

MODEL 3700 AND 3700 SDS FRONT FOLDING PLANTERS (Mechanical Seed Metering) OPERATOR & PARTS MANUAL

M0196

Rev. 7/16

This manual is applicable to: Model: 3700 And 3700 SDS Front Folding Planters
Serial Number: 750798 And On

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

Model Number _____

Serial Number _____

Date Purchased _____

Monitor Serial Number _____
Measured Pulses Per Mile/Km (Radar Distance Sensor) _____
Measured Pulses Per Mile/Km (Magnetic Distance Sensor) _____

SERIAL NUMBER

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

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

D101801152



PREDELIVERY/DELIVERY CHECKLIST

TO THE DEALER

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

PREDELIVERY CHECKLIST

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

- Recheck to be sure row units are properly spaced and optional attachments are correctly assembled.
- Be sure all grease fittings are in place and lubricated.
- Check planter and make sure all working parts are moving freely, bolts are tight and cotter pins are spread.
- Check all drive chains for proper tension and alignment.
- Check for oil leaks and proper hydraulic operation.
- Check to be sure hydraulic hoses are routed correctly to prevent damage to hoses.
- Inflate tires to specified PSI air pressure. Tighten wheel lug bolts and lug nuts to specified torques.
- Check to be sure all safety decals are correctly located and legible. Replace if damaged.
- Check to be sure the reflective decals and SMV sign are correctly located and visible when the planter is in transport position.
- Check to be sure safety/warning lights are installed correctly and working properly.
- Paint all parts scratched in shipment or assembly.
- Be sure all safety lockup devices are on the planter and correctly located.
- Check seed meters on test stand to ensure proper performance.
- Auxiliary safety chain is properly installed and hardware is torqued to specification.

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

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

OWNER REGISTER

Name _____ Delivery Date _____
Street Address _____ Model No. _____ Serial No. _____
City, State/Province _____ Dealer Name _____
ZIP/Postal Code _____ Dealer No. _____

DELIVERY CHECKLIST

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

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

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

(Signature Of Delivery Person/Dealer Name/Date)

AFTER DELIVERY CHECKLIST

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

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

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

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

Tear Along Perforation

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TO THE OWNER

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

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

It is the responsibility of the user to read and understand the Operator & Parts Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment. It is also 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 an operation or maintenance condition which, if not corrected, could result in damage to machine, property, crops or the environment.



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



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



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



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

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

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

WARRANTY

The KINZE® Limited Warranty for your new machine is stated on the back of the retail purchaser's copy of the Warranty And Delivery Report form. Additional copies of the Limited Warranty can be obtained through your KINZE® Dealer.

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

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

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

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

INTRODUCTION

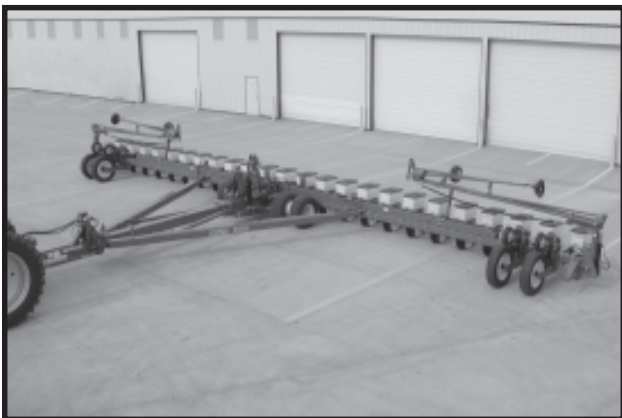
Model 3700 and 3700 SDS Front Folding Planters are available in multiple sizes and row spacings with bulk seed delivery system (SDS) or conventional seed hoppers. Optional liquid fertilizer and row unit attachments are available for Model 3700 and 3700 SDS Front Folding Planters.

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.

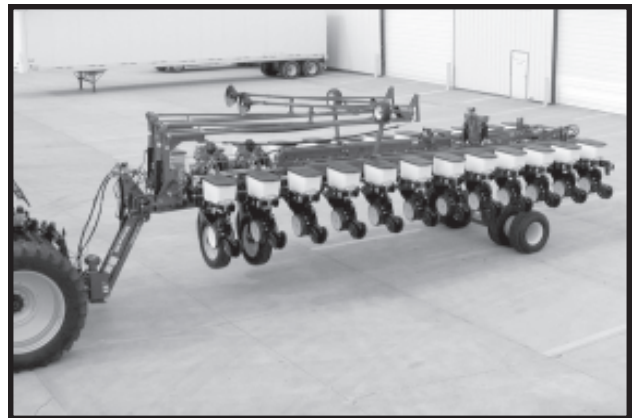
Right hand (R.H.) and left hand (L.H.), as used throughout this manual, are determined by facing in the direction the machine will travel when in use, unless otherwise stated.

D101801115



24 Row 30" Conventional Machine Shown In Field Operation Position

D101801126



24 Row 30" Conventional Machine Shown In Transport Position

D062207129



24 Row 30" SDS Machine Shown In Field Operation Position

D062207115



24 Row 30" SDS Machine Shown In Transport Position

INTRODUCTION

SPECIFICATIONS

BASE MACHINE TYPE - Pull Type, Hydraulic Front Folding Frame For Transport

SEED METER TYPE - Mechanical Seed Metering System

PLANTING UNIT TYPES - Pull Row Units
- SDS Bulk Seed Delivery System Or Conventional Seed Hoppers

ROW SPACING

- 16 Row - 30" Rows
- 16 Row - 38" 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 – 16 Row 30", 16 Row 38", 24 Row 20", 24 Row 22" And 24 Row 30"
Six 255-70R 22.5" Ground Drive Tires – 36 Row 20"
Four 4.80" x 8" Contact Drive Tires
No. 40 Chain With Spring-Loaded Idlers
Two Quick-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 – 16 Row 38", 24 Row 20" And 24 Row 22"

ROW MARKERS

16 Row 30" And 24 Row 20" (Prior To Serial No. 750921) - Equipped With Two-Fold Markers With 16" Concave Disc Blades And Depth Bands
16 Row 38", 24 Row 20" (Serial No. 750921 And On) 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 (36 Row 20" 2 Assist 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

MACHINE OPTIONS

- Electronic Seed Monitors
 - KPM I
 - KPM II Stack-Mode With Magnetic Distance Sensor Or Radar Distance Sensor
 - KPM III With Magnetic Distance Sensor Or Radar Distance Sensor
 - Planter Monitor Module (PMM)
- Half Rate (2 To 1) Drive Reduction Package
- Piston Pump Package
- Rear Trailer Hitch – 16 Row 30", 16 Row 38" And 24 Row 30"
- Two-Speed Point Row Clutch Package – Allows Half-Width Planting And Reduced Rate Planting (Available Through KINZE® Repair Parts)
- Triple Transport Tire Package - 16 Row 38", 24 Row 20" And 24 Row 22"

ROW UNIT OPTIONS/ATTACHMENTS

- Finger Pickup Or Brush-Type Seed Meters
- Brush-Type Seed Meter Discs
- Down Pressure Options
 - Quick Adjustable Down Force Springs
 - Pneumatic Down Pressure Package
- Closing Options
 - Rubber "V" Closing Wheels
 - Cast Iron "V" Closing Wheels
 - Covering Discs/Single Press Wheel
 - Drag Closing Attachment
- Granular Chemical Application
- Spring Tooth Incorporator
- Row Unit Extension Bracket
- Hopper Panel Extension Package
- Row Unit Mounted No Till Coulter
- Coulter Mounted Residue Wheels
- Row Unit Mounted Disc Furrowers
- Row Unit Mounted Residue Wheel
- Frame Mounted Coulter
- Residue Wheel Attachment For Frame Mounted Coulter

SPECIFICATIONS

MODEL 3700 CONVENTIONAL DIMENSIONS/WEIGHTS

PLANTER SIZE	16 Row 30"	16 Row 38"	24 Row 20"	24 Row 22"	24 Row 30"	36 Row 20"
Operating Width (Markers Folded)	43' 0"	53' 0"	43' 0"	47' 0"	63' 0"	63' 0"
Operating Length	28' 0"	28' 0"	28' 0"	28' 0"	30' 8"	30' 8"
Overall Transport Width	*13' 0"	*13' 0"	*13' 0"	*13' 0"	*13' 0"	*13' 0"
Transport Tires (Center-To-Center)	65" - 115"	88" - 128"	80" - 120"	88" - 128"	65" - 115"	80" - 120"
Transport Height	11' 6"	11' 6"	11' 6"	11' 6"	11' 6"	11' 6"
Transport Length	30' 8"	30' 8"	30' 8"	30' 8"	36' 8"	36' 8"
Empty Machine Hitch Weight (Transport)	4850 Lbs.	5400 Lbs.	5400 Lbs.	6520 Lbs.	7150 Lbs.	**8200 Lbs.
Base Machine Weight***	12,770 Lbs.	14,707 Lbs.	15,176 Lbs.	16,423 Lbs.	20,348 Lbs.	24,034 Lbs.

* 14' 0" when equipped with granular chemical application option.

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

*** Base machine weight includes planter frame including optional 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 hoppers and lids and dual quick adjustable down force springs option.

MODEL 3700 SDS DIMENSIONS/WEIGHTS

PLANTER SIZE	16 Row 38"	24 Row 20"	24 Row 22"	24 Row 30"	36 Row 20"
Operating Width (Markers Folded)	INFORMATION NOT AVAILABLE	36' 8"	47' 0"	63' 0"	63' 0"
Operating Length		28' 0"	28' 0"	30' 8"	30' 8"
Overall Transport Width		*13' 0"	*13' 0"	*13' 0"	*13' 0"
Transport Tires (Center-To-Center)		80" - 120"	88" - 128"	65" - 115"	80" - 120"
Transport Height		11' 6"	11' 6"	11' 6"	11' 6"
Transport Length		30' 8"	30' 8"	36' 8"	36' 8"
Empty Machine Hitch Weight (Transport)		5400 Lbs.	6520 Lbs.	7150 Lbs.	**8200 Lbs.
Base Machine Weight***		17,983 Lbs.	19,162 Lbs.	23,186 Lbs.	26,872 Lbs.

* 14' 0" when equipped with granular chemical application option.










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

*** Base machine weight includes planter frame including optional 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 bulk seed hoppers and seed delivery system and dual quick adjustable down force springs option.

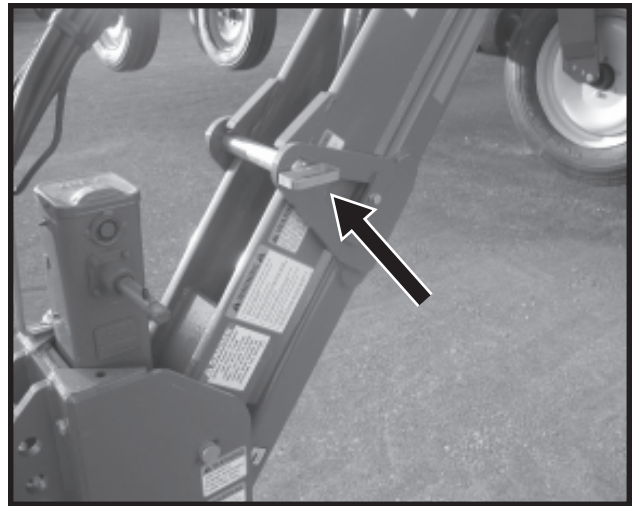
SAFETY PRECAUTIONS

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

Since a large portion of farm accidents occur as a result of fatigue or carelessness, safety practices should be of utmost concern. Read and understand the instructions provided in this manual and on the warning signs. Review these instructions frequently. Listed below are other safety suggestions that should become common practice.

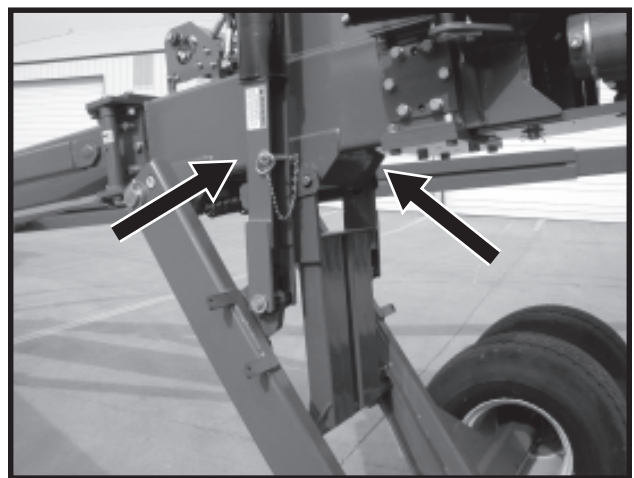
-  **Never allow the planter to be operated by anyone who is unfamiliar with the operation of all functions of the unit. All operators should read and thoroughly understand the instructions given in this manual prior to moving the unit.**
-  **Never permit any persons other than the operator to ride on the tractor.**
-  **Never ride on the planter or allow others to do so.**
-  **Always make sure there are no persons near the planter when row marker assemblies are in operation.**
-  **Before operating the planter for the first time and periodically thereafter, check to be sure the lug nuts on the transport wheels are torqued properly. 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 Lockup Pin


D101801109






Center Lift Cylinder Lockups

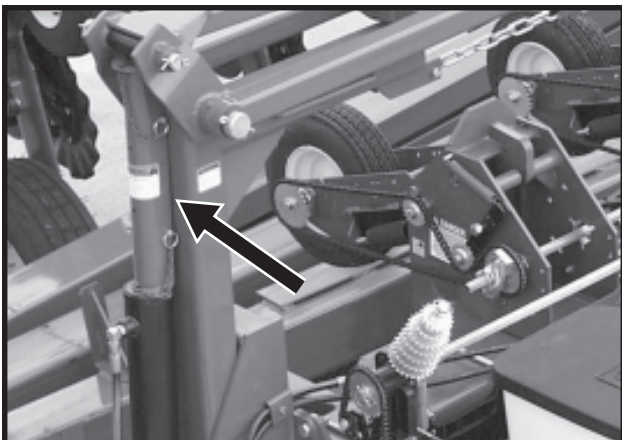
-  **Never work under the planter while in raised position without using safety lockup devices.**
-  **Be aware of bystanders, particularly children! Always look around to make sure it is safe to start the engine of the towing vehicle or move the planter. This is particularly important with higher noise 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.**

SAFETY PRECAUTIONS

-  Always wear protective clothing, substantial shoes and suitable hearing and eye sight protectors applicable for the situation.
-  Use a tractor equipped with a roll-over-protective-system and fasten your 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 markers.
-  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.

-  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**. Hydraulic motors power the bulk seed distribution system. The use of aftermarket hydraulic, electric or PTO drives may create serious safety hazards to you and the people nearby. If you install such drives you must follow all appropriate safety standards and practices to protect you and others near this planter from injury.
-  This machine has been designed and built with your safety in mind. Do not make any alterations or changes to this machine. Any alteration to the design or construction may create safety hazards.
-  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 on the container label and of the equipment 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 separation of the primary attaching system.

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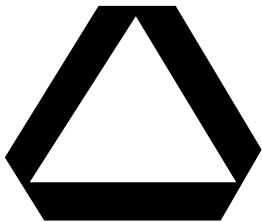


SAFETY WARNING SIGNS

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

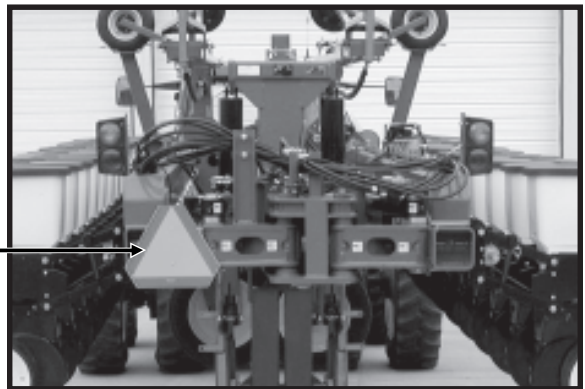
- **Keep these signs clean so they can be readily observed. Wash with soap and water or cleaning solution as required.**
- **Replace “WARNING” signs should they become damaged, painted over or if they are missing.**
- **Check reflective decals and SMV sign periodically. Replace if they show loss of any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

NOTE: Style and locations of SMV sign, reflective decals and safety/warning lights conform to ANSI/ASAE S279.13 DEC2005 and ANSI/ASAE S276.6 JAN2005.



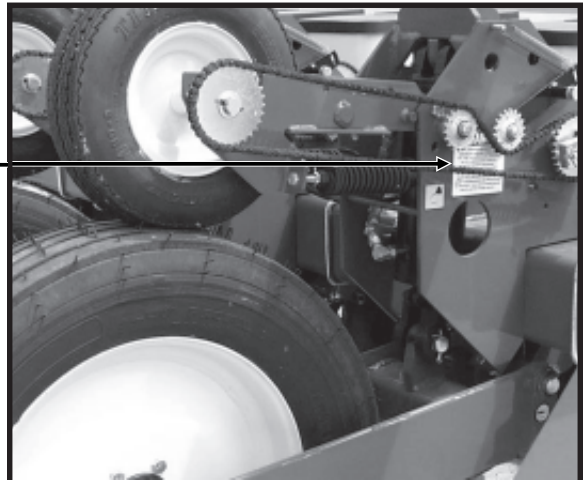
Part No. GD2199 (Qty. 1)

D101801148



Part No. G7100-89 (Qty. 4)

D07279949



SAFETY WARNING SIGNS

WARNING

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

7100-46

Part No. G7100-46 (Qty. 1)

WARNING

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

7100-90

Part No. G7100-90 (Qty. 1)

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

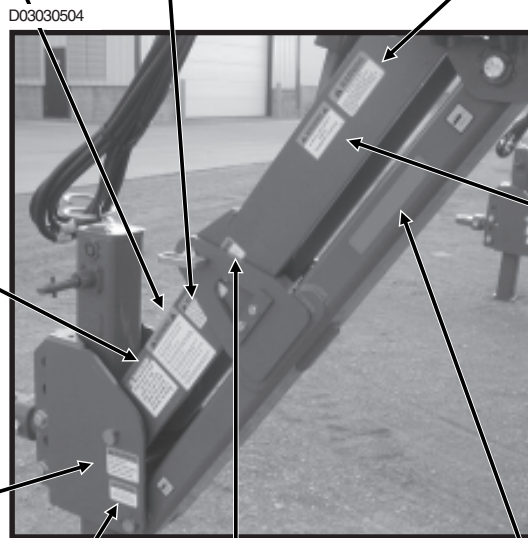
Part No. G7100-47 (Qty. 1)

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.

7100-117

Part No. G7100-117 (Qty. 1)



WARNING

ALWAYS USE SAFETY PINS IN TRANSPORT POSITION

7100-2

Part No. G7100-02 (Qty. 1)

WARNING

USE SAFETY CHAINS PROVIDED. TOW ONLY WITH FARM TRACTOR.

7100-302

Part No. G7100-302 (Qty. 1)

WARNING

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

7100-197

Part No. G7100-197 (Qty. 1)

WARNING

TO AVOID INJURY --

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

7100-43

Part No. G7100-43 (Qty. 1)



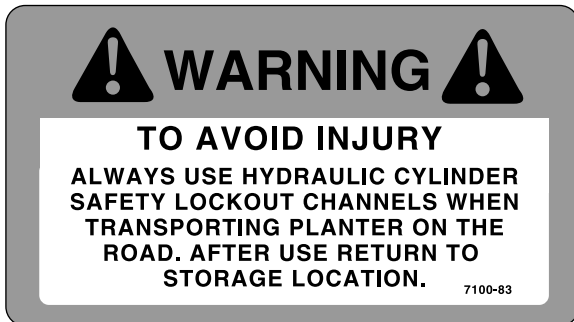
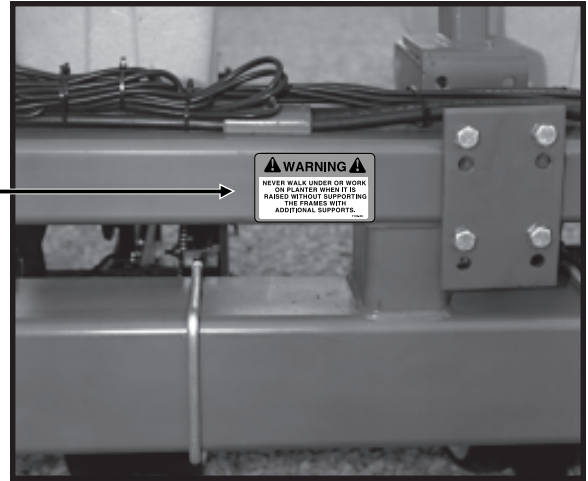
Part No. G7100-259 Amber Reflective Decal (Qty. 2 - One Located On Each Side Of Hitch)

SAFETY WARNING SIGNS

72495-1



Part No. G7100-68 (Qty. 1)

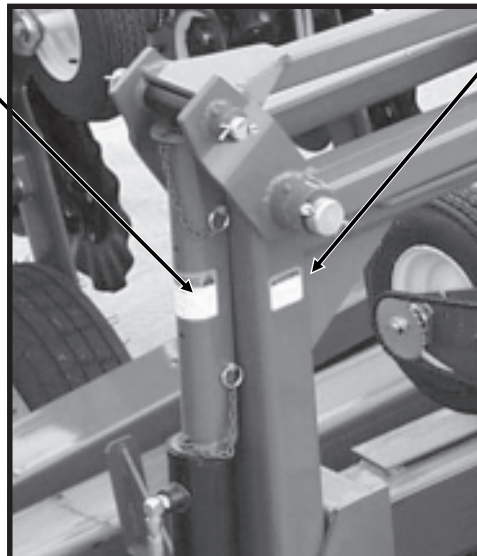


Part No. G7100-83 (Qty. 2 - One Per Marker)



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

D07279933



SAFETY WARNING SIGNS

D06039901



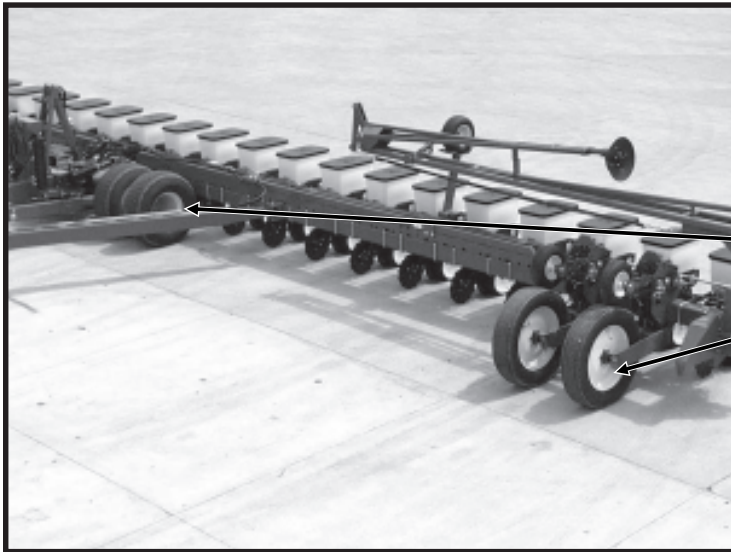
 WARNING 



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

7100-115

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

D080699202



 WARNING 

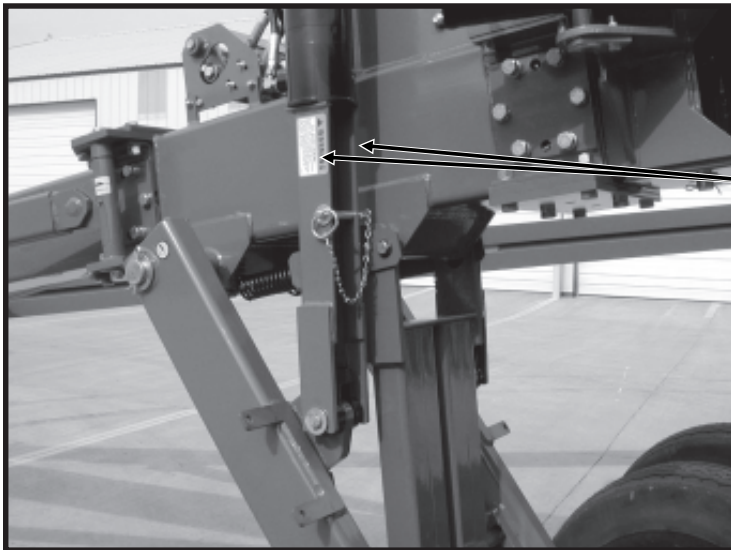
MAXIMUM INFLATION PRESSURE


75 PSI

7100-219

Part No. G7100-219 (Qty. 1 Per Tire - Ground Drive Tires, All Sizes; Transport Tires, 16 Row 38", 24 Row 20" And 24 Row 22")

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.

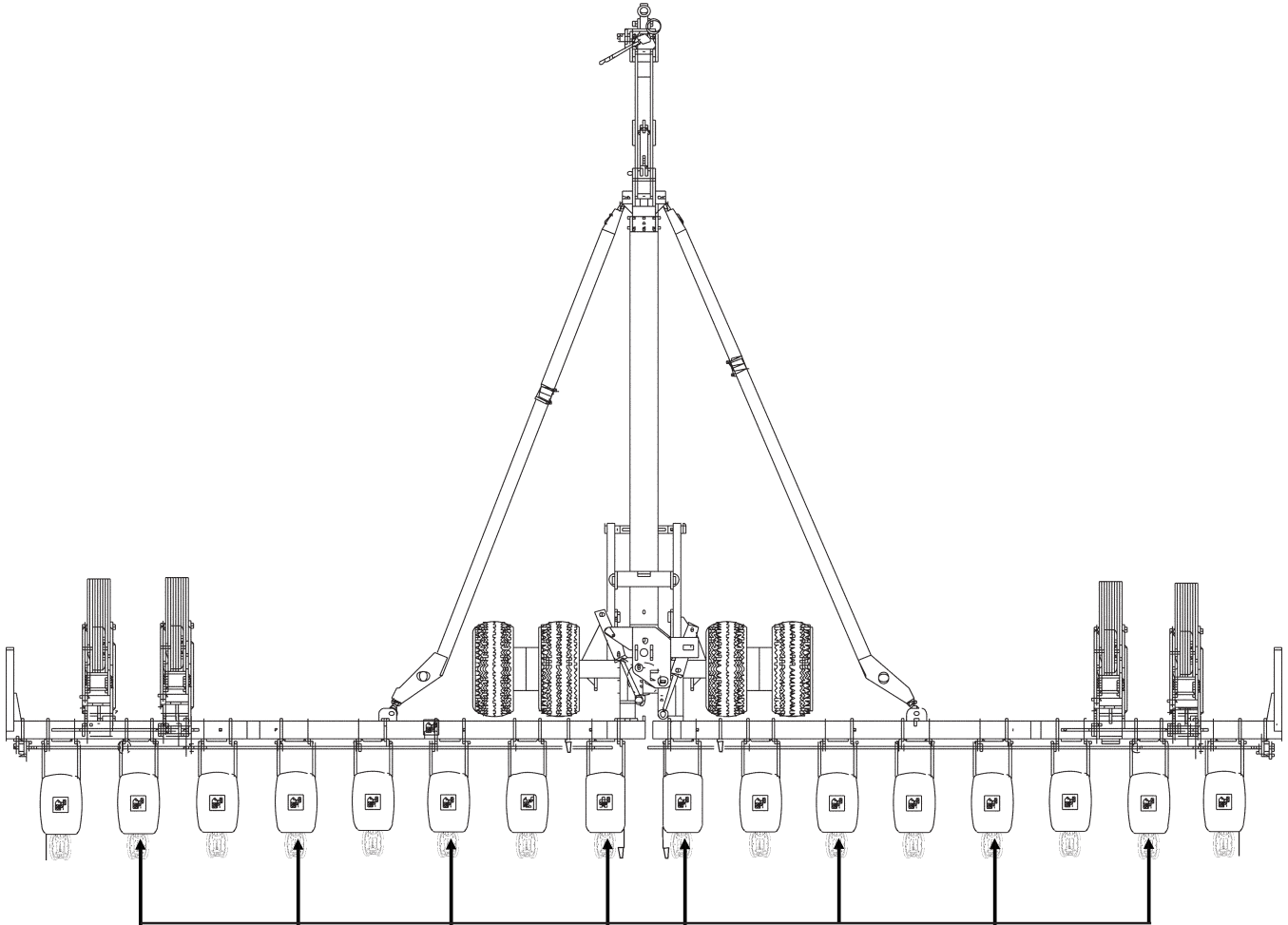
7100-47

Part No. G7100-47 (Qty. 4 - Two Per Center Lift Cylinder Lockup)

SAFETY WARNING SIGNS

(PLTR123c)

Conventional Planter Shown

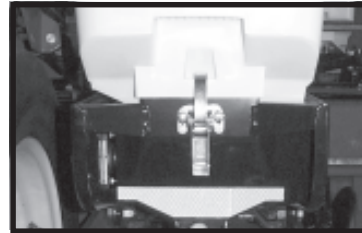


Part No. G7100-262 Amber Reflective Decal (Located On The Hopper Support On Every Other Row Unit Beginning On The 2nd Row Unit In On The L.H. End Of The Planter) **(Standard)**



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

D060800114



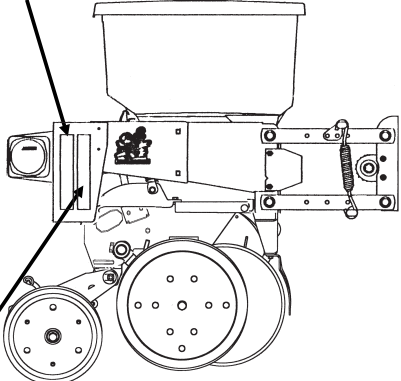
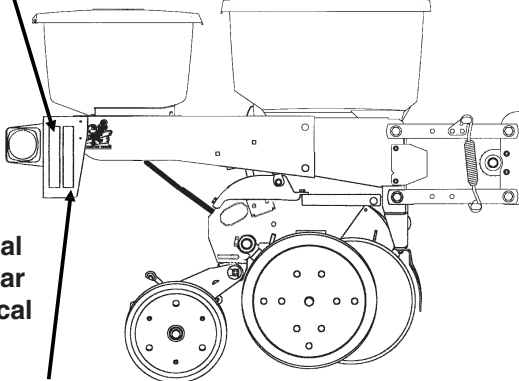
D062300102

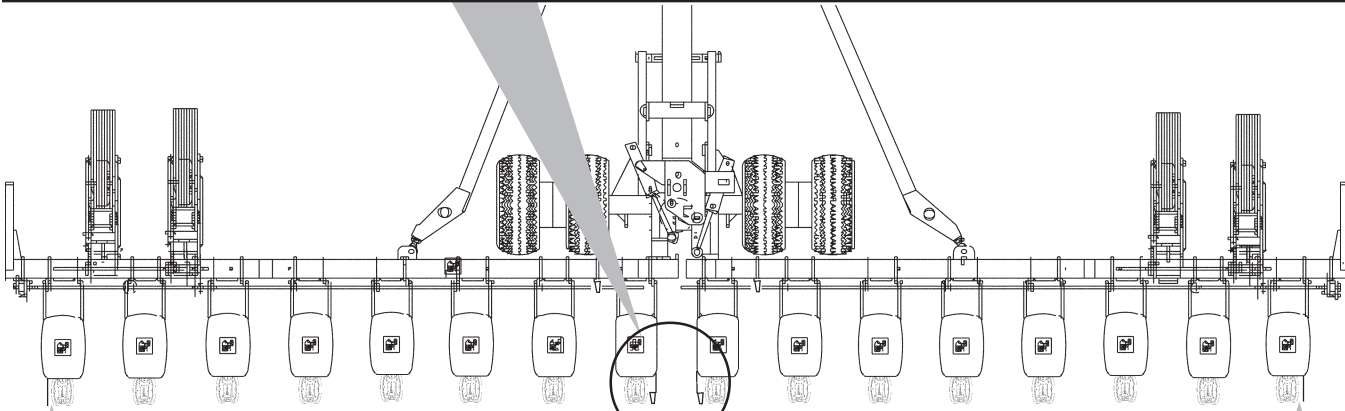


NOTE: 8 decals are used on 16 Row 30"/38", 12 on 24 Row 20"/22"/30" and 18 on 36 Row 20" sizes.

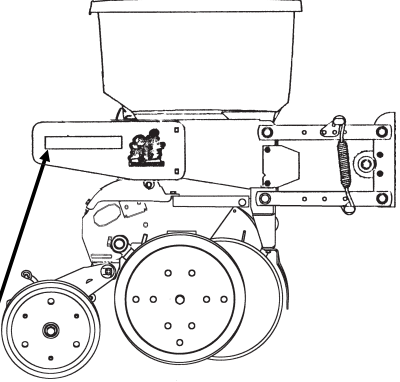
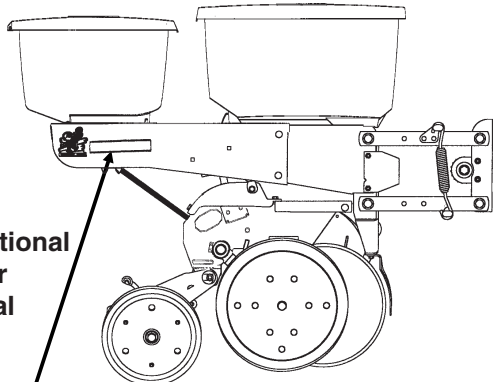
SAFETY WARNING SIGNS

(FF89d/RU120m/PLTR123c/FF88b/RU120l)

<p>Part No. G7100-258 Red Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position)</p>	<p>Part No. G7100-258 Red Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position)</p>
<p>Standard</p> 	<p>With Optional Granular Chemical</p> 
<p>Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position)</p>	<p>Part No. G7100-260 Orange Reflective Decal (Qty. 2 - Located On The Two Center Row Units - Rear-Facing In Transport Position)</p>



Conventional Planter Shown

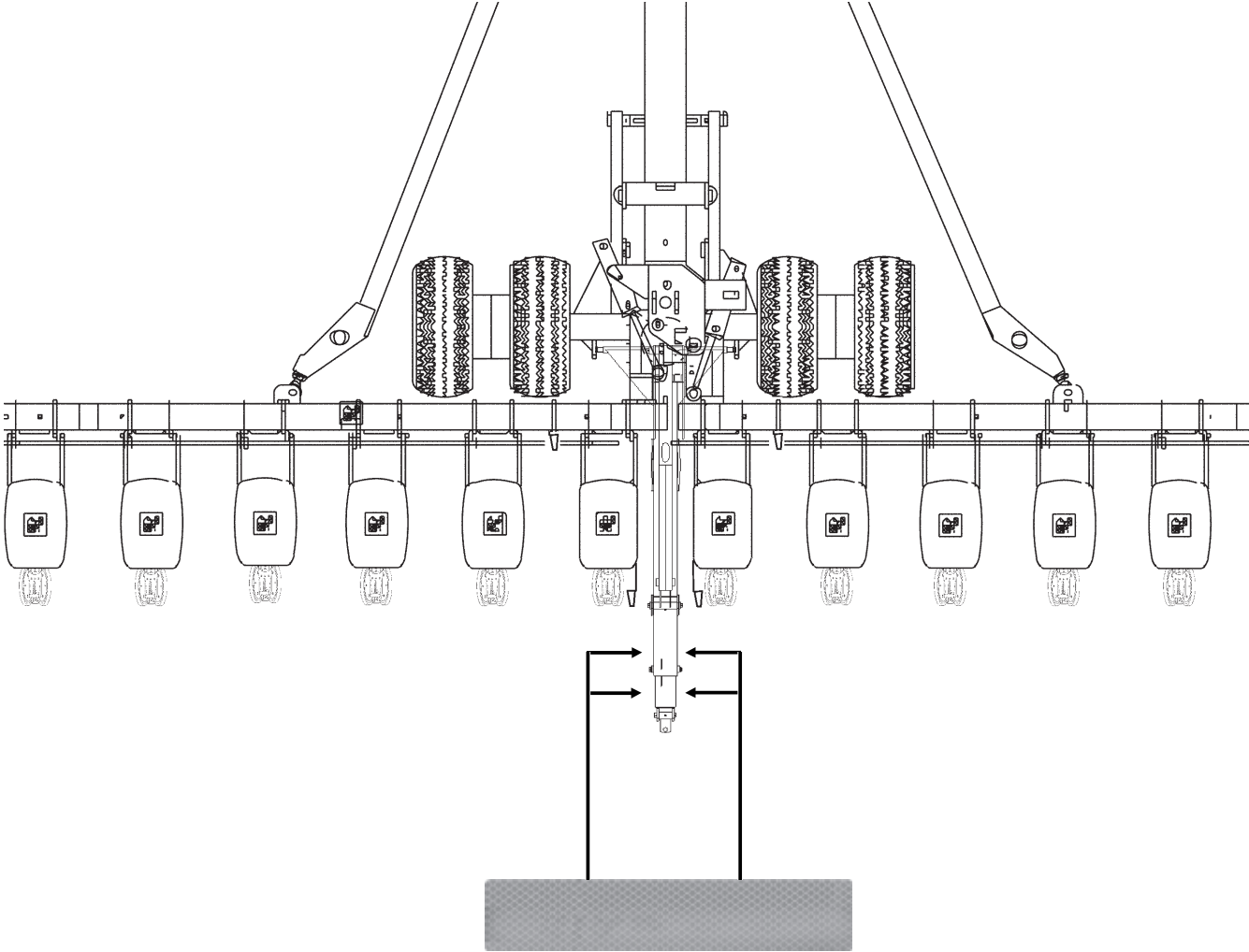
<p>Standard</p> 	<p>With Optional Granular Chemical</p> 
<p>Part No. G7100-259 Amber Reflective Decal (Qty. 2 - Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position)</p>	<p>Part No. G7100-259 Amber Reflective Decal (Qty. 2 - Located On The Outside Row Unit On Each End Of The Planter - Forward-Facing In Transport Position)</p>

SAFETY WARNING SIGNS

(PLTR123c/A7259)

Optional Rear Trailer Hitch (16 Row 30"/38" And 24 Row 30" Only)

Conventional Planter Shown



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

SAFETY WARNING SIGNS

MACHINE OPERATION

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

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

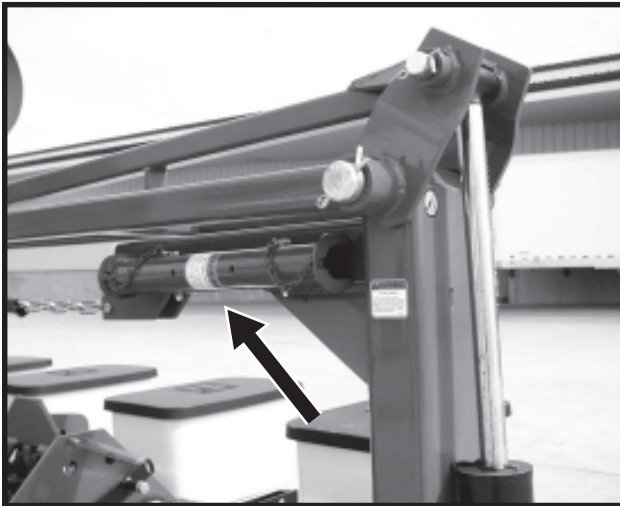
ROW MARKER SAFETY LOCKUP

Install marker safety lockups over row 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.



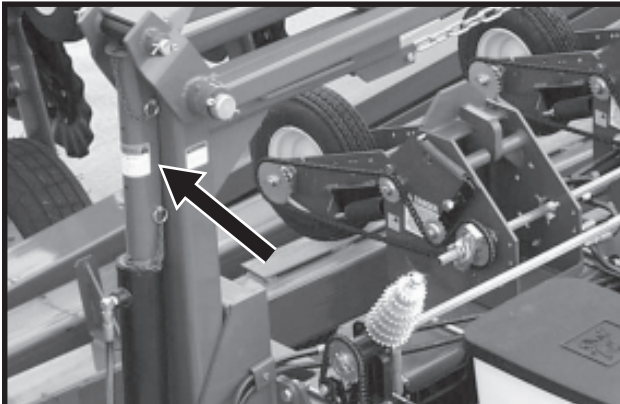
WARNING: To avoid serious injury or death, keep others away when raising or lowering row markers.

D07279955



Lockup Stored For Row Marker Operation

D07279933



Row Marker Locked Up For Transport Or Working Around The Machine

HITCH PARALLEL LINKAGE LOCKUP

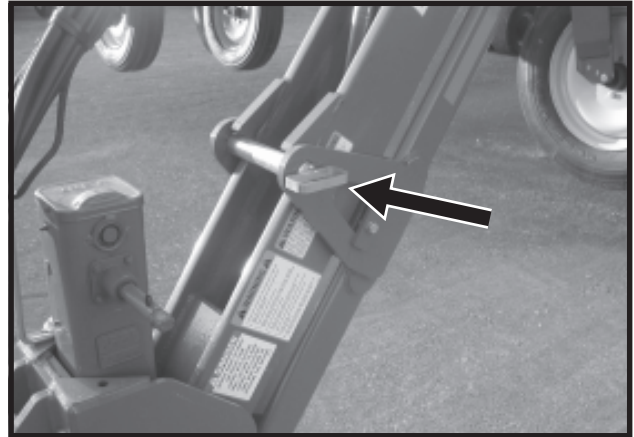
A hitch parallel linkage lock pin is provided to lock the hitch parallel linkage in raised (transport) position.

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



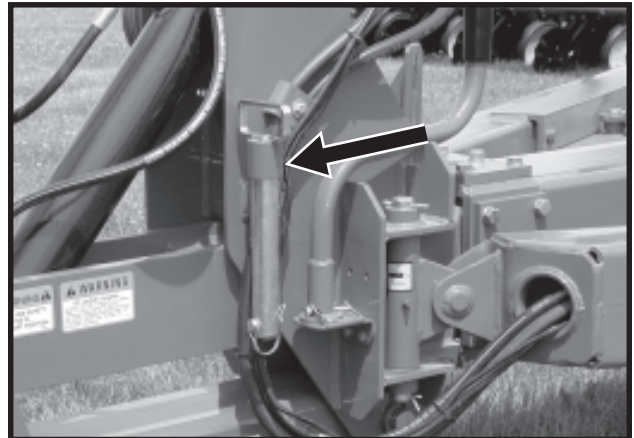
DANGER: Never work under the planter while in raised position without installing all safety lockup devices.

D03030502



Hitch Parallel Linkage Lockup Pin In Transport Position

D06250314



Hitch Parallel Linkage Lockup Pin In Storage Location



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.

MACHINE OPERATION

CENTER LIFT CYLINDER LOCKUPS

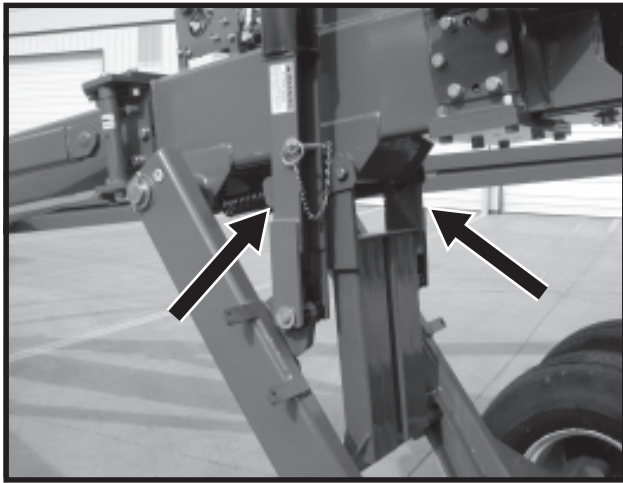
The lift system includes an automatic safety lock to carry the weight of the machine while it is in the transport position.

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.



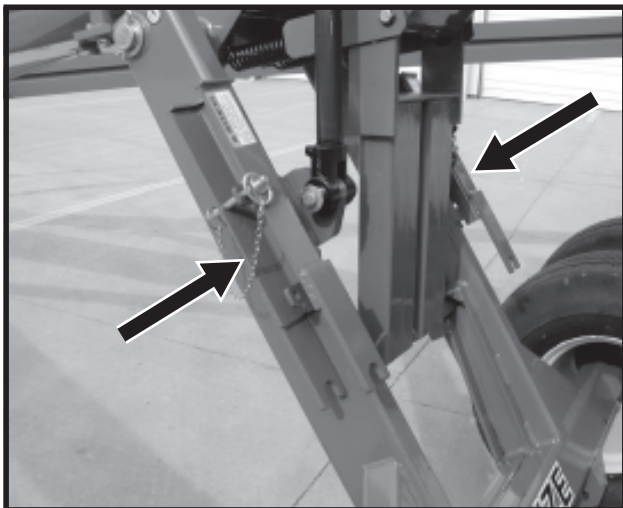
DANGER: Never work under the planter while in raised position without installing all safety lockup devices.

D101801109



Center Lift Cylinder Lockups In Transport Position

D101801114



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

MACHINE OPERATION

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.

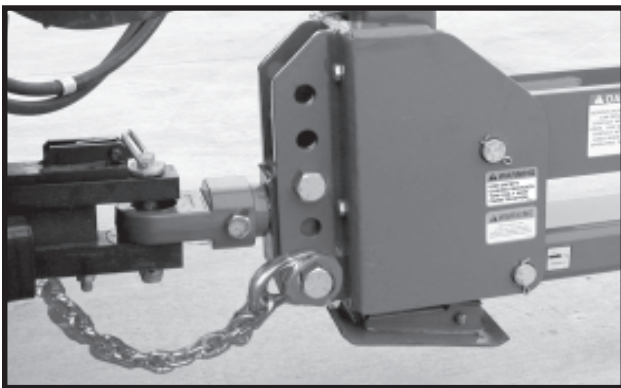
NOTE: Additional customer-supplied drawbar support required with 36 Row 20" due to heavy transport hitch weights.

Two dual remote hydraulic outlets (SCV) are required on all sizes of conventional planters equipped with row markers. Three dual remote hydraulic outlets (SCV) are required on all sizes of SDS planters equipped with row markers. One set of outlets is used to operate the lift system, one set is used to operate the markers, tongue and fold/unfold functions and the third set is used to operate the SDS functions (If Applicable).

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

TRACTOR PREPARATION AND HOOKUP

D101801130b



1. Adjust tractor drawbar in as close to the tractor as practical and to 13"-17" 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.

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

The control console(s) operates on 12 volt DC only.

If two 12 volt batteries are connected in series, ALWAYS make power connection on the battery which is grounded to the tractor chassis.

If two 6 volt batteries are connected in parallel, make sure the 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 to the planter using an unused clevis mounting hole on the planter hitch. The attaching hardware should be torqued to 840 ft. lbs.
5. Connect hydraulic hoses to tractor ports in a sequence which is both familiar and comfortable to the operator.

The hydraulic hoses are color coded as follows:

- Red AA - (Return) Lift Functions
- Red BB - (Pressure) Lift Functions
- Blue AA - (Pressure) Row Marker, Tongue And Fold/Unfold Functions
- Blue BB - (Return) Row Marker, Tongue And Fold/Unfold Functions
- Yellow AA - (Return) Bulk Seed Delivery System (SDS) Functions
- Yellow BB - (Pressure) Bulk Seed Delivery System (SDS) Functions



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.

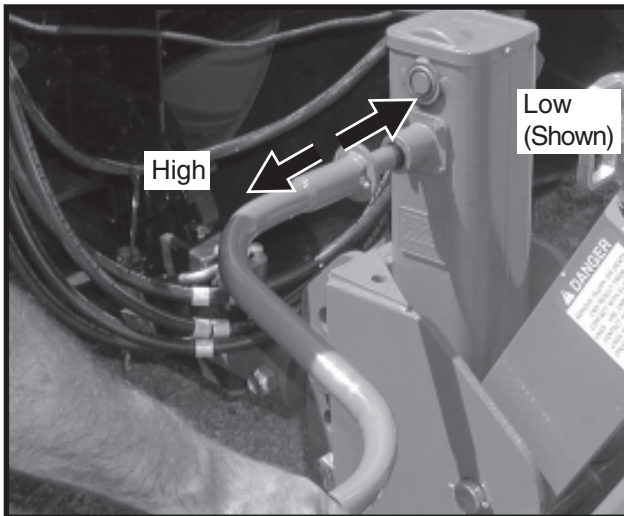
MACHINE OPERATION

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

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.

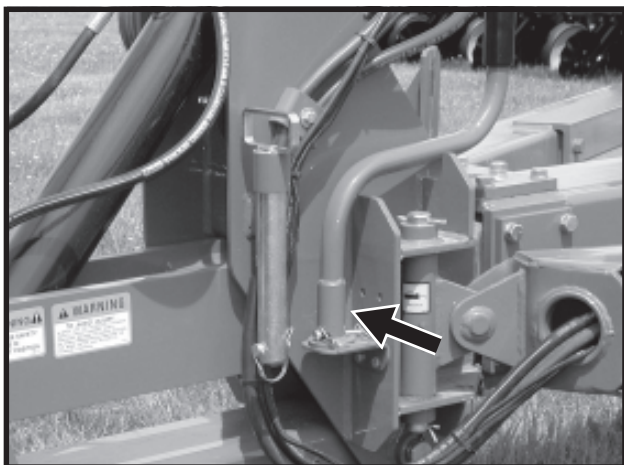
2-SPEED JACK ASSEMBLY

D06300304



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

D06250314

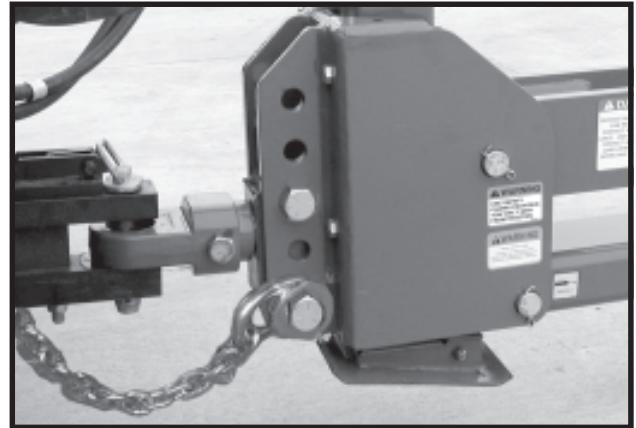


Jack Handle Storage Location

LEVELING THE PLANTER

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

D101801130b



Five 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 torqued to 840 ft. lbs.

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

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

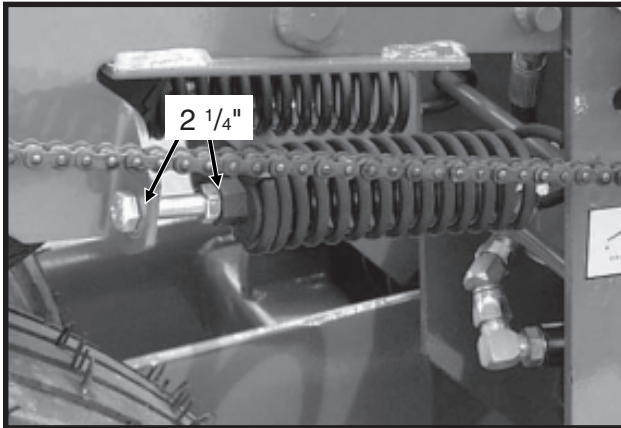
If planting in extremely soft soil conditions it may be necessary to move the ground drive tires to one of the lower sets of mounting holes. To allow adequate drive force after lowering the ground drive tires, it may be necessary to lower the contact drive arms to the lower set of holes in the wheel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

MACHINE OPERATION

CONTACT WHEEL SPRING ADJUSTMENT

D07279948

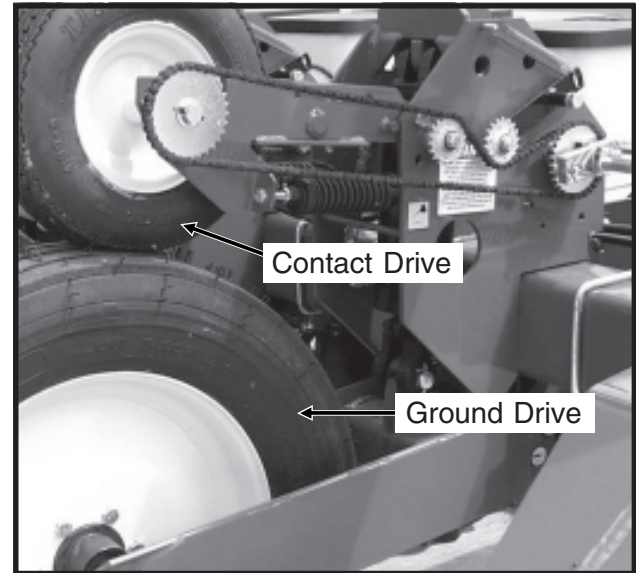


There are two down pressure springs on each contact drive wheel. The down pressure is factory preset and should require no further adjustment.

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

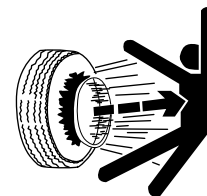
TIRE PRESSURE

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 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 pressures. Do not inflate tires above the recommended pressures.

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

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

MACHINE OPERATION

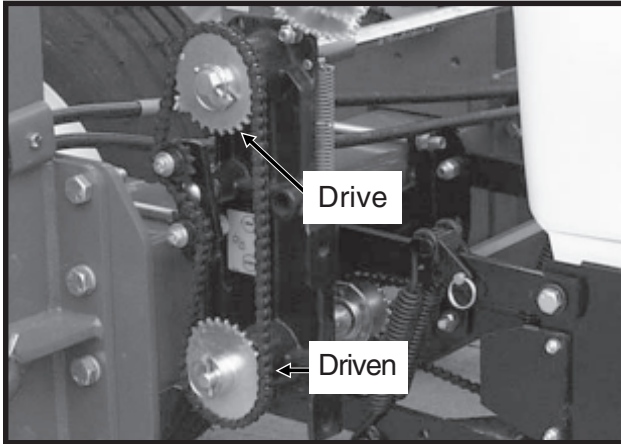
SEED RATE TRANSMISSION ADJUSTMENT

Planting population rate changes are made at the end of each planter wing. The seed rate transmissions are designed to allow simple, rapid changes of 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 dual-sprocket 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. See "Wrap Spring Wrench Operation".

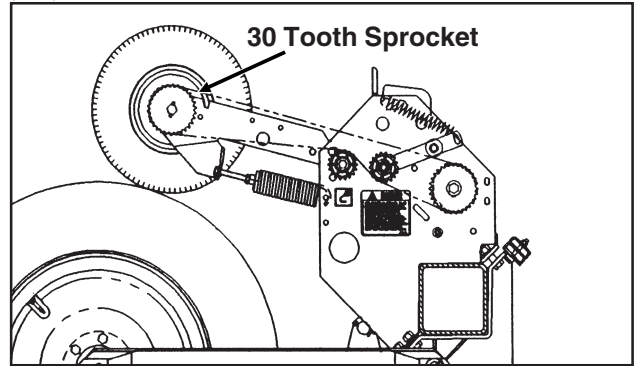
A decal positioned on the transmission provides proper chain routing. The planting rate charts found at the back of this section will aid you in selecting the correct sprocket combinations.

D07279946



STANDARD RATE DRIVE

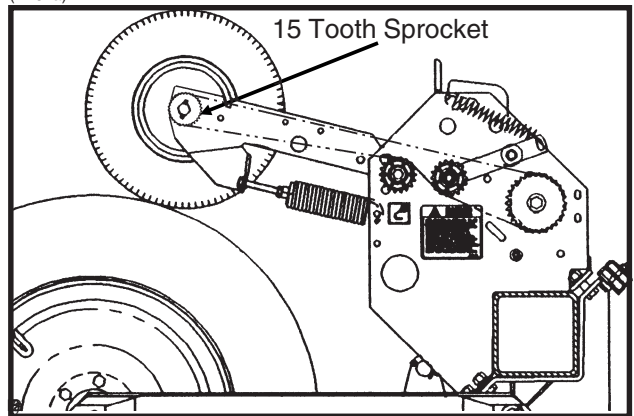
(FF82)



Seed planting rate charts are based on the standard rate drive. The standard rate drive uses a 30 tooth sprocket and No. 40 118 pitch chain on each contact drive tire. Using the 15 tooth reduced 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

(FF82a)



Half rate (2 to 1) drive is recommended only when desired population falls below that shown on planting rate charts. Replacing the 30 tooth and shorter No. 40 110 pitch chain on each contact wheel with a 15 tooth sprocket. This will reduce the planter transmission speed and reduce planting and application rates by approximately 50%.

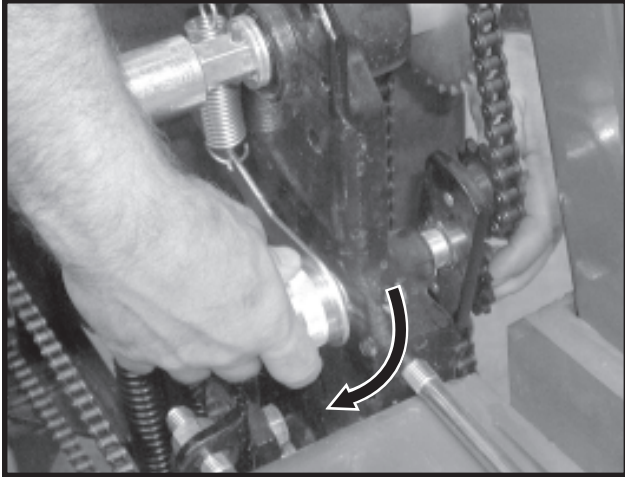
NOTE: After each sprocket combination adjustment, make a field check to be sure you are planting at the desired rate.

MACHINE OPERATION

WRAP SPRING WRENCH OPERATION

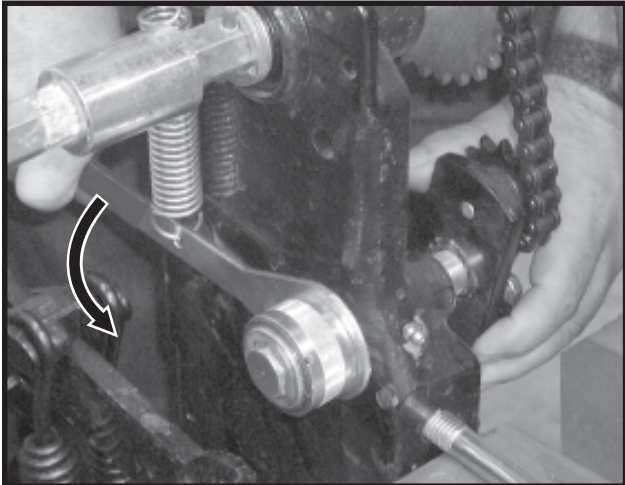
The chain idler is equipped with a wrap spring wrench. Chain tension is released and/or added as shown below.

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.

The wrap spring wrenches are made in L.H. and R.H. configurations, which can be identified by the silver or gold release collar, respectively.

SHEAR PROTECTION

The planter driveline and seed and granular chemical drivelines 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.

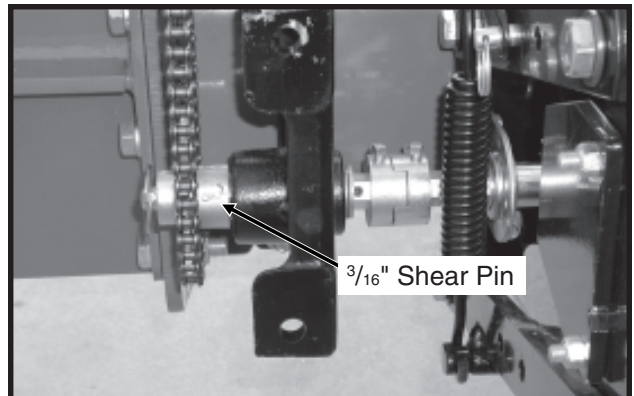
72495-48



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

NOTE: Drill shaft/transmission coupler alignment is critical.

D101801136

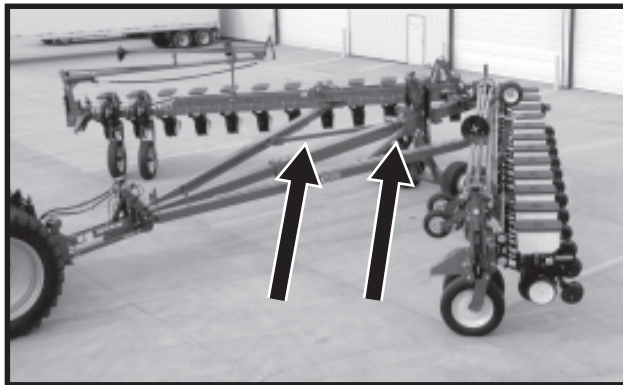


Transmission Shaft

MACHINE OPERATION

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

D101801122



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

Two dual remote hydraulic outlets (SCV) are required on all sizes of conventional planters equipped with row markers. Three dual remote hydraulic outlets (SCV) are required on all sizes of SDS planters equipped with row markers. One set of outlets is used to operate the lift system, one set is used to operate the markers, tongue and fold/unfold functions and the third set is used to operate the SDS functions (If Applicable).



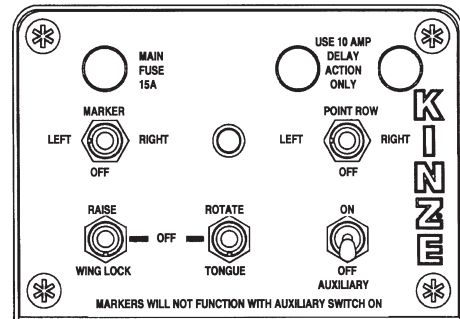
DANGER: To avoid serious injury or death, care must be taken when operating row markers around overhead power lines.

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/MOMENTARY 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 push-button 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.

(PLTR153)



Planter Control Console

D10060627



SDS Control Console



WARNING: 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.

MACHINE OPERATION

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.

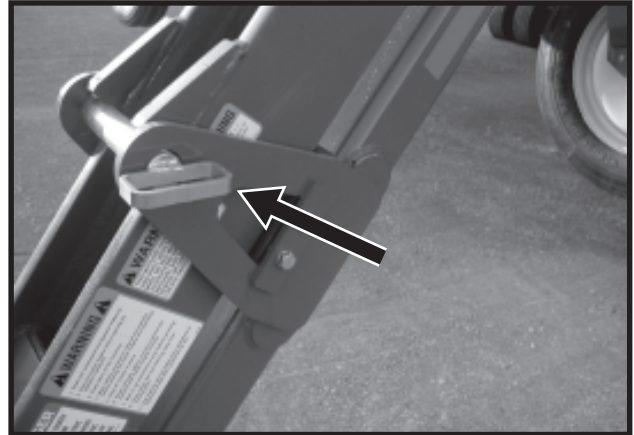
SUMMARIZED TRANSPORT TO FIELD SEQUENCE

- 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 row marker lockups.

NOTE: Read the following information for more detailed instructions.

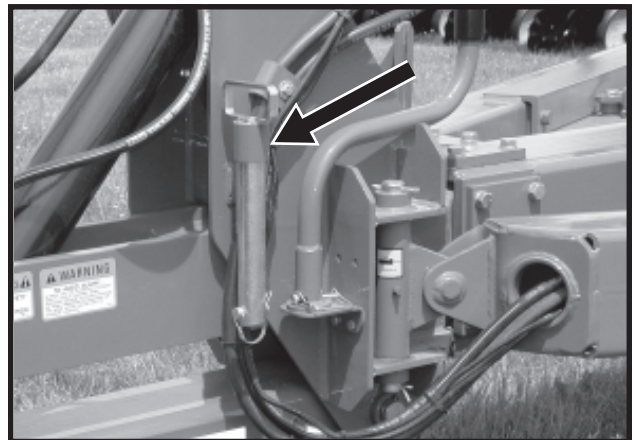
1. Position the planter in a relatively flat open area. Try to avoid an area with furrows, etc.
2. Fully extend hitch parallel linkage cylinder located on hitch. Remove the hitch parallel linkage lock pin from the hitch parallel linkage or cylinder lockup from cylinder rod. Store in storage location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

D03030501



Hitch Parallel Linkage Lockup Pin In Transport Position

D06250314

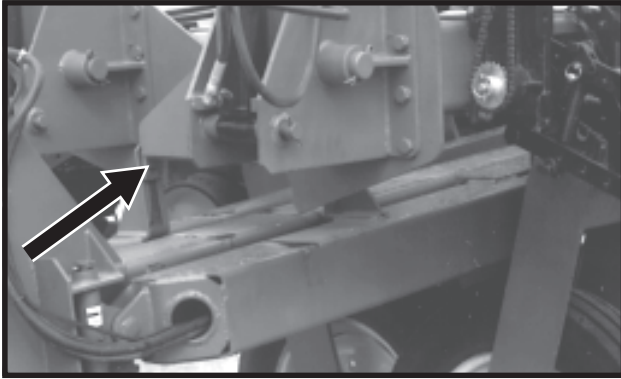


Hitch Parallel Linkage Lockup Pin In Storage Location

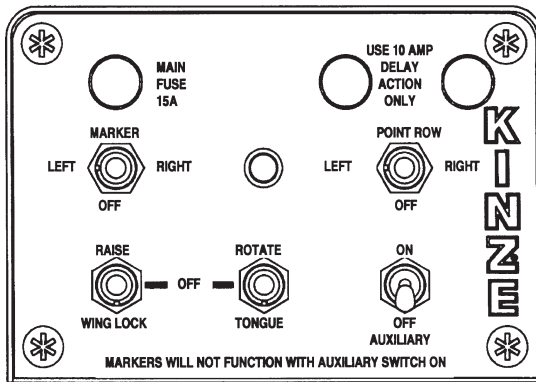
MACHINE OPERATION

- 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 control to retract the hitch parallel linkage cylinder fully.

73430-5

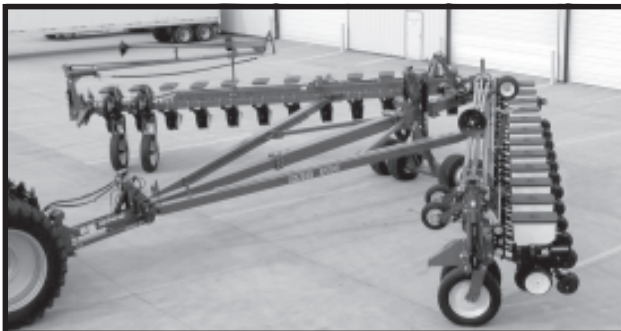


A6865(PLTR153)



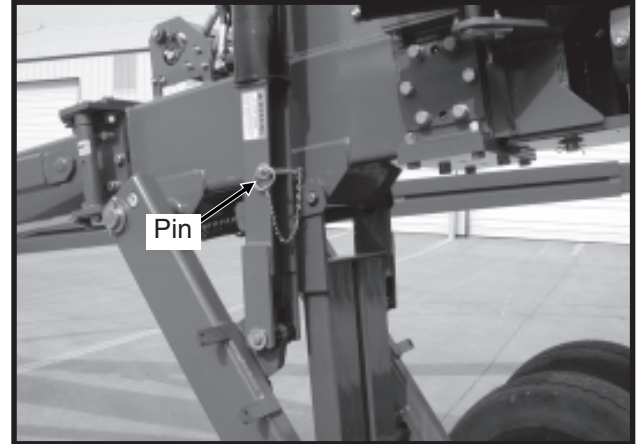
- Hold the control console switch labeled “ROTATE/TONGUE” in “ROTATE” and operate the hydraulic control. The tongue will begin to retract and the wings will begin to unfold, rolling on the wing wheels. It is necessary to place the tractor transmission in neutral or a low reverse gear, to allow the tractor 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



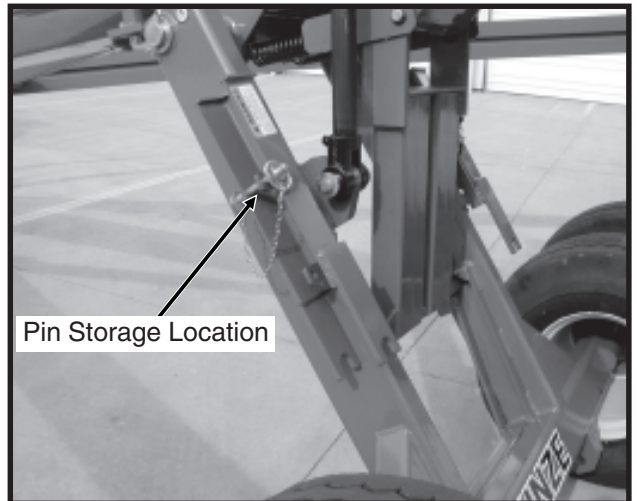
- Raise the planter to remove weight from the center lift cylinder lockup brackets. Remove the pin which locks each bracket in place and store the lockup brackets and pins as shown below.

D101801109



Center Lift Cylinder Lockups In Transport Position

D101801114



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, lower the machine until the hydraulic system stalls against the automatic safety, raise the machine again slightly to release the automatic safety lock and then lower the planter.

MACHINE OPERATION

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 control 5 to 10 seconds to rephase the system.

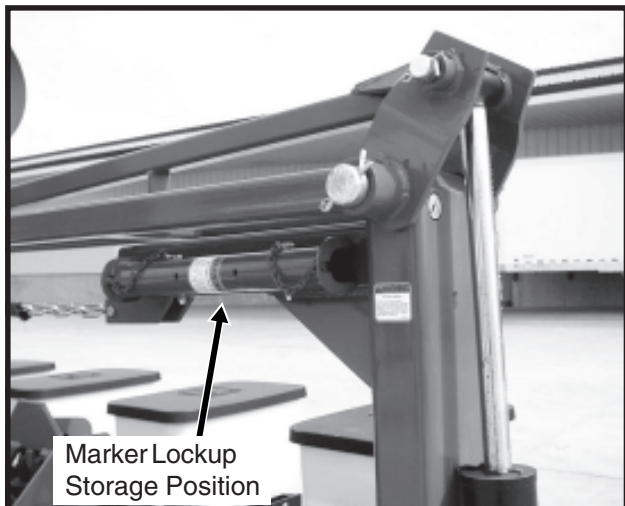
D101801119



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 control 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 the planter is lowered to the planting position, position the hydraulic control 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 control to operate two-fold or 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".

MACHINE OPERATION

FIELD TO TRANSPORT SEQUENCE

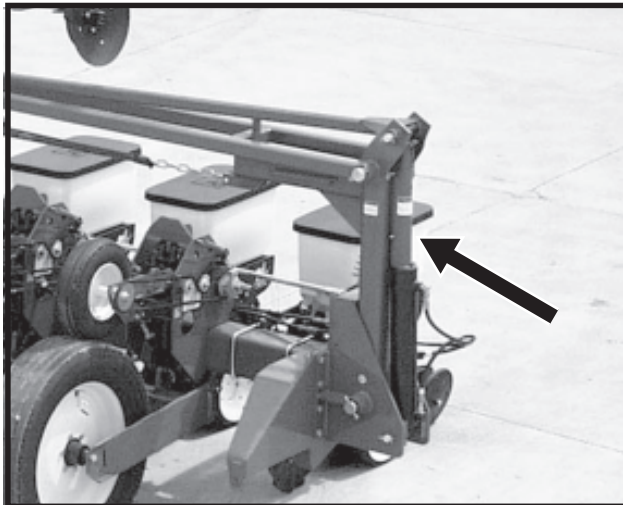
SUMMARIZED FIELD TO TRANSPORT SEQUENCE

- 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/WING LOCK” 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.

D101801119

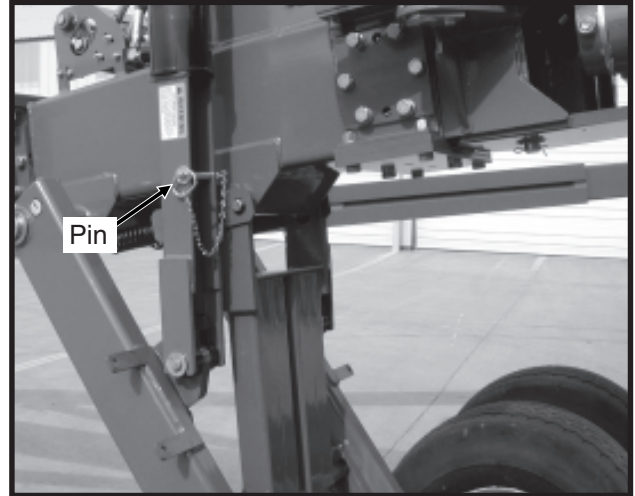


3. Install center (slave) lift cylinder lockups. Position brackets as shown below. Install pin assembly to lock each in place.



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

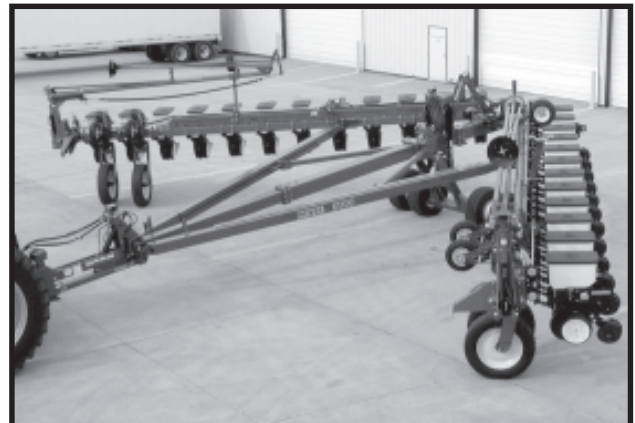
D101801109



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.

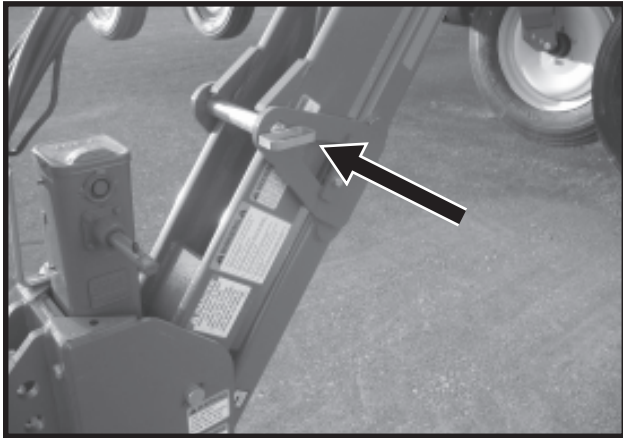
D101801122



MACHINE OPERATION

- 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.
- Place the hitch parallel linkage lock pin through the holes in the hitch as shown below.

D03030502



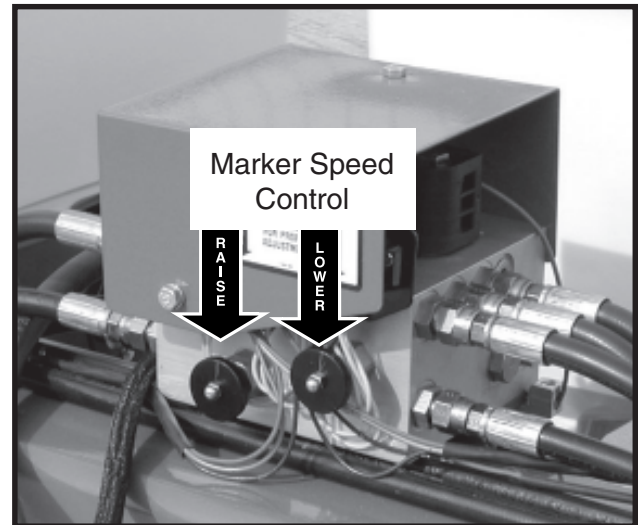
Hitch Parallel Linkage Lockup Pin In Transport Position

- Lower parallel link cylinder onto lock pin.

ROW MARKER SPEED ADJUSTMENT

The marker hydraulic system includes two flow control valves. One flow control valve sets the lowering speed of both markers and one sets 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 control(s) determines the amount of oil flow restriction through the valve(s), therefore varying travel speed of the markers. Tighten jam nut(s) after adjustments are complete.

D101801135



IMPORTANT: The flow controls should be properly adjusted before the marker assemblies are first put into use. Excessive 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 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 systems.

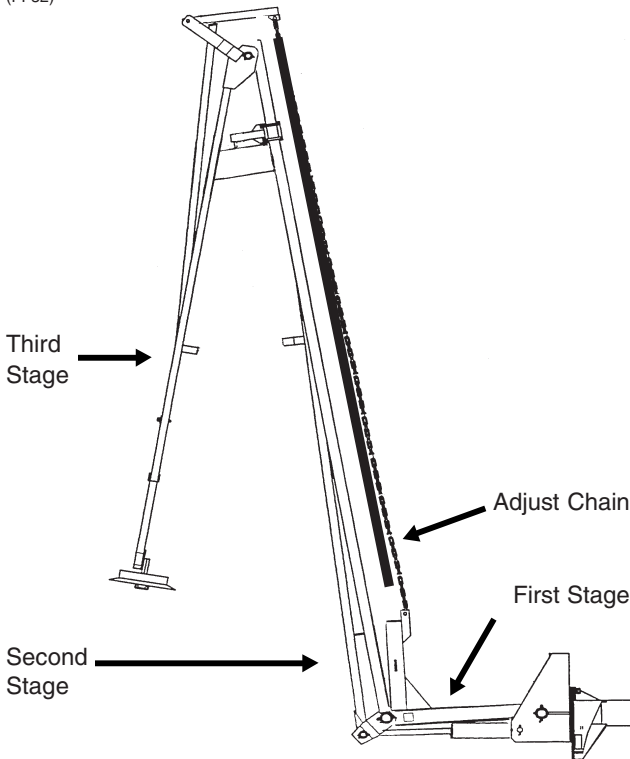
On tractors equipped with flow control valves, row marker speed adjustment should be made with the tractor flow controls in maximum position. After marker speed is set, the tractor flow controls can be adjusted to allow the hydraulic control to stay in detent during the marker raise or lower cycle.

MACHINE OPERATION

ROW MARKER CHAIN ADJUSTMENT (16 Row 38", 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.

(FF32)



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 two-fold or three-fold row markers with the tractor's hydraulic valve in float position.



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

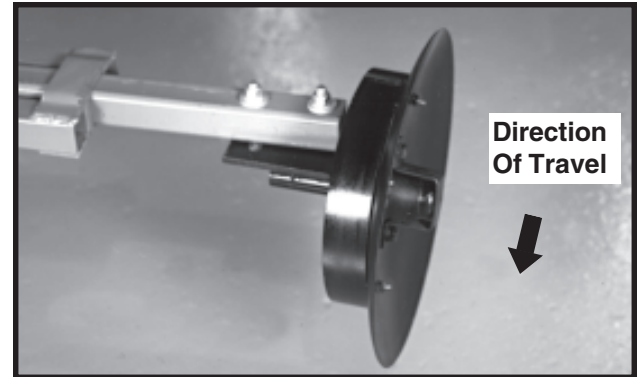
ROW MARKER LENGTH ADJUSTMENT

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 row 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 row marker assemblies equally and securely tighten clamping bolts. An example of marker length adjustment follows:

Number Of Rows	x	Row Spacing (Inches)	=	Dimension Between Planter Center Line And Marker Disc Blade
-------------------	---	----------------------------	---	-------------------------------------------------------------------

24 Rows x 30" Spacing = 720" Marker Dimension

60569-53



Row Marker Disc Blade Shown With Depth Band

The marker disc blade should be installed so the concave side of the blade faces outward to throw dirt away from the grease seals. The spindle assembly is slotted so the hub and blade can be angled to throw more or less dirt. To adjust the hub and spindle, loosen the 1/2" hardware and move the assembly as required. Tighten bolts to the specified torque.

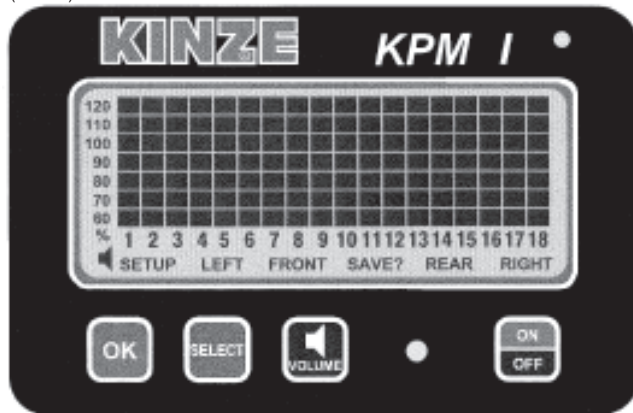
IMPORTANT: A marker disc blade assembly that is set at a sharper angle than necessary will add unnecessary stress to the complete row marker assembly and shorten the life of bearings and blades. Set the blade angle only as needed to leave a clear mark.

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

Notched marker blades, for use in more severe no till conditions, are available from KINZE® Repair Parts through your KINZE® Dealer.

KPM I ELECTRONIC SEED MONITOR

(MTR28)



The KPM I 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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Warnings And Alarms	6-16
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Programming/Connecting Seed Tubes	6-18

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 application mode (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.

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

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

The corresponding row number starts flashing and the 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.

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) turn the monitor off, (c) after a few seconds, turn the monitor back on and (d) plug in the replacement sensor. The monitor will chirp twice to acknowledge the new sensor was learned and saved.

To replace more than one faulty sensor, proceed as stated above 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.

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.



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

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”.



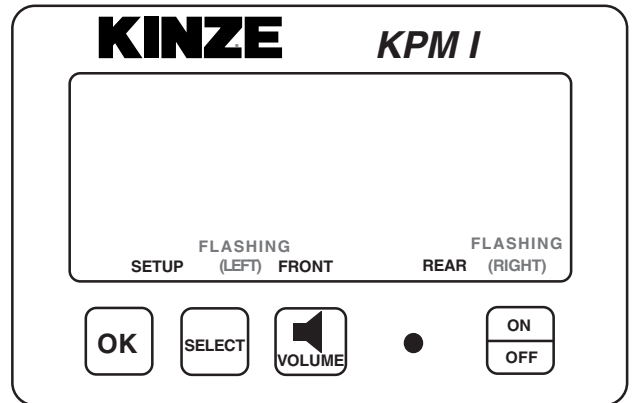
PROGRAMMING/CONNECTING SEED TUBES

STEP 1 All the seed tubes w/sensors must be disconnected from the harness and the monitor must be off.

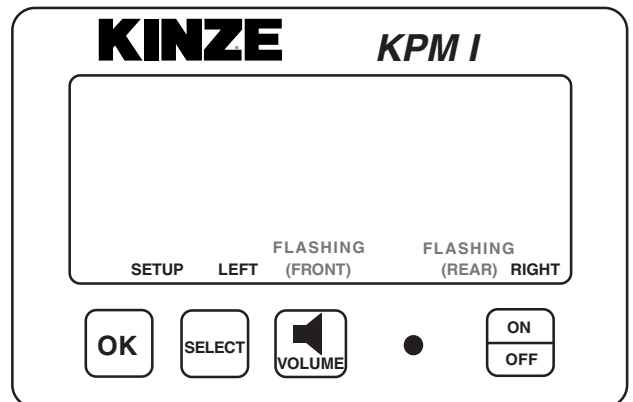
STEP 2 Press the ON key. The monitor automatically enters the setup procedure. If the monitor was accidentally powered on with no sensors attached, the user can turn the monitor off at this point and the previous configuration is not lost.

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.

01229910



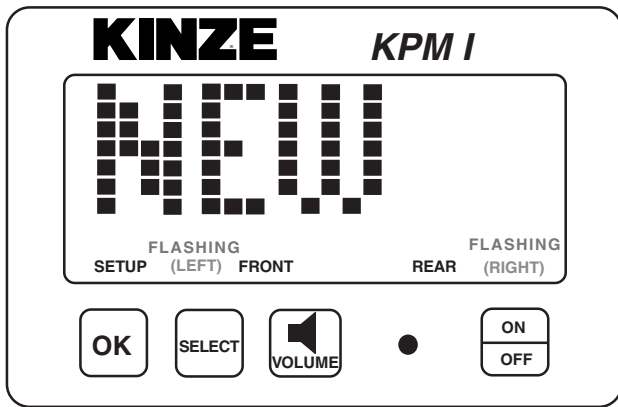
01229911



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.

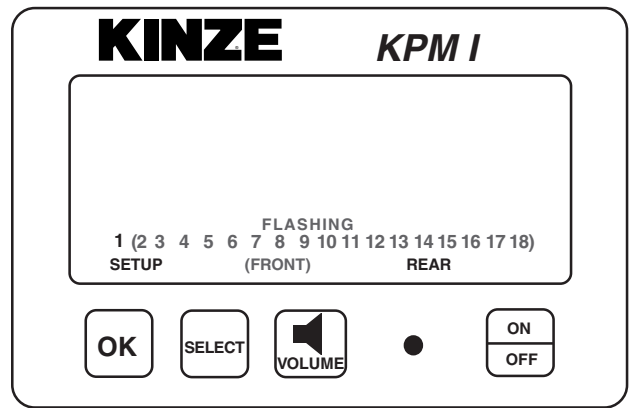
STEP 4 Press and hold the OK key to confirm the selection and continue holding until the row numbers appear on the display. During confirmation, the display will alternate between “NEW” and “SYS” to alert the user that the previous configuration will be lost. With the rear/front mode selected, the monitor 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.

01229912

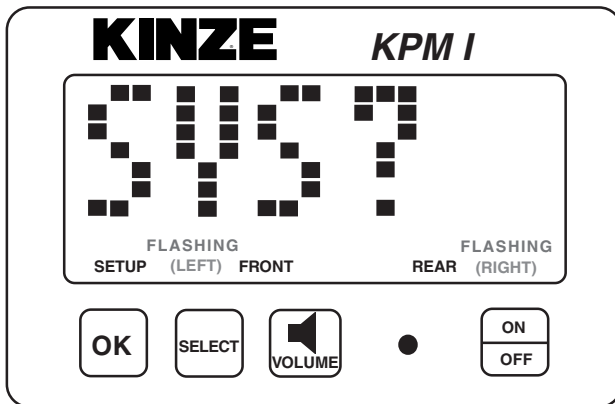


STEP 5 Plug each seed tube w/sensor into the harness in a predetermined order. Row 1 first, row 2 second and so on up to 18 rows. When a sensor is plugged in, the corresponding row number on the LCD display will stay solid, the monitor will chirp twice and the LED (Light Emitting Diode) on the seed tube 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.

01229915

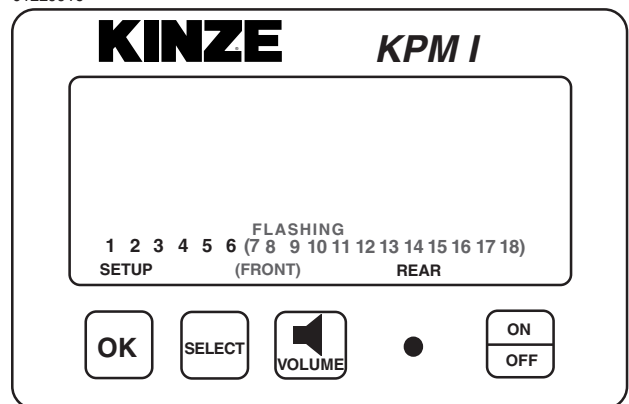


01229912a



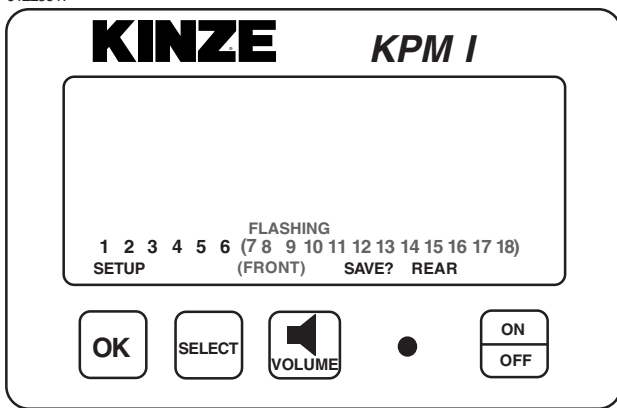
STEP 6 When all the seed tubes w/sensors for the current section are installed, check to be sure the monitor displays solid numbers for the number of sensors connected.

01229916

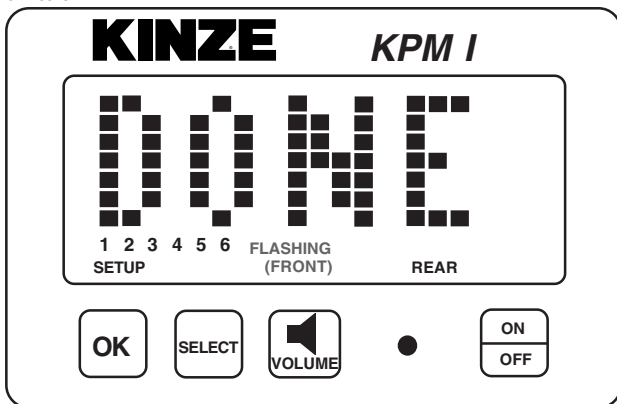


STEP 7 If this condition is satisfied, press and hold the OK key to save the setup for the current section. The SAVE? icon will show followed by continuous short beeps indicating the monitor is preparing to save. The installer has 5 seconds to decide if he wants to save the current configuration. During 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.

01229917

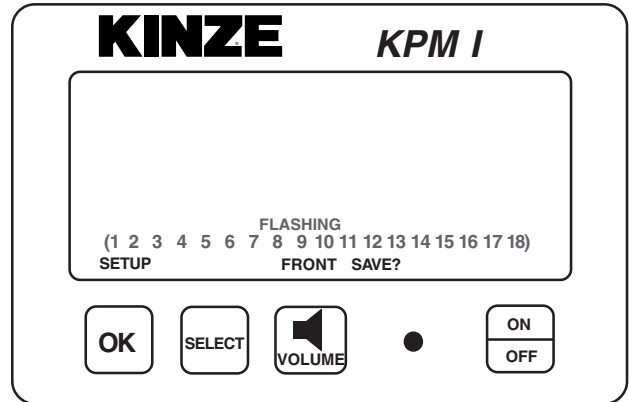


01229918

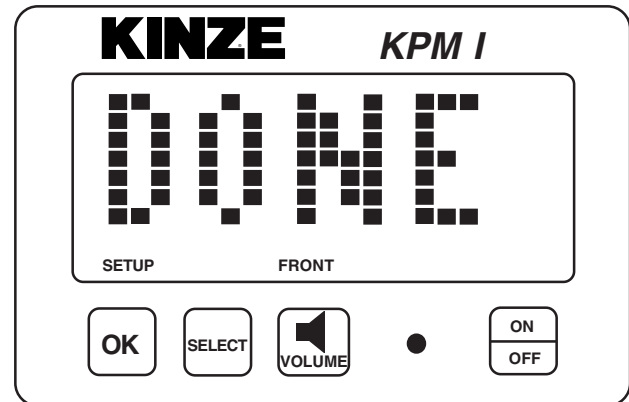


STEP 8 Follow STEPS 5 through 7 to install the second section. If no seed tubes are installed on the second section, press and hold the OK key until the word “DONE” shows on the screen followed by a long beep and the SAVE? icon turns off.

01229919



01229920

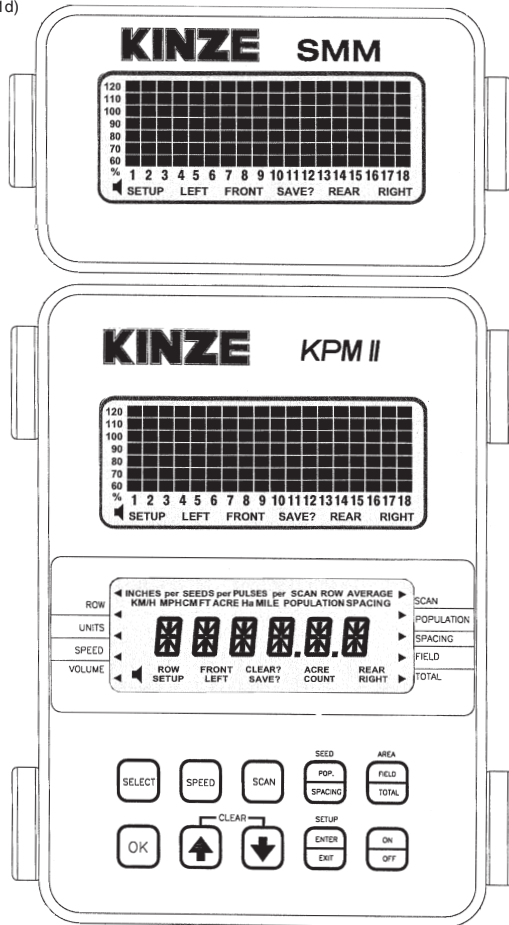


NOTE: Individual seed tubes may be unplugged for special situations. An alarm will sound which can be silenced by touching the OK key. The monitor will recognize each seed tube when reconnected.

See “KPM I/KPM II Stack-Mode Electronic Seed Monitors Troubleshooting” in the Maintenance Section.

KPM II STACK-MODE ELECTRONIC SEED MONITOR

(MTR41d)



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

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

The software design of the KPM II Stack-Mode console allows the use of an add-on SMM console for simultaneous viewing of the seed flow bar graphs for standard (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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MONITOR KEY FUNCTIONS

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

SELECT

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

SPEED

- Immediately displays the current ground speed.

SCAN

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

SEED POPULATION/SEED SPACING

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

AREA FIELD/AREA TOTAL

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

OK

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

UP ARROW AND DOWN ARROW

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

SETUP ENTER/SETUP EXIT

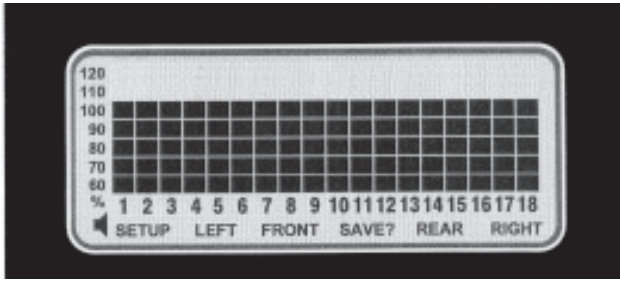
- Enters and exits the programming mode.

ON/OFF

- Powers the unit on and off.

UPPERLCD FUNCTIONS

(MTR29h)



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

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

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

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

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

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

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

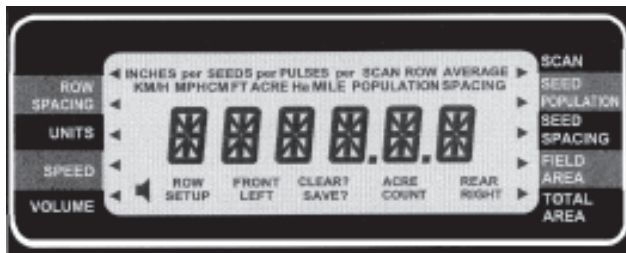
STEP 2 Press SELECT key again to activate both sections.

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

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

LOWER LCD FUNCTIONS

(MTR29g)



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

ROW SPACING

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

UNITS

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

SPEED

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

VOLUME

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

SCAN

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

MACHINE OPERATION

KPM II STACK-MODE

SEED POPULATION/SEED SPACING

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

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

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

FIELD AREA/TOTAL AREA

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

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

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

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

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

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

092597-21



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

PROGRAMMING - Changing The Audible Alarm Volume

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

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

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

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

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

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

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

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

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

MACHINE OPERATION

KPM II STACK-MODE

PROGRAMMING - Units (Metric Or English)

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

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

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

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

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

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

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

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

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

PROGRAMMING - Row Spacing

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

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

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

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

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

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

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

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

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

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

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

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

To exit setup mode, press the SETUP key.

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

MACHINE OPERATION

KPM II STACK-MODE

PROGRAMMING - Speed

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

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

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

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

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

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

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

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

- Pull the tractor up to the starting line.

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

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

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

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

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

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

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

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

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

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

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

PROGRAMMING - Clearing Total Area

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

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

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

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

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

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

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

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

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

AREA COUNTER/SPEEDOMETER MODE

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

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

WARNINGS AND ALARMS

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

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

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

If a rotation shaft sensor is faulty, "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.

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

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

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

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

REPLACING A FAULTY SENSOR

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

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

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

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

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

MACHINE OPERATION

KPM II STACK-MODE

FIELD OPERATION

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



(MTR28e)

Information regarding each section is displayed alternately every 5 seconds.

REAR/FRONT CONFIGURATION (Without SMM Console Installed)

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



(MTR28c)

REAR/FRONT CONFIGURATION (With SMM Console Installed)

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



(MTR28c)

FOUR SECTION CONFIGURATION (With SMM Console Installed)

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

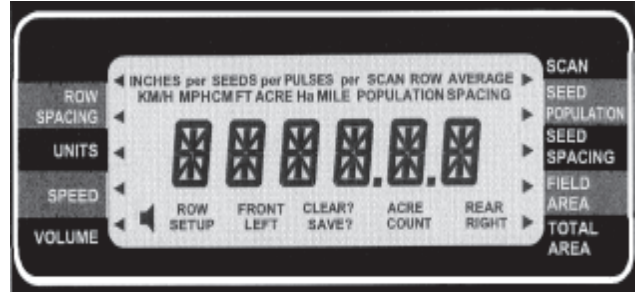


(MTR28c)

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

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

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



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



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



(MTR29c/MTR29d/MTR29b/MTR29c)

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



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



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



Press the SCAN key again to lock on current row.

Press the SCAN key again to resume scrolling.

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



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



CLEARING FIELD AREA

(MTR29n/MTR28b)

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



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



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

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



MACHINE OPERATION

KPM II STACK-MODE

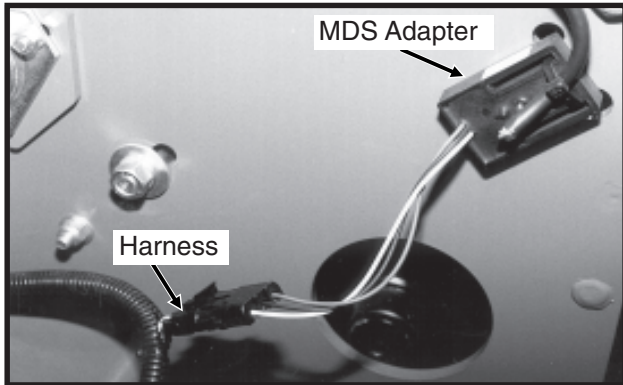
PROGRAMMING/CONNECTING SMM CONSOLE, SHAFT ROTATION SENSORS, SEED TUBES AND/OR RADAR/MAGNETIC DISTANCE SENSORS

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

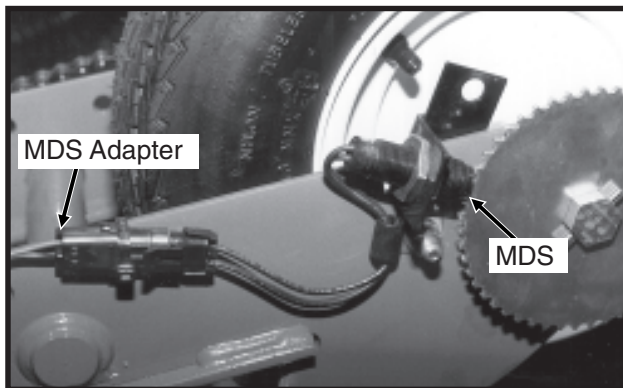
NOTE: If the monitor detects a radar sensor but no seed tubes at power up, it will automatically go into AREA COUNT mode. See “Area Counter/Speedometer Mode”.

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

01189909



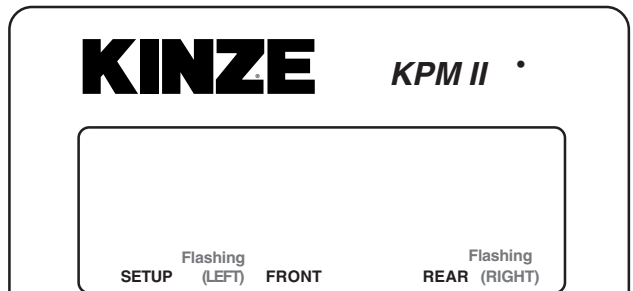
01189910



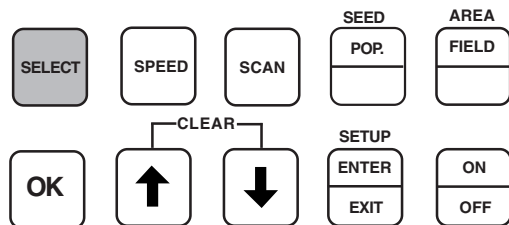
STEP 2 Press the ON key. The monitor automatically enters the setup procedure. Monitor will scroll “NO SENSOR” on top LCD of KPM II Stack-Mode console.

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

12060211



ROW	SETUP	SCAN
UNITS		SEED
SPEED		SEED
VOLUME		FIELD
		TOTAL

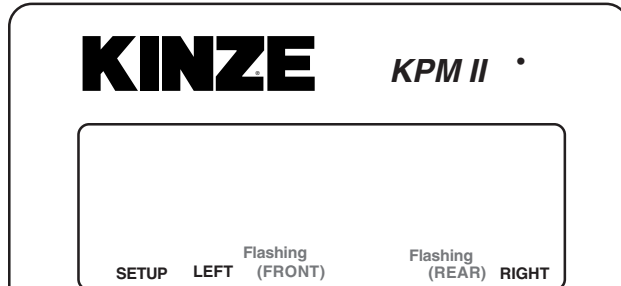


NOTE: SMM console may not be applicable to all models.

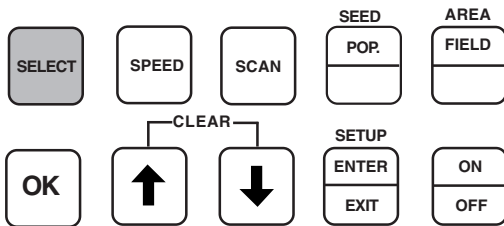
MACHINE OPERATION

KPM II STACK-MODE

12060211



ROW	SETUP	SCAN
UNITS		SEED
SPEED		FIELD
VOLUME		TOTAL



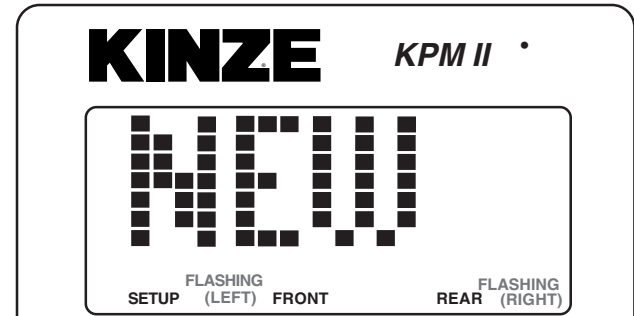
NOTE: SMM console may not be applicable to all models.

NOTE: Model 3700 (24/36 row) planters select left/right configuration.

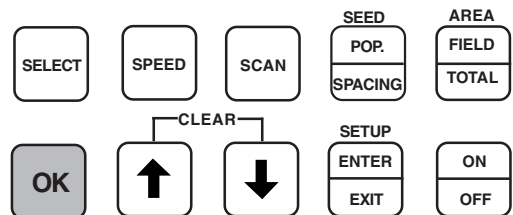
STEP 4 Press and hold the OK key to confirm selection. The upper display will alternate between “NEW” and “SYS?”.

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 of the KPM II.

12060211



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



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

MACHINE OPERATION

KPM II STACK-MODE

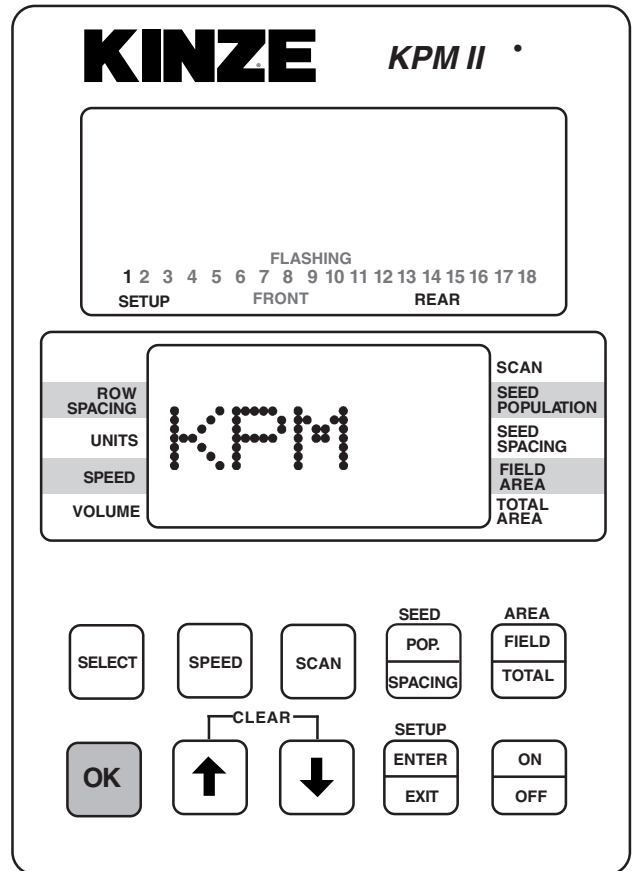
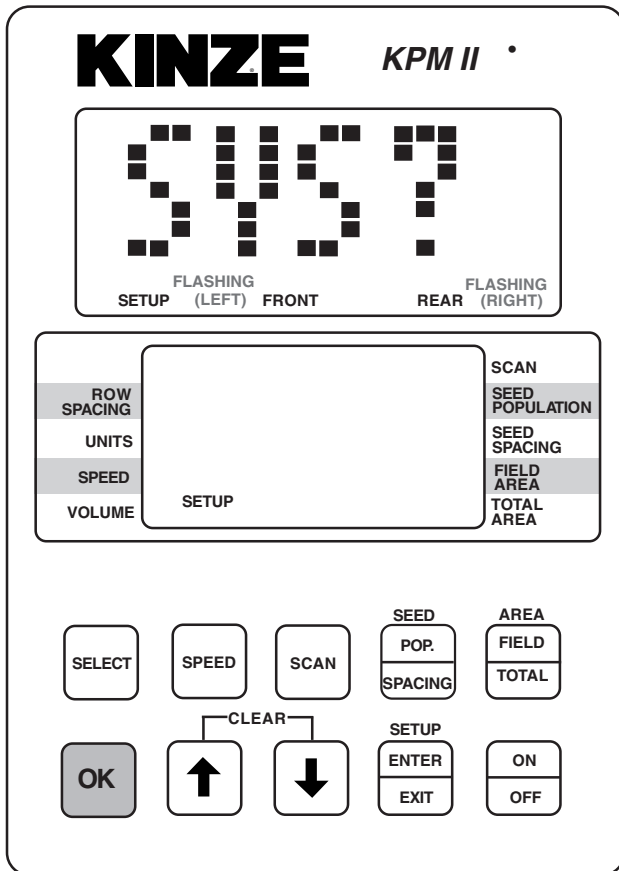
NOTE: Illustrated using rear/front configuration.
 The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration.

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

12060211



12060211



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

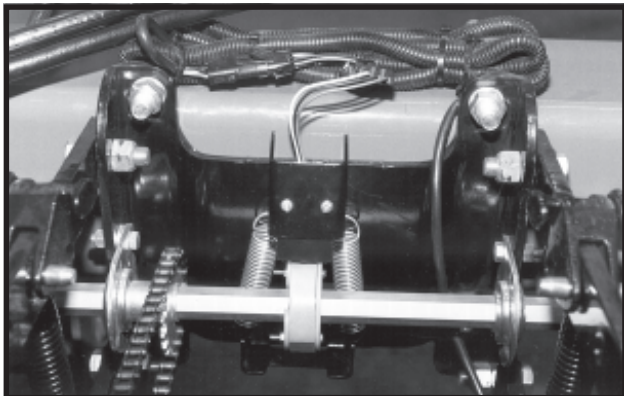
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

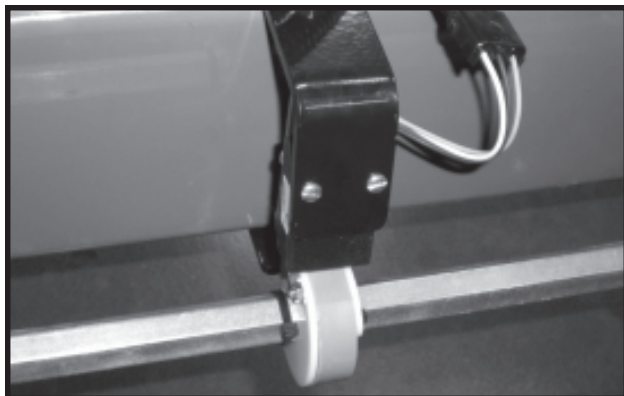
KPM II STACK-MODE

STEP 6 If the monitor system includes shaft rotation sensors, these should be installed at this time. 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



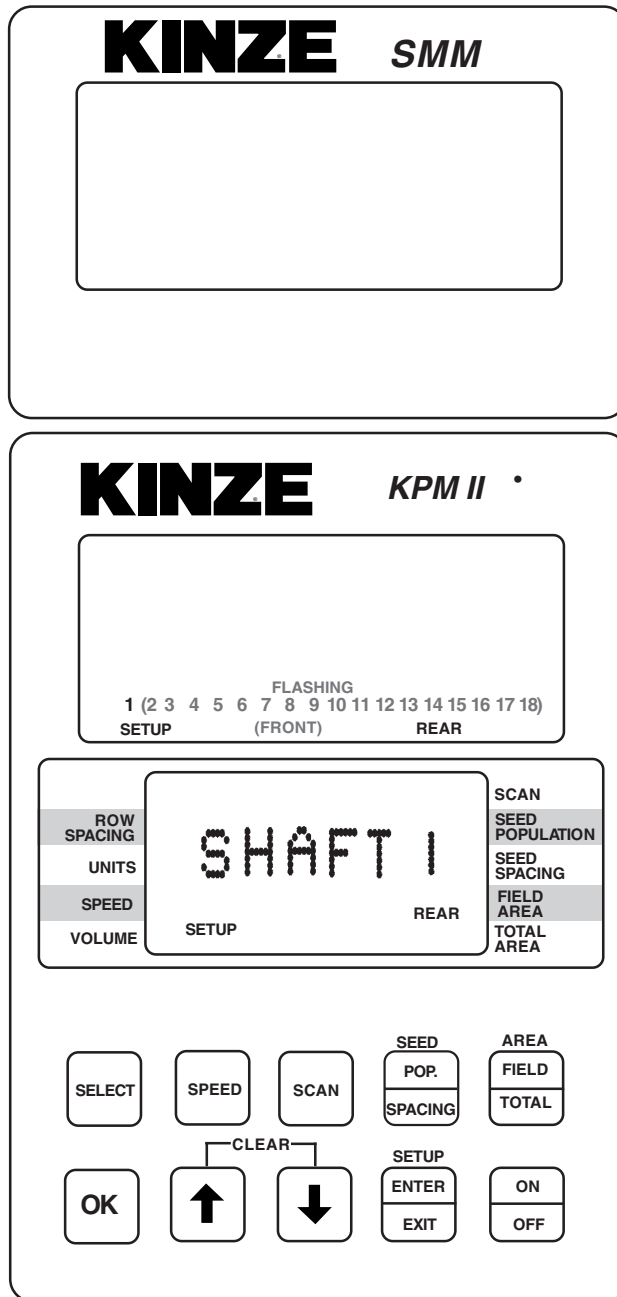
D12140713



“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.

12060211



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

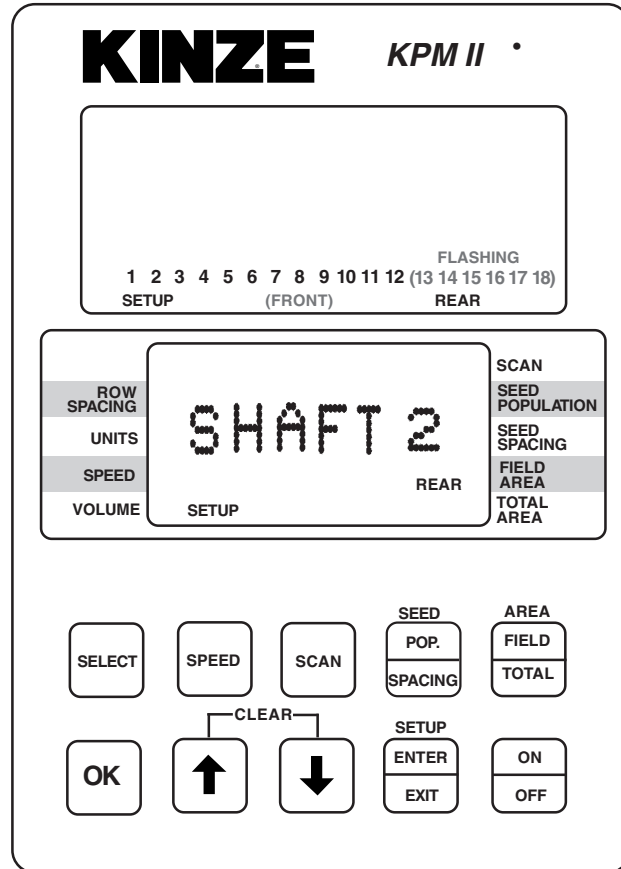
MACHINE OPERATION

KPM II STACK-MODE

STEP 6 (Continued)

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.

12060211

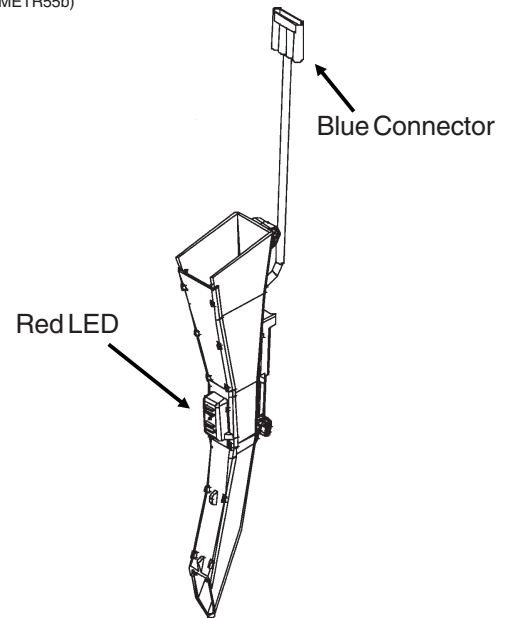


NOTE: SMM console may not be applicable to all models.

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

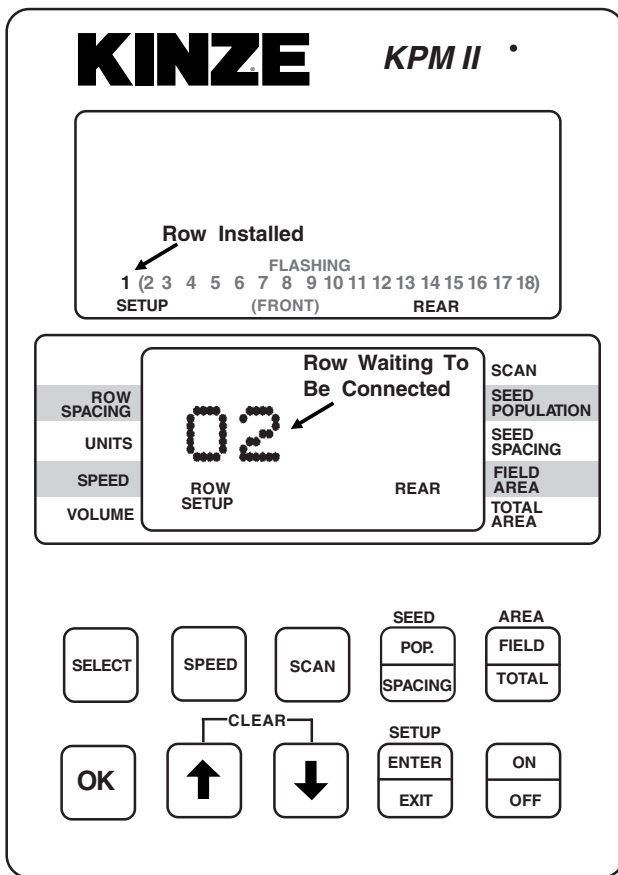
Continue plugging in sensors along with shaft rotation sensors if so equipped. Row 1 first, row 2 second and so on up to 18 rows. When a sensor is plugged in, the corresponding row number on the upper LCD display will stay solid, the monitor will chirp twice and a red LED (Light Emitting Diode) on the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

(METR55b)



STEP 7 (Continued)

12060211



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

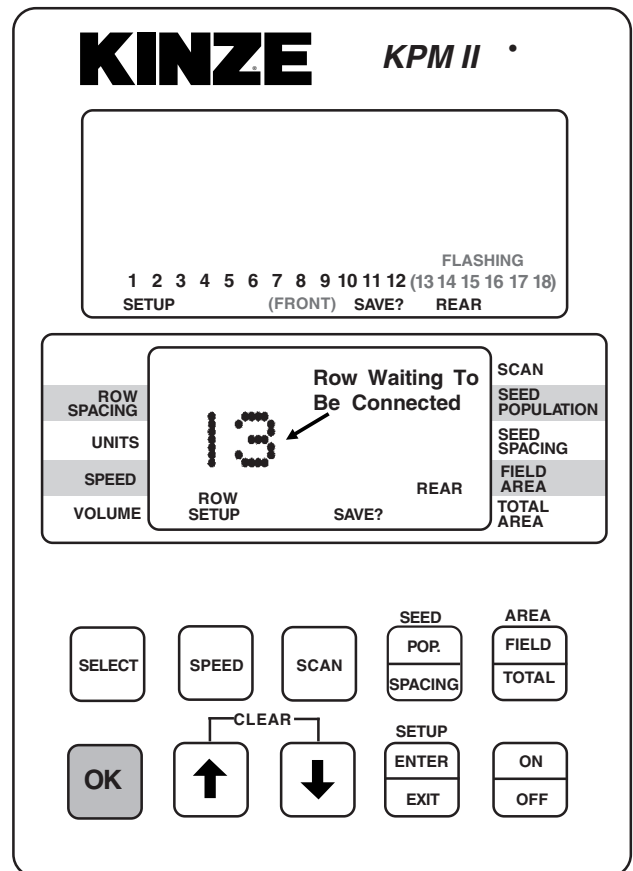
MACHINE OPERATION

KPM II STACK-MODE

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

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

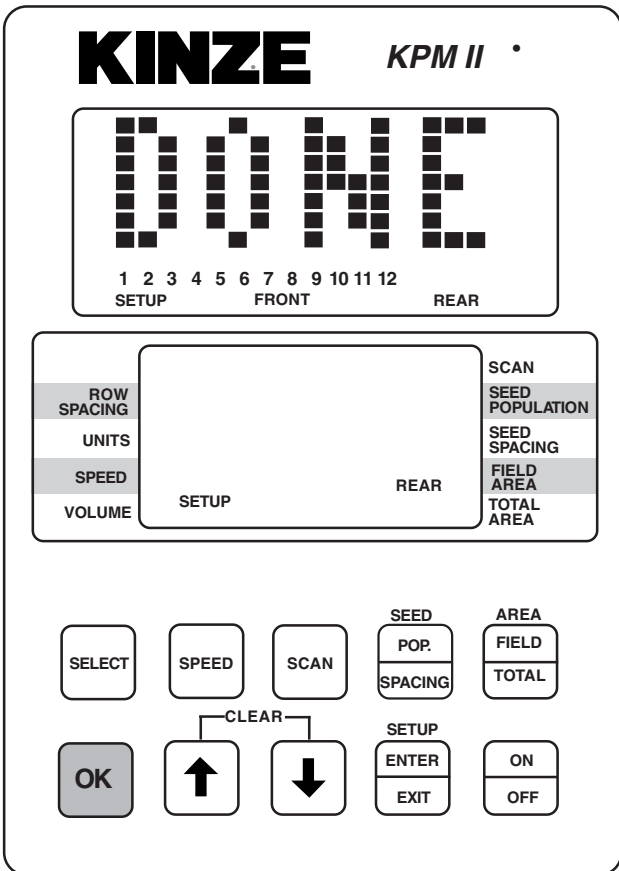
12060211



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

STEP 8 (Continued)

12060211



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

MACHINE OPERATION

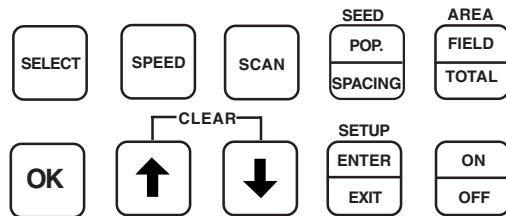
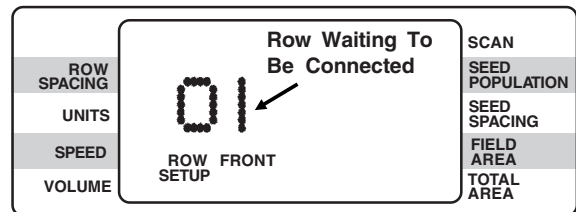
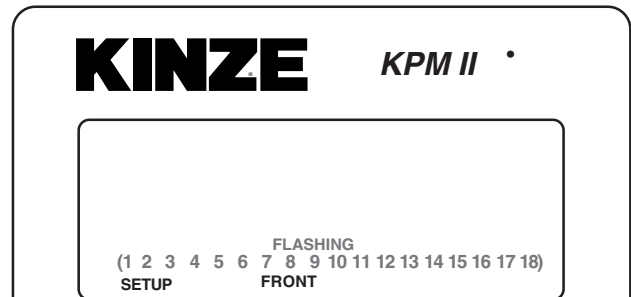
KPM II STACK-MODE

STEP 9 Follow STEPS 6, 7 and 8 to install the second, third and fourth sections (If Applicable). If no seed tubes are installed on additional sections, 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.

12060212



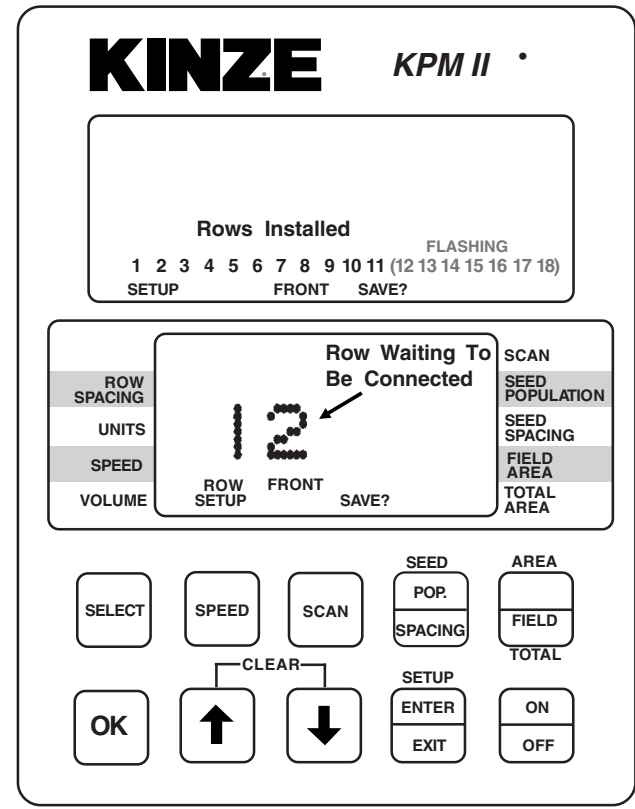
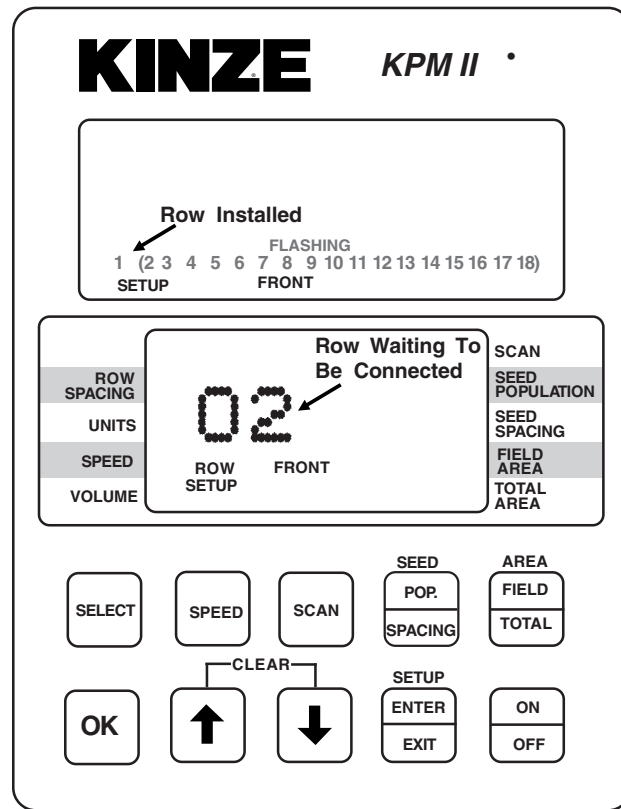
NOTE: SMM console may not be applicable to all models.

