ETERRA®

SICKLE BAR MOWER

Installation Instructions & Operators Manual

1: INTRODUCTION

Congratulations on choosing a Skid Steer Solutions Skid Sickle, Sickle Bar Mower. This mower has been designed to be a cost effective way to side mow vegetation less than 2 inches in diameter.

Read this Operator's Manual over carefully before operating or maintenance is performed on the double bar mower.

Become knowledgeable in Safety, Operation, Maintenance and Trouble Shooting information. This information is provided to ensure safe, trouble free operation and maintenance of the Skid Sickle.

2: SAFETY

This Safety Alert symbol means BE ALERT! ATTENTION! YOUR SAFETY IS INVOLVED!

This Safety Alert symbol is used throughout this Manual and on decals on your mower. When you see this symbol become alert to safety information and adhere to it to prevent injury or death.

SIGNAL WORDS

There are signal words that are used in conjunction with the safety alert symbol; these signal words have been selected using the following guidelines:

DANGER – An immediate and specific hazard WILL result in severe personal injury or death if the proper precautions are not taken.

WARNING – A specific hazard or unsafe practice which COULD result in severe personal injury or death if proper precautions are not taken.

CAUTION – Unsafe practices which could result in personal injury if proper practices are not taken, or as a reminder of good safety practices.

You as the owner of a Skid Steer Solutions, Skid Sickle are responsible for its safe operation and maintenance. You need to make sure anyone working with, maintaining or working around the mower is familiar with the operation and maintenance of the unit. Be alert, know all safety information in this manual and adhere to safety practices at all times.

Remember a safe operator is the key to avoiding most accidents. Most accidents can be avoided by – THINKING SAFETY AND WORKING SAFELY.

2.1 GENERAL SAFETY

1. Read, study and understand your Operator's Manual. Understand all safety symbols before operating or maintaining the mower.
2. Never operate this machine in an area with people present.
3. After maintaining or adjusting, make sure all tools and foreign objects are removed.
4. Review all safety rules with all operators just prior to when the season starts.
5. Use only Skid Steers equipped with a roll over protection system (ROPS) and fasten your seat belt before operation.
6. Stop Skid Steer, set park brake and remove the key from ignition. Make sure all moving parts have been stopped before dismounting your Skid Steer for any reason.
7. Make sure all guards and shields are properly installed and secure.

2.2 OPERATION SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting or unplugging.
2. Do not allow riders on the mower or Skid Steer during field operation or transport.
3. Install and secure all guards and shields before starting and operating.
4. Do not operate a PTO driven system unless the required guards and shields are in place and secured.
5. Never wear ill-fitting, baggy or frayed clothing when working around or on any of the drive system components.
6. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
7. Never operate the machine inside a closed building.
8. Stop Skid Steer engine, place hydraulic controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
9. Ensure that all Skid Steer controls are in neutral before starting.
10. Clear the area of all bystanders, especially children, before starting.
11. Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a high-pressure leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or line.
12. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are not damaged.
13. Take care when working on steep ground, particularly when turning, and especially with mounted mowers.
14. Stay away from overhead obstructions and power lines during set-up and operation. Electrocution can occur without direct contact.
15. Review all safety instructions annually.

2.3 MAINTENANCE SAFETY

1. Review the Operator's Manual and all related Maintenance, Operating and SAFETY information annually with all personnel who will be working with, maintaining or operating the Mower.
2. Stop Skid Steer engine, disengage PTO clutch, place hydraulic controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Be careful when working around or maintaining high-pressure hydraulic systems. Wear proper eye and hand protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or steel line.
4. Before applying pressure to a hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are not damaged.
5. Seek immediate medical attention if a high-pressure concentrated stream of hydraulic fluid pierces the skin, as a toxic reaction and infection could develop.
6. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
7. Never wear ill-fitting, baggy or frayed clothing when working around or on any of the drive system components.
8. Wear protective gloves when changing or performing maintenance on the knife (sickle).
9. Make sure that all guards and shields are properly installed and secured before operating the Mower.
10. Clear the area of all bystanders, especially children, when carrying out any maintenance or making adjustments on the systems components.

11. Place stands or blocks under the frame before working beneath the mower. Heavy parts may also need supporting, for example, support axles when changing wheel bearings.
12. Lower bars to ground before servicing, adjusting or repairing the machine.

Think SAFETY! Work SAFELY!

2.4 HYDRAULIC SAFETY

1. Always place all Skid Steer hydraulic controls in neutral before dismounting.
2. Make sure that all components in the hydraulic system are kept in good condition and are clean.
3. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
4. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
5. Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.
6. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
7. Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.

Think SAFETY! Work SAFELY!

2.5 TRANSPORT SAFETY

1. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Mower in the field or on the road.
2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Do not allow riders on any parts of the machine during either field operation or road and highway travel.
4. Attach the mower to the Skid Steer using the skid mounting plate. Always use warning flashers (hazard) on the Skid Steer when transporting unless prohibited by law.
5. Always position mower in transport mode to narrow mower up as much as possible. Be aware, the mower is 7 + feet wide when in transport mode.

2.6 STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play around the stored unit.
3. Make sure bar is either lowered to the ground or secured with the bar stay rod in the up position.
4. Lower the hydraulic cylinder to its down position.

2.7 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion, which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.
4. Avoid changing a tire where traffic is moving. An unobservant motorist could hit you.

2.8 SAFETY DECALS

1. Be sure to keep safety decals clean and legible.
2. Safety decals that are missing or illegible should be replaced immediately.
3. Safety decals are available at your Skid Steer Solutions dealer parts department.

2.9 SIGN-OFF FORM

Skid Steer Solutions feels that all people who own or operate the this Mower need to read and clearly understand all safety operating and maintenance information present in this manual.

Before season start up, it is very important that everyone review this information to re-familiarize them selves with the information.

It is a good idea to review owners and operators manuals on all your equipment with your employees annually. This keeps safety in the minds of your employees at all times.

Below is a sign-off sheet for owners and employees who will be operating and maintaining the equipment. This provides you a record that the owner's manual has been read and understood.

DATE	EMPLOYEE SIGNATURE	EMPLOYEE SIGNATURE

3: OPERATION

3.1 INTRODUCTION

The Skid-Sickle was designed to side mow brush material the most efficient and economical way possible. Many features present in the Skid-Sickle were suggestions by our customers. We encourage further suggestions to better serve you, the customer. The Owner's Manual is designed to help you be a safe and knowledgeable operator of this mower. With proper maintenance your Skid-Sickle will provide many years of trouble free service. For sake of discussion in this manual, machine orientation will be as follows-right hand, left hand, and forward designations are those related to the operator when in operating position.

3.2 MACHINE OPERATION

The Skid-Sickle is a hydraulically driven sickle bar mower consisting of a mower bar mounted on a forward skid steer mounted frame. The mower is powered by connecting directly into the Skid Steer hydraulic system. The Skid Steer hydraulics provides the oil flow necessary to operate the hydraulic motor on the SCH Pitmanless planetary gearbox. The minimum hydraulic system requirements should be 10GPM at 900PSI. Be sure to maintain proper system filtration. The gearbox has a single over-stroke design and strokes 3-3/8" long. The sickle bar is raised and lowered by a single acting hydraulic cylinder. Each function is actuated by a frame mounted solenoid control valve. This solenoid valve is controlled with a machine mount switch. In the normal position, all of the flow is diverted to the sickle head when the auxiliary flow control is turned on from the skid steer. When the switch control is depressed, the solenoid is energized and allows flow to be diverted to the tilt cylinder. By changing the direction of flow on the main control in the skid steer, the tilt cylinder will raise or lower the sickle to the desired angle of cut.

Operating safety

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, or unplugging.
2. Do not allow riders on the Skid Steer or Mower.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
5. Stop Skid Steer engine, disengage PTO clutch, place in hydraulic controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Ensure that all Skid Steer controls are in neutral before starting.
7. Clear the area of all bystanders, especially children, before starting.
8. Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a leak. Use a piece of wood or cardboard as a backstop.
9. Stay away from overhead obstructions and power lines during set-up and operation.

3.3 PRE-OPERATION CHECKLIST

The Skid Steer Solutions Skid-Sickle is simply designed to ensure years of trouble free use. A poorly maintained machine is an invitation to expenses and trouble.

We recommend that before operation that this checklist be followed to ensure trouble free operation.

