



OPERATOR'S MANUAL

2200
Bale Hiker

K56200-02

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Section 1: Safety

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Safety

SAFETY-ALERT SYMBOL



Watch for this symbol. It identifies potential hazards to health or personal safety. It means:

ATTENTION - BE ALERT.
Your Safety is involved.

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Signal Words

The words **DANGER**, **WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize the safety alerts, and follow the recommended precautions and safe practices.

Three words are used in conjunction with the safety-alert symbol:



DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in **DEATH OR SERIOUS INJURY**.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in **DEATH OR SERIOUS INJURY**.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in **MINOR OR MODERATE INJURY**.

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in this section of the manual.

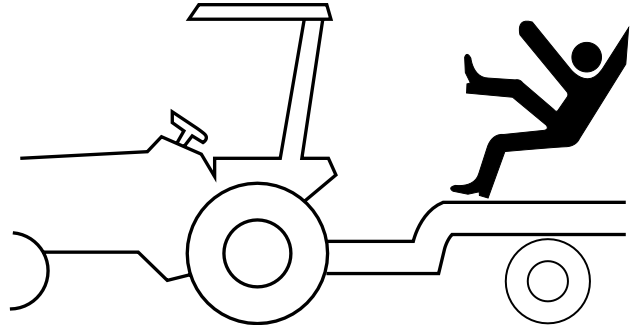
The words **Important** and **Note** are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

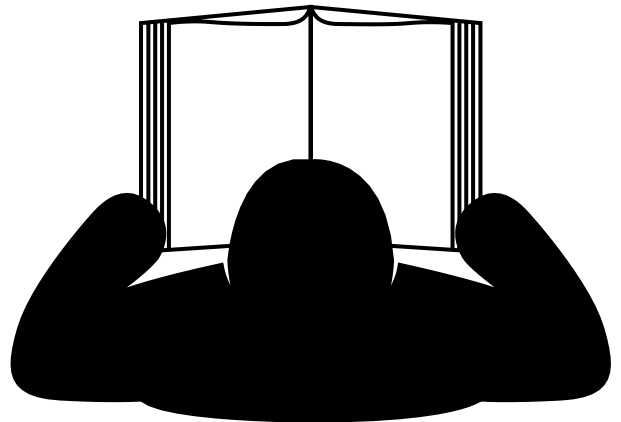
General Operation

- **DO NOT RIDE!!** Do not allow riders on the implement when in motion.
- Do not allow extra riders in the tractor unless an instructor seat and seat belt are available.
- **Check behind** when backing up.
- **Reduce speed** when working in hilly terrain.
- Never allow anyone within the immediate area when operating machinery.
- **Keep all shields in place**, replace them if removed for service work.
- Always lock bale fork in raised position.



Tractor Operation

- Be aware of the correct tractor operating procedures, when working with implements.
- Review tractor operator's manual.
- Secure hitch pin with a retainer and lock drawbar in centre position.



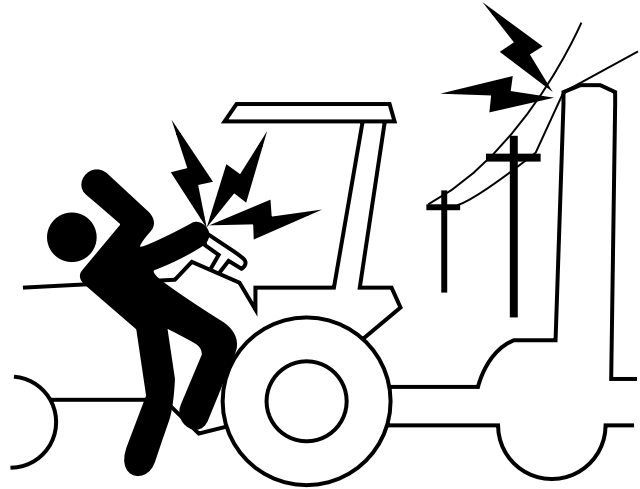
Safety

Transporting

- **Be aware** of the height, length and width of implement. Make turns carefully and be aware of obstacles and overhead electrical lines.
- Always travel at a safe speed. Do Not Exceed 20 M.P.H. (32 kph).
- **REDUCE SPEED** with a load. **Do Not** Exceed a speed of 10 M.P.H. (16 kph).

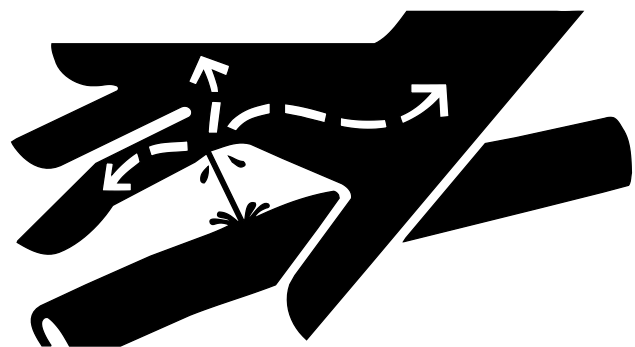
Use an agricultural tractor that is large enough with sufficient braking capacity so that the weight of the loaded equipment towed does not exceed 1.5 times the weight of the tractor.

- The slow moving vehicle (SMV) emblem and reflectors must be secured and be visible on the machine for transport.
- Use flashing amber warning lights, turn signals and SMV emblems when on public roads.
- Do not transport in poor visibility.
- Avoid soft surfaces, the additional wing weight on the wheels could cause the machine to sink.
- Check that bale fork is fully raised and transport lock is secure.



Hydraulics

- **Do not** search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.
- Use cardboard or wood to detect leaks - never your hands.
- Double check that all is clear before operating hydraulics.
- **Never** remove hydraulic hoses or ends with machine elevated. Relieve hydraulic pressure before disconnecting hydraulic hoses or ends.
- Maintain proper hydraulic fluid levels.
- Keep all connectors clean for positive connections.
- Ensure all fittings and hoses are in good condition.
- Do not stand under wings.



Maintenance

- **Shut tractor engine off** before making any adjustments or lubricating the machine.
- **Block** machine securely to prevent any movement during servicing.
- Wear close fitting clothing and appropriate personal protective equipment for the job.
- **Do not** search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.
- **To prevent personal injury**, do not walk within radius of raised bale fork or bed. Always ensure bale fork is locked in place.
- Do not modify the machine.





Storage

- Store implement away from areas of main activity.
- Level implement and block up securely to relieve pressure on jack.
- Do not allow children to play on or around stored implement.

Safety

Safety Signs


 DANGER	
<p style="text-align: center;">OVERHEAD FALLING HAZARD</p> <ul style="list-style-type: none"> • Bale fork may fall rapidly causing bodily injury. • Always stay clear of bale fork when being raised, lowered, or in elevated position. • Always install transport lock when machine is left unattended with bale fork in elevated position. • When transporting machine or servicing bale fork always install transport lock. • Ensure cylinder is completely filled with hydraulic fluid to avoid unexpected movement. 	


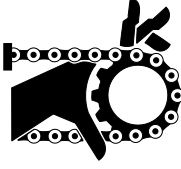
 WARNING
<p>This implement may exceed maximum road regulations. Before you transport this implement contact a local agency regarding road regulations concerning maximum allowable implement dimensions.</p>

 WARNING

<p style="text-align: center;">Keep off while machine is moving or mechanism is running.</p>

 WARNING
<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>HIGH-PRESSURE FLUID HAZARD</p> <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> • Relieve pressure on hydraulic system before servicing or disconnecting hoses. • Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. • Keep all components in good repair.

 WARNING
<p>Personal injury or property damage may result from loss of control.</p> <ul style="list-style-type: none"> • Always use large enough tractor with sufficient braking capacity. <ul style="list-style-type: none"> > Weight of fully loaded implement should not be more than 1.5 times weight of tractor. • Maximum recommended towing speed is 20 mph (32 km/h). • Use flashing amber warning lights and SMV emblem when on public roads, except where prohibited by law. • Refer to tractor and implement Operator's Manuals for weights and further information.

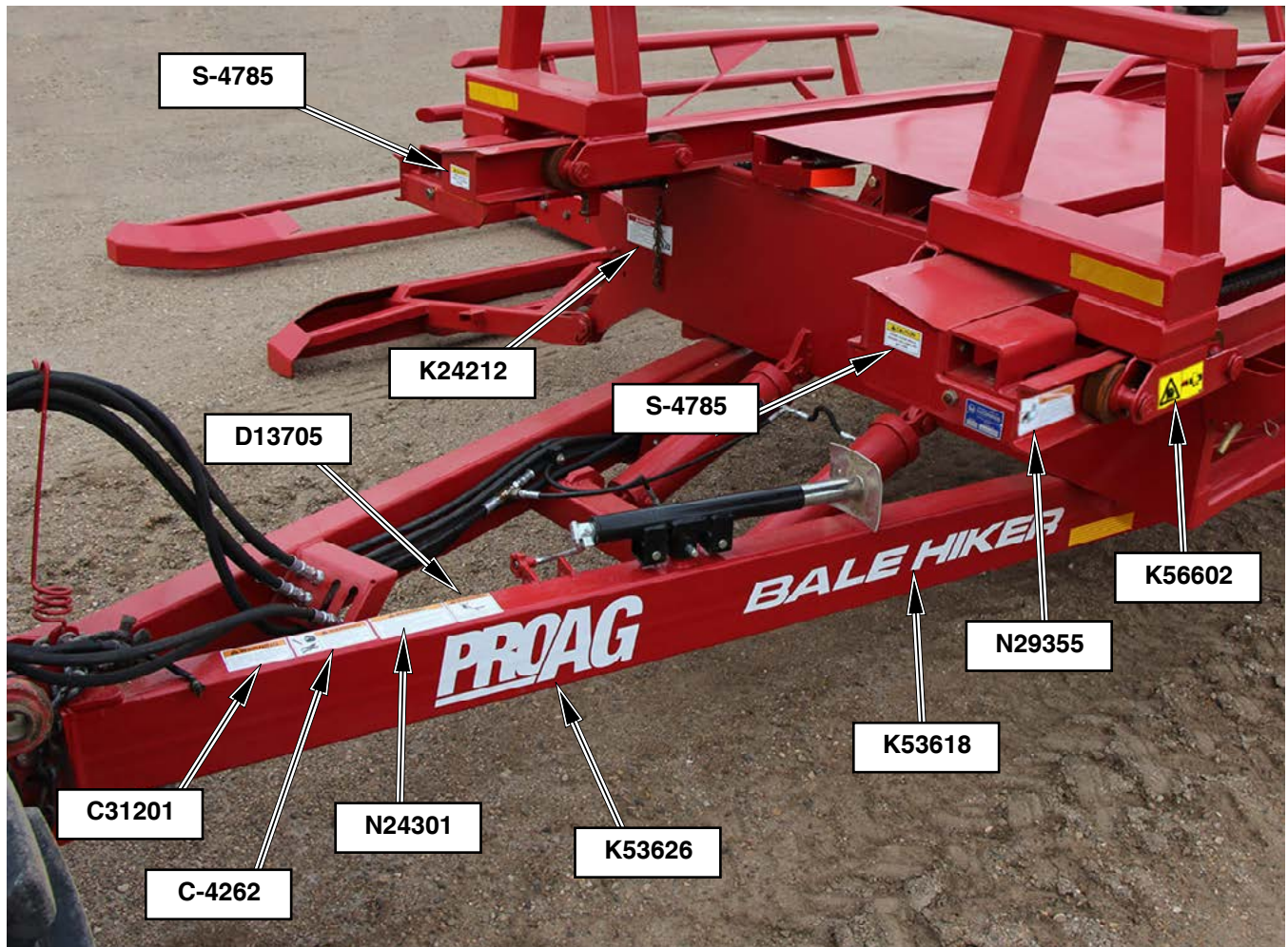
 WARNING
<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>MOVING PART HAZARD</p> <p>To prevent serious injury or death from moving parts:</p> <ul style="list-style-type: none"> • Secure any guards and shields before starting. • Keep hand, feet, hair and clothing away from moving parts. • Disconnect and lockout power source before adjusting or servicing. • Sprockets and chains CAN START MOVING even though Air Cart is stationary. </div> </div>

 CAUTION
<p>STAND CLEAR WHILE RAISING OR LOWERING MACHINE.</p>



Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - Continued

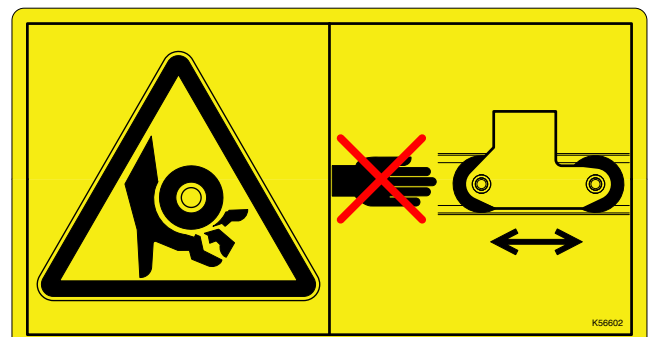


Warning - K56602

Crushing Hazard

To prevent serious injury:

- * Keep hands clear of Push Bar and Rollers when moving.
- * Shut tractor off and remove key before serving or adjusting.



Safety

Reflectors

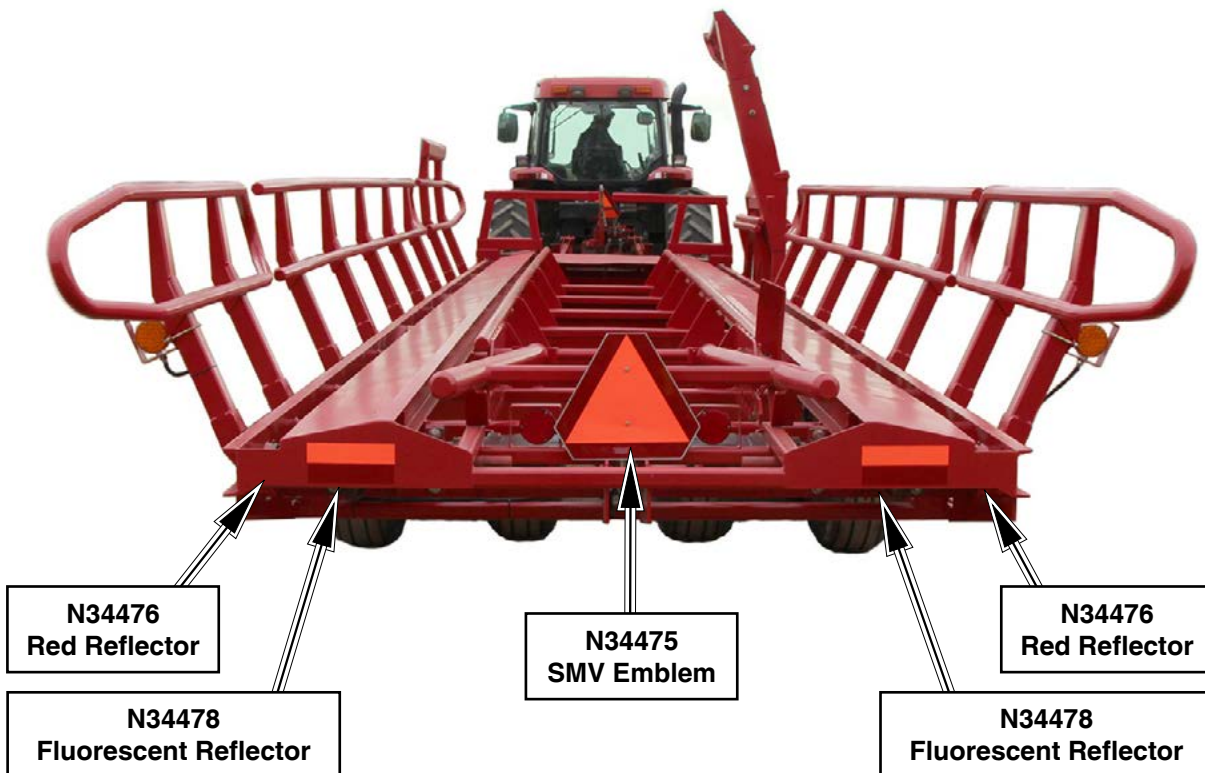
The Slow Moving Vehicle (S.M.V.) Emblem and Safety Reflectors must be secured on the machine to promote safe transportation of this implement.

Note: Always replace missing or damaged reflectors.

- N34477 Amber Reflector
- N34476 Red Reflector
- N34478 Fluorescent Reflector
- N34475 SMV Emblem



Use SMV Emblem when transporting, to warn vehicles approaching from the rear. Comply with all provincial, federal and local laws when travelling on the highway.



Lighting and Marking

ProAG recommends the use of correct lighting and marking to meet the ASAE standard for roadway travel. Be familiar with and adhere to local laws.

Amber warning and red tail lights secured on the machine promote correct transportation of this implement.

Note: Always replace missing or damaged lights and/or connectors.

Amber warning and red tail lights must be mounted to the rear of the implement and be visible from front and rear. The lights must be within 16 inches (41 cm) of the extremities of the machine and at least 39 inches (99 cm), but not over 10 feet (3 m), above ground level.

Note: Always replace missing or damage front, side, rear reflectors and SMV emblem.



Safety

Notes

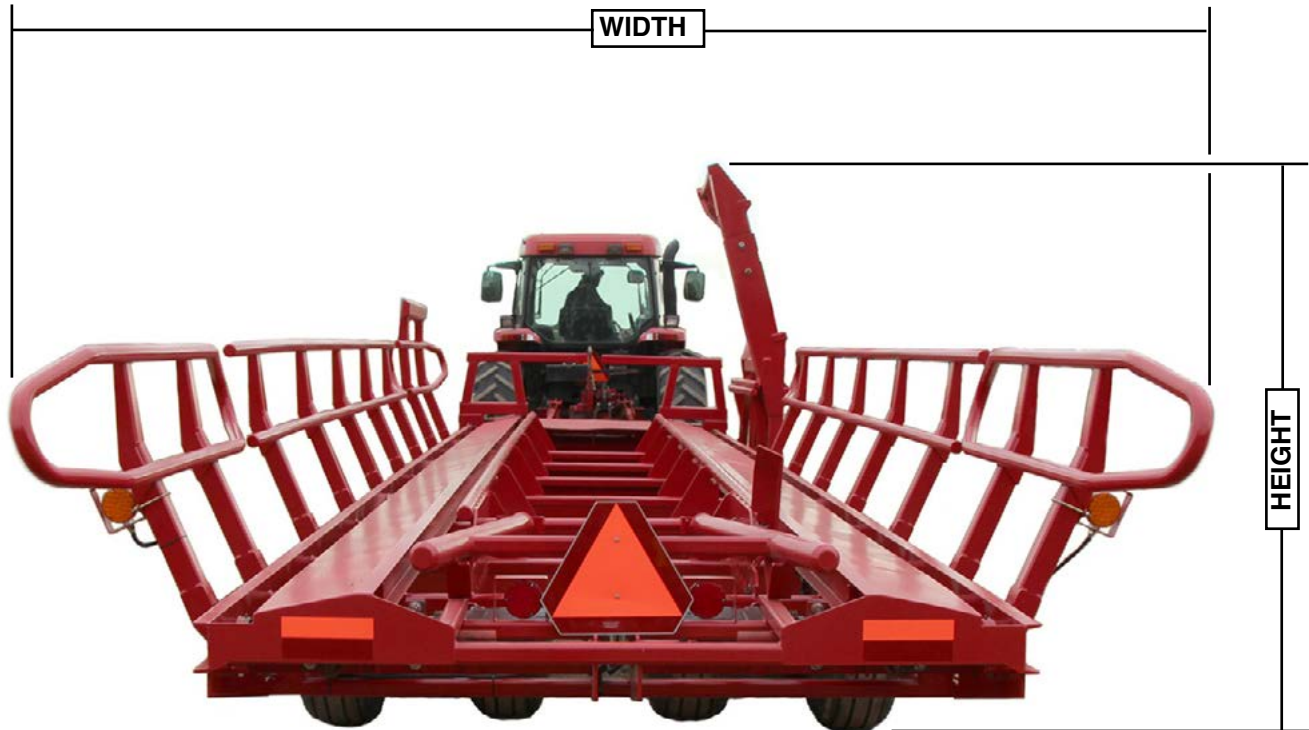
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Specifications

Transport Dimensions



- See Specification Sheet for transport dimensions.

Bale Weights

Individual Bale Weights	
Bale Size	2200
48" (1.22 m) Length	16 @ 2,100 lbs. (952 kg)
60" (1.52 m) Length	12 @ 2,800 lbs. (1,270 kg)

Specifications

BALE HIKER Specifications and Options

Model	2200
Length	42' (9.75 m)
Width Unloaded	Rails In - 9' 10" (3 m)
	Rails Out - 12' 8" (3.86 m)
Weight Unloaded	10,500 lbs. (4,763 kg)
Weight Loaded (GVWR)	44,100 lbs. (20,003 kg)
Load Capacity Weight	33,600 lbs. (15,240 kg)
Tires	(8) - 16L x 16.1FI - Load Range E 8 Bolt Hub
Transport Height	11' (3.353 m) minimum to 12' 4" (3.759 m) maximum
Number of Wheels	8
Automatic Bale Turner	Standard
Automatic Bale Unloading	Standard
Frame - Tubing	Engineered Truss Design
Bale Divider - Adjustable	Standard - 12 positions
Side Rail - Adjustable	Standard
Cylinders - Fork - Bed Lift	1 - 4 x 18 (10.16 cm x 45.72 cm)
	4 - 4 1/2 x 18 (11.43 cm x 45.72 cm)
Selector Valve	Standard
Safety Lights	Standard
Safety Chain	Standard
Ball Hitch	1 1/2 or 2 (3.81 cm or 5.08 cm)
Tractor Requirement	180 HP (133 kW) Minimum
Bale Diameters	48, 60, 72 (1.22 m, 1.52 m, 1.83 m)

Specifications

Notes

Section 3: Checklist

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SAFETY-ALERT SYMBOL



Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means:

**ATTENTION - BE ALERT.
Your safety is involved.**

Manuals

Note: Pre-Delivery Inspection Form must be completed and submitted to ProAG within 30 days of delivery date.

Warranty Void if Not Registered

Checklist

Please read the Operator's Manual carefully and become a "SAFE" operator.

Adopt a good lubrication and maintenance program.

General

- ___ Check if assembled correctly.
- ___ Proper chain tension.
- ___ Check hose connections

Lubrication: Grease

- ___ Fork Assembly
- ___ Rear Drive Shaft Bearings
- ___ Hitch Ball Pivot
- ___ Hitch Jack
- ___ Wheel Hubs

Lubrication: Oil

- ___ Drive chain
- ___ Push Bar Chain

Tire Pressure:

- ___ See Maintenance, Section 6

Transport:

- ___ Fork lock-up chain must be in place.
- ___ Tighten wheel bolts.
- ___ Check hose connections.

OWNER REFERENCE

Model: _____
Serial No: _____
Dealer: _____
Town: _____ State: _____
Phone: _____
OWNER/OPERATOR _____
Date: _____



TAKE SAFETY SERIOUSLY.

**DO NOT TAKE
NEEDLESS CHANCES!!**

Checklist

Notes

Section 4: Introduction

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Introduction

Introduction

This Operator's Manual has been carefully prepared to provide the necessary information regarding the operation and adjustments, so that you may obtain maximum service and satisfaction from your new ProAG Bale Hiker.

To protect your investment, study your manual before starting or operating in the field. Learn how to operate and service your Bale Hiker correctly, failure to do so could result in personal injury or equipment damage.

If you should find that you require information not covered in this manual, contact your local ProAG Dealer. The Dealer will be glad to answer any questions that may arise regarding the operation of your ProAG Bale Hiker.

ProAG Dealers are kept informed on the best methods of servicing and are equipped to provide prompt efficient service if needed.

Occasionally, your Bale Hiker may require replacement parts. Your Dealer will be able to supply you with the necessary replacement parts required. If the Dealer does not have the necessary part, the ProAG Factory will promptly supply the Dealer with it.

Your ProAG Bale Hiker is designed to give satisfaction even under difficult conditions. A small amount of time and effort spent in protecting it against rust, wear and replacing worn parts will increase the life and trade-in value.



Keep this book handy for ready reference at all times. It is the policy of ProAG to improve its products whenever it is possible to do so. The Company reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

Section 5: Operation

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Operation

CAUTION



BE ALERT

SAFETY FIRST

REFER TO SECTION 1 AND REVIEW ALL SAFETY RECOMMENDATIONS.