STEP 9 (Continued)

12060213



12060214



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

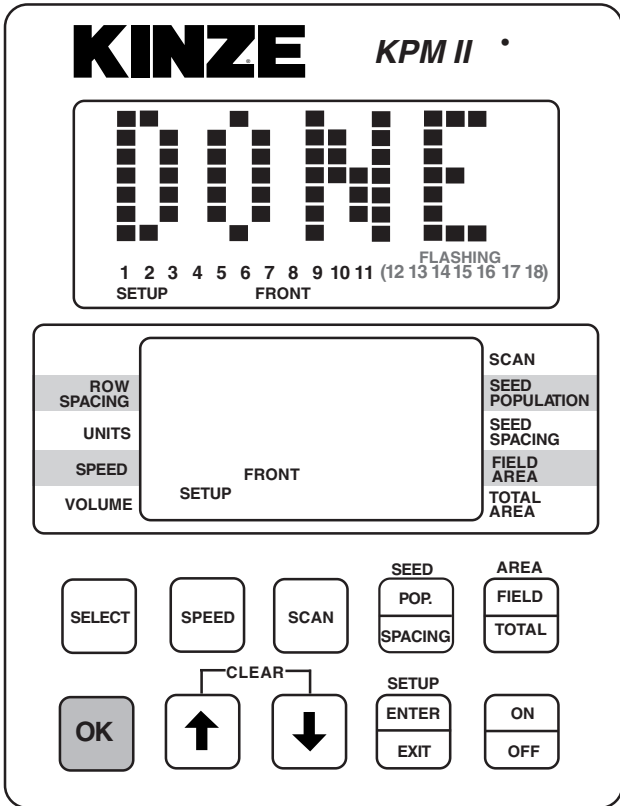
NOTE: SMM console may not be applicable to all models.

MACHINE OPERATION

KPM II STACK-MODE

STEP 9 (Continued)

12060215



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

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

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

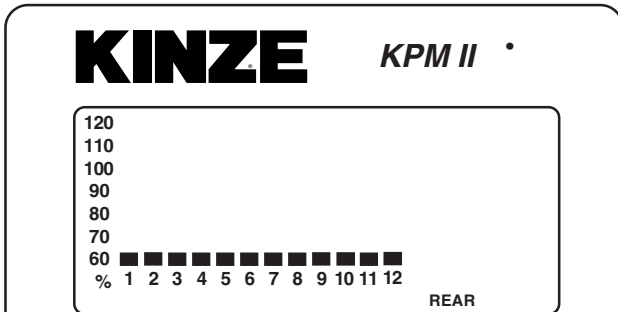
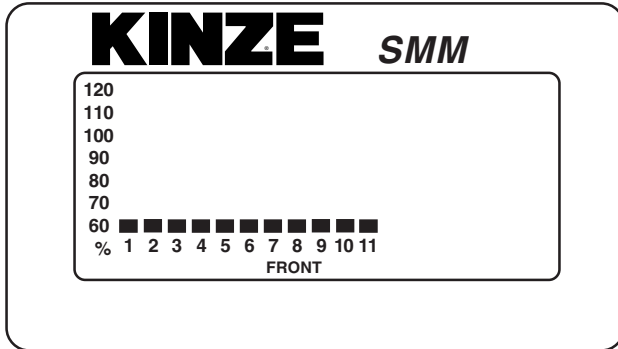
NOTE: To connect the radar distance sensor, install the 10" monitor/radar adapter between the console and radar distance sensor to adapt the monitor system to various tractor radar systems. DO NOT CONNECT 10" MONITOR/RADAR ADAPTER PRIOR TO THIS STEP.

MACHINE OPERATION

KPM II STACK-MODE

STEP 10 (Continued)

12060216



KINZE KPM II

120
110
100
90
80
70
60
% 1 2 3 4 5 6 7 8 9 10 11 12
REAR

ROW SPACING UNITS SPEED VOLUME

SCAN SEED POPULATION SEED SPACING FIELD AREA TOTAL AREA

SELECT SPEED SCAN SEED POP. SPACING AREA FIELD TOTAL

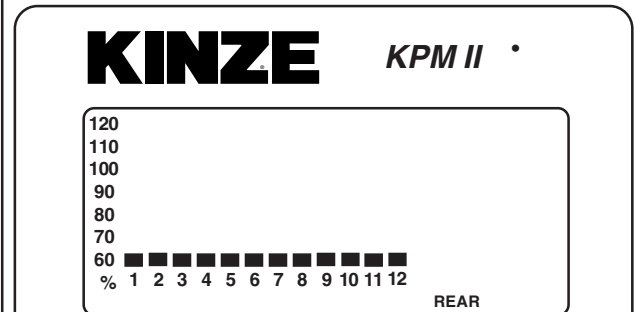
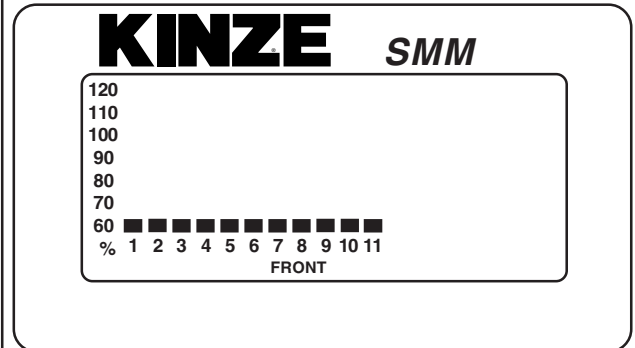
OK CLEAR (UP/DOWN) SETUP ENTER EXIT ON OFF

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

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

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

12060217



KINZE KPM II

120
110
100
90
80
70
60
% 1 2 3 4 5 6 7 8 9 10 11 12
REAR

ROW SPACING UNITS SPEED VOLUME

MPH

SCAN SEED POPULATION SEED SPACING FIELD AREA TOTAL AREA

SELECT SPEED SCAN SEED POP. SPACING AREA FIELD TOTAL

OK CLEAR (UP/DOWN) SETUP ENTER EXIT ON OFF

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

MACHINE OPERATION

KPM II STACK-MODE

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

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

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

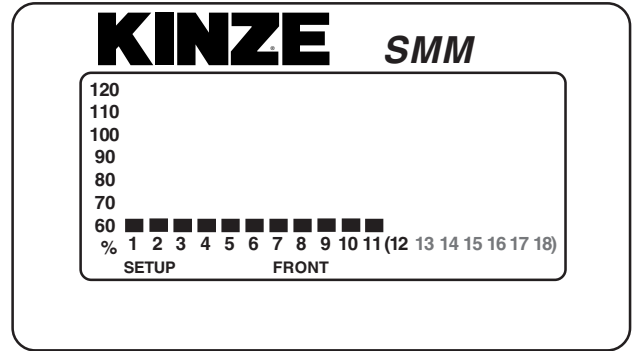
NOTE: Illustrated using rear/front configuration. The KPM II Stack-Mode console shows LEFT in the left/right configuration, REAR in the rear/front configuration and FRONT LEFT/REAR LEFT in the four sections configuration. The SMM console shows RIGHT in the left/right configuration, FRONT in the rear/front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

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

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

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

12060218



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

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

STEP 4 Arrow UP or DOWN to desired row.

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

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

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

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

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

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

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

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

NOTE:

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

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

KPM III ELECTRONIC SEED MONITOR

D10190501



The KPM III electronic seed monitor system consists of (a) a KPM III 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 (if applicable), which are installed on the planter drill shafts; and (e) planter harnesses (junction Y-harness and/or extension harness where applicable), to which the individual seed tube sensors connect. The primary harness, which connects the monitor console to the planter harness, is hard-wired into the safety/warning light harness or control console harness included as standard equipment with the planter.

The software design of the KPM III console allows simultaneous viewing of seed flow bargraphs for standard and/or Interplant® System rows (up to 36 rows).

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 III console uses a single backlit Liquid Crystal Display (LCD) to show, the number of monitored rows, the relative seed rate for each row (using bargraph displays) and displays 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 messages. The LCD also shows alphanumeric data such as row spacing, units (Metric or English), speed (MPH or KM/H, volume, seed population, seed spacing, field area and total area.

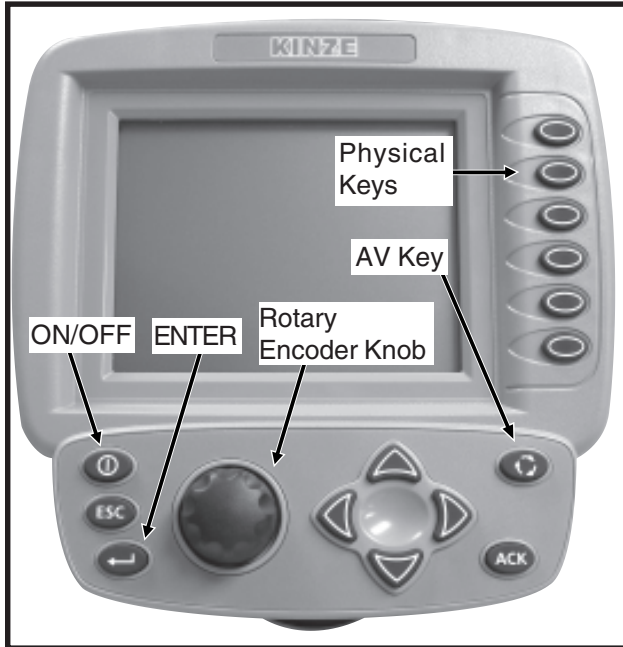
The monitor system will power down if no activity is detected within one hour. No activity means there has been no new seed flow and no operator push key input.

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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 may not be active. 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 receive feedback.

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PHYSICAL KEYS

- Located on R.H. side of console and referred to as F1, F2, F3, F4, F5 and F6
- Keys are referenced in descending order with F1 at the top and F6 at the bottom.



ON/OFF KEY

- Powers the unit on and off.



ESC KEY

- Used as the CANCEL (escape) key.



ENTER KEY

- Confirms or accepts the highlighted selection.



ROTARY ENCODER KNOB

- Turn knob clockwise to increase or counterclockwise to decrease value of item.
- Turn knob clockwise to scroll up or counterclockwise to scroll down.
- Press knob to enter selection.



AV (AUDIO/VIDEO) KEY

- Set alarm volume.
- Adjust the contrast.
- Adjust backlighting of the LCD display.



ACK (ACKNOWLEDGE) KEY

- Used to silence (acknowledge) the warning alarm when various error conditions occur.

NOTE: Alarms can be viewed by pressing the STATUS key.



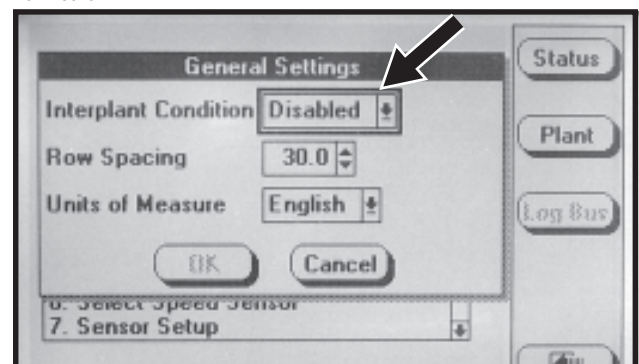
ARROW KEYS

- UP arrow key is used to increase the value of an item by one or to scroll up.
- DOWN arrow key is used to decrease the value of an item by one or to scroll down.
- LEFT arrow key multiplies the numeric value of the item by 10.
- RIGHT arrow key divides the numeric value of the item by 10.



NOTE: Within the LCD, the black box around the smaller box as shown below indicates which field is selected/highlighted. Turning the rotary encoder knob or pressing the UP and DOWN arrow keys moves the black box. When the black box is positioned on a programmable item, such as Shaft Sensors, Speed Sensor, Front Row Units or Rear Row Units, pressing the knob or ENTER will highlight the programmable item. A programmable item may only be changed when it is highlighted.

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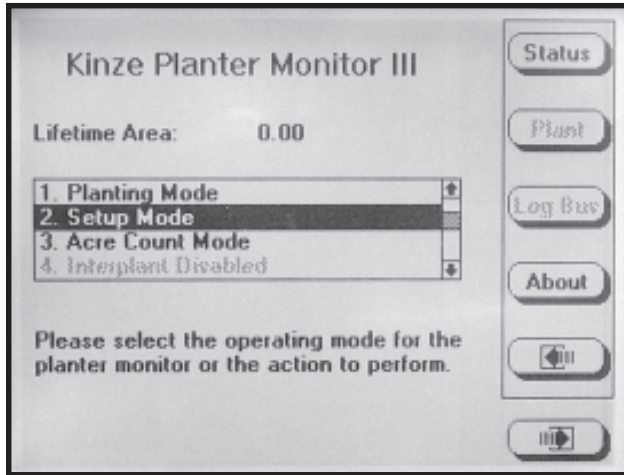


CONFIGURING PLANTER MONITOR

When the KPM III is powered on for the first time it will go directly into the “Planter Configuration” screen (STEP 4).

STEP 1 Press the F6 key until “Mode Selection” screen appears.

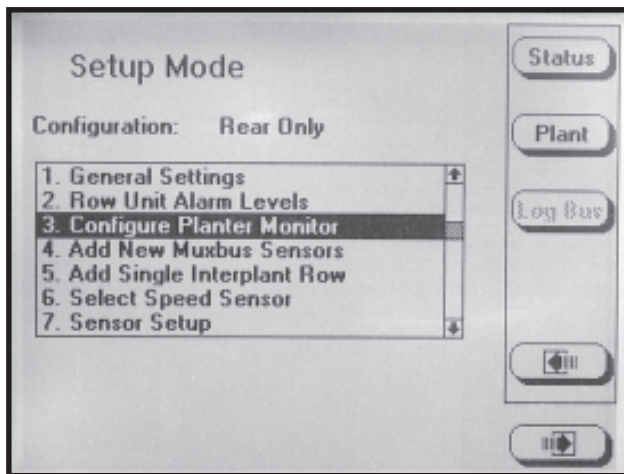
D02140614



STEP 2 Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display highlighted item.

STEP 3 Select “Configure Planter Monitor” by turning the knob or using the UP and DOWN arrow keys. Press the knob or the ENTER key to display the highlighted item.

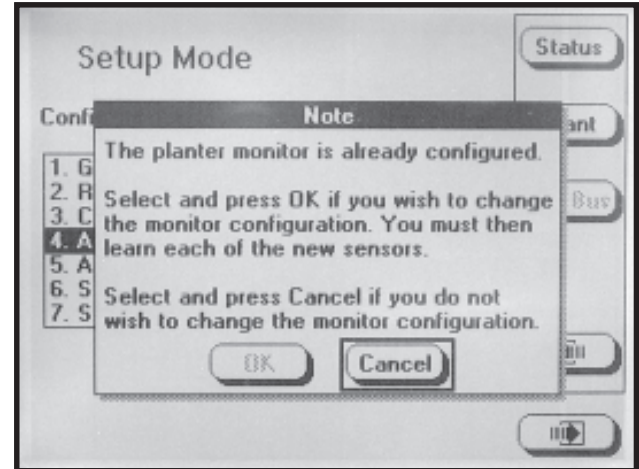
D02140624



NOTE: The planter monitor cannot be reconfigured while planting.

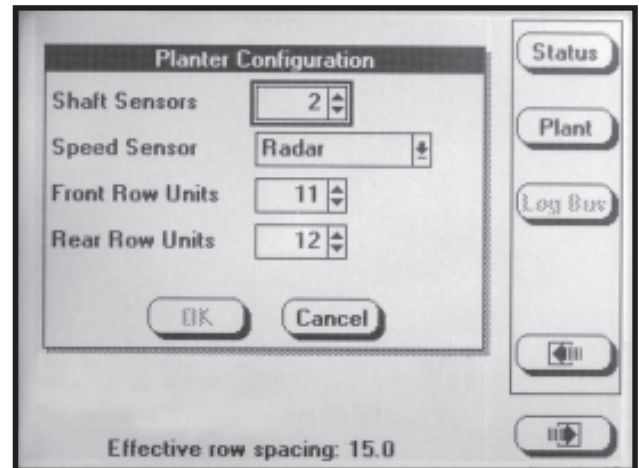
NOTE: If the monitor has already been configured the message shown below will appear.

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STEP 4 Press the knob or ENTER key, to highlight the “Shaft Sensors” field. Enter the number of “Shaft Sensors” by turning the knob or using the UP or DOWN arrow keys. When the correct value is displayed press the knob or ENTER key. The black box will advance to “Speed Sensor” field.

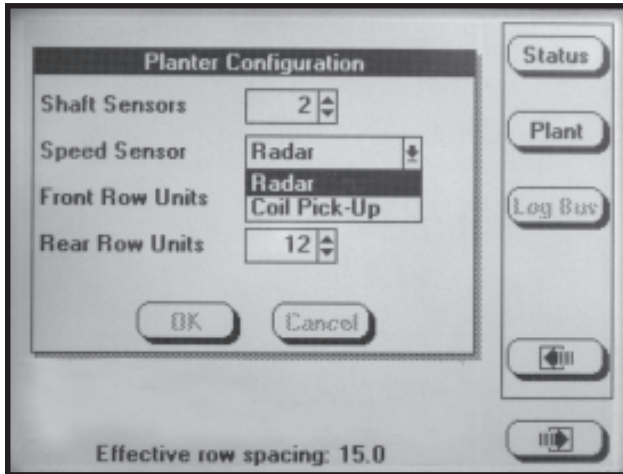
D05310601



NOTE: The numeric value may be changed only if the item is highlighted. Turning the rotary encoder knob increases or decreases the value of the item. The UP arrow key may be used to increase the value of the item by one and the DOWN arrow key may be used to decrease the value of the field by one.

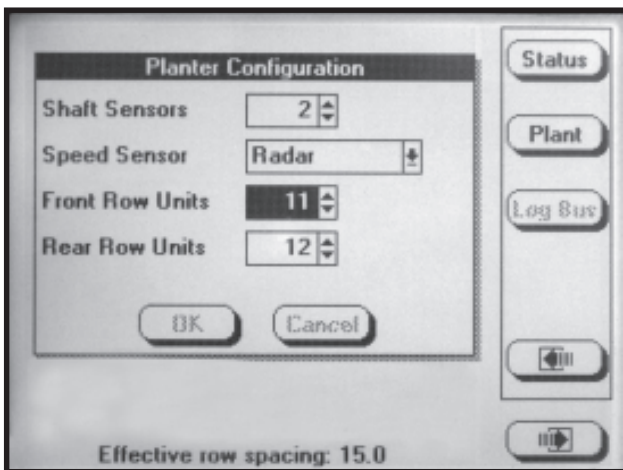
STEP 5 Press the knob or ENTER key and a drop down menu will appear; select either “Radar” or “Coil Pick-Up” (MDS) by turning the knob or using the UP or DOWN arrow keys. When the desired selection is highlighted press the knob or ENTER key. The black box will advance to “Front Row Units” field.

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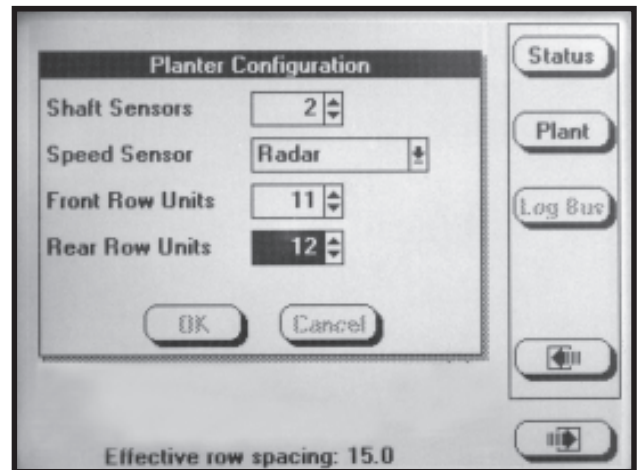
STEP 6 If there are front rows on the planter, press the knob or ENTER key to highlight the “Front Row Units” field. Turn the knob or use the UP or DOWN arrow keys to obtain correct number of push row units. Press the knob or ENTER key when desired quantity is displayed. The black box will advance to “Rear Row Units” field. If no front rows need to be entered simply turn the knob or press the DOWN arrow key to advance to “Rear Row Units”.

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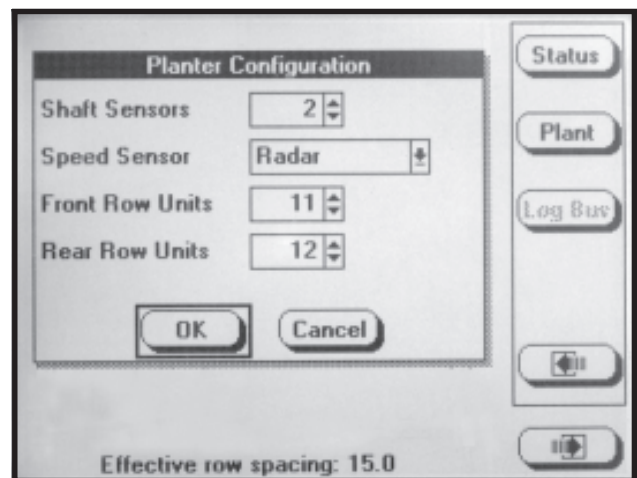
STEP 7 Press the knob or ENTER key to highlight the “Rear Row Units” field. Turn the knob or use the UP or DOWN arrow keys to obtain correct number of pull row units. Press the knob or ENTER key when desired quantity is displayed. The black box will advance to the OK key.

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STEP 8 Press the knob or the ENTER key to save the information.

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NOTE: To prevent the configuration from being saved press ESC or select the CANCEL button, then press the rotary encoder knob or ENTER key.

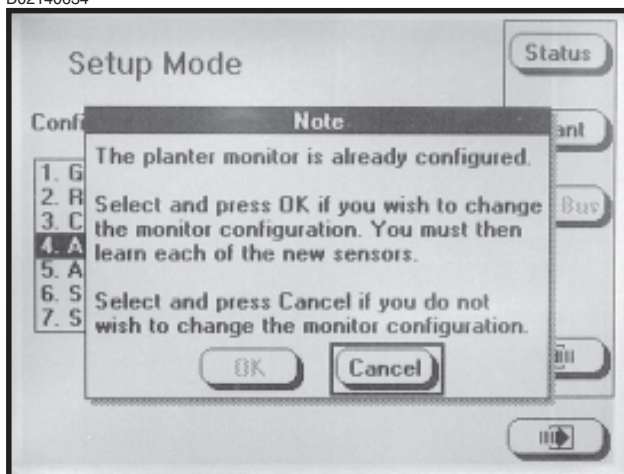
STEP 9 The monitor screen shown below will appear.

If the new planter configuration is to be saved turn the knob or press the UP or DOWN arrow keys to select the OK button then press the knob or ENTER key to save the planter configuration. If the monitor configuration is not to be changed select the CANCEL key, press the knob or ENTER key to CANCEL or press the ESC key.

If OK is selected the monitor will advance to "Sensor Setup" (STEP 4 in PROGRAMMING/CONNECTING SEED TUBES, SHAFT ROTATION SENSORS AND/OR RADAR/MAGNETIC DISTANCE SENSORS section).

NOTE: STEP 9 does not apply if configuring the monitor for the first time.

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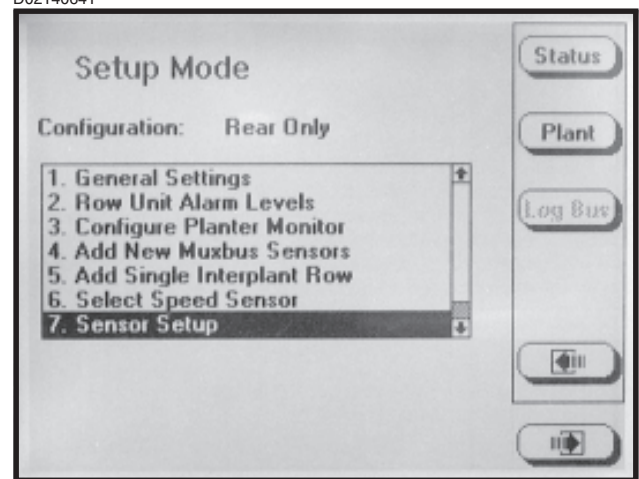
PROGRAMMING/CONNECTING SEED TUBES, SHAFT ROTATION SENSORS AND/OR RADAR/MAGNETIC DISTANCE SENSORS

STEP 1 To enter "Mode Selection", press F6 key until the "Mode Selection" screen appears.

STEP 2 Select "Setup Mode" by turning the rotary encoder knob or press the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

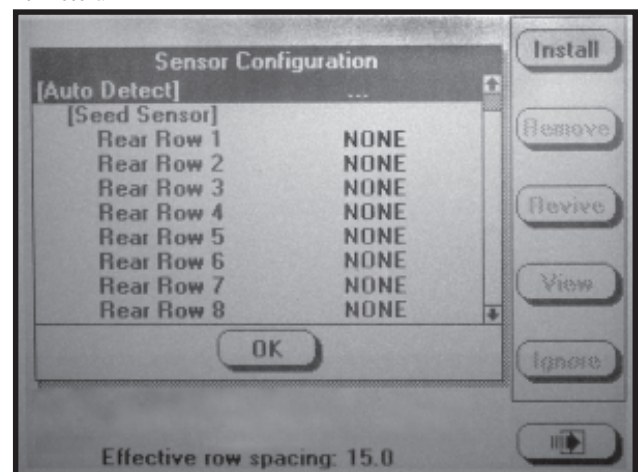
STEP 3 Select "Sensor Setup" by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

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STEP 4 Attach the planter harness to the KPM III. Do NOT connect any of the sensors to the planter harness. With [Auto Detect] selected press the INSTALL key.

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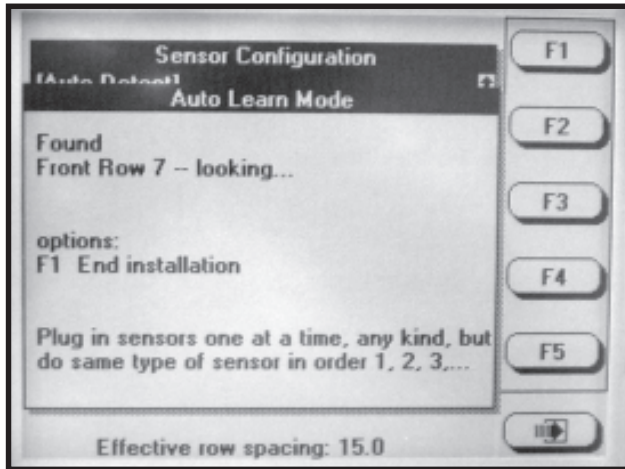


STEP 5 Plug in the first seed sensor (row 1), working from left to right (rear row units and front next if applicable). When a sensor is connected to the planter harness wait for the monitor to acknowledge with two beeps.

Continue connecting seed sensors along with shaft rotation sensors or speed sensors. Progress will reflect on the LCD screen. The example below indicates that the last seed sensor found was Front Row 7 and the monitor is looking for the next sensor.

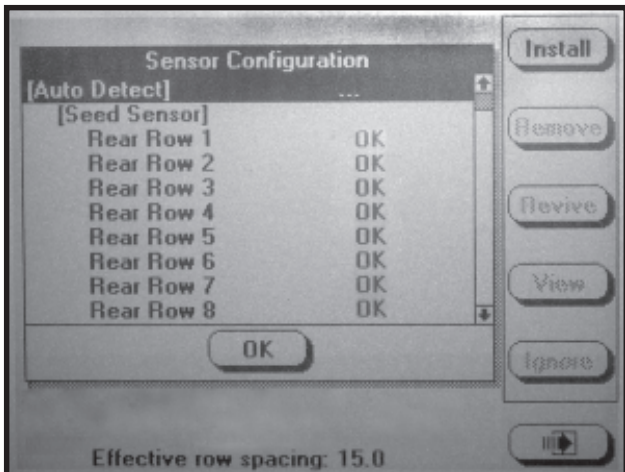
When all sensors are installed press the F1 key to end the installation.

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NOTE: After each sensor has been installed “OK” will appear after the sensor name.

D02210601b

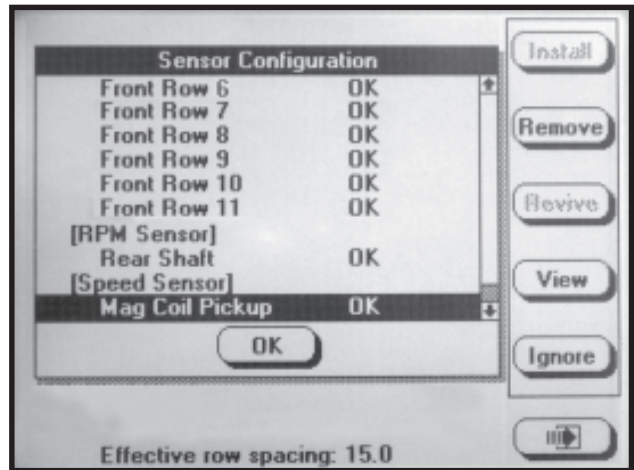


STEP 6 If “OK” appears behind ALL sensors, press the knob or the ENTER key to save the configuration. The “Setup Mode” menu will then appear.

NOTE: If “NONE” appears after a sensor, the sensor was not recognized. All sensors must be disconnected from the planter harness and reconnected as described in STEP 5.

NOTE: If “OK slow” appears after a sensor, the sensor is able to communicate but at a slower speed. For the system to run at top speed of 9600 baud the slow sensor must be replaced.

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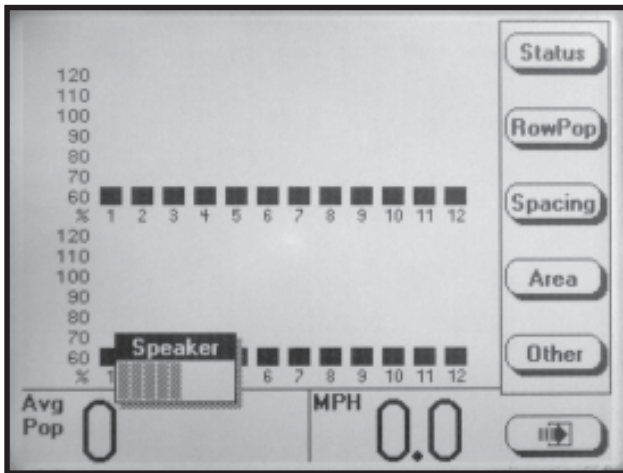
STEP 7 To return to “Planting Mode” select the PLANT key or press the F6 key until “Planting Mode” screen appears.

CHANGING VOLUME, CONTRAST AND BACKLIGHTING

The alarm volume and LCD screen contrast and backlighting may be adjusted at anytime regardless of what is displayed on the screen.

STEP 1 Press the AV key. The speaker adjustment dialog box will appear in the lower L.H. corner of the display.

D05310610

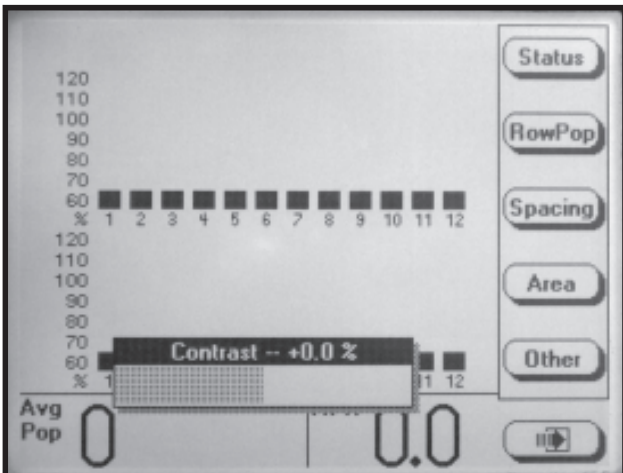


STEP 2 Use the LEFT and RIGHT arrows or turn the rotary encoder knob to adjust the volume. The volume of the sound emitted from the speaker changes as the adjustment is being made.

STEP 3 To adjust contrast or backlight, go to STEP 4. If finished press ENTER to save and exit.

STEP 4 Press the AV button a second time. The contrast adjustment dialog box will appear in the lower portion of the display.

D05310611

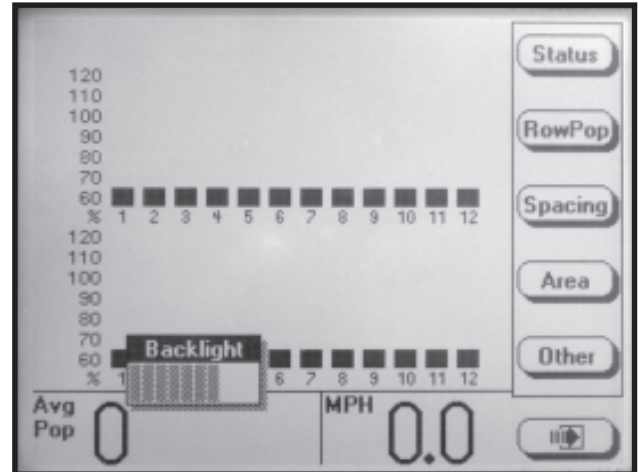


STEP 5 Use the LEFT and RIGHT arrows or turn the knob to adjust contrast. The effect of the adjustment will be visible on the display.

STEP 6 To adjust backlighting go to STEP 7. If finished press ENTER to save and exit.

STEP 7 Press the AV button a third time. The backlight adjustment dialog box will appear in the lower L.H. corner of the display.

D05310612



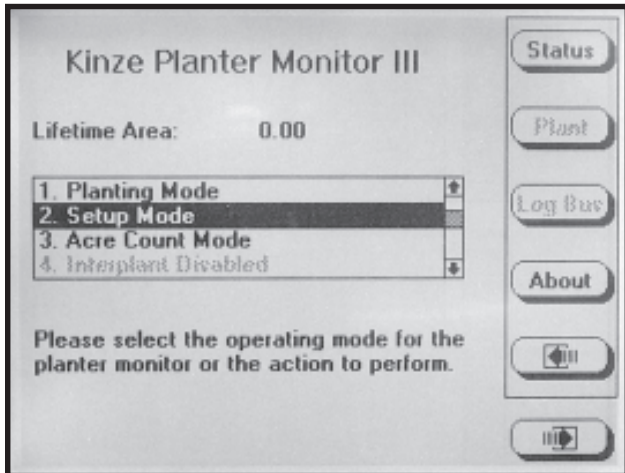
STEP 8 Use the LEFT and RIGHT arrows or turn the knob to adjust backlighting. The effect of the adjustment will be visible on the display.

STEP 9 Press the knob, ENTER or press the AV button a fourth time to save the volume, contrast and backlight settings. The backlight adjustment dialog box will disappear.

**PROGRAMMING INTERPLANT® CONDITION,
ROW SPACING AND UNITS (Metric Or English)**

STEP 1 To enter “Mode Selection” screen press the F6 key until “Mode Selection” screen appears.

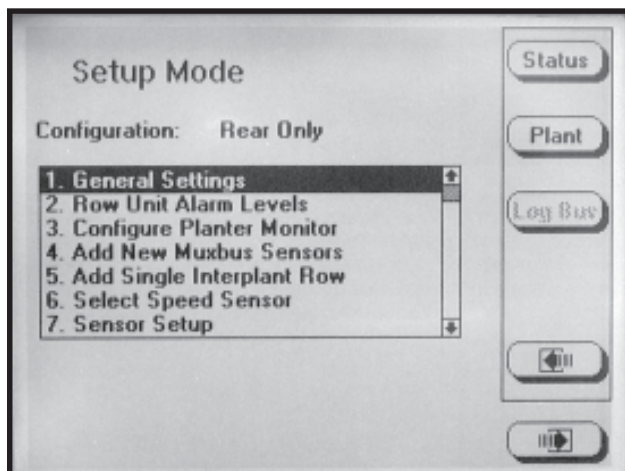
D02140614



STEP 2 Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

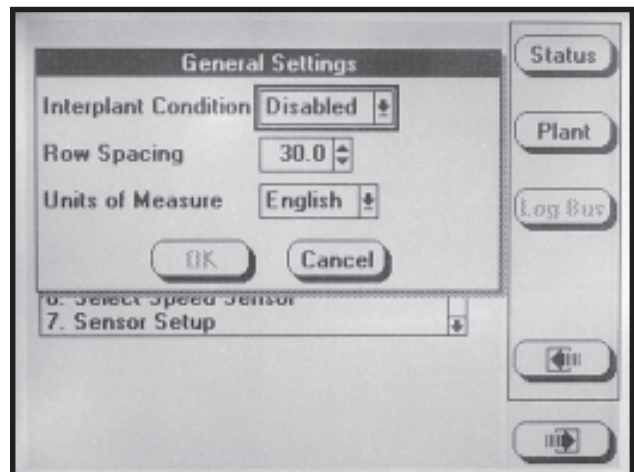
STEP 3 Select “General Settings” by turning the knob or using the UP or DOWN arrow keys. Press the knob or the ENTER key to display the highlighted item.

D02140615



STEP 4 Press the knob or ENTER key and a drop down menu will appear. Select either “Enabled” (push row units are being used for planting) or “Disabled” (push row units are not being used for planting and no seed rate alarms will be generated for the front rows; no bargraphs are to be displayed for the front rows and the front rows do not contribute to the average population and spacing or acre counts). Use the knob or UP or DOWN arrow keys to make selection. Press the knob or ENTER key to select highlighted item. The black box will advance to “Row Spacing” field.

D02140616



NOTE: When English is selected inches are displayed, if Metric is selected centimeters are displayed.

STEP 5 Press the knob or ENTER key to enter the correct value for “Row Spacing”. Turn the knob to increase or decrease the number. The UP arrow key is used to increase the value of the item by one and the DOWN arrow key is used to decrease the value of the field by one. The LEFT arrow key multiplies the value of the item by 10 and the RIGHT arrow key divides the value of the item by 10. When the correct number has been entered press the knob or ENTER key. The black box will advance to “Units of Measure” field.

NOTE: The narrowest row spacing the planter is equipped to plant should be entered for “Row Spacing”. Example: 12 Row 30" with Interplant, row spacing would be set to 15".

STEP 6 Select “Units Of Measure” field by pressing the knob or ENTER key and a drop down menu will appear. Select either “English” or “Metric” by turning the knob or using the UP or DOWN arrow keys. Press the knob or the ENTER key. The black box will advance to OK.

STEP 7 Press the knob or ENTER key, when correct values are entered.

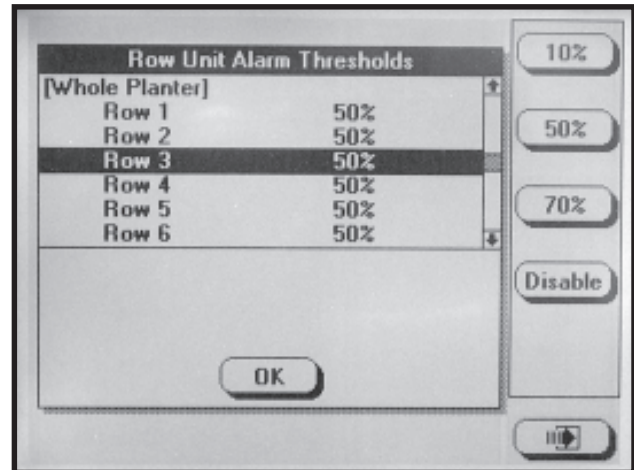
STEP 8 To return to “Planting Mode” press the PLANT key.

PROGRAMMING ROW UNIT ALARM LEVELS

The Row Unit Alarm Levels allow the thresholds for the seed rate alarms to be set. The default is 50% or Average. If the average population drops below 50% for a given row a seed rate alarm will be generated for that row unit. The alarm threshold can be set to 70%, 50%, 10% or disabled for any row.

NOTE: When the alarm threshold is disabled for any row no seed rate alarm will be generated.

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The alarm thresholds can be set for the whole planter, any planter section or individual rows.

NOTE: A section is determined by a set of rows driven by one or more shafts, designated to a single shaft sensor.

STEP 1 To enter “Mode Selection”, press F6 key until the “Mode Selection” screen appears.

STEP 2 Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

STEP 3 Select “Row Unit Alarm Levels” by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

STEP 4 To set alarm thresholds for whole planter, select “Whole Planter”. Press the key next to the desired threshold. When the desired threshold has been specified for all row units, press the knob or ENTER key.

To set alarm thresholds for all the rows in one section, select rear section or front section. Press the key next to the desired threshold. When the desired threshold has been specified for all row units, press the knob or ENTER key.

To set alarm thresholds for individual rows, select the desired row. Press the key next to the desired threshold. When the desired threshold has been specified for all row units, press the knob or ENTER key.

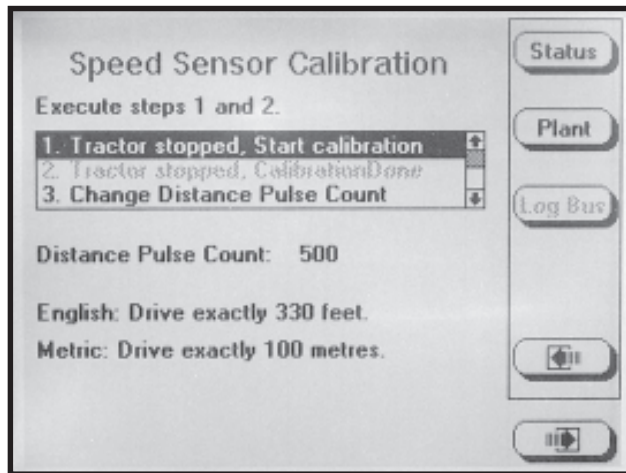
STEP 5 To return to “Planting Mode” press the PLANT key.

SPEED SENSOR CALIBRATION/PROGRAMMING

STEP 1 To enter the “Speed Sensor Calibration” mode, press F6 until the “Mode Selection” screen appears. (If Applicable) Select “Setup Mode” and press the rotary encoder knob or ENTER key. Press F6 to advance to the “Speed Sensor Calibration” screen.

The Distance Pulse Count is used to record how many pulses are generated per mile/kilometer from the ground speed sensor. The monitor will display the current pulses per mile/kilometer using a 6 digit, no decimal place format.

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NOTE: A field calibration must be performed to establish the Distance Pulse Count number. Several factors can affect this value, such as wheel slip on the magnetic distance sensor. **IT IS NOT UNCOMMON FOR THE SPEED ON THE MONITOR TO VARY SLIGHTLY FROM THE TRACTOR SPEEDOMETER. Adjusting the Distance Pulse Count in the monitor to make the speed agree with the tractor can cause serious errors in acre/hectare and population/spacing readings. Do field checks to verify populations and seed spacing.**

- In field conditions, measure 330 feet or 100 meters, depending on the unit of measurement selected. Place a marker at the start point and end point.
- Pull the tractor up to the starting point.
- Select “Tractor stopped. Start calibration”.
- Press the rotary encoder knob or ENTER key to change the Distance Pulse Count on the display to 0.

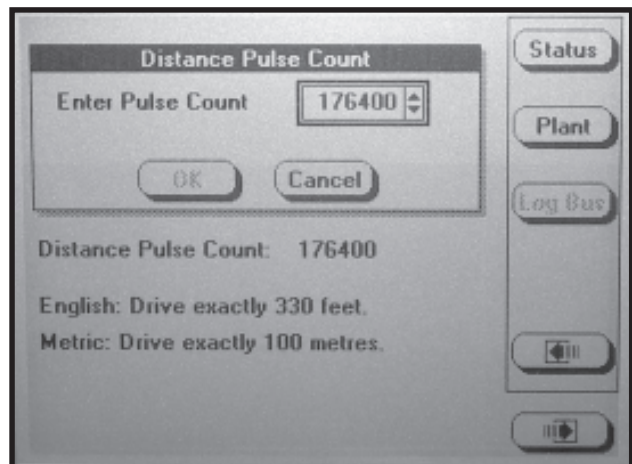
NOTE: If the Distance Pulse Count number starts to count pulses with the tractor not moving, check radar distance sensor for vibration or other interference.

- Drive the tractor for 330 feet or 100 meters.
- The monitor will count the number of pulses and display them.
- Stop the tractor at the end point.
- Select “Tractor stopped. Calibration Done”.
- Press the knob or ENTER key.

NOTE: Repeat the above steps multiple times. Record and average the values. Use this average for the Distance Pulse Count number constant.

STEP 2 Select “Change Distance Pulse Count” by turning the knob or using the DOWN arrow key. Press the knob or ENTER key.

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NOTE: The Distance Pulse Count will vary from the above example.

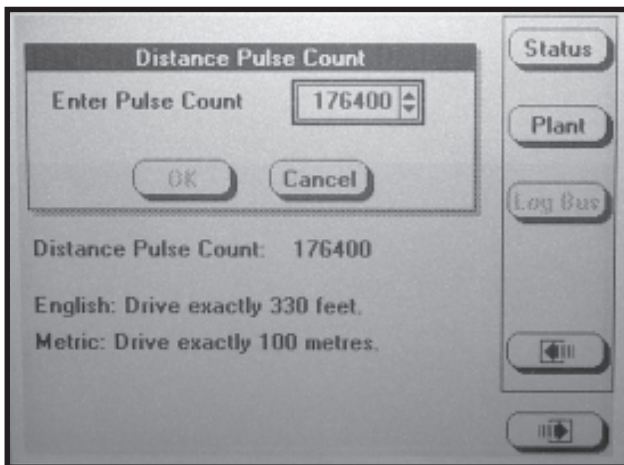
STEP 3 To return to “Planting Mode” press the PLANT key.

WHEN THE CORRECT DISTANCE PULSE COUNT IS KNOWN, CALIBRATION IS NOT NEEDED AND THE FOLLOWING STEPS MAY BE USED.

STEP 1 To enter the “Speed Sensor Calibration” screen, press F6 key until the “Mode Selection” screen appears. (If Applicable) Select “Setup Mode” and press the rotary encoder knob or ENTER key. Press F6 key to advance to the “Speed Sensor Calibration” screen.

STEP 2 Select “Change Distance Pulse” field by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key.

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NOTE: The Distance Pulse Count will vary from the above example.

STEP 3 With the “Enter Pulse Count” field selected press the knob or ENTER key.

STEP 4 Change the Pulse Count to the desired value using the UP or DOWN arrow keys or turn the knob until the desired value is obtained. Press the knob or ENTER key.

NOTE: The LEFT arrow key multiplies the value of the item by 10 and the RIGHT arrow key divides the value of the item by 10.

STEP 5 Select OK by pressing the knob or ENTER key to save the new count. Select CANCEL to retain the old value of the Distance Pulse Count.

STEP 6 Press PLANT key to return to main planting screen.

REPROGRAMMING SPEED SENSOR

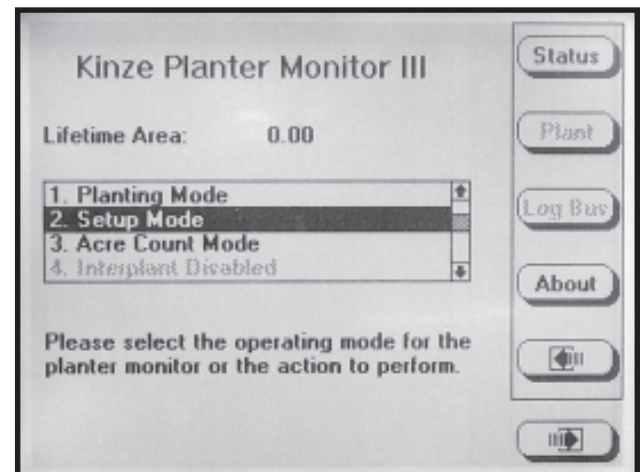
This setting must be specified when the monitor is first configured. It will be necessary to reprogram to use an alternate speed sensor.

NOTE: Speed sensors may not be changed while planting.

RADAR TO MAGNETIC DISTANCE SENSOR

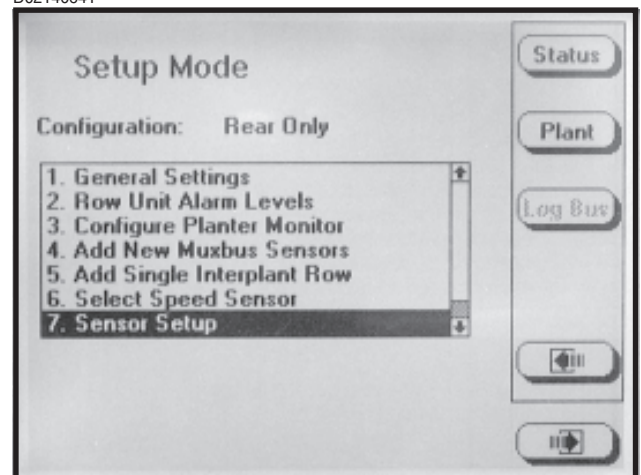
STEP 1 Press the F6 key until the “Mode Selection” screen appears. Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

D02140614



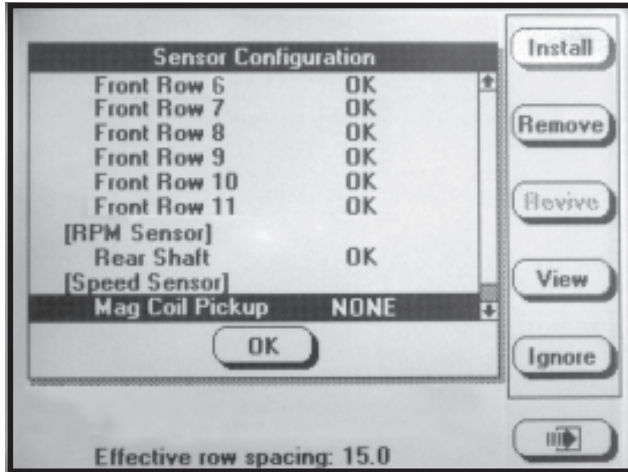
STEP 2 Turn the knob or use the UP or DOWN arrow keys to choose “Sensor Setup”. Press the knob or ENTER key to display the highlighted item.

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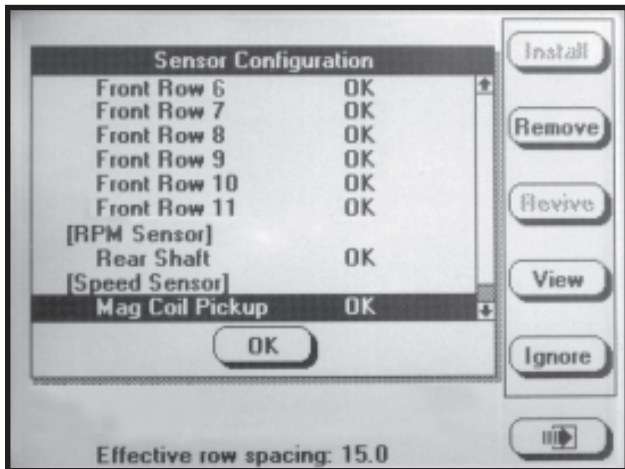


STEP 3 Turn the knob or use the UP or DOWN arrow keys to highlight “Mag Coil Pickup”. Plug in Magnetic Distance Sensor and press the INSTALL key. Press the knob or ENTER key to save information.

D05310609a

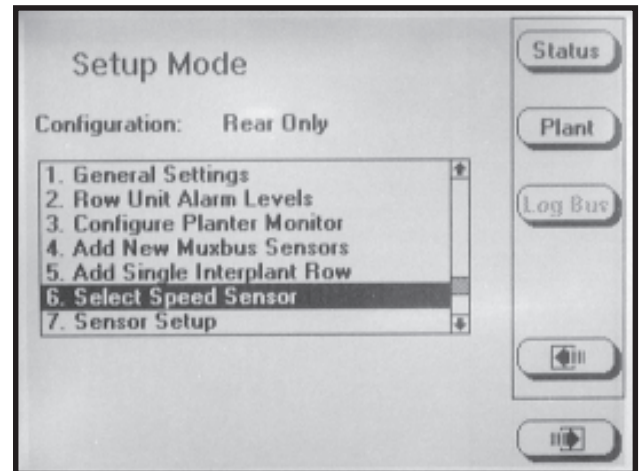


D05310609

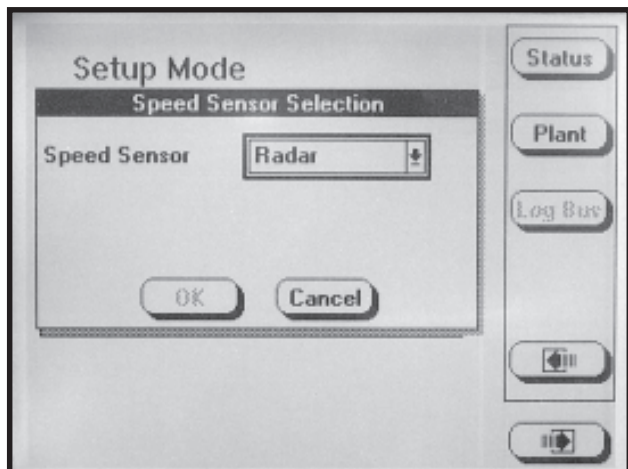


STEP 4 Turn the knob or use the UP or DOWN arrow keys to select “Select Speed Sensor” and press the knob or ENTER key. Press the knob or ENTER key to select the “Speed Sensor” field and a drop down menu will appear. Turn the knob or use the UP or DOWN arrow keys to select “Coil Pick-Up” and press the knob or ENTER key to make selection. The black box will advance to OK press the knob or ENTER key to save the information.

D02140639

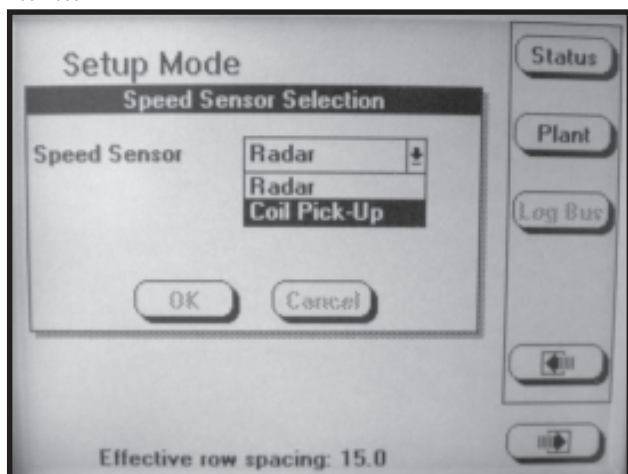


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NOTE: To prevent the configuration from being changed select CANCEL, then press the rotary encoder knob, ENTER key or ESC key.

D06210601



STEP 5 Unplug the radar from the tractor.

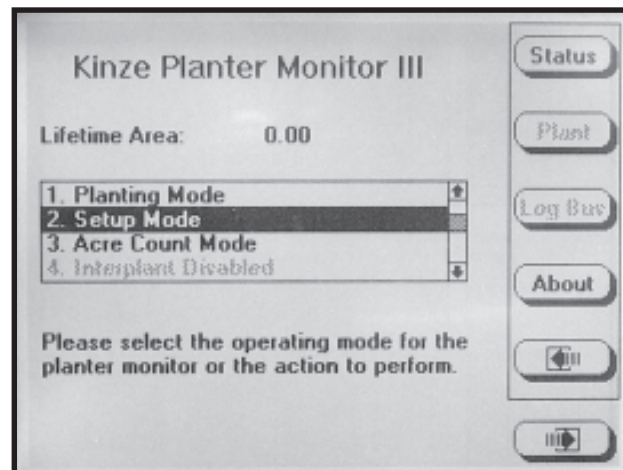
STEP 6 Press the PLANT key to return to main planting screen.

NOTE: When switching between speed sensors, verify the distance pulse count is correct for the chosen sensor. There will be significant distance pulse count variation between radar and coil pick-up sensors.

MAGNETIC DISTANCE SENSOR TO RADAR

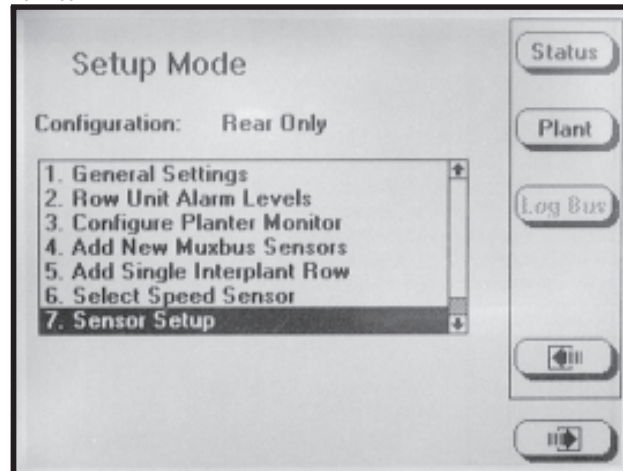
STEP 1 Press the F6 key until the “Mode Selection” screen appears. Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

D02140614

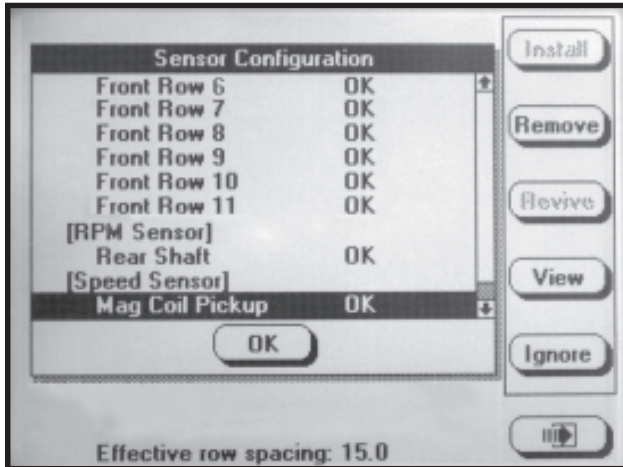


STEP 2 Turn the knob or use the UP or DOWN arrow keys to choose “Sensor Setup”. Turn the knob or use the UP or DOWN arrow keys to highlight “Mag Coil Pickup”. Press the REMOVE key, a note will appear for confirmation select as appropriate. Unplug Magnetic Distance Sensor and press the knob or ENTER key to save the information.

D02140641

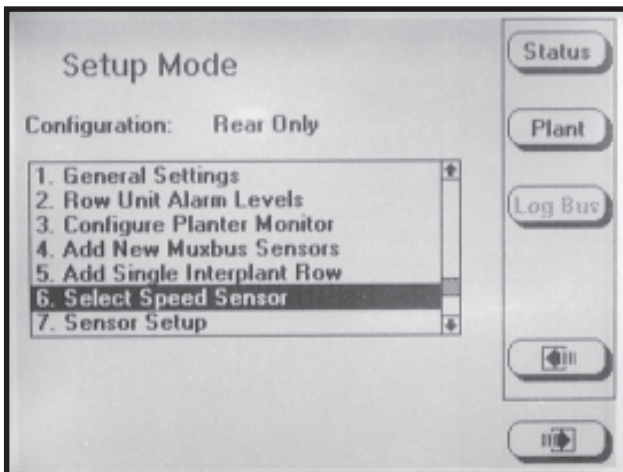


D05310609

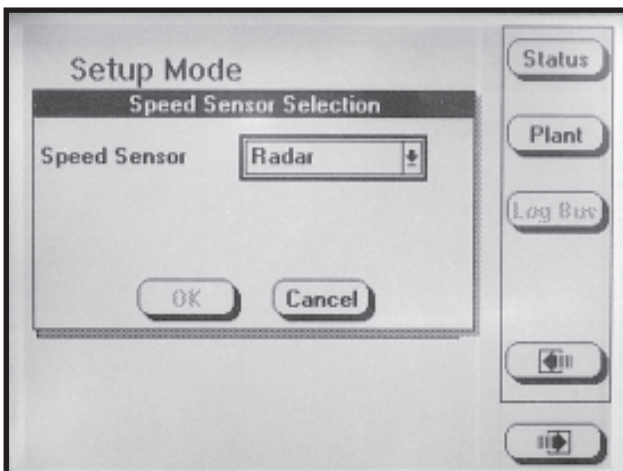


STEP 3 Turn the knob or use the UP or DOWN arrow keys to select “Select Speed Sensor” and press the knob or ENTER key. Press the knob or ENTER key to select the “Speed Sensor” field and a drop down menu will appear. Turn the knob or use the UP or DOWN arrow keys to select “Radar” and press the knob or ENTER key to make selection.

D02140639

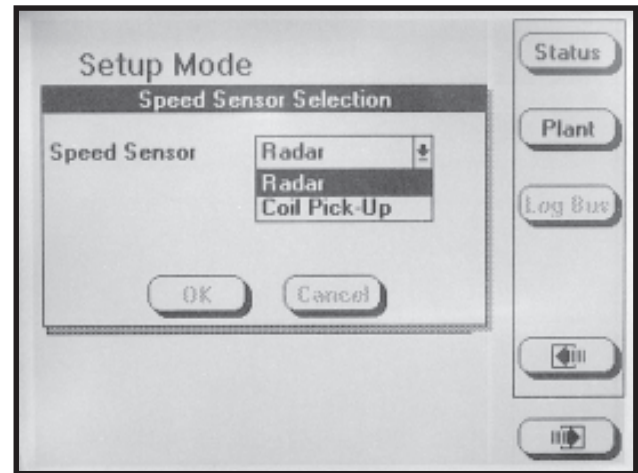


D02140639



NOTE: To prevent the configuration from being changed select CANCEL, then press the knob, ENTER key or ESC key.

D02140640



STEP 4 Plug in the Radar and the black box will advance to OK. Press the knob or ENTER key to save the information.

STEP 5 Press the PLANT key to return to main planting screen.

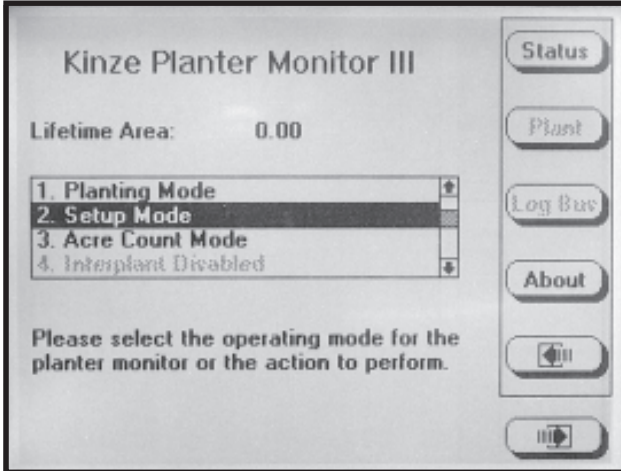
NOTE: When switching between speed sensors, verify the distance pulse count is correct for the chosen sensor. There will be significant distance pulse count variation between radar and magnetic distance sensors.

ADDING INTERPLANT® ROWS (If Rear Rows Have Previously Been Programmed)

STEP 1 Press the F6 key until “Mode Selection” screen appears.

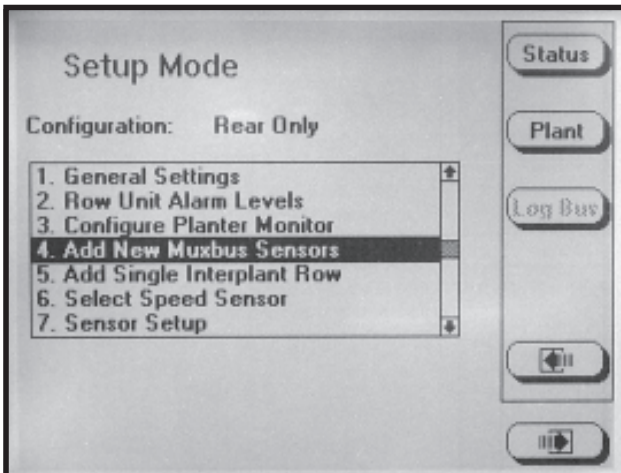
STEP 2 Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

D02140614



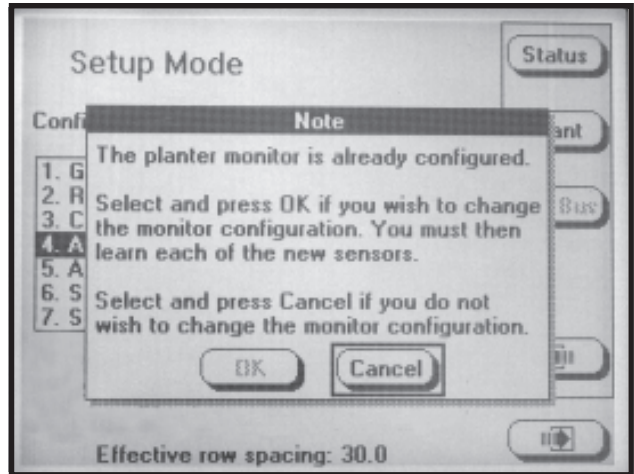
STEP 3 Select “Add New Muxbus Sensors” by turning the knob or using the UP and DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

D02140633



STEP 4 The note shown below will appear. Select OK by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to make the selection.

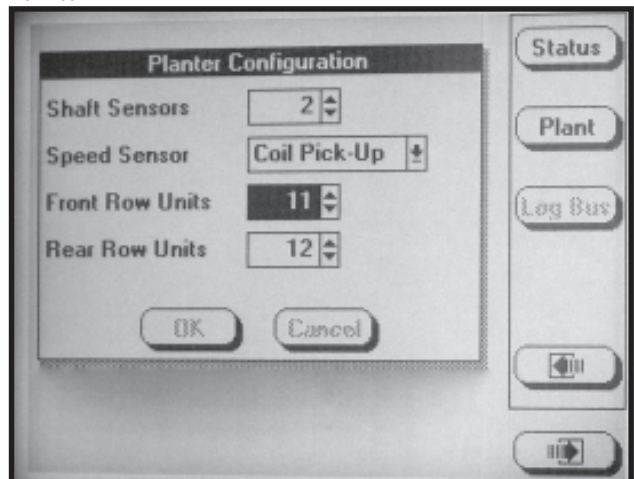
D03010601



STEP 5 Turn the knob or use the UP or DOWN arrow keys to select the “Front Row Units” field and press the knob or ENTER key to highlight the field. Turn the knob or use the UP or DOWN arrow keys to obtain the desired number of rows. When the correct value has been entered press the knob or ENTER key. The black box will advance to the OK key. Press the knob or ENTER key to save the information.

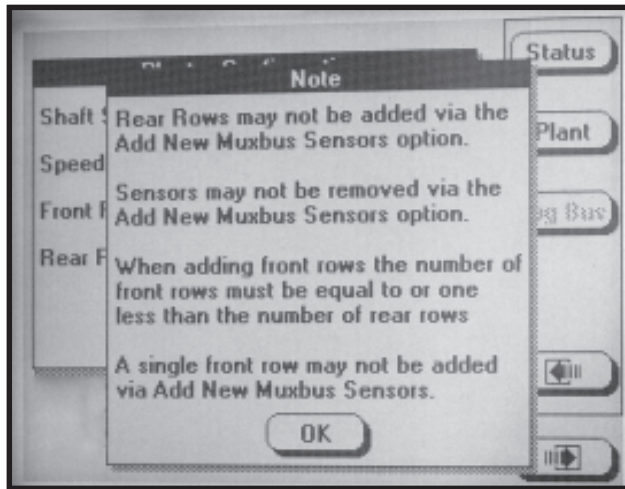
NOTE: To prevent the configuration from being changed select CANCEL, then press the knob, ENTER key or ESC key.

D02220674



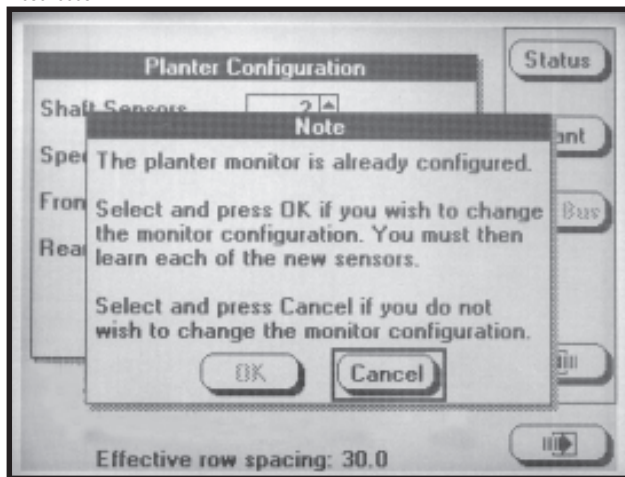
NOTE: Attempting to add rear rows while adding new muxbus sensors will cause the following note to appear.

D02220675



STEP 6 The note shown below will appear. Select OK by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to make the selection.

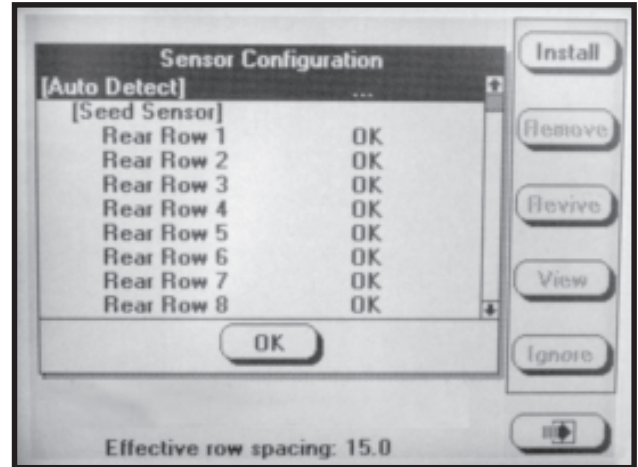
D03010603



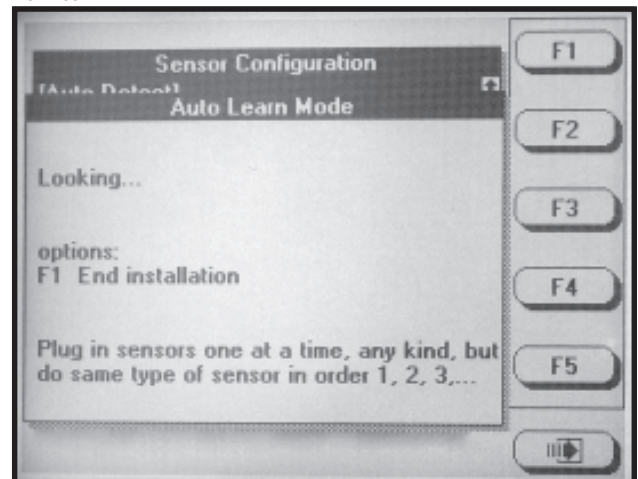
NOTE: To prevent the configuration from being changed select CANCEL, then press the knob, ENTER key or ESC key.

STEP 7 The sensor configuration screen will appear. With [Auto Detect] highlighted select INSTALL. Begin to install sensors from left to right.

D02230604a



D02220672

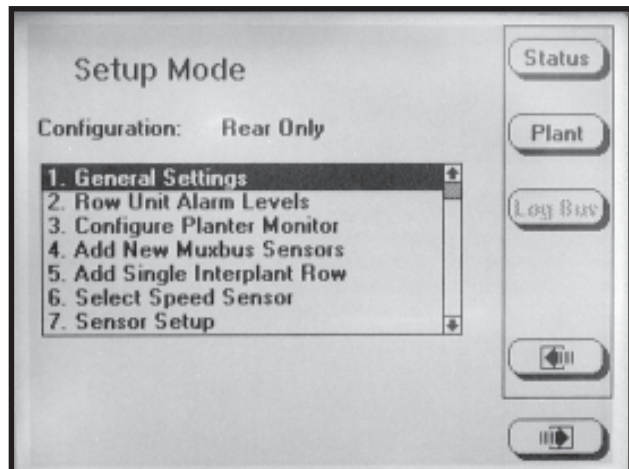


STEP 8 When all sensors are learned select F1 to end installation. Scroll down to verify the front rows are learned. Select OK by pressing the knob or ENTER key.

NOTE: "OK" will appear next to each sensor if no errors are detected.

STEP 9 Select “General Settings”, by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to make the selection.

D02140615



STEP 10 Select the “Row Spacing” field by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to highlight field. Adjust the row spacing to Interplant spacing by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to enter the value. Then turn the knob or use the UP or DOWN arrow keys to advance to OK. Press the knob or enter key to save row spacing.

NOTE: To prevent the configuration from being changed select **CANCEL**, then press the knob, ENTER key or ESC key.

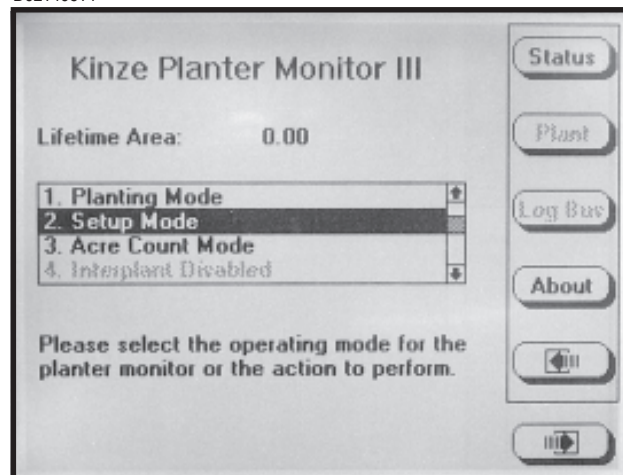
STEP 11 To return to “Planting Mode” press the PLANT key.

ADDING EVEN-ROW PACKAGE (If Front Rows Have Previously Been Programmed)

STEP 1 Press the F6 key until “Mode Selection” screen appears.

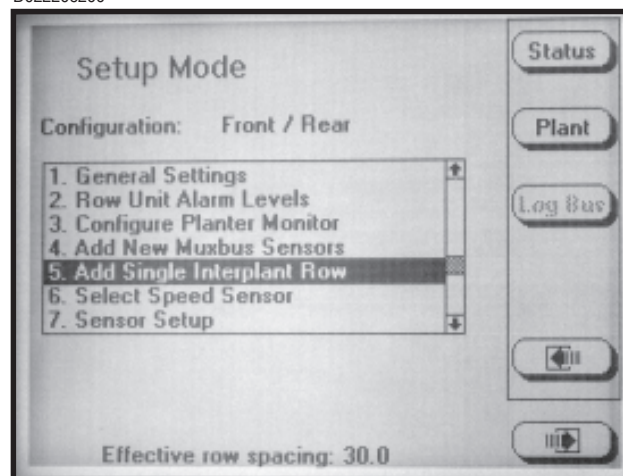
STEP 2 Select “Setup Mode” by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

D02140614



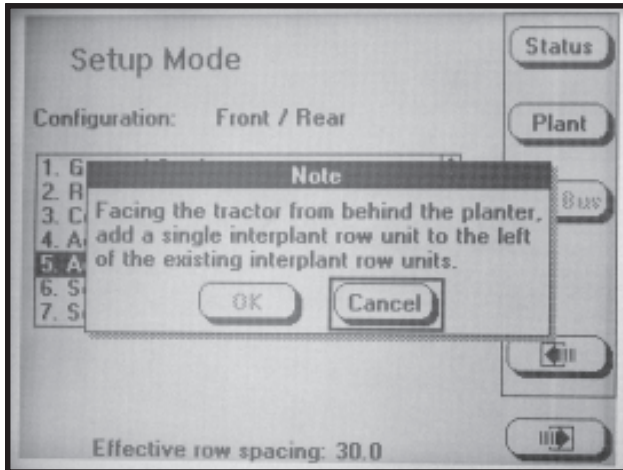
STEP 3 Select “Add Single Interplant Row” by turning the knob or using the UP and DOWN arrow keys. Press the knob or the ENTER key to display the highlighted item.

D022206200



STEP 4 To confirm the following note turn the knob or use the UP or DOWN arrow keys to select OK and then press the knob or ENTER key to confirm. If the single Interplant row is not to be added select the CANCEL key and press the knob or ENTER key to cancel or press the ESC key.

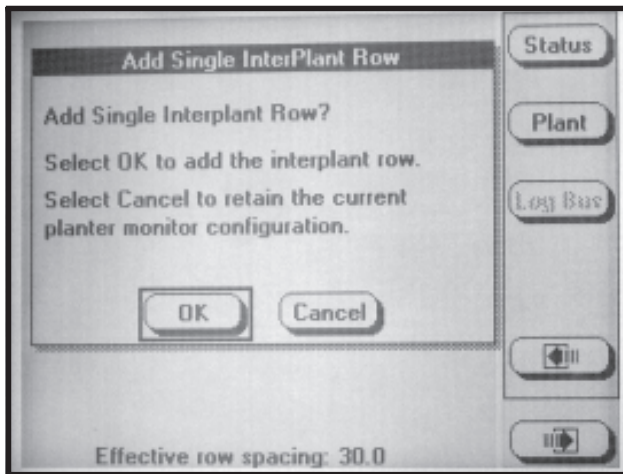
D022206201



STEP 5 To “Add Single Interplant Row” the following screen will appear.

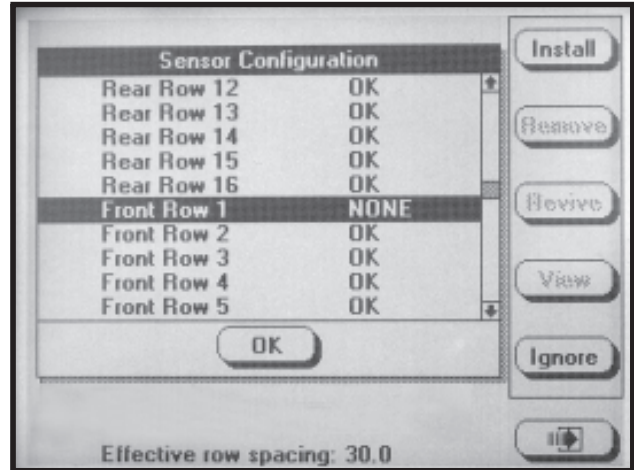
If the single Interplant row is to be added turn the knob or use the UP or DOWN arrow keys to select OK and then press the knob or ENTER key to add the Interplant row. If the single Interplant row is not to be added select the CANCEL key and press the knob or ENTER key to cancel or press the ESC key.

D022206202



STEP 6 The “Sensor Configuration” screen will appear. Plug in the new sensor then scroll down to highlight “Front Row 1” by turning the knob or using the UP or DOWN arrow keys. Select INSTALL to learn the new sensor. Press the knob or ENTER key to return to setup mode.

D02220670

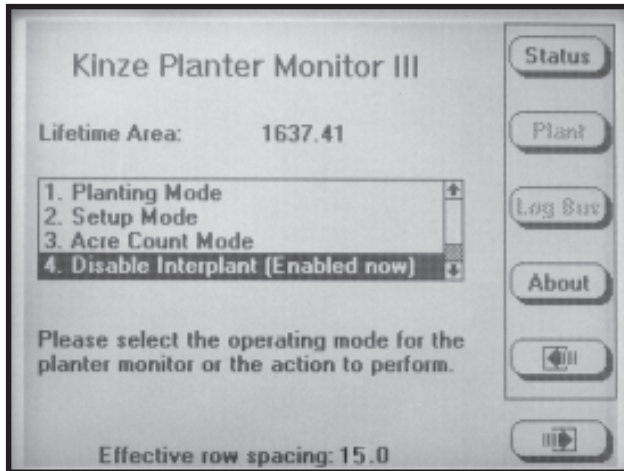


STEP 7 To return to “Planting Mode” press the PLANT key.

ENABLING/DISABLING INTERPLANT® ROWS

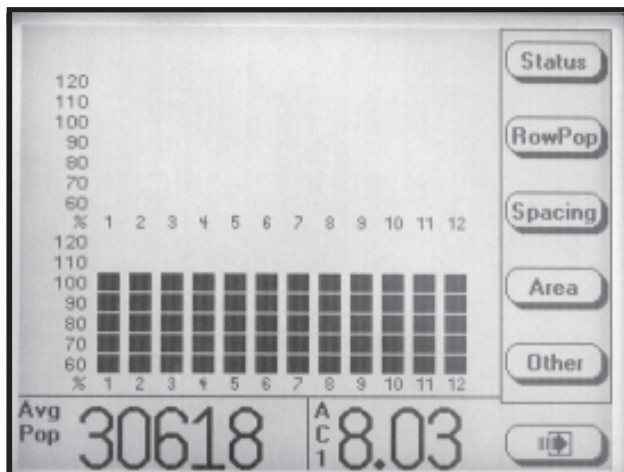
To Enable or Disable Interplant (a) press the F6 key until the “Mode Selection” screen appears, (b) turn the rotary encoder knob or use the UP or DOWN arrow keys to highlight “Disable/Enable Interplant”, (c) press the knob or ENTER key to “Disable” or “Enable” Interplant. To verify selection, the row spacing is displayed on the bottom of the screen.

D03010605a



Either select the “Planting Mode” by turning the knob or using the UP arrow key and press the knob or ENTER key or press F6 to return to the “Planting Mode”.

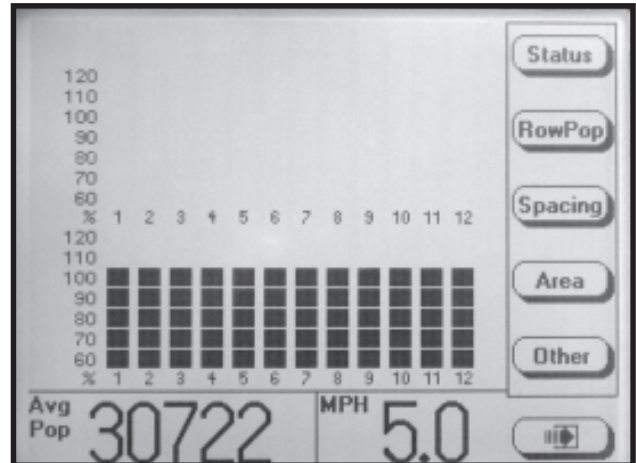
D02240602



ROW POPULATION

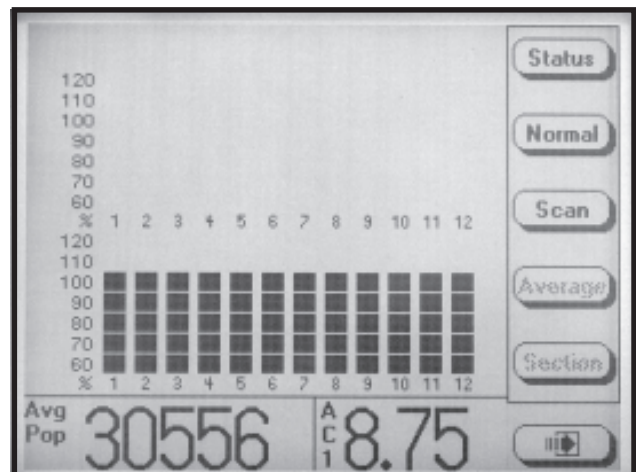
- Press the ROW POP key to display row population. Average planter population will be shown in the lower L.H. corner of the display.

D05310614



- Press the SCAN key and the monitor will scan through each row in ascending order displaying the average seed population for each row. After all rows have been scanned the average population is displayed and scan function will continue with the first rear row.

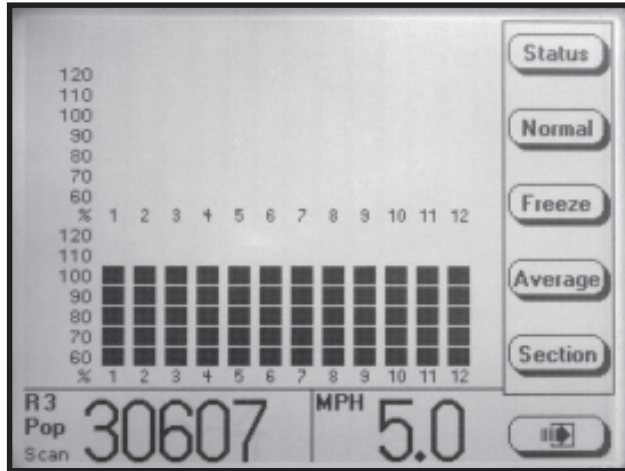
D02240604



- Press the FREEZE key to stop scanning, the left display item will be frozen on a particular row. “Frzn” appears in the lower L.H. corner to indicate the display is frozen. To resume scan press the SCAN key.

EXAMPLE: When average row population is shown, R3 indicates rear row 3, F2 indicates front row 2, etc.

D05310615



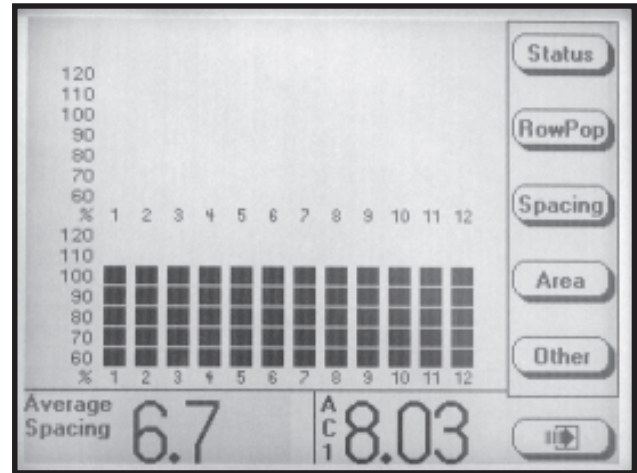
- When either Scan or Frzn is displayed in the L.H. corner the SECTION and arrow keys function as follows: (a) SECTION or RIGHT arrow key advances to the first row of the next section; (b) SECTION or LEFT arrow key selects the first row of the previous section, wrapping around to the first row of the last section when moving past the first section; (c) UP arrow key moves forward to the next row of the planter, wrapping around to the first row when moving past the last row; (d) DOWN arrow key moves backward to the previous row of the planter, wrapping around to the last row of the planter when moving past the first row.
- Press the AVERAGE key to display the average population in the bottom L.H. corner.
- Press the NORMAL key to display the normal screen for planting mode.

NOTE: If the rows are being scanned and the AVERAGE key is selected the scan function will stop.

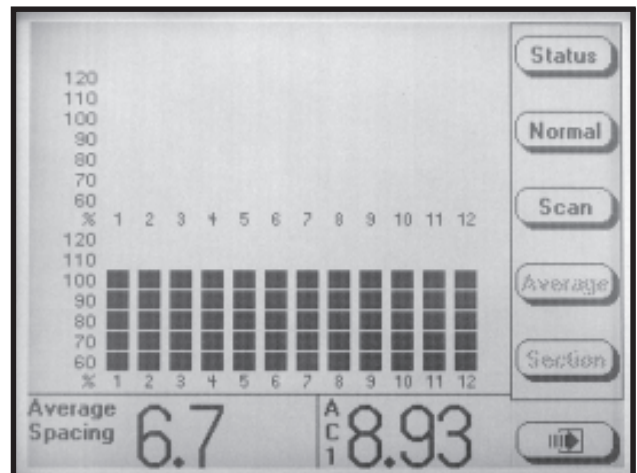
ROW SPACING

- Press the SPACING key to display seed spacing keys. Seed spacing will appear in the bottom L.H. corner of the display.

D02240602



D02240605



- Press the SCAN key and the monitor will scan through each row in ascending order displaying the average seed spacing for each row. Scan appears in the L.H. corner to indicate the display is scanning. After all rows have been scanned the average population is displayed and scanning will continue with the first rear row.
- Press the FREEZE key to stop scanning and the left display item will be frozen on a particular row. “Frzn” appears to indicate the display is frozen. To resume scan press the SCAN key.

- When either "Scan" or "Frzn" is displayed in the left display item the SECTION and arrow keys function as follows: (a) SECTION and RIGHT arrow key advances to the first row of the next section; (b) LEFT arrow key selects the first row of the previous section, wrapping around to the first row of the last section when moving past the first section; (c) UP arrow key moves forward to the next row of the planter, wrapping around to the first row when moving past the last row; (d) DOWN arrow key moves backward to the previous row of the planter, wrapping around to the last row of the planter when moving past the first row.

- Press the AVERAGE key to display the average seed spacing in the bottom L.H. corner.
- Press the NORMAL key to display the main planting mode.

NOTE: If the rows are being scanned and the AVERAGE key is selected the scan function will stop.

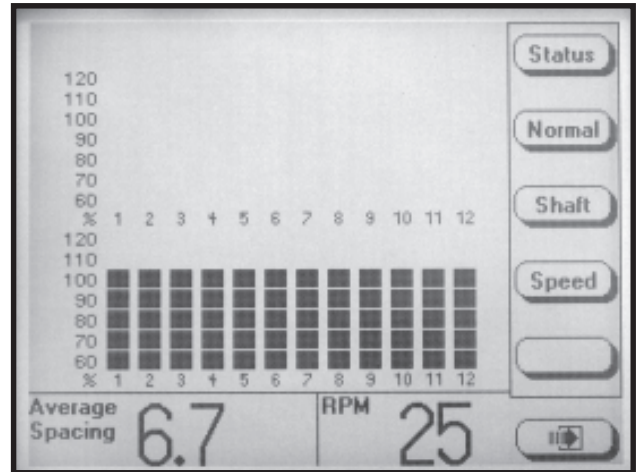
SPEED/SHAFT ROTATION

- Press the OTHER key to display items available to display in the bottom R.H. corner.

- Press the SHAFT key to view the average meter shaft RPM. The value will appear in the bottom R.H. corner of the display.

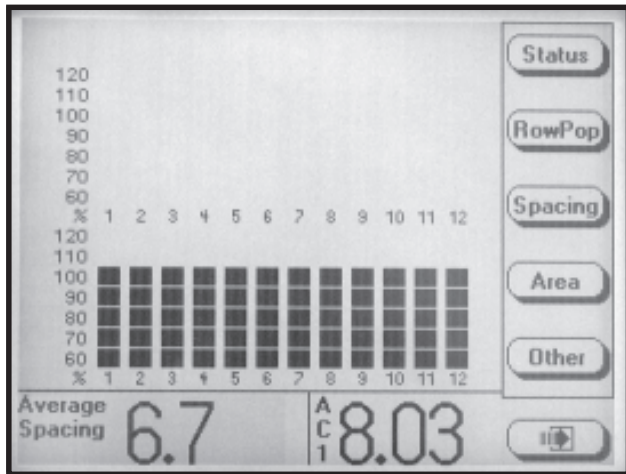
NOTE: Applicable to planters with shaft rotation sensors installed.

D02240607

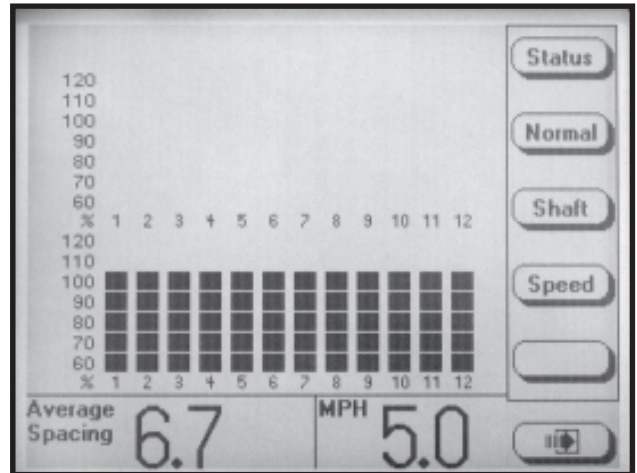


- Press the SPEED key to view the ground speed. The value will appear in the bottom R.H. corner of the display.

D02240602



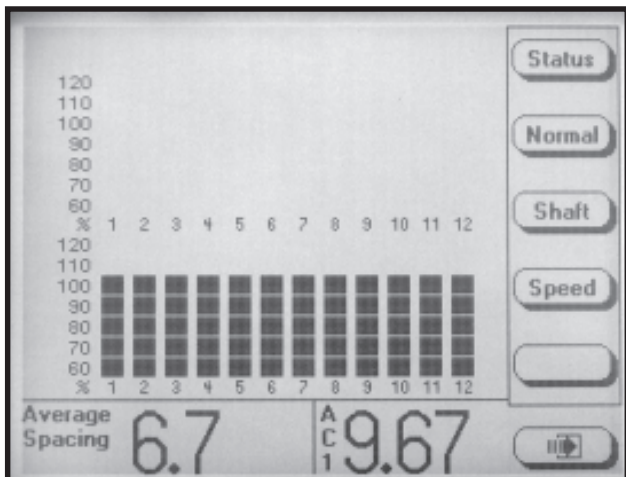
D02240608



NOTE: The appropriate units of measure will be displayed (English or Metric).

- Press NORMAL to bring back the standard key labels.

D02240606



WARNINGS AND ALARMS

1. **Seed Rate Alarm** - A seed rate alarm is activated whenever the row average seed population drops below the threshold set for that row.

The corresponding row on the bargraph starts flashing and the monitor emits a series of beeps that persist until the alarm is clear or the ACK button is pressed. "Seed Rate Alarm" appears in the upper left corner of the screen. The bargraph for the row drops down based on the threshold set for the alarm.

EXAMPLE: If the threshold is 70% the lower two bargraph segments are shown. If the threshold is 50% or 10% the lowest bargraph segment is shown.

The status message associated with an alarm contains more information about the alarm. To view the "Status Message" for a seed rate alarm, press the STATUS key.

If the sensor is detecting no seed flow it will display which row is not functioning. The alarm may be indicating a mechanical problem that is reducing the seed flow or an electrical problem causing the seed counts to be incorrect.

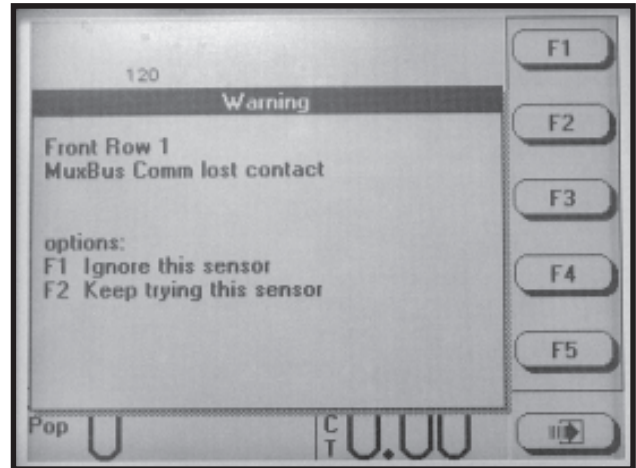
NOTE: The only way to remove an alarm is to find and correct the problem. Alarms are not reported for rows that seed rate alarm thresholds have been disabled.

NOTE: The percentage shown in the alarm message is the percentage at the time the alarm occurred.

2. **Section Not Planting** - When the monitor detects an entire section not planting, the monitor will emit three beeps to alert the user. The bargraph for the affected section flashes and is reduced to the lowest segment. An alarm message is added to the list of "Status Messages". Press the STATUS key to view the alarm message.

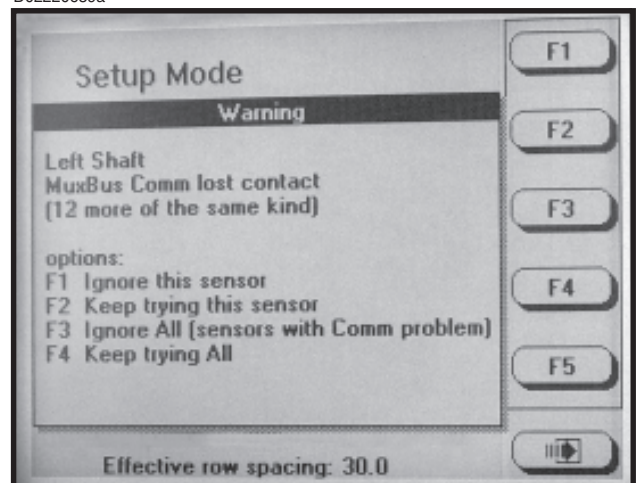
3. **Seed Counting Sensors Not Communicating With Monitor** - When the monitor detects a communication error between the sensor and the monitor, the monitor will emit two beeps to alert the user. Try to reestablish communication with sensor(s) by pressing F2. If the monitor is unable to establish communication there may be (a) a faulty sensor, (b) a poor electrical connection or (c) a cut or pinched wire harness.

D02220687



If multiple sensors have lost contact, the message will indicate which sensors have lost contact.

D02220659a



NOTE: When it is known that a sensor or a group of sensors are faulty, F1 or F3 should be pressed. The monitor will no longer try to communicate with the sensor(s). In the planting mode the corresponding bargraphs will be grayed out in the main screen.

D02220691



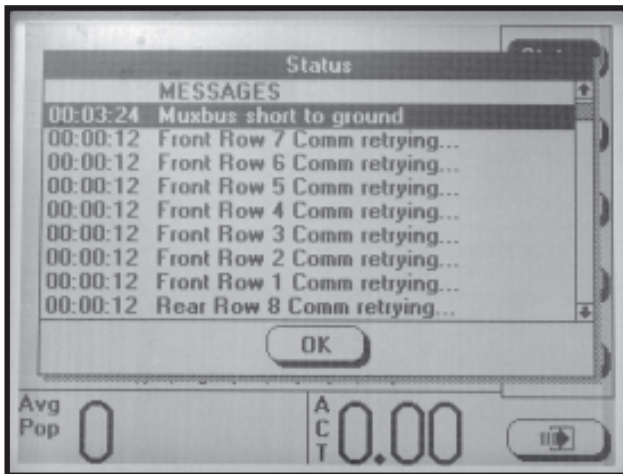
NOTE: If the sensors are not faulty, F2 or F4 should be pressed and the message shown below will appear when the STATUS key is pressed.

- 4. Seed Counting Sensors Too Dirty Warning -** When powering on the KPM III, each of the seed sensors will do a self check. If a seed tube is too dirty, the message “Clean Or Replace Sensor As Necessary” will be displayed and the bargraph for that row will flash. The LED on the seed tube sensor will not flash. The sensor will not function until the problem is corrected.

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

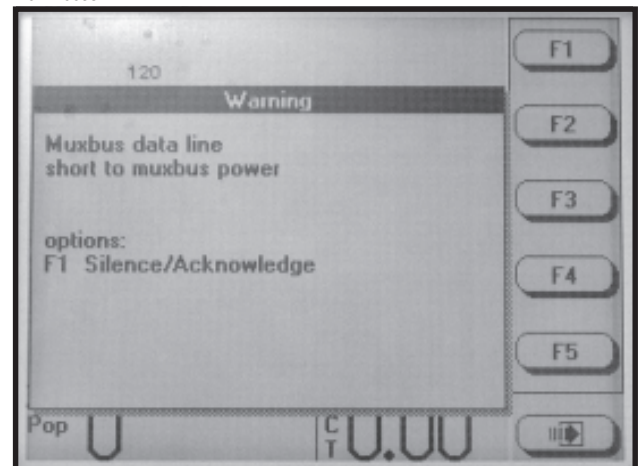
- 5. Wire Shorts -** When a wire is shorted any one of the messages shown below will appear, stating which wires are shorted. The short must be located and fixed to continue planting. Cycle the power on the monitor to clear the alarm.

D02220685

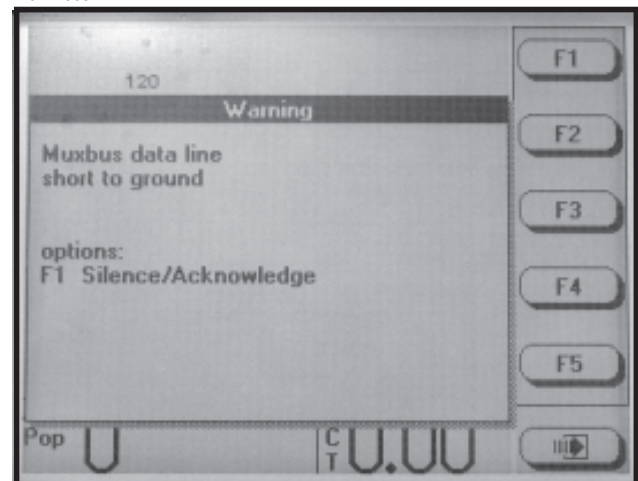


NOTE: If a sensor has been ignored, the sensor configuration screen will display as shown below.

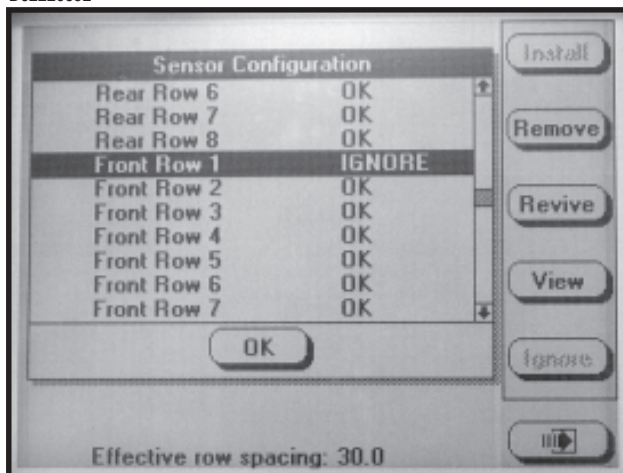
D02220683



D02220684



D02220692

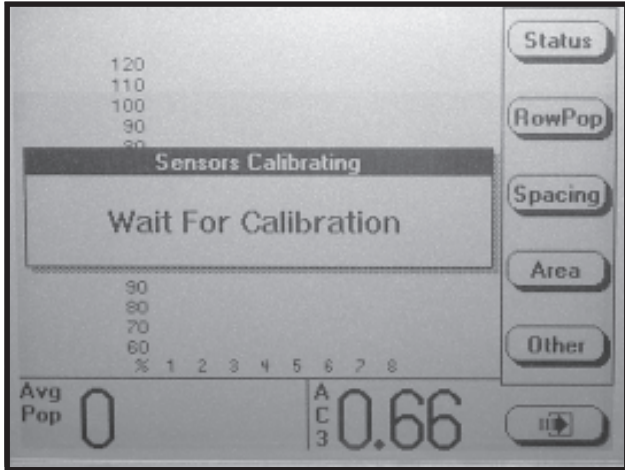


FIELD OPERATION

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

If the monitor has been configured, it will enter the normal planting mode and attempt to communicate with the seed sensors.

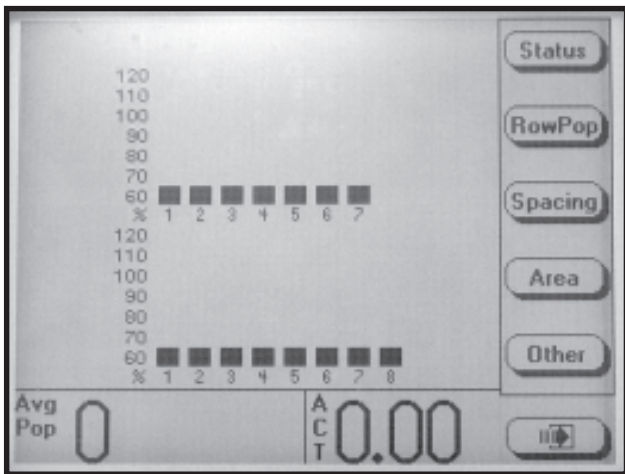
D02200606



NOTE: Do not attempt planting before the "Wait For Calibration" message disappears. If planter is moving while sensors are calibrating alarms will be generated.

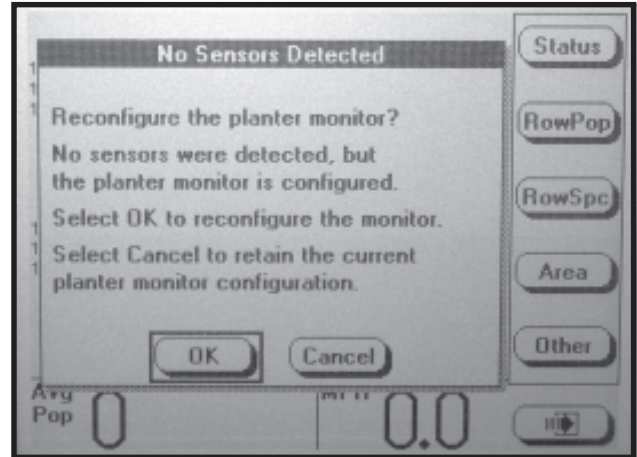
NOTE: If the monitor can communicate with the sensors the normal planting mode screen will be displayed.

D0220689a



If the monitor does not detect any sensors the message shown below will appear.

D02200627



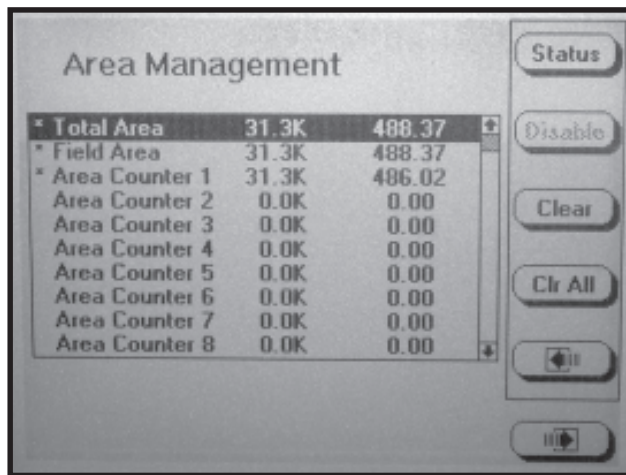
NOTE: Selecting OK will reconfigure the monitor requiring all sensors to be re-learned. Selecting CANCEL will maintain the current configuration and the monitor will continue trying to communicate with the sensors.

AREA MANAGEMENT

There are 10 area counters: Total Area, Field Area and area counters 1 through 8. The Total Area is always active but may be cleared. If it is cleared, the Field Area is also cleared. Field Area and Area Counters 1 through 8 may be cleared independent of each other. They may also be started or stopped at anytime. In addition, there is a Lifetime Area Counter (located on the Mode Selection Screen) which can not be disabled or cleared by the user.

To enter the "Area Management" screen, press the F6 key until the "Area Management" screen appears.

D02210626a



NOTE: Total area counter can never be disabled, but can be reset to zero (cleared).

- The asterisk next to the name of the area counter indicates the area counter is enabled and accumulating area.

EXAMPLE: In the photo shown above, 31.3K indicates the average seed population for the accumulated area is 31,300 seeds per unit area (acre/hectare). This number has been rounded off. The actual seed population ranges anywhere from 30,500 to 31,499 per unit area. The last column of numbers is the area accumulated (acres/hectares).

- Turn the knob or use the UP or DOWN arrow keys to highlight the desired "Area Counter".
- Press the ENABLE or DISABLE key.

NOTE: Up to four area counters can be enabled at one time (two area counters in addition to Total Area and Field Area). If four area counters are already enabled, disable one active area counter in order to enable a new area counter. To disable or enable area counters see next column.

NOTE: When a key is dimmed it does not perform any operation on the highlighted area counter.

ENABLE AREA COUNTER

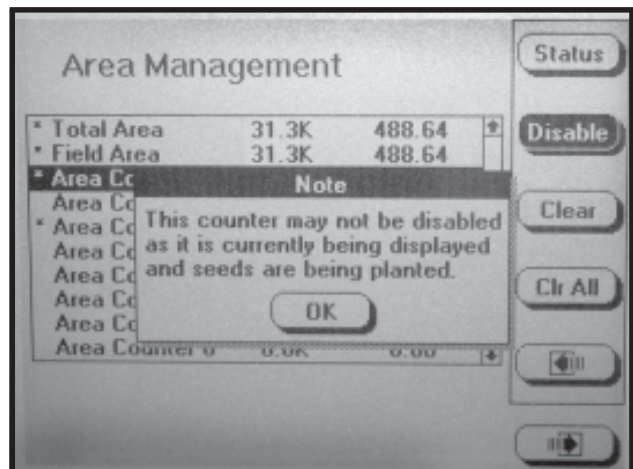
Each of the "Disabled Area Counters" may be enabled up to a total of four "Area Counters". To Enable a Disabled "Area Counter": (a) highlight the desired "Area Counter" by turning the rotary encoder knob or using the UP or DOWN arrow keys; (b) press the ENABLE key or press the knob or ENTER key and an asterisk will appear next to the "Area Counter". The Enabled "Area Counter" starts accumulating area.

DISABLE AREA COUNTER

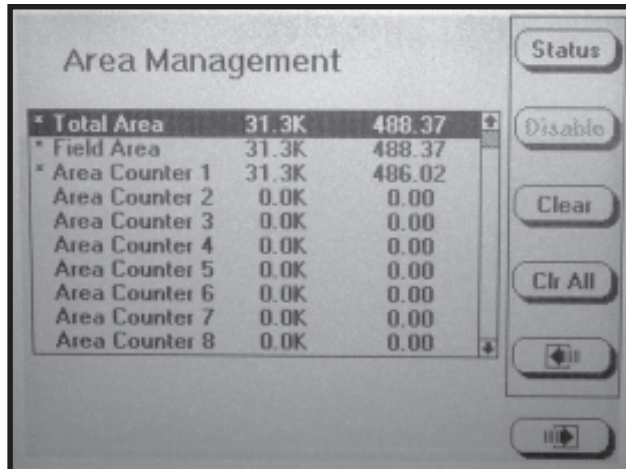
Each of the Enabled Area Counters may be disabled, with the exception of the Total Area Counter. To disable an enabled area counter: (a) highlight that "Area Counter"; (b) press the DISABLE key or press the rotary encoder knob or ENTER key and the asterisk next to the "Area Counter" will disappear. The "Disabled Area Counter" will no longer accumulate area.

NOTE: Attempts to disable an Area Counter that is currently being displayed while planting will cause the following alarm.

D02210627a

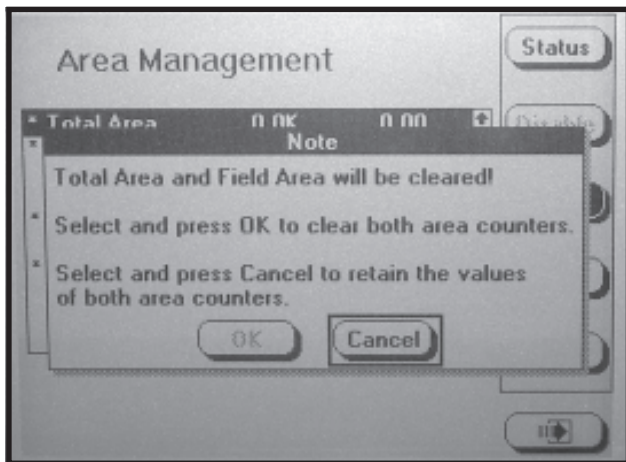


D02210626a



NOTE: If the total area is highlighted and the CLEAR key is pressed the following request for confirmation will appear.

D02200612



CLEAR AREA COUNTER

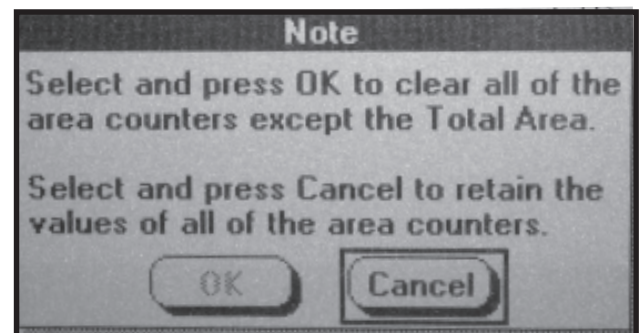
Total Area, Field Area and Area Counters 1 through 8 can be cleared, whether they are Enabled or Disabled. Clearing the “Total Area” counter forces the “Field Area” counter to also be cleared. Clearing any other “Area Counter” including the “Field Area” counter clears only that counter.

NOTE: Lifetime Area Counter can never be cleared or disabled.

To clear an Area Counter: (a) highlight the desired area counter, by turning the rotary encoder knob or using the UP or DOWN arrow keys, (b) press the CLEAR key, (c) the request for confirmation shown below will appear, (d) turn the knob or use the UP or DOWN arrow keys to select OK or CANCEL, (e) press the knob or ENTER key to make selection.

To Clear All Area Counters except the “Total Area Counter”: (a) select the CLR ALL key; (b) a request for confirmation will appear; (c) turn the knob or use the UP or DOWN arrow keys to select either OK or CANCEL; (d) press the knob or ENTER key to confirm selection.

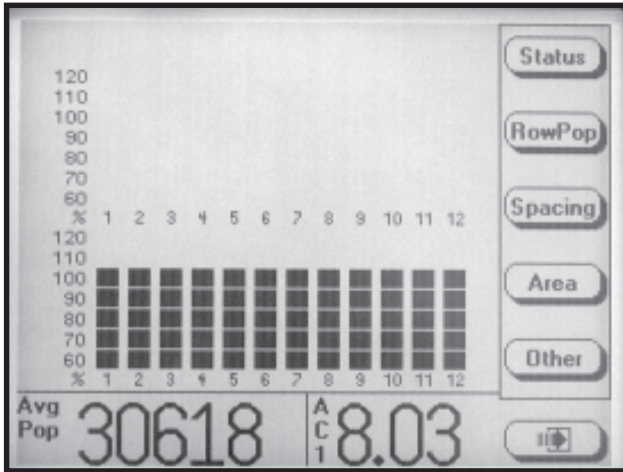
D02210628



AREA COUNTERS

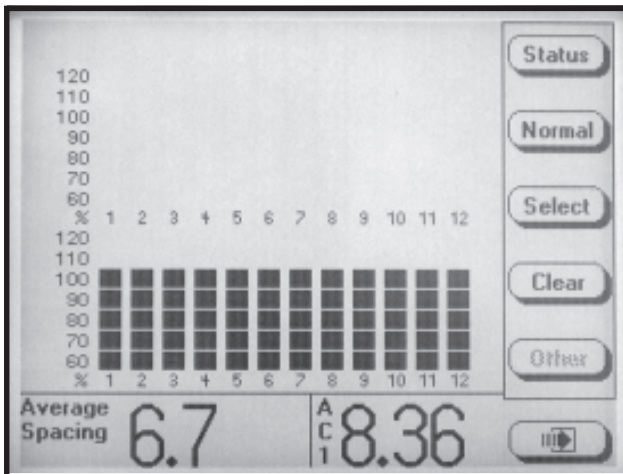
STEP 1 On the main planting screen press the AREA key.

D02240602



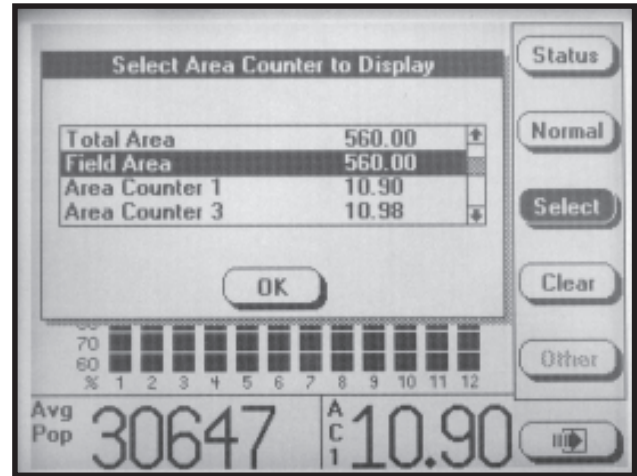
STEP 2 Press the SELECT key to display the list of the Enabled Area Counters.

D02240603



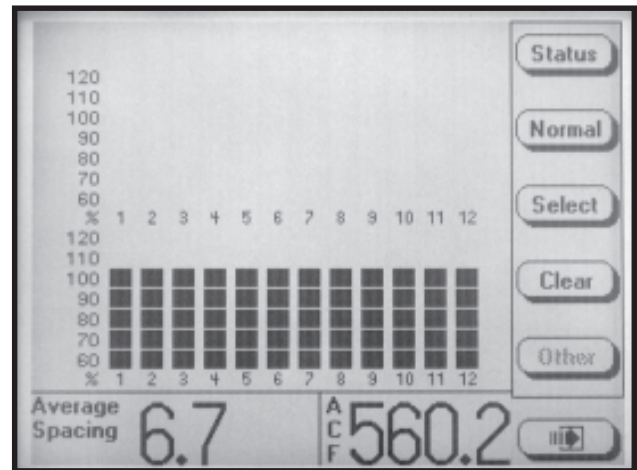
STEP 3 To select the desired active "Area Counter" turn the knob or use the UP or DOWN arrows to highlight the desired "Area Counter".

D02240609



STEP 4 Press the knob or ENTER key to select OK. The planting screen will then be displayed. Press NORMAL to display main planting screen.

D02240610

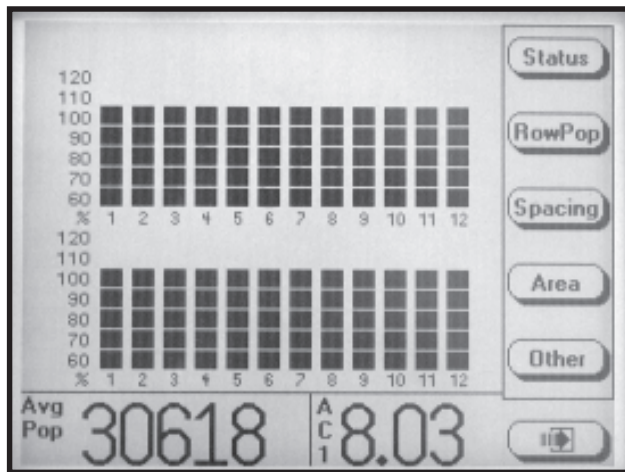


NOTE: The abbreviation for the selected area counter numerical value will appear in the bottom R.H. corner of the screen. In the above photo "ACF" represents "Area Counter Field".

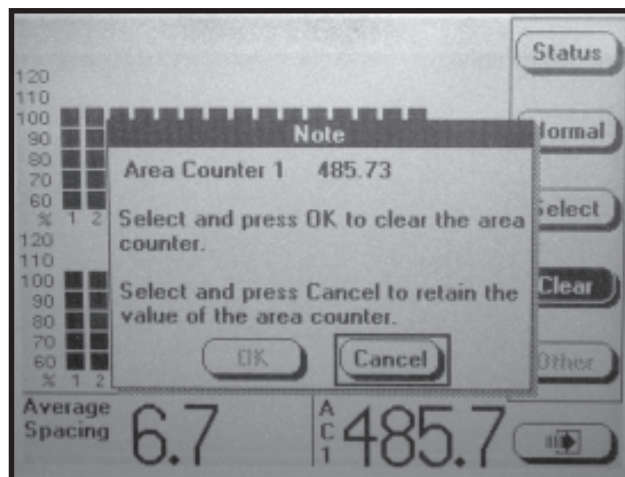
CLEARING FIELD AREA

To reset the counter, display the main planting screen by pressing the F6 key until it appears. Press the AREA key then select the CLEAR key, a dialog box will appear requesting confirmation to clear. Select OK or CANCEL key by turning the rotary encoder knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to verify the selection.

D02210625



D02210625



NOTE: Only the displayed Area Counter can be disabled.

ACRE COUNT MODE

When a tractor is equipped with a radar distance sensor, accumulating area without a planter attached is possible. Two routes are provided to enter acre count mode: (a) Installation of an Acre Count Switch Kit or (b) entry into Acre Count Mode.

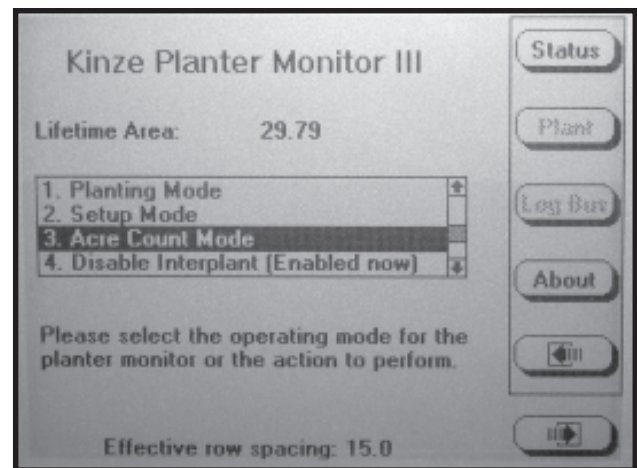
Acre Count Switch Kit

STEP 1 With the monitor OFF, attach an Acre Count Switch Kit to the Muxbus connector and then turn monitor ON and advance to STEP 2.

Acre Count Mode

STEP 1 Press the F6 key until the “Mode Selection” screen appears. Turn the rotary encoder knob or use the UP or DOWN arrow keys to select “Acre Count Mode”. Press the knob or ENTER key.

D02200618



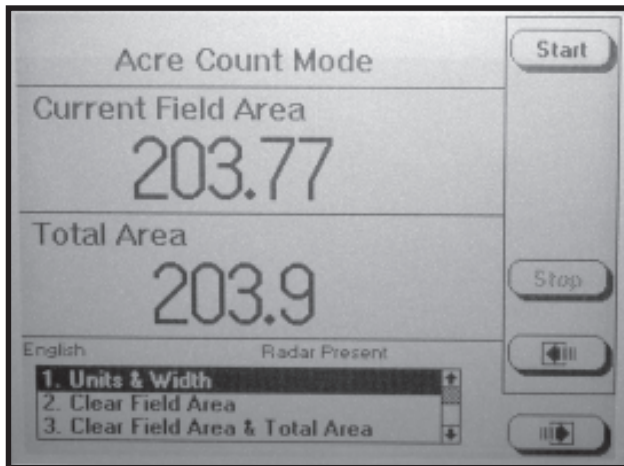
NOTE: If no radar unit is detected a warning will appear.

NOTE: If using acre count mode, area (acres or hectares) is accumulated in “Lifetime Area Counter”.

NOTE: DO NOT BEGIN ACCUMULATING AREA IF THE RADAR UNIT HAS NOT BEEN CALIBRATED. Always check the distance pulse count value immediately after entering acre count mode and before pressing start.

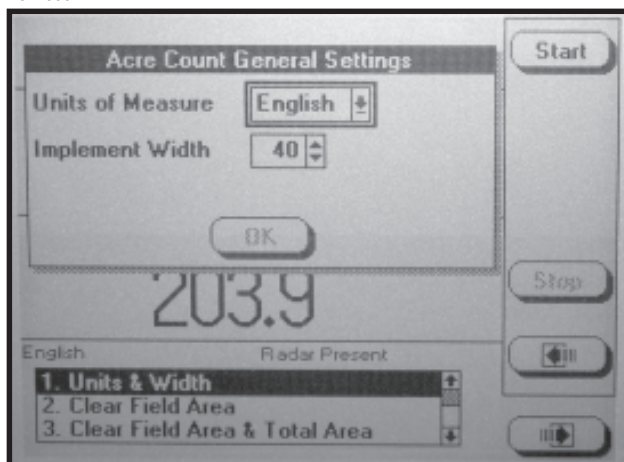
STEP 2 In the menu, “Units & Width” will be highlighted. Press the knob or ENTER key.