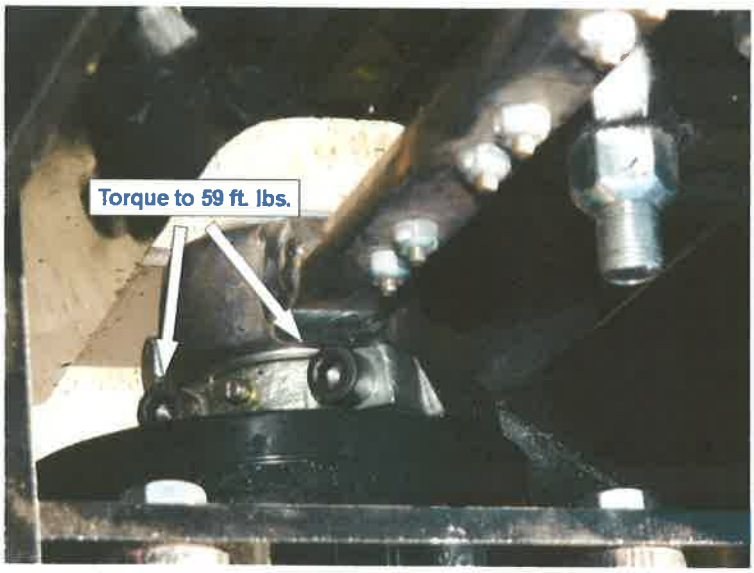
1. Carefully study and understand your owner's manual.
2. Give the machine a "once-over" for any loose bolts, worn parts, cracked welds, hydraulic leaks, frayed hoses etc. and make necessary repairs.
3. Be sure that there are no tools lying on or in the machine.
4. Lubricate the machine as per the maintenance section.
5. Make sure all hoses are clear of cuts, abrasions, worn spots and pinch points before operating.
6. Check the tire pressure and make sure they are inflated to their recommended pressures. (see side of tire)
7. Check all shields make sure they are in place and properly secured.
8. Check all PTO shields; make sure they are free to turn around the drive shaft. Never operate any equipment without shields in the place.
9. Connect to skid steer.

3.3.5 ELECTRICAL CONNECTIONS

Begin with the wire that has the plug matching the wire plug that comes from the Skid-Sickle. Start at the couplers and follow the hydraulic lines into the engine compartment, to an area close to the source of power (battery). You might have more wire than you need, so coil up extra and tie out of the way. Tie switch to lever and feed wire into engine compartment connecting to a 12-volt power source. Red Positive +, Black Negative -. (Note, if you feed wire through rubber grommets around control levers make sure wire is not pinched when using your levers.) Plug Switch wire into wire that was left near your power source. Test rotation action. If you have any problems check all connections.

3.4 MACHINE RUN-IN

1. The Skid Steer Solutions Skid-Sickle has been pre-lubricated from the factory and therefore lubrication is not necessary when 1st purchased.
2. Give the machine a "once over" before the initial machine start up. Look for any loose bolts, hydraulic leaks, or damaged parts that may have happened in transportation or set-up.
3. Attach the sickle bar to the inner shoe. Locate the three 5/8"shouldered lug bolts protruding up from the bottom of the inner shoe. Remove the 3 nuts, place the bar onto and over the bolts and allow the bar to settle into the shoe. Replace and tighten the nuts. As the nuts draw the bar into the shoe some resistance will be felt until the bar seats properly. Torque the 5/8" nuts to 170 ft-lbs. each.
4. Assemble the knife (sickle) to the gearbox drive. Remove the spud from the output side of the gearbox. Use the 3/8" allen wrench supplied. Loosen the cross bolt on the knife head and push the spud through the knife head. Rotate the gearbox until the wedge attachment is in-line with the bar. From the side of the gearbox opposite the bar, slide the knife under the gearbox into the bar. The knife will slide into and through the guards and hold-downs. Slide the knife (with the spud in place) past the wedge connection on the gearbox, raise the knife head slightly and push back into the wedge connection on the gearbox. SEE additional assembly instructions using alignment bolts provided at the end of this manual. Connect the spud to the wedge connection with the allen head bolts provided. **REMEMBER** to **TORQUE** these bolts to **59 FT-LBS**. See decal on inner shoe. This is critical for the proper performance of the mower drive. **DO NOT ALLOW THIS CONNECTION TO BECOME LOOSE. DAMAGE TO THE GEARBOX WILL RESULT. RESULTING DAMAGE IS NOT COVERED UNDER WARRANTY.** Check torque on these bolts after 1 hour of operation. Position the knife to ride smoothly on the lower edge of the first guard next to the inner shoe by moving the knife head up or down on the spud. Retighten the cross bolt.



5. Attach hydraulic hoses from the hydraulic solenoid on the gearbox to the Skid Steer hydraulic remotes.
6. Start the Skid Steer and operate the Skid-Sickle cylinder lift. Raise and lower the bar, check for smooth operation. Operate the Skid Steer hydraulics to the hydraulic motor on the gearbox. Slowly bring Skid Steer to operating RPM. Check for smooth operation. Make sure all people, children and animals are away from the machine as the cutting areas are exposed and serious injury could occur. ***Never operate this machine when people are present.
7. After the initial machine run-in, give the machine a "once over" again to ensure proper setup.

3.5 EQUIPMENT MATCHING

1. The Skid Steer Solutions Skid-Sickle is designed for use with a Skid Steer of 25 hp or more.
2. Auxiliary Hydraulic Connections are required to operate the bar lift.
3. Auxiliary Hydraulic Connections are required to operate the hydraulic motor on the Hydro units. Minimum hydraulic requirements include 10GPM at 900PSI.
4. Make sure your Skid Steer complies with the State and Local laws governing highway safety and movement of farm equipment on public roads. The Skid Steer needs to be equipped with a roll over protection system and seat belts.

3.5.5 USES

1. The Skid-Sickle was designed for side cutting any vegetation 2" or less in diameter. This can include trimming hedges, ditch clearing on road-sides, vertical cuts along driveways where vegetation may have grown out over the path. Care must be exercised when operating to insure you do not run the sickle into fixed objects. If you hit a fixed object, the safety will release and must be reset before cutting commences. Put the sickle head on the ground and reverse the skid steer. The release bar will reset. You can now start cutting again. Take care when working on steep ground, particularly when tuning. Stay away from overhead obstructions and power lines during operation.

3.6 TRANSPORTING

1. Always obey State and Local laws for farm equipment safety on roads.
2. Always use a slow moving vehicle emblem.
3. Never allow riders on the Skid Steer or implement.
4. Always narrow up equipment to its transport mode for moving down the road.
5. Always use Skid Steer flashers when transporting.
6. Always couple the brakes together when transporting equipment at road speed.
7. There is a stay rod stored on the main skid frame. It is colored black and has a plated handle nut on one end. This stay rod is used to stabilize the sickle bar in the transport position. This is accomplished by connecting the end of the stay rod with the hook into the anchor located on the inner shoe. This anchor looks like a flat washer welded vertically onto the shoe positioner. With the sickle bar in the near vertical position remove the handle nut from the stay rod and push the threaded end of the stay rod through the nearest hole on the black sickle bar. Thread the handle nut onto the rod. **REMEMBER** – Do not operate any of the hydraulics on the unit with the stay rod in position.

3.7 STORAGE

1. Park implement on a flat location to avoid rolling of equipment. Lower leg stands and set 3-point mounted unit on level ground surface.
2. Store with the bar either tied up with the stay rod or lowered to the ground. Lower the hydraulic cylinder so that it is not holding up the bars and shield assembly.
3. Tie up hydraulic hoses to prevent contamination to the hydraulic system.
4. After the season apply 10 to 15 shots of grease to the gearbox housing and 2 shots to the knifehead bearing and run for a few minutes. (See Lubrication Methods)
5. Park equipment in an area away from livestock or human activity.

4: MAINTENANCE AND LUBRICATION

1. Before performing any maintenance review the operators manual for all safety information.
2. Never operate this machine inside a closed building.
3. Keep hands, feet and loose clothing away from all moving parts.
4. Ensure that all Skid Steer controls are in neutral before starting.
5. Seek medical attention if you contact high-pressure hydraulic fluid, which pierces the skin as infection can occur.
6. Seek medical attention if hydraulic oil enters your eyes.
7. Never place your self between pinch points when working on the Skid-Sickle.
8. Be Safe! Work Safe! Think Safe!

4.1 GREASING

Use SAE multi-purpose lithium based grease for all grease fittings.
Do Not use anything but the above in the Pro-drive Gearbox. Synthetic or high heat greases will not flow properly in the gearbox and will damage the gearbox.

5: LUBRICATION METHODS

5.1 GREASING

1. Use only hand pump grease guns.
2. Clean all grease fittings before greasing to prevent dirt from entering the bearings.
3. Replace broken or missing fittings immediately.
4. If a fitting will not take grease, remove fitting and clean. Replace fitting and grease. If fitting still will not take grease, replace with a new fitting.
5. Grease main gearboxes every 50 hours with 5 pumps of grease from a hand grease gun. See decal on inner shoe. The torque of the knifehead bolts should be checked every time grease is applied.
6. Grease bottom drive spud every 50 hours with 1 pump of grease from a hand grease gun. When cutting green juicy material grease 1 pump daily. See decal on inner shoe.
7. Grease all ¾" ball pivot joints 1 pump every 8 hours of operation.
8. At the end of the season place 1 pump of grease at each location. Operate the mower to ensure grease is evenly placed.

