



Operator's Manual

3895_{SLR}

3895_{SL5}

Loaden

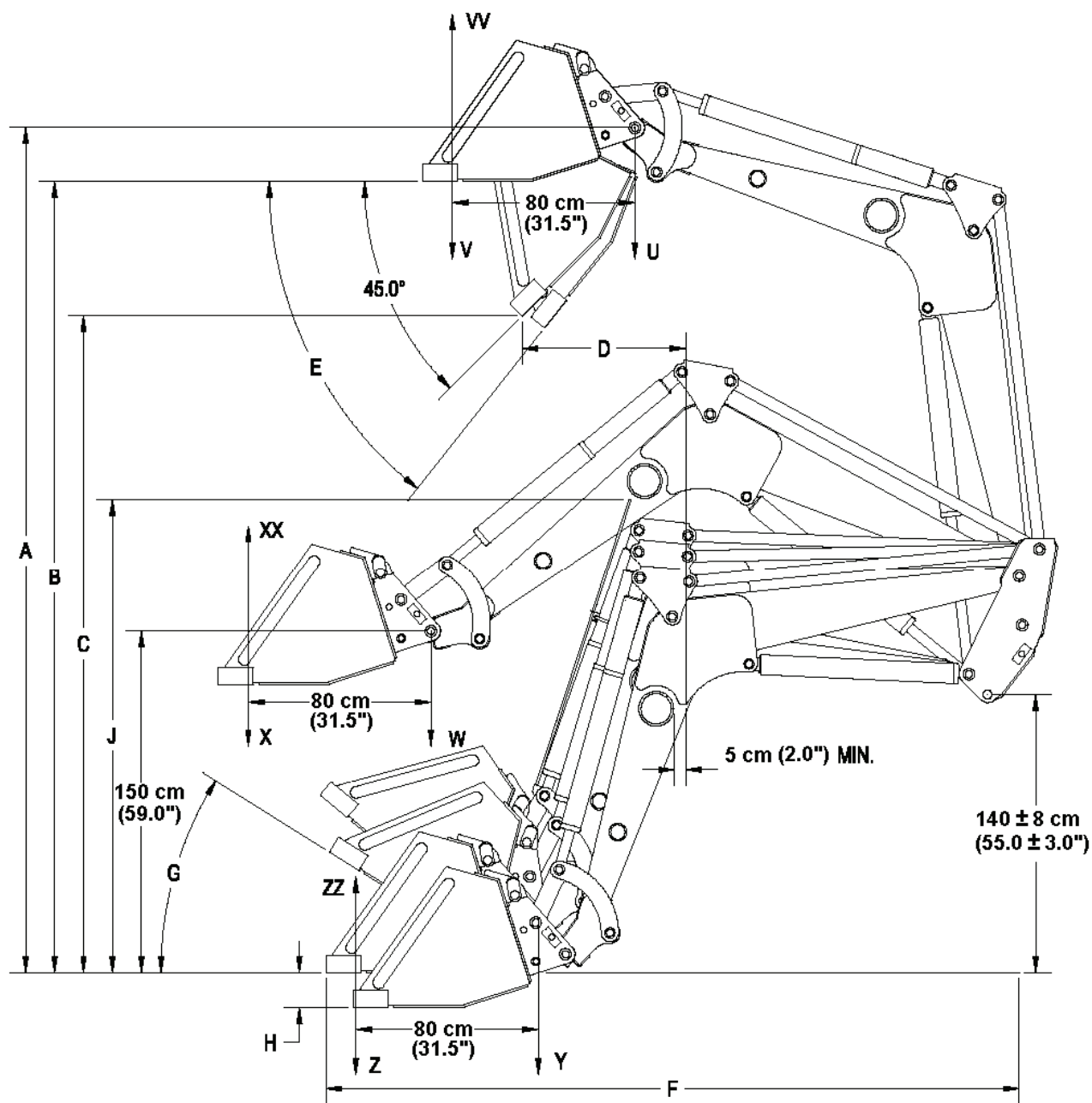


3895 Operators And Parts Manual Contents

Loader Specifications	2
Introduction	6
Terminology	6
Serial Decal Location	7
Safety	8
Pre - Operation	14
Operation	15
Manual Joystick	15
Electronic Joystick	16
Installing / Removing Loader	27
Installing / Removing Loader Attachments	30
Lubrication	31
Maintenance	32
Hydraulic Loader Lock	32
Mounting Kit	33
Hydraulics	34
General Notes and Instructions	36
Troubleshooting	37
Fault Codes - Electronic Joystick	38
Schematic - Electronic Joystick	41
Hydraulic Connections	42
Hydraulic Circuit	43
Grapple - C2000 & C3000	44
Mounting Instructions	44
Recommended Mounting Dimensions	49
Clamp and Cable Information	51
Grapple Silage Backsplash mounting	52
Grapple - Removal / Attachment	54



Loader Specifications





Item	Description	SLR	SLS
A	Maximum lift height to pivot pin cm (in)	460 (181)	429 (169)
B	Maximum lift height under level bucket cm (in)	434 (171)	403 (159)
C	Clearance with bucket dumped cm (in)	370 (146)	340 (134)
D	Reach at maximum lift height cm (in)	74 (29)	51 (20)
E	Maximum dump angle	61°	61°
G	Maximum rollback angle	35°	34°
H	Digging depth cm (in)	12.7 (5.0)	12.7 (5.0)
J	Overall height in carry position cm (in)	262 (103)	262 (103)
U	Lift capacity to maximum height – at pivot pin kg (lbs)	3129 (6900)	3118 (6875)
V	Lift capacity to maximum height kg (lbs)	2245 (4950)	2234 (4925)
W	Lift capacity to 150 cm (59 in.) height – at pivot pin kg (lbs)	3470 (7650)	3800 (8400)
X	Lift capacity to 150 cm (59 in.) height kg (lbs)	2778 (6125)	2993 (6600)
Y	Breakout force – at pivot pin daN (ft-lbs)	3781 (8500)	4426 (9950)
Z	Breakout force daN (ft-lbs)	2914 (6550)	3325 (7475)
VV	Bucket rollback force at maximum height daN (ft-lbs)	2836 (6375)	2847 (6400)
XX	Bucket rollback force at 150 cm (59 in.) lift height daN (ft-lbs)	3492 (7850)	3503 (7875)
ZZ	Bucket rollback force at ground line daN (ft-lbs)	3125 (7025)	3114 (7000)
	Raising/Lowering time	8.1 (5.5)	8.1 (5.5)
	Bucket dumping/rollback time	4.0 (2.6)	4.0 (2.6)
	Lift cylinder tube/shaft size cm (in)	8.9 (5.1)/ 3.5 (2.0)	8.9 (5.1)/ 3.5 (2.0)
	Lift cylinder stroke/retracted length cm (in)	82.5 (13.3)/ 32.5 (52.5)	82.5 (13.3)/ 32.5 (52.5)
	Bucket cylinder tube/shaft size cm (in)	7.62 (4.44)/ 3.00 (1.75)	7.62 (4.44)/ 3.00 (1.75)
	Bucket cylinder stroke/retracted length cm (in)	62.2 (13.3)/ 24.5 (52.2)	62.2 (13.3)/ 24.5 (52.2)
	Mounting Height ± 3.0 cm (± 1.2 in)	139 (55)	
	Hydraulic pressure rating/flow rate bar [lpm]/(psi [gpm])	172.41 [75.7] / (2500 [20])	
	Tractor size HP @ normal duty	130 – 275	
	Bucket size cm [m ³]/(in [cu.ft.]) – <i>*Indicates bucket size used for calculations of lift capacities and rollback forces.</i>	182.9 [0.765] / (72 [27.0]) 213.4 [0.864*] / (84 [30.5*]) 243.8 [1.056] / (96 [37.3])	
	Weight (with bkt & mtg kit) kg (lbs)	1724 (3800)	

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



3895 Cylinder Assembly Specification

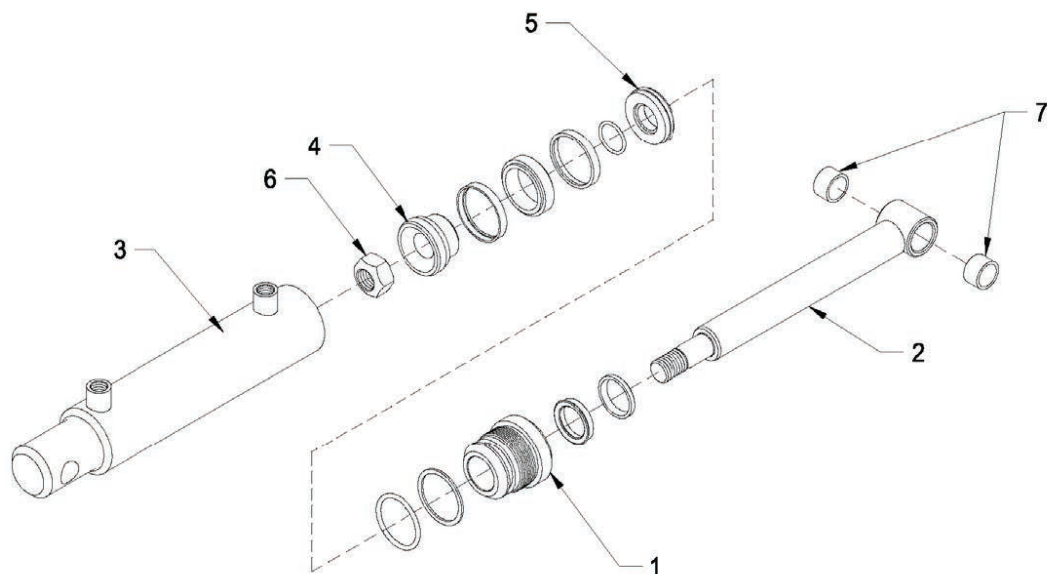
	Bucket Cylinders	Lift Cylinders	
		SLR	SLS
Diameter	7.62 cm (3.00")	8.9 cm (3.50")	8.9 cm (3.50")
Length of Stroke	62.23 cm (24.50")	82.5 cm (32.50")	82.5 cm (32.50")
Retracted Length	132.71 cm (52.25")	133.35 cm (52.50")	114.93 cm (45.25")
Extended Length	194.94 cm (76.75")	215.90 cm (85.00")	197.48 cm (77.75")
Shaft Diameter	4.44 cm (1.75")	5.08 cm (2.00")	5.08 cm (2.00")



CAUTION: MAXIMUM PRESSURE – 207 BAR (3000 PSI)

Grapple Hydraulic Cylinder Assembly Specification

	C2000		C3000
Diameter	51 mm (2.00")	63 mm (2.50")	63 mm (2.50")
Length of Stroke	184 mm (7.25")	184 mm (7.25")	286 mm (11.25")
Retracted Length	419 mm (16.50")	419 mm (16.50")	571 mm (22.50")
Extended Length	603 mm (23.75")	603 mm (23.75")	857 mm (33.75")
Shaft Diameter	32 mm (1.25")	38 mm (1.50")	38 mm (1.50")



NOTES:

1. Cylinders may vary in appearance.
2. All cylinder seals are contained in corresponding seal kit.
3. Cylinder diameter 63 mm (2.5" Dia.) supplied as standard.



CAUTION: MAXIMUM PRESSURE – 207 BAR (3000 PSI)



Hydraulic Fitting Torques:

Dash Size	Thread Size (inch)	Jam Nut or Straight		SAE 37° (JIC)	
		ORB Fitting Torque		Swivel Nut Torque	
		ft-lbs	N·m	ft-lbs	N·m
-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	168-180	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 (inch)	Grade B Nuts		Grade C Nuts	
	Nut Tightening Torque		Nut Tightening Torque	
	ft-lbs	N·m	ft-lbs	N·m
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:

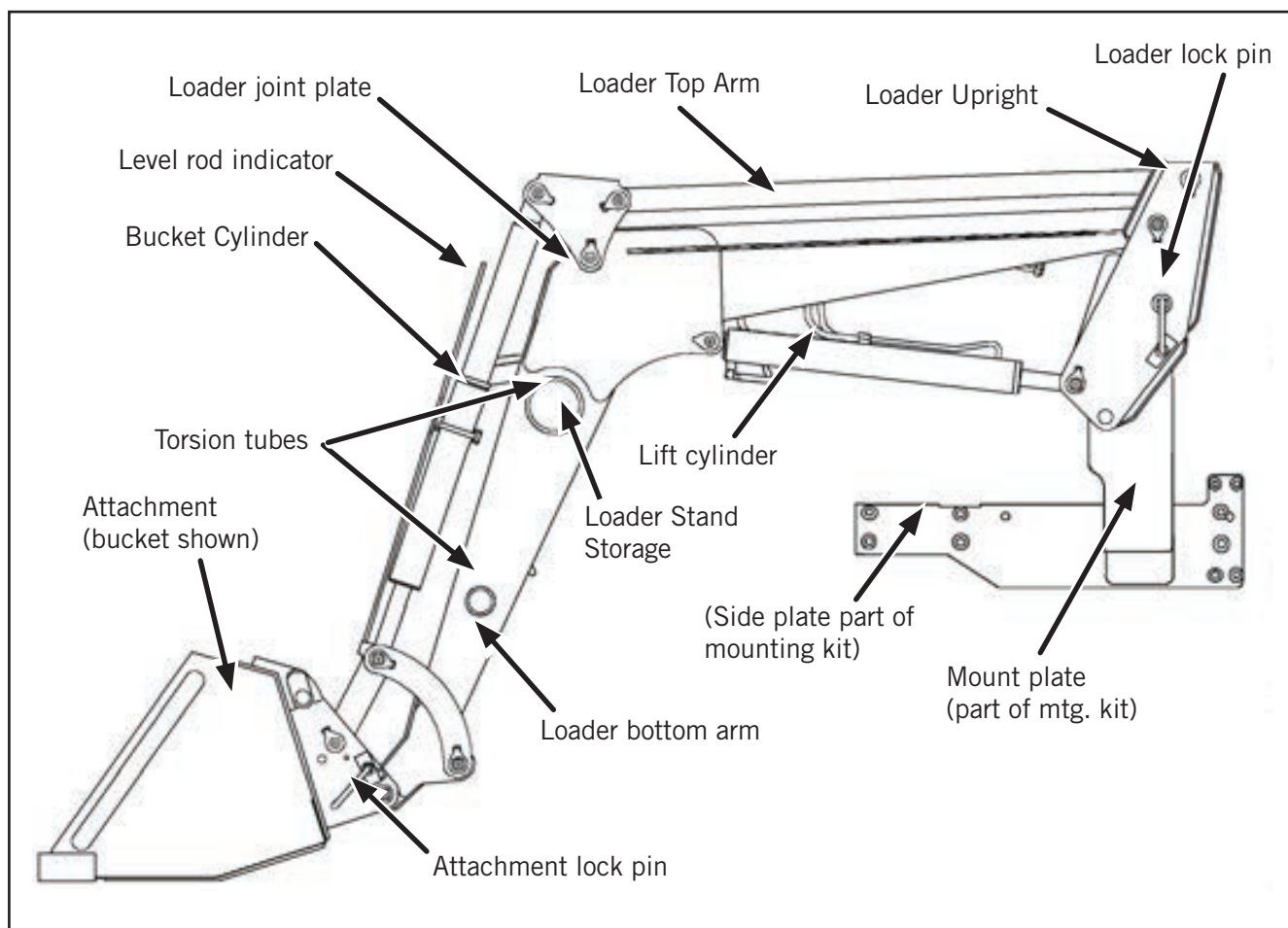
- 1) For Grade A locknut torque specifications refer to Grade B specifications.



Introduction

This manual has been provided as information regarding the specifications, safe operation and maintenance of your agricultural front-end loader. Read and understand this manual and the tractor manual prior to operating to obtain the best use of operating your loader. Keep this manual for reference and to forward to new operators and owners. Contact your local Buhler Versatile dealer if you require any assistance, information or additional manuals.

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



Loader Component Identification Illustration



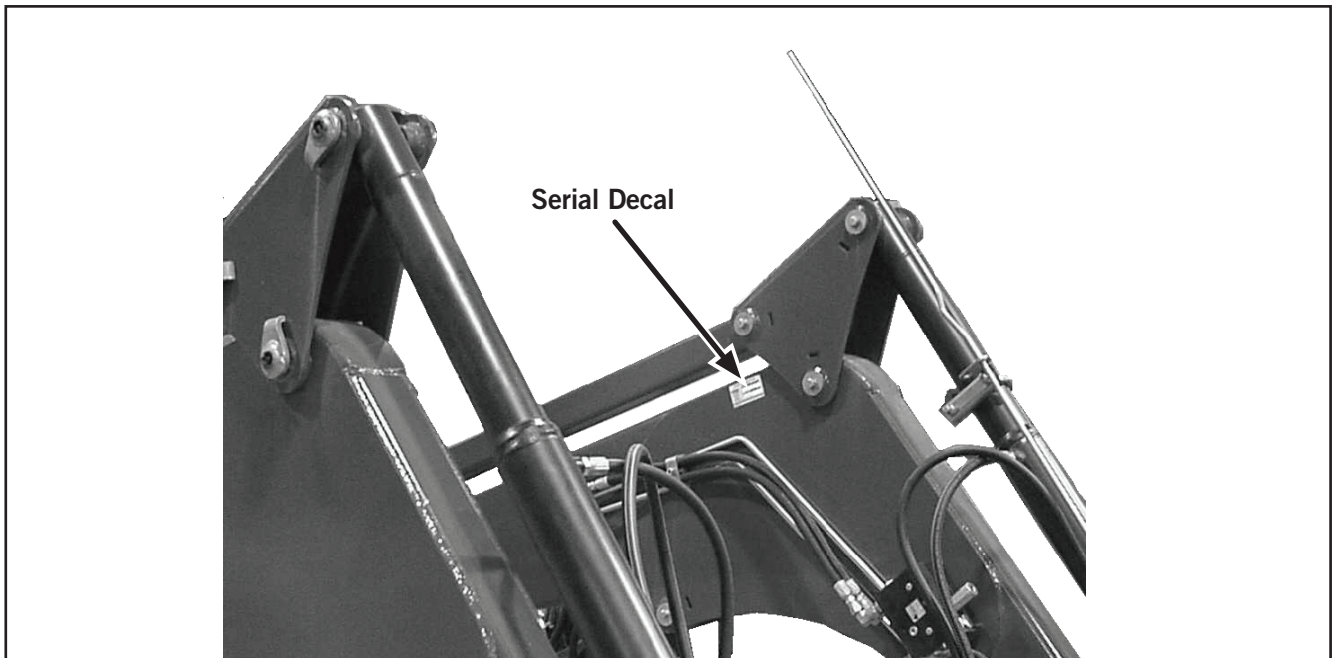
Introduction (Cont'd)

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 **MUST** be completed at the time of delivery to validate the warranty.



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 Lift Lock Instructions Decal for proper use of the lift locks.

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 operator's manual. 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 31 cm (12"), 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. Replacement decals are available from your local dealer.

Important Precautions:

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



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.



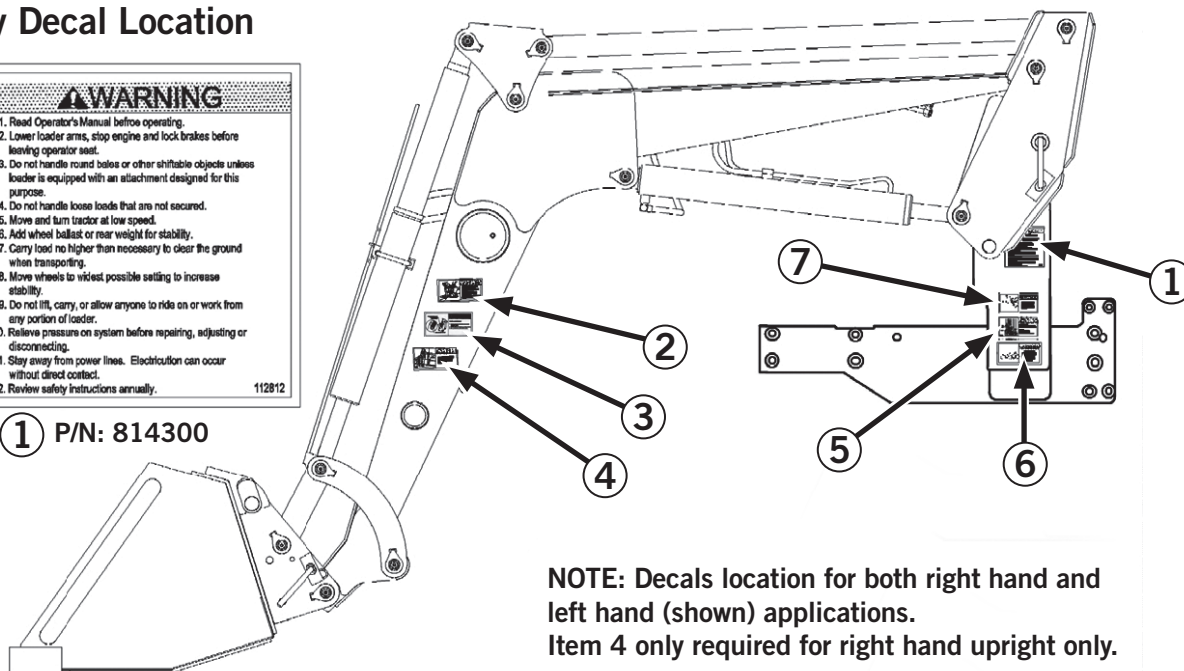
DANGER: THE DANGER SYMBOL INDICATES AN IMMINENTLY HAZARDOUS SITUATION, WHICH WILL RESULT IN DEATH OR SERIOUS INJURY. THIS SIGNAL WORD IS LIMITED TO THE MOST EXTREME SITUATIONS, TYPICALLY FOR MACHINE COMPONENTS, WHICH, FOR FUNCTIONAL PURPOSES, CANNOT BE GUARDED.