D02200619



STEP 3 A drop down menu will appear. Select the correct units of measure “English” or “Metric” by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to make the selection. The black box will advance to “Implement Width” field showing implement width in feet.

D02200621



STEP 4 Press the knob or ENTER key to highlight the field. Turn the knob or use the UP or DOWN arrow keys to select desired number in feet. When desired number is obtained press the knob or ENTER key. The black box will advance to OK key.

NOTE: The implement width entered in acre count mode has no effect on planting mode settings.

STEP 5 Press the knob or ENTER key when done.

NOTE: Tractor should be at a complete stop before starting.

STEP 6 To begin accumulating area press the START key.

STEP 7 To stop accumulating area or to move to a different location, press the STOP key.

There are two counters in the Acre Count Mode (Field Area Counter and Total Area Counter). The “Field Area” counter can be cleared independent of the “Total Area” counter. Clearing the “Total Area” counter causes the “Field Area” counter to also be cleared.

- To Clear Field Area. Highlight “Clear Field Area” and press the knob or ENTER key. A note will appear verifying the decision to reset the field area to zero. Select OK and press the knob or ENTER key to clear the field to zero. Select Cancel and press the knob or the ENTER key to retain the current field value.

- To Clear Both Field Area And Total Area. Highlight the “Clear Field Area & Total Area” and press the knob or ENTER key. A note will appear to verify the decision to reset the field area and the total area to zero. Select OK and press the knob or ENTER key to clear the field to zero. Select CANCEL and press the knob or ENTER key to retain the current field value.

With planter reconnected to monitor return to normal plant screen by pressing the F6 key until the “Mode Selection” screen appears. Select “Planting Mode” by turning the knob or using the UP or DOWN arrow keys, press the knob or ENTER key.

REPLACING FAULTY SENSOR(S)

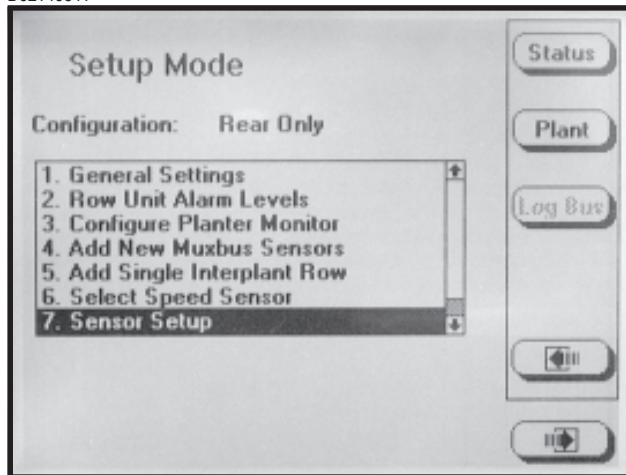
To replace a single faulty sensor: (a) turn OFF the monitor, (b) replace the sensor, (c) turn monitor ON. It will then recognize that a single sensor has been replaced.

NOTE: Monitor will beep twice when the new sensor(s) is learned.

To replace more than one faulty sensor:

- STEP 1** Press F6 key until the “Mode Selection” screen appears.
- STEP 2** Select “Setup Mode” by turning the knob or press the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.
- STEP 3** Select “Sensor Setup” by turning the knob or using the UP or DOWN arrow keys. Press the knob or ENTER key to display the highlighted item.

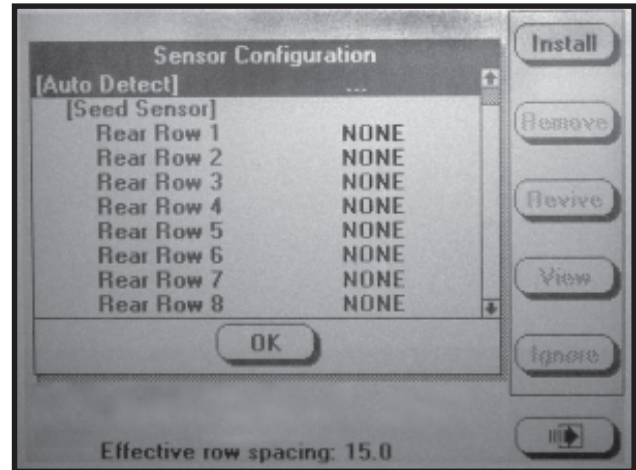
D02140641



- STEP 4** Highlight faulty sensor. Press REMOVE key and unplug sensor. Plug in new sensor and press INSTALL key.

Repeat above procedure for each faulty sensor being replaced.

D02210601a



NOTE: Highlighting a sensor and pressing VIEW gives additional information when troubleshooting a problem. If a faulty sensor has been ignored it may be highlighted in the list of sensors, press REVIVE. The monitor will try to communicate with the sensor. If successful, “OK” will appear next to the sensor.

- STEP 5** Press the knob or ENTER key to return to “Setup Mode” screen.
- STEP 6** To return to “Planting Mode” press the PLANT key.

See “KPM III Electronic Seed Monitor Troubleshooting” in the Maintenance Section.

PLANTER MONTIOR MODULE (PMM)

The PMM Magnetic Distance Sensor Package includes a planter-mounted module enclosure with cover and mounting hardware, seed tubes w/sensors, planter harness, planter monitor cable, shaft rotation sensors and magnetic distance sensor components. A customer-supplied Ag Leader Insight display and associated cab harnesses are also required.

NOTE: See information supplied with Ag Leader Insight display for installation and programming.

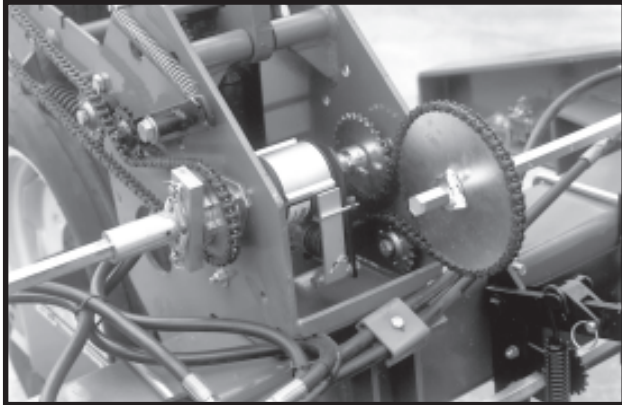
D11200710a



MACHINE OPERATION

POINT ROW CLUTCHES

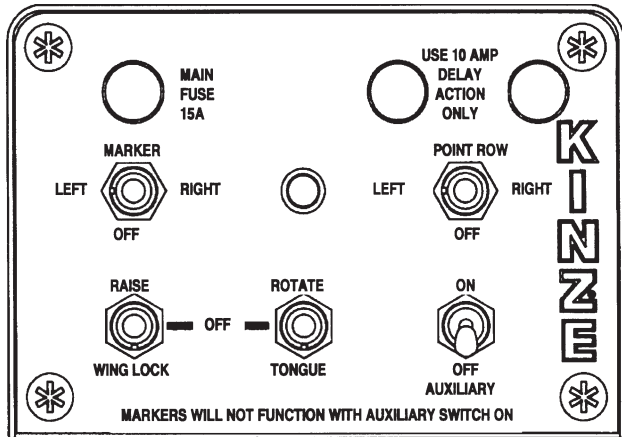
82378-18a



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)

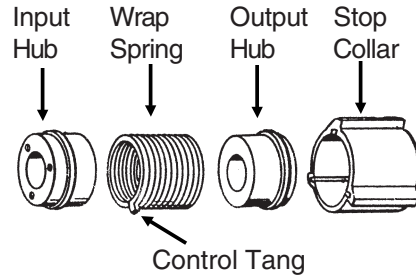


The selector switch for the clutches is located on the planter control console.

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

NOTE: The liquid fertilizer piston pumps have their own drive wheels, there for 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.

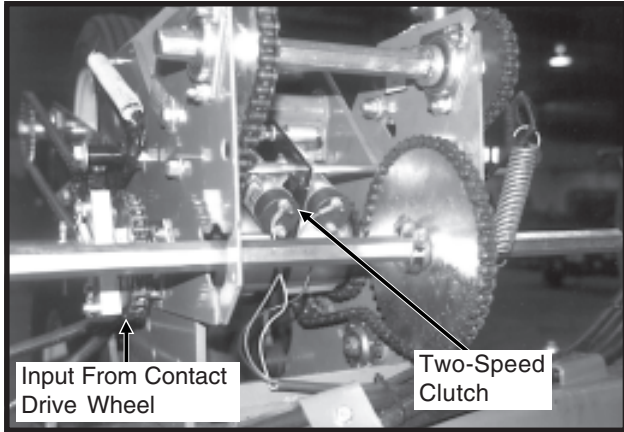
When the operational switch is in the "DISENGAGE" (right or left) position the solenoid coil IS ENERGIZED and the plunger in the solenoid coil pulls the actuator arm against the stop on the stop collar, disengaging the wrap spring and stopping the planter drive.

MACHINE OPERATION

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.

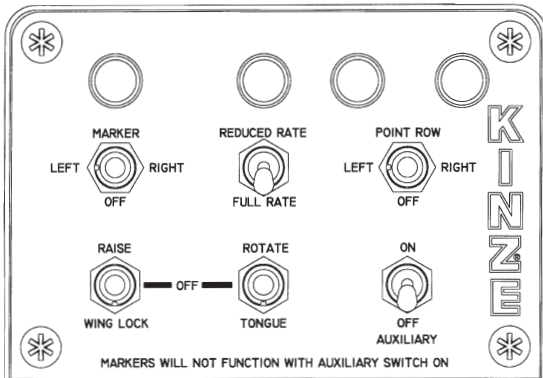
82488-12a



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 discharged.

A7435(TWL81)



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.

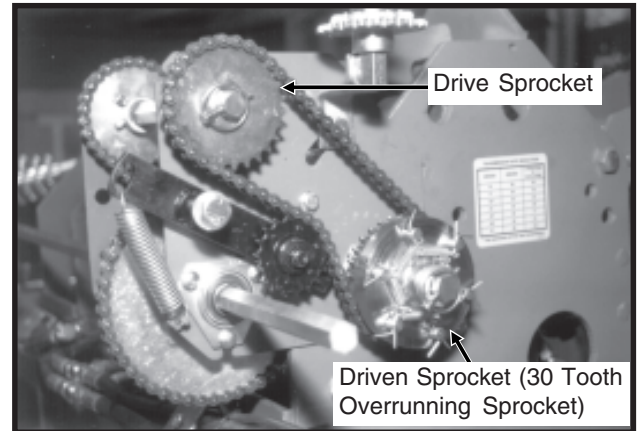
7100-214

TRANSMISSION RATE REDUCTION		
DRIVE	DRIVEN	% REDUCTION IN POPULATION
15	30	50
17	30	43
23*	30	23
24	30	20
25*	30	17
26*	30	13
27	30	10

* Use sprockets off seed drive transmission

7100-214

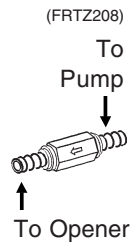
82488-1



MACHINE OPERATION

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.

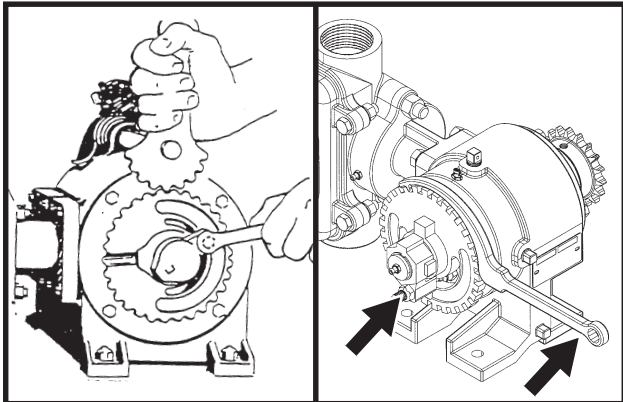


If the machine is equipped with the piston pump option, the rate of liquid fertilizer application is determined by the piston pump settings.

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

(PLTR9/A12330b)

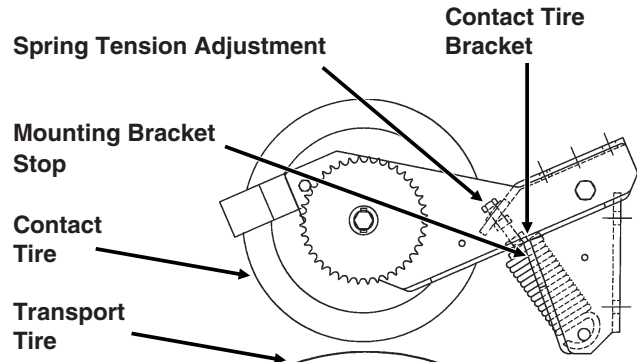


The operator and instruction manual shipped with the pump and flow divider should be kept and stored with this manual for future reference.

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.

(FF74)

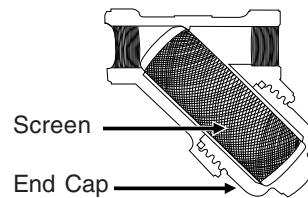


CLEANING

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.

(INS220)

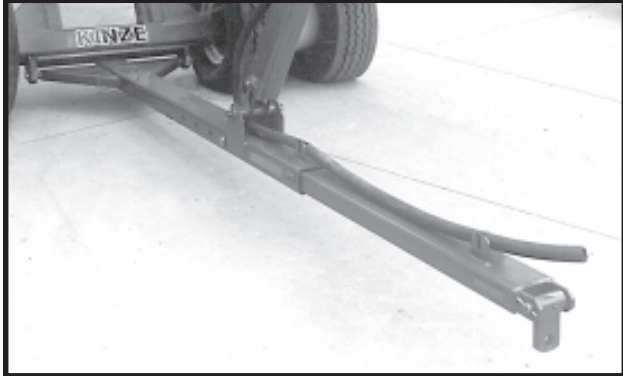


See "Piston Pump Storage" (If Applicable) in the Maintenance Section of the manual.

MACHINE OPERATION

REAR TRAILER HITCH (16 Row 30"/38" 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 $\frac{5}{8}$ " set screws at the rear of the outer tube, removing the 1" x $8 \frac{1}{2}$ " 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.

MACHINE OPERATION

METRIC CONVERSION TABLE

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

PLANTING SPEED

Planters are designed to operate within a speed range of 2 to 8 MPH (See “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” and “Row Marker Speed Adjustment”.
- 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”.

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

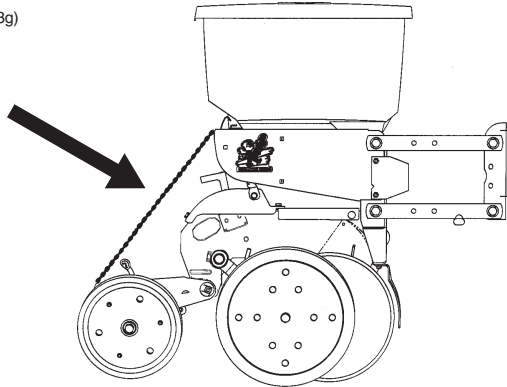
- Hoses And Fittings
- Bolts And Nuts
- Cotter Pins And Spring Pins
- Drive Chain Alignment

MACHINE OPERATION

CHECKING SEED POPULATION

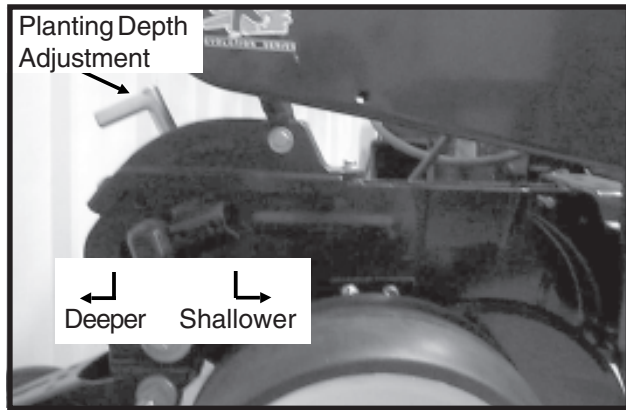
1. Tie up one or more sets of closing wheels by running a chain or rubber tarp strap between the hopper support panel and closing wheels. It may be necessary to decrease closing wheel arm spring tension.

(RU113g)



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

D020705102



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

LENGTH OF ROW IN FEET AND INCHES				
Fraction Of Acre	Row Width			
	20"	22"	30"	38"
$\frac{1}{1000}$	26' 2"	23' 9"	17' 5"	13' 10"

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

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

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

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

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.

MACHINE OPERATION

Determining Pounds Per Acre (Brush-Type Seed Meter)

To determine pounds per acre:

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

To determine bushels per acre:

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

The unit weight of:

- 1 Bushel Soybeans = 60 Pounds
- 1 Bushel Milo/Grain Sorghum = 56 Pounds
- 1 Bushel Cotton = 32 Pounds

If seeds per pound information is not available the following are averages:

- 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”.

MACHINE OPERATION

CHECKING GRANULAR CHEMICAL APPLICATION RATE

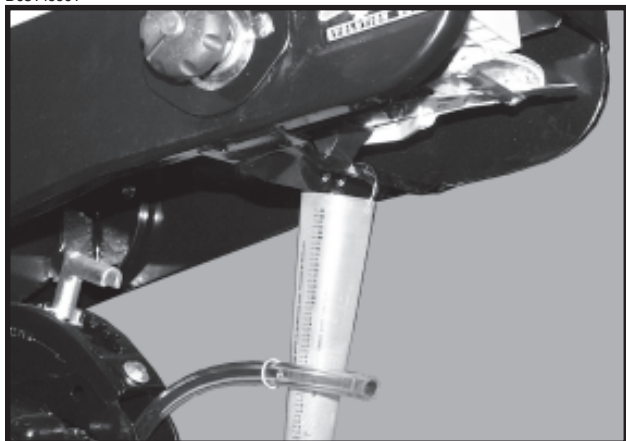
Many things can affect the rate of delivery of granular chemicals such as temperature, humidity, speed, ground conditions, flowability of different material or any obstruction in the meter.



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

A field check is important to determine correct application rates.

D05149901



To check, fill insecticide and/or herbicide hoppers. Attach a calibrated vial to each granular chemical meter. Lower the planter and proceed as follows.

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

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

POUNDS PER ACRE FACTOR FOR GIVEN ROW WIDTH	
Row Width	Factor
20"	1.25
22"	1.13
30"	0.83
38"	0.65

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

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

Metering Gate

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

MACHINE OPERATION

GENERAL PLANTING RATE INFORMATION

These planting rate charts are applicable to KINZE® Model 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. TO PREVENT PLANTING MISCALCULATIONS, MAKE FIELD CHECKS TO BE SURE YOU ARE PLANTING AT THE DESIRED RATE.

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

Finger Pickup Corn Meter

Larger grades will generally plant more accurately at the high end of the ground speed range than smaller grades. Higher than optimum speeds may result in population rate increase or higher incidence of doubles, particularly with small seed. Medium round corn seed is most desirable for planting accuracy at optimum speed.

Finger Pickup Oil Sunflower Meter

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

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

Brush-Type Seed Meter (Soybean, Milo/Grain Sorghum, Acid-Delinted Cotton)

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

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

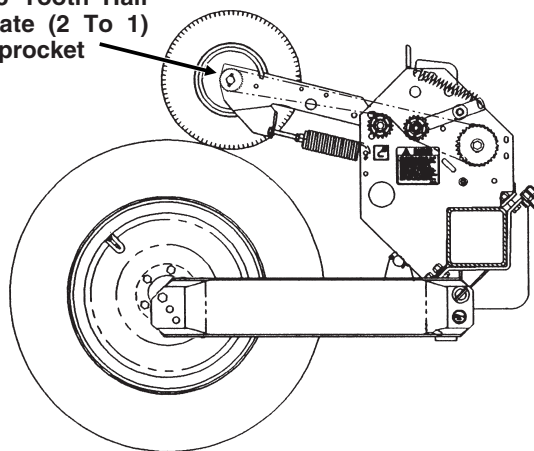
NOTE: Use of the Half Rate (2 To 1) Drive Reduction Package will reduce the planter transmission speed. The seeding rate will be approximately 50% of the chart reading when using the Half Rate (2 to 1) Drive Reduction Package. Planting speed can affect actual seeding rate. Make a field check and adjust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

(FF82b)

15 Tooth Half
Rate (2 To 1)
Sprocket



MACHINE OPERATION

Z202

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

20" Rows	22" Rows	30" Rows	38" Rows	Transmission Sprockets		Recommended Speed Range (MPH)	Average Seed Spacing In Inches
				Drive	Driven		
24,279	22,013	16,186	12,778	17	28	4 to 6	12.9
25,178	22,828	16,785	13,251	17	27	4 to 6	12.5
26,147	23,706	17,431	13,761	17	26	4 to 6	12.0
27,135	24,602	18,090	14,281	19	28	4 to 6	11.6
27,192	24,654	18,128	14,312	17	25	4 to 6	11.5
28,140	25,514	18,760	14,810	19	27	4 to 6	11.1
28,325	25,681	18,883	14,908	17	24	4 to 6	11.1
29,222	26,494	19,481	15,380	19	26	4 to 6	10.7
29,556	26,797	19,704	15,556	17	23	4 to 6	10.6
30,392	27,555	20,261	15,995	19	25	4 to 6	10.3
31,656	28,701	21,104	16,662	19	24	4 to 6	9.9
32,847	29,781	21,898	17,288	23	28	4 to 6	9.5
33,033	29,950	22,022	17,386	19	23	4 to 6	9.5
34,064	30,884	22,709	17,928	23	27	4 to 6	9.2
34,275	31,076	22,850	18,040	24	28	4 to 6	9.2
35,375	32,073	23,583	18,618	23	26	4 to 6	8.9
35,546	32,228	23,697	18,708	24	27	4 to 6	8.8
35,703	32,371	23,802	18,791	25	28	4 to 6	8.8
35,780	32,440	23,853	18,831	17	19	4 to 6	8.8
36,789	33,355	24,526	19,363	23	25	4 to 6	8.5
36,912	33,467	24,608	19,427	24	26	4 to 6	8.5
37,026	33,570	24,684	19,487	25	27	4 to 6	8.5
37,133	33,667	24,755	19,543	26	28	4 to 6	8.4
38,322	34,745	25,548	20,169	23	24	4 to 6	8.2
38,388	34,805	25,592	20,205	24	25	4 to 6	8.2
38,450	34,861	25,633	20,237	25	26	4 to 6	8.2
38,507	34,913	25,671	20,267	26	27	4 to 6	8.1
38,561	34,962	25,707	20,295	27	28	4 to 6	8.1
39,989	36,256	26,659	21,046	23	23	4 to 6	7.8
41,469	37,599	27,646	21,826	28	27	4 to 6	7.6
41,526	37,650	27,684	21,856	27	26	4 to 6	7.6
41,655	37,767	27,770	21,923	25	24	4 to 6	7.5
41,727	37,832	27,818	21,961	24	23	4 to 6	7.5
43,064	39,044	28,709	23,665	28	26	4 to 6	7.3
43,187	39,156	28,791	22,730	27	25	4 to 6	7.3
43,466	39,409	28,977	22,876	25	23	4 to 6	7.2
44,693	40,521	29,795	23,522	19	17	4 to 6	7.0
44,787	40,607	29,858	23,572	28	25	4 to 6	7.0
44,987	40,788	29,991	23,677	27	24	4 to 6	7.0
45,204	40,985	30,136	23,792	26	23	4 to 6	7.0
46,653	42,299	31,102	24,554	28	24	3 to 6	6.7
46,943	42,561	31,295	24,707	27	23	3 to 6	6.7
48,407	43,889	32,271	25,477	23	19	3 to 5.5	6.5
48,681	44,137	32,454	25,622	28	23	3 to 5.5	6.5
50,511	45,797	33,674	26,585	24	19	3 to 5.5	6.2
52,616	47,705	35,077	27,693	25	19	3 to 5	6.0
54,102	49,052	36,068	28,474	23	17	3 to 5	5.8
54,720	49,613	36,480	28,800	26	19	3 to 5	5.7
56,454	51,185	37,636	29,713	24	17	3 to 5	5.6
56,825	51,521	37,883	29,908	27	19	3 to 5	5.5
58,806	53,317	39,204	30,951	25	17	3 to 4.5	5.3
58,931	53,430	39,287	31,016	28	19	3 to 4.5	5.3
61,158	55,450	40,772	32,189	26	17	3 to 4.5	5.1
63,510	57,582	42,340	33,427	27	17	3 to 4.5	4.9
65,862	59,715	43,908	34,665	28	17	3 to 4.5	4.8

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

MACHINE OPERATION

Z214/RH

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

APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

Transmission Sprockets		60 Cell Soybean Or High-Rate Milo/ Grain Sorghum				Average Seed Spacing In Inches	48 Cell Specialty Soybean Or High-Rate Acid-Delinted Cotton				Average Seed Spacing In Inches	Speed Range (MPH)
		20" Rows	22" Rows	30" Rows	38" Rows		20" Rows	22" Rows	30" Rows	38" Rows		
Drive	Driven											
17	28	121,392	110,062	80,928	63,891	2.6	97,113	88,049	64,742	51,113	3.2	2 to 8
17	27	125,889	114,139	83,926	66,257	2.5	100,712	91,312	67,141	53,006	3.1	2 to 8
17	26	130,731	118,529	87,154	68,805	2.4	104,712	94,823	69,723	55,044	3.0	2 to 8
19	28	135,674	123,011	90,449	71,407	2.3	108,539	98,408	72,359	57,126	2.9	2 to 8
19	27	140,699	127,567	93,799	74,052	2.2	112,559	102,053	75,039	59,242	2.8	2 to 8
17	24	141,624	128,406	94,416	74,539	2.2	113,300	102,725	75,533	59,631	2.8	2 to 8
17	23	147,782	133,989	98,521	77,780	2.1	118,226	107,191	78,817	62,224	2.7	2 to 8
19	25	151,955	137,772	101,303	79,976	2.1	121,563	110,217	81,042	63,981	2.6	2 to 8
19	24	158,286	143,513	105,524	83,309	2.0	126,629	114,810	84,419	66,647	2.5	2 to 8
23	28	164,237	148,908	109,491	86,440	1.9	131,390	119,126	87,593	69,152	2.4	2 to 8
19	23	165,168	149,752	110,112	86,931	1.9	132,135	119,802	88,090	69,545	2.4	2 to 8
24	28	171,379	155,383	114,252	90,199	1.8	137,103	124,307	91,402	72,159	2.3	2 to 8
24	27	177,725	161,137	118,483	93,539	1.8	142,179	128,909	94,786	74,831	2.2	2 to 8
17	19	178,895	162,198	119,263	94,155	1.8	143,115	129,758	95,410	75,324	2.2	2 to 8
24	26	184,560	167,334	123,040	97,137	1.7	147,648	133,868	98,432	77,710	2.1	2 to 8
26	28	185,660	168,331	123,773	97,715	1.7	148,527	134,664	99,018	78,172	2.1	2 to 8
24	25	191,943	174,028	127,962	101,023	1.6	153,555	139,223	102,370	80,818	2.0	2 to 8
26	27	192,536	174,566	128,357	101,334	1.6	154,029	139,653	102,686	81,067	2.0	2 to 8
23	23	199,941	181,280	133,294	105,232	1.6	159,953	145,024	106,635	84,186	2.0	2 to 8
27	26	207,630	188,251	138,420	109,279	1.5	166,104	150,601	110,736	87,423	1.9	2 to 8
24	23	208,634	189,161	139,089	109,807	1.5	166,907	151,329	111,271	87,846	1.9	2 to 8
25	23	217,326	197,042	144,884	114,382	1.4	173,861	157,634	115,907	91,506	1.8	2 to 8
19	17	223,463	202,606	148,975	117,612	1.4	178,770	162,085	119,180	94,090	1.8	2 to 8
27	24	224,933	203,939	149,955	118,386	1.4	179,946	163,151	119,964	94,709	1.7	2 to 8
28	24	233,264	211,492	155,509	122,770	1.3	186,661	169,194	124,407	98,216	1.7	2 to 8
23	19	242,033	219,443	161,355	127,386	1.3	193,626	175,554	129,084	101,909	1.6	2 to 8
28	23	243,405	220,687	162,270	128,108	1.3	194,724	176,550	129,816	102,486	1.6	2 to 8
24	19	252,557	228,985	168,371	132,924	1.2	202,044	183,187	134,696	106,339	1.6	2 to 8
25	19	263,079	238,525	175,386	138,463	1.2	210,464	190,820	140,309	110,770	1.5	2 to 8
23	17	270,507	245,260	180,338	142,372	1.2	216,405	196,207	144,270	113,898	1.5	2 to 8
26	19	273,603	248,067	182,402	144,001	1.1	218,883	198,454	145,922	115,201	1.4	2 to 7
27	19	284,126	257,607	189,417	148,540	1.1	227,301	206,086	151,534	118,832	1.4	2 to 7
28	19	294,650	267,149	196,433	155,078	1.1	235,719	213,719	157,146	124,062	1.3	2 to 7
26	17	305,792	277,251	203,861	160,943	1.0	244,634	221,801	163,089	128,754	1.3	2 to 7
27	17	317,553	289,915	211,702	167,133	0.9	245,043	230,332	169,362	133,706	1.2	2 to 7
28	17	329,313	298,577	219,542	173,323	0.9	263,451	238,862	175,634	138,658	1.2	2 to 7

NOTE: See “General Planting Rate Information” and “Checking Seed Population” pages for additional information.

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

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

MACHINE OPERATION

RH/Z215

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

APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

Transmission Sprockets		36 Cell				Average Seed Spacing In Inches	30 Cell Milo/Grain Sorghum Or Acid-Delinted Cotton				Average Seed Spacing In Inches	Speed Range (MPH)
		Acid-Delinted Large Cotton					20" Rows	22" Rows	30" Rows	38" Rows		
Drive	Driven	20" Rows	22" Rows	30" Rows	38" Rows		20" Rows	22" Rows	30" Rows	38" Rows		
17	28	72,836	66,038	48,557	38,335	4.3	60,696	55,031	40,464	31,945	5.2	2 to 8
17	27	75,534	68,484	50,356	39,754	4.2	62,945	57,070	41,963	33,129	5.0	2 to 8
17	26	78,438	71,117	52,292	41,283	4.0	65,366	59,265	43,577	34,403	4.8	2 to 8
19	28	81,404	73,806	54,269	42,844	3.9	67,838	61,506	45,225	35,704	4.6	2 to 8
19	27	84,419	76,539	56,279	44,431	3.7	70,350	63,784	46,900	37,026	4.5	2 to 8
17	24	84,975	77,044	56,650	44,723	3.7	70,812	64,203	47,208	37,270	4.4	2 to 8
17	23	88,670	80,394	59,113	46,668	3.5	73,892	66,995	49,261	38,890	4.2	2 to 8
19	25	91,173	82,664	60,782	47,986	3.4	75,978	68,887	50,652	39,988	4.1	2 to 8
19	24	94,971	86,107	63,314	49,985	3.3	79,143	71,756	52,762	41,654	4.0	2 to 8
23	28	98,543	89,345	65,695	51,864	3.2	82,119	74,455	54,746	43,220	3.8	2 to 8
19	23	99,101	89,851	66,067	52,159	3.2	82,584	74,876	55,056	43,465	3.8	2 to 8
24	28	102,827	93,229	68,551	54,119	3.0	85,689	77,691	57,126	45,099	3.7	2 to 8
24	27	106,635	96,682	71,090	56,123	2.9	88,863	80,569	59,242	46,770	3.5	2 to 8
17	19	107,337	97,319	71,558	56,493	2.9	89,447	81,098	59,631	47,077	3.5	2 to 8
24	26	110,736	100,401	73,824	58,282	2.8	92,280	83,667	61,520	48,569	3.4	2 to 8
26	28	111,396	100,999	74,264	58,629	2.8	92,829	84,165	61,886	48,858	3.4	2 to 8
24	25	115,158	104,410	76,772	60,614	2.7	95,972	87,014	63,981	50,511	3.3	2 to 8
26	27	115,521	104,739	77,014	60,800	2.7	96,267	87,282	64,178	50,667	3.3	2 to 8
23	23	119,964	108,767	79,976	63,139	2.6	99,971	90,640	66,647	52,616	3.1	2 to 8
27	26	124,578	112,951	83,052	65,567	2.5	103,815	94,126	69,210	54,640	3.0	2 to 8
24	23	125,180	113,496	83,453	65,884	2.5	104,316	94,580	69,544	54,904	3.0	2 to 8
25	23	130,395	118,225	86,930	68,629	2.4	108,663	98,521	72,442	57,191	2.9	2 to 8
19	17	134,078	121,564	89,385	70,567	2.3	111,732	101,304	74,488	58,806	2.8	2 to 8
27	24	134,960	122,363	89,973	71,032	2.3	112,467	101,970	74,978	59,193	2.8	2 to 8
28	24	139,958	126,895	93,305	73,662	2.2	116,633	105,747	77,755	61,385	2.7	2 to 8
23	19	145,220	131,666	96,813	76,432	2.2	121,017	109,722	80,678	63,693	2.6	2 to 8
28	23	146,043	132,412	97,362	76,864	2.1	121,703	110,344	81,135	64,054	2.6	2 to 8
24	19	151,535	137,391	101,023	79,754	2.1	126,278	114,492	84,185	66,462	2.5	2 to 8
25	19	157,848	143,116	105,232	83,078	2.0	131,540	119,262	87,693	69,231	2.4	2 to 8
23	17	162,350	147,197	108,233	85,423	1.9	135,254	122,630	90,169	71,186	2.3	2 to 8
26	19	164,162	148,840	109,441	86,401	1.9	136,802	124,033	91,201	72,001	2.3	2 to 7
27	19	170,475	154,564	113,650	89,124	1.8	142,064	128,804	94,709	74,770	2.2	2 to 7
28	19	176,790	160,290	117,860	93,047	1.8	147,324	133,574	98,216	77,539	2.1	2 to 7
26	17	183,476	166,351	122,317	96,566	1.7	152,895	138,625	101,930	80,471	2.1	2 to 7
27	17	190,532	172,749	127,021	100,280	1.6	158,777	143,957	105,851	83,566	2.0	2 to 7
28	17	197,588	179,146	131,725	103,994	1.6	164,657	149,289	109,771	86,661	1.9	2 to 7

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

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

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

MACHINE OPERATION

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 $\frac{1}{1000}$ of an acre ($\frac{1}{1000}$ 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 Sprockets Drive Drive		NUMBER OF HILLS PER ACRE 12 Cell Hill-Drop Cotton, Acid-Delinted				Average Hill Spacing In Inches	Speed Range (MPH)
		20" Rows	22" Rows	30" Rows	38" Rows		
17	28	24,279	22,013	16,186	12,778	12.9	2 to 8
17	27	25,178	22,828	16,785	13,251	12.5	2 to 8
17	26	26,147	23,706	17,431	13,761	12.0	2 to 8
19	28	27,135	24,602	18,090	14,281	11.6	2 to 8
19	27	28,140	25,514	18,760	14,810	11.1	2 to 8
17	24	28,325	25,681	18,883	14,908	11.1	2 to 8
17	23	29,556	26,797	19,704	15,556	10.6	2 to 8
19	25	30,392	27,555	20,261	15,995	10.3	2 to 8
19	24	31,658	28,703	21,105	16,662	9.9	2 to 8
23	28	32,847	29,781	21,898	17,288	9.5	2 to 8
19	23	33,033	29,950	22,022	17,386	9.5	2 to 8
24	28	34,275	31,076	22,850	18,040	9.2	2 to 8
24	27	35,546	32,228	23,697	18,708	8.8	2 to 8
17	19	35,780	32,440	23,853	18,831	8.8	2 to 8
24	26	36,912	33,467	24,608	19,427	8.5	2 to 8
26	28	37,133	33,667	24,755	19,543	8.4	2 to 8
24	25	38,388	34,805	25,592	20,205	8.2	2 to 8
26	27	38,507	34,913	25,671	20,267	8.1	2 to 8
23	23	39,989	36,256	26,659	21,046	7.8	2 to 8
27	26	41,526	37,650	27,684	21,856	7.6	2 to 8
24	23	41,727	37,832	27,818	21,961	7.5	2 to 8
25	23	43,466	39,409	28,977	22,876	7.2	2 to 8
19	17	44,693	40,521	29,795	23,522	7.0	2 to 8
27	24	44,987	40,788	29,991	23,677	7.0	2 to 8
28	24	46,653	42,299	31,102	24,554	6.7	2 to 8
23	19	48,407	43,889	32,271	25,477	6.5	2 to 8
28	23	48,681	44,137	32,454	25,622	6.5	2 to 8
24	19	50,511	45,797	33,674	26,585	6.2	2 to 8
25	19	52,616	47,705	35,077	27,693	6.0	2 to 8
23	17	54,102	49,052	36,068	28,474	5.8	2 to 8
26	19	54,720	49,613	36,480	28,800	5.7	2 to 7
27	19	56,825	51,521	37,883	29,908	5.5	2 to 7
28	19	58,931	53,430	39,287	31,016	5.3	2 to 7
26	17	61,158	55,450	40,772	32,189	5.1	2 to 7
27	17	63,510	57,582	42,340	33,427	4.9	2 to 7
28	17	65,862	59,715	43,908	34,665	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	38" Rows
CLAY GRANULES				
10	7.4	6.7	4.9	3.9
11	8.1	7.3	5.4	4.3
12	9.2	8.3	6.1	4.8
13	10.4	9.4	6.9	5.4
14	11.6	10.5	7.7	6.0
15	12.8	11.6	8.5	6.7
16	14.4	13.1	9.6	7.6
17	16.1	14.6	10.7	8.4
18	17.1	15.5	11.4	9.0
19	19.7	17.8	13.1	10.3
20	21.3	19.3	14.2	11.2
21	23.3	21.1	15.5	12.3
22	24.6	22.3	16.4	12.9
23	25.8	23.4	17.2	13.6
24	28.2	25.6	18.8	14.9
25	31.4	28.4	20.9	16.5
26	34.5	31.3	23.0	18.1
27	36.2	32.8	24.1	19.0
28	38.1	34.5	25.4	20.1
29	41.7	37.8	27.8	22.0
30	44.4	40.3	29.6	23.4
SAND GRANULES				
5	4.4	3.9	2.9	2.3
6	7.4	6.7	4.9	3.8
7	8.0	7.2	5.3	4.2
8	9.5	8.6	6.3	5.0
9	11.7	10.6	7.8	6.1
10	13.4	12.1	8.9	7.0
11	15.3	13.9	10.2	8.0
12	16.8	15.2	11.2	8.8
13	18.9	17.1	12.6	10.0
14	21.2	19.2	14.1	11.1
15	23.3	21.1	15.5	12.3
16	26.3	23.8	17.5	13.8
17	29.1	26.4	19.4	15.3
18	32.7	29.7	21.8	17.2
19	36.5	33.1	24.3	19.1
20	38.6	35.0	25.7	20.3
21	41.4	37.5	27.6	21.8
22	44.4	40.3	29.6	23.4
23	48.0	43.5	32.0	25.3
24	51.6	46.8	34.4	27.2
25	55.4	50.2	36.9	29.1

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

Your actual rate must be checked in the field with the actual insecticide that you are using and at the speed and population at which you will be planting. See "Checking Granular Chemical Application Rate" page for additional information.



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

MACHINE OPERATION

DRY HERBICIDE APPLICATION RATES

APPROXIMATE POUNDS/ACRE AT 5 MPH FOR VARIOUS ROW WIDTHS

CLAY GRANULES

Meter Setting	20" Rows	22" Rows	30" Rows	38" Rows
10	7.1	6.4	4.7	3.7
11	7.8	7.1	5.2	4.1
12	8.7	7.9	5.8	4.6
13	9.8	8.8	6.5	5.1
14	11.0	9.9	7.3	5.7
15	12.3	11.2	8.2	6.5
16	13.5	12.2	9.0	7.1
17	14.9	13.5	9.9	7.8
18	16.1	14.6	10.7	8.4
19	17.4	15.8	11.6	9.2
20	18.9	17.1	12.6	10.0
21	20.4	18.5	13.6	10.7
22	21.9	19.9	14.6	11.5
23	23.6	21.4	15.7	12.4
24	25.5	23.1	17.0	13.4
25	27.2	24.6	18.1	14.3
26	29.1	26.4	19.4	15.3
27	31.4	28.4	20.9	16.5
28	33.9	30.7	22.6	17.8
29	36.5	33.1	24.3	19.1
30	40.1	36.3	26.7	21.2

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

Your actual rate must be checked in the field with the actual herbicide that you are using and at the speed and population at which you will be planting. See "Checking Granular Chemical Application Rate" page for additional information.



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

MACHINE OPERATION

LIQUID FERTILIZER PISTON PUMP APPLICATION RATES GALLONS PER ACRE

Applies To Model LM-2455-R And Model NGP-6055 Piston Pumps
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
16 Row 38"	2.7	5.5	8.2	10.9	13.7	16.4	19.1	21.9	24.6	27.4
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

The chart above 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

38" multiply by 0.79

MACHINE OPERATION

LIQUID FERTILIZER PISTON PUMP APPLICATION RATES GALLONS PER ACRE

Applies To Model LM-2455-R And Model NGP-6055 Piston Pumps
With 18 Tooth Sprocket (Planter Equipped With Two Piston Pumps)

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
16 Row 38"	5.4	11.0	16.4	21.8	27.3	32.8	38.2	43.7	49.1	54.7
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

The chart above 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

38" multiply by 0.79

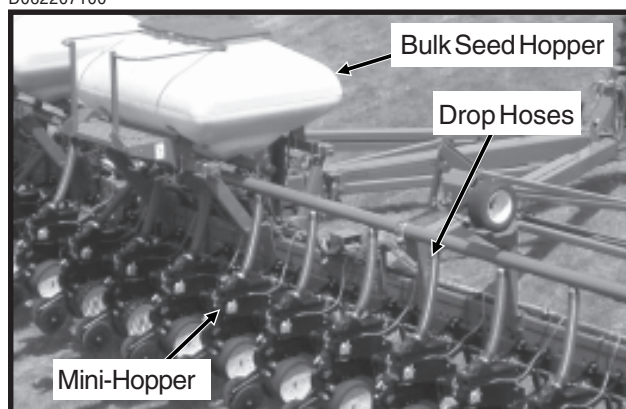
SDS SEED DELIVERY SYSTEM OPERATION

INTRODUCTION

The seed delivery system consists of two bulk seed hoppers with removable lids that each service half of the planter. Approximate capacity of each hopper is 55 bushels for a total of 110 bushels. Seed hoppers are accessible via rear-mounted ladders and access decks. Individual mini-hoppers are filled from the central-mounted seed hoppers with 3 1/2" diameter augers in steel tubes which flex to match wing flex and fold requirements. The auger system is hydraulic driven with two variable speed motors controlled from a cab mounted console. The control console includes two electronic tachometers and switches for master shut-off and variable speed control by section. The system is driven on-demand to ensure constant supply to all rows. Limit switches disable the system when the planter is in folded position.

The mini-hoppers are used in lieu of conventional seed hoppers. The row units and seed meters are the same as used on other KINZE® planters.

D062207100



D10060627



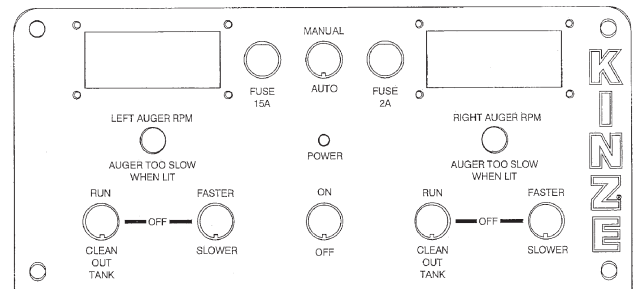
NOTE: After all row outlets are filled to capacity, seed will continue to be evenly distributed to all rows until the bulk seed hopper is empty. When the bulk seed hopper is empty or the auger system is shut off, all drop hoses will “plant out” equally and all rows should run out of seed at approximately the same time.

OPERATION

To operate the Seed Delivery System (SDS) the tractor must be equipped with a closed center hydraulic system.

Position the main power switch on the control console to **ON**. The left and right side of the planter use independent systems that operate the same, except for auger flighting direction. Toggle switches are used to control the auger systems on each half of the planter. To operate, place switches in **RUN** position. Place hydraulic lever in **ON** position. The auger systems will continue to run until they have charged the system. The operator can increase or decrease the speed by utilizing the **FASTER/SLOWER** switches positioned to the right of each **RUN** switch. Auger RPM is displayed for each side using an LCD tachometer. Recommended starting speed is 100 RPM. The operator must adjust for the type and weight of seed and population being planted.

(FWD83)



The outermost drop on each side of the planter is equipped with a proximity sensor that will stop the system when the drop tube is full. When the seed level drops away from the sensor, the system will automatically start after a short time delay (approximately 2 minutes). The augers will then restart and run until the system is fully recharged. If the system does not recharge fast enough, a light on the display will illuminate. Increase the auger RPM to ensure adequate seed availability.

In the event of a sensor failure, the system will not operate. Hold the **MANUAL/AUTO** switch in the **MANUAL** position to override the sensor and run the system. This override is intended **ONLY** for emergency operation until the system can be repaired. An additional shut-off switch (limit switch) on each outboard end is designed to keep the system from stuffing if the proximity sensor fails and the **MANUAL** run switch is engaged too long.

(Continued On Following Page)

SDS SEED DELIVERY SYSTEM OPERATION

(Continued)



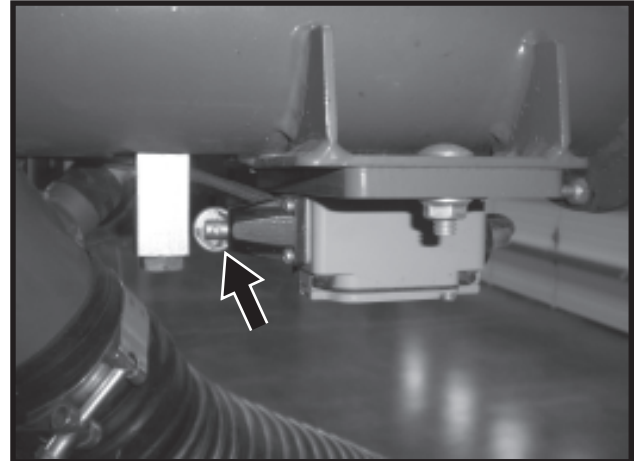
WARNING: ALWAYS use master power switch to turn the system OFF when leaving the tractor operator platform, as the system can start and run at any time if seed demand occurs. Always turn the system OFF before transport. A limit switch on each half of the system at the center of the planter disables the system when the planter is folded.

To empty the bulk seed hoppers, a nipple is provided near the hydraulic motor on each hopper. Connect a 3" hose to each nipple and move the **RUN/CLEANOUT TANK** switch to **CLEANOUT**. To operate toggle lever, pull the toggle lever out and reposition it to the **CLEANOUT** position. The auger below the hopper will run in reverse to empty the hopper. The rest of the system will not run in reverse.

ADJUSTMENT OF LIMIT (SAFETY) SWITCHES AND PROXIMITY SENSORS

LIMIT SWITCHES - LOCATED ON OUTER ENDS OF PLANTER

D11160702

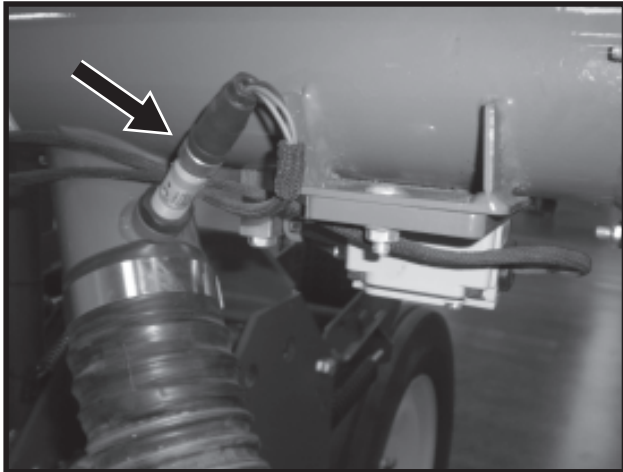


The limit (secondary overload) switches on the outer ends of the auger tubes are connected as normally CLOSED switches. When relaxed (no pressure applied to the roller), they allow current to flow through the switches. A $\frac{1}{8}$ " air gap should be maintained between the switch roller and the actuator arm when all components are in a relaxed state to allow current to pass through the switches. This function can be tested by turning the system ON. While the system is running, carefully pull back the actuator arm until it makes contact with the switch roller. Continue to pull the actuator arm back another $\frac{1}{4}$ ". The system should shut off and then restart when the actuator arm is released. To adjust for $\frac{1}{8}$ " air gap, reposition the switch by loosening the bolts holding the retainer plate, making the adjustment and then retightening.

SDS SEED DELIVERY SYSTEM OPERATION

PROXIMITY SENSORS

D11160703



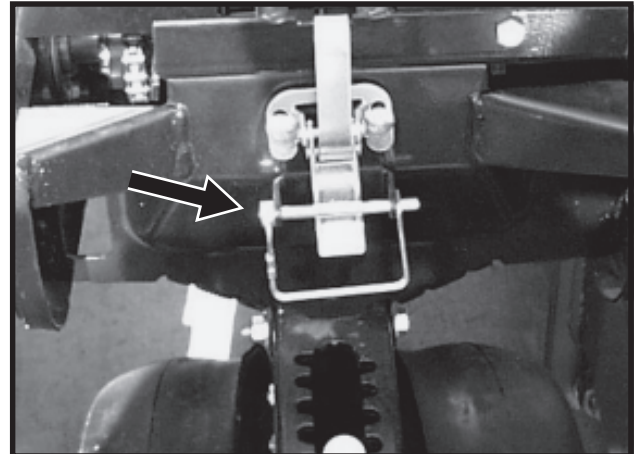
The proximity sensor screws into the outer drop tube at each end of the planter. The tip of the sensor should be approximately $\frac{1}{2}$ " up from the bottom of the deflector pad in the drop tube. When replacing a sensor draw a line on the sensor $1\frac{1}{2}$ " from the sensing tip. Screw the sensor into the drop tube until the line is just below the surface. Rotate the sensor so the indicator light is visible. Tighten the plastic jam nut to prevent the sensor from rotating and vibrating. Be careful not to over tighten the jam nut.

To test the sensor, turn the key ON in the tractor but DO NOT start the tractor. Turn the power switch ON. The control console power light should be illuminated. The sensor light should only be illuminated if it senses seed. Remove the drop hose and pass your finger under the sensor. When your finger passes within 12 mm (approximately $\frac{7}{16}$ ") of the tip of the sensor the indicator light on the sensor should come on. When you remove your finger the light should go out. If the light stays illuminated, try cleaning the sensor with a dry cloth. DO NOT adjust the sensitivity on the sensor without contacting factory service personnel.

MINI-HOPPER LATCH

Due to the pull exerted by the drop hose on the mini-hopper as the row unit moves up and down, a pin is provided to secure the mini-hopper latch.

D041801101



SDS SEED DELIVERY SYSTEM OPERATION

SEED LUBRICATION

The use of powdered graphite is recommended. In addition to the benefits graphite provides the seed meters, graphite will also aid seed flow through the bulk seed auger system. If seed treatments or inoculants that add moisture to the seed are used, talc is recommended along with the graphite. Be sure to test unfamiliar combinations before completely filling the system. Apply any seed treatments, graphite and/or talc alternately in layers with the seed while filling the bulk seed hoppers. The auger system will assist in mixing the seed, seed treatments, graphite and/or talc. For this reason, pre-mixing may not be as critical as with planters equipped with individual seed hoppers.

82354-1e



See “Finger Pickup Seed Meter” and “Brush-Type Seed Meter” in the Row Unit Operation section for additional information.

SDS TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
System does not operate.	No power to main switch.	Check to be sure the main power switch and RUN switch are both ON. Check all fuses.
	Limit switches incorrectly positioned.	Check to make sure limit switches are adjusted correctly.
	Faulty proximity sensor.	Check if proximity sensors are working correctly. Replace if necessary.
	Built-in 2 minute delay.	Wait 2-3 minutes after cycling proximity sensors to determine if system is in TIME DELAY mode.
	No hydraulic flow.	Check to determine tractor hydraulic valve is detented ON (in the correct position) and set for proper flow.
	Auger speed set too low.	Increase auger speed. If set too slow system may stall.

ROW UNIT OPERATION

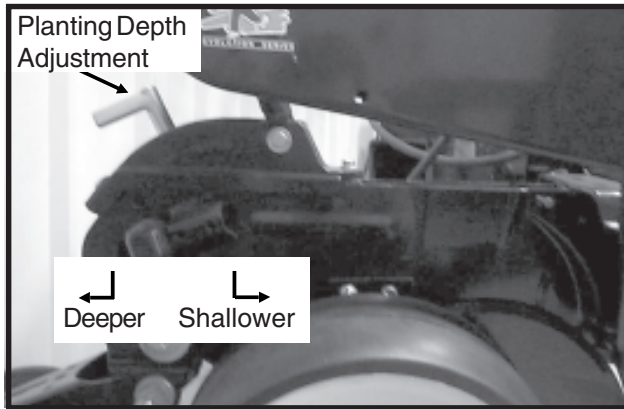
PLANTING DEPTH

Planting depth is maintained by the row unit gauge wheels. To increase or decrease the planting depth, first raise the planter to remove weight from the wheels. Then push down on the depth adjustment handle and reposition it forward to decrease depth or rearward to increase planting depth. Adjust all units to the same setting initially. Then lower the planter and check operation and planting depth of all row units. It may be necessary to readjust some rows to obtain uniform operation. Available depth adjustment range is approximately 1/2" to 3 1/2".



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

D020705102



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

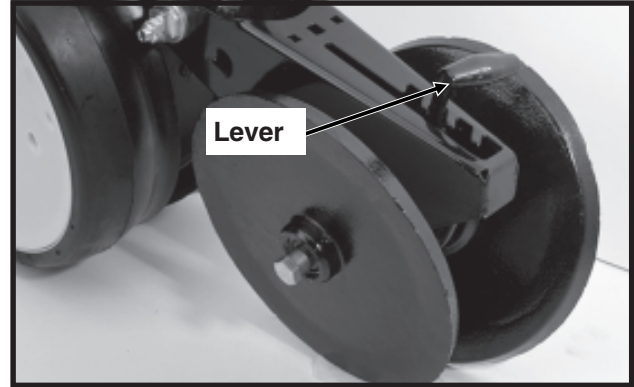


WARNING: Raise planter and install safety lockup devices before making closing wheel adjustments.

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.

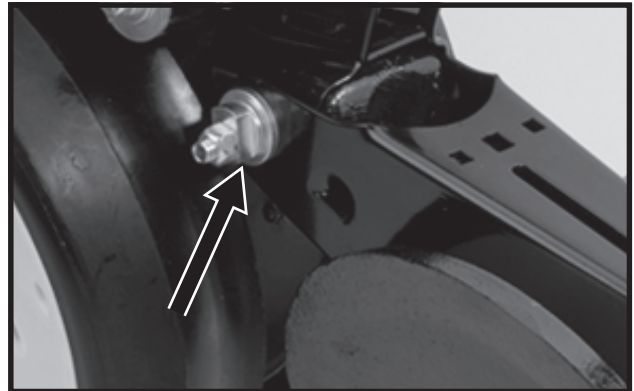
LF212299-15



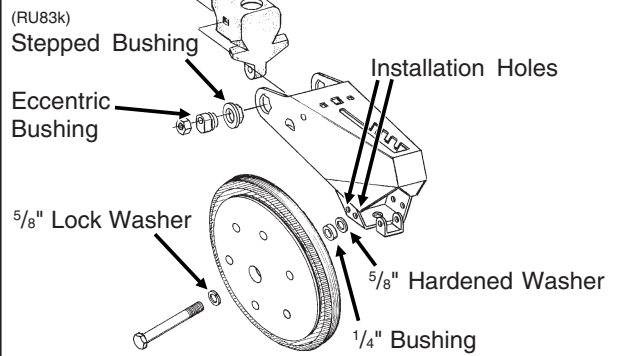
Light soil usually requires less down force at average depth (approximately 2") while heavy soil requires increased down force.

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



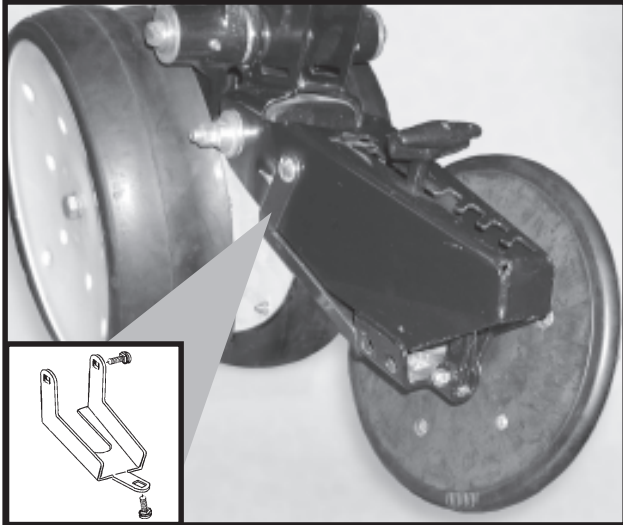
The closing wheels can be installed in two locations either "offset" (to improve residue flow) or "directly" opposite. If set "directly" opposite, the forward installation holes should be used.



ROW UNIT OPERATION

CLOSING WHEEL SHIELD (Rubber And Cast Iron “V” Closing Wheels)

D11090208a



Shown With Closing Wheel Removed For Visual Clarity

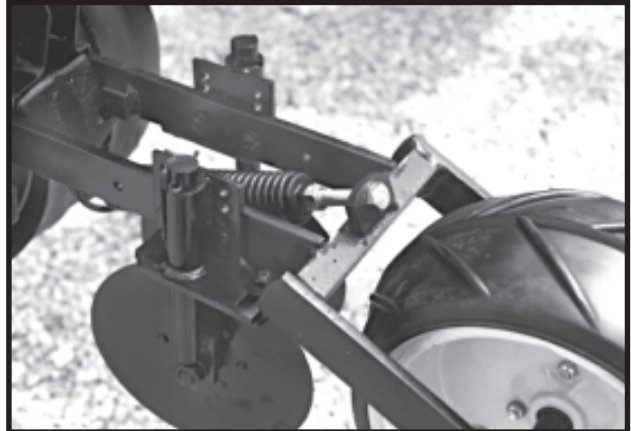
The optional closing wheel shield is designed to be installed onto the underside of the closing wheel arm to help prevent root balls and stalks from plugging the closing wheels.

COVERING DISCS/SINGLE PRESS WHEEL ADJUSTMENT



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

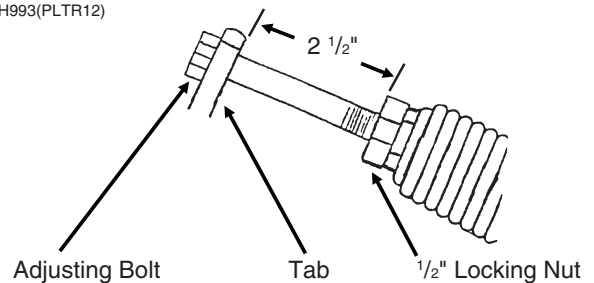
72359-31



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.

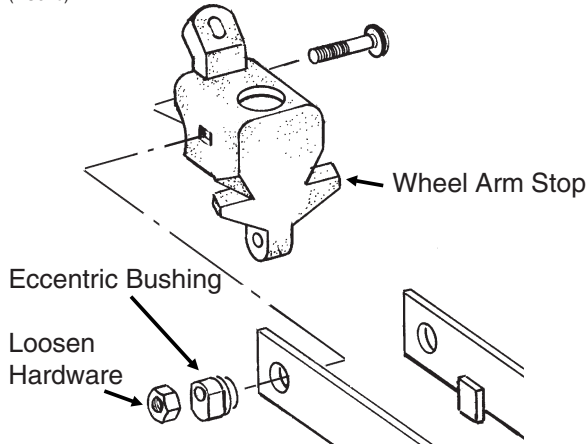
RH993(PLTR12)



ROW UNIT OPERATION

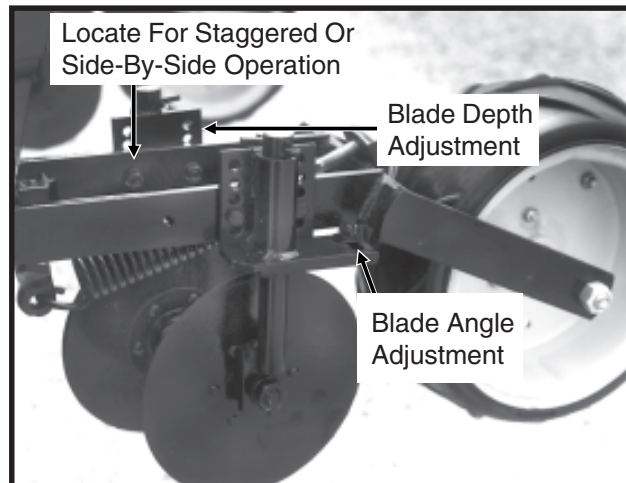
Eccentric bushings in the wheel arm stop allow for lateral adjustment of the covering discs/single press wheel assembly. Using a $\frac{3}{4}$ " wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another $\frac{3}{4}$ " wrench, turn the eccentric bushings until the press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

(RU94b)



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

72359-35



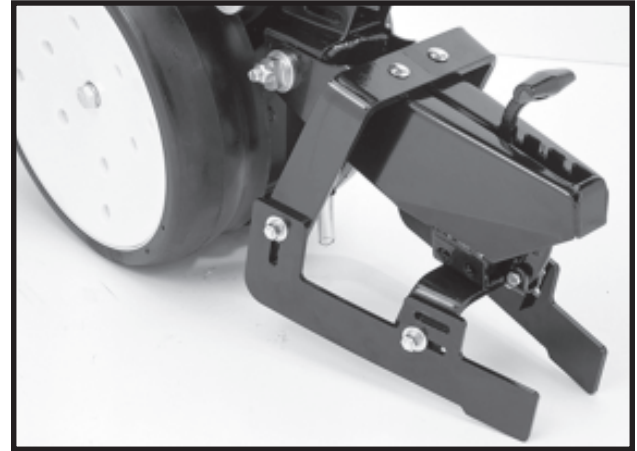
Five sets of holes in each disc bracket allow for $\frac{1}{2}$ " incremental blade depth adjustment.

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

Adjust covering discs on all row units to similar settings.

DRAG CLOSING ATTACHMENT

LF212299-18



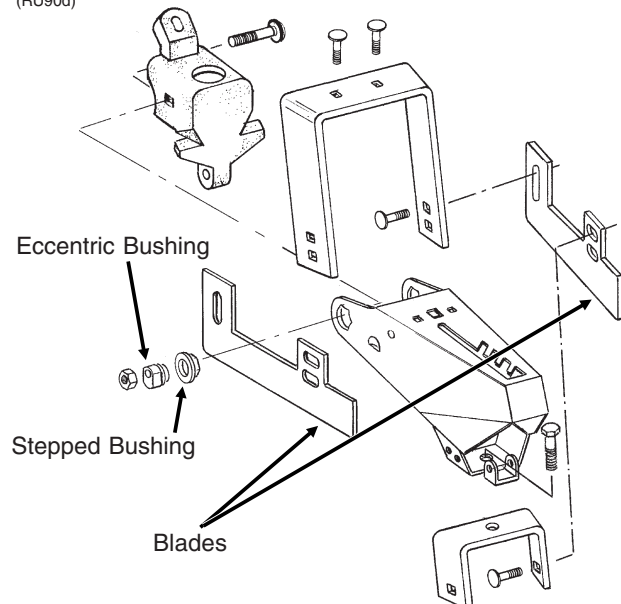
The drag closing attachment is designed to pull loose soil over the seed trench.

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

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

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

(RU90d)



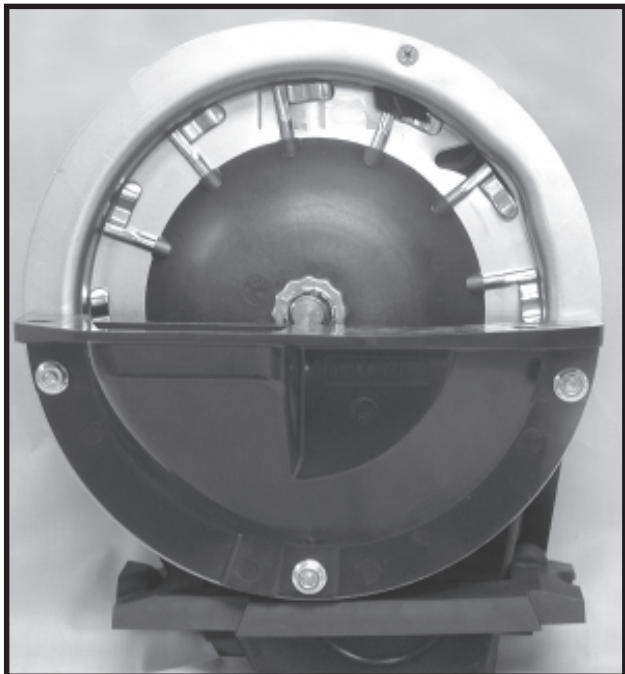
Eccentric bushings allow for lateral adjustment of the drag closing attachment. Using a $\frac{3}{4}$ " wrench, loosen the hardware which attaches the assembly to the wheel arm stop. Using another $\frac{3}{4}$ " wrench, turn the eccentric bushings until the drag closing attachment is aligned with the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

ROW UNIT OPERATION

FINGER PICKUP SEED METER

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

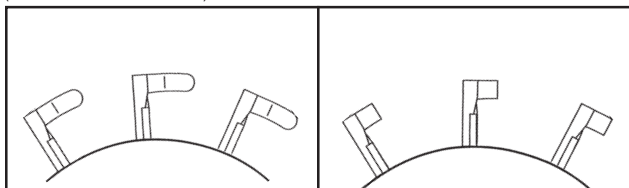
D12220401



Shown With Corn Fingers Installed

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

(PLTR91/PLTR92/PLTR91a)

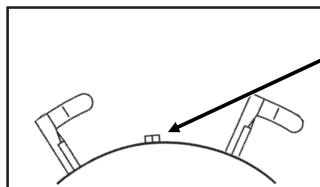


Corn Fingers

Oil Sunflower Fingers

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

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



Half Rate Blank Finger

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

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

ROW UNIT OPERATION

SDS SEED DELIVERY SYSTEM

NOTE: To ensure efficient operation of the finger pickup seed meter and extend the life of its components, powdered graphite should be mixed with the seed twice daily. Use 2 cups per hopper fill. Even distribution of the graphite with the seed is critical with newer seed coatings to provide lubrication for the finger pickup mechanism. Graphite application frequency may need to be increased if using additional seed additives.

NOTE: See “Seed Lubrication” in SDS Seed Delivery System Operation section for additional information.

82354-1e



NOTE: Follow manufacturer’s recommendations when applying and mixing other seed treatments.

CONVENTIONAL SEED HOPPERS

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.

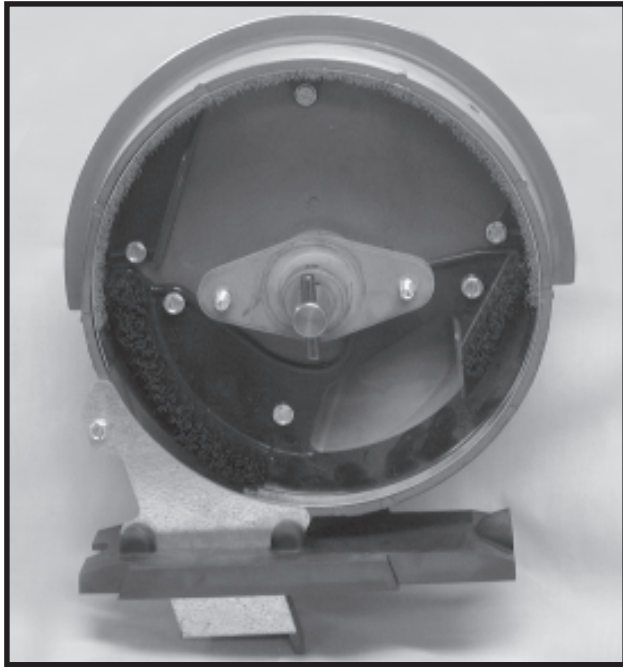
To clean the seed meter, disengage the seed drive and remove the seed hopper and meter. Dump the seed from the right rear corner of the hopper into a container. Turn the seed drive several times. Invert hopper to dump seed again. Shake the hopper and listen for any remaining seed. Turn seed drive and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

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

ROW UNIT OPERATION

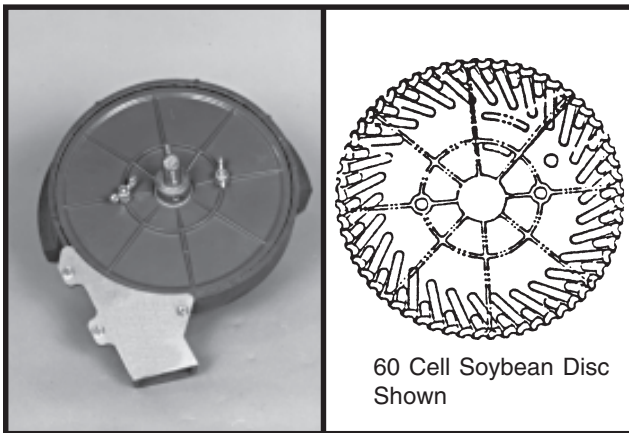
BRUSH-TYPE SEED METER

D12220403



Shown Without Seed Disc Installed

60607-40a(PLTR13)

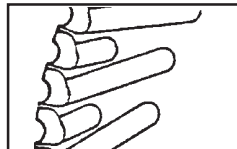


60 Cell Soybean Disc Shown

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

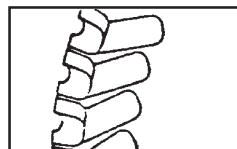
Soybean: 60 cells to meter seed sizes from 2200 to 4000 seeds per pound (Black color-coded).

(PLTR14)



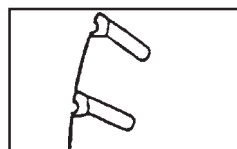
Specialty soybean: 48 cells to meter seed sizes from 1400 to 2200 seeds per pound (Dark blue color-coded).

(PLTR15)



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

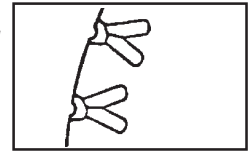
(PLTR16)



Large milo/grain sorghum:

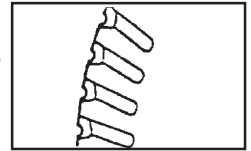
30 cells to meter seed sizes from 10,000 to 16,000 seeds per pound (Light blue color-coded).

(PLTR17)



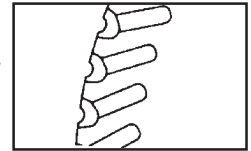
High-rate small milo/grain sorghum:

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



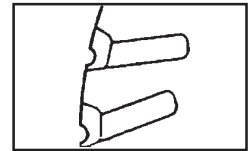
High-rate large milo/grain sorghum:

60 cells to meter seed sizes from 10,000 to 14,000 seeds per pound (Yellow color-coded). (PLTR19)



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

(PLTR20)



Large cotton, acid-delinted:

36 cells to meter seed sizes from 3800 to 4400 seeds per pound (Tan color-coded).

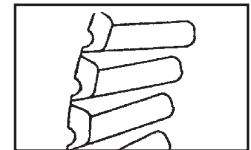
(PLTR21)



High-rate cotton, acid-delinted:

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

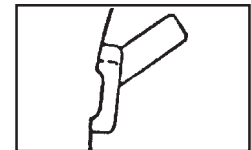
(PLTR22)



Hill-drop cotton, acid-delinted:

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

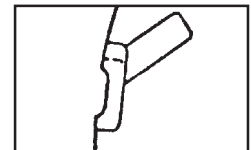
(PLTR23)



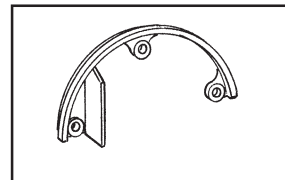
Small hill-drop cotton, acid-delinted:

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

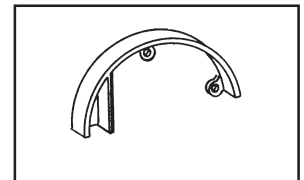
(PLTR23)



(RU14c)



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



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

ROW UNIT OPERATION

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

The brush-type seed meter attaches to the mini-hopper in the same manner as the finger pickup seed meter. Secure to bottom of mini-hopper/seed hopper with two $\frac{5}{16}$ " thumbscrews. Tighten thumbscrews slightly with pliers. **DO NOT OVER TIGHTEN.**

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

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

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.

SDS SEED DELIVERY SYSTEM

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

82354-1e



SDS SEED DELIVERY SYSTEM (Continued)

Powdered graphite should be added with the seed each time the bulk seed hopper are filled. Use 2 cups per hopper fill. Graphite should be added in layers as the bulk seed hoppers are filled. The use of powdered graphite will prolong the life of the seed meter components, reduce buildup of seed treatment on components in the meter and improve seed spacing.

Talc seed lubricant may be used in lieu of or in addition to graphite to reduce seed treatment buildup on bulk fill auger system components, seed discs and other meter components and will improve meter performance. Coat seed discs and brushes with talc before installing meters. Fill each bulk hopper $\frac{1}{2}$ full of seed, add 4 $\frac{1}{2}$ cups of talc and mix thoroughly. Finish filling bulk seed hoppers, add another 4 $\frac{1}{2}$ cups of talc. 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 additional talc to prevent seed treatment buildup on auger bristles, seed discs and/or meter brushes.

NOTE: Some liquid seed treatments or inoculants may create buildup on seed discs or brushes. Check frequently for proper population and/or seed delivery when using any liquid seed treatment.

All seed treatment should be thoroughly mixed with the seed per the manufacturers' recommendations. Seed treatment dumped on top of the seed after the hopper is filled, and not mixed properly will cause bridging of the seed in the meter, reducing population or stopping the meter from planting. Additional graphite or talc may be required to retard buildup of seed treatments on meter components.

NOTE: See "Seed Lubrication" in SDS Seed Delivery System Operation section for additional information.

ROW UNIT OPERATION

CONVENTIONAL SEED HOPPERS

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

D05300104b



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

NOTE: Additional graphite or talc may be required to retard buildup of seed treatments on meter components. Frequency of monitor seed tube cleaning may be affected due to use of additional graphite or talc.

Talc seed lubricant may be used in lieu of or in addition to graphite to reduce seed treatment buildup on seed disc and meter components. Coat seed disc and brushes with talc before installing meter. Fill hopper $\frac{1}{2}$ full of seed, add $\frac{1}{4}$ cup of talc and **mix thoroughly**. Finish filling hopper, add another $\frac{1}{4}$ cup of talc and **mix thoroughly**. Adjust rate of talc use as needed so all seeds are coated, while avoiding a buildup of talc in the bottom of the hopper. Humid conditions and/or small sized seeds with extra seed treatment may require as much as one cup of talc per hopper to prevent seed treatment buildup on seed disc and/or brushes.

CONVENTIONAL SEED HOPPERS (Continued)

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

SEED METER CLEANOUT (Conventional Seed Hoppers)

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 brush-type meter to ensure all seed is removed. Replace seed disc, install wing nuts and reposition and latch seed hopper/meter on row unit. Follow similar procedure with finger pickup meters, turning metering mechanism to ensure meters are emptied.

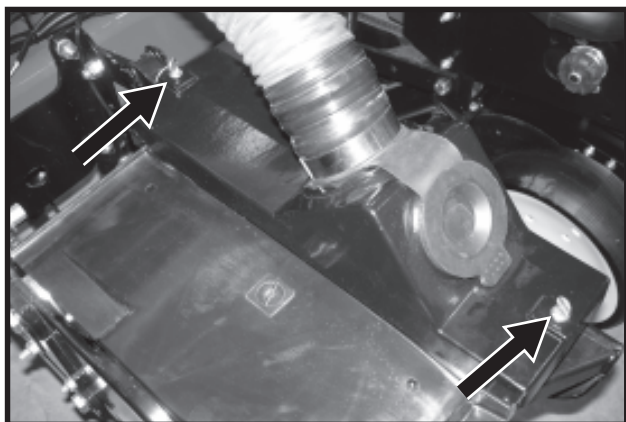
ROW UNIT OPERATION

SEED METER CLEANOUT (SDS Seed Delivery System)

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

To clean the seed meter, remove the thumbscrews on top of the mini-hopper lid and remove the mini-hopper lid.

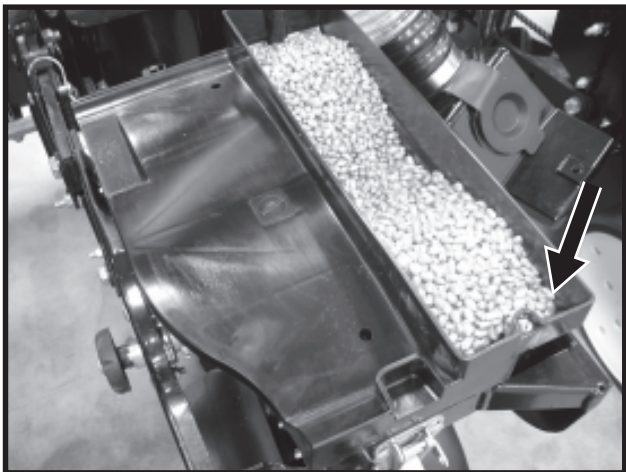
D01030701



Disengage the seed drive and remove the seed mini-hopper and meter.

Dump the seed from the right rear corner of the mini-hopper into a container.

D01030705



Remove seed disc by loosening wing nuts. Empty the meter. Thoroughly inspect brushes in brush-type meter to ensure all seed is removed. Replace seed disc, install wing nuts and reposition mini-hopper/meter on row unit. Secure in place with latch and retaining clip.

ROW UNIT OPERATION

SEED HOPPER

LF212199-7a



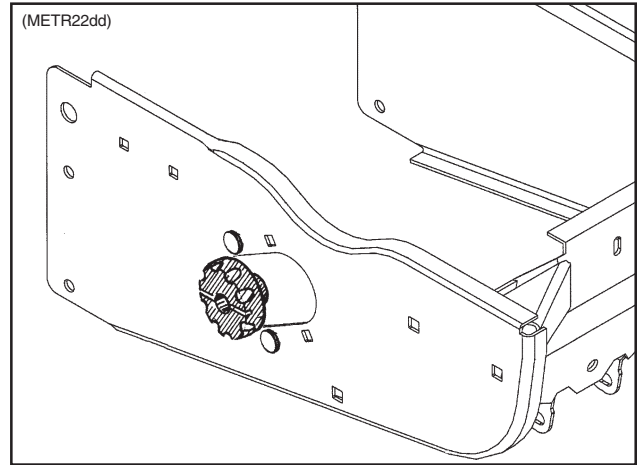
The seed hopper has a capacity of 1.9 bushels.

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

Periodically empty the hoppers completely to remove any foreign material 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

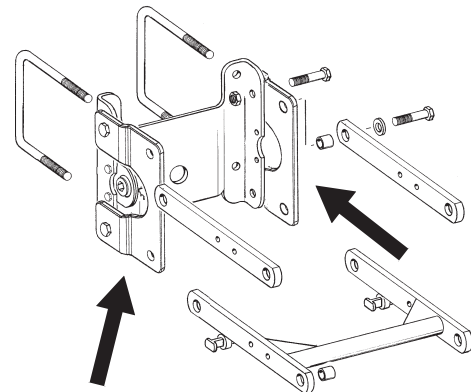
The seed meter drive is equipped with a clutch release mechanism that allows the drive to be disengaged from the seed metering unit for removal of the seed hopper. Disconnecting the drive allows the operator to check granular chemical application rates without dropping seed. It also allows one or more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



To disengage the drive, turn the knob 1/4 turn counter-clockwise. To engage the drive, turn the knob 1/4 turn clockwise.

ROW UNIT EXTENSION BRACKETS

(RU145)



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.

ROW UNIT OPERATION

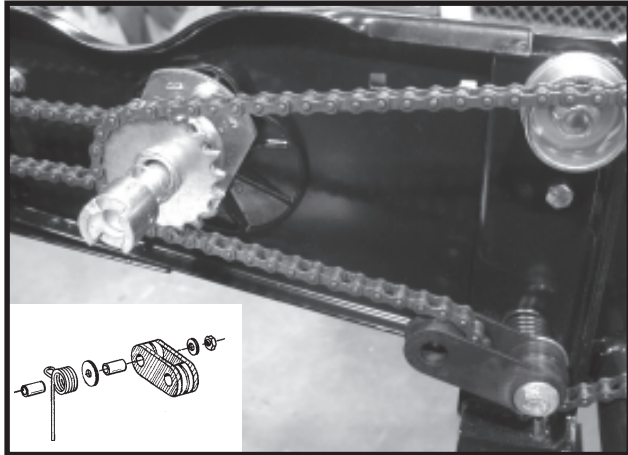
ROW UNIT CHAIN ROUTING

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

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

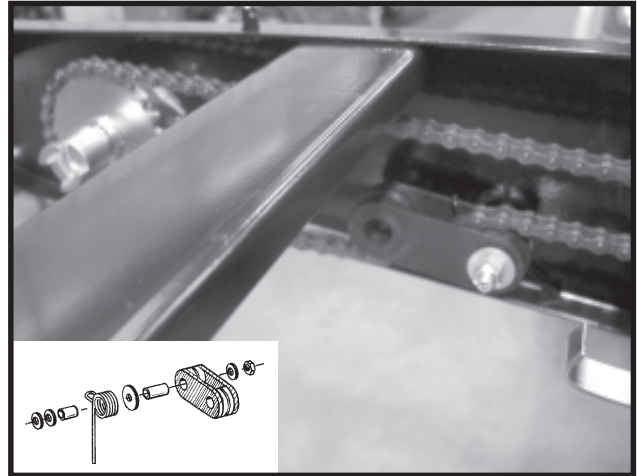
NOTE: When idler shows signs of wear, it can be reversed for prolonged use.

D051705103



Pull Row Unit Meter Drive

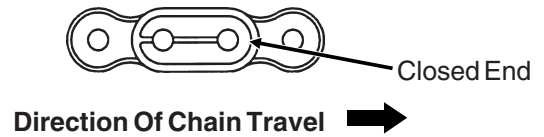
D051705102



Row Unit Granular Chemical Drive

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

(PLTR24)



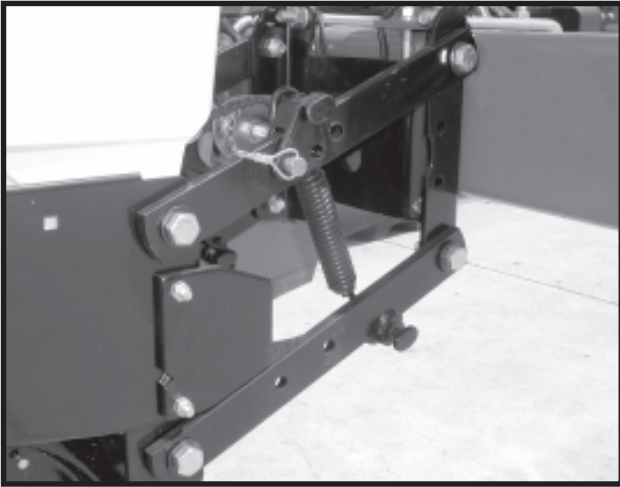
ROW UNIT OPERATION

QUICK ADJUSTABLE DOWN FORCE SPRINGS

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

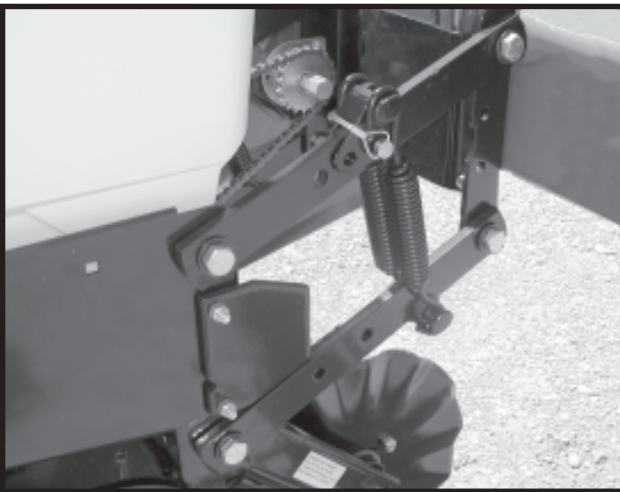
Two springs per row, one on the L.H. parallel arms and one on the R.H. parallel arms, are used unless equipped with row unit mounted no till coulters. Four springs per row are used with row unit mounted no till coulters.

D06300305



Two Springs Per Row (Dual)

D07010301

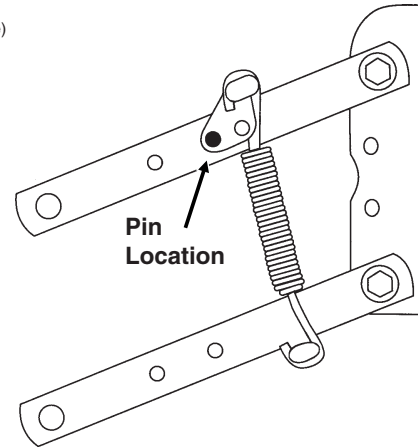


Four Springs Per Row (Quad)

NOTE: Four springs per row are to be used with row unit mounted no till coulters only.

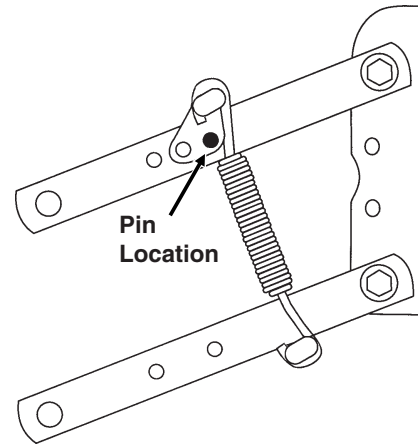
There are four positions for spring tension adjustment. Position 1 allows for minimum down pressure and position 4 for maximum down pressure.

L0096(PLTR27e)



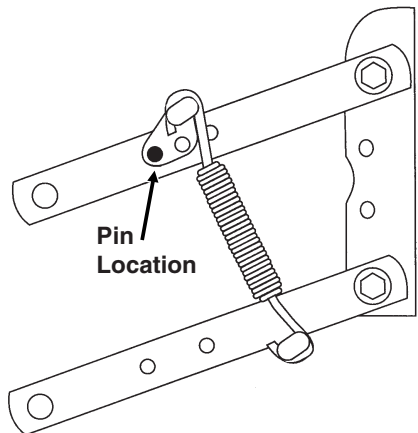
Position 1 (Minimum)

(PLTR28e)



Position 2

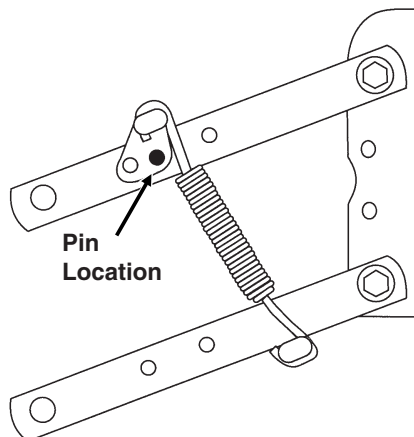
(PLTR29e)



Position 3

ROW UNIT OPERATION

(PLTR30e)



Position 4 (Maximum)

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

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



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

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

ROW UNIT OPERATION

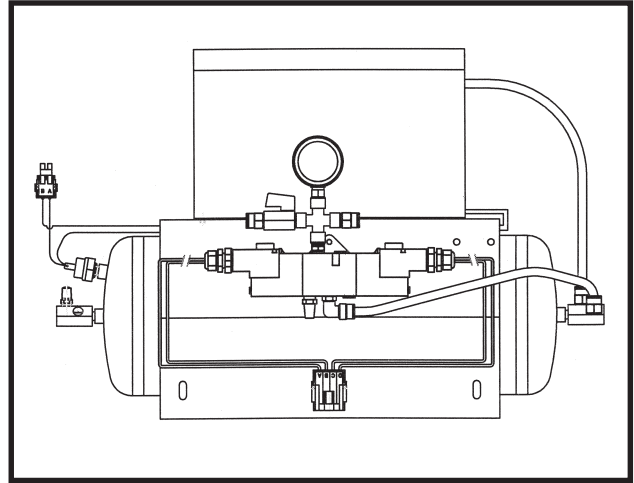
PNEUMATIC DOWN PRESSURE PACKAGE

With pneumatic down pressure option, the operator can vary row unit down pressure on-the-go as field conditions change. A cab-mounted digital readout displays down force (lbs.) applied. A planter-mounted 12 VDC air compressor, with 3 gallon capacity air tank, supplies air for the down pressure system.

Packages also include upper and lower air spring mounting castings for pull row units, 150 psi rated air springs, $\frac{3}{8}$ " O.D. nylon hoses, dual solenoid air valve and stainless steel, 160 psi, 2" liquid-filled gauge and planter wiring harness.

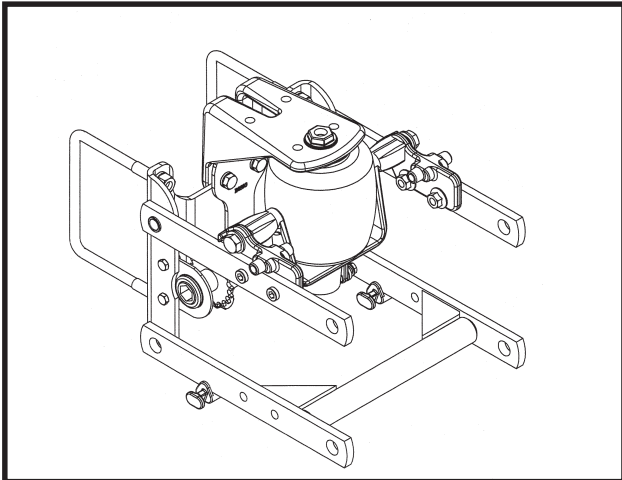
Pneumatic down pressure row unit extension brackets are required in some applications.

(PNE01)



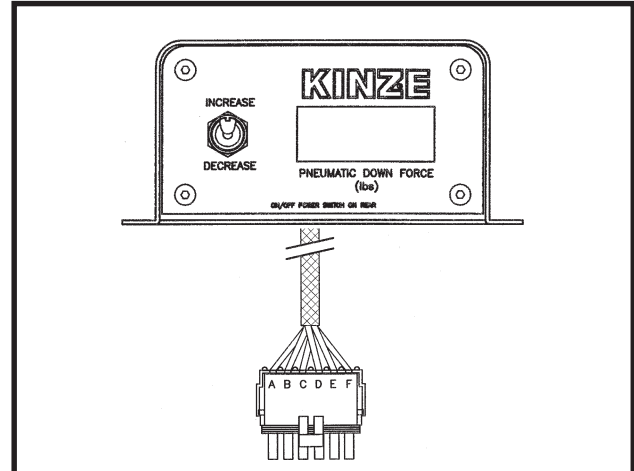
Air Compressor With Dual Solenoid Assembly

(PNE07)



Pull Row Unit Air Spring

(A12644a)

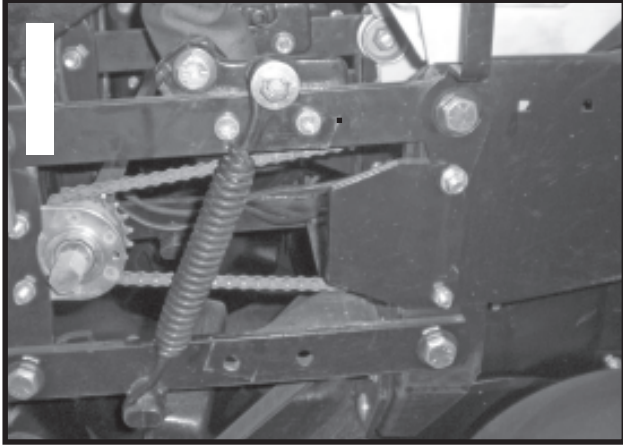


Control Console Assembly

ROW UNIT OPERATION

NOTE: If additional down pressure is needed with the Pneumatic Down Pressure Package, assist springs are available through your KINZE® dealer. One spring is installed on the outer side of the parallel arms on each side of the row unit as shown below.

D11280753a



Pull Row Unit Assist Springs

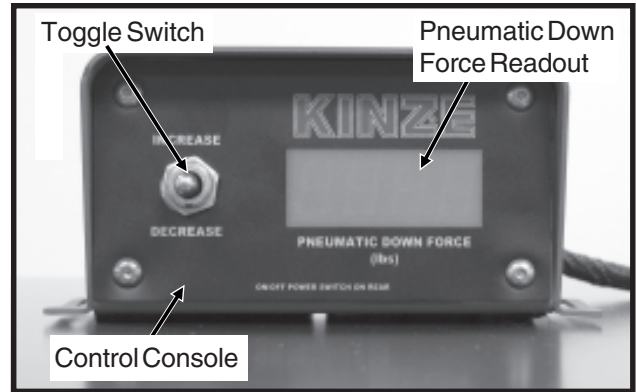


WARNING: Always install all safety lockup devices or lower planer to the ground before working under or around the machine.

FIELD OPERATION

NOTE: For the most accurate adjustment, adjust down pressure with planter lowered and row openers in the ground. Pressure can be adjusted from tractor using the control console, or at planter using the manual control valves.

D112907101



To adjust down pressure from cab:

To INCREASE pressure, push toggle switch up.

To DECREASE pressure, push toggle switch down.

The readout value on the control console is pounds of down pressure force.

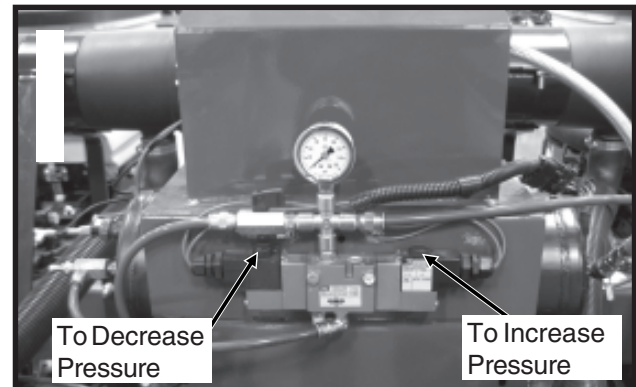
To adjust down pressure from planter:

To INCREASE pressure, press and hold button on solenoid as shown below.

To DECREASE pressure, press and hold button on solenoid as shown below.

The readout value on the air pressure gauge is NOT the down pressure force value. To calculate the force value, multiply the air pressure (PSI) by four (4).

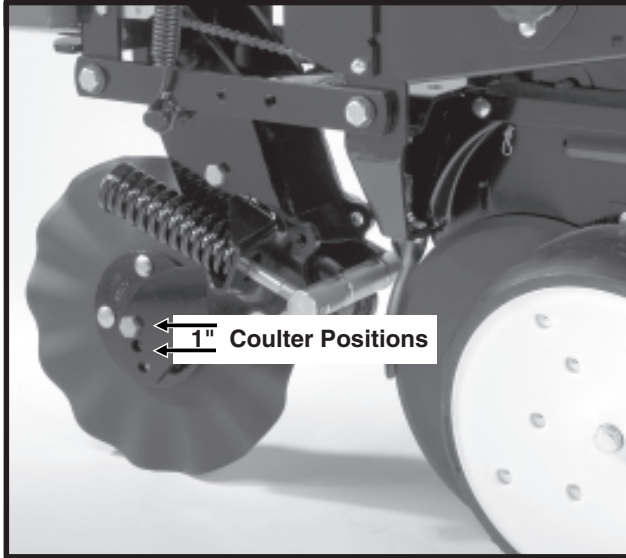
D112907100



ROW UNIT OPERATION

FRAME MOUNTED COULTER

LF083002101

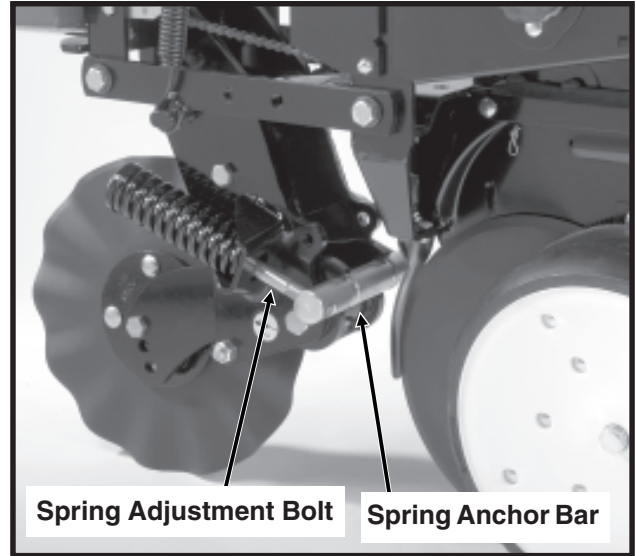


Frame mounted coulters with 1" bubbled, 1" fluted (8 flutes) or 3/4" fluted (13 flutes) blades may be used on pull row units only. (Not compatible with push row units.)

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

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

LF083002101



DOWN PRESSURE ADJUSTMENT

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

Down force on the blade is shown below in lbs.

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

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

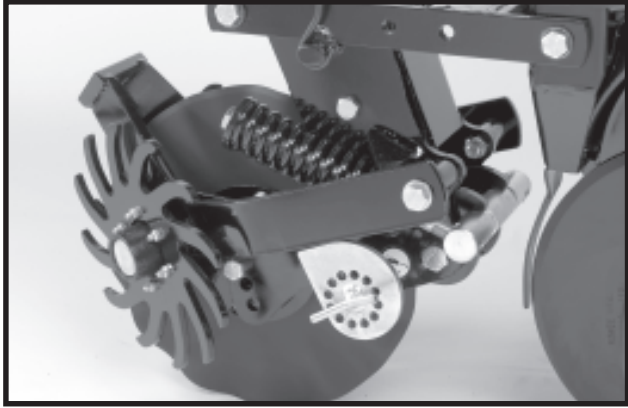
ROW UNIT OPERATION

RESIDUE WHEELS

(For Use With Frame Mounted Coulter)

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

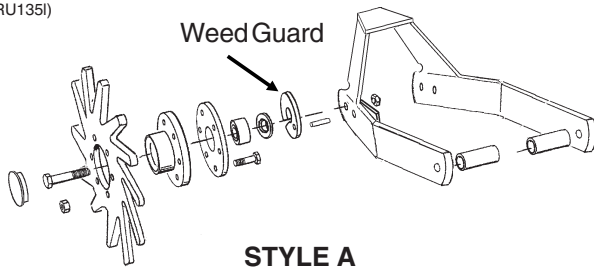
LF083002102



STYLE A Shown

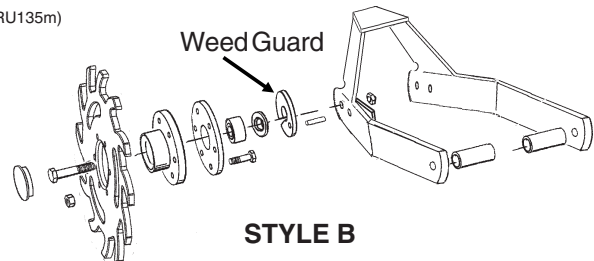
The residue wheels are attached to the frame mounted coulter with two cap screws and sleeves allowing the unit to free-float. A 2-position spindle bolt mounting allows the tined wheels to be mounted interlocked or staggered. Depth adjustment is made using a spring-loaded cam and pin with 11 positions in $\frac{1}{4}$ " increments. A high point on the cam allows the wheels to be locked up so they do not contact the ground. A weed guard, located on the inboard side of each wheel, aids in the prevention of weed wrap which can cause premature bearing failure.

(RU135i)



STYLE A

(RU135m)



STYLE B

NOTE: Opening in weed guard must point down.

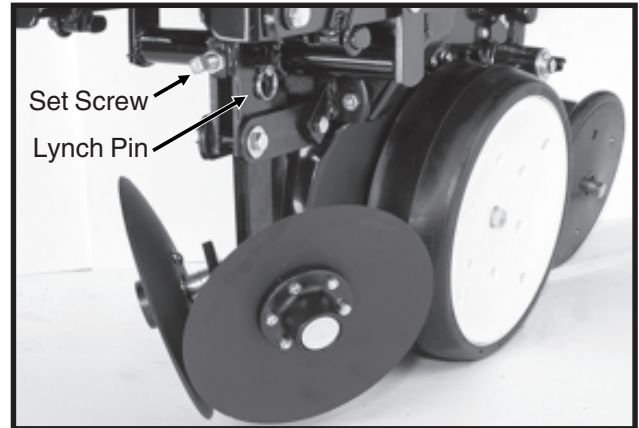
IMPORTANT: The forward mounting positions of the tined wheels can not be used on the four rows behind the axle on the 3500/3600 machine, due to inadequate clearance.

ROW UNIT MOUNTED DISC FURROWER

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

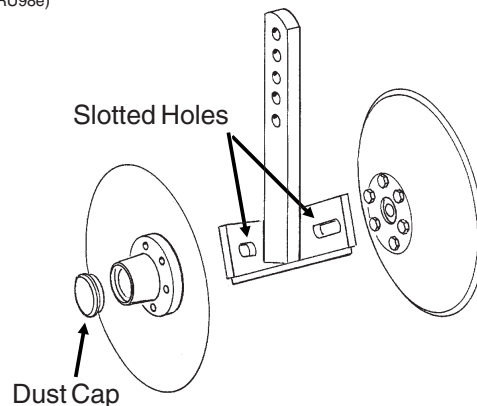
Disc furrowers are used to clear crop residue, dirt clods and dry soil from in front of the row units for a clean and smooth seed bed. Notched blades are used for heavier residue conditions. The notched blades cut crop residue and move it aside to prevent plugging or pushing.

LF212299-22



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

(RU98e)



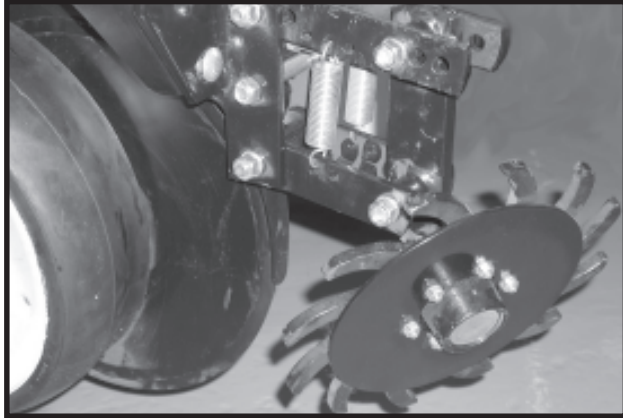
Slotted holes in the support arm where the blades are mounted allow fore and aft adjustment of the disc blades. Blades can be adjusted so the front edges meet or one blade can be moved to the rear and the other to the front of the slot so the cutting edge of one blade overlaps the edge of the other blade.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

ROW UNIT OPERATION

ROW UNIT MOUNTED RESIDUE WHEEL

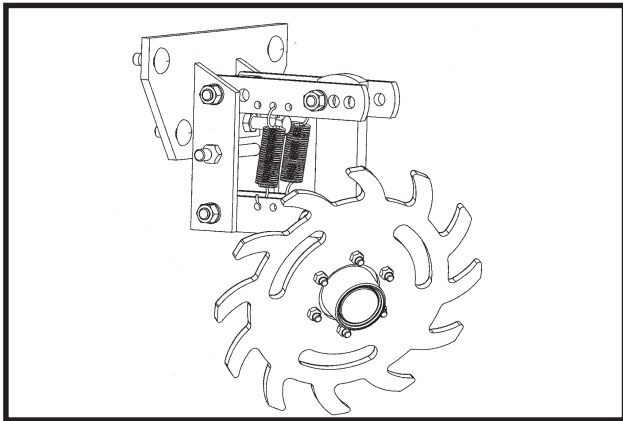
The row unit mounted residue wheel may be used on pull row units and push row units.

D101701113



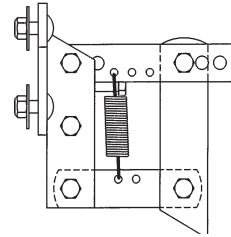
STYLE A

(A12685)

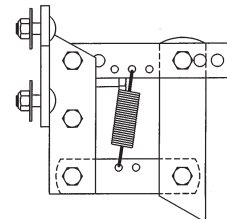


STYLE B

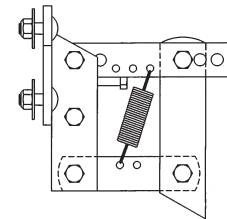
Two adjustable springs on the parallel links on each residue wheel allow for down force adjustment. Position 1 as shown below provides minimum down pressure and position 3 maximum down pressure.



Position 1 (Minimum) (PLTR31a)



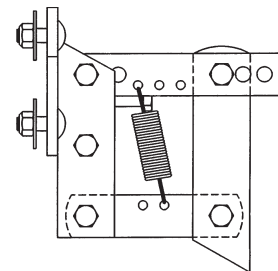
Position 2 (PLTR32a)



Position 3 (Maximum) (PLTR33a)

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

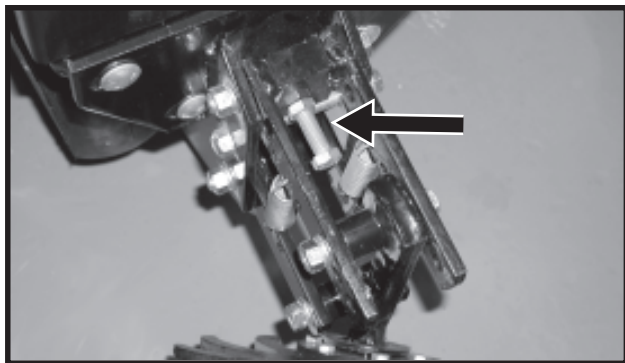
(PLTR34a)



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

ROW UNIT OPERATION

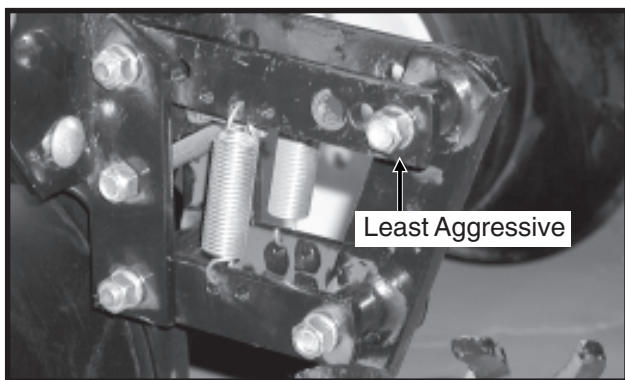
D101701112



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 $1 \frac{3}{4}$ " above the depth of the row unit double disc opener.

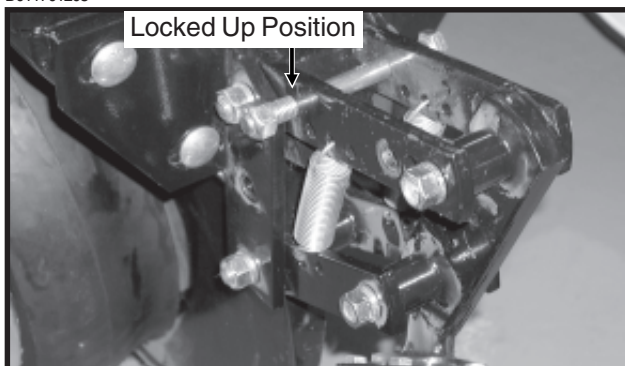
Three holes in the upper link allow for wheel angle adjustment. With the wheel mount in the most vertical position, using the rear hole in the upper link, the residue wheel is most aggressive. Moving the wheel mount to one of the forward holes reduces the aggressiveness of the wheel for use in mulch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

D101701202



To lock the residue wheel up out of the ground, remove the $\frac{1}{2}$ " x 5" lockup bolt, raise the residue wheel and install bolt.

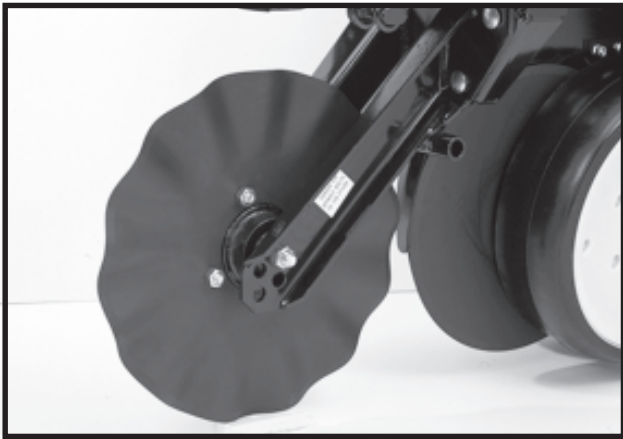
D011701203



ROW UNIT OPERATION

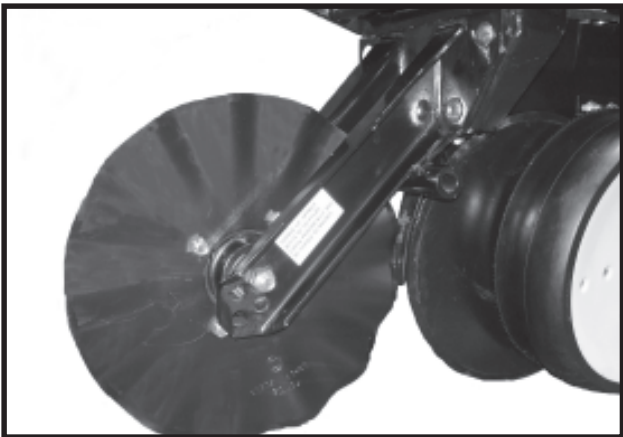
ROW UNIT MOUNTED NO TILL COULTER

LF212299-19a



STYLE A (Two Sleeves For Installing Coulters Mounted Residue Wheels)

D05170706a



STYLE B (One Sleeve For Installing Coulters Mounted Residue Wheels)

Row unit mounted no till coulters with 1" bubbled, 1" fluted (8 flutes) or $\frac{3}{4}$ " fluted (13 flutes) blades may be used on pull row units and push row units. ($\frac{3}{4}$ " fluted shown)

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

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

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

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

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

ROW UNIT OPERATION

COULTER MOUNTED RESIDUE WHEELS

LF212299-23



STYLE A - Used With Style A Row Unit Mounted No Till Coulters

D05170708a

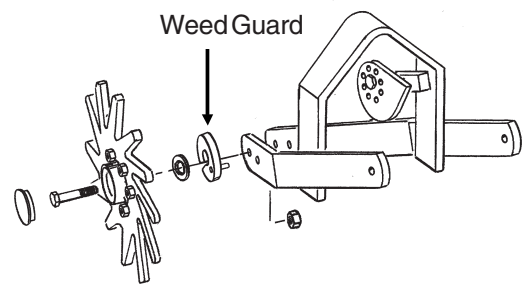


STYLE B - Used With Style B Row Unit Mounted No Till Coulters

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

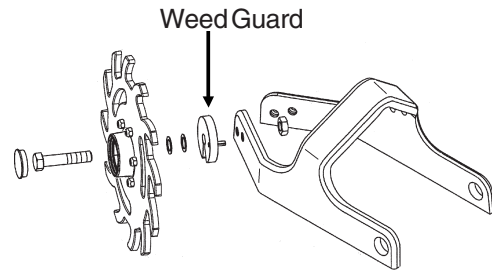
The coulters mounted residue wheels are attached to the row unit mounted no till coulters with one cap screw and sleeve allowing the unit to free-float. A 2-position spindle bolt mounting allows the tined wheels to be mounted interlocked or staggered. A lock nut on the inside of the mount locks the spindle cap screw. 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.

(RU104tt)



STYLE A

(RU153a)



STYLE B

NOTE: Opening in weed guard must point down.

ROW UNIT OPERATION

GRANULAR CHEMICAL HOPPER AND DRIVE

LF212299-6



The granular chemical hopper has a 1.4 cubic feet capacity.

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

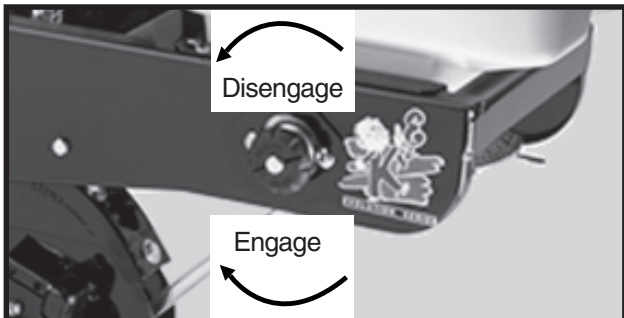
The metering gate located on the bottom of the hopper regulates the application rate. See "Dry Insecticide And Dry Herbicide Application Rate Charts" in this manual. Calibrate using the chemical manufacturers' instructions.



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

The granular chemical clutch drive coupler and meter shaft can be disengaged and engaged by turning the throwout knob located at the rear of the hopper support panel. To engage the drive, turn the knob 1/4 turn clockwise. To disengage the drive, turn the knob 1/4 turn counterclockwise. Slotted holes in the hopper support panel and clutch housing allow for alignment adjustment between the clutch drive coupler and meter shaft.

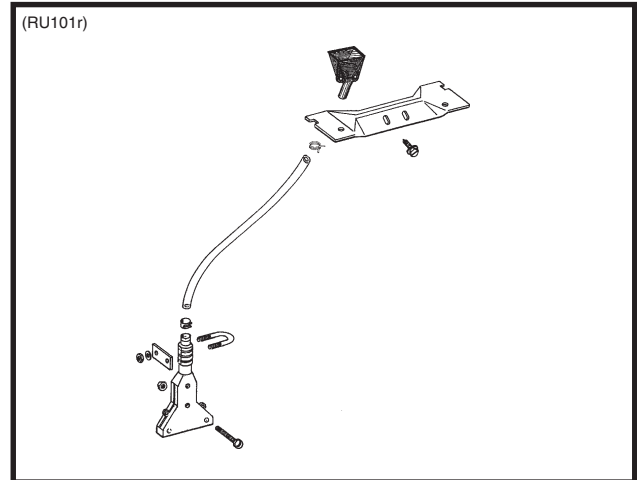
LF212299-4



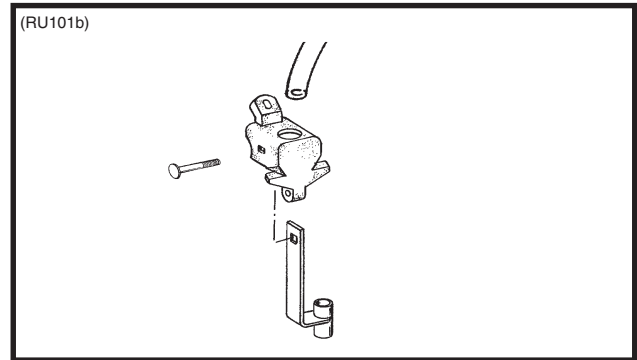
GRANULAR CHEMICAL BANDING OPTIONS

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

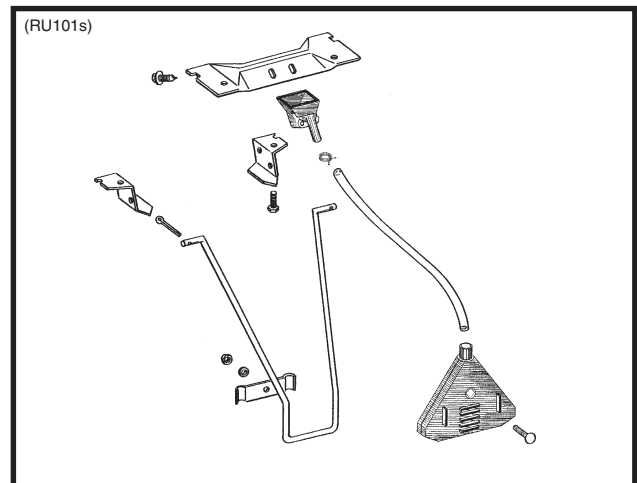
NOTE: The granular chemical rear bander is not compatible with the covering discs/single press wheel option.



4 1/2" Slope-Compensating Bander



Straight Drop In-Furrow Placement



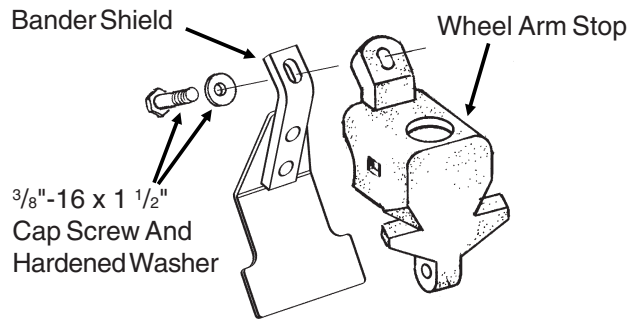
14" Rear Banding

ROW UNIT OPERATION

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)

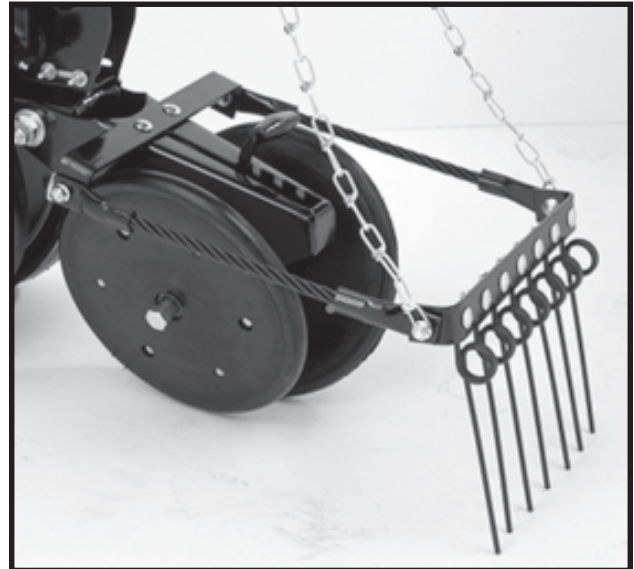


SPRING TOOTH INCORPORATOR

The spring tooth incorporator smooths the soil behind the row unit and incorporates granular chemicals. The two mounting chains on each spring tooth incorporator should be adjusted so there is approximately 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



ROW UNIT OPERATION

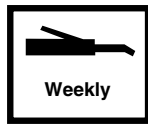
LUBRICATION

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



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

LUBRICATION SYMBOLS



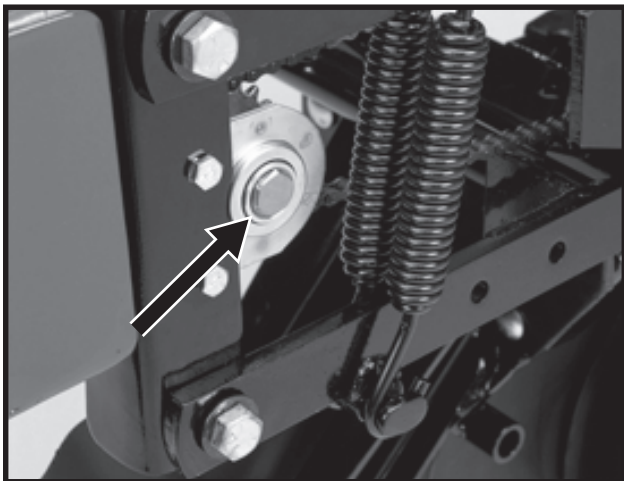
Lubricate at frequency indicated with an SAE multipurpose grease.



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

SEALED BEARINGS

LF212199-3

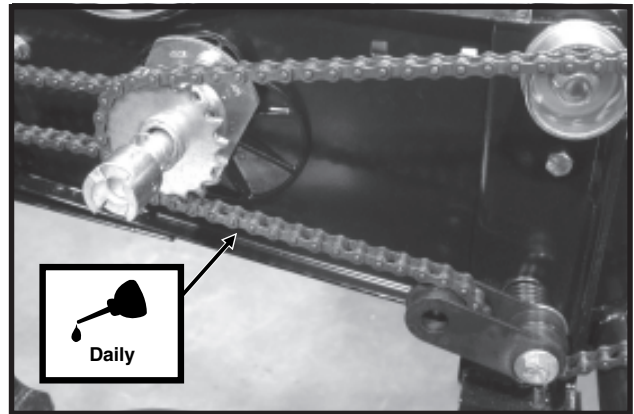


A number of sealed bearings are used on your KINZE® planter to provide trouble free operation. These are located in such areas as the drive shaft, row units and transmission bearings. Sealed bearings are lubricated for life. Due to the seals, relubrication is not practical.