Application

The ProAG Bale Hiker is designed to transport & store large round bales with a minimum amount of time and effort to the operator.

Tractor

Tires

- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator's manual and follow all recommended procedures.

Hydraulics

- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check that the hydraulic reservoir is filled to the proper level.

Drawbar

- Centre and pin in a fixed position for easier hitching and greater stability.



Warning

Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.



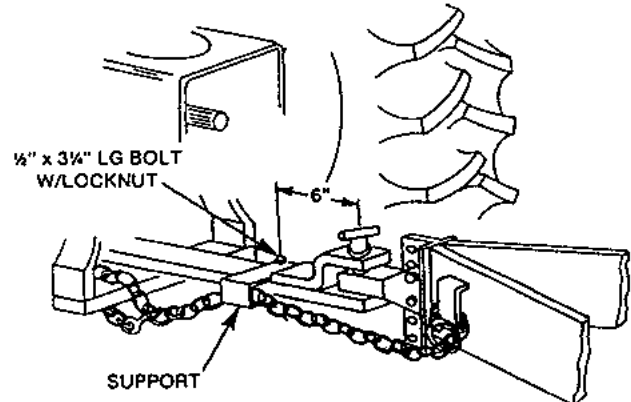
Warning

Do not search for high-pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.



CAUTION

A safety chain will help control towed machines should it accidentally separate from the drawbar while transporting. A runaway machine could cause severe injury or death. Use a safety chain with a strength rating equal to or greater than the gross weight of the towed machines.



Attach safety chain to the tractor drawbar support or other specified anchor location with the appropriate parts.

Hitching

- Insure hitch pin is in good condition.
- Level clevis with tractor drawbar using hitch jack.
- Back tractor into position and attach hitch clevis to drawbar, using an adequate hitch pin.
- Lock hitch pin in place with a hairpin or other proper locking device.
- After tractor to implement connection is made, relieve pressure off the hitch jack.
- Place hitch jack in raised position.
- Route Safety Chain through chain support and drawbar support.
- Lock safety hook onto chain.

Note: Provide only enough slack in chain to permit turning.

- Ensure hydraulic hose quick couplers are dirt free.
- Inspect all fittings and hoses for leaks, bends or kinks.
- Connect the hydraulic hoses to the tractor quick couplers.



Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Operation

Unhitching

- Unload any bales that are on the Bale Hiker, the hitch jack will not safely support the added weight.
- Pin hitch jack in storage position.
- Lower hitch jack taking the weight off the Bale hiker clevis.
- Ensure all transport locks are properly secured. See Transport Section below for more details.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the hydraulic hoses.
- Remove the safety chain.
- Remove the drawbar pin.



CAUTION

Hydraulic oil under pressure can penetrate the skin causing serious injury. Avoid personal injury by relieving all pressure, before disconnecting hydraulic hoses.

Transport

Observe all applicable safety precautions under transport heading in Safety, Section 1.

- Refer to Specifications, Section 2 for weight, transport height and width.
- Transport with tractor only!
- Always connect safety chain provided to the towing vehicle.

Lights

- Ensure proper reflectors and safety lighting are in place. Refer to Safety Section 1.
- Be familiar with, and adhere to, local laws.

Speed

- Always travel at a safe speed. Do Not Exceed 20 M.P.H. (32 kph).
- The combined weight of the Bale Hiker and bales **must not exceed 1.5 times** the weight of towing vehicle.
- **REDUCE SPEED** with bale load. **Do Not** Exceed a speed of 10 M.P.H. (16 kph).
- Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

Transport - Continued

Transport to Field Position

- As a precaution, check surrounding area to be sure it is safe to lower fork.
- Operate hydraulics to retract fork cylinder.
- Remove the transport lock chain from the fork hook and place chain end into slot on frame.



Field to Transport Position

- Hydraulically raise fork to its highest position.
- Secure transport lock chain to fork hook.

ProAG WILL NOT BE RESPONSIBLE FOR ANY DAMAGES OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.



Danger

Always stay clear of bale fork being raised, lowered or in elevated position. Ensure cylinders are completely filled with hydraulic fluid - Fork may fall rapidly causing injury.

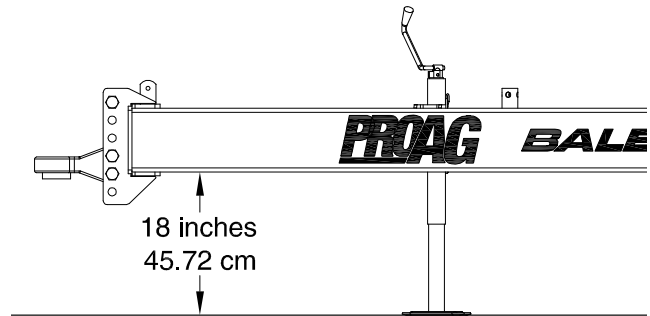
- Inspect tires for any serious cuts or abrasions. If such occurred, tire should be replaced.
- Ensure Safety Chain is properly installed. Refer to Safety, Section 1.
- Inspect axles and hubs for wrapped twine. Remove any twine to prevent damage to bearing seals.



Operation

Level Bale Hiker

- Adjust the hitch clevis so the Bale Hiker runs Level.
- Start with hitch approximately 18 inches (45.72 cm) from the ground to underside of hitch tube.
- If Inner Fork touches ground first, the front of Bale Hiker is too low.
- If Outer Fork touches ground first, the front of Bale Hiker is too high.

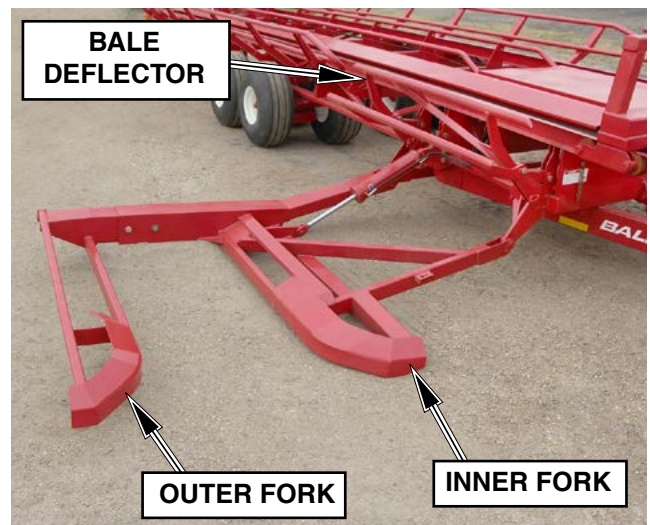


Bale Fork Adjustment

- Adjust the pick-up fork width to best suit the size of bales to be picked up.
- The fork has 3 positions corresponding to 4 foot, 5 foot and 6 foot Diameter Bales.

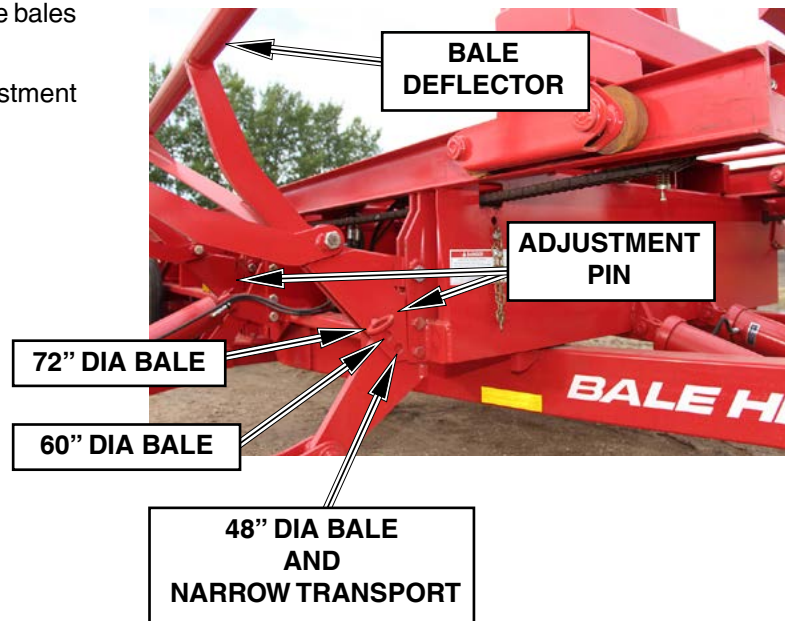
Note: Do not attempt to lift bales over the maximum recommended weight as indicated in the chart below.

Individual Bale Weights	
Bale Size	2200
48" (1.22 m) Length	16 @ 2,100 lbs. (952 kg)
60" (1.52 m) Length	12 @ 2,800 lbs. (1,270 kg)



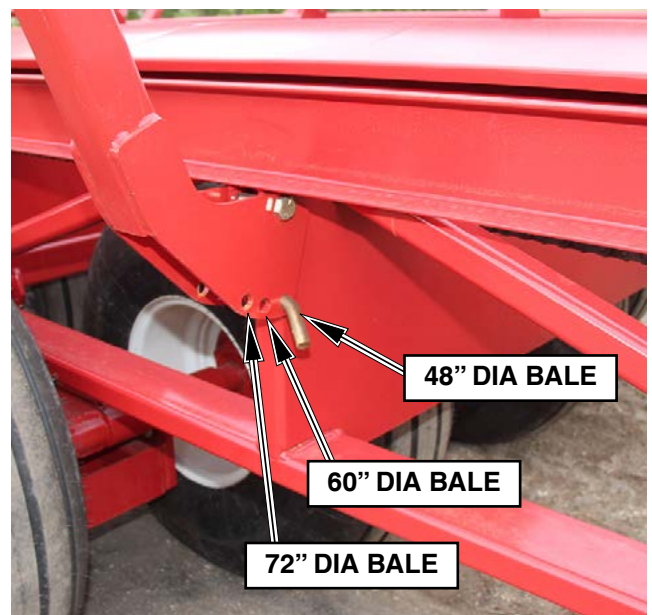
Bale Deflector

- Adjust Bale Deflector to best suit the size of the bales to be loaded.
- Move both adjustment pins to the same adjustment hole. (3 positions)



Side Rail

- Adjust Side Rails to best suit the size of the bales to be loaded.
- Move all adjustment pins to the same adjustment hole. (3 positions)



Operation

Bale Divider

The Bale Divider has multiple positions to achieve desired space between rows when unloaded.

- To adjust the Bale Divider remove retaining bolt from pin located on right side of divider.
- Securely support Bale Divider at both ends before removing retaining pin.
- Reposition Bale Divider in desired location.
- Install retaining pin and bolt.



Push Bars Drive Options

The Push Bars have two unloading drive options:

1. Single or Double Row Push Off.

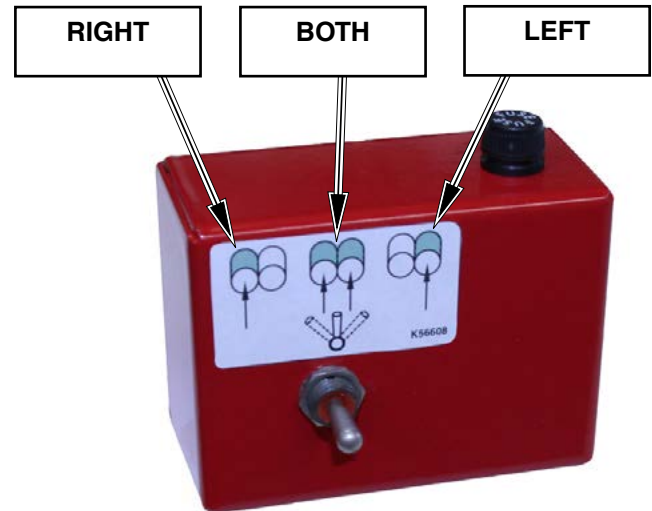
- Install the switch box in the cab.

Note: The drive coupler must not be installed.

- Use the in-cab switch to select between left side only, both sides, or right side only.

Note: When unloading both sides, there may be slight variations between the left and right push bar. Use the switch box to re-align the push bars.

Note: When returning the push bars to the front, the switch should be in the center position.

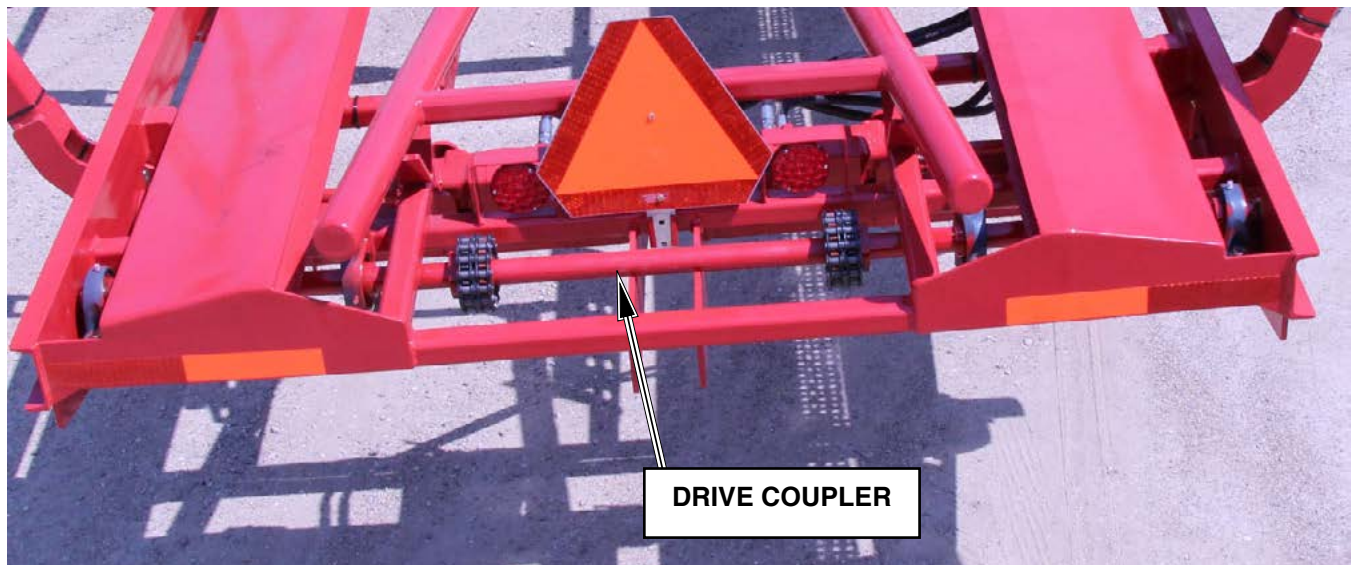


Switch Box

2. Double Row only.

- Bring both push bars to the front and install drive coupler. (Shown below)
- The two push bars will now travel together.

Note: The in-cab switch box should not be installed when the drive coupler is being used.



Operation

Loading

The ProAG Bale Hiker has a bale turner incorporated into the fork. The bale turner allows the operator to pick a bale at almost any angle desired, making loading easier and quicker.

- Drive Bale Hiker up to the bale, lowering the bale fork to run lightly on the ground surface.
- Position the inner corner of the bale with the bale deflector. Bale deflector should contact approximately 1/4 of the bale.
- Drive Bale Hiker forward allowing bale to rotate back between the forks.
- Once the bale is against the fork arm, raise the fork fully to the upright position, allowing the bale to roll over the bale deflector, and come to rest on the left side of the Bale Hiker bed.

Note: If the bed tilts slightly when operating the bale fork, this indicates that there is air in the system. With the bale fork fully raised hold the hydraulic lever for several seconds to phase out air from the hydraulic system.



900 Hay Hiker illustrated in Photo



900 Hay Hiker illustrated in Photo



900 Hay Hiker illustrated in Photo



900 Hay Hiker illustrated in Photo



Loading - Continued

- Follow the same procedure to pick up the second bale. As the second bale is being loaded it rolls on the Bale Hiker bed next to the fork.
- When two bales are positioned on the Bale Hiker bed engage the Push Bar to push the bales back on the Bale Hiker bed far enough to allow more bales to be loaded.

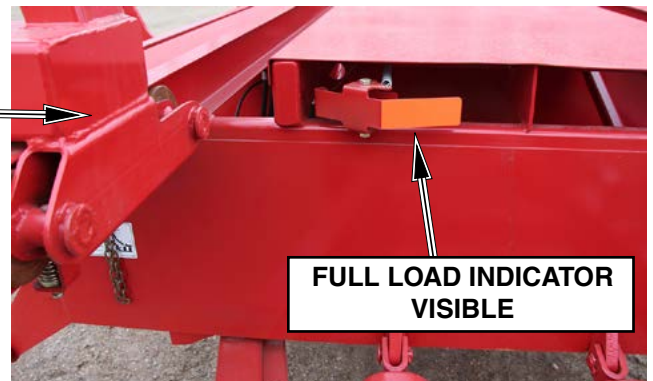
Hint - Use the Side Rails as a guide for when to stop pushing bales back.

- Return the Push Bar to the forward position.

Note: Push Bar must be returned to forward position to activate fork cylinder.

- Repeat above procedure to load Bale Hiker. When Full Load Indicator is visible indicates last row of bales to be loaded..

Note: Push Bar must push against two bales when being unloaded. If an uneven number of bales are to be loaded, the odd bale must be placed at the rear of the Bale Hiker bed.



Operation

Unloading

- Put tractor in neutral. In extremely soft conditions the tractor should be in low gear.
- Lower fork slightly to clear the bales.
- Engage push bar moving it enough to switch the selector valve to the bed tilt cylinders.
- Tilt the bed until it skims the ground surface. Adjust Indicator Rod to read 0' if required. Use the Bed Tilt Indicator to determine best position.

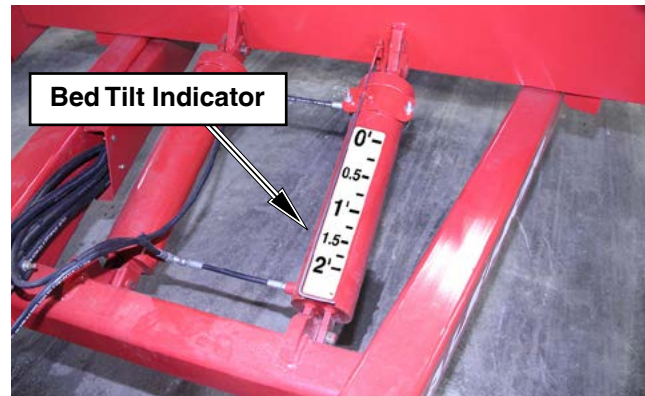
Note: Indicator references firm ground conditions, the operator must determine indicator position for each bale storage yard.

Do not allow the bed to push any soil or debris. Dirt may build up on the rear causing damage to the push bar drive.

- Engage the Push Bar and push the bales off the Bale Hiker.
- As the bales come off, the Bale Hiker and tractor will be pushed ahead allowing a smooth movement of unloading.

Note: The individual Push Bars may move at slightly different rates. Use the switch box to stop one side to allow the other side to catch up. Or install the optional shaft coupler. (See Push Bars Drive Options)

- When the bales are unloaded lower the bed.
- Return the Push Bar to the forward position.
- Raise Fork to its highest position.
- Inspect Axle and Hubs for wrapped twine. Remove any twine to prevent damage to the bearing seals.
- **Clean drive sprockets** of any debris. (i.e. twine, flax straw, etc.) If the area between the sprocket and pillow block bearing gets wrapped with trash the chain could jump a tooth causing the push bar to go out of time.



Push Bar Drive Hydraulics

Standard Drive

Each Push Bar is controlled by an orbit motor which can be used on a closed hydraulic system or open hydraulic system.

To move the Push Bar back, hydraulic fluid is forced from the tractor to the orbit motors. The hydraulic fluid flows through the orbit motors causing the drive shafts to turn, which moves the Push Bars back.

The fluid exits the orbit motors and then through a line lock valve to the tractor.

To return the Push Bar to the front of the Bale Hiker Bed, the hydraulic fluid flows through the orbit motors in the reverse direction to that described above, until the right hand Push Bar presses against the Valve Actuator Lever. This causes the line lock valve poppet to set and stop the flow of oil from the tractor, stopping the Push Bars at the front of the Bale Hiker Bed.

See Hydraulic Schematics for more details.

Optional Split Drive

Each Push Bar is controlled by an orbit motor which can be used on a closed hydraulic system or open hydraulic system.

To move the Push Bar back, hydraulic fluid is forced from the tractor through the flow divider block to the orbit motors. The hydraulic fluid flows through the orbit motors causing the drive shafts to turn, which moves the Push Bars back.

The fluid exits the orbit motors back through the flow divider block to the tractor.

To return the Push Bar to the front of the Bale Hiker Bed, the hydraulic fluid flows through the orbit motors in the reverse direction to that described above, until the Push Bars return to their home position.

See Hydraulic Schematics for more details.

Fork/Bed Tilt Hydraulics

The Hydraulic Fork/Bed Tilt lift system is controlled by a parallel hydraulic control system with a selector valve to switch between the Fork and Bed Tilt cylinders.

To lift the Fork, the Push Bar must be in its forward position which will automatically switch the selector valve to the fork cylinder.

Hydraulic fluid is forced through the selector valve to the gland end of the Fork cylinder causing it to retract, raising the fork.

To lower the Fork the hydraulic fluid flows through the cylinders in the reverse direction.

Note: There is a Relief Valve installed to prevent damage to the fork assembly if the transport lock was not removed prior to lowering the fork. If this occurs, the oil bypasses back to the tractor.

To lift the Bale Hiker Bed, the Push Bar must be moved back a few inches to switch the selector valve to the bed tilt cylinders.

Hydraulic fluid is forced through the selector valve to the butt ends of the tilt cylinders causing them to extend raising the bed of the Bale Hiker.

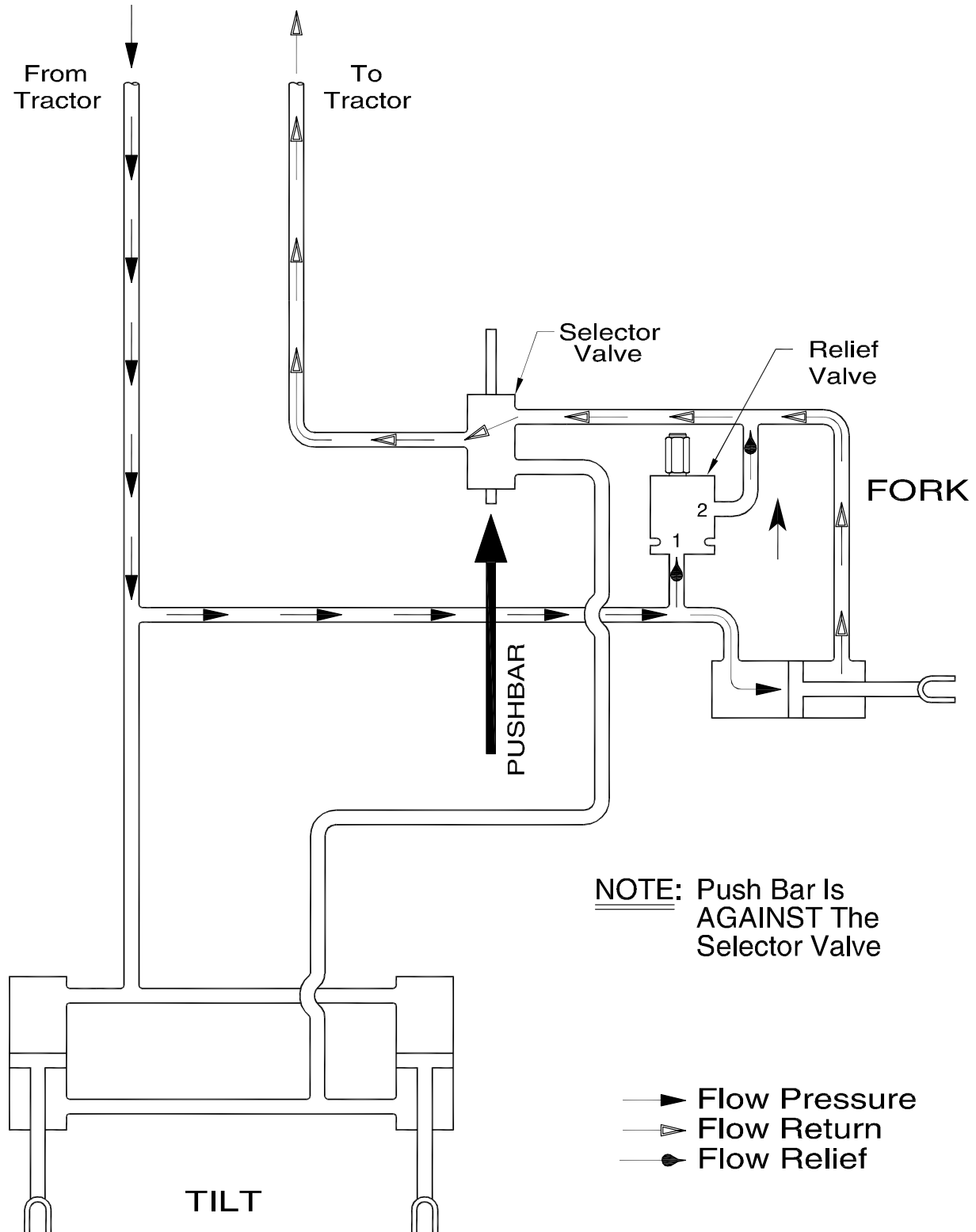
To lower the Bale Hiker Bed the hydraulic fluid flows through the cylinders in the reverse direction.

