

MODEL 3600 TWIN-LINE PLANTER OPERATOR MANUAL

M0236

Rev. 8/11

This manual is for: Model 3600 Twin-Line® Planters
12 Row 30" and 16 Row 30"
"Y" and "T" Hitch Conventional and ASD Machines
2011 Production Year and Later

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

Model Number _____ 3600 _____

Serial Number _____

Date Purchased _____

Monitor Serial Number _____

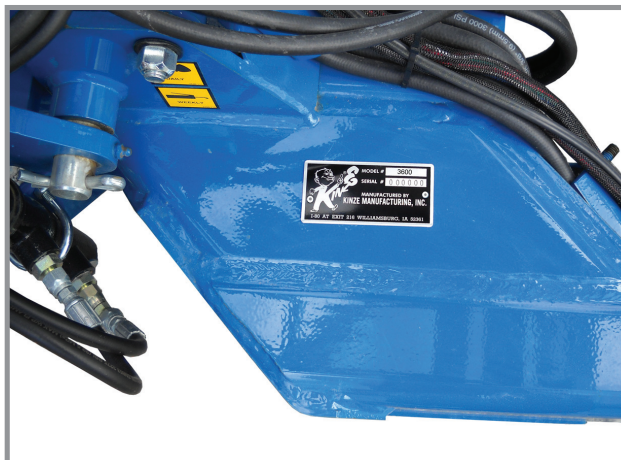
Measured Pulses Per Mile/Km (Radar Distance Sensor) _____

Measured Pulses Per Mile/ Km (Magnetic Distance Sensor) _____

SERIAL NUMBER

Record your serial number and purchase date above for quick reference.

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



Serial number plate location - left side of hitch

Specification	Conventional Hoppers		
	12R N 30 Y/T	12R W 36-38 Y	16R N 30 Y/T
Number of Rows	12R N 30 Y/T	12R W 36-38 Y	16R N 30 Y/T
Weight Empty (Mechanical)	12,780 lb (5,796.91 kg)	13,522 lb (6,133.47 kg)	15,730 lb (7,135.00 kg)
Weight Empty (EdgeVac)	13,185 lb (5,980.62 kg)		16,210 lb (7,352.73 kg)
Transport Height	11' 4" (3.5M)	11' 4" (3.5M)	11' 5" (3.5M)
Planting Length	21' 0" (6.4M)	22'0" (6.7M)	24' 0" (7.4M)
Transport Length	36' 10" (11.3M)	45'10" (14M)	46' 10" (14.3M)
Planting Width	31' 2" (9.5M)	37'2" (11.4M)	41' 2" (12.6M)
Transport Width	11' 2" (3.5M)	13'4" (4.1M)	11' 2" (3.5M)
Seed Capacity	1.75 bu. (EdgeVac / Hopper); 1.90 bu. (Mechanical / Hopper)		
Transport Tire Size	Four 255 - 70R 22.5 radial load range 'H' tubeless rib implement w/o center groove.		
Field Tire Size	7.50" x 20" 8 ply rib implement tires w/o center groove.		
Field Lift	Two master/two slave rephasing cylinders.		
Row Markers	Independently controlled, three stage, low profile, w/disk blade depth bands.		

Specification	Air Seed Delivery (ASD)	
	12R N 30 Y	16R N 30 Y
Number of Rows	12R N 30 Y	16R N 30 Y
Weight Empty (Mechanical)	12,660 lb (5,742.48 kg)	15,120 lb (6,858.32 kg)
Weight Empty (EdgeVac)	13,065 lb (5,926.18 kg)	15,600 lb (7,076.04 kg)
Transport Height	12' 6" (3.9M)	12' 6" (3.9M)
Planting Length	21' 0" (6.4M)	24' 0" (7.4M)
Transport Length	36' 10" (11.3M)	46' 10" (14.3M)
Planting Width	31' 2" (9.5M)	41' 2" (12.6M)
Transport Width	11' 2" (3.5M)	11' 2" (3.5M)
Seed Capacity	80 bu.	
ASD Fill Height (planting position)	8' 2" (2.5M)	
Transport Tire Size	Four 255 - 70R 22.5 radial load range 'H' tubeless rib implement w/o center groove.	
Wing/Lift Tire Size	7.50" x 20" 8 ply rib implement tires w/o center groove.	
Field Lift	Two master/two slave rephasing cylinders.	
Row Markers	Independently controlled, three stage, low profile, w/disk blade depth bands.	

TRACTOR HYDRAULIC REQUIREMENTS

Configuration	No Optional Pumps		Tractor Mounted PTO Pump	
	SCV	gpm min.	SCV	gpm min.
Mechanical Meter ^{1,2}	2 SCV	15 gpm min.		
EdgeVac Meter ^{1,2}	3 SCV	30 gpm min.	2 SCV	15 gpm min.
ASD (with Mechanical Meter) ³	3 SCV	25 gpm min.	2 SCV	15 gpm min.
ASD (with EdgeVac) ²	4 SCV	40 gpm min.	3 SCV	25 gpm min.
¹ Hydraulic drive adds 1 SCV + 5 gpm (mechanical) or 10 gpm (EdgeVac) min. to requirements.				
² Wing down pressure option adds 1 SCV to conventional only.				
³ Hydraulic drive not available for ASD/EdgeVac configuration.				

1. Read and understand instructions provided in this manual and warning labels. Review these instructions frequently!
2. This machine is designed and built with your safety in mind. Do not make any alterations or changes to this machine. Any alteration to design or construction may create safety hazards.
3. A large portion of farm accidents happen from fatigue or carelessness. Safe and careful operation of tractor and planter will help prevent accidents.
4. Never allow planter to be operated by anyone unfamiliar with operation of all functions of the unit. Operators must read and thoroughly understand all instructions given in this manual before operating or working on equipment.
5. Be aware of bystanders, particularly children! Always look around to make sure it is safe to start tow vehicle engine or move planter. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.
6. Make sure planter weight does not exceed towing capacity of tractor, or bridge and road limits. This is critical to maintain safe control and prevent death or injury, or property and equipment damage.
7. Never ride or allow others to ride on planter.
8. Store planter in an area away from human activity. DO NOT permit children to play on or around the stored unit.
9. Keep hands, feet, and clothing away from moving parts. Do not wear loose-fitting clothing which may catch in moving parts.
10. Always wear protective clothing, shoes, gloves, hearing, and eye protection applicable for the situation.
11. Do not allow anyone to stand between tongue or hitch and towing vehicle when backing up to planter.
13. Prevent electrocution, other injuries, or property and equipment damage. Watch for obstructions such as wires, tree limbs, etc. when operating machine. Be aware of clearances during turns and when folding/unfolding planter.
14. Reinstall all guards removed for maintenance activities. Never leave guards off during operation.
15. Use of aftermarket hydraulic, electric, or PTO drives may create serious safety hazards to you and people nearby. If you install such drives, follow all appropriate safety standards and practices to protect you and others near this planter from injury.
16. Follow all federal, state/provincial, and local regulations when towing farm equipment on a public highway. Use safety chain (not an elastic or nylon/plastic tow strap) to retain connection between towing and towed machines in the event of primary attaching system separation.
17. Make sure all safety/warning lights, SMV sign, and reflective decals are in place and working properly before transporting the machine on public roads.
18. Limit towing speed to 15 MPH. Tow only with farm tractor of a minimum 90 HP. Allow for unit length when making turns.
19. Reduce speed prior to turns to avoid the risk of overturning. Always drive at a safe speed relative to local conditions and ensure your speed is slow enough for a safe emergency stop.
20. Chemical application is often an integral part of planting. Follow label instructions for proper chemical mixing, handling and container disposal methods.
21. Be familiar with safety procedures for immediate first aid should you accidentally contact chemical substances.
22. Use the proper protective clothing and safety equipment when handling chemicals.
23. Chemicals are supplied with Material Safety Data Sheets (MSDS) that provide full information about the chemical, its effects on exposure, and first aid needs in the event of an emergency. Keep your MSDS file up-to-date and available for first responders in case of emergency.
24. When servicing ground engaging components such as opening disks and firming points, use special care to avoid points and edges worn sharp during use.
25. Use professional help if you are unfamiliar with working on hydraulic systems. Pressurized hydraulic fluid can penetrate body tissue and result in death, serious infection, or other injuries.

Following are some common hazard warnings associated with this equipment. Pay close attention to all safety, operating, and maintenance information in this manual and decals applied to your equipment.

 **DANGER!**

Contacting or coming close to power lines or other high energy sources will cause death or serious injury. Keep away from power lines or high energy sources at all times.

 **WARNING**

Improperly operating or working on this equipment could result in death or serious injury. Read and follow all instructions in Operator Manual before operating or working on this equipment.

 **WARNING**

Falling equipment can cause death or serious injury. Install all lockup devices or lower planter to ground before working on equipment.

 **WARNING**

Explosive separation of rim and tire parts can cause death or serious injury. Overinflation, rim and tire servicing, improper use of rims and tires, or worn or improperly maintained tires could result in a tire explosion.

SAFETY SIGNS AND DECALS

 **WARNING**

All safety/warning lights, reflective decals, and SMV sign must be in place and visible before transporting machine on public roads or death, serious injury, and damage to property and equipment may result. Check federal, state/provincial, and local regulations before transporting equipment on public roads.

Safety signs and decals are placed on the machine to warn of hazards and provide important operating and maintenance instructions. Information on these signs are for your personal safety and the safety of those around you. FOLLOW ALL SAFETY INSTRUCTIONS!

- Keep signs clean so they can be easily seen. Wash with soap and water or cleaning solution as required.
- Replace safety signs if damaged, painted over, or missing.
- Check reflective decals and SMV sign periodically. Replace if they show any loss of reflective properties.
- When replacing decals, clean machine surface thoroughly with soap and water or cleaning solution to remove all dirt and grease.

NOTE: Safety sign and decal locations are shown in the Parts Manual for this machine.

NOTE: Style and locations of SMV sign, reflective decals, and safety/warning lights conform to ANSI/ASABE S279.14 JUL 2008 and ANSI/ASABE S276.6 JAN 2005.

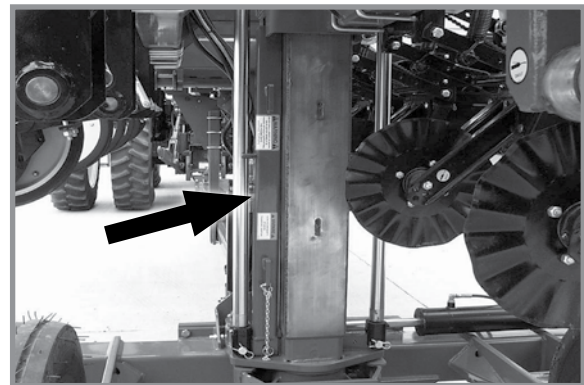
MANUAL SAFETY LOCKUP

WARNING

Uncontrolled machine movement can crush or cause loss of control resulting in death, serious injury, or damage to property and equipment. Install all safety lockup devices before working under or transporting this equipment.



Manual safety lockup in storage position



Manual safety lockup in transport position

Remove manual safety lockup and store on L.H. side of transport axle for field operation.

ROW MARKER SAFETY LOCKUP

WARNING

Row marker can lower at any time and could cause death or serious injury. Stay away from row markers! Install safety lockup device when not in use.

Always install row marker lockups when working or transporting planter.

Connect chain between marker stand and second stage of marker assembly.



Row marker safety lockup installed

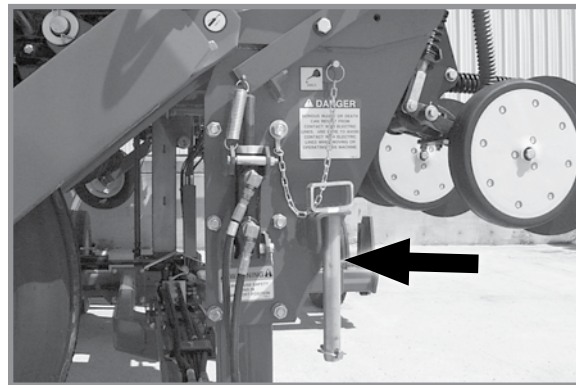
! WARNING

Uncontrolled movement of equipment can cause loss of control and could result in death, serious injury, or damage to property and equipment. Install all safety pins before transporting equipment.

TONGUE SAFETY PIN



Tongue safety pin installed for transport

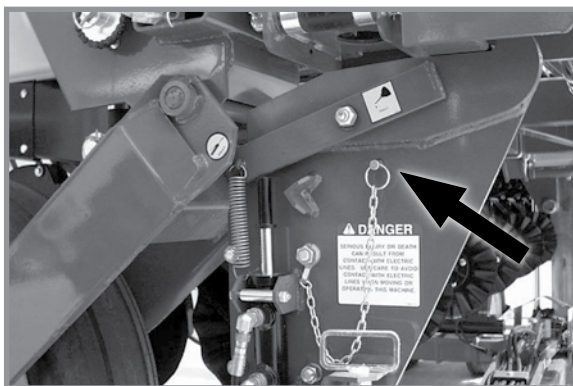


Tongue safety pin stored for field operation

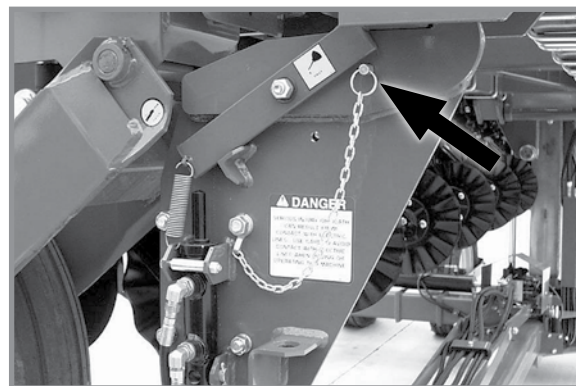
Never transport planter without installing tongue safety pin. Tongue safety pin prevents tongue cylinder from retracting should hydraulic failure occur or a sudden stop be made when transporting planter.

Remove tongue safety pin and store in bracket on transport latch post at center of planter for field operation.

TRANSPORT LATCH LOCKING PIN



Transport latch locking pin stored for field operation



Transport latch locking pin installed for transport

Never transport planter without installing transport latch locking pin. Transport latch locking pin prevents latch bar from disengaging and allowing planter frame to swing away.

Remove transport latch locking pin and store in location provided on latch post for field operation.

INITIAL PREPARATION

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

WARNING

Improperly operating or working on this equipment could result in death or serious injury. Read and follow all instructions in Operator Manual before operating or working on this equipment.

WARNING

Folding or towing planter with outer transport wheel on left side of machine removed can cause death, serious injury, or damage to property and equipment. Tipping may occur because of narrow wheel base. Outer transport wheel on left side of machine is shipped removed on non-ASD planters (not bolted on) to allow narrower width truck shipment. **DO NOT REMOVE THIS ASSEMBLY AFTER PLANTER IS ASSEMBLED FOR USE.**

WARNING

Loose transport wheel lug bolts can result in wheel separation from planter and cause death, serious injury, and damage to property and equipment. Torque transport wheel 5/8" - 18 lug bolts to 180 ft-lb (244 N-m) before operating planter for the first time and periodically after.

WARNING

Explosive separation of rim and tire can cause death or serious injury. Overinflation, rim and tire servicing, improper use of rims and tires, worn, or improperly maintained tires could result in a tire explosion.

1. Torque transport wheel 5/8" - 18 lug nuts to 180 ft-lb (244 N-m).
2. Inflate tires to the following specifications:

Transport (center section) 255-70R 22.5 ("224" rim)
75 psi (517.1 kPa) recommended/75 psi (517.1 kPa) max.

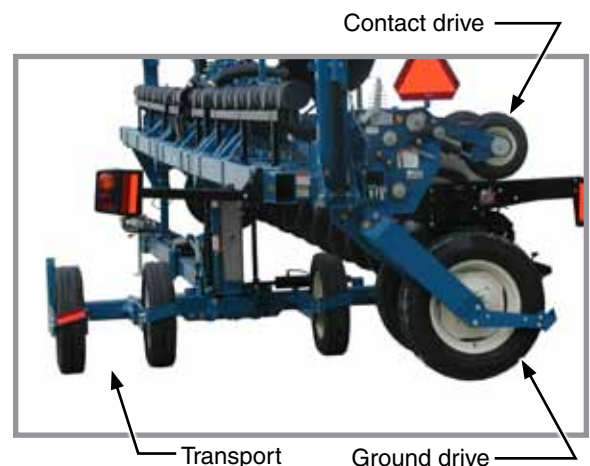
Transport (center section) 255-70R 22.5" ("276" rim)
75 psi (517.1 kPa) recommended/100 psi (689.4 kPa) max.

Ground drive (wings) 7.50" x 20" 40 psi (275.7 kPa)

Contact drive 50 psi (344.7 kPa).

Liquid fertilizer piston pump 7.60" x 15" 40 psi (275.7 kPa)

3. Lubricate planter and row units following instructions in lubrication and Maintenance section of this manual.
4. Check all drive chains for proper tension, alignment, and lubrication.



Tire locations (not all tires shown)

TRACTOR REQUIREMENTS

Consult your dealer for information on horsepower requirements and tractor compatibility. Requirements vary with planter options, tillage, and terrain.

A 12 volt DC electrical system is required on all sizes.

A minimum of two SCV remote hydraulic outlets are required on all sizes. One SCV is used for field lift and with a control console switch operates raise to transport function. A second SCV using control console operates row markers fold/unfold functions. Additional SCV's with a zero pressure case drain are needed for EdgeVac vacuum fan motor for seed metering system Air Seed Delivery, Hydraulic Drive, and Wing Down Pressure (if installed without EdgeVac or ASD).

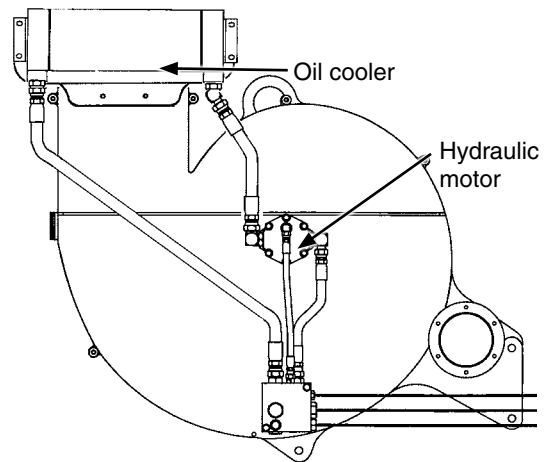
Maximum hydraulic flow rate of 13 GPM @ 2000 PSI is required to operate EdgeVac vacuum fan motor.

TRACTOR MOUNTED PTO PUMP AND OIL COOLER OPTION

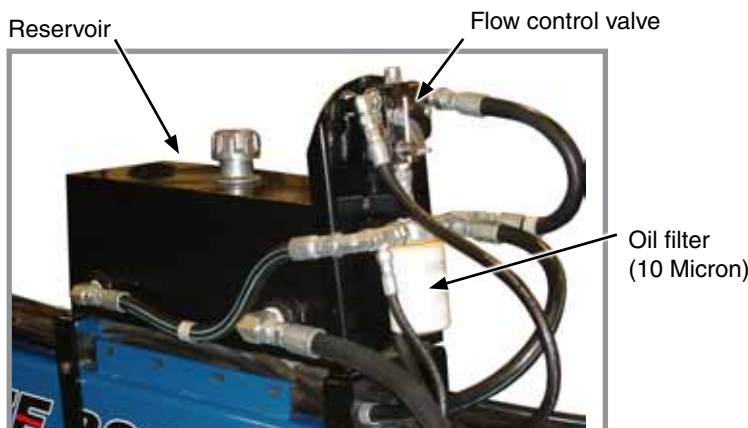
The tractor mounted PTO pump and oil cooler option is for tractors with less than required hydraulic output needed to operate hydraulic-driven vacuum fan and other planter hydraulic requirements.

A 1000 RPM PTO is required to operate the PTO-driven hydraulic pump.

PTO pump option consists of a 1 $\frac{3}{8}$ "-21 or 1 $\frac{1}{4}$ "-20 spline 13.5 GPM 2000 psi tractor mounted pump, planter mounted 10 gallon capacity hydraulic reservoir with spin-on 10-micron oil filter, EdgeVac fan mounted 15 GPM-rated oil cooler, and required hydraulic valves, fittings, and hoses.



Vacuum fan assembly



Hydraulic reservoir, flow control valve, and fittings



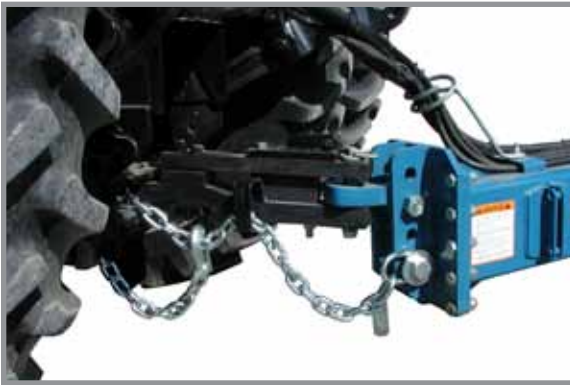
**PTO-driven hydraulic pump
(1 $\frac{3}{8}$ " spline PTO pump shown)**

TRACTOR PREPARATION AND HOOKUP

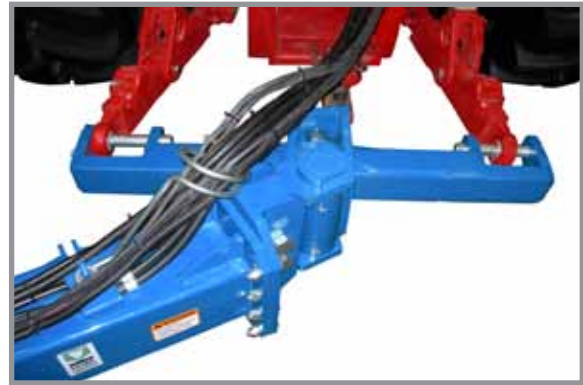
1. Adjust tractor drawbar 13-17 inches above ground with hitch pin hole directly below PTO shaft center line. Make sure drawbar is in a stationary position.
2. Install control console on tractor in a convenient location within easy reach of operator and close to hydraulic controls. Mount control console securely and route power cord to power source. Control console operates on 12 volt DC only. If two 12 volt batteries are connected in series, ALWAYS make power connection on battery grounded to tractor chassis.

If two 6 volt batteries are connected in series, make sure power connection provides 12 volt DC across positive terminal on one battery and negative terminal of second battery.

3. Back tractor to planter and connect with 1¼" - 1½" diameter hitch pin. If tractor is not equipped with a hitch pin locking device, make sure hitch pin is secured with a locking pin or cotter pin.



Planter/safety chain hookup to tractor



Optional 2-point hitch

NOTE: DO NOT install safety chain using clevis mounting hardware. Safety chain MUST be installed separately.

4. Safety chain must be used to keep planter and tractor connected in case of a hitch pin/drawbar failure. Attach safety chain at an unused clevis mounting hole on the planter hitch. Torque hardware to 840 ft-lb (1138.8 N-m).

NOTE: A 2-Point Hitch Option converts planter from drawn to semi-mounted and is available for use with Category 3N or 3 three-point hitch designs. Safety chain is not used with 2-point hitch.

WARNING

Pressurized hydraulic fluid can penetrate body tissue and result in death, serious infection, or other injuries. Fluid injected under skin must be IMMEDIATELY removed by a surgeon familiar with this type of injury. Make sure connections are tight and hoses and fittings are not damaged before applying system pressure. Leaks can be invisible. Keep away from suspected leaks. Relieve pressure before connecting or disconnecting tractor, searching for leaks, or performing any system maintenance.

NOTICE

Wipe hose ends to remove any dirt before connecting couplers to tractor ports or contamination may cause equipment failure.

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

NOTICE

Connect hydraulic motor case drain to a case drain return line with zero PSI on tractor. Failure to connect to a return with zero PSI will cause hydraulic motor shaft seal damage. **DO NOT** connect hydraulic motor case drain to a SCV outlet or motor return circuit connection. Contact tractor manufacturer for specific details on “zero pressure return”.

NOTICE

Always connect hydraulic motor return hose to tractor motor return port. Do not connect to tractor SCV unless through a motor spool or hydraulic motor failure can occur. If a motor return port is not available on the tractor, the SCV controlling the ASD system **MUST** be in the float position before planter is moved in planting or field raised position when ASD system is not in use.

PLANTER TO TRACTOR HYDRAULIC CONNECTIONS			
Color/Label	Machine Function	Hose Size	Function
Red AA	Field Lift	1/2"	Pressure
Red BB		1/2"	Return
Blue AA	Planter Fold & Row Marker	3/8"	Return
Blue BB		3/8"	Pressure
Black RR	Seed Rate Hydraulic Drive (EdgeVac)	3/4"	Return
Black PP		1/2"	Pressure
Black RR	Seed Rate Hydraulic Drive (Mechanical)	1/2"	Return
Black PP		3/8"	Pressure
Green RR	EdgeVac Vacuum Fan	3/4"	Return
Green PP		1/2"	Pressure
Orange CD		3/8"	Case Drain
Yellow RR	ASD System Pressure Fan	3/4"	Motor Return
Yellow PP		1/2"	Pressure
Orange CD		1/4"	Case Drain

NOTE: Set adjustable flow outlet (SCV) to full flow position.

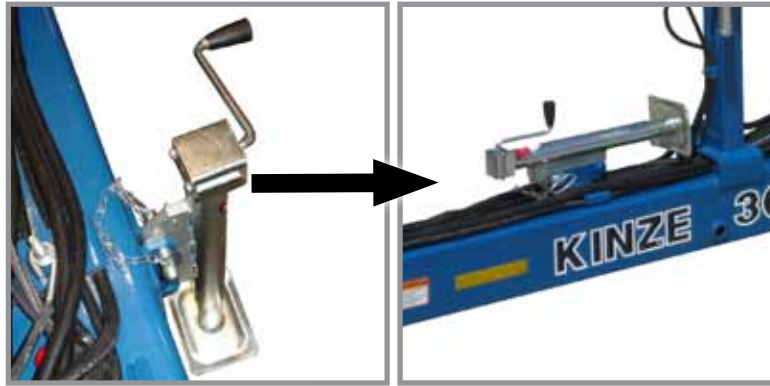
For tractors not equipped with a method for finite adjustment of hydraulic flow, Flow Control Needle Valve Kit G1K426 is available from Kinze Repair Parts through your Kinze Dealer.



G1K426 needle valve kit

6. Connect ASABE Standards 7 terminal connector for safety/warning lights on planter to ASABE Standards receptacle on tractor. If your tractor is not equipped with an ASABE Standards receptacle, check with your tractor manufacturer for availability. Check warning lights on planter work in conjunction with warning lights on tractor.

NOTE: A 12 volt battery connection is required to power the vacuum fan digital gauge. Connect "red" wire to positive (+) battery terminal and "black" wire to negative (-) battery terminal.



Remove and store jack

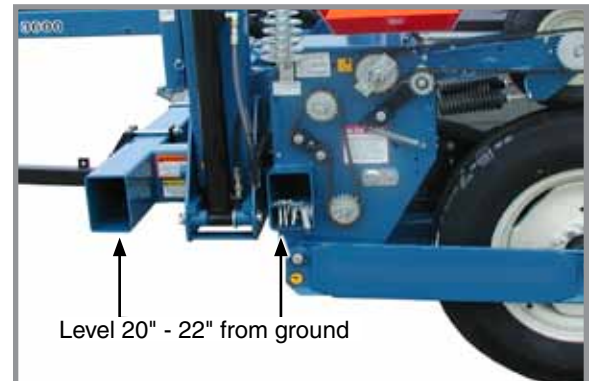
7. Raise jack stand and remount horizontally on storage bracket.

LEVEL PLANTER

Lateral adjustment is maintained by tire pressure. Check tires are inflated to specification.

Front and rear level adjustment is maintained by hitch clevis position unless tractor drawbar is adjustable for height. Planter frame and row unit parallel arms must be level for proper planter and row unit operation. Bottom of toolbar should be 20" to 22" from planting surface.

1. Lower planter to planting position and check planter is level front to rear. Go to step 2 if hitch is too high or low.



Level planter toolbars

NOTE: DO NOT install safety chain using clevis hardware. Move safety chain location if necessary.

2. Remove clevis hitch hex head cap screw and lock nut using a torque wrench. Replace if off-torque is below 75 ft-lb (101.6 N-m) or there is corrosion or damage.

NOTE: Clevis must be free to move on hitch. DO NOT OVERTIGHTEN hardware.

3. Align clevis to hitch holes at new location and install hex head cap screw and lock nut. Tighten lock nut until threads are fully engaged and hex head cap screw and lock nut are firmly against hitch bracket.

NOTE: On planters with push row units and no till coulters, uplift from down force springs or air springs in pneumatic down pressure system may cause wings to rise slightly in planting position. Problem may be compounded if static pressure is trapped in planter's hydraulic lift system which can cause wing cylinders to extend slightly. Operating tractor's hydraulic system in float position or moving tractor's hydraulic lever to float position briefly to relieve pressure will help maintain proper toolbar height.

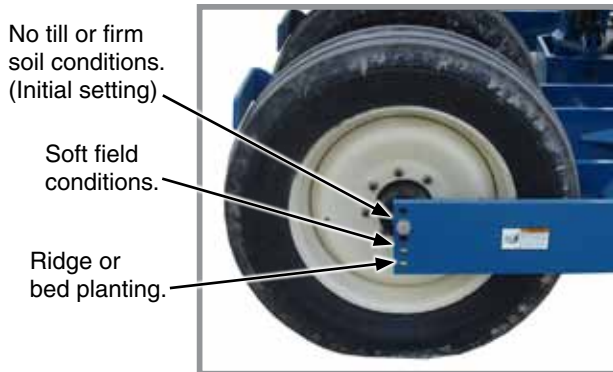
4. Field check planter.

Field and actual planting conditions dictate which transport wheel setting to use so row unit parallel arms are parallel with ground. It may be necessary to lower ground drive wheels to ensure level lateral toolbar operation if transport wheels are set in one of the two lower sets of holes. Make a field check when planter is fully loaded with seed, granular chemicals, fertilizer, etc. to be sure wings are level with center frame. If wings are not level with center frame, drive wheels and/or transport wheels can be raised or lowered in wheel arms to increase or decrease planter toolbar height. Raise hitch to ensure level operation.

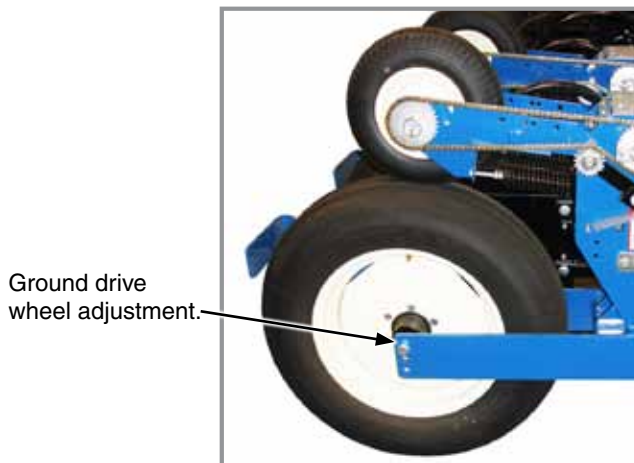
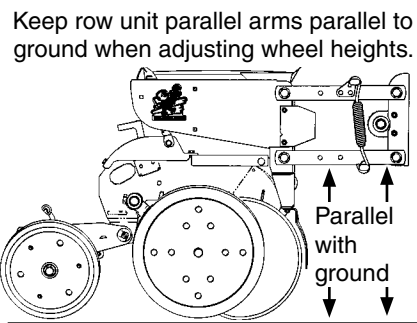
NOTICE

Component interference can damage equipment. Check clearance between tires and drill shaft U-joint when using top hole setting.

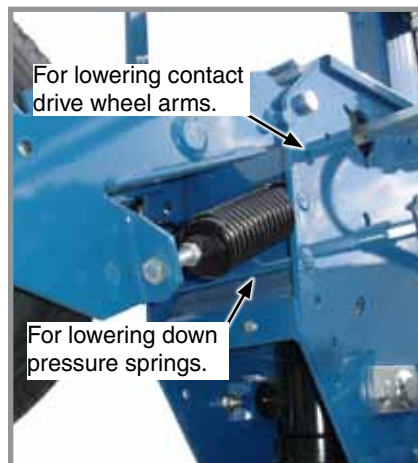
NOTE: To allow adequate drive force after lowering ground drive wheels, it may be necessary to lower contact drive wheel arms to lower sets of holes in wheel modules and lower down pressure springs to lower mounting rods on wheel modules.



Transport wheel adjustment



Ground drive wheel adjustment



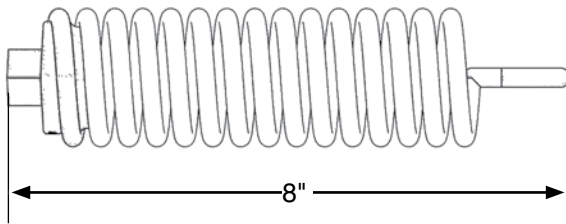
Contact drive wheel adjustment

NOTE: If setting is changed see basic adjustment procedure under “Contact Wheel Spring Adjustment”

RIDGE PLANTING

Move drive and transport wheels 2" or 4" to lower mounting holes in wheel arms when ridge planting to increase planter toolbar height. Contact drive tire must also be moved to lower set of holes in wheel module and down pressure springs hooked on lower rod. Raise hitch height to ensure level operation.

CONTACT WHEEL SPRING ADJUSTMENT



Spring length measurement (Factory setting)

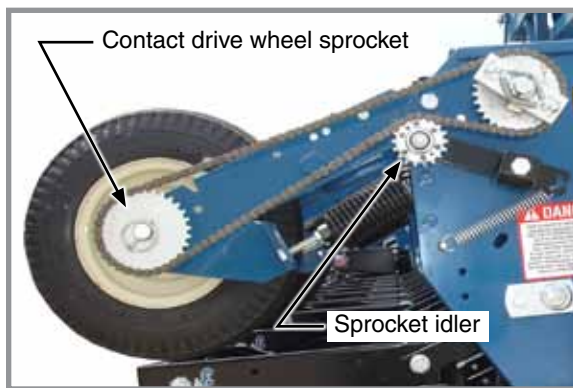


Contact drive springs

There are two down pressure springs on each contact drive wheel. Spring tension is factory set to approximately 200 lb (90.7 kg) of down force at tire contact point and should require no further adjustment.

NOTE: Measurement must be taken in planting position with proper tire pressure.

CONTACT WHEEL DRIVE SPROCKETS



Contact wheel drive



Optional half-rate drive sprocket

Contact wheel drive works the same for mechanical or EdgeVac planters except for sprocket size. Chain tension is controlled by a spring-loaded sprocket idler. Planting rate charts in "Rate Chart" section help you select correct sprockets.

NOTE: Make a field test after each sprocket combination change to be sure you are planting at desired rate.

EDGEVAC

22 tooth, 28 tooth or 44 tooth sprockets at each contact drive wheel can be exchanged with sprockets on storage rod bolted to wheel module on each side of planter chains.

NOTE: 22, 28 and 44 tooth drive sprockets do NOT apply to all rate charts. Check chart titles to make sure proper rate chart is selected. DO NOT USE 44 tooth drive sprockets (60 cell soybean discs) with Dry Fertilizer Package or Liquid Fertilizer Squeeze Pump Package.

MECHANICAL

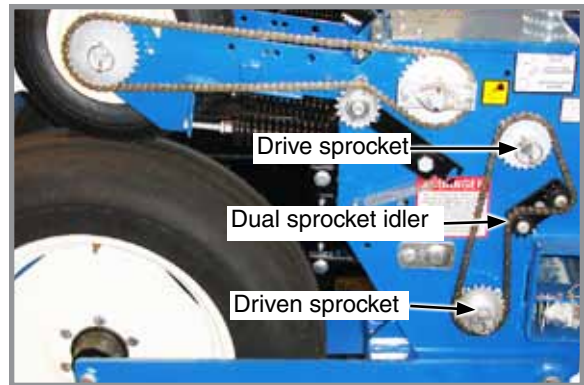
Seed planting rate charts are based on standard rate drive. Standard rate drive uses a 30 tooth sprocket and No. 40 118 pitch chain on each contact wheel.

Optional half-rate (2 to 1) drive is recommended only when population falls below planting rate charts. Replace 30 tooth sprocket on each contact wheel with a 15 tooth sprocket and shorter No. 40 110 pitch chain. This reduces planter transmission speed and planting and application rates by approximately 50%.

SEED RATE TRANSMISSION ADJUSTMENT

Planting population rate changes are made using seed rate transmissions at each end of planter. Seed rate transmission allows quick and easy sprocket changes to obtain desired planting population. Sprockets are exchanged with those from sprocket storage rod bolted to transmission by removing lynch pins on hexagon shafts.

A decal positioned on transmission module illustrates proper chain routing. Planting rate charts found in "Rate Chart" section help you select correct sprocket combinations.

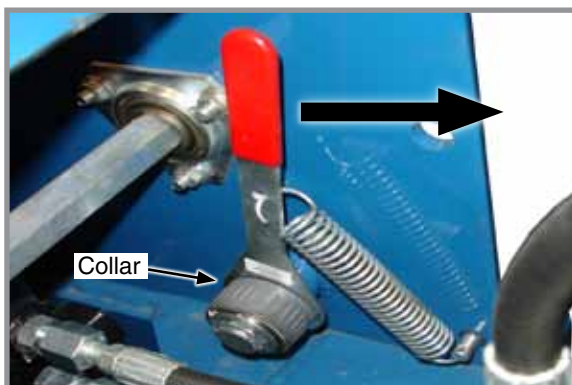


Seed rate transmission (R.H. shown)

Chain tension is controlled by a spring-loaded dual-sprocket idler adjusted with an easy-release idler arm. This arm has a release position to remove spring tension for replacing sprockets. See "Wrap Spring Wrench Operation" below.

WRAP SPRING WRENCH OPERATION

Chain idlers are equipped with wrap spring wrenches. L.H. wrap spring wrenches have a blue release collar and R.H. wrap spring wrenches have a grey or black release collar.



Wrap spring wrench (R.H. shown)



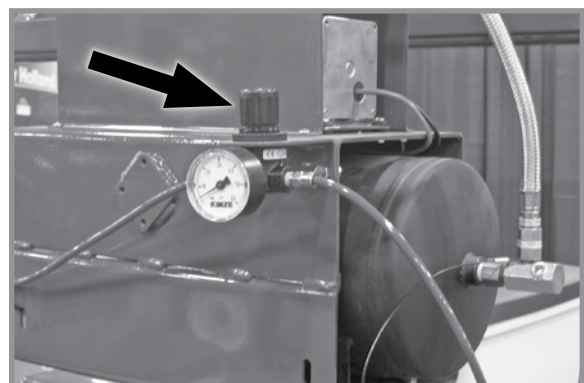
Chain idler tensioning

Rotate collar on wrap spring wrench and pull handle to release chain tension.

Rotate chain idler into chain and pull handle to tension idler spring.

ROW UNIT AIR CLUTCHES

Set air clutch system pressure to 50 psi (344.7 kPa).



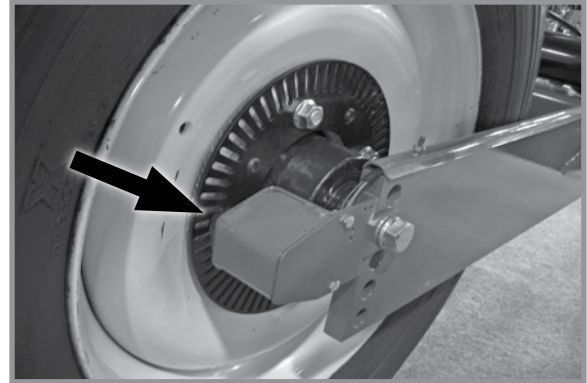
Air clutch pressure valve

HYDRAULIC SEED RATE DRIVE

Refer to Ag Leader Integra or KINZE Cobalt operation manuals for information on setting and controlling hydraulic seed rate system.

HALL EFFECT SENSOR (HYDRAULIC DRIVE ONLY)

Set Hall effect sensor within $\frac{1}{8}$ " of pick-up disc.

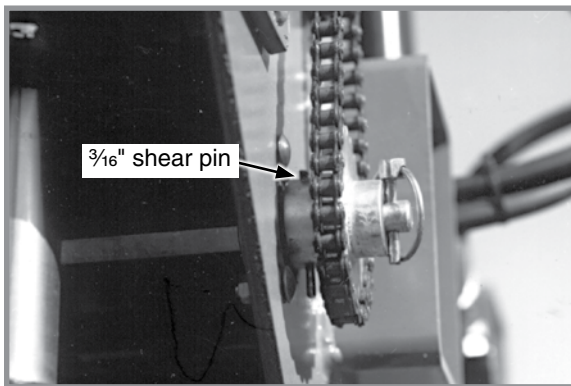


Hall effect sensor

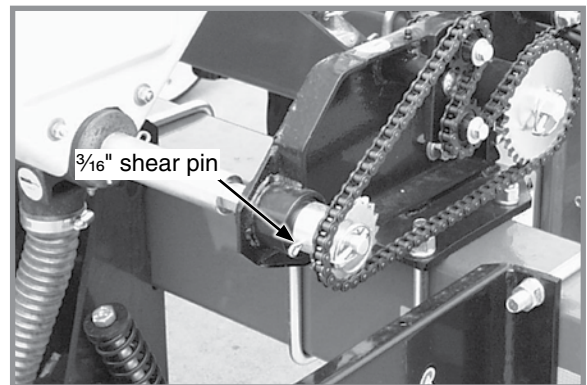
HYDRAULIC WEIGHT TRANSFER TOOLBAR

A hydraulic weight transfer toolbar is standard with ASD and optional for conventional 3600 planters. The ASD system is powered from ASD hydraulic circuit and conventional system requires an additional SCV. Pressure is factory set and does not require additional adjustment.

SHEAR PROTECTION



Transmission shaft



Dry fertilizer attachment transmission

Shear pins protect planter driveline and row unit components from damage.

1. Determine where binding has occurred before replacing a pin. Turn shaft by hand (with the aid of a wrench) and check for misalignment and seized parts.
2. When shaft can be turned by hand (with the aid of a wrench) replace shear pins with same size and type. Spare shear pins are stored inside ends of rear planter frame.

NOTICE

Misaligned drill shaft/transmission coupler can cause equipment damage.

3. Check driveline alignment and follow prescribed lubrication schedules to prevent component binding or breakage.

HYDRAULIC/ELECTRIC OPERATION

Control console switches and tractor's hydraulic system are used to raise planter to transport position, operate rotate and tongue extension functions, lock and release planter wings, and raise and lower row markers.

NOTE: Turn console backlighting OFF during extended periods of non-use using push button switch on back of console.



Single point row clutch control box



Two-speed point row clutch control box

Model 3600 planters operate from three dual remote (SCV) hydraulic outlets and tractor mounted control console. One SCV and a control console switch operate raise to transport function. A second SCV and control console switches operate row markers and fold/unfold functions. A third SCV operates vacuum fan motor circuit.

Marker and point row selector switches are an ON-OFF-ON type. If planter is equipped with optional Two-Speed Point Row Clutch Package, point row switch and reduced rate switch operate independently from rest of control console.

Power to marker switch is fed through auxiliary switch and two transport function switches. Operating any lower row switch disables markers and turns off marker indicator light.

Raise/wing lock and rotate/tongue (fold function) switches are MOMENTARY ON-OFF-MOMENTARY ON type and must be held in position while operating tractor hydraulic SCV control. Activating a fold function switch disables marker circuit.

WARNING

Marker selector switch must be OFF (center position) when not in use to prevent accidental extension which could result in death or serious injury, or damage to property and equipment. An indicator light on control box panel is ON whenever marker circuits or point row clutch circuits are energized.

Auxiliary switch is an ON-OFF type switch used with hydraulic marker/folding functions SCV control to operate optional attachments. Auxiliary switch must be OFF to enable other functions.

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

NOTE: Lift cylinders are (port type) rephasing cylinders. Cylinders must fully retract before they rephase in lowered position. Cylinder stops can not be used.

A third SCV operates the EdgeVac seed metering system vacuum fan. See "Digital Vacuum Gauge Operation".

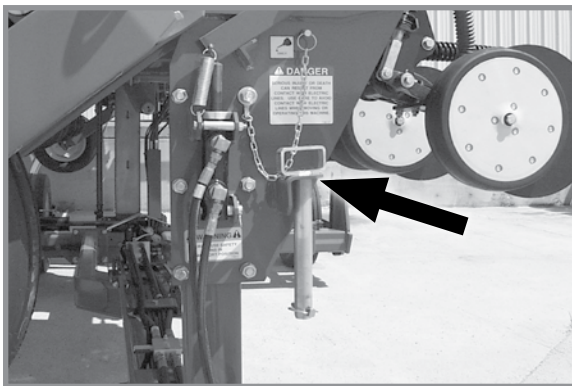
TRANSPORT TO FIELD SEQUENCE

Position planter in a relatively flat open area. Avoid an area with furrows, etc.

SUMMARIZED TRANSPORT TO FIELD SEQUENCE

- Remove tongue safety pin.
- Remove transport latch locking pin.
- Remove manual safety lockup.
- Rotate planter to planting position.
- Raise planter slightly to release safety hook at top of center section.
- Lower planter to ground.
- Release wing locks.
- Rephase planter lift cylinders.
- Raise planter to raised field position and retract tongue.
- Remove row marker lockups.

NOTE: Read following information for detailed instructions.

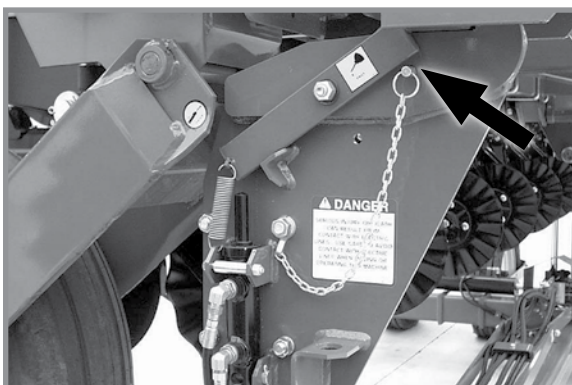


Tongue safety pin in storage position

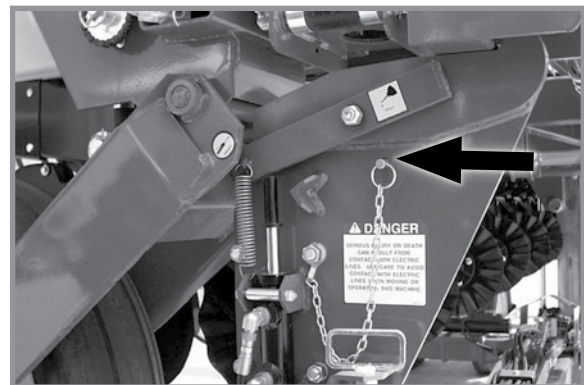


Tongue safety pin in transport position.

1. With tongue fully extended and planter in raised transport position, remove tongue safety pin and place it in storage position.



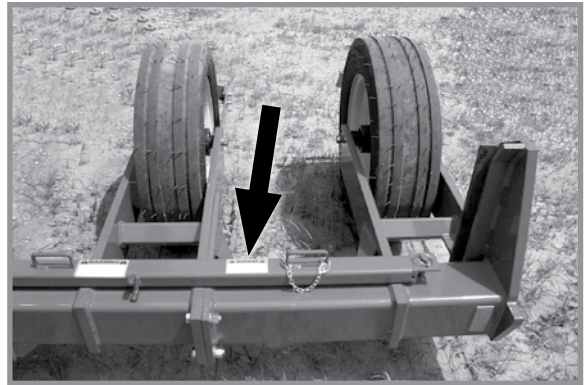
**Transport latch locking pin
Locked transport position**



**Transport latch locking pin
Storage position**

2. Remove transport latch locking pin from locked position and place it in storage location.

- Remove manual safety lockup from under front center lift cylinder and place it in storage location on left side of planter axle.



Storage position

- Hold control console “ROTATE/TONGUE” switch in “ROTATE” and operate hydraulic control to unfold planter. Transport latch automatically releases.

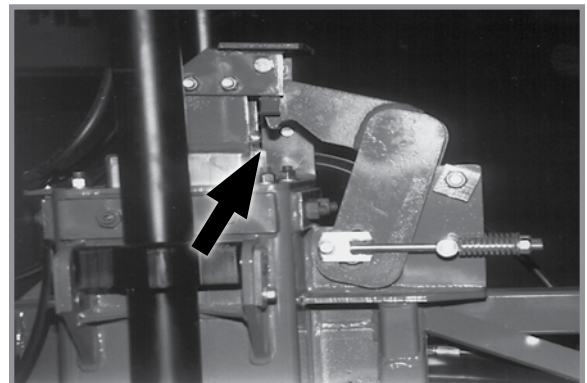


Rotate from transport to field

- Raise planter 1"-2". Safety hook will release and snap away from catch pin on top of pivot post.

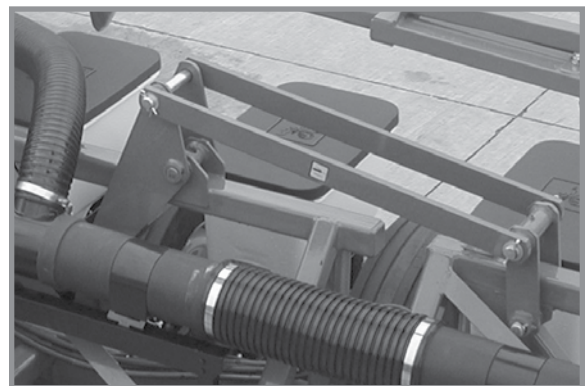
NOTE: Raising planter too high resets hook mechanism and sequence must be repeated.

- Slowly lower planter to ground.



Safety hook release

- Hold control console “RAISE/WING LOCK” switch in “WING LOCK” position and operate hydraulic control to release wing locks.



Wing lock

8. Hold hydraulic control (to lower planter) to rephase planter lift cylinders. Time to rephase system may vary due to tractor hydraulic flow and/or oil temperature. Normally 5 to 20 seconds is adequate to rephase system.
9. Raise planter to raised field position. Hold control console ROTATE/TONGUE switch in **TONGUE** and operate hydraulic control to retract tongue.
10. Remove row marker lockups.



Retract tongue



Row marker lockup

FIELD OPERATION

DANGER!

Contacting or coming close to power lines or other high energy sources will cause death or serious injury. Keep away from power lines or high energy sources at all times.

NOTICE

Raise planter out of ground when making sharp turns or backing up or equipment damage may result.

There are two raised positions on planter. Transport position is when the planter is fully raised. Raised field position is when planter wing cylinders are fully extended and center lift cylinders are at mid-stroke. In “raised field position” row units are approximately 14 inches off ground. This position is used in making turns or passing over waterways during field operation.

An oil bypass solenoid is located on top side of valve blocks on rear R.H. side of center frame. This solenoid is not energized in raised field position so wing cylinders cannot bypass oil preventing planter from raising any higher.



Raised field position

PLANTING SPEED

Planters are designed to operate in a speed range of 2 to 8 MPH. Higher ground speeds generally cause more variation in seed spacing. Speeds above 5.5 MPH are typically not recommended. See “Rate Charts”

FIELD TO TRANSPORT SEQUENCE

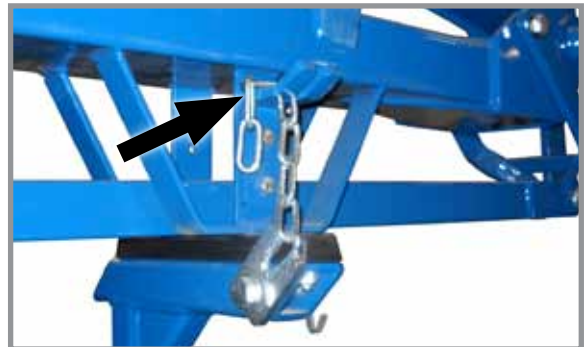
Position planter in a relatively flat area. Avoid areas with furrows, etc.

SUMMARIZED FIELD TO TRANSPORT SEQUENCE

- Install row marker lockups.
- Raise planter to raised field position.
- Extend tongue.
- Lock wings over center
- Raise planter to engage safety hook at top of center section into locking position.
- Lower planter onto safety hook.
- Rotate planter to transport position.
- Install tongue safety pin.
- Install transport latch locking pin.
- Install manual safety lockup.

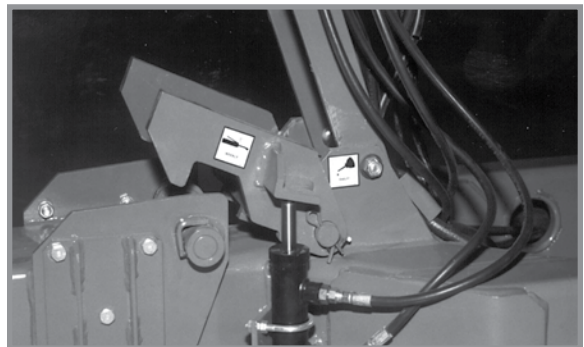
NOTE: Read following information for detailed instructions.

1. Install row marker lockups.
2. Raise planter to raised field position using hydraulic control.



Row marker lockup

3. Hold "ROTATE/TONGUE" switch in "**TONGUE**" and operate hydraulic control until tongue is fully extended. Tongue lock latch automatically releases.



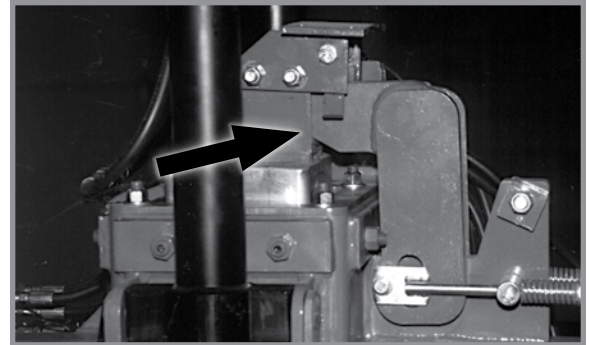
Tongue latch lock

4. Hold "RAISE/WING LOCK" switch in "**WING LOCK**" and operate hydraulic control until wing lock cylinders are fully extended and wing locks are locked over center.



Wing lock

5. Hold control console “RAISE/WING LOCK” switch in “**RAISE**” and operate hydraulic control until two center lift cylinders are fully extended and safety hook at top of center section rotates into locking position.
6. Lower planter onto safety hook using hydraulic control.



Center section safety hook

! WARNING

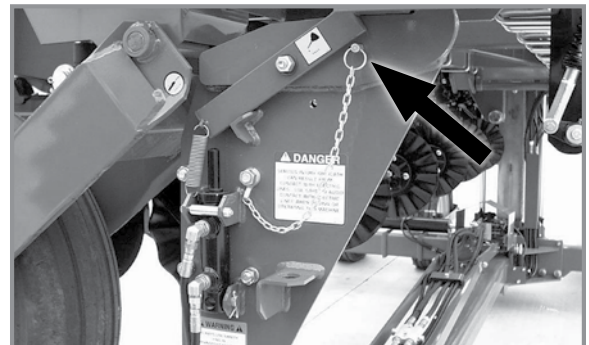
Uncontrolled movement of equipment can cause loss of control and could result in death, serious injury, or damage to property and equipment. Install all safety pins before transporting equipment.

7. Hold control console “ROTATE/TONGUE” switch in “**ROTATE**” and operate hydraulic control to rotate planter until transport latch is engaged.
8. Install tongue safety pin.



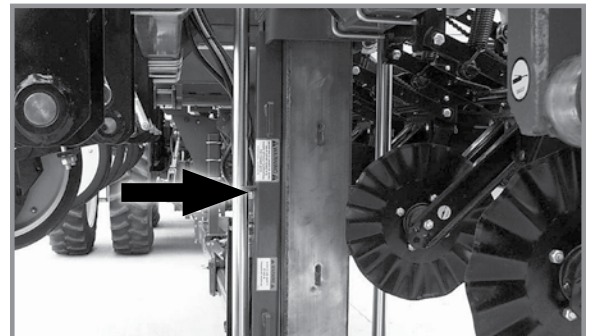
Tongue safety pin

9. Install transport latch locking pin.



Transport latch locking pin installed

10. Remove manual safety lockup from storage location on left side of axle assembly and position it behind front center lift cylinder.



Manual safety lockup installed

EDGEVAC SYSTEM

Kinze EdgeVac seed metering system includes seed meters, seed discs, and an air system consisting of a hydraulic driven vacuum fan which draws air through manifolds, hoses, and seed meters on each row unit.



WARNING

Moving fan blades can cause amputation or severe injury. Never operate vacuum fan with cover removed.

DIGITAL VACUUM READOUT

Digital vacuum readout is incorporated into Kinze Vision and Cobalt displays. Refer to their operation manuals for instructions.

VACUUM FAN MOTOR VALVE BLOCK ASSEMBLY

A pressure relief valve in the hydraulic circuit prevents build up of oil pressure over 35 PSI in case drain line when vacuum fan motor is operating. This valve will vent oil outside valve block through a drain hole in the aluminum valve block. This can occur whenever case drain is improperly connected or pressure in motor circuit builds.

See “Hydraulic Diagram - Vacuum Fan Motor System” in Maintenance section.

Valve block contains a check valve that prevents vacuum fan from operating in wrong direction if pressure is applied to return side of motor and allows fan to coast to a stop when tractor hydraulic control is returned to neutral position.

NOTE: Fan turns at a reduced speed if reverse pressure is applied.

ANALOG VACUUM OR PRESSURE GAUGE

The analog vacuum or pressure gauge connects directly to the EdgeVac (vacuum) or ASD (pressure) manifold and is teed into the digital sending units.

Only adjustment is to “zero” needle with no vacuum or pressure present. If there is a significant difference between gauge and a reading taken at meters, a different manifold location should be found to connect hose to gauge and digital sending unit.



Analog gauge

NOTE: Analog gauges are identical EXCEPT for plug and hose barb locations in side of gauge housing. DO NOT connect EdgeVac or ASD hose to wrong gauge. Check plug and hose barb installation if readout is erratic or appears inaccurate.

AG LEADER INTEGRA DISPLAY

INTEGRA is a full-featured hub of any precision farming operation. A large, full-color 12.1" HD touchscreen display is easy to read and offers powerful, year-round precision farming tools. Mapping, planter and application control, yield monitoring, real-time data logging, and more – are all controlled from the cab using the Integra display.

Four video camera inputs provide operators a better view of equipment operation and safety by allowing them to view live video on the display.

NOTE: See Integra operator manual for installation and programming.



Ag Leader Integra display

PLANTER MONITOR 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.

Ag Leader Integra display and associated cab harnesses are also required.



Planter monitor module (PMM)

ROCK GUARDS

Transport wheel rock guards are used on both sides of each transport wheel when planter is used in rocky conditions.

Rock guards help prevent rocks from being picked up by wheels and damaging adjoining row units.



Rock guard

AUXILIARY WORK LIGHTS PACKAGE

Auxiliary work lights package includes two 50 watt, 3" x 5" halogen flood lamps, mounting hardware, and a wiring harness to plug into existing planter light harness.

Mounting varies with ASD and conventional planters.



Auxiliary work lights

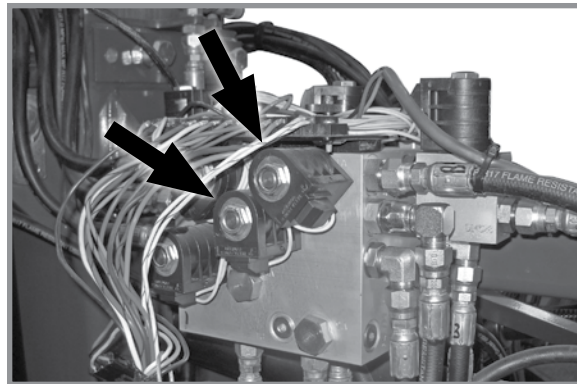
ROW MARKER OPERATION



Contacting or coming close to power lines or other high energy sources will cause death or serious injury. Keep away from power lines or high energy sources at all times.



Marker switch



Row marker solenoid valves (Cover removed)

Two solenoid valves on valve block at rear R.H. side of center frame, and a three position selector switch on control console permit operator to lower or raise desired row marker.

NOTICE

Marker position switch must be OFF when planter is not in use or tractor battery will drain.

See "Row Marker Speed Adjustment".

1. Select which row marker to lower on control console.
2. Operate hydraulic control to lower row marker.
3. Move control switch to other side to operate opposite row marker.
4. Raise row marker at end of field using hydraulic control.
5. After turn, using the hydraulic control, lower the pre-selected row marker.
6. Continue to follow this procedure.

NOTE: Both row markers can be lowered by operating switch in each position and hydraulic control twice. Row markers raise simultaneously with hydraulic control in raise position.

If electrical system does not operate properly:

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

ROW MARKER SPEED ADJUSTMENT

NOTICE

Excessive row marker travel speed can damage row markers.
Adjust flow controls before row markers are first used.

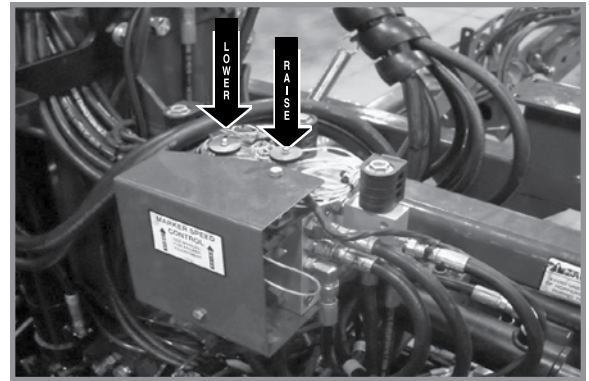
Marker hydraulic system includes two flow control valves. One flow control valve sets lowering speed and one sets raising speed of both markers. Flow controls determine amount of oil flow restriction through valves, varying marker travel speed.

Loosen jam nut and turn control clockwise, or IN to slow travel speed. Turn counterclockwise, or OUT to increase travel speed. Tighten jam nut after adjustments are complete.

NOTE: Tractors with flow control valves. Make row marker speed adjustment with tractor flow controls in maximum position. After row marker speed is set, adjust tractor flow controls to allow hydraulic control to stay in detent during marker raise or lower cycle.

NOTE: Hydraulics operate slowly when oil is cold. Make all adjustments with oil warm.

NOTE: On a tractor where oil flow cannot be controlled, tractor flow rate may be greater than rate marker cylinder can accept. Hold tractor hydraulic control lever until cylinder reaches end of its stroke. This occurs most often on tractors with an open center hydraulic system.



Row marker speed control adjustment

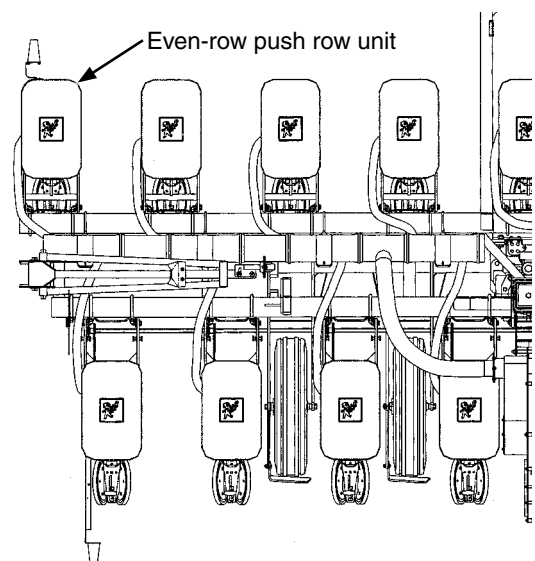
EVEN-ROW PUSH ROW UNIT

An Even-Row Push Row Unit Package is available to add one additional push row unit on outer L.H. side of front toolbar for use with Solid Row Interplant Package.

NOTE: See “Row Marker Adjustment” for determining correct length to set row marker assemblies when planting with even-row push row unit option.

An inner hitch with a 7½" offset mount is available from Kinze through your Kinze Dealer to plant two 15" rows between last year's 30" rows and avoid tire damage from stalks by driving off row

NOTE: install hitch onto 2-point hitch bar using R.H. hole If 2-Point Hitch Option is used. A 7½" offset mount is not needed. See “Offset Hitch Adjustment” for additional information.

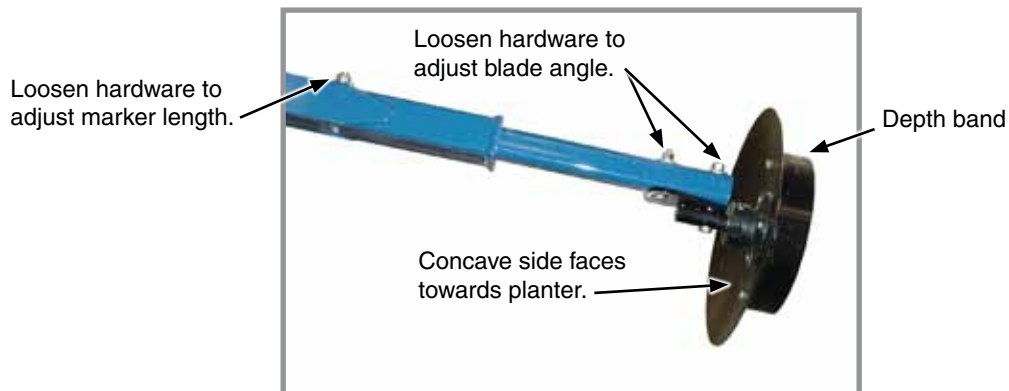


ROW MARKER ADJUSTMENTS

1. Multiply number of rows by the average row spacing in inches to determine total planting width.

Row Marker Lengths	
12 Row 30"	360" (914.4 cm)
12 Row 36"	432" (1097.3 cm)
12 Row 38"	456" (1158.2 cm)
16 Row 30"	480" (1219.2 cm)

2. Lower planter and row marker assembly to ground.
3. Measure from planter center line to a point where blade contacts ground.
4. Adjust row marker extension so distance from marker disc blade to center line of planter is equal to total planting width. Adjust right and left row marker assemblies equally and securely tighten clamping bolts.



Row marker disc blade angle adjustment

NOTICE

Setting marker disc blade assembly at a sharper angle than needed adds stress to row marker assembly and shortens bearing and blade life. Set blade angle only as needed to leave a clear mark.

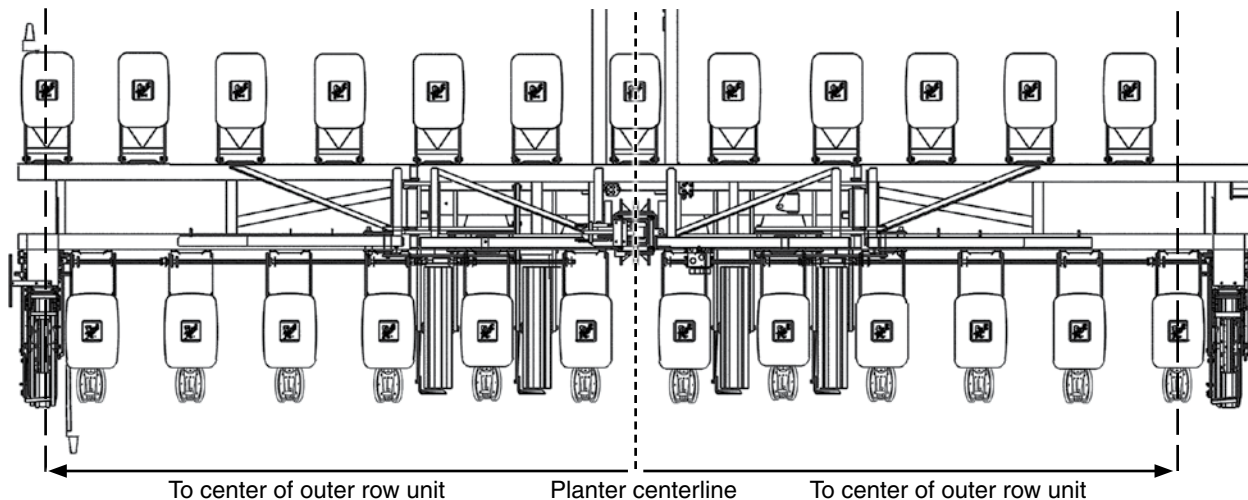
Marker disc blade is installed with concave side facing inward. Spindle assembly is slotted so hub and blade can be angled to throw more or less dirt.

5. Loosen hardware and move assembly as required.
6. Tighten bolts to specified torque.
7. Do a field test to ensure markers are properly adjusted.

NOTE: A notched marker blade is available from Kinze through your Kinze Dealer for use in more severe no till conditions.

ROW MARKER EVEN-ROW LENGTH ADJUSTMENT

Adjust marker extensions as shown below when using even-row push row unit option.



Center Of Planter To Center Of Outer Row Unit	x 2	+ 15"	=	Dimension Between Planter Center Line And Marker Blade
		Row Spacing		

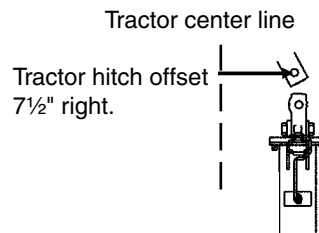
- | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>12 Row 30" With 12 Interplant Push Row Units
(L.H. Marker 180" x 2 + 15" = 375")
(R.H. Marker 165" x 2 + 15" = 345")</p> <p>16 Row 30" With 16 Interplant Push Row Units
(L.H. Marker 240" x 2 + 15" = 495")
(R.H. Marker 225" x 2 + 15" = 465")</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

<p>NOTE: Readjust row markers when planting 30" rows.</p> <p>Number Of Rows x Row Spacing (Inches)</p> <p>=</p> <p>Dimension Between Planter Center Line And Marker Blade</p> <p>12 Rows x 30" Spacing = 360" Marker Dimension 16 Rows x 30" Spacing = 480" Marker Dimension</p>

OFFSET HITCH ADJUSTMENT

An offset hitch is available from Kinze through your Kinze Dealer. Offset hitch provides centered and offset mounting positions for hitch clevis.

If tractor hitch is offset 7½" right of tractor center line, add 7½" to marker dimension on R.H. side of planter and subtract 7½" from marker dimension on L.H. side of planter.



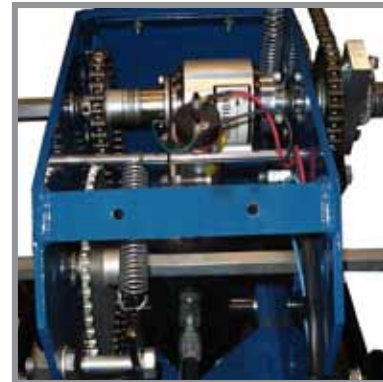
POINT ROW CLUTCHES

L.H. point row clutch switch
10 amp time delay fuse

R.H. point row clutch switch
10 amp time delay fuse



Single point row clutch control box



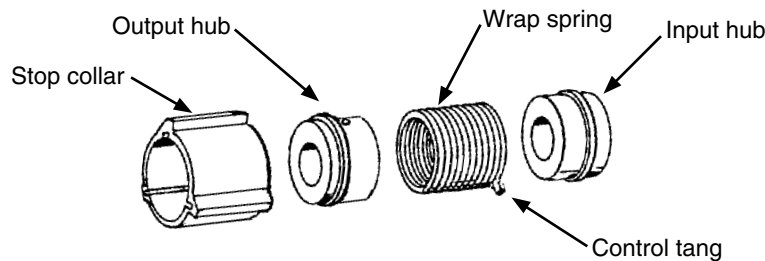
Point row clutch

Electric-activated clutches disengage drive on either half of planter for finishing up fields or for long point row situations. Clutch selector switch is located on tractor control box.

NOTICE

Switch must be OFF when planter is not in use or tractor battery will be drained.

NOTE: Liquid fertilizer piston pump has its own drive wheel and is not affected by point row clutch.



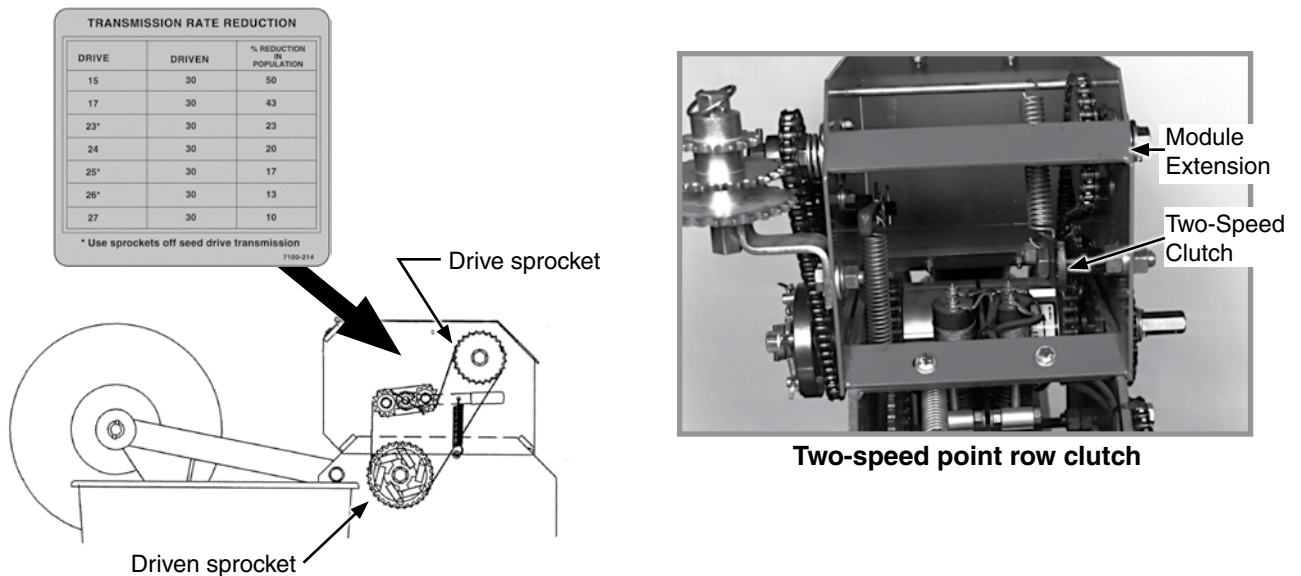
Clutch consists of a wrap spring riding on an input and output hub. Wrap spring is wrapped tightly over hubs during operation locking them together. Higher speeds create a tighter grip of spring on hubs.

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

Stop collar is controlled by an electric solenoid and an actuator arm. When selector switch on tractor control box is OFF, solenoid coil is NOT ENERGIZED and actuator arm will not contact stop on stop collar, allowing it to rotate with hubs and drive planter.

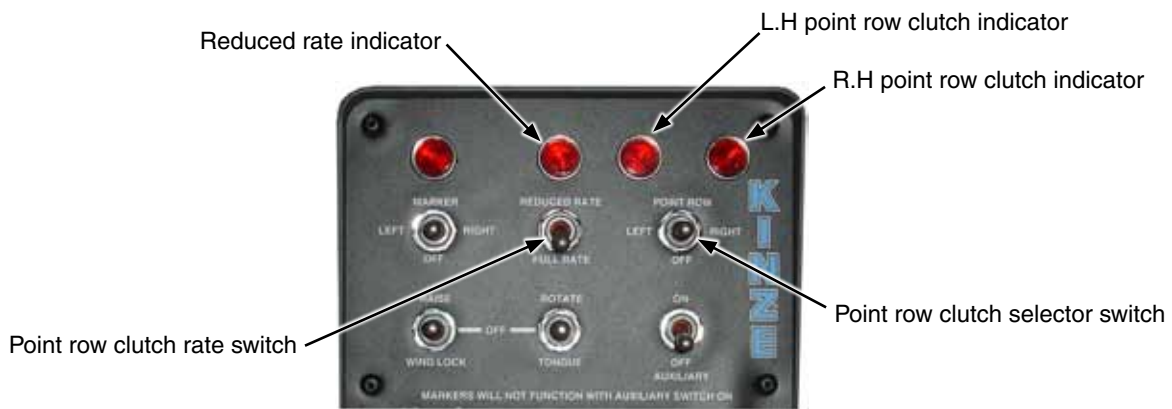
When operational switch is in "DISENGAGE" (right or left) solenoid coil IS ENERGIZED and plunger in solenoid coil pulls actuator arm against stop on stop collar, disengaging wrap spring and stopping planter drive.

TWO-SPEED POINT ROW CLUTCHES



Optional Two-Speed Point Row Clutch Package allows on-the-go population rate adjustment and capability to shut off either half of planter for finishing up fields or for long point row situations.

Population reduction ratio is determined by sprocket ratio between wheel module extension drive and driven sprockets. A rate reduction decal similar to one shown above is located on wheel module extension.



Two-speed point row clutch control box

Point row clutches are controlled by control console point row clutch switches. The point row switch shuts off left or right half of planter. Activating reduced rate switch engages one solenoid on each clutch assembly and reduces planting rate for entire planter.

NOTICE

Point row switch must be OFF and rate switch left in FULL RATE when planter is not in use or tractor battery will be drained.

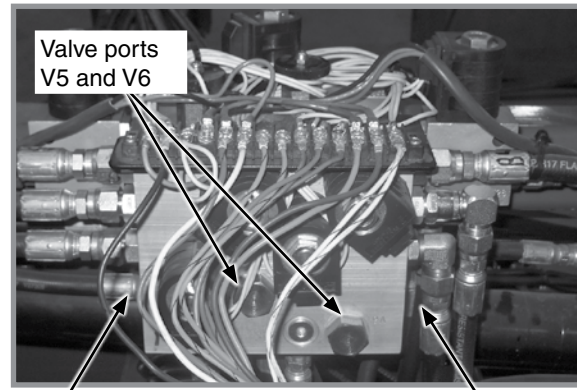
NOTE: Two-speed point row clutch is located ahead of liquid fertilizer squeeze pump and/or dry fertilizer drive. Activating two-speed point row clutch reduced rate switch causes same per cent of reduction in dry or liquid fertilizer (squeeze pump) application rates. Liquid fertilizer (piston pump) application rates are not be affected because piston pump uses a dedicated drive tire.

AUXILIARY HYDRAULIC OPTION

A customer-supplied auxiliary hydraulic option provides 10 GPM of oil flow at rear of planter for powering fertilizer attachments, bulk seed handling equipment, etc. Two customer-supplied solenoid valve kits (G1K275) are required to activate auxiliary hydraulic option with control console auxiliary switch.



Auxiliary switch



Hydraulic ports
A9 and B9

Hydraulic ports
A8 and B8

Valve block on rear center frame (Cover removed)

WARNING

Pressurized hydraulic fluid can penetrate body tissue and result in death, serious infection, or other injuries. Fluid injected under skin must be **IMMEDIATELY** removed by a surgeon familiar with this type of injury. Make sure connections are tight and hoses and fittings are not damaged before applying system pressure. Leaks can be invisible. Keep away from suspected leaks. Relieve pressure before searching for leaks or performing any system maintenance.

NOTE: Place row markers in transport position and remove all pressure from hydraulic system.

Remove cover from valve block on rear center frame of planter. Remove plugs from ports V5 and V6 and install solenoid valve assemblies following installation instruction supplied with each kit. Connect power to solenoid assemblies to orange/black wire located in wiring harness connection to L.H. side of valve block.

Remove plugs from 3/4"-16 O-ring ports A8 and B8 on R.H. side of valve block or ports A9 and B9 on L.H. side of valve block. Connect customer supplied hydraulic hoses.

Refer to "Hydraulic System Schematics" and "Electrical Wiring Schematics" in Lubrication and Maintenance section of this manual for additional information.

NOTE: Auxiliary switch ON disables all other control console switches.

Before operating auxiliary system make sure marker switch on control console is OFF. Move auxiliary switch to ON. Operate hydraulic control (marker/folding functions) to engage auxiliary system.

REAR TRAILER HITCH

Rear trailer hitch can tow a 3 or 4 wheel wagon behind planter. A spring, chain, and mounting bracket supports a 1¼" feed hose from hitch to piston pump. This extra length or loop is required to allow for planter to move into transport position without stretching hose.

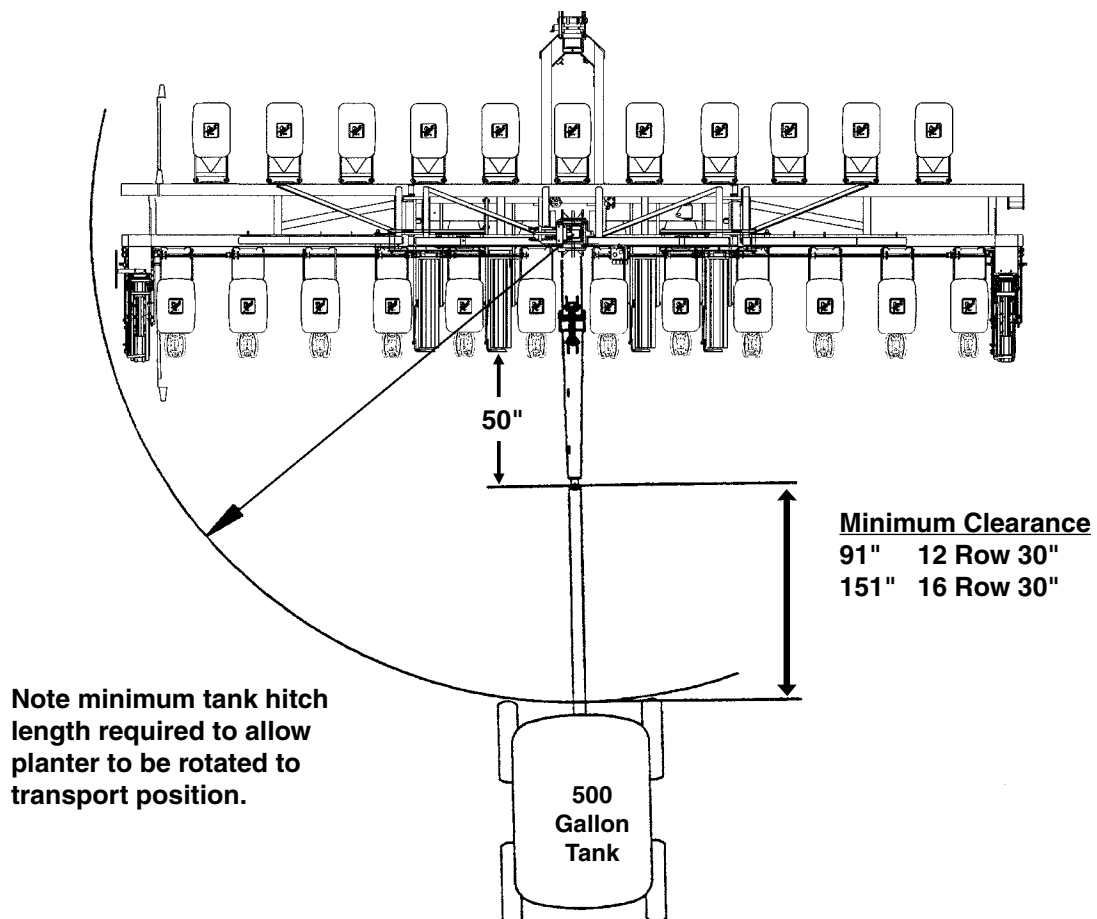


Trailer hitch

NOTICE

Rear trailer hitch is designed for use with piston pump only. Maximum allowable hitch weight is 200 lb (90.71 kg). Do not exceed 6,000 lb (2,721.55 kg) gross towing weight or the equivalent of a loaded 500 gal (1,892.7 L) tank and running gear or equipment can be damaged.

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



FIELD TEST

Perform a field test with any change of field and/or planting conditions, seed size or planter adjustment to ensure proper seed placement and operation of row units.

- Check planter for front to rear and lateral level operation. See “Level Planter”.
- Check **all** row units to be certain they are running level. Row unit parallel arms should be approximately parallel to the ground when planting.
- Check row markers for proper operation and adjustment. See “Row Marker Adjustment” and “Row Marker Speed Adjustment”.
- Check for proper application rates and placement of granular chemicals on **all** rows. See “Field Check Granular Chemical Application”.
- Check for desired depth placement and seed population on **all** rows. See “Field Check Seed Population” and appropriate Rate Chart.
- Check for proper application rates of fertilizer on **all** rows. See proper “Fertilizer Application Rate Chart”.

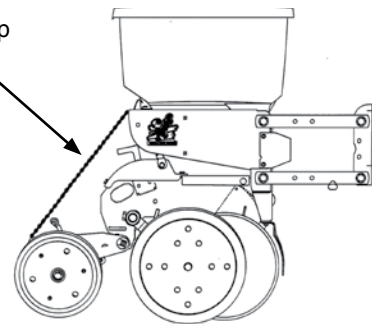
Reinspect machine after field testing.

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

FIELD CHECK SEED POPULATION

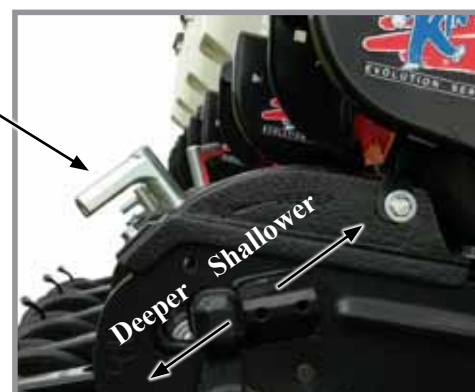
1. Tie up one or more sets of closing wheels by running a chain or rubber tarp strap between the hopper support panel and closing wheels. It may be necessary to decrease closing wheel arm spring tension.

Chain, rubber tarp strap, or similar.



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.

Planting depth adjustment handle



Planting depth adjustment

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".

$\frac{1}{1000}$ Acre Seed Population Count Row Width/Distance						
Row Width	15"	18"	19"	30"	36"	38"
Distance	34'10"	29'0"	27'8"	17'5"	14'6"	13'10"

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

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

EXAMPLE: 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 wheel and seed meter drive ratio, tire pressure, and/or seed meter malfunction.

1. If seed check shows average distance between seeds in inches is significantly different than seed rate chart indicates, first check drive ratio between drive wheel and seed meter. Check drive wheel air pressure, check for incorrect sprocket(s) in driveline and check drive and driven sprockets on transmission(s) for proper selection.
2. 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, finger has metered two seeds instead of one.
3. See "Seed Meter (Finger Pickup) Troubleshooting" or "Seed Meter (Brush-Type) Troubleshooting" in Troubleshooting Section of this manual.

DETERMINING POUNDS PER ACRE (BRUSH-TYPE METER)

Seeds per acre \div Seeds per pound (from label) = Pounds per acre

If seeds per pound information is not available use the following 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

DETERMINING BUSHELS PER ACRE

Pounds per acre \div Seed unit weight = Bushels per acre

Average Unit Weight of:

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

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 "Seed Meter (Brush-Type) Troubleshooting".

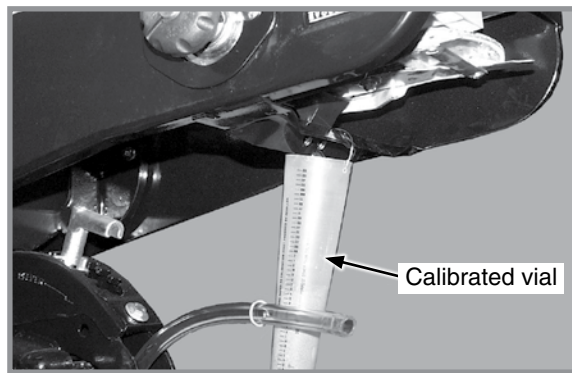
FIELD CHECK GRANULAR CHEMICAL APPLICATION

Temperature, humidity, speed, ground conditions, flowability of different material, or meter obstructions can affect granular chemical rate of delivery.

! WARNING

Agricultural chemicals can cause death or serious injury to persons, animals, and plants or seriously damage soil, equipment, or property. Read and follow all chemical and equipment manufacturers labels and instructions.

Perform a field check to determine application rates.



Granular chemical field check

1. Fill insecticide and/or herbicide hoppers.
2. Attach a calibrated vial to each granular chemical meter.

NOTE: Disengage clutch to avoid dropping seed during test.

3. Lower planter and drive 1320 feet at planting speed.
4. Weigh chemical in ounces caught in one vial.
5. Multiply that amount by factor shown to determine pounds per acre.

Pounds Per Acre	
Row Width	Factor
30"	.83
36"	.69
38"	.65

EXAMPLE: You are planting 30" rows. You have planted for 1320 feet at 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: Check calibration of all rows.

METERING GATE

Use metering gate setting as a starting point for distributing insecticide or herbicide. Charts are based on 5 mph (8 kph) planting speed. Use a higher gate setting for speeds faster than 5 mph (8 kph) and a lower setting for speeds slower than 5 mph (8 kph).

GENERAL PLANTING RATE INFORMATION

These planting rate charts apply to KINZE Model 3600 planters.

NOTICE

Sprocket combinations in these charts are for average conditions. Changes in sprocket combinations may be required for desired planting population. ALWAYS MAKE FIELD CHECKS TO BE SURE YOU ARE PLANTING AT DESIRED RATE.

NOTICE

Seed additives added in the hopper may affect finger pickup seed meter performance and accelerate wear.

NOTE: Seed size and shape may affect planting rate.

NOTE: Not all row spacings listed apply to all size planters.

NOTE: Speeds above 5.5 MPH (8.8 KPH) can adversely affect seed spacing.

MECHANICAL

Finger Pickup Corn Meter

Larger grades 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 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 finger pickup seed meters equipped with oil sunflower fingers. No. 1 and/or No. 2 size confectionery sunflower seeds are recommended for use in finger pickup seed meters equipped with corn fingers.

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 nearest tenth of an inch. Because of large range in seed size, pounds per acre is not a suggested method of selecting transmission settings. Smaller size seed pounds per acre may be below what was expected and large seed pounds per acre may appear above expectations. To determine pounds per acre, use formula given in "Determining Pounds Per Acre (Brush-Type Seed Meter)" in "Check Seed Population" in Machine Operation section of this manual.

NOTE: Planting speed can affect actual seeding rate. Make a field check and adjust transmission setting to obtain desired seed drop.

NOTE: Seed population per acre with 15" rows double rate for 30" rows, as well as 18" rows versus 36" rows and 19" rows versus 38" rows, at listed sprocket combination. See following pages.

NOTE: Half Rate (2 to 1) Drive Reduction Package may be required to obtain desired population and seed spacing when planting 15" row soybeans or other crops. Half Rate Drive with brush-type seed meters reduces planter transmission speed. Seeding rate will be approximately 50% of chart reading when using Half Rate (2 To 1) Drive Reduction Package.

**EXAMPLE: 30" row spacing 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)**

EDGEVAC

NOTE: 22, 28, and 44 tooth drive sprockets are NOT applicable to all rate charts. Check chart titles to ensure proper rate chart is selected. 22 tooth sprocket requires 114 pitch No. 40 chain. 28 tooth sprocket requires 118 pitch No. 40 chain. 44 tooth sprocket requires 126 pitch No. 40 chain.

NOTE: DO NOT USE 44 tooth sprockets (60 cell soybean discs) with Dry Fertilizer Package or Liquid Fertilizer Package.

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

30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
			Drive	Driven		
16,186	13,488	12,778	17	28	4 to 6	12.9
16,785	13,988	13,251	17	27	4 to 6	12.5
17,431	14,526	13,761	17	26	4 to 6	12.0
18,090	15,075	14,281	19	28	4 to 6	11.6
18,128	15,107	14,312	17	25	4 to 6	11.5
18,760	15,633	14,810	19	27	4 to 6	11.1
18,883	15,736	14,908	17	24	4 to 6	11.1
19,481	16,234	15,380	19	26	4 to 6	10.7
19,704	16,420	15,556	17	23	4 to 6	10.6
20,261	16,884	15,995	19	25	4 to 6	10.3
21,104	17,587	16,662	19	24	4 to 6	9.9
21,898	18,249	17,288	23	28	4 to 6	9.5
22,022	18,352	17,386	19	23	4 to 6	9.5
22,709	18,924	17,928	23	27	4 to 6	9.2
22,850	19,042	18,040	24	28	4 to 6	9.2
23,583	19,652	18,618	23	26	4 to 6	8.9
23,697	19,747	18,708	24	27	4 to 6	8.8
23,802	19,835	18,791	25	28	4 to 6	8.8
23,853	19,877	18,831	17	19	4 to 6	8.8
24,526	20,438	19,363	23	25	4 to 6	8.5
24,608	20,507	19,427	24	26	4 to 6	8.5
24,684	20,570	19,487	25	27	4 to 6	8.5
24,755	20,629	19,543	26	28	4 to 6	8.4
25,548	21,290	20,169	23	24	4 to 6	8.2
25,592	21,327	20,205	24	25	4 to 6	8.2
25,633	21,361	20,237	25	26	4 to 6	8.2
25,671	21,393	20,267	26	27	4 to 6	8.1
25,707	21,422	20,295	27	28	4 to 6	8.1
26,659	22,216	21,046	23	23	4 to 6	7.8
27,646	23,038	21,826	28	27	4 to 6	7.6
27,684	23,070	21,856	27	26	4 to 6	7.6
27,770	23,141	21,923	25	24	4 to 6	7.5
27,818	23,181	21,961	24	23	4 to 6	7.5
28,709	23,924	22,665	28	26	4 to 6	7.3
28,791	23,993	22,730	27	25	4 to 6	7.3
28,977	24,147	22,876	25	23	4 to 6	7.2
29,795	24,829	23,522	19	17	4 to 6	7.0
29,858	24,881	23,572	28	25	4 to 6	7.0
29,991	24,993	23,677	27	24	4 to 6	7.0
30,136	25,113	23,792	26	23	4 to 6	7.0
31,102	25,918	24,554	28	24	3 to 6	6.7
31,295	26,079	24,707	27	23	3 to 6	6.7
32,271	26,893	25,477	23	19	3 to 5.5	6.5
32,454	27,045	25,622	28	23	3 to 5.5	6.5
33,674	28,062	26,585	24	19	3 to 5.5	6.2
35,077	29,231	27,693	25	19	3 to 5	6.0
36,068	30,056	28,474	23	17	2 to 5	5.8
36,480	30,400	28,800	26	19	3 to 5	5.7
37,636	31,363	29,713	24	17	3 to 5	5.6
37,883	31,570	29,908	27	19	3 to 5	5.5
39,204	32,670	30,951	25	17	3 to 4.5	5.3
39,287	32,739	31,016	28	19	3 to 4.5	5.3
40,772	33,977	32,189	26	17	3 to 4.5	5.1
42,340	35,284	33,427	27	17	3 to 4.5	4.9
43,908	36,590	34,665	28	17	3 to 4.5	4.8

NOTE: See "Mechanical Meter General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE)
APPROXIMATE SEEDS/ACRE FOR 30"/36"/38" ROW WIDTHS**

Transmission Sprockets		60 Cell Soybean Or High-Rate Milo/Grain Sorghum			Average Seed Spacing In Inches	48 Cell Specialty Soybean Or High-Rate Acid-Delinted Cotton			Average Seed Spacing In Inches	Speed Range (MPH)
Drive	Driven	30" Rows	36" Rows	38" Rows		30" Rows	36" Rows	38" Rows		
17	28	80,928	67,440	63,891	2.6	64,742	53,952	51,113	3.2	2 to 8
17	27	83,926	69,938	66,257	2.5	67,141	55,950	53,006	3.1	2 to 8
17	26	87,154	72,628	68,805	2.4	69,723	58,102	55,044	3.0	2 to 8
19	28	90,449	75,374	71,407	2.3	72,359	60,299	57,126	2.9	2 to 8
19	27	93,799	78,166	74,052	2.2	75,039	62,533	59,242	2.8	2 to 8
17	24	94,416	78,680	74,539	2.2	75,533	62,944	59,631	2.8	2 to 8
17	23	98,521	82,101	77,780	2.1	78,817	65,681	62,224	2.7	2 to 8
19	25	101,303	84,419	79,976	2.1	81,042	67,535	63,981	2.6	2 to 8
19	24	105,524	87,937	83,309	2.0	84,419	70,350	66,647	2.5	2 to 8
23	28	109,491	91,243	86,440	1.9	87,593	72,994	69,152	2.4	2 to 8
19	23	110,112	91,760	86,931	1.9	88,090	73,408	69,545	2.4	2 to 8
24	28	114,252	95,210	90,199	1.8	91,402	76,168	72,159	2.3	2 to 8
24	27	118,483	98,736	93,539	1.8	94,786	78,989	74,831	2.2	2 to 8
17	19	119,263	99,386	94,155	1.8	95,410	79,509	75,324	2.2	2 to 8
24	26	123,040	102,534	97,137	1.7	98,432	82,027	77,710	2.1	2 to 8
26	28	123,773	103,144	97,715	1.7	99,018	82,515	78,172	2.1	2 to 8
24	25	127,962	106,635	101,023	1.6	102,370	85,308	80,818	2.0	2 to 8
26	27	128,357	106,964	101,334	1.6	102,686	85,571	81,067	2.0	2 to 8
23	23	133,294	111,078	105,232	1.6	106,635	88,862	84,186	2.0	2 to 8
27	26	138,420	115,350	109,279	1.5	110,736	92,280	87,423	1.9	2 to 8
24	23	139,089	115,907	109,807	1.5	111,271	92,726	87,846	1.9	2 to 8
25	23	144,884	120,737	114,382	1.4	115,907	96,590	91,506	1.8	2 to 8
19	17	148,975	124,146	117,612	1.4	119,180	99,317	94,090	1.8	2 to 8
27	24	149,955	124,963	118,386	1.4	119,964	99,970	94,709	1.7	2 to 8
28	24	155,509	129,591	122,770	1.3	124,407	103,673	98,216	1.7	2 to 8
23	19	161,355	134,463	127,386	1.3	129,084	107,570	101,909	1.6	2 to 8
28	23	162,270	135,225	128,108	1.3	129,816	108,180	102,483	1.6	2 to 8
24	19	168,371	140,309	132,924	1.2	134,696	112,247	106,339	1.6	2 to 8
25	19	175,386	146,155	138,463	1.2	140,309	116,924	110,770	1.5	2 to 8
23	17	180,338	150,282	142,372	1.2	144,270	120,226	113,898	1.5	2 to 8
26	19	182,402	152,001	144,001	1.1	145,922	121,601	115,201	1.4	2 to 7
27	19	189,417	157,878	148,540	1.1	151,534	126,278	118,832	1.4	2 to 7
28	19	196,433	163,694	155,078	1.1	157,146	130,955	124,062	1.3	2 to 7
26	17	203,861	169,884	160,943	1.0	163,089	135,907	128,754	1.3	2 to 7
27	17	211,702	176,418	167,133	0.9	169,362	141,134	133,706	1.2	2 to 7
28	17	219,542	182,952	173,323	0.9	175,634	146,362	138,658	1.2	2 to 7

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

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

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

**PLANTING RATES FOR BRUSH-TYPE SEED METERS (STANDARD DRIVE)
APPROXIMATE SEEDS/ACRE FOR 15"/18"/19" ROW WIDTHS**

Transmission Sprockets		60 Cell Soybean Or High-Rate Milo/Grain Sorghum			Average Seed Spacing In Inches	48 Cell Specialty Soybean Or High-Rate Acid-Delinted Cotton			Average Seed Spacing In Inches	Speed Range (MPH)
Drive	Driven	15" Rows	18" Rows	19" Rows		15" Rows	18" Rows	19" Rows		
17	28	161,856	134,880	127,782	2.6	129,484	107,904	102,226	3.2	2 to 8
17	27	167,852	139,876	132,514	2.5	134,282	111,900	106,012	3.1	2 to 8
17	26	174,308	145,256	137,610	2.4	139,446	116,204	110,088	3.0	2 to 8
19	28	180,898	150,748	142,814	2.3	144,718	120,598	114,252	2.9	2 to 8
19	27	187,598	156,332	148,104	2.2	150,078	125,066	118,484	2.8	2 to 8
17	24	188,832	157,360	149,078	2.2	151,066	125,888	119,262	2.8	2 to 8
17	23	197,042	164,202	155,560	2.1	157,634	131,362	124,448	2.7	2 to 8
19	25	202,606	168,838	159,952	2.1	162,084	135,070	127,962	2.6	2 to 8
19	24	211,048	175,874	166,618	2.0	168,838	140,700	133,294	2.5	2 to 8
23	28	218,982	182,486	172,880	1.9	175,186	145,988	138,304	2.4	2 to 8
19	23	220,224	183,520	173,862	1.9	176,180	146,816	139,090	2.4	2 to 8
24	28	228,504	190,420	180,398	1.8	182,804	152,336	144,318	2.3	2 to 8
24	27	236,966	197,472	187,078	1.8	189,572	157,978	149,662	2.2	2 to 8
17	19	238,526	198,772	188,310	1.8	190,820	159,018	150,648	2.2	2 to 8
24	26	246,080	205,068	194,274	1.7	196,864	164,054	155,420	2.1	2 to 8
26	28	247,546	206,288	195,430	1.7	198,036	165,030	156,344	2.1	2 to 8
24	25	255,924	213,270	202,046	1.6	204,740	170,616	161,636	2.0	2 to 8
26	27	256,714	213,928	202,668	1.6	205,372	171,142	162,134	2.0	2 to 8
23	23	266,588	222,156	210,464	1.6	213,270	177,724	168,372	2.0	2 to 8
27	26	276,840	230,700	218,558	1.5	221,472	184,560	174,846	1.9	2 to 8
24	23	278,178	231,814	219,614	1.5	222,542	185,452	175,692	1.9	2 to 8
25	23	289,768	241,474	228,764	1.4	231,814	193,180	183,012	1.8	2 to 8
19	17	297,950	248,292	235,224	1.4	238,360	198,634	188,180	1.8	2 to 8
27	24	299,910	249,926	236,772	1.4	239,928	199,940	189,418	1.7	2 to 8
28	24	311,018	259,182	245,540	1.3	248,814	207,346	196,432	1.7	2 to 8
23	19	322,710	268,926	254,772	1.3	258,168	215,140	203,818	1.6	2 to 8
28	23	324,540	270,450	256,216	1.3	259,632	216,360	204,966	1.6	2 to 8
24	19	336,742	280,618	265,848	1.2	269,392	224,494	212,678	1.6	2 to 8
25	19	350,772	292,310	276,926	1.2	280,618	233,848	221,540	1.5	2 to 8
23	17	360,676	300,564	284,744	1.2	288,540	240,452	227,796	1.5	2 to 8
26	19	364,804	304,002	288,002	1.1	291,844	243,202	230,402	1.4	2 to 7
27	19	378,834	315,756	297,080	1.1	303,068	252,556	237,664	1.4	2 to 7
28	19	392,866	327,388	310,156	1.1	314,292	261,910	248,124	1.3	2 to 7
26	17	407,722	339,768	321,886	1.0	326,178	271,814	257,508	1.3	2 to 7
27	17	423,404	352,836	334,266	0.9	338,724	282,268	267,412	1.2	2 to 7
28	17	439,084	365,904	346,646	0.9	351,268	292,724	277,316	1.2	2 to 7

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

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

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

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

Transmission Sprockets		36 Cell Acid-Delinted Large Cotton			Average Seed Spacing In Inches	30 Cell Milo/Grain Sorghum Or Acid-Delinted Cotton			Average Seed Spacing In Inches	Speed Range (MPH)
Drive	Driven	30" Rows	36" Rows	38" Rows		30" Rows	36" Rows	38" Rows		
17	28	48,557	40,464	38,335	4.3	40,464	33,720	31,945	5.2	2 to 8
17	27	50,356	41,963	39,754	4.2	41,963	34,969	33,129	5.0	2 to 8
17	26	52,292	43,577	41,283	4.0	43,577	36,314	34,403	4.8	2 to 8
19	28	54,269	45,224	42,844	3.9	45,225	37,687	35,704	4.6	2 to 8
19	27	56,279	46,900	44,431	3.7	46,900	39,083	37,026	4.5	2 to 8
17	24	56,650	47,208	44,723	3.7	47,208	39,340	37,270	4.4	2 to 8
17	23	59,113	49,261	46,668	3.5	49,261	41,051	38,890	4.2	2 to 8
19	25	60,782	50,651	47,986	3.5	50,652	42,210	39,988	4.1	2 to 8
19	24	63,314	52,762	49,985	3.3	52,762	43,968	41,654	4.0	2 to 8
23	28	65,695	54,746	51,864	3.2	54,746	45,621	43,220	3.8	2 to 8
19	23	66,067	55,056	52,159	3.2	55,056	45,880	43,465	3.8	2 to 8
24	28	68,551	57,126	54,119	3.0	57,126	47,605	45,099	3.7	2 to 8
24	27	71,090	59,242	56,123	2.9	59,242	49,368	46,770	3.5	2 to 8
17	19	71,558	59,632	56,493	2.9	59,631	49,693	47,077	3.5	2 to 8
24	26	73,824	61,520	58,282	2.8	61,520	51,267	48,569	3.4	2 to 8
26	28	74,264	61,886	58,629	2.8	61,886	51,572	48,858	3.4	2 to 8
24	25	76,772	63,981	60,614	2.7	63,981	53,317	50,511	3.3	2 to 8
26	27	77,014	64,178	60,800	2.7	64,178	53,482	50,667	3.3	2 to 8
23	23	79,976	66,647	63,139	2.6	66,647	55,539	52,616	3.1	2 to 8
27	26	83,052	69,210	65,567	2.5	69,210	57,675	54,640	3.0	2 to 8
24	23	83,453	69,544	65,884	2.5	69,544	57,954	54,904	3.0	2 to 8
25	23	86,930	72,442	68,629	2.4	72,442	60,368	57,191	2.9	2 to 8
19	17	89,385	74,488	70,567	2.3	74,488	62,073	58,806	2.8	2 to 8
27	24	89,973	74,978	71,032	2.3	74,978	62,481	59,193	2.8	2 to 8
28	24	93,305	77,755	73,662	2.2	77,755	64,796	61,385	2.7	2 to 8
23	19	96,813	80,678	76,432	2.2	80,678	67,231	63,693	2.6	2 to 8
28	23	97,362	81,135	76,864	2.1	81,135	67,613	64,054	2.6	2 to 8
24	19	101,023	84,185	79,754	2.1	84,185	70,155	66,462	2.5	2 to 8
25	19	105,232	87,693	83,078	2.0	87,693	73,078	69,231	2.4	2 to 8
23	17	108,233	90,169	85,423	1.9	90,169	75,141	71,186	2.3	2 to 8
26	19	109,441	91,201	86,401	1.9	91,201	76,001	72,001	2.3	2 to 7
27	19	113,650	94,709	89,124	1.8	94,709	78,924	74,770	2.2	2 to 7
28	19	117,860	98,216	93,047	1.8	98,216	81,847	77,539	2.1	2 to 7
26	17	122,317	101,930	96,566	1.7	101,930	84,942	80,471	2.1	2 to 7
27	17	127,021	105,851	100,280	1.6	105,851	88,209	83,566	2.0	2 to 7
28	17	131,725	109,771	103,994	1.6	109,771	91,476	86,661	1.9	2 to 7

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

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

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

**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 12 cell acid-delinted hill-drop cotton discs plant from 3 to 6 seeds per cell. Select proper disc for seed size range to be planted.

