

	Page
<b>INTRODUCTION</b> .....	3
<b>SPECIFICATIONS</b> .....	4
<b>SAFETY DECALS</b> .....	5
<b>SAFETY PRECAUTIONS</b> .....	6
<b>OPERATION</b> .....	7-11
Preparing Tractor .....	7
Operating Loader .....	7
Filling Bucket .....	7
Lifting Load .....	8
Carrying Load .....	8
Dumping Bucket .....	8
Lowering Bucket .....	9
Operating with Float Control .....	9
Loading from A Bank .....	9-10
Peeling and Scraping .....	10
Backgrading .....	10
Loading Low Trucks or Spreaders From A Pile .....	10
Backfilling .....	11
Handling Large Heavy Objects .....	11
<b>DISMOUNTING AND MOUNTING LOADER</b> .....	12-13
<b>MAINTENANCE</b> .....	14-15
Daily Maintenance .....	14
Troubleshooting .....	15
<b>SERVICE</b> .....	16-18
Valve Service .....	16-17
Cylinder Service .....	18
<b>ASSEMBLY</b> .....	20-33
Mounting Brackets .....	20-21
Loader Main Frame .....	22-23
Bucket Level Indicator .....	23
Decals .....	23
Loader Hydraulics .....	24
Loader Quick Attach .....	25-26
Valve and Plumbing .....	27-29
Plumbing Kit to Rear Remotes .....	30
Cylinders .....	31
Buckets .....	32
Material Buckets .....	32
Heavy Duty Material Buckets .....	32
<b>NUMERICAL PART NUMBER INDEX</b> .....	33

# INTRODUCTION

This manual provides operation, maintenance, assembly and parts identification for your new loader.

Your loader has been designed to give many years of satisfactory service. Successful operation and long life of your loader depends, of course, on proper operation and the care given it. Please read this manual carefully and follow all instructions. Correct operation and maintenance will save much time and expense. Also follow instructions included with loader mounting and hydraulic kits to insure loader is installed correctly to tractor.



**NOTE:** *This safety alert symbol identifies important safety messages in this manual. Observe and follow all safety messages to prevent personal injury.*

Reference to left and right used in this manual refer to the position when standing at rear of unit facing forward, unless otherwise specified.

If at any time, you have a service problem with your loader, or need new parts, contact your local dealer. Your dealer will need your loader model and serial number to give you prompt efficient service.



Fill in Serial Number and Date Purchased

\* Serial Number

Date Purchased

Your loader serial and component numbers are located on \* inside of left boom arm.

There are three levels of hazard intensity identified by signal words DANGER, WARNING and CAUTION. The level of hazard intensity is identified by the following definitions.



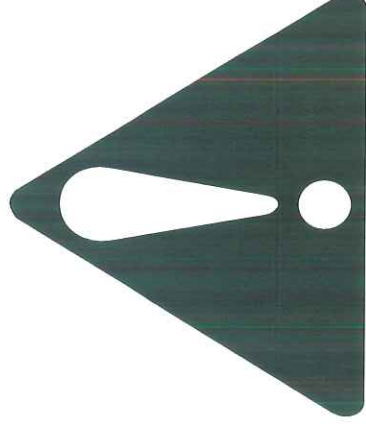
**DANGER** - Immediate hazards which will result in severe injury or death.



**WARNING** - Hazards or unsafe practices which could result in minor personal injury or death.



**CAUTION** - Hazards or unsafe practices which could result in minor personal injury or property damage.



**THIS SAFETY SYMBOL MEANS**

**ATTENTION !**

**BECOME ALERT !**

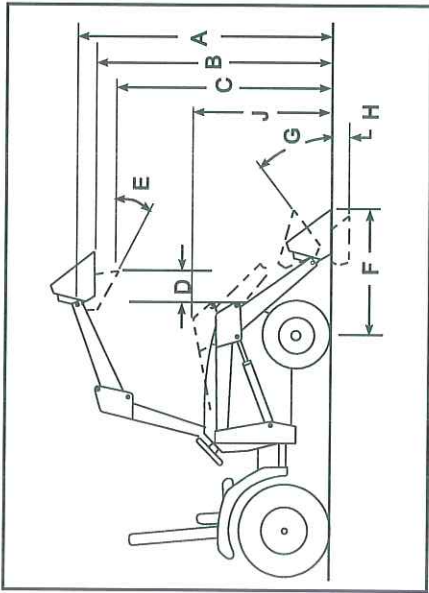
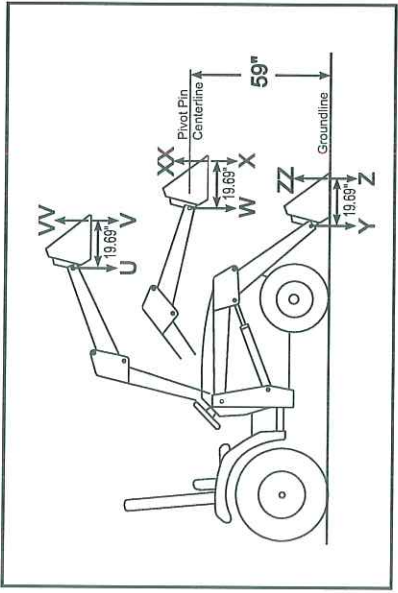
**YOUR SAFETY  
IS INVOLVED !**

# SPECIFICATIONS

Specifications will vary with tractor, tire size, hydraulic system and bucket used. The specifications are given for a loader equipped with 68" H.D. material bucket operated with an average tractor hydraulic system of 9.3 GPM with engine operating at 2500 RPM and control valve relief setting of 2500 PSI.

## SPECIFICATIONS

- Lift capacity at full height . . . . . U . . . . . 2050#
- Lift capacity at 500mm . . . . . V(500mm) . . . . . 1480#
- Lift capacity . . . . . W . . . . . 2975#
- Breakout force . . . . . X(500mm) . . . . . 2360#
- Breakout force . . . . . Y . . . . . 5140#
- Breakout force . . . . . Z(500mm) . . . . . 3695#
- Bucket rollback force . . . . . VV(500mm) . . . . . 2266#
- Bucket rollback force . . . . . XX(500mm) . . . . . 3358#
- Bucket rollback force . . . . . ZZ(500mm) . . . . . 2553#
- Shipping weight including 68" H.D. bucket . . . . . 1080#
- Maximum lift height to pivot pin . . . . . 107.5"
- Maximum lift height under level bucket . . . . . 102"
- Clearance with attachment dumped 45° . . . . . 86.88"
- Reach at maximum height . . . . . 21.38"
- Maximum dump angle . . . . . 45°
- Reach with attachment on ground . . . . . varies
- Attachment rollback angle . . . . . 16°
- Digging depth . . . . . 4.62"
- Overall height in carry position . . . . . 54.5"
- Raising time to full height - seconds . . . . . 5.92
- Lower time - seconds . . . . . 4.16
- Attachment rollback time - seconds . . . . . 2.30
- Hydraulic system flow - U.S. gallons . . . . . 8.5 GPM
- System pressure at rated flow . . . . . 2450 PSI
- Lift cylinders - number and type . . . . . two - 2.50" Dia. D/A
- Dump cylinders - number and type . . . . . two - 2" Dia. D/A



Specifications based on ASAE S301-3 Standard may vary depending on tractor model. Tractors must be equipped with ROPS and seat belt that will provide greater safety. Additional ballast may be required for stability. Design and specifications subject to change without notice.

## GENERAL TORQUE SPECIFICATIONS

AMERICAN STANDARD CAP SCREWS			METRIC CAP SCREWS			
Cap Screw Size	TORQUE			TORQUE		
	FT-LBS	MIN	MAX	FT-LBS	MIN	MAX
5	7.25	8.5	10	8	8	11
1/4-20	8	9	11	8	8	11
5/16 - 18	14	15	19	20	20	27
5/16 - 24	17.5	19	23	26	27	35
3/8 - 16	26	28	35	38	39	47
3/8 - 24	31	34	42	46	47	62
7/16 - 14	41	45	55	61	61	84
7/16 - 20	51	55	69	74.5	74.5	103
1/2 - 13	65	72	88	97.5	92	120
1/2 - 20	76	84	103	114	116	146
9/16 - 12	95	105	129	142	138	176
9/16 - 18	111	123	150	167	172	216

Cap Screw Size	TORQUE			TORQUE		
	FT-LBS	MIN	MAX	FT-LBS	MIN	MAX
8	8.25	9.5	11	8	8	11
M6x100	10.5	12	14	20	21.5	27
M8 x 1.25	18.5	20	25	29	39	47
M10 x 1.50	23	25	31	34	47	62
M12 x 1.75	35	37	47.5	50	70	84
M14 x 2.00	41	45	55.5	61	84	103
M16 x 2.50	55	60	74.5	81	115	139
M18 x 2.50	68	75	92	102	176	214
M20 x 2.50	86	96	116	130	233	284
M22 x 2.50	102	112	138	152	301	365
MM24 x 3.00	127	140	172	190	450	547
M27 x 3.00	148	164	200	222	517	639
M30 x 3.00	172	190	222	252	573	700

## SAFETY DECALS

NOTE: Loader safety decals are at locations listed below each decal part number. Replace decals if they are damaged or illegible. Replacement decals are available from your dealer.

**! WARNING**

**TO AVOID INJURY DURING REMOVAL OR REINSTALLATION OF QUICK-TACH LOADER:**

- Place loader bucket against barrier to restrict forward movement of loader.
- Do not permit bystanders within 10 feet of loader.
- Do not repair loader if it is not mounted on the tractor. Loss of oil or removal of parts could cause loader to collapse resulting in injury.
- Read and understand instructions in operator's manual.