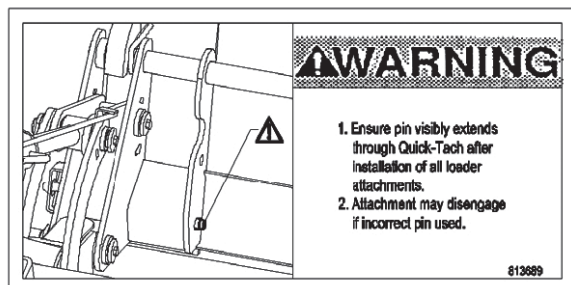
Safety Decal Location



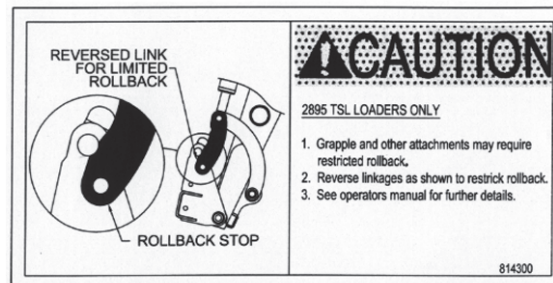
① P/N: 814300



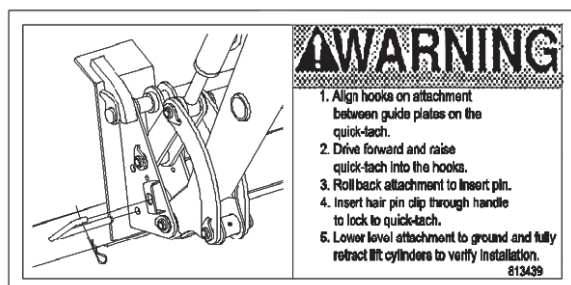
NOTE: Decals location for both right hand and left hand (shown) applications.
Item 4 only required for right hand upright only.



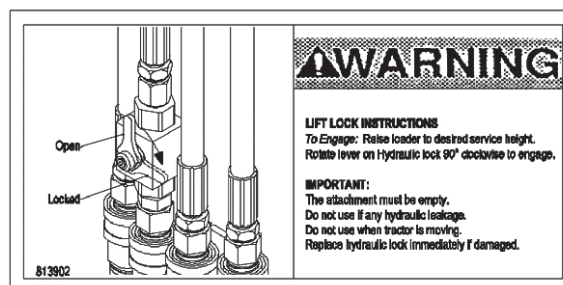
② P/N: 813689



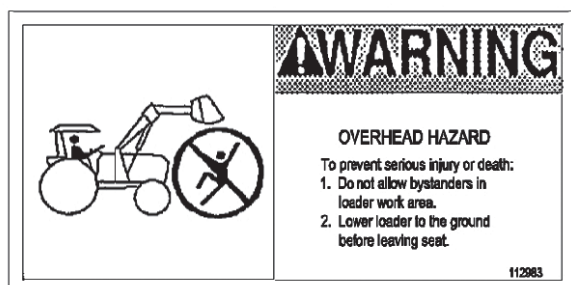
③ P/N: 112812



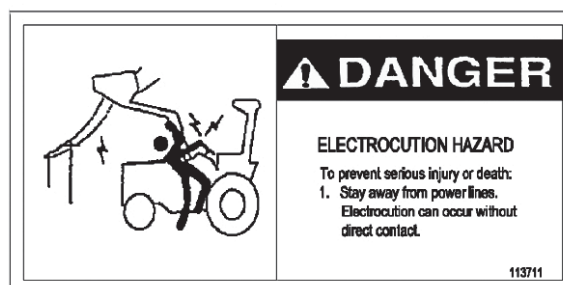
④ P/N: 813439



⑤ P/N: 813902



⑥ P/N: 813439

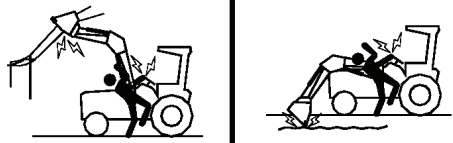


⑦ P/N: 813902



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

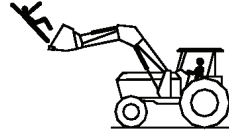
⚠ DANGER



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.

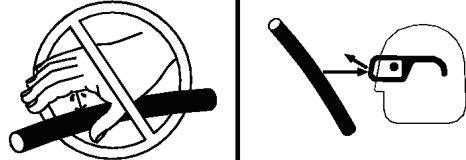
⚠ WARNING



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.

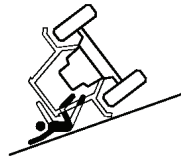
⚠ WARNING



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.

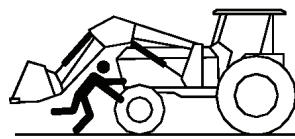
⚠ WARNING



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



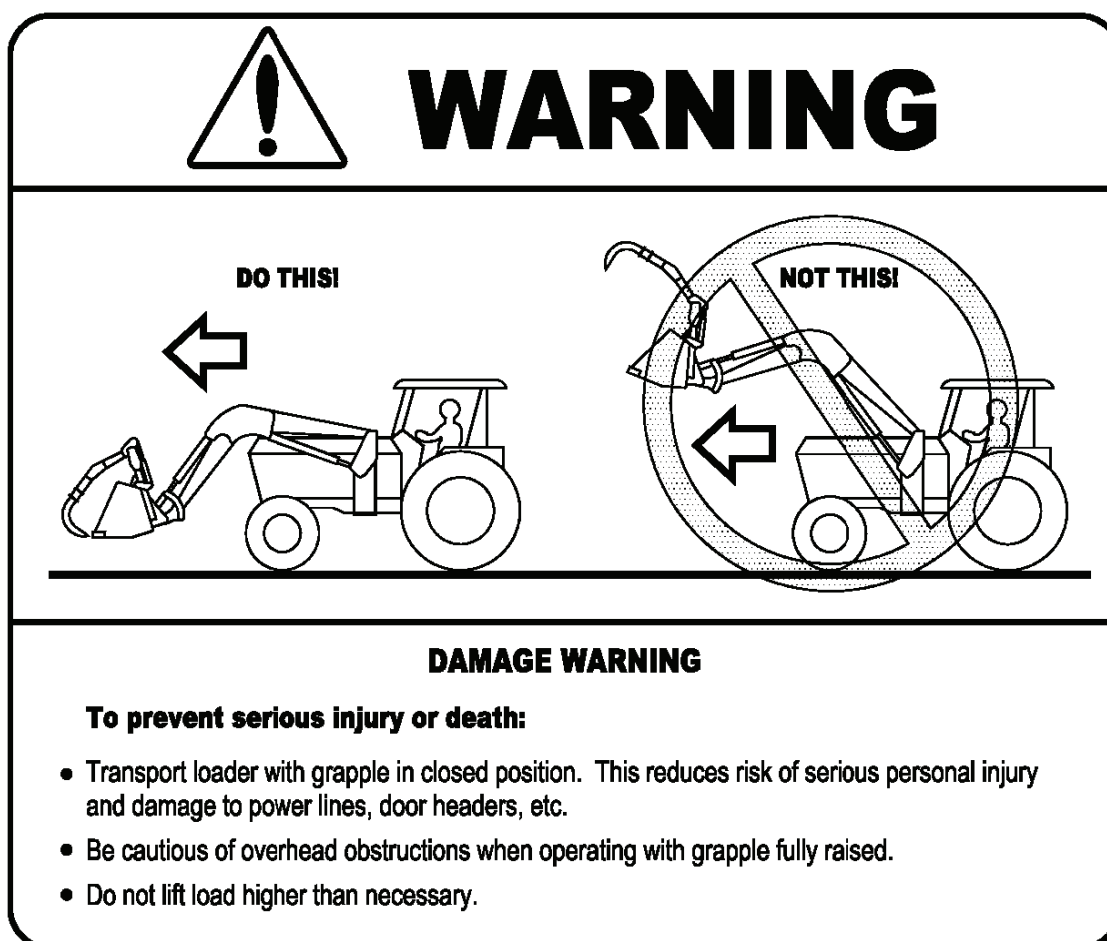
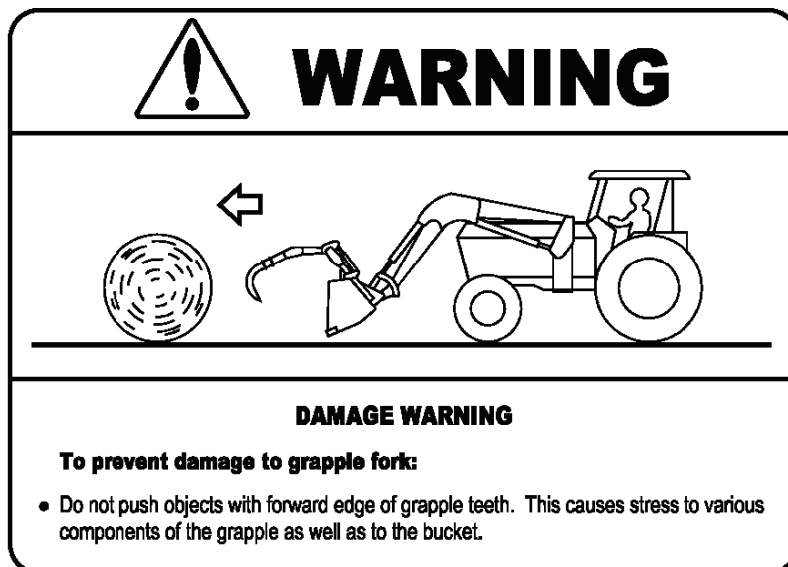
CRUSHING HAZARD
To prevent serious injury or death:

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.



Important Precautions

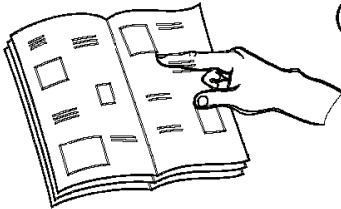
The following pictorials indicate important precautions to be used during the operation of the loader and grapple.





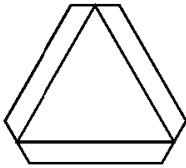
WARNING!

LOOK OUT FOR CHILDREN.
TEACH YOUR CHILDREN SAFETY.
(INFORM THEM OF DANGERS AROUND MACHINES)



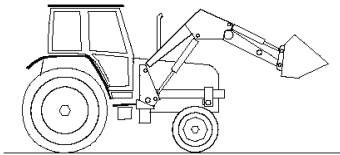
MANUAL MUST BE READ AND
UNDERSTOOD BY OPERATOR.

TRANSPORT



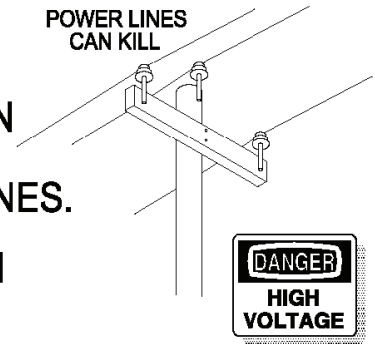
EMBLEMS MUST BE VISIBLE

ALWAYS MOVE EQUIPMENT IN
LOW OR DOWN POSITION
ESPECIALLY AROUND POWER LINES.



NEVER LEAVE EQUIPMENT IN
RAISED POSITION.

POWER LINES
CAN KILL



SERVICE

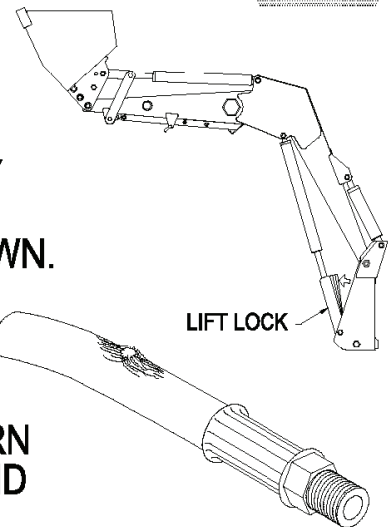
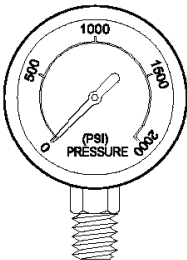
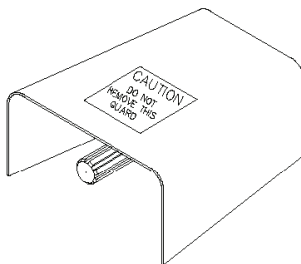
SERVICE EQUIPMENT ONLY
WHEN STOPPED AND WITH
LIFT LOCKS IN PLACE AS SHOWN.

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)



LIFT LOCK





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.

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 maximum width 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.

In cold weather, operate the tractor's engine at 1000-1500 RPM 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.

Manual Joystick

The hydraulic hoses should be connected to the loader valve such that pushing forward on handles lowers the loader or dumps the attachment. When using the remote hydraulic control pushing forward should lower the loader while pushing directly right should dump the attachment.

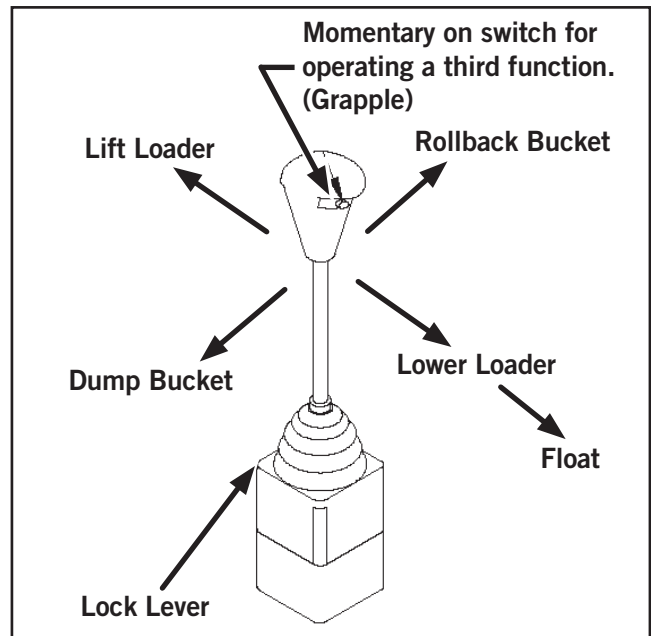
The remote hydraulic control may be equipped with a momentary push button switch and a lock. The push button is for operating a third function when an electric diverter is installed. The third function is normally used for operating a grapple. When the button is depressed the valve ports are open to the grapple cylinders. Shifting the joystick to the left while button is depressed will close the grapple and shifting to the right will open.

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.

A third function hydraulic control is available for grapple or other hydraulic applications. An optional diverter valve is connected to the loader attachment spool and is operated via the remote hydraulic control momentary switch and simultaneously engaging the bucket spool through dump or rollback.





Electronic Joystick

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.

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Cold hydraulic fluid may effect the operation due to the tight tolerances in the electronic valve assembly until the oil reaches operating temperature.

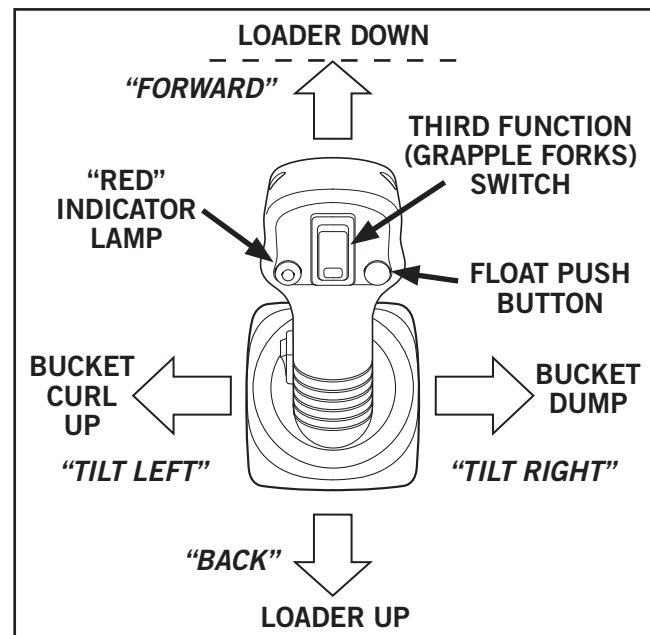
The hydraulic hoses should be connected to the loader valve such that pushing forward on joystick lowers the loader. When using the electronic remote hydraulic control joystick, pushing forward should lower the loader while pushing directly right should dump the attachment.

The electronic joystick is equipped with a third function momentary push toggle switch. This switch is used primarily for operating the optional grapple fork attachment on loaders equipped with a three function hydraulic valve. When the switch is pressed forward or up, the grapple tines should close. Pressing the switch back or down, should open the grapple tines.

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.





Electronic Joystick Operation

Loader Lift Control

The joystick has an On/Off switch which may be turned off to prevent loader operation if the joystick is inadvertently moved. The green light on the third function (grapple fork) switch indicates when the joystick is powered on.

Push top of switch 'O' for power 'OFF'.

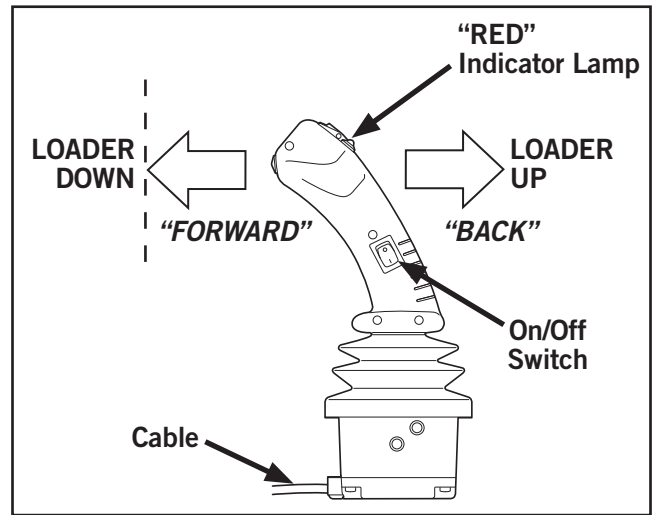
Push bottom of switch 'I' for power 'ON'.

(Red LED and green indicator will flash twice after which green light will remain on indicating that the power is on).

To raise the loader move the lever "Back".

To lower the loader move the lever "Forward".

NOTE: The lever offers proportional control - increasing the distance that the lever is moved will increase the speed of the loader movement. Fine adjustment may also be programmed into the joystick. See Electronic Joystick Programming.



Bucket Control

To curl up the bucket, tilt the lever to the left.

To dump the bucket, tilt the lever to the right.

Float Operation

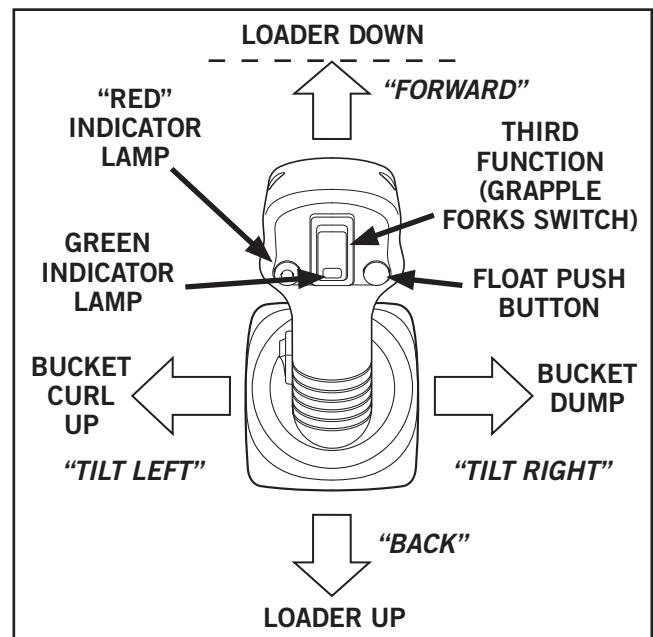
Float position of the loader boom may be selected by depressing the float switch (red), and moving the joystick forward (lowering the loader). The "Red" indicator lamp will illuminate when the float feature has been activated. This position allows oil to flow freely through the control valve so that the lift cylinders may extend or retract freely. Float will allow for the loader to raise and lower as the bucket follows ground contours.