DRIVE CHAINS

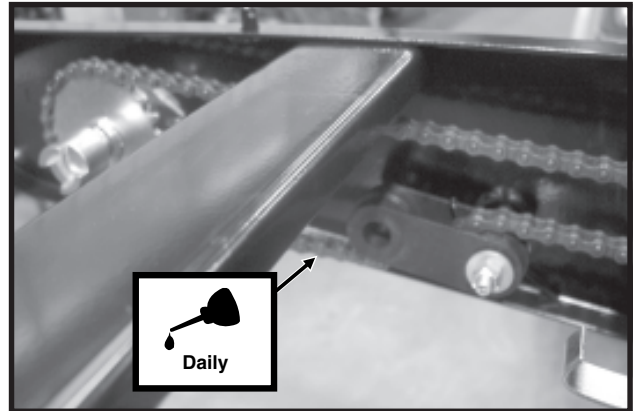
All transmission and drive chains should be lubricated daily with a high quality chain lubricant. Extreme operating conditions such as dirt, temperature or speed may require more frequent lubrication. If a chain becomes stiff, it should be removed, soaked and washed in solvent to loosen and remove dirt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

D051705103



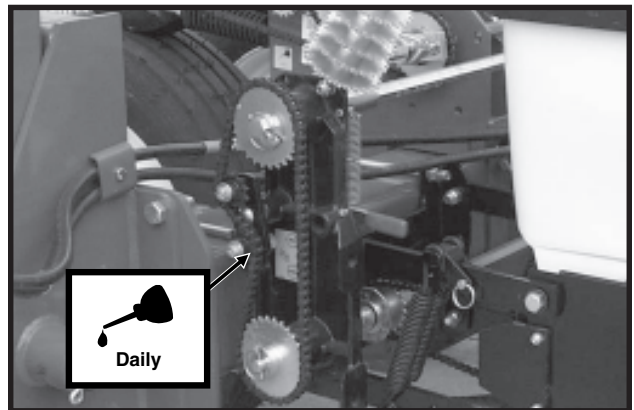
Pull Row Unit Drive Chains

D051705102



Row Unit Granular Chemical Drive Chains

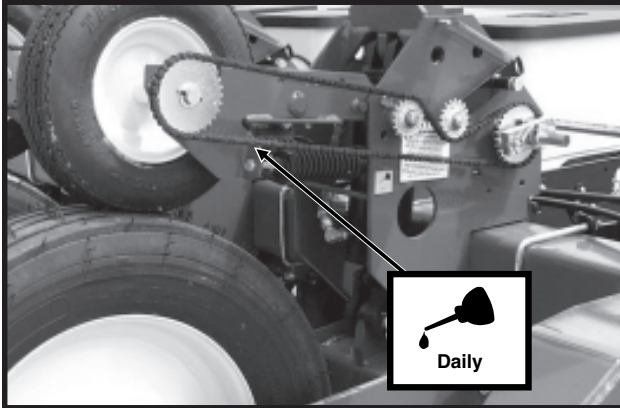
D07279946



Transmission Chains

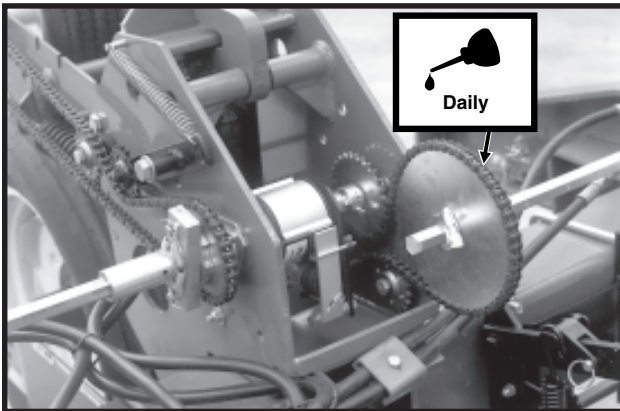
LUBRICATION

D07279949



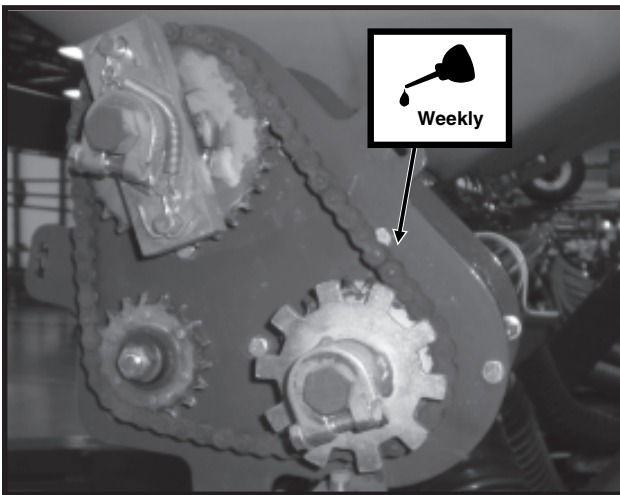
Contact Wheel Drive Chains

82378-18a



Inner Module Drive Chains

D12030701



SDS Drive Chains

WRAP SPRING WRENCH ASSEMBLY

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

D101303102



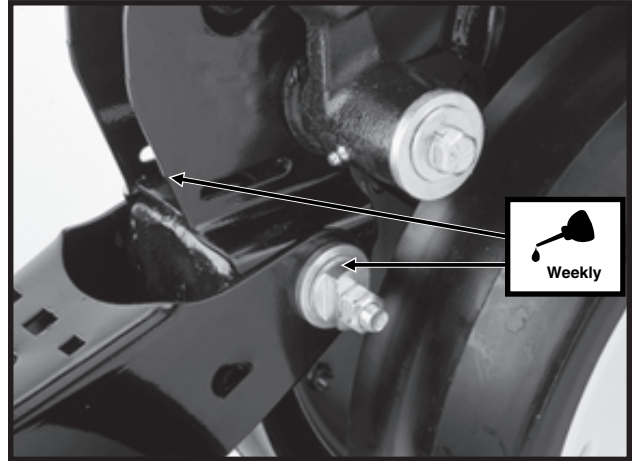
LUBRICATION

BUSHINGS

Lubricate bushings at the frequency indicated.

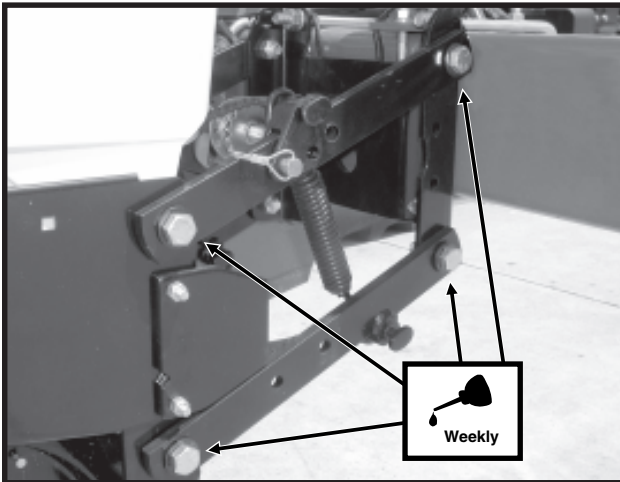
Using a torque wrench, check each bolt for proper torque. If bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushing if necessary. **Only hardened flat washers should be used. Replace damaged flat washers with proper part. Torque hardware to 130 ft. lbs.**

LF212199-2



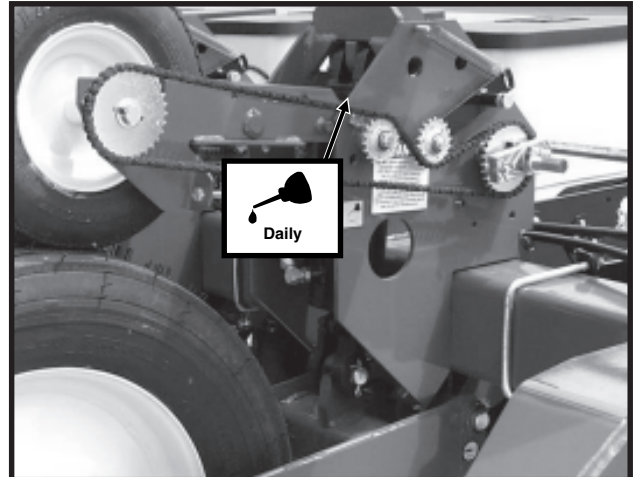
Row Unit "V" Closing Wheel, Covering Discs/
Single Press Wheel And/Or Drag Closing Wheel
Eccentric Bushings
(2 Per Row)

D06300305



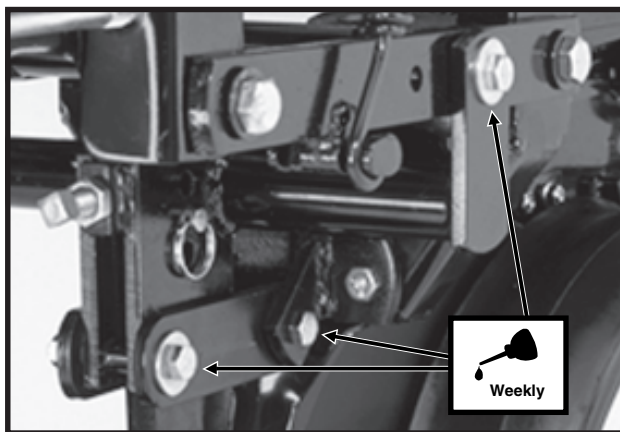
Pull Row Unit Parallel Linkages (8 Per Row)

D07279949



Contact Drive Wheel Arm (2 Per Wheel Assembly)

LF212299-22



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

LUBRICATION

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.

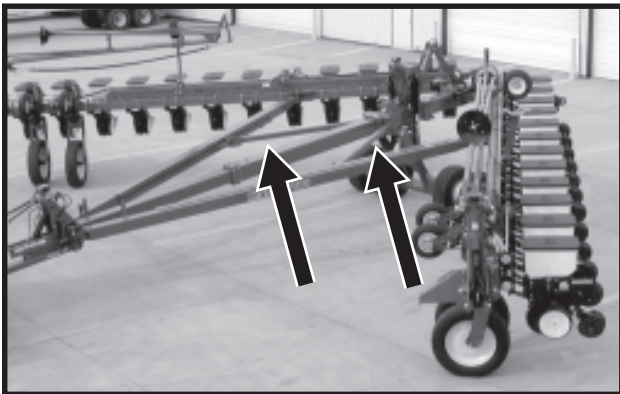
All wheel bearings should be repacked annually and checked for wear. This applies to all drive wheels, transport wheels and marker hubs.

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 Maintenance section.

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)

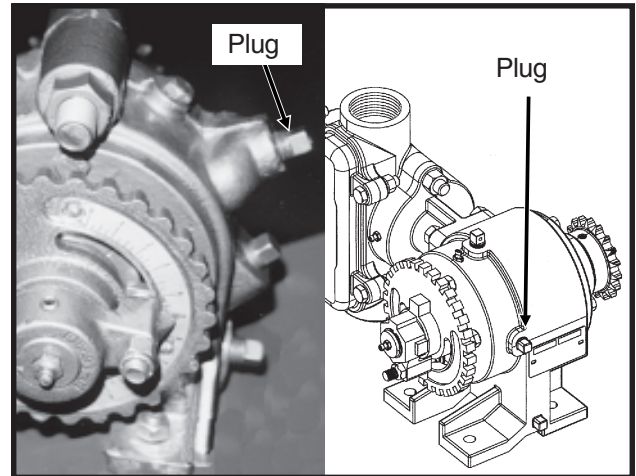
D101801122



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.

LIQUID FERTILIZER PISTON PUMP CRANKCASE OIL LEVEL

12229799/A12330a



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

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

LUBRICATION

GREASE FITTINGS

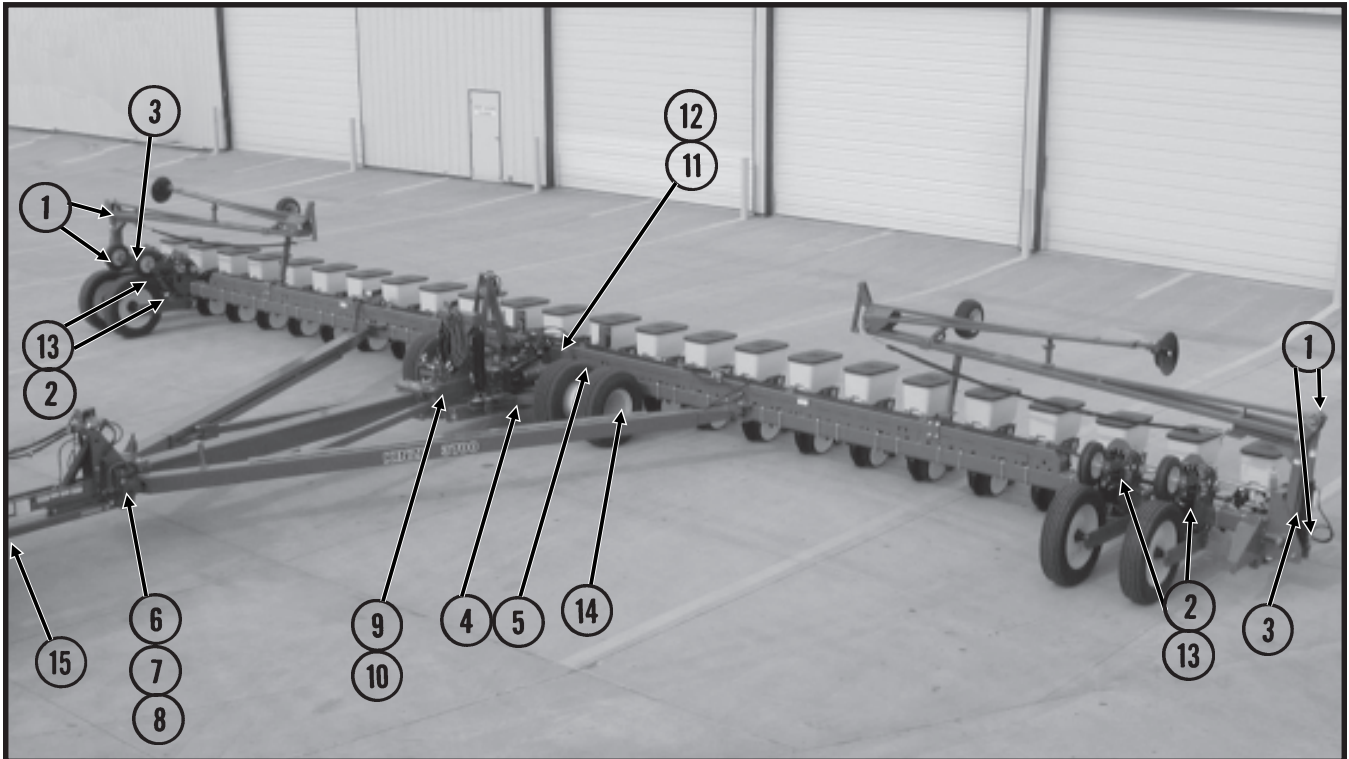
Those parts equipped with grease fittings should be lubricated at the frequency indicated with an SAE multipurpose grease. Be sure to clean the fitting thoroughly before using grease gun. The frequency of lubrication recommended is based on normal operating conditions. Severe or unusual conditions may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



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

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

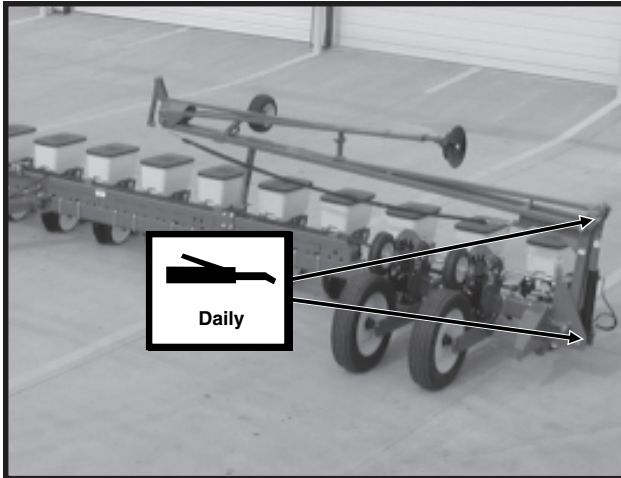
D101801115



24 Row 30" Conventional Model 3800 Shown

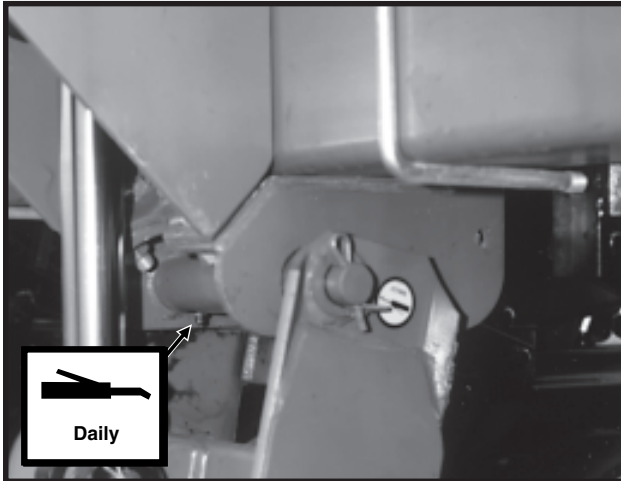
LUBRICATION

D101801115



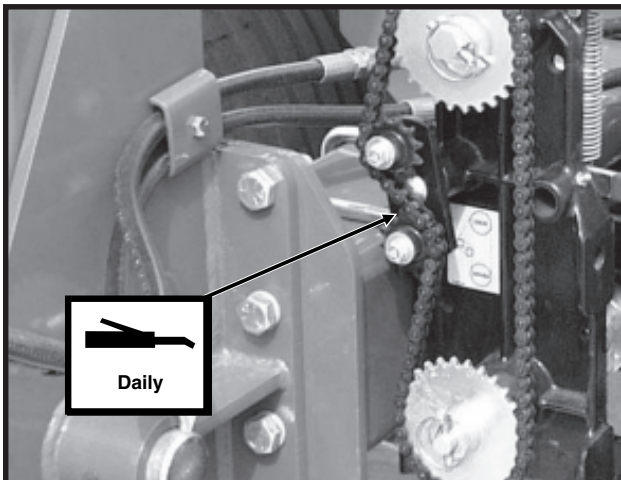
1. Row Marker Assemblies - 11 Zerks Per Side On Three-Fold Assembly; 2 Zerks Per Side On Two-Fold Assembly (**Three-Fold Assembly Shown**)

72495-34



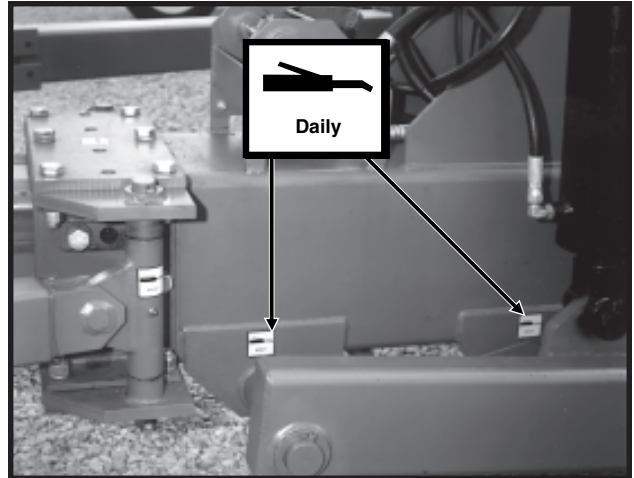
2. Ground Drive Wheel Pivot - 2 Zerks Per Wheel Module

D07279954



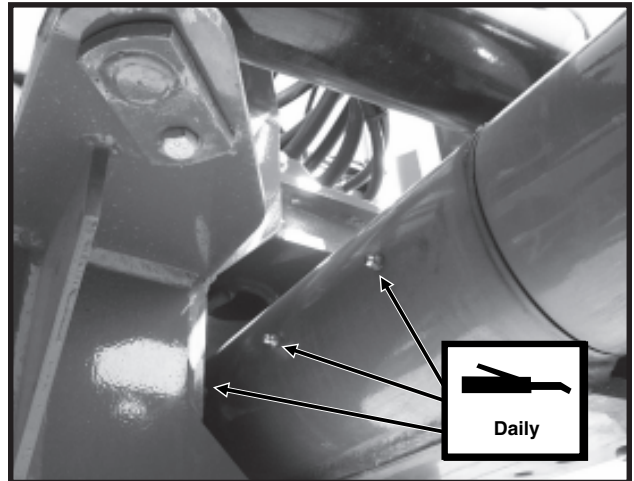
3. Seed Rate Transmission Assembly Idler Pivot - 1 Zerk Per Assembly

72495-21



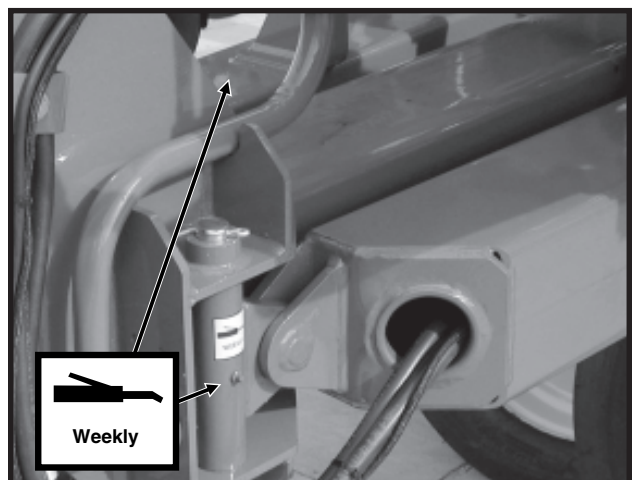
4. Axle And Automatic Safety Lock Pivots - 7 Zerks

D090199103



5. Wing Pivot Knuckle - 3 Zerks Per Knuckle On Horizontal Shaft

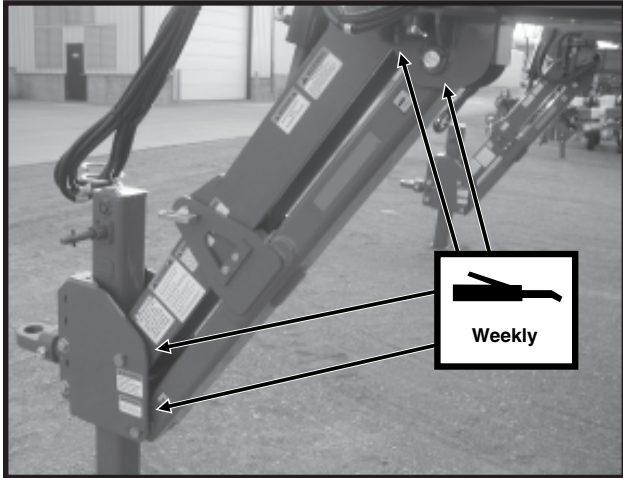
D101801108



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

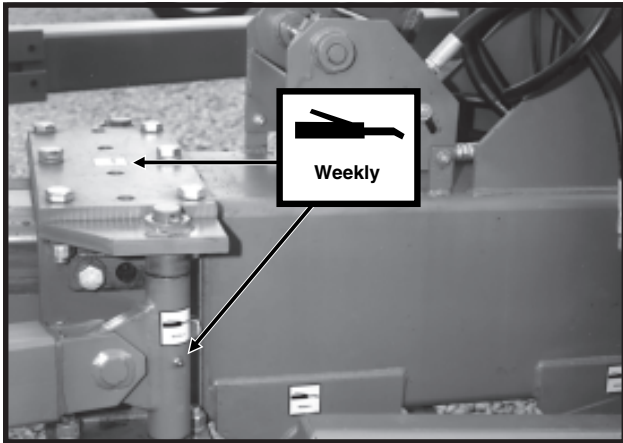
LUBRICATION

D03030504



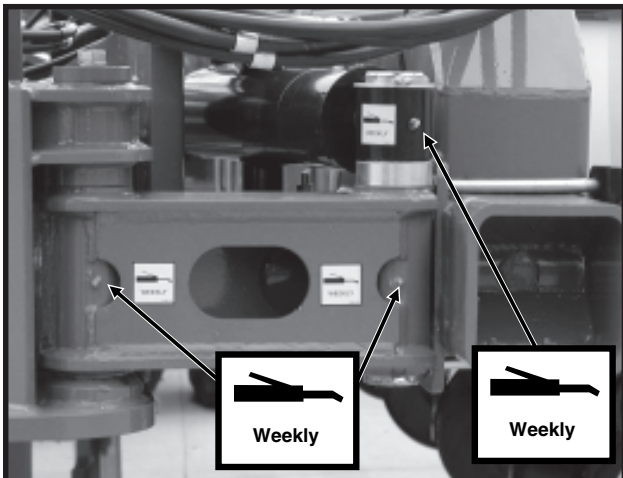
8. Upper And Lower Hitch Linkage - 2 Zerks Per Link

72495-21



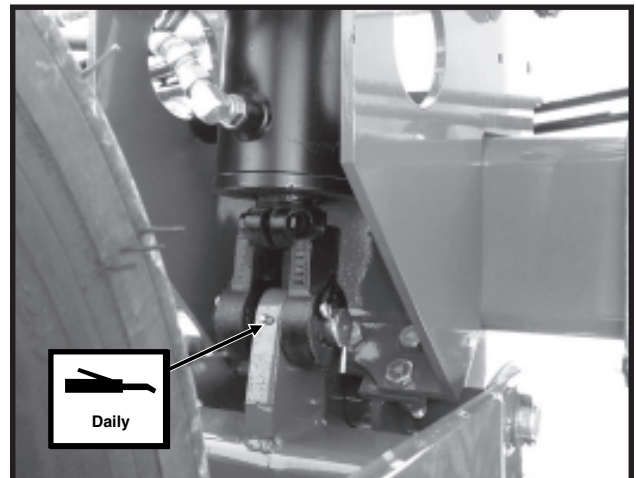
9. Rear Wear Pads (2 Sets) - 16 Zerks (24 Row 30" And 36 Row 20" Sizes Only)
10. Axle Link Assemblies - 1 Zerk Per Assembly

D101801149



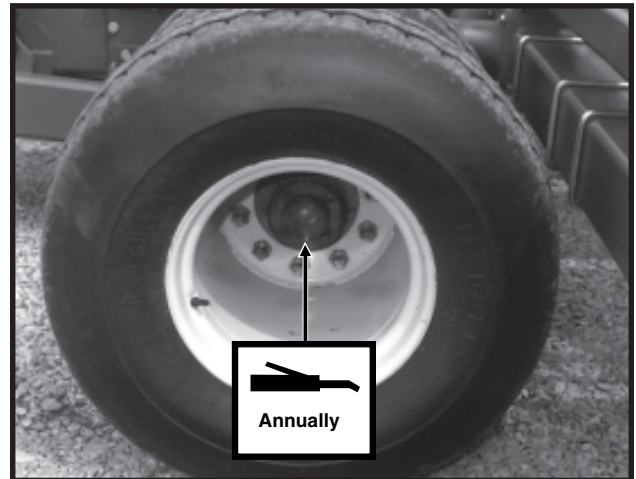
11. Helper Cylinders - 1 Zerk Per Cylinder
12. Wing Pivot Knuckle - 1 Zerk Per Knuckle On Vertical Shaft

D080599103



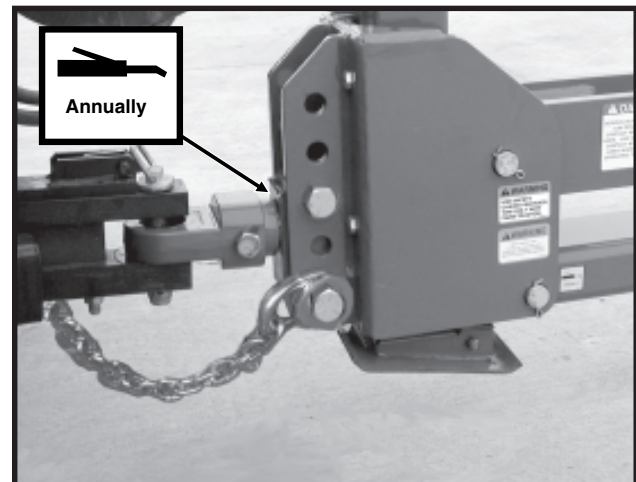
13. Wheel Module Lift Cylinder Mount - 1 Zerk Per Wheel Module

72495-5



14. Transport Wheel Bearing - 1 Zerk Per Wheel Hub

D101801130b

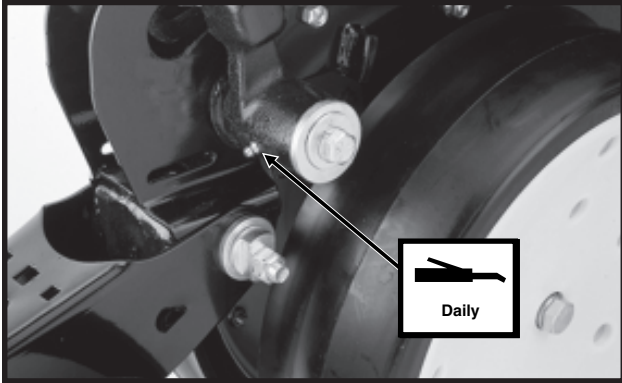


15. Swivel Block - 1 Zerk

LUBRICATION

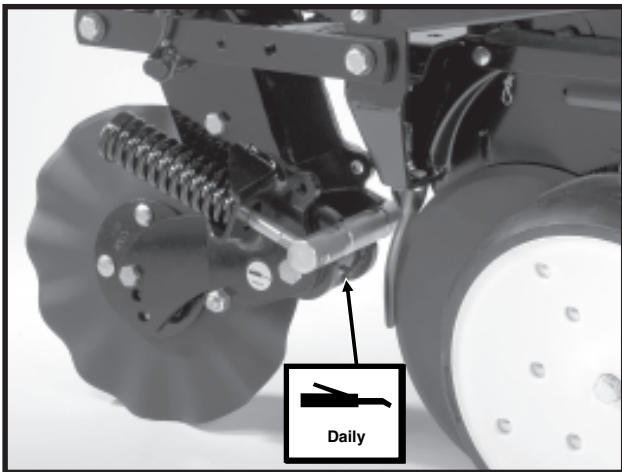
Row Unit

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.)

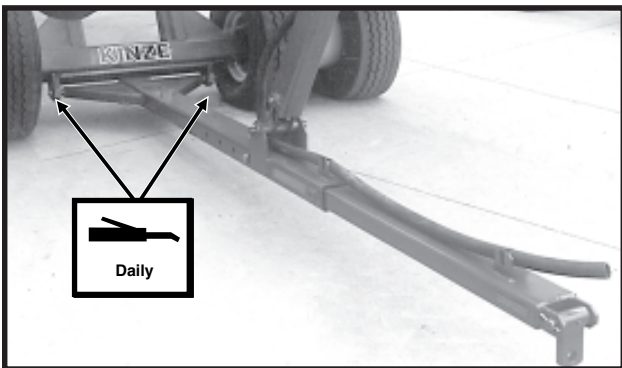
LF083002101



Frame Mounted Coulter - 1 Zerk Per Arm

Rear Trailer Hitch Pivot

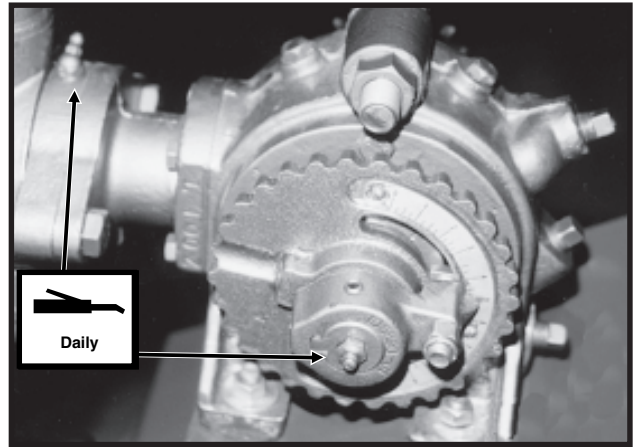
CLR3-96c



Rear Trailer Hitch Pivot - 2 Zerks

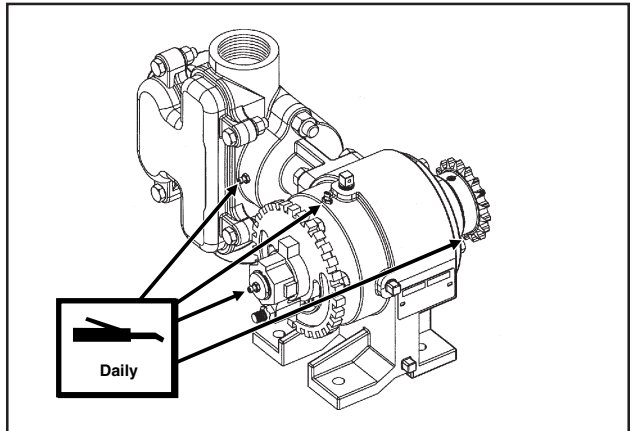
Liquid Fertilizer Piston Pump

12229799



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

(A12330a)



Liquid Fertilizer Piston Pump - 4 Zerks (Fill zerk on outboard stuffing box until lubricant seeps out of drain hole in bottom.)

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 Hardware - 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 Inner Budd Nuts - 220 Ft. Lbs./Outer Budd Nuts - 670 Ft. Lbs.

5/8" No Till Coulter Spindle Hardware – 120 Ft. Lbs.

TORQUE VALUES CHART - PLATED HARDWARE

Bolt Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	50 In. Lbs.	56 In. Lbs.	76 In. Lbs.	87 In. Lbs.	9 Ft. Lbs.	10 Ft. Lbs.
5/16"	8 Ft. Lbs.	9 Ft. Lbs.	13 Ft. Lbs.	14 Ft. Lbs.	18 Ft. Lbs.	20 Ft. Lbs.
3/8"	15 Ft. Lbs.	17 Ft. Lbs.	23 Ft. Lbs.	26 Ft. Lbs.	33 Ft. Lbs.	37 Ft. Lbs.
7/16"	25 Ft. Lbs.	27 Ft. Lbs.	37 Ft. Lbs.	41 Ft. Lbs.	52 Ft. Lbs.	58 Ft. Lbs.
1/2"	35 Ft. Lbs.	40 Ft. Lbs.	57 Ft. Lbs.	64 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.
9/16"	50 Ft. Lbs.	60 Ft. Lbs.	80 Ft. Lbs.	90 Ft. Lbs.	115 Ft. Lbs.	130 Ft. Lbs.
5/8"	70 Ft. Lbs.	80 Ft. Lbs.	110 Ft. Lbs.	125 Ft. Lbs.	160 Ft. Lbs.	180 Ft. Lbs.
3/4"	130 Ft. Lbs.	145 Ft. Lbs.	200 Ft. Lbs.	220 Ft. Lbs.	280 Ft. Lbs.	315 Ft. Lbs.
7/8"	125 Ft. Lbs.	140 Ft. Lbs.	320 Ft. Lbs.	350 Ft. Lbs.	450 Ft. Lbs.	500 Ft. Lbs.
1"	190 Ft. Lbs.	205 Ft. Lbs.	480 Ft. Lbs.	530 Ft. Lbs.	675 Ft. Lbs.	750 Ft. Lbs.
1 1/8"	265 Ft. Lbs.	300 Ft. Lbs.	600 Ft. Lbs.	670 Ft. Lbs.	960 Ft. Lbs.	1075 Ft. Lbs.
1 1/4"	375 Ft. Lbs.	415 Ft. Lbs.	840 Ft. Lbs.	930 Ft. Lbs.	1360 Ft. Lbs.	1500 Ft. Lbs.
1 3/8"	490 Ft. Lbs.	560 Ft. Lbs.	1100 Ft. Lbs.	1250 Ft. Lbs.	1780 Ft. Lbs.	2030 Ft. Lbs.
1 1/2"	650 Ft. Lbs.	730 Ft. Lbs.	1450 Ft. Lbs.	1650 Ft. Lbs.	2307 Ft. Lbs.	2670 Ft. Lbs.

NOTE: Unplated hardware and bolts with lock nuts should be torqued approximately 1/3 higher than the above values. Bolts lubricated prior to installation should be torqued to 70% of value shown in chart.



GRADE 2
No Marks



GRADE 5
3 Marks

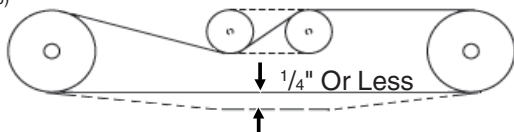


GRADE 8
6 Marks

CHAIN TENSION ADJUSTMENT

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” in Lubrication Section for additional information.

(RU55)



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.

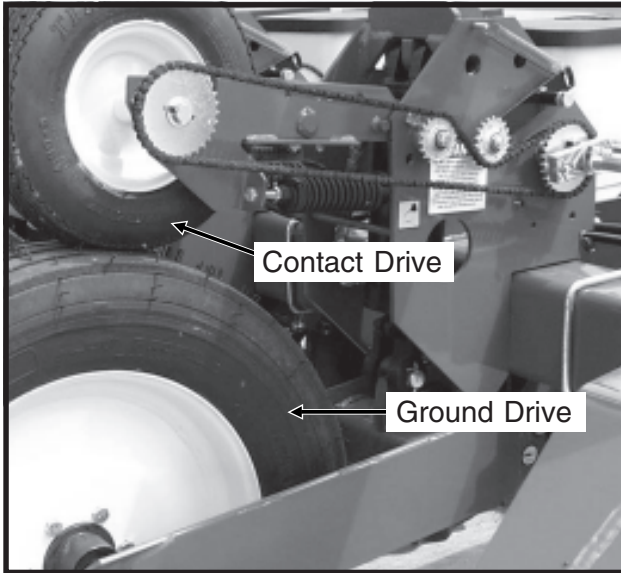
72495-48



MAINTENANCE

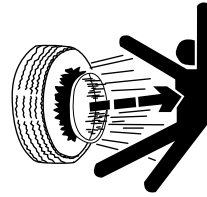
TIRE PRESSURE

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 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 pressures. Do not inflate tires above the recommended pressures.

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.

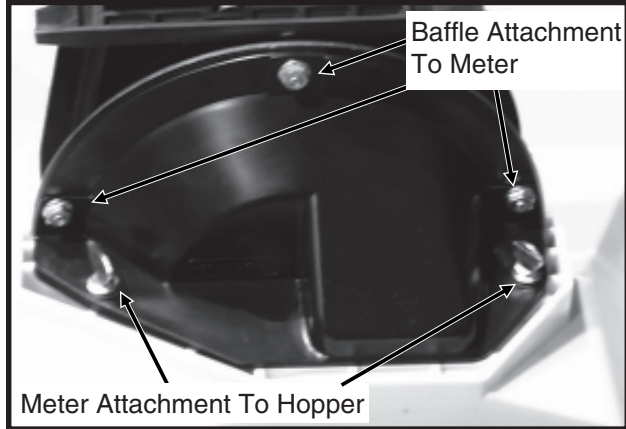
Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

MAINTENANCE

FINGER PICKUP SEED METER INSPECTION/ADJUSTMENT

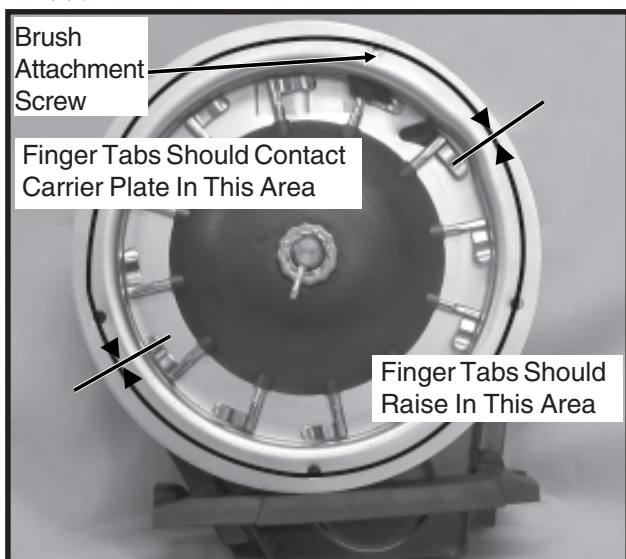
To inspect or service the finger pickup seed meter, remove the meter from the seed hopper by removing the two thumbscrews which secure the mechanism to the hopper. Remove the baffle from the meter assembly by removing three cap screws. This will permit access to the finger pickup.

D04229901



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

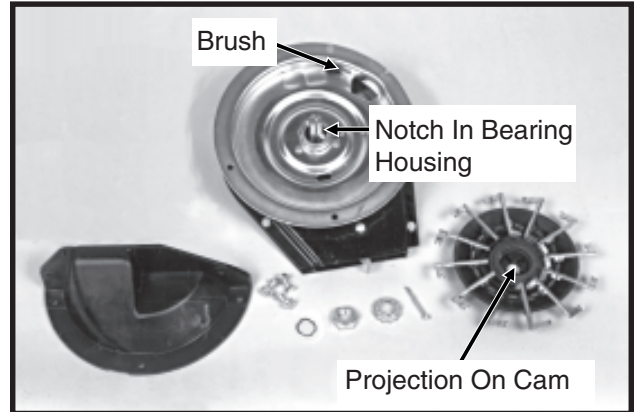
D12220402a



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

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

60620-3b



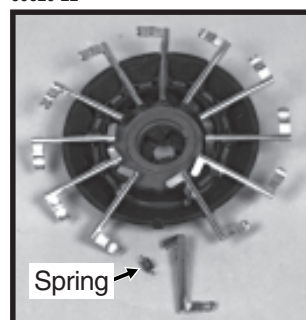
3. Check brush for wear and replace if necessary or following every 100 acres per row of operation.

EXAMPLE: Approximately 800 acres of corn or sunflowers on a 8 row machine, 1200 acres on a 12 row machine or 1600 acres on a 16 row machine.

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

4. To replace fingers or springs, remove springs from fingers and remove finger from holder by lifting it out of the friction fit slot. Under average conditions, life expectancy of these parts should be 600-900 acres per row of operation.
5. After cleaning and/or replacing defective parts, reassemble the meter in the reverse order. When replacing fingers, make sure the open end of the spring loop is toward the inside of the finger holder.

60620-22



Corn Finger Assembly
(Position Spring Opening Toward Holder)

D07299902



Oil Sunflower Finger Assembly

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

MAINTENANCE

D021506100

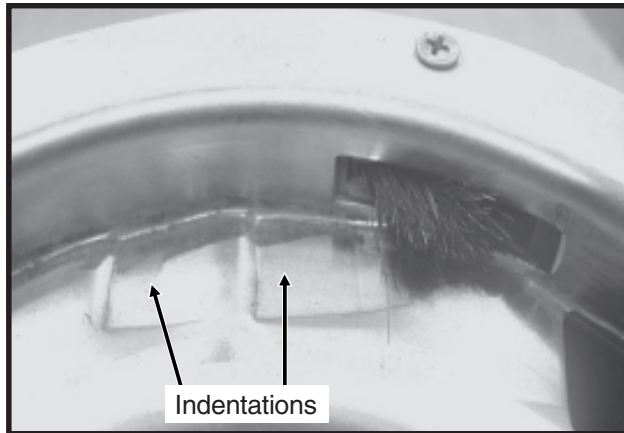


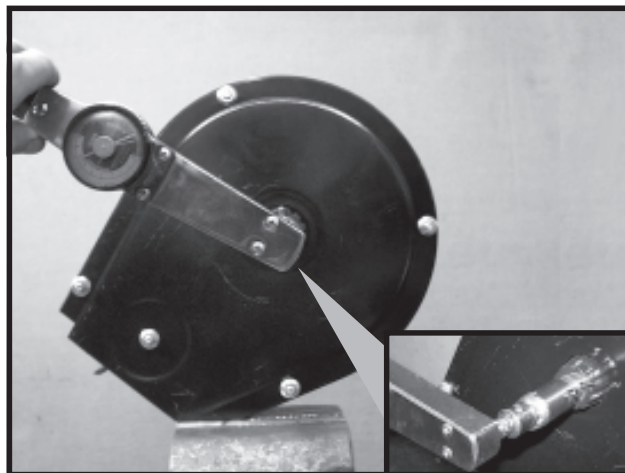
Photo Shows Worn Carrier Plate

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

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

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

D07299903/D07309912

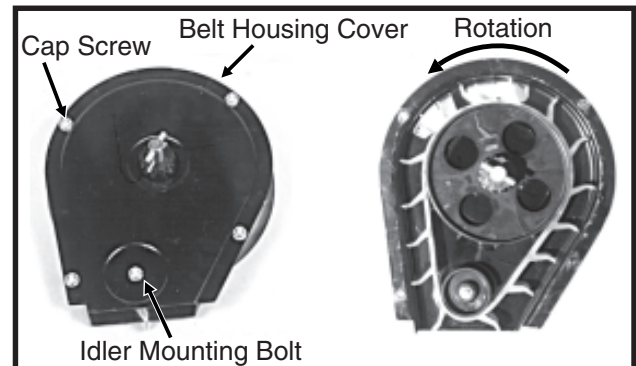


- Turn finger holder by hand to make sure it is positioned firmly against the carrier plate, but is not over tightened and can be rotated with moderate force.
- Install cover nut and cotter pin and reinstall baffle.

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

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

60620-13a/60887-97



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

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

IMPORTANT: Do not over tighten hardware.

D06200030



FINGER PICKUP SEED METER CLEANING

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

MAINTENANCE

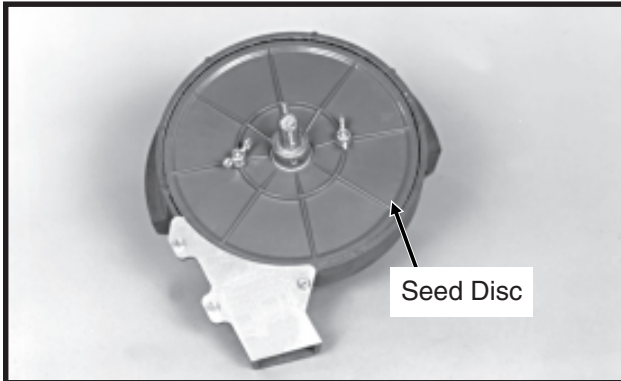
FINGER PICKUP SEED METER TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
One row not planting seed.	Drive release not engaged.	Engage drive release mechanism.
	Foreign material in hopper.	Clean hopper and finger carrier mechanism.
	Seed hopper empty.	Fill seed hopper.
	Row unit drive chain off of sprocket or broken.	Check drive chain.
Unit is skipping.	Foreign material or obstruction in meter.	Clean and inspect.
	Finger holder improperly adjusted.	Adjust to specifications. (22 to 25 in. lbs. rolling torque)
	Broken fingers.	Replace fingers and/or springs as required.
	Planting too slowly.	Increase planting speed to within recommended range.
Planting too many doubles.	Planting too fast.	Stay within recommended speed range.
	Loose finger holder.	Adjust to specifications. (22 to 25 in. lbs. rolling torque)
	Worn brush in carrier plate.	Inspect and replace if necessary.
Overplanting.	Worn carrier plate.	Inspect and replace if necessary.
	Seed hopper additive being used.	Reduce or eliminate additive or increase graphite.
Underplanting.	Seed belt installed backwards.	Remove and install correctly.
	Weak or broken springs.	Replace.
	Spring not properly installed.	Remove finger holder and correct.
	Seed belt catching or dragging.	Replace belt.
	Brush dislodging seed.	Replace brush.
Irregular or incorrect seed spacing.	Driving too fast.	Check chart for correct speed.
	Wrong tire pressure.	Inflate tires to correct air pressure.
	Drive wheels slipping.	Reduce down pressure on row unit down force springs.
	Wrong sprockets.	Check seed rate charts for correct sprocket combinations.
Seed spacing not as indicated in charts.	Wrong tire pressure.	Inflate tires to correct air pressure.
	Inconsistent seed size.	Perform field check and adjust sprockets accordingly.
	Wrong sprockets.	Check chart for correct sprocket combination.
	Charts are approximate.	Slight variations due to wear in meter components and tire slippage due to field conditions may produce seed spacing variations.
	Stiff or worn drive chains.	Replace chains.
Scattering of seeds.	Planting too fast.	Reduce planting speed.
	Seed tube improperly installed.	Check seed tube installation.
	Seed tube worn or damaged.	Replace seed tube.
Seed tubes and/or openers plugging.	Allowing planter to roll backward when lowering.	Lower planter only when tractor is moving forward.
Inconsistent seed depth.	Rough seed bed.	Adjust down pressure springs. Reduce planting speed.
	Partially plugged seed tube.	Inspect and clean.
	Seed tube improperly installed.	Install properly.

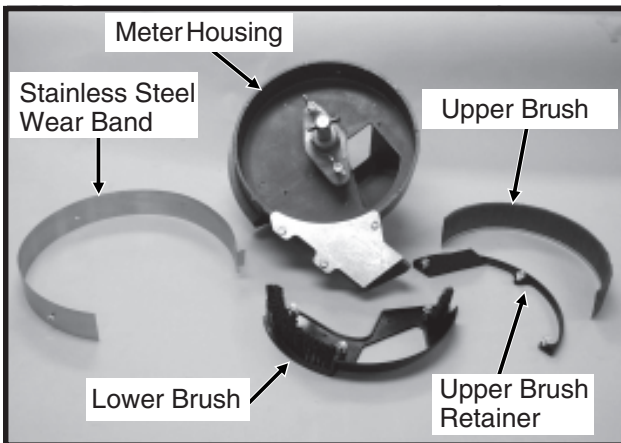
MAINTENANCE

BRUSH-TYPE SEED METER MAINTENANCE

60607-10a

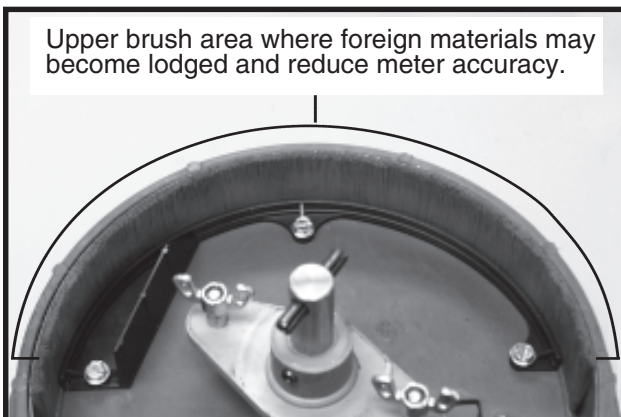


D04239911



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

D04239912a



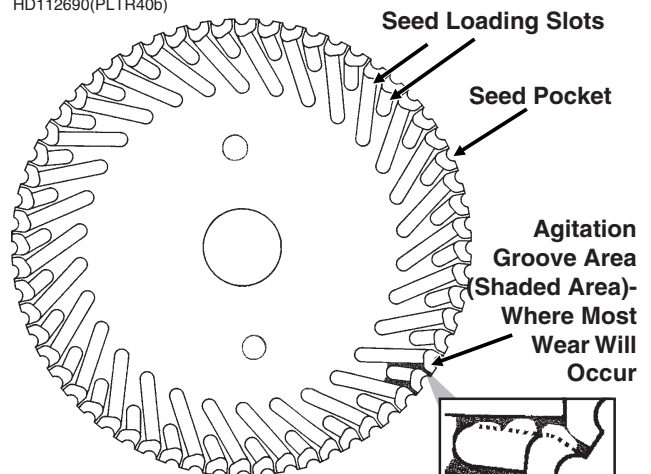
IMPORTANT: Replace hopper lids after hoppers are filled to prevent accumulation of dust or dirt in the seed meter which will cause premature wear.

Cleaning brush-type seed meter for storage:

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

Seed Disc Wear

HD112690(PLTR40b)



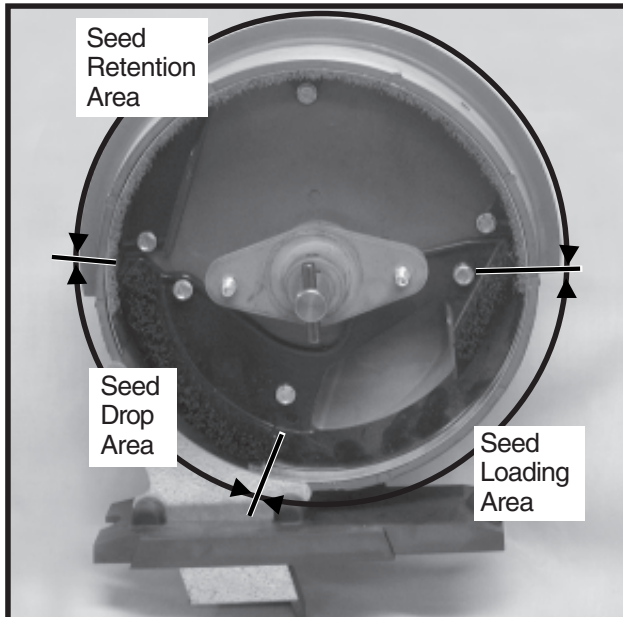
Most wear on the seed disc will be found in the agitation groove area (area between the seed loading slots). Wear will affect planting accuracy at high RPM. To measure for wear, lay a straight edge across the surface of the disc and measure the gap between the disc (at the agitation groove area) and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

Estimated life expectancy of the seed disc under normal operating conditions should be approximately 200 acres per row. Severe operating conditions such as dust, lack of lubrication or abrasive seed coating could reduce life expectancy of the seed disc to under 100 acres per row.

MAINTENANCE

Upper Brush

D12220403



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

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

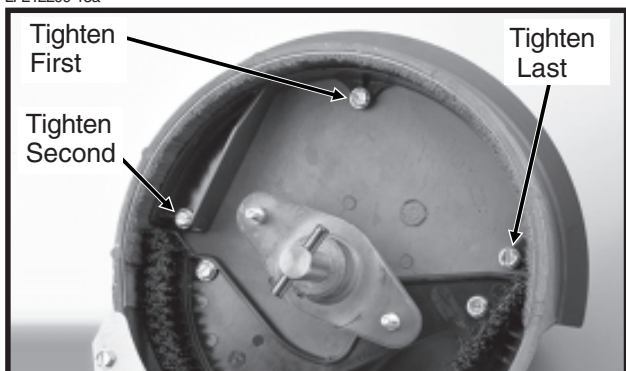
The upper brush should be replaced at approximately 120-400 acres per row of use or sooner if damage or excessive wear is found.

Installation Of Upper Brush

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

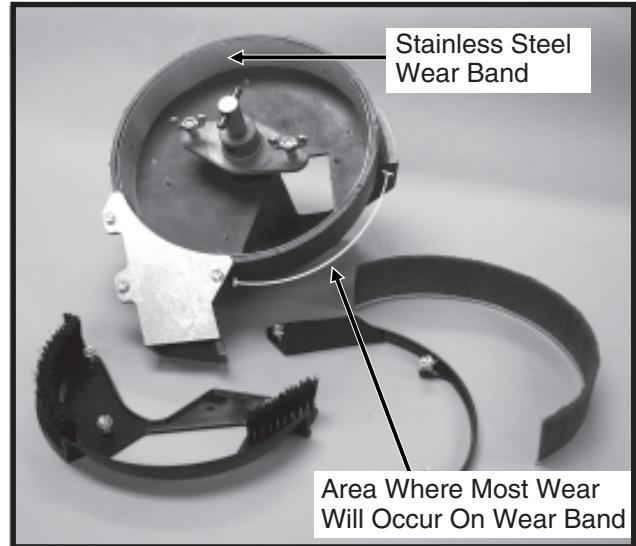
NOTE: Use GD11122 upper brush retainer when using soybean and cotton discs. Use GD8237 upper brush retainer when using milo/grain sorghum discs. GD11122 brush retainer shown.

LF212299-13a



Stainless Steel Wear Band

D04239917a

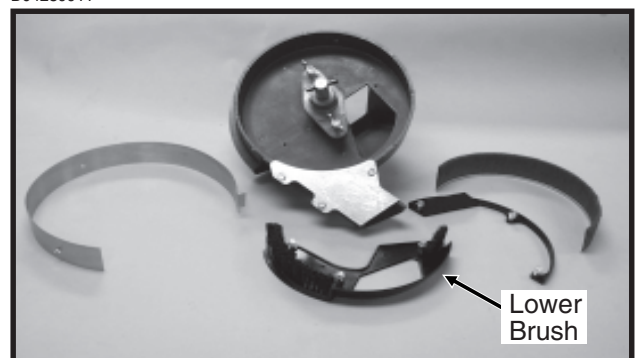


The purpose of the stainless steel wear band is to protect the meter housing from wear. The band is .030" thick and should be replaced when approximately .020" of wear is found in the primary area of wear. If the wear band is allowed to wear through or if the meter is used without the wear band in place,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

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

Lower Brush

D04239911



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

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

MAINTENANCE

BRUSH-TYPE SEED METER TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Low count.	Meter RPM too high.	Reduce planting speed.
	Seed sensor not picking up all seeds dropped.	Clean seed tube. Switch meter to different row. If problem stays with same row, replace sensor.
	Lack of lubrication causing seeds not to release from disc properly.	Use graphite or talc as recommended.
	Seed size too large for seed disc being used.	Switch to smaller seed or appropriate seed disc. See "Brush-Type Seed Meter" for proper seed disc for size of seed being used.
	Seed treatment buildup in meter.	Reduce amount of treatment used and/or thoroughly mix treatment with seed. Add talc.
Low count at low RPM and higher count at higher RPM.	Foreign material lodged in upper brush.	Remove seed disc and remove foreign material from between brush retainer and bristles. Clean thoroughly.
	Worn upper brush.	Replace. See "Maintenance".
Low count at higher RPM and normal count at low RPM.	Seed disc worn in the agitation groove area.	Replace disc. See "Maintenance".
High count.	Seed size too small for seed disc.	Switch to larger seed or appropriate seed disc.
	Incorrect seed rate transmission setting.	Reset transmission. Refer to proper rate chart in "Machine Operation" section of manual.
	Upper brush too wide (fanned out) for small seed size.	Replace upper brush.
High count. (Milo/Grain Sorghum)	Incorrect brush retainer being used.	Make sure GD8237 brush retainer is installed to keep upper brush from fanning out.
Upper brush laid back.	Seed treatment buildup on brush.	Remove brush. Wash with soap and water. Dry thoroughly before reinstalling. See "Maintenance".
	Buildup of foreign material at base of brush.	Remove brush retainer and brush. Clean thoroughly. Reinstall.

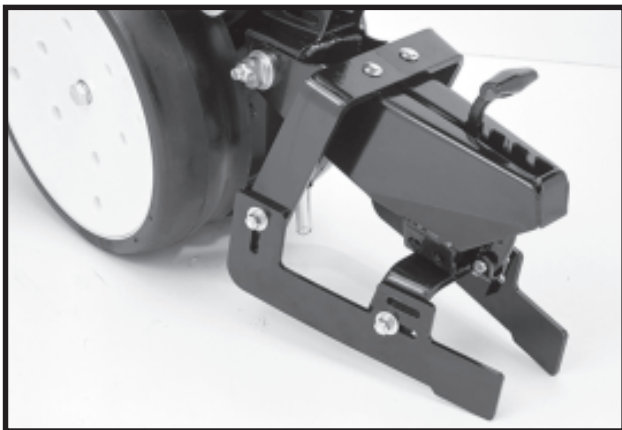
MAINTENANCE

CLOSING WHEEL TROUBLESHOOTING

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

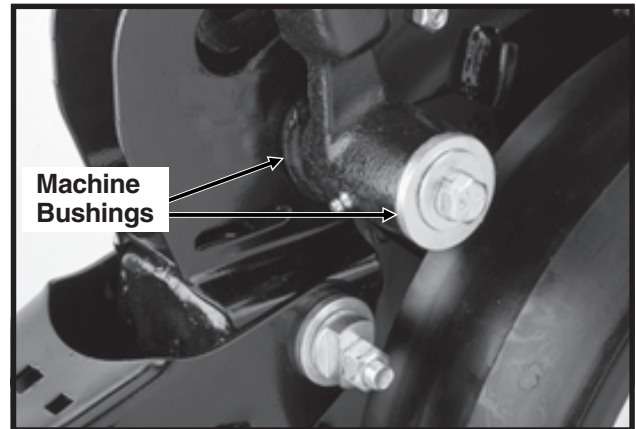
DRAG CLOSING ATTACHMENT

LF212299-18



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

LF212199-2



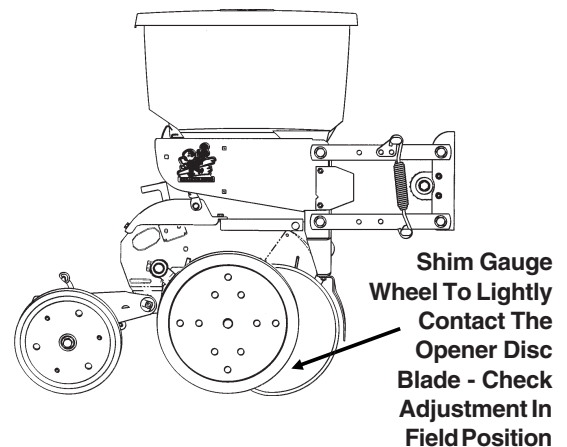
(RU113g)

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.

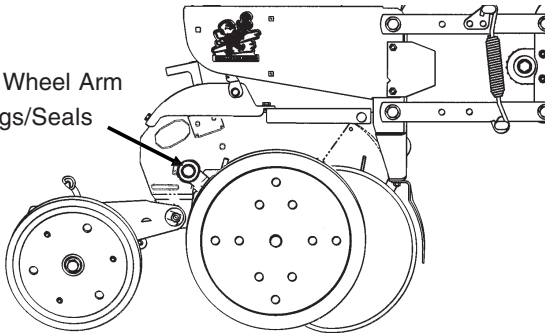


MAINTENANCE

GAUGE WHEEL ARM BUSHING AND/OR SEAL REPLACEMENT

(RU113g)

Gauge Wheel Arm Bushings/Seals

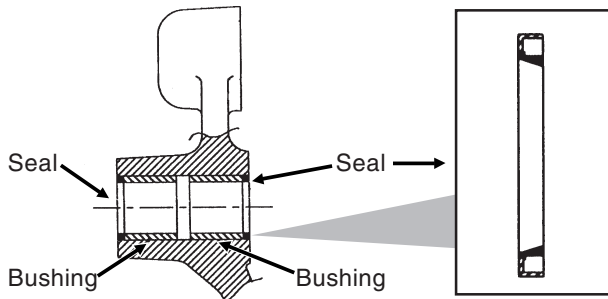


NOTE: A Gauge Wheel Arm Bushing And Seal Driver Kit (G1K296), for use in bushing and seal replacement, is available through your KINZE® Dealer.

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

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

(A7975/RU122)



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

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

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

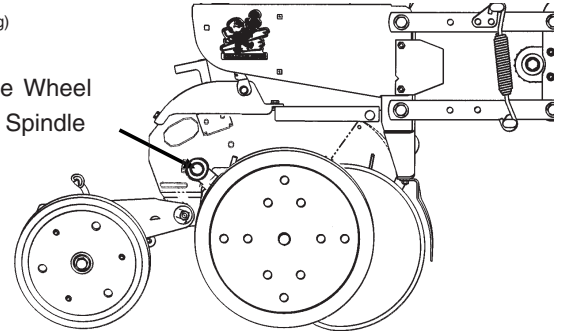
NOTE: Special machine bushing between gauge wheel arm and gauge wheel.

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

GAUGE WHEEL ARM PIVOT SPINDLE REPLACEMENT

(RU113g)

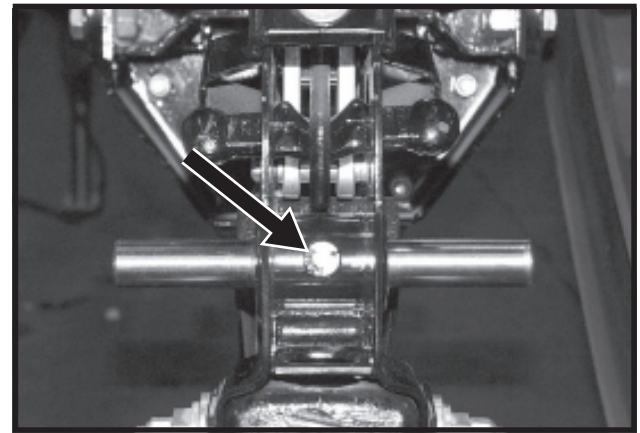
Gauge Wheel Pivot Spindle



To replace gauge wheel pivot spindle:

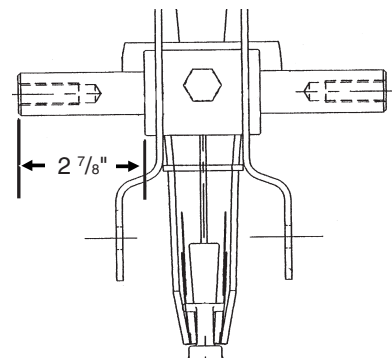
1. Remove the gauge wheel and arm assemblies from the shank assembly.
2. Remove 1/2" x 3/4" cap screw that locks the pivot spindle in place and remove the spindle.

D06189902



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

(A7966)



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

MAINTENANCE

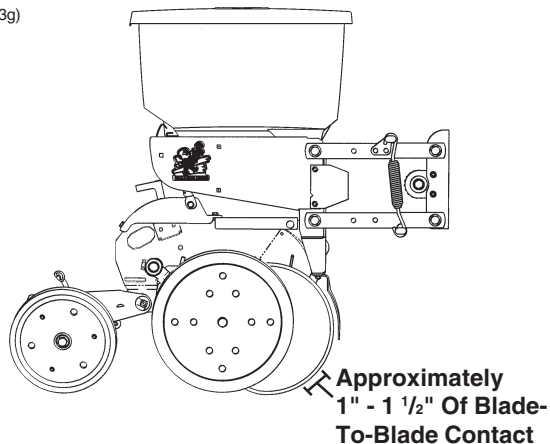
15" SEED OPENER DISC BLADE/ BEARING ASSEMBLY

Approximately 1" - 1 1/2" of blade-to-blade contact should be maintained to properly open and form the seed trench. As the blade diameter decreases, due to wear, it will be necessary to relocate machine bushings from inside to outside to maintain approximately 1" - 1 1/2" of contact.

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

(RU113g)



To replace disc blade/bearing assembly:

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

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

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

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

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

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

To replace bearing:

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

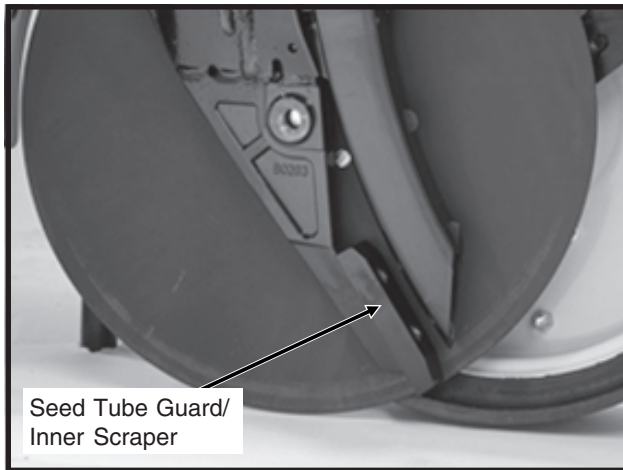
MAINTENANCE

SEED TUBE GUARD/INNER SCRAPER

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

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

LF212199-12



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

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

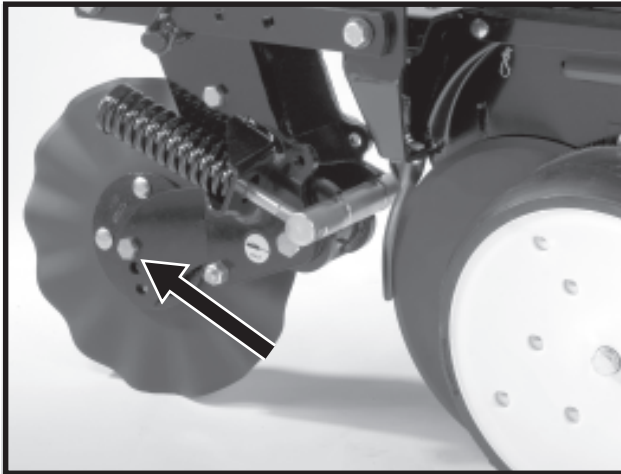
To replace the seed tube guard, remove the seed tube and the two hex socket head cap screws which attach the seed tube guard. Hold the replacement seed tube guard centered between the seed opener disc blades. Install, but DO NOT tighten, the hex socket head cap screws. Using a clamp or vise-grip, squeeze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

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

MAINTENANCE

FRAME MOUNTED COULTER

LF083002101



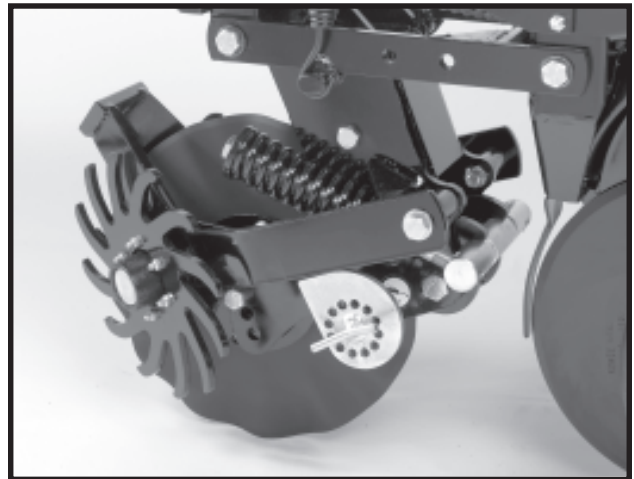
NOTE: Torque $\frac{5}{8}$ " spindle bolts to 120 ft. lbs.

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

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

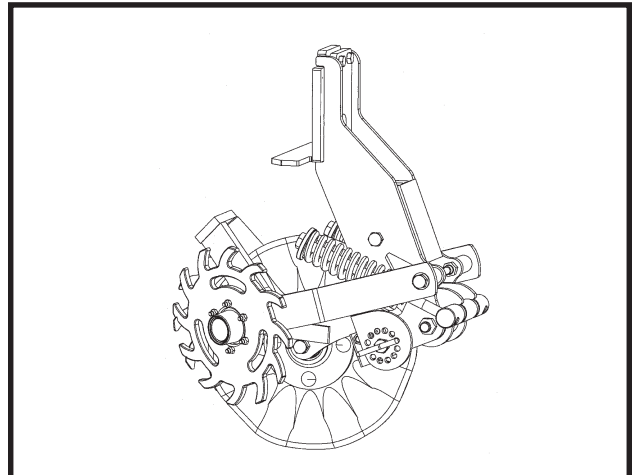
RESIDUE WHEELS (For Use With Frame Mounted Coultter)

LF083002102



STYLE A

(RU154)



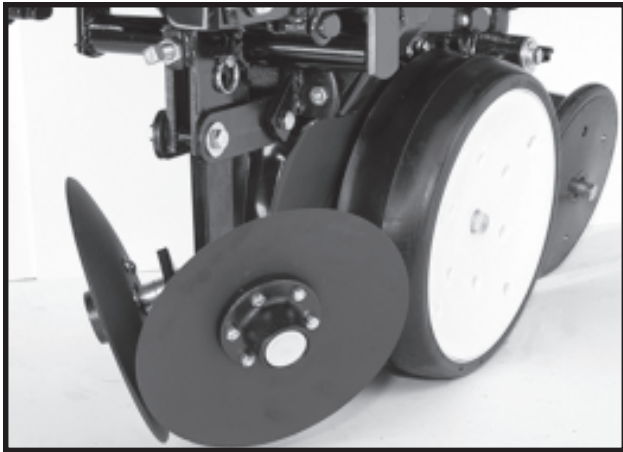
STYLE B

The wheel hubs are equipped with sealed bearings. If a bearing sounds or feels rough when the wheel is rotated, replace the bearings.

MAINTENANCE

ROW UNIT MOUNTED DISC FURROWER

LF212299-22



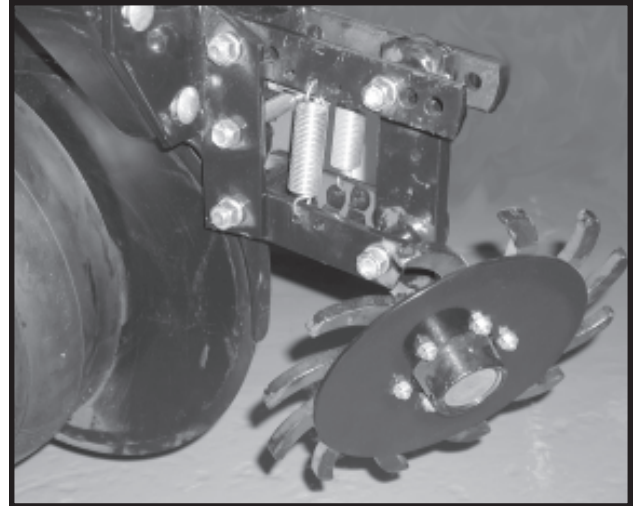
Lubricate the bushings in the support arm and mounting bracket at the frequency indicated in the Lubrication Section of this manual. Using a torque wrench, check each bolt for proper torque. If the bolt is loose, it should be removed and the bushing inspected for cracks and wear. Replace bushings as necessary. **Only hardened flat washers should be used. Replace damaged flat washers with proper part. Torque cap screws to 57 ft. lbs.**

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

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

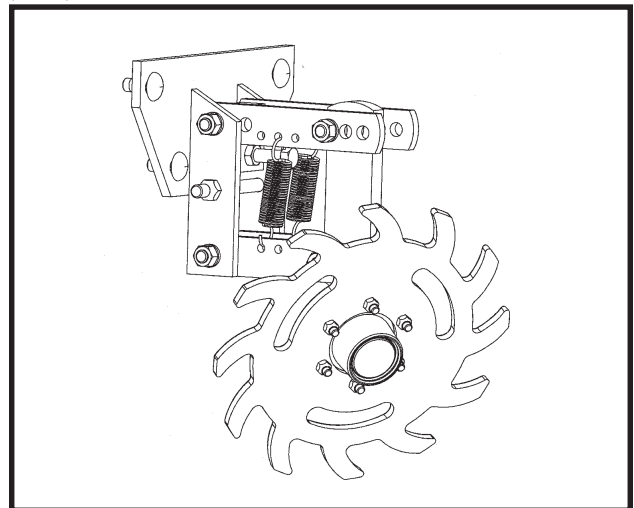
ROW UNIT MOUNTED RESIDUE WHEEL

D101701113



STYLE A

(A12685)



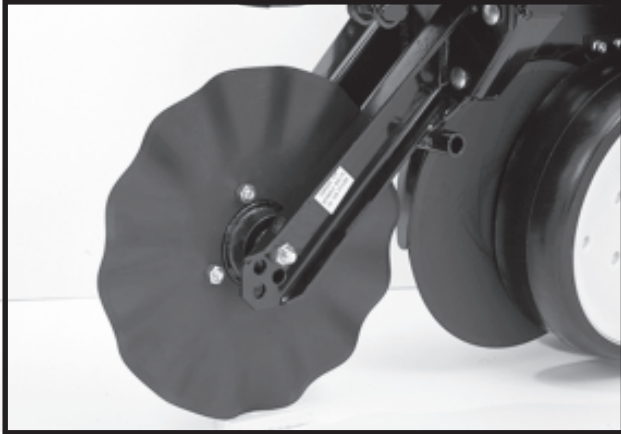
STYLE B

The wheel hub is equipped with sealed bearings. If a bearing sounds or feels rough when the wheel is rotated, replace the bearings.

MAINTENANCE

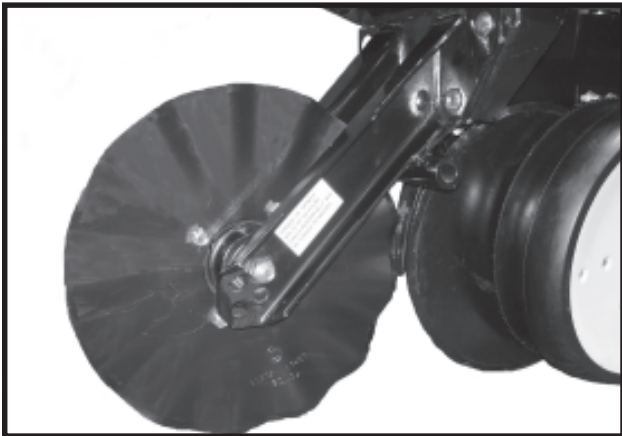
ROW UNIT MOUNTED NO TILL COULTER

LF212299-19a



STYLE A (Two Sleeves For Installing Coulters Mounted Residue Wheels)

D05170706a



STYLE B (One Sleeve For Installing Coulters Mounted Residue Wheels)

Check periodically to be sure nuts and hardware are tightened to proper torque specification.

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

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

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

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

COULTERS MOUNTED RESIDUE WHEELS

LF212299-23



STYLE A - Used With Style A Row Unit Mounted No Till Coulters

D05170708a



STYLE B - Used With Style B Row Unit Mounted No Till Coulters

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

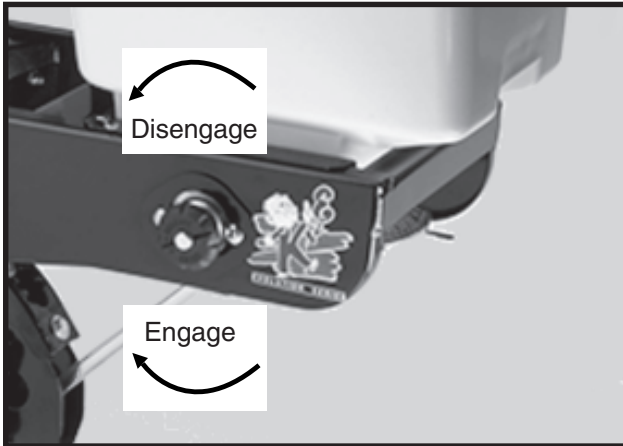
MAINTENANCE

GRANULAR CHEMICAL ATTACHMENT

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

Install hoppers and chains. Check chain alignment.

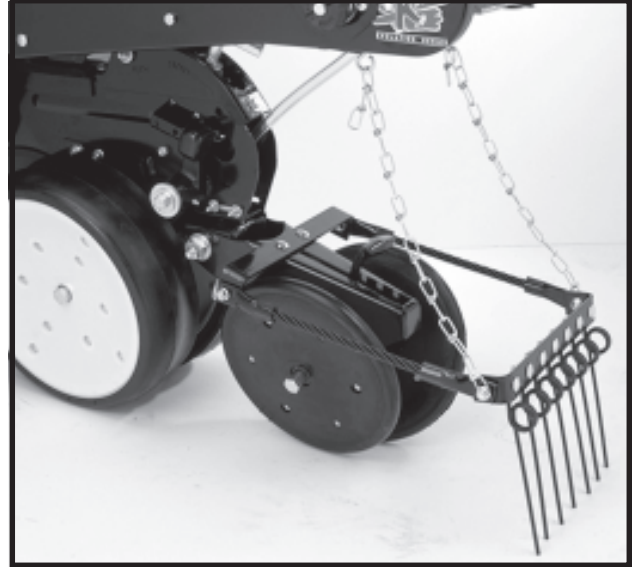
LF212299-4



SPRING TOOTH INCORPORATOR

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

LF212299-26



MAINTENANCE

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

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

MAINTENANCE

KPM III ELECTRONIC SEED MONITOR TROUBLESHOOTING

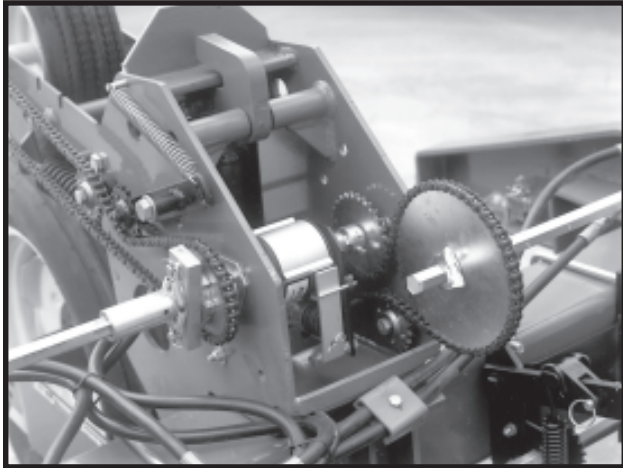
PROBLEM	POSSIBLE CAUSE	SOLUTION
Single sensor communication alarm comes on.	Faulty seed tube sensor.	Replace sensor.
	Break in the harness just before the seed tube sensor.	Inspect for break in harness and repair. If break can't be found, replace harness section.
	Dirty or corroded connector.	Clean connector.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

MAINTENANCE

POINT ROW CLUTCHES

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

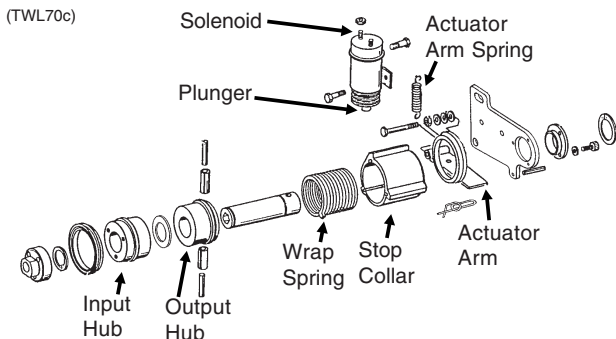
82378-18a



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.

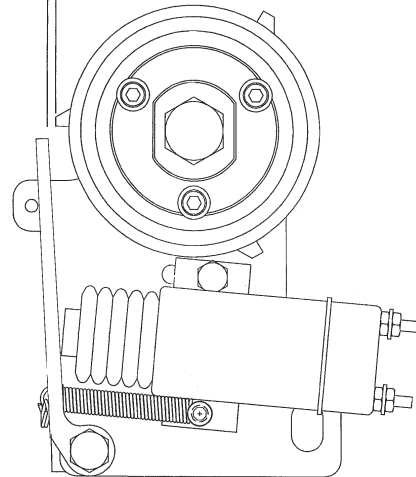
NOTE: Always replace fuse with proper size and type when replacing fuses. Use AGC-15 amp main fuse and MDL-10 amp slow blow fuses.



(A7110)

ACTUATOR ARM ADJUSTMENT

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

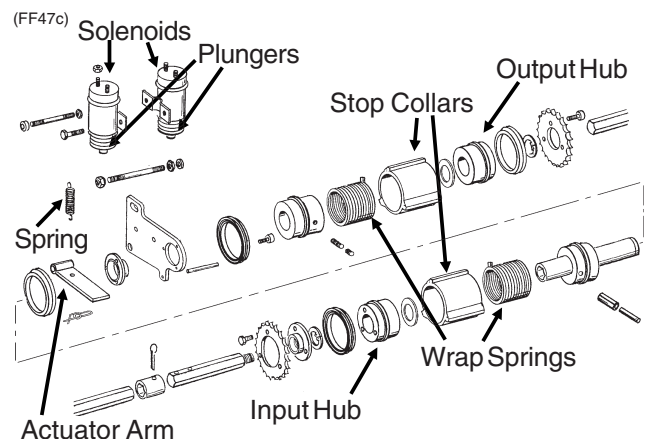


NOTE: To adjust gap between actuator arm and stop, loosen nut on mounting pin and move pin in slot until there is at least $\frac{1}{8}$ " ($\pm \frac{1}{32}$ ") gap between arm and stop on stop collar. Retighten nut.

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 Troubleshooting" for additional information.

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



MAINTENANCE

POINT ROW CLUTCH TROUBLESHOOTING

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

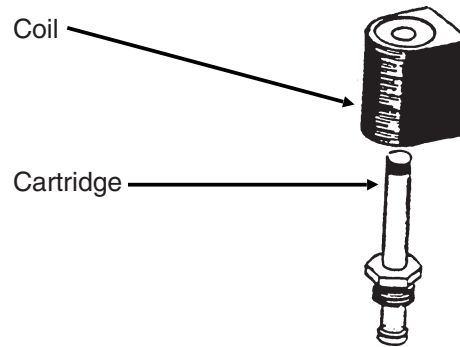
MAINTENANCE

SOLENOID VALVE

VVB019(PLTR55)

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.



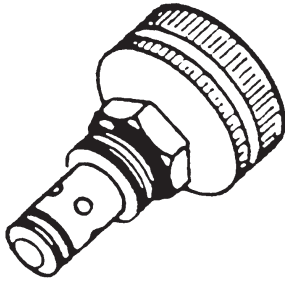
SOLENOID VALVE TROUBLESHOOTING

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

MAINTENANCE

FLOW CONTROL VALVE

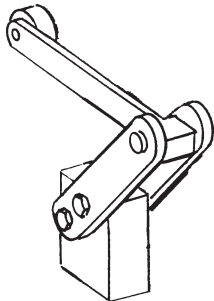
VVB020(TWL28)



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

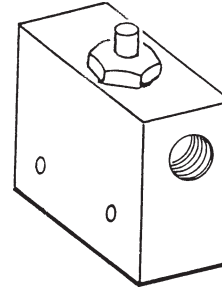
PHA031(PLTR68)



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

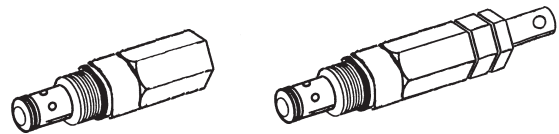
VVB037rev(PLTR69)



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. Consult your KINZE® Dealer for service.

MAINTENANCE

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 cylinders.	Marker transport stand not adjusted correctly to allow marker cushion cylinders to operate as designed.	See "Row Marker Transport Stand Adjustment".
	Marker flow control valve out of adjustment.	See Operation section for adjustment.

MAINTENANCE

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.

ROW MARKER TRANSPORT STAND ADJUSTMENT

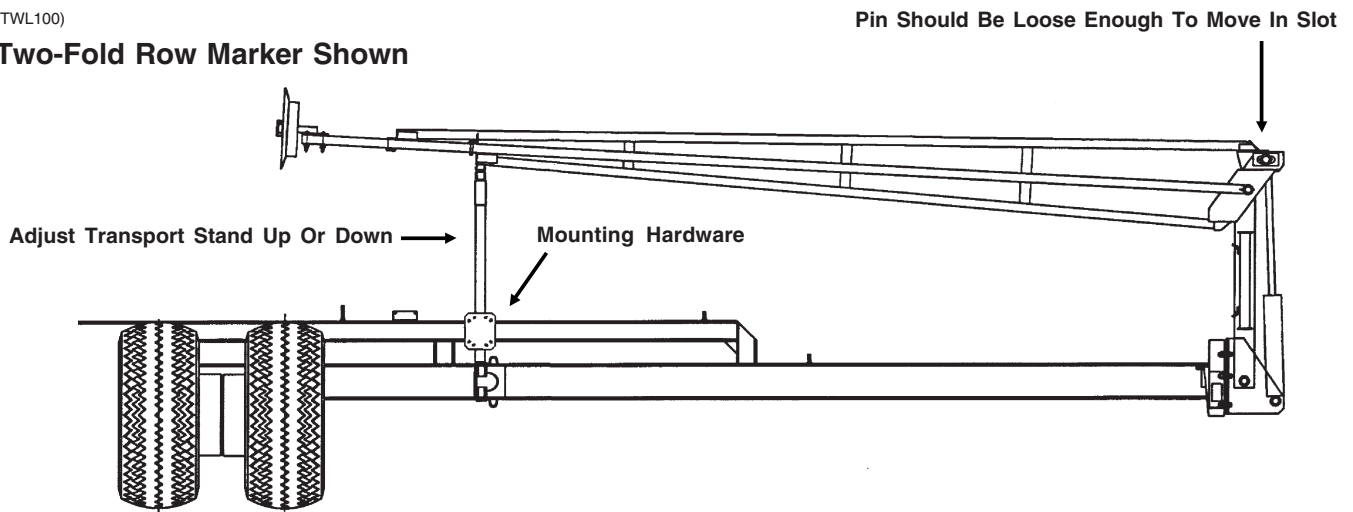
It is critical that the marker transport stands are adjusted correctly to allow the marker cushion cylinders used on two-fold and three-fold low profile row markers to function as designed.

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 (applies only to two-fold row markers).

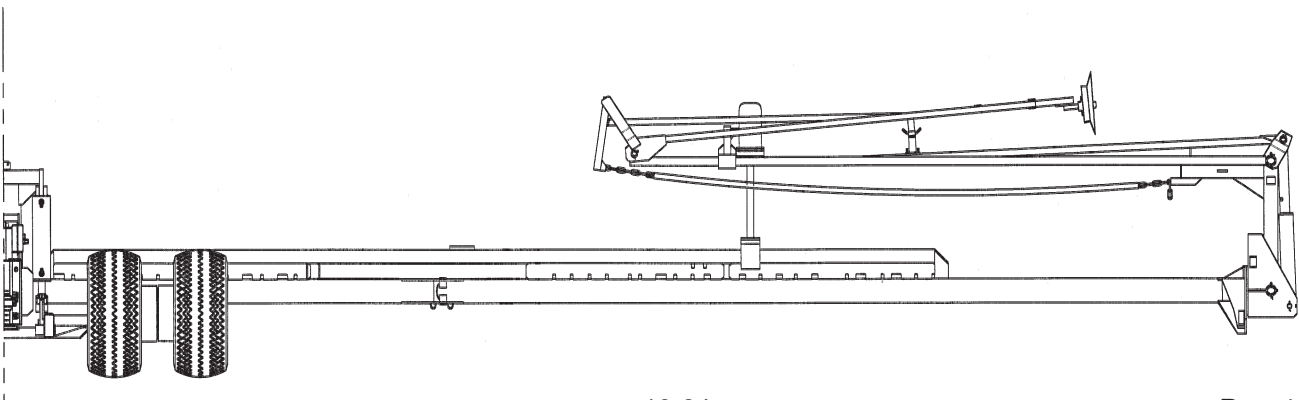
(TWL100)

Two-Fold Row Marker Shown



(FF139)

Three-Fold Row Marker Shown

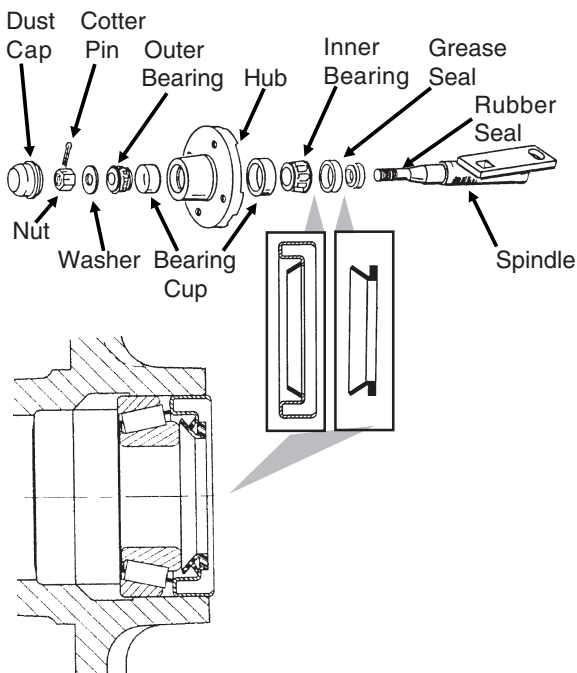


MAINTENANCE

ROW MARKER BEARING LUBRICATION OR REPLACEMENT

1. Remove marker blade.
2. Remove dust cap from hub.
3. Remove cotter pin, nut and washer.
4. Slide hub from spindle.
5. Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
6. Press in new bearing cups with thickest edge facing in. (Bearing replacement procedure only.)
7. Pack bearings with heavy duty wheel bearing grease thoroughly forcing grease between roller cone and bearing cage. Also, fill the space between the bearing cups in the hub with grease.
8. 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 $\frac{3}{4}$ full of wheel bearing grease and install on hub.
12. Install blade and dust cap retainer on hub and tighten evenly and securely.

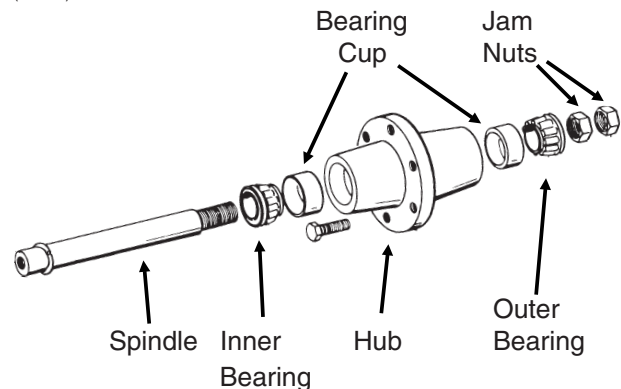
(PLTR45/PLTR99/PLTR98)



GROUND DRIVE WHEEL BEARING LUBRICATION OR REPLACEMENT

1. Raise tire clear of ground and remove wheel.
2. Remove double jam nuts and slide hub from spindle.
3. Remove bearings 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 $\frac{1}{4}$ turn or until there is only slight drag when rotating the hub. Install second jam nut to lock against first.
9. Install wheel on hub and tighten evenly and securely.

(EF35e)

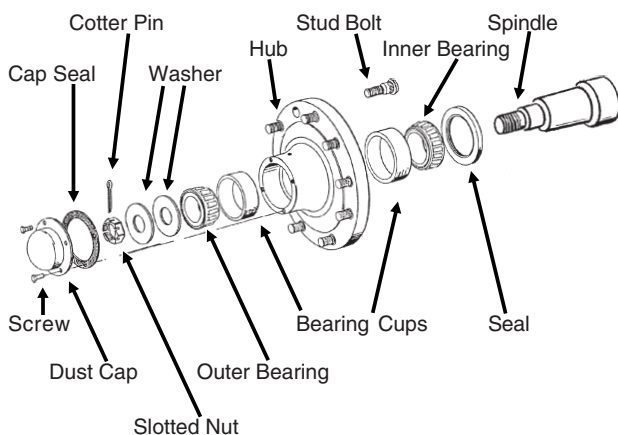


MAINTENANCE

TRANSPORT WHEEL BEARING REPLACEMENT

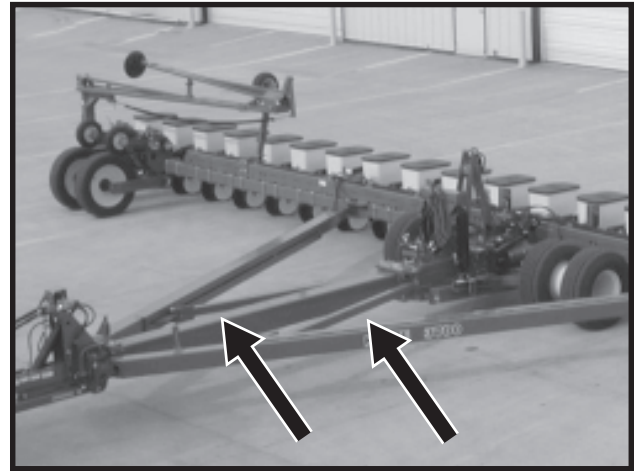
1. Raise tire clear of ground and remove wheel.
2. Remove dust cap attachment hardware and remove cap from wheel hub.
3. Remove cotter pin, axle nut and 2" washer.
4. Slide hub from axle spindle, using a hub puller if necessary.
5. Remove bearings and cups from hub and discard. Thoroughly clean and dry 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 budd nuts to 220 ft. lbs. and outer budd nuts to 670 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.

MAINTENANCE

PISTON PUMP STORAGE

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

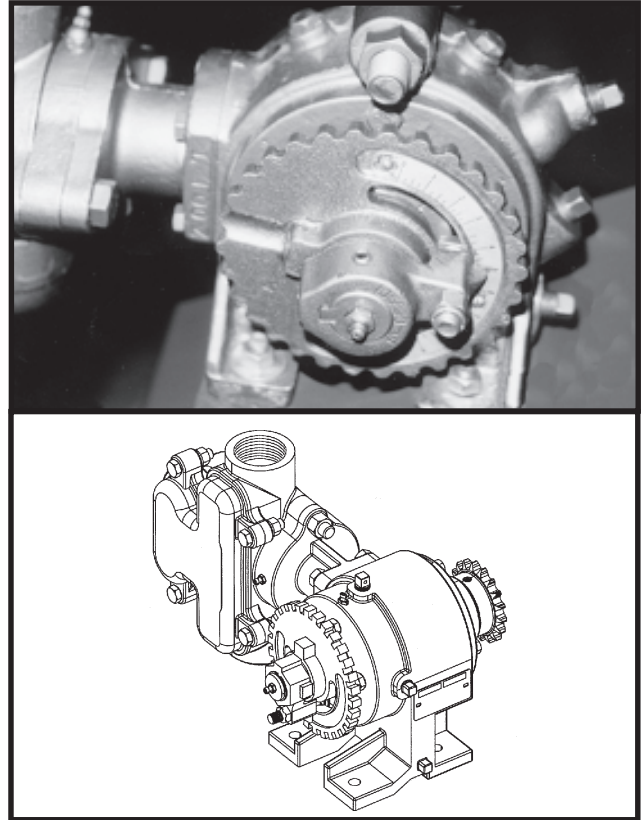
Overnight Storage

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

Winter Storage

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

12229799/A12330a



PISTON PUMP TROUBLESHOOTING

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

MAINTENANCE

PREPARATION FOR STORAGE

Store the planter in a dry sheltered area if possible.

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

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

Lubricate planter and row units at all lubrication points.

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.

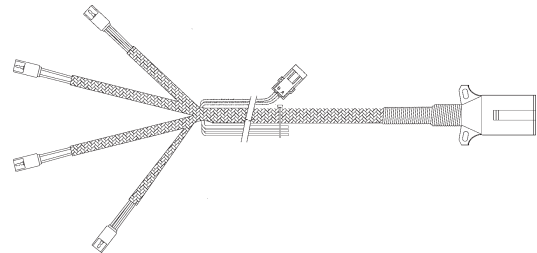
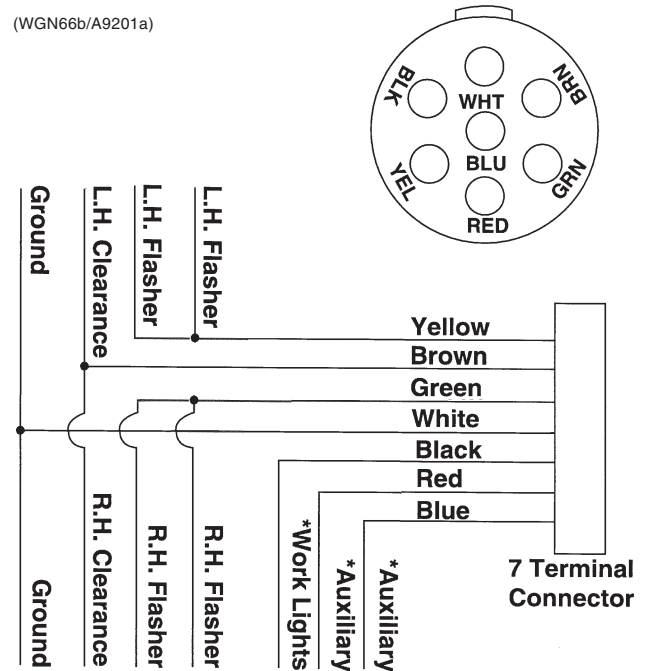
Grease or paint disc openers/blades and row marker disc blades to prevent rust.

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

Disengage row unit clutch and unlatch mini-hopper on each row unit to release stress on drop hoses and hoppers during storage. (SDS Only)

ELECTRICAL WIRING DIAGRAM FOR LIGHT PACKAGE

(WGN66b/A9201a)



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

The light packages supplied on Model 3700 and 3700 SDS Front Folding Planters meet ASAE Standards. For the correct wiring harness to be wired into the lights on your tractor, check with the tractor manufacturer.

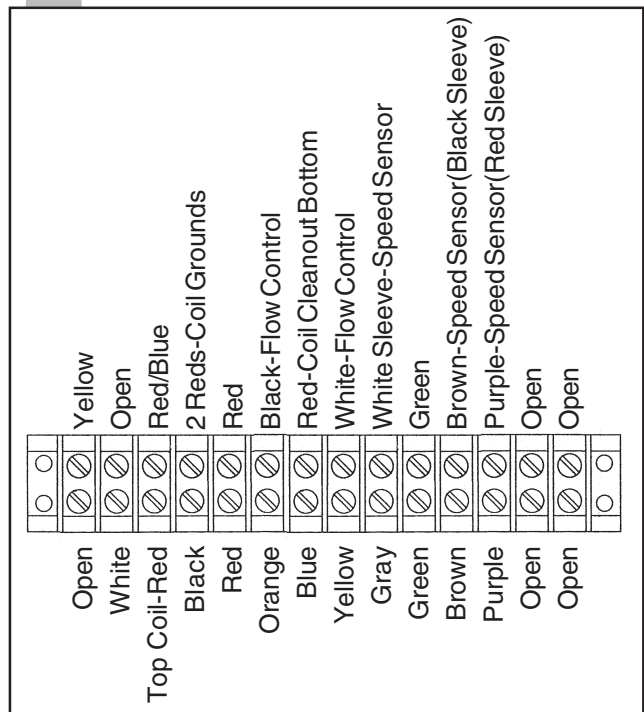
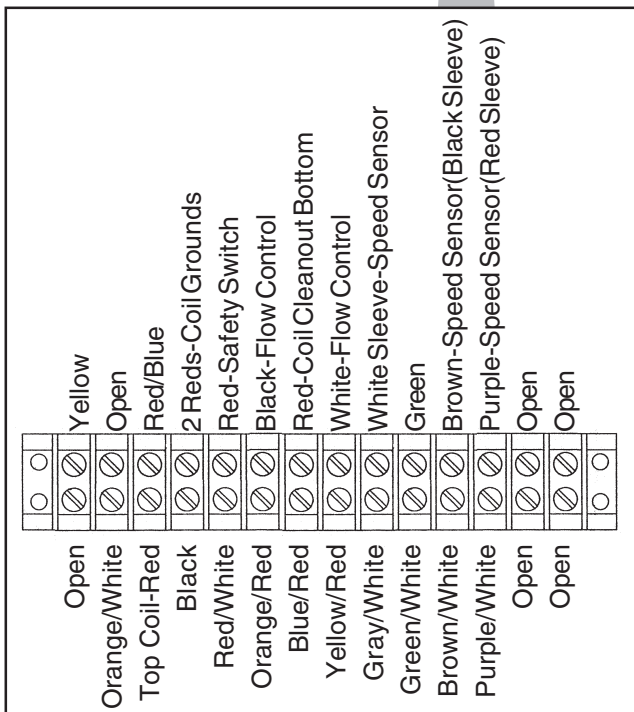
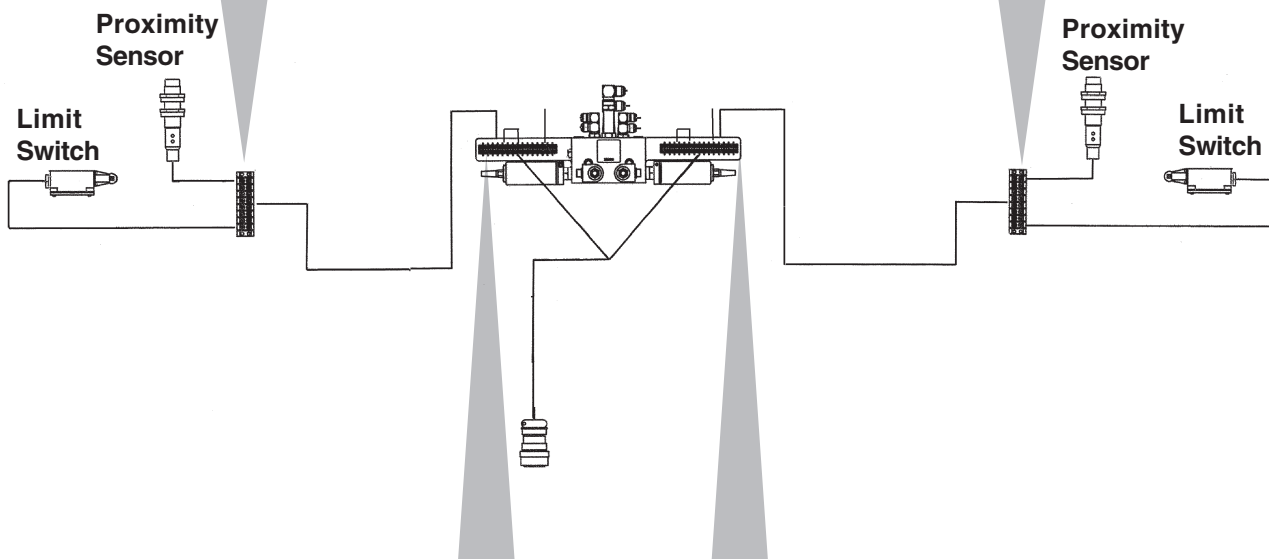
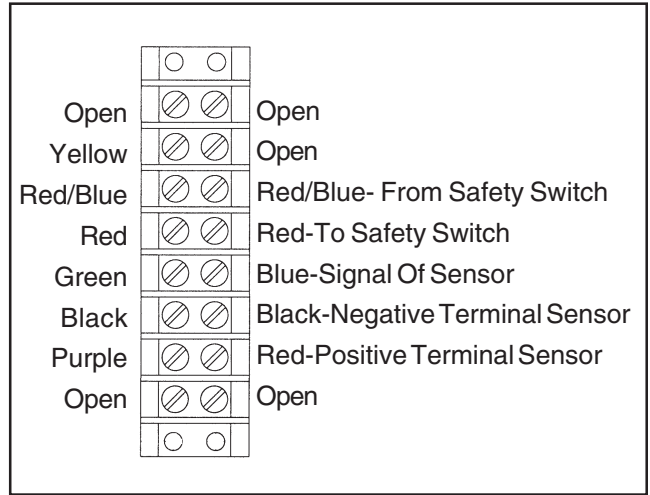
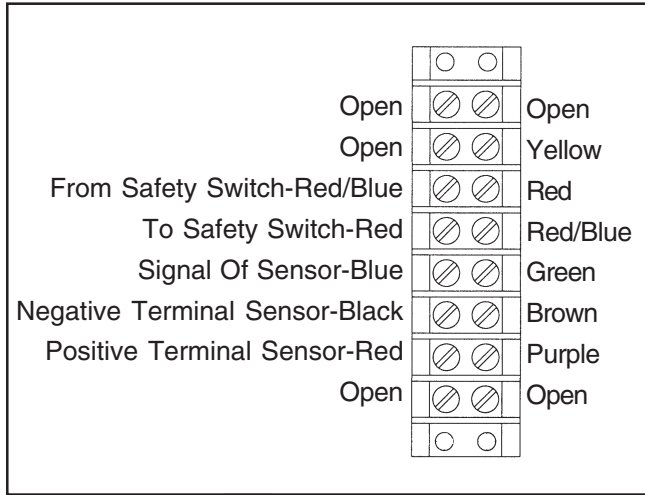
69922-35



MAINTENANCE

ELECTRICAL WIRING SCHEMATIC (SDS)

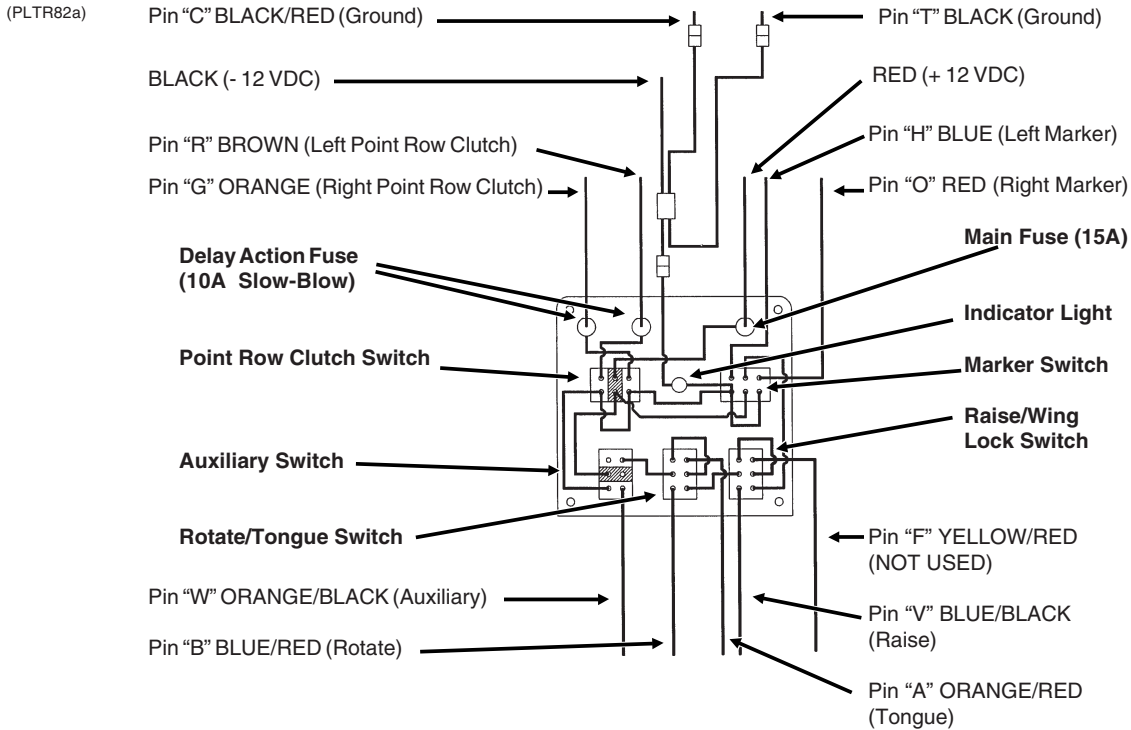
(A9098/FF128a/A9097)



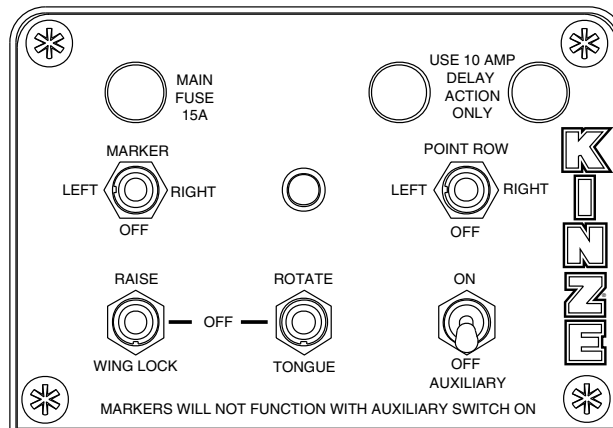
MAINTENANCE

ELECTRICAL CONTROL CONSOLE SCHEMATIC

IMPORTANT: Before doing any electrical work, disconnect the control console from the tractor battery. Keep wiring harnesses away from high temperature areas or sharp edges. DO NOT route the wiring harnesses along battery cables. Use tie straps to keep wire 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:

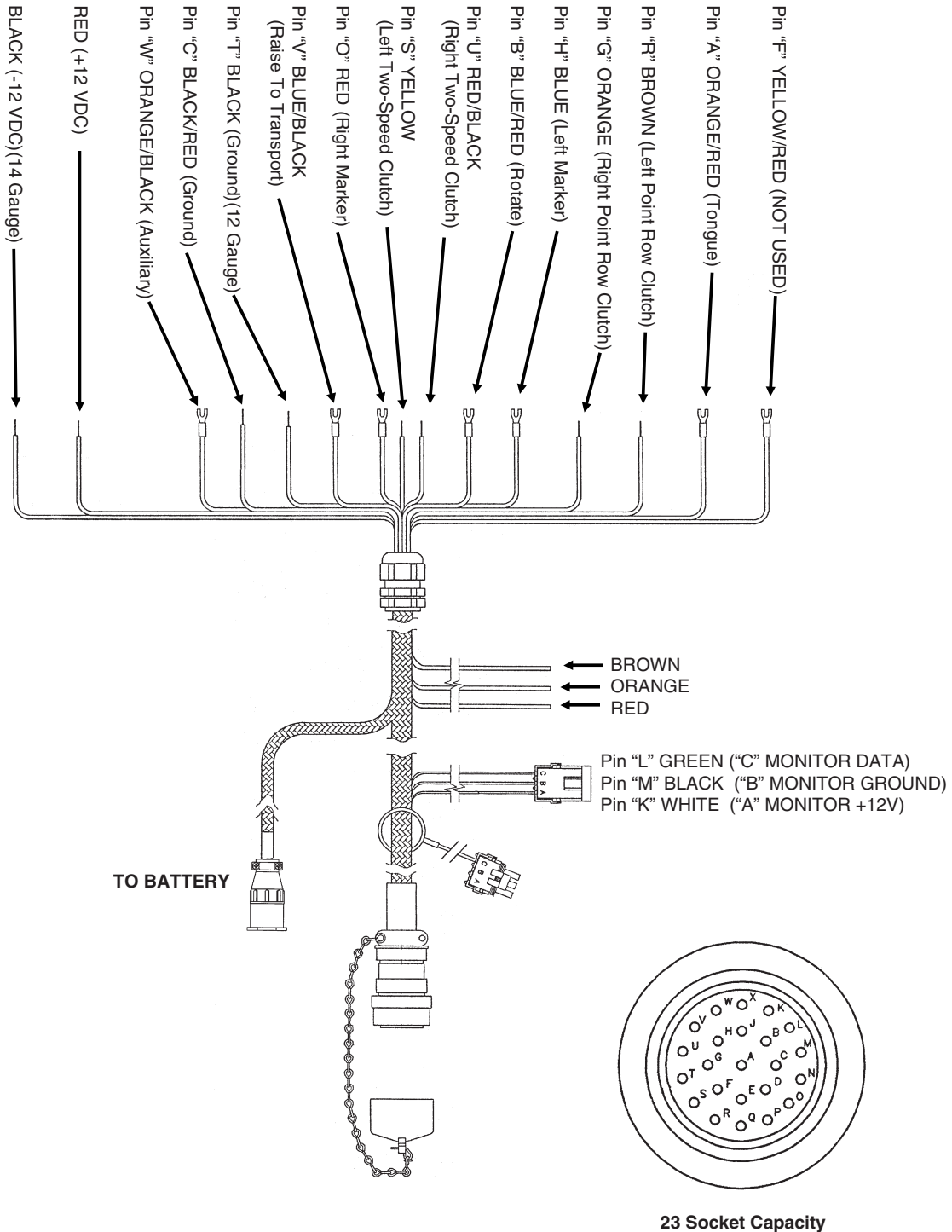
1. Operating row marker or point row switch in either direction lights panel light.
2. Point row clutch switch operates independently of the rest of the control box.
3. Power to the row marker switch is fed through the auxiliary switch and the two transport function switches. Operating any of the switches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

See page 10-35 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.

MAINTENANCE

ELECTRICAL WIRING HARNESS SCHEMATIC (On Tractor)

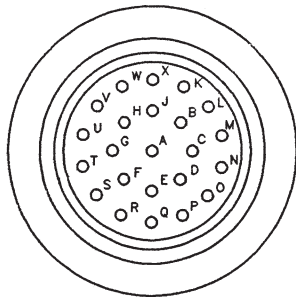
(ELC10c/ELC13)



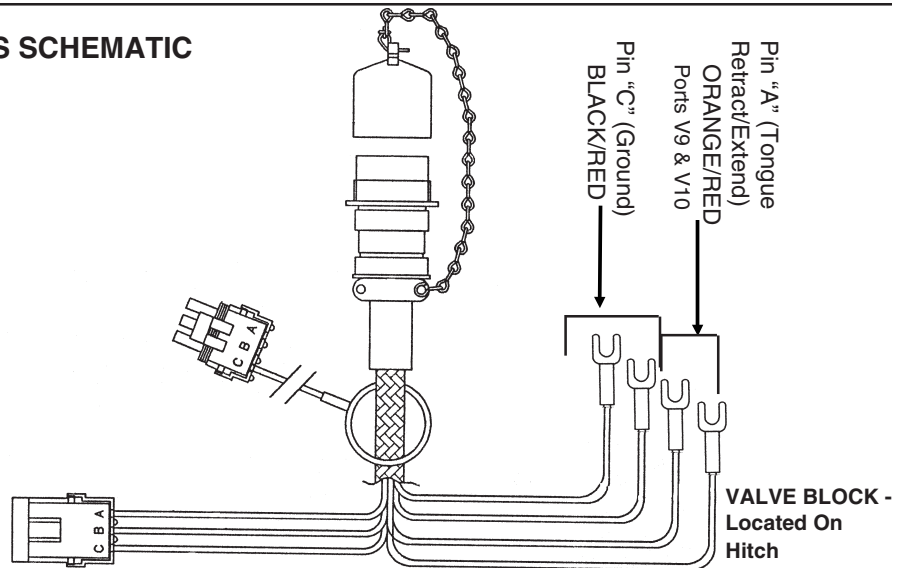
MAINTENANCE

ELECTRICAL WIRING HARNESS SCHEMATIC (On Planter)

(ELC13/ELC11a/TWL71d)

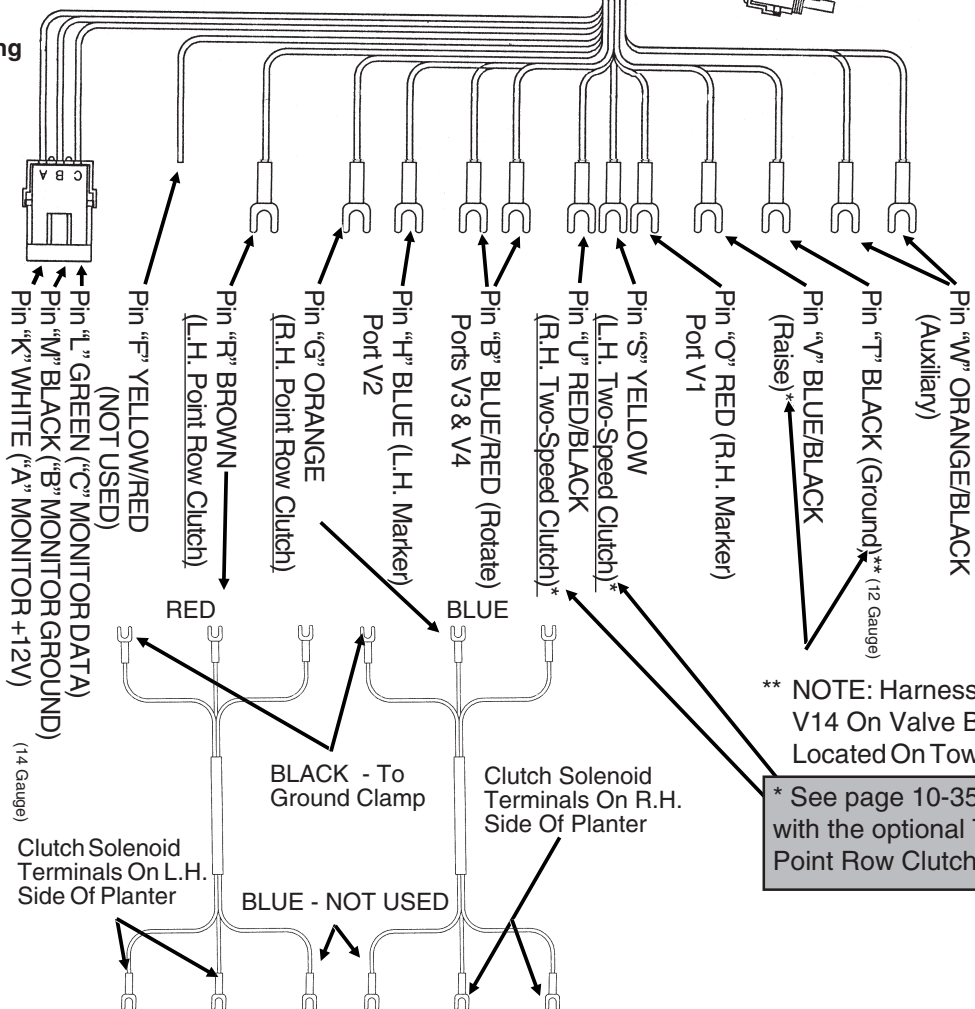


23 Pin Capacity



VALVE BLOCK -
Located On
Hitch

VALVE BLOCK -
Located On R.H. Wing



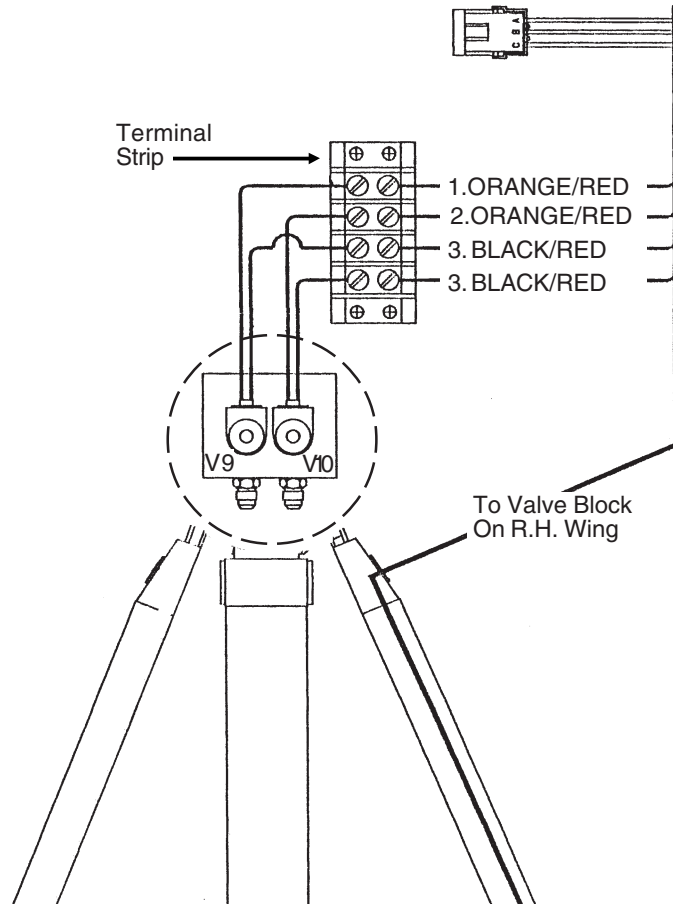
** NOTE: Harness To Port V14 On Valve Block Located On Tower

* See page 10-35 if equipped with the optional Two-Speed Point Row Clutch Package.

