



OPERATOR AND PARTS MANUAL

3995E TSL Loader

For serial number 1039950001 and later

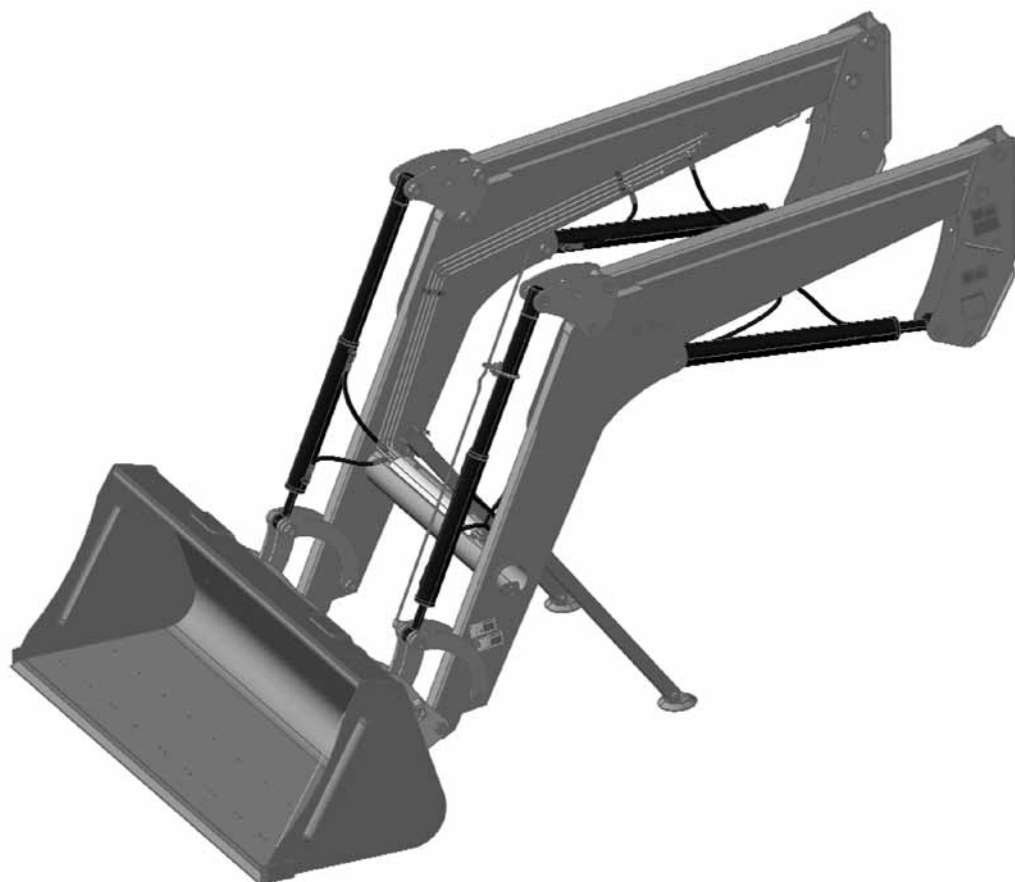


Table of Contents

Warranty Policy	4
Introduction	5
• Serial Decal Location	6
• Warranty Registration	7
• Loader Specification Illustration	8
• Specification Chart	9
Safety	10
• General Safety Notes	10
• Safety Decals	11
• Important Precautions	11
• Safety Decal Locations	12
Pre-operation	14
Operation	15
• General Operating Notes	15
• Hydraulics	15
• Buckets	16
• Backfilling or Scraping	17
• A-Frame	18
• Handling Bales and Pallets	19
• Grapple	21
Installing Loader	22
Removing Loader	23
Installing Loader Attachments	25
Removing Loader Attachments	25
Lubrication	26
Maintenance	27
• General Inspection	27
• Lift locks	27
• Pins and Bushings	27
• Mounting Kit	28
• Bolt Torque Chart	28
• Hydraulics	29
TSL General Notes	31
Troubleshooting	32
Parts Appendix	34

Warranty Policy

Buhler Trading Inc. products are warranted for a period of twelve (12) months from original date of purchase, by original purchaser, to be free from defects in material and workmanship under correct, normal agricultural use and proper applications.

Buhler Trading's obligations under this warranty shall be limited to the repair or exchange, at Buhler Trading's option, of any Buhler Trading product or part which proves to be defective as provided. Buhler Trading reserves the right to either inspect the product at the buyer's location or have it returned to the factory for inspection.

The above warranty does not extend to goods damaged or subject to accident, abuse or misuse after shipment from Buhler Trading's factory, nor to goods altered or repaired by anyone other than an authorized Buhler Trading representative.

Buhler Trading makes no Express Warranties other than those which are specifically described. Any description of goods, including any references and specifications in catalogues, circulars and other written material published is for the sole purpose of identifying goods and shall conform to such descriptions. Any sample or model is for illustrative purposes only and does not create an Express Warranty that the goods conform to sample or model shown.

The purchaser is solely responsible for determining suitability of goods sold. This warranty is expressly in lieu of all other warranties expressed or implied. Buhler Trading will in no event be liable for any incidental or consequential damages whatsoever, nor for any sum in excess of the price received for the goods for which liability is claimed.

Warranty claims:

Warranty requests must be prepared on Buhler Trading Warranty Claim Forms with all requested information properly completed. Warranty Claims must be submitted within a thirty (30) day period from date of failure repair.

Warranty labor:

Any labor subject to warranty must be authorized by Buhler Trading. The labor rate for replacing defective parts, where applicable, will be credited at a rate determined by the Company, Buhler Trading.

Important facts:

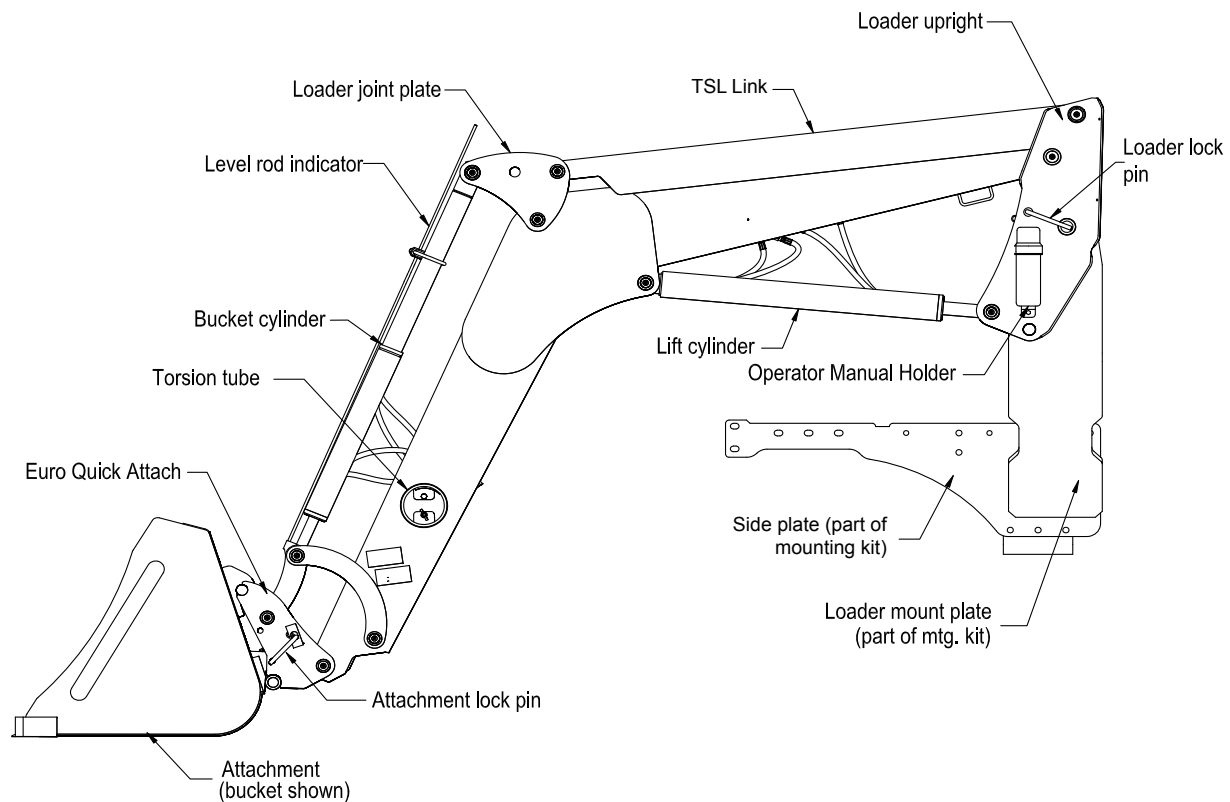
Buckets and BucketTines Carry No Warranty
Bent Spears Carry No Warranty
Snowblower Fan Shafts Carry No Warranty
Mower Blades Carry No Warranty
Portable Auger Parts Have Two (2) Year Warranty
Loader Parts Have Two (2) Year Warranty

Introduction

This manual has been provided as information regarding the specifications, safe operation, maintenance and parts of your agricultural front-end loader. Read and understand this manual and the tractor manual prior to operating to obtain the best performance of operating your loader safely. Keep this manual for reference and store it in the Manual Holder, so it may be forwarded to new operators and owners should the loader be sold. Contact your local Buhler - Allied dealer if you require any assistance, information, or additional manuals. Manuals are also found on the website.

Terminology: Basic terminology used throughout this manual have been identified below. For part numbers and further details refer to the Parts Appendix.

Loader Identification Illustration



Some components are identified as “right” and “left”. This is determined as seated in the tractor and facing forward.

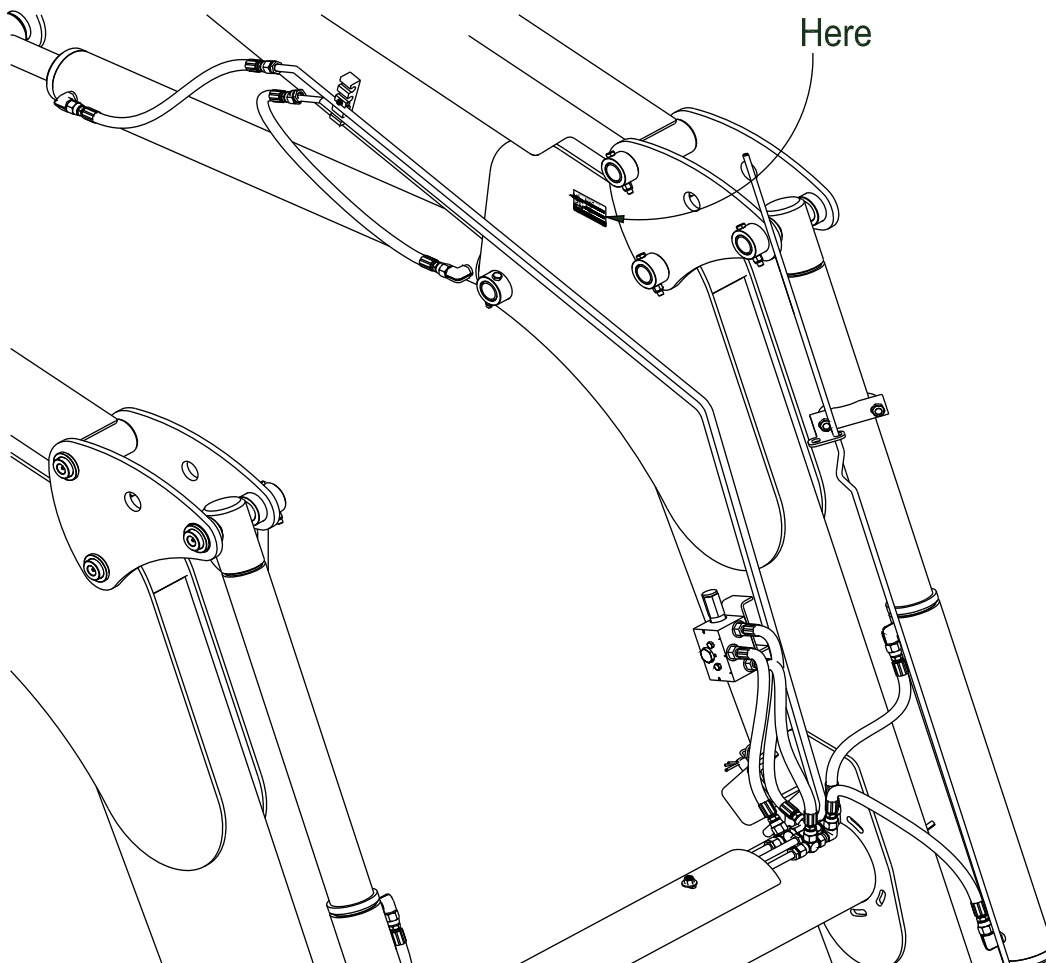
Serial Decal Location

The serial decal is located on the inside left arm of the loader joint plate. Please record the serial number in the space provided for future reference. The serial decal will provide the model and date of manufacture of the loader and will be required to obtain correct replacement parts and complete warranty claims.