Moving the lever to the raise position (lever pulled back) will cancel float operation. The red indicator lamp will turn off.

Grapple Control

To open the grapple, depress the bottom of the grapple rocker switch. (The end of the switch with the green indicator).

To close the grapple, depress the top of the grapple rocker switch.





Electronic Joystick Programming



WARNING! LOADER MOVEMENT WILL OCCUR DURING PROGRAMMING. TRACTOR SHOULD BE PARKED IN AN OPEN AREA CLEAR OF ANY OBSTRUCTIONS AND PEOPLE.

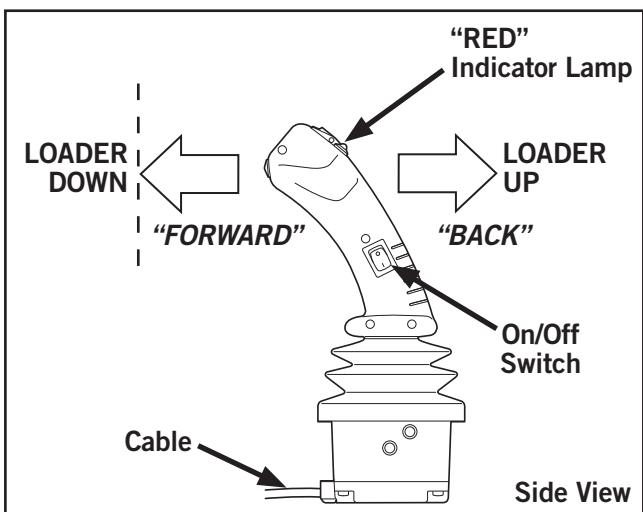
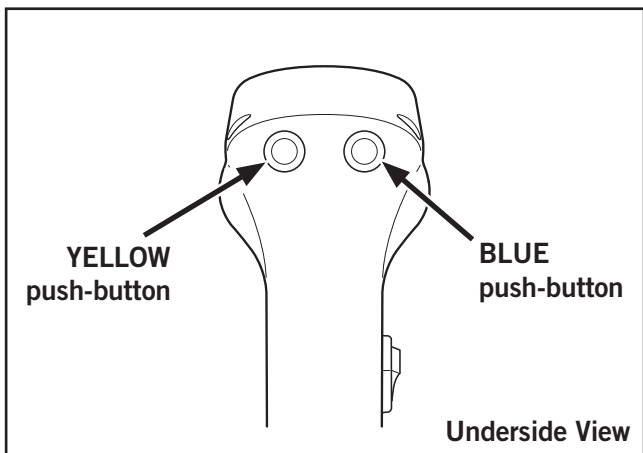
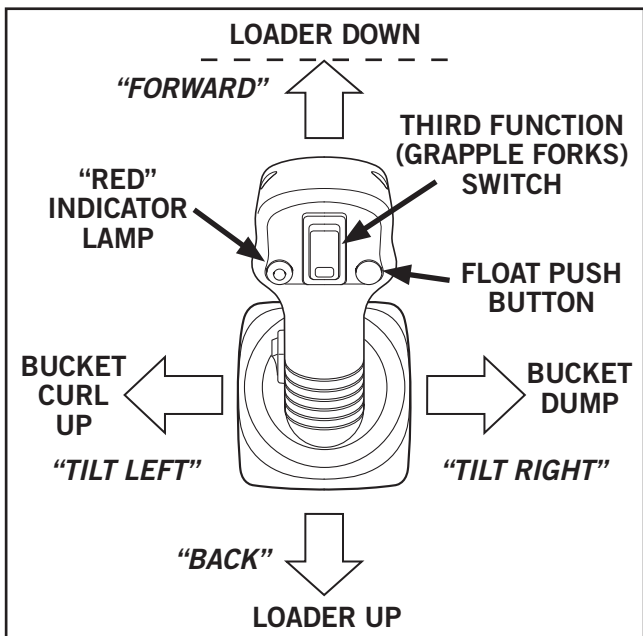
Tractor engine should be running and the hydraulic oil at operating temperature. Joystick must be switched on, and the Green indicator lamp in the third function switch (grapple fork) should be on solid. The Red indicator lamp should be off. If either of the lamps are flashing then the fault has to be identified first before attempting to program the joystick. (Refer to Electronic Joystick Trouble shooting later in this manual).

1. **Programming Mode Enable** - While keeping the joystick in the neutral position, press and hold the Blue, Yellow and Red buttons on the top of the joystick for 3 seconds. (The Blue and Yellow buttons are located on the front side of the joystick. The Red button is located on the right side of the third function switch.) The Green and Red indicator lamps will start flashing synchronously when all three buttons are released.
2. **Parameter Selection** - When the Blue button is selected, the Green indicator lamp will flash more quickly than the Red lamp. If the Blue button is selected repeatedly, the lamp will eventually stop flashing completely. This indicates minimum current value, or no hydraulic flow.

When the Yellow button is selected, the Green indicator lamp will flash slower and match the flash speed of the Red lamp. If the Yellow switch is selected repeatedly, the Green lamp will continue to flash with the Red lamp, and no slower. This indicates maximum current value, or maximum hydraulic flow through the valve of the selected function.

Move the joystick toward the movement you want to adjust:

Forward = Boom DOWN;
Backward = Boom UP;
Left = Bucket UP;
Right = Bucket DOWN



Push the related button to select the parameter to be modified:

BLUE = MINIMUM current (speed);
YELLOW = MAXIMUM current (speed);

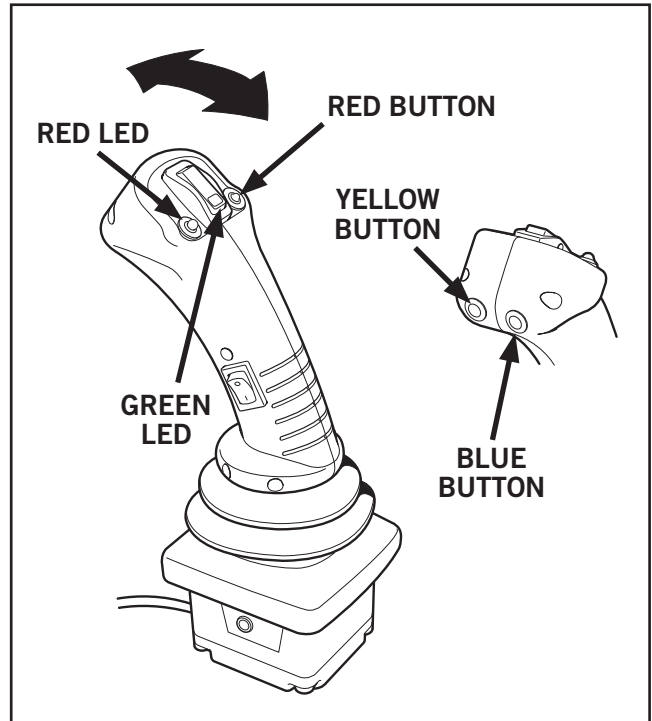
Red indicator keeps flashing steadily;
Green indicator flashes accordingly to the parameter value (at 0 the green lamp is off, increasing the value the “light on” time of the green lamp increases as well).

3. **Parameter Adjustment** - Keep the joystick in the neutral position and modify the parameter value using the buttons as follows:

BLUE = -10 digital points;
YELLOW = +10 digital points;
Rocker switch (Top) = +1 digital points;
Rocker switch (Bottom) = -1 digital points;

Move the joystick in the related direction to verify the effects of the new setting on the machine. If it's not satisfactory, move the joystick back to neutral position and modify the parameter value again.

4. **Save & Exit** - Keep joystick in the neutral position and push the Blue and Yellow buttons simultaneously for 3 seconds. Lamps may be on or off solid when buttons are pressed. Release buttons after 3 seconds.
5. **Cancel (no saving)** - Keep the joystick in the neutral position and push the Red button. Green and Red lamps will start flashing synchronously slowly. Now you're back to step #2 (“Parameter Selection”). See step #4 (“Save & Exit”) to exit or step #2 (“Parameter Selection”) to select another parameter.
6. **Restore Factory Setting** - At step #2, push the Red button and the Rocker switch down simultaneously with joystick in neutral position. Push the Blue button once. Save & Exit (step #4). Switch off the system. Switch on the system again (**the factory setting will then be restored**).



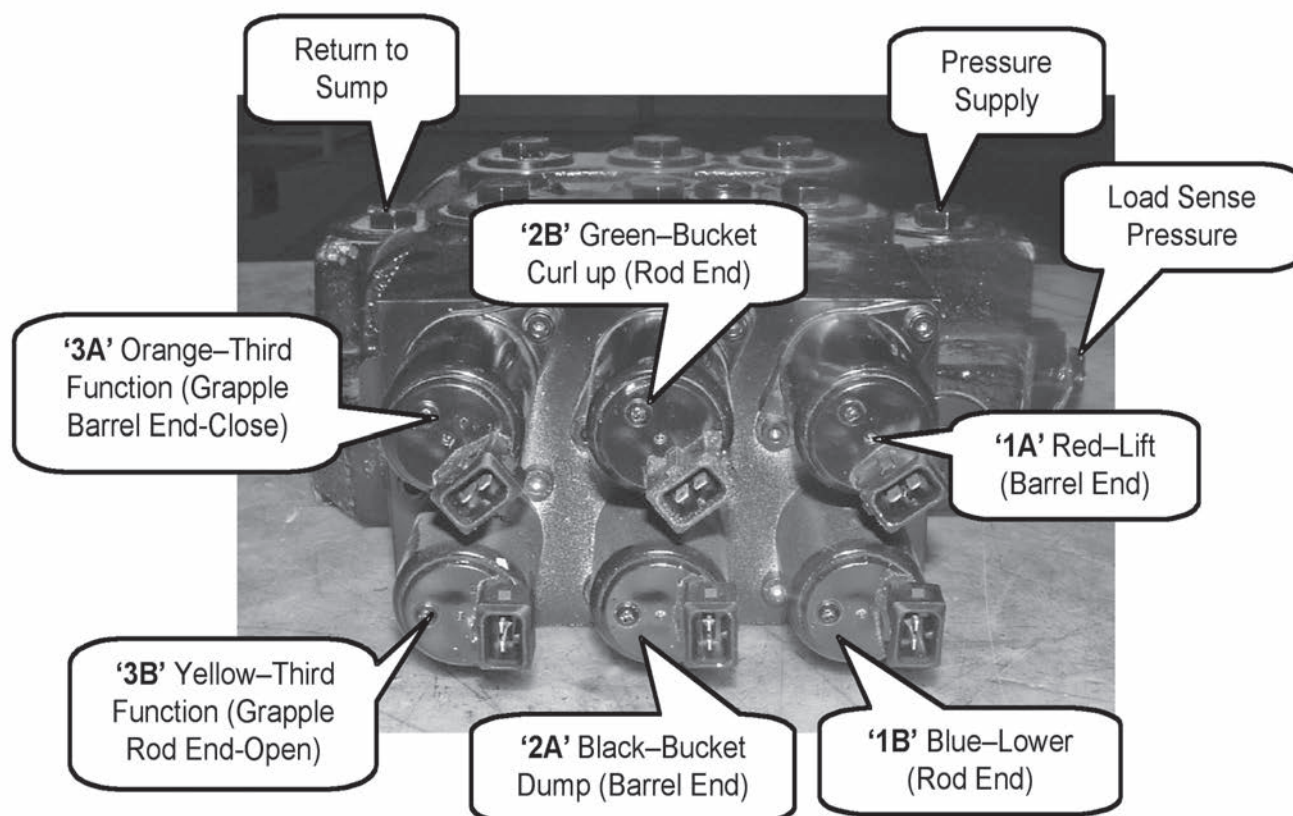
Factory Settings:

PARAMETER	VALUE (digital points)	REAL CURRENT VALUE (mA)
CURRENT MIN 1A	35	450
CURRENT MAX 1A	65	700
CURRENT MIN 1B	35	450
CURRENT MAX 1B	65	700
CURRENT MIN 2A	35	450
CURRENT MAX 2A	95	900
CURRENT MIN 2B	35	450
CURRENT MAX 2B	95	900



Electronic Joystick - Hydraulic Valve

Refer to the diagram for wire harness orientation to the hydraulic valve. Harness wires are tagged with the corresponding identification. Note that the bucket circuit wires **2B** & **2A** are reversed in comparison to the loader and third function (grapple) circuits.





Buhler Versatile 3895 loader 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 slightly pushing control beyond full lower. Float will allow for the loader to lower and rise as the attachment follows the ground contours. To disengage float, slightly pull control back towards the neutral position. The remote hydraulic control can be locked in the neutral position to minimize unintentional movement.



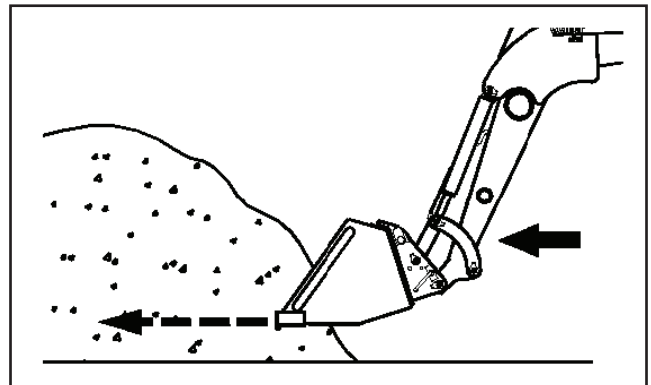
CAUTION: LOWER AND DUMP HEAVY LOADS SLOWLY BY FEATHERING. STOP TRACTOR MOVEMENT GRADUALLY. NEVER DROP A LOADED ATTACHMENT AND "CATCH" HYDRAULICALLY. STOPPING WITH SUCH DOWNWARD MOMENTUM MAY CAUSE DAMAGE TO THE LOADER OR TRACTOR.

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.

Bucket:

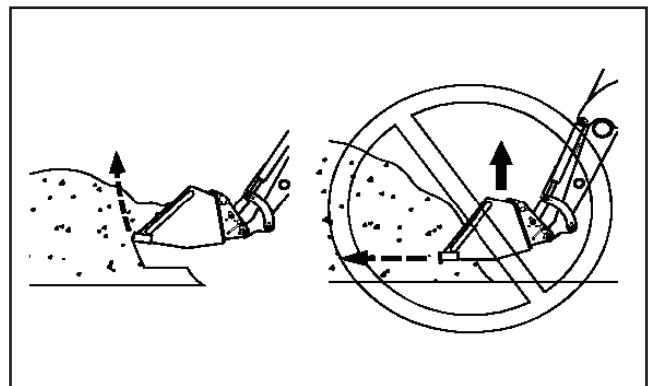
When loading a bucket, approach straight and enter the pile with a level bucket parallel to the line of motion.

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



Work 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.



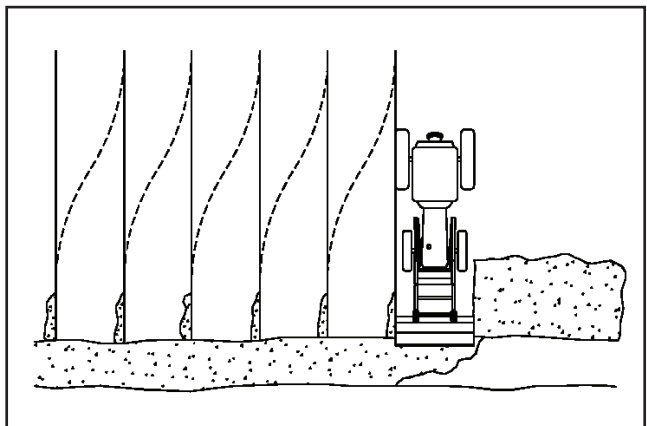
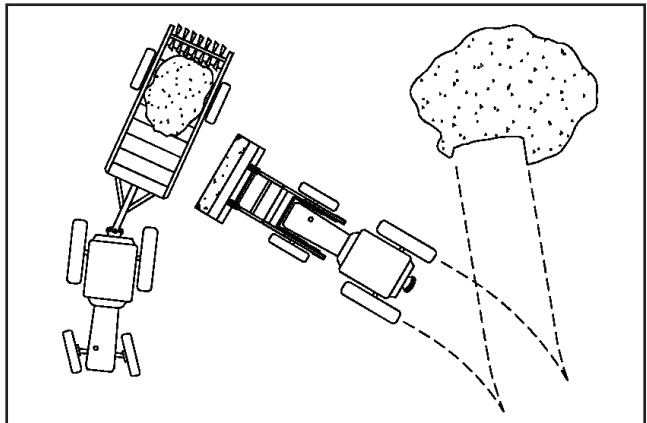


Minimize turning angle and length of run between pile and trailer to increase loading efficiency. Also, place load evenly or centered in the attachment.



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 THEN 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.

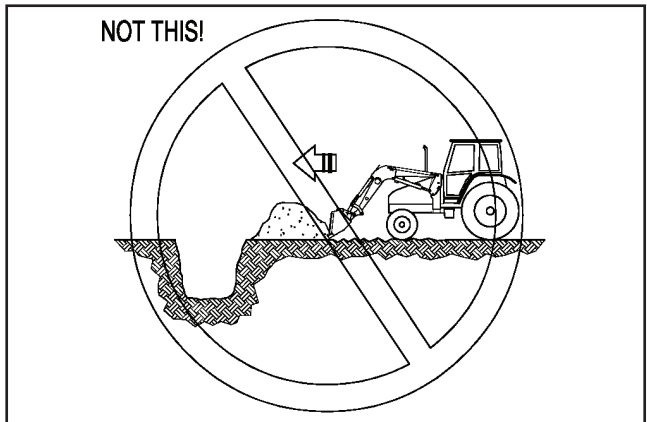
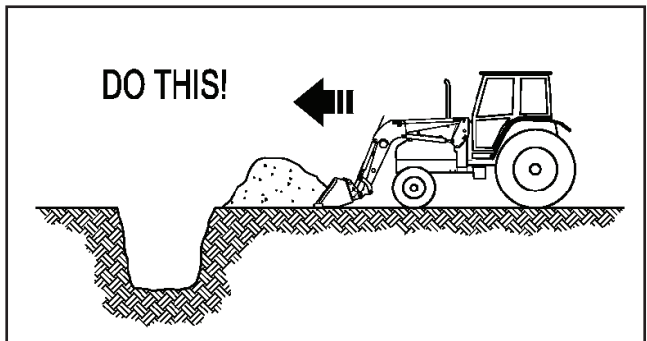


Backfilling or Scraping:

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.

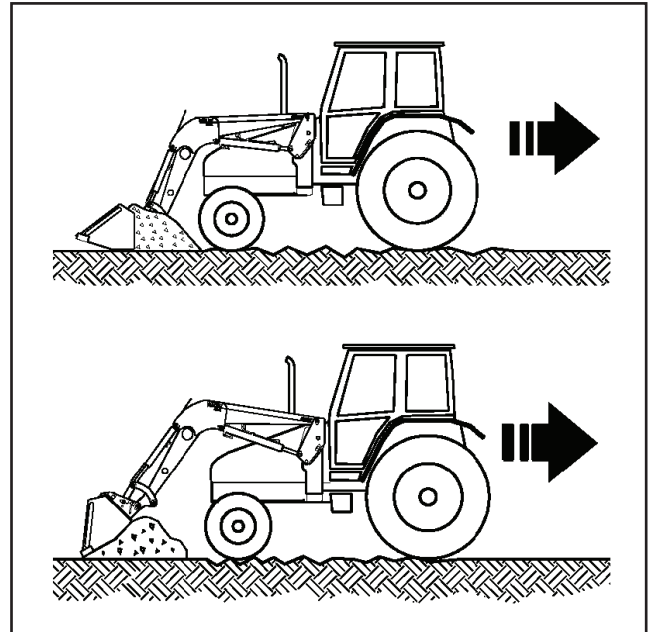
Do not use bucket in dumped position for forward grading. This will only impose severe shock loading on the bucket cylinders and it is difficult to maintain a level grade.





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: Standard and Heavy Duty A – Frames can be fitted with either spears or pallet forks.