See Hydraulic Schematics for more details.

Operation

Bale Hiker Fork/Tilt Hydraulic Schematic

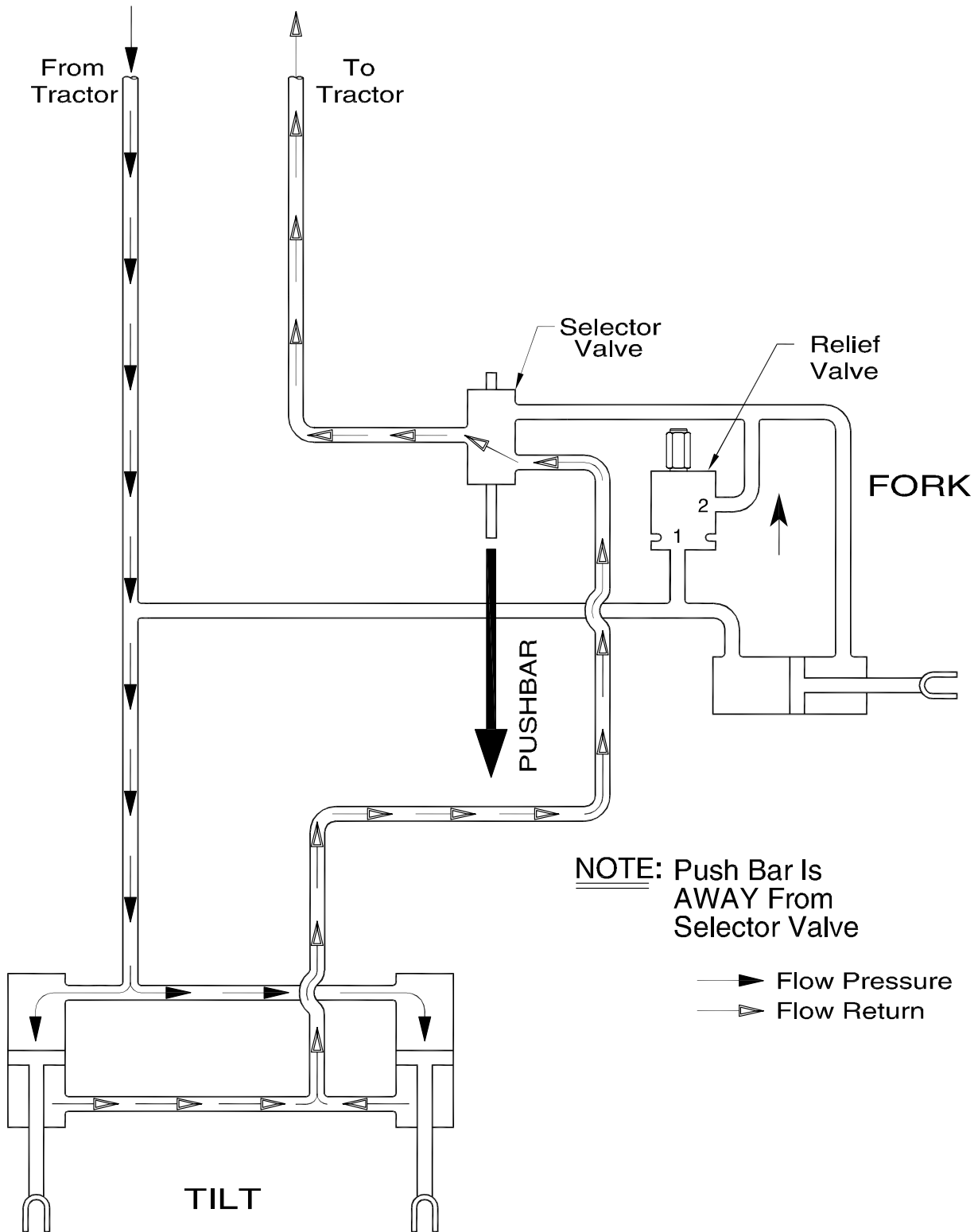
Lowering Fork



Operation

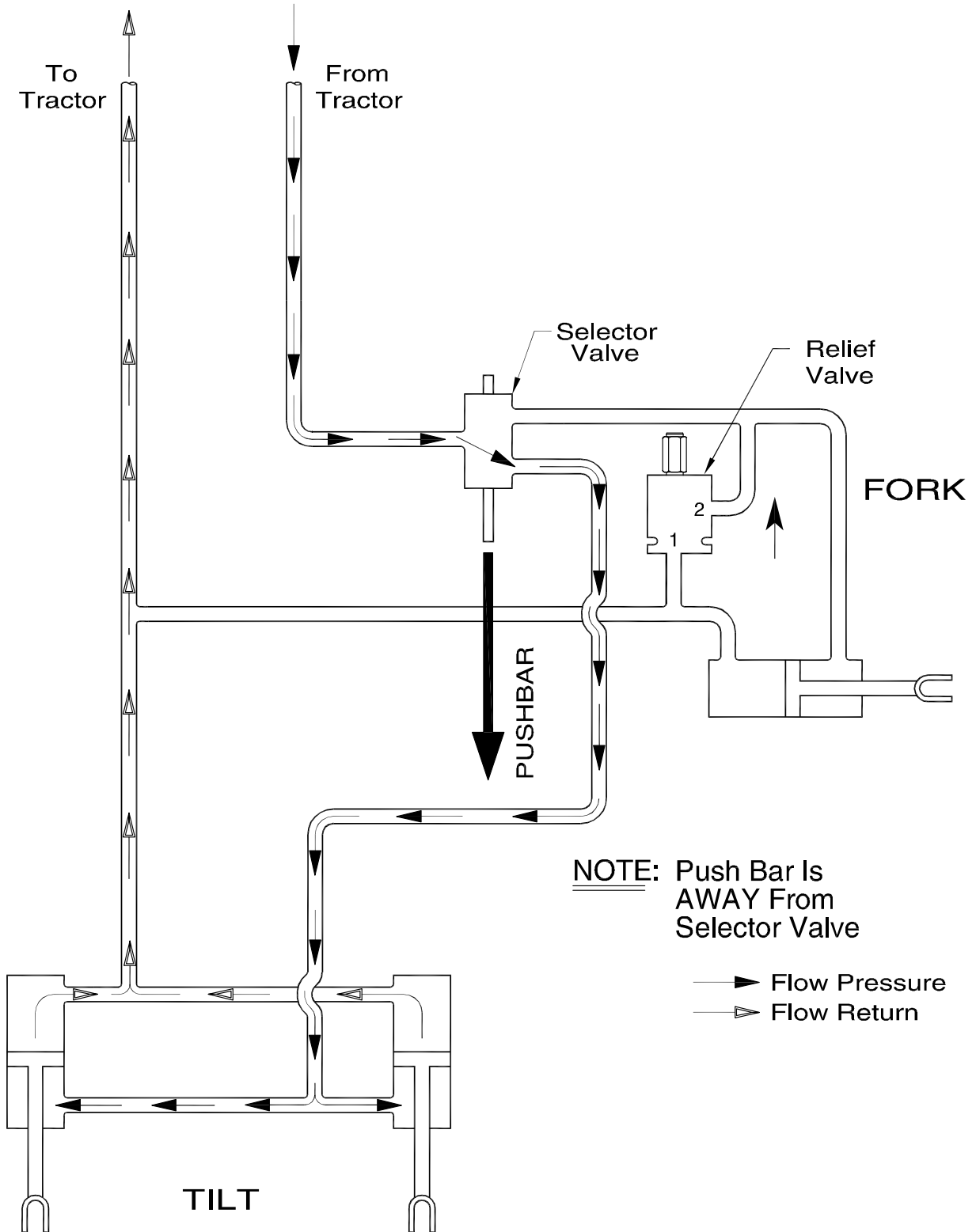
Bale Hiker Fork/Tilt Hydraulic Schematic

Raising Bed



Bale Hiker Fork/Tilt Hydraulic Schematic

Lowering Bed

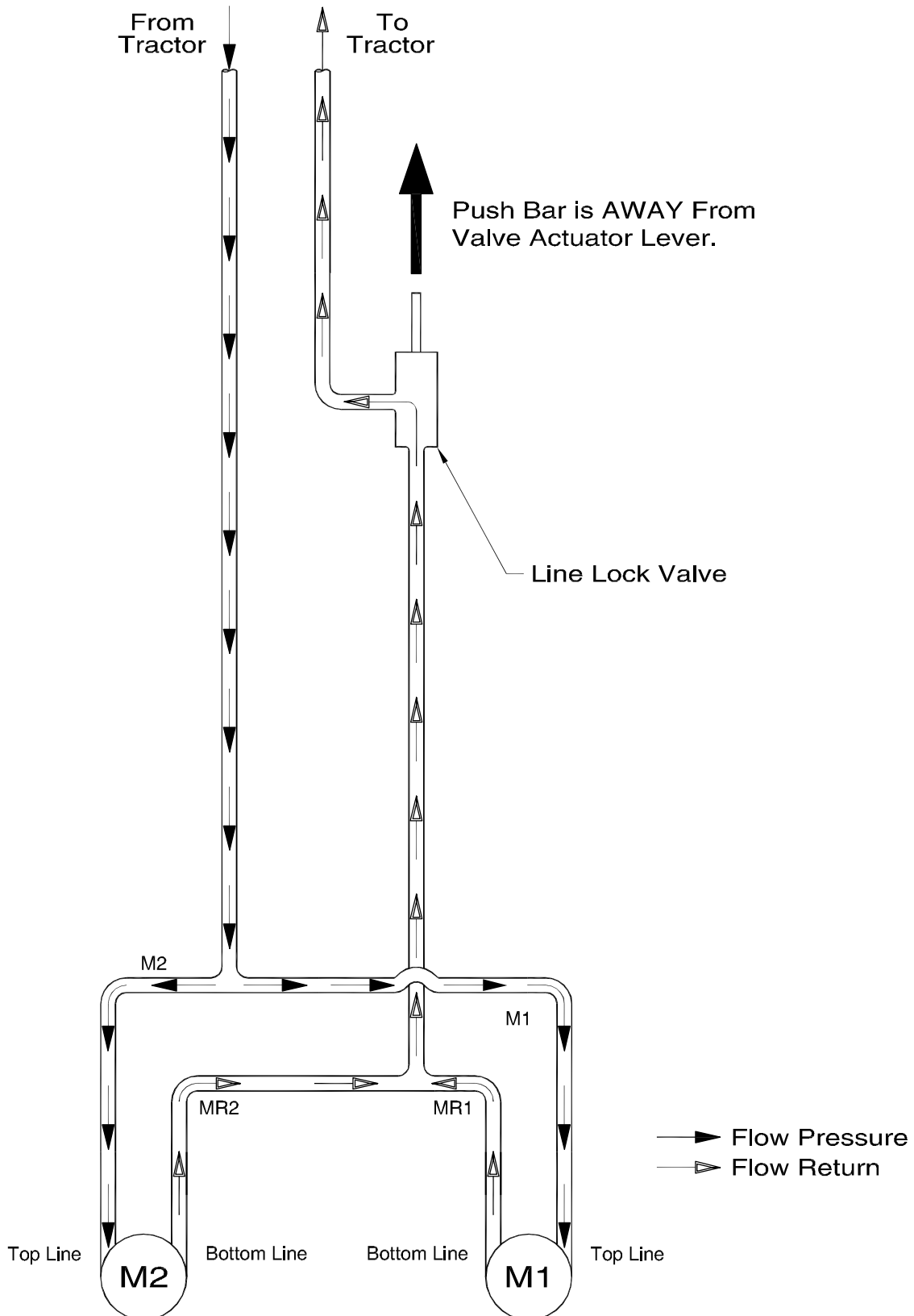


Operation

Bale Hiker Push Bar Drive Hydraulic Schematic

Standard Drive

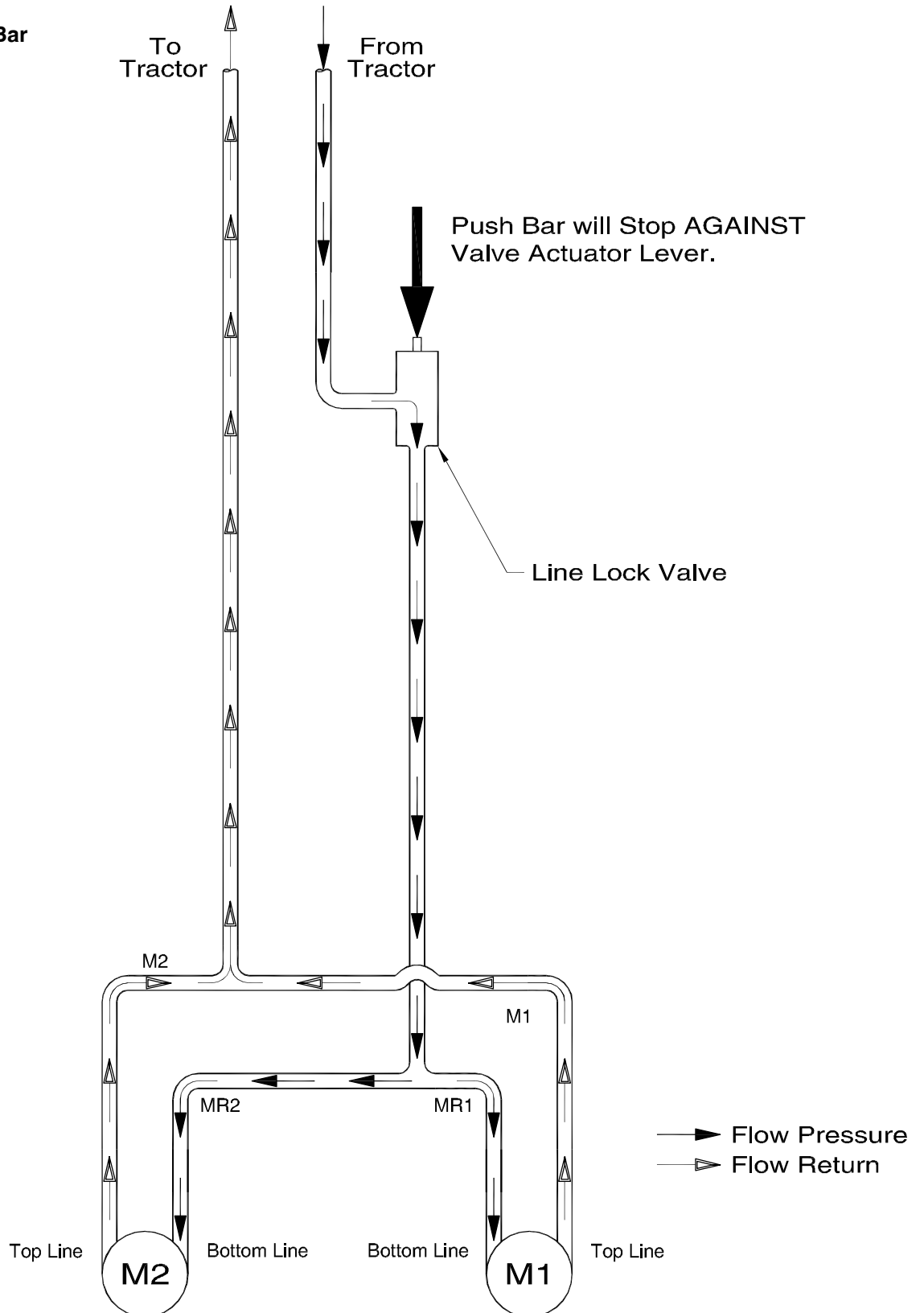
Pushing Off



Bale Hiker Push Bar Drive Hydraulic Schematic

Standard Drive

Returning Push Bar

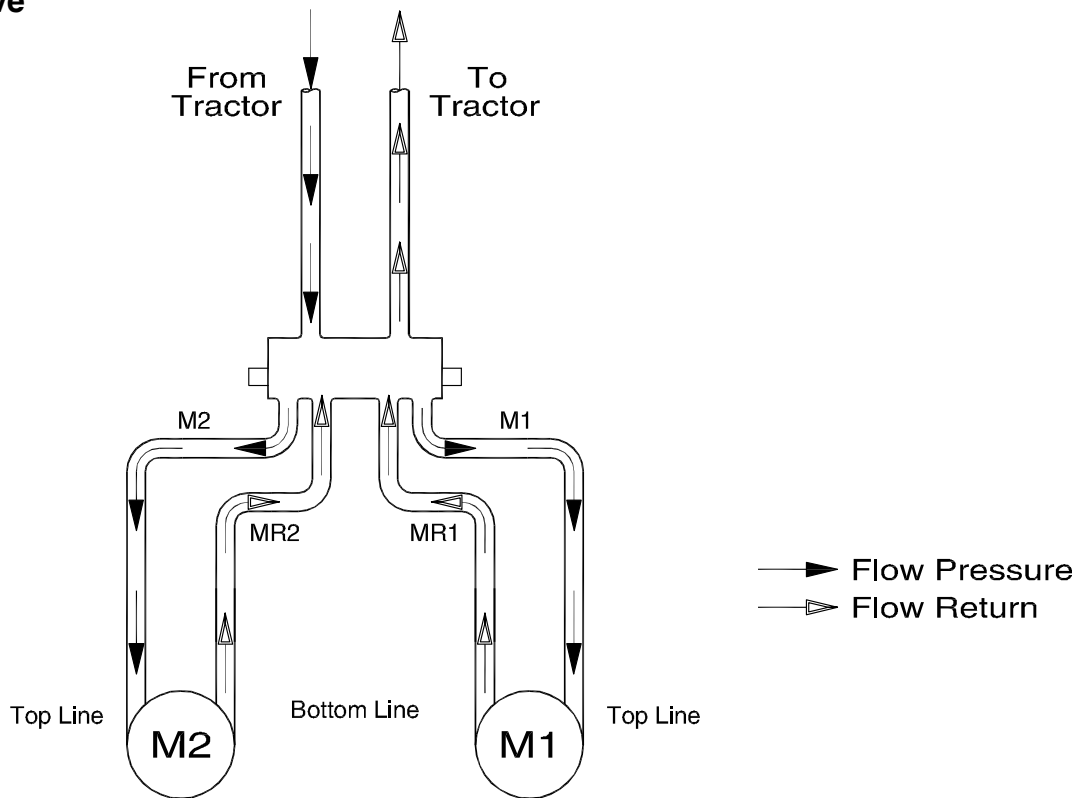


Operation

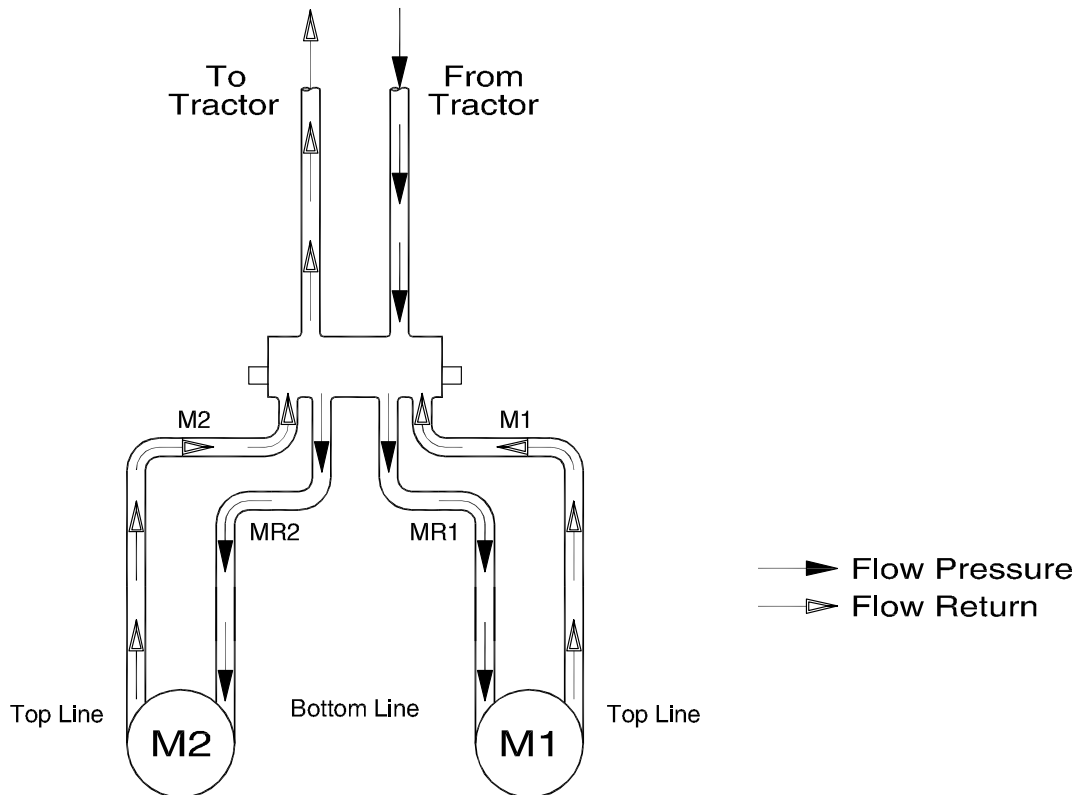
Bale Hiker Push Bar Drive Hydraulic Schematic

Optional Split Drive

Pushing Off



Returning Push Bar



Section 6: Maintenance

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Maintenance

CAUTION



BE ALERT

SAFETY FIRST

REFER TO SECTION 1 AND REVIEW ALL SAFETY RECOMMENDATIONS.

General

This section deals with two goals, maximum life and dependable operation. Adopt a regular maintenance and lubrication program. Care and sufficient lubrication is the best insurance against delays.

Safety

- Always shut off the tractor and remove the key before dismantling.
- Guard against hydraulic high pressure leaks with hand and face protection.
- Never work under the implement unless it is in the down position or transport lock pins are in place and secured with hair pins. Do not depend on the hydraulic system to support the frame.
- Always wear safety goggles, breathing apparatus and gloves when working on seeder filled with chemical. Follow manufactures recommended safety procedures when working with chemicals or treated seeds.



Warning

Securely support any machine elements that must be raised for service work.



Caution

Keep service area clean and dry. Wet or oily floors are slippery.





Tighten Bolts

- Before operating the Bale Hiker.
- After the first two hours of operation.
- Check tightness periodically thereafter.
- Use Bolt Torque Chart for correct values on various bolts.
- Note dashes on hex heads to determine correct grade.

Note: DO NOT use the values in the Bolt Torque Chart if a different torque value or tightening procedure is given for a specific application.

- Fasteners should be replaced with the same or higher grade. If higher grade is used, only tighten to the strength of the original.

Bolt Torque Chart				
Grade 5 Bolt Marking 		Bolt Size	Grade 8 Bolt Marking 	
Nm	lb. ft.		Nm	lb. ft.
11	8	1/4	12	16
23	17	5/16	24	33
41	30	3/8	45	61
68	50	7/16	70	95
102	75	1/2	105	142
149	110	9/16	155	210
203	150	5/8	210	285
366	270	3/4	375	508
536	395	7/8	610	827
800	590	1	910	1234
1150	850	1-1/8	1350	1850
1650	1200	1-1/4	1950	2600
2150	1550	1-3/8	2550	3400
2850	2100	1-1/2	3350	4550

Tires

- Inspect tires and wheels daily for tread wear, side wall abrasions, damaged rims or missing lug bolts and nuts, replace if necessary.
- Tighten wheel bolts - refer to Bolt Torque Chart.
- Check tire pressure daily, when tires are cold.
- Correct tire pressure is important.
- Do not inflate tires above the recommended pressure.