For your records, record
Serial Number here: _____

B.I.I. FARGO INC.	
FARGO NORTH DAKOTA	
bühler versatile farm king allied inland	MODEL No. _____
	SERIAL No. _____

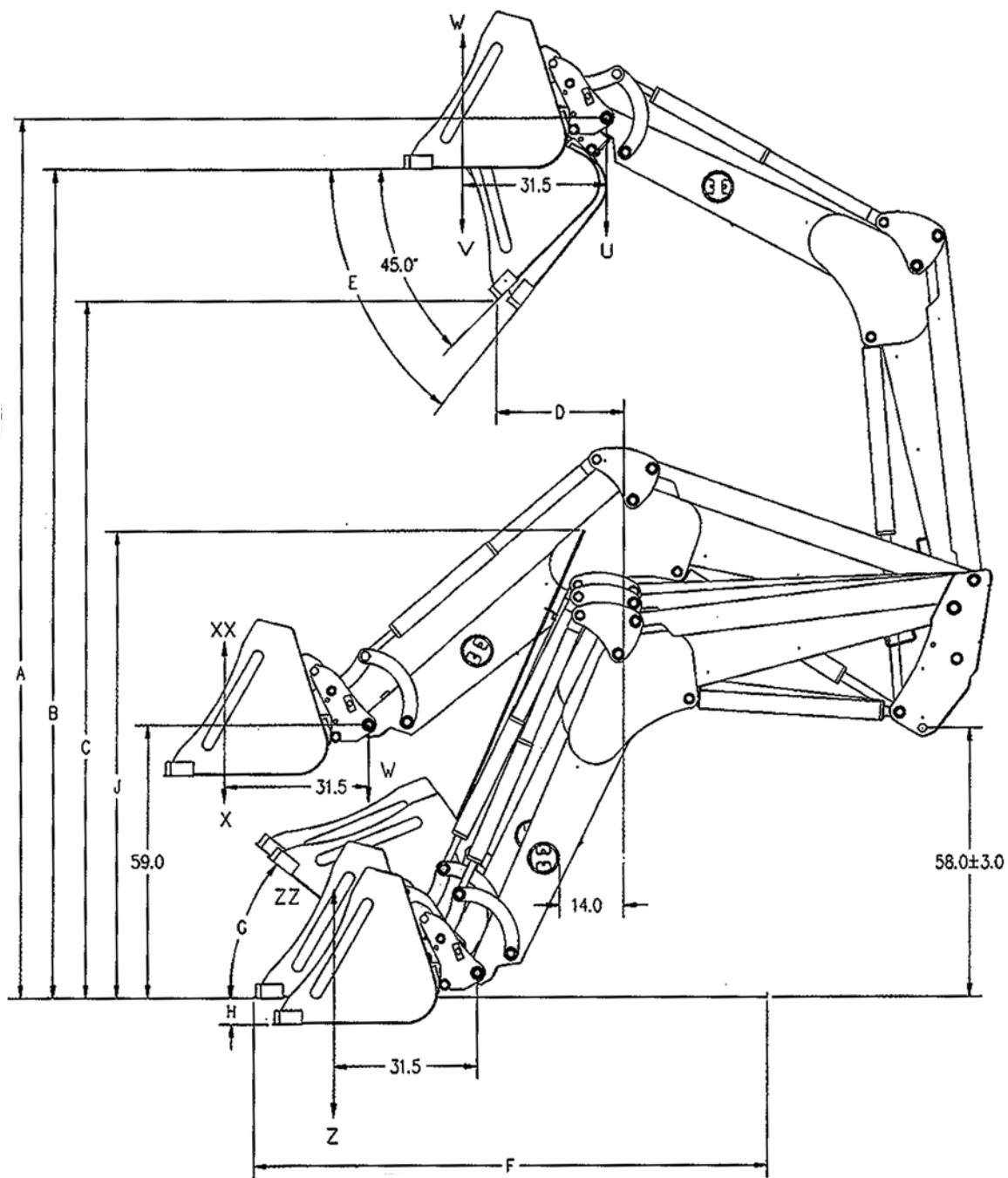
MADE IN THE U.S.A. 115793	



Warranty Registration

The Warranty Registration and Delivery Report **MUST** be completed within thirty (30) days of delivery to validate the warranty.

Loader Specifications Illustration



Specification Chart

Item	Description	
A	Maximum lift height to pivot pin [in/cm]	181/460
B	Maximum lift height under level bucket [in/cm]	172/437
C	Clearance with bucket dumped [in/cm]	146/370
D	Reach at maximum lift height [in/cm]	29/74
E	Maximum dump angle [deg]	61
G	Maximum rollback angle [deg]	37
H	Digging depth [in/cm]	5.0/12.7
J	Overall height in carry position [in/cm]	103/262
U	Lift capacity to maximum height - at pivot pin [lb/kg] optional cylinder	6900/3129
V	Lift capacity to maximum height [lb/kg] optional cylinder	4950/2245
W	Lift capacity to 59 in height - at pivot pin [lb/kg] optional cylinder	7650/3470
X	Lift capacity to 59 in height [lb/kg] optional cylinder	6125/2778
Y	Breakout force - at pivot pin [lbf/daN] optional cylinder	8500/3781
Z	Breakout force [lbf/daN] optional cylinder	6550/2914
VV	Bucket rollback force at maximum height [lbf/daN] optional cylinder	6375/2836
XX	Bucket rollback force at 59 in lift height [lbf/daN] optional cylinder	7850/3492
ZZ	Bucket rollback force at ground line [lbf/daN] optional cylinder	7025/3125
	Raising/Lowering time [sec] optional cylinder	8.1/5.5
	Bucket dumping/rollback time [sec] optional cylinder	4.0/2.6
	Lift cylinder tube/shaft size [in] optional cylinder	3.50/2.00
	Lift cylinder stroke/retracted length [in]	35/46.50
	Bucket cylinder tube/shaft size [in] optional cylinder	3.25/1.50
	Bucket cylinder stroke/retracted length [in]	22/60
	Mounting Height (+/- 3.0) [in]	55
	Hydraulic pressure rating/flow rate [psi]/[gpm]	2500/20
	Tractor size [HP @ normal duty]	130-275
	Bucket size [in/cu.ft.] - * Indicates bucket size used for calculations 84/30.5* of lift capacities and rollback forces.	72/27.0 84/30.5* 96/37.3
	Weight (with bkt & mtg kit) [lb/kg]	3800/1270

NOTE: Specifications are subject to change without notice or obligation.

Safety

Read and understand all the safety messages listed in this manual. For your safety and the safety of others near the machine, learn how to control and operate the loader properly. It is your responsibility to inform subsequent operators and owners of these precautions.

General Safety Notes

- Improper use of the loader and tractor can cause serious injury or death.
- Operate the loader while seated in the tractor seat only.
- Keep the work area clear of other persons.
- Never leave the tractor unattended while the attachment is raised. Always lower the attachment to ground and shut tractor off before leaving the tractor seat.
- Never work beneath a raised loader unless it is securely supported. The control lever can be moved or a hydraulic leak could cause the loader to drop resulting in serious injury or death. Refer to the Hydraulic Lock Instructions Decal for proper use of the lift lock valve.
- Prior to use, check to ensure the attachment is properly locked to the quick-tach. Verify from tractor seat by lowering the attachment to the ground and retracting the lift cylinders.
- Never operate loader with frayed or damaged hoses or leaking fittings. A burst could cause the loader to drop suddenly and result in serious injury or death and cause damage to the loader or tractor.
- Keep tractor on solid ground when raising loader. Loose fill rocks and holes can be dangerous for loader operation and movement.
- If for some reason, you feel the tractor tipping, immediately lower the loader.
- A pivoting front axle acts like a three-wheeled tractor until the stops hit the axle.
- Space rear tires as recommended by the tractor manufacturer. Maximize width for high lift applications and uneven terrain.
- Add rear ballast as required to ensure 25% of gross vehicle weight is transferred to the rear axle. Loader, attachment and payload must be included as weight.
- Do not raise attachment to extreme heights while tractor is on an incline. Be alert for terrain changes and adjust accordingly. Keep attachment at low travel height, no more than one foot, as long as possible.
- Allow for attachment and loader length when turning.
- The tractor must be equipped with an approved Roll Over Protection Structure (ROPS) and safety belts.
- Use proper lighting and safety warnings when transporting equipment on public roads and during darkness. The Slow Moving Vehicle (SMV) emblem must be visible. Check with your local Law Enforcement Agency for specific requirements.

Safety Decals

Safety Decal Location illustrates the approximate location and detail of safety decals. To install safety decals ensure the installation area is clean and dry. Decide on the exact position before you remove the backing paper. Remove the smallest portion of the split backing paper and align over the specified area. Carefully press in place. Slowly peel back the remaining paper and smooth the remaining portion in place. Small air pockets can be pierced with a pin and smoothed out. Keep all decals clean and replace any that are damaged or missing. Replacement decals are available from your local dealer.

Important Precautions

The alert symbol is used throughout this manual. It indicates attention is required and identifies hazards; your safety is involved. Follow the recommended precautions.



The safety alert symbol indicates **ATTENTION ! BECOME ALERT ! YOUR SAFETY IS INVOLVED !** The symbol appears in conjunction with statements and signs.



CAUTION

The caution symbol indicates a potentially hazardous situation, which may result in injury. It may also be used to alert against unsafe practices.



WARNING

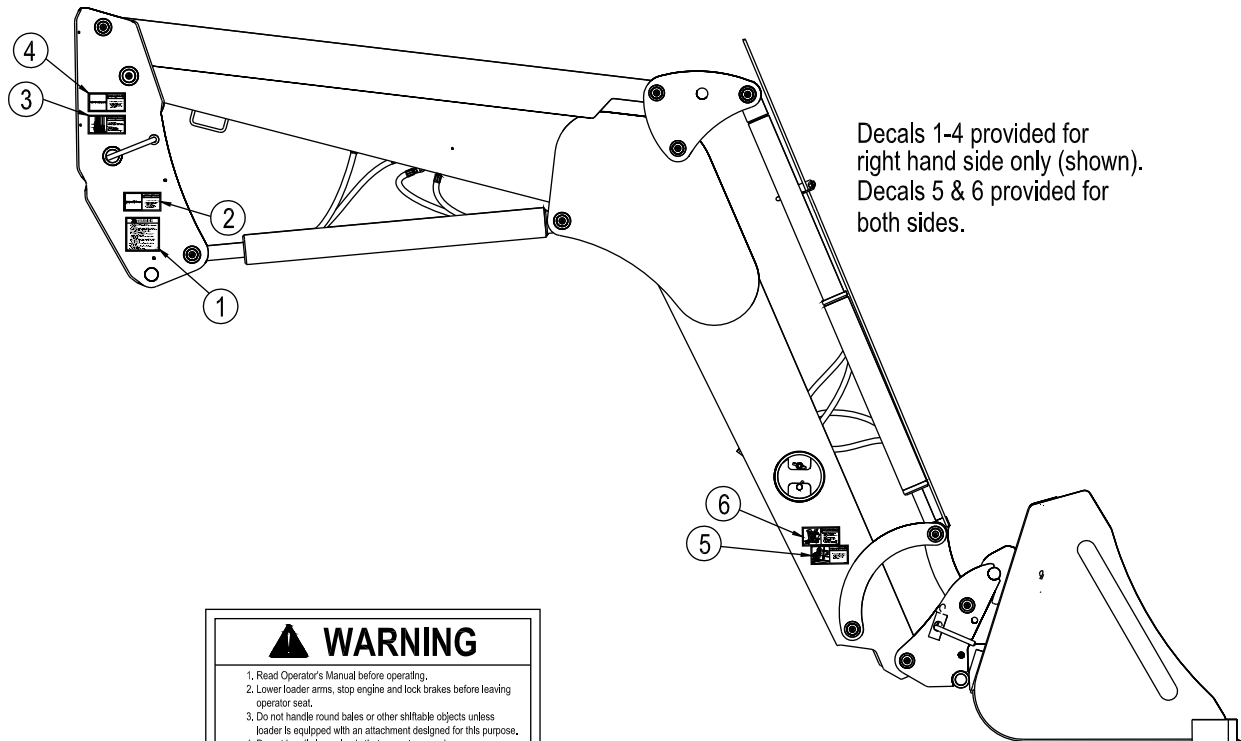
The warning symbol indicates a potentially hazardous situation, which could result in death or serious injury and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