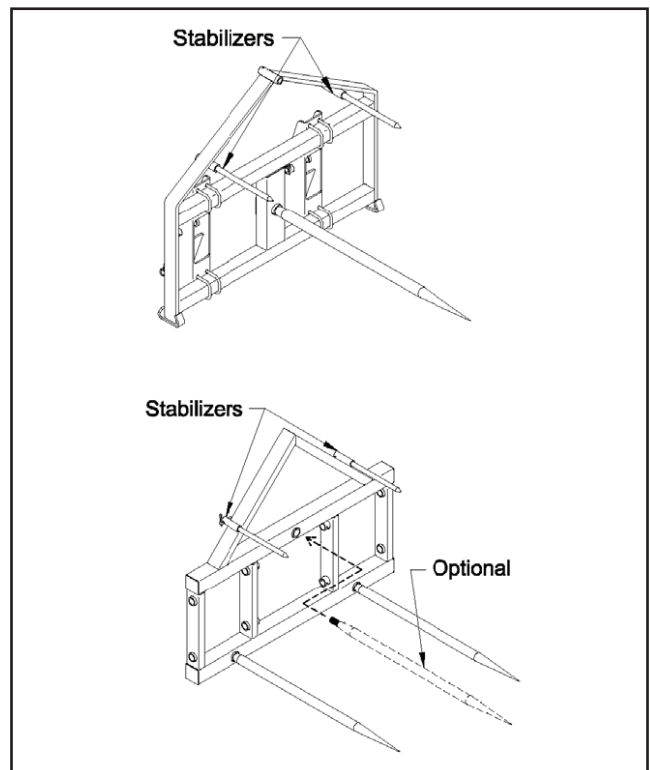
– Standard Duty

The standard duty frame is for handling medium sized round bales (up to 454 kg (1000 lbs.)) fitted with a single centered 1240 mm (49 in.) long heat treated spear and two short stabilizers. For pallet applications with a maximum load up to 907 kg (2000 lbs.) when fitted with 107 cm (42.0”) fork kit.

– Heavy Duty 152 cm (60”)

The Heavy Duty 152 cm (60”) frame is for handling medium to large sized round bales (up to 907 kg (2000 lbs.)) when fitted with two bottom 124 cm (49”) long heat treated spears and two short stabilizers. For pallet applications with a maximum payload of 1996 kg (4400 lbs.) when fitted with the 122 cm (48.0”) fork kit.

NOTE: The heavy duty frame can also be fitted using only the one center spear as per the standard duty A – frame.





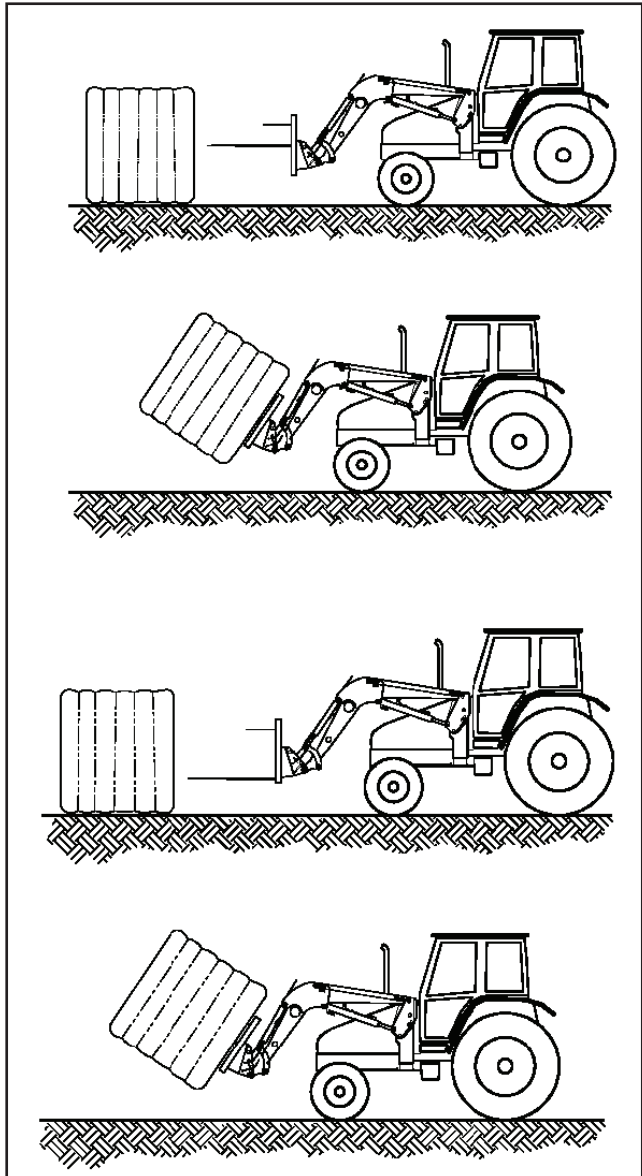
Handling bales and pallets:

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 30.5 cm (12.0") off the ground.

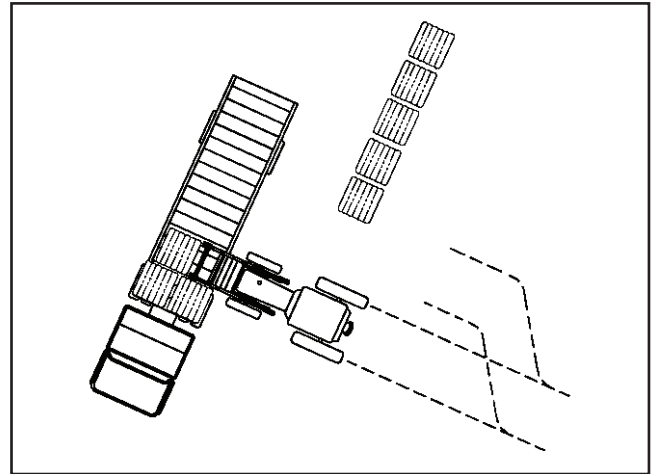


CAUTION: NEVER ATTEMPT TO USE THE SPEARS AS FORKS, AS THE SPEARS CAN EASILY PENETRATE THE GROUND CAUSING A SPEAR TO BEND OR BREAK AS WELL AS MAKING THE BALE UNSTABLE TO CARRY. NEVER ATTEMPT TO HANDLE A BALE WITH ONLY PART OF THE SPEAR(S) PENETRATED.

THE NUT ON THE BALE SPEAR MUST BE TORQUED TO 677.9 NM (500 FT.-LBS.) CHECK THE TORQUE PERIODICALLY. A LOOSE SPEAR WILL DAMAGE THE SPEAR HOLDER.



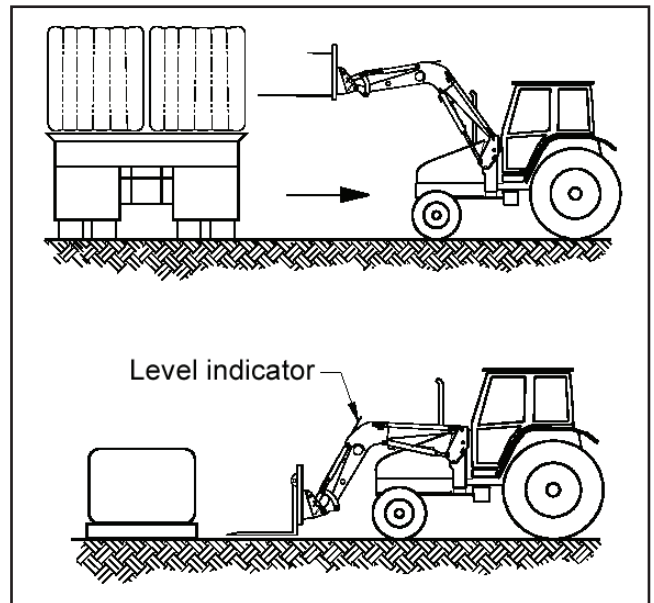
When loading bales onto a trailer, park trailer in close proximity to minimize turning angle and length of travel to increase loading efficiency. Lift the bale only enough to clear the area that the bale will be placed on. Always approach the trailer square to the tractor as shown.



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 15.2 to 30.5 cm (6 to 12 inches) off the ground.

NOTE: 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 (106.7 CM – 997.9 KG (42”– 2200 LBS.)) (121.9 CM – 1995.8 KG (48”– 4400 LBS.)). 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 1.83 M TO 2.13 M (6’ TO 7’) OFF THE GROUND. STORE A – FRAME AWAY FROM BOTH PLAY AND HEAVY TRAFFIC AREAS.



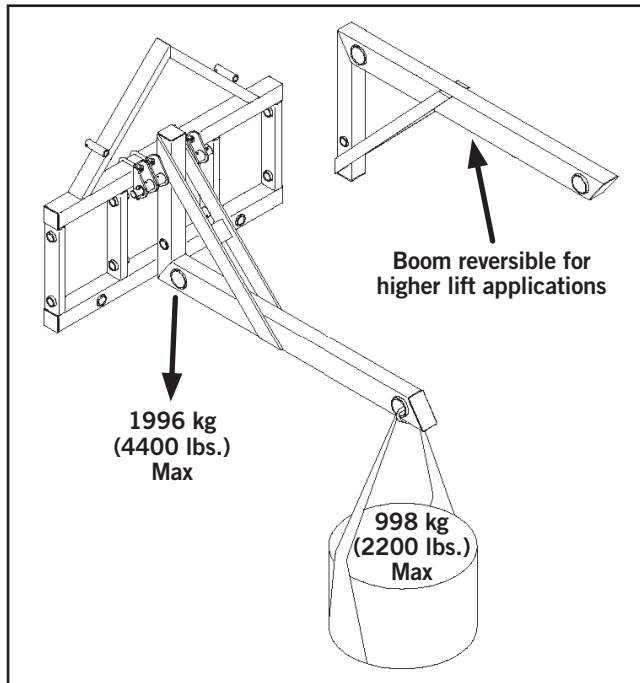
Boom:

The boom is designed to safely carry and lift loads that are chained or hooked at one of the two pivot points shown. Only the heavy duty A-frame attachment is to be used for adapting the boom.



WARNING:

- TRAVEL AT LOW SPEEDS.
- CARRY LOADS AS LOW AS POSSIBLE.
- AVOID SHARP TURNS AND UNEVEN TERRAIN.
- NEVER EXCEED SPECIFIED LOADS EITHER A SINGLE LOAD OF 1996 KG (4400 LBS.) MAX. AT THE BOOM BASE OR A SINGLE LOAD OF 998 KG (2200 LBS.) MAX AT THE END AS SHOWN.
- SUPPORT LOADS ONLY AT FIXED LOCATIONS.
- THE BOOM CAN BE MOUNTED IN EITHER THE LOWER OR UPPER POSITIONS ON THE FRAME DEPENDING ON APPLICATION.

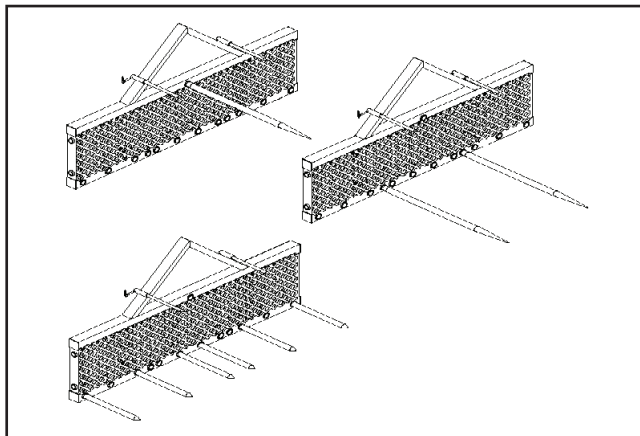


Combination A – Frame Bale/Manure:

Bale Handling

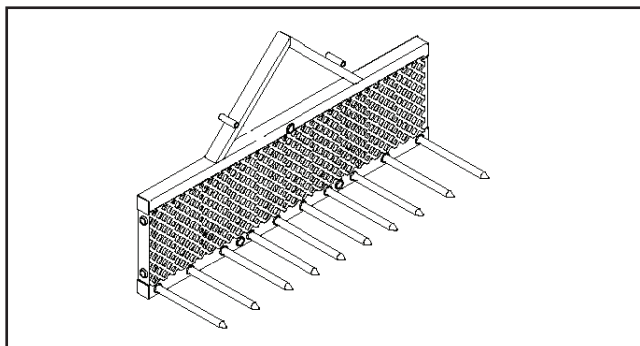
The frame can be used for handling round bales by fitting 2 short stabilizers with one centrally located long spear or two long spears located at the bottom as shown.

To adapt the frame for handling large square bales install the 2 short stabilizers and 6 heat treated manure teeth as shown.



Manure Handling

To use the frame for manure handling, fit 10 heat-treated manure teeth to the bottom as shown.



Installing / Removing Loader

Installing:

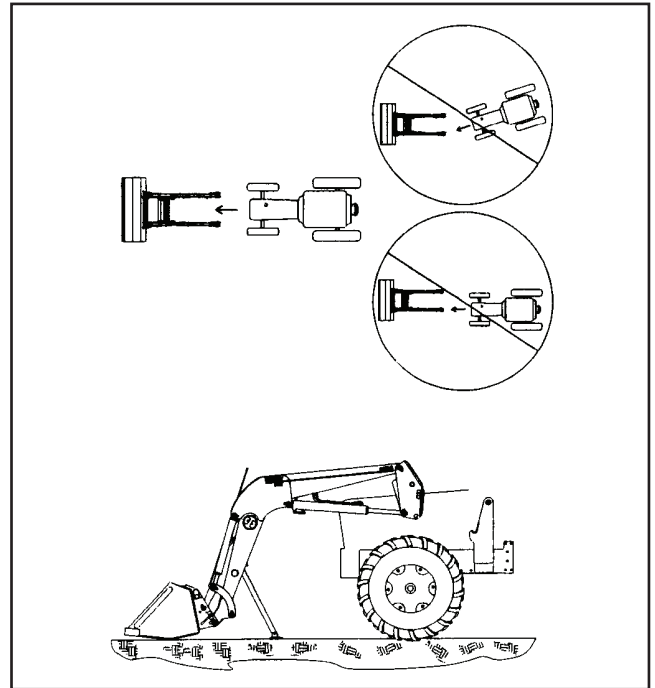


CAUTION: PRIOR TO INITIAL MOUNTING, CYCLE LOADER CYLINDERS TO DISPLACE AIR. THIS ENSURES THE LOADER WILL REMAIN IN THE STORAGE POSITION AND OPERATE CONSISTENTLY.

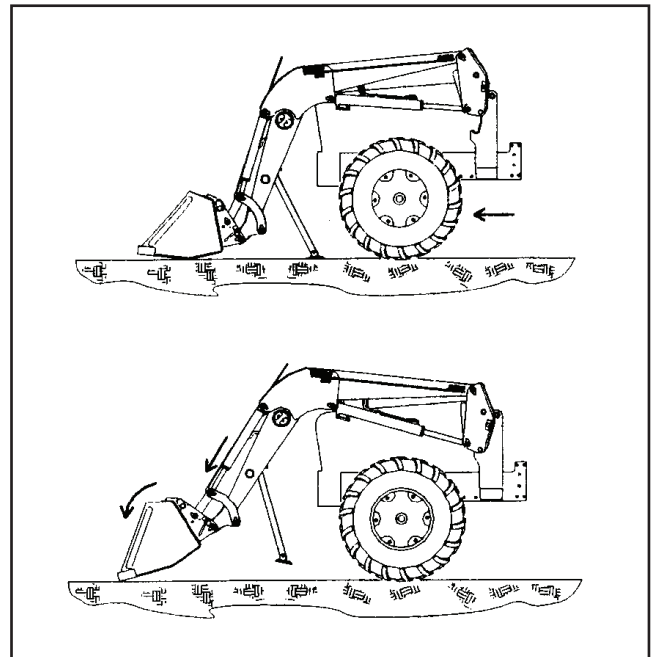
1. Position the tractor centrally and parallel to the loader uprights. Drive forward slowly until the loader hydraulic hoses can be coupled. Shut tractor off and set park brake. Couple the loader hoses to the matched color code identifiers on the auxiliary valve for proper orientation of loader operation.
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: VERIFY FRONT AND SIDE CLEARANCES DURING INSTALLATION TO AVOID TRACTOR DAMAGE. POSITION HYDRAULIC HOSES SUCH THAT THEY WILL NOT BE PINCHED OR STRETCHED DURING INSTALLATION.



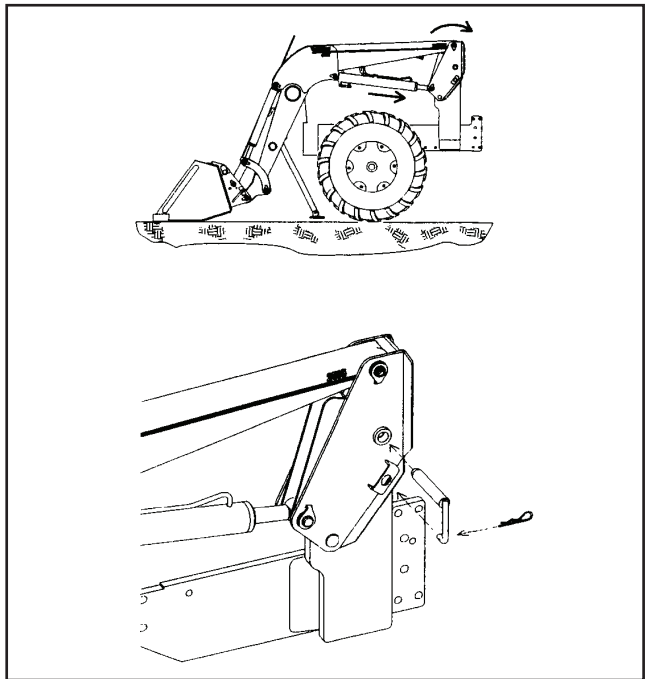
3. Slowly drive the tractor forward until the upright base pivot contacts the mount plate.
4. Slowly extend the bucket and retract the lift cylinders to lower the upright pivot into the mount plate cradle. Ensure both uprights are fully engaged within the mount plate cradle.





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.



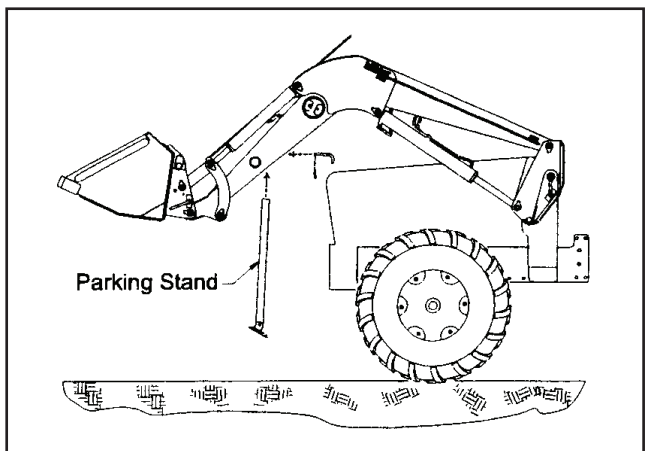
WARNING: SHUT TRACTOR OFF AND STORE PARKING STANDS WITHIN LOADER CROSS TUBE REMEMBERING TO STAND ON THE OUTSIDE OF THE LOADER ARMS. START THE TRACTOR AND CONTINUE TO CYCLE LOADER AND ATTACHMENT TO VERIFY LOADER OPERATION.

Removing:



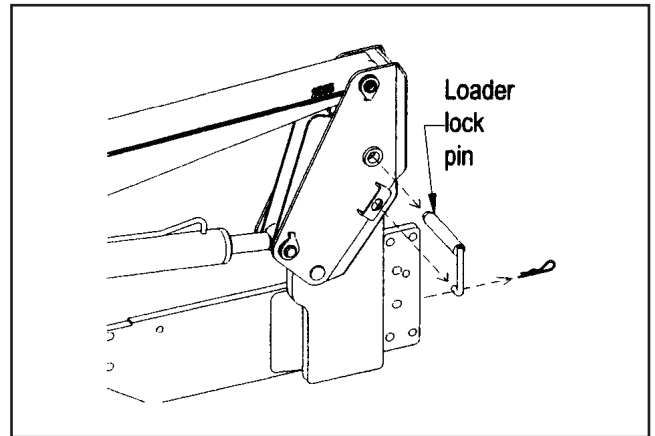
WARNING: A BUCKET OR OTHER SUITABLE ATTACHMENT MUST BE ATTACHED TO THE LOADER FOR STABILITY. ALWAYS REMOVE THE LOADER ON A FIRM LEVEL SURFACE AWAY FROM CHILDREN'S PLAY AREAS AND HIGH TRAFFIC AREAS.

1. Raise loader to provide clearance to engage both parking stands. Shut off tractor. Standing along the outside of the loader arms remove parking stands from storage position and engage within the loader mainframe.