36932

DECAL P.N. SW36932

Location: Loader Left Side  
Frame Upright

**! CAUTION**

**LOADER SAFETY GUIDES**

1. Move and turn tractor at low speeds.
2. Carry loader arms at a low position during transport.
3. Lower loader arms, stop engine and lock brakes before leaving operator's seat.
4. Do not stand or work under a raised loader.
5. Add recommended wheel ballast or rear weight for stability.
6. Move wheels to widest recommended settings to increase stability.
7. Observe safety recommendations in instruction manual.

7794

DECAL P.N. SW7794

Location: Loader Left Side Frame Upright

**! WARNING**

**CONTROL VALVE RELIEF IS PRESET AT THE FACTORY. TAMPERING WITH THE RELIEF SETTING CAN CAUSE:**

1. **SERIOUS OPERATOR INJURY.**
2. **LOADER OR TRACTOR DAMAGE.**
3. **VOID WARRANTY ON BOTH TRACTOR AND LOADER.**

25801

DECAL P.N. SW25801

Location: Loader Left Side Frame Upright

**! WARNING**

**TOWING HERE WILL PULL FRONT LOADER SUPPORT OUT OF POCKET CAUSING DAMAGE AND POSSIBLE INJURY.**

**DO NOT USE FOR TOWING**

39240

DECAL P.N. SW39240

Location: Loader Yoke Left and Right Side

**! WARNING**

1. Use of front end loaders for handling large heavy objects; such as large round bales, large rectangular bales, logs, oil drums, etc; is **NOT** recommended.
2. Handling large heavy objects can be extremely dangerous due to:
  - Danger of rolling the tractor over
  - Danger of upending the tractor
  - Danger of the object rolling or sliding down the loader arms onto the operator
3. If you must perform this sort of work, protect yourself by:
  - Never lifting higher than necessary to clear the ground when moving
  - Ballast tractor rear to compensate for load
  - Never lifting large objects with equipment that does not have an anti-rollback device.
  - Move slowly and carefully, avoiding rough terrain.

26871

DECAL P.N. SW26871

Location: Loader Left Side Frame Upright

# SAFETY PRECAUTIONS

## Following are precautions suggested to help prevent accidents.

A careful operator operates best. Most accidents can be avoided by observing certain precautions. Read all precautions that follow before operating your tractor and loader to help prevent accidents. Equipment should be operated only by those who are responsible and instructed to do so.

### GENERAL

1. Read your Operator's Manuals carefully before using tractor or loader. Lack of operating knowledge can lead to accidents.
2. Replace damaged or illegible safety decals. See page 5 for required decals.
3. Operate tractor and loader only from operator's seat.

### TRACTOR

1. Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a rollbar can result in death or injury. If your tractor is not equipped with a rollbar and seat belt, see your Tractor Dealer.
2. Equip your tractor with ROPS (Roll Over Protective Structure) before installing or operating loader.
3. Always use seat belt when rollbar is installed. Do not use seat belt if rollbar is removed from tractor.
4. Add recommended wheel ballast and/or rear weight as recommended in owner's manual to provide good stability.
5. Move rear wheels to widest settings recommended to increase stability.
6. Move and turn tractor at low speeds.

### LOADER

1. Improper use of a loader can cause serious injury or death.
2. Do not lift or carry anybody on loader, in bucket or on attachment.
3. Never allow anyone to get under loader bucket or reach through lift arms when bucket is raised.
4. Do not walk or work under a raised loader or bucket or attachment unless it is securely blocked or held in position.
5. Avoid overhead wires and obstacles when loader is raised. Contacting electric lines can cause electrocution.
6. Make sure all parked loaders are on a hard, level surface. Engage all safety devices.

### OPERATING LOADER

1. As owner of this loader, it is your responsibility to be certain anyone operating this loader has read this manual first to be aware of safe operation of your tractor and loader.
2. Exercise caution when operating any loader with a raised loaded bucket or fork.
3. Avoid loose fill, rocks and holes. They can be dangerous for loader operation or movement.
4. Use care when operating on steep grades to maintain proper stability. Always carry bucket or attachment as low as possible.
5. Allow for loader length when making turns.

6. Stop loader arms gradually when lowering or lifting.
7. Use caution when handling loose or shiftable loads.
8. Carry bucket or attachment at a low position during transport for better visibility.
9. When parking or servicing, lower bucket to ground, stop engine and set park brakes before leaving tractor seat.
10. Operate loader controls only when properly seated at controls.
11. Using front end loaders without special attachments for handling large heavy objects such as large round or rectangular bales, logs and oil drums is **NOT RECOMMENDED**.
12. Handling large heavy objects can be extremely dangerous due to:
  - Danger of rolling tractor over.
  - Danger of upending tractor.
  - Danger of objects rolling or sliding down loader arms onto operator.
13. If you must perform this sort of work (see 12 above), protect yourself by:
  - Use proper attachments only.
  - Never lift load higher than necessary to clear ground when moving.
  - Ballast tractor rear to compensate for load.
  - Never lift large objects with equipment that does not have an anti-rollback device.
  - Move slowly and carefully, avoiding rough terrain.

### MAINTENANCE

1. When servicing or replacing pins in cylinder ends, buckets, etc., always use a drift and hammer of non-sparking material. Failure to do so could result in injury from flying metal fragments.
2. Do not modify or alter or permit anyone else to modify or alter loader or any of its components or any loader function without first consulting your Dealer. If you have any questions regarding loader modifications contact Kioti Tractor.
3. Always wear safety goggles when servicing or repairing tractor or loader.
4. Escaping hydraulic/diesel fluid under pressure can penetrate skin causing serious personal injury.
  - DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
  - Stop engine and relieve pressure before connecting or disconnecting hydraulic or diesel lines.
  - Tighten all connections before starting engine or pressurizing lines.
  - If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.
5. Do not tamper with relief valve setting. Valve relief is factory-set. Changing relief setting can cause overloading

Whenever you see this symbol



It means: **ATTENTION !**

**BECOME ALERT !**

**YOUR SAFETY IS INVOLVED !**

# OPERATION

## PREPARING TRACTOR PRIOR TO OPERATION



**WARNING:** Read all operator's manuals before inspecting, servicing or operating loader and tractor.

### INSPECTION

Thoroughly inspect your fully assembled tractor and loader prior to operation.

1. Check all hardware to be sure that it has been properly installed and tightened. Retighten all hardware after 10 hours of initial operation.
2. Check tire pressure. Refer to tractor operator's manual for recommended pressures.
3. Review tractor lubrication schedule and consult MAINTENANCE section of this manual to be certain all pivot points have been properly lubricated.
4. Use instructions listed in MAINTENANCE section of this manual to check all hose and tubing connections to insure no leaks are present.
5. Be sure ROPS (Roll Over Protective Structure) is installed.

## INSTALL COUNTERBALANCE



**WARNING:** Before operating tractor and loader, add sufficient counterweight so a minimum of 25% of total weight of tractor, loader and rated load is on rear wheels when bucket contains rated load and is in maximum forward position.

Sufficient weight can be added to tractor by filling rear wheels with liquid ballast, installing wheel weights or 3-point hitch counterweight. If 3-point hitch counterweights are used, they should be carried as low as possible at all times to maximize stability.

Effective counterbalance weight of mounted rear equipment is determined by multiplying actual weight of equipment by 1.50.

**EXAMPLE:** Equipment weighing 800 pounds, attached to rear of tractor, multiplied by 1.50, equals 1200 pounds of effective counterbalance weight.

After adding recommended counterweight, weigh tractor at rear axle to be sure counterbalance is adequate.

## OPERATING LOADER

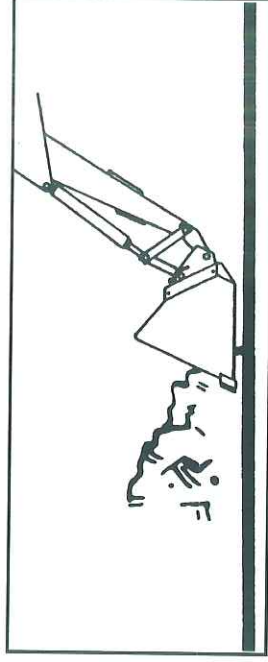
This loader should be operated with tractor engine running at 1700-2200 rpm. Excessive speeds are dangerous, and may cause bucket spillage and unnecessary strain on bucket and loader.

When operating in temperatures below 30°F., run tractor engine below 1200 rpm until oil temperature exceeds 30°F.

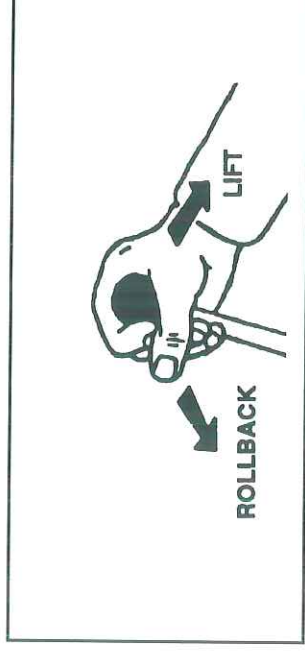
Text and illustrations which follow offer suggested loader and tractor operating techniques.

### ● FILLING BUCKET

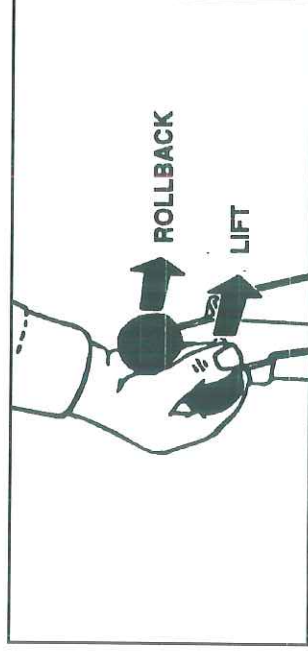
Approach and enter a pile with bucket level.