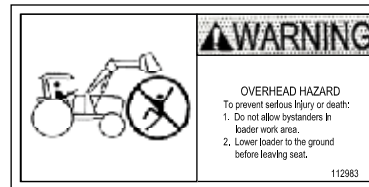
DANGER

The danger symbol indicates an imminently hazardous situation, which will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components, which for functional purposes, cannot be guarded

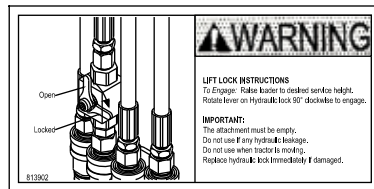
Safety Decal Locations



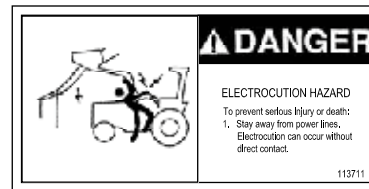
① Part # 112812



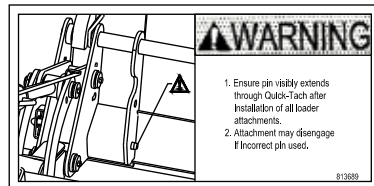
② Part # 112983



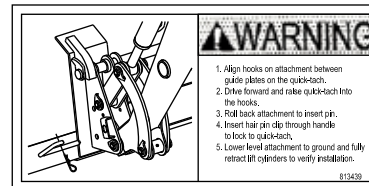
③ Part # 813902



④ Part # 113711



⑤ Part # 813689



⑥ Part # 813439

The following pictorials indicate important precautions to be used during the operation of the loader.

DANGER

ELECTROCUTION HAZARD
 To prevent serious injury or death:

Stay away from power lines and cables.
 Electrocution can occur with or without direct contact.

WARNING

FALLING HAZARD
 To prevent serious injury or death:

Do not lift, carry or allow anyone to ride on or work from any portion of loader.

WARNING

CRUSHING HAZARD
 To prevent serious injury or death:

Do not handle round bales or other shiftable objects unless loader is equipped with an attachment designed for this purpose.
 Do not handle loose loads that are not secured.
 Do not lift load higher than necessary.

WARNING

HIGH PRESSURE FLUID
 To prevent serious injury or death:

Relieve pressure on system before repairing or adjusting or disconnecting.
 Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
 Keep all components in good repair.
 If hydraulic fluid penetrates skin, obtain medical treatment IMMEDIATELY.

WARNING

ROLL-OVER HAZARD
 To prevent serious injury or death:

Move and turn tractor at low speed.
 Carry load no higher than necessary to clear the ground when transporting.
 Add wheel ballast or rear weight for stability.
 Move wheels to widest possible settings to increase stability.
 It is recommended the tractor be equipped with a rollover protective structure (ROPS).

WARNING

CRUSHING HAZARD
 To prevent serious injury or death:

Do not allow bystanders in loader work area.
 Lower loader to the ground before leaving seat.
 Do not walk or work under raised loader. For servicing, refer to operator's manual.
 Read and understand operator's manual before operating loader.

Pre-operation



WARNING

The tractor must be equipped with an approved Roll over Protection Structure (ROPS) and safety belts to help prevent personal injury or death caused by tractor roll over.



CAUTION

Maximum rated loader capacity may exceed tractor rating. Load restrictions or reduction in hydraulic operating pressure may be required for safe operation. Torque all fittings and hoses prior to operating loader. Ensure hoses do not rub or pinch during loader operation. Ty-rap as required.

ROPS

Do not exceed the manufacturer's rating for maximum gross vehicle weight. Refer to the Tractor Manual or the ROPS Serial Decal for rating. Do not alter or modify the ROPS structure.

Tractor Tires

Space rear tires as recommended by the tractor manufacturer. Tire inflation and capacity must meet or exceed additional weight of loader, attachment and payload. Maximize width for high lift applications. Tread width must not exceed width parameters as recommended in the Mounting Kit Listing.



WARNING

Add rear ballast to help prevent personal injury or death caused by tractor roll over.

Rear Ballast

Rear ballast is required to ensure 25% of gross vehicle weight is transferred to the rear axle. Attachment and load must be included as weight. Adequate rear weights are required to counterbalance maximum loader capacity and safe loader operation. Weight can be added as rear tire liquid (calcium solution), rear wheel weights, rear axle weights and/or three point hitch mounted ballast or implement. Ballasting will vary with tractor and loader attachment. Refer to the Tractor Manual for recommended ballasting

Operation

General Operating Notes

The following section provides general information that can be applied towards your specific application. Ensure that you've read and understood this manual and your Tractor Manual. Observe all safety precautions and follow local laws pertaining to the use of your loader and tractor.

Hydraulics

Under normal conditions, operate the tractor's engine at 1/2 throttle.

Note: In cold weather, tractors with load sense hydraulic systems require longer warm-up periods for the loader to respond when valve is operated.

IMPORTANT: In cold weather, operate the tractor's engine at idle speed until the hydraulic fluid is warmed up. Slowly cycle the loader and attachment several times to further warm the hydraulic fluid. High engine speed when the hydraulic fluid is cold will cause the pump to wear prematurely and may cause the loader to operate erratically.

Joystick

The hydraulic hoses should be connected to the loader valve such that when joystick is pulled back the loader will raise and when pushing forward on joystick it lowers the loader. Move joystick to left to roll back the bucket and right to dump.

On the side of the joystick there is an on/off switch. When the loader is disconnected, turn the joystick off. The joystick is equipped with a rocker switch to control the grapple. Pushing the top of the rocker switch closes the grapple and pushing the bottom of the rocker switch opens the grapple. To engage the float feature of the loader, push the red push button.

IMPORTANT: Always feather the grapple when closing or opening to avoid unnecessary shock loads on grapple components.



WARNING

Keep grapple closed at all times when bucket is empty and carry bucket low to the ground. Avoid operating near power wires.

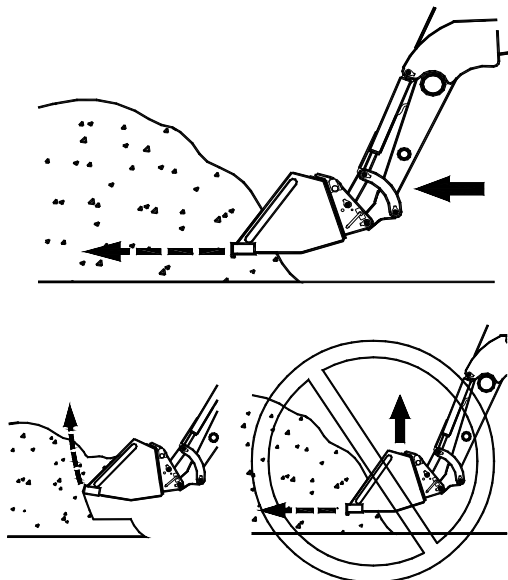
All Allied hydraulic valves are self-centering and return to neutral from all positions except float. The float or detent spool is only to be used on the boom circuit. This position allows the oil to freely flow through the valve so the lift cylinders can extend or retract. It can be engaged by pushing the red push button. Float will allow for the loader to lower and rise as the attachment follows the ground contours.



CAUTION

Lower and dump heavy loads slowly by feathering. Stop tractor movement gradually. Never drop a loaded attachment and “catch” hydraulically. Stopping with such downward momentum may cause damage to the loader or tractor.

When handling heavy loads be sure to raise and lower the loader slowly while leveling the attachment as required. Feathering can assist in accurately controlling operations by regulating oil flow through cylinders. A third function hydraulic control is available for grapple or other hydraulic applications.



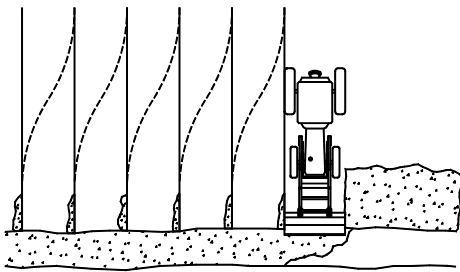
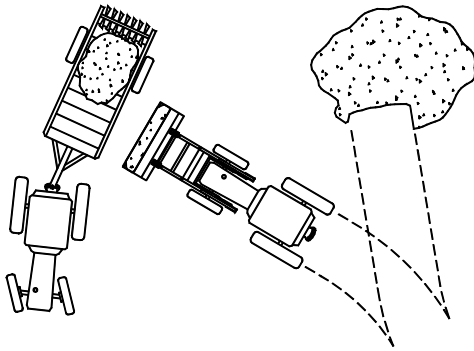
Bucket

When loading a bucket, approach straight and enter the pile with a level bucket parallel to the line of motion.

IMPORTANT: Attempting to turn while loading may cause damage to the loader or tractor.

Work the controls to raise and rollback the bucket simultaneously. The combined actions of lift and bucket cylinders increases loading efficiency and minimizes resistance to lift.

NOTE: On tractors with low hydraulic oil flows, both functions may not be possible



Minimize turning angle and length of run between pile and trailer to increase loading efficiency. Also, place load evenly or centered in the attachment.



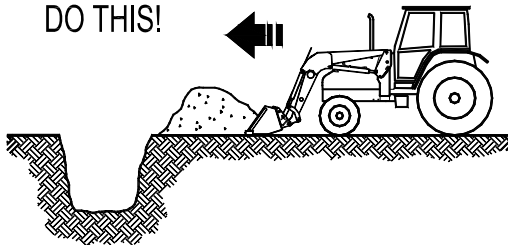
WARNING

Carry the load no higher than necessary to clear the terrain. Turn and brake slowly. Always be sure that loading area is level and on solid ground. Do not raise loader higher than required while dumping. Immediately lower the loader to ground if the tractor becomes unstable.

Leave material, which drifts over the bucket sides for final cleanup.

Backfilling or Scraping:

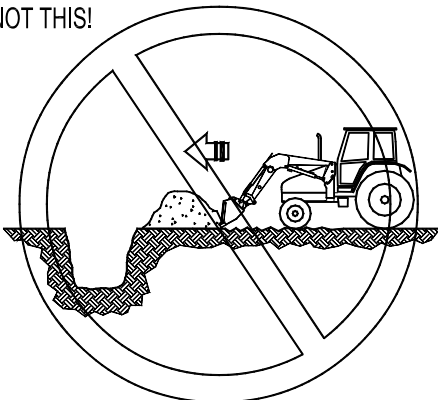
DO THIS!



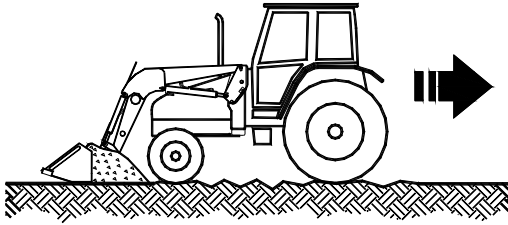
For forward back filling, approach pile with a level bucket. Utilize the float position to minimize bucket cutting edge wear. Leave dirt in bucket. Dumping on each pass reduces efficiency.

NOTE: Use leveling rod for a guide to ensure bucket is level.

NOT THIS!

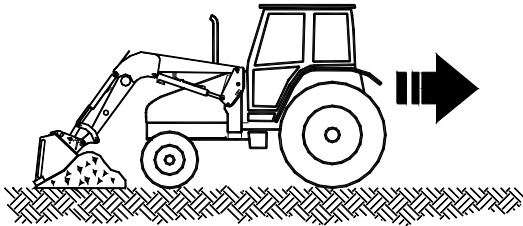


Do not use bucket in dumped position for forward grading. This will only impose severe shock loading on the bucket cylinders and it is difficult to maintain a level grade.