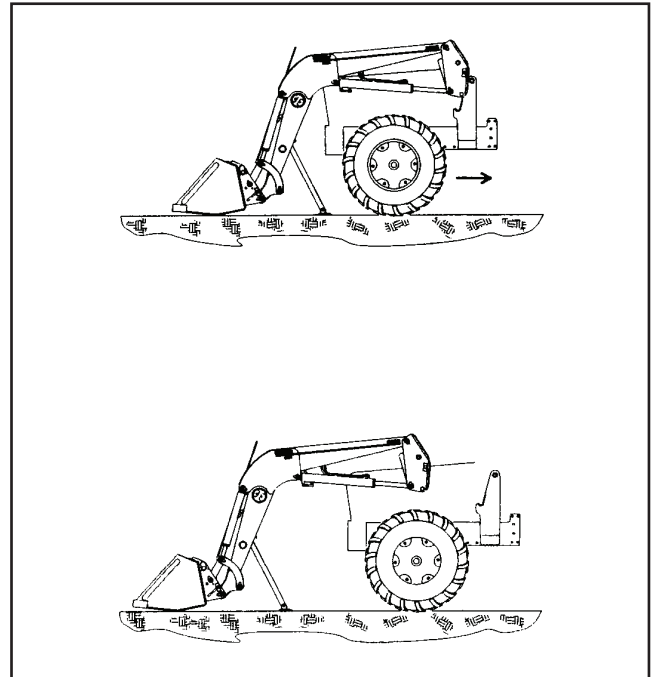


2. Lower attachment level to the ground while engaging float position. Ensure attachment rests firmly on ground with minimal downward pressure. If required, extend bucket cylinders to rotate upright rearward. At this stage the pin should have no pressure. Set tractor park brake and remove loader lock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



WARNING: A BUCKET OR OTHER SUITABLE ATTACHMENT MUST BE ATTACHED TO THE LOADER FOR STABILITY. ALWAYS REMOVE THE LOADER ON A FIRM LEVEL SURFACE AWAY FROM CHILDREN'S PLAY AREAS AND HIGH TRAFFIC AREAS.

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 and relieve oil pressure in hoses by moving valve control. Disconnect hydraulic loader hydraulic hoses at the quick couplers.

IMPORTANT: Cap both male and female couplers. Wrap hoses over loader arm.



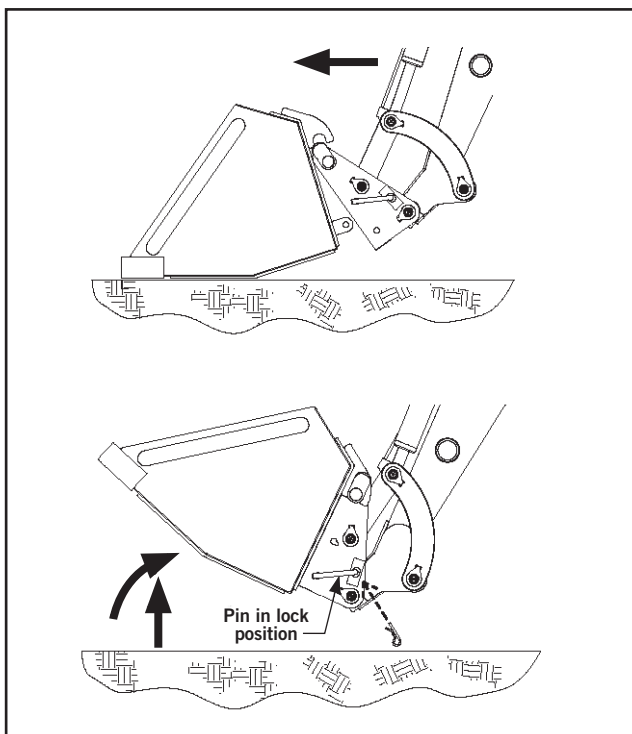
Installing / Removing Loader Attachments

Installing

1. 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.
2. 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 clips.

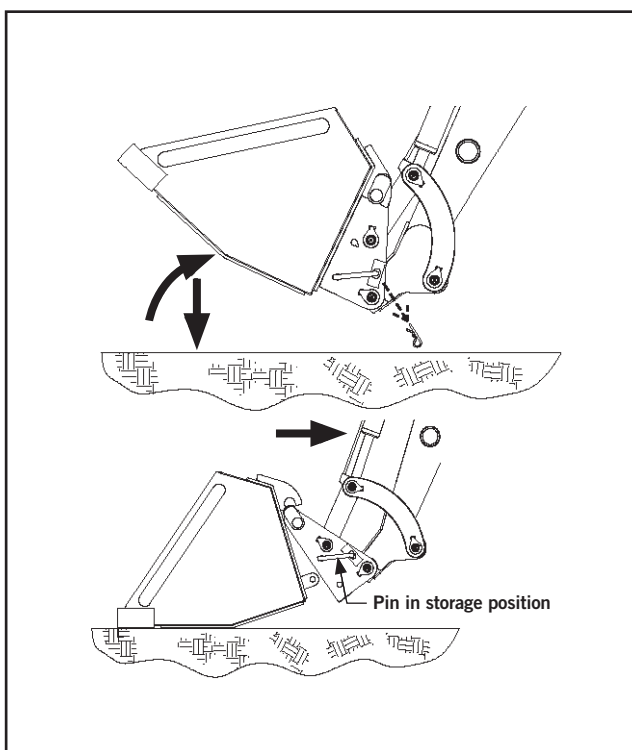


CAUTION: VERIFY ATTACHMENT INSTALLATION FROM TRACTOR SEAT BY LOWERING LEVEL ATTACHMENT TO GROUND AND RETRACTING THE LIFT CYLINDERS.



Removing

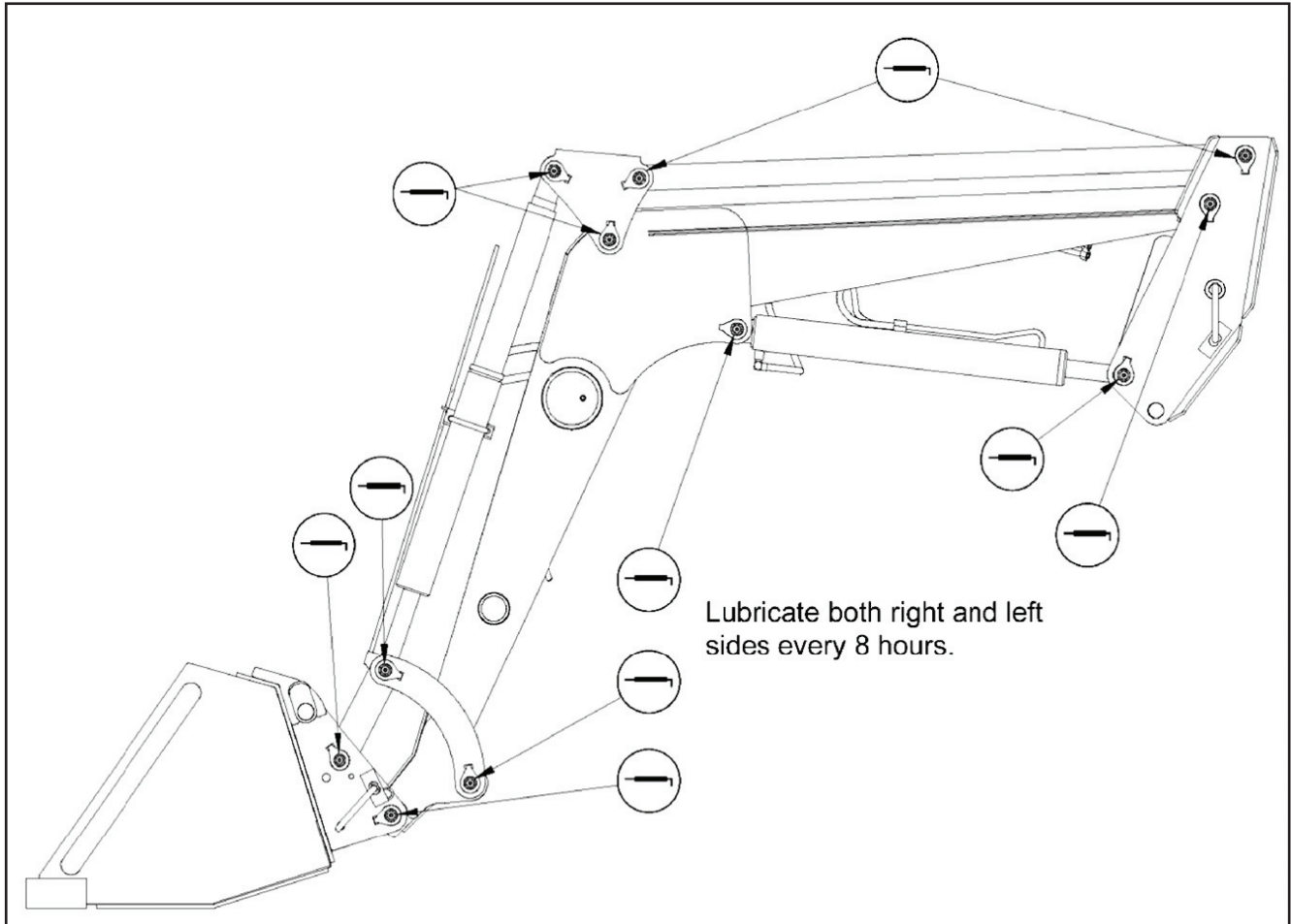
1. Rollback attachment and lower near ground position. Shut tractor off.
2. Remove both Quick-tach pins and place in storage position. Place level attachment on ground. Slowly dump attachment while backing tractor away.





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.



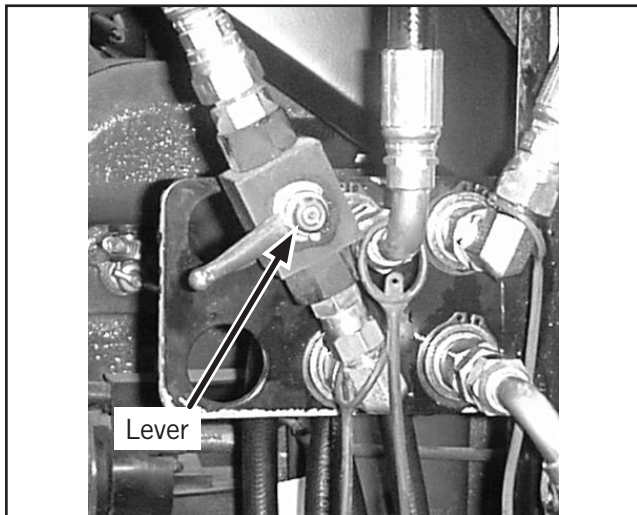
WARNING: RELIEVE HYDRAULIC PRESSURE BEFORE REPAIRING, ADJUSTING OR DISCONNECTING HYDRAULICS COMPONENTS. ESCAPING HYDRAULIC OIL CAN PENETRATE SKIN CAUSING SERIOUS PERSONAL INJURY. IF INJURED CONSULT A PHYSICIAN IMMEDIATELY.



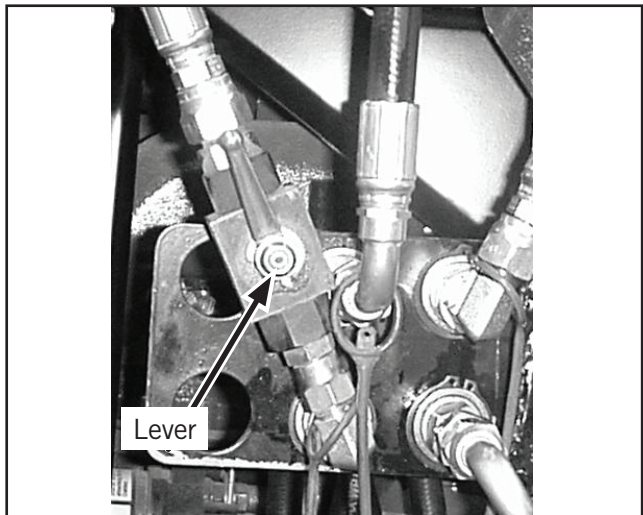
WARNING: NEVER REPAIR, ADJUST OR DISCONNECT THE LOADER HYDRAULICS WHEN THE HYDRAULIC LOADER LOCK IS IN USE. THIS CAN CAUSE THE LOADER TO DROP RESULTING IN SERIOUS INJURY OR DEATH.

Hydraulic Loader Lock: The Hydraulic lock on your loader is to be used for tractor servicing. When using the lock ensure loader is free of any load in the loader attachment. Do not use the lock or work beneath the raised loader without the loader also being supported securely by mechanical means.

Service any hydraulic oil leakage immediately.



Locked Position



Unlocked Position

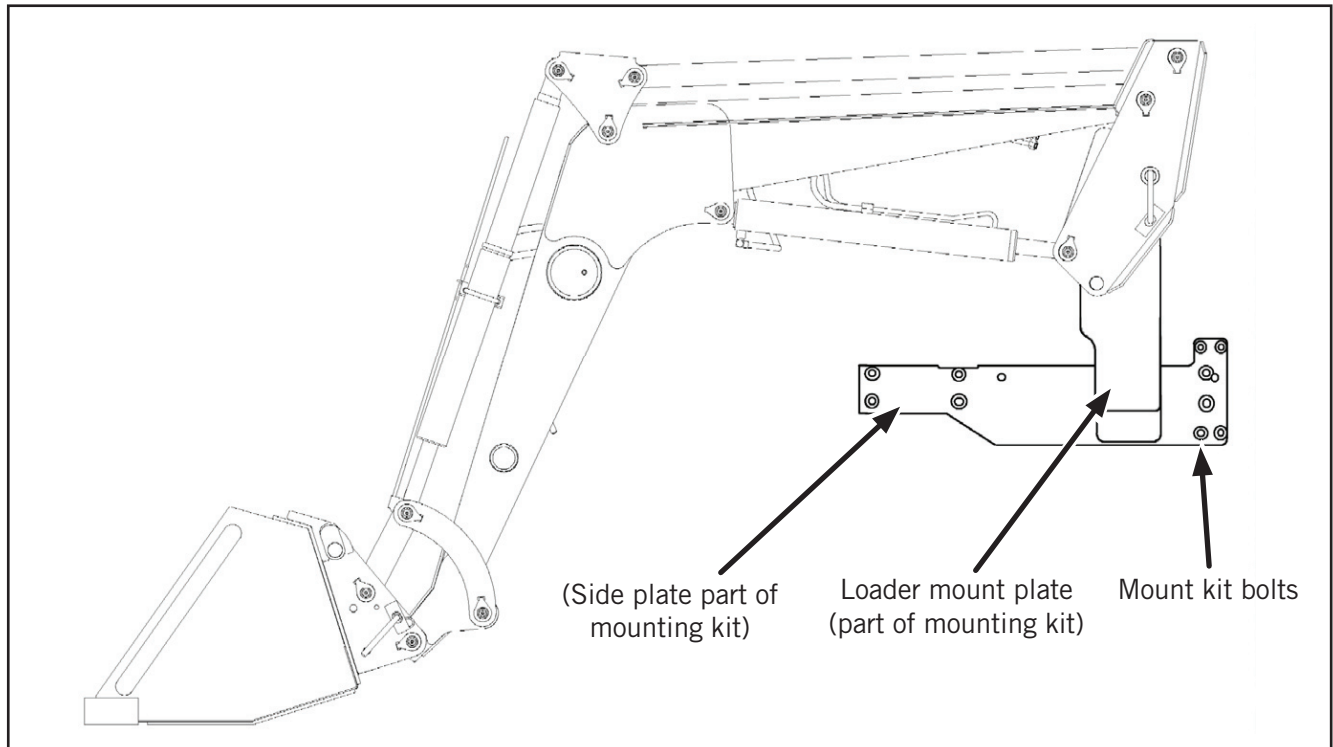
To engage, raise loader sufficient enough for servicing. Rotate lever on Hydraulic Loader Lock 90° clockwise. Turn off the tractor and lock the joystick in the neutral position.

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)



Bolt Torque Chart:

Imperial							Metric								
Bolt Size (in.)	Grade 2 Bolts		Grade 5 Bolts		Grade 8 Bolts		Bolt Size (mm)	Class 5.6		Grade 8.8		Grade 10.9		Grade 12.9	
	Torque		Torque		Torque			Torque		Torque		Torque		Torque	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm		ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
0.25	6	7	8	11	12	16	6	3.1	4.3	7.3	9.9	10.3	14	12.1	16.5
0.313	11	15	17	23	25	33	8	7.7	10.5	17.7	24	25	34	29	40
0.375	20	27	31	42	44	60	10	15	21	35	48	49	67	59	81
0.438	32	43	49	66	70	95	12	26	36	61	83	86.2	117	103	140
0.5	49	66	76	103	106	144	14	42	58	97	132	136	185	162	220
0.563	70	95	109	148	153	207	16	64	88	147	200	210	285	250	340
0.625	97	131	150	203	212	287	18	89	121	202	275	287	390	346	470
0.75	144	195	266	360	376	509	20	126	171	287	390	405	550	486	660
0.875	166	225	430	583	606	821	22	169	230	390	530	549	745	656	890
1	250	339	644	873	909	1232	24	217	295	497	675	708	960	840	1140
1.125	354	480	795	1077	1288	1745	27	320	435	733	995	1032	1400	1239	1680
1.25	500	678	1120	1518	1817	2462	30	435	590	995	1350	1401	1900	1681	2280
1.375	655	887	1470	1992	2382	3228	33	590	800	1349	1830	1902	2580	2278	3090
1.5	870	1179	1950	2642	3161	4283	36	759	1030	1740	2360	2441	3310	2935	3980
							39	988	1340	2249	3050	3163	4290	3798	5150



Hydraulics:



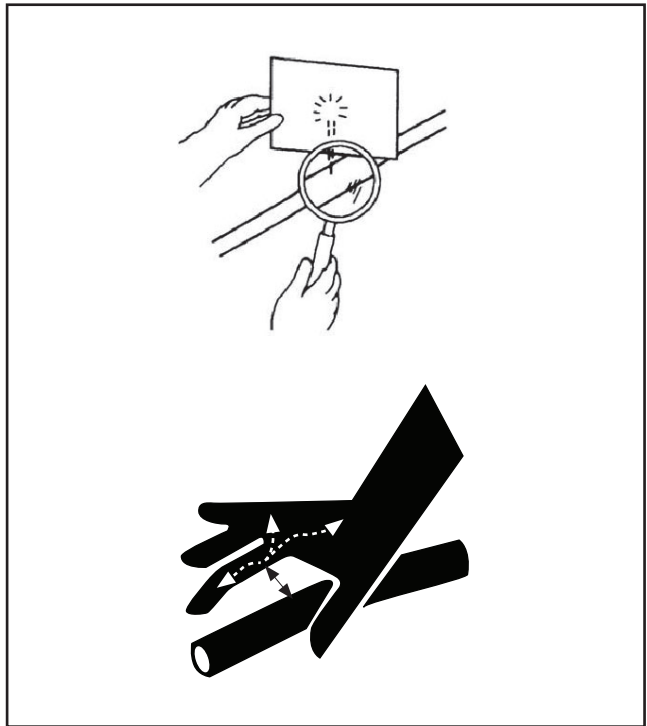
WARNING: ESCAPING FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN, CAUSING SERIOUS PERSONAL INJURY. BEFORE REPAIRING, ADJUSTING, OR DISCONNECTING LINES, BE SURE TO RELIEVE ALL PRESSURE.

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 207 bar (3000 P.S.I.) or higher.



A yearly inspection of the valve is recommended. However the maintenance intervals on the valve depends on the surrounding environment or if valve spools become stiff. Where temperatures fluctuate from one extreme to another or exposed to high salt the intervals for maintenance should be increased to protect from corrosion.



WARNING: SHUT TRACTOR DOWN AND RELIEVE OIL PRESSURE IN SYSTEM BY MOVING THE CONTROL VALVE SPOOLS IN BOTH DIRECTIONS BEFORE DOING ANY MAINTENANCE.