Loaders with 1-lever control, ease lever back and toward you to lift and curl bucket.

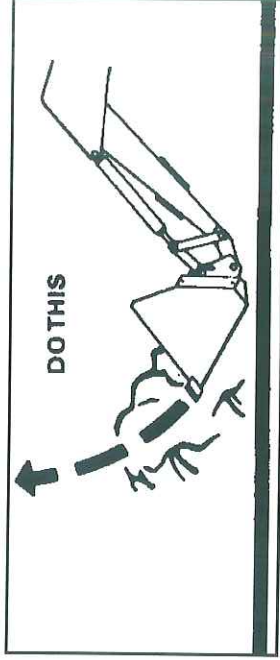


Loaders with 2-lever controls, ease both levers of tractor remote valve back to lift and curl bucket.

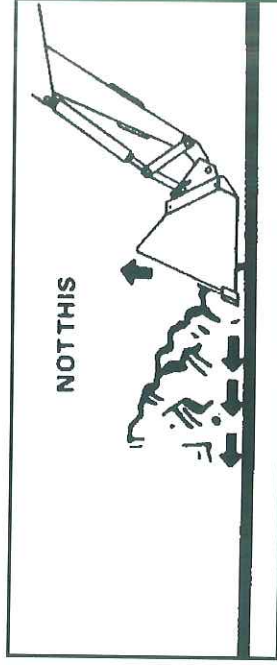


# OPERATION

Lifting and curling bucket will increase efficiency because...



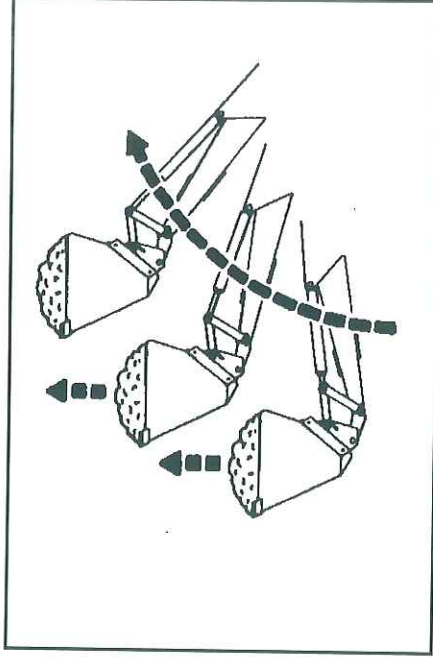
... a level bucket throughout lift cycle resists bucket lift and increases breakaway effort.



**NOTE:** Do not be concerned if bucket is not completely filled during each pass. Maximum productivity is determined by how much material is loaded in a given period of time. Time is lost if two or more attempts are made to fill bucket on each pass.

## ● LIFTING LOAD

When lifting load, keep bucket positioned to avoid spillage. Loader has mechanical self leveling of attachment in both raise and lower cycle. Attachment can be adjusted by using bucket cylinders.

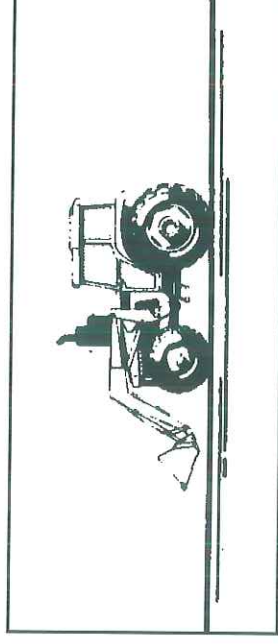


**CAUTION:** Do not attempt to lift bucket loads in excess of loader capacity.



## ● CARRYING LOAD

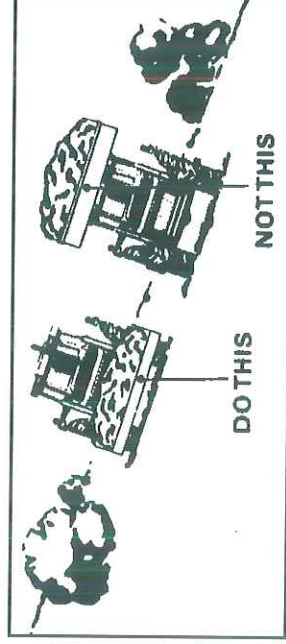
Position bucket just below level of tractor hood for maximum stability and visibility, whether bucket is loaded or empty.



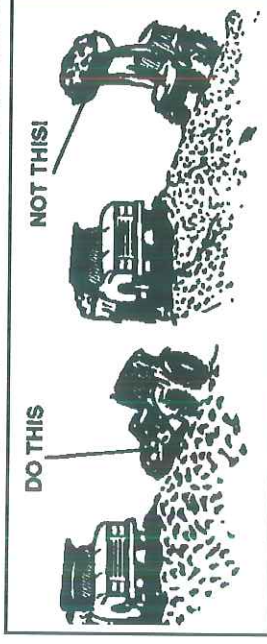
Use extreme care when operating loader on a slope, keep bucket as low as possible. This keeps center of gravity for loader, bucket and tractor low and will provide maximum tractor stability.



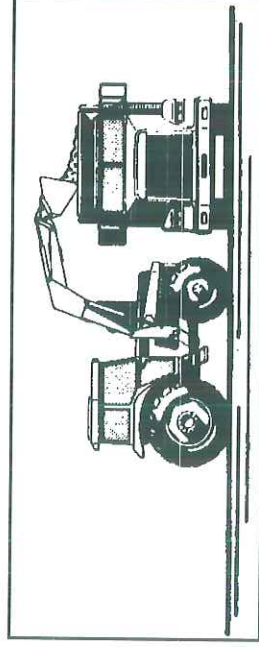
**WARNING:** Operating a loader on a hillside is dangerous. Extreme care is recommended to avoid overturn.



When transporting a load, keep bucket as low as possible to



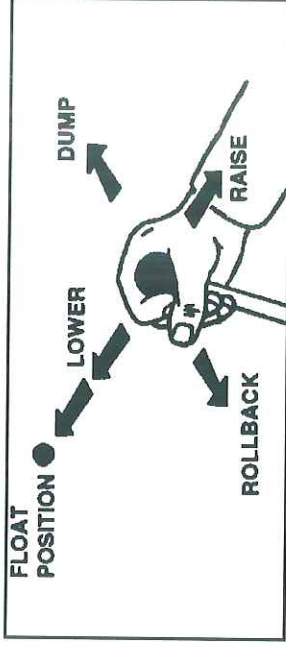
avoid tipping, in case a wheel drops in a rut.



# OPERATION

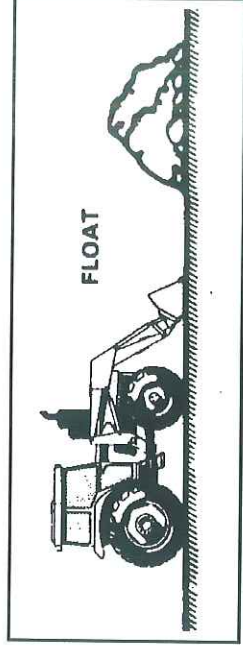
- **LOWERING BUCKET**

After bucket is dumped, back away from vehicle while lowering and curling bucket.

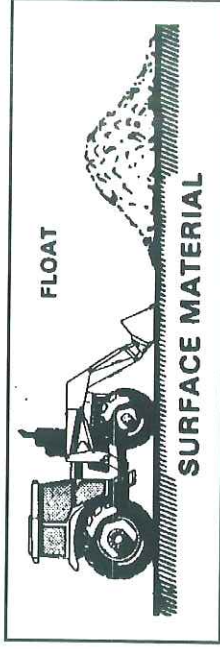


- **OPERATING WITH FLOAT CONTROL**

During hard surface operation, keep bucket level and put lift control in float position, if available, to permit bucket to float on working surface. If hydraulic down pressure is exerted on bucket it will wear faster than normal.

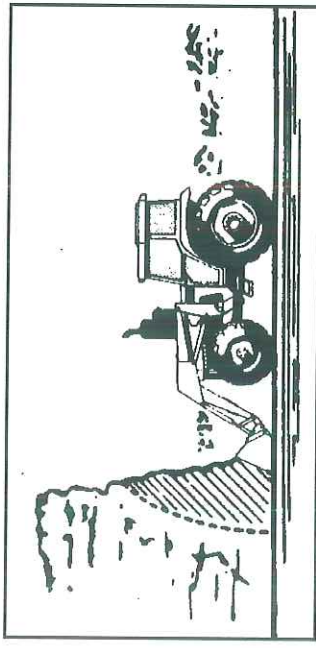


Using loader float position will also prevent mixing of surface material with stockpile material and will reduce surface gouging when removing snow or other material.

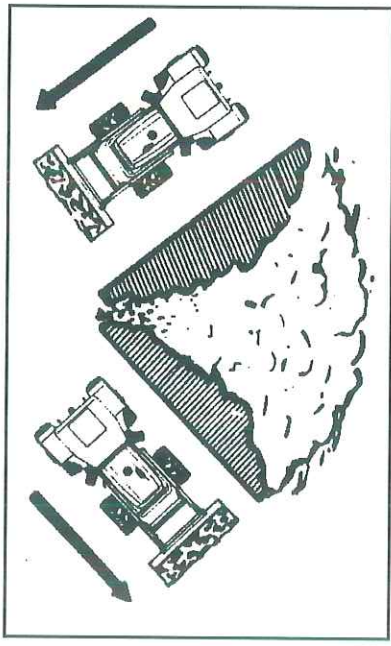


- **LOADING FROM A BANK**

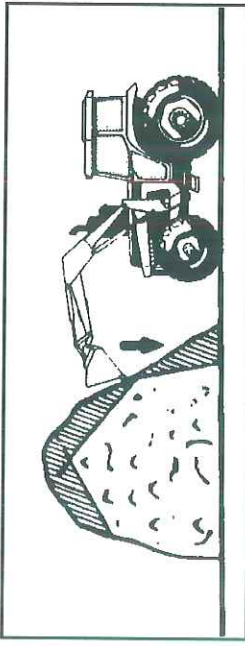
Choose a forward gear that provides sufficient ground speed for loading.



