	See "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages P120 And P121
14.		-	See "Liquid Fertilizer Piston Pump (Cylinder Assembly)", Pages P122 And P123
15.	G10615	1	Reducing Bushing, 1 1/2" Male NPT To 1 1/4" Female
16.	G10619	1	Close Nipple, 1 1/4" NPT
17.	G10674	2	Hose Clamp, No. 24
18.		-	Hose, 1 1/4", See "Liquid Fertilizer Tanks, Saddles, Saddle Mounts And Hoses", Pages P114 And P115
19.	G10626	3	Adapter, 1 1/4" NPT To Barb
20.	GA3893	1	Strainer Complete
	GR0880	-	Screen, No. 40 Mesh
	GR0881	-	Gasket
	GR0882	-	Y-Body
	GR0883	-	End Cap
21.	GA4976	-	Shutoff Valve, 1 1/4" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
22.	G10887	2	Elbow, 90°, 1 1/4" Male NPT To Female
23.	GD15483	1	Mount, 32 Row 30" And 36 Row 30"
24.	G10046	2	Hex Head Cap Screw, 5/8"-11 x 5"
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11

LIQUID FERTILIZER PISTON PUMP (Crankcase Assembly)

(PT38a/GR1100)

John Blue® Model L-4405



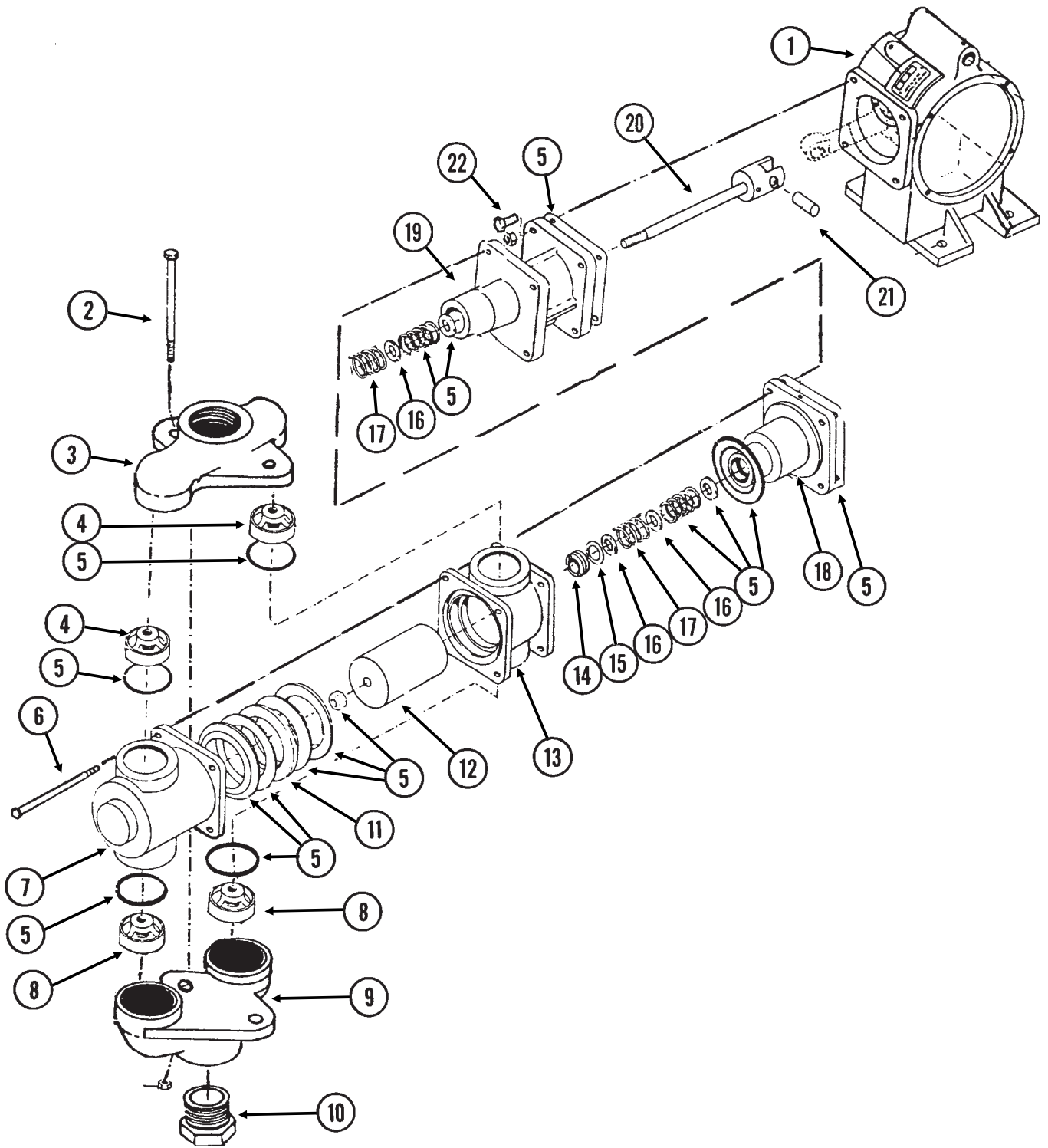
LIQUID FERTILIZER PISTON PUMP (Crankcase Assembly)

ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Liquid Fertilizer Piston Pump Mount And Ground Drive Wheel", Pages P116 And P117
2.	G10688	2	Square Head Set Screw, $\frac{3}{8}$ "-16 x $\frac{5}{8}$ "
3.	GR1147	1	Spacer
4.	G10019	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1"
5.	GR1102	1	Housing
6.	GR1173	-	Repair Kit, Includes Item 5 On "Liquid Fertilizer Piston Pump (Cylinder Assembly)", Pages P122 And P123
7.	GR1104	1	Bearing
8.	GR1105	1	Name Plate
9.	G10054	2	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{1}{2}$ "
10.	GR1106	1	Crankcase
11.	GR1107	1	Vent Plug
12.		-	See "Liquid Fertilizer Piston Pump (Cylinder Assembly)", Pages P122 And P123
13.	GR1100	1	Adjustment Wrench
14.	GR1123	3	Plug
15.	GR1108	1	Disc
16.	GR1109	1	Connecting Rod
17.	GR1110	1	Large Eccentric
18.	GR1111	1	Small Eccentric
19.	GR1120	1	Eccentric Pin
20.	GR1119	1	Sleeve
21.	GR1118	3	Setting Arm Key
22.	GR1112	1	Woodruff Key
23.	GR1148	1	Crankshaft
24.	GR1116	1	Bearing
25.	GR1166	1	Cover Plate
26.	GR1167	1	Square Head Bolt, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
27.	GR1168	1	Scale
28.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
29.	GR1114	1	Flange
30.	G10318	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 4 $\frac{1}{2}$ "
	G10104	1	Hex Nut, $\frac{5}{8}$ "-11
31.	GR1165	1	Arm
32.	G10693	4	Hex Socket Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{3}{8}$ "
33.	G10003	4	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	GR1122	4	Mounting Pad
	G10210	8	Washer, $\frac{3}{8}$ " USS
	G10229	4	Lock Washer, $\frac{3}{8}$ "
	G10101	4	Hex Nut, $\frac{3}{8}$ "-16
A.	GA6154	1	Piston Pump Complete Less Sprocket (L-4405), Includes Crankcase (Items 2-33 On This Page) And Cylinder (Items 1-22 On Pages P122 And P123) Assemblies

LIQUID FERTILIZER PISTON PUMP (Cylinder Assembly)

(PT39a)