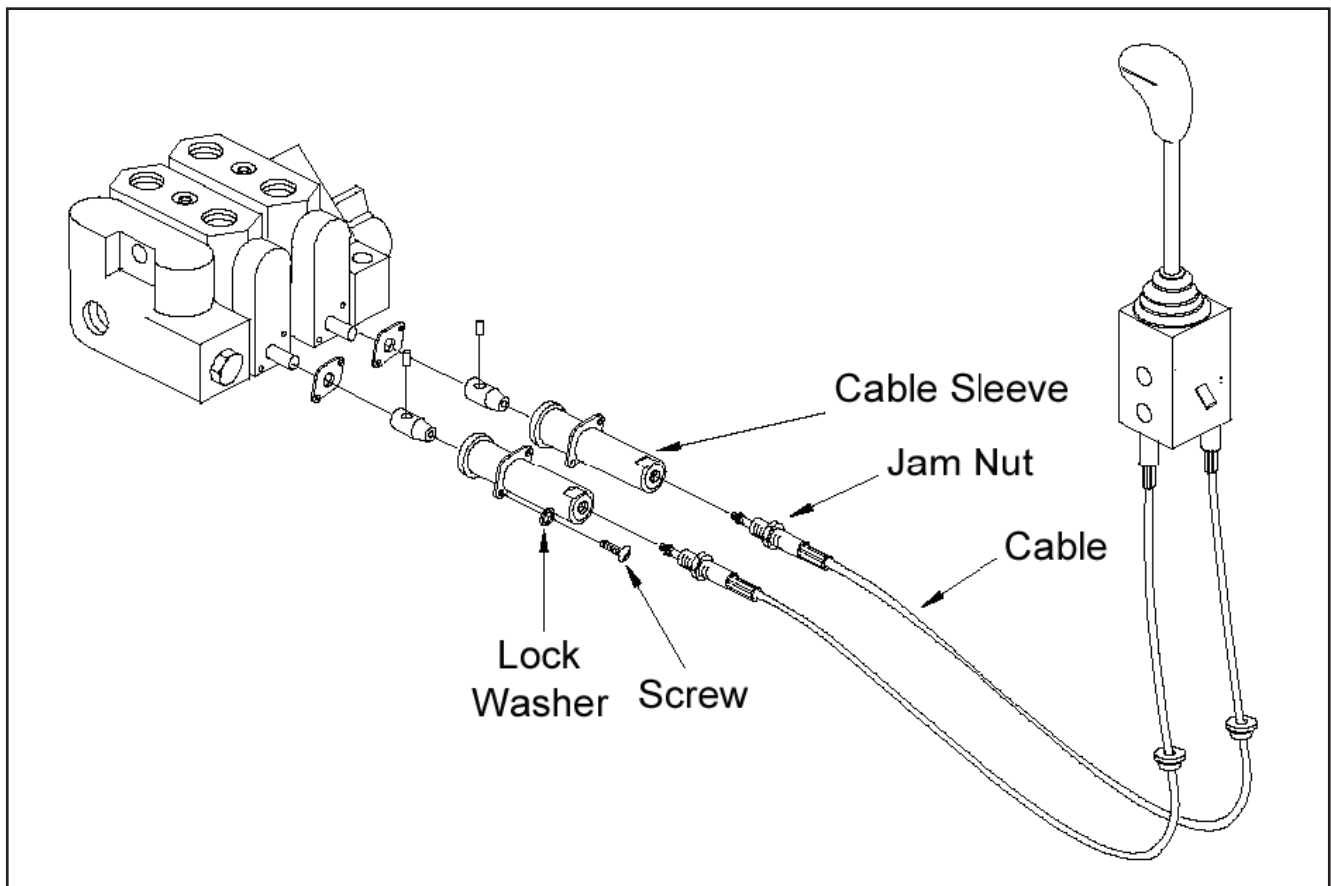
Maintenance involves yearly removal of valve spool end caps and cleaning all debris and corrosion. Spray area with a corrosive resistant lubricant and recap.



CAUTION: NEVER USE GREASE TO LUBRICATE VALVE COMPONENTS WHERE CLIMATE TEMPERATURE DROPS BELOW 0°C (32°F) AS THIS COULD CAUSE SPOOLS TO JAM.

On valves fitted with joystick cables loosen off jam nut and cable sleeves to gain access to the valve spool. Clean all debris and any existing corrosion. Spray areas with a light corrosion resistant lubricant. Re-mount cables sleeves and adjust so that joystick is centered in both axis to the base. Lock cable sleeve by using the jam nut.

NOTE: In severe cold weather climates, inspect and maintain the valve and joystick cables before cold weather.

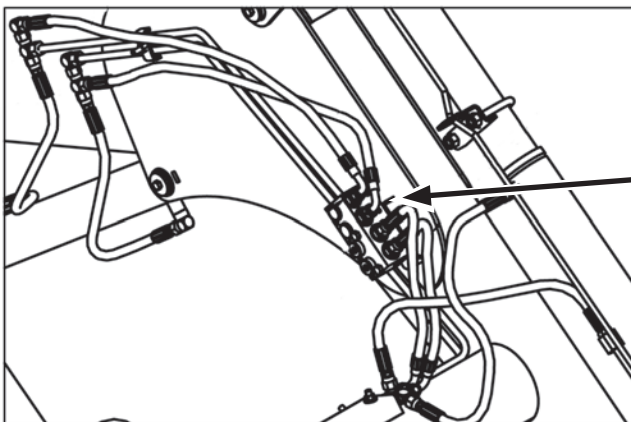




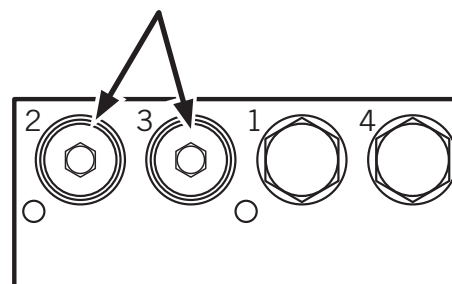
General Note And Instructions

1. The Self Leveling System 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 Self Leveling 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 barrel side will be bypassed at high pressure to the bucket rod side and the lift rod side as the quick attach contacts the dump stop. If the loader is lowered with the bucket fully rolled back, oil from the bucket rod side will be bypassed at high pressure to the bucket piston side and the lift piston side will provide makeup as the quick attach contact the rollback stop. Note that these two conditions are likely to occur intermittently and although the pump will be forced to supply oil at a higher pressure, no damage to the loader components will occur. It is, however, recommended to avoid the above situations and keep the bucket somewhat level while raising or lowering the loader for smoother operation.
3. The extra bucket stroke length allows for the bucket to be dumped to approximately 90 degrees to the 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. Extra bucket retraction allows for the bucket to be rolled back as the loader raises. The Self Leveling 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 262 bar (3800 PSI) cracking pressure for the rod end part of the bucket cylinder. The relief valve for the bucket cylinder barrel end port is factory set at 180 bar (2600 PSI). If loader lock-up should occur due to a low tractor relief setting, higher inlet flows or return line restrictions, the relief valve may be backed off slightly until the lock-up condition is overcome (counterclockwise turn of set-screw). Contact the factory for further instructions.

Hydraulic Manifold



Verify relief valves are in the proper locations



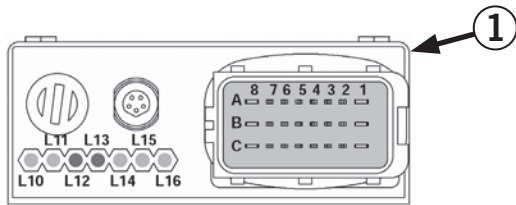


Trouble Shooting

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 loader valve.	Check connections and compatibility or replace. Change or replace filter. Allow oil to reach operating temperature. Replace filter. Check pump pressure and flow. 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.	Oil level too low. Oil filter suction screen plugged. Air leak in pump inlet line. Air in hydraulic system. Self Leveling relief set incorrectly.	Add oil as required. Clean/replace filter and/or suction screen. Check, tighten or replace inlet line. Cycle lift cylinders and bucket cylinders. Reset Self Leveling value.
Excessive movement at pivots.	Worn bushings and/or pins.	Replace bushing and/or pins. Follow proper lubrication
Pump noisy.	Oil level too low. Inlet line restricted or leaking. Pump worn or damaged.	Add oil as required. Check for air leaks, restrictions or collapsed hose. Tighten or replace hose. Clean filter if necessary. Repair or replace pump.
Oil leaks.	Damaged fittings or hoses. Loose connections. Worn or damaged O-ring wiper seal in cylinder rod end. Worn or damaged O-rings in valve.	Replace damaged parts. Tighten fittings. Install a seal repair kit. Install an O-ring repair kit.
Insufficient lift capacity.	Improper hydraulic pump operation. Load is greater than boom lift capacity. Internal boom cylinder leakage. Improper hydraulic valve operation.	Test pump/hydraulic system. 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. Leaking relief manifold block.	Repair or replace valves. Repair or replace cylinders. Repair leaking relief valve.
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 hydraulic system.	Tractor load sensing circuit fault. Hydraulic control valve leaking.	See you tractor manual for proper adjustment or dealer for loader valve. (207 bar (3000 PSI) is maximum pressure relief setting recommended.) Check the loader valve load sensing circuit.
Loader lift and bucket tilt controls do not work according to decal.	Hoses improperly connected.	Refer to plumbing diagrams and correct hose connections.
Stiff control valve.	Dirt or moisture build up on spool ends. Incorrect torque (applies to sectional valves only). Cables rusting, internally binding.	Clean spool ends and, if applicable, cable ends at valve. Loosen and re-torque bolts to specs. Replace cables.



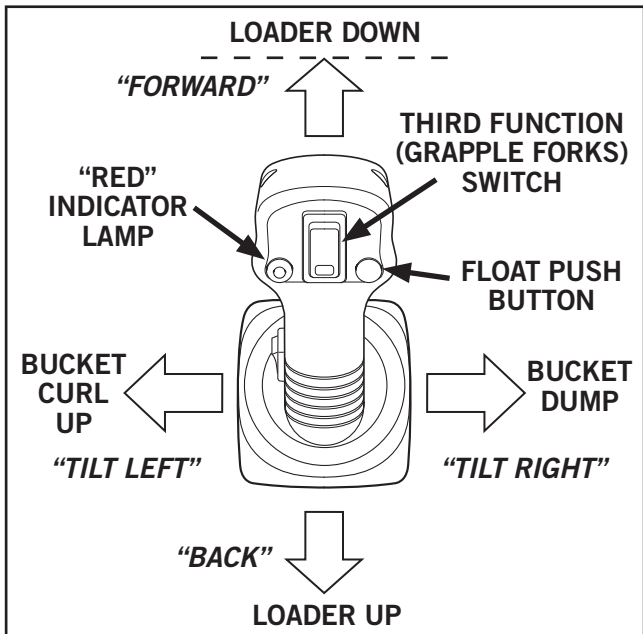
Electronic Joystick diagnostic messages



If an error occurs, LED's on the electronic unit (1) and joystick blink according with diagnostic codes described in following table.

In the table, a code that is described as X - Y means that on the electronic unit there will be X flashes of LED L12 followed by Y flashes of L13, while on joystick there will be X flashes of the green LED and Y flashes of the red LED (for example, code 2 - 4 means 2 flashes of L12 (green LED), followed by 4 flashes of L13 (red LED)).

Codes are shown from more to less critical.



Code	Description	Error Recovery	Cause	Remedy
1 - 5	CAN-BUS communications error	All movements and functions disabled	Electronic unit is defective	Substitute electronic unit
			Joystick is defective	Substitute joystick
			CAN-Bus cable is damaged	Substitute CAN-Bus cable
4 - 1	Diverter failure	None (only LED's blink)	One or more magnets connected to outputs: 3A, 3B, 4A, 4B are not connected or not working properly	Check connections and substitute magnet(s) if needed
			Harness defective	Substitute harness
			Electronic unit is defective	Substitute electronic unit
4 - 2	Joystick failure	Joystick axes centered	There is an internal electrical error on joystick	Substitute joystick
3 - 3	Joystick Y-Axis out of range	Joystick Y-Axis centered	Joystick Y-Axis gives a signal exceeding correct working range	Substitute joystick
3 - 4	Joystick X-Axis out of range	Joystick X-Axis centered	Joystick X-Axis gives a signal exceeding correct working range	Substitute joystick
2 - 4	Magnet 1A failure	None (only LED's blink)	Magnet 1A not connected or not working properly	Check connection and substitute magnet if needed
			Harness defective	Substitute harness
			Electronic unit is defective	Substitute electronic unit
2 - 5	Magnet 1B failure	None (only LED's blink)	Magnet 1B not connected or not working properly	Check connection and substitute magnet if needed
			Harness defective	Substitute harness
			Electronic unit is defective	Substitute electronic unit
3 - 1	Magnet 2B failure	None (only LED's blink)	Magnet 2B not connected or not working properly	Check connection and substitute magnet if needed
			Harness defective	Substitute harness
			Electronic unit is defective	Substitute electronic unit
3 - 2	Magnet 2A failure	None (only LED's blink)	Magnet 2A not connected or not working properly	Check connection and substitute magnet if needed
			Harness defective	Substitute harness
			Electronic unit is defective	Substitute electronic unit
1 - 1	Voltage supply too high (> 24VDC)	None (only LED's blink)	Battery supply defective	Check battery supply
			Electronic unit is defective	Substitute electronic unit
1 - 3	Voltage Supply too Low (< 8VDC)	None (only LED's blink)	Battery supply defective	Check battery supply
			Electronic unit is defective	Substitute electronic unit



Electronic Joystick Trouble Shooting

Problem	Diagnostic Blink (on Joystick)		Other Symptoms of Error	Causes	Remedy
	Red Light	Green Light			
No voltage to Electronic Joystick	No Lights	No Lights	All movements and functions disabled	10 Amp in-line fuse in joystick harness blown	Check for shorts - replace fuse
				Connector to cab socket loose	Repair connection
				Harness is defective	Replace harness
				Problem with cab harness or fuse	Repair cab power source
System voltage too high (>24 volts)	1	1	All movements and functions enabled (blink indication only)	Battery is defective	Replace battery
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
System voltage too low (<8 volts)	3	1	All movements and functions enabled (blink indication only)	Battery is defective	Replace battery
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
No CAN transmission from joystick for more than 500ms	5	1	All movements and functions disabled	CAN cable damaged	Replace CAN cable
				Joystick is defective	Replace joystick
				Joystick electronic unit (CED) is defective	Replace electronic unit
Loader Lower (movement 1A) does not work	4	2	All other movements and functions enabled	1A coil is not connected	Check 1A connection
				1A coil is defective	Replace 1A coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
Loader Raise (movement 1B) does not work	5	2	All other movements and functions enabled	1B coil is not connected	Check 1B connection
				1B coil is defective	Replace 1B coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
Bucket Curl Up (movement 2A) does not work	1	3	All other movements and functions enabled	2A coil is not connected	Check 2A connection
				2A coil is defective	Replace 2A coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
Bucket Dump (movement 2B) does not work	2	3	All other movements and functions enabled	2B coil is not connected	Check 2B connection
				2B coil is defective	Replace 2B coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit



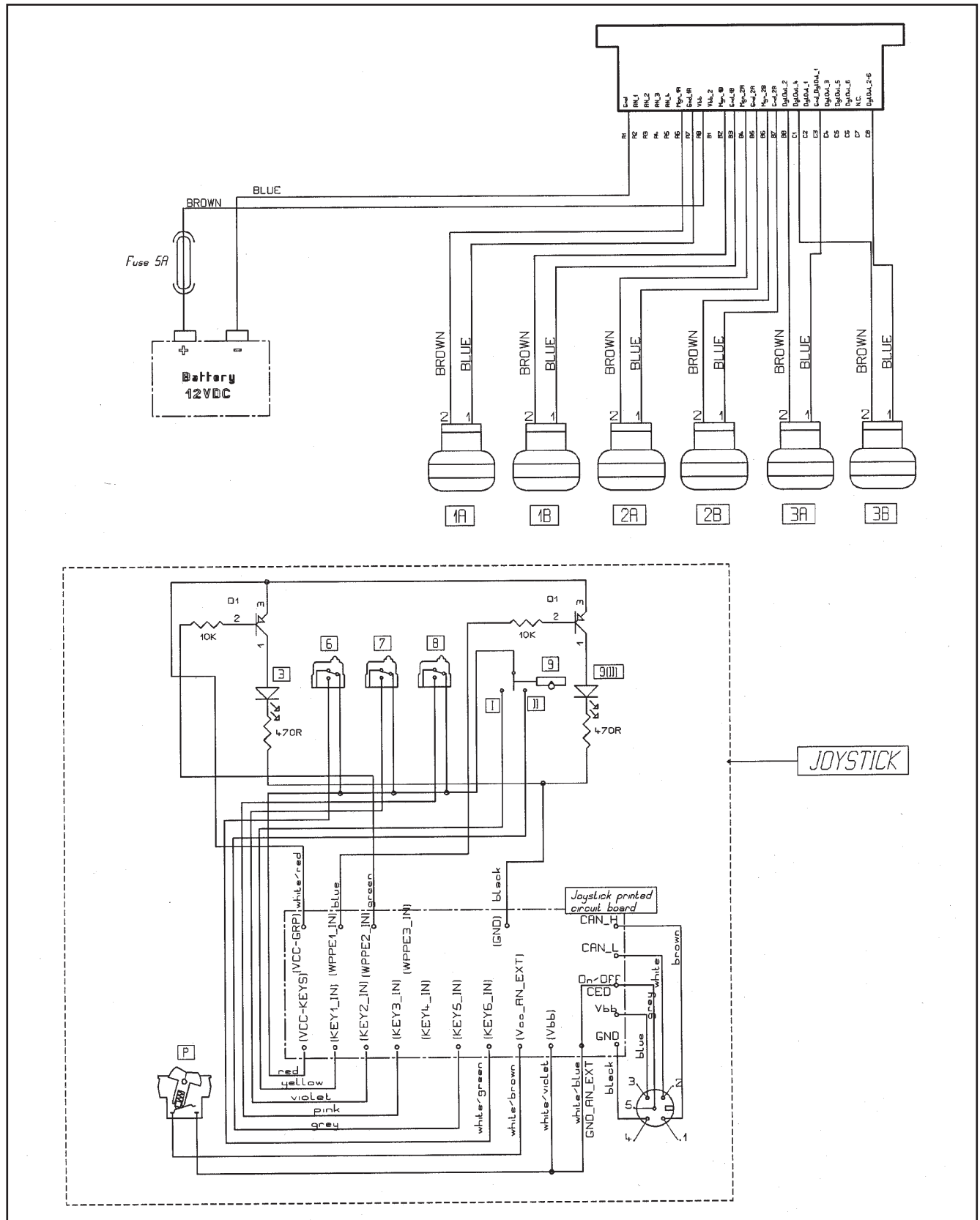
Electronic Joystick Trouble Shooting Continued

Problem	Diagnostic Blink (on Joystick)		Other Symptoms of Error	Causes	Remedy
	Red Light	Green Light			
Grapple Open (movement 3A) does not work	1	4	All other movements and functions enabled	3A coil is not connected	Check 3A connection
				3A coil is defective	Replace 3A coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
Grapple Close (movement 3B) does not work	1	4	All other movements and functions enabled	3B coil is not connected	Check 3B connection
				3B coil is defective	Replace 3B coil
				Harness is defective	Replace harness
				Joystick electronic unit (CED) is defective	Replace electronic unit
Joystick internal error	4	3	All movements and functions enabled (blink indication only)	Joystick is defective	Replace joystick

NOTE: Diagnostic blink will occur when the lever is shifted for the function.

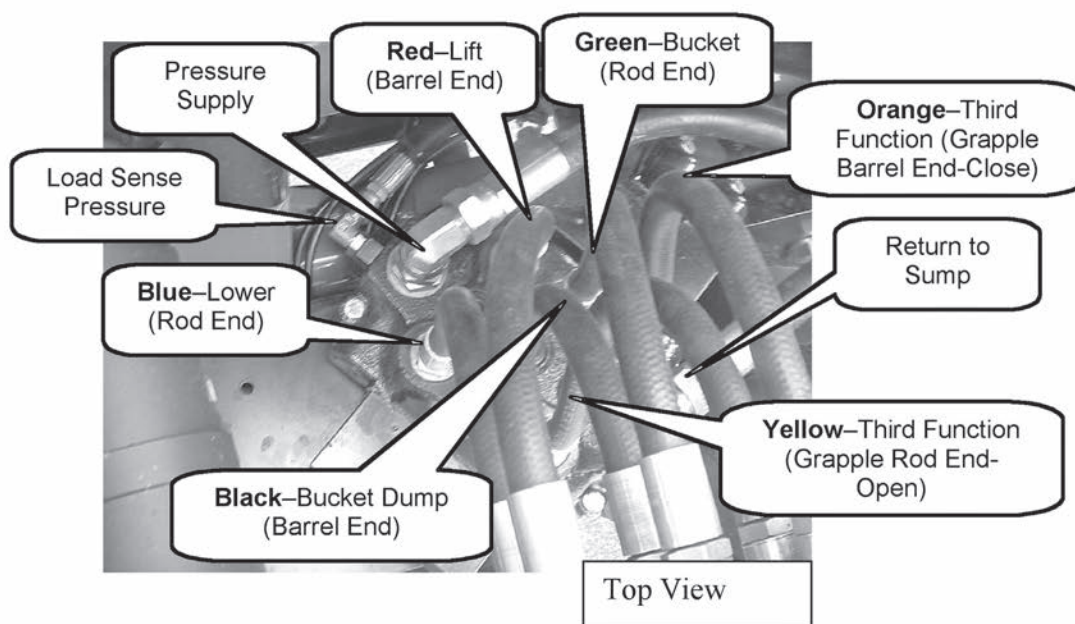
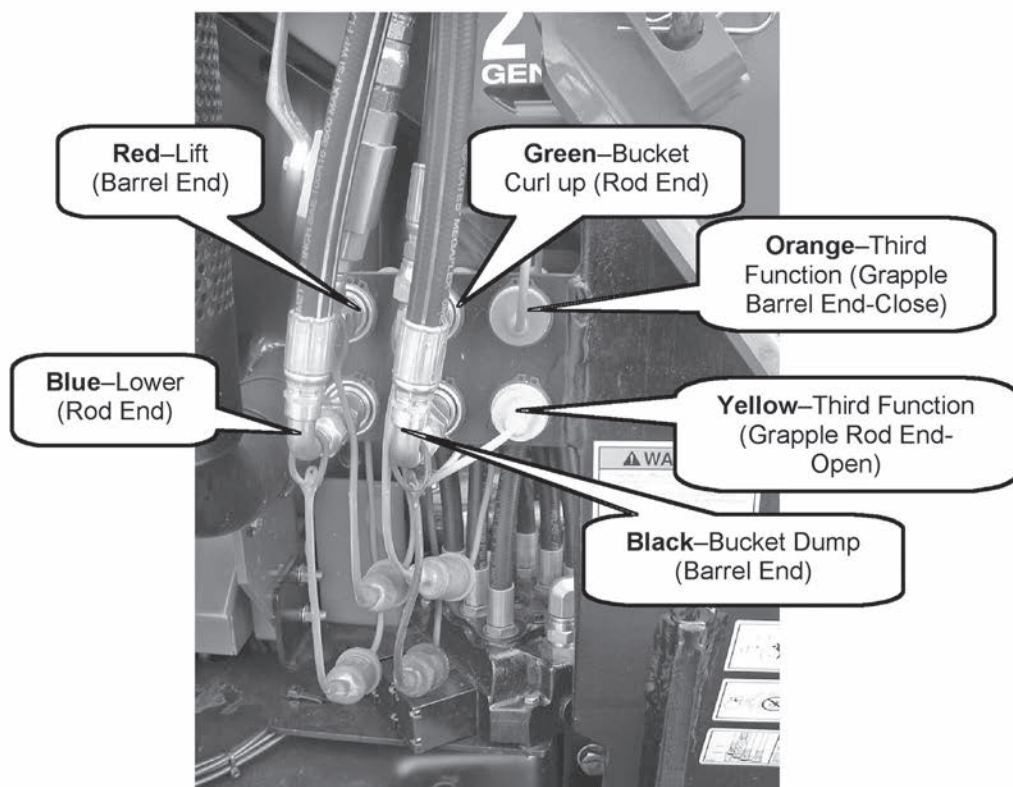