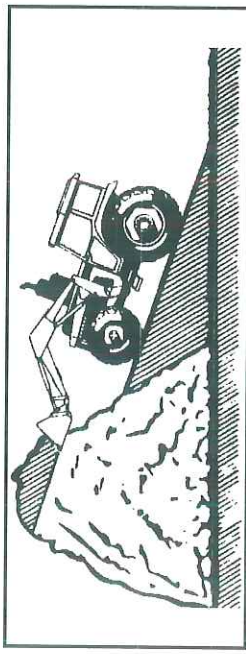
Exercise caution when undercutting high banks. Dirt slides can be dangerous. Load from as low as possible for maximum efficiency. Loader lift and break away capacity diminish as loading height is increased.



Sidecutting is a good technique for cutting down a big pile.



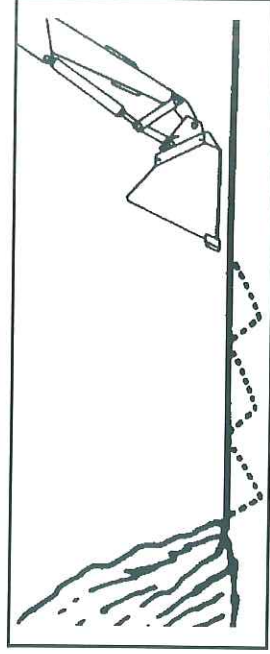
If pile sides are too high and liable to cause cave in, use loader to break down sides until a slot can be cut over top of pile.



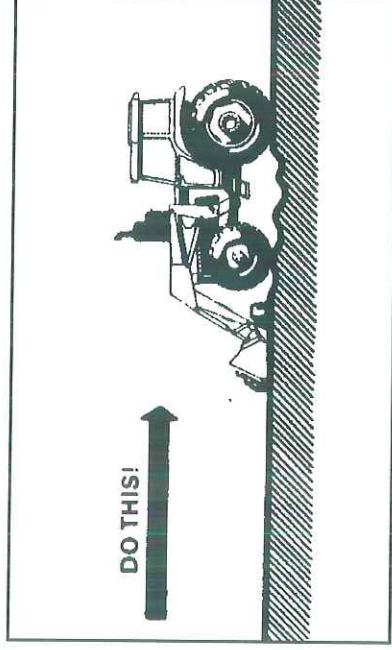
Another method for large dirt piles is to build a ramp approach to pile.



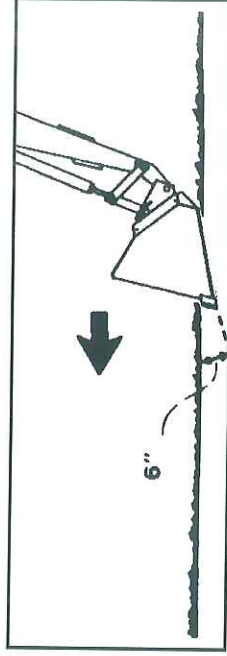
# OPERATION



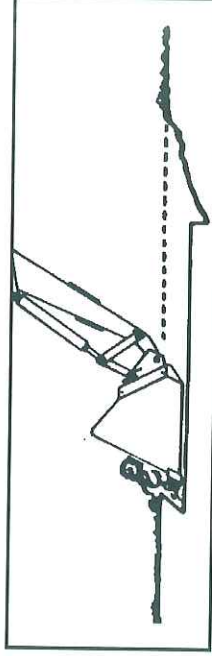
It is important to keep a level bucket when approaching a bank or pile. This will help prevent gouging the work area.



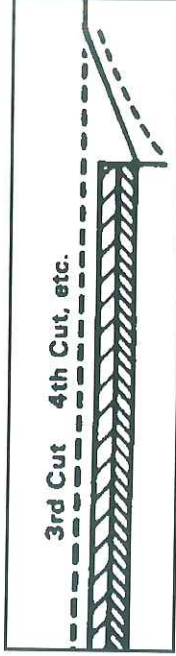
## ● PEELING AND SCRAPING



Use a slight bucket angle, travel forward and hold lift control forward to start cut. Make a short, 5 to 8 foot, angle cut and break out cleanly.



With bucket level, start a cut at notch approximately 2" deep. Hold depth by feathering bucket control to adjust cutting lip up or down. When front tires enter notch, adjust lift cylinder to maintain proper depth.

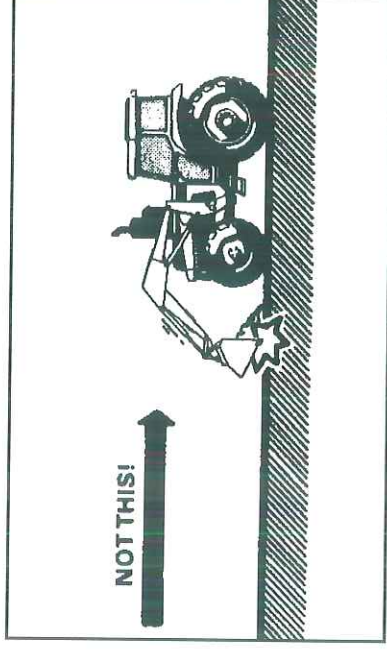


Make additional passes until desired depth is reached. During each pass, only use bucket control at working depth. This will allow you to concentrate on controlling bucket angle to maintain a precise cut.

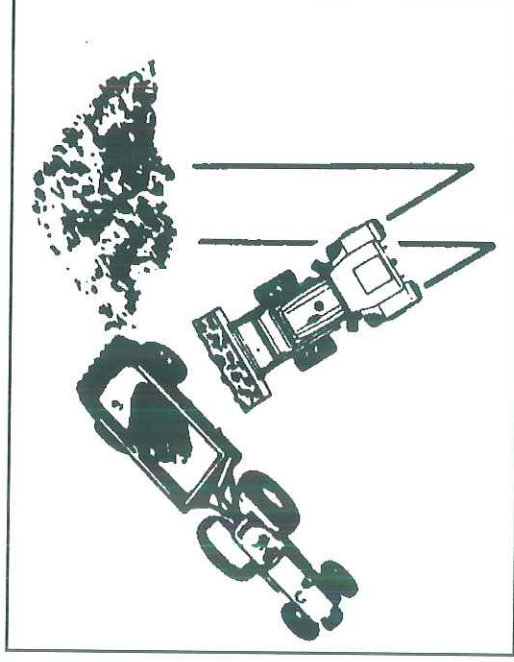
## ● BACKGRADING

Backgrade occasionally with a loaded bucket to keep working surface free of ruts and holes. Also, hold lift control forward so full bucket weight is scraping ground. Use bucket heel.

**IMPORTANT:** Do not roll bucket over and attempt to backgrade. This type of use can cause severe overloading of bucket cylinders when fully extended, possibly causing bucket cylinder rods to become bent.



## ● LOADING LOW TRUCKS OR SPREADERS FROM A PILE

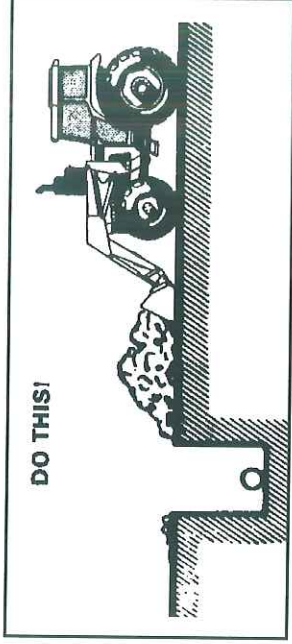


For faster loading, minimize turn angle and run length between pile and spreader.

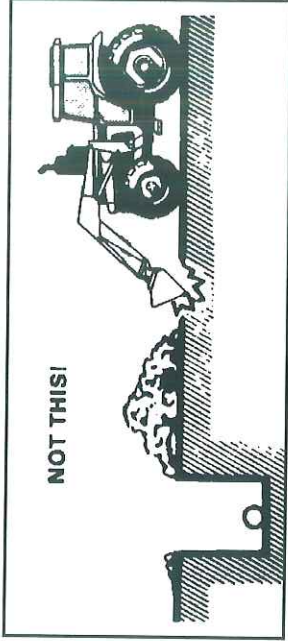
# OPERATION

## ● BACKFILLING

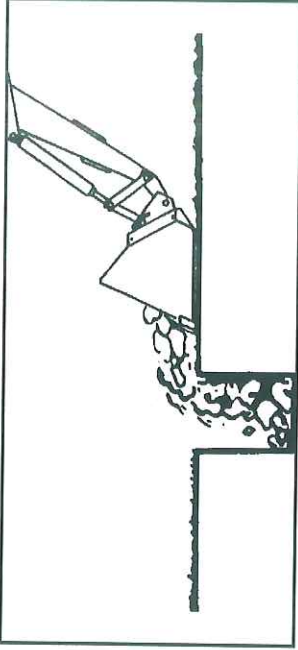
Approach pile with a flat bucket.



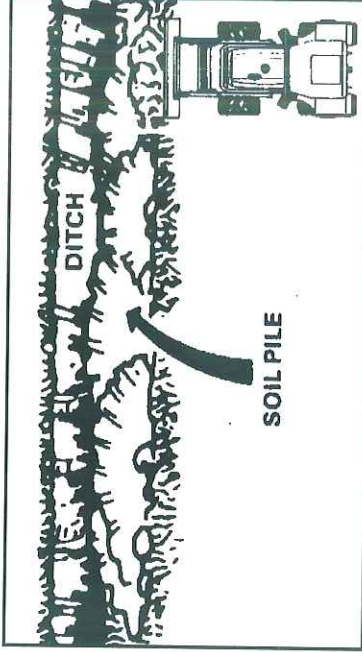
Poor methods actually move no more dirt and make it more difficult to hold a level grade.



