MODEL 3700 FRONT FOLDING PLANTER

OPERATOR & PARTS MANUAL

M0171 Rev. 10/04

This manual is applicable to: Model: 3700 Front Folding Planters

Serial Number: 750259 and on

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

Model Number _	3700	
Serial Number _		
Date Purchased.		

Monitor Serial No
Magazirad Dulgas Dar Mila/Km (Padar Distanca Sansar)

Measured Pulses Per Mile/Km (Magnetic Distance Sensor)

SERIAL NUMBER

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

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



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 each item as it is found satisfactory or after proper adjusted.	the following checklist and inspect the planter. Check off stment is made.	
☐ Recheck to be sure row units are properly spaced ar	d optional attachments are correctly assembled.	
☐ Be sure all grease fittings are in place and lubricate	d.	
☐ Check planter and make sure all working parts are r	noving freely, bolts are tight and cotter pins are spread.	
☐ Check all drive chains for proper tension and alignm	ent.	
☐ Check for oil leaks and proper hydraulic operation.		
☐ Check to be sure hydraulic hoses are routed correct	ly to prevent damage to hoses.	
☐ Inflate tires to specified PSI air pressure. Tighten wh	eel lug bolts and nuts to specified torque.	
☐ Check to be sure all safety decals are correctly locat	ed and legible. Replace if damaged.	
☐ Check to be sure the reflective decals are correctly lo	cated and visible when the planter is in transport position.	
☐ Check to be sure SMV sign is in place.		
☐ Check to be sure safety/warning lights are installed of	orrectly and working properly.	
☐ 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 po	erformance.	
☐ Auxiliary safety chain is properly installed and hardw	are is torqued to specification.	
This planter has been thoroughly checked and to a customer.	he best of my knowledge is ready for delivery to the	
(Signature Of Set-Up Person/Dealer Name/Date)		
OWNER REGISTER		
Name	Delivery Date	
Street Address	Model No 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.
(Cinnature Of Delivery Descent/Declar Name/Deta)
(Signature Of Delivery Person/Dealer Name/Date)
AFTER DELIVERY CHECKLIST
AFTER DELIVERY CHECKLIST
AFTER DELIVERY CHECKLIST The following is a list of items we suggest to check during the first season of use of the equipment.
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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), reflective decals and SMV sign are correctly located and legible.

RETURN THIS COMPLETED FORM TO KINZE® IMMEDIATELY along with Warranty And Delivery Report.

Retain photocopy of this form at dealership for After Delivery Check.

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TO THE OWNER

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

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

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

Throughout this manual the symbol and/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.

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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.

1-2 Rev. 7/03

INTRODUCTION

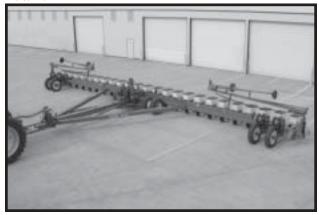
The Model 3700 Front Folding Planter is available in various sizes and row spacings and permits installation of optional row unit attachments.

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.

D101801115



24 Row 30" Machine Shown In Field Operation Position

D101801126



24 Row 30" Machine Shown In Transport Position

2-1 Rev. 10/04

INTRODUCTION

2-2 6/99

SPECIFICATIONS

TYPE Pull type, hydraulic front folding frame for transport.

PLANTING UNIT TYPES Pull Row Units

ROW SPACING 16 Row - 30" Rows

24 Row - 20" Rows 24 Row - 22" Rows 24 Row - 30" Rows 36 Row - 20" Rows

DRIVE SYSTEM

Four 255-70R 22.5" ground drive tires.

No. 40 chain with spring-loaded idlers.

Two guick-adjust end-mounted seed transmissions with machined sprockets.

7/8" hex drive and drill shafts.

Point row clutches.

TRANSPORT TIRES

Four 36" x 16" x 17.5" Rib Duplex, 14 Ply Tubeless Tires – 16 Row 30", 24 Row 30" And 36 Row 20" Four 255-70R 22.5" Load Range H Radial Tubeless – 24 Row 20" And 24 Row 22"

MARKERS

16 Row 30" And 24 Row 20" - Equipped with two-fold markers with 16" concave disc blades and depth bands. 24 Row 22", 24 Row 30" And 36 Row 20" - Equipped with three-fold markers with 16" concave disc blades and depth bands.

HYDRAULICS

Dual SCV for independent operation of lift and marker/fold functions.

Lift - 4 master cylinders/2 slave cylinders.

Marker/fold functions - Hydraulic lever and electric switch operation (12 Volts DC required).

Hydraulic fold system consists of 1 hitch parallel link cylinder,

1 tongue cylinder and 2 helper cylinders.

Dimensions

PLANTER SIZE	16 Row 30"	24 Row 20"	24 Row 22"	24 Row 30"	36 Row 20"
Operating Width (Markers Folded)	43' 0"	43' 0"	47' 0"	63' 0"	63' 0"
Operating Length	28' 0"	28' 0"	28' 0"	30' 8"	30' 8"
Overall Transport Width	*13' 0"	*13' 0"	*13' 0"	*13' 0"	*13' 0"
Transport Tires - (Center-To-Center)	65" - 115"	80" - 120"	88" - 128"	65" - 115"	80" - 120"
Transport Height	11' 6"	11' 6"	11' 6"	11' 6"	11' 6"
Transport Length	30' 8"	30' 8"	30' 8"	36' 8"	36' 8"
Empty Machine Hitch Weight (Transport)	4850 Lbs.	5400 Lbs.	6520 Lbs.	7150 Lbs.	**8200 Lbs.
Base Machine Weight***	14,555 Lbs.	16,267 Lbs.	18,107 Lbs.	22,292 Lbs.	25,060 Lbs.

^{* 14&#}x27; 0" when equipped with granular chemical application option.

3-1 Rev. 10/04

^{**} Additional customer-supplied drawbar support required with 36 Row 20" due to heavy transport hitch weights.

Base machine weight includes planter frame including row markers, hydraulic cylinders, hoses, fittings, tires, wheels, drive and drill shafts, sprockets, chains and required drive components, point row clutches, parking jack, safety/warning lights, SMV sign, transport safety chain and KINZE® pull row units (closing wheel arms less closing wheels) with seed hopper and lid and dual quick adjustable down force springs.

SPECIFICATIONS

MACHINE OPTIONS

• Electronic Seed Monitors

KPM I

KPM II With Magnetic Distance Sensor Or Radar Distance Sensor

KPM II Stack-Mode With Magnetic Distance Sensor Or Radar Distance Sensor

- Half Rate (2 To 1) Drive Reduction Package
- Piston Pump Package
- Rear Trailer Hitch 16 Row 30" And 24 Row 30"
- Two-Speed Point Row Clutch Package Allows Half-Width Planting And Reduced Rate Planting (Available Through KINZE® Repair Parts)
- Row Unit Mounted Notched Single Disc Fertilizer Openers
- Triple Transport Tire Package 24 Row 20" And 24 Row 22"

ROW UNIT OPTIONS/ATTACHMENTS

- Finger Pickup Or Brush-Type Seed Meters
- Closing 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 Bracket
- Row Unit Mounted No Till Coulter
- Row Unit Mounted Disc Furrowers
- Row Unit Mounted Residue Wheel
- Coulter Mounted Residue Wheels
- Frame Mounted Coulter STYLE A & STYLE B
- Disc Furrowers For STYLE A Frame Mounted Coulter
- Residue Wheel Attachment For STYLE B Frame Mounted Coulter

3-2 Rev. 12/02

SAFETY PRECAUTIONS A



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.



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.



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.



Limit towing speed to 15 MPH. Tow only with farm tractor of adequate size and weight to maintain control of the weight of the planter.



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



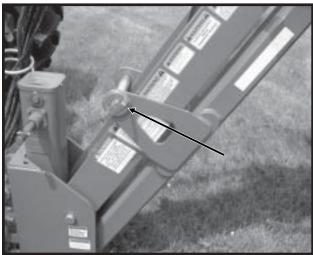
Always install hitch parallel linkage lock pin or cylinder lockup and center lift cylinder lockups before transporting the planter.

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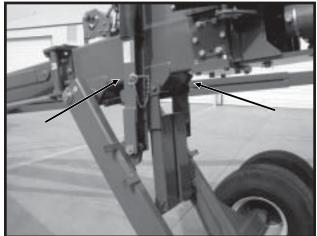
Hitch Parallel Linkage Lock Pin (Prior To Serial No. 750404)

D06250322a



Hitch Parallel Linkage Lockup Pin (Serial No. 750404 And On)

D101801109



Center Lift Cylinder Lockups

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SAFETY PRECAUTIONS A





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



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.



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



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



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 minimum.



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



Allow for unit length when making turns.



Avoid sudden uphill turns on steep slopes.



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



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



Watch for obstructions such as wires, tree limbs, etc., when folding row mark-



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

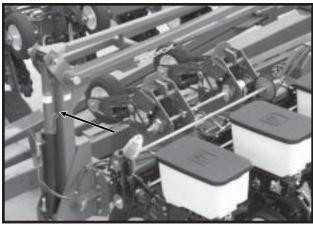


This planter has uplift at the drawbar when it is in field raised and full raised positions prior to fold. DO NOT unhook from tractor in these positions. Doing so will cause the machine to tip backwards.



Install safety lockup devices on row markers, as provided, prior to transporting the planter or working around the machine.

D07279933





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



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.



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.



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



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



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



Always follow federal, state/provincial and local regulations regarding a safety chain when towing farm equipment on a public highway. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the towing and towed machines in the event of separtation of the primatry attaching system.

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SAFETY WARNING SIGNS **A**



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 dacals and safety/warning lights conform to ANSI/ASAE S279.12 DEC 02 and ANSI/ASAE 276.5 FEB 03.



Part No. GD2199 (Qty. 1)



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

D07279949

Part No. G7100-89 (Qty. 4)

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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.

Part No. G7100-90 (Qty. 1)



TO AVOID INJURY ... ALWAYS USE THE HYDRAULIC CYLINDER SAFETY LOCKUP CHANNEL WHEN SERVICING MACHINE IN RAISED POSITION OR WHEN TRANSPORTING MACHINE ON THE ROAD. AFTER USE RETURN TO STORAGE LOCATION.

Part No. G7100-47 (Qty. 1) (Serial No. 750404 And On)

Part No. G7100-46 (Qty. 1)

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.**

D06250322a

Part No. G7100-117 (Qty. 1)

A WARNING

USE SAFETY CHAINS PROVIDED. TOW ONLY WITH **FARM TRACTOR.**

Part No. G7100-302 (Qty. 1)

A WARNING A

ALWAYS USE SAFETY PINS IN TRANSPORT POSITION

Part No. G7100-02 (Qty. 1)

WARNING

HEAVY HITCH LOAD.

ATTACH TO TRACTOR WITH SUFFICIENT DRAWBAR CAPACITY. **REFER TO OPERATOR'S MANUAL**

Part No. G7100-197 (Qty. 1)

AWARNING

TO AVOID INJURY - -

ALWAYS LOWER PLANTER UNITS TO THE GROUND BEFORE UNHITCHING PLANTER, TONGUE CAN RAISE SUDDENLY.

Part No. G7100-43 (Qty. 1)

Part No. G7100-259 Amber Reflective Decal (Qty. 2 - Located On Both Sides Of Hitch) (If Applicable)

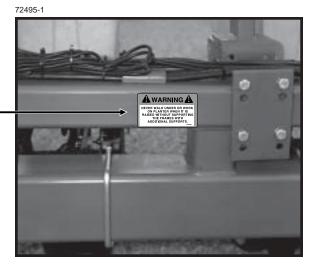
5-2 Rev. 10/04



WARNING 🚹

NEVER WALK UNDER OR WORK ON PLANTER WHEN IT IS RAISED WITHOUT SUPPORTING THE FRAMES WITH ADDITIONAL SUPPORTS.

Part No. G7100-68 (Qty. 1)





TO AVOID INJURY

ALWAYS USE HYDRAULIC CYLINDER SAFETY LOCKOUT CHANNELS WHEN TRANSPORTING PLANTER ON THE **ROAD. AFTER USE RETURN TO** STORAGE LOCATION.

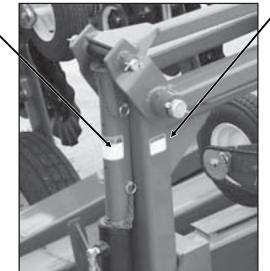
AWARNING

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.

Part No. G7100-83 (Qty. 1 Per Marker)

Part No. G7100-42 (Qty. 2 Per Marker)



5-3 6/99



D06039901

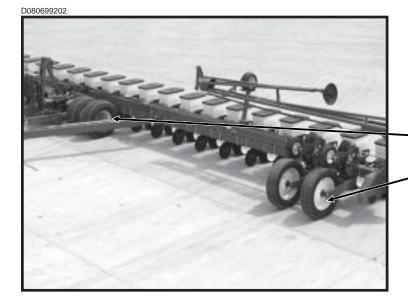


A WARNING A

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

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



AWARNING A MAXIMUM INFLATION PRESSURE 75 PSI

Part No. G7100-219 (Qty. 1 Per Tire -Ground Drive Tires, All Sizes; Transport Tires, 24 Row 20" And 24 Row 22")

7100-219

D101801109



WARNING

TO AVOID INJURY ...

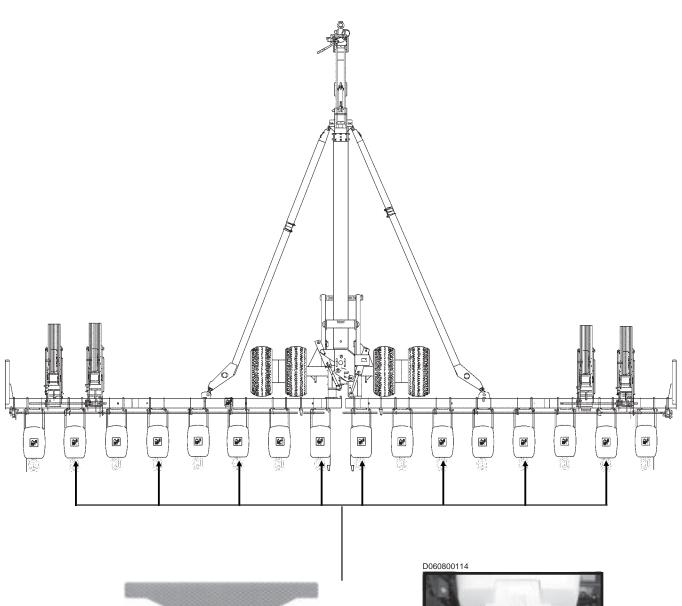
ALWAYS USE THE HYDRAULIC CYLINDER SAFETY LOCKUP CHANNEL WHEN SERVICING MACHINE IN RAISED POSITION OR WHEN TRANSPORTING MACHINE ON THE ROAD. AFTER USE RETURN TO STORAGE LOCATION. 7100-47

Part No. G7100-47 (Qty. 2 Per Center Lift Cylinder Lockups - 2 Lockups Per Planter)

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(PLTR123c)

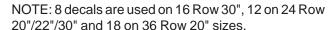


Part No. G7100-262 Amber Reflective Decal (Located On The Hopper Support On Every Other Row Unit Beginning On The 2nd Row In On The L.H. End Of The Planter) (Standard) (If Applicable)



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 In On The L.H. End Of The Planter)

(With Optional Granular Chemical) (If Applicable)







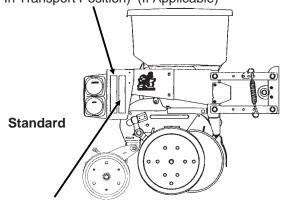
Rev. 7/03 5-5



(FF89/RU120c/PLTR123b/FF88/RU120d)

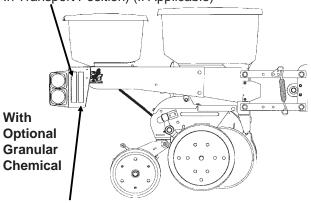
STYLE A - Machines Equipped With Double Light Assemblies Only

Part No. G7100-258 Red Reflective Decal (Qty. 2 -Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

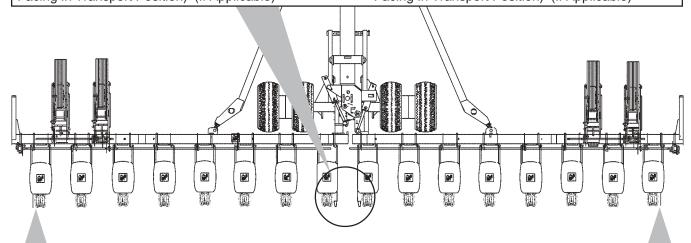


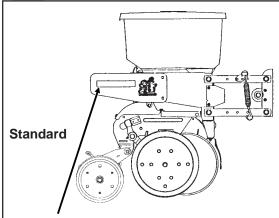
Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

Part No. G7100-258 Red Reflective Decal (Qty. 2 -Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

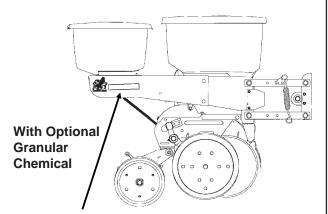


Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)





Part No. G7100-259 Amber Reflective Decal (Qty. 2 -Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position) (If Applicable)



Part No. G7100-259 Amber Reflective Decal (Qty. 2 -Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position) (If Applicable)

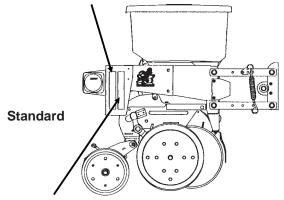
5-6 Rev. 12/02



(FF89a/RU120f/PLTR123c/FF88/RU120d)

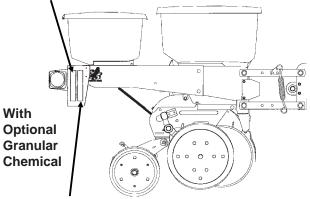
STYLE B - Machines Equipped With Single And Double Light Assemblies

Part No. G7100-258 Red Reflective Decal (Qty. 2 -Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

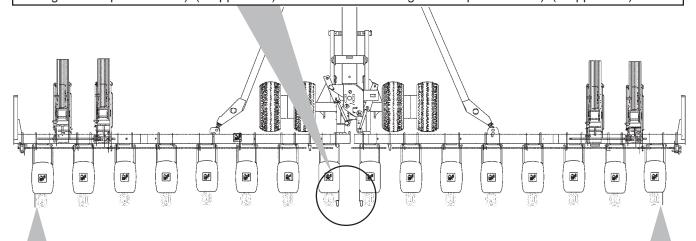


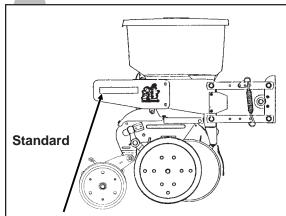
Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

Part No. G7100-258 Red Reflective Decal (Qty. 2 -Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)

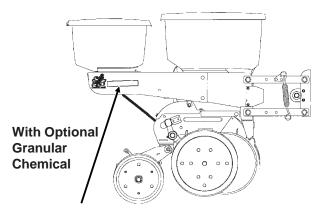


Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position) (If Applicable)





Part No. G7100-259 Amber Reflective Decal (Qty. 2 -Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position) (If Applicable)



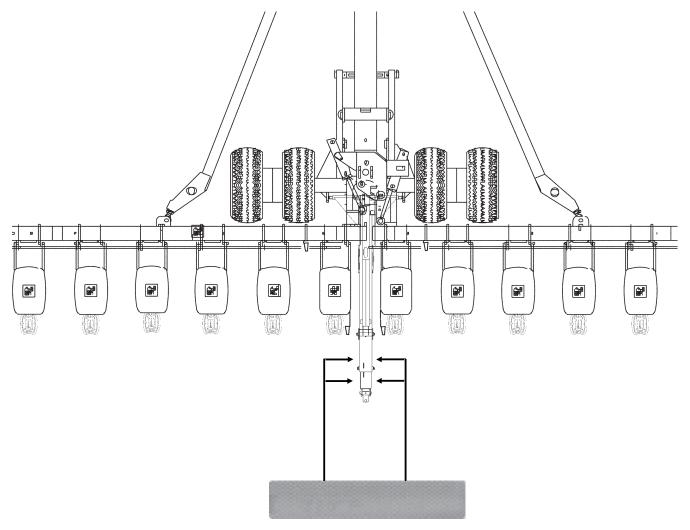
Part No. G7100-259 Amber Reflective Decal (Qtv. 2 -Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position) (If Applicable)

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(PLTR123c/A7259)

Optional Rear Trailer Hitch (16 Row 30" And 24 Row 30" Only)



Part No. G7100-259 Amber Reflective Decal (Qty. 4) (If Applicable)

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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. Check all drive chains for proper tension, alignment and lubrication.

TRACTOR REQUIREMENTS

Consult your dealer for information on horsepower requirements and tractor compatibility. Tractor requirements will vary with planter options, tillage and terrain. BE SURE the tractor has an adequate drawbar to carry the weight of the planter. See "Specifications" for weights.

NOTE: Additional customer-supplied drawbar support required with 36 Row 20" due to heavy transport hitch weights.

Two dual remote hydraulic outlets (SCV) are required on all sizes.

12 volt DC electrical system is required on all sizes to operate planter safety/warning lights and electrical control console.

TRACTOR PREPARATION AND HOOKUP





 Adjust tractor drawbar in as close to the tractor as practical and to 13-17 inches above the ground. Adjust the drawbar so the hitch pin hole is directly in line with the center of the tractor. Make sure the drawbar is in a stationary position.

NOTE: Check clearance between planter and three point hitch arms on tractor. Additional clearance is required for turning.

 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.

If two 6 volt batteries are connected in parallel, make sure power connection at battery terminals ARE NOT connected to each other.

3. Back tractor to planter and connect with a minimum 1 3/4" diameter hitch pin. Make sure hitch pin is secured with locking pin or cotter pin.



WARNING: This planter has uplift at the drawbar when it is in field raised and full raised positions prior to fold. DO NOT unhook from tractor in these positions. Doing so will cause the machine to tip backwards.

- 4. The auxiliary attaching system (transport safety chain) provided with your planter should be used to ensure the connection is retained between the planter and tractor in the event of a hitch pin/drawbar failure. The safety chain is to be attached using an unused clevis mounting hole on the planter hitch. The attaching hardware should be torqued to 840 ft. lbs.
- Connect hydraulic hoses to tractor ports in a sequence which is both familiar and comfortable to the operator.



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.

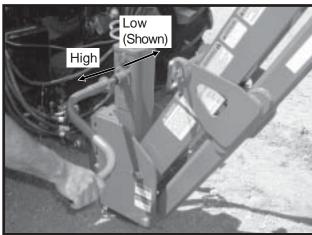
IMPORTANT: Always wipe hose ends to remove any dirt before connecting couplers to tractor ports.

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- 6. 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 safety/warning lights on tractor.
- 7. Raise parking jack fully to prevent damage while operating in uneven field conditions.

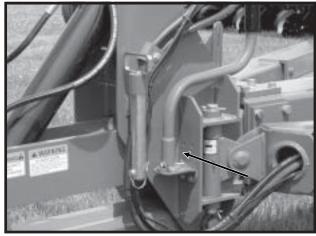
2-SPEED JACK ASSEMBLY (Serial No. 750404 And On)

D06300304



Use jack handle to position drive shaft "in" for low speed operation or "out" for high speed operation.

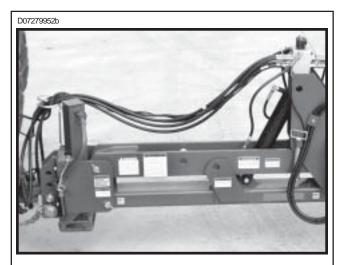
D06250314



Jack Handle Storage Location

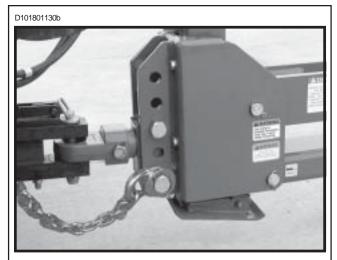
LEVELING THE PLANTER

For proper operation of the planter and row units, it is important that the planter frame be level laterally and row unit parallel arms be approximately level. The toolbar should operate at a 20"-22" height, measured to the bottom of the toolbar.



Prior To Serial No. 750404

Four holes in the hitch bracket allow the clevis to be raised or lowered. In addition, the clevis may be turned over for a finer adjustment between mounting holes. When installing the clevis mounting bolt, make sure the lock nut is tightened to proper torque setting.



Serial No. 750404 And On

Five holes in the hitch bracket allow the clevis to be raised or lowered. In addition, the swivel block may be turned over for a finer adjustment between mounting holes. After adjusting hitch assembly, make sure swivel block mounting hardware is tightened to proper torque setting.

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With the planter lowered to proper operating height, check to be sure the frame is level fore and aft. Recheck with planter in the field.

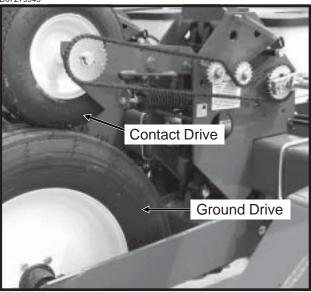
It is important for the planter to operate level laterally. Tire pressure must be maintained at pressures specified. See "Tire Pressure".

If planting in extremely soft soil conditions it may be necessary to move the ground drive tires to one of the lower sets of mounting holes. To allow adequate drive force after lowering the ground drive tires, it may be necessary to lower the contact drive arms to the lower set of holes in the wheel module and lower the down pressure springs to the lower mounting rod on the wheel module.

If after rephasing the planter the center is higher or lower than the wings, consult your KINZE® Dealer for valve adjustment and/or maintenance.

TIRE PRESSURE

D07279949



Tire pressure should be checked regularly and maintained as follows:

Transport/Ground Drive 255-70R 22.5"	75	PSI
Transport 36" x 16" x 17.5"	40	PSI
Contact Drive 4.80" x 8"	50	PSI
Marker Tire 16" x 6.5" x 8"	14	PSI
Contact Drive 4.10" x 6"		
(Liquid Fertilizer Piston Pump)	50	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.

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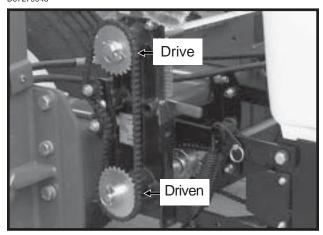
SEED RATE TRANSMISSION ADJUSTMENT

Planting population rate changes are made at the end of each planter wing. The 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 the transmissions.

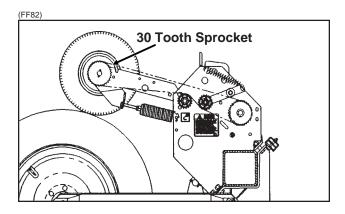
Chain tension is controlled by a spring-loaded dualsprocket idler. The idler assembly is adjusted with a easy-release idler arm. This arm has a release position to remove spring tension for replacing sprockets. The amount of spring tension on the chain is controlled by the idler arm.

The planting rate charts found at the back of this section will aid you in selecting the correct sprocket combinations.

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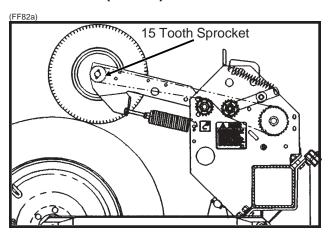


STANDARD RATE DRIVE



Seed planting rate charts are based on the standard rate drive. The standard rate drive uses a 30 tooth sprocket on each contact drive tire. Using the 15 tooth half rate (2 to 1) drive 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

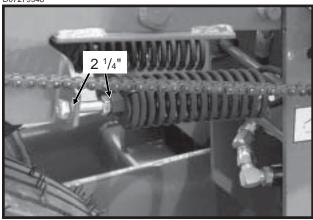


Half rate (2 to 1) drive is recommended only when desired population falls below that shown on planting rate charts. Replacing the 30 tooth standard rate sprocket on each contact wheel with a 15 tooth half rate (2 to 1) sprocket will reduce the planter transmission speed and reduce planting and application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

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

CONTACT DRIVE WHEEL SPRING ADJUSTMENT

D07279948



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

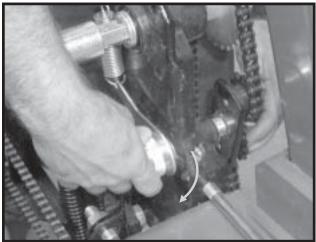
The spring tension is set leaving 2 $^{1}/_{4}$ " between the spring plug and the bolt head.

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WRAP SPRING WRENCH OPERATION

If the chain idler is equipped with a wrap spring wrench, chain tension is released and/or added as shown below.

D11120301



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

D11120303a



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

SHEAR PROTECTION

The planter driveline and row unit 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.

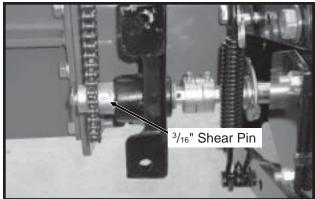
Additional shear pins can be found in the storage area located at the end of the planter wings on the inboard side of the transport hook.



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

NOTE: Drill shaft/transmission coupler alignment is critical.

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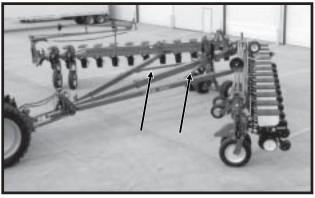


Transmission Shaft

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MAINTAINING SLIDING HITCH LINKAGE (24 Row 30" And 36 Row 20" Sizes Only)

D101801122



All 24 Row 30" and 36 Row 20" planters are equipped with sliding axle links which connect the R.H. and L.H. draft links to the transport axle. As the planter is folded, the axle links move in a slide on the inner side of each draft link. When the axle links reach the end of the slides, the main transport axle is telescoped forward into the transport position or rearward into the field position. In normal operating conditions, the stops at either end of the slides are designed to allow dirt to escape. Under extremely dusty conditions it may be necessary to clean the slides.

IMPORTANT: Inspect daily to ensure free movement of axle links in slides. Keep axle link slides clean. DO NOT GREASE the axle link slides. Powdered graphite may be used if lubrication is desired.

HYDRAULIC/ELECTRIC OPERATION

Model 3700 planters are equipped for operation from two dual remote hydraulic outlets. One set of outlets is used to operate the lift function and one set is used to operate the markers, tongue and fold/unfold functions.



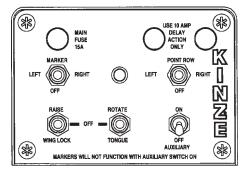
DANGER: To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.

The markers, tongue and fold/unfold functions require simultaneous operation of the tractor's hydraulic levers and the control console switches. The marker selector switch is an ON-OFF-ON type. The tongue and fold function switches are MOMENTARY ON/OFF/MO-MENTARY ON type and must be held in position while operating the tractor hydraulic lever. Activating a fold function switch disables the marker circuit. For safety, the marker selector switch should be placed in its OFF (center) position. An indicator light on the control console panel is ON whenever the marker circuit or point row circuit is energized.

NOTE: The backlit console is equipped with a pushbutton switch on the back of the console which should be used to turn off the light during extended periods of non-use.

NOTE: ON/OFF switches should be left in OFF position when planter is not in use. If left in ON position, the tractor battery will be drained.

A6865(PLTR153)





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

IMPORTANT: DO NOT LOWER the planter frame onto the transport axle while in the folded transport position or damage to the transport tire(s) and/or row unit(s) will occur.

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TRANSPORT TO FIELD SEQUENCE



WARNING: There is potential uplift on the planter hitch during folding/unfolding. DO NOT fold or unfold the planter without the planter attached to a tractor. DO NOT unhook the planter from the tractor unless it is fully folded for transport or fully unfolded and the planting units are lowered to the ground.

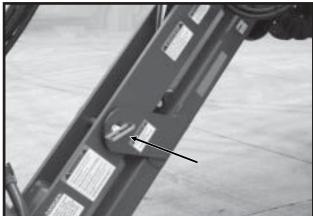
SUMMARIZED TRANSPORT TO FIELD SEQUENCE

- Remove hitch parallel linkage lock pin or lockup.
- Lower hitch parallel linkage to release wing hooks.
- Unfold planter wings.
- Raise planter to remove weight from center (slave) lift cylinder lockups and remove lockups.
- Lower planter.
- Remove marker lockups.

NOTE: Read the following information for more detailed instructions.

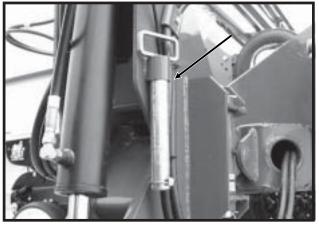
- 1. Position the planter in a relatively flat open area. Try to avoid an area with furrows, etc.
- Fully extend hitch parallel linkage cylinder located on hitch. Remove the hitch parallel linkage lock pin from the hitch parallel linkage or cylinder lockup from cylinder rod. Store in storage location provided as shown on the following page.





Hitch Parallel Linkage Lock Pin In Transport Position (Prior To Serial No. 750404)

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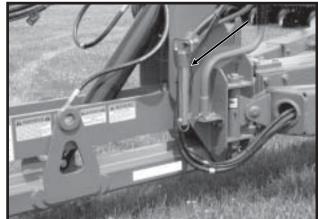
Hitch Parallel Linkage Lock Pin In Storage Location (Prior To Serial No. 750404)

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Hitch Parallel Linkage Lockup Pin In Transport Position (Serial No. 750404 And On)

D06250314

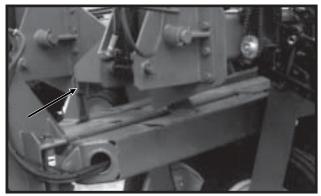


Hitch Parallel Linkage Lockup Pin In Storage Location (Serial No. 750404 And On)

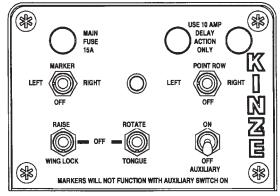
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3. Lower the hitch parallel linkage until the wing wheels are on the ground and the hitch has released from the hooks (see photo below) on the ends of the wings. This requires holding the switch on the control console labeled "ROTATE/TONGUE" in the "TONGUE" position while operating the proper tractor hydraulic lever to retract the hitch parallel linkage cylinder fully.

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A6865(PLTR153)



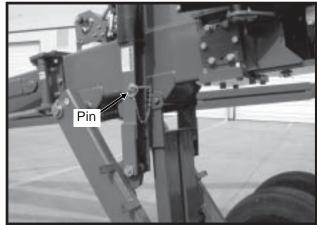
4. Hold the control console switch labeled "ROTATE/TONGUE" in "ROTATE" and operate the hydraulic lever. The tongue will begin to retract and the wings will begin to unfold, rolling on the wing wheels. It is necessary to place the tractor transmission in neutral or a low reverse gear, to allow the tractor to roll in reverse, as you unfold 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. Hold the switch in the "ROTATE" position until the tongue cylinder is fully retracted.

D101801122



 Raise the planter to remove weight from the center lift cylinder lockup brackets. Remove the pin which locks each bracket in place and store the lockup brackets and pins as shown below.

D101801109



Center Lift Cylinder Lockups In Transport Position



Center Lift Cylinder Lockups In Field Operation Position

NOTE: The automatic safety lock will release when the planter is raised to remove weight from the center lift cylinder lockups. Raising the planter too high will reset the mechanism. If this happens, simply lower the machine until the hydraulic system stalls against the automatic safety lock and raise the machine again slightly to release the automatic safety lock.

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6. With the planter fully unfolded, lower the machine all the way down. The center will drop until the toolbar is level and then the entire machine will lower evenly. When all lift cylinders are fully retracted, hold the tractor's hydraulic lever 5 to 10 seconds to rephase the system.

D101801119





WARNING: There is potential for uplift on the planter hitch during folding/unfolding. DO NOT fold or unfold the planter without the planter attached to a tractor. DO NOT unhook the planter from the tractor unless it is fully folded for transport or fully unfolded and the planting units are lowered to the ground.

7. Remove and store marker lockups.

D07279955



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. Field turn around height is set by a stroke limiter valve located at the center of the machine near the tower assembly.

After planter is lowered to the planting position, position the hydraulic lever in float during normal field operation.

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

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FIELD TO TRANSPORT SEQUENCE

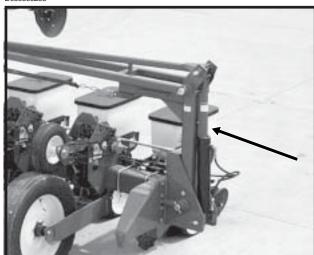
SUMMARIZED FIELD TO TRANSPORT SEQUENCE

- · Install marker lockups.
- Raise planter to fully extend master/slave cylinders.
- Install center (slave) lift cylinder lockups.
- · Lower planter onto center lift cylinder lockups.
- · Fold planter wings.
- Raise hitch parallel linkage to engage wing hooks.
- Install hitch parallel linkage lock pin or lockup bracket.
- · Lower hitch parallel linkage cylinder.

NOTE: Read the following information for more detailed instructions.

1. Install cylinder lockups on marker cylinders to prevent the markers from unfolding when the planter is in the transport position.

D080699203



2. Raise the planter while holding the "RAISE/WINGLOCK" switch on the control console in the "RAISE" position. The planter frame should raise level until the lift (master) cylinders at the ends of the wings are fully extended. The center lift (slave) cylinders will continue to extend (at a somewhat slower rate) until they are fully extended.

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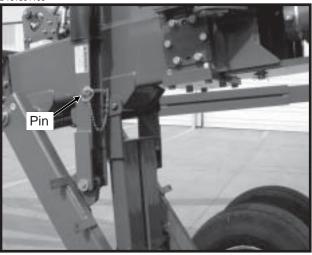


3. Install center (slave) lift cylinder lockups. Position brackets as shown below. Install pin assembly to lock each in place.



CAUTION: DO NOT fold planter into transport position without lift cylinder lockups installed.

D101801109



Center Lift Cylinder Lockups In Transport Position

- 4. Lower planter onto center lift cylinder safety lockups.
- 5. Hold the "ROTATE/TONGUE" switch in the "ROTATE" position and operate the tractor valve to fold the planter. The hooks on the wing ends should pass over the planter hitch and contact the stops on the draft links. (It may be necessary to extend the hitch parallel linkage cylinder slightly to insure that the hooks on the wings contact the stops and don't come in over the top of the stops.) 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.

D101801122



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- 6. When the wings are fully folded, hold the "ROTATE/TONGUE" switch in the "TONGUE" position to extend the hitch parallel linkage cylinder fully to lift the wing tires off the ground.
- 7. Place the hitch parallel linkage lock pin through the holes in the hitch as shown below.





Hitch Parallel Linkage Lock Pin In Transport Position (Prior To Serial No. 750404)

D06250322a



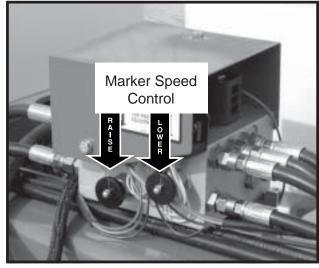
Hitch Parallel Linkage Lockup Pin In
Transport Position (Serial No. 750404 And On)

8. Lower parallel link cylinder onto lock pin.

ROW MARKER SPEED ADJUSTMENT

The 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 nuts 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 determines the amount of oil flow restriction through the valves, therefore determining travel speed of the markers. Tighten jam nut after adjustments are complete.

D101801135



IMPORTANT: The flow controls should be properly adjusted before the marker assemblies are first put into use. Excessive marker travel speed can damage the marker assembly.



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

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

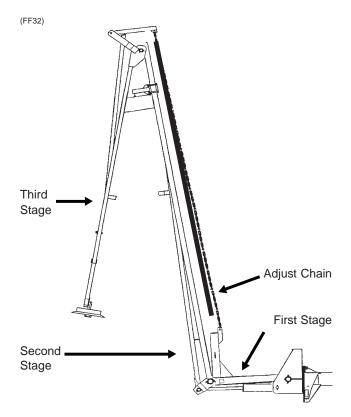
NOTE: On a tractor where the oil flow can not be controlled, the rate of flow of oil from the tractor may be greater than the rate at which the marker cylinder can accept it. The tractor hydraulic control lever will have to be held until the cylinder reaches the end of its stroke. This occurs most often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

On tractors 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 SCV valve to stay in detent during the marker raise or lower cycle.

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ROW MARKER CHAIN ADJUSTMENT (24 Row 22", 24 Row 30" And 36 Row 20" Sizes Only)

Chain adjustment is critical. Adjust chain with the second stage of the marker in the vertical position and the first stage in the horizontal position. The chain must be adjusted so the third stage of the marker is pulled out as soon as the second stage begins outward travel. The chain will stretch with use and require additional adjustment. It may be necessary to twist the chain for a finer adjustment.



The marker chain is PROPERLY ADJUSTED if the marker blade pushes dirt 12" or less as the marker completes the fold into field operating position. The chain should have some slack when the marker is in the field operating position. The marker chain is TOO LOOSE and should be adjusted, if the marker blade pushes dirt more than 12" as it completes the fold into the field operating position. The marker chain is TOO TIGHT if it will not allow the marker blade to follow the contour of the ground and the chain is tight when the marker is in the field operating position.

NOTE: Operate three-fold row markers with the tractor's hydraulic valve in float position.



WARNING: BE SAFE! Always shut off tractor prior to adjustment.

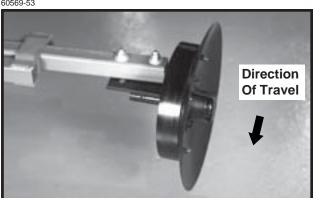
ROW MARKER LENGTH ADJUSTMENT

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 Dimension Between Row Of Rows Planter Center Line Х Spacing And Marker Disc Blade (Inches)

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

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KPM I ELECTRONIC SEED MONITOR



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

Seed flow for up to 36 rows, in two 18 row sections (left/ right or rear/front), may be monitored with one monitor. For less complicated applications (18 rows or less), all rows may be programmed in one section and the other section left disabled.

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 single backlit Liquid Crystal Display (LCD) 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 monitor 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. (If Applicable)

* NOTE: The primary harness, on all 3000 Series Planters, is hard-wired into the safety/warning light harness or control console harness included as standard equipment with the planter.

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MONITOR KEY FUNCTIONS

Each key press is acknowledged by the monitor with a short beep.

OK

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

SELECT

- Selects the <u>application mode</u> (rear/front or left/right) at the beginning of installation setup.
- 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.

VOLUME

- Pressing the key will turn the audible alarm on.
- Holding the key for periods of 2 seconds increases the volume until it reaches the maximum, at which time it rolls over to the minimum level.

ON/OFF

· Powers the unit on and off.

LCD FUNCTIONS

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.

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.

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

6-13 Rev. 10/04 EXAMPLE: The system is setup to display rear/front sections. Press SELECT key. The FRONT icon will be flashing and the REAR section will be displayed on the bar graph. After 1 minute the FRONT 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. Also if seed flow is sensed in the FRONT section while planting, the FRONT icon will resume flashing.

STEP 2 Press SELECT key again to activate both sections.

EXAMPLE: Press SELECT key a second time. The information regarding each section will display alternately every 5 seconds.

For simple applications, where only one section is programmed, the display will automatically lock on that section. Pressing 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.

CHANGING THE AUDIBLE ALARM VOLUME

STEP 1 Press and hold down the VOLUME key.

STEP 2 The SETUP and VOLUME icons will turn on and the alarm will sound continuously. The intensity of the sound will change every 2 seconds. After the maximum volume is reached, the next change will set the volume to minimum and will continue to get louder every 2 seconds. When the desired volume is reached, release the key.

WARNINGS AND ALARMS

 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 alarm sounds. All segments on the corresponding bar graph are turned off. Pushing the OK key to acknowledge the warning will turn the audible 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".

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

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 alarm 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.

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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 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 "LOW POWER" on the LCD, provided that the monitor does not detect 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

To replace a faulty sensor; (a) disconnect the faulty sensor and check the monitor to be sure the correct sensor was disconnected, (b) <u>turn the monitor off</u>, (c) after a few seconds, <u>turn the monitor back on</u> 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 beginning with the lowest numbered row in the rear or left section and continue to replace sensors in increasing order. Then move on to the front or right section and continue in ascending row number order.

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 they will be randomly learned by the monitor.

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FIELD OPERATION

(MTR28e/MTR28c/MTR28d/MTR28b)

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



Information regarding each section is displayed alternately every 5 seconds.

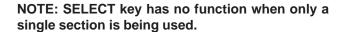
REAR/FRONT CONFIGURATION

- Press the SELECT key once to show REAR section only.
- Press the SELECT key a second time to return to each section being displayed alternately every 5 seconds.
- Press the SELECT key a third time to show REAR section only again.



LEFT/RIGHT CONFIGURATION

- Press the SELECT key once to show LEFT section only.
- Press the SELECT key a second time to show RIGHT section only.
- Press the SELECT key a third time to return to each section being displayed alternately every 5 seconds.



Press the VOLUME key to increase or decrease volume. See "Changing The Audible Alarm Volume".

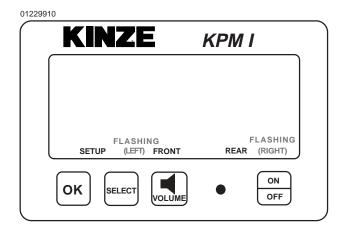


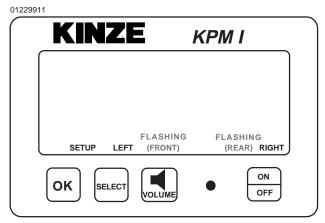
Press the OK key to silence alarms. See "Warnings And Alarms".



PROGRAMMING/CONNECTING SEED TUBES

- STEP 1 All the seed tubes w/sensors must be disconnected from the harness and the monitor must be off.
- enters the setup procedure. If the monitor was accidentally powered on with no sensors attached, the user can turn the monitor off at this point and the previous configuration is not lost.
- STEP 3 Press the SELECT key. Each time you press the SELECT key the mode will toggle between rear/front and left/right. The selected display will be solid and the configuration not currently selected will be flashing. By default the monitor starts in rear/front mode.

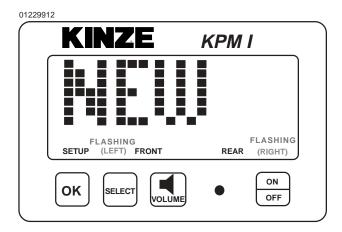


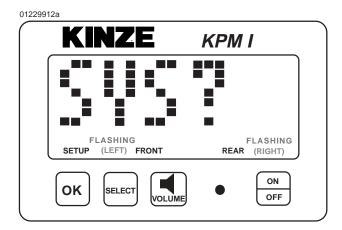


NOTE: Model 3700 (24/36) planters will use the left/right configuration. Model 3700 (16 row) planter will use the rear configuration only. When all rows can be viewed on a single display (rear), pressing the select key has no function.

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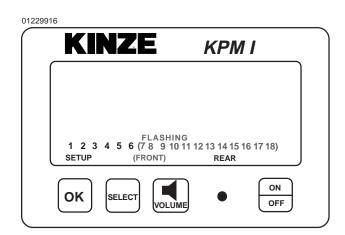
STEP 4 Press and hold the OK key to confirm the selection and continue holding until the row numbers appear on the display. During confirmation, the display will alternate between "NEW" and "SYS" to alert the user that the previous configuration will be lost. With the rear/front mode selected, the monitor automatically starts with the rear section. The REAR icon shows solid and the FRONT icon starts to flash. With the left/right mode selected, the monitor automatically starts with the left section. The LEFT icon shows solid and the RIGHT icon starts to flash.





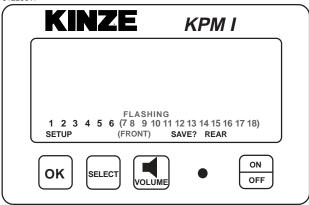
STEP 5 Plug each seed tube w/sensor into the harness in a predetermined order. Row 1 first, row 2 second and so on up to 18 rows. When a sensor is plugged in, the corresponding row number on the LCD display will stay solid, the monitor will chirp twice and the LED (Light Emitting Diode) on the seed tube sensor will turn on for approximately 30 seconds to show connection is made. NOTE: Unless there is a faulty sensor, the installer should just have to connect the sensors in the proper order without checking the monitor is acknowledging each sensor.

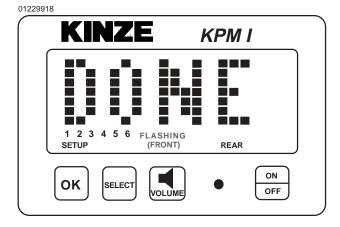
STEP 6 When all the seed tubes w/sensors for the current section are installed, check to be sure the monitor displays solid numbers for the number of sensors connected.



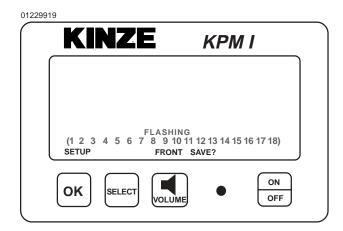
STEP 7 If this condition is satisfied, press and hold the OK key to save the setup for the current section. The SAVE? icon will show followed by continuous short beeps indicating the monitor is preparing to save. The installer has 5 seconds to decide if he wants to save the current configuration. During this time the short beeps will sound. To complete the save, hold the OK key pressed until the word "DONE" shows on the screen followed by a long beep and the SAVE? icon turns off. When the OK key is released the monitor will continue with the second section installation.

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STEP 8 Follow STEPS 5 through 7 to install the second section. If no seed tubes are installed on the second section, press and hold the OK key until the word "DONE" shows on the screen followed by a long beep and the SAVE? icon turns off.

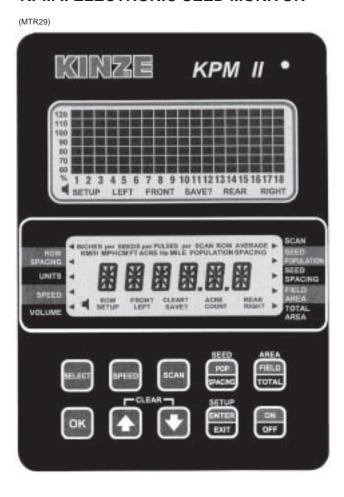




NOTE: Individual seed tubes may be unplugged for special situations. An alarm will sound which can be silenced by touching the OK key. The monitor will recognize each seed tube when reconnected.

6-18 Rev. 8/01

KPM II ELECTRONIC SEED MONITOR



The electronic seed monitor system consists of a console, which is mounted on the tractor; seed tubes with computerized sensors, one of which is installed in each planter row unit; a primary harness*, which connects the console to the planter harness; and a planter harness (junction Y-harness and/or harness extensions where applicable) to which the individual seed tube sensors and rotation sensors connect. The monitor works with a magnetic (pickup) distance sensor or radar distance sensor.

* NOTE: The primary harness, on all 3000 Series Planters, is hard-wired into the safety/warning light harness or control console harness included as standard equipment with the planter.

Seed flow for up to 36 rows, in two 18 row sections (left/right or rear/front), may be monitored with one monitor. For less complicated applications (18 rows or less), all rows may be programmed in one section and the other left disabled.

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 console has two backlit Liquid Crystal Displays (LCD). The <u>upper display</u> 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 <u>lower display</u> 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 monitor 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. (If Applicable)

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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 <u>application mode</u> (rear/front or left/right) at the beginning of installation in the setup mode.
- Selects the <u>active section(s)</u> (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.

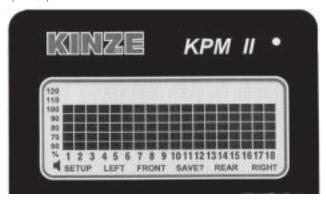
ON/OFF

· Powers the unit on and off.

6-20 Rev. 7/03

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.

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.

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/front sections. Press SELECT key. The FRONT icon will be flashing and the REAR section will be displayed on the bar graph. 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. Also 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 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.

> **EXAMPLE: Press SELECT key a second** time. The information regarding each section will display alternately every 5 seconds.

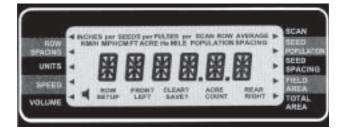
For simple applications, where only one section is programmed, the display will automatically lock on that section. Pressing the SELECT key will have no affect.

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.

6-21 Rev. 8/01

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 <u>seed spacing or seed population</u> (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.

6-22 Rev. 7/03

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.

<u>Field area</u> 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.

<u>Total area</u> 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.

6-23 Rev. 10/04

PROGRAMMING - Changing The Audible Alarm Volume

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.

6-24 Rev. 7/03

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 or left/right) must be active. If the monitor is programmed in a rear/front configuration, both sections will be active (alternating every 5 seconds). 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

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.

program.

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.

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.

6-25 Rev. 10/04 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.

> 6-26 Rev. 7/03

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 (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.
- Drive the tractor for 330 feet (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 arrowicon 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.

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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 Arrow Key	Right Most Digit	203 1 , 203 2 , 203 3
Press The SELECT Key	Second Digit From Right	20 3 3
Press The DOWN Arrow Key	Second Digit From Right	20 2 3, 20 1 3, 20 0 3, 20 9 3, 20 8 3
Press The SELECT Key Twice	Left Most Digit	2 083
Press The DOWN Arrow Key	Left Most Digit	1083, 0 500 (Min. Value), 9 500, 8 500

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 arrowicon 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.

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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

 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, "LSHAFT", "RSHAFT" or "SHAFTS" will display.

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

The three 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.	

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.

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- 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, 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

To replace a faulty sensor; (a) disconnect the faulty sensor and check the monitor to be sure the correct sensor was disconnected, (b) <u>turn the monitor off</u>, (c) after a few seconds, <u>turn the monitor back on</u> 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 beginning with the lowest numbered row in the rear/left section and continue to replace sensors in ascending order. Then move on to the front/right section and continue in ascending order.

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.

FIELD OPERATION

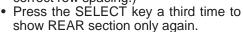
Press the ON/OFF key to turn the monitor on and off.



Information regarding each section is displayed alternately every 5 seconds.

REAR/FRONT CONFIGURATION

- 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. (Monitor sets correct row spacing.)





(MTR28c)

LEFT/RIGHT CONFIGURATION (If Applicable)

- Press the SELECT key once to show LEFT section only.
- Press the SELECT key a second time to show RIGHT section only.
- Press the SELECT key a third time to return to each section being displayed alternately every 5 seconds.



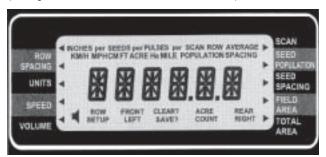
(MTR28c)

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 $\mbox{KM/H}$).

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(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 <u>will not</u> 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".



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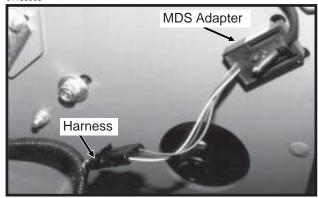
PROGRAMMING/CONNECTING SEED TUBES. RADAR/MAGNETIC DISTANCE SENSORS AND/OR SHAFT ROTATION SENSORS

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

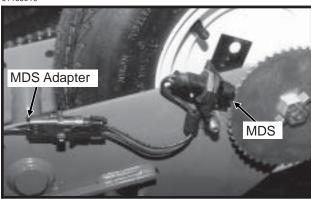
NOTE: If the monitor detects a radar sensor but no seed tubes at power up, it will automatically go into AREA COUNT mode. See "Area Counter/ Speedometer Mode".

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

01189909



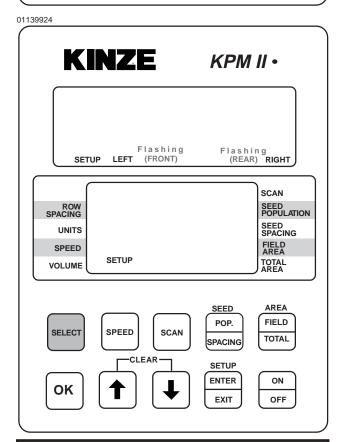
01189910



STEP 2 Press the ON key. The monitor automatically enters the setup procedure.

STEP 3 The monitor automatically defaults to front/ rear. Press the SELECT key. Each time you press the SELECT key the mode will toggle between rear/front and left/right. The selected display will be solid and the configuration not currently selected will be flashing. By default the monitor starts in the rear/front mode.

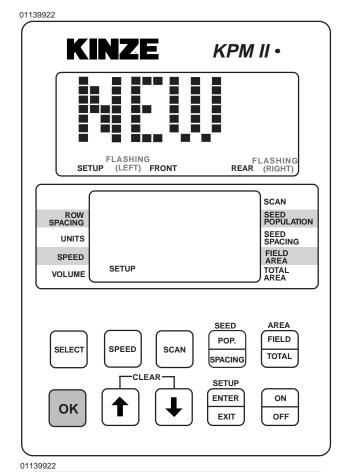
01139923 KINZE KPM II • Flashing (LEFT) FRONT Flashing REAR (RIGHT) SCAN ROW SPACING SEED POPULATION SEED SPACING UNITS FIELD AREA SPEED **SETUP** TOTAL AREA VOLUME SEED AREA FIELD POP. SELECT SPEED SCAN TOTAL SPACING SETUP **ENTER** ON OFF FXIT

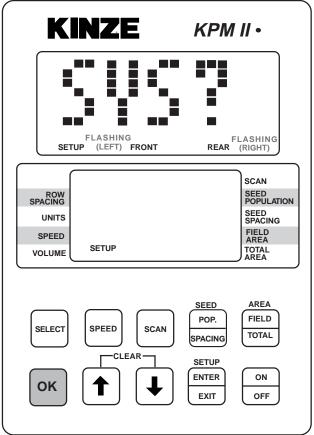


NOTE: Model 3700 (24/36 row) planters will use the left/right configuration. Model 3700 (16 row) planter will use the rear configuration only.

6-32 Rev. 10/04 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.



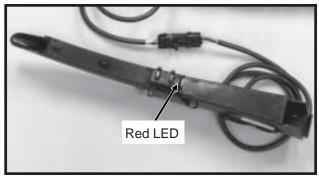


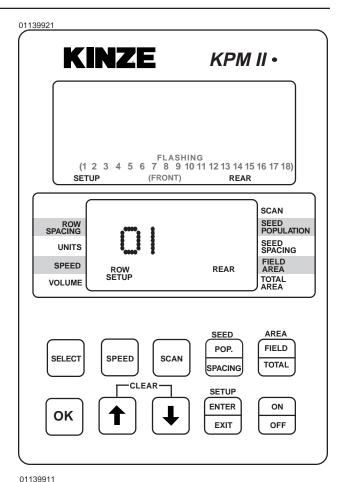
6-33 Rev. 12/02

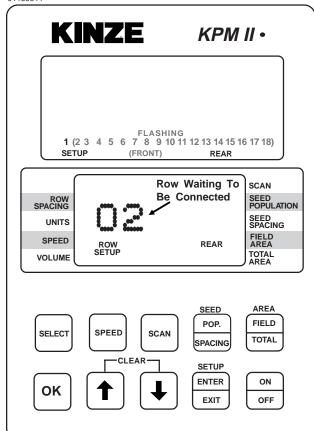
STEP 5 Determine which row you want as number one and plug the seed tube w/sensor into the harness.

> 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.

D04219901



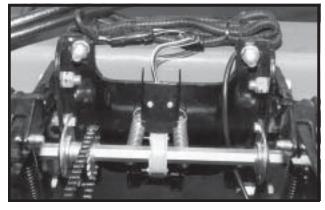




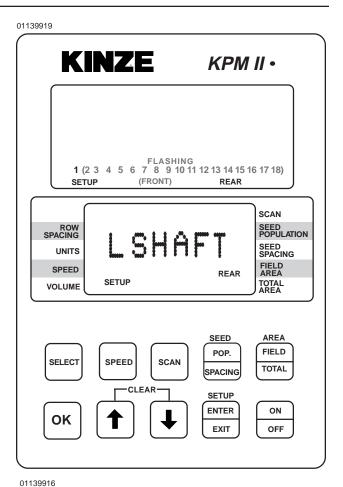
6-34 Rev. 10/04

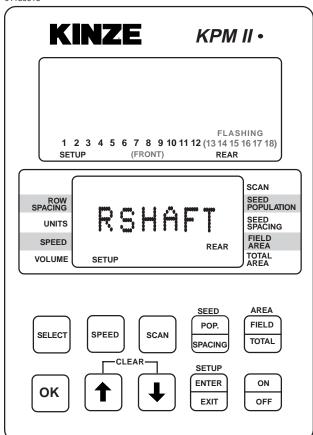
STEP 6 If the monitor system includes shaft rotation sensors, these can be installed at any time as the seed tubes are connected. The first shaft rotation sensor installed will be assigned to the rows on the L.H. half of the planter and the second shaft rotation sensor connected will be assigned to the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

01189906

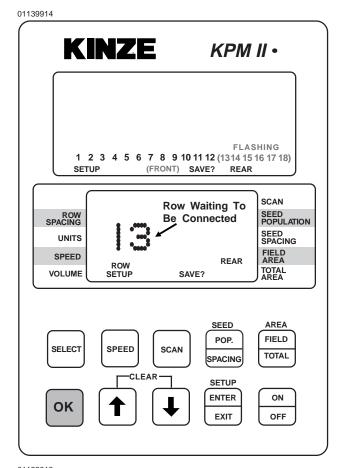


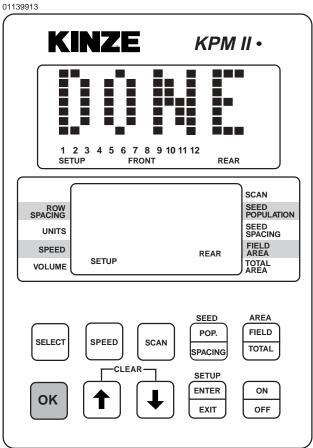
"LSHAFT" will display on the lower LCD when the first shaft rotation sensor is installed. "RSHAFT" will display when the second shaft rotation sensor is installed.





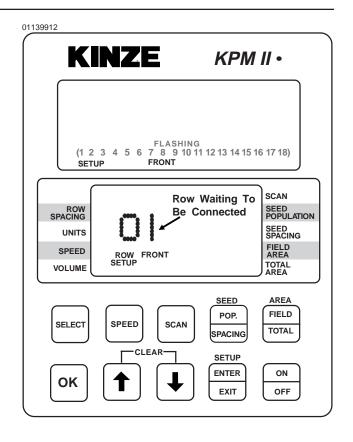
6-35 Rev. 12/02 **STEP 7** When all the seed tubes for the current section (Rear/Front or Left/Right) are installed, check to be sure the monitor displays solid numbers for the number of seed tubes connected. Press and hold the OK key to save the setup for the current section. The SAVE? icon will display 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).

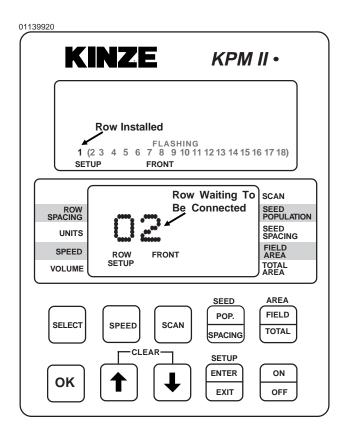




6-36 Rev. 10/04

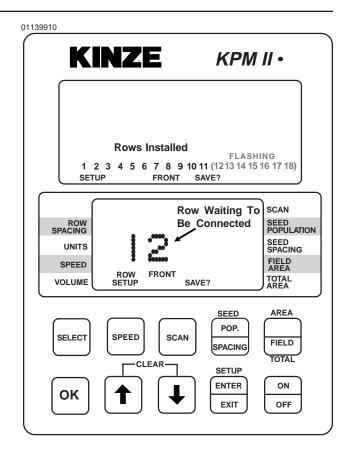
STEP 8
Follow STEPS 5 through 7 to install the second section. If no seed tubes are installed on the second section, press and hold the OK key. The word "DONE" will appear on upper display. The alarm will sound four short beeps followed by one long beep and the SAVE? icon turns off. The monitor has exited the setup mode. When you release the OK key the upper display will scroll "WAITING CALIBRATION". The lower display will show "GNDSPD" and the audible alarm will sound continually until the distance sensor is connected. See STEP 9.

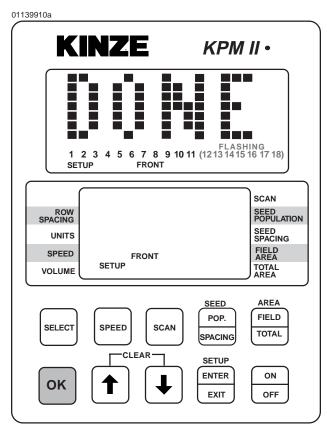




6-37 Rev. 10/04

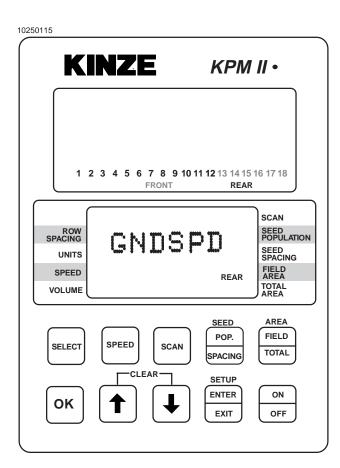
STEP 8 (Continued)





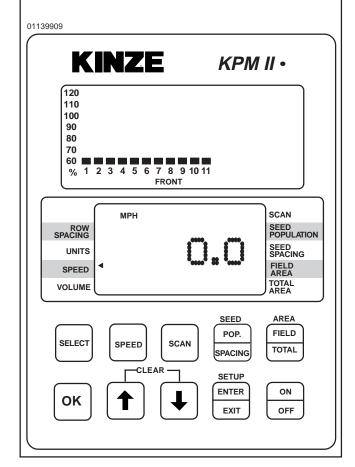
STEP 9 With the lower display showing "GNDSPD", connect the distance sensor. The monitor will display "PICKUP" if a magnetic distance sensor is connected or "RADAR" if a radar distance sensor is installed. Only one distance sensor can be connected at a time.

NOTE: 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.



NOTE: To reprogram the system to monitor more or less rows (up to the maximum of 18 per section, 36 total), 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.



6-39 Rev. 8/01

ROW-BY-ROW ALARM LEVEL SETTING (Requires Version V0.06 Or Higher Software -KPM II 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.

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.

04130116

KINZE KPM II • 1 2 3 4 5 6 7 8 9 10 11 12 (13 14 15 16 17 18) REAR SCAN SEED POPULATION ROW SPACING SEED SPACING UNITS FIELD SPEED REAR TOTAL AREA VOLUME SETUP SEED AREA **FIELD** POP. SPEED SELECT SCAN TOTAL SPACING SETUP **ENTER** ON OK OFF

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.

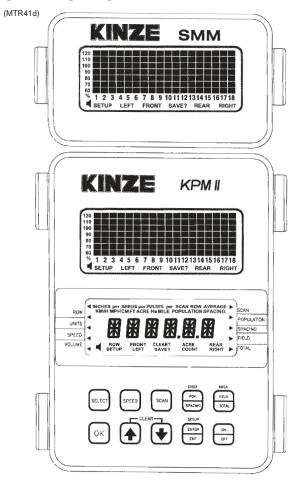
NOTE:

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

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

KPM II STACK-MODE

KPM II STACK-MODE ELECTRONIC SEED MONITOR



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 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 (up to 36 rows) and/or Interplant® System rows (up to 36 rows). 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.

The SMM console is included with the KPM II Stack-Mode Electronic Seed Monitor Package for 24 and 36 row Model 3700 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.

(If Applicable) 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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KPM II STACK-MODE

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 <u>application mode</u> (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 <u>active section(s)</u> (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

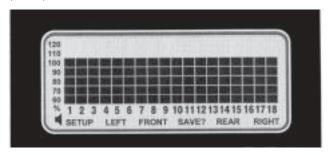
· Powers the unit on and off.

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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 KPMII 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.

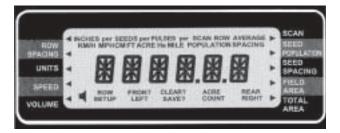
NOTE: When alternating between two sections, the display will lock on the section containing the first recognized alarm until the alarm is acknowledged by pressing the OK key or the alarm condition is removed.

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KPM II STACK-MODE

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 <u>seed spacing or seed population</u> (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.

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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.

<u>Field area</u> 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.

<u>Total area</u> 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.

6-45 Rev. 10/04

KPM II STACK-MODE

PROGRAMMING - Changing The Audible Alarm Volume

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.

6-46 Rev. 7/03

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

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).

Interplant® System row spacing.

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

You can then set the row spacing to the

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.

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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.

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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.

KPM II STACK-MODE

- In field conditions, measure 330 feet (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 (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 arrowicon 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.

6-49 Rev. 10/04 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 Arrow Key	Right Most Digit	203 1 , 203 2 , 203 3
Press The SELECT Key	Second Digit From Right	20 3 3
Press The DOWN Arrow Key	Second Digit From Right	20 2 3, 20 1 3, 20 0 3, 20 9 3, 20 8 3
Press The SELECT Key Twice	Left Most Digit	2 083
Press The DOWN Arrow Key	Left Most Digit	1 083, 0 500 (Min. Value), 9 500, 8 500

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 arrowicon 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.

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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

 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, "LSHAFT", "RSHAFT" or "SHAFTS" 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.

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KPM II STACK-MODE

- 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) <u>turn the monitor off.</u> (c) after a few seconds, <u>turn the monitor back on</u> 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 <u>rear/front or left/right configurations</u> 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 <u>four section configurations</u>, 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.

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KPM II STACK-MODE

FIELD OPERATION

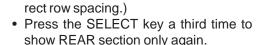
Press the ON/OFF key to turn the monitor



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 cor-



(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.)



(MTR28c)

- 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.

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.)



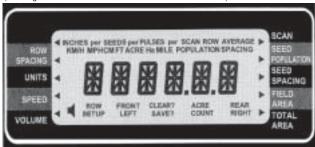
(MTR28c)

- 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.

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 POPULA-TION/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.



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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 <u>will not</u> 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".



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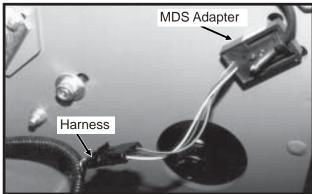
PROGRAMMING/CONNECTING SMM CONSOLE. SHAFT ROTATION SENSORS, SEED TUBES AND/ OR RADAR/MAGNETIC DISTANCE SENSORS

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.

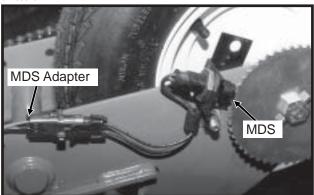
NOTE: If the monitor detects a radar sensor but no seed tubes at power up, it will automatically go into AREA COUNT mode. See "Area Counter/ Speedometer Mode".

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

01189909



01189910

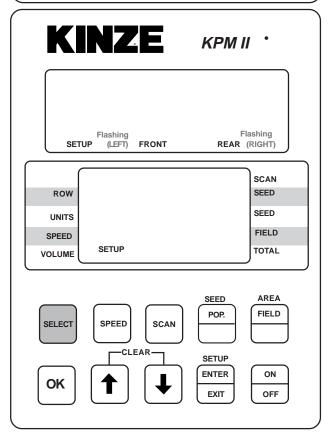


STEP 2 Press the ON key. The monitor automatically enters the setup procedure. Monitor will scroll "NO SENSOR" on top LCD of KPM II Stack-Mode console.

KPM II STACK-MODE

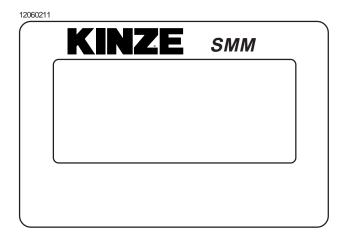
STEP 3 The monitor automatically defaults to rear/ front. Press the SELECT key once for left/ right and twice for four sections (front right/ front left/rear right/rear left). The selected display will be solid and the configuration not currently selected will be flashing.