MAINTENANCE

(A7516a)

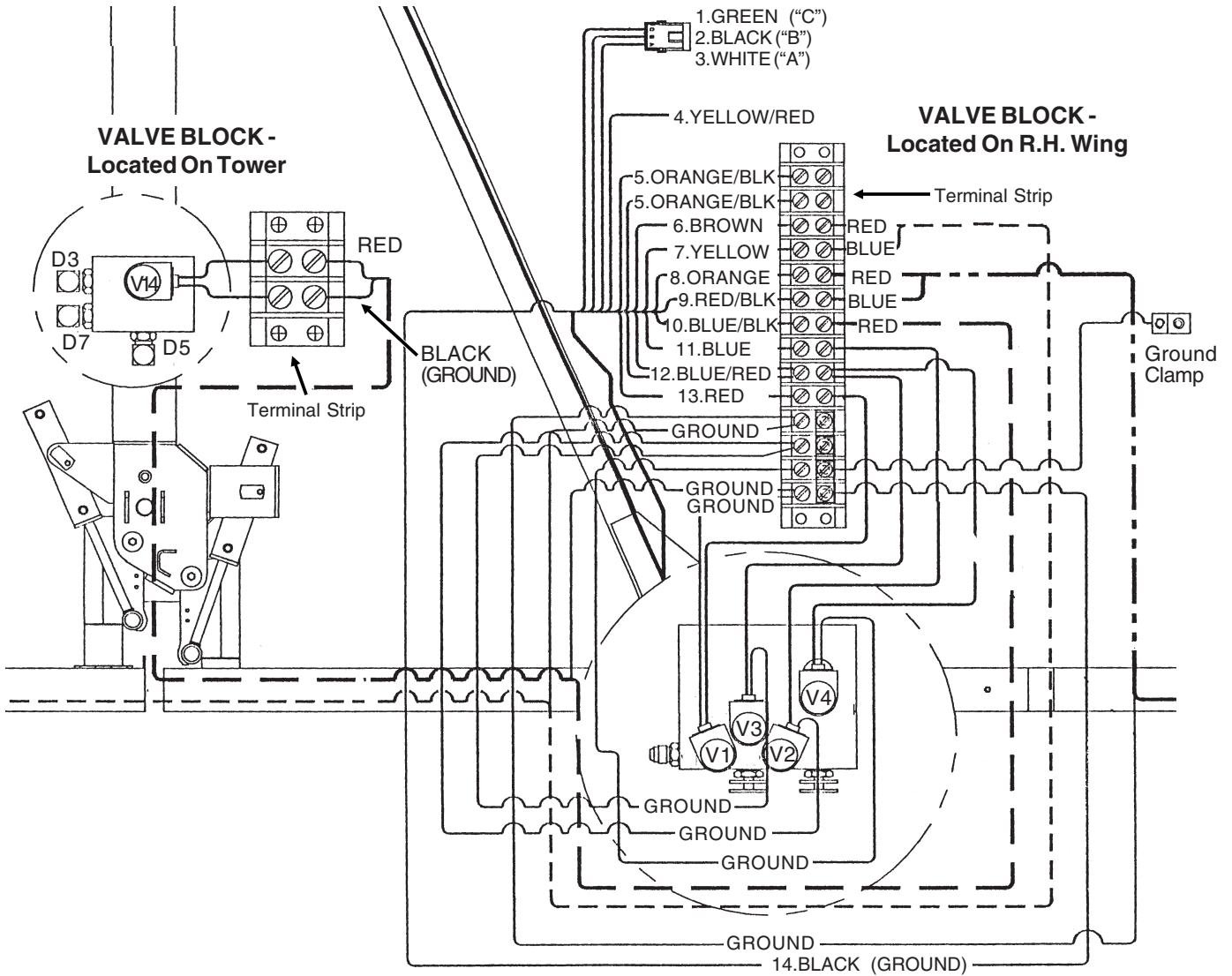
VALVE BLOCK - Located On Hitch



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)

MAINTENANCE

(A7516b)

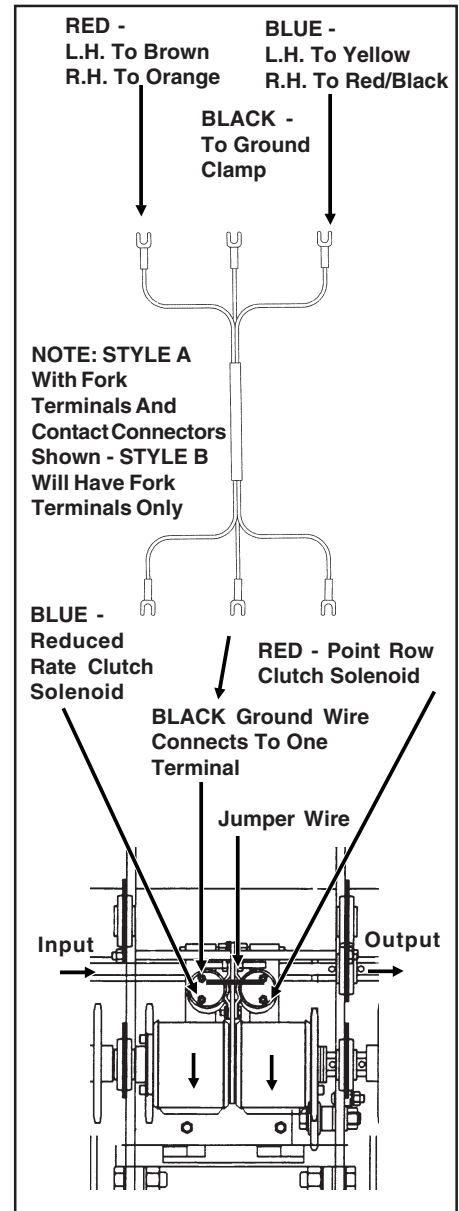
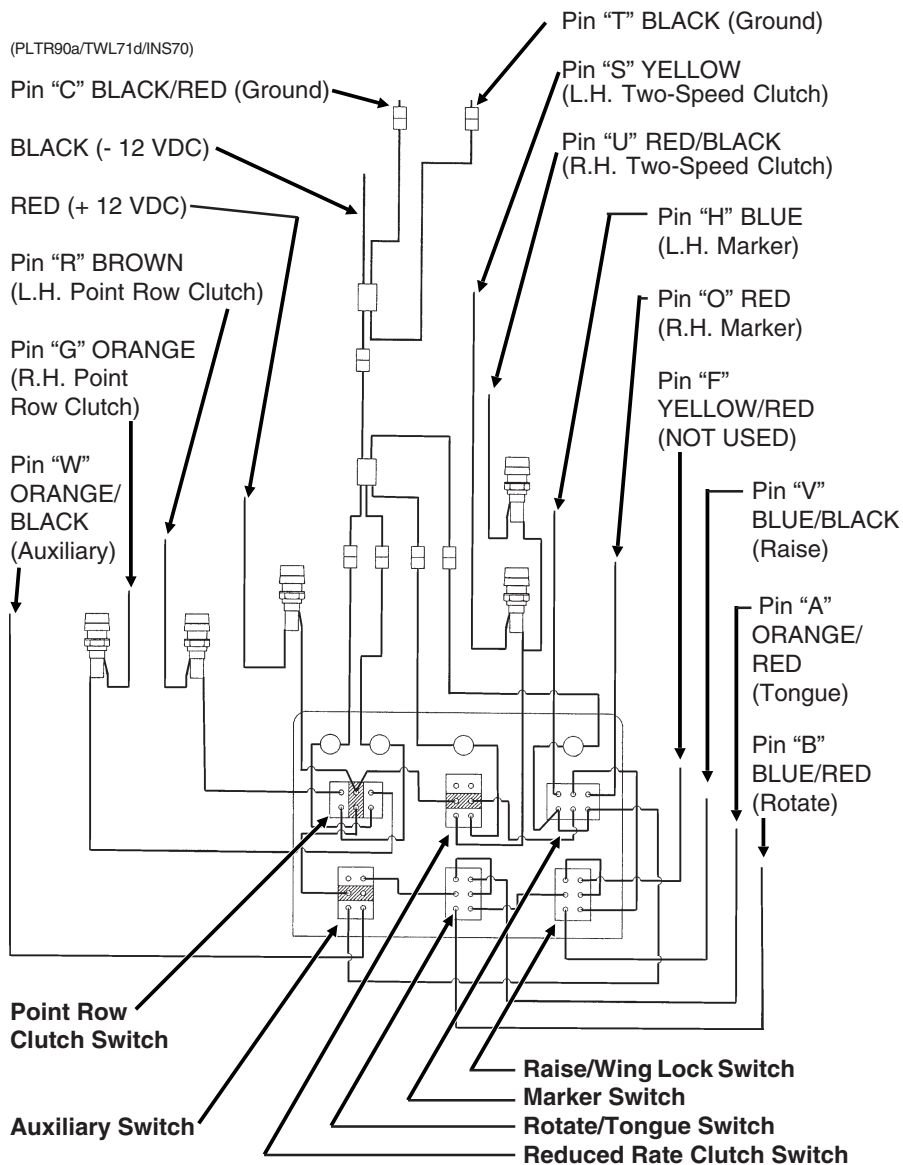


1. GREEN - Pin "L" ("C" MONITOR DATA)
2. BLACK - Pin "M" ("B" MONITOR GROUND)
3. WHITE - Pin "K" ("A" MONITOR +12V)
4. YELLOW/RED - Pin "F" (NOT USED)
5. ORANGE/BLACK - Pin "W" (Auxiliary)
6. BROWN - Pin "R" (L.H. Point Row Clutch)
7. YELLOW - Pin "S" (L.H. Two-Speed Clutch)*
8. ORANGE - Pin "G" (R.H. 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)

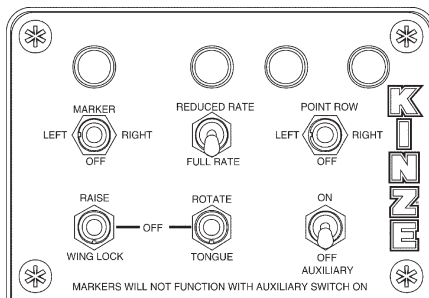
* See page 10-35 if equipped with the optional Two-Speed Point Row Clutch Package.

MAINTENANCE

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



(INS260)



NOTE:

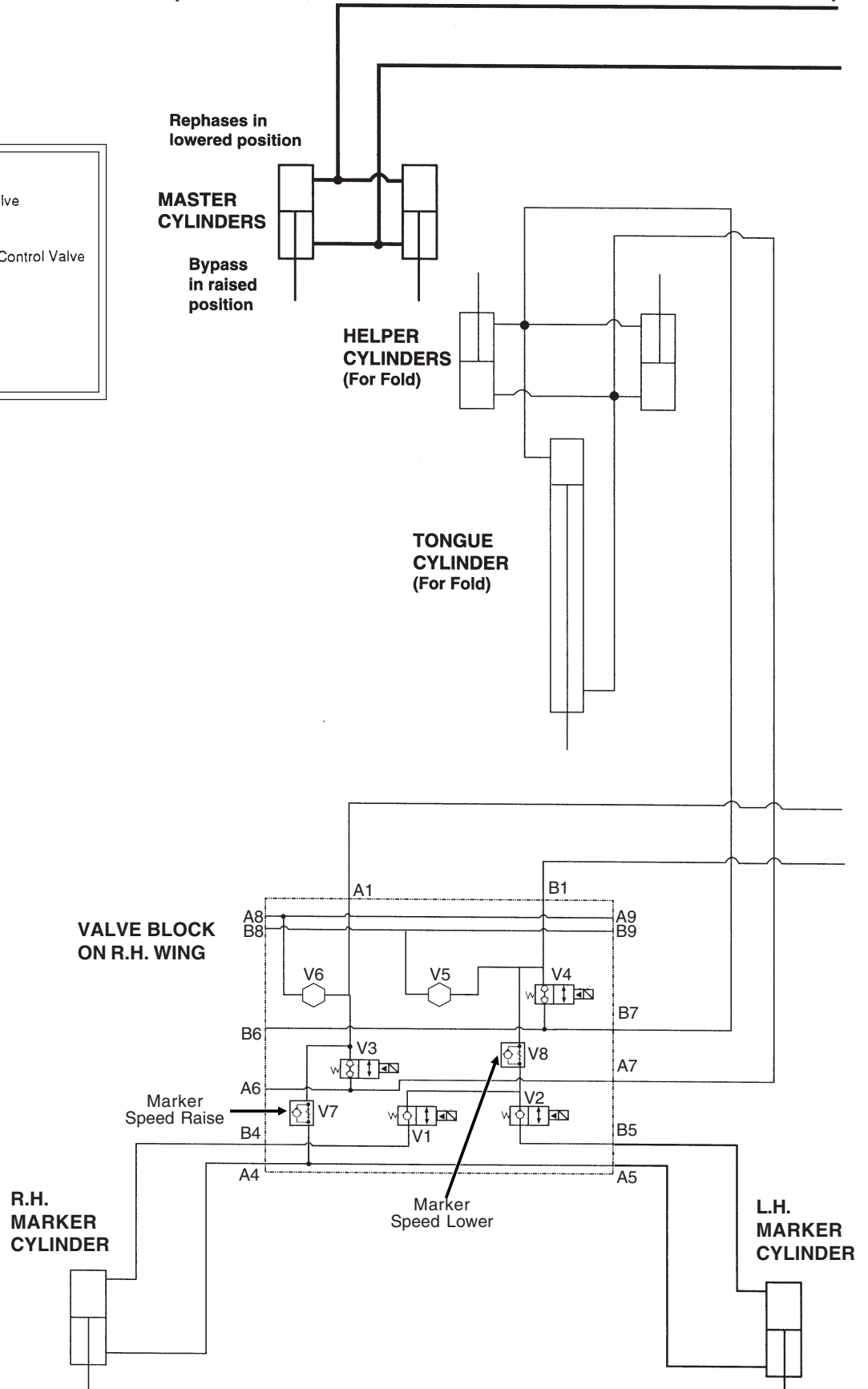
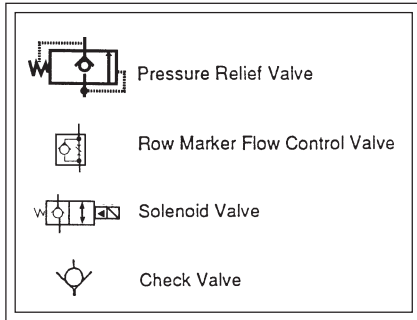
1. Point row and reduced rate clutch switches operate independently of the rest of the control console.
2. Power to the marker switch is fed through the auxiliary switch and the two transport function switches. Operating any of the switches in the lower row disables the marker function and turns off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

MAINTENANCE

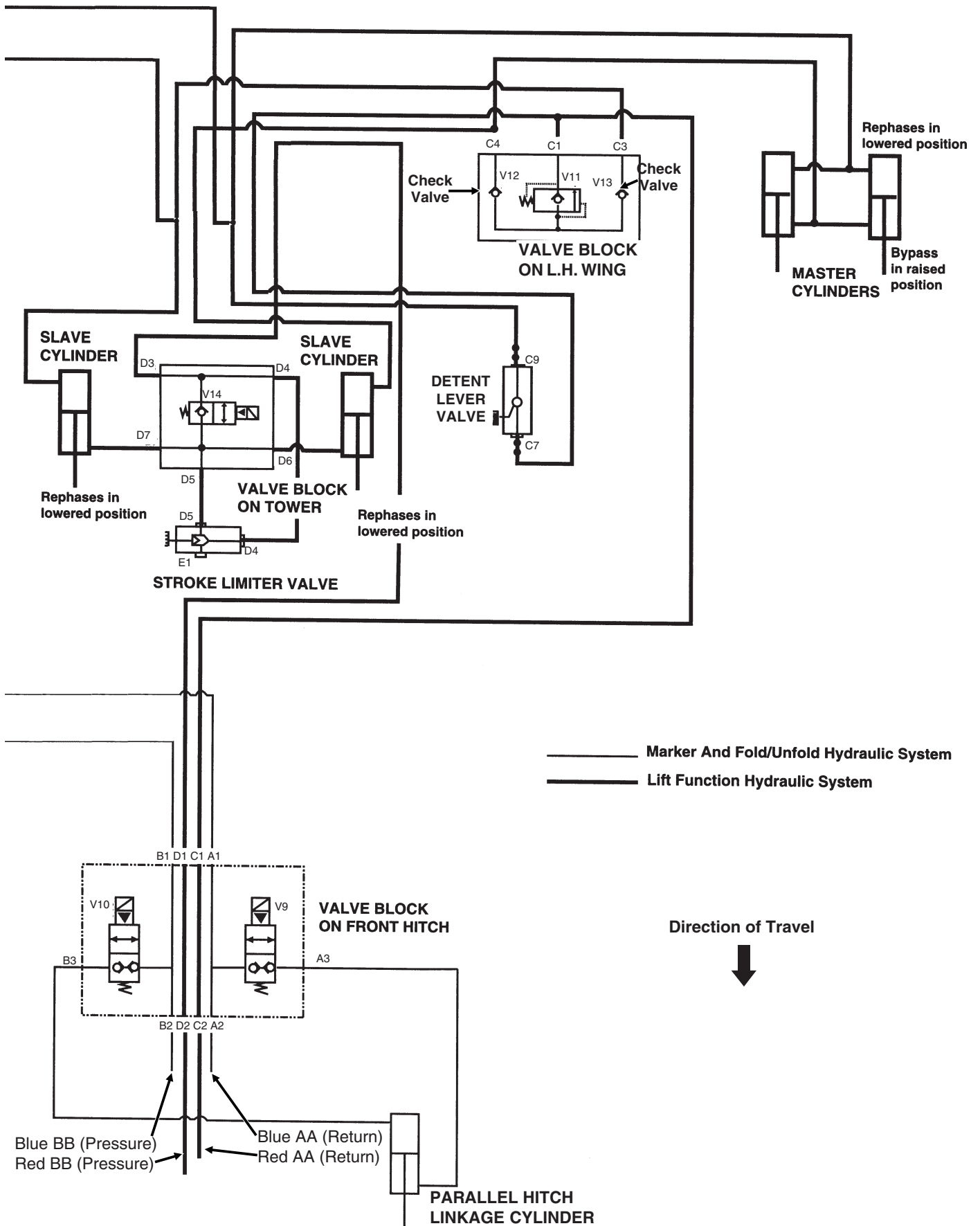
HYDRAULIC SYSTEM SCHEMATIC (16 Row 30", 16 Row 38", 24 Row 20" And 24 Row 22" Sizes)

(PLTR93a)



MAINTENANCE

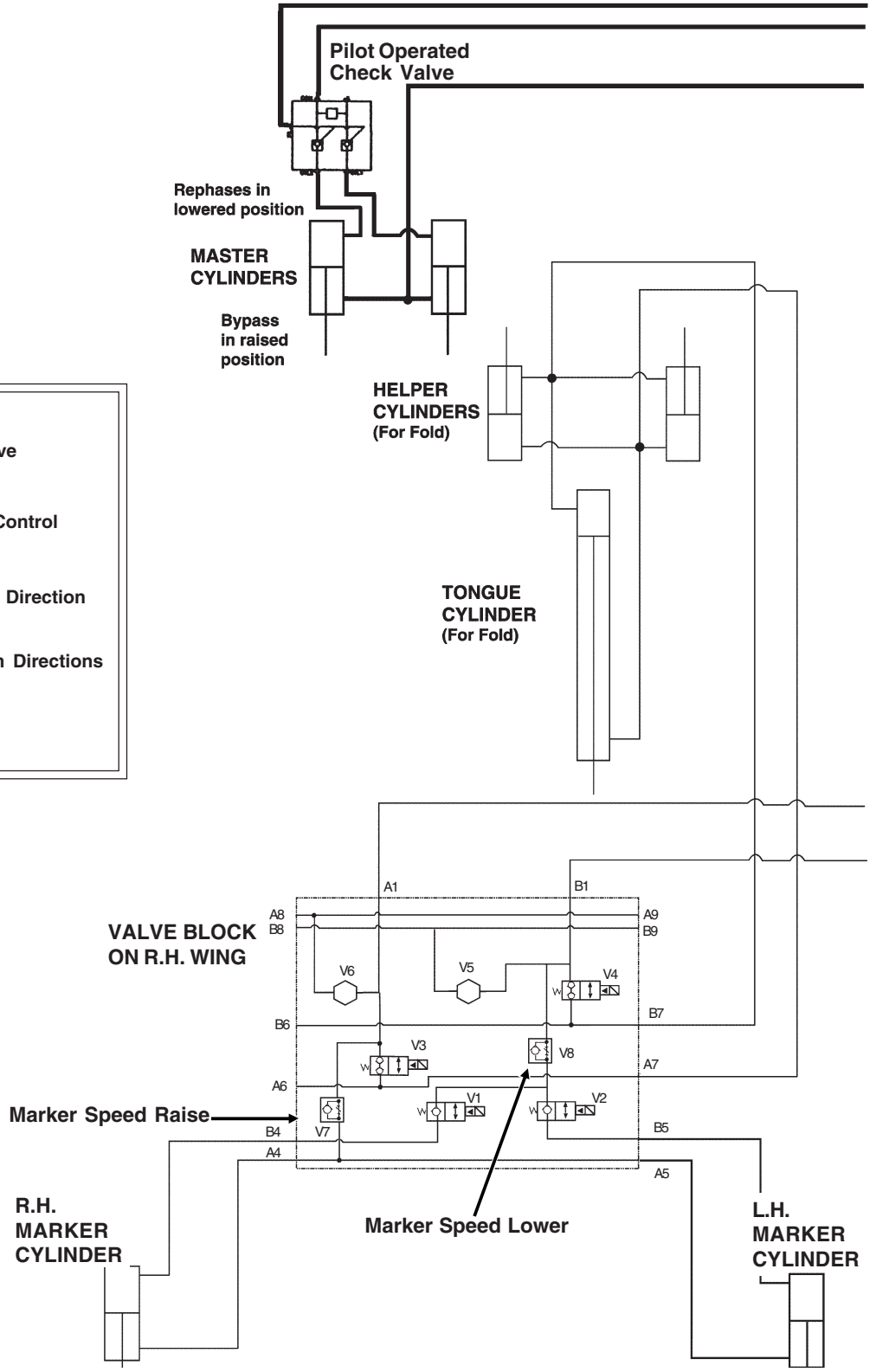
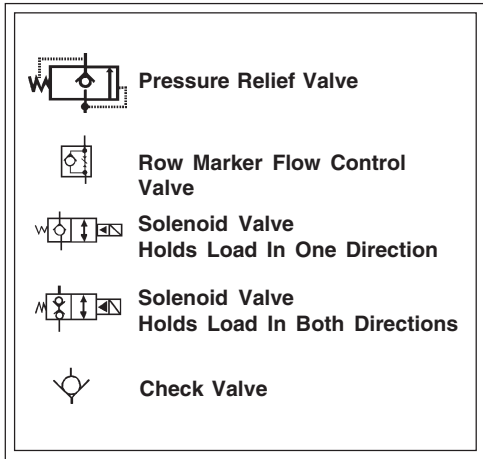
(PLTR94)



MAINTENANCE

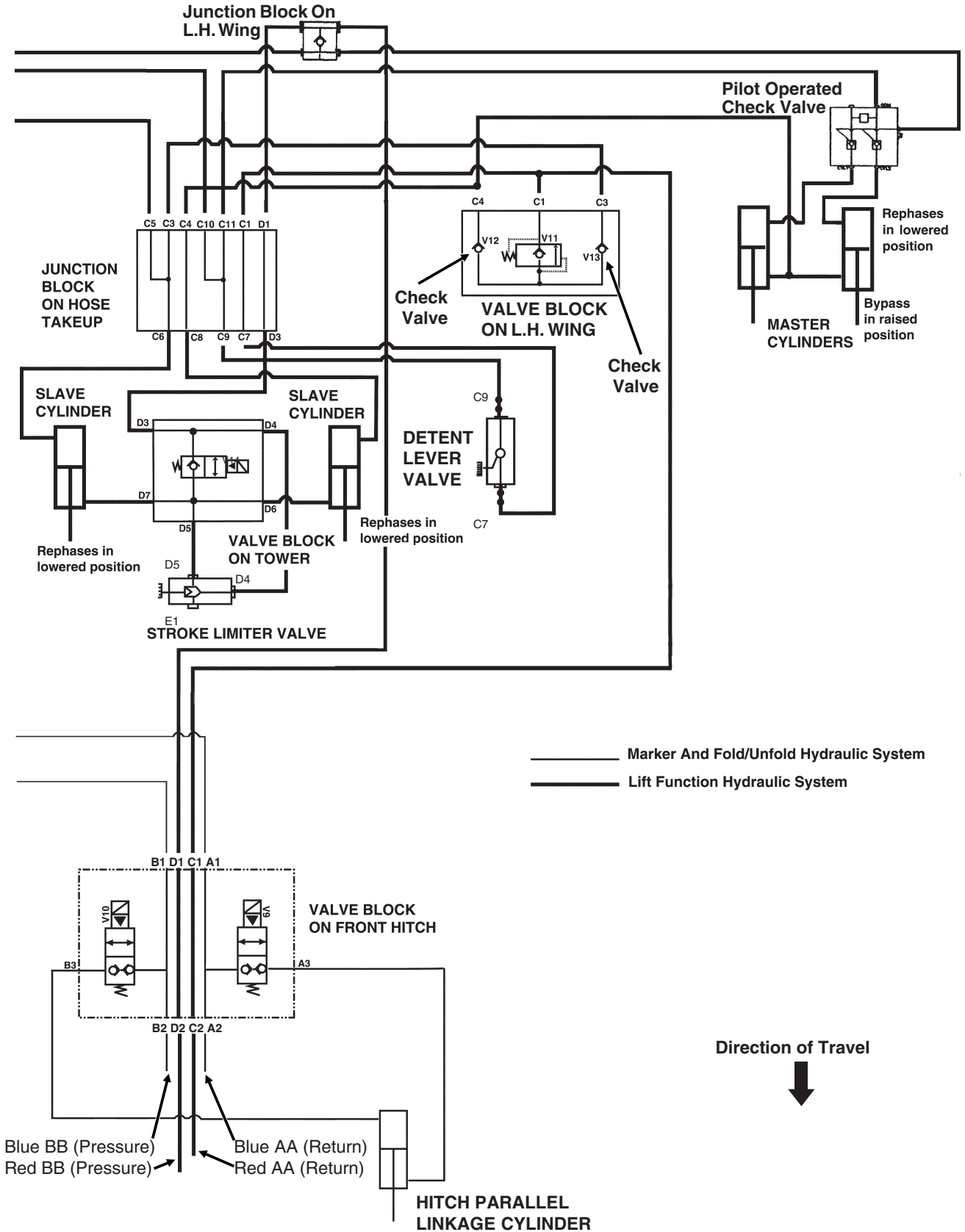
HYDRAULIC SYSTEM SCHEMATIC (24 Row 30" Size)

(PLTR74d)



MAINTENANCE

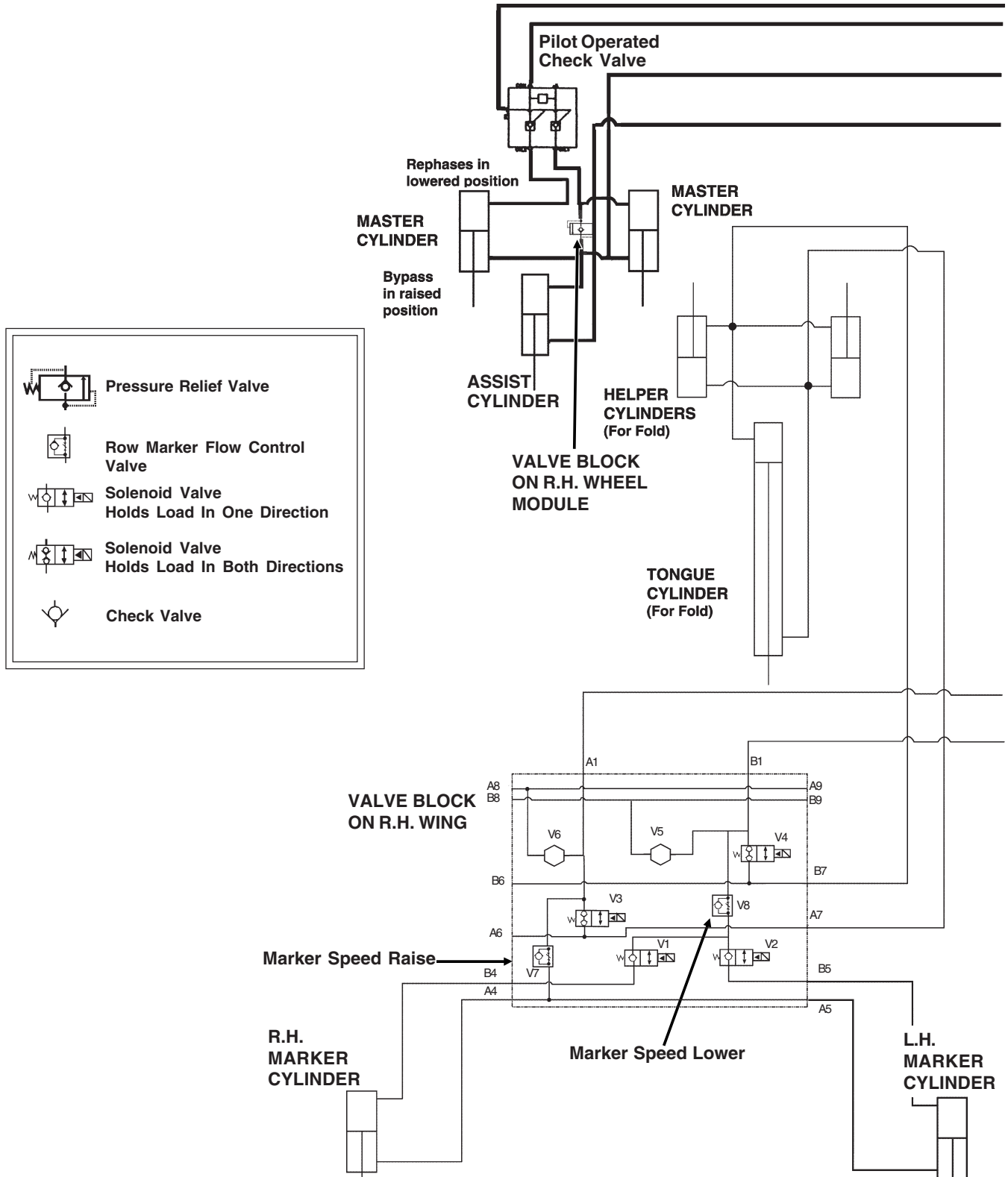
(PLTR75f)



MAINTENANCE

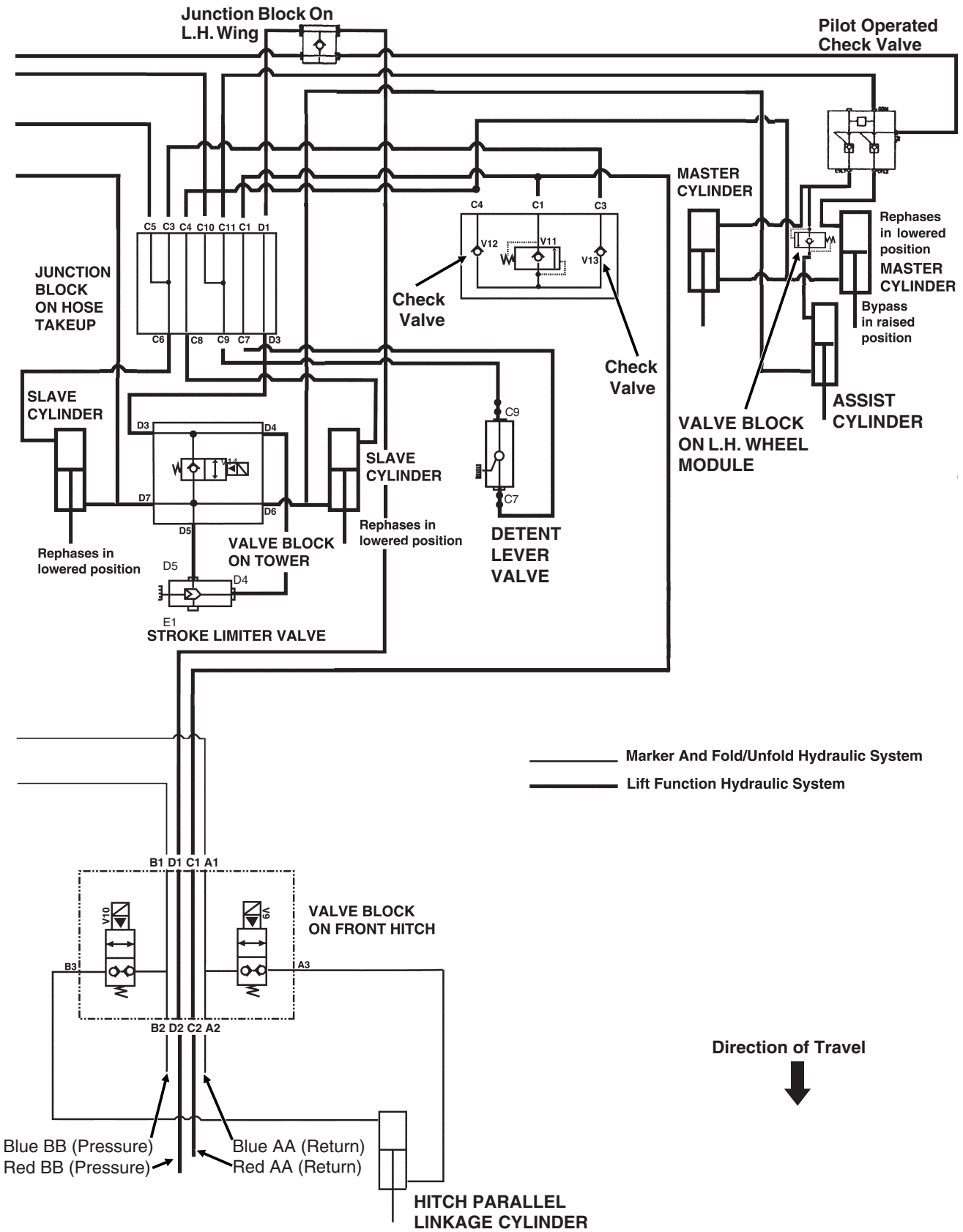
HYDRAULIC SYSTEM SCHEMATIC (36 Row 20" Size)

(PLTR74f)



MAINTENANCE

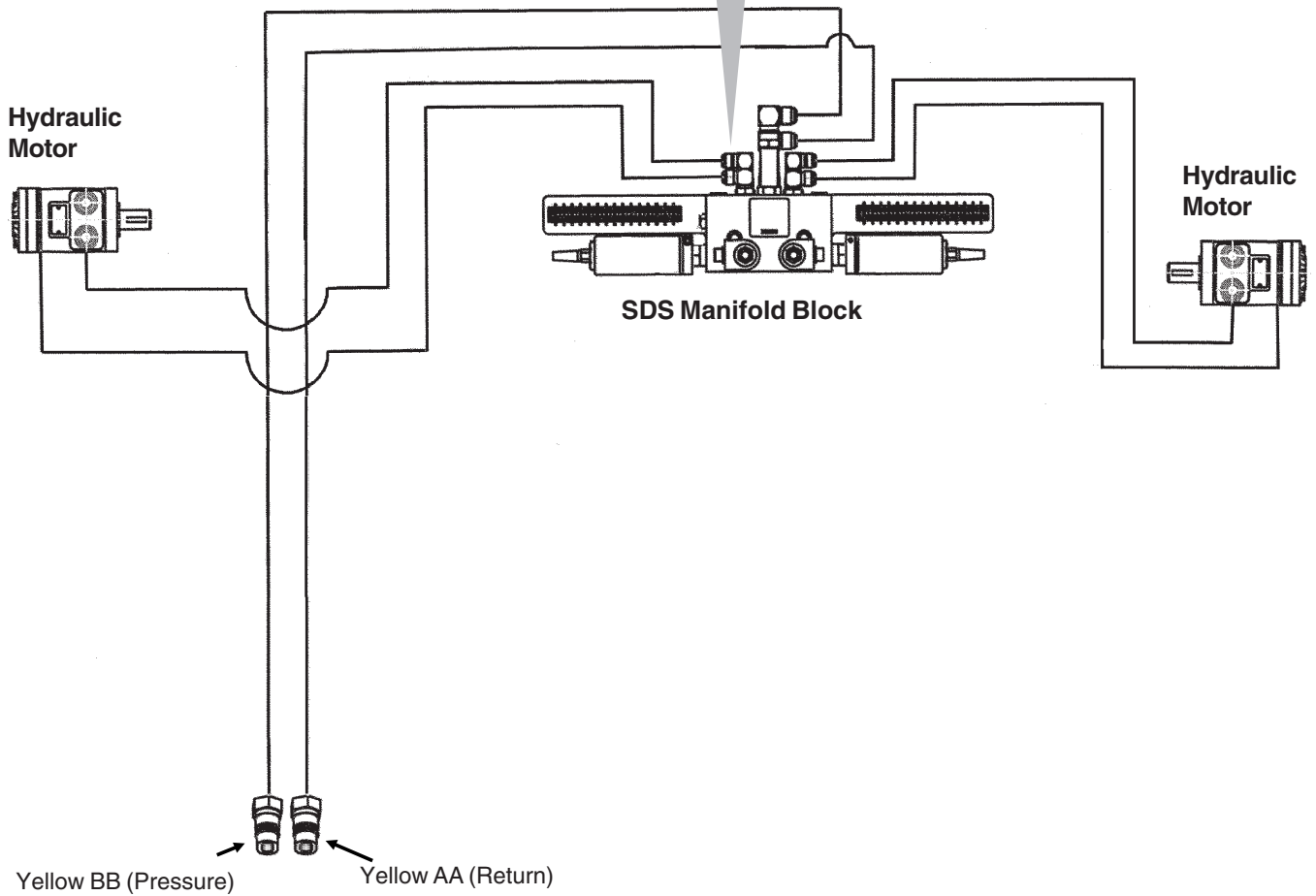
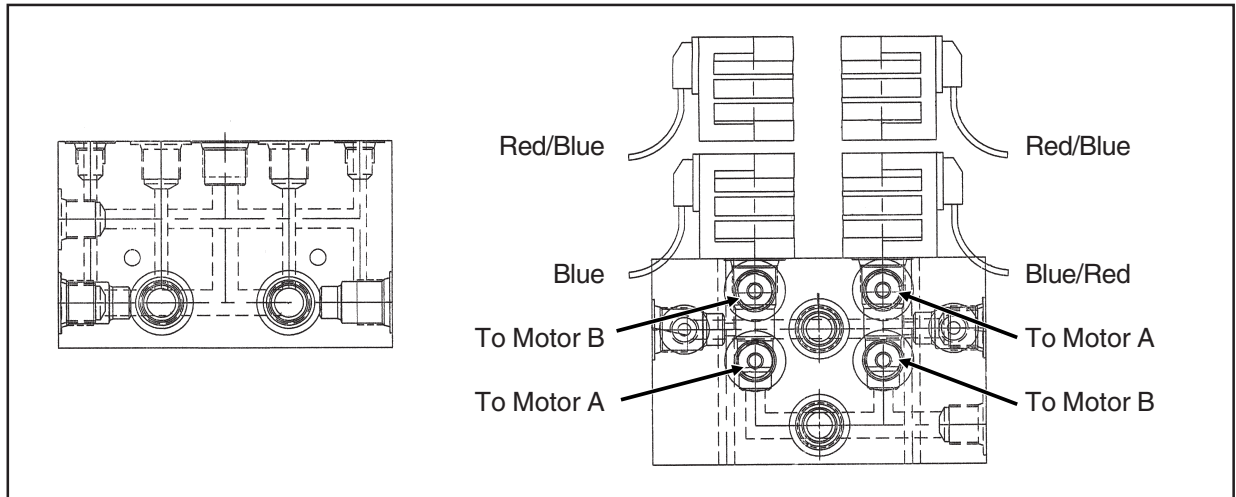
(PLTR75h)



MAINTENANCE

HYDRAULIC SYSTEM SCHEMATIC (SDS)

(FWD103/FF128b)

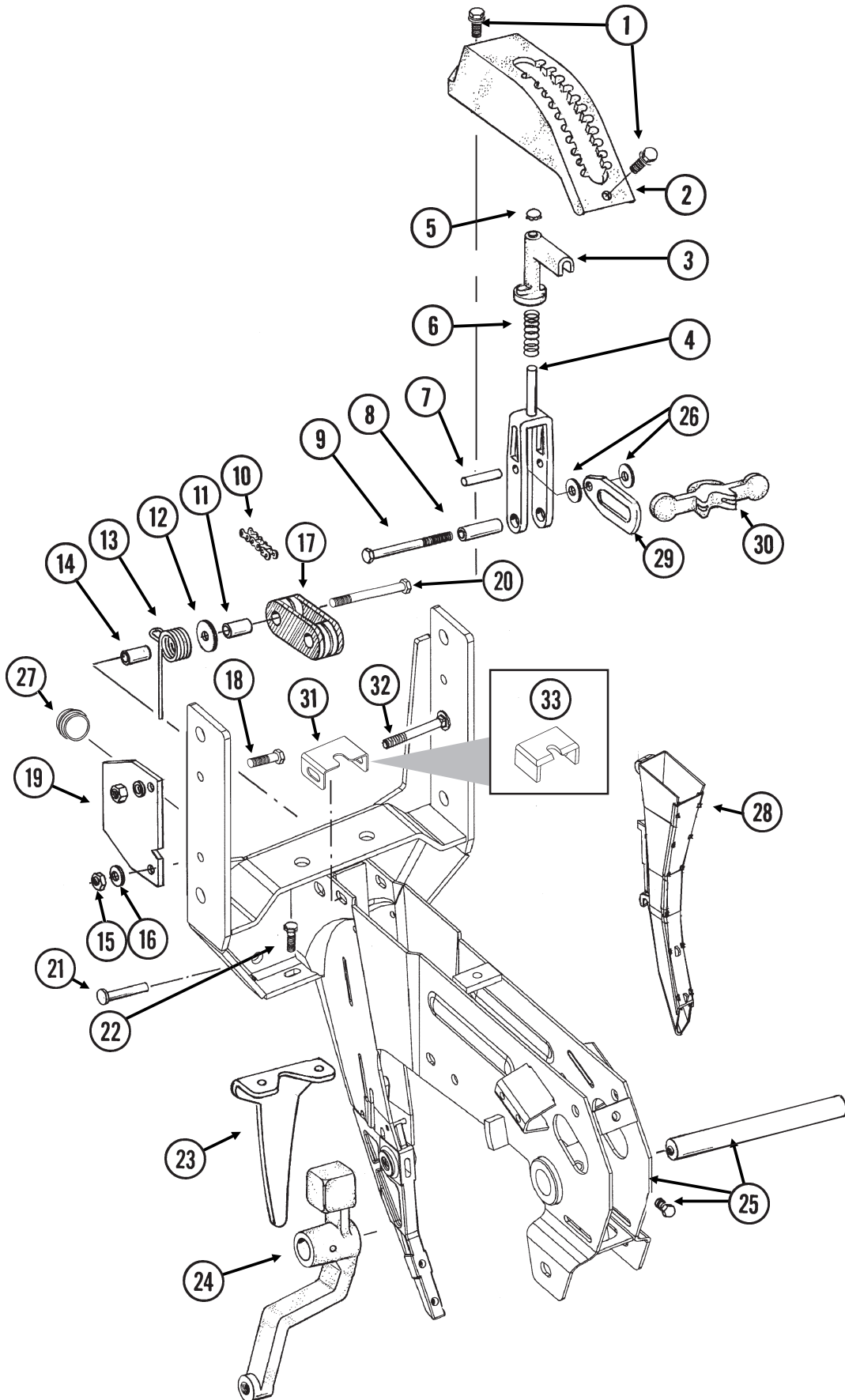


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SHANK ASSEMBLY, SEED TUBE AND DEPTH ADJUSTMENT

(METR29cc)

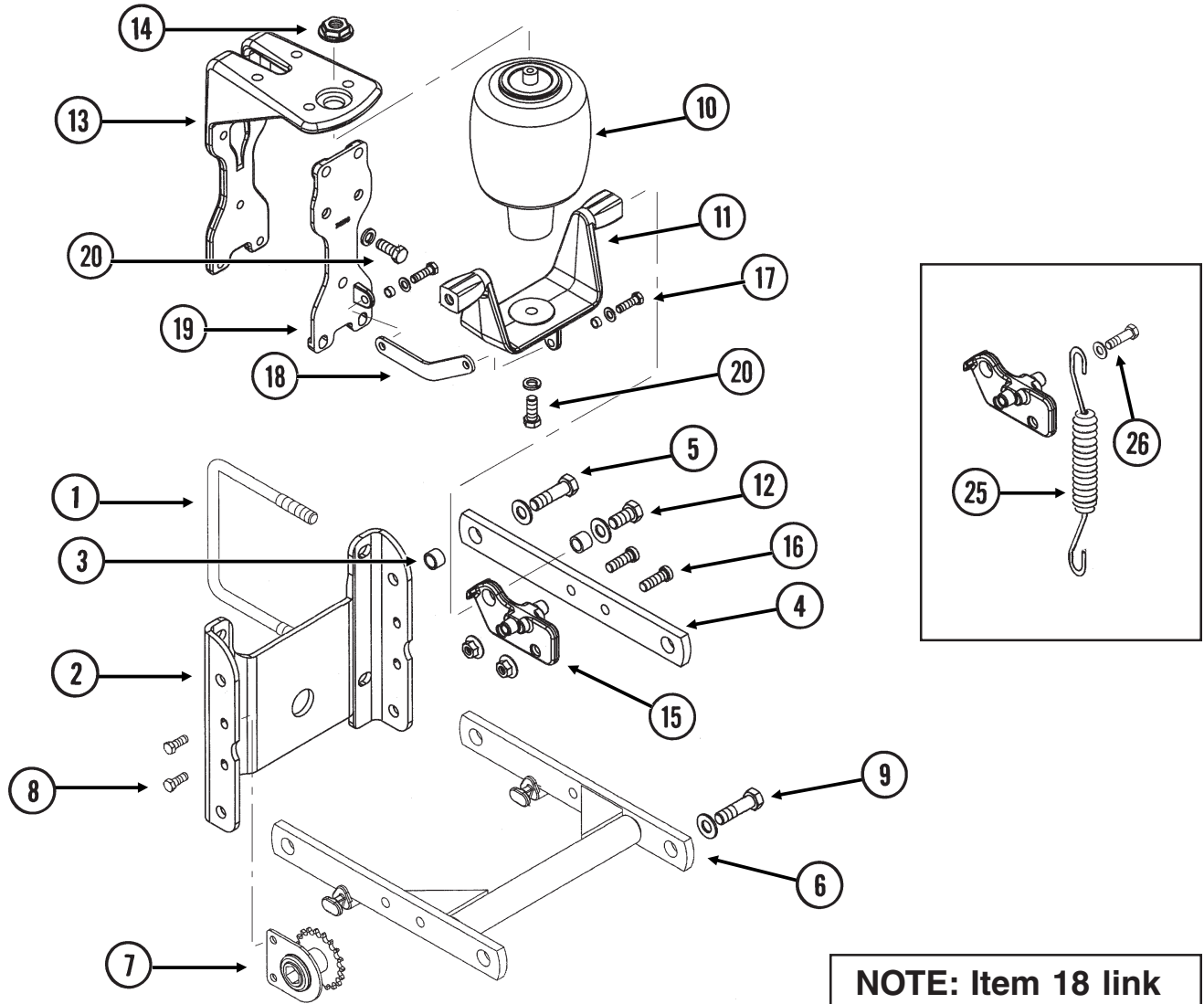


SHANK ASSEMBLY, SEED TUBE AND DEPTH ADJUSTMENT

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G11015	2	Hex Washer Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{4}$ "
2.	GB0274	1	Cover, Depth Adjustment
3.	GB0266	1	Handle, Depth Adjustment
4.	GB0267	1	Lever, Depth Adjustment
5.	GD3612	1	Cap Plug
6.	GD10993	1	Spring
7.	GD13361	1	Pin, $\frac{3}{8}$ " x 1 $\frac{2}{3}$ "
8.	GD11259	1	Sleeve, $\frac{3}{8}$ " I.D. x $\frac{5}{8}$ " O.D. x 1 $\frac{25}{32}$ " Long
9.	G11008	1	Hex Head Cap Screw, $\frac{3}{8}$ "-24 x 2 $\frac{1}{2}$ ", Grade 8
	G11007	1	Lock Nut, $\frac{3}{8}$ "-24, Grade C
10.	G3303-98	1	Chain, No. 41, 98 Pitch Including Connector Link
	G3303-16	1	Chain, No. 41, 16 Pitch Including Connector Link (Used W/Row Unit Extension Brackets)
	GR0196	1	Connector Link, No. 41
11.	GD1026	1	Sleeve, 1 $\frac{3}{16}$ " Long
12.	G10201	1	Special Washer, $\frac{3}{8}$ " x 1 $\frac{1}{2}$ " O.D.
13.	GD1065	1	Idler Spring
14.	GD7318	1	Sleeve, 1" Long
15.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
16.	G10210	1	Washer, $\frac{3}{8}$ " USS
17.	GD11962	1	Idler
18.	G10003	3	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10108	3	Lock Nut, $\frac{3}{8}$ "-16
19.	GD10867	2	Stop
20.	G10326	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 3 $\frac{3}{4}$ "
21.	G10551	1	Clevis Pin, $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "
	G10669	1	Hair Pin Clip, No. 22
22.	G10312	2	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10620	2	Serrated Flange Nut, $\frac{5}{16}$ "-18
23.	GD1033	1	Shield
24.		-	Wheel Arm, See "Gauge Wheels", Pages P12 And P13
25.	GA10157	1	Shank W/Gauge Wheel Pivot Spindle And Set Screw
	GD11001	-	Spindle
	G10438	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x $\frac{3}{4}$ "
26.	G10207	2	Washer, $\frac{7}{8}$ " O.D. x $\frac{13}{32}$ " I.D. x .134" (If Applicable)
27.	GD11845	1	Dust Cap
28.			See "KPM I Electronic Seed Monitor", "KPM II Stack-Mode Electronic Seed Monitor", "KPM III Electronic Seed Monitor" And "Planter Monitor Module (PMM)", Pages P120-P127
29.	GB0285	1	Collar, Depth Adjustment
30.	GB0265	1	Pivot Link, Depth Adjustment
31.	GD15970	1	Sun Shade
32.	G10304	1	Carriage Bolt, $\frac{3}{8}$ "-16 x 3"
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
33.	GD16245	-	Sun Shade (Rubber)

PARALLEL ARMS, MOUNTING SUPPORT PLATE AND PNEUMATIC DOWN PRESSURE PACKAGE

(RU157a/RU159/RU157aa)



NOTE: Item 18 link not used when extension brackets are used.

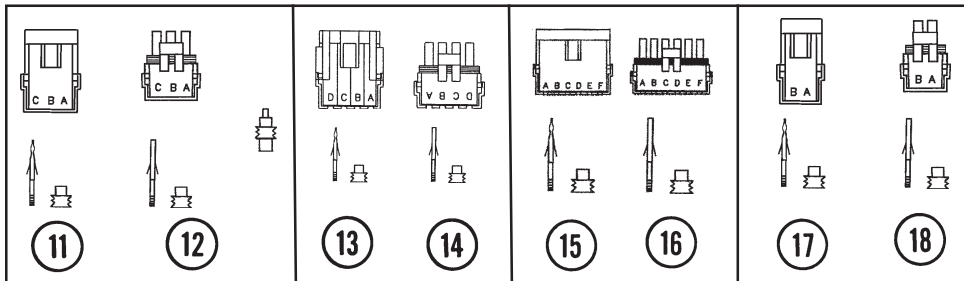
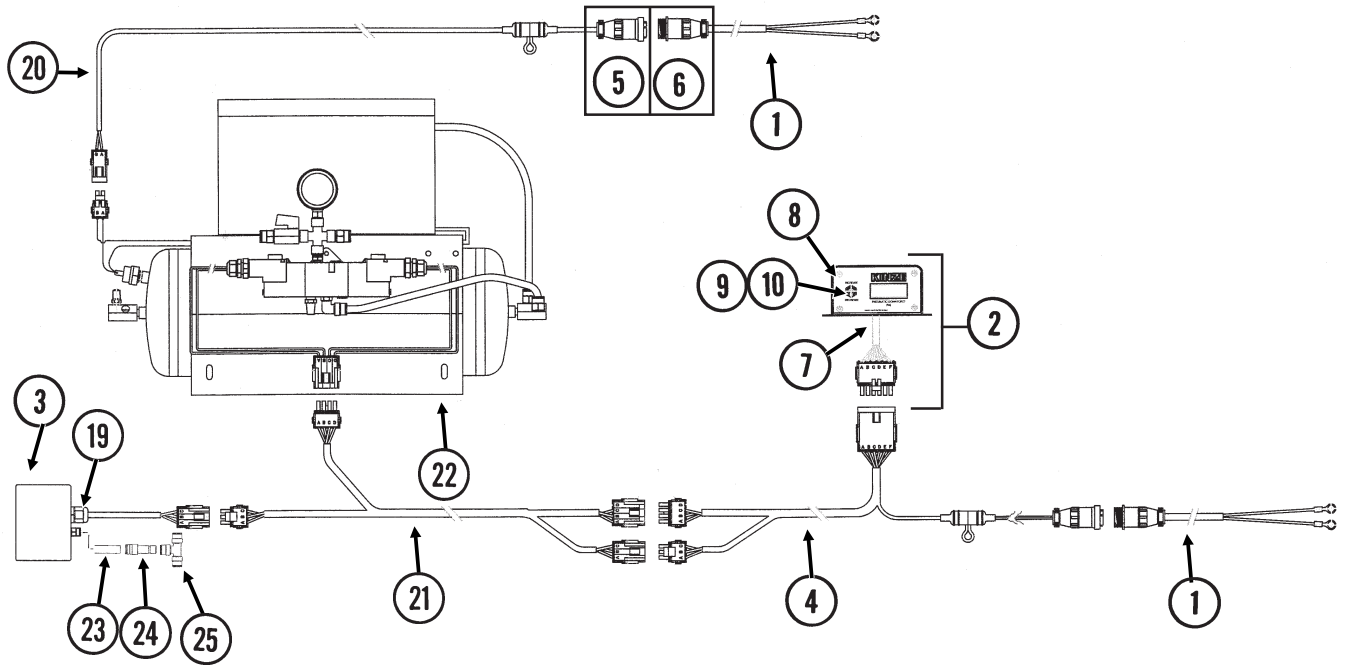
Inset diagram showing a spring (25) and a hook (26) assembly, and a detail of a bracket assembly with parts 21, 22, 23, and 24.

PARALLEL ARMS, MOUNTING SUPPORT PLATE AND PNEUMATIC DOWN PRESSURE PACKAGE

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1114	2	U-Bolt, 7" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
2.	GD10036	1	Mounting Support Plate
3.	GB0218	4	Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long
4.	GD11422	2	Upper Parallel Arm
5.	G10732	4	Hex Head Cap Screw, 5/8"-18 x 2"
	GD7805	4	Special Washer, 5/8", Hardened
	G10412	4	Lock Nut, 5/8"-18
6.	GA5651	1	Lower Parallel Arm
7.	GA1720	1	Bearing/Sprocket, 7/8" Hex Bore
8.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
9.		-	See "Hopper Support And Meter Drive", Page P18
10.	GA11982	1	Air Spring Assembly
11.	GB0394	1	Saddle
12.	G11018	2	Hex Head Cap Screw, 5/8"-18 x 1 1/4"
	GD7805	2	Special Washer, 5/8", Hardened
	GD3180-30	2	Sleeve, 7/8" O.D. x 5/8" I.D. x 21/32"
13.	GB0396	1	Head Mount
14.	GB0397	1	Shoulder Nut, 3/4"-16
15.	GB0395	2	Bracket
16.	G11220	4	Hex Socket Cap Screw, 1/2"-13 x 1 1/2"
	G10071	4	Serrated Flange Nut, 1/2"-13
17.	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10203	2	Washer, 3/8" SAE
	GD11963-04	2	Spacer, 1/4"
	G10108	2	Lock Nut, 3/8"-16
18.	GD17794	1	Link
19.	GB0393	1	Plate
20.	G10037	7	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10206	2	Washer, 1/2" SAE (Lower Two Holes Only)
	G10228	7	Lock Washer, 1/2"
21.	G10007	4	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
22.	GB0366	2	Extension Bracket
23.	GB0398	1	Extension
24.	G10039	4	Hex Head Cap Screw, 1/2"-13 x 1 3/4"
	G10206	4	Washer, 1/2" SAE
	G10111	4	Lock Nut, 1/2"-13
25.	GD8249	2	Spring
26.	G10438	2	Hex Head Cap Screw, 1/2"-13 x 3/4"
	G10216	2	Washer, 1/2" USS
A.	G6326X	-	U-Bolt Package For 7" x 7" Toolbar, Includes: (2) GD1114, (4) G10230, (4) G10104
B.	G1K465	-	Pull Row Unit Assist Springs Package, Includes: (2) G10438, (2) G10216 And (2) GD8249

PNEUMATIC DOWN PRESSURE CONTROL CONSOLE, SENDING UNIT AND HARNESSES

(PNE01a/MTR27a/ELC27b/MTR45/MTR27i)

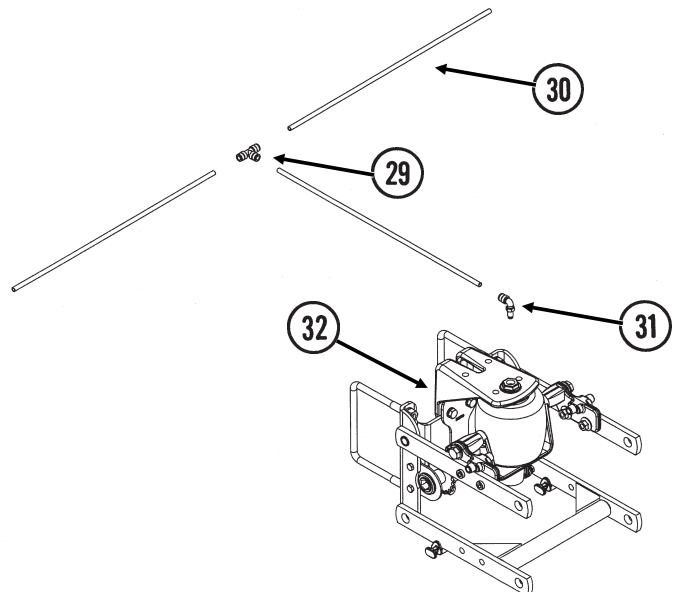
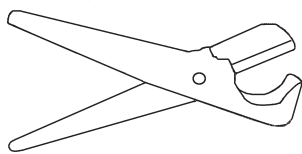
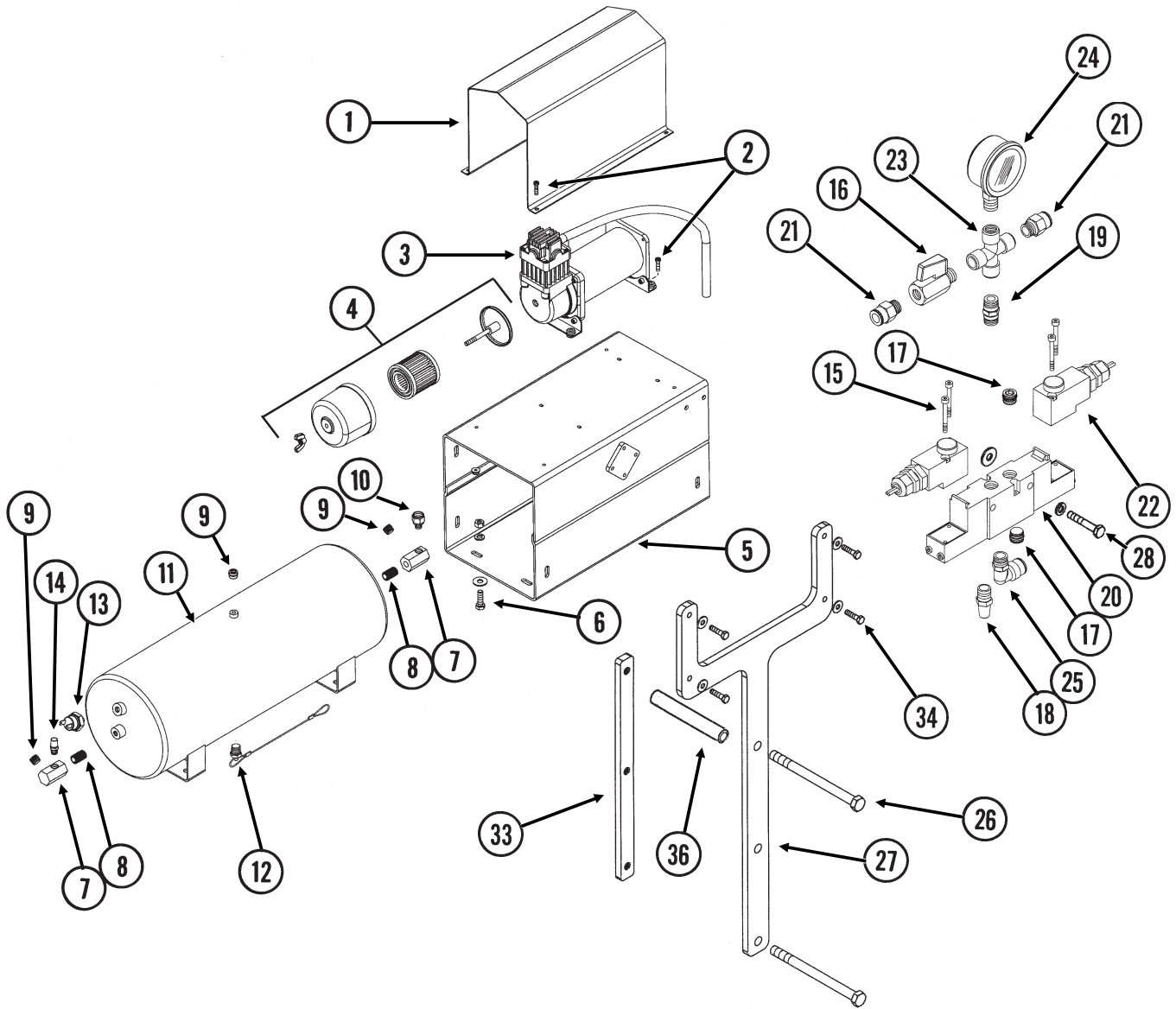


PNEUMATIC DOWN PRESSURE CONTROL CONSOLE, SENDING UNIT AND HARNESSSES

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA7856	2	Power Lead Adapter
2.	GA12644	1	Control Console Assembly
3.	GA12646	1	Sending Unit
4.	GA12645	1	Wiring Harness W/Fuse Holder And Fuse, 206"
	GD14258	-	Fuse Holder
	GD14660	-	Fuse, 2 Amp Delay Action
5.	G1K268	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (1) Lock Ring, (3) Female Terminal Pins
6.	G1K267	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (3) Male Terminal Pins
7.	GA9963	1	Strain Relief
8.	GR1292	4	Pan Head Screw, No. 8-32 x 1/2"
9.	GR1363	1	Hex Face Nut, 15/32"-32
10.	GA6978	1	Switch, 3 Position Toggle, ON-OFF-ON
11.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
12.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
13.	GA8328	-	4-Pin Female Connector Kit, Includes: (1) 4-Pin Female Housing, (4) Pin Contacts, (4) Seals
14.	GA8329	-	4-Pin Male Connector Kit, Includes: (1) 4-Pin Male Housing, (4) Socket Contacts, (4) Seals
15.	G1K396	-	6-Pin Female Connector Kit (Black), Includes: (3) 6-Pin Female Housings, (18) Pin Contacts, (18) Seals
16.	G1K395	-	6-Pin Male Connector Kit (Black), Includes: (3) 6-Pin Male Housings, (18) Socket Contacts, (18) Seals
17.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
18.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
19.	GA9964	2	Strain Relief
20.	GA12682	1	Wiring Harness W/Fuse Holder And Fuse, 40'
	GD14258	-	Fuse Holder
	GD18275	-	Fuse, 20 Amp
21.	GA12669	1	Wiring Harness, 40'
22.		-	See "Pneumatic Down Pressure Air Compressor, Dual Solenoid Assembly, Tubing And Fittings", Pages P8 And P9
23.	GD17151-06	1	Nylon Tubing, 1/4" O.D. x 1 1/2'
24.	GD18796	1	Reducer, 3/8" To 1/4"
25.	GD18010	1	Tee, 3/8" Tube Union

PNEUMATIC DOWN PRESSURE AIR COMPRESSOR, DUAL SOLENOID ASSEMBLY, TUBING AND FITTINGS

(PNE06/PNE02/PNE29b/A13169/PNE09/PNE08)

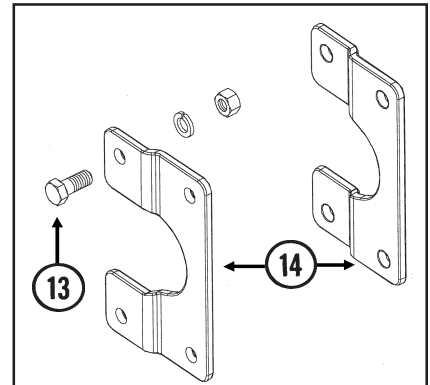
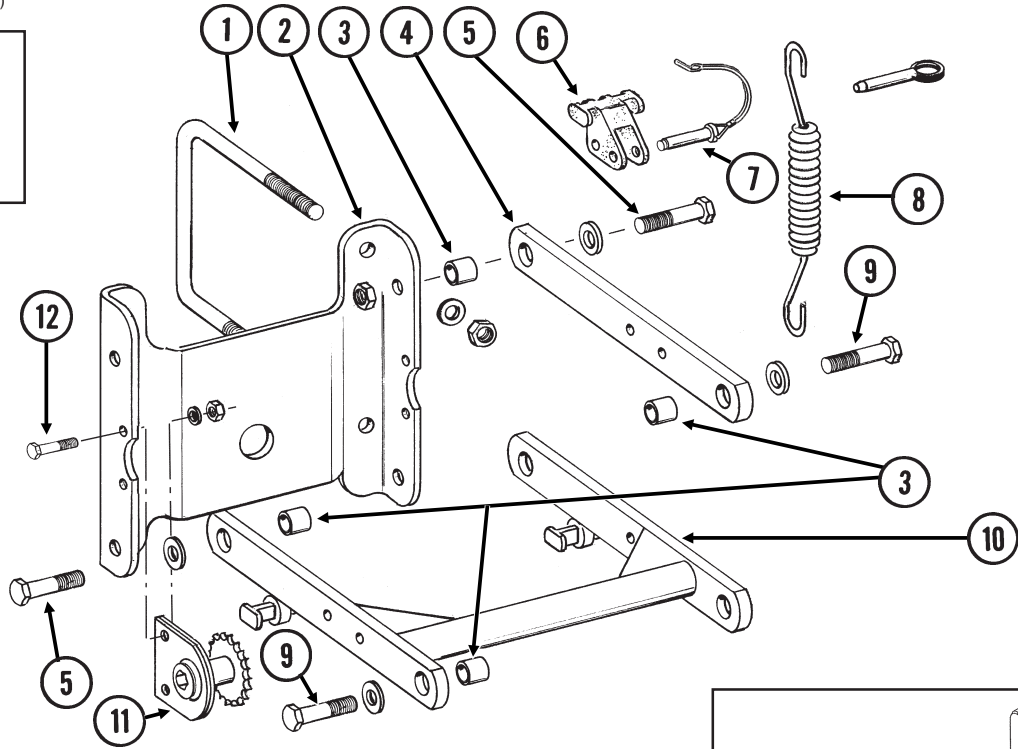
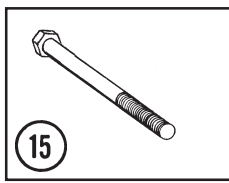


PNEUMATIC DOWN PRESSURE AIR COMPRESSOR, DUAL SOLENOID ASSEMBLY, TUBING AND FITTINGS

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD18112	1	Cover
2.	G11066	8	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
	G10992	8	Serrated Flange Nut, No. 10-24
3.	GA12102	1	Air Compressor
4.	GA12404	1	Filter Assembly
	GR1809	-	Filter
5.	GA12358	1	Mount
6.	G10019	8	Hex Head Cap Screw, 5/16"-18 x 1"
	G10219	8	Washer, 5/16" USS
	G10232	8	Lock Washer, 5/16"
	G10106	8	Hex Nut, 5/16"-18
7.	GD17298	2	Manifold, 1/4" NPT
8.	GD18081	2	Close Nipple, 1/4" NPT
9.	GD17156	3	Plug, 1/4" NPT
10.	GD17144	1	Reducer, 1/8" Male To 1/4" Female
11.	GA11988	1	Tank, 3 Gallon
12.	GA11991	1	Drain, 1/4" NPT
13.	GR1778	1	Pressure Switch
14.	GA11989	1	Valve Stem, 1/8" NPT
15.	G11247	4	Slotted Pan Head Machine Screw, M4-0.7 x 8
16.	GA11992	1	Shutoff Valve, 1/4" NPT
17.	GD17156	2	Plug, 1/4" NPT
18.	GA11997	1	Breather, 1/4" NPT
19.	GD17154	1	Connector, 1/4" Male NPT
20.	GA11993	1	Block
21.	GD17141	3	Connector, 1/4" Male NPT
22.	GA11994	2	Solenoid
23.	GD18078	1	Female Cross, 1/4" NPT
24.	GA12104	1	Pressure Gauge, 1/4" NPT
25.	GD17143	1	Swivel Elbow, 1/4" NPT x 3/8"
26.	G10341	3	Hex Head Cap Screw, 5/8"-11 x 8"
27.	GD18173	2	Bracket
28.	G10021	2	Hex Head Cap Screw, 1/4"-20 x 1 1/2"
	G10227	2	Lock Washer, 1/4"
	G10209	2	Washer, 1/4" USS
29.	GD18010	-	Tee, 3/8" Tube Union
30.	GD17150-04	-	Nylon Tubing, 3/8" O.D. x 86', 16 Row
	GD17150-05	-	Nylon Tubing, 3/8" O.D. x 112', 24 Row
	GD17150-07	-	Nylon Tubing, 3/8" O.D. x 168', 36 Row
31.	GD18011	-	Elbow, 3/8" x 1/8" NPT Extended
32.		-	See "Parallel Arms, Mounting Support Plate And Pneumatic Down Pressure Package", Pages P4 And P5
33.	GD18901	1	Tap Block, Long
34.	G10171	4	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
	G10219	4	Washer, 5/16" USS
	G10232	4	Lock Washer, 5/16"
	G10106	4	Hex Nut, 5/16"-18
35.	GA13169	1	Tube Cutter W/Blade
	GR1843	-	Blade
36.	GD3180-33	1	Sleeve, 7"
A.	GA12626	-	Air Compressor Assembly (Items 1-14)
B.	GA11995	-	Dual Solenoid Assembly (Items 15-25)

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

RUB021/RUB022(RU78/B0366)

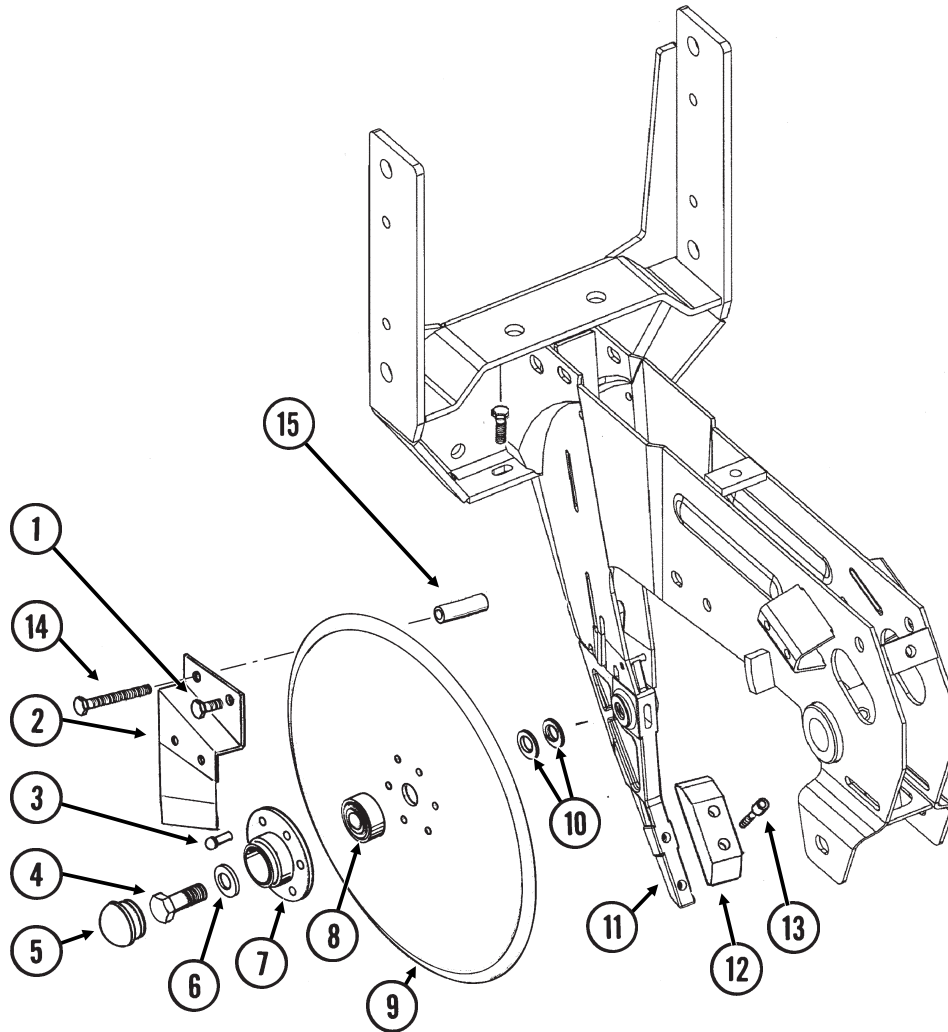


ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1114 G10230 G10104	2 4 4	U-Bolt, 7" x 7" x 5/8"-11 Lock Washer, 5/8" Hex Nut, 5/8"-11
2.	GD10036	1	Mounting Support Plate
3.	GB0218	4	Bushing, 21/32" I.D. x 7/8" O.D. x 19/32" Long
4.	GD11422	2	Upper Parallel Arm
5.	G10732 GD7805 G10412	4 4 4	Hex Head Cap Screw, 5/8"-18 x 2" Special Washer, 5/8", Hardened Lock Nut, 5/8"-18
6.	GB0186	2	Spring Anchor
7.	GD14217	2	Tab Lock Pin, 7/16" x 1 1/2"
8.	GD8249	2-4	Spring
9.	-	-	See "Hopper Support And Meter Drive", Page P18
10.	GA5651	1	Lower Parallel Arm
11.	GA1720	1	Bearing/Sprocket, 7/8" Hex Bore
12.	G10001 G10229 G10101	2 2 2	Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Hex Nut, 3/8"-16
13.	G10007 G10230 G10104	4 4 4	Hex Head Cap Screw, 5/8"-11 x 1 1/2" Lock Washer, 5/8" Hex Nut, 5/8"-11
14.	GB0366	2	Extension Bracket
15.	G10152 GD10953 G10230 G10104	- - - -	Hex Head Cap Screw, 5/8"-11 x 9" Square Washer, 5/8" Lock Washer, 5/8" Hex Nut, 5/8"-11

A. G6326X - U-Bolt Package For 7" x 7" Toolbar, Includes: (2) GD1114, (4) G10230, (4) G10104

15" SEED OPENER DISC BLADE/BEARING ASSEMBLY AND SCRAPERS

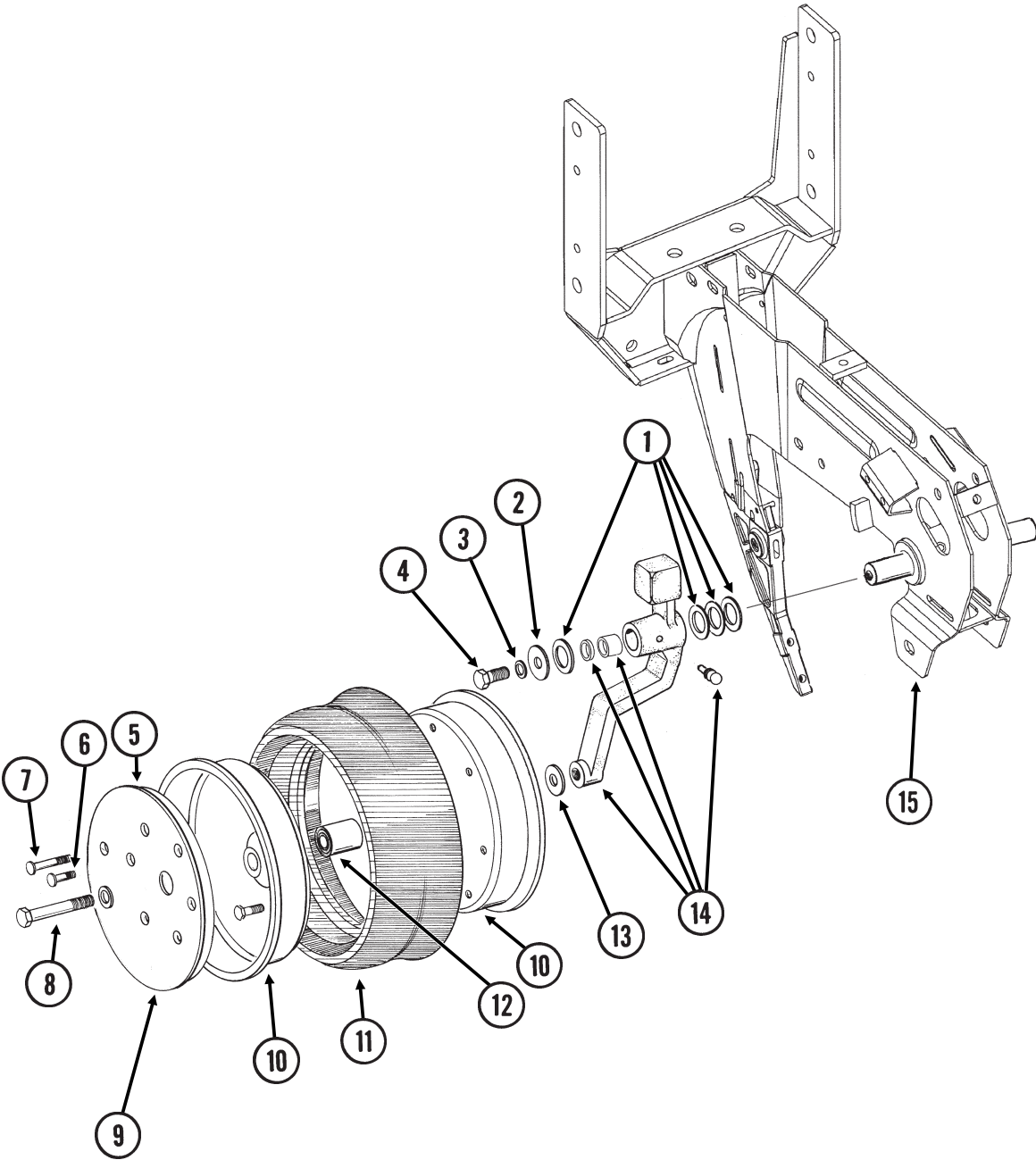
(RU139)



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

GAUGE WHEELS

(RU140)

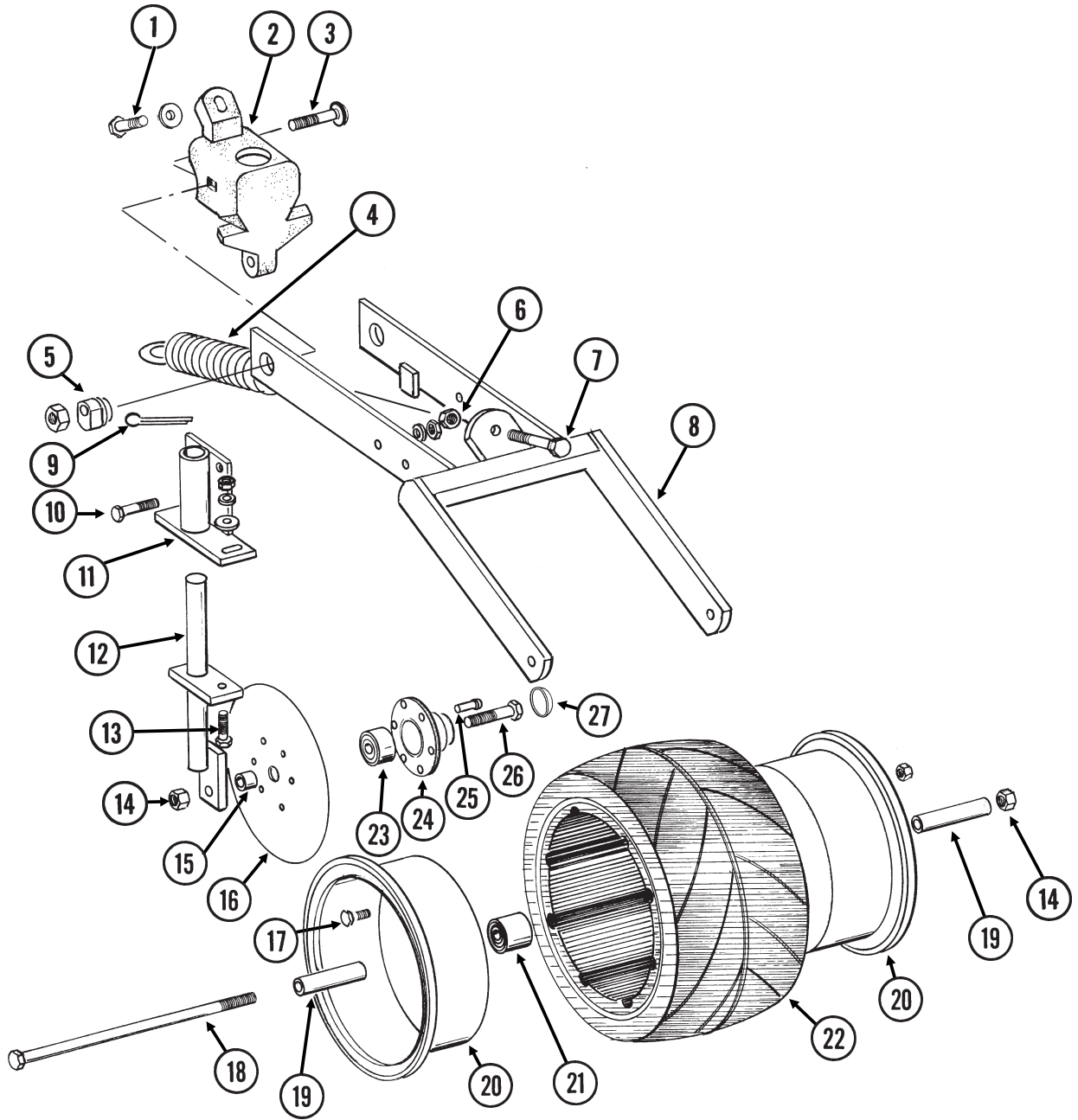


GAUGE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10940	-	Machine Bushing, 1" (.048" Thick)
2.	G10216	2	Washer, 1/2" USS
3.	G10228	2	Lock Washer, 1/2"
4.	G10014	1	Hex Head Cap Screw, 1/2"-13 x 1"
5.	GD11453	2	Cover
6.	G10338	12	Carriage Bolt, 5/16"-18 x 1 1/4"
	G10620	12	Serrated Flange Nut, 5/16"-18
7.	G10924	8	Carriage Bolt, 5/16"-18 x 1 3/4"
	G10620	8	Serrated Flange Nut, 5/16"-18
8.	G10010	2	Hex Head Cap Screw, 5/8"-11 x 3"
	G10230	2	Lock Washer, 5/8"
9.	G10018	14	Hex Head Cap Screw, 5/16"-18 x 5/8"
	G10109	14	Lock Nut, 5/16"-18, Grade 8
10.	GD11423	4	Half Wheel
11.	GD1086	2	Tire
12.	GA6171	2	Bearing
13.	G10204	2	Special Machine Bushing, 5/8" x 1" O.D.
14.	GA7975	1	Wheel Arm W/Grease Fitting, Bushings And Seals, L.H. (Shown)
	GA7976	1	Wheel Arm W/Grease Fitting, Bushings And Seals, R.H.
	G10640	1	Grease Fitting, 1/4"-28 (Per Arm)
	GB0276	2	Bushing, 1" I.D. x 1 1/4" O.D. x 1" Long (Per Arm)
	GD10991	2	Seal (Per Arm)
15.		-	See "Shank Assembly", Pages P2 And P3
A.	GA7949	-	Gauge Wheel Complete (Items 5-7 And 9-12)
B.	G1K296	-	Gauge Wheel Arm Bushing And Seal Driver Kit, Includes: (1) Seal Driver, (1) Bushing Driver, (1) Instruction

COVERING DISCS/SINGLE PRESS WHEEL

RUA054/RUB026(RU94d)

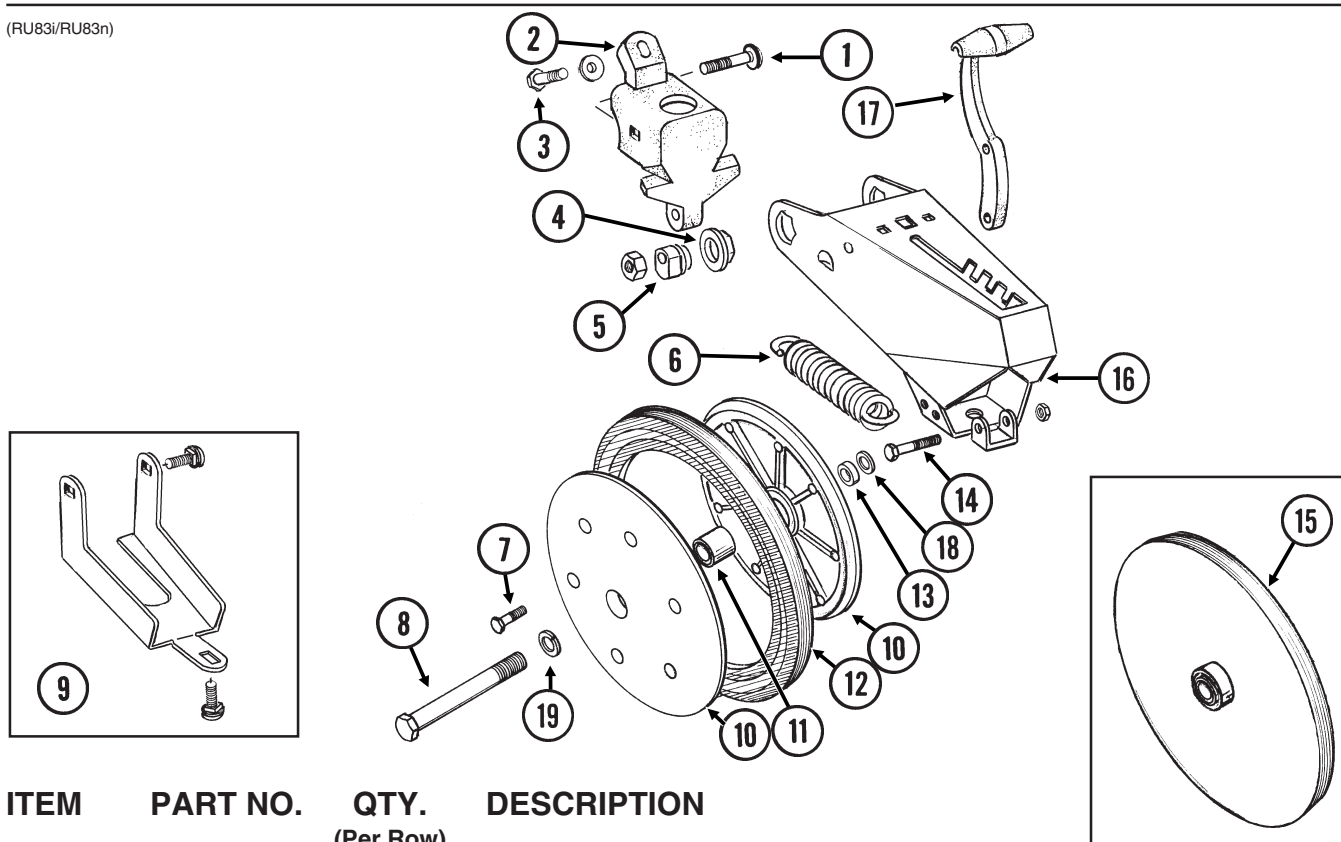


COVERING DISCS/SINGLE PRESS WHEEL

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

"V" CLOSING WHEELS

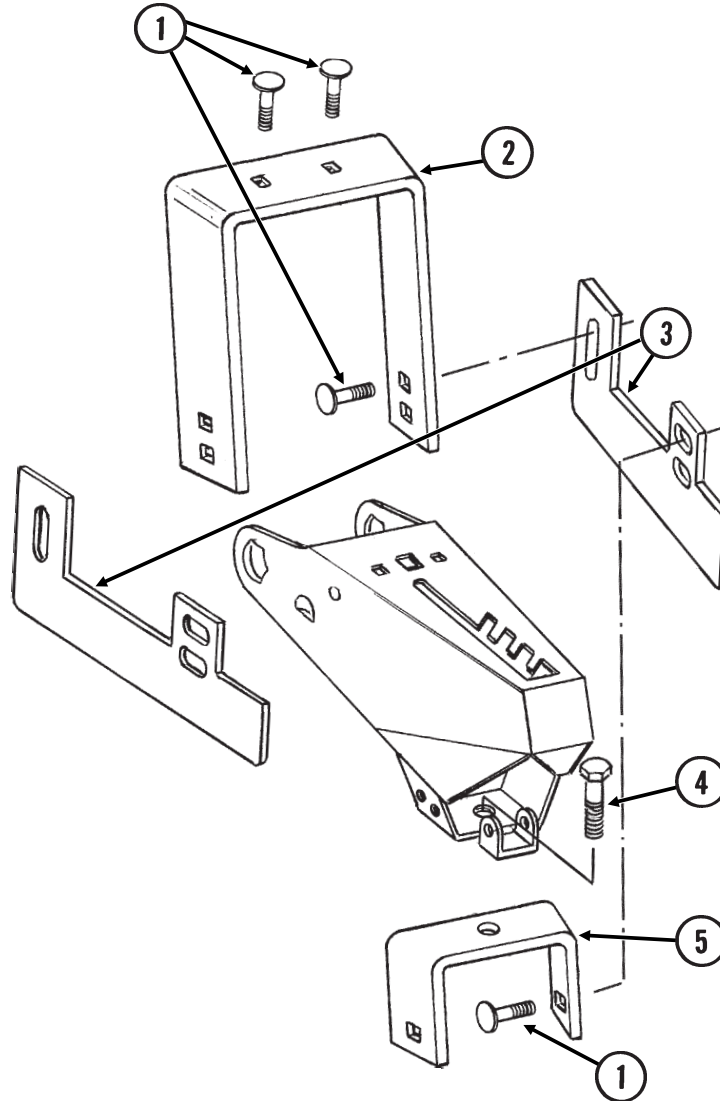
(RU83/RU83n)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10801	2	Carriage Bolt, 1/2"-13 x 2 1/4"
	G10315	-	Carriage Bolt, 1/2"-13 x 2 1/2" (Used W/Straight Drop In-Furrow Granular Chemical Bracket)
	G10111	2	Lock Nut, 1/2"-13
2.	GB0268	1	Wheel Arm Stop
3.	G10001	1	Hex Head Cap Screw, 3/8"-16 x 1"
	G10210	1	Washer, 3/8" USS
4.	GB0282	2	Stepped Bushing
5.	GB0239	2	Eccentric Bushing
6.	GD8460	1	Spring
7.	G10064	6	Hex Head Cap Screw, 1/4"-20 x 1"
8.	G10013	2	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G10107	2	Lock Nut, 5/8"-11
9.	G1K345	-	Closing Wheel Shield Kit W/Hardware And Instruction
	G10308	2	Carriage Bolt, 3/8"-16 x 3/4"
	G10599	1	Carriage Bolt, 3/8"-16 x 1/4"
	G10210	1	Washer, 3/8" USS
	G10229	3	Lock Washer, 3/8"
	G10101	3	Hex Nut, 3/8"-16
10.	GD9120	4	Nylon Half Wheel
11.	GA6171	2	Bearing
12.	GD1085	2	Rubber Tire, 1" x 12"
13.	GD1109	2	Bushing, 41/64" I.D. x 7/8" O.D. x 1/4" Long
14.	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10109	1	Lock Nut, 5/16"-18, Grade 8
15.	GA6597	-	Cast Iron Closing Wheel W/Bearing
	GA6171	-	Bearing
16.	GA8322	1	Arm
17.	GB0254	1	Lever
18.	GD7805	2	Special Washer, 5/8", Hardened
19.	G10230	2	Lock Washer, 5/8"
A.	GA6434	-	Rubber Closing Wheel Complete W/Bearing (Items 7 And 10-12)

DRAG CLOSING ATTACHMENT

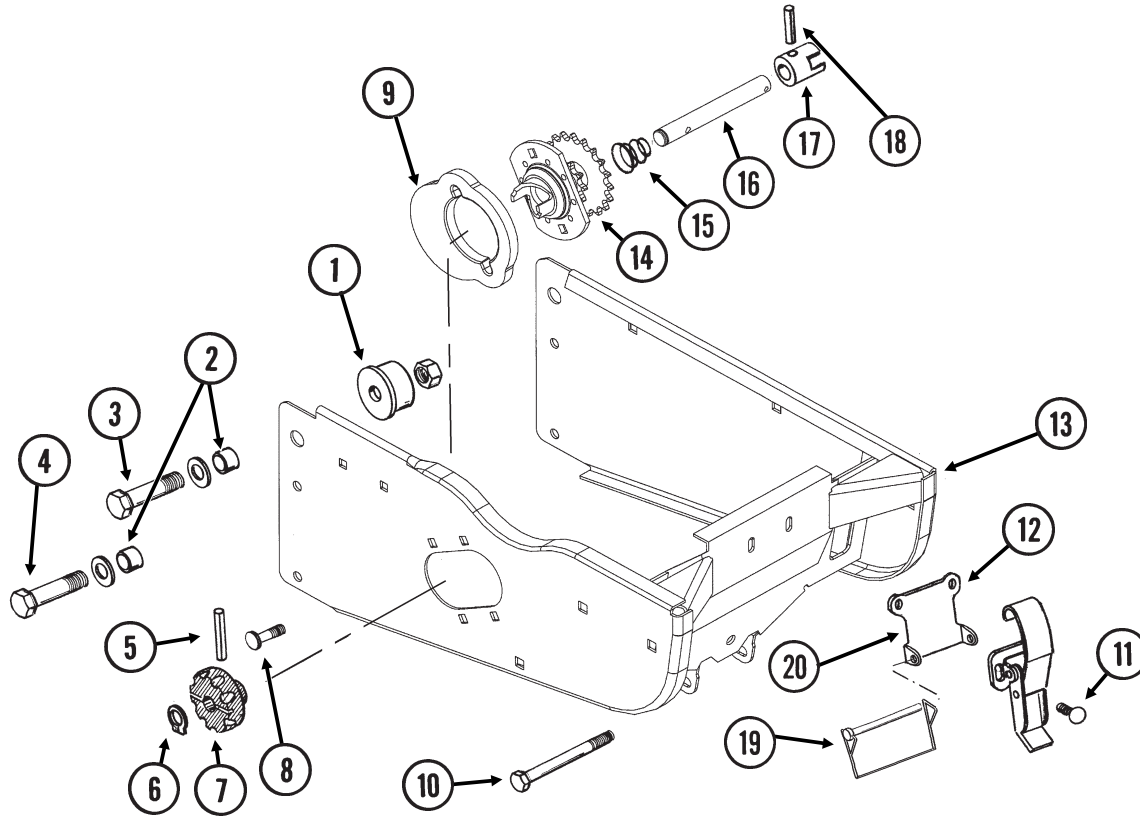
RUB050(RU90c)



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1.	G10599	6	Carriage Bolt, 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	Rear Bracket
A.	G7566X	-	Drag Closing Attachment Complete (Items 1-5)

HOPPER SUPPORT AND METER DRIVE

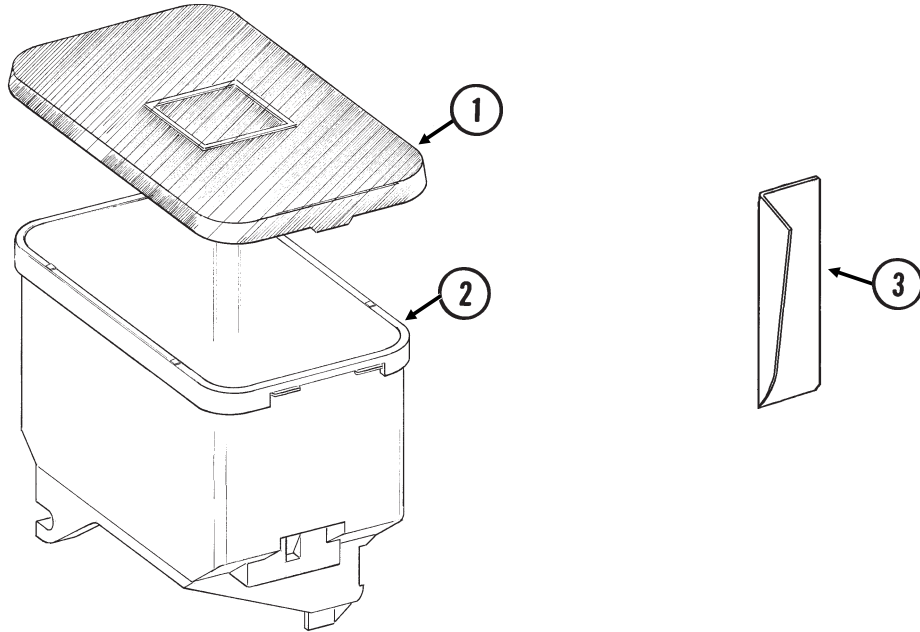
(METR22f)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GB0314	2	Hopper Mount
2.	GB0218	4	Bushing, $2\frac{1}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
3.	G10752	2	Hex Head Cap Screw, $\frac{5}{8}$ "-18 x $2\frac{1}{4}$ "
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10412	2	Lock Nut, $\frac{5}{8}$ "-18
4.	G10751	2	Hex Head Cap Screw, $\frac{5}{8}$ "-18 x $1\frac{3}{4}$ "
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10412	2	Lock Nut, $\frac{5}{8}$ "-18
5.	G10602	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{2}$ "
6.	G10567	1	External Retaining Ring, $\frac{5}{8}$ "
7.	GD11239	1	Knob
8.	G10338	2	Carriage Bolt, $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ "
	G10620	2	Serrated Flange Nut, $\frac{5}{16}$ "-18
9.	GB0331	1	Clutch Adapter Plate
10.	G10061	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $3\frac{1}{2}$ "
	G10210	2	Washer, $\frac{3}{8}$ " USS
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
11.	G10309	2	Carriage Bolt, $\frac{1}{4}$ "-20 x $\frac{5}{8}$ ", Grade 2
	G10621	2	Serrated Flange Nut, $\frac{1}{4}$ "-20
12.	GA2007	1	Hopper Hold Down Latch
13.	GA10155	1	Hopper Support
14.	GA10137	1	Double Sprocket And Bearing, Drive Clutch, 11/19 Tooth
15.	GD11413	1	Spring
16.	GD15747	1	Shaft
17.	GB0278	1	Coupler
18.	G10546	1	Spring Pin, $\frac{3}{16}$ " x $1\frac{1}{4}$ "
19.	GD10705	1	Locking Clip Pin, $\frac{1}{4}$ " x $2\frac{1}{2}$ " (SDS Only)
20.	GD13110	1	Retainer (SDS Only)
A.	GA10151	-	Meter Drive Assembly, 11/19 Tooth (Items 5-7 And 14-18)

SEED HOPPER AND LID (Conventional)

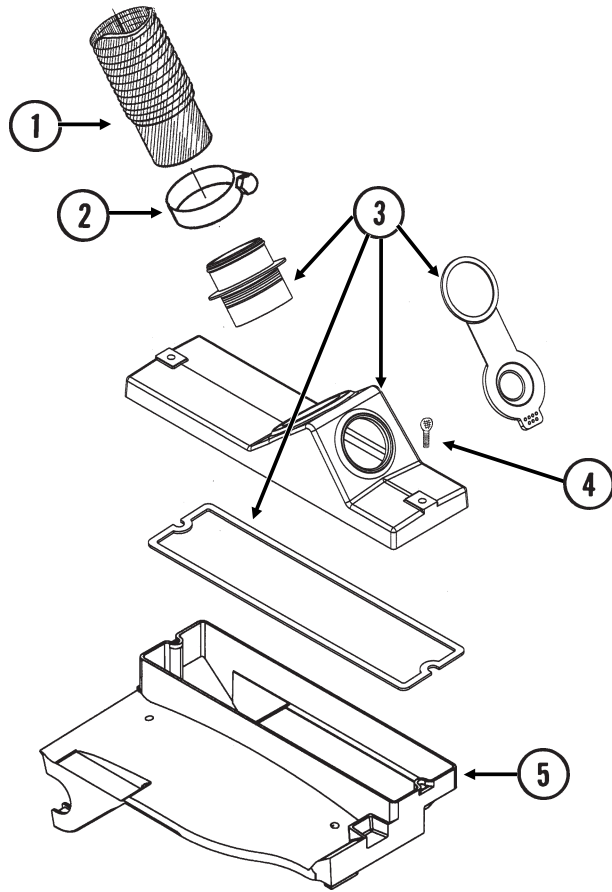
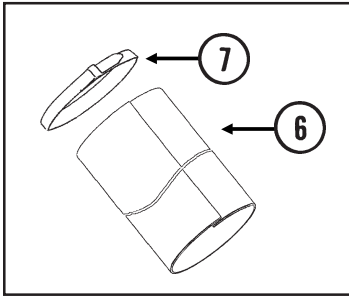
(RU87e/RU87a)



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

MINI-HOPPER AND DROP HOSES (SDS)

(D16399/FWD94)



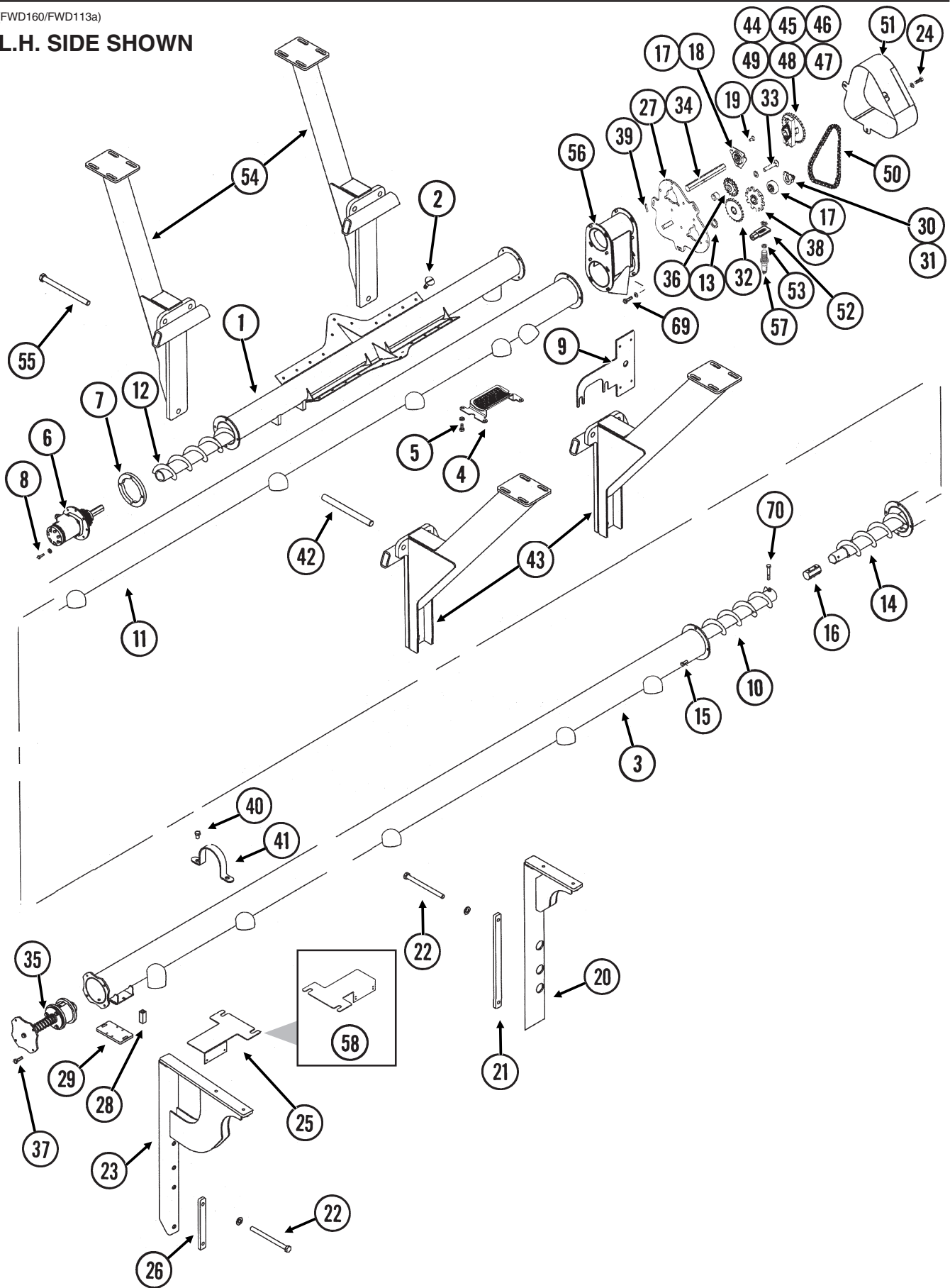
MINI-HOPPER AND DROP HOSES (SDS)

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD12797-07	-	Drop Hose, 3 1/4" x 26"
	GD12797-11	-	Drop Hose, 3 1/4" x 28"
2.	G10999	2	T-Bolt Hose Clamp, 3 1/4"
3.	GA11613	1	Lid W/Gasket, Nipple And View Cap
	GD13530	-	Gasket
	GB0312	-	Nipple
	GD13412	-	View Cap
4.	G11033	2	Thumbscrew, 5/16"-18 x 1"
	GD12132	2	Seal
5.	GA9547	1	Mini-Hopper
6.	GD16399-01	-	Sleeve, 3" x 10"
7.	GD2117	-	Tie Strap, 14 1/2"

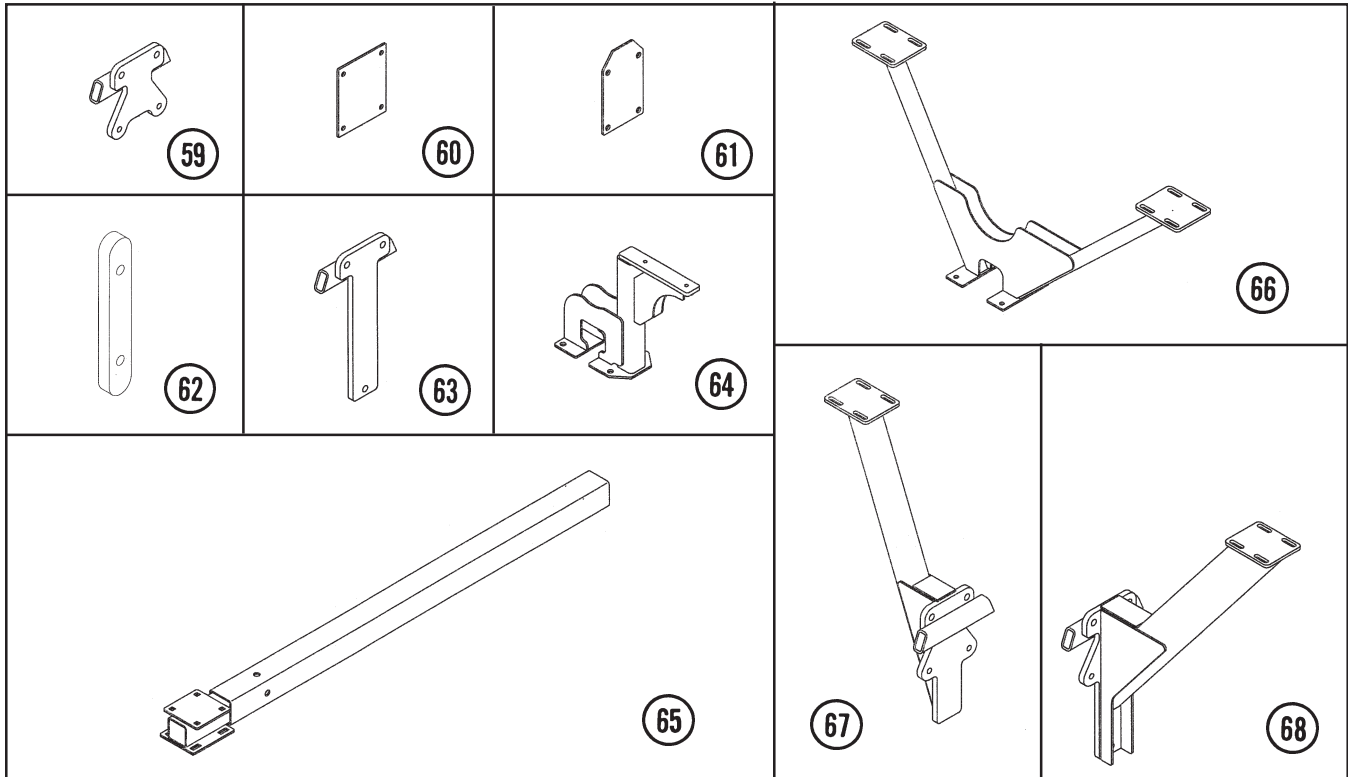
AUGER ASSEMBLIES (SDS)

(FWD160/FWD113a)

L.H. SIDE SHOWN



AUGER ASSEMBLIES (SDS)



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

1.	GA12417	1	Upper Tube
2.	G11192	22	Bolt, $\frac{5}{16}$ "-18 x 1"
	G10221	22	Washer, $\frac{5}{16}$ " SAE
	G11182	22	Lock Nut, $\frac{5}{16}$ "-18
3.	GA13137	1	Outer Tube, L.H., 54 $\frac{2}{3}$ ", 24 Row 20"
	GA13136	-	Outer Tube, R.H., 61 $\frac{1}{2}$ ", 24 Row 20"
	GA13103	-	Outer Tube, L.H., 107 $\frac{1}{4}$ ", 24 Row 22"
	GA13104	-	Outer Tube, R.H., 114", 24 Row 22"
	GA12421	-	Outer Tube, L.H., 169 $\frac{3}{4}$ ", 24 Row 30"
	GA12420	-	Outer Tube, R.H., 176 $\frac{5}{8}$ ", 24 Row 30"
	GA13135	-	Outer Tube, L.H., 174 $\frac{1}{2}$ ", 36 Row 20"
	GA13134	-	Outer Tube, R.H., 181 $\frac{1}{2}$ ", 36 Row 20"
4.	GA11623	1	Screen
5.	G10018	8	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{5}{8}$ "
	G10232	8	Lock Washer, $\frac{5}{16}$ "
6.		-	See "SDS Hydraulic System", Pages P112 And P113
7.	GD16766	1	Ring
8.	G10064	4	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x 1"
	G10209	4	Washer, $\frac{1}{4}$ " USS
	G10110	4	Lock Nut, $\frac{1}{4}$ "-20
9.	GD18636	1	Light Bracket
10.	GA13129	1	Auger Assembly, L.H., 43 $\frac{1}{2}$ ", 24 Row 20"
	GA13130	-	Auger Assembly, R.H., 50 $\frac{1}{2}$ ", 24 Row 20"
	GA13077	-	Auger Assembly, L.H., 96", 24 Row 22"
	GA13076	-	Auger Assembly, R.H., 102 $\frac{7}{8}$ ", 24 Row 22"
	GA12415	-	Auger Assembly, L.H., 158 $\frac{1}{2}$ ", 24 Row 30"
	GA12416	-	Auger Assembly, R.H., 165 $\frac{3}{8}$ ", 24 Row 30"
	GA13127	1	Auger Assembly, L.H., 163 $\frac{1}{2}$ ", 36 Row 20"
	GA13128	-	Auger Assembly, R.H., 170 $\frac{1}{2}$ ", 36 Row 20"

AUGER ASSEMBLIES (SDS)

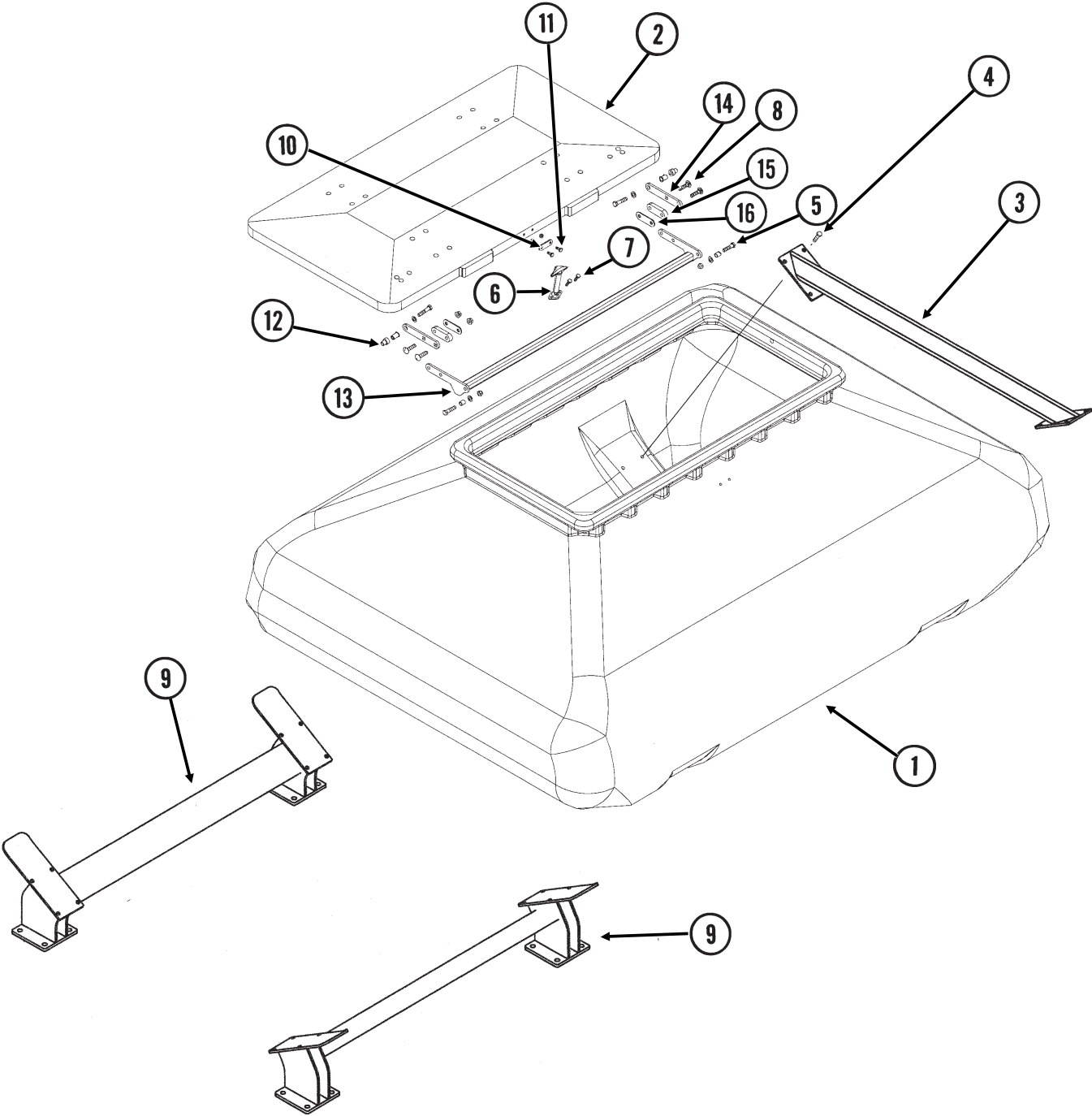
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
11.	GA13133		Inner Tube, L.H., 144 1/2", 24 Row 20" And 36 Row 20"
	GA13132	-	Inner Tube, R.H., 144 1/2", 24 Row 20" And 36 Row 20"
	GA13101	-	Inner Tube, L.H., 115 1/4", 24 Row 22"
	GA13102	-	Inner Tube, R.H., 115 1/4", 24 Row 22"
	GA12419	-	Inner Tube, L.H., 144 1/2", 24 Row 30"
	GA12418	-	Inner Tube, R.H., 144 1/2", 24 Row 30"
12.	GA13123	1	Auger Assembly, L.H., 73 1/4", 24 Row 20" And 36 Row 20"
	GA13124	-	Auger Assembly, R.H., 73 1/4", 24 Row 20" And 36 Row 20"
	GA13073	-	Auger Assembly, L.H., 72 1/4", 24 Row 22"
	GA13072	-	Auger Assembly, R.H., 72 1/4", 24 Row 22"
	GA12411	-	Auger Assembly, L.H., 68 1/4", 24 Row 30"
	GA12412	-	Auger Assembly, R.H., 68 1/4", 24 Row 30"
13.	G10233	3	Machine Bushing, 1", 10 Gauge
14.	GA13125	1	Auger Assembly, L.H., 155", 24 Row 20" And 36 Row 20"
	GA13126	-	Auger Assembly, R.H., 155", 24 Row 20" And 36 Row 20"
	GA13075	-	Auger Assembly, L.H., 124 1/2", 24 Row 22"
	GA13074	-	Auger Assembly, R.H., 124 1/2", 24 Row 22"
	GA12413	-	Auger Assembly, L.H., 150 1/8", 24 Row 30"
	GA12414	-	Auger Assembly, R.H., 150 1/8", 24 Row 30"
15.	G10019	-	Hex Head Cap Screw, 5/16"-18 x 1"
16.	GD17938	1	Connector
17.	G2100-03	-	Bearing, 7/8" Hex Bore, Spherical
18.	G3400-01	-	Flangette
19.	G10312	-	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	-	Serrated Flange Nut, 5/16"-18
20.	GA12439	-	Support
21.	GD18627	-	Long Tap Block
22.	G10341	-	Hex Head Cap Screw, 5/8"-11 x 8"
	G10205	-	Washer, 5/8" SAE
23.	GA12440	-	Support
24.	G10001	-	Hex Head Cap Screw, 3/8"-16 x 1"
	G10210	-	Washer, 3/8" USS
	G10229	-	Lock Washer, 3/8"
25.	GD17891	-	Terminal Strip Mount
26.	GD18628	-	Short Tap Block
27.	GD17914	1	Plate
28.	GD16701	-	Arm, 3/4" x 3/4" x 2"
29.	GD16680	-	Mount
30.	GD11045	5	Lock Clamp
31.	G10130	5	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	5	Flange Nut, 5/16"-18, No Serration
32.	GA5108	2	Sprocket, 23 Tooth
33.	G10315	-	Carriage Bolt, 1/2"-13 x 2 1/2"
	GD4887-13	-	Sleeve
	G10206	-	Washer, 1/2" SAE
	G10111	-	Lock Nut, 1/2"-13
	GD17934	1	Hex Shaft
34.	GD17934	1	Hex Shaft
35.	GA11778	1	Auger Stop
36.	GA7154	1	Sprocket W/Bearing, 18 Tooth
37.	G10064	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10110	4	Lock Nut, 1/2"-20, Grade B

AUGER ASSEMBLIES (SDS)

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
38.	GA12450	1	Sensor Wheel
39.	G10602	1	Spring Pin, 1/4" x 1 1/2"
40.	G10438	-	Hex Head Cap Screw, 1/2"-13 x 3/4"
41.	GD16631	-	Strap
42.	GD6425-08	-	Bushing, 1" O.D. x 3/4" I.D. x 7" Long
43.	GA12436	-	Tank Support, Rear
44.	G10464	2	Cotter Pin, 3/16" x 1"
45.	GD1256	2	Spring
46.	GA0378	1	Block And Hub Assembly
47.	GD1255	2	L-Pin
48.	GA5165	1	Sprocket, 30 Tooth
49.	G10430	1	External Retaining Ring, 1 1/4"
50.	G3310-58	1	Chain, No. 40, 58 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
51.	GA12465	1	Guard, L.H. (Shown)
	GA12466	-	Guard, R.H.
52.	GA12449	1	Sensor Mount
53.	GD14257	2	Nut, M12 x 1"
54.	GA12437	-	Tank Support, Front
55.	G10477	-	Hex Head Cap Screw, 3/4"-10 x 10"
56.	GA13139	1	Transition, L.H., 11", 24 Row 20" And 36 Row 20" (Shown)
	GA13138	-	Transition, R.H., 11", 24 Row 20" And 36 Row 20"
	GA13097	-	Transition, L.H., 10", 24 Row 22"
	GA13098	-	Transition, R.H., 10", 24 Row 22"
	GA12447	-	Transition, L.H., 6", 24 Row 30"
	GA12446	-	Transition, R.H., 6", 24 Row 30"
57.		-	See "Electrical Components (SDS Control Console)", Pages P114 And P115
58.	GD18046	-	Terminal Strip Mount
59.	GA13100	-	Backing Support
60.	GD18647	-	Plate, 7 1/2" x 9"
61.	GD18580	-	Plate, 11" x 6 1/2"
62.	GD18579	-	Tap Block, 9 3/16" Long
63.	GA13099	-	Backing Support
64.	GA13131	-	Support
65.	GA13121	-	Tube, 69"
	GA13122	-	Tube, 70 1/3"
66.	GA13205	-	Support
67.	GA13081	-	Support, Front
68.	GA13269	-	Support, Rear
69.	G10019	-	Hex Head Cap Screw, 5/16"-18 x 1"
	G10219	-	Washer, 5/16" USS
	G10109	-	Lock Nut, 5/16"-18, Grade 8
70.	G10403	4	Hex Head Cap Screw, 1/4"-20 x 2 1/4"
	G10110	4	Lock Nut, 1/4"-20, Grade B
A.	GA5164	-	Ratchet/Sprocket Assembly, L.H. Hopper (Items 44-49)
	GA9843	-	Ratchet/Sprocket Assembly, R.H. Hopper (Items 44-49)

BULK SEED HOPPER ASSEMBLY (SDS)

(FF129a)

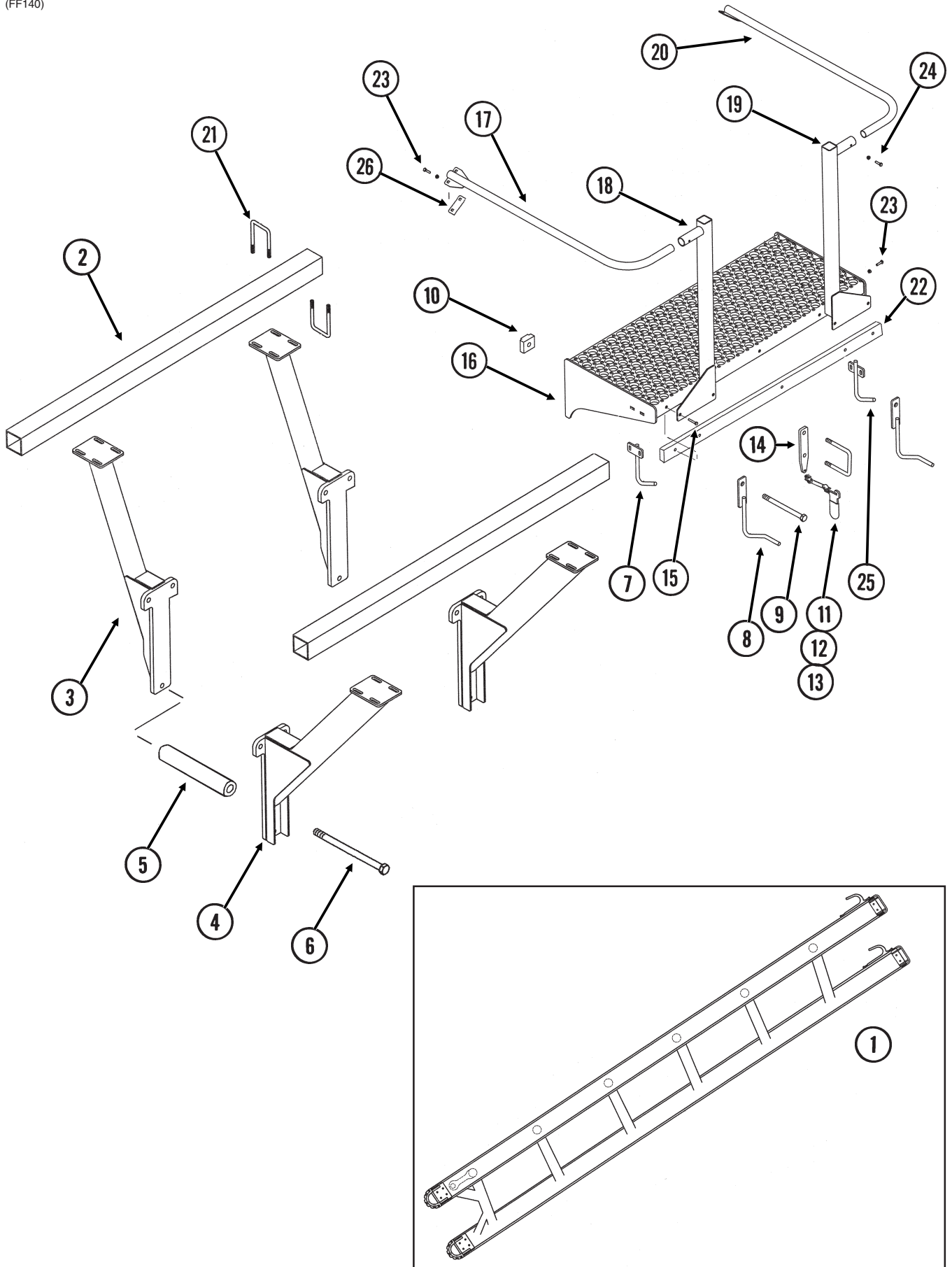


BULK SEED HOPPER ASSEMBLY (SDS)

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD17308	1	Hopper
2.	GA11579	1	Lid
3.	GA11381	2	Hopper Stiffener
4.	G10003	16	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10203	16	Washer, $\frac{3}{8}$ " SAE
	G10108	16	Lock Nut, $\frac{3}{8}$ "-16
5.	G10003	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	GD11963-03	2	Tube, $\frac{1}{2}$ " O.D. x $\frac{25}{64}$ " I.D. x $\frac{9}{16}$ "
	G10203	2	Washer, $\frac{3}{8}$ " SAE
	G10108	2	Lock Nut, $\frac{3}{8}$ "-16
6.	GA11635	1	Latch Cover
7.	G10064	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x 1"
	G10211	2	Washer, $\frac{1}{4}$ " SAE
	G10110	2	Lock Nut, $\frac{1}{4}$ "-20, Grade B
8.	G10301	4	Carriage Bolt, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10622	4	Serrated Flange Nut, $\frac{3}{8}$ "-16
9.	GA11615	2	Mount
10.	GD16979	1	Latch
11.	G10020	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{5}{8}$ "
	G10110	2	Lock Nut, $\frac{1}{4}$ "-20, Grade B
12.	G10047	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
	G10203	2	Washer, $\frac{3}{8}$ " SAE
	GD16694	2	Bushing
	G11226	2	Tee Nut, $\frac{3}{8}$ "-16
13.	GA11587	1	Hinge
14.	GD16692	2	Bar
15.	GD16693	2	Spacer
16.	GD16691	2	Shim