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

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

Transmission Sprockets Drive Driven		NUMBER OF HILLS PER ACRE 12 Cell Hill-Drop Cotton, Acid-Delinted			Average Hill Spacing In Inches	Speed Range (MPH)
		30" Rows	36" Rows	38" Rows		
17	28	16,186	13,488	12,778	12.9	2 to 8
17	27	16,785	13,988	13,251	12.5	2 to 8
17	26	17,431	14,526	13,761	12.0	2 to 8
19	28	18,090	15,075	14,281	11.6	2 to 8
19	27	18,760	15,633	14,810	11.1	2 to 8
17	24	18,883	15,736	14,908	11.1	2 to 8
17	23	19,704	16,420	15,556	10.6	2 to 8
19	25	20,261	16,884	15,995	10.3	2 to 8
19	24	21,105	17,587	16,662	9.9	2 to 8
23	28	21,898	18,249	17,288	9.5	2 to 8
19	23	22,022	18,352	17,386	9.5	2 to 8
24	28	22,850	19,042	18,040	9.2	2 to 8
24	27	23,697	19,747	18,708	8.8	2 to 8
17	19	23,853	19,877	18,831	8.8	2 to 8
24	26	24,608	20,507	19,427	8.5	2 to 8
26	28	24,755	20,629	19,543	8.4	2 to 8
24	25	25,592	21,327	20,205	8.2	2 to 8
26	27	25,671	21,393	20,267	8.1	2 to 8
23	23	26,659	22,216	21,046	7.8	2 to 8
27	26	27,684	23,070	21,856	7.6	2 to 8
24	23	27,818	23,181	21,961	7.5	2 to 8
25	23	28,977	24,147	22,876	7.2	2 to 8
19	17	29,795	24,829	23,522	7.0	2 to 8
27	24	29,991	24,993	23,677	7.0	2 to 8
28	24	31,102	25,918	24,554	6.7	2 to 8
23	19	32,271	26,893	25,477	6.5	2 to 8
28	23	32,454	27,045	25,622	6.5	2 to 8
24	19	33,674	28,062	26,585	6.2	2 to 8
25	19	35,077	29,231	27,693	6.0	2 to 8
23	17	36,068	30,056	28,474	5.8	2 to 8
26	19	36,480	30,400	28,800	5.7	2 to 7
27	19	37,883	31,570	29,908	5.5	2 to 7
28	19	39,287	32,739	31,016	5.3	2 to 7
26	17	40,772	33,977	32,189	5.1	2 to 7
27	17	42,340	35,284	33,427	4.9	2 to 7
28	17	43,908	36,590	34,665	4.8	2 to 7

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

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

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

**PLANTING RATES FOR (EDGEVAC) CORN/POPCORN 39 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET**

APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
46,414	38,678	36,642	23,207	19,339	18,321	15	28	4 to 6	9.0
48,133	40,111	37,999	24,066	20,055	19,000	15	27	4 to 6	8.7
49,984	41,653	39,461	24,992	20,827	19,730	15	26	4 to 6	8.4
51,983	43,319	41,039	25,992	21,660	20,520	15	25	4 to 6	8.0
52,602	43,835	41,528	26,301	21,918	20,764	17	28	4 to 6	7.9
54,149	45,124	42,749	27,075	22,562	21,375	15	24	4 to 6	7.7
54,550	45,459	43,066	27,275	22,729	21,533	17	27	4 to 6	7.7
56,503	47,086	44,608	28,252	23,543	22,304	15	23	4 to 6	7.4
56,648	47,207	44,722	28,324	23,603	22,361	17	26	4 to 6	7.4
58,791	48,992	46,414	29,395	24,496	23,207	19	28	4 to 6	7.1
58,914	49,095	46,511	29,457	24,548	23,256	17	25	4 to 6	7.1
60,968	50,807	48,133	30,484	25,403	24,066	19	27	4 to 6	6.9
61,369	51,141	48,449	30,685	25,570	24,225	17	24	4 to 6	6.8
63,313	52,761	49,984	31,656	26,380	24,992	19	26	4 to 6	6.6
64,037	53,364	50,556	32,019	26,682	25,278	17	23	4 to 6	6.5
65,845	54,871	51,983	32,923	27,436	25,992	19	25	4 to 6	6.4
68,399	56,999	53,999	34,199	28,500	27,000	15	19	4 to 6	6.1
68,589	57,157	54,149	34,294	28,579	27,075	19	24	4 to 6	6.1
71,167	59,306	56,185	35,584	29,653	28,092	23	28	4 to 6	5.9
71,571	59,643	56,503	35,786	29,821	28,252	19	23	4 to 6	5.8
73,803	61,503	58,266	36,902	30,751	29,133	23	27	4 to 6	5.7
74,262	61,885	58,628	37,131	30,942	29,314	24	28	4 to 6	5.6
76,446	63,705	60,352	38,223	31,852	30,176	15	17	4 to 6	5.5
77,012	64,177	60,799	38,506	32,088	30,400	24	27	4 to 6	5.4
77,519	64,599	61,199	38,759	32,300	30,600	17	19	4 to 6	5.4
79,708	66,423	62,927	39,854	33,211	31,464	23	25	4 to 6	5.2
80,450	67,042	63,513	40,225	33,521	31,757	26	28	4 to 6	5.2
83,029	69,191	65,549	41,514	34,595	32,775	23	24	4 to 6	5.0
83,173	69,311	65,663	41,587	34,655	32,832	24	25	4 to 6	5.0
83,544	69,620	65,956	41,772	34,810	32,978	27	28	4 to 6	5.0
86,639	72,199	68,399	43,319	36,099	34,199	23	23	4 to 6	4.8
89,848	74,873	70,932	44,924	37,436	35,466	28	27	4 to 6	4.7
89,971	74,976	71,030	44,985	37,488	35,515	27	26	4 to 6	4.6
90,406	75,338	71,373	45,203	37,669	35,686	24	23	4 to 6	4.6
93,303	77,753	73,660	46,652	38,876	36,830	28	26	4 to 6	4.5
93,570	77,975	73,871	46,785	38,987	36,935	27	25	4 to 6	4.5
94,172	78,477	74,347	47,086	39,239	37,173	25	23	4 to 6	4.4
96,831	80,693	76,446	48,416	40,346	38,223	19	17	4 to 6	4.3
97,469	81,224	76,949	48,734	40,612	38,474	27	24	4 to 6	4.3
97,939	81,616	77,321	48,970	40,808	38,660	26	23	4 to 6	4.3
101,078	84,232	79,799	50,539	42,116	39,899	28	24	4 to 6	4.1
101,706	84,755	80,294	50,853	42,378	40,147	27	23	4 to 6	4.1
104,878	87,399	82,799	52,439	43,699	41,399	23	19	4 to 6	4.0
105,473	87,894	83,268	52,737	43,947	41,634	28	23	4 to 6	4.0
109,438	91,199	86,399	54,719	45,599	43,199	24	19	4 to 6	3.8
113,998	94,999	89,999	56,999	47,499	44,999	25	19	4 to 6	3.7
117,217	97,681	92,540	58,609	48,840	46,270	23	17	4 to 6	3.6
118,558	98,798	93,599	59,279	49,399	46,799	26	19	4 to 6	3.5
122,313	101,928	96,563	61,157	50,964	48,282	24	17	4 to 6	3.4
123,118	102,598	97,199	61,559	51,299	48,599	27	19	4 to 6	3.4
127,410	106,175	100,587	63,705	53,087	50,293	25	17	4 to 6	3.3
127,678	106,398	100,798	63,839	53,199	50,399	28	19	4 to 6	3.3
132,506	110,422	104,610	66,253	55,211	52,305	26	17	4 to 6	3.2
132,846	110,705	104,878	66,423	55,352	52,439	23	15	4 to 6	3.1
137,603	114,669	108,634	68,801	57,334	54,317	27	17	4 to 6	3.0

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) CORN/POPCORN 39 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
58,791	48,992	46,414	29,395	24,496	23,207	15	28	4 to 6	7.1
60,968	50,807	48,133	30,484	25,403	24,066	15	27	4 to 6	6.9
63,313	52,761	49,984	31,656	26,380	24,992	15	26	4 to 6	6.6
65,845	54,871	51,983	32,923	27,436	25,992	15	25	4 to 6	6.4
66,629	55,524	52,602	33,315	27,762	26,301	17	28	4 to 6	6.3
68,589	57,157	54,149	34,294	28,579	27,075	15	24	4 to 6	6.1
69,097	57,581	54,550	34,549	28,790	27,275	17	27	4 to 6	6.1
71,571	59,643	56,503	35,786	29,821	28,252	15	23	4 to 6	5.8
71,755	59,796	56,648	35,877	29,898	28,324	17	26	4 to 6	5.8
74,468	62,057	58,791	37,234	31,028	29,395	19	28	4 to 6	5.6
74,625	62,187	58,914	37,312	31,094	29,457	17	25	4 to 6	5.6
77,226	64,355	60,968	38,613	32,178	30,484	19	27	4 to 6	5.4
77,734	64,778	61,369	38,867	32,389	30,685	17	24	4 to 6	5.4
80,196	66,830	63,313	40,098	33,415	31,656	19	26	4 to 6	5.2
81,114	67,595	64,037	40,557	33,797	32,019	17	23	4 to 6	5.2
83,404	69,503	65,845	41,702	34,752	32,923	19	25	4 to 6	5.0
86,639	72,199	68,399	43,319	36,099	34,199	15	19	4 to 6	4.8
86,879	72,399	68,589	43,440	36,200	34,294	19	24	4 to 6	4.8
90,145	75,121	71,167	45,073	37,561	35,584	23	28	4 to 6	4.6
90,657	75,547	71,571	45,328	37,774	35,786	19	23	4 to 6	4.6
93,484	77,904	73,803	46,742	38,952	36,902	23	27	4 to 6	4.5
94,065	78,387	74,262	47,032	39,194	37,131	24	28	4 to 6	4.4
96,831	80,693	76,446	48,416	40,346	38,223	15	17	4 to 6	4.3
97,549	81,291	77,012	48,774	40,645	38,506	24	27	4 to 6	4.3
98,191	81,825	77,519	49,095	40,913	38,759	17	19	4 to 6	4.3
100,963	84,136	79,708	50,481	42,068	39,854	23	25	4 to 6	4.1
101,904	84,920	80,450	50,952	42,460	40,225	26	28	4 to 6	4.1
105,170	87,641	83,029	52,585	43,821	41,514	23	24	4 to 6	4.0
105,353	87,794	83,173	52,676	43,897	41,587	24	25	4 to 6	4.0
105,823	88,186	83,544	52,911	44,093	41,772	27	28	4 to 6	4.0
109,742	91,452	86,639	54,871	45,726	43,319	23	23	4 to 6	3.8
113,807	94,839	89,848	56,903	47,420	44,924	28	27	4 to 6	3.7
113,963	94,969	89,971	56,982	47,485	44,985	27	26	4 to 6	3.7
114,514	95,428	90,406	57,257	47,714	45,203	24	23	4 to 6	3.7
118,184	98,487	93,303	59,092	49,243	46,652	28	26	4 to 6	3.5
118,522	98,768	93,570	59,261	49,384	46,785	27	25	4 to 6	3.5
119,285	99,404	94,172	59,643	49,702	47,086	25	23	4 to 6	3.5
122,653	102,211	96,831	61,327	51,105	48,416	19	17	4 to 6	3.4
123,460	102,883	97,469	61,730	51,442	48,734	27	24	4 to 6	3.4
124,057	103,380	97,939	62,028	51,690	48,970	26	23	4 to 6	3.4
128,033	106,694	101,078	64,016	53,347	50,539	28	24	4 to 6	3.3
128,828	107,357	101,706	64,414	53,678	50,853	27	23	4 to 6	3.2
132,846	110,705	104,878	66,423	55,352	52,439	23	19	4 to 6	3.1
133,599	111,333	105,473	66,800	55,666	52,737	28	23	4 to 6	3.1
138,622	115,518	109,438	69,311	57,759	54,719	24	19	4 to 6	3.0
144,398	120,332	113,998	72,199	60,166	56,999	25	19	4 to 6	2.9
148,475	123,729	117,217	74,237	61,865	58,609	23	17	4 to 6	2.8
150,174	125,145	118,558	75,087	62,572	59,279	26	19	4 to 6	2.8
154,930	129,109	122,313	77,465	64,554	61,157	24	17	4 to 6	2.7
155,950	129,958	123,118	77,975	64,979	61,559	27	19	4 to 6	2.7
161,386	134,488	127,410	80,693	67,244	63,705	25	17	4 to 6	2.6
161,726	134,771	127,678	80,863	67,386	63,839	28	19	4 to 6	2.6
167,841	139,868	132,506	83,921	69,934	66,253	26	17	4 to 6	2.5
168,272	140,226	132,846	84,136	70,113	66,423	23	15	4 to 6	2.5
174,297	145,247	137,603	87,148	72,624	68,801	27	17	4 to 6	2.4

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) LOW-RATE CORN/POPCORN 24 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
28,562	23,802	22,549	14,281	11,901	11,275	15	28	4 to 6	14.6
29,620	24,683	23,384	14,810	12,342	11,692	15	27	4 to 6	14.1
30,759	25,633	24,284	15,380	12,816	12,142	15	26	4 to 6	13.6
31,990	26,658	25,255	15,995	13,329	12,628	15	25	4 to 6	13.1
32,370	26,975	25,556	16,185	13,488	12,778	17	28	4 to 6	12.9
33,323	27,769	26,307	16,661	13,884	13,154	15	24	4 to 6	12.5
33,569	27,975	26,502	16,785	13,987	13,251	17	27	4 to 6	12.5
34,771	28,976	27,451	17,386	14,488	13,726	15	23	4 to 6	12.0
34,861	29,050	27,521	17,430	14,525	13,761	17	26	4 to 6	12.0
36,179	30,149	28,562	18,089	15,074	14,281	19	28	4 to 6	11.6
36,255	30,212	28,622	18,127	15,106	14,311	17	25	4 to 6	11.5
37,519	31,266	29,620	18,759	15,633	14,810	19	27	4 to 6	11.1
37,766	31,471	29,815	18,883	15,736	14,907	17	24	4 to 6	11.1
38,962	32,468	30,759	19,481	16,234	15,380	19	26	4 to 6	10.7
39,408	32,840	31,111	19,704	16,420	15,556	17	23	4 to 6	10.6
40,520	33,767	31,990	20,260	16,883	15,995	19	25	4 to 6	10.3
42,092	35,076	33,230	21,046	17,538	16,615	15	19	4 to 6	9.9
42,209	35,174	33,323	21,104	17,587	16,661	19	24	4 to 6	9.9
43,795	36,496	34,575	21,898	18,248	17,288	23	28	4 to 6	9.5
44,044	36,703	34,771	22,022	18,352	17,386	19	23	4 to 6	9.5
45,417	37,848	35,856	22,709	18,924	17,928	23	27	4 to 6	9.2
45,700	38,083	36,079	22,850	19,041	18,039	24	28	4 to 6	9.2
47,044	39,203	37,140	23,522	19,602	18,570	15	17	4 to 6	8.9
47,392	39,493	37,415	23,696	19,747	18,707	24	27	4 to 6	8.8
47,704	39,753	37,661	23,852	19,877	18,830	17	19	4 to 6	8.8
49,051	40,876	38,724	24,525	20,438	19,362	23	25	4 to 6	8.5
49,508	41,257	39,085	24,754	20,628	19,543	26	28	4 to 6	8.4
51,095	42,579	40,338	25,547	21,289	20,169	23	24	4 to 6	8.2
51,183	42,653	40,408	25,592	21,326	20,204	24	25	4 to 6	8.2
51,412	42,843	40,588	25,706	21,422	20,294	27	28	4 to 6	8.1
53,316	44,430	42,092	26,658	22,215	21,046	23	23	4 to 6	7.8
55,291	46,076	43,651	27,645	23,038	21,825	28	27	4 to 6	7.6
55,367	46,139	43,711	27,683	23,069	21,855	27	26	4 to 6	7.6
55,634	46,362	43,922	27,817	23,181	21,961	24	23	4 to 6	7.5
57,417	47,848	45,329	28,709	23,924	22,665	28	26	4 to 6	7.3
57,581	47,985	45,459	28,791	23,992	22,730	27	25	4 to 6	7.3
57,952	48,294	45,752	28,976	24,147	22,876	25	23	4 to 6	7.2
59,589	49,657	47,044	29,794	24,829	23,522	19	17	4 to 6	7.0
59,981	49,984	47,353	29,990	24,992	23,677	27	24	4 to 6	7.0
60,270	50,225	47,582	30,135	25,113	23,791	26	23	4 to 6	6.9
62,202	51,835	49,107	31,101	25,918	24,553	28	24	4 to 6	6.7
62,588	52,157	49,412	31,294	26,079	24,706	27	23	4 to 6	6.7
64,541	53,784	50,953	32,270	26,892	25,477	23	19	4 to 6	6.5
64,907	54,089	51,242	32,453	27,044	25,621	28	23	4 to 6	6.4
67,347	56,122	53,168	33,673	28,061	26,584	24	19	4 to 6	6.2
70,153	58,461	55,384	35,076	29,230	27,692	25	19	4 to 6	6.0
72,134	60,111	56,948	36,067	30,056	28,474	23	17	4 to 6	5.8
72,959	60,799	57,599	36,479	30,400	28,800	26	19	4 to 6	5.7
75,270	62,725	59,424	37,635	31,362	29,712	24	17	4 to 6	5.6
75,765	63,138	59,814	37,883	31,569	29,907	27	19	4 to 6	5.5
78,406	65,338	61,900	39,203	32,669	30,950	25	17	4 to 6	5.3
78,571	65,476	62,030	39,286	32,738	31,015	28	19	4 to 6	5.3
81,542	67,952	64,375	40,771	33,976	32,188	26	17	4 to 6	5.1
81,751	68,126	64,541	40,876	34,063	32,270	23	15	4 to 6	5.1
84,679	70,565	66,851	42,339	35,283	33,426	27	17	4 to 6	4.9

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) LOW-RATE CORN/POPCORN 24 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE HILLS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
36,179	30,149	28,562	18,089	15,074	14,281	15	28	4 to 6	11.6
37,519	31,266	29,620	18,759	15,633	14,810	15	27	4 to 6	11.1
38,962	32,468	30,759	19,481	16,234	15,380	15	26	4 to 6	10.7
40,520	33,767	31,990	20,260	16,883	15,995	15	25	4 to 6	10.3
41,003	34,169	32,370	20,501	17,084	16,185	17	28	4 to 6	10.2
42,209	35,174	33,323	21,104	17,587	16,661	15	24	4 to 6	9.9
42,521	35,434	33,569	21,261	17,717	16,785	17	27	4 to 6	9.8
44,044	36,703	34,771	22,022	18,352	17,386	15	23	4 to 6	9.5
44,157	36,797	34,861	22,078	18,399	17,430	17	26	4 to 6	9.5
45,826	38,189	36,179	22,913	19,094	18,089	19	28	4 to 6	9.1
45,923	38,269	36,255	22,961	19,135	18,127	17	25	4 to 6	9.1
47,524	39,603	37,519	23,762	19,802	18,759	19	27	4 to 6	8.8
47,836	39,864	37,766	23,918	19,932	18,883	17	24	4 to 6	8.7
49,352	41,126	38,962	24,676	20,563	19,481	19	26	4 to 6	8.5
49,916	41,597	39,408	24,958	20,798	19,704	17	23	4 to 6	8.4
51,326	42,771	40,520	25,663	21,386	20,260	19	25	4 to 6	8.1
53,316	44,430	42,092	26,658	22,215	21,046	15	19	4 to 6	7.8
53,464	44,554	42,209	26,732	22,277	21,104	19	24	4 to 6	7.8
55,474	46,228	43,795	27,737	23,114	21,898	23	28	4 to 6	7.5
55,789	46,491	44,044	27,894	23,245	22,022	19	23	4 to 6	7.5
57,529	47,941	45,417	28,764	23,970	22,709	23	27	4 to 6	7.3
57,886	48,238	45,700	28,943	24,119	22,850	24	28	4 to 6	7.2
59,589	49,657	47,044	29,794	24,829	23,522	15	17	4 to 6	7.0
60,030	50,025	47,392	30,015	25,012	23,696	24	27	4 to 6	7.0
60,425	50,354	47,704	30,212	25,177	23,852	17	19	4 to 6	6.9
62,131	51,776	49,051	31,066	25,888	24,525	23	25	4 to 6	6.7
62,710	52,258	49,508	31,355	26,129	24,754	26	28	4 to 6	6.7
64,720	53,933	51,095	32,360	26,967	25,547	23	24	4 to 6	6.5
64,832	54,027	51,183	32,416	27,013	25,592	24	25	4 to 6	6.5
65,122	54,268	51,412	32,561	27,134	25,706	27	28	4 to 6	6.4
67,534	56,278	53,316	33,767	28,139	26,658	23	23	4 to 6	6.2
70,035	58,362	55,291	35,017	29,181	27,645	28	27	4 to 6	6.0
70,131	58,443	55,367	35,066	29,221	27,683	27	26	4 to 6	6.0
70,470	58,725	55,634	35,235	29,362	27,817	24	23	4 to 6	5.9
72,729	60,607	57,417	36,364	30,304	28,709	28	26	4 to 6	5.7
72,936	60,780	57,581	36,468	30,390	28,791	27	25	4 to 6	5.7
73,406	61,172	57,952	36,703	30,586	28,976	25	23	4 to 6	5.7
75,479	62,899	59,589	37,739	31,450	29,794	19	17	4 to 6	5.5
75,975	63,313	59,981	37,988	31,656	29,990	27	24	4 to 6	5.5
76,342	63,619	60,270	38,171	31,809	30,135	26	23	4 to 6	5.5
78,789	65,658	62,202	39,395	32,829	31,101	28	24	4 to 6	5.3
79,279	66,066	62,588	39,639	33,033	31,294	27	23	4 to 6	5.3
81,751	68,126	64,541	40,876	34,063	32,270	23	19	4 to 6	5.1
82,215	68,512	64,907	41,107	34,256	32,453	28	23	4 to 6	5.1
85,306	71,088	67,347	42,653	35,544	33,673	24	19	4 to 6	4.9
88,860	74,050	70,153	44,430	37,025	35,076	25	19	4 to 6	4.7
91,369	76,141	72,134	45,685	38,070	36,067	23	17	4 to 6	4.6
92,415	77,012	72,959	46,207	38,506	36,479	26	19	4 to 6	4.5
95,342	79,451	75,270	47,671	39,726	37,635	24	17	4 to 6	4.4
95,969	79,974	75,765	47,985	39,987	37,883	27	19	4 to 6	4.4
99,314	82,762	78,406	49,657	41,381	39,203	25	17	4 to 6	4.2
99,523	82,936	78,571	49,762	41,468	39,286	28	19	4 to 6	4.2
103,287	86,072	81,542	51,643	43,036	40,771	26	17	4 to 6	4.0
103,552	86,293	81,751	51,776	43,147	40,876	23	15	4 to 6	4.0
107,259	89,383	84,679	53,630	44,691	42,339	27	17	4 to 6	3.9

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) SOYBEAN AND MILO/GRAIN SORGHUM 60 CELL DISCS
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
71,406	59,505	56,373	35,703	29,752	28,186	15	28	4 to 6	5.9
74,050	61,708	58,461	37,025	30,854	29,230	15	27	4 to 6	5.6
76,898	64,082	60,709	38,449	32,041	30,355	15	26	4 to 6	5.4
79,974	66,645	63,138	39,987	33,323	31,569	15	25	4 to 6	5.2
80,926	67,439	63,889	40,463	33,719	31,945	17	28	4 to 6	5.2
83,306	69,422	65,768	41,653	34,711	32,884	15	24	4 to 6	5.0
83,924	69,936	66,255	41,962	34,968	33,128	17	27	4 to 6	5.0
86,928	72,440	68,628	43,464	36,220	34,314	15	23	4 to 6	4.8
87,151	72,626	68,804	43,576	36,313	34,402	17	26	4 to 6	4.8
90,447	75,372	71,406	45,223	37,686	35,703	19	28	4 to 6	4.6
90,637	75,531	71,556	45,319	37,766	35,778	17	25	4 to 6	4.6
93,797	78,164	74,050	46,898	39,082	37,025	19	27	4 to 6	4.5
94,414	78,678	74,537	47,207	39,339	37,269	17	24	4 to 6	4.4
97,404	81,170	76,898	48,702	40,585	38,449	19	26	4 to 6	4.3
98,519	82,099	77,778	49,259	41,050	38,889	17	23	4 to 6	4.2
101,301	84,417	79,974	50,650	42,209	39,987	19	25	4 to 6	4.1
105,229	87,691	83,076	52,615	43,845	41,538	15	19	4 to 6	4.0
105,521	87,935	83,306	52,761	43,967	41,653	19	24	4 to 6	4.0
109,488	91,240	86,438	54,744	45,620	43,219	23	28	4 to 6	3.8
110,109	91,758	86,928	55,055	45,879	43,464	19	23	4 to 6	3.8
113,544	94,620	89,640	56,772	47,310	44,820	23	27	4 to 6	3.7
114,249	95,207	90,196	57,124	47,604	45,098	24	28	4 to 6	3.7
117,609	98,008	92,849	58,805	49,004	46,425	15	17	4 to 6	3.6
118,480	98,734	93,537	59,240	49,367	46,769	24	27	4 to 6	3.5
119,260	99,383	94,152	59,630	49,692	47,076	17	19	4 to 6	3.5
122,627	102,189	96,811	61,314	51,095	48,405	23	25	4 to 6	3.4
123,770	103,141	97,713	61,885	51,571	48,856	26	28	4 to 6	3.4
127,737	106,447	100,845	63,868	53,224	50,422	23	24	4 to 6	3.3
127,959	106,632	101,020	63,979	53,316	50,510	24	25	4 to 6	3.3
128,530	107,108	101,471	64,265	53,554	50,735	27	28	4 to 6	3.3
133,290	111,075	105,229	66,645	55,538	52,615	23	23	4 to 6	3.1
138,227	115,189	109,127	69,113	57,595	54,563	28	27	4 to 6	3.0
138,417	115,347	109,276	69,208	57,674	54,638	27	26	4 to 6	3.0
139,086	115,905	109,804	69,543	57,952	54,902	24	23	4 to 6	3.0
143,543	119,619	113,324	71,772	59,810	56,662	28	26	4 to 6	2.9
143,954	119,961	113,648	71,977	59,981	56,824	27	25	4 to 6	2.9
144,881	120,734	114,380	72,440	60,367	57,190	25	23	4 to 6	2.9
148,971	124,143	117,609	74,486	62,071	58,805	19	17	4 to 6	2.8
149,952	124,960	118,383	74,976	62,480	59,191	27	24	4 to 6	2.8
150,676	125,563	118,955	75,338	62,782	59,477	26	23	4 to 6	2.8
155,505	129,588	122,767	77,753	64,794	61,384	28	24	4 to 6	2.7
156,471	130,393	123,530	78,236	65,196	61,765	27	23	4 to 6	2.7
161,351	134,459	127,383	80,676	67,230	63,691	23	19	4 to 6	2.6
162,266	135,222	128,105	81,133	67,611	64,053	28	23	4 to 6	2.6
168,367	140,306	132,921	84,183	70,153	66,461	24	19	4 to 6	2.5
175,382	146,152	138,459	87,691	73,076	69,230	25	19	4 to 6	2.4
180,334	150,278	142,369	90,167	75,139	71,184	23	17	4 to 6	2.3
182,397	151,998	143,998	91,199	75,999	71,999	26	19	4 to 6	2.3
188,175	156,812	148,559	94,087	78,406	74,279	24	17	4 to 6	2.2
189,413	157,844	149,536	94,706	78,922	74,768	27	19	4 to 6	2.2
196,015	163,346	154,749	98,008	81,673	77,374	25	17	4 to 6	2.1
196,428	163,690	155,075	98,214	81,845	77,537	28	19	4 to 6	2.1
203,856	169,880	160,939	101,928	84,940	80,469	26	17	4 to 6	2.1
204,378	170,315	161,351	102,189	85,158	80,676	23	15	4 to 6	2.0
211,696	176,414	167,129	105,848	88,207	83,564	27	17	4 to 6	2.0

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) SOYBEAN AND MILO/GRAIN SORGHUM 60 CELL DISCS
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
90,447	75,372	71,406	45,223	37,686	35,703	15	28	4 to 6	4.6
93,797	78,164	74,050	46,898	39,082	37,025	15	27	4 to 6	4.5
97,404	81,170	76,898	48,702	40,585	38,449	15	26	4 to 6	4.3
101,301	84,417	79,974	50,650	42,209	39,987	15	25	4 to 6	4.1
102,507	85,422	80,926	51,253	42,711	40,463	17	28	4 to 6	4.1
105,521	87,935	83,306	52,761	43,967	41,653	15	24	4 to 6	4.0
106,303	88,586	83,924	53,152	44,293	41,962	17	27	4 to 6	3.9
110,109	91,758	86,928	55,055	45,879	43,464	15	23	4 to 6	3.8
110,392	91,993	87,151	55,196	45,997	43,576	17	26	4 to 6	3.8
114,566	95,472	90,447	57,283	47,736	45,223	19	28	4 to 6	3.7
114,807	95,673	90,637	57,404	47,836	45,319	17	25	4 to 6	3.6
118,809	99,008	93,797	59,405	49,504	46,898	19	27	4 to 6	3.5
119,591	99,659	94,414	59,796	49,830	47,207	17	24	4 to 6	3.5
123,379	102,816	97,404	61,689	51,408	48,702	19	26	4 to 6	3.4
124,791	103,992	98,519	62,395	51,996	49,259	17	23	4 to 6	3.4
128,314	106,928	101,301	64,157	53,464	50,650	19	25	4 to 6	3.3
133,290	111,075	105,229	66,645	55,538	52,615	15	19	4 to 6	3.1
133,661	111,384	105,521	66,830	55,692	52,761	19	24	4 to 6	3.1
138,685	115,571	109,488	69,343	57,786	54,744	23	28	4 to 6	3.0
139,472	116,227	110,109	69,736	58,113	55,055	19	23	4 to 6	3.0
143,822	119,852	113,544	71,911	59,926	56,772	23	27	4 to 6	2.9
144,715	120,596	114,249	72,358	60,298	57,124	24	28	4 to 6	2.9
148,971	124,143	117,609	74,486	62,071	58,805	15	17	4 to 6	2.8
150,075	125,062	118,480	75,037	62,531	59,240	24	27	4 to 6	2.8
151,062	125,885	119,260	75,531	62,943	59,630	17	19	4 to 6	2.8
155,328	129,440	122,627	77,664	64,720	61,314	23	25	4 to 6	2.7
156,775	130,646	123,770	78,387	65,323	61,885	26	28	4 to 6	2.7
161,800	134,833	127,737	80,900	67,416	63,868	23	24	4 to 6	2.6
162,081	135,067	127,959	81,040	67,534	63,979	24	25	4 to 6	2.6
162,805	135,670	128,530	81,402	67,835	64,265	27	28	4 to 6	2.6
168,834	140,695	133,290	84,417	70,348	66,645	23	23	4 to 6	2.5
175,087	145,906	138,227	87,544	72,953	69,113	28	27	4 to 6	2.4
175,328	146,107	138,417	87,664	73,053	69,208	27	26	4 to 6	2.4
176,175	146,812	139,086	88,087	73,406	69,543	24	23	4 to 6	2.4
181,822	151,518	143,543	90,911	75,759	71,772	28	26	4 to 6	2.3
182,341	151,951	143,954	91,171	75,975	71,977	27	25	4 to 6	2.3
183,516	152,930	144,881	91,758	76,465	72,440	25	23	4 to 6	2.3
188,697	157,248	148,971	94,349	78,624	74,486	19	17	4 to 6	2.2
189,939	158,282	149,952	94,969	79,141	74,976	27	24	4 to 6	2.2
190,856	159,047	150,676	95,428	79,523	75,338	26	23	4 to 6	2.2
196,973	164,145	155,505	98,487	82,072	77,753	28	24	4 to 6	2.1
198,197	165,164	156,471	99,098	82,582	78,236	27	23	4 to 6	2.1
204,378	170,315	161,351	102,189	85,158	80,676	23	19	4 to 6	2.0
205,537	171,281	162,266	102,769	85,641	81,133	28	23	4 to 6	2.0
213,264	177,720	168,367	106,632	88,860	84,183	24	19	4 to 6	2.0
222,150	185,125	175,382	111,075	92,563	87,691	25	19	4 to 6	1.9
228,423	190,352	180,334	114,211	95,176	90,167	23	17	4 to 6	1.8
231,036	192,530	182,397	115,518	96,265	91,199	26	19	4 to 6	1.8
238,354	198,629	188,175	119,177	99,314	94,087	24	17	4 to 6	1.8
239,923	199,935	189,413	119,961	99,968	94,706	27	19	4 to 6	1.7
248,286	206,905	196,015	124,143	103,452	98,008	25	17	4 to 6	1.7
248,809	207,340	196,428	124,404	103,670	98,214	28	19	4 to 6	1.7
	215,181	203,856	129,109	107,591	101,928	26	17	4 to 6	1.6
	215,733	204,378	129,440	107,866	102,189	23	15	4 to 6	1.6
	223,457	211,696	134,074	111,729	105,848	27	17	4 to 6	1.6

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) SOYBEAN 60 CELL DISC
44 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
142,811	119,009	112,746	71,406	59,505	56,373	15	28	4 to 6	2.9
148,100	123,417	116,921	74,050	61,708	58,461	15	27	4 to 6	2.8
153,796	128,164	121,418	76,898	64,082	60,709	15	26	4 to 6	2.7
159,948	133,290	126,275	79,974	66,645	63,138	15	25	4 to 6	2.6
161,852	134,877	127,778	80,926	67,439	63,889	17	28	4 to 6	2.6
166,613	138,844	131,536	83,306	69,422	65,768	15	24	4 to 6	2.5
167,847	139,873	132,511	83,924	69,936	66,255	17	27	4 to 6	2.5
173,857	144,881	137,255	86,928	72,440	68,628	15	23	4 to 6	2.4
174,303	145,252	137,607	87,151	72,626	68,804	17	26	4 to 6	2.4
180,894	150,745	142,811	90,447	75,372	71,406	19	28	4 to 6	2.3
181,275	151,062	143,112	90,637	75,531	71,556	17	25	4 to 6	2.3
187,594	156,328	148,100	93,797	78,164	74,050	19	27	4 to 6	2.2
188,828	157,357	149,075	94,414	78,678	74,537	17	24	4 to 6	2.2
194,809	162,341	153,796	97,404	81,170	76,898	19	26	4 to 6	2.1
197,038	164,198	155,556	98,519	82,099	77,778	17	23	4 to 6	2.1
202,601	168,834	159,948	101,301	84,417	79,974	19	25	4 to 6	2.1
210,458	175,382	166,151	105,229	87,691	83,076	15	19	4 to 6	2.0
211,043	175,869	166,613	105,521	87,935	83,306	19	24	4 to 6	2.0
218,977	182,481	172,876	109,488	91,240	86,438	23	28	4 to 6	1.9
220,219	183,516	173,857	110,109	91,758	86,928	19	23	4 to 6	1.9
227,087	189,239	179,279	113,544	94,620	89,640	23	27	4 to 6	1.8
228,498	190,415	180,393	114,249	95,207	90,196	24	28	4 to 6	1.8
235,218	196,015	185,699	117,609	98,008	92,849	15	17	4 to 6	1.8
236,961	197,467	187,074	118,480	98,734	93,537	24	27	4 to 6	1.8
238,519	198,766	188,305	119,260	99,383	94,152	17	19	4 to 6	1.8
245,254	204,378	193,622	122,627	102,189	96,811	23	25	4 to 6	1.7
247,539	206,283	195,426	123,770	103,141	97,713	26	28	4 to 6	1.7
	212,894	201,689	127,737	106,447	100,845	23	24	4 to 6	1.6
	213,264	202,040	127,959	106,632	101,020	24	25	4 to 6	1.6
	214,217	202,942	128,530	107,108	101,471	27	28	4 to 6	1.6
	222,150	210,458	133,290	111,075	105,229	23	23	4 to 6	1.6
	230,378	218,253	138,227	115,189	109,127	28	27	4 to 6	1.5
	230,695	218,553	138,417	115,347	109,276	27	26	4 to 6	1.5
	231,809	219,609	139,086	115,905	109,804	24	23	4 to 6	1.5
	239,239	226,647	143,543	119,619	113,324	28	26	4 to 6	1.5
	239,923	227,295	143,954	119,961	113,648	27	25	4 to 6	1.5
	241,468	228,759	144,881	120,734	114,380	25	23	4 to 6	1.4
	248,286	235,218	148,971	124,143	117,609	19	17	4 to 6	1.4
	249,919	236,766	149,952	124,960	118,383	27	24	4 to 6	1.4
		237,909	150,676	125,563	118,955	26	23	4 to 6	1.4
		245,535	155,505	129,588	122,767	28	24	4 to 6	1.3
		247,060	156,471	130,393	123,530	27	23	4 to 6	1.3
			161,351	134,459	127,383	23	19	4 to 6	1.3
			162,266	135,222	128,105	28	23	4 to 6	1.3
			168,367	140,306	132,921	24	19	4 to 6	1.2
			175,382	146,152	138,459	25	19	4 to 6	1.2
			180,334	150,278	142,369	23	17	4 to 6	1.2
			182,397	151,998	143,998	26	19	4 to 6	1.1
			188,175	156,812	148,559	24	17	4 to 6	1.1
			189,413	157,844	149,536	27	19	4 to 6	1.1
			196,015	163,346	154,749	25	17	4 to 6	1.1
			196,428	163,690	155,075	28	19	4 to 6	1.1
			203,856	169,880	160,939	26	17	4 to 6	1.0
			204,378	170,315	161,351	23	15	4 to 6	1.0
			211,696	176,414	167,129	27	17	4 to 6	1.0

NOTE: Planting rates over 250,000 seeds/acre are not recommended with subject seed disc and/or drive ratio.

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) HIGH-RATE SOYBEAN 120 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
142,811	119,009	112,746	71,406	59,505	56,373	15	28	4 to 6	2.9
148,100	123,417	116,921	74,050	61,708	58,461	15	27	4 to 6	2.8
153,796	128,164	121,418	76,898	64,082	60,709	15	26	4 to 6	2.7
159,948	133,290	126,275	79,974	66,645	63,138	15	25	4 to 6	2.6
161,852	134,877	127,778	80,926	67,439	63,889	17	28	4 to 6	2.6
166,613	138,844	131,536	83,306	69,422	65,768	15	24	4 to 6	2.5
167,847	139,873	132,511	83,924	69,936	66,255	17	27	4 to 6	2.5
173,857	144,881	137,255	86,928	72,440	68,628	15	23	4 to 6	2.4
174,303	145,252	137,607	87,151	72,626	68,804	17	26	4 to 6	2.4
180,894	150,745	142,811	90,447	75,372	71,406	19	28	4 to 6	2.3
181,275	151,062	143,112	90,637	75,531	71,556	17	25	4 to 6	2.3
187,594	156,328	148,100	93,797	78,164	74,050	19	27	4 to 6	2.2
188,828	157,357	149,075	94,414	78,678	74,537	17	24	4 to 6	2.2
194,809	162,341	153,796	97,404	81,170	76,898	19	26	4 to 6	2.1
197,038	164,198	155,556	98,519	82,099	77,778	17	23	4 to 6	2.1
202,601	168,834	159,948	101,301	84,417	79,974	19	25	4 to 6	2.1
210,458	175,382	166,151	105,229	87,691	83,076	15	19	4 to 6	2.0
211,043	175,869	166,613	105,521	87,935	83,306	19	24	4 to 6	2.0
218,977	182,481	172,876	109,488	91,240	86,438	23	28	4 to 6	1.9
220,219	183,516	173,857	110,109	91,758	86,928	19	23	4 to 6	1.9
227,087	189,239	179,279	113,544	94,620	89,640	23	27	4 to 6	1.8
228,498	190,415	180,393	114,249	95,207	90,196	24	28	4 to 6	1.8
235,218	196,015	185,699	117,609	98,008	92,849	15	17	4 to 6	1.8
236,961	197,467	187,074	118,480	98,734	93,537	24	27	4 to 6	1.8
238,519	198,766	188,305	119,260	99,383	94,152	17	19	4 to 6	1.8
245,254	204,378	193,622	122,627	102,189	96,811	23	25	4 to 6	1.7
247,539	206,283	195,426	123,770	103,141	97,713	26	28	4 to 6	1.7
	212,894	201,689	127,737	106,447	100,845	23	24	4 to 6	1.6
	213,264	202,040	127,959	106,632	101,020	24	25	4 to 6	1.6
	214,217	202,942	128,530	107,108	101,471	27	28	4 to 6	1.6
	222,150	210,458	133,290	111,075	105,229	23	23	4 to 6	1.6
	230,378	218,253	138,227	115,189	109,127	28	27	4 to 6	1.5
	230,695	218,553	138,417	115,347	109,276	27	26	4 to 6	1.5
	231,809	219,609	139,086	115,905	109,804	24	23	4 to 6	1.5
	239,239	226,647	143,543	119,619	113,324	28	26	4 to 6	1.5
	239,923	227,295	143,954	119,961	113,648	27	25	4 to 6	1.5
	241,468	228,759	144,881	120,734	114,380	25	23	4 to 6	1.4
	248,286	235,218	148,971	124,143	117,609	19	17	4 to 6	1.4
	249,919	236,766	149,952	124,960	118,383	27	24	4 to 6	1.4
		237,909	150,676	125,563	118,955	26	23	4 to 6	1.4
		245,535	155,505	129,588	122,767	28	24	4 to 6	1.3
		247,060	156,471	130,393	123,530	27	23	4 to 6	1.3
			161,351	134,459	127,383	23	19	4 to 6	1.3
			162,266	135,222	128,105	28	23	4 to 6	1.3
			168,367	140,306	132,921	24	19	4 to 6	1.2
			175,382	146,152	138,459	25	19	4 to 6	1.2
			180,334	150,278	142,369	23	17	4 to 6	1.2
			182,397	151,998	143,998	26	19	4 to 6	1.1
			188,175	156,812	148,559	24	17	4 to 6	1.1
			189,413	157,844	149,536	27	19	4 to 6	1.1
			196,015	163,346	154,749	25	17	4 to 6	1.1
			196,428	163,690	155,075	28	19	4 to 6	1.1
			203,856	169,880	160,939	26	17	4 to 6	1.0
			204,378	170,315	161,351	23	15	4 to 6	1.0
			211,696	176,414	167,129	27	17	4 to 6	1.0

NOTE: Planting rates over 250,000 seeds/acre are not recommended with subject seed disc and/or drive ratio.

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) HIGH-RATE SOYBEAN 120 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
180,894	150,745	142,811	90,447	75,372	71,406	15	28	4 to 6	2.3
187,594	156,328	148,100	93,797	78,164	74,050	15	27	4 to 6	2.2
194,809	162,341	153,796	97,404	81,170	76,898	15	26	4 to 6	2.1
202,601	168,834	159,948	101,301	84,417	79,974	15	25	4 to 6	2.1
205,013	170,844	161,852	102,507	85,422	80,926	17	28	4 to 6	2.0
211,043	175,869	166,613	105,521	87,935	83,306	15	24	4 to 6	2.0
212,606	177,172	167,847	106,303	88,586	83,924	17	27	4 to 6	2.0
220,219	183,516	173,857	110,109	91,758	86,928	15	23	4 to 6	1.9
220,783	183,986	174,303	110,392	91,993	87,151	17	26	4 to 6	1.9
229,132	190,944	180,894	114,566	95,472	90,447	19	28	4 to 6	1.8
229,615	191,346	181,275	114,807	95,673	90,637	17	25	4 to 6	1.8
237,619	198,016	187,594	118,809	99,008	93,797	19	27	4 to 6	1.8
239,182	199,318	188,828	119,591	99,659	94,414	17	24	4 to 6	1.7
246,758	205,632	194,809	123,379	102,816	97,404	19	26	4 to 6	1.7
249,581	207,984	197,038	124,791	103,992	98,519	17	23	4 to 6	1.7
	213,857	202,601	128,314	106,928	101,301	19	25	4 to 6	1.6
	222,150	210,458	133,290	111,075	105,229	15	19	4 to 6	1.6
	222,768	211,043	133,661	111,384	105,521	19	24	4 to 6	1.6
	231,142	218,977	138,685	115,571	109,488	23	28	4 to 6	1.5
	232,453	220,219	139,472	116,227	110,109	19	23	4 to 6	1.5
	239,703	227,087	143,822	119,852	113,544	23	27	4 to 6	1.5
	241,192	228,498	144,715	120,596	114,249	24	28	4 to 6	1.4
	248,286	235,218	148,971	124,143	117,609	15	17	4 to 6	1.4
		236,961	150,075	125,062	118,480	24	27	4 to 6	1.4
		238,519	151,062	125,885	119,260	17	19	4 to 6	1.4
		245,254	155,328	129,440	122,627	23	25	4 to 6	1.3
		247,539	156,775	130,646	123,770	26	28	4 to 6	1.3
			161,800	134,833	127,737	23	24	4 to 6	1.3
			162,081	135,067	127,959	24	25	4 to 6	1.3
			162,805	135,670	128,530	27	28	4 to 6	1.3
			168,834	140,695	133,290	23	23	4 to 6	1.2
			175,087	145,906	138,227	28	27	4 to 6	1.2
			175,328	146,107	138,417	27	26	4 to 6	1.2
			176,175	146,812	139,086	24	23	4 to 6	1.2
			181,822	151,518	143,543	28	26	4 to 6	1.1
			182,341	151,951	143,954	27	25	4 to 6	1.1
			183,516	152,930	144,881	25	23	4 to 6	1.1
			188,697	157,248	148,971	19	17	4 to 6	1.1
			189,939	158,282	149,952	27	24	4 to 6	1.1
			190,856	159,047	150,676	26	23	4 to 6	1.1
NOTE: Planting rates over 250,000 seeds/acre are not recommended with subject seed disc and/or drive ratio.			196,973	164,145	155,505	28	24	4 to 6	1.1
			198,197	165,164	156,471	27	23	4 to 6	1.1
			204,378	170,315	161,351	23	19	4 to 6	1.0
			205,537	171,281	162,266	28	23	4 to 6	1.0
			213,264	177,720	168,367	24	19	4 to 6	1.0
		222,150	185,125	175,382	25	19	4 to 6	0.9	
		228,423	190,352	180,334	23	17	4 to 6	0.9	
		231,036	192,530	182,397	26	19	4 to 6	0.9	
		238,354	198,629	188,175	24	17	4 to 6	0.9	
		239,923	199,935	189,413	27	19	4 to 6	0.9	
		248,286	206,905	196,015	25	17	4 to 6	0.8	
		248,809	207,340	196,428	28	19	4 to 6	0.8	
			215,181	203,856	26	17	4 to 6	0.8	
			215,733	204,378	23	15	4 to 6	0.8	
			223,457	211,696	27	17	4 to 6	0.8	

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) HILL-DROP COTTON (3 SEEDS PER CELL), 20 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE HILLS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Hill Spacing In inches
						Drive	Driven		
23,802	19,835	18,791	11,901	9,917	9,395	15	28	4 to 6	17.6
24,683	20,569	19,487	12,342	10,285	9,743	15	27	4 to 6	16.9
25,633	21,361	20,236	12,816	10,680	10,118	15	26	4 to 6	16.3
26,658	22,215	21,046	13,329	11,108	10,523	15	25	4 to 6	15.7
26,975	22,480	21,296	13,488	11,240	10,648	17	28	4 to 6	15.5
27,769	23,141	21,923	13,884	11,570	10,961	15	24	4 to 6	15.1
27,975	23,312	22,085	13,987	11,656	11,043	17	27	4 to 6	14.9
28,976	24,147	22,876	14,488	12,073	11,438	15	23	4 to 6	14.4
29,050	24,209	22,935	14,525	12,104	11,467	17	26	4 to 6	14.4
30,149	25,124	23,802	15,074	12,562	11,901	19	28	4 to 6	13.9
30,212	25,177	23,852	15,106	12,589	11,926	17	25	4 to 6	13.8
31,266	26,055	24,683	15,633	13,027	12,342	19	27	4 to 6	13.4
31,471	26,226	24,846	15,736	13,113	12,423	17	24	4 to 6	13.3
32,468	27,057	25,633	16,234	13,528	12,816	19	26	4 to 6	12.9
32,840	27,366	25,926	16,420	13,683	12,963	17	23	4 to 6	12.7
33,767	28,139	26,658	16,883	14,070	13,329	19	25	4 to 6	12.4
35,076	29,230	27,692	17,538	14,615	13,846	15	19	4 to 6	11.9
35,174	29,312	27,769	17,587	14,656	13,884	19	24	4 to 6	11.9
36,496	30,413	28,813	18,248	15,207	14,406	23	28	4 to 6	11.5
36,703	30,586	28,976	18,352	15,293	14,488	19	23	4 to 6	11.4
37,848	31,540	29,880	18,924	15,770	14,940	23	27	4 to 6	11.0
38,083	31,736	30,065	19,041	15,868	15,033	24	28	4 to 6	11.0
39,203	32,669	30,950	19,602	16,335	15,475	15	17	4 to 6	10.7
39,304	32,753	31,029	19,652	16,376	15,515	23	26	4 to 6	10.6
39,493	32,911	31,179	19,747	16,456	15,590	24	27	4 to 6	10.6
39,670	33,058	31,318	19,835	16,529	15,659	25	28	4 to 6	10.5
39,753	33,128	31,384	19,877	16,564	15,692	17	19	4 to 6	10.5
40,876	34,063	32,270	20,438	17,032	16,135	23	25	4 to 6	10.2
41,012	34,177	32,378	20,506	17,088	16,189	24	26	4 to 6	10.2
41,139	34,282	32,478	20,569	17,141	16,239	25	27	4 to 6	10.2
41,257	34,380	32,571	20,628	17,190	16,285	26	28	4 to 6	10.1
42,579	35,482	33,615	21,289	17,741	16,807	23	24	4 to 6	9.8
42,653	35,544	33,673	21,326	17,772	16,837	24	25	4 to 6	9.8
42,721	35,601	33,727	21,361	17,801	16,864	25	26	4 to 6	9.8
42,785	35,654	33,777	21,392	17,827	16,889	26	27	4 to 6	9.8
42,843	35,703	33,824	21,422	17,851	16,912	27	28	4 to 6	9.8
44,430	37,025	35,076	22,215	18,513	17,538	23	23	4 to 6	9.4
46,076	38,396	36,376	23,038	19,198	18,188	28	27	4 to 6	9.1
46,139	38,449	36,425	23,069	19,225	18,213	27	26	4 to 6	9.1
46,281	38,568	36,538	23,141	19,284	18,269	25	24	4 to 6	9.0
46,362	38,635	36,601	23,181	19,317	18,301	24	23	4 to 6	9.0
47,848	39,873	37,775	23,924	19,937	18,887	28	26	4 to 6	8.7
47,985	39,987	37,883	23,992	19,994	18,941	27	25	4 to 6	8.7
48,294	40,245	38,127	24,147	20,122	19,063	25	23	4 to 6	8.7
49,657	41,381	39,203	24,829	20,690	19,602	19	17	4 to 6	8.4
49,762	41,468	39,286	24,881	20,734	19,643	28	25	4 to 6	8.4
49,984	41,653	39,461	24,992	20,827	19,730	27	24	4 to 6	8.4
50,225	41,854	39,652	25,113	20,927	19,826	26	23	4 to 6	8.3
51,835	43,196	40,922	25,918	21,598	20,461	28	24	4 to 6	8.1
52,157	43,464	41,177	26,079	21,732	20,588	27	23	4 to 6	8.0
53,784	44,820	42,461	26,892	22,410	21,230	23	19	4 to 6	7.8
54,089	45,074	42,702	27,044	22,537	21,351	28	23	4 to 6	7.7
56,122	46,769	44,307	28,061	23,384	22,154	24	19	4 to 6	7.5
58,461	48,717	46,153	29,230	24,359	23,077	25	19	4 to 6	7.2
60,111	50,093	47,456	30,056	25,046	23,728	23	17	4 to 6	7.0

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) HILL-DROP COTTON (3 SEEDS PER CELL), 20 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET**

APPROXIMATE HILLS/ACRE FOR VARIOUS ROW WIDTHS

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Hill Spacing In Inches
						Drive	Driven		
30,149	25,124	23,802	15,074	12,562	11,901	15	28	4 to 6	13.9
31,266	26,055	24,683	15,633	13,027	12,342	15	27	4 to 6	13.4
32,468	27,057	25,633	16,234	13,528	12,816	15	26	4 to 6	12.9
33,767	28,139	26,658	16,883	14,070	13,329	15	25	4 to 6	12.4
34,169	28,474	26,975	17,084	14,237	13,488	17	28	4 to 6	12.2
35,174	29,312	27,769	17,587	14,656	13,884	15	24	4 to 6	11.9
35,434	29,529	27,975	17,717	14,764	13,987	17	27	4 to 6	11.8
36,703	30,586	28,976	18,352	15,293	14,488	15	23	4 to 6	11.4
36,797	30,664	29,050	18,399	15,332	14,525	17	26	4 to 6	11.4
38,189	31,824	30,149	19,094	15,912	15,074	19	28	4 to 6	11.0
38,269	31,891	30,212	19,135	15,945	15,106	17	25	4 to 6	10.9
39,603	33,003	31,266	19,802	16,501	15,633	19	27	4 to 6	10.6
39,864	33,220	31,471	19,932	16,610	15,736	17	24	4 to 6	10.5
41,126	34,272	32,468	20,563	17,136	16,234	19	26	4 to 6	10.2
41,597	34,664	32,840	20,798	17,332	16,420	17	23	4 to 6	10.1
42,771	35,643	33,767	21,386	17,821	16,883	19	25	4 to 6	9.8
44,430	37,025	35,076	22,215	18,513	17,538	15	19	4 to 6	9.4
44,554	37,128	35,174	22,277	18,564	17,587	19	24	4 to 6	9.4
46,228	38,524	36,496	23,114	19,262	18,248	23	28	4 to 6	9.0
46,491	38,742	36,703	23,245	19,371	18,352	19	23	4 to 6	9.0
47,941	39,951	37,848	23,970	19,975	18,924	23	27	4 to 6	8.7
48,238	40,199	38,083	24,119	20,099	19,041	24	28	4 to 6	8.7
49,657	41,381	39,203	24,829	20,690	19,602	15	17	4 to 6	8.4
49,784	41,487	39,304	24,892	20,744	19,652	23	26	4 to 6	8.4
50,025	41,687	39,493	25,012	20,844	19,747	24	27	4 to 6	8.4
50,248	41,874	39,670	25,124	20,937	19,835	25	28	4 to 6	8.3
50,354	41,962	39,753	25,177	20,981	19,877	17	19	4 to 6	8.3
51,776	43,147	40,876	25,888	21,573	20,438	23	25	4 to 6	8.1
51,949	43,291	41,012	25,975	21,645	20,506	24	26	4 to 6	8.0
52,109	43,424	41,139	26,055	21,712	20,569	25	27	4 to 6	8.0
52,258	43,549	41,257	26,129	21,774	20,628	26	28	4 to 6	8.0
53,933	44,944	42,579	26,967	22,472	21,289	23	24	4 to 6	7.8
54,027	45,022	42,653	27,013	22,511	21,326	24	25	4 to 6	7.7
54,114	45,095	42,721	27,057	22,547	21,361	25	26	4 to 6	7.7
54,194	45,161	42,785	27,097	22,581	21,392	26	27	4 to 6	7.7
54,268	45,223	42,843	27,134	22,612	21,422	27	28	4 to 6	7.7
56,278	46,898	44,430	28,139	23,449	22,215	23	23	4 to 6	7.4
58,362	48,635	46,076	29,181	24,318	23,038	28	27	4 to 6	7.2
58,443	48,702	46,139	29,221	24,351	23,069	27	26	4 to 6	7.2
58,623	48,853	46,281	29,312	24,426	23,141	25	24	4 to 6	7.1
58,725	48,937	46,362	29,362	24,469	23,181	24	23	4 to 6	7.1
60,607	50,506	47,848	30,304	25,253	23,924	28	26	4 to 6	6.9
60,780	50,650	47,985	30,390	25,325	23,992	27	25	4 to 6	6.9
61,172	50,977	48,294	30,586	25,488	24,147	25	23	4 to 6	6.8
62,899	52,416	49,657	31,450	26,208	24,829	19	17	4 to 6	6.6
63,031	52,526	49,762	31,516	26,263	24,881	28	25	4 to 6	6.6
63,313	52,761	49,984	31,656	26,380	24,992	27	24	4 to 6	6.6
63,619	53,016	50,225	31,809	26,508	25,113	26	23	4 to 6	6.6
65,658	54,715	51,835	32,829	27,357	25,918	28	24	4 to 6	6.4
66,066	55,055	52,157	33,033	27,527	26,079	27	23	4 to 6	6.3
68,126	56,772	53,784	34,063	28,386	26,892	23	19	4 to 6	6.1
68,512	57,094	54,089	34,256	28,547	27,044	28	23	4 to 6	6.1
71,088	59,240	56,122	35,544	29,620	28,061	24	19	4 to 6	5.9
74,050	61,708	58,461	37,025	30,854	29,230	25	19	4 to 6	5.6
76,141	63,451	60,111	38,070	31,725	30,056	23	17	4 to 6	5.5

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) COTTON/SMALL DRY EDIBLE BEAN 54 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
64,265	53,554	50,735	32,132	26,777	25,368	15	28	4 to 6	6.5
66,645	55,538	52,615	33,323	27,769	26,307	15	27	4 to 6	6.3
69,208	57,674	54,638	34,604	28,837	27,319	15	26	4 to 6	6.0
71,977	59,981	56,824	35,988	29,990	28,412	15	25	4 to 6	5.8
72,834	60,695	57,500	36,417	30,347	28,750	17	28	4 to 6	5.7
74,976	62,480	59,191	37,488	31,240	29,596	15	24	4 to 6	5.6
75,531	62,943	59,630	37,766	31,471	29,815	17	27	4 to 6	5.5
78,236	65,196	61,765	39,118	32,598	30,882	15	23	4 to 6	5.3
78,436	65,364	61,923	39,218	32,682	30,962	17	26	4 to 6	5.3
81,402	67,835	64,265	40,701	33,918	32,132	19	28	4 to 6	5.1
81,574	67,978	64,400	40,787	33,989	32,200	17	25	4 to 6	5.1
84,417	70,348	66,645	42,209	35,174	33,323	19	27	4 to 6	5.0
84,973	70,810	67,084	42,486	35,405	33,542	17	24	4 to 6	4.9
87,664	73,053	69,208	43,832	36,527	34,604	19	26	4 to 6	4.8
88,667	73,889	70,000	44,334	36,945	35,000	17	23	4 to 6	4.7
91,171	75,975	71,977	45,585	37,988	35,988	19	25	4 to 6	4.6
94,706	78,922	74,768	47,353	39,461	37,384	15	19	4 to 6	4.4
94,969	79,141	74,976	47,485	39,571	37,488	19	24	4 to 6	4.4
98,540	82,116	77,794	49,270	41,058	38,897	23	28	4 to 6	4.2
99,098	82,582	78,236	49,549	41,291	39,118	19	23	4 to 6	4.2
102,189	85,158	80,676	51,095	42,579	40,338	23	27	4 to 6	4.1
102,824	85,687	81,177	51,412	42,843	40,588	24	28	4 to 6	4.1
105,848	88,207	83,564	52,924	44,103	41,782	15	17	4 to 6	4.0
106,632	88,860	84,183	53,316	44,430	42,092	24	27	4 to 6	3.9
107,334	89,445	84,737	53,667	44,722	42,369	17	19	4 to 6	3.9
110,364	91,970	87,130	55,182	45,985	43,565	23	25	4 to 6	3.8
111,393	92,827	87,942	55,696	46,414	43,971	26	28	4 to 6	3.8
114,963	95,802	90,760	57,481	47,901	45,380	23	24	4 to 6	3.6
115,163	95,969	90,918	57,581	47,985	45,459	24	25	4 to 6	3.6
115,677	96,397	91,324	57,838	48,199	45,662	27	28	4 to 6	3.6
119,961	99,968	94,706	59,981	49,984	47,353	23	23	4 to 6	3.5
124,404	103,670	98,214	62,202	51,835	49,107	28	27	4 to 6	3.4
124,575	103,813	98,349	62,288	51,906	49,174	27	26	4 to 6	3.4
125,177	104,314	98,824	62,588	52,157	49,412	24	23	4 to 6	3.3
129,189	107,658	101,991	64,595	53,829	50,996	28	26	4 to 6	3.2
129,558	107,965	102,283	64,779	53,983	51,141	27	25	4 to 6	3.2
130,393	108,661	102,942	65,196	54,330	51,471	25	23	4 to 6	3.2
134,074	111,729	105,848	67,037	55,864	52,924	19	17	4 to 6	3.1
134,956	112,464	106,545	67,478	56,232	53,272	27	24	4 to 6	3.1
135,608	113,007	107,059	67,804	56,503	53,530	26	23	4 to 6	3.1
139,955	116,629	110,491	69,977	58,314	55,245	28	24	4 to 6	3.0
140,824	117,353	111,177	70,412	58,677	55,588	27	23	4 to 6	3.0
145,216	121,014	114,644	72,608	60,507	57,322	23	19	4 to 6	2.9
146,040	121,700	115,295	73,020	60,850	57,647	28	23	4 to 6	2.9
151,530	126,275	119,629	75,765	63,138	59,814	24	19	4 to 6	2.8
157,844	131,536	124,613	78,922	65,768	62,307	25	19	4 to 6	2.6
162,301	135,250	128,132	81,150	67,625	64,066	23	17	4 to 6	2.6
164,158	136,798	129,598	82,079	68,399	64,799	26	19	4 to 6	2.5
169,357	141,131	133,703	84,679	70,565	66,851	24	17	4 to 6	2.5
170,471	142,059	134,583	85,236	71,030	67,291	27	19	4 to 6	2.5
176,414	147,011	139,274	88,207	73,506	69,637	25	17	4 to 6	2.4
176,785	147,321	139,567	88,393	73,660	69,784	28	19	4 to 6	2.4
183,470	152,892	144,845	91,735	76,446	72,422	26	17	4 to 6	2.3
183,941	153,284	145,216	91,970	76,642	72,608	23	15	4 to 6	2.3
190,527	158,772	150,416	95,263	79,386	75,208	27	17	4 to 6	2.2

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) COTTON/SMALL DRY EDIBLE BEAN/SUNFLOWER, 54 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
81,402	67,835	64,265	40,701	33,918	32,132	15	28	4 to 6	5.1
84,417	70,348	66,645	42,209	35,174	33,323	15	27	4 to 6	5.0
87,664	73,053	69,208	43,832	36,527	34,604	15	26	4 to 6	4.8
91,171	75,975	71,977	45,585	37,988	35,988	15	25	4 to 6	4.6
92,256	76,880	72,834	46,128	38,440	36,417	17	28	4 to 6	4.5
94,969	79,141	74,976	47,485	39,571	37,488	15	24	4 to 6	4.4
95,673	79,727	75,531	47,836	39,864	37,766	17	27	4 to 6	4.4
99,098	82,582	78,236	49,549	41,291	39,118	15	23	4 to 6	4.2
99,353	82,794	78,436	49,676	41,397	39,218	17	26	4 to 6	4.2
103,110	85,925	81,402	51,555	42,962	40,701	19	28	4 to 6	4.1
103,327	86,106	81,574	51,663	43,053	40,787	17	25	4 to 6	4.0
106,928	89,107	84,417	53,464	44,554	42,209	19	27	4 to 6	3.9
107,632	89,693	84,973	53,816	44,847	42,486	17	24	4 to 6	3.9
111,041	92,534	87,664	55,521	46,267	43,832	19	26	4 to 6	3.8
112,312	93,593	88,667	56,156	46,796	44,334	17	23	4 to 6	3.7
115,483	96,236	91,171	57,741	48,118	45,585	19	25	4 to 6	3.6
119,961	99,968	94,706	59,981	49,984	47,353	15	19	4 to 6	3.5
120,294	100,245	94,969	60,147	50,123	47,485	19	24	4 to 6	3.5
124,817	104,014	98,540	62,408	52,007	49,270	23	28	4 to 6	3.4
125,525	104,604	99,098	62,762	52,302	49,549	19	23	4 to 6	3.3
129,440	107,866	102,189	64,720	53,933	51,095	23	27	4 to 6	3.2
130,244	108,536	102,824	65,122	54,268	51,412	24	28	4 to 6	3.2
134,074	111,729	105,848	67,037	55,864	52,924	15	17	4 to 6	3.1
135,067	112,556	106,632	67,534	56,278	53,316	24	27	4 to 6	3.1
135,956	113,297	107,334	67,978	56,648	53,667	17	19	4 to 6	3.1
139,795	116,496	110,364	69,897	58,248	55,182	23	25	4 to 6	3.0
141,097	117,581	111,393	70,549	58,791	55,696	26	28	4 to 6	3.0
145,620	121,350	114,963	72,810	60,675	57,481	23	24	4 to 6	2.9
145,873	121,561	115,163	72,936	60,780	57,581	24	25	4 to 6	2.9
146,524	122,103	115,677	73,262	61,052	57,838	27	28	4 to 6	2.9
151,951	126,626	119,961	75,975	63,313	59,981	23	23	4 to 6	2.8
157,579	131,316	124,404	78,789	65,658	62,202	28	27	4 to 6	2.7
157,795	131,496	124,575	78,898	65,748	62,288	27	26	4 to 6	2.7
158,557	132,131	125,177	79,279	66,066	62,588	24	23	4 to 6	2.6
163,639	136,366	129,189	81,820	68,183	64,595	28	26	4 to 6	2.6
164,107	136,756	129,558	82,053	68,378	64,779	27	25	4 to 6	2.5
165,164	137,637	130,393	82,582	68,818	65,196	25	23	4 to 6	2.5
169,828	141,523	134,074	84,914	70,761	67,037	19	17	4 to 6	2.5
170,945	142,454	134,956	85,472	71,227	67,478	27	24	4 to 6	2.4
171,771	143,142	135,608	85,885	71,571	67,804	26	23	4 to 6	2.4
177,276	147,730	139,955	88,638	73,865	69,977	28	24	4 to 6	2.4
178,377	148,648	140,824	89,189	74,324	70,412	27	23	4 to 6	2.3
183,941	153,284	145,216	91,970	76,642	72,608	23	19	4 to 6	2.3
184,984	154,153	146,040	92,492	77,077	73,020	28	23	4 to 6	2.3
191,938	159,948	151,530	95,969	79,974	75,765	24	19	4 to 6	2.2
199,935	166,613	157,844	99,968	83,306	78,922	25	19	4 to 6	2.1
205,581	171,317	162,301	102,790	85,659	81,150	23	17	4 to 6	2.0
207,933	173,277	164,158	103,966	86,639	82,079	26	19	4 to 6	2.0
214,519	178,766	169,357	107,259	89,383	84,679	24	17	4 to 6	1.9
215,930	179,942	170,471	107,965	89,971	85,236	27	19	4 to 6	1.9
223,457	186,214	176,414	111,729	93,107	88,207	25	17	4 to 6	1.9
223,928	186,606	176,785	111,964	93,303	88,393	28	19	4 to 6	1.9
232,396	193,663	183,470	116,198	96,831	91,735	26	17	4 to 6	1.8
232,991	194,160	183,941	116,496	97,080	91,970	23	15	4 to 6	1.8
241,334	201,112	190,527	120,667	100,556	95,263	27	17	4 to 6	1.7

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) LARGE DRY EDIBLE BEAN 54 CELL DISC
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
						Drive	Driven		
64,265	53,554	50,735	32,132	26,777	25,368	15	28	4 to 6	6.5
66,645	55,538	52,615	33,323	27,769	26,307	15	27	4 to 6	6.3
69,208	57,674	54,638	34,604	28,837	27,319	15	26	4 to 6	6.0
71,977	59,981	56,824	35,988	29,990	28,412	15	25	4 to 6	5.8
72,834	60,695	57,500	36,417	30,347	28,750	17	28	4 to 6	5.7
74,976	62,480	59,191	37,488	31,240	29,596	15	24	4 to 6	5.6
75,531	62,943	59,630	37,766	31,471	29,815	17	27	4 to 6	5.5
78,236	65,196	61,765	39,118	32,598	30,882	15	23	4 to 6	5.3
78,436	65,364	61,923	39,218	32,682	30,962	17	26	4 to 6	5.3
81,402	67,835	64,265	40,701	33,918	32,132	19	28	4 to 6	5.1
81,574	67,978	64,400	40,787	33,989	32,200	17	25	4 to 6	5.1
84,417	70,348	66,645	42,209	35,174	33,323	19	27	4 to 6	5.0
84,973	70,810	67,084	42,486	35,405	33,542	17	24	4 to 6	4.9
87,664	73,053	69,208	43,832	36,527	34,604	19	26	4 to 6	4.8
88,667	73,889	70,000	44,334	36,945	35,000	17	23	4 to 6	4.7
91,171	75,975	71,977	45,585	37,988	35,988	19	25	4 to 6	4.6
94,706	78,922	74,768	47,353	39,461	37,384	15	19	4 to 6	4.4
94,969	79,141	74,976	47,485	39,571	37,488	19	24	4 to 6	4.4
98,540	82,116	77,794	49,270	41,058	38,897	23	28	4 to 6	4.2
99,098	82,582	78,236	49,549	41,291	39,118	19	23	4 to 6	4.2
102,189	85,158	80,676	51,095	42,579	40,338	23	27	4 to 6	4.1
102,824	85,687	81,177	51,412	42,843	40,588	24	28	4 to 6	4.1
105,848	88,207	83,564	52,924	44,103	41,782	15	17	4 to 6	4.0
106,632	88,860	84,183	53,316	44,430	42,092	24	27	4 to 6	3.9
107,334	89,445	84,737	53,667	44,722	42,369	17	19	4 to 6	3.9
110,364	91,970	87,130	55,182	45,985	43,565	23	25	4 to 6	3.8
111,393	92,827	87,942	55,696	46,414	43,971	26	28	4 to 6	3.8
114,963	95,802	90,760	57,481	47,901	45,380	23	24	4 to 6	3.6
115,163	95,969	90,918	57,581	47,985	45,459	24	25	4 to 6	3.6
115,677	96,397	91,324	57,838	48,199	45,662	27	28	4 to 6	3.6
119,961	99,968	94,706	59,981	49,984	47,353	23	23	4 to 6	3.5
124,404	103,670	98,214	62,202	51,835	49,107	28	27	4 to 6	3.4
124,575	103,813	98,349	62,288	51,906	49,174	27	26	4 to 6	3.4
125,177	104,314	98,824	62,588	52,157	49,412	24	23	4 to 6	3.3
129,189	107,658	101,991	64,595	53,829	50,996	28	26	4 to 6	3.2
129,558	107,965	102,283	64,779	53,983	51,141	27	25	4 to 6	3.2
130,393	108,661	102,942	65,196	54,330	51,471	25	23	4 to 6	3.2
134,074	111,729	105,848	67,037	55,864	52,924	19	17	4 to 6	3.1
134,956	112,464	106,545	67,478	56,232	53,272	27	24	4 to 6	3.1
135,608	113,007	107,059	67,804	56,503	53,530	26	23	4 to 6	3.1
139,955	116,629	110,491	69,977	58,314	55,245	28	24	4 to 6	3.0
140,824	117,353	111,177	70,412	58,677	55,588	27	23	4 to 6	3.0
145,216	121,014	114,644	72,608	60,507	57,322	23	19	4 to 6	2.9
146,040	121,700	115,295	73,020	60,850	57,647	28	23	4 to 6	2.9
151,530	126,275	119,629	75,765	63,138	59,814	24	19	4 to 6	2.8
157,844	131,536	124,613	78,922	65,768	62,307	25	19	4 to 6	2.6
162,301	135,250	128,132	81,150	67,625	64,066	23	17	4 to 6	2.6
164,158	136,798	129,598	82,079	68,399	64,799	26	19	4 to 6	2.5
169,357	141,131	133,703	84,679	70,565	66,851	24	17	4 to 6	2.5
170,471	142,059	134,583	85,236	71,030	67,291	27	19	4 to 6	2.5
176,414	147,011	139,274	88,207	73,506	69,637	25	17	4 to 6	2.4
176,785	147,321	139,567	88,393	73,660	69,784	28	19	4 to 6	2.4
183,470	152,892	144,845	91,735	76,446	72,422	26	17	4 to 6	2.3
183,941	153,284	145,216	91,970	76,642	72,608	23	15	4 to 6	2.3
190,527	158,772	150,416	95,263	79,386	75,208	27	17	4 to 6	2.2

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

**PLANTING RATES FOR (EDGEVAC) LARGE DRY EDIBLE BEAN 54 CELL DISC
28 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE SEEDS/ACRE FOR VARIOUS ROW WIDTHS**

15" Rows	18" Rows	19" Rows	30" Rows	36" Rows	38" Rows	Transmission Sprockets Drive Driven		Recomm. Speed Range (MPH)	Average Seed Spacing In Inches
81,402	67,835	64,265	40,701	33,918	32,132	15	28	4 to 6	5.1
84,417	70,348	66,645	42,209	35,174	33,323	15	27	4 to 6	5.0
87,664	73,053	69,208	43,832	36,527	34,604	15	26	4 to 6	4.8
91,171	75,975	71,977	45,585	37,988	35,988	15	25	4 to 6	4.6
92,256	76,880	72,834	46,128	38,440	36,417	17	28	4 to 6	4.5
94,969	79,141	74,976	47,485	39,571	37,488	15	24	4 to 6	4.4
95,673	79,727	75,531	47,836	39,864	37,766	17	27	4 to 6	4.4
99,098	82,582	78,236	49,549	41,291	39,118	15	23	4 to 6	4.2
99,353	82,794	78,436	49,676	41,397	39,218	17	26	4 to 6	4.2
103,110	85,925	81,402	51,555	42,962	40,701	19	28	4 to 6	4.1
103,327	86,106	81,574	51,663	43,053	40,787	17	25	4 to 6	4.0
106,928	89,107	84,417	53,464	44,554	42,209	19	27	4 to 6	3.9
107,632	89,693	84,973	53,816	44,847	42,486	17	24	4 to 6	3.9
111,041	92,534	87,664	55,521	46,267	43,832	19	26	4 to 6	3.8
112,312	93,593	88,667	56,156	46,796	44,334	17	23	4 to 6	3.7
115,483	96,236	91,171	57,741	48,118	45,585	19	25	4 to 6	3.6
119,961	99,968	94,706	59,981	49,984	47,353	15	19	4 to 6	3.5
120,294	100,245	94,969	60,147	50,123	47,485	19	24	4 to 6	3.5
124,817	104,014	98,540	62,408	52,007	49,270	23	28	4 to 6	3.4
125,525	104,604	99,098	62,762	52,302	49,549	19	23	4 to 6	3.3
129,440	107,866	102,189	64,720	53,933	51,095	23	27	4 to 6	3.2
130,244	108,536	102,824	65,122	54,268	51,412	24	28	4 to 6	3.2
134,074	111,729	105,848	67,037	55,864	52,924	15	17	4 to 6	3.1
135,067	112,556	106,632	67,534	56,278	53,316	24	27	4 to 6	3.1
135,956	113,297	107,334	67,978	56,648	53,667	17	19	4 to 6	3.1
139,795	116,496	110,364	69,897	58,248	55,182	23	25	4 to 6	3.0
141,097	117,581	111,393	70,549	58,791	55,696	26	28	4 to 6	3.0
145,620	121,350	114,963	72,810	60,675	57,481	23	24	4 to 6	2.9
145,873	121,561	115,163	72,936	60,780	57,581	24	25	4 to 6	2.9
146,524	122,103	115,677	73,262	61,052	57,838	27	28	4 to 6	2.9
151,951	126,626	119,961	75,975	63,313	59,981	23	23	4 to 6	2.8
157,579	131,316	124,404	78,789	65,658	62,202	28	27	4 to 6	2.7
157,795	131,496	124,575	78,898	65,748	62,288	27	26	4 to 6	2.7
158,557	132,131	125,177	79,279	66,066	62,588	24	23	4 to 6	2.6
163,639	136,366	129,189	81,820	68,183	64,595	28	26	4 to 6	2.6
164,107	136,756	129,558	82,053	68,378	64,779	27	25	4 to 6	2.5
165,164	137,637	130,393	82,582	68,818	65,196	25	23	4 to 6	2.5
169,828	141,523	134,074	84,914	70,761	67,037	19	17	4 to 6	2.5
170,945	142,454	134,956	85,472	71,227	67,478	27	24	4 to 6	2.4
171,771	143,142	135,608	85,885	71,571	67,804	26	23	4 to 6	2.4
177,276	147,730	139,955	88,638	73,865	69,977	28	24	4 to 6	2.4
178,377	148,648	140,824	89,189	74,324	70,412	27	23	4 to 6	2.3
183,941	153,284	145,216	91,970	76,642	72,608	23	19	4 to 6	2.3
184,984	154,153	146,040	92,492	77,077	73,020	28	23	4 to 6	2.3
191,938	159,948	151,530	95,969	79,974	75,765	24	19	4 to 6	2.2
199,935	166,613	157,844	99,968	83,306	78,922	25	19	4 to 6	2.1
205,581	171,317	162,301	102,790	85,659	81,150	23	17	4 to 6	2.0
207,933	173,277	164,158	103,966	86,639	82,079	26	19	4 to 6	2.0
214,519	178,766	169,357	107,259	89,383	84,679	24	17	4 to 6	1.9
215,930	179,942	170,471	107,965	89,971	85,236	27	19	4 to 6	1.9
223,457	186,214	176,414	111,729	93,107	88,207	25	17	4 to 6	1.9
223,928	186,606	176,785	111,964	93,303	88,393	28	19	4 to 6	1.9
232,396	193,663	183,470	116,198	96,831	91,735	26	17	4 to 6	1.8
232,991	194,160	183,941	116,496	97,080	91,970	23	15	4 to 6	1.8
241,334	201,112	190,527	120,667	100,556	95,263	27	17	4 to 6	1.7

NOTE: See "General Planting Rate Information" and "Check Seed Population" pages for more information. Always field check seed population to verify planting rates.

DRY FERTILIZER APPLICATION RATES (Mechanical)
APPROXIMATE RATE IN POUNDS PER ACRE

Drive Sprocket	Driven Sprocket	Low Rate Position			High Rate Position		
		30" Rows	36" Rows	38" Rows	30" Rows	36" Rows	38" Rows
15	35	29	24	23	86	71	68
15	33	33	27	26	98	82	78
15	30	36	30	28	109	90	86
19	33	41	34	33	124	104	98
19	30	45	38	36	138	114	108
15	19	52	43	41	158	132	125
30	35	56	47	44	172	143	136
30	33	60	50	47	182	152	144
33	35	63	53	50	189	158	149
35	33	70	58	56	212	177	168
33	30	73	60	57	220	184	174
19	15	84	70	66	272	227	215
30	19	104	87	82	316	263	250
33	19	115	96	91	347	290	275
35	19	122	102	97	368	307	291
30	15	132	110	104	400	334	316
33	15	145	121	115	440	367	348
35	15	154	129	122	467	389	369

See notes on following page.

DRY FERTILIZER APPLICATION RATES (EdgeVac)
22 TOOTH CONTACT WHEEL DRIVE SPROCKET
APPROXIMATE RATE IN POUNDS PER ACRE

Drive Sprocket	Driven Sprocket	Low Rate Position			High Rate Position		
		30" Rows	36" Rows	38" Rows	30" Rows	36" Rows	38" Rows
15	35	29	24	23	86	71	68
15	33	33	27	26	98	82	78
15	30	36	30	28	109	90	86
19	33	41	34	33	124	104	98
19	30	45	38	36	138	114	108
15	19	52	43	41	158	132	125
30	35	56	47	44	172	143	136
30	33	60	50	47	182	152	144
33	35	63	53	50	189	158	149
35	33	70	58	56	212	177	168
33	30	73	60	57	220	184	174
19	15	84	70	66	272	227	215
30	19	104	87	82	316	263	250
33	19	115	96	91	347	290	275
35	19	122	102	97	368	307	291
30	15	132	110	104	400	334	316
33	15	145	121	115	440	367	348
35	15	154	129	122	467	389	369

See notes on following page.

DRY FERTILIZER APPLICATION RATES (EdgeVac)

28 TOOTH CONTACT WHEEL DRIVE SPROCKET

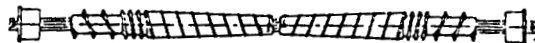
APPROXIMATE RATE IN POUNDS PER ACRE

Drive Sprocket	Driven Sprocket	Low Rate Position			High Rate Position		
		30" Rows	36" Rows	38" Rows	30" Rows	36" Rows	38" Rows
15	35	37	30	29	109	90	86
15	33	42	34	33	124	104	99
15	30	46	38	35	138	114	109
19	33	52	43	42	157	132	124
19	30	57	48	46	175	144	137
15	19	66	54	52	200	167	158
30	35	71	60	56	218	181	172
30	33	76	63	60	231	193	182
33	35	80	67	63	239	200	189
35	33	89	73	71	269	224	213
33	30	92	76	72	279	233	220
19	15	106	89	84	345	288	272
30	19	132	110	104	400	333	317
33	19	146	122	115	440	367	348
35	19	155	129	123	466	389	369
30	15	167	139	132	507	423	400
33	15	184	153	146	557	465	441
35	15	195	163	155	592	493	467

NOTE: (Edgevac ONLY) 22, 28 and 44 tooth drive sprockets are NOT applicable to all rate charts. Check title to ensure proper rate chart is selected. DO NOT USE 44 tooth drive sprockets (60 cell soybean discs) with Dry Fertilizer Package.

NOTE: Uneven delivery may result from attempting to use rates lower than indicated by chart.

Direction
Of Rotation



High Rate Position



Low Rate Position

Chart is for planters equipped with contact drive. See "Tire Pressure" for recommended tire pressures.

Chart calculated with a bulk density of 65 pounds per cubic foot.

NOTE: Fertilizer application rates can vary from tweights calculated in chart. Make field checks to be sure you are applying fertilizer at desired rate.

NOTE: Optional two-speed point row clutch is located ahead of dry fertilizer drive. Activating two-speed point row clutch reduced rate switch will cause same percent of reduction in dry fertilizer application rates.

To check exact number of pounds your fertilizer attachment actually delivers on a 30" row spacing, remove one spout from one fertilizer hopper and attach a container under opening. Engage fertilizer attachment and drive forward for 174'. Weigh amount of fertilizer caught in container and multiply that by 100. Result is pounds of fertilizer per acre when planting in 30" rows. To convert delivery rate for wider rows:

36" multiply by 0.83

38" multiply by 0.79

LIQUID FERTILIZER SQUEEZE PUMP APPLICATION RATES (Mechanical)

GALLONS PER ACRE

Drive	Driven	30" Rows	36" Rows	38" Rows	Drive	Driven	30" Rows	36" Rows	38" Rows
15	*62	6.1	5.1	4.8	46	*62	18.7	15.6	14.8
19	*62	7.7	6.4	6.1	15	19	19.9	16.6	15.7
15	46	8.2	6.9	6.5	32	34	23.7	19.8	18.7
19	46	10.4	8.7	8.2	34	32	26.8	22.3	21.1
15	34	11.1	9.3	8.8	19	15	31.9	26.6	25.2
15	32	11.8	9.8	9.3	46	34	34.1	28.4	26.9
32	*62	13.0	10.8	10.3	46	32	36.2	30.2	28.6
19	34	14.1	11.7	11.1	32	19	42.4	35.4	33.5
19	32	15.0	12.5	11.8	34	19	45.1	37.6	35.6
32	46	17.5	14.6	13.8	*62	34	45.9	38.3	36.3
34	46	18.6	15.5	14.7					

*Optional sprocket.

Chart is for planters equipped with contact drive and based on a solution weighing ten pounds per gallon.. Check tires for correct operating pressure.

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

NOTE: Optional two-speed point row clutch is located ahead of liquid fertilizer squeeze pump Activating two-speed point row clutch reduced rate switch will cause same percent of reduction in liquid fertilizer (squeeze pump) application rates.

To check exact number of gallons your fertilizer attachment will actually deliver on a 30" row spacing:

1. Remove hose from one fertilizer opener and insert it into a collection container secured planter frame.
2. Engage fertilizer attachment and drive forward for 174'.
3. Measure fluid ounces caught in container and multiply by 100. Divide that amount by 128. Result is gallons of fertilizer delivered per acre when planting in 30" rows.
4. Rinse collection container and repeat test on other rows if necessary. To convert delivery rate for wider rows, multiply by following conversion factors:

36" multiply by 0.83

38" multiply by 0.79

**LIQUID FERTILIZER SQUEEZE PUMP APPLICATION RATES (EdgeVac)
22 TOOTH CONTACT WHEEL DRIVE SPROCKET**

GALLONS PER ACRE

Drive	Driven	30" Rows	36" Rows	38" Rows	Drive	Driven	30" Rows	36" Rows	38" Rows
19	62	5.7	4.7	4.5	24	17	26.1	21.8	20.6
19	46	7.6	6.4	6.0	46	30	28.4	23.6	22.4
24	46	9.7	8.0	7.6	50	30	20.8	25.7	24.3
19	30	11.7	9.8	9.2	30	17	32.6	27.2	25.8
17	23	13.7	11.4	10.8	46	24	35.5	29.5	28.0
19	23	15.3	12.7	12.1	30	15	37.0	30.8	29.2
23	24	17.7	14.8	14.0	62	30	38.2	31.9	30.2
50	46	20.1	16.8	15.9	50	23	40.2	33.5	31.7
23	19	22.4	18.7	17.7	46	19	44.8	37.3	35.4
30	23	24.1	20.1	19.0	62	24	47.8	39.8	37.7

**LIQUID FERTILIZER SQUEEZE PUMP APPLICATION RATES (EdgeVac)
28 TOOTH CONTACT WHEEL DRIVE SPROCKET**

GALLONS PER ACRE

Drive	Driven	30" Rows	36" Rows	38" Rows	Drive	Driven	30" Rows	36" Rows	38" Rows
15	62	5.7	4.7	4.5	17	15	26.7	22.2	21.1
15	46	7.7	6.4	6.1	23	19	28.5	23.7	22.5
19	46	9.7	8.1	7.7	30	23	30.7	25.6	24.2
15	30	11.8	9.8	9.3	24	17	33.2	27.7	26.2
17	30	13.3	11.1	10.5	46	30	36.1	30.1	28.5
15	23	15.4	12.8	12.1	50	30	39.2	32.7	31.0
46	62	17.5	14.6	13.8	30	17	41.5	34.6	32.8
19	23	19.4	16.2	15.4	46	24	45.1	37.6	35.6
46	50	21.7	18.0	17.1	30	15	47.1	39.2	37.2
24	23	24.6	20.5	19.4	62	30	48.7	40.5	38.4

NOTE: 22, 28 and 44 tooth drive sprockets are NOT applicable to all rate charts. Check title to ensure proper rate chart is selected. DO NOT USE 44 tooth drive sprockets (60 cell soybean discs) with Liquid Fertilizer Squeeze Pump Package.

Chart is for planters equipped with contact drive and calculated based on a solution weighing ten pounds per gallon. Check tires for correct operating pressure.

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

NOTE: Optional two-speed point row clutch is located ahead of liquid fertilizer squeeze pump. Activating two-speed point row clutch reduced rate switch will cause same percent of reduction in liquid fertilizer (squeeze pump) application rates.

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

1. Remove hose from one fertilizer opener and insert it into a collection container secured planter frame.
2. Engage fertilizer attachment and drive forward for 174'.
3. Measure fluid ounces caught in container and multiply by 100. Divide that amount by 128. Result is gallons of fertilizer delivered per acre when planting in 30" rows. To convert this delivery rate for wider rows, multiply by the following conversion factors:

36" multiply by 0.83

38" multiply by 0.79

4. Rinse collection container and repeat test on other rows if necessary.

**LIQUID FERTILIZER PISTON PUMP APPLICATION RATES
GALLONS PER ACRE**

**Applies To Model NGP-7055 Pumps With 18 Tooth Sprocket
And 7.60" x 15" Ground Drive Tire**

Pump Setting	1	2	3	4	5	6	7	8	9	10
8 Row 36"	4.6	9.2	13.9	18.5	23.1	27.6	32.0	36.8	41.5	46.1
8 Row 38"	4.4	8.8	13.1	17.5	21.9	26.1	30.5	34.9	39.3	43.7
12 Row 30"	3.7	7.4	11.1	14.8	18.5	22.1	25.8	29.5	33.2	36.9
12 Row 36"	3.1	6.2	9.3	12.3	15.4	18.4	21.5	24.6	27.7	30.8
12 Row 38"	2.9	5.8	8.8	11.7	14.6	17.4	20.4	23.3	26.2	29.1
16 Row 30"	2.8	5.5	8.3	11.1	13.9	16.6	19.4	22.2	24.9	27.7

Chart is for planters equipped with 7.60" x 15" ground drive tire, based on 91" forward travel per wheel revolution, 48 tooth drive sprocket and 18 tooth driven sprocket on metering pump. Check tires for correct operating pressure.

Chart calculated based on a solution weighing ten pounds per gallon.

NOTE: Fertilizer application rates can vary from weights calculated in above chart. Make field checks to be sure you are applying fertilizer at desired rate.

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

1. Remove hose from one fertilizer opener and insert it into a collection container secured planter frame.
2. Engage fertilizer attachment and drive forward for 174'.
3. Measure fluid ounces caught in container and multiply by 100. Divide that amount by 128. Result is gallons of fertilizer delivered per acre when planting in 30" rows. To convert this delivery rate for wider rows, multiply by the following conversion factors:

36" multiply by 0.83

38" multiply by 0.79

4. Rinse collection container and repeat test on other rows if necessary.

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

Meter Setting	30" Rows	36" Rows	38" Rows
CLAY GRANULES			
10	4.9	4.1	3.9
11	5.4	4.5	4.3
12	6.1	5.1	4.8
13	6.9	5.7	5.4
14	7.7	6.4	6.0
15	8.5	7.1	6.7
16	9.6	8.0	7.6
17	10.7	8.9	8.4
18	11.4	9.5	9.0
19	13.1	10.9	10.3
20	14.2	11.8	11.2
21	15.5	12.9	12.3
22	16.4	13.7	12.9
23	17.2	14.3	13.6
24	18.8	15.7	14.9
25	20.9	17.4	16.5
26	23.0	19.2	18.1
27	24.1	20.0	19.0
28	25.4	21.2	20.1
29	27.8	23.2	22.0
30	29.6	24.7	23.4
SAND GRANULES			
5	2.9	2.4	2.3
6	4.9	4.0	3.8
7	5.3	4.4	4.2
8	6.3	5.3	5.0
9	7.8	6.5	6.1
10	8.9	7.4	7.0
11	10.2	8.5	8.0
12	11.2	9.3	8.8
13	12.6	10.5	10.0
14	14.1	11.7	11.1
15	15.5	12.9	12.3
16	17.5	14.6	13.8
17	19.4	16.2	15.3
18	21.8	18.2	17.2
19	24.3	20.2	19.1
20	25.7	21.4	20.3
21	27.6	23.0	21.8
22	29.6	24.7	23.4
23	32.0	26.7	25.3
24	34.4	28.7	27.2
25	36.9	30.7	29.1

NOTE: Chart represents average values and should be used only as a starting point. Granular chemical flows through meter opening at a nearly uniform rate regardless of roller speed. Your actual rate will vary depending on insecticide, planting speed, and plant population. Planting speed/ground speed has the greatest effect on application rate.

Field check your actual rate with insecticide you are using at speed and population you will be planting. See "Checking Granular Chemical Application Rate" in Machine Operation section for more information..

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

CLAY GRANULES

Meter Setting	30" Rows	36" Rows	38" Rows
10	4.7	3.9	3.7
11	5.2	4.4	4.1
12	5.8	4.9	4.6
13	6.5	5.4	5.1
14	7.3	6.1	5.7
15	8.2	6.9	6.5
16	9.0	7.5	7.1
17	9.9	8.2	7.8
18	10.7	8.9	8.4
19	11.6	9.7	9.2
20	12.6	10.5	10.0
21	13.6	11.3	10.7
22	14.6	12.1	11.5
23	15.7	13.1	12.4
24	17.0	14.1	13.4
25	18.1	15.1	14.3
26	19.4	16.2	15.3
27	20.9	17.4	16.5
28	22.6	18.8	17.8
29	24.3	20.2	19.1
30	26.7	22.2	21.1

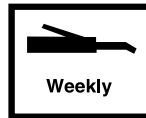
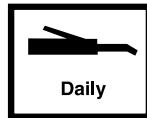
NOTE: Chart represents average values and should be used only as a starting point. Granular chemical flows through given meter opening at a nearly uniform rate regardless of roller speed. Your actual rate will vary depending on specific herbicide, planting speed, and plant population. Planting speed/ground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

Field check your actual rate with herbicide you are using at speed and population you will be planting. See "Checking Granular Chemical Application Rate" in Machine Operation section for more information.

LUBRICATION

Following pages show locations of all lubrication points. Proper lubrication of moving parts helps ensure efficient operation of your Kinze planter and prolongs the life of friction producing parts.

LUBRICATION SYMBOLS



Lubricate at frequency indicated with SAE multipurpose grease.

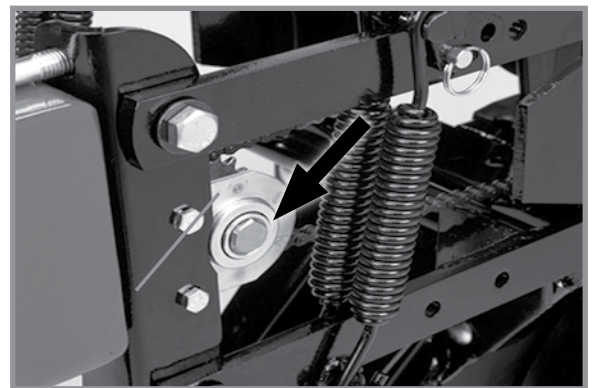


Lubricate at frequency indicated with high quality SAE 10 weight oil or spray lubricant.

SEALED BEARINGS

Sealed bearings are used on your Kinze planter to provide trouble free operation.

These are located on drive shafts, row units, and transmission bearings. Sealed bearings are lubricated for life and are not serviceable.



Sealed bearing (Typical)

WRAP SPRING WRENCH ASSEMBLY

1. Remove ¼"-20 x ½" cap screw securing idler assembly to wrap spring wrench tightener shaft and
2. Remove wrap spring wrench from planter.
3. Tip wrap spring wrench on its side and lubricate with a high quality spray lubricant. Lubricant must be absorbed into wrap spring area.
4. Reinstall wrap spring wrench on planter.

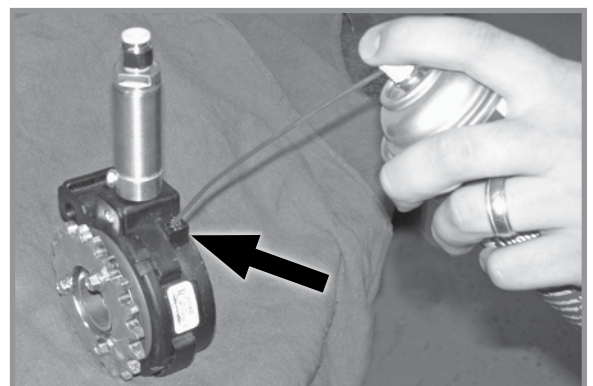


Wrap spring wrench lubrication

AIR CLUTCH LUBRICATION

Lubricate air clutches every 75-100 hours.

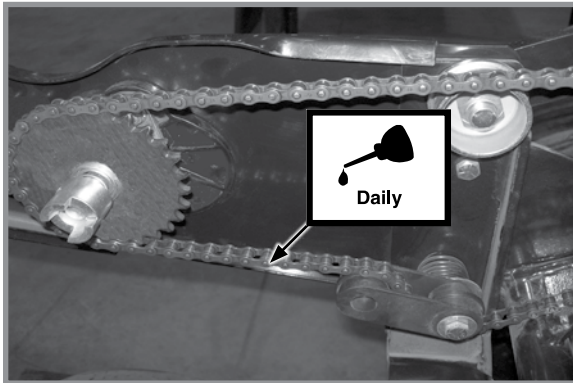
Remove Phillips head screw and spray a 1-2 second burst of silicone spray into each clutch. Reinstall screw.



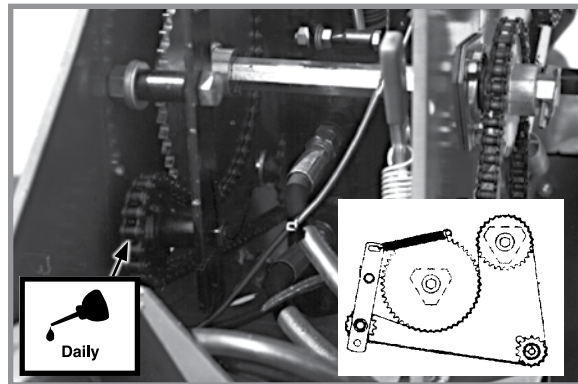
Air clutch lubrication

DRIVE CHAINS

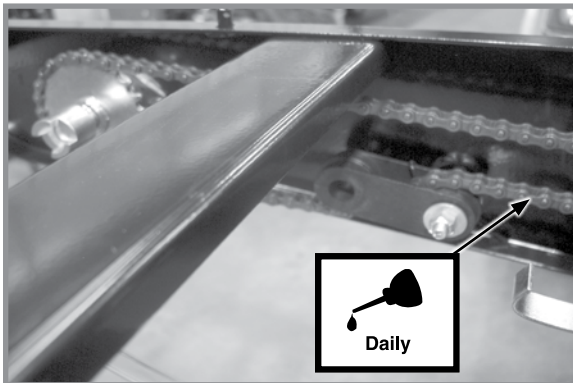
Lubricate all transmission and drive chains daily with a high quality chain lubricant. Extreme operating conditions such as dirt, temperature, or speed may require more frequent lubrication. If a chain becomes stiff, it should be removed, soaked, and washed in solvent to loosen and remove dirt from joints.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



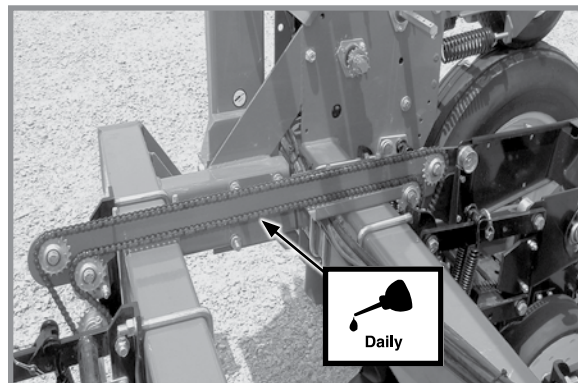
Pull row unit drive chains



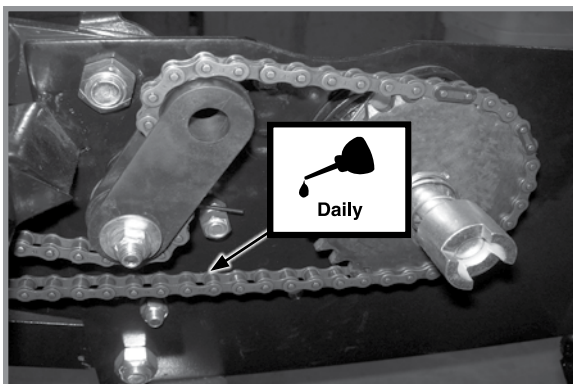
Inner wheel module drive chains



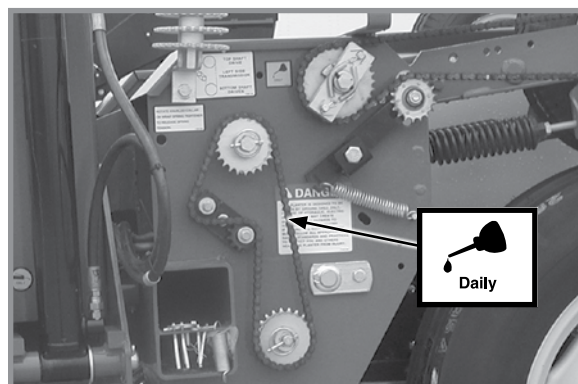
Row unit granular chemical drive chains



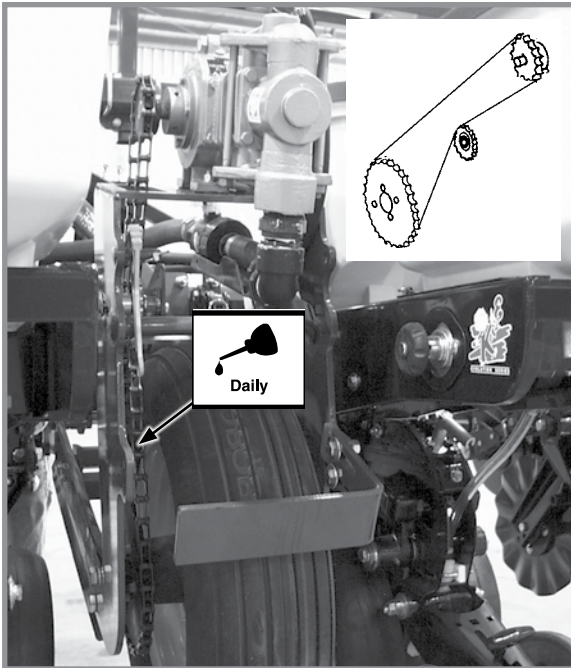
Interplant package drive chains



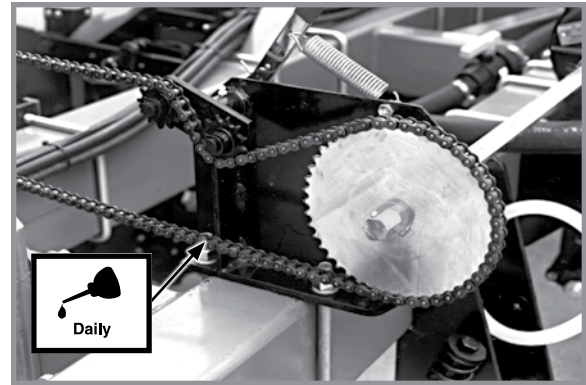
Push row unit drive chains



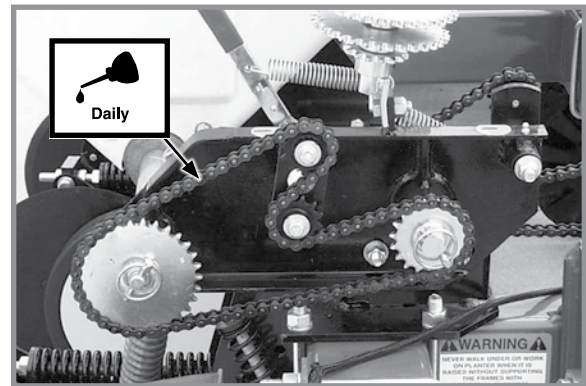
**Contact wheel drive chains
Seed rate transmission drive chains**



Piston pump ground drive chain



Liquid fertilizer drive chains (Squeeze pump)

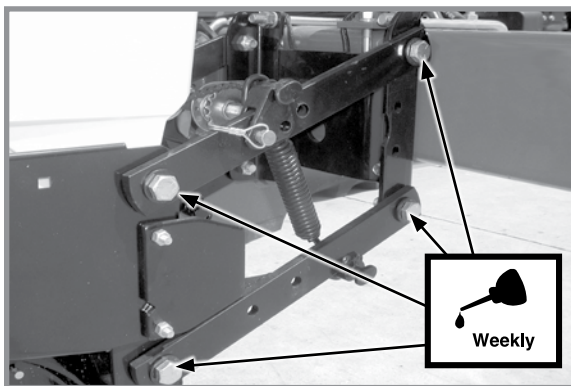


Dry fertilizer drive chains

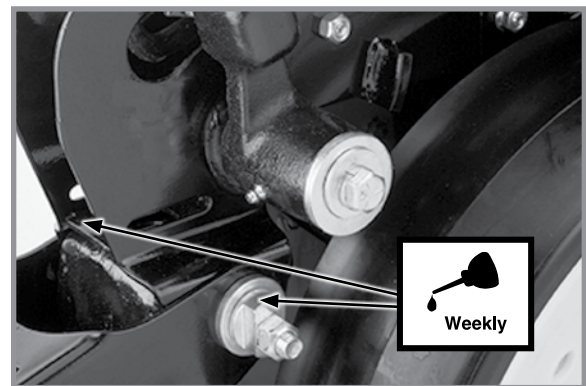
BUSHINGS

Lubricate bushings at frequency indicated.

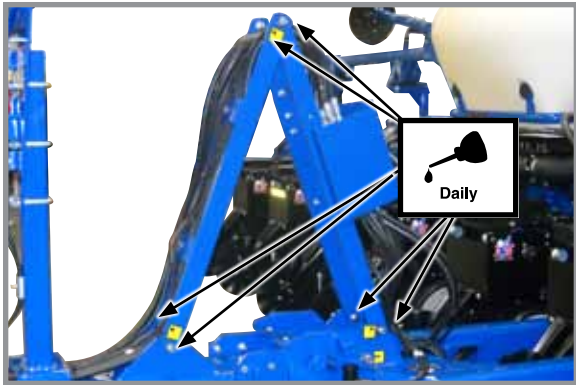
Check each bolt for proper torque. If bolt is loose, removed it and inspect bushing for cracks and wear. Replace bushing if necessary. Use **only hardened flat washers**. Replace damaged flat washers with proper part. Torque hardware to 130 ft-lb (176.2 N-m).



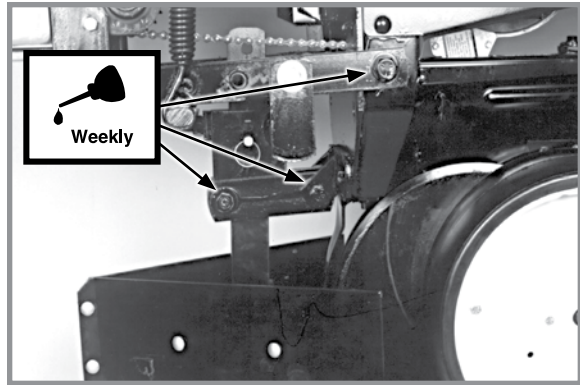
Pull row unit and/or push row unit parallel linkages (8 per row)



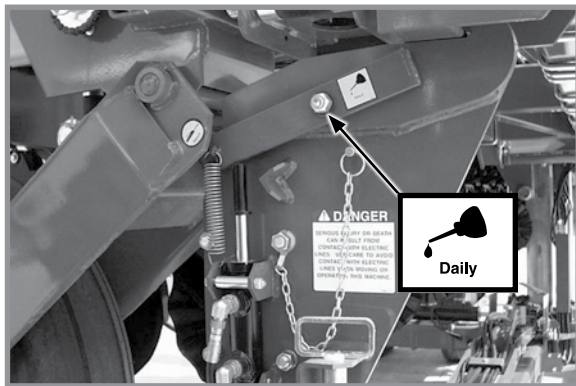
Row unit "v" closing wheel, covering discs/ single press wheel and/or drag closing wheel eccentric bushings (2 per row)



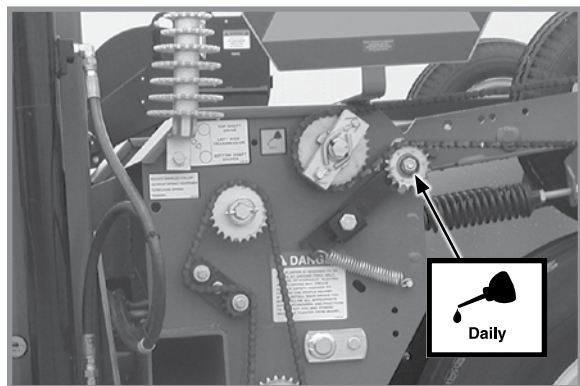
Hose take-up (6 locations)



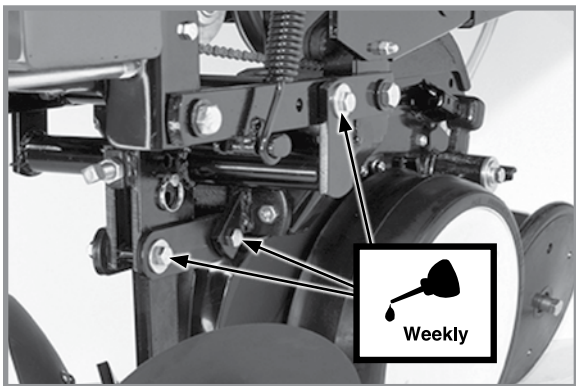
Bed leveler parallel linkages (6 per row)



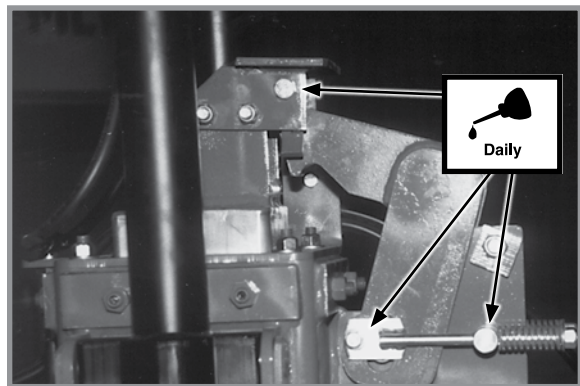
Transport latch (1 location)



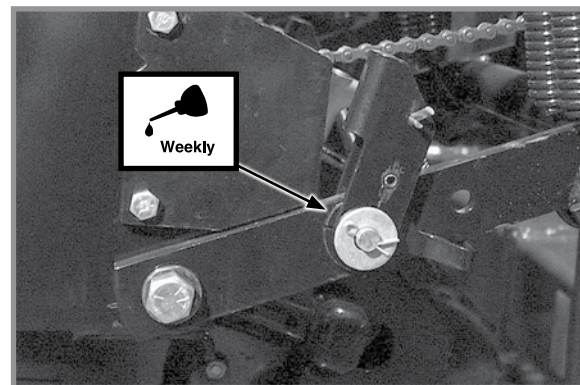
Contact wheel arm (2 per wheel assembly)



Row unit mounted disc furrower parallel linkages (6 per row)



Safety hook at top of center section



Interplant push row unit lockups - 2 per row

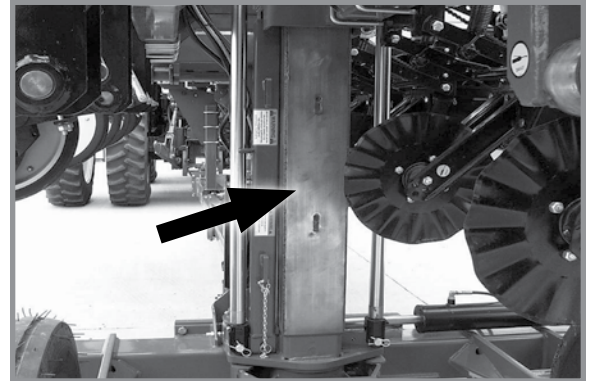
CENTER POST

NOTICE

Any oil or grease on center post and poly wear pads will attract dirt and accelerate wear. Do not lubricate center post and poly wear pads.

Center post is clad with stainless steel. Keep stainless steel surface clean and free of any lubrication to prolong service life.

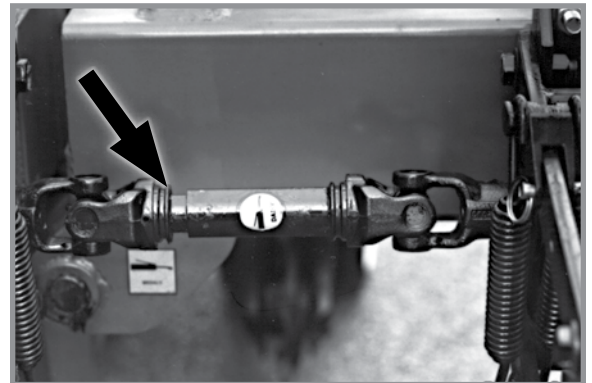
See "Wear Pad Adjustment/Replacement" for more information.



Center post

U-JOINT SLIDES

Lubricate all U-joint slides daily with a high quality lubricant.

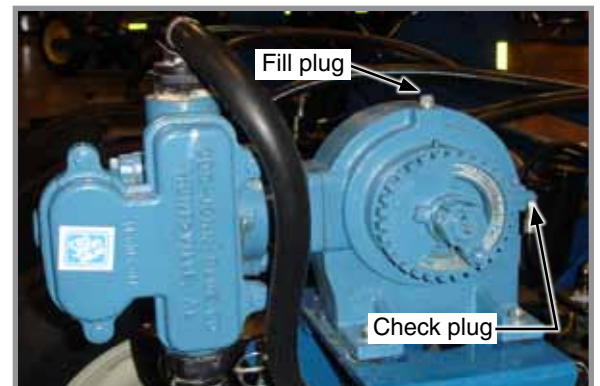


U-joint slide

LIQUID FERTILIZER PISTON PUMP CRANKCASE OIL LEVEL

Check crankcase oil daily and maintain at oil level check plug. 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 pump and flow divider for more information.



Piston pump oil fill and check plug locations

PTO PUMP SHAFT COUPLING (TRACTOR MOUNTED PTO PUMP AND OIL COOLER)

NOTE: Clean and grease PTO shaft coupling each time pump is installed.

NOTE: Apply coating of high-speed industrial coupling grease, such as Chevron® Coupling Grease, that meets AGMA CG-1 and CG-2 Standards to extend shaft spline life.

Chevron® trademark is owned by Chevron Products Company. AGMA is the acronym for the American Gear Manufacturers Association.



1 1/8"-21 spline PTO pump shown

WHEEL BEARINGS

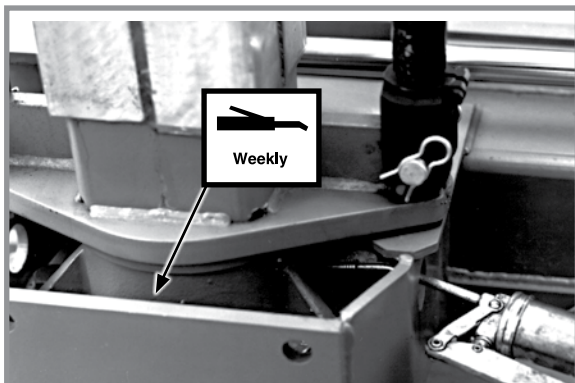
All drive, transport, and marker hub wheel bearings should be repacked annually and checked for wear.

1. Raise wheel off ground.
2. Check for bearing endplay by moving wheel side to side.
3. Rotate wheel to check for bearing roughness. If bearings sound rough, remove hub and inspect bearings.

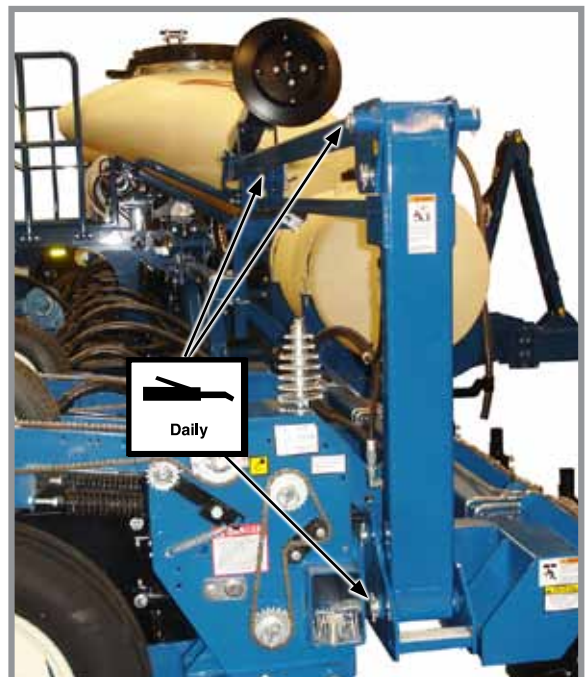
NOTE: To repack wheel hubs, follow procedure outlined for wheel bearing replacement except bearings and bearing cups are reused.

GREASE FITTINGS

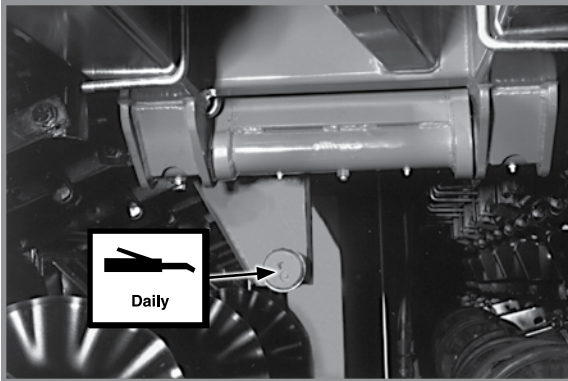
Parts equipped with grease fittings should be lubricated at frequency indicated with an SAE multipurpose grease. Clean fitting thoroughly before using grease gun. Frequency of lubrication recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent attention.



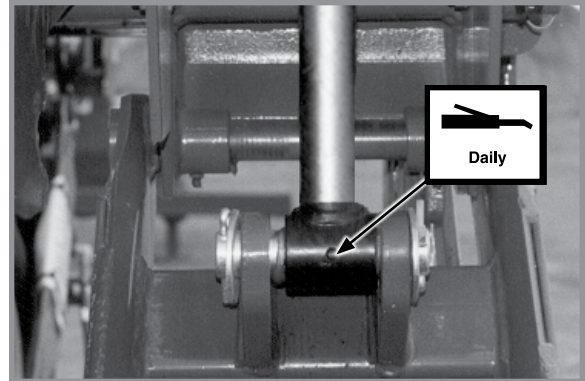
Center Pivot - 1



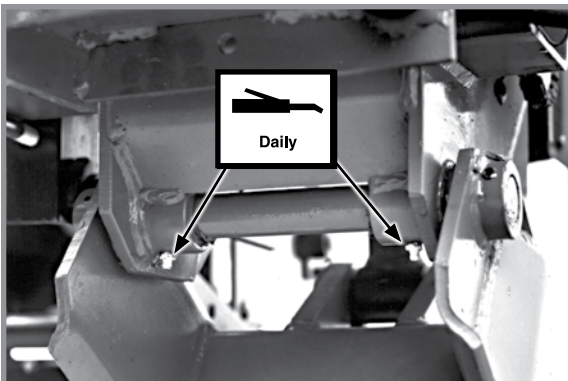
Row marker assemblies - 3 per assembly



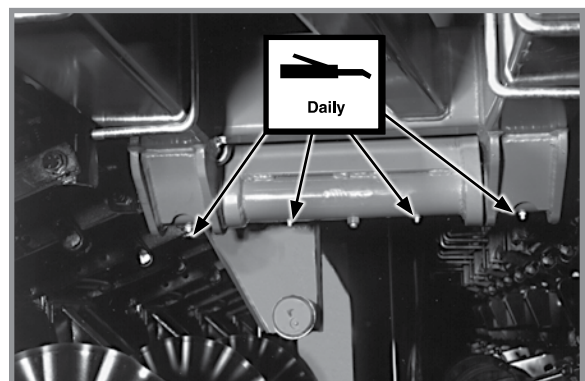
Cam follower - 1 per follower



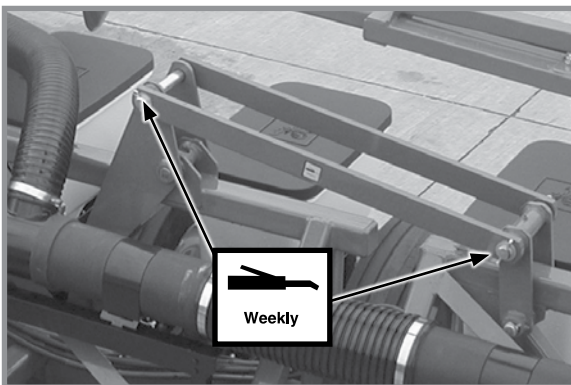
Wing lift cylinders - 1 per cylinder



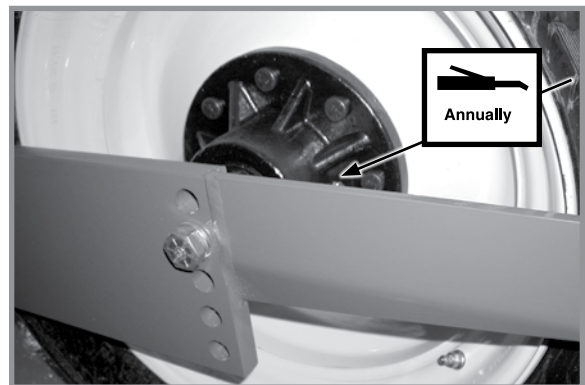
Wing wheel pivot - 2 per wheel module



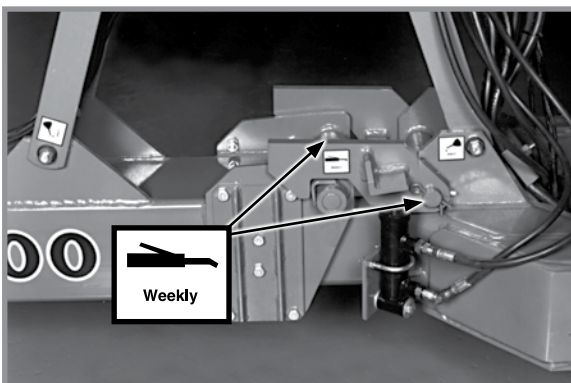
Wing hinges - 4 per wing



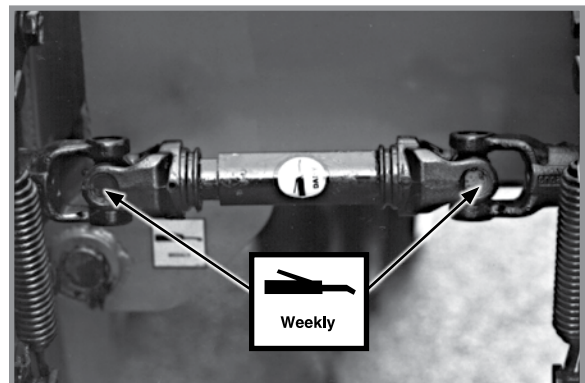
Wing locks - 3 per wing



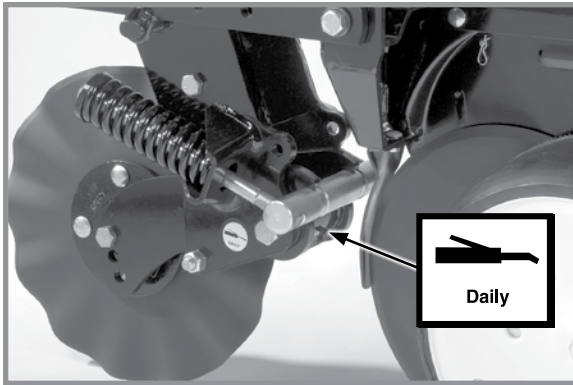
Transport wheel bearings - 1 per hub



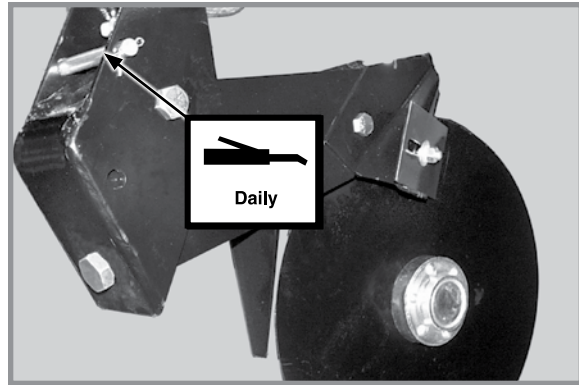
Tongue hook - 2



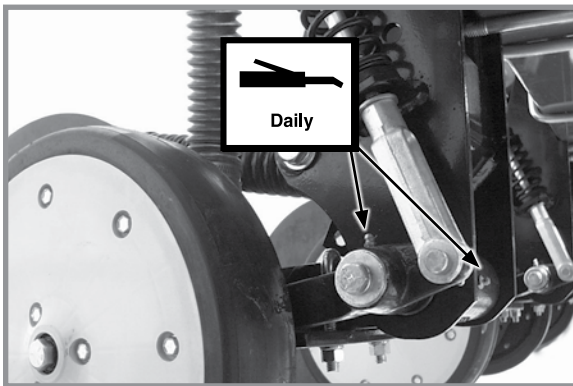
U-joints - 2 per hinge area



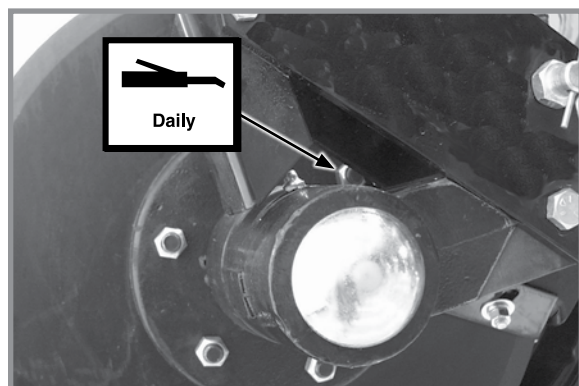
Frame mounted Coulter - 1 Per Arm



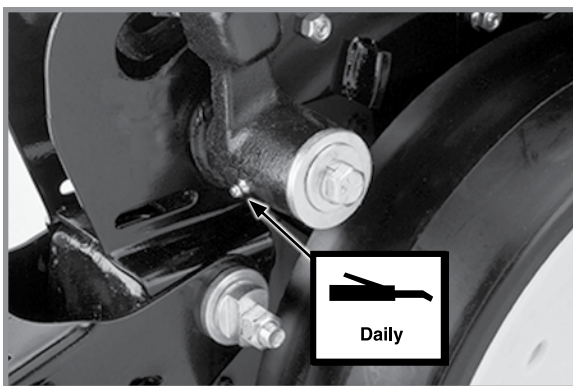
Double disc fertilizer opener - 1



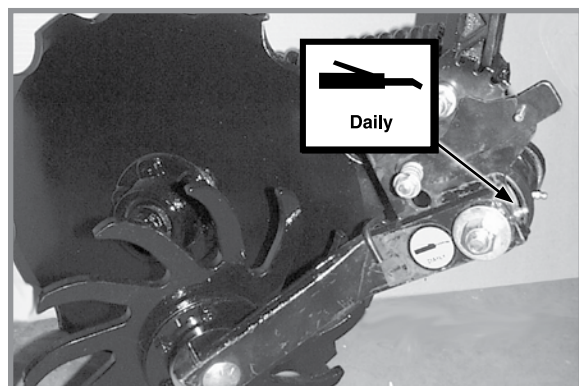
**HD single disc fertilizer opener - 2
(Located on wheel arm and opener mount)**



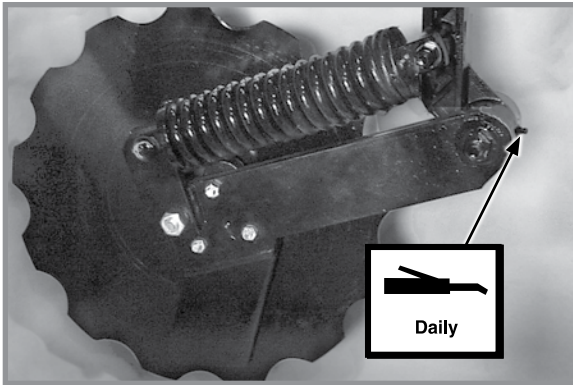
**HD single disc fertilizer opener - 1
(Located on disc opener spindle hub)**



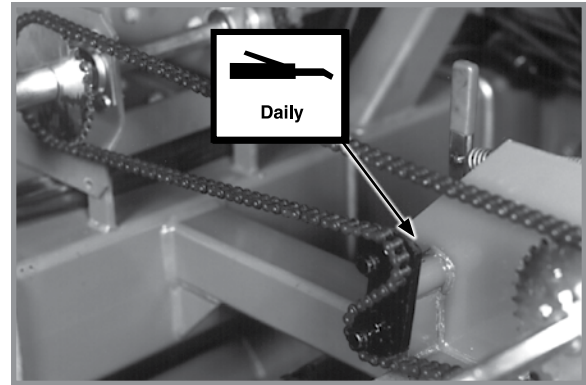
Gauge wheel arms - 1 per arm
(Seals in gauge wheel arm are installed with lip facing out to allow grease to purge dirt away from seal. Pump grease into arm until fresh grease appears between washers and arm.)



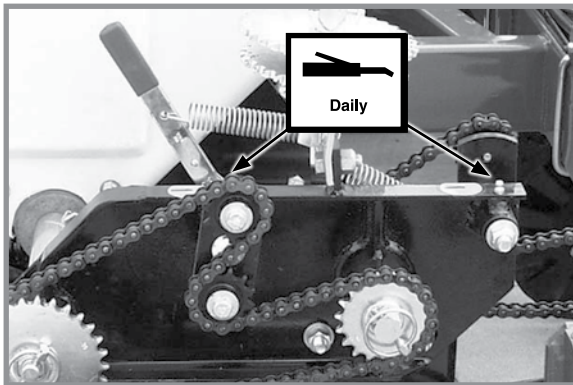
**Residue wheel attachment for use with
notched single disc fertilizer opener - 1**



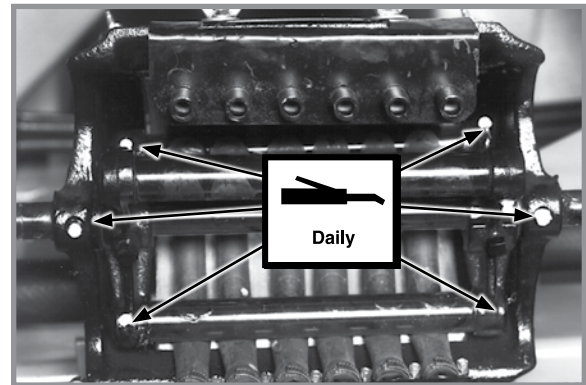
Notched single disc fertilizer opener - 1



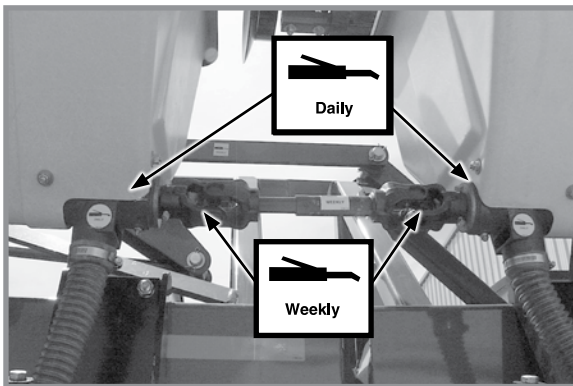
Squeeze pump drive plate - 1 per idler



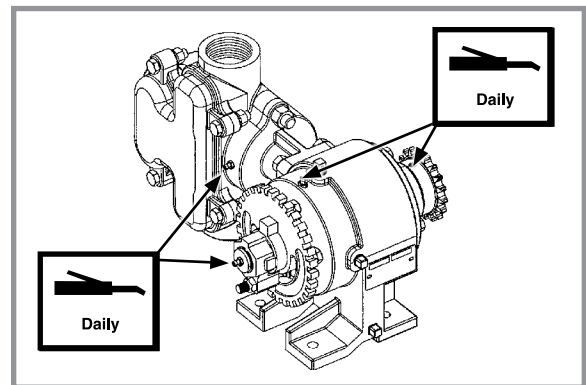
Dry fertilizer transmission - 2 per transmission



Squeeze pump - 8 per pump
NOTE: Grease fittings are on each end of roller assemblies. Rotate pump for access.



Dry fertilizer hopper - 2 per hopper
U-joint - 1 per hinge area



Liquid fertilizer piston pump - 4
NOTE: Fill on outboard stuffing box until lubricant seeps out of drain hole in bottom.

MOUNTING BOLTS AND HARDWARE

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

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. Hardware must be replaced with equal size, strength, and thread type.

! WARNING

Loose transport wheel lug nuts can result in wheel separation from planter and can result in death, serious injury, and damage to property and equipment. Check transport wheel lug nut torque before operating planter for the first time and periodically thereafter.

NOTICE

Over-tightening hardware can reduce its shock load capacity and cause equipment failure.



GRADE 2
No Marks



GRADE 5
3 Marks



GRADE 8
6 Marks

TORQUE VALUES CHART - PLATED HARDWARE

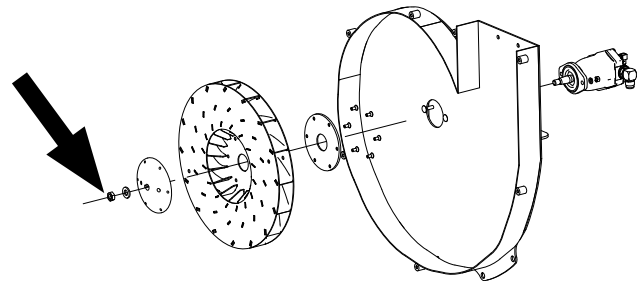
Diameter	Grade 2		Grade 5		Grade 8	
	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	50 in-lb	56 in-lb	76 in-lb	87 in-lb	9 ft-lb	10 ft-lb
5/16"	8 ft-lb	9 ft-lb	13 ft-lb	14 ft-lb	18 ft-lb	20 ft-lb
3/8"	15 ft-lb	17 ft-lb	23 ft-lb	26 ft-lb	33 ft-lb	37 ft-lb
7/16"	25 ft-lb	27 ft-lb	37 ft-lb	41 ft-lb	52 ft-lb	58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

NOTE: Torque unplated hardware and bolts with lock nuts approximately 1/3 higher than above values. Torque bolts lubricated prior to installation to 70% of value shown in chart.