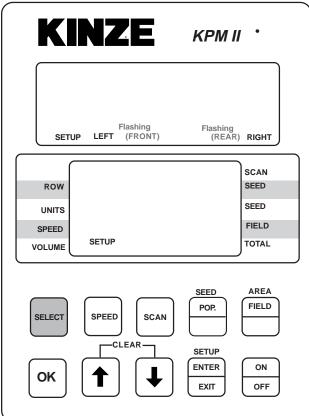
12060211 KINZE **SMM**



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

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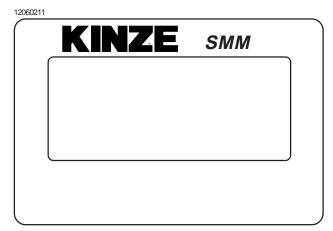


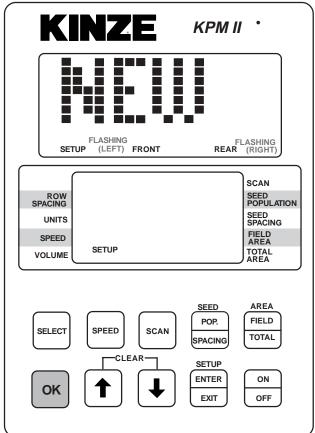
NOTE: SMM console may not be applicable to all models.

NOTE: Model 3700 (24/36 row) 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.





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

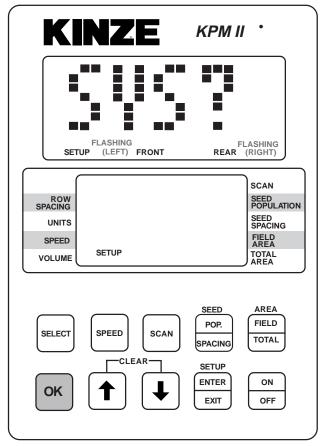
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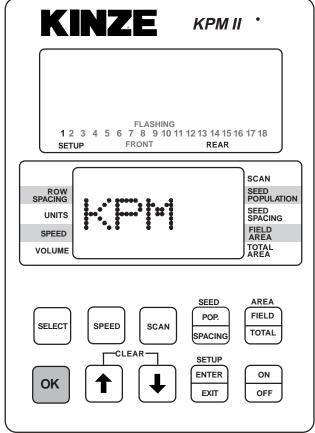
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration.

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.









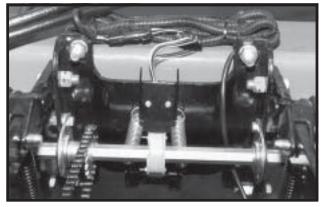
NOTE: SMM console may not be applicable to all models.

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

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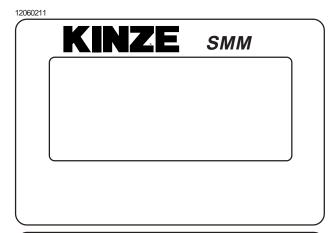
STEP 6 If the monitor system includes shaft rotation sensors, these should be installed at this time. Plug in the L.H. shaft first, then the R.H. shaft. L.H. and R.H. is determined by facing in the direction the machine will travel when in use.

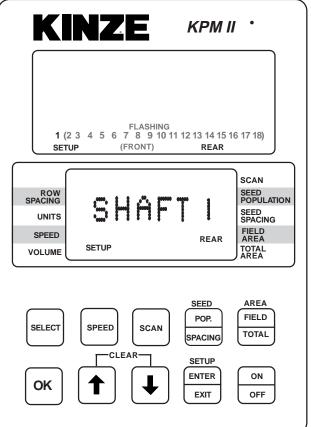
01189906



"LSHAFT" or "SHAFT 1" will display on the lower LCD when the first shaft rotation sensor is installed. "RSHAFT" or "SHAFT 2" will display when the second shaft rotation sensor is installed.

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.

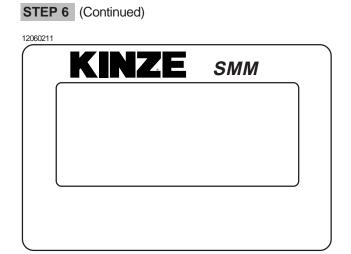


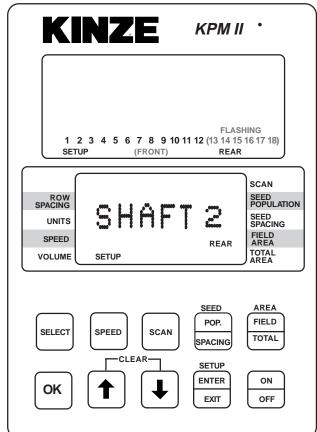


NOTE: SMM console may not be applicable to all models.

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KPM II STACK-MODE



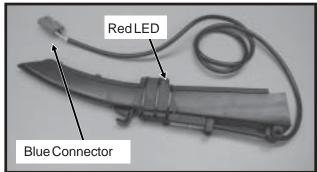


NOTE: SMM console may not be applicable to all models.

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.

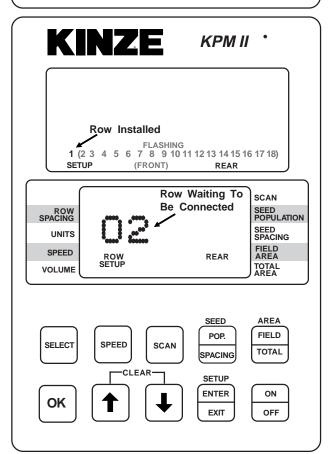
D120602101



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.

6-59 Rev. 10/04 STEP 7 (Continued)

KINZE SMM

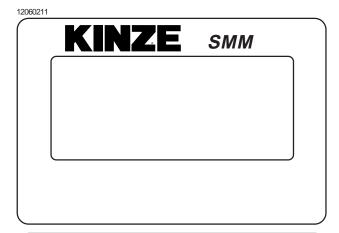


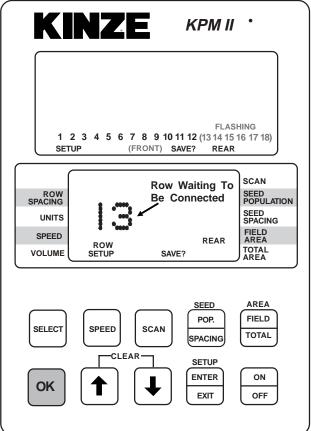
NOTE: SMM console may not be applicable to all models.

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).

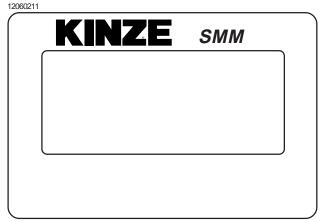
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration.

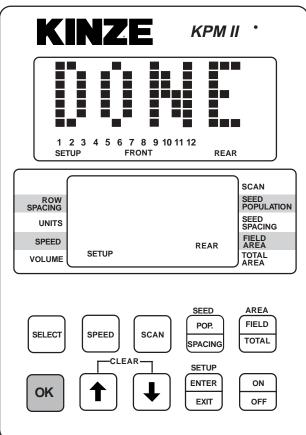




NOTE: SMM console may not be applicable to all models.

6-61 Rev. 10/04 STEP 8 (Continued)



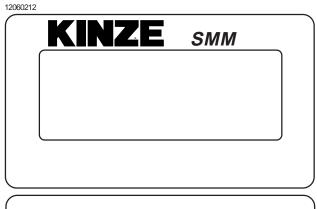


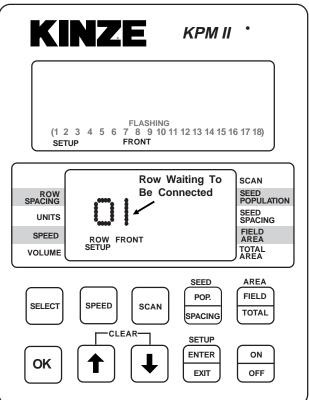
NOTE: SMM console may not be applicable to all models.

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 backlighted 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.

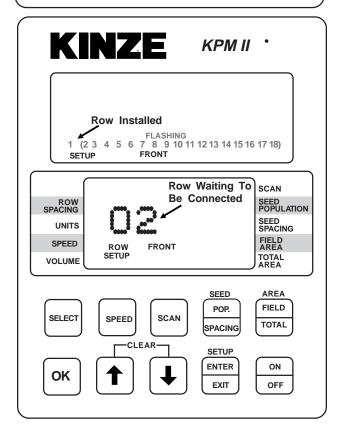




NOTE: SMM console may not be applicable to all models.

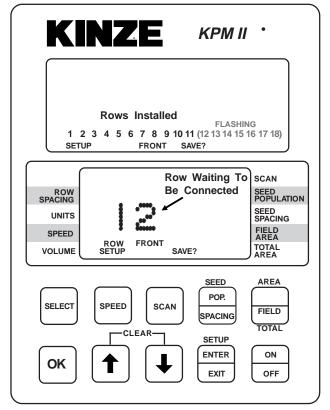
6-63 Rev. 10/04 STEP 9 (Continued)

KINZE SMM



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

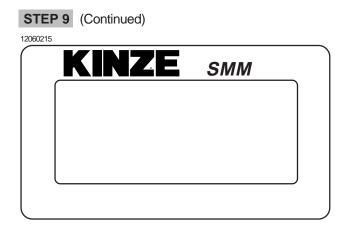


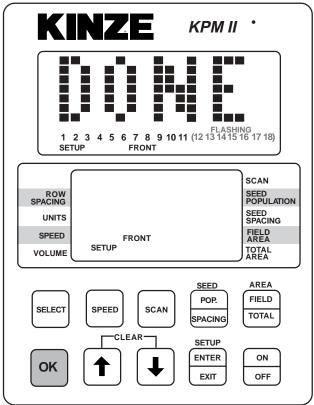


NOTE: SMM console may not be applicable to all models.

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KPM II STACK-MODE





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

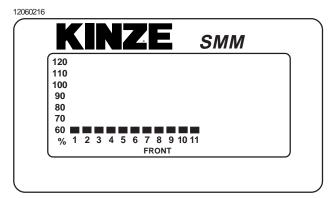
STEP 10 With the lower display showing "GNDSPD", connect the distance sensor. The monitor will display "PICKUP" if a magnetic distance sensor is connected or "RADAR" if a radar distance sensor is installed. Only one distance sensor can be connected at a time.

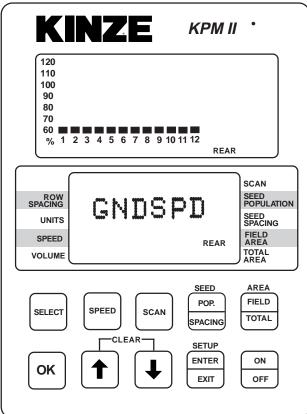
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front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

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STEP 10 (Continued)

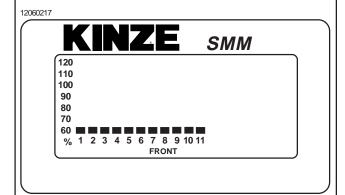


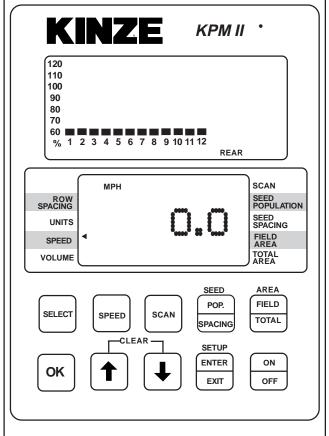


NOTE: SMM console may not be applicable to all models.

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.





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

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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.

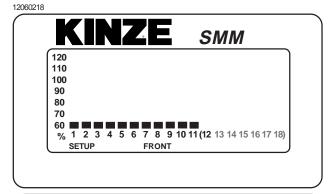
NOTE: The system should be programmed to monitor all planter rows prior to performing these steps.

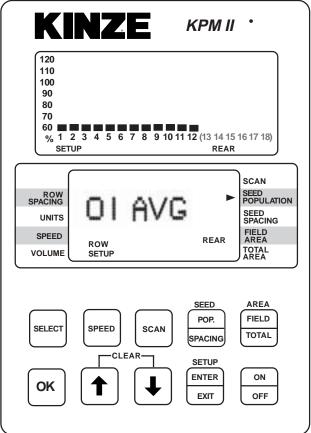
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front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





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

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- **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:

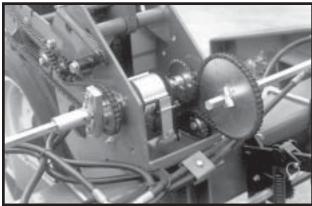
See "Programming - Row Spacing" for programming applicable row spacing.

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

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POINT ROW CLUTCHES

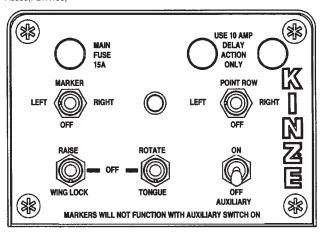
82378-18a



R.H. Side Of Planter Shown

With the use of electric-activated clutches, which disengage the drive, either half of the planter may be shut off for finishing up fields or for long point row situations.

A6865(PLTR153)

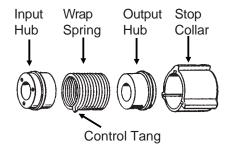


The selector switch for the clutches is located on the planter control console.

NOTE: Switch should be left in OFF position when planter is not in use. If left in ON position, the tractor battery will be drained.

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

PRC019(PLTR48a)



The 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 planter 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 pulls the actuator arm against the stop on the stop collar, disengaging the wrap spring and stopping the planter drive.

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TWO-SPEED POINT ROW CLUTCHES

The Two-Speed Point Row Clutch Package is designed to allow on-the-go population rate adjustment as well as the capability to shut off either half of the planter for finishing up fields or for long point row situations.

Input From Contact
Drive Wheel

Two-Speed
Clutch

The point row clutches are controlled by the point row clutch switch on the control console. The point row switch is used to shut off either the left or right half of the planter. Activating the reduced rate switch engages one solenoid on each clutch assembly and reduces the planting rate for the entire planter.

NOTE: Point row switch should be left in OFF position and rate switch should be left in FULL RATE position when planter is not in use. If left in ON and/ or REDUCED RATE positions, the tractor battery will be drained.

A7435(TWL81)

MARKER REDUCED RATE POINT ROW

LEFT OFF FULL RATE OFF

RAISE ROTATE ON

WING LOCK TONGUE OFF

AUXILLIARY

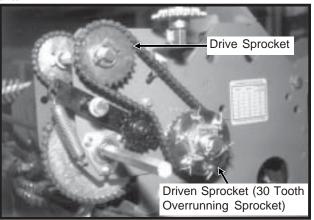
MARKERS WILL NOT FUNCTION WITH AUXILLIARY SWITCH ON

The ratio of population reduction is determined by the sprocket ratio between the drive and driven sprockets on the wheel module extension. A rate reduction decal like the one shown below is located on the wheel module extension.

7100-214

DRIVE	DRIVEN	POPULATION
15	30	60
17	30	- 43
23"	30	23
24	30	20
25*	30	17
36'	30	13
27	30	10





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NOTCHED SINGLE DISC FERTILIZER OPENER (Row Unit Mounted) - STYLE A

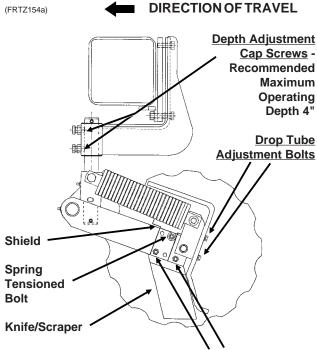
The notched single disc fertilizer opener is designed for use in minimum and no till planting conditions. Placement of fertilizer with the $16\,^3/_4$ " diameter notched single disc fertilizer opener is recommended at $2\,^1/_2$ - 3" from the row. Never locate the opener to place fertilizer closer than 2".

Adjust blade depth on each row using the cap screws and jam nuts located on the opener pivot shaft. The blade can be adjusted to allow a maximum 4" operating depth. Be sure the spring pin holes in the pivot post remain parallel with the opener mounting plate. Check fertilizer hose clearance after adjusting opener depth by swiveling the opener left and right. Torque cap screws and jam nuts to 57 ft. lbs.

The opener spring is factory preset at 350 lbs. and is not adjustable.

A

WARNING: Spring under pressure. DO NOT disassemble.



Knife/Scraper Leading Edge Adjustment Bolts (If not equipped with a shield and spring tensioned bolt, the third knife/scraper attachment bolt is also an adjustment bolt.)

Adjust knife/scraper leading edge contact on each row so blade will turn by hand with slight resistance, but will not coast or freewheel. In dry loose soil, knife/scraper adjustment is critical. If adjustment is not maintained, soil or residue may wedge causing the blade to push. If the knife/scraper is adjusted too tight, the blade will not turn causing the blade to push soil and residue. Knife/scraper leading edge adjustment is made using the two lower 3/8" mounting carriage bolts and pivot pad on the knife/scraper. Because of blade runout, rotate blade one full revolution after adjustment. Readjust knife/scraper-to-blade contact at tight spot as required. Never strike the knife/scraper with a heavy object or damage may occur.

Adjust drop tube on each row using the slotted mounting holes in the drop tube. Adjust drop tube so it is protected by the knife/scraper from soil contact and wear. The liquid drop tube should be adjusted as far from the opener blade as possible while keeping it behind the knife/scraper. This adjustment prevents liquid fertilizer from contacting the opener blade.

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NOTCHED SINGLE DISC FERTILIZER OPENER (Row Unit Mounted) - STYLE B

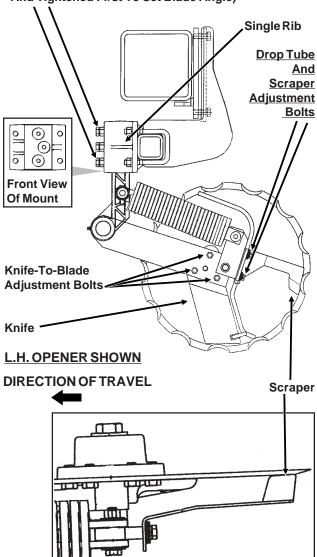
The notched single disc fertilizer opener is designed for use in minimum and no till planting conditions. Placement of fertilizer with the 16^{3} /₄" diameter notched single disc fertilizer opener is recommended at 2^{1} /₂-3" from the row. The opener is designed to hold the blade at a setangle so the 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.

(FRTZ205e/B0297/FRTZ207a)

<u>Depth Adjustment Cap Screws</u> - 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.

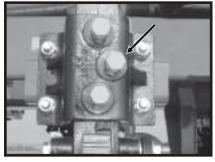
Using the slotted mounting holes in the drop tube mount, adjust fertilizer drop tube behind the knife so it is protected from soil contact and wear. The liquid drop tube should be adjusted 1/4 - 3/8" from the opener blade while keeping it behind the knife. Adjust scraper to just touch the opener blade. 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 single rib is 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 middle cap screw to hold blade angle. (d) Tighten upper and lower cap screws and all jam nuts.





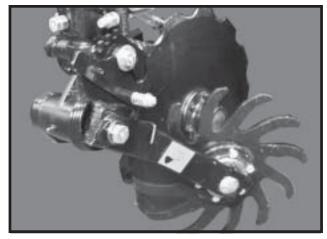
NOTE: Middle cap screw must be tightened prior to tightening depth adjustment cap screws.

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RESIDUE WHEEL ATTACHMENT FOR NOTCHED SINGLE DISC FERTILIZER OPENER

(For Use With STYLE A Notched Single Disc Fertilizer Opener)

D05219901



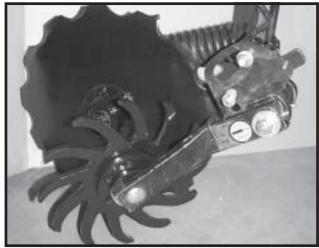
The residue wheel attachment for the notched single disc fertilizer opener is designed for applications where row unit mounted residue wheel attachments cannot be installed. The residue wheel is attached to the notched single disc fertilizer opener using $^{5}/_{8}$ " x $^{3}/_{2}$ " and $^{1}/_{2}$ " x $^{1}/_{4}$ " hardware.

Maximum depth is set by lifting the residue wheel and moving the adjustment lever down to increase depth or up to decrease depth in 1" increments (in relation to blade depth setting). Adjust all rows the same. Down force on the residue wheel is maintained by a torsion spring and is not adjustable.

RESIDUE WHEEL ATTACHMENT FOR NOTCHED SINGLE DISC FERTILIZER OPENER

(For Use With STYLE B Notched Single Disc Fertilizer Opener)

D052201104



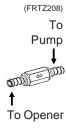
The residue wheel attachment for the notched single disc fertilizer opener is designed for applications where row unit mounted residue wheel attachments cannot be installed. The residue wheel is attached to the notched single disc fertilizer opener using $^{5}/_{8}$ " x 7 $^{1}/_{2}$ " and $^{1}/_{2}$ " x 6 $^{1}/_{2}$ " hardware.

Maximum depth is set by lifting the residue wheel and moving the adjustment lever down to increase depth or up to decrease depth in 1" increments (in relation to blade depth setting). Adjust all rows the same. Down force on the residue wheel is maintained by a torsion spring and is not adjustable.

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PISTON PUMP PACKAGE

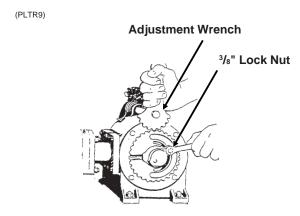
NOTE: An optional low rate check valve is available for installation in-line between the liquid fertilizer piston pump and the liquid fertilizer openers to ensure equal distribution of product at low rates. The check valve also eliminates the need for an anti-siphon loop if the valve is installed as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



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.

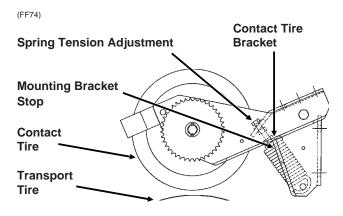
To adjust delivery rate, loosen the 3/8" lock nut that secures the arm with the pointer and rotate the scale flange until the pointer is over the desired scale setting. The adjustment wrench will facilitate rotation of the scale flange. Tighten the 3/8" lock nut being careful not to over tighten.



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.

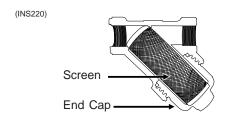
Spring tension on the piston pump drive should be set so there is no slack in the springs when the contact tire bracket is resting on the mounting bracket stop. The contact tire and transport tire should not be touching.



CLEANING

All the hoses are made of sturdy plastic and rubber to resist corrosion. However, the 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, should be taken apart and cleaned daily. Remove the end cap to clean the screen.



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REAR TRAILER HITCH (16 Row 30" And 24 Row 30" Sizes Only)

CLR3-96c



The Rear Trailer Hitch is used to tow a 3 or 4 wheel wagon behind the planter.

Hitch height during field operation and transport is 15". When the planter wings are being folded the hitch height will raise to approximately 42".

IMPORTANT: The rear trailer hitch is designed for use with piston pumps only. 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.

The length of the rear trailer hitch can be adjusted by loosening the 5/8" set screws at the rear of the outer tube, removing the 1" x 8 1/2" bolt at the center of the hitch and sliding the hitch in or out to one of the 4 sets of adjustment holes. Reinstall and tighten hardware.

ROW MARKER SAFETY LOCKUP

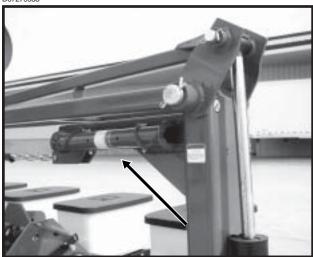


Install marker safety lockups over marker cylinder rods when transporting the planter or working around the planter. When lockups are not in use, store in the storage position provided as shown below.

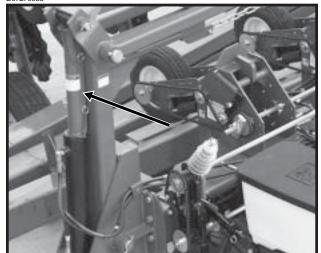


WARNING: To avoid serious injury, keep others away when raising or lowering markers.

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Lockup Stored For Marker Operation



Marker Locked Up For Transport Or Working Around The Machine

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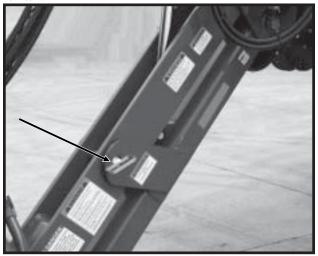
HITCH PARALLEL LINKAGE LOCKUP



A hitch parallel linkage lock pin is provided to lock the hitch parallel linkage in raised (transport) position.

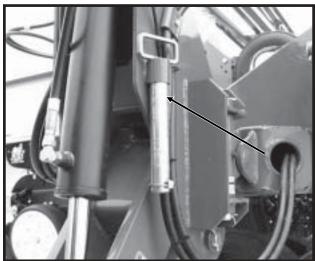
IMPORTANT: Safety lockup devices must always be used when the planter is being transported or stored in the transport position.

D07279927a



Hitch Parallel Linkage Lock Pin In Transport Position (Prior To Serial No. 750404)

D080699215



Hitch Parallel Linkage Pin In Field Operation Position (Prior To Serial No. 750404)

D06250322a



Hitch Parallel Linkage Lockup Pin In Transport Position (Serial No. 750404 And On)

D06250314



Hitch Parallel Linkage Lockup Pin In Storage Location (Serial No. 750404 And On)



WARNING: There is potential uplift present on the planter hitch during folding/unfolding. DO NOT fold or unfold planter without the planter attached to a tractor. DO NOT unhook the planter from the tractor unless it is fully folded for transport or fully unfolded and the planting units are lowered to the ground.

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CENTER LIFT CYLINDER LOCKUPS



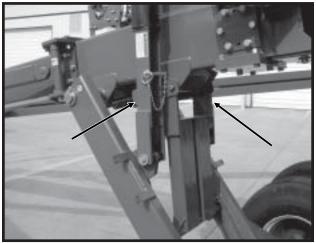
The lift system is provided with an automatic safety lock to carry the weight of the machine while it is in the transport position.

Lockup devices for the two center lift (slave) cylinders are provided to prevent accidental release of the automatic safety lock. Center lift cylinder lockups should be positioned as shown below when the machine is in the transport position or is being serviced in the raised position.

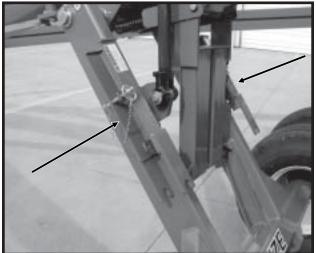


DANGER: Never work under the planter while in raised position without installing all safety lockup devices.

D101801109



Center Lift Cylinder Lockups In Transport Position



Center Lift Cylinder Lockups In Field Operation **Position**

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 and comply with all federal, state/provincial and local regulations.

IMPORTANT: Avoid transporting planter with hoppers loaded. Be sure the tractor the planter is attached to has an adequate drawbar to carry the weight. See "Specifications" for empty machine hitch weight. Set the drawbar in as close to the tractor as practical.



WARNING: Install all safety lockup devices before transporting the planter.

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METRIC CONVERSION TABLE

Multiply	Ву	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 (I)
Gallons (gal.)	x 3.785	= liters (I)
Pounds per square inch (psi)	x 6.894	= kilopascals (kPa) (100 kPa = 1 bar)
Inch pounds (in. lbs.)	x 0.113	<pre>= newtons-meters (N•m)</pre>
Footpounds (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	x 0.621	= miles per hour
hour (Km/h)		(mph)
Kilograms (kg)	x 2.208	= pounds (lbs.)
Liters (I)	x 0.028	= bushels (bu.)
Liters (I)	x 0.264	= gallons (gal.)
Kilopascals (kPa)	x 0.145	= pounds per
(100 kPa = 1 bar)		square inch (psi)
Newtons-meters (N•m)	x 8.85	<pre>= inch pounds (in. lbs.)</pre>
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 "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

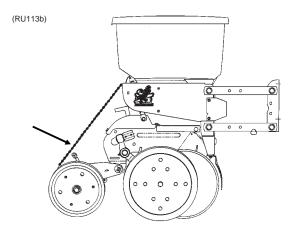
With any change of field and/or planting conditions, seed size or planter adjustment, we recommend a field test be made to ensure proper seed placement and operation of row units. See "Rate Charts", "Checking Seed Population" and "Checking Granular Chemical Application Rate" at end of this section.

Check the planter for fore to aft and lateral level operation. See "Leveling The Planter".
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 "Hydraulic 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 proper "Fertilizer Application Rate Chart".
ter the planter has been field tested, reinspect the achine.
Hoses And Fittings
Bolts And Nuts
Cotter Pins And Spring Pins
Drive Chain Alignment

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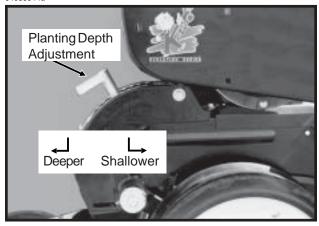
CHECKING SEED POPULATION

 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.



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



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

LENGTH OF ROW IN FEET AND INCHES						
Fraction Row Width						
Of Acre	20" 22" 30"					
1/1000	26' 2"	23' 9"	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 \(^1\)/1000 of an acre by 1000. This will give you total population.

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

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

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

If seed population 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 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.

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Determining Pounds Per Acre (Brush-Type Seed Meter)

To determine pounds per acre:

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

To determine bushels per acre:

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

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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.



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 FACTO	OR FOR GIVEN ROW WIDTH
Row Width	Factor
20"	1.25
22"	1.13
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.

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GENERAL PLANTING RATE INFORMATION

These planting rate charts are applicable to KINZE® Model 3700 Front 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. <u>TO PREVENT PLANTING MISCALCULATIONS</u>, 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 confectionary 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.

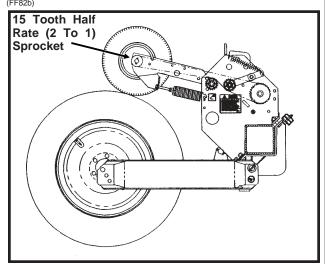
NOTE: Due to a multitude of variables, seed spacing can be adversely affected at speeds above 5.5 MPH.

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 transmission as needed to obtain the desired seed drop.

EXAMPLE: 30" row machine using 60 cell seed discs in brush-type seed meters.

 $80,928 \div 2 = 40,464$ Population

2.6" Seed Spacing x 2 = 5.2" Seed Spacing



6-82 Rev. 12/02

Z202

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

	, XI I IXOXIIII	TIL OLLDO	MORE FOR	***************************************	COM MIDIUS	
20" Peuro	22" Rows	30" Rows		nission ckets	Recommended Speed Range (MPH)	Average Seed Spacing In Inches
20" Rows				Driven	` '	
24,279	22,013	16,186	17	28	4 to 6	12.9
25,178	22,828	16,785	17	27	4 to 6	12.5
26,147	23,706	17,431	17	26	4 to 6	12.0
27,135	24,602	18,090	19	28	4 to 6	11.6
27,192	24,654	18,128	17	25	4 to 6	11.5
28,140	25,514	18,760	19	27	4 to 6	11.1
28,325	25,681	18,883	17	24	4 to 6	11.1
29,222	26,494	19,481	19	26	4 to 6	10.7
29,556	26,797	19,704	17	23	4 to 6	10.6
30,392	27,555	20,261	19	25	4 to 6	10.3
31,656	28,701	21,104	19	24	4 to 6	9.9
32,847	29,781	21,898	23	28	4 to 6	9.5
33,033	29,950	22,022	19	23	4 to 6	9.5
34,064	30,884	22,709	23	27	4 to 6	9.2
34,275	31,076	22,850	24	28	4 to 6	9.2
35,375	32,073	23,583	23	26	4 to 6	8.9
35,546	32,228	23,697	24	27	4 to 6	8.8
35,703	32,371	23,802	25	28	4 to 6	8.8
35,780	32,440	23,853	17	19	4 to 6	8.8
36,789	33,355	24,526	23	25	4 to 6	8.5
36,912	33,467	24,608	24	26	4 to 6	8.5
37,026	33,570	24,684	25	27	4 to 6	8.5
37,133	33,667	24,755	26	28	4 to 6	8.4
38,322	34,745	25,548	23	24	4 to 6	8.2
38,388	34,805	25,592	24	25	4 to 6	8.2
38,450	34,861	25,633	25	26	4 to 6	8.2
38,507	34,913	25,671	26	27	4 to 6	8.1
38,561	34,962	25,707	27	28	4 to 6	8.1
39,989	36,256	26,659	23	23	4 to 6	7.8
41,469	37,599	27,646	28	27	4 to 6	7.6
41,526	37,650	27,684	27	26	4 to 6	7.6
41,655	37,767	27,770	25	24	4 to 6	7.5
41,727	37,832	27,818	24	23	4 to 6	7.5
43,064	39,044	28,709	28	26	4 to 6	7.3
43,187	39,156	28,791	27	25	4 to 6	7.3
43,466	39,409	28,977	25	23	4 to 6	7.2
44,693	40,521	29,795	19	17	4 to 6	7.0
44,787	40,607	29,858	28	25	4 to 6	7.0
44,987	40,788	29,991	27	24	4 to 6	7.0
45,204	40,985	30,136	26	23	4 to 6	7.0
46,653	42,299	31,102	28	24	3 to 6	6.7
46,943	42,561	31,295	27	23	3 to 6	6.7
48,407	43,889	32,271	23	19	3 to 5.5	6.5
48,681	44,137	32,454	28	23	3 to 5.5	6.5
50,511	45,797	33,674	24	19	3 to 5.5	6.2
52,616	47,705	35,077	25	19	3 to 5	6.0
54,102	49,052	36,068	23	17	3 to 5	5.8
54,720	49,613	36,480	26	19	3 to 5	5.7
56,454	51,185	37,636	24	17	3 to 5	5.6
56,825	51,521	37,883	27	19	3 to 5	5.5
58,806	53,317	39,204	25	17	3 to 4.5	5.3
58,931	53,430	39,287	28	19	3 to 4.5	5.3
61,158	55,450	40,772	26	17	3 to 4.5	5.1
63,510	57,582	42,340	27	17	3 to 4.5	4.9
				17		4.8
65,862	59,715	43,908	28	17	3 to 4.5	4.0

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. 6-83

Rev. 7/03

Z214/RH

PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE) APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

Transr	nission ckets		60 Cell n Or High-Ra rain Sorghu		Average Seed	48 Cell Specialty Soybean Or High-Rate Acid-Delinted Cotton			Average Seed	
Drive	Driven	20" Rows	22" Rows	30" Rows	Spacing In Inches	20" Rows	22" Rows	30" Rows	Spacing In Inches	Speed Range (MPH)
17	28	121,392	110,062	80,928	2.6	97,113	88,049	64,742	3.2	2 to 8
17	27	125,889	114,139	83,926	2.5	100,712	91,312	67,141	3.1	2 to 8
17	26	130,731	118,529	87,154	2.4	104,712	94,823	69,723	3.0	2 to 8
19	28	135,674	123,011	90,449	2.3	108,539	98,408	72,359	2.9	2 to 8
19	27	140,699	127,567	93,799	2.2	112,559	102,053	75,039	2.8	2 to 8
17	24	141,624	128,406	94,416	2.2	113,300	102,725	75,533	2.8	2 to 8
17	23	147,782	133,989	98,521	2.1	118,226	107,191	78,817	2.7	2 to 8
19	25	151,955	137,772	101,303	2.1	121,563	110,217	81,042	2.6	2 to 8
19	24	158,286	143,513	105,524	2.0	126,629	114,810	84,419	2.5	2 to 8
23	28	164,237	148,908	109,491	1.9	131,390	119,126	87,593	2.4	2 to 8
19	23	165,168	149,752	110,112	1.9	132,135	119,802	88,090	2.4	2 to 8
24	28	171,379	155,383	114,252	1.8	137,103	124,307	91,402	2.3	2 to 8
24	27	177,725	161,137	118,483	1.8	142,179	128,909	94,786	2.2	2 to 8
17	19	178,895	162,198	119,263	1.8	143,115	129,758	95,410	2.2	2 to 8
24	26	184,560	167,334	123,040	1.7	147,648	133,868	98,432	2.1	2 to 8
26	28	185,660	168,331	123,773	1.7	148,527	134,664	99,018	2.1	2 to 8
24	25	191,943	174,028	127,962	1.6	153,555	139,223	102,370	2.0	2 to 8
26	27	192,536	174,566	128,357	1.6	154,029	139,653	102,686	2.0	2 to 8
23	23	199,941	181,280	133,294	1.6	159,953	145,024	106,635	2.0	2 to 8
27	26	207,630	188,251	138,420	1.5	166,104	150,601	110,736	1.9	2 to 8
24	23	208,634	189,161	139,089	1.5	166,907	151,329	111,271	1.9	2 to 8
25	23	217,326	197,042	144,884	1.4	173,861	157,634	115,907	1.8	2 to 8
19	17	223,463	202,606	148,975	1.4	178,770	162,085	119,180	1.8	2 to 8
27	24	224,933	203,939	149,955	1.4	179,946	163,151	119,964	1.7	2 to 8
28	24	233,264	211,492	155,509	1.3	186,661	169,194	124,407	1.7	2 to 8
23	19	242,033	219,443	161,355	1.3	193,626	175,554	129,084	1.6	2 to 8
28	23	243,405	220,687	162,270	1.3	194,724	176,550	129,816	1.6	2 to 8
24	19	252,557	228,985	168,371	1.2	202,044	183,187	134,696	1.6	2 to 8
25	19	263,079	238,525	175,386	1.2	210,464	190,820	140,309	1.5	2 to 8
23	17	270,507	245,260	180,338	1.2	216,405	196,207	144,270	1.5	2 to 8
26	19	273,603	248,067	182,402	1.1	218,883	198,454	145,922	1.4	2 to 7
27	19	284,126	257,607	189,417	1.1	227,301	206,086	151,534	1.4	2 to 7
28	19	294,650	267,149	196,433	1.1	235,719	213,719	157,146	1.3	2 to 7
26	17	305,792	277,251	203,861	1.0	244,634	221,801	163,089	1.3	2 to 7
27	17	317,553	289,915	211,702	0.9	245,043	230,332	169,362	1.2	2 to 7
28	17	329,313	298,577	219,542	0.9	263,451	238,862	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.

6-84 Rev. 12/02

RH/Z215

PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE) APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

			36 Cell			30 Cell Average Milo/Grain Sorghum Or				
	nission	Acid Da	linted Lorge	Cotton	Average		∌raın Sorghı d-Delinted C		Average	
Sprod	Kets	Acid-De	elinted Large	Cotton	Seed Spacing	ACIO	J-Delinted C	otton	Seed Spacing	Speed
Drive	Driven	20" Rows	22" Rows	30" Rows	In Inches	20" Rows	22" Rows	30" Rows	In Inches	Range (MPH)
17	28	72,836	66,038	48,557	4.3	60,696	55,031	40,464	5.2	2 to 8
17	27	75,534	68,484	50,356	4.2	62,945	57,070	41,963	5.0	2 to 8
17	26	78,438	71,117	52,292	4.0	65,366	59,265	43,577	4.8	2 to 8
19	28	81,404	73,806	54,269	3.9	67,838	61,506	45,225	4.6	2 to 8
19	27	84,419	76,539	56,279	3.7	70,350	63,784	46,900	4.5	2 to 8
17	24	84,975	77,044	56,650	3.7	70,812	64,203	47,208	4.4	2 to 8
17	23	88,670	80,394	59,113	3.5	73,892	66,995	49,261	4.2	2 to 8
19	25	91,173	82,664	60,782	3.4	75,978	68,887	50,652	4.1	2 to 8
19	24	94,971	86,107	63,314	3.3	79,143	71,756	52,762	4.0	2 to 8
23	28	98,543	89,345	65,695	3.2	82,119	74,455	54,746	3.8	2 to 8
19	23	99,101	89,851	66,067	3.2	82,584	74,876	55,056	3.8	2 to 8
24	28	102,827	93,229	68,551	3.0	85,689	77,691	57,126	3.7	2 to 8
24	27	106,635	96,682	71,090	2.9	88,863	80,569	59,242	3.5	2 to 8
17	19	107,337	97,319	71,558	2.9	89,447	81,098	59,631	3.5	2 to 8
24	26	110,736	100,401	73,824	2.8	92,280	83,667	61,520	3.4	2 to 8
26	28	111,396	100,999	74,264	2.8	92,829	84,165	61,886	3.4	2 to 8
24	25	115,158	104,410	76,772	2.7	95,972	87,014	63,981	3.3	2 to 8
26	27	115,521	104,739	77,014	2.7	96,267	87,282	64,178	3.3	2 to 8
23	23	119,964	108,767	79,976	2.6	99,971	90,640	66,647	3.1	2 to 8
27	26	124,578	112,951	83,052	2.5	103,815	94,126	69,210	3.0	2 to 8
24	23	125,180	113,496	83,453	2.5	104,316	94,580	69,544	3.0	2 to 8
25	23	130,395	118,225	86,930	2.4	108,663	98,521	72,442	2.9	2 to 8
19	17	134,078	121,564	89,385	2.3	111,732	101,304	74,488	2.8	2 to 8
27	24	134,960	122,363	89,973	2.3	112,467	101,970	74,978	2.8	2 to 8
28	24	139,958	126,895	93,305	2.2	116,633	105,747	77,755	2.7	2 to 8
23	19	145,220	131,666	96,813	2.2	121,017	109,722	80,678	2.6	2 to 8
28	23	146,043	132,412	97,362	2.1	121,703	110,344	81,135	2.6	2 to 8
24	19	151,535	137,391	101,023	2.1	126,278	114,492	84,185	2.5	2 to 8
25	19	157,848	143,116	105,232	2.0	131,540	119,262	87,693	2.4	2 to 8
23	17	162,350	147,197	108,233	1.9	135,254	122,630	90,169	2.3	2 to 8
26	19	164,162	148,840	109,441	1.9	136,802	124,033	91,201	2.3	2 to 7
27	19	170,475	154,564	113,650	1.8	142,064	128,804	94,709	2.2	2 to 7
28	19	176,790	160,290	117,860	1.8	147,324	133,574	98,216	2.1	2 to 7
26	17	183,476	166,351	122,317	1.7	152,895	138,625	101,930	2.1	2 to 7
27	17	190,532	172,749	127,021	1.6	158,777	143,957	105,851	2.0	2 to 7
28	17	197,588	179,146	131,725	1.6	164,657	149,289	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.

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

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Z202

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

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

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

To determine population per acre, determine average seeds per hill and hills per acre by doing a field check. Measure $^{1}I_{1000}$ of an acre ($^{1}I_{1000}$ acre = Length of row 17' 5" for 30" row width, 23' 9" for 22" row width and 26' 2" for 20" row width). Multiply average seeds per hill by hills per acre. EXAMPLE: 4 seeds per hill x (13 hills x 1000) = 52,000

Transmission		NUMBER OF HILLS PER ACRE			Average	Speed
Sprockets		12 Cell Hill-Drop Cotton, Acid-Delinted		Hill Spacing	Range	
Drive Drive		20" Rows	22" Rows	30" Rows	In Inches	(MPH)
17	28	24,279	22,013	16,186	12.9	2 to 8
17	27	25,178	22,828	16,785	12.5	2 to 8
17	26	26,147	23,706	17,431	12.0	2 to 8
19	28	27,135	24,602	18,090	11.6	2 to 8
19	27	28,140	25,514	18,760	11.1	2 to 8
17	24	28,325	25,681	18,883	11.1	2 to 8
17	23	29,556	26,797	19,704	10.6	2 to 8
19	25	30,392	27,555	20,261	10.3	2 to 8
19	24	31,658	28,703	21,105	9.9	2 to 8
23	28	32,847	29,781	21,898	9.5	2 to 8
19	23	33,033	29,950	22,022	9.5	2 to 8
24	28	34,275	31,076	22,850	9.2	2 to 8
24	27	35,546	32,228	23,697	8.8	2 to 8
17	19	35,780	32,440	23,853	8.8	2 to 8
24	26	36,912	33,467	24,608	8.5	2 to 8
26	28	37,133	33,667	24,755	8.4	2 to 8
24	25	38,388	34,805	25,592	8.2	2 to 8
26	27	38,507	34,913	25,671	8.1	2 to 8
23	23	39,989	36,256	26,659	7.8	2 to 8
27	26	41,526	37,650	27,684	7.6	2 to 8
24	23	41,727	37,832	27,818	7.5	2 to 8
25	23	43,466	39,409	28,977	7.2	2 to 8
19	17	44,693	40,521	29,795	7.0	2 to 8
27	24	44,987	40,788	29,991	7.0	2 to 8
28	24	46,653	42,299	31,102	6.7	2 to 8
23	19	48,407	43,889	32,271	6.5	2 to 8
28	23	48,681	44,137	32,454	6.5	2 to 8
24	19	50,511	45,797	33,674	6.2	2 to 8
25	19	52,616	47,705	35,077	6.0	2 to 8
23	17	54,102	49,052	36,068	5.8	2 to 8
26	19	54,720	49,613	36,480	5.7	2 to 7
27	19	56,825	51,521	37,883	5.5	2 to 7
28	19	58,931	53,430	39,287	5.3	2 to 7
26	17	61,158	55,450	40,772	5.1	2 to 7
27	17	63,510	57,582	42,340	4.9	2 to 7
28	17	65,862	59,715	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 FOR VARIOUS ROW WIDTHS

Meter								
Setting	20" Rows	22" Rows	30" Rows					
CLAY GRANULES								
10	7.4	6.7	4.9					
11	8.1	7.3	5.4					
12	9.2	8.3	6.1					
13	10.4	9.4	6.9					
14	11.6	10.5	7.7					
15	12.8	11.6	8.5					
16	14.4	13.1	9.6					
17	16.1	14.6	10.7					
18	17.1	15.5	11.4					
19	19.7	17.8	13.1					
20	21.3	19.3	14.2					
21	23.3	21.1	15.5					
22	24.6	22.3	16.4					
23	25.8	23.4	17.2					
24	28.2	25.6	18.8					
25	31.4	28.4	20.9					
26	34.5	31.3	23.0					
27	36.2	32.8	24.1					
28	38.1	34.5	25.4					
29	41.7	37.8	27.8					
30	44.4	40.3	29.6					
		RANULES						
5	4.4	3.9	2.9					
6	7.4	6.7	4.9					
7	8.0	7.2	5.3					
8	9.5	8.6	6.3					
9	11.7	10.6	7.8					
10	13.4	12.1	8.9					
11	15.3	13.9	10.2					
12	16.8	15.2	11.2					
13	18.9	17.1	12.6					
14	21.2	19.2	14.1					
15	23.3	21.1	15.5					
16	26.3	23.8	17.5					
17	29.1	26.4	19.4					
18	32.7	29.7	21.8					
19	36.5	33.1	24.3					
20	38.6	35.0	25.7					
21	41.4	37.5	27.6					
22	44.4	40.3	29.6					
23	48.0	43.5	32.0					
24	51.6	46.8	34.4					
25	55.4	50.2	36.9					
presents average values and should be used only as a starting point. Th								

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.

6-87 Rev. 12/02

DRY HERBICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE AT 5 MPH FOR VARIOUS ROW WIDTHS

CLAY GRANULES

Meter Setting	20" Rows	22" Rows	30" Rows	
10	7.1	6.4	4.7	
11	7.8	7.1	5.2	
12	8.7	7.9	5.8	
13	9.8	8.8	6.5	
14	11.0	9.9	7.3	
15	12.3	11.2	8.2	
16	13.5	12.2	9.0	
17	14.9	13.5	9.9	
18	16.1	14.6	10.7	
19	17.4	15.8	11.6	
20	18.9	17.1	12.6	
21	20.4	18.5	13.6	
22	21.9	19.9	14.6	
23	23.6	21.4	15.7	
24	25.5	23.1	17.0	
25	27.2	24.6	18.1	
26	29.1	26.4	19.4	
27	31.4	28.4	20.9	
28	33.9	30.7	22.6	
29	36.5	33.1	24.3	
30	40.1	36.3	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.

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MACHINE OPERATION

LIQUID FERTILIZER PISTON PUMP APPLICATION RATES GALLONS PER ACRE

Applies To Model LM-2455-R Pump With 18 Tooth Sprocket (Planter Equipped With One Piston Pump)

Pump Setting	1	2	3	4	5	6	7	8	9	10
16 Row 30"	3.4	6.9	10.3	13.7	17.1	20.6	24.0	27.5	30.9	34.3
24 Row 20"	3.5	6.9	10.4	13.8	17.3	20.7	24.0	27.6	31.1	34.4
24 Row 22"	3.1	6.3	9.4	12.5	15.6	18.8	21.8	25.0	28.2	31.1
24 Row 30"	2.2	4.6	6.8	9.1	11.4	13.7	16.0	18.3	20.6	22.8
36 Row 20"	2.3	4.6	6.9	9.2	11.5	13.8	16.0	18.4	20.7	22.9

Above chart is for planters equipped with contact drive. See "Tire Pressure" for recommended tire pressures. This 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 at the 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 or more 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. To convert this delivery rate for other widths, multiply by the following conversion factors:

20" multiply by 1.50 22" multiply by 1.36

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LIQUID FERTILIZER PISTON PUMP APPLICATION RATES GALLONS PER ACRE

Applies To Model LM-2455-R Pump With 18 Tooth Sprocket (Planter Equipped With <u>Two Piston Pumps</u>)

Pump Setting	1	2	3	4	5	6	7	8	9	10
16 Row 30"	6.8	13.8	20.6	27.4	34.3	41.2	48.0	55.0	61.8	68.6
24 Row 20"	7.0	13.8	20.8	27.6	34.6	41.4	48.0	55.2	62.2	68.8
24 Row 22"	6.2	12.6	18.8	25.0	31.2	37.6	43.6	50.0	56.4	62.2
24 Row 30"	4.4	9.2	13.6	18.2	22.8	27.4	32.0	36.6	41.2	45.6
36 Row 20"	4.6	9.2	13.8	18.4	23.0	27.6	32.0	36.8	41.4	45.8

Above chart is for planters equipped with contact drive. See "Tire Pressure" for recommended tire pressures. This charts 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 at the 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 or more 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. To convert this delivery rate for other widths, multiply by the following conversion factors:

20" multiply by 1.50 22" multiply by 1.36

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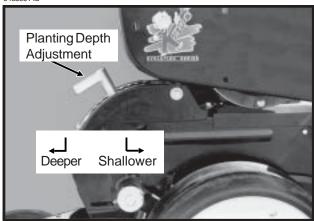
PLANTING DEPTH

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 ½" to 3 ½".



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

04059914a



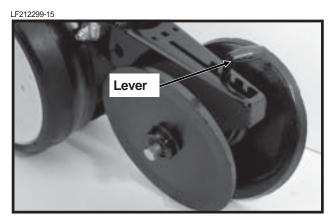
"V" CLOSING WHEEL ADJUSTMENT (Rubber And Cast Iron)



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.

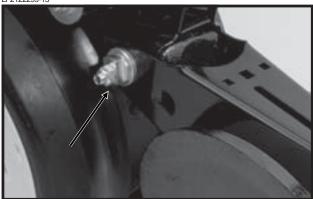
Adjust all row units to a similar setting.



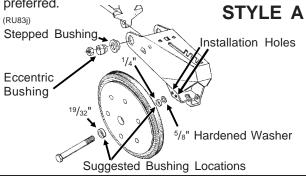
Light soil usually requires less down force at average depth (approximately 2") while heavy soil requires increased down force.

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.

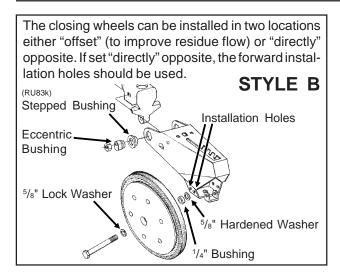
LF2122299-15



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



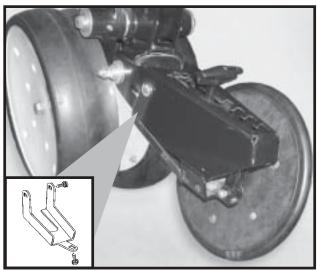
7-1 Rev. 10/04



CLOSING WHEEL SHIELD

(Rubber And Cast Iron "V" Closing Wheels)

D11090208a



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



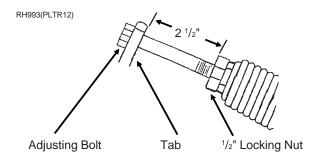
WARNING: Raise planter and install safety lockup devices before making covering discs/single press wheel adjustments.

72359-31



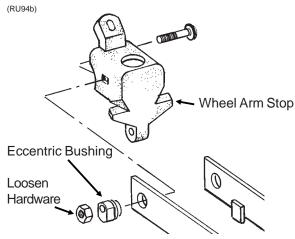
After adjusting planting depth, check the operation of the covering discs/single press wheels.

Initial press wheel down force setting should be with $2^{1/2}$ " 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.



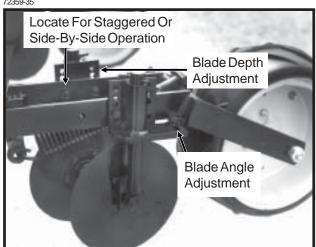
7-2 Rev. 10/04

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



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



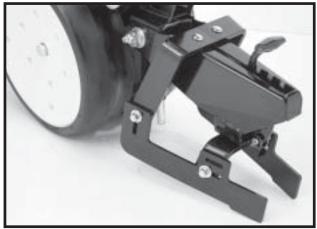
Five sets of holes in each disc bracket allow for 1/2" incremental blade depth adjustment.

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

Adjust covering discs on all row units to similar settings.

DRAG CLOSING ATTACHMENT

LF212299-18



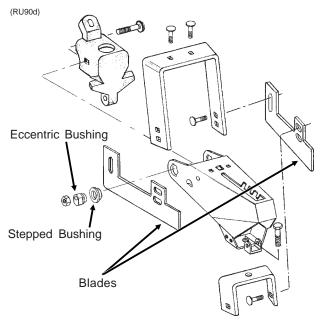
The drag closing attachment is designed to pull loose soil over the seed trench.

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.



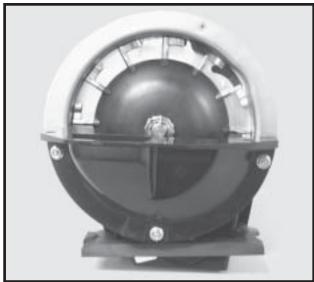
Eccentric bushings allow for lateral adjustment of the drag closing attachment. Using a 3/4" wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another 3/4" wrench, turn the eccentric bushings until the drag closing attachment is aligned with the seed trench.

7-3 Rev. 10/04

FINGER PICKUP SEED METER

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

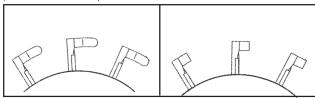
D091604102



Shown With Corn Fingers Installed

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

(PLTR91/PLTR92/PLTR91a)

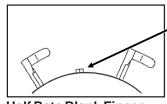


Corn Fingers

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 confectionary 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.

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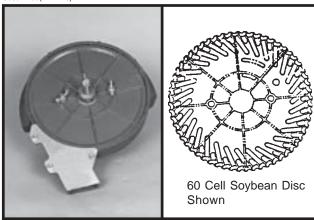
BRUSH-TYPE SEED METER

LF212299-13a



Shown Without Seed Disc Installed

60607-40a(PLTR13)

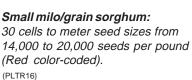


The following seed discs are available for use with the brush-type seed meter:

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)

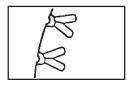






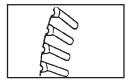
Large milo/grain sorghum:

30 cells to meter seed sizes from 10,000 to 16,000 seeds per pound (Light blue color-coded). (PLTR17)



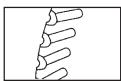
High-rate small milo/grain sorghum:

60 cells to meter seed sizes from 12,000 to 18,000 seeds per pound (Red color-coded). (PLTR18)



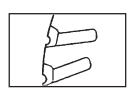
High-rate large milo/grain sorghum:

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).



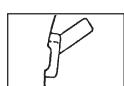
High-rate cotton, acid-delinted:

48 cells to meter seed sizes from 4200 to 5200 seeds per pound (Light green color-coded).



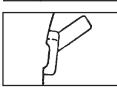
Hill-drop cotton, acid-delinted:

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

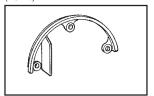


Small hill-drop cotton,

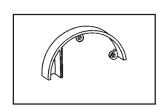
acid-delinted: 12 cells, 3 to 6 seeds/cell, to meter seed sizes from 5000 to 6200 seeds per pound (Dark green color-coded). (PLTR23)



(RU14c)



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



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

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

The brush-type seed meter attaches to the seed hopper in the same manner as the finger pickup seed meter. Secure to bottom of seed hopper with two $^{5}/_{16}$ " 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 brushtype 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 1/2 full of seed, add 1/4 cup of talc and mix thoroughly. Finish filling hopper, add another 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. Checkfrequently 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.

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SEED HOPPER

LF212199-7a



The seed hopper has a capacity of 1.9 bushels.

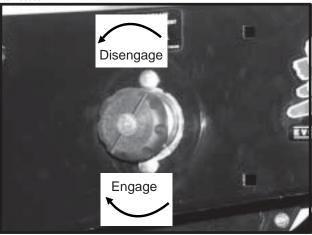
When filling the seed hopper use clean seed and make certain there are no foreign objects in the hopper. Replace hopper lids after hoppers are filled to prevent the accumulation of dust or dirt in the seed meter which will cause premature wear. See "Finger Pickup Seed Meter Lubrication" and/or "Brush-Type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

Periodically empty the hoppers completely to remove any foreign objects and to ensure proper seed meter operation. To empty hopper, disengage 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 1/4 turn counterclockwise. To engage the drive, turn the knob 1/4 turn clockwise.

7-7 6/99

SEED METER DRIVE ADJUSTMENT

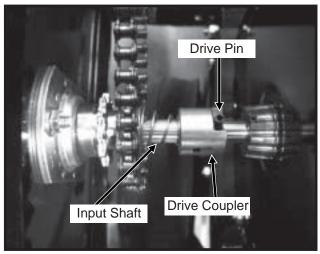
NOTE: The seed meter drive coupler must be properly aligned with the meter input shaft.

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 brushtype 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:

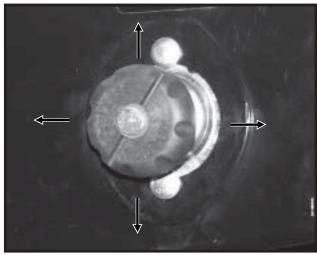
- Engage drive coupler over pin on meter shaft.
- Drive shaft on clutch should be centered in sprocket bore.
- If adjustment is needed, proceed as follows.

To adjust drive clutch:

- Slightly loosen both 5/16" carriage bolts.
- Move clutch assembly to correct any misalignment.
- Tighten both 5/16" carriage bolts.

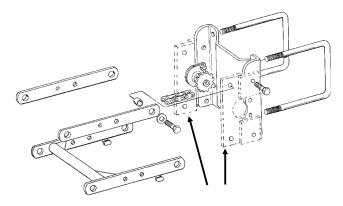
NOTE: Removing chain idler tension will allow easier clutch alignment adjustments.

D04199906



ROW UNIT EXTENSION BRACKETS

RUB005/RUB007/RUB015(INS33a)



Model 3700 planters with 20" or 22" row spacing require the use of row unit extension brackets at the wing lift wheel arms when the planter is equipped with coulter mounted residue wheels. The brackets extend the row units rearward 4" to provide required clearance.

7-8 Rev. 8/01

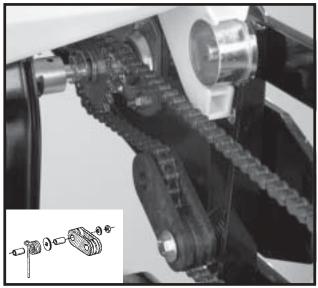
ROW UNIT CHAIN ROUTING

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.

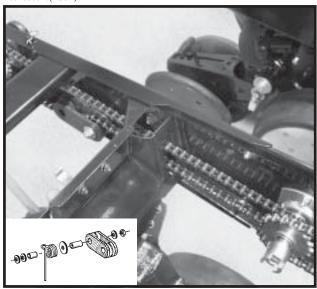
NOTE: When idler shows signs of wear, it can be reversed for prolonged use.

LF212199-5a(RU80g)



Pull Row Unit Meter Drive

D05139901b(RU92I)



Row Unit Granular Chemical Drive

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

(PLTR24)

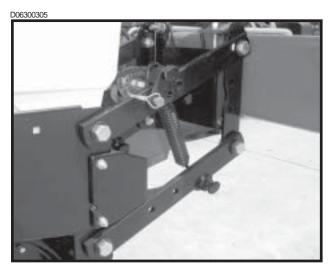


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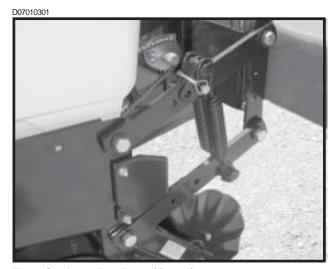
QUICK ADJUSTABLE DOWN FORCE SPRINGS

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.

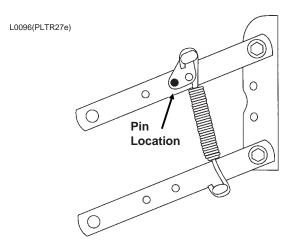


Two Springs Per Row (Dual)

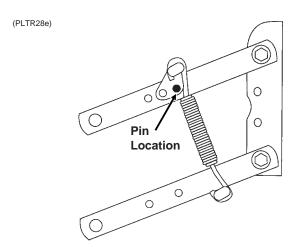


Four Springs Per Row (Quad) (Used Only In Conjunction With Row Unit Mounted No Till Coulters)

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

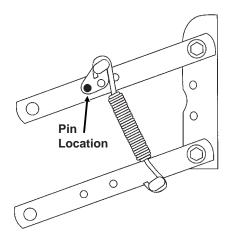


Position 1 (Minimum)



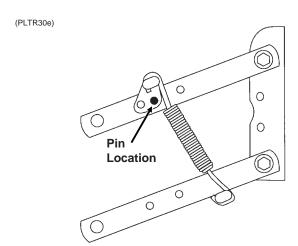
Position 2

(PLTR29e)



Position 3

7-10 Rev. 7/03



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.



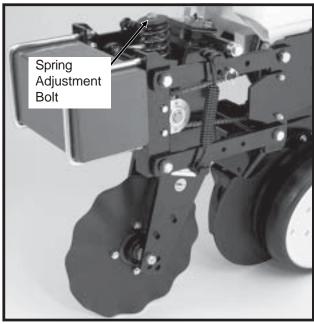
WARNING: Always install safety lockup devices or lower machine to the ground before working under or around the machine.

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

7-11 Rev. 10/04

FRAME MOUNTED COULTER - STYLE A

LF212299-20



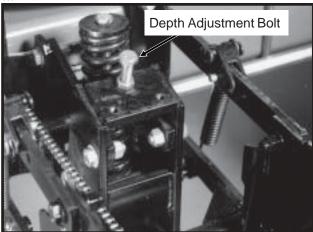
Frame mounted coulters with 1" bubbled, 1" fluted (8 flutes) or 3/4" fluted (13 flutes) blades may be used on pull row units only. (Not compatible with push row units.)

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

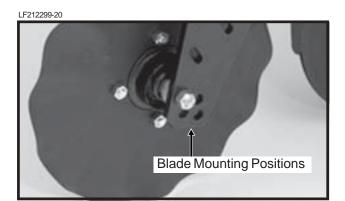
The frame mounted coulter can be used with or without the depth control bar installed. In most applications, especially in rocky planting conditions, the depth control bar **should not be used**. Use of the depth control bar transfers down force from the coulter to the row unit making less down force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

DEPTH ADJUSTMENT (Without Depth Control Bar Installed)

56314-14a



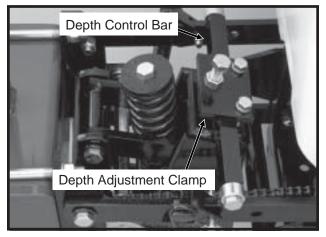
When the depth control bar is not used, operating depth of the coulter blade is determined by adjusting the depth adjustment bolt and positioning of the blade assembly in the fork mount. The depth adjustment bolt will stop downward travel of the coulter arm assembly. One turn of the adjusting bolt will change depth setting approximately $^{1}/_{4}$ ". Initial setting of the depth adjustment bolt should be with approximately $1\,^{3}/_{8}$ " of thread showing. With this setting and the toolbar height at 20", the coulter depth will be approximately 2" with coulter mounting spindle in top hole. Turn the adjustment bolt clockwise to decrease operating depth. Turn the depth adjustment bolt counterclockwise to increase operating depth.



7-12 Rev. 12/02

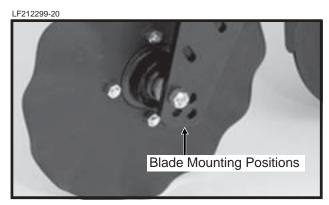
DEPTH ADJUSTMENT (With Depth Control Bar Installed)

LF212199-4



In certain applications it is desirable to use the depth control bar. In uneven terrain, use of the depth control bar allows greater depth control. The up and down movement of the row unit allows the coulter to move up and down at a rate of approximately ½ that of the row unit, maintaining a more uniform operating depth. When using the disc furrower attachment, the depth control bar should always be used, as operating depth of the coulter is critical for the disc furrowers to operate with minimal gouging.

When using the depth control bar, down force springs must be located in the forward position and the depth adjustment bolt used only to attach the depth adjustment clamp to the coulter assembly. Operating depth of the coulter blade is adjusted by positioning the blade assembly in the fork mount. Four blade mounting adjustment positions are available at 1/2" increments. Initial position of the blade assembly should be in the top hole. This position will locate the coulter blade approximately 1/4" deeper than the row unit opener blade. In heavy residue it may be desirable to position the blade assembly in the second position to insure that the residue is cut and not forced down into the seed zone. Additional holes are used to compensate for coulter blade wear.

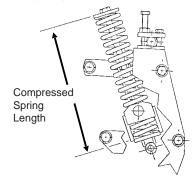


SPRING ADJUSTMENT

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

Compressed Spring Length (Including Washer)	Pounds Down Pressure With Blade ¹ / ₂ " Above Maximum Down Position	Pounds Down Pressure With Blade 4" Above Maximum Down Position			
13 5/16"	90	230			
12 ⁵ / ₁₆ "	190	330			
Suggested initial setting.					
11 ⁵ / ₁₆ "	300	430			

A5649rev.(PLTR44)

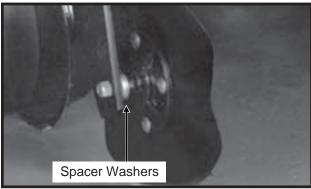


IMPORTANT: Excessive down force may cause increased wear on components.

COULTER BLADE ADJUSTMENT

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

56314-12



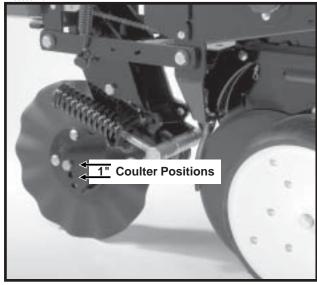
Field adjustment should be made as needed. Operating height of the planter frame will affect operating depth of the frame mounted coulter.

NOTE: Torque 5/8" spindle bolts to 120 ft. lbs.

7-13 Rev. 8/01

FRAME MOUNTED COULTER - STYLE B

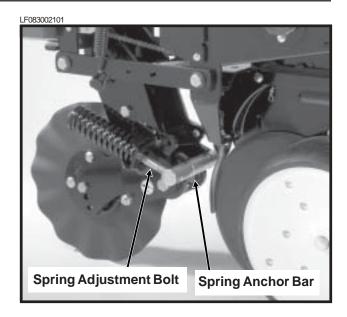




Frame mounted coulters with 1" bubbled, 1" fluted (8 flutes) or 3/4" fluted (13 flutes) blades may be used on pull row units only. (Not compatible with push row units.)

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

The initial location of the coulter 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.



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 coulter components when the coulter strikes an obstacle.

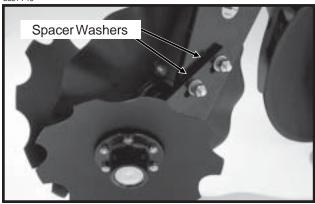
7-14 Rev. 12/02

DISC FURROWER

(For Use With Style A Frame Mounted Coulter)

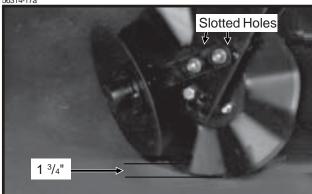
The disc furrower for use with the frame mounted coulter may be equipped with either 12" solid blades or 12" notched blades.

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



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

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



Initial setting for each disc furrower blade is 1 3/4" shallower than the coulter blade. Further adjustment may be desired for various applications.

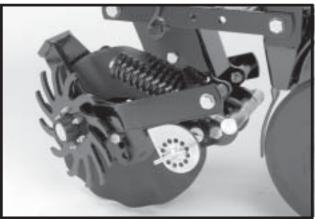
NOTE: The depth control bar should always be used when the frame mounted coulter is equipped with disc furrowers.

RESIDUE WHEELS

(For Use With Style B Frame Mounted Coulter)

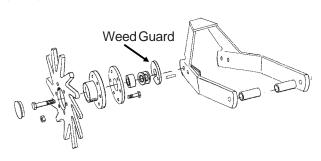
The residue wheels for use with the frame mounted coulter may be used on pull row units only.

LF083002102



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 springloaded 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.

(RU135d)



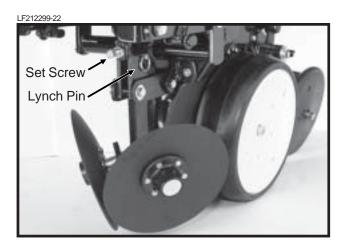
NOTE: Opening in weed guard must point down.

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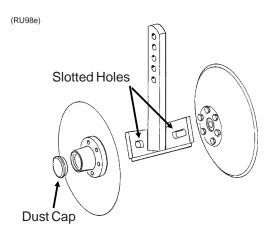
ROW UNIT MOUNTED DISC FURROWER

The row unit mounted disc furrower is for use on pull row units only and 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.



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



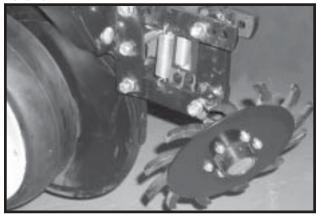
Slotted holes in the support arm where the blades are mounted allow fore and aft adjustment of the disc blades. Blades can be adjusted so the front edges meet or one blade can be moved to the rear and the other to the front of the slot so the cutting edge of one blade overlaps the edge of the other blade.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

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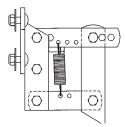
ROW UNIT MOUNTED RESIDUE WHEEL

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

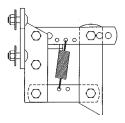
D101701113



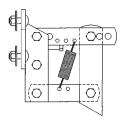
Two adjustable springs on the parallel links on each residue wheel allow for down force adjustment. Position 1 as shown below provides minimum down pressure and position 3 maximum down pressure.