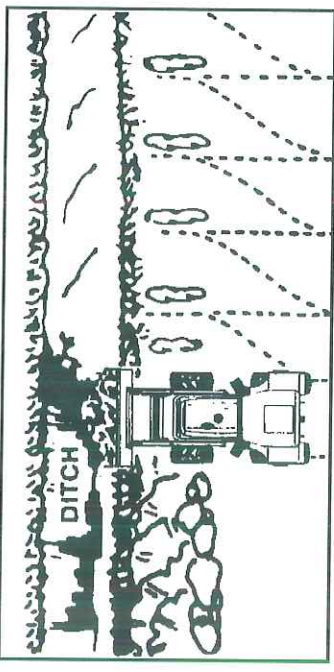
Do not use bucket in dumped position for bulldozing. This method, shown above, will impose severe shock loadings on dump linkage, bucket cylinder and tractor.



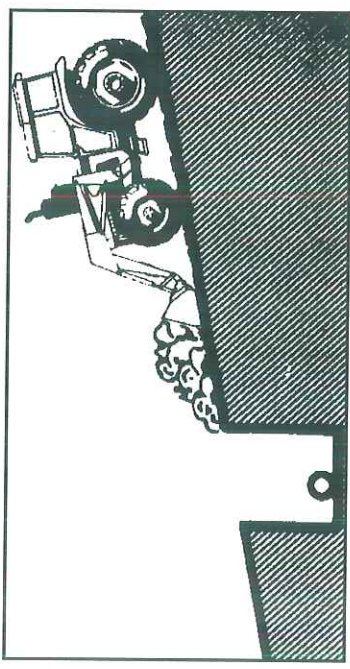
Leave dirt in bucket because dumping on each pass wastes time.



Operate at right angles to ditch. Take as big a bite as tractor can handle without lugging down.



Leave dirt on high side for easier backfilling on a slope.



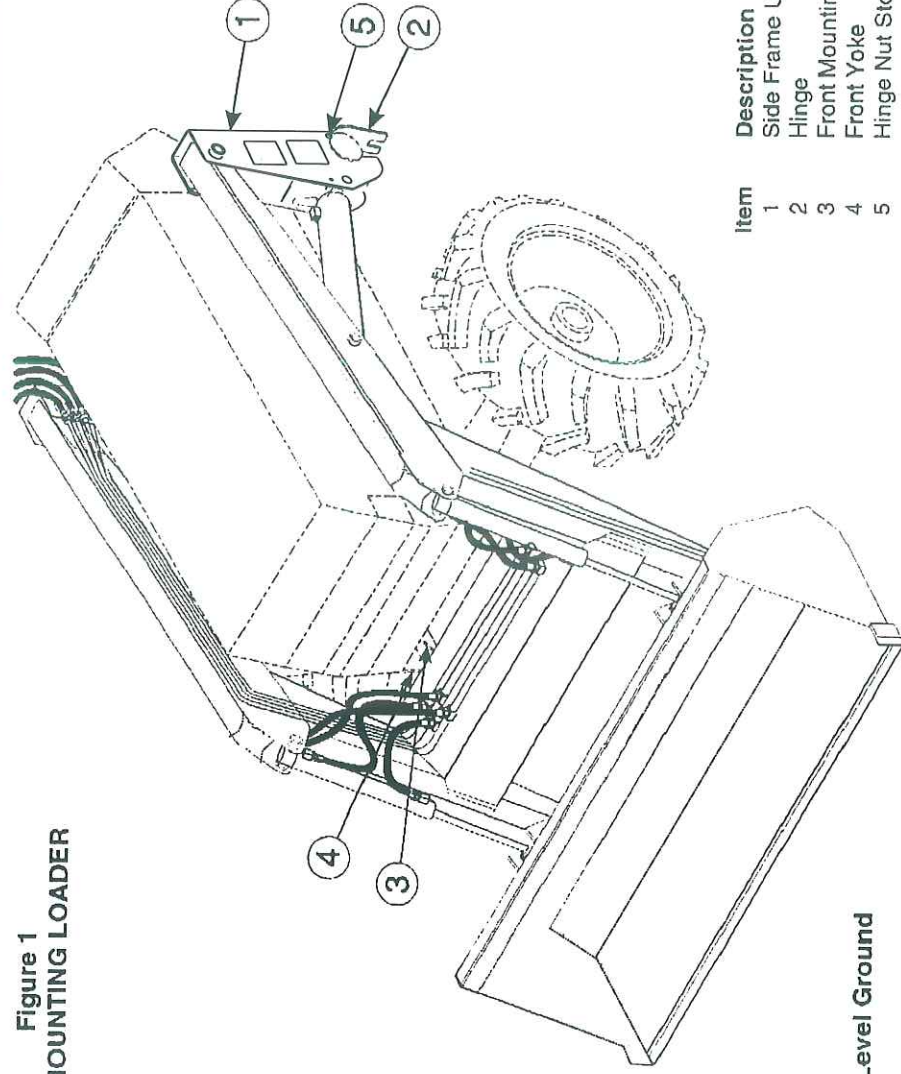
## ● HANDLING LARGE HEAVY OBJECTS

# ⚠ WARNING

1. Using front loaders for handling large heavy objects such as large round or rectangular bales, logs and oil drums is not recommended.
2. Handling large heavy objects can be extremely dangerous due to:
  - Danger of rolling tractor over.
  - Danger of upending tractor.
  - Danger of objects rolling or sliding down loader arms onto operator.
3. If you must perform any work listed above, protect yourself by:
  - Use proper attachments only.
  - Never lift load higher than necessary to clear ground when moving.
  - Ballast tractor rear to compensate for load.
  - Never lift large objects with equipment that does not have an anti-rollback device.

# DISMOUNTING AND MOUNTING LOADER

Figure 1  
DISMOUNTING LOADER



Firm Level Ground

Item	Description
1	Side Frame Upright
2	Hinge
3	Front Mounting Bracket
4	Front Yoke
5	Hinge Nut Storage Location

## DISMOUNTING LOADER (Figure 1)

**WARNING:** To avoid injury during removal of Quick-Attach loader:

- Place loader bucket against barrier to restrict forward movement of loader.
  - Do not permit bystanders within 15 feet of loader.
- IMPORTANT:** Loader must be equipped with a bucket or other optional attachment to dismount from tractor.

**CAUTION:** When dismantling loader, maintain clearance between loader side frames and tractor hood and front axle.

1. Locate tractor and loader on firm level ground.
2. Level and lower bucket to ground. Engage tractor brakes and shut off tractor engine. Move lift control lever back and forth several times to relieve pressure in lift cylinders.
3. Remove 5/8 lock nuts and washers which clamp hinges closed around mid mounting tubes.

4. Start tractor engine and release tractor brakes. Lower loader boom slightly as necessary to distribute weight of loader equally between front mounting bracket and mid mounting brackets. This can also be accomplished by using boom float position. Move tractor backwards until center mount tubes push against open hinges to disengage front yoke tube from front mounting bracket channel. Activate lift control lever to gently extend lift cylinders causing loader front yoke to lower to ground. Continue rotating loader side frames off mid mounting brackets until hinges clear mid mounting tubes. Slowly back tractor out of loader while rotating loader side frames. Extend lift cylinders until uprights are high enough to clear tires.

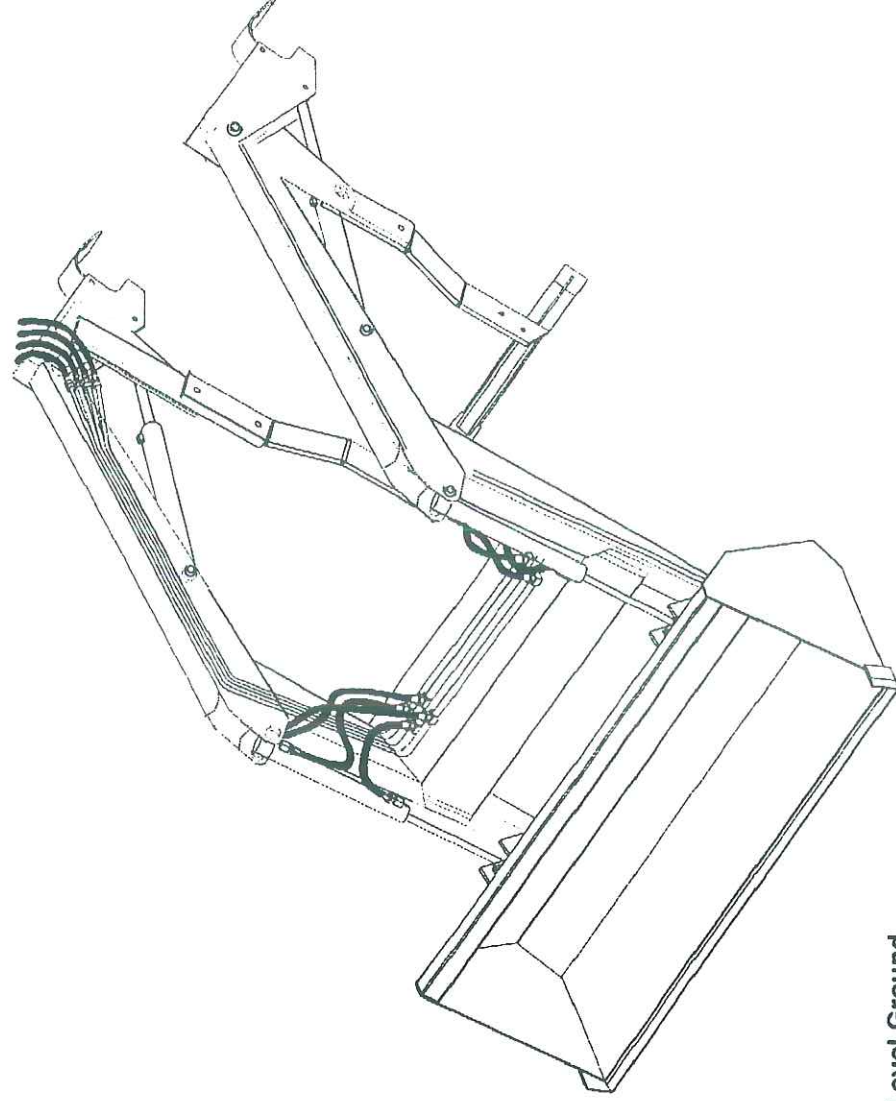
Engage tractor brakes and shut off tractor engine.