Tire Specifications		
SIZE	LOAD RANGE	PRESSURE
16.5L x 16.1FI	E	60 P.S.I.



Caution

Tire replacement should be done by trained personnel using the proper equipment.

Wheel Bolt Torque	
SIZE	Torque
5/8	150 lb. ft. (203 Nm)

Maintenance

Lubrication

Greasing pivot points prevents wear and helps restrict dirt from entering. However, once dirt does enter a bearing, it combines with the lubricant and becomes an abrasive grinding paste, more destructive than grit alone.

- Apply new lubricant frequently during operation to flush out old contaminated lubricant.
- Use a good grade of **lithium based grease**.
- Use a good grade of machine oil.
- Clean grease fittings and lubricator gun before applying lubricant.

Refer to the photo below for grease fitting locations.

1. Hubs

- Repack with a good quality grease every 500 hours. See *"Wheel Bearings"*.

2. Bale Fork Pins

- Grease every 10 hours.

3. Drive shaft bearings

There are five bearings per side.

- Initially apply 2 pumps of grease to each bearing and then rotate shafts a few turns and apply an additional 2 pumps of grease. Repeat until grease appears past seals.
- Apply 2 pumps of grease every 50 hours thereafter.

4. Drive Chains

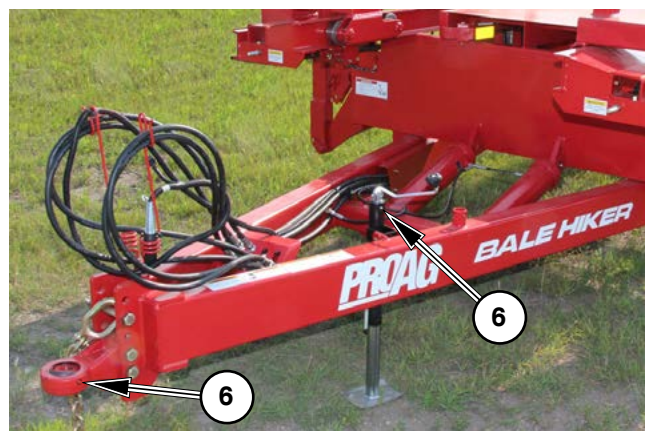
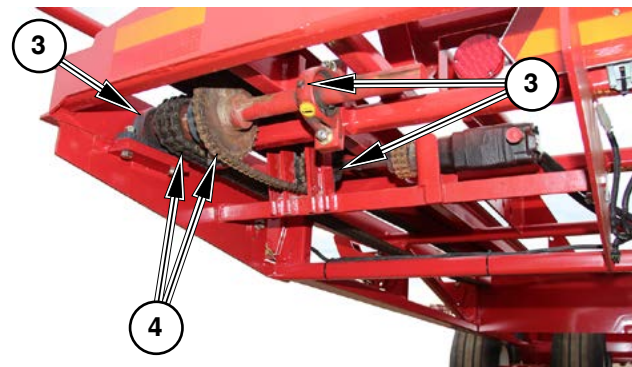
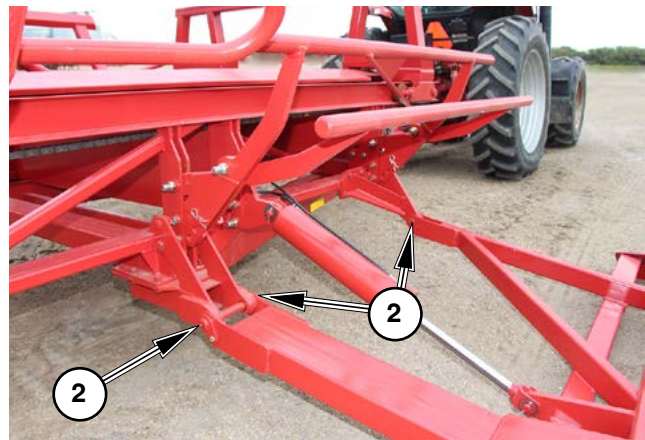
- Oil every 50 hours with a dry chain lube.

5. Hitch Ball Pivot

- Grease every 50 hours.

6. Hitch Jack

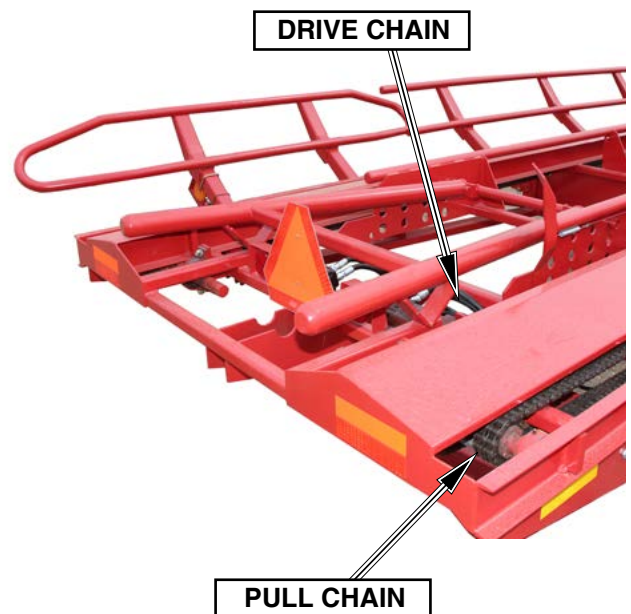
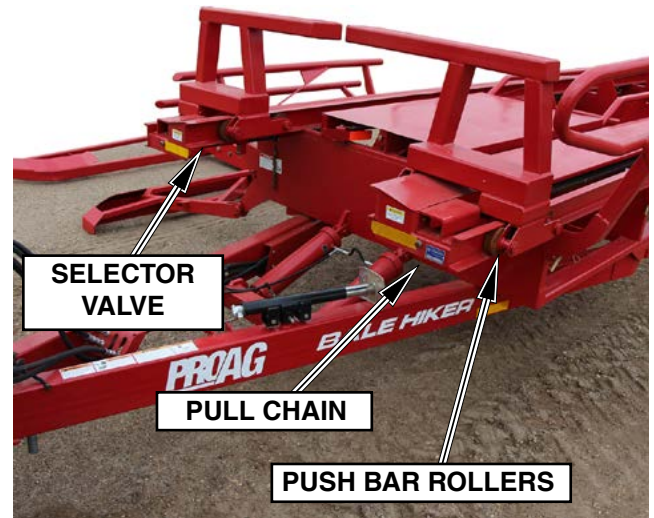
- Grease seasonally.



Daily Maintenance

To maintain dependable operation and to maximize the life of the 2200 Bale Hiker the following should be done on a daily bases.

- Keep Selector Valve Spools clean of any debris and ensure it moves freely. Lubricate Spool with Silicone Lubricant or WD-40 or Penetrating Oil to prevent rusting.
- Ensure Drive Sprockets are clean of any debris, if the area between the sprocket and pillow block bearing gets wrapped with trash the chain could jump a tooth causing the push bars to go out of time.
- Grease Fork daily to assure maximum life of bushings.
- Ensure Drive Chains are clean of any debris and ensure it moves freely. Lubricate chains every 50 hours with a dry chain lube.
- Check torque on wheel bolts.

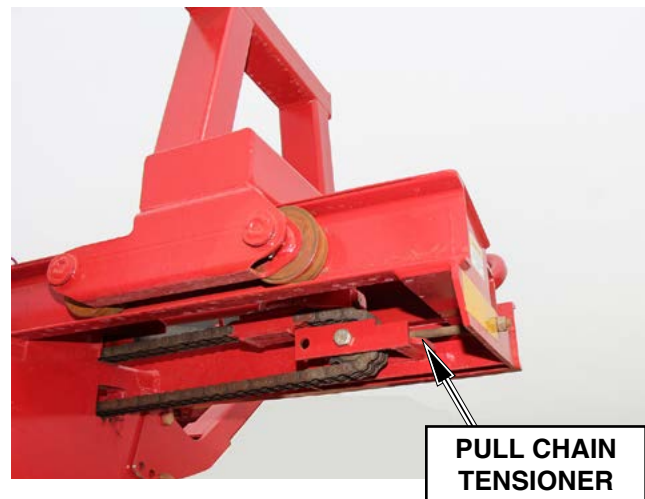


Maintenance

Chain Tension

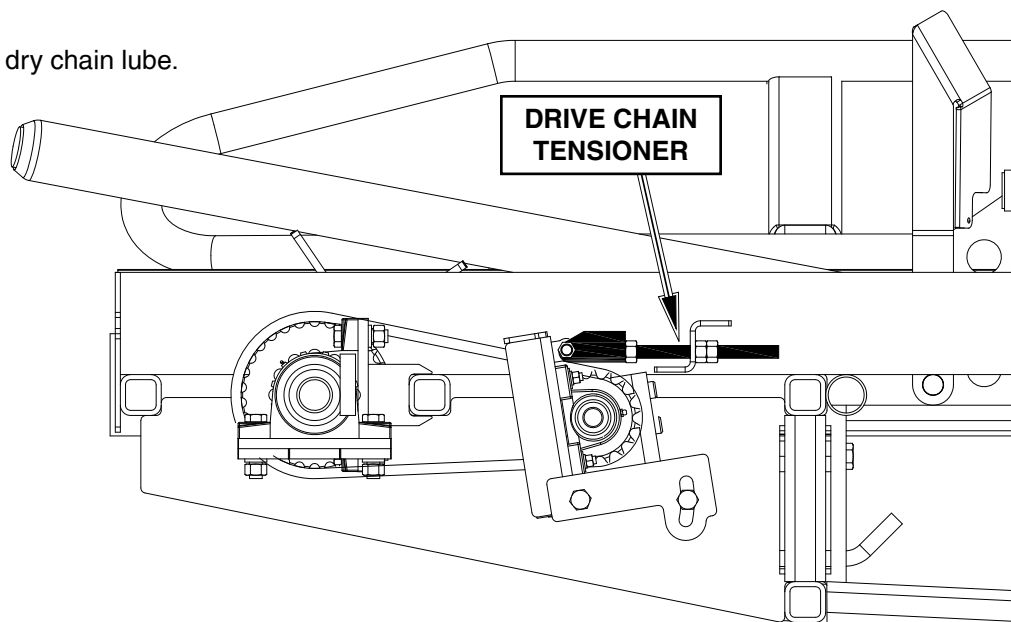
Push Bar Pull Chain

- Inspect weekly for wear and damage.
- Oil every 50 hours with a dry chain lube.
- Adjust chain tension as follows:
 1. Cycle Push Bars fully to the front of the Bale Hiker.
 2. Cycle Push Bars back about 6 inches from front stops. This should alleviate any pressure in the system from the hydraulics (i.e. push bar pulled tight against the front stops.)
 3. Using the fish scale pull up on the bottom chain with 32 lbs (15 kg) of force in the center of the machine between the axles.
 4. Adjust the chain tension so 1 inch (25 mm) of deflection is seen when 32 lbs (15 kg) of force is applied.



Orbit Motor Drive Chain

- Inspect weekly for wear and damage.
- Adjust tension so that there is only an 1/8" deflection in the chain.
- Oil every 50 hours with a dry chain lube.



Hydraulics

Refer to Section 1 regarding hydraulic safety. In addition:

- Inspect hydraulic system for leaks, damaged hoses and loose fittings.
- Damaged hoses and hydraulic tubing can only be repaired by replacement. **DO NOT ATTEMPT REPAIRS WITH TAPE OR CEMENTS.** High pressure will burst such repairs and cause system failure and possible injury.
- Leaking cylinders - install a new seal kit.
- Fittings - use liquid Teflon on all NPT hydraulic joints. **Do not use liquid Teflon or Teflon tape on JIC or ORB ends.**
- Hydraulic Hose Connections - when connecting the hoses to the cylinders, tubing, etc. always use one wrench to keep the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life.
- Keep fittings and couplers clean.
- Check the Tractor Manual for proper filter replacement schedule.

Refer to the Trouble Shooting Section.

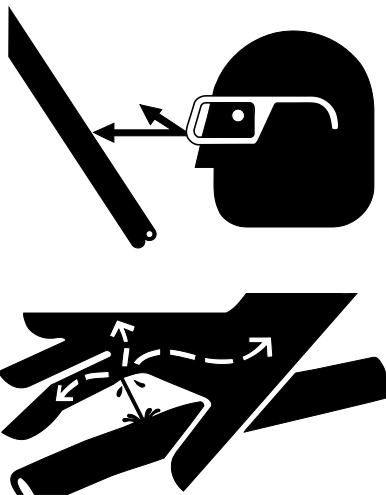
PROAG

Contact your nearest Dealer for genuine repair parts. Dealers carry ample stocks and are backed by the manufacture and regional associations.

Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Note: Extreme care must be taken to maintain a clean hydraulic system. Use only new hydraulic fluid when filling reservoir.



Warning

HIGH-PRESSURE FLUID HAZARD

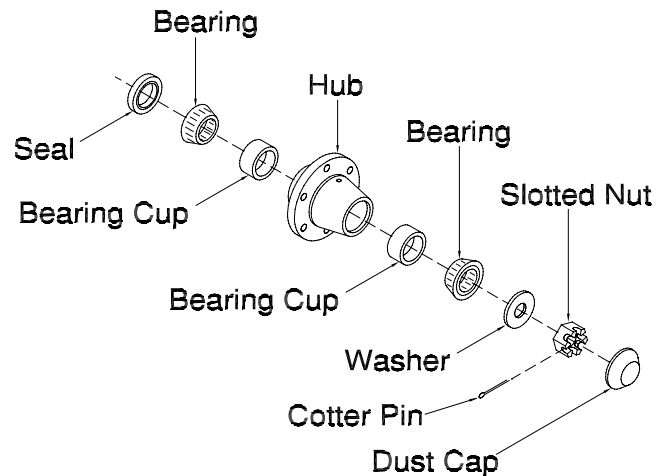
To prevent serious injury or death:

- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

Maintenance

Wheel Bearings

- Shut tractor off and remove key.
- Block wheel on tractor.
- Raise the Bale Hiker wheels enough to clear the surface.
- Securely block Bale Hiker frame.
- Remove wheel from hub.
- Remove the dust cap, cotter pin, and the slotted nut and washer.
- Be careful when pulling the hub off as not to drop the outer bearing.
- Clean spindle and bearing components with solvent.
- Inspect for wear on bearings, spindle and cups, replace parts as required.
- Do not reuse old seals. Use only new seals when assembling.
- Pack inner hub with bearing grease.
- Be sure bearing and cup are dry and clean.
- Work grease into the bearing rollers, until each part of the bearing is completely full of grease.
- Install inner bearing and cup first, then press new seals in place.
- Place hub on spindle.
- Install outer bearing, washer and slotted nut.
- Tighten nut while turning the wheel until a slight drag is felt.
- Back nut off one slot and install a cotter pin. Bend cotter pin up around nut.
- Pack grease inside the dust cap and tap into position.



Section 7: Storage

Section Contents

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Removing from Storage.....	7-3

Storage

Preparing for Storage

- To insure longer life and satisfactory operation, store the implement in a shed.
- If building storage is impossible, store away from areas of main activity on firm, dry ground.
- Clean machine thoroughly.
- Inspect all parts for wear or damage.
- Avoid delays - if parts are required, order at the end of the season.
- Lubricate grease fittings. (Refer to Lubricating Section).
- Lubricate chains. (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).
- For a safer storage, lower the fork down and release the hydraulic pressure.
- If fork must be stored in a raised position, ensure that the fork is properly secured with lock pins.
- Level Hay Hiker using hitch jack and block up.
- Relieve pressure from hydraulic system.
- Raise main frame, block up and relieve weight from the tires.
- Cover tires with canvass to protect them from the elements when stored outside.
- Coat exposed cylinder shafts (Refer to “*Cylinder Shaft Protection*”).
- Paint any surfaces that have become worn.



ProAG PAINT	
Part Number	Description
W-4647	Red ProAG Spray Can
N31087	White ProAG Spray Can
Z-10	Red ProAG Paint/Litre Can

Cylinder Shaft Protection

The steps summarized below should be followed when protecting chrome plated shafting on equipment:

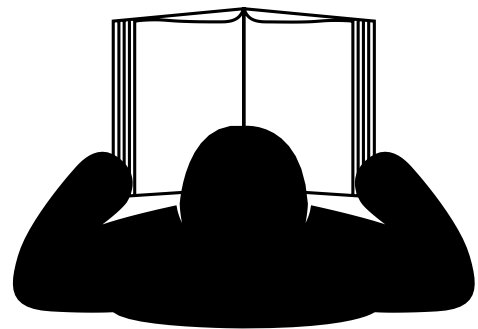
- Position the equipment as it will be stored, and identify all the exposed portions of the chrome plated shafts.
- Clean dirt and dust from the exposed portions of the shaft using a dry cloth or a cloth which has been dampened with an appropriate solvent.
- Prepare a mixture of 60% oil-based rust inhibitor and 40% Kerosene. Apply a thin coating of this mixture to the exposed surfaces of the chrome plated shaft. No. 1 fuel oil may be substituted for Kerosene. A cloth dipped in the mixture can be used to apply the coating.
- Inspect the shaft surfaces after six months and apply additional corrosion preventative mixture.
- If the equipment is to be moved and then stored again for an extended period of time, the steps above should be repeated for all shafts that were stroked during the move.
- **Before retracting the cylinders the protective coating should be removed.** This will prevent fine sand and dirt that has accumulated in the coating, from damaging the shaft seal. **Under no circumstances should sandpaper or other abrasive material be used to clean the surfaces.** Plastic or copper wool in combination with an appropriate solvent will remove most of the dirt.

Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Removing from Storage

- Review Operator's Manual.
- Check tire pressure (Refer to Tire Pressure List)
- Clean machine thoroughly. Remove coating from exposed cylinder shafts (Refer to Cylinder Shaft Maintenance).
- Lubricate grease fittings. (Refer to Lubricating Section).
- Lubricate chains. (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).



Storage

Notes

Section 8: Troubleshooting

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Poor bed tilt operation.	8-2
Bed rises when lowering fork.....	8-2
Oil accumulation.....	8-3

Troubleshooting

Problem	Cause	Correction
Bale rolling in at an angle.	Bale Hiker not level.	Level Bale Hiker.
	Bales are slightly cone shaped.	Load larger end of bale onto fork first.
	Forks are spaced too wide.	Move forks closer together.
	Bent Fork.	Straighten or replace fork.
Poor Push Bar operation.	Dirt binding chain on drive sprockets	Keep dirt and other debris from building up around rear drive sprockets
	Chain timing out.	Adjust pull chains to pull evenly on push bar.
	Chain is too loose.	Keep chains evenly tightened.
	Rollers may be worn or binding.	Replace.
	Damaged links on pull chain.	Replace damaged links.
Poor fork operation	Push Bar.	Move push bar forward to switch selector valve.
	Selector valve not switching.	Adjust lever. Clean valve shaft. Damaged valve shaft, replace.
	Air in hydraulic system.	Raise fork fully holding hydraulic lever for several seconds.
Poor bed tilt operation.	Push Bar.	Move push bar back a few inches to switch selector valve.
	Selector Valve.	Move shaft to its outermost position.
	Selector valve.	Check position of lever when push bar is fully returned.
Bed rises when lowering fork.	Air in system.	Raise fork to full position and hold the hydraulic lever for several seconds to phase out air from system.

Troubleshooting

Problem	Cause	Correction
Oil accumulation	Normal.	Slight seepage from seal is normal.
	Damaged seal.	Replace seals.
	Loose fittings.	Tighten hose and pipe connections.
	Scored cylinder shaft will damage shaft seal.	Replace shaft and shaft seal.

Troubleshooting

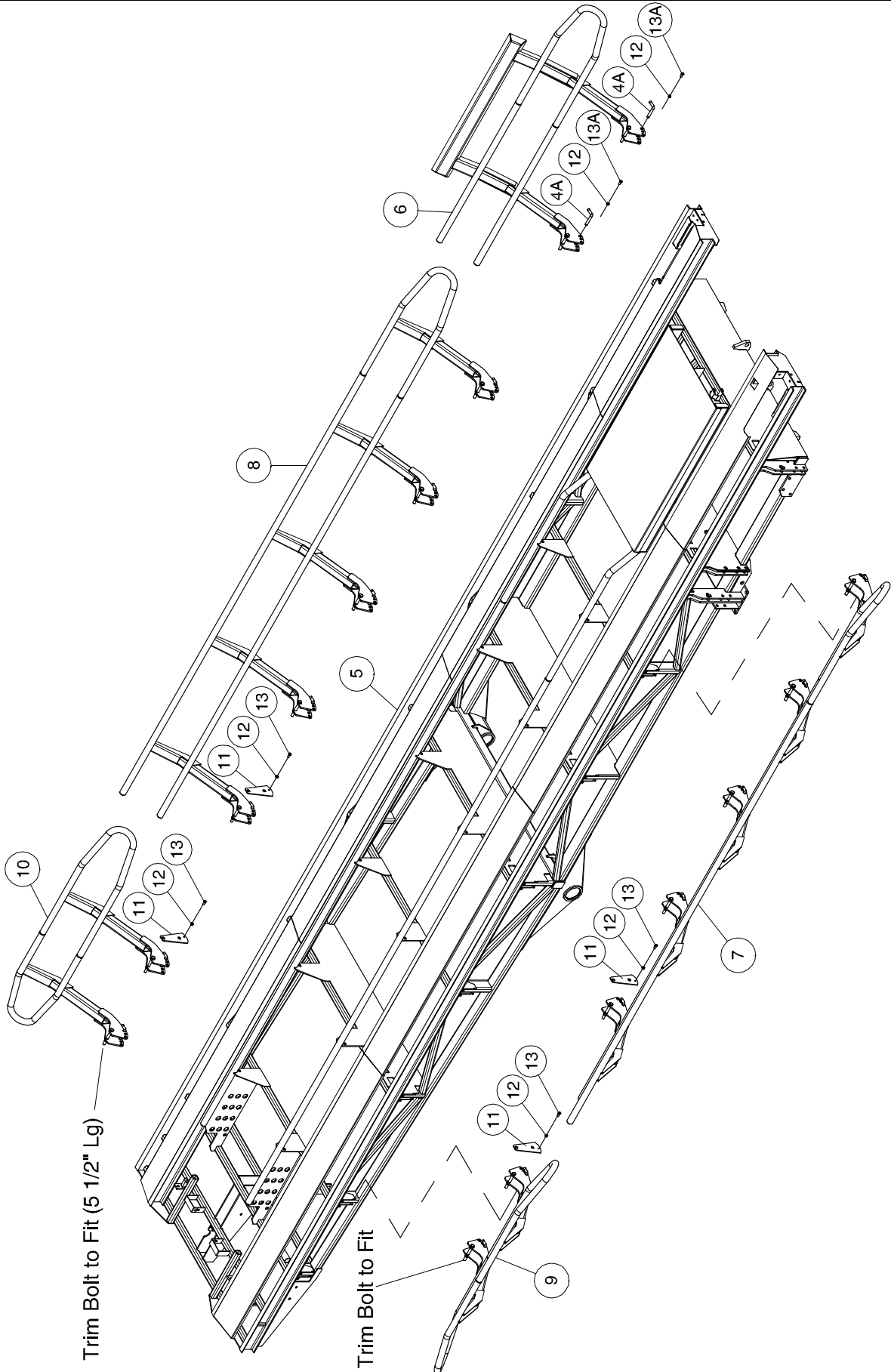
Problem	Cause	Correction
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Section 9: Parts