Position 1 (Minimum) (PLTR31a)



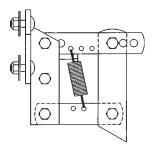
Position 2 (PLTR32a)



Position 3 (Maximum) (PLTR33a)

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

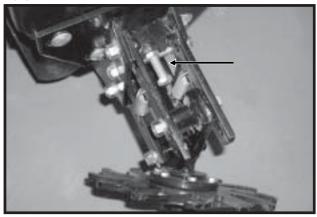
(PLTR34a)



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

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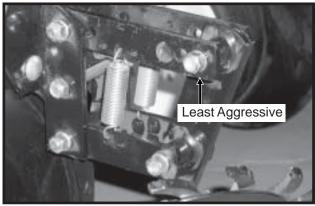
D101701112



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 ³/₄" above the depth of the row unit double disc opener.

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

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 MOUNTED NO TILL COULTER

LF212299-19a



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

The coulter blade can be adjusted to one of four ¹/₂" incremental settings in the forked arm. Initial location of the coulter is in the top hole. As the coulter blade wears, the blade should be adjusted downward to one of the three lower settings to maintain the coulter blade at or slightly below the opener discs. In very hard soil conditions such as compacted wheel tracks, opener penetration and cutting of surface residue may be improved by adjusting the coulter to operate below the depth of the double disc opener blades.

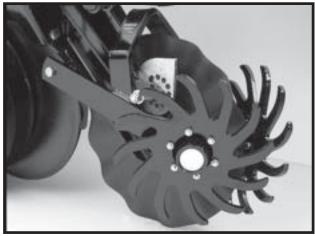
Operating depth can be checked by setting the planter down on a level concrete floor and checking the relationship between the coulter blade and row unit opener blade. Make sure the planter is level and coulter is square with the planter frame and aligned with the row unit disc opener.

NOTE: Torque 5/8" spindle bolts to 120 ft. lbs.

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COULTER MOUNTED RESIDUE WHEELS

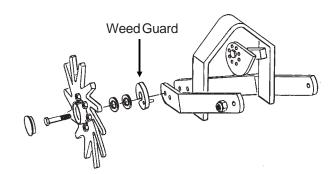
LF212299-23



Coulter mounted residue wheels are designed for use on pull row units and push row units. Model 3700 planters with 20" and 22" row spacing require the use of row unit extension brackets at the wing lift wheel arms when the planter is equipped with coulter mounted residue wheels.

The coulter mounted residue wheels are attached to the row unit mounted no till coulter with one cap screw and sleeve allowing the unit to free-float. A 2-position spindle bolt mounting allows the tined wheels to be mounted interlocked or staggered. Depth adjustment is made using a spring-loaded cam and pin with 11 positions in 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.

(RU104n)



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.

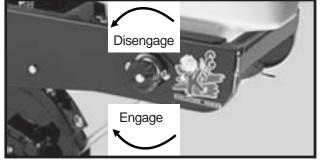
The metering gate located on the bottom of the hopper regulates the application rate. See "Dry Insecticide And Dry Herbicide Application Rate Charts" in this manual. Calibrate using the chemical manufacturers' instructions.



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 manfacturer.

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

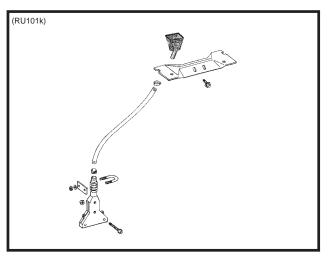


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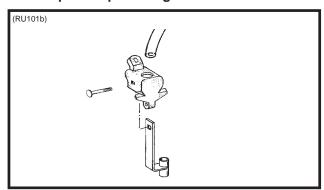
GRANULAR CHEMICAL BANDING OPTIONS

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

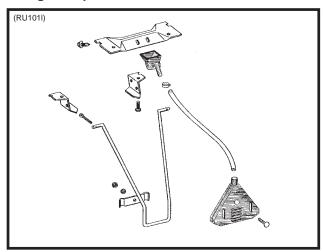
NOTE: The granular chemical rear bander is not compatible with the covering discs/single press wheel option.



41/2" Slope-Compensating Bander



Straight Drop In-Furrow Placement

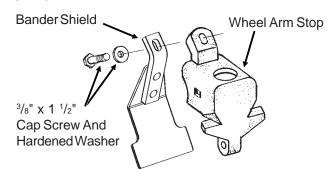


14" Rear Banding

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)

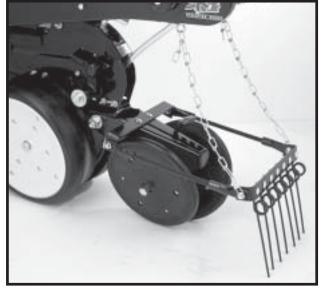


SPRING TOOTH INCORPORATOR

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



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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 machine to the ground before working under or around the machine.

LUBRICATION SYMBOLS





Lubricate at frequency indicated with an SAE multipurpose type grease.

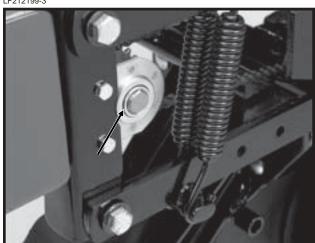




Lubricate at frequency indicated with a high quality SAE 10 weight oil or a quality spray lubricant.

SEALED BEARINGS

LF212199-3

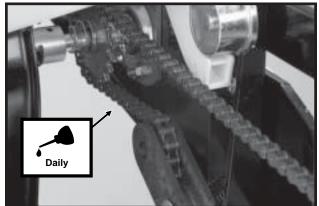


A number of sealed bearings are used on your KINZE® planter to provide trouble free operation. These are located in such areas as the drive shaft, row units and transmission bearings. Sealed bearings are lubricated for life. Due to the seals, relubrication is not practical.

DRIVE CHAINS

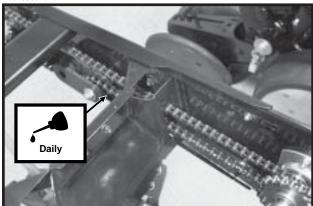
All transmission and drive chains should be lubricated daily with a high quality chain lubricant. Extreme operating conditions such as dirt, temperature or speed may require more frequent lubrication. If a chain becomes stiff, it should be removed, soaked and washed in solvent to loosen and remove dirt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

LF212199-5a



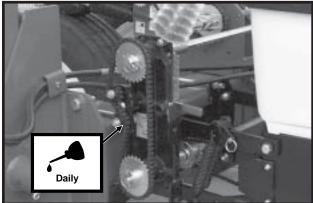
Pull Row Unit Drive Chains

D05139901b



Row Unit Granular Chemical Drive Chains

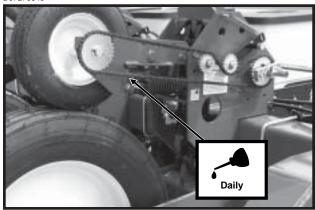
D07279946



Transmission Chains

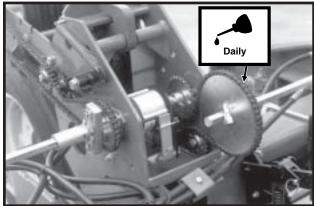
8-1 Rev. 10/04

D07279949



Contact Wheel Drive Chains

82378-18a



Inner Module Drive Chains

WRAP SPRING WRENCH ASSEMBLY

If 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



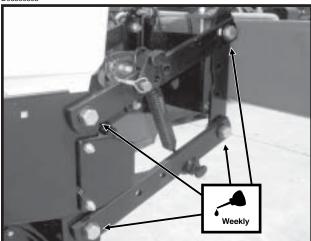
8-2 Rev. 10/04

BUSHINGS

Lubricate bushings at the frequency indicated.

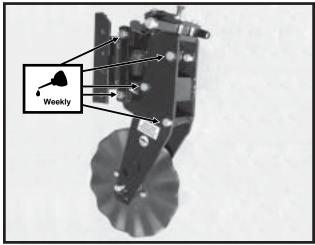
Using a torque wrench, check each bolt for proper torque. If bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushing if necessary. Only hardened flat washers should be used. Replace damaged flat washers with proper part. Torque bolts to 130 ft. lbs.





Pull Row Unit Parallel Linkages (8 Per Row)

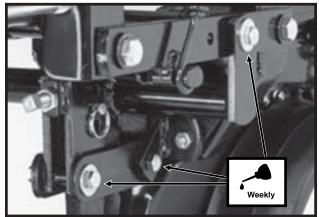
D06189901



Frame Mounted Coulter Parallel Linkages - STYLE A (10 Per Row)

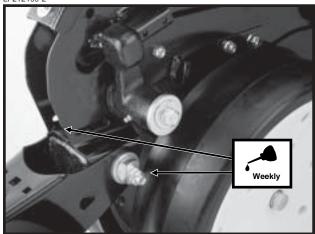
Shown not installed on row unit for visual clarity.

LF212299-22



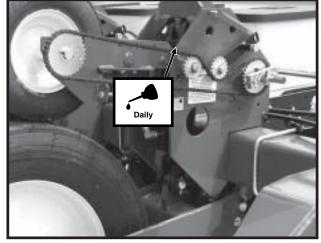
Row Unit Mounted Disc Furrower Parallel Linkages (6 Per Row)

LF212199-2



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

D07279949



Contact Drive Wheel Arm (2 Per Wheel Assembly)

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WHEEL BEARINGS

The transport wheel hubs are equipped with grease fittings. The wheel bearings should be checked and lubricated annually. Remove the dust cap and pump grease into the hub until grease comes out around the seals. Replace dust cap.

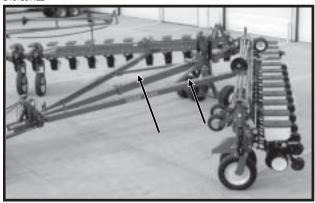
All wheel bearings should be repacked annually and checked for wear. This applies to all drive wheels, transport wheels and marker hubs.

To check for wear, raise the wheel off the ground. Check for endplay in the bearings by moving the tire side-to-side. 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.

SLIDING HITCH LINKAGE (24 Row 30" And 36 Row 20" Sizes Only)

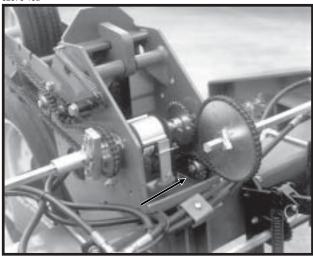
D101801122



Inspect linkage daily to ensure free movement of axle links in slides. Keep axle link slides clean. DO NOT GREASE the axle link slides. Powdered graphite may be used if lubrication is desired.

POINT ROW CLUTCHES

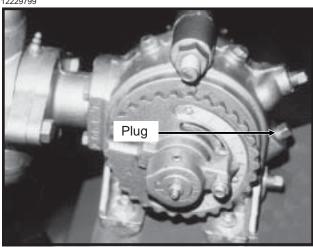
82378-18a



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

LIQUID FERTILIZER PISTON PUMP CRANKCASE OIL LEVEL

12229799



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

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

8-4 Rev. 10/04

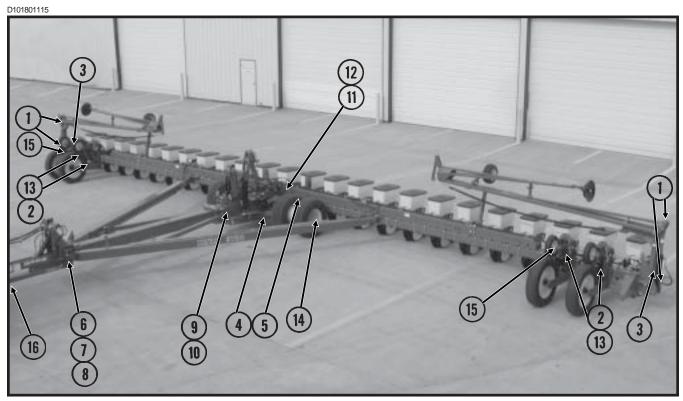
GREASE FITTINGS

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



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

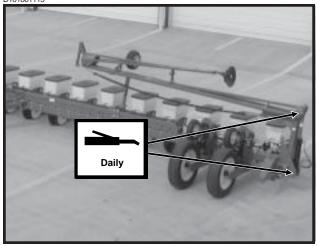
NOTE: Numbers on photo below correspond to photos on following pages showing lubrication frequencies.



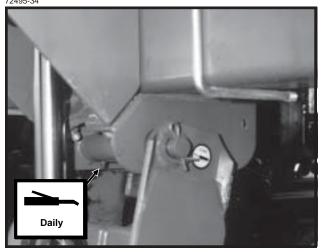
24 Row 30" Machine Shown

8-5 Rev. 10/04

D101801115

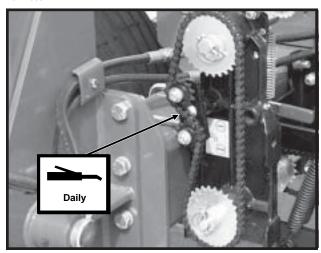


 Row Marker Assemblies - 11 Zerks Per Side On Three-Fold Assembly; 2 Zerks Per Side On Two-Fold Assembly (Three-Fold Assembly Shown)



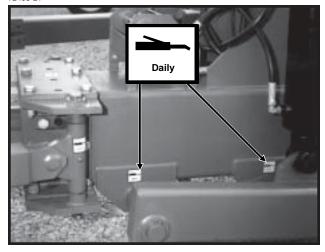
2. Ground Drive Wheel Pivot - 2 Zerks Per Wheel Module

D07279954



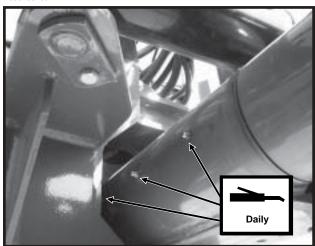
 Seed Rate Transmission Assembly Idler Pivot - 1 Zerk Per Assembly

72495-21



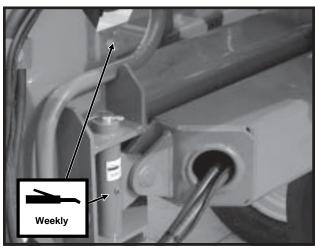
4. Axle And Automatic Safety Lock Pivots - 7 Zerks

D090199103



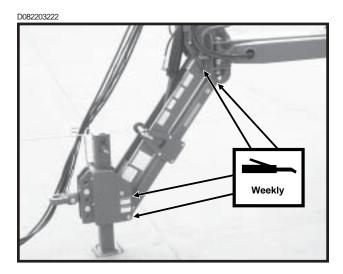
Wing Pivot Knuckle - 3 Zerks Per Knuckle On Horizontal Shaft

D101801108



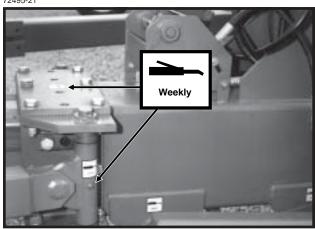
- 6. Link Assemblies 1 Zerk Per Assembly
- 7. Front Wear Pads 4 Zerks

8-6 Rev. 10/04



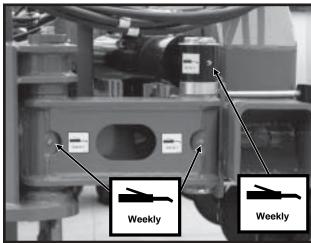
8. Upper And Lower Hitch Linkage - 2 Zerks Per Link



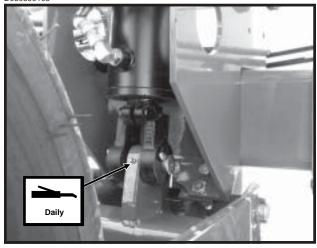


- 9. Rear Wear Pads (2 Sets) 16 Zerks (24 Row 30" And 36 Row 20" Sizes Only)
- 10. Axle Link Assemblies 1 Zerk Per Assembly

D101801149

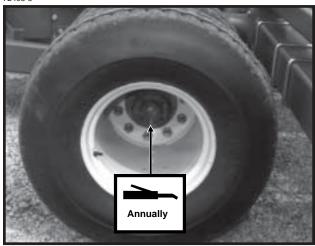


- 11. Helper Cylinders 1 Zerk Per Cylinder
- 12. Wing Pivot Knuckle 1 Zerk Per Knuckle On Vertical Shaft

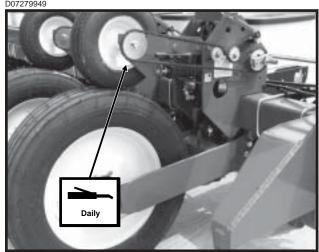


13. Wheel Module Lift Cylinder Mount - 1 Zerk Per Wheel Module

72495-5



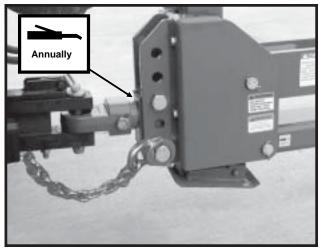
14. Transport Wheel Bearing - 1 Zerk Per Wheel Hub



(If Applicable) Contact Wheel Bearing - 2 Zerks Per Arm Assembly (Rotate tire while filling with grease.)

8-7 Rev. 7/03

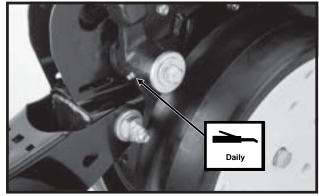
D101801130b



16. (If Applicable) Swivel Block - 1 Zerk

Row Unit

LF212199-2



Gauge Wheel Arms - 1 Zerk Per Arm

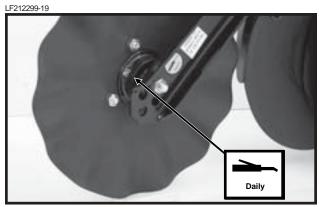
(Seals in gauge wheel arm are installed with lip facing out to allow grease to purge dirt away from seal. Pump grease into arm until fresh grease appears between washers and arm.)

(If Applicable) Frame Mounted Coulter Hubs - Style A - 1 Zerk Per Hub

Daily

(Pump grease into hub until grease comes out around the seals. Spin hub while filling with grease.)

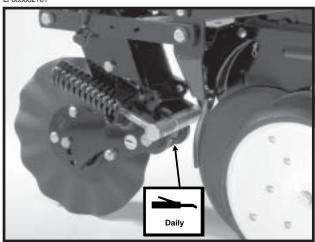
8-8 Rev. 10/04



(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.)

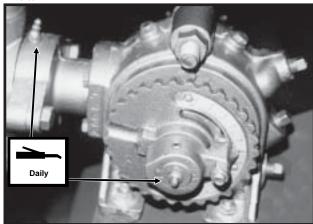
LF083002101



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

Liquid Fertilizer Piston Pump

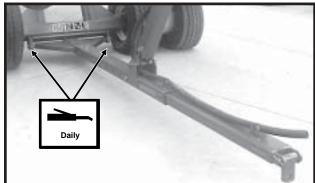
12229799



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

Rear Trailer Hitch Pivot

CLR3-96c

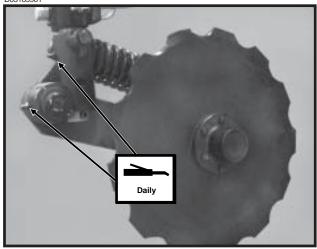


Rear Trailer Hitch Pivot - 2 Zerks

8-9 Rev. 12/02

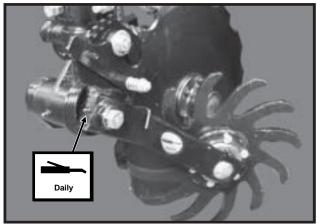
Fertilizer Openers

D05189901



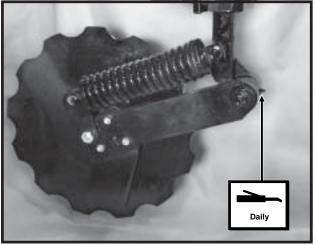
Notched Single Disc Fertilizer Opener - STYLE A - 2 Zerks

D05219901a



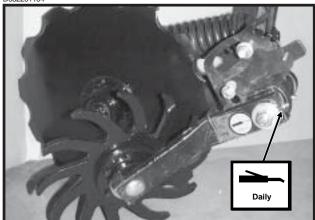
(If Applicable) Residue Wheel Attachment For Use With STYLE A Notched Single Disc Fertilizer Opener - 1 Zerk

D060801304



Notched Single Disc Fertilizer Opener - STYLE B - 1 Zerk

D052201104



(If Applicable) Residue Wheel Attachment For Use With STYLE B Notched Single Disc Fertilizer Opener - 1 Zerk

8-10 Rev. 12/02

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 - 130 Ft. Lbs. (See "Bushings" in the Lubrication Section of this manual.)

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 Lug Nuts – 425 Ft. Lbs. ⁵/₈" No Till Coulter Spindle Bolts – 120 Ft. Lbs.

TORQUE VALUES CHART-PLATED HARDWARE										
Bolt	Grad	de 2	Grad	de 5	Grade8					
Diameter	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 " 1/ ₂ "	25 Ft. Lbs.	27 Ft. Lbs.	37 Ft. Lbs.	41 Ft. Lbs.	52 Ft. Lbs.	58 Ft. Lbs.				
	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 " 7/ ₈ " 1"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.				
	125 Ft. Lbs.	140 Ft. Lbs.	320 Ft. Lbs.	350 Ft. Lbs.	450 Ft. Lbs.	500 Ft. Lbs.				
1 1/8"	190 Ft. Lbs.	205 Ft. Lbs.	480 Ft. Lbs.	530 Ft. Lbs.	675 Ft. Lbs.	750 Ft. Lbs.				
1 1/4"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.				
1 ³ / ₈ " 1 ¹ / ₂ "	375 Ft. Lbs. 490 Ft. Lbs. 650 Ft. Lbs.	415 Ft. Lbs. 560 Ft. Lbs. 730 Ft. Lbs.	840 Ft. Lbs. 1100 Ft. Lbs. 1450 Ft. Lbs.	930 Ft. Lbs. 1250 Ft. Lbs. 1650 Ft. Lbs.	1360 Ft. Lbs. 1780 Ft. Lbs. 2307 Ft. Lbs.	1500 Ft. Lbs. 2030 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



GRADE5 3 Marks



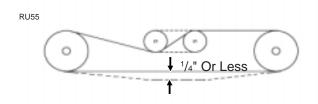
GRADE 8 6 Marks

9-1 Rev. 10/04

MAINTENANCE

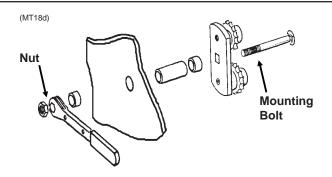
CHAIN TENSION ADJUSTMENT

Most drive chains have a spring loaded idler and therefore are self-adjusting. The only adjustment needed is to shorten the chain if wear stretches the chain and reduces spring tension. The pivot point of these idlers should be checked periodically to ensure they rotate freely. On chains that have slotted idlers for adjustment, adjust so chain has 1/4" or less sag at longest span. See "Wrap Spring Wrench Assembly" (on applicable assemblies) in Lubrication Section for additional information.



Additional chain links can be found in the storage area located at the end of the planter frame on the inboard side of the transport hook.



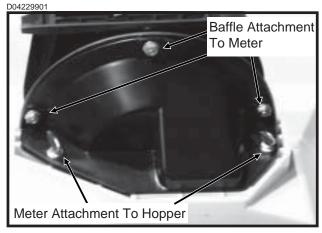


NOTE: The nut on the mounting bolt (on applicable idler assemblies) must be kept tight or chain tension will not be maintained and adjustment wrench will not function properly.

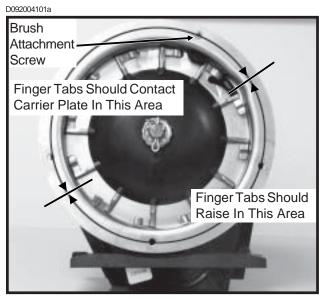
9-2 Rev. 8/01

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.

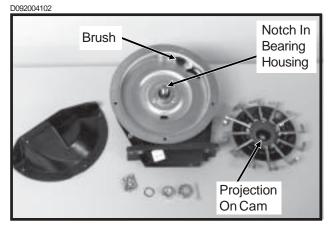


Rotate the seed meter drive by hand to ensure that the springs are holding the tabs of the fingers against the carrier plate where indicated in the photo and that the fingers are being raised in the correct area.



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

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



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

EXAMPLE: Approximately 1600 acres of corn or sunflowers on a 16 row machine, 2400 acres on a 24 row machine or 3600 acres on a 36 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.
- 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.





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.

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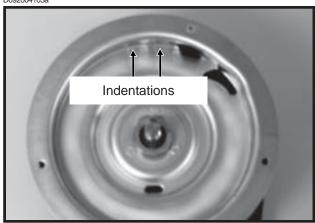


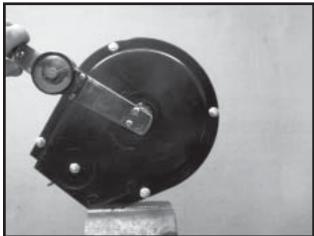
Photo Shows Worn Carrier Plate

 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.

8. 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 1/2 to 2 flats (1/12 to 1/3 turn) to obtain rolling torque of 22 to 25 inch pounds.

D07299903/D07309912

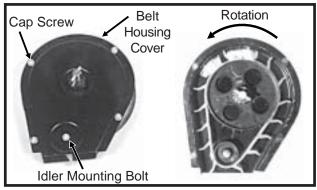


- Turn finger holder by hand to make sure it is positioned firmly against the carrier plate, but is not over tightened and can be rotated with moderate force.
- 10. Install cover nut and cotter pin and reinstall baffle.

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

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

9-4 Rev. 10/04

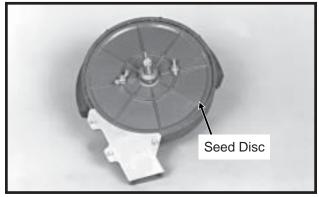
FINGER PICKUP SEED METER TROUBLESHOOTING

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	Check drive chain.
	or broken.	Griedik arrive eriairi.
Drive release does not engage	Drive release shaft is not aligned	Align drive mechanism. See "Seed Meter
properly.	properly with meter drive shaft.	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	Driving too fast.	Check chart for correct speed.
spacing.	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
	ong oproductor	combinations.
Seed spacing not as indicated	Wrong tire pressure.	Inflate tires to correct air pressure.
in charts.	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.
	L Sood tube impreparly installed	Check seed tube installation.
	Seed tube improperly installed.	
	Seed tube improperly installed. Seed tube worn or damaged.	Replace seed tube.
Seed tubes and/or openers	Seed tube worn or damaged.	· ·
Seed tubes and/or openers plugging.		Replace seed tube. Lower planter only when tractor is moving forward.
plugging.	Seed tube worn or damaged. Allowing planter to roll backward when lowering.	Lower planter only when tractor is moving forward.
plugging.	Seed tube worn or damaged. Allowing planter to roll backward	Lower planter only when tractor is moving forward. Adjust down pressure springs.
•	Seed tube worn or damaged. Allowing planter to roll backward when lowering.	Lower planter only when tractor is moving forward.

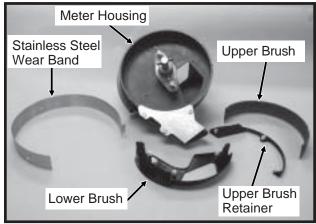
9-5 Rev. 8/01

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

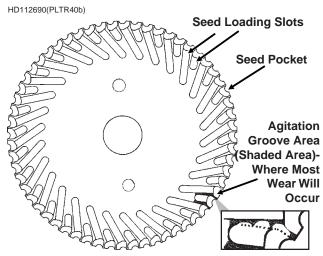


IMPORTANT: Replace hopper lids after hoppers are filled to prevent accumulation of dust or dirt in the seed meter which will cause premature wear.

Cleaning brush-type seed meter for storage:

- 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.
- Reassemble meter except for seed disc. Meter should be stored in a rodent-free space with seed disc removed.

Seed Disc Wear



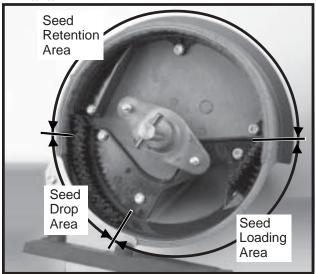
Most wear on the seed disc will be found in the agitation groove area (area between the seed loading slots). Wear will affect planting accuracy at high RPM. To measure for wear, lay a straight edge across the surface of the disc and measure the gap between the disc (at the agitation groove area) and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

9-6 Rev. 10/04

Upper Brush

LF212299-13a



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

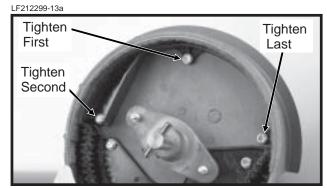
The brush must apply enough pressure against the seed in the seed disc pocket as the disc rotates through the seed retention area to prevent the seed from dropping out of the disc pocket. A damaged spot, excessive wear on the brush or foreign material lodged in the brush may greatly reduce meter performance.

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.



Stainless Steel Wear Band

Stainless Steel Wear Band

Area Where Most Wear

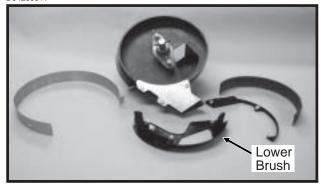
The purpose of the stainless steel wear band is to protect the meter housing from wear. The band is .030" thick and should be replaced when approximately .020" of wear is found in the primary area of wear. If the wear band is allowed to wear through or if the meter is used without the wear band in place,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

Will Occur On Wear Band

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.

9-7 Rev. 10/04

BRUSH-TYPE SEED METER TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Low count.	Meter RPM too high. Misalignment between drive	Reduce planting speed. See "Seed Meter Drive
	clutch and meter.	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.

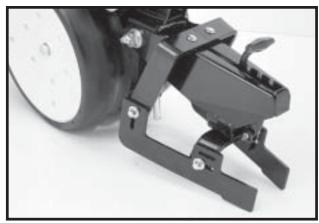
9-8 6/99

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



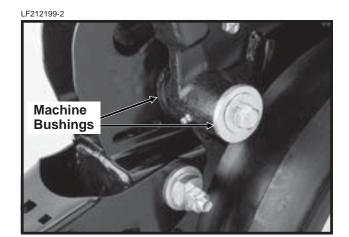
Prior to storage of the planter, inspect each drag closing attachment and replace any worn or broken parts. Check for loose hardware and tighten as needed.

GAUGE WHEEL ADJUSTMENT

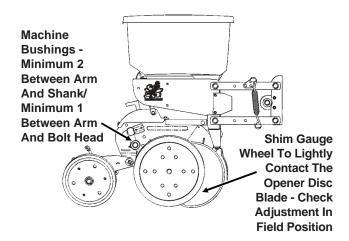
To prevent an accumulation of dirt or trash, gauge wheels should lightly contact the opener blades. Gauge wheels and opener blades should turn with only slight resistance.

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.

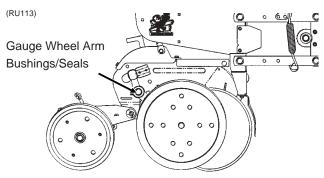


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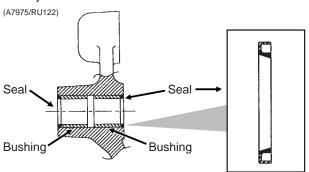
GAUGE WHEEL ARM BUSHING AND/OR SEAL REPLACEMENT



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.



- 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.

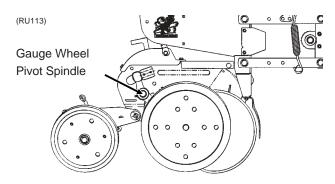
NOTE: Use extra care to protect the sealing lip during installation. Apply uniform pressure to assemble the seal into the bore of the arm. Never apply a direct hammer blow to the seal surface.

- 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.

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

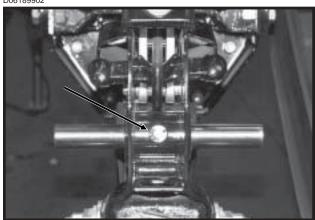
GAUGE WHEEL ARM PIVOT SPINDLE REPLACEMENT



To replace gauge wheel pivot spindle:

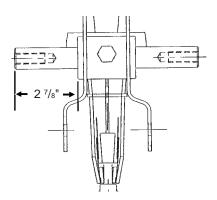
- 1. Remove the gauge wheel and arm assemblies from the shank assembly.
- 2. Remove ¹/₂" x ³/₄" cap screw that locks the pivot spindle in place and remove the spindle.

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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.

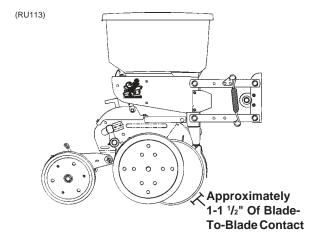
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15" SEED OPENER DISC BLADE/ BEARING ASSEMBLY

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).



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. 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.
- 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.

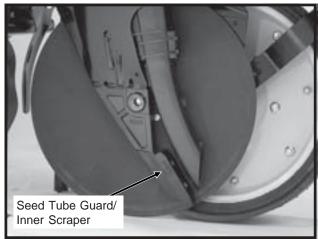
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SEED TUBE GUARD/INNER SCRAPER

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 $^{5}/_{8}$ " or less at the lower end. A new seed tube guard measures approximately $^{7}/_{8}$ ".

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

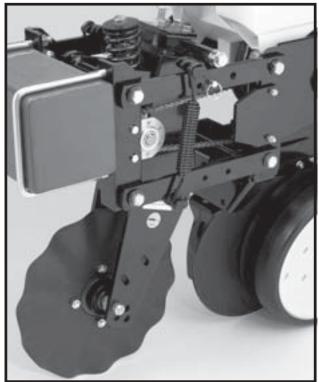
IMPORTANT: No till planting or planting in hard ground conditions, especially when the planter is not equipped with no till coulters, and/or excessive blade-to-blade contact will increase seed tube guard wear and necessitate more frequent inspection and/or replacement.

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.

FRAME MOUNTED COULTER - STYLE A

LF212299-20



If properly maintained and lubricated (If Applicable) the bearings in the frame mounted coulter hub may never need to be replaced. 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. Be sure the coulter is positioned square with the planter frame and aligned in front of row unit disc opener.

NOTE: Torque 5/8" spindle bolts to 120 ft. lbs.

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

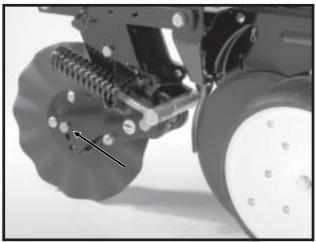
When the 16" diameter coulter blade (1" fluted, 1" bubbled or $^{3}/_{4}$ " fluted) is worn to 14 $^{1}/_{2}$ " (maximum allowable wear), it should be replaced.

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

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FRAME MOUNTED COULTER - STYLE B

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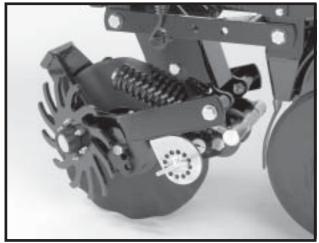
NOTE: Torque 5/8" spindle bolts to 120 ft. lbs.

See "Frame Mounted Coulter - Style B" in Row Unit Operation Section of this manual for depth and spring adjustment.

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

RESIDUE WHEELS (For Use With Style B Frame Mounted Coulter)

LF083002102



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

DISC FURROWER (For Use With Style A Frame Mounted Coulter)

LF212299-21



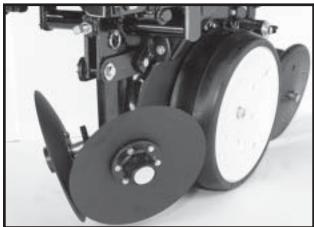
The blade hubs are equipped with sealed bearings. If bearings sound or feel rough when the blade is rotated, replace the bearings.

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

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ROW UNIT MOUNTED DISC FURROWER

LF212299-22



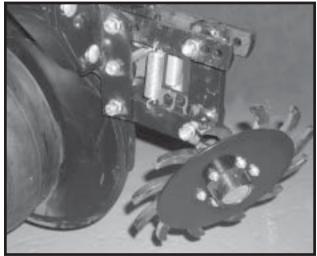
Lubricate the bushings in the support arm and mounting bracket at the frequency indicated in the Lubrication Section of this manual. Using a torque wrench, check each bolt for proper torque. If the bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushings as 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

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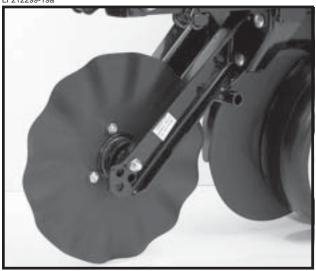


The wheel hub is equipped with sealed bearings. If bearings sound or feel rough when the wheel is rotated, replace the bearings.

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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 5/8" spindle bolts to 120 ft. lbs.

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

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

When the 16" diameter coulter blade is worn to $14^{1/2}$ " (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.

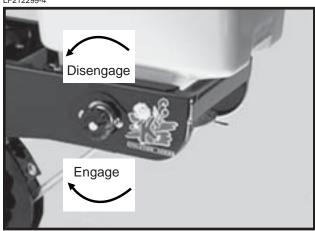
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GRANULAR CHEMICAL ATTACHMENT

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.

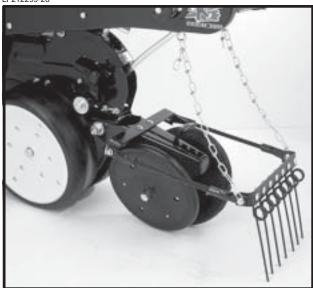
LF212299-4



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



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KPM I/KPM II/KPM II STACK-MODE ELECTRONIC SEED MONITOR TROUBLESHOOTING

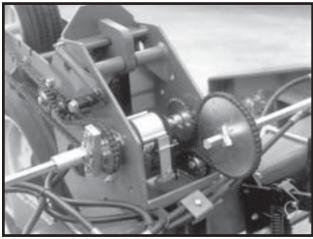
PROBLEM	POSSIBLE CAUSE	SOLUTION
Single sensor communication alarm	Faulty seed tube sensor.	Replace sensor.
comes on (alarm on with no	Break in the harness just before	Inspect for break in harness and
bar graph and a flashing row	the seed tube sensor.	repair. If break can't be found,
number on a single row).	and dood tabe contest.	replace harness section.
land of an a single remy.	Dirty or corroded connector.	Clean connector.
	E- K	Davids as a section
Sensor communication alarms	Faulty monitor.	Replace monitor.
come on for all sensors (alarm on	Break in the harness just after the	Inspect for break in harness and
with no bar graphs and flashing	monitor.	repair. If break can't be found,
row numbers on all rows).	Dirty or correded connector	replace harness section. Clean connector.
	Dirty or corroded connector.	Clean connector.
Sensor communication alarms	Break in the harness.	Inspect for break in harness and
come on for some sensors (alarm		repair. If break can't be found,
on with no bar graphs and flashing		replace harness section
row numbers on all rows).		corresponding with the
		alarming sensors.
	Dirty or corroded connector.	Clean connector.
Faulty monitor values (such as	Incorrect monitor settings.	Change settings to properly
speed, area, etc.) being displayed.	moonoot monter county.	correspond to the system.
(KPM II And KPM II Stack-Mode	Faulty radar/magnetic distance sensor.	Replace sensor.
Only)	Improperly mounted radar sensor.	Properly mount sensor.
Underplanting or no planting	Seed tube sensor is blocked.	Clean sensor.
alarm on a single sensor when	Faulty seed tube sensor.	Replace sensor.
planting (alarm on with a single	r duity seed tube sensor.	Replace senson.
bar graph segment on and a flashing row number on a single		
row).		
	0 1/1	
Seed tube sensor dirty or blocked	Seed tube sensor is dirty.	Clean sensor.
warning comes on (after calibration,	Faulty seed tube sensor.	Replace sensor.
bar graph keeps flashing for a		
single row).		
LED on the seed tube sensor	Faulty seed tube sensor.	Replace sensor.
will not come on.	Dirty or corroded connector.	Clean connector.
	Break in the harness just before the sensor.	Repair harness.
Erroneous MPH readings at idle.	Radar sensor not located in a stable	Relocate to a more stable
(Radar Distance Sensor Only)	location.	location.

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POINT ROW CLUTCH INSPECTION

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

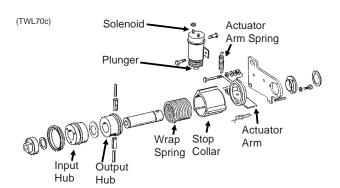
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The point row clutch on the R.H. side of the planter and the point row clutch on the L.H. side of the planter, both operate counterclockwise.

If the clutch or clutches fail to operate first determine if the problem is electrical or mechanical. Place the operational switch in the RIGHT or LEFT position. When the switch is in the RIGHT or LEFT position and the main fuse on the front 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 10 amp (delay action) slow blow 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.

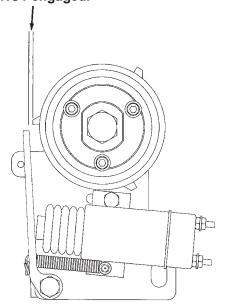
NOTE: Always replace fuse with proper size and type when replacing fuses. Use AGC-15 amp main fuse and MDL-10 amp slow blow fuses.



(A7110)

ACTUATOR ARM ADJUSTMENT

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

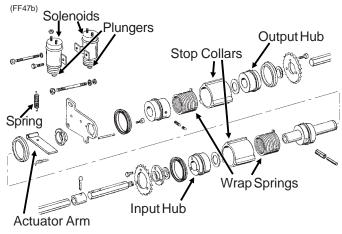


NOTE: To adjust gap between actuator arm and stop, loosen nut on mounting pin and move pin in slot until there is at least 1/8" ($\pm 1/32$ ") gap between arm and stop on stop collar. Retighten nut.

TWO-SPEED POINT ROW CLUTCHES

The two-speed point row clutch is similar in design and operation to the standard point row clutch except for the two-speed function. If a two-speed clutch or clutches fail to operate properly, refer to "Point Row Clutch Inspection" and "Point Row Clutch Trouble-shooting" for additional information.

NOTE: If the "Reduced Rate/Full Rate" functions fail to engage or disengage, see troubleshooting chart for possible cause.



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POINT ROW CLUTCH TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Neither clutch will disengage.	Main fuse blown in control console.	Replace defective main fuse.
ů ů	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 side of planter will not	Shear pin in seed drive	Replace with one of equal size
re-engage.	transmission sheared.	and grade.
One clutch will not engage.	Fuse blown in control console.	Replace defective fuse.
	Actuator arm and plunger stuck in disengaged position.	Remove, free up and reinstall.
	Actuator arm out of	Adjust actuator arm mounting pin in
	adjustment.	slot so actuator arm clears stop
		on stop collar as shown in "Point Row Clutch Inspection."
	Wrap spring broken or stretched.	Disassemble clutch and replace spring.
	Foreign substance such as oil or	Disassemble clutch. Clean hubs
	grease on the input or output hubs.	and spring and reassemble.
	Something touching the stop	Check to ensure collar is free to
	collar.	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 will not re-engage while	Spring in actuator arm not	Remove spring from inside solenoid
planter is moving forward.	strong enough to push arm	and stretch spring slightly or replace.
	away from stop collar when the	Reinstall spring. If that fails, file the
	operational switch is turned to	stop on the stop collar slightly so that
	the ON position.	the stop is not as aggressive.
Frequent solenoid burnout.	Fuses too large.	Replace fuses in control console with proper size and type.
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	Input and output shafts out	Align input and output shafts
disengage.	of alignment.	to prevent drag.
	Input or output shaft is pushed in too far creating a coupler.	Reposition input and output shafts.

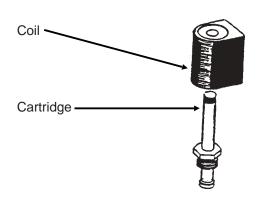
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SOLENOID VALVE INSPECTION

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)



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	Bad switch.	Replace on control console.
operate.	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.

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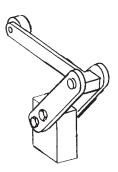
FLOW CONTROL VALVE INSPECTION



The row marker flow control valves, located in the valve block on the right wing of the planter, should be adjusted for raise and lower speed as part of the assembly procedure or upon initial operation. If a 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.

DETENT LEVER VALVE

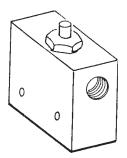
PHA031(PLTR68)



The detent lever valve, located near the tower assembly, blocks the oil flow from the master cylinders until the slave cylinders are at the same height as the master cylinders when the planter is coming from transport into field position. Consult your KINZE® Dealer for service.

STROKE LIMITER VALVE

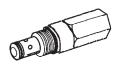
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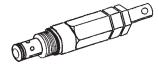


The stroke limiter valve, located near the tower assembly, limits the height the planter will raise during turn around when the planter is in field operation. Consult your KINZE® Dealer for service.

PRESSURE RELIEF VALVE

(FF46/FF46a)





The pressure relief valve, located in the valve block on the left wing of the planter, functions during the lowering out of raised transport sequence. The valve is factory set and should require no additional adjustment. Consult your KINZE® Dealer for service.

CHECK VALVE

VVB020(PLTR70)



The check valves, located in the valve block on the left wing of the planter, trap oil flow in the planter's lift system to keep the toolbar level during field operation. Another check valve is located in the junction block on the left wing of the planter on 24 Row 30" and 36 Row 20" sizes, Serial no. 75054 and on. Consult your KINZE® Dealer for service.

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ROW MARKER OPERATION TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Right marker lowering slower than left marker.	Solenoid valve cartridge in port V1 not opening completely.	Switch cartridge with one in port V2. 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 V2 not opening completely.	Switch cartridge with one in port V1. 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 (V1) is defective. If the marker switch is in the right marker position, the left cartridge (V2) 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 V1 and V2 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 V1 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 V1 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 V2 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 V2 stuck closed.	Switch cartridge with one on the planter you know is operating properly. If left marker lowers, replace defective cartridge.
Markers traveling too fast and damaging rubber stop on transport stands and/or damaging pivot at rod end of	Marker transport stand not adjusted correctly to allow marker cushion cylinders to operate as designed.	See "Marker Transport Stand Adjust- ment".
marker cylinders.	Marker flow control valve out of adjustment.	See Operation Section for adjustment.

9-22 Rev. 10/04

LIFT CIRCUIT TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Field turn around toolbar height is not 39-41".	Stroke limiter valve is out of adjustment.	Consult your KINZE® Dealer for service.
Planter is not leveling out when lowering from transport.	Detent lever valve is out of adjustment.	Consult your KINZE® Dealer for service.
Planter settles.	Lift cylinder leaking.	Repair or replace cylinder.

9-23 Rev. 10/04

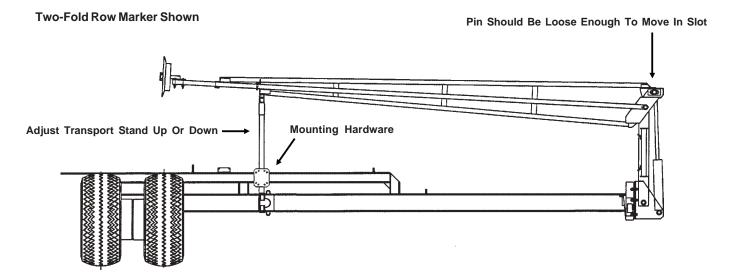
ROW MARKER TRANSPORT STAND ADJUSTMENT

It is critical that the marker transport stands are adjusted correctly to allow the marker cushion cylinders used on two-fold and three-fold low profile row markers to function as designed.

To adjust the transport stands:

- 1. Fold markers to transport position.
- 2. Loosen mounting hardware to allow transport stands to drop down or remove transport stands.
- 3. With tractor engine shut off, release hydraulic pressure on marker cylinders.
- 4. Locate transport stands so marker arm rests lightly on transport stand. When the transport stands are correctly adjusted the pin at the rod end of the cylinder should be loose enough to rotate and move back and forth in the mounting slot.

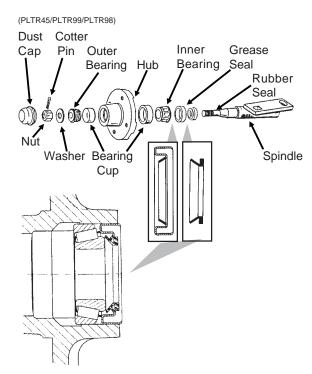
(TWL100)



9-24 Rev. 10/04

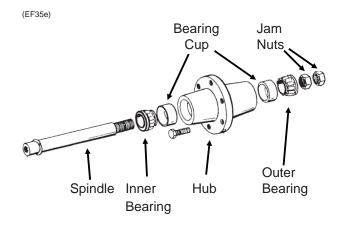
ROW MARKER BEARING LUBRICATION OR REPLACEMENT

- 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. Place inner bearing in place and press in new rubber seal and 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 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.



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.
- Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
- 4. Press in new bearing cups with thickest edge facing in. (Bearing replacement procedure only.)
- 5. Pack bearings with heavy duty wheel bearing grease thoroughly forcing grease between roller cone and bearing cage. Also fill the space between the bearing cups in the hub with grease.
- 6. Place inner bearing and seal in place.
- 7. Clean spindle and install hub.
- 8. Install outer bearing, seal and jam nut. Tighten jam nut while rotating hub until there is some drag. This assures that all bearing surfaces are in contact. Back off jam nut 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.

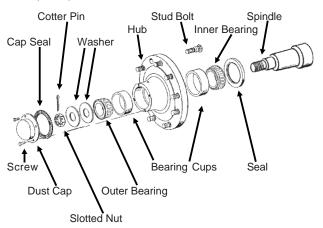


9-25 Rev. 10/04

TRANSPORT WHEEL BEARING REPLACEMENT

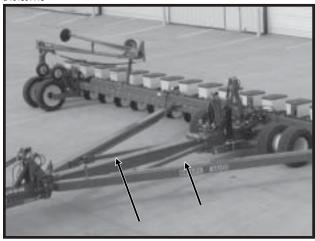
- 1. Raise tire clear of ground and remove wheel.
- 2. Remove dust cap attachment hardware and remove cap from wheel hub.
- 3. Remove cotter pin, axle nut and 2" washer.
- 4. Slide hub from axle spindle, using a hub puller if necessary.
- 5. Remove bearings and cups from hub and discard. Thoroughly clean 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, 2" 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 wheel and remove jack. Torque inner and outer budd nuts to 450-500 ft. lbs.

HTA002(PLTR71)



SLIDING HITCH LINKAGE (24 Row 30" And 36 Row 20" Sizes Only)

D101801115



Inspect linkage daily to ensure free movement of axle links in slides. Keep axle link slides clean. DO NOT GREASE the axle link slides. Powdered graphite may be used if lubrication is desired.

9-26 Rev. 10/04

PISTON PUMP STORAGE

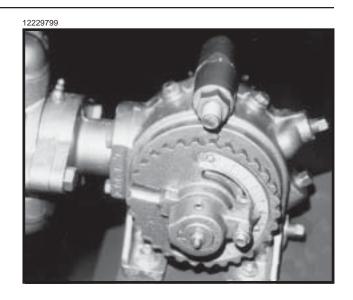
IMPORTANT: KEEP AIR OUT OF PUMP! This is the only way to prevent corrosion. Even for short periods of storage, the entrance of air into the pump, will cause RAPID AND SEVERE CORROSION.

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.



PISTON PUMP TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump hard or impossible to	Valves fouled or in wrong place.	Inspect and clean valves.
prime.	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 metering.	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.
O 27 Pay 9		

9-27 Rev. 8/01

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.

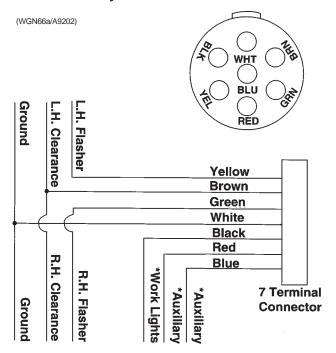
Grease or paint disc openers/blades and marker blades to prevent rust.

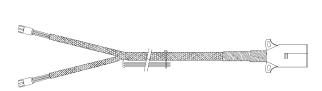
Flush hoses and metering pumps with clean water. See "Piston Pump Storage" if applicable.

9-28 Rev. 10/04

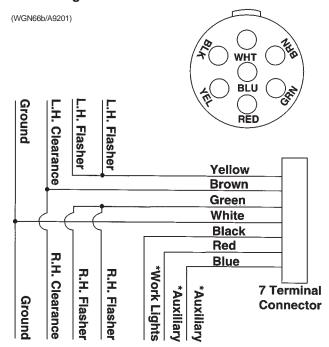
ELECTRICAL WIRING DIAGRAM FOR LIGHT PACKAGE

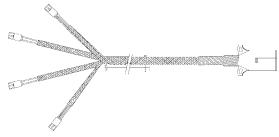
STYLE A - Machines Equipped With Double Light Assemblies Only





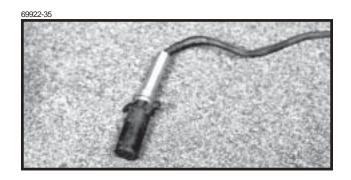
STYLE B - Machines Equipped With Single And Double Light Assemblies





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

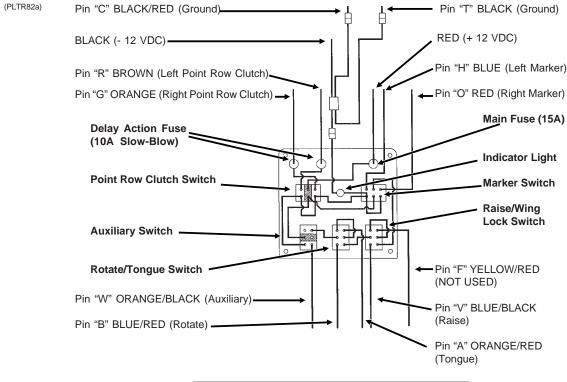
Light package supplied on the Model 3700 Front Folding Planter meets ASAE Standards. For the correct wiring harness to be wired into the lights on your tractor, check with the tractor manufacturer.



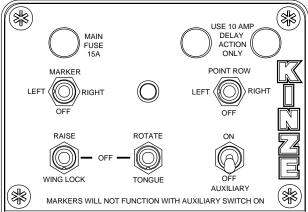
9-29 Rev. 10/04

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 harness away from moving parts on tractor and planter. Be sure ground connections to the tractor frame are clean to provide good electrical contact.



(INS238)



NOTE:

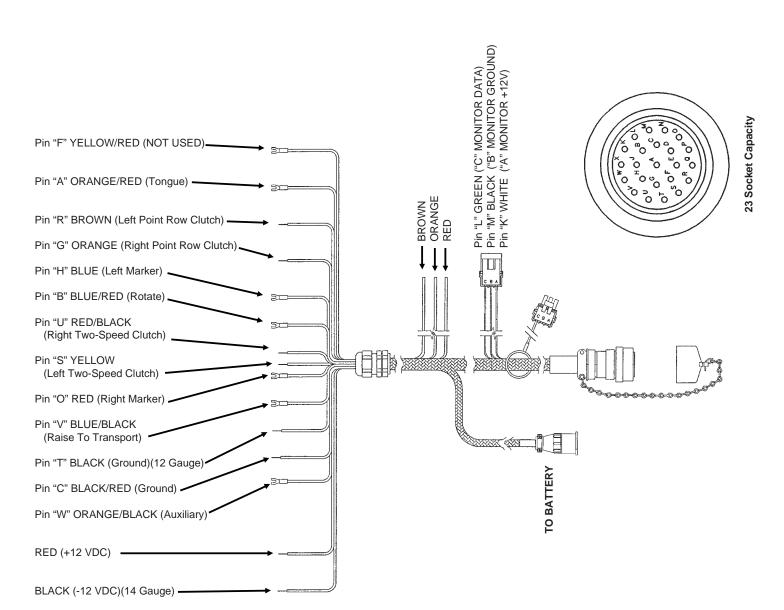
- 1. Operating marker or point row switch in either direction lights panel light.
- 2. Point row clutch switch operates independently of the rest of the control box.
- Power to the marker switch is fed through the auxiliary switch and the two transport function switches. Operating any of the switches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

See page 9-33 for electrical control console schematic and wiring harness to two-speed point row clutch solenoids for planter equipped with the optional Two-Speed Point Row Clutch Package.

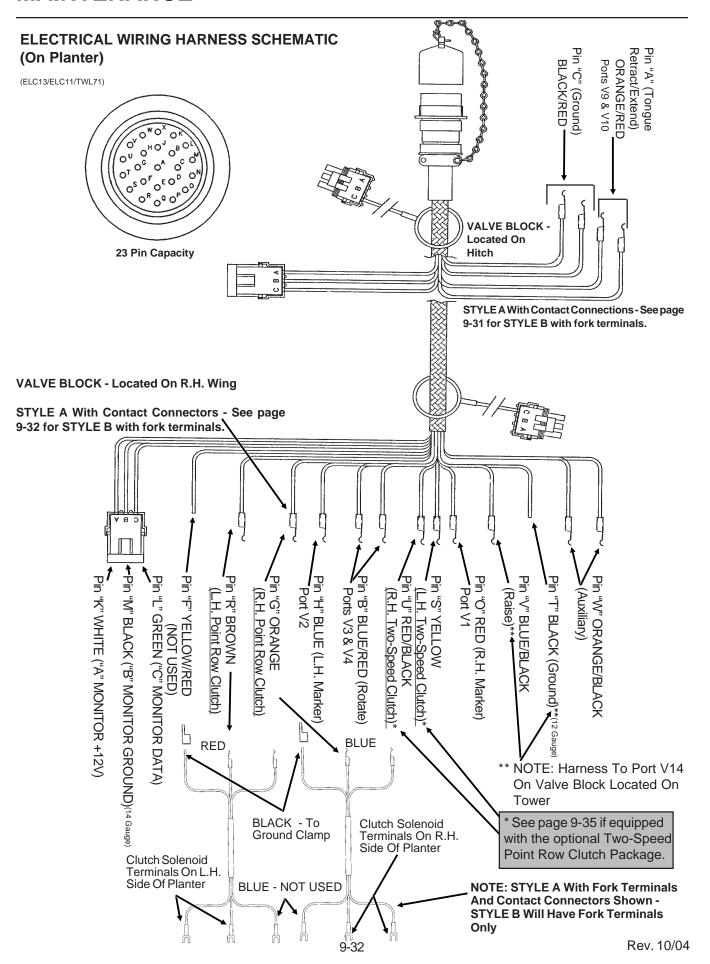
9-30 Rev. 12/02

ELECTRICAL WIRING HARNESS SCHEMATIC (On Tractor)

(ELC10c/ELC13)



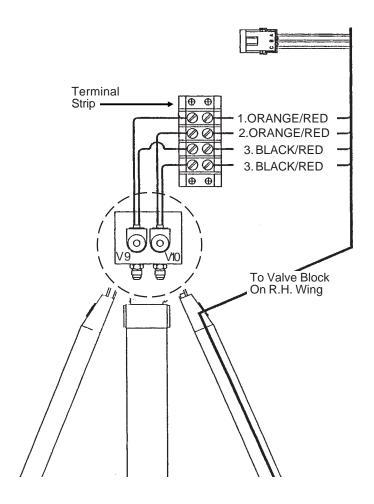
2-31



(A7516a)

VALVE BLOCK - Located On Hitch

STYLE B With Fork Terminals And Terminal Strip - See page 9-30 for STYLE A with contact connectors.

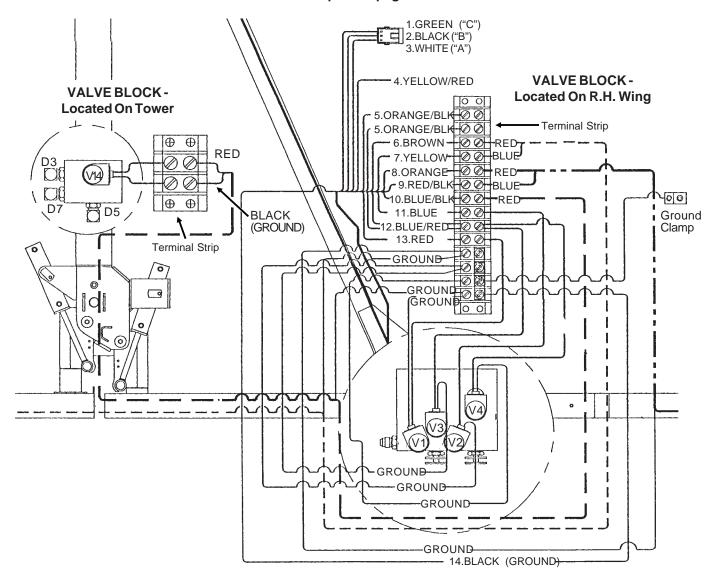


- 1. ORANGE/RED Pin "A" (Tongue Retract/Extend) Port V9
- 2. ORANGE/RED Pin "A" (Tongue Retract/Extend) Port V10
- 3. BLACK/RED Pin "C" (Ground)

9-33 Rev. 8/01

(A7516b)

STYLE B With Fork Terminals And Terminal Strip - See page 9-30 for STYLE A with contact connectors.

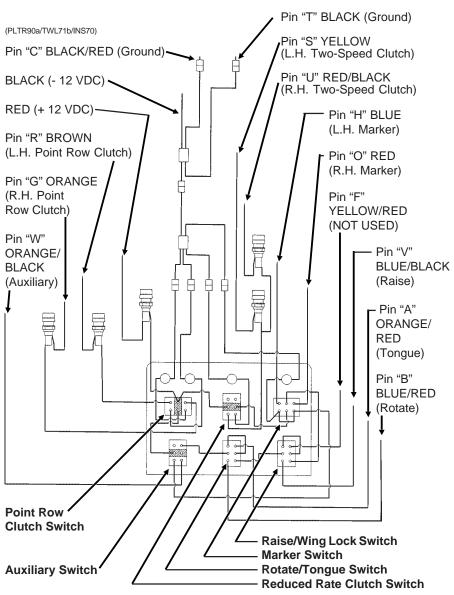


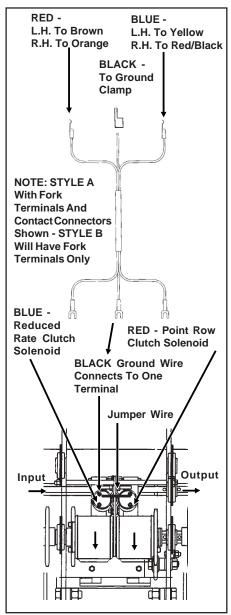
- 1. GREEN Pin "L" ("C" MONITOR DATA)
- 2. BLACK Pin "M" ("B" MONITOR GROUND)
- 3. WHITE Pin "K" ("A" MONITOR +12V)
- 4. YELLOW/RED Pin "F" (NOT USED)
- 5. ORANGE/BLACK Pin "W" (Auxiliary)
- 6. BROWN Pin "R" (L.H. Point Row Clutch)
- 7. YELLOW Pin "S" (L.H. Two-Speed Clutch)*
- 8. ORANGE Pin "G" (R.H. Point Row Clutch)
- 9. RED/BLACK Pin "U" (R.H. Two-Speed Clutch)*
- 10. BLUE/BLACK Pin "V" (Raise)
- 11. BLUE Pin "H" (L.H. Marker) Port V2
- 12. BLUE/RED Pin "B" (Rotate) Ports V3 And V4
- 13. RED Pin "O" (R.H. Marker) Port V1
- 14. BLACK Pin "T" (Ground)

* See page 9-33 if equipped with the optional Two-Speed Point Row Clutch Package.

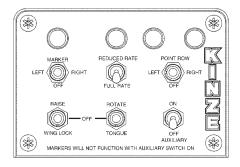
9-34 Rev. 12/02

ELECTRICAL CONTROL CONSOLE SCHEMATIC (With Optional Two-Speed Point Row Clutches)





(INS260)

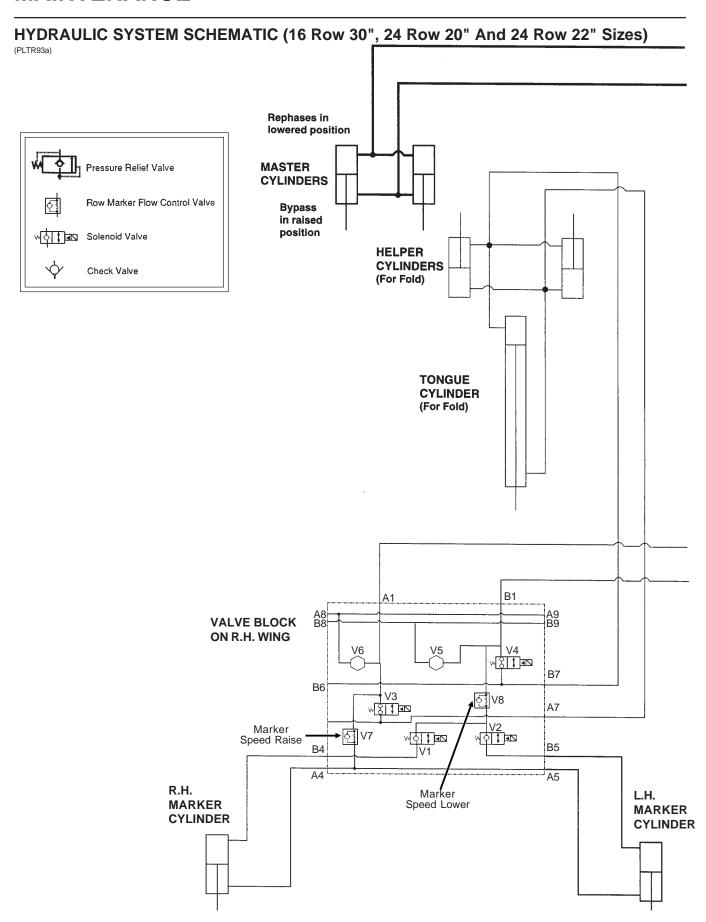


NOTE:

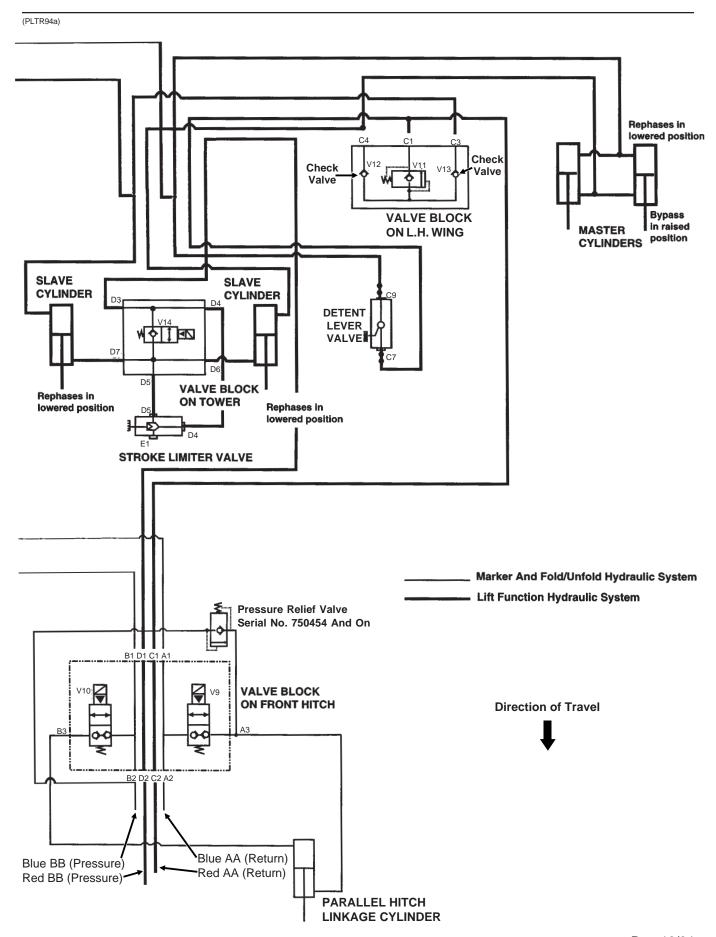
- Point row and reduced rate clutch switches operate independently of the rest of the control console.
- Power to the marker switch is fed through the auxiliary switch and the two transport function switches. Operating any of the switches in the lower row disables the marker function and turns off the panel light for the markers.

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 harness away from moving parts on tractor and planter. Be sure ground connections to the tractor frame are clean to provide good electrical contact.