Electric Circuit



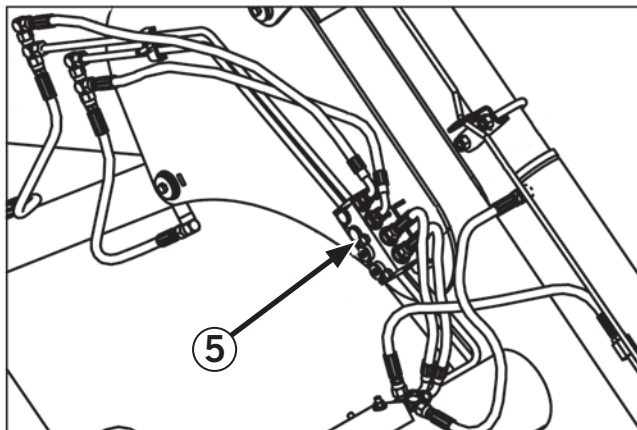
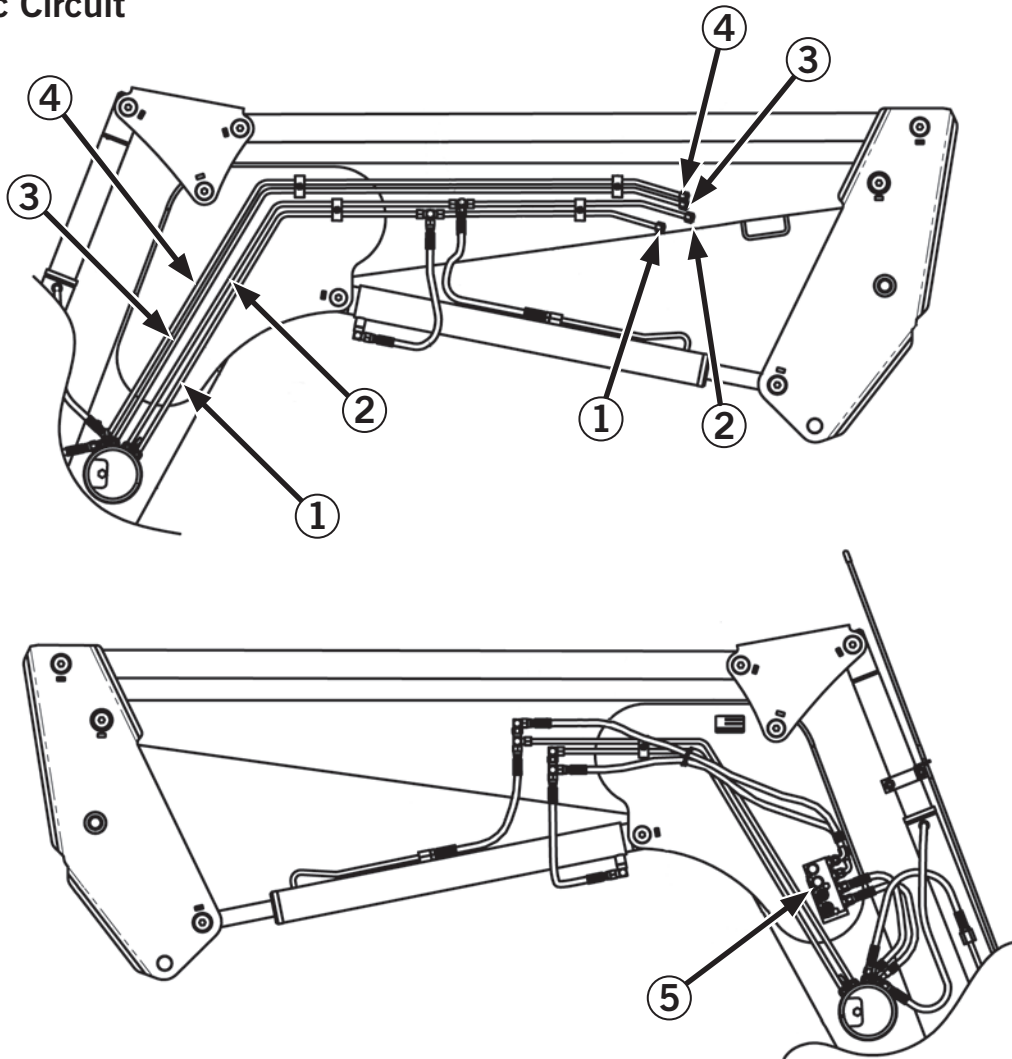


Hydraulic Connections





Hydraulic Circuit



1. 'Red' Lift (barrel end)
2. 'Blue' Lower (rod end)
3. 'Green' Bucket - Curl Up (rod end)
4. 'Black' Bucket - Dump (barrel end)
5. Hydraulic relief manifold



Grapple C2000 – P3941

Mounting Instructions

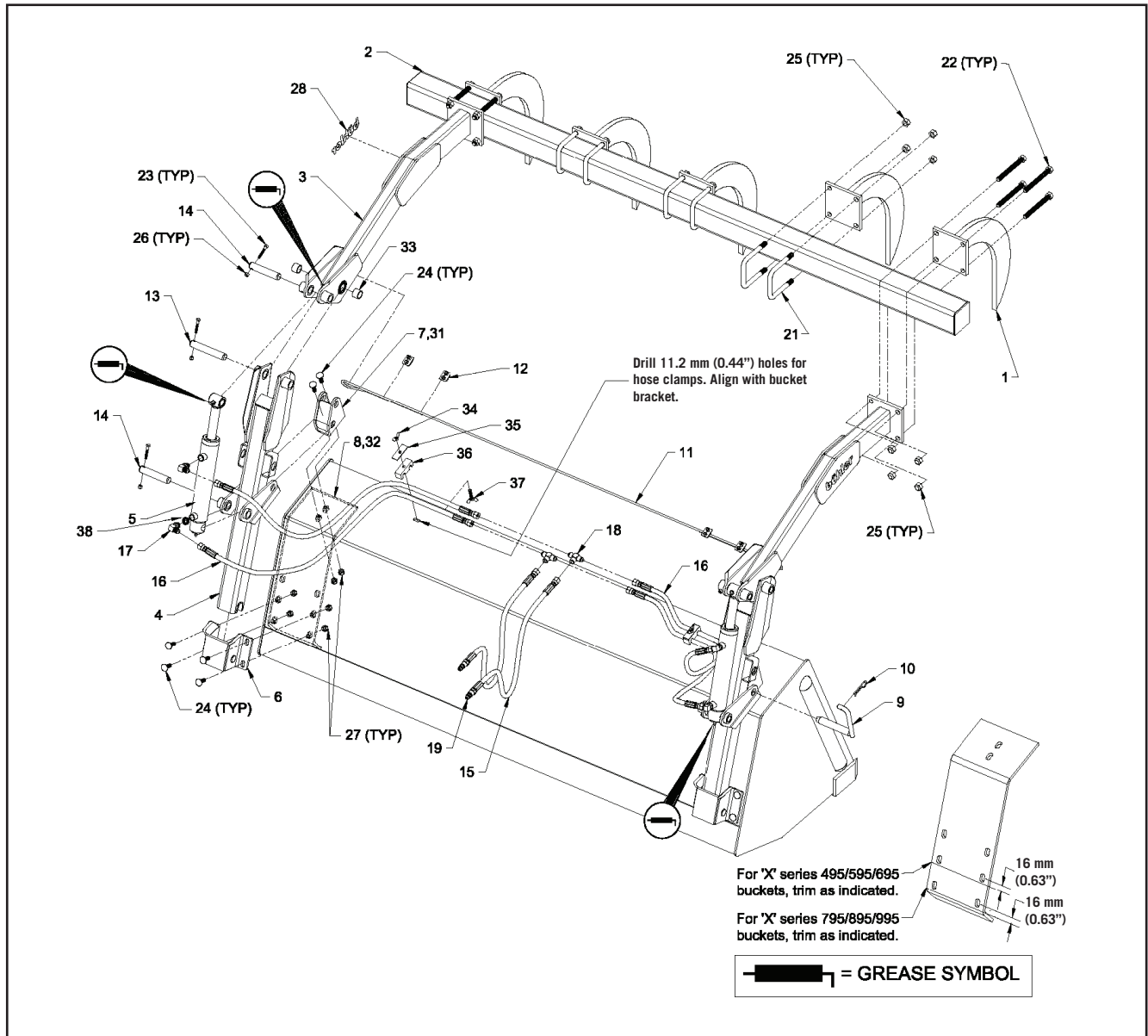
Please read and understand the following instructions before mounting.

1. Refer to the Recommended Mounting Dimensions (page 45) for mounting hole locations on various loader/bucket combinations. Drill twelve 14 mm (0.56") diameter holes as indicated. Drill two 11 mm (0.44") diameter holes into the top of the bucket for the hose clamps. Proper position of the hose clamps will eliminate interference between the hoses and mechanical linkages during loader operation. Specific grapple buckets equipped with backing plates and pre-punched holes are also available. See price pages or contact local dealer.
2. Install the quick-tach brackets (item 7, 31), grapple boots (item 6), and backing plates (item 8, 32) onto the bucket with carriage bolts (item 24) and steel lock nuts (item 27). Finger tighten hardware.
NOTE: backing plates must be adapted for all 'X' Series buckets as shown (page 4).
3. Install uprights (item 4) into boots and brackets with quick-tach pins (item 9) and hair pin clips (item 10). Assemble mainframes (item 3) into the uprights using pins (item 13), bolts (item 23) and nylon lock nuts (item 26).
4. Support mainframes and install hydraulic cylinders using pins (item 14), bolts (item 23) and nylon lock nuts (item 26).
5. Assemble elbows (item 17), 1.12 m (44") hoses (item 16), tees (item 18), 1.83 m (72") hoses (item 15) and hydraulic tips (item 19). Connect hoses to grapple hydraulic kit. Clamp hoses to the top of the bucket using clamps (item 36), plates (item 35), bolts (item 37), and nuts (item 34). Ty-raps (item 20) have been provided to group hoses. Ensure sufficient clearance during operation.
6. Using bolts (item 22) and steel lock nuts (item 25), assemble the outer tooth weldments (item 1) and the cross tube (item 2) to the mainframes as shown. Torque bolts to 203 N•m (150 ft. lbs.)
7. Adjust the quick-tach bracket and boot locations such that the quick-tach pins can be removed and installed by hand. Slots have been provided for adjustment. Torque bolts to 102 N•m (75 ft. lbs.)
8. Attach remaining teeth (item 1) to the cross tube (item 2) using u-bolts (item 21) and steel lock nuts (item 25). Position teeth as required. Avoid interferences with bucket tines (if equipped). Torque bolts to 203 N•m (150 ft. lbs.)
9. Attach the cable (item 11) to the mainframe using cable clamps (item 12). See Clamp and Cable Information (page 7) for proper assembly.
10. Apply grease to all pivots as indicated by grease symbols (page 29).
11. Completely raise and lower the loader and fully dump and rollback the bucket while the grapple remains in an opened and closed position. Ensure that the loader and grapple operate properly. Verify that all hoses are routed and tied appropriately to avoid rubbing or pinching during operation.

NOTE: Interference may occur between the cross tube of the grapple mainframe and loader pivot plates. See Possible Attachment Inteferece instructions.



Assembly



NOTES:

- 1) Item 20, tie straps, are to be used to hold hoses together.
- 2) Item 29, dust caps, are to be attached to the male hydraulic tip.
- 3) Item 30, cylinder decals, are to be placed on the tube weldments.
- 4) Standard bucket assembly shown.



Grapple C3000 – P4254

Mounting Instructions

Please read and understand the following instructions before mounting.

1. Refer to the Recommended Mounting Dimensions (page 45) for mounting hole locations on various bucket sizes. Drill sixteen 14 mm (0.56") diameter holes as indicated. Drill two 11 mm (0.44") diameter holes into the top of the bucket for the hose clamps. Proper position of the hose clamps will eliminate interference between the hoses and mechanical linkages during loader operation. Specific grapple buckets equipped with pre-punched holes are also available. See price pages or contact local dealer.
2. Install the mount brackets (item 5, 6), and inside support plates (item 7, 8) onto the bucket with carriage bolts (item 28) and steel lock nuts (item 34). Torque bolts to 102 N•m (75 ft. lbs.)
3. Install uprights (item 2) into mount brackets with quick-tach pins (item 15) and hairpin clips (item 25). Install grease fittings (item 21) into pins (item 14, 16). Assemble grapple arms (item 3) onto the uprights using pins (item 16), bolts (item 27) and nylon lock nuts (item 33).
4. Support grapple arms and install hydraulic cylinders using pins (item 14, 16), bolts (item 27) and nylon lock nuts (item 33).
5. Assemble elbows (item 18), 2.13 m (84") hose (item 10) and 2.44 m (96") hose (item 11), tees (item 19), 2.44 m (96") hoses (item 12) and hydraulic tips (item 20). Clamp hoses to the side of the uprights and the top of the bucket using clamps (item 23), plates (item 24), bolts (item 26, 27) and nuts (item 32). Tie Straps (item 40) have been provided to group hoses. Ensure sufficient clearance during operation.
6. Using bolts (item 30) and steel lock nuts (item 35), assemble the outer tooth mount weldments (item 1) and the cross tube (114467) to the grapple arms as shown. Torque bolts to 203 N•m (50 ft. lbs.)
7. Attach remaining tooth mount weldments (item 1) to cross tube (114467) using bolts (item 30), bolt plates (item 17) and steel lock nuts (item 35). Position on cross tube as required.
8. Attach teeth (item 9) to the tooth mount weldments (item 1) using bolts (item 29, 31) and steel lock nuts (item 34, 36). Avoid interferences with bucket tines (if equipped).
9. Attach the cable (item 13) to the grapple arms using cable clamps (item 22). See Clamp and Cable Information (page 7) for proper assembly.
10. Apply grease to all pivots as indicated by grease symbols (page 29).
11. Completely raise and lower the loader and fully dump and rollback the bucket while the grapple remains in an opened and closed position. Ensure that the loader and grapple operate properly. Verify that all hoses are routed and tied appropriately to avoid rubbing or pinching during operation.

NOTE: Interference may occur between the cross tube of the grapple mainframe and loader pivot plates. See Possible Attachment Inteferece instructions.



Possible Attachment Interference

Large attachments (such as the C2000 Grapple) may contact the loader pivot plate. This can occur if the loader is fully rolled back. While this can be avoided in normal service, the loader linkage can also be reversed to limit rollback.

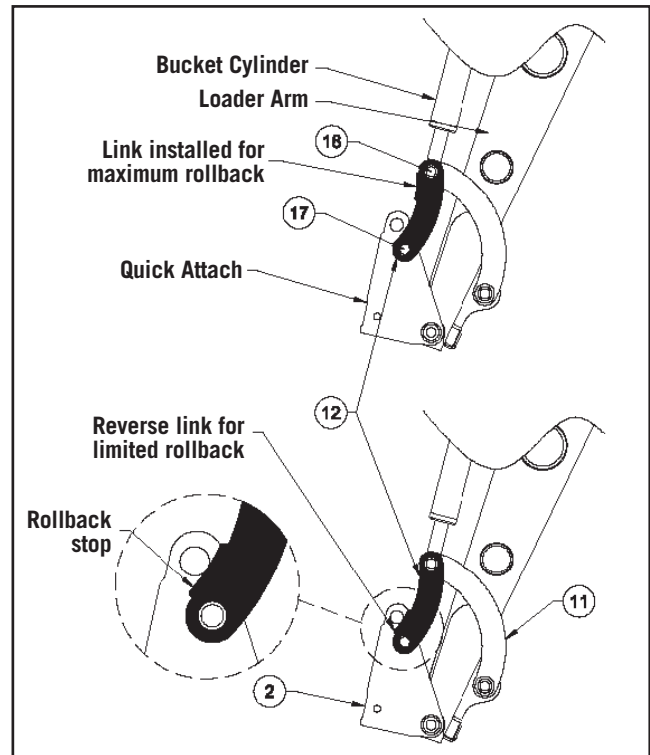
Before reversing the linkage remove attachments and engage the hydraulic loader lock (refer to Maintenance section for hydraulic loader lock instructions).

Refer to previous pages for corresponding item and part numbers.

Remove 3.2 cm x 17.1 cm (1.25" x 6.75") pin item 16 connecting the linkages items 11, and 12.

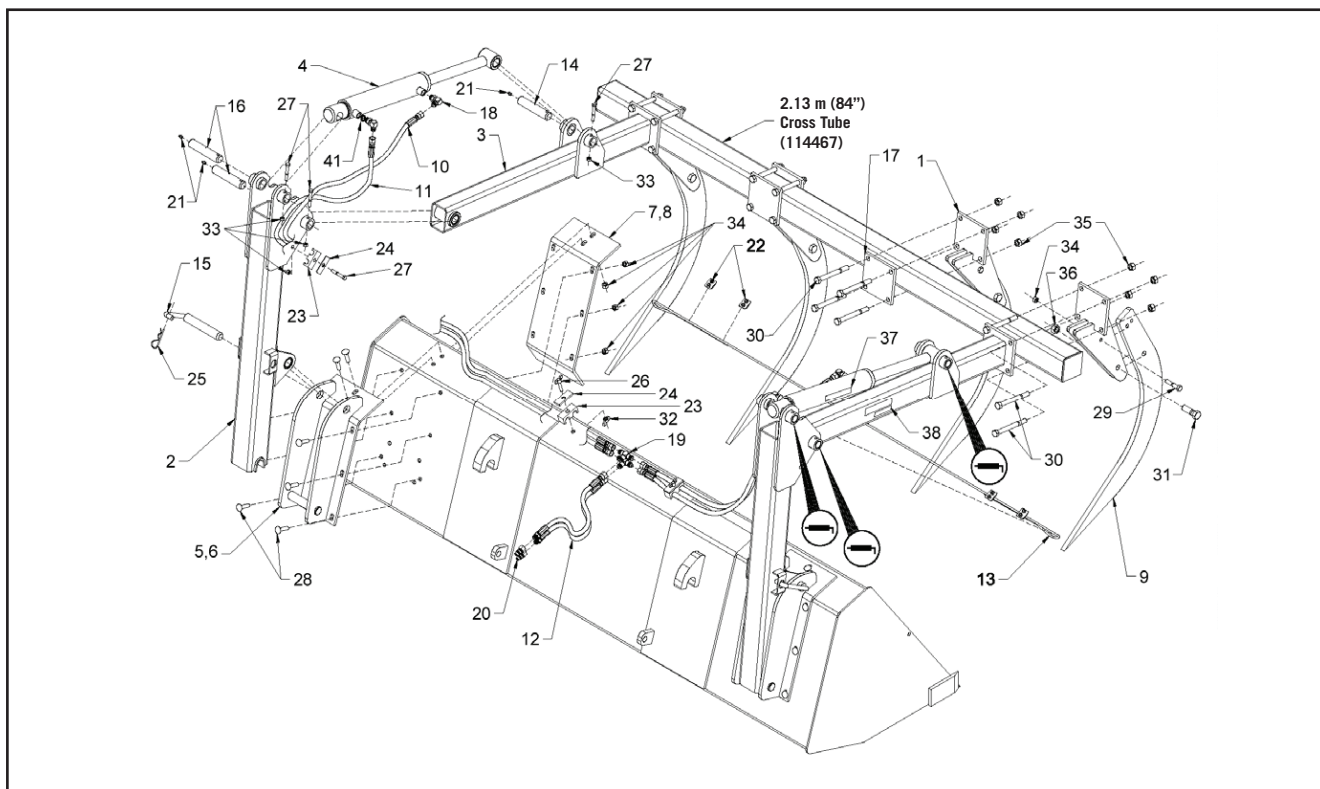
Remove 3.2 cm x 15.9 cm (1.25" x 6.25") pin connecting the linkage item 12 to the quick attach item 2.