5. Move lift and bucket control levers back and forth several times to relieve pressure on lift and bucket cylinders. Disconnect quick couplers between loader and tractor. Hang hoses over loader side frame upright for storage. Make sure male quick couplers will not become contaminated during storage.

6. Fasten bolts, washers and nuts onto hinge for storage.

**NOTE:** Loader should be stored in a dry place. If loader is being stored for an extended period (one month or more), a coat of grease should be applied to the cylinder shafts to prevent rusting.

Figure 2  
MOUNTING LOADER



Firm Level Ground

## MOUNTING LOADER (Figure 2)

Mounting is basically reverse of dismounting.

1. Slowly drive tractor up to loader until hoses will reach from loader to tractor. Engage tractor brakes and shut off tractor engine.
2. Make sure quick couplers are clean and connect between tractor and loader, matching color coded bands.
3. Remove bolts, nuts and washers holding hinge closed. Swing hinge open. If hinge does not remain open; bolt acting as hinge pivot needs to be tightened to provide frictional resistance to hold hinge open.
4. Start tractor engine and release tractor brakes. Slowly drive tractor ahead while activating lift control lever to extend or retract lift cylinders, positioning tractor so hinges hook mid mounting bracket tubes as loader side frame uprights rotate.

**NOTE:** Maintain clearance between side frames and tractor hood and front axle when mounting loader.

**IMPORTANT:** Position loader uprights so mid mounting tubes are tight against hinges until loader has finished rotating so loader yoke cross-tube does not hit lower flange of front mounting channel. Maintain gap between cut-outs in loader uprights and mid mounting tubes until loader yoke cross-tube contacts upper flange of front mounting channel.

5. Put tractor in neutral. Retract lift cylinders bringing side frame channels up so front yoke tube contacts front mounting top flange. Move tractor ahead so front yoke tube engages in front mounting bracket channel and loader side frame uprights seat properly on mid mounting bracket tubes (with no gap between upright cut-out and front of tube). Engage tractor brakes and shut off tractor engine.
6. Clamp hinge around mid mounting tube using 5/8 washer and flex-lock nut.

**IMPORTANT:** Be sure to use flex-lock nut to clamp hinge. Tighten flex-lock nut against hinge securely, but to no more than 125 ft. lbs. of torque.

# MAINTENANCE

Regular maintenance of your loader and hydraulic system will insure maximum loader efficiency and long life.

**WARNING:** NEVER perform maintenance beneath a raised loader unless loader is properly supported to prevent accidental lowering.

## DAILY MAINTENANCE

- Check fluid level of tractor hydraulic system before starting each day's operation. If necessary, add hydraulic oil as recommended in your tractor operator's manual.

- Daily, unless conditions justify more frequent greasing, lubricate all twelve grease fittings: one at each end of lift boom arms and one at rod and base ends of each lift and bucket cylinder.

**NOTE:** Fully retract bucket cylinders to roll bucket back completely, then raise bucket to a comfortable height to grease bucket/loader boom joint. Do not reach or stand under a raised loader or attachment without proper support.

- Repair hydraulic oil leaks promptly to avoid loss of oil and serious personal injury from escaping oil.

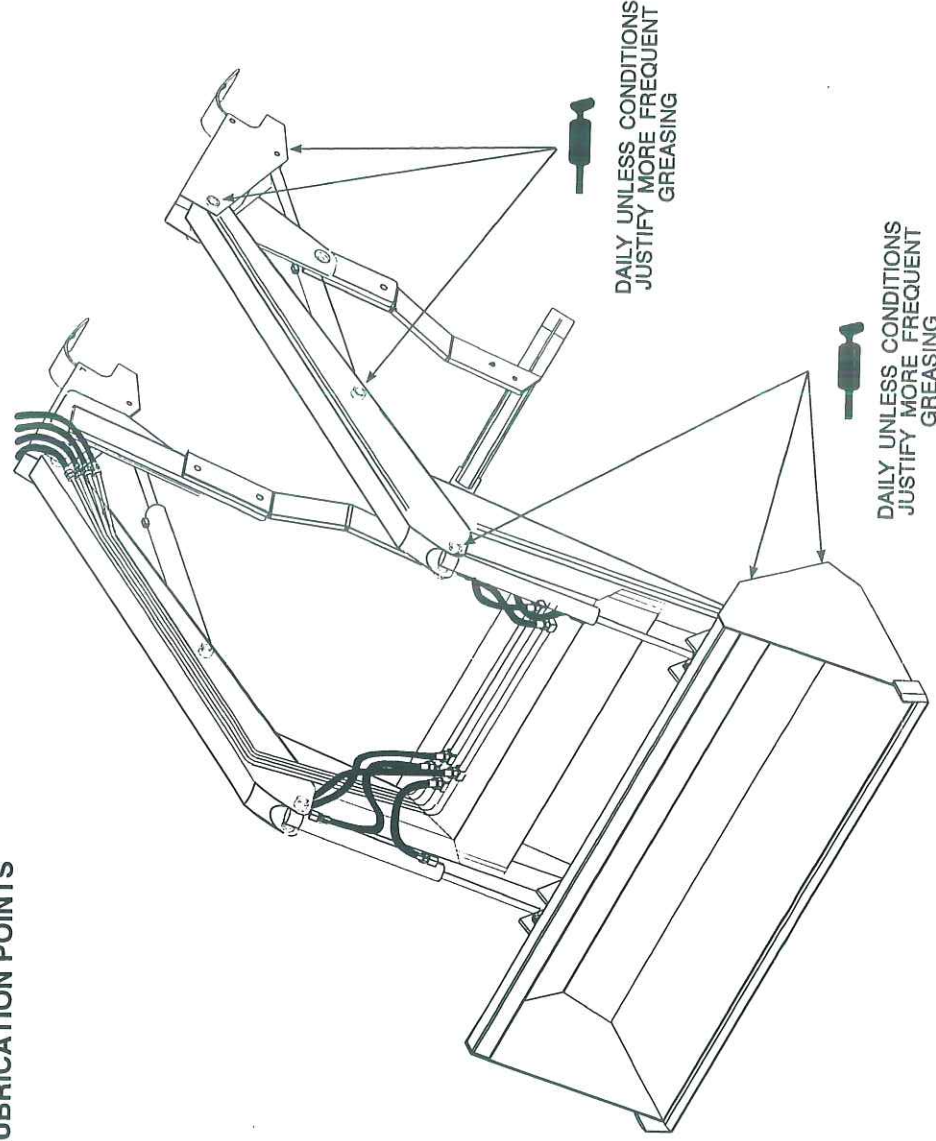


**WARNING:** Escaping hydraulic fluid under pressure can penetrate skin causing serious personal injury.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
- Stop engine and relieve pressure before connecting or disconnecting lines.
- Tighten all connections before starting engine or pressurizing lines.

If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.

**Figure 3**  
**LUBRICATION POINTS**



## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
1. Loader slow or will not lift and/or dump.	<ol style="list-style-type: none"> <li>1. Hydraulic oil too heavy.</li> <li>2. Oil filter plugged.</li> <li>3. Hydraulic pump worn.</li> <li>4. Oil line restricted or leaking.</li> <li>5. Control valve does not shift properly.</li> <li>6. Air in hydraulic system.</li> <li>7. Cylinder leaks.</li> <li>8. Faulty relief valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change to proper oil.</li> <li>2. Clean or replace filter.</li> <li>3. Repair or replace pump.</li> <li>4. Check all hoses and tubes for leaks, damage or restrictions. Replace damaged or restricted hoses or tube oil lines.</li> <li>5. Clean, repair or replace valve or linkage.</li> <li>6. Cycle lift cylinders and bucket cylinders several times to free system of air.</li> <li>7. Replace seals.</li> <li>8. Clean or replace relief valve.</li> </ol>
2. Loader chatters or vibrates when raising or lowering.	<ol style="list-style-type: none"> <li>1. Air leak in pump.</li> <li>2. Air in hydraulic system.</li> <li>3. Oil level too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check, tighten or replace inlet line.</li> <li>2. Cycle lift and bucket cylinders.</li> <li>3. Add oil as required.</li> </ol>
3. Oil leaks.	<ol style="list-style-type: none"> <li>1. Loose connections.</li> <li>2. Defective fittings or hoses.</li> <li>3. Worn or damaged o-ring or wiper seal in cylinder rod end.</li> <li>4. Worn or damaged o-rings in valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten fittings.</li> <li>2. Replace defective parts.</li> <li>3. Install a seal repair kit. See "Cylinder Service".</li> <li>4. Install an o-ring repair kit.</li> </ol>
4. Insufficient lift capacity.	<ol style="list-style-type: none"> <li>1. Load is greater than boom lift capacity.</li> <li>2. Improper hydraulic pump operation.</li> <li>3. Internal lift cylinder leakage.</li> <li>4. Improper hydraulic valve operation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check loader specifications.</li> <li>2. Repair or replace pump.</li> <li>3. Replace any worn parts and install a seal repair kit. See "Cylinder Service".</li> <li>4. Repair or replace valve.</li> </ol>
5. Excessive wear on bucket cutting edge.	<ol style="list-style-type: none"> <li>1. Bucket is riding on cutting edge instead of wear runners.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use boom "FLOAT" position or bucket level indicator to ensure bucket rides on wear runners.</li> </ol>

## PRINCE LVR VALVE SERVICE

Following is an outline procedure for disassembling and reassembling valve.