9-35 Rev. 10/04



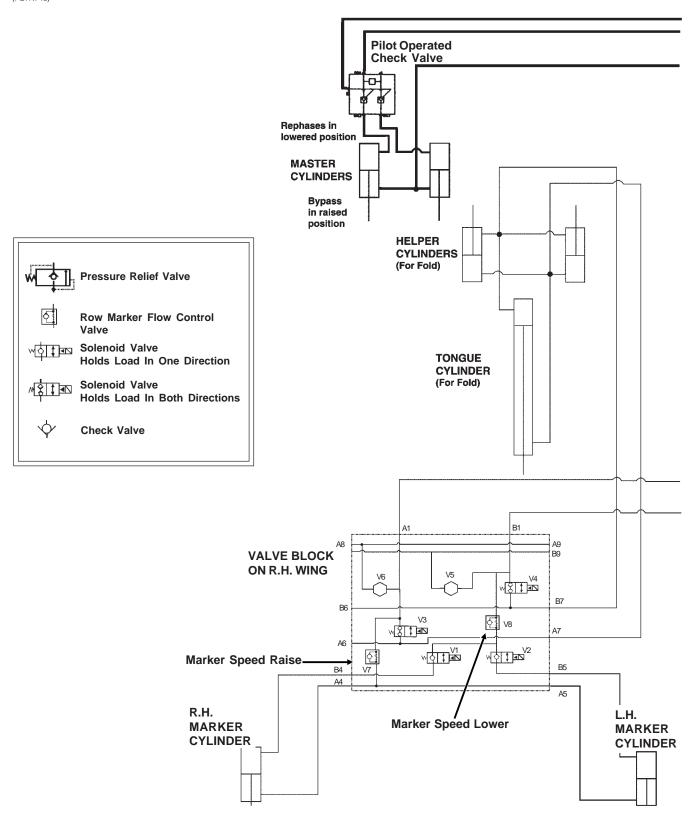
9-36 Rev. 12/02



9-37 Rev. 10/04

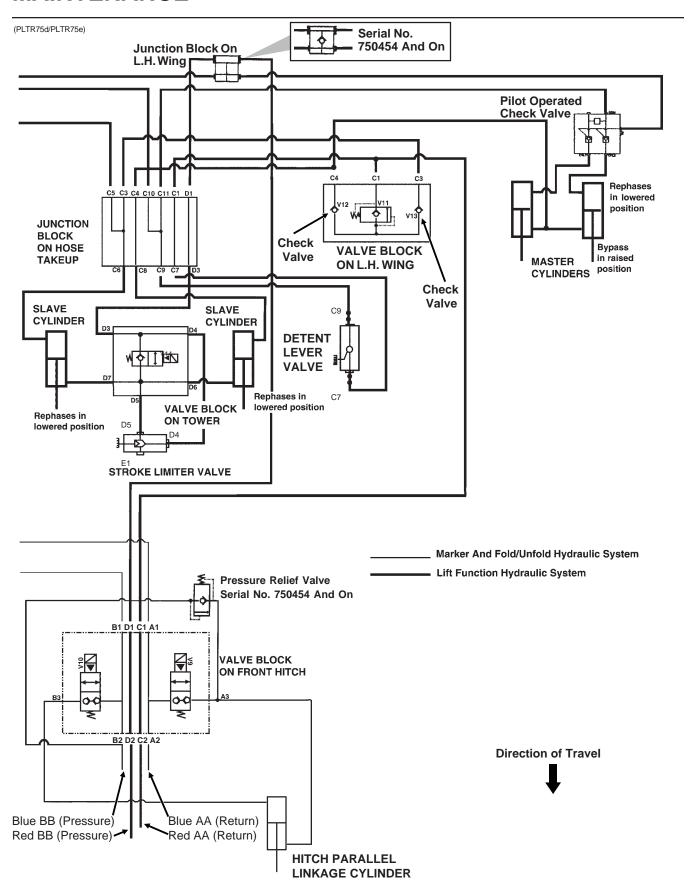
HYDRAULIC SYSTEM SCHEMATIC (24 Row 30" And 36 Row 20" Sizes)

(PLTR74d)



9-38 Rev. 12/02

MAINTENANCE



9-39 Rev. 10/04

MAINTENANCE

9-40 Rev. 8/01

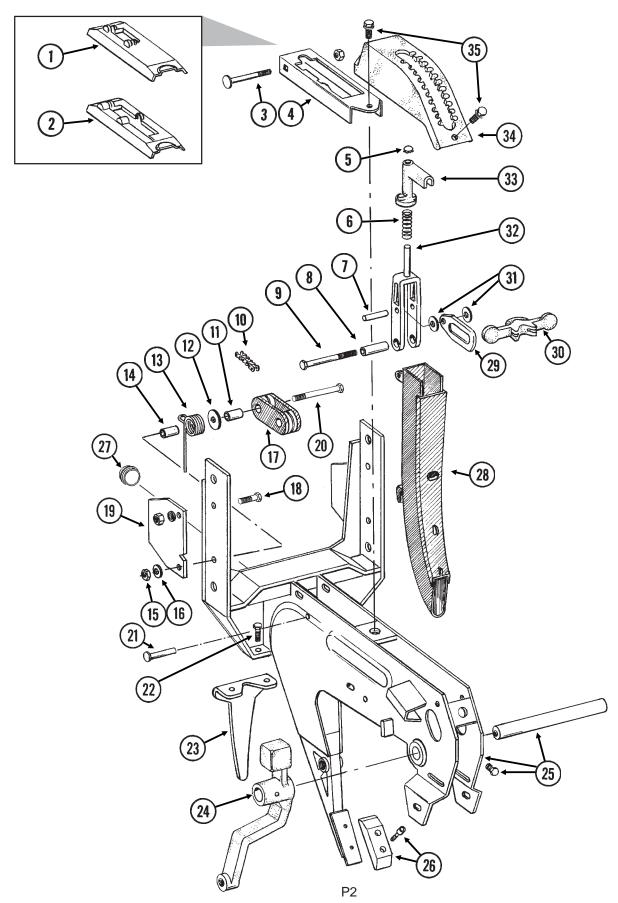
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P1 Rev. 10/04

SHANK ASSEMBLY, SEED TUBE AND DEPTH ADJUSTMENT

RUB023/RUB024RUB022(RU80i)



Rev. 10/04

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, 3/8"-16 x 3"
	G10108	1	Lock Nut, 3/8"-16
4.	GD10986	1	Cover
5.	GD3612	1	Cap Plug
6.	GD10993	1	Spring
7.	GD13361	1	Pin, ³ / ₈ " x 1 ² / ₃ "
8.	GD11259	1	Sleeve, 3/8" I.D. x 5/8" O.D. x 1 25/32" Long
9.	G11008	1	Hex Head Cap Screw, 3/8"-24 x 2 1/2", Grade 8
	G11007	1	Lock Nut, 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 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, 3/8"-16
16.	G10210	1	Washer, 3/8" USS
17.	GD11962	1	Idler
18.	G10003	3	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G10108	3	Lock Nut, 3/8"-16
19.	GD10867	2	Stop
20.	G10326	1	Hex Head Cap Screw, 3/8"-16 x 3 3/4"
21.	G10551	1	Clevis Pin, 1/4" x 2 1/2"
	G10669	1	Hair Pin Clip, No. 22
22.	G10312	2	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	2	Flange Nut, 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, 1/2"-13 x 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 I/KPM II Electronic Seed Monitor" Or "KPM II Stack-Mode
			Electronic Seed Monitor" For Seed Tube With Sensor, Pages P114-P117
29.	GB0285	1	Collar, Depth Adjustment
30.	GB0265	1	Pivot Link, Depth Adjustment
31.	G10207	2	Washer, ⁷ / ₈ " O.D. x 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.	G10985	2	Hex Washer Head Cap Screw, 3/8"-16 x 1 1/4"
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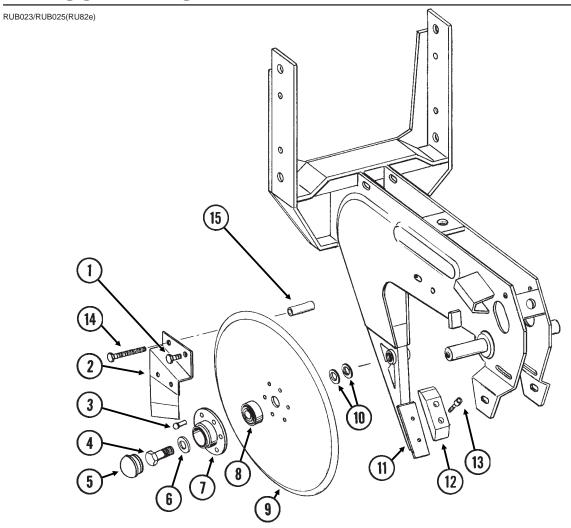
P3 Rev. 10/04

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

<u> </u>	1171200	J 17 (D L	<u> </u>	_
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ITEM	PART NO.	QTY.	DESCRIPTION 13 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION (13)	
		(Per Row)		
ITEM 1.	GD1114	(Per Row)	U-Bolt, 7" x 7" x 5/8"-11	
	GD1114 G10230	(Per Row) 2 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8"	
1.	GD1114 G10230 G10104	(Per Row) 2 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11	
1.	GD1114 G10230 G10104 GD10036	(Per Row) 2 4 4 1	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate	
1. 2. 3.	GD1114 G10230 G10104 GD10036 GB0218	(Per Row) 2 4 4 1 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long	
1. 2. 3. 4.	GD1114 G10230 G10104 GD10036 GB0218 GD11422	(Per Row) 2 4 4 1 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm	
1. 2. 3.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732	(Per Row) 2 4 4 1 4 2 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2"	
1. 2. 3. 4.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805	(Per Row) 2 4 4 1 4 2 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened	
1. 2. 3. 4. 5.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412	(Per Row) 2 4 4 1 4 2 4 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18	
1. 2. 3. 4. 5.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186	(Per Row) 2 4 4 1 4 2 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor	
1. 2. 3. 4. 5.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217	(Per Row) 2 4 4 1 4 2 4 4 2 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2"	
1. 2. 3. 4. 5. 6. 7. 8.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186	(Per Row) 2 4 4 1 4 2 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring	
1. 2. 3. 4. 5. 6. 7. 8. 9.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249	(Per Row) 2 4 4 1 4 2 4 4 2 2 2 2-4 - 1	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720	(Per Row) 2 4 4 1 4 2 4 4 2 2 2 2-4 - 1 1	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1"	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8"	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101	(Per Row) 2 4 4 1 4 2 4 4 2 2 2 2 2-4 - 1 1 2 2 2 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007	(Per Row) 2 4 4 1 4 2 4 4 2 2 2 2-4 - 1 1 2 2 2 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2"	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10007 G10230	(Per Row) 2 4 4 1 4 2 4 4 4 2 2 2 2-4 - 1 1 2 2 2 4 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8"	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10230 G10104	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 4 4 4 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10007 G10230	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 2 4 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8"	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10230 G10104	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 4 4 4 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10230 G10104 GA7410	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 2 4 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11 Extension Bracket	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10230 G10104 GA7410	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 2 4 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11 Extension Bracket	
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	GD1114 G10230 G10104 GD10036 GB0218 GD11422 G10732 GD7805 G10412 GB0186 GD14217 GD8249 GA5651 GA1720 G10001 G10229 G10101 G10007 G10230 G10104 GA7410 G10545	(Per Row) 2 4 4 1 4 2 4 4 2 2 2-4 - 1 1 2 2 2 4 4 4 4 2	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11 Mounting Support Plate Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long Upper Parallel Arm Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18 Spring Anchor Tab Lock Pin, 7/16" x 1 1/2" Spring See "Hopper Support And Meter Drive", Page P12 Lower Parallel Arm Bearing/Sprocket, 7/8" Hex Bore Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16 Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11 Extension Bracket Detent Pin, 1/2" x 1 1/3" Grip	

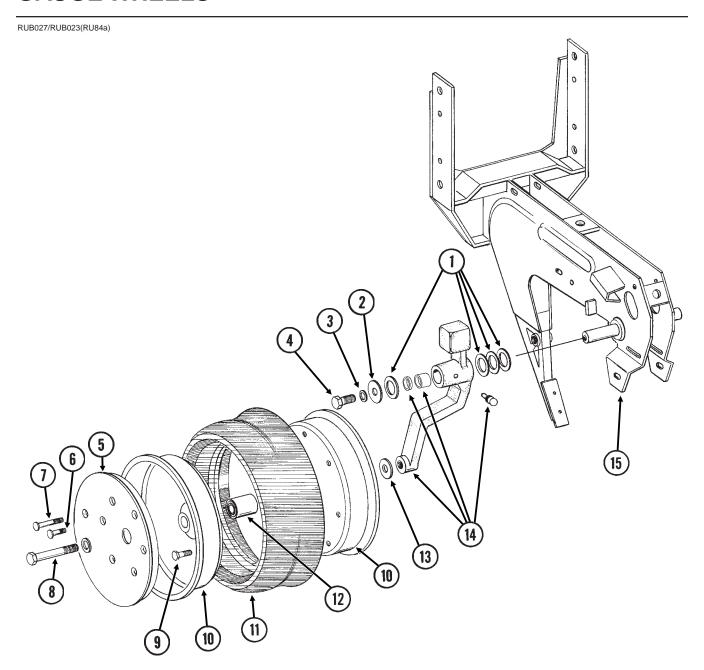
P4 Rev. 7/03

15" SEED OPENER DISC BLADE/BEARING ASSEMBLY AND SCRAPERS



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10328	2	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10622	2	Flange Nut, 3/8"-16
2.	GA2012R	1	Disc Scraper, R.H.
	GA2012L	-	Disc Scraper, L.H. (Shown)
3.	G10427	12	Rivet, 1/4" x 1/2"
4.	GD11017	1	Special Hex Head Cap Screw, 5/8"-11 x 1 1/2", L.H. Threads
	G10007	1	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
5.	GD11845	2	Dust Cap
6.	G10204	2	Special Machine Bushing, 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, 5/8" (.030" Thick)(As Required)
11.		-	See "Shank Assembly", Pages P2 And P3
12.	GB0301	1	Seed Tube Guard/Inner Scraper
13.	G10912	2	Hex Socket Head Cap Screw, 5/16"-18 x 1", Grade 8
14.	G10325	1	Hex Head Cap Screw, 3/8"-16 x 2 3/4"
	G10622	1	Flange Nut, 3/8"-16
15.	GD11259	1	Sleeve, ³ / ₈ " I.D. x ⁵ / ₈ " O.D. x 1 ²⁵ / ₃₂ " Long
Α.	GA8324	-	Disc Blade/Bearing Assembly, Less Dust Cap (Items 3 And 7-9) P5 Rev. 10/04

GAUGE WHEELS



P6 Rev. 12/02

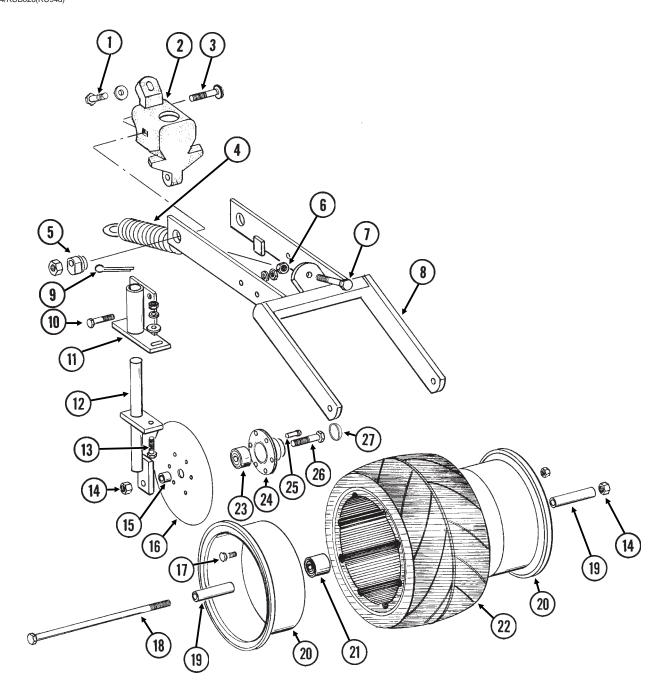
GAUGE WHEELS

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	Flange Nut, 5/16"-18
7.	G10924	8	Carriage Bolt, 5/16"-18 x 1 3/4"
	G10620	8	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
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", Pages P2 And P3
A.	GA7949	-	Gauge Wheel Complete (Items 5-7 And 9-12)

P7 Rev. 8/01

COVERING DISCS/SINGLE PRESS WHEEL

RUA054/RUB026(RU94d)



P8 Rev. 10/04

COVERING DISCS/SINGLE PRESS WHEEL

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10001	1	Hex Head Cap Screw, 3/8"-16 x 1"
	G10210	2	Washer, 3/8" USS
2.	GB0268	1	Wheel Arm Stop
3.	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)
	G10102	2	Hex Nut, 1/2"-13
4.	GA2054	1	Spring
5.	GB0239	2	Eccentric Bushing
6.	G10102	1	Hex Nut, ½"-13
7.	G10015	1	Adjusting Bolt, ½"-13 x 5"
8.	GA6619	1	Mounting Arm
9.	G10463	2	Cotter Pin, 1/4" x 1 1/2"
10.	G10171	4	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
	G10232	4	Lock Washer, 5/16"
	G10106	4	Hex Nut, ⁵ / ₁₆ "-18
11.	GA6620	2	Bracket
12.	GA6618	2	Mount
13.	G10303	2	Carriage Bolt, 5/16"-18 x 1"
	G10219	2	Washer, 5/16" USS
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, ⁵ / ₁₆ "-18
14.	G10107	3	Lock Nut, 5/8"-11
15.	GD1109	2	Bushing, 41/64" I.D. x 7/8" O.D. x 1/4" Long
16.	GD9290	2	Disc Blade, 8"
17.	G10018	7	Hex Head Cap Screw, 5/16"-18 x 5/8"
	G10109	7	Lock Nut, 5/16"-18
18.	G10152	1	Hex Head Cap Screw, 5/8"-11 x 9"
19.	GD3180-12	2	Sleeve, 5/8" I.D. x 7/8" O.D. x 2 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, 1/4" x 1/2"
26.	G10006	2	Hex Head Cap Screw, 5/8"-11 x 2 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)

P9 Rev. 10/04

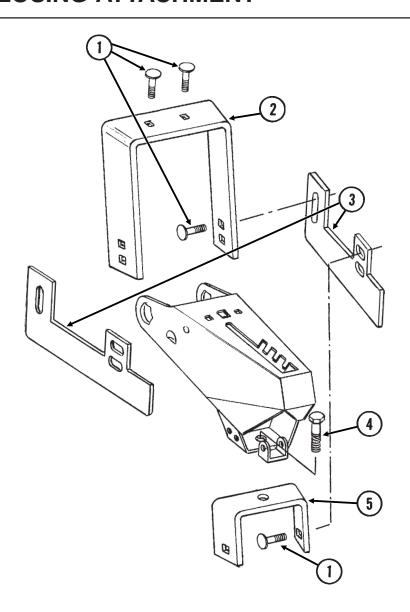
"V" CLOSING WHEELS

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ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
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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)
	040444	_	, , , , , , , , , , , , , , , , , , ,
•	G10111	2	Lock Nut, 1/2"-13
2.	GB0268	1	Wheel Arm Stop
2. 3.	GB0268 G10001	1 1	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1"
3.	GB0268 G10001 G10210	1 1 2	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1" Washer, 3/8" USS
3.4.	GB0268 G10001 G10210 GB0282	1 1 2 2	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1" Washer, 3/8" USS Stepped Bushing
3.4.5.	GB0268 G10001 G10210 GB0282 GB0239	1 1 2 2 2	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1" Washer, 3/8" USS Stepped Bushing Eccentric Bushing
3.4.5.6.	GB0268 G10001 G10210 GB0282 GB0239 GD8460	1 1 2 2 2 2	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1" Washer, 3/8" USS Stepped Bushing Eccentric Bushing Spring
3. 4. 5. 6. 7.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064	1 1 2 2 2 2 1 6	Wheel Arm Stop Hex Head Cap Screw, 3/8"-16 x 1" Washer, 3/8" USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, 1/4"-20 x 1"
3.4.5.6.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013	1 1 2 2 2 1 6 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ "
3. 4. 5. 6. 7. 8.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107	1 1 2 2 2 1 6 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11
3. 4. 5. 6. 7. 8.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218	1 1 2 2 2 1 6 2 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long
3. 4. 5. 6. 7. 8.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120	1 1 2 2 2 1 6 2 2 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel
3. 4. 5. 6. 7. 8. 9. 10.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171	1 1 2 2 2 1 6 2 2 2 4 2	Wheel Arm Stop Hex Head Cap Screw, $3/8$ "-16 x 1" Washer, $3/8$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $1/4$ "-20 x 1" Hex Head Cap Screw, $5/8$ "-11 x 3 $1/2$ " Lock Nut, $5/8$ "-11 Bushing, $21/32$ " I.D. x $21/8$ " O.D. x $21/8$ " Long Nylon Half Wheel Bearing
3. 4. 5. 6. 7. 8. 9. 10. 11.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085	1 1 2 2 2 1 6 2 2 2 4 2	Wheel Arm Stop Hex Head Cap Screw, $^{3}/_{8}$ "-16 x 1" Washer, $^{3}/_{8}$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $^{1}/_{4}$ "-20 x 1" Hex Head Cap Screw, $^{5}/_{8}$ "-11 x 3 $^{1}/_{2}$ " Lock Nut, $^{5}/_{8}$ "-11 Bushing, $^{21}/_{32}$ " I.D. x $^{7}/_{8}$ " O.D. x $^{19}/_{32}$ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12"
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109	1 1 2 2 2 1 6 2 2 2 4 2 2	Wheel Arm Stop Hex Head Cap Screw, $^{3}/_{8}"$ -16 x 1" Washer, $^{3}/_{8}"$ USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $^{1}/_{4}"$ -20 x 1" Hex Head Cap Screw, $^{5}/_{8}"$ -11 x 3 $^{1}/_{2}"$ Lock Nut, $^{5}/_{8}"$ -11 Bushing, $^{21}/_{32}"$ I.D. x $^{7}/_{8}"$ O.D. x $^{19}/_{32}"$ Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, $^{41}/_{64}"$ I.D. x $^{7}/_{8}"$ O.D. x $^{1}/_{4}"$ Long
3. 4. 5. 6. 7. 8. 9. 10. 11.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133	1 1 2 2 2 1 6 2 2 4 2 2 2 1	Wheel Arm Stop Hex Head Cap Screw, $3/8$ "-16 x 1" Washer, $3/8$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $1/4$ "-20 x 1" Hex Head Cap Screw, $5/8$ "-11 x 3 $1/2$ " Lock Nut, $5/8$ "-11 Bushing, $21/32$ " I.D. x $7/8$ " O.D. x $19/32$ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, $41/64$ " I.D. x $7/8$ " O.D. x $1/4$ " Long Hex Head Cap Screw, $5/16$ "-18 x 1 $1/2$ "
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109	1 1 2 2 2 1 6 2 2 4 2 2 1 1	Wheel Arm Stop Hex Head Cap Screw, $3/8$ "-16 x 1" Washer, $3/8$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $1/4$ "-20 x 1" Hex Head Cap Screw, $5/8$ "-11 x 3 $1/2$ " Lock Nut, $5/8$ "-11 Bushing, $21/32$ " I.D. x $7/8$ " O.D. x $19/32$ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, $41/64$ " I.D. x $7/8$ " O.D. x $1/4$ " Long Hex Head Cap Screw, $5/16$ "-18 x 1 $1/2$ " Lock Nut, $5/16$ "-18
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597	1 1 2 2 2 1 6 2 2 4 2 2 2 1	Wheel Arm Stop Hex Head Cap Screw, $3/8$ "-16 x 1" Washer, $3/8$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $1/4$ "-20 x 1" Hex Head Cap Screw, $5/8$ "-11 x 3 $1/2$ " Lock Nut, $5/8$ "-11 Bushing, $21/32$ " I.D. x $7/8$ " O.D. x $19/32$ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, $41/64$ " I.D. x $7/8$ " O.D. x $1/4$ " Long Hex Head Cap Screw, $5/16$ "-18 x 1 $1/2$ " Lock Nut, $5/16$ "-18 Cast Iron Closing Wheel W/Bearing
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6171	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 1	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6171 GA8322	1 1 2 2 2 1 6 2 2 2 4 2 2 2 1 1 -	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6171 GA8322 GB0254	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 -	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6171 GA8322 GB0254 GD7805	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 - - 1 1 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6171 GA8322 GB0254 GD7805 G10230	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 -	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ "
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 1 - - - 1 1 2 2	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ " Closing Wheel Shield Kit W/Hardware And Instruction
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345 G10308	1 1 2 2 2 1 6 2 2 2 4 2 2 2 1 1 1 - - 1 1 2 2 2 3	Wheel Arm Stop Hex Head Cap Screw, $^3/_8$ "-16 x 1" Washer, $^3/_8$ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, $^1/_4$ "-20 x 1" Hex Head Cap Screw, $^5/_8$ "-11 x 3 $^1/_2$ " Lock Nut, $^5/_8$ "-11 Bushing, $^21/_{32}$ " I.D. x $^7/_8$ " O.D. x $^{19}/_{32}$ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, $^41/_{64}$ " I.D. x $^7/_8$ " O.D. x $^1/_4$ " Long Hex Head Cap Screw, $^5/_{16}$ "-18 x 1 $^1/_2$ " Lock Nut, $^5/_{16}$ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, $^5/_8$ ", Hardened Lock Washer, $^5/_8$ " Closing Wheel Shield Kit W/Hardware And Instruction Carriage Bolt, $^3/_8$ "-16 x $^3/_4$ "
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345 G10308 G10210	1 1 2 2 2 1 6 2 2 2 4 2 2 2 1 1 1 - - - 1 1 2 2 2 3 1	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ " Closing Wheel Shield Kit W/Hardware And Instruction Carriage Bolt, ³ / ₈ "-16 x ³ / ₄ " Washer, ³ / ₈ " USS
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345 G10308	1 1 2 2 2 1 6 2 2 2 4 2 2 2 1 1 1 - - 1 1 2 2 2 3	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ " Closing Wheel Shield Kit W/Hardware And Instruction Carriage Bolt, ³ / ₈ "-16 x ³ / ₄ " Washer, ³ / ₈ " USS Lock Washer, ³ / ₈ "
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345 G10308 G10210 G10229	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 1 - - 1 1 2 2 - 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ " Closing Wheel Shield Kit W/Hardware And Instruction Carriage Bolt, ³ / ₈ "-16 x ³ / ₄ " Washer, ³ / ₈ " USS
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18.	GB0268 G10001 G10210 GB0282 GB0239 GD8460 G10064 G10013 G10107 GB0218 GD9120 GA6171 GD1085 GD1109 G10133 G10109 GA6597 GA6597 GA6171 GA8322 GB0254 GD7805 G10230 G1K345 G10308 G10210 G10229	1 1 2 2 2 1 6 2 2 2 4 2 2 1 1 1 - - 1 1 2 2 - 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3	Wheel Arm Stop Hex Head Cap Screw, ³ / ₈ "-16 x 1" Washer, ³ / ₈ " USS Stepped Bushing Eccentric Bushing Spring Hex Head Cap Screw, ¹ / ₄ "-20 x 1" Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ¹ / ₂ " Lock Nut, ⁵ / ₈ "-11 Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long Nylon Half Wheel Bearing Rubber Tire, 1" x 12" Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1 ¹ / ₂ " Lock Nut, ⁵ / ₁₆ "-18 Cast Iron Closing Wheel W/Bearing Bearing Arm Lever Special Washer, ⁵ / ₈ ", Hardened Lock Washer, ⁵ / ₈ " Closing Wheel Shield Kit W/Hardware And Instruction Carriage Bolt, ³ / ₈ "-16 x ³ / ₄ " Washer, ³ / ₈ " USS Lock Washer, ³ / ₈ "

P10 Rev. 10/04

DRAG CLOSING ATTACHMENT

RUB050(RU90c)



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

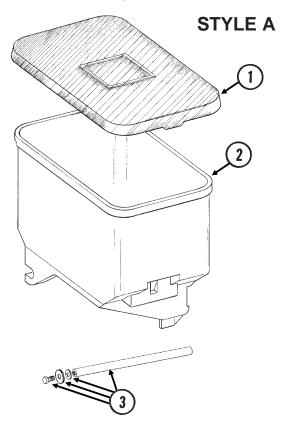
P11 Rev. 7/03

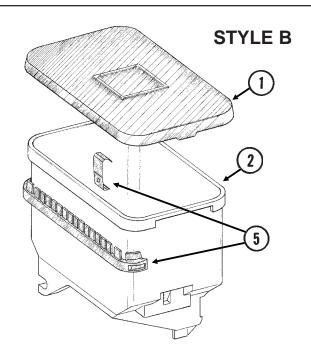
HOPPER SUPPORT AND METER DRIVE

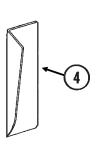
RUB028/RUE	3029(RU86h/RU86f)			
	(4) (3) (3) (4) (5) (6) (7) (6) (7) (6)	8 9	(15) (16) (15) (16) (17)	13)
ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION	(19)
1.	GB0314	2	Hopper Mount	™
2.	GB0218	4	Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long	
3.	G10752	2	Hex Head Cap Screw, 5/8"-18 x 2 1/4"	
	GD7805	2	Special Washer, 5/8", Hardened	
	G10412	2	Lock Nut, 5/8"-18	
4.	G10751	2	Hex Head Cap Screw, 5/8"-18 x 1 3/4"	
	GD7805	2	Special Washer, 5/8", Hardened	
	G10412	2	Lock Nut, 5/8"-18	
5.	G10602	1	Spring Pin, 1/4" x 1 1/2"	
6.	G10567	1	External Retaining Ring, 5/8"	
7.	GD11239	1	Knob	
8.	G10338	2	Carriage Bolt, 5/16"-18 x 1 1/4"	
	G10302 G10620	2	Carriage Bolt, ⁵ / ₁₆ "-18 x ⁷ / ₈ " Flange Nut, ⁵ / ₁₆ "-18	
9.	GD11305	1	Plate	
9. 10.	G10061	1	Hex Head Cap Screw, 3/8"-16 x 3 1/2"	
10.	G10210	2	Washer, 3/8" USS	
	G10108	1	Lock Nut, 3/8"-16	
11.	G10309	2	Carriage Bolt, 1/4"-20 x 5/8", Grade 2	
	G10621	2	Flange Nut, 1/4"-20	
12.	GA2007	1	Hopper Hold Down Latch	
13.	GA8304	1	Hopper Support 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, ³ / ₁₆ " x 1 ¹ / ₄ "	:: (0 D)
19.	G1K312	-	Seed Hopper Support Panel Kit W/Hardware And Instruct	ion (2 Rows)
	G10211 G10252	-	Washer, 1/4" SAE Hex Socket Head Screw, 1/4"-20 x 7/8", Grade 8	
Α.	GA9539	_	Meter Drive Assembly Complete (Items 5-7 And 14-18)	
Λ.	UN3003	-	P12	Rev. 10/04

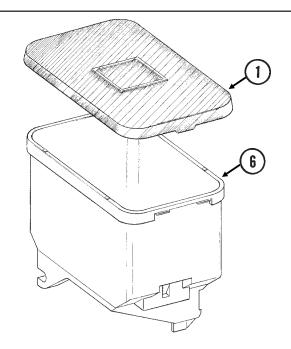
SEED HOPPER AND LID

RUA030(RU87d/RU87c/RU128/RU87a/RU87e)





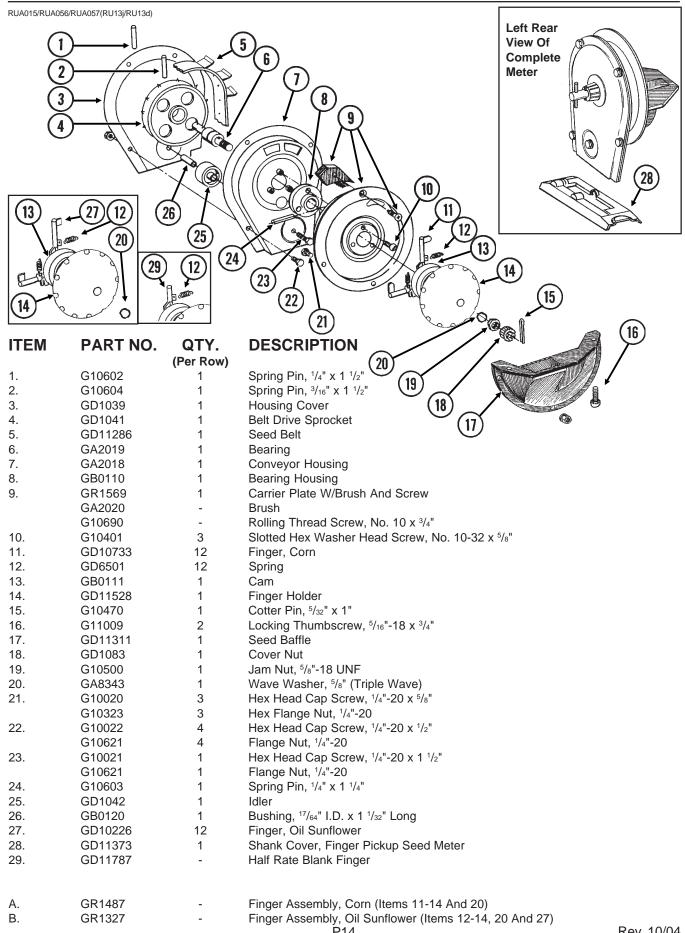




ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD11279	1	Lid
2.	GA8370	1	Seed Hopper (Sub GA9714)
3.	G1K313	1	Seed Hopper Cross Brace Kit (STYLE A Seed Hopper)
	G10989	2	Hex Washer Head Cap Screw, 3/8"-16 x 3/4"
	G10201	2	Special Washer, ³ / ₈ " x 1 ¹ / ₂ " O.D.
	G10210	2	Washer, ³ / ₈ " USS
4.	GD11747	1	Seed Reserve Baffle (Optional)
5.	G1K335	1	Seed Hopper Reinforcement Kit (STYLE B Seed Hopper)
6.	GA9714	1	Seed Hopper, Reinforced

P13 Rev. 10/04

FINGER PICKUP SEED METER



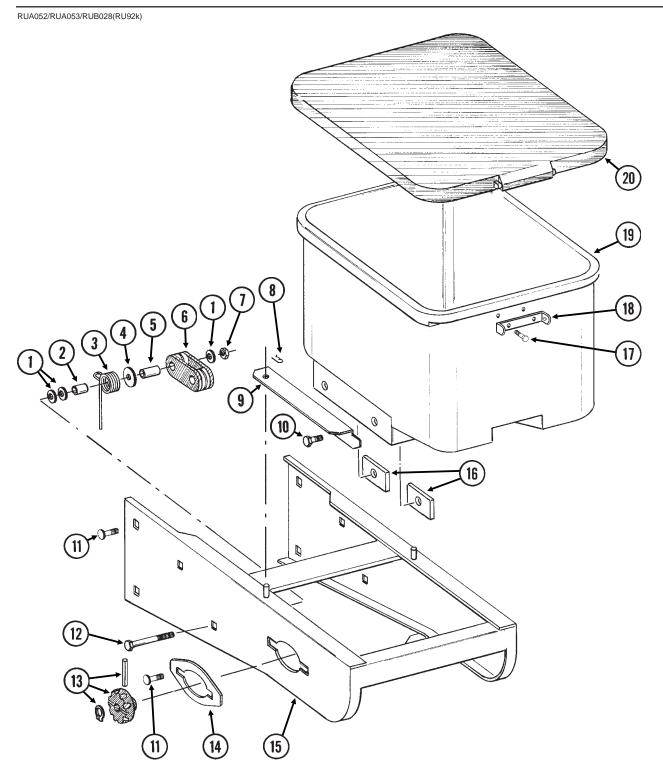
Rev. 10/04

BRUSH-TYPE SEED METER

RUA037/RUA08	56/RUA057(RU14e)			Left Rear View Of Complete Meter
			3 4 5 6 Used W/ Soybean And Cotton Discs 9	14
	16	Used W/ Milo/Grain Sorghum Discs		(10)
		<u>.</u>		<u> </u>
15)→		5		
				(12)
ITEM	PART NO.	QTY.	DESCRIPTION (13)	
		(Per Row)	_	
1.	G11009	2	Locking Thumbscrew, 5/16"-18 x 3/4"	
2.	GA6027	1	Housing W/Bearing	
2	GA5698	-	Bearing	
3.	GA6038 GD1755	1	Hub W/Shoulder Bolts Shoulder Bolt, ¹ / ₄ "-20 (2 Used)	
4.	G10603	1	Spring Pin, ¹ / ₄ " x 1 ¹ / ₄ "	
5.	G10602	1	Spring Pin, 1/4" x 1 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	lan Oadad
	GA6184	-	Seed Disc, Specialty Soybean, 48 Cell, Dark Blue Co	
	GA5796 GA6168	-	Seed Disc, Cotton, Acid-Delinted, 30 Cell, White Colo Seed Disc, Large Cotton, Acid-Delinted, 36 Cell, Tan	
	GA6478	-	Seed Disc, High-Rate Cotton, Acid-Delinted, 48 Cell,	Color-Coded
	0/101/0		Light Green Color-Coded	
	GA6182	-	Seed Disc, Hill-Drop Cotton, Acid-Delinted, 12 Cell, B	rown 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, 1/4"-20	
12.	G10584	9	Slotted Tap Screw, No. 10-24 x 1/2"	
12	G10634	- 1	Slotted Tap Screw, No. 10-24 x 5/8" (Use As Required))
13. 14.	GD7878 GD11374	1 1	Cover Shank Cover, Brush-Type Seed Meter	
1 4 . 15.	GA5982	- -	Seed Disc, Small Milo/Grain Sorghum, 30 Cell, Red C	Color-Coded
10.	GA6187	-	Seed Disc, Small Milo/Grain Sorghum, 30 Cell, Red C Seed Disc, Large Milo/Grain Sorghum, 30 Cell, Light I	
	GA5795	-	Seed Disc, High-Rate Small Milo/Grain Sorghum, 60 (
	GA6633	-	Seed Disc, High-Rate Large Milo/Grain Sorghum, 60	
16.	GD8237	-	Upper Brush Retainer (Used W/Milo/Grain Sorghum D	
			P15	Rev. 10/04

P15 Rev. 10/04

GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION



P16 Rev. 6/00

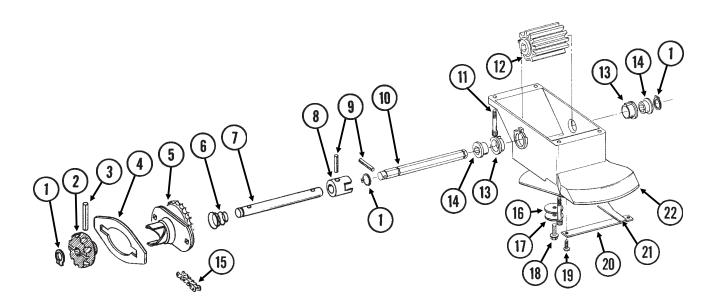
GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10210	3	Washer, 3/8" USS
2.	GD2971-10	1	Sleeve, 9/16" Long
3.	GD11219	1	Spring
4.	G10201	1	Special Washer, 3/8" x 1 1/2" O.D.
5.	GD1026	1	Sleeve, 1 ³ / ₁₆ " Long
6.	GD11962	1	Idler
7.	G10108	1	Lock Nut, 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, 3/8"-16 x 3/4"
	G10229	4	Lock Washer, 3/8"
11.	G10312	8	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	8	Flange Nut, ⁵ / ₁₆ "-18
12.	G10325	1	Hex Head Cap Screw, 3/8"-16 x 2 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, 1/4"-20 x 3/4"
	G10621	2	Flange Nut, 1/4"-20
18.	GD1060	1	Hinge
19.	GA8371	1	Hopper
20.	GA4444	1	Lid

P17 Rev. 8/01

GRANULAR CHEMICAL METER AND METER DRIVE

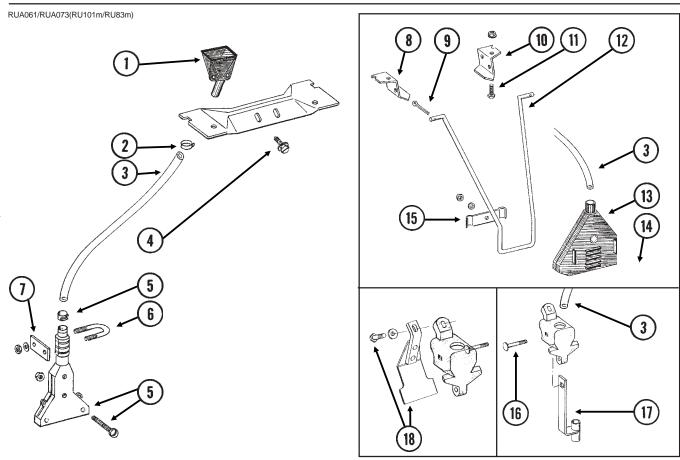
RUA051/RUB028(RU91a)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10567	3	External Retaining Ring, 5/8"
2.	GD11239	1	Knob
3.	G10602	1	Spring Pin, 1/4" x 1 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, ³ / ₁₆ " x 1 ¹ / ₄ "
10.	GD11297	1	Shaft
11.	G10921	4	Hex Socket Head Cap Screw, No. 10-24 x 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, 1/2"
17.	G10209	1	Washer, ¹ / ₄ " USS
18.	G10570	1	Slotted Hex Self-Tapping Screw, 1/4"-20 x 3/4"
19.	G11073	2	Slotted Hex Self-Tapping Screw, No. 10 x 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)

P18 Rev. 7/03

GRANULAR CHEMICAL BANDING OPTIONS

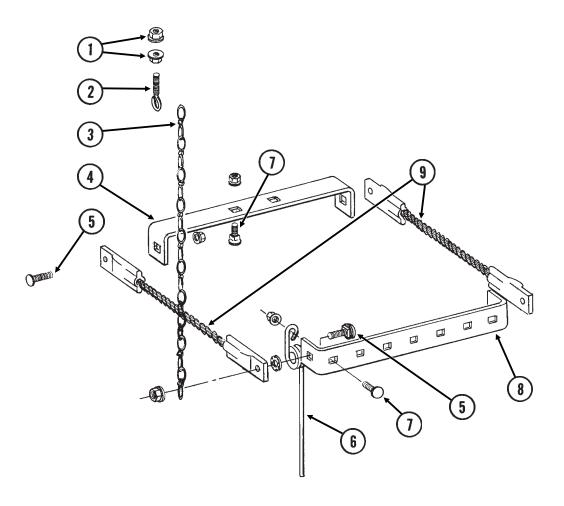


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD2423	1	Funnel
2.	G10673	1	Hose Clamp, No. 8
3.	GD2947	1	Hose, ⁷ / ₁₆ " x 28"
4.	G10523	2	Slotted Pan Head Self-Tapping Screw, No. 10 x ½"
5.	GA6907	1	Slope-Compensating Bander W/Hardware (4 ½ Band Width)
5.	G10864	1	Uni-Clamp
	G10757	2	Pan Head Screw, No. 10-32 x 1 ¹ / ₄ "
	G10757	2	Hex Nut, No. 10-32
6.	GD10963	1	U-Bolt, 1 ½" x 1 ½" x 1 ½"-20
0.	G10209	2	Washer, 1/4" USS
	G10110	2	Lock Nut, 1/4"-20
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
			P19

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SPRING TOOTH INCORPORATOR

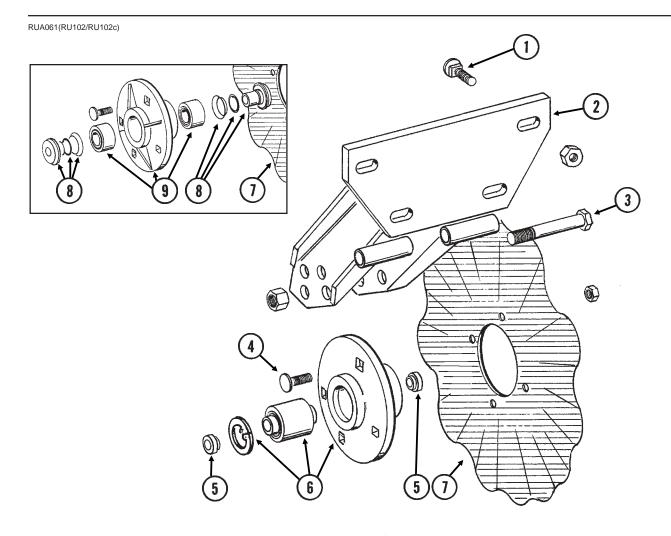
RUA055(RU95)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10621	4	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	Flange Nut, 3/8"-16
6.	GD1145	7	Spring Tooth
7.	G10308	9	Carriage Bolt, 3/8"-16 x 3/4"
	G10622	9	Flange Nut, 3/8"-16
8.	GD1144	1	Rear Bracket
9.	GA2094	2	Cable Assembly

P20 Rev. 6/00

ROW UNIT MOUNTED NO TILL COULTER

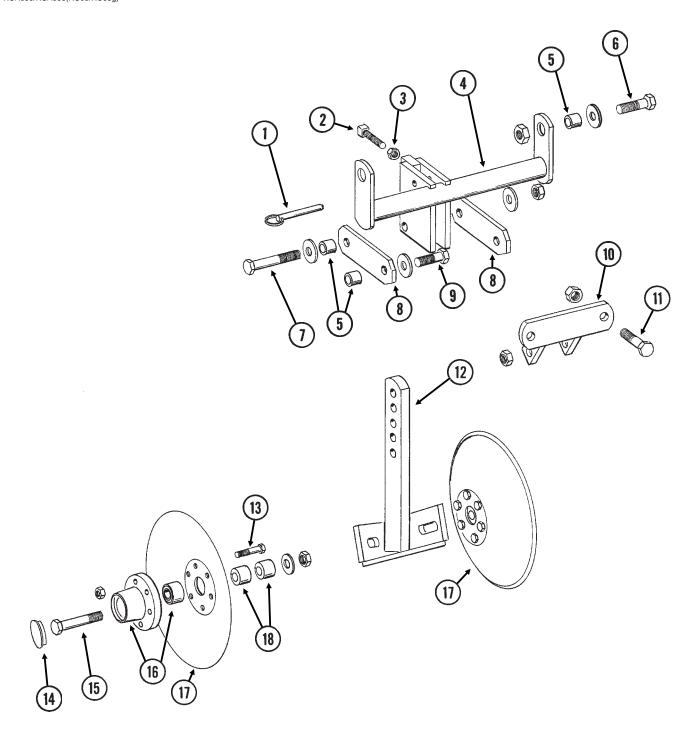


ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1	C10574	4	Corriggo Polt 1/ 42 x 4 1/
1.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
2	G10111	4 1	Lock Nut, ¹ / ₂ "-13 Arm
2.	GA5625		
3.	G10036	1	Hex Head Cap Screw, 5/8"-11 x 4"
	G10107	1	Lock Nut, ⁵ / ₈ "-11
4.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
	G10111	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
8.	G1K330	2	Adapter Kit W/O-Ring And Spring Washer
	GD8844	2	O-Ring
	GD8843	2	Spring Washer
9.	GA5640	1	Hub W/Bearings And Grease Fitting (Sub G1K289)
	GA5622	-	Bearing (2 Used Per Hub)
	G10640	-	Grease Fitting, 1/4"-28
			P21

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ROW UNIT MOUNTED DISC FURROWER

RUA059/RUA058(RU99/RU98g)



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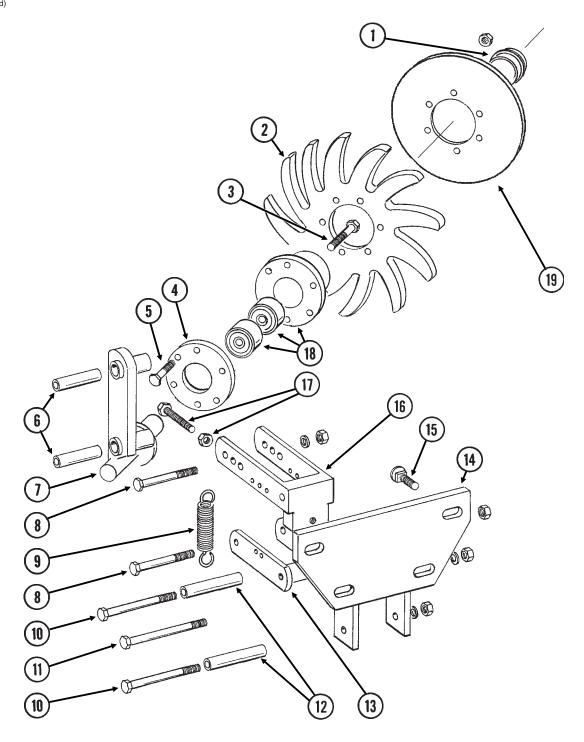
ROW UNIT MOUNTED DISC FURROWER

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, ¹¹ / ₁₆ " I.D. x ³ / ₄ " Long
	GD7817-04	2	Spacer, ¹¹ / ₁₆ " I.D. x ¹ / ₂ " Long

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ROW UNIT MOUNTED RESIDUE WHEEL

(RU103d)



P24 Rev. 12/02

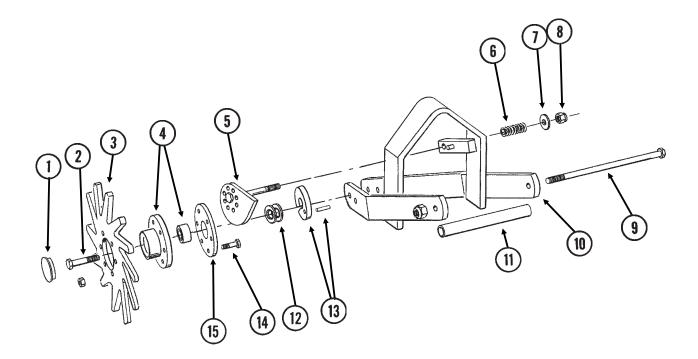
ROW UNIT MOUNTED RESIDUE WHEEL

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

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COULTER MOUNTED RESIDUE WHEELS

RUA063(RU104p)



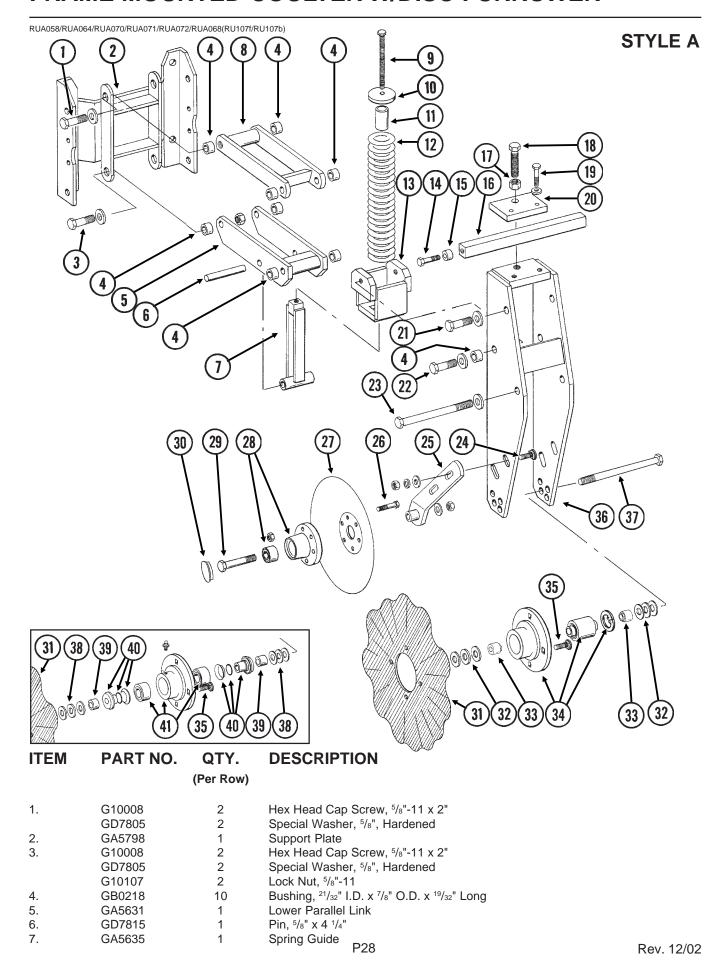
P26 Rev. 12/02

COULTER MOUNTED RESIDUE WHEELS

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

P27 Rev. 10/04

FRAME MOUNTED COULTER W/DISC FURROWER

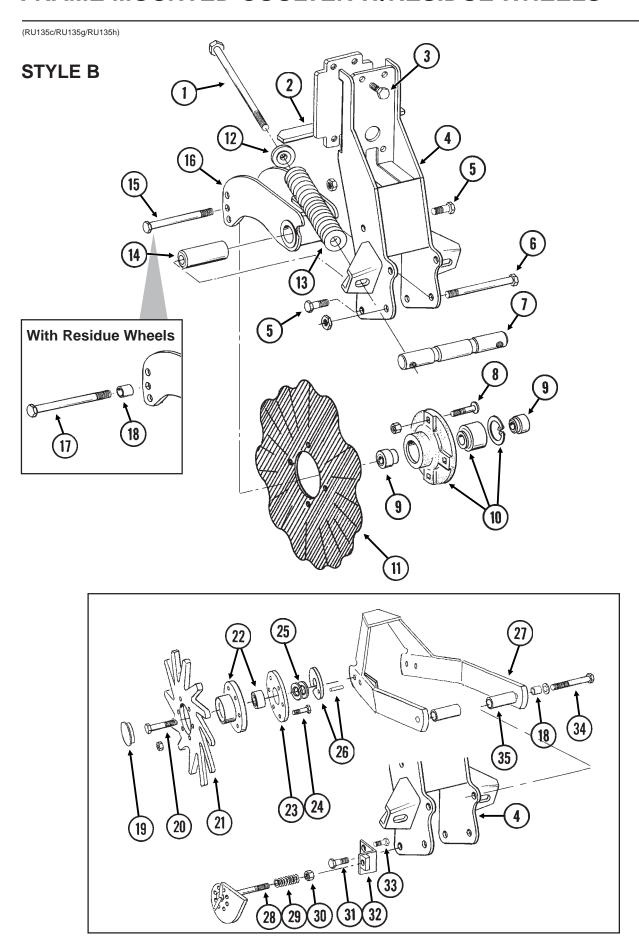


FRAME MOUNTED COULTER W/DISC FURROWER

ITEM	PART NO.	QTY.	DESCRIPTION
_		(Per Row)	
8.	GA5630	1	Upper Parallel Link
9.	G10573	1	Hex Head Cap Screw, 5/8"-11 x 5 1/2", Full Thread
10.	GB0196	1	Washer
11.	GD7817-09	1	Spacer, ¹¹ / ₁₆ " I.D. x 1 ³ / ₄ " Long
12.	GD7831	1	Compression Spring
13.	GA5637	1	Spring Socket
14.	GD7818	2	Special Bolt
15.	GD7817-01	2	Spacer, 11/16" I.D. x 3/4" Long
16.	GD7816	1	Depth Control Bar
17.	G10104	1	Hex Nut, 5/8"-11
18.	G10582	1	Hex Head Cap Screw, 5/8"-11 x 4", Full Thread
19.	G10581	2	Hex Head Cap Screw, 1/2"-13 x 2 1/4"
20	G10228	2	Lock Washer, 1/2"
20.	GD7811	1	Depth Adjustment Clamp
21.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	GD7805	2	Special Washer, 5/8", Hardened
	GD1109	-	Bushing, 41/64" I.D. x 7/8" O.D. x 1/4" Long (As Required)
22	G10107	1	Lock Nut, 5/8"-11
22.	G10055	2 2	Hex Head Cap Screw, 5/8"-11 x 1 1/4"
22	GD7805		Special Washer, 5/8", Hardened
23.	G10012	1 2	Hex Head Cap Screw, 5/8"-11 x 6 1/2"
	GD7805		Special Washer, ⁵ / ₈ ", Hardened Bushing, ⁴¹ / ₆₄ " I.D. x ⁷ / ₈ " O.D. x ¹ / ₄ " Long (As Required)
	GD1109	- 1	Lock Nut, 5/8"-11
24.	G10107 G10747	4	Carriage Bolt, ½"-13 x 2"
24.	G10747 G10206	4	Washer, 1/2" SAE (As Required)
	G10200 G10228	4	Lock Washer, 1/2"
	G10228 G10102	4	Hex Nut, ½"-13
25.	GA5636	2	Arm
26.	G10572	12	Truss Head Slotted Machine Screw, 5/16"-18 x 7/8"
20.	G10372 G10106	12	Hex Nut, 5/16"-18
27.	GD7823	2	Disc Blade, Solid, 12" (Shown)
21.	GD8307	-	Disc Blade, Notched, 12"
28.	GA5654	2	Hub W/Bearings
20.	GA2014	4	Bearing
29.	G10036	2	Hex Head Cap Screw, 5/8"-11 x 4"
20.	G10107	2	Lock Nut, 5/8"-11
30.	GD1132	2	Dust Cap
31.	GD7803	1	Disc Blade, Fluted, 1", 8 Flutes (Shown)
01.	GD7804	-	Disc Blade, Bubbled, 1"
	GD9254	-	Disc Blade, Fluted, ³ / ₄ ", 13 Flutes
32.	G10213	_	Machine Bushing, 5/8" (.030" Thick) (As Required)
02.	G10918	_	Machine Bushing, 5/8", 14 Gauge (As Required)
33.	GD11698	2	Adapter
34.	GA8641	_ 1	Hub W/Bearing And Retaining Ring
•	GA8603	-	Double Row Bearing
	GD11652	_	Retaining Ring, 2 ⁷ / ₁₆ "
35.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
	G10111	4	Lock Nut, 1/2"-13
36.	GA5643	1	Fork Mount
37.	G10068	1	Hex Head Cap Screw, 5/8"-11 x 6"
• • •	G10107	1	Lock Nut, 5/8"-11
38.	G10217	-	Washer, ⁵ / ₈ " USS (As Required)
39.	GD7817-04	2	Spacer, ¹¹ / ₁₆ " I.D. x ¹ / ₂ " Long
40.	G1K330	2	Adapter Kit W/O-Ring And Spring Washer
	GD8844	-	O-Ring
	GD8843	-	Spring Washer
41.	GA5640	1	Hub W/Bearings And Grease Fitting (Sub G1K290)
			Bearing (2 Used Per Hub)
	GA5622	-	Dealing (2 Osed Fel Hub)

P29 Rev. 7/03

FRAME MOUNTED COULTER W/RESIDUE WHEELS



P30 Rev. 12/02

FRAME MOUNTED COULTER W/RESIDUE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION	
1.	G11010	2	Hex Head Cap Screw, 3/4"-10 x 12"	
2.	GA9844	1	Plate W/Angle	
3.	G10039	4	Hex Head Cap Screw, 1/2"-13 x 1 3/4"	
4.	GA9131	1	Coulter Frame	
5.	G10007	4	Hex Head Cap Screw, 5/8"-11 x 1 1/2"	
	G10107	4	Lock Nut, 5/8"-11	
6.	G10400	1	Hex Head Cap Screw, 3/4"-10 x 6 1/2"	
	G10112	1	Lock Nut, 3/4"-10	
7.	GD12826	1	Spring Anchor Bar	
8.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"	
	G10111	4	Lock Nut, ¹ / ₂ "-13	
9.	GD12827	2	Adapter	
10.	GA8641	1	Hub W/Bearing And Retaining Ring	
	GA8603	1	Double Row Bearing	
4.4	GD11652	1	Retaining Ring, 2 ⁷ / ₁₆ "	
11.	GD7803	1	Disc Blade, Fluted, 1", 8 Flutes (Shown)	
	GD7804	-	Disc Blade, Bubbled, 1"	
40	GD9254	-	Disc Blade, Fluted, ³ / ₄ ", 13 Flutes	
12.	GB0213	2	Spring Seat	
13.	GD12817	2	Compression Spring Sleeve	
14.	GD12829	1		
15.	G10046 G10107	1 1	Hex Head Cap Screw, 5/8"-11 x 5" Lock Nut, 5/8"-11	
16.	GA9845	1	Coulter Arm W/Grease Fitting	
10.	G10643	-	Grease Fitting, 45°, 1/4"-28	
17.	G10043 G10011	1	Hex Head Cap Screw, ⁵ / ₈ "-11 x 5 ¹ / ₂ "	
17.	G10011	1	Lock Nut, 5/8"-11	
18.	GB0218	3	Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long	
19.	GD1132	2	Dust Cap	
20.	G10010	2	Hex Head Cap Screw, 5/8"-11 x 3"	
20.	G10503	2	Hex Jam Nut, 5/8"-11, Grade 2	
21.	GD10552	2	Wheel, 12 Tine, 3/8" x 12"	
22.	GA5654	2	Hub W/Bearings	
	GA2014	-	Bearing	
23.	GD9724	2	Backing Plate	
24.	G10133	12	Hex Head Cap Screw, 5/16"-18 x 1 1/2"	
	G10109	12	Lock Nut, 5/16"-18	
25.	G10213	4	Machine Bushing, 5/8" (.030" Thick)	
26.	GA9862	2	Weed Guard W/Spring Pin	
	G10765	-	Spring Pin, 1/4" x 1"	
27.	GA9865	1	Mount	
28.	GA9861	1	Cam	
29.	GD10519	1	Spring	
30.	G10974	1	Lock Nut W/Nylon Insert, 1/2"-13	
31.	G10005	1	Hex Head Cap Screw, 5/8"-11 x 1 3/4"	
	G10107	4	Lock Nut, 5/8"-11	
32.	GA9864	1	Support	
33.	G10014	1	Hex Head Cap Screw, 1/2"-13 x 1"	
	G10102	1	Hex Nut, ¹ / ₂ "-13	
34.	G10011	2	Hex Head Cap Screw, 5/8"-11 x 5 1/2"	
	G10205	2	Washer, 5/8" SAE	
	G10730	2	Lock Nut W/Nylon Insert, 5/8"-11	
35.	GD14170	2	Sleeve, 3"	
٨	C A 7 4 4 C		Whool Accombly 12 Tipe D.H. (Home 24.24) (Charm)	
Α.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 21-24) (Shown)	
	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 21-24)	
			D24	Pov 10/04

P31 Rev. 10/04

FRONT HITCH ASSEMBLY/SAFETY CHAIN

PHA029(FF1b/WGN47a/FF87) Prior To Serial No. 750404 24 31 24 Row 30"/36 Row 20" Shown (38) (34) 35) 5 3 6 (8) 36) (14 16) 18) (12)19) (10)(11)(13) (21)20

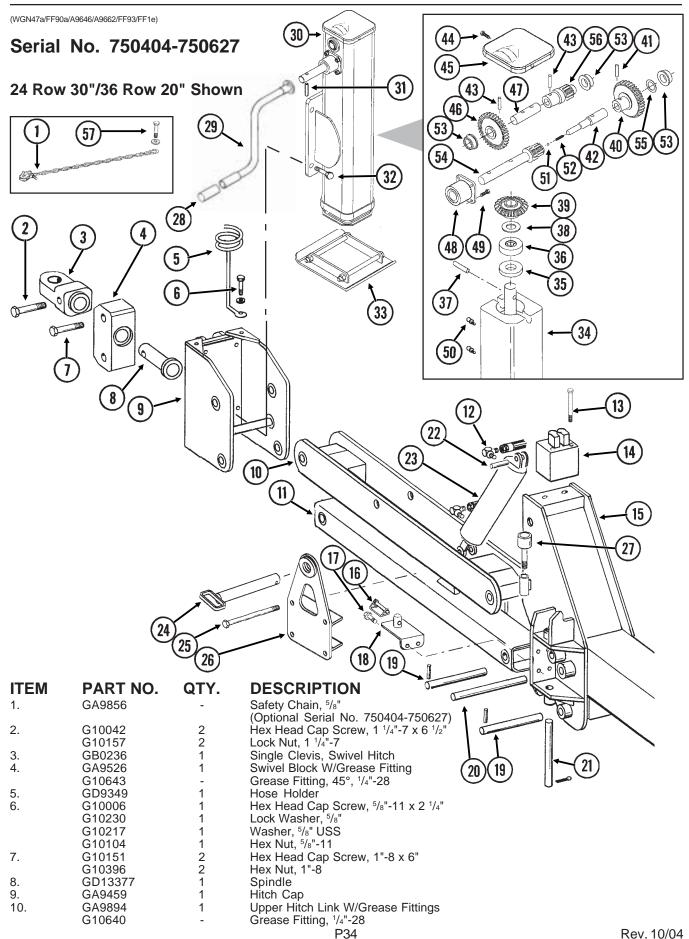
P32

Rev. 12/02

FRONT HITCH ASSEMBLY/SAFETY CHAIN

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10042	1	Hex Head Cap Screw, 1 ¹ / ₄ "-7 x 6 ¹ / ₂ "
_	G10157	1	Lock Nut, 1 1/4"-7
2.	GB0292	1	Hitch Clevis, Single
3.	G10006	4	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	G10230	4	Lock Washer, 5/8"
1	G10104	4	Hex Nut, ⁵ / ₈ "-11
4.	G10007 G10230	1 1	Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8"
	G10230	1	Hex Nut, 5/8"-11
5.	GD9349	1	Hose Holder
6.	G10006	1	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	G10230	1	Lock Washer, 5/8"
	G10217	1	Washer, 5/8" USS
	G10104	1	Hex Nut, ⁵ / ₈ "-11
7.	GD1350	1	Handle
8.	G10049	1	Hex Head Cap Screw, ³ / ₈ "-16 x 2 ¹ / ₂ "
	G10210	1	Washer, 3/8" USS
•	G10108	1	Lock Nut, 3/8"-16
9.	GA6642	1	Upper Hitch Link W/Grease Fittings, All Sizes
10	G10640	-	Grease Fitting, 1/4"-28
10. 11.	GA4733 GA6644	1 1	Detent Pin W/Chain Hitch Cap
12.	GR1263	1	Drop Leg
13.	GA6643	1	Lower Hitch Link W/Grease Fittings, 24 Row 30" And 36 Row 20" (Prior To
10.	0,10010	·	Serial No. 750325)
	GA7488	-	Lower Hitch Link W/Grease Fittings, All 16 Row 30" And 24 Row 20"/
			24 Row 30" And 36 Row 20" (Serial No. 750325-750403)
	G10640	-	Grease Fitting, 1/4"-28
14.	GA6813	1	Parallel Linkage Lock Pin
	GD2557	1	Lynch Pin, 7/16"
15.	G6801-08	2	Elbow, W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
40	GR1037	-	O-Ring
16.	G10754	2	Hex Head Cap Screw, 5/16"-18 x 8"
	G10232 G10106	2 2	Lock Washer, ⁵ / ₁₆ " Hex Nut, ⁵ / ₁₆ "-18
17.	910100	-	See "Hitch Parallel Linkage Cylinder", Pages P88-P91
18.		_	See "Valve Block On Front Hitch", Pages P92 And P93
19.		-	See "Front Hitch Assembly (Rear Section)", Page P38
20.	GD9464-01	4	Pin, 1 ¹ / ₂ " x 11 ¹ / ₄ "
	G10460	8	Cotter Pin, 1/4" x 2"
21.	GD0671	1	Pin, 1 ¹ / ₄ " x 10 ³ / ₄ "
	G10460	2	Cotter Pin, 1/4" x 2"
22.	GD4014	2	Pin, 1 ¹ / ₄ " x 12"
	G10460	4	Cotter Pin, 1/4" x 2"
23.	GA9856	-	Safety Chain, 5/8" (Optional Prior To Serial No. 750404)
24. 25.	GR0700 GR0703	1 1	Lid Retaining Hoy Hood Can Serow
26.	GR0703 GR0702	2	Retaining Hex Head Cap Screw Retaining Washer, 1/2"
20. 27.	GR0694	2	Key
28.	GR0693	1	Gear, 18 Tooth
29.	GR0690	2	Pin
30.	GR0698	1	Gear, 12 Tooth
31.	GR0704	1	Snap Ring Snap Ring
32.	GR1518	1	Shaft
33.	GR0692	3	Machine Washer, 1" x 2" x 18 Gauge
34.	GR0691	1	Bearing
35.	GR0689	1	Nut And Screw Assembly
36.	GR1011	1	Secondary W/Lock Assembly
37.	GR0717	2	Pin W/Clip
20	GR0193	- 4	Hair Pin Clip
38.	G11058	1	Hex Head Cap Screw, 1 ¹ / ₄ "-7 x 3"
	GD10646 G10226	1 1	Special Washer Washer, 1 ¹ / ₄ " SAE
	010220	ı	
		1	Lock Nut 1 ¹ / ₄ "-7
	G10157	1	Lock Nut, 1 ¹ / ₄ "-7
A.		1 -	Lock Nut, 1 ¹ / ₄ "-7 Jack (Items 24-36)

FRONT HITCH ASSEMBLY/SAFETY CHAIN

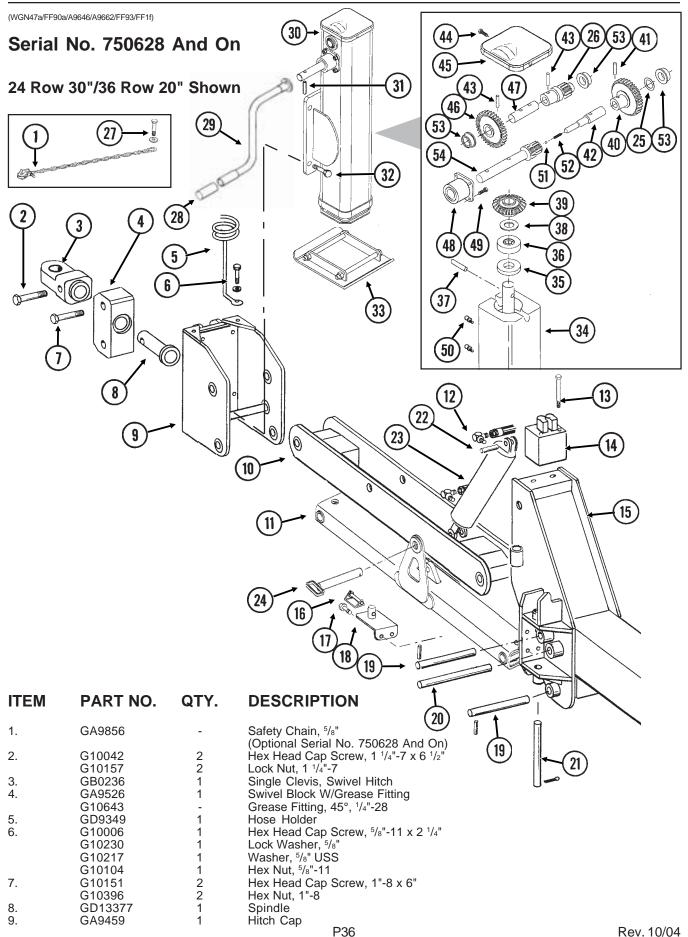


Rev. 10/04

FRONT HITCH ASSEMBLY/SAFETY CHAIN

ITEM	PART NO.	QTY.	DESCRIPTION
11.	GA9522	1	Lower Hitch Link W/Grease Fittings
40	G10640	-	Grease Fitting, 1/4"-28
12.	G6801-08 GR1037	2	Elbow, W/O-Řing, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
13.	G10754	2	Hex Head Cap Screw, 5/16"-18 x 8"
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, ⁵ / ₁₆ "-18
14.		-	See "Valve Block On Front Hitch", Pages P92 And P93
15. 16.	GD10705	- 1	See "Front Hitch Assembly (Rear Section)", Page P38 Locking Clip Pin, 1/4" x 2 1/2"
17.	G10019	2	Hex Head Cap Screw, 5/16"-18 x 1"
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, ⁵ / ₁₆ "-18
18.	GA9654	1	Handle Mount
19.	GD9464-01	4 8	Pin, 1 ½" x 11 ¼" Spring Pin, 1 ½" x 2 ½"
20.	G10475 GD0671	1	Spring Pin, ¹ / ₄ " x 2 ¹ / ₄ " Pin, 1 ¹ / ₄ " x 10 ³ / ₄ "
20.	G10460	2	Cotter Pin, 1/4" x 2"
21.	GD4014	2	Pin, 1 ¹ / ₄ " x 12"
	G10460	4	Cotter Pin, 1/4" x 2"
22.	GR0717	2	Pin W/Clip
23.	GR0193	-	Hair Pin Clip See "Hitch Parallel Linkage Cylinder", Pages P90 And P91
24.	GA6813	1	Parallel Linkage Lock Pin
	GD14217	1	Tab Lock Pin, 7/16" x 1 1/2"
25.	G10177	4	Hex Head Cap Screw, 5/8"-11 x 9 1/2"
	GD7805	4	Special Washer, 5/8", Hardened
26.	G10107 GA10044	4 2	Lock Nut, ⁵ / ₈ "-11 Lockup Bracket
27.	GA10051	1	Pin Storage Bracket, Threaded
	G10107	1	Lock Nut, 5/8"-11
28.	G11012	1	Cover
29.	GA9655	1	Handle
30. 31.	GA9646 G11076	1 1	2-Speed Jack Assembly, Less Handle And Foot Assembly Spring Pin, M10 x 50 (Metric)
32.	G10006	4	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, ⁵ / ₈ "-11
33.	GA9662	1	Jack Foot Assembly W/Hardware
	G11034 G10111	-	Hex Head Cap Screw, 1/2"-13 x 7" Lock Nut, 1/2"-13
34.	GA9663	1	Lower Leg Assembly
35.	GD13598	1	Collar
36.	GA9665	1	Thrust Bearing
37.	G10840	1	Dowel Pin, ³ / ₈ " x 1 ³ / ₄ " Thrust Washer
38. 39.	GD13600 GD13601	1 1	Bevel Gear
40.	GD13602	1	Output Cluster Gear
41.	G11030	1	Spring Pin, 3/8" x 1 3/4"
42.	GD13603	1	Output Shaft
43. 44.	G11031 G10960	2 2	Spring Pin, ⁵ / ₁₆ " x 1 ¹ / ₂ " Flanged Whiz-Lock Screw, ¹ / ₄ "-20 x ⁵ / ₈ ", No Serration
44. 45.	GD13607	1	Cover
46.	GD13606	1	Input Spur Gear
47.	GD13608	1	Output Shaft
48.	GA9666	1	Shaft Housing
49.	G10019 G10109	4 4	Hex Head Cap Screw, 5/16"-18 x 1"
50.	G10109 G10641	2	Lock Nut, ⁵ /16"-18 Grease Fitting, ¹ / ₈ " NPT
51.	GD13609	2	Detent Ball
52.	GD13610	1	Detent Spring
53.	GD13604	3	Bushing
54.	GD13611	1	Input Shaft Shim
55. 56.	G11032 GD13605	1 1	Output Spur Gear
57.	G11058	1	Hex Head Cap Screw, 1 ¹ / ₄ "-7 x 3"
	GD10646	1	Special Washer
	G10226	1	Washer, 1 ¹ / ₄ " SAE
	G10157	1	Lock Nut, 1 ¹ / ₄ "-7
A.	GA9504	_	2-Speed Jack/Mount Sub-Assembly (Items 2-9, 30, 31 And 33)
	0,10001		Doe

FRONT HITCH ASSEMBLY/SAFETY CHAIN



FRONT HITCH ASSEMBLY/SAFETY CHAIN

ITEM	PART NO.	QTY.	DESCRIPTION
10.	GA9894	1	Upper Hitch Link W/Grease Fittings
11.	G10640 GA10043	1	Grease Fitting, ¹/₄"-28 Lower Hitch Link W/Grease Fittings
40	G10640	-	Grease Fitting, 1/4"-28
12.	G6801-08 GR1037	2	Elbow, W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
13.	G10754	2	Hex Head Cap Screw, 5/16"-18 x 8"
	G10232 G10106	2 2	Lock Washer, ⁵ / ₁₆ " Hex Nut, ⁵ / ₁₆ "-18
14.	010100	-	See "Valve Block On Front Hitch", Pages P92 And P93
15.	OD40705	-	See "Front Hitch Assembly (Rear Section)", Page P38
16. 17.	GD10705 G10019	1 2	Locking Clip Pin, ¹/₄" x 2 ¹/₂" Hex Head Cap Screw, ⁵/₁₅"-18 x 1"
	G10232	2	Lock Washer, 5/16"
10	G10106	2	Hex Nut, 5/16"-18
18. 19.	GA9654 GD9464-01	1 4	Handle Mount Pin, 1 ¹ / ₂ " x 11 ¹ / ₄ "
	G10475	8	Spring Pin, 1/4" x 2 1/4"
20.	GD0671	1	Pin, 1 ¹ / ₄ " x 10 ³ / ₄ "
21.	G10460 GD4014	2 2	Cotter Pin, ¹ / ₄ " x 2" Pin, 1 ¹ / ₄ " x 12"
21.	G10460	4	Cotter Pin, 1/4" x 2"
22.	GR0717	2	Pin W/Clip
23.	GR0193	-	Hair Pin Clip See "Hitch Parallel Linkage Cylinder", Pages P90 And P91
24.	GA6813	1	Parallel Linkage Lock Pin
	GD14217	1	Tab Lock Pin, 7/16" x 1 1/2"
25.	G11032	1 1	Shim Output Sour Coor
26. 27.	GD13605 G10494	1	Output Spur Gear Hex Head Cap Screw, 1 1/4"-7 x 3 1/2"
	GD10646	1	Special Washer
	G10226	1	Washer, 1 ¹ / ₄ " SAE
28.	G10157 G11012	1 1	Lock Nut, 1 ¹ / ₄ "-7 Cover
29.	GA9655	1	Handle
30.	GA9646	1	2-Speed Jack Assembly, Less Handle And Foot Assembly
31. 32.	G11076 G10006	1 4	Spring Pin, M10 x 50 (Metric) Hex Head Cap Screw, ⁵ / ₈ "-11 x 2 ¹ / ₄ "
02.	G10230	4	Lock Washer, 5/8"
00	G10104	4	Hex Nut, 5/8"-11
33.	GA9662 G11034	1 -	Jack Foot Assembly W/Hardware Hex Head Cap Screw, 1/2"-13 x 7"
	G10111	-	Lock Nut, 1/2"-13
34.	GA9663	1	Lower Leg Assembly
35. 36.	GD13598 GA9665	1 1	Collar Thrust Bearing
37.	G10840	1	Dowel Pin, ³ / ₈ " x 1 ³ / ₄ "
38.	GD13600	1	Thrust Washer
39. 40.	GD13601 GD13602	1 1	Bevel Gear Output Cluster Gear
40. 41.	G11030	1	Spring Pin, 3/8" x 1 3/4"
42.	GD13603	1	Output Shaft
43.	G11031	2	Spring Pin, 5/16" x 1 1/2" Flanged White Lock Serow 1/ " 20 x 5/ " No Serretion
44. 45.	G10960 GD13607	2 1	Flanged Whiz-Lock Screw, 1/4"-20 x 5/8", No Serration Cover
46.	GD13606	i	Input Spur Gear
47.	GD13608	1	Output Shaft
48. 49.	GA9666 G10019	1 4	Shaft Housing Hex Head Cap Screw, 5/16"-18 x 1"
10.	G10019	4	Lock Nut, 5/16"-18
50.	G10641	2	Grease Fitting, 1/8" NPT
51. 52.	GD13609 GD13610	2 1	Detent Ball Detent Spring
52. 53.	GD13610 GD13604	3	Bushing
54.	GD13611	1	Input Shaft
A.	GA9504	-	2-Speed Jack/Mount Sub-Assembly (Items 2-9, 30, 31 And 33)

P37 Rev. 10/04

FRONT HITCH ASSEMBLY (REAR SECTION)

PHA029/PFA057(FF2c)

1.