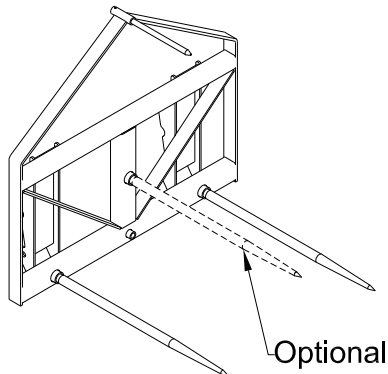
For back grading, either load the bucket and position the heel on the ground or position the bucket at 40° or less below level as shown. Place the valve in the float position and back up slowly.

IMPORTANT: Float position must be used to reduce down pressure, otherwise cylinder rod(s) and/or bucket damage could occur.



A-Frame

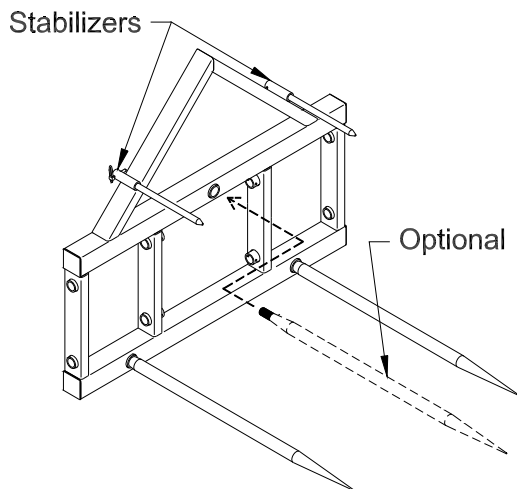
Regular Duty and Heavy Duty A-Frames can be fitted with either spears or pallet forks.



Regular Duty / Heavy Duty 60"

Both A-Frames are for handling medium to large sized round bales (up to 2000 lb) when fitted with two bottom 1240 mm long heat treated spears and two short stabilizers. For pallet applications with a maximum payload of 4400 lb when fitted with the 48.0" pallet fork kit.

NOTE: The heavy duty frame can also be fitted using only the one center spear. (For carrying smaller bales weighing 1000 lb)



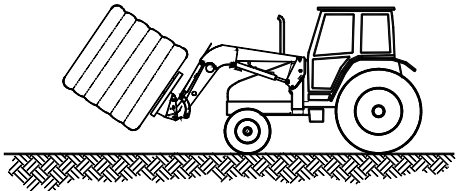
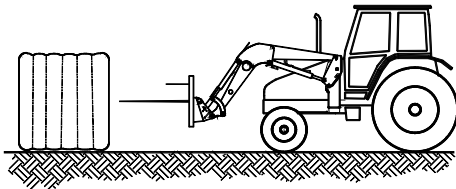
Handling bales and pallets

For safe handling of bales and pallets please follow procedures below:

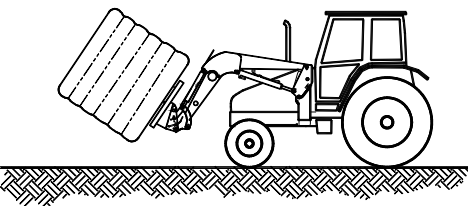
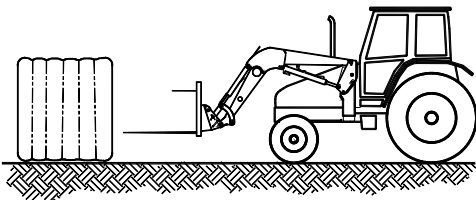


WARNING

Do not operate A-Frame for bales without the stabilizers.



With a single spear, enter one of the ends of the bale and drive the spear horizontally into the center or slightly above center of the bale and fully penetrate the bale. Then rollback the bucket cylinders approximately three quarters of the cylinder stroke and lift bale approximately a foot off the ground.

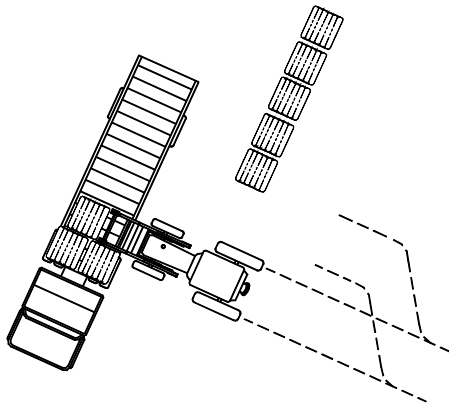


With the double or four spears enter the bale from one of the ends and drive the spear one third to one half the way up, from the bottom and fully penetrate the bale. Then rollback the bucket cylinders approximately three quarters of the cylinder's stroke and lift bale approximately 12.0" off the ground.



CAUTION

Never attempt to use the spears as forks, as the spears can easily penetrate the ground causing a spear to bend or break as well as making the bale unstable to carry. Never attempt to handle a bale with only part of the spear(s) penetrated. The nut on the bale spear must be torqued to 500 ft-lb. Check the torque periodically. A loose spear will damage the spear holder.



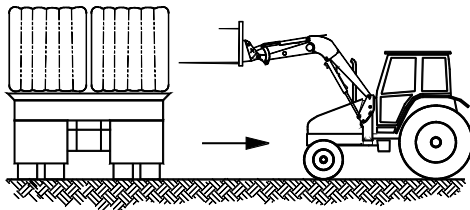
When loading bales onto a trailer, park trailer in close proximity to minimize turning angle and length of travel to increase loading efficiency.

As you lift the bale using the regular loader, it is recommended to feather the valve to allow bucket cylinders to extend to keep bale at about a 20° angle. (On TSL loaders this is not necessary) Lift the bale only enough to clear the area that the bale will be placed on. Always approach the trailer square to the tractor as shown.



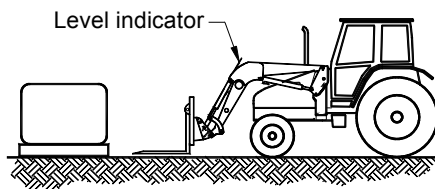
CAUTION

Avoid sudden stops and sharp turns. Avoid uneven terrain areas for loading and unloading.



After setting the bale down position the A-Frame with spear(s) horizontal to the ground and slowly back the tractor straight out.

With pallet forks level and just above the ground, drive the forks into the pallet completely. Raise loader to lift pallet and carry level 6 to 12 inches off the ground.



Note: The TSL loader is highly recommended when operating with pallet forks for maintaining a constant level load. Use the level indicator as a guide to ensure forks are level at ground.



CAUTION

Avoid sudden stops and sharp turns. Operate at low ground speeds. Never attempt to lift loads heavier than the rated fork specs (42" – 2200 lb) (48" – 4400 lb). Always lift or carry pallets using both forks and utilizing the full length of the forks.



WARNING

When driving amongst livestock keep bucket cylinders retracted, and loader boom at least 6 to 7' off the ground. Store A-Frame away from both play and heavy traffic areas.

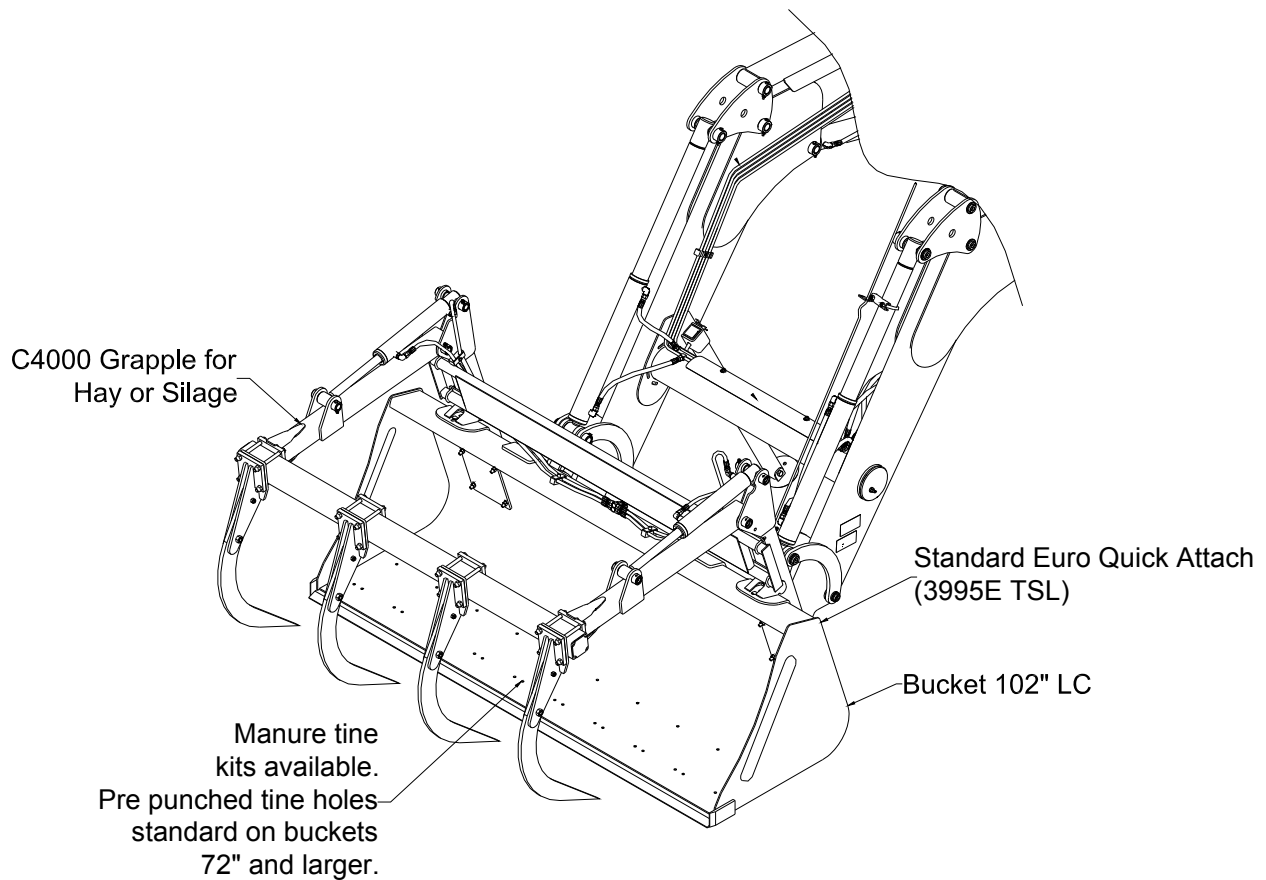
Grapple

The grapple is designed to safely prevent loads (bales, silage) from falling out of the bucket. (Refer to pictorial below for options listed)



WARNING

Travel at low speeds. Carry loads as low as possible.
Avoid sharp turns and uneven terrain.



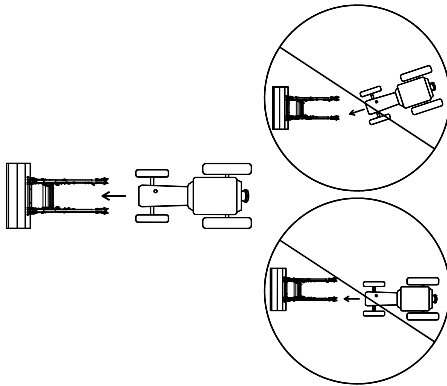
- * New attachments are introduced regularly check with your dealer or Allied factory.
- * Not all attachments are available for all models.

Installing Loader

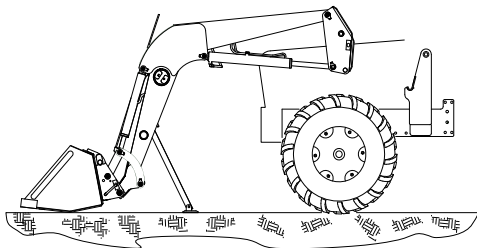


CAUTION

Prior to initial mounting, cycle loader cylinders to displace air. This ensures the loader will remain in the storage position and operate consistently.