**WARNING:** The valve has a valve relief setting pre-set at the factory. Tampering with this setting can cause serious injury to operator and damage to tractor or loader. Unauthorized adjustments or service to valve relief will VOID WARRANTY of both loader and tractor. If adjustments or service to valve relief are required during warranty period, an authorized service department must be consulted for authorization.



## VALVE DISASSEMBLY (Figure 4)

**NOTE:** It is advisable to mark or tag all parts so they will be reinstalled in their proper position.

1. Slide boot (6) to top of handle (34). Remove hex head cap screws (36) from rod ends (9 & 10). Remove handle with boot and adapter plate (8). Remove nuts (28 & 31) from spool stud (7) and rod end assemblies (10). Remove spool stud (7) and rod end assemblies (10) from valve.

**NOTE:** Spool adapters (33) are factory assembled. Removal from spools is not necessary. If replacing a damaged adapter, clean threads with loctite primer and install using loctite 262.

2. Remove hex head cap screws (13) and detent end caps (14) from both spools. Remove detent sleeve (12) from regen spool. Remove steel balls (20), poppet (21) and poppet spring (19) from detent retainer (24). Remove retaining flat (15) and detent spacer (16) from regen spool.
3. Secure handle end of regen spool. Using a rod through retainer ball holes, remove detent retainer (24) from regen spool.

**NOTE:** Detent retainers (18 & 24) are installed on spools using Loctite 222 or equivalent. If spool adapter comes loose instead of detent retainer, pull spool completely out of valve and secure spool using vice grips on land section of spool not machined for valve bore.

4. Remove washer (17), centering spring (26) and stop cup (23) from regen spool.
5. Holding in on float detent sleeve (22), push in on float spool from handle end and remove steel balls (20) from float detent retainer (18). Remove float detent sleeve (22), poppet (21), poppet spring (19), retaining flat (15) and spacer (16) from float spool.

6. Secure handle end of float spool. Using a rod through retainer ball holes, remove detent retainer (18) from float spool.

**NOTE:** Detent retainers (18 & 24) are installed on spools using Loctite 222 or equivalent. If spool adapter comes loose instead of detent retainer, pull spool completely out of valve and secure spool using vice grips on land section of spool not machined for valve bore.

Remove washer (17), centering spring (26) and stop cup (23) from float spool.

7. Push spools in from handle end until rear spool seals (1) are exposed. Using wire hook and screwdriver remove rear spool seals. Push spools in from the rear until front spool seals (1) are exposed. Using wire hook and screwdriver remove front spool seals.

8. Clean all parts, including valve body, in suitable cleaning solvent. After cleaning parts with solvent, use air pressure to blow any dirt or excess solvent from all parts including inside of valve body.

## VALVE REASSEMBLY

1. Examine all parts for wear and damage and replace if necessary.
2. Lubricate all o-rings and spools with oil to prevent damage when assembling.
3. Lubricate all detent and spring centering parts with a light coat of grease before assembling.
4. Reassemble all parts in reverse order of disassembly.

**NOTE:** Use Loctite 222 or equivalent when installing detent retainers (18 & 24).

## RELIEF VALVE, LOAD CHECK PLUGS and POWER BEYOND SLEEVE

**NOTE:** Relief valve (3), load check plugs (27) and power beyond sleeve (2) may be removed separately to clean inspect or replace parts without removing valve spools.

**NOTE:** If repairing or replacing relief valve (3), torque larger hex nut (relief body) to 20-25 ft.lbs.

## REPLACING HANDLE PARTS

If replacing damaged handle parts, clean threads with loctite primer and install using loctite 242. Torque parts as shown in Figure 4.

# SERVICE

Spool ends do not need to be removed to service valve. If replacing damaged spool end, clean threads using loclote primer and install using loclote 262.

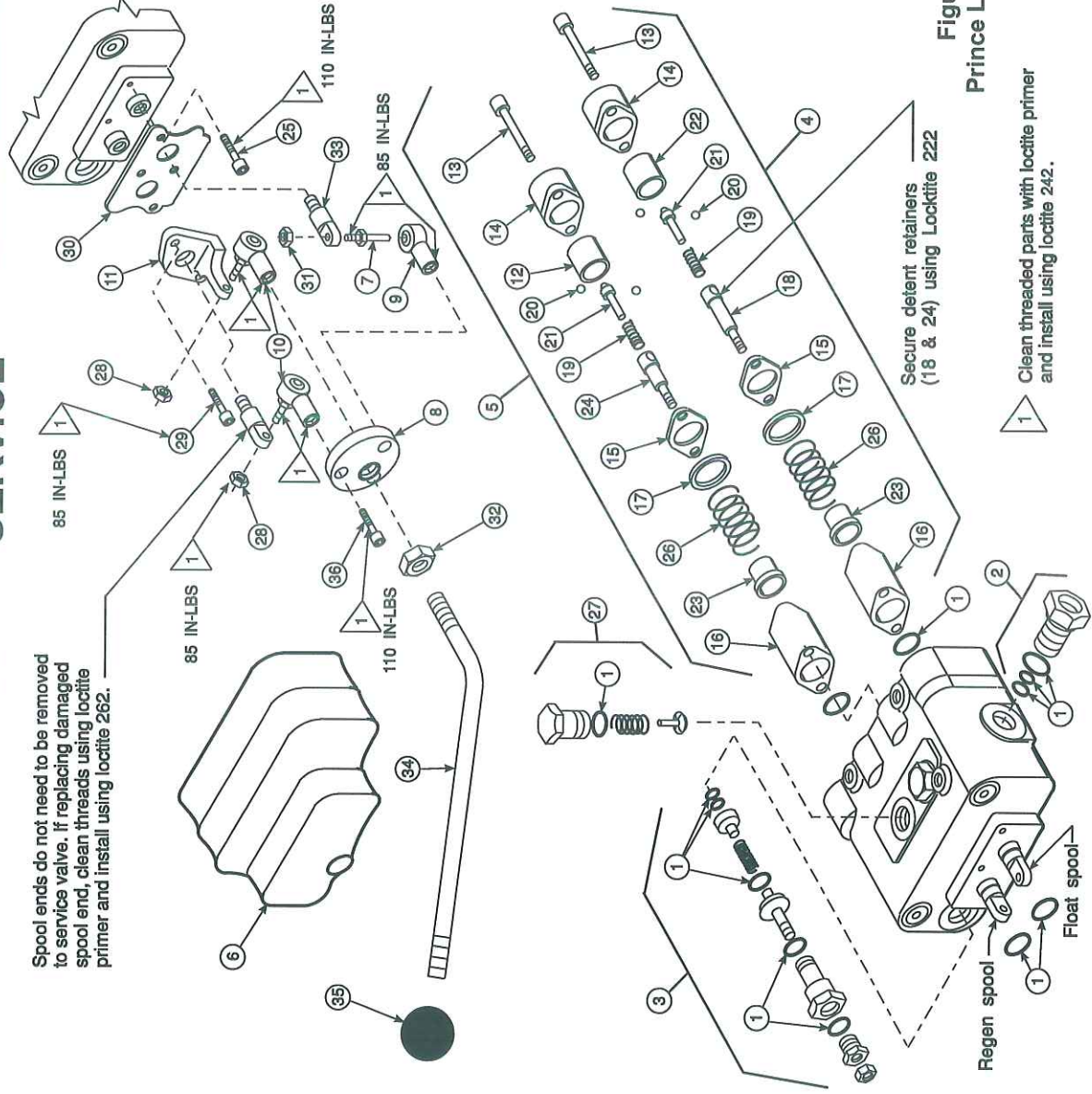


Figure 4  
Prince LVR Valve

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW43633	SEAL KIT	1
2	SW43636	POWER BEYOND SLEEVE	1
3	SW43637-2	RELIEF VALVE (2500 PSI)	1
4	SW43638	FLOAT KIT (Includes items 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 26)	1
5	SW43639	REGEN KIT (Includes items 12, 13, 14, 15, 16, 17, 19, 20, 21, 24 and 26)	1
6	SW43635	BOOT	1
7	SW43640	STUD, Spool	1
8	SW43641	ADAPTER PLATE	1
9	SW38900-5	ROD END	1
10	SW43642	ROD END, Assembly	2
11	SW43643	CLEVIS	1
14	SW44476-3	END CAP (Manufacturers part number(HC-V-AA25) stamped on end cap identifies valve and relief setting)	2
25	SW44743-1	SCREW, Cap, Socket Head, 1/4-20 x 3/8	2
27	SW44460	PLUG, Load Check	2
28	SWG120375	NUT, Hex, 1/4-20	2
29	SW44743-3	SCREW, Cap, Socket Head, 1/4-20 x 7/8	2
30	SW44744	PLATE	1
31	SWG120376	NUT, Hex, 1/4-28	1
32	SWG271506	NUT, Hex, 7/16-20	1
33	SW44707	END, Spool	2
36	SW44743-2	SCREW, Cap, Socket Head, 1/4-28 x 3/4	3

NOTE: Individual items not listed in repair parts listing are not available separately.