2.

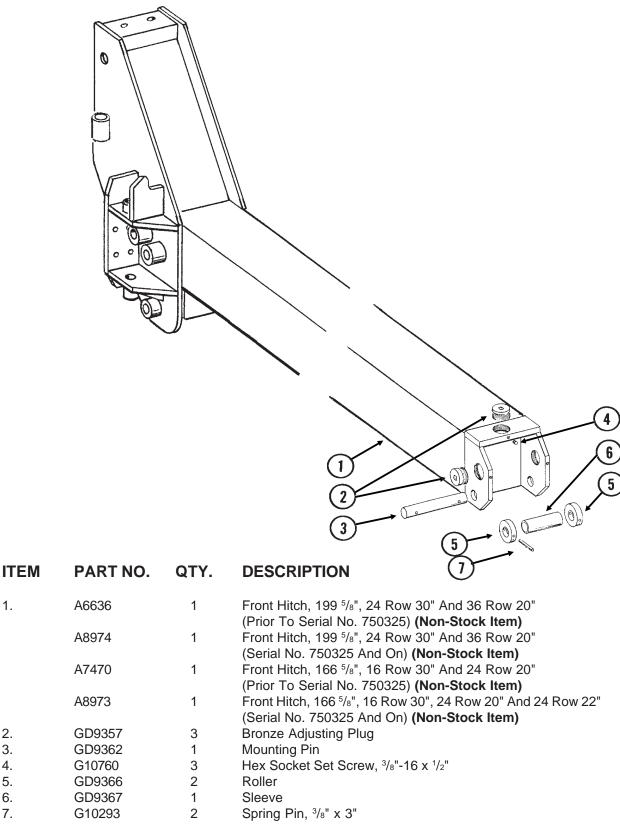
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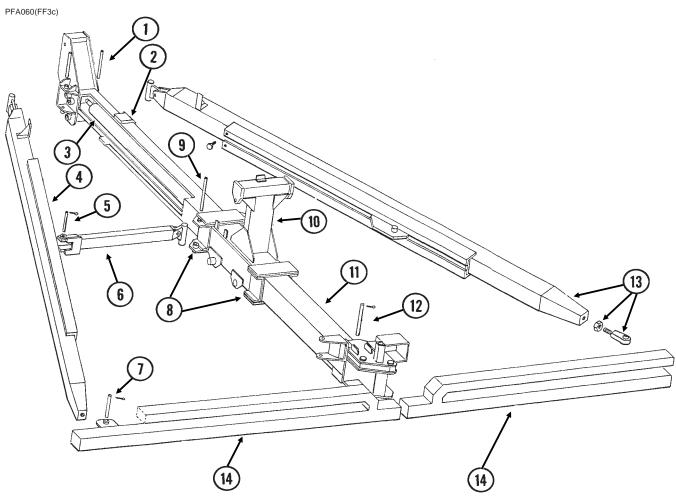
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24 Row 30"/36 Row 20" Shown



P38 Rev. 10/04

HITCH AND LINKAGE ASSEMBLY, 24 ROW 30" AND 36 ROW 20"

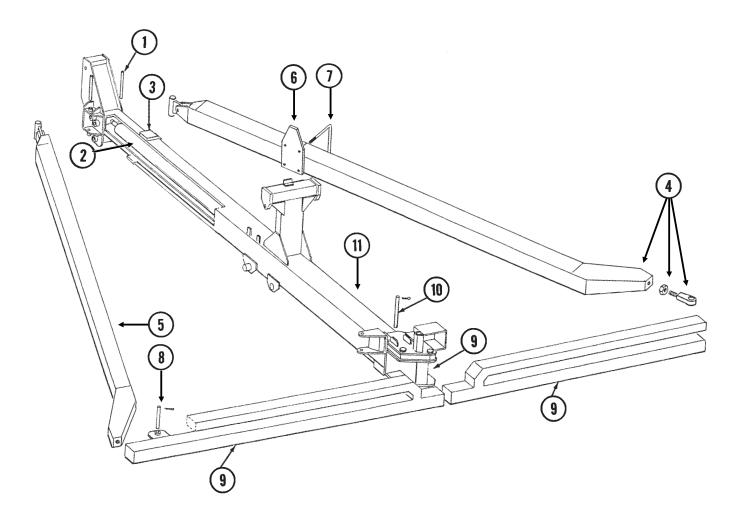


ITEM	PART NO.	QTY.	DESCRIPTION	
1.		-	See "Front Hitch Assembly", Pages P32-P38	
2.		-	See "Front Wear Pads", Page P42	
3.		-	See "Tongue Cylinder", Page P87	
4.	GA7453	1	L.H. Draft Link W/Split Locking Nut, Socket Head Screw Ar	nd Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2	
	G10831	-	Socket Head Screw, 1/4"-20 x 5/8"	
	GA6660	-	Joint	
5.	GD9542-03	2	Pin, 1 ¹ / ₄ " x 6 ¹ / ₈ "	
	G10460	4	Cotter Pin, 1/4" x 2"	
6.	GA6654	2	Axle Link	
7.	GD3421	2	Pin, 1 ¹ / ₄ " x 8 ³ / ₄ "	
	G10460	4	Cotter Pin, 1/4" x 2"	
8.		-	See "Rear Wear Pads", Page P43	
9.	GD9542-02	2	Pin, 1 ¹ / ₄ " x 14 ¹ / ₂ "	
	G10460	4	Cotter Pin, 1/4" x 2"	
10.		-	See "Tower Assembly", Pages P44 And P45	
11.	A6634	1	Rear Hitch (Non-Stock Item)	
12.	GD5506	1	Pin, 1 ¹ / ₄ " x 16"	
	G10460	2	Cotter Pin, 1/4" x 2"	
13.	GA7454	1	R.H. Draft Link W/Split Locking Nut, Socket Head Screw A	nd Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2	
	G10831	-	Socket Head Screw, 1/4"-20 x 5/8"	
	GA6660	-	Joint	
14.		-	See "Hinge And Wing Assemblies", Pages P50 And P51	
			P39	Rev. 10/04

Rev. 10/04

HITCH AND LINKAGE ASSEMBLY, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"

PFA060/PFA061(FF62)



P40 Rev. 7/03

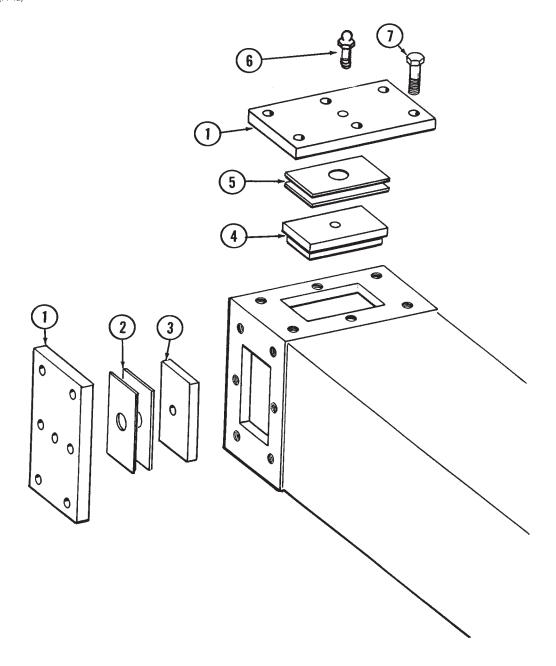
HITCH AND LINKAGE ASSEMBLY, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"

ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Front Hitch Assembly", Pages P32-P38
2.		-	See "Tongue Cylinder", Page P84
3.		-	See "Front Wear Pads", Page P42
4.	GA7476	1	R.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2
	G10831	-	Socket Head Screw, 1/4"-20 x 5/8"
	GA6660	-	Joint
5.	GA7475	1	L.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2
	G10831	-	Socket Head Screw, 1/4"-20 x 5/8"
	GA6660	-	Joint
6.	GA7490	2	Stop
7.	GD1113	4	U-Bolt, 5" x 7" x 5/8"-11
	G10230	8	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
8.	GD3421	2	Pin, 1 ¹ / ₄ " x 8 ³ / ₄ "
	G10460	4	Cotter Pin, 1/4" x 2"
9.		-	See "Hinge And Wing Assemblies", Pages P50 And P51
10.	GD5506	1	Pin, 1 ¹ / ₄ " x 16"
	G10460	2	Cotter Pin, 1/4" x 2"
11.	A7473	1	Rear Hitch (Non-Stock Item)

P41 Rev. 10/04

FRONT WEAR PADS, ALL SIZES

PFA059(FF4a)

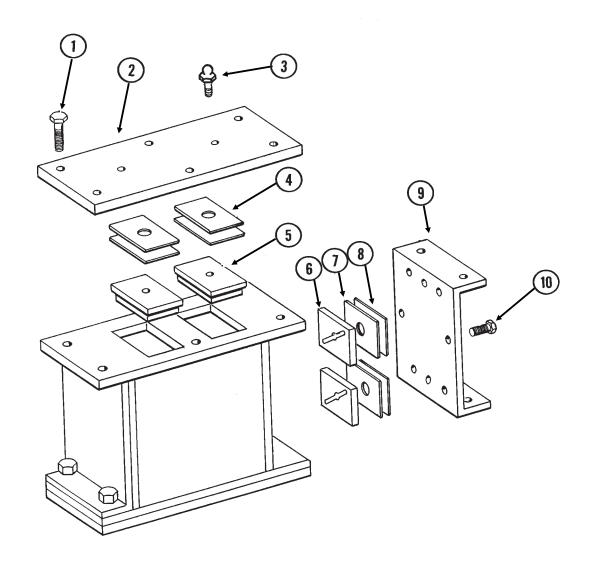


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9467	4	Сар
2.	GD9465	2	Shim, ³ / ₈ "
	GD10981	-	Shim, 1/4" (As Required)
3.	GD9468	2	Bearing Pad
4.	GA6655	2	Retainer Pad
5.	GD9498	6	Shim, 12 Gauge
6.	G10763	4	Grease Fitting, Extended, 1/8"-27
7.	G10007	24	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G10230	24	Lock Washer, 5/8"

P42 Rev. 7/03

REAR WEAR PADS, 24 ROW 30" AND 36 ROW 20"

PFA058(FF5a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10802	16	Hex Head Cap Screw, 3/4"-10 x 2 3/4"
	G10231 G10218	16 16	Lock Washer, ³ / ₄ " Washer, ³ / ₄ " USS
	G10105	16	Hex Nut, ³ / ₄ "-10
2.	GD9469	4	Retainer
3.	G10763	16	Grease Fitting, Extended, 1/8"-27
4.	GD9498	16	Shim, 12 Gauge
5.	GA6655	8	Retainer Pad
6.	GD9468	8	Bearing Pad
7.	GD9465	8	Shim, ³ / ₈ "
	GD10981	-	Shim, 1/4" (As Required)
8.	GD9498	8	Shim, 12 Gauge
9.	GA6731	4	Retainer
10.	G10025	32	Hex Head Cap Screw, 3/4"-10 x 1 1/2"
	G10231	32	Lock Washer, 3/4"
	G10215	32	Machine Bushing, 3/4", 14 Gauge

P43 Rev. 7/03

TOWER ASSEMBLY, 24 ROW 30" AND 36 ROW 20"

PFA061(FF6c) 9 🖫 000

P44 Rev. 7/03

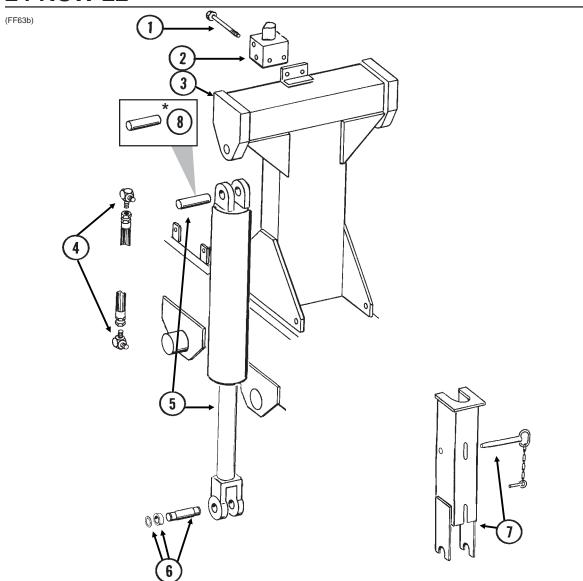
^{*} Use Item 9 with GA8961 slave cylinder only. See Page P78 for pin used with GA7879 slave cylinder.

TOWER ASSEMBLY, 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10326	2	Hex Head Cap Screw, 3/8"-16 x 3 3/4"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
2.		-	See "Valve Block On Tower Assembly", Page P94 Or P95
3.	A6639	1	Axle Mount (Non-Stock Item)
4.		-	See "Rear Wear Pads", Page P43
5.	G6801-08	4	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
6.		-	See "Slave Cylinder", Pages P78 And P79
7.	GD12545	2	Pin, 1 ¹ / ₄ " x 5 ¹ / ₂ "
	GD12535	4	Special Bushing, 2" O.D. x 1" I.D. x 3/4" Long
	G10982	4	HD External Retaining Ring, 1"
8.	GA8971	1	Cylinder Lockup Bracket W/Pin Assembly
	GA8312	-	Pin W/Lynch Pin, 5 ¹ / ₂ "
9.	GD12585	2	Pin, 1 1/4" x 4 1/2"
	G10460	4	Cotter Pin, 1/4" x 2"

P45 Rev. 10/04

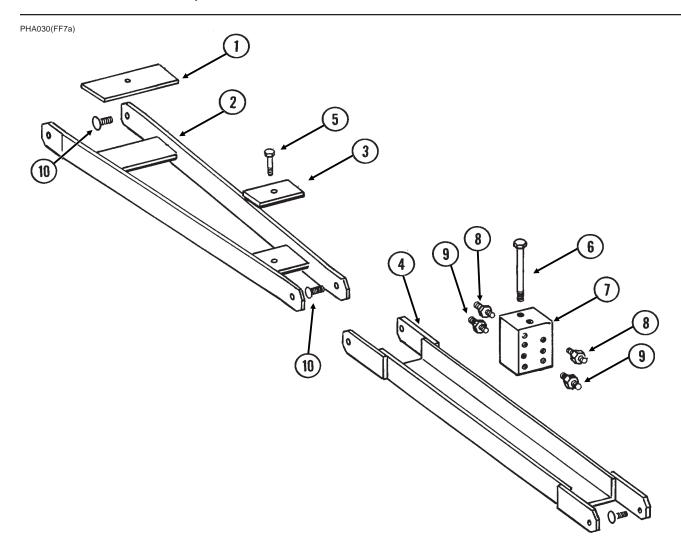
TOWER ASSEMBLY, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"



^{*} Use Item 8 with GA8961 slave cylinder only. See Page P78 for pin used with GA7877 slave cylinder.

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10326	2	Hex Head Cap Screw, 3/8"-16 x 3 3/4"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, ³ / ₈ "-16
2.		-	See "Valve Block On Tower Assembly", Pages P94 Or P95
3.		-	See "Hitch And Linkage, 16 Row 30", 24 Row 20" And 24 Row 22",
			Pages P40 And P41
4.	G6801-08	4	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
5.		-	See "Slave Cylinder", Pages P78 And P79
6.	GD12545	2	Pin, 1 ¹ / ₄ " x 5 ¹ / ₂ "
	GD12535	4	Special Bushing, 2" O.D. x 1" I.D. x ³ / ₄ " Long
	G10982	4	HD External Retaining Ring, 1"
7.	GA8971	1	Cylinder Lockup Bracket W/Pin Assembly
	GA8312	-	Pin W/Lynch Pin, 5 1/2"
8.	GD12585	2	Pin, 1 ¹ / ₄ " x 4 ¹ / ₂ "
	G10460	4	Cotter Pin, 1/4" x 2"
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HOSE TAKE-UP, 24 ROW 30" AND 36 ROW 20"

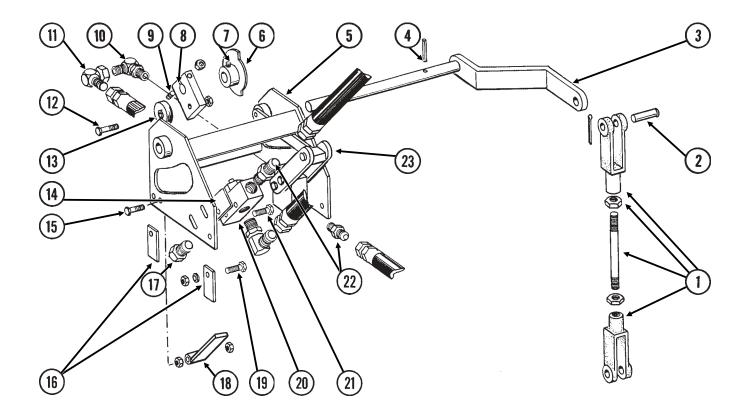


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD11895	1	Spacer, 4" x 8 ¹ / ₄ "
2.	GA6656	1	Front Hose Take-Up
3.	GD11894	1	Spacer, 4" x 5 ¹ / ₂ "
4.	GA6657	1	Rear Hose Take-Up
5.	G10038	2	Hex Head Cap Screw, 1/2"-13 x 3"
	G10111	2	Lock Nut, ¹ / ₂ "-13
6.	G10756	2	Hex Head Cap Screw, 3/8"-16 x 6"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
7.	GD9537	1	Block
8.	G6400-10-08	5	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
9.	G6400-08	7	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
10.	G10415	6	Carriage Bolt, 5/8"-11 x 2 1/4"
	GB0218	6	Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long
	GD7805	6	Special Washer, 5/8", Hardened
	G10107	6	Lock Nut, 5/8"-11

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STROKE LIMITER/DETENT VALVE ASSEMBLY AND LINKAGE

PHA031(FF8e)



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STROKE LIMITER/DETENT VALVE ASSEMBLY AND LINKAGE

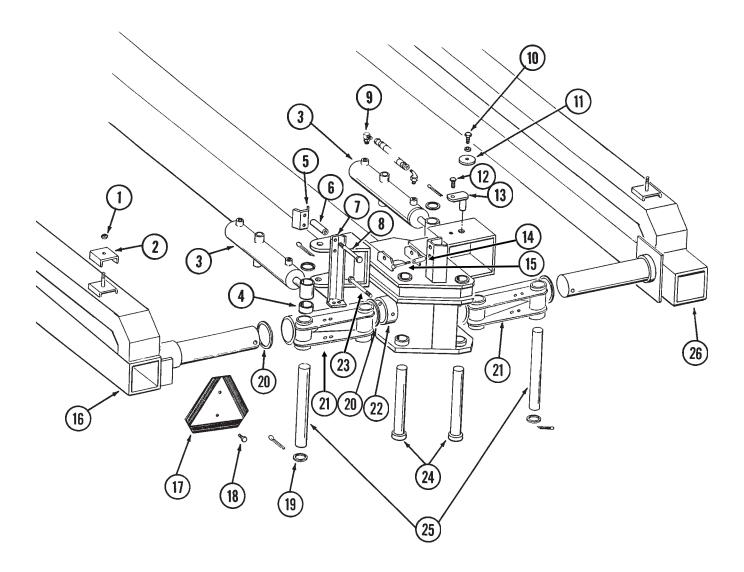
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA6646	1	Rod Assembly
	GD8218	-	Yoke
	GD9499	-	Stud
	G10104	-	Hex Nut, 5/8"-11
2.	G10284	2	Clevis Pin, 1/2" x 1 1/2"
	G10451	2	Cotter Pin, 1/8" x 1"
3.	GA6685	1	Cam Activator
4.	G10606	1	Spring Pin, 1/4" x 2"
5.	GA6687	1	Housing
6.	GA6686	1	Cam
7.	G10120	2	Hex Socket Set Screw, 3/8"-16 x 1/2"
8.	GD9511	1	Detent Arm
9.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10108	1	Lock Nut, ³ / ₈ "-16
10.	G6801-10-08	1	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
11.	G6500-10	1	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
12.	G10009	1	Hex Head Cap Screw, 5/8"-11 x 2 1/2"
	G10107	1	Lock Nut, ⁵ / ₈ "-11
13.	GA2014	1	Bearing
14.	GD10714	-	Spacer
15.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10101	2	Hex Nut, 3/8"-16
16.		-	See "Hitch And Linkage Assembly", Pages P39-P41
17.	G6408-08	1	Plug W/O-Ring, ³ / ₄ "-16 O-Ring
4.0	GR1037	-	O-Ring
18.	GA7153	1	Stroke Limiter Arm (If Applicable)
19.	G10004	4	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ¹ / ₄ "
	G10229	4	Lock Washer, ³ / ₈ "
00	G10101	4	Hex Nut, ³ / ₈ "-16
20.	0.40000	-	See "Stroke Limiter Valve", Page P101
21.	G10069	2	Hex Head Cap Screw, 5/16"-18 x 2 1/4"
00	G10620	2	Flange Nut, ⁵ / ₁₆ "-18
22.	G6400-10-08	1	Connector W/O-Ring, ⁷ / ₈ "-14 Male JIC To ³ / ₄ "-16 O-Ring
22	GR1037	-	O-Ring See "Detent Lever Velve" Rage R100
23.		-	See "Detent Lever Valve", Page P100

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HINGE AND WING ASSEMBLIES

PFA062/PFA052(FF9c)

24 Row 30"/36 Row 20" Shown



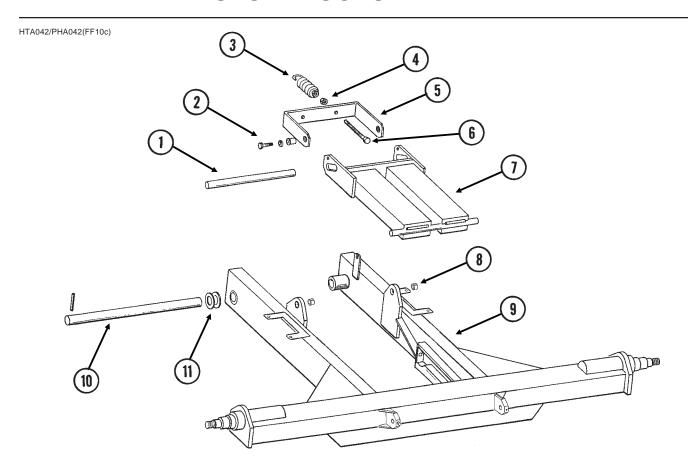
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HINGE AND WING ASSEMBLIES

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10111	-	Lock Nut, 1/2"-13
2.	GD0740	-	Hose Clamp, 3/4" x 4" x 3 1/2"
	GD0776	-	Hose Clamp, 3/4" x 2" x 2 1/2"
3.		-	See "Helper Cylinder", Pages P82 And P83
4.	GD9727	2	Spacer
5.	GD9361	2	Hose Guide
6.	GD3180-13	4	Sleeve, 5/8" I.D. x 7/8" O.D. x 4" Long
7.	GA6640	1	Bracket
8.	G10011	2	Hex Head Cap Screw, ⁵ / ₈ "-11 x 5 ¹ / ₂ "
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
9.	G6801-06-08	4	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
10.	G10026	2	Hex Head Cap Screw, 3/4"-10 x 2"
	G10231	2	Lock Washer, 3/4"
11.	GD9516	2	Pivot Washer
12.	G10017	4	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, ½"-13
13.	GA6761	4	Pin
14.	GD3180-06	2	Sleeve, 5/8" I.D. x 7/8" O.D. x 1 3/4" Long
15.	G10013	2	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G10036	-	Hex Head Cap Screw, 5/8"-11 x 4"
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
16.	GA9031	1	L.H. Wing, 360", 24 Row 30" And 36 Row 20"
	GA8847	1	L.H. Wing, 270 ³ / ₈ ", 24 Row 22"
	GA7459	1	L.H. Wing, 246 ³ / ₈ ", 16 Row 30" And 24 Row 20"
17.	GD2199	1	SMV Sign
18.	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
19.	G10360	4	Machine Bushing, 2 ¹ / ₂ ", 10 Gauge
20.	GD9462	6	Washer
21.	GA8137	-	Knuckle Less Grease Fittings
	G10640	3	Grease Fitting, 1/4"-28
22.	GD9463	2	Washer
23.	G10057	2	Hex Head Cap Screw, 3/4"-10 x 7"
	G10231	2	Lock Washer, 3/4"
	G10105	2	Hex Nut, ³ / ₄ "-10
24.	GA8994	-	Vertical Pin
	G10360	-	Machine Bushing, 2 1/2", 10 Gauge (As Required)
	G10359	-	Machine Bushing, 2 1/2", 18 Gauge (As Required)
	GD12692	-	Pin, ³ / ₈ " x 3 ¹ / ₂ "
25.	GD9726	2	Pin, 2 ¹ / ₂ " x 13 ¹ / ₈ "
	G10461	4	Cotter Pin, ³ / ₈ " x 3"
26.	GA9032	1	R.H. Wing, 357", 24 Row 30" And 36 Row 20"
	GA8848	1	R.H. Wing, 267 ³ / ₈ ", 24 Row 22"
	GA7462	1	R.H. Wing, 243 3/8", 16 Row 30" And 24 Row 20"

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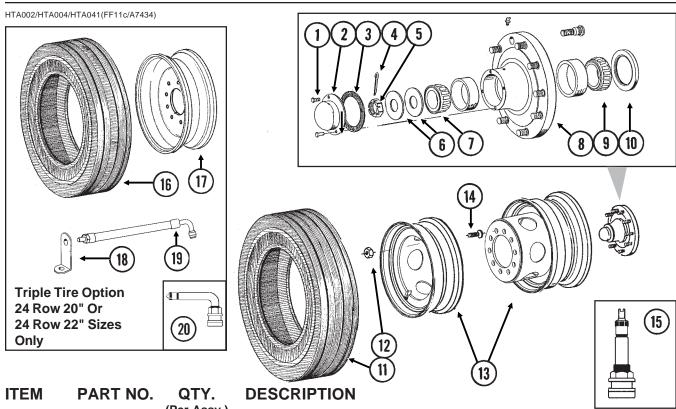
AXLE AND TRANSPORT LOCKUP



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD11783	1	Transport Rod, 1 ¹ / ₂ " x 14 ³ / ₄ "
2.	G10055	2	Hex Head Cap Screw, 5/8"-11 x 1 1/4"
	GD3180-24	2	Sleeve, ⁵ / ₈ " I.D. x ⁷ / ₈ " O.D. x ³ / ₈ " Long
	GD7805	2	Special Washer, 5/8", Hardened
3.	GA2068	2	Spring W/Plug
4.	G10102	2	Hex Nut, 1/2"-13
5.	GA6725	1	Mechanical Trip Actuator
6.	G10015	2	Adjusting Bolt, 1/2"-13 x 5"
7.	GA6658	1	Automatic Safety Lock
8.	GD11751	2	Steel Bushing, 1" Wide
9.	A9024	1	Axle W/Grease Fittings, 86 3/4", 16 Row 30" And 24 Row 30"
			(Non-Stock Item)
	A9025	-	Axle W/Grease Fittings, 96 3/4", 24 Row 20" And 36 Row 20"
			(Non-Stock Item)
	A8852	-	Axle W/Grease Fittings, 104 3/4", 24 Row 22"
			(Non-Stock Item)
	G10640	4	Grease Fitting, 1/4"-28
10.	GD9566-01	1	Pin, 2 ¹ / ₈ " x 31 ³ / ₈ "
	G10461	2	Cotter Pin, 3/8" x 3"
11.	G10234	4	Machine Bushing, 2 1/8", 10 Gauge

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TRANSPORT WHEEL AND HUB ASSEMBLY



ITEM	PART NO.	QTY.	DESCRIPTION			
		(Per Assy.)				
1.	G10376	4	Hex Head Cap Screw, 5/16"-18 x 3/4"			
2.	GD1529	1	Dust Cap			
3.	GD1536	1	Seal			
4.	G10460	1	Cotter Pin, 1/4" x 2"			
5.	G10070	1	Slotted Hex Nut, 1 1/4"-12			
6.	G10139	2	Washer, 1 ¹ / ₄ " USS			
7.	GA0705	1	Outer Bearing			
8.	GA5965	1	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"			
9.	GA5987	1	Inner Bearing			
10.	GA5988	1	Seal			
11.	GD9480	1	Tire, 36" x 16" x 17.5", 8 Ply, Tubeless (Specify Brand*), 16 Row 30",			
			24 Row 30" And 36 Row 20" (Prior To Serial No. 750404) (Sub GD13352	2)		
	GD13352	1	Tire, 36" x 16" x 17.5", 14 Ply, Tubeless (Specify Brand*), 16 Row 30",			
			24 Row 30" And 36 Row 20" (Serial No. 750404 And On)			
	GD10485	-	Tire, 255-70R 22.5", Tubeless (Specify Brand*), 24 Row 20" And 24 Row	22"		
			(Sub GD13409)			
	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*), 24 Row	20"		
			And 24 Row 22"			
12.	GD9509	10	Outer Budd Nut			
13.	GA6738	2	Rim, 18 ¹ / ₂ " Deep, 16 Row 30" And 24 Row 30"			
	GA7448	-	Rim, 16" Deep, 24 Row 20" And 36 Row 20"			
	GA7551	-	Rim, 13 ¹ / ₂ " Deep, 24 Row 20" And 24 Row 22"			
14.	GD9508	10	Inner Budd Nut, 2 1/4" Long			
	GD12567	-	Inner Budd Nut, 2 5/8" Long			
15.	GA7434	1	Valve Stem			
16.	GD13409	1	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)			
17.	GA8955	1	Center Rim Weld			
18.	GD12704	1	Bracket			
19.	GA9056	1	Air Hose			
20.	GA9139	1	Air Hose Elbow, 90°			

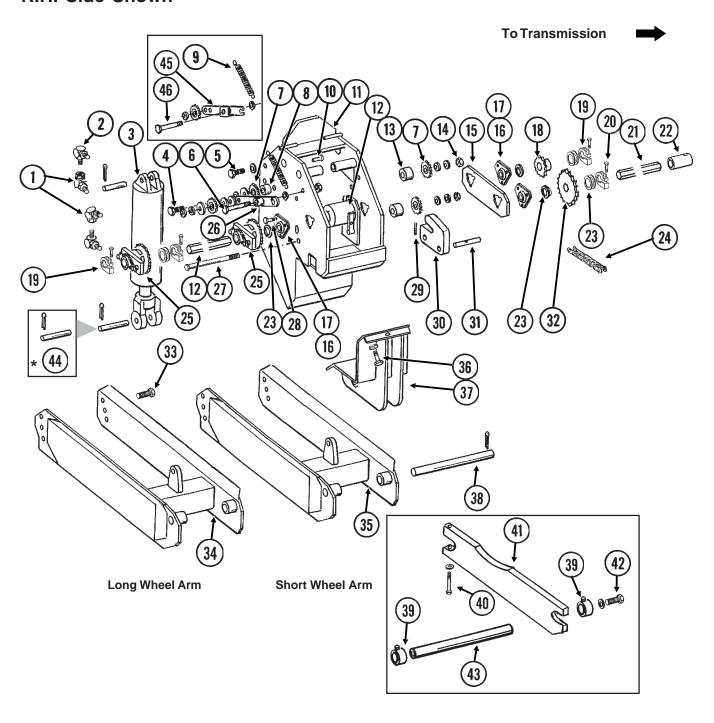
^{*} Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

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WHEEL MODULE ASSEMBLY

PFA056(FF83d)

R.H. Side Shown



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^{*} Use Item 44 with GA8928 master cylinder only. See Page P76 for pins used with GA7878 and GA7876 master cylinders.

WHEEL MODULE ASSEMBLY

 3. 4. 5. 6. 7. 8. 9. 10. 	G6502-08 G6801-08 GR1037 G10397 G10216 G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860 G10166	8 8 - - 4 4 4 4 4 4 8 4 4 8	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring See "Master Cylinder", Pages P76 And P77 Hex Head Cap Screw, 1/2"-13 x 2 3/4" Washer, 1/2" USS Lock Washer, 1/2" Hex Nut, 1/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11 Sprocket W/Bearing, 18 Tooth
3. 4. 5. 6. 7. 8. 9.	GR1037 G10397 G10216 G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	- - 4 4 4 4 - 4 8 4 4 8	O-Ring See "Master Cylinder", Pages P76 And P77 Hex Head Cap Screw, 1/2"-13 x 2 3/4" Washer, 1/2" USS Lock Washer, 1/2" Hex Nut, 1/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
3. 4. 5. 6. 7. 8. 9. 10.	G10397 G10216 G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 4 4 4 - 4 8 4 4 8	See "Master Cylinder", Pages P76 And P77 Hex Head Cap Screw, 1/2"-13 x 2 3/4" Washer, 1/2" USS Lock Washer, 1/2" Hex Nut, 1/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
4.5.6.7.8.9.10.	G10216 G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 4 4 4 - 4 8 4 4 8	Hex Head Cap Screw, 1/2"-13 x 2 3/4" Washer, 1/2" USS Lock Washer, 1/2" Hex Nut, 1/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
5. 6. 7. 8. 9.	G10216 G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 4 4 - 4 8 4 4 8	Washer, ¹/2" USS Lock Washer, ¹/2" Hex Nut, ¹/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, ⁵/8"-11 x 3 ³/4" Machine Bushing, ⁵/8", 14 Gauge Hex Nut, ⁵/8"-11 Lock Nut, ⁵/8"-11
5. 6. 7. 8. 9.	G10228 G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 4 - 4 8 4 4 8	Lock Washer, 1/2" Hex Nut, 1/2"-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
5. 6. 7. 8. 9.	G10102 G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 - 4 8 4 4 4 8	Hex Nut, ¹ / ₂ "-13 See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, ⁵ / ₈ "-11 x 3 ³ / ₄ " Machine Bushing, ⁵ / ₈ ", 14 Gauge Hex Nut, ⁵ / ₈ "-11 Lock Nut, ⁵ / ₈ "-11
5.6.7.8.9.10.	G10743 G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 8 4 4 8 4	See "Contact Drive Wheel Assembly", Pages P58 And P59 Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
7.8.9.10.	G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	4 8 4 4 8 4	Hex Head Cap Screw, 5/8"-11 x 3 3/4" Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
7. 8. 9. 10.	G10918 G10104 G10107 GA7154 GB0258 GD5857 G10860	8 4 4 8 4	Machine Bushing, 5/8", 14 Gauge Hex Nut, 5/8"-11 Lock Nut, 5/8"-11
7. 8. 9. 10.	G10104 G10107 GA7154 GB0258 GD5857 G10860	4 4 8 4	Hex Nut, ⁵ / ₈ "-11 Lock Nut, ⁵ / ₈ "-11
7. 8. 9. 10.	G10107 GA7154 GB0258 GD5857 G10860	4 8 4	Lock Nut, 5/8"-11
7. 8. 9. 10.	GA7154 GB0258 GD5857 G10860	8 4	
8. 9. 10.	GB0258 GD5857 G10860	4	Sprocket W/Rearing 18 Tooth
9. 10.	GD5857 G10860		optocket w/beating, to 100th
10.	G10860	-	Stepped Spacer, 7/8"
		4	Spring
	G10166	4	Retaining Ring, ³ / ₈ "
	O 10 100	4	Clevis Pin, 3/8" x 1 1/2"
11.	A7323	-	Wheel Tower (Non-Stock Item)
12.		-	See "Point Row Clutch", Pages P60 And P61 Or
			"Two-Speed Point Row Clutch", Pages P62 And P63
13.	GD10637	8	Stepped Spacer, 1/2"
14.	G10053	8	Hex Head Cap Screw, 1/2"-13 x 2 1/2"
	G10235	16	Machine Bushing, ⁷ / ₈ ", 14 Gauge
	G10228	8	Lock Washer, 1/2"
	G10102	8	Hex Nut, ¹ / ₂ "-13
15.	GD9482	2	Plate
16.	G2100-03	-	Bearing, ⁷ / ₈ " Hex Bore, Spherical
17.	G3400-01	-	Flangette
18.	GA5113	-	Sprocket, 28 Tooth
19.	GD11045	-	Lock Clamp
20.	G10130	-	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	-	Flange Nut, 5/16"-18, No Serration
21.	GD0914-24	1	Hex Shaft, 7/8" x 24" (No Holes), 24 Row 22", 24 Row 30" And 36 Row 20"
	GD0914-25	1	Hex Shaft, 7/8" x 25" (No Holes), 16 Row 30" And 24 Row 20"
	GD0914-63	1	Hex Shaft, 7/8" x 63" (No Holes), 16 Row 30", 24 Row 20" And 24 Row 30"
	GD0914-72	1	Hex Shaft, 7/8" x 72" (No Holes), 24 Row 22" And 36 Row 20"
22.		-	See "Transmission And Driveline", Pages P66-P68, Item 8
23.	G10233	-	Machine Bushing, 1", 10 Gauge (As Required)
24.	G3310-82	-	Chain, No. 40, 82 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
25.		2	See "Ratchet/Sprocket Assembly", Page P69
26.	GA6534	4	Idler W/Sprocket And Hardware
	GA7154	-	Sprocket W/Bearing, 18 Tooth
	G10017	-	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10128	-	Machine Bushing, 1/2", 14 Gauge
	G10501	-	Hex Jam Nut, 1/2"-13, Grade 2
	G10595	2	Hex Head Cap Screw, ³ / ₈ "-16 x 10"
	G10875	2	Hex Head Cap Screw, 3/8"-16 x 11"
	G10203	4	Washer, 3/8" SAE
	G10108	2	Lock Nut, 3/8"-16

(Continued On Following Page)

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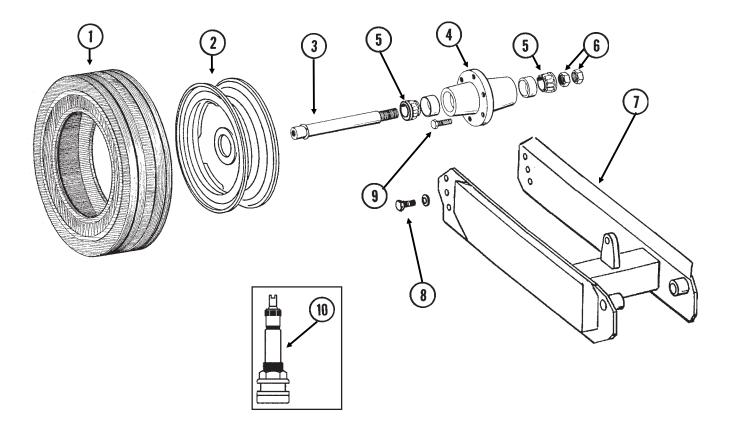
WHEEL MODULE ASSEMBLY

ITEM	PART NO.	QTY. (Per Machine)	DESCRIPTION
28.	G10338	6	Carriage Bolt, 5/16"-18 x 1 1/4"
	G10303	18	Carriage Bolt, 5/16"-18 x 1"
	G10232	24	Lock Washer, 5/16"
	G10106	24	Hex Nut, 5/16"-18
29.	G10606	4	Spring Pin, 1/4" x 2"
30.	GD9514	4	Cylinder Pivot Mount
31.	GD9515	4	Cylinder Anchor Pin, 1" x 6"
32.	GA5194	-	Sprocket, 50 Tooth
33.	G10026	16	Hex Head Cap Screw, 3/4"-10 x 2"
	G10231	16	Lock Washer, 3/4"
	G10105	16	Hex Nut, 3/4"-10
34.	GA8715	-	Long Wheel Arm W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
35.	GA8714	-	Short Wheel Arm W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28
36.	G10006	40	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	G10230	40	Lock Washer, 5/8"
	G10104	40	Hex Nut, 5/8"-11
37.	GA7324	4	Bracket W/Grease Fittings
	G10640	-	Grease Fitting, ¹ / ₄ "-28
38.	GD11695	4	Pin, 1 ¹ / ₄ " x 13 ¹ / ₄ "
	G10610	8	Spring Pin, 3/8" x 2"
39.	GD10686	-	Special Lock Collar, Less Set Screws
	G10145	-	Square Head Set Screw, 5/16"-18 x 1/2"
40.	G10035	-	Hex Head Cap Screw, 1/2"-13 x 4"
	G10228	-	Lock Washer, 1/2"
41.	GD10316	-	Plate, Special Row Spacing Only
42.	G10017	-	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	-	Lock Washer, 1/2"
43.	GD10317	-	Shaft, Special Row Spacing Only
44.	GD12585	8	Pin, 1 ¹ / ₄ " x 4 ¹ / ₂ "
	G10460	16	Cotter Pin, 1/4" x 2"
45.	GA9554	4	Idler W/Sprocket And Hardware, R.H.
	GA7154	-	Sprocket W/Bearing, 18 Tooth
	G10017	-	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10128	-	Machine Bushing, 1/2", 14 Gauge
	G10501	-	Hex Jam Nut, 1/2"-13, Grade 2
46.	G10036	4	Hex Head Cap Screw, 5/8"-11 x 4"
	G10918	8	Machine Bushing, ⁵ / ₈ ", 14 Gauge (If Applicable)
	G10104	4	Hex Nut, 5/8"-11
	G10107	4	Lock Nut, 5/8"-11
A.	G1K269	-	Lock Clamp Kit (Items 19 And 20)
,	3.1.250		

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GROUND DRIVE TIRE ASSEMBLY

PFA056/PTD057(FF13e/A7434)

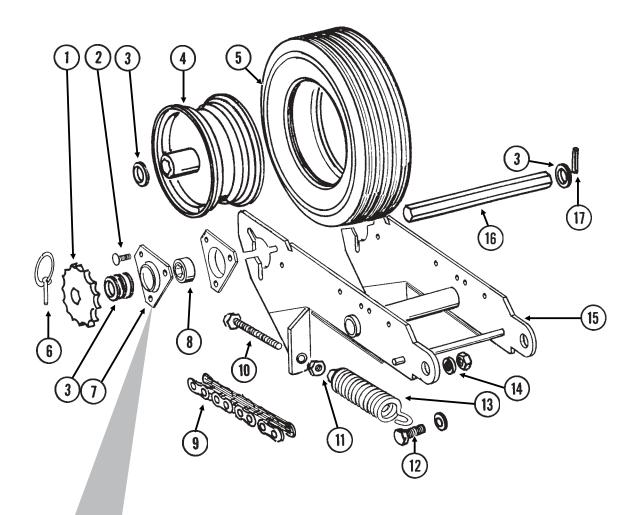


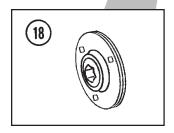
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD10485	1	Tire, 255-70R 22.5", Tubeless (Specify Brand*) (Sub GD13409)
	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)
2.	GA9619	-	Rim, 5.5" x 22.5"
3.	GA4376	1	Spindle W/Round External Retaining Ring, 10"
	GD11490	-	Round External Retaining Ring
4.	GA2148	1	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
5.	GA0895	2	Bearing
6.	G11081	2	Hex Jam Nut, 1 ¹ / ₂ "-12, Grade 2
7.		-	See "Wheel Module Assembly", Pages P54-P56
8.	G10026	2	Hex Head Cap Screw, 3/4"-10 x 2"
	G10231	2	Lock Washer, 3/4"
9.	GR0270	6	Lug Bolt, 9/16"-18
10.	GA7434	-	Valve Stem
A.	GA9620	-	Tire And Rim Assembly W/O Center Rib (Items 1, 2 And 10) (Specify Brand*)
B.	GA4377	-	Hub And Spindle Assembly (Itmes 3-6)

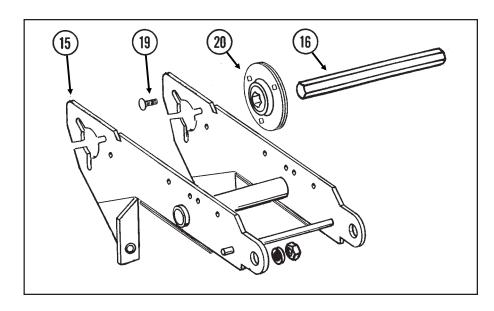
^{*} Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

P57 Rev. 7/03

PFA056/PLA32/PLA33(FF43d/PLTR150/FF43d)







P58 Rev. 10/04

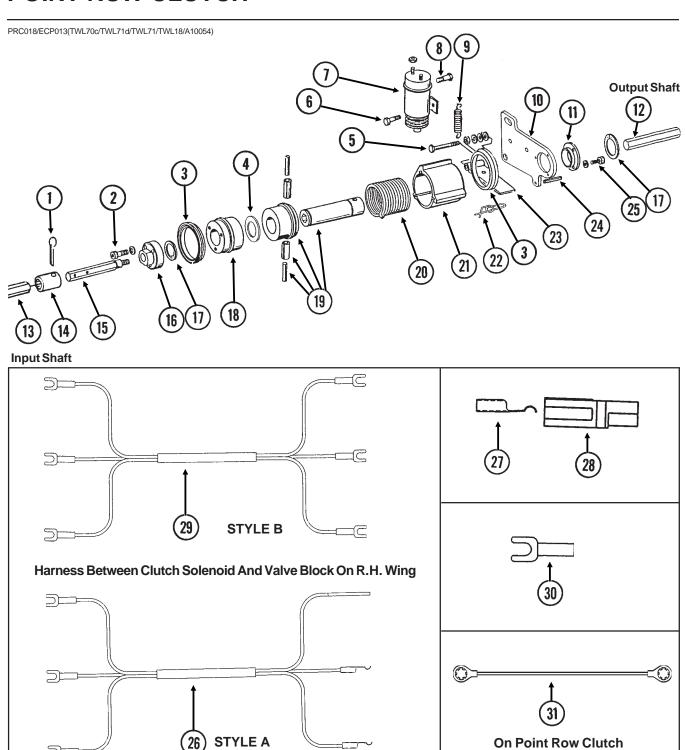
CONTACT DRIVE WHEEL ASSEMBLY

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GA5114	1	Sprocket, 30 Tooth
	GA5105	-	Sprocket, 15 Tooth, Half Rate (2 To 1) Drive
2.	G10303	6	Carriage Bolt, 5/16"-18 x 1"
	G10219	6	Washer, ⁵ / ₁₆ " USS
	G10232	6	Lock Washer, ⁵ / ₁₆ "
	G10106	6	Hex Nut, ⁵ / ₁₆ "-18
3.	G10233	-	Machine Bushing, 1", 10 Gauge (As Required)
4.	GA3553	1	Rim, 3.75" x 8"
5.	GD4700	1	Tire, 4.80" x 8", 6 Ply, Rib Implement (Specify Brand*)
	GD4701	-	Valve Stem
6.	GD2558	1	Lynch Pin, ¹ / ₄ "
7.	G3400-01	4	Flangette
8.	G2100-03	2	Bearing, ⁷ / ₈ " Hex Bore, Spherical
9.	G3310-152	1	Chain, No. 40, 152 Pitch Including Connector Link
	G3310-144	-	Chain, No. 40, 144 Pitch Including Connector Link,
			Half Rate (2 To 1) Drive
	GR0912	-	Connector Link, No. 40
10.	G10890	2	Hex Head Adjusting Bolt, 1/2"-13 x 4", Grade 2
11.	G10501	2	Hex Jam Nut, 1/2"-13, Grade 2
12.	G10008	2	Hex Head Cap Screw, 5/8"-11 x 2"
	G10235	4	Machine Bushing, ⁷ / ₈ ", 14 Gauge
	GD7805	2	Special Washer, 5/8", Hardened
	G10107	2	Lock Nut, 5/8"-11
13.	GA2068	2	Spring W/Plug
14.	GB0218	2	Bushing, ²¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x ¹⁹ / ₃₂ " Long
15.	GA7372	1	Wheel Arm
16.	GD6775	1	Hex Shaft, ⁷ / ₈ " x 11 ³ / ₄ " (2 Holes)
17.	G10602	2	Spring Pin, 1/4" x 1 1/2"
18.	GA8706	-	Flanged Bearing W/Grease Fitting, 7/8" Hex Bore (Sub GA9846)
	G10938	-	Grease Fitting, 1/4"-28, Taper Thread
19.	G10303	6	Carriage Bolt, ⁵ / ₁₆ "-18 x 1"
	G10232	6	Lock Washer, ⁵ / ₁₆ "
	G10106	6	Hex Nut, ⁵ / ₁₆ "-18
20.	GA9846	-	Flanged Bearing, ⁷ / ₈ " Hex Bore
A.	GA3552	-	Tire And Rim Assembly (Items 4 And 5) (Specify Brand*)

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^{*} 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.

POINT ROW CLUTCH



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10460	1	Cotter Pin, 1/4" x 2"
2.	G10374	3	Hex Socket Head Screw, 1/4"-20 x 1"
	G10227	3	Lock Washer, 1/4"
3.	GD14512	2	V-Ring Seal
4.	GD14513	1	Felt Washer

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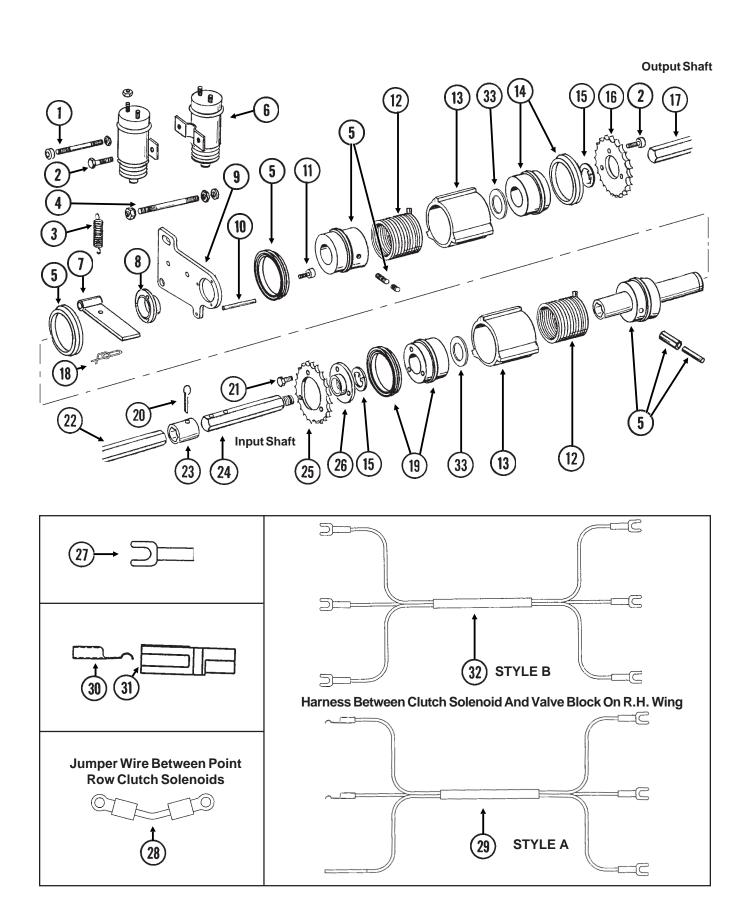
POINT ROW CLUTCH

G10101	ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION	
G10101	5.	G10049	1	Hex Head Cap Screw, ³ / ₈ "-16 x 2 ¹ / ₂ "	
G10223	-			·	
G10229 2 Lock Washer, %** G10497 1 Hex Jam Nut, ½*-16, Grade 2 G10023 1 Hex Head Cap Screw, ¼*-20 x ¾* G10027 1 Lock Washer, ¼* G10103 1 Hex Nut, ½*-20 G10103 1 Solenoid Complete G1306 1 Snap Ring G1303 1 Spring G1304 1 Boot G10900 1 Socket Head Cap Screw, ¼*-20 x 1 ¾*, Grade 8 G10927 1 Lock Washer, ¼* G10103 2 Hex Nut, ¼*-20 G10103 2 Hex Nut, ¼*-20 G10103 1 Mounting Plate D10103 1 Mounting Plate D10103 1 Mounting Plate D10103 1 Hex Shaft, ¼* x 10" (No Holes), 24 Row 30" G10967 1 Bushing G10914-42 1 Hex Shaft, ¼* x 40" (No Holes), 16 Row 30" And 24 Row 20" G10914-44 - Hex Shaft, ¼* x 40" (No Holes), 16 Row 30" And 24 Row 20" G10914-42 - Hex Shaft, ¼* x 42" (No Holes), 24 Row 22" G14. G10968 1 Input Shaft, R.H. Thread G101070 1 Coupler, ¾* x 42" (No Holes), 16 Row 30" G17. G10496 2 External Inverted Snap Ring, 1 ½* G10496 2 External Inverted Snap Ring, 1 ½* G10804 - Spring Pin, ½* x 1½* G10805 1 Row 30" GA7437 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, ½* x 1½* G10804 - Spring Pin, ½* x 1½* G10805 1 Spring Pin, ½* x 1½* G10806 1 Spring Pin, ½* x 1½* G10807 1 Spring Pin, ½* x 1½* G10809 1 Spring Pin, ½* x				,	
G10497 1 Hex Jam Nut. ¾n*-16, Grade 2 G10023 1 Hex Head Cap Screw, ¼-"-20 x ¾,** G10103 1 Hex Netad Cap Screw, ¼-"-20 x ¾,** G10103 1 Hex Nut. ¼-"-20 GR3393 1 Solenoid Complete GR1306 1 Snap Ring GR1303 1 Spring GR1304 1 Boot GR1305 1 Plunger GR1305 1 Plunger GR1306 1 Socket Head Cap Screw, ¼-"-20 x 1 ¾,**, Grade 8 GR1306 1 Spring GR1304 1 Boot GR1305 1 Plunger GR1306 1 Socket Head Cap Screw, ¼-"-20 x 1 ¾,**, Grade 8 GR10227 1 Lock Washer, ¼-* GR10103 2 Hex Nut. ¼-*-20 GR10103 1 Spring GR10103 1 Hex Nut. ¼-10 (No Holes) GR10227 1 Hex Shaft, ¼-¾ x 10** (No Holes), 24 Row 30** GR104-40 1 Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 30** GR10914-40 - Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 20** GR10914-42 - Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 22** GR10914-42 - Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 22** GR104-42 - Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 22** GR104-42 - Hex Shaft, ¼-¾ x 40** (No Holes), 24 Row 20** GR16 GR10070 1 Coupler, ¾-¾ x 40** (No Holes), 24 Row 20** GR17 GR10496 2 External Inverted Snap Ring, 1 ½-" GR1056 - Spring Pin, ½-" x 1½-" GR1057 - Spring Pin, ½-" x 1½-" GR1058 - Spring Pin, ½-" x 1½-" GR1059 - Spring Pin, ½-" x 2 ½-" GR10257 - Spring Pin, ½-" x 2 ½-					
Second Color					
G10227 G10103 G1	3				
Canal).				
GA8393 1 Solenoid Complete GR1306 1 Snap Ring GR1304 1 Boot GR1305 1 Plunger GR1305 1 Plunger GR1306 1 Socket Head Cap Screw, 1/4**-20 x 1 ³/4*, Grade 8 G10227 1 Lock Washer, 1/4**-20 GR10103 2 Hex Nut, 1/4**-20 GR10103 1 Spring GR10103 1 Spring GR10103 1 Spring GR10103 1 Mounting Plate GR10103 1 Mounting Plate GR10104 1 Hex Shaft, 7/6* x 40* (No Holes) GR10105 1 Hex Shaft, 7/6* x 40* (No Holes), 24 Row 30* GR0914-40 - Hex Shaft, 7/6* x 40* (No Holes), 16 Row 30* And 24 Row 20* GR0914-44 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0914-42 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0916-40 - Spring Pin, 1/6** GR0916-40 - Hex Shaft, 7/6* x 42* (No Holes), 36 Row 20* GR0916-40 - Spring Pin, 1/6* x 42* GR0916-40 - Spring Pin, 1/6* x 1* GR0916-40 - Spring Pin, 1/6* x 1/6* GR0916-40 - Spring Pin, 1/6* GR0916-40 - Wiring Harness, 228*, R.H. Side Of Machine, 16 Row 30*, 24 Row 20* GR0916-40 - Wiring Harness, 228*, R.H. Side Of Machine, All Sizes GR0916-4					
GR1306 GR1303 GR1303 GR1304 GR1305 GR1305 GR1305 GR1306 GR1305 GR1306 GR1306 GR1307 GR1307 GR1307 GR1307 GR1308 GR1308 GR1308 GR1309 GR	7				
GR1303 1 Spring GR1304 1 Boot GR1305 1 Plunger GR10227 1 Lock Washer, 1/4" GR10103 2 Hex Nut, 1/4"-20 x 1 ³/4", Grade 8 GR10227 1 Lock Washer, 1/4" GR10103 2 Hex Nut, 1/4"-20 x 1 ³/4", Grade 8 GR10227 1 Lock Washer, 1/4" GR10103 1 Spring GR10103 1 Spring GR10103 1 Mounting Plate GR10103 1 Mounting Plate GR10103 1 Mounting Plate GR10103 1 Hex Shaft, 7/6" x 10" (No Holes) GR10103 1 Hex Shaft, 7/6" x 40" (No Holes), 16 Row 30" And 24 Row 20" GR0014-40 - Hex Shaft, 7/6" x 40" (No Holes), 16 Row 30" And 24 Row 20" GR0014-44 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR0014-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" GR101006 1 Loupler W/R.H. Thread GR1010070 1 Coupler W/R.H. Thread GR1010070 1 Spring Pin, 1/4" x 1" GR1010070 1 Spring Pin, 1/4"	′ .				
GR1304 1 Boot GR1305 1 Plunger G10900 1 Socket Head Cap Screw, '/4"-20 x 1 3/4", Grade 8 G10227 1 Lock Washer, '/4" G10103 2 Hex Nut, '/4"-20 x 1 3/4", Grade 8 G10227 1 Lock Washer, '/4" G10103 2 Hex Nut, '/4"-20 x 1 3/4", Grade 8 G10103 1 Spring G10. GD10123 1 Spring G10. GD10123 1 Spring G10. GD10123 1 Bushing G11. GD9667 1 Bushing G11. GD9667 1 Bushing G11. GD9667 1 Hex Shaft, '/4" x 20" (No Holes), 24 Row 30" GD914-40 1 Hex Shaft, '/4" x 40" (No Holes), 24 Row 30" GD914-40 - Hex Shaft, '/4" x 42" (No Holes), 24 Row 22" GD0914-42 - Hex Shaft, '/4" x 44" (No Holes), 36 Row 20" GD9674-42 - Hex Shaft, '/4" x 42" (No Holes), 36 Row 20" GD9676 1 Coupler, 3" Coupler, 3" Coupler WR.H. Thread GD10070 1 Coupler WR.H. Thread GD10070 1 Coupler WR.H. Thread GD10070 1 Fund G10496 2 External Inverted Snap Ring, 1 1/2" G10496 2 External Inverted Snap Ring, 1 1/2" G10804 - Spring Pin, '/4" x 1" Spring Pin G101002 1 Stop Collar Rue Ring Cotter, '/1" Spring Pin, '/4" x 2 '/4" Spring Pin G10253 3 Hex Socket Head Screw, No. 10-32 x '/2" Let GA9479 1 Wiring Harness, 222", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 222", R.H. Side Of Machine, All Sizes Wiring Harness, 228", R.H. Side Of Machine, All Sizes G10257 Shop G12726 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes G10272 - Housing, Black G102726 - Housing, Black G102726 - Housing, Black G102726 - Housing, Red G10296 - Fork Terminal G1020 - G1020 - G1020 - G10200 -					
GR1305 1 Plunger G10900 1 Socket Head Cap Screw, '/a"-20 x 1 ³/a", Grade 8 G10927 1 Lock Washer, '/a" G10103 2 Hex Nut, '/a"-20 GD10123 1 Spring GD10123 1 Mounting Plate GD9914-10 1 Hex Shaft, '/a" x 32" (No Holes) GD9914-32 1 Hex Shaft, '/a" x 32" (No Holes), 24 Row 30" GD0914-44 - Hex Shaft, '/a" x 32" (No Holes), 24 Row 30" GD0914-44 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-43 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-44 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-43 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-44 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-45 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-40 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-41 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-43 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-44 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-45 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-40 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-41 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-42 - Hex Shaft, '/a" x 42" (No Holes), 36 Row 20" GD0914-40 - Spring Pin, '/a" x 4" GD0914-40 - Spring Pin, '/a" x			1		
G10900		GR1304	1	Boot	
G10227 G10103 G10103 G10103 G101023 G10103 G10104 G10103 G10104 G10104 G10104 G10104 G10104 G10104 G10105 G101068 G101070 G		GR1305	1	Plunger	
G10103 2 Hex Nut, ¹/a"-20 Spring D10. GD10123 1 Mounting Plate Bushing D12. GD0914-10 1 Hex Shaft, ¹/a" x 32" (No Holes), 24 Row 30" GD0914-32 1 Hex Shaft, ¹/a" x 42" (No Holes), 24 Row 30" GD0914-44 - Hex Shaft, ¹/a" x 42" (No Holes), 16 Row 30" And 24 Row 20" GD0914-42 - Hex Shaft, ¹/a" x 42" (No Holes), 24 Row 20" GD0914-42 - Hex Shaft, ¹/a" x 42" (No Holes), 36 Row 20" 15. GD10068 1 Input Shaft, R.H. Thread GD10070 1 Coupler, 3" GD0914-42 - External Inverted Snap Ring, 1 ¹/₂" GD0914-42 - Hex Shaft, ¹/a" x 42" (No Holes), 36 Row 20" 16. GD10070 1 Coupler WR.H. Thread GR010070 1 Spring Pin, ¹/a" x 1" GR01046 2 External Inverted Snap Ring, 1 ¹/₂" GR01046 3 Spring Pin, ¹/a" x 1" GR01040 4 Spring Pin, ⁵/a" x 1" GR01040 4 Spring Pin, ⁵/a" x 1" GR01040 4 Spring Pin, ⁵/a" x 1" GR01040 5 Spring Pin, ⁵/a" x 1" GR01040 6 Spring Pin, ⁵/a" x 2 ¹/a" GR010510 1 Actuator Arm GR010510 1 Actuator Arm GR0257 3 Lock Washer, No. 10 GR0483 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 GR0483 - Wiring Harness, 228", R.H. Side Of Machine, All Sizes GR0403 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GR0406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GR04706 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GR0530 - Contact Housing, Red GR01054 - Ground Cable, Green	3.	G10900	1	Socket Head Cap Screw, 1/4"-20 x 1 3/4", Grade 8	
GD10123		G10227	1	Lock Washer, 1/4"	
GD10123		G10103	2	Hex Nut, 1/4"-20	
O. GD10103).				
1. GD9667 1 Bushing				1 0	
2. GD0914-10 1 Hex Shaft, 7/s" x 10" (No Holes) 3. GD0914-30 1 Hex Shaft, 7/s" x 32" (No Holes), 24 Row 30" GD0914-40 - Hex Shaft, 7/s" x 40" (No Holes), 16 Row 30" And 24 Row 20" GD0914-44 - Hex Shaft, 7/s" x 40" (No Holes), 24 Row 22" GD0914-42 - Hex Shaft, 7/s" x 42" (No Holes), 36 Row 20" 4. GD7867 1 Coupler, 3" 5. GD10068 1 Input Shaft, R.H. Thread 6. GD10070 1 Coupler WR.H. Thread 7. G10496 2 External Inverted Snap Ring, 1 1/z" 8. GD10104 1 Input Hub 9. GA7137 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, 1/s" x 1" G10804 - Spring Pin, 1/s" x 1" G10804 - Spring Pin, 1/s" x 1" G10805 1 Rue Ring Cotter, 5/16" G2. GD11120 1 Stop Collar G2. GD11120 1 Rue Ring Cotter, 5/16" G10257 3 Lock Washer, No. 10 GA9483 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9403 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GD9530 - Contact GD9629 - Housing, Black GD12726 - Housing, Red G10. G10996 - Fork Terminal					
Section				8	
GD0914-40 GD0914-44 GD0914-42 GD0916 GD0914-42 GD0916 G					
GD0914-44	3.		ı		
GD0914-42 - Hex Shaft, 7/6" x 42" (No Holes), 36 Row 20" 4. GD7867 1 Coupler, 3" 5. GD10068 1 Input Shaft, R.H. Thread 6. GD10070 1 Coupler WR.H. Thread 7. G10496 2 External Inverted Snap Ring, 1 ½" 8. GD10104 1 Input Hub 9. GA7137 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, ½" x 1" G10804 - Spring Pin, ½" x 1" G10804 - Spring Pin, ½" x 2½" C1. GD10102 1 Stop Collar C2. GD11120 1 Rue Ring Cotter, ½" C3. GD10510 1 Actuator Arm C4. G10859 1 Spring Pin, ¾"s 2 ½" C4. G10859 1 Spring Pin, ¾"s 2 ½" C5. G10253 3 Hex Socket Head Screw, No. 10-32 x ½" C6. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 C24 Row 22" And 24 Row 30" C34 GA9483 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" C47 GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 C4 Row 30" C4 Row 30" C5 GA7403 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 C4 Row 30" C6 GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes C99. GD9529 - Housing, Black GD12726 - Housing, Black GD12726 - Housing, Red G10. G10996 - Fork Terminal GA10054 - Ground Cable, Green			-		
4. GD7867 1 Coupler, 3" 5. GD10068 1 Input Shaft, R.H. Thread 6. GD10070 1 Coupler W/R.H. Thread 7. G10496 2 External Inverted Snap Ring, 1 ¹/₂" 8. GD10104 1 Input Hub 9. GA7137 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, ¹/₄" x 1" G10804 - Spring Pin, ¹/₄" x 1" G10804 - Spring Pin, 5¹/₂" x 7²/₅" 60. GD9671 - Spring, L.H. 61. GD10102 1 Stop Collar 62. GD11120 1 Rue Ring Cotter, 5¹/₁₅" 63. GD10510 1 Actuator Arm 64. G10859 1 Spring Pin, ³/₁₅" x 2 ¹/₄" 65. G10253 3 Hex Socket Head Screw, No. 10-32 x ¹/₂" 66. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 6A9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 6A7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 6A7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 228", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GD9530 - Contact GD9529 - Housing, Black GD12726 - Housing, Red GD12726 - Housing, Red GD12726 - Fork Terminal GA10054 - Ground Cable, Green			-		
1					
6. GD10070 1 Coupler W/R.H. Thread 7. G10496 2 External Inverted Snap Ring, 1 ½" 8. GD10104 1 Input Hub 9. GA7137 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, ¼" x 1" G10804 - Spring Pin, ½" x 1" G10807 - Spring Pin, ½" x 1" G10809 1 Stop Collar G2. GD10102 1 Rue Ring Cotter, ½" G3. GD10510 1 Actuator Arm G4. G10859 1 Spring Pin, ¾" x 2 ¼" G10253 3 Hex Socket Head Screw, No. 10-32 x ½" G10257 3 Lock Washer, No. 10 GA9483 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20" GA9483 - Wiring Harness, 492", L.H. Side Of Machine, 16 Row 30", 24 Row 20" GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 16 Row 30", 24 Row 20" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes GD12726 - Housing, Black GD12726 - Housing, Red GD12726 - Fork Terminal GA10054 - Ground Cable, Green					
17. G10496 2 External Inverted Snap Ring, 1 1/2" 8. GD10104 1 Input Hub 9. GA7137 1 Hub/Sleeve Assembly W/Spring Pins G10765 - Spring Pin, 1/4" x 1" G10804 - Spring Pin, 5/32" x 7/6" 20. GD9671 - Spring, L.H. G1010102 1 Stop Collar G2. GD11120 1 Rue Ring Cotter, 5/16" G2. GD11120 1 Actuator Arm G2. GD10510 1 Actuator Arm G2. G10253 3 Hex Socket Head Screw, No. 10-32 x 1/2" G2. G10257 3 Lock Washer, No. 10 G3. G10257 3 Lock Washer, No. 10 G4. G4. G4. G4. G4. G4. G5. G5. G5. G5. G5. G5. G6. G4. G5. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6. G6			1		
18. GD10104 1	16.	GD10070	1	Coupler W/R.H. Thread	
GA7137	17.	G10496	2	External Inverted Snap Ring, 1 1/2"	
G10765 G10804 G10804 G10804 G10804 G10804 G1080671 G108067 G1	8.	GD10104	1	Input Hub	
G10765 G10804 G10804 G10804 G10804 G10804 G1080671 G108067 G1080	19.	GA7137	1	Hub/Sleeve Assembly W/Spring Pins	
G10804 - Spring Pin, 5/32" x 7/8" 20. GD9671 - Spring, L.H. 21. GD10102 1 Stop Collar 22. GD11120 1 Rue Ring Cotter, 5/16" 23. GD10510 1 Actuator Arm 24. G10859 1 Spring Pin, 3/16" x 2 1/4" 25. G10253 3 Hex Socket Head Screw, No. 10-32 x 1/2" G10257 3 Lock Washer, No. 10 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal 31. GA10054 - Ground Cable, Green		G10765	-		
20. GD9671 - Spring, L.H. 21. GD10102 1 Stop Collar 22. GD11120 1 Rue Ring Cotter, 5/16" 23. GD10510 1 Actuator Arm 24. G10859 1 Spring Pin, 3/16" x 2 1/4" 25. G10253 3 Hex Socket Head Screw, No. 10-32 x 1/2" 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes Contact GD9530 - Contact GD9529 - Housing, Black GD12726 - Housing, Red GD1096 - Fork Terminal GA10054 - Ground Cable, Green			-		
21. GD10102 1 Stop Collar 22. GD11120 1 Rue Ring Cotter, ⁵ / ₁₆ " 23. GD10510 1 Actuator Arm 24. G10859 1 Spring Pin, ³ / ₁₆ " x 2 ¹ / ₄ " 25. G10253 3 Hex Socket Head Screw, No. 10-32 x ¹ / ₂ " 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red GD12726 - Housing, Red GD12726 - Fork Terminal GR10054 - Ground Cable, Green	20		_	. •	
22. GD11120 1 Rue Ring Cotter, 5/16" 23. GD10510 1 Actuator Arm 24. G10859 1 Spring Pin, 3/16" x 2 1/4" 25. G10253 3 Hex Socket Head Screw, No. 10-32 x 1/2" 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" 27. GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" 28. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, All Sizes 29. GA7406 - Wiring Harness, 492", L.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" 29. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red GA10054 - Ground Cable, Green					
23. GD10510 1 Actuator Arm 24. G10859 1 Spring Pin, $\frac{3}{16}$ " x 2 $\frac{1}{4}$ " 25. G10253 3 Hex Socket Head Screw, No. 10-32 x $\frac{1}{2}$ " C6. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" C6. GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" C7. GA7405 1 Wiring Harness, 492", L.H. Side Of Machine, All Sizes C8. GA7403 - Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" C9. GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" C9. GD9530 - Wiring Harness, 492", L.H. Side Of Machine, 36 Row 20" C9. GD9529 - Housing, Black C90. GD12726 - Housing, Red C90. G10996 - Fork Terminal C91. GA10054 - Ground Cable, Green					
24. G10859 1 Spring Pin, $^3/_{16}$ " x 2 $^1/_4$ " 25. G10253 3 Hex Socket Head Screw, No. 10-32 x $^1/_2$ " 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal Ground Cable, Green					
25. G10253 3 Hex Socket Head Screw, No. 10-32 x ½" G10257 3 Lock Washer, No. 10 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal GA10054 - Ground Cable, Green					
G10257 3 Lock Washer, No. 10 26. GA9479 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20'				• •	
26. GA9479 GA9483 GA9512 GA7405 GA7406 GA7406 GB8. GD9530 GD9529 GD9529 GD9529 GA10054 GA9483 GA9483 GA9483 GA9483 GA9483 GA9483 GA9483 GA9512 Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" Wiring Harness, 492", L.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" Wiring Harness, 492", L.H. Side Of Machine, All Sizes Contact Housing, Black GD12726 GA10054 GA10054 GR10996 GR10996 GR10996 GR10996 GR10996 GR10996 GR10996 GR10996 GR10996 GR10096	<u>2</u> 5.				
24 Row 22" And 24 Row 30" GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal GA10054 - Ground Cable, Green					
GA9483 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal GA10054 - Ground Cable, Green	26.	GA9479	1		
GA9512 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" Wiring Harness, 492", L.H. Side Of Machine, All Sizes Contact GD9530 - Contact GD9529 - Housing, Black GD12726 - Housing, Red G10996 - Fork Terminal GA10054 - Ground Cable, Green					
27. GA7405 1 Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20 24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes 28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal GA10054 - Ground Cable, Green		GA9483	-		
24 Row 30" GA7403 - Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20" GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes C8. GD9530 - Contact C9. GD9529 - Housing, Black GD12726 - Housing, Red G10996 - Fork Terminal GA10054 - Ground Cable, Green		GA9512	-		
GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes Contact GD9529 - Housing, Black GD12726 - Housing, Red G10996 - Fork Terminal GA10054 - Ground Cable, Green	27.	GA7405	1	Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20" And 24 Row 30"	
GA7406 - Wiring Harness, 492", L.H. Side Of Machine, All Sizes Contact GD9529 - Housing, Black GD12726 - Housing, Red G10996 - Fork Terminal GA10054 - Ground Cable, Green		GA7403	-		
28. GD9530 - Contact 29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal 31. GA10054 - Ground Cable, Green			-		
29. GD9529 - Housing, Black GD12726 - Housing, Red 30. G10996 - Fork Terminal 31. GA10054 - Ground Cable, Green	28		-		
GD12726 - Housing, Red 30. G10996 - Fork Terminal 31. GA10054 - Ground Cable, Green			_		
30. G10996 - Fork Terminal 31. GA10054 - Ground Cable, Green	٥.		-	-	
31. GA10054 - Ground Cable, Green	00		-		
			-		
A. GA7111 - Point Row Clutch Assembly, L.H. (Items 2-11, 17-25 And 31)	37.	GA10054	-	Ground Cable, Green	
· · · · · · · · · · · · · · · · · · ·	۹.	GA7111	-	Point Row Clutch Assembly, L.H. (Items 2-11, 17-25 And 31)	