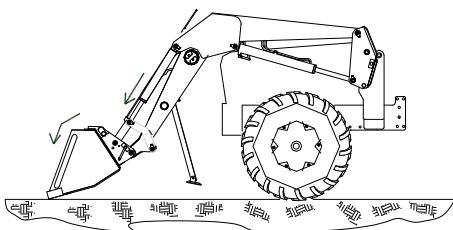
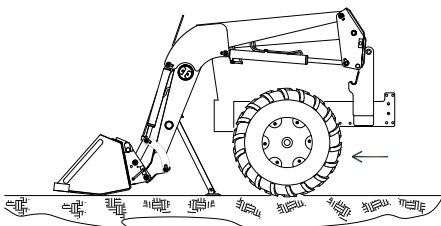


1. Position the tractor centrally and parallel to the loader uprights. Drive forward slowly until the loader hydraulic hoses can be coupled. Shut tractor off and set park brake. Connect to hydrafast.
2. Extend lift cylinders to tilt both loader uprights approximately 30 degrees. Rollback bucket to further raise upright for additional clearance. Both upright base pivots must be above the loader mount cradle.

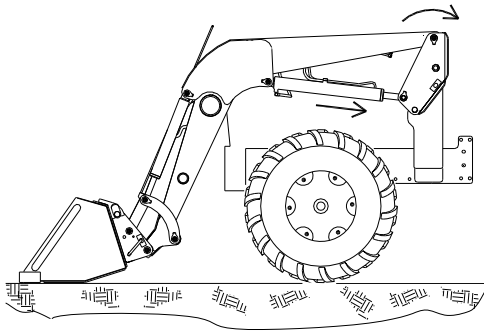


CAUTION

Prior to initial mounting, cycle loader cylinders to displace air. This ensures the loader will remain in the storage position and operate consistently.

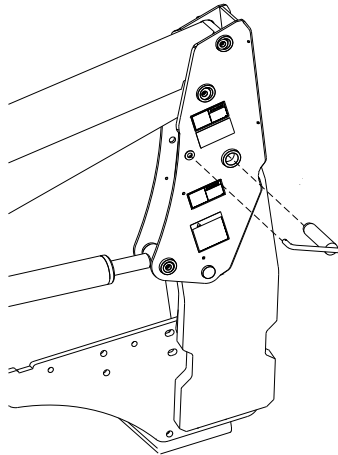


3. Slowly drive the tractor forward until the upright base pivot contacts the mount plate.
4. Slowly extend the bucket and retract the lift cylinders to lower the upright pivot into the mount plate cradle. Ensure both uprights are fully engaged within the mount plate cradle.



5. With the tractor in neutral, continue to retract the lift cylinders and extend the bucket cylinders to rotate the upright back against the lock pin stops. Shut the tractor off and set park brake.
6. Install both upright attachment pins and secure with hairpin clip. Start the tractor and slowly raise loader until the parking stands are off the ground.

NOTE: To ease installation and removal apply an anti-seize or motor oil to the attachment pin.



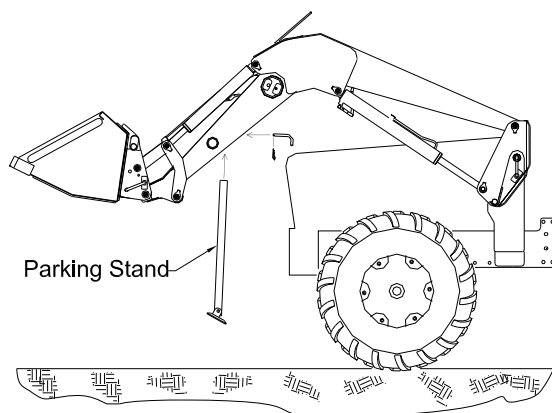
7. Shut tractor off and store parking stands within loader cross tube remembering to stand on the outside of the loader arms. Start the tractor and continue to cycle loader and attachment to verify loader operation.

Removing Loader

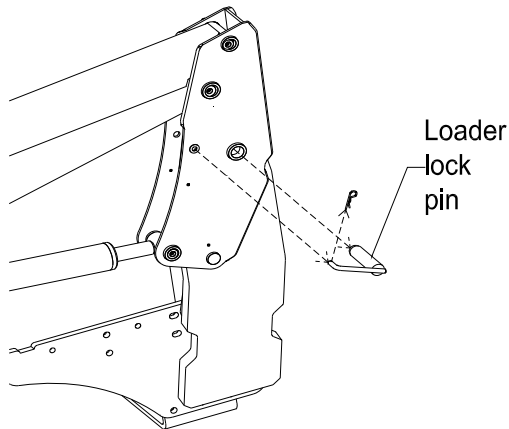


WARNING

A bucket or other suitable attachment must be attached to the loader for stability. Always remove the loader on firm level surface away from children's play areas and high traffic areas.



1. Raise loader to provide clearance to engage both parking stands. Shut off tractor and remove key. Standing along the outside of the loader arms remove parking stands from storage position and lock in park position by inserting pin and securing with hairpin as shown for both stands.

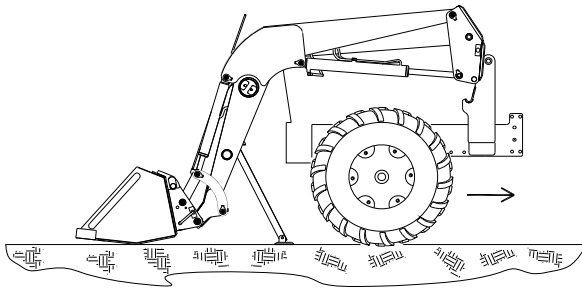


2. Lower attachment level to the ground while engaging float position. Ensure attachment rests firmly on ground with minimal downward pressure. If required extend bucket cylinders to rotate upright rearward. At this stage the pin should have no pressure. Set tractor park brake and remove loader lock pins. Check hydraulic hoses such that they will not get pinched or stretched during removal.



WARNING

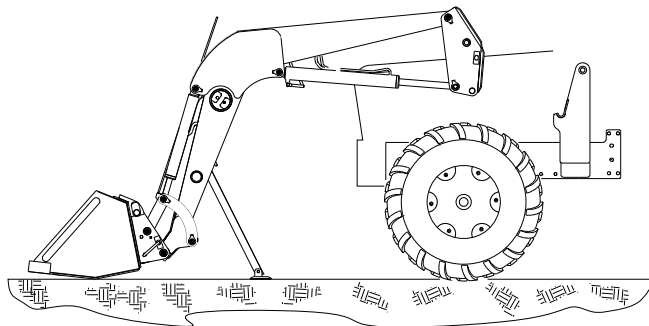
Operate hydraulic controls slowly. Loader will disengage from the mounting kit and may shift if not on firm level ground.



3. Retract bucket cylinders to raise upright and disengage from the loader mount cradle. If additional clearance is required, extend lift cylinders while slowly backing the tractor away from the loader.

4. After the tractor is clear of the loader, retract all cylinders to protect the shafting. Shut tractor off and set park brake. Disconnect hydrafast.

Wrap loader hoses over loader arm.

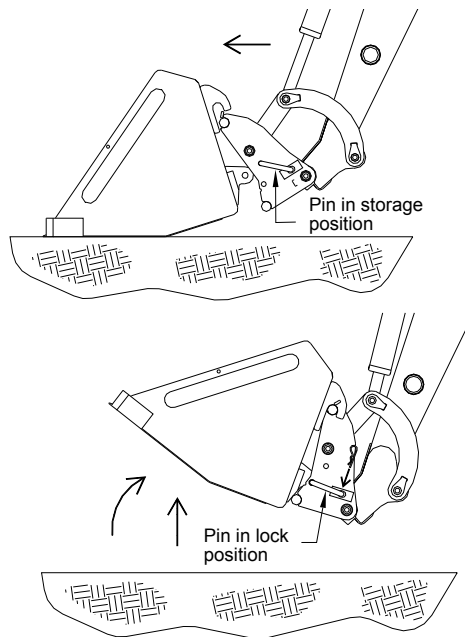


WARNING

Do not stand in front of Hydrafast. Stand to the side when disconnecting.

Hydrafast handle opens quickly.

Installing Loader Attachments



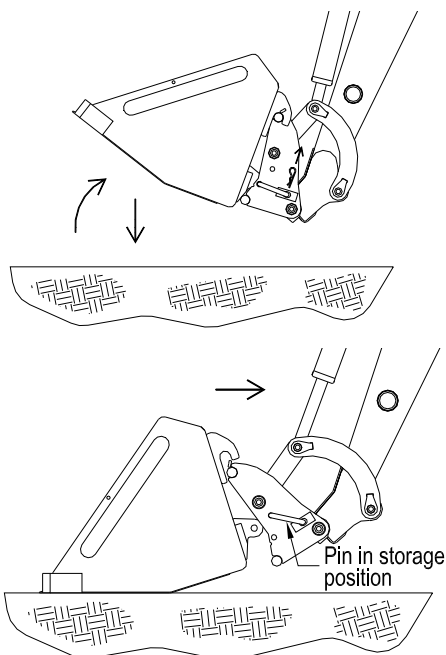
1. Pin in storage position.
2. Position tractor centrally within the bucket hooks. Dump Quick-tach slightly from vertical position. Slowly drive the tractor forward until the Quick-tach contacts the bucket.
3. Slowly raise the loader to engage the Quick-tach within both bucket hooks. When both hooks are resting on the Quick-tach rollback the bucket. Shut tractor off. Lock using both Quick-tach pins and secure with hairpin.



CAUTION

Verify attachment installation from tractor seat by lowering level attachment to ground and retracting the lift cylinders.

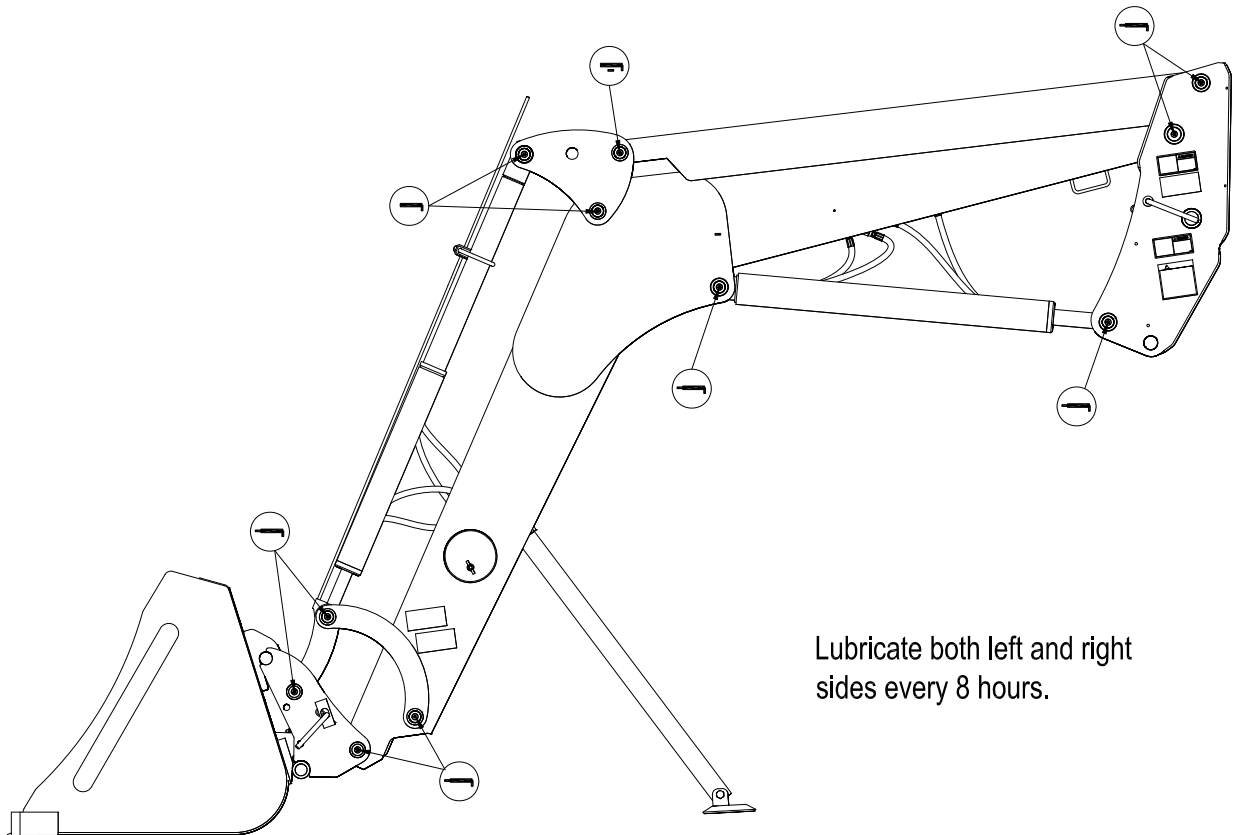
Removing Loader Attachments



1. Rollback attachment and lower near ground position. Shut tractor off.
2. Remove both Quick-tach pins and place in storage position. Place level attachment on ground. Slowly dump attachment while backing tractor away.