TORQUE VALUES- ALUMINUM

Diameter	Torque Value
1/8"	180-220 in-lb
3/8"	350-380 in-lb
1/2"	350-400 in-lb
3/4"	350-400 in-lb

NOTE: Use these torque values with pneumatic down pressure components.



NOTE: Torque EdgeVac fan impeller assembly to motor shaft 5/8"-18 hex jam nut 50 ft-lb (67.8 N-m).

TIRE PRESSURE

! WARNING

Explosive separation of rim and tire parts could result in death or serious injury Rim and tire servicing, improper use of rims and tires, or worn or improperly maintained tires could result in a tire explosion.

To prevent tire explosions:

- Maintain proper tire pressure. Inflating a tire above or below the recommended pressure can cause tire damage.
- Mount tires only by properly trained personnel using proper equipment.
- Replace tires with cuts or bubbles. Replace damaged rims. Replace missing lug bolts and nuts.
- Do not weld or heat wheel assembly. Heating increases tire pressure.

TRANSPORT TIRES

! WARNING

Over-inflation of tires can result in explosive separation of rim and tire and cause death or serious injury. Different size rims are designed for different tire pressures. Inflate to correct pressure for specific rim size.

Do not exceed the following maximum pressures:

- Rims stamped with “224”: 75 psi (517.1 kPa) maximum pressure.
- Rims stamped with “276”: 100 psi (689.4 kPa) maximum pressure.

INFLATION SPECIFICATIONS

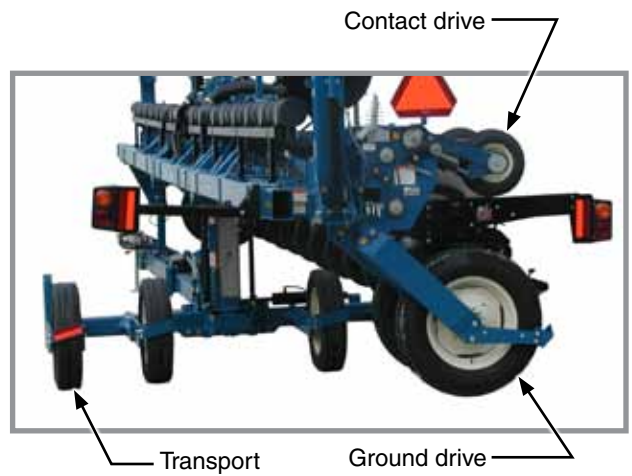
Transport (center section) 255-70R 22.5 (“224” rim)
 75 psi (517.1 kPa) recommended/75 psi (517.1 kPa) max.

Transport (center section) 255-70R 22.5 (“276” rim)
 75 psi (517.1 kPa) recommended/100 psi (689.4 kPa) max.

Ground drive (wings) 7.50" x 20"40 psi (275.7 kPa)

Contact drive - 4.80" x 8"50 psi (344.7 kPa)

Liquid fertilizer piston pump 7.60" x 15"40 psi (275.7 kPa)

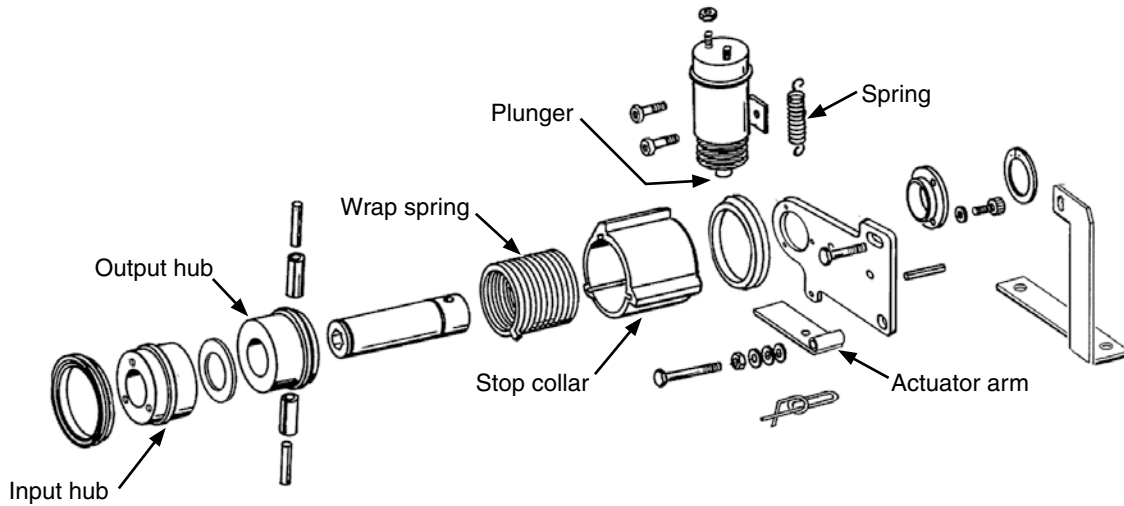


Tire locations (not all tires shown)

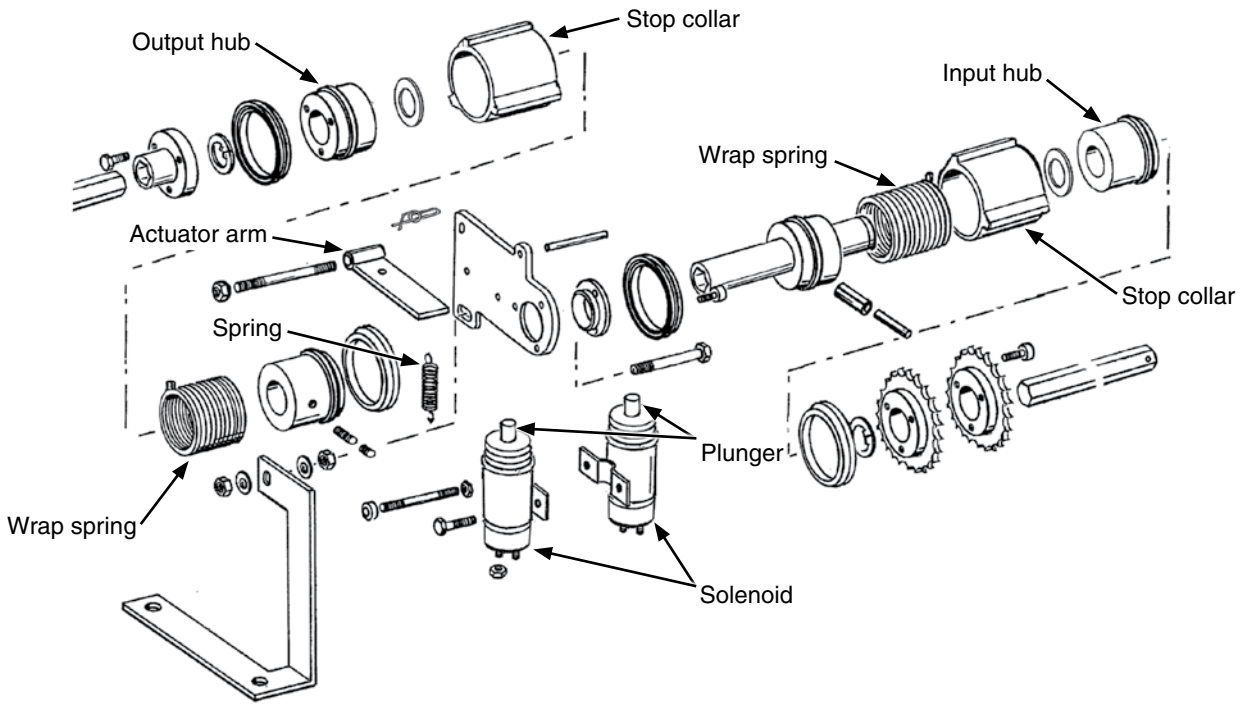
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SINGLE AND TWO-SPEED POINT ROW CLUTCH MAINTENANCE

Point row clutch is permanently lubricated and sealed and requires no periodic maintenance. Two-speed point row clutch is similar in design and operation to standard point row clutch except for two-speed function.

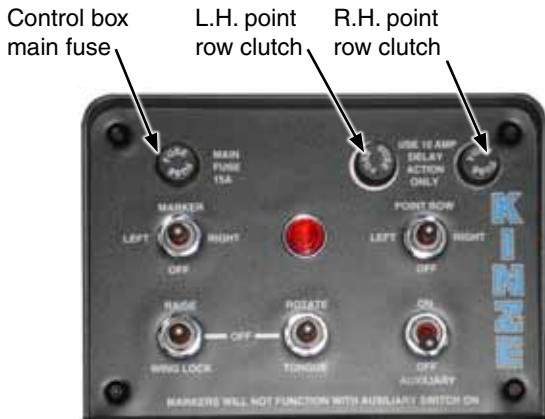


Single point row clutch main parts

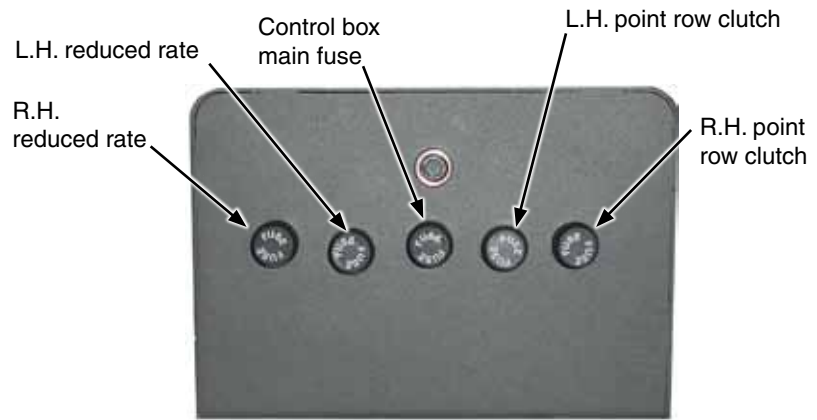


Two-speed point row clutch main parts

TESTING AND FUSE REPLACEMENT



Single speed point row clutch control box (Front View)



Two-speed point row clutch control box (Rear view)

NOTE: Replace all point row fuses with MDL 10 amp slow blow fuses.

If the clutch or clutches fail to operate, first determine if problem is electrical or mechanical.

Place operation switch in RIGHT or LEFT position. Solenoid plunger will retract causing a clicking sound if it is operating properly. Touch plunger with a metal object to check if it is electrically magnetized. Check clutch and wiring harness for power with a test light or volt meter.

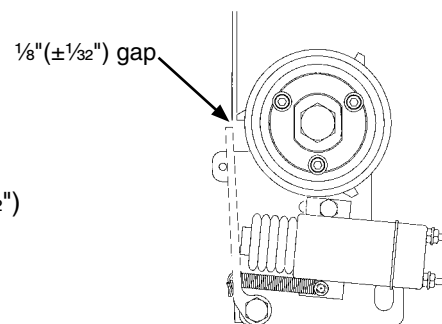
NOTE: R.H. clutch operates clockwise and L.H. clutch operates counterclockwise. Clutch parts such as the wrap spring are side specific. Use correct repair part if a clutch must be repaired.

Also see "Point Row Clutch Troubleshooting" in Troubleshooting section.

ACTUATOR ARM ADJUSTMENT

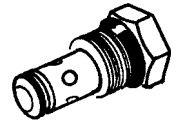
Gap between actuator arm and stop on stop collar should be $\frac{1}{8}$ " ($\pm\frac{1}{32}$ ") when solenoid is NOT engaged.

Loosen nut on mounting pin and move pin in slot until there is a $\frac{1}{8}$ " ($\pm\frac{1}{32}$ ") gap between arm and stop on stop collar. Retighten nut.



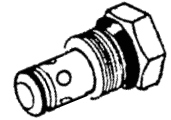
CHECK VALVE (LIFT SYSTEM)

Check valves, located in valve block on right side of center post, trap oil flow in planter's lift system to keep toolbar level during field operation. Consult your Kinze Dealer for service.



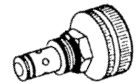
CHECK VALVE (VACUUM FAN)

Check valve located in valve block below vacuum fan motor assembly operates as a return line check to prevent vacuum fan motor reverse operation. Remove and inspect valve. If it does not operate properly. Check for foreign material and if O-ring is leaking internally. Replace if defective.



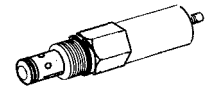
FLOW CONTROL VALVE

Flow control valves should be adjusted for row marker raise and lower speed as part of assembly procedure or upon initial operation. If valve fails to function properly or requires frequent adjustment, it should be removed for inspection. Check for foreign material and contamination on valve and seating areas of valve body. Replace defective components.



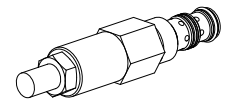
PRESSURE RELIEF VALVE

If pressure relief valve does not release tongue lock or function properly, remove valve from valve block and check for foreign material or if O-ring is leaking internally. Replace if defective.



PRESSURE REDUCING RELIEF VALVE

If wings do not properly stay to ground, plumb into butt end of cylinder to test psi. Proper setting is 750 PSI.

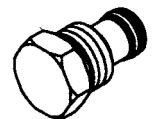


NOTICE

Connect hydraulic motor case drain to a case drain return line with zero pressure on tractor or hydraulic motor will be damaged. DO NOT connect hydraulic motor case drain to SCV outlet. Contact tractor manufacturer for specific details on "zero pressure return".

RELIEF VALVE CARTRIDGE

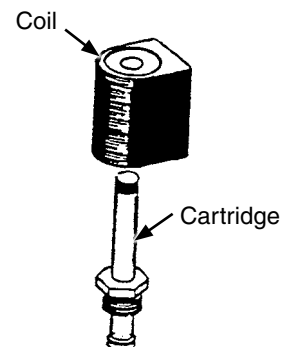
Pressure relief valve located in valve block below vacuum fan motor assembly helps prevent damage to vacuum fan motor by limiting pressure in the motor case drain line. It is set to open at 35 PSI. If valve fails to function properly, it should be removed for inspection. Check for foreign material and contamination on valve and the seating area of valve body. Replace if defective.



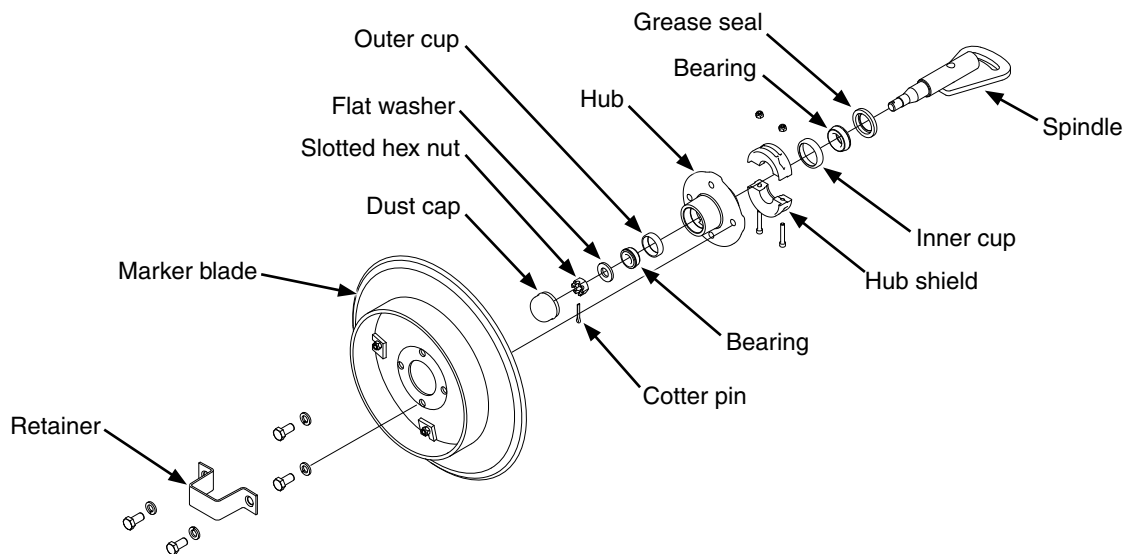
SOLENOID VALVE

Solenoid valve consists of a chambered body with an electric coil actuated cartridge valve.

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



ROW MARKER BEARING LUBRICATION OR REPLACEMENT



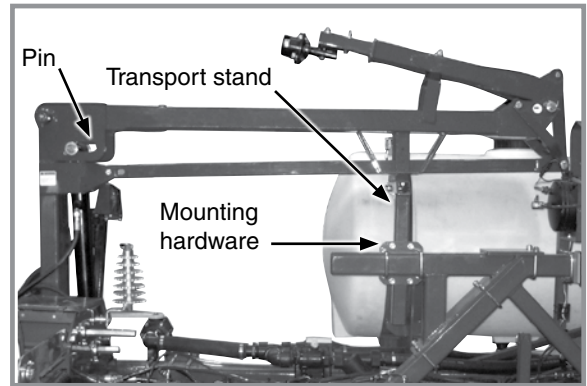
1. Remove retainer and marker blade.
2. Remove dust cap from hub.
2. Remove hub shield. Note direction of installation.
3. Remove cotter pin, slotted hex nut, and washer.
4. Slide hub from spindle.
5. Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings 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. Fill the space between the bearing cups in the hub with grease.
8. Install rubber seal into grease seal. Place inner bearing in place and press in new rubber seal/grease seal.
9. Clean spindle and install hub.
10. Install outer bearing, washer and slotted hex nut. Tighten slotted hex nut while rotating hub until there is some drag. This ensures 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 hub shield.
13. Install marker blade and retainer on hub. Tighten hardware evenly.

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ROW MARKER TRANSPORT STAND ADJUSTMENT

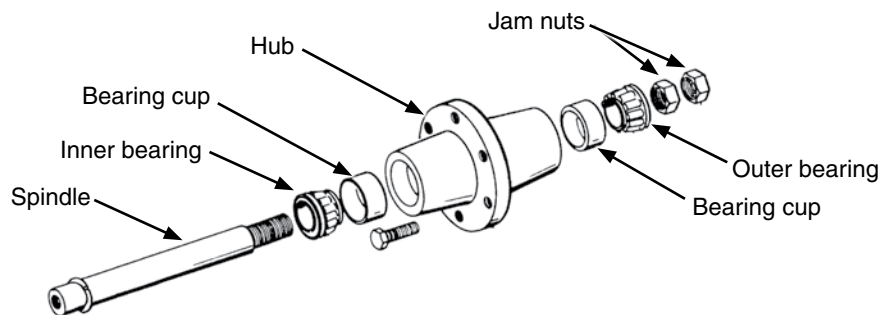
Row marker transport stands must be correctly adjusted to allow marker cushion cylinders to function properly.

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



Row marker transport stand

WHEEL BEARING REPACK OR REPLACEMENT

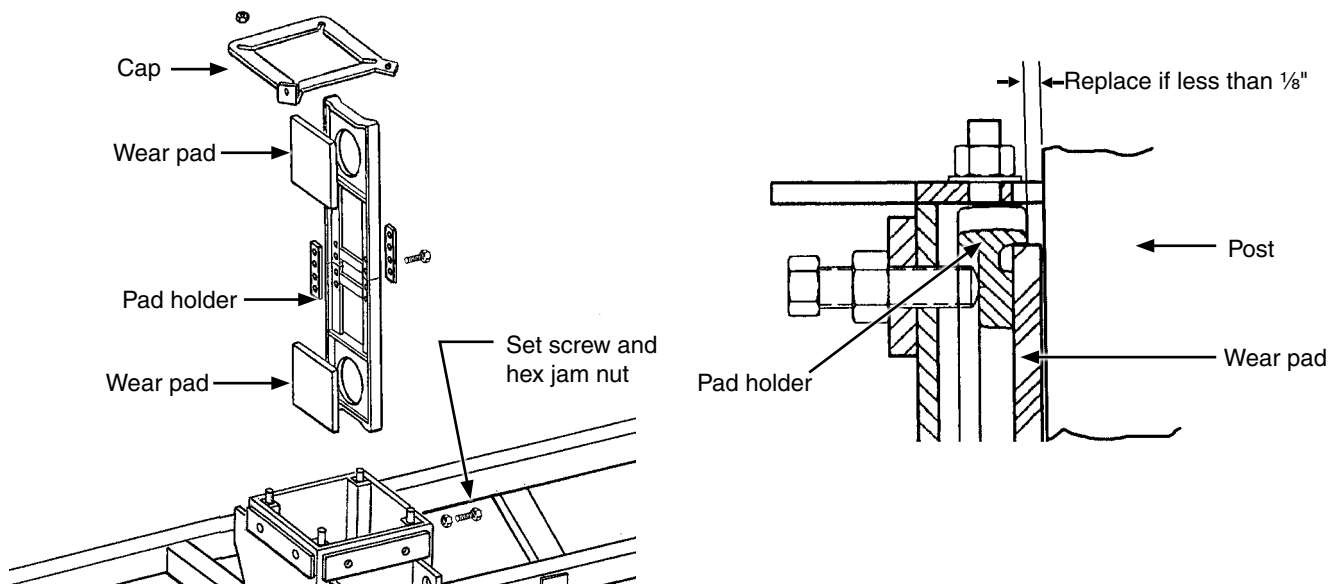


1. Raise tire clear of ground and remove wheel.
2. Remove double jam nuts and slide hub from spindle.
3. Remove bearings and cups and discard if bearings are being replaced. Clean hub and dry. Remove bearings only and not cups if repacking.
4. Press in new bearing cups with thickest edge facing in. (Bearing replacement procedure only.)
5. Pack bearings with heavy duty wheel bearing grease thoroughly forcing grease between roller cone and bearing cage. Fill space between bearing cups and hub with grease.
6. Place inner bearing in place.
7. Clean spindle and install hub.
8. Install outer bearing and jam nut. Tighten jam nut while rotating hub until there is some drag. This ensures all bearing surfaces are in contact. Back off jam nut $\frac{1}{4}$ turn or until there is only slight drag when rotating hub. Install second jam nut to lock against first.
9. Install wheel on hub. Tighten hardware evenly.

WEAR PAD REPLACEMENT AND ADJUSTMENT

 **WARNING**

Pressurized hydraulic fluid can penetrate body tissue and result in death, serious infection, or other injuries. Fluid injected under skin must be IMMEDIATELY removed by a surgeon familiar with this type of injury. Make sure connections are tight and hoses and fittings are not damaged before applying system pressure. Leaks can be invisible. Keep away from suspected leaks. Relieve pressure before searching for leaks or performing any system maintenance.



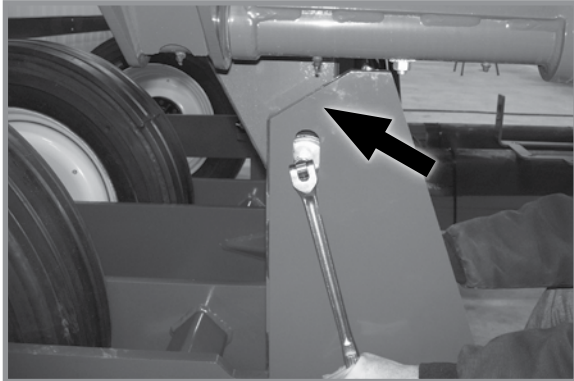
Planter center section is constructed around a steel tubular frame with four wear pad assemblies riding against a stainless steel clad center post. Two wear pads are held by a pad holder and locked in place by $\frac{3}{4}$ " set screws and hex jam nuts. Inspect pads for wear and adjustment annually to ensure center section is stabilized and planter tracks properly. Pads should make full light contact with center post when properly adjusted. Too much preload on pads will cause hydraulic lift pressure to be higher than necessary or will not allow planter to raise when loaded.

1. Position planter on a level surface and place in raised field position.

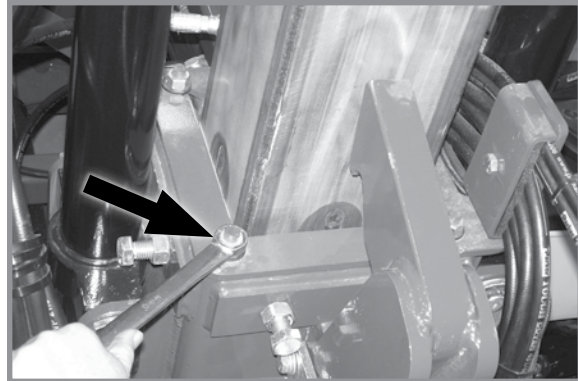
NOTE: Replace wear pad is worn to less than $\frac{1}{8}$ ".

2. Visually check four upper wear pads. Each wear pad should lightly contact stainless steel clad center post. Gap between plastic wear pad and stainless steel post should be no more than .060".
3. Place planter in raised transport position, install all safety lockups and visually check four lower wear pads. Maximum allowable gap is .060".
4. Remove lockup and lower planter to field operation position. It may be necessary to loosen cap mounting nuts to allow wear pad adjustment. Loosen hex jam nuts as needed.
5. Tighten set screws until the wear pad lightly contacts the stainless steel clad center post. DO NOT OVER TIGHTEN.
6. Tighten hex jam nuts. Recheck clearance. If clearance is not to specifications, repeat adjustment steps. Torque hex jam nuts to 110 ft-lb (149.1 N-m). Tighten cap mounting bolts if applicable.

MAJOR PAD ADJUSTMENT



Loosen cam rollers



Loosen four cap mounting nuts

1. Loosen cam rollers so they move freely.
2. Lower planter to field operation position and release wing locks. Eliminate all uplift on planter frame by backing off row unit down pressure springs and uplift on any other planter attachments.
3. Check position of center frame to axle cam roller guides. Gap between guides and frame should be the same side to side. Gap on back sides of roller guide should be equal on both sides. Final adjustment will be done later.
4. Loosen four cap mounting nuts.
5. Loosen hex jam nuts and use pad set screws to position frame to center correctly.

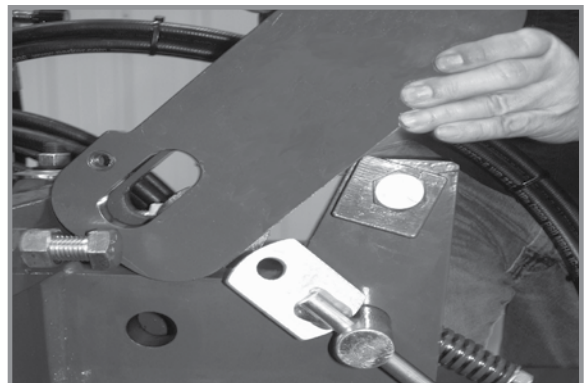
NOTICE

Over tightening wear pads will cause premature wear and excessive hydraulic lift pressures. Do not over tighten wear pads.

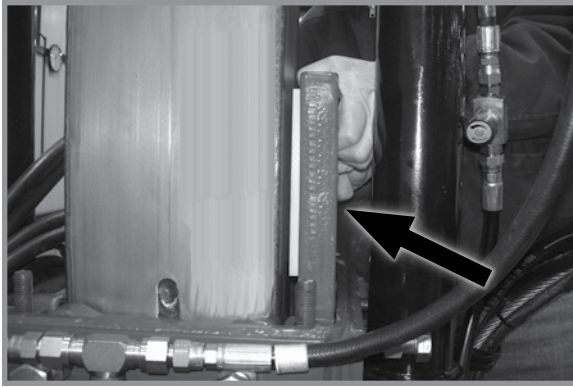
6. Pad set screws should be drawn tight, backed off and turned in until there is light contact with the pad holder.
7. Torque hex jam nuts to 110 ft-lb (149.1 N-m).
8. Tighten cap mounting nuts.
9. Reset row unit down pressure and other attachments from Step 3.

PAD REPLACEMENT

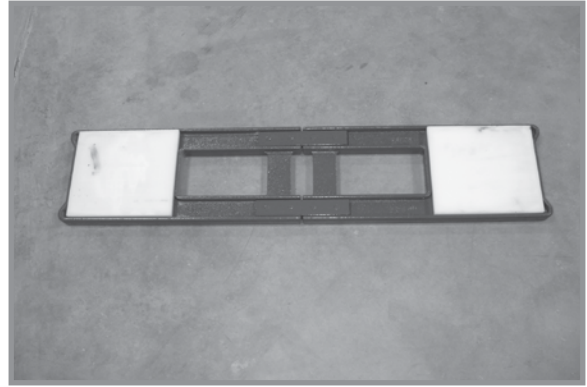
1. Loosen cam rollers so they move freely as shown above.
2. Lower planter to field operation position and release wing locks.
3. Eliminate all uplift on planter frame by backing off row unit down pressure springs and uplift on any attachments.
4. Remove safety hook.
5. Disconnect hydraulic hose, remove nut on bulkhead fitting, and remove fitting from cap.



Removing safety hook



Removing pad holder assembly



New pads in pad holder assembly

6. Loosen four cap mounting nuts and remove pad holder cap.
7. Loosen pad hex jam nuts, back pad screws out, and remove four pad holder assemblies. Remove old pads and install new pads.

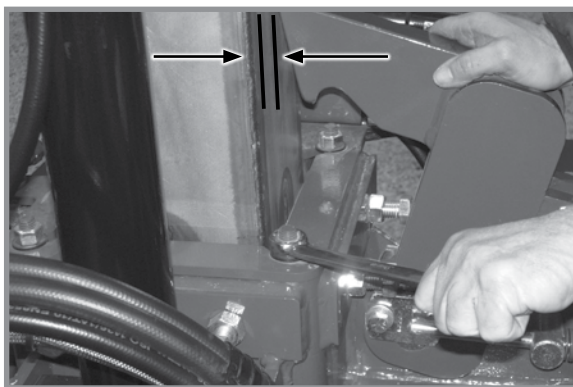
NOTE: Apply a small amount of weather stripping adhesive to hold pads in place during installation.

8. Reinstall pad hold assemblies in center section.

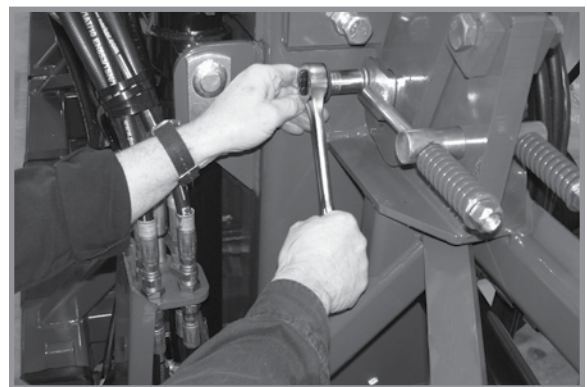
NOTICE

Over tightening wear pads will cause premature wear and excessive hydraulic lift pressures. Do not over tighten wear pads.

9. Tighten pad set screws, back off, and turn in until there is 25 ft-lb (33.9 N-m) torque. Torque hex jam nuts to 110 ft-lb (149.1 N-m).
10. Reinstall cap and tighten cap mounting nuts.
11. Reinstall hydraulic hose, fittings and safety hook.



Adjust safety hook clearance to ½"



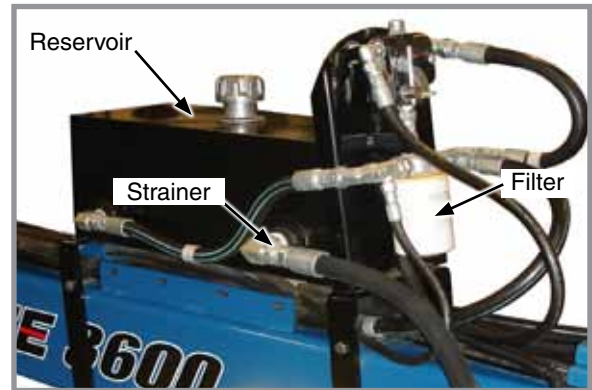
Adjust and tighten cam roller

12. Adjust stop on safety hook to ½" clearance.
13. Rotate cam roller against front guide and tighten to 110 ft-lb (149.1 N-m). Make sure gap between roller guide and center frame are equal on both sides. Raise planter out of roller guides and lower back down into roller guides to be sure roller guides operate smoothly. Adjust rotation cylinder rod as needed.
14. Reset row unit down pressure and other attachments from Step 3.

TRACTOR MOUNTED PTO PUMP AND OIL COOLER OPTION

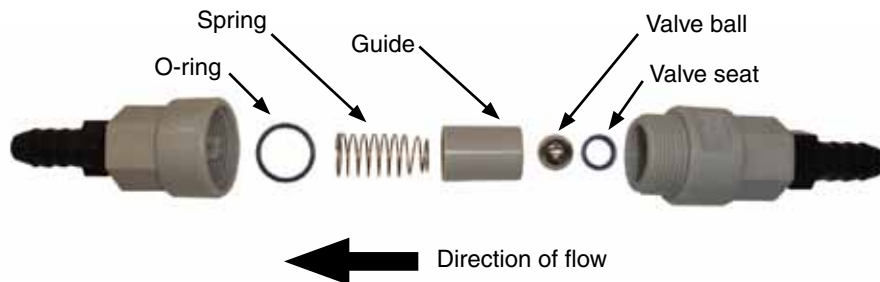
Drain reservoir, clean strainer and change filter annually.

1. Disconnect suction line (hose between reservoir and pump) from reservoir and drain. To fully drain tank, raise
2. Replace filter with good quality 10 micron filter.
3. Fill system with SAE 10W-20 multigrade wide temperature range transmission hydraulic fluid. Reservoir capacity is approximately 10 gallons.
4. Start system and run with tractor at idle and fan turned off for 1-2 minutes. Switch fan to full speed and run with tractor at idle for 1-2 minutes.
5. Check reservoir fluid level and fill as required. Hydraulic fluid level should be within 1"-2" from top of reservoir after pump has run and hydraulic hoses have been primed to allow fluid to expand when heated.
6. Bring tractor to PTO speed and adjust flow control to the desired vacuum level using the flow control valve lever.



Hydraulic reservoir

FERTILIZER CHECK VALVE CLEANING AND REPAIR



1. Unscrew valve body and separate halves. Note direction and location of parts.
2. Clean and inspect parts. Flush with clean water. Replace damaged parts.
3. Reassemble exactly as shown. O-ring and valve seat must be firmly in place inside each half of valve body.

PISTON PUMP STORAGE

NOTICE

Entrance of air into pump will cause rapid and severe corrosion. KEEP AIR OUT OF PUMP!

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

1. Flush pump with 5 to 10 gallons of fresh water and circulate until all corrosive salts are dissolved in pump.
2. Set pump on 10. Draw in a mixture of half diesel fuel and 10 weight oil until discharge is clean. Plug inlet and outlet.



Liquid fertilizer piston pump

PREPARATION FOR STORAGE

Store planter in a dry sheltered area if possible.

Remove all trash 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 planter for parts that in need of replacement and order during “off” season.

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

Remove seed discs from seed meters, clean and store meters in a rodent-free, dry area with discs removed. Store seed discs vertically on a dowel or pipe.

Remove vacuum hose from each seed meter. Operate vacuum fan at full hydraulic flow from tractor for two minutes to clear manifolds, hoses and fittings of dust and debris.

Clean breather on analog vacuum and pressure gauges.

Disassemble, clean and grease all U-joint slides.

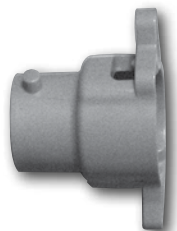
Grease or paint disc openers/blades and row marker disc blades to prevent rust.

Flush liquid fertilizer tanks, hoses and metering pump with clean water. See “Piston Pump Storage” if applicable.

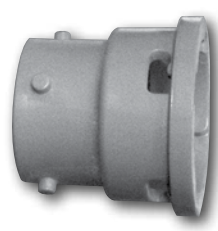
Empty dry fertilizer hoppers. Clean hoppers. Disassemble and clean metering augers. Reassemble, coating all metal parts with rust preventative.

ASD System:

- Clean out ASD hopper, entrainment assembly, and delivery hoses.
- Disconnect delivery hoses from entrainer ports. Install small orange caps onto ports. Attach hoses to caps.
- Disconnect delivery hoses from air dissipator at each row unit. Install large orange caps. Attach hoses to caps.
- Check all bolts and fasteners used to assemble and attach entrainment device are tight (if applicable).
- Loosen knobs on entrainer cleanout doors to remove pressure from door gaskets.
- Inspect all seed delivery hoses and replace any that are worn, cut, or cracked.



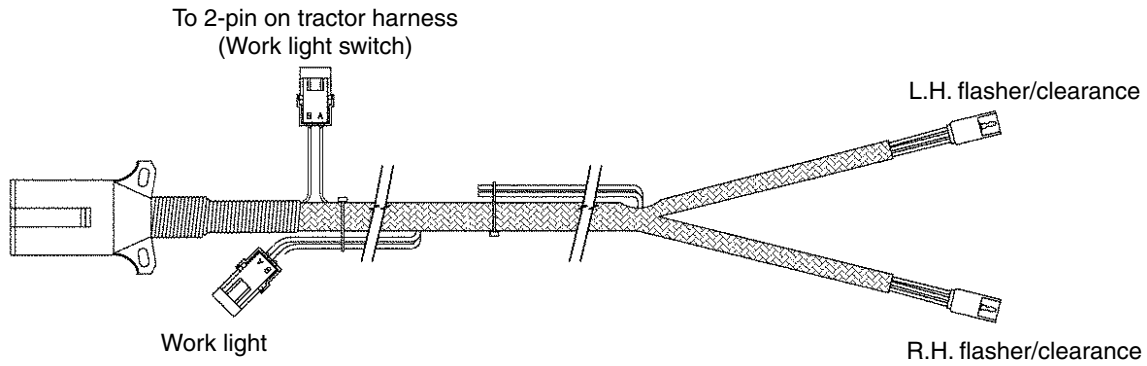
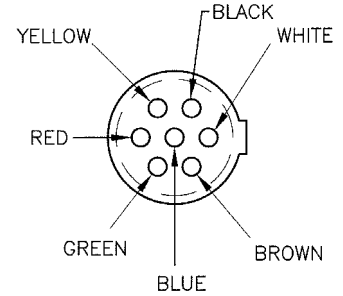
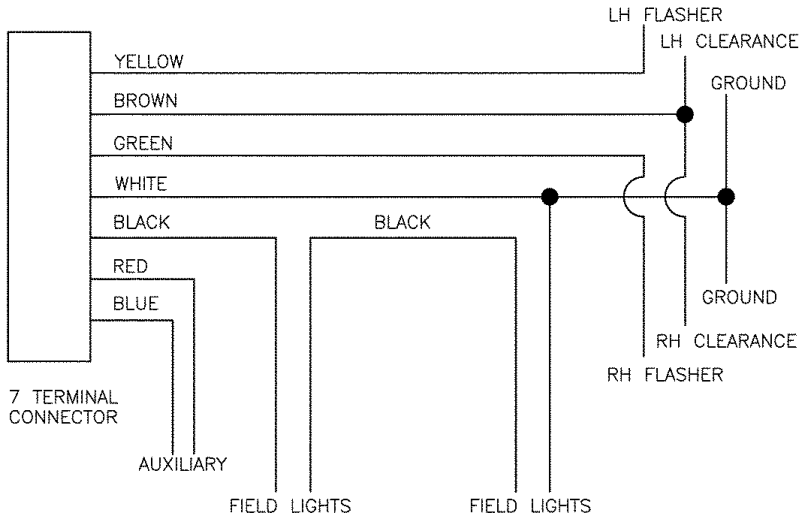
Entrainer cap



Air dissipator cap

ELECTRICAL WIRING DIAGRAM FOR LIGHT PACKAGE

Machines with double light assemblies

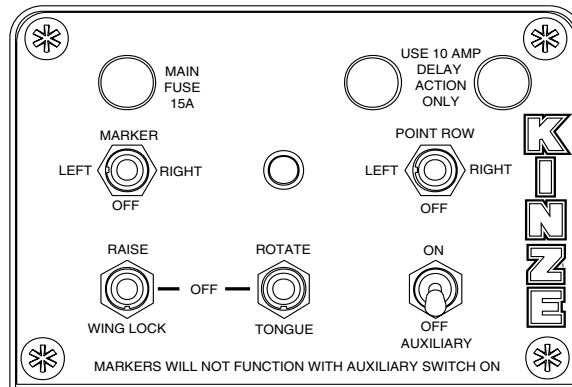
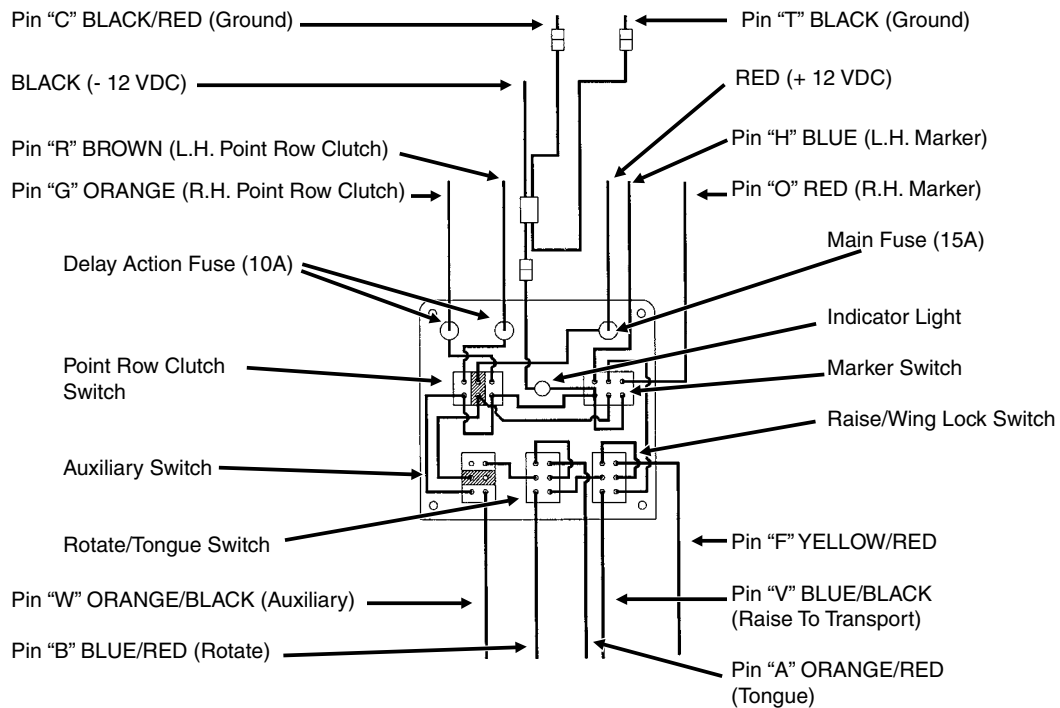


*** Optional customer-supplied auxiliary lights and wires may be wired into existing plug terminals.**

Model 3600 Twin-Line Planter safety light package meets ASAE Standards. Check with your tractor manufacturer for proper connection to your tractor.

ELECTRICAL CONTROL CONSOLE SCHEMATIC

NOTE: Disconnect control console from tractor battery before doing any electrical work. Keep wiring harnesses away from high temperature areas or sharp edges. DO NOT route wiring harnesses along battery cables. Use cable ties to keep wire harness away from moving parts on tractor and planter. Be sure tractor frame ground connections are clean to provide good electrical contact.



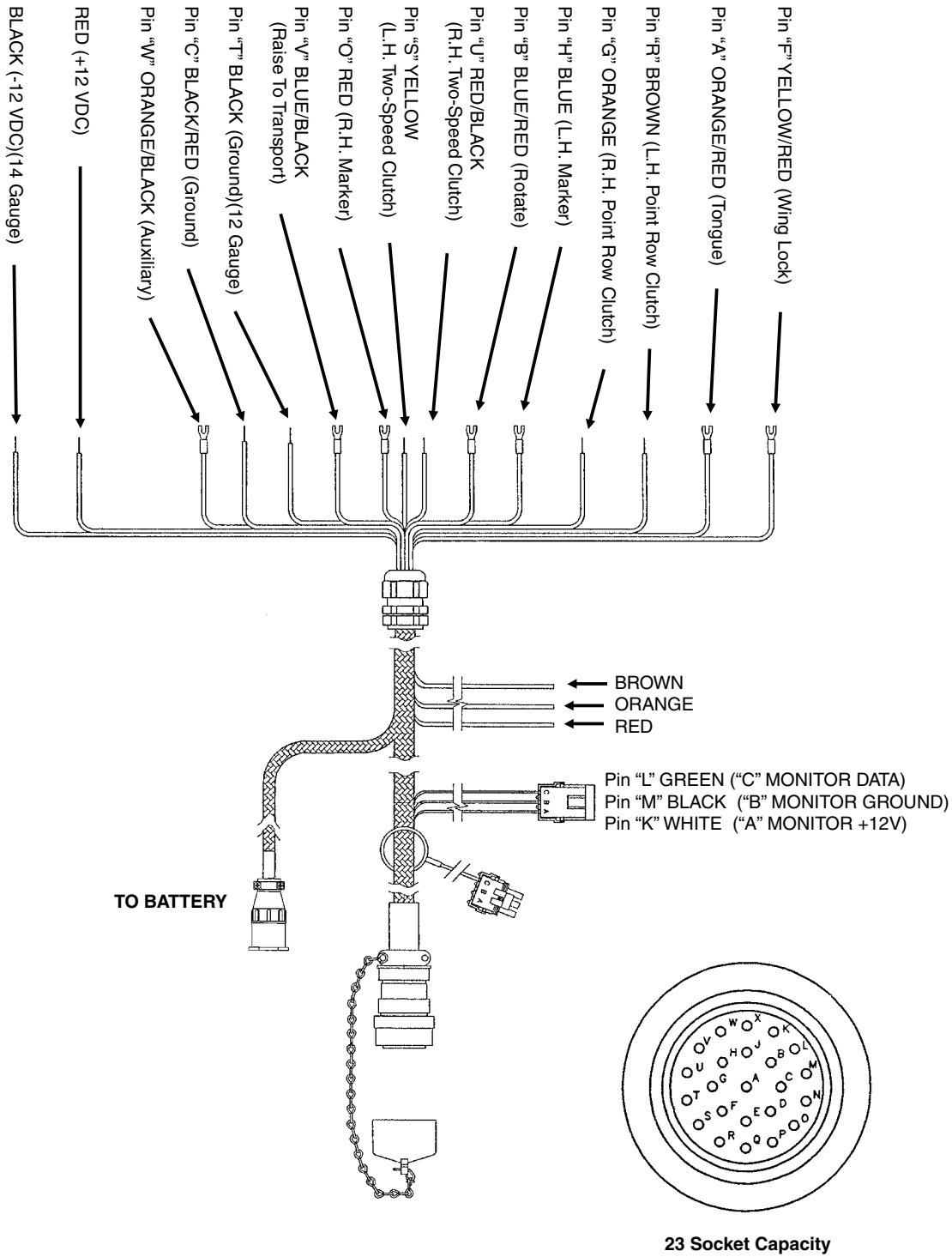
NOTE 1. Operating marker or point row switch in either direction lights panel light.

NOTE 2. Point row clutch switch operates independently from rest of control box.

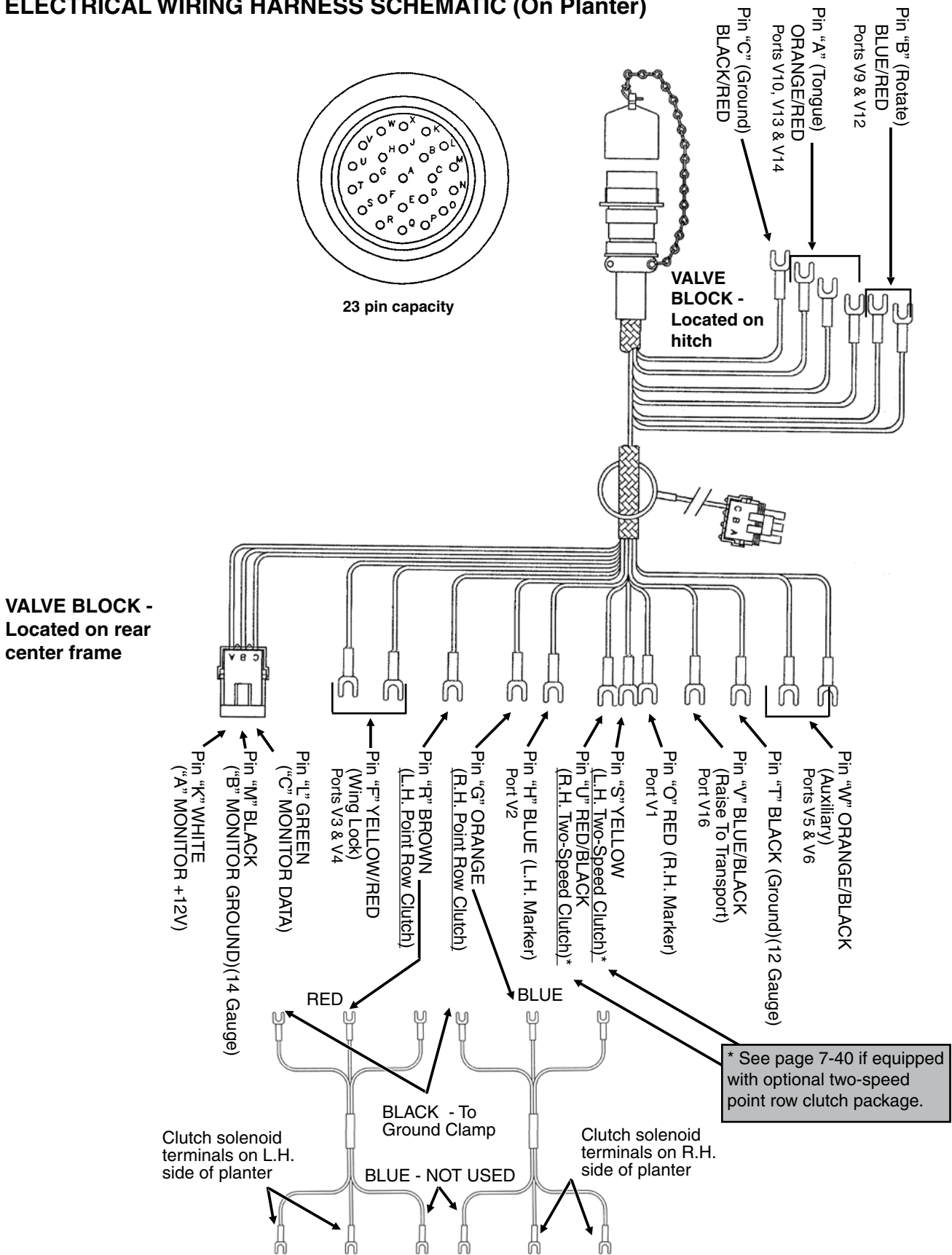
NOTE 3. Power to marker switch is fed through auxiliary switch and two transport function switches. Operating any switch in lower row disables marker function and turns off panel light. (If point row clutch switch is OFF.)

See electrical control console schematic and wiring harness at two-speed point row clutch solenoids for planter equipped with optional Two-Speed Point Row Clutch Package in this section.

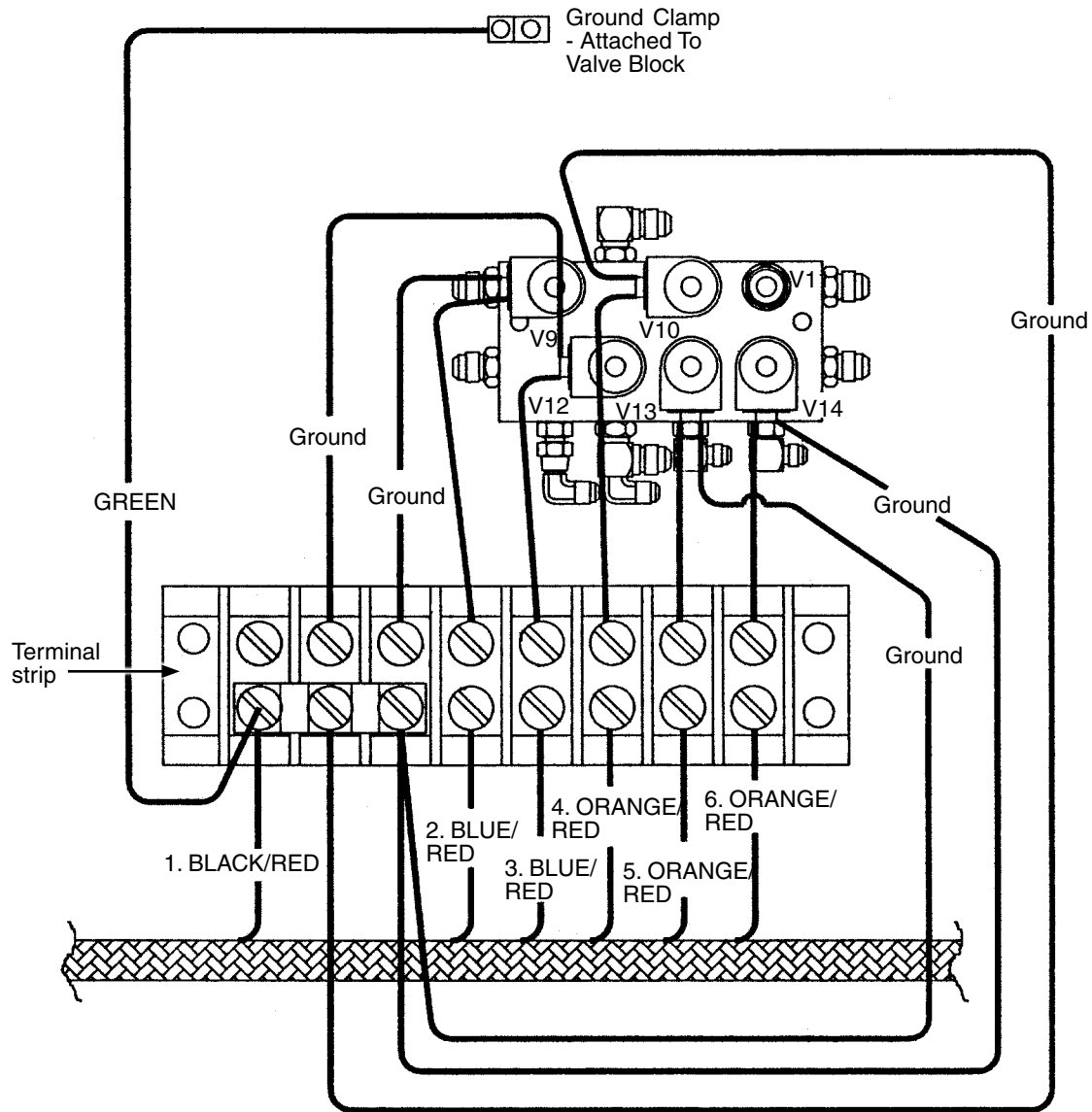
ELECTRICAL WIRING HARNESS SCHEMATIC (On Tractor)



ELECTRICAL WIRING HARNESS SCHEMATIC (On Planter)

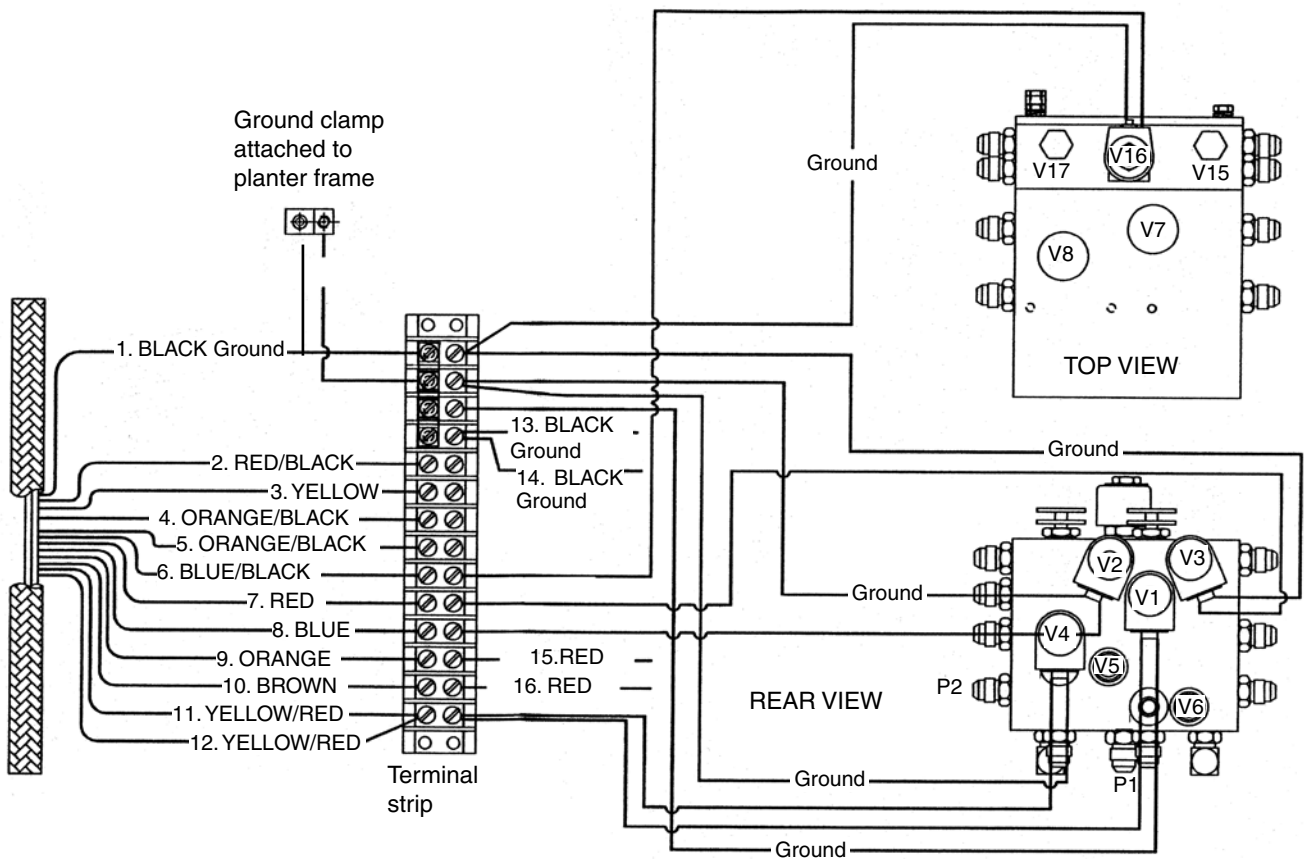


VALVE BLOCK - LOCATED ON HITCH



- 1. BLACK/RED - Pin "C" (Ground)
- 2. BLUE/RED - Pin "B" (Rotate) - Port V9
- 3. BLUE/RED - Pin "B" (Rotate) - Port V12
- 4. ORANGE/RED - Pin "A" (Tongue) - Port V10
- 5. ORANGE/RED - Pin "A" (Tongue) - Port V13
- 6. ORANGE/RED - Pin "A" (Tongue) - Port V14

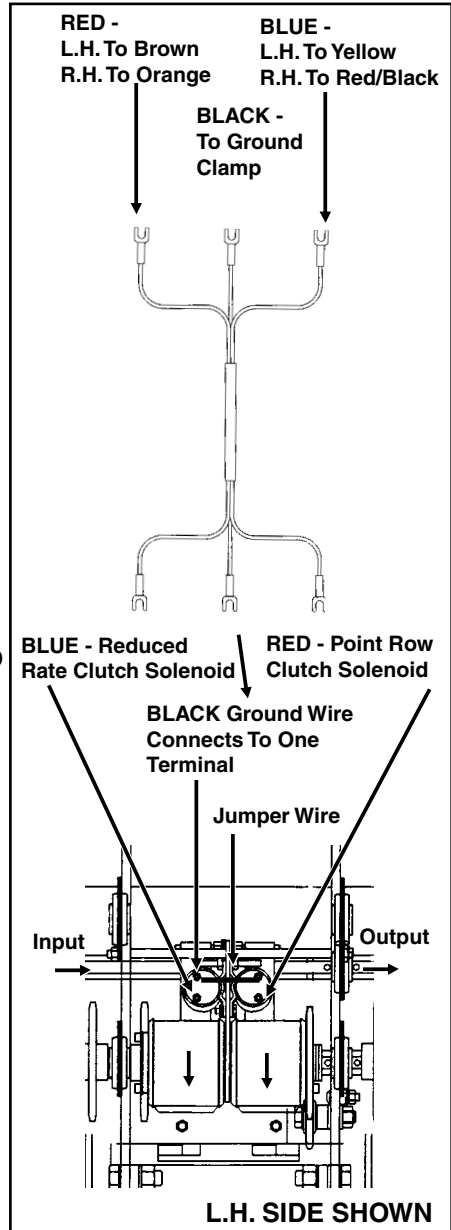
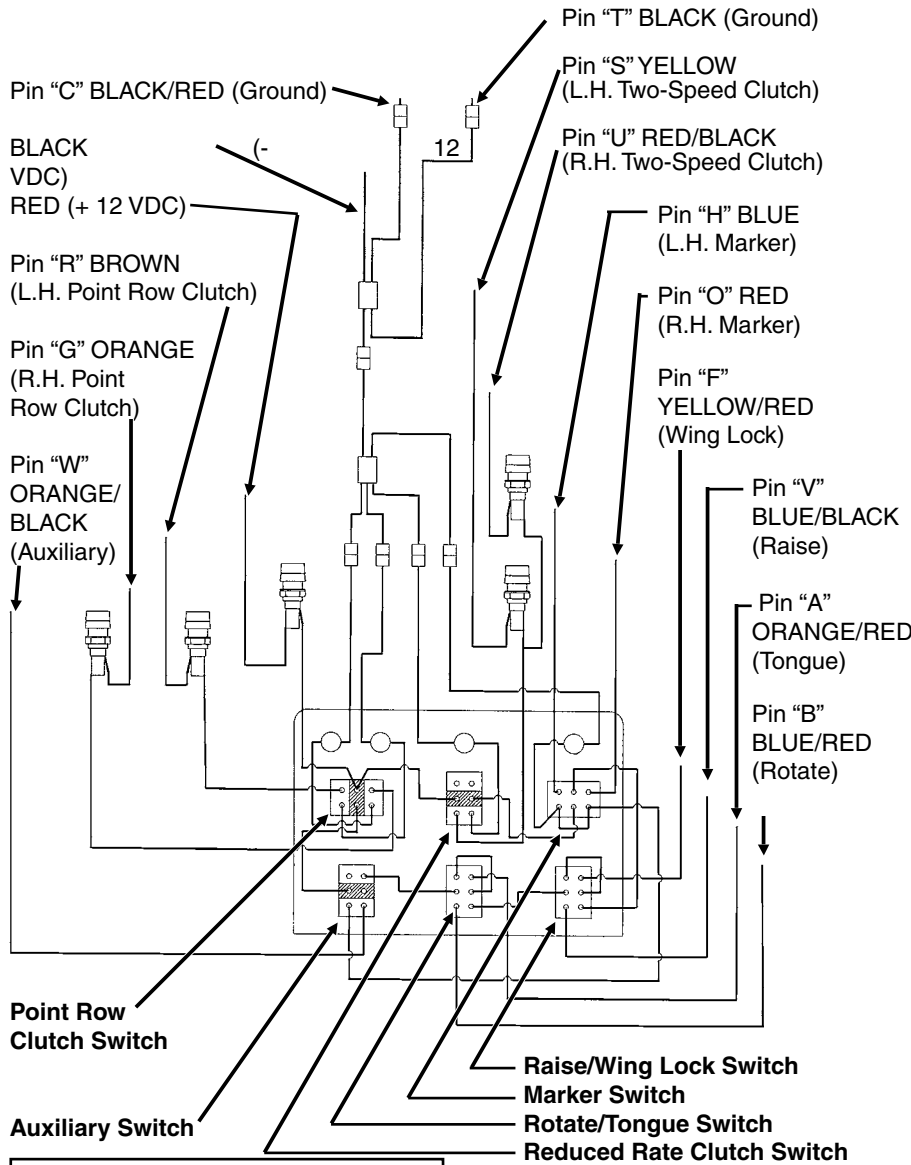
VALVE BLOCK - LOCATED ON REAR CENTER FRAME



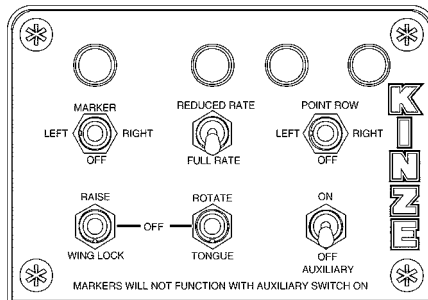
1. BLACK - Pin "T" (Ground)
2. RED/BLACK - Pin "U" (R.H. Two-Speed Clutch)*
3. YELLOW - Pin "S" (Le.H. Two-Speed Clutch)*
4. ORANGE/BLACK - Pin "W" (Auxiliary) - Ports V5 & V6
5. ORANGE/BLACK - Pin "W" (Auxiliary) - Ports V5 & V6
6. BLUE/BLACK - Pin "V" (Raise To Transport) - Port V16
7. RED - Pin "O" (R.H. Marker) - Port V1
8. BLUE - Pin "H" (L.H. Marker) - Port V2
9. ORANGE - Pin "G" (R.H. Point Row Clutch)
10. BROWN - Pin "R" (L.H. Point Row Clutch)
11. YELLOW/RED - Pin "F" (Wing Lock) - Ports V3 & V4
12. YELLOW/RED - Pin "F" (Wing Lock) - Ports V3 & V4
13. BLACK - (R.H. Point Row Ground)
14. BLACK - (L.H. Point Row Ground)
15. RED - (R.H. Point Row)
16. RED - (L.H. Point Row)

* See page 7-40 if equipped with optional Two-Speed Point Row Clutch Package.

ELECTRICAL CONTROL CONSOLE SCHEMATIC (With Optional Two-Speed Point Row Clutches) AND WIRING HARNESS AT TWO-SPEED POINT ROW CLUTCH SOLENOIDS

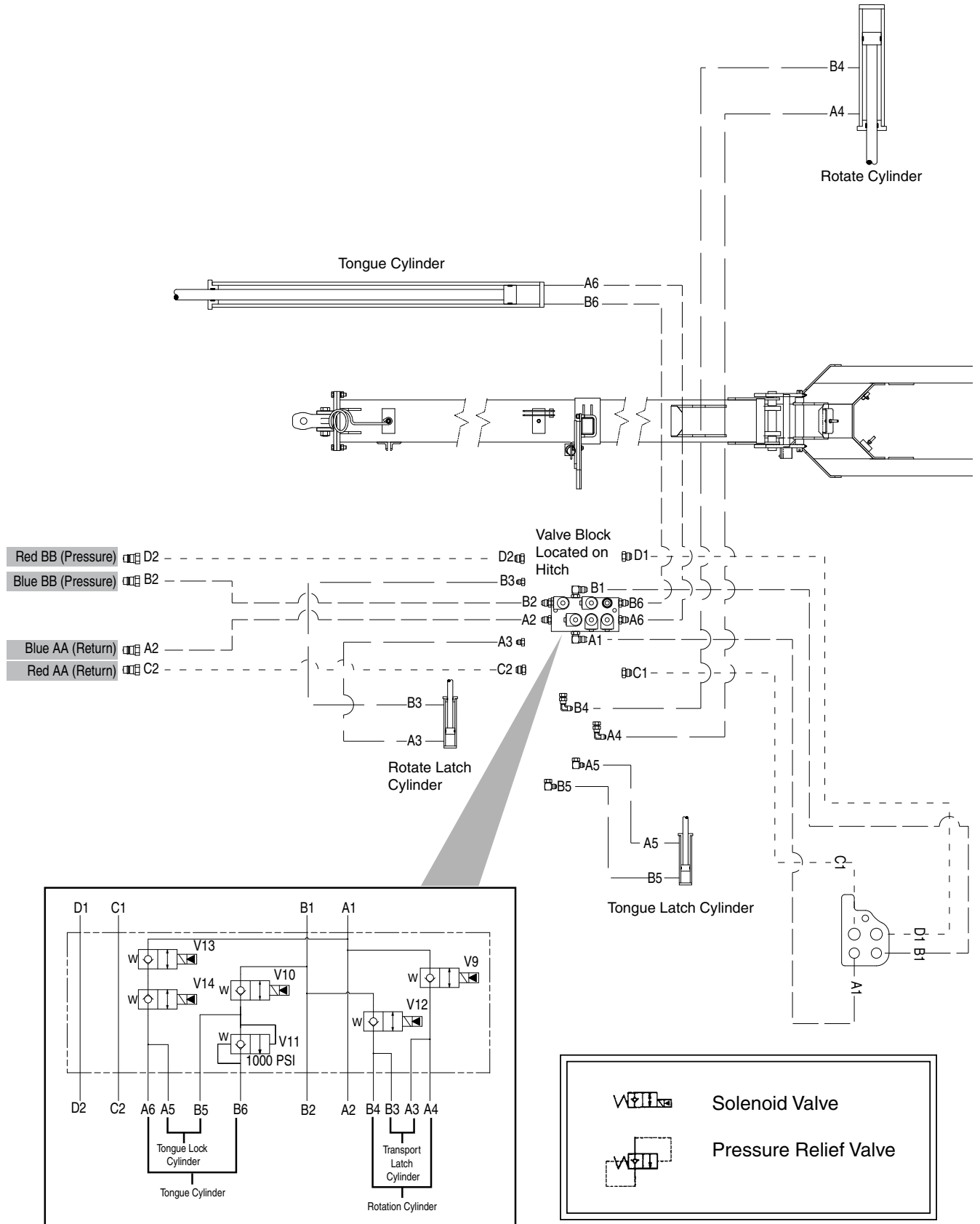


NOTE: Disconnect control console from tractor battery before doing any electrical work. Keep wiring harnesses away from high temperature areas or sharp edges. **DO NOT** route the wiring harnesses along battery cables. Use tie straps to keep wire harness away from moving parts on tractor and planter.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



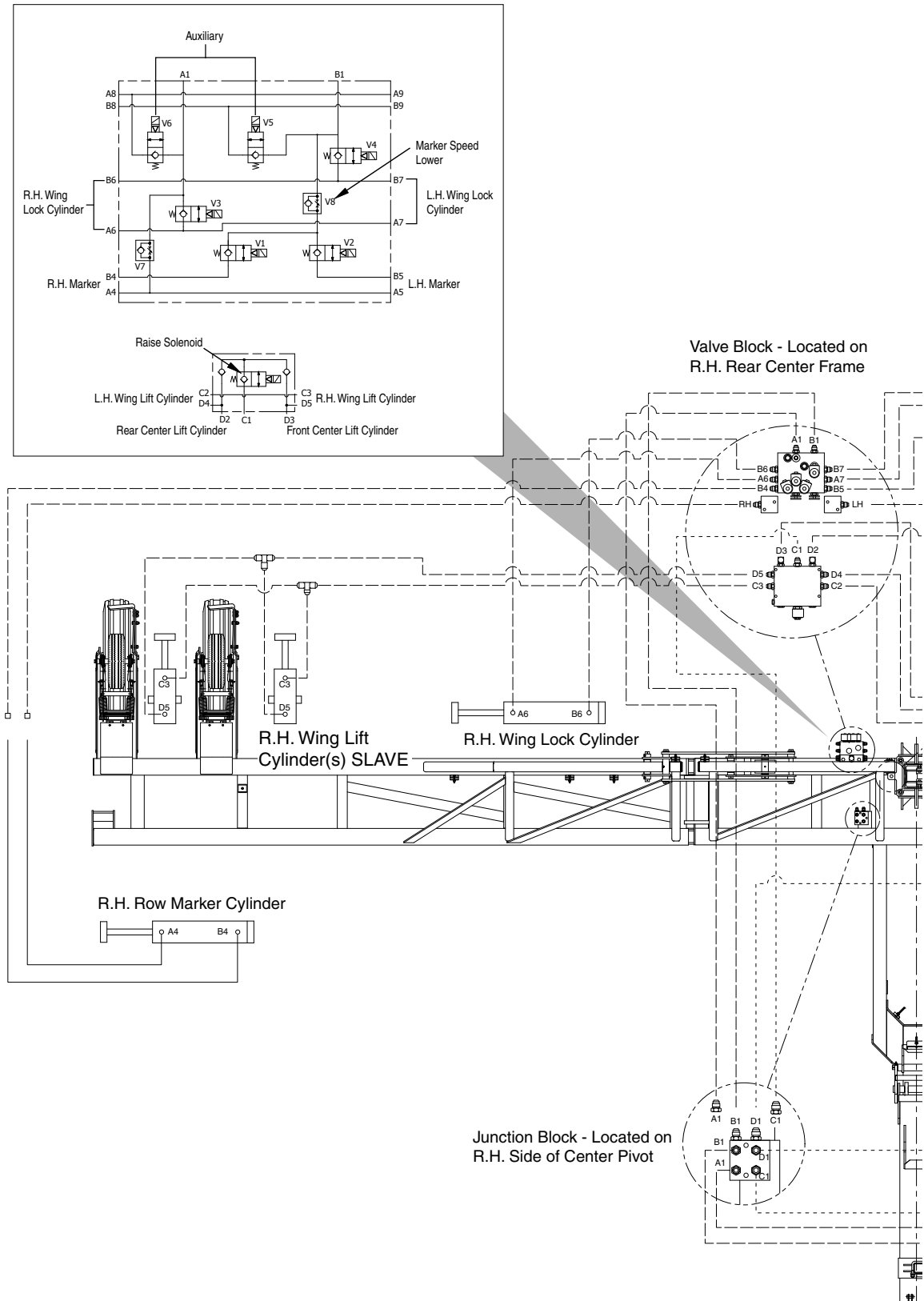
- NOTE:**
1. Point row and reduced rate clutch switches operate independently from rest of control console.
 2. Marker switch power is fed through auxiliary switch and two transport function switches. Operating any switches in lower row disables marker function and turns marker panel light off.

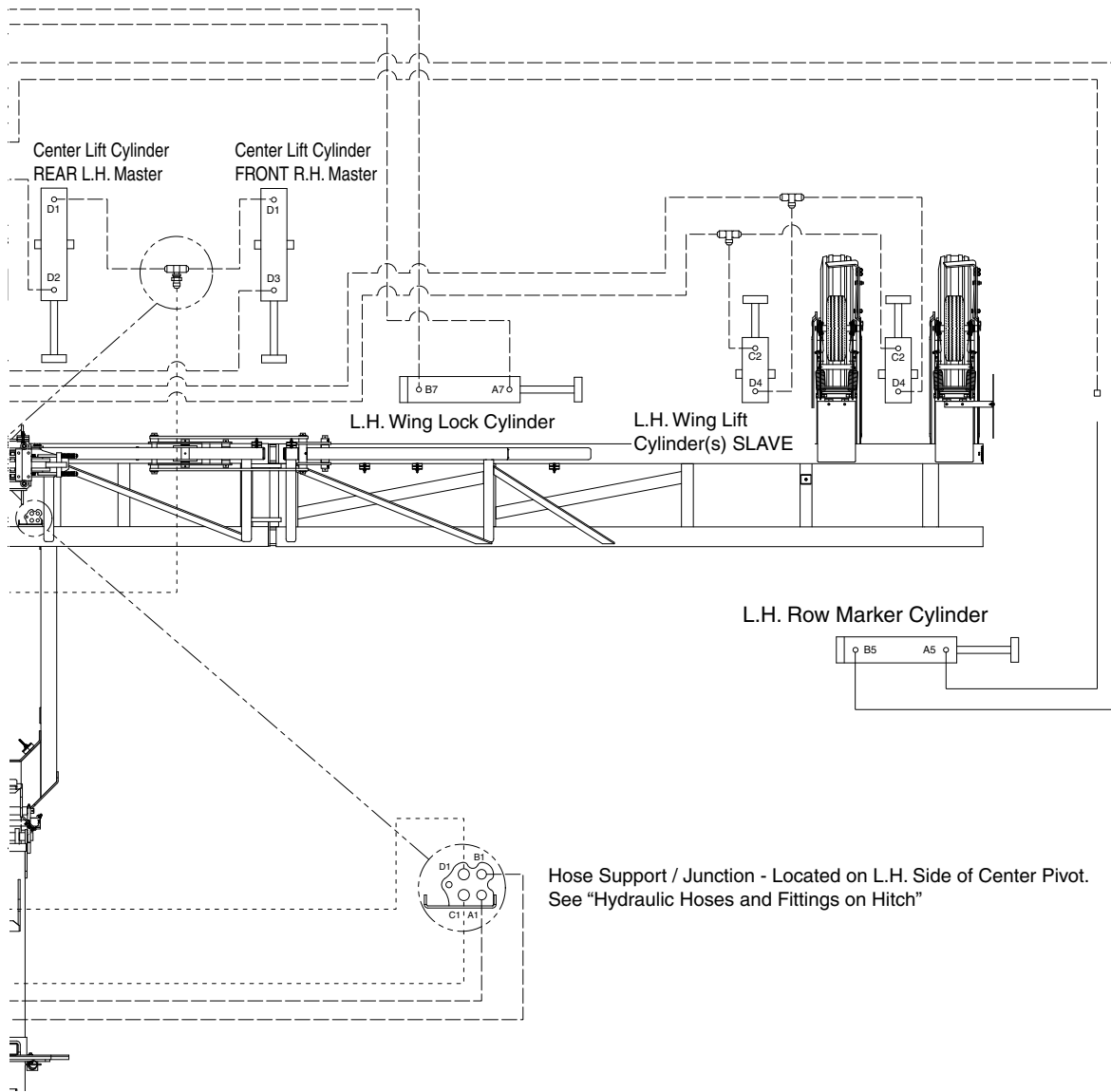
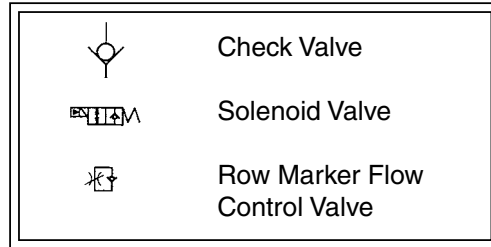
HYDRAULIC SYSTEM SCHEMATIC



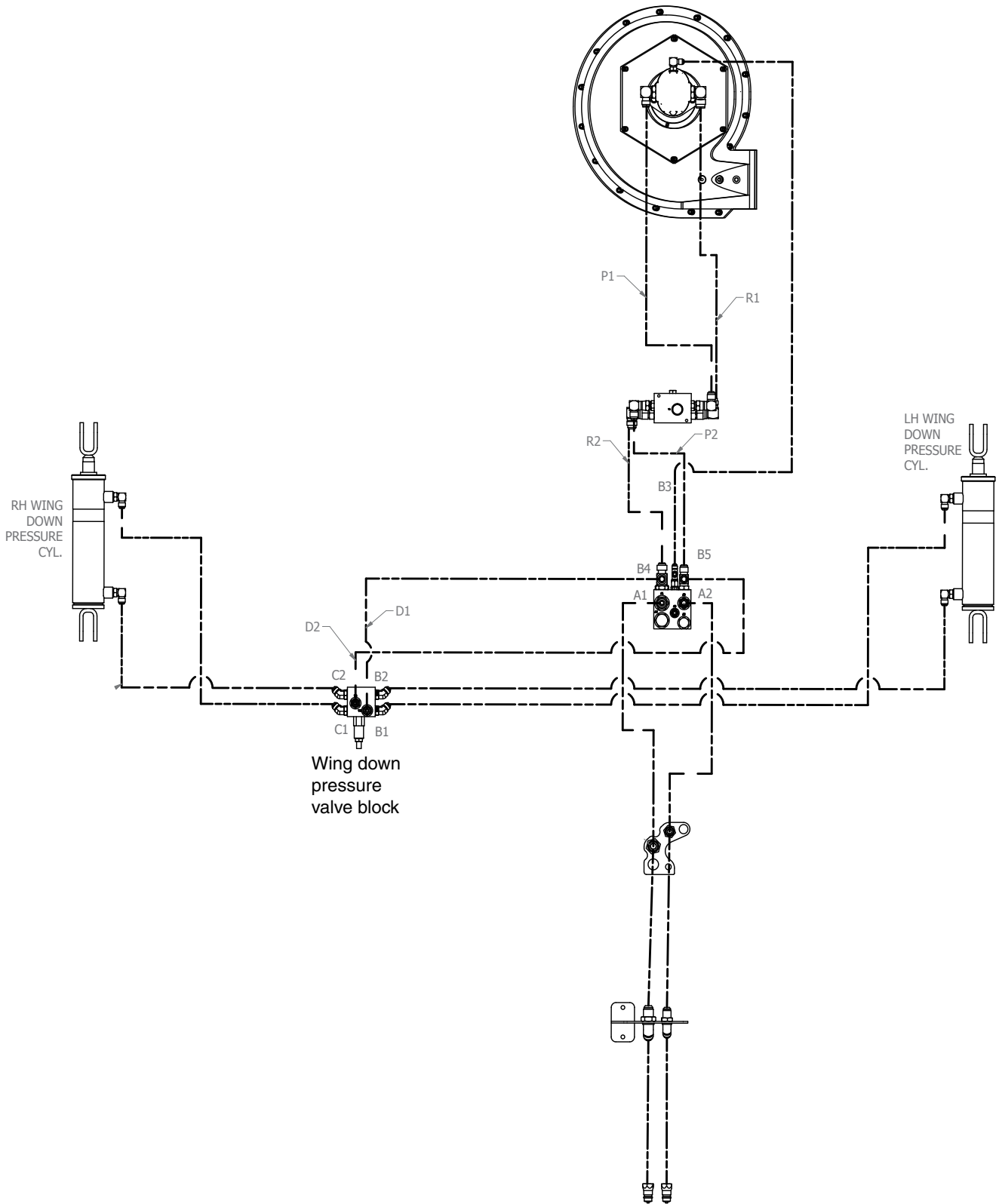
Hydraulic System Schematic

12 Row (One Wing Lift Cylinder Per Wing) and 16 Row Shown (Two Wing Lift Cylinders Per Wing)

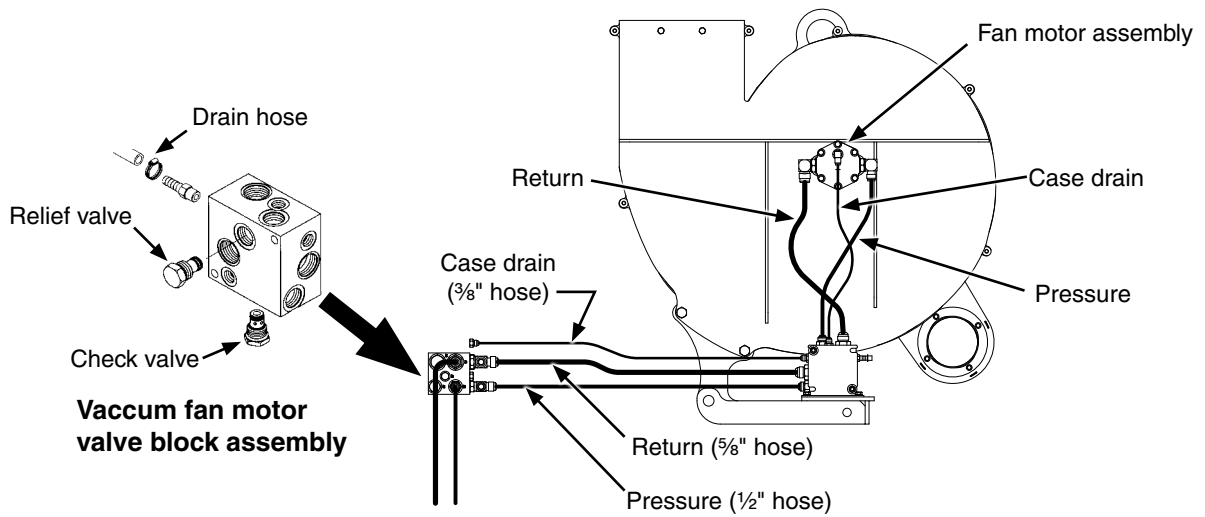




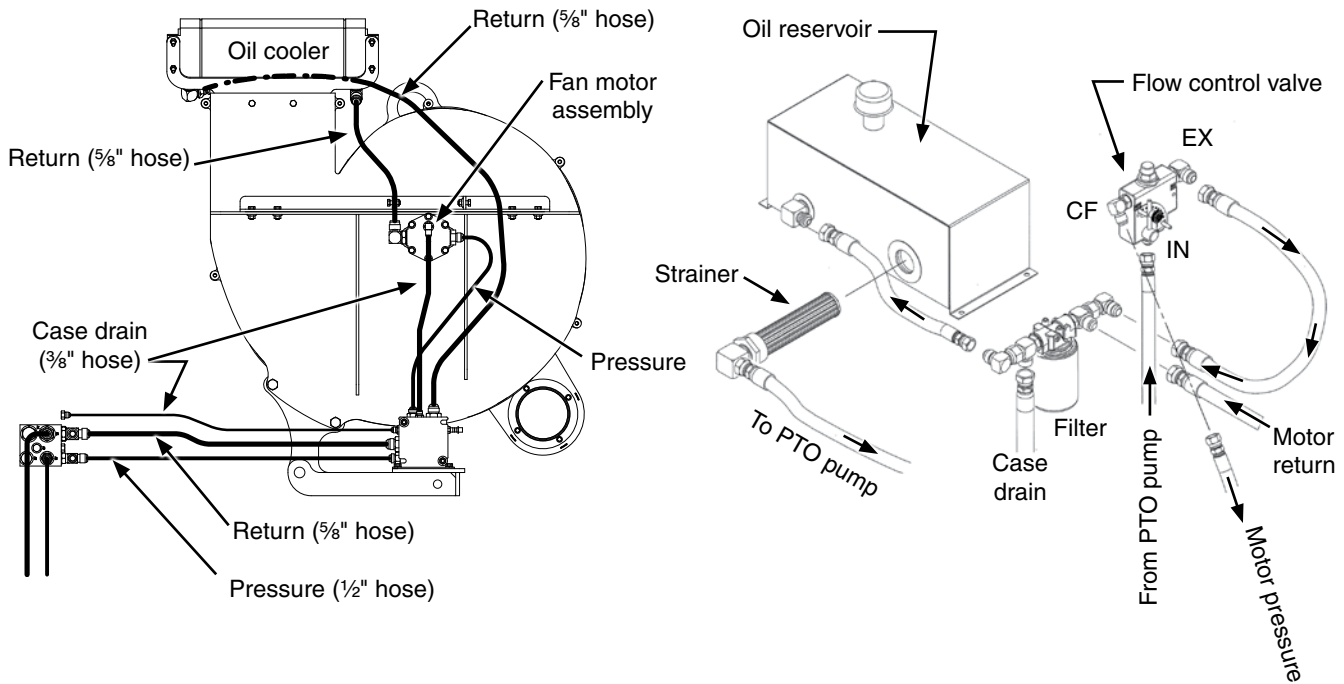
WING DOWN PRESSURE SCHEMATIC (WEIGHT TRANSFER MECHANISM)



HYDRAULIC SCHEMATIC - VACUUM FAN MOTOR SYSTEM



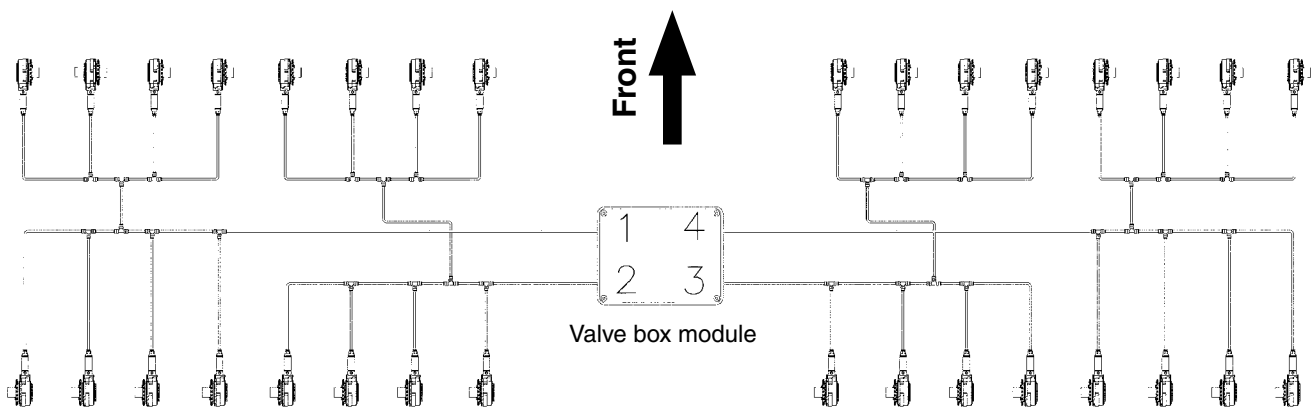
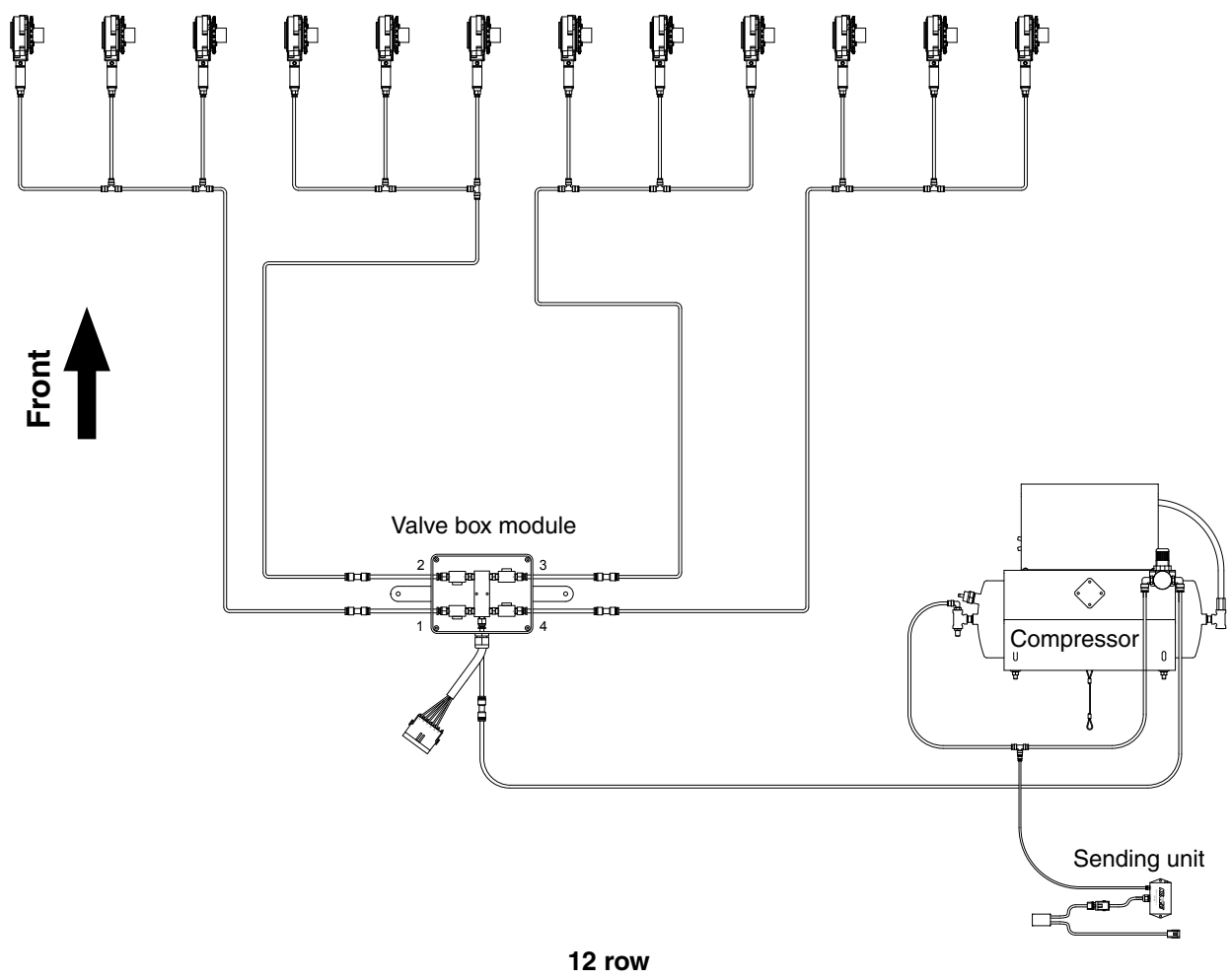
HYDRAULIC SCHEMATIC - OPTIONAL TRACTOR DRIVEN PTO PUMP AND OIL COOLER SYSTEM



NOTICE

Failure to connect to a return with zero pressure will damage hydraulic motor. Connect hydraulic motor case drain to a case drain return line with zero pressure on tractor. DO NOT connect hydraulic motor case drain to SCV outlet. Contact tractor manufacturer for specific details on “zero pressure return”.

AIRLINE SCHEMATIC



LIFT CIRCUIT

PROBLEM	POSSIBLE CAUSE	SOLUTION
Right wing raises faster than left wing. Right wing may even raise completely before the center frame and left wing start to raise. If planter is loaded, the center frame and left wing may not be able to raise at all.	Master cylinder, located on front side of center post, leaking internally. NOTE: Make sure lift system is completely rephased.	Repair master cylinder.
Left wing raises faster than right wing. Left wing may even raise completely before the center frame and right wing start to raise. If the planter is loaded, the center frame and right wing may not be able to raise at all.	Master cylinder, located on rear side of center post, leaking internally. NOTE: Make sure the lift system is completely rephased.	Repair master cylinder.
Center frame raises, but wings do not.	Planter hydraulic circuit out of phase. Usually occurs when the planter is lowered from transport position. Solenoid valve in port V16 leaking.	Hold hydraulic control in lowering position to give the hydraulic circuit more time to rephase. Replace solenoid valve cartridge.
Center frame continues to raise after wing cylinders have reached full stroke when going to raised field position.	Solenoid valve in port V16 leaking.	Replace solenoid valve cartridge.
Planter raises to raised field position, but does not raise to transport position.	Solenoid valve coil in port V16 is not energized.	Be sure control console switch is in "raise" position to energize solenoid coil in port V16. Check control console fuse by moving auxiliary switch to ON position. If red light comes on the fuse is OK. Return auxiliary to OFF position. Check for poor wire connection or damaged wire and repair. Solenoid valve coil is defective. All solenoid valves used on the planter are the same. Switch the solenoid coil with one you know is working. If this cures the problem, replace defective coil.
	Solenoid valve cartridge in port V16 is stuck closed.	All solenoid valves used on the planter are the same. Switch the solenoid cartridge with one you know is working. If this cures the problem, replace defective cartridge.
Left wing lowering slower than center frame and right wing. If hydraulic lever is held in lowering position, left wing cylinder attempts to extend.	Check valve in port V17 leaking internally.	Remove check valve in port V17 and inspect for foreign material in valve and remove if possible. Replace check valve. If above fails, switch check valve in port V17 with check valve in port V15. If problem moves or switches to right wing, replace defective check valve.
Right wing lowering slower than center frame and left wing. If hydraulic control is held in lowering position, right wing cylinder attempts to extend.	Check valve in port V15 leaking internally.	Remove check valve in port V15 and inspect for foreign material in valve and remove if possible. Replace check valve. If above fails, switch check valve in port V15 with check valve in port V17. If problem moves or switches to right wing, replace defective check valve.

LIFT CIRCUIT (continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
Planter does not raise or raises slowly.	Tractor may have hydraulic problem.	Switch remote outlets being used. Repair tractor hydraulics.
	Planter may be overloaded with hopper extensions and/or extra fertilizer tanks, coulters or other non-Kinze attachments.	Remove weight.
	Center pivot wear pads may be adjusted too tight and are binding on the post.	Adjust pads.
	Relief valves on hitch leaking. Valves should hold 2500 PSI (±50 PSI).	Remove and inspect relief valve cartridge. Check for blown O-rings. Replace bad cartridge.
Planter will not rephase.	All cylinders not completely retracted. Caused by mechanical interference on or between planter frame and wheel lift module.	Remove interference.
	Center cylinders not retracting completely.	Lower planter and hold hydraulic lever in lower position to rephase system. Lower cylinder pins must be free to rotate in this position. If pins are tight, adjust cylinder clevises.

PISTON PUMP

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.

PTO PUMP DRIVE AND OIL COOLER OPTION

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pump is squealing.	Lack of oil to pump.	Check for plugged suction strainer. Check oil level.
Oil temperature is high.	Low oil level.	Check oil level and add as required.
Desired fan speed cannot be achieved.	Low oil level.	Check oil level and add as required.
	Plugged filter.	Check and change as required.

POINT ROW CLUTCH

PROBLEM	POSSIBLE CAUSE	SOLUTION
No clutches 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 does not re-engage while planter is moving forward.	Spring in actuator arm not strong enough to push arm 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 away from stop collar when 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.	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.

ROTATION CIRCUIT

PROBLEM	POSSIBLE CAUSE	SOLUTION
Cylinder does not extend, but will retract.	Solenoid valve coil in port V12 defective.	Switch coil from port V12 with coil in port V9. If cylinder extends but will not retract, replace defective coil from port V12.
	Solenoid valve cartridge in port V12 stuck closed.	Switch cartridge from port V12 with cartridge in port V9. If cylinder extends but will not retract, replace defective cartridge from port V12.
Cylinder does not retract, but will extend.	Solenoid valve coil in port V9 defective.	Switch coil from port V9 with coil in port V12. If cylinder extends but will not retract, replace defective coil from port V9.
	Solenoid valve cartridge in port V9 stuck closed.	Switch cartridge from port V9 with cartridge in port V12. If cylinder extends but will not retract, replace defective cartridge from port V9.

ROW MARKER OPERATION

PROBLEM	POSSIBLE CAUSE	SOLUTION
Right marker lowering slower than left marker.	Solenoid valve cartridge in port V1 not opening completely.	Switch with cartridge in port V2. If problem repeats, 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 with cartridge in port V1. If problem repeats, replace cartridge.
	Hose pinched or collapsed.	Inspect hose routing. Replace or repair hoses as required.
Both markers lowering.	Solenoid valve cartridge stuck open. If left marker switch is selected, right cartridge (V1) is defective. If right marker switch is selected, left cartridge (V2) is defective.	Replace solenoid valve cartridge.
Neither marker lowers.	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 needs adjustment.	See Operation Section for adjustment.

SOLENOID VALVE

PROBLEM	POSSIBLE CAUSE	SOLUTION
No solenoids operate.	Low voltage.	Must be connected to 12 volt DC only. Negative ground.
	Blown fuse.	Replace control console fuse with AGC-15 amp.
	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 and clean cartridge.

TONGUE CYLINDER CIRCUIT

PROBLEM	POSSIBLE CAUSE	SOLUTION
Tongue cylinder will not extend, but will retract.	No power to solenoid valve coil in port V10 and/or V14. Both must be energized.	Check wiring between control console and solenoid coils looking for damaged wires and poor connections.
	Solenoid valve coil defective.	Switch coil from port V13 with V10. If tongue still will not extend, switch coil from V14 with V13. It will not be necessary to remove any of the wire connections to the solenoid. All three of these solenoids are normally energized when the tongue switch is energized. Replace defective coil.
	Solenoid valve cartridges in port V10 and/or V14 stuck closed.	Switch cartridge from port V10 with cartridge in port V13. If tongue cylinder retracts, replace defective cartridge from port V10. If problem continues, switch cartridge from port V14 with cartridge in port V13. Replace defective cartridge.
Tongue cylinder will not extend but tongue lock cylinder extends.	Pressure relief valve in port V11 stuck closed or pressure setting too high. (Valve is factory set to open at 1000 PSI.)	Replace or adjust pressure relief valve. To adjust, loosen lock nut and turn counter clockwise to decrease pressure.
Tongue hook does not release before the tongue starts to extend.	Solenoid valve cartridge in port V11 stuck open or pressure setting too low. (Valve is factory set to open at 1000 PSI.)	Replace or adjust pressure relief valve. To adjust, loosen lock nut and turn clockwise to increase pressure.
Tongue cylinder will not retract, but will extend.	Solenoid valve coil in port V13 defective.	Switch coil from port V13 with coil from port V14. If coil from port V13 is bad, the tongue will extend but not retract. Replace defective coil.
	Solenoid valve cartridge in port V13 stuck closed.	Switch cartridge from port V13 with cartridge from port V14. If cartridge is bad, the tongue will extend but not retract. Replace defective cartridge.
Tongue extends with switch off.	Solenoid valve cartridge in port V10 and V14 stuck open.	Replace solenoid valve cartridge.
Tongue retracts with switch off.	Solenoid valve cartridge in port V13 stuck open.	Replace solenoid valve cartridge.
Tongue latch releases. Tongue extends slowly while planting.	Latch cylinder or tongue cylinder leaking internally.	Pressure check latch and tongue cylinders. Repair leaking cylinder(s).

WING LOCK CYLINDER CIRCUIT

PROBLEM	POSSIBLE CAUSE	SOLUTION
Cylinders will not extend or retract.	No power to the solenoid valve coils.	Auxiliary switch may be in the ON position. Must be in OFF position. Check fuse at control console. Replace fuse with 15 amp type AGC if blown. Check for poor wire connection or damaged wire. Repair as required.
Cylinders will not extend.	Solenoid valve coil in port V3 not energized.	Check for power to coil. Check coil ground wire. If OK, switch coil from port V3 with coil from port V4. If cylinders extend but will not retract, replace defective coil.
	Solenoid valve cartridge in port V3 stuck closed.	Switch cartridge in port V3 with cartridge in port V4. If cylinders extend but will not retract, replace defective cartridge.
Cylinders will not retract.	Solenoid valve coil in port V4 not energized.	Check for power to coil. Check coil ground wire. If OK, switch coil from port V4 with coil from port V3. If cylinders retract but will not extend, replace defective coil.
	Solenoid valve cartridge in port V4 stuck closed.	Switch cartridge in port V4 with cartridge in port V3. If cylinders retract but will not extend, replace defective cartridge.
Cylinders retract with the switch off.	Solenoid valve cartridge in port V4 stuck open.	Replace solenoid valve cartridge.
Cylinders extend with the switch off.	Solenoid valve cartridge in port V3 stuck open.	Replace solenoid valve cartridge.

MODEL 3600 TWIN-LINE PLANTER PARTS MANUAL

M0236-02

Rev. 7/11

This manual applies to: Model: 3600 Twin-Line Planters (12 Row 30" and 16 Row 30" "Y" Hitch Conventional and ASD Machines)
2011 Production and on

Serial Number:

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

Serial Number _____

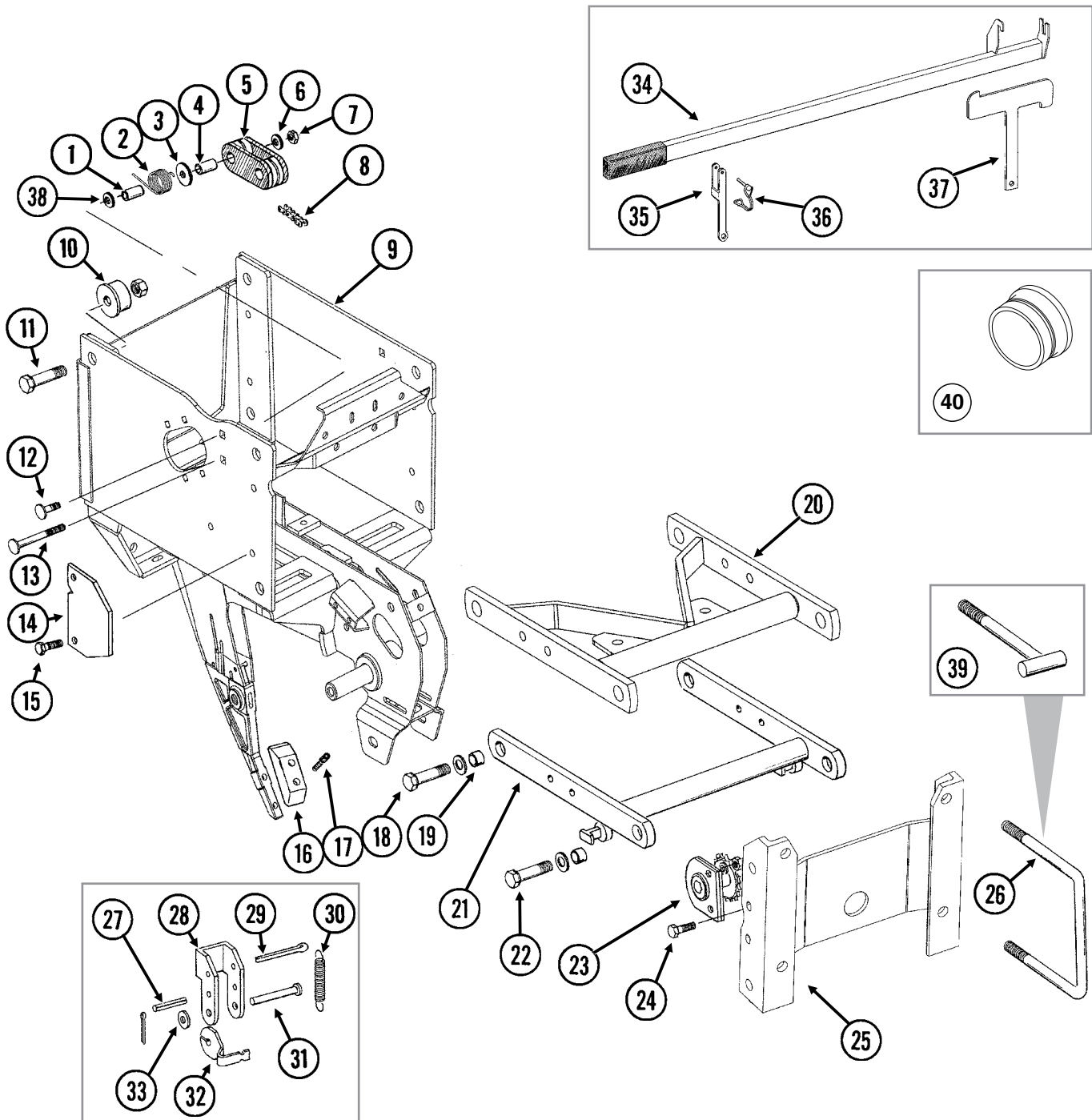
Date Purchased _____

Information in this manual was current at time of printing. However, due to Kinze's ongoing product improvement, 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.

(RU156c/R141h)

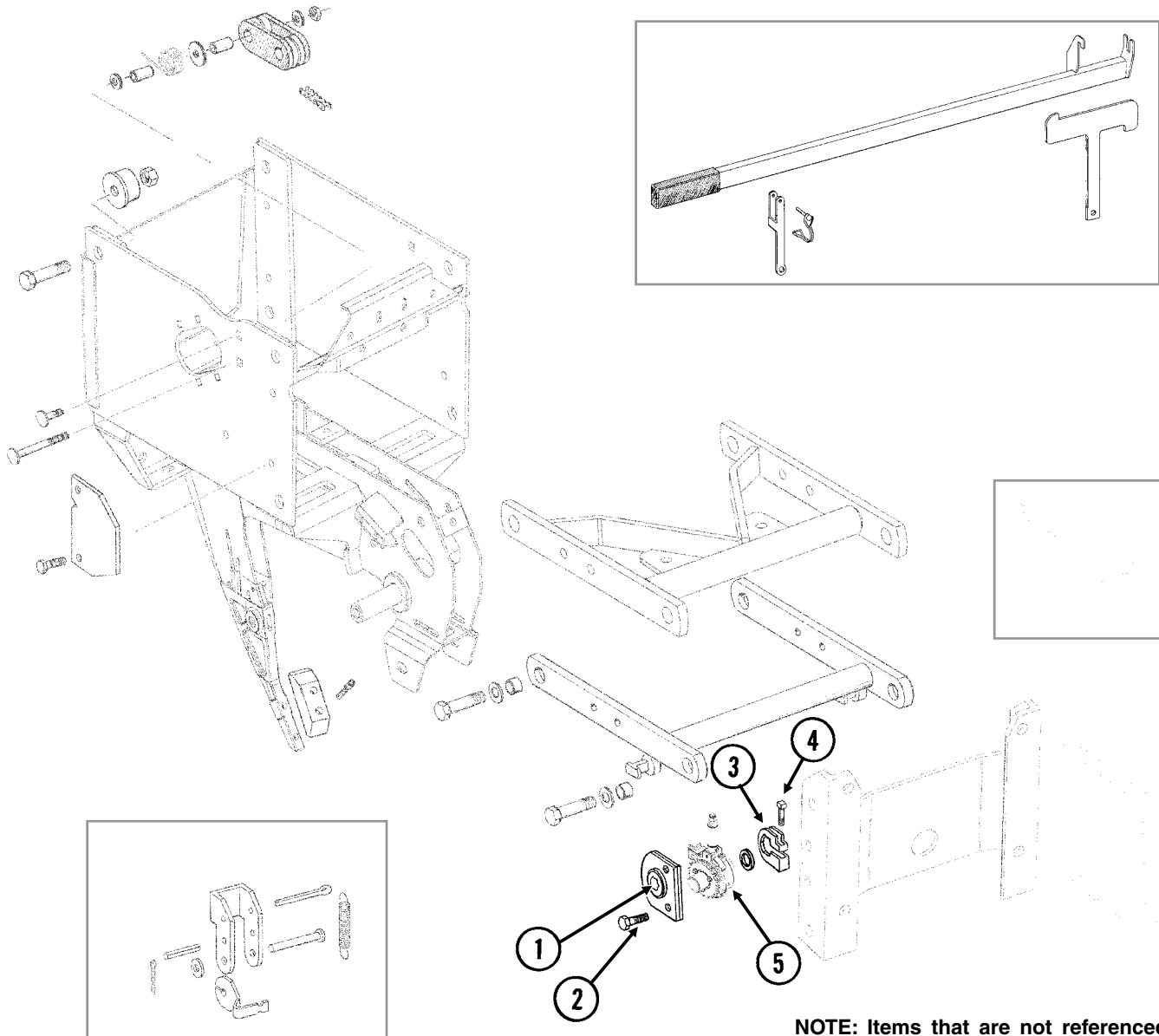
NOTE: Push row units use the same seed tube, row unit depth adjustment components, quick adjustable down force springs, 15" opener disc blades, gauge wheels, closing wheels, meter drive and seed hopper as the pull row unit. See those pages for common parts.



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1	GD1026	1	Sleeve, 1 ³ / ₁₆ " Long
2	GD11218	1	Spring
3	G10201	1	Special Washer, ³ / ₈ " x 1 ¹ / ₂ " O.D.
4	GD8893-01	1	Sleeve, 1 ³ / ₈ " Long
5	GD11962	1	Idler
6	G11387	1	Flat Washer, ³ / ₈ " SAE
7	G10108	1	Lock Nut, ³ / ₈ "-16
8	G3303-96	1	Chain, No. 41, 96 Pitch Including Connector Link (Mechanical)
	G3303-100	-	Chain, No. 41, 100 Pitch Including Connector Link (EdgeVac)
	GR0196	1	Connector Link, No. 41
9	GA10161	-	Push Row Unit Shank
10	GB0314	2	Hopper Mount
11	G10751	2	Hex Head Cap Screw, ⁵ / ₈ "-18 x 1 ³ / ₄ "
	G10412	2	Lock Nut, ⁵ / ₈ "-18
12	G10599	1	Carriage Bolt, ³ / ₈ "-16 x 1 ¹ / ₄ "
	G10101	1	Hex Nut, ³ / ₈ "-16
	G10108	1	Lock Nut, ³ / ₈ "-16
13	G10307	1	Carriage Bolt, ³ / ₈ "-16 x 3 ¹ / ₂ "
14	GD10867	2	Stop
15	G10004	4	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ¹ / ₄ "
	G10108	4	Lock Nut, ³ / ₈ "-16
16	GB0301	1	Seed Tube Guard/Inner Scraper
17	G10912	2	Hex Socket Head Cap Screw, ⁵ / ₁₆ "-18 x 1", Grade 8
18	G10751	4	Hex Head Cap Screw, ⁵ / ₈ "-18 x 1 ³ / ₄ "
	G11391	4	Flat Washer, ⁵ / ₈ " SAE
	G10412	4	Lock Nut, ⁵ / ₈ "-18
19	GB0218	8	Bushing, 2 ¹ / ₃₂ " I.D. x ⁷ / ₈ " O.D. x 1 ⁹ / ₃₂ " Long
20	GA11969	1	Upper Arm
21	GA5787	1	Lower Arm
22	G10732	4	Hex Head Cap Screw, ⁵ / ₈ "-18 x 2"
	G11391	4	Flat Washer, ⁵ / ₈ " SAE
	G10412	4	Lock Nut, ⁵ / ₈ "-18
23	GA1720	1	Bearing/Sprocket, ⁷ / ₈ " Hex Bore
24	G10004	2	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ¹ / ₄ "
	G10229	2	Lock Washer, ³ / ₈ "
	G10101	2	Hex Nut, ³ / ₈ "-16
25	GA11971	1	Mounting Plate
26	GD1113	-	U-Bolt, 5" x 7" x ⁵ / ₈ "-11
	G10230	-	Lock Washer, ⁵ / ₈ "
	G10104	-	Hex Nut, ⁵ / ₈ "-11
27	G10718	2	Spring Pin, ⁵ / ₁₆ " x 1 ¹ / ₈ "
28	GD11264	2	Lockup
29	G10463	2	Cotter Pin, ¹ / ₄ " x 1 ¹ / ₂ "
30	GD11447	2	Spring
31	G10284	2	Clevis Pin, ¹ / ₂ " x 1 ¹ / ₂ "
	G10456	2	Cotter Pin, ¹ / ₈ " x ³ / ₄ "
32	GD11263	2	Spring Tab
33	G11389	2	Flat Washer, ¹ / ₂ " SAE
34	GA8651	1	Lift Lever W/Boot
	GD11649	-	Boot
35	GD18073	1	Bracket (Lift Lever)
36	GD9695	1	Wire Lock Pin, ¹ / ₄ " x 1 ³ / ₄ "
37	GD18074	1	Mount
38	G11387	1	Flat Washer, ³ / ₈ " SAE
39	GA9105	-	T-Bolt, ⁵ / ₈ "-11 x 6" (Center Rows)
	G10230	-	Lock Washer, ⁵ / ₈ "
	G10104	-	Hex Nut, ⁵ / ₈ "-11
40	GD17052	-	Vacuum Plug
	G10001	-	Hex Head Cap Screw, ³ / ₈ "-16 x 1"
	G10108	-	Lock Nut, ³ / ₈ "-16
	G11387	-	Flat Washer, ³ / ₈ " SAE

(RU156d/RU141h/RU164a)

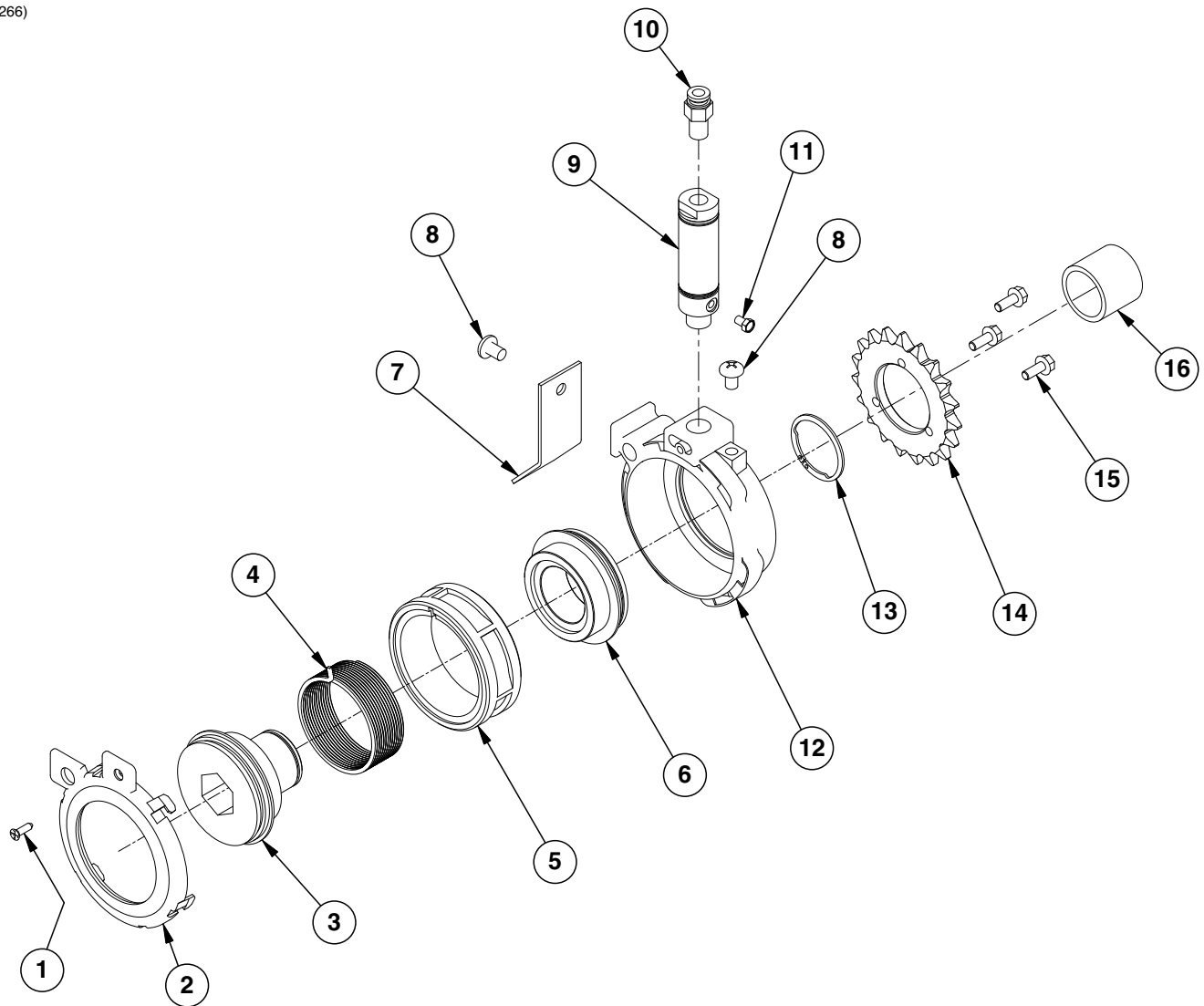
NOTE: Push row units use the same seed tube, row unit depth adjustment components, quick adjustable down force springs, 15" opener disc blades, gauge wheels, closing wheels, meter drive and seed hopper as the pull row unit. See those pages for common parts.