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TWO-SPEED POINT ROW CLUTCH

PRC023(FF47b/A7274/TWL71/TWL18/A10054)



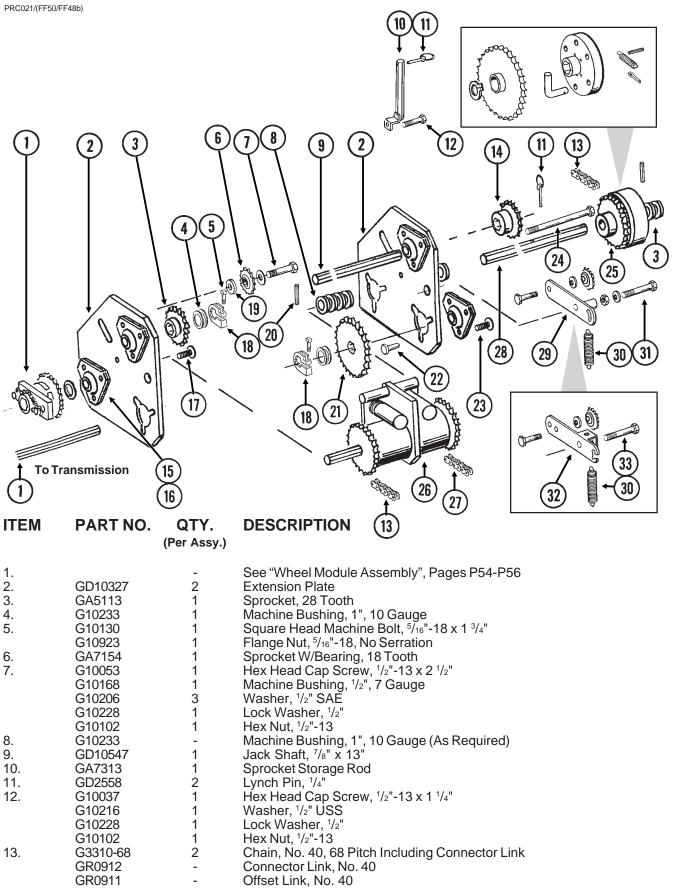
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TWO-SPEED POINT ROW CLUTCH

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD10635	1	Threaded Rod, 1/4"-20 x 3 1/2"
	G10103	2	Hex Nut, 1/4"-20
	G10227	2	Lock Washer, 1/4"
_	GD10282	2	Allen Nut, 1/4"-20
2.	G10023	4	Hex Head Cap Screw, ¹ / ₄ "-20 x ³ / ₄ "
	G10227	4	Lock Washer, 1/4"
0	G10103	1	Hex Nut, 1/4"-20
3.	GD10123	2	Spring
4.	GD10636	1	Threaded Rod, 3/8"-16 x 4 1/4"
	G10108	2	Lock Nut, ³ / ₈ "-16
	G10229	2	Lock Washer, ³ / ₈ "
5.	G10101 GA7463	2 1	Hex Nut, ³ / ₈ "-16 Hub/Sleeve Assembly W/Seals, Sleeve, Pins And Screws
5.	GD10120	-	Seal
	GD10120 GD10584	-	Sleeve
	G10873	-	Hex Socket Set Screw, 5/16"-18 x 3/4"
	G10873	-	Hex Socket Set Screw, ^{7/6} "-18 x ¹ / ₄ "
	G10804	-	Spring Pin, 5/32" x 7/8"
	G10765	-	Spring Pin, 1/4" x 1"
6.	GA8393	2	Solenoid Complete
0.	GR1306	-	Snap Ring
	GR1303	-	Spring
	GR1304	-	Boot
	GR1305	-	Plunger
7.	GD10510	2	Actuator Arm
8.	GD10586	1	Bushing
9.	GD10103	1	Mounting Plate
10.	G10859	1	Spring Pin, ³ / ₁₆ " x 2 ¹ / ₄ "
11.	G10876	3	Hex Socket Head Screw, No. 10-32 x 1/4"
12.	GD9671	2	Spring, L.H.
	GD9672	-	Spring, R.H.
13.	GD10585	2	Stop Collar
14.	GA9572	1	Hub W/Seal
	GD10120	-	Seal
15.	G10496	2	External Inverted Snap Ring, 1 1/2"
16.	GD10579	1	Output Sprocket, 28 Tooth
17.	GD0914-10	1	Hex Shaft, ⁷ / ₈ " x 10" (No Holes)
18.	GD11120	2	Rue Ring Cotter, 5/16"
19.	GA9571	1	Hub W/Seal
20	GD10120	-	Seal
20.	G10460	1	Cotter Pin, 1/4" x 2"
21.	G10374	3 3	Hex Socket Head Screw, 1/4"-20 x 1"
22.	GD10588 GD0914-32	3 1	Key Hex Shaft, ⁷ / ₈ " x 32" (No Holes), 24 Row 30"
22.	GD0914-32 GD0914-40	1	Hex Shaft, 7/8" x 40" (No Holes), 24 Row 20" And 16 Row 30"
	GD0914-44	-	Hex Shaft, 7/8" x 44" (No Holes), 24 Row 22"
	GD0914-42	_	Hex Shaft, 7/8" x 42" (No Holes), 36 Row 20"
23.	GD7867	1	Coupler, 3"
24.	GD10068	1	Input Shaft, R.H. Thread
25.	GD10578	1	Input Sprocket, 28 Tooth
26.	GD10638	1	Coupler W/R.H. Thread
27.	G10996	-	Fork Terminal
28.	GA7274	1	Jumper Wire W/Ring Terminals, 2 ³ / ₁₆ "
29.	GA7405	1	Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20"
			And 24 Row 30"
	GA7403	-	Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20"
	GA7406	-	Wiring Harness, 492", L.H. Side Of Machine, All Sizes
30.	GD9530	-	Contact
31.	GD9529	-	Housing, Black
	GD12726	-	Housing, Red
32.	GA9479	1	Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 24 Row 20",
			24 Row 22" And 24 Row 30"
	GA9483	-	Wiring Harness, 252", R.H. Side Of Machine, 36 Row 20"
	GA9512	-	Wiring Harness, 492", L.H. Side Of Machine, All Sizes
33.	GD14513	2	Felt Washer

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TWO-SPEED POINT ROW CLUTCH WHEEL MODULE EXTENSIONS



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TWO-SPEED POINT ROW CLUTCH WHEEL MODULE EXTENSIONS

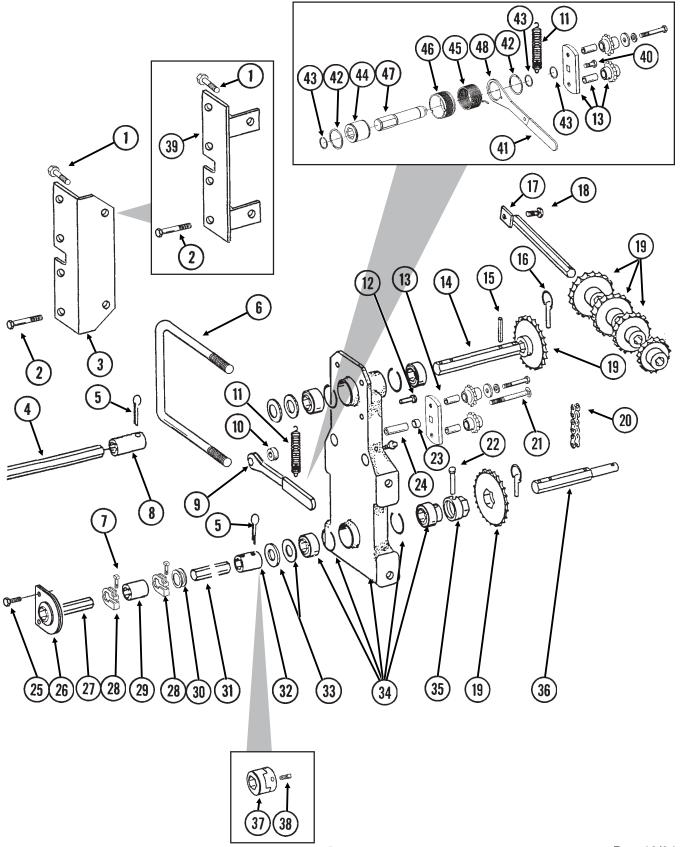
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
14.	GA5105	1	Sprocket, 15 Tooth
	GA5106	1	Sprocket, 17 Tooth
	GA5109	-	Sprocket, 24 Tooth
	GA5112	1	Sprocket, 27 Tooth
	GA5108	-	Sprocket, 23 Tooth (From Transmission)
	GA5110	-	Sprocket, 25 Tooth (From Transmission)
	GA5111	-	Sprocket, 26 Tooth (From Transmission)
15.	G3400-01	-	Flangette
16.	G2100-03	-	Bearing, 7/8" Hex Bore, Spherical
17.	G10338	3	Carriage Bolt, 5/16"-18 x 1 1/4"
	G10232	3	Lock Washer, 5/16"
40	G10106	3	Hex Nut, ⁵ / ₁₆ "-18
18. 10	GD11045	1	Lock Clamp
19. 20.	GD10637 G10602	1 2	Stepped Spacer, 1/2" Spring Pin, 1/4" v. 1.1/4"
20.	GA5194	1	Spring Pin, ¹ / ₄ " x 1 ¹ / ₂ " Sprocket, 50 Tooth
22.	G10408	1	Clevis Pin, ⁵ / ₁₆ " x ³ / ₄ "
22.	G10409	1	Retaining Ring, 5/16"
23.	G10302	9	Carriage Bolt, ⁵ / ₁₆ "-18 x ⁷ / ₈ "
20.	G10232	9	Lock Washer, 5/16"
	G10221	-	Washer, ⁵ / ₁₆ " SAE
	G10106	9	Hex Nut, ⁵ / ₁₆ "-18
24.	G10595	1	Hex Head Cap Screw, 3/8"-16 x 10"
	G10108	1	Lock Nut, 3/8"-16
25.	GA7321	-	Overrunning Sprocket Assembly, L.H.
	G10430	1	External Retaining Ring, 1 1/4"
	GD1255	6	L-Pin
	G10546	6	Spring Pin, ³ / ₁₆ " x 1 ¹ / ₄ "
	G10470	6	Cotter Pin, ⁵ / ₃₂ " x 1"
	GD10366	6	Spring
	GA7317 GA7319	1 1	Block Sprocket W/Bushing, 30 Tooth
26.	OAISIS	-	See "Two-Speed Point Row Clutch", Pages P62 And P63
27.	G3310-82	1	Chain, No. 40, 82 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
	GR0911	-	Offset Link, No. 40
28.	GD10548	1	Output Shaft, 7/8" x 12"
29.	GA7444	1	Idler W/Bolt-On Sprocket And Hardware
	GA7154	1	Sprocket W/Bearing, 18 Tooth
	G10128	1	Machine Bushing, 1/2", 14 Gauge
	G10017	1	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
00	G10501	1	Hex Jam Nut, ¹ / ₂ "-13, Grade 2
30.	GD5857	2	Spring
31.	G10013	1	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G10205 G10107	2 1	Washer, ⁵ / ₈ " SAE Lock Nut, ⁵ / ₈ "-11
	G10107 G10104	1	Hex Nut, ⁵ / ₈ "-11
32.	GA9919	1	Idler W/Sprocket And Hardware, R.H.
02.	GA7154	-	Sprocket W/Bearing, 18 Tooth
	G10017	_	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10128	-	Machine Bushing, 1/2", 14 Gauge
	G10501	-	Hex Jam Nut, 1/2"-13, Grade 2
33.	G10036	1	Hex Head Cap Screw, 5/8"-11 x 4"
	G10205	1	Washer, 5/8" SAE
	G10107	1	Lock Nut, 5/8"-11
	G10104	1	Hex Nut, ⁵ / ₈ "-11
۸	C41/200		Look Clamp Kit /Itama F Ard 40)
A.	G1K269	-	Lock Clamp Kit (Items 5 And 18)

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SEED RATE TRANSMISSION AND DRIVELINE

PTD041/PTD066/PTD062(FF42c/FF42d/PLTR157d/A10030a)

R.H. Side Shown



P66 Rev. 10/04

SEED RATE TRANSMISSION AND DRIVELINE

1. G10008 2 Hex Head Cap Screw, 5/4"-11 x 2" G10230 2 Lock Washer, 5/6" G10104 2 Hex Nut, 5/4"-11 2. G10028 4 Hex Head Cap Screw, 5/4"-10 x 3" G10231 4 Lock Washer, 7/4" G10105 2 Hex Nut, 5/4"-10 x 3" G10231 4 Lock Washer, 7/4" G10105 2 Hex Nut, 7/4"-10 3. G10105 1 Mount, 36 Row 20" Only 4 See "Wheel Module Assembly", Pages P54-P56 G10460 2 Cotter Pin, 7/4" x 2" G10107 2 Lock Nut, 5/4"-11 7. G10130 1 Square Head Machine Bolt, 5/16"-18 x 1 3/4" G10923 1 Flange Nut, 5/6"-141, No Serration G10923 1 Flange Nut, 5/6"-141, No Serration G10923 1 Flange Nut, 5/6"-141, No Serration G10445 - Coupler, 3" G10446 - Protective Closure G10445 - Protective Closure G10446 - Protective Closure G10447 1 Spacer, 3/6" G10478 1 Clevis Pin, 5/16" x 1" G10478 1 Clevis Pin, 5/16" x 1" G1029 - Rataining Ring, 5/16" G1029 - Sprocket, 12 Tooth G1029 - Lock Washer, 3/6" G10229 - Lock Washer, 3/6" G10228 - Lock Washer, 3/6" G10450 - Sprocket, 27 Tooth GA5100 - Sprocket, 27 Tooth GA5101 - Sprocket, 28 Toot	ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
Canal Ca	1.	G10008	2	Hex Head Cap Screw, ⁵ / ₈ "-11 x 2"
2. G10028 4 Hex Head Cap Screw, 3/4"-10 x 3" G10105 2 Hex Nut, 1/4"-10 3. GD10315 1 Mount, 36 Row 20" Only 4 See "Wheel Module Assembly", Pages P54-P56 5. G10460 2 Cotter Pin, 1/4" x 2" 6. GD1114 1 U-Bolt, 7" x 7" x 3/6"-111 G10107 2 Lock Nut, 1/4"-11 G10107 1 Square Head Machine Bolt, 5/40"-18 x 1 3/4" G10923 1 Flange Nut, 1/6"-18, No Serration G10923 1 Flange Nut, 1/6"-18, No Serration G10923 1 Flange Nut, 1/6"-18, No Serration G10943 1 Ratchet Arm W/Protective Closure G10445 - Protective Closure G10445 - Protective Closure G10445 - Protective Closure G10446 - Sprocket, 12 Tooth G10409 1 Retaining Ring, 5/40" G10210 - Sprocket, 12 Tooth G10220 - Sleeve, 1 3/4" Log G10221 - Washer, 3/4" USS G10229 - Lock Washer, 3/4" G10047 - Hex Head Cap Screw, 3/6"-16 x 1 3/4" G10602 3 Spring Pin, 1/4" x 7 1/2" G10602 1 Spring Fin, 1/4" x 7 1/2" G10228 1 Lock Washer, 3/4" G10017 1 Hex Head Cap Screw, 1/2" G1048 G1010 1 Sprocket, 12 Tooth GA5106 1 Sprocket, 17 Tooth GA5108 2 Sprocket, 17 Tooth GA5109 1 Sprocket, 27 Tooth GA5101 1 Sprocket, 27 Tooth GA5101 1 Sprocket, 27 Tooth GA5103 1 Sprocket, 27 Tooth GA5104 1 Sprocket, 27 Tooth GA5105 1 Sprocket, 27 Tooth GA5107 1 Sprocket, 27 Tooth GA5108 2 Sprocket, 27 Tooth GA5110 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 27 Tooth GA5110 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth GA5114 1 Sprocket, 27 Tooth GA5155 1 Colver Pin, 1/40" X 2" G10455 1 Colver Pin, 1/40" X 2"		G10230		Lock Washer, 5/8"
G10231		G10104	2	Hex Nut, 5/8"-11
G10105 C	2.	G10028	4	Hex Head Cap Screw, 3/4"-10 x 3"
3. GD10315 1 Mount, 36 Row 20" Only 4.		G10231	4	Lock Washer, 3/4"
 4. - See "Wheel Module Assembly", Pages P54-P56 5. G10460 2 Cotter Pin, '\a'' x 2" 6. GD1114 1 U-Bolt, 7" x 7" x 3\b'''s"-11 7. G10130 1 Square Head Machine Bolt, \b\frac{\b'}{\chin*}-18 x 1 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		G10105	2	Hex Nut, 3/4"-10
 5. G10460 2 Cotter Pin, ½* x²* 6. GD1114 1 U-Bolt, 7* x 7* x 5½*-11 G10107 2 Lock Nut, ¾**-11 7. G10130 1 Square Head Machine Bolt, ½**-*18 x 1 ¾** 8. GD7867 - Coupler, 3* 9. GA4235 1 Ratchet Arm W/Protective Closure G10445 - Protective Closure 10. GD10161 1 Spacer, ¾* 11. GD5857 1 Spring 12. G10478 1 Clevis Pin, ½*** x 1** G10409 1 Retaining Ring, ½*** x 1** G10409 1 Retaining Ring, ½*** x 1** G1026 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 ¾*** Long G10270 - Washer, ¾** USS G10270 - Washer, ¾** x 7** G10607 - Hex Head Cap Screw, ¾**-16 x 1 ¾** G10602 3 Spring Pin, ¼** x 1 ½** G10602 3 Spring Pin, ¼** x 1 ½** G1028 1 Cok Washer, ¾** G1029 1 Hex Head Cap Screw, ½**-13 x 1 ½** G10228 1 Lock Washer, ½** G10017 1 Hex Head Cap Screw, ½**-13 x 1 ½** G10228 1 Lock Washer, ½** G10228 1 Lock Washer, ½** G10228 1 Lock Washer, ½** G10102 1 Hex Nut, ½**-13 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, 27 Tooth GR0912 - Connector Link, No. 40 G10455 1 Cotter Pin, ½**-13 x 5** G10455 1 Cotter Pin, ½**-13 x 5** G10455 1 Cotter Pin, ½**-13 x 5** G10455 1 Cotter Pin, ½**-13 x ½* G10455 1 Cotter Pin, ½**-13 x ½* G10455 1 Cotter Pin, ½**-10 Long G10455 1 Cotter Pin, ½**-13 x ½* G10455 1 Cotter Pin, ½**-10 Long 	3.	GD10315	1	Mount, 36 Row 20" Only
6. GD1114	4.		-	See "Wheel Module Assembly", Pages P54-P56
G10107 2 Lock Nut, 5/s, 1-1	5.	G10460	2	Cotter Pin, 1/4" x 2"
7. G10130 1 Square Head Machine Bolt, \$\frac{5}{16}"-18 \times 1 \frac{3}{4}" 8. GD7867 - Coupler, 3" 9. GA4235 1 Ratchet Arm W/Protective Closure G10445 - Protective Closure G10445 - Protective Closure G10446	6.	GD1114	1	U-Bolt, 7" x 7" x ⁵ / ₈ "-11
8. G10923 1 Flange Nut, 5/16"-18, No Serration 8. GD7867 - Coupler, 3" 9. GA4235 1 Ratchet Arm W/Protective Closure 10. G10445 - Protective Closure 11. GD5857 1 Spring 12. G10478 1 Clevis Pin, 5/16" x 1" G10409 1 Retaining Ring, 5/16" GD7426 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 3/16" Long G10210 - Washer, 7/6" USS G10229 - Lock Washer, 7/6" USS G10229 - Lock Washer, 7/6" 16 x 1 3/4" 14. GD5835 1 Shaft, 7/6" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" x 1 1/2" G10017 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10028 1 Lock Washer, 1/2" G10017 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10029 1 Lock Washer, 1/2" G10210 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10229 1 Lock Washer, 1/2" G1023 1 Lock Washer, 1/2" G1046 1 Sprocket, 17 Tooth GA5106 1 Sprocket, 17 Tooth GA5106 1 Sprocket, 19 Tooth GA5107 1 Sprocket, 23 Tooth GA5109 1 Sprocket, 24 Tooth GA5110 1 Sprocket, 25 Tooth GA5111 1 Sprocket, 27 Tooth GA5112 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 27 Tooth GA5112 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5112 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5112 1 Clevis Pin, 3/16" x 2" Connector Link, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Clevis Pin, 3/16" x 2" G10455 1 Clevis Pin, 3/16" x 2" Sleeve, 1 1/4" - O.D. x 1/2" Long		G10107	2	Lock Nut, 5/8"-11
8. GD7867 - Coupler, 3" 9. GA4235 1 Ratchet Arm W/Protective Closure 10. GD10161 1 Spacer, 3/s" 11. GD5857 1 Spring 12. G10478 1 Clevis Pin, 5/se" x 1" G10409 1 Retaining Ring, 5/se" x 1" G10409 1 Retaining Ring, 5/se" 13. GA7336 1 Idler W/Bolt-On Sprockets GD7426 - Sprocket, 12 Tooth GD1026 - Speeve, 1 3/se" Long G10210 - Washer, 3/s" USS G10210 - Washer, 3/s" USS G10047 - Hex Head Cap Screw, 3/s"-16 x 1 3/s" 15. G10602 3 Spring Pin, 1/s" x 7" 16. GD2558 3 Lynch Pin, 1/s" 17. GA5146 1 Sprocket Storage Rod 18. G10102 1 Hex Next, 1/s"-13 19. GA5106 1 Sprocket, 27 Tooth G	7.	G10130	1	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
9. GA4235 1 Ratchet Arm W/Protective Closure 10. GD10161 1 Spacer, 3/s" 11. GD5857 1 Spring 12. G10478 1 Clevis Pin, 5/s, x 1" 13. GA7336 1 Idler W/Bolt-On Sprockets GD7426 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 3/s, Log		G10923	1	Flange Nut, 5/16"-18, No Serration
G10445	8.	GD7867	-	Coupler, 3"
10. GD10161 1 Spacer, 3/s" 11. GD5857 1 Spring 12. G10478 1 Clevis Pin, 5/1e" x 1" G10409 1 Retaining Ring, 5/1e" GD7426 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 3/1e" Long G10210 - Washer, 3/s" USS G10229 - Lock Washer, 3/s" USS G10029 - Lock Washer, 3/s"-16 x 1 3/4" 14. GD5835 1 Shaft, 7/s" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" 17. GA5146 1 Sprocket Storage Rod 18. G10017 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G1028 1 Lock Washer, 1/2" G10028 1 Spring Pin, 1/4" x 1 1/2" G1028 1 Sprocket, 12 Tooth GA5107 1 Sprocket, 19 Tooth GA5108 2 Sprocket, 23 Tooth GA5110 1 Sprocket, 25 Tooth GA5111 1 Sprocket, 26 Tooth GA5111 1 Sprocket, 26 Tooth GA5113 1 Sprocket, 26 Tooth GA5113 1 Sprocket, 26 Tooth GA5113 1 Sprocket, 26 Tooth GA5111 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 28 Tooth GA5113 1 Sprocket, 28 Tooth GA5114 1 Sprocket, 28 Tooth GA515 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 Clevis Pin, 3/1e" x 1/2" 20. G3310-80 1 Clevis Pin, 3/1e" x 1/2" G10855 1 Cotter Pin, 1/1e" x 1/2" Cotter Pin, 1	9.	GA4235	1	Ratchet Arm W/Protective Closure
11. GD5857 1 Spring 12. G10478 1 Clevis Pin, \$/\cdots* x 1" G10409 1 Retaining Ring, \$/\cdots_c G10409 1 Retaining Ring, \$/\cdots_c GD7426 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 3/\cdots* Long G10210 - Washer, 3/\cdots* Long G10229 - Lock Washer, 3/\cdots* USS G10229 - Lock Washer, 3/\cdots* x 1 \delta x 1		G10445	-	Protective Closure
12. G10478	10.	GD10161	1	Spacer, ³ / ₈ "
G10409		GD5857	1	Spring
13. GA7336 1 Idler W/Bolt-On Sprockets GD7426 - Sprocket, 12 Tooth GD1026 - Sleeve, 1 3/1/8" Long G10229 - Lock Washer, 3/8" USS G10229 - Hex Head Cap Screw, 3/8"-16 x 1 3/4" 14. GD5835 1 Shaft, 7/8" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" 17. GA5146 1 Sprocket Storage Rod 18. 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 19. GA5106 1 Sprocket, 17 Tooth GA5107 1 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, 27 Tooth GA5114 1 Sprocket, 28 Tooth GA5115 1 Sprocket, 29 Tooth GA5110 1 Sprocket, 27 Tooth GA5111 1 Sprocket, 28 Tooth GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth GA5110 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/1/8" x 2" G10455 1 Cotter Pin, 1/1/8" x 1/2" Sleeve, 1 1/4" O.D. x 1/2" Long	12.	G10478	1	Clevis Pin, ⁵ / ₁₆ " x 1"
GD7426 GD1026 GD1026 GD1026 GD10210 GD10210 GD10210 GD10210 GD10229 GD10047 GD1004 GD2558 GD2558 GD2558 GD10049 GD2558 GD2558 GD2558 GD2558 GD2558 GD2558 GD2558 GD2558 GD1004 GD2558 GD2558 GD1004 GD2558 GD2568 GD2734-01 GD2668 GD2744-01 GD2668 GD266		G10409		Retaining Ring, 5/16"
GD1026 G10210 G10210 G10229 G10047 G10047 G10047 G10047 G10047 G10602 G1	13.	GA7336	1	Idler W/Bolt-On Sprockets
G10210 - Washer, 3/s" USS G10229 - Lock Washer, 3/s" G10047 - Hex Head Cap Screw, 3/s"-16 x 1 3/4" 14. GD5835 1 Shaft, 7/s" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" 17. GA5146 1 Sprocket Storage Rod 18. G10017 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10228 1 Lock Washer, 1/2" G10228 1 Lock Washer, 1/2" G10102 1 Hex Nut, 1/2"-13 19. 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, 25 Tooth GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth CA5113 1 Sprocket, 28 Tooth CA5113 1 Sprocket, 28 Tooth CA5113 1 Sprocket, 28 Tooth CA5111 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long		GD7426	-	Sprocket, 12 Tooth
G10229 - Lock Washer, 3/6" G10047 - Hex Head Cap Screw, 3/6"-16 x 1 3/4" 14. GD5835 1 Shaft, 7/6" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" 17. GA5146 1 Sprocket Storage Rod 18. 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 19. 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, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long		GD1026	-	Sleeve, 1 ³ / ₁₆ " Long
G10047 - Hex Head Cap Screw, 3/s"-16 x 1 3/4" 14. GD5835 1 Shaft, 7/s" x 7" 15. G10602 3 Spring Pin, 1/4" x 1 1/2" 16. GD2558 3 Lynch Pin, 1/4" 17. GA5146 1 Sprocket Storage Rod 18. 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 19. 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 GA5111 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long		G10210	-	Washer, ³ / ₈ " USS
14. GD5835 1 Shaft, \(7/\struct{6}\)" x 7\" 15. G10602 3 Spring Pin, \(1/\struct{4}\)" x 1 \(1/\struct{2}\)" 16. GD2558 3 Lynch Pin, \(1/\struct{4}\)" x 1 \(1/\struct{2}\)" 17. GA5146 1 Sprocket Storage Rod 18. G10017 1 Hex Head Cap Screw, \(1/\struct{2}\)"-13 x 1 \(1/\struct{2}\)" 18. G101028 1 Lock Washer, \(1/\struct{2}\)"-13 19. GA5106 1 Sprocket, 17 Tooth GA5107 1 Sprocket, 19 Tooth GA5108 2 Sprocket, 23 Tooth GA5109 1 Sprocket, 23 Tooth GA5110 1 Sprocket, 24 Tooth GA5111 1 Sprocket, 25 Tooth GA5111 1 Sprocket, 25 Tooth GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, \(1/\struct{2}\)"-13 x 5\" G10111 1 Lock Nut, \(1/\struct{2}\)"-13 x 5\" G10111 1 Lock Nut, \(1/\struct{2}\)"-13 x 5\" G10455 1 Cotter Pin, \(1/\struct{6}\)" x \(1/\s			-	
15. G10602 3 Spring Pin, ¹/₄" x 1 ¹/₂" 16. GD2558 3 Lynch Pin, ¹/₄" 17. GA5146 1 Sprocket Storage Rod 18. 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 19. GA5106 1 Sprocket, 17 Tooth GA5107 1 Sprocket, 17 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 GA5113 1 Sprocket, 28 Tooth GA5110 1 Sprocket, 28 Tooth GA5111 1 Sprocket, 28 Tooth GA5112 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/₂"-13 x 5" G10111 1 Lock Nut, ¹/²"-13 22. G10821 1 Clevis Pin, ³/₁e" x 2" G10455 1 Cotter Pin, ¹/₁e" x ¹/²" Sleeve, 1 ¹/₄" O.D. x ¹/²" Long			-	·
16. GD2558 3 Lynch Pin, ¹/4" 17. GA5146 1 Sprocket Storage Rod 18. 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 19. 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, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/2"-13 x 5" G10111 1 Lock Nut, ¹/2"-13 22. G10821 1 Clevis Pin, ³/16" x 2" G10455 1 Cotter Pin, ¹/16" x ¹/2" Sleeve, 1 ¹/4" O.D. x ¹/2" Long				
17. GA5146 1 Sprocket Storage Rod 18. 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 19. 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 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/₂"-13 x 5" G10111 1 Lock Nut, ¹/₂"-13 22. G10821 1 Clevis Pin, ³/₁6" x 2" G10455 1 Cotter Pin, ¹/₁6" x ¹/₂" 23. GD2734-01 1 Sleeve, 1 ¹/₄" O.D. x ¹/₂" Long				·
18. 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 19. 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, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long				
G10228				·
G10102	18.			
19. 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 GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long				
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 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ½"-13 x 5" G10111 1 Lock Nut, ½"-13 22. G10821 1 Clevis Pin, ¾16" x 2" G10455 1 Cotter Pin, ½16" x ½" Long GA5118 2 Sprocket, 28 Tooth Carriage Bolt, ½"-13 x 5" Cotter Pin, ½"-13 x 5" Cotter Pin, ½"-13 Clevis Pin, ¾16" x ½" Cotter Pin, ½"-13 Cotter Pin, ½"-14" Cotter Pin, ½"-14" Cotter Pin, ½"-14" Cotter Pin, ½"-14" Cotter Pin, ½"-15" Cotter Pin, ½"-15" Long				
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 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/₂"-13 x 5" G10111 1 Lock Nut, ¹/₂"-13 22. G10821 1 Clevis Pin, ³/₁6" x 2" G10455 1 Cotter Pin, ¹/₁6" x ¹/₂" 23. GD2734-01 1 Sleeve, 1 ¹/₄" O.D. x ¹/₂" Long	19.			
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 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/₂"-13 x 5" G10111 1 Lock Nut, ¹/₂"-13 22. G10821 1 Clevis Pin, ³/₁6" x 2" G10455 1 Cotter Pin, ¹/₁6" x ¹/₂" 23. GD2734-01 1 Sleeve, 1 ¹/₄" O.D. x ¹/₂" Long				
GA5110 1 Sprocket, 25 Tooth GA5111 1 Sprocket, 26 Tooth GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ½"-13 x 5" G10111 1 Lock Nut, ½"-13 22. G10821 1 Clevis Pin, ¾16" x 2" G10455 1 Cotter Pin, ¼16" x ½" Long 23. GD2734-01 1 Sleeve, 1 ¼4" O.D. x ½" Long				
GA5111 1 Sprocket, 26 Tooth GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ½"-13 x 5" G10111 1 Lock Nut, ½"-13 22. G10821 1 Clevis Pin, ¾16" x 2" G10455 1 Cotter Pin, ¼16" x ½" Long 23. GD2734-01 1 Sleeve, 1 ¼4" O.D. x ½" Long				·
GA5112 1 Sprocket, 27 Tooth GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ½"-13 x 5" G10111 1 Lock Nut, ½"-13 22. G10821 1 Clevis Pin, ¾16" x 2" G10455 1 Cotter Pin, ¼16" x ½" 23. GD2734-01 1 Sleeve, 1 ¼4" O.D. x ½" Long				
GA5113 1 Sprocket, 28 Tooth 20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long				
20. G3310-80 1 Chain, No. 40, 80 Pitch Including Connector Link GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹/₂"-13 x 5" G10111 1 Lock Nut, ¹/₂"-13 22. G10821 1 Clevis Pin, ³/₁6" x 2" G10455 1 Cotter Pin, ¹/₁6" x ¹/₂" 23. GD2734-01 1 Sleeve, 1 ¹/₄" O.D. x ¹/₂" Long				·
GR0912 - Connector Link, No. 40 21. G10867 1 Carriage Bolt, ¹ / ₂ "-13 x 5" G10111 1 Lock Nut, ¹ / ₂ "-13 22. G10821 1 Clevis Pin, ³ / ₁₆ " x 2" G10455 1 Cotter Pin, ¹ / ₁₆ " x ¹ / ₂ " 23. GD2734-01 1 Sleeve, 1 ¹ / ₄ " O.D. x ¹ / ₂ " Long				
21. G10867 1 Carriage Bolt, 1/2"-13 x 5" G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long	20.		1	
G10111 1 Lock Nut, 1/2"-13 22. G10821 1 Clevis Pin, 3/16" x 2" G10455 1 Cotter Pin, 1/16" x 1/2" 23. GD2734-01 1 Sleeve, 1 1/4" O.D. x 1/2" Long	0.4		-	
22. G10821 1 Clevis Pin, ³ / ₁₆ " x 2" G10455 1 Cotter Pin, ¹ / ₁₆ " x ¹ / ₂ " 23. GD2734-01 1 Sleeve, 1 ¹ / ₄ " O.D. x ¹ / ₂ " Long	21.			· · · · · · · · · · · · · · · · · · ·
G10455 1 Cotter Pin, ¹ / ₁₆ " x ¹ / ₂ " 23. GD2734-01 1 Sleeve, 1 ¹ / ₄ " O.D. x ¹ / ₂ " Long				
23. GD2734-01 1 Sleeve, 1 ¹ / ₄ " O.D. x ¹ / ₂ " Long	22.			
24. GD3180-16 1 Sleeve, ⁵ / ₈ " I.D. x ⁻ / ₈ " O.D. x 2 ¹³ / ₁₆ " Long				
	24.	GD3180-16	1	Sleeve, ⁹ /8" I.D. x ¹ /8" O.D. x 2 ¹³ / ₁₆ " Long

(Continued On Following Page)

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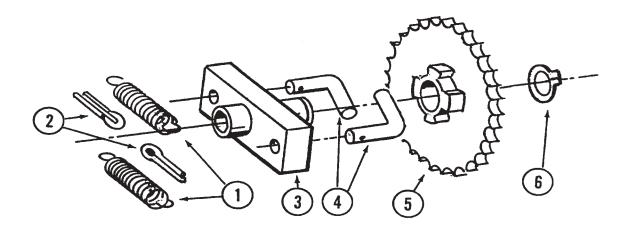
SEED RATE TRANSMISSION AND DRIVELINE

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
25.	G10004	2	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ¹ / ₄ "
20.	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
26.	GA2180	1	Hanger Bearing, 7/8" Hex Bore, 16 Row 30" And 36 Row 20" Only
27.	GD0914-152	1	Hex Shaft, ⁷ / ₈ " x 152" (No Holes), L.H. Side, 24 Row 30" And 36 Row 20"
21.	GD0914-224	-	Hex Shaft, 7/8" x 224" (No Holes), L.H. Side, 24 Row 20" And 16 Row 30"
	GD0914-123	_	Hex Shaft, 7/8" x 123" (No Holes), L.H. Side, 24 Row 22"
	GD0914-152	1	Hex Shaft, 7/8" x 152" (No Holes), R.H. Side, 24 Row 30" And 36 Row 20"
	GD0914-234	-	Hex Shaft, 7/8" x 234" (No Holes), R.H. Side, 24 Row 20" And 16 Row 30"
	GD0914-128	_	Hex Shaft, 7/8" x 128" (No Holes), R.H. Side, 24 Row 22"
28.	GD11045	1	Lock Clamp
29.	GD1719	1	Coupler, 4", 24 Row 22", 24 Row 30" And 36 Row 20" Only
30.	G10233	1	Machine Bushing, 1", 10 Gauge
31.	GD0914-198	1	Hex Shaft, ⁷ / ₈ " x 198" (No Holes), R.H. And L.H. Sides, 24 Row 30"
	GD0914-208	-	Hex Shaft, 7/8" x 208" (No Holes), R.H. Side, 36 Row 20"
	GD0914-198	-	Hex Shaft, 7/8" x 198" (No Holes), L.H. Side, 36 Row 20"
	GD0914-128	-	Hex Shaft, 7/8" x 128" (No Holes), R.H. Side, 24 Row 22"
	GD0914-123	-	Hex Shaft, 7/8" x 123" (No Holes), L.H. Side, 24 Row 22"
32.	GD5886	1-2	Coupler, 1 3/4", 16 Row 30" And 24 Row 20"
	GD7867	-	Coupler, 3", 24 Row 30" And 36 Row 20"
33.	G10233	4	Machine Bushing, 1", 10 Gauge
34.	GA5629	1	Transmission Plate W/Bearings, Grease Fittings And Retaining Rings
	GA5116	3	Bearing, 7/8" Hex Bore, Cylindrical
	GA5624	1	Special Bearing, 7/8" Hex Bore x 1.6"
	GD6551	4	Ring
	G10640	-	Grease Fitting, 1/4"-28
35.	GD7127	1	ShearCoupler
36.	GD7822	1	Shaft, 7/8" x 7"
37.	GB0287	2	Coupler
38.	G10131	4	Square Head Set Screw, 5/16"-18 x 3/4"
39.	GA9524	-	Mount, 36 Row 20" Only
40.	G11100	1	Hex Socket Cap Screw, 1/4"-20 x 1/2", Grade 8
	G10227	1	Lock Washer, 1/4"
	G10209	1	Washer, 1/4" USS
41.	G11078	1	Vinyl Cap
42.	G10496	2	External Inverted Snap Ring, 1 1/2"
43.	G11075	3	Internal Inverted Snap Ring, 7/8"
44. 45	GD14432	1	Sleeve
45.	GD14413	- 4	Torsion Spring, L.H. (Shown)
46	GD14414	1	Torsion Spring, R.H.
46.	GD14430	1	Release Collar, Gold, R.H. (Shown)
47.	GD14429 GD14427	- 1	Release Collar, Silver, L.H. Tightener Shaft, 4 7/8"
47. 48.	GD14421 GD14431	1	Handle
40.		ı	
A.	G1K269	-	Lock Clamp Kit (Items 7 And 28)
B.	G1K378	1	Ratchet Wrench Replacement Kit, Gold Collar, R.H. (Items 40-48) (Shown)
	G1K379	-	Ratchet Wrench Replacement Kit, Silver Collar, L.H. (Items 40-48)

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RATCHET/SPROCKET ASSEMBLY

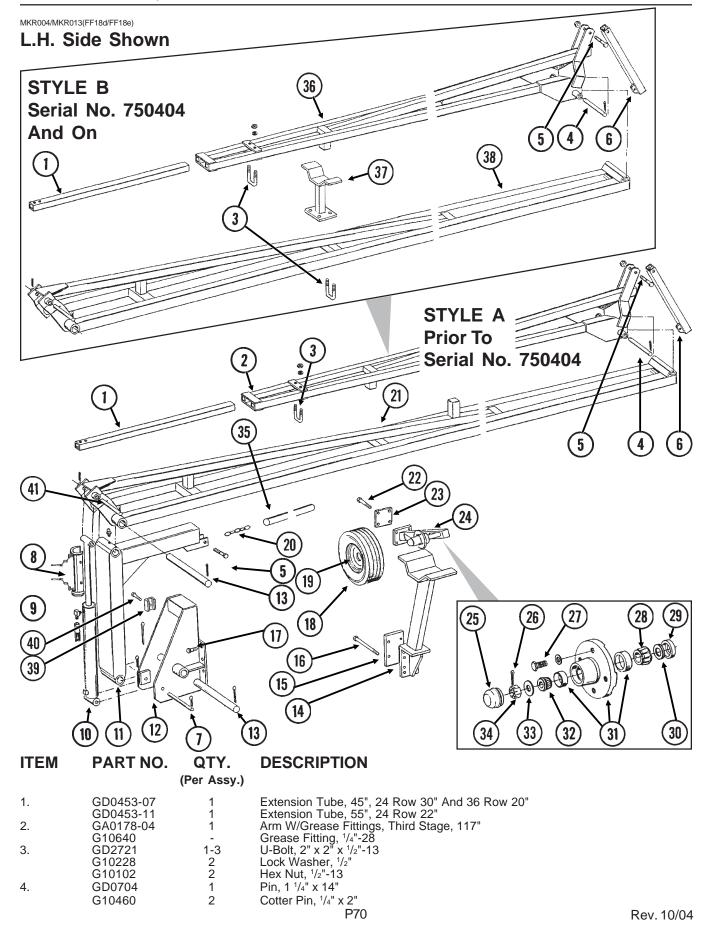
PTD016(TWL12)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD1256	2	Spring
2.	G10464	2	Cotter Pin, ³ / ₁₆ " x 1"
3.	GA0378	1	Block And Hub Assembly
4.	GD1255	2	L-Pin
5.	GA5165	1	Sprocket, 30 Tooth
6.	G10430	1	External Retaining Ring, 1 1/4"
A.	GA5164	-	Ratchet/Sprocket Assembly (Items 1-6)

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ROW MARKER ASSEMBLY, 24 ROW 22", 24 ROW 30" AND 36 ROW 20"



ROW MARKER ASSEMBLY, 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY.	DESCRIPTION
5.	G10033	(Per Assy.)	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
	G10038 G10581	-	Hex Head Cap Screw, 1/2"-13 x 3" Hex Head Cap Screw, 1/2"-13 x 2 1/4"
	G10361 G10111	3	Hex Head Cap Screw, 1/2"-13 x 2 1/4" Lock Nut, 1/2"-13
6.	GA6860	1	Bracket
7.	GD10186	1	Pin, 1 1/4" x 9 1/2" Special Methor, 4 1/4" (16 Applicable)
	G10979 G10460	2	Special Washer, 1 1/4" (If Applicable) Cotter Pin, 1/4" x 2"
8.	GA8172	1	Safety Lockup W/Detent Pins. 20"
	G10536	-	Safety Lockup W/Detent Pins, 20" Detent Pin, 1/2" x 2 1/2" Grip
9.	G6801-08	-	Elbow W/O-Ring. 90°. 3/4"-16 Male JIC To O-Ring
	G6400-08 GR1037	-	Connecter W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
10.	OK 1007	-	See "Marker Cylinder", Page P80
11.	GA6870	1	Arm, First Stage
12.	GA4031	1	Mount W/Grease Fittings
13.	G10640 GD0677	2	Grease Fitting, 1/4"-28 Pin, 2 1/8" x 15 3/4"
10.	G10461	4	Cotter Pin, 3/8" x 3"
14.	GA6720	1	Tire Support Plate, 5 ½" x 7 ½"
15. 16	GD9622	1	Plate, 5 1/2" X / 1/4" Hov Hood Con Scrow 5/5" 11 x 0"
16.	G10152 G10217	4 4	Hex Head Cap Screw, 5/8"-11 x 9" Washer, 5/8" USS
	G10230	4	Lock Washer, 5/8"
47	G10104	4	Hex Nut, 5/8"-11
17.	G10027 G10028	8	Hex Head Cap Screw, ³ / ₄ "-10 x 2 ¹ / ₂ " Hex Head Cap Screw, ³ / ₄ "-10 x 3"
	G10026	_	Hex Head Cap Screw, 3/4"-10 x 2"
	G10231	8	Lock Washer, 3/4"
4.0	G10105	6	Hex Nut, 3/4"-10
18.	GD0841 GD1364	1 1	Tube Type Tire, 16" x 6.5" x 8" (Specify Brand*) Tube (Not Shown)
19.	GA0246	i	Rim, T8 x 5.38" x 4"
20.	G3302-05	1	Coil Chain, No. 9/0, 79 Links
21.	GA0175-03 G10640	1	Arm W/Grease Fittings, Second Stage, 185"
22.	G10063	8	Grease Fitting, ¹ / ₄ "-28 Hex Head Cap Screw, ³ / ₈ "-16 x 4"
	G10210	-	Washer, 3/8" USS (As Required)
	G10229	8	Lock Washer, 3/8"
23.	G10101 GD0692	8 2	Hex Nut, ³ / ₈ "-16 Mounting Plate, 5" x 4"
24.	GA0160R	1	Support, R.H.
0.5	GA0160L	7	Support, L.H. (Shown)
25. 26.	GD0840 G10544	1 1	Dust Cap Cotter Pin, ⁵/₃₂" x 1"
27.	G10344 G10722	4	Hex Head Cap Screw, ½"-20 x 1"
	G10228	4	Lock Washer, 1/2"
28.	GA0245	1	Bearing
29. 30.	GA0243 GA0899	1 1	Grease Seal Rubber Seal
31.	GA0167	i	Hub W/Cups
	GR0151	-	Outer Cup
32.	GR0150 GA0257	- 1	Inner Cup
33.	G10724	i	Bearing Washer, ⁵ /8" SAE
34.	G10725	1	Slotted Hex Nut, 5/8"-18
35.	GD10674-01	1	Nylon Cover, 141"
36.	GA9103 GA9555	1	Arm W/Grease Fittings, Third Stage, 117", 24 Row 30" And 36 Row 20" Arm W/Grease Fittings, Third Stage, 65", 24 Row 22"
	G10640	-	Grease Fitting, 1/4"-28
37.	GA9101	1	Stop Weld
38.	GA9102	1	Arm W/Grease Fittings, Second Stage, 185", 24 Row 30" And 36 Row 20"
	GA9612 G10640	-	Arm W/Grease Fittings, Second Stage, 136", 24 Row 22" Grease Fitting 1/4"-28
39.	GD0776	1	Grease Fitting, ¹/₄"-28 Hose Clamp, ³/₄" x 2" x 2 ¹/₂" Hex Head Cap Screw, ³/₅"-16 x 2"
40.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10210	1	Washer, 3/6" USS
	G10229 G10101	1 1	Lock Washer, 3/8" Hex Nut 3/8"-16
41.	GD9964	1	Hex Nut, 3/8"-16 Pin, 1 1/4" x 10 1/2"
	G10979	-	Special Washer, 1 ¹ / ₄ " (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
A.	GA0542	_	Tire And Rim Assembly (Items 18 And 19)

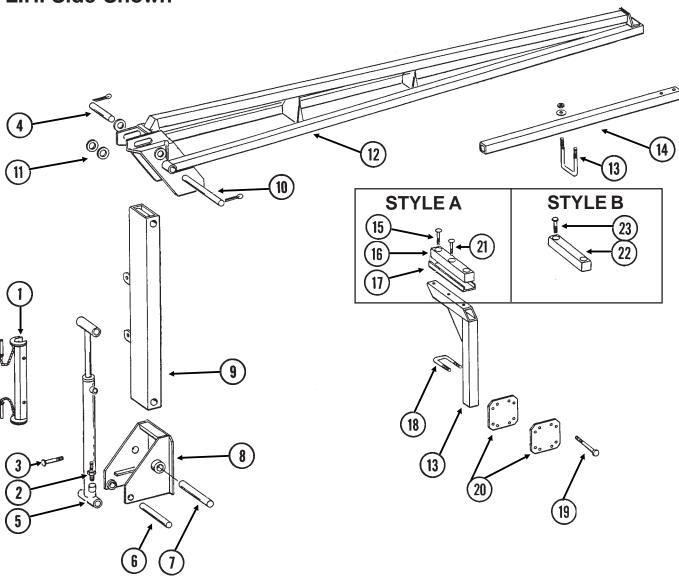
A. GA0542 - Tire And Rim Assembly (Items 18 And 19)
 * Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

Rev. 10/04

ROW MARKER ASSEMBLY, 16 ROW 30" AND 24 ROW 20"

MKR019/MKR023/MKR27(MKR16b/MKR14d)

L.H. Side Shown



P72 Rev. 10/04

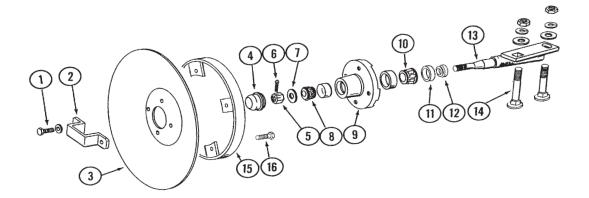
ROW MARKER ASSEMBLY, 16 ROW 30" AND 24 ROW 20"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GA8170	1	Safety Lockup W/Detent Pins, 19 3/8"
2.	G10536 G6801-08	-	Detent Pin, ¹ / ₂ " x 2 ¹ / ₂ " Grip Elbow W/O-Ring, 90°, ³ / ₄ "-16 Male JIC To O-Ring
۷.	GR1037	-	O-Ring
	G6400-08-04	-	Connecter W/O-Ring, ³ / ₄ "-16 Male JIC To ⁷ / ₁₆ "-20 O-Ring
	GR1465	-	O-Ring
3.	G10879	6	Flanged 12 Point Bolt, 5/8"-11 x 2", Special Hardened
	G10230	6	Lock Washer, 5/8"
	G10104	5	Hex Nut, ⁵ / ₈ "-11
4.	GD1701	1	Pin, 1 ¹ / ₄ " x 6 ¹ / ₂ "
_	G10460	2	Cotter Pin, 1/4" x 2"
5.	00000	-	See "Marker Cylinder", Page P81
6.	GD0652	1	Pin, 1 ¹ / ₄ " x 9 ¹ / ₂ "
	G10979	-	Special Washer, 1 ¹ / ₄ " (If Applicable)
7.	G10460 GD7209	2 1	Cotter Pin, ¹ / ₄ " x 2" Pin, 1 ¹ / ₄ " x 11 ¹ / ₂ "
7.	G10049	1	Hex Head Cap Screw, ³ / ₈ "-16 x 2 ¹ / ₂ "
	G10108	1	Lock Nut, 3/8"-16
8.	GA4877	1	Mount
9.	GA4878	1	Arm W/Grease Fittings, First Stage, R.H.
	GA4983	-	Arm W/Grease Fittings, First Stage, L.H.
	G10641	-	Grease Fitting, 1/8" NPT
10.	GD0737	1	Pin, 1 ¹ / ₄ " x 13 ¹ / ₄ "
	G10460	2	Cotter Pin, 1/4" x 2"
11.	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10159	-	Machine Bushing, 1 ¹ / ₄ ", 10 Gauge
40	G10322	-	Machine Bushing, 1 ¹ / ₄ ", 18 Gauge
12.	GA7118	-	Arm, Second Stage, 172 ¹ / ₄ "
13.	GD2721 G10228	3 6	U-Bolt, 2" x 2" x ¹ / ₂ "-13 Lock Washer, ¹ / ₂ "
	G10102	6	Hex Nut, ¹ / ₂ "-13
14.	GD0453-03	-	Extension Tube, 50"
15.	G10039	2	Hex Head Cap Screw, ¹ / ₂ "-13 x 1 ³ / ₄ "
	G10206	2	Washer, ¹ / ₂ " SAE
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, ¹ / ₂ "-13
16.	GD4512	1	Rubber Stop (Sub GA9088)
17.	GD6772	1	Retainer (Sub GA9088)
18.	GA7562	1	Stand, 38"
19.	G10152	4	Hex Head Cap Screw, 5/8"-11 x 9"
	G10230	4	Lock Washer, 5/8"
20.	G10104	4 2	Hex Nut, 5/8"-11 Bar
20. 21.	GD10645 G10033	1	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
41.	G10033	1	Washer, ¹ / ₂ " SAE
	G10228	1	Lock Washer, 1/2"
	G10102	1	Hex Nut, ¹ / ₂ "-13
22.	GA9088	1	Molded Stop, 12 1/4" Long (Replaces GD4512 And GD6772)
23.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10206	2	Washer, ¹ / ₂ " SAE
	G10111	2	Lock Nut, 1/2"-13

P73 Rev. 10/04

ROW MARKER SPINDLE/HUB/BLADE

MKR020(MKR4)



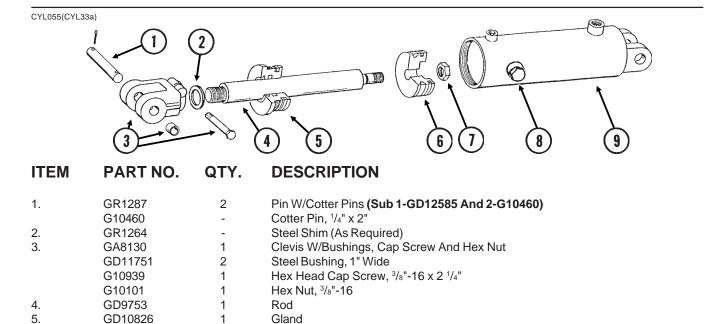
P74 Rev. 10/04

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 Cup
	GR0150	-	Inner Cup
10.	GA0245	1	Bearing
11.	GA0243	1	Grease Seal
12.	GA0899	1	RubberSeal
13.	GA1677	1	Spindle, L.H. (Shown)
	GA1676	-	Spindle, R.H.
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
Α.	GA1679	-	Hub And Spindle Assembly, L.H. (Items 1, 2, 5-11 And 13-15)
	GA1678	-	Hub And Spindle Assembly, R.H. (Items 1, 2, 5-11 And 13-15)

P75 Rev. 10/04

MASTER CYLINDER, 24 ROW 30" AND 36 ROW 20"



Hex Socket O-Ring Plug, 1 5/16"-12

Cylinder Complete, 4 1/2" x 10" (Part Number Stamped On Barrel) (Sub GA8928)

Seal Kit, Includes: (2) O-Rings, (1) Seal, (1) Wiper, (1) BU Ring, (1) U-Cup

MASTER CYLINDER, 16 ROW 30" AND 24 ROW 20"

Barrel (Non-Stock Item)

CYL055(CYL33a)

6.

7.

8.

9.

A.

В.

GD9756

GR0983

GR1356

GA7878

GR1265

A7904

1

1

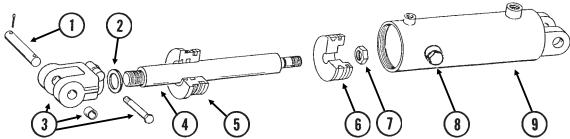
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1

Piston

Lock Nut, 1"-14

NOTE: Order by part number stamped on cylinder barrel.



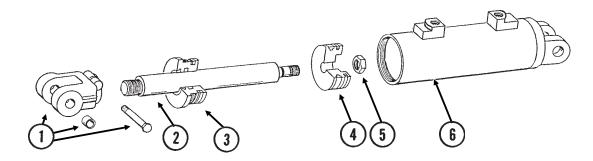
	(3)	'	4 3			(J)
ITEM	PART NO.	QTY.	DESCRIPTION	_		_
1.	GR1287	2	Pin W/Cotter Pins (Sul	b 1-GD12585 And 2-0	G10460)	
	G10460	-	Cotter Pin, 1/4" x 2"			
2.	GR1264	-	Steel Shim (As Require	ed)		
3.	GA8130	1	Clevis W/Bushings, Ca	ap Screw And Hex Nu	ıt	
	GD11751	2	Steel Bushing, 1" Wide)		
	G10939	1	Hex Head Cap Screw,	³ / ₈ "-16 x 2 ¹ / ₄ "		
	G10101	1	Hex Nut, 3/8"-16			
4.	GD10647	1	Rod			
5.	GD10823	1	Gland			
6.	GD10630	1	Piston			
7.	GR0983	1	Lock Nut, 1"-14			
8.	GR1356	1	Hex Socket O-Ring Plu	ug, 1 ⁵ / ₁₆ "-12		
9.	A7902	1	Barrel (Non-Stock Ite	m)		
A.	GA7876	-	Cylinder Complete, 4"	x 10" (Part Number S	tamped On Barre	I)
B.	GR1358	-	Seal Kit, Includes: (2)	O-Rings, (1) Seal, (1)	Wiper, (1) BU Rir	ng,
			(1) U-Cup Lip			
			D76			

P76 Rev. 7/03

MASTER CYLINDER, ALL SIZES

(CYL33d)

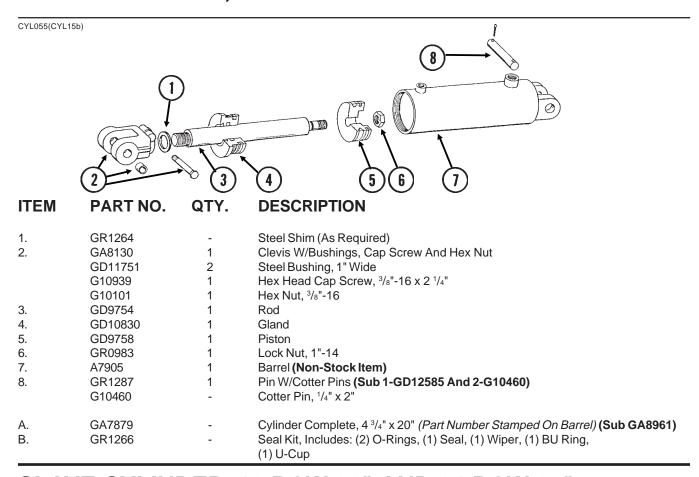
NOTE: 16 Row 30" And 24 Row 20" - Order by part number stamped on cylinder barrel.



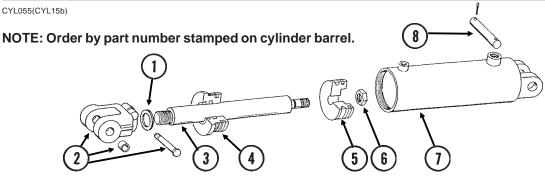
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10101	1	Hex Nut, ³ / ₈ "-16
2.	GD12521	1	Rod
3.	GD12522	1	Gland
4.	GD12525	1	Piston
5.	G10958	1	Lock Nut, 1"-14
6.	A8927	1	Barrel (Non-Stock Item)
A.	GA8928	-	Cylinder Complete, 4 1/2" x 10" (Part Number Stamped On Barrel)
B.	GR1530	-	Seal Kit, Includes: (1) Wiper, (1) U-Cup, (2) O-Rings, (1) BU Ring, (2) Cast Iron Rings, (1) Seal, (1) Energizer

P77 Rev. 7/03

SLAVE CYLINDER, 24 ROW 30" AND 36 ROW 20"



SLAVE CYLINDER, 16 ROW 30" AND 24 ROW 20"

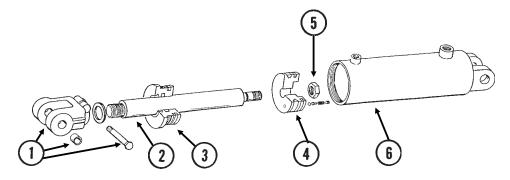


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1264	-	Steel Shim (As Required)
2.	GA8130	1	Clevis W/Bushings, Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10101	1	Hex Nut, 3/8"-16
3.	GD10652	1	Rod
4.	GD10824	1	Gland
5.	GD10649	1	Piston
6.	GR0983	1	Lock Nut, 1"-14
7.	A7903	1	Barrel (Non-Stock Item)
8.	GR1287	1	Pin W/Cotter Pins (Sub 1-GD12585 And 2-G10460)
	G10460	-	Cotter Pin, 1/4" x 2"
A.	GA7877	-	Cylinder Complete, 4 1/4" x 20" (Part Number Stamped On Barrel)
B.	GR1359	-	Seal Kit, Includes: (2) O-Rings, (1) Seal, (1) Wiper, (1) BU Ring, (1) U-Cup Lip P78 Rev. 7/03

SLAVE CYLINDER, ALL SIZES

CYL055(CYL15d)

NOTE: 16 Row 30" And 24 Row 20" - Order by part number stamped on cylinder barrel.