BULK SEED HOPPER CATWALK AND TANK MOUNTS (SDS)

(FF140)

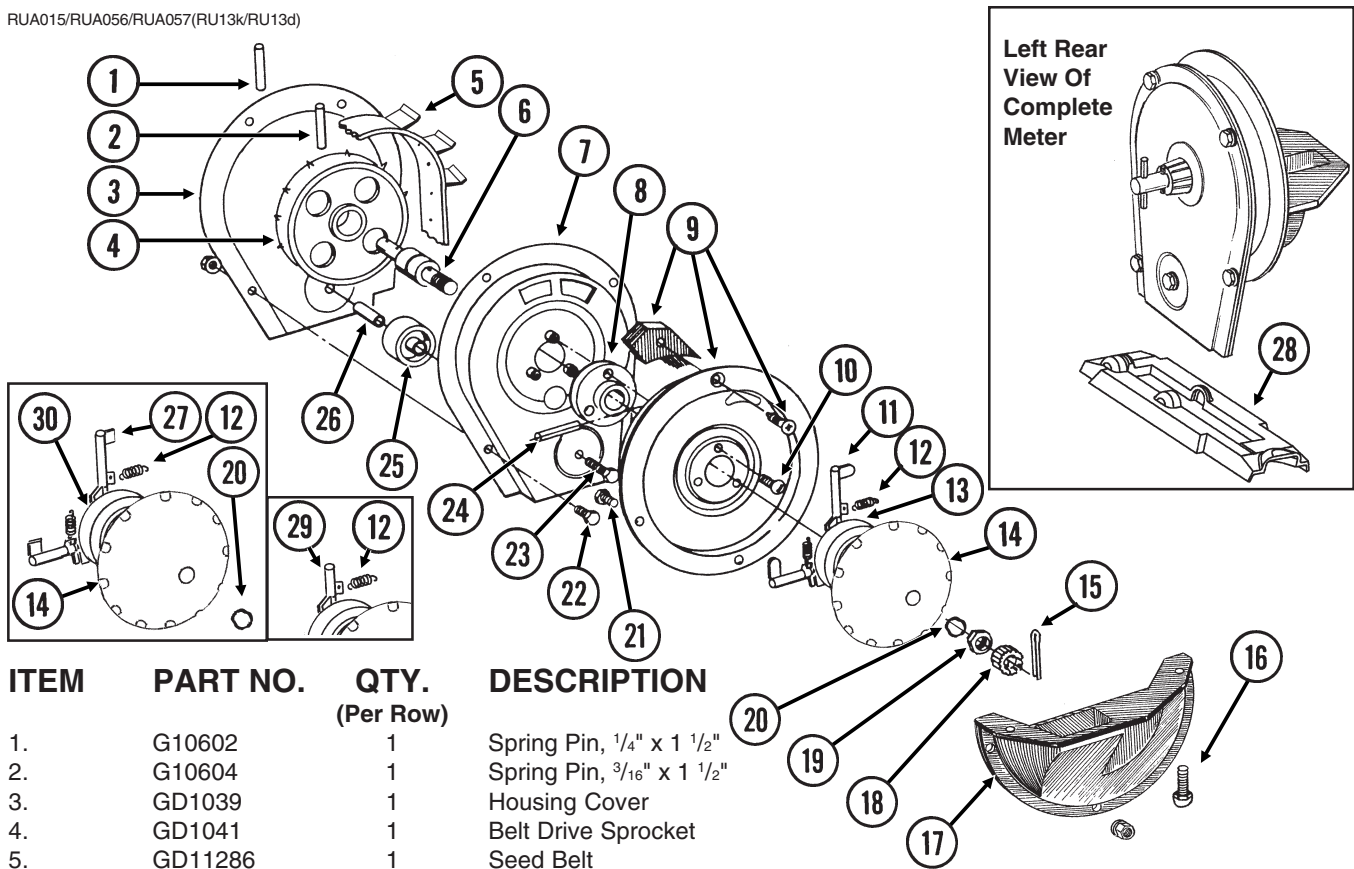


BULK SEED HOPPER CATWALK AND TANK MOUNTS (SDS)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA12613	-	Ladder
2.	GD16514-03	-	Tube, 72"
	GD16514-05	-	Tube, 77"
	GD16514-06	-	Tube, 64"
	GD16514-07	-	Tube, 80"
3.	GA12437	-	Tank Support, Front
4.	GA12436	-	Tank Support, Rear
5.	GD6425-08	-	Bushing, 1" O.D. x 3/4" x 6 15/16" Long
6.	G10477	-	Hex Head Cap Screw, 3/4"-10 x 10"
	G10112	-	Lock Nut, 3/4"-10
7.	GA12619	-	Front Ladder Hook, L.H.
8.	GA12621	-	Rear Ladder Hook
9.	G10341	-	Hex Head Cap Screw, 5/8"-18 x 8"
	G10205	-	Washer, 5/8" SAE
	G10107	-	Lock Nut, 5/8"-11
10.	GD18059	-	Platform Mount Block
11.	GD5827	-	Cover
12.	GD18072	-	Tarp Strap, 6"
13.	GD18069	-	Latch Plate
14.	GD18068	-	Ladder Strap
15.	G10004	-	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10622	-	Serrated Flange Nut, 3/8"-18
16.	GA12607	-	Platform
17.	GA12605	-	Handrail, L.H.
18.	GA12603	-	Post, L.H.
19.	GA12604	-	Post, R.H.
20.	GA12606	-	Handrail, R.H.
21.	GD16356	-	U-Bolt, 3 1/2" x 3 1/2" x 1/2"-13
	G10228	-	Lock Washer, 1/2"
	G10102	-	Hex Nut, 1/2"-13
22.	GD18055	-	Stiffener
23.	G10303	-	Carriage Bolt, 5/16"-18 x 1"
	G10620	-	Serrated Flange Nut, 5/16"-18
24.	G10040	-	Hex Head Cap Screw, 1/4"-20 x 1 3/4"
	G10110	-	Lock Nut, 1/4"-20
25.	GA12620	-	Front Ladder Hook, R.H.
26.	GD18390	4	Backing Plate

FINGER PICKUP SEED METER

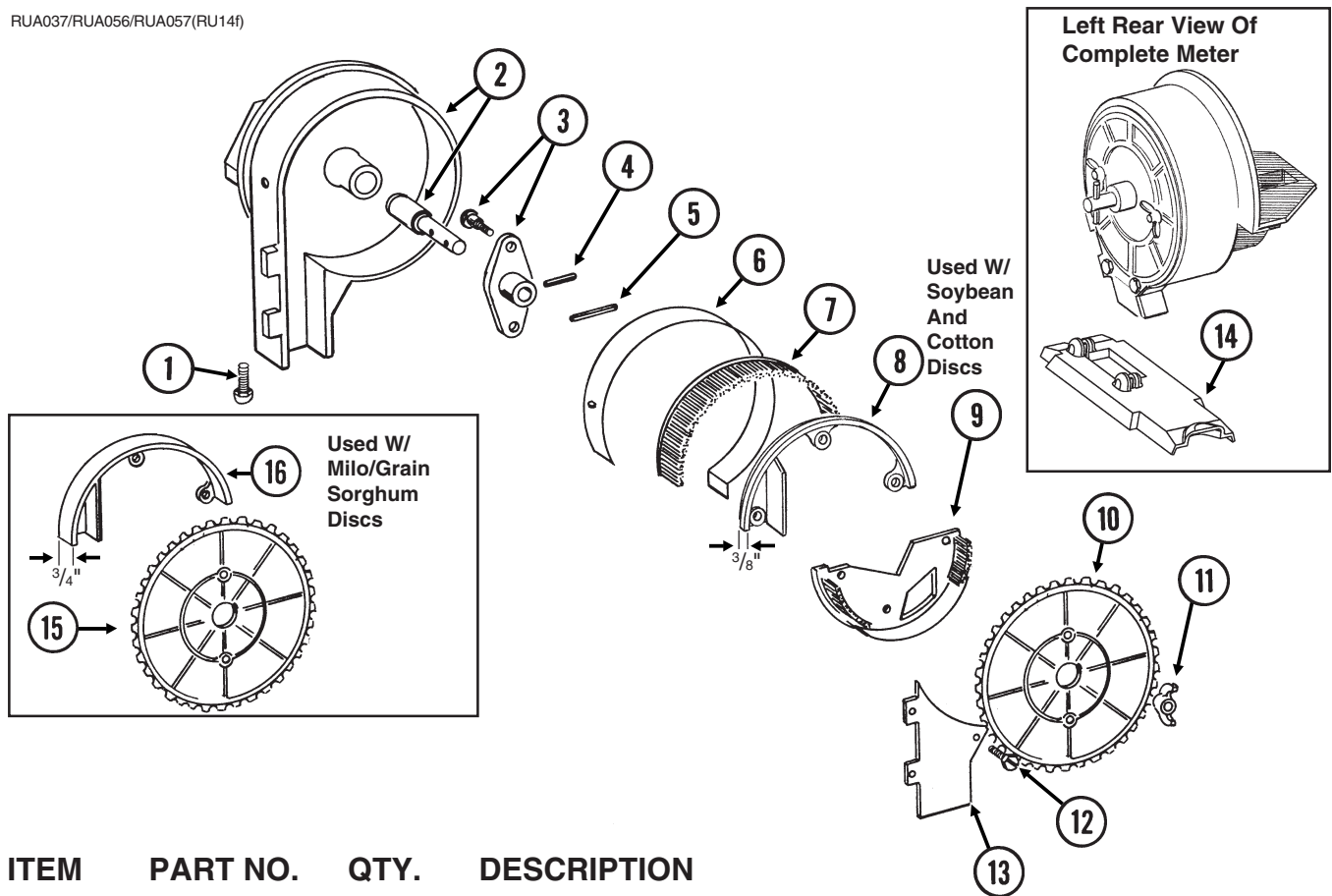
RUA015/RUA056/RUA057(RU13k/RU13d)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10602	1	Spring Pin, 1/4" x 1 1/2"
2.	G10604	1	Spring Pin, 3/16" x 1 1/2"
3.	GD1039	1	Housing Cover
4.	GD1041	1	Belt Drive Sprocket
5.	GD11286	1	Seed Belt
6.	GA2019	1	Bearing
7.	GA2018	1	Conveyor Housing
8.	GB0110	1	Bearing Housing
9.	GR1569	1	Carrier Plate W/Brush And Screw
	GA2020	-	Brush
	G10690	-	Rolling Thread Screw, No. 10 x 3/4"
10.	G10401	3	Slotted Hex Washer Head Screw, No. 10-32 x 5/8"
11.	GD18704	12	Finger, Corn
12.	GD6501	12	Spring
13.	GB0410	1	Cam
14.	GD11528	1	Finger Holder
15.	G10470	1	Cotter Pin, 5/32" x 1"
16.	G11009	2	Locking Thumbscrew, 5/16"-18 x 3/4"
17.	GD11311	1	Seed Baffle
18.	GD1083	1	Cover Nut
19.	G10500	1	Jam Nut, 5/8"-18 UNF
20.	GA8343	1	Wave Washer, 5/8" (Triple Wave)
21.	G10020	3	Hex Head Cap Screw, 1/4"-20 x 5/8"
	G10323	3	Hex Flange Nut, 1/4"-20, No Serrations
22.	G10022	4	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10621	4	Serrated Flange Nut, 1/4"-20
23.	G10021	1	Hex Head Cap Screw, 1/4"-20 x 1 1/2"
	G10621	1	Serrated Flange Nut, 1/4"-20
24.	G10603	1	Spring Pin, 1/4" x 1 1/4"
25.	GD1042	1	Idler
26.	GB0120	1	Bushing, 17/64" I.D. x 1 1/32" Long
27.	GD10226	12	Finger, Oil Sunflower
28.	GD15698	1	Shank Cover, Finger Pickup Seed Meter
29.	GD11787	-	Half Rate Blank Finger
30.	GB0111	1	Cam
A.	GR1848	-	Finger Assembly, Corn (Items 11-14 And 20)
B.	GR1327	-	Finger Assembly, Oil Sunflower (Items 12, 14, 20, 27 And 30)

BRUSH-TYPE SEED METER

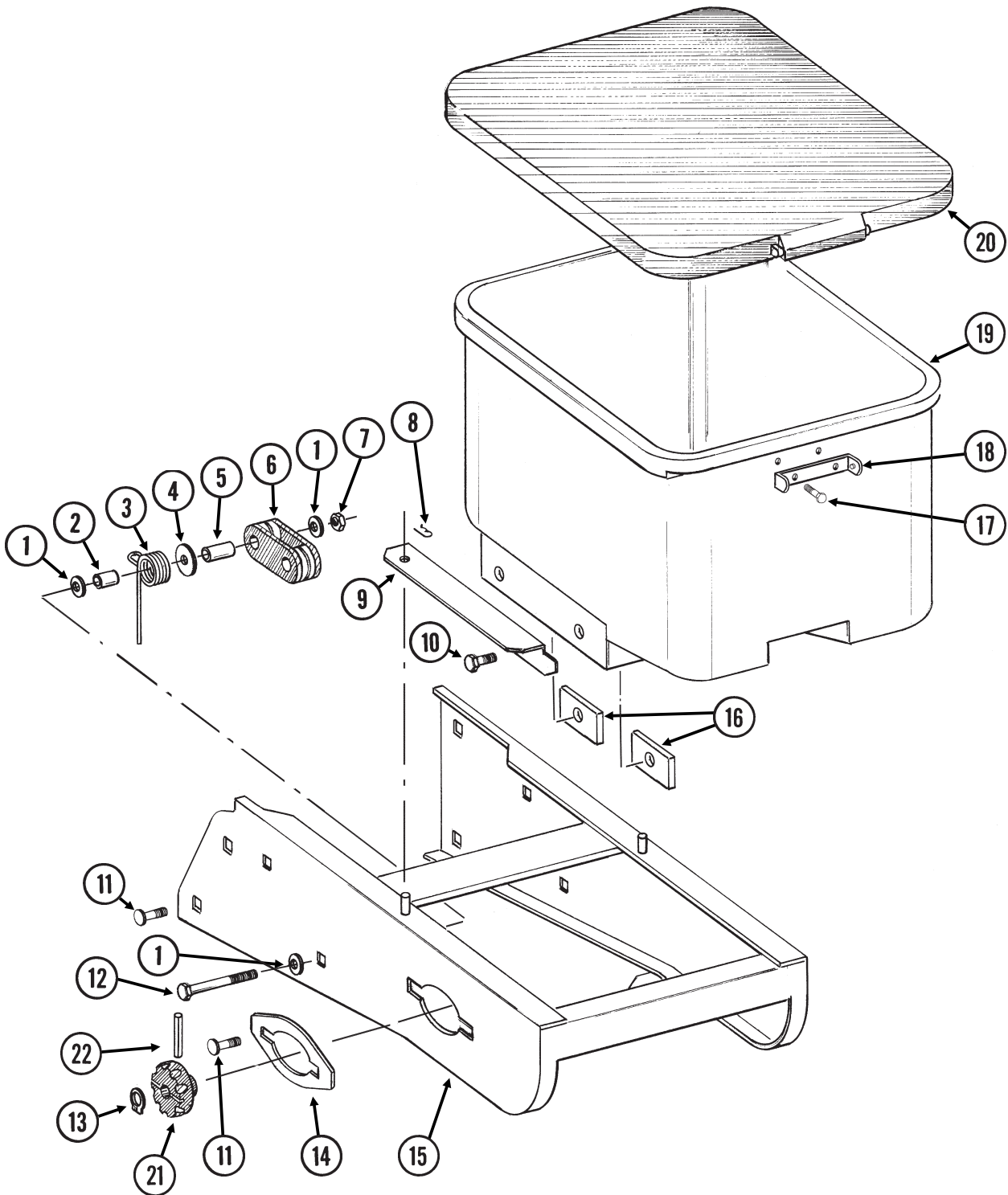
RUA037/RUA056/RUA057(RU14f)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G11009	2	Locking Thumbscrew, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
2.	GA6027	1	Housing W/Bearing
	GA5698	-	Bearing
3.	GA6038	1	Hub W/Shoulder Bolts
	GD1755	-	Shoulder Bolt, $\frac{1}{4}$ "-20 (2 Used)
4.	G10603	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{4}$ "
5.	G10602	1	Spring Pin, $\frac{1}{4}$ " x $1\frac{1}{2}$ "
6.	GD8778	1	Wear Strip
7.	GA5699	1	Upper Brush
8.	GD11122	1	Upper Brush Retainer (Used W/Soybean And Cotton Discs)
9.	GA5834	1	Lower Brush
10.	GA5794	-	Seed Disc, Soybean, 60 Cell, Black Color-Coded
	GA6184	-	Seed Disc, Specialty Soybean, 48 Cell, Dark Blue Color-Coded
	GA5796	-	Seed Disc, Cotton, Acid-Delinted, 30 Cell, White Color-Coded
	GA6168	-	Seed Disc, Large Cotton, Acid-Delinted, 36 Cell, Tan Color-Coded
	GA6478	-	Seed Disc, High-Rate Cotton, Acid-Delinted, 48 Cell, Light Green Color-Coded
	GA6182	-	Seed Disc, Hill-Drop Cotton, Acid-Delinted, 12 Cell, Brown Color-Coded
	GA7255	-	Seed Disc, Small Hill-Drop Cotton, Acid-Delinted, 12 Cell, Dark Green Color-Coded
11.	G10531	2	Wing Nut W/Nylon Insert, $\frac{1}{4}$ "-20
12.	G11151	9	Hex Washer Head Screw, No. 10-24 x $\frac{1}{2}$ "
	G10634	-	Slotted Tap Screw, No. 10-24 x $\frac{5}{8}$ " (Use As Required)
13.	GD7878	1	Cover
14.	GD15699	1	Shank Cover, Brush-Type Seed Meter
15.	GA5982	-	Seed Disc, Small Milo/Grain Sorghum, 30 Cell, Red Color-Coded
	GA6187	-	Seed Disc, Large Milo/Grain Sorghum, 30 Cell, Light Blue Color-Coded
	GA5795	-	Seed Disc, High-Rate Small Milo/Grain Sorghum, 60 Cell, Red Color-Coded
	GA6633	-	Seed Disc, High-Rate Large Milo/Grain Sorghum, 60 Cell, Yellow Color-Coded
16.	GD8237	-	Upper Brush Retainer (Used W/Milo/Grain Sorghum Discs)

GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION

(METR14d)

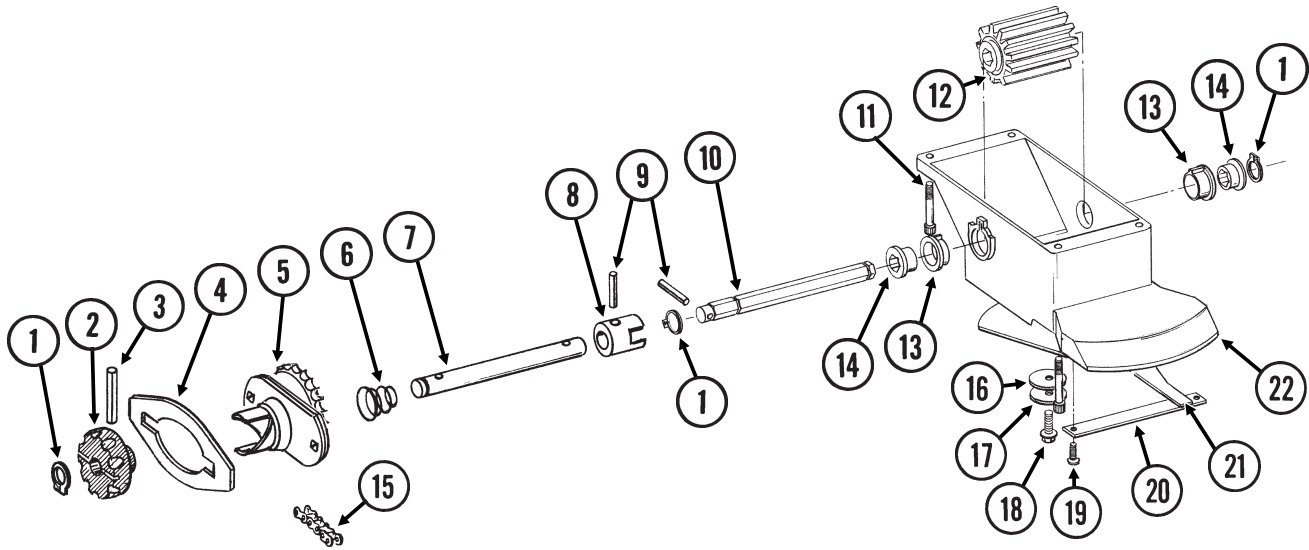


GRANULAR CHEMICAL HOPPER AND HOPPER PANEL EXTENSION

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10210	3	Washer, $\frac{3}{8}$ " USS
2.	GD2971-10	1	Sleeve, $\frac{9}{16}$ " Long
3.	GD11219	1	Spring
4.	G10201	1	Special Washer, $\frac{3}{8}$ " x 1 $\frac{1}{2}$ " O.D.
5.	GD1026	1	Sleeve, 1 $\frac{3}{16}$ " Long
6.	GD11962	1	Idler
7.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
8.	G10670	2	Hair Pin Clip, No. 3
9.	GD1059L	1	Support, L.H. (Shown)
	GD1059R	1	Support, R.H.
10.	G10002	4	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x $\frac{3}{4}$ "
	G10229	4	Lock Washer, $\frac{3}{8}$ "
11.	G10312	8	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10620	8	Serrated Flange Nut, $\frac{5}{16}$ "-18
12.	G10325	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{3}{4}$ "
13.	G10567	3	External Retaining Ring, $\frac{5}{8}$ "
14.	GD11305	1	Plate
15.	A10759	1	Hopper Panel Extension (Non-Stock Item) (Sub Wholegoods Order Code 700-01099)
16.	GD11424	4	Block
17.	G10023	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{3}{4}$ "
	G10621	2	Serrated Flange Nut, $\frac{1}{4}$ "-20
18.	GD1060	1	Hinge
19.	GA8371	1	Hopper
20.	GA4444	1	Lid
21.	GD11239	1	Knob
22.	G10602	1	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "

GRANULAR CHEMICAL METER AND METER DRIVE

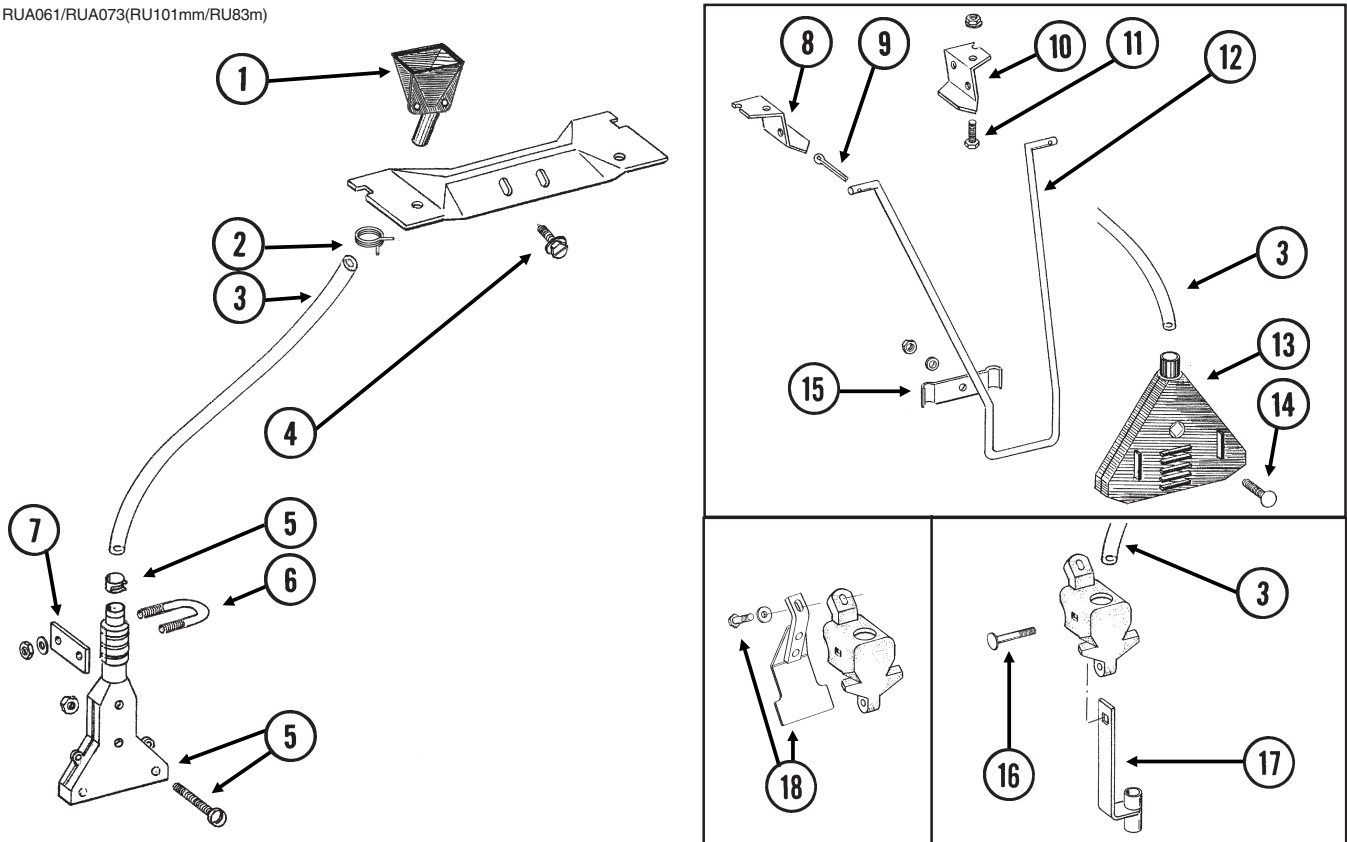
RUA051/RUB028(RU91a)



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 P32 And P33
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)

GRANULAR CHEMICAL BANDING OPTIONS

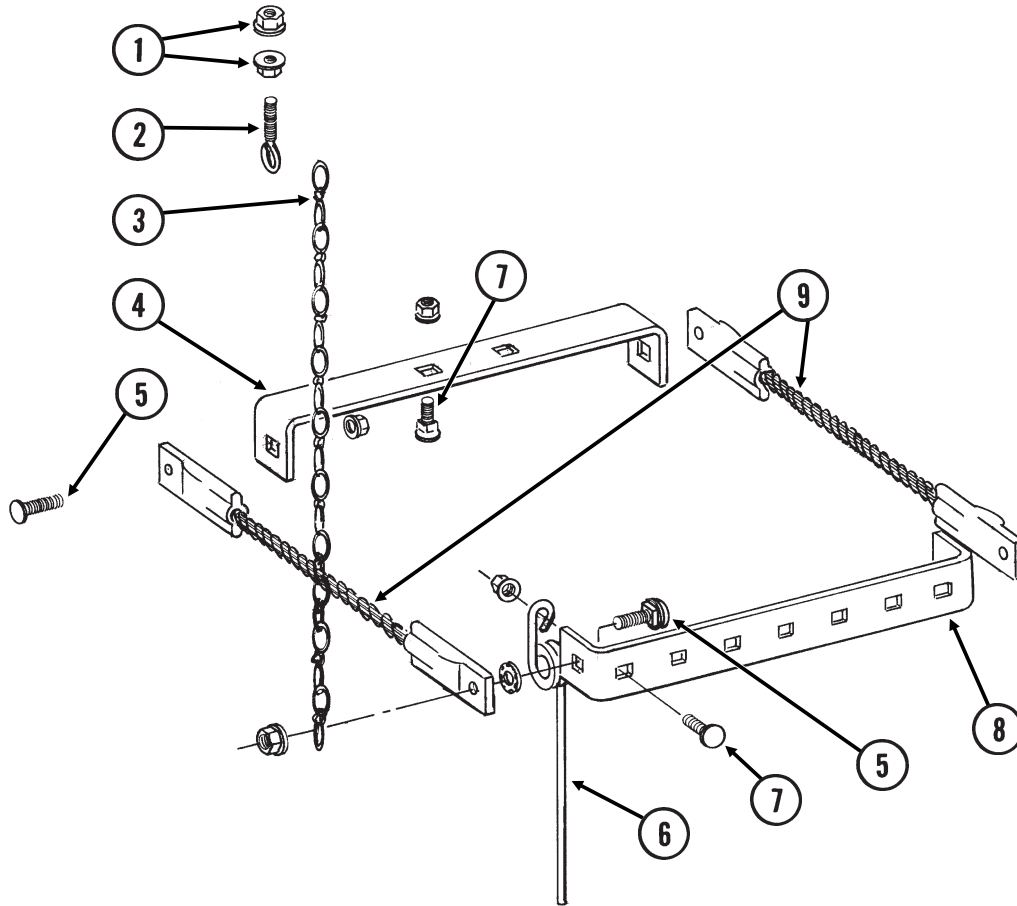
RUA061/RUA073(RU101mm/RU83m)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD2423	1	Funnel
2.	GD11209	1	Wire Hose Clamp, 3/4"
3.	GD2947	1	Hose, 7/16" x 28"
4.	G10523	2	Slotted Pan Head Self-Tapping Screw, No. 10 x 1/2"
5.	GA6907	1	Slope-Compensating Bander W/Hardware (4 1/2" Band Width)
	G10864	1	Uni-Clamp
	G10757	2	Pan Head Screw, No. 10-32 x 1 1/4"
	G10758	2	Hex Nut, No. 10-32
6.	GD10963	1	U-Bolt, 1 1/2" x 1 5/16" x 1/4"-20
	G10209	2	Washer, 1/4" USS
	G10110	2	Lock Nut, 1/4"-20, Grade B
7.	GD10984	1	Spacer
8.	GD1115L	-	Hanger Bracket, L.H.
9.	G10452	-	Cotter Pin, 1/8" x 1/2"
10.	GD1115R	-	Hanger Bracket, R.H.
11.	G10310	-	Carriage Bolt, 1/4"-20 x 3/4", Grade 2
	G10227	-	Lock Washer, 1/4"
	G10103	-	Hex Nut, 1/4"-20
12.	GD1116	-	Hanger
13.	GA2075	-	Diffuser, 14" Band
14.	G10306	-	Carriage Bolt, 3/8"-16 x 2"
	G10229	-	Lock Washer, 3/8"
	G10101	-	Hex Nut, 3/8"-16
15.	GD1118	-	Clamp
16.	G10315	1	Carriage Bolt, 1/2"-13 x 2 1/2" (Replaces Existing 1/2" x 2 1/4" Hardware)
17.	GA6741	1	Bracket (Straight Drop In-Furrow)
18.	G1K385	-	Bander Shield Kit W/Hardware And Instruction
	G10003	1	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	GD14659	1	Special Washer, 3/8", Hardened

SPRING TOOTH INCORPORATOR

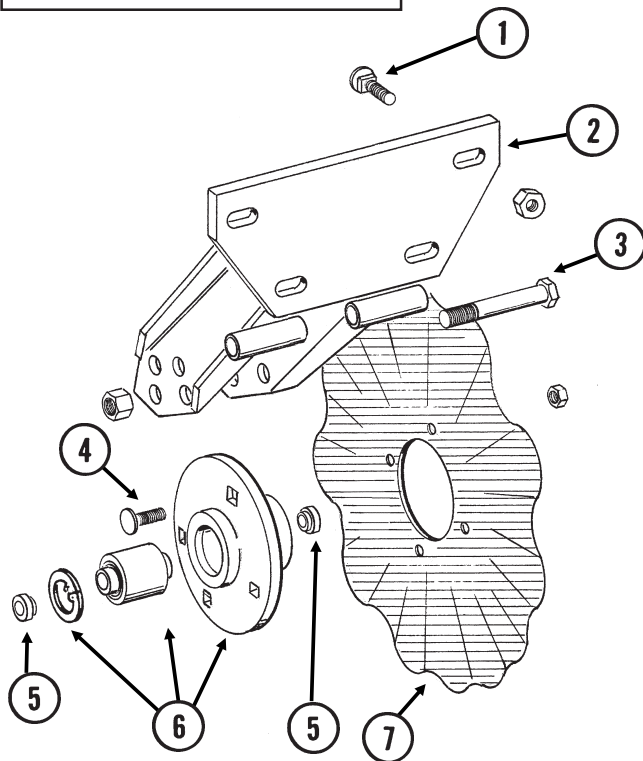
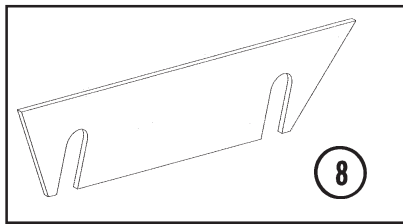
RUA055(RU95)



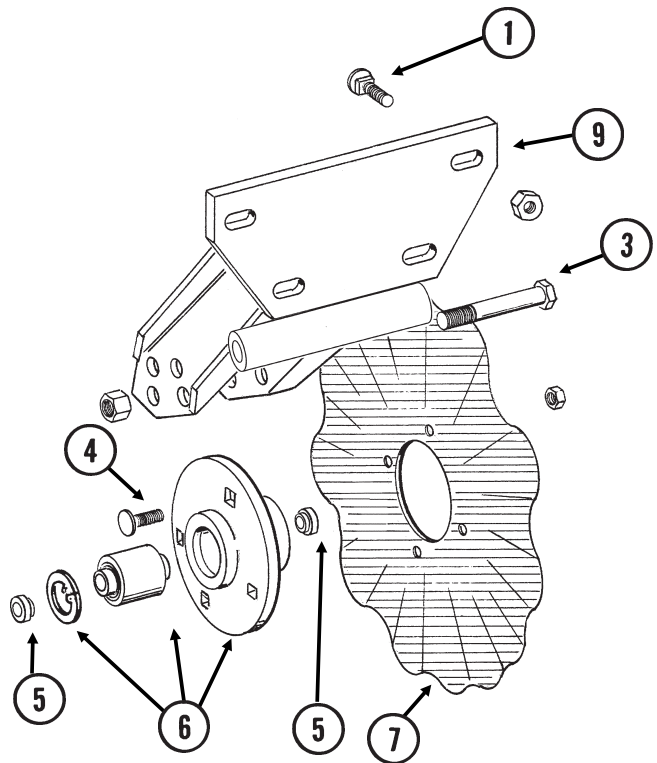
ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10621	4	Serrated Flange Nut, 1/4"-20
2.	GD2460	2	Eyebolt, 1/4"-20
3.	G3305-01	4	Twin Loop Chain, 9 Links
4.	GD1143	1	Front Bracket
5.	G10305	4	Carriage Bolt, 3/8"-16 x 1"
	G10529	4	External Tooth Lock Washer, 3/8"
	G10622	4	Serrated Flange Nut, 3/8"-16
6.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

ROW UNIT MOUNTED NO TILL COULTER

(D14398/RU102c/RU152)



STYLE A

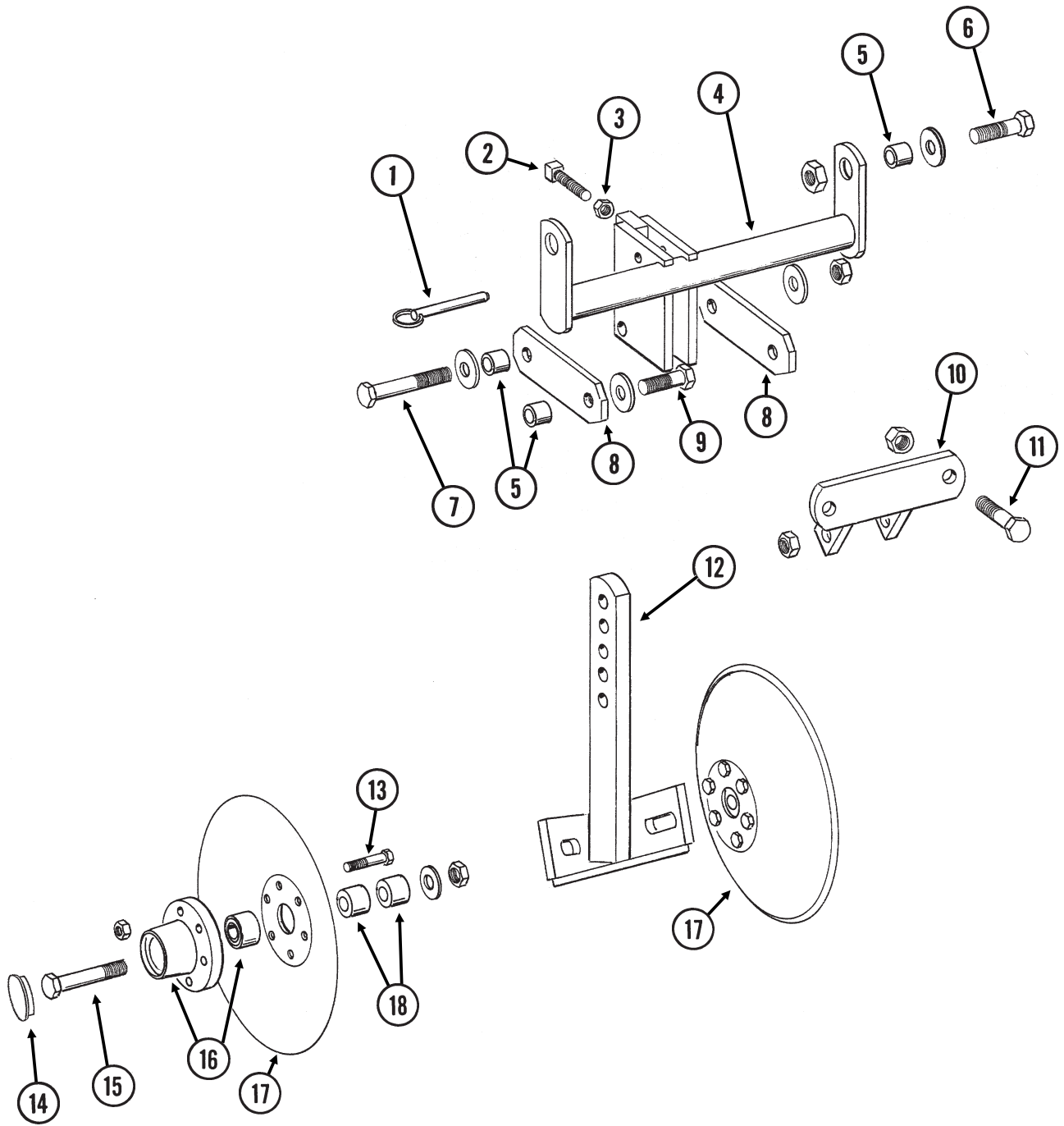


STYLE B

ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Row)	
1.	G10574	4	Carriage Bolt, 1/2"-13 x 1 1/4"
	G10111	4	Lock Nut, 1/2"-13
2.	GA5625	1	Arm (Style A)
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	-	Bearing, Double Row
	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.	GD14398	-	Spacer
9.	GA11520	1	Arm (Style B)

ROW UNIT MOUNTED DISC FURROWER

RUA059/RUA058(RU99/RU98g)

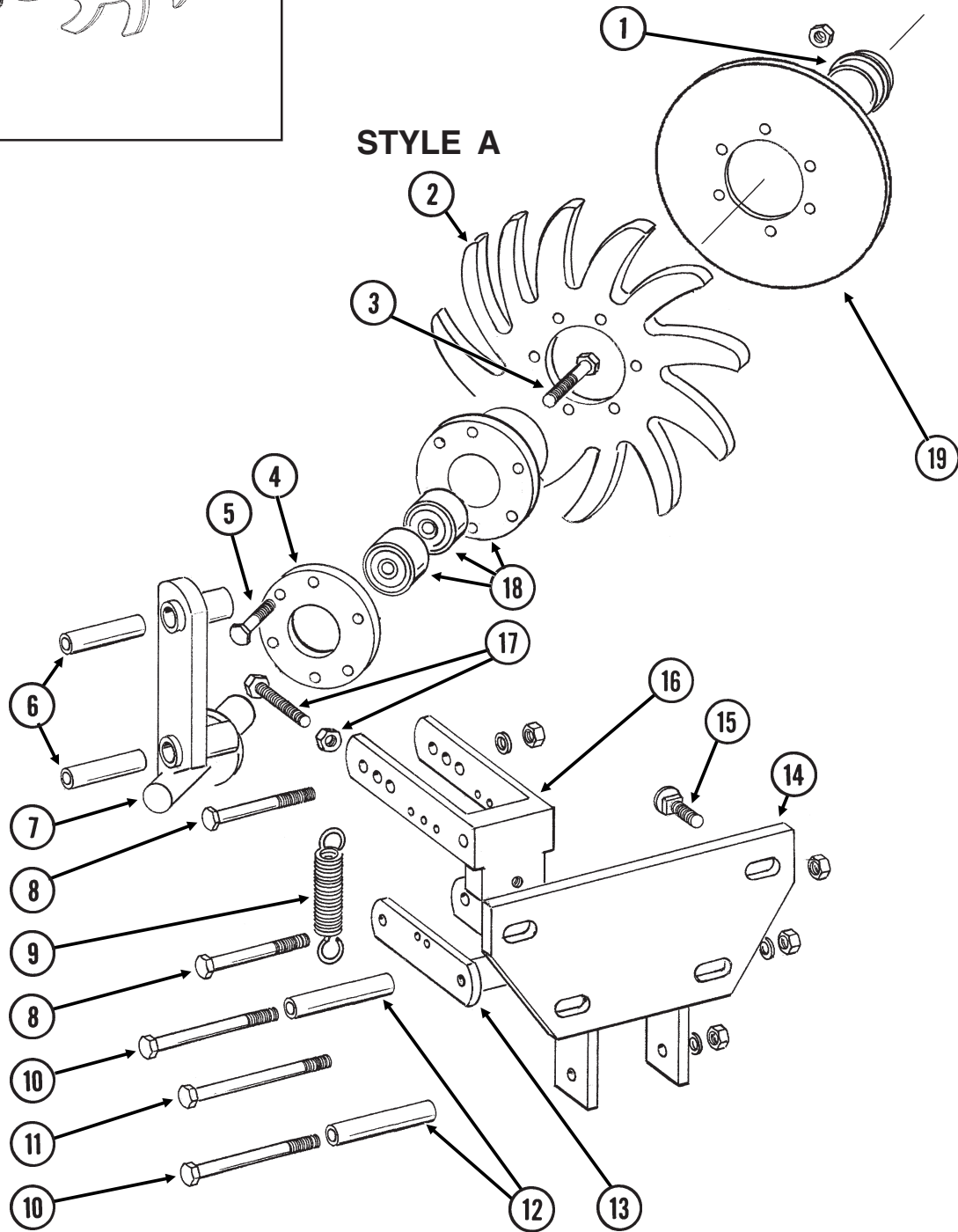
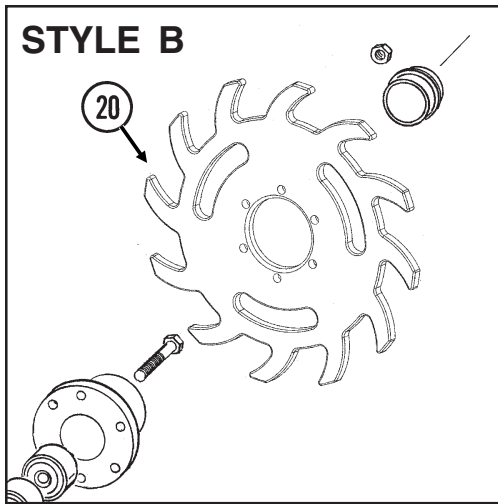


ROW UNIT MOUNTED DISC FURROWER

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G10536	1	Detent Pin, 1/2" x 2 1/2" Grip
2.	G10597	1	Square Head Set Screw, 5/8"-11 x 2 1/4"
3.	G10503	1	Hex Jam Nut, 5/8"-11, Grade 2
4.	GA5719	1	Mounting Bracket
5.	GD7889	6	Bushing, 1" O.D. x 9/16" I.D. x 7/16" Long
6.	G10039	2	Hex Head Cap Screw, 1/2"-13 x 1 3/4"
	GD14674	2	Special Washer, 1/2", Hardened
	G10111	2	Lock Nut, 1/2"-13
7.	G10585	1	Hex Head Cap Screw, 1/2"-13 x 3 1/4"
	G10216	2	Washer, 1/2" USS
	G10111	1	Lock Nut, 1/2"-13
8.	GD7890	2	Link
9.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10216	2	Washer, 1/2" USS
	G10111	2	Lock Nut, 1/2"-13
10.	GA5715	1	Anchor
11.	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10111	2	Lock Nut, 1/2"-13
12.	GA5718	1	Support Arm
13.	G10572	6	Truss Head Slotted Machine Screw, 5/16"-18 x 7/8"
	G10106	6	Hex Nut, 5/16"-18
14.	GD1132	2	Dust Cap
15.	G10318	2	Hex Head Cap Screw, 5/8"-11 x 4 1/2"
	GD7805	2	Special Washer, 5/8", Hardened
	G10107	2	Lock Nut, 5/8"-11
16.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
17.	GD7823	-	Disc Blade, Solid, 12" (Shown)
	GD8307	-	Disc Blade, Notched, 12"
18.	GD7817-01	2	Spacer, 1 1/16" I.D. x 3/4" Long
	GD7817-04	2	Spacer, 1 1/16" I.D. x 1/2" Long

ROW UNIT MOUNTED RESIDUE WHEEL

(RU103dd/RU103d)



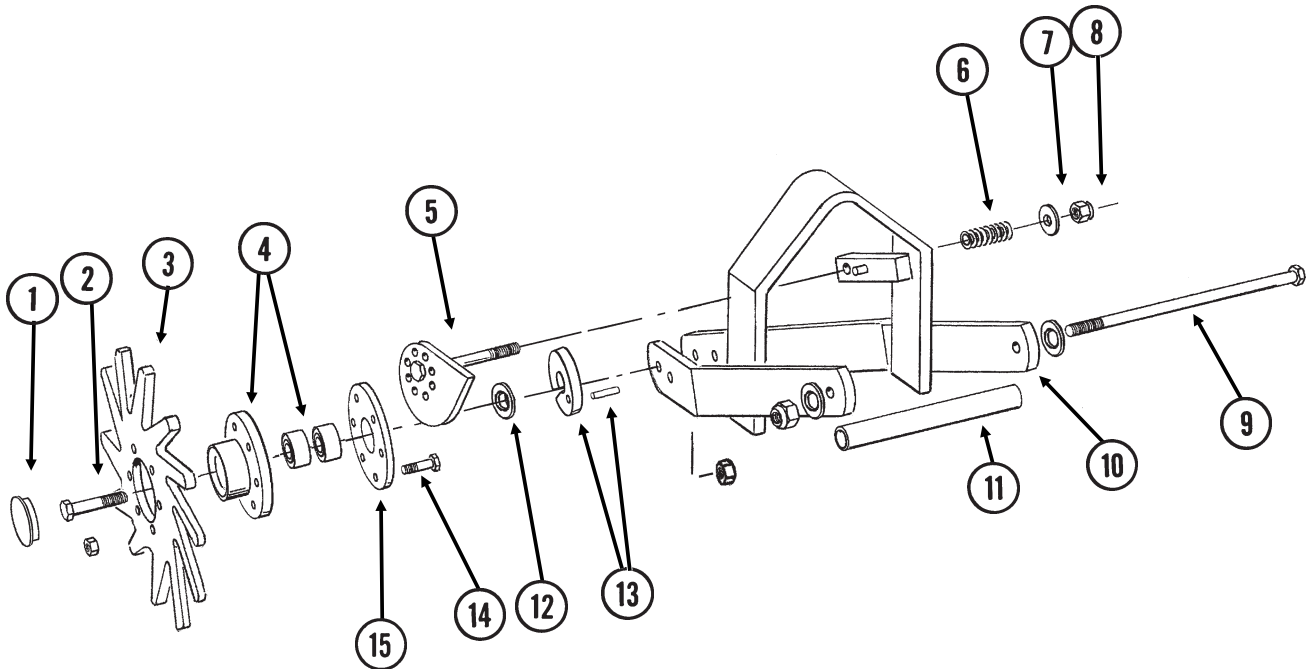
ROW UNIT MOUNTED RESIDUE WHEEL

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	GD1132	1	Dust Cap
2.	GD10552	1	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
3.	G10006	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2 $\frac{1}{4}$ "
4.	GD9724	1	Backing Plate
5.	G10133	6	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10109	6	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
6.	GD9720	2	Spacer, $\frac{1}{2}$ " x 2 $\frac{3}{16}$ " Long
7.	GA6838	1	Wheel Mount
8.	G10033	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 3 $\frac{1}{2}$ "
	G10228	2	Lock Washer, $\frac{1}{2}$ "
	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
9.	GD5857	2	Spring
10.	G10045	2	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 4 $\frac{1}{2}$ "
	G10228	2	Lock Washer, $\frac{1}{2}$ "
	G10102	2	Hex Nut, $\frac{1}{2}$ "-13
11.	G10348	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 5" (Lockup Bolt)
	G10111	1	Lock Nut, $\frac{1}{2}$ "-13
12.	GD9715	2	Spacer, $\frac{1}{2}$ " x 3" Long
13.	GA6834	1	Lower Link
14.	GA6832	1	Mount
15.	G10574	4	Carriage Bolt, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G10111	4	Lock Nut, $\frac{1}{2}$ "-13
16.	GA6833	1	Upper Link
17.	G10371	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 3", Full Thread
	G10501	1	Hex Jam Nut, $\frac{1}{2}$ "-13, Grade 2
18.	GA5654	1	Hub W/Bearings
	GA2014	-	Bearing
19.	GD12534	-	Cover
20.	GB0387	1	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
A.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 2, 4, 5 And 18)
B.	GA12236	-	Wheel Assembly, 12 Tine, R.H. (Items 4, 5, 18 And 20)

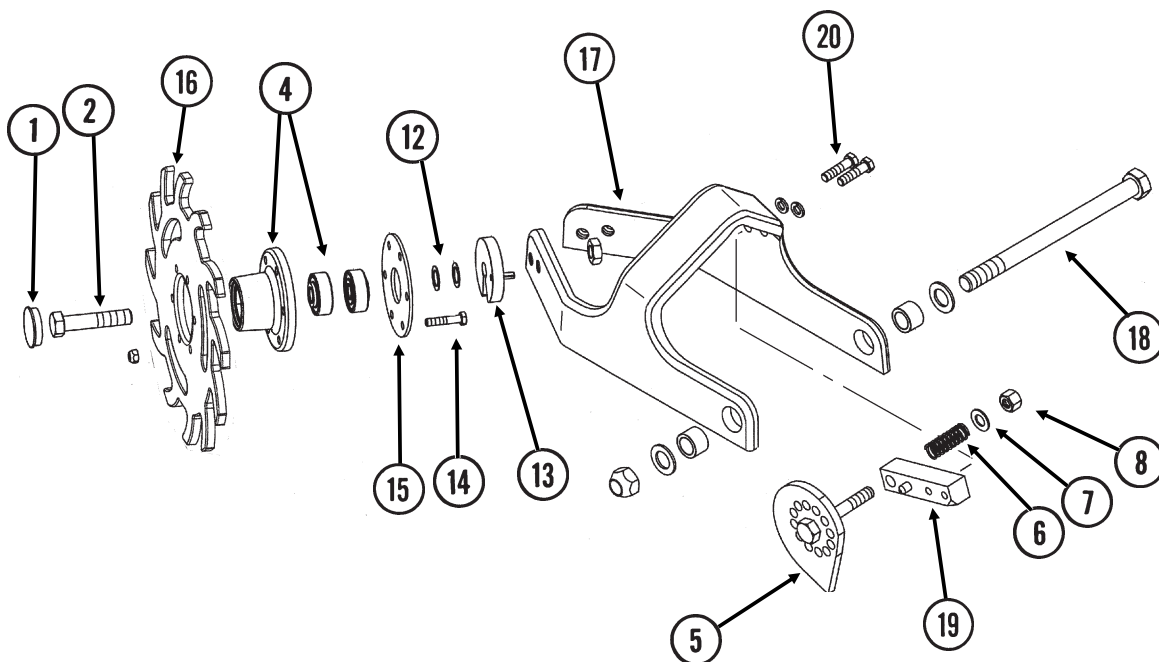
COULTER MOUNTED RESIDUE WHEELS

(RU104uuu/RU153)

STYLE A - Used With Style A Row Unit Mounted No Till Coulter



STYLE B - Used With Style B Row Unit Mounted No Till Coulter

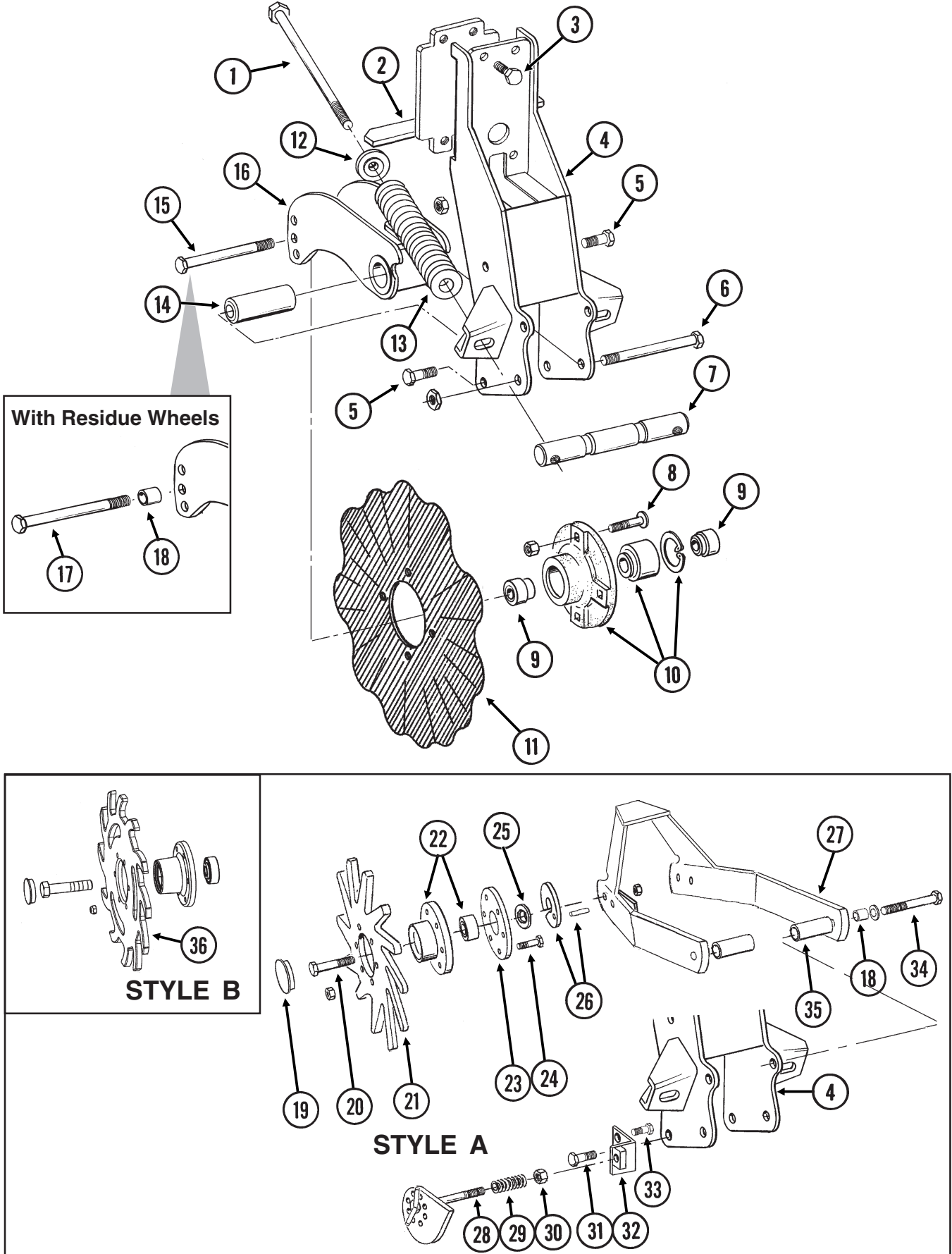


COULTER MOUNTED RESIDUE WHEELS

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	2-4	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, Grade 8
15.	GD9724	2	Backing Plate
16.	GB0387	2	Wheel, 12 Tine, 3/8" x 12"
17.	GB0401	1	Mount
18.	G11236	1	Hex Head Cap Screw, 3/4"-10 x 10 1/2"
	GB0383	2	Bushing, 1 1/8" O.D. x 25/32" I.D. x 3/4" Long
	G10194	2	Washer, 3/4" SAE
	G11228	1	Lock Nut, 3/4"-10
19.	GA12256	1	Locking Pin
20.	G10003	2	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G10229	2	Lock Washer, 3/8"
A.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 3, 4, 14 And 15) (Shown)
	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 3, 4, 14 And 15)
B.	GA12236	-	Wheel Assembly, 12 Tine, R.H. (Items 4, 14, 15 And 16) (Shown)
	GA12235	-	Wheel Assembly, 12 Tine, L.H. (Items 4, 14, 15 And 16)

FRAME MOUNTED COULTER W/RESIDUE WHEELS

(RU135c/RU135g/RU153b/RU135hh)



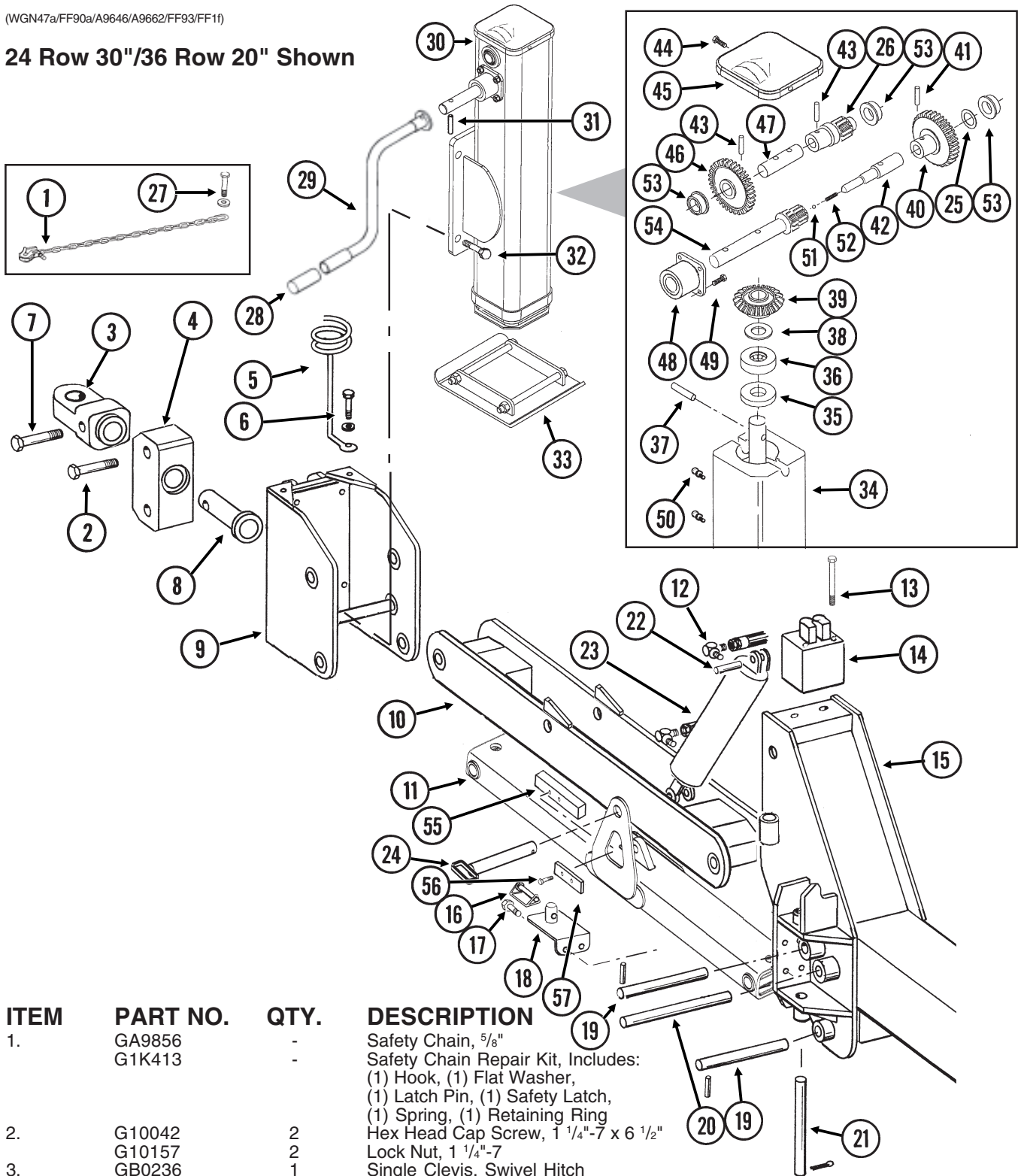
FRAME MOUNTED COULTER W/RESIDUE WHEELS

ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1.	G11010	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 12"
2.	GA9844	1	Plate W/Angle
3.	G10039	4	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{3}{4}$ "
4.	GA9131	1	Coulter Frame
5.	G10007	4	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{1}{2}$ "
	G10107	4	Lock Nut, $\frac{5}{8}$ "-11
6.	G10400	1	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 6 $\frac{1}{2}$ "
	G10112	1	Lock Nut, $\frac{3}{4}$ "-10
7.	GD12826	1	Spring Anchor Bar
8.	G10574	4	Carriage Bolt, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G10111	4	Lock Nut, $\frac{1}{2}$ "-13
9.	GD12827	2	Adapter
10.	GA8641	1	Hub W/Bearing And Retaining Ring
	GA8603	1	Bearing, Double Row
	GD11652	1	Retaining Ring, 2 $\frac{7}{16}$ "
11.	GD7803	1	Disc Blade, Fluted, 1", 8 Flutes (Shown)
	GD7804	-	Disc Blade, Bubbled, 1"
	GD9254	-	Disc Blade, Fluted, $\frac{3}{4}$ ", 13 Flutes
12.	GB0213	2	Spring Seat
13.	GD12817	2	Compression Spring
14.	GD12829	1	Sleeve
15.	G10046	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5"
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
16.	GA9845	1	Coulter Arm W/Grease Fitting
	G10643	-	Grease Fitting, 45°, $\frac{1}{4}$ "-28
17.	G10011	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5 $\frac{1}{2}$ "
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
18.	GB0218	3	Bushing, $\frac{21}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
19.	GD1132	2	Dust Cap
20.	G10010	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 3"
	G10503	2	Hex Jam Nut, $\frac{5}{8}$ "-11, Grade 2
21.	GD10552	2	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
22.	GA5654	2	Hub W/Bearings
	GA2014	-	Bearing
23.	GD9724	2	Backing Plate
24.	G10133	12	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10109	12	Lock Nut, $\frac{5}{16}$ "-18, Grade 8
25.	G10213	2	Machine Bushing, $\frac{5}{8}$ " (.030" Thick)
26.	GA9862	2	Weed Guard W/Spring Pin
	G10765	-	Spring Pin, $\frac{1}{4}$ " x 1"
27.	GA9865	1	Mount
28.	GA9861	1	Cam
29.	GD10519	1	Spring
30.	G10974	1	Lock Nut W/Nylon Insert, $\frac{1}{2}$ "-13
31.	G10005	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 1 $\frac{3}{4}$ "
	G10107	4	Lock Nut, $\frac{5}{8}$ "-11
32.	GA9864	1	Support
33.	G10014	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1"
	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
34.	G10011	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5 $\frac{1}{2}$ "
	G10205	2	Washer, $\frac{5}{8}$ " SAE
	G10730	2	Lock Nut W/Nylon Insert, $\frac{5}{8}$ "-11
35.	GD14170	2	Sleeve, 3"
36.	GB0386	2	Wheel, 12 Tine, $\frac{3}{8}$ " x 12"
A.	GA7446	-	Wheel Assembly, 12 Tine, R.H. (Items 21-24) (Shown)
	GA7445	-	Wheel Assembly, 12 Tine, L.H. (Items 21-24)
B.	GA12236	-	Wheel Assembly, 12 Tine, R.H. (Items 22, 23, 24 And 36) (Shown)
	GA12235	-	Wheel Assembly, 12 Tine, L.H. (Items 22, 23, 24 And 36)

FRONT HITCH ASSEMBLY/SAFETY CHAIN

(WGN47a/FF90a/A9646/A9662/FF93/FF1f)

24 Row 30"/36 Row 20" Shown



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA9856 G1K413	- -	Safety Chain, 5/8" Safety Chain Repair Kit, Includes: (1) Hook, (1) Flat Washer, (1) Latch Pin, (1) Safety Latch, (1) Spring, (1) Retaining Ring
2.	G10042	2	Hex Head Cap Screw, 1 1/4"-7 x 6 1/2"
3.	G10157	2	Lock Nut, 1 1/4"-7
4.	GB0236	1	Single Clevis, Swivel Hitch
5.	GA9526	1	Swivel Block W/Grease Fitting
6.	G10643	-	Grease Fitting, 45°, 1/4"-28
7.	GD9349	1	Hose Holder
8.	G10006	1	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
9.	G10230	1	Lock Washer, 5/8"
	G10217	1	Washer, 5/8" USS (If Applicable)
	G10104	1	Hex Nut, 5/8"-11
	G10151	2	Hex Head Cap Screw, 1"-8 x 6"
	G10396	2	Lock Nut, 1"-8
	GD13377	1	Spindle
	GA9459	1	Hitch Cap

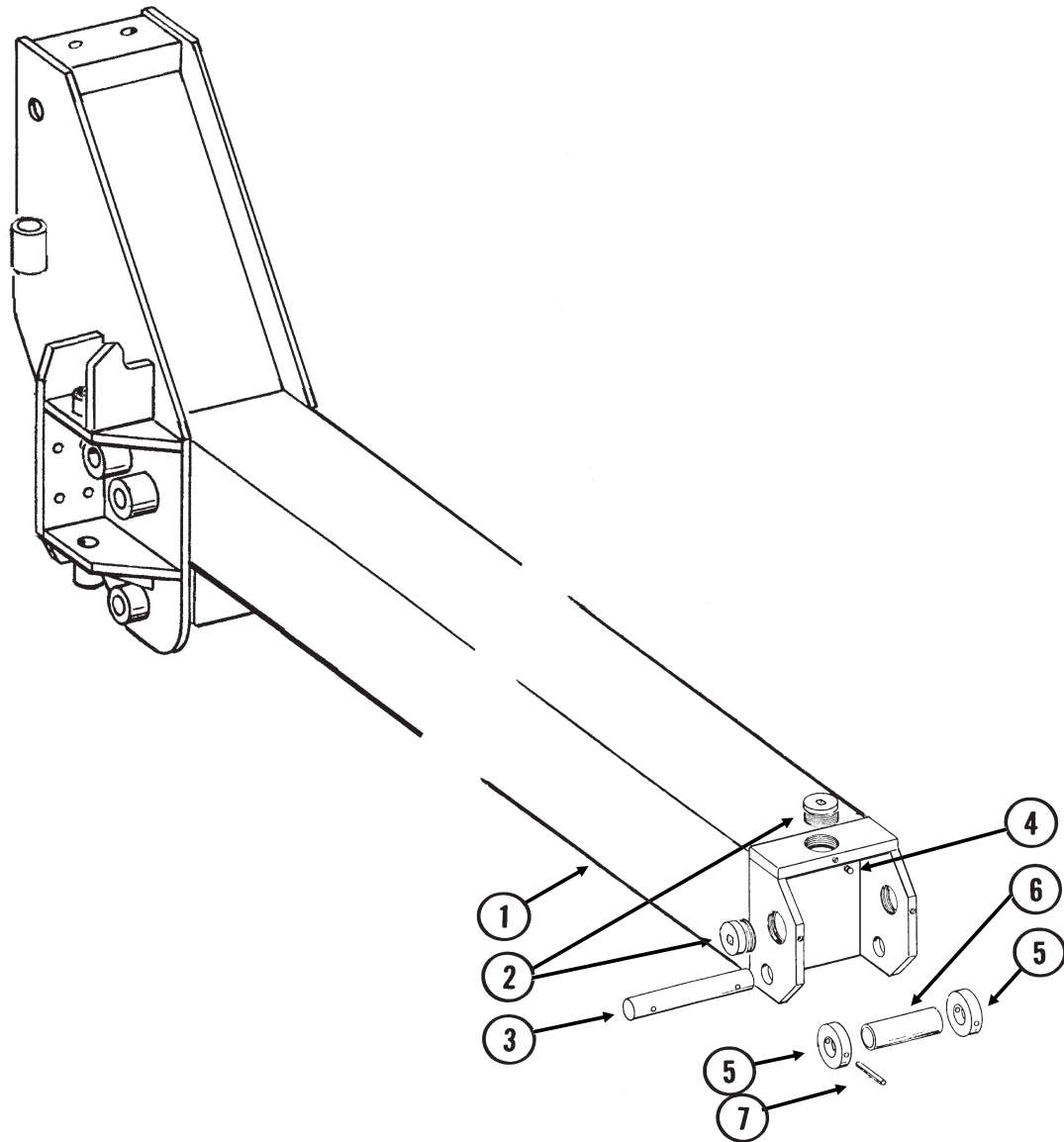
FRONT HITCH ASSEMBLY/SAFETY CHAIN

ITEM	PART NO.	QTY.	DESCRIPTION
10.	GA9894	1	Upper Hitch Link W/Grease Fittings
	G10640	-	Grease Fitting, 1/4"-28
11.	GA10043	1	Lower Hitch Link W/Grease Fittings
	G10640	-	Grease Fitting, 1/4"-28
12.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	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", Page P94
15.		-	See "Front Hitch Assembly (Rear Section)", Page P48
16.	GD10705	1	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	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"
	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
	GR0193	-	Hair Pin Clip
23.		-	See "Hitch Parallel Linkage Cylinder", Page P93
24.	GA6813	1	Parallel Linkage Lock Pin
	GD14217	1	Tab Lock Pin, 7/16" x 1 1/2"
25.	G11032	1	Shim
26.	GD13605	1	Output Spur Gear
27.	G10494	1	Hex Head Cap Screw, 1 1/4"-7 x 3 1/2"
	GD10646	1	Special Washer
	G10226	1	Washer, 1 1/4" SAE
	G10157	1	Lock Nut, 1 1/4"-7
28.	G11012	1	Cover
29.	GA9655	1	Handle
30.	GA9646	1	2-Speed Jack Assembly, Less Handle And Foot Assembly
31.	G11076	1	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	-	Hex Head Cap Screw, 1/2"-13 x 7"
	G10111	-	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"
38.	GD13600	1	Thrust Washer
39.	GD13601	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.	G11031	2	Spring Pin, 5/16" x 1 1/2"
44.	G10960	2	Flanged Whiz-Lock Screw, 1/4"-20 x 5/8", No Serration
45.	GD13607	1	Cover
46.	GD13606	1	Input Spur Gear
47.	GD13608	1	Output Shaft
48.	GA9666	1	Shaft Housing
49.	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
	G10109	4	Lock Nut, 5/16"-18, Grade 8
50.	G10641	2	Grease Fitting, 1/8" NPT
51.	GD13609	2	Detent Ball
52.	GD13610	1	Detent Spring
53.	GD13604	3	Bushing
54.	GD13611	1	Input Shaft
55.	GD15787	2	Stop Block, 1 1/2" x 8"
56.	GD15785	2	Mount, 1 1/2" x 5 1/2"
57.	G10017	4	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10228	4	Lock Washer, 1/2"
A.	GA9504	-	2-Speed Jack/Mount Sub-Assembly (Items 2-9, 30, 31 And 33) P47

FRONT HITCH ASSEMBLY (REAR SECTION)

PHA029/PFA057(FF2c)

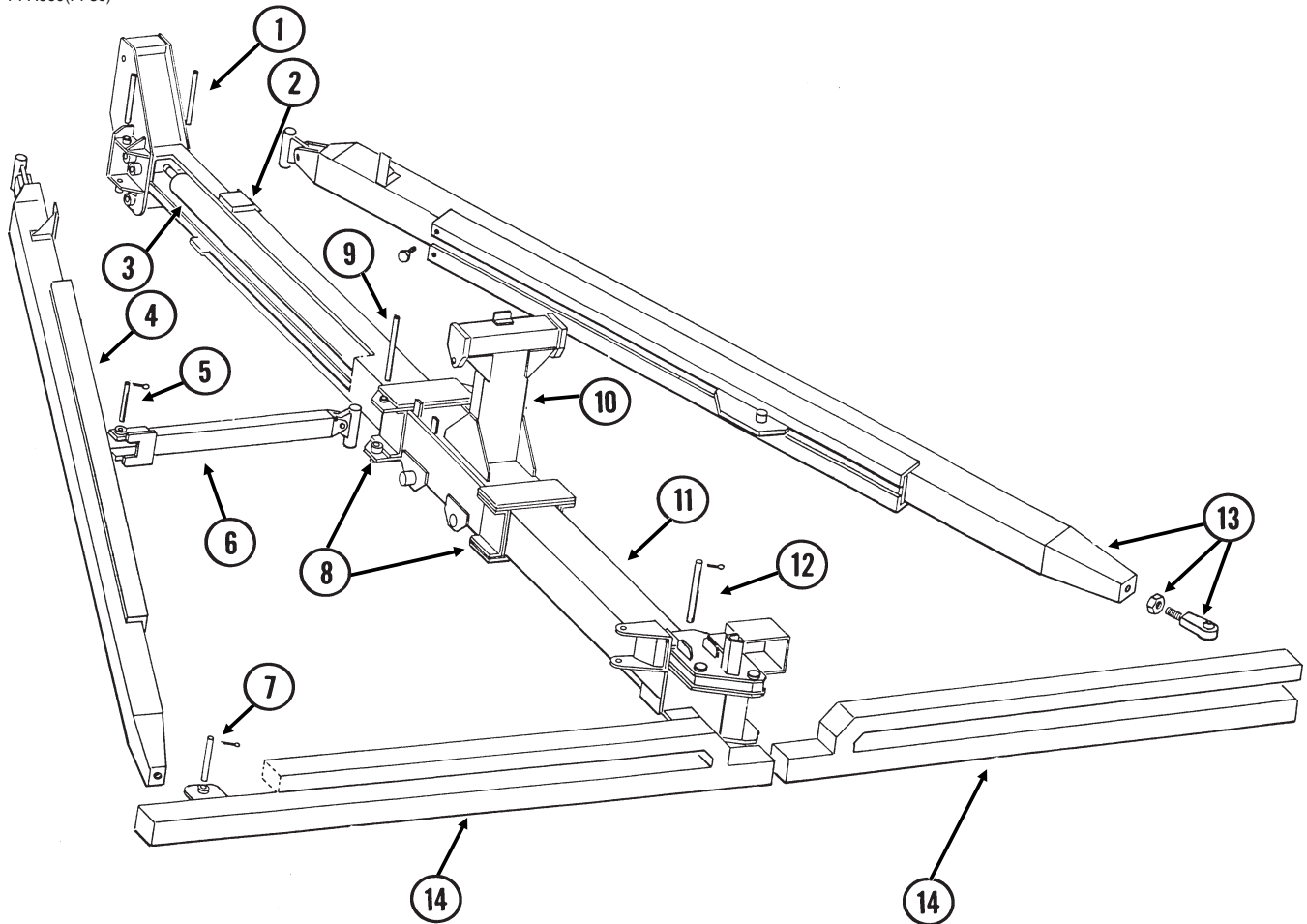
24 Row 30"/36 Row 20" Shown



ITEM	PART NO.	QTY.	DESCRIPTION
1.	A8974	1	Front Hitch, 199 ⁵ / ₈ " , 24 Row 30" And 36 Row 20" (Non-Stock Item)
	A8973	1	Front Hitch, 166 ⁵ / ₈ " , 16 Row 30" , 16 Row 38" , 24 Row 20" And 24 Row 22" (Non-Stock Item)
2.	GD9357	3	Bronze Adjusting Plug
3.	GD9362	1	Mounting Pin
4.	G10760	3	Hex Socket Set Screw, ³ / ₈ "-16 x 1/2"
5.	GD9366	2	Roller
6.	GD9367	1	Sleeve
7.	G10293	2	Spring Pin, ³ / ₈ " x 3"

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

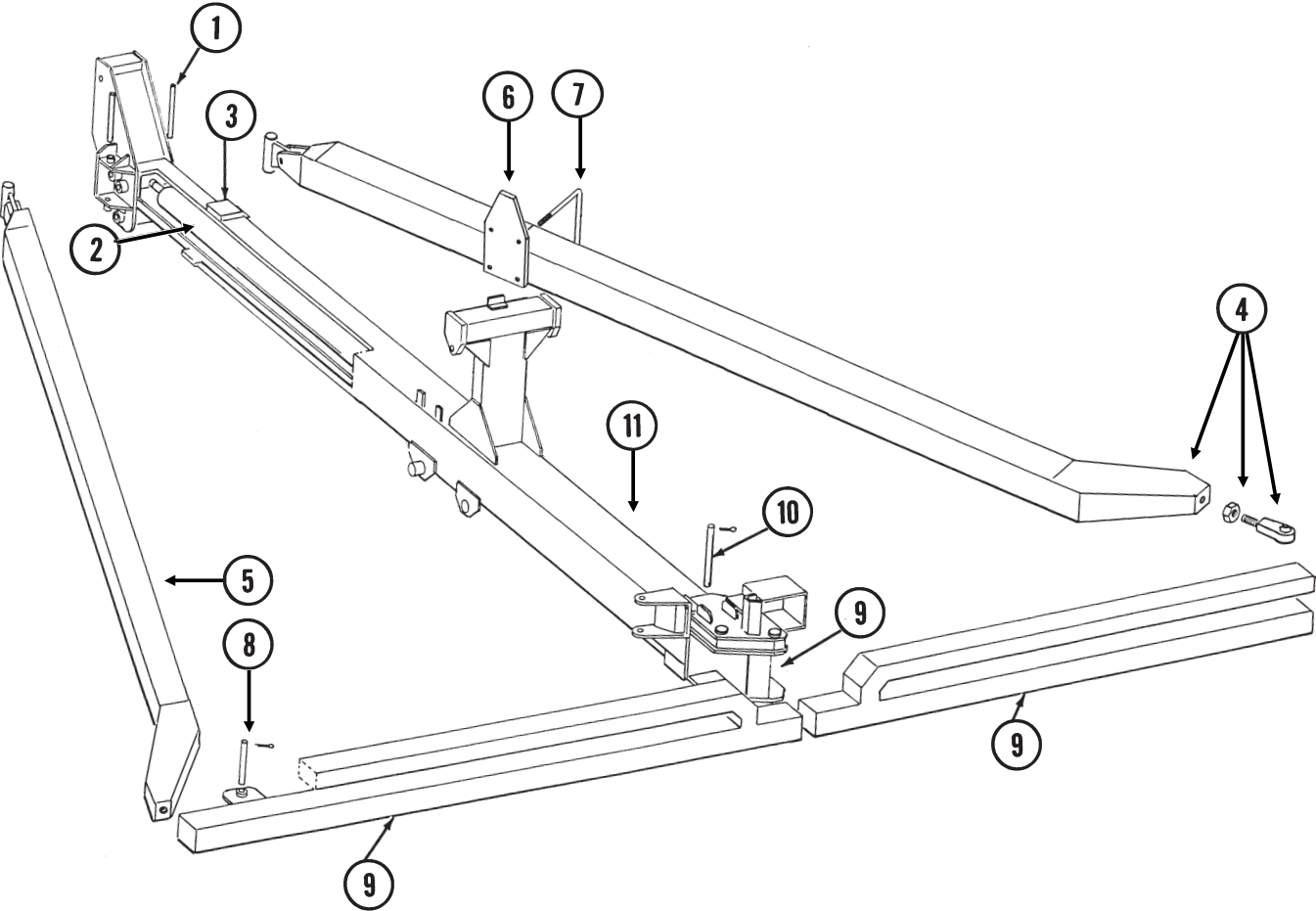
PFA060(FF3c)



ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Front Hitch Assembly/Safety Chain", Pages P46 And P47
2.		-	See "Front Wear Pads", Page P52
3.		-	See "Tongue Cylinder", Page P92
4.	GA7453	1	L.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2
	G10831	-	Hex 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 P53
9.	GD9542-04	2	Pin, 1 1/4" x 15"
	G10460	4	Cotter Pin, 1/4" x 2"
10.		-	See "Tower Assembly", Pages P54 And P55
11.	GA6634	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 And Joint
	GD10230	-	Split Locking Nut, 2"-12, Grade 2
	G10831	-	Hex Socket Head Screw, 1/4"-20 x 5/8"
	GA6660	-	Joint
14.		-	See "Hinge And Wing Assemblies", Pages P60 And P61

HITCH AND LINKAGE ASSEMBLY, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

PFA060/PFA061(FF62)

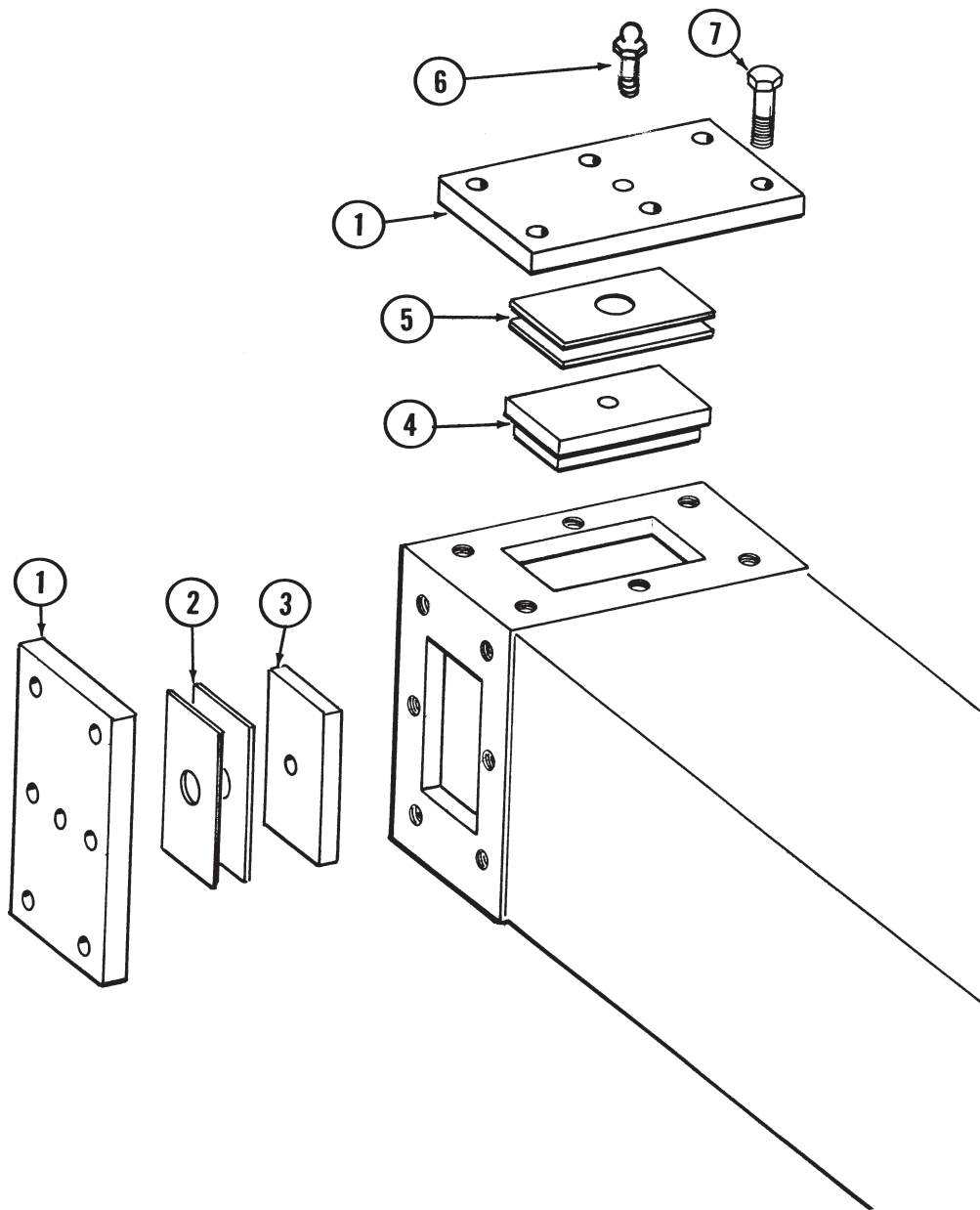


HITCH AND LINKAGE ASSEMBLY, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Front Hitch Assembly/Safety Chain", Pages P46 And P47
2.		-	See "Tongue Cylinder", Page P91
3.		-	See "Front Wear Pads", Page P52
4.	GA7476	1	R.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint, 16 Row 30", 24 Row 20" And 24 Row 22"
	GA11260	1	R.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint, 16 Row 38"
	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, 16 Row 30", 24 Row 20" And 24 Row 22"
	GA11261	1	L.H. Draft Link W/Split Locking Nut, Socket Head Screw And Joint, 16 Row 38"
	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 P60 And P61
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)

FRONT WEAR PADS, ALL SIZES

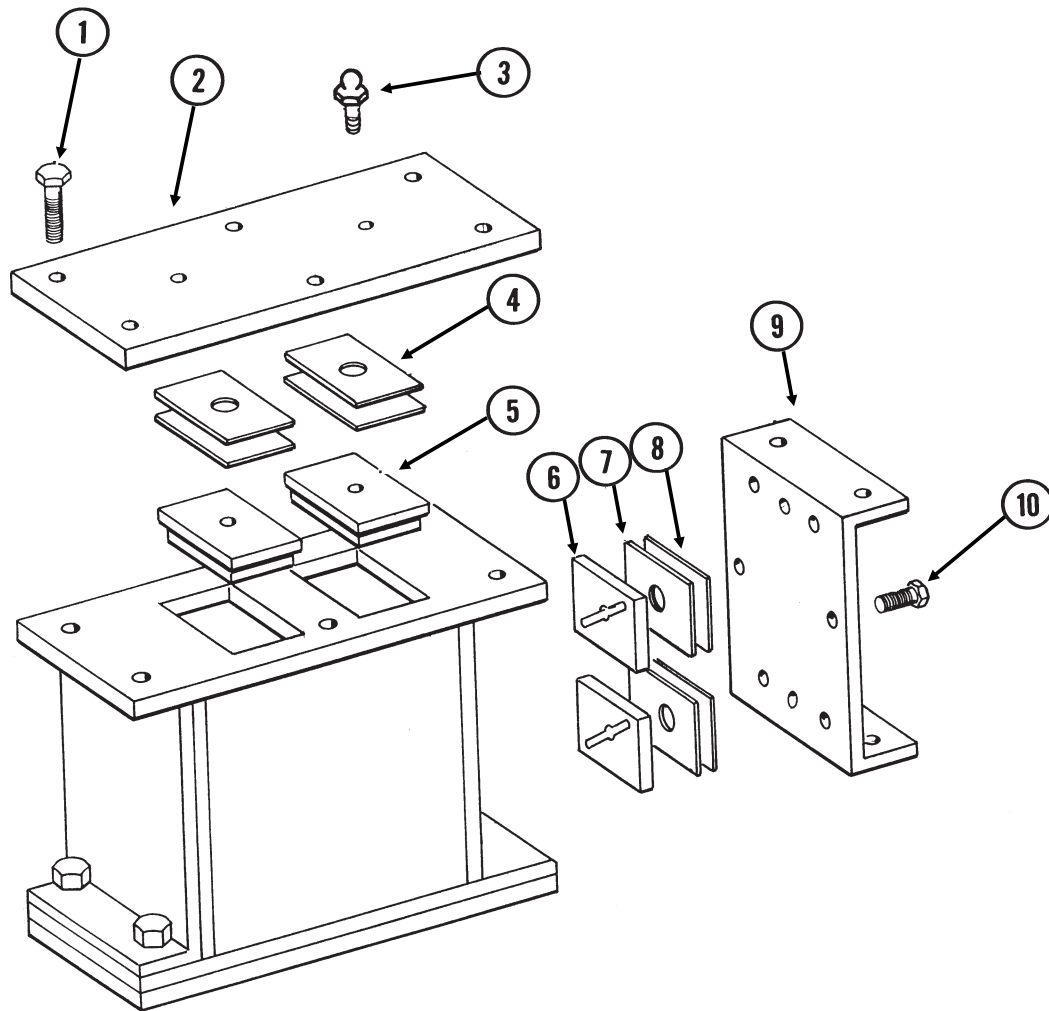
PFA059(FF4a)



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

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

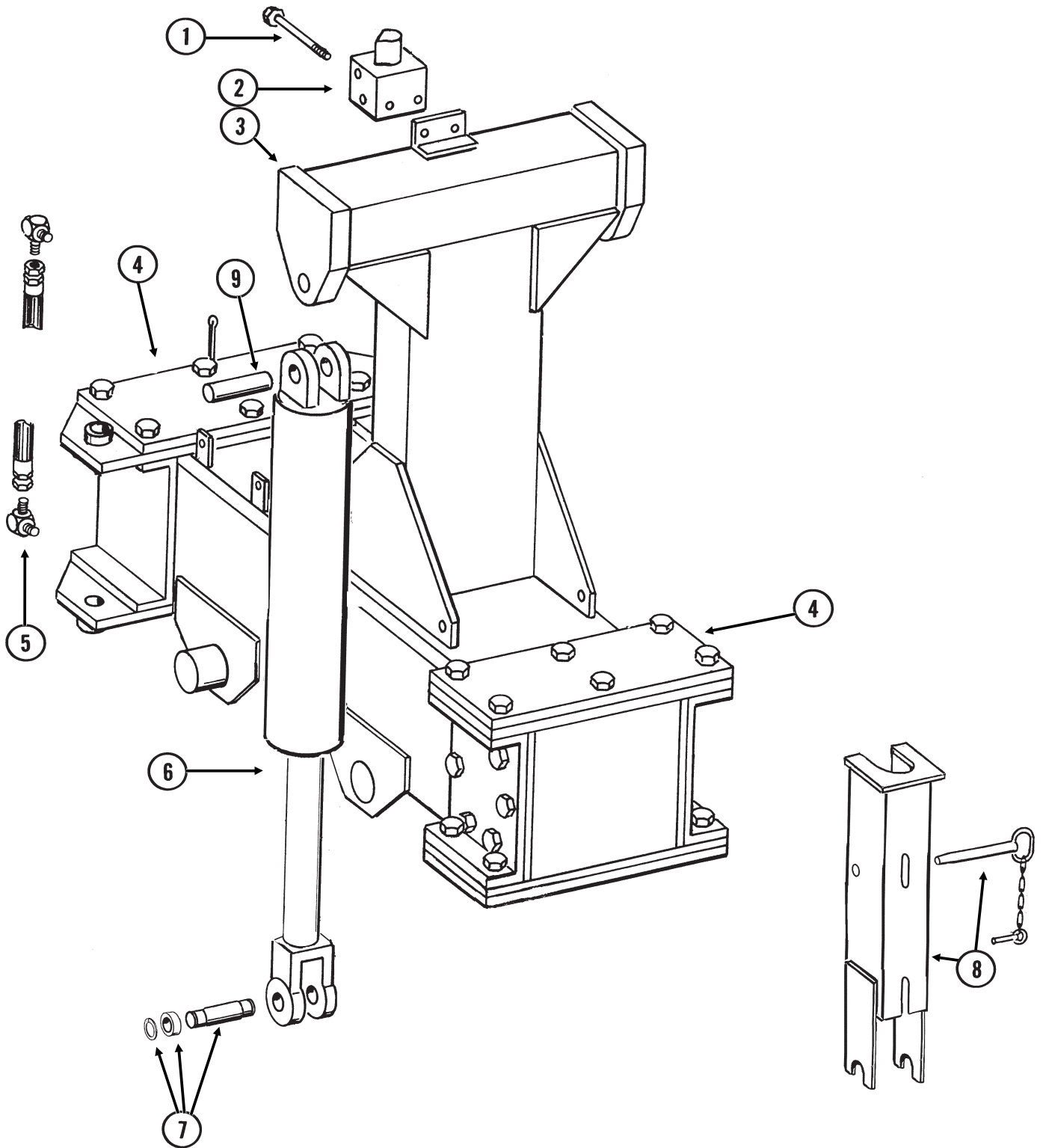
PFA058(FF5a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10802	16	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 2 $\frac{3}{4}$ "
	G10028	-	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 3"
	G10231	16	Lock Washer, $\frac{3}{4}$ "
	G10218	16	Washer, $\frac{3}{4}$ " USS
	G10105	16	Hex Nut, $\frac{3}{4}$ "-10
2.	GD9469	4	Retainer, 8" x 18" (Shown)
	GD18328	-	Retainer, 8" x 18 $\frac{3}{4}$ "
3.	G10763	16	Grease Fitting, Extended, $\frac{1}{8}$ "-27
4.	GD9498	16	Shim, 12 Gauge
5.	GA6655	8	Retainer Pad
	GD9468	8	Bearing Pad
6.	GD9465	8	Shim, $\frac{3}{8}$ "
	GD10981	-	Shim, $\frac{1}{4}$ " (As Required)
8.	GD9498	8	Shim, 12 Gauge
9.	GA12595	4	Retainer
10.	G10025	32	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 1 $\frac{1}{2}$ "
	G10231	32	Lock Washer, $\frac{3}{4}$ "
	G10215	32	Machine Bushing, $\frac{3}{4}$ ", 14 Gauge

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

PFA061 (FF6c)

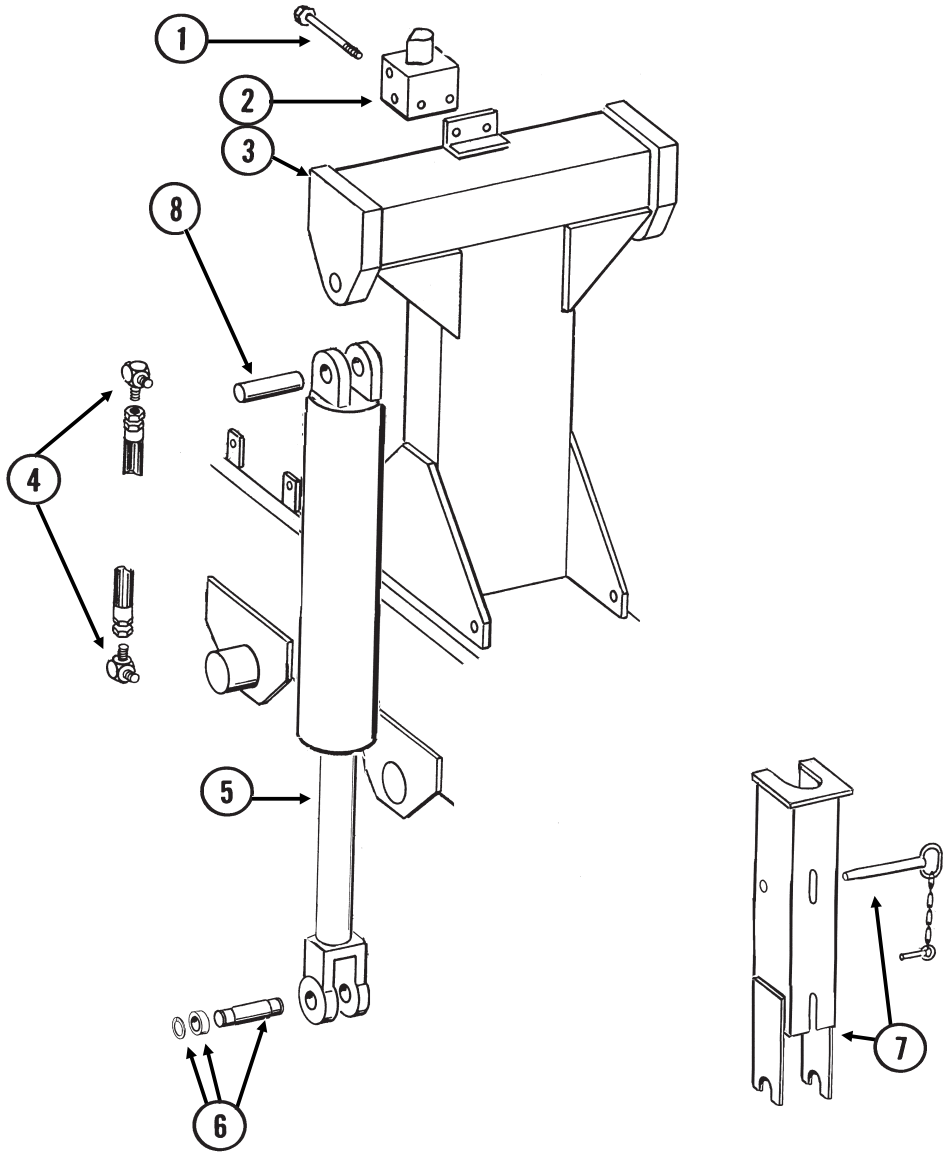


TOWER ASSEMBLY, 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10326	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 3 $\frac{3}{4}$ "
	G10229	2	Lock Washer, $\frac{3}{8}$ "
	G10101	2	Hex Nut, $\frac{3}{8}$ "-16
2.		-	See "Valve Block On Tower Assembly", Page P95
3.	A6639	1	Axle Mount (Non-Stock Item)
4.		-	See "Rear Wear Pads", Page P53
5.	G6801-08	4	Elbow W/O-Ring, 90°, $\frac{3}{4}$ "-16 Male JIC To O-Ring
	GR1037	-	O-Ring
6.		-	See "Slave Cylinder", Page P87
7.	GD12545	2	Pin, 1 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ "
	GD12535	4	Special Bushing, 2" O.D. x 1" I.D. x $\frac{3}{4}$ " Long
	G10982	4	HD External Retaining Ring, 1"
8.	GA8971	1	Cylinder Lockup Bracket W/Pin Assembly
	GA8312	-	Pin W/Lynch Pin, 5 $\frac{1}{2}$ "
9.	GD12585	2	Pin, 1 $\frac{1}{4}$ " x 4 $\frac{1}{2}$ "
	G10460	4	Cotter Pin, $\frac{1}{4}$ " x 2"

TOWER ASSEMBLY, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

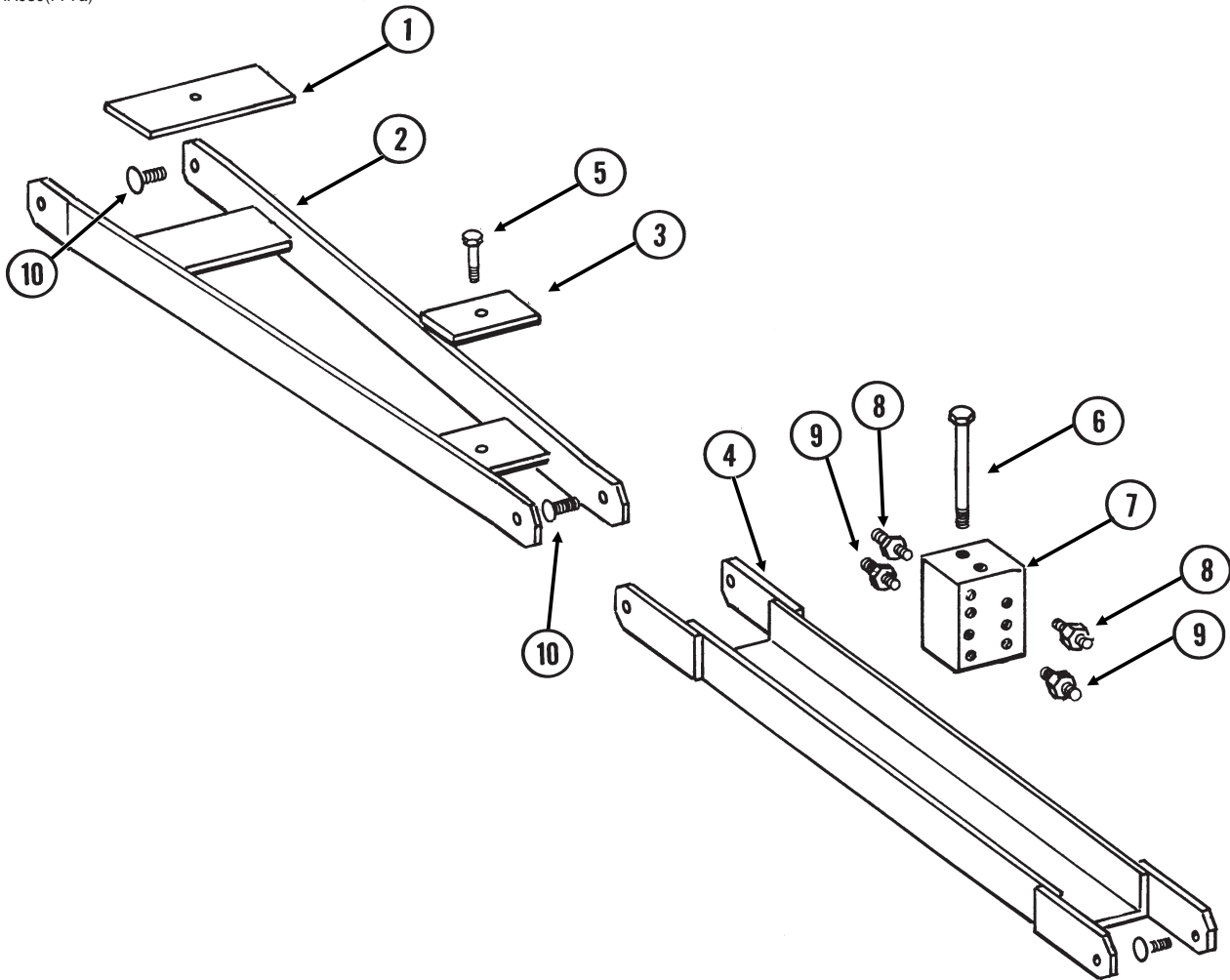
(FF63b)



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 P95
3.		-	See "Hitch And Linkage Assembly", Pages P49-P51
4.	G6801-08	4	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
5.		-	See "Slave Cylinder", Page P87
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"

HOSE TAKE-UP, 24 ROW 30" AND 36 ROW 20"

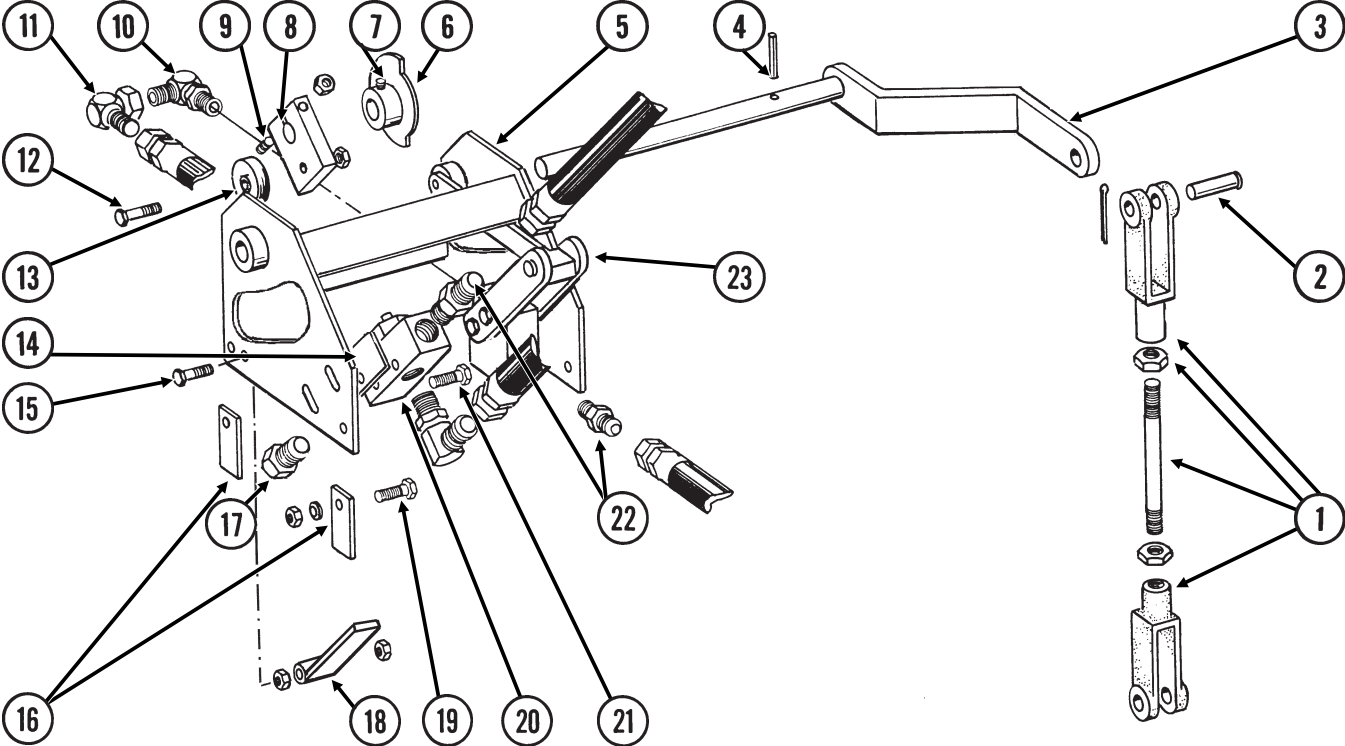
PHA030(FF7a)



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

STROKE LIMITER/DETENT VALVE ASSEMBLY AND LINKAGE

PHA031(FF8e)



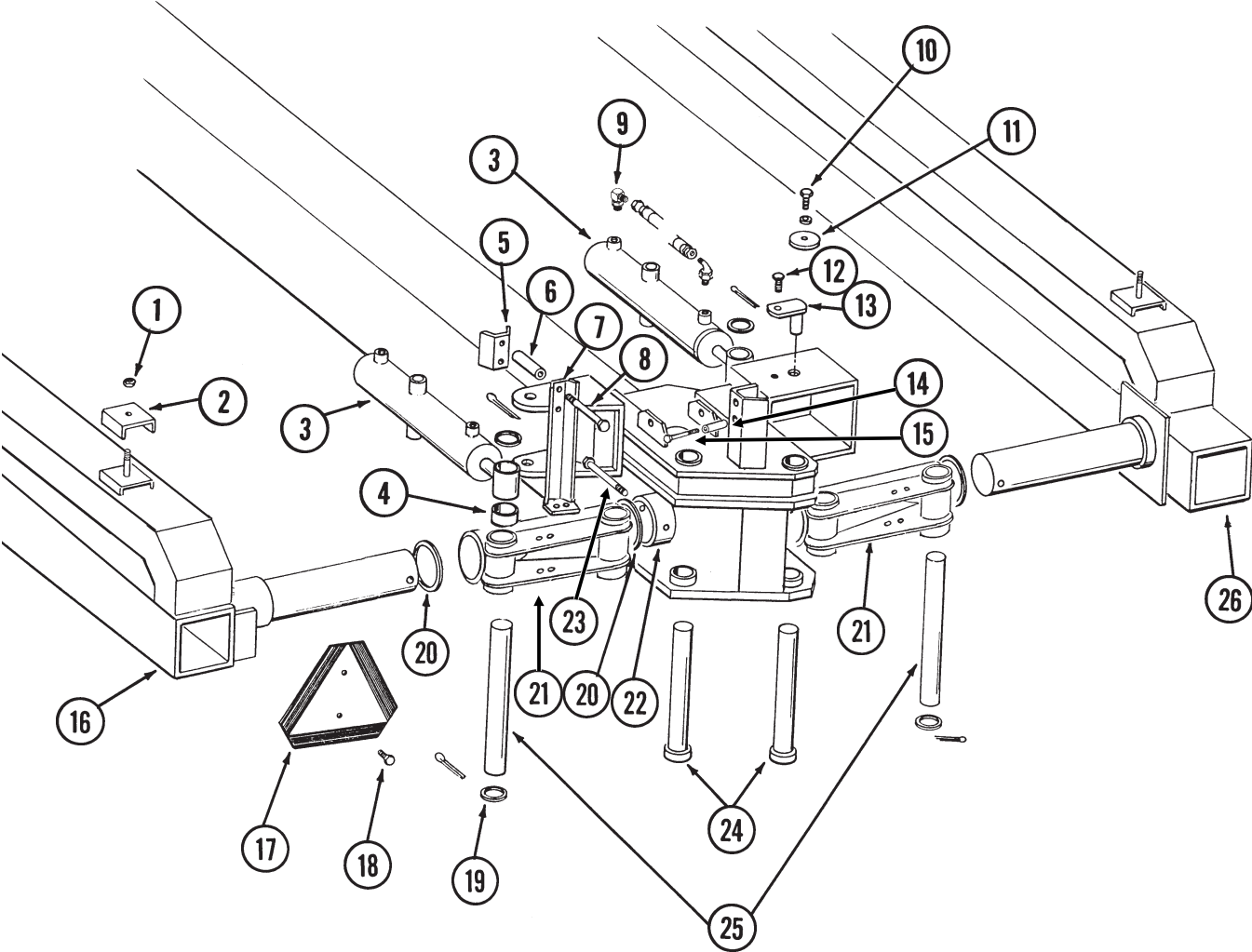
STROKE LIMITER/DETENT VALVE ASSEMBLY AND LINKAGE

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 P49-P51
17.	G6408-08	1	Plug W/O-Ring, 3/4"-16 O-Ring
	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"
	G10101	4	Hex Nut, 3/8"-16
20.		-	See "Stroke Limiter Valve", Page P102
21.	G10069	2	Hex Head Cap Screw, 5/16"-18 x 2 1/4"
	G10620	2	Serrated 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
	GR1037	-	O-Ring
23.		-	See "Detent Lever Valve", Page P101

HINGE AND WING ASSEMBLIES

PFA062/PFA052(FF9c)

24 Row 30"/36 Row 20" Shown

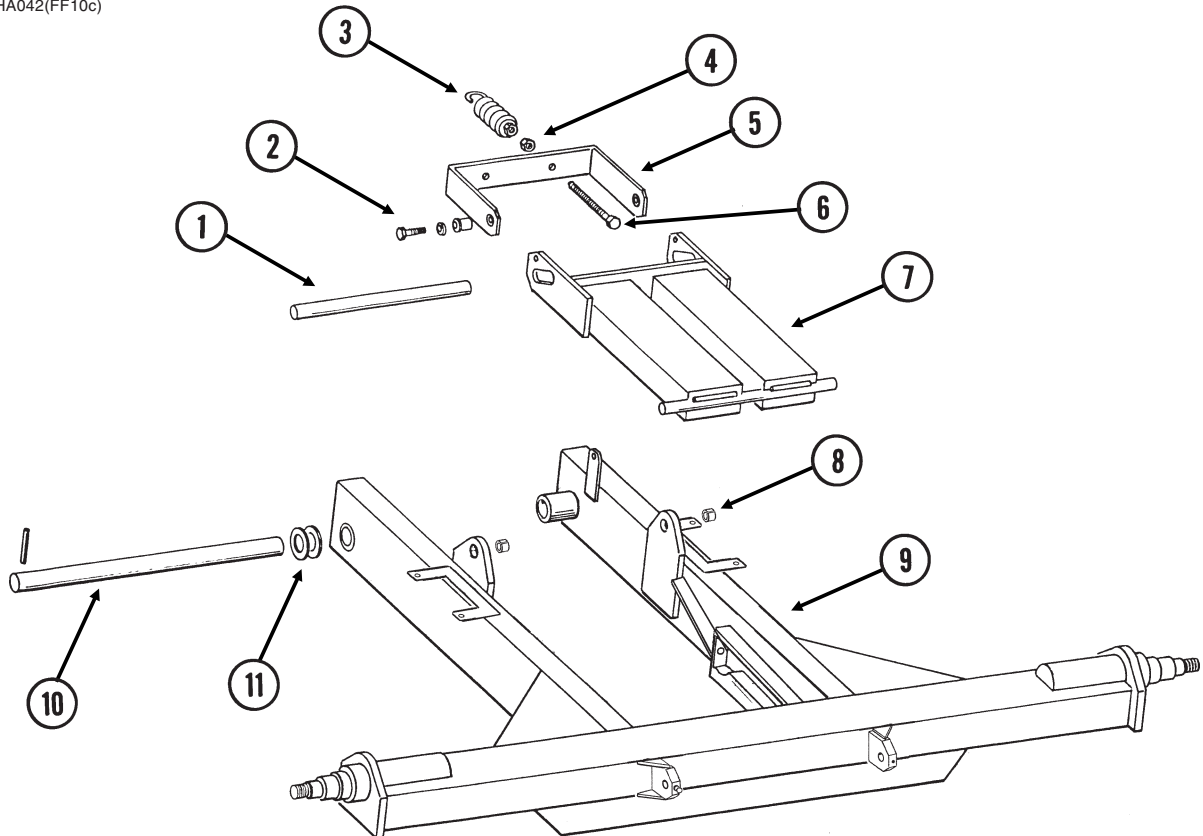


HINGE AND WING ASSEMBLIES

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", Page P90
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, 1/2"-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"
	GA11251	1	L.H. Wing, 300 3/8", 16 Row 38"
	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"
	GA11252	1	R.H. Wing, 297 3/8", 16 Row 38"
	GA7462	1	R.H. Wing, 243 3/8", 16 Row 30" And 24 Row 20"

AXLE AND TRANSPORT LOCKUP

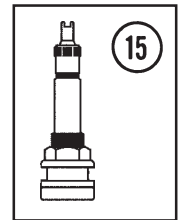
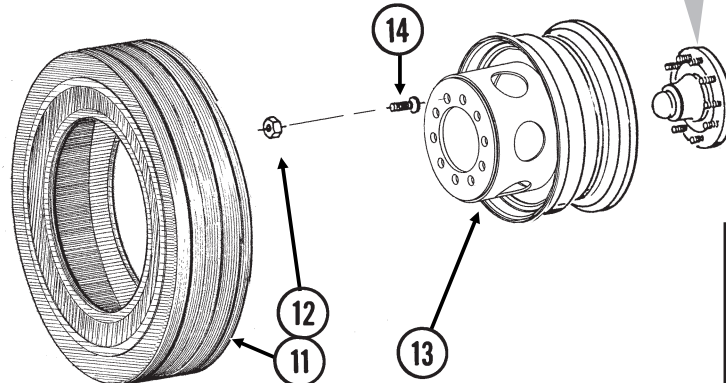
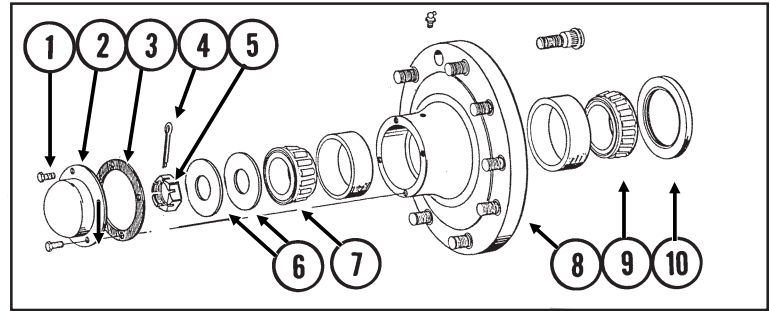
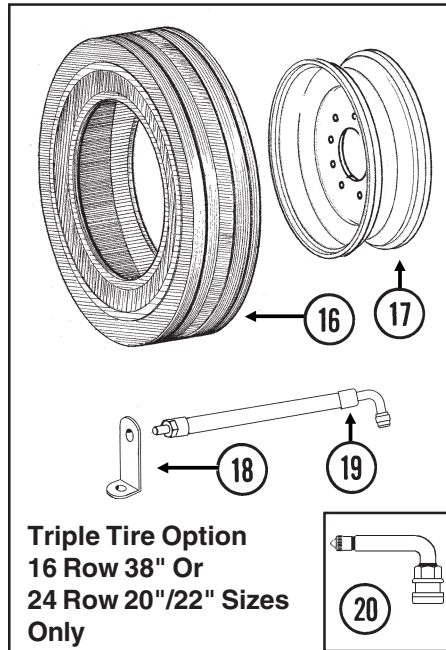
HTA042/PHA042(FF10c)



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", 16 Row 38" And 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

TRANSPORT WHEEL AND HUB ASSEMBLY

HTA002/HTA004/HTA041(FF11d/A7434)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10376	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
2.	GD1529	1	Dust Cap
3.	GD1536	1	Seal
4.	G10460	1	Cotter Pin, $\frac{1}{4}$ " x 2"
5.	G10070	1	Slotted Hex Nut, 1 $\frac{1}{4}$ "-12
6.	G10139	2	Washer, 1 $\frac{1}{4}$ " 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°, $\frac{1}{8}$ "-27
	GR0257	-	Bolt, $\frac{3}{4}$ "-16 x 2 $\frac{1}{2}$ "
9.	GA5987	1	Inner Bearing
10.	GA5988	1	Seal
11.	GD13352	-	Tire, 36" x 16" x 17.5", 14 Ply, Tubeless (Specify Brand*), 16 Row 30", 24 Row 30" And 36 Row 20" (Shown)
	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*), 16 Row 38", 24 Row 20" And 24 Row 22"
12.	GD9509	10	Outer Budd Nut
13.	GA6738	-	Rim, 18 $\frac{1}{2}$ " Deep, 16 Row 30" And 24 Row 30"
	GA7448	-	Rim, 16" Deep, 36 Row 20"
	GA7551	-	Rim, 13 $\frac{1}{2}$ " Deep, 16 Row 38", 24 Row 20" And 24 Row 22"
	GA10771	-	Rim, 19 $\frac{1}{2}$ " Deep, 16 Row 38"
14.	GD9508	10	Inner Budd Nut, 2 $\frac{1}{4}$ " Long
	GD12567	-	Inner Budd Nut, 2 $\frac{5}{8}$ " 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°

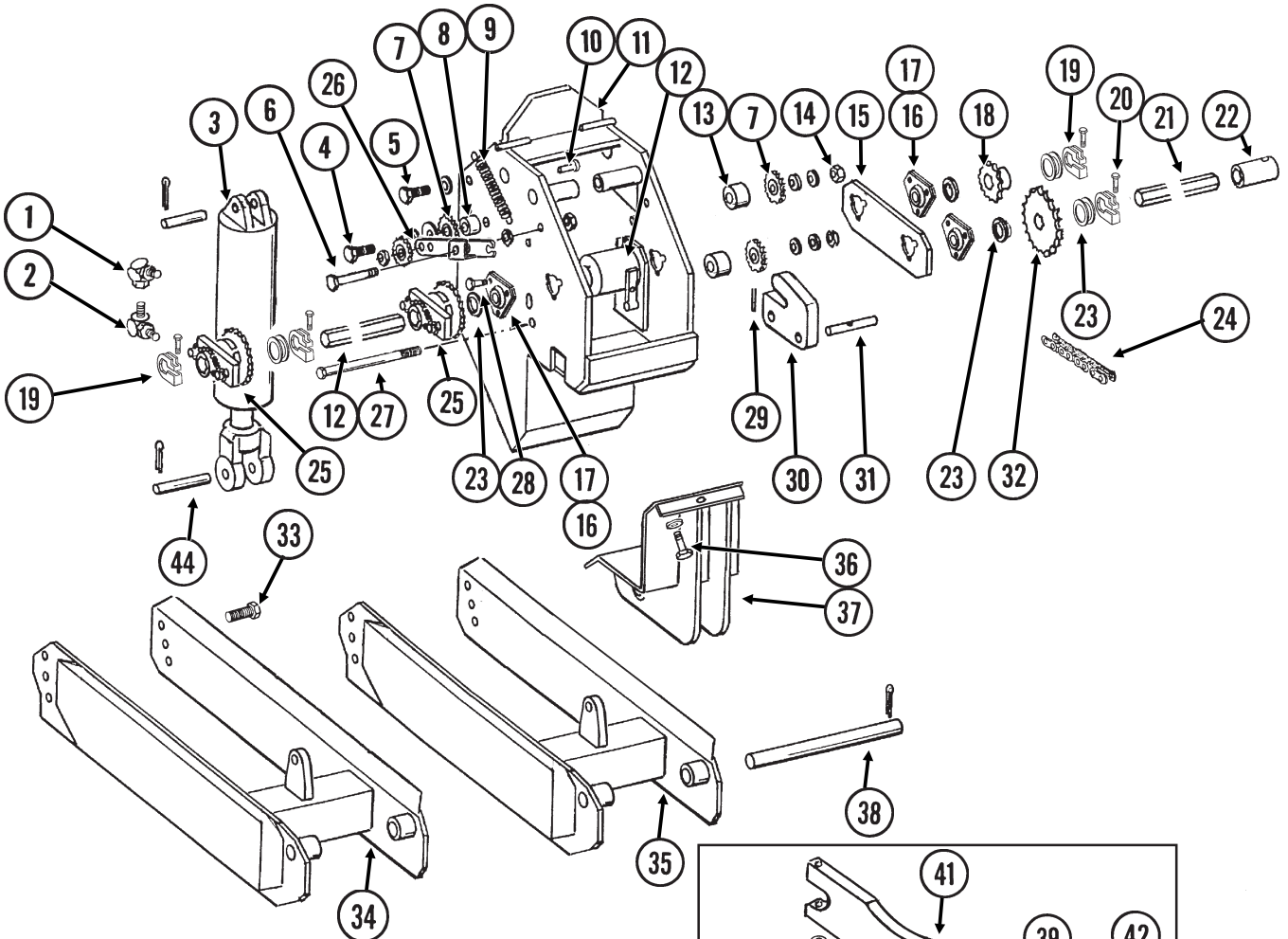
* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

WHEEL MODULE ASSEMBLY

PFA056(FF83d)

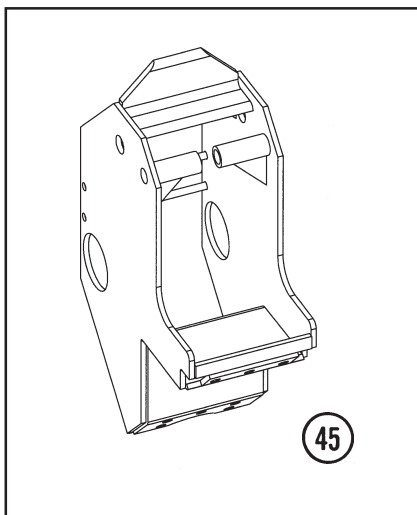
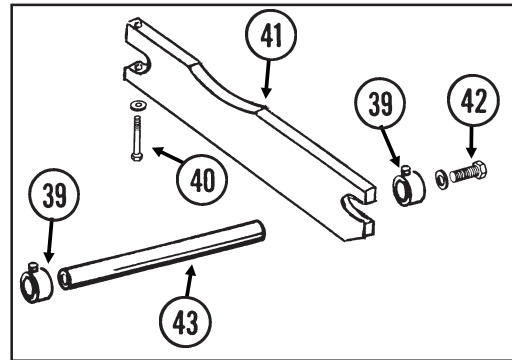
R.H. Side Shown

To Transmission 



Long Wheel Arm

Short Wheel Arm



WHEEL MODULE ASSEMBLY

ITEM	PART NO.	QTY. (Per Machine)	DESCRIPTION
1.	G6502-08	8	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female
2.	G6801-08	8	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
3.		-	See "Master Cylinder", Page P87
4.	G10397	4	Hex Head Cap Screw, 1/2"-13 x 2 3/4"
	G10216	4	Washer, 1/2" USS
	G10111	4	Lock Nut, 1/2"-13
5.		-	See "Contact Drive Wheel Assembly", Pages P68 And P69
6.	G10036	4	Hex Head Cap Screw, 5/8"-11 x 4"
	G10918	8	Machine Bushing, 5/8", 14 Gauge (If Applicable)
	G10503	4	Jam Nut, 5/8"-11
	G10107	4	Lock Nut, 5/8"-11
7.	GA7154	8	Sprocket W/Bearing, 18 Tooth
8.	GB0258	4	Stepped Spacer, 7/8"
9.	GD5857	4	Spring
10.	G10860	4	Retaining Ring, 3/8"
	G10166	4	Clevis Pin, 3/8" x 1 1/2"
11.	A7323	-	Wheel Tower (Non-Stock Item)
12.		-	See "Point Row Clutch", Pages P70 And P71 Or "Two-Speed Point Row Clutch", Pages P72 And P73
13.	GD10637	8	Stepped Spacer, 1/2"
14.	G10053	-	Hex Head Cap Screw, 1/2"-13 x 2 1/2"
	G10128	-	Machine Bushing, 1/2", 14 Gauge
	G10168	-	Machine Bushing, 1/2", 7 Gauge
	G10111	8	Lock 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.	GD0914-18	1	Hex Shaft, 7/8" x 18" (No Holes), 16 Row 38"
	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"
	GD0914-81	1	Hex Shaft, 7/8" x 81" (No Holes), 16 Row 38"
22.		-	See "Seed Rate Transmission And Driveline", Pages P76-P78, 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 P79
26.	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
27.	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

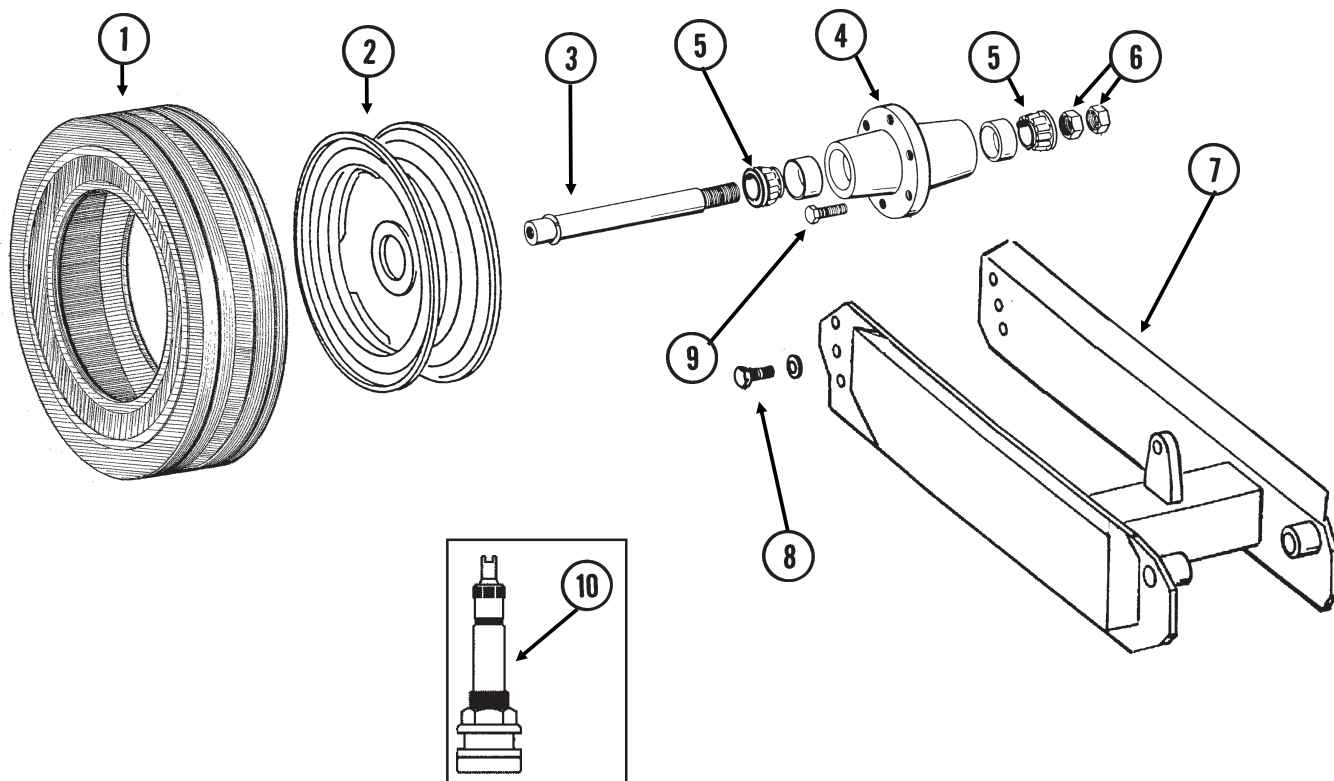
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WHEEL MODULE ASSEMBLY

ITEM	PART NO.	QTY. (Per Machine)	DESCRIPTION
28.	G10338	6	Carriage Bolt, $\frac{5}{16}$ "-18 x 1 $\frac{1}{4}$ "
	G10303	18	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G10232	24	Lock Washer, $\frac{5}{16}$ "
	G10106	24	Hex Nut, $\frac{5}{16}$ "-18
29.	G10606	4-6	Spring Pin, $\frac{1}{4}$ " x 2"
30.	GD9514	4-6	Cylinder Pivot Mount
31.	GD9515	4-6	Cylinder Anchor Pin, 1" x 6"
32.	GA5194	-	Sprocket, 50 Tooth
33.			See "Ground Drive Tire Assembly", Page P67
34.	GA8715	-	Long Wheel Arm W/Grease Fitting (Inner)
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
35.	GA8714	-	Short Wheel Arm W/Grease Fitting (Outer) (Lift Assist For 36 Row 20" Only)
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
36.	G10006	-	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2 $\frac{1}{4}$ "
	GD7805	-	Special Washer, $\frac{5}{8}$ ", Hardened
	G10230	-	Lock Washer, $\frac{5}{8}$ "
	G10104	-	Hex Nut, $\frac{5}{8}$ "-11
37.	GA7324	4	Bracket W/Grease Fittings
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
38.	GD11695	4-6	Pin, 1 $\frac{1}{4}$ " x 13 $\frac{1}{4}$ "
	G10610	8-12	Spring Pin, $\frac{3}{8}$ " x 2"
39.	GD10686	-	Special Lock Collar, Less Set Screws
	G10145	-	Square Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{1}{2}$ "
40.	G10035	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 4"
	G10228	-	Lock Washer, $\frac{1}{2}$ "
41.	GD10316	-	Plate, Special Row Spacing Only
42.	G10017	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{2}$ "
	G10228	-	Lock Washer, $\frac{1}{2}$ "
43.	GD10317	-	Shaft, Special Row Spacing Only
44.	GD12585	8-10	Pin, 1 $\frac{1}{4}$ " x 4 $\frac{1}{2}$ "
	G10460	16-20	Cotter Pin, $\frac{1}{4}$ " x 2"
45.	A11070	-	Wheel Tower (Center Wheel Module On 36 Row 20" Only) (Non-Stock Item)
A.	G1K269	-	Lock Clamp Kit (Items 19 And 20)

GROUND DRIVE TIRE ASSEMBLY

PFA056/PTD057(FF13e/A7434)

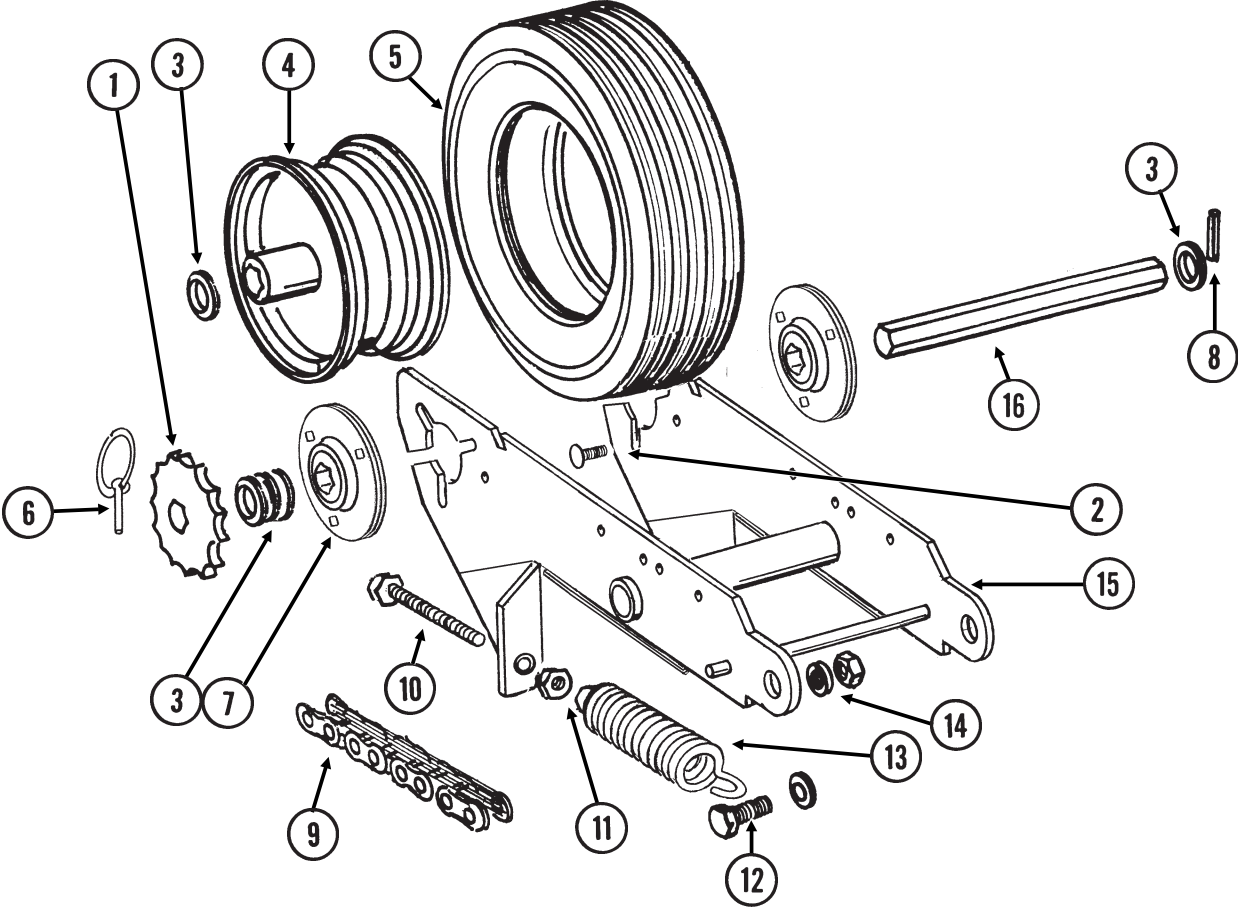


ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)
2.	GA9619	-	Rim, 5.5" x 22.5"
3.	GA4376	1	Spindle W/Round External Retaining Ring, 10"
	GD11490	-	Round External Retaining Ring
4.	GA2148	1	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
5.	GA0895	2	Bearing
6.	G11081	2	Hex Jam Nut, 1 1/2"-12, Grade 2
7.		-	See "Wheel Module Assembly", Pages P64-P66
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 (Items 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.