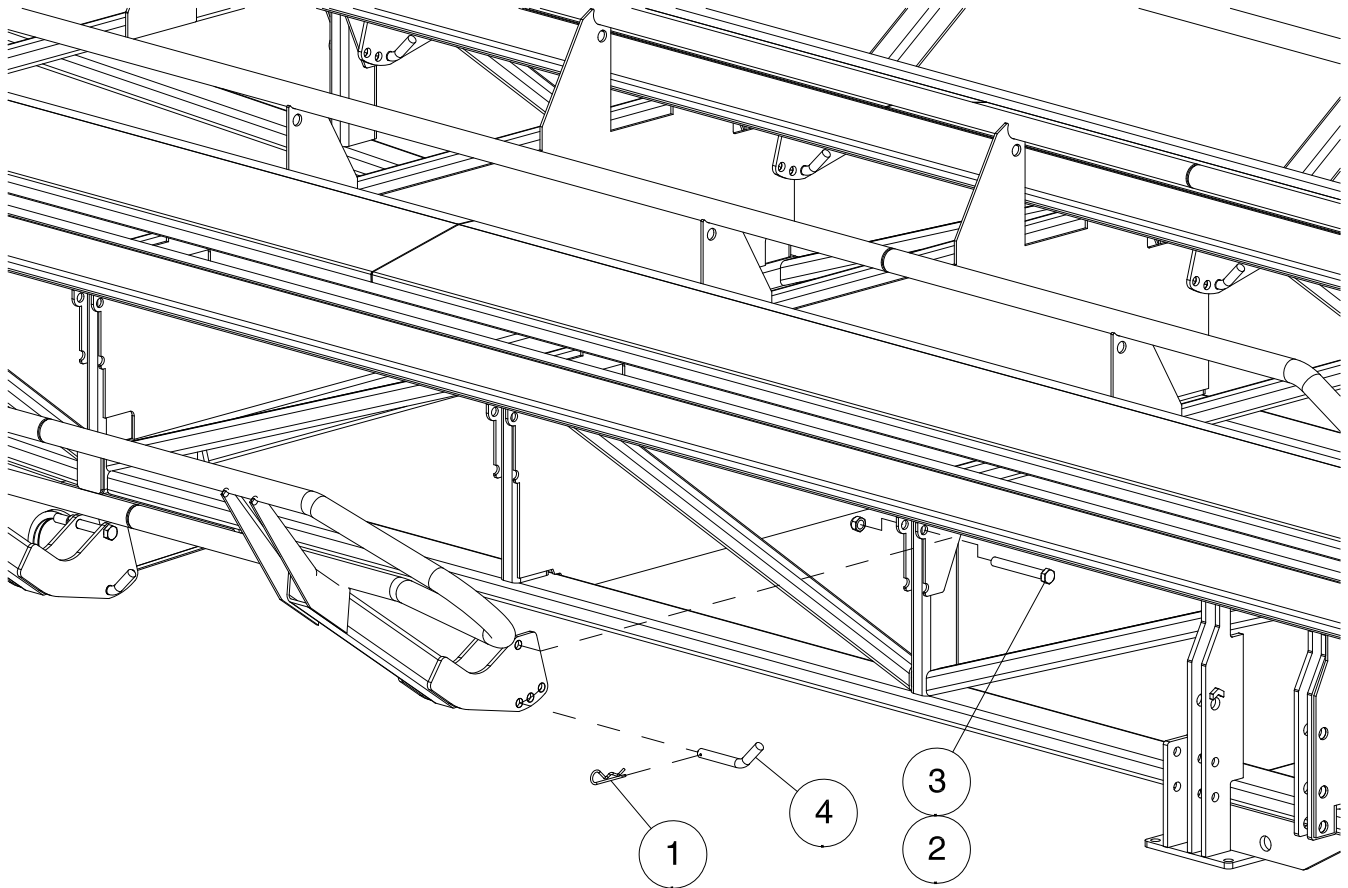
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Frame & Hitch Frame and Rails

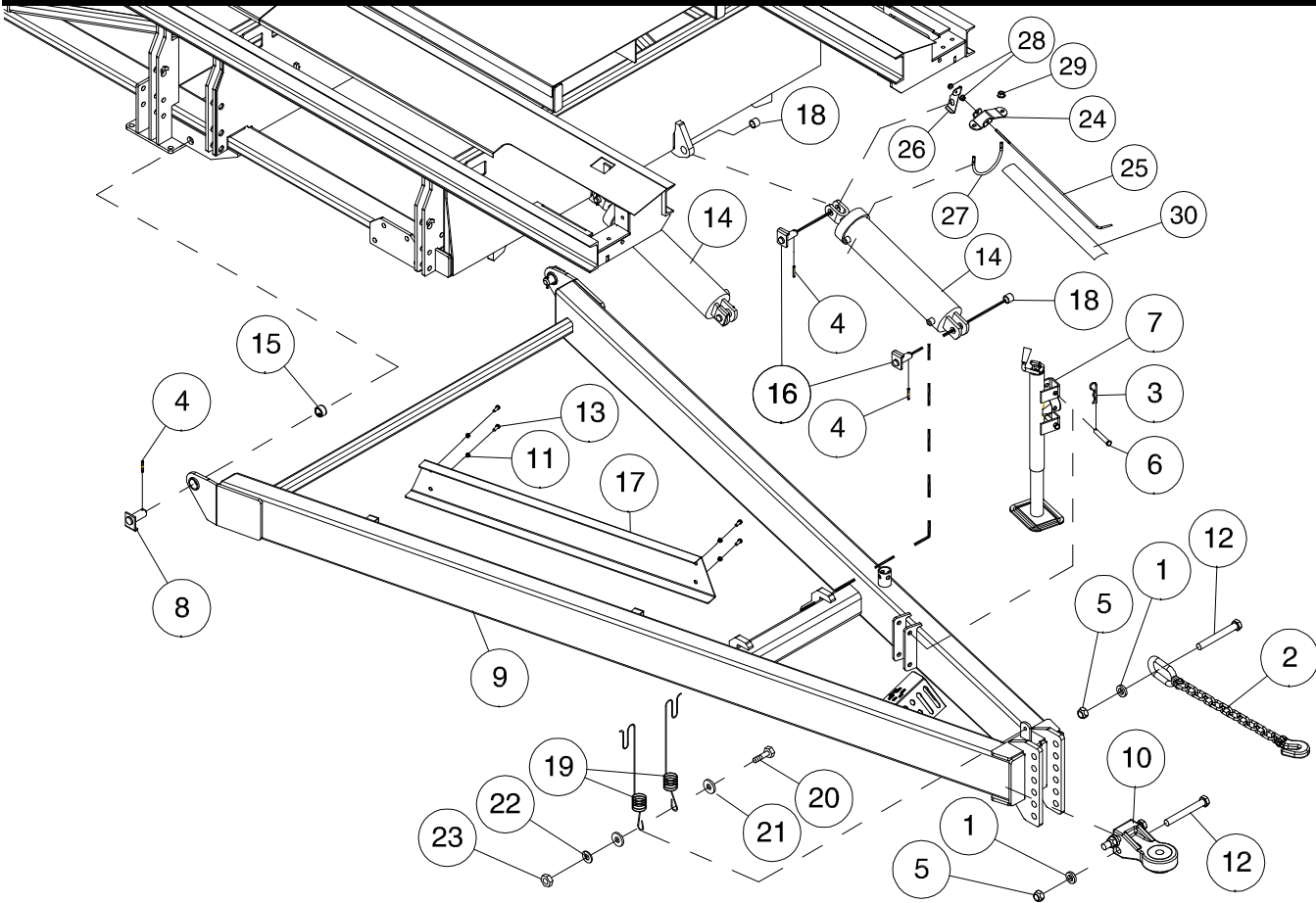


Frame & Rails



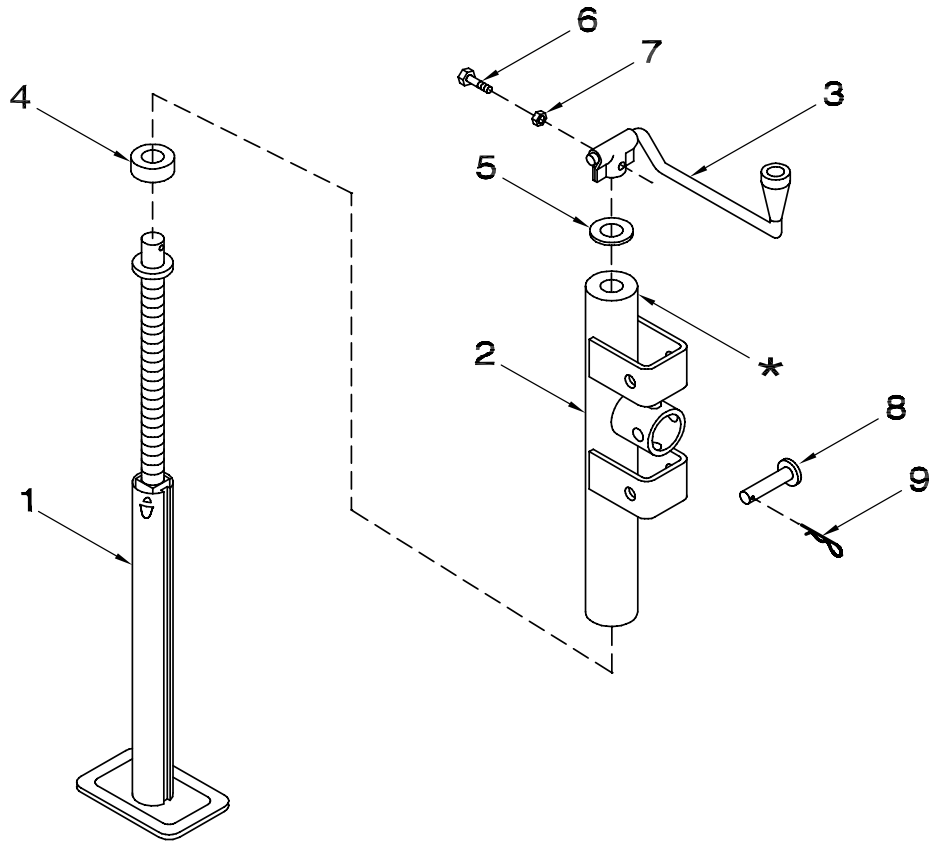
Item	Part No.	Description	Qty
1	D-5240	#10 Hairpin.....	16
2	D-5273	Locknut - 3/4 Unitorque.....	16
3	S42949	Hex Bolt - 3/4 x 5 1/8 Lg.....	14
	D-5558	Hex Bolt - 3/4 x 6 Lg - Used on Front Left Side Rail item 6.....	2
4	K49703	Pin - 3/4 Dia x 4 1/4 UL.....	14
4A	K58351	Pin - 3/4 Dia x 5 1/4 UL - Used on Front Left Side Rail item 6.....	2
5	K50380	Bed.....	1
6	K58353	Side rail - Front Left.....	1
7	K50823	Side rail - Right.....	1
8	K53994	Side rail - Left.....	1
9	K58132	Side rail - Rear Right.....	1
10	K58135	Side rail - Rear Left.....	1
11	K58138	Plate - Shear Bolt.....	4
12	10072	Hex Bolt - 1/4 x 1 Lg Gr 8.....	4
12A	C-1471	Hex Bolt - 1/4 x 1 3/4 Lg - Used on Front Left Side Rail.....	1
13	N22778	Locknut - 1/4.....	5
		Reflectors - Not Shown	
	N34476	Reflector - Red.....	2
	N34477	Reflector - Amber.....	10
	N34478	Reflector - Orange.....	2
		Slow Moving Sign - Not Shown	
	K-3830	Hex Bolt - 1/4 x 1/2 Lg.....	2
	N22778	Locknut - 1/4 Nylon Insert.....	2
	N34475	Slow Moving Vehicle Emblem.....	1
	N34643	Spade Mount Bracket (Male).....	1

Frame & Hitch Hitch



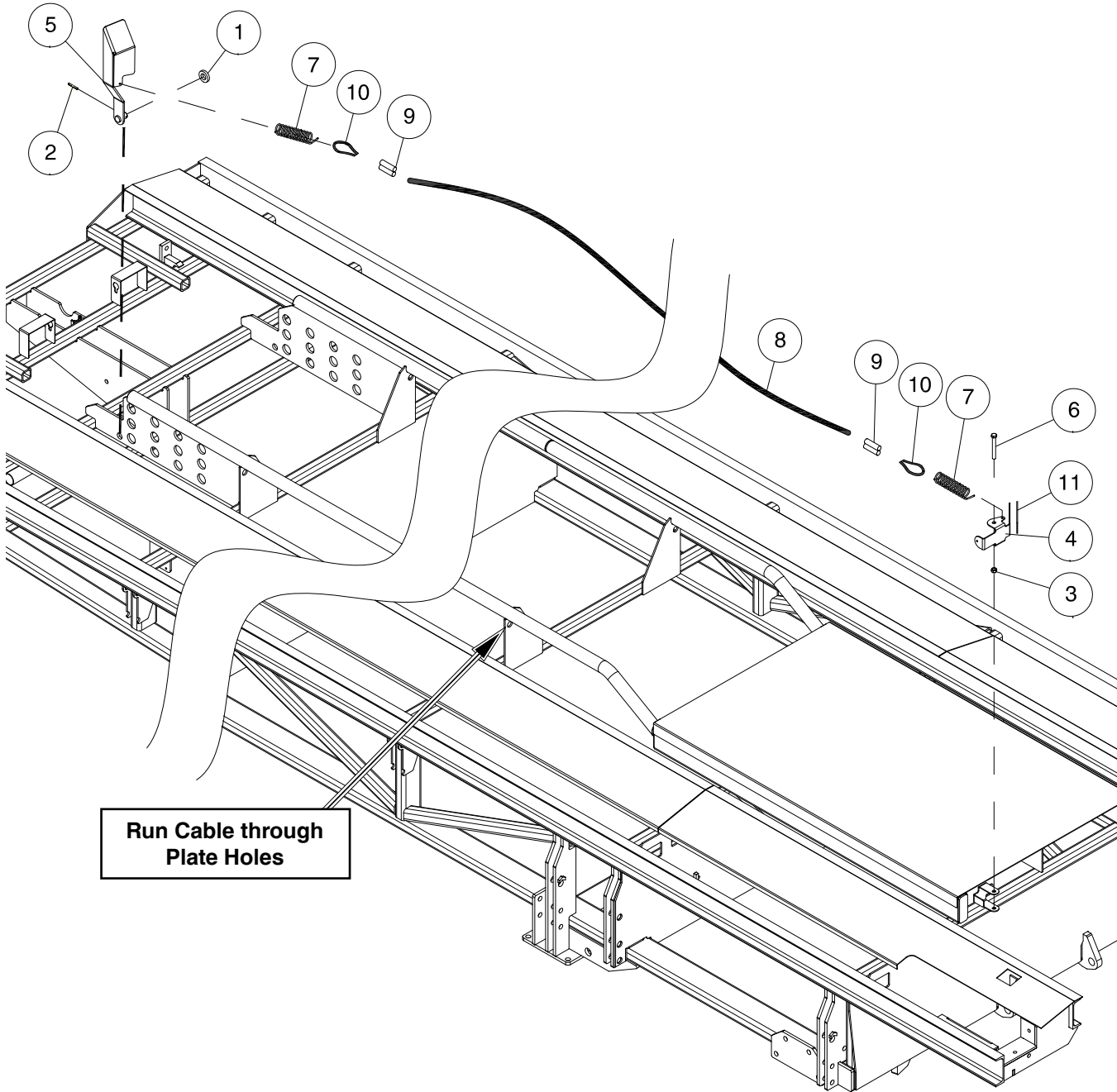
Item	Part No.	Description	Qty
1	ASP-114	Draw Pin Washer - 3/8	3
2	C18761	Safety Chain - 40,000 lbs.....	1
3	W-131	Hair Pin - 0.148 Dia (#9)	2
4	D-5244	Spirol Pin - 1/4 x 2	2
5	D-5274	Locknut - 1 Unitorque.....	3
6	H10462	Adjustment Pin.....	2
7	H27963	Top Wind Jack	1
8	K49721	Pin - 1 1/4 Dia x 2 3/8 UL.....	2
9	K50436	Hitch	1
10	K51092	Ball Hitch.....	1
11	M-3388	Locknut - 3/8 Unitorque.....	4
12	S39487	Hex Bolt - 1 x 8 Lg.....	3
13	W-475	Hex Bolt - 3/8 x 1 Lg.....	4
14	C26845	Cylinder - 4 1/2 x 18 Lg	2
15	C42939	Bushing - Connex - 1 5/8 OD x 1 1/4 ID x 1 Lg.....	2
16	K51066	Pin - 1 Dia x 2 1/4 UL - Chrome Plated	4
17	K53624	Hose Cover	1
18	S47527	Bushing - Fiber - 1 ID x 1 1/4 OD x 1 Lg.....	4
19	W-7	Hose Holder	2
20	W-488	Hex Bolt - 1/2 x 2	1
21	C-333	Flatwasher - 1/2	2
22	W-525	Lockwasher - 1/2.....	1
23	W-516	Hex Nut - 1/2	1
24	K58173	Bracket - Bed Indicator.....	1
25	K58174	Rod - Bed Indicator	1
26	K58175	Bracket - Rod Holder.....	1
27	S47597	U-Bolt - 3/8 x 5 1/2 x 5 1/8 UL.....	1
28	D-5277	Locknut - 1/4 Serrated.....	2
29	S27987	Locknut - 3/8 Flange Center.....	2
30	K58417	Decal - Bed Tilt Scale.....	1

Frame & Hitch Hitch Jack



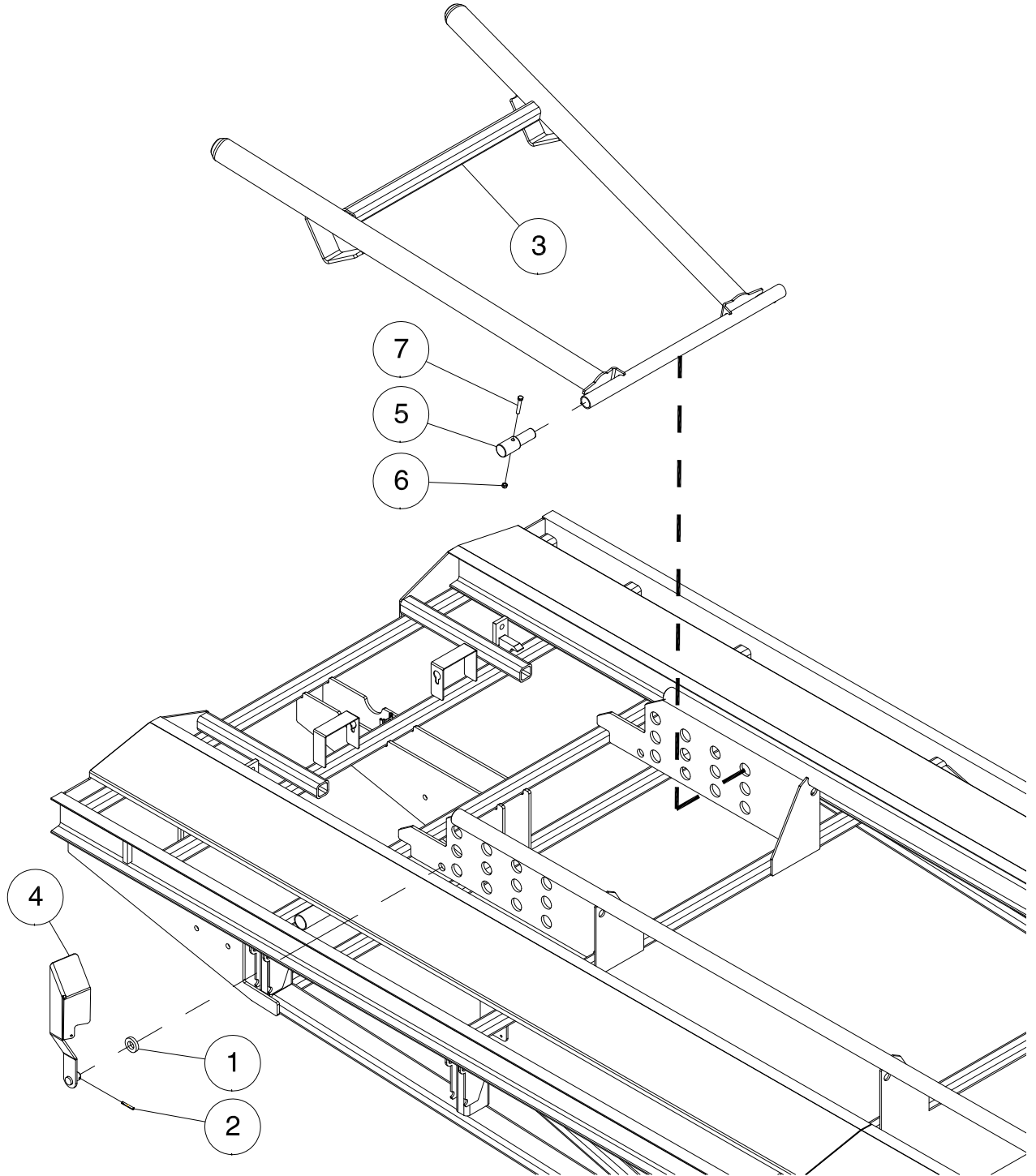
Item	Part No.	Description	Qty
1	H29011	Inner Tube Screw Assembly	1
2	N19966	Outer Tube	1
3	N19967	Handle Assembly	1
4	N19968	Thrust Bearing	1
5	N19969	Flatwasher	1
6	W-473	Hex Bolt - 5/16 x 1 1/2 Lg.....	1
7	D-5272	Locknut - 5/16 Unitorque	1
8	H10462	Button Head Pin	2
9	W-131	Hair Pin - 0.148 Dia (#9)	2
	H27963	Hitch Jack Assembly - 34 LG (Includes All Above Items)	

Push Bar, Fork & Drive Indicator and Activator Arm



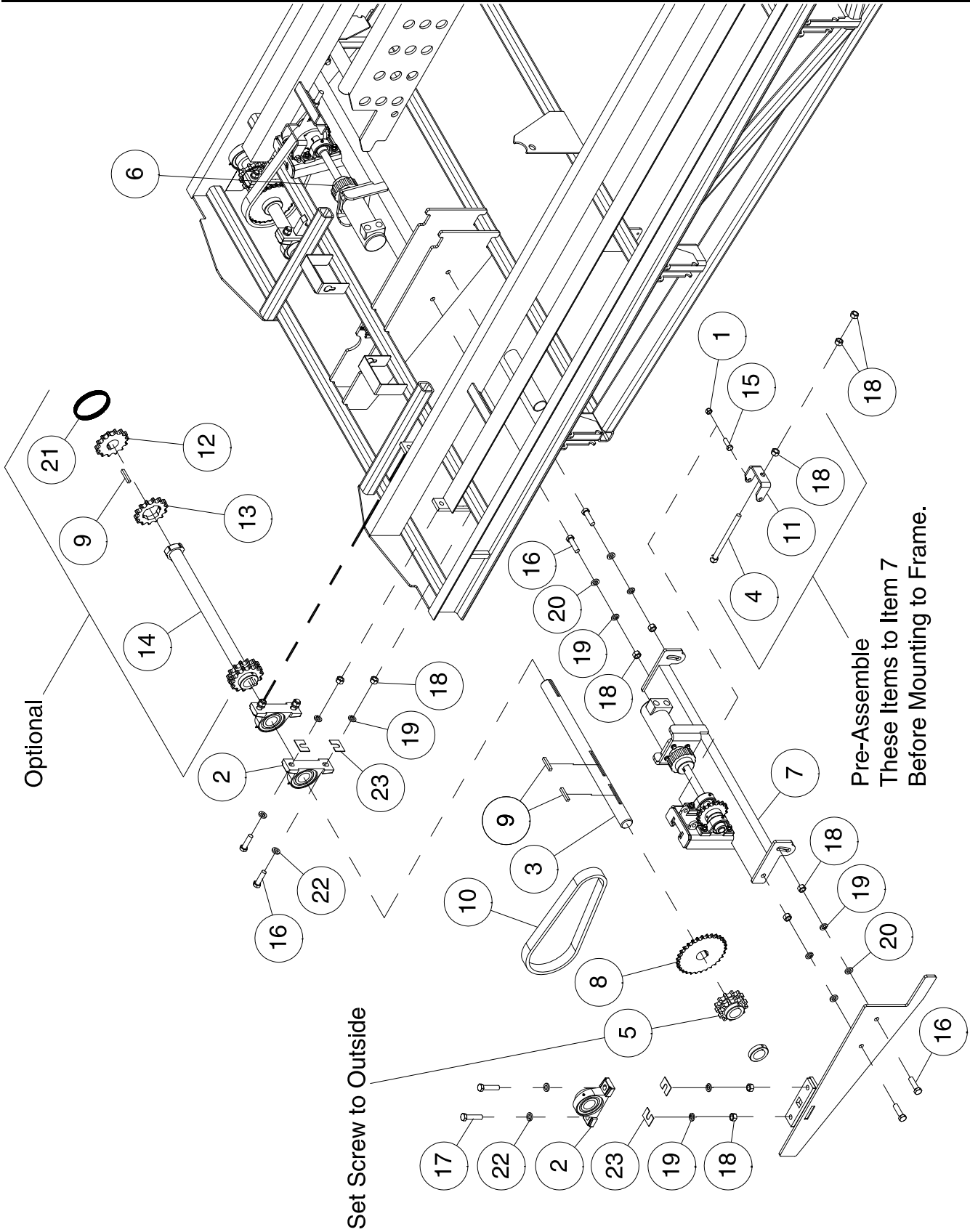
Item	Part No.	Description	Qty
1	ASP-114	Draw Pin Washer - 1.016 ID x 1 7/8 OD x 3/8 thick	1
2	D-5244	Spiral Pin - 1/4 Dia x 2 Lg	1
3	F-3405	Locknut - 1/2 Unitorque	1
4	K53434	Full Bale Indicator	1
5	K53620	Full Bale Activator Arm	1
6	W-495	Hex Bolt - 1/2 x 4 Lg	1
7	W-1663	Adjusting Spring	2
8	K24894	1/16 Aircraft Cable x 38' Lg	1
9	K42389	Oval Sleeve - 0.062" Dia	2
10	K42390	Thimble	2
11	N34477	Reflector - Yellow (Trim to Fit)	1