NOTE: Items that are not referenced on this page may be referenced on [page P47](#)

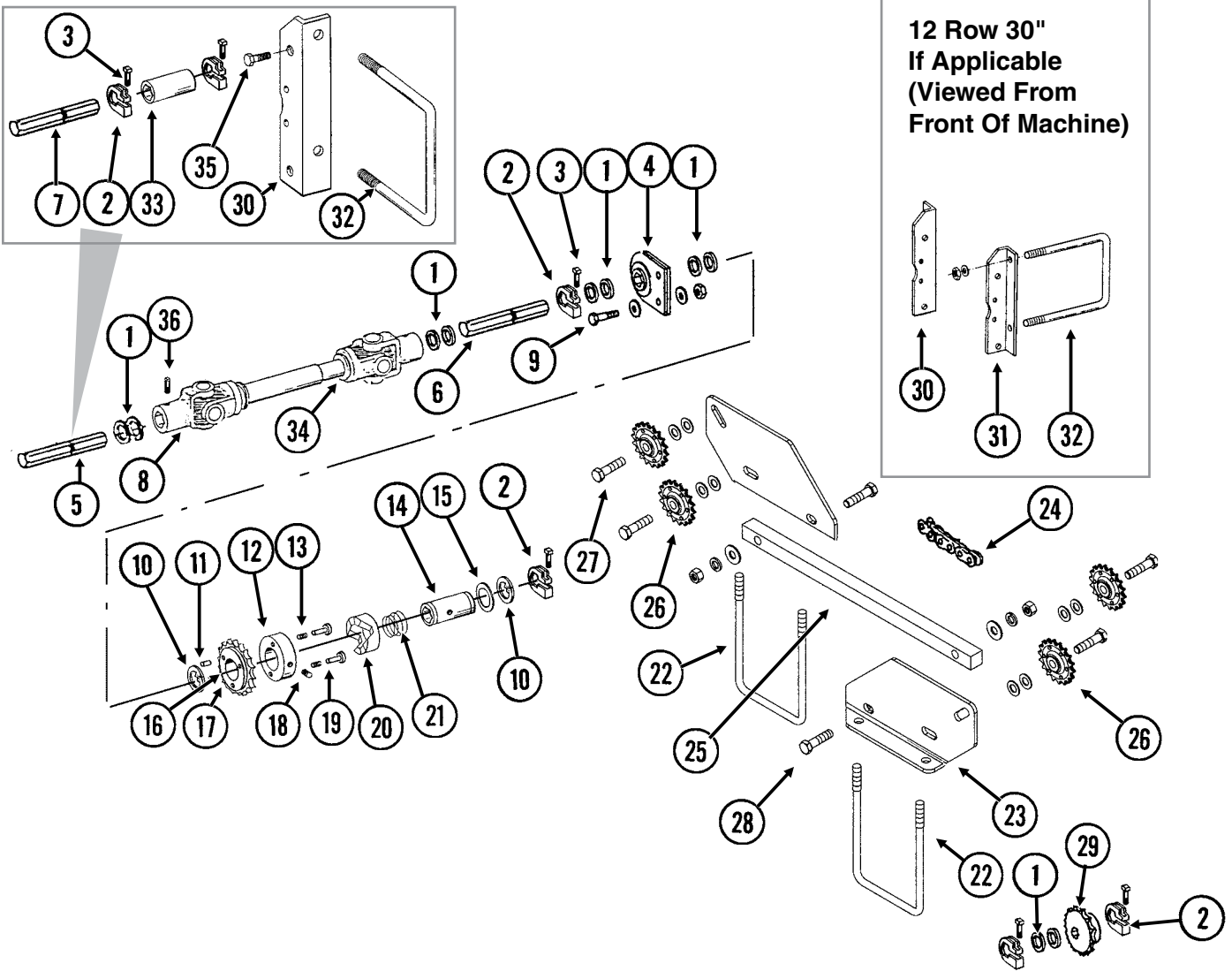
ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1	GA2180	-	Hanger Bearing, 7/8" Hex Bore
2	G10004 G11091	2 2	Hex Head Cap Screw, 3/8"-16 x 1 1/4" Serrated Flange Nut, 3/8"-16
3	GD11045	-	Lock Clamp
4	G10130 G10923	- -	Square Head Machine Bolt, 5/16"-18 x 1 3/4" Flange Nut, 5/16"-18, No Serration
5	---	-	See "Air Clutch, Interplant Push Row Unit" on page P50

(IP1266)



ITEM	PART NO.	QTY. (Per Row)	DESCRIPTION
1	G11243	1	Slotted Flat Head Machine Screw, No. 8-32 x 1/2", Stainless Steel
2	GR1894	1	Air Housing Cover
3	GR1830	1	Hex Bushing
4	GR1813	1	Clutch Spring
5	GR1818	1	Ratchet Gear
6	GR1829	1	Sprocket Hub
7	GR1899	1	Anti-Rotation
8	G11296	2	Pan Head Machine Screw, 1/4"-20 x 3/4" x 3/4"
9	GR1896	1	Air Cylinder
10	GR1819	1	Push Connect, 1/8" NPT Male x 1/4"
11	GR1898	1	Filter
12	GR1895	1	Air Clutch Housing
13	G11295	1	Retaining Ring
14	GR1831	1	Sprocket, 19 Tooth
15	G11239	3	Hex Head Cap Screw, 10-32 x 1/2"
16	GD18891	1	Spacer, 1/4" O.D. x 1"
A	GA12630	-	Air Clutch Assembly, (Items 1-16)

(RU134/TWL516)

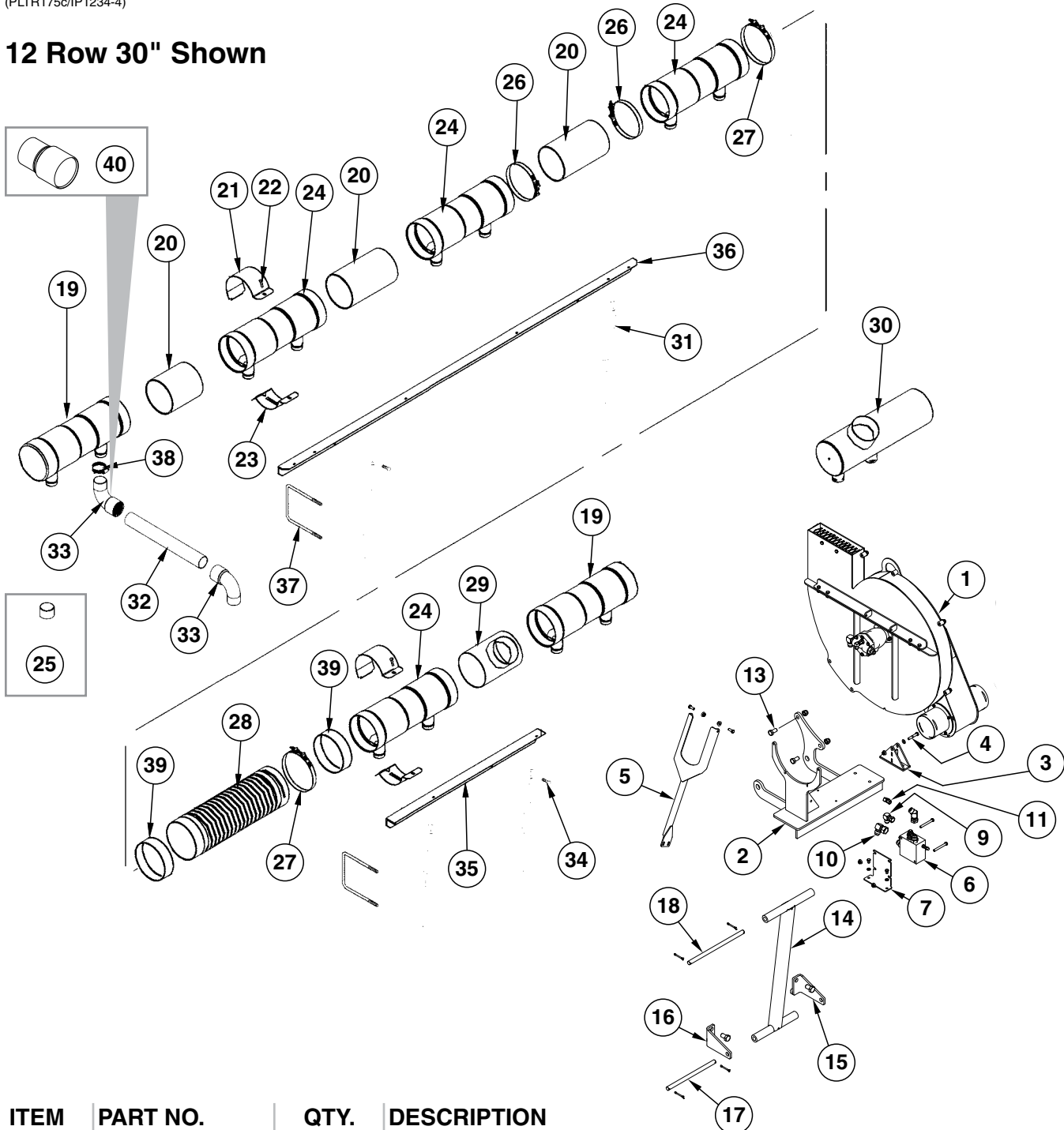


ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1	G10233	-	Machine Bushing, 1", 10 Gauge (As Required)
2	GD11045	-	Lock Clamp
3	G10130	-	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	-	Flange Nut, 5/16"-18, No Serration
4	GA2180	-	Hanger Bearing, 7/8" Hex Bore
5	GD0914-48	-	Hex Shaft, 7/8" x 48" (No Holes), R.H. Side, 12 Row 30" And 16 Row 30"
	GD0914-66	-	Hex Shaft, 7/8" x 66" (No Holes), L.H. Side, 12 Row 30" And 16 Row 30"
6	GD0914-90	-	Hex Shaft, 7/8" x 90" (No Holes), Both Sides, 12 Row 30"
	GD0914-128	-	Hex Shaft, 7/8" x 128" (No Holes), R.H. Side, 16 Row 30"
	GD0914-138	-	Hex Shaft, 7/8" x 138" (No Holes), L.H. Side, 16 Row 30"
7	GD0914-24	-	Hex Shaft, 7/8" x 24" (No Holes), 12 Row 30" W/Even-Row Push Row Unit
	GD0914-33	-	Hex Shaft, 7/8" x 33" (No Holes), 16 Row 30" W/Even-Row Push Row Unit
8	GA7052	-	U-Joint W/Grease Fitting, Female, 10 1/4" Long, 12 Row 30" And 16 Row 30"
	GR1557	-	Grease Fitting, 45°, Metric
	GR1297	-	Inboard Yoke And Outer Profile (10 1/4" U-Joint)
	GR1298	-	Inboard Yoke And Outer Profile (18 1/8" U-Joint)
	GR1294	-	Cross And Bearing Kit
	GR1293	-	Yoke, 7/8" Hex

ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
9	G10004	-	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11387	-	Flat Washer, 3/8" SAE
	G10229	-	Lock Washer, 3/8"
	G10101	-	Hex Nut, 3/8"-16
10	G10496	2	External Inverted Snap Ring, 1 1/2"
11	G10968	1	Spring Pin, 5/32" x 7/16"
12	GR1405	1	Lock Collar
13	GR1413	1	Spring
14	GR1407	1	Drive Shaft
15	GR1411	1	Shim
16	GR1406	1	Bushing
17	GR1412	1	Sprocket, 19 Tooth
18	G10535	1	Hex Socket Set Screw, 3/8"-16 x 3/4"
19	GR1410	1	Pin
20	GR1409	1	Knurled Collar
21	GR1408	1	Compression Spring
22	GD8306	2	U-Bolt, 7" x 5" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
23	GD18094	2	Plate (Shown)
	GD18066	-	Plate
24	G3310-226	1	Chain, No. 40, 226 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
25	GD18067	1	Brace
26	GA7154	4	Sprocket W/Bearing, 18 Tooth
27	G10016	4	Hex Head Cap Screw, 1/2"-13 x 2"
	G11389	8	Flat Washer, 1/2" SAE
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
28	G10016	2	Hex Head Cap Screw, 1/2"-13 x 2"
	G11389	2	Flat Washer, 1/2" SAE
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
29	GA5107	2	Sprocket, 19 Tooth
30	GD11972	-	Support Angle, R.H.
31	GD11973	-	Support Angle, L.H.
32	GD1113	-	U-Bolt, 5" x 7" x 5/8"-11
	G10230	-	Lock Washer, 5/8"
	G10104	-	Hex Nut, 5/8"-11
33	GD1719	-	Coupler, 4"
34	GA7051	1	U-Joint W/Grease Fitting, Male, 12 1/4" Long
	GR1557	-	Grease Fitting, 45°, Metric
	GR1296	-	Inner Profile
	GR1295	-	Inboard Yoke
	GR1301	-	Spring Pin, 8 mm x 50 mm
	GR1294	-	Cross And Bearing Kit
	GR1293	-	Yoke, 7/8" Hex
35	G10752	-	Hex Head Cap Screw, 5/8"-18 x 2 1/4"
	G11391	-	Flat Washer, 5/8" SAE
	G10412	-	Lock Nut, 5/8"-18
36	G10688	-	Square Head Set Screw, 3/8"-16 x 5/8"
A	GA8092	-	Clutch Sprocket Assembly, 19 Tooth (Items 10-21)
B	G1K269	-	Lock Clamp Kit (Items 2 And 3)
C	G1K331	-	Clutch Sprocket Kit (Items 11, 16 And 17)

(PLTR175c/IP1234-4)

12 Row 30" Shown

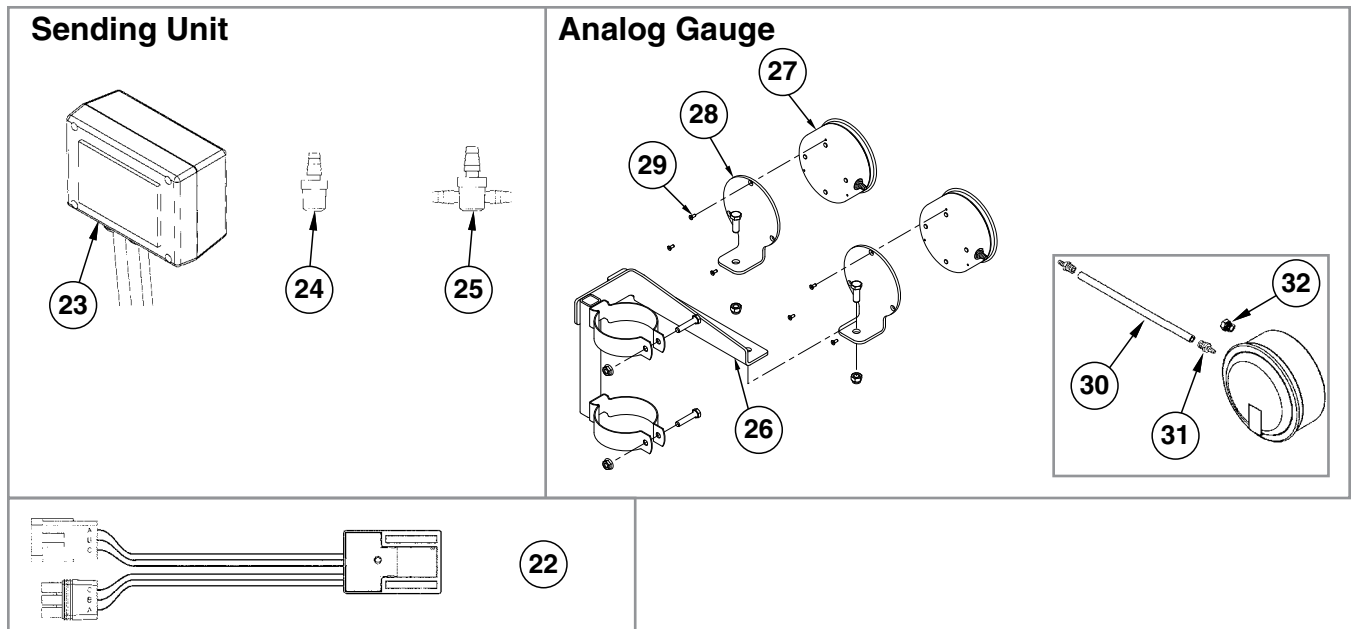
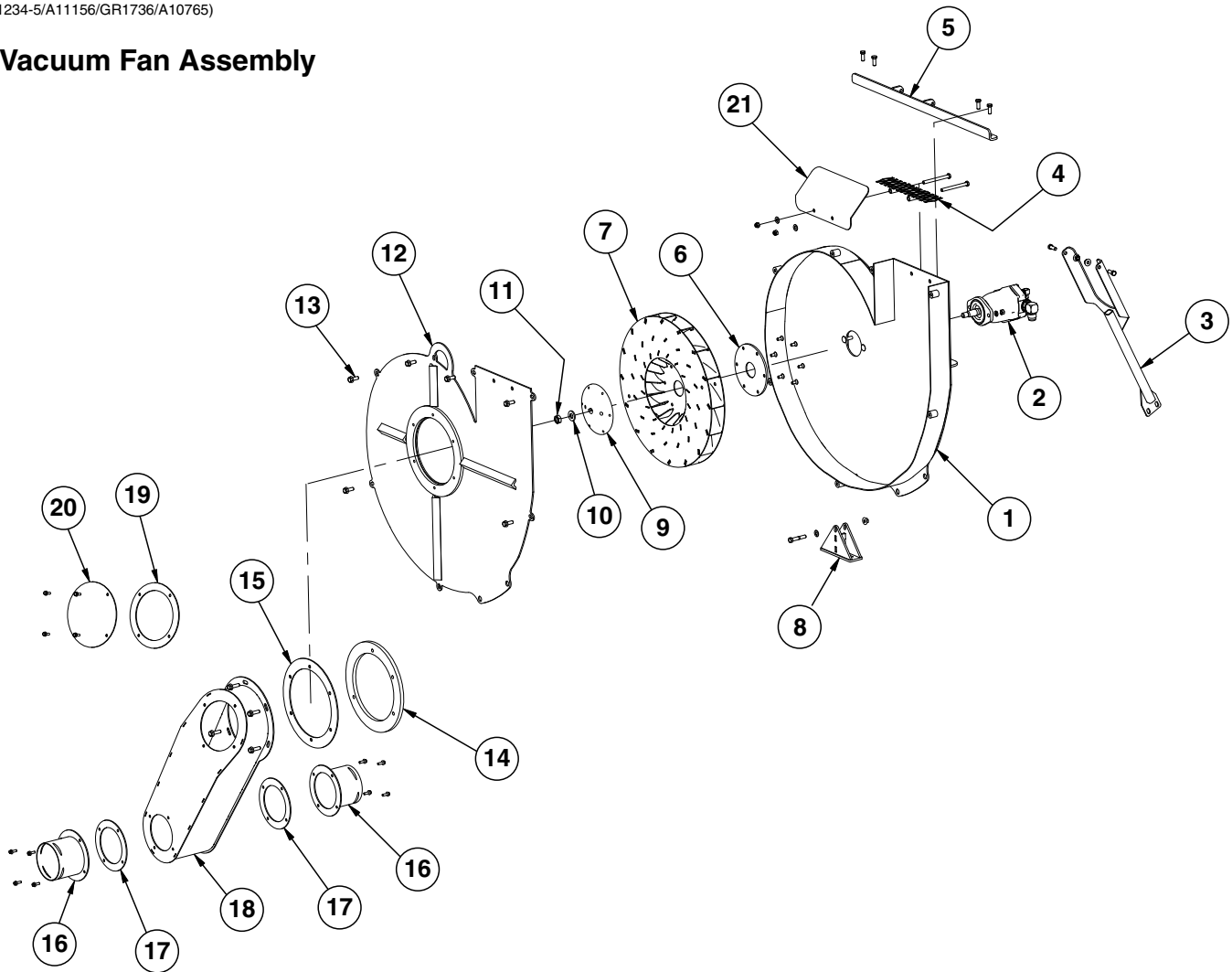


ITEM	PART NO.	QTY.	DESCRIPTION
1	---	1	See "Vacuum System" on page P55
2	GA14382	1	Fan Mount
3	GA14386	1	EdgeVac Fan Mount
4	G10164	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4", Full Thread
	G11387	1	Flat Washer, 3/8" SAE
	G11091	1	Serrated Flange Nut, 3/8"-16
5	GA14378	1	EdgeVac Fan Strut
	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G11091	2	Serrated Flange Nut, 3/8"-16

ITEM	PART NO.	QTY.	DESCRIPTION
6	GA11068	1	See "Vacuum Fan Motor Valve Block Assembly (Located Below Vacuum Fan Motor Assembly)" on page P168
	G10809	2	Hex Head Cap Screw, 3/8"-16 x 3 1/4"
	G11091	2	Serrated Flange Nut, 3/8"-16
7	GD20590	1	EdgeVac Hydraulic Block Mount
	G10034	2	Hex Head Cap Screw, 3/8"-16 x 1/2"
	G10229	2	Lock Washer, 3/8"
8	---	-	---
9	G6500-10	1	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
10	G6500-12	1	Swivel Elbow, 90°, 1 1/16"-12 Male JIC To Female
	G6502-12	1	Swivel Elbow, 45°, 1 1/16"-12 Male JIC To Female
11	G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
12	---	-	---
13	G10055	2	Hex Head Cap Screw, 5/8"-11 x 1 1/4"
	G10107	2	Lock Nut, 5/8"-11
14	GA14383	1	Fan Strut Mount
15	GA14384	1	Strut Mount, R.H.
	G10156	1	Hex Head Cap Screw, 3/4"-10 x 1 1/4"
16	GA14385	1	Strut Mount, L.H.
	G10156	1	Hex Head Cap Screw, 3/4"-10 x 1 1/4"
17	GD20534	1	Lower Strut Pin
	G10462	2	Cotter Pin, 3/16" x 2"
18	GD20518	1	Upper Strut Pin
	G10462	2	Cotter Pin, 3/16" x 2"
19	GD15850	3	Manifold, 21" (Open One End)
20	GD15856-04	2	Pipe, 6" x 6", 12 Row 30"
	GD15856-03	4	Pipe, 6" x 11", 12 Row 30"
	GD15856-03	10	Pipe, 6" x 11", 16 Row 30"
21	GD15854	7-15	Clamp
22	G10312	7-15	Carriage Bolt, 5/16"-18 x 3/4"
	G10620	7-15	Serrated Flange Nut, 5/16"-18
23	GA11164	7-15	Mount
24	GD15799	4-12	Manifold, 21" (Open Both Ends)
25	G11147	-	Cap, 2"
26	G11145	7-23	T-Bolt Clamp, 7"
27	G11194	4	T-Bolt Clamp, 7 1/4"
28	GD16317-01	2	Hose, 7" x 21"
29	GA12249	1	Manifold, 21 3/4", 12 Row 30" And 16 Row 30"
30	GA11166	1	Manifold, 21 5/16", 12 Row 30" And 16 Row 30"
31	GA14513	-	Manifold Mount, Mainframe
32	---	-	See "EdgeVac Manifolds and Hoses, 12 Row" on page P59 See "EdgeVac Manifolds and Hoses, 16 Row" on page P60
33	GD14626	16-32	Elbow, 90°, 2"
34	G10019	24-36	Hex Head Cap Screw, 5/16"-18 x 1"
	G10232	24-36	Lock Washer, 5/16"
	G10106	24-36	Hex Nut, 5/16"-18
35	GD16307	1	Manifold Rail, 37 1/2", L.H. Main Frame, 12 Row 30" And 16 Row 30"
	GD16306	1	Manifold Rail, 36 1/2", R.H. Main Frame, 12 Row 30" And 16 Row 30"
36	GD16305	2	Manifold Rail, 87 1/2", L.H. And R.H. Wing, 12 Row 30"
	GD16319	2	Manifold Rail, 142 1/2", L.H. And R.H. Wing, 16 Row 30"
37	GD11721	8-10	U-Bolt, 5" x 7" x 1/2"-13
	G10228	16-20	Lock Washer, 1/2"
	G10102	16-20	Hex Nut, 1/2"-13
38	G10676	-	Hose Clamp, No. 36, Stainless Steel
39	GD16194-01	-	Tube, 6 5/8" x 2"
40	GD14627	-	Coupler, 2"

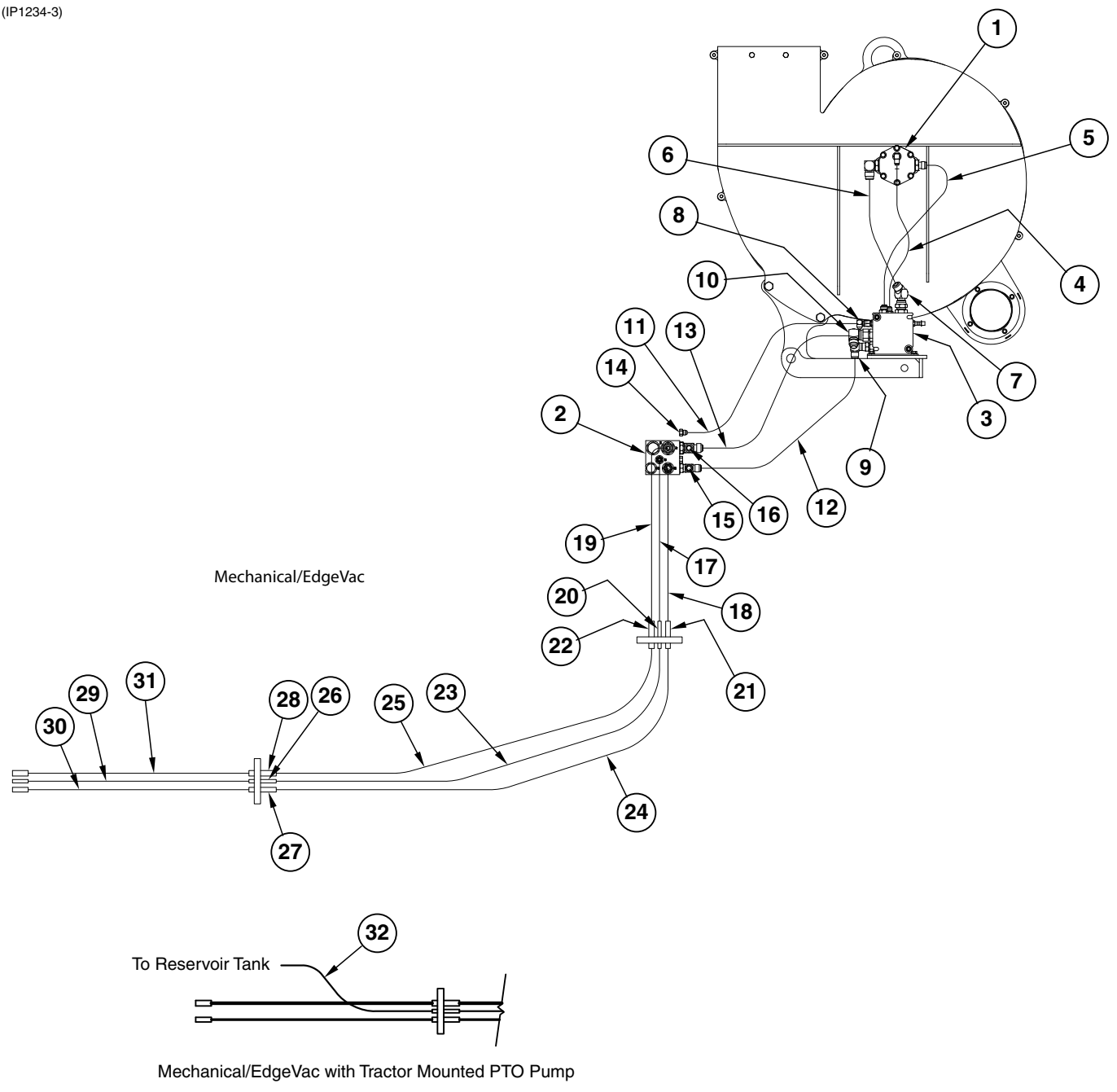
(IP1234-5/A11156/GR1736/A10765)

Vacuum Fan Assembly



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13299	1	Shroud
2	---	-	See "Vacuum Fan Hydraulic Motor Assembly" on page P167
	G10599	2	Carriage Bolt, 3/8"-16 x 1 1/4"
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
3	GA14378	1	EdgeVac Fan Strut
	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G11091	2	Serrated Flange Nut, 3/8"-16
4	GA11987	1	Screen
	G10063	2	Hex Head Cap Screw, 3/8"-16 x 4"
	G11387	2	Flat Washer, 3/8" SAE
	G10108	2	Lock Nut, 3/8"-16
5	GA14396	1	Strut Mount
	G10001	4	Hex Head Cap Screw, 3/8"-16 x 1"
	G11091	4	Serrated Flange Nut, 3/8"-16
6	GD15789	1	Backing Plate
	G11133	6	Hex Socket Head Cap Screw, 5/16"-18 x 3/4", Grade 8
7	GA10635	1	Impeller
8	GA14386	1	EdgeVac Fan Mount
	G10164	1	Hex Head Cap Screw, 3/8"-16 x 2 1/4", Full Thread
	G11387	1	Flat Washer, 3/8" SAE
	G11091	1	Serrated Flange Nut, 3/8"-16
9	GD15790	1	Hub
10	G11391	1	Flat Washer, 5/8" SAE
11	G10499	1	Hex Jam Nut, 5/8"-18, Grade 2
12	GA13671	1	Fan Cover
13	G11124	6	Whiz Lock Bolt, 3/8"-18 x 1"
14	GD16839	1	Spacer, 1/2" x 12"
15	GD16992	1	Gasket, 1/8" x 11 7/8"
16	GA13667	2	Snorkel Flange
	G11166	8	Whiz Lock Bolt, 1/4"-20 x 3/4"
17	GD19460	2	Flange Seal, 4 Bolt
18	GA14387	1	Snorkel
	G11204	4	Flanged Whiz Lock Screw, 3/8"-16 x 1 1/4", Serrated
19	GD19470	1	Flange Seal, 4 Bolt
20	GD19469	1	Snorkel Access Cover
	G11166	4	Whiz Lock Bolt, 1/4"-20 x 3/4"
21	GD15863	1	Discharge Deflector
22	GA12812	-	Hall Effect Adapter
23	GA12811	1	Sending Unit W/1/4" Tubing And Harness W/4-Pin Male Connector (May be replaced by GA14847)
	GA14847	-	Low Pressure Sensor (0-40 IN H ₂ O) (Replaces GA12811)
	GD17151-03	-	Nylon Tubing, 1/4" O.D. x 37', 11 (Only with GA14847)
	GD16324-01	-	Clear Plastic Tubing, 1/4" x 45"
	GA9964	-	Strain Relief
	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
24	GR1736	1	Hose Barb, 1/8" Male NPT To Barb
25	GD21278	-	Reducing Tee, 3/16" x 1/8"
26	---	-	See "Center Pivot" on page P107
27	GA10765	2	Analog Vacuum Gauge W/Hose Barb
	GR1777	-	Hose Barb, 3/16" x 1/8" NPT
28	GD15804	2	Mount
	G10108	2	Lock Nut, 3/8"-16
	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
29	G11215	6	Hex Socket Head Cap Screw, No. 6-32 x 3/8", Grade 8
30	GD15849-02	1	Clear Tubing, 5/16" O.D. x 3/16" I.D. x 120"
31	GR1777	-	Hose Barb, 1/8" Male NPT To 3/16" Barb
32	GA10799	1	Breather, 1/8" Male NPT

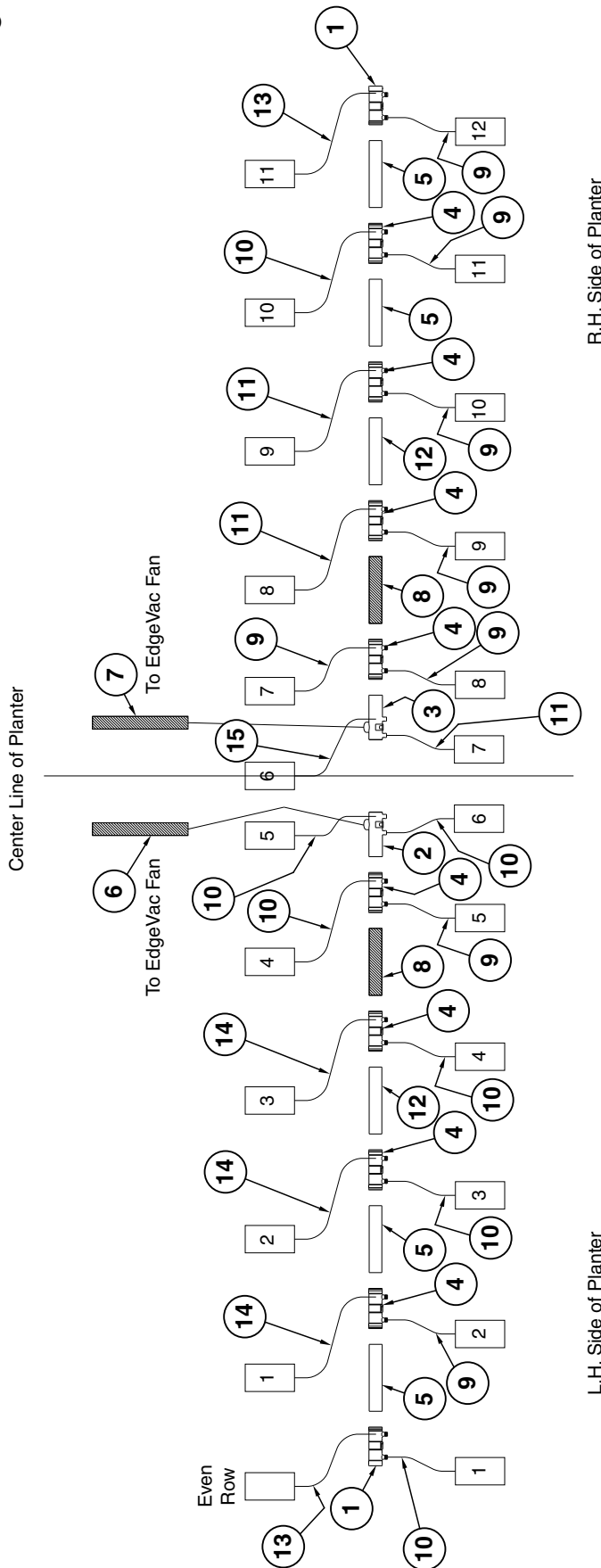
(IP1234-3)



ITEM	PART NO.	QTY.	DESCRIPTION
1	---	-	See "Vacuum Fan Hydraulic Motor Assembly" on page P167
2	---	-	See "Valve Blocks - Located on R.H. Rear Center Frame" on page P159
3	---	-	See "Vacuum Fan Motor Valve Block Assembly (Located Below Vacuum Fan Motor Assembly)" on page P168
4	*A12002	1	Hose Assembly, 3/8" x 32"
5	*A1424	1	Hose Assembly, 1/2" x 30"
6	*A3381	1	Hose Assembly, 3/4" x 26"
7	G6502-12	1	Swivel Elbow, 45°, 1 1/16"-12 Male JIC To Female
8	G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
9	G6500-10	1	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
10	G6701-12	1	Elbow, 90°, 1 1/16"-12 Male JIC To Female
11	*A12093	1	Hose Assembly, 3/8" x 58"
12	*A12753	1	Hose Assembly, 1/2" x 57"
13	*A11444	1	Hose Assembly, 5/8" x 59"
14	G6400-06	1	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring
	GR1045	-	O-Ring
15	G304-C-10	1	Cap Nut, 7/8"-14
16	G304-C-12	1	Cap Nut, 1 1/16"-12
17	*A12094	1	Hose Assembly, 3/8" x 73 "
18	*A1464	1	Hose Assembly, 1/2" x 72"
19	*A11443	1	Hose Assembly, 5/8" x 73"
20	G2700-06-06	1	Bulkhead Tube Union, 9/16"-18 Male JIC
	G306-06	1	Lock Nut, 9/16"-18
21	G2700-10	1	Bulkhead Tube Union, 7/8"-14 Male JIC
	G306-10	1	Lock Nut, 7/8"-14
22	G2700-12	1	Bulkhead Tube Union, 1 1/16"-12 Male JIC
	G306-12	1	Lock Nut, 1 1/16"-12
23	*A12096	1	Hose Assembly, 3/8" x 140"
24	*A12751	1	Hose Assembly, 1/2" x 142 1/2"
25	*A11442	1	Hose Assembly, 5/8" x 137 1/2"
26	G2702-06	1	Bulkhead Elbow, 45°, 9/16"-18 Male JIC
	G306-06	1	Lock Nut, 9/16"-18
27	G2702-10	1	Bulkhead Elbow, 45°, 7/8"-14 Male JIC
	G306-10	1	Lock Nut, 7/8"-14
28	G2702-12	1	Bulkhead Elbow, 45°, 1 1/16"-12 Male JIC
	G306-12	1	Lock Nut, 1 1/16"-12
29	*A12086	1	Hose Assembly, 3/8" x 206", 12 Row
	*A12087	-	Hose Assembly, 3/8" x 266", 16 Row
30	*A12754	1	Hose Assembly, 1/2" x 206", 12 Row
	*A8266	-	Hose Assembly, 1/2" x 268", 16 Row
31	*A11449	1	Hose Assembly, 5/8" x 206", 12 Row
	*A11450	-	Hose Assembly, 5/8" x 266", 16 Row
32	*A12092	-	Hose Assembly, 3/8" x 127", 12 Row
	*A12091	-	Hose Assembly, 3/8" x 187", 16 Row

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

(IP1240)

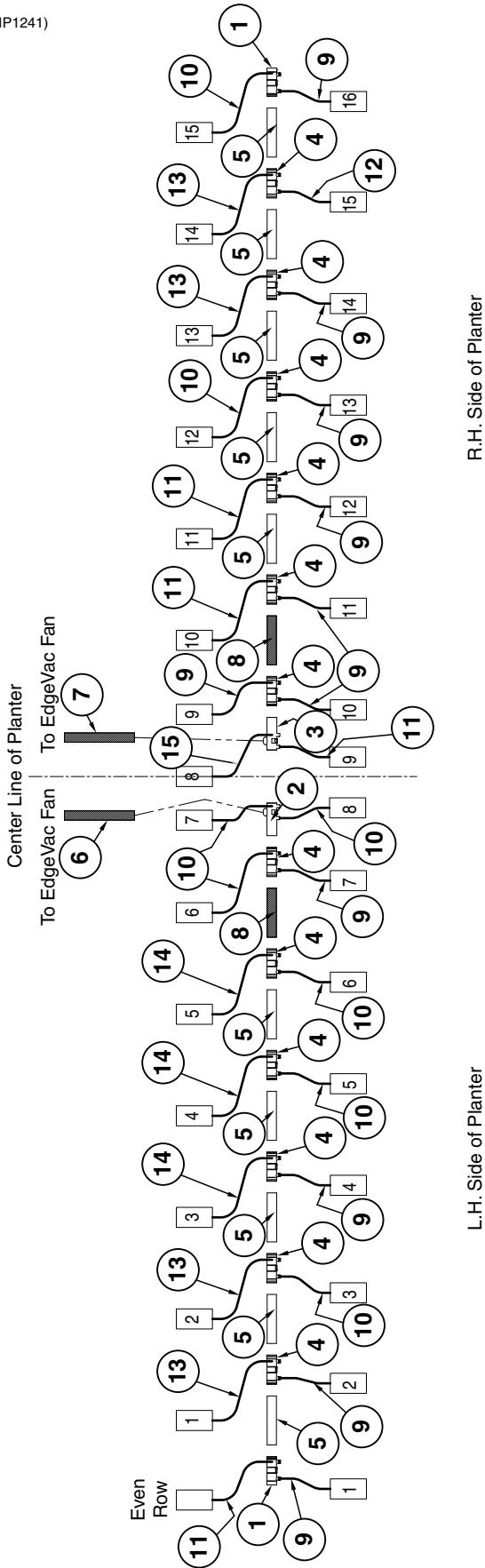


R.H. Side of Planter

L.H. Side of Planter

ITEM	PART NO.	QTY.	DESCRIPTION
1	GD15850	2	Manifold, 21" (Open One End)
2	GA11166	1	Manifold, 21 ^{15/16} "
3	GA12249	1	Manifold, 21 ^{3/4} "
4	GD15799	12	Manifold, 21" (Open Both Ends)
5	GD15856-03	10	Pipe, 6" x 11"
6	GD15867-02	1	Hose, 5" x 50"
	G11188	-	T-Bolt Clamp, 5/4"
7	GD15867-13	1	Hose, 5" x 64"
	G11188	-	T-Bolt Clamp, 5/4"
8	GD16317-01	2	Hose, 7" x 21"
9	GD15792-13	8	Hose, 2" x 50"
10	GD15792-06	7	Hose, 2" x 42"
11	GD15792-14	3	Hose, 2" x 46"
12	GD15856-04	2	Pipe, 6" x 6"
13	GD15792-24	2	Hose, 2" x 40"
14	GD15792-04	3	Hose, 2" x 36"
15	GD15792-11	1	Hose, 2" x 70"

(IP1241)

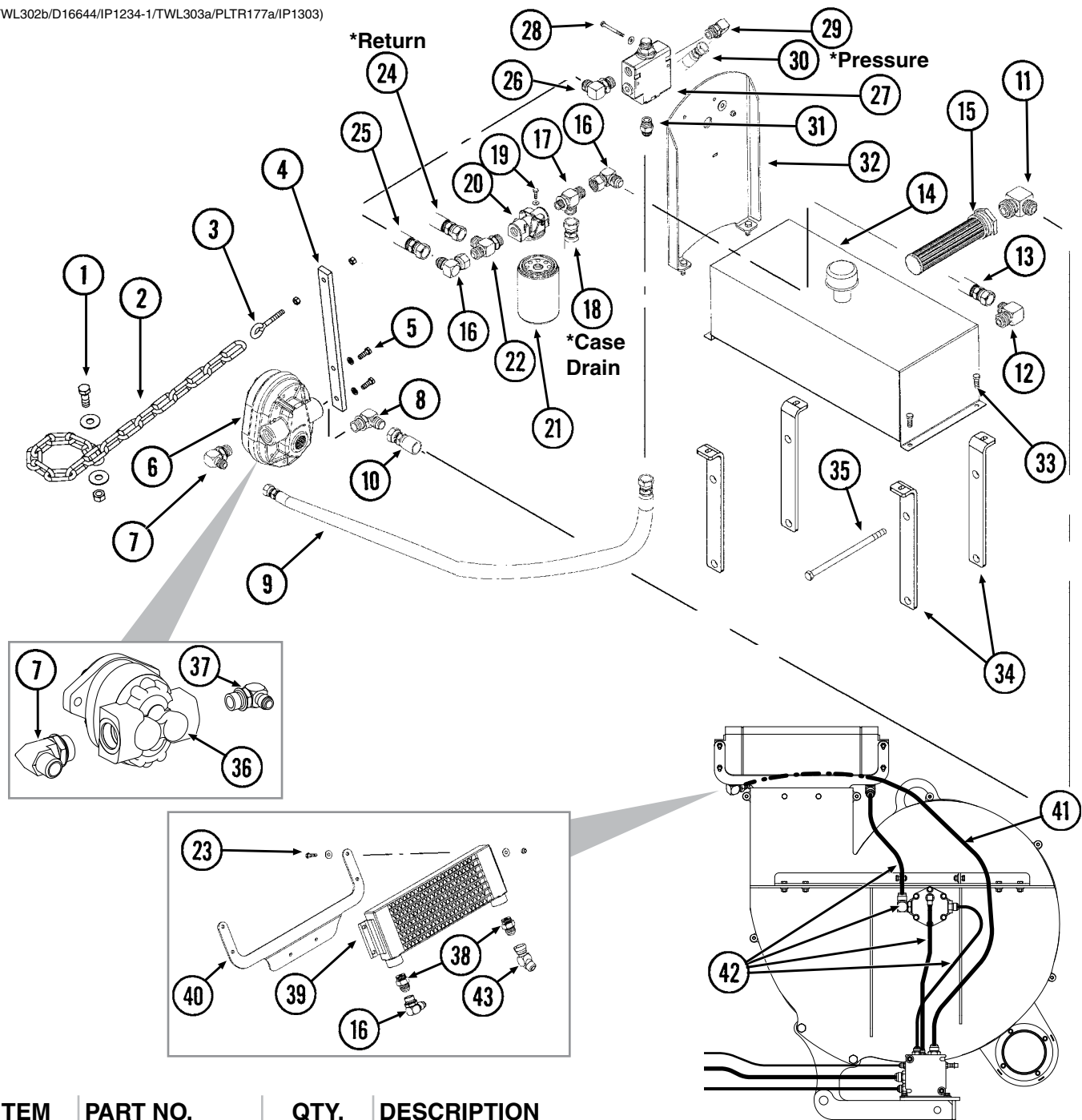


R.H. Side of Planter

L.H. Side of Planter

ITEM	PART NO.	QTY.	DESCRIPTION
1	GD15850	2	Manifold, 21" (Open One End)
2	GA11166	1	Manifold, 21 ¹⁵ / ₁₆ "
3	GA12249	1	Manifold, 21 ³ / ₄ "
4	GD15799	12	Manifold, 21" (Open Both Ends)
5	GD15856-03	10	Pipe, 6" x 11"
6	GD15867-02	1	Hose, 5" x 50"
	G11188	-	T-Bolt Clamp, 5 ¹ / ₄ "
7	GD15867-13	1	Hose, 5" x 64"
	G11188	-	T-Bolt Clamp, 5 ¹ / ₄ "
8	GD16317-01	2	Hose, 7" x 21"
9	GD15792-13	11	Hose, 2" x 50"
10	GD15792-06	8	Hose, 2" x 42"
11	GD15792-14	4	Hose, 2" x 46"
12	GD15792-22	1	Hose, 2" x 58"
13	GD15792-24	4	Hose, 2" x 40"
14	GD15792-04	3	Hose, 2" x 36"
15	GD15792-11	1	Hose, 2" x 70"

(TWL302b/D16644/IP1234-1/TWL303a/PLTR177a/IP1303)

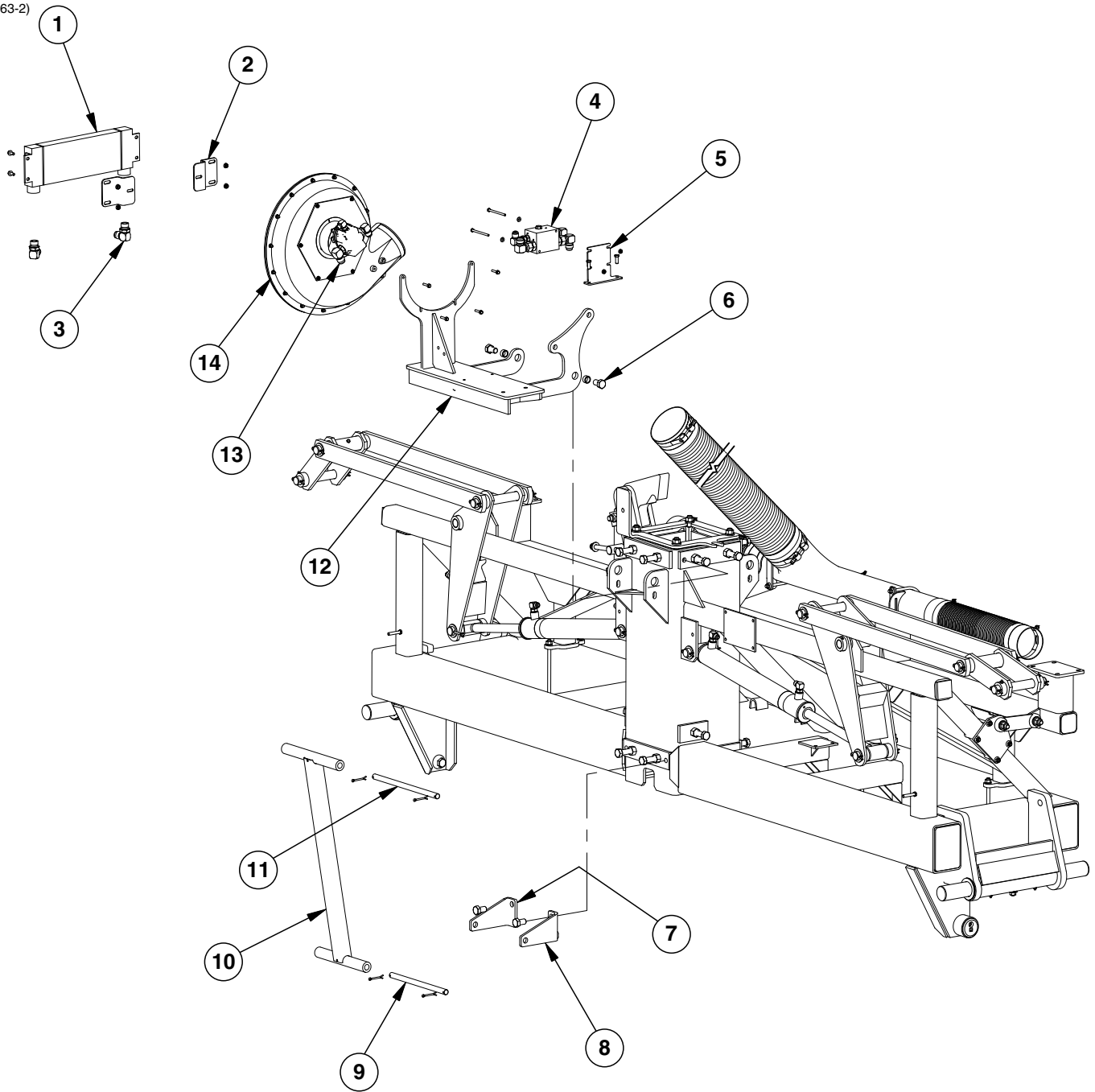


ITEM	PART NO.	QTY.	DESCRIPTION
1	G10005	1	Hex Head Cap Screw, 5/8"-11 x 1 3/4"
	G11391	2	Flat Washer, 5/8" SAE
	G10107	1	Lock Nut, 5/8"-11
2	G3302-09	1	Coil Chain, No. 9/0, 17 Links
3	GD16035	1	Eyebolt, 3/8"-16 x 4"
	G10101	2	Hex Nut, 3/8"-16
4	GD16036	1	Anti-Rotation Bracket
5	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10229	2	Lock Washer, 3/8"
6	GA10919	1	PTO Pump (1 3/8" Spline)
7	G6801-10-12	1	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 1 1/16"-12 O-Ring
	GR1467	-	O-Ring

ITEM	PART NO.	QTY.	DESCRIPTION
8	G6801-16 GR1786	1 -	Elbow W/O-Ring, 90°, 1½"-12 Female JIC To O-Ring O-Ring
9	*A1464	1	Hose Assembly, ½" x 72"
10	*A6201	1	Hose Assembly, 1" x 72"
11	G2501-16-20	1	Elbow, 90°, 1½"-12 Male JIC To 1¼" NPT
12	G2501-12-16	1	Elbow, 90°, 1½"-12 Male JIC To 1" NPT
13	*A3371	1	Hose Assembly, ¾" x 25"
14	GA12802 GR1834	1 -	Reservoir W/Breather, 10 Gallon Breather
15	GD16040	1	Strainer
16	G6500-12	2	Swivel Elbow, 90°, 1½"-12 Male JIC To Female
17	G6804-12-12-08 GR1467	1 -	Adjustable Tee W/O-Ring, 1½"-12 Male JIC To 1½"-12 Male O-Ring To ¾"-16 O-Ring
18	*A1105 *A7607	- -	Hose Assembly, ¼" x 125", 12 Row 30" Hose Assembly, ¼" x 187", 16 Row 30"
19	G10023 G10227	2 2	Hex Head Cap Screw, ¼"-20 x ¾" Lock Washer, ¼"
20	GD16038	1	Filter Head
21	GD16037	1	Oil Filter, 10 Micron
22	G6804-12 GR1467	1 -	Adjustable Tee W/O-Ring, 1½"-12 Male JIC To O-Ring O-Ring
23	G10171 G11386 G10109	4 8 4	Hex Head Cap Screw, ⅝"-18 x 1¼" Flat Washer, ⅝" SAE Lock Nut, ⅝"-18, Grade 8
24	*A12929 *A12928	- -	Hose Assembly, ¾" x 127", 12 Row 30" Hose Assembly, ¾" x 187", 16 Row 30"
25	*A3351	1	Hose Assembly, ¾" x 20"
26	G6801-12-10 GR1466	1 -	Elbow W/O-Ring, 90°, 1½"-12 Male JIC To ⅞"-14 O-Ring O-Ring
27	GA10918	1	Flow Control Valve
28	G10403 G11385 G10110	2 4 2	Hex Head Cap Screw, ¼"-20 x 2½" Flat Washer, ¼" SAE Lock Nut, ¼"-20, Grade 8
29	G6801-10 GR1466	1 -	Elbow W/O-Ring, 90°, ⅞"-14 Male JIC To O-Ring O-Ring
30	*A12758 *A12757	- -	Hose Assembly, ½" x 135", 12 Row 30" Hose Assembly, ½" x 195", 16 Row 30"
31	G6400-10 GR1466	1 -	Connector W/O-Ring, ⅞"-14 Male JIC To O-Ring O-Ring
32	GA11523	1	Mounting Bracket
33	G10001 G11387 G10108	2 4 4	Hex Head Cap Screw, ⅜"-16 x 1" Flat Washer, ⅜" SAE Lock Nut, ⅜"-16
34	GD16644	4	Bracket, 14½"
35	G11158 G10228 G10102	4 4 4	Hex Head Cap Screw, ½"-13 x 11½" Lock Washer, ½" Hex Nut, ½"-13
36	GA14446 GR2025	- -	PTO Pump (1⅜" or 1¾" Spline) Seal Kit
37	G6801-16-20 GR1786	- -	Elbow W/O-Ring, 90°, 1½"-12 Female JIC To O-Ring O-Ring
38	G6400-12 GR1467	2 -	Connector W/O-Ring, 1½"-12 Male JIC To O-Ring O-Ring
39	GA10917	1	Oil Cooler
40	GD16608	1	Bracket
41	*A3363	-	Hose Assembly, ¾" x 60"
42	---	-	See "Vacuum Fan Hydraulic Components" on page P57
43	G6502-12	1	Swivel Elbow, 45°, 1½"-12 Male JIC To Female

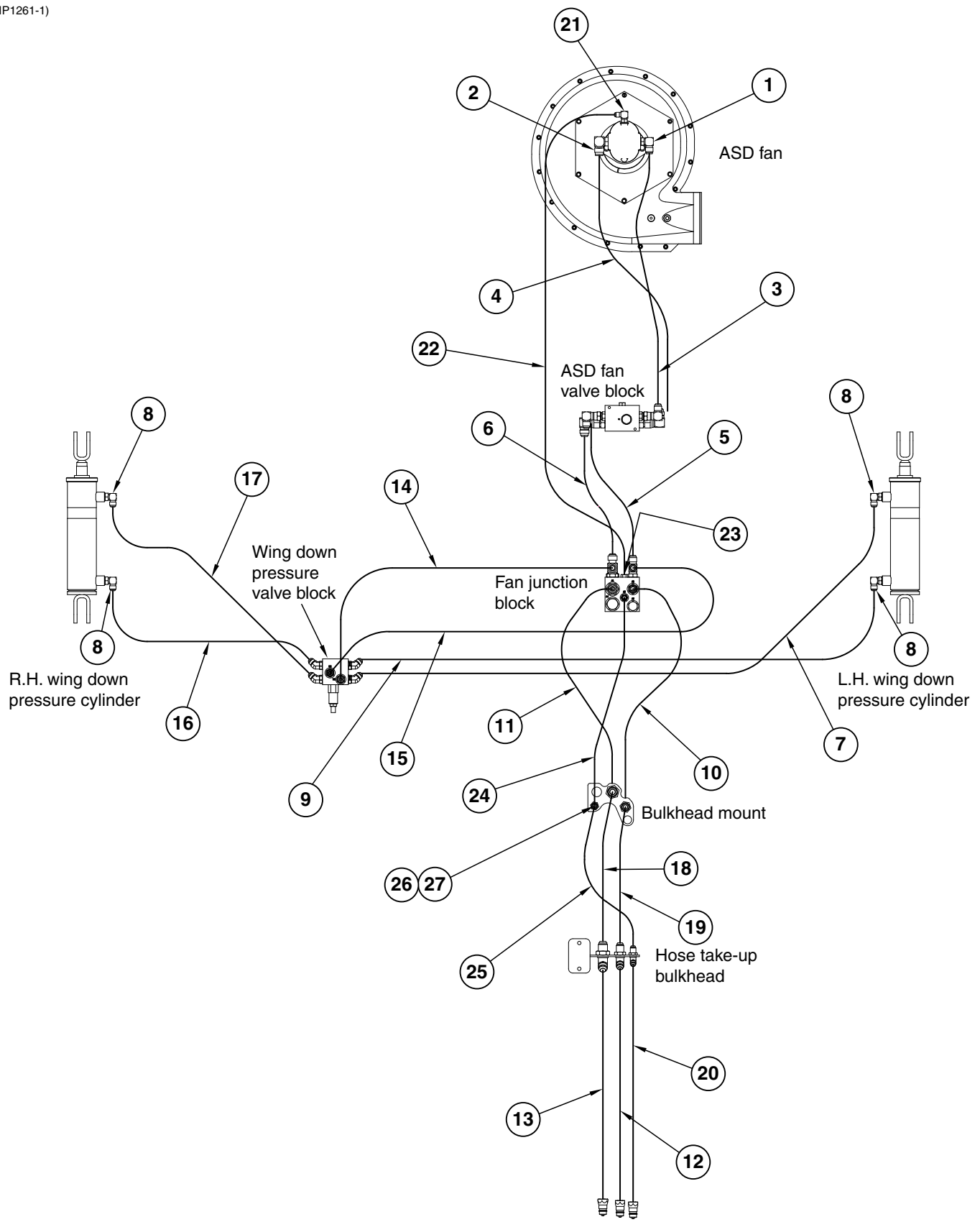
* Hydraulic hose is not stocked by Kinze Repair Parts, but can be made available on a special order basis. Call for quote.

(IP1263-2)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA10917	1	Hydraulic Oil Cooler
	G10961	4	Flanged Whiz Lock Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ ", No Serration
	G10620	4	Serrated Flange Nut, $\frac{5}{16}$ "-18
2	GD19225	2	Cooler Mount Bracket
3	G6801-12	2	Elbow W/O-Ring, 90°, $1\frac{1}{16}$ "-12 Male JIC To O-Ring
4	---	-	See "ASD Fan Valve Block" on page P169
	G10132	2	Hex Socket Screw, $\frac{3}{8}$ "-24 x $\frac{5}{16}$ "
	G11385	2	Flat Washer, $\frac{1}{4}$ " SAE
	G10621	2	Serrated Flange Nut, $\frac{1}{4}$ "-20
5	GD20591	1	ASD Hydraulic Block Mount
	G10001	2	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1"
6	G10156	2	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x $1\frac{1}{4}$ "
	GD20539	2	Bushing
7	GA14385	1	Strut Mount, L.H.
	G10156	1	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x $1\frac{1}{4}$ "
8	GA14384	1	Strut Mount, R.H.
	G10156	1	Hex Head Cap Screw, $\frac{3}{4}$ "-10 x $1\frac{1}{4}$ "
9	GD20534	1	Lower Strut Pin
	G10462	2	Cotter Pin, $\frac{3}{16}$ " x 2"
10	GA14383	1	Fan Strut Mount
11	GD20518	1	Upper Strut Pin
	G10462	2	Cotter Pin, $\frac{3}{16}$ " x 2"
12	GA14382	1	Fan Mount
	G11337	4	Hex Serrated Flange Cap Screw, $\frac{1}{4}$ "-20 x $1\frac{1}{4}$ "
13	G6801-12-10	1	Elbow W/O-Ring, 90°, $1\frac{1}{16}$ "-12 Male JIC To $\frac{7}{8}$ "-14 O-Ring
	G6801-10	1	Elbow W/O-Ring, 90°, $\frac{7}{8}$ "-14 Male JIC To O-Ring
	GR1466	-	O-Ring
14	---	-	See "ASD Fan System" on page P69

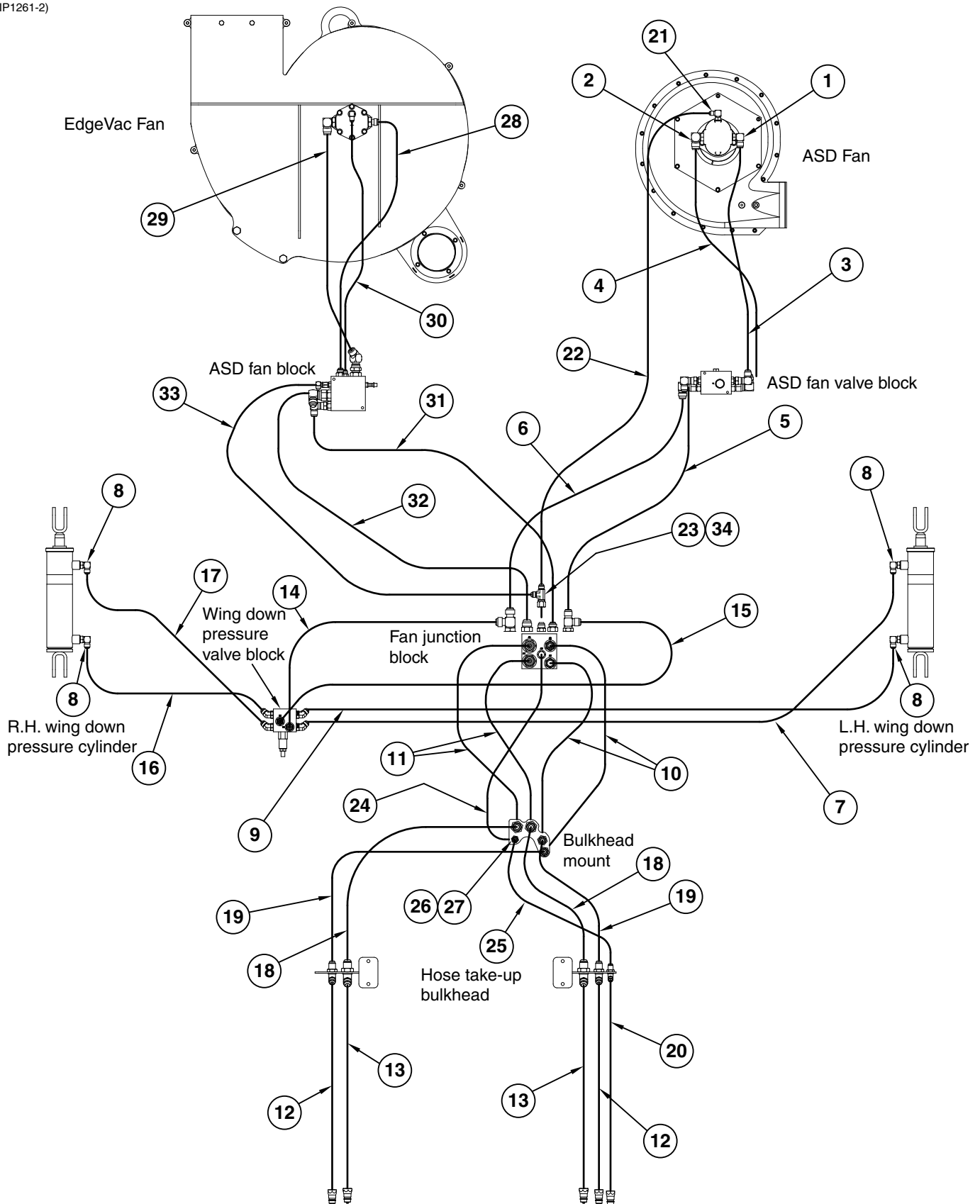
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ITEM	PART NO.	QTY.	DESCRIPTION
1	G6801-10 GR1466	1 -	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To O-Ring O-Ring
2	G6801-12-10 GR1466	1 -	Elbow W/O-Ring, 90°. 1 1/16"-12 Male JIC To 7/8"-14 O-Ring O-Ring
3	*A12755	1	Hose Assembly, 1/2" x 44"
4	*A11447	1	Hose Assembly, 5/8" x 45"
5	*A8221	1	Hose Assembly, 1/2" x 76"
6	*A11445	1	Hose Assembly, 5/8" x 70"
7	*A3117	1	Hose Assembly, 3/8" x 176"
8	G6801-08 GR1037	4 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
9	*A12076	1	Hose Assembly, 3/8" x 165"
10	*A1464	1	Hose Assembly, 1/2" x 72"
11	*A11443	1	Hose Assembly, 5/8" x 73"
12	*A12754 *A8266	1 -	Hose Assembly, 1/2" x 206", 12 Row Hose Assembly, 3/4" x 268", 16 Row
13	*A11449 *A11450	1 -	Hose Assembly, 5/8" x 206", 12 Row Hose Assembly, 5/8" x 266", 16 Row
14	*A12752	1	Hose Assembly, 1/2" x 23"
15	*A12085	1	Hose Assembly, 3/8" x 26"
16	*A3158	1	Hose Assembly, 3/8" x 46"
17	*A1021	1	Hose Assembly, 3/8" x 56"
18	*A11442	1	Hose Assembly, 5/8" x 137 1/2"
19	*A12751	1	Hose Assembly, 1/2" x 142 1/2"
20	*A12086 *A12087	1 -	Hose Assembly, 3/8" x 206", 12 Row Hose Assembly, 3/8" x 266", 16 Row
21	G6801-06 GR1045	1 -	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To O-Ring O-Ring
22	*A12095	1	Hose Assembly, 3/8" x 80"
23	G6400-06 GR1045	1 -	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring O-Ring
24	*A12094	1	Hose Assembly, 3/8" x 73"
25	*A12096	1	Hose Assembly, 3/8" x 140"
26	G306-06	1	Lock Nut, 9/16"-18
27	G2700-06-06	1	Bulkhead Tube Union, 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.

(IP1261-2)

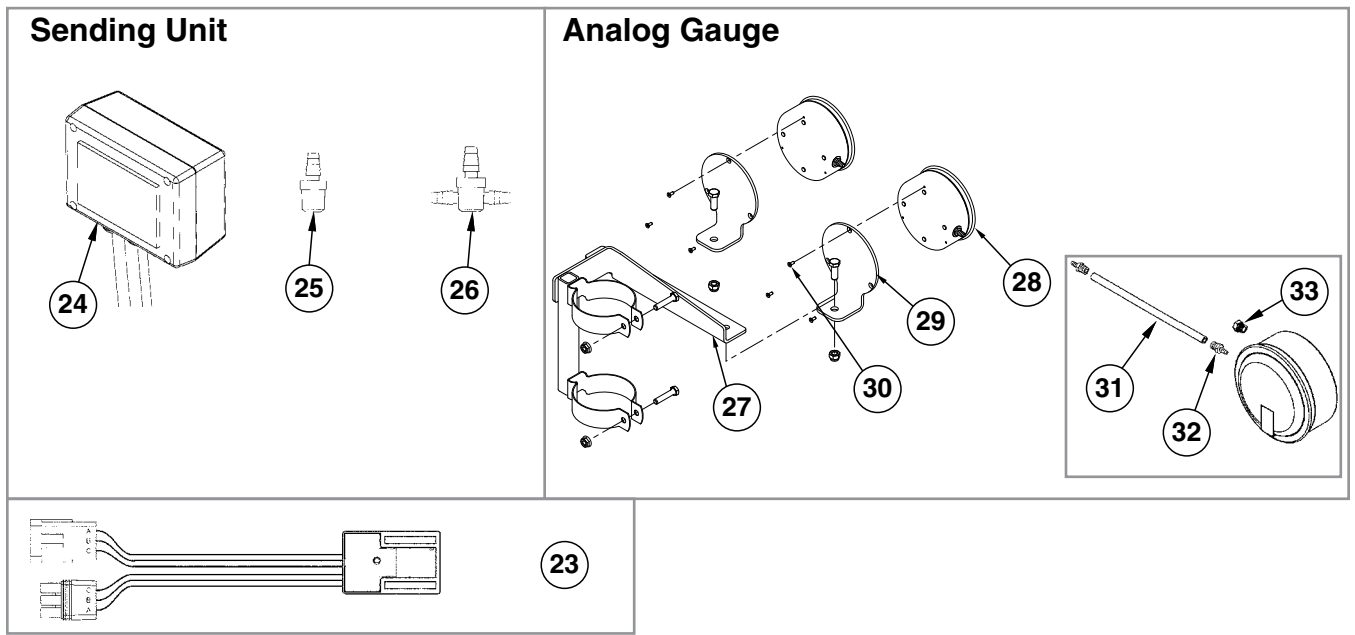
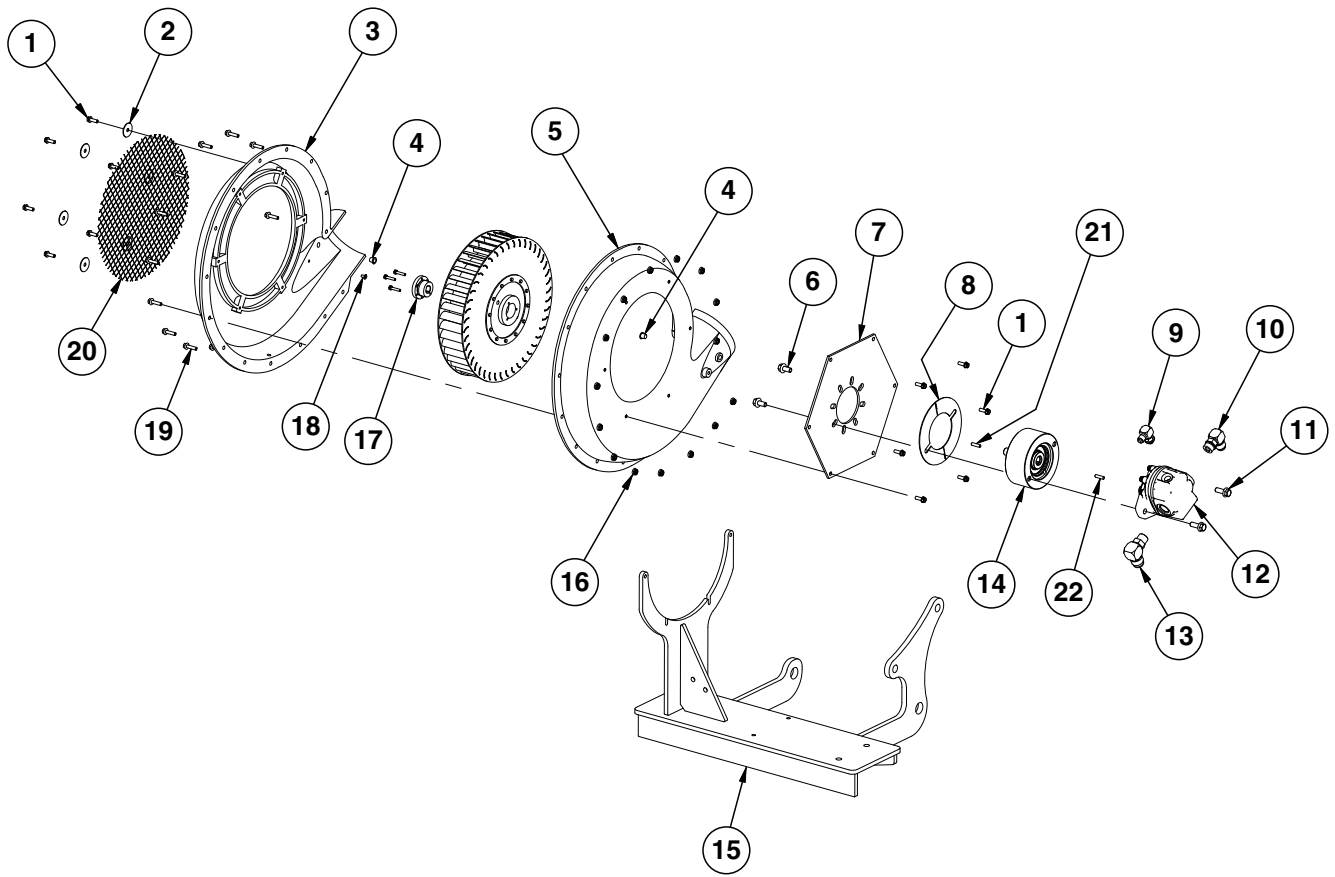


ITEM	PART NO.	QTY.	DESCRIPTION
1	G6801-10 GR1466	1 -	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To O-Ring O-Ring
2	G6801-12-10 GR1466	1 -	Elbow W/O-Ring, 90°. 1 1/16"-12 Male JIC To 7/8"-14 O-Ring O-Ring
3	*A12755	1	Hose Assembly, 1/2" x 44"
4	*A11447	1	Hose Assembly, 5/8" x 45"
5	*A8221	1	Hose Assembly, 1/2" x 76"
6	*A11445	1	Hose Assembly, 5/8" x 70"
7	*A3117	1	Hose Assembly, 3/8" x 176"
8	G6801-08 GR1037	4 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
9	*A12076	1	Hose Assembly, 3/8" x 165"
10	*A1464	2	Hose Assembly, 1/2" x 72"
11	*A11443	2	Hose Assembly, 5/8" x 73"
12	*A12754 *A8266	2 -	Hose Assembly, 1/2" x 206", 12 Row Hose Assembly, 3/4" x 268", 16 Row
13	*A11449 *A11450	2 -	Hose Assembly, 5/8" x 206", 12 Row Hose Assembly, 5/8" x 266", 16 Row
14	*A12752	1	Hose Assembly, 1/2" x 23"
15	*A12085	1	Hose Assembly, 3/8" x 26"
16	*A3158	1	Hose Assembly, 3/8" x 46"
17	*A1021	1	Hose Assembly, 3/8" x 56"
18	*A11442	2	Hose Assembly, 5/8" x 137 1/2"
19	*A12751	2	Hose Assembly, 1/2" x 142 1/2"
20	*A12086 *A12087	1 -	Hose Assembly, 3/8" x 206", 12 Row Hose Assembly, 3/8" x 266", 16 Row
21	G6801-06 GR1045	1 -	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To O-Ring O-Ring
22	*A12095	1	Hose Assembly, 3/8" x 80"
23	G6400-06 GR1045	1 -	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring O-Ring
24	*A12094	1	Hose Assembly, 3/8" x 73"
25	*A12096	1	Hose Assembly, 3/8" x 140"
26	G306-06	1	Lock Nut, 9/16"-18
27	G2700-06-06	1	Bulkhead Tube Union, 9/16"-18 Male JIC
28	*A1424	1	Hose Assembly, 1/2" x 30"
29	*A3381	1	Hose Assembly, 3/4" x 26"
30	*A12002	1	Hose Assembly, 3/8" x 32"
31	*A12753	1	Hose Assembly, 1/2" x 57"
32	*A11444	1	Hose Assembly, 5/8" x 59"
33	*A12093	1	Hose Assembly, 3/8" x 58"
34	G6602-06	1	Swivel Tee, 9/16"-18 JIC

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

(IP1242)

ASD Fan Assembly

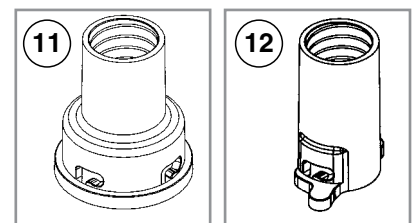
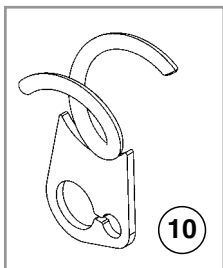
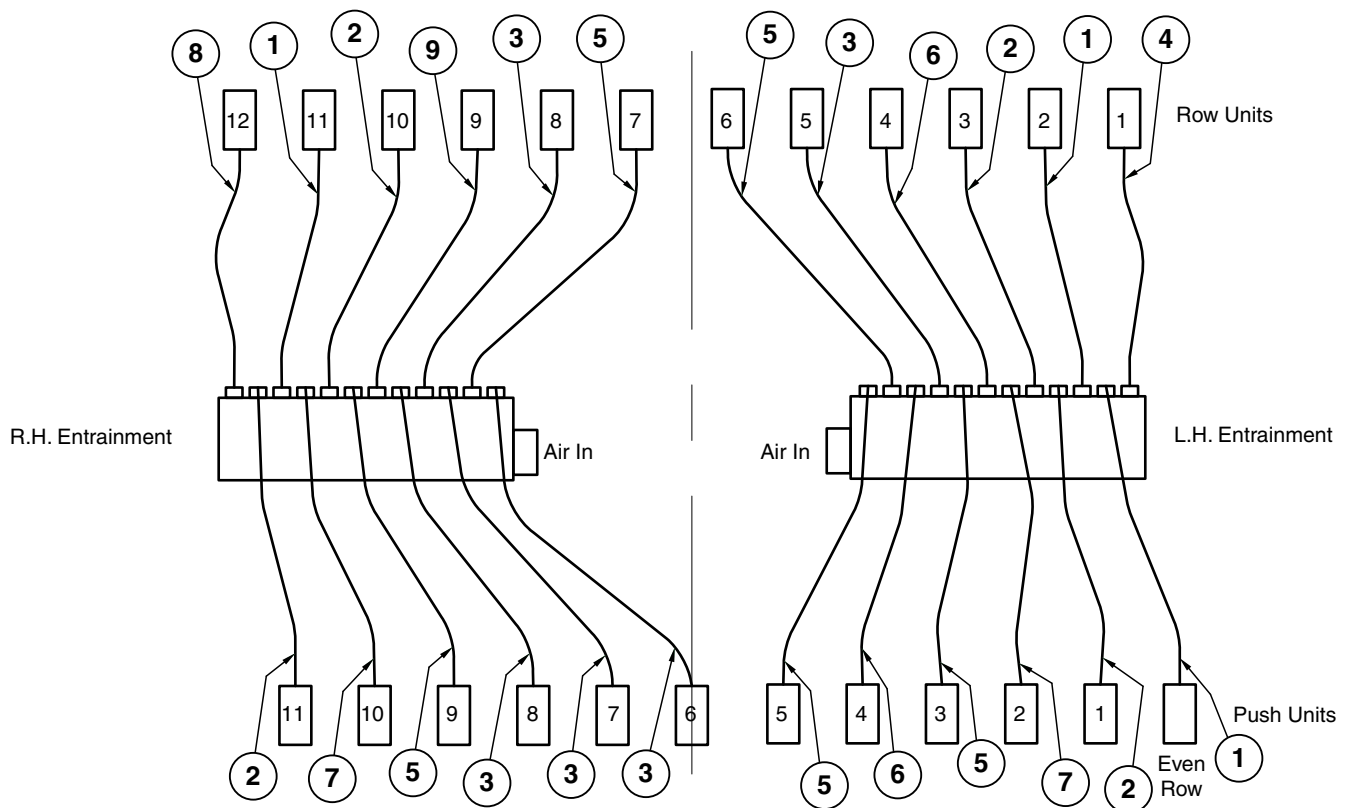


ITEM	PART NO.	QTY.	DESCRIPTION
1	GR1976	12	Hex Flange Self Tapping Screw, ¼" x ¾"
2	GR1977	6	Fender Washer, ¼"
3	GR1965	2	Non-Flanged Outer Case
4	GR1979	2	Plastic Plug, 7/16"
5	GR1966	2	Non-Flanged Inner Case
6	G11123	2	Hex Serrated Flange Cap Screw, 3/8"-16 x ¾"
7	GR1969	1	Backing Plate
8	GR1968	1	Cover Plate
9	G6801-06 GR1045	1 -	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To O-Ring O-Ring
10	G6801-10 GR1466	1 -	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To O-Ring O-Ring
11	G11124	2	Hex Serrated Flange Cap Screw, 3/8"-16 x 1"
12	GA14574	1	Hydraulic Motor
13	G6801-12-10 GR1466	1 -	Elbow W/O-Ring, 90°. 1 1/16"-12 Male JIC To 7/8"-14 O-Ring O-Ring
14	GA15452	1	Overhung Load Adapter
15	GA14382	1	Fan Mount
16	G10621	15	Serrated Flange Nut, ¼"-20
17	GR1961	1	Bushing, 5/8"
18	GR1978	1	Plastic Plug, ¼"
19	G11409	15	Hex Serrated Flanged Cap Screw, ¼"-20 x 1"
20	GR1967	1	Screen
21	GD21300	1	Key Stock, 3/16" x 3/4"
22	GR2000	1	Hydraulic Motor Key
23	GA12812	-	Hall Effect Adapter
24	GA14116 GD16324-01 GA9964 G1K248	1 - - -	Sending Unit W/¼" Tubing And Harness W/4-Pin Male Connector Clear Plastic Tubing, ¼" x 45" Strain Relief 3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
25	GR1736	1	Hose Barb, 1/8" Male NPT To Barb
26	GD21278	-	Reducing Tee, 3/16" x 1/8"
27	---	-	See "Center Pivot" on page P107
28	GA10765 GR1777	2 -	Analog Vacuum Gauge W/Hose Barb Hose Barb, 3/16" x 1/8" NPT
29	GD15804 G10108 G10001	2 2 2	Mount Lock Nut, 3/8"-16 Hex Head Cap Screw, 3/8"-16 x 1"
30	G11215	6	Hex Socket Head Cap Screw, No. 6-32 x 3/8", Grade 8
31	GD15849-02	1	Clear Tubing, 5/16" O.D. x 3/16" I.D. x 120"
32	GA10765 GR1777	1 -	Analog Vacuum Gauge W/Hose Barb Hose Barb, 1/8" Male NPT To 3/16" Barb
33	GA10799	1	Breather, 1/8" Male NPT
A	GA14572	-	ASD Fan Assembly (Non-Flanged) (Items 1-5, 7-8, 16, and 18-20)
B	GR1960	-	Hydraulic Motor Seal Kit

(IP1245)

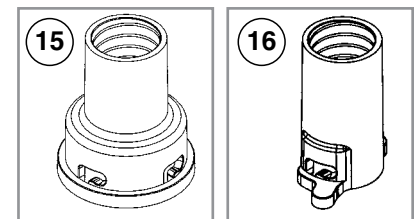
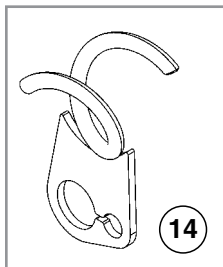
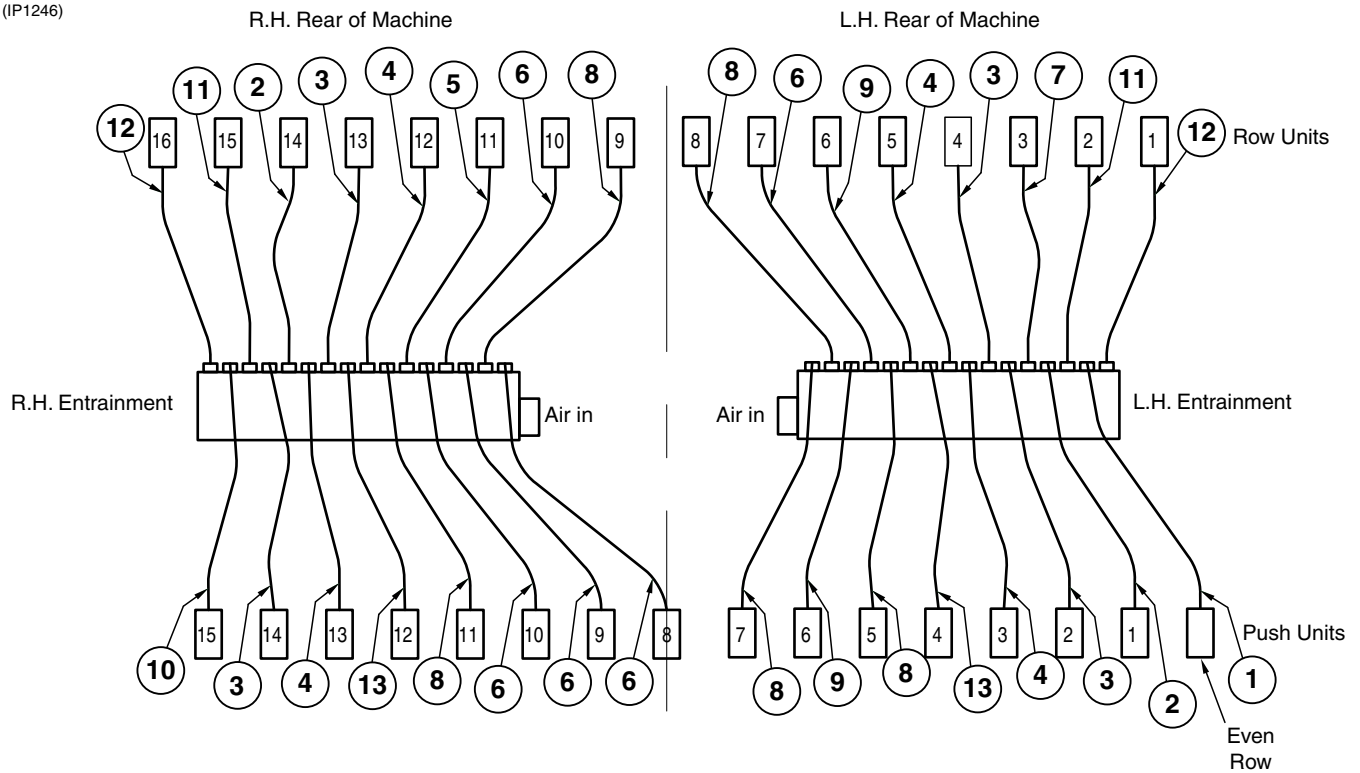
R.H. Rear of Machine

L.H. Rear of Machine



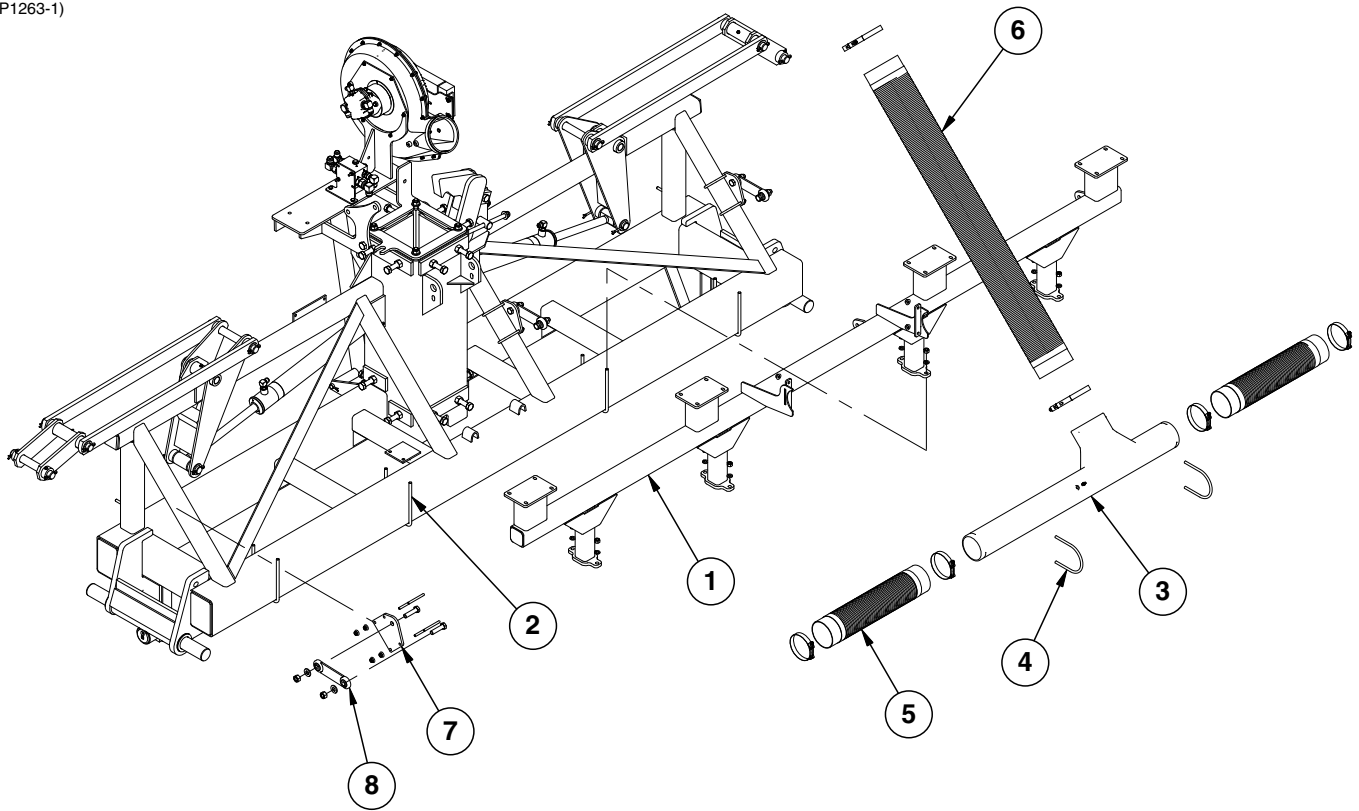
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13802	3	Hose Assembly, 1 1/4" x 161"
2	GA13803	4	Hose Assembly, 1 1/4" x 133"
3	GA13805	5	Hose Assembly, 1 1/4" x 71"
4	GA13826	1	Hose Assembly, 1 1/4" x 176"
5	GA13807	5	Hose Assembly, 1 1/4" x 82"
6	GA13808	2	Hose Assembly, 1 1/4" x 93"
7	GA13824	2	Hose Assembly, 1 1/4" x 103"
8	GA13801	1	Hose Assembly, 1 1/4" x 192"
9	GA13804	1	Hose Assembly, 1 1/4" x 101"
10	GA14593	-	Hose Holder (Used on Rows 1 and 12)
11	GB0425	-	Dissipator Quick Coupler
12	GB0429	-	Seed Entrainer Quick Coupler

(IP1246)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13800	1	Hose Assembly, 1 1/4" x 218"
2	GA13801	2	Hose Assembly, 1 1/4" x 192"
3	GA13802	4	Hose Assembly, 1 1/4" x 161"
4	GA13803	4	Hose Assembly, 1 1/4" x 133"
5	GA13804	1	Hose Assembly, 1 1/4" x 101"
6	GA13805	5	Hose Assembly, 1 1/4" x 71"
7	GA13826	1	Hose Assembly, 1 1/4" x 176"
8	GA13807	5	Hose Assembly, 1 1/4" x 82"
9	GA13808	2	Hose Assembly, 1 1/4" x 93"
10	GA13809	1	Hose Assembly, 1 1/4" x 205"
11	GA13810	2	Hose Assembly, 1 1/4" x 225"
12	GA13817	2	Hose Assembly, 1 1/4" x 246"
13	GA13824	2	Hose Assembly, 1 1/4" x 103"
14	GA14593	-	Hose Holder (Used on Rows 1, 2, 15, and 16)
15	GB0425	-	Dissipator Quick Coupler
16	GB0429	-	Seed Entrainer Quick Coupler

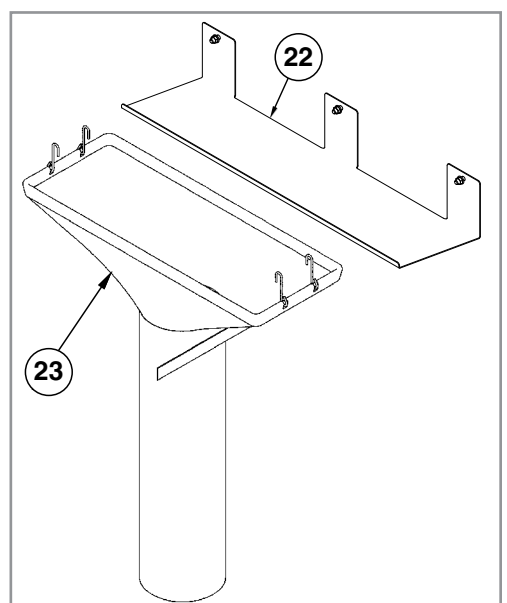
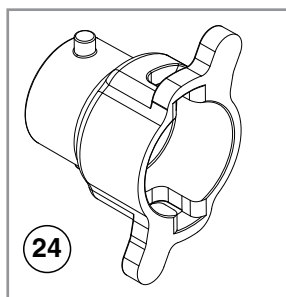
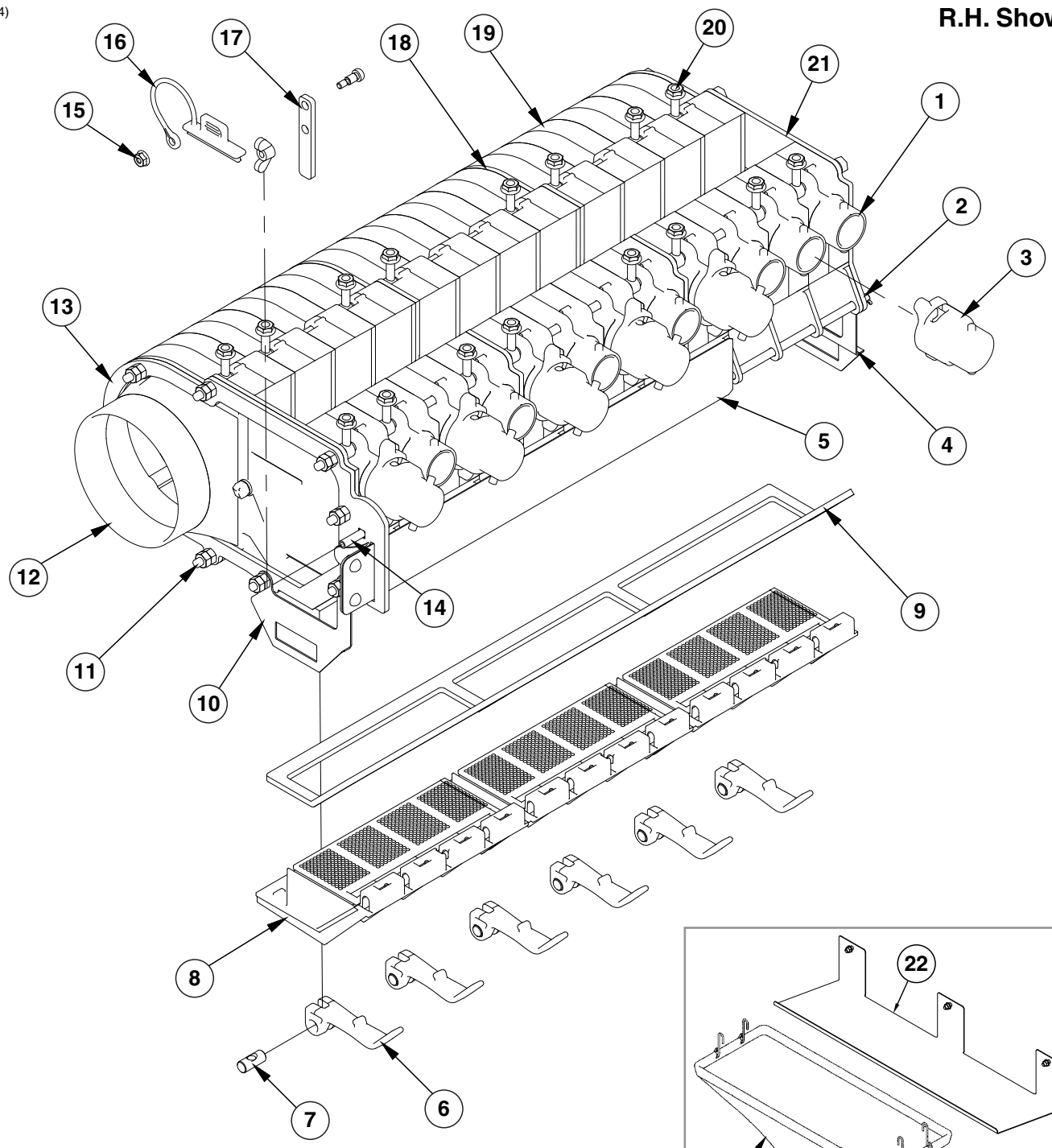
(IP1263-1)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14330	1	Front ASD Mount Support
2	GD8306	4	U-Bolt, 7" x 5" x ½"-13
	G10228	8	Lock Washer, ½"
	G10102	8	Hex Nut, ½"-13
3	GB0493	1	ASD Manifold
	GR1777	1	Hose Barb, ½" Male NPT To ⅜" Barb
4	GD19639	2	U-Bolt, 4½" x ⅜"-16
	G11091	4	Serrated Flange Nut, ⅜"-16
5	GD19659-05	2	Black Hose, 4 ½" I.D. x 22"
	G11360	4	T-Bolt Hose Clamp, 4½"
6	GD19658-02	1	Black Hose, 6" I.D. x 56"
	G11367	2	T-Bolt Clamp 6"
7	GD20401	3	Link Mount
	GD19212	6	U-Bolt, 2½" x ⅜"-16
	G11091	12	Serrated Flange Nut, ⅜"-16
8	GA14331	3	Link
	G10009	6	Hex Head Cap Screw, ⅝"-11 x 2½"
	G11391	6	Flat Washer, ⅝" SAE
	G10104	6	Hex Nut, ⅝"-11

(IP1124)

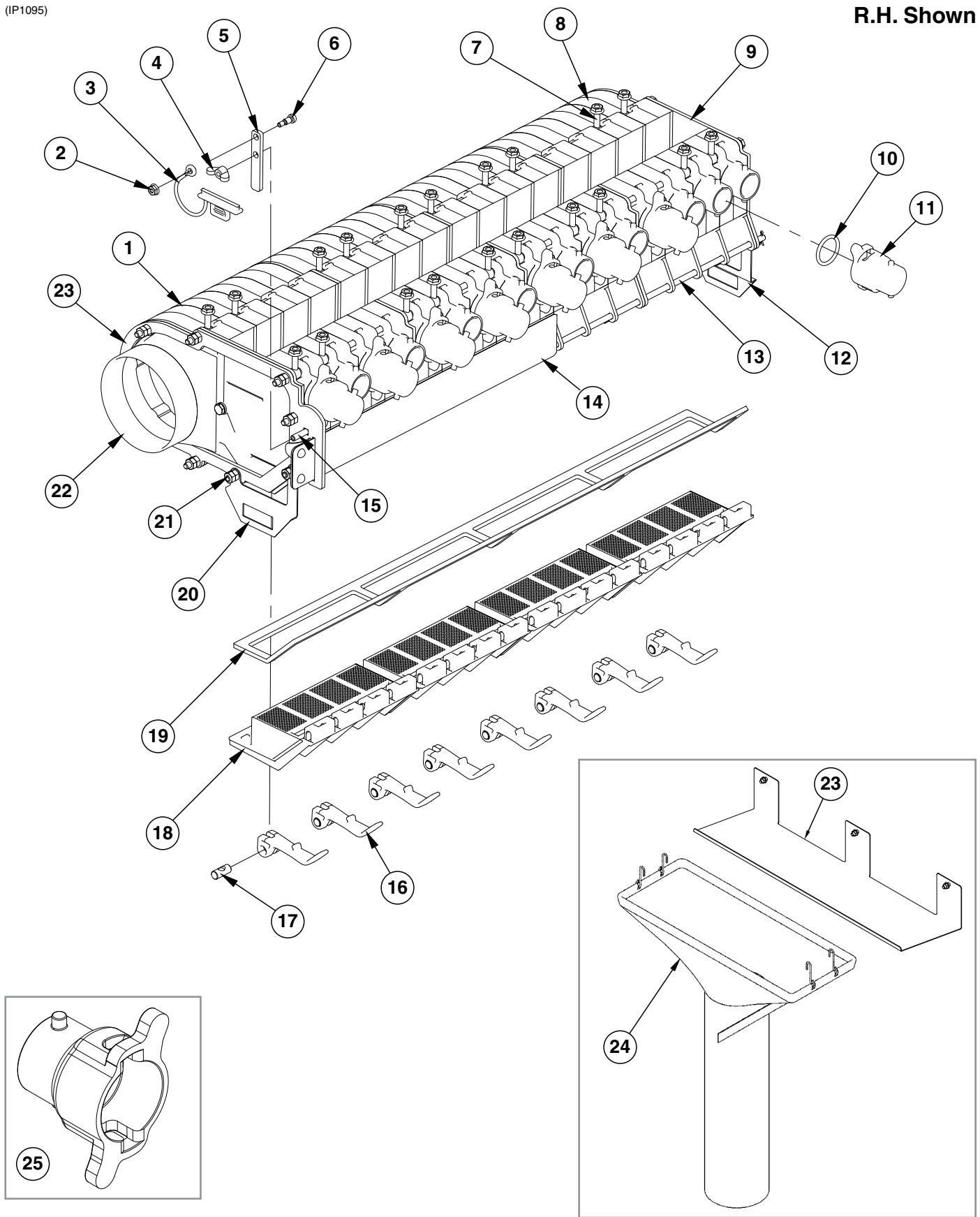
R.H. Shown



ITEM	PART NO.	QTY.	DESCRIPTION
1	GB0433	3	ASD Seed Entrainer Door Section
2	GD19854	1	ASD Cleanout Door Hinge Rod, 12 Row
	G10455	2	Cotter Pin, 1/16" x 1/2"
3	GB0431	6	ASD Small Cap (If Applicable)
	GD19508	6	Small O-Ring
4	GD19698	1	ASD Chute Hanger, R.H.
5	GA14942	1	ASD Shutoff Door
6	GB0501	6	Latch Handle
	GD19864	6	Eye Bolt, 1/4"-20 x 1.83"
7	GD21080	6	Cam Nut, 1/4"-20
8	GB0502	3	ASD Cleanout Door
9	GD19863	1	ASD Cleanout Door Gasket, 12 Row
10	GD19699	1	ASD Chute Hanger, L.H.
11	GD19852	10	Hex Head Cap Screw, 1/4"-20 x 22"
	G11328	11	Washer, 1/4"
	G10103	21	Lock Nut, 1/4"-20, Grade B
12	GB0436	1	ASD Seed Entrainer Air Inlet, R.H. (Shown)
	GB0435	-	ASD Seed Entrainer Air Inlet, L.H.
13	GD19635	1	ASD Retainment Ring
14	G10316	1	Carriage Bolt, 1/4"-20 x 1"
	G10531	1	Wing Nut W/Nylon Insert, 1/4"-20
15	G10992	1	Serrated Flange Nut, No. 10-24
	G11332	1	Hex Socket Head Set Screw, 1/4" x No. 10-24 x 3/8"
	G11302	1	Hex Nut, 1/4"-20
16	GB0444	2	ASD Shutoff Door Plug
17	GD19695	1	ASD Slide Latch
18	GD19665	2	ASD Spacer Plate
19	GB0427	9	ASD Seed Entrainer
20	GD19865	16	Eye Bolt, 1/4"-20 x 1.47"
	G10621	16	Serrated Flange Nut, 1/4"-20
21	GB0434	1	ASD Seed Entrainer End Cap
22	GD19808	1	Cleanout Chute Storage Bracket
	G10001	3	Hex Head Cap Screw, 3/8"-16 x 1"
	G10622	3	Serrated Flange Nut, 3/8"-16
23	GA14822	1	Cleanout Chute
24	GB0430	-	ASD Large Cap
A	GA14004	-	ASD Entrainer Assembly, R.H. (Shown) (Items 1-21)
B	GA14005	-	ASD Entrainer Assembly, L.H. (Items 1-21)

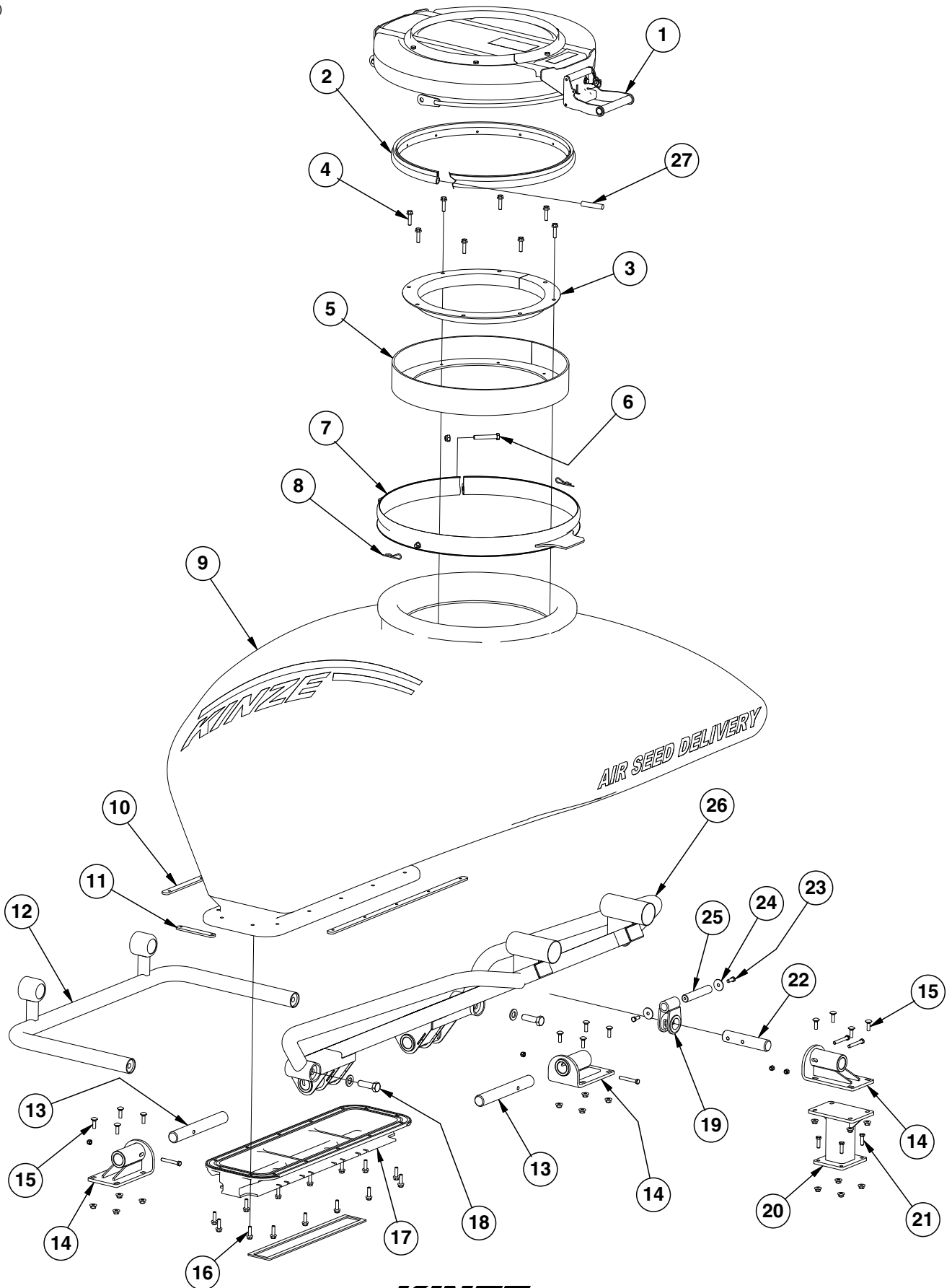
(IP1095)

R.H. Shown



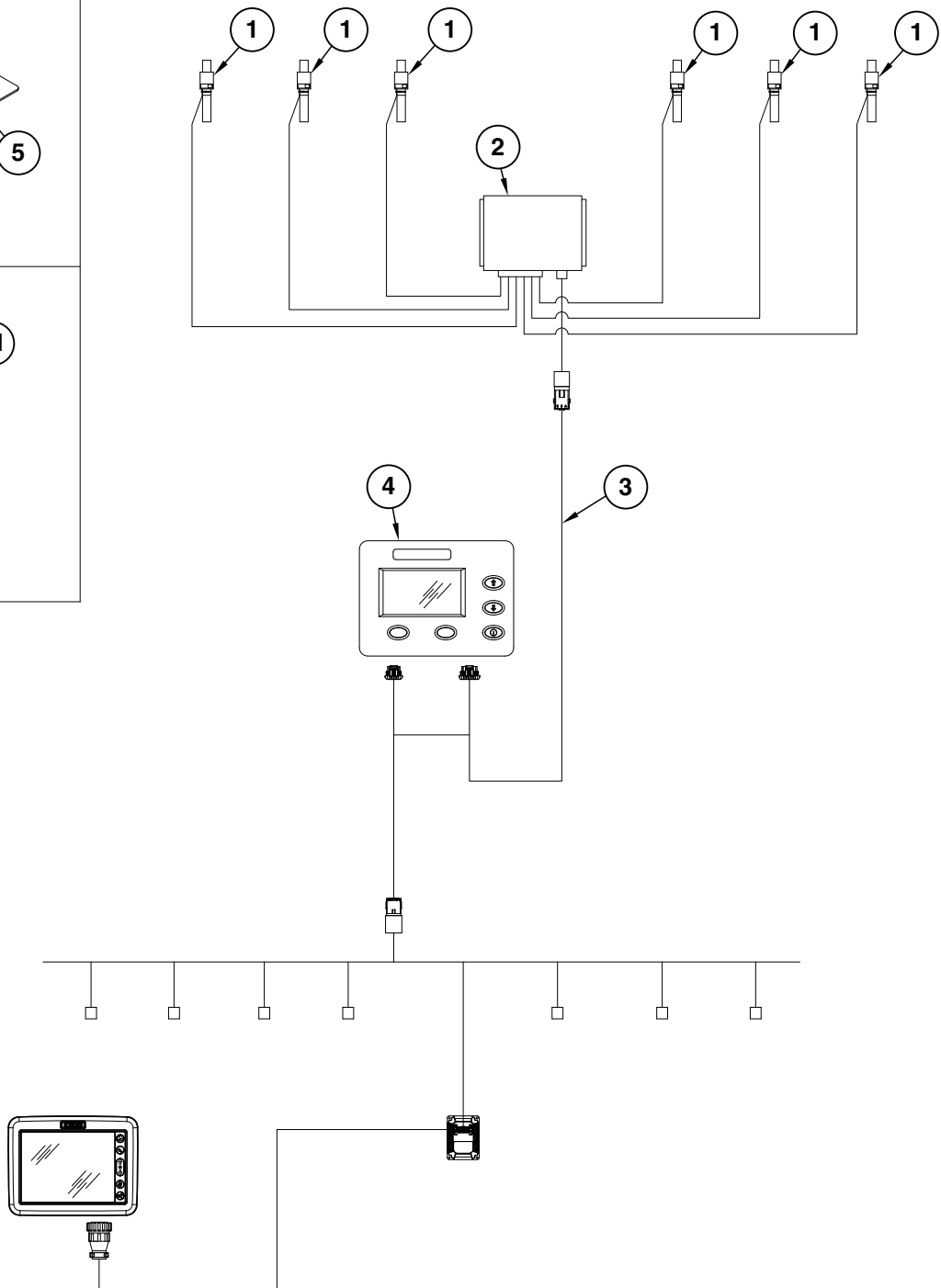
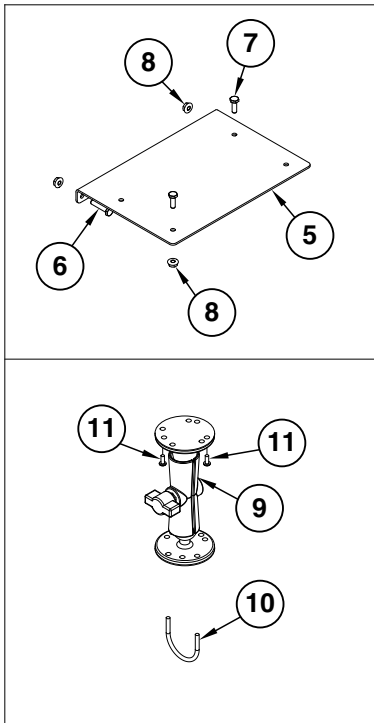
ITEM	PART NO.	QTY.	DESCRIPTION
1	GB0427	12	ASD Seed Entrainer
	GD19665	3	ASD Spacer Plate
2	G10992	1	Serrated Flange Nut, No. 10-24
3	GB0444	2	ASD Shutoff Door Plug
4	G10531	1	Wing Nut W/Nylon Insert, ¼"-20
5	GD19695	1	ASD Slide Latch
6	G11332	1	Hex Socket Head Set Screw, ¼" x No. 10-24 x ¾"
7	GD19865	20	Eye Bolt, ¼"-20 x 1.47"
	G10621	20	Serrated Flange Nut, ¼"-20
8	GB0433	4	ASD Seed Entrainer Door Section
9	GB0434	1	ASD Seed Entrainer End Cap
10	GB0431	8	ASD Small Cap (If Applicable)
	GD19508	8	Small O-Ring
11	GD19698	1	ASD Chute Hanger, R.H.
12	GD19609	1	ASD Cleanout Door Hinge Rod
	G10455	2	Cotter Pin, ⅛" x ½"
13	GA14942	1	ASD Shutoff Door
14	G10316	1	Carriage Bolt, ¼"-20 x 1"
	GD19864	8	Eye Bolt, ¼"-20 x 1.83"
15	GB0501	8	Latch Handle
16	GD21080	8	Cam Nut, ¼"-20
17	GB0502	4	ASD Cleanout Door
18	GD19619	1	ASD Cleanout Door Gasket
19	GD19699	1	ASD Chute Hanger, L.H.
20	G10103	21	Lock Nut, ¼"-20, Grade B
	GD19614	10	Hex Head Cap Screw, ¼"-20 x 29"
	G11328	11	Washer, ¼"
21	GB0436	1	ASD Seed Entrainer Air Inlet, R.H. (Shown)
	GB0435	1	ASD Seed Entrainer Air Inlet, L.H.
22	GD19635	1	ASD Retainment Ring
23	GD19808	1	Cleanout Chute Storage Bracket
	G10001	3	Hex Head Cap Screw, ⅜"-16 x 1"
	G10622	3	Serrated Flange Nut, ⅜"-16
24	GA14823	1	Cleanout Chute
25	GB0430	-	ASD Large Cap
A	GA13734	-	ASD Entrainer Assembly, R.H. (Shown) (Items 1-22)
B	GA13735	-	ASD Entrainer Assembly, L.H. (Items 1-22)

(IP1243)



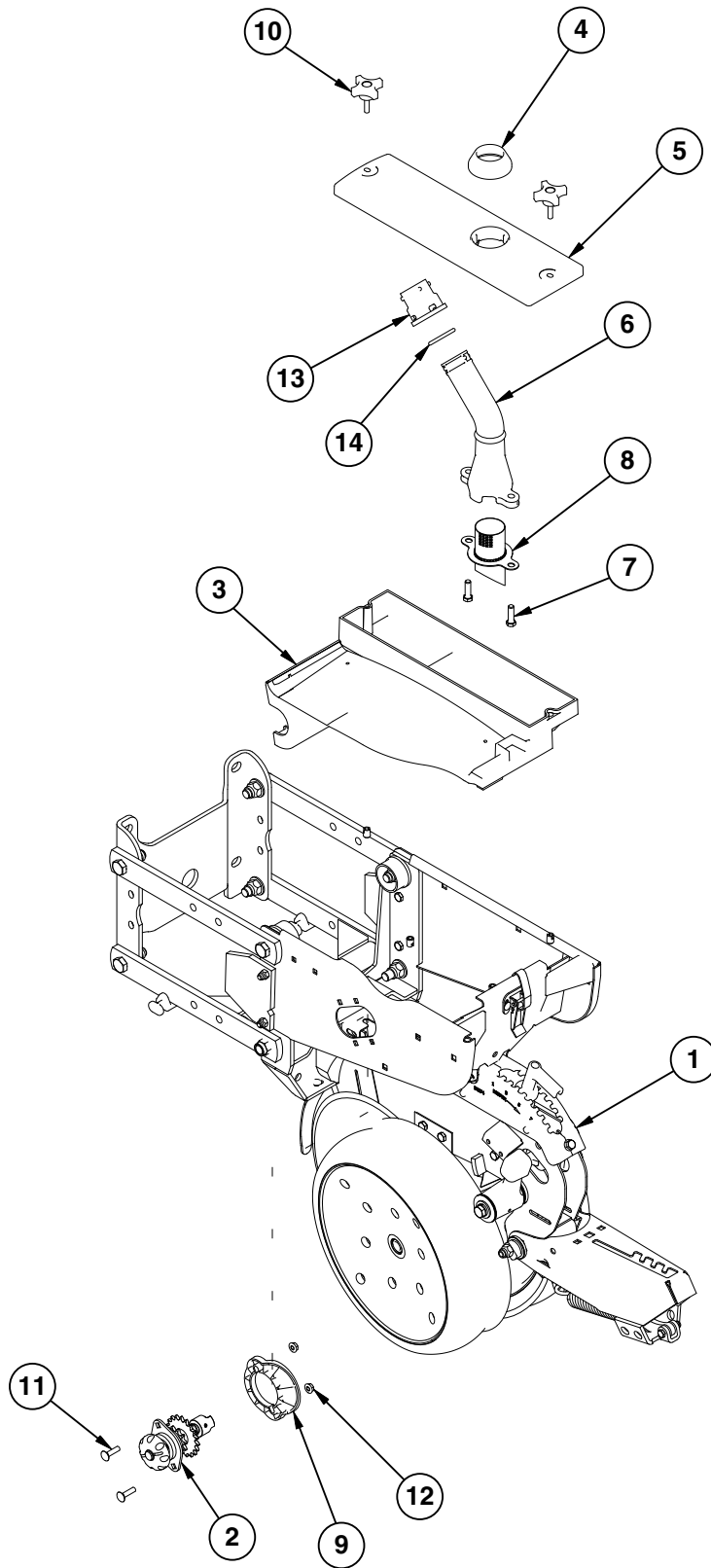
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14707	1	ASD Lid Assembly
	GA14089	1	Latch Handle
	GD20022	1	Latch Mount Bracket
	GD20030	1	Pivot Bail Bracket
	G10328	2	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G11387	2	Flat Washer, 3/8" SAE
2	GD21081	1	ASD Tank Lid Seal
3	GD21174	1	Outer Clamp Ring
4	G11408	8	Hex Serrated Flange Cap Screw, 3/8"-16 x 1 1/2"
5	GA14839	1	Clamp Ring
6	G10038	1	Hex Head Cap Screw, 1/2"-13 x 3"
	G10111	1	Lock Nut, 1/2"-13
7	GA14092	1	ASD Lid Rim
8	G10592	2	Hair Pin Clip, No. 11
9	GD20391	1	ASD Bulk Seed Tank, 40 Bushel
10	GD20922	2	Entrainer Mount Tap Block, Long
11	GD20923	2	Entrainer Mount Tap Block, Short
12	GA14856	1	Front ASD Tank Frame
13	GD20035	2	Pin, 1 1/2" x 11 1/4"
14	GA14041	3	ASD Tank Mount
	G10325	4	Hex Head Cap Screw, 3/8"-16 x 2 3/4"
	G10108	4	Lock Nut, 3/8"-16
15	G10599	12	Carriage Bolt, 3/8"-16 x 1 1/4"
	G11091	12	Serrated Flange Nut, 3/8"-16
16	G11204	14	Flanged Whiz Lock Screw, 3/8"-16 x 1 1/4", Serrated
17	GD19956	1	ASD Entrainment Mounting Plate, 12 Row
	GD19957	-	ASD Entrainment Mounting Plate, 16 Row
	GD19893	1	ASD Tank Mount Gasket, 12 Row
	GD19620	-	ASD Tank Mount Gasket, 16 Row
	GD19690-04	1	Ribbon Sealer, 7'
	GD19690-03	1	Ribbon Sealer, 6 1/2'
18	G10027	2	Hex Head Cap Screw, 3/4"-10 x 2 1/2"
	G11392	2	Flat Washer, 3/4" SAE
19	GA14040	1	Rear ASD Tank Mount
20	GA14052	1	Rear Tank Mount
21	G10004	4	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11091	4	Serrated Flange Nut, 3/8"-16
22	GD20036	1	Pin, 1 1/2" x 7"
23	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
24	G10201	2	Special Washer, 3/8" x 1 1/2" O.D.
25	GD20037	1	Pin, 1" x 5 3/8"
26	GA14858	1	Rear ASD Tank Mount
27	GD21140	1	Foam Seal Connector

(IP1192)