CONTACT WHEEL ASSEMBLY

(FF43e)



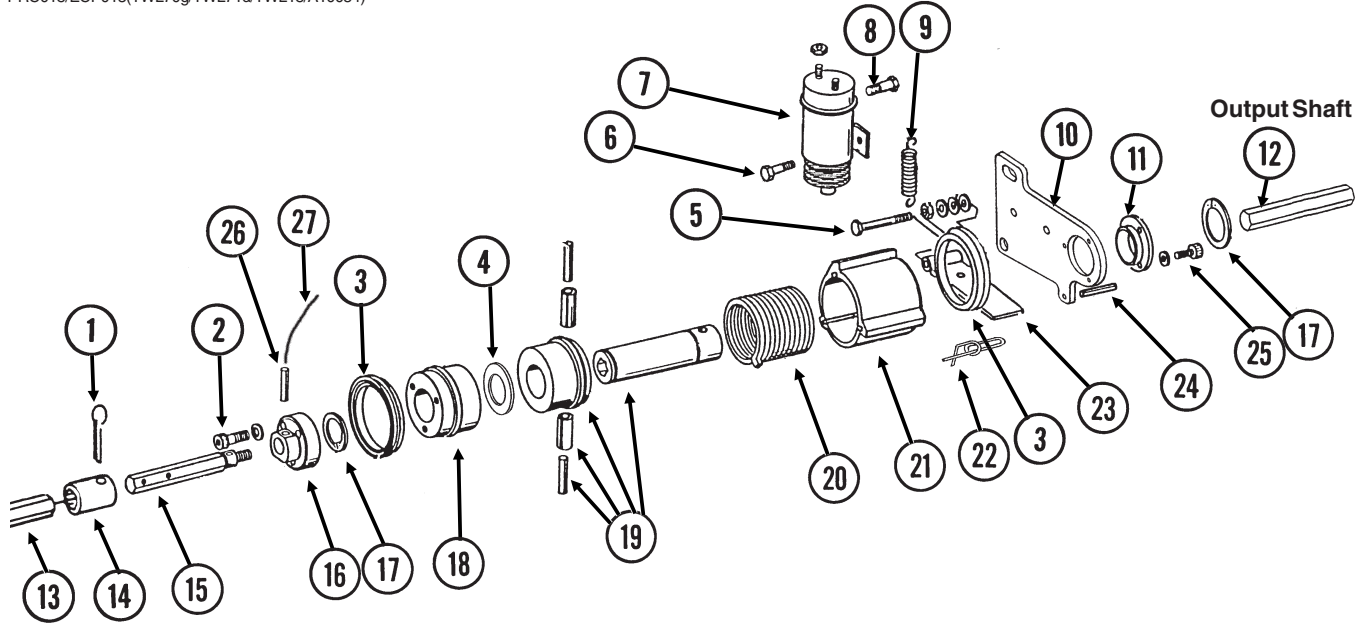
CONTACT WHEEL ASSEMBLY

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, $\frac{5}{16}$ "-18 x 1"
	G10232	6	Lock Washer, $\frac{5}{16}$ "
	G10106	6	Hex Nut, $\frac{5}{16}$ "-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, $\frac{1}{4}$ "
7.	GA9846	2	Flanged Bearing, $\frac{7}{8}$ " Hex Bore
8.	G10602	2	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
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, $\frac{1}{2}$ "-13 x 4", Grade 2
11.	G10501	2	Hex Jam Nut, $\frac{1}{2}$ "-13, Grade 2
12.	G10008	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2"
	G10235	4	Machine Bushing, $\frac{7}{8}$ ", 14 Gauge
	GD7805	2	Special Washer, $\frac{5}{8}$ ", Hardened
	G10107	2	Lock Nut, $\frac{5}{8}$ "-11
13.	GA2068	2	Spring W/Plug
14.	GB0218	2	Bushing, $\frac{21}{32}$ " I.D. x $\frac{7}{8}$ " O.D. x $\frac{19}{32}$ " Long
15.	GA7372	1	Wheel Arm
16.	GD6775	1	Hex Shaft, $\frac{7}{8}$ " x 11 $\frac{3}{4}$ " (2 Holes)
A.	GA3552	-	Tire And Rim Assembly (Items 4 And 5) (Specify Brand*)

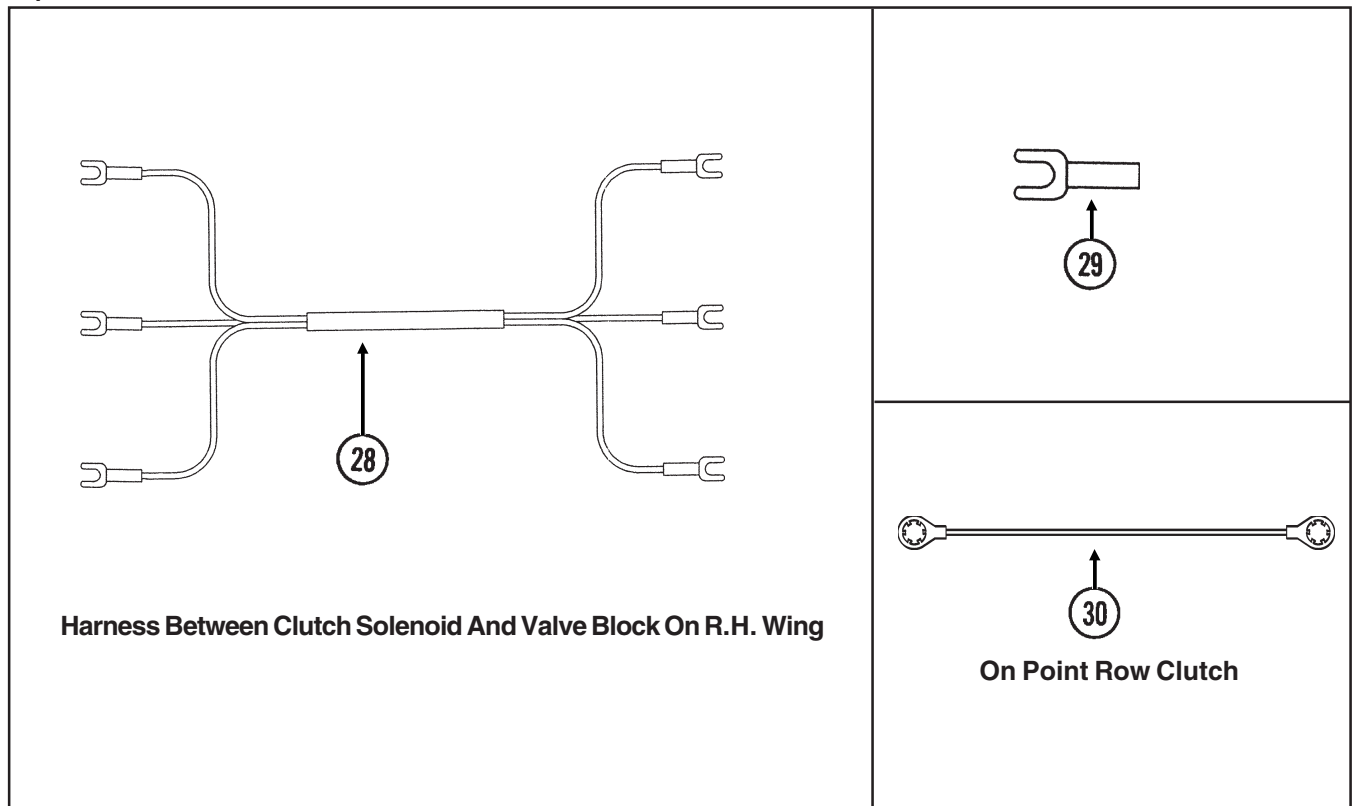
* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied. Different brand tires may have different diameters. Change in tire brand may affect rates. Field checks are recommended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

POINT ROW CLUTCH

PRC018/ECP013(TWL70g/TWL71d/TWL18/A10054)



Input Shaft



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

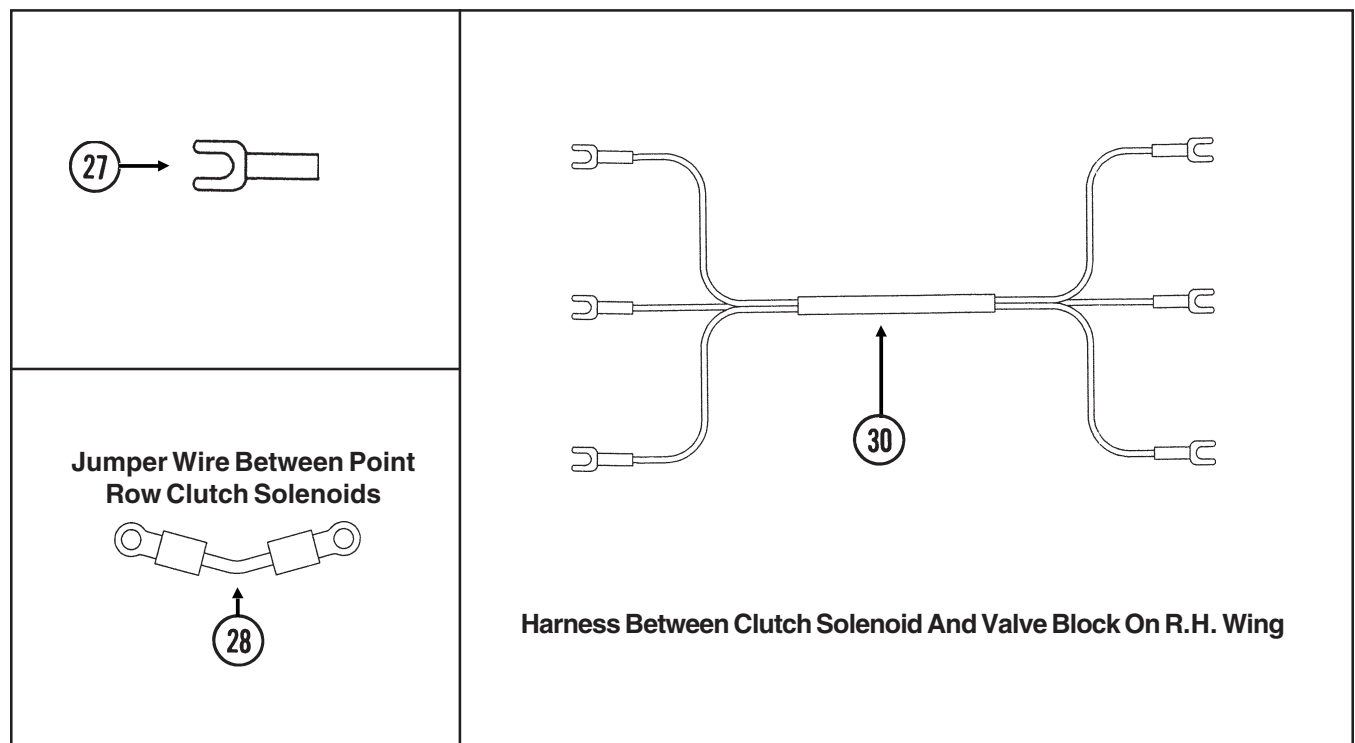
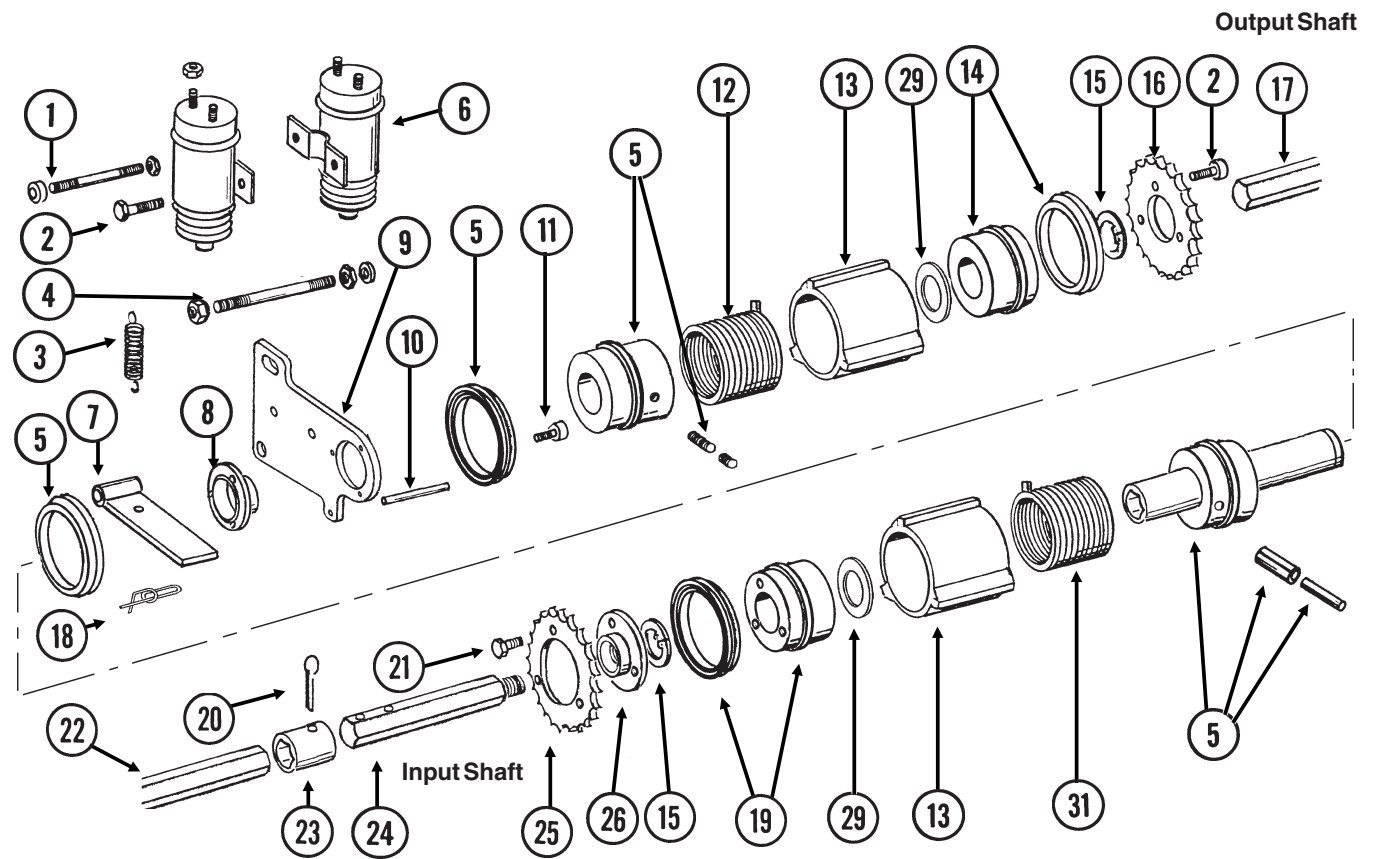
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|----|---------|---|-------------------------------------|
| 1. | G10460 | 1 | Cotter Pin, 1/4" x 2" |
| 2. | G10374 | 3 | Hex Socket Head Screw, 1/4"-20 x 1" |
| | G10227 | 3 | Lock Washer, 1/4" |
| 3. | GD14512 | 2 | V-Ring Seal |
| 4. | GD14513 | 1 | Felt Washer |

POINT ROW CLUTCH

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
5.	G10049	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{2}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
	G10203	1	Washer, $\frac{3}{8}$ " SAE
	G10229	2	Lock Washer, $\frac{3}{8}$ "
	G10497	1	Hex Jam Nut, $\frac{3}{8}$ "-16, Grade 2
6.	G10023	1	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{3}{4}$ "
	G10227	1	Lock Washer, $\frac{1}{4}$ "
	G10103	1	Hex Nut, $\frac{1}{4}$ "-20
7.	GA8393	1	Solenoid Complete
	GR1306	1	Snap Ring
	GR1303	1	Spring
	GR1304	1	Boot
	GR1305	1	Plunger
8.	G10900	1	Hex Socket Head Cap Screw, $\frac{1}{4}$ "-20 x 1 $\frac{3}{4}$ ", Grade 8
	G10227	1	Lock Washer, $\frac{1}{4}$ "
	G10103	2	Hex Nut, $\frac{1}{4}$ "-20
9.	GD10123	1	Spring
10.	GD10103	1	Mounting Plate
11.	GD9667	1	Bushing
12.	GD0914-10	1	Hex Shaft, $\frac{7}{8}$ " x 10" (No Holes)
13.	GD0914-32	1	Hex Shaft, $\frac{7}{8}$ " x 32" (No Holes), 24 Row 30"
	GD0914-40	-	Hex Shaft, $\frac{7}{8}$ " x 40" (No Holes), 16 Row 30" And 24 Row 20"
	GD0914-38	-	Hex Shaft, $\frac{7}{8}$ " x 38" (No Holes), 16 Row 38"
	GD0914-44	-	Hex Shaft, $\frac{7}{8}$ " x 44" (No Holes), 24 Row 22"
	GD0914-42	-	Hex Shaft, $\frac{7}{8}$ " x 42" (No Holes), 36 Row 20"
14.	GD7867	1	Coupler, 3"
15.	GD10068	1	Input Shaft, R.H. Threads
16.	GD10070	1	Coupler W/R.H. Threads
17.	G10496	2	External Inverted Snap Ring, 1 $\frac{1}{2}$ "
18.	GD10104	1	Input Hub
19.	GA7137	1	Hub/Sleeve Assembly W/Spring Pins
	G10765	-	Spring Pin, $\frac{1}{4}$ " x 1"
	G10804	-	Spring Pin, $\frac{5}{32}$ " x $\frac{7}{8}$ "
20.	GD9671	-	Spring, L.H.
21.	GD10102	1	Stop Collar
22.	GD11120	1	Rue Ring Cotter, $\frac{5}{16}$ "
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 $\frac{1}{2}$ "
	G10257	3	Lock Washer, No. 10
26.	G10546	1	Spring Pin, $\frac{3}{16}$ " x 1 $\frac{1}{4}$ "
27.	GD13524-01	1	Lock Wire, 10", Stainless Steel
28.	GA9479	1	Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 16 Row 38", 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
29.	G10996	-	Fork Terminal
30.	GA10054	-	Ground Cable, Green
A.	GA7111	-	Point Row Clutch Assembly, L.H. (Items 2-11, 15-27 And 30)

TWO-SPEED POINT ROW CLUTCH

PRC023(FF47c/A7274/A10054)

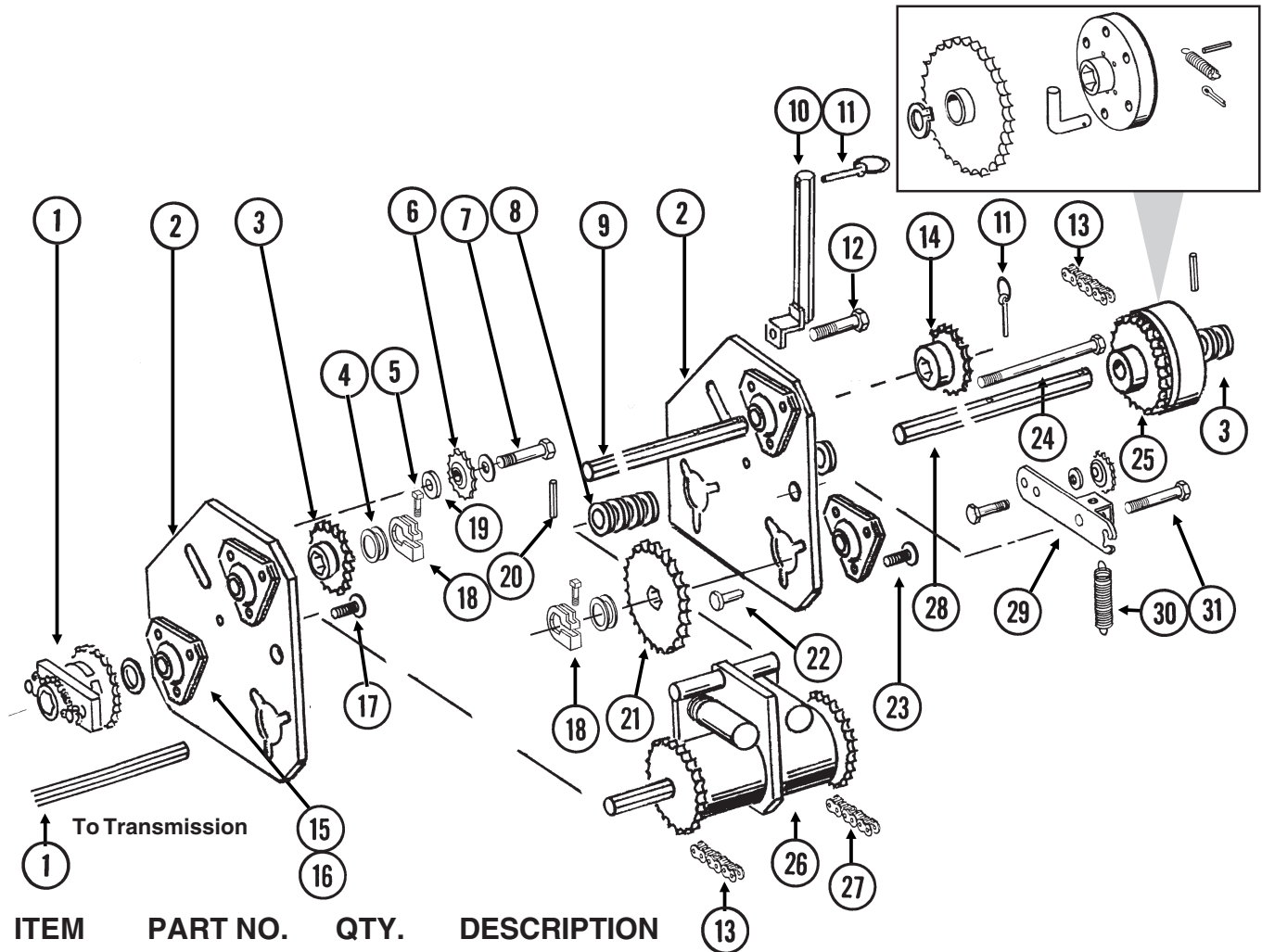


TWO-SPEED POINT ROW CLUTCH

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"
	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"
	G10101	2	Hex Nut, 3/8"-16
5.	GA7463	1	Hub/Sleeve Assembly W/Seals, Sleeve, Pins And Screws
	GD10120	-	Seal
	GD10584	-	Sleeve
	G10873	-	Hex Socket Set Screw, 5/16"-18 x 3/4"
	G10872	-	Hex Socket Set Screw, 5/16"-18 x 1/4"
	G10804	-	Spring Pin, 5/32" x 7/8"
	G10765	-	Spring Pin, 1/4" x 1"
6.	GA8393	2	Solenoid Complete
	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.
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
	GD10120	-	Seal
20.	G10460	1	Cotter Pin, 1/4" x 2"
21.	G10374	3	Hex Socket Head Screw, 1/4"-20 x 1"
	GD10588	3	Key
22.	GD0914-32	1	Hex Shaft, 7/8" x 32" (No Holes), 24 Row 30"
	GD0914-40	-	Hex Shaft, 7/8" x 40" (No Holes), 16 Row 30" And 24 Row 20"
	GD0914-38	-	Hex Shaft, 7/8" x 38" (No Holes), 16 Row 38"
	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. Threads
25.	GD10578	1	Input Sprocket, 28 Tooth
26.	GD10638	1	Coupler W/R.H. Threads
27.	G10996	-	Fork Terminal
28.	GA7274	1	Jumper Wire W/Ring Terminals, 2 3/16"
29.	GD14513	2	Felt Washer
30.	GA9479	1	Wiring Harness, 228", R.H. Side Of Machine, 16 Row 30", 16 Row 38", 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, 516", L.H. Side Of Machine, All Sizes
31.	GD9672	-	Spring, R.H.

TWO-SPEED POINT ROW CLUTCH WHEEL MODULE EXTENSIONS

(FF48c)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.		-	See "Wheel Module Assembly", Pages P64-P66
2.	GD10327	2	Extension Plate
3.	GA5113	1	Sprocket, 28 Tooth
4.	G10233	1	Machine Bushing, 1", 10 Gauge
5.	G10130	1	Square Head Machine Bolt, $\frac{5}{16}$ "-18 x 1 $\frac{3}{4}$ "
	G10923	1	Flange Nut, $\frac{5}{16}$ "-18, No Serration
6.	GA7154	1	Sprocket W/Bearing, 18 Tooth
7.	G10053	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 2 $\frac{1}{2}$ "
	G10168	1	Machine Bushing, $\frac{1}{2}$ ", 7 Gauge
	G10206	3	Washer, $\frac{1}{2}$ " SAE
	G10228	1	Lock Washer, $\frac{1}{2}$ "
	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
8.	G10233	-	Machine Bushing, 1", 10 Gauge (As Required)
9.	GD10547	1	Jack Shaft, $\frac{7}{8}$ " x 13"
10.	GA7313	1	Sprocket Storage Rod
11.	GD2558	2	Lynch Pin, $\frac{1}{4}$ "
12.	G10037	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G10216	1	Washer, $\frac{1}{2}$ " USS
	G10228	1	Lock Washer, $\frac{1}{2}$ "
	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
13.	G3310-68	2	Chain, No. 40, 68 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
	GR0911	-	Offset Link, No. 40

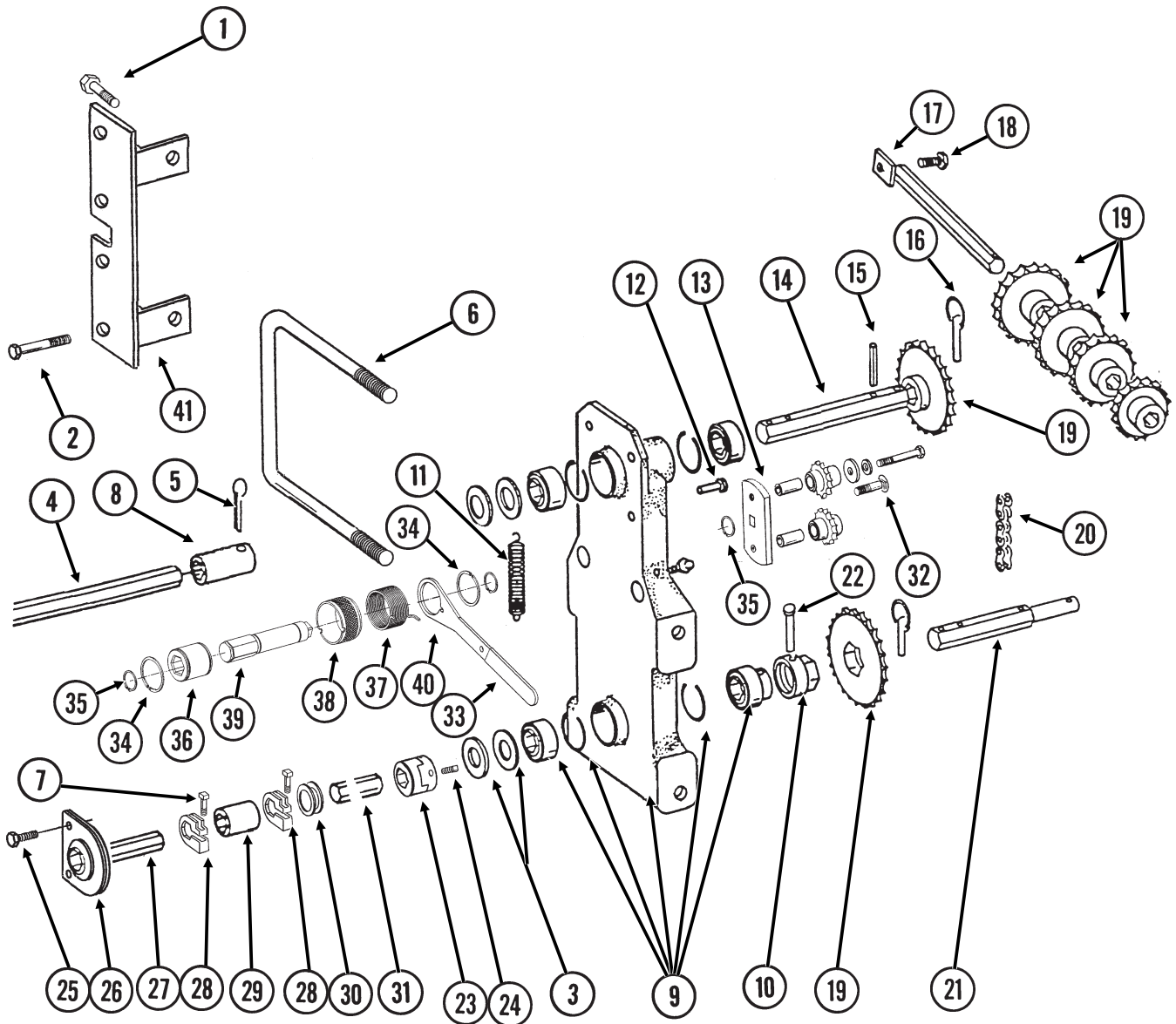
TWO-SPEED POINT ROW CLUTCH WHEEL MODULE EXTENSIONS

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"
	G10106	3	Hex Nut, 5/16"-18
18.	GD11045	1	Lock Clamp
19.	GD10637	1	Stepped Spacer, 1/2"
20.	G10602	2	Spring Pin, 1/4" x 1 1/2"
21.	GA5194	1	Sprocket, 50 Tooth
22.	G10408	1	Clevis Pin, 5/16" x 3/4"
	G10409	1	Retaining Ring, 5/16"
23.	G10302	9	Carriage Bolt, 5/16"-18 x 7/8"
	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	1	Block
	GA7319	1	Sprocket W/Bushing, 30 Tooth
26.		-	See "Two-Speed Point Row Clutch", Pages P72 And P73
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.	GA9919	1	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
30.	GD5857	2	Spring
31.	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
A.	G1K269	-	Lock Clamp Kit (Items 5 And 18)

SEED RATE TRANSMISSION AND DRIVELINE

(FF42g)

R.H. Side Shown



SEED RATE TRANSMISSION AND DRIVELINE

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	G10008	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 2"
	G10230	2	Lock Washer, $\frac{5}{8}$ "
	G10104	2	Hex Nut, $\frac{5}{8}$ "-11
2.	G10028	4	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x 3"
	G10231	4	Lock Washer, $\frac{3}{4}$ "
	G10194	4	Washer, $\frac{3}{4}$ " SAE
	G10105	2	Hex Nut, $\frac{3}{4}$ "-10
3.	G10233	4	Machine Bushing, 1", 10 Gauge
4.		-	See "Wheel Module Assembly", Pages P64-P66
5.	G10460	1	Cotter Pin, $\frac{1}{4}$ " x 2"
6.	GD1114	1	U-Bolt, 7" x 7" x $\frac{5}{8}$ "-11
	G10107	2	Lock Nut, $\frac{5}{8}$ "-11
7.	G10130	2	Square Head Machine Bolt, $\frac{5}{16}$ "-18 x 1 $\frac{3}{4}$ "
	G10923	2	Flange Nut, $\frac{5}{16}$ "-18, No Serration
8.	GD7867	1	Coupler, 3"
9.	GA5629	1	Transmission Plate W/Bearings, Grease Fittings And Retaining Rings
	GA5116	3	Bearing, $\frac{7}{8}$ " Hex Bore, Cylindrical
	GA5624	1	Special Bearing, $\frac{7}{8}$ " Hex Bore x 1.6"
	GD6551	4	Ring
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
10.	GD7127	1	Shear Coupler
11.	GD5857	1	Spring
12.	G10478	1	Clevis Pin, $\frac{5}{16}$ " x 1"
	G10409	1	Retaining Ring, $\frac{5}{16}$ "
13.	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 $\frac{3}{16}$ " Long
	G10210	-	Washer, $\frac{3}{8}$ " USS
	G10229	-	Lock Washer, $\frac{3}{8}$ "
	G10047	-	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
	GD5835	1	Shaft, $\frac{7}{8}$ " x 7"
14.	GD5835	1	Shaft, $\frac{7}{8}$ " x 7"
15.	G10602	3	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
16.	GD2558	3	Lynch Pin, $\frac{1}{4}$ "
17.	GA5146	1	Sprocket Storage Rod
18.	G10017	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{2}$ "
	G10527	1	Lock Washer, $\frac{1}{2}$ ", Internal/External
	G10111	1	Lock Nut, $\frac{1}{2}$ "-13
	GA5106	1	Sprocket, 17 Tooth
19.	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
	G3310-80	1	Chain, No. 40, 80 Pitch Including Connector Link
20.	GR0912	-	Connector Link, No. 40
21.	GD7822	1	Shaft, $\frac{7}{8}$ " x 7"
22.	G10821	1	Clevis Pin, $\frac{3}{16}$ " x 2"
	G10455	1	Cotter Pin, $\frac{1}{16}$ " x $\frac{1}{2}$ "
23.	GB0287	2	Coupler
24.	G10131	4	Square Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "

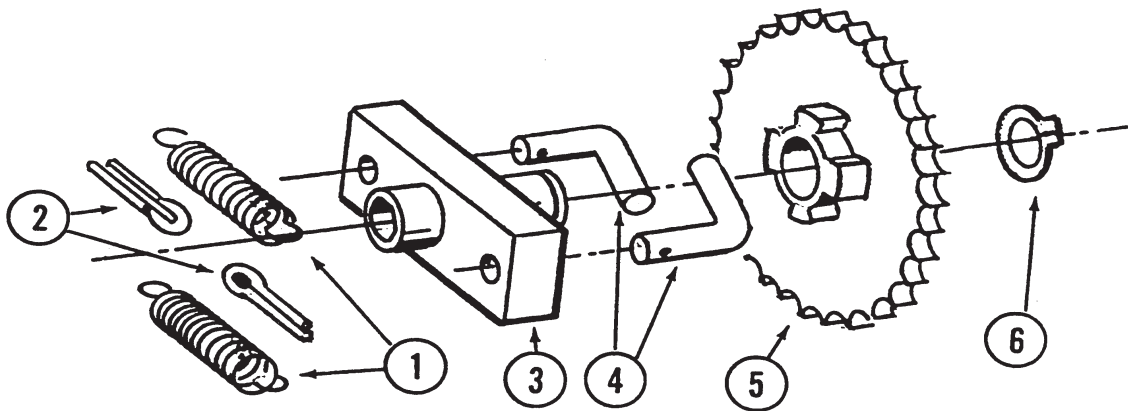
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SEED RATE TRANSMISSION AND DRIVELINE

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
25.	G10004	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{4}$ "
	G10229	2	Lock Washer, $\frac{3}{8}$ "
	G10101	2	Hex Nut, $\frac{3}{8}$ "-16
26.	GA2180	1	Hanger Bearing, $\frac{7}{8}$ " Hex Bore, 16 Row 30" And 36 Row 20" Only
27.	GD0914-152	1	Hex Shaft, $\frac{7}{8}$ " x 152" (No Holes), L.H. Side, 24 Row 30" And 36 Row 20"
	GD0914-224	-	Hex Shaft, $\frac{7}{8}$ " x 224" (No Holes), L.H. Side, 24 Row 20" And 16 Row 30"
	GD0914-140	-	Hex Shaft, $\frac{7}{8}$ " x 140" (No Holes), L.H. Side, 16 Row 38"
	GD0914-123	-	Hex Shaft, $\frac{7}{8}$ " x 123" (No Holes), L.H. Side, 24 Row 22"
	GD0914-152	1	Hex Shaft, $\frac{7}{8}$ " x 152" (No Holes), R.H. Side, 24 Row 30" And 36 Row 20"
	GD0914-234	-	Hex Shaft, $\frac{7}{8}$ " x 234" (No Holes), R.H. Side, 24 Row 20" And 16 Row 30"
	GD0914-145	-	Hex Shaft, $\frac{7}{8}$ " x 145" (No Holes), R.H. Side, 16 Row 38"
	GD0914-128	-	Hex Shaft, $\frac{7}{8}$ " x 128" (No Holes), R.H. Side, 24 Row 22"
28.	GD11045	2	Lock Clamp
29.	GD1719	1	Coupler, 4", 16 Row 38", 24 Row 22", 24 Row 30" And 36 Row 20" Only
30.	G10233	1	Machine Bushing, 1", 10 Gauge
31.	GD0914-208	-	Hex Shaft, $\frac{7}{8}$ " x 208" (No Holes), R.H. Side, 36 Row 20"
	GD0914-198	-	Hex Shaft, $\frac{7}{8}$ " x 198" (No Holes), L.H. Side, 36 Row 20"
	GD0914-198	1	Hex Shaft, $\frac{7}{8}$ " x 198" (No Holes), R.H. And L.H. Sides, 24 Row 30"
	GD0914-128	-	Hex Shaft, $\frac{7}{8}$ " x 128" (No Holes), R.H. Side, 24 Row 22"
	GD0914-123	-	Hex Shaft, $\frac{7}{8}$ " x 123" (No Holes), L.H. Side, 24 Row 22"
	GD0914-145	-	Hex Shaft, $\frac{7}{8}$ " x 145" (No Holes), R.H. Side, 16 Row 38"
	GD0914-140	-	Hex Shaft, $\frac{7}{8}$ " x 140" (No Holes), L.H. Side, 16 Row 38"
32.	G11100	1	Hex Socket Button Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{1}{2}$ ", Grade 8
	G10227	1	Lock Washer, $\frac{1}{4}$ "
	G10209	1	Washer, $\frac{1}{4}$ " USS
33.	G11078	1	Vinyl Cap
34.	G10496	2	External Inverted Snap Ring, 1 $\frac{1}{2}$ "
35.	G11075	3	External Inverted Snap Ring, $\frac{7}{8}$ "
36.	GD14432	1	Sleeve, 1 $\frac{1}{4}$ "
37.	GD14413	-	Torsion Spring, L.H. (Shown)
	GD14414	1	Torsion Spring, R.H.
38.	GD14430	1	Release Collar, Gold, R.H. (Shown)
	GD14429	-	Release Collar, Silver, L.H.
39.	GD14427	1	Tightener Shaft, 4 $\frac{7}{8}$ "
40.	GD14431	1	Handle
41.	GA9524	-	Mount, 36 Row 20" Only (Shown)
	GA11358	-	Mount, R.H., 16 Row 38" Only
	GA11359	-	Mount, L.H., 16 Row 38" Only
A.	G1K269	-	Lock Clamp Kit (Items 7 And 28)
B.	G1K378	1	Wrap Spring Wrench Replacement Kit, Gold Collar, R.H. (Items 32-40) (Shown)
	G1K379	-	Wrap Spring Wrench Replacement Kit, Silver Collar, L.H. (Items 32-40)

RATCHET/SPROCKET ASSEMBLY

PTD016(TWL12)



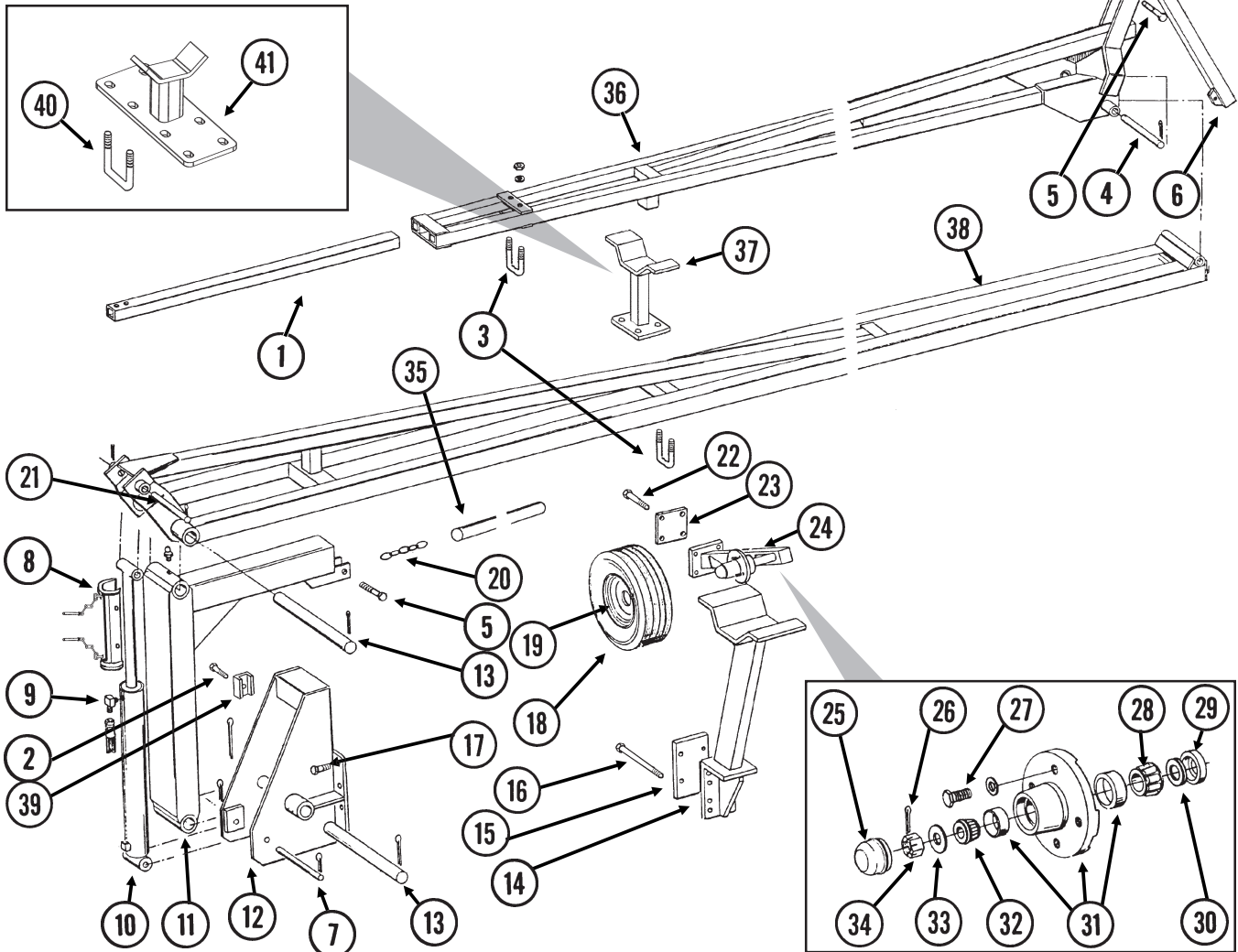
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GD1256	2	Spring
2.	G10453	2	Cotter Pin, $\frac{3}{16}$ " x 1"
3.	GA0378	1	Block And Hub Assembly
4.	GD1255	2	L-Pin
5.	GA5165	1	Sprocket, 30 Tooth
6.	G10430	1	External Retaining Ring, 1 $\frac{1}{4}$ "
A.	GA5164	-	Ratchet/Sprocket Assembly (Items 1-6)

ROW MARKER ASSEMBLY, 16 ROW 38", 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

(FF18/FF101)

Prior To Serial No. 750921

L.H. Side Shown



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD0453-07	1	Extension Tube, 45", 24 Row 30" And 36 Row 20"
	GD0453-11	1	Extension Tube, 35", 24 Row 22"
2.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10210	1	Washer, 3/8" USS
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
3.	GD2721	1-3	U-Bolt, 2" x 2" x 1/2"-13
	G10228	2-6	Lock Washer, 1/2"
	G10102	2-6	Hex Nut, 1/2"-13
4.	GD0704	1	Pin, 1 1/4" x 14"
	G10460	2	Cotter Pin, 1/4" x 2"
5.	G10033	3	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
	G10038	-	Hex Head Cap Screw, 1/2"-13 x 3"
	G10581	-	Hex Head Cap Screw, 1/2"-13 x 2 1/4"
	G10111	3	Lock Nut, 1/2"-13
6.	GA6860	1	Bracket
7.	GD10186	1	Pin, 1 1/4" x 9 1/2"
	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
8.	GA8172	1	Safety Lockup W/Detent Pins, 20"
	G10536	-	Detent Pin, 1/2" x 2 1/2" Grip

ROW MARKER ASSEMBLY, 16 ROW 38", 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
9.	G6801-08	-	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	G6400-08	-	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
10.		-	See "Row Marker Cylinder", Page P89
11.	GA6870	1	Arm, First Stage
12.	GA4031	1	Mount W/Grease Fittings
	G10640	-	Grease Fitting, 1/4"-28
13.	GD0677	2	Pin, 2 1/8" x 15 3/4"
	G10461	4	Cotter Pin, 3/8" x 3"
14.	GA6720	1	Tire Support
15.	GD9622	1	Plate, 5 1/2" x 7 1/4"
16.	G10152	4	Hex Head Cap Screw, 5/8"-11 x 9"
	G10217	4	Washer, 5/8" USS
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
17.	G10027	8	Hex Head Cap Screw, 3/4"-10 x 2 1/2"
	G10028	-	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"
	G10105	6	Hex Nut, 3/4"-10
18.	GD0841	1	Tube Type Tire, 16" x 6.5" x 8" (Specify Brand*)
	GD1364	1	Tube (Not Shown)
19.	GA0246	1	Rim, T8 x 5.38" x 4"
20.	G3302-05	1	Coil Chain, No. 9/0, 79 Links
21.	GD9964	1	Pin, 1 1/4" x 10 1/2"
	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
22.	G10063	8	Hex Head Cap Screw, 3/8"-16 x 4"
	G10210	-	Washer, 3/8" USS (As Required)
	G10229	8	Lock Washer, 3/8"
	G10101	8	Hex Nut, 3/8"-16
23.	GD0692	2	Mounting Plate, 5" x 4"
24.	GA0160R	1	Support, R.H.
	GA0160L	-	Support, L.H. (Shown)
25.	GD0840	1	Dust Cap
26.	G10544	1	Cotter Pin, 5/32" x 1"
27.	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
28.	GA0245	1	Bearing
29.	GA0243	1	Grease Seal
30.	GA0899	1	Rubber Seal
31.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
32.	GA0257	1	Bearing
33.	G10724	1	Washer, 5/8" SAE
34.	G10725	1	Slotted Hex Nut, 5/8"-18
35.	GD10674-01	1	Nylon Cover, 141"
36.	GA9103	1	Arm W/Grease Fittings, Third Stage, 117", 24 Row 30" And 36 Row 20"
	GA9555	-	Arm W/Grease Fittings, Third Stage, 65", 16 Row 38" And 24 Row 22"
	G10640	-	Grease Fitting, 1/4"-28
37.	GA9101	1	Stop Weld, 24 Row 22", 24 Row 30" And 36 Row 20"
38.	GA9102	1	Arm W/Grease Fittings, Second Stage, 185", 16 Row 38", 24 Row 30" And 36 Row 20"
	GA9612	-	Arm W/Grease Fittings, Second Stage, 136", 24 Row 22"
	G10640	-	Grease Fitting, 1/4"-28
39.	GD0776	1	Hose Clamp, 3/4" x 2" x 2 1/2"
40.	GD1138	8	U-Bolt, 2 1/2" x 2 1/2" x 1/2"-13, 16 Row 38"
	G10228	16	Lock Washer, 1/2"
	G10102	16	Hex Nut, 1/2"-13
41.	GA11354	1	Stop Weld, 16 Row 38"
A.	GA0542	-	Tire And Rim Assembly (Items 18 And 19)

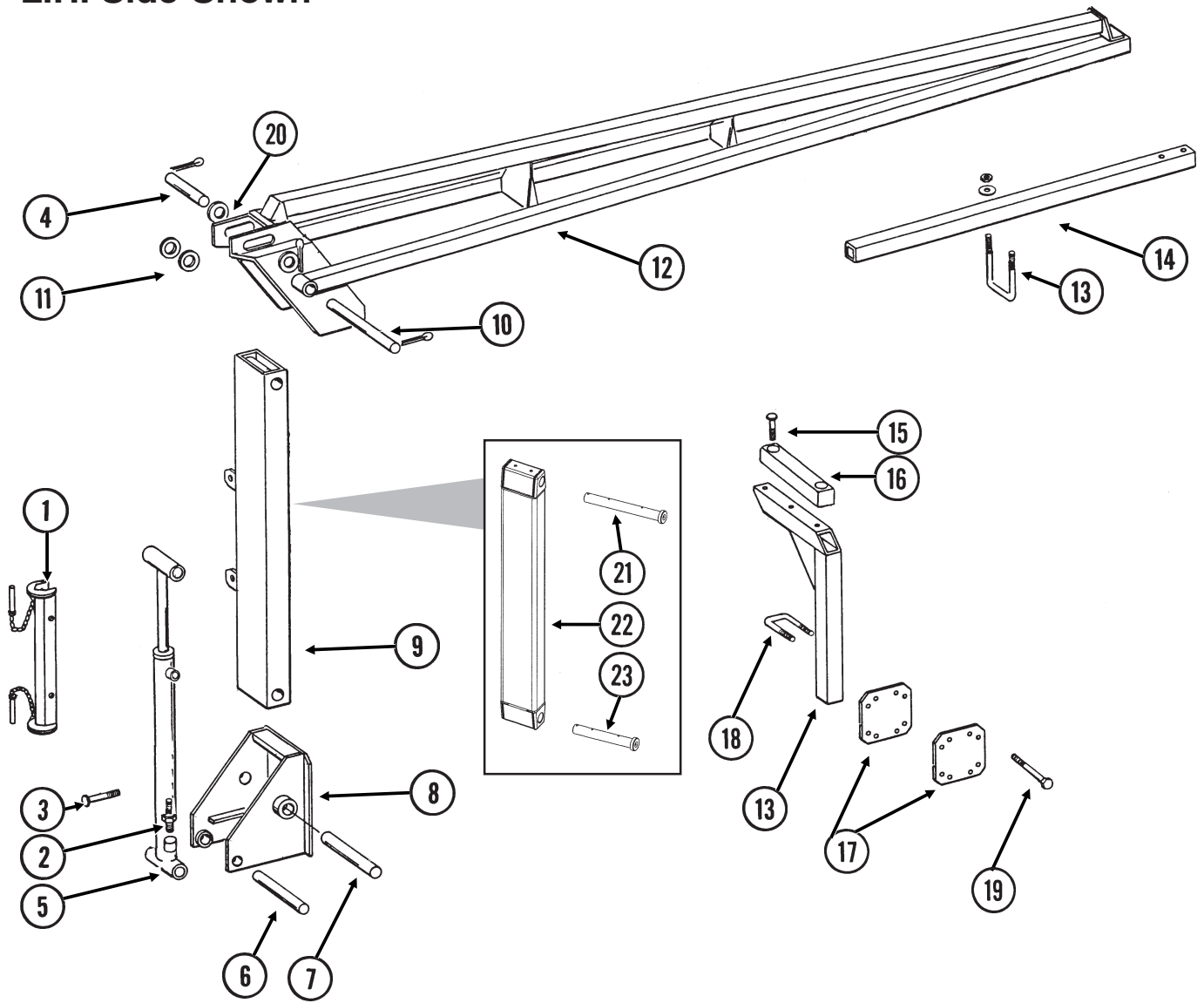
* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

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

(MKR16c/A11591)

Prior To Serial No. 750921

L.H. Side Shown



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

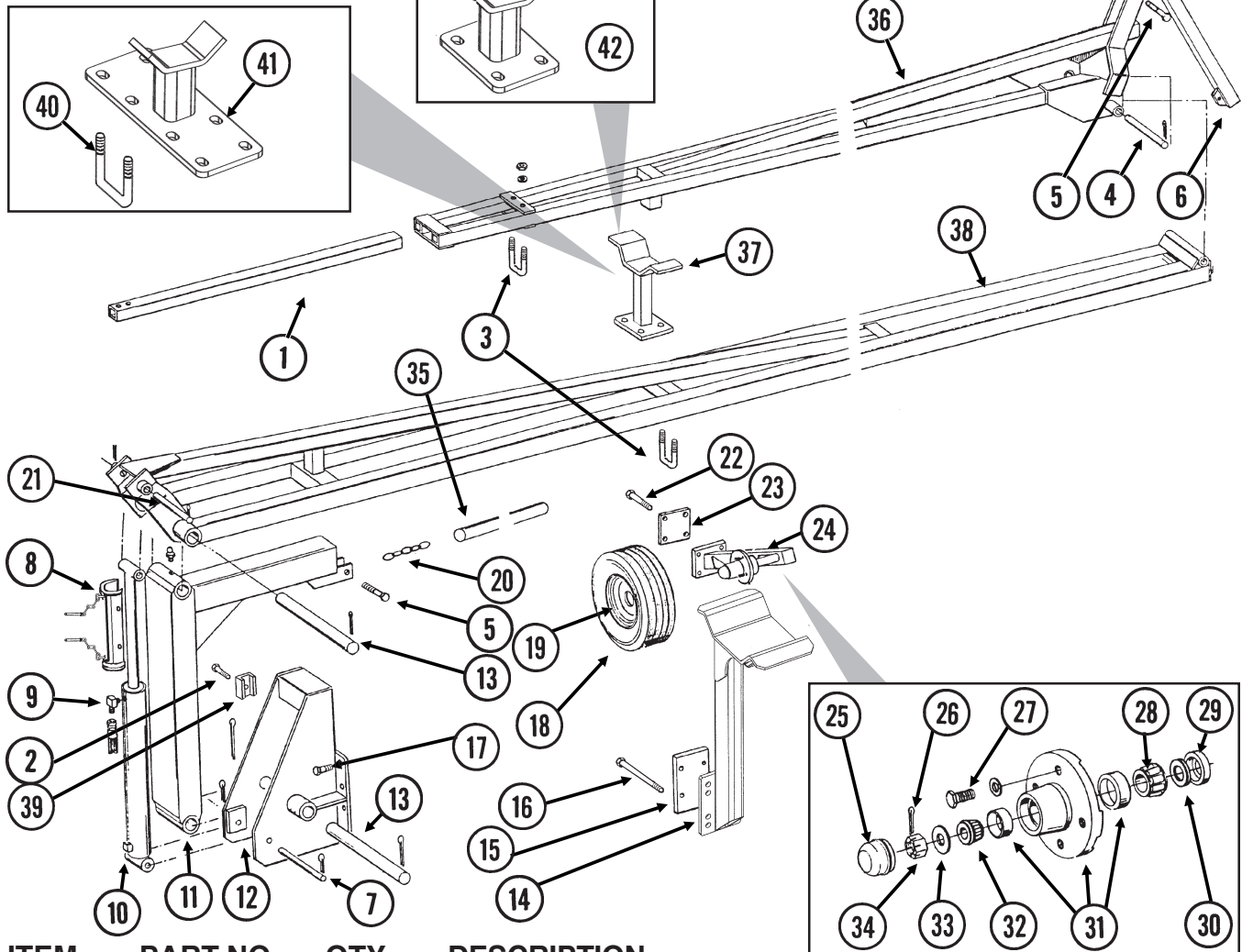
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1.	GA8170	1	Safety Lockup W/Detent Pins, 19 3/8"
	G10536	-	Detent Pin, 1/2" x 2 1/2" Grip
2.	G6801-08	-	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6400-08-04	-	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
3.	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.		-	See "Row Marker Cylinder", Page P89
6.	GD0652	1	Pin, 1 1/4" x 9 1/2"
	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
7.	GD7209	1	Pin, 1 1/4" x 11 1/2"
	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
	G10322	-	Machine Bushing, 1 1/4", 18 Gauge
12.	GA7118	-	Arm, Second Stage, 172 1/4"
13.	GD2721	3	U-Bolt, 2" x 2" x 1/2"-13
	G10228	6	Lock Washer, 1/2"
	G10102	6	Hex Nut, 1/2"-13
14.	GD0453-03	-	Extension Tube, 50"
15.	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
16.	GA9088	1	Molded Stop, 12 1/4" Long
17.	GD10645	2	Bar
18.	GA7562	1	Stand, 38"
19.	G10152	4	Hex Head Cap Screw, 5/8"-11 x 9"
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
20.	G10226	2	Washer, 1 1/4" SAE
	G10322	2	Machine Bushing, 1 1/4", 18 Gauge
21.	GA11768	-	Pin W/Grease Fitting, 1 1/4" x 13"
	G10640	-	Grease Fitting, 1/4"-28
	G10463	-	Cotter Pin, 1/4" x 1 1/2"
22.	GA11569	-	Arm, First Stage, L.H. (Shown)
	GA11568	-	Arm, First Stage, R.H.
23.	GA11769	-	Pin W/Grease Fitting, 1 1/4" x 11 1/2"
	G10640	-	Grease Fitting, 1/4"-28
	G10463	-	Cotter Pin, 1/4" x 1 1/2"

ROW MARKER ASSEMBLY, 16 ROW 38", 24 ROW 20", 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

(FF101/A12803/FF18g)

L.H. Side Shown

Serial No. 750921 And On



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GD0453-07	1	Extension Tube, 45", 24 Row 20", 24 Row 30" And 36 Row 20"
	GD0453-11	1	Extension Tube, 35", 16 Row 38", 24 Row 22"
2.	G10048	1	Hex Head Cap Screw, 3/8"-16 x 2"
	G10210	1	Washer, 3/8" USS
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
3.	GD2721	1-3	U-Bolt, 2" x 2" x 1/2"-13
	G10228	2-6	Lock Washer, 1/2"
	G10102	2-6	Hex Nut, 1/2"-13
4.	GD0704	1	Pin, 1 1/4" x 14"
	G10460	2	Cotter Pin, 1/4" x 2"
5.	G10033	3	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
	G10038	-	Hex Head Cap Screw, 1/2"-13 x 3"
	G10581	-	Hex Head Cap Screw, 1/2"-13 x 2 1/4"
	G10111	3	Lock Nut, 1/2"-13
6.	GA6860	1	Bracket
7.	GD10186	1	Pin, 1 1/4" x 9 1/2"
	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
8.	GA8172	1	Safety Lockup W/Detent Pins, 20"
	G10536	-	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	-	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6400-08-04	-	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1464	-	O-Ring

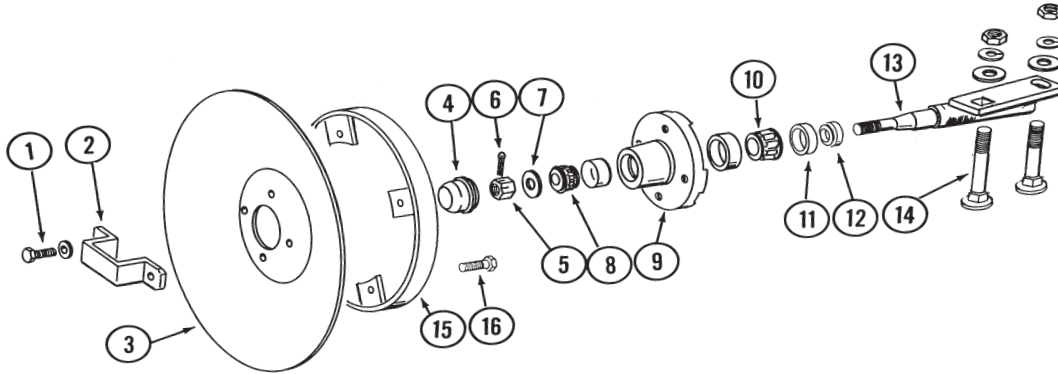
ROW MARKER ASSEMBLY, 16 ROW 38", 24 ROW 20", 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
10.		-	See "Row Marker Cylinder", Page P89
11.	GA6870	1	Arm, First Stage
12.	GA4031	1	Mount W/Grease Fittings
	G10640	-	Grease Fitting, 1/4"-28
13.	GD0677	2	Pin, 2 1/8" x 15 3/4"
	G10461	4	Cotter Pin, 3/8" x 3"
14.	GA12434	1	Tire Support
15.	GD9622	1	Plate, 5 1/2" x 7 1/4"
16.	G10152	4	Hex Head Cap Screw, 5/8"-11 x 9"
	G10217	4	Washer, 5/8" USS
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
17.	G10027	8	Hex Head Cap Screw, 3/4"-10 x 2 1/2"
	G10028	-	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"
	G10105	6	Hex Nut, 3/4"-10
18.	GD0841	1	Tube Type Tire, 16" x 6.5" x 8" (Specify Brand*)
	GD1364	1	Tube (Not Shown)
19.	GA0246	1	Rim, T8 x 5.38" x 4"
20.	G3302-05	1	Coil Chain, No. 9/0, 79 Links, 16 Row 38", 24 Row 30" And 36 Row 20"
	G3302-10	-	Coil Chain, No. 9/0, 50 Links, 24 Row 20"
	G3302-01	-	Coil Chain, No. 9/0, 60 Links, 24 Row 22"
21.	GD9964	1	Pin, 1 1/4" x 10 1/2"
	G10979	-	Special Washer, 1 1/4" (If Applicable)
	G10460	2	Cotter Pin, 1/4" x 2"
22.	G10063	8	Hex Head Cap Screw, 3/8"-16 x 4"
	G10210	-	Washer, 3/8" USS (As Required)
	G10229	8	Lock Washer, 3/8"
	G10101	8	Hex Nut, 3/8"-16
23.	GD0692	2	Mounting Plate, 5" x 4"
24.	GA0160R	1	Support, R.H.
	GA0160L	-	Support, L.H. (Shown)
25.	GD0840	1	Dust Cap
26.	G10544	1	Cotter Pin, 5/32" x 1"
27.	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
28.	GA0245	1	Bearing
29.	GA0243	1	Grease Seal
30.	GA0899	1	Rubber Seal
31.	GA0167	1	Hub W/Cups
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
32.	GA0257	1	Bearing
33.	G10724	1	Washer, 5/8" SAE
34.	G10725	1	Slotted Hex Nut, 5/8"-18
35.	GD10674-01	1	Nylon Cover, 141", 16 Row 38", 24 Row 30" And 36 Row 20"
	GD10674-04	-	Nylon Cover, 100", 24 Row 20" And 24 Row 22"
36.	GA9555	1	Arm W/Grease Fittings, Third Stage, 65", 16 Row 38" (Shown)
	GA12690	-	Arm W/Grease Fittings, Third Stage, 57", 24 Row 20"
	GA12695	-	Arm W/Grease Fittings, Third Stage, 65", 24 Row 22"
	GA9103	-	Arm W/Grease Fittings, Third Stage, 117", 24 Row 30" And 36 Row 20"
	G10640	-	Grease Fitting, 1/4"-28
37.	GA9101	1	Stop Weld, 24 Row 22", 24 Row 30" And 36 Row 20"
38.	GA9102	1	Arm W/Grease Fittings, Second Stage, 185", 16 Row 38", 24 Row 30" And 36 Row 20"
	GA12692	-	Arm W/Grease Fittings, Second Stage, 120", 24 Row 20"
	GA9612	-	Arm W/Grease Fittings, Second Stage, 136", 24 Row 22"
	G10640	-	Grease Fitting, 1/4"-28
39.	GD0776	1	Hose Clamp, 3/4" x 2" x 2 1/2"
40.	GD1138	8	U-Bolt, 2 1/2" x 2 1/2" x 1/2"-13, 16 Row 38"
	G10228	16	Lock Washer, 1/2"
	G10102	16	Hex Nut, 1/2"-13
41.	GA11354	1	Stop Weld, 16 Row 38"
42.	GA12803	1	Stop Weld, 24 Row 20"
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.

ROW MARKER SPINDLE/HUB/BLADE

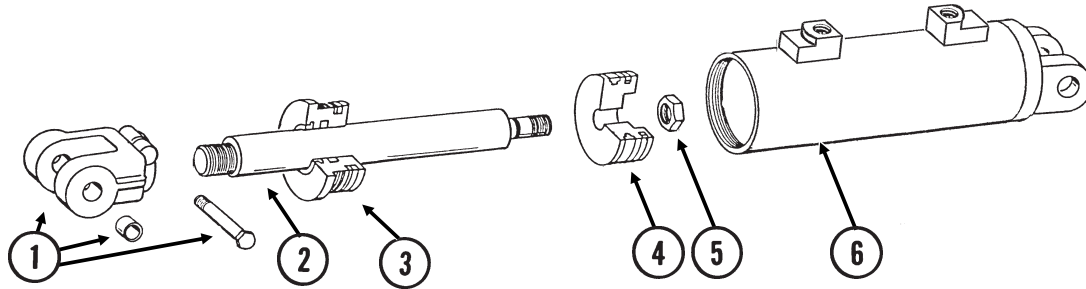
MKR020(MKR4)



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, 4 Bolt
	GR0151	-	Outer Cup
	GR0150	-	Inner Cup
10.	GA0245	1	Bearing
11.	GA0243	1	Grease Seal
12.	GA0899	1	Rubber Seal
13.	GA1677	1	Spindle, L.H. (Shown)
	GA1676	-	Spindle, R.H.
14.	G10844	2	Carriage Bolt, 1/2"-13 x 3 1/2"
	G10168	2	Machine Bushing, 1/2", 7 Gauge
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
15.	GA5853	1	Depth Band
16.	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
	G10109	4	Lock Nut, 5/16"-18, Grade 8
A.	GA1679	-	Hub And Spindle Assembly, L.H. (Items 1, 2, 5-11 And 13-15)
	GA1678	-	Hub And Spindle Assembly, R.H. (Items 1, 2, 5-11 And 13-15)

MASTER CYLINDER, ALL SIZES

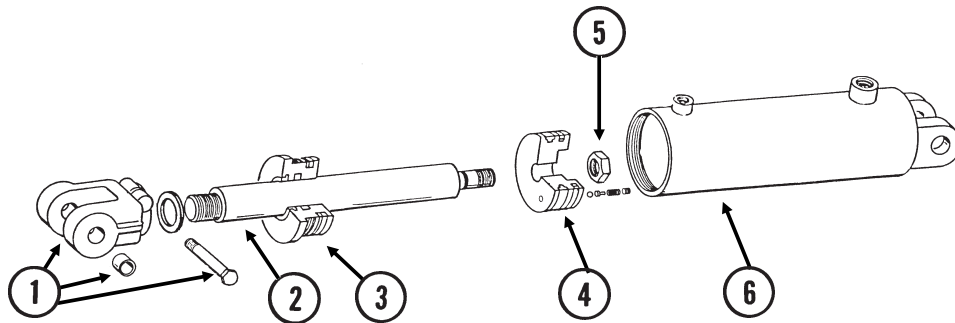
(CYL33d)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Hex Head Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
2.	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 $\frac{1}{2}$ " x 10" <i>(Part Number Stamped On Barrel)</i>
B.	GR1530	-	Seal Kit, Includes: (1) Wiper, (1) U-Cup, (2) O-Rings, (1) BU Ring, (2) Cast Iron Rings, (1) Seal, (1) Energizer

SLAVE CYLINDER, ALL SIZES

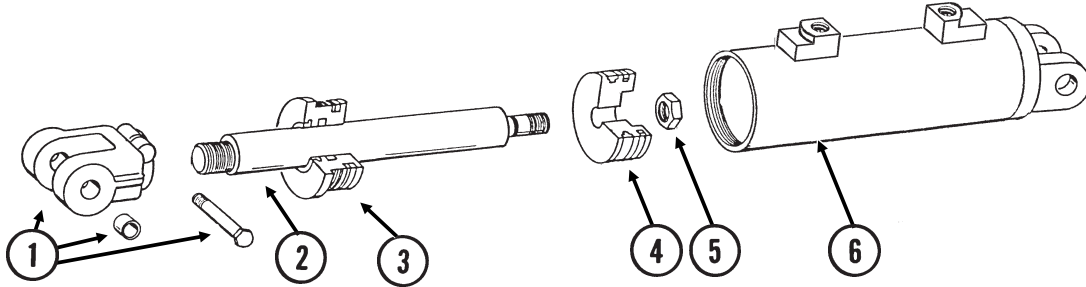
CYL055(CYL15d)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Hex Head Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
2.	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 $\frac{3}{4}$ " x 20" <i>(Part Number Stamped On Barrel)</i>
B.	GR1546	-	Seal Kit, Includes: (1) Wiper, (1) U-Cup, (2) O-Rings, (1) BU Ring, (2) Cast Iron Rings, (1) Seal, (1) Energizer

ASSIST CYLINDER, 36 ROW 20"

(CYL33d)



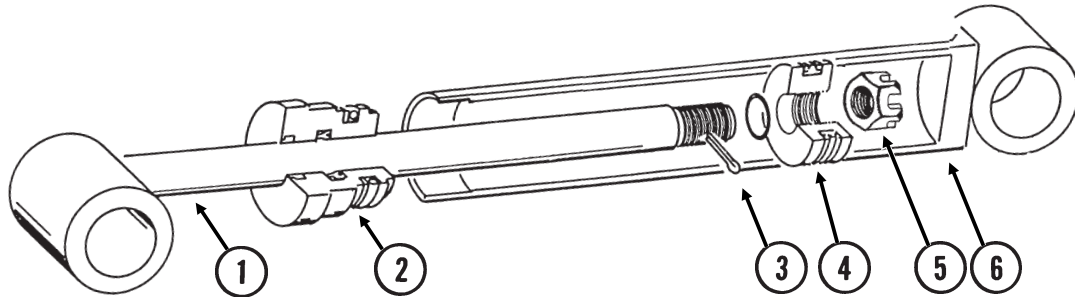
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8130	1	Clevis W/Bushings, Hex Head Cap Screw And Hex Nut
	GD11751	2	Steel Bushing, 1" Wide
	G10939	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 2 $\frac{1}{4}$ "
	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
2.	GD16202	1	Rod
3.	GD11984	1	Gland
4.	GD16200	1	Piston
5.	G10958	1	Lock Nut, 1"-14
6.	A11072	1	Barrel (Non-Stock Item)
A.	GA11073	-	Cylinder Complete, 3" x 10" <i>(Part Number Stamped On Barrel)</i>
B.	GR1740	-	Seal Kit, Includes: (1) Wiper, (1) U-Cup, (2) O-Rings, (1) BU Ring, (2) Cast Iron Rings, (1) Seal, (1) Energizer

ROW MARKER (Cushion) CYLINDER, 16 ROW 30" AND 24 ROW 20" (Prior To Serial No. 750921)

(CYL03b)

$\frac{3}{4}$ "-16 O-Ring Port

$\frac{7}{16}$ "-20 O-Ring Port

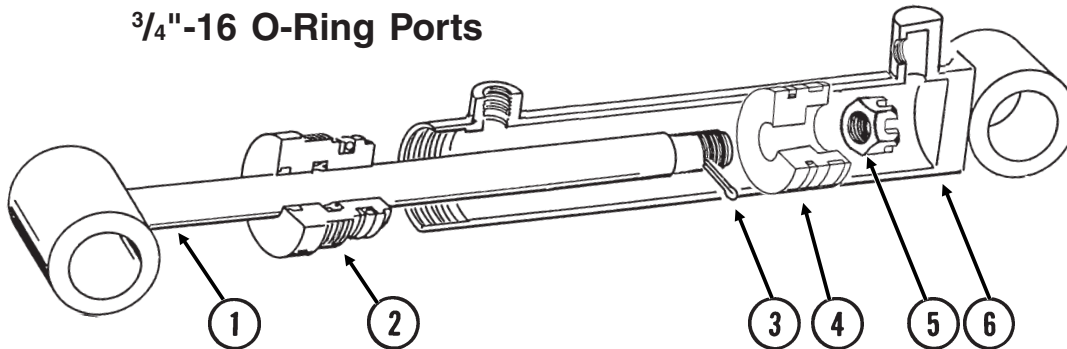


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8871	1	Rod Assembly
2.	GD10207	1	Gland
3.	G10827	1	Cotter Pin, $\frac{1}{8}$ " x $1 \frac{3}{4}$ "
4.	GD11983	1	Piston
5.	G10962	1	Slotted Hex Nut, $\frac{7}{8}$ "-14
6.	A7524	1	Barrel (Non-Stock Item)
A.	GA8895	-	Cylinder Complete, $2 \frac{1}{2}$ " x $20 \frac{1}{16}$ " (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

ROW MARKER (Cushion) CYLINDER, 16 ROW 38", 24 ROW 20" (Serial No. 750921 And On) 24 ROW 22", 24 ROW 30" AND 36 ROW 20"

(CYL032d)

$\frac{3}{4}$ "-16 O-Ring Ports

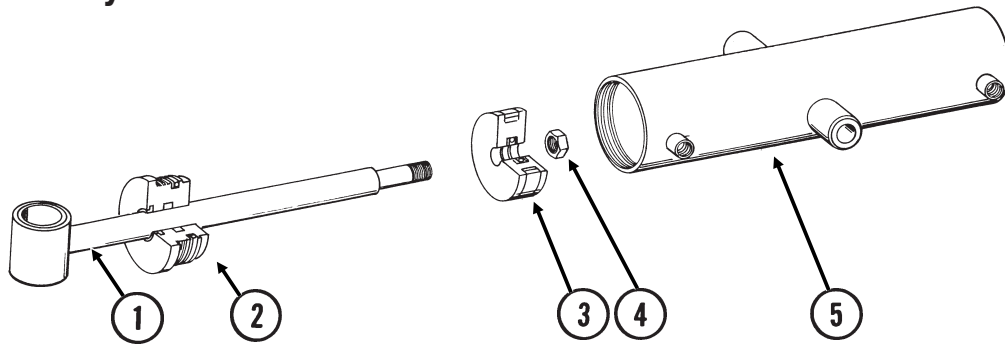


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8948	1	Rod Assembly
2.	GD12548	1	Gland
3.	G10984	1	Cotter Pin, $\frac{3}{16}$ " x $2 \frac{1}{2}$ "
4.	GD12550	1	Piston
5.	G10983	1	Slotted Hex Nut, $1 \frac{1}{8}$ "-12
6.	A8950	1	Barrel (Non-Stock Item)
A.	GA8951	-	Cylinder Complete, $3 \frac{1}{2}$ " x 20" (Part 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

HELPER CYLINDER, ALL SIZES

(CYL17a)

R.H. Side Only

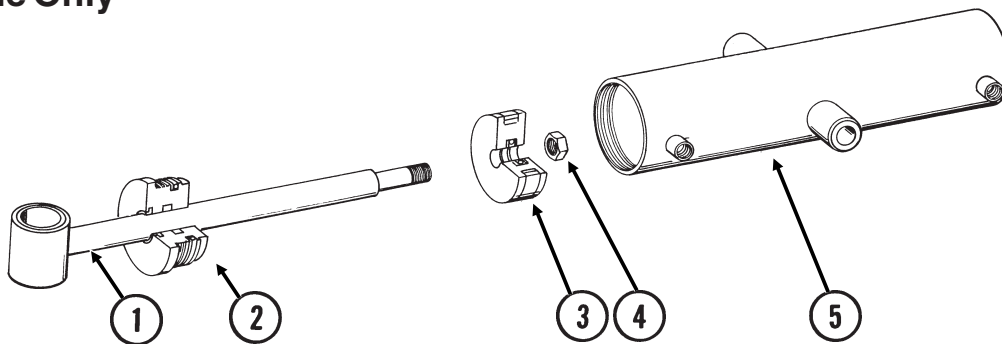


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8910 G10640	1 -	Rod Assembly W/Grease Fitting Grease Fitting, 1/4"-28
2.	GD11988	1	Gland
3.	GD11997	1	Piston
4.	G10958	1	Lock Nut, 1"-14
5.	A8300	1	Barrel (Non-Stock Item)
A.	GA8906	-	Cylinder Complete, 4" x 13 5/8" (<i>Part Number Stamped On Barrel</i>)
B.	GR1525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

HELPER CYLINDER, ALL SIZES

CYL055(CYL17a)

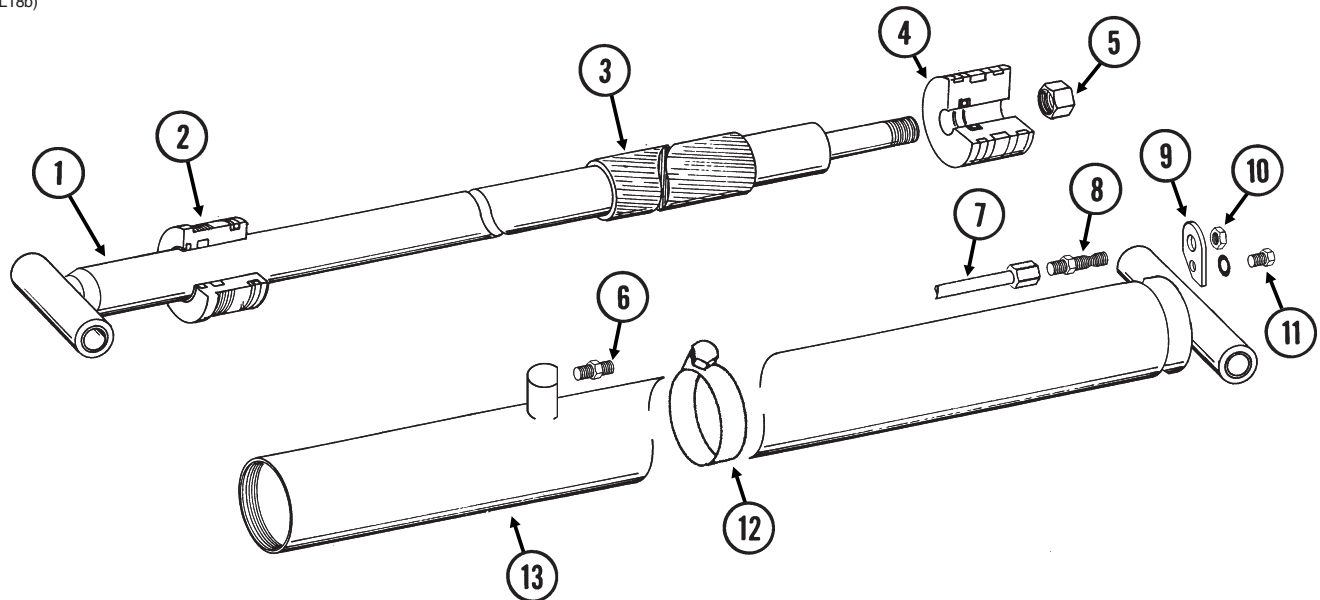
L.H. Side Only



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8907 G10640	1 -	Rod Assembly W/Grease Fitting 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" (<i>Part Number Stamped On Barrel</i>)
B.	GR1525	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) T-Seal

TONGUE CYLINDER, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

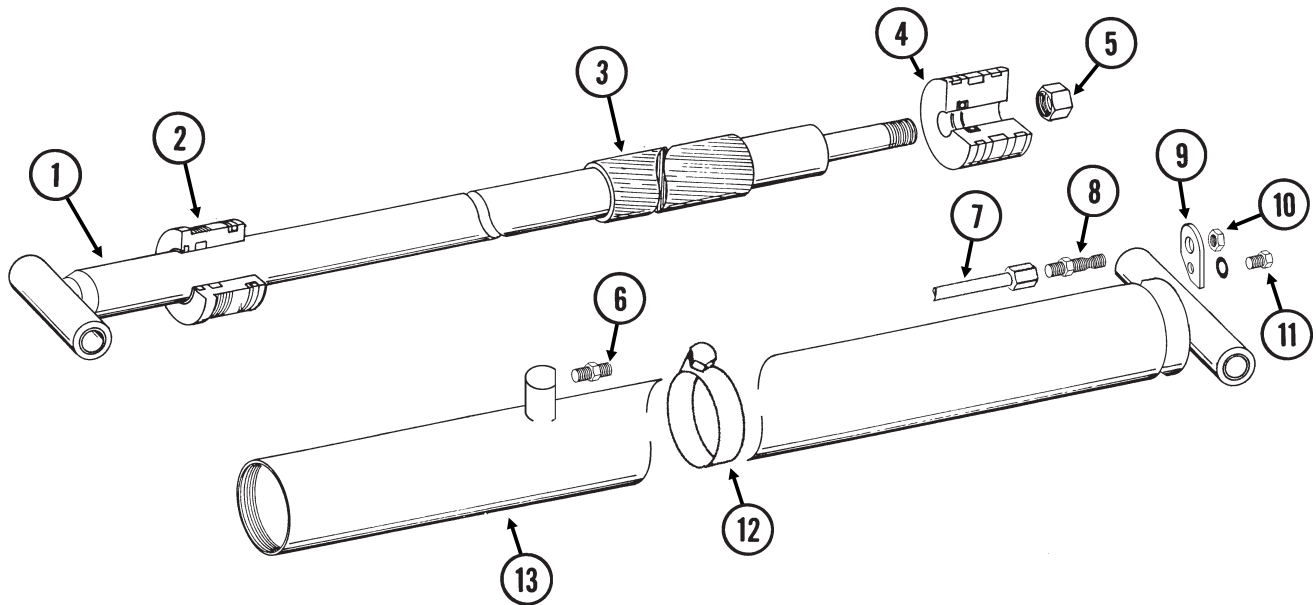
(CYL18b)



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
A.	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

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

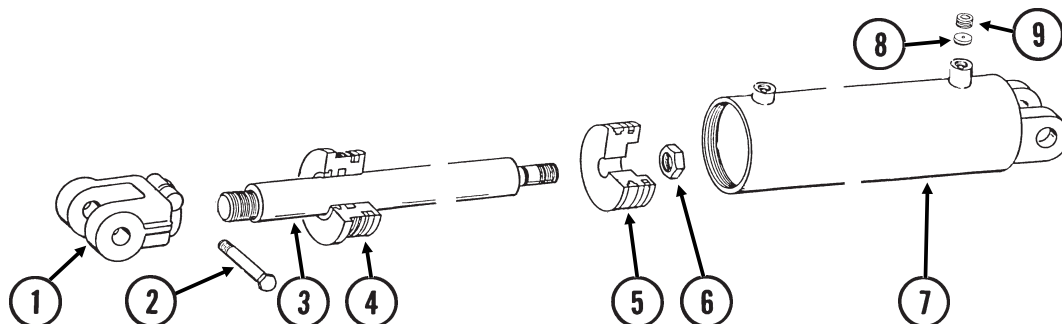
(CYL18b)



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
9.	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"
11.	G10229	1	Lock Washer, 3/8"
12.	G11089	1	Hose Clamp
13.	GA9582	1	Barrel
A.	GA9583	-	Cylinder Complete, 4" x 162" (<i>Part Number Stamped On Barrel</i>)
B.	GR1599	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring, (3) Wear Rings, (1) Piston Seal, (1) U-Cup, (1) Wiper, (1) Expander

HITCH PARALLEL LINKAGE CYLINDER, ALL SIZES

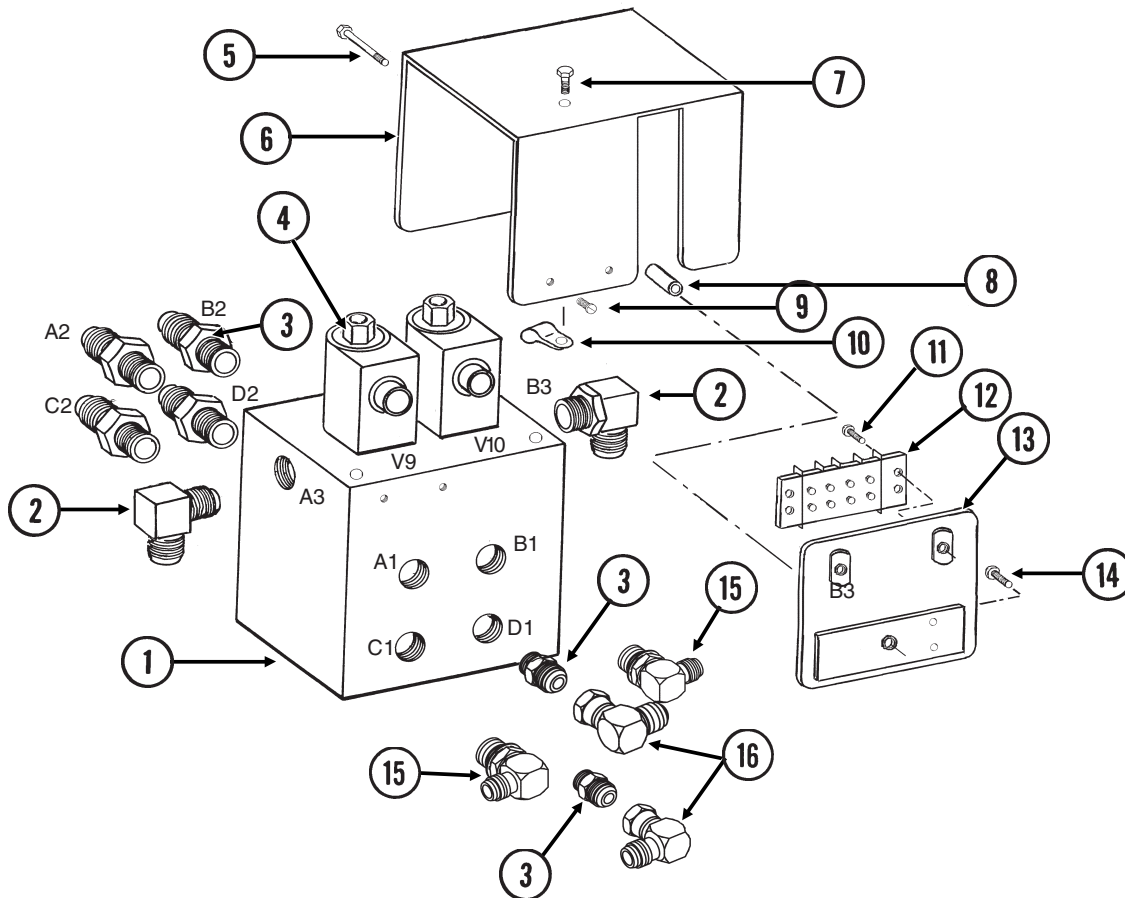
(CYL15c)



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

VALVE BLOCK ON FRONT HITCH

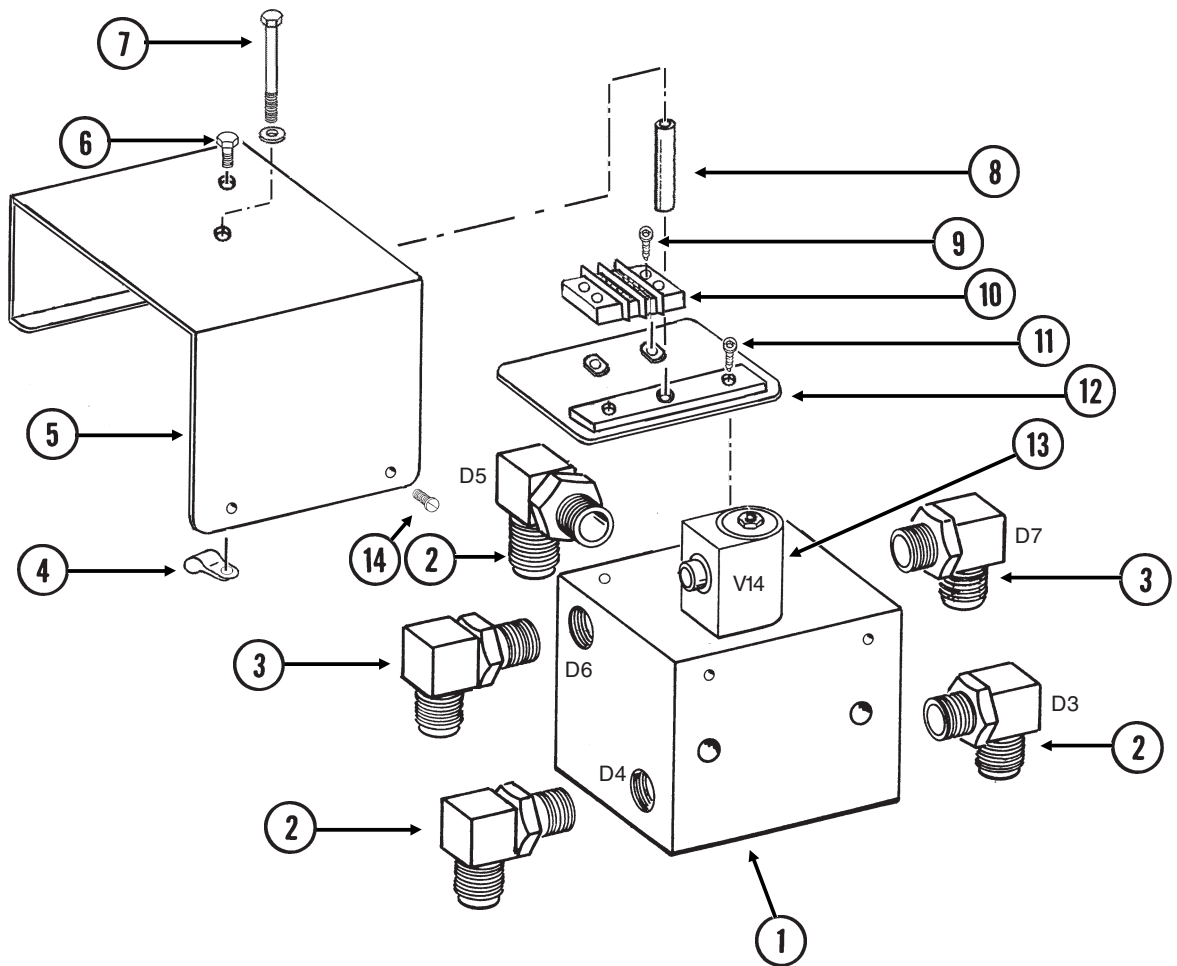
(FF19c)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9531	1	Block
2.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
3.	G6400-10-08	6	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
4.		-	See "Solenoid Valve (G1K276)", Page P103
5.	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10232	1	Lock Washer, 5/16"
6.	GD13365	1	Cover
7.	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
8.	GD8066-02	1	Sleeve, 1" Long
9.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless Steel
10.	GD13348	1	Insulated Clamp, 11/16"
11.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
12.	GA9510	1	Terminal Strip W/Screws, No. 6, 4 Terminal
	GR1635	-	Screw, No. 6-32 x 1/4"
13.	GA9518	1	Terminal Strip Mount
14.	G11066	2	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
15.	G6801-10-08	2	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
16.	G6500-10	2	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female

VALVE BLOCK ON TOWER ASSEMBLY

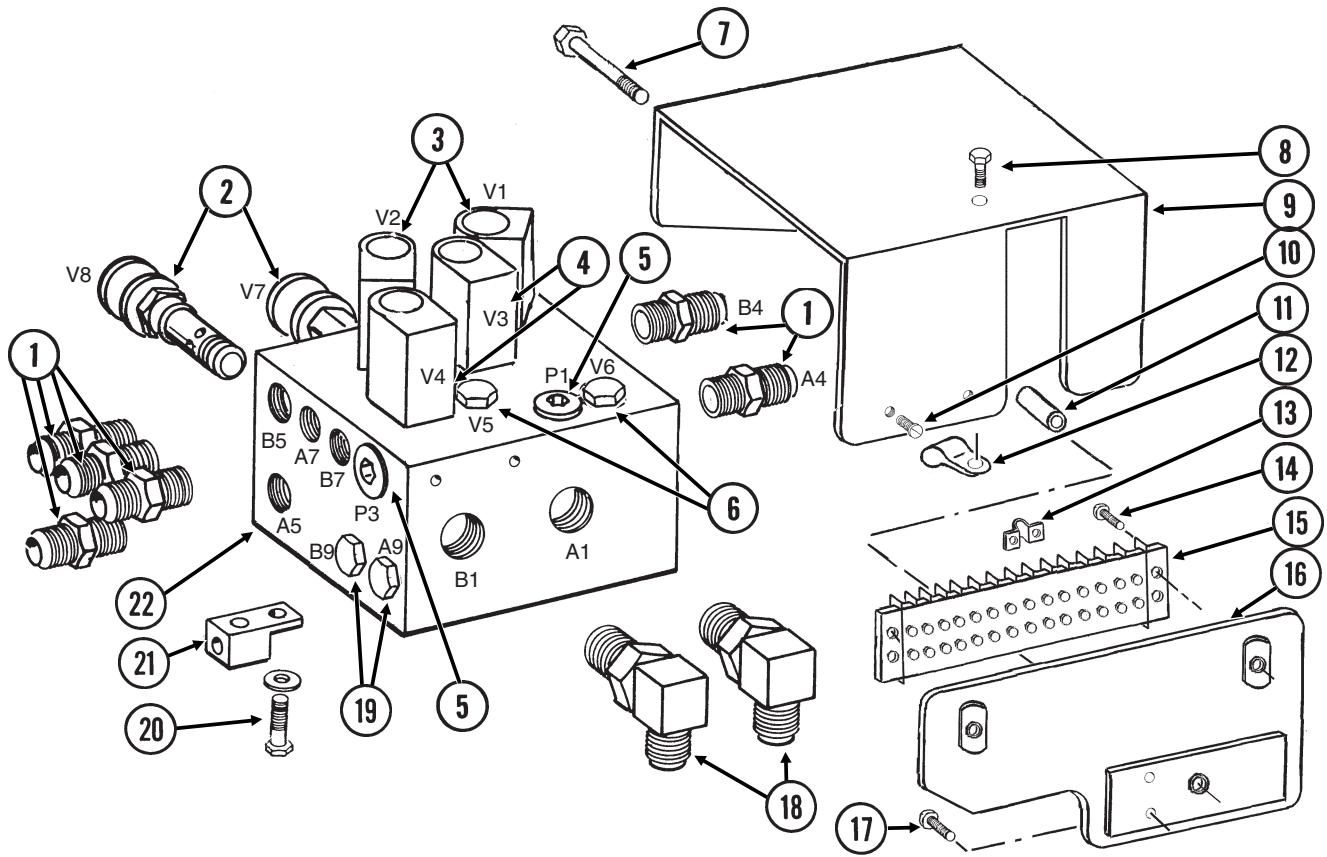
(FF20a)



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 P103
14.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless Steel

VALVE BLOCK ON R.H. WING

(FF21a)

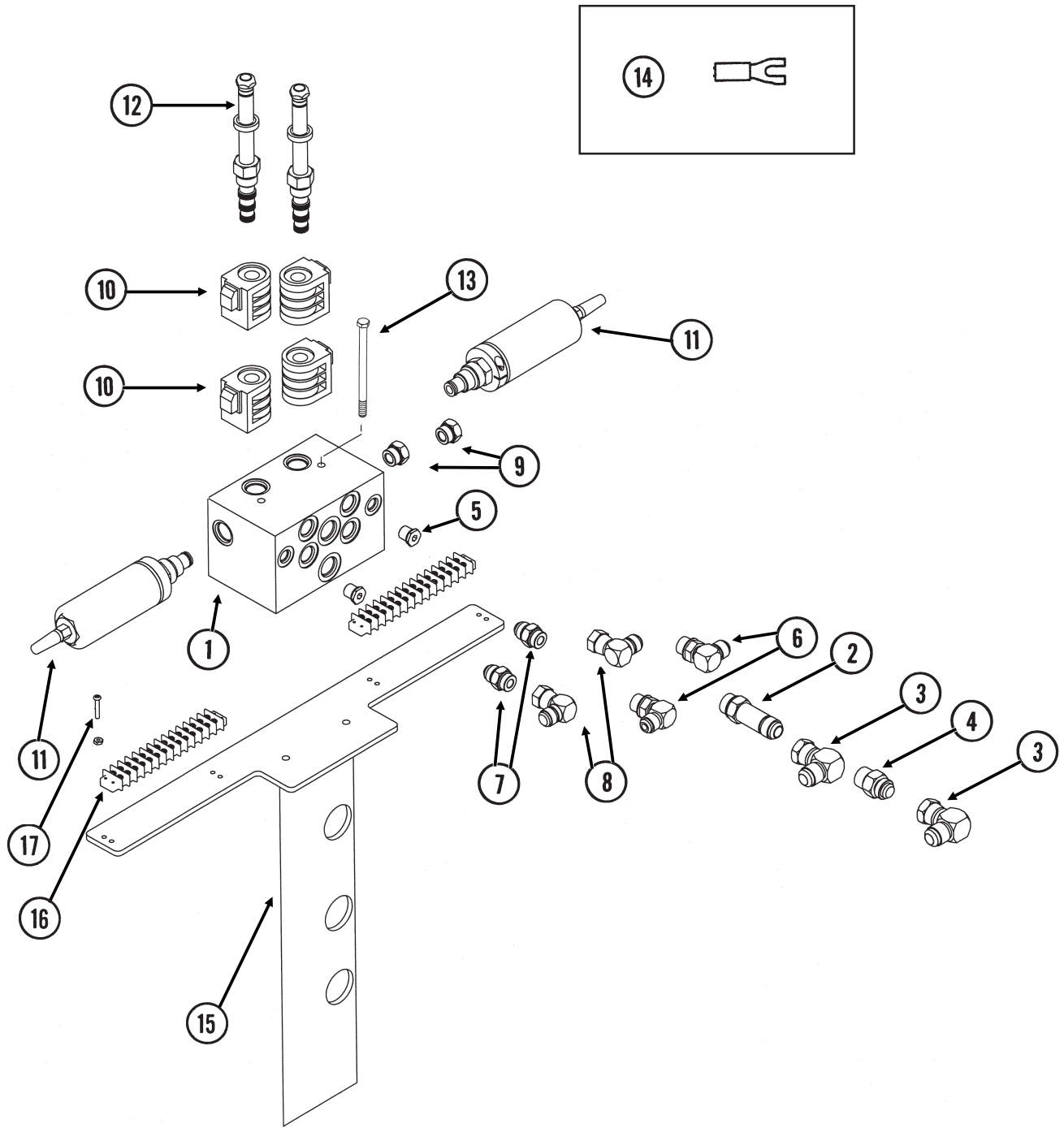


VALVE BLOCK ON R.H. WING

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6400-08	6	Connector W/O-Ring, $\frac{3}{4}$ "-16 Male JIC To O-Ring
	GR1037	-	O-Ring
2.		-	See "Flow Control Valve", Page P104
3.		-	See "Solenoid Valve (G1K275)", Page P103
4.		-	See "Solenoid Valve (G1K276)", Page P103
5.	G6408-H06-O	5	Hex Socket Head Plug W/O-Ring, $\frac{9}{16}$ "-18 O-Ring
	GR1045	-	O-Ring
6.	G6408-10	2	Plug W/O-Ring, $\frac{7}{8}$ "-14 O-Ring
	GR1466	-	O-Ring
7.	G10133	1	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1 $\frac{1}{2}$ "
	G10232	2	Lock Washer, $\frac{5}{16}$ "
8.	G10054	1	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{1}{2}$ "
	G10232	1	Lock Washer, $\frac{5}{16}$ "
	G10106	1	Hex Nut, $\frac{5}{16}$ "-18
9.	GD13146	1	Cover
10.	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x $\frac{1}{2}$ ", Stainless Steel
11.	GD8066-02	1	Sleeve, 1" Long
12.	GD13348	1	Insulated Clamp, $\frac{11}{16}$ "
13.	GD13310	1	Jumper, $\frac{7}{16}$ "
14.	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x $\frac{3}{4}$ ", Stainless Steel
15.	GA9097	1	Terminal Strip W/Screws, No. 6, 14 Terminal
	GR1635	-	Screw, No. 6-32 x $\frac{1}{4}$ "
16.	GA9095	1	Terminal Strip, Mount
17.	G11066	2	Phillips Pan Head Machine Screw, No. 10-24 x $\frac{3}{4}$ ", Stainless Steel
18.	G6801-10	2	Elbow W/O-Ring, 90°, $\frac{7}{8}$ "-14 Male JIC To O-Ring
	GR1466	-	O-Ring
19.	G6408-08	6	Plug W/O-Ring, $\frac{3}{4}$ "-16 O-Ring
	GR1037	-	O-Ring
20.	G10019	1	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 1"
	G10043	1	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10232	2	Lock Washer, $\frac{5}{16}$ "
21.	GA3584	1	Ground Clamp
22.	GD9533	1	Block

SDS MANIFOLD BLOCK

(FF130/A9481)

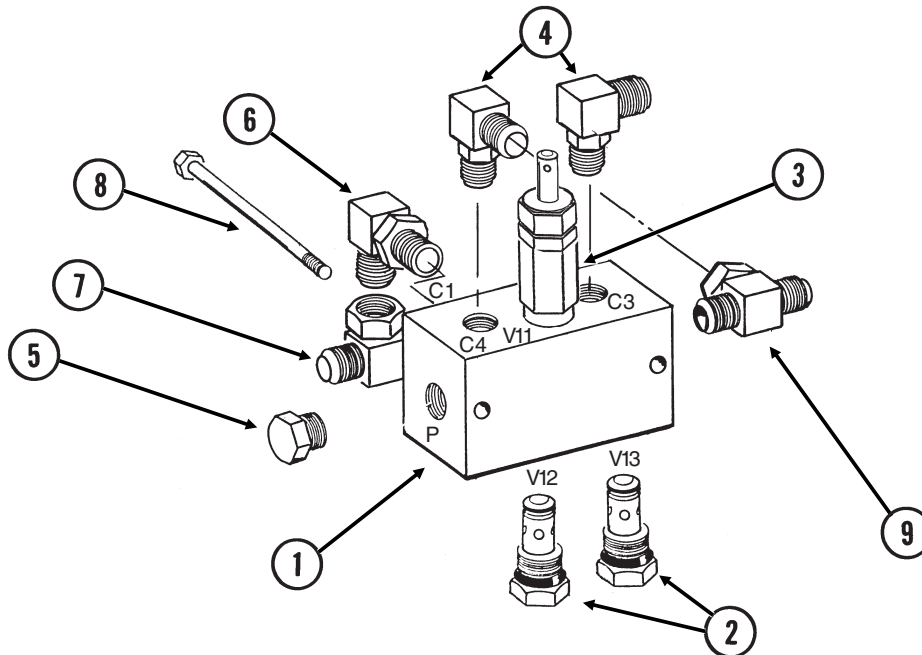


SDS MANIFOLD BLOCK

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD16500	1	Block
2.	G6400-L-10	1	Long Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring
	GR1466	-	O-Ring
3.	G6500-10	2	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
4.	GA11360	1	Check Valve
5.	G6408-H06-0	2	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
6.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
7.	G6400-08	2	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
8.	G6500-08	2	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
9.	G6408-08	2	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
10.	GR1748	4	Coil
11.	GA10987	2	Flow Control Cartridge
12.	GA11365	2	Spool Valve
13.	G11935	2	Hex Head Cap Screw, 1/4"-20 x 5"
	G10209	4	Washer, 1/4" USS
	G10110	2	Lock Nut, 1/4"-20
14.	G10996	-	Fork Terminal
15.	GA12471	1	Mount
16.		-	Terminal Strip, See "Electrical Components (SDS Control Console)", Pages P114 And P115
17.	G11201	8	Phillips Pan Head Machine Screw, No. 8-32 x 1", Stainless Steel
	G11202	8	Lock Nut W/Nylon Insert, No. 8-32, Stainless Steel
A.	GR1756	-	Seal Kit For Coil, Includes: (6) BU Rings, (4) O-Rings

VALVE BLOCK ON L.H. WING

VB030(FF22c)



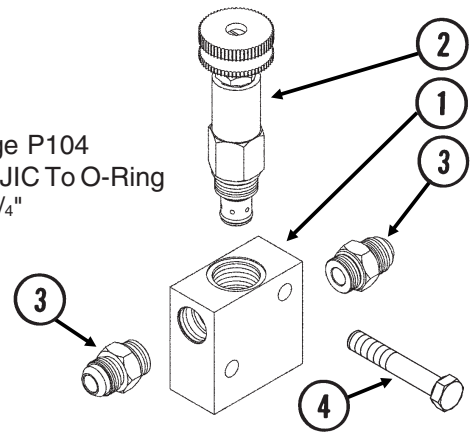
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD9535	1	Block
2.		-	See "Check Valve", Page P105
3.		-	See "Pressure Relief Valve", Page P104
4.	G6801-08	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
5.	G6408-06	1	Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
6.	G6801-10-08	1	Elbow W/O-Ring, 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

VALVE BLOCK ON L.H AND R.H. WHEEL MODULE

36 Row 20" Only

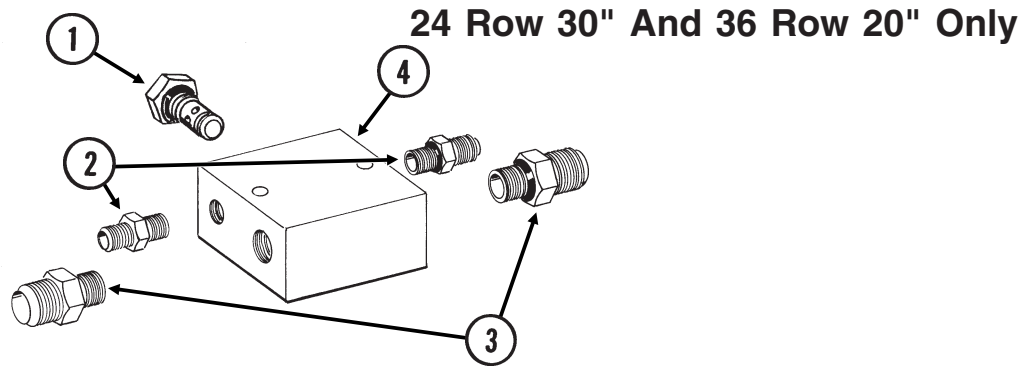
(FF103)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA12113	1	Block
2.		-	See "Pressure Relief Valve", Page P104
3.	G6400-08	1	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
4.	G10939	2	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16



JUNCTION BLOCK - LOCATED ON L.H. WING

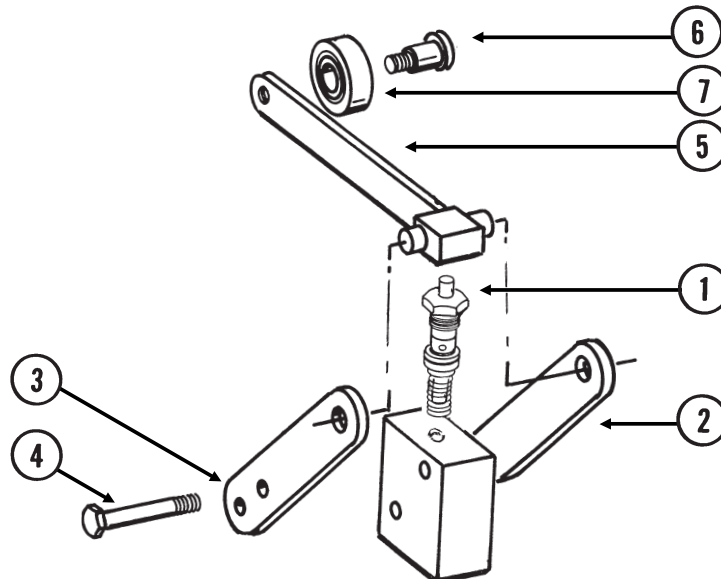
VVB038(HYD31a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.		-	See "Check Valve", Page P105
2.	G6400-04	2	Connector W/O-Ring, $\frac{7}{16}$ "-20 Male JIC To O-Ring
	GR1465	-	O-Ring
3.	G6400-10	2	Connector W/O-Ring, $\frac{7}{8}$ "-14 Male JIC To O-Ring
	GR1466	-	O-Ring
4.	GD13447	1	Block

DETENT LEVER VALVE

VVB033(FF24)

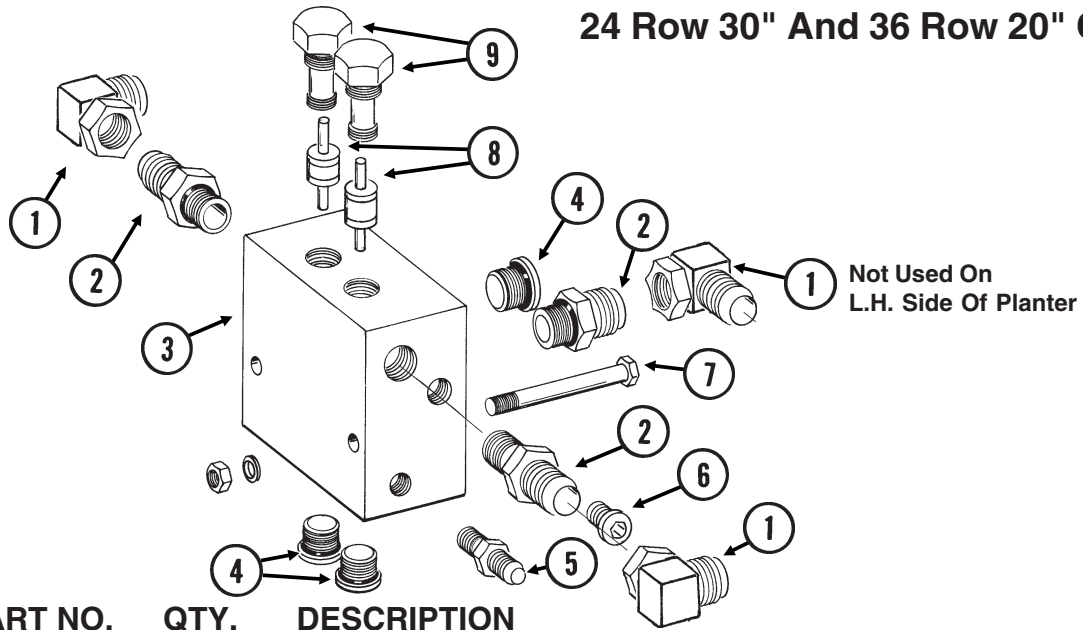


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1254	1	Valve
2.	GR1259	1	Bar
3.	GR1255	1	Bar
4.	G10060	2	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x 2 $\frac{1}{2}$ "
	G10232	2	Lock Washer, $\frac{5}{16}$ "
	G10106	2	Hex Nut, $\frac{5}{16}$ "-18
5.	GR1256	1	Arm
6.	GR1258	1	Socket Shoulder Screw, $\frac{1}{2}$ "
7.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

PILOT OPERATED CHECK VALVE

VVB039(HYD30)

24 Row 30" And 36 Row 20" Only

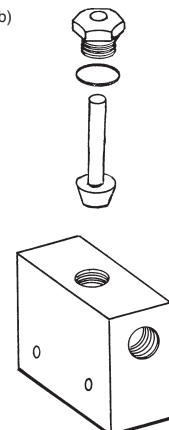


ITEM	PART NO.	QTY.	DESCRIPTION
1.	G6500-08	2-3	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
	G6502-08	-	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female
2.	G6400-08	3	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
3.	GR1455	1	Block (Non-Stock Item)
4.	GR1047	3	Hex Socket Plug W/O-Ring
	GR1037	-	O-Ring
5.	G6400-04	1	Connector W/O-Ring, 7/16"-20 Male JIC To O-Ring
	GR1465	-	O-Ring
6.	GR1034	1	Hex Socket Plug W/O-Ring
	GR1035	-	O-Ring
7.	G10062	1	Hex Head Cap Screw, 3/8"-16 x 3"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
8.	GR1457	2	Pilot Piston (Non-Stock Item)
9.	GR1456	2	Cartridge (Non-Stock Item)
A.	GA8409	-	Pilot Operated Check Valve (Items 3, 4, 6, 8 And 9)
B.	GR1458	-	Seal Kit, Includes: (2) Cartridge Seal Kits, (5) O-Rings, (2) BU Rings

STROKE LIMITER VALVE

ITEM	PART NO.	QTY.	DESCRIPTION
A.	GA12105	-	Stroke Limiter Valve Complete (<i>Part Number Stamped On Valve Block</i>)
B.	G1K255	-	Repair Kit, Includes: (1) Adapter, (1) Poppet, (1) Seal Kit W/O-Rings And BU Ring

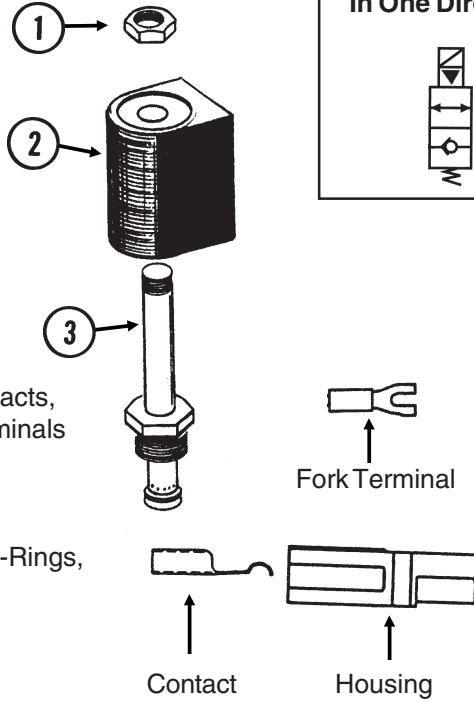
(FF23b)



SOLENOID VALVE (G1K275)

VVB019(TWL27c/TWL18/PLTR75c/A9481)