Push Bar, Fork & Drive Bale Divider



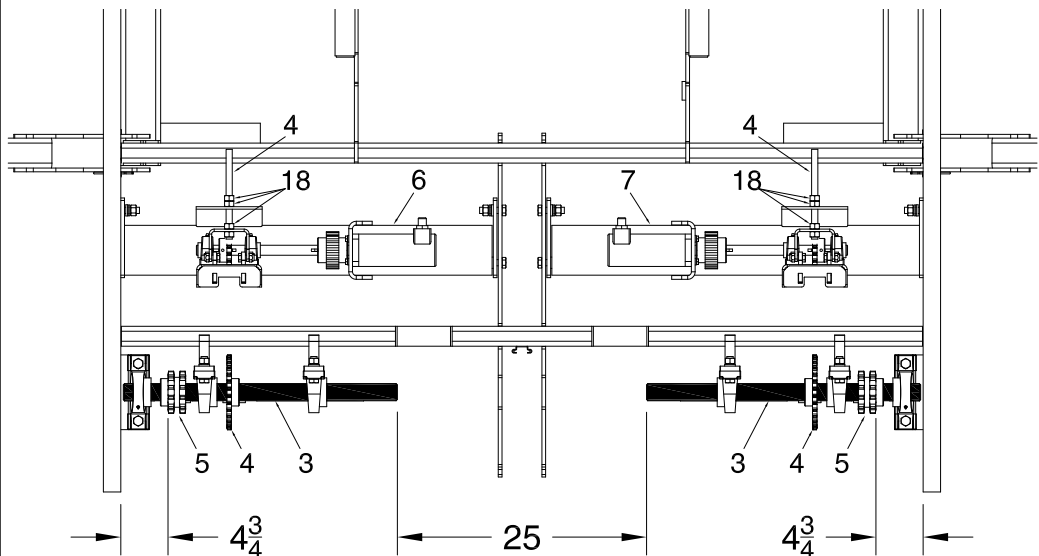
Item	Part No.	Description	Qty
1	ASP-114	Draw Pin Washer - 1.016 ID x 1 7/8 OD x 3/8 thick	1
2	D-5244	Spirol Pin - 1/4 Dia x 2 Lg	1
3	K56951	Bale Divider	1
4	K53620	Full Bale Activator Arm	1
5	K55831	Bale Divider Pin - 1 5/16 OD	1
6	M-3388	Locknut - 3/8 Unitorque.....	1
7	W-479	Hex Bolt - 3/8 x 2 1/4 Lg.....	1

Push Bar, Fork & Drive Rear Motor - Drive

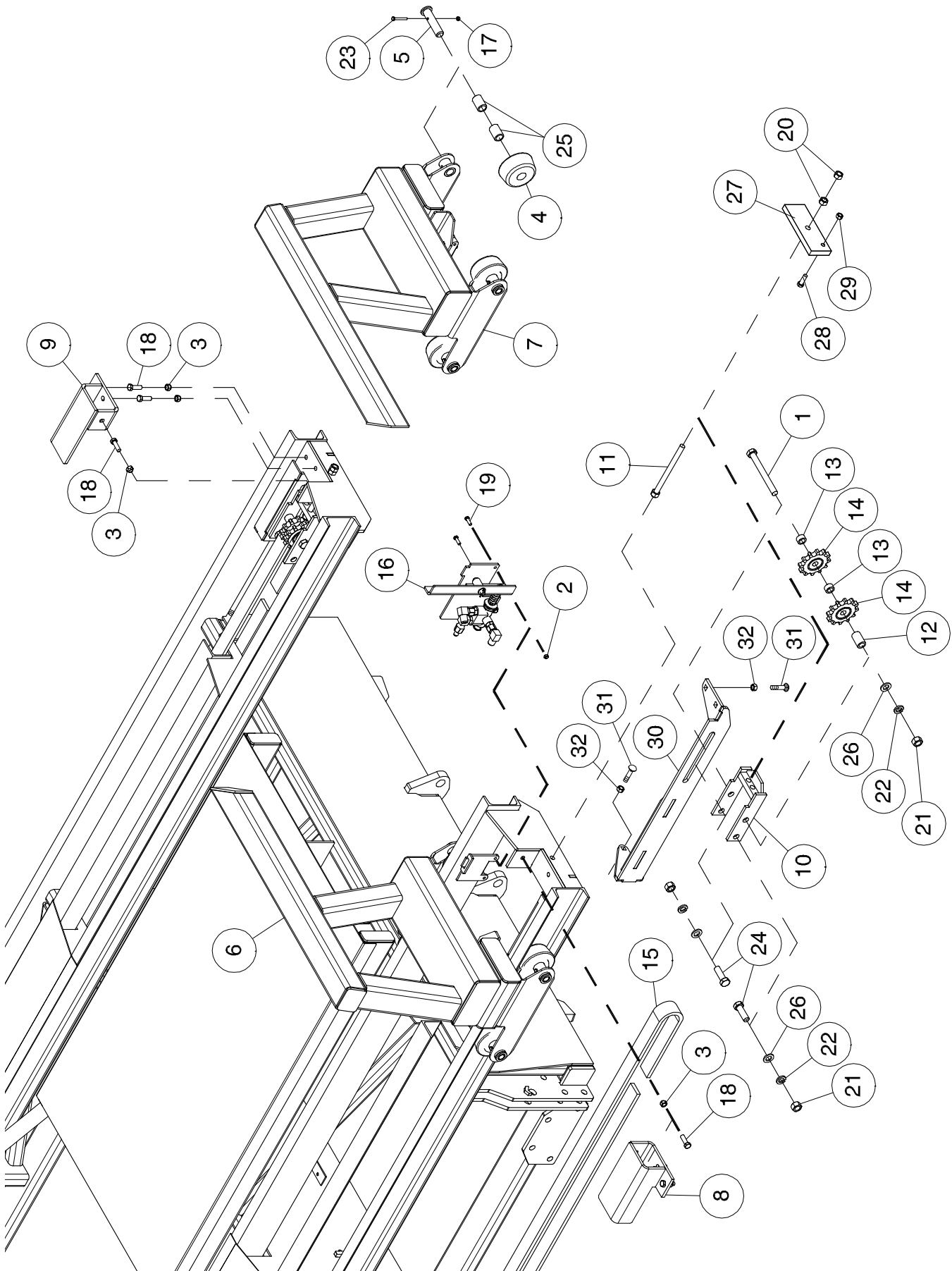


Push Bar, Fork & Drive - Rear Motor Drive

Item	Part No.	Description	Qty
1	F-3405	Locknut - 1/2 Unitorque.....	4
2	K24113	Pillow Block Bearing - 1 3/4 Dia w/Locking Collar.....	6
3	K51068	Drive Shaft - 1 3/4 Dia x 27 1/2 Lg.....	2
4	K53443	Front Tensioner Bolt - 5/8 x 8 1/4 Lg.....	2
5	K53446	Idler Sprocket - #80.....	2
6	*****	Orbit Motor Assembly - Left (See Orbit Motor Assembly).....	1
7	*****	Orbit Motor Assembly - Right (See Orbit Motor Assembly).....	1
8	K53608	Drive Sprocket - #60.....	2
9	K53609	Square Key - 3/8.....	6
10	K53611	Chain - Roller #60 x 59 Link.....	2
	W-807	Chain Link - #60 Connector	
11	K53612	Chain Tensioner.....	2
12	K53641	Drive Sprocket - #80.....	2
13	K53642	Coupler Sprocket - #80.....	2
14	K53643	Connector Shaft.....	1
15	S-776	Hex Bolt - 1/2 x 1 1/2 Lg.....	4
16	W-500	Hex Bolt - 5/8 x 2 1/4 Lg.....	16
17	W-502	Hex Bolt - 5/8 x 2 3/4 Lg.....	4
18	W-517	Hex Nut - 5/8.....	26
19	W-526	Lockwasher - 5/8.....	20
20	W-793	Washer - 5/8 ID x 1 1/8 OD x 3/16 Thick.....	8
21	K56005	Chain - Roller #80 x 13 Link - W/Connector.....	2
	K56011	Connector - #80 Roller Chain.....	2
22	W-629	Flatwasher - 5/8.....	12
23	T-4832	Shim - 22 GA - Use as required to align shafts.....	12



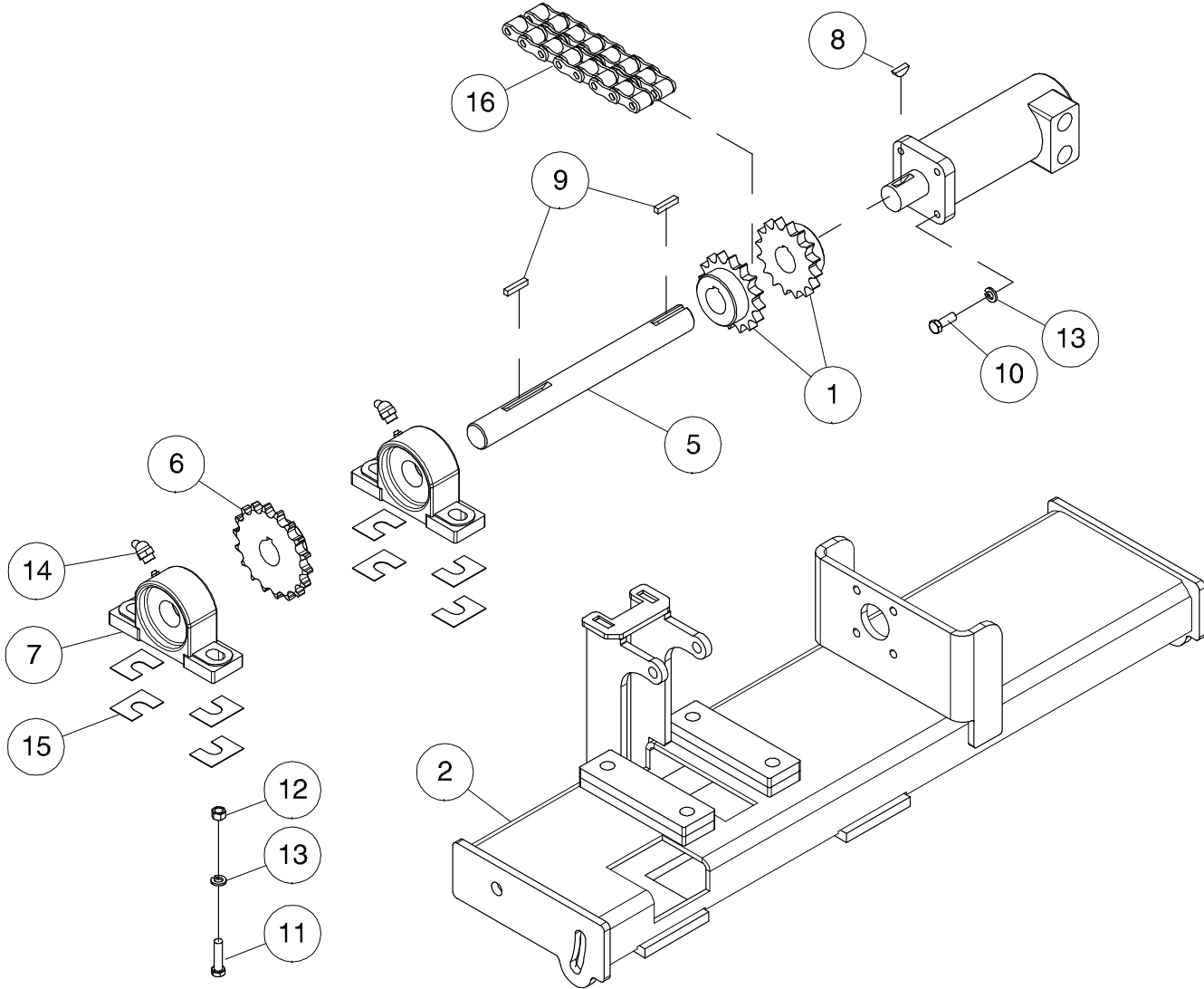
Push Bar, Fork & Drive Push Bars



Push Bar, Fork & Drive - Push Bars

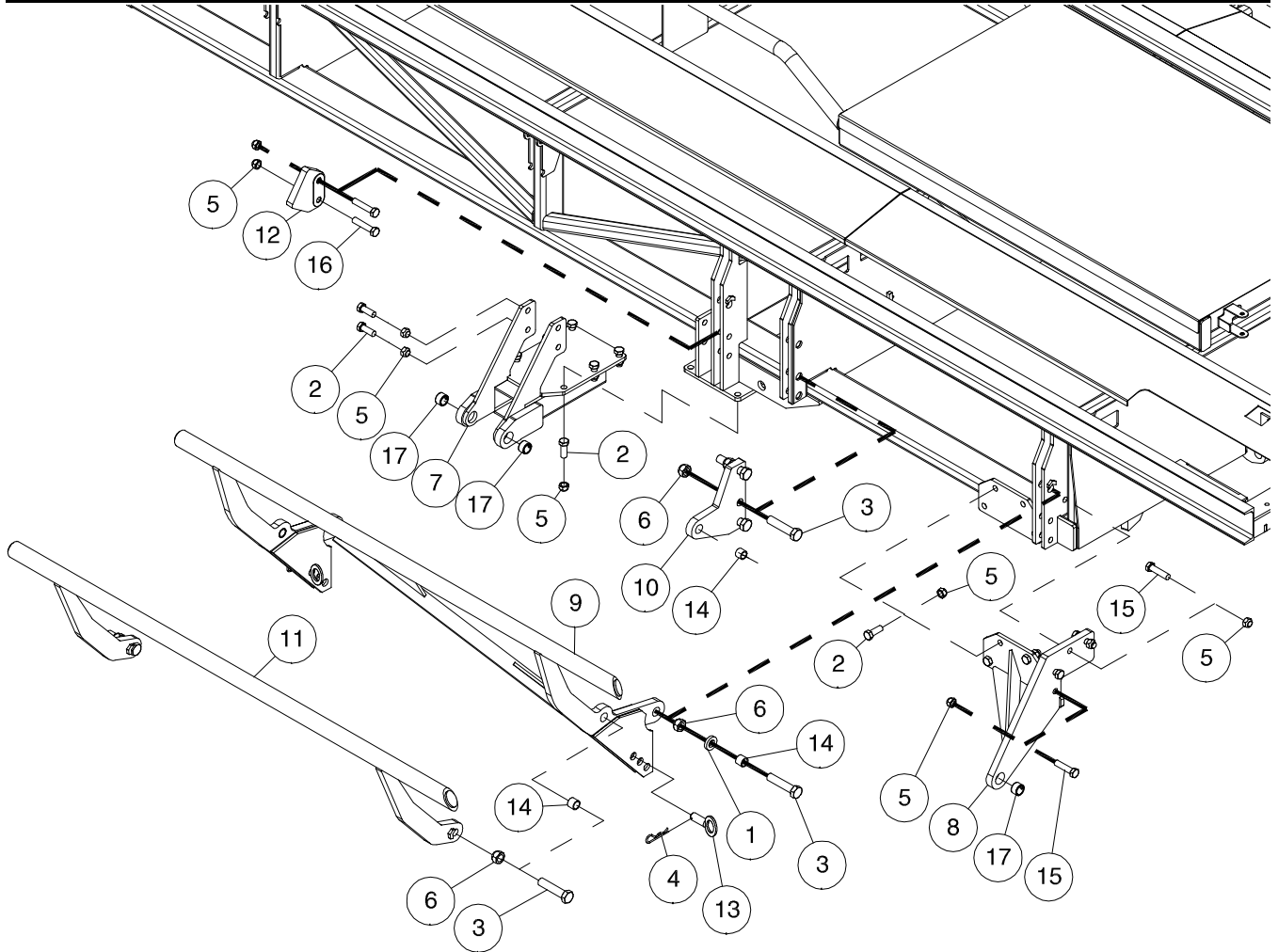
Item	Part No.	Description	Qty
1	S32590	Hex Bolt - 3/4 x 7 Lg Grade 8.....	2
2	D-5272	Locknut - 5/16 Unitorque.....	2
3	F-3405	Locknut - 1/2 Unitorque.....	6
4	K49043	Roller - 5 Dia.....	8
	K56034	Roller Assembly - Includes 2 of S47527	
5	K49724	Pin 1 x 4-1/4 UL.....	8
6	K50419	Push Bar - Right.....	1
7	K50992	Push Bar - Left.....	1
8	K51064	Push Bar Stop - Right.....	1
9	K51067	Push Bar Stop - Left.....	1
10	K51075	Chain Tensioner.....	2
11	K53443	Front Tensioner Bolt.....	2
12	K53444	Tensioner Bushing - 1 1/8 OD x .765 ID x 1.875 Lg.....	2
13	K53445	Tensioner Bushing - 1 1/8 OD x .765 ID x 0.605 Lg.....	4
14	K53447	Idler Sprocket - 80C12.....	4
15	K53610	Double Chain - Roller #80 x 837 Links - W/Connector.....	2
	K56011	Connector Link - Double Chain 80 - Cotter Pin Type.....	1
16	K55371	Valve Assembly.....	1
17	N22778	Locknut - 1/4 Nylon Insert.....	8
18	S-776	Hex Bolt - 1/2 x 1 1/2 Lg.....	6
19	W-471	Hex Bolt - 5/16 x 1 Lg.....	2
20	W-517	Hex Nut - 5/8.....	4
21	W-518	Hex Nut - 3/4.....	4
22	W-527	Lockwasher - 3/4.....	4
23	W-1540	Hex Bolt - 1/4 x 2 Lg.....	8
24	W-1553	Hex Head Bolt - 3/4 x 2 1/4 Lg.....	2
25	S47527	Bushing - Fiber - 1 ID x 1 1/4 OD x 1 Lg.....	16
26	W-476	Flatwasher - 3/4.....	2
27	K56750	Plate.....	2
28	W-483	Hex Bolt - 7/16 x 1 1/4 Lg.....	2
29	S32944	Locknut - 7/16 Unitorque (W10545).....	2
30	K59994	Brace - Tensioner Right.....	1
	K59995	Brace - Tensioner Left (Shown).....	1
31	H-4584	Carriage Bolt - 1/2 x 1 1/2 Lg.....	10
32	W-525	Hex Nut - 1/2.....	10

Push Bar, Fork & Drive Orbit Motor Assembly



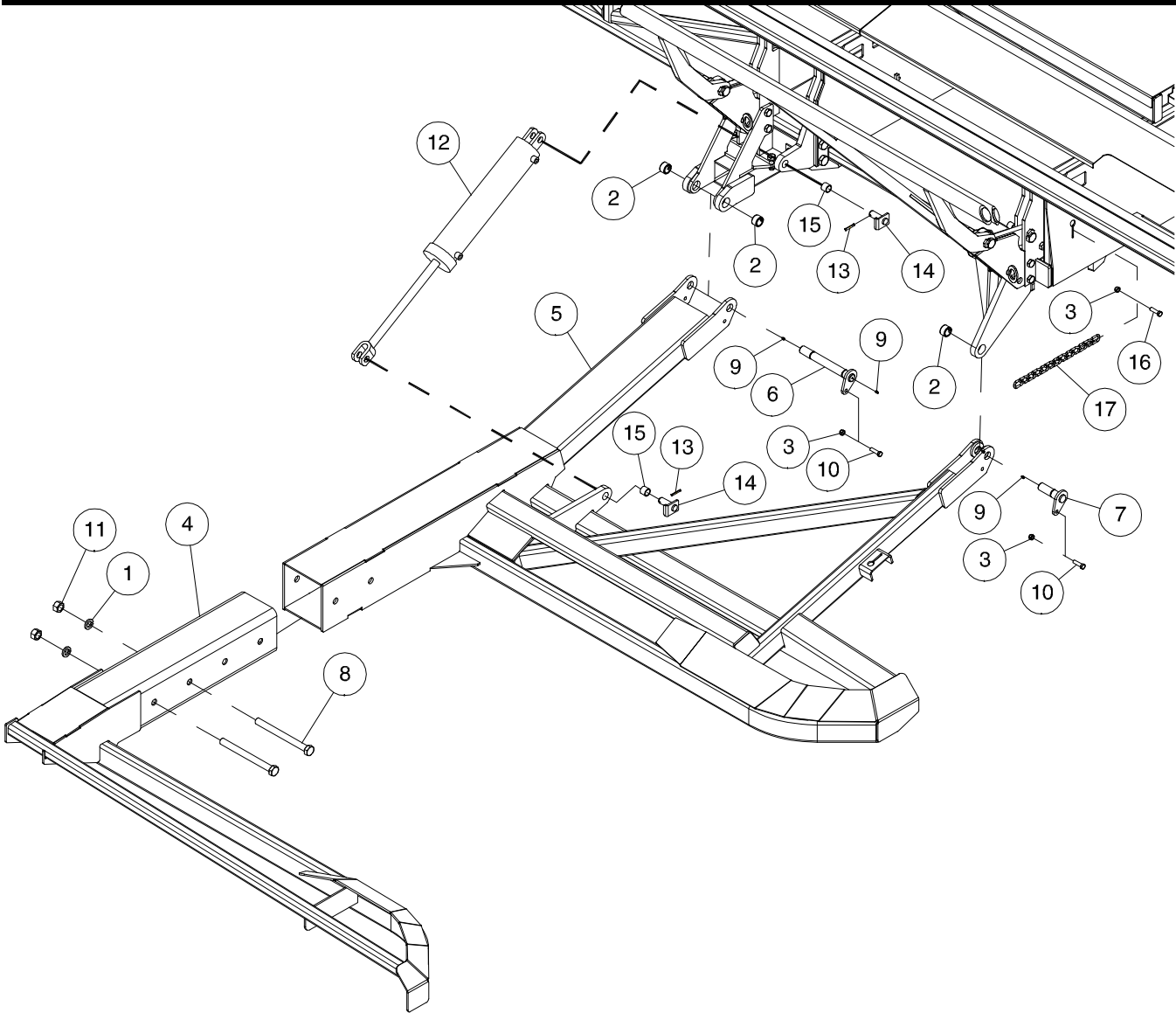
Item	Part No.	Description	Qty
1	K58125	Sprocket - H60B16 x 1-1/4" 5/16" KW	2
2	K58128	Motor Mount - Right (Shown)	1
	K58553	Motor Mount - Left	1
3	K58126	Hydraulic Motor - 1 1/4 Shaft	1
5	K58127	Jack Shaft - 1 1/4 Dia	1
6	K58130	Drive Sprocket - H60B18 x 1-1/4" - 5/16 KW	1
7	K24116	Pillow Block Bearing - 1 1/4 Dia Shaft	2
9	K58667	Keyway - 5/16 x 1 5/8 Lg	2
10	W-475	Hex Bolt - 3/8 x 1 Lg	4
11	W-502	Hex Bolt - 5/8 x 2 3/4 Lg	4
12	N37509	Locknut - 5/8 center lock	4
13	S51182	Flatwasher - 0.656 ID x 1 OD x 10 GA	8
14	K58627	Grease Fitting - 45 Degree - M6-1 - Tapered (METRIC)	2
15	T-4832	Shim - 22 Ga - Use as required	8
16	K58124	#60-2 (Double Strand) Roller Chain with Connector Link	1