Lubrication

Lubricate loader bushings and pivots every eight hours of average operation with high-grade grease. For grease fitting locations see illustration below. Select grease based on the expected outside temperature range. Lithium, Molybdenum and synthetic greases are preferred. Use the tractor hour meter as a guide. Increase lubrication intervals for extreme use or adverse conditions. Each pivot should be lubricated until grease is visible at pin.



IMPORTANT

Ensure that grease fittings accept grease. Should any fitting become plugged, replace immediately. Pivots not greased as specified would cause premature wear of pins and bushings.

Maintenance

General Inspection



CAUTION

Lower attachment and loader to ground, place all controls in neutral, stop engine, set parking brake and remove ignition key before inspecting, servicing, adjusting or repairing loader.



WARNING

Relieve hydraulic pressure before repairing, adjusting or disconnecting hydraulics components. Escaping hydraulic oil can penetrate skin causing serious personal injury. If injured consult a physician immediately.

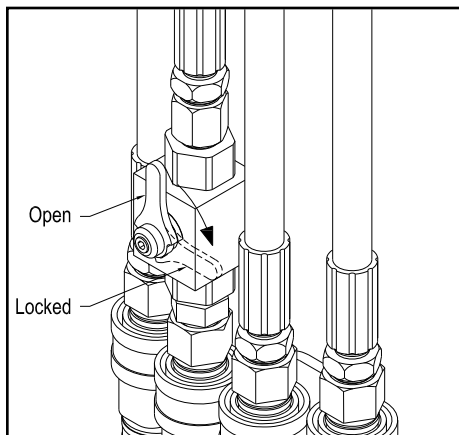


WARNING

Never work beneath a raised loader unless it is securely supported. The control lever can be moved or a hydraulic leak could cause the loader to drop resulting in serious injury or death. Refer to the Hydraulic Lift Lock Instructions Decal for proper use of the lift lock.

Hydraulic Lift Lock / Cushion Ride Lock

The lift lock on your loader is to be used whenever someone is attempting to be under the loader or for tractor servicing. When using the lock ensure loader is free of any load in the loader attachment or no attachment.



To engage hydraulic lift lock, raise loader to desired service height. Rotate lever on hydraulic lock 90° clockwise to lock. Then lock joystick in neutral position. Do not use if there are any hydraulic leaks.

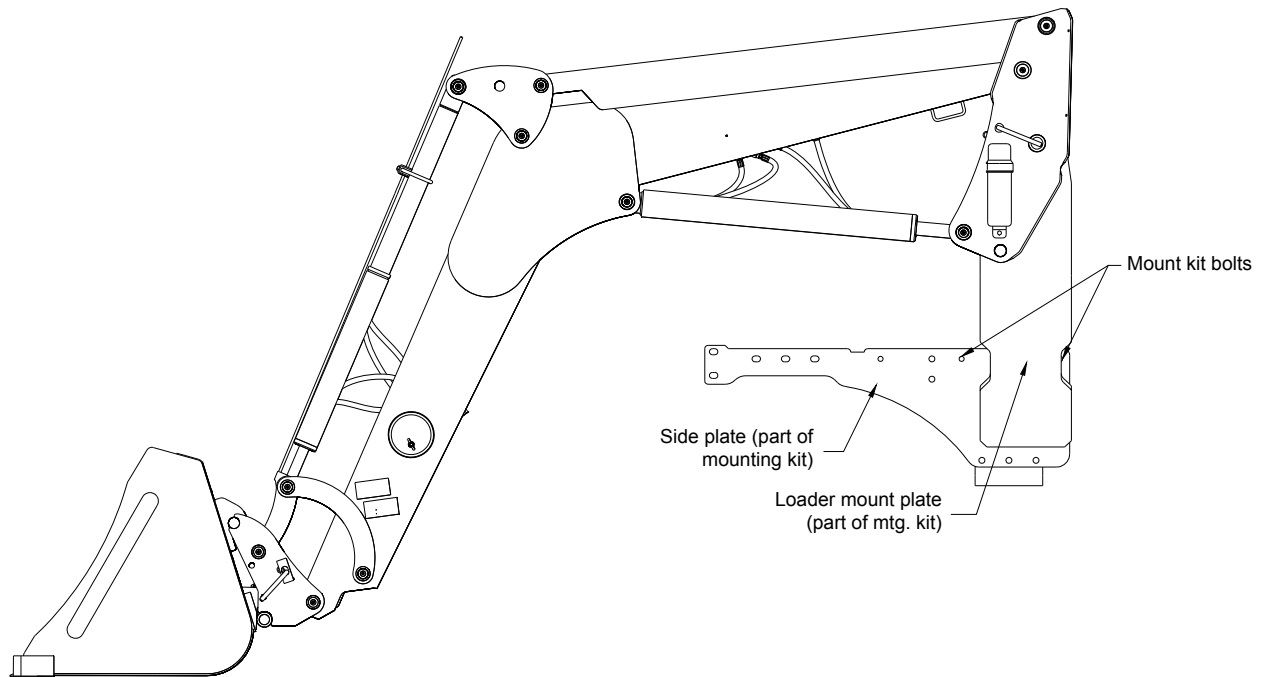
Cushion Ride Lock should be used when any servicing is to be done to the hydraulic system.

Pins and Bushings

Every 6 months or 1000 hours check loader and cylinder pivots for movement that would be due to bushing or pin wear. Change bushings when excessive movement is noticed and replace any worn or rough surfaced pins.

Mounting Kit

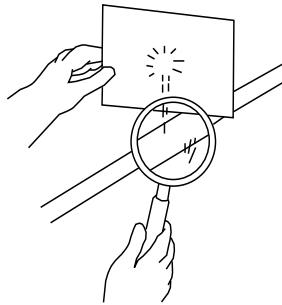
After the initial 2 weeks or 40 hours of loader operation, and 6-month intervals thereafter re-torque all mounting kit bolts. (See below for proper bolt torques)



Standard						
Bolt Size (in)	Grade 2		Grade 5		Grade 8	
	Torque		Torque		Torque	
	ft-lb	NM	ft-lb	NM	ft-lb	NM
0.25 (1/4)	6	7	8	11	12	16
0.313 (5/16)	11	15	17	23	25	33
0.375 (3/8)	20	27	31	41	44	60
0.438 (7/16)	32	43	49	66	70	95
0.5 (1/2)	49	66	76	103	106	144
0.563 (9/16)	70	95	109	148	153	207
0.625 (5/8)	97	131	150	203	212	287
0.75 (3/4)	144	195	266	360	376	509
0.875 (7/8)	166	225	430	583	606	821
1	250	339	644	873	909	1232
1.125 (1-1/8)	354	480	795	1077	1288	1745
1.25 (1-1/4)	500	678	1120	1518	1817	2462
1.375 (1-3/8)	655	887	1470	1992	2382	3228
1.5 (1-1/2)	870	1179	1950	2642	3161	4283

Metric								
Bolt Size (mm)	Class 5.6		Grade 8.8		Grade 10.9		Grade 12.9	
	Torque		Torque		Torque		Torque	
	ft-lb	NM	ft-lb	NM	ft-lb	NM	ft-lb	NM
6	3.1	4.3	7.3	9.9	10.3	14	12.1	16.5
8	7.7	10.5	17.7	24	25	34	29	40
10	15	21	35	48	49	67	59	81
12	26	36	61	83	86.2	117	103	140
14	42	58	97	132	136	185	162	220
16	64	88	147	200	210	285	250	340
18	89	121	202	275	287	390	346	470
20	126	171	287	390	405	550	486	660
22	169	230	390	530	549	745	656	890
24	217	295	497	675	708	960	840	1140
27	320	435	733	995	1032	1400	1239	1680
30	435	590	995	1350	1401	1900	1681	2280
33	590	800	1349	1830	1902	2580	2278	3090
36	759	1030	1740	2360	2441	3310	2935	3980
39	988	1340	2249	3050	3163	4290	3798	5150

Hydraulics



WARNING

Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before repairing, adjusting, or disconnecting lines, be sure to relieve all pressure.

Before applying pressure to the system, be sure all connections are tight and the lines, pipes, and hoses are not damaged.

Wear proper hand and eye protection when searching for leaks. Use a piece of wood or cardboard instead of hand to check for leaks.

Maintain all components in good working order.

If injured by escaping fluid, see a doctor at once. Serious infection or toxic reaction can develop if proper medical treatment is not administered immediately.

With loader attachment on the ground, check and add if necessary the approved hydraulic fluid. Refer to the Tractor Manual for proper inspection of fluid level, oil type and service intervals. Visually check hoses and fittings for leaks and damage on a daily bases. Ensure hoses do not bind or stretch during operation. Always keep hoses tied or supported to prevent rubbing against sharp areas or being pinched. We suggest using tie wraps to support hoses. Hoses routed from steel lines to cylinders should be in a relaxed position. To correct, loosen swivel end of hose and retighten.



WARNING

Never operate the loader with frayed or damaged hoses or leaking fittings. A burst would cause the loader to drop suddenly and result in serious injury or death and cause damage to the loader or tractor.

Replacement hoses must be equal to a working pressure of 3000 PSI or higher.

TSL General Note and Instructions

1. The true self leveling system (TSL) utilizes mechanical linkages to maintain bucket level while raising and lowering. The pivot plate weldment, leveling tubes and linkages have been developed to ensure that the bucket remains at the same position throughout its range of motion.
2. The TSL system incorporates a relief and anticavitation manifold to provide extra dump at ground and rollback at full lift height. If the loader is raised with the bucket fully dumped, oil from the bucket piston side will be bypassed at high pressure to the bucket shaft side and the lift shaft side as the quick attach contacts the dump stop. Note that this condition will occur intermittently and although the pump will be forced to supply oil at a higher pressure, no damage to the loader components will occur.
3. The extra bucket stroke length allows for the bucket to be dumped to approximately 90 degrees at ground. This allows for bucket assist when traction is minimal. If the loader is raised from this position, the bucket will retract as the quick attach contacts the dump stop and the circuit goes through relief as described in note 2.
4. The TSL feature maintains the bucket level, but as required the bucket can be manually rolled back approximately 20 degrees to allow for increased bucket capacity. If the loader is lowered from this position, the bucket will extend as the quick attach contacts the rollback stop and the circuit goes through relief as described in note 2.
5. The relief valve is factory set at 2000 PSI cracking pressure and is capable of bypassing 15 GPM.