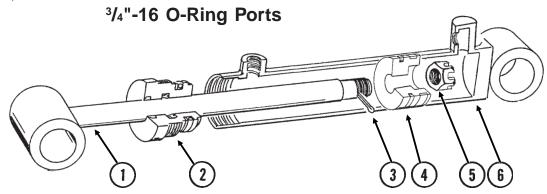


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10101	1	Hex Nut, 3/8"-16
2.	GD12564	1	Rod
3.	GD12572	1	Gland
4.	GA8962	1	Piston W/Rephasing Valve
	GR1169	-	Rephasing Valve Replacement Kit (Set Screw, Guide, 2 Springs And Ball)
5.	G10958	1	Lock Nut, 1"-14
6.	A8960	1	Barrel (Non-Stock Item)
A.	GA8961	-	Cylinder Complete, 4 3/4" x 20" (Part Number Stamped On Barrel)
B.	GR1546	-	Seal Kit, Includes: (1) Wiper, (1) U-Cup, (2) O-Rings, (1) BU Ring, (2) Cast Iron Rings, (1) Seal, (1) Energizer

P79 Rev. 7/03

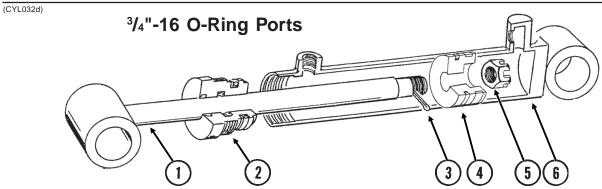
MARKER (Cushion) CYLINDER, 24 ROW 30" AND 36 ROW 20"

CYL032(CYL32d)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA7251	1	Rod Assembly
2.	GD10261	1	Gland
3.	GR1320	1	Cotter Pin, ³ / ₁₆ " x 2 ¹ / ₂ "
4.	GD10260	1	Piston
5.	GR1319	1	Slotted Hex Nut, 1 1/8"-12
6.	A7250	1	Barrel (Non-Stock Item)
A.	GA6971	-	Cylinder Complete, 3 ¹ / ₂ " x 20" (Part Number Stamped On Barrel) (Sub GA8951)
B.	GR1318	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) Piston Seal, (1) BU Ring, (1) Piston Ring, (1) Cast Iron Ring

MARKER (Cushion) CYLINDER, 24 ROW 22", 24 ROW 30" AND 36 ROW 20"



IIEW	PART NO.	QII.	DESCRIPTION
1.	GA8948	1	Rod Assembly
2.	GD12548	1	Gland
3.	G10984	1	Cotter Pin, ³ / ₁₆ " x 2 ¹ / ₂ "
4.	GD12550	1	Piston
5.	G10983	1	Slotted Hex Nut, 1 1/8"-12
6.	A8950	1	Barrel (Non-Stock Item)
A.	GA8951	-	Cylinder Complete, 3 ¹ / ₂ " x 20" (Part Number Stamped On Barrel)
B.	GR1532	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) T-Seal, (1) BU Ring, (1) Cast Iron Ring

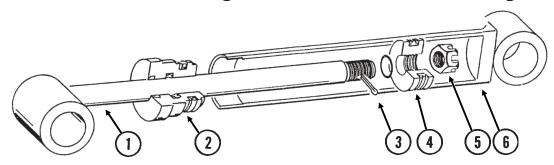
P80 Rev. 7/03

MARKER (Cushion) CYLINDER, 16 ROW 30" AND 24 ROW 20"

CYL032(CYL32b)

3/4"-16 O-Ring Port

⁷/₁₆"-20 O-Ring Port



ITEM	PART NO.	QTY.	DESCRIPTION
1. 2.	GA7219 GD10207	1	Rod Assembly Gland
3. 4.	G10827 GD10206	1	Cotter Pin, ¹ / ₈ " x 1 ³ / ₄ " Piston
5. 6.	G10962 A7524	1	Slotted Hex Nut, ⁷ / ₈ "-14 Barrel (Non-Stock Item)
о. А.	GA7523	'	,
_		-	Cylinder Complete, 2 ½" x 20 ½" (Part Number Stamped On Barrel) (Sub GA8895)
В.	GR1309	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) Seal, (1) BU Ring, (1) Cast Iron Ring

MARKER (Cushion) CYLINDER, 16 ROW 30" AND 24 ROW 20"

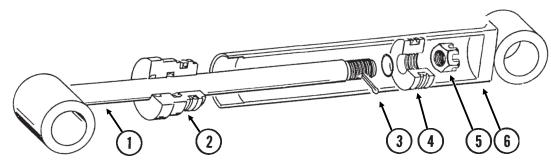
PART NO

(CYL03b)

ITEM

3/4"-16 O-Ring Port

⁷/₁₆"-20 O-Ring Port



IILIVI	FARTINO.	QII.	DESCRIPTION
1.	GA8871	1	Rod Assembly
2.	GD10207	1	Gland
3.	G10827	1	Cotter Pin, 1/8" x 1 3/4"
4.	GD11983	1	Piston
5.	G10962	1	Slotted Hex Nut, 7/8"-14
6.	A7524	1	Barrel (Non-Stock Item)
A.	GA8895	-	Cylinder Complete, 2 1/2" x 20 1/16" (Part Number Stamped On Barrel)
B.	GR1521	-	Seal Kit, Includes: (1) T-Seal, (2) O-Rings, (1) BU Ring, (1) Cast Iron
			Ring, (1) Wiper, (1) U-Cup
			D04

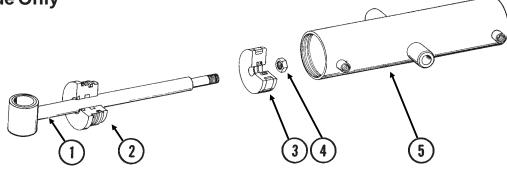
DESCRIPTION

P81 Rev. 7/03

HELPER CYLINDER, ALL SIZES

CYL055(CYL17a)

L.H. Side Only

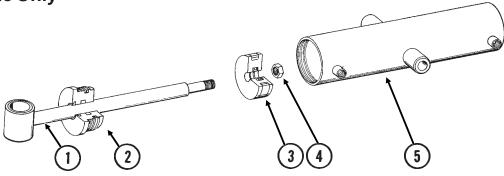


ITEM	PART NO.	QTY.	DESCRIPTION
1. 2.	GA6853 G10640 GD6571	1 - 1	Rod Assembly W/Grease Fitting Grease Fitting, ¹ / ₄ "-28 Gland
3. 4. 5.	GD9740 G10958 A6852	1 1 1	Piston Lock Nut, 1"-14 Barrel (Non-Stock Item)
A.	GA6734	-	Cylinder Complete, 4" x 15 5/32" (Part Number Stamped On Barrel) (Sub GA8905)
B.	GR1249	-	Seal Kit, Includes: (2) O-Rings, (3) BU Rings, (1) Uniring, (1) U-Cup, (1) Wiper

HELPER CYLINDER, ALL SIZES

CYL055(CYL17a)

L.H. Side Only

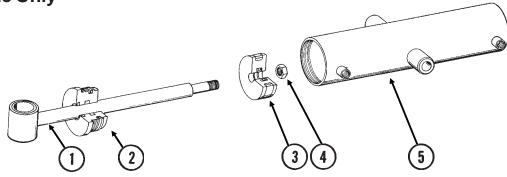


1. GA8907 1 Rod Assembly W/Grease Fitting	
G10640 - Grease Fitting, 1/4"-28	
2. GD11988 1 Gland	
3. GD11997 1 Piston	
4. G10958 1 Lock Nut, 1"-14	
5. A6852 1 Barrel (Non-Stock Item)	
A. GA8905 - Cylinder Complete, 4" x 15 5/32" (Part Number Stamped On I	Barrel)
B. GR1525 - Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) T-Seal	

P82 Rev. 7/03

HELPER CYLINDER, ALL SIZES

R.H. Side Only

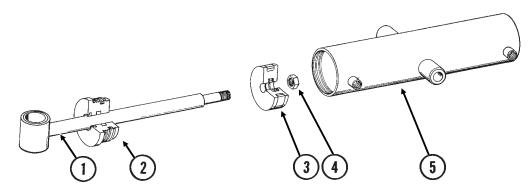


ITEM	PART NO.	QTY.	DESCRIPTION
1. 2. 3. 4.	GA8301 G10449 GD6571 GD9740 G10958	1 - 1 1 1	Rod Assembly W/Grease Fitting Grease Fitting, ³ / ₁₆ " Drive-In Gland Piston Lock Nut, 1"-14
5. A.	A8300 GA8139	1 -	Barrel (Non-Stock Item) Cylinder Complete, 4" x 13 ⁵ / ₈ " (Part Number Stamped On Barrel)
B.	GR1249	-	(Sub GA8906) Seal Kit, Includes: (2) O-Rings, (3) BU Rings, (1) Uniring, (1) U-Cup, (1) Wiper

HELPER CYLINDER, ALL SIZES

(CYL17a)

R.H. Side Only

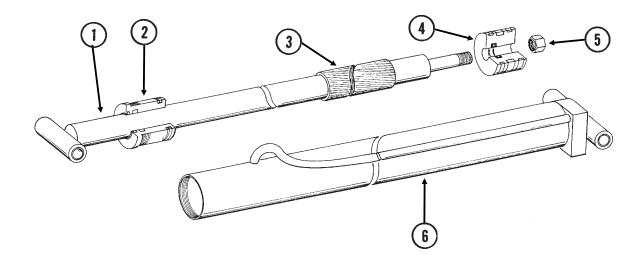


ITEM	PART NO.	QTY.	DESCRIPTION	
1.	GA8910	1	Rod Assembly W/Grease Fitting	
2.	G10640 GD11988	- 1	Grease Fitting, ¹ / ₄ "-28 Gland	
3.	GD11997	1	Piston	
4.	G10958	1	Lock Nut, 1"-14	
5.	A8300	1	Barrel (Non-Stock Item)	
A.	GA8906	-	Cylinder Complete, 4" x 13 5/8" (Part Number Stamped On E	Barrel)
B.	GR1525	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) T-Seal	
			P83	Rev

ev. 7/03

TONGUE CYLINDER, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"

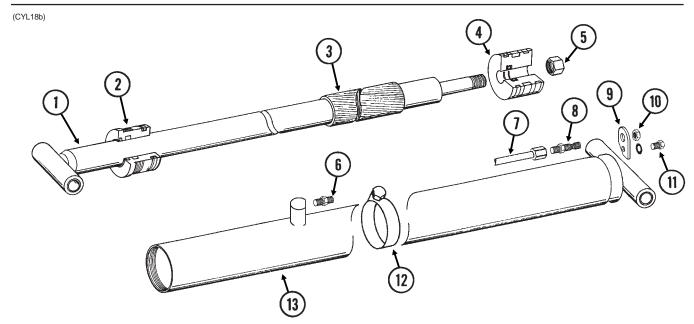
CYL055(CYL18a)



ITEM	PART NO.	QTY.	DESCRIPTION
1. 2. 3. 4. 5.	GA7527 GD9745 GD10665 GD9743 GR0987 GA7528	1 1 1 1 1	Rod Assembly Gland Spacer Piston Lock Nut, 1 ¹ / ₄ "-12 Barrel
A. B.	GA7234 GR1261	-	Cylinder Complete, 4" x 132 ½" (Part Number Stamped On Barrel) Seal Kit, Includes: (2) O-Rings, (3) BU Rings, (2) Wear Rings, (1) Uniring, (1) U-Cup, (1) Wiper

P84 Rev. 7/03

TONGUE CYLINDER, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"

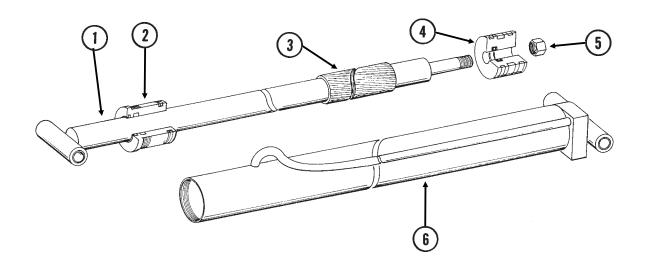


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA9576	1	Rod Assembly
2.	GD13448	1	Gland
3.	GD13453	1	Spacer
4.	GD13449	1	Piston
5.	G10972	1	Lock Nut, 1 1/4"-12
6.	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
7.	GA10145	1	Steel Hydraulic Line, 145 15/16"
8.	G2700-08	1	Bulkhead Tube Union, 3/4"-16 Male JIC
9.	GD13643	1	Bracket
10.	G306-08	1	Lock Nut, 3/4"-16
11.	G10328	1	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10229	1	Lock Washer, 3/8"
12.	G11089	1	Hose Clamp
13.	GA9578	1	Barrel
Α.	GA9579	-	Cylinder Complete, 4" x 132 1/2" (Part Number Stamped On Barrel)
B.	GR1599	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (3) Wear Rings, (1) Piston Seal, (1) U-Cup, (1) Wiper, (1) Expander

P85 Rev. 10/04

TONGUE CYLINDER, 24 ROW 30" AND 36 ROW 20"

CYL055(CYL18a)

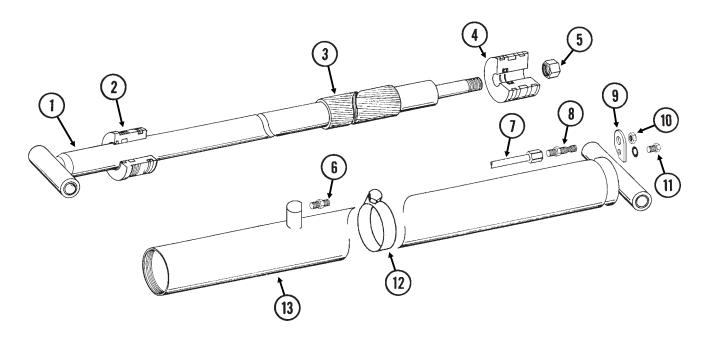


ITEM	PART NO.	QTY.	DESCRIPTION
1. 2. 3. 4. 5.	GA6857 GD9745 GD9744 GD9743 GR0987 GA6856	1 1 1 1 1	Rod Assembly Gland Spacer Piston Lock Nut, 1 ¹ / ₄ "-12 Barrel
A. B.	GA6446 GR1261	-	Cylinder Complete, 4" x 162" Seal Kit, Includes: (2) O-Rings, (3) BU Rings, (2) Wear Rings, (1) Uniring, (1) U-Cup, (1) Wiper

P86 Rev. 10/04

TONGUE CYLINDER, 24 ROW 30" AND 36 ROW 20"

(CYL18b)



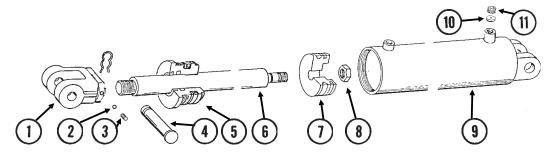
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA9580	1	Rod Assembly
2.	GD13448	1	Gland
3.	GD13456	1	Spacer
4.	GD13449	1	Piston
5.	G10972	1	Lock Nut, 1 ¹ / ₄ "-12
6.	G2700-08	1	Bulkhead Tube Union, 3/4"-16 Male JIC
7.	GA10146	1	Steel Hydraulic Line, 178 1/4"
8.	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
9.	GD13643	1	Bracket
10.	G306-08	1	Lock Nut, 3/4"-16
11.	G10328	1	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10229	1	Lock Washer, 3/8"
12.	G11089	1	Hose Clamp
13.	GA9582	1	Barrel
Α.	GA9583	_	Cylinder Complete, 4" x 162" (Part Number Stamped On Barrel)
В.	GR1599	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (3) Wear Rings, (1) Piston Seal, (1) U-Cup, (1) Wiper, (1) Expander

P87 Rev. 10/04

HITCH PARALLEL LINKAGE CYLINDER, 24 ROW 30" AND 36 ROW 20"

CYL048/CYL055(CYL20a)

Prior To Serial No. 750325



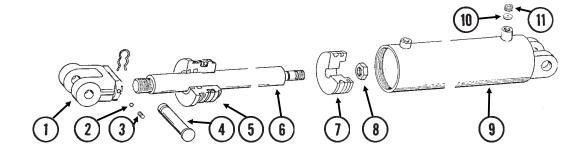
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9766	1	Clevis
2.	GR1268	1	Nylon Ball
3.	G10072	1	Hex Socket Set Screw, 3/8"-16 x 3/8"
4.	GR0717	2	Pin W/Clip
	GR0193	-	Hair Pin Clip
5.	GD10258	1	Gland
6.	GD10256	1	Rod
7.	GD10257	1	Piston
8.	G10869	1	Lock Nut, ⁷ / ₈ "-14
9.	A7247	1	Barrel (Non-Stock Item)
10.	GR1317	1	Orifice Plate
11.	GR1316	1	Hollow Lock Screw, 3/4"-16 x 3/8"
A.	GA7164	-	Cylinder Complete, 3 ¹ / ₂ " x 16" (Part Number Stamped On Barrel)
B.	GR1315	-	Seal Kit, Includes: (2) O-Rings, (1) Seal, (1) BU Ring, (1) Wiper, (1) U-Cup

P88 Rev. 10/04

HITCH PARALLEL LINKAGE CYLINDER, 16 ROW 30" AND 24 ROW 20"

(CYL15c

Prior To Serial No. 750325



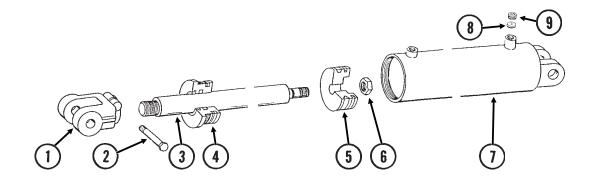
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9766	1	Clevis
2.	GR1268	1	Nylon Ball
3.	G10072	1	Hex Socket Set Screw, 3/8"-16 x 3/8"
4.	GR0717	2	Pin W/Clip
	GR0193	-	Hair Pin Clip
5.	GD10258	1	Gland
6.	GD10662	1	Rod
7.	GD10257	1	Piston
8.	G10869	1	Lock Nut, ⁷ / ₈ "-14
9.	A7511	1	Barrel (Non-Stock Item)
10.	GR1317	1	Orifice Plate
11.	GR1316	1	Hollow Lock Screw, 3/4"-16 x 3/8"
A.	GA7249	-	Cylinder Complete, 3 ¹ / ₂ " x 20" (Part Number Stamped On Barrel) (Sub GA9941)
B.	GR1315	-	Seal Kit, Includes: (2) O-Rings, (1) Seal, (1) BU Ring, (1) Wiper, (1) U-Cup

P89 Rev. 10/04

HITCH PARALLEL LINKAGE CYLINDER

(CYL15c)

All 24 Row 22"; 16 Row 30", 24 Row 20", 24 Row 30" And 36 Row 20" -Serial No. 750325 And On



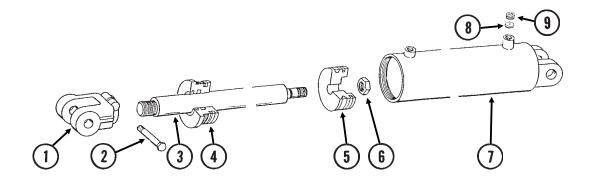
PART NO.	QTY.	DESCRIPTION
GD11951	1	Clevis
G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
G10108	1	Lock Nut, 3/8"-16
GD12580	1	Rod
GD12584	1	Gland (Sub G1K358)
GD12583	1	Piston (Sub G1K358)
G10969	1	Lock Nut, 7/8"-14
A8969	1	Barrel (Non-Stock Item)
GD12589	1	Orifice Plate
G10987	1	Hollow Lock Screw, 3/4"-16 x 3/8"
GA8970	-	Cylinder Complete, 3 ¹ / ₂ " x 20" (Part Number Stamped On Barrel) (Sub GA9941)
GR1638	-	Seal Kit, Includes: (1) T-Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) Wear Ring
	GD11951 G10939 G10108 GD12580 GD12584 GD12583 G10969 A8969 GD12589 G10987	GD11951 1 G10939 1 G10108 1 GD12580 1 GD12584 1 GD12583 1 G10969 1 A8969 1 GD12589 1 G10987 1 GA8970 -

P90 Rev. 10/04

HITCH PARALLEL LINKAGE CYLINDER

(CYL15c)

All 24 Row 22"; 16 Row 30", 24 Row 20", 24 Row 30" And 36 Row 20" -Serial No. 750325 And On



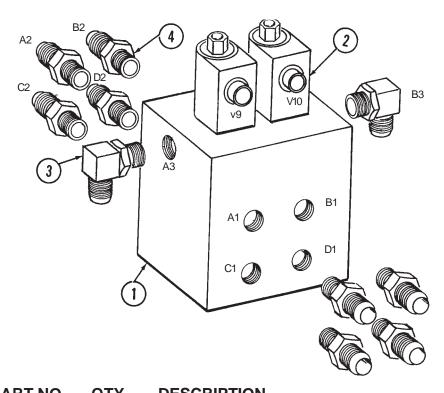
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD11951	1	Clevis
2.	G10939	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10108	1	Lock Nut, 3/8"-16
3.	GD12580	1	Rod
4.	GD14244	1	Gland
5.	GD14223	1	Piston
6.	G10969	1	Lock Nut, 7/8"-14
7.	A8969	1	Barrel (Non-Stock Item)
8.	GD12589	1	Orifice Plate
9.	G10987	1	Hollow Lock Screw, 3/4"-16 x 3/8"
A.	GA9941	-	Cylinder Complete, 3 ½ x 20" (Part Number Stamped On Barrel)
B.	GR1638	-	Seal Kit, Includes: (1) T-Seal, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) Wear Ring

P91 Rev. 10/04

VALVE BLOCK ON FRONT HITCH

VVB029(FF19)

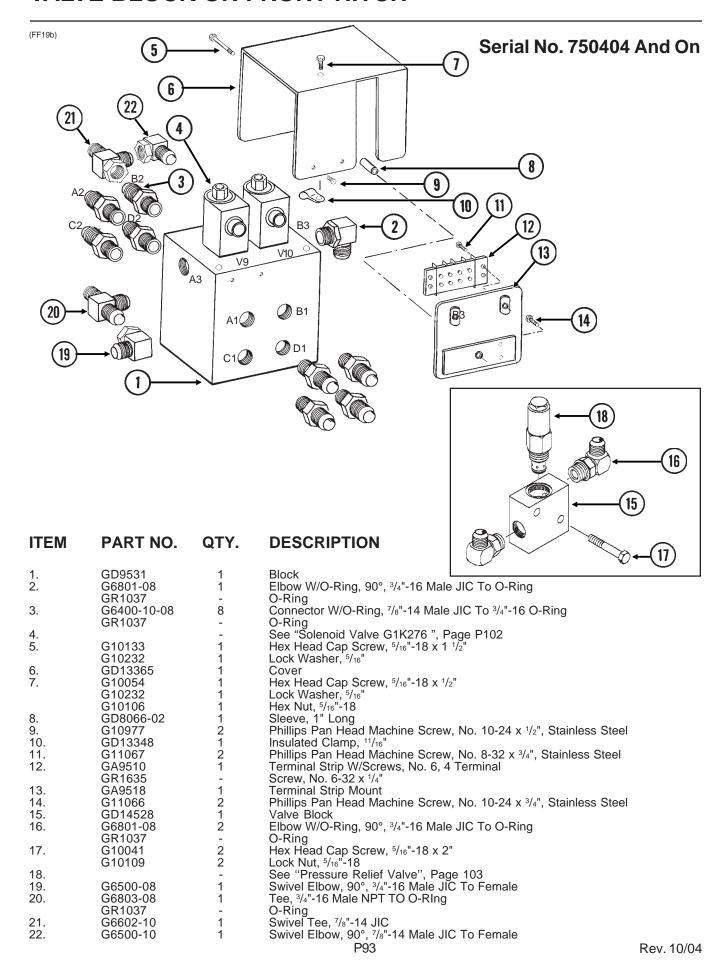
Prior To Serial No. 750404



IIEW	PART NO.	QIY.	DESCRIPTION
1. 2.	GD9531	1	Block
3.	G6801-08	2	See "Solenoid Valve G1K276", Page P102 Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
4.	GR1037 G6400-10-08 GR1037	8	O-Ring Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring O-Ring
	01(103)	=	O-Ming

P92 Rev. 10/04

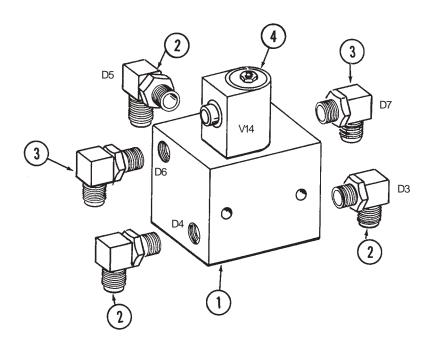
VALVE BLOCK ON FRONT HITCH



VALVE BLOCK ON TOWER ASSEMBLY

VVB031(FF20)

Prior To Serial No. 750404



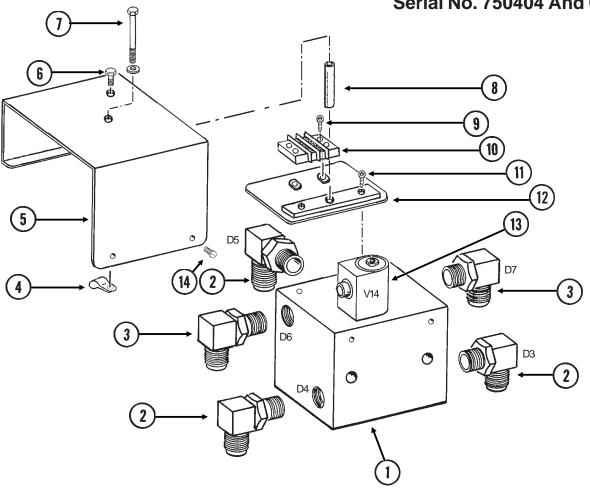
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9536	1	Block
2.	G6801-10-08	3	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
3.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
4.		-	See "Solenoid Valve (G1K275)", Page P102

P94 Rev. 10/04

VALVE BLOCK ON TOWER ASSEMBLY

(FF20a)

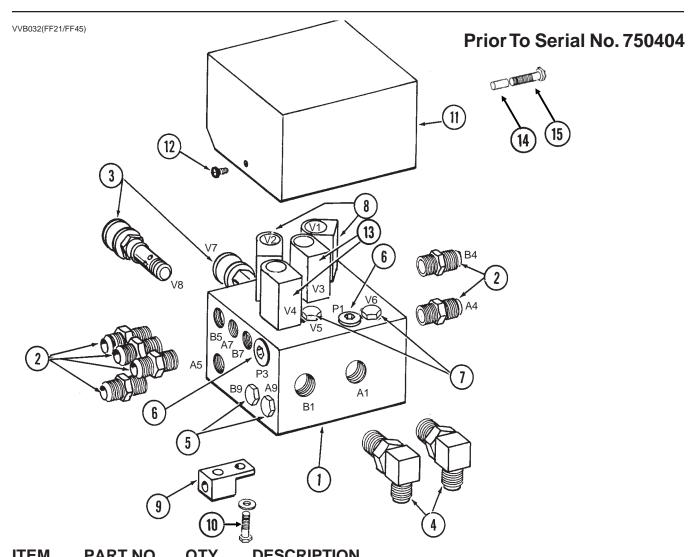
Serial No. 750404 And On



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9536	1	Block
2.	G6801-10-08	3	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
3.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
4.	GD13348	1	Insulated Clamp, 11/16"
5.	GD13366	1	Cover
6.	G10054	1	Hex Head Cap Screw, 5/16"-18 x 1/2"
	G10232	1	Lock Washer, 5/16"
	G10106	1	Hex Nut, ⁵ / ₁₆ "-18
7.	G10583	1	Hex Head Cap Screw, 5/16"-18 x 2 3/4"
	G10232	1	Lock Washer, ⁵ / ₁₆ "
8.	GD8066-03	1	Sleeve, 2 ⁵ / ₁₆ " Long
9.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
10.	GA9511	1	Terminal Strip W/Screws, No. 6, 2 Terminal
	GR1635	-	Screw, No. 6-32 x ¹ / ₄ "
11.	G11066	2	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
12.	GA9519	1	Terminal Strip Mount
13.		-	See "Solenoid Valve (G1K275)", Page P102
14.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless Steel

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VALVE BLOCK ON R.H. WING



ITEM	PART NO.	QTY.	DESCRIPTION	
1.	GD9533	1	Block	
2.	G6400-08	6	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring	
	GR1037	-	O-Ring	
3.		-	See "Flow Control Valve", Page P103	
4.	G6801-10	2	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To O-Ring	
	GR1466	-	O-Ring	
5.	G6408-08	6	Plug W/O-Ring, 3/4"-16 O-Ring	
	GR1037	-	O-Ring	
6.	G6408-H06-O	5	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring	
	GR1045	-	O-Ring	
7.	G6408-10	2	Plug W/O-Ring, 7/8"-14 O-Ring	
	GR1466	-	O-Ring	
8.		-	See "Solenoid Valve (G1K275)", Page P102	
9.	GA3584	1	Ground Clamp	
10.	G10019	1	Hex Head Cap Screw, 5/16"-18 x 1"	
	G10043	1	Hex Head Cap Screw, 5/16"-18 x 3/4"	
	G10232	2	Lock Washer, 5/16"	
11.	GD10179	1	Cover	
12.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless	s Steel
13.		-	See "Solenoid Valve (G1K276)", Page P102	
14.	GD7363-04	1	Sleeve, 15/16" Long	
15.	G10767	1	Slotted Pan Head Screw, No. 10-24 x 1 1/2"	
			P96	Rev. 10/04

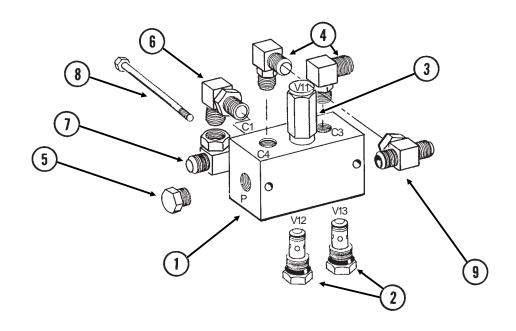
VALVE BLOCK ON R.H. WING

(FF21a)			Serial No. 750404 And On
V8 (1)	22) A5 B	V2 V4 V4 P3 P3 P3 P3 P3	8 9 9 10 11 12 13 14 16 16 16 16 16 16 16 16 17 18 19 19 10 11 11 11 11 11 11 11 11 11
ITEM	20 PART NO.	(19) (QTY.	DESCRIPTION 18 17
1.	G6400-08	6	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
2.	GR1037	-	O-Ring See "Flow Control Valve", Page P103
3.		-	See "Solenoid Valve (G1K275)", Page P102
4.		-	See "Solenoid Valve (G1K276)", Page P102
5.	G6408-H06-O	5	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring
6.	GR1045 G6408-10	2	O-Ring Plug W/O-Ring, ⁷ / ₈ "-14 O-Ring
0.	GR1466	-	O-Ring
7.	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10232	2	Lock Washer, 5/16"
8.	G10054	1	Hex Head Cap Screw, 5/16"-18 x 1/2"
	G10232 G10106	1 1	Lock Washer, ⁵ / ₁₆ " Hex Nut, ⁵ / ₁₆ "-18
9.	GD13146	1	Cover
10.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless Steel
11.	GD8066-02	1	Sleeve, 1" Long
12.	GD13348	1	Insulated Clamp, 11/16"
13.	GD13310	1	Jumper, 7/16" Phillips Den Hood Machine Serow No. 9, 22 x 3/-" Stainless Steel
14. 15.	G11067 GA9097	2 1	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel Terminal Strip W/Screws, No. 6, 14 Terminal
10.	GR1635	-	Screw, No. 6-32 x ¹ / ₄ "
16.	GA9095	1	Terminal Strip, Mount
17.	G11066	2	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
18.	G6801-10	2	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To O-Ring
40	GR1466	-	O-Ring
19.	G6408-08	6	Plug W/O-Ring, ³ / ₄ "-16 O-Ring
20.	GR1037 G10019	- 1	O-Ring Hex Head Cap Screw, ⁵ / ₁₆ "-18 x 1"
20.	G10019 G10043	1	Hex Head Cap Screw, ⁷ / ₁₆ "-18 x ³ / ₄ "
	G10232	2	Lock Washer, 5/16"
21.	GA3584	1	Ground Clamp
22.	GD9533	1	Block

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VALVE BLOCK ON L.H. WING

VVB030(FF22b)



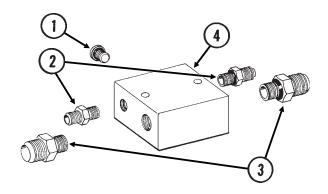
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9535	1	Block
2.		-	See "Check Valve", Page P103
3.		-	See "Pressure Relief Valve", Page P103
4.	G6801-08	1	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
5.	G6408-06	1	Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
6.	G6801-10-08	1	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
7.	G6600-10	1	Swivel Tee, ⁷ / ₈ "-14 JIC
8.	G10746	2	Hex Head Cap Screw, 1/4"-20 x 2 3/4"
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
9.	G6600-08	1	Swivel Tee, ³ / ₄ "-16 JIC

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JUNCTION BLOCK - LOCATED ON L.H. WING

VVB038(HYD31)

24 Row 30" And 36 Row 20" Only Prior To Serial No. 750454

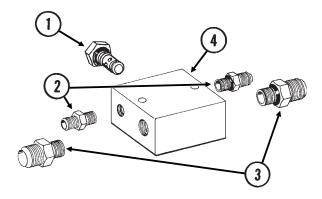


ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6408-H04-O GR1465	1 -	Hex Socket Head Plug W/O-Ring, 7/16"-20 O-Ring O-Ring
2.	G6400-04 GR1465	2	Connector W/O-Ring, 7/16"-20 Male JIC To O-Ring O-Ring
3.	G6400-10 GR1466	2	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring O-Ring
4.	GD11492	1	Block

JUNCTION BLOCK - LOCATED ON L.H. WING

VVB038(HYD31a)

24 Row 30" And 36 Row 20" Only Serial No. 750454 And On

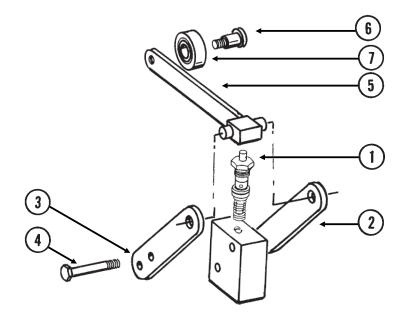


ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Check Valve", Page P103
2.	G6400-04	2	Connector W/O-Ring, 7/16"-20 Male JIC To O-Ring
	GR1465	-	O-Ring
3.	G6400-10	2	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring
	GR1466	-	O-Ring
4.	GD13447	1	Block

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DETENT LEVER VALVE

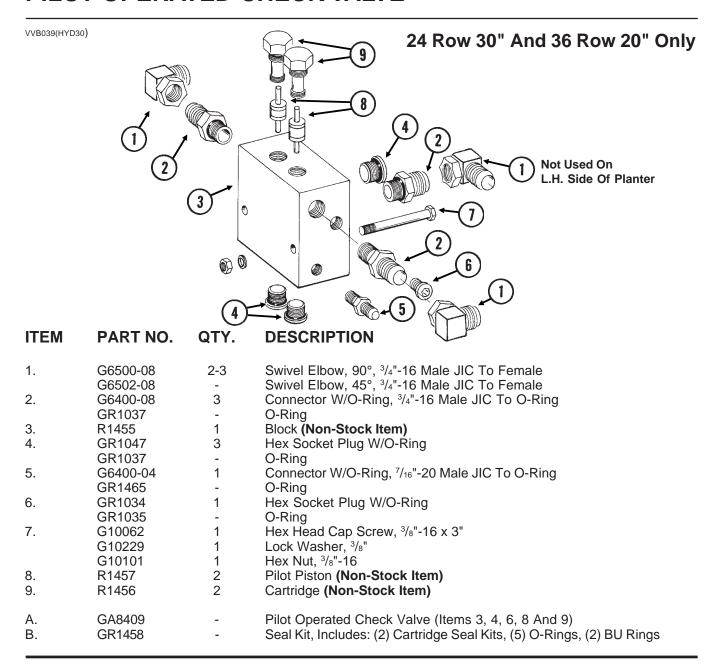
VVB033(FF24)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1254	1	Valve
2.	GR1259	1	Bar
3.	GR1255	1	Bar
4.	G10060	2	Hex Head Cap Screw, 5/16"-18 x 2 1/2"
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, 5/16"-18
5.	GR1256	1	Arm
6.	GR1258	1	Socket Shoulder Screw, 1/2"
7.	GR1257	1	Stainless Bushing
A.	GA6782	-	Detent Lever Valve Complete
B.	GR1260	-	Seal Kit (For GR1254 Valve), Includes: (2) BU Rings, (3) O-Rings

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PILOT OPERATED CHECK VALVE



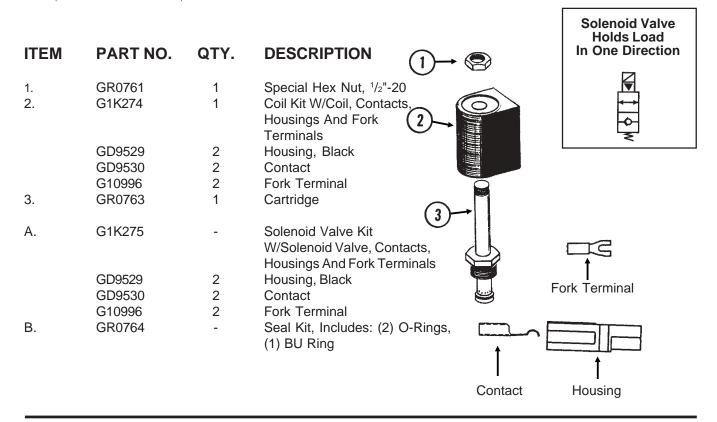
STROKE LIMITER VALVE

ITEM	PART NO.	QTY.	DESCRIPTION	(FF23b)
A. B.	GA8127 G1K255	-	Stroke Limiter Valve Complete (<i>Part Number Stamped On Valve Block</i>) Repair Kit, Includes: (1) Adapter, (1) Poppet, (1) Seal Kit W/O-Rings And BU Ring	

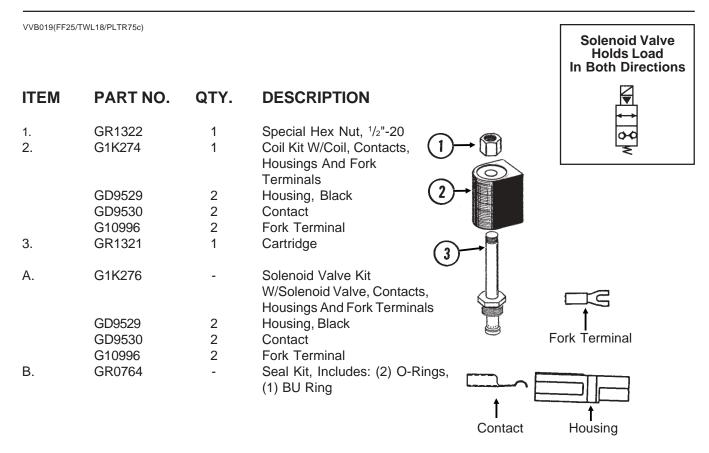
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SOLENOID VALVE (G1K275)

VVB019(TWL27c/TWL18/PLTR75c/A9481)



SOLENOID VALVE (G1K276)



P102 Rev. 10/04

FLOW CONTROL VALVE

VVB020(TWL28)



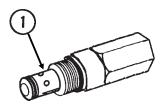
ITEM PART NO. QTY. DESCRIPTION

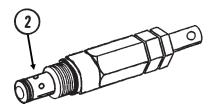
A. GA3413 - Flow Control Valve

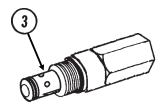
B. GR0764 - Seal Kit, Includes: (2) O-Rings, (1) BU Ring

PRESSURE RELIEF VALVE

VVB020(FF46/FF46a)



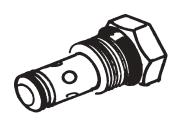




IIEW	PART NO.	QIY.	DESCRIPTION
1.	GA7489	-	Pressure Relief Valve, 1750 PSI
	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
2.	GA8844	-	Pressure Relief Valve, 1750 PSI
	GR1515	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
3.	GA10140	-	Pressure Relief Valve, 550 PSI
	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

CHECK VALVE

VVB020(TWL30)



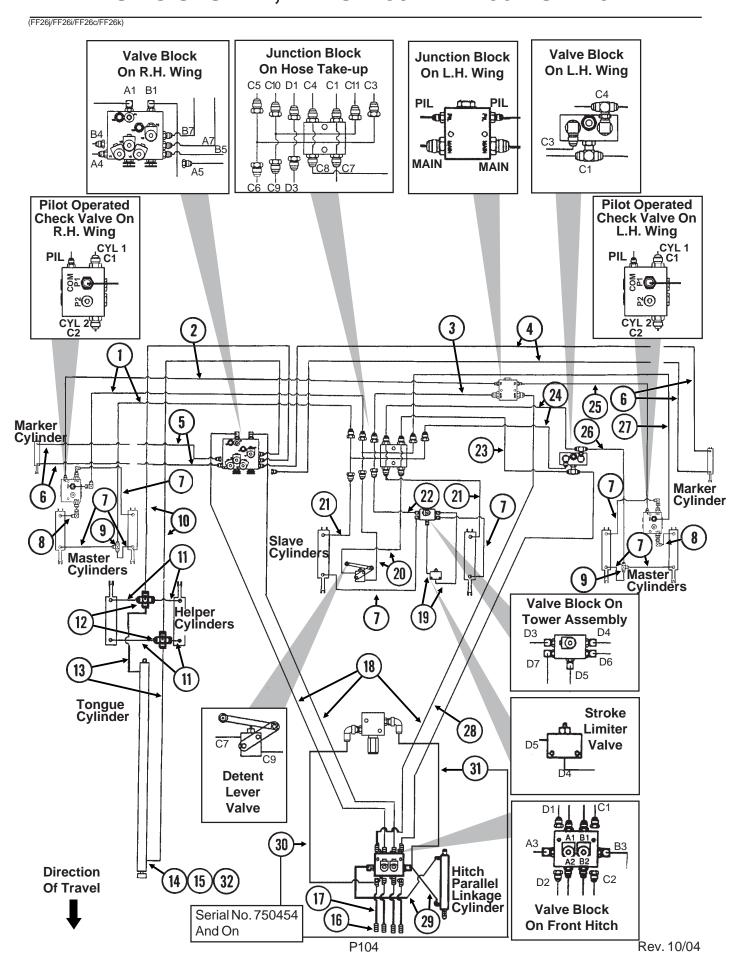
ITEM	PART NO.	QTY.	DESCRIPTION

A. GA4293 - Check Valve

B. GR0764 - Seal Kit, Includes: (2) O-Rings, (1) BU Ring

P103

HYDRAULIC SYSTEM, 24 ROW 30" AND 36 ROW 20"



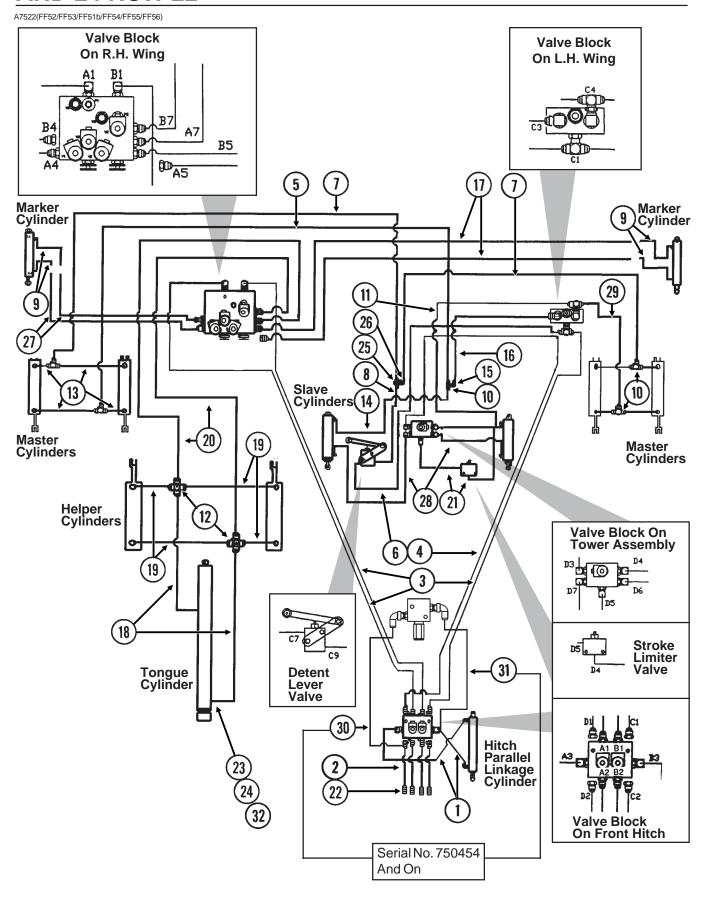
HYDRAULIC SYSTEM, 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	*A1051	2	Hose Assembly, 3/8" x 360", 24 Row 30"
	*A1038	2	Hose Assembly, 3/8" x 370", 36 Row 20"
2.	*A8501	1	Hose Assembly, 3/16" x 426", 24 Row 30"
	*A8503	1	Hose Assembly, 3/16" x 436", 36 Row 20"
3.	*A1475	1	Hose Assembly, 1/2" x 108"
4.	*A3178	2	Hose Assembly, 3/8" x 536"
5.	*A3109	2	Hose Assembly, 3/8" x 222"
6.	*A1072	4	Hose Assembly, 3/8" x 48"
7.	*A3119	8	Hose Assembly, 3/8" x 36"
8.	*A3119	2	Hose Assembly, 3/8" x 36", 24 Row 30"
	*A1019	2	Hose Assembly, 3/8" x 44", 36 Row 20"
9.	G2603-08	2	Tee, ³ / ₄ "-16 Male JIC
10.	*A3179	2	Hose Assembly, 3/8" x 152"
11.	*A1189	4	Hose Assembly, 1/4" x 36"
12.	G2650-06	2	Cross, 9/16"-18 Male JIC
13.	*A1146	2	Hose Assembly, ¹ / ₄ " x 12"
14.	G6400-06	2	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring
	GR1045	-	O-Ring
15.	G6502-06	2	Swivel Elbow, 45°, 9/16"-18 Male JIC To Female
16.	GD4086	4	ISO Coupler
17.	*A1412	4	Hose Assembly, ½" x 130"
18.	*A1485	3	Hose Assembly, ½" x 330"
19.	*A1424	2	Hose Assembly, ½" x 30"
20.	*A1465	2	Hose Assembly, ½" x 84"
21.	*A3140	2	Hose Assembly, 3/8" x 94"
22.	*A1421	1	Hose Assembly, ½" x 107"
23.	*A1487	1	Hose Assembly, ½" x 150"
24.	*A1026	2	Hose Assembly, 3/8" x 152"
25.	*A1038	1	Hose Assembly, 3/8" x 370", 24 Row 30"
	*A3197	1	Hose Assembly, 3/8" x 388", 36 Row 20"
26.	*A3161	1	Hose Assembly, 3/8" x 210", 24 Row 30"
	*A1057	1	Hose Assembly, 3/8" x 216", 36 Row 20"
27.	*A8500	1	Hose Assembly, 3/16" x 260", 24 Row 30"
	*A8502	1	Hose Assembly, 3/16" x 270", 36 Row 20"
28.	*A8208	1	Hose Assembly, 1/2" x 374"
29.	*A1044	2	Hose Assembly, 3/8" x 34"
30.	*A3222	1	Hose Assembly, 3/8" x 18" (3/4" And 7/8" Ends)
31.	*A1073	1	Hose Assembly, 3/8" x 18" (3/4" Ends)
32.	G6500-06	2	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female

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

HYDRAULIC SYSTEM, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"



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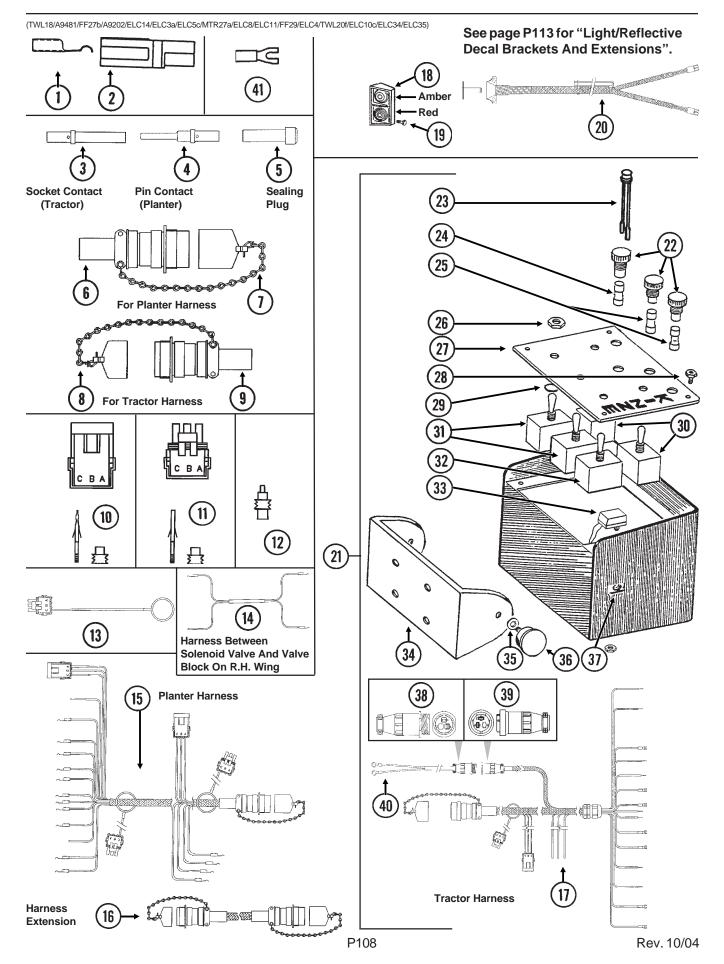
HYDRAULIC SYSTEM, 16 ROW 30", 24 ROW 20" AND 24 ROW 22"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	*A1044	2	Hose Assembly, 3/8" x 34"
2.	*A1412	4	Hose Assembly, 1/2" x 130"
3.	*A1499	3	Hose Assembly, 1/2" x 280"
4.	*A1498	1	Hose Assembly, 1/2" x 452"
5.	*A1089	1	Hose Assembly, 3/8" x 240", 16 Row 30" And 24 Row 20"
	*A3141	-	Hose Assembly, 3/8" x 260", 24 Row 22"
6.	*A1487	1	Hose Assembly, 1/2" x 150"
7.	*A3196	2	Hose Assembly, 3/8" x 240", 16 Row 30" And 24 Row 20"
	*A3212	-	Hose Assembly, 3/8" x 260", 24 Row 22"
8.	*A1404	1	Hose Assembly, 1/2" x 41"
9.	*A1072	4	Hose Assembly, 3/8" x 48"
10.	G2603-08	5	Tee, 3/4"-16 Male JIC
11.	*A1049	1	Hose Assembly, 3/8" x 160"
12.	G2650-06	2	Cross, 9/16"-18 Male JIC
13.	*A3119	8	Hose Assembly, 3/8" x 36", 16 Row 30" And 24 Row 20"
	*A3175	-	Hose Assembly, 3/8" x 38", 24 Row 22"
14.	*A1020	1	Hose Assembly, 3/8" x 48"
15.	G6500-08	1	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
16.	*A1010	1	Hose Assembly, 3/8" x 120"
17.	*A3197	2	Hose Assembly, 3/8" x 388", 16 Row 30" And 24 Row 20"
	*A3213	-	Hose Assembly, 3/8" x 412", 24 Row 22"
18.	*A1146	2	Hose Assembly, 1/4" x 12"
19.	*A1189	4	Hose Assembly, 1/4" x 36"
20.	*A3195	2	Hose Assembly, 3/8" x 136"
21.	*A1424	2	Hose Assembly, 1/2" x 30"
22.	GD4086	4	ISO Coupler
23.	G6400-06	2	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring
	GR1045	-	O-Ring
24.	G6502-06	2	Swivel Elbow, 45°, 9/16"-18 Male JIC To Female
25.	G2603-10	1	Tee, 7/8"-14 Male JIC
26.	G6500-10	1	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
27.	*A3199	2	Hose Assembly, 3/8" x 132", 16 Row 30" And 24 Row 20"
	*A3114	-	Hose Assembly, 3/8" x 156", 24 Row 22"
28.	*A3119	2	Hose Assembly, 3/8" x 36"
29.	*A1010	1	Hose Assembly, 3/8" x 120", 16 Row 30" And 24 Row 20"
	*A1013	-	Hose Assembly, 3/8" x 150", 24 Row 22"
30.	*A3222	1	Hose Assembly, $3/8$ " x 18", ($3/4$ " And $7/8$ " Ends)
31.	*A1073	1	Hose Assembly, 3/8" x 18", (3/4" Ends)
32.	*G6500-06	2	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female

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

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ELECTRICAL COMPONENTS (Prior To Serial No. 750404)

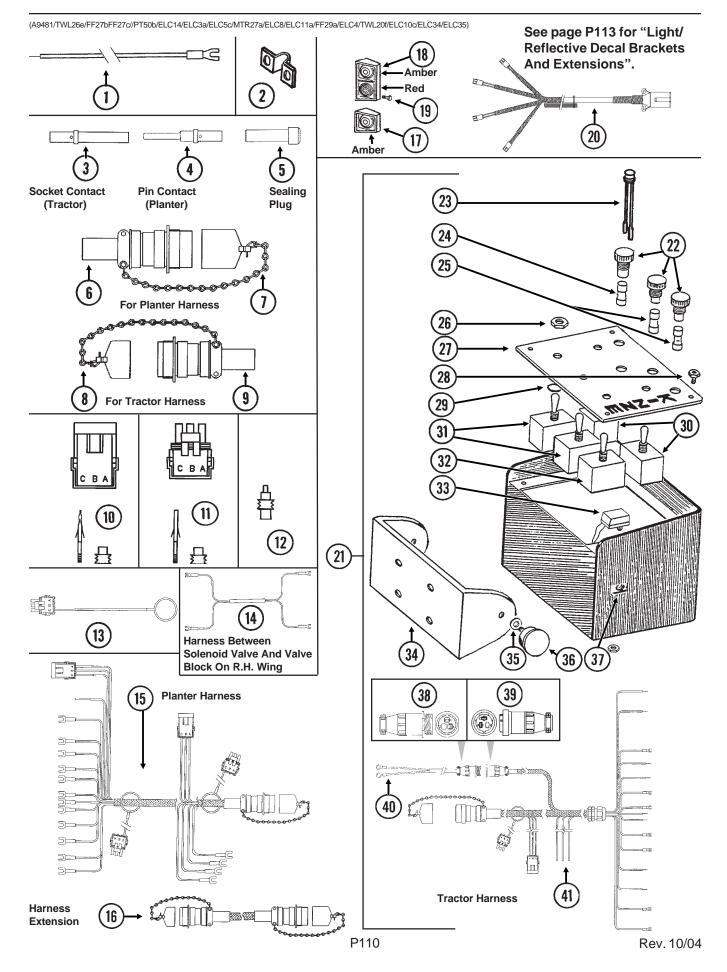


ELECTRICAL COMPONENTS (Prior To Serial No. 750404)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9530	-	Contact
2.	GD9529	-	Housing, Black
	GD12726	-	Housing, Red
3.	GD8740	_	Socket Contact, No. 14
4.	GD8741	_	Pin Contact, No. 14
5.	GD8739	_	Sealing Plug, No. 12
6.	GA6109	1	Connector W/Cable Clamp, 23 Pin Capacity
7.	GA0109 GA7862	-	Dust Cap W/Chain
8.	GA7863	-	Dust Cap W/Chain
9.	GA6108	1	Connector W/Cable Clamp, 23 Socket Capacity
10.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings,
	0.11/0=0		(9) Pin Contacts, (9) Seals
11.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings,
			(9) Socket Contacts, (9) Seals
12.	GD11089	-	Sealing Plug
13.	GA8047	-	Dust Plug (Black)
14.	GA6848	1	Wiring Harness, 288", From Valve Block On R.H. Wing To Tower Assembly
15.	GA7365	1	Wiring Harness W/Dust Cap, 468"
16.	GA7399	-	Harness Extension W/Dust Caps, 180"
17.	GA8729	1	Wiring Harness W/Dust Cap And Power Cable
18.	GA6699	1	Double Light Assembly
	GA6700	1	Double Light Assembly (Shown)
	GR1203	-	Red Lens
	GR1204	_	Amber Lens
	GR1205	_	Cover
	GR1206	-	Rubber Grommet (4)
		-	
	GR1207	-	Lamp Unit
10	GR1208	-	Bulb
19.	G10064	8	Hex Head Cap Screw, 1/4"-20 x 1"
	G10227	8	Lock Washer, 1/4"
	G10103	8	Hex Nut, ¹ / ₄ "-20
20.	GA6707	1	Wiring Harness W/7 Terminal Female Connector, 725" (2 Light Connections)
	GA5385	-	7 Terminal Female Connector
21.	G7633X	-	Backlit Control Console Assembly W/Mounting Brackets, Short
			Harness W/Dust Cap And Power Cable (Shown)
	G7639X	-	Backlit Control Console Assembly W/Mounting Brackets, Short
			Harness W/Dust Cap And Power Cable, Planters Equipped With
			Two-Speed Point Row Clutch
22.	GA2612	3-5	Fuse Holder W/Spade, 1 33/50"
23.	GA7077	1-4	Indicator Light
24.	GD2829	1-2	Fuse, 15 Amp, Type AGC
25.	GD10243	2-6	Fuse, MDL 10 Amp Delay Action
26.	GR1363	5	Hex Face Nut, 15/32"-32
20.	GR1364	5	Internal Tooth Lock Washer, 15/32"
27.	GA8734	1	Cover Plate (Shown)
21.	GA8735		Cover Plate, Planters Equipped With Two-Speed Point Row Clutch
28.	GR1292	4	Pan Head Screw, No. 8-32 x 1/2"
		4	
29.	GD3860	-	O-Ring (If Applicable)
30.	GA2528	2	Switch, 3 Position Toggle, On-Off-On
31.	GA6978	2	Switch, 3 Position Toggle, Momentary On-Off-Momentary On
32.	GA6977	1-2	Switch, 2 Position Toggle, On-Off
33.	GA8731	1	Switch, Push Button W/Transformer
34.	GD9896	1	Mounting Bracket
35.	G10211	4	Washer, 1/4" SAE
36.	GA6975	2	Knob
37.	GR1290	2	Cage Nut, 1/4"-20
38.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) 3-Pin Connector,
			(1) Cable Clamp, (3) Male Terminal Pins
39.	G1K268	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector,
			(1) Cable Clamp, (1) Lock Ring, (3) Female Terminal Pins
40.	GA7856	1	Power Lead Adapter
41.	G10996		Fork Terminal
	010000		Ton Tominal

NOTE: See "Point Row Clutch" or "Two-Speed Point Row Clutch" for R.H. and L.H. Wiring Harness for the point row clutches. See "KPM I/KPM II Electronic Seed Monitor" or "KPM II Stack-Mode Electronic Seed Monitor" for those components.

ELECTRICAL COMPONENTS (Serial No. 750404 And On)



ELECTRICAL COMPONENTS (Serial No. 750404 And On)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA9481	-	Jumper Wire W/Fork Terminal, 13"
	G10996	-	Fork Terminal
2.	GD13310	-	Jumper, 7/16"
3.	GD8740	-	Socket Contact, No. 14
4.	GD8741	-	Pin Contact, No. 14
5.	GD8739	-	Sealing Plug, No. 12
6.	GA6109	1	Connector W/Cable Clamp, 23 Pin Capacity
7.	GA7862	-	Dust Cap W/Chain
8.	GA7863	-	Dust Cap W/Chain
9.	GA6108	1	Connector W/Cable Clamp, 23 Socket Capacity
10.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings,
			(9) Pin Contacts, (9) Seals
11.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings,
	•		(9) Socket Contacts, (9) Seals
12.	GD11089	-	Sealing Plug
13.	GA8047	-	Dust Plug (Black)
14.	GA9513	1	Wiring Harness, 288", From Valve Block On R.H. Wing To
1-7.	0/10010	•	Tower Assembly
15.	GA9496	1	Wiring Harness W/Dust Cap, 468"
16.	GA7399	-	Harness Extension W/Dust Caps, 180"
17.	GA6701	1	Single Amber Light Assembly
17.	GR1204	-	Amber Lens
	GR1204 GR1206		
		-	Rubber Grommet (2)
	GR1207	-	Lamp Unit
40	GR1208	-	Bulb
18.	GA6699	1	Double Light Assembly
	GA6700	1	Double Light Assembly (Shown)
	GR1203	-	Red Lens
	GR1204	-	Amber Lens
	GR1205	-	Cover
	GR1206	-	Rubber Grommet (4)
	GR1207	-	Lamp Unit
	GR1208	-	Bulb
19.	G10064	8	Hex Head Cap Screw, 1/4"-20 x 1"
	G10857	8	Hex Head Cap Screw, ¹ / ₄ "-20 x 1 ¹ / ₄ "
	G10227	16	Lock Washer, 1/4"
	G10103	16	Hex Nut, 1/4"-20
20.	GA9502	1	Wiring Harness W/7 Terminal Female Connector, 659"
			(4 Light Connections)
	GA5385	-	7 Terminal Female Connector
21.	G7633X	-	Backlit Control Console Assembly W/Mounting Brackets, Short
			Harness W/Dust Cap And Power Cable (Shown)
	G7639X	-	Backlit Control Console Assembly W/Mounting Brackets, Short
			Harness W/Dust Cap And Power Cable, Planters Equipped With
			Two-Speed Point Row Clutch
22.	GA2612	3-5	Fuse Holder W/Spade, 1 33/50"
23.	GA7077	1-4	IndicatorLight
24.	GD2829	1-2	Fuse, 15 Amp, Type AGC
25.	GD10243	2-6	Fuse, MDL 10 Amp Delay Action
26.	GR1363	5	Hex Face Nut, 15/32"-32
	GR1364	5	Internal Tooth Lock Washer, 15/32"
	5.1.100 r	J	

(Continued On Following Page)

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ELECTRICAL COMPONENTS (Serial No. 750404 And On)

ITEM	PART NO.	QTY.	DESCRIPTION
07	040704	4	
27.	GA8734	1	Cover Plate (Shown)
	GA8735	-	Cover Plate, Planters Equipped With Two-Speed Point Row Clutch
28.	GR1292	4	Pan Head Screw, No. 8-32 x 1/2"
29.	GD3860	-	O-Ring (If Applicable)
30.	GA2528	2	Switch, 3 Position Toggle, On-Off-On
31.	GA6978	2	Switch, 3 Position Toggle, Momentary On-Off- Momentary On
32.	GA6977	1-2	Switch, 2 Position Toggle, On-Off
33.	GA8731	1	Switch, Push Button W/Transformer
34.	GD9896	1	Mounting Bracket
35.	G10211	4	Washer, 1/4" SAE
36.	GA6975	2	Knob
37.	GR1290	2	Cage Nut, 1/4"-20
38.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) 3-Pin Connector,
			(1) Cable Clamp, (3) Male Terminal Pins
39.	G1K268	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector,
			(1) Cable Clamp, (1) Lock Ring, (3) Female Terminal Pins
40.	GA7856	1	Power Lead Adapter
41.	GA8729	1	Wiring Harness W/Dust Cap And Power Cable

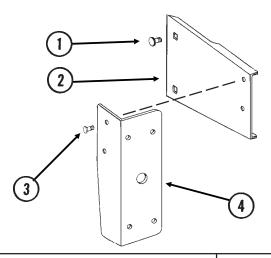
NOTE: See "Point Row Clutch" or "Two-Speed Point Row Clutch" for R.H. and L.H. Wiring Harness for the point row clutches. See "KPM I/KPM II Electronic Seed Monitor" or "KPM II Stack-Mode Electronic Seed Monitor" for those components.

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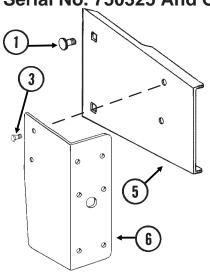
LIGHT/REFLECTIVE DECAL BRACKETS AND EXTENSIONS

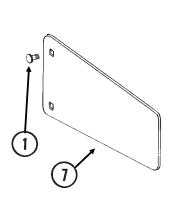
(RU133/RU132/RU130/RU131/RU129/RU132a)

Prior To Serial No. 750325

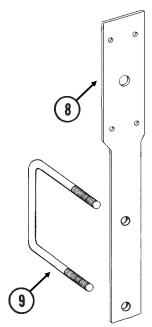


Serial No. 750325 And On





Serial No. 750404 And On

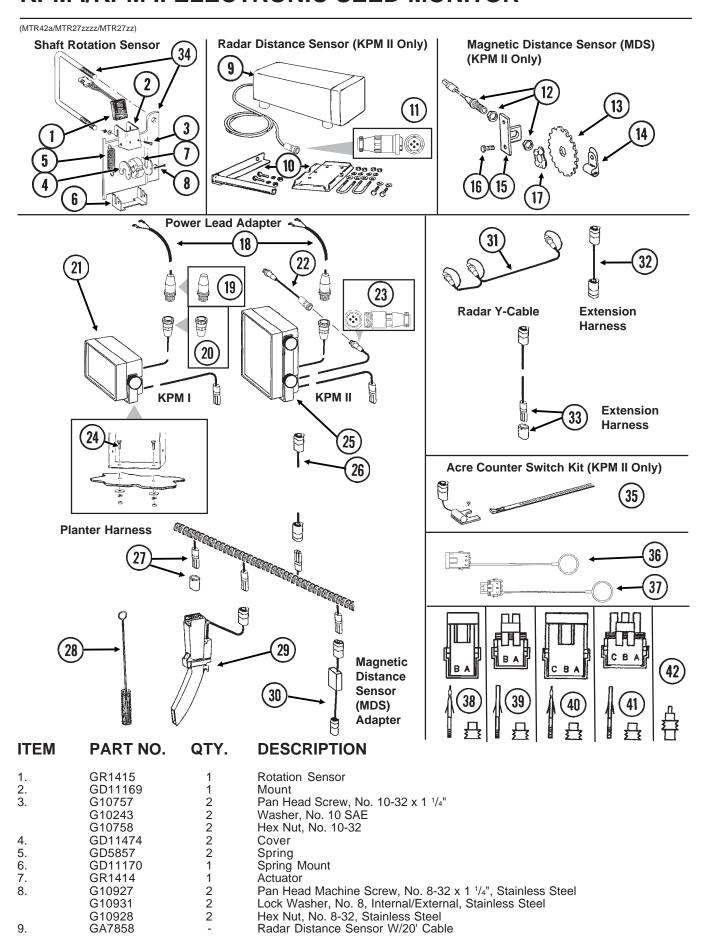


ITEM PART NO. QTY. DESCRIPTION

1.	G10312	-	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	-	Flange Nut, 5/16"-18
2.	GD11712	1	Light Mount Extension (L.H. Wing)
	GD11713	1	Light Mount Extension (R.H. Wing) (Shown)
3.	G10064	-	Hex Head Cap Screw, 1/4"-20 x 1"
	G10227	-	Lock Washer, 1/4"
	G10103	-	Hex Nut, 1/4"-20
4.	GD9708	1	Light Bracket (L.H. Wing)
	GD9707	1	Light Bracket (R.H. Wing) (Shown)
5.	GD12723	1	Light Mount Extension (L.H. Wing)
	GD12722	1	Light Mount Extension (R.H. Wing) (Shown)
6.	GD12725	1	Bracket (L.H. Wing)
	GD12724	1	Bracket (R.H. Wing) (Shown)
7.	GD12710	2	Reflective Decal Bracket
8.	GD13358	2	Light Bracket
9.	GD1114	2	U-Bolt, 7" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, ⁵ / ₈ "-11
			P113

Rev. 7/03

KPM I/KPM II ELECTRONIC SEED MONITOR



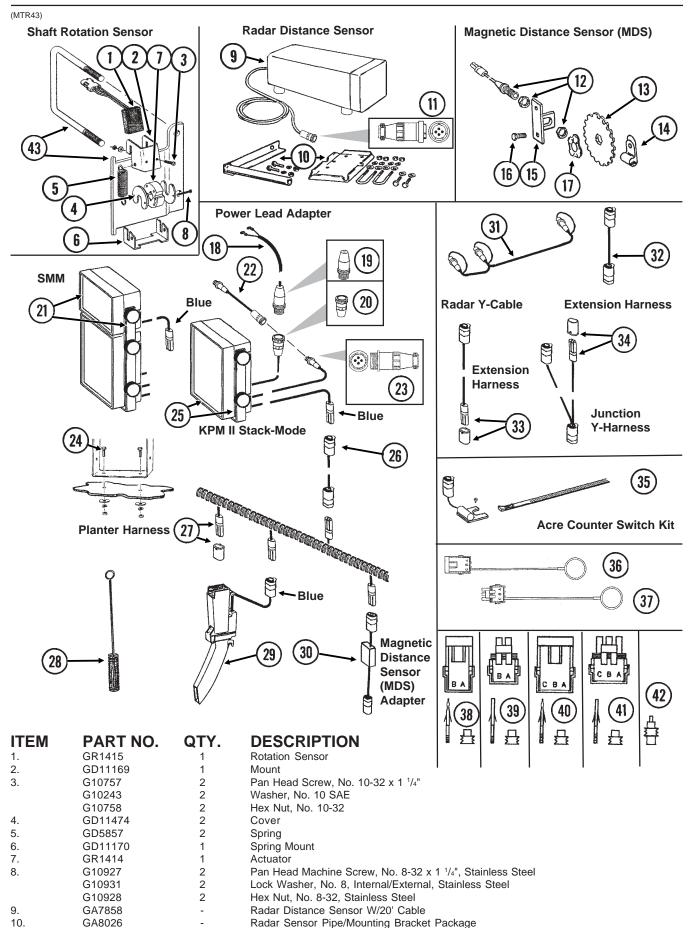
P114 Rev. 10/04

KPM I/KPM II ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
10.	GA8026	-	Radar Sensor Pipe/Mounting Bracket Package
1.	G1K323	-	4-Pin Connector Kit W/Female Housing, 4 Pins And Cable Clamp
2.	GA5600	1	Magnetic Distance Sensor
3.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
4.	GD6291	_	Insulated Clamp, 3/8"
5.	GD8770	1	Bracket
6.	G10001	2	Hex Head Cap Screw, ³ / ₈ "-16 x 1"
5.		2	
	G10229	2	Lock Washer, 3/8"
_	G10101	2	Hex Nut, 3/8"-16
7.	GD8771	1	Spring Wave Washer
8.	GA7856	1	Power Lead Adapter
9.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) Cable Clamp,
			(1) 3-Pin Connector, (3) Male Terminal Pins
0.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp,
			(1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
1.	GA10570	1	KPM I Backlit Console W/Mounting Bracket, Fuse Holder And Fuse, Power Lead
	GA10370	'	Adapter (Item 18), Brush (Item 28) And Dust Plug (Item 36)
	0.000		
	GR1390	-	Mounting Bracket, KPM I
	GR1392	-	Console Mounting Bracket Hardware Package (Includes 2 Knobs And 1/4" Hardware
	GA10601	-	Fuse Holder
	GD7639	-	Fuse
2.	GA9144	-	Monitor/Radar Adapter, 10"
3.	G1K322	-	4-Pin Connector Kit W/Male Housing, 4 Female Socket Contacts And Cable Clam
4.	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10022 G10211	2	Washer, 1/4" SAE
	G10211 G10227	2	
		2	Lock Washer, 1/4"
_	G10103	2	Hex Nut, 1/4"-20
5.	GA10575	-	KPM II Backlit Console W/Mounting Bracket, Fuse Holder And Fuse, Power Lead
			Adapter (Item 18), Brush (Item 28), Dust Plug (Item 36) And Monitor/Radar Adapte
			10" (Item 22)
	GR1391	-	Mounting Bracket, KPM II
	GR1393	_	Console Mounting Bracket Hardware Package (Includes 4 Knobs
			And 1/4" Hardware)
	GA10601	_	Fuse Holder
		-	
0	GD7639	-	Fuse
6.		-	Included In Tractor/Planter Wiring Harnesses, See Items 15 And 17 On
_			Pages P108 And P109 Or Items 15 And 41 On Pages P110-P112
7.	GA7850	-	Planter Harness W/Dust Caps, 8 Row (12 Connectors)
	GA7851	-	Planter Harness W/Dust Caps, 12 Row (16 Connectors)
	GA8050	-	Planter Harness W/Dust Caps, 18 Row (22 Connectors)
	GD11993	_	Dust Cap
8.	GR0594	_	Brush
9.	GA8495		Seed Tube W/Computerized Sensor
9.		-	
	GR1395	-	Sensor Only
	GR1461	-	Seed Tube (With Holes For Computerized Sensor Installation)
	GD2117	-	Tie Strap, 14 ½"
0.	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
1.	GR0586	1	Radar Y-Cable (Used To Connect Radar Distance Sensor For
			Multiple Functions)
2.	GA7857	_	Extension Harness, 1'
3.	GA7854	=	Extension Harness, 1 Extension Harness W/Dust Cap, 15'
J.		-	
	GA7855	-	Extension Harness W/Dust Cap, 30'
	GD11993	-	Dust Cap
4.	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
5.	G1K249	-	Acre Counter Switch Kit (Used W/KPM II Console Only)
6.	GA8046	-	Dust Plug (Black)
7.	GA8047	_	Dust Plug (Black)
7. 8.	G1K321	_	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female
o.	0111021	-	
0	C41/2020		Housings, (6) Pin Contacts, (6) Seals
9.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings,
_			(6) Socket Contacts, (6) Seals
0.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female
			Housings, (9) Pin Contacts, (9) Seals
1.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings,
• •	J LUL		(9) Socket Contacts, (9) Seals
2.	GD11089	_	Sealing Plug
<u>-</u> .	9011009	-	Obaling Flug
	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 12-17)

P115 Rev. 10/04

KPM II STACK-MODE ELECTRONIC SEED MONITOR



P116 Rev. 10/04

KPM II STACK-MODE ELECTRONIC SEED MONITOR

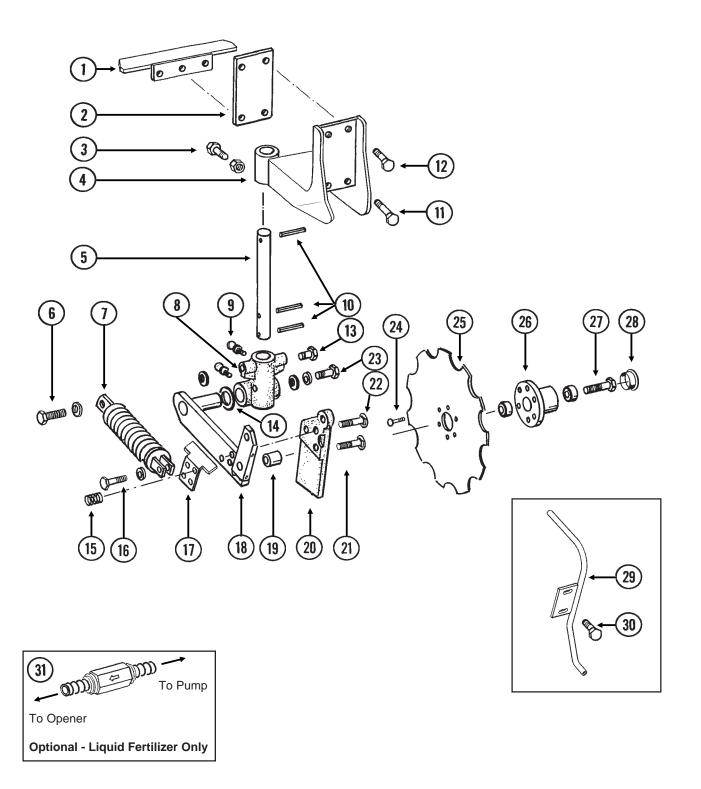
ITEM	PART NO.	QTY.	DESCRIPTION
		QII.	
11.	G1K323	1	4-Pin Connector Kit W/Female Housing, 4 Pins And Cable Clamp
12.	GA5600	ı	Magnetic Distance Sensor
13.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
14.	GD6291	-	Insulated Clamp, ³ / ₈ "
15.	GD8770	1	Bracket Hex Head Cap Screw, 3/8"-16 x 1 1/4"
16.	G10004	2	
	G10229	2 2	Lock Washer, ³ / ₈ "
47	G10101		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,
20	C41/260		(1) 3-Pin Connector, (3) Male Terminal Pins
20.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp,
0.1	CA0057	1	(1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
21.	GA9857	-	SMM Backlit Console W/Mounting Bracket And Dust Plug (Item 36) Mounting Bracket, KPM II Stack-Mode And SMM Consoles
	GR1631 GR1632		
	GK 1032	-	Console Mounting Bracket Hardware Package (Includes 2 Knobs
22.	GA0144		And 1/4" Hardware)
23.	GA9144	-	Monitor/Radar Adapter, 10" 4 Pin Connector Kit W/Mole Housing, 4 Female Seeket Contacts And Coble Clamp
23. 24.	G1K322		4-Pin Connector Kit W/Male Housing, 4 Female Socket Contacts And Cable Clamp Hex Head Cap Screw, 1/4"-20 x 1/2"
24.	G10022	2	·
	G10211	2	Washer, 1/4" SAE
	G10227	2	Lock Washer, 1/4"
0.5	G10103	2	Hex Nut, 1/4"-20
25.	GA10575	-	KPM II Stack-Mode Backlit Console W/Mounting Bracket, Fuse Holder And Fuse,
			Power Lead Adapter (Item 18), Brush (Item 28), Dust Plug (Item 36) And Monitor/
	CD4204		Radar Adapter, 10" (Item 22)
	GR1391	-	Mounting Bracket, KPM II
	GR1393	-	Console Mounting Bracket Hardware Package (Includes 4 Knobs
	0.440004		And ¹ / ₄ " Hardware)
	GA10601	-	Fuse Holder
00	GD7639	-	Fuse
26.		-	Included In Tractor/Planter Wiring Harnesses, See Items 15 And 17 On Pages
0.7	0.47050		P108 And P109 Or Items 15 And 41 On Pages P110-P112
27.	GA7850	-	Planter Harness W/Dust Caps, 8 Row (12 Connectors)
	GA7851	-	Planter Harness W/Dust Caps, 12 Row (16 Connectors)
	GA8050	-	Planter Harness W/Dust Caps, 18 Row (22 Connectors)
00	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)
20	GD2117	-	Tie Strap, 14 ½" Magnetia Bistonea Sancar Adoptor (Applex To Bisital)
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.	GA7857	-	Extension Harness, 1'
33.	GA7854	-	Extension Harness W/Dust Cap, 15'
	GA7855	-	Extension Harness W/Dust Cap, 30'
2.4	GD11993	-	Dust Cap
34.	GA7853	-	Junction Y-Harness W/Dust Cap
25	GD11993	-	Dust Cap
35. 36	G1K249	-	Acre Counter Switch Kit Dust Plug (Black)
36.	GA8046	-	
27	GA9978	-	Dust Plug (Blue)
37.	GA8047	-	Dust Plug (Black)
20	GA9979	-	Dust Plug (Blue)
38.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female
00	0.41/000		Housings, (6) Pin Contacts, (6) Seals
39.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings,
40	041/040		(6) Socket Contacts, (6) Seals
40.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female
	041/200		Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female
44	C41/050		Housings, (9) Pin Contacts, (9) Seals
41.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings,
	C41/262		(9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings,
40	CD44000		(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
٨	C \ 61.47		Magnetic Distance Sensor And Maunting Deckage (Home 42.47)
A.	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 12-17)