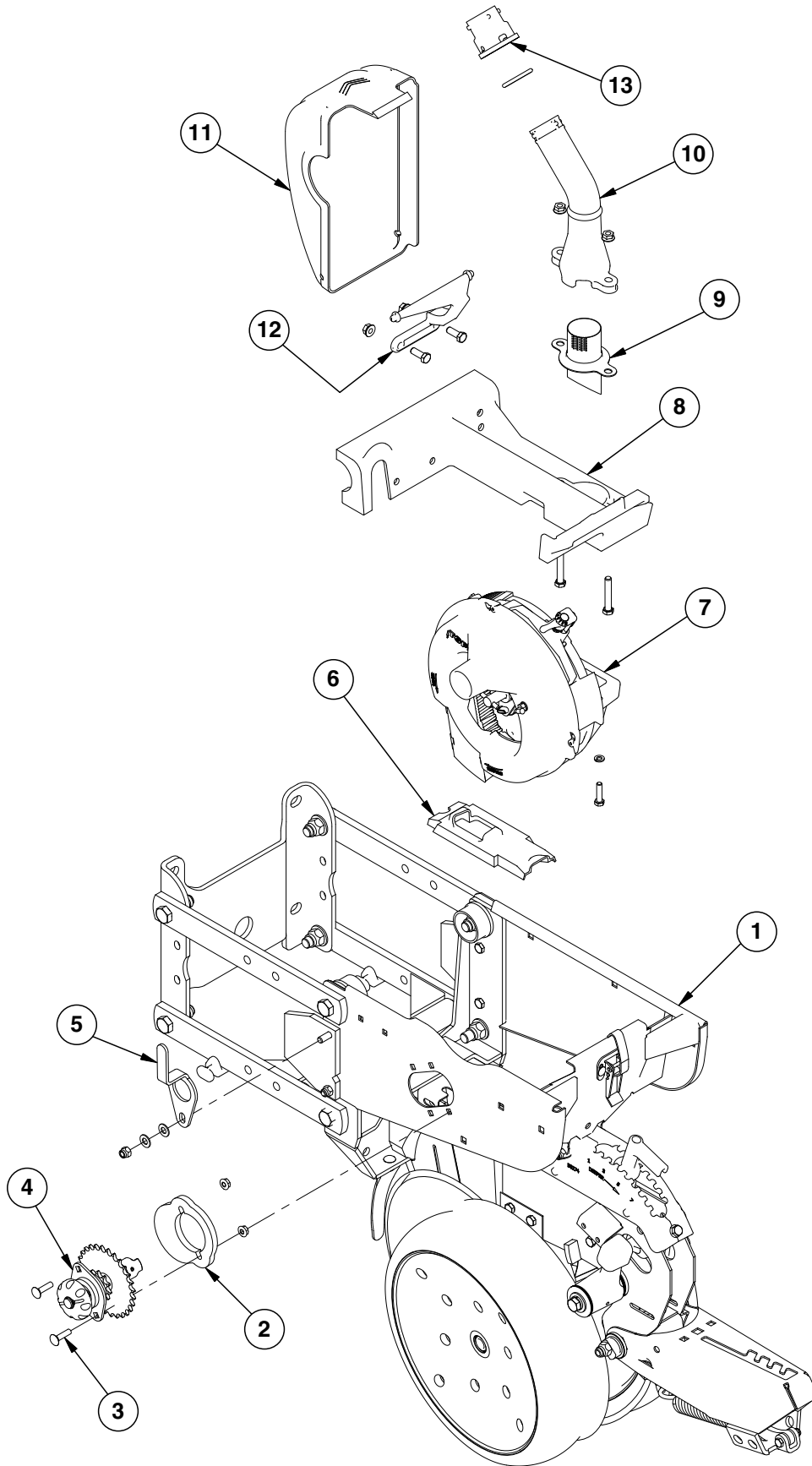
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14135	6	Load Cell
2	GA14136	1	Scale Module
3	GA14129	1	Power Cable
4	GA14133	1	ASD Scale Display
5	GD20281	1	Scale Module Mounting
6	G10857	2	Hex Head Cap Screw, ¼"-20 x 1¼"
7	G10023	2	Hex Head Cap Screw, ¼"-20 x ¾"
8	G10621	4	Serrated Flange Nut, ¼"-20
9	GA12403	1	Mounting Bracket Assembly, Includes: (2) Mounting Brackets, (2) Connector Halves, (1) Compression Spring, (1) Tension Knob, (1) ¼"-20 x 1¾" Hex Head Cap Screw, (1) ¼" Plastic Washer, (1) ¼" Steel Washer
10	GD20282	1	U-Bolt, #10-32
	G11284	2	Serrated Flange Nut, #10-32
11	G11216	2	Phillips Pan Head Machine Screw, No. 10-32 x ½", Stainless Steel

(IP1126)



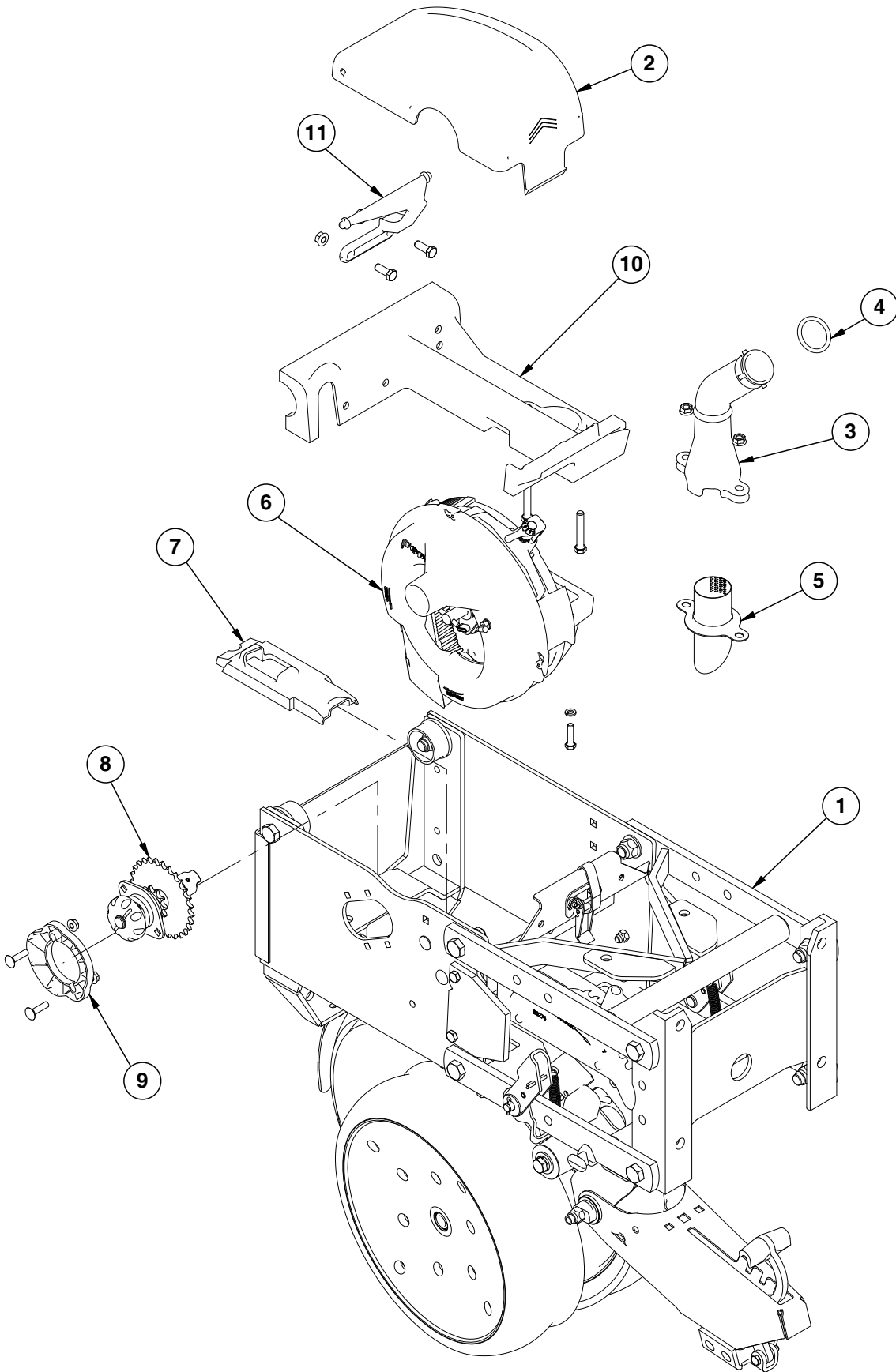
ITEM	PART NO.	QTY. Per Row	DESCRIPTION
1	---	-	See "Shank Assembly, Seed Tube, and Depth Adjustment" on page P1 See "Parallel Arms, Mounting Support Plate, and Quick Adjustable Down Forces Springs Option" on page P7 See "Hopper Support and Meter Drive" on page P19
2	GA10151	1	Meter Drive Assembly Complete, 11/19 Tooth
3	GA9547	1	Mini-Hopper
	GA14031	1	ASD Mechanical Meter Cover
4	GB0446	1	ASD Mechanical Meter Cover Seal
5	GB0445	1	ASD Mechanical Meter Cover
6	GB0455	1	ASD Air Pressure Dissipator
7	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
8	GB0460	1	Air Dissipator Screen
9	GB0331	1	Clutch Adapter Plate
10	GD20032	2	Knob, 5/16"-18 x 1 1/4"
11	G10338	2	Carriage Bolt, 5/16"-18 x 1 1/4"
12	G10620	2	Serrated Flange Nut, 5/16"-18
13	GB0430	1	ASD Large Cap
14	GD19509	1	O-Ring, Large

(IP1097a)



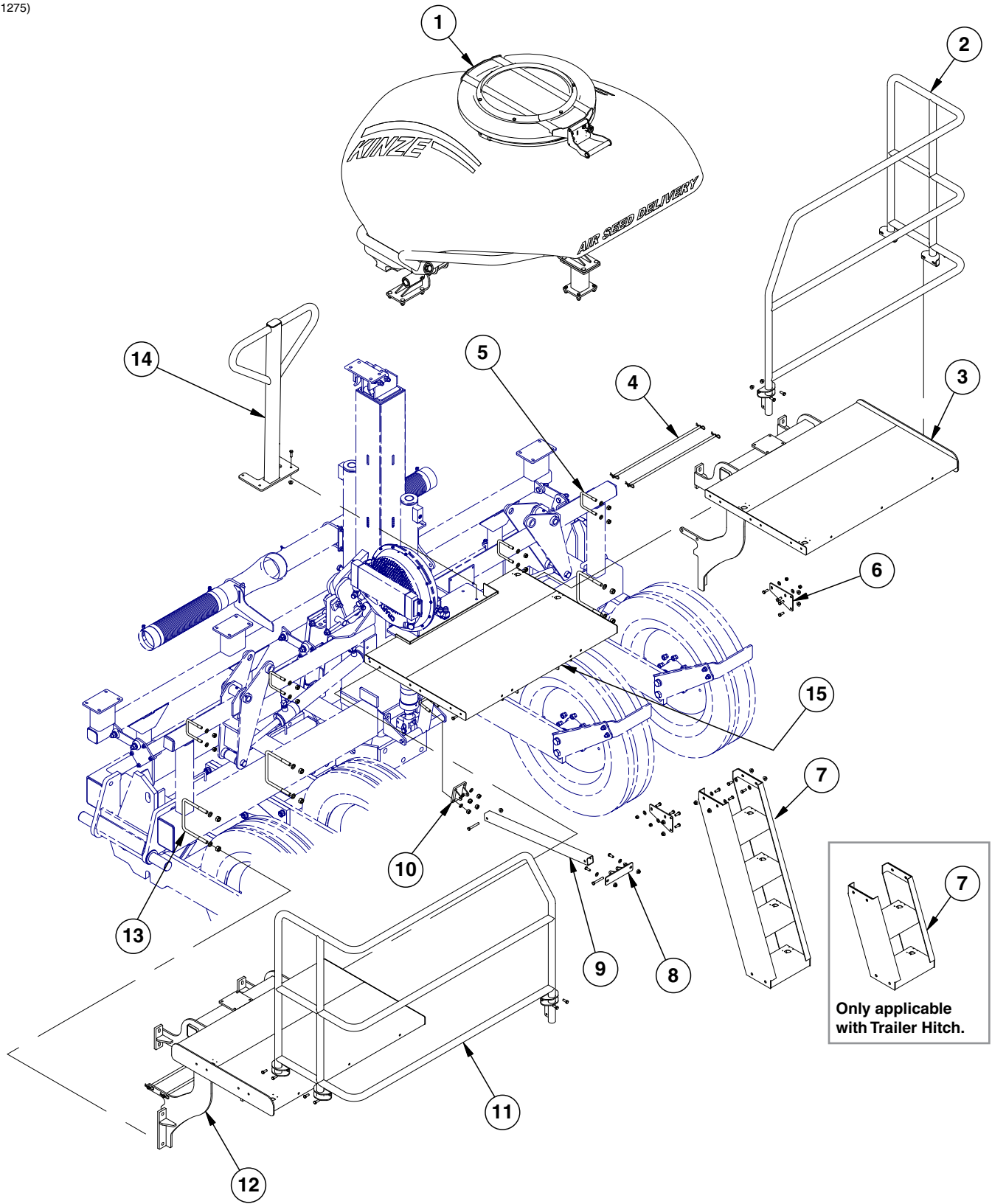
ITEM	PART NO.	QTY.	DESCRIPTION
1	---	-	See "Shank Assembly, Seed Tube, and Depth Adjustment" on page P1 See "Parallel Arms, Mounting Support Plate, and Quick Adjustable Down Forces Springs Option" on page P7 See "Hopper Support and Meter Drive" on page P19
2	GB0331	1	Clutch Adapter Plate
3	G10620	2	Serrated Flange Nut, 5/16"-18
	G10338	2	Carriage Bolt, 5/16"-18 x 1 1/4"
4	GA12144	1	Meter Drive Assembly, 11/28 Tooth
	G3303-108	-	Chain, No. 41, 108 Pitch Including Connector Link
	G3303-124	-	Chain, No.41, 124 Pitch Including Connector Link (Center 6 Rows)
	GR0196	-	Connector Link, No. 41
5	GD17014	1	Hose Guide
	G11387	2	Flat Washer, 3/8" SAE
	G10047	1	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
6	---	-	See "EdgeVac Seed Meter" on page P27
7	---	-	See "EdgeVac Seed Meter" on page P27
	G10232	2	Lock Washer, 5/16"
	G10171	2	Hex Head Cap Screw, 5/16"-18 x 1 1/4"
8	GA13733	1	Meter Mount W/Inserts
9	GB0460	1	Air Dissipator Screen
	G10939	2	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
10	GB0455	1	ASD Air Pressure Dissipator
	G10622	2	Serrated Flange Nut, 3/8"-16
11	GB0428	1	EdgeVac Meter Cover
12	GB0447	1	Cover Hinge
	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G10622	2	Serrated Flange Nut, 3/8"-16
13	GB0430	1	ASD Large Cap
	GD19509	1	O-Ring, Large

(IP1136)

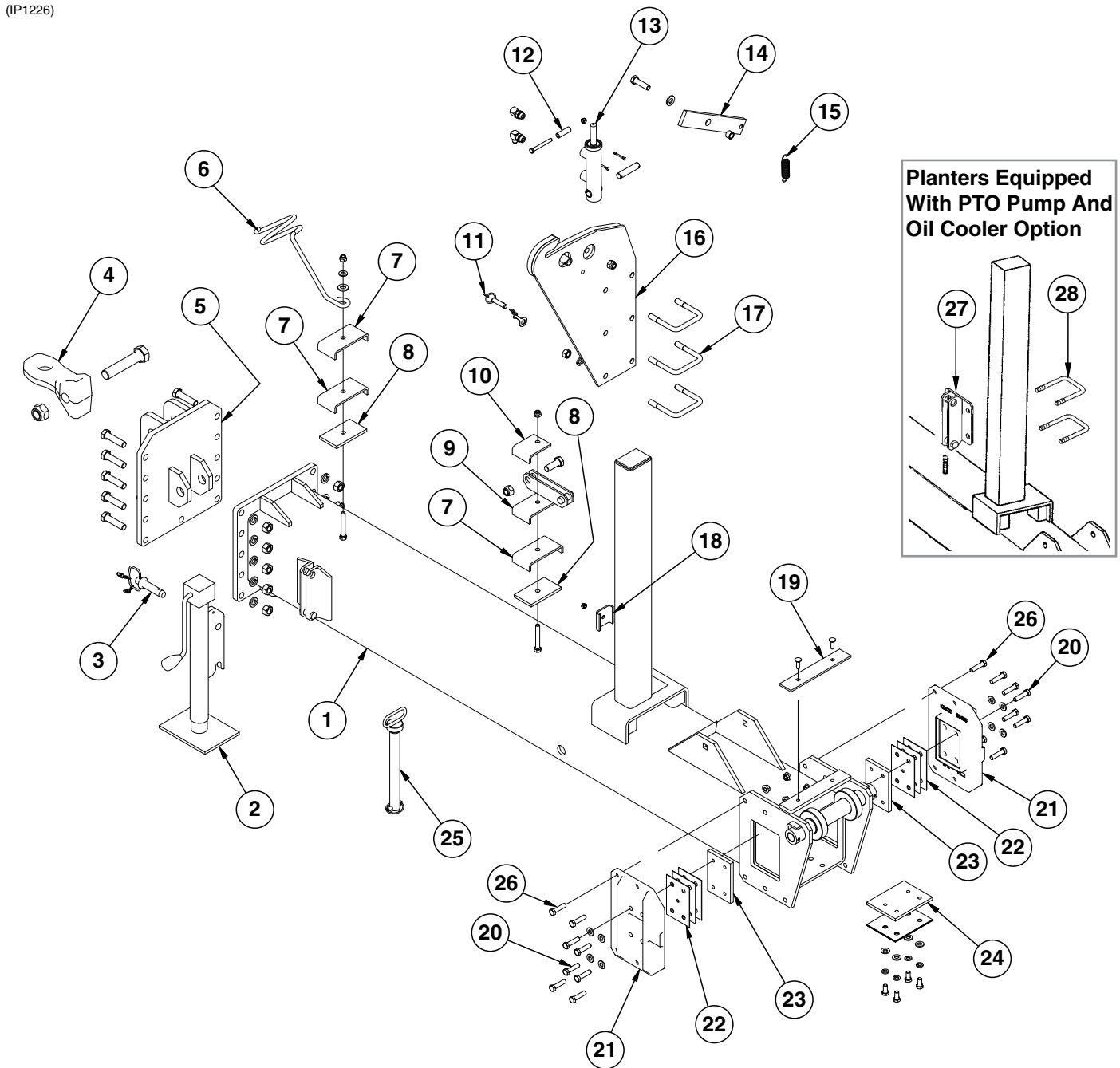


ITEM	PART NO.	QTY.	DESCRIPTION
1	---	-	See "Interplant Push Row Unit" on page P47
2	---	-	See "ASD EdgeVac Row Unit" on page P85 See "ASD Mechanical Row Unit" on page P83
3	GB0455	1	ASD Air Pressure Dissapator
	G10939	2	Hex Head Cap Screw, 3/8"-16 x 2 1/4"
	G10622	4	Serrated Flange Nut, 3/8"-16
4	GD19509	1	Large O-Ring
5	GB0460	1	Air Dissapator
6	---	-	See "Finger Pickup Seed Meter" on page P23 See "Brush-Type Seed Meter" on page P25 See "EdgeVac Seed Meter" on page P27
7	---	-	See "ASD EdgeVac Row Unit" on page P85
8	---	-	See "ASD EdgeVac Row Unit" on page P85 See "ASD Mechanical Row Unit" on page P83
9	GB0331	1	Clutch Adapter Plate
	G10620	2	Serrated Flange Nut, 5/16"-18
	G10338	2	Carriage Bolt, 5/16"-18 x 1 1/4"
10	---	-	See "ASD EdgeVac Row Unit" on page P85
11	---	-	See "ASD EdgeVac Row Unit" on page P85

(IP1275)



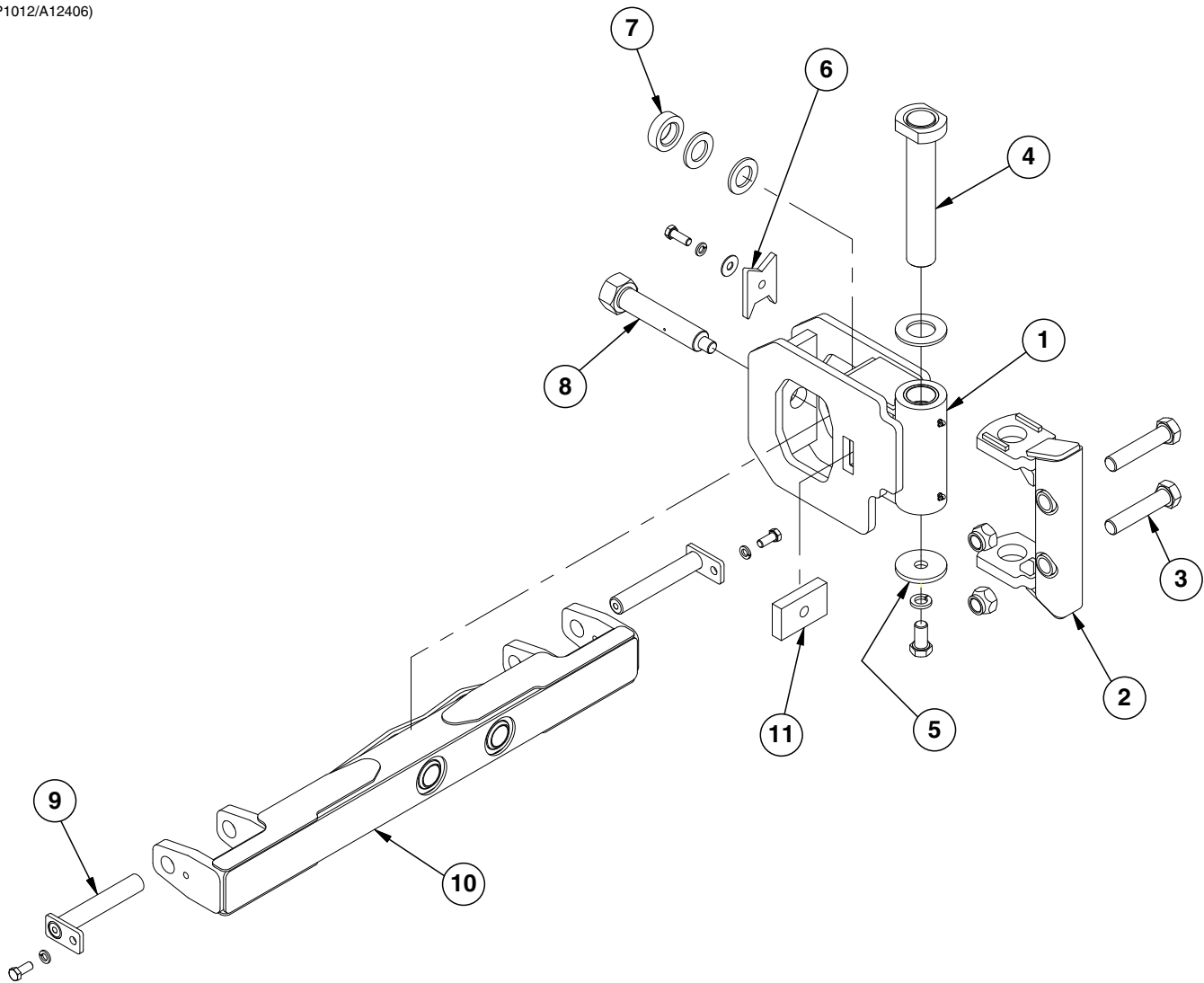
ITEM	PART NO.	QTY.	DESCRIPTION
1	---	2	See "ASD Tank Assembly" on page P79
2	GA14372	1	R.H. Rail
	G11091	6	Serrated Flange Nut, 3/8"-16
	G10001	6	Hex Head Cap Screw, 3/8"-16 x 1"
3	GA14370	1	R.H. Catwalk
	G4431-01	1	Edge Molding, 3/8" x 19"
	G11091	6	Serrated Flange Nut, 3/8"-16
	G10001	6	Hex Head Cap Screw, 3/8"-16 x 1"
4	GD20756	4	Seed Tube Hold Down Pin
	G11303	8	Hair Pin Clip, #9, 9/32" x 2 15/16"
5	GD4743	4	U-Bolt, 3" x 3" x 1/2"-13
	G10228	8	Lock Washer, 1/2"
	G10102	8	Hex Nut, 1/2"-13
6	GD20599	2	Rail Stiffener
	G11387	10	Flat Washer, 3/8" SAE
	G10108	4	Lock Nut, 3/8"-16
	G11091	4	Serrated Flange Nut, 3/8"-16
	G10001	8	Hex Head Cap Screw, 3/8"-16 x 1"
7	GA13988	1	Ladder Assembly
	GA14366	1	Two Step Ladder (only applicable with Trailer Hitch)
	G11091	4	Serrated Flange Nut, 3/8"-16
	G10001	4	Hex Head Cap Screw, 3/8"-16 x 1"
	G11387	4	Flat Washer, 3/8" SAE
8	GA14444	1	Ladder Stiffener Mount
	G10325	2	Hex Head Cap Screw, 3/8"-16 x 2 3/4"
	G11091	4	Serrated Flange Nut, 3/8"-16
	G10001	2	Hex Head Cap Screw, 3/8"-16 x 1"
	G11387	4	Flat Washer, 3/8" SAE
9	GD20589	1	Ladder Stiffener Tube
10	GD2721	2	U-Bolt, 2" x 2" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
	GA14445	1	Strut Stiffener Mount
11	GA14373	1	L.H. Rail
	G11091	6	Serrated Flange Nut, 3/8"-16
	G10001	6	Hex Head Cap Screw, 3/8"-16 x 1"
12	GA14371	1	L.H. Catwalk
	G11091	6	Serrated Flange Nut, 3/8"-16
	G10001	6	Hex Head Cap Screw, 3/8"-16 x 1"
13	GD1113	4	U-Bolt, 5" x 7" x 5/8"-11
	G10230	8	Lock Washer, 5/8"
	G10104	8	Hex Nut, 5/8"-11
14	GA14589	1	Front Handrail
	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11091	2	Serrated Flange Nut, 3/8"-16
15	GA14369	1	Center Catwalk



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14310	1	Outer Hitch, "Y", 97½" 12 Row 30" (Non-Stock Item)
	GA7088	-	Outer Hitch, "Y", 127½", 16 Row 30" (Non-Stock Item)
2	GA13986	1	Jack Assembly Complete
	GR0516	1	Crank Assembly
	GR0515	1	Bevel Gear Set, Includes: (2) Bevel Gears, (1) Gear Pin, (1) Groove Pin
3	GA4995	1	Detent Pin Assembly
4	GB0237	1	Clevis, Single (1¾" Hole)
	G10169	1	Hex Head Cap Screw, 1¼"-7 x 6"
	G10157	1	Lock Nut, 1¼"-7

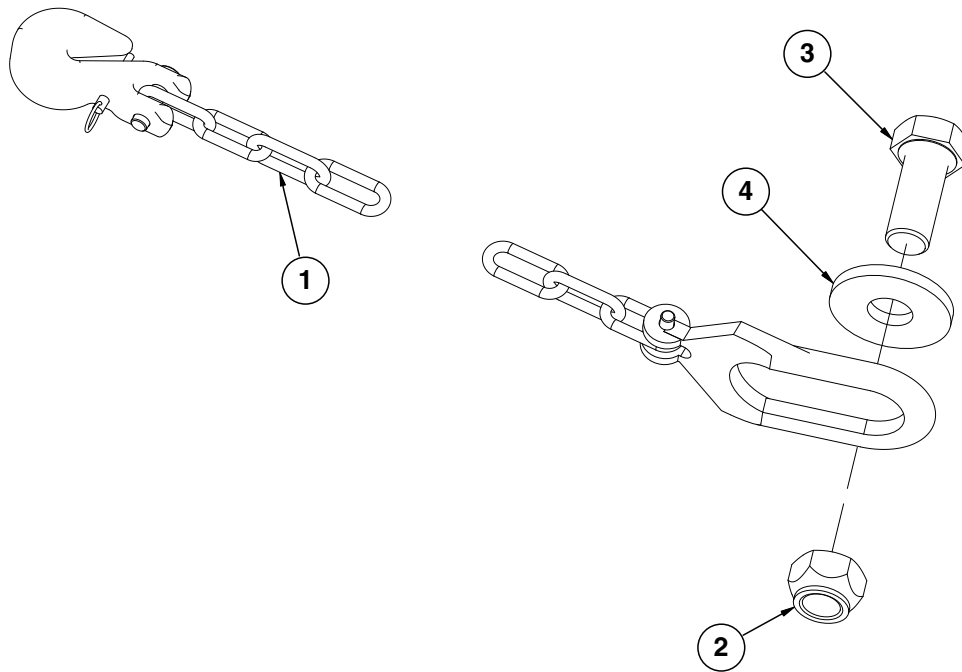
ITEM	PART NO.	QTY.	DESCRIPTION
5	GA9837	1	Hitch Mount
	G10028	11	Hex Head Cap Screw, 3/4"-10 x 3"
	G10231	11	Lock Washer, 3/4"
	G10105	11	Hex Nut, 3/4"-10
6	GD8260	1	Hose Holder
	G11391	1	Flat Washer, 5/8", SAE
	G11389	1	Flat Washer, 1/2", SAE
	G10111	1	Lock Nut, 1/2"-13
7	GD8188	3	Hose Clamp, 7/8" x 3" x 5 3/8"
8	GD8189	2	Rubber Strip, 3/8"
9	GA5842	1	Bracket, Jack Mount
	G10026	1	Hex Head Cap Screw, 3/4"-10 x 2"
	G10112	1	Lock Nut, 3/4"-10
10	GD14121	1	Hose Clamp, 7/8" x 3 1/2"
	G10111	1	Lock Nut, 1/2"-13
11	GA7022	1	Detent Pin W/Chain (Transport Latch Locking Pin)
12	GD2971-09	1	Sleeve, 2" Long
	G10809	1	Hex Head Cap Screw, 3/8"-16 x 3 1/4"
	G10108	1	Lock Nut, 3/8"-16
13	GA9559	1	See "Transport Latch Cylinder" on page P151
	G6801-06-08	2	Elbow W/O-Ring, 90°, 1/16"-18 Male JIC To 3/4"-16 O-Ring
	GD7137	1	Pin, 3/4" x 3 3/8"
	G10457	2	Cotter Pin, 5/32" x 1 1/2"
14	GA7016	1	Catch Bar
	GB0218	1	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
	G10006	1	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	G10107	1	Lock Nut, 5/8"-11
	G11391	1	Flat Washer, 5/8", SAE
15	GD5857	1	Spring
16	GA7433	1	Transport Catch
	G10765	1	Spring Pin, 1/4" x 1"
17	GD9953	3	U-Bolt, 3" x 4" x 5/8"-11
	G10230	6	Lock Washer, 5/8"
	G10104	6	Hex Nut, 5/8"-11
18	GD5875	1	Hose Clamp, 9/16" x 2 1/2" x 2"
	G10108	1	Lock Nut, 3/8"-16
19	GD20728	1	Spacer Bar
	G10599	2	Carriage Bolt, 3/8"-16 x 1 1/4"
	G10108	2	Lock Nut, 3/8"-16
20	G10016	4	Hex Head Cap Screw, 1/2"-13 x 2"
	G11389	4	Flat Washer, 1/2", SAE
21	GB0458	1	Wear Pad Retainer, L.H. and R.H.
22	GD3501	3	Shim, 4" x 6"
23	GD9960	1	Wear Pad, Nylatron, 4" x 6" (As Required)
24	GD7518	1	Shim, 3/8"
	GD7519	3	Shim, 16 Gauge (.0598")
	G10014	4	Hex Head Cap Screw, 1/2"-13 x 1"
	G10228	4	Lock Washer, 1/2"
	G11389	4	Flat Washer, 1/2" Plated SAE
25	GA13768	1	Safety Pin, 1 3/4"
26	G10016	8	Hex Head Cap Screw, 1/2"-13 x 2"
	G10071	8	Serrated Flange Nut, 1/2"-13
27	GA11528	1	Bracket
28	GD16642	2	U-Bolt, 3" x 4" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
A	GA14943	1	Wear Pad Retainer Assembly, (Items 20-23)

(IP1012/A12406)



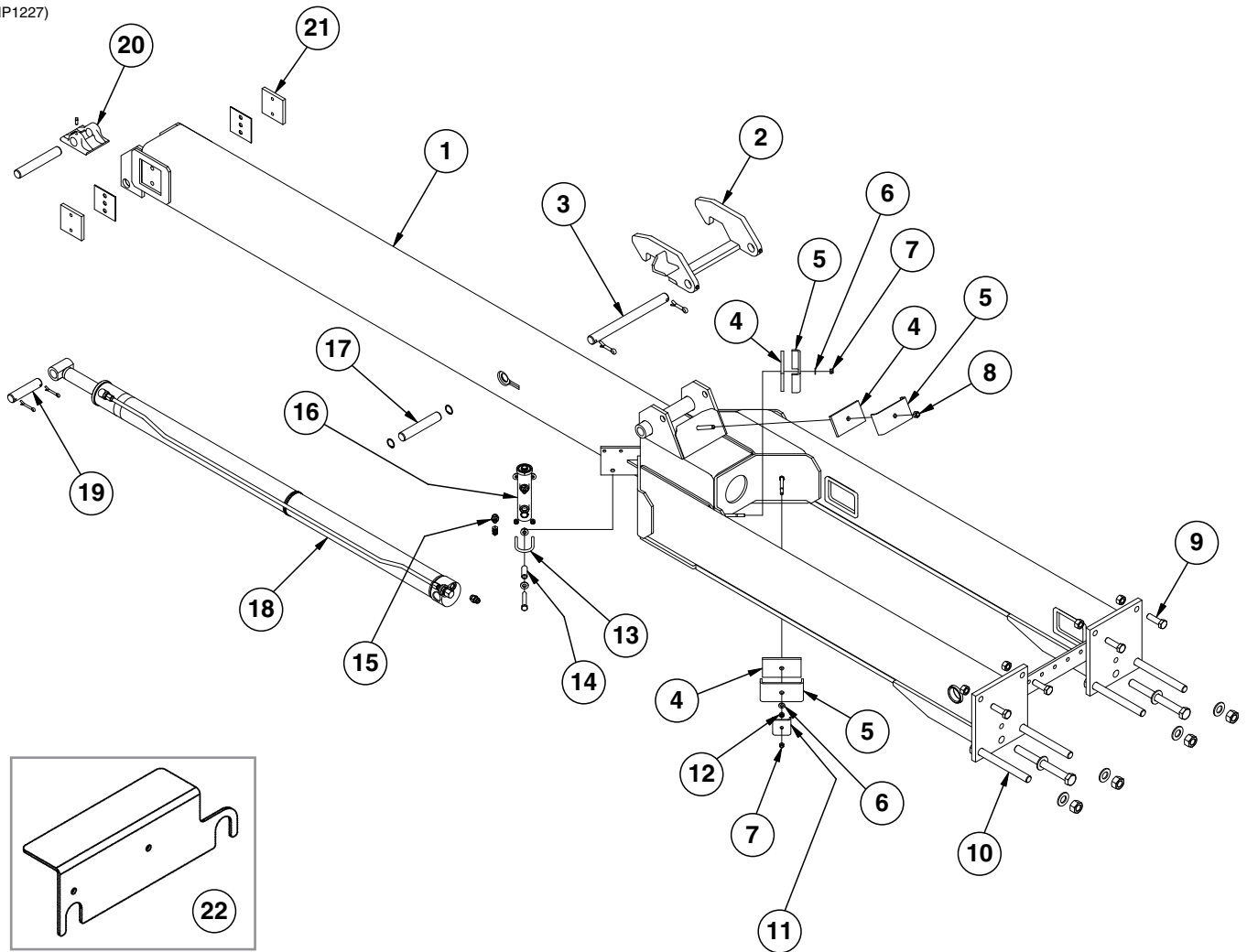
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13665	1	Hitch Pivot
2	GA13783	1	Pivot Mount
3	G10169	2	Hex Head Cap Screw, 1 1/4"-7 x 6"
	G10157	2	Lock Nut, 1 1/4"-7
4	GA12163	1	Pin, 13 3/8"
	GD15725	1	Washer, 4" O.D. x 2 1/4" I.D. x 1/4"
5	GD17245	1	Washer, 4" O.D. x 1 1/32" I.D. x 3/8"
	G11223	1	Hex Head Cap Screw, 1"-8 x 2"
	G10118	1	Lock Washer, 1"
6	GD15100	1	Pivot Lock
	G11391	1	Flat Washer, 5/8" SAE
	G10005	1	Hex Head Cap Screw, 7/8"-11 x 1 3/4"
7	GD16226	1	Sleeve, 3" O.D. x 1 25/32" x 29/32" Thick
	GD16303	2	Washer, 3" O.D. x 1 25/32" x 1/4" Thick
8	GA13673	1	Pivot Pin
9	GA11079	2	Hammer Strap, Category 3 And 3N
	G10007	2	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G10230	2	Lock Washer, 5/8"
10	GA12164	1	Hitch Bar
11	GD19468	1	Tapped Bar

(IP1033)



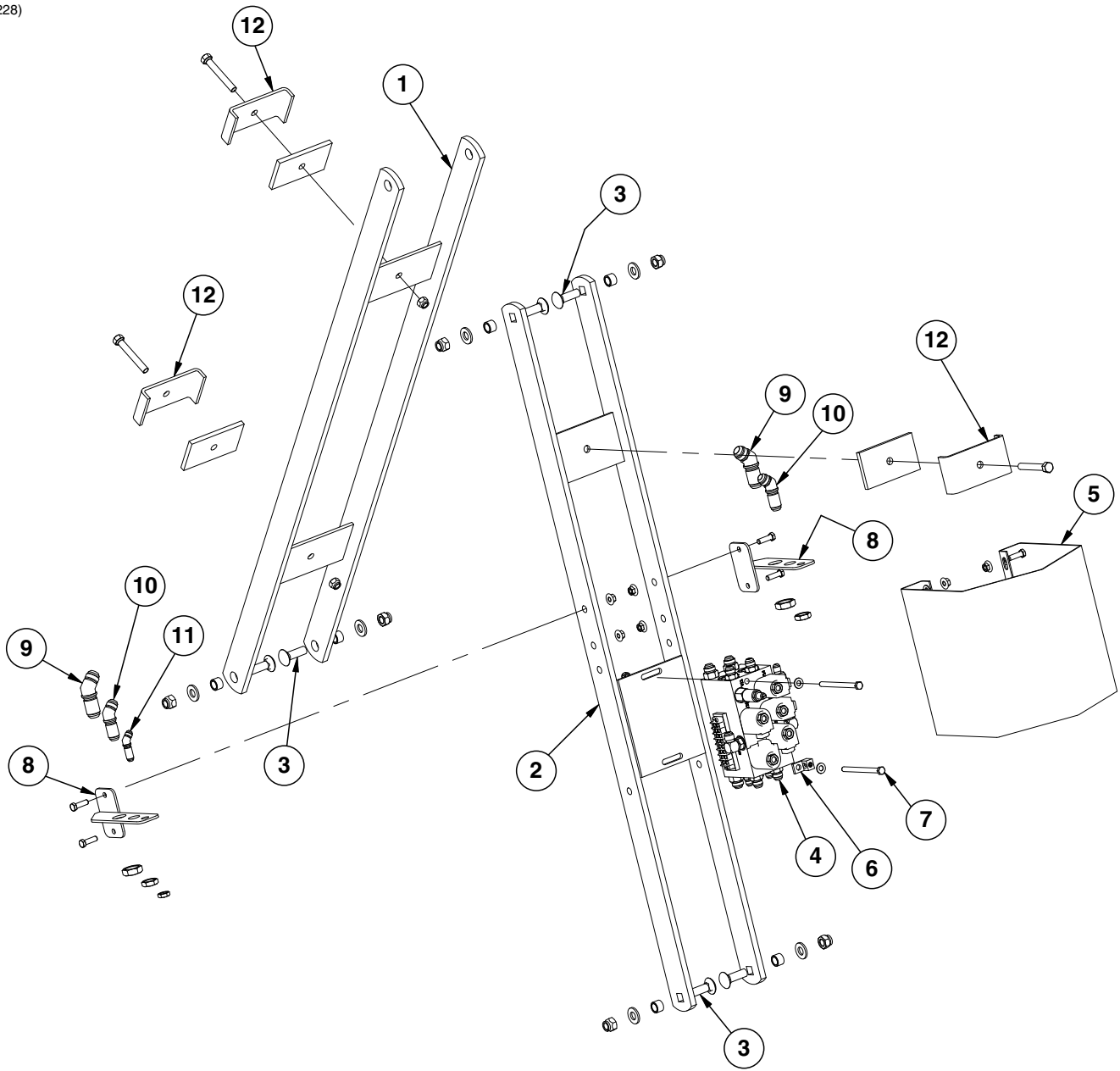
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13594	1	1/2" Safety Chain W/Hook
2	G10157	1	Lock Nut, 1 1/4"-7
3	G10494	1	Hex Head Cap Screw, 1 1/4"-7 x 3 1/2"
4	GD21307	1	Washer, 3 3/4"

(IP1227)



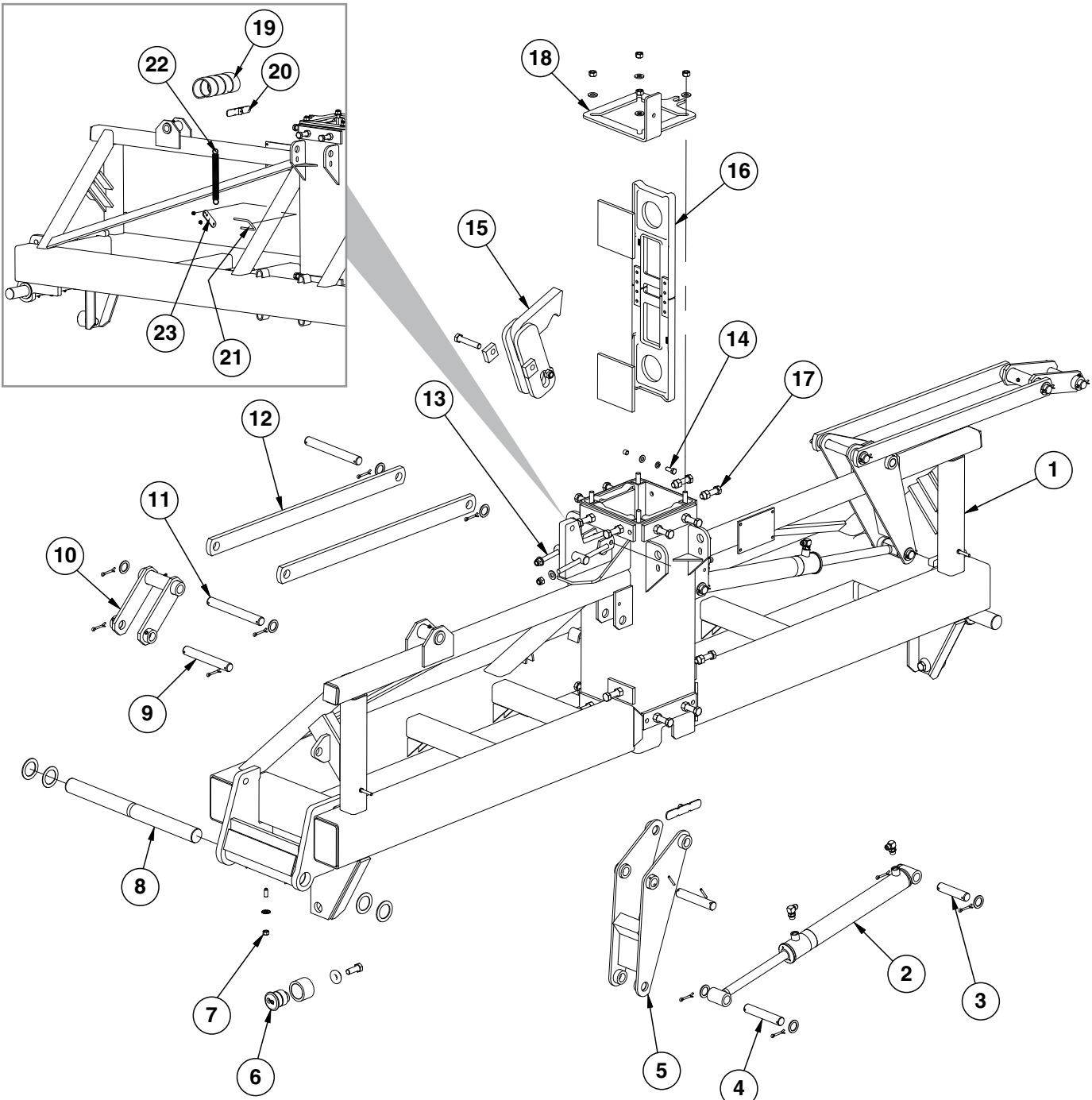
ITEM	PART NO.	QTY.	DESCRIPTION
1	A14309	1	Inner Hitch, 175 $\frac{3}{8}$ ", 12 Row 30" (Shown) (Non-Stock Item)
	A14307	-	Inner Hitch, 205 $\frac{3}{8}$ ", 16 Row 30" (Non-Stock Item)
2	GA7424	1	Tongue Hook W/Grease Fittings
	G10641	-	Grease Fitting, $\frac{1}{8}$ " NPT
3	GD5804	1	Pin, 1 $\frac{1}{4}$ " x 12", 12 Row
	GD7883	1	Pin, 1 $\frac{1}{4}$ " x 14 $\frac{1}{2}$ ", 16 Row
	G10468	2	Cotter Pin, $\frac{3}{8}$ " x 2"
4	GD8189	3	Rubber Strip, $\frac{3}{8}$ "
5	GD8188	3	Hose Clamp, $\frac{7}{8}$ " x 3" x 5 $\frac{3}{8}$ "
6	G11387	2	Flat Washer, $\frac{3}{8}$ " SAE
7	G10108	2	Lock Nut, $\frac{3}{8}$ "-16
8	G10111	1	Lock Nut, $\frac{1}{2}$ "-13
9	G10437	4	Hex Head Cap Screw, $\frac{3}{4}$ "-8 x 2 $\frac{1}{2}$ ", Grade 8
	G10436	4	Hex Nut, $\frac{3}{4}$ "-10
10	G10808	6	Hex Head Cap Screw, 1"-8 x 10", Grade 8
	G11394	8	Flat Washer, 1" SAE
	G10647	6	Hex Nut, 1"-8, Grade 8
11	GD5875	1	Hose Clamp, $\frac{9}{16}$ " x 2 $\frac{1}{2}$ " x 2"
12	G10101	1	Hex Nut, $\frac{3}{8}$ "-16
13	GD10530	1	U-Bolt, 2 $\frac{1}{8}$ " x 1 $\frac{7}{8}$ " x $\frac{3}{8}$ "-16
	G10101	2	Hex Nut, $\frac{3}{8}$ "-16
	G11091	2	Serrated Flange Nut, $\frac{3}{8}$ "-16
14	GD10538-01	1	Sleeve
	G11389	5	Flat Washer, $\frac{1}{2}$ " SAE
	G10585	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 3 $\frac{1}{4}$ "
	G10071	1	Serrated Flange Nut, $\frac{1}{2}$ "-13
15	G6400-06-08	2	Connector W/O-Ring, $\frac{9}{16}$ "-18 Male JIC To $\frac{3}{4}$ "-16 O-Ring
	GR1037	-	O-Ring
	G6502-06	1	Swivel Elbow, 45°, $\frac{9}{16}$ "-18 Male JIC To Female
16	GA9205	1	See "Tongue Lock Cylinder" on page P151
17	GD3537-20	1	Shaft, 1 $\frac{1}{4}$ " x 7 $\frac{1}{8}$ "
	G11230	2	Retaining Ring
18	GA13938	1	See "Tongue Cylinder" on page P153
	G6400-08	1	Connector W/O-Ring, $\frac{3}{4}$ "-16 Male JIC To O-Ring
	GR1037	-	O-Ring
19	GD0826	1	Pin, 1 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ "
	G10460	2	Cotter Pin, $\frac{1}{4}$ " x 2"
20	GB0246	1	Hitch Shoe
	GD3537-11	1	Shaft, 1 $\frac{1}{4}$ " x 7", 12 Row 30"
	GD3537-12	1	Shaft, 1 $\frac{1}{4}$ " x 8", 16 Row 30"
	G10131	1	Square Head Set Screw, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "
21	GD9959	2	Wear Pad, Nylatron, 4" x 4"
	GD5154	4	Shim, 4" x 4"
	G10014	4	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1", 12 Row 30"
	G10017	4	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{2}$ ", 16 Row 30"
	G11389	4	Flat Washer, $\frac{1}{2}$ " SAE, 16 Row 30"
22	GD18116	-	Roatation Bracket

(IP1228)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14322	-	Front Hose Take-Up, 41", 12 Row 30"
	GA14515	1	Front Hose Take-Up, 56", 16 Row 30" (Shown)
2	GA14323	-	Rear Hose Take-Up, 41", 12 Row 30"
	GA14514	1	Rear Hose Take-Up, 56", 16 Row 30" (Shown)
3	G10689	6	Carriage Bolt, 5/8"-11 x 2"
	GB0218	6	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
	G11391	6	Flat Washer, 5/8" SAE
	G10107	6	Lock Nut, 5/8"-11
4	---	1	See "Valve Block - Located on Hitch" on page P161
5	GD9952	1	Cover
	G10004	8	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11091	8	Serrated Flange Nut, 3/8"-16
6	GA3584	1	Ground Clamp
7	G10172	2	Hex Head Cap Screw, 3/8"-16 x 5"
	G11387	6	Flat Washer, 3/8" SAE
	G10108	2	Lock Nut, 3/8"-16
8	GA14519	2	Hose Take-Up Bulk Head
	G10004	4	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11091	4	Serrated Flange Nut, 3/8"-16
9	G2702-12	2	Bulkhead Elbow, 45°, 1 1/16"-12 Male JIC
	G306-12	2	Lock Nut, 1 1/16"-12
10	G2702-10	2	Bulkhead Elbow, 45°, 7/8"-14 Male JIC
	G306-10	2	Lock Nut, 7/8"-14
11	G2702-06	1	Bulkhead Elbow, 45°, 9/16"-18 Male JIC
	G306-06	1	Lock Nut, 9/16"-18
12	GD8188	3	Hose Clamp, 7/8" x 3" x 5 3/8"
	GD8189	3	Rubber Pad
	G11170	3	Hex Head Tap Bolt, 1/2"-13 x 3 1/2"
	G10111	3	Lock Nut, 1/2"-13

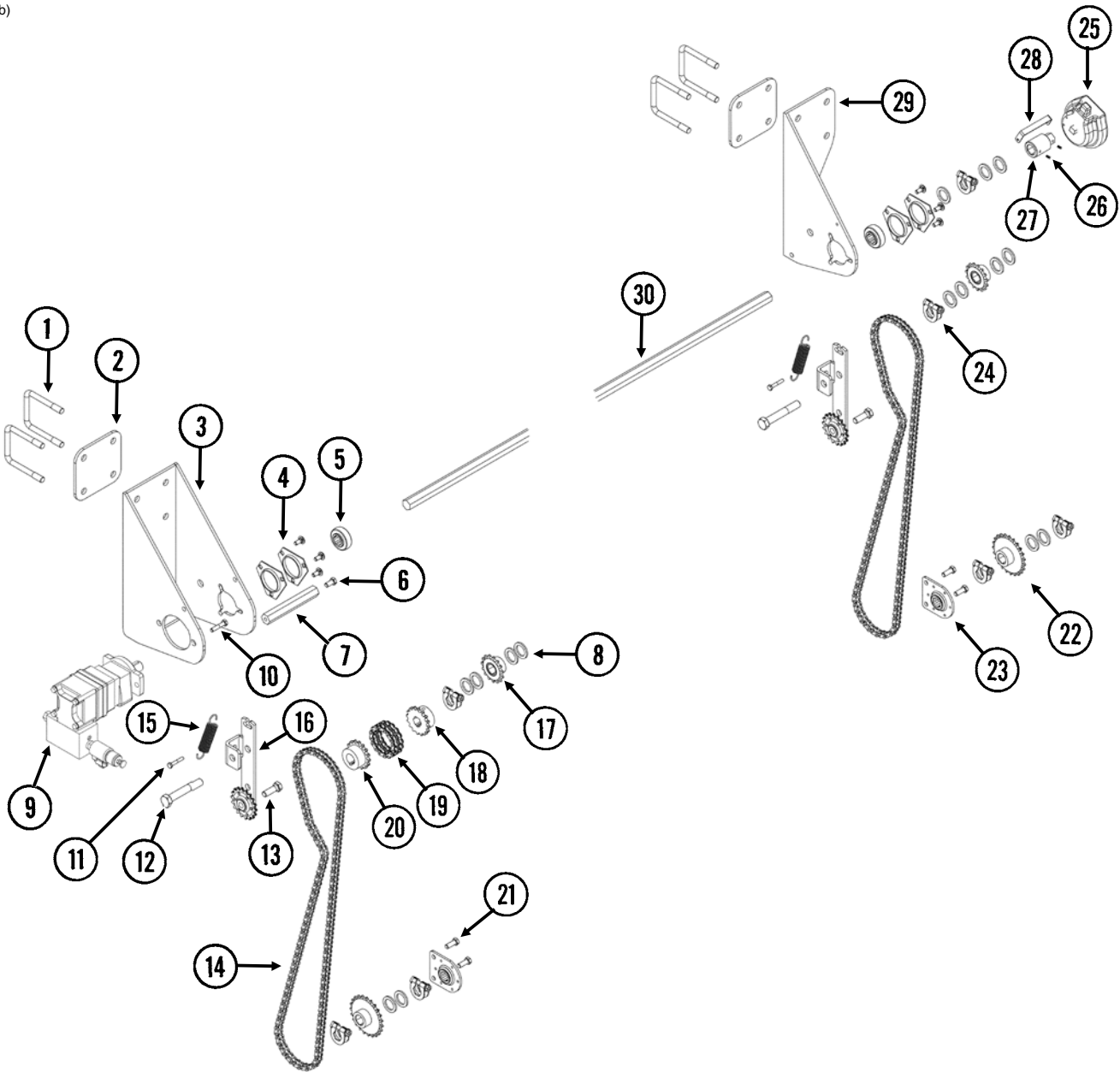
(IP1229)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14939	1	Center Frame W/Cam Follower Mounts (Non-Stock Item)
	GA6929	-	Cam Follower Mount, L.H.
	GA6928	-	Cam Follower Mount, R.H.
2	GA8899	2	See "Wing Lock Cylinder" on page P150
	G6801-08	4	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
3	GD0826	2	Pin, 1 1/4" x 5 1/2"
	G10159	4	Washer, 1 7/8"
	G10460	4	Cotter Pin, 1/4" x 2"

ITEM	PART NO.	QTY.	DESCRIPTION
4	GD9955	2	Pin, 1¼" x 7"
	G10460	4	Cotter Pin, ¼" x 2"
	G10159	4	Washer, 1⅞"
5	GA7019	2	Toggle Link
	GD9955	2	Pin, 1¼" x 7"
	G10606	4	Spring Pin, ¼"x 2"
6	GA6497	2	Cam Follower W/Grease Fitting
	G10640	-	Grease Fitting, ¼"-28
	GD10532	2	Sleeve
	GB0409	2	Spring Washer
	G10026	2	Hex Head Cap Screw, ¾"-10 x 2"
7	G10102	2	Hex Nut, ½"-13
	G10527	2	Lock Washer, ½" Internal/External
	G10828	2	Hex Socket Set Screw, ½"-13 x 1¼"
8	GD10531	2	Hinge Pin, 2⅛" x 25¾"
	G10336	4	Machine Bushing, 2⅛", 14 Gauge (As Required)
	G10234	4	Machine Bushing, 2⅛", 10 Gauge (As Required)
9	GD9963	2	Pin, 1¼" x 9"
	G10460	4	Cotter Pin, ¼" x 2"
10	GA7018	2	Link
11	GD9964	2	Pin, 1¼" x 10½"
	G10460	4	Cotter Pin, ¼" x 2"
	G10159	4	Washer, 1⅞"
12	GD9956	4	Wing Link Bar, 39⅞"
	GD9964	2	Pin, 1¼" x 10½"
	G10460	4	Cotter Pin, ¼" x 2"
	G10159	4	Washer, 1⅞"
13	GA6943	2	Spring Rod
	GD9870	1	Pin, 1¼" x 6"
	GD9898	1	Pin, 1¼" x 2⅞"
	GD10006	2	Spring
	G11391	2	Flat Washer, ⅝" SAE
	G10107	2	Lock Nut, ⅝"-11
14	G10037	2	Hex Head Cap Screw, ½"-13 x 1¼"
	G10228	2	Lock Washer, ½"
	G11389	2	Flat Washer, ½" SAE
	GD7904-02	2	Sleeve, ½" x ½" Long
15	GA7390	1	Safety Hook
	GD10492	2	Adjustment Block
	G10044	1	Hex Head Cap Screw, ¾"-10 x 4"
	G10112	1	Lock Nut, ¾"-10
16	GA7579	4	Pad Holder W/Bars
	GD10053	8	Wear Pad, 7" x 7", ½" Thick
17	GA11913	16	Hex Head Tap Bolt Assembly
	G10543	-	Hex Head Cap Screw, ¾"-10 x 3", Full Thread
	G10105	-	Hex Nut, ¾"-10
18	GD9968	1	Cap
	G11391	4	Flat Washer, ⅝" SAE
	G10104	4	Hex Nut, ⅝"-11
19	GD19383-02	1	Hose Wrap, 40"
20	GA13934	1	Hose Anchor
21	GD19212	1	U-Bolt, 2½" x ⅜"-16
	G10108	2	Lock Nut, ⅜"-16
22	GD0829	1	Spring
23	GD20696	1	Hose Anchor

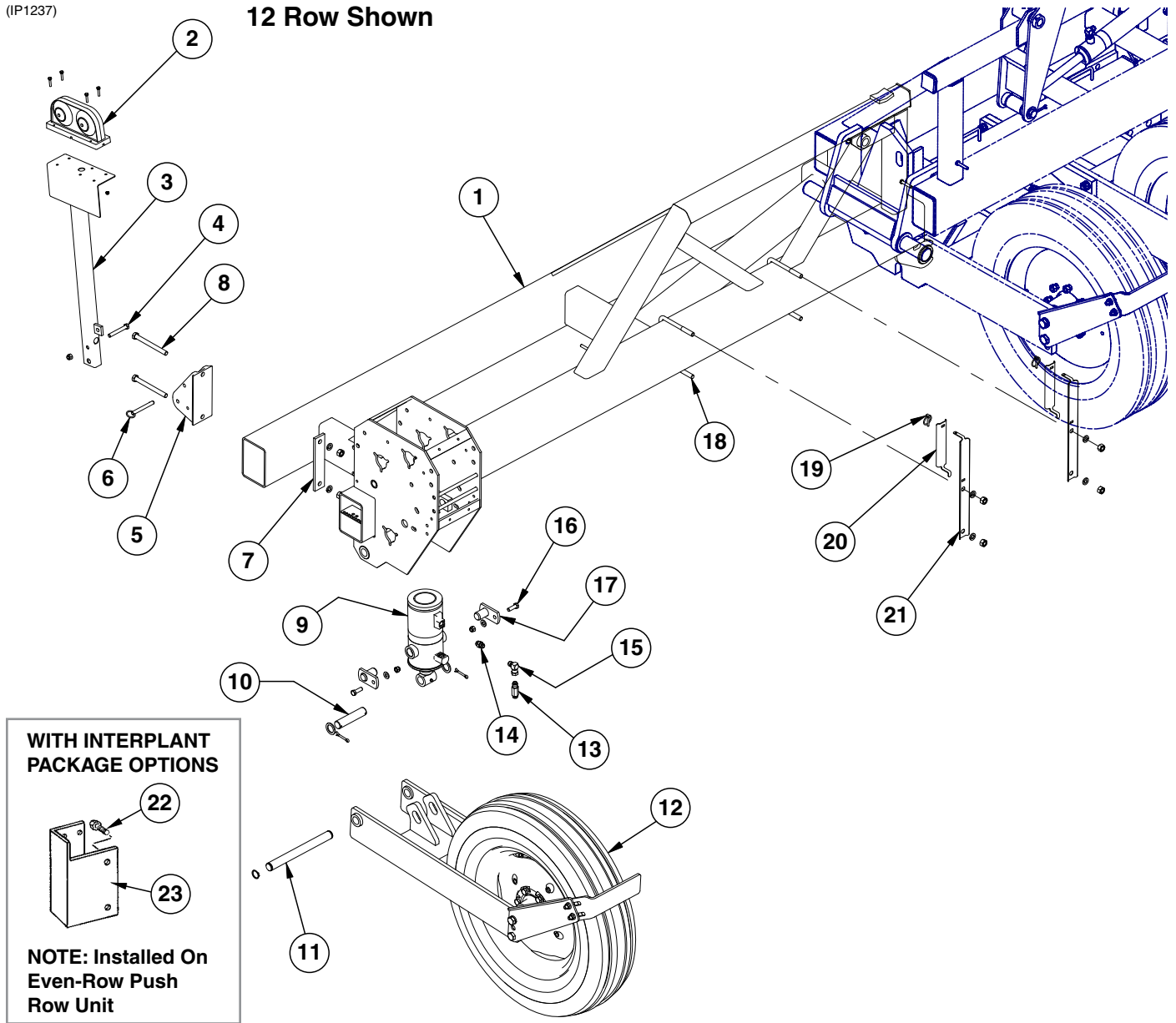
(VI56b)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD4743	4	U-Bolt, 3" x 3" x 1/2"-13
	G10102	8	Hex Nut, 1/2"-13
2	GD18114	2	Spacer Plate
3	GA12569	1	Motor Bracket
4	G3400-01	4	Flangette
5	G2100-03	2	Bearing, 7/8" Hex Bore, Spherical
6	G10002	2	Hex Head Cap Screw, 3/8"-16 x 3/4"
7	GD18326	1	Hex Spacer
8	G10233	15	Machine Bushing, 1", 10 Gauge
9	---		See "Hydraulic Motor Assembly (Mechanical)" on page P165 See "Hydraulic Motor Assembly (EdgeVac)" on page P166
10	G10133	2	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10232	2	Lock Washer, 5/16"
	G10106	2	Hex Nut, 5/16"-18
11	G10021	2	Hex Head Cap Screw, 1/4"-20 x 1 1/2"
	G10110	2	Lock Nut, 1/4"-20, Grade B
12	G10036	2	Hex Head Cap Screw, 5/8"-11 x 4"
	G10103	2	Hex Nut, 1/4"-20
13	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10102	2	Hex Nut, 1/2"-13
14	G3310-84	2	Chain, No. 40, 84 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
15	GD5857	2	Spring
16	GA9553	2	Idler W/Sprocket And Hardware
	GA7154	2	Sprocket W/Bearing, 19 Tooth
	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10128	2	Machine Bushing, 1/2", 14 Gauge
	G10501	2	Hex Jam Nut, 1/2"-13, Grade 2
	GD13422	2	Idler Arm
17	GA5105	2	Sprocket, 15 Tooth
18	GD16490	2	Coupler, 1" I.D.
19	G3317-16	1	Chain, Double No. 40, 16 Pitches
	GR1790	-	Connector Link, Double No. 40
20	GD16489	1	Coupler, 7/8" Hex
21	G10001	4	Hex Head Cap Screw, 3/8"-16 x 1"
	G10101	4	Hex Nut, 3/8"-16
22	GA5108	2	Sprocket, 23 Tooth (Mechanical)
	GA5114	2	Sprocket, 30 Tooth (EdgeVac)
23	GA2180	2	Hanger Bearing, 7/8" Hex Bore
24	GA11331	-	Hex Lock Clamp Assembly
25	GA12565	1	Encoder Module
26	G11242	2	Hex Socket Set Screw, 1/4"-20 x 3/8"
27	GA12661	1	Hex Adapter Encoder
28	GD18115	1	Encoder Bracket
29	GD18014	1	Carrier Bracket
30	GD0914-54.75	1	Hex Shaft, 7/8" x 54 3/4" (No Holes)

(IP1237)

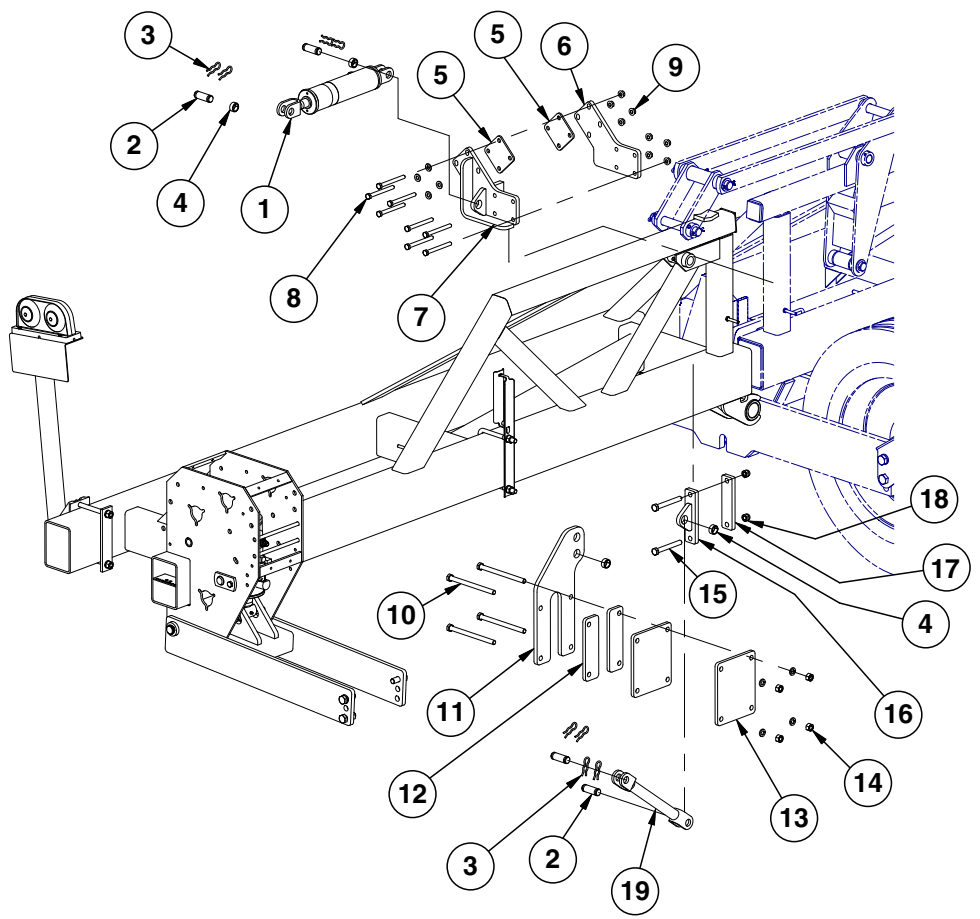
12 Row Shown



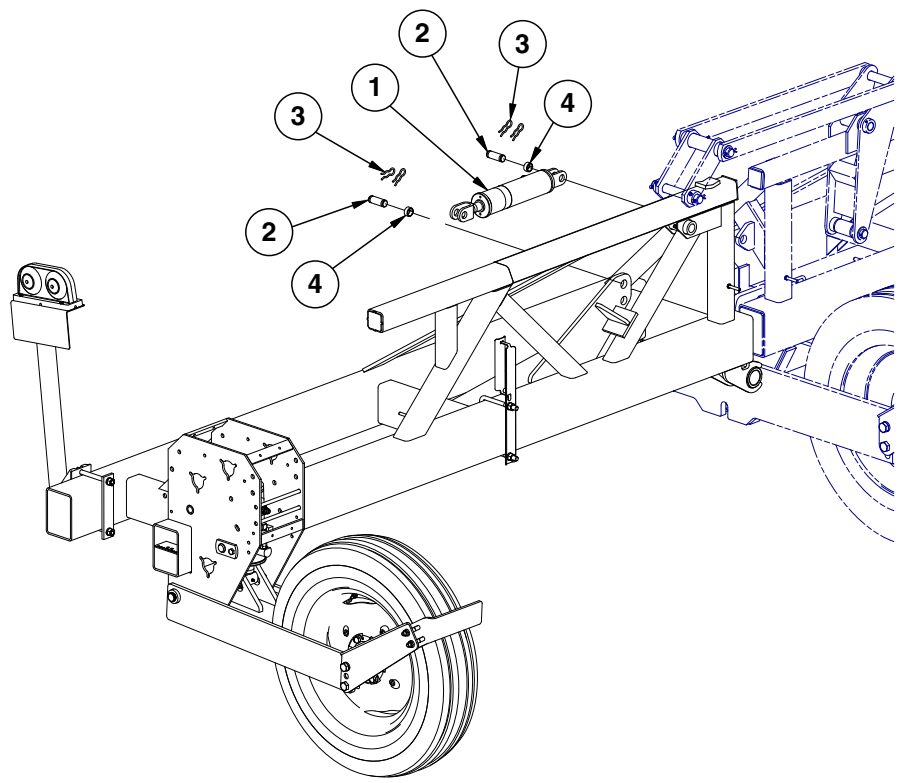
ITEM	PART NO.	QTY.	DESCRIPTION
1	A6905	1	Wing, L.H., 119¼", 12 Row 30" (Non-Stock Item)
	A6904	-	Wing, R.H., 119¼", 12 Row 30" (Non-Stock Item)
	A6892	-	Wing, R.H., 179¼", 16 Row 30" (Two Wheel Towers Per Wing) (Non-Stock Item)
	A6893	-	Wing, L.H., 179¼", 16 Row 30" (Two Wheel Towers Per Wing) (Non-Stock Item)
2	---	-	See "Electrical Components" on page P179
	G11330	4	Hex Head Cap Screw, ¼"-20 x 1¼"
	G10110	4	Lock Nut, ¼"-20, Grade B
3	GA9840	1	Light Bracket
4	G10033	1	Hex Head Cap Screw, ½"-13 x 3½"
	G10111	3	Lock Nut, ½"-13
5	GB0309	1	Light Mount Bracket
6	G10874	1	Detent Pin, ½" x 3½" Grip
7	GD1908	1	Mounting Bracket
8	G10012	2	Hex Head Cap Screw, ⅝"-11 x 6½"
	G10230	2	Lock Washer, ⅝"
	G10104	2	Hex Nut, ⅝"-11
9	---	-	See "Wing Lift Cylinder, 12 Row" on page P147
	---	-	See "Wing Lift Cylinder, 16 Row" on page P148
10	GD5841	1	Pin, 1¼" x 5⅝"
	G10159	2	Machine Bushing, 1¼", 10 Gauge
	G10460	2	Cotter Pin, ¼" x 2
11	---	-	See "Ground Drive Wheel (Prior to 2012 Production)" on page P113
			See "Ground Drive Wheel (2012 Production and on)" on page P115
12	---	-	See "Ground Drive Wheel (Prior to 2012 Production)" on page P113
			See "Ground Drive Wheel (2012 Production and on)" on page P115
13	G6400-L-08	1	Long Connector W/O-Ring, ¾"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
14	G6400-08	1	Connector W/O-Ring, ¾"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
15	G6500-08	1	Swivel Elbow, 90°, ¾"-16 Male JIC To Female
16	G10017	2	Hex Head Cap Screw, ½"-13 x 1½"
	G11389	2	Flat Washer, ½" SAE
	G10111	2	Lock Nut, ½"-13
17	GA14359	2	Cylinder Pin
18	GD1113	2	U-Bolt, 5" x 7" x ⅝"-11
	G10230	4	Lock Washer, ⅝"
	G10104	4	Hex Nut, ⅝"-11
19	GD2558	2	Lynch Pin, ¼"
20	GD20595	2	Short Hose Holder Mount
21	GD20593	2	Long Hose Holder Mount
22	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1"
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-16
23	GD12703	1	Push Row Unit Light Bracket
A	G7698X	-	Push Row Unit Mounted Light Bracket Package (Items 22 And 23 On This Page And 42" Harness Extension, Item 5 On page P179)

(IP1318)

Prior to 2012 Production

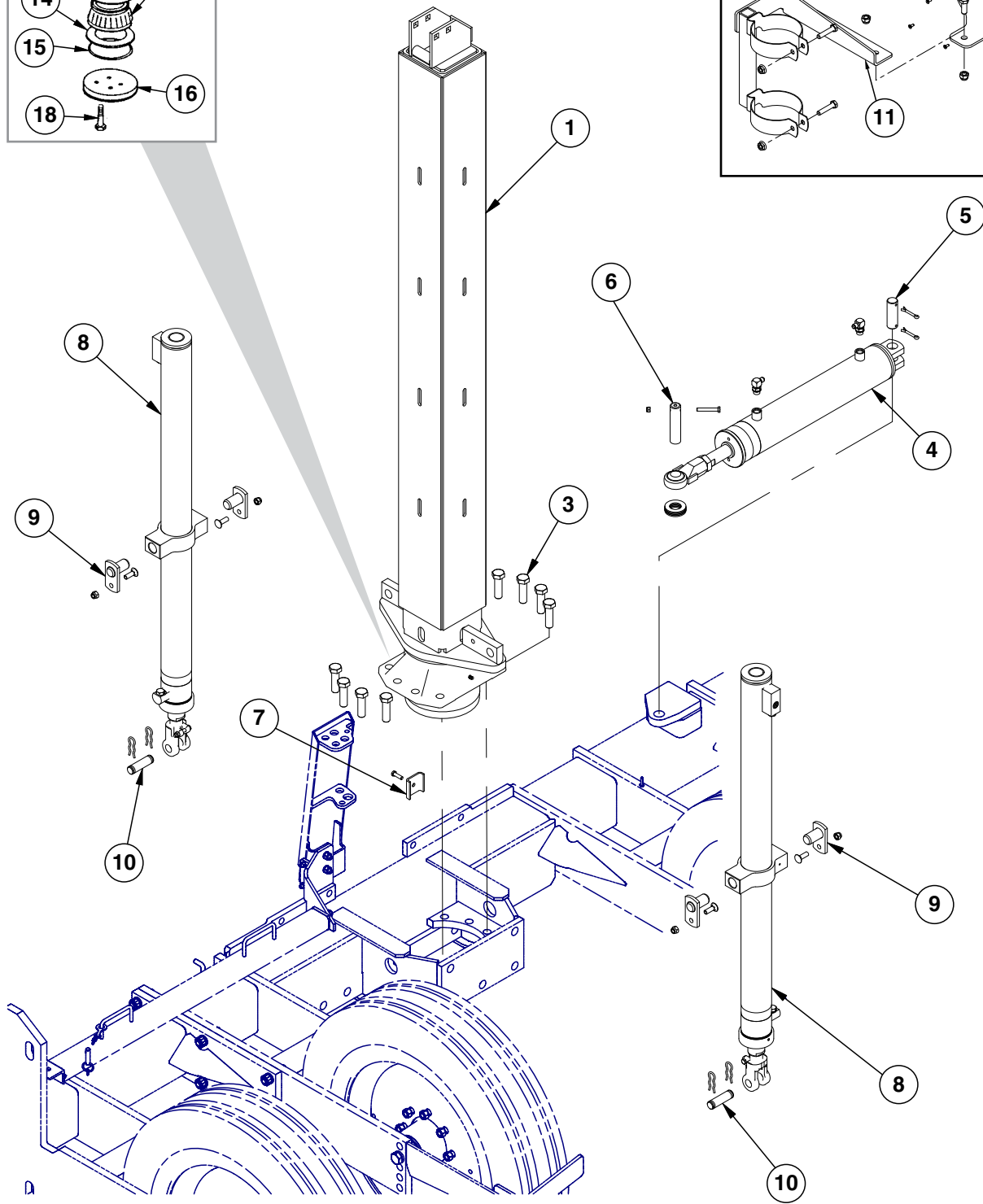
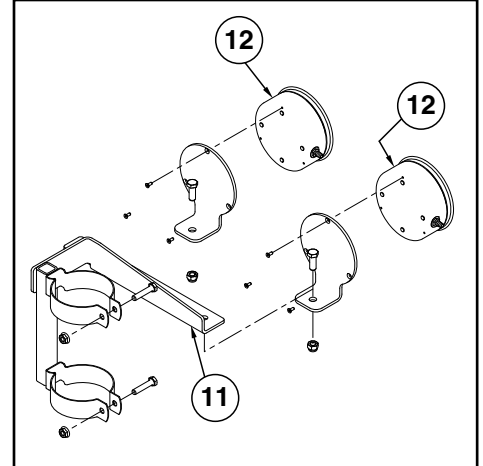
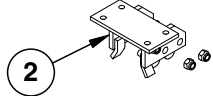
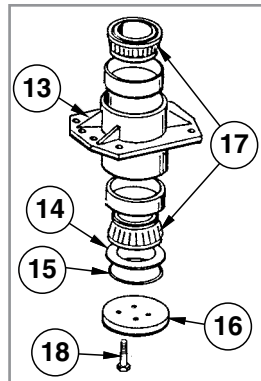


2012 Production and on



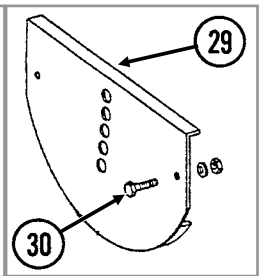
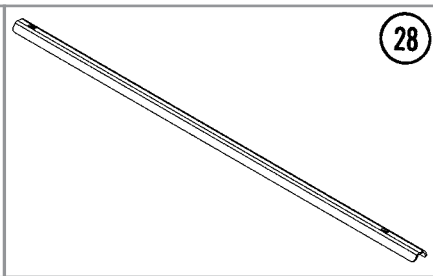
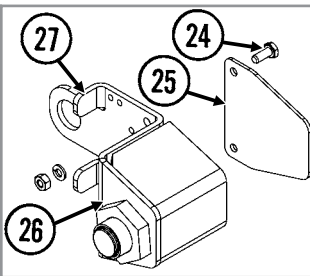
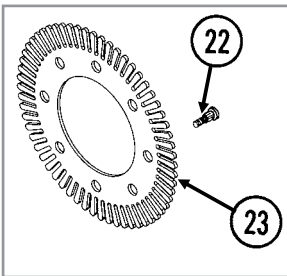
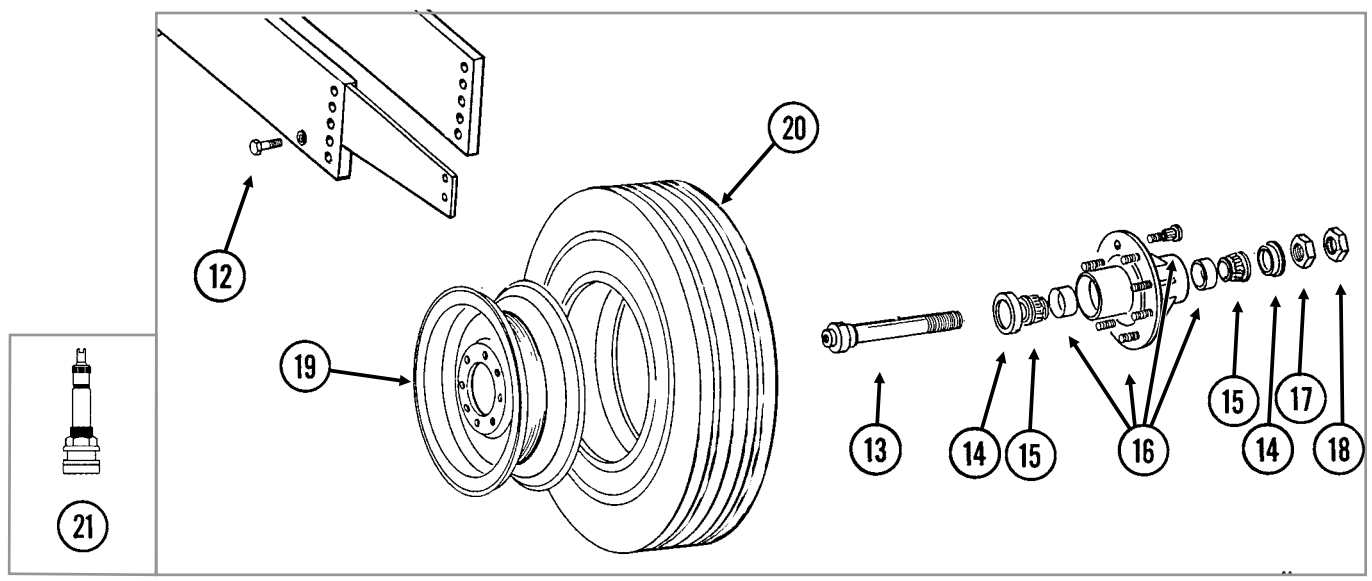
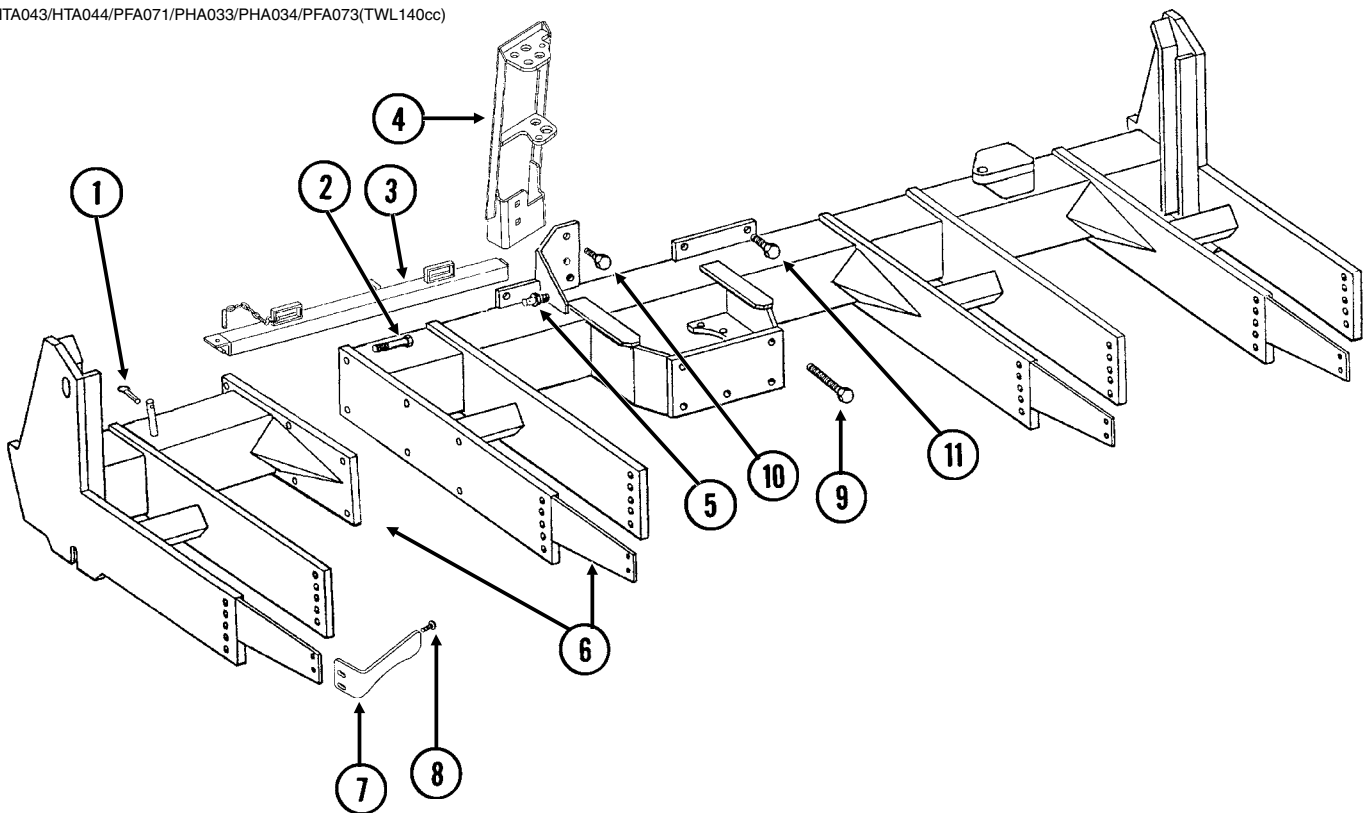
ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14481	2	See "Wing Down Pressure Cylinder" on page P152
2	GR0367	6	Pin, 1" x 27/8"
3	GR0193	12	Hair Pin Clip
4	GD18663	6	Tension Bushing, 1" I.D.
5	GD20964	2	Cylinder Mount Shim
6	GD20966	1	Cylinder Mount Backing Plate
7	GA14687	1	Cylinder Mount, L.H.
	GA14688	-	Cylinder Mount, R.H.
8	G10348	8	Hex Head Cap Screw, 1/2"-13 x 5"
8	G11389	4	Flat Washer, 1/2" Plated SAE
9	G10071	8	Serrated Flange Nut, 1/2"-13
10	G10093	4	Hex Head Cap Screw, 5/8"-11 x 8 1/2"
11	GD20960	1	Cylinder Mount Plate
12	GD20644	2	Spacer
13	GD20645	2	Backing Plate
14	G10104	4	Hex Nut, 5/8"-11
14	G10230	4	Lock Washer, 5/8"
15	G10046	2	Hex Head Cap Screw, 5/8"-11 x 5"
16	GA14690	1	Strut Mount
17	GD20967	1	Strut Mount Backing Plate
18	G10107	2	Lock Nut, 5/8"-11
19	GA14689	1	Wing Down Pressure Strut

(IP1230/IP1287)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA7540	1	Center Post
2	GA7236	1	Hook Stop
	G10689	4	Carriage Bolt, 5/8"-11 x 2"
	G10107	4	Lock Nut, 5/8"-11
3	G10441	8	Hex Head Cap Screw, 7/8"-9 x 3", Grade 8
	GD10063	8	Hardened Washer, 7/8"
	G10955	8	Hex Nut, 7/8"-9
4	GA8904	1	See "Rotation Cylinder" on page P146
	G6801-06-08	2	Elbow W/O-Ring, 90°, 9/16"-18 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
5	GD10064	1	Pin, 1 1/4" x 5 1/4"
	G10460	2	Cotter Pin, 1/4" x 2"
6	GD10092	1	Pin, 1 1/4" x 5 1/4"
	G10108	1	Lock Nut, 3/8"-16
	G10049	1	Hex Head Cap Screw, 3/8"-16 x 2 1/2"
	G11396	4	Flat Washer, 1 1/4"
7	GD5875	1	Hose Clamp, 9/16" x 2 1/2" x 2"
	G10004	1	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
8	GA14282	2	See "Center Lift Cylinder" on page P149
9	GA5121	4	Pin, 2 1/8"
	G10111	4	Lock Nut, 1/2"-13
	G10636	4	Carriage Bolt, 1/2"-13 x 1 1/2"
10	GR0375	2	Pin, 1" x 3 1/2"
	GR0193	4	Hair Pin Clip
11	GA14600	1	Pressure Gauge Mount
	G10133	2	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
	G10620	2	Serrated Flange Nut, 5/16"-18
12	---	-	See "Vacuum System" on page P55 See "ASD Fan System" on page P69
13	GA7067	1	Bearing Housing W/Cups, Less Grease Fitting
	GD10011	2	Cup
	G10779	1	Grease Fitting, 90°, 1/4"-28
14	GD10012	-	Shim, .005" Thick (As Required)
	GD10013	-	Shim, .020" Thick (As Required)
	GD10014	-	Shim, .007" Thick (As Required)
15	GD9130	1	O-Ring
16	GD9636	1	Bearing Cap
17	GA7096	2	Cone
18	G10027	4	Hex Head Cap Screw, 3/4"-10 x 2 1/2"
	GD2169	1	Special Washer, 25/32" I.D. x 1 1/4" O.D., Hardened

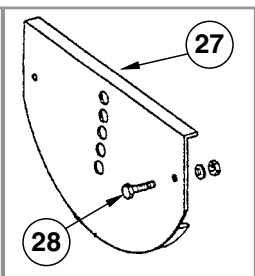
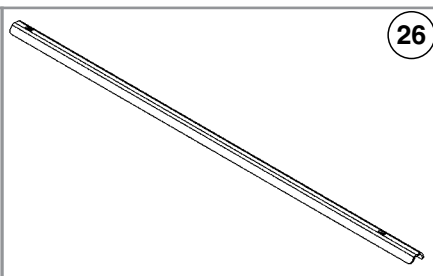
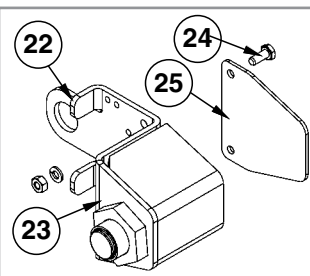
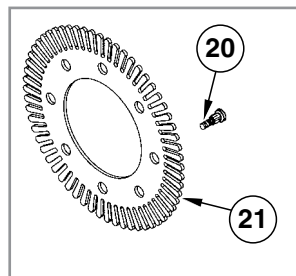
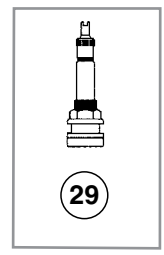
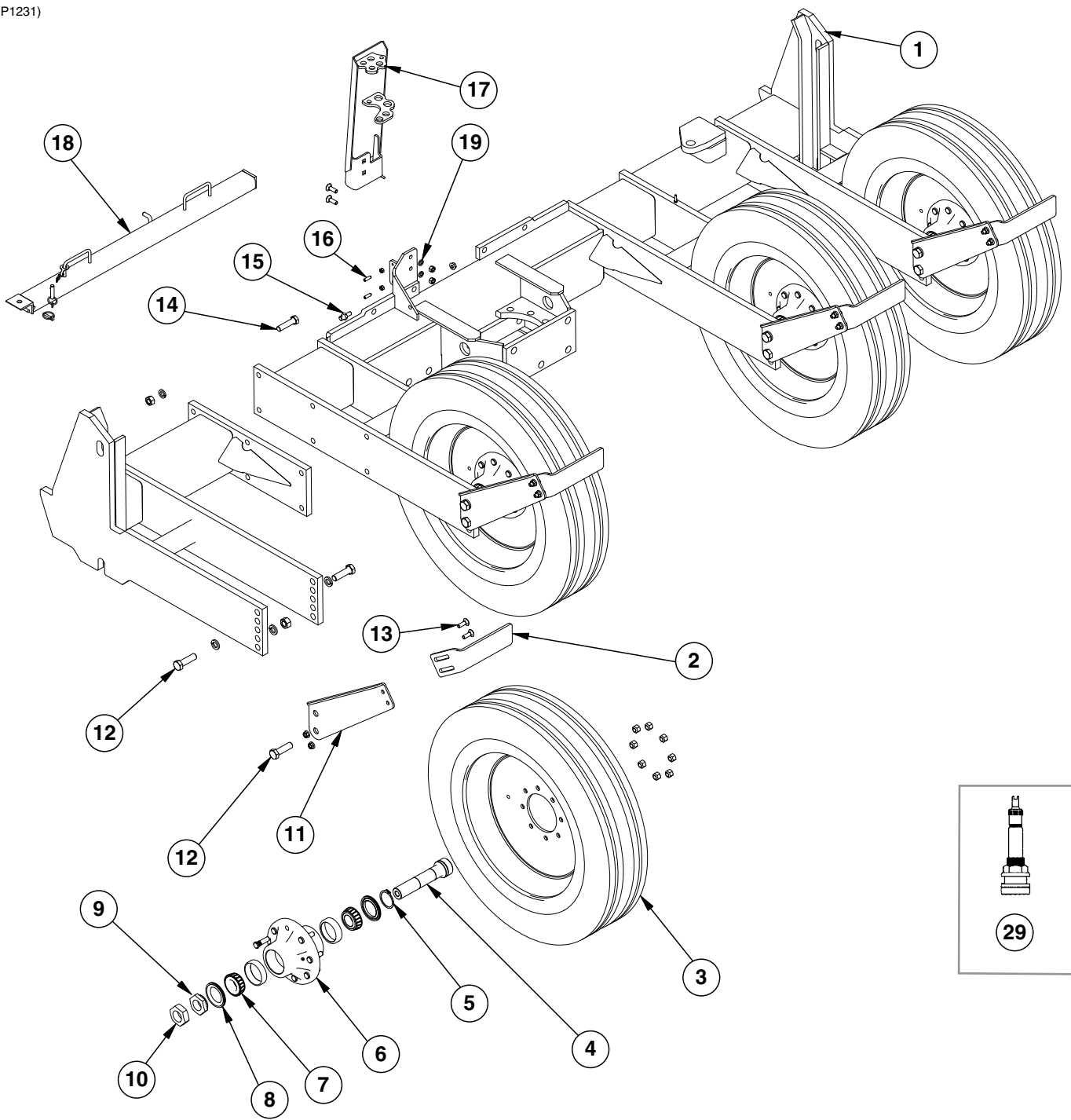
HTA043/HTA044/PFA071/PHA033/PHA034/PFA073(TWL140cc)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD2558	1	Lynch Pin, 1/4"
2	G10028	-	Hex Head Cap Screw, 3/4"-10 x 3"
	G10231	6	Lock Washer, 3/4"
	G10105	6	Hex Nut, 3/4"-10
3	GA7098	1	Manual Safety Lockup W/Detent Pin
	GA7022	1	Detent Pin W/Chain
	GD2558	1	Lynch Pin, 1/4"
4	GA11200	1	Bulkhead Mount
5	GD19655	1	Pin
	G10237	1	Lock Washer, 7/16"
	G10071	1	Serrated Flange Nut, 1/2"-13
6	GA14305	-	Axle W/Stub Axle, 12 Row 30" And 16 Row 30"
	GA9883	-	Stub Axle, Narrow Row
7	GD12543	-	Scraper
8	G10636	-	Carriage Bolt, 1/2"-13 x 1 1/2"
	G10071	-	Serrated Flange Nut, 1/2"-13
9	G10808	6	Hex Head Cap Screw, 1"-8 x 10", Grade 8
	G11394	6	Flat Washer, 1" SAE
	G10647	6	Hex Nut, 1"-8, Grade 8
10	G10636	-	Carriage Bolt, 1/2"-13 x 1 1/2"
	G10228	-	Lock Washer, 1/2"
	G10102	-	Hex Nut, 1/2"-13
11	G10437	4	Hex Head Cap Screw, 3/4"-8 x 2 1/2", Grade 8
	GD2169	4	Special Washer, 25/32" I.D. x 1 1/4" O.D., Hardened
	G10436	4	Hex Nut, 3/4"-10
12	G10441	2	Hex Head Cap Screw, 7/8"-9 x 3", Grade 8
	G10330	2	Lock Washer, 7/8"
13	GA4727	1	Spindle W/Retaining Ring, 1 3/4"
	GD11245	-	Spindle
	G10913	-	External Retaining Ring, 2 1/2"
14	GA4722	2	Seal
15	GA4723	2	Bearing
16	GA4729	1	Hub W/Cups, Bolts, Nuts And Grease Fitting, 8 Bolt, 1 3/4" Bore
	G10640	-	Grease Fitting, 1/4"-28
	GD7079	-	Cup
	GR0528	-	Stud, 5/8"-18 x 2 1/4", Grade 8
	GR1912	-	Lug Nut, 5/8"-18, Grade 5
17	GD7089	1	Special Nut, 1 3/4"-12 UNF
18	GD7864	1	Special Hex Nut, 1 3/4"-12 UNF
19	GA14516	-	Rim, 5.5" x 22.5", All Sizes
20	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)
21	GA7434	-	Valve Stem
22	GD18676	4	Lug Bolt, 5/8"-18 x 2 3/4" (If Applicable)
23	GD18643	1	Jump Start Wheel (If Applicable)
24	G10020	2	Hex Head Cap Screw, 1/4"-20 x 5/8" (If Applicable)
	G10227	2	Lock Washer, 1/4" (If Applicable)
	G10103	2	Hex Nut, 1/4"-20 (If Applicable)
25	GD18646	1	Sensor Bracket Cover (If Applicable)
26	GA13204	1	Hall Effect Sensor (If Applicable)
27	GA13227	1	Sensor Bracket (If Applicable)
28	GD18645	1	Cable Gaurd (If Applicable)
29	GA5716	-	Rock Guard (Optional)
30	G10037	-	Hex Head Cap Screw, 1/2"-13 x 1 1/4"
	G10228	-	Lock Washer, 1/2"
	G10102	-	Hex Nut, 1/2"-13
A	GA14517	-	Tire And Rim Assembly (Items 19-21) (Specify Brand*)
B	GA13214	-	Sensor Bracket Assembly (Items 24 - 27) (If Applicable)
C	GA4727	-	Spindle W/Retaining Ring, 1 3/4" (Items 4 and 5)

*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.

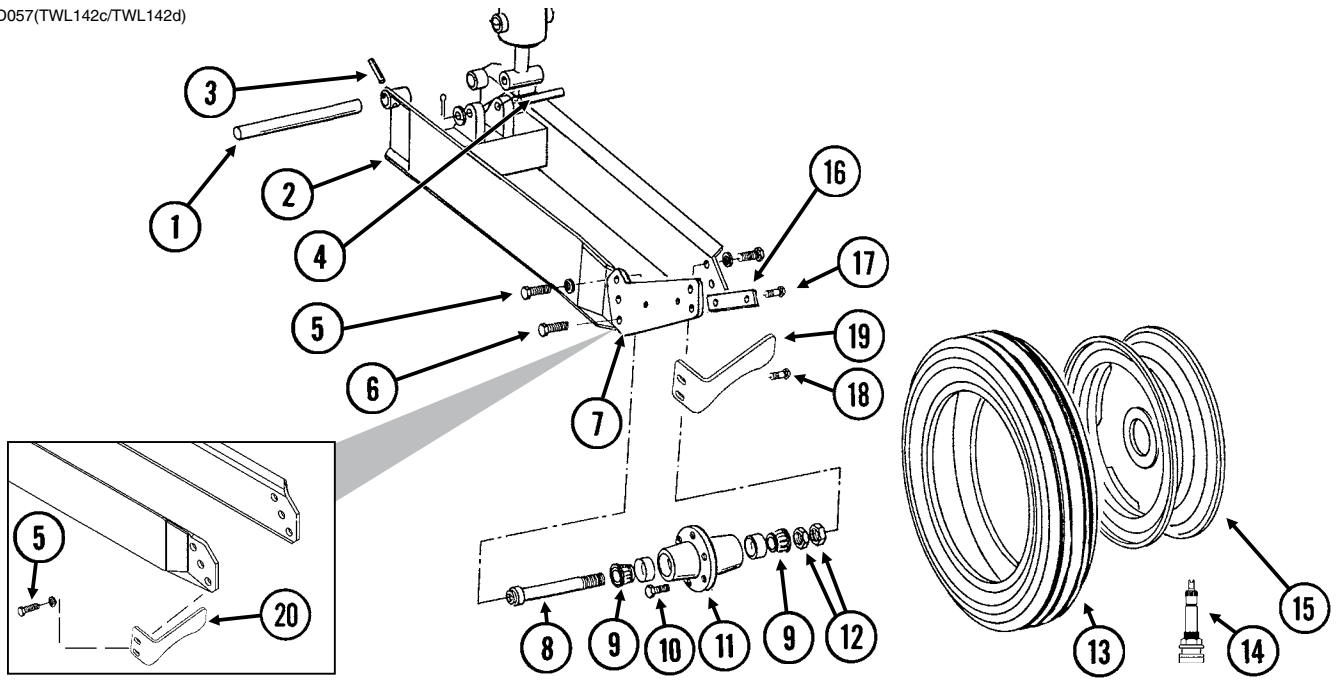
(IP1231)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14981	1	Axle, 12 Row and 16 Row
	GA9881	1	L.H. Narrow Axle Wheel Arm
2	GD20458	4	Slotted Scrapper
3	GD13409	-	Tire, 255-70R 22.5" W/O Center Rib, Tubeless (Specify Brand*)
	GA14516	-	Rim, 5.5" x 22.5", All Sizes
4	GD11245	4	Spindle Shaft
5	G10913	4	External Retaining Ring, 2½"
6	GA4729	4	Hub W/Cups, Bolts, Nuts And Grease Fitting, 8 Bolt, 1¾" Bore
	GR0528	8	Stud, ⅝"-18 x 2¼", Grade 8
	GD7079	2	Cup
	G10640	1	Grease Fitting, ¼"-28
	GR1912	8	Lug Nut, ⅝"-18, Grade 5
7	GA4723	8	Bearing
8	GA4722	8	Seal
9	GD7089	4	Special Nut, 1¾"-12 UNF
10	GD7864	4	Special Hex Nut, 1¾"-12 UNF
11	GD20457	4	Long Scrapper Arm
12	G10441	12	Hex Head Cap Screw, ⅞"-9 x 3", Grade 8
	G10330	12	Lock Washer, ⅞"
	G10955	4	Hex Nut, ⅞"-9
13	G10636	8	Carriage Bolt, ½"-13 x 1½"
	G10071	8	Serrated Flange Nut, ½"-13
14	G10028	6	Hex Head Cap Screw, ¾"-10 x 3"
	G10231	6	Lock Washer, ¾"
	G10105	6	Hex Nut, ¾"-10
15	GD19655	1	Pin
	G10071	1	Serrated Flange Nut, ½"-13
16	G10806	2	Hex Set Screw, ⅜"-16 x 1¼"
	G10101	2	Hex Nut, ⅜"-16
17	GA15258	1	Bulkhead Mount
18	GA7098	1	Manual Safety Lockup W/Detent Pin
	GA7022	1	Detent Pin W/Chain
	GD2558	1	Lynch Pin, ¼"
19	G10636	2	Carriage Bolt, ½"-13 x 1½"
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
20	GD18676	4	Lug Bolt, ⅝"-18 x 2¾" (If Applicable)
21	GD18643	1	Jump Start Wheel (If Applicable)
22	GA13227	1	Sensor Bracket (If Applicable)
23	GA13204	1	Hall Effect Sensor (If Applicable)
24	G10020	2	Hex Head Cap Screw, ¼"-20 x ⅝" (If Applicable)
	G10227	2	Lock Washer, ¼" (If Applicable)
	G10103	2	Hex Nut, ¼"-20 (If Applicable)
25	GD18646	1	Sensor Bracket Cover (If Applicable)
26	GD18645	1	Cable Gaurd (If Applicable)
27	GA5716	-	Rock Guard (Optional)
28	G10037	-	Hex Head Cap Screw, ½"-13 x 1¼"
	G10228	-	Lock Washer, ½"
	G10102	-	Hex Nut, ½"-13
29	GA7434	-	Valve Stem
A	GA14517	-	Tire And Rim Assembly (Items 3 and 29) (Specify Brand*)
B	GA13214	-	Sensor Bracket Assembly (Items 22 - 25) (If Applicable)
C	GA4727	-	Spindle W/Retaining Ring, 1¾" (Items 4 and 5)

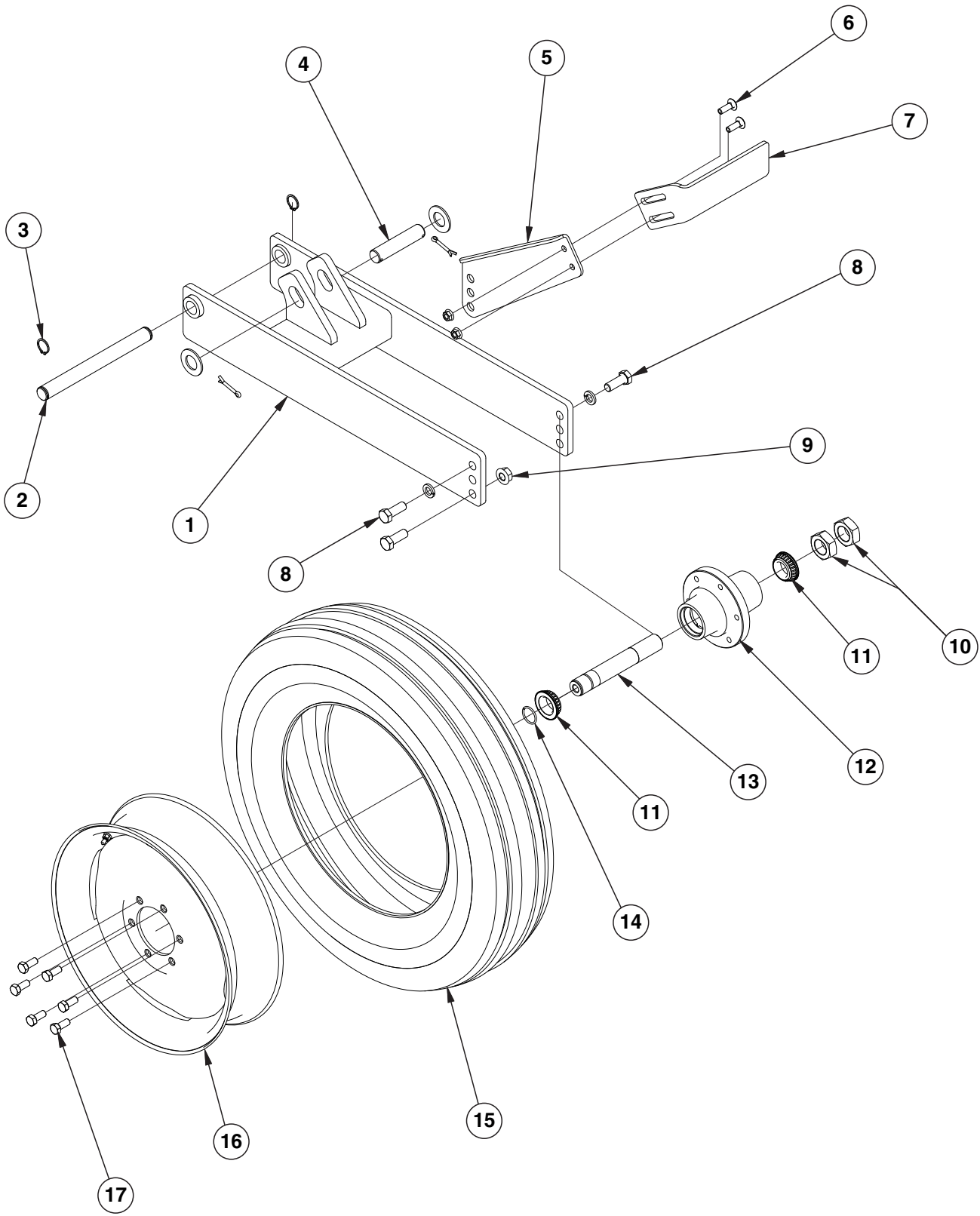
*Specific brand requests will be supplied only as available from current Kinze Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

PTD057(TWL142c/TWL142d)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GD11695	-	Pin, 1¼" x 13¼"
2	GA8677	1	Wheel Module
3	G10610	-	Spring Pin, ⅜" x 2"
4	GD5841	1	Pin, 1¼" x 5⅝"
	G11396	2	Flat Washer, 1 ¼"
	G10460	2	Cotter Pin, ¼" x 2"
5	G10026	2	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	2	Lock Washer, ¾"
6	G10026	2	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	2	Lock Washer, ¾"
	G10105	2	Hex Nut, ¾"-10
7	GD10128	1	Scraper Arm (If Applicable)
8	GA4376	1	Spindle W/Round External Retaining Ring, 10"
	GD11490	-	Round External Retaining Ring
9	GA0895	2	Bearing
10	GR0270	6	Lug Bolt, ⅞"-18
11	GA2148	1	Hub W/Cups, 6 Bolt
	GR0434	-	Cup
12	G11081	2	Hex Jam Nut, 1½"-12, Grade 2
13	GD13401	1	Tire, 7.50" x 20", 8 Ply, Tubeless W/O Center Rib (Specify Brand*)
14	GA7434	-	Valve Stem
15	GA14413	1	Rim, 5.5" x 20"
16	GD10144	1	Bar Clamp (If Applicable)
17	G10017	1	Hex Head Cap Screw, ½"-13 x 1½"
	G10039	1	Hex Head Cap Screw, ½"-13 x 1¾"
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
18	G10636	2	Carriage Bolt, ½"-13 x 1½"
	G11389	2	Flat Washer, ½" SAE
	G10228	2	Lock Washer, ½"
	G10102	2	Hex Nut, ½"-13
19	GD12543	1	Scraper
20	GA13335	1	Scraper
A	GA14412	-	Tire And Rim Assembly (Specify Brand*) (Items 13-15)
B	GA4377	-	Hub And Spindle Assembly (Items 8, 9, 11 And 12)

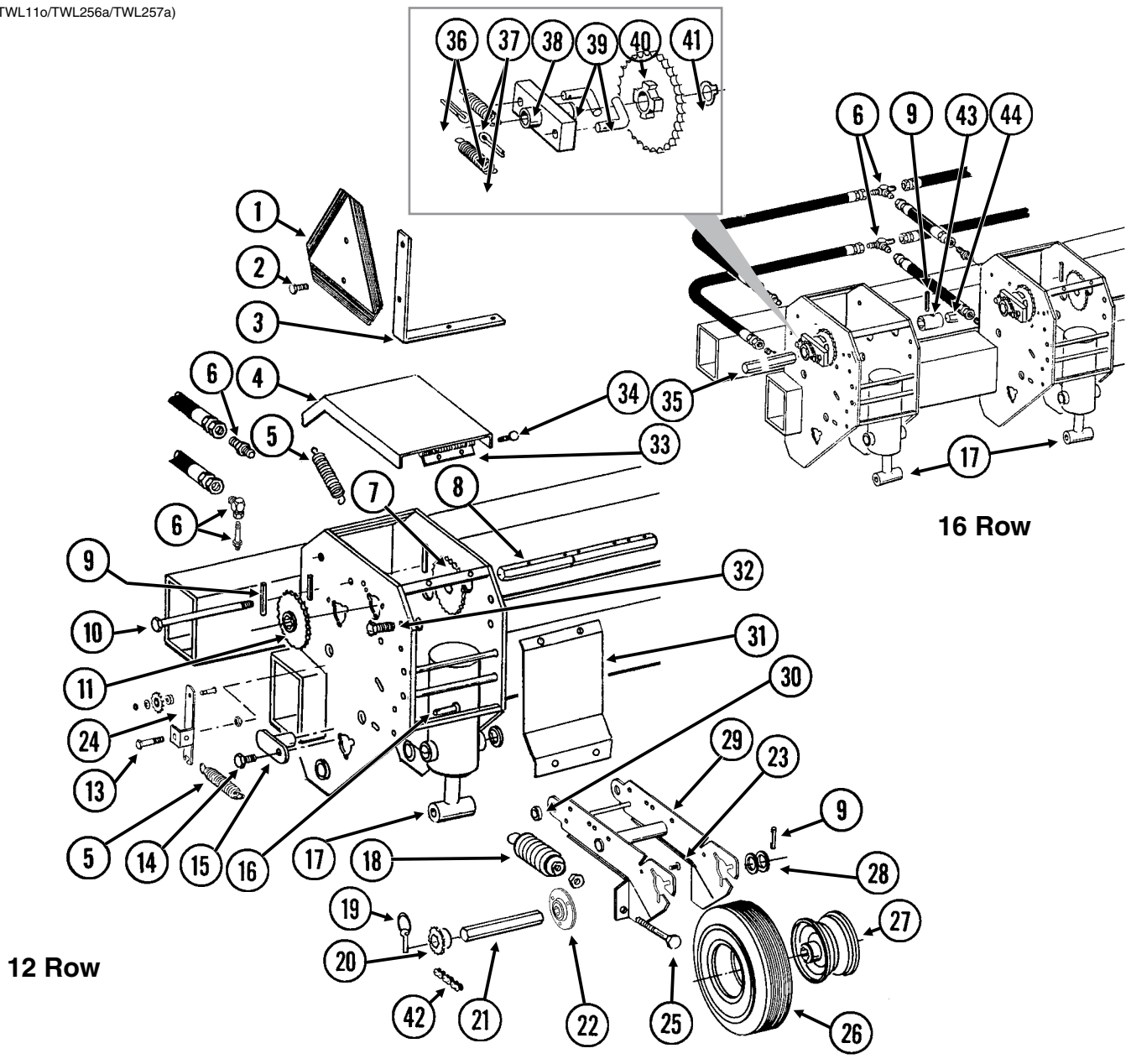
*Specific brand requests will be supplied only as available from current Kinze Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied.