Troubleshooting

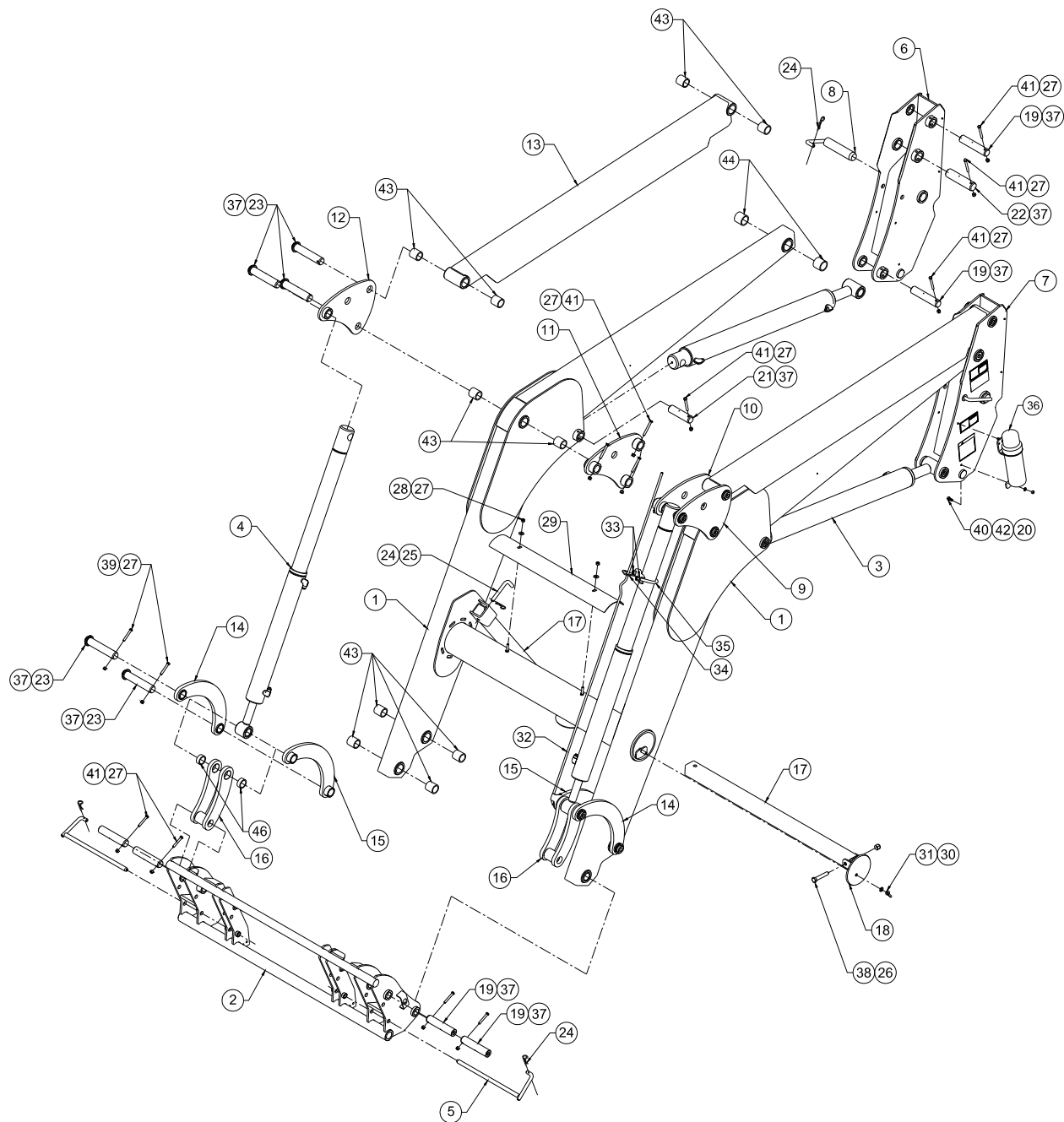
Problem	Possible Cause	Remedy
Loader slow and/or will not dump.	Quick couplers leaking. Hydraulic oil too heavy. Oil filter plugged. Hydraulic pump worn. Oil line restricted or leaking. Control valve does not shift properly. Air in hydraulic system. Cylinder leaks internally. Faulty valve.	Check connections and compatibility or replace. Change or replace filter. Clean or replace filter. Repair or replace pump. Check all hoses and tubes for leaks, damage or restrictions. Replace damaged or restricted hoses or tube lines. Inspect, clean, repair or replace valve. Cycle lift cylinders and bucket cylinders several times to free system of air. Replace seals. Repair or replace valve.
Loader chatters or vibrates when raising and lowering.	Air leak in pump inlet line. Air in hydraulic system. Oil level too low.	Check, tighten or replace inlet line. Cycle lift cylinders and bucket cylinders. Add oil as required.
Excessive movement at pivots.	Worn bushings and/or pins.	Replace bushings and/or pins.
Pump noisy.	Inlet line restricted or leaking. Oil level too low. Pump worn or damaged.	Check for air leaks, restrictions or collapsed hose. Tighten or replace hose. Clean filter if necessary. Add oil as required. Repair or replace pump.
Oil leaks.	Damaged fitting or hoses. Loose connections. Worn or damaged O-ring wiper seal in cylinder rod end.	Replace damaged parts. Tighten fittings. Install a seal repair kit.
Oil Leaks at Valve.	Worn or damaged O-rings at valve. Solenoid or O-rings blown at cap or spool ends (Restriction on return port or pressure plumbed to return port of valve).	Install an O-ring repair kit. Remove restriction or ensure valve is plumbed correctly.

Insufficient lift capacity.	Improper hydraulic pump operation. Load is greater than boom lift capacity. Internal boom cylinder leakage. Improper hydraulic valve operation.	Repair or replace pump. Check loader specifications. Replace any worn parts and install a seal repair kit. Repair or replace valve.
Slow leak down.	Worn control valve. Worn cylinder piston seals.	Have authorized dealer replace seals.
Excessive wear on bottom of bucket and wear pads.	Float position not used while operating loader.	Use float position provided on valve.
Hydraulic cylinders inoperative.	Hose from control valve improperly connected.	Refer to plumbing diagrams.
Pump operating continually on closed center tractor hydraulics system.	Tractor control valve relief stuck open. Incorrect Auxiliary Valve. Hydraulic control valve set to low.	See your service manual for proper adjustment. Check with loader dealer for proper valve application. Adjust valve in accordance with manual.
Loader lift and bucket tilt controls do not work according to decal.	Hoses improperly connected.	Refer to plumbing diagrams and correct hose connections.
Valve noisy and/or hot.	Open center control valve on closed center tractor.	Replace relief valve with closed center plug and plug the power beyond adapter on valve.
Tractor loads/pump squeals.	Closed center control valve on open center tractor.	Install open center plug on optional valve. Replace closed center plug with relief and install short plug in place of the power beyond adapter.
Stiff control valve.	Dirt or moisture build up on spool ends. Incorrect torque (applies to sectional valves only).	Clean spool ends and if applicable cable ends at valve. Loosen and re-torque bolts to specs.

Parts Appendix

Description	Page
Main Frame Assembly	36
Hydraulic Plumbing Assembly	38
Cushion Ride Assembly	40
Cylinder Assembly	42
Hydraulic Fitting Torques	43
Prevailing Torque Locknuts	43

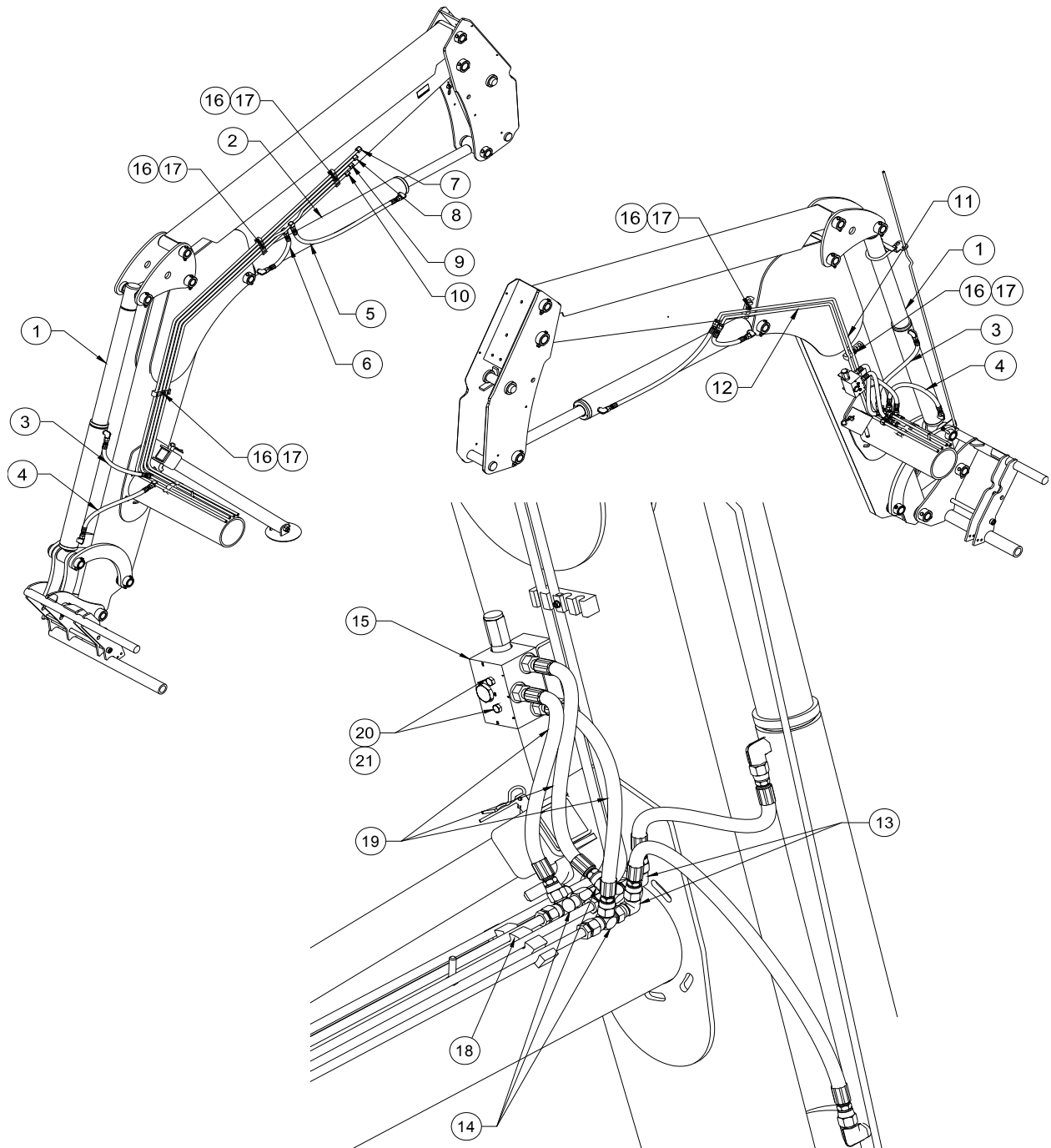
Main Frame Assembly



Main Frame Assembly Parts List

Item	Part Number	Description	Quantity
1	83100004	3995ETSL Main Frame Weldment (bushings incl.)	1
2	83100298	Euro Quick Attach Weldment	1
3	83100018	Lift Cylinder (see cylinder assembly)	2
4	83100024	Bucket Cylinder (see cylinder assembly)	2
5	83100305	Pin Weldment (Quick Attach)	2
6	83100015	Upright Weldment Right	1
7	83100014	Upright Weldment Left	1
8	83100303	Pin Weldment (Upright)	2
9	83100008	Pivot Plate Left Outside	1
10	83100009	Pivot Plate Left Inside	1
11	83100010	Pivot Plate Right Inside	1
12	83100011	Pivot Plate Right Outside	1
13	83100106	Leveling Tube Weldment	2
14	83100095	Link Weldment 17.0" Outside	2
15	83100096	Link Weldment 17.0" Inside	2
16	83100036	Link Assembly 10.5"	2
17	83100175	Stand Tube	2
18	83100161	Stand Foot Weldment	2
19	83100300	Pin 1.50 x 7.13	8
20		Washer Flat 0.313 NC	2
21	83100132	Pin 1.50 x 5.63	2
22	83100134	Pin 1.75 x 7.00	2
23	83100099	Pin Weldment 1.50 x 7.13	10
24	12779	Hair Pin Clip	6
25	110907	Stand Pin	2
26		Nut Lock 0.625 NC	2
27		Nut Lock (Nylon) 0.375 NC	24
28		Flat Washer 0.375 DIA	2
29	83100030	Cross Tube Cover	1
30		Lock Washer 0.50 DIA	2
31		Wing Nut 0.50 DIA	2
32	83100200	Leveling Rod	1
33		Nut Lock (Nylon) 0.50 NC	2
34	114969	Guide Bracket	1
35	115012	U-Bolt	1
36	909277	Operator's Manual Holder	1
37	84583	Grease Fitting 1/8 NPT Straight	22
38		Hex Bolt 0.625 NC x 4.00 Lg GR5 PL	2
39		Hex Bolt 0.375 x 2.50 Lg GR5 PL	4
40		Hex Bolt 0.313NC x 1.25 Lg GR5 PL	2
41		Hex Bolt 0.375 NC x 3.0 Lg GR5 PL	18
42		Nut Lock (Nylon) 0.313 NC	2
43	113579	Bushing 1.50 ID x 1.88 OD	22
44	83100075	Bushing 1.75 ID x 2.13 OD x 1.88 LG	4
45	83100069	Bushing 1.50 ID x 1.88 OD x 1.00 LG	2
46	83100033	Bushing 1.50 ID x 1.88 OD x 0.75 LG	4