P117 Rev. 10/04

NOTCHED SINGLE DISC FERTILIZER OPENER AND MOUNT (Row Unit Mounted)

(PT64/PT65)

STYLE A



P118 Rev. 10/04

NOTCHED SINGLE DISC FERTILIZER OPENER AND MOUNT (Row Unit Mounted)

1. GA7844 1 Angle 2. GD10307 1 Bar, 4" x 9" 3. G10014 2 Hex Head Cap Screw, ½"-13 x 1" G10102 2 Hex Nut, ½"-13 4. GA7263 1 Mount, L.H. (Shown) GA7262 - Mount, R.H. 5. GD10306 1 Shaft, 1½" x 11 ½" 6. GD7818 1 Special Bolt GD7805 2 Special Washer, ½", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, ¼" NPT 10. G10476 3-4 Spring Pin, ¾* x 2 ½" 11. G10581 2 Hex Head Cap Screw, ½"-13 x 2 ¼" G10228 2 Lock Washer, ½" G10102 2 Hex Nut, ½"-13 12. G10017 2 Hex Head Cap Screw, ½"-13 x 1 ½" G10228 2 Lock Washer, ½" 13. G10438 1 Hex Head Cap Screw, ½"-13 x 1 ½" G10438 1 Hex Head Cap Screw, ½"-13 x 1 ½" G10438 1 Hex Head Cap Screw, ½"-13 x 1 ½" G101106 1 Spring 16. G10047 1 Hex Head Cap Screw, ½"-16 x 1 ¾/" G10210 2 Washer, ¾" USS GD1026 1 Sleeve, 1 ¾/" Long G10108 1 Lock Nut, ¾*-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, L.H. (Shown) GA8008 1 Pivot Arm, L.H. (Shown) GB0248 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, ¾/*-16 x 2 ¾/* G10210 1 Washer, ¾/*-18 x 1" G10210 1 Washer, ¾/*-18 Lock Wather, ¾/*-18 G10106 6 Hex Nut, ¾/*-18	
2. GD10307 1 Bar, 4" x 9" 3. G10014 2 Hex Head Cap Screw, ½"-13 x 1" G10102 2 Hex Nut, ½"-13 4. GA7263 1 Mount, L.H. (Shown) GA7263 1 Shaft, 1 ½" x 11 ½" 5. GD10306 1 Shaft, 1 ½" x 11 ½" 6. GD7818 1 Special Bolt GD7805 2 Special Washer, ¾", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, ¼" NPT 10. G10476 3-4 Spring Pin, ¾" x 2 ½" G1028 2 Lock Washer, ½" G10102 2 Hex Nut, ½"-13 12. G10017 2 Hex Head Cap Screw, ½"-13 x 2 ¼" G10102 2 Hex Nut, ½"-13 13. G10438 1 Hex Head Cap Screw, ½"-13 x 1 ½" G10438 1 Hex Head Cap Screw, ½"-13 x 3½" 14. G10450 2 Machine Bushing, 1 ½", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, ¾"-16 x 1 ¾" G10206 1 Sleeve, 1 ¾"-16 G10107 1 Shield GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GA8007 1 Pivot Arm, R.H. 19. GD7817-05 1 Spacer, ¼"-16 G10306 2-3 Carriage Bolt, ¾"-16 x 2 ¾-16 G10108 1 Lock Nut, ¾"-16 G10210 1 Washer, ¾"-16 G10230 1 Lock Nut, ¾"-16 G10210 1 Washer, ¾"-16 G10210 1 Washer, ¾"-16 G10230 1 Lock Nut, ¾"-16 G10230 1 Lock Nut, ¾"-16 G10230 1 Lock Washer, ¾"-18 G10106 6 Hex Nut, ¾"-16 G10106 6 Hex Nut, ¾"-16 G10210 1 Washer, ¾"-16 G10230 1 Lock Washer, ¾"-18 G10106 6 Hex Nut, ¾"-18 G10210 1 Washer, ¾"-18 G10230 1 Lock Was	
3. G10014 2 Hex Head Cap Screw, ½"-13 x 1" 4. GA7263 1 Mount, L.H. (Shown) GA7262 - Mount, R.H. 5. GD10306 1 Shaft, 1 ½" x 11 ½" 6. GD7818 1 Special Bolt GD7805 2 Special Washer, ¾", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, ¾" x 2 ½" 11. G10581 2 Hex Head Cap Screw, ½"-13 x 2 ¼" G10228 2 Lock Washer, ½" G10102 2 Hex Nut, ½"-13 12. G10017 2 Hex Head Cap Screw, ½"-13 x 1 ½" G10228 2 Lock Washer, ½" G10228 2 Lock Washer, ½" G10438 1 Hex Head Cap Screw, ½"-13 x 1 ½" 13. G10438 1 Hex Head Cap Screw, ½"-13 x 3¾" 14. G10450 2 Machine Bushing, 1 ½", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, ¾"-16 x 1 ¾¼" G10210 2 Washer, ¾" USS GD1026 1 Sleeve, 1 ¾"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 1½"-16 x 2 ¾" Carriage Bolt, ¾"-16 x 2 ¾" Carriage Bolt, ¾"-16 x 2 ¾" G10210 1 Washer, ¾" L.D. x 1 ¼" Long GB0248 - Knife/Scraper, L.H. (Shown) GB0248 - Pivot Arm, R.H. 21. G10306 2-3 Carriage Bolt, ¾"-16 x 2 ¾" G10210 1 Washer, ¾" LSS G10108 1 Lock Nut, ¾"-16 x 2 ¼" G10210 1 Washer, ¾" LSS G10108 2-3 Lock Nut, ¾"-16 x 2 ¼" G10210 1 Washer, ¾" LSS G10108 1 Lock Nut, ¾"-16 x 2 ¼" G10210 1 Washer, ¾" LSS G10108 2-3 Lock Nut, ¾"-16 x 2 ¼" G10210 1 Washer, ¾" LSS G10007 1 Hex Head Cap Screw, ¾"-16 x 2 ¾" G10210 1 Washer, ¾" LSS G10007 1 Hex Head Cap Screw, ¾"-16 x 2 ¼" G10230 1 Lock Nut, ¾"-16 x 2 ¾" G10230 1 Lock Nut, ¾"-16 x 2 ¾" G10230 1 Lock Nut, ¾"-16 x 2 ¾" G10230 1 Lock Washer, ¾" G1024	
4. GA7263 1 Mount, L.H. (Shown) GA7262 - Mount, R.H. 5. GD10306 1 Shaft, 1 1/2" x 11 1/2" 6. GD7818 1 Special Bolt GD7805 2 Special Washer, */s*", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, */s*" NPT 10. G10476 3-4 Spring Pin, */s* x 2 1/s** 11. G10581 2 Hex Nut, */s*-13 12. G10010 2 Hex Nut, */s*-13 12. G10017 2 Hex Nut, */s*-13 13. G10438 1 Hex Head Cap Screw, */z*-13 x 1 1/z* 14. G10450 2 Machine Bushing, 1 1/z*, *18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, */s*-18 x 1 3/s* G10102 2 Washer, */s** USS GD1026 1 Sleeve, 1 3/s*-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, *1/s*-16 x 1 3/s*-16	
GA7262 - Mount, R.H. 5. GD10306 1 Shaft, 1 ½" x 11 ½" 6. GD7818 1 Special Bolt GD7805 2 Special Washer, 5½", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, 1½" NPT 10. G10476 3-4 Spring Pin, 3½" x 2 ½" 11. G10581 2 Hex Head Cap Screw, ½"-13 x 2 ½" G10102 2 Hex Nut, ½"-13 12. G10102 2 Hex Head Cap Screw, ½"-13 x 1 ½" G10228 2 Lock Washer, ½" G10228 2 Lock Washer, ½" 13. G10438 1 Hex Head Cap Screw, ½"-13 x 3 ½" 14. G10450 2 Machine Bushing, 1 ½", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, ¾="-16 x 1 ¾," G10106 1 Spering 16. G10108 1 Lock Nut, ½"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA808 - Pivot Arm, L.H. (Shown) GA8088 - Pivot Arm, L.H. (Shown) GA8088 - Pivot Arm, L.H. (Shown) GA8088 1 Carriage Bolt, ¾="-16 x 2 ¾= 10. G10108 2-3 Lock Nut, ½"=-16 11. G1008 2-3 Lock Nut, ½"=-16 12. G10898 1 Carriage Bolt, ¾="-16 x 2 ¾= 12. G10898 1 Carriage Bolt, ¾="-16 x 2 ¾= 13. G1007 1 Hex Head Cap Screw, ½="-11 x 1 ½=" 14. G10300 2-3 Lock Nut, ½="-16 15. G10108 1-1 Lock Nut, ½="-16 16. G10018 1-1 Lock Nut, ½="-16 17. G10210 1 Washer, ½= 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8088 - Pivot Arm, L.H. (Shown) GB0248 - Knife/Scraper, L.H. (Shown) GB0249 1 Knife/Scraper, R.H. 21. G10306 2-3 Lock Nut, ½="-16 22. G10898 1 Carriage Bolt, ¾="-16 x 2 ¾=" 23. G10007 1 Hex Head Cap Screw, ½="-11 x 1 ½=" 19. G10210 1 Washer, ½=" USS 101017 1 Washer, ½=" USS 101017 1 Washer, ½=" USS 101017 1 Washer, ½=" USS 101016 6 Hex Nut, ¾="-16 10106 6 Hex Nut, ¾="-18 10. GA5654 1 Hub W/Bearings	
GA7262 - Mount, R.H. 5. GD10306 1 Shaft, 1 \(\frac{1}{2} \) \(x \) 1 \(x \	
6. GD7818 1 Special Bolt GD7805 2 Special Washer, 5/s*, Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, 1/s* NPT 10. G10476 3-4 Spring Pin, 3/s* x 2 1/s* 11. G10581 2 Hex Head Cap Screw, 1/z* 13 x 2 1/s* G10228 2 Lock Washer, 1/z* G10228 2 Washer, 1/z* G10228 2 Washer, 1/z* G1024 Cap Screw, 1/z* -13 x 3/s* G10438 1 Hex Head Cap Screw, 1/z* -13 x 3/s* G10240 2 Washer, 3/s* USS G10106 1 Spring G10108 1 Lock Nut, 3/s* -16 x 1 3/s* G10210 2 Washer, 1/s* Long G10108 1 Lock Nut, 1/z* Long G10108 1 Sleeve, 1 3/s* Long G10108 1 Sheld G10249 1 Knife/Scraper, L.H. (Shown) GA8008 - Pivot Arm, R.H. G10249 1 Knife/Scraper, R.H. G10210 2 G10306 2-3 Carriage Bolt, 3/s* -16 x 2* G10108 2-3 Lock Nut, 1/s* -16 x 2* G10108 2-3 Lock Nut, 1/s* -16 x 2* G10108 2-3 Lock Nut, 1/s* -16 x 2* G10108 1 Lock Nut, 1/s* -16 x 2* G10108 1 Lock Nut, 1/s* -16 x 2* G10217 1 Washer, 1/s* USS G10217 1 Disc Blade, Notched, 16 3/s* G1026 GA5654 1 Lub WWebearings	
GD7805 2 Special Washer, 5/8", Hardened 7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, 1/8" NPT 10. G10476 3-4 Spring Pin, 3/8" X 2 1/4" 11. G10581 2 Hex Head Cap Screw, 1/2"-13 x 2 1/4" G10228 2 Lock Washer, 1/2" G10102 2 Hex Nut, 1/2"-13 12. G10017 2 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10228 2 Lock Washer, 1/2" 13. G10438 1 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10450 2 Machine Bushing, 1 1/2", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, 3/8"-16 x 1 3/4" G10210 2 Washer, 3/8" USS GD1026 1 Sleeve, 1 3/18" Long G10108 1 Lock Nut, 3/8"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/6" I.D. x 1 1/4" Long GB0249 1 Knife/Scraper, L.H. (Shown) GB0249 1 Knife/Scraper, L.H. (Shown) GB0249 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10108 1 Lock Nut, 3/8"-16 21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Nut, 3/8"-16 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10217 1 Washer, 5/16" USS 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
7. GA6966 1 Compression Spring Assembly 8. GB0250 1 Pivot 9. G10641 2 Grease Fitting, ¹/s" NPT 10. G10476 3-4 Spring Pin, ³/s" x 2 ¹/4" 11. G10581 2 Hex Head Cap Screw, ¹/2"-13 x 2 ¹/4" 610228 2 Lock Washer, ¹/2" 610102 2 Hex Nut, ¹/2'-13 12. G10017 2 Hex Head Cap Screw, ¹/2"-13 x 1 ¹/2" 610228 2 Lock Washer, ¹/2" 610228 2 Lock Washer, ¹/2" 610228 2 Lock Washer, ¹/2" 61028 1 Hex Head Cap Screw, ¹/2"-13 x 1 ¹/2" 610438 1 Hex Head Cap Screw, ¹/2"-13 x 3 ²/4" 14. G10450 2 Machine Bushing, 1 ¹/2", 18 Gauge 15. GD11106 1 Spring 61. G10047 1 Hex Head Cap Screw, ³/s"-16 x 1 ³/4" 610210 2 Washer, ³/s" USS 6D1026 1 Sleeve, 1 ²/s" Long 610108 1 Lock Nut, ³/s"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) 6A8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, ¹/1/s" L.D. x 1 ¹/4" Long 6B0248 - Knife/Scraper, L.H. (Shown) 6B0249 1 Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, ³/s"-16 x 2" 610108 1 Lock Nut, ³/s"-16 22. G10898 1 Carriage Bolt, ³/s"-16 x 2 ³/4" 610210 1 Washer, ³/s" USS 610107 1 Hex Head Cap Screw, ⁵/s"-11 x 1 ¹/2" 610210 1 Washer, ³/s" USS 610107 1 Hex Head Cap Screw, 5/s"-11 x 1 ¹/2" 610217 1 Washer, ³/s" USS 24. G10886 6 Truss Head Bolt, ⁵/s"-18 x 1" 610217 1 Washer, 5/s" USS 25. GD9934 1 Disc Blade, Notched, 16 ³/4" 26. GA5654 1 Hub W/Bearings	
8.	
9. G10641 2 Grease Fitting, 1/s" NPT 10. G10476 3-4 Spring Pin, 3/s" x 2 1/s" 11. G10581 2 Hex Head Cap Screw, 1/2"-13 x 2 1/s" G10228 2 Lock Washer, 1/s" G10102 1 Hex Nut, 1/s"-13 12. G10017 2 Hex Head Cap Screw, 1/2"-13 x 1 1/s" G1028 2 Lock Washer, 1/s" G1028 2 Lock Washer, 1/s" G1028 1 Hex Head Cap Screw, 1/2"-13 x 3 1 1/s" 13. G10438 1 Hex Head Cap Screw, 1/2"-13 x 3/s" 14. G10450 2 Machine Bushing, 1 1/s", 18 Gauge 15. GD11106 1 Spring 16. G101108 1 Seeve, 1 3/s" USS GD1026 1 Sleeve, 1 3/s" Long G10108 1 Lock Nut, 3/s"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/s" I.D. x 1 1/s" Long GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/s"-16 x 2 3/s" G10108 1 Carriage Bolt, 3/s"-16 x 2 3/s" G10108 1 Lock Nut, 3/s"-16 22. G10898 1 Carriage Bolt, 3/s"-16 x 2 3/s" G10108 1 Lock Nut, 3/s"-16 23. G10007 1 Hex Head Cap Screw, 5/s"-11 x 1 1/z" G10210 1 Washer, 3/s" USS G10108 1 Lock Nut, 3/s"-16 x 2 3/s" G10210 1 Washer, 3/s" USS G10108 1 Lock Nut, 3/s"-16 x 2 3/s" G10210 1 Washer, 3/s" USS G10108 1 Lock Nut, 3/s"-16 x 2 3/s" G10217 1 Washer, 5/s" USS G10106 6 Hex Nut, 5/s-18 x 1" G10217 1 Washer, 5/s" USS G10106 6 Truss Head Bolt, 5/s"-18 x 1" G10217 1 Washer, 5/s" USS G10106 6 Hex Nut, 5/s-18 x 1" G10106 6 Hex Nut, 5/s-18 Lock Alt, 3/s" G10107 Disc Blade, Notched, 16 3/s"	
10. G10476 3-4 Spring Pin, 3/6" x 2 1/4" 11. G10581 2 Hex Head Cap Screw, 1/2"-13 x 2 1/4" G10228 2 Lock Washer, 1/2" G10102 2 Hex Nut, 1/2"-13 12. G10017 2 Hex Head Cap Screw, 1/2"-13 x 1 1/2" G10228 2 Lock Washer, 1/2" G10450 2 Machine Bushing, 1 1/2", 18 Gauge G10106 1 Spring G10047 1 Hex Head Cap Screw, 3/8"-16 x 1 3/4" G10210 2 Washer, 3/6" USS GD1026 1 Sleeve, 1 3/16" Long G10108 1 Lock Nut, 3/8"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/16" L.D. x 1 1/4" Long G80249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/6"-16 x 2" G10108 2-3 Lock Nut, 3/6"-16 G10108 1 Lock Nut, 3/6"-16 G10210 1 Washer, 3/6" USS G10108 1 Lock Nut, 3/6"-16 G10217 1 Washer, 5/6" USS G10230 1 Lock Washer, 5/6" USS G10217 1 Washer, 5/6" USS G10106 6 Truss Head Bolt, 5/16"-18 x 1" G1026 GA5654 1 Hub W/Bearings	
11. G10581 2 Hex Head Cap Screw, 1/2"-13 x 2 1/4" G10228 2 Lock Washer, 1/2" 13. G10438 1 Hex Head Cap Screw, 1/2"-13 x 3/4" 14. G10450 2 Machine Bushing, 1 1/2", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, 3/8"-16 x 1 3/4" G10210 2 Washer, 3/8" USS GD1026 1 Sleeve, 1 3/16" Long G10108 1 Lock Nut, 3/8"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, R.H. GA8008 - Pivot Arm, R.H. GD7817-05 1 Spacer, 11/16" I.D. x 1 1/4" Long GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2" G10108 2-3 Lock Nut, 3/8"-16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/6" USS G10108 2-3 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" USS G10217 1 Washer, 5/8" USS G10217 1 Washer, 5/8" USS C10027 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" USS G10244 1 Disc Blade, Notched, 16 3/4" G1025 GB0934 1 Disc Blade, Notched, 16 3/4"	
G10228 G10102 G10102 G10107 G10228 C2 Hex Nut, '\z''-13 12. G10017 C3 Hex Head Cap Screw, '\z''-13 x 1 '\z'' 13. G10438 C1 Hex Head Cap Screw, '\z''-13 x 3\z'' 14. G10450 C2 Machine Bushing, 1 '\z'', 18 Gauge 15. GD11106 C3 G10047 C4 Hex Head Cap Screw, '\z''-16 x 1 3\z'' 16. G10047 C5 G10210 C7 G10210 C8 G10108 C8 G10108 C9 G10230 C9 G10247 C9 G10258 C9 G10268 C9 G1027 C9 G1027 C9	
G10102	
12. G10017 2 Hex Head Cap Screw, ¹/₂"-13 x 1 ¹/₂" G10228 2 Lock Washer, ¹/₂" 13. G10438 1 Hex Head Cap Screw, ¹/₂"-13 x ³/₄" 14. G10450 2 Machine Bushing, 1 ¹/₂", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, ³/₅"-16 x 1 ³/₄" G10210 2 Washer, ³/₅" USS GD1026 1 Sleeve, 1 ³/₁₅" Long G10108 1 Lock Nut, ³/₅"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, ¹¹/₁₅" I.D. x 1 ¹/₄" Long GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, ³/₅"-16 x 2" G10108 2-3 Lock Nut, ³/₅"-16 22. G10898 1 Carriage Bolt, ³/₅"-16 x 2" G10108 1 Washer, ³/₅" USS G10108 1 Lock Nut, ³/₅"-16 23. G10007 1 Hex Head Cap Screw, ⁵/₅"-11 x 1 ¹/₂" G10230 1 Lock Washer, ⁵/₅" USS G10217 1 Washer, ⁵/₅" USS G10217 1 Washer, ⁵/₅" USS G10106 6 Truss Head Bolt, ⁵/₁₅"-18 x 1" G10106 6 Truss Head Bolt, ⁵/₁₅"-18 x 1" G10106 6 Hex Nut, ⁵/₁₅"-18 C5. GD9934 1 Disc Blade, Notched, 16 ³/₄" Lob W/Bearings	
G10228	
13. G10438 1 Hex Head Cap Screw, 1/2"-13 x 3/4" 14. G10450 2 Machine Bushing, 1 1/2", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, 3/6"-16 x 1 3/4"	
14. G10450 2 Machine Bushing, 1 ½", 18 Gauge 15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, 3/8"-16 x 1 3/4" G10210 2 Washer, 3/8" USS GD1026 1 Sleeve, 1 3/16" Long G10108 1 Lock Nut, 3/8"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/16" I.D. x 1 1/4" Long 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, L.H. 21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2" G10108 2-3 Lock Nut, 3/8" 16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10217 1 Washer, 5/8" USS 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
15. GD11106 1 Spring 16. G10047 1 Hex Head Cap Screw, 3/8"-16 x 1 3/4" G10210 2 Washer, 3/8" USS GD1026 1 Sleeve, 1 3/16" Long G10108 1 Lock Nut, 3/8"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/16" I.D. x 1 1/4" Long 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2" G10108 2-3 Lock Nut, 3/8"-16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
16.	
G10210 2 Washer, 3/s" USS GD1026 1 Sleeve, 1 3/1s" Long G10108 1 Lock Nut, 3/s"-16 17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/1s" I.D. x 1 1/4" Long 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/s"-16 x 2" G10108 2-3 Lock Nut, 3/s"-16 22. G10898 1 Carriage Bolt, 3/s"-16 x 2 3/4" G10210 1 Washer, 3/s" USS G10108 1 Lock Nut, 3/s"-16 23. G10007 1 Hex Head Cap Screw, 5/s"-11 x 1 1/2" G10230 1 Lock Washer, 5/s" G10217 1 Washer, 5/s" USS G10106 6 Hex Nut, 5/1s"-18 x 1" G10106 6 Hex Nut, 5/1s"-18 x 1" G10106 6 Hex Nut, 5/1s"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
GD1026	
G10108	
17. GD11097 1 Shield 18. GA8007 1 Pivot Arm, L.H. (Shown) GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/16" I.D. x 1 1/4" Long 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2" G10108 2-3 Lock Nut, 3/8"-16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
18. GA8007	
GA8008 - Pivot Arm, R.H. 19. GD7817-05 1 Spacer, 11/16" I.D. x 1 1/4" Long 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, 3/6"-16 x 2" G10108 2-3 Lock Nut, 3/6"-16 22. G10898 1 Carriage Bolt, 3/6"-16 x 2 3/4" G10210 1 Washer, 3/6" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/6"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
19. GD7817-05 1 Spacer, \(\frac{1}{1} \) \(\frac{1}{6} \) \(\text{I.D. x 1 } \) \(\frac{1}{4} \) \(\text{Long} \) 20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, \(\frac{3}{6} \) \(\frac{8}{2} \) -16 x 2" G10108 2-3 Lock Nut, \(\frac{3}{6} \) \(\frac{8}{2} \) -16 x 2 \(\frac{3}{4} \) \(\frac{6}{10} \) \(\frac{10}{2} \) 1 Carriage Bolt, \(\frac{3}{6} \) \(\frac{8}{2} \) -16 x 2 \(\frac{3}{4} \) \(\frac{6}{10} \) 1 Washer, \(\frac{3}{6} \) -16 x 2 \(\frac{3}{4} \) \(\frac{6}{10} \) 1 Usss \(\frac{6}{10} \) 1 Usck Nut, \(\frac{3}{6} \) -16 x 2 \(\frac{3}{4} \) 1 Uss \(\frac{6}{10} \) 1 Ussher, \(\frac{5}{6} \) \(\frac{8}{1} \) -11 x 1 \(\frac{1}{2} \) 1 \(\frac{1}{2} \) 1 X 1 \(\frac{1}{2} \) 1 Ussher, \(\frac{5}{6} \) 1 Uss Head Bolt, \(\frac{5}{16} \) -18 x 1 \(\frac{1}{2} \) 1 Uss Blade, Notched, \(\frac{16}{3} \) 4 \(\frac{3}{4} \) 1 Usb W/Bearings	
20. GB0249 1 Knife/Scraper, L.H. (Shown) GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, ³ / ₈ "-16 x 2" G10108 2-3 Lock Nut, ³ / ₈ "-16 22. G10898 1 Carriage Bolt, ³ / ₈ "-16 x 2 ³ / ₄ " G10210 1 Washer, ³ / ₈ " USS G10108 1 Lock Nut, ³ / ₈ "-16 23. G10007 1 Hex Head Cap Screw, ⁵ / ₈ "-11 x 1 ¹ / ₂ " G10230 1 Lock Washer, ⁵ / ₈ " G10217 1 Washer, ⁵ / ₈ " USS 24. G10886 6 Truss Head Bolt, ⁵ / ₁₆ "-18 x 1" G10106 6 Hex Nut, ⁵ / ₁₆ "-18 25. GD9934 1 Disc Blade, Notched, 16 ³ / ₄ " 26. GA5654 1 Hub W/Bearings	
GB0248 - Knife/Scraper, R.H. 21. G10306 2-3 Carriage Bolt, ³ / ₈ "-16 x 2" G10108 2-3 Lock Nut, ³ / ₈ "-16 x 2" 22. G10898 1 Carriage Bolt, ³ / ₈ "-16 x 2 ³ / ₄ " G10210 1 Washer, ³ / ₈ " USS G10108 1 Lock Nut, ³ / ₈ "-16 23. G10007 1 Hex Head Cap Screw, ⁵ / ₈ "-11 x 1 ¹ / ₂ " G10230 1 Lock Washer, ⁵ / ₈ " G10217 1 Washer, ⁵ / ₈ " USS 24. G10886 6 Truss Head Bolt, ⁵ / ₁₆ "-18 x 1" G10106 6 Hex Nut, ⁵ / ₁₆ "-18 25. GD9934 1 Disc Blade, Notched, 16 ³ / ₄ " 26. GA5654 1 Hub W/Bearings	
21. G10306 2-3 Carriage Bolt, 3/8"-16 x 2" G10108 2-3 Lock Nut, 3/8"-16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
G10108 2-3 Lock Nut, 3/8"-16 22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
22. G10898 1 Carriage Bolt, 3/8"-16 x 2 3/4" G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
G10210 1 Washer, 3/8" USS G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
G10108 1 Lock Nut, 3/8"-16 23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
23. G10007 1 Hex Head Cap Screw, 5/8"-11 x 1 1/2" G10230 1 Lock Washer, 5/8" G10217 1 Washer, 5/8" USS 24. G10886 6 Truss Head Bolt, 5/16"-18 x 1" G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
G10230 1 Lock Washer, ⁵ / ₈ " Washer, ⁵ / ₈ " USS 24. G10886 6 Truss Head Bolt, ⁵ / ₁₆ "-18 x 1" G10106 6 Hex Nut, ⁵ / ₁₆ "-18 25. GD9934 1 Disc Blade, Notched, 16 ³ / ₄ " Hub W/Bearings	
G10217 1 Washer, ⁵ / ₈ " USS 24. G10886 6 Truss Head Bolt, ⁵ / ₁₆ "-18 x 1" G10106 6 Hex Nut, ⁵ / ₁₆ "-18 25. GD9934 1 Disc Blade, Notched, 16 ³ / ₄ " 26. GA5654 1 Hub W/Bearings	
24. G10886 6 Truss Head Bolt, ⁵ / ₁₆ "-18 x 1" G10106 6 Hex Nut, ⁵ / ₁₆ "-18 25. GD9934 1 Disc Blade, Notched, 16 ³ / ₄ " 26. GA5654 1 Hub W/Bearings	
G10106 6 Hex Nut, 5/16"-18 25. GD9934 1 Disc Blade, Notched, 16 3/4" 26. GA5654 1 Hub W/Bearings	
 25. GD9934 1 Disc Blade, Notched, 16 ³/₄" 26. GA5654 1 Hub W/Bearings 	
26. GA5654 1 Hub W/Bearings	
· · · · · · · · · · · · · · · · · · ·	
GA2014 - Bearing	
27. G10013 1 Hex Head Cap Screw, 5/8"-11 x 3 1/2"	
28. GD1132 1 Dust Cap	
29. GA8399 1 Drop Tube, L.H., Liquid Fertilizer (Shown)	
GA8398 - Drop Tube, R.H., Liquid Fertilizer	
30. G10043 2 Hex Head Cap Screw, 5/16"-18 x 3/4"	
G10232 2 Lock Washer, 5/16"	
G10219 2 Washer, ⁵ / ₁₆ " USS	
31. GA8983 - Check Valve, Low Rate	
P119 Rev	. 10/04

NOTCHED SINGLE DISC FERTILIZER OPENER AND MOUNT (Row Unit Mounted)

(FRTZ209nn/FRTZ208) STYLE B 20 (19) (5 6 0. (15) 10 (OO 000) 14 (13) 26) 28 27 25 To Pump To Opener **Optional - Liquid Fertilizer Only**

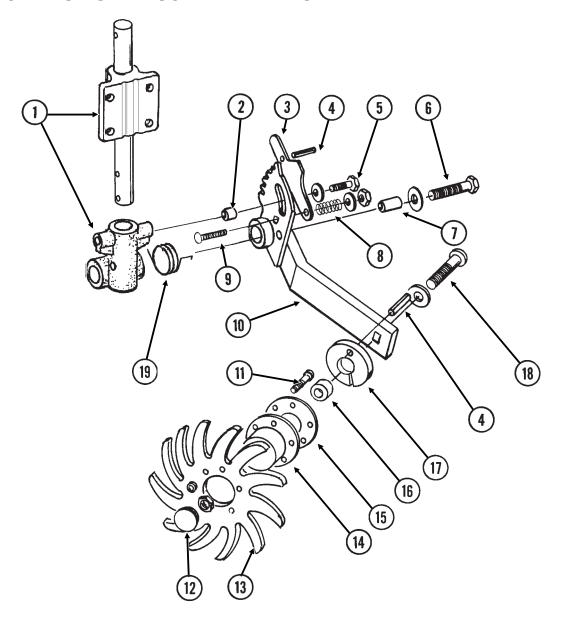
P120 Rev. 10/04

NOTCHED SINGLE DISC FERTILIZER OPENER AND MOUNT (Row Unit Mounted)

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10017	3	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10102	3	Hex Nut, ¹ / ₂ "-13
2.	GB0297	1	Mount
3.	GD12683	1	Arm, 11 ⁵ / ₈ "
4.	G10640	1	Grease Fitting, 1/4"-28
5.	GD12685	1	Bushing, ³ / ₄ " O.D. x ¹ / ₂ " Long
6.	GA6966	1	Compression Spring Assembly
7.	G10047	1	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	G10210	2	Washer, 3/8" USS
	G10108	1	Lock Nut, 3/8"-16
8.	GD1026	1	Sleeve, 1 ³ / ₁₆ " Long
9.	GA9433	1	Pivot Arm, L.H. (Shown)
	GA9434	-	Pivot Arm, R.H.
10.	GD11557	1	Scraper, L.H. (Shown)
	GD11558	-	Scraper, R.H.
11.	G10002	6	Hex Head Cap Screw, 3/8"-16 x 3/4"
12.	G10306	3	Carriage Bolt, 3/8"-16 x 2"
4.0	G10108	3	Lock Nut, 3/8"-16
13.	GA9461	1	Knife/Drop Tube, L.H., Liquid Fertilizer (Shown)
	0.4.0.4.00	4	(Sub GA8399 And GB0249)
4.4	GA9462	1	Knife/Drop Tube, R.H., Liquid Fertilizer (Sub GA8398 And GB0248)
14.	G10991	2	Hex Head Cap Screw, 5/16"-18 x 7/8"
	G10232	2	Lock Washer, 5/16"
15	G10219	6	Washer, ⁵ / ₁₆ " USS
15.	GD12679	1	Stepped Spacer, 3" Long
16.	GA9437	1	Hub W/Bearing
17	GA8603	- 1	Double Row Bearing
17.	G10011 GD12677	1 1	Hex Head Cap Screw, ⁵ / ₈ "-11 x 5 ¹ / ₂ " Washer, 1 ¹ / ₂ " O.D., 7 Gauge, Hardened
	G10107	1	Lock Nut, 5/8"-11
18.	G10046	1	Hex Head Cap Screw, 5/8"-11 x 5"
10.	G10040	1	Washer, 5/8" USS
	G10450	2	Machine Bushing, 1 ½", 18 Gauge (As Required)
	G10107	1	Lock Nut, 5/8"-11
19.	GD12676	1	Disc Blade, Notched, 16 ³ / ₄ "
20.	G10871	1	Hex Head Cap Screw, 1/2"-13 x 6"
_0.	G10206	3	Washer, 1/2" SAE
	G10111	1	Lock Nut, 1/2"-13
21.	GD1138	2	U-Bolt, 2 ¹ / ₂ " x 2 ¹ / ₂ " x 1/ ₂ "-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, ¹ / ₂ "-13
22.	G10017	4	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	4	Lock Washer, 1/2"
23.	GA9039	1	Mount, L.H. (Shown)
	GA9040	-	Mount, R.H.
24.	GA9041	1	Plate W/Angle
25.	GA8983	-	Check Valve, Low Rate
26.	GA8399	-	Drop Tube, L.H., Liquid Fertilizer (Shown)
	GA8398	1	Drop Tube, R.H., Liquid Fertilizer
27.	GB0249	1	Knife, L.H. (Shown)
	GB0248	-	Knife, R.H.
28.	GB0323	1	Knife, L.H. (Shown)
	GB0322	-	Knife, R.H.
29.	GA10213	-	Drop Tube, L.H., Liquid Fertilizer (Shown)
	GA10214	1	Drop Tube, R.H., Liquid Fertilizer
			P121 Rev. 10/04

DFC024(FRTZ165i)

FOR USE WITH STYLE A NOTCHED SINGLE DISC FERTILIZER OPENER



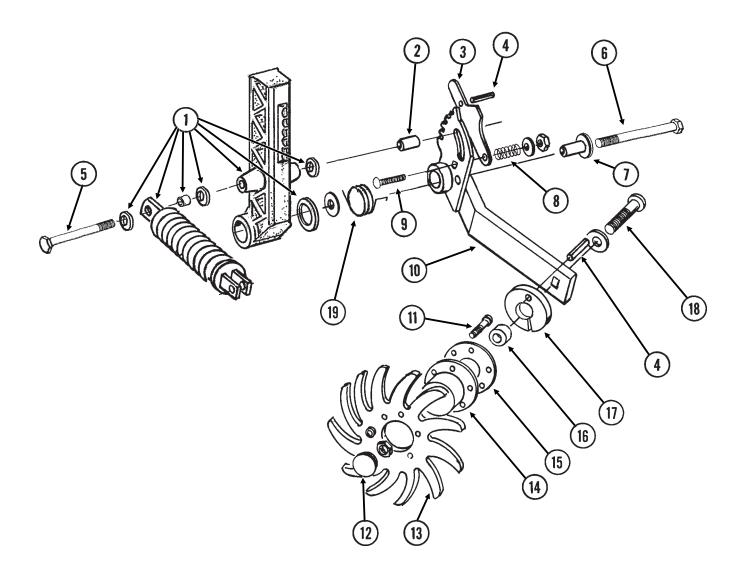
P122 Rev. 10/04

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.		_	See "Notched Single Disc Fertilizer Opener", Pages P118 And P119
2.	GD11053	1	Bushing, 7/8" Long
3.	GD11178	1	Adjustment Lever
4.	G10603	2	Spring Pin, 1/4" x 1 1/4"
5.	G10919	1	Self-Locking Hex Head Cap Screw, 1/2"-13 x 1 3/4"
	G10216	1	Washer, 1/2" USS
6.	G10920	1	Self-Locking Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	GD7805	1	Special Washer, 5/8", Hardened
7.	GD11358	1	Hardened Bushing, 2 1/8" Long
8.	GD7962	1	Spring
9.	G10306	1	Carriage Bolt, 3/8"-16 x 2"
	G10203	1	Washer, 3/8" SAE
	G10108	1	Lock Nut, 3/8"-16
10.	GA7999	1	Mount W/Grease Fitting, L.H. (Shown)
	GA7998	-	Mount W/Grease Fitting, R.H.
	G10640	-	Grease Fitting, 1/4"-28
11.	G10133	6	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10109	6	Lock Nut, ⁵ / ₁₆ "-18
12.	GD1132	2	Dust Cap
13.	GD10552	2	Wheel, 12 Tine, 3/8" x 12"
14.	GA5654	1	Hub W/Bearings
	GA2014	-	Bearing
15.	GD9724	1	Backing Plate
16.	GD7817-04	1	Spacer, ¹¹ / ₁₆ " I.D. x ¹ / ₂ " Long
17.	GD11188	1	Spacer
18.	G10908	1	Carriage Bolt, 5/8"-11 x 3"
	G10503	1	Hex Jam Nut, 5/8"-11, Grade 2
19.	GD11265	1	Spring, L.H. (Shown)
	GD11266	-	Spring, R.H.
A.	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 11 And 13-15) (Shown)
	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 11 And 13-15)

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DFC024(FRTZ165I)

FOR USE WITH STYLE B NOTCHED SINGLE DISC FERTILIZER OPENER



P124 Rev. 10/04

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.		_	See "Notched Single Disc Fertilizer Opener", Pages P120 And P121
2.	GD12684	1	Bushing, 1 ¹ / ₃ " Long
3.	GD11178	1	Adjustment Lever
4.	G10603	2	Spring Pin, 1/4" x 1 1/4"
5.	G11034	1	Hex Head Cap Screw, 1/2"-13 x 7"
	G10111	1	Lock Nut, 1/2"-13
6.	G10830	1	Hex Head Cap Screw, 5/8"-11 x 7 1/2"
	GD7805	1	Special Washer, 5/8", Hardened
	G10107	1	Lock Nut, 5/8"-11
7.	GD11836	1	Sleeve, 2 1/8" Long
8.	GD7962	1	Spring
9.	G10306	1	Carriage Bolt, 3/8"-16 x 2"
	G10203	1	Washer, 3/8" SAE
	G10108	1	Lock Nut, 3/8"-16
10.	GA7999	1	Mount W/Grease Fitting, L.H. (Shown)
	GA7998	-	Mount W/Grease Fitting, R.H.
	G10640	-	Grease Fitting, 1/4"-28
11.	G10133	6	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10109	6	Lock Nut, ⁵ / ₁₆ "-18
12.	GD1132	2	Dust Cap
13.	GD10552	2	Wheel, 12 Tine, 3/8" x 12"
14.	GA5654	1	Hub W/Bearings
	GA2014	-	Bearing
15.	GD9724	1	Backing Plate
16.	GD7817-04	1	Spacer, ¹¹ / ₁₆ " I.D. x ¹ / ₂ " Long
17.	GD11188	1	Spacer
18.	G10908	1	Carriage Bolt, 5/8"-11 x 3"
	G10503	1	Hex Jam Nut, 5/8"-11, Grade 2
19.	GD11265	1	Spring, L.H. (Shown)
	GD11266	-	Spring, R.H.
A.	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 11 And 13-15) (Shown)
	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 11 And 13-15)

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LIQUID FERTILIZER PISTON PUMP DRIVE, 16, 24 AND 36 ROW

(FF57f) **40 Tooth Drive Sprocket And 18 Tooth Driven Sprocket** 16 12 26) 25 0 24 (18 2 (5) 21 **ITEM** PART NO. QTY. DESCRIPTION (Per Assy.) GA7244 Idler W/Sprocket, Bushing, Spacer And Hardware 1. 1 GA7154 Sprocket W/Bearing, 18 Tooth GD7889 Bushing Hex Head Cap Screw, 1/2"-13 x 2 1/4" G10581 G10216 Washer, 1/2" USS Lock Washer, 1/2" G10228 Hex Nut, 1/2"-13 G10102 Hex Head Cap Screw, 5/8"-11 x 7 1/2" G10830 Washer, 5/8" SAE G10205 G10230 Lock Washer, 5/8" Hex Nut, 5/8"-11 G10104

Spacer, 2 3/4"

2

5

Grease Fitting, $\frac{1}{4}$ "-28 Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "

Machine Bushing, 1", 10 Gauge

GD10254 G10640

G10602

G10233

2.

3.

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LIQUID FERTILIZER PISTON PUMP DRIVE, 16, 24 AND 36 ROW

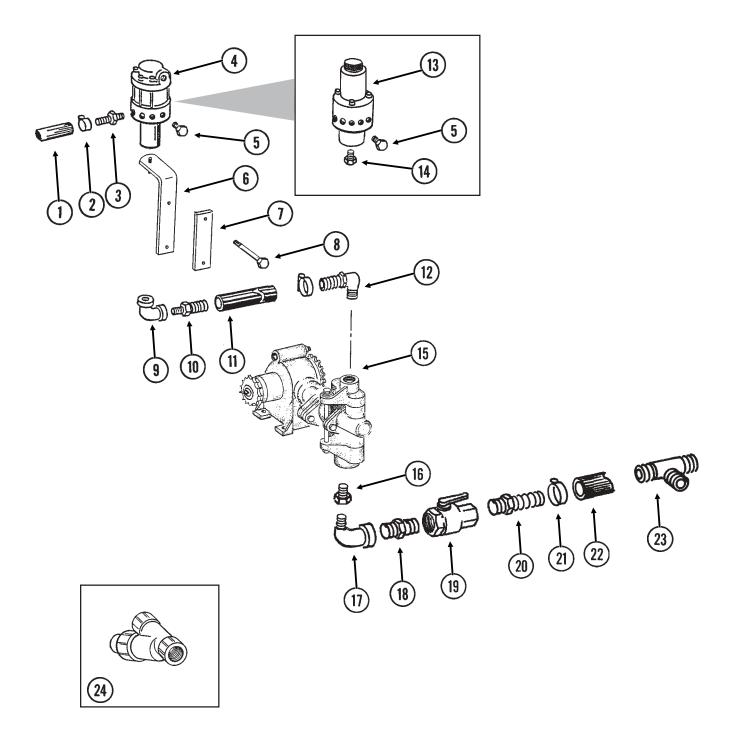
ITEM	PART NO.	QTY.	DESCRIPTION
	(Per Assy.)	
	·		
4.	G3310-91	1	Chain, No. 40, 91 Pitch Including Connector Link And Offset Link
	GR0912	-	Connector Link, No. 40
	GR0911	-	Offset Link, No. 40
5.	GA7180	1	Sprocket, 40 Tooth
6.	GD6825-11.25	1	Hex Shaft, 7/8" x 11 1/4" (2 Holes)
7.	GD5857	1	Spring
8.	G10093	1	Hex Head Cap Screw, 5/8"-11 x 8 1/2"
	G10230	1	Lock Washer, 5/8"
	G10104	1	Hex Nut, 5/8"-11
9.	G10302	6	Carriage Bolt, 5/16"-18 x 7/8"
	G10221	6	Washer, ⁵ / ₁₆ " SAE
	G10232	6	Lock Washer, 5/16"
	G10106	6	Hex Nut, 5/16"-18
10.	G2100-03	2	Bearing, ⁷ / ₈ " Hex Bore, Spherical
11.	G3400-01	4	Flangette
12.	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10210	4	Washer, 3/8" USS
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
13.	GD11556	1	Scraper
14.	G10053	2	Hex Head Cap Screw, 1/2"-13 x 2 1/2"
	G10216	2	Washer, 1/2" USS
	G10102	2	Hex Nut, ¹ / ₂ "-13
15.	GD10200	2	Sleeve, ³ / ₄ " Long
16.	GA5090	-	Tire And Rim Assembly (Specify Brand*)
	GD5753	1	Tire, 4.10" x 6" (Specify Brand*)
	GD5752	1	Tube
17.		-	See "Liquid Fertilizer Piston Pump", Pages P130-P133
18.	GA7246	1	Base Mount
19.	G10478	2	Clevis Pin, ⁵ / ₁₆ " x 1"
	G10409	2	Retaining Ring, 5/16"
	G10670	1	Hair Pin Clip, No. 3
20.	GA2068	2	Spring W/Plug
21.	GA7245	1	Pump Mount W/Grease Fitting
	G10641	_	Grease Fitting, 1/8" NPT
22.	GD11289	2	U-Bolt, 7" x 4" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, ⁵ / ₈ "-11
23.	GD10244-01	1	Sleeve, 7 ¹ / ₁₆ "
24.	G10062	4	Hex Head Cap Screw, 3/8"-16 x 3"
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, ³ / ₈ "-16
25.	G10003	4	Hex Head Cap Screw, $3/8$ "-16 x 1 $1/2$ "
	G10210	4	Washer, 3/8" USS
	GR1122	4	Mounting Pad
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, ³ / ₈ "-16
26.	GD11554	1	Pump Mount
27.	G10478	2	Clevis Pin, ⁵ / ₁₆ " x 1"
	G10409	2	Retaining Ring, 5/16"
28.	0.0.00	_	See "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages 132-133

^{*} 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.

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LIQUID FERTILIZER HOSES AND FITTINGS, 16, 24 AND 36 ROW

(FF84a)



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LIQUID FERTILIZER HOSES AND FITTINGS, 16, 24 AND 36 ROW

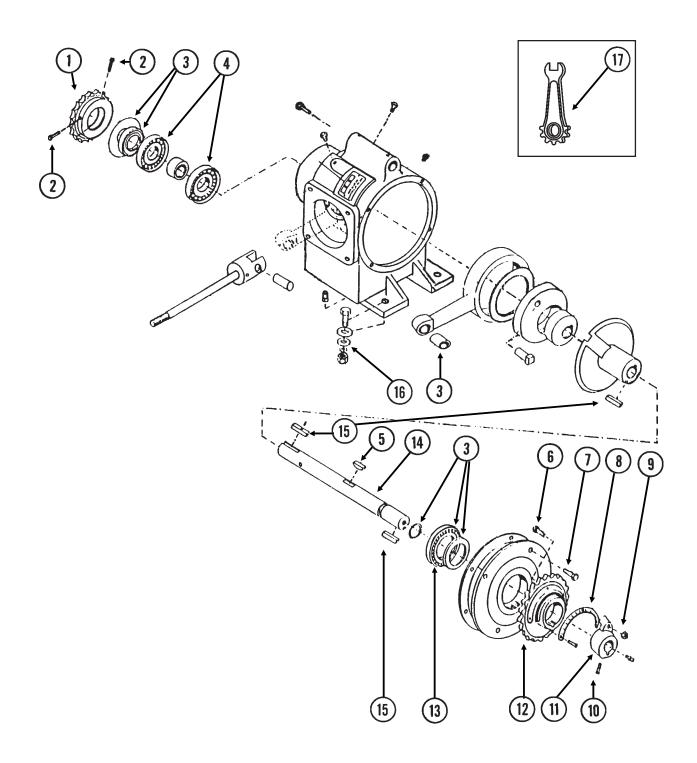
ITEM	PART NO.	QTY.	DESCRIPTION				
1.	G4301-07	1	Hose, 3/8" x 200', 16 Row				
	G4301-08	-	Hose, 3/8" x 250', 24 And 36 Row				
	G4301-04	-	Hose, 3/8" x 100', 36 Row				
2.	G10681	-	Hose Clamp, No. 6				
3.	GD11700	18-24	Adapter, 1/4" NPT To 3/8" Barb				
4.		-	See "Liquid Fertilizer Piston Pump Flow Divider", Pages P134-P1				
5.	G10292	-	Pipe Plug, 1/4" NPT				
6.	GA6527	2	Support, 3/4" NPT				
7.	GD10248	2	Bar				
8.	G10152	2	Hex Head Cap Screw, 5/8"-11 x 9"				
	G10230	2	Lock Washer, 5/8"				
	G10104	2	Hex Nut, 5/8"-11				
9.	G10733	2	Elbow, 90°, 3/4" Female NPT				
10.	G10734	2	Adapter, 3/4" NPT To Barb				
11.	G4205-08	2	Hose, 3/4" x 150"				
12.	G10896	-	Elbow, 90°, 1" NPT To 3/4" Barb				
13.		-	See "Liquid Fertilizer Piston Pump Flow Divider", Pages P134-P136				
14.	G10613	1	Reducing Bushing, 1" Male NPT To 3/4" Female				
	G10995	-	Reducing Bushing, 1" Male NPT To 3/4" Female, Stainless Steel				
15.		-	See "Liquid Fertilizer Piston Pump", Pages P128-P131				
16.	G10615	2	Reducing Bushing, 1 1/2" Male NPT To 1 1/4" Female				
17.	G10887	2	Elbow, 90°, 1 1/4" Male NPT To Female				
18.	G10619	2	Close Nipple, 1 1/4" NPT				
19.	GA4976	2	Shutoff Valve, 1 1/4" NPT				
	GR1015	-	Body O-Ring				
	GR1016	-	Stem O-Ring				
	GR1017	-	Teflon Seat				
	GR1018	-	Ball				
	GR1019	-	Handle				
20.	G10626	4	Adapter, 1 1/4" NPT To Barb				
21.	G10674	2	Hose Clamp, No. 24				
22.	G4200-01	1	Hose, 1 ¹ / ₄ " x 22'				
23.	G10633	1	Tee, 1 ¹ / ₄ " Barb				
24.	GA3893	1	Strainer Complete				
	GR0880	-	Screen, No. 40 Mesh				
	GR0881	-	Gasket				
	GR0882	-	Y-Body				
	GR0883	-	End Cap				

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LIQUID FERTILIZER PISTON PUMP (Crankcase Assembly) Uses 18 Tooth Sprocket

JB-L4400-991/CCU077(FRTZ172b)

Model LM-2455-R



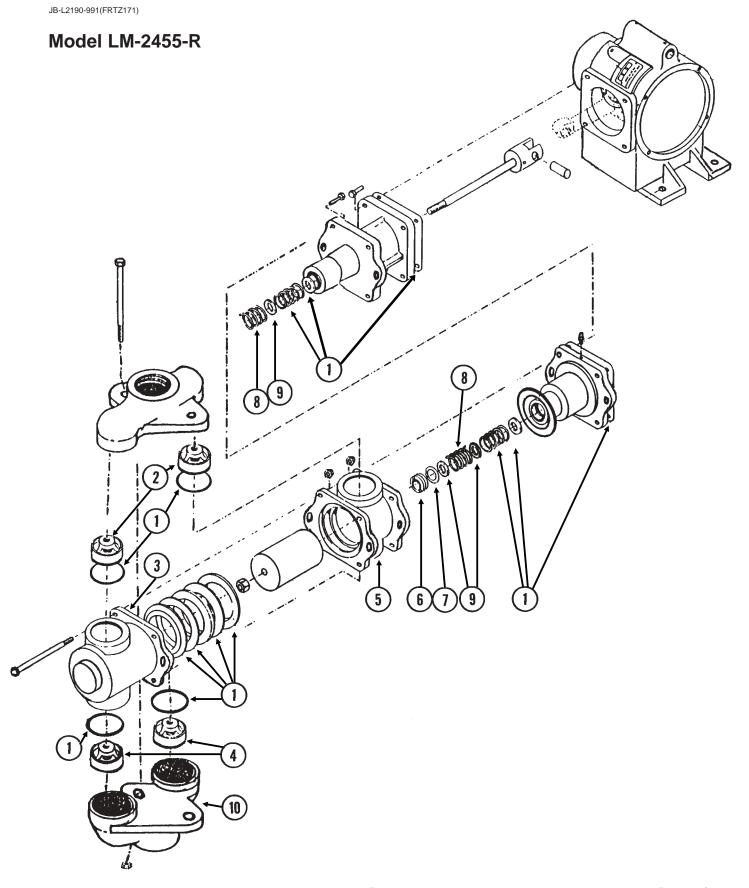
P130 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP (Crankcase Assembly) Uses 18 Tooth Sprocket

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1389	1	Sprocket, 18 Tooth
2.	G10688	2	Square Head Set Screw, 3/8"-16 x 5/8"
3.	GR1425	1	Repair Kit, Includes Item 1 On Pages P132 And P133
4.	GR1427	2	Bearing
5.	GR1420	1	Woodruff Key, 3/8"-16 x 1 3/4"
6.	GR1167	1	Square Head Bolt, 3/8"-16 x 1 3/4"
7.	G10043	4	Hex Head Cap Screw, 5/16"-18 x 3/4"
8.	GR1168	1	Scale
9.	G10108	1	Lock Nut, 3/8"-16
10.	G10693	3	Hex Socket Head Set Screw, 5/16"-18 x 3/8"
11.	GR1165	1	Arm
12.	GR1114	1	Flange
13.	GR1116	1	Bearing
14.	GR1421	1	Crankshaft
15.	GR1118	2	Setting Arm Key
16.		-	See "Liquid Fertilizer Piston Pump Drive", Pages P126 And P127
17.	GR1424	1	Adjustment Wrench
A.	GA8069	-	Piston Pump Complete W/18 Tooth Sprocket (LM-2455-R), Includes Crankcase Assembly On This Page And Cylinder Assembly On Pages P132 And P133

P131 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP (Cylinder Assembly) Uses 18 Tooth Sprocket



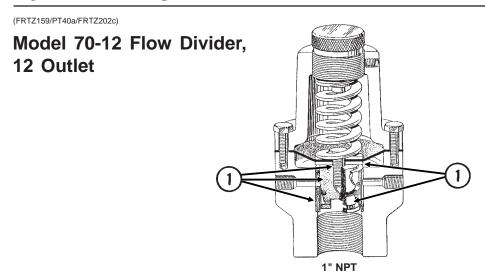
P132 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP (Cylinder Assembly) Uses 18 Tooth Sprocket

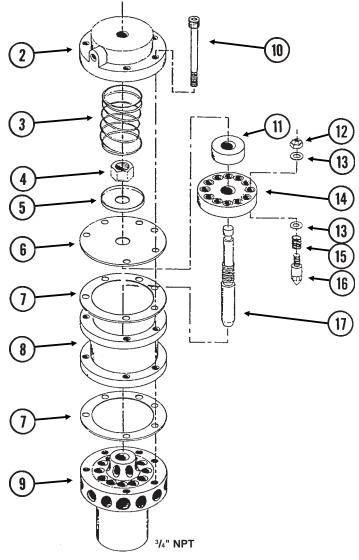
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1425	1	Repair Kit, Includes Item 3 On Pages P130 And P131
2.	GR1144	2	Discharge Valve
3.	GR1423	1	Outboard Cylinder
4.	GR1142	2	Suction Valve
5.	GR1422	1	Inboard Cylinder
6.	GR1134	1	Stuffing Box Insert
7.	GR1133	1	Retaining Ring
8.	GR1130	2	Packing Spring
9.	GR1129	3	Washer
10.	GR1451	1	Suction Manifold

P133 Rev. 10/04

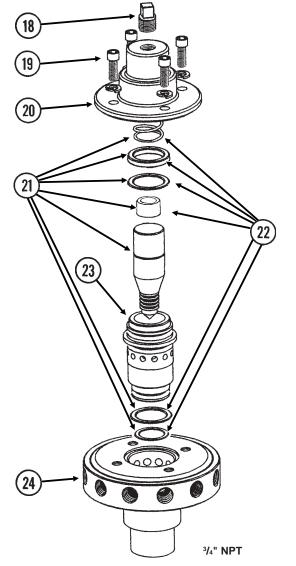
LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 16 AND 24 ROW



Model L-2190 Flow Divider, 12 Outlet



Model FD-1200 Flow Divider, 12 Outlet



P134 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 16 AND 24 ROW

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1388	1	Repair Kit, Includes: (2) Washers, (1) Piston, (1) O-Ring, (1) Piston Bolt, (1) Piston Ring
2.	GR1150	1	Cap
3.	GR1151	1	Spring
4.	G10358	1	Hex Nut, 9/16"-18
5.	GR1152	1	Plate
6.	GR1153	1	Diaphragm
8.	GR1154	1	Housing
7.	GR1155	2	Gasket
9.	*	1	Manifold
10.	GR1157	6	Socket Screw, 1/4"-20
11.	GR1158	1	Lock
12.	*	12	Valve Nut
13.	*	24	Stainless Steel Washer
14.	*	1	Disk
15.	*	12	Spring
16.	*	12	Valve
17.	GR1162	1	Plunger
18.	GR1543	1	Plug
19.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4", Stainless Steel
	GR1541	4	Lock Washer, 1/4", Stainless Steel
20.	GR1540	1	Cap
21.	GR1544	1	Needle Assembly W/Seal Kit (Item 22)
22.	GR1545	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring, (1) Stainless Steel Sleeve
23.	GR1535	1	Sleeve
24.	GR1533	1	Body
			•
A.	GA8068	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 12 Outlet (Model 70-12 Or Model L-2190) (Sub GA8931)
B.	GA8931	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 12 Outlet (Model FD-1200)

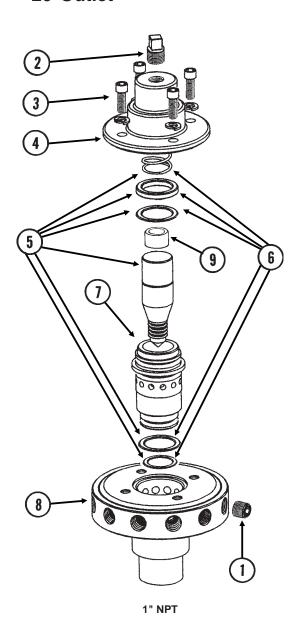
^{*} Factory calibration required on Model L-2190. Replacement not recommended. Always be sure timing marks on disk and manifold line up.

P135 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 36 ROW

JB-L2190-991(PT40b/FRTZ202d)

Model FD-2000 Flow Divider, 20 Outlet



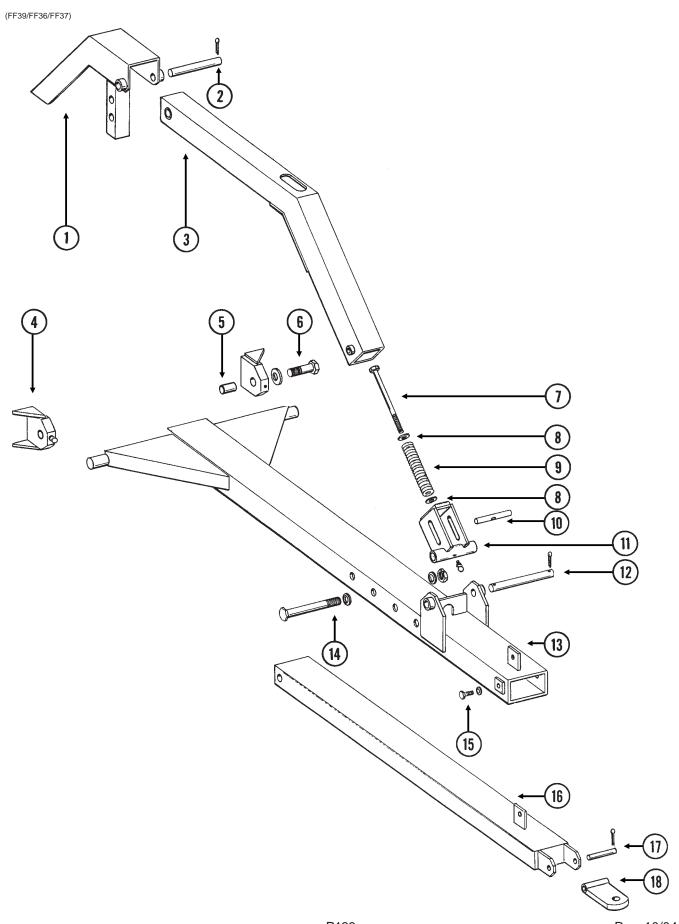
P136 Rev. 10/04

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 36 ROW

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10350	4	Hex Socket Head Plug, 1/4" NPT, Stainless Steel
2.	GR1543	1	Plug
3.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4", Stainless Steel
	GR1541	4	Lock Washer, 1/4", Stainless Steel
4.	GR1566	1	Cap
5.	GR1567	1	Needle Assembly W/Seal Kit (Item 7)
6.	GR1568	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring
7.	GR1561	1	Sleeve
8.	GR1559	1	Body
9.	GR1574	1	Sleeve, 1" O.D. x 1/2" Long, Stainless Steel
A.	GA9407	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 20 Outlet (Model FD-2000)

P137 Rev. 10/04

REAR TRAILER HITCH, 16 ROW 30" AND 24 ROW 30"



P138 Rev. 10/04

REAR TRAILER HITCH, 16 ROW 30" AND 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	A7252	1	Link Mount (Non-Stock Item)
2.	GD3547	1	Shaft, 1 1/4" x 12 3/4"
	G10460	2	Cotter Pin, 1/4" x 2"
3.	GA9408	1	Top Link W/Grease Fitting, 16 Row 30" And 24 Row 30"
	G10640	-	Grease Fitting, 1/4"-28
4.		-	See "Axle And Transport Lockup", Page P52
5.	GD10297	2	Bushing, 1 ³ / ₄ "
6.	G10837	2	Hex Head Cap Screw, 7/8"-9 x 3"
	G10330	2	Lock Washer, 7/8"
7.	GD7907	1	Special Bolt
8.	GB0213	2	Spring Seat
9.	GD10273	1	Compression Spring
10.	GD10296	1	Pin, 1 ¹ / ₄ " x 5 ¹ / ₂ "
11.	GA7258	1	Side Link W/Grease Fitting
	G10641	-	Grease Fitting, 1/8" NPT
12.	GD1702	1	Pin, 1 ¹ / ₄ " x 10 ¹ / ₄ "
	G10460	2	Cotter Pin, 1/4" x 2"
13.	GA7254	1	Front Hitch
14.	G10838	1	Hex Head Cap Screw, 1"-8 x 8 1/2"
	G10200	2	Washer, 1" USS
	G10396	1	Lock Nut, 1"-8
15.	G10055	2	Hex Head Cap Screw, 5/8"-11 x 1 1/4"
	G10230	2	Lock Washer, 5/8"
16.	GA7256	1	Rear Hitch
17.	GD8839	1	Pin, 1 ¹ / ₄ " x 6 ¹ / ₄ "
	G10460	2	Cotter Pin, 1/4" x 2"
18.	GA6177	1	Clevis W/Grease Fitting
	G10640	-	Grease Fitting, 1/4"-28

P139 Rev. 10/04

DECALS, PAINT AND MISCELLANEOUS

🛕 WARNING 🛕

ALWAYS USE SAFETY PINS IN TRANSPORT POSITION



AWARNING

TO AVOID INJURY --

STAND CLEAR-KEEP OTHERS AWAY WHEN RAISING OR LOWERING MARKERS. BEFORE TRANSPORTING PLANTER FULLY EXTEND HYDRAULIC CYLINDERS AND INSTALL LOCKING





(2)

AWARNING

TO AVOID INJURY - -

ALWAYS LOWER PLANTER UNITS TO THE GROUND BEFORE UNHITCHING PLANTER, TONGUE CAN RAISE SUDDENLY.

A WARNING

USE SAFETY CHAINS PROVIDED. TOW ONLY WITH FARM TRACTOR.

6

AWARNINGA

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



(3)

WARNING

NEVER WALK UNDER OR WORK ON PLANTER WHEN IT IS RAISED WITHOUT SUPPORTING THE FRAMES WITH ADDITIONAL SUPPORTS.





TO AVOID INJURY

ALWAYS USE HYDRAULIC CYLINDER SAFETY LOCKOUT CHANNELS WHEN TRANSPORTING PLANTER ON THE ROAD. AFTER USE RETURN TO STORAGE LOCATION. 7100-83

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.



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



Weekly



12





A WARNING A

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.

JSE 1 TABLESPOON POWDERED

GRAPHITE WITH EACH HOPPER FILL OF SEED. SEED TREAT-MENT, FOREIGN MATERIAL, DIRT,

OR SEED CHAFF MAY CAUSE GRADUAL REDUCTION OF SEED

POPULATION. REFER TO MANUAL FOR MAINTENANCE AND

7100-115

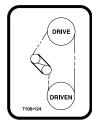


14

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.

DRIVE



(13)

MARKER SPEED CONTROL



FOR PROPER ADJUSTMENT



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





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7100-153

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DECALS, PAINT AND MISCELLANEOUS

KINZE 3700₃

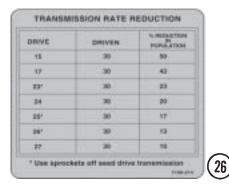


AWARNING

HEAVY HITCH LOAD.

ATTACH TO TRACTOR WITH
SUFFICIENT DRAWBAR CAPACITY.
REFER TO OPERATOR'S MANUAL

24)







28

32





29)



MAXIMUM INFLATION PRESSURE 75 PSI

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

TORQUE 5/8" SPINDLE BOLTS TO 120 FT/LBS. CHECK PERIODICALLY AND RE-TORQUE AS NEEDED.

АА

34)

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(31)



TO AVOID INJURY ...
ALWAYS USE THE HYDRAULIC CYLINDER
SAFETY LOCKUP CHANNEL WHEN
SERVICING MACHINE IN RAISED POSITION
OR WHEN TRANSPORTING MACHINE ON
THE ROAD. AFTER USE RETURN TO
STORAGE LOCATION. 7100-4

36 37 35)



ROTATE KNURLED COLLAR ON WRAP SPRING TIGHTENER TO RELEASE SPRING TENSION

(39

ITEM	PART NO.	QTY.	DESCRIPTION

1. 2. 3. 4.	G7100-02 G7100-42 G7100-43 G7100-46	1 4 1	Decal, Warning Decal, Warning Decal, Warning Decal, Warning
5. 6.	G7100-54 G7100-302	1 1	Decal, KINZE [®] , 4 ³ / ₁₆ " x 17 ³ / ₁₆ " Decal, Warning
7.	G7100-68	2	Decal, Warning
8.	G7100-83	2	Decal, Warning (1 Per Marker Lockup)
9.	G7100-89	4	Decal, Danger
10.	G7100-90	1	Decal, Warning
11.	G7100-110	-	Decal, Grease Weekly
12.	G7100-111	-	Decal, Oil Daily
13.	G7100-115	-	Decal, Warning (1 Per Granular Chemical Hopper)

(Continued)

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DECALS, PAINT AND MISCELLANEOUS

ITEM	PART NO.	QTY.	DESCRIPTION
14.	G7100-116	-	Decal, Grease Daily
15.	G7100-117	1	Decal, Danger
16.	G7100-121	1	Decal, Transmission
17.	G7100-124	1	Decal, Transmission
18.	G7100-153	-	Decal, Information (1 Per Brush-Type Seed Meter)
19.	G7100-160	-	Decal, Flow Control
20.	G7100-248	-	Decal, Meter Alignment (1 Per Row Unit)
21.	G7100-192	-	Decal, Point Row Clutch Rotation
22.	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)
23.	G7100-246	2	Decal, 3700
24.	G7100-197	1	Decal, Warning
25.	GD1512	-	Tie Strap, 7 ¹ /2"
	GD2117	-	Tie Strap, 14 ¹ / ₂ "
26.	G7100-214	1	Decal, Two-Speed Point Row Clutch Rate Reduction
27.	GD2199	1	SMV Sign
28.	GR0146	-	Powdered Graphite, 1 Pound Container
	GR0146MPP	-	Powdered Graphite, Twenty-Four 1 Pound Containers
29.	GR1570MPP	-	Talc Lubricant, Four 8 Pound Containers
30.	GR0155	-	Blue Paint, Aerosol Can
	GR0155MPP	-	Blue Paint, Twelve Aerosol Cans
31.	G7100-219	-	Decal, Warning
32.	G7100-217	-	Decal, Note
33.	G7100-234	-	Decal, Bolt Torque
34.	GD10057-01	-	Hose Identification Sleeve, Red AA
	GD10057-02	-	Hose Identification Sleeve, Red BB
	GD10057-03	-	Hose Identification Sleeve, Blue AA
	GD10057-04	-	Hose Identification Sleeve, Blue BB
35.	G7100-47	4	Decal, Warning
36.	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 ½" x 9", Rectangular (If Applicable)
37.	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)
38.	GM0171	-	Operator & Parts Manual, Model 3700
39.	G7100-295	-	Decal, Spring Tension Release

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A1051	P105, P107		P49, P68, P117, P127		P45, P46, P47, P49,
A1057	P105, P107		P31		P61, P63, P68, P71,
A1037	P105, P107		P9, P25, P33, P34,		P76, P77, P78, P79,
A1072	P105, P107	G 10000			P101, P115, P117, P127
A1146	P105, P107	G10007	P4, P5, P11, P31,	G10102	
A1189	P105, P107	G10007	P33, P42, P119	G 10 102	
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A1475	P105, P107		P29		P113, P115, P117
A1485	P105, P107		P10, P51, P65, P119	G10104	P4, P11, P29, P33,
A1487	P105, P107		P7, P31, P119		P34, P35, P36, P37,
A3109	P105, P107		P9, P52		P41, P49, P51, P55,
A3119	P105, P107	G10017	. P23, P51, P55, P56, P65,		P56, P65, P67, P71,
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A3161	P105, P107		P7, P9	G10105	P43, P51, P56,
A3178	P105, P107	G10019	P35, P37, P75, P96, P97		P67, P71
A3179	P105, P107	G10020	P14	G10106	P9, P23, P29, P33,
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