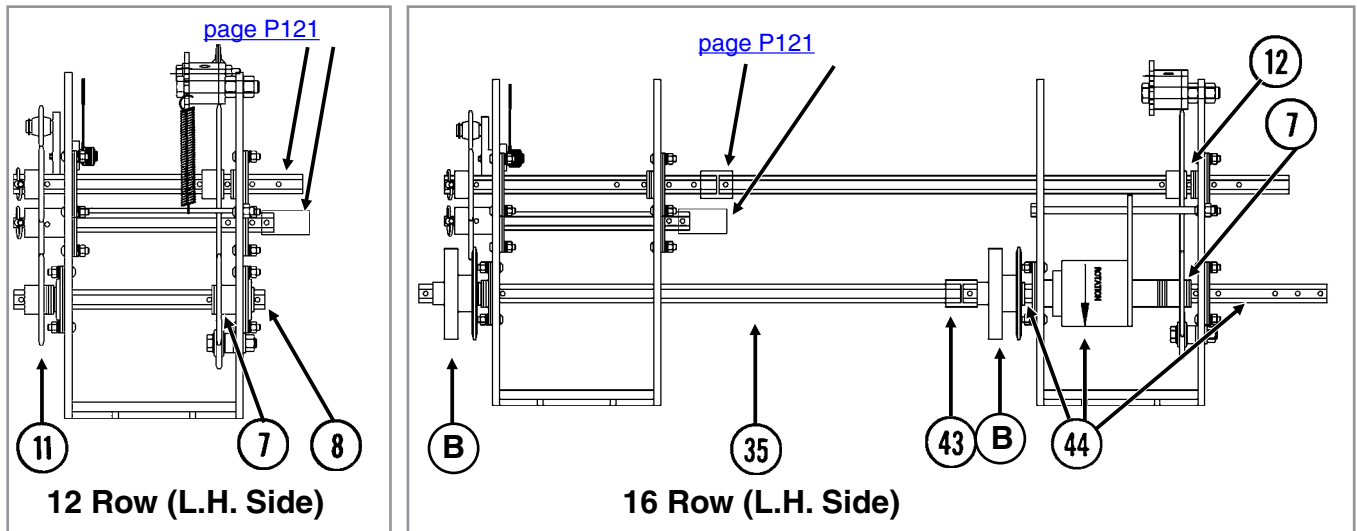


ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GA14349	1	Wheel Module
2	GD20461	1	Pin, 1¼" x 13"
3	G11400	2	Retaining Ring, 1¼"
4	GD5841	1	Pin, 1¼" x 5⅝"
	G11396	2	Flat Washer, 1¼" SAE
	G10460	2	Cotter Pin, ¼" x 2"
5	GD20456	1	Short Scraper Arm
6	G10636	2	Carriage Bolt, ½"-13 x 1½"
	G10071	2	Serrated Flange Nut, ½"-13
7	GD20458	1	Slotted Scraper
8	G10026	3	Hex Head Cap Screw, ¾"-10 x 2"
	G10231	2	Lock Washer, ¾"
9	G11314	1	Serrated Flange Nut, ¾"-10
10	G11081	2	Hex Jam Nut, 1½"-12, Grade 2
11	GA0895	2	Bearing
12	GA2148	1	Hub W/Cups, 6 Bolt
	GR0434	2	Cup
13	GA4376	1	Spindle W/Round External Retaining Ring, 10"
14	GD11490	1	Round External Retaining Ring
15	GD13401	1	Tire, 7.50" x 20", 8 Ply, Tubeless W/O Center Rib (Specify Brand*)
	GA7434	1	Valve Stem
16	GA14413	1	Rim, 5.5" x 20"
17	GR0270	6	Lug Bolt, ⅝"-18
A	GA14412	-	Tire And Rim Assembly (Specify Brand*) (Items 15 and 16)
B	GA4377	-	Hub And Spindle Assembly (Items 10-13)

***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.**

(TWL110/TWL256a/TWL257a)





ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GD2199	1	SMV Sign
2	G10064	2	Hex Head Cap Screw, 1/4"-20 x 1"
	G10061	2	Serrated Flange Nut, 1/4"-20
3	GD9969	1	Bracket
4	GD10298	1	Cover
5	GD5857	2	Spring
6	---	-	See "Hydraulic Hoses and Fittings on Planter Frame, 12 Row" on page P173 See "Hydraulic Hoses and Fittings on Planter Frame, 16 Row" on page P175
7	---	-	See "Inner Module Drive" on page P123
8	GD10543	1	Hex Shaft, 7/8" x 13", See "Point Row Clutch" on page P125 (For 12 Row Machines Equipped With Point Row Clutches)
9	G10602	4	Spring Pin, 1/4" x 1 1/2"
10	G10595	-	Hex Head Cap Screw, 3/8"-16 x 10" (Used To Secure Point Row Clutch)
	G10108	-	Lock Nut, 3/8"-16
11	GA5114	1	Sprocket, 30 Tooth
12	G10233	2	Machine Bushing, 1", 10 Gauge
	G10345	2	Machine Bushing, 1", 14 Gauge
13	G10036	1	Hex Head Cap Screw, 5/8"-11 x 4"
	G10104	1	Hex Nut, 5/8"-11
	G10107	1	Lock Nut, 5/8"-11
14	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G11389	2	Flat Washer, 1/2" SAE
	G10111	2	Serrated Flange Nut, 1/2"-13
15	GA5121	2	Pin, 2 1/8"
16	G10870	1	Clevis Pin, 3/8" x 1"
	G10860	1	Retaining Ring, 3/8"
17	---	-	See "Wing Lift Cylinder, 12 Row" on page P147 See "Wing Lift Cylinder, 16 Row" on page P148
18	GA2068	2	Spring W/Plug
19	GD2558	1	Lynch Pin, 1/4"
20	GA12192	1	Sprocket, 22 Tooth
	GA5113	1	Sprocket, 28 Tooth
	GA12191	-	Sprocket, 44 Tooth
21	GD6775	1	Hex Shaft, 7/8" x 11 3/4" (2 Holes)

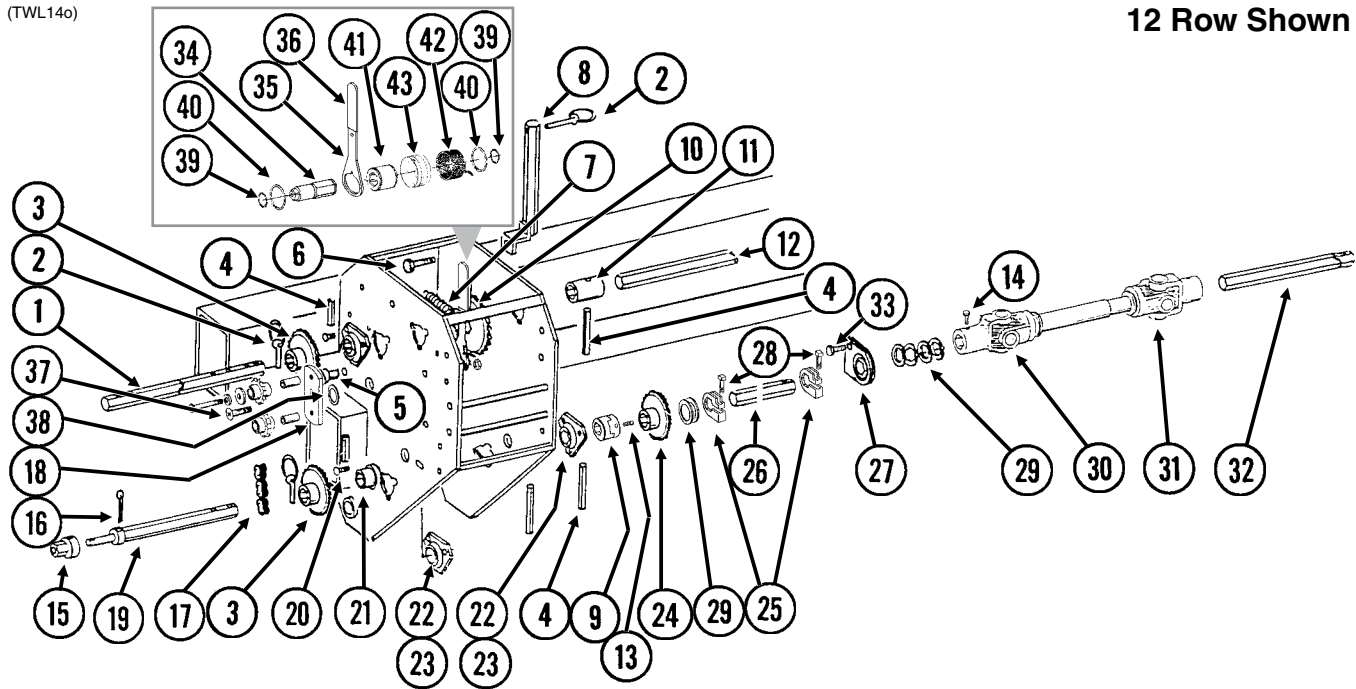
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
22	GA9846	-	Flanged Bearing, 7/8" Hex Bore
23	G10303	6	Carriage Bolt, 5/16"-18 x 1"
	G10232	6	Lock Washer, 5/16"
	G10106	6	Hex Nut, 5/16"-18
24	GA9553	1	Idler W/Sprocket And Hardware, L.H. Side Of Planter
	GA9554	-	Idler W/Sprocket And Hardware, R.H. Side Of Planter
	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
25	G10890	2	Hex Head Adjusting Bolt, 1/2"-13 x 4", Grade 2
	G10501	2	Hex Jam Nut, 1/2"-13, Grade 2
26	GD4700	1	Tire, 4.80" x 8", 4 Ply, Rib Implement (Specify Brand*)
27	GA3553	1	Rim, 3.75" x 8"
	GD4701	-	Valve Stem
28	G10233	-	Machine Bushing, 1", 10 Gauge
29	GA7372	1	Wheel Arm
30	GB0218	2	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
31	GD6895	1	Shield
32	G10004	2	Hex Head Cap Screw, 5/8"-11 x 1 1/4"
	G10235	6	Machine Bushing, 7/8", 14 Gauge
	G11391	2	Flat Washer, 5/8" SAE
	GB0218	2	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
	G10107	2	Lock Nut, 5/8"-11
33	GA13790	1	Slip Joint Hinge Assembly
34	G10064	6	Hex Head Cap Screw, 1/4"-20 x 1"
	G10621	6	Serrated Flange Nut, 1/4"-20
35	GD10099	-	Hex Shaft, 7/8" x 29 5/8"
36	G10453	2	Cotter Pin, 3/16" x 1"
37	GD1256	2	Spring
38	GA0378	1	Block And Hub Assembly
39	GD1255	2	L-Pin
40	GA5165	1	Sprocket, 30 Tooth
41	G10430	1	External Retaining Ring, 1 1/4"
42	G3310-114	1	Chain, No. 40, 114 Pitch Including Connector Link (Used With 22 Tooth Sprocket)
	G3310-118	-	Chain, No. 40, 118 Pitch Including Connector Link (Used With 28 Tooth Sprocket)
	G3310-126	-	Chain, No. 40, 126 Pitch Including Connector Link (Used With 44 Tooth Sprocket)
	GR0912	-	Connector Link, No. 40
43	GD5212	1	Coupler, 1 3/4", 16 Row 30" Only
44	---	-	See "Point Row Clutch" on page P125
A	GA3552	-	Tire And Rim Assembly (Items 26 And 27) (Specify Brand*)
B	GA5164	-	Ratchet/Sprocket Assembly, L.H. Side Of Planter (Items 36-41)
	GA9843	-	Ratchet/Sprocket Assembly, R.H. Side Of Planter (Items 36-41)
C	G1K324	-	Contact Wheel Arm Replacement Kit (Items 9, 21-23, 25, 28 And 29)

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

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(TWL14a)

12 Row Shown

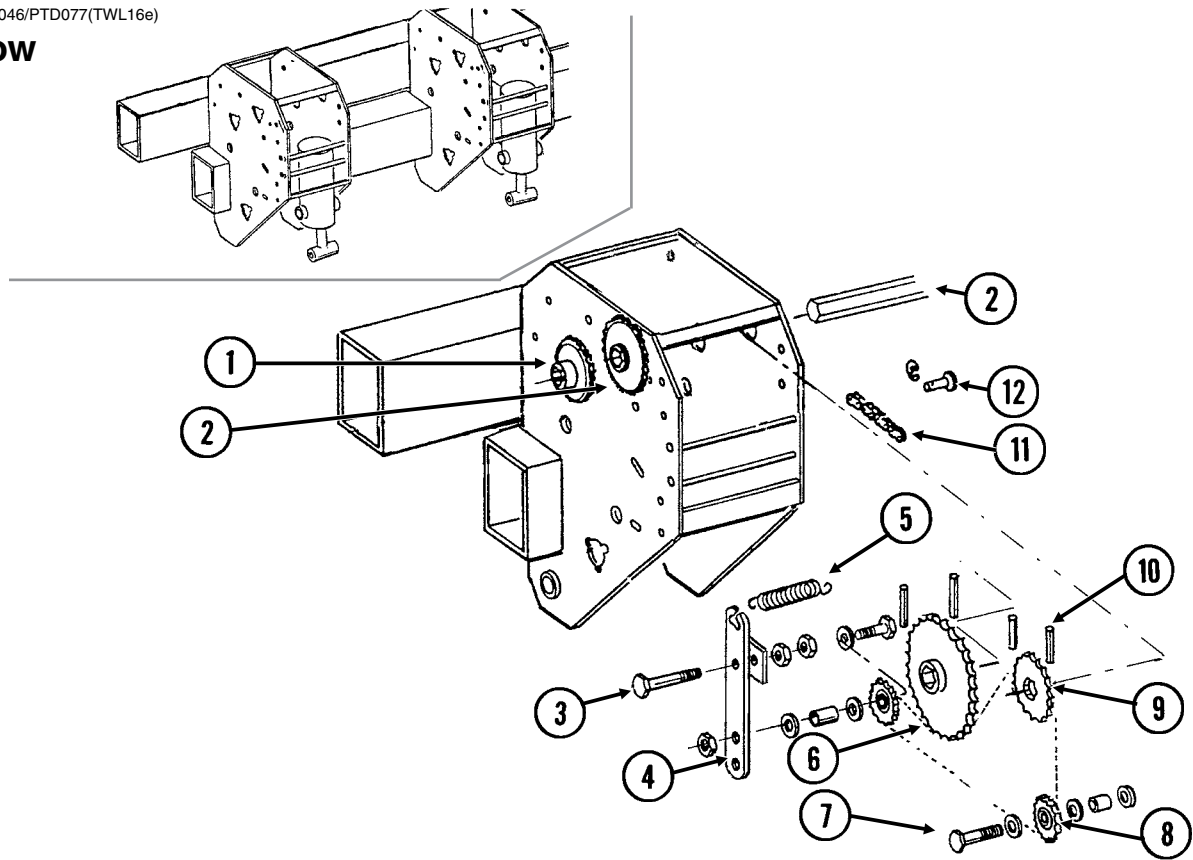


ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1	GD6780	1	Shaft, 7/8" x 15"
2	GD2558	3	Lynch Pin, 1/4"
3	GA5105	1	Sprocket, 15 Tooth
	GA5106	1	Sprocket, 17 Tooth
	GA5107	2	Sprocket, 19 Tooth
	GA5108	2	Sprocket, 23 Tooth
	GA5109	1	Sprocket, 24 Tooth
	GA5110	1	Sprocket, 25 Tooth
	GA5111	1	Sprocket, 26 Tooth
	GA5112	1	Sprocket, 27 Tooth
	GA5113	1	Sprocket, 28 Tooth
	GA5114	1	Sprocket, 30 Tooth
4	G10602	-	Spring Pin, 1/4" x 1 1/2"
5	G10870	1	Clevis Pin, 3/8" x 1"
	G10860	1	Retaining Ring, 3/8"
6	G10583	1	Hex Head Cap Screw, 1/2"-13 x 2 3/4"
	GD4887-14	1	Sleeve, 1" O.D. x 9/16" I.D. x 7/8"
	G10527	2	Lock Washer, 1/2", Internal/External
	G10111	1	Lock Nut, 1/2"-13
7	GD5857	1	Spring
8	GA10832	1	Sprocket Storage Rod
9	GB0287	2	Coupler
10	---	-	See "Inner Module Drive" on page P123
11	GD5212	1	Coupler, 1 3/4", 16 Row 30" Only
12	GD10100	1	Hex Shaft, 7/8" x 31 3/8", 16 Row 30" Only
13	G10131	4	Square Head Set Screw, 5/16"-18 x 3/4"
14	G10688	-	Square Head Set Screw, 3/8"-16 x 5/8"
15	GD7127	1	Shear Coupler
16	G10462	-	Cotter Pin, 3/16" x 2"
17	G3310-80	1	Chain, No. 40, 80 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40

ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
18	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	G10047	-	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	GD1026	-	Sleeve, 1 3/16" Long
	G11387	-	Flat Washer, 3/8" SAE
	G10229	-	Lock Washer, 3/8"
19	GD7612	1	Shaft, 7/8" x 13 1/2"
20	G10303	-	Carriage Bolt, 5/16"-18 x 1"
	G10620	-	Hex Nut, 5/16"-18
21	GA5548	1	Special Bearing
22	G3400-01	-	Flangette
23	G2100-03	-	Bearing, 7/8" Hex Bore, Spherical
24	GA8092	1	Clutch Sprocket Assembly, 19 tooth (See "Interplant Push Row Unit Drive" on page P51)
25	GD11045	-	Lock Clamp
26	GD0914-106.5	2	Hex Shaft, 7/8" x 106 1/2" (No Holes), Wing, 12 Row 30"
	GD0914-166.75	-	Hex Shaft, 7/8" x 166 3/4" (No Holes), Wing, 16 Row 30"
27	GA2180	-	Hanger Bearing, 7/8" Hex Bore
28	G10130	-	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G10923	-	Flange Nut, 5/16"-18, No Serration
29	G10233	-	Machine Bushing, 1", 10 Gauge
30	GA7052	-	U-Joint W/Grease Fitting, Female, 10 1/4" Long, 12 Row 30" And 16 Row 30"
	GR1557	-	Grease Fitting, 45°, Metric
	GR1298	-	Inboard Yoke And Outer Profile (18 1/4" U-Joint)
	GR1297	-	Inboard Yoke And Outer Profile (10 1/4" U-Joint)
	GR1294	-	Cross And Bearing Kit
	GR1293	-	Yoke, 7/8" Hex
31	GA7051	-	U-Joint W/Grease Fitting, Male, 12 1/4" Long
	GR1557	-	Grease Fitting, 45°, Metric
	GR1296	-	Inner Profile
	GR1295	-	Inboard Yoke
	GR1301	-	Spring Pin, 8 mm x 50 mm
	GR1294	-	Cross And Bearing Kit
	GR1293	-	Yoke, 7/8" Hex
32	GD0914-45	1	Hex Shaft, 7/8" x 45" (No Holes), R.H. Main Frame, 12 Row 30" and 16 Row 30"
	GD0914-35	-	Hex Shaft, 7/8" x 35" (No Holes), L.H. Main Frame, 12 Row 30" and 16 Row 30"
	GD0914-38	-	Hex Shaft, 7/8" x 38" (No Holes), L.H. Main Frame, 12 Row 30" and 16 Row 30"
33	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10229	2	Lock Washer, 3/8"
	G10101	-	Hex Nut, 3/8"-16
34	GD14426	1	Tightener Shaft, 3 3/8"
35	GD14431	1	Handle
36	G11078	1	Vinyl Cap
37	G11100	1	Hex Socket Button Head Cap Screw, 1/4"-20 x 1/2", Grade 8
	G10227	1	Lock Washer, 1/4"
	G11385	1	Flat Washer, 1/4" SAE
38	G10235	1	Machine Bushing, 7/8", 14 Gauge
39	G10496	2	External Inverted Snap Ring, 1 1/2"
40	G11075	2	External Inverted Snap Ring, 7/8"
41	GD14432	1	Sleeve, 1 1/4"
42	GD14414	1	Torsion Spring, R.H. (Used In L.H. Wrap Spring Wrench)(Shown)
	GD14413	-	Torsion Spring, L.H. (Used In R.H. Wrap Spring Wrench)
43	GD19344	-	Release Collar, Gray, L.H. (Shown)
	GD19343	1	Release Collar, Blue, R.H.
A	G1K269	-	Lock Clamp Kit (Items 25 And 28)
B	G1K381	-	Wrap Spring Wrench Replacement Kit, Gray Collar, L.H. (Items 34-43) (Shown)
	G1K380	-	Wrap Spring Wrench Replacement Kit, Blue Collar, R.H. (Items 34-43)

PTD058/PFA046/PTD077(TWL16e)

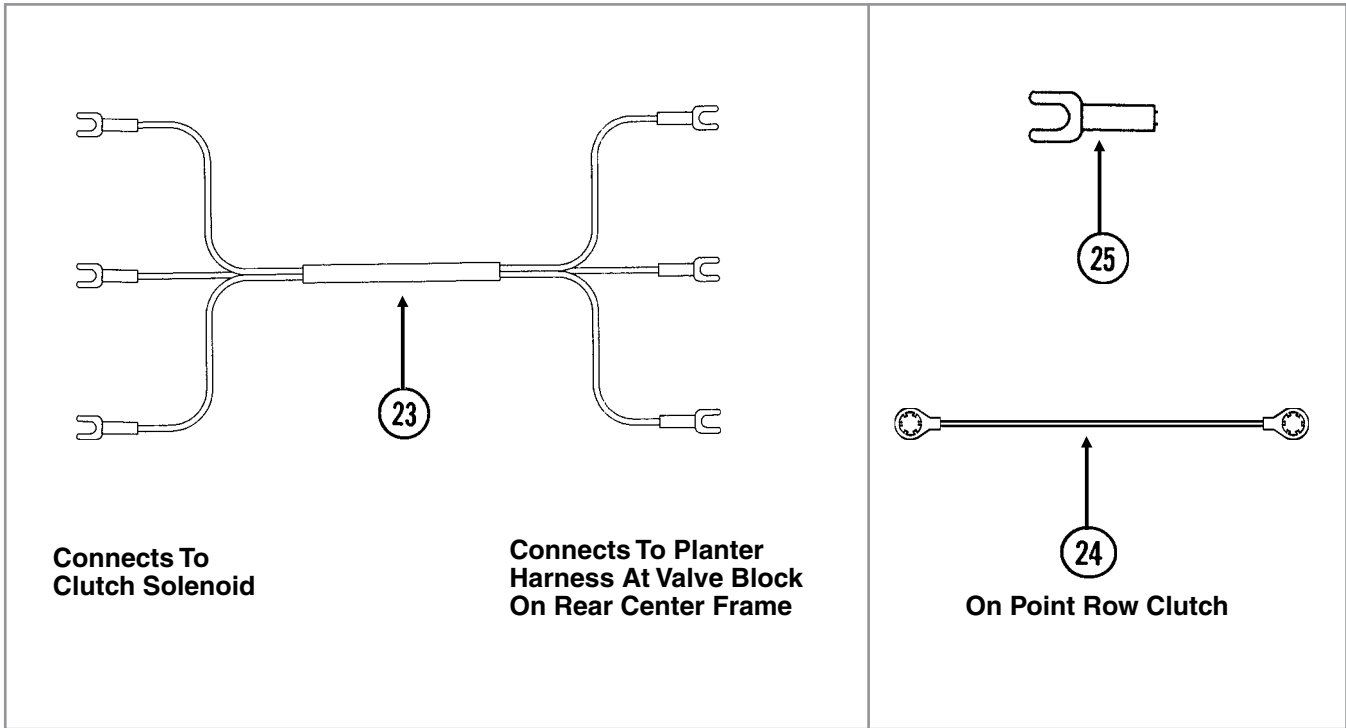
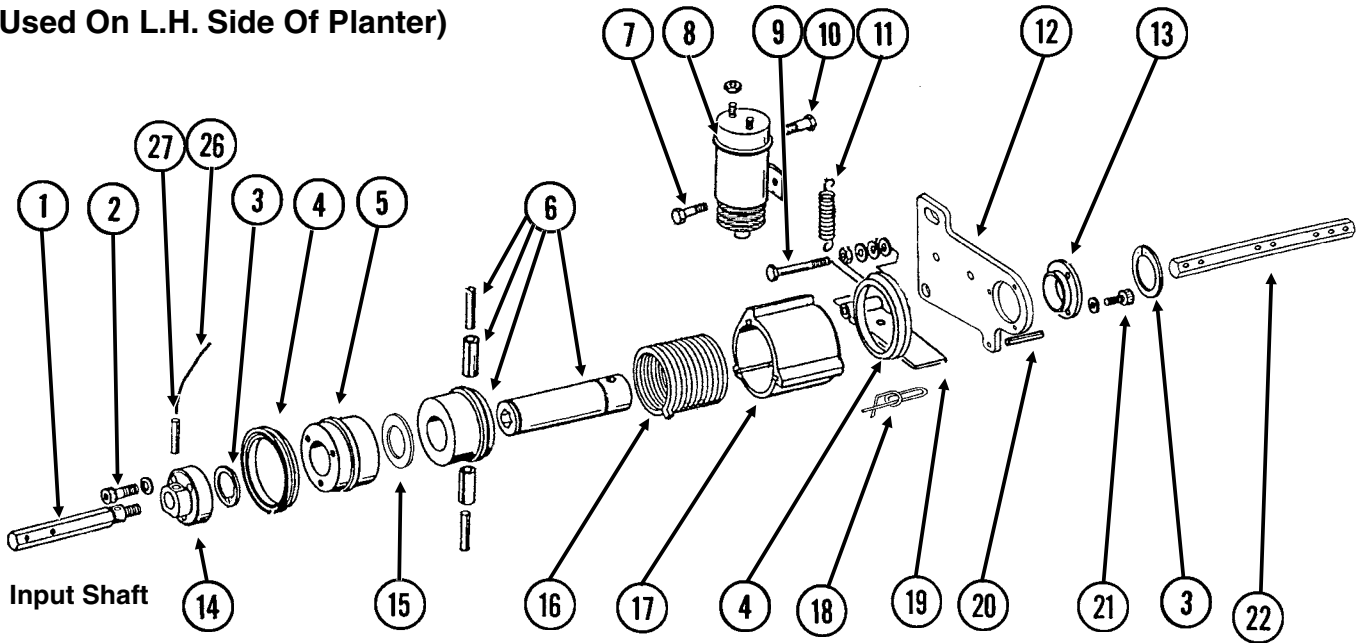
16 Row



ITEM	PART NO.	QTY. (Per Module)	DESCRIPTION
1	---	-	See "Seed Rate Transmission and Row Unit Drill Shafts" on page P121
2	---	-	See "Contact Wheel and Drive Shaft(s)" on page P117
3	G10743	1	Hex Head Cap Screw, 5/8"-11 x 3 3/4"
	G10918	3	Machine Bushing, 5/8", 14 Gauge (As Required)
	G10503	1	Hex Jam Nut, 5/8"-11, Grade 2
	G10107	1	Lock Nut, 5/8"-11
4	GA9558	1	Idler W/Sprocket And Hardware, L.H. Side Of Planter
	GA9557	-	Idler W/Sprocket And Hardware, R.H. Side Of Planter
	GA7154	-	Sprocket W/Bearing, 18 Tooth
	G10038	-	Hex Head Cap Screw, 1/2"-13 x 3"
	GD10007	-	Spacer, 1 1/8" Long
	G11389	-	Flat Washer, 1/2" SAE
	G10111	-	Lock Nut, 1/2"-13
5	GD5857	1	Spring
6	GA5194	1	Sprocket, 50 Tooth
7	G10581	1	Hex Head Cap Screw, 1/2"-13 x 2 1/4"
	GD7889	1	Bushing, 1" O.D. x 9/16" I.D. x 7/16" Long
	G10168	2	Machine Bushing, 1/2", 7 Gauge
	G10205	2	Washer, 5/8" SAE
	G10111	1	Lock Nut, 1/2"-13
8	GA7154	1	Sprocket W/Bearing, 18 Tooth
9	GA5113	1	Sprocket, 28 Tooth
10	G10602	-	Spring Pin, 1/4" x 1 1/2"
11	G3310-100	1	Chain, No. 40, 100 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
12	G10870	1	Clevis Pin, 3/8" x 1"
	G10860	1	Retaining Ring, 3/8"

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

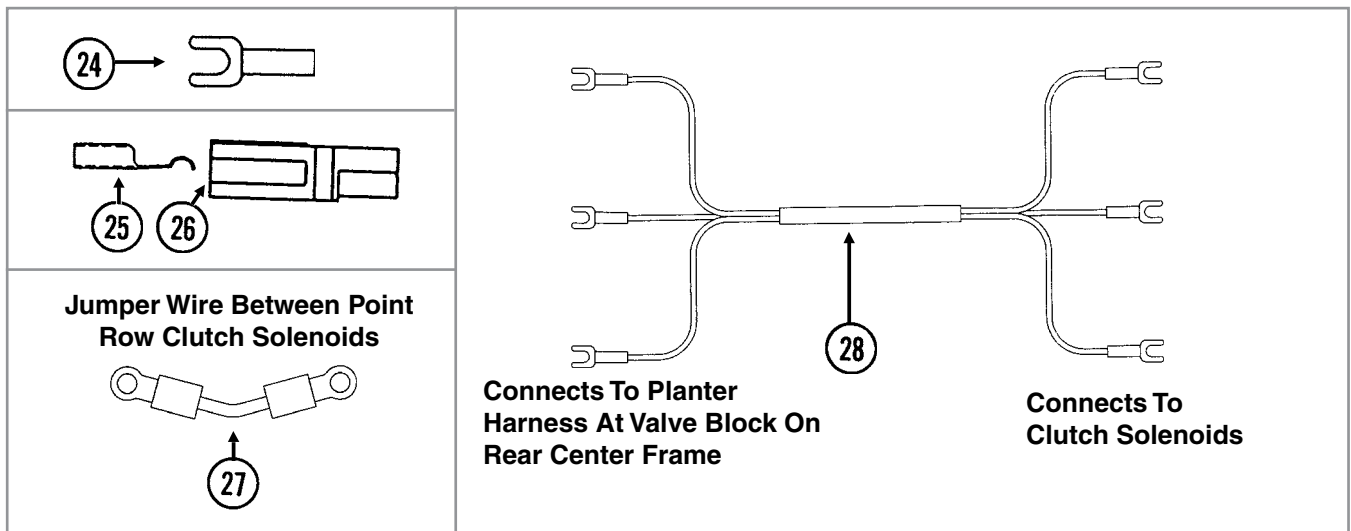
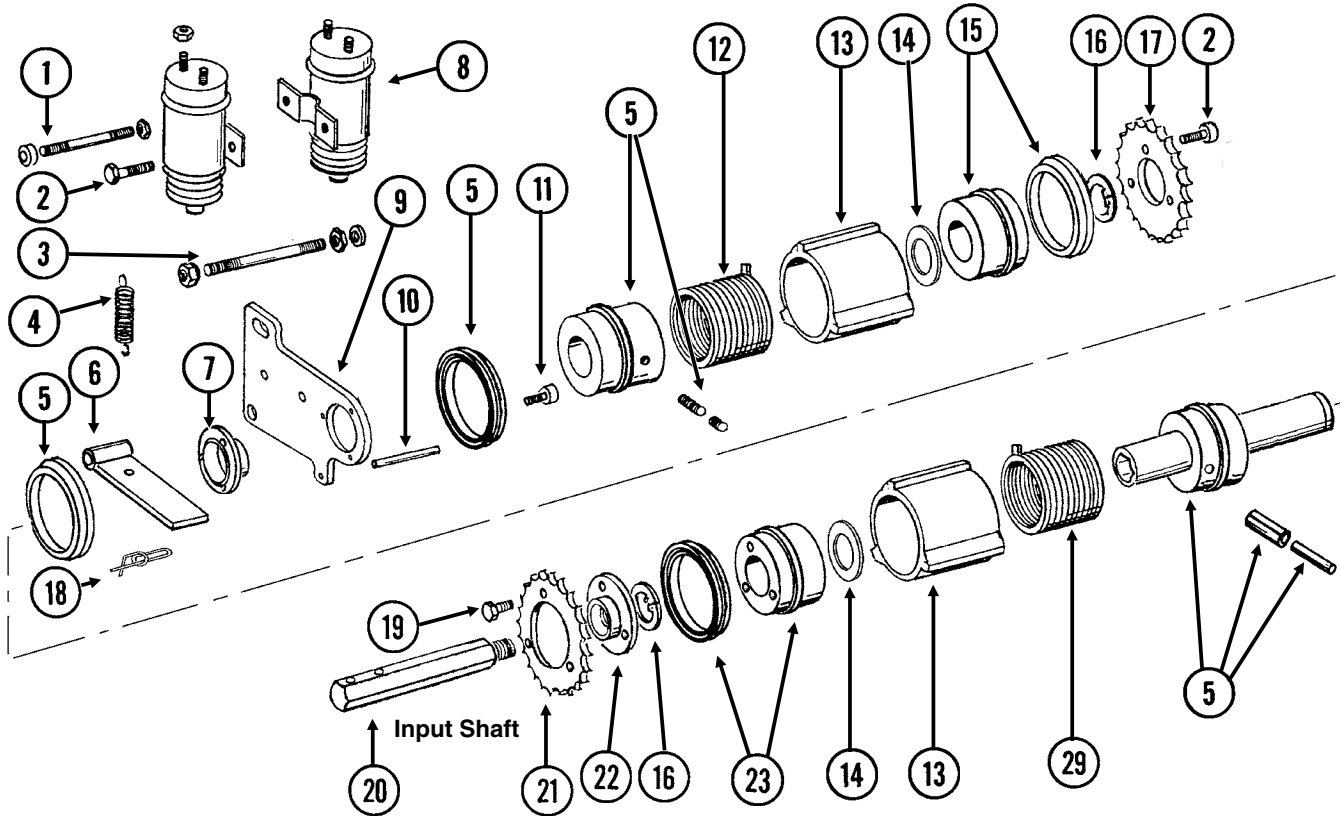
**L.H. Point Row Clutch Shown
(Used On L.H. Side Of Planter)**



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GD10068	1	Input Shaft, R.H. Threads (Shown)
	GD10069	1	Input Shaft, L.H. Threads
2	G10374	3	Hex Socket Head Cap Screw, 1/4"-20 x 1"
	G10227	3	Lock Washer, 1/4"
3	G10496	2	External Inverted Snap Ring, 1 1/2"
4	GD14512	2	V-Ring Seal
5	GD10104	1	Input Hub
6	GA7137	1	Hub/Sleeve Assembly W/Spring Pins
	G10765	-	Spring Pin, 1/4" x 1"
	G10804	-	Spring Pin, 5/32" x 7/8"
7	G10023	1	Hex Head Cap Screw, 1/4"-20 x 3/4"
	G10227	1	Lock Washer, 1/4"
	G10103	1	Hex Nut, 1/4"-20
8	GA8393	1	Solenoid Complete
	GR1306	1	Snap Ring
	GR1303	1	Spring
	GR1304	1	Boot
	GR1305	1	Plunger
9	G10049	1	Hex Head Cap Screw, 3/8"-16 x 2 1/2"
	G10101	1	Hex Nut, 3/8"-16
	G11387	1	Flat Washer, 3/8" SAE
	G10229	2	Lock Washer, 3/8"
	G10497	1	Hex Jam Nut, 3/8"-16, Grade 2
10	G10900	1	Hex Socket Head Cap Screw, 1/4"-20 x 1 3/4", Grade 8
	G10227	1	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
11	GD10123	1	Spring
12	GD10103	1	Mounting Plate
13	GD9667	1	Bushing
14	GD10070	1	Coupler W/R.H. Threads (Shown)
	GD10071	1	Coupler W/L.H. Threads
15	GD14513	1	Felt Washer
16	GD9671	-	Spring, L.H. (Shown)
	GD9672	-	Spring, R.H.
17	GD10102	1	Stop Collar
18	GD11120	1	Rue Ring Cotter, 5/16"
19	GD10510	1	Actuator Arm
20	G10859	1	Spring Pin, 3/16" x 2 1/4"
21	G10253	3	Hex Socket Head Screw, No. 10-32 x 1/2"
	G10257	3	Lock Washer, No. 10
22	GD10543	-	Hex Shaft, 7/8" x 13"
23	GA9479	1	Wiring Harness, 228", R.H. Side, 12 Row 30"
	GA9480	-	Wiring Harness, 264", L.H. Side, 12 Row 30"
	GA9483	-	Wiring Harness, 252", R.H. Side, 16 Row 30"
	GA9482	-	Wiring Harness, 300", L.H. Side, 16 Row 30"
24	GA10054	-	Ground Cable, Green
25	G10996	-	Fork Terminal
26	GD13524-01	1	Lock Wire, 10", Stainless Steel
27	G10546	1	Spring Pin, 3/16" x 1 1/4"
A	GA7110	-	Point Row Clutch Assembly, R.H. (R.H. Side Of Machine) (Items 1-21, 24, 26 And 27)
	GA7111	-	Point Row Clutch Assembly, L.H. (L.H. Side Of Machine) (Items 1-21, 24, 26 And 27)

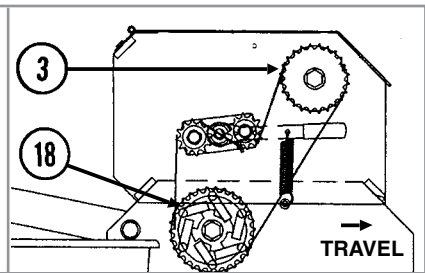
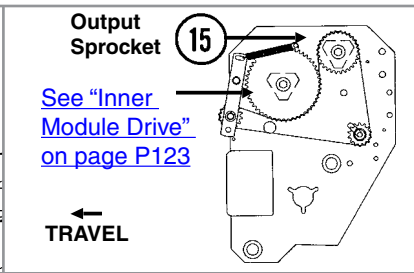
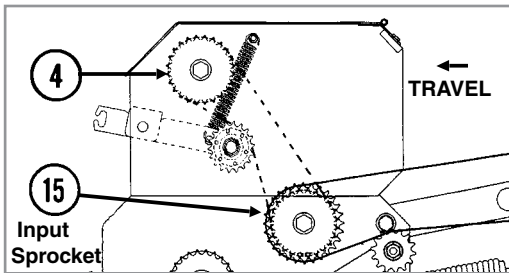
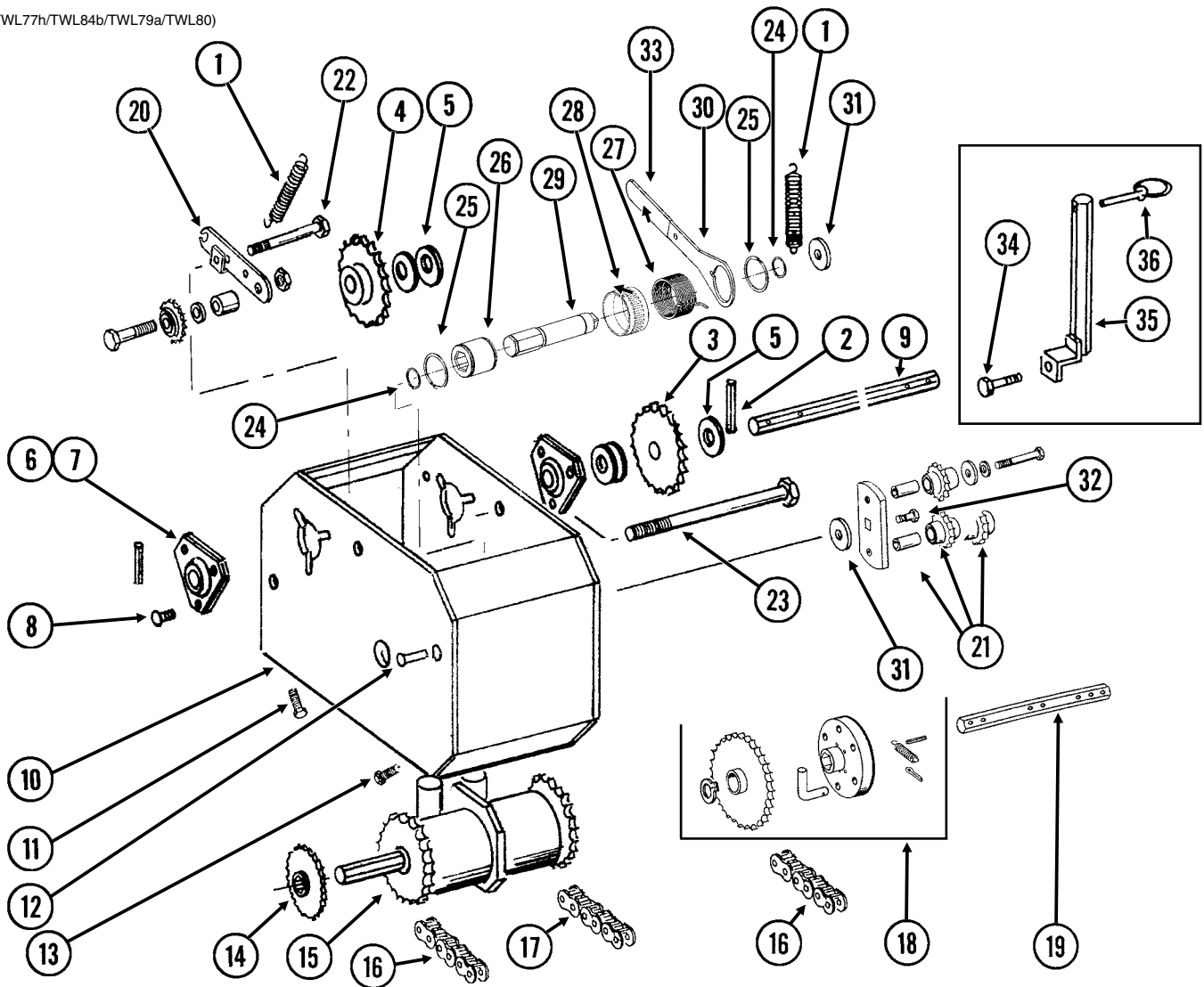
PRC023(FF47b/A7274/TWL71/TWL18/A10054)

**L.H. Two-Speed Point Row Clutch Shown
(Used On L.H. Side Of Planter)**



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	GD10636	1	Threaded Rod, 3/8"-16 x 4 1/2"
	G10108	2	Lock Nut, 3/8"-16
	G10229	2	Lock Washer, 3/8"
	G10101	2	Hex Nut, 3/8"-16
4	GD10123	2	Spring
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	GD10510	2	Actuator Arm
7	GD10586	1	Bushing
8	GA8393	2	Solenoid Complete
	GR1306	-	Snap Ring
	GR1303	-	Spring
	GR1304	-	Boot
	GR1305	-	Plunger
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. (Shown)
13	GD10585	2	Stop Collar
14	GD14513	2	Felt Washer
15	GA9572	1	Hub W/Seal
	GD10120	-	Seal
16	G10496	2	External Inverted Snap Ring, 1 1/2"
17	GD10579	1	Output Sprocket, 28 Tooth
18	GD11120	2	Rue Ring Cotter, 5/16"
19	G10374	3	Hex Socket Head Cap Screw, 1/4"-20 x 1"
	GD10588	3	Key
20	GD10068	1	Input Shaft, R.H. Threads (Shown)
	GD10069	-	Input Shaft, L.H. Threads
21	GD10578	1	Input Sprocket, 28 Tooth
22	GD10638	1	Coupler W/R.H. Threads (Shown)
	GD10587	-	Coupler W/L.H. Threads
23	GA9571	1	Hub W/Seal
	GD10120	-	Seal
24	G10996	-	Fork Terminal
25	GD9530	-	Contact
26	GD9529	-	Housing, Black
	GD12726	-	Housing, Red
27	GA7274	1	Jumper Wire W/Ring Terminals, 2 3/16"
28	GA9479	1	Wiring Harness, 228", R.H. Side, 12 Row 30"
	GA9480	-	Wiring Harness, 264", L.H. Side, 12 Row 30"
	GA9483	-	Wiring Harness, 252", R.H. Side, 16 Row 30"
	GA9482	-	Wiring Harness, 300", L.H. Side, 16 Row 30"
29	GD9672	-	Spring, R.H.

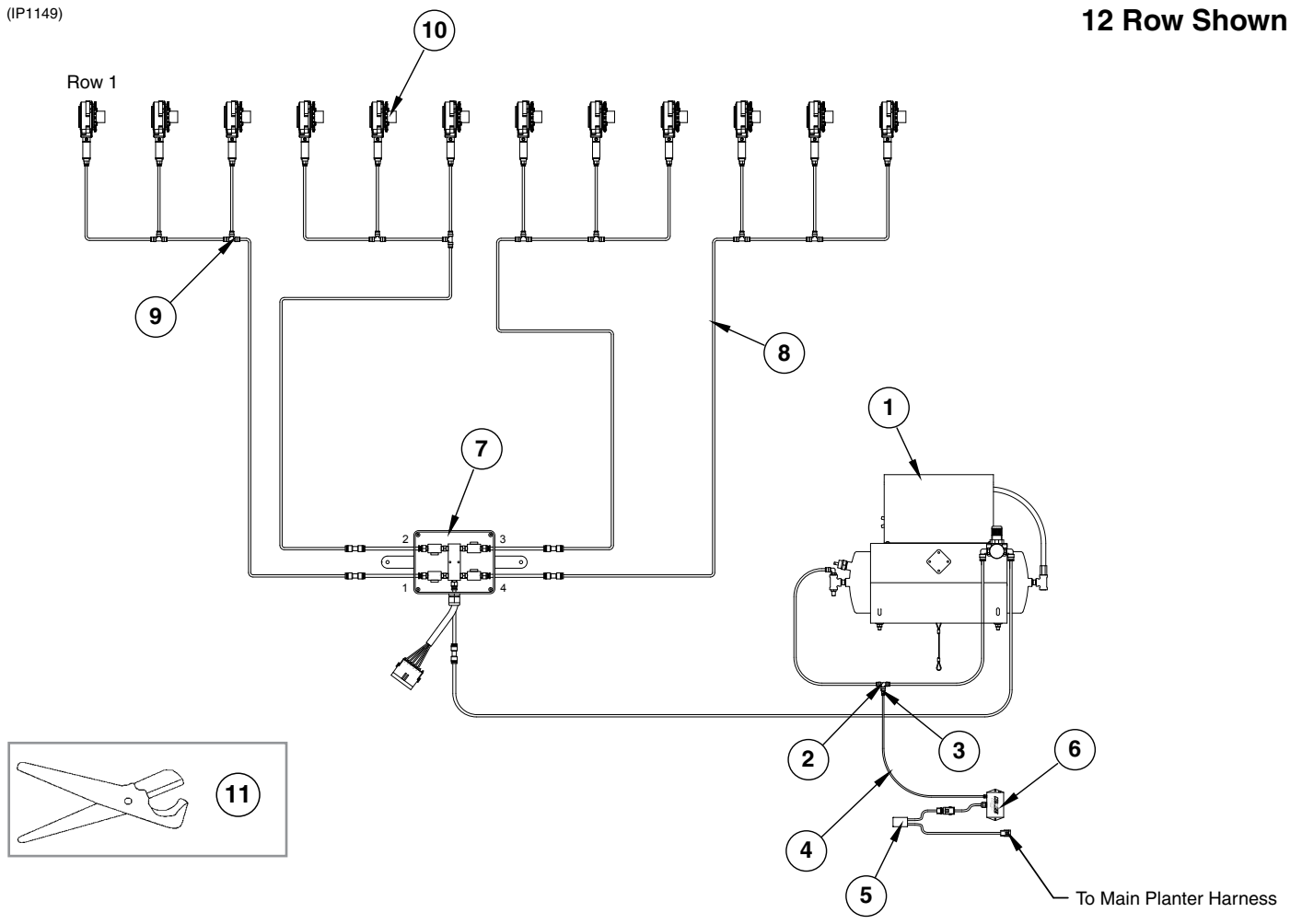
(TWL77h/TWL84b/TWL79a/TWL80)



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GD5857	2	Spring
2	G10602	3	Spring Pin, ¼" x 1½"
3	GA5109	1	Sprocket, 24 Tooth
	GA5105	1	Sprocket, 15 Tooth
	GA5106	1	Sprocket, 17 Tooth
	GA5112	1	Sprocket, 27 Tooth
	GA5108	-	Sprocket, 23 Tooth (From Transmission)
	GA5110	-	Sprocket, 25 Tooth (From Transmission)
	GA5111	-	Sprocket, 26 Tooth (From Transmission)
4	GA5113	1	Sprocket, 28 Tooth
5	G10233	-	Machine Bushing, 1", 10 Gauge
6	G3400-01	-	Flangette
7	G2100-03	-	Bearing, 7/8" Hex Bore, Spherical
8	G10312	6	Carriage Bolt, 5/16"-18 x ¾"
	G10232	6	Lock Washer, 5/16"
	G10106	6	Hex Nut, 5/16"-18
9	GD10355	1	Shaft, 7/8" x 13¾"
10	GA7306	1	Extension Bracket
11	G10857	2	Hex Head Cap Screw, ¼"-20 x 1¼"
	G11385	2	Flat Washer, ¼" SAE
	G10227	2	Lock Washer, ¼"
	G10103	2	Hex Nut, ¼"-20
12	G10408	1	Clevis Pin, 5/16" x ¾"
	G10409	1	Retaining Ring, 5/16"
13	G10064	2	Hex Head Cap Screw, ¼"-20 x 1"
	G11385	2	Flat Washer, ¼" SAE
	G10227	2	Lock Washer, ¼"
	G10103	2	Hex Nut, ¼"-20
14	---	-	See "Contact Wheel and Drive Shaft(s)" on page P117
15	---	-	See "Two-Speed Point Row Clutch" on page P127
16	G3310-74	2	Chain, No. 40, 74 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
17	G3310-100	1	Chain, No. 40, 100 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
18	GA7320	1	Overrunning Sprocket Assembly, R.H.
	GA7321	-	Overrunning Sprocket Assembly, L.H.
	G10430	1	External Retaining Ring, 1¼"
	GD1255	6	L-Pin
	G10546	6	Spring Pin, 3/16" x 1¼"
	G10470	6	Cotter Pin, 5/32" x 1"
	GD10366	6	Spring
	GA7317	1	Block
	GA7319	1	Sprocket W/Bushing, 30 Tooth
19	GD10543	1	Hex Shaft, 7/8" x 13"
20	GA9918	1	Idler W/Sprocket And Hardware
	GD10356	-	Bushing, ¾" Long
	G10128	-	Machine Bushing, ½", 14 Gauge
	G10501	-	Hex Jam Nut, ½"-13, Grade 2
	G10053	-	Hex Head Cap Screw, ½"-13 x 2 ½"
	GA7154	-	Sprocket W/Bearing, 18 Tooth

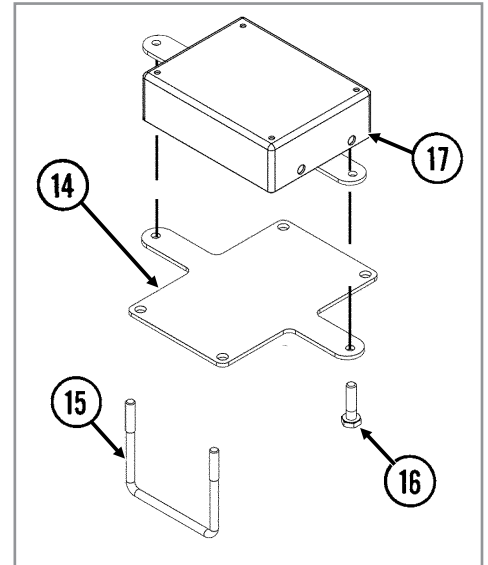
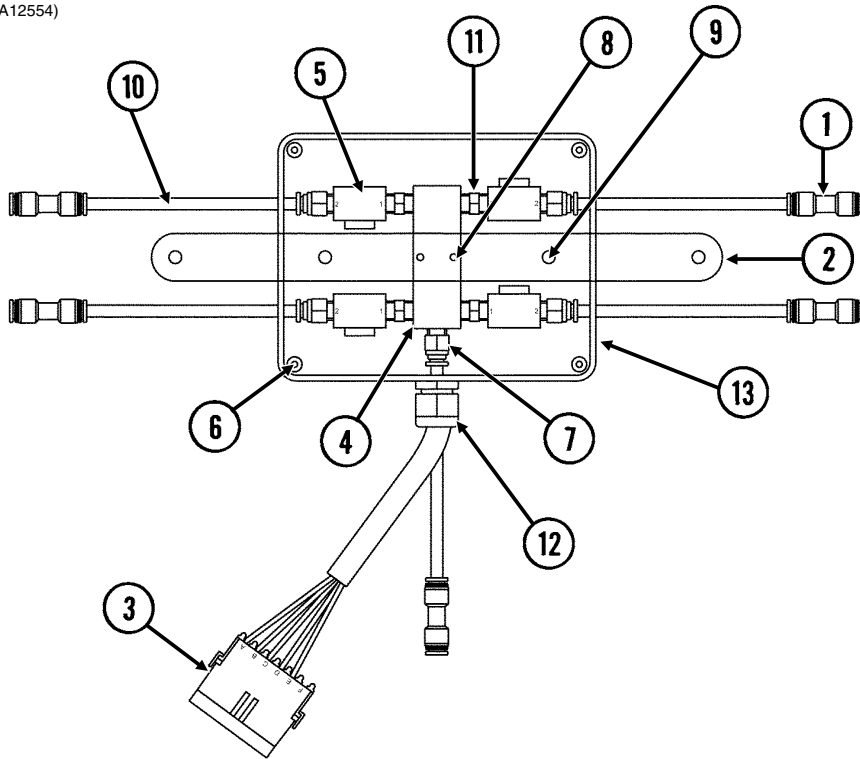
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
21	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 $\frac{3}{16}$ " Long
	G11387	-	Flat Washer, $\frac{3}{8}$ " SAE
	G10229	-	Lock Washer, $\frac{3}{8}$ "
	G10047	-	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 1 $\frac{3}{4}$ "
22	G10036	1	Hex Head Cap Screw, $\frac{5}{8}$ "-11 x 4"
	G10107	1	Lock Nut, $\frac{5}{8}$ "-11
	G10104	1	Hex Nut, $\frac{5}{8}$ "-11
23	G10595	1	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 10"
	G10108	1	Lock Nut, $\frac{3}{8}$ "-16
24	G10496	2	External Inverted Snap Ring, 1 $\frac{1}{2}$ "
25	G11075	2	External Inverted Snap Ring, $\frac{7}{8}$ "
26	GD14432	1	Sleeve, 1 $\frac{1}{4}$ "
27	GD14414	1	Torsion Spring, R.H. (Used In L.H. Wrap Spring Wrench) (Shown)
	GD14413	-	Torsion Spring, L.H. (Used In R.H. Wrap Spring Wrench)
28	GD19344	-	Release Collar, Gray, L.H. (Shown)
	GD19343	1	Release Collar, Blue, R.H.
29	GD14426	1	Tightener Shaft, 3 $\frac{3}{8}$ "
30	GD14431	1	Handle
31	G10235	2	Machine Bushing, $\frac{7}{8}$ ", 14 Gauge
32	G11100	1	Hex Socket Button Head Cap Screw, $\frac{1}{4}$ "-20 x $\frac{1}{2}$ ", Grade 8
	G10227	1	Lock Washer, $\frac{1}{4}$ "
	G11385	1	Flat Washer, $\frac{1}{4}$ " SAE
33	G11078	1	Vinyl Cap
34	G10037	1	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x 1 $\frac{1}{4}$ "
	G11389	1	Flat Washer, $\frac{1}{2}$ " SAE
	G10228	1	Lock Washer, $\frac{1}{2}$ "
	G10102	1	Hex Nut, $\frac{1}{2}$ "-13
35	GA7313	1	Sprocket Storage Rod
36	GD2558	2	Lynch Pin, $\frac{1}{4}$ "
A	G1K381	-	Wrap Spring Wrench Replacement Kit, Silver Collar, L.H. (Items 24-33) (Shown)
	G1K380	1	Wrap Spring Wrench Replacement Kit, Gold Collar, R.H. (Items 24-33)

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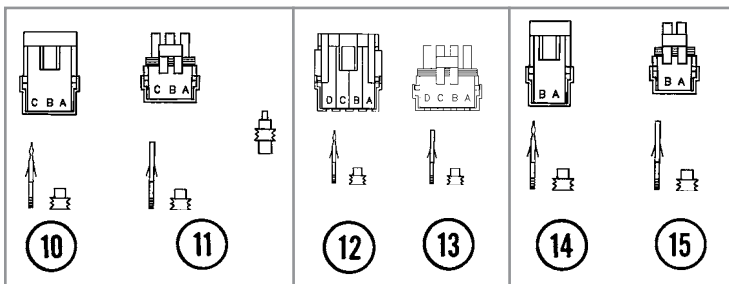
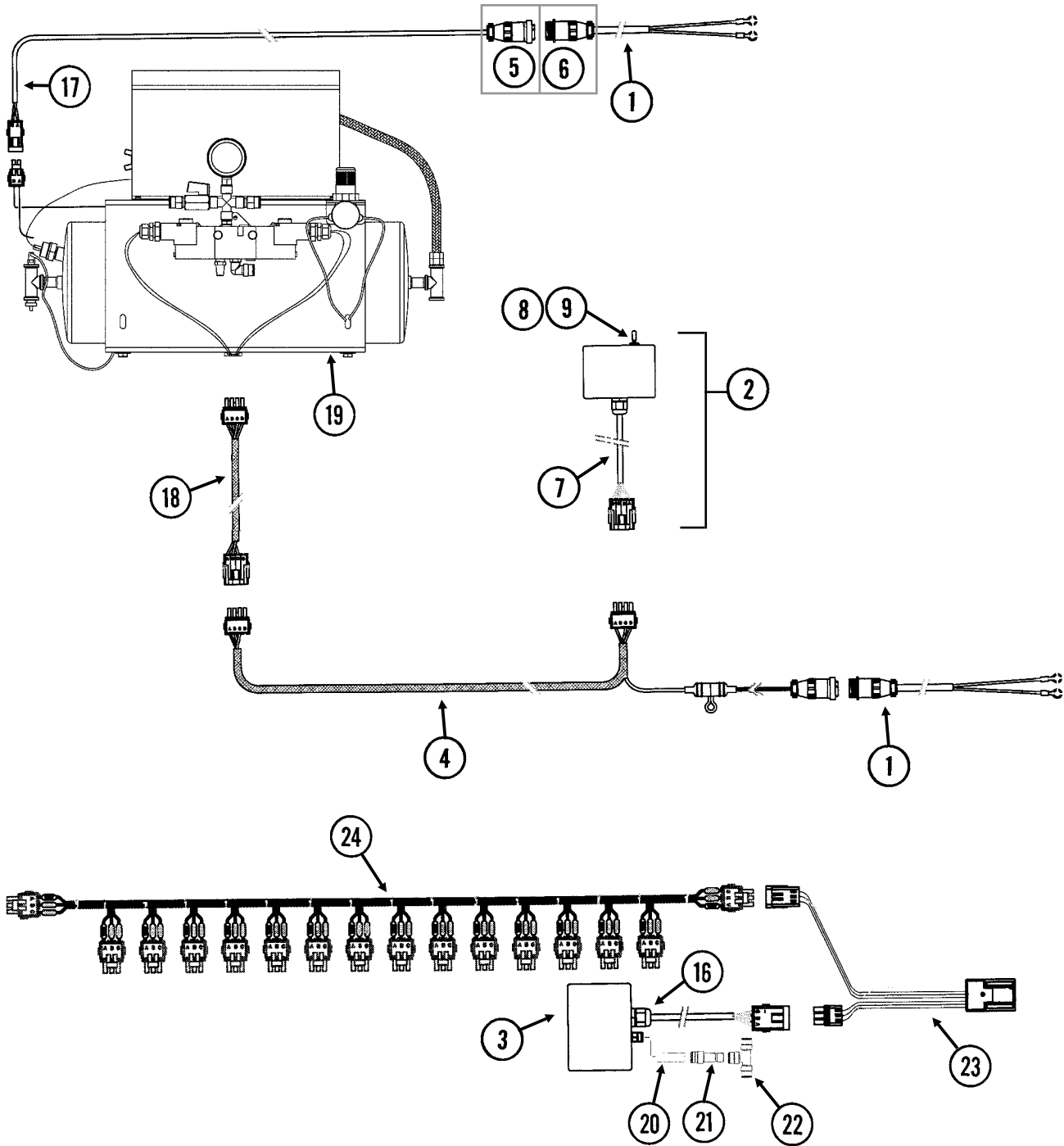
ITEM	PART NO.	QTY.	DESCRIPTION
1	---	-	See "Air Compressor, Dual Solenoid Assembly, Tubing, and Fittings" on page P137
2	GD18010	1	Tee, 3/8" Tube Union
3	GD18796	1	Reducer, 3/8" To 1/4"
4	GD17151-06	1	Nylon Tubing, 1/4" O.D. x 1 1/2'
5	GA12812	1	Hall Effect Adapter
6	GA12846	1	High Pressure Sensor (0-120 PSI)
7	---	-	See "Valve Box Module" on page P134
8	GD17151-01	-	Nylon Tubing, 1/4" O.D. x 52', 12 Row Pull/Push Row Units (Air Clutch)
	GD17151-02	-	Nylon Tubing, 1/4" O.D. x 70', 16 Row Pull Row Units (Air Clutch)
	GD17151-03	-	Nylon Tubing, 1/4" O.D. x 37', 11 Row Push Row Units (Air Clutch)
	GD17150-03	-	Nylon Tubing, 3/8" O.D. x 64', 12 Row Pull Row Units (Pneumatic Down Pressure)
	GD17150-04	-	Nylon Tubing, 3/8" O.D. x 86', 16 Row Pull Row Units (Pneumatic Down Pressure)
	GD17150-08	-	Nylon Tubing, 3/8" O.D. x 60', 11 Row Push Row Units (Pneumatic Down Pressure)
	GD17150-09	-	Nylon Tubing, 3/8" O.D. x 82', 15 Row Push Row Units (Pneumatic Down Pressure)
	GD17150-12	-	Nylon Tubing, 3/8" O.D. x 5', Even-Row Push Row Unit (Pneumatic Down Pressure)
9	GD18015	-	Tee, 1/4" Press On, Pull/Push Row Units (Air Clutch)
	GD18010	-	Tee, 3/8" Tube Union, Pull Row Unit (Pneumatic Down Pressure)
	GD18274	-	Tee, 3/8" x 1/8" NPT Extended, Push Row Unit (Pneumatic Down Pressure)
10	---	-	See "Air Clutch, Pull Row Unit" on page P5
11	GA13169	1	Tube Cutter W/Blade
	GR1843	-	Blade

(A12554)



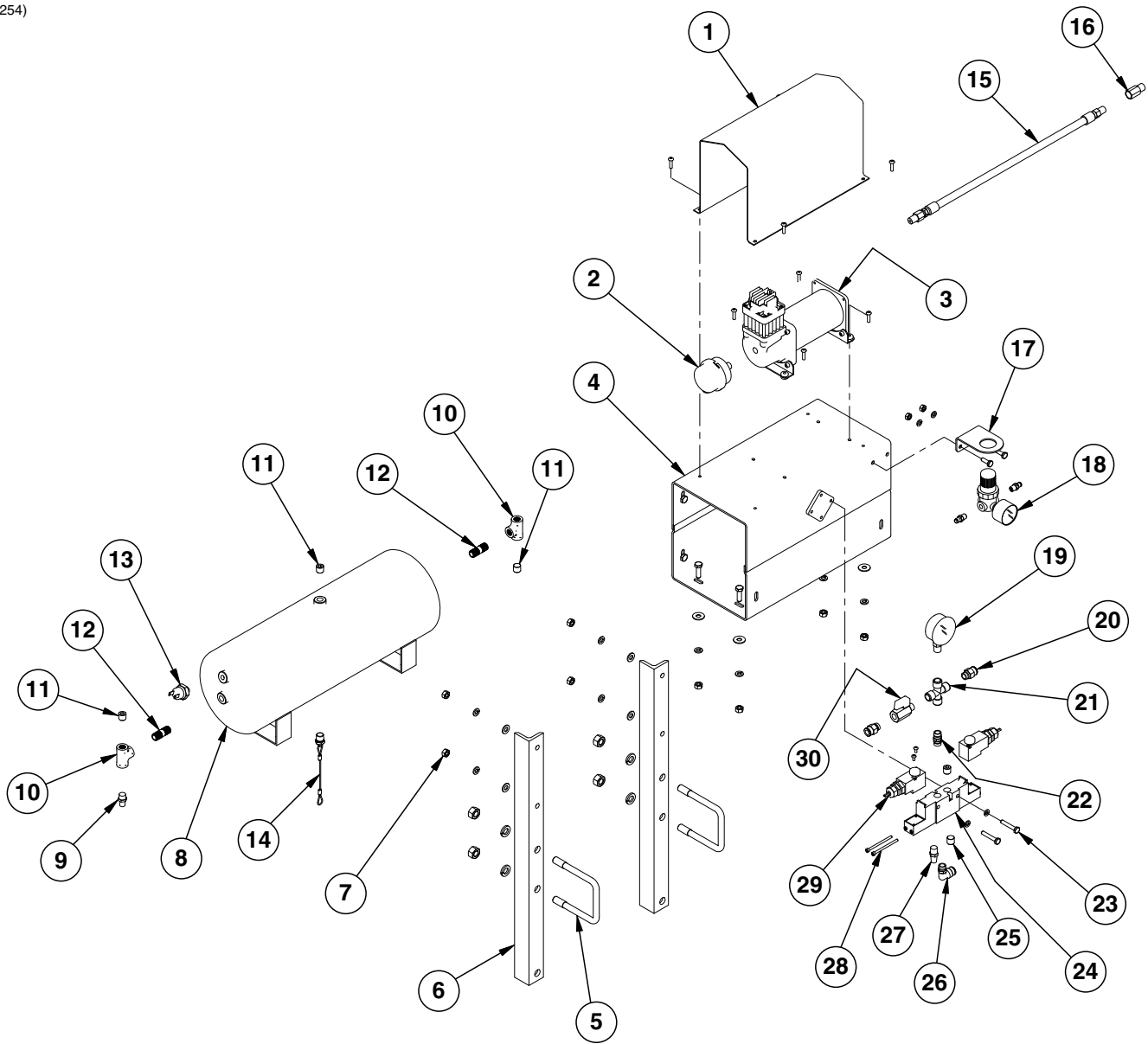
ITEM	PART NO.	QTY.	DESCRIPTION
1	GD18395	5	Straight Union, 1/4"
2	GD18389	1	Strap
3	GA12861	1	Valve Box Harness
4	GA12865	1	Manifold
5	GA12866	4	Valve
6	G11243	4	Slotted Flat Head Machine Screw, No. 8-32 x 1/2", Stainless Steel
7	GD18085	5	Male Connector, 1/4"
8	G11244	2	Phillips Flat Head Machine Screw, No. 10-24 x 1 1/2"
	G10395	2	Hex Nut, No. 10-24
9	G10022	2	Hex Head Cap Screw, 1/4"-20 x 1/2"
	G10110	2	Lock Nut, 1/4"-20, Grade B
10	GD17151-05	5	Nylon Tube, 1/4" O.D. x 5" Long
11	GD18398	5	Hex Nipple, 1/8" Pipe
12	GA9963	1	Strain Relief
13	GD18437	1	Valve Box Cover
14	GD18344	1	Valve Box Mount
15	GD18329	2	U-Bolt, 3" x 5/16"-18
	G10106	4	Hex Nut, 5/16"-18
	G10232	4	Lock Washer, 5/16"
16	G10064	2	Hex Head Cap Screw, 1/4"-20 x 1"
	G10227	2	Lock Washer, 1/4"
	GD7363-01	2	Sleeve, 1/2" Long
	G10103	2	Hex Nut, 1/4"-20
17	GA12554	-	Valve Box Module Assembly, (Items 1-13)

(PNE30b/MTR27a/ELC27b/MTR45/MTR271/PNE30c)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA7856	2	Power Lead Adapter
2	GA12813	1	Control Box Assembly
3	GA14846	1	High Pressure Sensor (0-120 PSI)
4	GA13944	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	GA9964	1	Strain Relief
8	GR1363	1	Hex Face Nut, 1 ⁵ / ₃₂ "-32
	GR1364	1	Internal Tooth Lock Washer, 1 ⁵ / ₃₂ "
9	GA6978	1	Switch, 3 Position Toggle, Momentary On-Off-Momentary On
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	GA8328	-	4-Pin Female Connector Kit, Includes: (1) 4-Pin Female Housing, (4) Pin Contacts, (4) Seals
13	GA8329	-	4-Pin Male Connector Kit, Includes: (1) 4-Pin Male Housing, (4) Socket Contacts, (4) Seals
14	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals
15	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
16	GA9964	2	Strain Relief
17	GA12684	1	Wiring Harness W/Fuse Holder And Fuse, 60'
	GD14258	-	Fuse Holder
	GD18275	-	Fuse, 20 Amp
18	GA12858	1	Wiring Harness, 60'
19	---		See "Air Compressor, Dual Solenoid Assembly, Tubing, and Fittings" on page P137
20	GD17151-06	1	Nylon Tubing, 1/4" O.D. x 1 1/2'
21	GD18796	1	Reducer, 3/8" To 1/4"
22	GD18010	1	Tee, 3/8" Tube Union
23	GA12812	1	Hall Effect Adapter
24	---		See "Planter Monitor Module (PMM)" on page P189

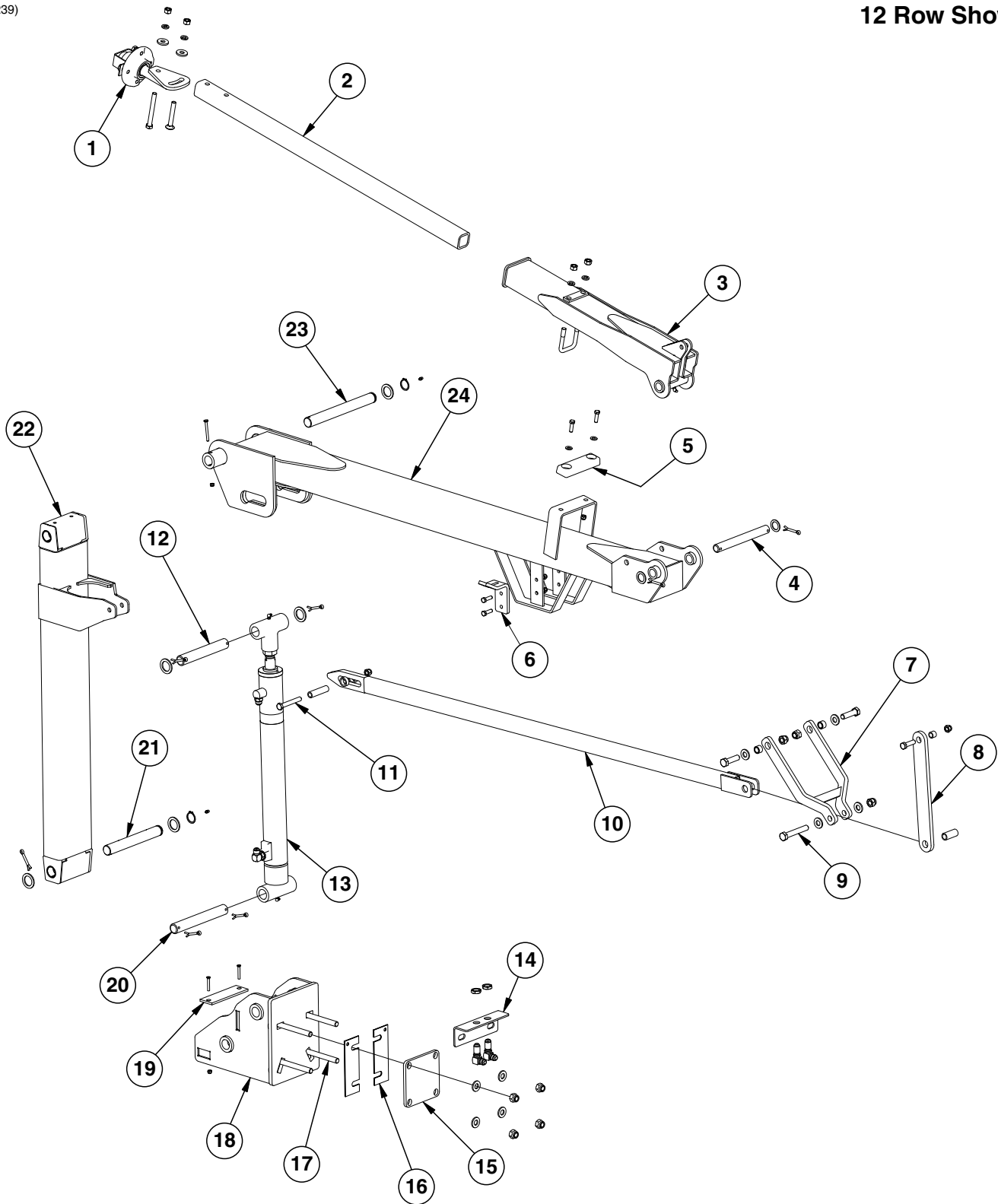
(IP1254)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD18112	1	Cover
	G10992	4	Serrated Flange Nut, No. 10-24
	G11066	4	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
2	GA14127	1	Filter Assembly
	GR1943	-	Filter
3	GA12102	1	Air Compressor
	G10992	4	Serrated Flange Nut, No. 10-24
	G11066	4	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
4	GA12358	1	Compressor Mount
	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
	G10232	4	Lock Washer, 5/16"
	G11386	4	Flat Washer, 5/16" SAE
	G10106	4	Hex Nut, 5/16"-18
5	GD4743	2	U-Bolt, 3" x 3" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
6	GD18119	2	Compressor Mount
7	G10106	4	Hex Nut, 5/16"-18
	G10232	4	Lock Washer, 5/16"
	G11386	4	Flat Washer, 5/16" SAE
	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
8	GA11988	1	Tank, 3 Gallon
9	GA13512	1	Valve Stem, 1/4" NPT
10	GD19237	2	Tee, 1/4" NPT
11	GD17156	3	Plug, 1/4" NPT
12	GD19238	2	Nipple, 1/4" NPT
13	GR1778	1	Pressure Switch
14	GA11991	1	Drain, 1/4" NPT
15	GR1951	1	Leader Hose without Check Valve
16	GR1921	1	Check Valve
17	GD18084	1	Regulator Bracket
	G10023	2	Hex Head Cap Screw, 1/4"-20 x 3/4"
	G10227	2	Lock Washer, 1/4"
	G10103	2	Hex Nut, 1/4"-20
18	GA12629	1	Mini Regulator W/Gauge
	GD19124	2	Connector, 1/4" x 1/8" NPT
19	GA12104	1	Pressure Gauge, 1/4" NPT
20	GD17141	2	Connector, 1/4" Male NPT
21	GD18078	1	Female Cross, 1/4" NPT
22	GD17154	1	Connector, 1/4" Male NPT
23	G10021	2	Hex Head Cap Screw, 1/4"-20 x 1 1/2"
	G10227	2	Lock Washer, 1/4"
24	GA11993	1	Block
25	GD17156	2	Plug, 1/4" NPT
26	GD17143	1	Swivel Elbow, 1/4" NPT x 3/8"
27	GA11997	1	Breather, 1/4" NPT
28	GR1952	4	Socket Head Cap Screw, #8-32 x 2"
	GR1953	4	O-Ring
	G10256	4	Lock Washer, No. 8
29	GA11994	2	Solenoid
	G11311	4	Phillips Pan Head Machine Screw
30	GA11992	1	Shutoff Valve, 1/4" NPT
A	GA12626	-	Air Compressor Assembly (Items 1-4, 8-14, and 25)
B	GA11995	-	Dual Solenoid Assembly (Items 19-22 and 24-30) (Only applicable with pneumatic down pressure option)
C	GR1783	-	Seal Kit (Dual Solenoid Valve)

(IP1239)

12 Row Shown

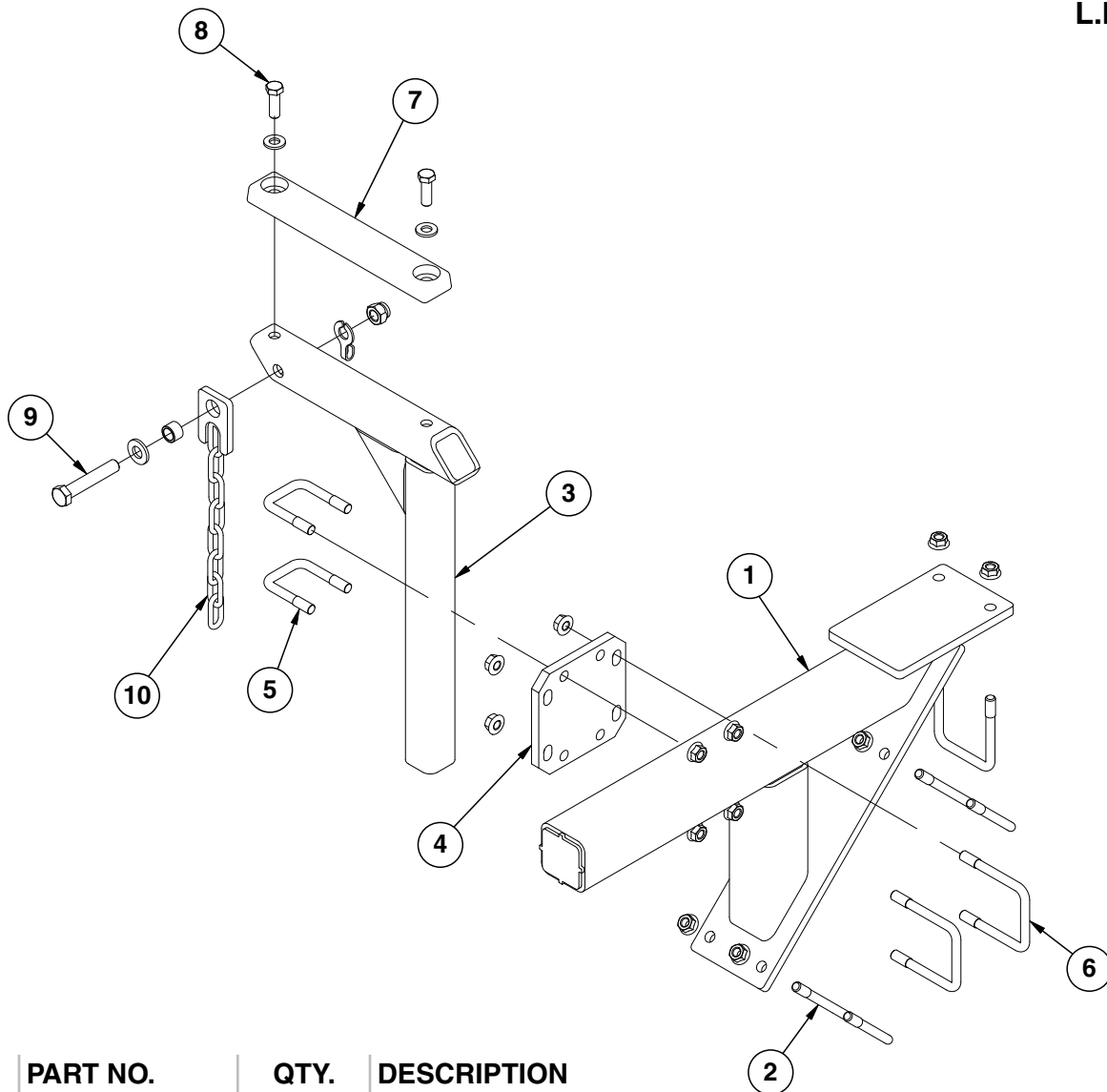


ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	---	1	See "Row Marker Spindle/Hub/Blade" on page P143
	G10168	2	Machine Bushing, 1/2", 7 Gauge
	G10045	1	Hex Head Cap Screw, 1/2"-13 x 4 1/2"
	G10844	1	Carriage Bolt, 1/2"-13 x 3 1/2"
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
2	GD0453-07	1	Extension Tube, 45", 12 Row
	GD0453-08	-	Extension Tube, 65", 16 Row
3	GA13994	1	Arm, Third Stage, 12 Row
	GA13114	-	Arm, Third Stage, 16 Row
	GD2721	1	U-Bolt, 2" x 2" x 1/2"-13
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
	4	GD18889	1
G10460		2	Cotter Pin, 1/4" x 2"
G10345		2	Machine Bushing, 1", 14 Gauge
5		GA9145	1
	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11387	2	Flat Washer, 3/8" SAE
	G10108	2	Lock Nut, 3/8"-16
	6	GD18540	1
G10004		2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
G10108		2	Lock Nut, 3/8"-16
7		GA13764	1
	G11391	2	Flat Washer, 5/8" SAE
	G10006	2	Hex Head Cap Screw, 5/8"-11 x 2 1/4"
	GB0218	2	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
	G10107	2	Lock Nut, 5/8"-11
	8	GD18682	1
GD3180-34		1	Sleeve, 7/8" O.D. x 5/8" I.D. x 2"
GD10538-07		1	Sleeve, 3/4" O.D. x 1/2" I.D. x .36"
G10039		1	Hex Head Cap Screw, 1/2"-13 x 1 3/4"
G10111		1	Lock Nut, 1/2"-13
9		G10036	1
	G11391	2	Flat Washer, 5/8" SAE
	G10107	1	Lock Nut, 5/8"-11
	10	GA14284	1
GA14285		-	Marker Link, 113 1/4", 16 Row
11	G10033	1	Hex Head Cap Screw, 1/2"-13 x 3 1/2"
	GD19661-01	1	Sleeve, 3/4" O.D. x 5 1/100 I.D. x 3"
	GD16418-02	2	Sleeve, 1 1/8" O.D. x 1 3/16" I.D. x 1 1/25"
	G10111	1	Lock Nut, 1/2"-13
12	GD18815	1	Pin, 1 1/4" x 8.38"
	G10159	2	Washer, 1 7/8"
	G10460	2	Cotter Pin, 1/4" x 2"
13	---	-	See "Row Marker Cylinder" on page P145
	G6801-08	1	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
14	GD20793	1	Marker Bulkhead
	G306-08	2	Lock Nut, 3/4"-16
	G2701-08	2	Bulkhead Elbow, 90°, 3/4"-16 Male JIC
	G10107	4	Lock Nut, 5/8"-11

ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
15	GD13360	1	Plate, 6" x 6", 12 Row
	GD13359	-	Plate, 7" x 7", 16 Row
16	GD10792	4	Shim, 2½" x 7¼", 16 Gauge, 12 Row
	GD11791	-	Shim, 2½" x 8¼", 16 Gauge, 16 Row
17	G10011	4	Hex Head Cap Screw, ⅝"-11 x 5½"
	G11391	4	Flat Washer, ⅝" SAE
18	GA14361	1	Marker Mount
19	GD19491	1	Marker Mount Wear Pad
	G11319	2	Slotted Flat Head Machine Screw, ¼"-20 x 1¾"
	G11320	2	Lock Nut, ¼"-20, Grade B
20	GD18814	1	Pin, 1¼" x 9¼"
	G10460	2	Cotter Pin, ¼" x 2"
21	GD21143	1	Marker Pin, 1¼" x 9½"
	G11400	1	Retaining Ring, 1¼"
	G10640	1	Grease Fitting, ¼"-28
22	GA13487	1	Arm, First Stage
	G10403	1	Hex Head Cap Screw, ¼"-20 x 2½"
	G10110	1	Lock Nut, ¼"-20, Grade B
23	GD21142	1	Marker Pin, 1¼" x 11 ⁵³ / ₆₄ "
	G11400	1	Retaining Ring, 1¼"
	G10640	1	Grease Fitting, ¼"-28
24	GA13995	1	Arm W/Grease Fitting, Second Stage, 12 Row
	GA13019	-	Arm W/Grease Fitting, Second Stage, 16 Row

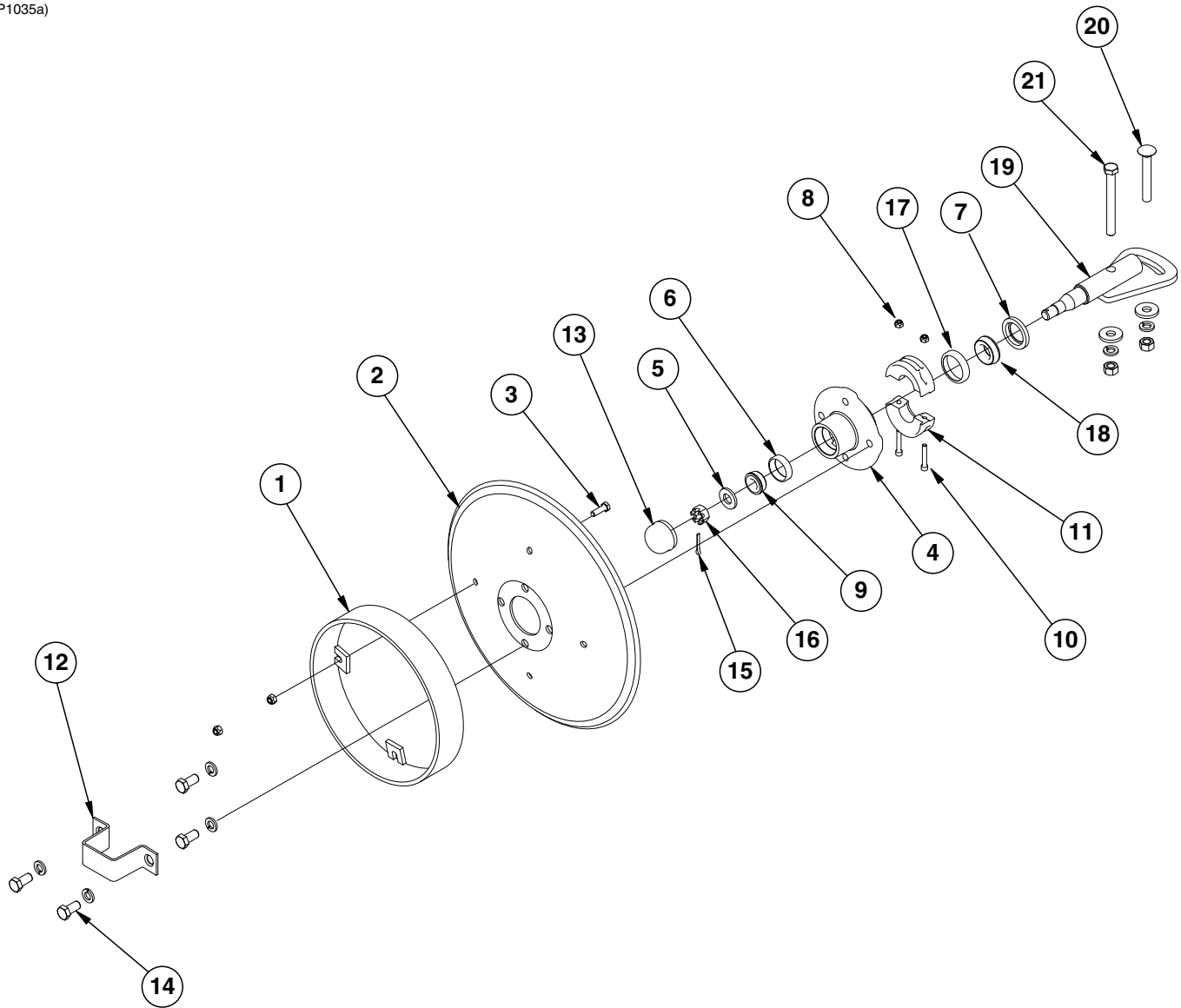
(IP1260)

L.H. Shown



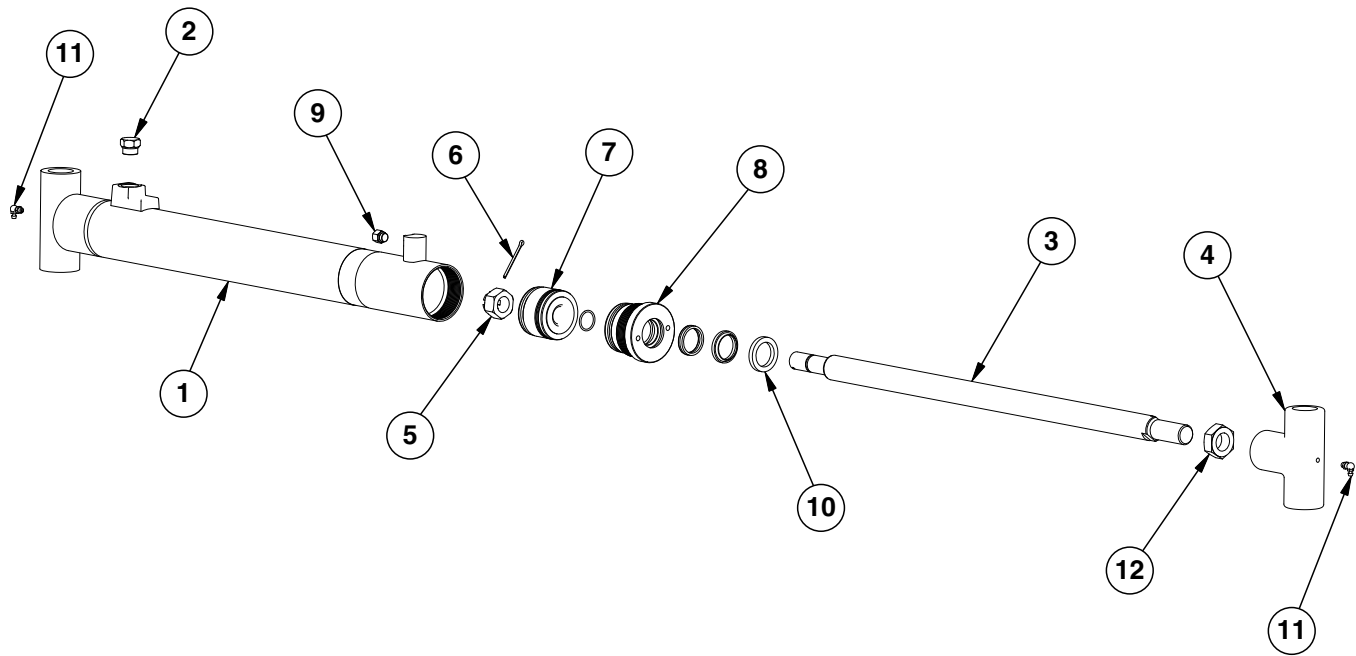
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GA14394	1	Marker Support Stand (Prior to 2012 Production)
2	GD4743	3	U-Bolt, 3" x 3" x 1/2"-13 (Prior to 2012 Production)
	G10071	6	Serrated Flange Nut, 1/2"-13 (Prior to 2012 Production)
3	GA14402	1	Marker Stand
4	GD9981	1	Marker Stand Bar
5	GD2721	2	U-Bolt, 2" x 2" x 1/2"-13
	G10071	4	Serrated Flange Nut, 1/2"-13
6	GD4743	2	U-Bolt, 3" x 3" x 1/2"-13
	G10071	4	Serrated Flange Nut, 1/2"-13
7	GA9088	1	Molded Stop, 12 1/4" Long
8	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G11389	2	Flat Washer, 1/2" SAE
	G10111	2	Lock Nut, 1/2"-13
9	G10013	1	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G11391	1	Flat Washer, 5/8" SAE
	GB0218	1	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
	GD10088	1	Special Washer
	G10107	1	Lock Nut, 5/8"-11
10	GA13340	1	Chain Lockup

(IP1035a)



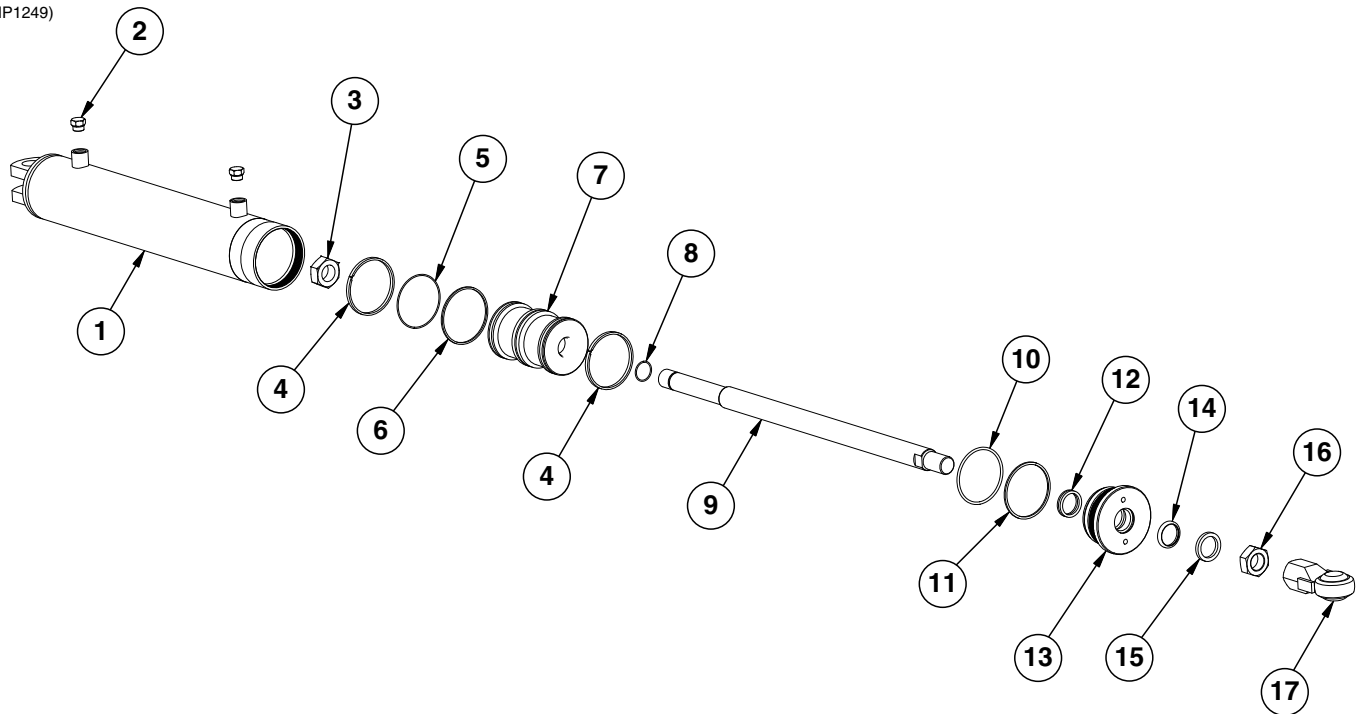
ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	GA5853	1	Depth Band
2	GD0746	1	Disc Blade, Solid, 16" (Shown)
	GD10283	-	Disc Blade, Notched, 16" (Optional)
3	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
	G10109	4	Lock Nut, 5/16"-18, Grade 8
4	GA0167	1	Hub W/Cups, 4 Bolt (Includes Items 6 and 17)
5	G11391	1	Flat Washer, 5/8" SAE
6	GR0151	1	Outer Cup
7	GD21540	1	Grease Seal
8	G10110	2	Lock Nut, 1/4"-20, Grade B
9	GA0257	1	Bearing
10	G11418	2	Hex Socket Head Cap Screw, 1/4"-20 x 1 1/2"
11	GB0554	2	Hub Shield
12	GD2597	1	Retainer
13	GD0840	1	Dust Cap
14	G10722	4	Hex Head Cap Screw, 1/2"-20 x 1"
	G10228	4	Lock Washer, 1/2"
15	G10544	1	Cotter Pin, 5/32" x 1"
16	G10725	1	Slotted Hex Nut, 5/8"-18
17	GR0150	1	Inner Cup
18	GA0245	1	Bearing
19	GA15151	1	Spindle
20	G10844	1	Carriage Bolt, 1/2"-13 x 3 1/2"
	G10168	1	Machine Bushing, 1/2", 7 Gauge
	G10228	1	Lock Washer, 1/2"
	G10102	1	Hex Nut, 1/2"-13
21	G10045	1	Hex Head Cap Screw, 1/2"-13 x 4 1/2"
	G10168	2	Machine Bushing, 1/2", 7 Gauge
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
A	GA13719	-	Hub And Spindle Assembly, (Items 4-7, 9, and 12-19)

(IP1270)



ITEM	PART NO.	QTY.	DESCRIPTION
1	A14631	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	1 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	GD14529	1	Rod
4	GD14308	1	Threaded Sleeve End
5	G10962	1	Slotted Hex Nut, 7/8"-14
6	G10827	1	Cotter Pin, 1/8" x 1 3/4"
7	GD18526	1	Hydraulic Piston
8	GD10207	1	Gland
9	G6408-04 GR1465	1 -	Plug W/O-Ring, 7/16"-20 O-Ring O-Ring
10	GD12102	1	Ring, 1 1/4"
11	G10779	2	Grease Fitting, 90°, 1/4"-28
12	G10324	1	Hex Jam Nut, 1"-14, Grade 2
A	GA14632	-	Cylinder Complete, 2 1/2" x 20" (Part Number Stamped On Barrel)
B	GR1925	1	Seal Kit, Includes: (2) O-Rings, (1) Back-Up Ring, (1) U-Cup, (1) Wiper, (1) Piston Ring, (1) T-Seal

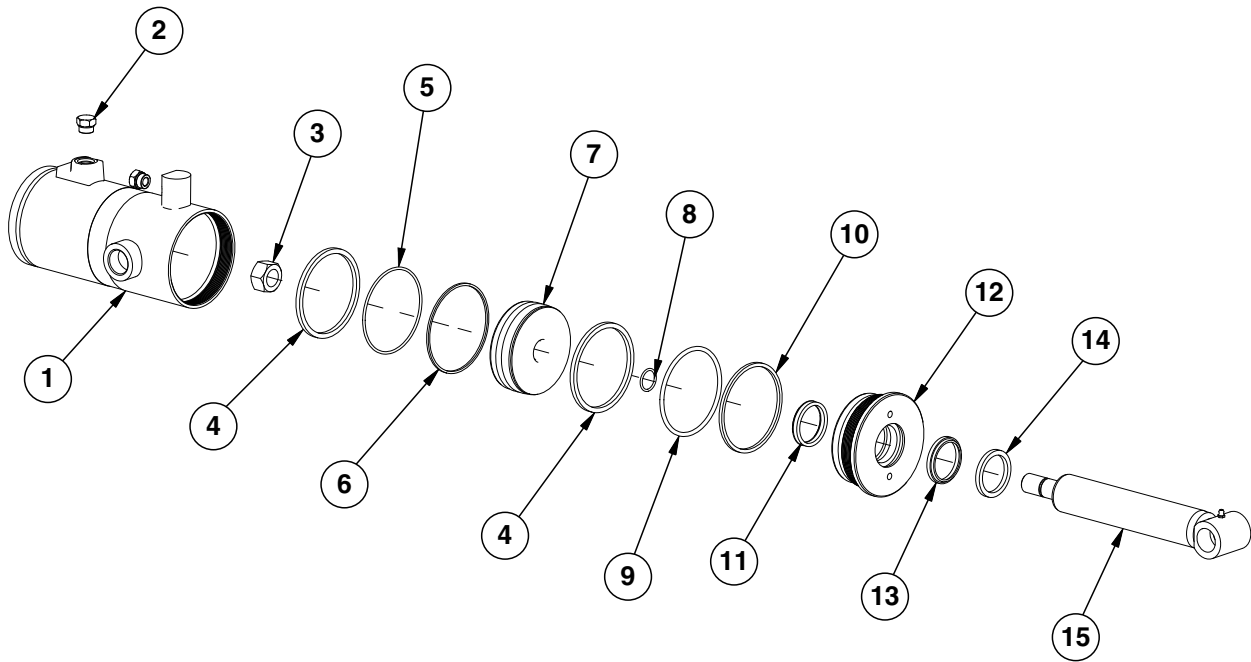
(IP1249)



ITEM	PART NO.	QTY.	DESCRIPTION
1	A7220	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	G10972	1	Lock Nut, 1 1/4"-12
4	*D12040	2	Cast Iron Ring
5	*D12072	1	Piston Seal
6	*D12224	1	Expander
7	GD11992	1	Piston
8	*D12223	1	O-Ring
9	GD11991	1	Rod
10	*D12221	1	O-Ring
11	*D12222	1	Backup Ring
12	*D12252	1	U-Cup
13	GD11988	1	Gland
14	*D12206	1	Wiper
15	GD12103	1	Ring
16	G10509	1	Hex Jam Nut, 1 1/4"-12, Grade 2
17	GA7221	1	Threaded Ball Joint End
A	GA8904	-	Cylinder Complete, 4" x 16" (Part Number Stamped On Barrel)
B	GR1524	-	Seal Kit, Includes: (2) O-Rings, (1) U-Cup, (1) Wiper, (1) Seal, (2) Cast Iron Rings, (1) Backup Ring, (1) Expander

* Item is part of seal kit, item can not be purchased individually.

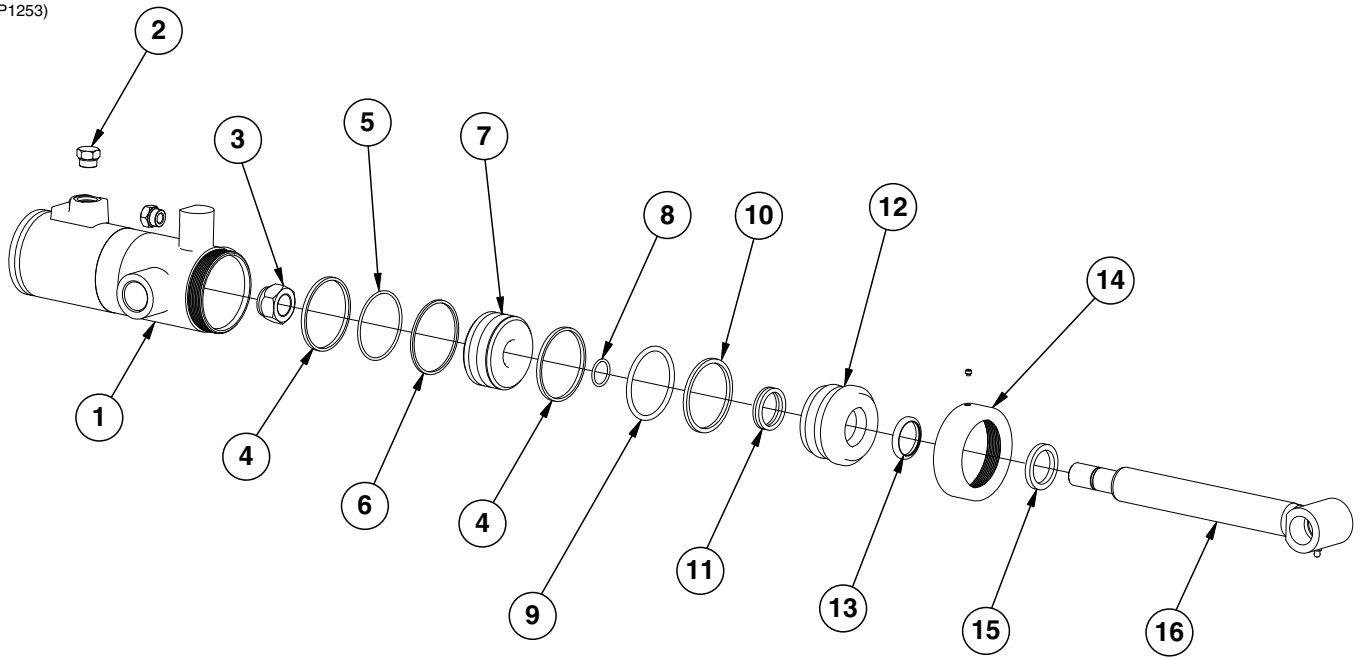
(IP1252)



ITEM	PART NO.	QTY	DESCRIPTION
1	A14278	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	G10958	1	Lock Nut, 1"-14
4	*D12092	2	Cast Iron Piston Ring
5	*D12248	1	Energizer Seal
6	*D12093	1	Piston Seal
7	GD20334	1	Piston
8	*D12208	1	O-Ring, No. 214
9	*D12246	1	O-Ring, No. 348
10	*D12247	1	Back-up Ring
11	*D12255	1	U-Cup
12	GD12572	1	Gland
13	*D12240	1	Wiper, 2"
14	GD12106	1	Ring
15	GA14279	1	Rod
A	GA14280	-	Cylinder Complete, 4 3/4" x 6" (Part Number Stamped On Barrel)
B	GR1546	1	Seal Kit, Includes: (1)Wiper, (2) O-Rings, (1) Back-up Ring, (1) U-Cup, (1) Seal, (2) Cast Iron Rings, (1)Energizer Seal

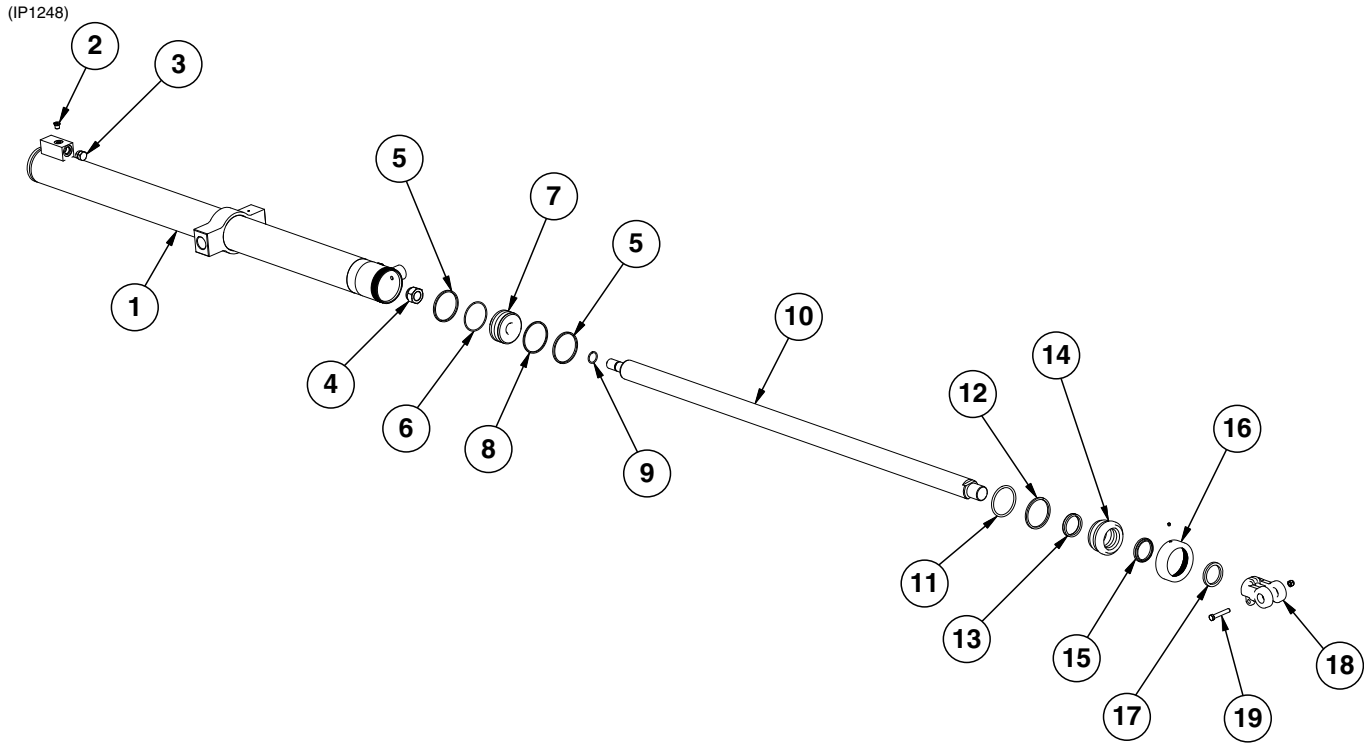
* Item is part of seal kit, item can not be purchased individually.

(IP1253)



ITEM	PART NO.	QTY	DESCRIPTION
1	A9467	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	G10958	1	Lock Nut, 1"-14
4	*D12110	2	Cast Iron Piston Ring
5	*D12108	1	Piston Seal
6	*D12257	1	Energizer Seal
7	GD13304	1	Piston
8	*D12208	1	O-Ring, No. 214
9	*D12227	1	O-Ring, No. 336
10	*D12228	1	Back-Up Ring
11	*D12252	1	U-Cup
12	GD13302	1	Gland
13	*D12206	1	Wiper, 1 1/2"
14	GD13303 G10907	1 1	Cap Set Screw, 1/4"-20 x 1/4"
15	GD12103	1	Ring
16	GA8157	1	Rod
A	GA9468	-	Cylinder Complete, 3 1/4" x 6" <i>(Part Number Stamped On Barrel)</i>
B	GR1573	-	Seal Kit, Includes: (1)Wiper, (2) O-Rings, (1) Back-up Ring, (1) U-Cup, (1) Seal, (2) Cast Iron Rings, (1)Energizer Seal

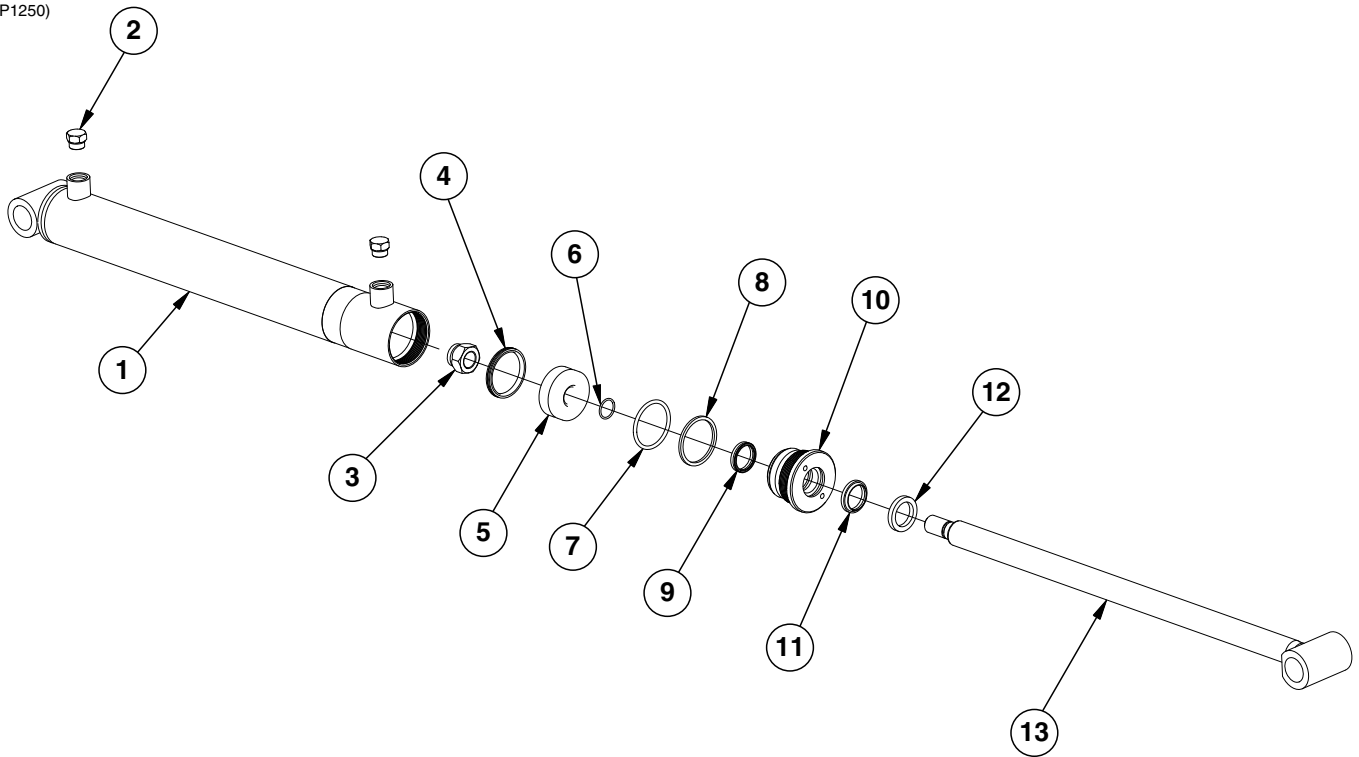
* Item is part of seal kit, item can not be purchased individually.



ITEM	PART NO.	QTY.	DESCRIPTION
1	A14275	1	Barrel (Non-Stock Item)
2	G6408-H04-0 GR1465	1 1	Hex Socket Head Plug W/O-Ring, 7/16"-20 O-Ring O-Ring
3	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
4	G10958	1	Lock Nut, 1"-14
5	*D12110	2	Cast Iron Ring
6	*D12108	1	Piston Seal
7	*D13304	1	Piston
8	*D12257	1	Expander
9	*D12208	1	O-Ring
10	GD20331	1	Rod
11	*D12227	1	O-Ring
12	*D12228	1	Backup Ring
13	*D12255	1	U-Cup
14	GD13307	1	Gland
15	*D12240	1	Wiper
16	GD13303 G10907	1 1	Cap Set Screw, 1/4"-20 x 1/4"
17	GD12106	1	Ring
18	GD11951	1	Clevis
19	G10939 G10108	1 1	Hex Head Cap Screw, 3/8"-16 x 2 1/4" Lock Nut, 3/8"-16
A	GA14282	-	Cylinder Complete, 3 1/4" x 48" (Part Number Stamped On Barrel)
B	GR1572	1	Seal Kit, Includes: (2) O-Rings, (2) Backup Rings, (1) Wiper, (1) U-Cup, (2) Cast Iron Rings, (1) Piston Seal, (1) Expander

* Item is part of seal kit, item can not be purchased individually.

(IP1250)



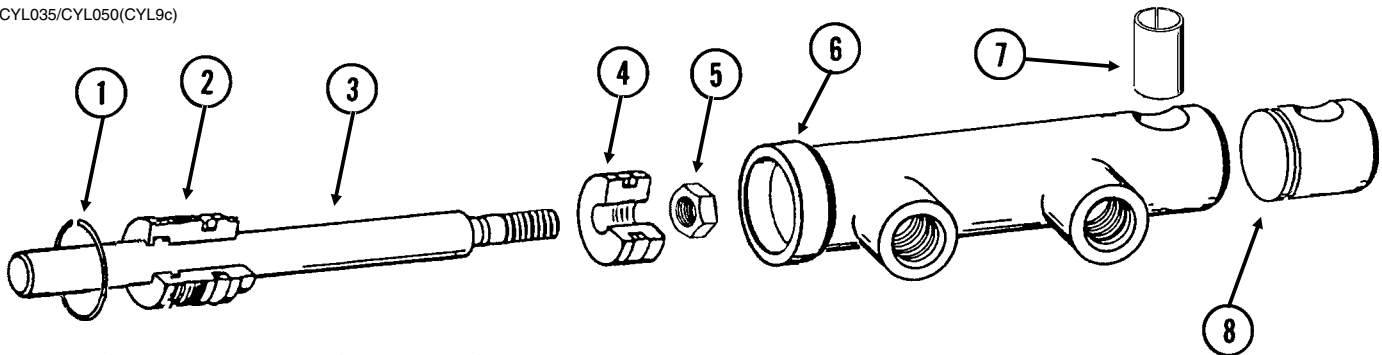
ITEM	PART NO.	QTY.	DESCRIPTION
1	A8822	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	G10969	1	Lock Nut, 7/8"-14
4	*D12275	1	T-Seal
5	GD11986	1	Piston
6	*D12214	1	O-Ring
7	*D12212	1	O-Ring
8	*D12213	1	Backup Ring
9	*D12251	1	U-Cup
10	GD11985	1	Gland
11	*D12210	1	Wiper
12	GD12102	1	Ring
13	GA8898	1	Rod Assembly

A	GA8899	-	Cylinder Complete, 2 1/2" x 20 1/16" (<i>Part Number Stamped On Barrel</i>)
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B	GR1522	-	Seal Kit, Includes: (1) T-Seal, (2) O-Rings, (1) Backup Ring, (1) U-Cup, (1) Wiper
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* Item is part of seal kit, item can not be purchased individually.

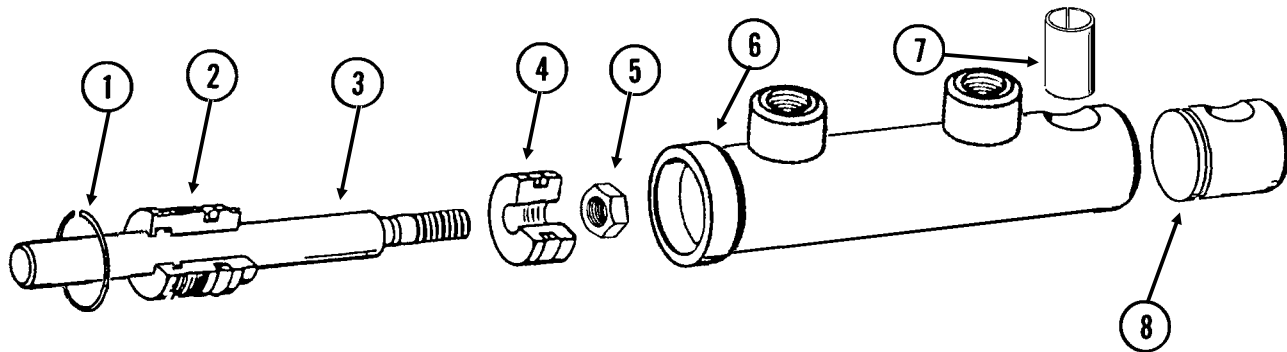
CYL035/CYL050(CYL9c)



ITEM	PART NO.	QTY.	DESCRIPTION
1	G10770	1	Internal Retaining Ring, 1 1/16"
2	GD13170	1	Gland
3	GD13425	1	Rod
4	GD13172	1	Piston
5	G11016	1	Lock Nut, 1/2"-20
6	D13426	1	Barrel (Non-Stock Item)
7	GD13400	1	Tension Bushing, 1" x 2" Long
8	GD13173	1	End Cap
A	GA9559	-	Cylinder Complete, 1 1/2" x 2 1/2" <i>(Part Number Stamped On Barrel)</i>
B	GR1598	-	Seal Kit, Includes: (3) O-Rings, (2) BU Rings, (1) Wiper, (1) T-Seal, (1) Bronze Bushing, (1) Seal, (1) U-Cup

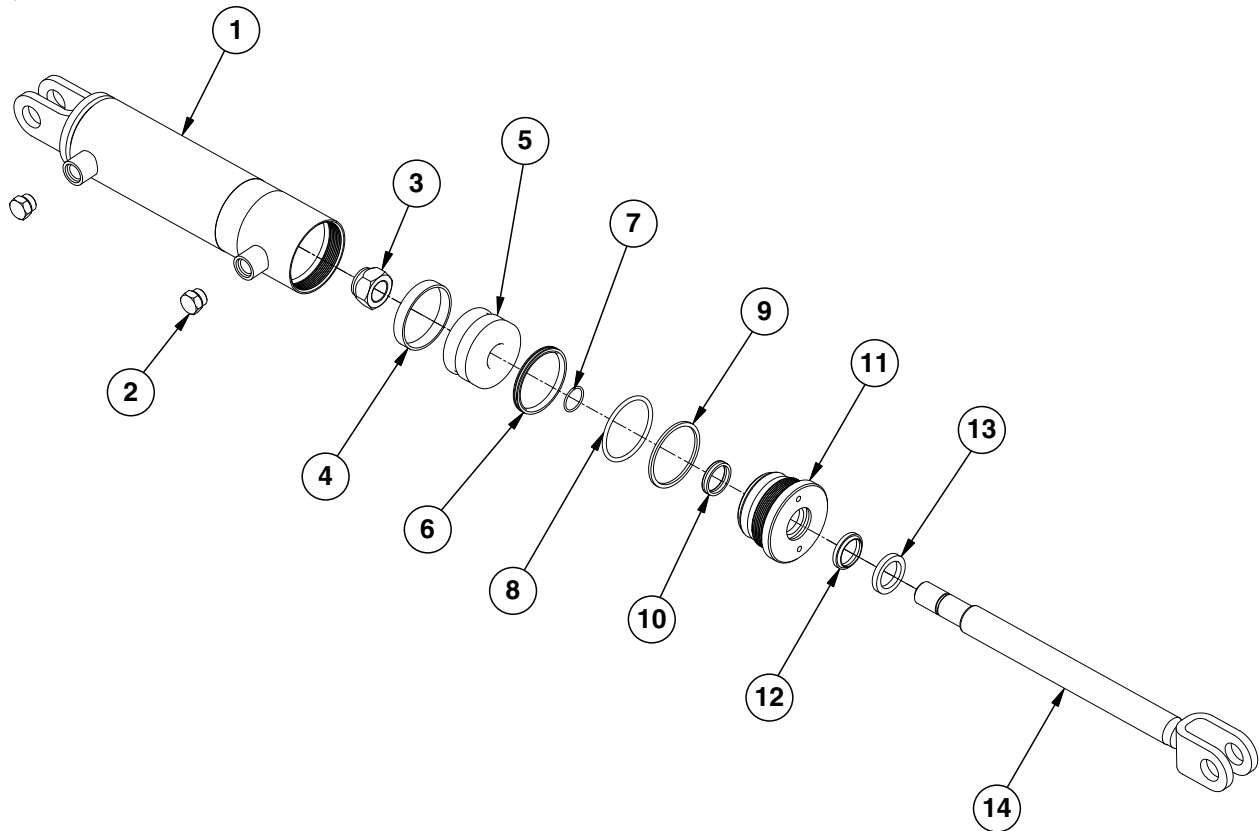
Tongue Lock Cylinder

CYL035(CYL9d)



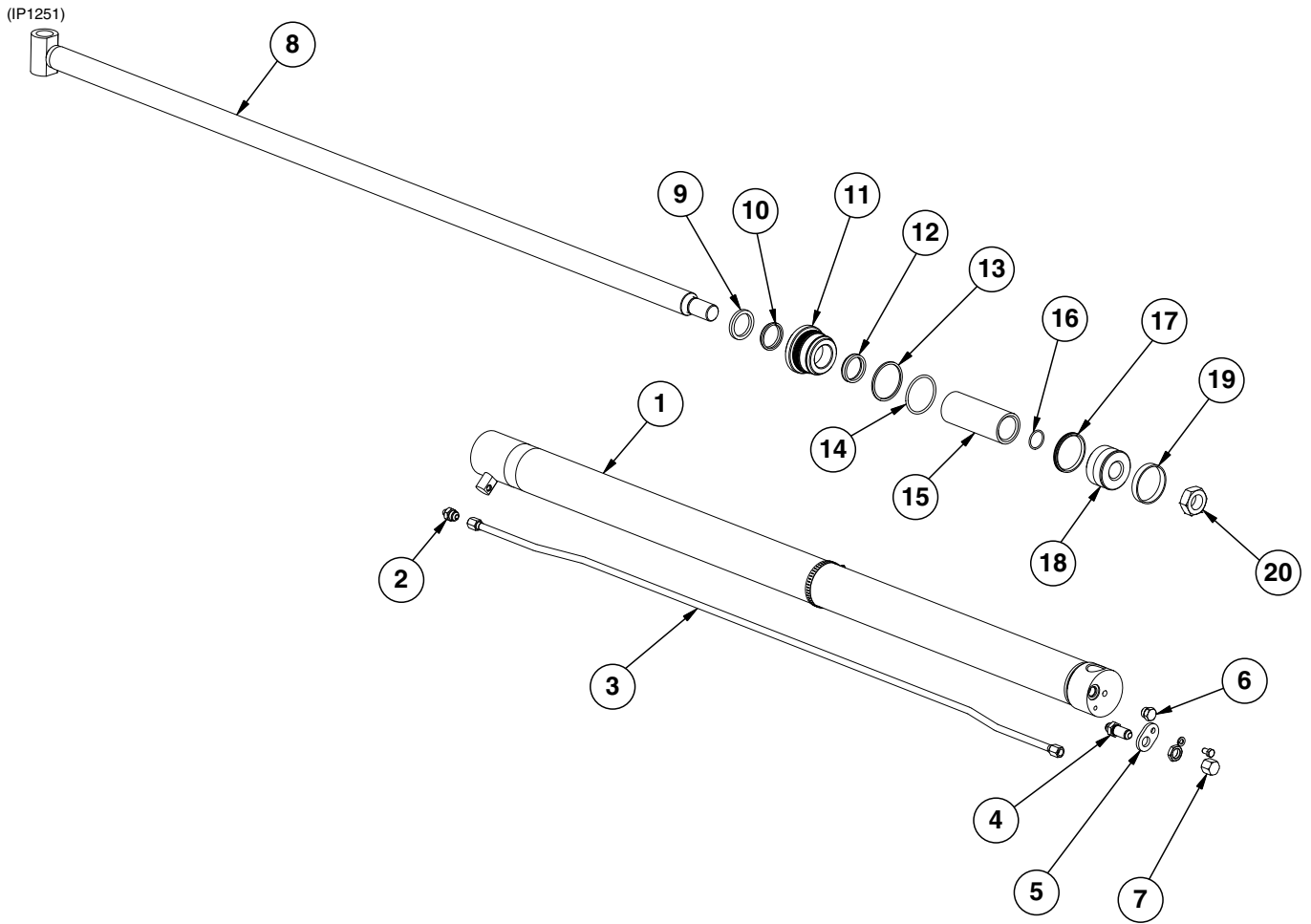
ITEM	PART NO.	QTY.	DESCRIPTION
1	G10770	1	Internal Retaining Ring, 1 1/16"
2	GD13170	1	Gland
3	GD13171	1	Rod
4	GD13172	1	Piston
5	G11016	1	Lock Nut, 1/2"-20
6	D13169	1	Barrel (Non-Stock Item)
7	GD13400	1	Tension Bushing, 1" x 2" Long
8	GD13173	1	End Cap
A	GA9205	-	Cylinder Complete, 1 1/2" x 2 1/2" <i>(Part Number Stamped On Barrel)</i>
B	GR1598	-	Seal Kit, Includes: (3) O-Rings, (2) BU Rings, (1) Wiper, (1) T-Seal, (1) Bronze Bushing, (1) Seal, (1) U-Cup

(IP1285)



ITEM	PART NO.	QTY.	DESCRIPTION
1	A14480	1	Barrel (Non-Stock Item)
2	G6408-08 GR1037	2 -	Plug W/O-Ring, 3/4"-16 O-Ring O-Ring
3	G10958	1	Lock Nut, 1"-14
4	*D12047	1	Wear Ring
5	GD12502	1	Piston
6	*D12278	1	T-Seal
7	*D12226	1	O-Ring, No. 120
8	*D12202	1	O-Ring, No. 334
9	*D12203	1	BU Ring
10	*D12251	1	U-Cup
11	GD11999	1	Gland
12	*D12210	1	Wiper
13	GD12102	1	Ring
14	GA14478	1	Rod
A	GA14481	-	Cylinder Complete, 3" x 8" <i>(Part Number Stamped On Barrel)</i>
B	GR1526	1	Seal Kit, Includes: (1) Wear Ring, (2) O-Rings, (1) BU Ring, (1) U-Cup, (1) Wiper, (1) T-Seal

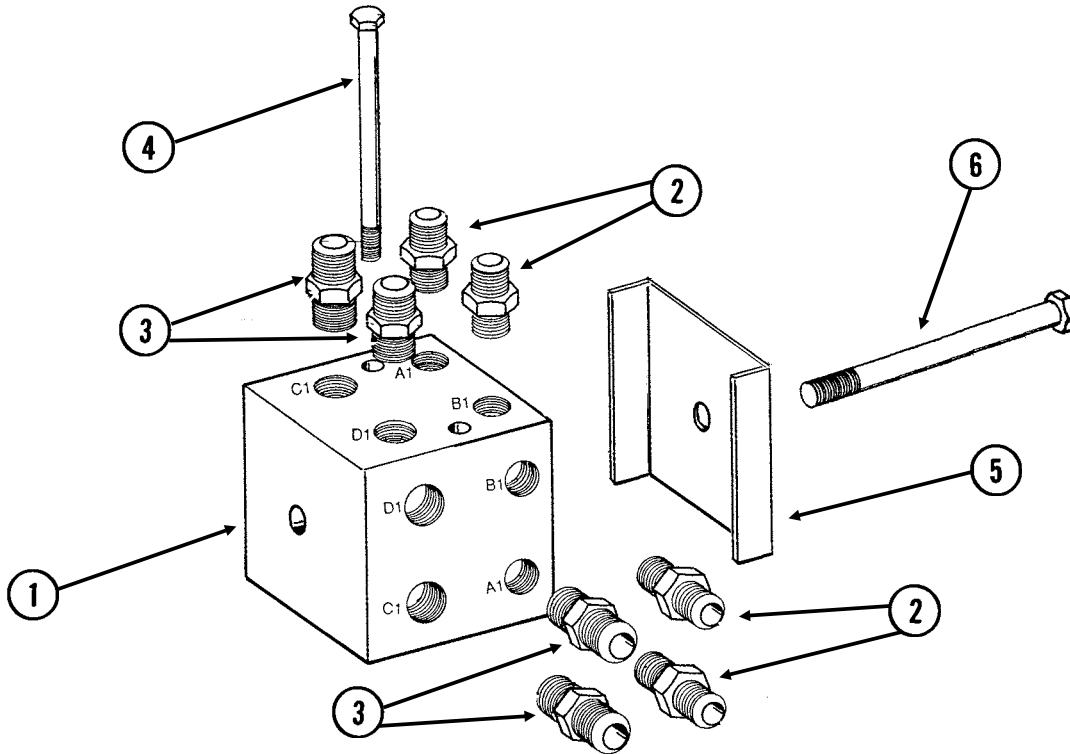
* Item is part of seal kit, item can not be purchased individually.