Reverse the (4) linkages, and reinstall pins and quick attach.





Assembly



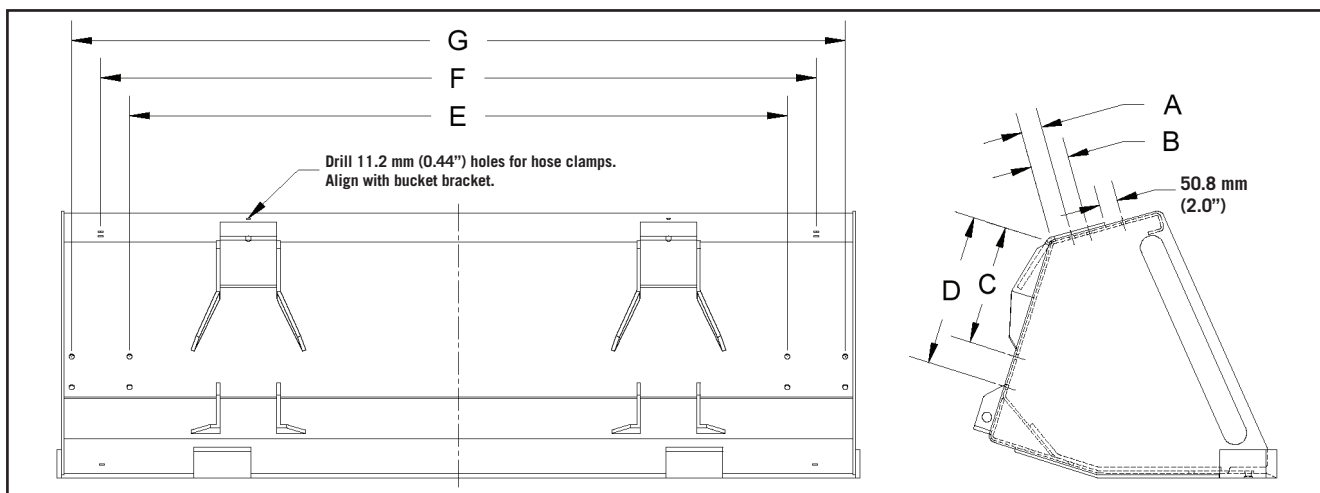
NOTES:

1. Item 40, tie straps, are to be used to hold hoses together.
2. Item 39, dust caps, are to be attached to the male hydraulic tip (item 20).
3. Standard bucket assembly shown.
4. Grease where specified, typical both sides.



Recommended Mounting Dimensions (Grapple C2000 – P3941)

Standard Buckets



Loader Model	3895 SLR/SLS			Any	
Bucket Series	'X' or 'B' Series			'B' Series	
Bucket Width	1.83 m (72")	2.13 m (84")	2.44/2.60 m (96"*/102")	2.13 m (84")	2.44/2.60 m (96"*/102")
A	60 mm (2.38")	60 mm (2.38")	60 mm (2.38")	60 mm (2.38")	60 mm (2.38")
B	105 mm (4.13")	105 mm (4.13")	105 mm (4.13")	105 mm (4.13")	105 mm (4.13")
C	319 mm (12.56")	319 mm (12.56")	319 mm (12.56")	319 mm (12.56")	319 mm (12.56")
D	408 mm (16.06")	408 mm (16.06")	408 mm (16.06")	408 mm (16.06")	408 mm (16.06")
E	1468 mm (57.63")	1667 mm (65.63")	1768 mm (69.63")	1667 mm (65.63")	1768 mm (69.63")
F	1619 mm (63.75")	1822 mm (71.75")	1929 mm (75.75")	1822 mm (71.75")	1929 mm (75.75")
G	1775 mm (69.88")	1978 mm (77.88")	2080 mm (81.88")	1978 mm (77.88")	2080 mm (81.88")

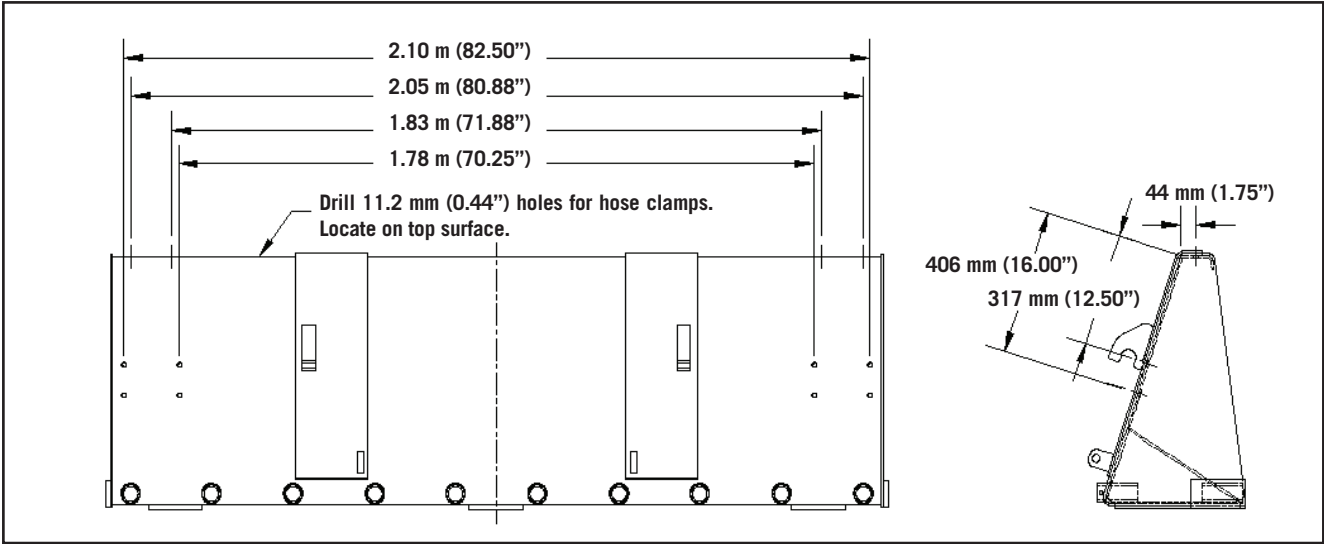
NOTES:

1. The above table lists the recommended hole spacing for all Buhler Versatile loaders, 3895 SLR/SLS, with standard buckets. If required, the grapple may be located to suit specific applications. Verify all clearances between the grapple and the loader.
2. When used with Buhler Versatile standard buckets, dimensions A, B, C, and D must be kept as specified in the table.
3. The minimum cross tube length (2.13 m (84")) will extend 152 mm (6") past both ends of the 1.83 m (72") buckets.
4. Grapple buckets come with pre-punched holes).

*This mounting combination may not allow the bucket quick-tach pin to be placed in the quick-tach storage location. This does not affect the ability to install or remove the quick-tach bucket.



85" Manure Bucket

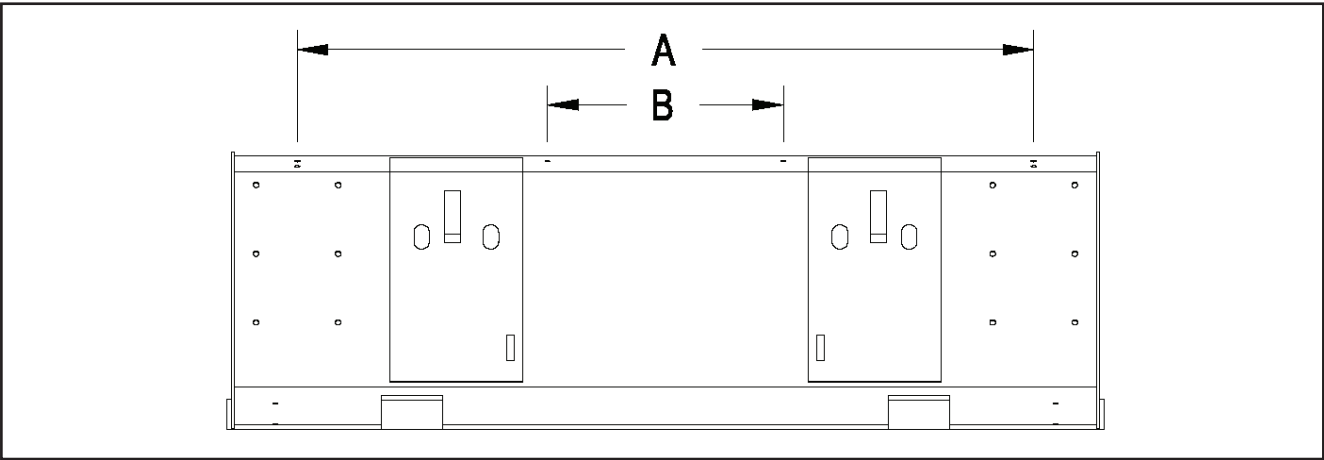


NOTES:

1. Recommended grapple spacing for 2.16 m (85") manure bucket. If required, the grapple may be located to suit specific applications. Verify all clearances between the grapple and the loader.
2. Grapple cannot be mounted as shown on 1.24 m (49") and 1.70 m (67") manure buckets. Mount inside quick-tach brackets if desired.

Recommended Mounting Dimensions (Grapple C3000 – P4254)

Standard Buckets



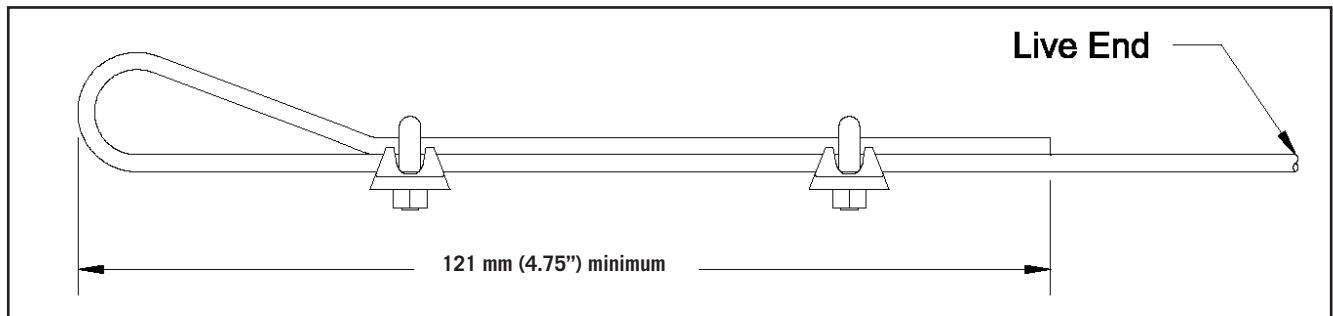
Bucket Width	2.13 m (84")	2.44 m (96")	2.60 m (102")
A	1.82 m (71.75")	1.92 m (75.75")	1.92 m (75.75")
B	0.58 m (23.00")	0.58 m (23.00")	0.58 m (23.00")



NOTES:

1. The above table lists the recommended hole spacing for all loaders, 3895 SLR/SLS, with standard buckets. If required, the grapple may be located to suit applications. Verify all clearances between the grapple and the loader.
2. Use the mount bracket weldments (item 5, 6) to mark the holes for drilling.
3. Grapple buckets and large capacity buckets come equipped with pre-punched holes.
4. Holes for hose clamps should be drilled even with either of the mounting bracket holes on top of the bucket.

Clamp and Cable Information (Grapple C2000 and C3000)



NOTES:

1. Nominal breaking strength of (1/4") 7 x 19 Galvanized Aircraft Cable: 3175 kg (7000 lbs.)
2. Do not reinstall used clamps.
3. Re-tighten nuts periodically after cable has been in use. Torque to 20 N•m (15 ft. lbs.)
4. Do not lubricate threads.
5. Never use clips to make direct end-to-end joints of rope.
6. Saddle of clamps must always be installed at long (live) end of cable.

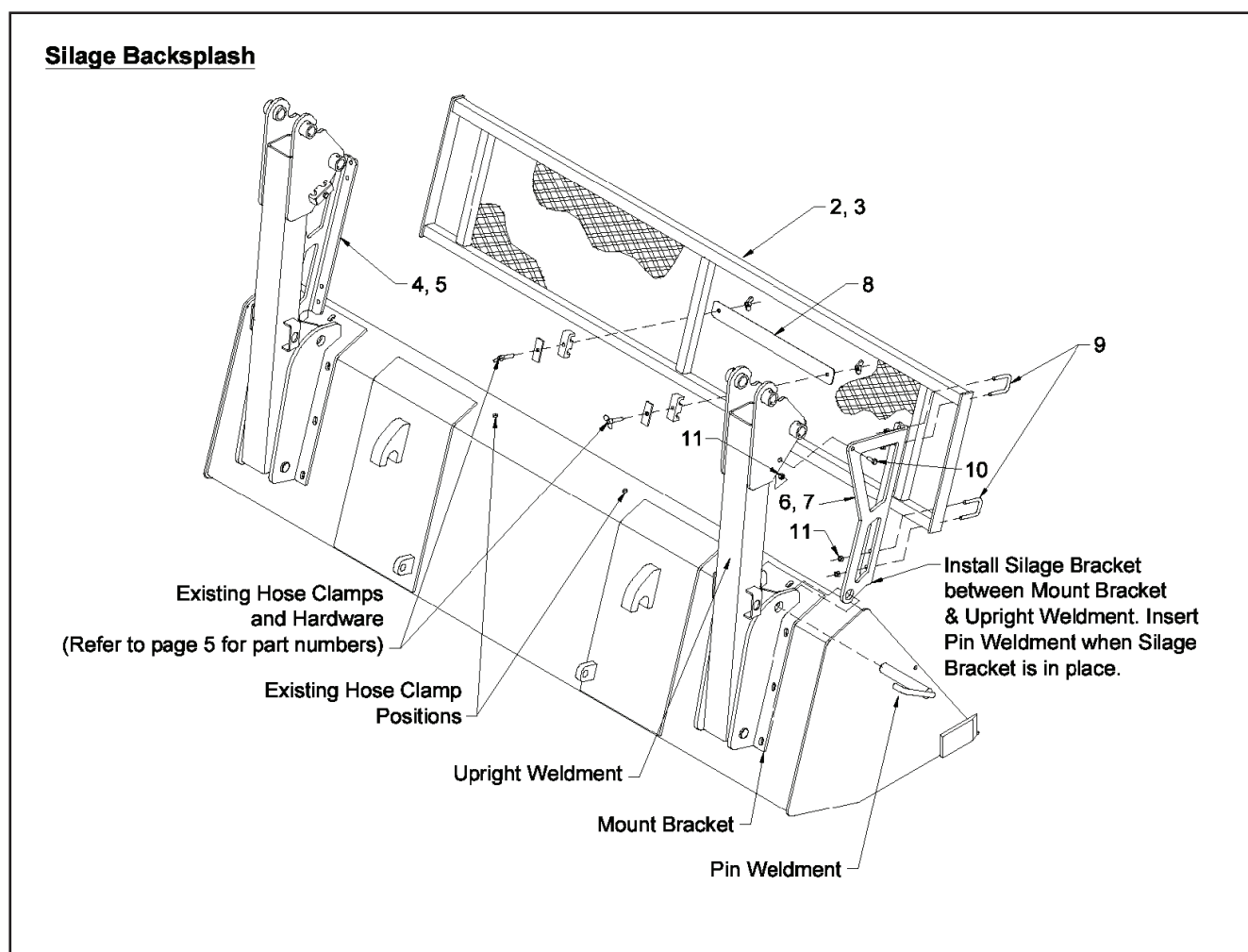


Grapple Options (Grapple C3000 – P4254)

Mounting Instructions: Silage Backsplash (X2900/X2901) (Grapple 3000 – P4254)

Please read and understand the following instructions before mounting.

1. Install silage screen brackets (item 4, 5, 6, 7) between the grapple upright and mount brackets as shown using bolts (item 10), nylon lock nuts (item 11) and existing grapple pin weldments. Finger tighten hardware.
2. Install silage screen weldment (item 2, 3) using u-bolts (item 9) and nylon nuts (item 11). Torque all hardware to 102 N•m (75 ft. lbs.)
3. Install existing hose clamps and hardware with tie strap (item 8) onto silage screen as shown. Ensure enough slack in hoses for full range of grapple motion.

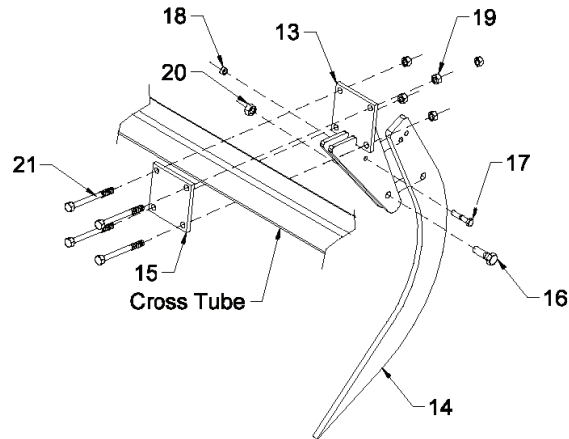




Mounting Instructions

Assemble tines to grapple frame as shown in the diagram below.

Tine Kit





Grapple Removal/Attachment (C2000 and C3000)

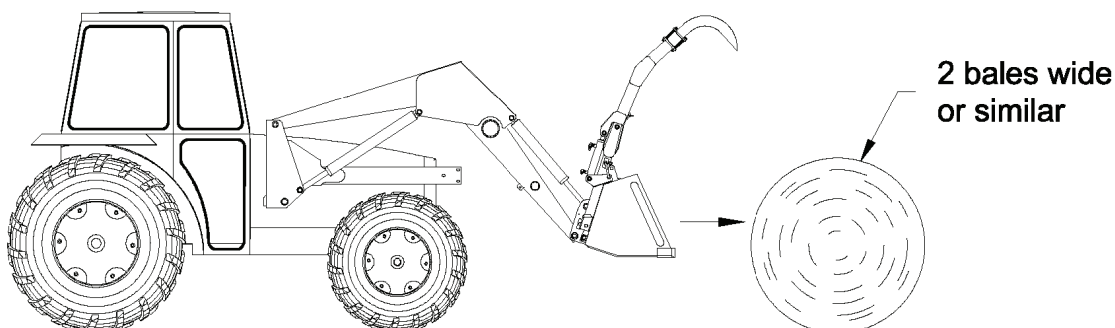


Figure 1

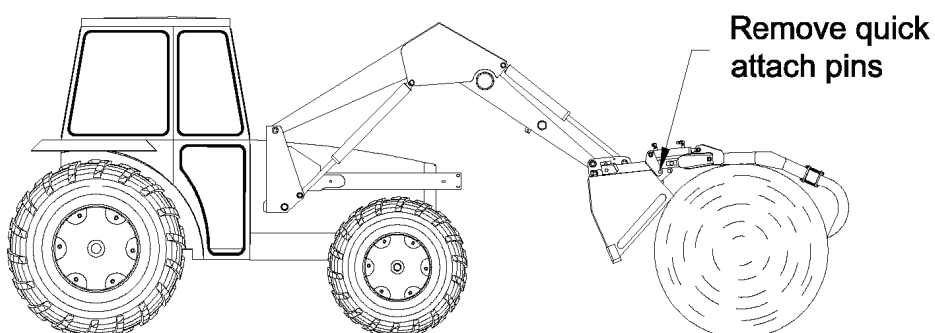


Figure 2

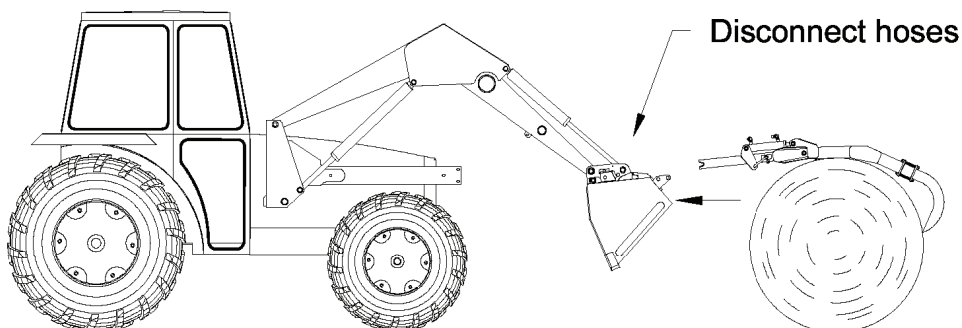


Figure 3

NOTES:

1. With grapple open, approach two bales placed end to end (Figure 1).
2. Position grapple over bales as shown (Figure 2).
3. Remove both quick attach pins.
4. Back out slowly. Grapple will slide out of mount bracket weldments (Figure 3).
5. Disconnect hoses.
6. To reattach, reverse process.

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