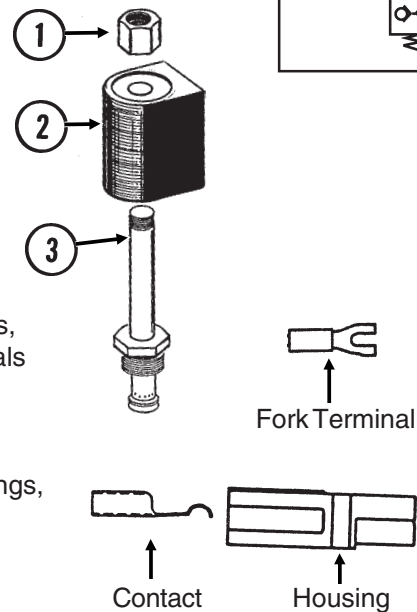
ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR0761	1	Special Hex Nut, 1/2"-20
2.	G1K274	1	Coil Kit W/Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
3.	GR0763	1	Cartridge
A.	G1K275	-	Solenoid Valve Kit W/Solenoid Valve, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring



SOLENOID VALVE (G1K276)

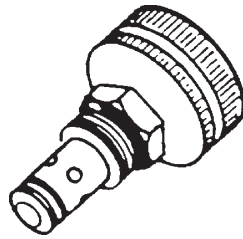
VVB019(FF25/TWL18/PLTR75c)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1322	1	Special Hex Nut, 1/2"-20
2.	G1K274	1	Coil Kit W/Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
3.	GR1321	1	Cartridge
A.	G1K276	-	Solenoid Valve Kit W/Solenoid Valve, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring



FLOW CONTROL VALVE

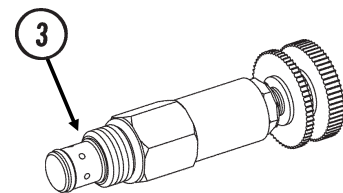
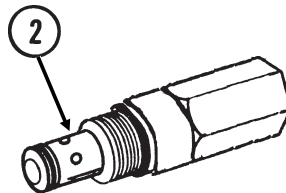
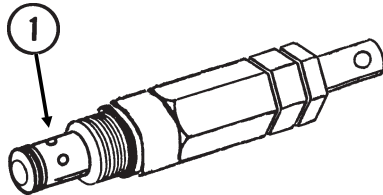
VVB020(TWL28)



ITEM	PART NO.	QTY.	DESCRIPTION
A.	GA3413	-	Flow Control Valve
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

PRESSURE RELIEF VALVE

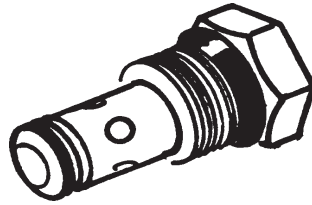
VVB020(FF46/FF46a/FF104)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA8844	-	Pressure Relief Valve, 1750 PSI
	GR1515	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
2.	GA10140	-	Pressure Relief Valve, 550 PSI
	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring
3.	GA3407	-	Pressure Relief Valve, 1000 PSI
	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

CHECK VALVE

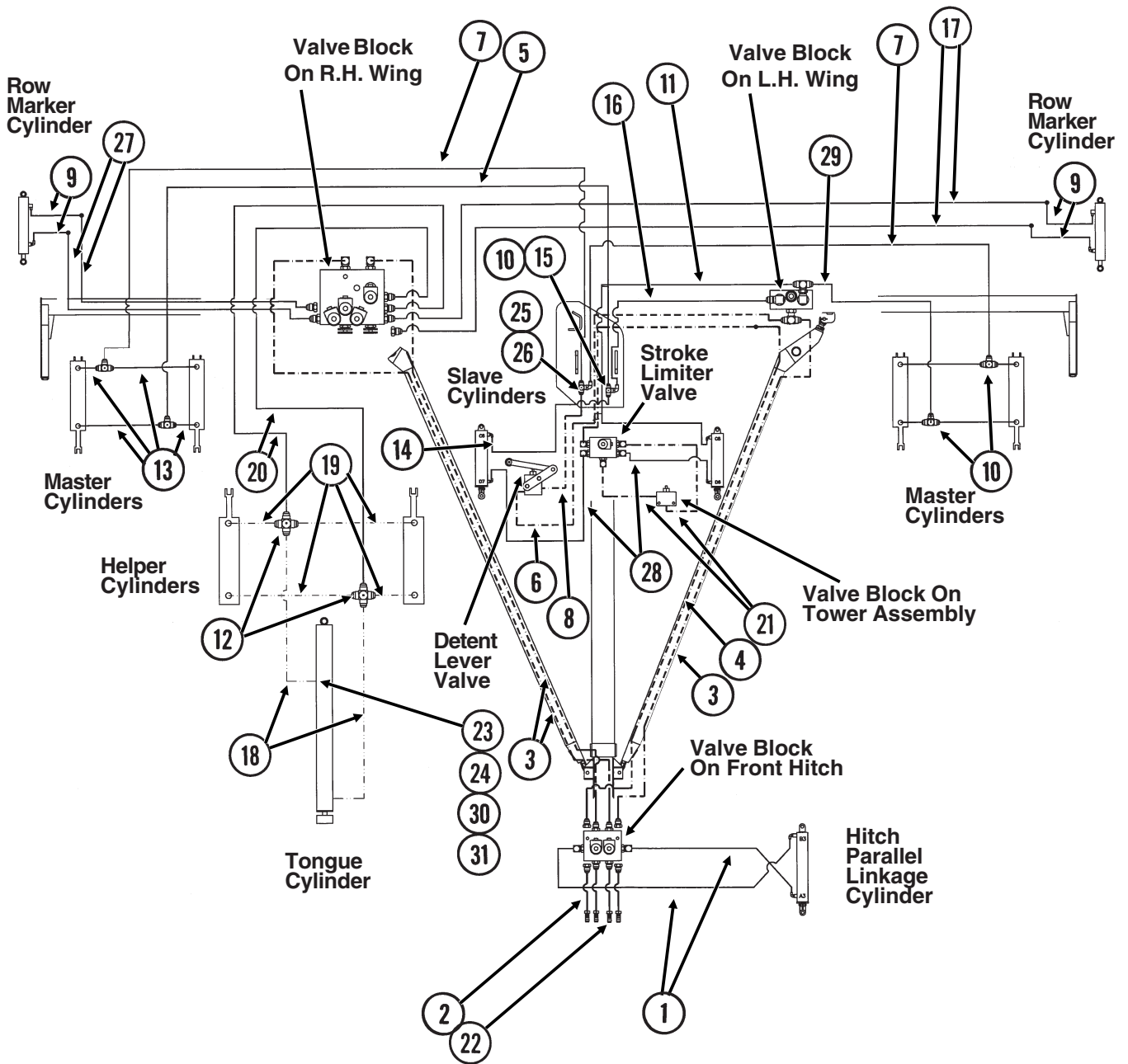
VVB020(TWL30)



ITEM	PART NO.	QTY.	DESCRIPTION
A.	GA4293	-	Check Valve
B.	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

HYDRAULIC SYSTEM, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

(FF97a)



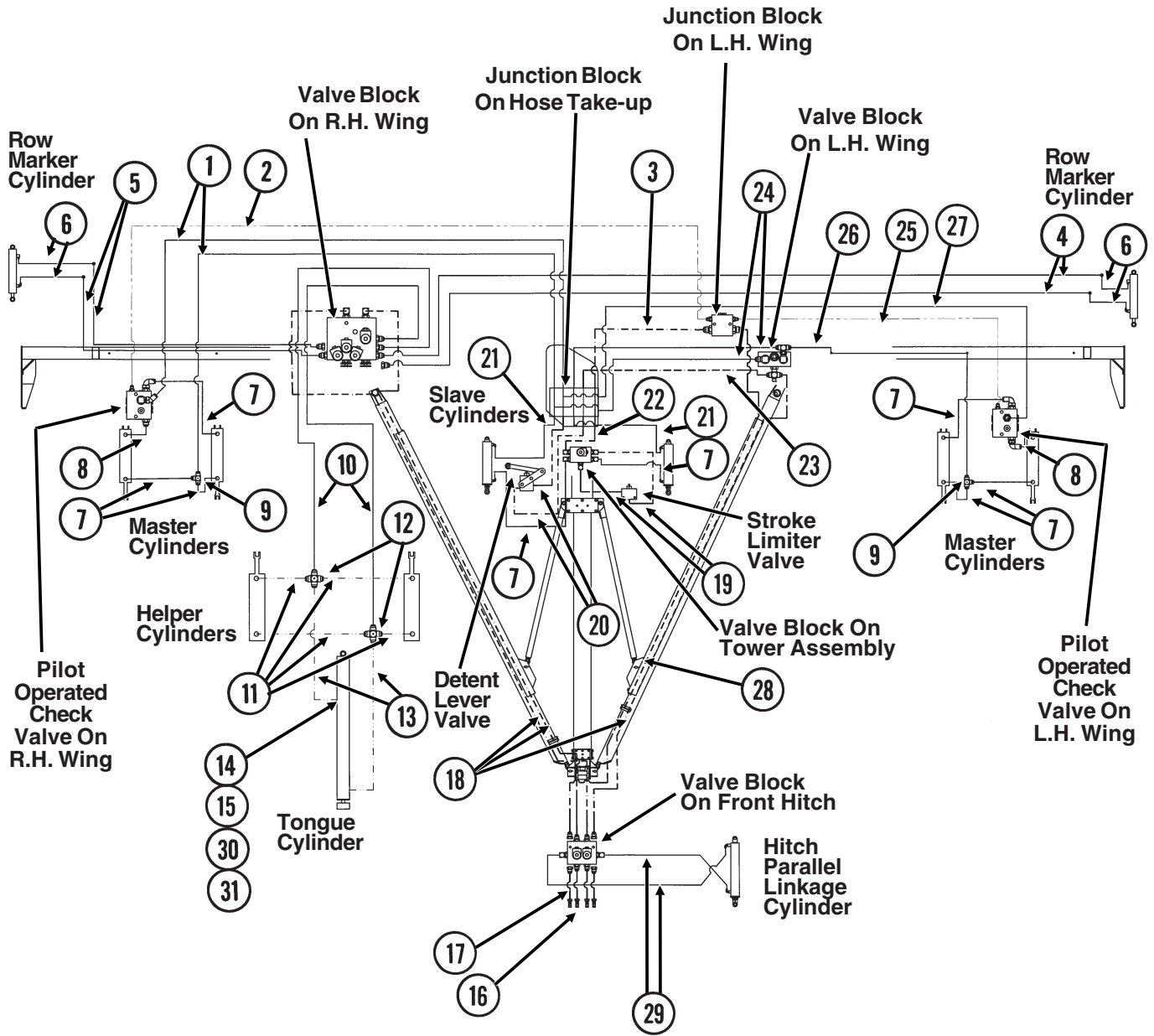
HYDRAULIC SYSTEM, 16 ROW 30", 16 ROW 38", 24 ROW 20" AND 24 ROW 22"

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"
	*A3185	-	Hose Assembly, 3/8" x 284", 16 Row 38"
	*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"
	*A3276	-	Hose Assembly, 3/8" x 284", 16 Row 38"
	*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", 16 Row 38" And 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"
	*A3104	-	Hose Assembly, 3/8" x 442", 16 Row 38"
	*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.	G6400-06-08	1	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	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"
	*A1028	-	Hose Assembly, 3/8" x 186", 16 Row 38"
	*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"
	*A1078	-	Hose Assembly, 3/8" x 174", 16 Row 38"
	*A1013	-	Hose Assembly, 3/8" x 150", 24 Row 22"
30.	*G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
31.	G2406-08-06	1	Reducer, 3/4"-16 Female JIC To 9/16"-18 Male JIC

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

HYDRAULIC SYSTEM, 24 ROW 30"

(FF98a)



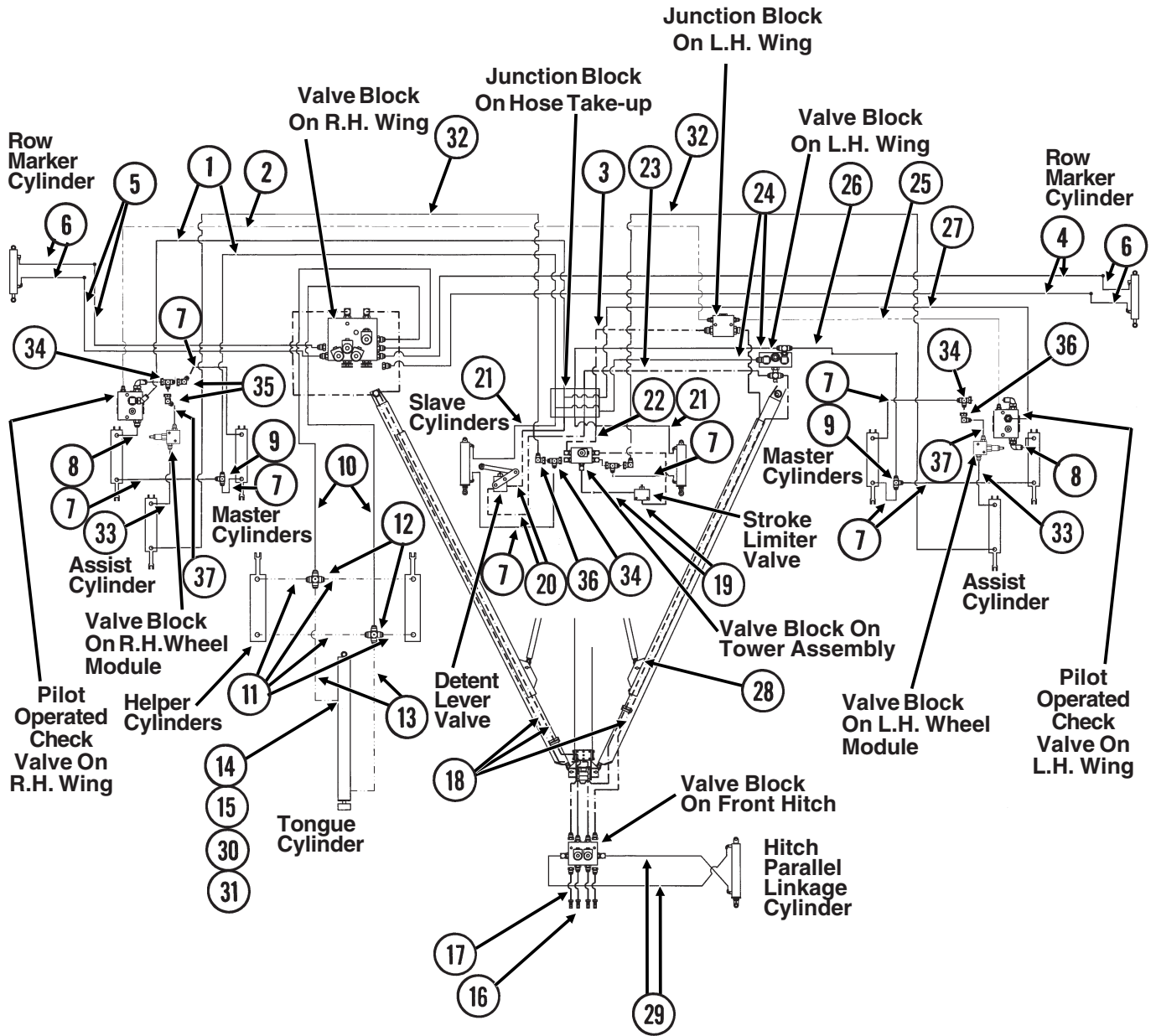
HYDRAULIC SYSTEM, 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	*A1051	2	Hose Assembly, 3/8" x 360"
2.	*A8501	1	Hose Assembly, 3/16" x 426"
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"
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.	G6400-06-08	1	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	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, 1/2" x 130"
18.	*A1485	3	Hose Assembly, 1/2" x 330"
19.	*A1424	2	Hose Assembly, 1/2" x 30"
20.	*A1465	2	Hose Assembly, 1/2" x 84"
21.	*A3140	2	Hose Assembly, 3/8" x 94"
22.	*A1421	1	Hose Assembly, 1/2" x 107"
23.	*A1487	1	Hose Assembly, 1/2" x 150"
24.	*A1026	2	Hose Assembly, 3/8" x 152"
25.	*A1038	1	Hose Assembly, 3/8" x 370"
26.	*A3161	1	Hose Assembly, 3/8" x 210"
27.	*A8500	1	Hose Assembly, 3/16" x 260"
28.	*A8208	1	Hose Assembly, 1/2" x 374"
29.	*A1044	2	Hose Assembly, 3/8" x 34"
30.	*G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
31.	G2406-08-06	1	Reducer, 3/4"-16 Female JIC To 9/16"-18 Male JIC

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

HYDRAULIC SYSTEM, 36 ROW 20"

(FF98b)



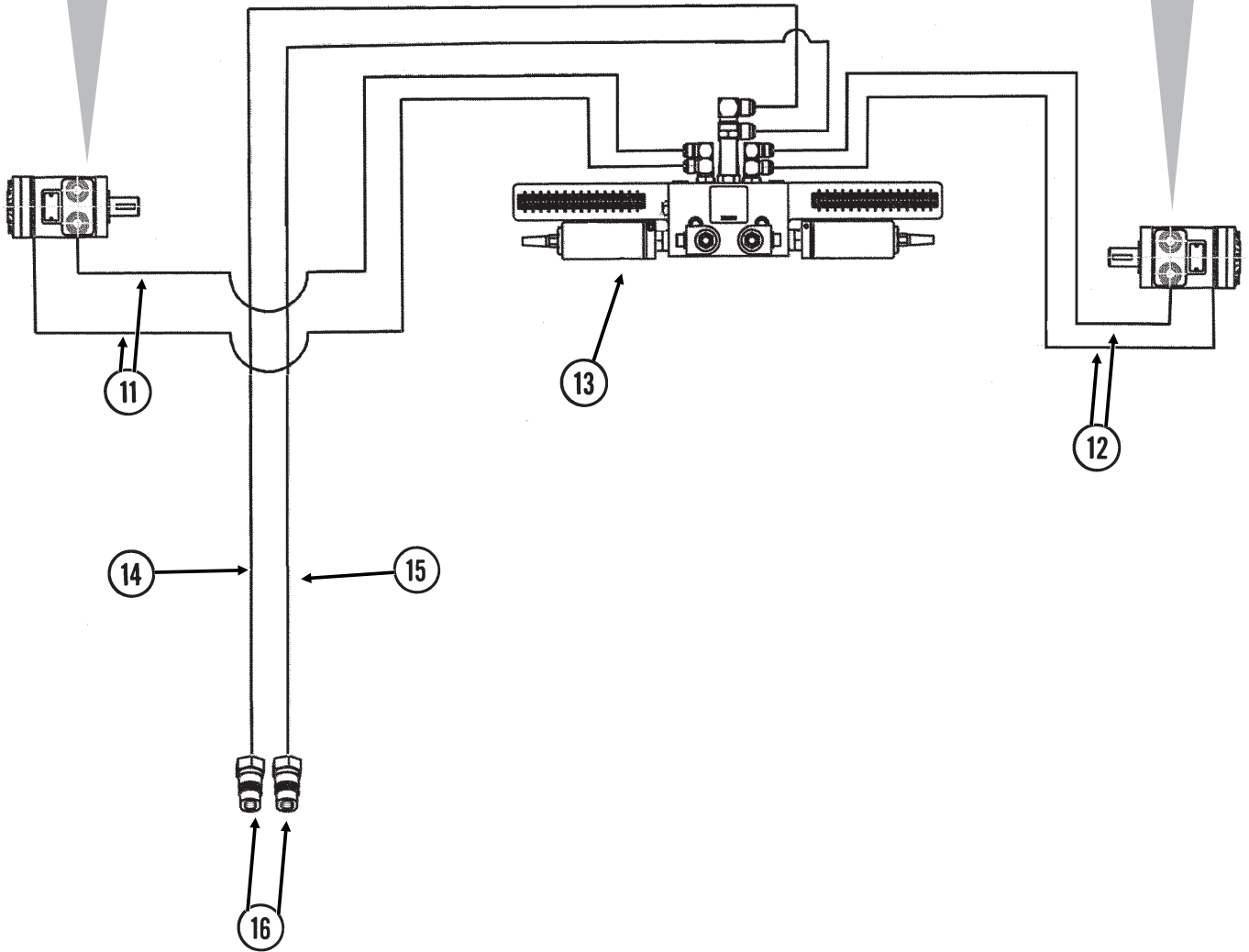
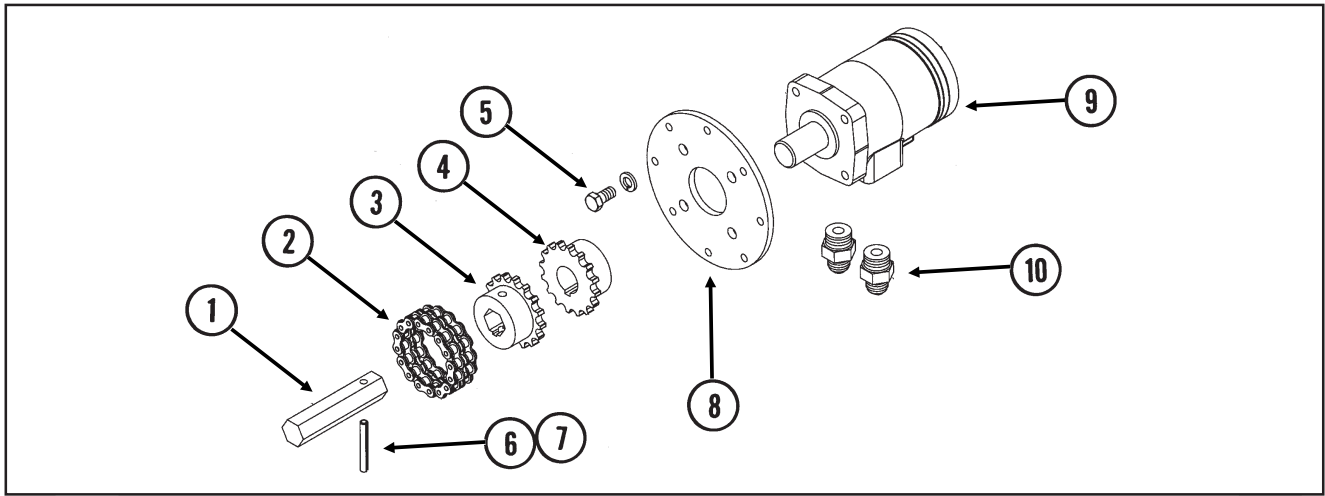
HYDRAULIC SYSTEM, 36 ROW 20"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	*A1038	2	Hose Assembly, 3/8" x 370"
2.	*A8503	1	Hose Assembly, 3/16" x 436"
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.	*A1019	2	Hose Assembly, 3/8" x 44"
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.	G6400-06-08	1	Connector W/O-Ring, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	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, 1/2" x 130"
18.	*A1485	3	Hose Assembly, 1/2" x 330"
19.	*A1424	2	Hose Assembly, 1/2" x 30"
20.	*A1465	2	Hose Assembly, 1/2" x 84"
21.	*A3140	2	Hose Assembly, 3/8" x 94"
22.	*A1421	1	Hose Assembly, 1/2" x 107"
23.	*A1487	1	Hose Assembly, 1/2" x 150"
24.	*A1026	2	Hose Assembly, 3/8" x 152"
25.	*A3197	1	Hose Assembly, 3/8" x 388"
26.	*A1057	1	Hose Assembly, 3/8" x 216"
27.	*A8502	1	Hose Assembly, 3/16" x 270"
28.	*A8208	1	Hose Assembly, 1/2" x 374"
29.	*A1044	2	Hose Assembly, 3/8" x 34"
30.	*G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
31.	G2406-08-06	1	Reducer, 3/4"-16 Female JIC To 9/16"-18 Male JIC
32.	*A3275	2	Hose Assembly, 3/8" x 490"
33.	*A1098	2	Hose Assembly, 3/8" x 26"
34.	G6602-08	4	Swivel Tee, 3/4"-16 JIC
35.	G6502-08	2	Swivel Elbow, 45°, 3/4"-16 Male JIC To Female
36.	G6500-08	3	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
37.	*A3122	2	Hose Assembly, 3/8" x 10 1/2"

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

SDS HYDRAULIC SYSTEM

(FWD105/FF128b)

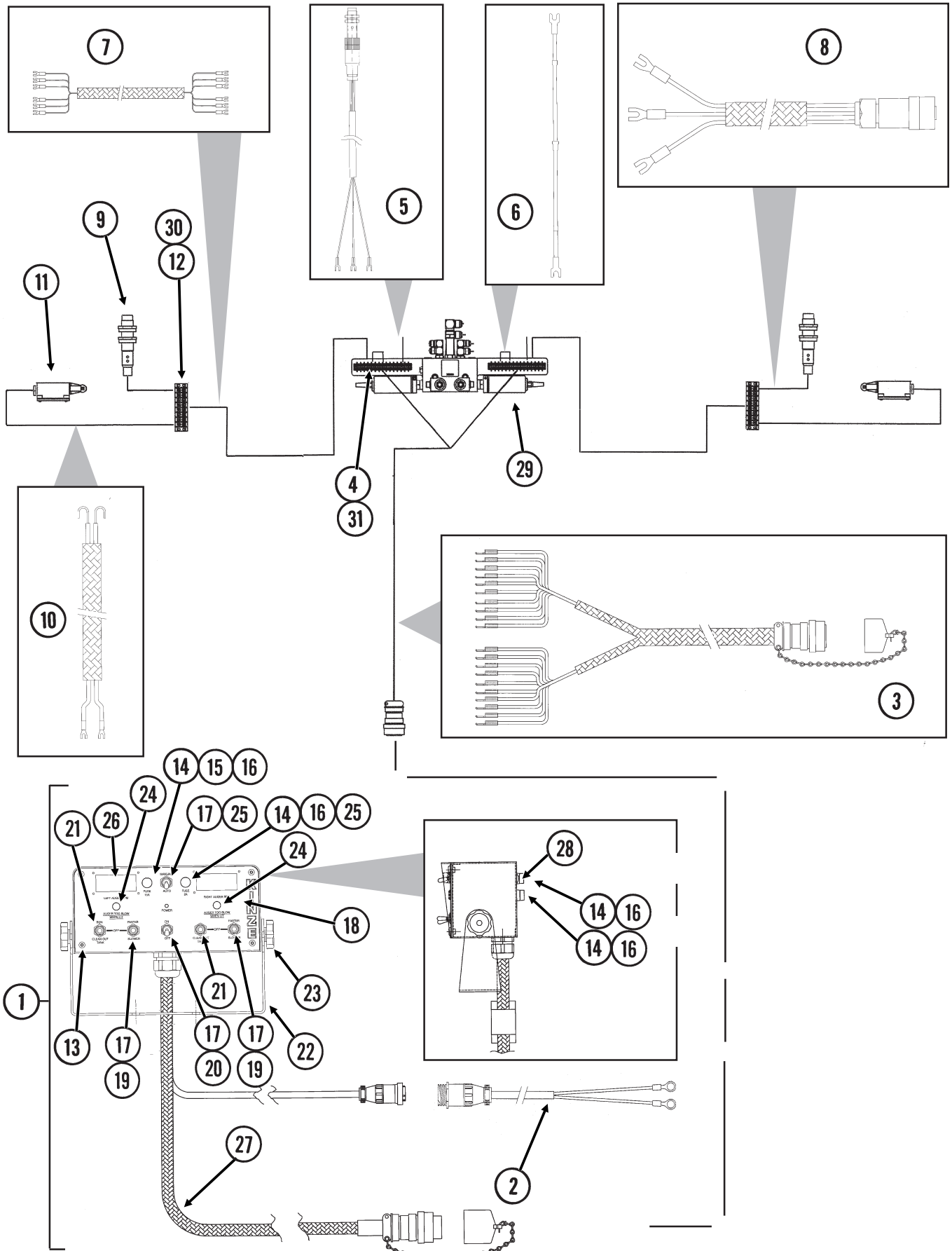


SDS HYDRAULIC SYSTEM

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GD16538	1	Shaft
2.	G3317-16	1	Chain, Double No. 40, 16 Pitches Including Connector Link
	GR1790	-	Connector Link, Double No. 40
3.	GD16489	1	Coupler, 7/8" Hex
4.	GD16490	1	Coupler, 1" I.D.
5.	G10002	4	Hex Head Cap Screw, 3/8"-16 x 3/4"
	G10229	4	Lock Washer, 3/8"
6.	G10606	1	Spring Pin, 1/4" x 2"
7.	GD13524-01	1	Lock Wire, 10", Stainless Steel
8.	GD16537	1	Plate
9.	GA11774	2	Hydraulic Motor
10.	G6400-08-10	2	Connector W/O-Ring, 3/4"-16 Male JIC To 7/8"-14 O-Ring
	GR1466	-	O-Ring
11.	*A1021	2	Hose Assembly, 3/8" x 56", 24 Row 20" And 36 Row 20"
	*A1011	-	Hose Assembly, 3/8" x 125", 24 Row 22"
	*A1019	-	Hose Assembly, 3/8" x 44", 24 Row 30"
12.	*A12041	2	Hose Assembly, 3/8" x 244", 24 Row 20" And 36 Row 20"
	*A3116	-	Hose Assembly, 3/8" x 314", 24 Row 22"
	*A1031	-	Hose Assembly, 3/8" x 234", 24 Row 30"
13.		-	See "SDS Manifold Block", Pages P98 And P99
14.	*A11430	1	Hose Assembly, 5/8" x 452", 24 Row 20"
	*A11429	-	Hose Assembly, 5/8" x 468", 24 Row 22"
	*A11423	-	Hose Assembly, 5/8" x 525", 24 Row 30" And 36 Row 20"
15.	*A12707	1	Hose Assembly, 1/2" x 452", 24 Row 20"
	*A12706	-	Hose Assembly, 1/2" x 468", 24 Row 22"
	*A8297	-	Hose Assembly, 1/2" x 525", 24 Row 30" And 36 Row 20"
16.	GD4086	2	ISO Coupler

ELECTRICAL COMPONENTS (SDS Control Console)

(A12468/A9954/A11502/A11906/FF128a/A11376/A11378/A11348a/A11736)



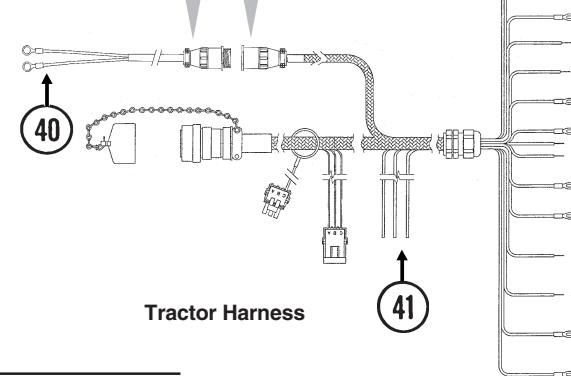
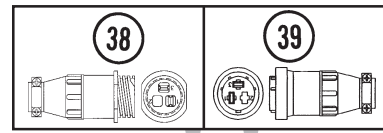
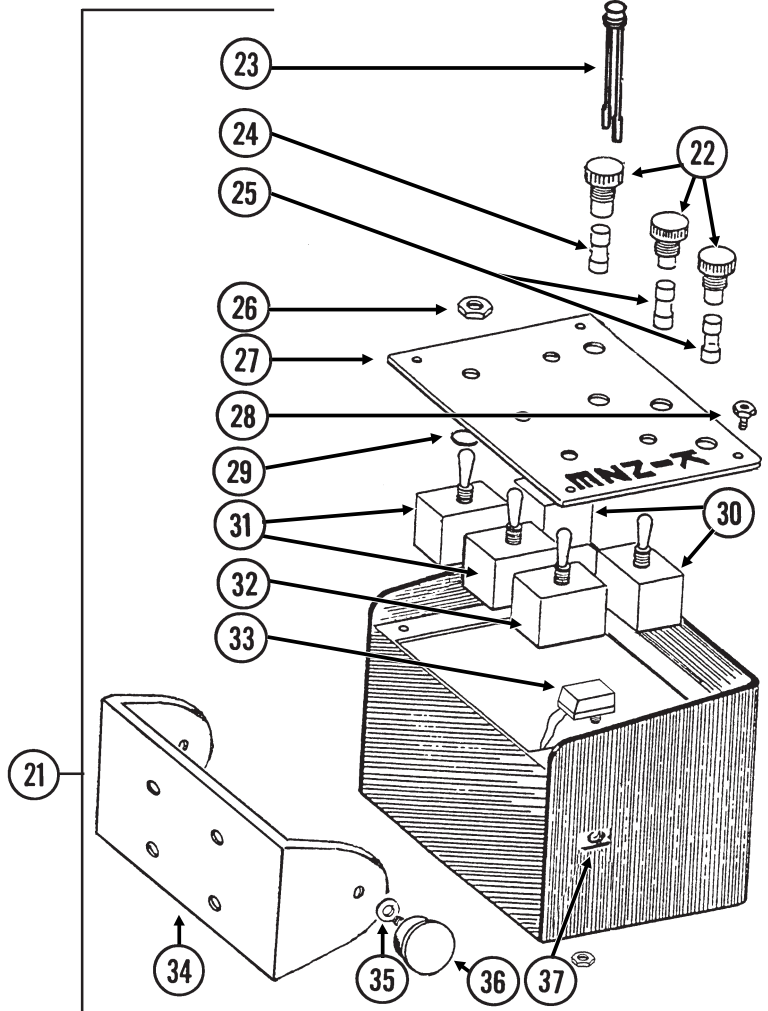
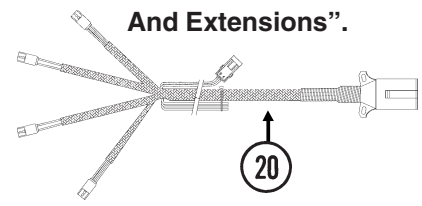
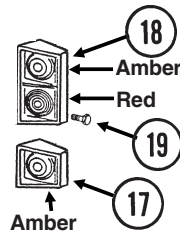
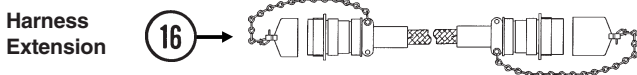
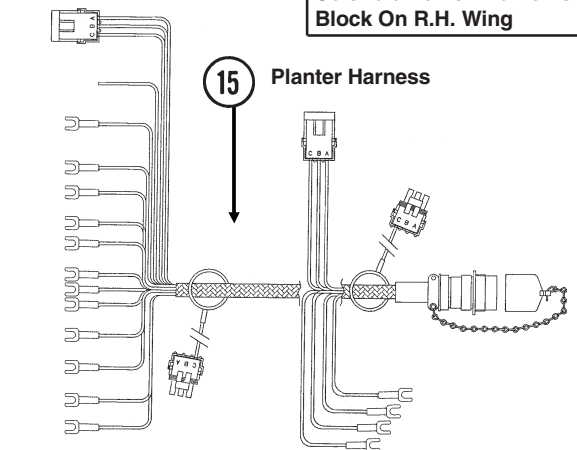
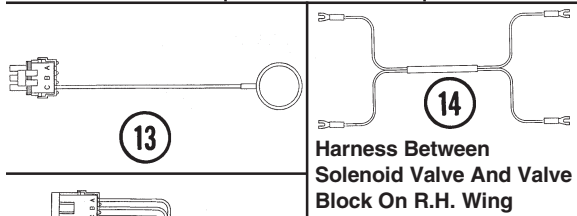
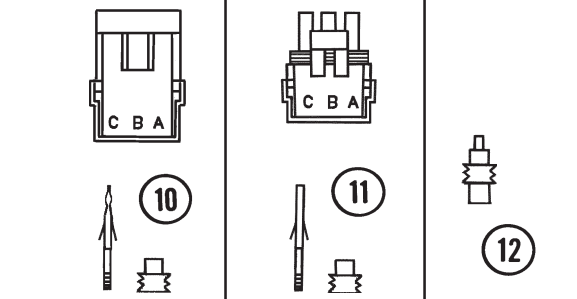
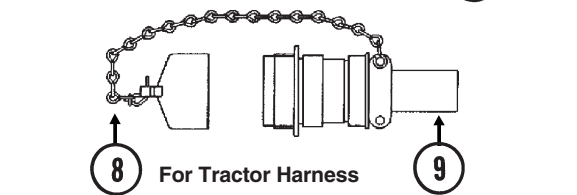
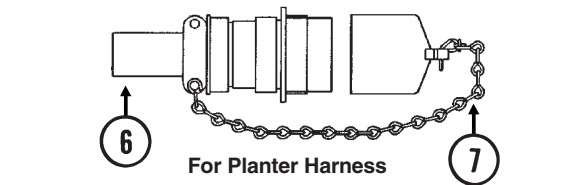
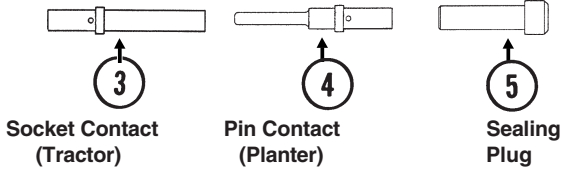
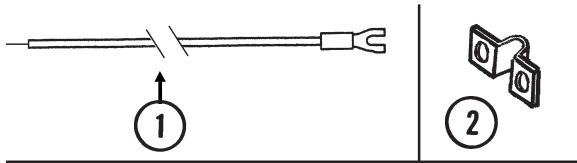
ELECTRICAL COMPONENTS (SDS Control Console)

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA11348	1	SDS Control Console Assembly
2.	GA7856	1	Power Lead Adapter
3.	GA13105	1	Wiring Harness, 495", 24 Row 22" And 24 Row 20"
	GA12467	-	Wiring Harness, 552", 24 Row 30" And 36 Row 20"
4.	GA9097	2	Terminal Strip W/Screws, No. 6, 14 Terminal
	GR1635	-	Screw, No. 6-32 x 1/4"
5.	GA12451	2	Speed Sensor Assembly, 24 Row 20"/30" And 36 Row 20"
	GA13270	-	Speed Sensor Assembly, 24 Row 22"
6.	GA11502	2	Voltage Stabilizer, 8 1/2"
7.	GA13106	1	Wiring Harness, 232", R.H., 24 Row 20"
	GA13107	-	Wiring Harness, 396", L.H., 24 Row 20"
	GA13272	1	Wiring Harness, 150", R.H., 24 Row 22"
	GA13271	-	Wiring Harness, 480", L.H., 24 Row 22"
	GA12468	-	Wiring Harness, 336", R.H., 24 Row 30" And 36 Row 20"
	GA12469	-	Wiring Harness, 516", L.H., 24 Row 30" And 36 Row 20"
8.	GA11906	2	4-Pin Connector, 48"
9.	GA11387	2	Proximity Sensor
10.	GA11378	2	Wiring Harness, 48"
11.	GA11066	2	Limit Switch
12.	GA9098	2	Terminal Strip W/Screws, No. 6, 8 Terminal
	GR1635	-	Screw, No. 6-32 x 1/4"
13.	GR1292	4	Pan Head Screw, No. 8-32 x 1/2"
14.	GA2612	3	Fuse Holder W/Spade, 1 33/50"
15.	GD2829	1	Fuse, 15 Amp, Type AGC
16.	GD3860	3	O-Ring
17.	GR1363	4	Hex Face Nut, 15/32"-32
	GR1364	4	Internal Tooth Lock Washer, 15/32"
18.	GA12171	1	Cover Plate
19.	GA6978	2	Switch, 3 Position Toggle, Momentary On-Off-Momentary On
20.	GA6977	1	Switch, 2 Position Toggle, On-Off
21.	GA12173	2	Switch, 3 Position Locking Toggle
22.	GD14640	1	Mounting Bracket
23.	GA6975	2	Knob
	G10211	4	Washer, 1/4" SAE
	GR1290	2	Cage Nut, 1/4"-20
24.	GA10195	2	Indicator Light, Amber
25.	GA12174	1	Switch, 2 Position Toggle, Momentary-On
26.	GA9965	2	Tachometer
27.	GA12180	1	Wiring Harness W/Dust Cap And Power Cable
28.	G11112	1	Plug, 3/8"
29.		-	See "SDS Manifold Block", Pages P98 And P99
30.	GD18102	2	Cover, 1 3/8" x 4"
	GD18100	4	Clip
31.	GD18103	2	Cover, 1 3/8" x 5 3/4"
	GD18100	4	Clip

ELECTRICAL COMPONENTS

(A9481/TWL26e/FF27b/FF27c/A9102a/ELC14/ELC3a/ELC5c/MTR27a/ELC8/ELC11a/FF29a/ELC4/TWL20f/ELC10c/ELC34/ELC35)

See page P119 for "Light/ Reflective Decal Brackets And Extensions".



ELECTRICAL COMPONENTS

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, 312", From Valve Block On R.H. Wing To 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
	GR1204	-	Amber Lens
	GR1206	-	Rubber Grommet (2)
	GR1207	-	Lamp Unit
	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"
	G10110	16	Lock Nut, 1/4"-20, Grade B
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 Clutches
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
	GR1364	5	Internal Tooth Lock Washer, 15/32"

(Continued On Following Page)

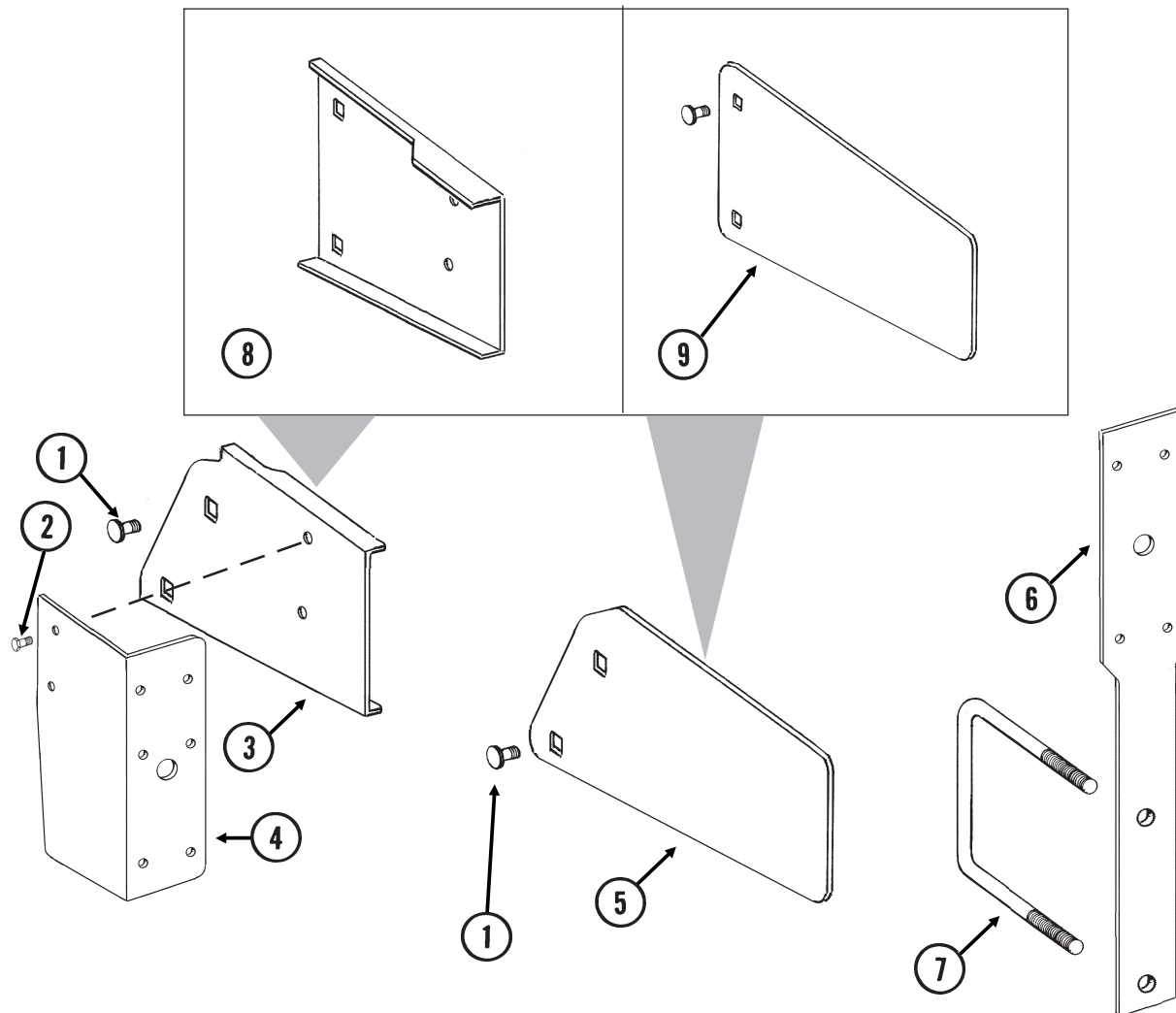
ELECTRICAL COMPONENTS

ITEM	PART NO.	QTY.	DESCRIPTION
27.	GA8734	1	Cover Plate (Shown)
	GA8735	-	Cover Plate, Planters Equipped With Two-Speed Point Row Clutches
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 Harnesses for the point row clutches. See "Electronic Seed Monitor" pages for those components.

LIGHT/REFLECTIVE DECAL BRACKETS AND EXTENSIONS

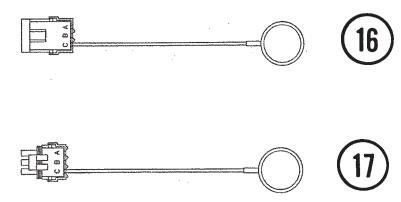
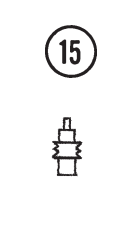
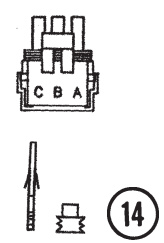
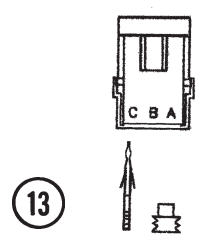
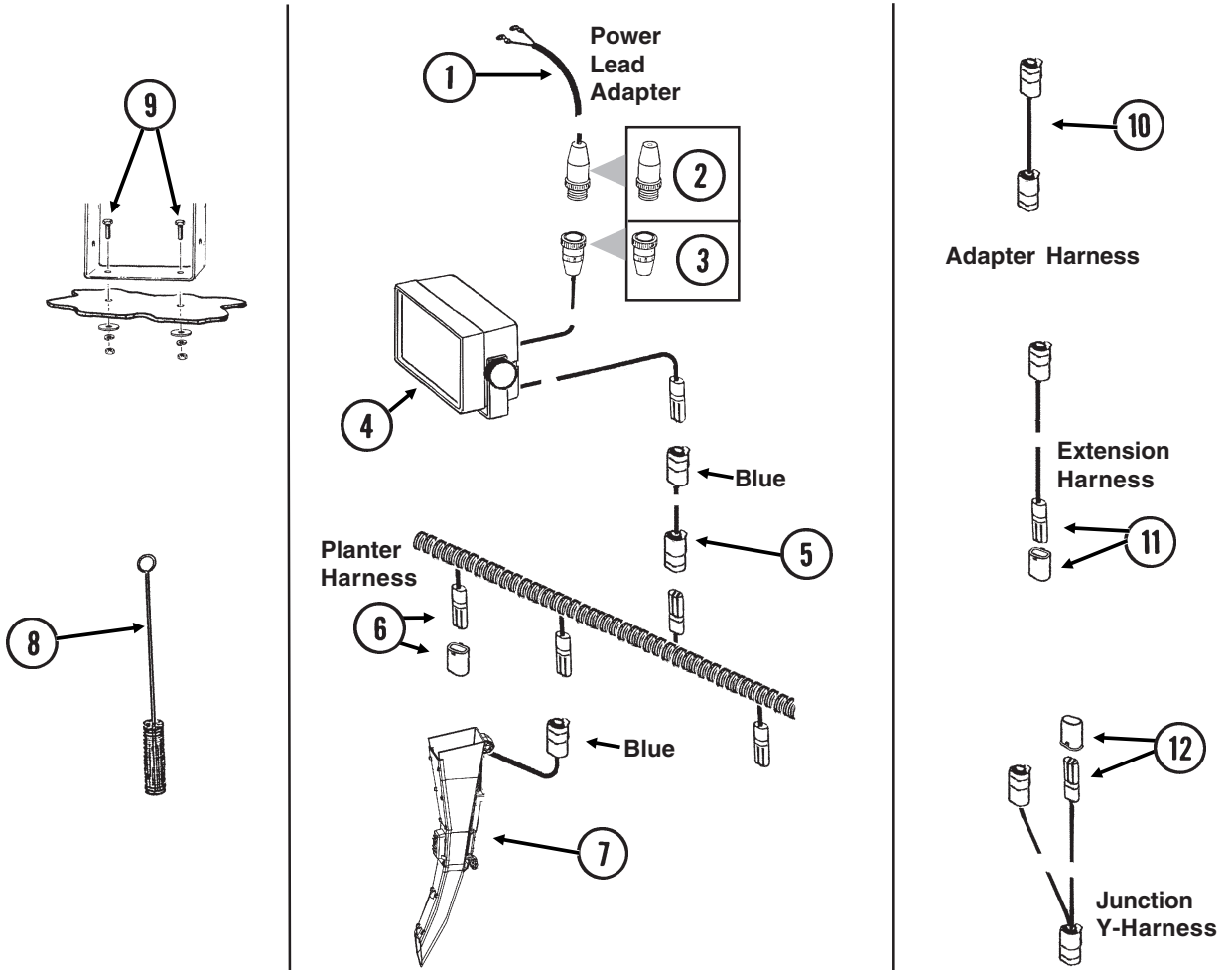
(RU130b/RU129/RU133/RU132/RU130a/RU131/RU129a/RU132a)



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10312	-	Carriage Bolt, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
	G10620	-	Serrated Flange Nut, $\frac{5}{16}$ "-18
2.	G10064	-	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x 1"
	G10227	-	Lock Washer, $\frac{1}{4}$ "
	G10103	-	Hex Nut, $\frac{1}{4}$ "-20
3.	GD15968	1	Light Mount Extension
4.	GD12725	1	Bracket (L.H. Wing)
	GD12724	1	Bracket (R.H. Wing) (Shown)
5.	GD15967	1	Reflective Decal Bracket
6.	GD13358	2	Light Bracket
7.	GD1114	2	U-Bolt, 7" x 7" x $\frac{5}{8}$ "-11
	G10230	4	Lock Washer, $\frac{5}{8}$ "
	G10104	4	Hex Nut, $\frac{5}{8}$ "-11
8.	GD12723	1	Light Mount Extension
9.	GD12710	1	Reflective Decal Bracket

KPM I ELECTRONIC SEED MONITOR

(MTR46b)



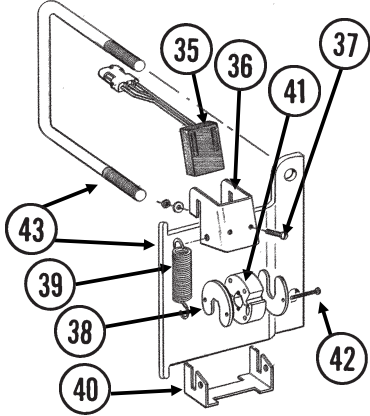
KPM I ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA7856	1	Power Lead Adapter
2.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (3) Male Terminal Pins
3.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
4.	GA10570	1	KPM I Backlit Console W/Mounting Bracket, Fuse Holder And Fuse, Power Lead Adapter (Item 1), Brush (Item 10) And Dust Plug (Item 16)
	GR1390	-	Mounting Bracket, KPM I
	GR1392	-	Console Mounting Bracket Hardware Package (Includes 2 Knobs And 1/4" Hardware)
	GA10601	-	Fuse Holder
	GD7639	-	Fuse
5.		-	Included In Tractor/Planter Wiring Harnesses, See Items 15 And 41, Pages P116-P118
6.	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
7.	GA10901	-	Seed Tube W/Computerized Sensor (Shown)
	GR1629	-	Sensor Only
	GA10940	-	Seed Tube (With Holes For Sensor Installation)
8.	GR0594	-	Brush
9.	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10211	2	Washer, 1/4" SAE
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
10.	GA7857	-	Adapter Harness, 1'
11.	GA7854	-	Extension Harness W/Dust Cap, 15'
	GA7855	-	Extension Harness W/Dust Cap, 30'
	GD11993	-	Dust Cap
12.	GA7853	-	Junction Y-Harness W/Dust Cap
	GD11993	-	Dust Cap
13.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
14.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
15.	GD11089	-	Sealing Plug
16.	GA8046	-	Dust Plug (Black)
	GA9978	-	Dust Plug (Blue)
17.	GA8047	-	Dust Plug (Black)
	GA9979	-	Dust Plug (Blue)

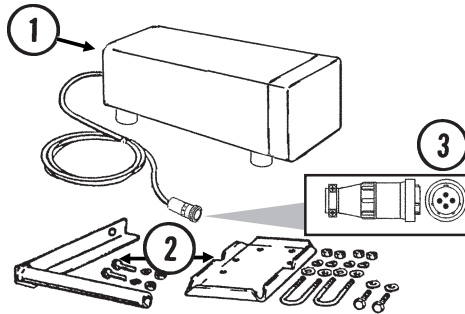
KPM II STACK-MODE ELECTRONIC SEED MONITOR

(MTR43v)

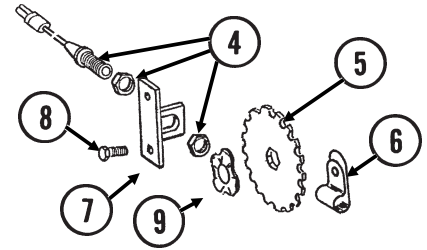
Shaft Rotation Sensor



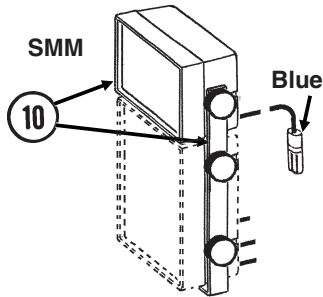
Radar Distance Sensor



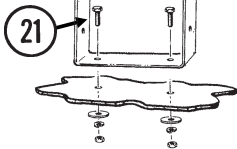
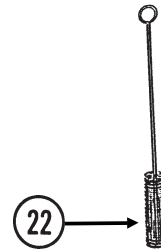
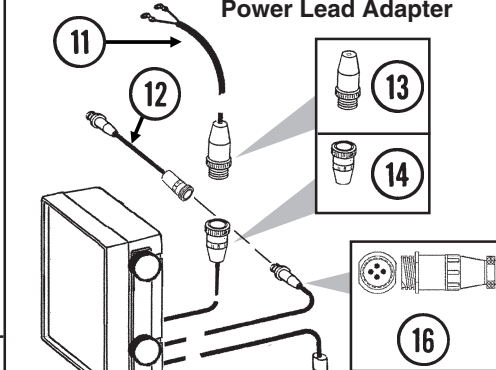
Magnetic Distance Sensor (MDS)



SMM

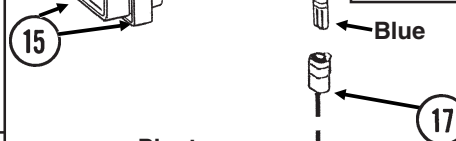
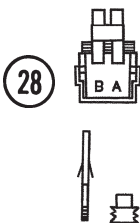
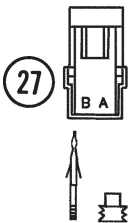
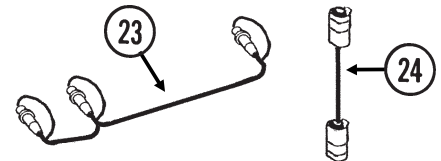


Power Lead Adapter

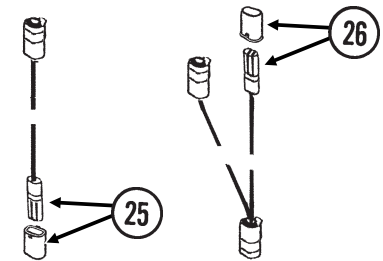
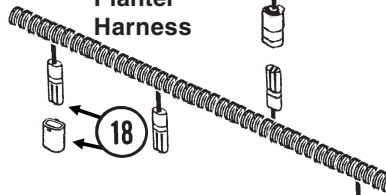


Radar Y-Cable

Adapter Harness

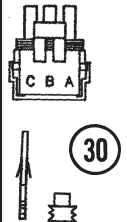


Planter Harness

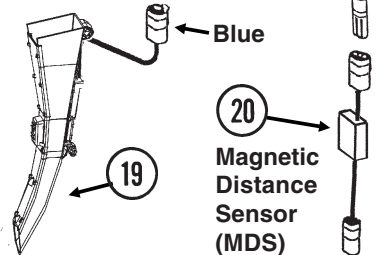


Extension Harness

Junction Y-Harness



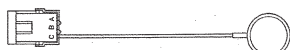
31



Magnetic Distance Sensor (MDS) Adapter



Acre Counter Switch Kit



ITEM	PART NO.	QTY.	DESCRIPTION
1.	GA7858	-	Radar Distance Sensor W/20' Cable
2.	GA8026	-	Radar Sensor Pipe/Mounting Bracket Package
3.	G1K323	-	4-Pin Connector Kit W/Female Housing, Includes: (4) Pins, (1) Cable Clamp
4.	GA5600	1	Magnetic Distance Sensor
5.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
6.	GD6291	-	Insulated Clamp, 3/8"
7.	GD8770	1	Bracket
8.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16

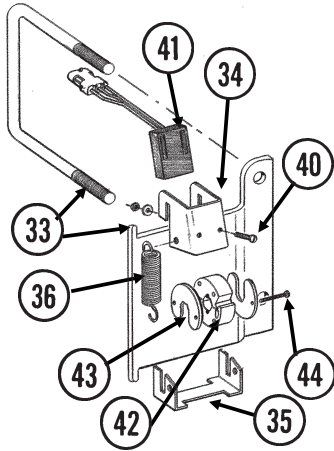
KPM II STACK-MODE ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
9.	GD8771	1	Spring Wave Washer
10.	GA9857	1	SMM Backlit Console W/Mounting Bracket And Dust Plug (Item 36)
	GR1631	-	Mounting Bracket, KPM II Stack-Mode And SMM Consoles
	GR1632	-	Console Mounting Bracket Hardware Package (Includes 2 Knobs And 1/4" Hardware)
11.	GA7856	1	Power Lead Adapter
12.	GA9144	-	Monitor/Radar Adapter Cable, 10"
13.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (3) Male Terminal Pins
14.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
15.	GA10575	-	KPM II Backlit Console W/Mounting Bracket, Fuse Holder And Fuse, Power Lead Adapter (Item 11), Brush (Item 23), Dust Plug (Item 34) And Monitor/Radar Adapter, 10" (Item 12)
	GR1391	-	Mounting Bracket, KPM II
	GR1393	-	Console Mounting Bracket Hardware Package (Includes 4 Knobs And 1/4" Hardware)
	GA10601	-	Fuse Holder
	GD7639	-	Fuse
16.	G1K322	-	4-Pin Connector Kit W/Male Housing, (4) Female Socket Contacts And (1) Cable Clamp
17.		-	Included In Tractor/Planter Wiring Harness, See Pages P116-P118
18.	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
19.	GA10901	-	Seed Tube W/Computerized Sensor
	GR1629	-	Sensor Only
	GA10940	-	Seed Tube (With Holes For Sensor Installation)
20.	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
21.	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10211	2	Washer, 1/4" SAE
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
22.	GR0594	-	Brush
23.	GR0586	1	Radar Y-Cable (Used To Connect Radar Distance Sensor For Multiple Functions)
24.	GA7857	-	Adapter Harness, 1'
25.	GA7854	-	Extension Harness W/Dust Cap, 15'
	GA7855	-	Extension Harness W/Dust Cap, 30'
	GD11993	-	Dust Cap
26.	GA7853	-	Junction Y-Harness W/Dust Cap
	GD11993	-	Dust Cap
27.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
28.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
29.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
30.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
31.	GD11089	-	Sealing Plug
32.	G1K249	-	Acre Counter Switch Kit
33.	GA8046	-	Dust Plug (Black)
	GA9978	-	Dust Plug (Blue)
34.	GA8047	-	Dust Plug (Black)
	GA9979	-	Dust Plug (Blue)
35.	GR1415	1	Rotation Sensor
36.	GD11169	1	Mount
37.	G10757	2	Pan Head Screw, No. 10-32 x 1 1/4"
	G10243	2	Washer, No. 10 SAE
	G10758	2	Hex Nut, No. 10-32
38.	GD11474	2	Cover
39.	GD5857	2	Spring
40.	GD11170	1	Spring Mount
41.	GR1414	1	Actuator
42.	G10927	2	Pan Head Machine Screw, No. 8-32 x 1 1/4", Stainless Steel
	G10931	2	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	2	Hex Nut, No. 8-32, Stainless Steel
43.	G1K364	-	Rotation Sensor Mount Kit, Includes: (2) Mounts, (2) GD11721 5" x 7" U-Bolts, (4) G10228 Lock Washers, (4) G10102 Hex Nuts, (1) Instruction
A.	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 4-9)

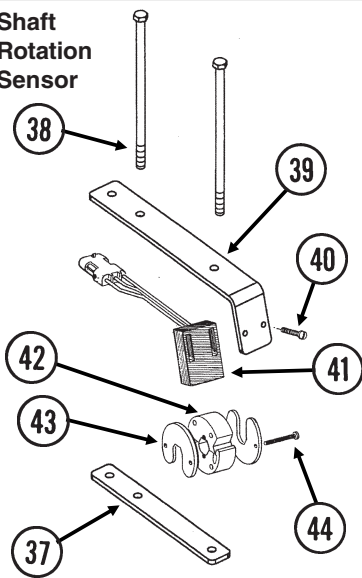
KPM III ELECTRONIC SEED MONITOR

(MTR43w)

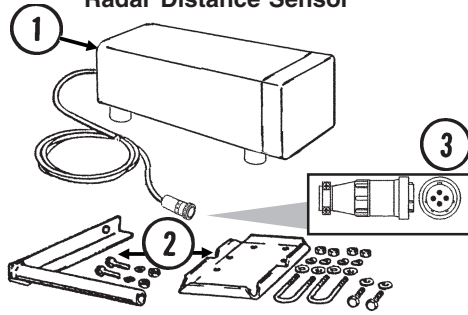
Shaft Rotation Sensor



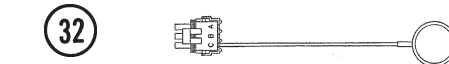
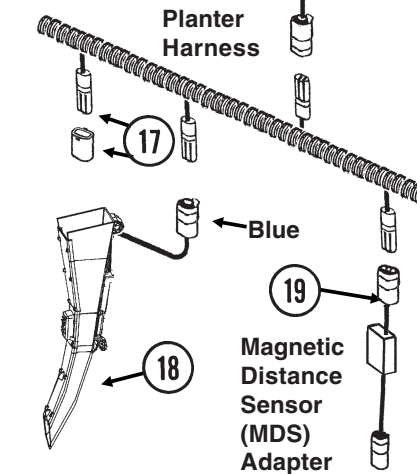
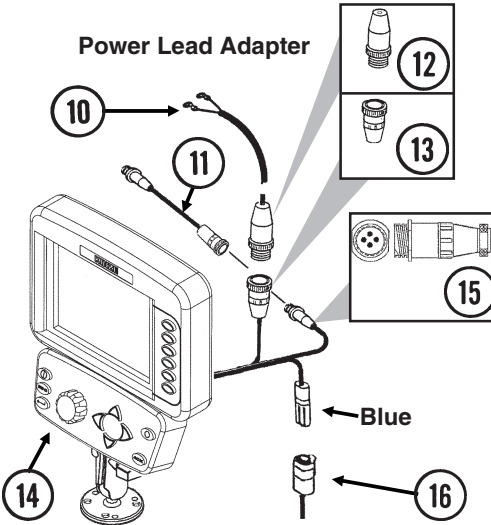
Shaft Rotation Sensor



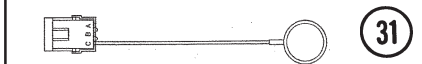
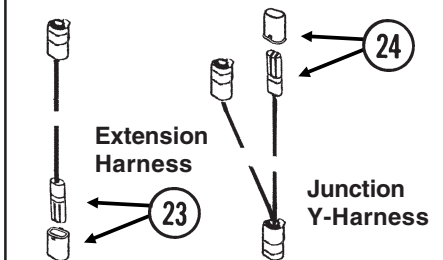
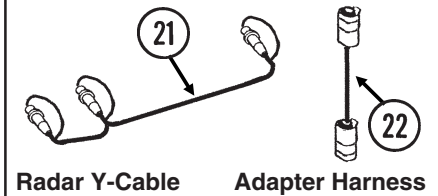
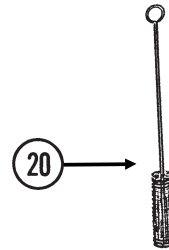
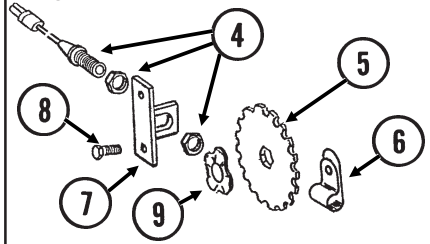
Radar Distance Sensor



Power Lead Adapter



Magnetic Distance Sensor (MDS)



TEM	PART NO.	QTY.	DESCRIPTION
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1.	GA7858	-	Radar Distance Sensor W/20' Cable
2.	GA8026	-	Radar Sensor Pipe/Mounting Bracket Package
3.	G1K323	-	4-Pin Connector Kit W/Female Housing, Includes: (4) Pins, (1) Cable Clamp
4.	GA5600	1	Magnetic Distance Sensor
5.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
6.	GD6291	-	Insulated Clamp, 3/8"
7.	GD8770	1	Bracket
8.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16

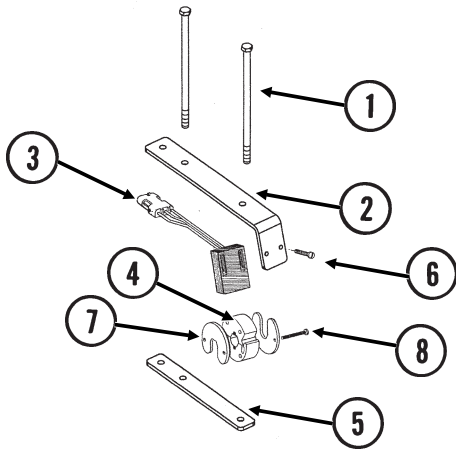
KPM III ELECTRONIC SEED MONITOR

ITEM	PART NO.	QTY.	DESCRIPTION
9.	GD8771	1	Spring Wave Washer
10.	GA7856	1	Power Lead Adapter
11.	GA9144	-	Monitor/Radar Adapter Cable, 10"
12.	G1K267	-	Power Lead Adapter Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (3) Male Terminal Pins
13.	G1K268	-	Console Cable Connector Kit, Includes: (1) Cable Clamp, (1) 3-Pin Connector, (1) Lock Ring, (3) Female Terminal Pins
14.	GA11039	1	KPM III Backlit Console W/Brush (Item 23), Dust Plug (Item 34), Mounting Bracket Assembly, Console Mounting Bracket Hardware And Power Harness
	GA12403	-	Mounting Bracket Assembly, Includes: (2) Mounting Brackets, (2) Connector Halves, (1) Compression Spring, (1) Tension Knob, (1) 1/4"-20 x 1 3/4" Hex Head Cap Screw, (1) 1/4" Plastic Washer, (1) 1/4" Steel Washer
	GR1762	-	Console Mounting Bracket Hardware Package, Includes: (3) No. 10-32 x 5/8" Hex Socket Pan Head Screws, (3) No. 10 Lock Washers
	GR1764	-	Power Harness
15.	G1K322	-	4-Pin Connector Kit W/Male Housing, (4) Female Socket Contacts And (1) Cable Clamp
16.		-	Included In Tractor/Planter Wiring Harness, See Pages P116-P118
17.	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
18.	GA10901	-	Seed Tube W/Computerized Sensor
	GR1629	-	Sensor Only
	GA10940	-	Seed Tube (With Holes For Sensor Installation)
19.	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
20.	GR0594	-	Brush
21.	GR0586	1	Radar Y-Cable (Used To Connect Radar Distance Sensor For Multiple Functions)
22.	GA7857	-	Adapter Harness, 1'
23.	GA7854	-	Extension Harness W/Dust Cap, 15'
	GA7855	-	Extension Harness W/Dust Cap, 30'
	GD11993	-	Dust Cap
24.	GA7853	-	Junction Y-Harness W/Dust Cap
	GD11993	-	Dust Cap
25.	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
26.	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
27.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
28.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
29.	GD11089	-	Sealing Plug
30.	G1K249	-	Acre Counter Switch Kit
31.	GA8046	-	Dust Plug (Black)
	GA9978	-	Dust Plug (Blue)
32.	GA8047	-	Dust Plug (Black)
	GA9979	-	Dust Plug (Blue)
33.	G1K364	-	Rotation Sensor Mount Kit, Includes: (2) Mounts, (2) GD11721 5" x 7" U-Bolts, (4) G10228 Lock Washers, (4) G10102 Hex Nuts, (1) Instruction
34.	GD11169	1	Mount
35.	GD11170	1	Spring Mount
36.	GD5857	2	Spring
37.	GD18168	2	Mount
38.	G10686	4	Hex Head Cap Screw, 3/8"-16 x 8"
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
39.	GD18118	2	Shaft Sensor Mount
40.	G10757	4	Pan Head Screw, No. 10-32 x 1 1/4"
	G10243	4	Washer, No. 10 SAE
	G10758	4	Hex Nut, No. 10-32
41.	GR1415	1	Rotation Sensor
42.	GR1414	1	Actuator
43.	GD11474	4	Cover
44.	G10927	4	Pan Head Machine Screw, No. 8-32 x 1 1/4", Stainless Steel
	G10931	4	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	4	Hex Nut, No. 8-32, Stainless Steel
A.	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 4-9)

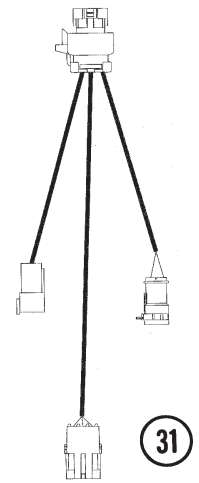
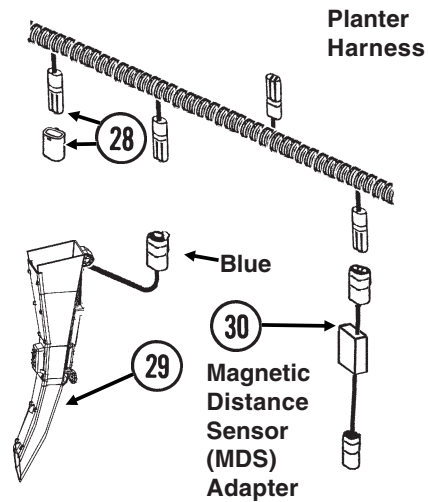
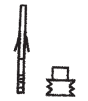
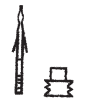
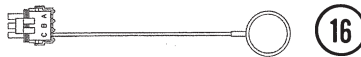
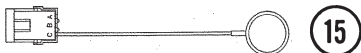
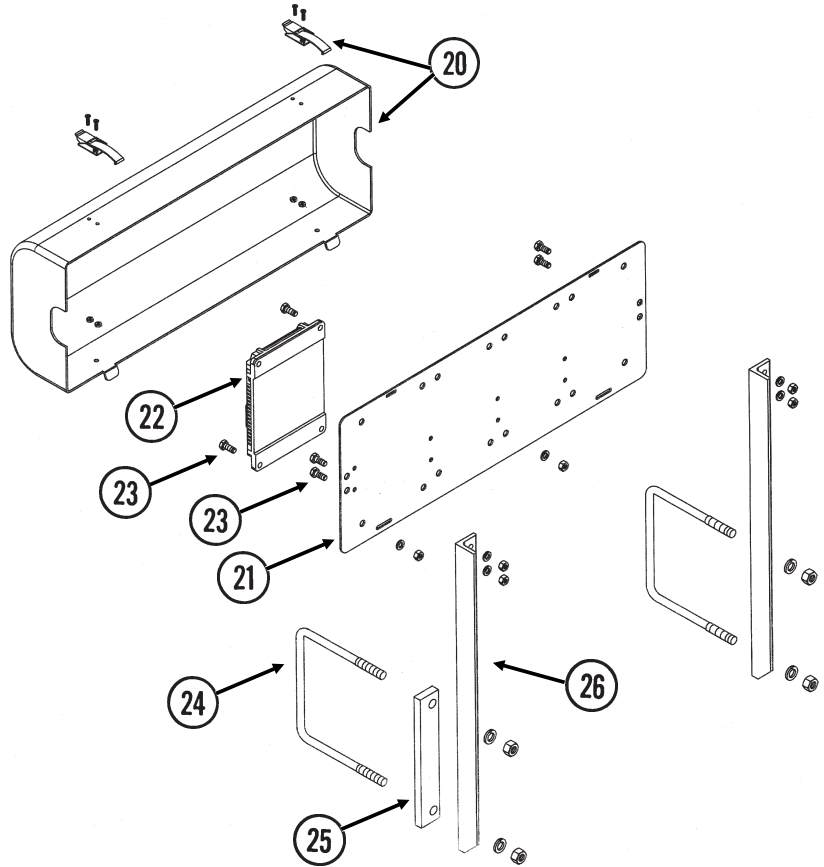
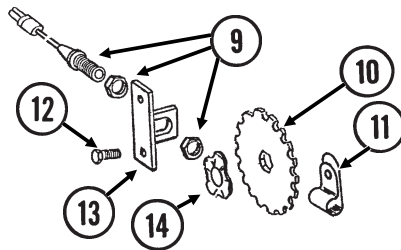
PLANTER MONITOR MODULE (PMM)

(MTR60/MTR63/PMM01/MTR65/MTR61/MTR64/MTR62/PMM02)

Shaft Rotation Sensor



Magnetic Distance Sensor (MDS)



NOTE: See Ag Leader manual for Ag Leader Insight display and associated cab harness components.

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10686	4	Hex Head Cap Screw, 3/8"-16 x 8"
	G1-229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
	GD18118	2	Shaft Sensor Mount
3.	GR1415	1	Rotation Sensor
4.	GR1414	1	Actuator
5.	GD18168	2	Mount

PLANTER MONITOR MODULE (PMM)

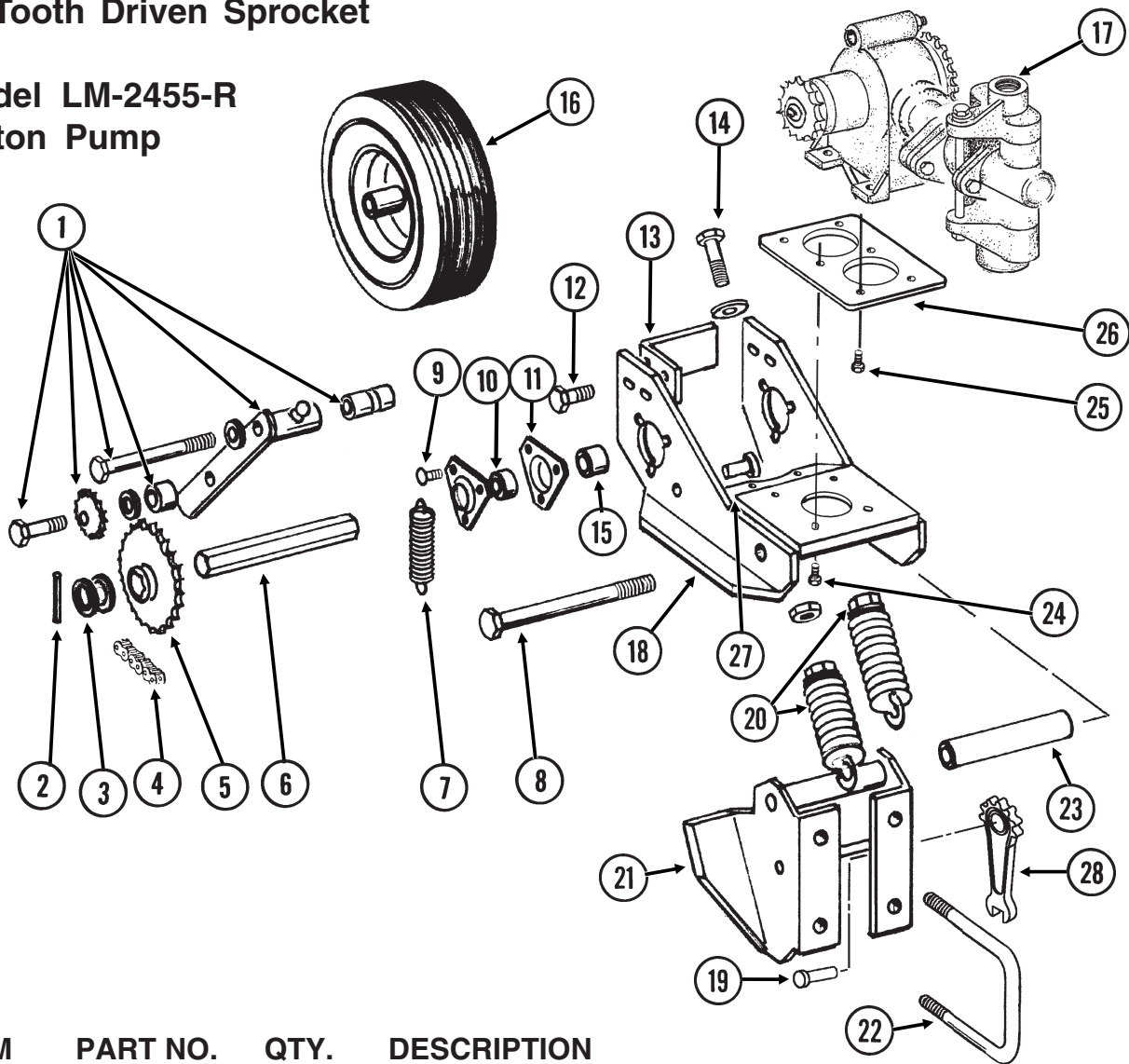
ITEM	PART NO.	QTY.	DESCRIPTION
6.	G10757	2	Pan Head Screw, No. 10-32 x 1 1/4"
	G10243	2	Washer, No. 10 SAE
	G10758	2	Hex Nut, No. 10-32
7.	GD11474	4	Cover
8.	G10927	4	Pan Head Machine Screw, No. 8-32 x 1 1/4", Stainless Steel
	G10931	4	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	4	Hex Nut, No. 8-32, Stainless Steel
9.	GA5600	1	Magnetic Distance Sensor
10.	GD8751	-	Magnetic Distance Sensor Pulse Wheel
11.	GD6291	-	Insulated Clamp, 3/8"
12.	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
13.	GD8770	1	Bracket
14.	GD8771	1	Spring Wave Washer
15.	GA8046	-	Dust Plug (Black)
	GA9978	-	Dust Plug (Blue)
16.	GA8047	-	Dust Plug (Black)
	GA9979	-	Dust Plug (Blue)
17.	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
	G1K362	-	3-Pin Female Connector Kit (Blue), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
18.	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
	G1K363	-	3-Pin Male Connector Kit (Blue), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
19.	GD11089	-	Sealing Plug
20.	GA12563	1	Module Cover Assembly W/Lock Clamps
	GA12641	-	Lock Clamp
	G11065	-	Phillips Pan Head Machine Screw, No. 8-32 x 5/8", Stainless Steel
	G11202	-	Lock Nut W/Nylon Insert, No. 8-32, Stainless Steel
21.	GD18013	1	Bracket
22.	GA12538	1	Planter Monitor Module
23.	G10043	4	Hex Head Cap Screw, 5/16"-18 x 3/4"
	G10232	4	Lock Washer, 5/16"
	G10106	4	Hex Nut, 5/16"-18
24.	GD7145	2	U-Bolt, 7" x 7" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
25.	GD16316	2	Spacer
26.	GD16315	2	Support
27.	GR0594	-	Brush
28.	GA7850	2	Planter Harness W/Dust Caps, 16 Row (12 Connectors)
	GA7851	-	Planter Harness W/Dust Caps, 24 Row (16 Connectors)
	GA8050	-	Planter Harness W/Dust Caps, 36 Row (18 Connectors)
	GD11993	-	Dust Cap
29.	GA10901	-	Seed Tube W/Computerized Sensor
	GR1629	-	Sensor Only
	GA10940	-	Seed Tube (With Holes For Sensor Installation)
30.	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
31.	GA12557	1	Planter Monitor Cable
A.	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 9-14)

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

(FF571)

40 Tooth Drive Sprocket And 18 Tooth Driven Sprocket

Model LM-2455-R Piston Pump



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA7244	1	Idler W/Sprocket, Bushing, Spacer And Hardware
	GA7154	-	Sprocket W/Bearing, 18 Tooth
	GD7889	-	Bushing, 1" O.D. x $\frac{9}{16}$ " I.D x $\frac{7}{16}$ " Long
	G10581	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 2 $\frac{1}{4}$ "
	G10216	-	Washer, $\frac{1}{2}$ " USS
	G10228	-	Lock Washer, $\frac{1}{2}$ "
	G10102	-	Hex Nut, $\frac{1}{2}$ "-13
	G10830	-	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 7 $\frac{1}{2}$ "
	G10205	-	Washer, $\frac{5}{8}$ " SAE
	G10230	-	Lock Washer, $\frac{5}{8}$ "
	G10104	-	Hex Nut, $\frac{5}{8}$ "-11
	GD10254	-	Spacer, 2 $\frac{3}{4}$ "
	G10640	-	Grease Fitting, $\frac{1}{4}$ "-28
2.	G10602	2	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
3.	G10233	5	Machine Bushing, 1", 10 Gauge

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	Inner Tube
17.		-	See "Liquid Fertilizer Piston Pump", Pages P134-P137
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.			See "Liquid Fertilizer Piston Pump (Crankcase Assembly)", Pages 134 And P135

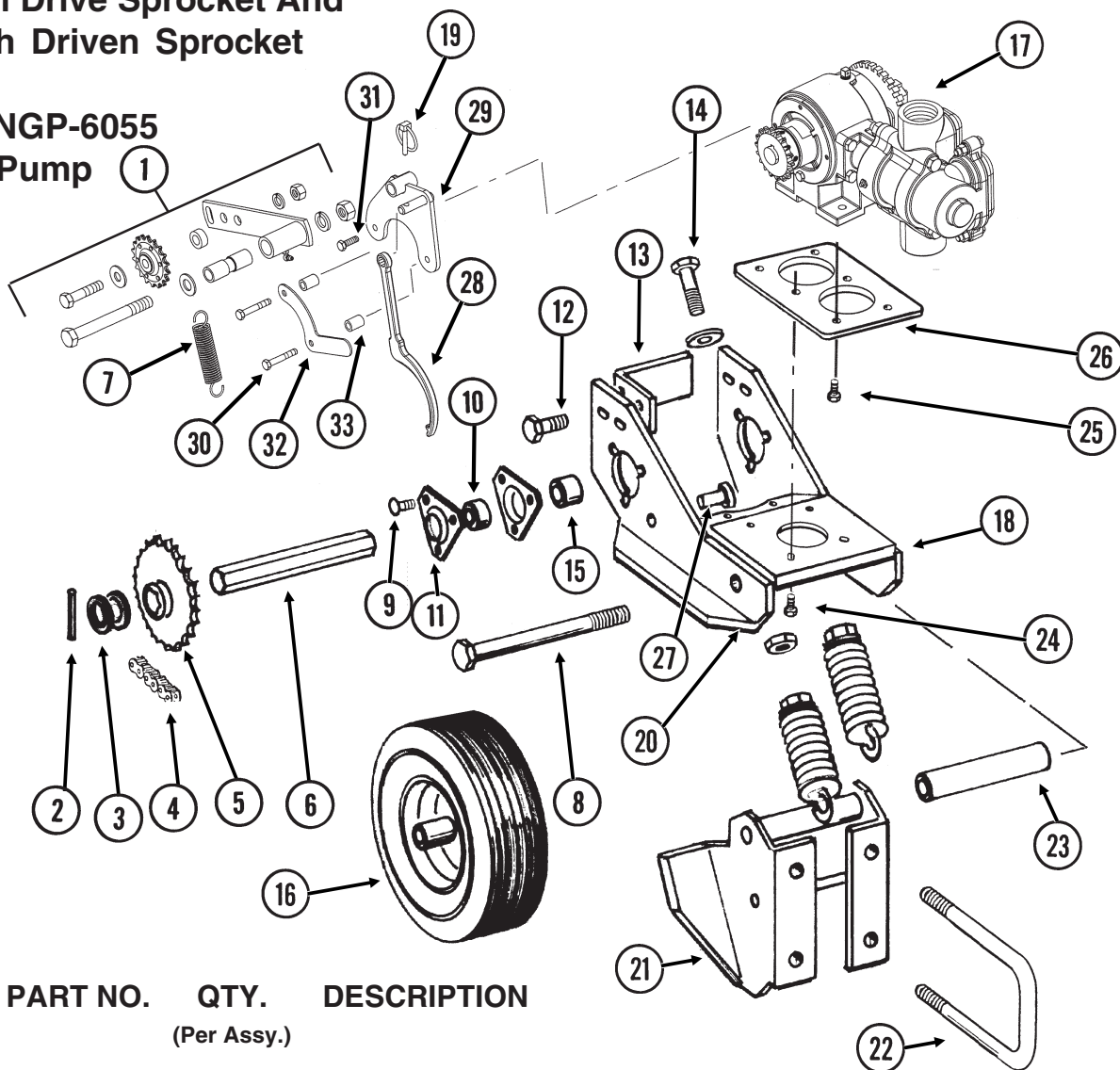
* Specific brand requests will be supplied only as available from current KINZE® Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied. Different brand tires may have different diameters. Change in tire brand may affect rates. Field checks are recommended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

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

(FF124a)

40 Tooth Drive Sprocket And 18 Tooth Driven Sprocket

Model NGP-6055 Piston Pump



ITEM	PART NO.	QTY.	DESCRIPTION
		(Per Assy.)	
1.	GA12597	1	Idler W/Sprocket, Bushing, Spacer And Hardware
	GA7154	-	Sprocket W/Bearing, 18 Tooth
	GD7889	-	Bushing, 1" O.D. x $\frac{9}{16}$ " I.D x $\frac{7}{16}$ " Long
	G10581	-	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 2 $\frac{1}{4}$ "
	G10216	-	Washer, $\frac{1}{2}$ " USS
	G10228	-	Lock Washer, $\frac{1}{2}$ "
	G10102	-	Hex Nut, $\frac{1}{2}$ "-13
	G10011	-	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 5 $\frac{1}{2}$ "
	G10205	-	Washer, $\frac{5}{8}$ " SAE
	G10230	-	Lock Washer, $\frac{5}{8}$ "
	G10104	-	Hex Nut, $\frac{5}{8}$ "-11
	GD10254	-	Spacer, 2 $\frac{3}{4}$ "
	G10779	-	Grease Fitting, 90°, $\frac{1}{4}$ "-28
2.	G10602	2	Spring Pin, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ "
3.	G10233	5	Machine Bushing, 1", 10 Gauge
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

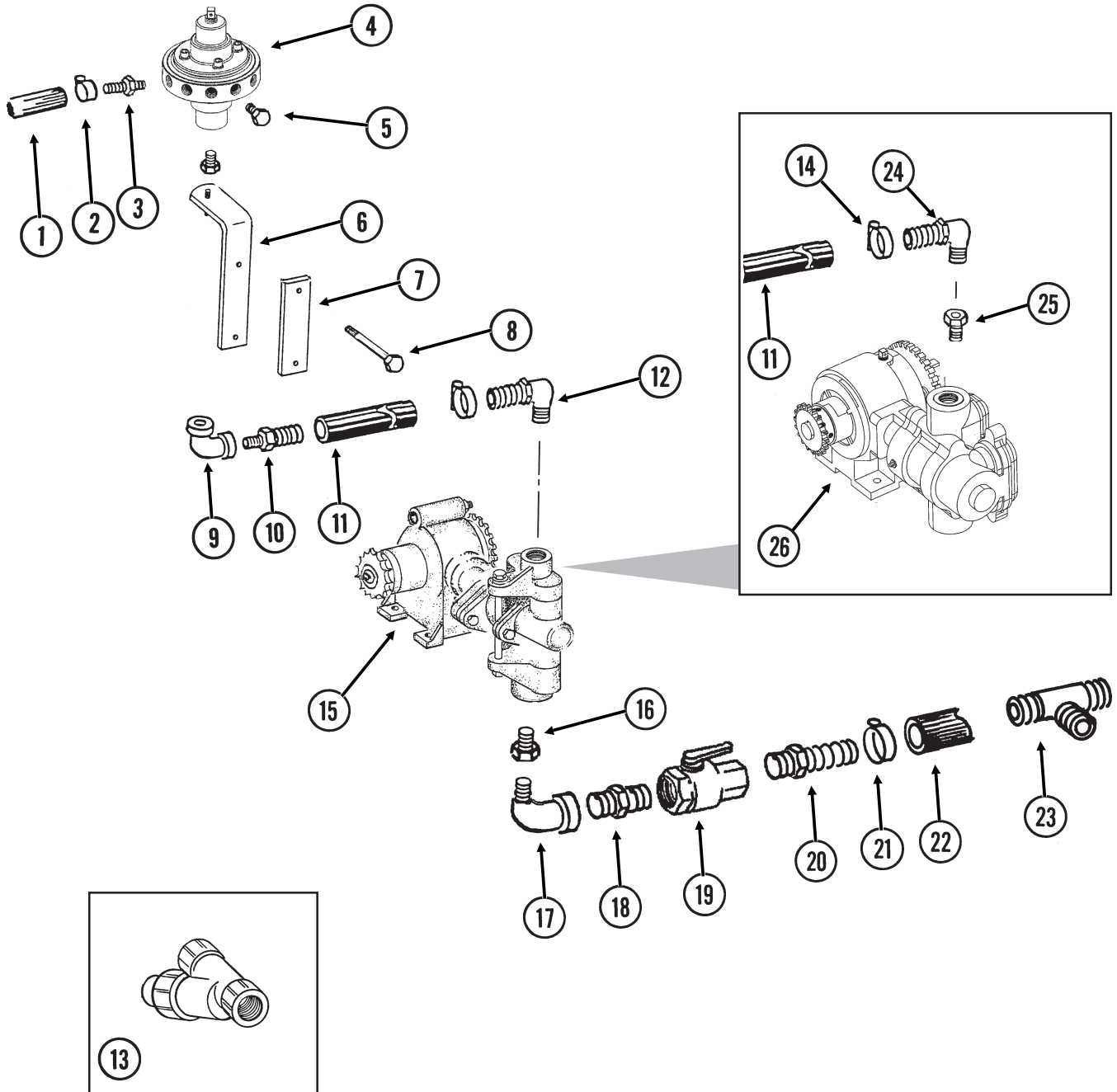
LIQUID FERTILIZER PISTON PUMP DRIVE, 16, 24 AND 36 ROW

ITEM	PART NO.	QTY.	DESCRIPTION
(Per Assy.)			
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	Inner Tube
17.		-	See "Liquid Fertilizer Piston Pump", Pages P138 And P139
18.	GA7246	1	Base Mount
19.	GD2558	1	Lynch Pin, 1/4"
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.			See "Liquid Fertilizer Piston Pump", Pages P138 And P139
29.	GA12616	1	Idler Mounting Bracket
30.	G10041	2	Hex Head Cap Screw, 5/16"-18 x 2"
31.	G10019	1	Hex Head Cap Screw, 5/16"-18 x 1"
32.	GD18065	1	Guide
33.	GD2971-17	2	Sleeve, 7/8" Long

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

(FF84c/FF84cc)



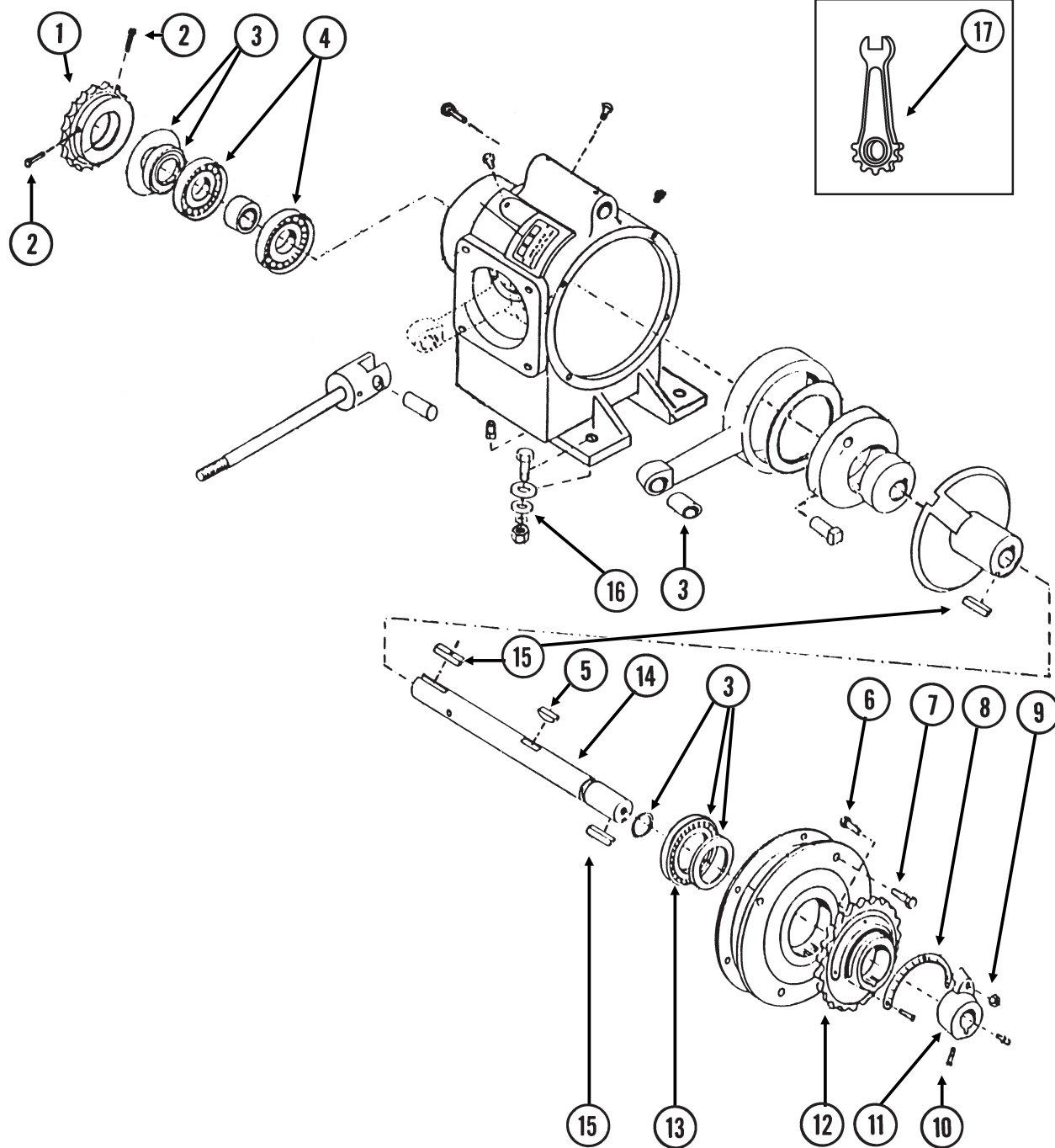
LIQUID FERTILIZER HOSES AND FITTINGS, 16, 24 AND 36 ROW

ITEM	PART NO.	QTY.	DESCRIPTION
1.	G4301-07	1	Hose, $\frac{3}{8}$ " x 200', 16 Row
	G4301-08	-	Hose, $\frac{3}{8}$ " x 250', 24 And 36 Row
	G4301-04	-	Hose, $\frac{3}{8}$ " x 100', 36 Row
2.	G10681	-	Hose Clamp, No. 6
3.	GD11700	18-24	Adapter, $\frac{1}{4}$ " NPT To $\frac{3}{8}$ " Barb
4.		-	See "Liquid Fertilizer Piston Pump Flow Divider", Pages P140 And P141
5.	G10292	-	Pipe Plug, $\frac{1}{4}$ " NPT
6.	GA6527	2	Support, $\frac{3}{4}$ " NPT
7.	GD10248	2	Bar
8.	G10152	2	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 9"
	G10230	2	Lock Washer, $\frac{5}{8}$ "
	G10104	2	Hex Nut, $\frac{5}{8}$ "-11
9.	G10733	2	Elbow, 90°, $\frac{3}{4}$ " Female NPT
10.	G10734	2	Adapter, $\frac{3}{4}$ " NPT To Barb
11.	G4205-08	2	Hose, $\frac{3}{4}$ " x 150"
12.	G10896	-	Elbow, 90°, 1" NPT To $\frac{3}{4}$ " Barb
13.	GA3893	1	Strainer Complete
	GR0880	-	Screen, No. 40 Mesh
	GR0881	-	Gasket
	GR0882	-	Y-Body
	GR0883	-	End Cap
14.	G10278	-	Hose Clamp, No. 16
15.		-	See "Liquid Fertilizer Piston Pump", Pages P134-P137
16.	G10615	2	Reducing Bushing, 1 $\frac{1}{2}$ " Male NPT To 1 $\frac{1}{4}$ " Female
17.	G10887	2	Elbow, 90°, 1 $\frac{1}{4}$ " Male NPT To Female
18.	G10619	2	Close Nipple, 1 $\frac{1}{4}$ " NPT
19.	GA4976	2	Shutoff Valve, 1 $\frac{1}{4}$ " NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
20.	G10626	4	Adapter, 1 $\frac{1}{4}$ " NPT To Barb
21.	G10674	2	Hose Clamp, No. 24
22.	G4200-01	1	Hose, 1 $\frac{1}{4}$ " x 22'
23.	G10633	1	Tee, 1 $\frac{1}{4}$ " Barb
24.	G10917	2	Elbow, 90°, $\frac{3}{4}$ " NPT To Barb
25.	G11237	2	Reducing Bushing, 1 $\frac{1}{2}$ " Male NPT To $\frac{3}{4}$ " Female
26.		-	See "Liquid Fertilizer Piston Pump", Pages P138 And P139

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

JB-L4400-991/CCU077(FRTZ172b)

Model LM-2455-R



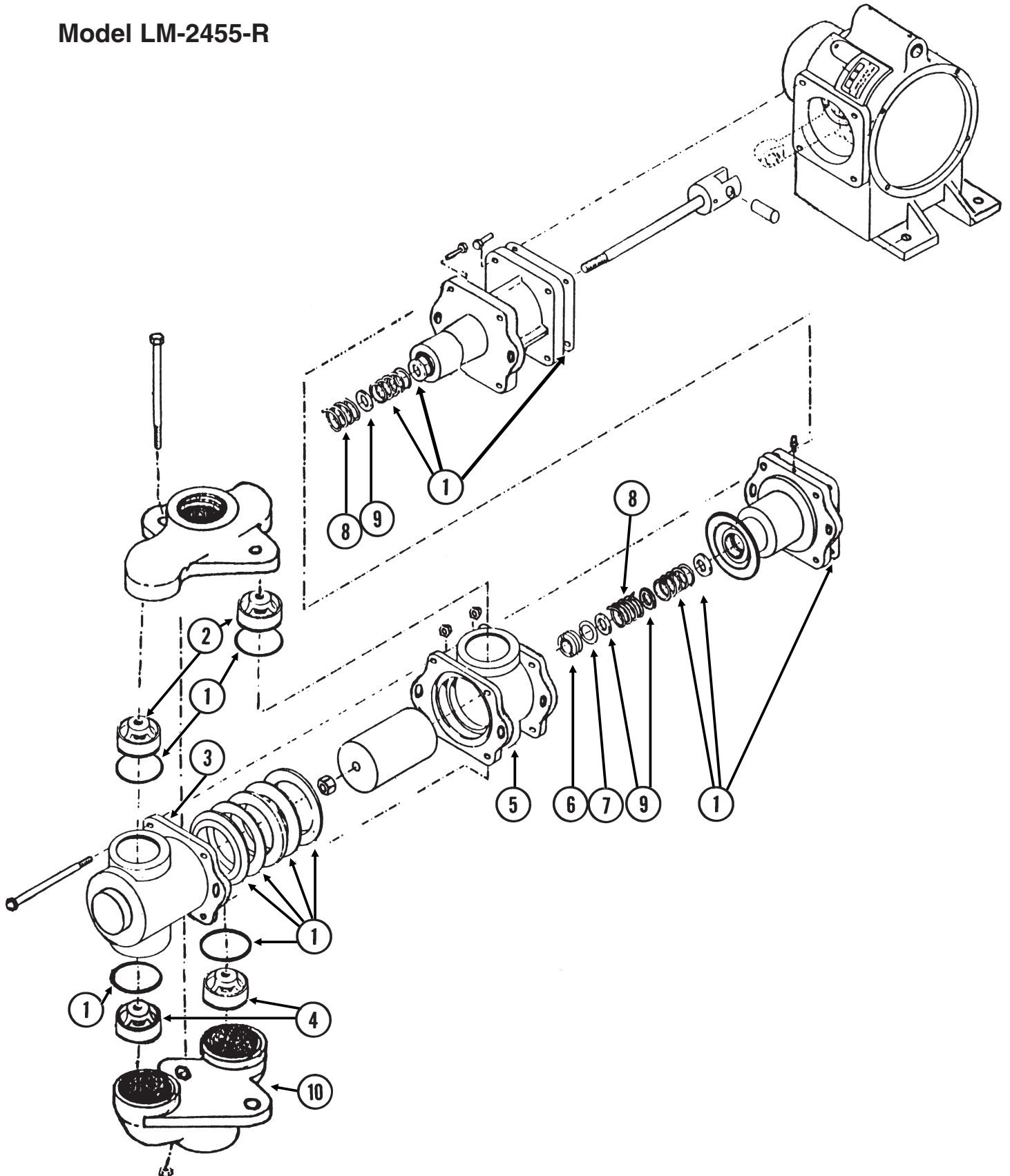
LIQUID FERTILIZER PISTON PUMP (Crankcase Assembly) Uses 18 Tooth Sprocket

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1389	1	Sprocket, 18 Tooth
2.	G10688	2	Square Head Set Screw, $\frac{3}{8}$ "-16 x $\frac{5}{8}$ "
3.	GR1425	1	Repair Kit, Includes Item 1 On Pages P136 And P137
4.	GR1427	2	Bearing
5.	GR1420	1	Woodruff Key, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
6.	GR1167	1	Square Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
7.	G10043	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
8.	GR1168	1	Scale
9.	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
10.	G10693	3	Hex Socket Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{3}{8}$ "
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 P128 And P129
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 P136 And P137

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

JB-L2190-991(FRTZ171)

Model LM-2455-R



LIQUID FERTILIZER PISTON PUMP (Cylinder Assembly)

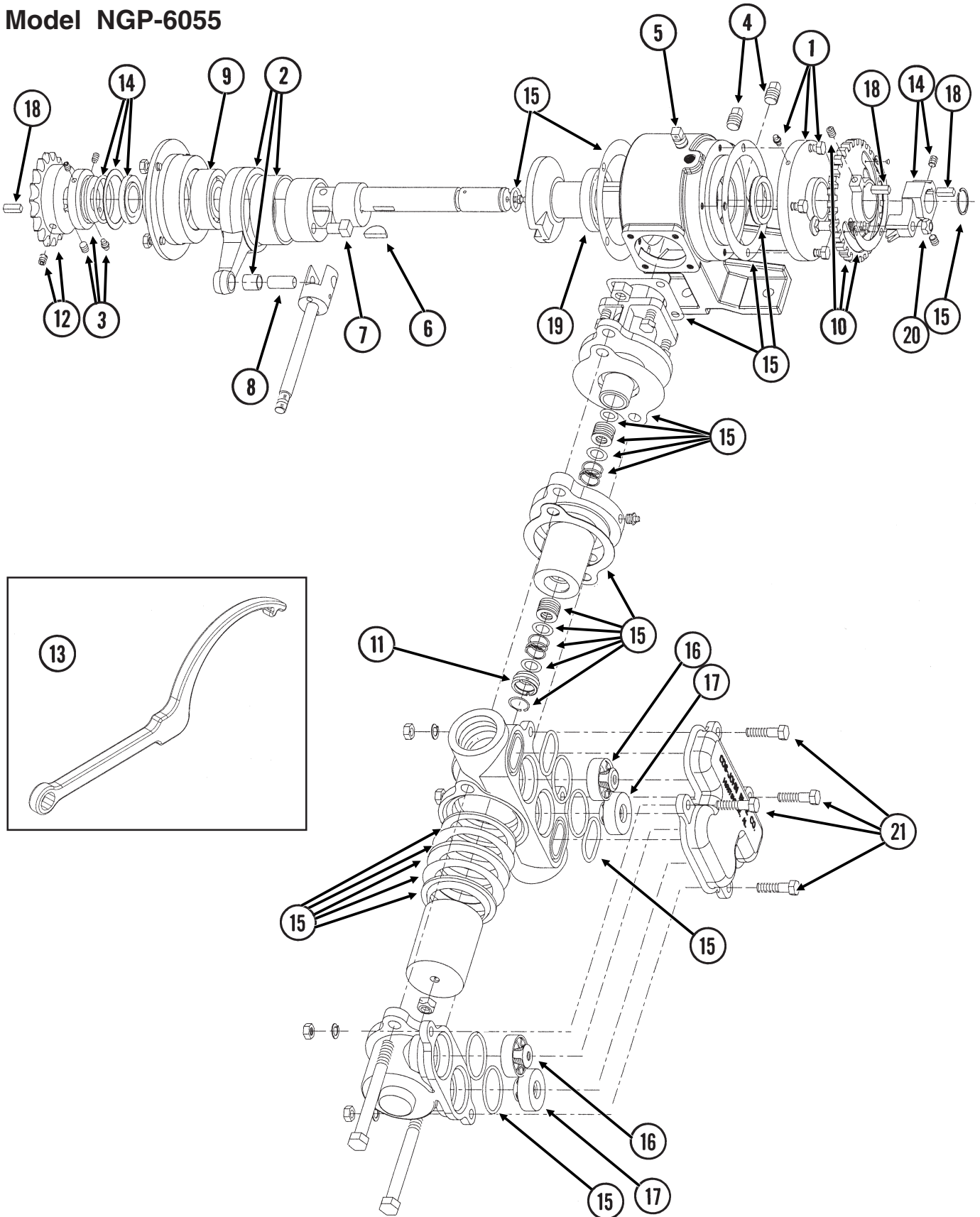
Uses 18 Tooth Sprocket

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1425	1	Repair Kit, Includes Item 3 On Pages P134 And P135
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

LIQUID FERTILIZER PISTON PUMP Uses 18 Tooth Sprocket

(A12335a/GR1808)

Model NGP-6055



LIQUID FERTILIZER PISTON PUMP

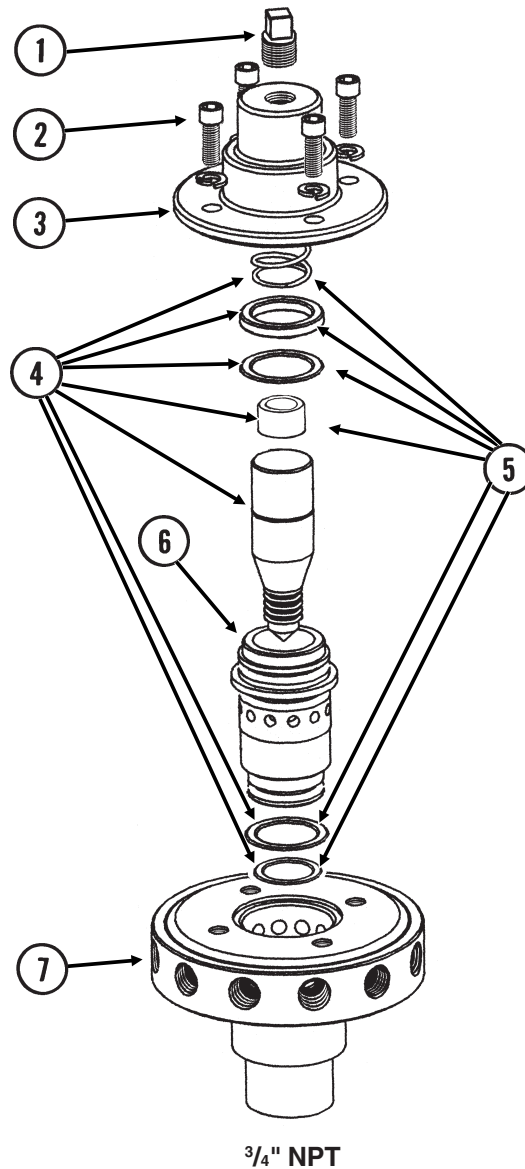
Uses 18 Tooth Sprocket

ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1804	1	Flange Cover Assembly
	G10991	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $\frac{7}{8}$ "
2.	GR1802	1	Connecting Rod Assembly
3.	GR1801	1	Spacer Assembly
	G10693	3	Hex Socket Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{3}{8}$ "
4.	GR1123	2	Plug
5.	GR1543	1	Vent Plug
6.	GR1112	1	Woodruff Key
7.	GR1120	1	Eccentric Pin
8.	GR1124	1	Pin
9.	GR1104	1	Bearing
10.	GR1805	1	Setting Hub Assembly
11.	GR1134	1	Stuffing Box Insert
12.	GR1389	1	Sprocket, 18 Tooth
13.	GR1808	1	Adjustment Wrench
14.	GR1806	1	Setting Pointer Assembly
15.	GR1795	1	Repair Kit, Includes: (6) Gaskets, (9) O-Rings, (4) Washers, (1) Retaining Ring, (2) Oil Seals, (1) Snap Ring, (1) Thrust Washer, (1) Rod Bushing, (2) Flange Plunger Packings, (2) Packing Springs, (2) Rod Vee Packing Sets
16.	GR1799	2	Discharge Valve Assembly
17.	GR1797	2	Suction Valve Assembly
18.	GR1118	3	Setting Arm Key
19.	GR1116	1	Bearing
20.	G10306	1	Carriage Bolt, $\frac{3}{8}$ "-16 x 2"
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
21.	G10003	4	Hex Head Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{1}{2}$ "
	G10210	4	Washer, $\frac{3}{8}$ " USS
	G10229	4	Lock Washer, $\frac{3}{8}$ "
	G10101	4	Hex Nut, $\frac{3}{8}$ "-16
A.	GA12330	-	Piston Pump Complete W/18 Tooth Sprocket (Model NGP-6055)

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 16 AND 24 ROW

(FRTZ202c)

Model FD-1200 Flow Divider, 12 Outlet

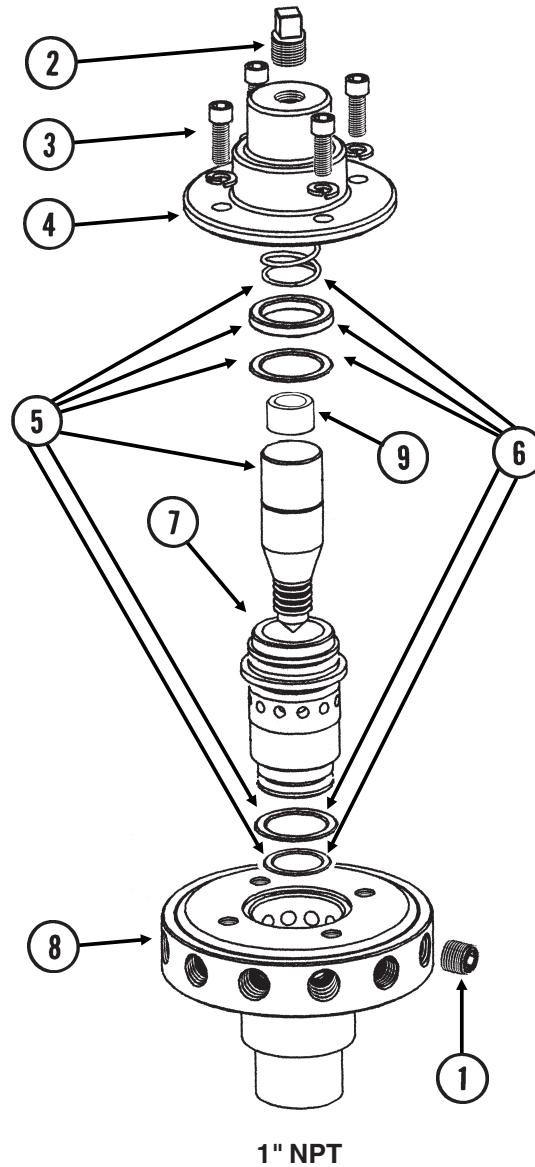


ITEM	PART NO.	QTY.	DESCRIPTION
1.	GR1543	1	Vent Plug
2.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4"
	GR1541	4	Lock Washer, 1/4", Stainless Steel
3.	GR1540	1	Cap
4.	GR1544	1	Needle Assembly W/Seal Kit (Item 22)
5.	GR1545	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring, (1) Stainless Steel Sleeve
6.	GR1535	1	Sleeve
7.	GR1533	1	Body, 12 Outlets
A.	GA8931	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 12 Outlet (Model FD-1200)

LIQUID FERTILIZER PISTON PUMP FLOW DIVIDER, 36 ROW

JB-L2190-991(PT40b/FRTZ202d)

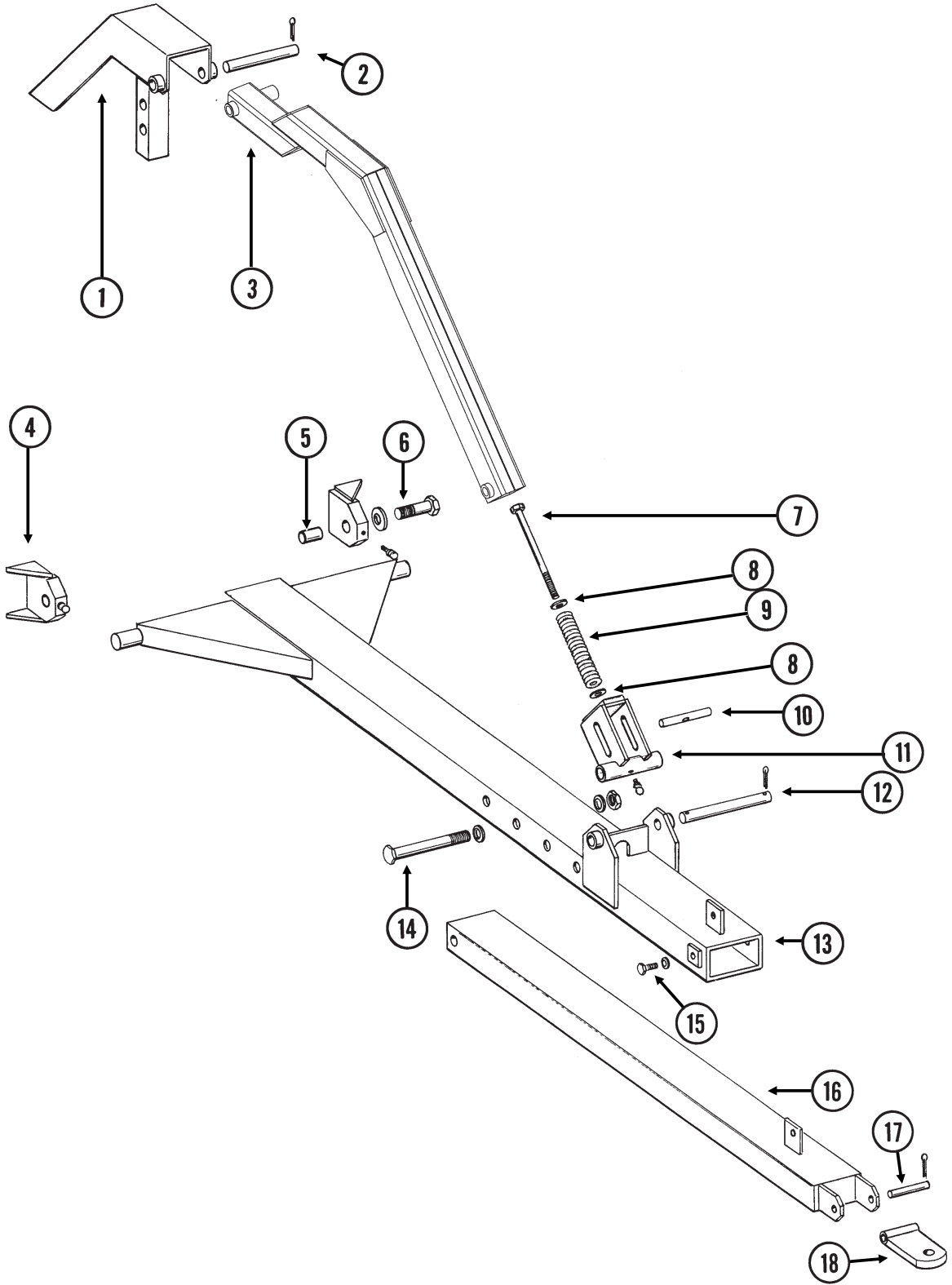
Model FD-2000 Flow Divider, 20 Outlet



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G10350	4	Hex Socket Head Plug, 1/4" NPT, Stainless Steel
2.	GR1543	1	Vent Plug
3.	GR1542	4	Hex Socket Head Screw, 1/4"-20 x 3/4"
	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, 20 Outlets
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)

REAR TRAILER HITCH, 16 ROW 30", 16 ROW 38" AND 24 ROW 30"

(FF96)



REAR TRAILER HITCH, 16 ROW 30", 16 ROW 38" AND 24 ROW 30"

ITEM	PART NO.	QTY.	DESCRIPTION
1.	A7252	1	Link Mount (Non-Stock Item)
2.	GD3547	1	Pin, 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", 16 Row 38" And 24 Row 30"
	G10640	-	Grease Fitting, 1/4"-28
4.		-	See "Axle And Transport Lockup", Page P62
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

DECALS, PAINT AND MISCELLANEOUS

WARNING

ALWAYS USE SAFETY PINS IN TRANSPORT POSITION

7100-2

1

WARNING

TO AVOID INJURY -- ALWAYS LOWER PLANTER UNITS TO THE GROUND BEFORE UNHITCHING PLANTER. TONGUE CAN RAISE SUDDENLY.

7100-43

3

WARNING

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

7100-46

4

WARNING

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

7100-42

2

WARNING

USE SAFETY CHAINS PROVIDED. TOW ONLY WITH FARM TRACTOR.

7100-302

6

KINZE

5

WARNING

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

7100-68

7

WARNING

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

7100-43

8

DANGER

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

7100-89

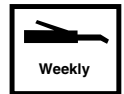
9

WARNING

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

7100-90

10



11



12

WARNING

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

7100-115

13



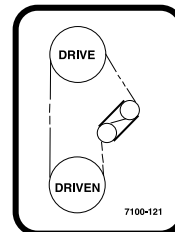
14

DANGER

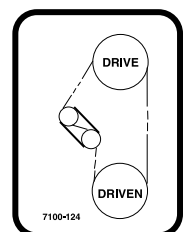
SERIOUS INJURY OR DEATH CAN RESULT FROM CONTACT WITH ELECTRICAL LINES. USE CARE TO AVOID CONTACT WITH ELECTRIC LINES WHEN MOVING OR OPERATING THIS MACHINE.

7100-117

15



16



17

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

7100-153

18

MARKER SPEED CONTROL

SEE MANUAL FOR PROPER ADJUSTMENT

7100-160

19

ROTATE KNURLED COLLAR ON WRAP SPRING TIGHTENER TO RELEASE SPRING TENSION

7100-285

20

ROTATION

→

7100-192

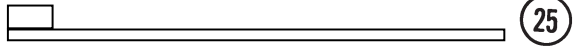
21



22

DECALS, PAINT AND MISCELLANEOUS

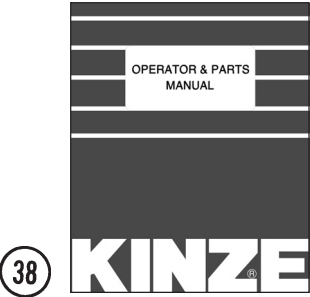
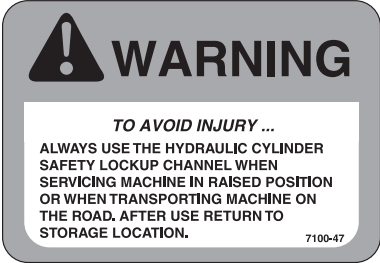
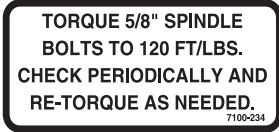
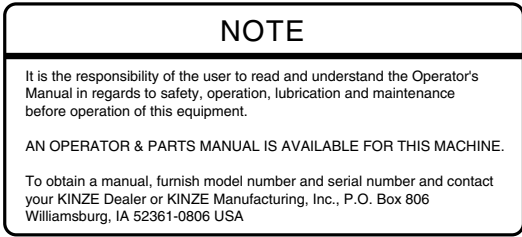
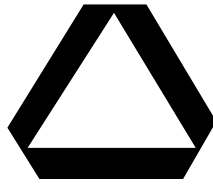
KINZE 3700 ²³



TRANSMISSION RATE REDUCTION

DRIVE	DRIVEN	% REDUCTION IN POPULATION
15	30	50
17	30	43
23*	30	23
24	30	20
25*	30	17
26*	30	13
27	30	10

* Use sprockets off seed drive transmission
7180-214



ITEM	PART NO.	QTY.	DESCRIPTION
1.	G7100-02	1	Decal, Warning
2.	G7100-42	4	Decal, Warning
3.	G7100-43	1	Decal, Warning
4.	G7100-46	1	Decal, Warning
5.	G7100-54	1	Decal, KINZE®, 4 3/16" x 17 3/16"
6.	G7100-302	1	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

(Continued)

DECALS, PAINT AND MISCELLANEOUS

ITEM	PART NO.	QTY.	DESCRIPTION
12.	G7100-111	-	Decal, Oil Daily
13.	G7100-115	-	Decal, Warning (1 Per Granular Chemical Hopper)
14.	G7100-116	-	Decal, Grease Daily
15.	G7100-117	1	Decal, Danger
16.	G7100-121	1	Decal, Transmission, R.H.
17.	G7100-124	1	Decal, Transmission, L.H.
18.	G7100-153	-	Decal, Information (1 Per Brush-Type Seed Meter)
19.	G7100-160	-	Decal, Flow Control
20.	G7100-295	-	Decal, Spring Tension Release
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.	GR0146MPP	-	Powdered Graphite, Twenty-Four 1 Pound Containers
29.	GR1570MPP	-	Talc Lubricant, Four 8 Pound Containers
30.	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
	GD10057-07	-	Hose Identification Sleeve, Yellow AA
	GD10057-08	-	Hose Identification Sleeve, Yellow 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 ¹ / ₂ " 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.	GM0196	-	Operator & Parts Manual, Model 3700 And 3700 SDS (Mechanical Seed Metering System)

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*A1020	P107	*A8501	P109	G10036	P37, P61, P65, P75
*A1021	P113	*A8502	P111	G10037	P5, P74
*A1026	P109, P111	*A8503	P111	G10038	P57, P80, P84
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*A1038	P109, P111	A11070	P66	G10041	P131
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*A1049	P107	A12536	P49	G10043	P97, P127, P135
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*A1057	P111	A6852	P90, P143	G10046	P45
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*A11430	P113	A8950	P89	G10057	P61
*A1146	P107, P109, P111	A8960	P87	G10060	P101
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*A12706	P113	A8974	P48	G10063	P81, P85
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