John Blue® Model L-4405

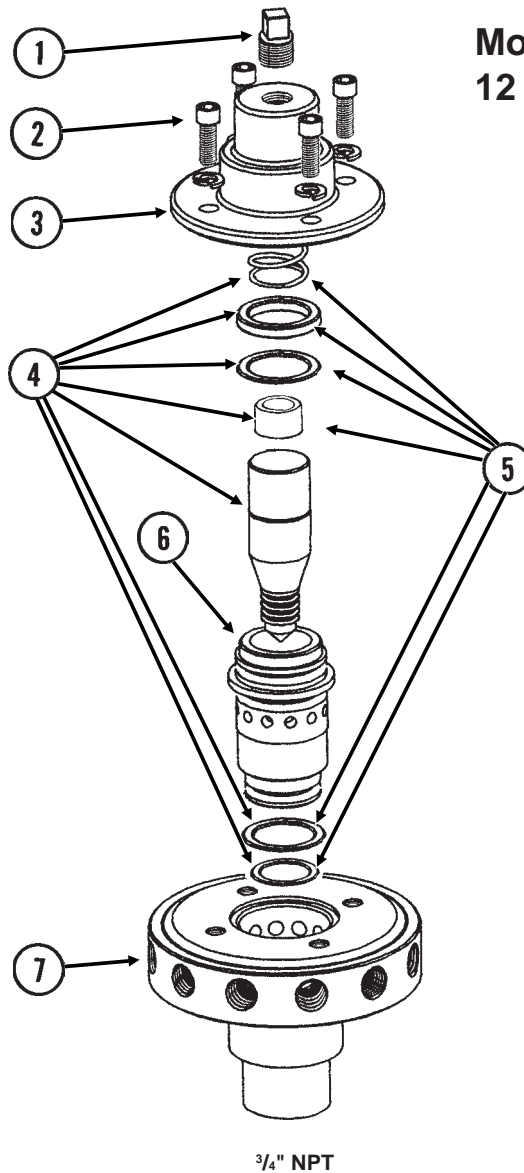


LIQUID FERTILIZER PISTON PUMP (Cylinder Assembly)

ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages P120 And P121
2.	G10686	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 8"
	G10101	2	Hex Nut, $\frac{3}{8}$ "-16
3.	GR1145	1	Discharge Manifold
4.	GR1144	2	Discharge Valve
5.	GR1173	-	Repair Kit, Includes Item 6 On "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages P120 And P121
6.	G10687	4	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 5 $\frac{1}{2}$ "
	G10101	4	Hex Nut, $\frac{3}{8}$ "-16
7.	GR1143	1	Outboard Cylinder
8.	GR1142	2	Suction Valve
9.	GR1140	1	Suction Manifold
10.		-	See "Liquid Fertilizer Piston Pump Mount And Ground Drive Wheel", Pages P116 And P117
11.	GR1137	1	Flange Packing Washer
12.	GR1136	1	Plunger
13.	GR1135	1	Inboard Cylinder
14.	GR1134	1	Stuffing Box Insert
15.	GR1133	1	Retaining Ring
16.	GR1129	3	Washer
17.	GR1130	2	Packing Spring
18.	GR1132	1	Outboard Stuffing Box
19.	GR1127	1	Crosshead Guide
20.	GR1125	1	Piston Rod
21.	GR1124	1	Pin
22.	G10019	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1"

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 24 ROW 30"

(FRTZ202c)