Push Bar, Fork & Drive Bale Deflector Assembly



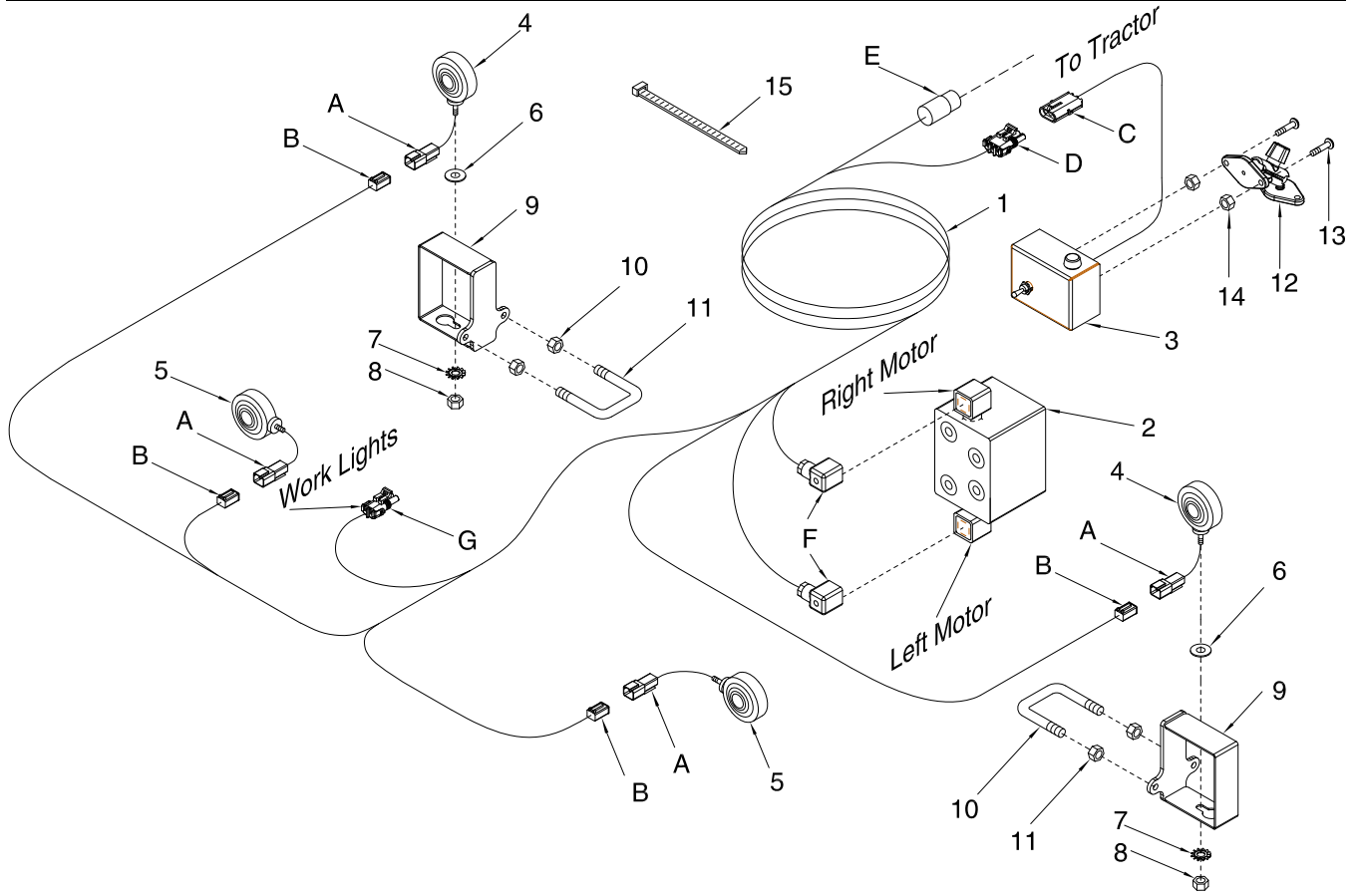
Item	Part No.	Description	Qty
1	ASP-114	Draw Pin Washer - 1.016 ID x 1 7/8 OD x 3/8 thick	4
2	C-695	Hex Bolt - 3/4 x 2 Lg.....	12
3	C12609	Hex Bolt - 1 x 4 1/2 Lg.....	7
4	D-5240	Hairpin - #10	2
5	D-5273	Locknut - 3/4 Unitorque.....	18
6	D-5274	Locknut - 1 Unitorque.....	7
7	K50400	Fork Mount - Rear	1
8	K50411	Fork Mount - Front.....	1
9	K50822	Side Rail.....	1
10	K50835	Cylinder Mount.....	1
11	K51079	Support Rail	1
12	K53423	Bale Deflector Stop	1
13	K53441	Adjustment Pin.....	2
14	S47527	Bushing - Fiber - 1 ID x 1 1/4 OD x 1 Lg.....	4
15	W-63	Hex Bolt - 3/4 x 3 Lg.....	4
16	W-510	Hex Bolt - 3/4 x 3 1/2 Lg.....	2
17	C42939	Bushing - Connex - 1 5/8 OD x 1 1/4 ID.....	3

Push Bar, Fork & Drive Fork Arm



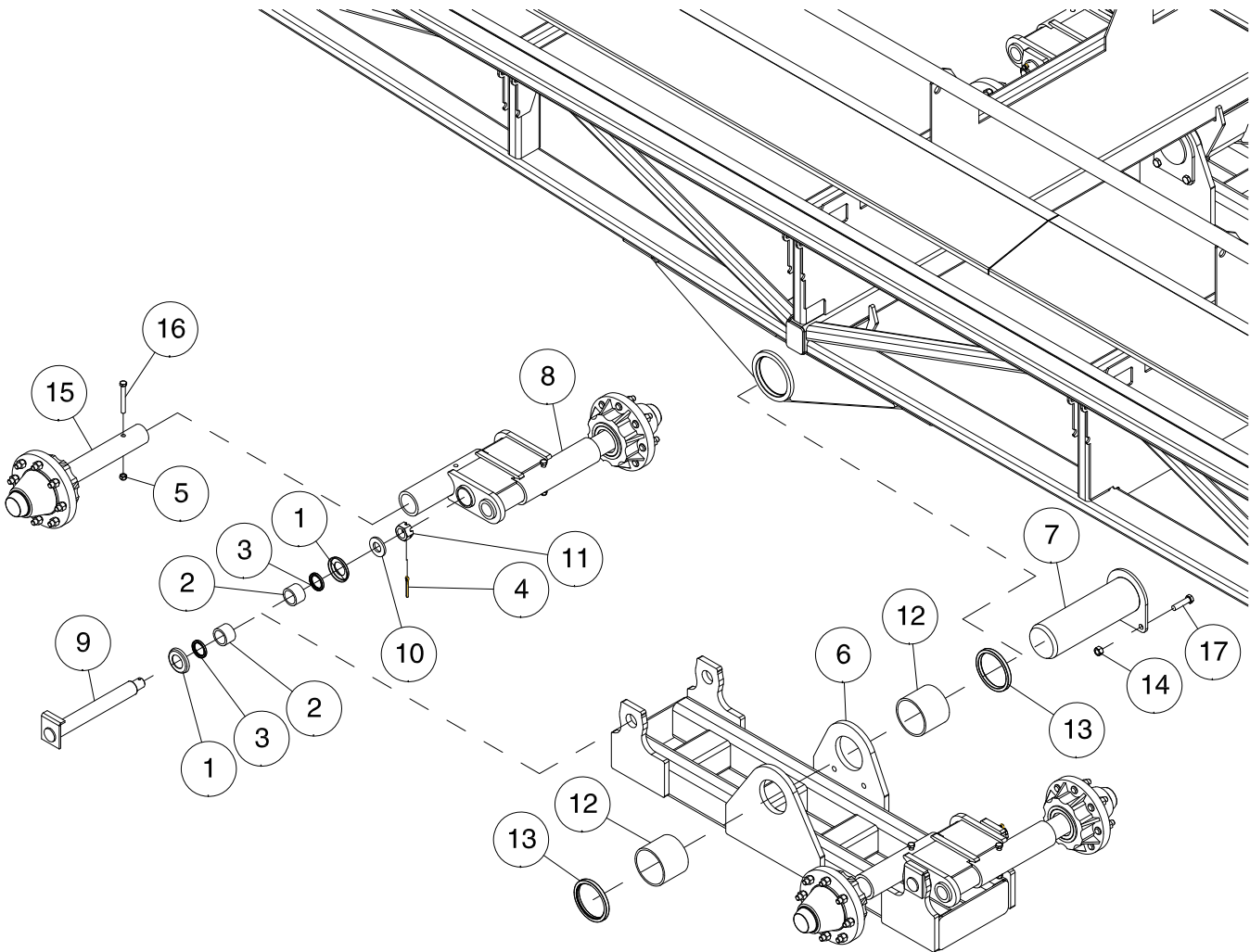
Item	Part No.	Description	Qty
1	C-705	Lockwasher - 1 Dia	2
2	C42939	Bushing - Connex - 1 5/8 OD x 1 1/4 ID.....	3
3	F-3405	Locknut - 1/2 Unitorque.....	3
4	K50120	Outer Bale Fork.....	1
5	K50125	Bale Fork.....	1
6	K51058	Pin - Greaseable - 1 1/4 Dia x 9 3/4 lg.....	1
7	K51060	Pin - Greaseable - 1 1/4 Dia x 3 1/2 lg.....	1
8	K53438	Hex Bolt - 1 x 11 Lg.....	2
9	S-752	Grease Fitting - 1/4	3
10	S-1189	Hex Bolt - 1/2 x 1 3/4 Lg.....	2
11	W-520	Hex Nut - 1	2
12	C26436	Cylinder - 4 x 18.....	1
13	D-5244	Spiral Pin - 1/4 x 2 Lg.....	2
14	K51066	Pin - 1 Dia x 2 1/4 UL - Chrome Plated	2
15	S47527	Bushing - Fibre - 1 ID x 1 1/4 OD x 1 Lg.....	2
16	S-776	Hex Bolt - 1/2 x 1 1/2 Lg.....	1
17	AFW-97	Chain - 23 Links.....	1

Lighting Marking Lights



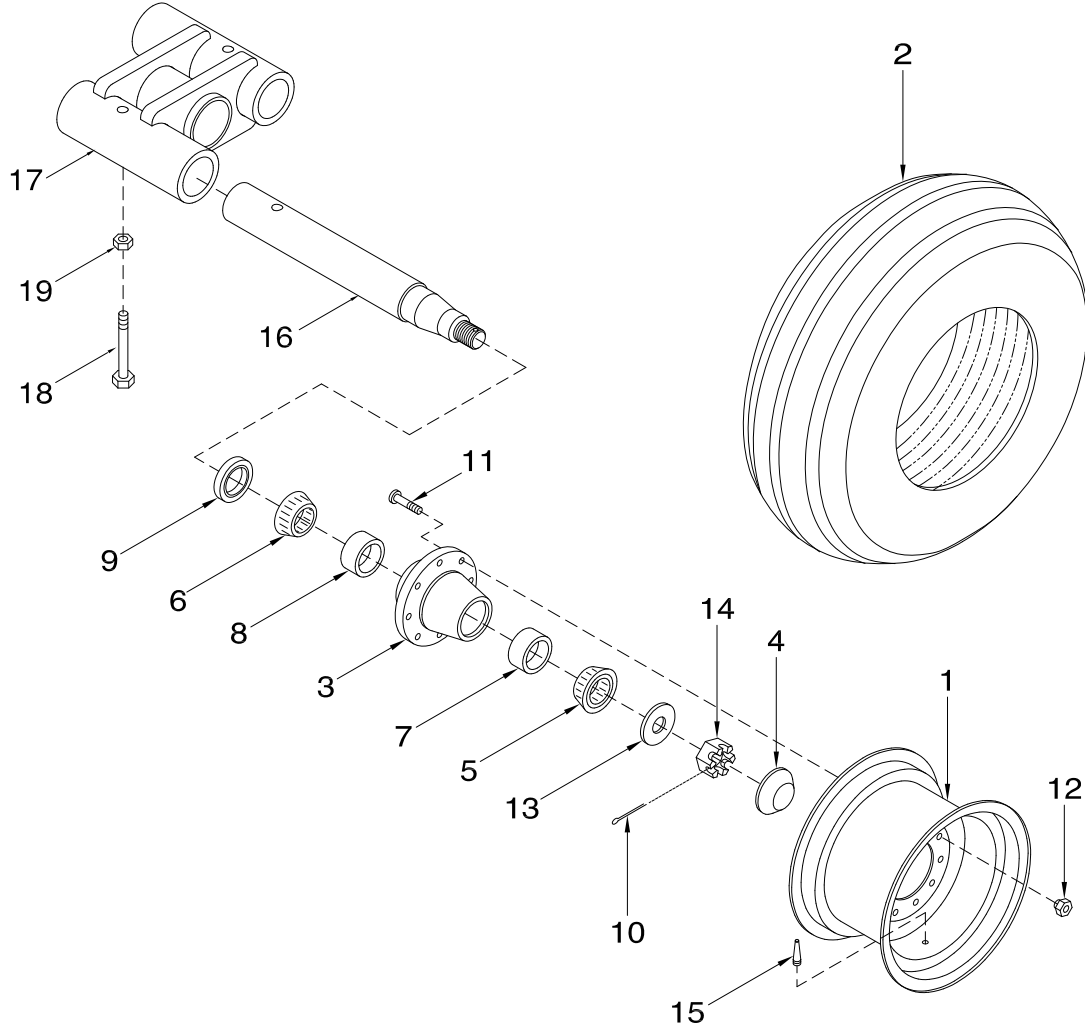
Item	Part No.	Description	Qty
1	K53614	Main Wiring Harness.....	1
2	K53613	Flow Divider Block - Optional Single Bale Row Kit	1
3	K53615	Control Box Assembly - Optional Single Bale Row Kit	1
	K53640	Control Box	1
	K47314	Fast Acting Fuse	1
	K47315	Fuse Holder.....	1
	K47319	Machine Screw - #12 x 1/2.....	2
	K56000	Toggle Switch	1
	K56001	Cab Harness	1
4	N50365	Light LED - Amber.....	2
5	N50366	Light LED - Red	2
6	W-539	Flatwasher - 1/2	4
7	D-5280	Starwasher - 1/2.....	4
8	W-516	Hex Nut - 1/2	4
9	K53432	Light Mount	2
10	M-3388	Locknut - 3/8	4
11	N36148	U-Bolt - 3/8 x 3 x 4 UL.....	2
12	N44254	Monitor Mount - Optional Single Bale Row Kit	1
13	N34961	Machine Screw - #10 x 3/4 - Optional Single Bale Row Kit.....	2
14	N37787	Locknut - #10 Nylon - Optional Single Bale Row Kit	2
15	D-4951	Nylon Tie Strap - 7 3/8 Lg.....	AsReq
15A	D-4838	Nylon Tie Strap - 14 1/2 Lg.....	AsReq
A	C32681	Deutsch DT 2 way Plug with Wedge - Female Pin 16-20G	
B	C32682	Deutsch DT 2 Way Plug with Wedge - Male Pin 16-20G	
C	N27613	Weather Pak Connector - BLACK - 3 Pin Plug (Male)	
D	N27614	Weather Pak Connector - BLACK - 3 Pin Socket (Female)	
E	C32690	Cole Hersee - 7 Pole Plug	
F	N29329	DIN Connector - Plug w/Gasket	
G	N29385	Weather Pak Connector - BLACK - 2 Pin Socket (Female)	

Axles & Wheels Axles



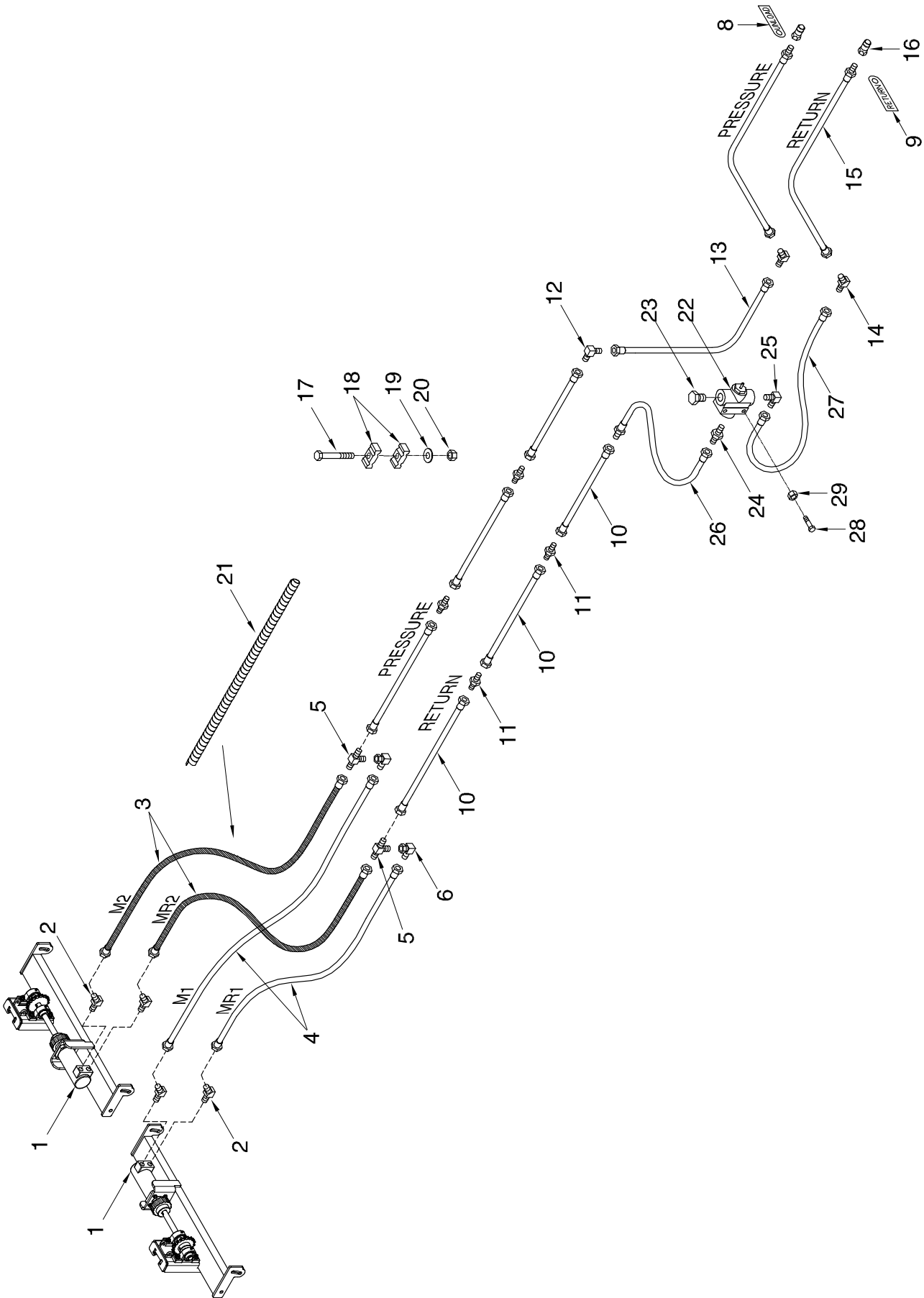
Item	Part No.	Description	Qty
1	C26082	Washer - 1 25/32 ID x 3 1/4 OD	8
2	C26086	Bushing - Fiber - 1.75 ID x 2.25 OD	8
3	C26266	Dust Seal - 1 3/4 Shaft (Seal Lip to Outside)	8
4	D-5239	Cotter Pin - 1/4 x 2 1/4 Lg	4
5	F-3405	Locknut - 1/2 Unitorque.....	8
6	K50965	Axle Pivot	2
7	K51055	Pivot Pin - 4 1/2 Dia x 14 3/8 Lg.....	2
8	K51562	Offset Axle Assembly (Includes Items # 1, 2 & 3)	4
9	K53437	Pivot Pin - 1 3/4 Dia x 13 5/8 Lg.....	4
10	N13962	Washer - 2-1/2 OD x 1-9/32 ID x 1/4	4
11	N19484	Hex Nut - 1-1/4 - Slotted	4
12	N36225	Bushing - 4.510 ID x 5.094 OD x 4 Lg	4
13	N36228	Dust Seal - 4.5 Dia Shaft x 5.256 OD (Seal Lip to Outside).....	4
14	N37509	Locknut - 5/8 Center Lock.....	4
15	S47513	2 1/2" Spindle & Hub Ass.....	8
16	W-495	Hex Bolt - 1/2 x 4 Lg.....	8
17	W-501	Hex Bolt - 5/8 x 2-1/2 Lg	4

Axles & Wheels Axles and Tires



Item	Part No.	Description	Qty
1	S47512	Rim - 16.1 x 14 - 8 Bolt	2
2	S47510	Tire - 16.5L x 16.1FI - Load Range E	2
3	N19173	Hub (Includes Items 7, 8 & 11).....	2
4	N19171	Dust Cap	2
5	N19170	Outer Wheel Bearing.....	2
6	N19169	Inner Wheel Bearing	2
7	N19168	Outer Bearing Cup	2
8	N19167	Inner Bearing Cup.....	2
9	N19172	Seal (Seal Lip to Inside).....	2
10	D-5239	Cotter Pin - 1/4 x 2 1/4	2
11	N19727	Wheel Stud - 5/8 x 18 UNF x 2 1/2	16
12	N19586	Tapered Wheel Nut - 5/8 - 18 UNF	16
13	N13962	Flatwasher - 1.281ID x 2 1/2 OD x 1/4 Thick.....	2
14	N19484	Castle Nut - 1 1/4	2
15	C17348	Valve Stem - TR-416.....	2
16	S47509	Spindle - 2 1/2 Dia	2
17	K51562	Offset Axle Assembly	4
18	W-495	Hex Bolt - 1/2 x 4 Lg.....	2
19	F-3405	Locknut - 1/2 Unitorque.....	2

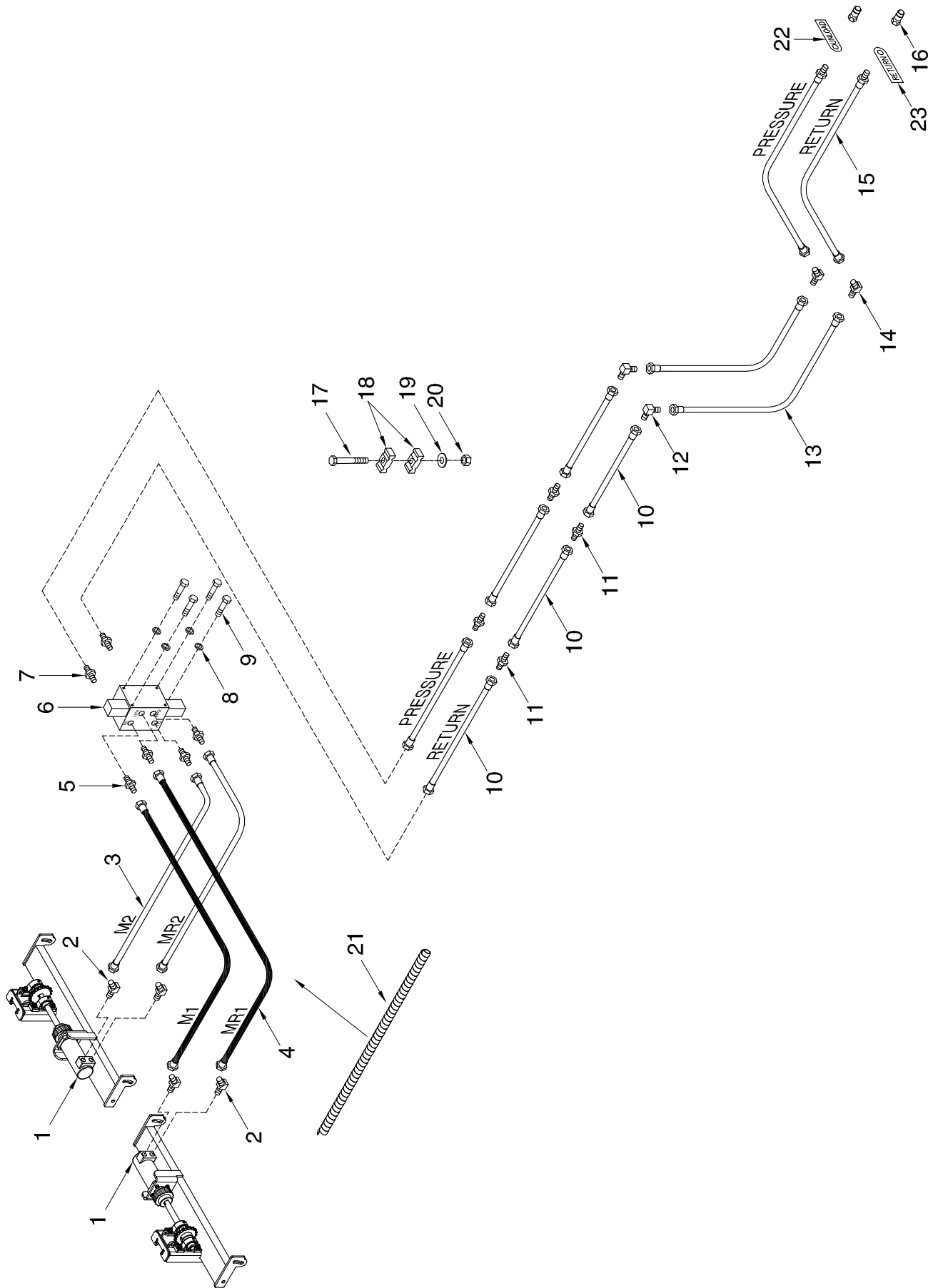
Hydraulics Push Bar with Line Lock Valve