6. ADJUSTMENTS

6.1 BAR TILT
Bar tilt adjustments are made by tipping the skid plate forward or backward with the skid steer hydraulics.

6.2 BAR LEAD
Bar lead is adjusted by loosening the 1 ¼" jam nut on the breakaway, taking the ¾ " X 3" bolt out of the ball socket on the shoe end of the breakaway. Rotate the whole breakaway assembly counter clockwise for more bar lead or clockwise for less bar lead. Replace the bolt and tighten, then tighten the jam nut. The outer end of the bar should be ahead of the inner end of the bar by about 1 ½" to 2" (non-cutting position).

6.4 FRAME HEIGHT ADJUSTMENT
Carry the Skid-Sickle frame as low to the ground or as conditions permit. Height of the mower frame is adjusted by raising or lowering the skid steer main lift arms With the height of the frame set, you may find it necessary to adjust the lift spring assembly on the bar lift. To check lay the sickle bar flat on the ground with the lift cylinder fully contracted. If there is tension in the chain adjust the clevis to allow the chain to be loose. Lift the sickle bar into transport position. The bar should be between 85 and 90 degrees from horizontal in this position.

6.5 SPRINGBACK ASSEMBLY
When an obstruction is encountered, the cutter bar will pivot back against the spring cushion to absorb the shock. The operator must be alert and stop the forward motion of the mower. Reversing the direction of the mower will reset the springback. The tension on the springback is factory set. No adjustment should be necessary.

6.6 WEAR ADJUSTMENTS
All cutting areas are factory set. Adjustments to these components are necessary as wear progresses. Do not hammer or bend down the lips of the guards. This practice may damage the knife. Replace guards as they wear, Replace the knife (sickle) as required by cutting conditions. A clearance of 0.010" should be maintained between the knife clips and the top of the knife.

6.7 BAR FLOAT
The bar float is factory set.

General Support: Warranty Information

Skid Steer Solutions, Inc.'s Limited Product Warranty
If you find physical defects in the materials or the workmanship used in making the product described in this document, Skid Steer Solutions, Inc. will repair, or at its option, replace, the product at no charge to you, provided you return it (freight prepaid, with proof of your purchase from the original reseller) during the 6-month period after the date of your original purchase of the product.

Skid Steer Solutions, Inc.'s RMA Replacement Product Warranty
If you find physical defects in the materials or the workmanship used in the refurbishment of an RMA product replacement, we will repair, or at our option replace, the product at no charge to you for a period of 90-days from the date the RMA was created, or until the end of your original warranty period (whichever is greater).

Skid Steer Solutions, Inc.'s Refurbished Product Warranty
If you find physical defects in the materials or the workmanship used in a product sold as a refurbished unit, we will repair, or at our option replace, the product at no charge to you for a period of 90-days from the date of purchase.

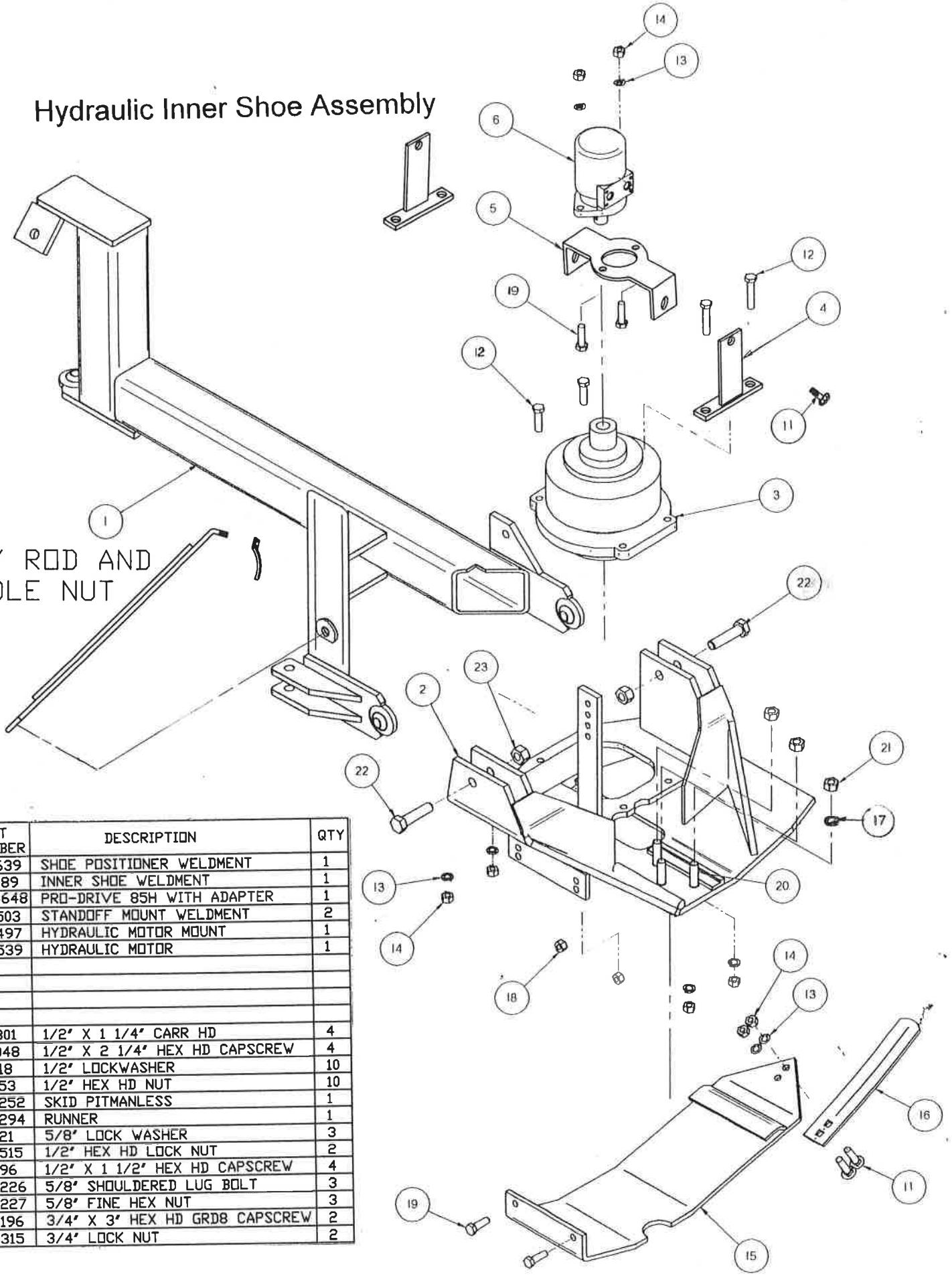
SKID STEER SOLUTIONS WARRANTS THAT THE EQUIPMENT DELIVERED BY SELLER WILL BE OF THE KIND AND QUALITY DESCRIBED IN THE ORDER OR CONTRACT AND WILL BE FREE FROM DEFECTS IN WORKMANSHIP OR MATERIAL. SHOULD ANY FAILURE TO CONFORM WITH THIS WARRANTY OCCUR, AND THE BUYER HAVING GIVEN WRITTEN NOTICE TO SELLER WITHIN 180 DAYS FROM THE DATE OF SHIPPING, SELLER SHALL CORRECT SUCH NONCONFORMITY AT ITS OPTION BY EITHER REPAIRING THE DEFECTIVE PART OR PARTS OR MAKING AVAILABLE F.O.B. AT SELLERS LOCATION A REPAIR OR REPLACEMENT PART.

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. CORRECTION AND NONCONFORMITIES IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITIES OF SELLER TO BUYER, WHETHER BASED ON CONTRACT, NEGLIGENCE OR OTHERWISE RESPECT TO OR ARISING OUT OF SUCH GOODS.

NEITHER PARTY SHALL BE LIABLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES. THE REMEDY SET FORTH IN THIS INSTRUMENT ARE EXCLUSIVE, AND THE LIABILITY OF SELLER WITH RESPECT TO ANY CONTRACT OR SALE OF ANYTHING DONE IN CONNECTION WITH THE SAME, WHETHER IN CONTRACT, IN TORT, UNDER WARRANTY, OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE GOODS OR PART UPON WHICH SUCH LIABILITY IS ALLEGEDLY BASED.