ITEM	PART NO.	QTY.	DESCRIPTION
1	A13937	1	Barrel, 12 Row (Non-Stock Item)
	A13953	-	Barrel, 16 Row (Non-Stock Item)
2	G6400-08-04	1	Connector W/O-Ring, 3/4"-16 Male JIC To 7/16"-20 O-Ring
	GR1465	-	O-Ring
3	GA13939	1	Hydraulic Tube Assembly, 62 ⁷ / ₈ ", 12 Row
	GA8979	-	Hydraulic Tube Assembly, 92 ¹ / ₁₆ ", 16 Row
	G10990	1	Hose Clamp, No. 52
4	G2700-08	1	Bulkhead Tube Union, 3/4"-16 Male JIC
	G306-08	1	Lock Nut, 3/4"-16
5	GD12597	1	Bracket
	G10328	1	Hex Head Cap Screw, 3/8"-16 x 5/8"
	G10229	1	Lock Washer, 3/8"
6	G6408-08	1	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
7	G304-C-08	1	Cap Nut, 3/4"-16
8	GA13935	1	Rod Assembly, 12 Row
	GA8859	-	Rod Assembly, 16 Row
9	GD12104	1	Ring
10	*D12200	1	Wiper
11	GD11984	1	Gland
12	*D12253	1	U-Cup
13	*D12203	1	BU Ring
14	*D12202	1	O-Ring, No. 334
15	GD7147	1	Spacer
16	*D12204	1	O-Ring, No. 218
17	*D12278	1	T-Seal
18	GD11970	1	Piston
19	*D12047	1	Wear Ring
20	G10972	1	Lock Nut, 1 1/4"-12
A	GA13938	-	Cylinder Complete, 3" x 54", 12 Row (<i>Part Number Stamped On Barrel</i>)
B	GA13954	-	Cylinder Complete, 3" x 84", 16 Row (<i>Part Number Stamped On Barrel</i>)
C	GR1519	-	Seal Kit Includes: (2) O-Rings, (1) BU Ring, (1) Wear Ring, (1) Wiper, (1) U-Cup, (1) T-Seal

* Item is part of seal kit, item can not be purchased individually.

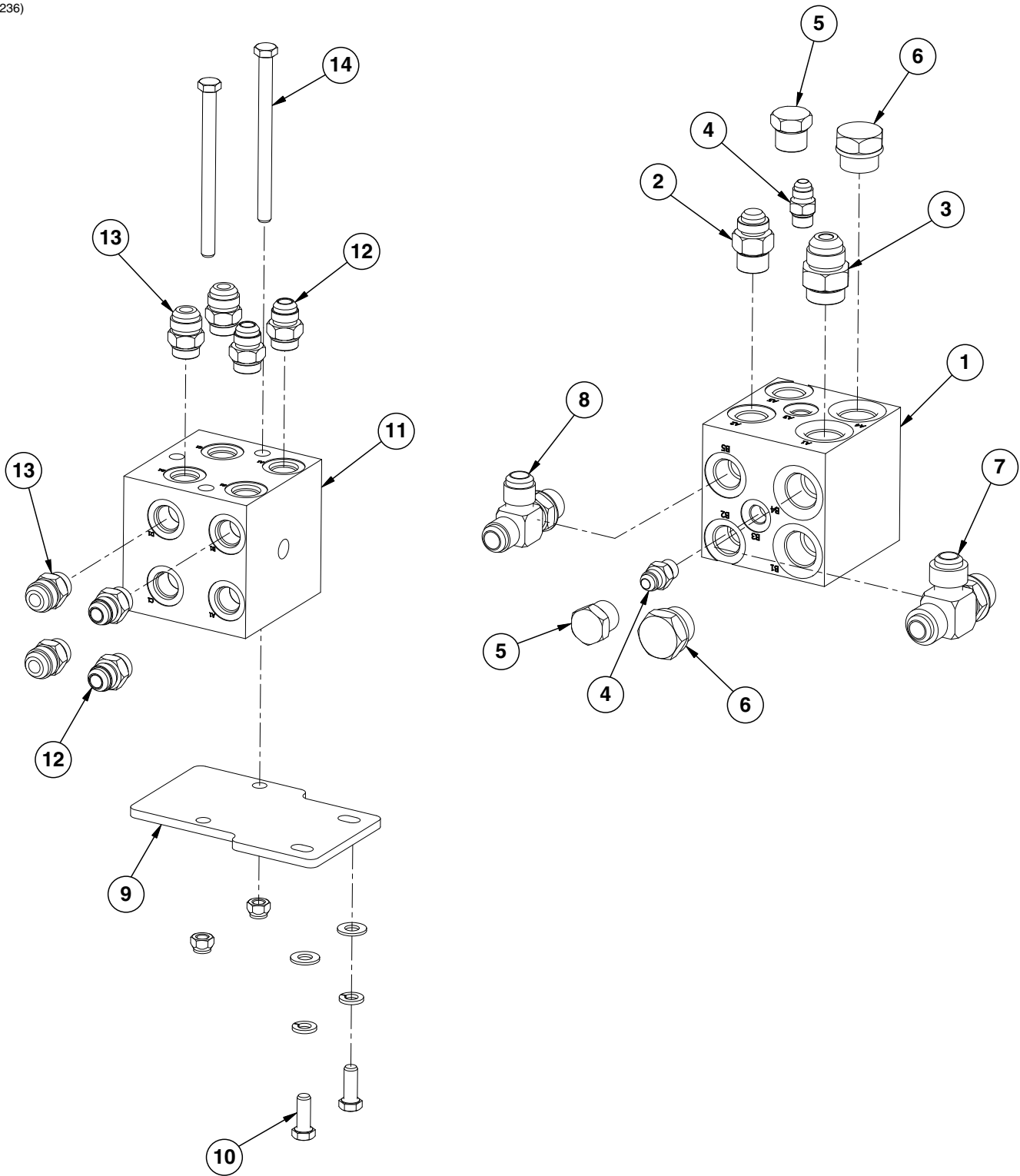
VVB036(TWL24k)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD9971	1	Manifold Block
2	G6400-08 GR1037	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
3	G6400-10-08 GR1037	4 -	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring O-Ring
4	G10172 G10229 G10101	2 2 2	Hex Head Cap Screw, 3/8"-16 x 5" Lock Washer, 3/8" Hex Nut, 3/8"-16
5	GD0740	1	Hose Clamp, 3/4" x 4" x 3 1/2"
6	G10871 G10228 G10102	1 1 1	Hex Head Cap Screw, 1/2"-13 x 6" Lock Washer, 1/2" Hex Nut, 1/2"-13

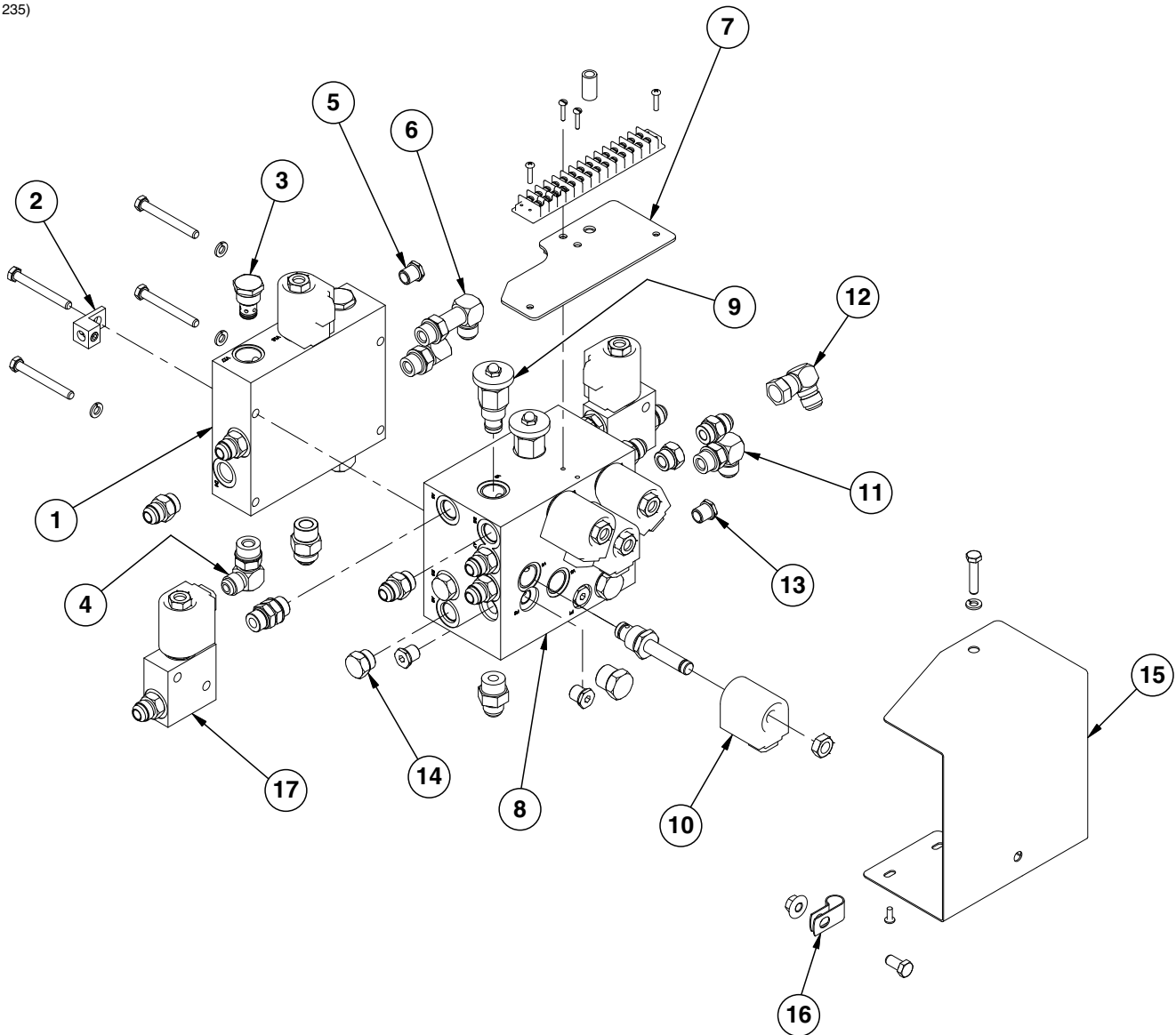
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(IP1236)



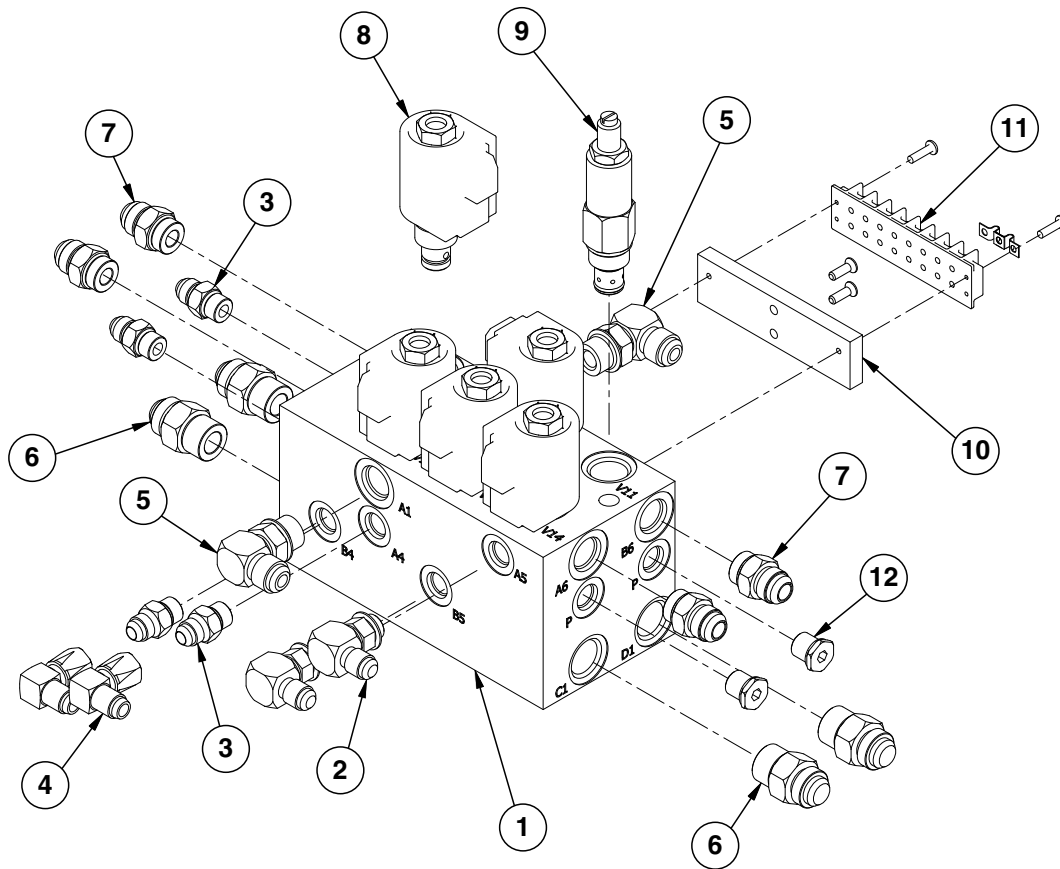
ITEM	PART NO.	QTY.	DESCRIPTION
1	GD20697	1	Fan Junction Block
2	G6400-10 GR1037	1 -	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring O-Ring
3	G6400-12 GR1467	1	Connector, W/O-Ring, 1 1/16"-12 Male JIC To O-Ring O-Ring
4	G6400-06 GR1045	2 -	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring O-Ring
5	G6408-10 GR1466	2 -	Plug W/O-Ring, 7/8"-14 O-Ring O-Ring
6	G6408-12	2	Plug W/O-Ring, 1 1/16"-12 O-Ring
7	G6804-12 GR1467	1 -	Adjustable Tee W/O-Ring, 1 1/16"-12 Male JIC To O-Ring O-Ring
8	G6804-10	1	Adjustable Tee W/O-Ring, 7/8"-14 Male JIC To O-Ring
9	GD20695	1	Extension Plate
10	G10001 G10229 G11387	2 2 2	Hex Head Cap Screw, 3/8"-16 x 1" Lock Washer, 3/8" Flat Washer, 3/8" SAE
11	GD9971	1	Manifold Block
12	G6400-08 GR1037	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
13	G6400-10-08 GR1037	4 -	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring O-Ring
14	G10172 G10108	2 2	Hex Head Cap Screw, 3/8"-16 x 5" Lock Nut, 3/8"-16

(IP1235)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD9977	1	Block
	G6801-08	1	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6400-08	2	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6400-10	1	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring
	GR1466	-	O-Ring
2	GA3584	1	Ground Clamp
	G10232	3	Lock Washer, 5/16"
	G10583	4	Hex Head Cap Screw, 5/16"-18 x 2 3/4"
3	GA4293	2	Check Valve
4	G6801-08-10	2	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To 7/8"-14 O-Ring
	GR1466	-	O-Ring
5	G6408-H06-O	6	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
6	G6801-L-08	1	Long Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
7	GA13741	1	Terminal Strip Mount
	G11066	2	Phillips Pan Head Machine Screw, No. 10-24 x 3/4", Stainless Steel
	GD8066-02	1	Sleeve, 1" Long
	GA9097	1	Terminal Strip W/Screws, No. 6, 14 Terminal
	GR1635	-	Screw, No. 6-32 x 1/4"
	G11067	2	Phillips Pan Head Machine Screw, No. 8-32 x 3/4", Stainless Steel
8	GD9533	1	Block
	G6400-08-10	2	Connector W/O-Ring, 3/4"-16 Male JIC To 7/8"-14 O-Ring
	GR1466	-	O-Ring
	G6408-10	2	Plug W/O-Ring, 7/8"-14 O-Ring
	GR1466	-	O-Ring
	G6400-08	7	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
9	GA3413	2	Flow Control Valve
10	---	5	See "Solenoid Valve" on page P170
11	G6801-08	1	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
12	G6500-08	1	Swivel Elbow, 90°, 3/4"-16 Male JIC To Female
13	G6408-H06-O	5	Hex Socket Head Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
14	G6408-08	4	Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
15	GD13146	1	Valve Block Cover
	G10977	2	Phillips Pan Head Machine Screw, No. 10-24 x 1/2", Stainless Steel
	G10232	1	Lock Washer, 5/16"
	G10133	1	Hex Head Cap Screw, 5/16"-18 x 1 1/2"
16	GD13348	1	Insulated Clamp, 1 1/16"
	G10002	1	Hex Head Cap Screw, 3/8"-16 x 3/4"
	G11091	1	Serrated Flange Nut, 3/8"-16
17	GD14528	2	Valve Block
	G6400-08	2	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring
	GR1037	-	O-Ring
	G6403-NWO-08	2	Adjustable Union, 3/4"-16 O-Ring
A	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

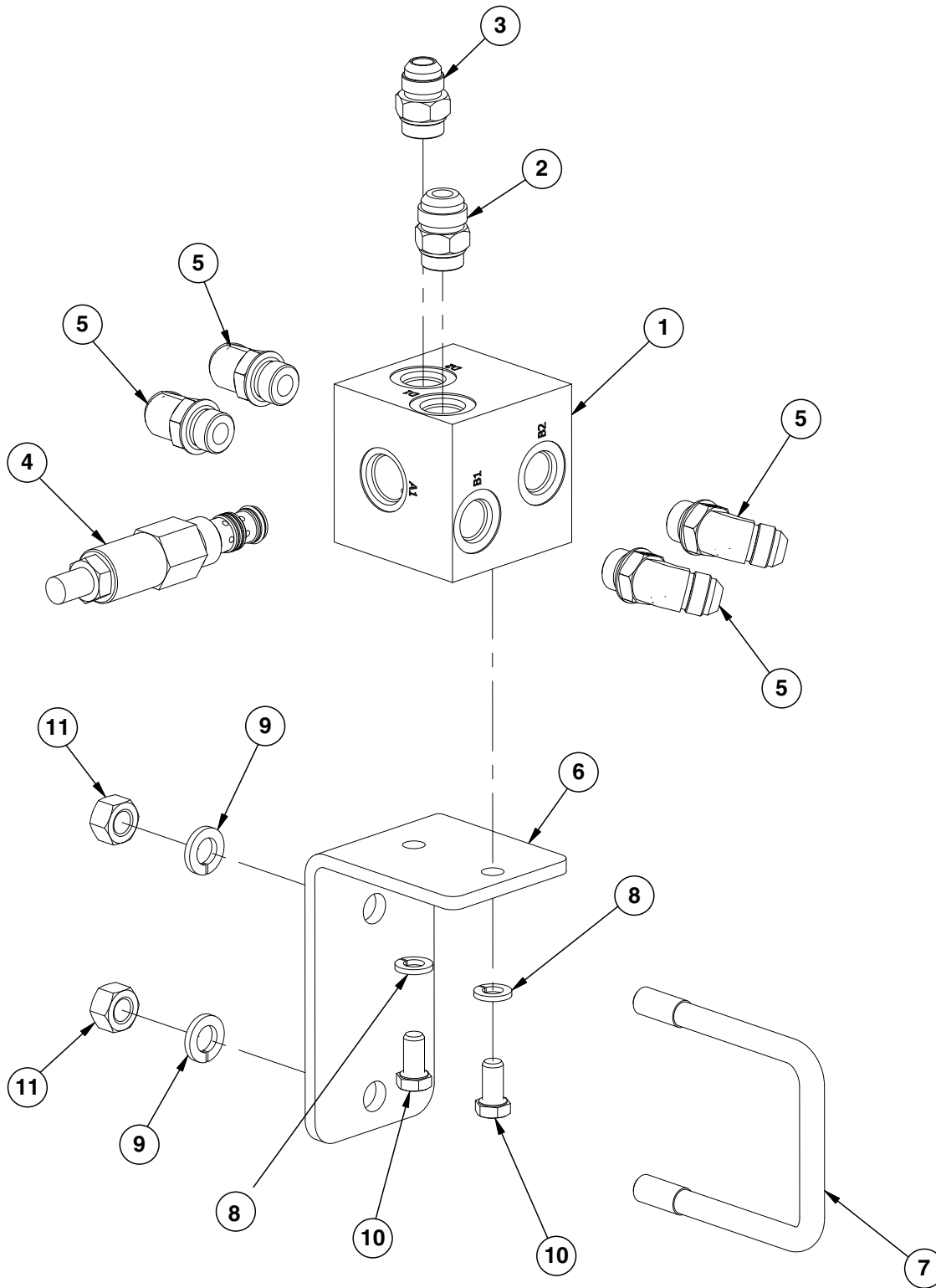
(IP1110/IP1111)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GD9905	1	Block
2	G6801-06 GR1045	2 -	Elbow W/O-Ring, 90°, 1/16"-18 Male JIC To O-Ring O-Ring
3	G6400-06 GR1045	4 -	Connector W/O-Ring, 1/16"-18 Male JIC To O-Ring O-Ring
4	G6500-06	2	Swivel Elbow, 90°, 1/16"-18 Male JIC To Female
5	G6801-08 GR1037	2 -	Elbow W/O-Ring, 90°, 3/4"-16 Male JIC To O-Ring O-Ring
6	G6400-10 GR1466	4 -	Connector W/O-Ring, 7/8"-14 Male JIC To O-Ring O-Ring
7	G6400-08 GR1037	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
8	---	-	See "Solenoid Valve" on page P170
9	GA3407	-	Pressure Relief Valve, 1000 PSI
10	GD12818 G11068	1 2	Terminal Strip Mount Phillips Flat Head Machine Screw, No. 10-24 x 5/8", Stainless Steel
11	GA9098 GD13310 G11065	1 2 2	Terminal Strip W/Screws, No. 6, 8 Terminal Jumper, 7/16" Phillips Pan Head Machine Screw, No. 8-32 x 5/8", Stainless Steel
12	G6408-H06-0 GR1045	2 -	Hex Socket Head Plug W/O-Ring, 1/16"-18 O-Ring
A	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring

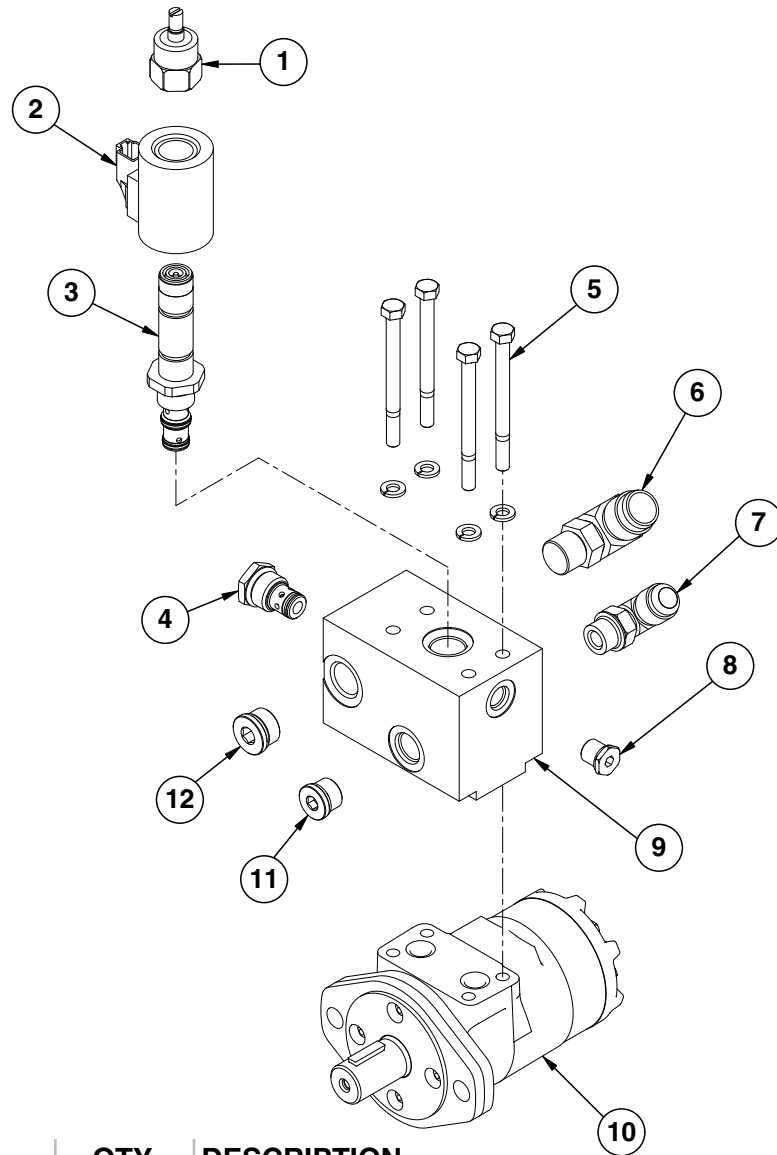
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(IP1256)



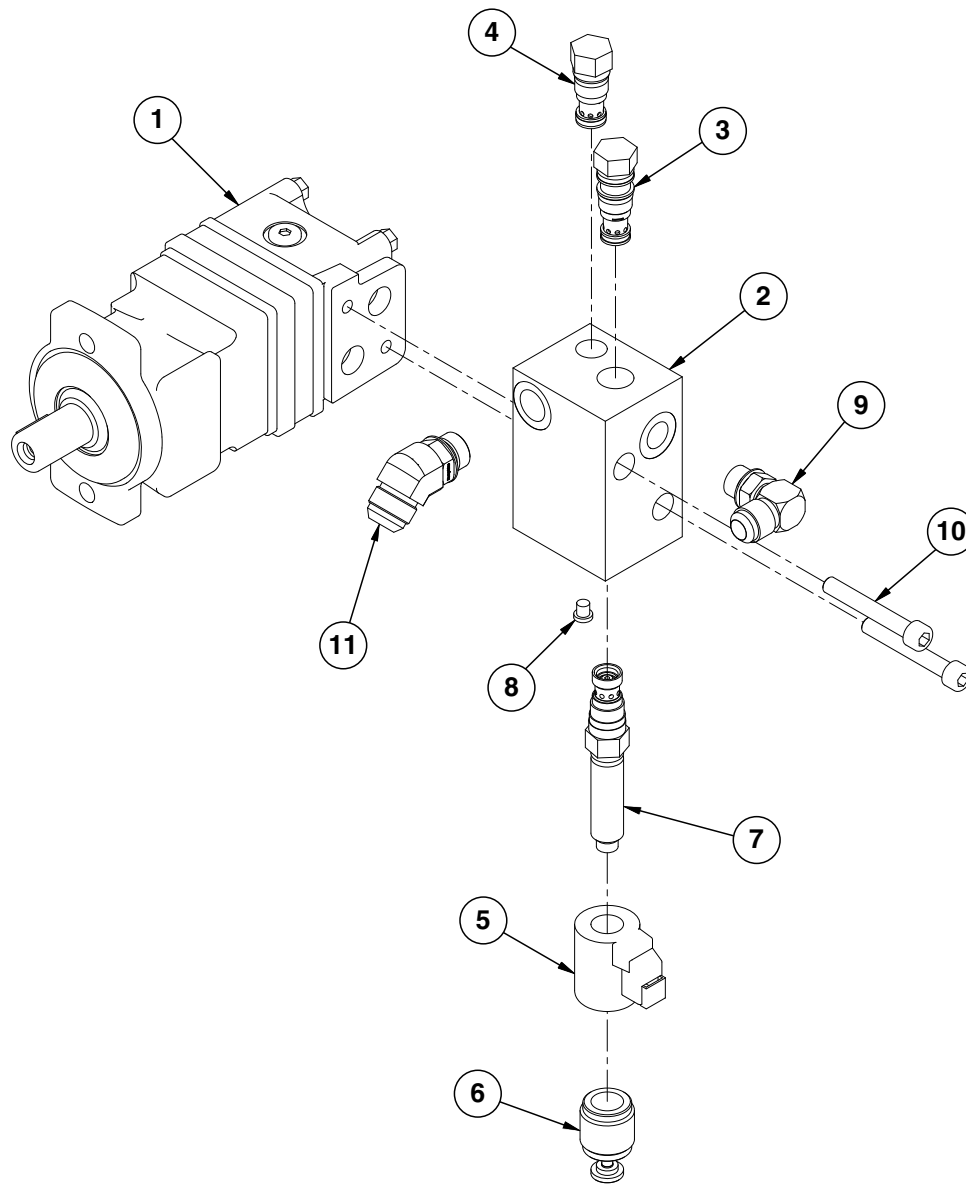
ITEM	PART NO.	QTY.	DESCRIPTION
1	GD20718	1	Wing Down Pressure Valve Block
2	G6400-10-08 GR1037	1 -	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring O-Ring
3	G6400-08 GR1037	1 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
4	GA14489	1	Pressure Reducing Relief Valve
5	G6802-08 GR1037	4 -	Elbow W/O-Ring, 45°, 3/4"-16 Male JIC To O-Ring O-Ring
6	GD20719	1	Wing Down Pressure Bracket
7	GD4743	1	U-Bolt, 3" x 3" x 1/2"-13
8	G10229	2	Lock Washer, 3/8"
9	G10228	2	Lock Washer, 1/2"
10	G10002	2	Hex Head Cap Screw, 3/8"-16 x 3/4"
11	G10102	2	Hex Nut, 1/2"-13

(IP1076)



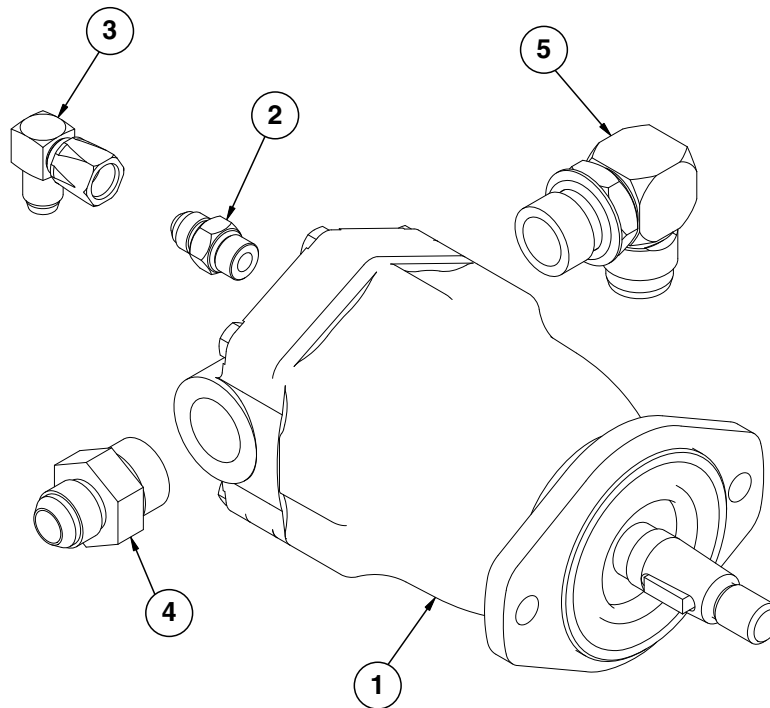
ITEM	PART NO.	QTY.	DESCRIPTION
1	GR1846	1	Manual Override
2	GA13079	1	Coil
3	GA13078	1	Proportional Valve
4	GA4293	1	Check Valve
5	G11309	4	Hex Head Cap Screw, 5/16"-18 x 3 3/4"
	G10232	4	Lock Washer, 5/16"
6	G6801-12-10	1	Elbow W/O-Ring, 90°. 1 1/16"-12 Male JIC To 7/8"-14 O-Ring
	GR1466	-	O-Ring
7	G6801-10-08	1	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
8	G6408-H06-0	1	Hex Socket Head, 9/16"-18, O-Ring Plug
9	GD19440	1	Valve Block
10	GA13633	1	Hydraulic Motor
	GD18811	2	O-Ring, No. 112
11	G6408-H08-O	1	Hex Socket Head Plug W/O-Ring, 3/4"-16 O-Ring
	GR1037	-	O-Ring
12	G6408-H10-0	1	Hex Socket Head Plug W/O-Ring, 7/8"-14 O-Ring
A	GA14576	-	Hydraulic Motor Assembly
B	GR1939	-	Seal Kit (Hydraulic Motor)
C	GR0764	-	Seal Kit (Proportional Valve), Includes: (2) O-Rings, (1) BU Ring

(IP1276)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA13220	1	Hydraulic Motor
	GD18811	2	O-Ring, No. 112
2	GD18672	1	Valve Block
3	GA13224	1	Pressure Comp. Valve
4	GA13223	1	Check Valve
5	GA13222	1	Coil
6	GR1847	1	Manual Override
7	GA13221	1	Proportional Valve
8	G6408-H02-0	1	O-Ring Plug
9	G6801-10-08	1	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
10	G11258	2	Hex Socket Head Cap Screw, M10-1.5 x 2.75"
11	G6802-12-10	1	Elbow W/O-Ring, 90°. 1 1/16"-12 Male JIC To 7/8"-14 O-Ring
A	GA13791	-	Hydraulic Motor Assembly
B	GR1945	-	Seal Kit (Hydraulic Motor)
C	GR0764	-	Seal Kit (Proportional Valve), Includes: (2) O-Rings, (1) BU Ring

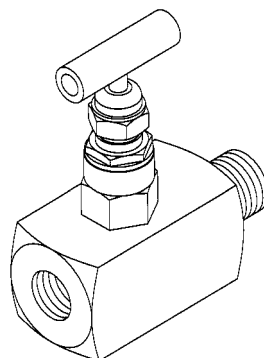
(METR21a)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA10149 GR1734	1 -	Hydraulic Motor Seal Kit
2	G6400-06 GR1045	1 -	Connector W/O-Ring, 9/16"-18 Male JIC To O-Ring O-Ring
3	G6500-06	1	Swivel Elbow, 90°, 9/16"-18 Male JIC To Female
4	G6400-10-12 GR1467	1 -	Elbow W/O-Ring, 90°, 7/8"-14 Male JIC To 1 1/16"-12 O-Ring O-Ring
5	G6801-12 GR1467	1 -	Elbow W/O-Ring, 90°, 1 1/16"-12 Male JIC To O-Ring O-Ring

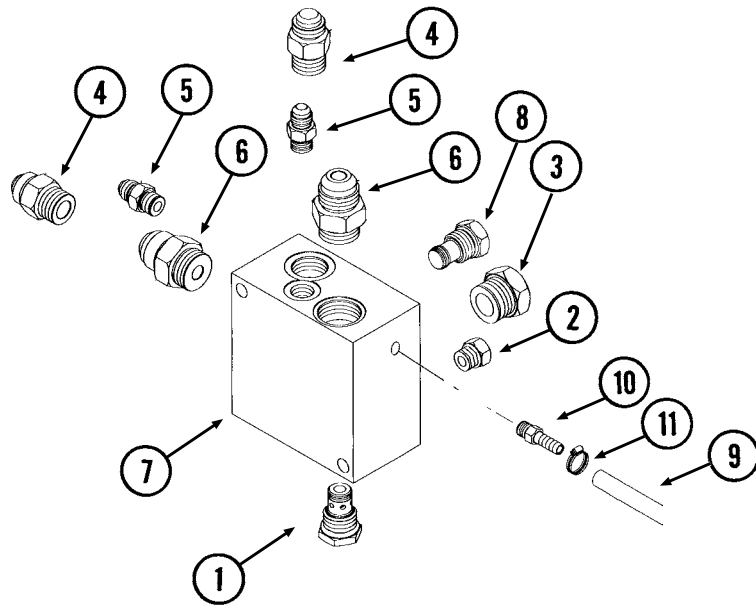
Optional Flow Control Needle Valve Kit

(A11650)



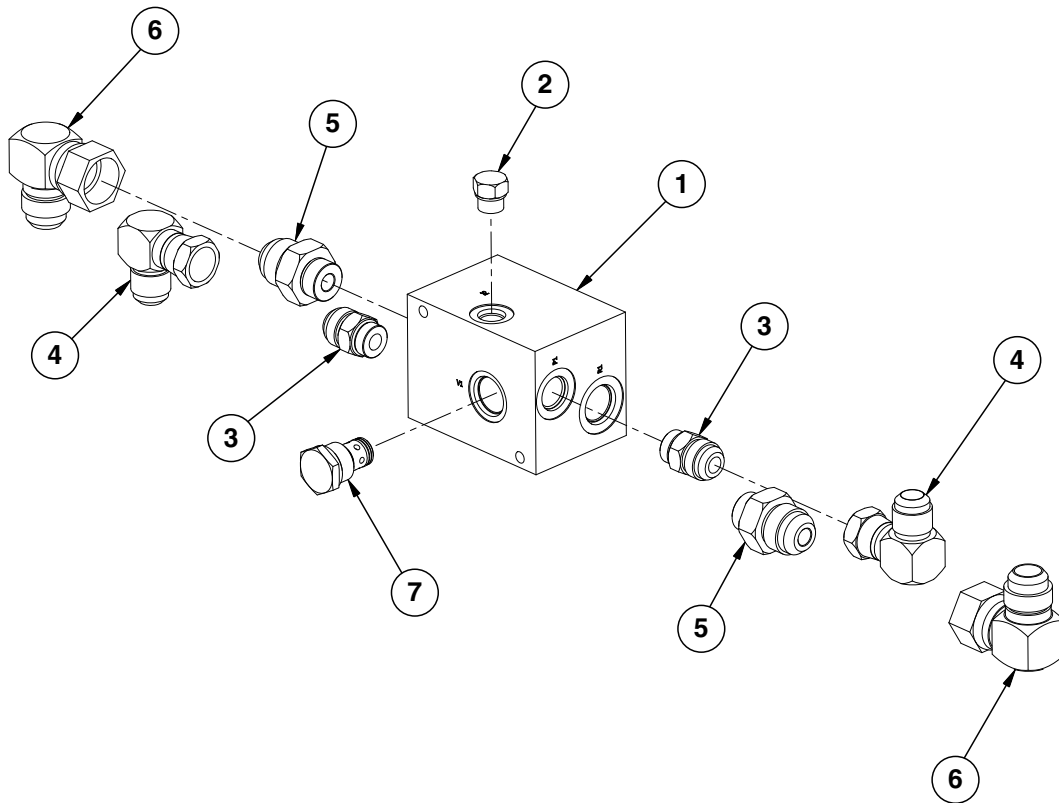
ITEM	PART NO.	QTY.	DESCRIPTION
1	G1K426	-	Needle Valve Kit W/Instructions

(A11068d)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA4293	1	Check Valve
2	G6408-06 GR1045	1 -	Plug W/O-Ring, $\frac{9}{16}$ "-18 O-Ring O-Ring
3	G6408-12 GR1467	1 -	Plug W/O-Ring, $1\frac{1}{16}$ "-12 O-Ring O-Ring
4	G6400-10 GR1466	2 -	Connector W/O-Ring, $\frac{7}{8}$ "-14 Male JIC To O-Ring O-Ring
5	G6400-06 GR1045	2 -	Connector W/O-Ring, $\frac{9}{16}$ "-18 Male JIC To O-Ring O-Ring
6	G6400-12 GR1467	2 -	Connector W/O-Ring, $1\frac{1}{16}$ "-12 Male JIC To O-Ring O-Ring
7	GD16188	1	Valve Block
8	GA11934	1	Relief Valve Cartridge
9	GD6279-05	1	Clear Plastic Tubing, $\frac{9}{16}$ " O.D. x 60"
10	GD11700	1	Adapter, $\frac{1}{4}$ " NPT To $\frac{3}{8}$ " Barb
11	G10681	1	Hose Clamp, No. 6

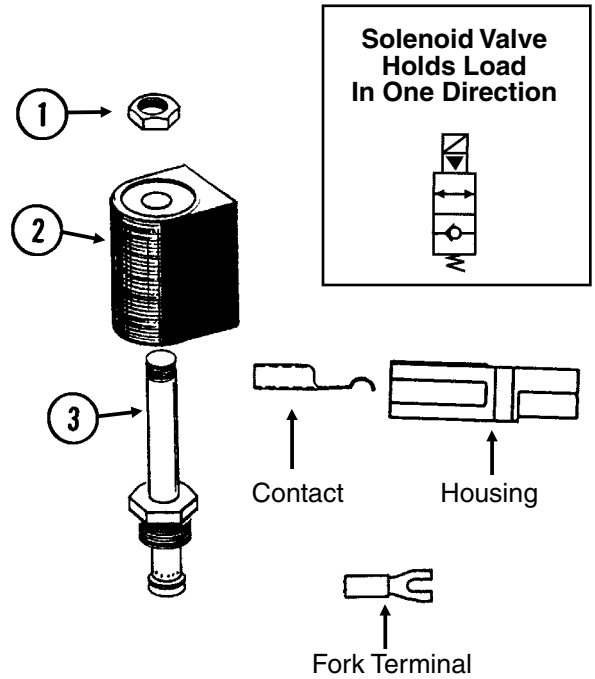
(IP1290)



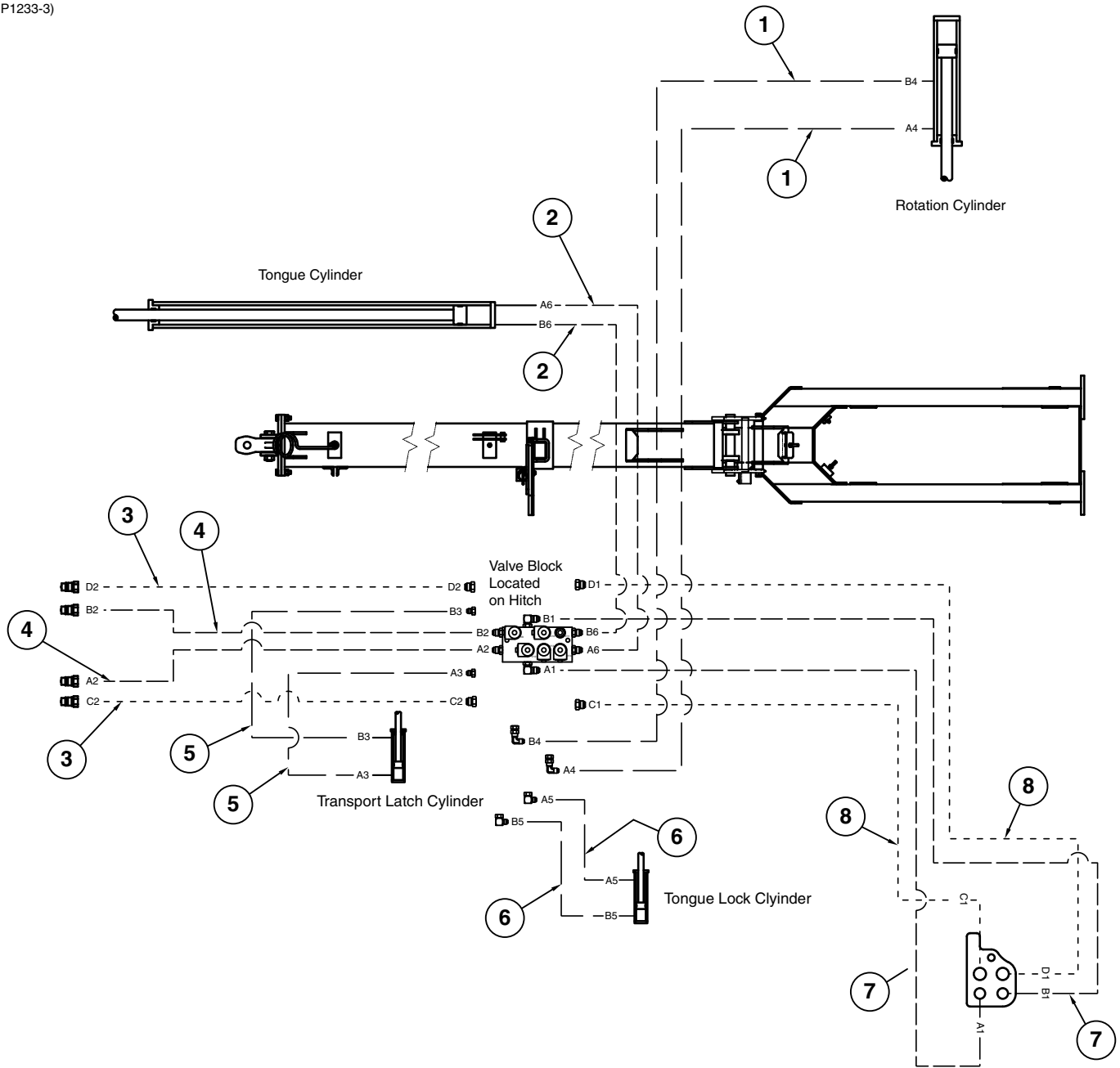
ITEM	PART NO.	QTY.	DESCRIPTION
1	GD19123	1	ASD Fan Block
2	G6408-06	1	Plug W/O-Ring, 9/16"-18 O-Ring
	GR1045	-	O-Ring
3	G6400-10-08	2	Connector W/O-Ring, 7/8"-14 Male JIC To 3/4"-16 O-Ring
	GR1037	-	O-Ring
4	G6500-10	2	Swivel Elbow, 90°, 7/8"-14 Male JIC To Female
5	G6400-12-10	2	Connector W/O-Ring, 1 1/16"-12 JIC To 7/8"-14 O-Ring
6	G6500-12	2	Swivel Elbow, 90°, 1 1/16"-12 Male JIC To Female
7	GA4293	1	Check Valve

VVB019(TWL27c/TWL18/PLTR75c/A9481)

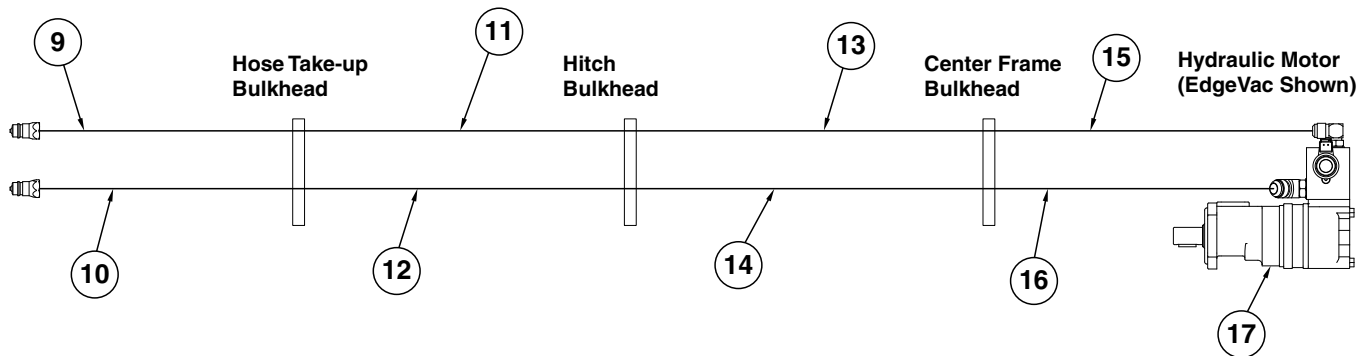
ITEM	PART NO.	QTY.	DESCRIPTION
1	GR0761	1	Special Hex Nut, 1/2"-20
2	G1K274	1	Coil Kit W/Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
3	GR0763	1	Cartridge
A	G1K275	-	Solenoid Valve Kit W/ Solenoid Valve, Contacts, Housings And Fork Terminals
	GD9529	2	Housing, Black
	GD9530	2	Contact
	G10996	2	Fork Terminal
B	GR0764	-	Seal Kit, Includes: (2) O-Rings, (1) BU Ring



(IP1233-3)



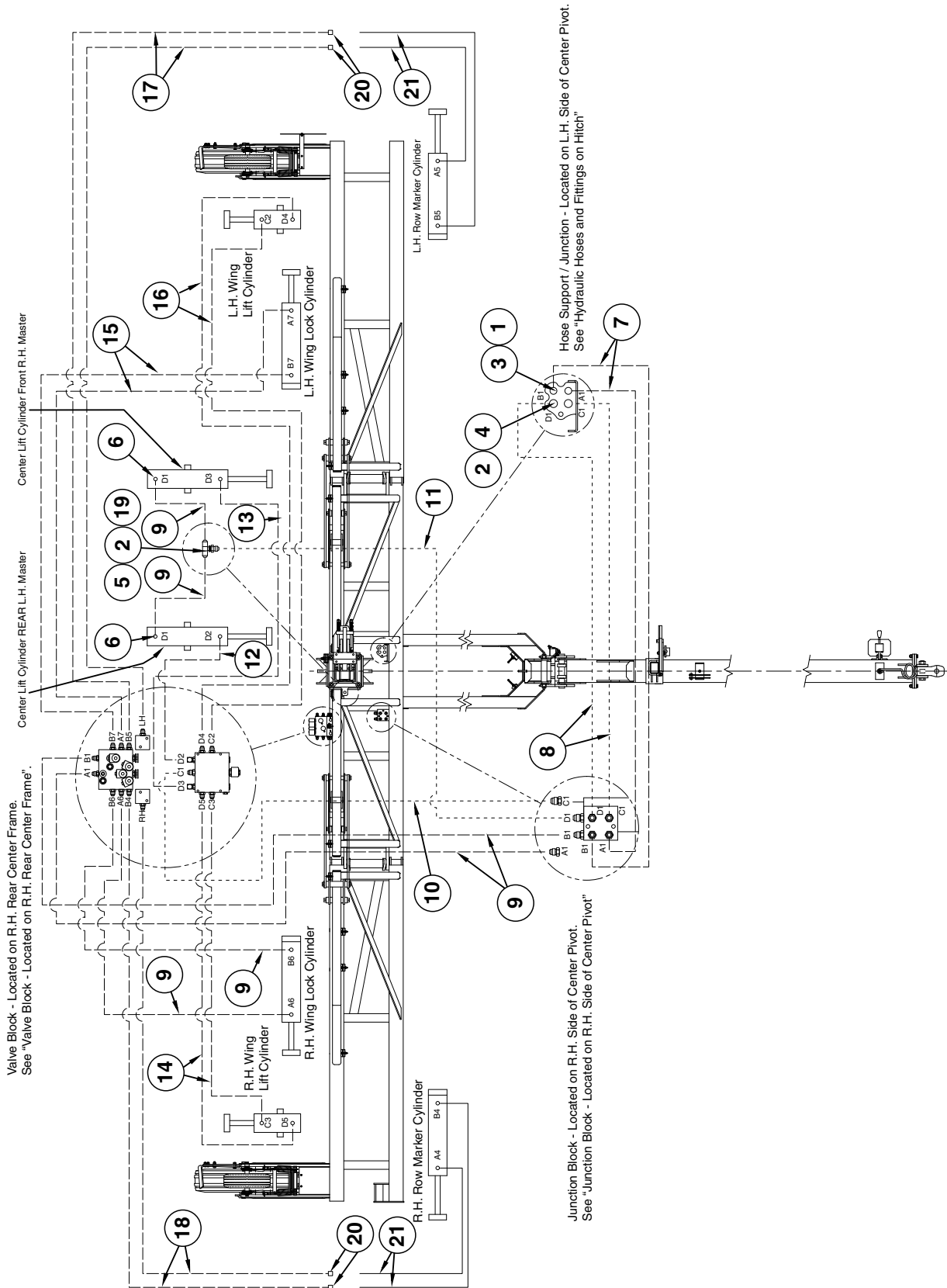
Hydraulic Drive



ITEM	PART NO.	QTY.	DESCRIPTION
1	*A1116	2	Hose Assembly, 1/4" x 136", 16 Row 30"
2	*A3118	2	Hose Assembly, 3/8" x 80", 16 Row 30"
3	*A8266	2	Hose Assembly, 1/2" x 268", 16 Row 30"
	*A8207	-	Hose Assembly, 1/2" x 209", 12 Row 30"
4	*A12089	2	Hose Assembly, 3/8" x 269", 16 Row 30"
	*A12088	-	Hose Assembly, 3/8" x 209", 12 Row 30"
5	*A1129	2	Hose Assembly, 1/4" x 168", 16 Row 30"
	*A1171	-	Hose Assembly, 1/4" x 108", 12 Row 30"
6	*A1139	2	Hose Assembly, 1/4" x 40", 12 Row 30" and 16 Row 30"
7	*A1041	2	Hose Assembly, 3/8" x 130", 16 Row 30"
8	*A1478	2	Hose Assembly, 1/2" x 128", 16 Row 30"
9	*A12754	1	Hose Assembly, 1/2" x 206", 12 Row 30"
	*A8266	1	Hose Assembly, 1/2" x 268", 16 Row 30"
10	*A11449	1	Hose Assembly, 5/8" x 206", 12 Row 30"
	*A11450	1	Hose Assembly, 5/8" x 266", 16 Row 30"
11	*A12751	1	Hose Assembly, 1/2" x 142 1/2"
12	*A11442	1	Hose Assembly, 5/8" x 137 1/2"
13	*A1464	1	Hose Assembly, 1/2" x 72"
14	*A11443	1	Hose Assembly, 5/8" x 73"
15	*A12756	1	Hose Assembly, 1/2" x 97"
16	*A11448	1	Hose Assembly, 5/8" x 100"
17	---	-	See "Hydraulic Motor Assembly (Mechanical)" on page P165 See "Hydraulic Motor Assembly (EdgeVac)" on page P166

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

(IP1317)

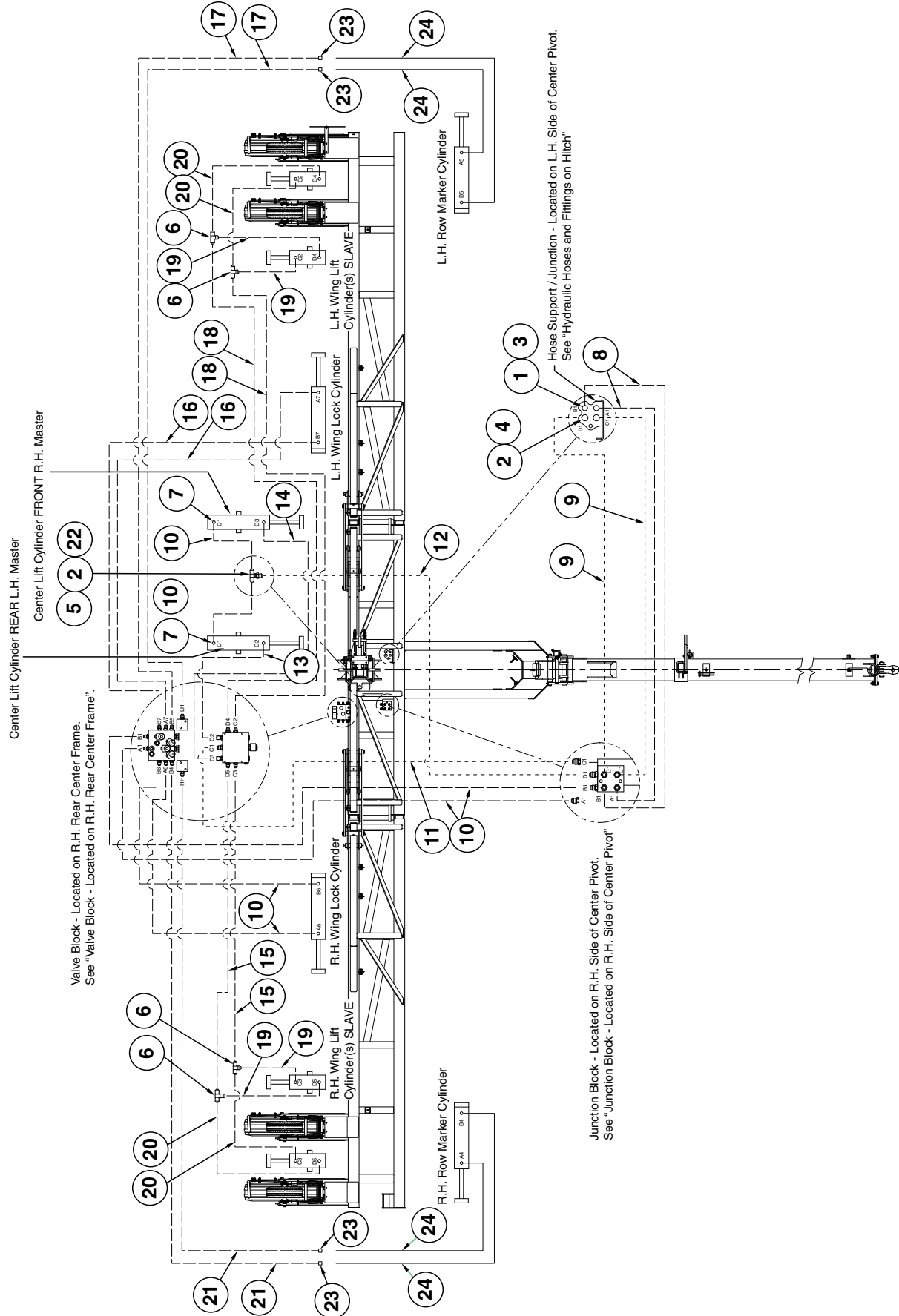


ITEM	PART NO.	QTY.	DESCRIPTION
1	G306-08	2	Lock Nut, 3/4"-16
2	G306-10	3	Lock Nut, 7/8"-14
3	G2700-08	2	Bulkhead Tube Union, 3/4"-16 Male JIC
4	G2700-10	2	Bulkhead Tube Union, 7/8"-14 Male JIC
5	G2703-08-08-10	1	Bulkhead Tee, 7/8"-14 Male JIC To 3/4"-16 JIC
6	G6400-08 GR1037	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring, O-Ring
7	*A12090	2	Hose Assembly, 3/8" x 63"
8	*A8267	2	Hose Assembly, 1/2" x 58"
9	*A1076	6	Hose Assembly, 3/8" x 30"
10	*A1424	1	Hose Assembly, 1/2" x 30"
11	*A1404	1	Hose Assembly, 1/2" x 41"
12	*A3131	1	Hose Assembly, 3/8" x 42"
13	*A3128	1	Hose Assembly, 3/8" x 52"
14	*A1028	2	Hose Assembly, 3/8" x 186"
15	*A1055	2	Hose Assembly, 3/8" x 66"
16	*A1033	2	Hose Assembly, 3/8" x 250"
17	*A12042	2	Hose Assembly, 3/8" x 228"
18	*A3117	2	Hose Assembly, 3/8" x 176"
19	G10235	1	Machine Bushing, 7/8", 14 Gauge
20	G2408-08	4	Plug, 3/4"-16
21	GA3158	4	Hose Assembly, 3/8" x 46"

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

(IP1233-4)

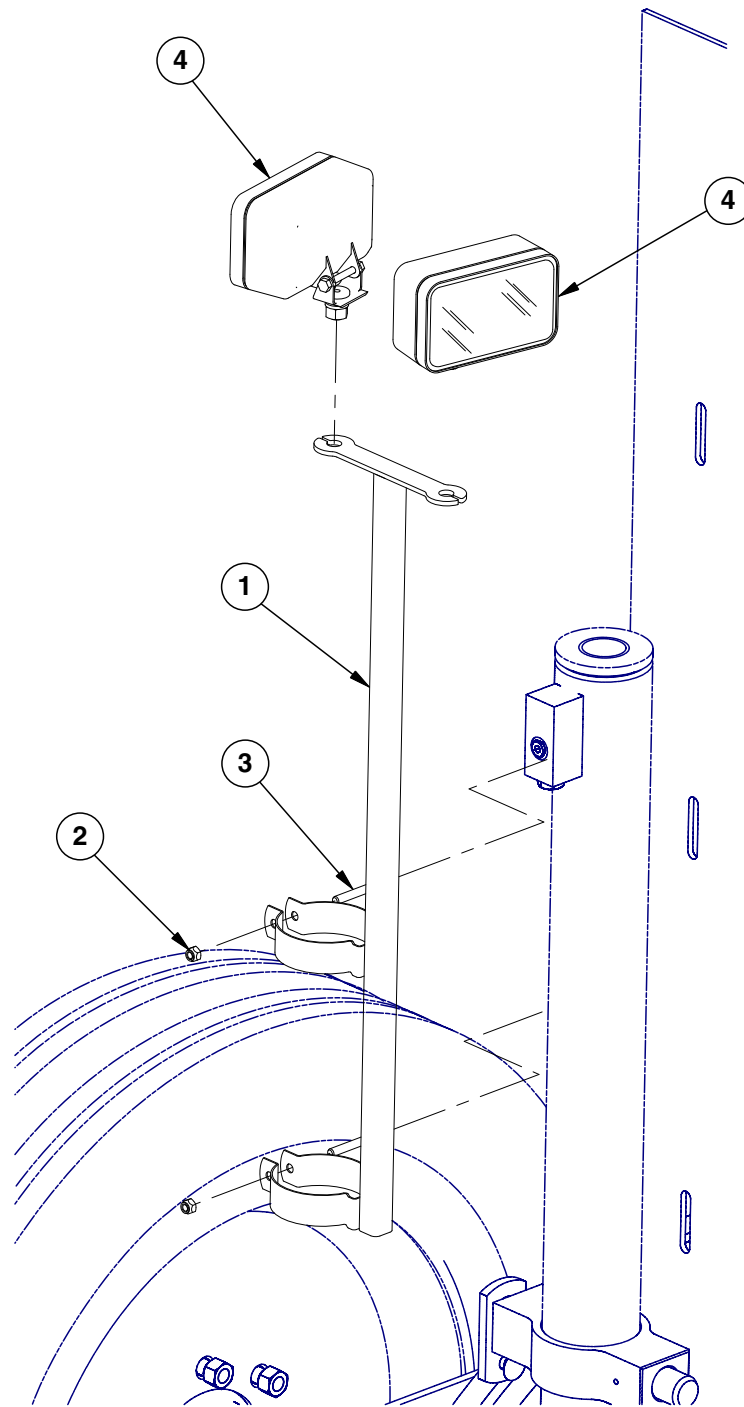
16 Row Shown



ITEM	PART NO.	QTY.	DESCRIPTION
1	G306-08	2	Lock Nut, 3/4"-16
2	G306-10	3	Lock Nut, 7/8"-14
3	G2700-08	2	Bulkhead Tube Union, 3/4"-16 Male JIC
4	G2700-10	2	Bulkhead Tube Union, 7/8"-14 Male JIC
5	G2703-08-08-10	1	Bulkhead Tee, 7/8"-14 Male JIC To 3/4"-16 JIC
6	G2603-08	4	Tee, 3/4"-16 Male JIC
7	G6400-08 GR1037	4 -	Connector W/O-Ring, 3/4"-16 Male JIC To O-Ring O-Ring
8	*A12090	2	Hose Assembly, 3/8" x 63"
9	*A8267	2	Hose Assembly, 1/2" x 58"
10	*A1076	6	Hose Assembly, 3/8" x 30"
11	*A1424	1	Hose Assembly, 1/2" x 30"
12	*A1404	1	Hose Assembly, 1/2" x 41"
13	*A3131	1	Hose Assembly, 3/8" x 42"
14	*A3128	1	Hose Assembly, 3/8" x 52"
15	*A1057	2	Hose Assembly, 3/8" x 216"
16	*A1055	2	Hose Assembly, 3/8" x 66"
17	*A1097	2	Hose Assembly, 3/8" x 288"
18	*A1034 *A1033	2 -	Hose Assembly, 3/8" x 272" Hose Assembly, 3/8" x 250"
19	*A3122	4	Hose Assembly, 3/8" x 10 1/2"
20	*A1018	4	Hose Assembly, 3/8" x 40"
21	*A12041	1	Hose Assembly, 3/8" x 244"
22	G10235	1	Machine Bushing, 7/8", 14 Gauge
23	G2408-08	4	Plug, 3/4"-16
24	A3158	4	Hose Assembly, 3/8" x 46"

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

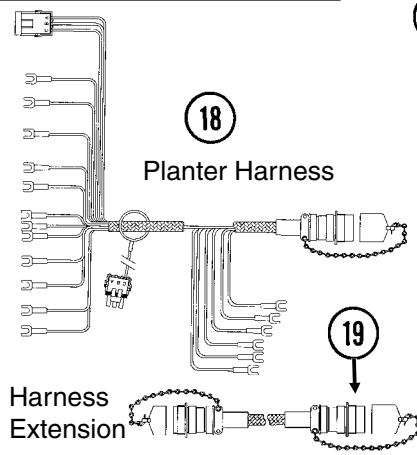
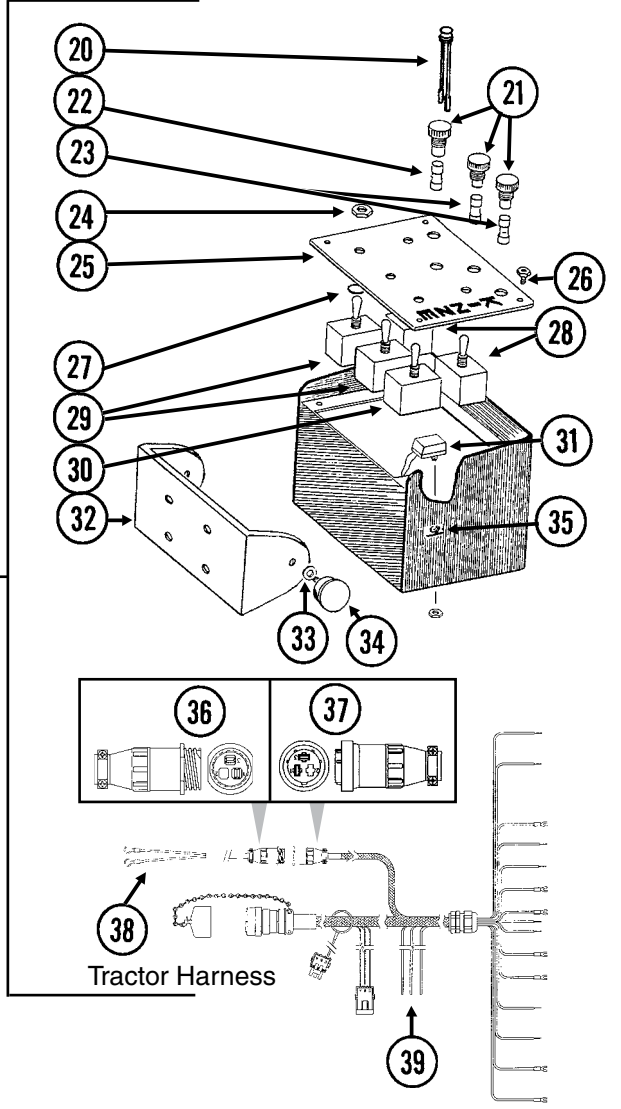
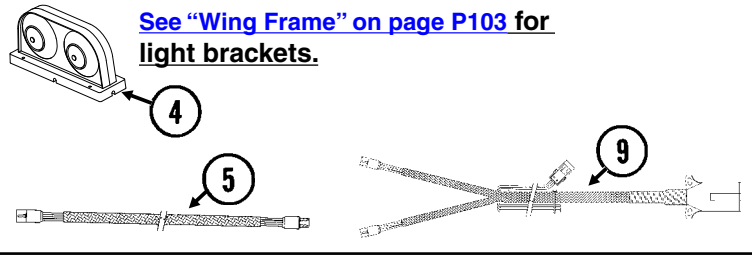
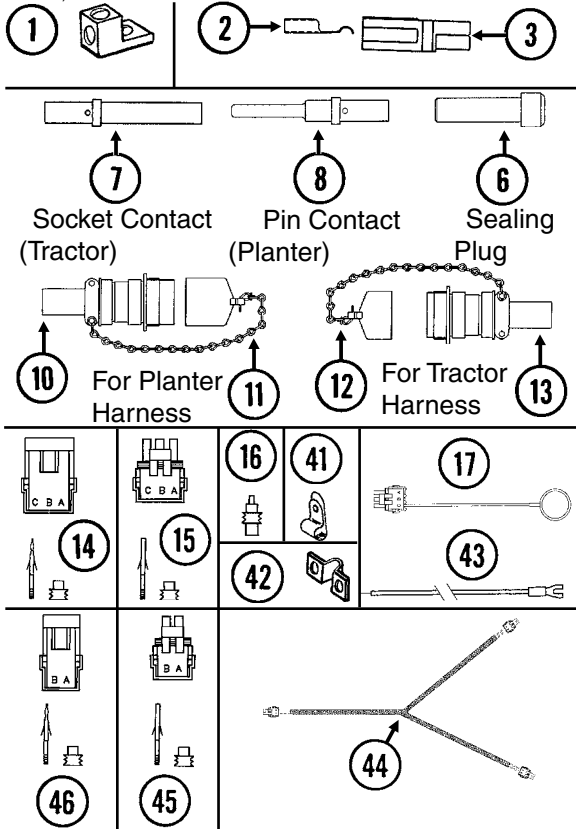
(IP1259)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14571	1	Light Mount
2	G10109	2	Lock Nut, 5/16"-18, Grade 8
3	G10041	2	Hex Head Cap Screw, 5/16"-18 x 2"
4	GA15101	2	Work Light Assembly
	GR1981	-	Bulb H3-55W

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(TWL19a/TWL18/ELC14/ELC3a/ELC5c/MTR27a/ELC39/TWL26e/ELC8/A9481/ELC12b/MTR27i/A9689b/A10924ELC4/FF27b/FF27c/ELC38/A9201a/A9202a/TWL20g/ELC34/ELC35/ELC10c)

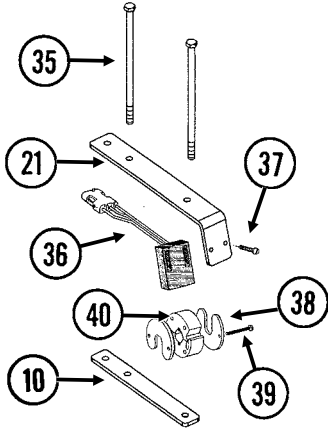


ITEM	PART NO.	QTY.	DESCRIPTION
1	GA3584	-	Ground Clamp
2	GD9530	-	Contact
3	GD9529	-	Housing, Black
	GD12726	-	Housing, Red
4	GA6699	1	Double Light Assembly (Shown)
	GA6700	1	Double Light Assembly
	GA6701	1	Single Amber Light Assembly
	GR1956	-	Amber Lens Kit, Includes: (1) Amber Lens, (1) Gasket, and (3) Hex Head Cap Screws
	GR1957	-	Red Lens Kit, Includes: (1) Red Lens, (1) Gasket, and (3) Hex Head Cap Screws
	GR1958	-	Black Cover Kit, Includes: (1) Black Cover, (1) Gasket, and (3) Hex Head Cap Screws
	GR1208	-	Bulb

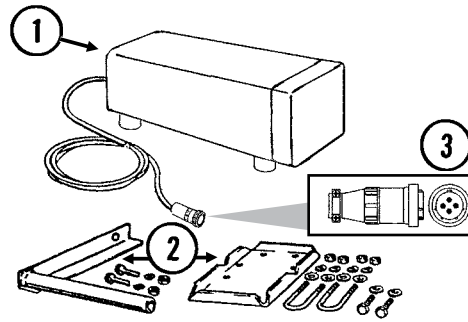
ITEM	PART NO.	QTY.	DESCRIPTION
5	GA9096	-	Harness Extension, 42"
6	GD8739	-	Sealing Plug, No. 12
7	GD8740	-	Socket Contact, No. 14
8	GD8741	-	Pin Contact, No. 14
9	GA9202	-	Wiring Harness W/7 Terminal Female Connector, 786" (2 Light Connections), 12 Row 30"
	GA9204	-	Wiring Harness W/7 Terminal Female Connector, 882" (2 Light Connections), 16 Row 30"
	GA5385	-	7 Terminal Female Connector
10	GA6109	1	Connector W/Cable Clamp, 23 Pin Capacity
11	GA7862	-	Dust Cap W/Chain
12	GA7863	-	Dust Cap W/Chain
13	GA6108	1	Connector W/Cable Clamp, 23 Socket Capacity
14	G1K248	-	3-Pin Female Connector Kit (Black), Includes: (3) 3-Pin Female Housings, (9) Pin Contacts, (9) Seals
15	G1K252	-	3-Pin Male Connector Kit (Black), Includes: (3) 3-Pin Male Housings, (9) Socket Contacts, (9) Seals
16	GD11089	-	Sealing Plug
17	GA8047	-	Dust Plug (Black)
18	GA9112	1	Wiring Harness W/Dust Cap, 516", 12 Row 30"
	GA9113	-	Wiring Harness W/Dust Cap, 612", 16 Row 30"
19	GA11736	-	Harness Extension W/Dust Caps, 180"
20	GA7077	1-4	Indicator Light
21	GA2612	3-5	Fuse Holder W/Spade, 1 ³³ / ₅₀ "
22	GD2829	1-2	Fuse, 15 Amp, Type AGC
23	GD10243	2-6	Fuse, MDL 10 Amp Delay Action
24	GR1363	5	Hex Face Nut, 1 ⁵ / ₃₂ "-32
	GR1364	5	Internal Tooth Lock Washer, 1 ⁵ / ₃₂ "
25	GA8734	1	Cover Plate (Shown)
	GA8735	-	Cover Plate, Planters Equipped With Two-Speed Point Row Clutch
26	GR1292	4	Pan Head Screw, No. 8-32 x 1/2"
27	GD3860	-	O-Ring (If Applicable)
28	GA2528	2	Switch, 3 Position Toggle, On-Off-On
29	GA6978	2	Switch, 3 Position Toggle, Momentary On-Off-Momentary On
30	GA6977	1-2	Switch, 2 Position Toggle, On-Off
31	GA8731	1	Switch, Push Button W/Transformer
32	GD9896	1	Mounting Bracket
33	G11385	4	Flat Washer, 1/4" SAE
34	GA6975	2	Knob
35	GR1290	2	Cage Nut, 1/4"-20
36	G1K267	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (3) Male Terminal Pins
37	G1K268	-	Console Cable Connector Kit, Includes: (1) 3-Pin Connector, (1) Cable Clamp, (1) Lock Ring, (3) Female Terminal Pins
38	GA7856	1	Power Lead Adapter
39	GA8729	1	Wiring Harness W/Dust Cap And Power Cable
40	G7633X	-	Backlit Control Console Assembly W/Mounting Brackets, Short Harness W/Dust Cap And Power Cable
	G7639X	-	Backlit Control Console Assembly W/Mounting Brackets, Short Harness W/Dust Cap And Power Cable (Planters Equipped With Two-Speed Point Row Clutch)
41	GD6291	-	Insulated Clamp, 3/8"
	GD13348	-	Insulated Clamp, 1 ¹ / ₁₆ "
42	GD13310	-	Jumper, 7/16"
43	GA9481	-	Jumper Wire W/Fork Terminal, 13"
	G10996	-	Fork Terminal
44	GA10924	1	Wiring Harness, 348"
	GA5385	-	7 Terminal Female Connector
45	G1K320	-	2-Pin Male Connector Kit (Black), Includes: (3) 2-Pin Male Housings, (6) Socket Contacts, (6) Seals
46	G1K321	-	2-Pin Female Connector Kit (Black), Includes: (3) 2-Pin Female Housings, (6) Pin Contacts, (6) Seals

NOTE: See ["Point Row Clutch" on page P125](#) or See ["Two-Speed Point Row Clutch" on page P127](#) for R.H. and L.H. Wiring Harness for the point row clutches. See ["KPM III Electronic Seed Monitor" on page P181](#) for those components.

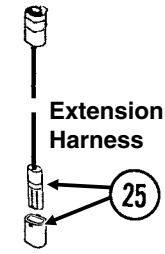
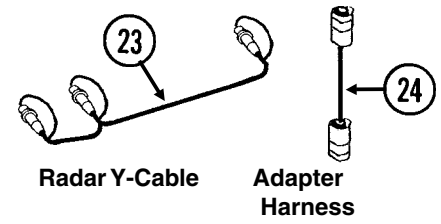
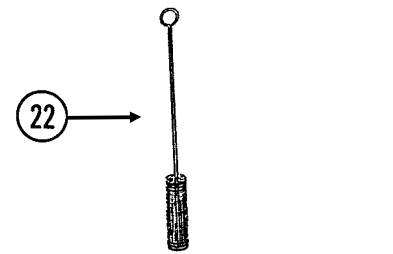
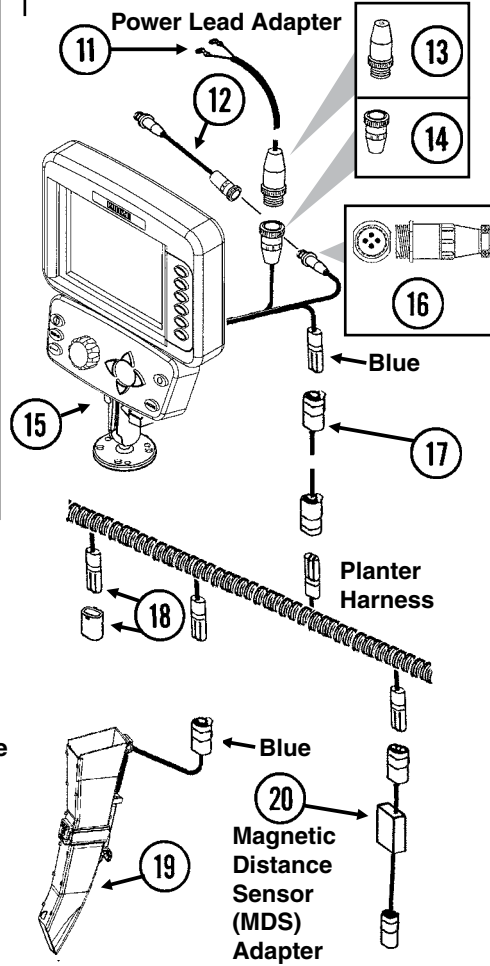
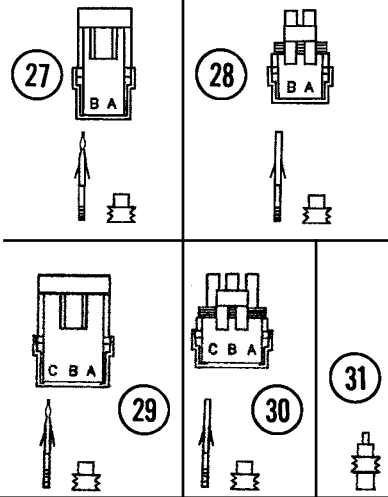
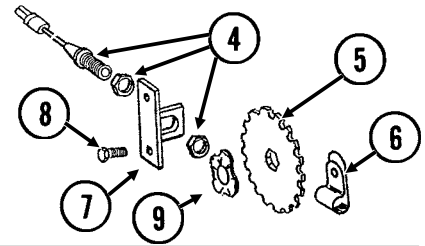
(MTR59) **Shaft Rotation Sensor**



Radar Distance Sensor



Magnetic Distance Sensor (MDS)

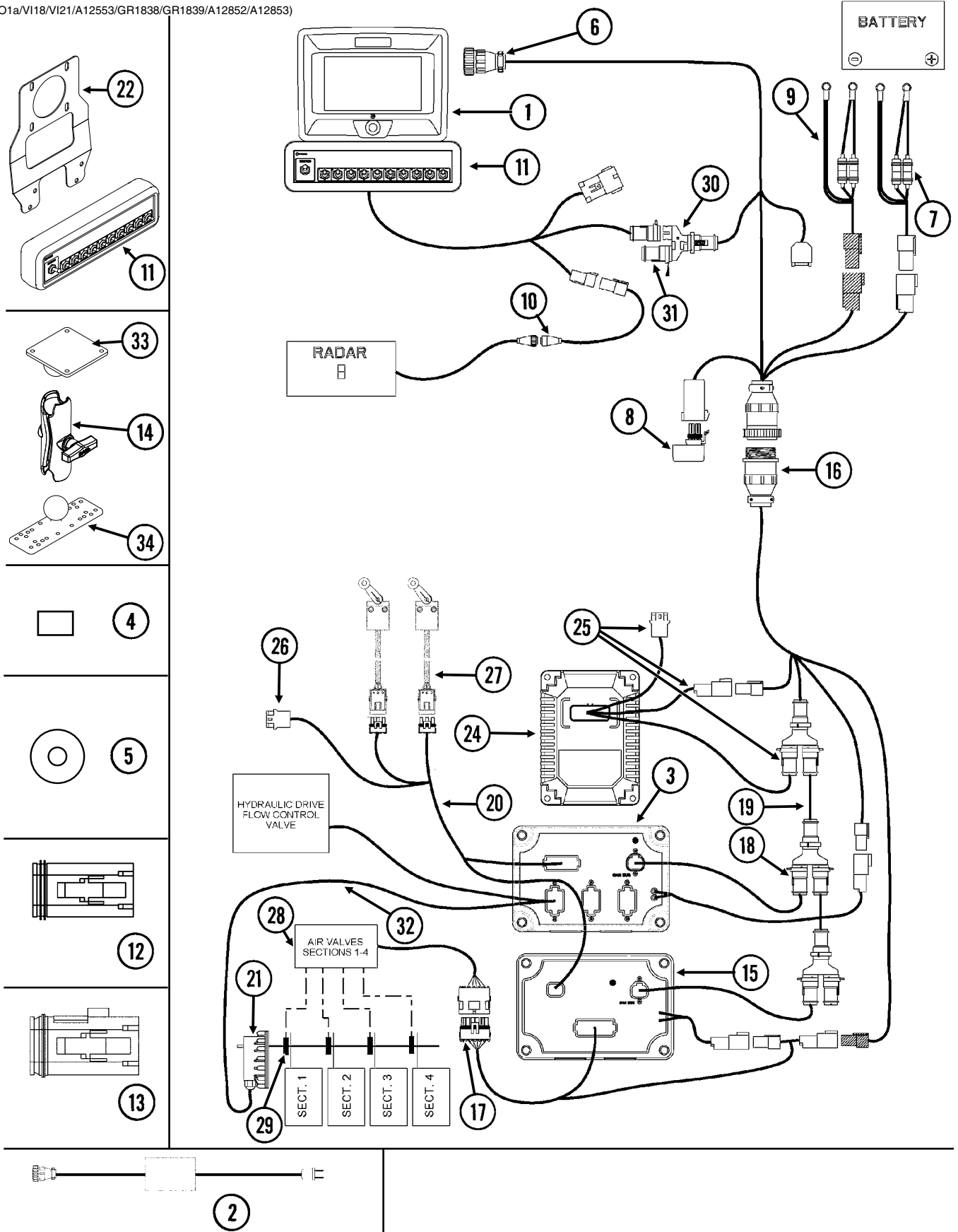


ITEM	PART NO.	QTY.	DESCRIPTION
1	GA7858	-	Radar Distance Sensor W/20' Cable
2	GA8026	-	Radar Sensor Pipe/Mounting Bracket Package
3	G1K323	-	4-Pin Connector Kit W/Female Housing, Includes: (4) Pins, (1) Cable Clamp
4	GA5600	1	Magnetic Distance Sensor
5	GD8751	-	Magnetic Distance Sensor Pulse Wheel
6	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
9	GD8771	1	Spring Wave Washer
10	GD18168	2	Mount
11	GA7856	1	Power Lead Adapter
12	GA9144	-	Monitor/Radar Adapter Cable, 10"
13	G1K267	-	Console Cable 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	GA11039	-	KPM III Backlit Console W/Brush (Item 22), Dust Plug (Item 33), 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
16	G1K322	-	4-Pin Connector Kit W/Male Housing, Includes: (4) Female Socket Contacts And (1) Cable Clamp
17	---	-	See Tractor/Planter Wiring Harness, Items 18 And 39 on page P179
18	GA7852	-	Planter Harness W/Dust Caps (20 Connectors)
	GD11993	-	Dust Cap
19	GA12166	-	Seed Tube W/Computerized Sensor (EdgeVac)
	GR1785	-	Sensor Only (EdgeVac)
	GA12636	-	Seed Tube (With Holes For Sensor Installation) (EdgeVac)
20	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
21	GD18118	2	Shaft Sensor Mount
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	GA14214	-	Seed Tube W/Computerized Sensor (Mechanical)
	GA10940	-	Seed Tube (With Holes For Sensor Installation) (Mechanical)
	GR1949	-	Sensor Only (Mechanical)
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

ITEM	PART NO.	QTY.	DESCRIPTION
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	G10686	4	Hex Head Cap Screw, $\frac{3}{8}$ "-16 x 8"
	G10229	4	Lock Washer, $\frac{3}{8}$ "
	G10101	4	Hex Nut, $\frac{3}{8}$ "-16
36	GR1415	1	Rotation Sensor
37	G11288	2	Pan Head Screw, No. 10-32 x 1 $\frac{1}{4}$ "
	G10243	2	Washer, No. 10 SAE
	G10758	2	Hex Nut, No. 10-32
38	GD11474	2	Cover
39	G10927	2	Pan Head Machine Screw, No. 8-32 x 1 $\frac{1}{4}$ ", Stainless Steel
	G10931	2	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	2	Hex Nut, No. 8-32, Stainless Steel
40	GR1414	1	Actuator
A	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 4-9)
B	GR1763	-	KPM III Loaner (Display Only)
C	GA13521	-	Shaft Sensor Mounting Package (Items 10, 21, 35, and 37-39)
D	GA8135	-	Shaft Rotation Kit, Includes: (2) Actuators (2) Rotation Sensors

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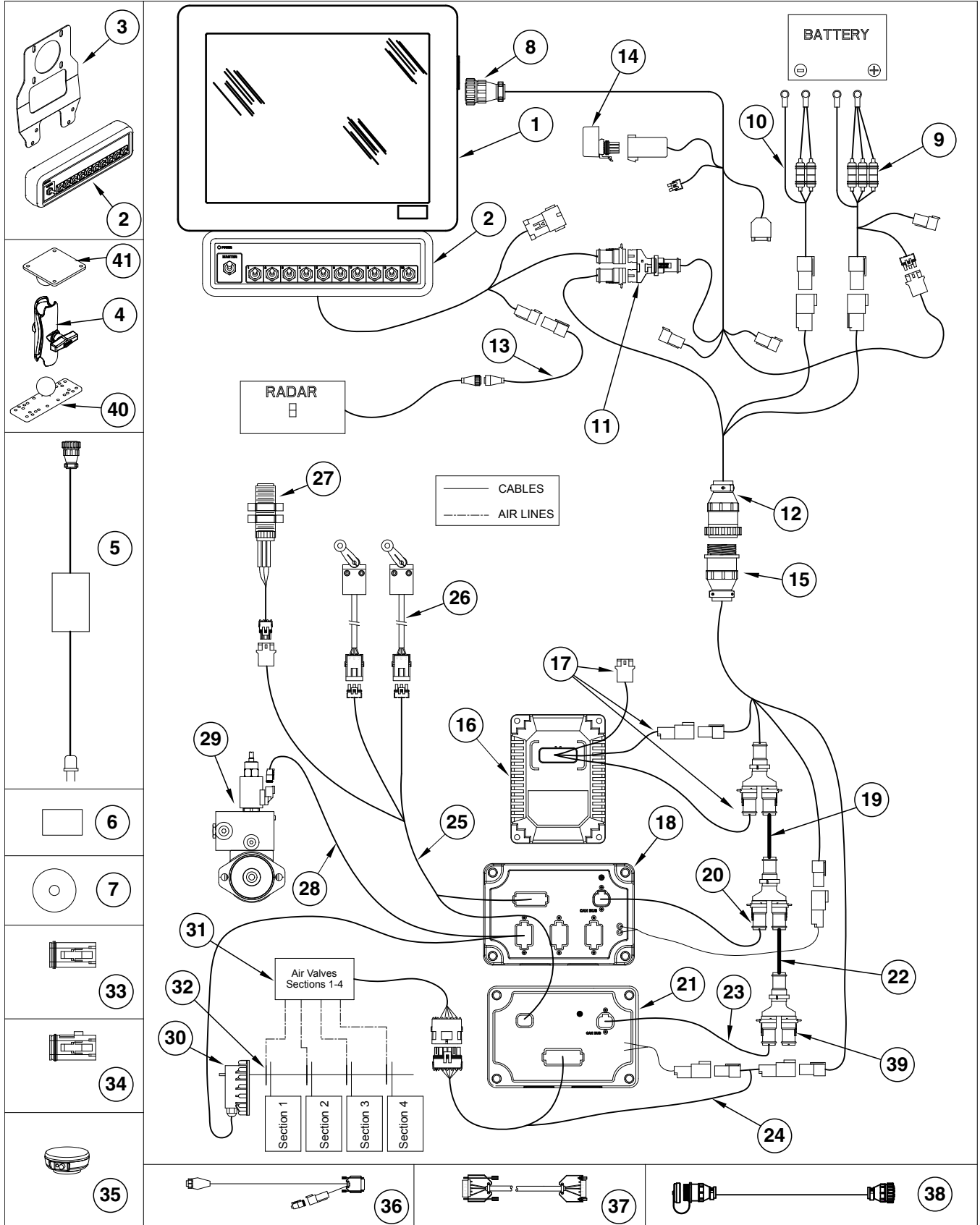
(CO1a/VI18/VI21/A12553/GR1838/GR1839/A12852/A12853)



ITEM	PART NO.	QTY.	DESCRIPTION
1	*GA13554	1	Cobalt Display
2	GA12852	1	Power Supply
3	GA12564	1	Seed Rate Module
4	GR1835	1	Flash Card
5	GR1836	1	SMS CD
6	GA12551	1	Display Cable
7	GA12562	1	Power Cable
8	GA12540	1	Power Control Relay
9	GA12598	1	Seed Rate Power Cable
10	GA12596	1	Radar Adapter Cable
11	GA12539	1	Switch Box Module
12	GR1838	1	Dust Plug
13	GR1839	1	Dust Plug
14	GA12868	1	Mounting Bracket Assembly
15	GA12537	1	Clutch Control Module
16	GA12555	1	Implement Cable (12 Row)
	GA12655	-	Implement Cable (16 Row)
17	GA12556	1	Seed Command Cable
18	GA12558	1	Can Stub Cable, 8"
19	GA12559	1	Can Extension Cablet, 5"
20	GA12560	1	Implement Switch Extension Cable
21	GA12565	1	Encoder Module
22	GR1916	1	Switch Box Bracket
24	---	-	See "Planter Monitor Module (PMM)" on page P189
25	---	-	See "Planter Monitor Module (PMM)" on page P189
26	GA13204	1	Hall Effect Sensor
27	---	2	See "Shank Assembly, Seed Tube, and Depth Adjustment" on page P1
28	---	-	See "Center Frame" on page P99
29	---	-	See "Pneumatic Down Pressure Package Option" on page P3 See "Interplant Push Row Unit, Air Clutch Package" on page P49
30	GD18176	-	Y-Splice Connector
31	GD18177	-	Terminator
32	GA12568	1	Seed Rate Cable
33	GD18408	1	Ram Vesa Base
34	GD18407	1	Ram Base

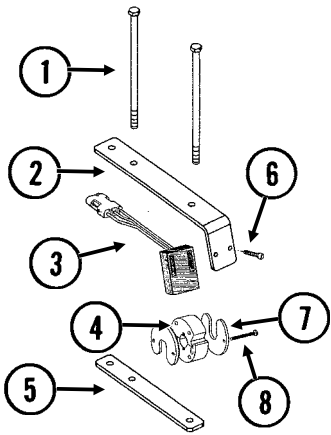
*See alternate view for mounting bracket.

(IP1282a)

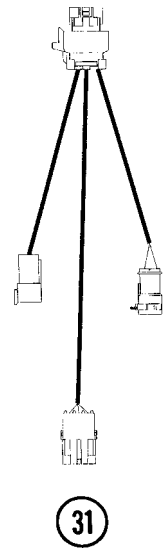
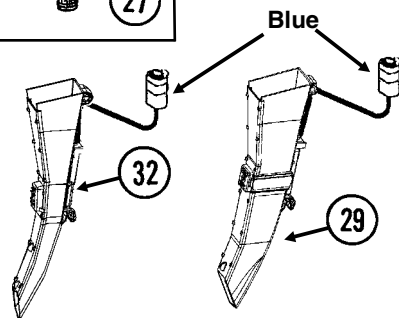
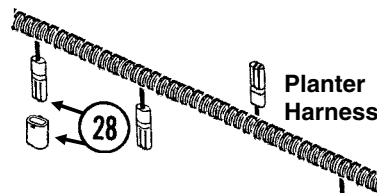
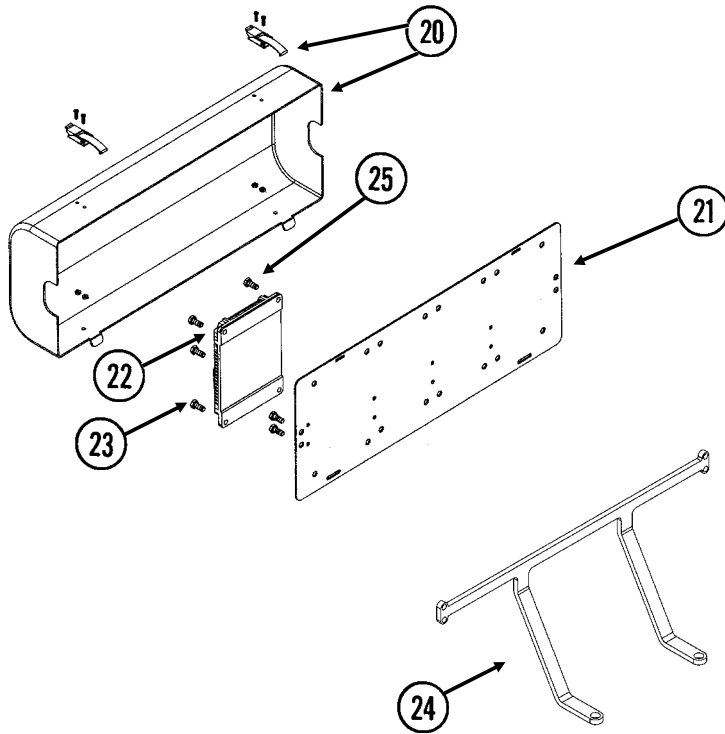
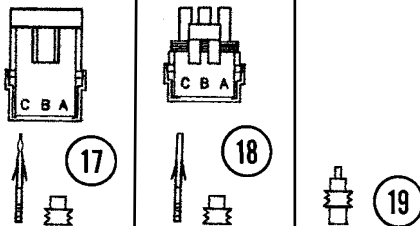
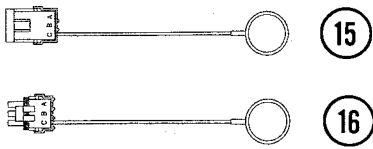
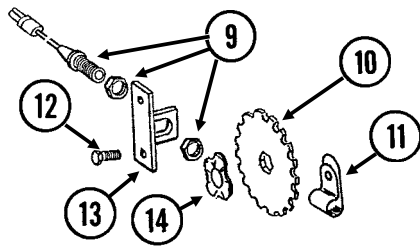


ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14447	1	Integra Display
2	GA12539	1	Switch Box Module
3	GR1916	1	Switch Box Bracket
4	GA12868	1	Mounting Bracket Assembly
5	GA12852	1	Power Supply
6	GA14449	1	Flash Drive
7	GR1836	1	SMS CD
8	GA14451	1	Integra Display Cable
9	GA14452	1	Power Cable
10	GA12598	1	Seed Rate Power Cable
11	GD18176	3	Y-Splice Connector
12	GA14450	1	Can Adapter Cable
13	GA12596	1	Radar Adapter Cable
14	GA12540	1	Power Control Relay
15	GA13044	1	Implement Cable
16	GA12538	1	Planter Monitor Module
17	GA12557	1	Planter Monitor Module Cable
18	GA12564	1	Seed Rate Control Module
19	GA12567	1	Can Extension Cable, 4" (Hydraulic Drive)
20	GA12566	1	Can Stub Cable, 6" (Hydraulic Drive)
21	GA12537	1	Clutch Control Module
22	GA12559	1	Can Extension Cable, 5"
23	GA12558	1	Can Stub Cable, 8"
24	GA12556	1	Seed Command Cable
25	GA13047	1	Implement Switch Extension Cable
26	---	1	See "Shank Assembly, Seed Tube, and Depth Adjustment" on page P1
27	GA13204	1	Hall Effect Sensor
28	GA13048	1	Seed Rate Cable
29	---	1	See "Hydraulic Motor Assembly (Mechanical)" on page P165 See "Hydraulic Motor Assembly (EdgeVac)" on page P166
30	GA12565	1	Encoder Module
31	---	1	See "Valve Box Module" on page P134
32	---	1	See "Airline Fittings and Hoses" on page P133
33	GR1838	1	Dust Plug
34	GR1839	1	Dust Plug
35	GA12552	1	GPS Antenna
36	GA12553	1	GPS Cable
37	GA12853	1	Null Modem Cable
38	GA13562	1	Cable Extension, 180"
39	GD18177	1	Terminator
40	GD18407	1	Ram Base
41	GD18408	1	Ram Vesa Base

Shaft Rotation Sensor



Magnetic Distance Sensor (MDS)

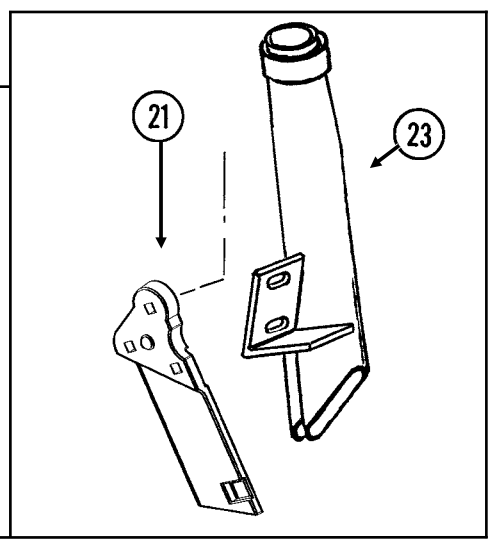
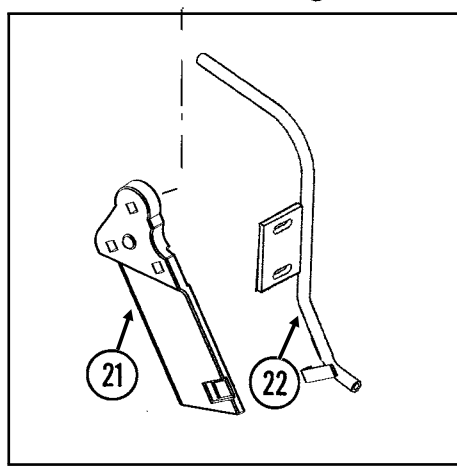
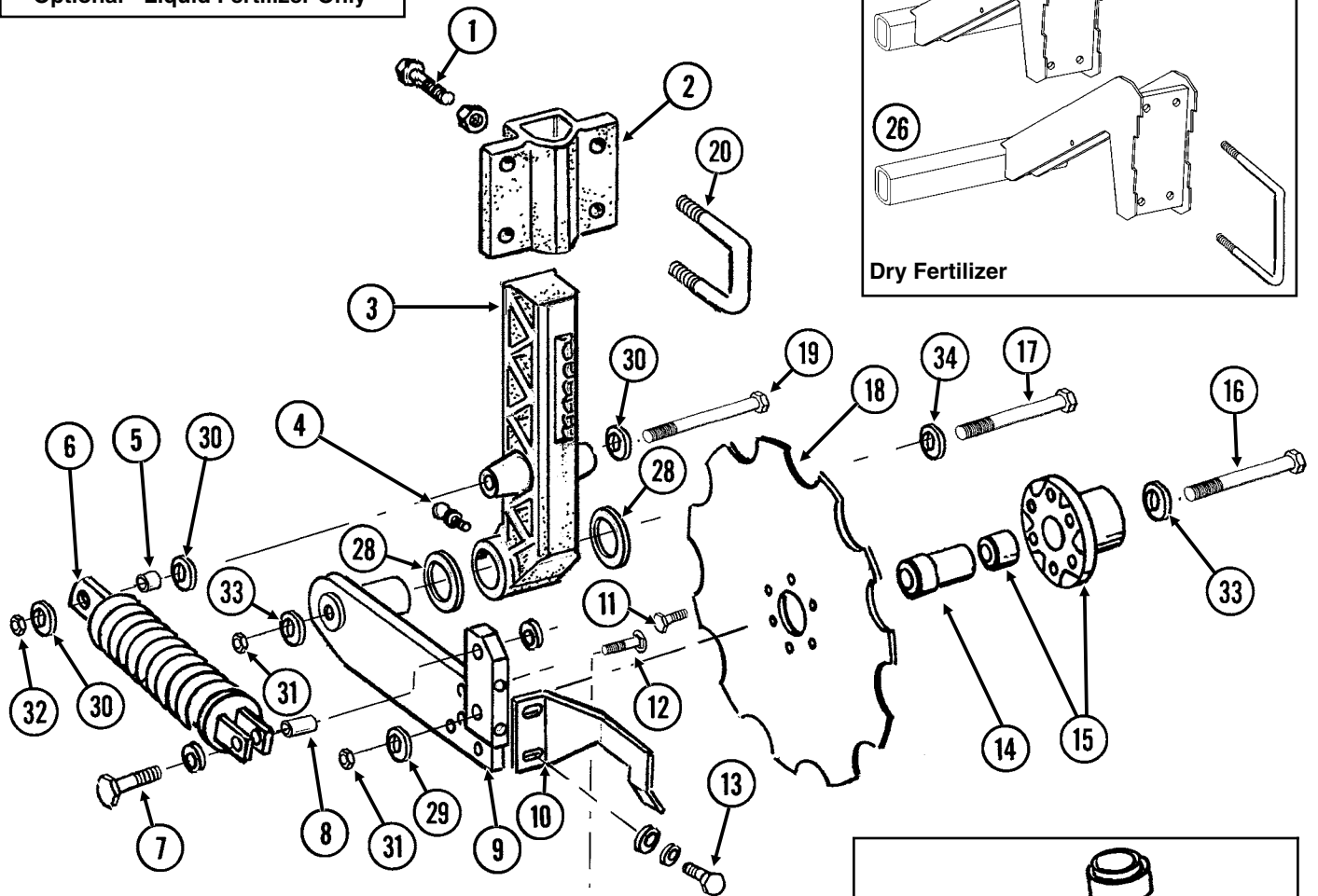
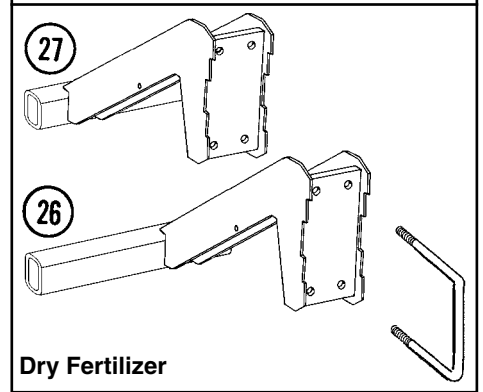
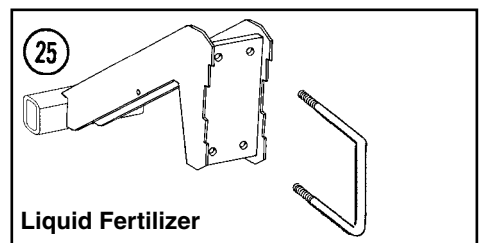
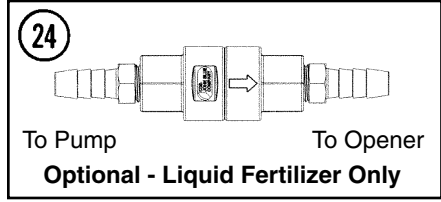


ITEM	PART NO.	QTY.	DESCRIPTION
1	G10686	4	Hex Head Cap Screw, 3/8"-16 x 8"
	G11091	4	Serrated Flange Nut, 3/8"-16
2	GD18118	2	Shaft Sensor Mount
3	GR1415	1	Rotation Sensor
4	GR1414	1	Actuator
5	GD18168	2	Mount
6	G11288	2	Pan Head Screw, No. 10-32 x 1 1/2"
	G10243	2	Washer, No. 10 SAE
	G10758	2	Hex Nut, No. 10-32

ITEM	PART NO.	QTY.	DESCRIPTION
7	GD11474	2	Cover
8	G10927	2	Pan Head Machine Screw, No. 8-32 x 1¼", Stainless Steel
	G10931	2	Lock Washer, No. 8, Internal/External, Stainless Steel
	G10928	2	Hex Nut, No. 8-32, Stainless Steel
9	GA5600	1	Magnetic Distance Sensor
10	GD8751	-	Magnetic Distance Sensor Pulse Wheel
11	GD6291	-	Insulated Clamp, ⅜"
12	G10001	2	Hex Head Cap Screw, ⅜"-16 x 1"
	G10229	2	Lock Washer, ⅜"
	G10101	2	Hex Nut, ⅜"-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 ⅝", Stainless Steel
	G11241	-	Serrated Flange Nut
21	GD18013	1	Bracket
22	GA12538	1	Planter Monitor Module
23	G10031	4	Hex Head Cap Screw, ⅝"-18 x 1¾"
	G10232	4	Lock Washer, ⅝"
	G10106	4	Hex Nut, ⅝"-18
24	GD19295	2	Support
	G10019	6	Hex Head Cap Screw, ⅝"-18 x 1"
	G10232	6	Lock Washer, ⅝"
	G10106	6	Hex Nut, ⅝"-18
25	G10043	2	Hex Head Cap Screw, ⅝"-18 x ¾"
	G10232	2	Lock Washer, ⅝"
	G10106	2	Hex Nut, ⅝"-18
26	GA13551	-	Tee Junction Harness
27	GR0594	-	Brush
28	GA7852	-	Planter Harness W/Dust Caps, 12 Row (20 Connectors)
	GA8050	-	Planter Harness W/Dust Caps, 16 Row (22 Connectors)
	GD11993	-	Dust Cap
29	GA12166	-	Seed Tube W/Computerized Sensor (EdgeVac)
	GR1785	-	Sensor Only (EdgeVac)
	GA12636	-	Seed Tube (With Holes For Sensor Installation) (EdgeVac)
30	GA7859	1	Magnetic Distance Sensor Adapter (Analog To Digital)
31	GA12557	1	Planter Monitor Module Cable
32	GA14214	-	Seed Tube W/Computerized Sensor (Mechanical)
	GA10940	-	Seed Tube (With Holes For Sensor Installation) (Mechanical)
	GR1949	-	Sensor Only (Mechanical)
A	GA6147	-	Magnetic Distance Sensor And Mounting Package (Items 9-14)

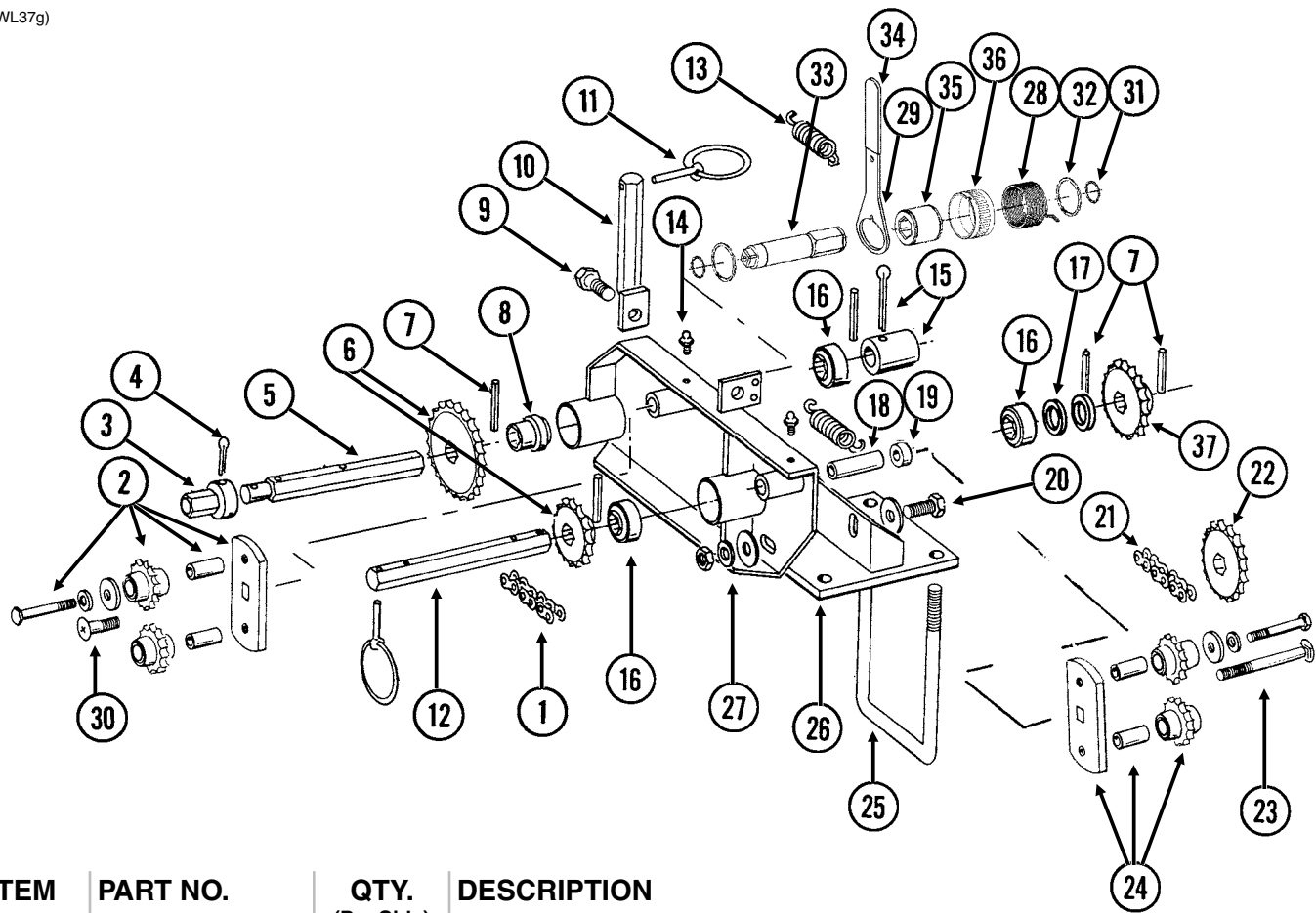
FOC018(TWL34e/TWL34f/TWL34g/FRTZ268/FRTZ208)

NOTE: R.H. and L.H. is determined by which side of blade it is on in the direction of travel.