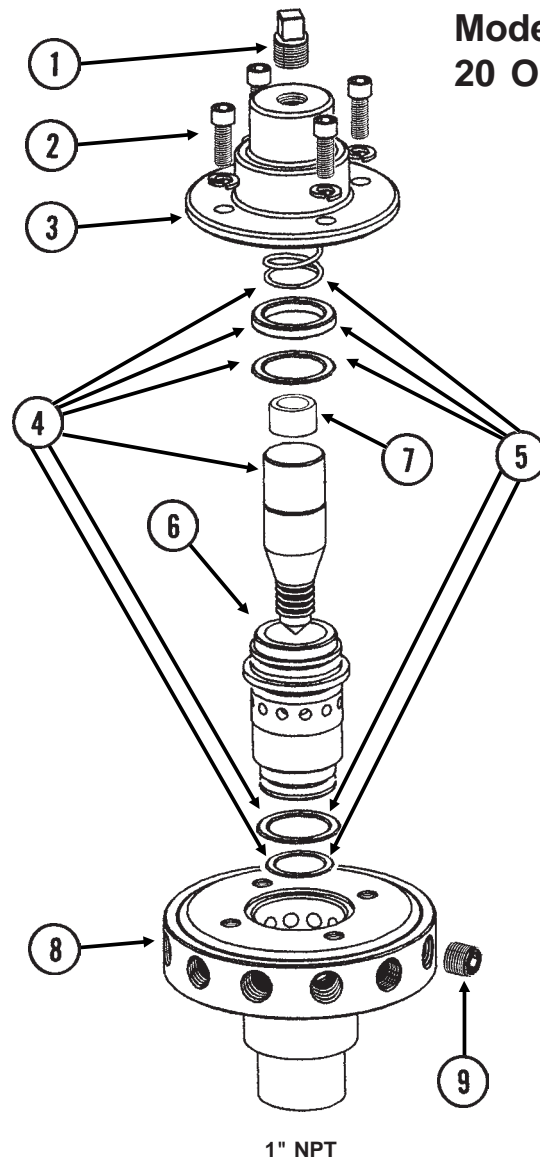


**Model FD-1200 Flow Divider,
12 Outlet**

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1543	1	Plug
2.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4", Stainless Steel
	GR1541	4	Lock Washer, 1/4", Stainless Steel
3.	GR1540	1	Cap
4.	GR1544	1	Needle Assembly W/Seal Kit (Item 5)
5.	GR1545	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring, (1) Stainless Steel Sleeve
6.	GR1535	1	Sleeve
7.	GR1533	1	Body
A.	GA8931	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 12 Outlet (Model FD-1200)

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 32 ROW 30" AND 36 ROW 30"

(FRTZ202d)

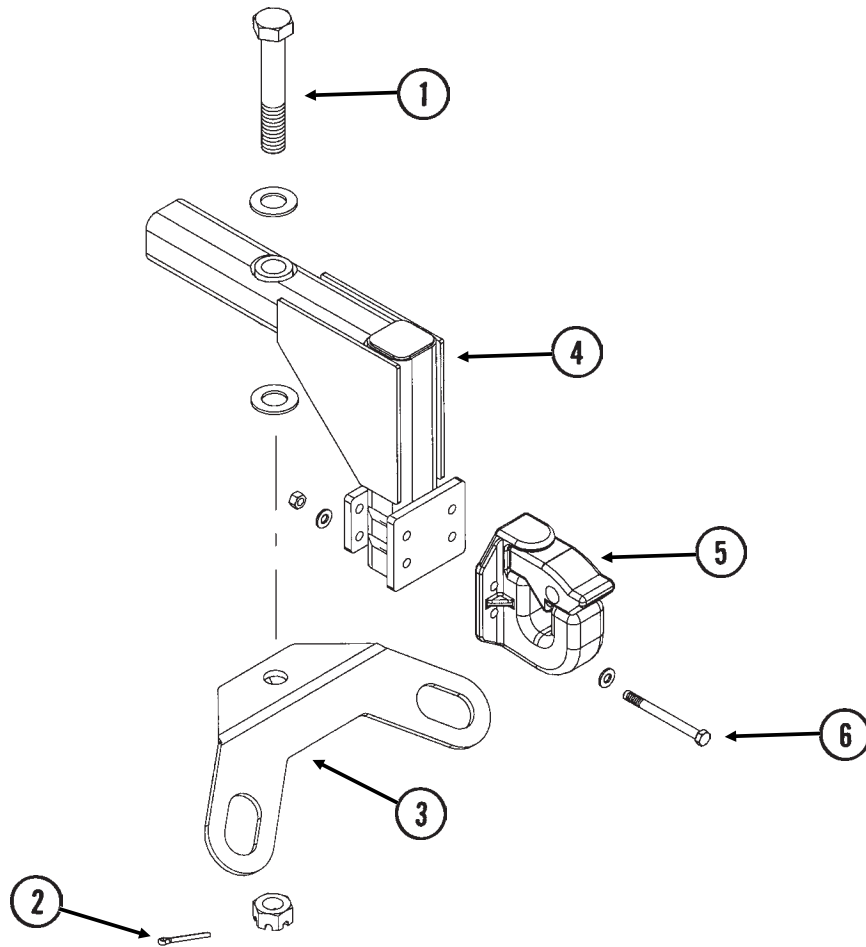


**Model FD-2000 Flow Divider,
20 Outlet**

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1543	1	Plug
2.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4", Stainless Steel
	GR1541	4	Lock Washer, 1/4", Stainless Steel
3.	GR1566	1	Cap
4.	GR1567	1	Needle Assembly W/Seal Kit (Item 5)
5.	GR1568	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring
6.	GR1561	1	Sleeve
7.	GR1559	1	Body
8.	GR1574	1	Sleeve, 1" O.D. x 1/2" Long, Stainless Steel
9.	G10350	4	Hex Socket Head Plug, 1/4" NPT, Stainless Steel
A.	GA9407	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 20 Outlet (Model FD-2000)

REAR TRAILER HITCH

(FWD53)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD15939	1	Hex Head Cap Screw, 1 1/4"-7 x 7 1/2"
	G10226	2	Washer, 1 1/4" SAE
	G10506	1	Slotted Nut, 1 1/4"-7
2.	G10460	1	Cotter Pin, 1/4" x 2"
3.	GD15929	1	Safety Chain Mount
4.	GA10858	1	Hitch Mount
5.	GA10859	1	Pintle Hitch
6.	G11153	4	Hex Head Cap Screw, 1/2"-20 x 5 1/2", Grade 8
	GD14674	8	Special Washer, 1/2", Hardened
	G11154	4	Lock Nut, 1/2"-20, Grade 8

DECALS, PAINT AND MISCELLANEOUS

⚠ 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.