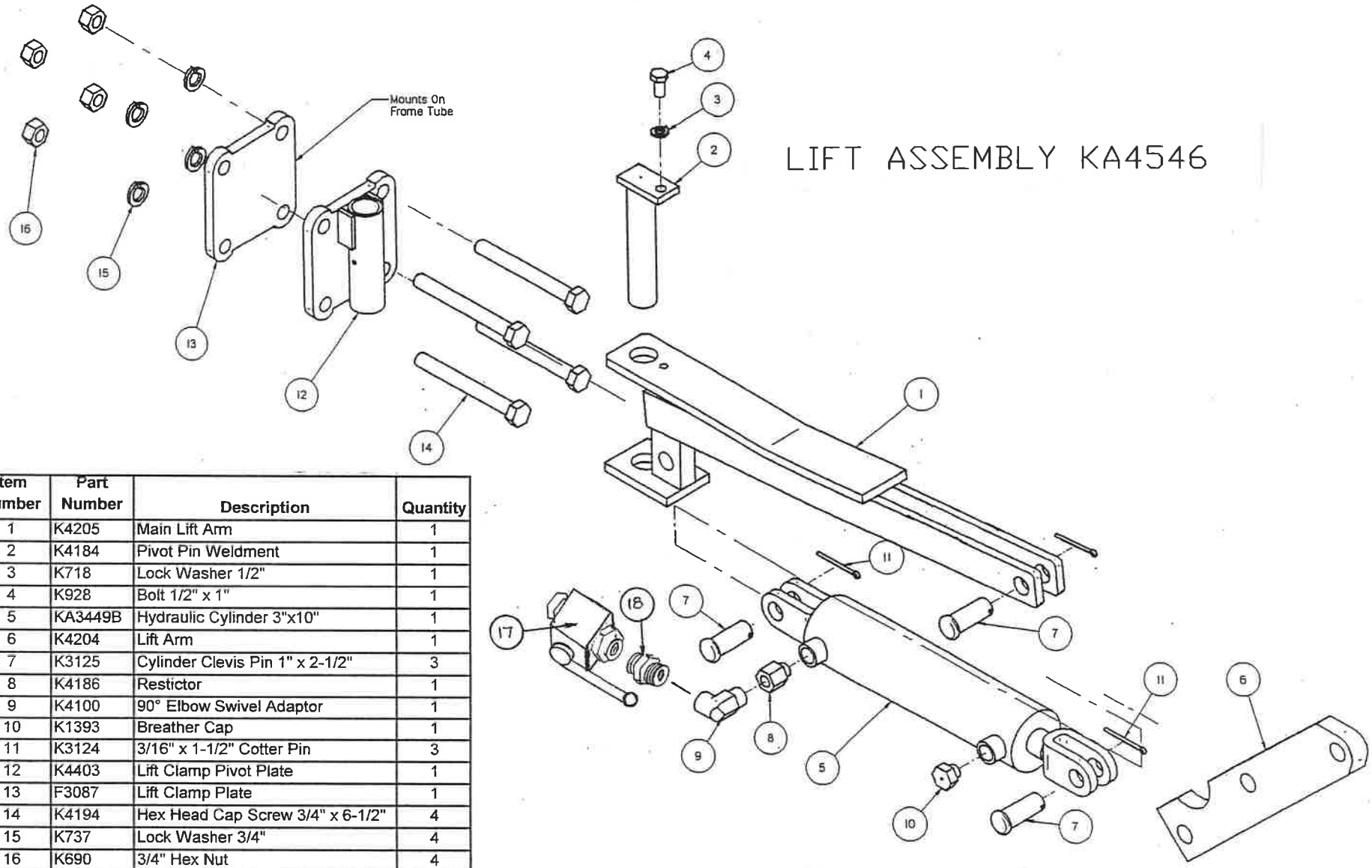
All exclusions and limitations of this warranty are made only to the extent permitted by applicable law and shall be of no effect to the extent in conflict with the express requirements of applicable law.

Hydraulic Inner Shoe Assembly



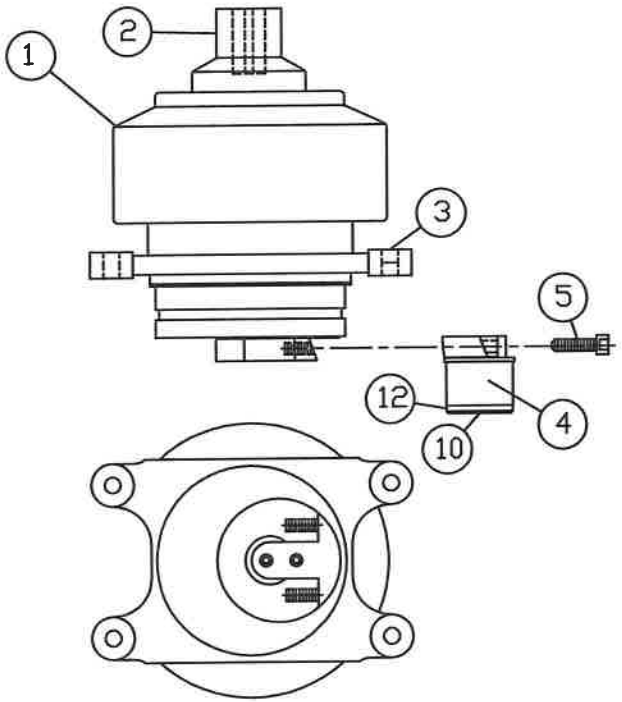
ITEM	PART NUMBER	DESCRIPTION	QTY
1	K4639	SHOE POSITIONER WELDMENT	1
2	K4189	INNER SHOE WELDMENT	1
3	KA4648	PRO-DRIVE 85H WITH ADAPTER	1
4	K4503	STANDOFF MOUNT WELDMENT	2
5	K4497	HYDRAULIC MOTOR MOUNT	1
6	K4539	HYDRAULIC MOTOR	1
7			
8			
9			
10			
11	K1801	1/2" X 1 1/4" CARR HD	4
12	K1048	1/2" X 2 1/4" HEX HD CAPSCREW	4
13	K718	1/2" LOCKWASHER	10
14	K653	1/2" HEX HD NUT	10
15	K4252	SKID PITMANLESS	1
16	K4294	RUNNER	1
17	K721	5/8" LOCK WASHER	3
18	K2515	1/2" HEX HD LOCK NUT	2
19	K696	1/2" X 1 1/2" HEX HD CAPSCREW	4
20	K4226	5/8" SHOULDERED LUG BOLT	3
21	K4227	5/8" FINE HEX NUT	3
22	K4196	3/4" X 3" HEX HD GRD8 CAPSCREW	2
23	K3315	3/4" LOCK NUT	2

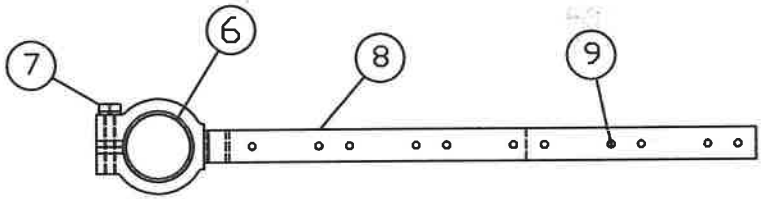
LIFT ASSEMBLY KA4546



Item Number	Part Number	Description	Quantity
1	K4205	Main Lift Arm	1
2	K4184	Pivot Pin Weldment	1
3	K718	Lock Washer 1/2"	1
4	K928	Bolt 1/2" x 1"	1
5	KA3449B	Hydraulic Cylinder 3"x10"	1
6	K4204	Lift Arm	1
7	K3125	Cylinder Clevis Pin 1" x 2-1/2"	3
8	K4186	Restictor	1
9	K4100	90° Elbow Swivel Adaptor	1
10	K1393	Breather Cap	1
11	K3124	3/16" x 1-1/2" Cotter Pin	3
12	K4403	Lift Clamp Pivot Plate	1
13	F3087	Lift Clamp Plate	1
14	K4194	Hex Head Cap Screw 3/4" x 6-1/2"	4
15	K737	Lock Washer 3/4"	4
16	K690	3/4" Hex Nut	4
17	K4775	3/8" Ball Valve	1
18	K4776	3/8"x1/2" Hex Nipple	1