Hydraulics - Push Bar with Line Lock Valve

Item	Part No.	Description	Qty
1	K58126	Hydraulic Motor - 1 1/4 shaft	2
	12286	Seal Kit - Shaft	
2	N49599	45 Elbow - 7/8-14 MJIC x 7/8-14 MORB	4
3	F-4565	Hyd Hose - 1/2 x 60 Lg w/7/8-14 FJIC.....	2
4	K-5685	Hyd Hose - 1/2 x 48 Lg w/7/8-14 FJIC.....	2
5	C-4394	Tee - (3) 7/8-14 MJIC	2
6	K-5806	90 Elbow - Swivel - 7/8-14 MJIC x 7/8-14 FJIC	2
7	D-4951	Nylon Tie Strap - 7 3/8 Lg.....	12
8	K29978	Tag - Hose ID - PUSH BAR - UNLOAD.....	1
9	K29979	Tag - Hose ID - PUSH BAR - RETURN.....	1
10	C-4369	Oil Line - 5/8 x 96 Lg w/ 7/8-14 FJIC	6
11	C-4469	Connector - 7/8-14 (#10) MJIC.....	4
12	H24393	90 Elbow - 7/8-14 MJIC.....	1
13	N19365	Hyd Hose - 1/2 x 140 Lg w/7/8-14 FJIC	1
14	K53616	45 Elbow - 7/8-14 (#10) MJIC	2
15	K53622	Hyd Hose - 1/2 x 78 Lg - w/7/8-14 FJIC x 3/4-16 MORB.....	2
16	N34443	Male Tip - 3/4-16 ORB.....	2
17	W-479	Hex Bolt - 3/8 x 2 1/4 Lg.....	7
18	C-4698	Oil Line Clamp	14
19	D-5489	Washer - 13/32.....	7
20	M-3388	Locknut - 3/8	7
21	N56957	Flexible Hose Cover - 48 Lg.....	2
22	C28501	Line Lock Valve	1
23	C28505	Plug - 3/4-16 MORB	1
24	C14840	Connector - 7/8-14 (#10) MJIC x 3/4-16 (#08) MORB.....	1
25	C24585	90 Elbow - 7/8-14 MJIC x 3/4 ORB.....	1
26	C15310	Hyd Hose - 1/2 x 72 Lg w/7/8-14 MJIC x 7/8-14 FJIC	1
27	C26336	Hyd Hose - 1/2 x 198 Lg w/7/8-14 FJIC	1
28	J12217	Hex Bolt - 5/16 x 2 1/4	2
29	D-5278	Serrated Flange Locknut - 5/16	2
	K59981	Line Lock Valve Kit (Includes items 22 to 29)	

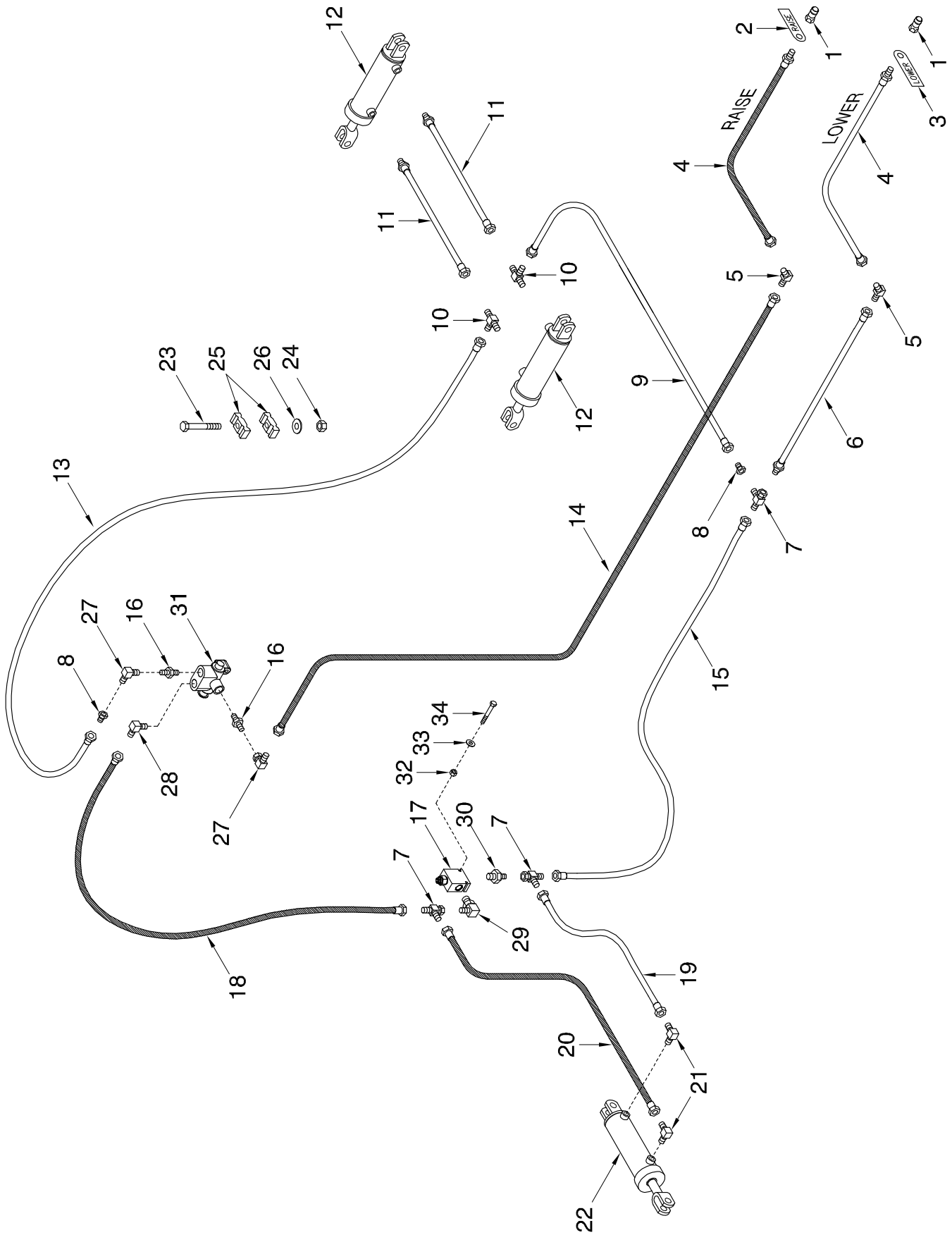
Hydraulics Push Bar - Optional Split Drive



Hydraulics - Push Bar - Optional Split Drive

Item	Part No.	Description	Qty
1	K58126	Hydraulic Motor - 1 1/4 shaft	2
		Seal Kit	
2	N49599	45 Elbow - 7/8-14 MJIC x 7/8-14 MORB	4
3	F-4565	Hyd Hose - 1/2 x 60 Lg w/7/8-14 FJIC	2
4	K-5685	Hyd Hose - 1/2 x 48 Lg w/7/8-14 FJIC	2
5	C14840	Connector - 7/8-14 (#10) MJIC x 3/4-16 (#08) MORB	4
6	K53613	Flow Divider Block	1
7	N47903	Connector - 7/8-14 (#10) MJIC x 1 1/16-12 (#12) MORB	2
8	W-521	Lockwasher - 1/4	4
9	W-469	Hex Bolt - 1/4 x 3/4 LG	4
10	C-4369	Oil Line - 5/8 x 96 Lg w/ 7/8-14 FJIC	6
11	C-4469	Connector - 7/8-14 (#10) MJIC	4
12	H24393	90 Elbow - 7/8-14 MJIC	2
13	N19365	Hyd Hose - 1/2 x 140 Lg w/7/8-14 FJIC	2
14	K53616	45 Elbow - 7/8-14 (#10) MJIC	2
15	K53622	Hyd Hose - 1/2 x 78 Lg - w/7/8-14 FJIC x 3/4-16 MORB	2
16	N34443	Male Tip - 3/4-16 ORB	2
17	W-479	Hex Bolt - 3/8 x 2 1/4 Lg	6
18	C-4698	Oil Line Clamp	12
19	D-5489	Washer - 13/32	6
20	M-3388	Locknut - 3/8	6
21	N56957	Flexible Hose Cover - 48 Lg	2
22	K29978	TAG - HOSE ID - PUSH BAR - UNLOAD	1
23	K29979	TAG - HOSE ID - PUSH BAR - RETURN	1

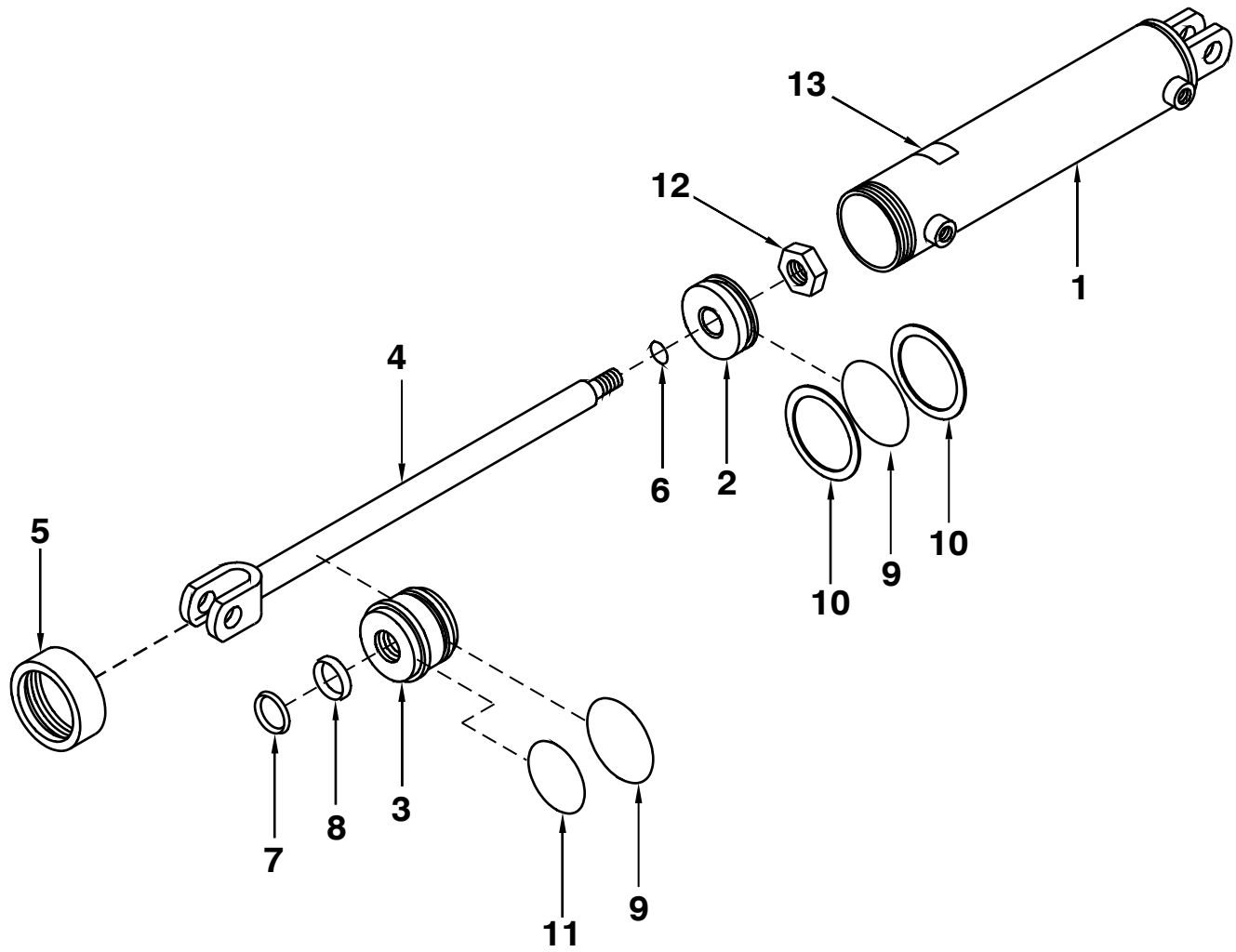
Hydraulics Fork



Hydraulics - Fork

Item	Part No.	Description	Qty
1	N34443	Male Tip - 3/4-16 ORB.....	2
2	K29976	Tag - Hose ID - Fork/Bed - Raise	1
3	K29977	Tag - Hose ID - Fork/Bed - Lower.....	1
4	K53622	Hyd Hose - 1/2 x 78 Lg - w/7/8-14 FJIC x 3/4-16 MORB.....	2
5	K53616	45 Elbow - 7/8-14 (#10) MJIC	2
6	C-4385	Hyd Hose - 1/2 x 24 Lg w/7/8-14 MJIC x 7/8-14 FJIC	1
7	H18746	Tee - Swivel - (2) 7/8-14 MJIC x (1) 7/8-14 FJIC (MMF)	3
8	F10384	Connector - 9/16-18 (#06) MJIC x 7/8-14 FJIC.....	1
9	C-4552	Hyd Hose - 1/4 x 24 Lg w/9/16-18 FJIC	1
10	K53617	Tee - (2) 9/16-18 MJIC X (1) 9/16-18 ORB.....	4
11	K53625	Hyd Hose - 1/4 x 10 1/4 Lg w/9/16- FJIC x 9/16-18 MORB	2
12	C26845	Cylinder - 4 1/2 x 18	2
13	D17845	Hyd Hose - 1/4 x 198 Lg w/9/16-18 Swivel FJIC.....	1
14	C26336	Hyd Hose - 1/2 x 198 Lg w/7/8-14 FJIC.....	1
15	K53630	Hyd Hose - 1/2 x 102 Lg w/7/8-14 FJIC.....	1
16	C14840	Connector - 3/4-16 MORB x 7/8-14 MJIC	2
17	K58600	Relief Valve.....	1
18	C18779	Hyd Hose - 1/2 x 72 Lg w/7/8-14 FJIC.....	1
19	S42969	Hyd Hose - 3/8 x 36 Lg w/ #6 9/16-18 FJIC.....	1
20	S47799	Hyd Hose - 3/8 x 60 Lg w/ #6 9/16-18 FJIC.....	1
21	N16143	90 Elbow - 9/16-18 (#06) MJIC x 9/16-18 (#06) MORB	1
22	C26436	Cylinder - 4 x 18 Lg	1
23	W-479	Hex Bolt - 3/8 x 2 1/4 Lg.....	3
24	M-3388	Locknut - 3/8 Unitorque.....	3
25	C-4698	Oil Line Clamp	4
26	D-5489	Washer - 13/32.....	6
27	K-5806	90 Elbow - Swivel - 7/8-14 MJIC x 7/8-14 FJIC	2
28	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB.....	1
29	N34646	90 Elbow - 7/8-14 MJIC x 1 1/16-12 MORB	1
30	N47903	Connector - 7/8-14 (#10) MJIC x 1 1/16-12 (#12) MORB.....	1
31	K50180	2 Way Selector Valve.....	1
32	D-5278	Locknut - 5/16 Unitorque.....	2
33	D-5653	Washer - 11/32 ID x 3/4 OD	2
34	N28332	Hex Bolt - 5/16 x 3 1/2 Lg.....	2

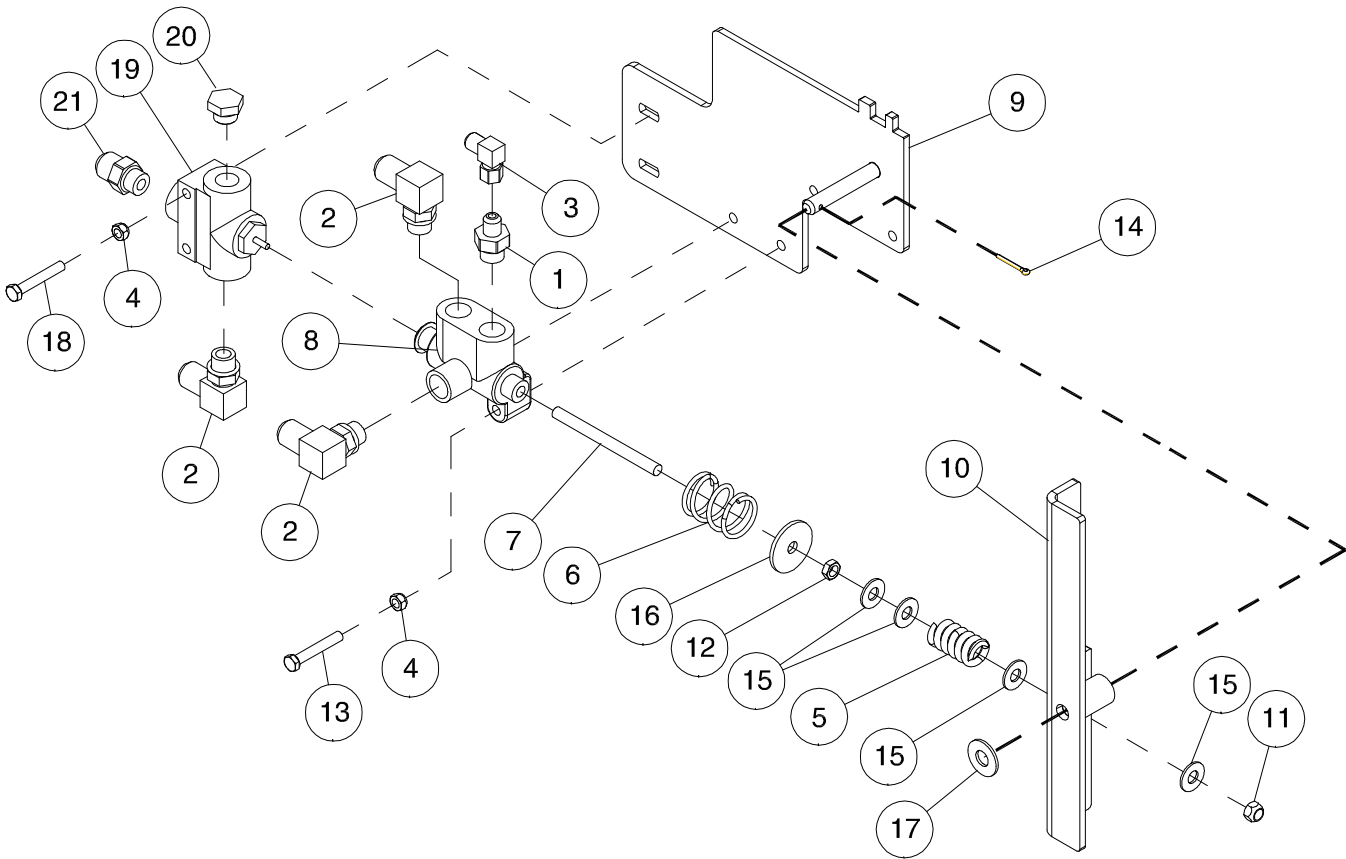
Hydraulics Cylinders



Hydraulics - Cylinders

Item	Part No.	Description	Qty
C26845 - 4 1/2 x 18 - CYLINDER			
1	C26848	Barrel - 4 1/2 x 18 ORB.....	1
2	C12836	Piston - 4 1/2 Dia - 1 Shaft.....	1
3	C26888	Gland - 4 1/2 Dia - 1 1/2 Shaft	1
4	C26890	Cylinder Shaft - 1 1/2 Dia x 25 7/8	1
5	C-2155	Collar - 4 1/2 Cylinder	1
6	C13282	1 1/8 OD x 1/16 C/S 90D BUNA O-Ring.....	1
7	C-2072	1 1/2 ID x 3/16 C/S 90D URTN Wiper	1
8	C-2071	1 1/2 ID x 3/8 C/S 90D URTN U-Cup.....	1
9	C-2164	4 1/2 OD x 3/16 C/S 90D BUNA O-Ring.....	2
10	C15387	Backup Washer - 4 1/2 Dia - #19-346	2
11	C-2215	3 7/8 OD x 1/16 C/S 70A BUNA-N O-Ring	1
12	C13763	Locknut - 1-14 UNS Unitorque	1
13	C26847	Part # Plate for C26845.....	1
	C26845	Cylinder Assembly (Includes All Above Items)	
	C26891	Seal Kit (Includes Items #6, 7, 8, 9, 10 & 11)	
C26436 - 4 x 18 - CYLINDER			
1	C26437	Barrel - 4 x 18 ORB.....	1
2	C16637	Piston - 4 Dia - 7/8 Shaft.....	1
3	C-2026	Gland - 4 Dia - 1 1/4 Shaft	1
4	C32025	Cylinder Shaft - 1 1/4 Dia x 25 7/8	1
5	C-2023	Collar - 4 Cylinder	1
6	C-2187	1 OD x 1/16 C/S 90D BUNA O-Ring.....	1
7	C-2007	1 1/4 ID x 3/16 C/S 90D URTN Wiper	1
8	C-2008	1 1/4 ID x 5/16 C/S 90D URTN U-Cup.....	1
9	C-2030	4 OD x 3/16 C/S 90D BUNA O-Ring.....	2
10	C15386	Backup Washer - 4 Dia - #342	2
11	C-2215	3 7/8 OD x 1/16 C/S 70A BUNA-N O-Ring	1
12	C-2017	Locknut - 7/8 UNF Unitorque	1
13	C26846	Part # Plate for C26436.....	1
	C26436	Cylinder Assembly (Includes All Above Items)	
	C20449	Seal Kit (Includes Items #6, 7, 8, 9, 10 & 11)	

Push Bar, Fork & Drive Selector Valve with Line Lock Valve



Item	Part No.	Description	Qty
1	C15348	Connector - 9/16-18 (#06) MJIC x 3/4-16 (#08) MORB.....	
2	C24585	90 Elbow - 7/8-14 MJIC x 3/4-16 MORB.....	3
3	S29967	90 Elbow - Swivel - 9/16-18 (#06) FJIC x 9/16-18 (#06) MJIC.....	1
4	D-5272	Locknut - 5/16 Unitorque.....	4
5	W-342	Spring - Compression - 9/16 ID x 1 OD x 1 13/16 Lg.....	1
6	K25655	Spring - 1.345 ID x 1.615 OD x 2.012 Lg.....	1
7	K25657	Threaded Rod - 3/8 x 4 1/2 Lg.....	1
8	K50180	2 Way Selector Valve.....	1
9	K59982	Valve Mount Plate.....	1
10	K55373	Valve Actuator.....	1
11	M-3388	Locknut - 3/8 Unitorque.....	1
12	W-514	Hex Nut - 3/8.....	1
13	S-1303	Hex Bolt - 5/16 x 2 Lg.....	2
14	W-528	Cotter Pin - 1/8 Dia x 1 Lg.....	1
15	W-538	Washer - 7/16 ID x 1 OD x 14 Ga.....	4
16	W14504	Washer - 13/32 ID x 1 3/4 OD x 10 Ga.....	1
17	S-766	Flatwasher - 1/2 ID x 1 1/4 OD x 13 Ga.....	1
18	J12217	Hex Bolt - 5/16 x 2 1/4 Lg.....	2
19	C28501	Line Lock Valve.....	1
20	C28505	Plug - 3/4 MORB.....	1
21	C14840	Connector - 7/8-14 MJIC x 3/4-16 MORB.....	1

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