7100-42

1

⚠ 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

2

⚠ WARNING

TOW ONLY WITH FARM TRACTOR

7100-56

3

⚠ 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

5

⚠ WARNING

NEVER WALK UNDER OR WORK ON PLANTER WHEN IT IS RAISED WITHOUT SUPPORTING THE FRAMES WITH ADDITIONAL SUPPORTS.

7100-68

4

⚠ 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

6

 WEEKLY

7

 DAILY

8

⚠ 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

9

 DAILY

7100-116

10

⚠ 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.

7100-117


11

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

12

ROTATION



7100-192

13

NOTE

It is the responsibility of the user to read and understand the Operator's Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment.

AN OPERATOR & PARTS MANUAL IS AVAILABLE FOR THIS MACHINE.

To obtain a manual, furnish model number and serial number and contact your KINZE Dealer or KINZE Manufacturing, Inc., P.O. Box 806 Williamsburg, IA 52361-0806 USA

14

⚠ WARNING

MAXIMUM INFLATION PRESSURE

75 PSI

7100-219

15

TORQUE 5/8" SPINDLE BOLTS TO 120 FT/LBS. CHECK PERIODICALLY AND RE-TORQUE AS NEEDED.

7100-224

16



17

IMPORTANT

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

7100-248

18

⚠ CAUTION

SET DOWN PRESSURE SPRINGS TO MINIMUM. LOWER PLANTER TO GROUND AND EMPTY SEED HOPPERS. REQUIRES 90 LB MIN TO LIFT.

7100-249

19



20



21

 ANNUALLY

22

DECALS, PAINT AND MISCELLANEOUS

ROTATE KNURLED COLLAR
ON WRAP SPRING TIGHTENER
TO RELEASE SPRING
TENSION

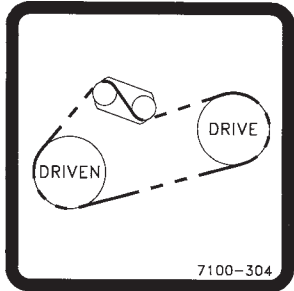
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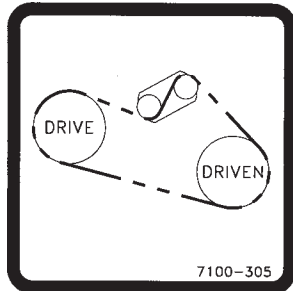
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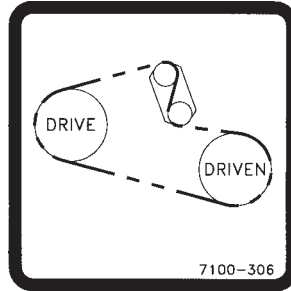
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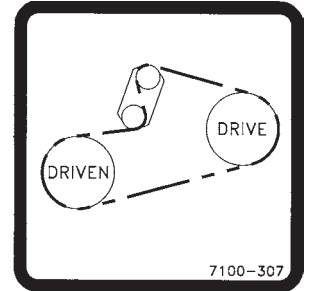
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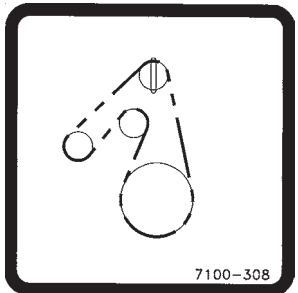
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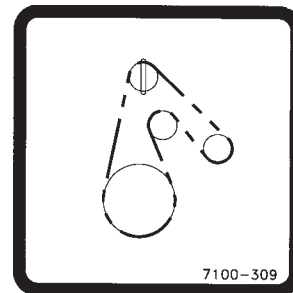
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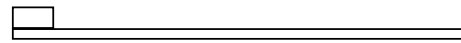
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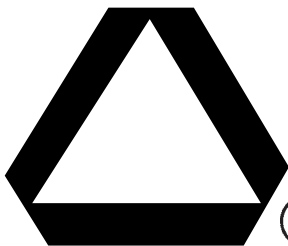
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KINZE