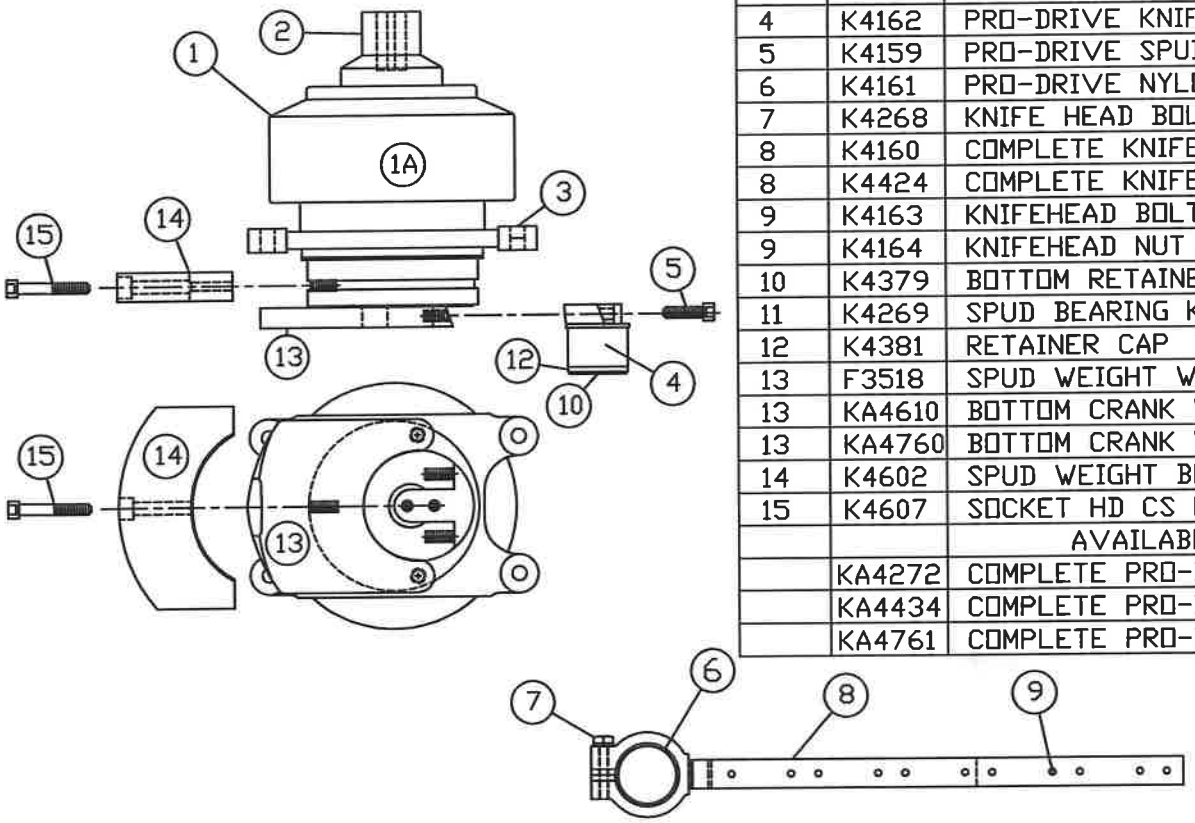
PRO-DRIVE KNIFE DRIVE
7 FT SKID STEER MOWER





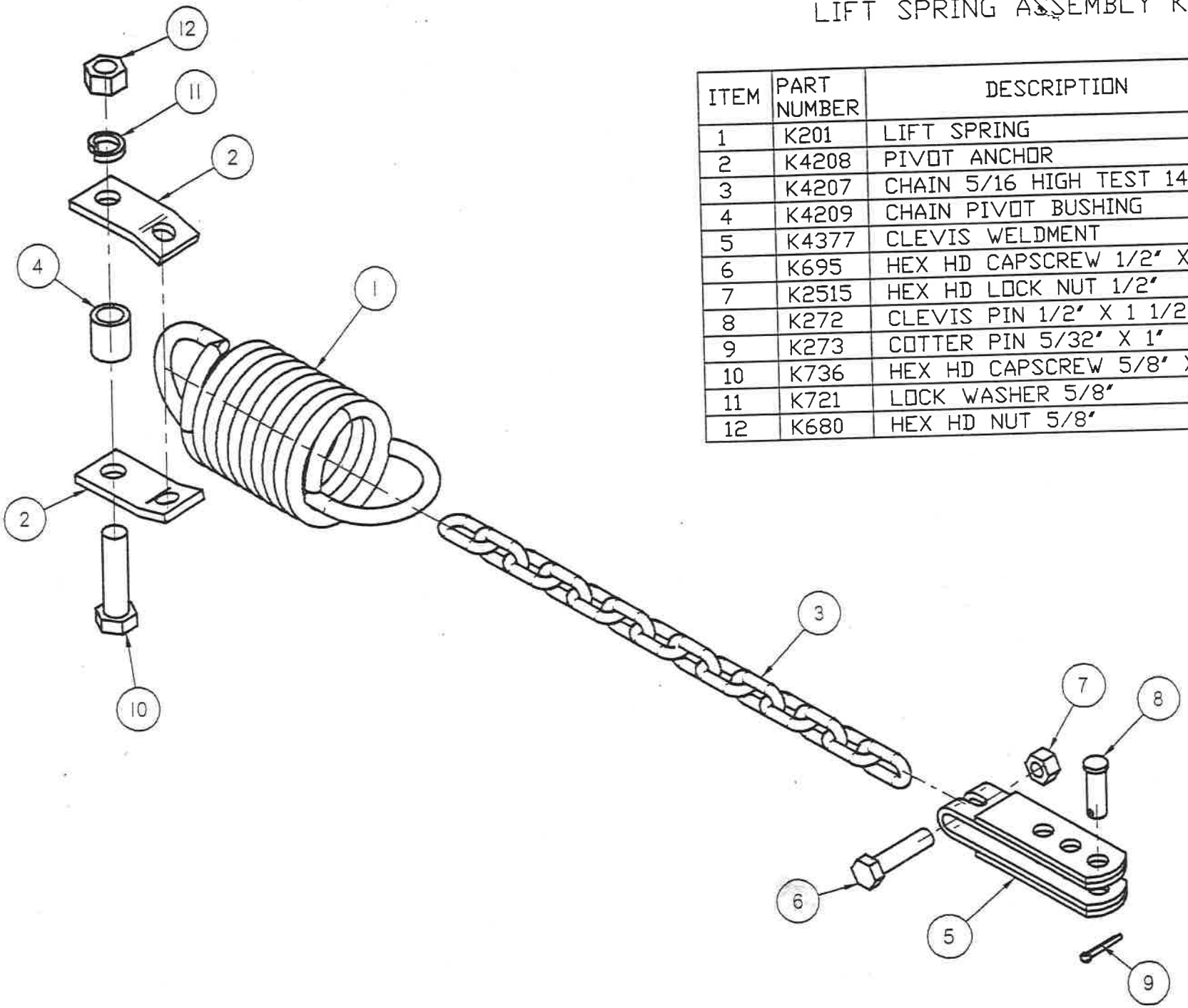
ITEM	PART NUMBER	DESCRIPTION	QTY
1	KA4756	H GEARBOX LESS ADAPTER (2011)	1
2	K4274	HORIZONTAL FIXED ADAPTER	1
3	K1048	1/2" X 2 1/4" HHC	4
3	K653	1/2" HEX HD NUT	4
3	K718	1/2" LOCK WASHER	4
4	K4162	PRO-DRIVE KNIFE SPUD	1
5	K4159	PRO-DRIVE SPUD BOLT M10X35MM ALHD	2
6	K4161	PRO-DRIVE NYLON INSERT	1
7	K4268	KNIFE HEAD BOLT M10 X 45MM ALHD	1
8	K4424	COMPLETE KNIFEHEAD 10-BOLT	1
9	K4163	KNIFEHEAD BOLT	10
9	K4164	KNIFEHEAD NUT	10
10	K4379	BOTTOM RETAINER BOLT M10X20MM ALHD	1
11	K4269	SPUD BEARING KIT	1
12	K4381	RETAINER CAP	1
		AVAILABLE ASSEMBLIES	
	KA4757	H GEARBOX COMPLETE LESS WT (2011)	1

PRO-DRIVE KNIFE DRIVE
9 FT SKID STEER MOWER



ITEM	PART NUMBER	DESCRIPTION	QTY
1	KA4273	PRO-DRIVE 130H LESS ADAPTER	1
1	KA4432	PRO-DRIVE 85H LESS ADAPTER (2004)	1
1	KA4761	H GEARBOX COMPLETE WITH WT (2011)	1
1A	K4548	FLYWHEEL (2004)	1
1A	K4758	FLYWHEEL (2011)	1
2	K4274	HORIZONTAL FIXED ADAPTER	1
3	K1048	1/2" X 2 1/4" HHC	4
3	K653	1/2" HEX HD NUT	4
3	K718	1/2" LOCK WASHER	4
4	K4162	PRO-DRIVE KNIFE SPUD	1
5	K4159	PRO-DRIVE SPUD BOLT M10X35MM ALHD	2
6	K4161	PRO-DRIVE NYLON INSERT	1
7	K4268	KNIFE HEAD BOLT M10 X 45MM ALHD	1
8	K4160	COMPLETE KNIFEHEAD 11-BOLT THRU2003	1
8	K4424	COMPLETE KNIFEHEAD 10-BOLT	1
9	K4163	KNIFEHEAD BOLT	11,10
9	K4164	KNIFEHEAD NUT	11,10
10	K4379	BOTTOM RETAINER BOLT M10X20MM ALHD	1
11	K4269	SPUD BEARING KIT	1
12	K4381	RETAINER CAP	1
13	F3518	SPUD WEIGHT WELD-ON	1
13	KA4610	BOTTOM CRANK W/BALANCED WT (2004)	1
13	KA4760	BOTTOM CRANK W/BALANCED WT (2011)	1
14	K4602	SPUD WEIGHT BOLT-ON	1
15	K4607	SOCKET HD CS M10-12.9 X 70MM ALHD	1
		AVAILABLE ASSEMBLIES	
	KA4272	COMPLETE PRO-DRIVE 130H(PRIOR 2004)	1
	KA4434	COMPLETE PRO-DRIVE 85H (2004)	1
	KA4761	COMPLETE PRO-DRIVE 85H (2011)	1