ITEM	PART NO.	QTY. (Per Assy.)	DESCRIPTION
1	G10017	3	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G10102	3	Hex Nut, 1/2"-13
2	GB0297	1	Mount
3	GB0296	1	Arm, 13 1/2"
4	G10640	1	Grease Fitting, 1/4"-28
5	GD12685	1	Bushing, 3/4" O.D. x 1/2" Long
6	GA6966	1	Compression Spring Assembly
7	G10047	1	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	G11387	2	Flat Washer, 3/8" SAE
	G10108	1	Lock Nut, 3/8"-16
8	GD1026	1	Sleeve, 1 3/16" Long
9	GA9433	1	Pivot Arm, L.H. (Shown)
	GA9434	-	Pivot Arm, R.H.
10	GD11557	1	Scraper, L.H. (Shown)
	GD11558	-	Scraper, R.H.
11	G10002	6	Hex Head Cap Screw, 3/8"-16 x 3/4"
12	G10306	3	Carriage Bolt, 3/8"-16 x 2"
	G10108	3	Lock Nut, 3/8"-16
13	G10991	2	Hex Head Cap Screw, 5/16"-18 x 7/8"
	G10232	2	Lock Washer, 5/16"
	G11386	6	Flat Washer, 5/16" SAE
14	GD12679	1	Stepped Spacer, 3" Long
15	GA9437	1	Hub W/Bearing
	GA8603	-	Bearing, Double Row
16	G10011	1	Hex Head Cap Screw, 5/8"-11 x 5 1/2"
17	G10046	1	Hex Head Cap Screw, 5/8"-11 x 5"
18	GD12676	1	Disc Blade, Notched, 16 3/4"
19	G10871	1	Hex Head Cap Screw, 1/2"-13 x 6"
20	GD13287	2	U-Bolt, 1 1/2" x 2 1/2" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
21	GB0323	1	Knife, L.H. (Shown)
	GB0322	-	Knife, R.H.
22	GA11397	1	Drop Tube, L.H., Liquid Fertilizer
	GA11398	-	Drop Tube, R.H., Liquid Fertilizer (Shown)
23	GA10047	1	Drop Tube, L.H., Dry Fertilizer
	GA10048	-	Drop Tube, R.H., Dry Fertilizer (Shown)
24	GA15416	1	Check Valve Assembly
	GA15415	1	Check Valve
	G11436	2	Hose Barb, 1/4" Male NPT To 3/8" Barb
25	GA9565	1	Opener Mount Assembly, Liquid Fertilizer
	GA9564	1	Opener Mount
	GD1113	2	U-Bolt, 5" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
26	GA9821	-	Opener Mount Assembly, L.H., Dry Fertilizer
	GA9819	1	Opener Mount
	GD1113	2	U-Bolt, 5" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
27	GA9822	-	Opener Mount Assembly, R.H., Dry Fertilizer
	GA9820	1	Opener Mount
	GD1113	2	U-Bolt, 5" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
28	G10450	-	Machine Bushing, 1 1/2", 18 Gauge (As Required)
29	GD12677	1	Washer, 1 1/2" O.D., 7 Gauge, Hardened
30	G11389	-	Flat Washer, 1/2" Plated SAE
31	G10107	-	Lock Nut, 5/8"-11
32	G10111	-	Lock Nut, 1/2"-13
33	G11391	-	Flat Washer, 5/8" SAE
34	G10217	-	Washer, 5/8" USS

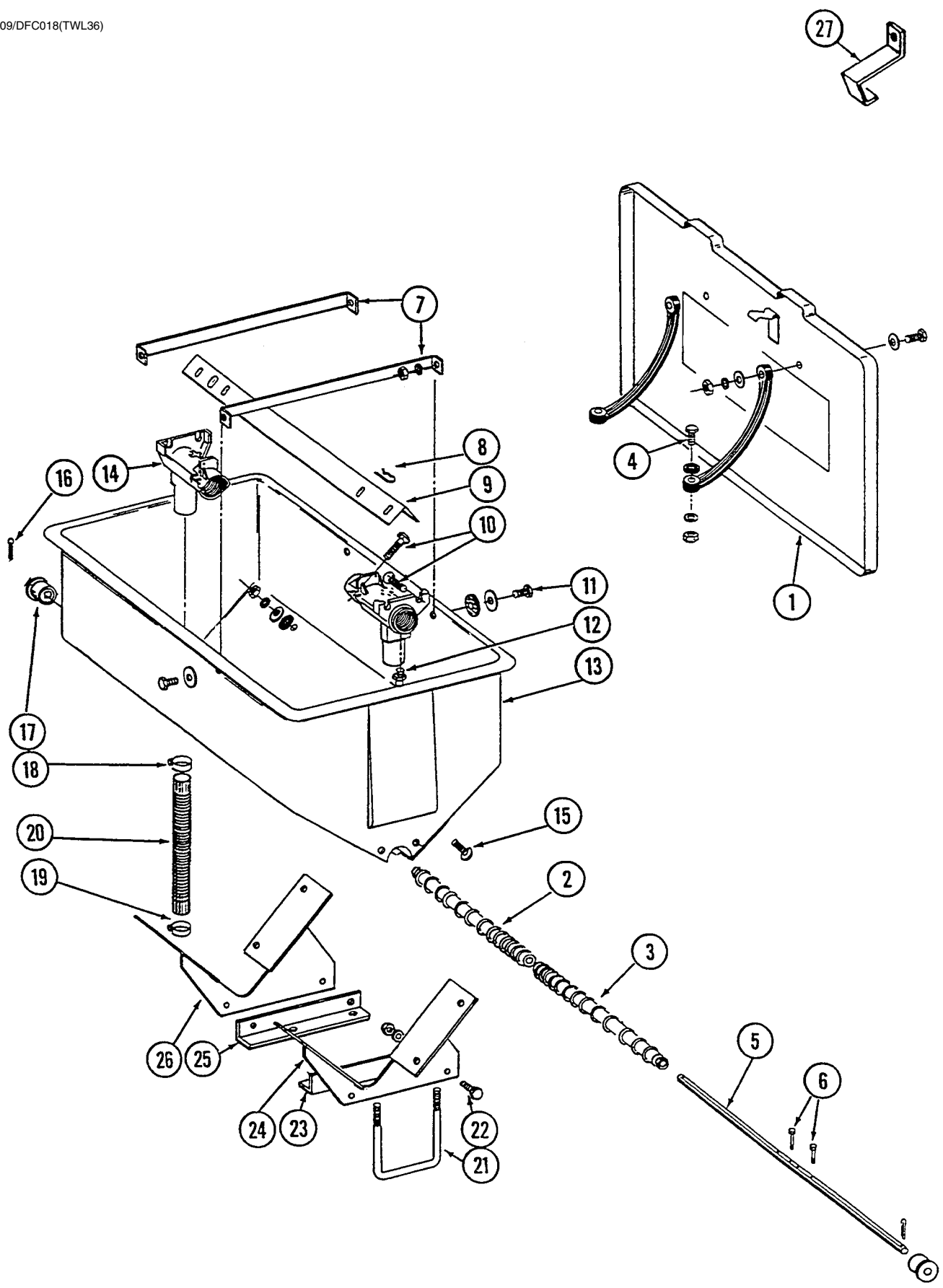
(TWL37g)



ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1	G3310-88 GR0912	1 -	Chain, No. 40, 88 Pitch Including Connector Link Connector Link, No. 40
2	GA7336 GD7426 GD1026 G11387 G10229 G10047	1 - - - - -	Idler W/Bolt-On Sprockets Sprocket, 12 Tooth Sleeve, 1 ³ / ₁₆ " Long Flat Washer, ³ / ₈ " SAE Lock Washer, ³ / ₈ " Hex Head Cap Screw, ³ / ₈ "-16 x 1 ³ / ₄ "
3	GD7127	1	Shear Coupler
4	G10462	1	Cotter Pin, ³ / ₁₆ " x 2"
5	GD7866	1	Shaft, ⁷ / ₈ " x 7 ¹ / ₂ "
6	GA5105 GA5107 GA5114 GA5115 GA6337	1 1 1 1 1	Sprocket, 15 Tooth Sprocket, 19 Tooth Sprocket, 30 Tooth Sprocket, 33 Tooth Sprocket, 35 Tooth
7	G10602	6	Spring Pin, ¹ / ₄ " x 1 ¹ / ₂ "
8	GA5624	1	Special Bearing, ⁷ / ₈ " Hex Bore x 1.6"
9	G10037 G10111	1 1	Hex Head Cap Screw, ¹ / ₂ "-13 x 1 ¹ / ₄ " Lock Nut, ¹ / ₂ "-13
10	GA5229	1	Sprocket Storage Rod
11	GD2558	3	Lynch Pin, ¹ / ₄ "
12	GD10119	1	Shaft, ⁷ / ₈ " x 7 ⁷ / ₁₆ "
13	GD5857	2	Spring
14	G10640	2	Grease Fitting, ¹ / ₄ "-28

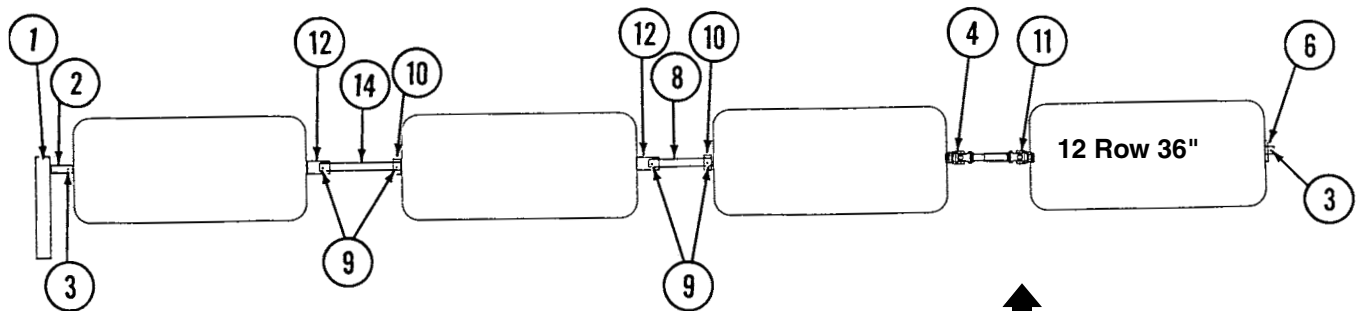
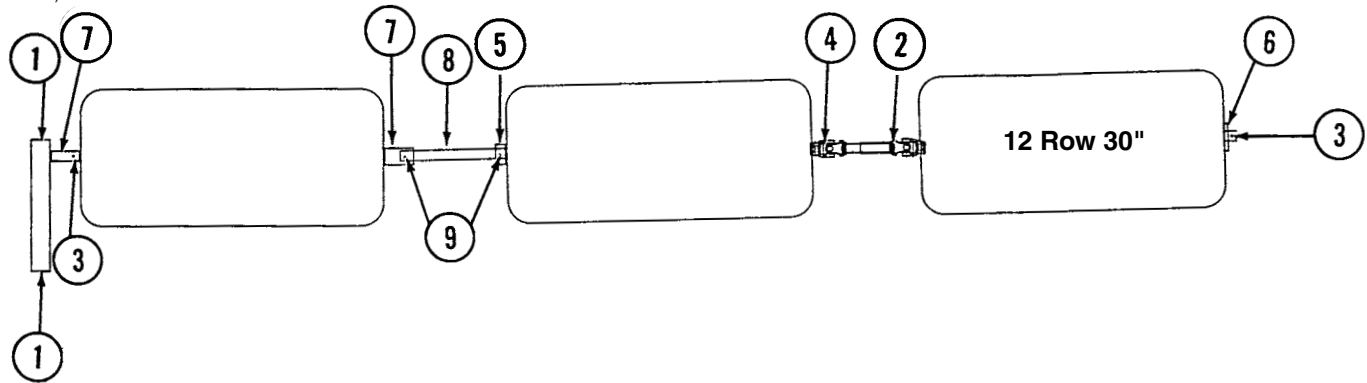
ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
15	---	-	See "Dry Fertilizer Coupler/Shafts" on page P207
16	GA5116	3	Bearing, 7/8" Hex Bore, Cylindrical
17	G10233	2	Machine Bushing, 1", 10 Gauge
18	GD3180-10	1	Sleeve, 5/8" I.D. x 7/8" O.D. x 3 1/4" Long
19	GD2734-08	1	Sleeve, 1 1/4" O.D. x 5/8" Long
20	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G11389	4	Flat Washer, 1/2" SAE
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
21	G3310-130	1	Chain, No. 40, 130 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
22	GA5114	1	Sprocket, 30 Tooth
23	G10419	1	Carriage Bolt, 1/2"-13 x 4 1/2"
	G11389	1	Flat Washer, 1/2" SAE
	G10111	1	Lock Nut, 1/2"-13
24	GA7396	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 3/16" Long
	G11387	-	Flat Washer, 3/8" SAE
	G10229	-	Lock Washer, 3/8"
	G10047	-	Hex Head Cap Screw, 3/8"-16 x 1 3/4"
	G10049	-	Hex Head Cap Screw, 3/8"-16 x 2 1/2"
	G10108	-	Lock Nut, 3/8"-16
25	GD1134	2	U-Bolt, 7" x 5" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
26	GA7129	1	Mount, L.H. (Shown)
	GA7130	-	Mount, R.H.
27	GA5671	1	Transmission Plate, L.H. (Shown)
	GA5672	-	Transmission Plate, R.H.
28	GD14413	-	Torsion Spring, L.H. (Used In R.H. Wrap Spring Wrench) (Shown)
	GD14414	1	Torsion Spring, R.H. (Used In L.H. Wrap Spring Wrench)
29	GD14431	1	Handle
30	G11100	1	Hex Socket Button Head Cap Screw, 1/4"-20 x 1/2", Grade 8
	G10227	1	Lock Washer, 1/4"
	G11385	1	Flat Washer, 1/4" SAE
31	G11075	2	External Inverted Snap Ring, 7/8"
32	G10496	2	External Inverted Snap Ring, 1 1/2"
33	GD14427	1	Tightener Shaft, 4 7/8"
34	G11078	1	Vinyl Cap
35	GD14432	1	Sleeve, 1 1/4"
36	GD19343	1	Release Collar, Gold, R.H. (Shown)
	GD19344	-	Release Collar, Silver, L.H.
37	GA12192	1	Sprocket, 22 Tooth
A	G1K378	1	Wrap Spring Wrench Replacement Kit, Gold Collar, R.H. (Items 28-36) (Shown)
	G1K379	-	Wrap Spring Wrench Replacement Kit, Silver Collar, L.H. (Items 28-36)

DFC009/DFC018(TWL36)



ITEM	PART NO.	QTY. (Per Hopper)	DESCRIPTION
1	GA0898	1	Lid W/Retainers, Clips, Rivets, Rubber Straps, and Hardware
	GD1380	-	Front Clip
	GD2412	-	Rear Retainer
	G10655	-	Rivet, $\frac{3}{16}$ " x $1\frac{3}{32}$ "
	GD1210	-	Rubber Strap
	G10171	-	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ "
	G11386	-	Flat Washer, $\frac{5}{16}$ " SAE
	G10232	-	Lock Washer, $\frac{5}{16}$ "
	G10106	-	Hex Nut, $\frac{5}{16}$ "-18
2	GB0198	1	Auger, R.H.
3	GB0199	1	Auger, L.H.
4	G10133	2	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $1\frac{1}{2}$ "
	G11386	2	Flat Washer, $\frac{5}{16}$ " SAE
	G10232	2	Lock Washer, $\frac{5}{16}$ "
	G10106	2	Hex Nut, $\frac{5}{16}$ "-18
5	GD7848	1	Shaft
6	G10587	2	Hex Head Cap Screw, $\frac{1}{4}$ "-20 x 2", Stainless Steel
	G10588	2	Hex Nut, $\frac{1}{4}$ "-20, Stainless Steel
7	GD1209	2	Strap
8	G10670	2	Hair Pin Clip, No. 3
9	GD1207	1	Baffle
10	G10303	8	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G11386	8	Flat Washer, $\frac{5}{16}$ " SAE
	G10232	8	Lock Washer, $\frac{5}{16}$ "
	G10106	8	Hex Nut, $\frac{5}{16}$ "-18
11	G10171	4	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ "
	G10201	4	Special Washer, $\frac{3}{8}$ " x $1\frac{1}{2}$ " O.D.
	GD1213	4	Rubber Washer
	G10232	4	Lock Washer, $\frac{5}{16}$ "
	G10106	4	Hex Nut, $\frac{5}{16}$ "-18
12	G10641	2	Grease Fitting, $\frac{1}{8}$ " NPT
13	GD1379	1	Hopper
14	GD1200	2	Outlet Housing
15	G10303	8	Carriage Bolt, $\frac{5}{16}$ "-18 x 1"
	G10171	-	Hex Head Cap Screw, $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ " (If Applicable)
	G11386	-	Flat Washer, $\frac{5}{16}$ " SAE (If Applicable)
	G10201	8	Special Washer, $\frac{3}{8}$ " x $1\frac{1}{2}$ " O.D.
	GD1213	8	Rubber Washer
	G10232	8	Lock Washer, $\frac{5}{16}$ "
	G10106	8	Hex Nut, $\frac{5}{16}$ "-18
16	G10460	2	Cotter Pin, $\frac{1}{4}$ " x 2"
17	GB0200	2	Bearing
18	G10676	2	Hose Clamp, No. 36, Stainless Steel
19	G10672	2	Hose Clamp, No. 28
20	GD21398	2	Rubber Tube
21	GD1134	2	U-Bolt, 7" x 5" x $\frac{5}{8}$ "-11
	G10230	4	Lock Washer, $\frac{5}{8}$ "
	G10104	4	Hex Nut, $\frac{5}{8}$ "-11
22	G10017	4	Hex Head Cap Screw, $\frac{1}{2}$ "-13 x $1\frac{1}{2}$ "
	G10228	4	Lock Washer, $\frac{1}{2}$ "
	G10102	4	Hex Nut, $\frac{1}{2}$ "-13
23	GD9131	1	Angle, L.H.
24	GA6437	1	Mount, L.H.
25	GD9132	1	Angle, R.H.
26	GA6436	1	Mount, R.H.
27	GD8722	-	Holder, Rubber Tube (As Required)
A	GA6503	-	Hopper Sub-Assembly (Items 8, 10, And 12-15)
B	GA5667	-	Hopper Hardware Box (Items 2-7, 9, 11, 16, And 17)

(TWL38b)



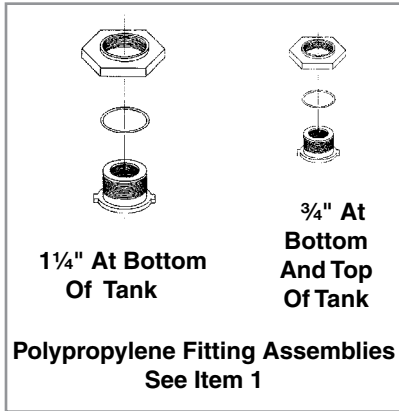
L.H. Side Of Machine Shown

↑
Direction Of Travel

ITEM	PART NO.	QTY.	DESCRIPTION
1	---	-	See "Dry Fertilizer Drive" on page P203
2	GA7052	-	U-Joint W/Grease Fitting, Female, 10¼" Long
	GR1293	-	Yoke, 7/8" Hex
	GR1294	-	Cross And Bearing Kit
	GR1297	-	Inboard Yoke And Outer Profile
	GR1557	-	Grease Fitting, 45°, Metric
3	G10460	-	Cotter Pin, ¼" x 2"
4	GA7051	-	U-Joint W/Grease Fitting, Male, 12¼" Long
	GR1293	-	Yoke, 7/8" Hex
	GR1294	-	Cross And Bearing Kit
	GR1295	-	Inboard Yoke
	GR1296	-	Inner Profile
	GR1557	-	Grease Fitting, 45°, Metric
	GR1301	-	Spring Pin, 8 mm x 50 mm
5	GD5886	-	Coupler, 1¾"
	GR1557	-	Grease Fitting, 45°, Metric
6	G10233	-	Machine Bushing, 1", 10 Gauge
7	GD7867	-	Coupler, 3"
8	GD2548-15.5	-	Hex Shaft, 7/8" x 15½" (1 Hole)
9	G10602	-	Spring Pin, ¼" x 1½"

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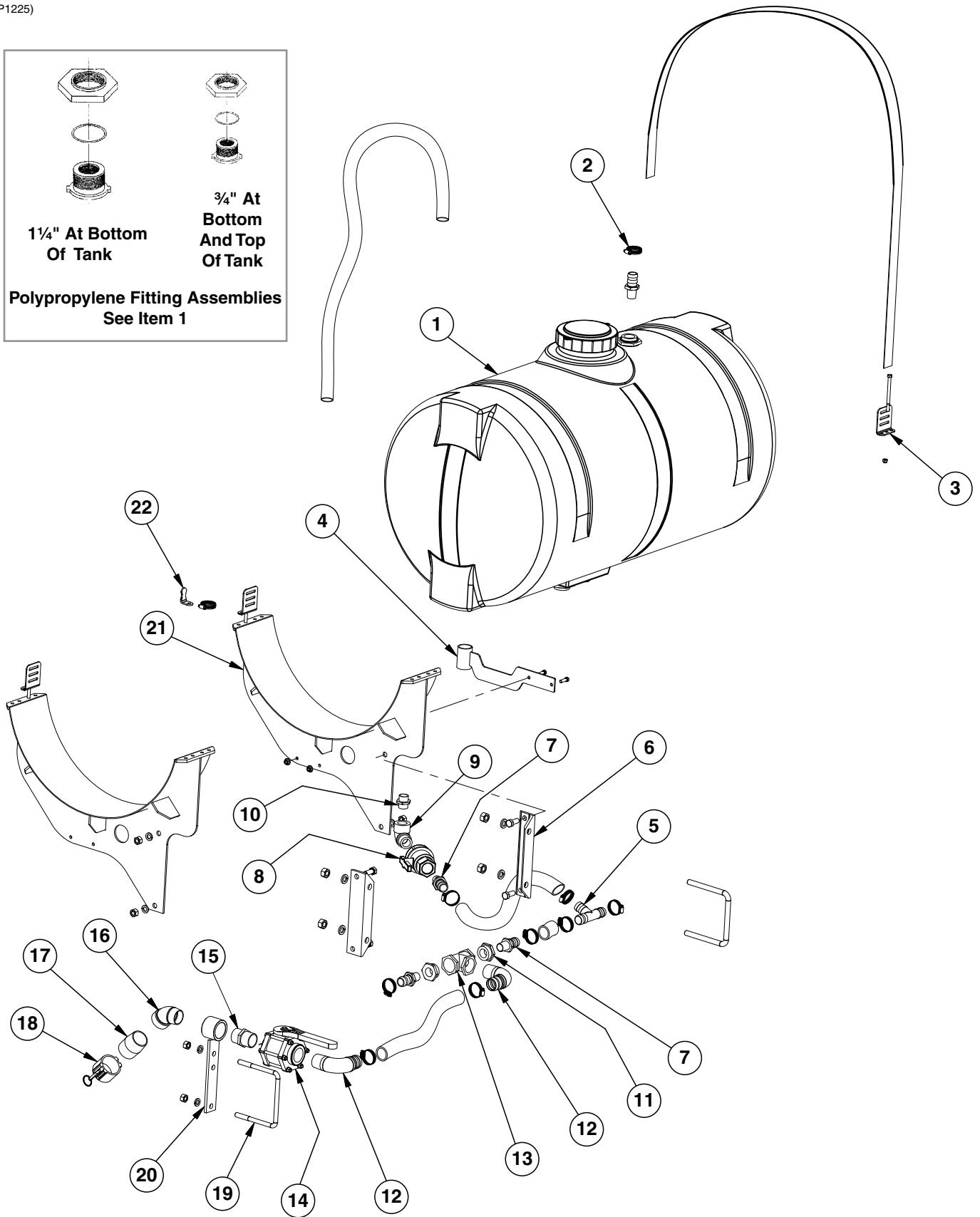
(IP1225)



1 1/4" At Bottom
Of Tank

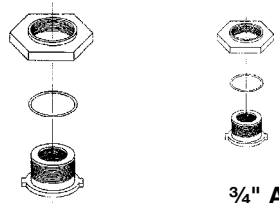
3/4" At
Bottom
And Top
Of Tank

Polypropylene Fitting Assemblies
See Item 1



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14049	1	Tank W/Lid and Fittings, 150 Gallon
	GR1920	1	Lid, 7"
	GR0513	1	¾" Polypropylene Fitting Assembly (Overflow Fitting, Nut, Bushing And O-Ring) (Top And Bottom Of Tank)
	GR0508	2	1¼" Polypropylene Fitting Assembly (Nut, Bushing And O-Ring) (Bottom Of Tank)
	GR1941	1	Seal
	G10096	1	Pipe Plug, ¾" NPT
2	G10626	1	Adapter, 1¼" NPT To Barb
	G10674	1	Hose Clamp, No. 24
	G4602-04	1	1¼" x 32' Black Helix Hose
3	GD11123	4	Anchor
	GD11124	2	Strap, 84"
	G10901	4	Lock Nut, ⅜"-16
	G10485	4	Hex Head Tap Bolt, ⅜"-16 x 5"
	G10674	1	Hose Clamp, No. 24
4	GA14112	1	Hose Guide
	G10004	2	Hex Head Cap Screw, ⅜"-16 x 1¼"
	G11091	2	Serrated Flange Nut, ⅜"-16
5	G10633	1	Tee, 1 ¼" Barb
	G10674	3	Hose Clamp, No. 24
	G4200-03	1	Hose, 1¼" x 32', 12 Row 30"
	G4200-06	-	Hose, 1¼" x 40', 16 Row 30"
6	GD10110	2	Mounting Angle (2 Per Tank)
	GD1747	2	U-Bolt, 5" x 7" x ¾"-10
	G10231	4	Lock Washer, ¾"
	G10105	4	Hex Nut, ¾"-10
7	G10626	3	Adapter, 1¼" NPT To Barb
	G10674	3	Hose Clamp, No. 24
8	GA4976	1	Shutoff Valve, 1¼" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
9	G10887	1	Elbow, 90°, 1¼" Male NPT To Female
10	G10619	1	Close Nipple, 1¼" NPT
11	G10616	2	Reducing Bushing, 2" Male NPT To 1¼" Female
12	G10630	2	Elbow, 90°, 2" NPT To Barb
	G10676	2	Hose Clamp, No. 36, Stainless Steel
	G4201-03	1	Hose, 2" x 18', 12 and 16 Row
13	G10888	1	Tee, 2" Female NPT
14	GA2660	1	Shutoff Valve, 2" NPT
15	G10623	1	Close Nipple, 2" NPT
16	G10889	1	Elbow, 45°, 2" Male NPT To Female
17	GD3623	1	Adapter, 2" Male NPT To Cam Lock
18	GD3951	1	Dust Cap, 2" Cam Lock
19	GD1113	1	U-Bolt, 5" x 7" x ⅝"-11
	G10230	2	Lock Washer, ⅝"
	G10104	2	Hex Nut, ⅝"-11
20	GA7845	1	Quick Fill Mount, 2"
21	GA7133	2	Tank Mount (2 Per Tank)
	GD1862	1	Pad, 8" x 14' (For Two 30" Tanks)
	G10007	4	Hex Head Cap Screw, ⅝"-11 x 1½"
	G10230	4	Lock Washer, ⅝"
	G10104	4	Hex Nut, ⅝"-11
22	GD20060	1	Hose Bracket
	G10674	1	Hose Clamp, No. 24

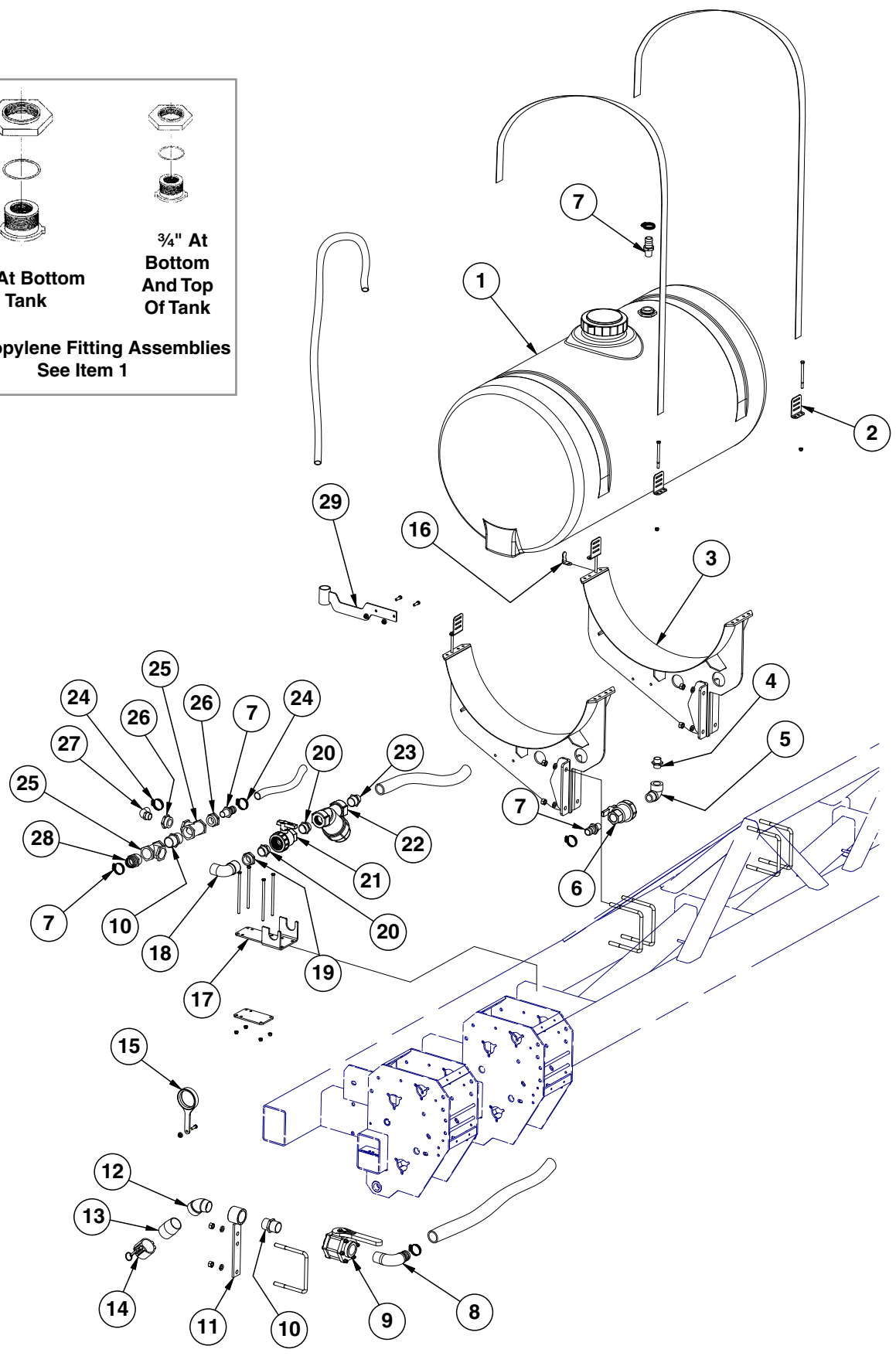
(IP1244)



1 1/4" At Bottom
Of Tank

3/4" At
Bottom
And Top
Of Tank

Polypropylene Fitting Assemblies
See Item 1



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA14050	1	Tank W/Sealed Lid, 200 Gallon
	GR1920	1	Lid, 7"
	GR0513	1	¾" Polypropylene Fitting Assembly (Overflow Fitting, Nut, Bushing And O-Ring) (Top And Bottom Of Tank)
	GR0508	2	1¼" Polypropylene Fitting Assembly (Nut, Bushing And O-Ring) (Bottom Of Tank)
	GR1941	1	Seal
2	GD11123	4	Anchor
	GD11124	2	Strap, 84"
	G10485	4	Hex Head Tap Bolt, ⅜"-16 x 5"
	G10901	4	Lock Nut, ⅜"-16
3	GA13716	2	200 Gallon Tank Mount
	GD1862	2	Pad, 8" x 14' (For Two 30" Tanks)
	GD11113	4	U-Bolt, 5" x 7" x ⅝"-11
	G10230	8	Lock Washer, ⅝"
	G10104	8	Hex Nut, ⅝"-11
4	G10619	1	Close Nipple, 1¼" NPT
5	G10887	1	Elbow, 90°, 1¼" Male NPT To Female
6	GA4976	1	Shutoff Valve, 1¼" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
7	G10626	3	Adapter, 1¼" NPT To Barb
	G10676	2	Hose Clamp, No. 36, Stainless Steel
	G4200-02	1	Hose, 1¼" x 27'
8	G10630	1	Elbow, 90°, 2" NPT To Barb
	G10676	1	Hose Clamp, No. 36, Stainless Steel
	G4206-04	1	Hose, 2" x 8'
9	GA2660	1	Shutoff Valve, 2" NPT
10	G10623	2	Close Nipple, 2" NPT
11	GA7845	1	Quick Fill Mount, 2"
	GD11113	1	U-Bolt, 5" x 7" x ⅝"-11
	G10230	2	Lock Washer, ⅝"
	G10104	2	Hex Nut, ⅝"-11
12	G10889	1	Elbow, 45°, 2" Male NPT To Female
13	GD3623	1	Adapter, 2" Male NPT To Cam Lock
14	GD3951	1	Dust Cap, 2" Cam Lock
15	GA14111	1	Hose Guide
	G10004	1	Hex Head Cap Screw, ⅜"-16 x 1¼"
	G11091	1	Serrated Flange Nut, ⅜"-16
16	GD20060	1	Hose Bracket
	G10004	1	Hex Head Cap Screw, ⅜"-16 x 1¼"
	G11091	1	Serrated Flange Nut, ⅜"-16
17	GD19422	1	1½" Ball Valve Bracket
	GD2117	2	Tie Strap, 14½"
	GD19423	1	Clamp Plate
	G10686	4	Hex Head Cap Screw, ⅜"-16 x 8"
	G10108	4	Lock Nut, ⅜"-16
18	G10287	1	Elbow, 90°, 2" Male NPT To Female
19	G11308	1	Reducing Bushing, 2" Male NPT to 1½" Female
20	G11306	2	1½" Close Nipple
21	GA13622	1	1½" Ball Valve

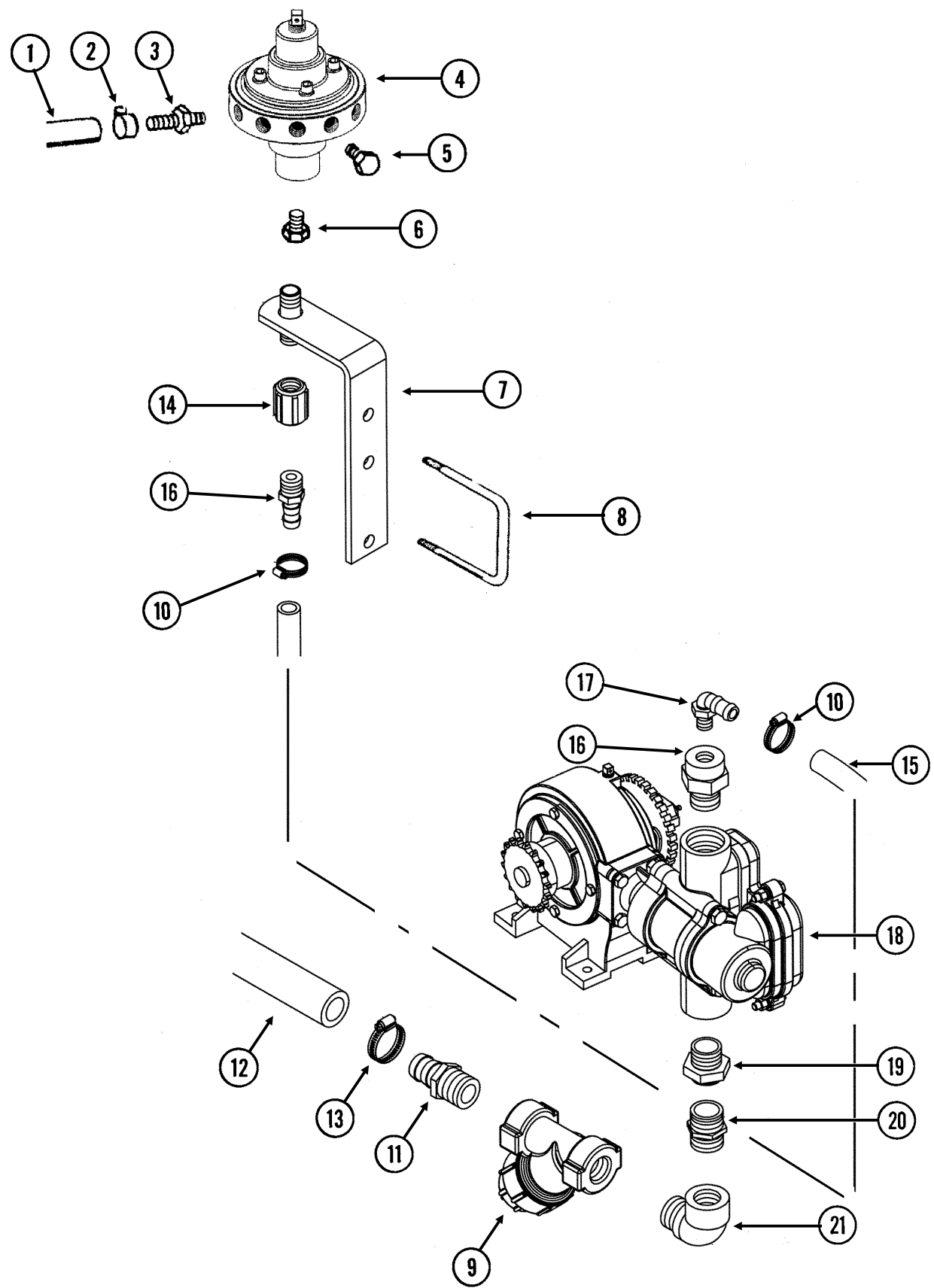
ITEM	PART NO.	QTY.	DESCRIPTION
22	GA13623	1	Strainer, 1½"
	GR0880	-	Screen, No. 40 Mesh
	GR0881	-	Gasket
	GR0882	-	Y-Body
	GR0883	-	End Cap
23	G10627	1	Adapter, 1½" NPT to Barb
	G4202-04	1	Hose, 1½" x 30'
24	G10674	2	Hose Clamp, No. 24
25	G10888	2	Tee, 2" Female NPT
26	G10616	2	Reducing Bushing, 2" Male NPT To 1¼" Female
27	G10629	1	Elbow, 90°, 1¼" NPT To Barb
28	G10628	1	Adapter, 2" NPT To Barb
29	GA14112	1	Hose Guide
	G10004	2	Hex Head Cap Screw, ⅜"-16 x 1¼"
	G11091	2	Serrated Flange Nut, ⅜"-16
	G4602-02	1	Hose, 1¼" x 22'

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ITEM	PART NO.	QTY.	DESCRIPTION
8	GA0241	1	Wheel, 5" x 15"
9	GD1166	1	Valve Stem
10	G10012	1	Hex Head Cap Screw, 5/8"-11 x 6 1/2"
	G11391	1	Flat Washer, 5/8" SAE
11	GA10908	1	Spring Mount
12	GB0196	1	Washer
13	GD7831	1	Compression Spring
14	GA10907	1	Spring Guide
15	G11122	1	Hex Head Cap Screw, 5/8"-11 x 12"
	G10107	1	Lock Nut, 5/8"-11
16	G10026	2	Hex Head Cap Screw, 3/4"-10 x 2"
	G10231	2	Lock Washer, 3/4"
17	G11042	2	Hex Head Cap Screw, 3/4"-10 x 1 3/4"
	G10231	2	Lock Washer, 3/4"
	G10105	2	Hex Nut, 3/4"-10
18	GD13744	1	Hose Holder
19	GR1146	1	Sprocket, 18 Tooth
20	G10003	4	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	GR1122	4	Mounting Pad
	G11387	8	Flat Washer, 3/8" SAE
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
	GR0200	1	Offset Link, No. 2050
21	---	-	See "Liquid Fertilizer Piston Pump (Uses 18 Tooth Sprocket)" on page P221
22	G10007	2	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G11391	2	Flat Washer, 5/8" SAE
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
23	GA10894	1	Pump Mount
24	G10017	2	Hex Head Cap Screw, 1/2"-13 x 1 1/2"
	G11389	2	Flat Washer, 1/2" SAE
	G10228	2	Lock Washer, 1/2"
	G10102	2	Hex Nut, 1/2"-13
25	GD13328	1	Scraper
26	G10013	1	Hex Head Cap Screw, 5/8"-11 x 3 1/2"
	G11391	1	Flat Washer, 5/8" SAE
	G10230	1	Lock Washer, 5/8"
	G10104	1	Hex Nut, 5/8"-11
27	GA0262	1	Idler Sprocket W/Bearing, 15 Tooth
28	GD7817-05	1	Spacer, 1 1/16" I.D. x 1 1/4" Long
29	GD0844	1	Tire, 7.60" x 15", 8 Ply (Specify Brand*)
30	GA2559	1	Spindle
31	GA0252	2	Seal
32	GA0251	2	Bearing
33	GR0267	5	Lug Nut, 1/2"-20
34	G2500-84	1	Sprocket, 48 Tooth
35	G10019	4	Hex Head Cap Screw, 5/16"-18 x 1"
	G10232	4	Lock Washer, 5/16"
36	GD0831	2	Shoulder Nut, 1 1/4"-12 UNF-2A
37	GA0547	1	Hub W/Cups And Studs, 5 Bolt
	GR0190	2	Cup
	GR0204	5	Stud
38	G3200-63	-	Chain, No. 2050, 63 Pitch Including Connector And Offset Link, Used With NGP-7075 Piston Pump
	GR0195	-	Connector Link, No. 2050
	GR0200	-	Offset Link, No. 2050
39	GD2558	1	Lynch Pin, 1/4"

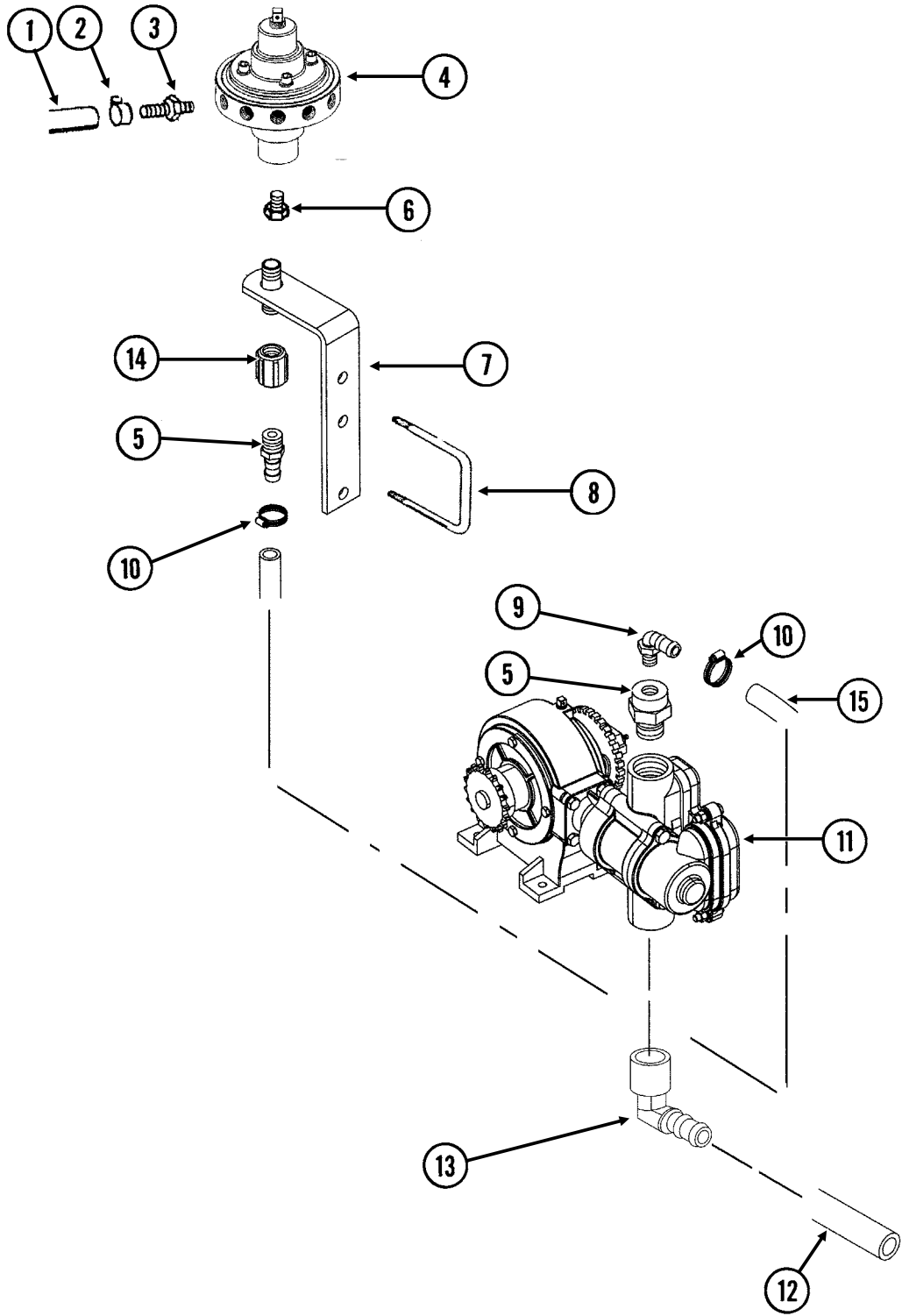
* Specific brand requests will be supplied only as available from current Kinze Repair Parts stock. If a specific brand requested is not in stock, the brand available will be supplied. Different brand tires may have different diameters. Change in tire brand may affect rates. Field checks are recommended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

(FRTZ280/FRTZ298)



ITEM	PART NO.	QTY.	DESCRIPTION
1	G4301-06	1	Hose, 3/8" x 160', 12 Row
	G4301-05	1-2	Hose, 3/8" x 120', 16 Row
2	G10681	-	Hose Clamp, No. 6
3	GD11700	-	Adapter, 1/4" NPT To 3/8" Barb
4	---	-	See "Liquid Fertilizer Piston Pump Flow Divider" on page P223
5	G10292	-	Pipe Plug, 1/4" NPT
6	G10995	1	Reducing Bushing, 1" Male NPT To 3/4" Female, Stainless Steel (If Applicable)
7	GA6527	1	Mount, 3/4" NPT
8	GD1113	1	U-Bolt, 5" x 7" x 5/8"-11
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
9	GA3893	1	Strainer Complete
	GR0880	-	Screen, No. 40 Mesh
	GR0881	-	Gasket
	GR0882	-	Y-Body
	GR0883	-	End Cap
10	G10278	-	Hose Clamp, No. 16
11	G10626	2	Adapter, 1 1/4" NPT To Barb
12	---	-	See "Liquid Fertilizer Tanks, Saddles, Saddle Mounts, and Hoses (Conventional)" on page P209
13	G10674	2	Hose Clamp, No. 24
14	G11083	1	Coupler, 3/4" Female NPT
15	G4205-10	-	Hose, 3/4" x 200"
16	G10734	1	Reducing Bushing, 1 1/2" Male NPT To 3/4" Female
17	G10917	1	Elbow, 90°, 3/4" NPT To Barb
18	---	-	See "Liquid Fertilizer Piston Pump (Uses 18 Tooth Sprocket)" on page P221
19	G10615	1	Reducing Bushing, 1 1/2" Male NPT To 1 1/4" Female
20	G10619	1	Close Nipple, 1 1/4" NPT
21	G10887	1	Elbow, 90°, 1 1/4" Male NPT To Female

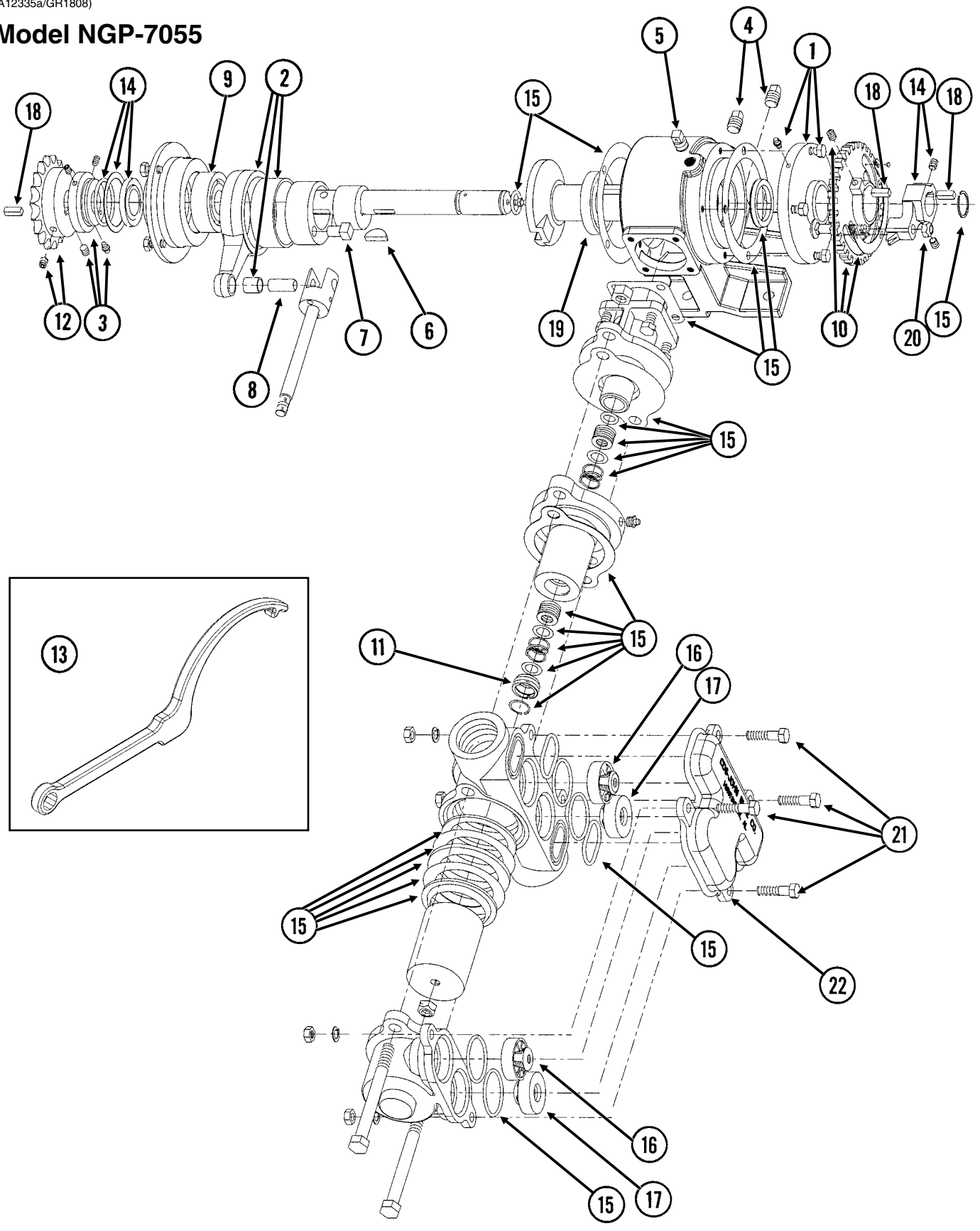
(FRTZ298b)



ITEM	PART NO.	QTY.	DESCRIPTION
1	G4301-06	1	Hose, 3/8" x 160', 12 Row
	G4301-05	1-2	Hose, 3/8" x 120', 16 Row
2	G10681	-	Hose Clamp, No. 6
3	GD11700	-	Adapter, 1/4" NPT To 3/8" Barb
4	---	-	See "Liquid Fertilizer Piston Pump Flow Divider" on page P223
5	G10734	1	Reducing Bushing, 1 1/2" Male NPT To 3/4" Female
6	G10995	1	Reducing Bushing, 1" Male NPT To 3/4" Female, Stainless Steel (If Applicable)
7	GA6527	1	Mount, 3/4" NPT
8	GD1113	1	U-Bolt, 5" x 7" x 5/8"-11
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
9	G10917	1	Elbow, 90°, 3/4" NPT To Barb
10	G10278	-	Hose Clamp, No. 16
11	---	-	See "Liquid Fertilizer Piston Pump (Uses 18 Tooth Sprocket)" on page P221
12	---	-	See "Liquid Fertilizer Tanks, Saddles, Saddle Mounts, and Hoses (ASD)" on page P211
13	G11305	1	1 1/2" Male NPT/Hose Barb Elbow
14	G11083	1	Coupler, 3/4" Female NPT
15	G4205-10	-	Hose, 3/4" x 200"

(A12335a/GR1808)

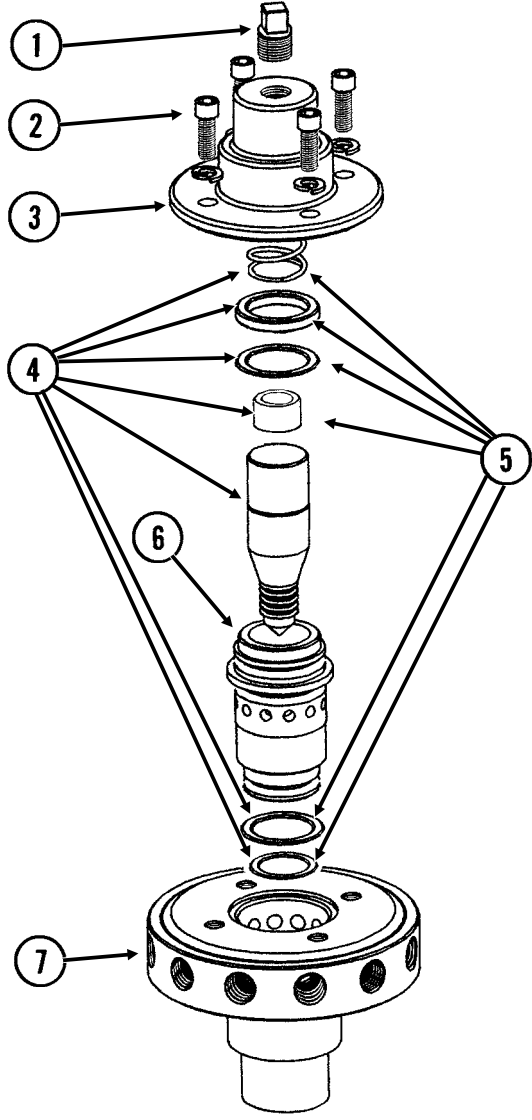
Model NGP-7055



ITEM	PART NO.	QTY.	DESCRIPTION
1	GR1804	1	Flange Cover Assembly
	G10991	4	Hex Head Cap Screw, 5/16"-18 x 7/8"
2	GR1803	1	Connecting Rod Assembly
3	GR1801	1	Spacer Assembly
	G10693	3	Hex Socket Head Set Screw, 5/16"-18 x 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	GR1146	1	Sprocket, 18 Tooth
13	GR1808	1	Adjustment Wrench
14	GR1806	1	Setting Pointer Assembly
15	GR1796	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	GR1800	2	Discharge Valve Assembly
17	GR1798	2	Suction Valve Assembly
18	GR1118	3	Setting Arm Key
19	GR1116	1	Bearing
20	G10306	1	Carriage Bolt, 3/8"-16 x 2"
	G10108	1	Lock Nut, 3/8"-16
21	G10003	4	Hex Head Cap Screw, 3/8"-16 x 1 1/2"
	G11387	4	Flat Washer, 3/8" SAE
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
22	GR2011	1	Valve Cover, NPG-7055
A	GA12335	-	Piston Pump Complete W/18 Tooth Sprocket (Model NGP-7055)

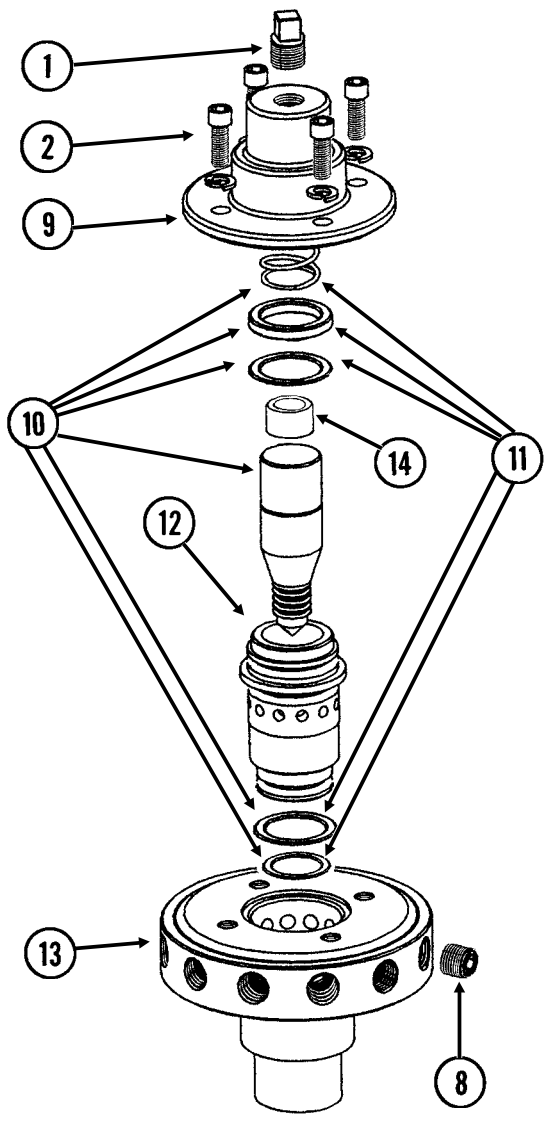
(FRTZ159/PT40a/FRTZ202c)

**Model FD-1200 Flow Divider,
12 Outlet**



3/4" NPT

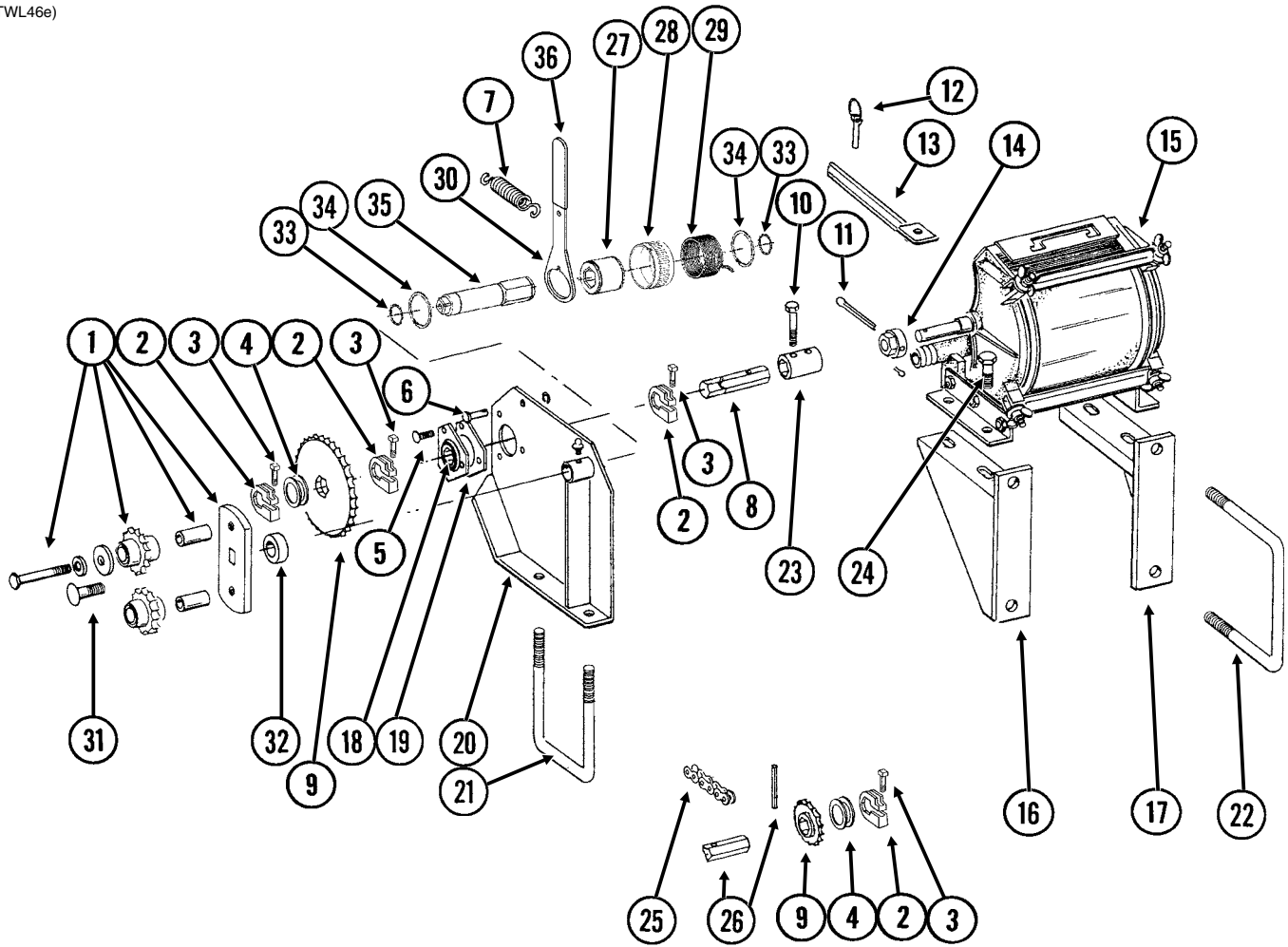
**Model FD-2000 Flow Divider,
20 Outlet**



1" NPT

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
8	G10350	4	Hex Socket Head Plug, 1/4" NPT, Stainless Steel
9	GR1566	1	Cap
10	GR1567	1	Needle Assembly W/Seal Kit (Item 22)
11	GR1568	1	Seal Kit, Includes: (3) O-Rings, (1) Seal, (1) Spring
12	GR1561	1	Sleeve
13	GR1559	1	Body, 20 Outlets
14	GR1574	1	Sleeve, 1" O.D. x 1/2" Long, Stainless Steel
A	GA8931	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 12 Outlet (Model FD-1200) (Items 1-7) (12 Row Sizes)
B	GA9407	1	Liquid Fertilizer Piston Pump Flow Divider Complete, 20 Outlet (Model FD-2000) (Items 1, 2 And 8-14) (16 Row Size)

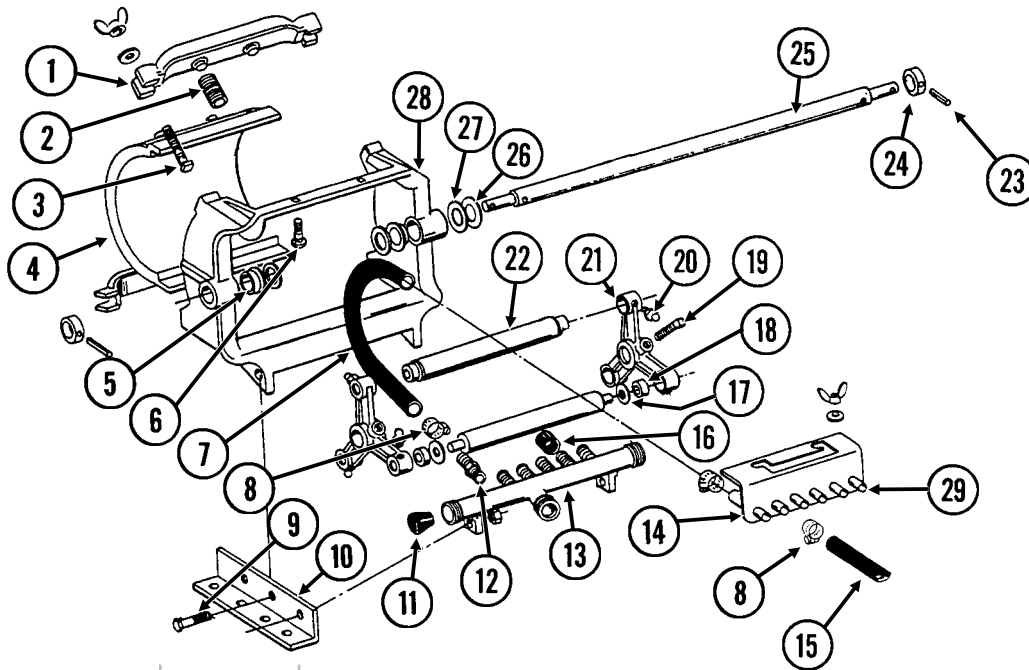
(TWL46e)



ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
1	GA7336	1	Idler W/Bolt-On Sprockets
	GD7426	-	Sprocket, 12 Tooth
	GD1026	-	Sleeve, 1 ³ / ₁₆ " Long
	G11387	-	Flat Washer, ³ / ₈ " SAE
	G10229	-	Lock Washer, ³ / ₈ "
	G10047	-	Hex Head Cap Screw, ³ / ₈ "-16 x 1 ³ / ₄ "
	GD11045	4	Lock Clamp
2	G10130	4	Square Head Machine Bolt, ⁵ / ₁₆ "-18 x 1 ³ / ₄ "
	G10923	4	Flange Nut, ⁵ / ₁₆ "-18, No Serration
4	G10233	-	Machine Bushing, 1", 10 Gauge (As Required)
5	G10303	3	Carriage Bolt, ⁵ / ₁₆ "-18 x 1"
	G11386	3	Flat Washer, ⁵ / ₁₆ " SAE
	G10232	3	Lock Washer, ⁵ / ₁₆ "
	G10106	3	Hex Nut, ⁵ / ₁₆ "-18
6	G10478	1	Clevis Pin, ⁵ / ₁₆ " x 1"
	G10409	1	Retaining Ring, ⁵ / ₁₆ "
7	GD5857	1	Spring
8	GD2548-54	-	Hex Shaft, ⁷ / ₈ " x 54" (1 Hole), 12/16 Row

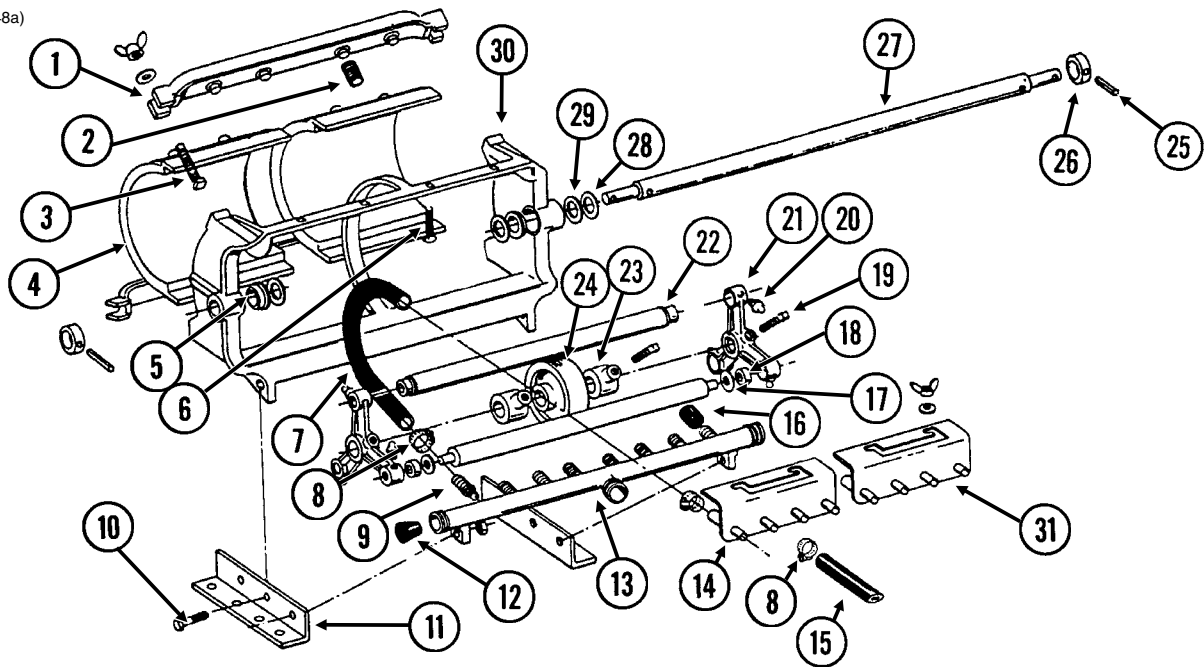
ITEM	PART NO.	QTY. (Per Side)	DESCRIPTION
9	GA5105	1	Sprocket, 15 Tooth
	GA5106	1	Sprocket, 17 Tooth
	GA5107	1	Sprocket, 19 Tooth
	GA5108	1	Sprocket, 23 Tooth
	GA5109	1	Sprocket, 24 Tooth
	GA5114	2	Sprocket, 30 Tooth
	GA6514	1	Sprocket, 46 Tooth
	GA5194	1	Sprocket, 50 Tooth
	GA6515	-	Sprocket, 62 Tooth
	GA5195	1	Sprocket, 66 Tooth
10	G10339	1	Hex Head Cap Screw, 5/16"-18 x 2"
	G10232	1	Lock Washer, 5/16"
	G10106	1	Hex Nut, 5/16"-18
11	G10462	1	Cotter Pin, 3/16" x 2"
12	GD2558	1	Lynch Pin, 1/4"
13	GA5146	1	Sprocket Storage Rod
14	GD7127	1	Shear Coupler
15	---	-	See "Liquid Fertilizer Squeeze Pump, 12 Row" on page P227 See "Liquid Fertilizer Squeeze Pump, 16 Row" on page P228
16	GA4619	1	Pump Mount, L.H.
17	GA4620	1	Pump Mount, R.H.
18	G2100-03	1	Bearing, 7/8" Hex Bore, Spherical
19	G3400-01	2	Flangette
20	GA4617	1	Drive Plate W/Grease Fitting
	GA4618	-	Drive Plate W/Grease Fitting (Shown)
	G10640	-	Grease Fitting, 1/4"-28
21	GD1134	1	U-Bolt, 7" x 5" x 5/8"-11
	G10230	2	Lock Washer, 5/8"
	G10104	2	Hex Nut, 5/8"-11
22	GD1113	2	U-Bolt, 5" x 7" x 5/8"-11
	G10230	4	Lock Washer, 5/8"
	G10104	4	Hex Nut, 5/8"-11
23	GD6924	1	Coupler
24	G10004	4	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G11387	4	Flat Washer, 3/8" SAE
	G10229	4	Lock Washer, 3/8"
	G10101	4	Hex Nut, 3/8"-16
25	G3310-170	1	Chain, No. 40, 170 Pitch Including Connector Link
	GR0912	-	Connector Link, No. 40
26	---	-	See "Seed Rate Transmission and Row Unit Drill Shafts" on page P121
27	GD14432	1	Sleeve, 1 1/4"
28	GD19344	-	Release Collar, Gray, L.H. (Shown)
	GD19343	1	Release Collar, Blue, R.H.
29	GD14414	1	Torsion Spring, R.H. (Used In L.H. Wrap Spring Wrench) (Shown)
	GD14413	-	Torsion Spring, L.H. (Used In R.H. Wrap Spring Wrench)
30	GD14431	1	Handle
31	G11100	1	Hex Socket Button Head Cap Screw, 1/4"-20 x 1/2", Grade 8
	G10227	1	Lock Washer, 1/4"
	G11385	1	Flat Washer, 1/4" SAE
32	GD2734-08	1	Sleeve, 1 1/4" O.D. x 5/8" Long
33	G11075	2	External Inverted Snap Ring, 7/8"
34	G10496	2	External Inverted Snap Ring, 1 1/2"
35	GD14427	1	Tightener Shaft, 4 7/8"
36	G11078	1	Vinyl Cap
A	G1K269	-	Lock Clamp Kit (Items 2 and 3)
B	G1K379	-	Wrap Spring Wrench Replacement Kit, Silver Collar, L.H. (Items 27-36) (Shown)
	G1K378	1	Wrap Spring Wrench Replacement Kit, Gold Collar, R.H. (Items 27-36)

LFC011/LFC011(PT47a)



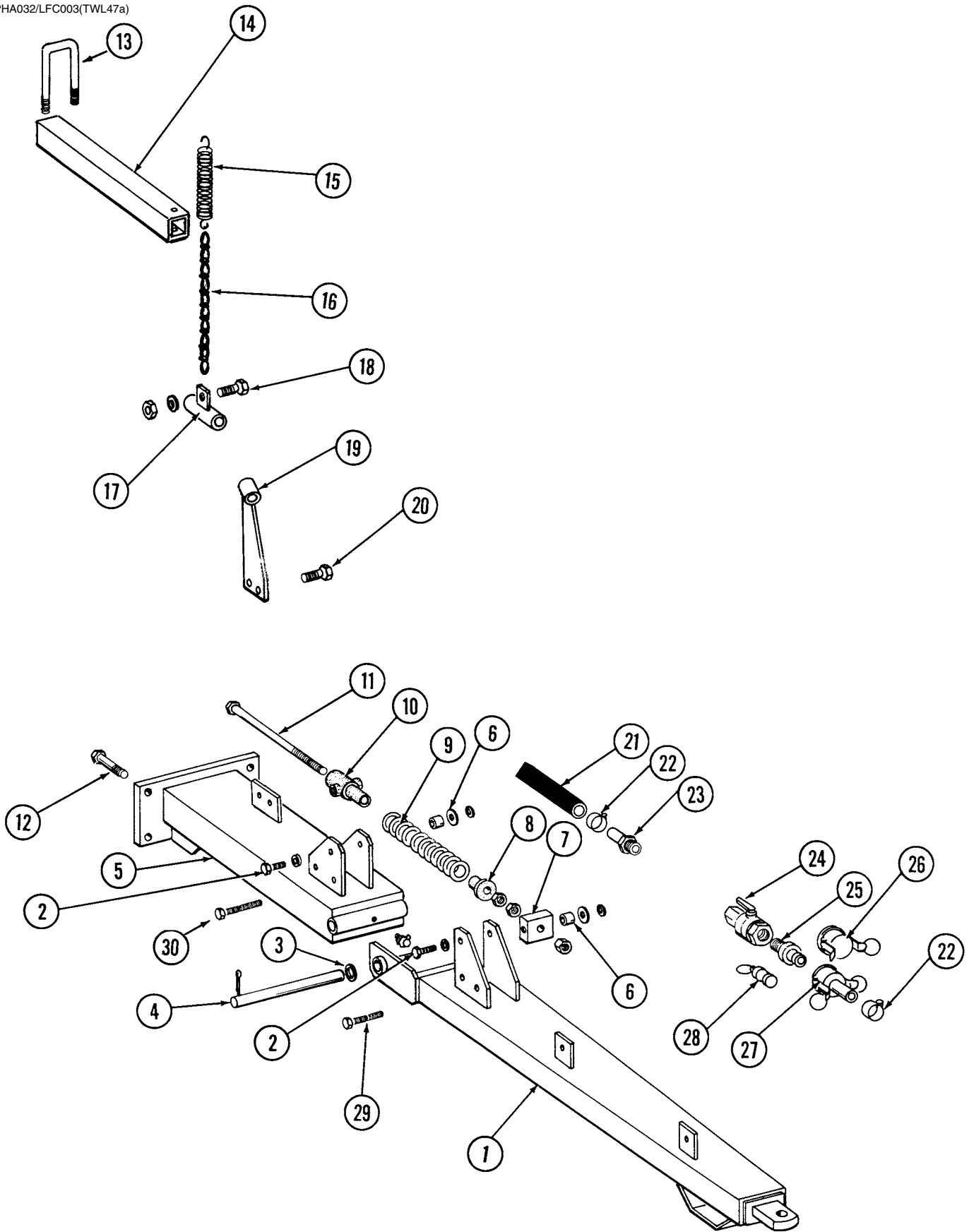
ITEM	PART NO.	QTY.	DESCRIPTION
1	GR0216	2	Spring Anchor Bar
2	GR0214	4	Spring
3	G10130	4	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G11386	4	Flat Washer, 5/16" SAE
	G10144	4	Wing Nut, 5/16"-18
4	GR0212	1	Plate
5	GR0207	2	Nylon Bushing
6	G10303	2	Carriage Bolt, 5/16"-18 x 1"
	G11386	2	Flat Washer, 5/16" SAE
	G10144	2	Wing Nut, 5/16"-18
7	GR0215	6	Metering Hose, 1/2" x 13"
8	G10681	-	Hose Clamp, No. 6
9	G10004	4	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10101	4	Hex Nut, 3/8"-16
10	GR0213	2	Angle
11	GR0217	2	Manifold Plug
12	GR0232	6	Adapter
13	GR0228	1	Intake Manifold
14	GR1484	1	Discharge Manifold Less Hose Barbs
15	G4301-06	1	Hose, 3/8" x 160', 12 Row 30"
16	GR0211	-	Rubber Cap
17	GR0229	6	Nylon Washer
18	GR1626	6	Bushing
19	G10131	2	Square Head Set Screw, 5/16"-18 x 3/4"
20	G10640	8	Grease Fitting, 1/4"-28
21	GR0231	2	Roller Arm
22	GR0233	3	Roller
23	G10718	2	Spring Pin, 5/16" x 1 1/8"
24	GD9109	2	Sleeve
25	GD9107	1	Shaft
26	GR0226	2	Shim, 3/64"
27	GR0225	2	Shim, 1/32"
28	GR0208	1	Frame
29	GR1577	6	Nylon Hose Barb, 1/2" x 3/8" (If Applicable)
A	GA8691	2	Squeeze Pump Complete, 6 Rows (Items 1-13, 15-22 And 25-29)

LFC010(PT48a)



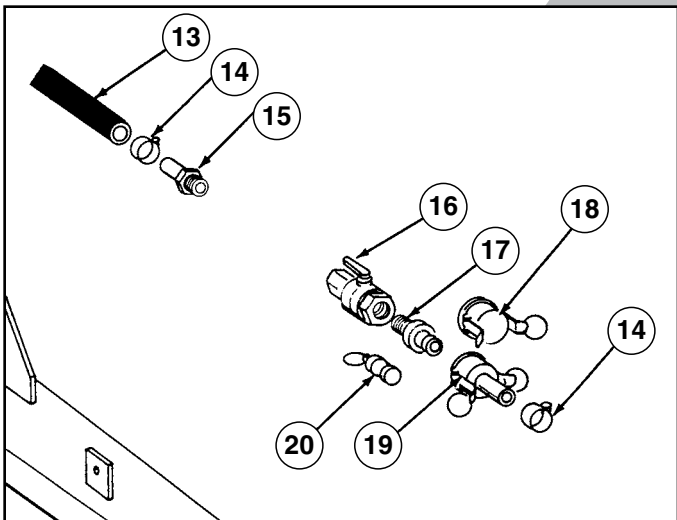
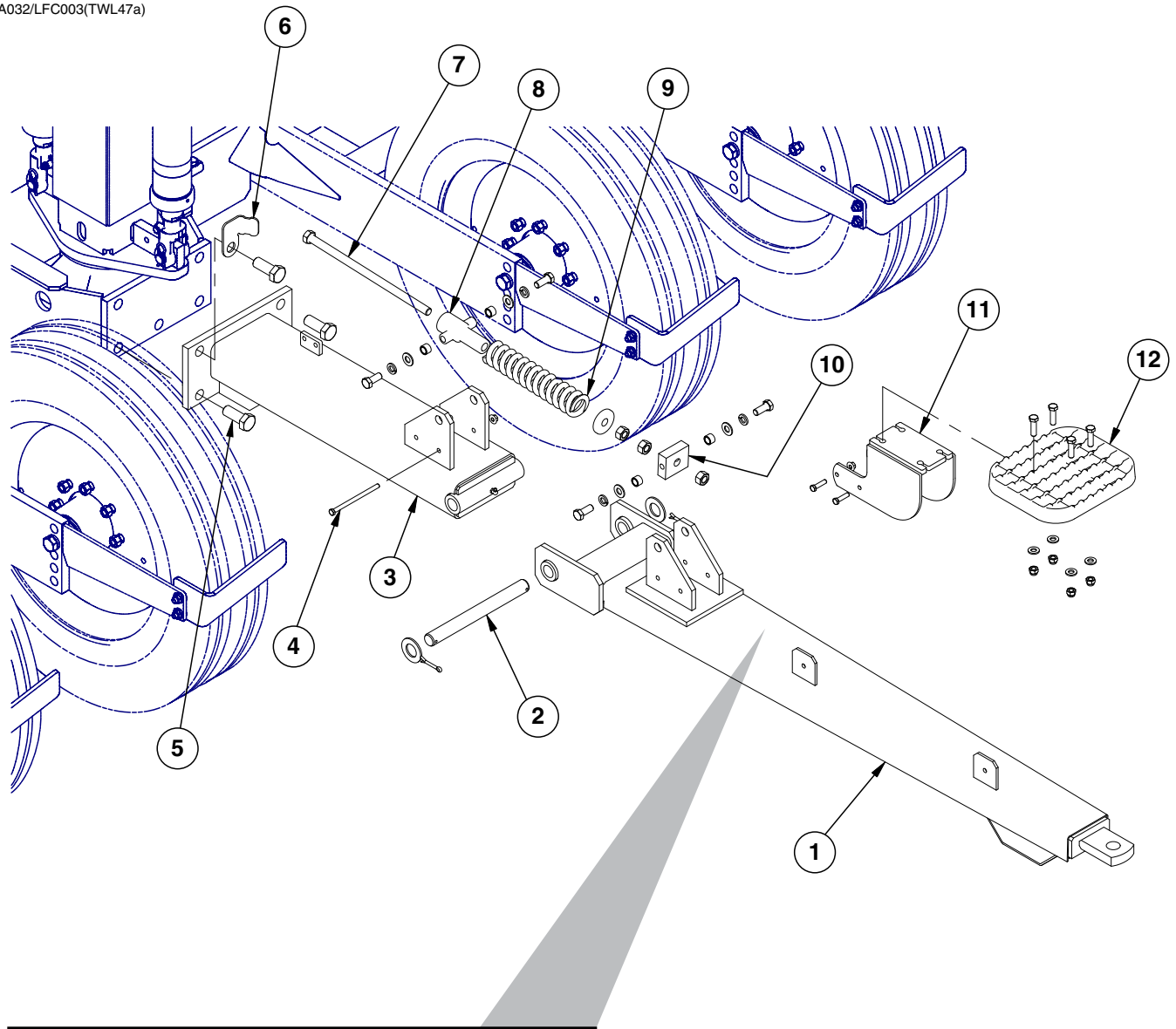
ITEM	PART NO.	QTY.	DESCRIPTION
1	GR0221	2	Spring Anchor Bar
2	GR0214	8	Spring
3	G10130	4	Square Head Machine Bolt, 5/16"-18 x 1 3/4"
	G11386	4	Flat Washer, 5/16" SAE
	G10144	4	Wing Nut, 5/16"-18
4	GR0212	2	Plate
5	GR0207	2	Nylon Bushing
6	G10303	4	Carriage Bolt, 5/16"-18 x 1"
	G11386	4	Flat Washer, 5/16" SAE
	G10144	4	Wing Nut, 5/16"-18
7	GR0215	8	Metering Hose, 1/2" x 13"
8	G10681	-	Hose Clamp, No. 6
9	GR0232	8	Adapter
10	G10004	4	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10101	4	Hex Nut, 3/8"-16
11	GR0279	1	Angle, L.H.
	GR0280	1	Angle, R.H.
12	GR0217	2	Manifold Plug
13	GR0284	1	Intake Manifold
14	GR1485	2	Discharge Manifold Less Hose Barbs
15	G4301-05	1	Hose, 3/8" x 120'
16	GR0211	-	Rubber Cap
17	GR0229	6	Nylon Washer
18	GR1626	6	Bushing
19	G10131	2	Square Head Set Screw, 5/16"-18 x 3/4"
20	G10640	8	Grease Fitting, 1/4"-28
21	GR0231	2	Roller Arm
22	GR0283	3	Roller
23	GR0282	2	Set Collar
24	GR0281	1	Back Up Roller
25	G10718	2	Spring Pin, 5/16" x 1 1/8"
26	GD9109	2	Sleeve
27	GD9108	1	Shaft
28	GR0226	4	Shim, 3/64"
29	GR0225	4	Shim, 1/32"
30	GR0222	1	Frame
31	GR1577	8	Nylon Hose Barb, 1/2" x 3/8" (If Applicable)
A	GA8692	2	Squeeze Pump Complete, 8 Rows (Items 1-14, 16-24 And 27-31)

PHA032/LFC003(TWL47a)

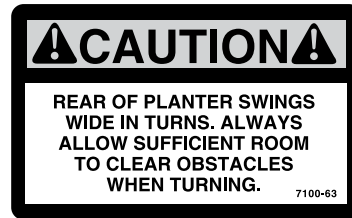
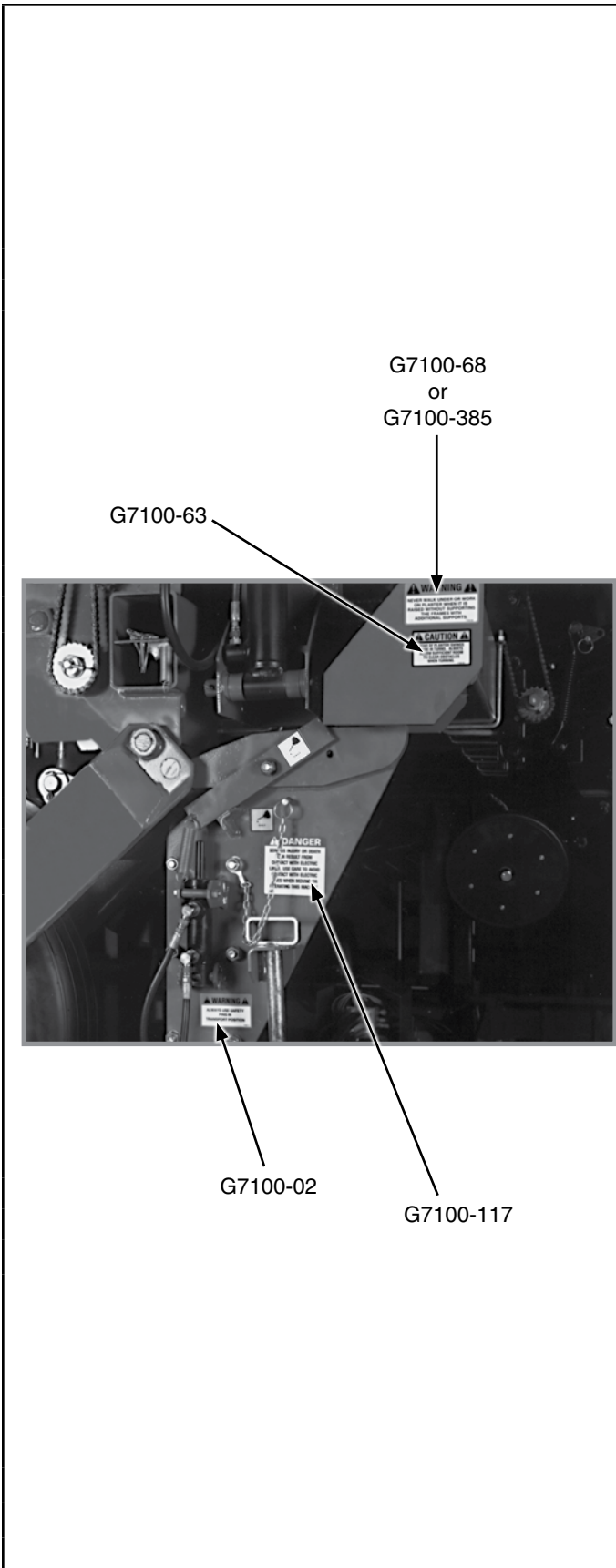


ITEM	PART NO.	QTY.	DESCRIPTION
1	GA6961	1	Hitch
2	G10007	4	Hex Head Cap Screw, 5/8"-11 x 1 1/2"
	G11391	4	Flat Washer, 5/8" SAE
	G10230	4	Lock Washer, 5/8"
3	G11396	2	Flat Washer, 1 1/4" SAE
4	GD3547	1	Pin, 1 1/4" x 12 3/4"
	G10460	2	Cotter Pin, 1/4" x 2"
5	GA6960	1	Hitch
6	GB0218	4	Bushing, 2 1/32" I.D. x 7/8" O.D. x 1 9/32" Long
7	GD7908	1	Tap Block
8	GB0213	1	Spring Seat
9	GD2115	1	Spring
10	GB0206	1	Rod Guide
11	GD7907	1	Special Bolt
	G10105	3	Hex Nut, 3/4"-10
12	G10826	5	Hex Head Cap Screw, 1"-8 x 2 1/2"
	G10396	5	Lock Nut, 1"-8
13	GD2721	2	U-Bolt, 2" x 2" x 1/2"-13
	G10228	4	Lock Washer, 1/2"
	G10102	4	Hex Nut, 1/2"-13
14	GD10196	-	Hanger Tube
15	GD0829	-	Spring
16	G3305-03	-	Twin Loop Chain, 15 Links
17	GA7209	-	Hose Support
18	G10064	1	Hex Head Cap Screw, 1/4"-20 x 1"
	G11385	2	Flat Washer, 1/4" SAE
	G10110	1	Lock Nut, 1/4"-20, Grade B
19	GA7208	-	Hose Support
20	G10004	2	Hex Head Cap Screw, 3/8"-16 x 1 1/4"
	G10108	2	Lock Nut, 3/8"-16
21	G4200-01	1	Hose, 1 1/4" x 22'
22	G10672	6	Hose Clamp, No. 28
23	G10626	1	Adapter, 1 1/4" NPT To Barb
24	GA4976	1	Shutoff Valve, 1 1/4" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
25	GD1514	1	Adapter, 1 1/4" Male NPT To Cam Lock
26	GD1515	1	Dust Cap, 1 1/4" Cam Lock
27	GD1516	1	Adapter, 1 1/4" Barb To Female Cam Lock
28	GD1517	1	Dust Plug, 1 1/4" Male Cam Lock
29	G10172	1	Hex Head Cap Screw, 3/8"-16 x 5"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16
30	G10756	1	Hex Head Cap Screw, 3/8"-16 x 6"
	G10229	1	Lock Washer, 3/8"
	G10101	1	Hex Nut, 3/8"-16

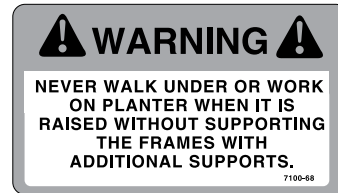
PHA032/LFC003(TWL47a)



ITEM	PART NO.	QTY.	DESCRIPTION
1	GA6961	1	Hitch
2	GD3547	1	Pin, 1¼" x 12¾"
	G11396	2	Flat Washer, 1¼"
	G10460	2	Cotter Pin, ¼" x 2"
3	GA6960	1	Hitch
4	G10756	1	Hex Head Cap Screw, ⅜"-16 x 6"
	G11091	1	Serrated Flange Nut, ⅜"-16
5	G10826	5	Hex Head Cap Screw, 1"-8 x 2½"
	G10396	5	Lock Nut, 1"-8
6	GD20757	1	Hose Routing Bracket
7	GD7907	1	Special Bolt
8	GB0206	1	Rod Guide
	G10007	2	Hex Head Cap Screw, ⅝"-11 x 1½"
	G10230	2	Lock Washer, ⅝"
	G11391	2	Flat Washer, ⅝" SAE
	GB0218	2	Bushing, 2 ¹ / ₃₂ " I.D. x 7 ⁷ / ₈ " O.D. x 1 ⁹ / ₃₂ " Long
9	GD2115	1	Spring
	G10105	3	Hex Nut, ¾"-10
	GB0213	1	Spring Seat
10	GD7908	1	Tap Block
	G10007	2	Hex Head Cap Screw, ⅝"-11 x 1½"
	G10230	2	Lock Washer, ⅝"
	G11391	2	Flat Washer, ⅝" SAE
	GB0218	2	Bushing, 2 ¹ / ₃₂ " I.D. x 7 ⁷ / ₈ " O.D. x 1 ⁹ / ₃₂ " Long
11	GA14520	1	Hitch Step
	G10003	4	Hex Head Cap Screw, ⅜"-16 x 1½"
	G11091	4	Serrated Flange Nut, ⅜"-16
12	GB0315	1	Step
	G10039	4	Hex Head Cap Screw, ½"-13 x 1¾"
	G11389	4	Flat Washer, ½" SAE
	G10111	4	Lock Nut, ½"-13
13	G4200-01	1	Hose, 1¼" x 22'
14	G10672	6	Hose Clamp, No. 28
15	G10626	1	Adapter, 1¼" NPT To Barb
16	GA4976	1	Shutoff Valve, 1¼" NPT
	GR1015	-	Body O-Ring
	GR1016	-	Stem O-Ring
	GR1017	-	Teflon Seat
	GR1018	-	Ball
	GR1019	-	Handle
17	GD1514	1	Adapter, 1¼" Male NPT To Cam Lock
18	GD1515	1	Dust Cap, 1¼" Cam Lock
19	GD1516	1	Adapter, 1¼" Barb To Female Cam Lock
20	GD1517	1	Dust Plug, 1¼" Male Cam Lock



Part No.: G7100-63
 Description: Decal, Caution
 Quantity: 1



Part No.: G7100-68
 Description: Decal, Warning (Prior to 2012 Production)
 Quantity: 1



Part No.: G7100-385
 Description: Decal, Warning (2012 Production and On)
 Quantity: 1

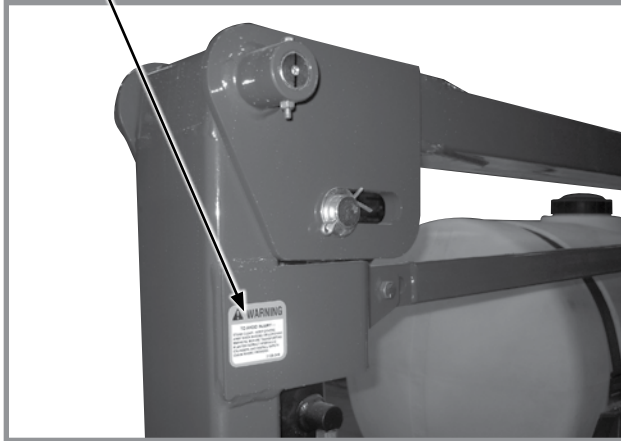


Part No.: G7100-117
 Description: Decal, Danger
 Quantity: 1

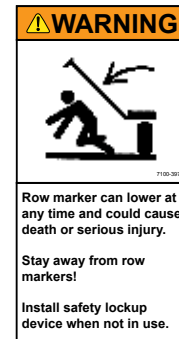


Part No.: G7100-02
 Description: Decal, Warning
 Quantity: 1

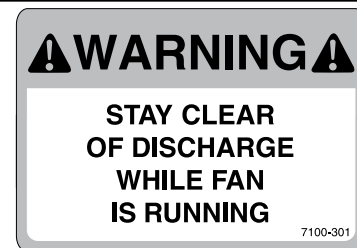
G7100-42
or
G7100-397



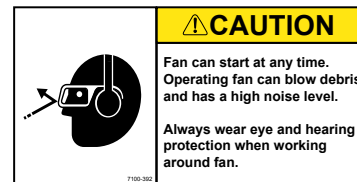
Part No.: G7100-42
Description: Decal, Warning (Prior to 2012 Production)
Quantity: 4 (2 Per Row Marker)



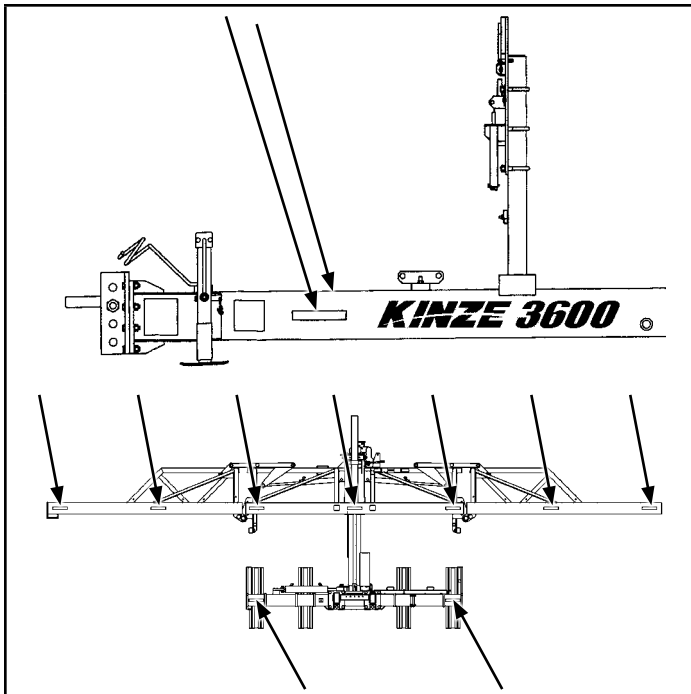
Part No.: G7100-397
Description: Decal, Warning (2012 Production and on)
Quantity: 4 (2 Per Row Marker)




Part No.: G7100-301
Description: Decal, Warning (Prior to 2012 Production)
Quantity: 2 (Located On Each Side Of Fan)



Part No.: G7100-392
Description: Decal, Caution (2012 Production and on)
Quantity: 2 (Located On Each Side Of Fan)

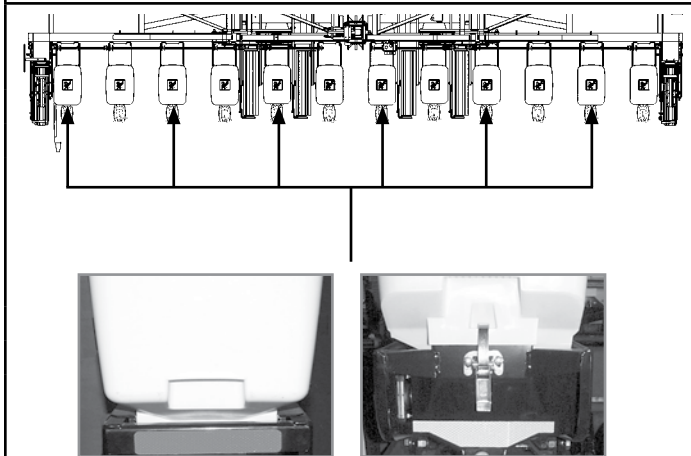






Part No.: G7100-259
 Description: Reflective Decal, Amber, 1½" x 9", Rectangular
 Quantity: 2 (1 Located on Each Side of Hitch)

7 (Used on 12 Row); 9 (Used on 16 Row) (Located On The Front Side Of The Front Toolbar - Side-Facing In Transport Position)

2 (Forward-Facing)

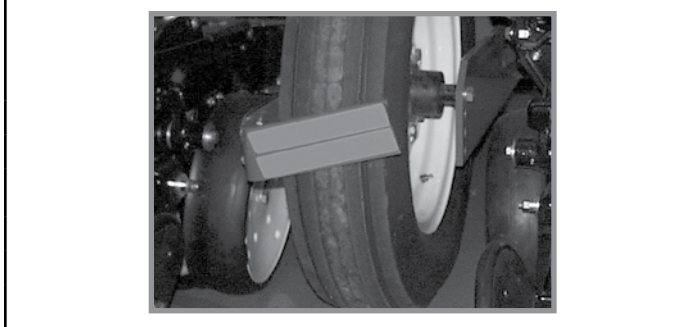



 

Part No.: G7100-259
 Description: Reflective Decal, Amber, 1½" x 9", Rectangular
 Quantity: 2 (Per Row Unit - Located On The Granular Chemical Hopper Panel Extension Of Every Other Row Unit Beginning On The L.H. Side Of The Planter - Side-Facing In Transport Position) (With Optional Granular Chemical)

Part No.: G7100-262
 Description: Reflective Decal, Amber, 1¾" x 9", Die-Cut
 Quantity: 1 (Qty. 1 Per Row Unit - Located On The Hopper Support Of Every Other Row Unit Beginning On The L.H. Side Of The Planter - Side-Facing In Transport Position) (Standard)

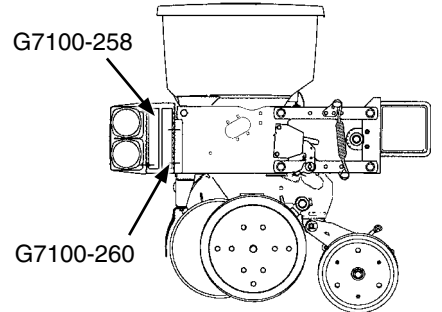
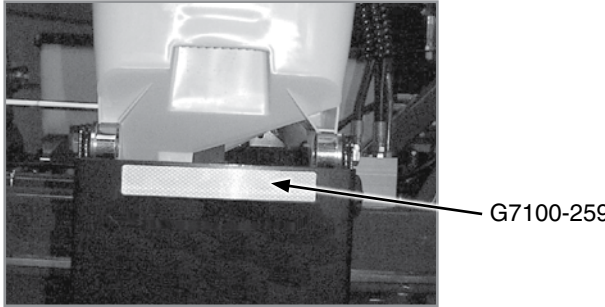
Note: 6 used on 12 row; 8 used on 16 row



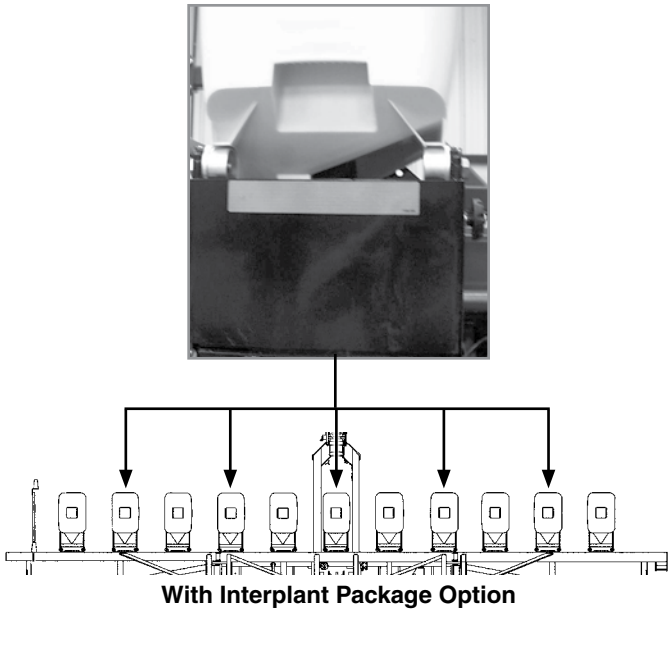

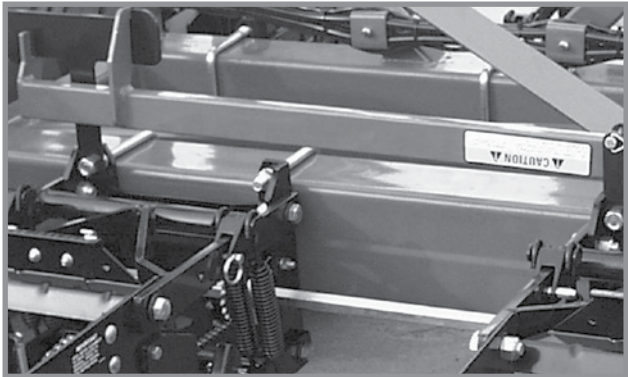



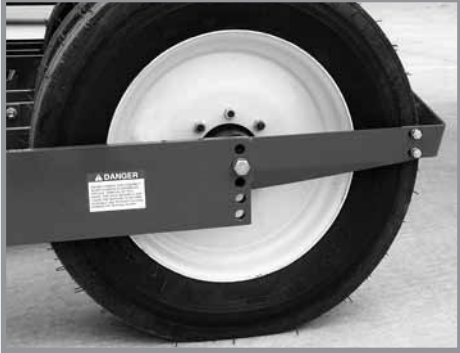






Part No.: G7100-258
 Description: Reflective Decal, Red, 1½" x 9" Rectangular
 Quantity: 1 (Per Outer Scraper - Located On Top)

Part No.: G7100-260
 Description: Reflective Decal, Orange, 1½" x 9" Rectangular
 Quantity: 1 (Per Outer Scraper - Located On Bottom)

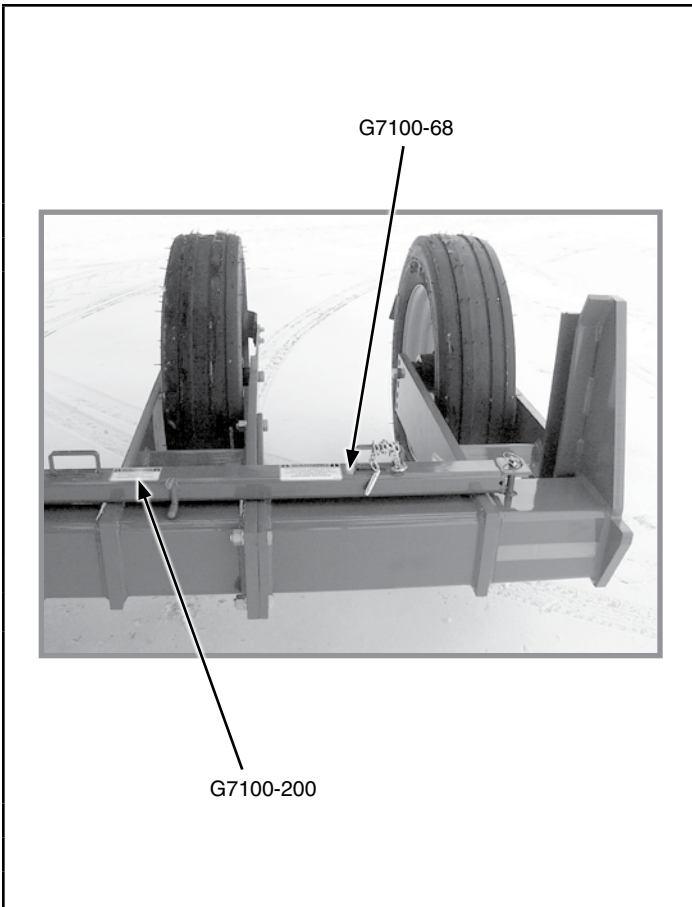
With Even-Row Push Row Unit Option	
 <p>G7100-258</p> <p>G7100-260</p>	<div style="background-color: #cccccc; width: 100px; height: 20px; margin-bottom: 10px;"></div> <p>Part No.: G7100-258</p> <p>Description: Reflective Decal, Red, 1½" x 9" Rectangular</p> <p>Quantity: 1 (Located On The Light Bracket On The L.H. Side Of The Planter - Rear-Facing In Transport Position)</p> <p>Part No.: G7100-260</p> <p>Description: Reflective Decal, Orange, 1½" x 9" Rectangular</p> <p>Quantity: 1 (Located On The Light Bracket On The L.H. Side Of The Planter - Rear-Facing In Transport Position)</p> <p>Part No.: G7100-259</p> <p>Description: Reflective Decal, Amber, 1½" x 9", Rectangular</p> <p>Quantity: 1 Used Located On The Front Of The Optional Even-Row Push Row Unit - Side-Facing In Transport Position)</p>
 <p>G7100-259</p>	

<p>G7100-258</p> <p>G7100-260</p> <p>G7100-258</p> <p>G7100-260</p> <p>With Granular Chemical Option</p> <p>G7100-258</p> <p>G7100-260</p>	<div style="background-color: #cccccc; width: 100px; height: 20px; margin-bottom: 10px;"></div> <p>Part No.: G7100-258 Description: Reflective Decal, Red, 1½" x 9" Rectangular Quantity: 1 (Located On The Light Bracket On the L.H. Side Of The Planter - Rear-Facing In Transport Position)</p> <p>1 (Located On The Outer Row Unit On the L.H. Side Of The Planter - Rear-Facing In Transport Position)</p> <hr/> <p>Part No.: G7100-260 Description: Reflective Decal, Orange, 1½" x 9" Rectangular Quantity: 1 (Located On The Light Bracket On the L.H. Side Of The Planter - Rear-Facing In Transport Position)</p> <p>1 (Located On The Outer Row Unit On the L.H. Side Of The Planter - Rear-Facing In Transport Position)</p>
<p>With Granular Chemical Option</p>	<div style="background-color: #cccccc; width: 100px; height: 20px; margin-bottom: 10px;"></div> <p>Part No.: G7100-259 Description: Reflective Decal, Amber, 1½" x 9", Rectangular Quantity: 1 (Located On The Outer Row Unit On The R.H. Side Of The Planter - Forward- Facing In Transport Position)</p>

 <p style="text-align: center;">With Interplant Package Option</p>	<div style="background-color: #cccccc; width: 100px; height: 20px; margin-bottom: 10px;"></div> <p>Part No.: G7100-259</p> <p>Description: Reflective Decal, Amber, 1½" x 9", Rectangular</p> <p>Quantity: 5 Used On 12 Row; 7 On 16 Row (Located On The Front Of Every Other Push Row Unit Beginning With The Center Row Unit And Every Other Row Unit To Both Ends - Side-Facing In Transport Position)</p>
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>⚠ WARNING ⚠</p> <p><small>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.</small></p> <p><small>7100-115</small></p> </div> <p>Part No.: G7100-115</p> <p>Description: Decal, Warning</p> <p>Quantity: 1 (1 Per Row Unit - Located On Underside Of Granular Chemical Hopper Lid)</p>
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>⚠ CAUTION ⚠</p> <p><small>SET DOWN PRESSURE SPRINGS TO MINIMUM. LOWER PLANTER TO GROUND AND EMPTY SEED HOPPERS. REQUIRES 90 LB MIN TO LIFT.</small></p> <p><small>7100-249</small></p> </div> <p>Part No.: G7100-249</p> <p>Description: Decal, Caution</p> <p>Quantity: 1 (Located On Interplant Push Row Unit Lift Lever) (Prior to 2012 Production)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <div style="display: flex; align-items: center;">  <div style="background-color: yellow; padding: 2px;"> <p>⚠ CAUTION</p> <p><small>Improper lifting of row unit can cause serious injury. An empty row unit requires minimum 90 lb (40.8 kg) lift. Set down pressure springs to minimum, lower planter to ground, and empty seed hopper before attempting to lift with this lever.</small></p> <p><small>7100-389</small></p> </div> </div> </div> <p>Part No.: G7100-389</p> <p>Description: Decal, Caution</p> <p>Quantity: 1 (Located On Interplant Push Row Unit Lift Lever) (2012 Production and on)</p>

	 <p>Part No.: G7100-215 Description: Decal, Danger Quantity: 1</p>
	 <p>Part No.: G7100-370 Description: Decal, Warning Quantity: 2 (Outer Stub Axles)</p>
	 <p>Part No.: G7100-90 Description: Decal, Warning Quantity: 1</p>
	 <p>Part No.: G7100-46 Description: Decal, Warning Quantity: 1</p>

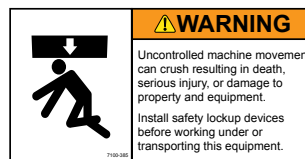
	
	<p>Part No.: G7100-75 Description: Decal, Caution (Prior to 2012 Production) Quantity: 4 (Front and Rear/Left and Right)</p>
	
	<p>Part No.: G7100-400 Description: Decal, Warning (2012 Production and On) Quantity: 4 (Front and Rear/Left and Right)</p>
	
	<p>Part No.: G7100-302 Description: Decal, Warning Quantity: 1</p>



Part No.: G7100-68
 Description: Decal, Warning (Prior to 2012 Production)
 Quantity: 1



Part No.: G7100-200
 Description: Decal, Warning (Prior to 2012 Production)
 Quantity: 1



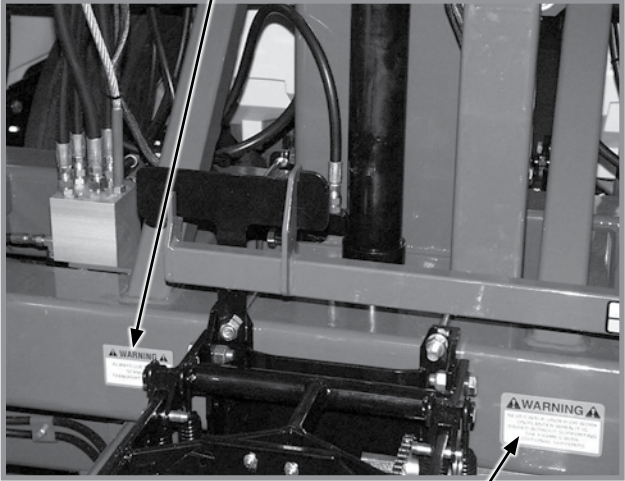





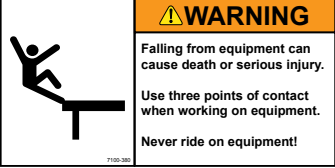
Part No.: G7100-385
 Description: Decal, Warning (2012 Production and on)
 Quantity: 1

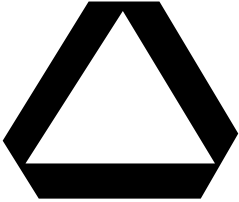
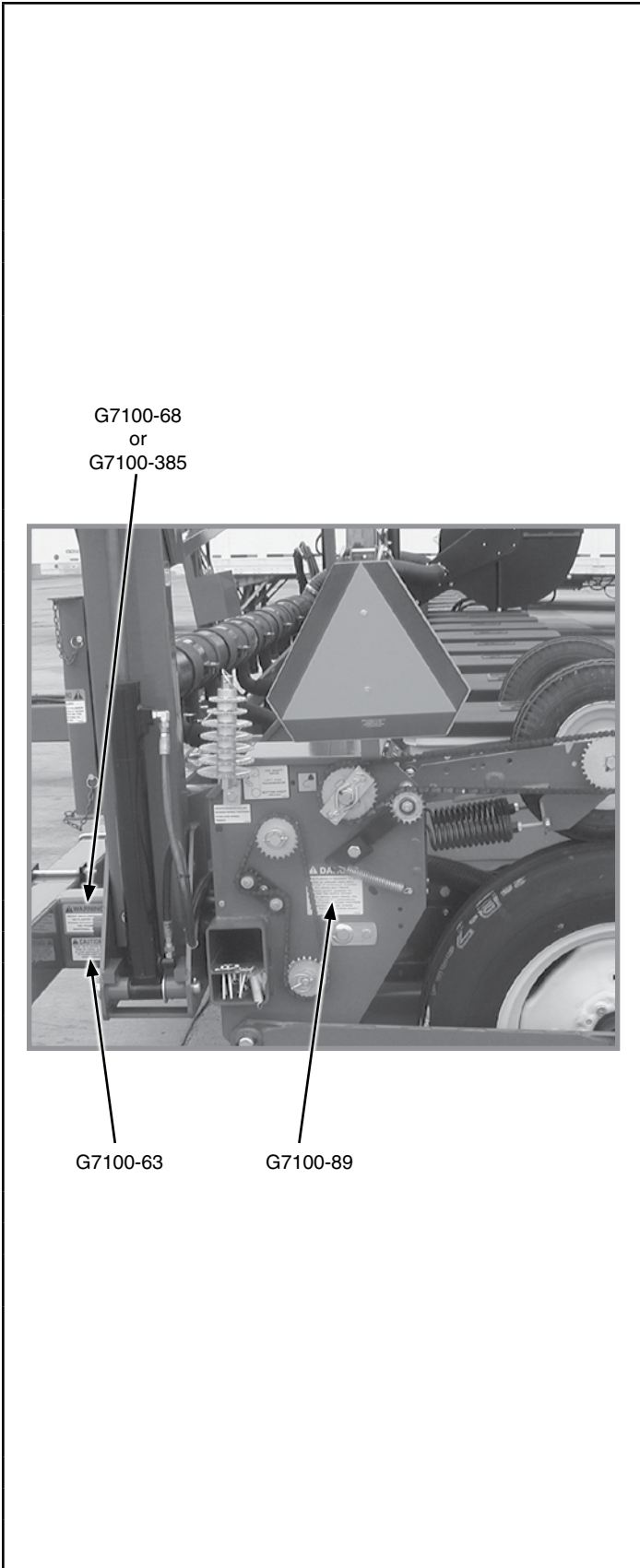


Part No.: G7100-377
 Description: Decal, Warning Entrapment
 Quantity: 2 (on each ASD Tank Lid)



Part No.: G7100-376
 Description: Decal, Notice ASD Pressure
 Quantity: 2 (on each ASD Tank Lid)

<p>G7100-200 or G7100-385</p>  <p>G7100-68 or G7100-385</p>	 <p>Part No.: G7100-200 Description: Decal, Warning (Prior to 2012 Production) Quantity: 2 (Front and Rear)</p>
<p>Part No.: G7100-68 Description: Decal, Warning (Prior to 2012 Production) Quantity: 2 (Front and Rear)</p>	 <p>Part No.: G7100-68 Description: Decal, Warning (Prior to 2012 Production) Quantity: 2 (Front and Rear)</p>
<p>Part No.: G7100-385 Description: Decal, Warning (2012 Production and On) Quantity: 2 (Front and Rear)</p>	 <p>Part No.: G7100-385 Description: Decal, Warning (2012 Production and On) Quantity: 2 (Front and Rear)</p>
	 <p>Part No.: G7100-266 Description: Decal, Danger (Prior to 2012 Production) Quantity: 2 (Located on each side of stair)</p>
<p>Part No.: G7100-380 Description: Decal, Warning (2012 Production and On) Quantity: 2 (Located on each side of stair)</p>	 <p>Part No.: G7100-380 Description: Decal, Warning (2012 Production and On) Quantity: 2 (Located on each side of stair)</p>



Part No.: GD2199
 Description: SMV Sign
 Quantity: 1



Part No.: G7100-63
 Description: Decal, Caution
 Quantity: 1



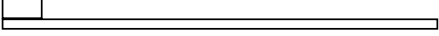

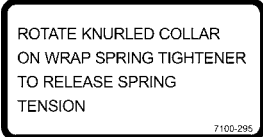

Part No.: G7100-89
 Description: Decal, Danger
 Quantity: 2 (One on Wheel Module at Each End of Planter)


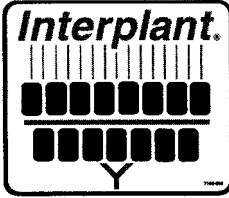


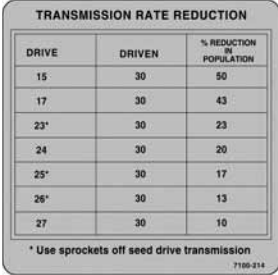


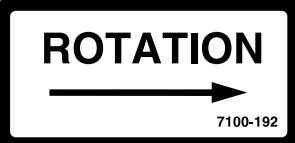


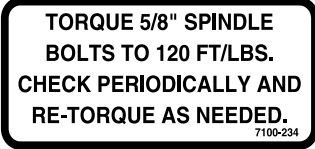
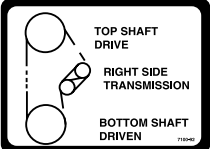
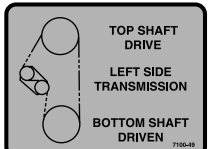
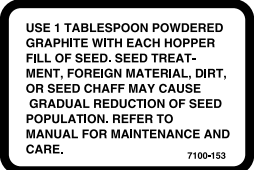


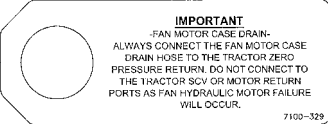
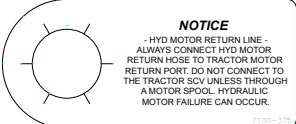


Part No.: G7100-68
 Description: Decal, Warning (Prior to 2012 Production)
 Quantity: 1



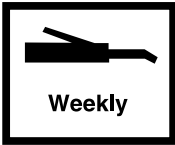


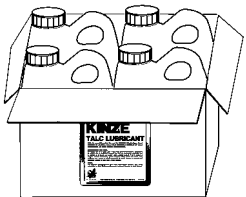
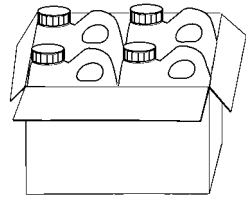



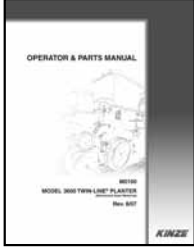
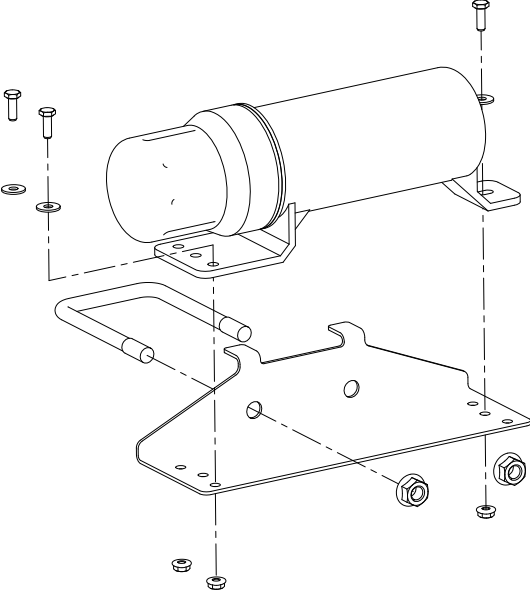
Part No.: G7100-385
 Description: Decal, Warning (2012 Production and On)
 Quantity: 1

	<p>Part No.: GD1162 Description: Tie Strap, 28"</p> <p>Part No.: GD1512 Description: Tie Strap, 7½"</p> <p>Part No.: GD2117 Description: Tie Strap, 14½"</p> <p>Part No.: GD2984 Description: Tie Strap, 34"</p>
	<p>Part No.: GD10057-01 Description: Hose Identification Sleeve, Red AA</p> <p>Part No.: GD10057-02 Description: Hose Identification Sleeve, Red BB</p> <p>Part No.: GD10057-03 Description: Hose Identification Sleeve, Blue AA</p> <p>Part No.: GD10057-04 Description: Hose Identification Sleeve, Blue BB</p> <p>Part No.: GD10057-11 Description: Hose Identification Sleeve, Green PP</p> <p>Part No.: GD10057-12 Description: Hose Identification Sleeve, Green RR</p> <p>Part No.: GD10057-14 Description: Hose Identification Sleeve, Yellow PP</p> <p>Part No.: GD10057-15 Description: Hose Identification Sleeve, Yellow RR</p> <p>Part No.: GD10057-17 Description: Hose Identification Sleeve, Black PP</p> <p>Part No.: GD10057-18 Description: Hose Identification Sleeve, Black RR</p> <p>Part No.: GD10057-19 Description: Hose Identification Sleeve, Orange CD</p>
	<p>Part No.: G7100-295 Description: Decal, Spring Tension Release Quantity: -</p>
	<p>Part No.: G7100-341 Description: Decal, Sending Unit Quantity: 1</p>

 <p>DIGITAL SENDING UNIT E-V A12811 7100-340</p>	<p>Part No.: G7100-340 Description: Decal, Sending Unit Quantity: 1</p>																								
 <p>Interplant. Y</p>	<p>Part No.: G7100-208 Description: Decal, Interplant Quantity: 2</p>																								
 <p>EVOLUTION SERIES</p>	<p>Part No.: G7100-247 Description: Decal, Logo, 4³/₈" x 4¹/₂" Quantity: 2 (Per Row Unit)</p> <p>Part No.: G7100-252 Description: Decal, Logo, 3¹/₂" x 3⁵/₈" (Hopper Panel Extension) Quantity: -</p>																								
 <p>Twin-Line® 7100-177</p>	<p>Part No.: G7100-177 Description: Decal, Twin-Line®, 3/4" x 3" Quantity: 1</p>																								
<p>NOTE</p> <p>It is the responsibility of the user to read and understand the Operator's Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment.</p> <p>AN OPERATOR & PARTS MANUAL IS AVAILABLE FOR THIS MACHINE.</p> <p>To obtain a manual, furnish model number and serial number and contact your KINZE Dealer or KINZE Manufacturing, Inc., P.O. Box 806 Williamsburg, IA 52361-0806 USA</p>	<p>Part No.: G7100-217 Description: Decal, Note Quantity: 1</p>																								
 <p>TRANSMISSION RATE REDUCTION</p> <table border="1"> <thead> <tr> <th>DRIVE</th> <th>DRIVEN</th> <th>% REDUCTION IN POPULATION</th> </tr> </thead> <tbody> <tr> <td>15</td> <td>30</td> <td>50</td> </tr> <tr> <td>17</td> <td>30</td> <td>43</td> </tr> <tr> <td>23*</td> <td>30</td> <td>23</td> </tr> <tr> <td>24</td> <td>30</td> <td>20</td> </tr> <tr> <td>25*</td> <td>30</td> <td>17</td> </tr> <tr> <td>26*</td> <td>30</td> <td>13</td> </tr> <tr> <td>27</td> <td>30</td> <td>10</td> </tr> </tbody> </table> <p>* Use sprockets off seed drive transmission 7100-214</p>	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	<p>Part No.: G7100-214 Description: Decal, Two-Speed Point Row Clutch Rate Reduction</p>
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																							
 <p>EDGEVAC 7100-358</p>	<p>Part No.: G7100-358 Description: Decal, EdgeVac</p>																								
 <p>ASD 7100-359</p>	<p>Part No.: G7100-359 Description: Decal, ASD</p>																								
 <p>ROTATION → 7100-192</p>	<p>Part No.: G7100-192 Description: Decal, Point Row Clutch Rotation</p>																								

 <p>TORQUE 5/8" SPINDLE BOLTS TO 120 FT/LBS. CHECK PERIODICALLY AND RE-TORQUE AS NEEDED. 7100-234</p>	<p>Part No.: G7100-234 Description: Decal, Bolt Torque Quantity: -</p>
 <p>TOP SHAFT DRIVE RIGHT SIDE TRANSMISSION BOTTOM SHAFT DRIVEN 7100-92</p>	<p>Part No.: G7100-92 Description: Decal, Right Side Transmission Quantity: 1</p>
 <p>TOP SHAFT DRIVE LEFT SIDE TRANSMISSION BOTTOM SHAFT DRIVEN 7100-49</p>	<p>Part No.: G7100-49 Description: Decal, Left Side Transmission Quantity: 1</p>
 <p>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</p>	<p>Part No.: G7100-153 Description: Decal, Information Quantity: 1 Per Brush-Type Seed Meter</p>
 <p>MARKER SPEED CONTROL ↑ LOWER SEE MANUAL FOR PROPER ADJUSTMENT ↑ RAISE 7100-201</p>	<p>Part No.: G7100-201 Description: Decal, Information</p>
 <p>EdgeVac® 7100-311</p>	<p>Part No.: G7100-311 Description: Decal, EdgeVac</p>
 <p>IMPORTANT - FAN MOTOR CASE DRAIN- ALWAYS CONNECT THE FAN MOTOR CASE DRAIN HOSE TO THE TRACTOR ZERO PRESSURE RETURN. DO NOT CONNECT TO THE TRACTOR SCV OR MOTOR RETURN PORTS AS FAN HYDRAULIC MOTOR FAILURE WILL OCCUR. 7100-328</p>	<p>Part No.: G7100-329 Description: Tag, Fan Motor Case Drain</p>
 <p>NOTICE - HYD MOTOR RETURN LINE- ALWAYS CONNECT HYD MOTOR RETURN HOSE TO TRACTOR MOTOR RETURN PORT. DO NOT CONNECT TO THE TRACTOR SCV UNLESS THROUGH A MOTOR SPOOL. HYDRAULIC MOTOR FAILURE CAN OCCUR. 7100-375</p>	<p>Part No.: G7100-375 Description: Tag, Hydraulic Motor Return Line</p>
 <p>KINZE <i>Vision</i> EQUIPPER</p>	<p>Part No.: G7100-335 Description: Decal, Kinze Vision</p>
 <p>DRAIN MOISTURE FROM AIR TANK DAILY. DRAIN TANK COMPLETELY FOR STORAGE. 7100-352</p>	<p>Part No.: G7100-352 Description: Decal, Tank Drain</p>

	<p>Part No.: G7100-111 Description: Decal, Oil Daily</p>
	<p>Part No.: G7100-116 Description: Decal, Grease Daily</p>
	<p>Part No.: G7100-110 Description: Decal, Grease Weekly</p>
	<p>Part No.: GR0155 Description: Blue Paint, Aerosol Can</p> <p>Part No.: GR0155MPP Description: Blue Paint, Twelve Aerosol Cans</p>
	<p>Part No.: GR0146 Description: Powdered Graphite, 1 Pound Container</p> <p>Part No.: GR0146MPP Description: Powdered Graphite, Twenty-Four 1 Pound Containers</p>
	<p>Part No.: GR1570MPP Description: Talc Lubricant, Four 8 Pound Containers</p> <p>Part No.: GR1828 Description: Talc Lubricant, 30 Pound Container</p>
	<p>Part No.: GR1842MPP Description: Graphite Lubricant, Four 5 Pound Containers</p>
	<p>Part No.: G7100-368 Description: Decal, KINZE 3600 Quantity: 2 (1 On Each Side of Hitch)</p>

	<p>Part No.: GM0236-01 Description: Operator Manual, Model 3600</p> <p>Part No.: GM0236-02 Description: Parts Manual, Model 3600</p>
	<p>Part No.: GA15422 Description: Operator's Manual Canister Quantity: 1</p>
	<p>Part No.: GD22686 Description: Manual Canister Bracket Quantity: 1</p>
	<p>Part No.: GD16642 Description: U-Bolt, 3" x 4" x 1/2"-13 Quantity: 1</p>
	<p>Part No.: G10071 Description: Serrated Flange Nut, 1/2"-13 Quantity: 2</p>
	<p>Part No.: G10023 Description: Hex Head Cap Screw, 1/4"-20 x 3/4" Quantity: 3</p>
	<p>Part No.: G11385 Description: Flat Washer, 1/4" SAE Quantity: 3</p>
<p>Part No.: G10621 Description: Serrated Flange Nut, 1/4"-20 Quantity: 3</p>	

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