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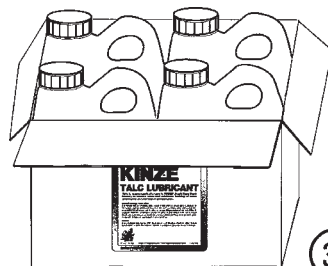
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34



35



36



37

DECALS, PAINT AND MISCELLANEOUS

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G7100-42	4	Decal, Warning
2.	G7100-46	1	Decal, Warning
3.	G7100-56	1	Decal, Warning
4.	G7100-68	3	Decal, Warning
5.	G7100-89	2	Decal, Danger
6.	G7100-90	1	Decal, Warning
7.	G7100-110	-	Decal, Grease Weekly
8.	G7100-111	-	Decal, Oil Daily
9.	G7100-115	-	Decal, Warning (1 Per Granular Chemical Hopper)
10.	G7100-116	-	Decal, Grease Daily
11.	G7100-117	1	Decal, Danger
12.	G7100-153	-	Decal, Information (1 Per Brush-Type Seed Meter)
13.	G7100-192	-	Decal, Point Row Clutch Rotation
14.	G7100-217	-	Decal, Note
15.	G7100-219	-	Decal, Warning
16.	G7100-234	-	Decal, Bolt Torque
17.	G7100-247	-	Decal, Logo, 4 ³ / ₈ " x 4 ¹ / ₂ " (2 Per Row Unit)
	G7100-252	-	Decal, Logo, 3 ¹ / ₂ " x 3 ⁵ / ₈ " (Hopper Panel Extension)
18.	G7100-248	-	Decal, Meter Alignment (1 Per Row Unit)
19.	G7100-249	-	Decal, Caution
20.	G7100-258	-	Reflective Decal, Red, 1 ¹ / ₂ " x 9", Rectangular (If Applicable)
	G7100-259	-	Reflective Decal, Amber, 1 ¹ / ₂ " x 9", Rectangular (If Applicable)
	G7100-260	-	Reflective Decal, Orange, 1 ¹ / ₂ " x 9", Rectangular (If Applicable)
21.	G7100-261	-	Reflective Decal, Red, 1 ³ / ₄ " x 9", Die-Cut (If Applicable)
	G7100-262	-	Reflective Decal, Amber, 1 ³ / ₄ " x 9", Die-Cut (If Applicable)
	G7100-263	-	Reflective Decal, Orange, 1 ³ / ₄ " x 9", Die-Cut (If Applicable)
22.	G7100-277	-	Decal, Grease Annually
23.	G7100-295	-	Decal, Spring Tension Release
24.	G7100-300	2	Decal, KINZE® 3800
25.	G7100-304	-	Decal, End Transmisson, R.H.
26.	G7100-305	-	Decal, End Transmission, L.H.
27.	G7100-306	-	Decal, Inside Transmission, R.H.
28.	G7100-307	-	Decal, Inside Transmission, L.H.
29.	G7100-308	-	Decal, Reverser, R.H.
30.	G7100-309	-	Decal, Reverser, L.H.
31.	G7100-310	-	Decal, KINZE®, 6 ¹¹ / ₁₆ " x 28 ⁵ / ₁₆ "
32.	GD1512	-	Tie Strap, 7 ¹ / ₂ "
	GD2117	-	Tie Strap, 14 ¹ / ₂ "
	GD1162	-	Tie Strap, 28"
	GD2984	-	Tie Strap, 34"
33.	GD2199	1	SMV Sign
34.	GR0146	-	Powdered Graphite, 1 Pound Container
	GR0146MPP	-	Powdered Graphite, Twenty-Four 1 Pound Containers
35.	GR0155	-	Blue Paint, Aerosol Can
	GR0155MPP	-	Blue Paint, Twelve Aerosol Cans
36.	GR1570MPP	-	Talc Lubricant, Four 8 Pound Containers
37.	GM0181	-	Operator & Parts Manual, Model 3800

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