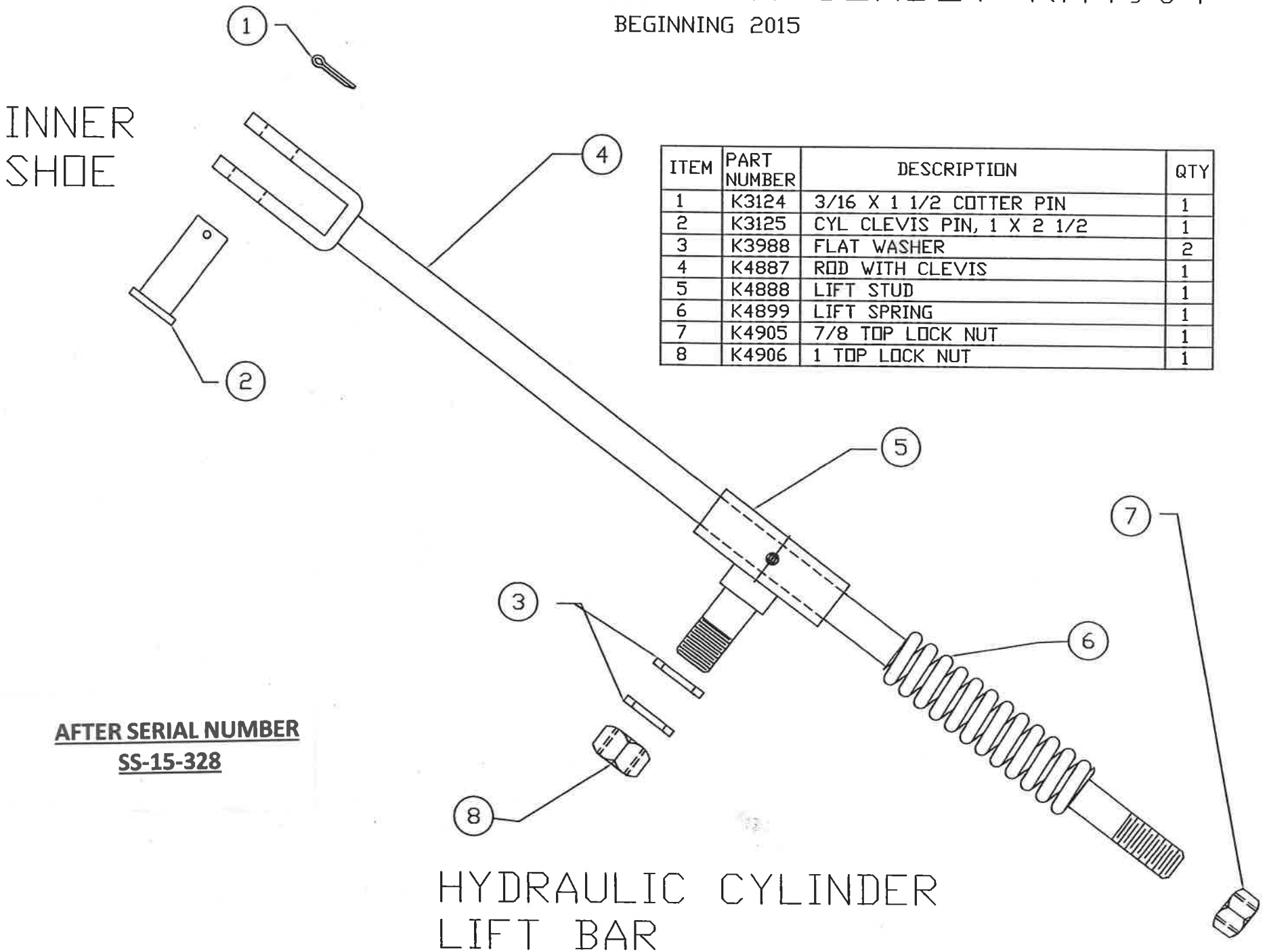
LIFT SPRING ASSEMBLY KA4211



ITEM	PART NUMBER	DESCRIPTION	QTY
1	K201	LIFT SPRING	1
2	K4208	PIVOT ANCHOR	2
3	K4207	CHAIN 5/16 HIGH TEST 14 LINKS	1
4	K4209	CHAIN PIVOT BUSHING	1
5	K4377	CLEVIS WELDMENT	1
6	K695	HEX HD CAPSCREW 1/2" X 2"	1
7	K2515	HEX HD LOCK NUT 1/2"	1
8	K272	CLEVIS PIN 1/2" X 1 1/2"	1
9	K273	COTTER PIN 5/32" X 1"	1
10	K736	HEX HD CAPSCREW 5/8" X 2 1/2"	1
11	K721	LOCK WASHER 5/8"	1
12	K680	HEX HD NUT 5/8"	1

SHOE LIFT ASSEMBLY KA4904

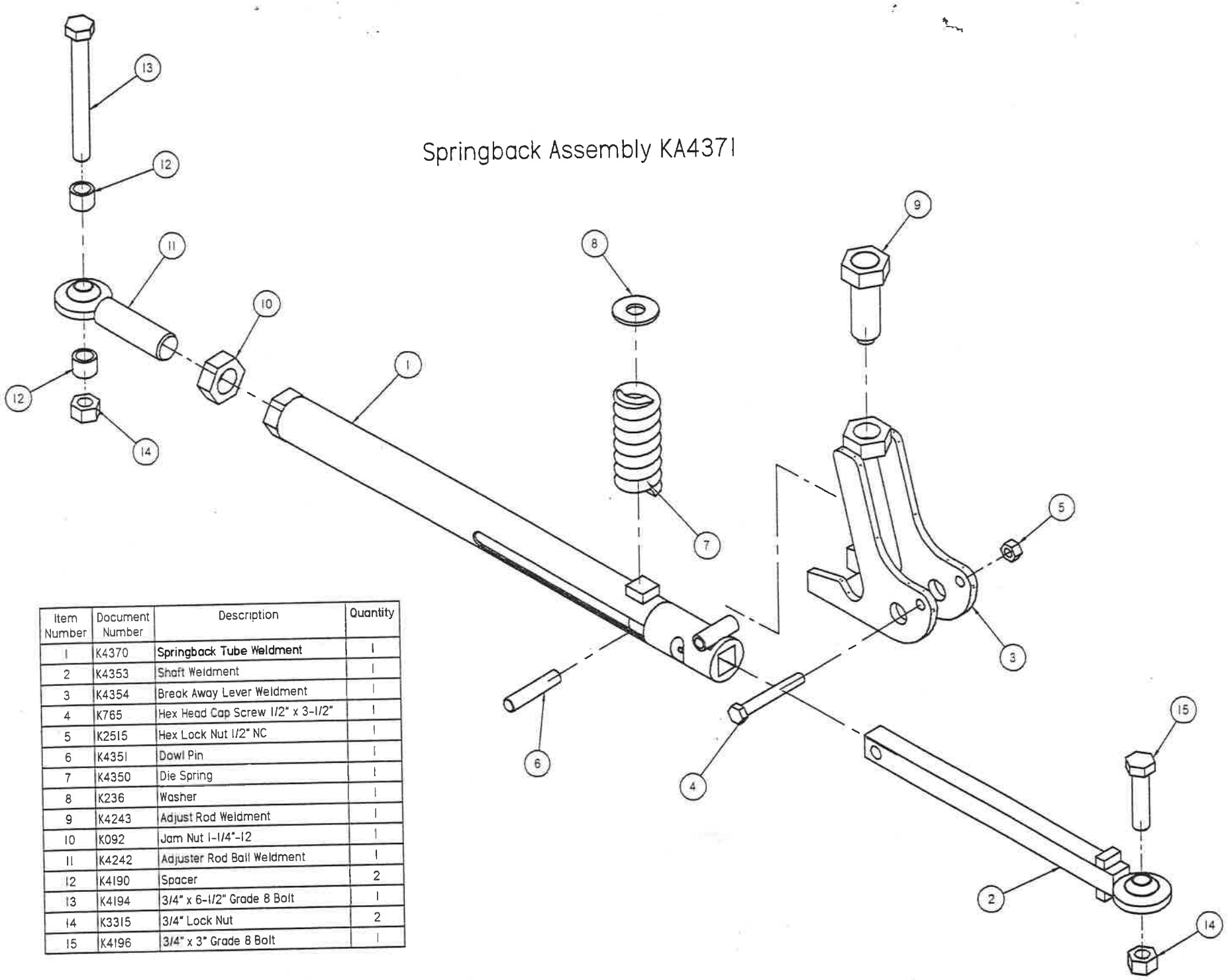
BEGINNING 2015



ITEM	PART NUMBER	DESCRIPTION	QTY
1	K3124	3/16 X 1 1/2 COTTER PIN	1
2	K3125	CYL CLEVIS PIN, 1 X 2 1/2	1
3	K3988	FLAT WASHER	2
4	K4887	ROD WITH CLEVIS	1
5	K4888	LIFT STUD	1
6	K4899	LIFT SPRING	1
7	K4905	7/8 TOP LOCK NUT	1
8	K4906	1 TOP LOCK NUT	1