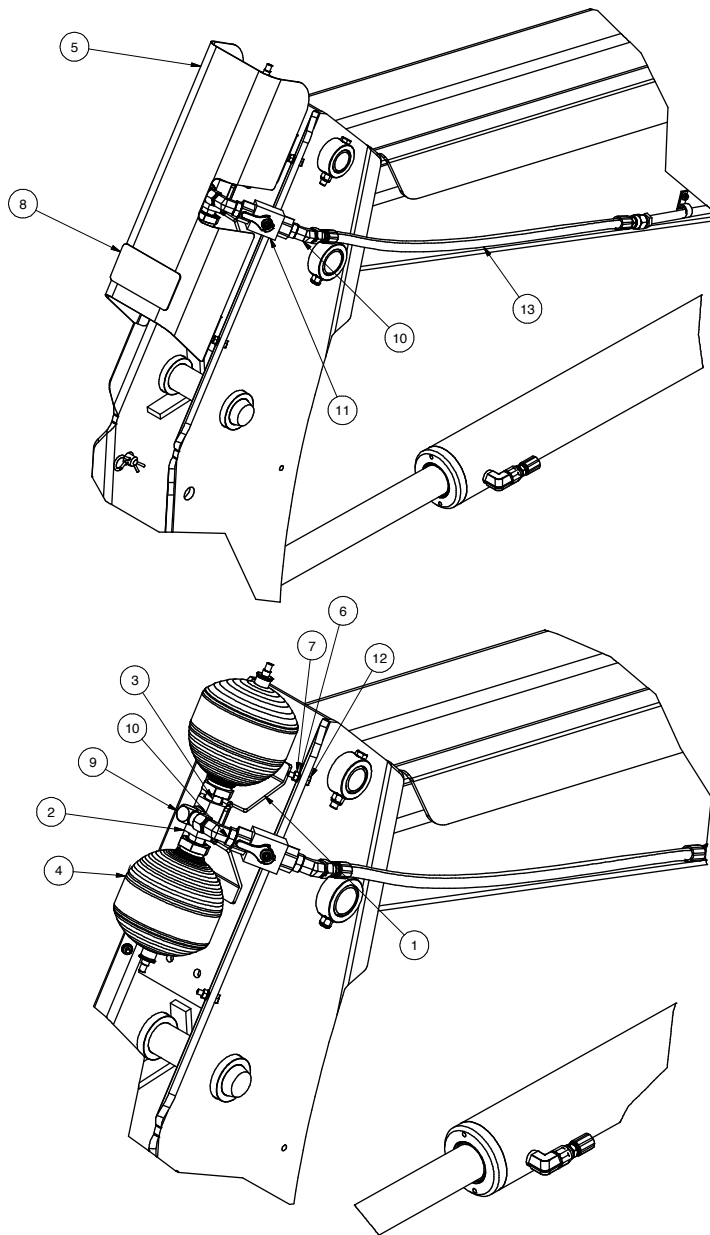
Hydraulic Plumbing Assembly



Hydraulic Plumbing Assembly Parts List

Item	Part Number	Description	Quantity
1	83100024	Bucket Cylinder (See cylinder assembly for breakdown)	2
2	83100018	Lift Cylinder (See cylinder assembly for breakdown)	2
3	812697	Hose 3/8 x 24 3/4-16 SWFJIC	2
4	115864	Hose 3/8 x 28 3/4-16 SWFJIC	2
5	811424	Hose 3/8 x 30 3/4-16 SWFJIC	2
6	115260	Hose 3/8 x 15 3/4-16 SWFJIC	2
7	83100108	Tube Line Bucket Cyl. Top/Dump	1
8	83100109	Tube Line Bucket Cyl. Bottom/Rollback	1
9	83100110	Tube Line Lift Cyl. Top/Lower Right	1
10	83100111	Tube Line Lift Cyl. Bottom/Raise Right	1
11	83100140	Tube Line Lift Cyl. Top/Lower Left	1
12	83100141	Tube Line Lift Cyl. Bottom/Raise Left	1
13	812829	Elbow 90 3/4 SWFJIC x 3/4 MJIC	2
14	812786	Tee 3/4 Mjic x 3/4 Swfjic	3
15	24400	Hydraulic Manifold	1
16	83100335	Threaded Cutting Screw 0.25-20 x 1.50 UNC	5
17	814327	Clip Hyd. Lines	5
18	814330	Clip Rubber CrossTube	2
19	114491	Hose 3/8 x 18 3/4 MORB x 3/4 Swfjic	3
20		Bolt Hex 0.25 x 3.00	2
21		Nut Hex 0.25	2
22		Ty-Wraps	3

Cushion Ride Assembly



Cushion Ride Assembly Parts List

Item	Part Number	Description	Quantity
1	115970	Bracket	1
2	116058	Manifold	1
3	813119	Adaptor Str 3/4MORB x 3/4MORB	2
4	115945	Accumulator - Loaders	2
5	815304	Shroud	1
6		Washer flat Std 0.25 HS PL	4
7		1/4" hex nut (PL)	4
8	814160	Decal Hyd. accumulator	1
9	8130911	Elbow 90 3/4 Morb x 3/4 SWF JIC	1
10	812516	Elbow 45 3/4 Morb x 3/4 MJIC	2
11	813852	Ball valve 3/4 FORB	1
12		1/4" x 1" hex bolt (PL)	4
13	812739	Hose 1/2" x 40" 3/4 SWFJIC	1

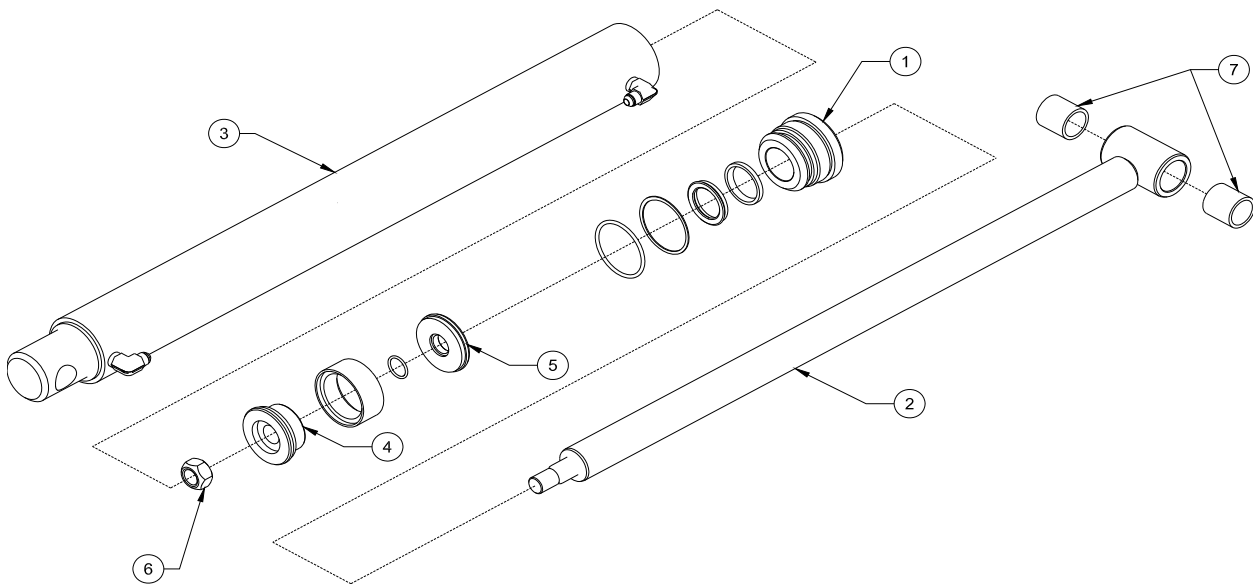
Cylinder Assemblies

Description	Bucket Cylinders (TSL)	Lift Cylinders (TSL)
Diameter	3.25"	3.50"
Length of Stroke	22.00"	35.00"
Retracted Length	60.00"	46.50"
Extended Length	82.00"	81.50"
Cylinder Assembly No.	83100024	83100018
Seal Kit No.	X3796	X1425
Shaft Diameter	1.5"	2.00"

Item	Description	Part Number	Part Number
1	Head Plate	83100364	24430
2	Shaft Weldment	83100025	83100019
3	Cylinder Tube Weld't	83100027	83100021
4	Piston Half (wide)	83100366	112940
5	Piston Half (narrow)	83100367	112941
6	Self-Locking Nut	813407	813407
7	Shaft Bushing	83100069	113579

NOTES

1. Lift cylinder shown
2. All cylinder seals are contained in corresponding seal kit.
3. Refer to page 40 for prevailing torque for locknuts.



CAUTION

Maximum pressure – 3000 PSI

Hydraulic Fitting Torques

Dash Size	Thread Size	Jam Nut or Straight		SAE 37° (JIC)	
		ORB Fitting Torque		Swivel Nut Torque	
		(ft-lb)	(NM)	(ft-lb)	(NM)
-04	7/16-20	14-16	20-22	10-11	13-15
-05	1/2-20	18-20	24-27	13-15	18-20
-06	9/16-18	24-26	33-35	17-19	23-26
-08	3/4-16	50-60	68-78	34-38	47-52
-10	7/8-14	72-80	98-110	50-56	69-76
-12	1-1/16-12	125-135	170-183	70-78	96-106
-14	1-3/16-12	160-180	215-245	80-90	110-122
-16	1-5/16-12	200-220	270-300	94-104	127-141
-20	1-5/8-12	210-280	285-380	124-138	169-188
-24	1-7/8-12	270-360	370-490	156-173	212-235

Prevailing Torque Locknuts

Nut Size and Threads	Grade B Nuts		Grade C Nuts	
	Nut Tightening Torque		Nut Tightening Torque	
	(ft-lb)	(NM)	(ft-lb)	(NM)
Coarse Thread				
0.250-20	5-7	7-9	7-10	9-14
0.313-18	9-12.5	12-17	11-16	15-22
0.375-16	14.5-20	20-27	20-28	27-38
0.438-14	23-32	31-43	31-43	42-58
0.500-13	37-50	50-68	45-62.5	61-85
0.563-12	50-70	68-95	70-95	95-129
0.625-11	70-95	95-129	90-122.5	122-166
0.750-10	125-165	169-224	155-210	210-285
0.875-9	185-250	251-339	225-312.5	305-423
1.000-8	275-375	373-508	360-462.5	488-627
Fine Thread				
0.250-28	5.5-7.5	7-10	7-10	9-14
0.313-24	10-13	14-18	12-17	16-23
0.375-24	16-22	22-30	21-29	28-39
0.438-20	24-34	33-46	31-43	42-58
0.500-20	37.5-52.5	51-71	50-70	68-95
0.563-18	57.5-77.5	78-105	70-95	95-129
0.625-18	72.5-97.5	98-132	90-125	122-169
0.750-16	120-165	163-224	155-210	210-285
0.875-14	200-270	271-366	225-312.5	305-423
1.000-14	300-400	407-542	362.5-500	491-678

Notes

1. For Grade A locknut torque specifications refer to Grade B specifications.

Warning



General Safety

- Look out for children.
Teach your children safety (inform them of danger around machines).
- Manual must be read and understood by operator.



Transport

- Emblems must be visible.
- Always move equipment in low or down position especially around power lines.
- Never leave equipment in raised position.



Service

- Service equipment only when stopped and with lift locks in place as shown.
- Keep all guards and shields in place.
- Replace damaged or worn parts. Frayed cables and hoses are dangerous.
- Do not change factory settings.
- Keep decals clean and legible. (replacements normally available).

NOTES:

NOTES:

www.farm-king.com



1330 43rd Street NW
Fargo, North Dakota USA 58102
Ph.: 701.282.7014 | Fax: 701.282.5865
E-mail: info@buhler.com
www.farm-king.com

Equipment shown is subject to change without notice.
©2010 BuhlerTrading Inc. Printed in USA. TSX:BUI

bühler | a division of Buhler Industries Inc.