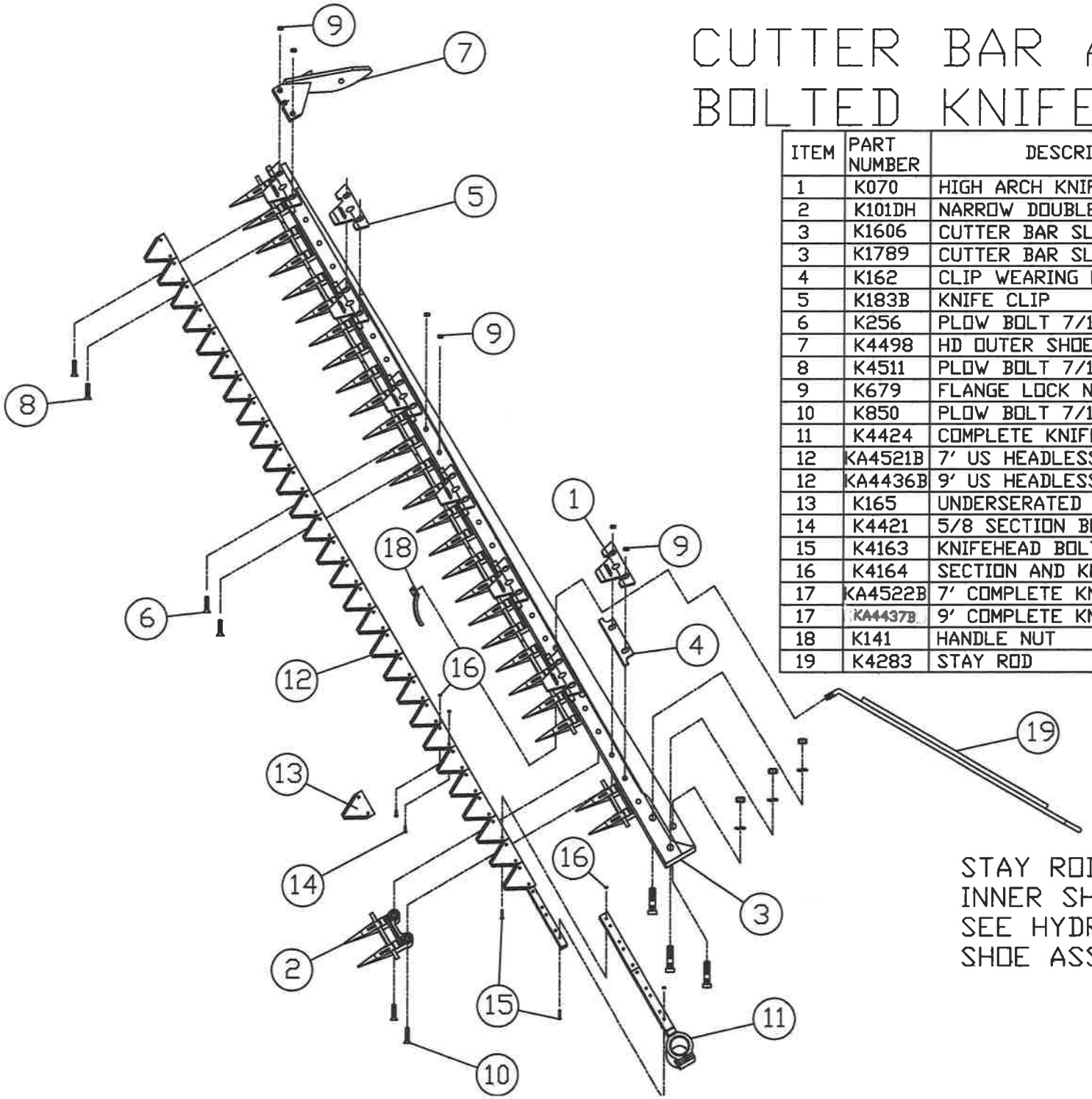
AFTER SERIAL NUMBER
SS-15-328

Springback Assembly KA4371



Item Number	Document Number	Description	Quantity
1	K4370	**Springback Tube Weldment**	1
2	K4353	Shaft Weldment	1
3	K4354	Break Away Lever Weldment	1
4	K765	Hex Head Cap Screw 1/2" x 3-1/2"	1
5	K2515	Hex Lock Nut 1/2" NC	1
6	K4351	Dowl Pin	1
7	K4350	Die Spring	1
8	K236	Washer	1
9	K4243	Adjust Rod Weldment	1
10	K092	Jam Nut 1-1/4"-12	1
11	K4242	Adjuster Rod Ball Weldment	1
12	K4190	Spacer	2
13	K4194	3/4" x 6-1/2" Grade 8 Bolt	1
14	K3315	3/4" Lock Nut	2
15	K4196	3/4" x 3" Grade 8 Bolt	1

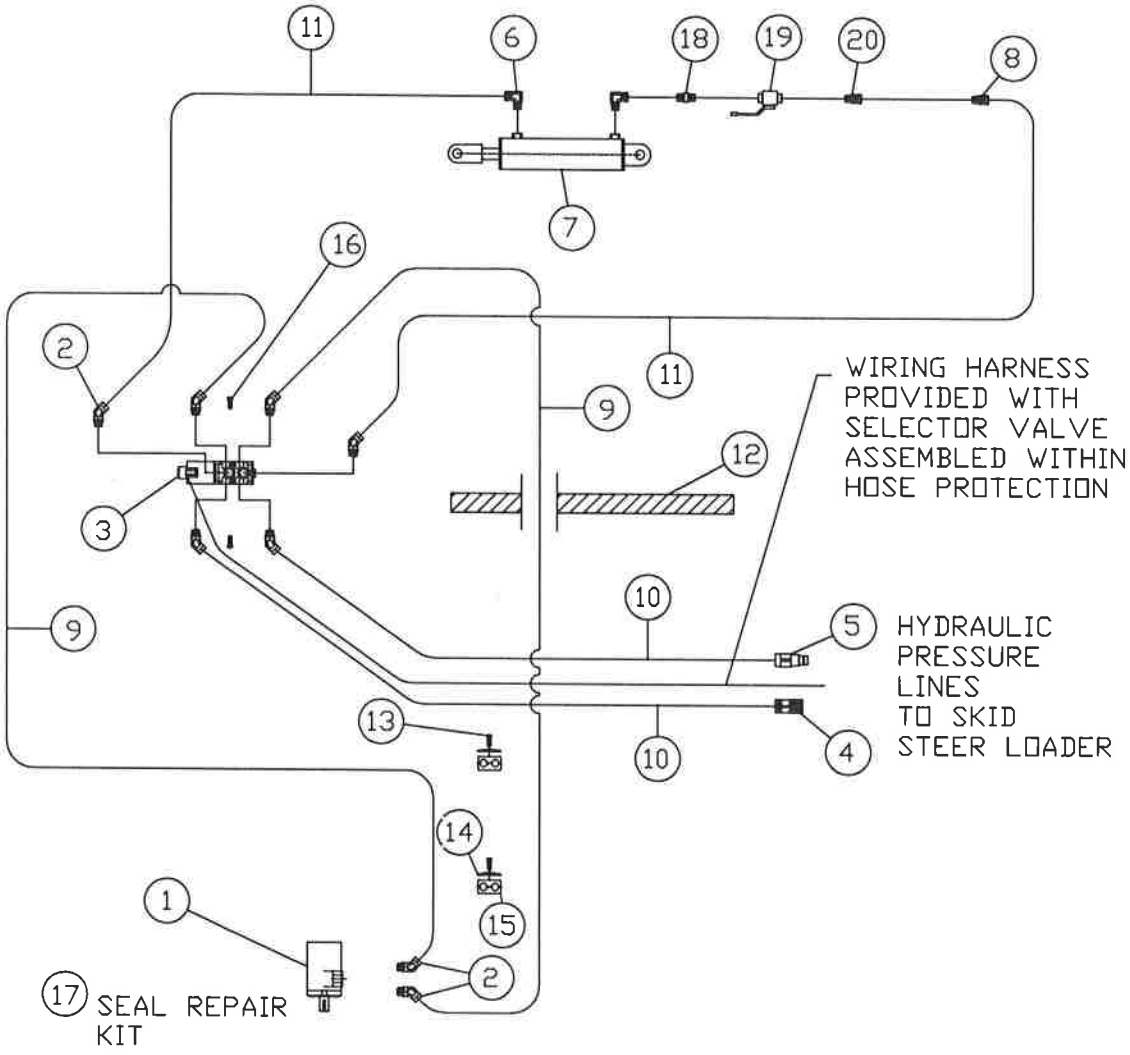
CUTTER BAR AND BOLTED KNIFE



ITEM	PART NUMBER	DESCRIPTION	QTY 7'	QTY 9'
1	K070	HIGH ARCH KNIFE CLIP (STEEL)	1	1
2	K101DH	NARROW DOUBLE SWATHER GUARD	14	18
3	K1606	CUTTER BAR SLAB 7'	1	
3	K1789	CUTTER BAR SLAB 9'		1
4	K162	CLIP WEARING PLATE	7	9
5	K183B	KNIFE CLIP	6	8
6	K256	PLOW BOLT 7/16 X 1-1/2 GRD5	14	17
7	K4498	HD OUTER SHOE	1	1
8	K4511	PLOW BOLT 7/16 X 2 GRD5	2	2
9	K679	FLANGE LOCK NUT 7/16	28	36
10	K850	PLOW BOLT 7/16 X 1-3/4 GRD5	12	16
11	K4424	COMPLETE KNIFEHEAD 10BOLT(85MM)	1	1
12	KA4521B	7' US HEADLESS BOLTED (85MM)	1	
12	KA4436B	9' US HEADLESS BOLTED (85MM)		1
13	K165	UNDERSERATED SECTON	28	36
14	K4421	5/8 SECTION BOLT	51	67
15	K4163	KNIFEHEAD BOLT	10	10
16	K4164	SECTION AND KNIFE HEAD NUT	61	77
17	KA4522B	7' COMPLETE KNIFE INCLUDES 11,12	1	
17	KA4437B	9' COMPLETE KNIFE INCLUDES 11,12		1
18	K141	HANDLE NUT	1	1
19	K4283	STAY ROD	1	1

STAY ROD PIVOTS ON THE INNER SHOE ANCHOR. SEE HYDRAULIC INNER SHOE ASSEMBLY.

HYDRAULIC SYSTEM



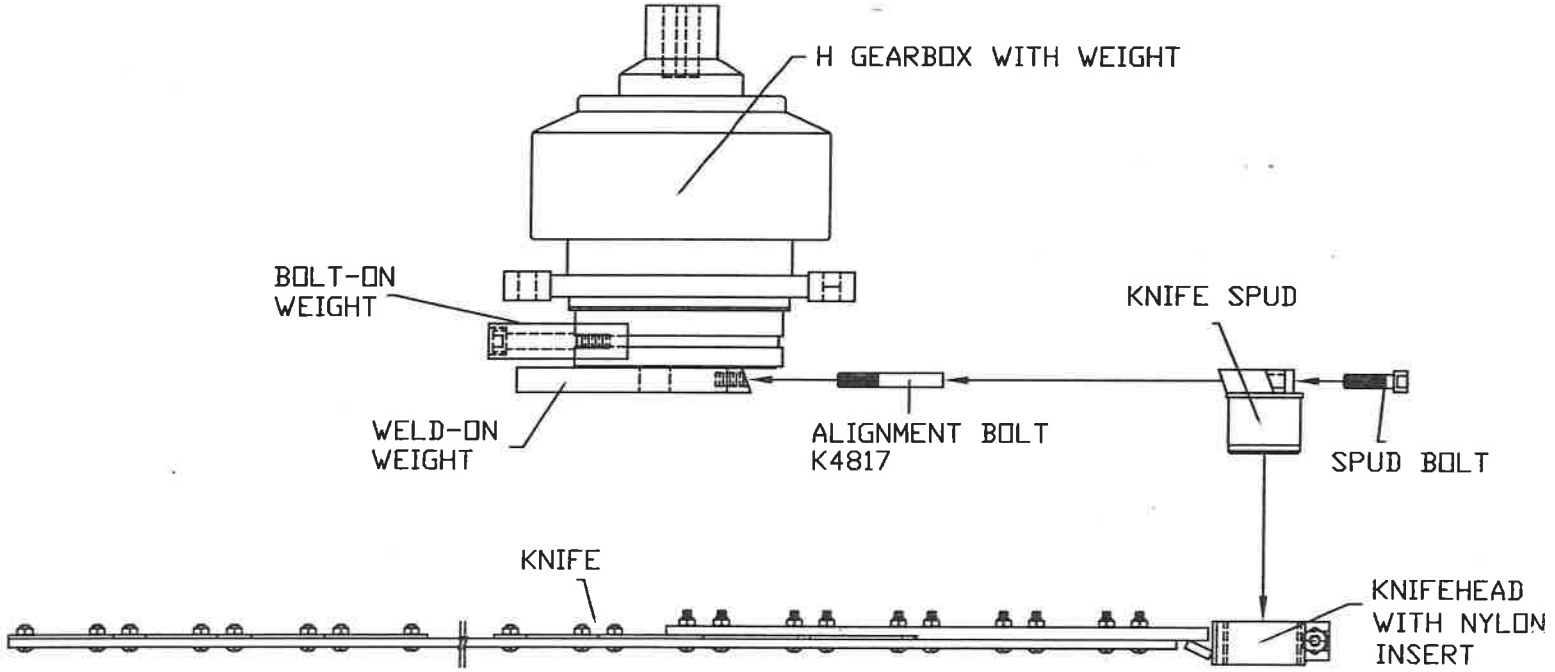
ITEM	PART NUMBER	DESCRIPTION	QTY
1	K4539	HYDRAULIC MOTOR	1
2	K4538	ADAPTER, 45° 10-8	8
3	K4532	SELECTOR VALVE	1
4	K4534	QUICK DISCONNECT FEMALE	1
5	K4533	QUICK DISCONNECT MALE	1
6	K4100	90° SWIVEL ELBOW ADAPTER	2
7	KA3449B	HYD CYLINDER 3 X 10	1
8	K4529	HYD FLOW CONTROL, R=.031	1
9	K4185	HYD HOSE 8MP X 8MP X 96	2
10	K4535	HYD HOSE 8MP X 8MP X 72	2
11	K1385	HYD HOSE 8MP X 8MP X 30	2
12	K4528	HOSE PROTECTION	1
13	K4362	BOLT FOR DOUBLE COVER PLATE	2
14	K4361	DOUBLE COVER PLATE	2
15	K4531	1/2 X 1/2 HYD HOSE HOLDER (PR)	2
16	K4530	ALLEN HD CS 5/16 X 3	2
17	K4420	SEAL REPAIR KIT, HYD MOTOR	1
18	K4776	HEX NIPPLE 3/8 X 1/2	1
19	K4775	3/8 VALVE	1
20	K4786	PIPE ADAPTER 3/8 X 1/2	1

DECAL LIST

K4987-CAUTION 7 STEP INSTRUCTIONS	1 EA
K4122-DANGER KEEP HANDS AND FEET CLEAR	1 EA
K4356-HIGH PRESSURE	1 EA
---------SKID STEER SOLUTIONS	2 EA
---------ANTI SKID TAPE	2-6 INCH STRIPS

ASSEMBLY OF KNIFE TO GEARBOX USING ALIGNMENT BOLTS

1) LOCATE ALIGNMENT BOLTS K4817
2) ROTATE GEARBOX TO SHOW CONNECTING WEDGE AWAY FROM SICKLE BAR
3) POSITION ALIGNMENT BOLTS (2) INTO WEDGE LOCATIONS ON GEARBOX
   TURN IN BY HAND
4) POSITION SPUD INTO KNIFE HEAD WITH NYLON INSERT
   LEAVE CROSS BOLT ON KNIFE HEAD LOOSE
5) SLIDE KNIFE UNDER GEARBOX INTO GUARDS ON SICKLE BAR
6) WHEN APPROACHING GEARBOX WITH KNIFE HEAD AND SPUD,
   ALIGN HOLES ON SPUD WITH THE ALIGNMENT BOLTS
7) PUSH KNIFE INTO POSITION ON THE GEARBOX WEDGE
8) WITH KNIFE IN POSITION REMOVE ALIGNMENT BOLTS AND REPLACE
   WITH SPUD BOLTS
9) TIGHTEN SPUD BOLTS AND TORQUE TO 59 FT-POUNDS
10) ROTATE GEARBOX SEVERAL TIMES TO ALLOW SPUD TO POSITION
    ITSELF IN THE KNIFE HEAD, TIGHTEN CROSS BOLT
11) SAVE ALIGNMENT BOLTS FOR USE WHEN CHANGING KNIVES



BOLT TORQUE CHART

WHEEL BOLT TORQUE

SICKLE BAR MOWERS – ½ INCH BOLT	100 FT-LB
BALEHANDLER - 9/16 INCH BOLT	130 FT-LB
DOUBLE DISC MOWER - 5/8 INCH BOLT	200 FT-LB

SPUD BOLT (K4159)	59 FT-LB
SPUD WEIGHT BOLT-ON (K4602)	59 FT-LB
BOTTOM CRANK (K4609) (2-BOLT) W/WEIGHT (2004)	35 FT-LB
BOTTOM CRANK (K4759) (1-BOLT) W/WEIGHT (2011)	265 FT-LB
RETAINER CAP BOLT ON SPUD BEARING (K4379)	50 FT-LB
KNIFEHEAD CROSS BOLT (K4268)	50 FT-LB
BOLT KIT (KA5008) 4-BOLTS ON DOUBLE PUMP	60 FT-LB
SICKLE BAR NUT AND BOLT (5/8)	170 FT-LB