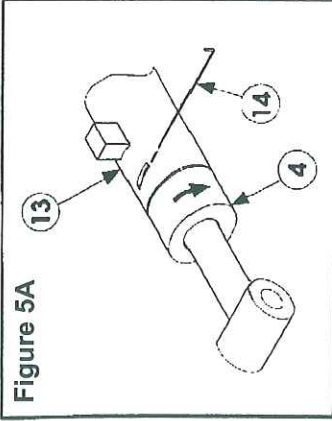


Figure 5A

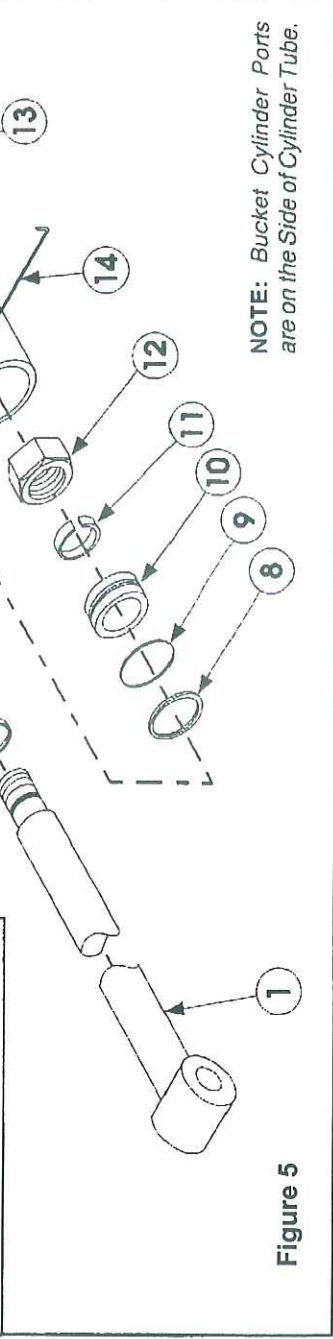


Figure 5

**NOTE:** Bucket Cylinder Ports are on the Side of Cylinder Tube.

## CYLINDER SERVICE (Figure 5)

Loader cylinders are designed to be reliable and easy to service. If a cylinder should malfunction during warranty period, to return complete cylinder assembly, without disassembling, to your authorized service department or contact your authorized service department for instructions. Unauthorized disassembly of a cylinder in warranty period will **VOID WARRANTY**.

Following is an outline procedure for disassembling and reassembling cylinders.

### LIFT AND BUCKET CYLINDER DISASSEMBLY

1. Hold cylinder tube (13 figure 5A) stationary and pull wire ring (14) out through slot.
2. Pull shaft (1), with all assembled parts, out of cylinder tube (13).

**NOTE:** Resistance will be felt until piston seal (8) slides over wire retaining ring groove.

3. Remove elastic lock nut (12) from end of shaft and slide cylinder piston (10) and cylinder head (4) off shaft.
4. Remove piston wear ring (11), piston seal (8), and o-ring (7) from outside grooves on piston (10).
5. Remove wiper seal (2), rod seal (3) and wear ring (5) from inside of cylinder head (4) and o-ring (7) with backup washer (6) from groove on outside of head.
6. Clean all parts including cylinder tube, in a suitable cleaning solvent, then use air pressure to blow any dirt or excess solvent from all parts
7. Examine all parts for wear or damage and replace, if necessary.

### LIFT AND BUCKET CYLINDER REASSEMBLY

**NOTE:** Be careful not to damage seals and o-rings on edges or holes in cylinder tube. Inspect and remove burrs and sharp edges if necessary before reassembly.

1. Place rod seal (3) into groove inside cylinder head.
- NOTE:** Lips of seal (3) must face inward and seal must be firmly seated in groove.
2. Install wiper seal (2) with lip of seal facing out and flush with top of cylinder head (4). Install wear ring (5) inside other end of head (4).
3. Place o-ring (7) with back-up washer (6) in groove on outside of head (4). Back-up washer must be on rod side.
4. Remove sharp edges on outer edge of threaded end of shaft (1). Lubricate wiper seal (2) and rod seal (3) in head (4) and carefully slide head (4) onto shaft.
5. Place o-ring (9), piston seal (8) and piston wear ring (11) in grooves on outside of piston (10).

**NOTE:** For easier installation, place piston seal (8) in 120°F water to warm seal.

6. Slide piston (10) onto threaded end of shaft and install elastic lock nut (12). For bucket cylinders, tighten elastic lock nut (12) to 450 ft. lbs. Tighten elastic lock nut (12) to 575 ft. lbs. on lift cylinders.
7. Lubricate piston wear ring (11) and piston seal (8) on piston (10), o-ring (7) on head (4) and inside of cylinder tube (13), then carefully slide piston and head into cylinder tube (13).
8. Insert wire retaining ring (14) into slot in cylinder tube (13). Apply pressure to wire ring to thread it into groove while turning cylinder head.

**NOTE:** If cylinder head has a countersunk hole, hook end of retaining wire into hole and turn cylinder head 1-1/2 turns to secure retaining wire. End of hook may need to be ground off slightly to fit in countersunk hole.

**SERVICE**

# ASSEMBLY

## MOUNTING GRILLE GUARD (Figure 6)

GRILLE Guard (1) can be installed using tools ordinarily available. Shut off tractor engine and engage tractor brakes during installation.

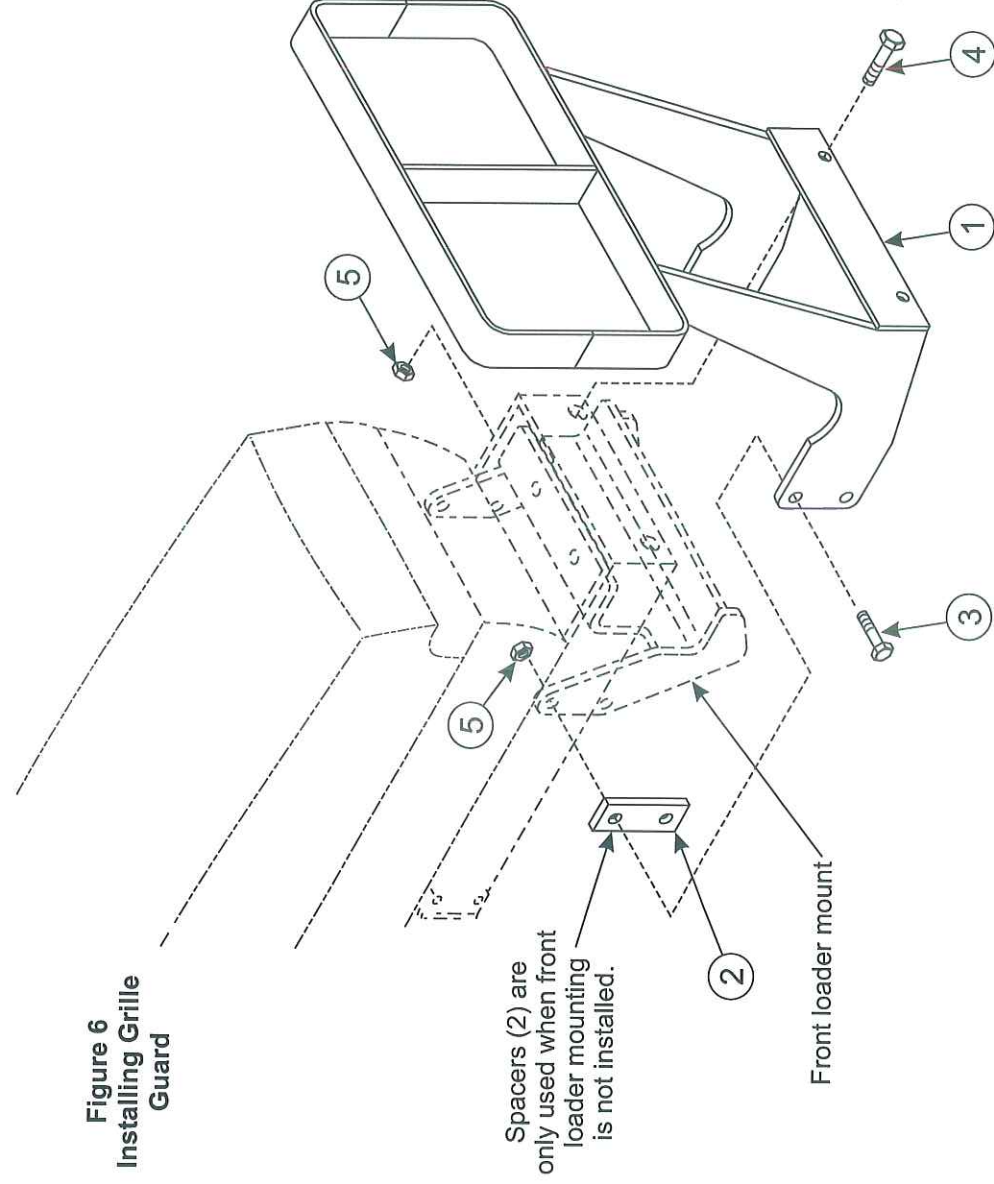
**NOTE:** Leave all attaching hardware loose until loader is completely assembled to facilitate assembly and proper alignment. Tighten all hardware to torque specifications listed on page 4.

1. Install grille guard (1) to tractor sides of frame using 1/2-13 x 2 cap screws (3) and 1/2-13 lock nuts (5).

**NOTE:** Spacers (2) are only used when front loader mounting is not installed.

2. Finish securing grille guard to front of tractor frame by using 1/2-13 x 1-1/2 cap screws (4) and 1/2-13 lock nuts (5).

**Figure 6**  
Installing Grille  
Guard



## PARTS LIST - GRILLE GUARD

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW49203	GRILLE GUARD ASSEMBLY	1
2	SW49204	SPACER	2
3	SWG180181	SCREW, Cap, 1/2-13 x 2	4
4	SWG180177	SCREW, Cap, 1/2-13 x 1-1/2	2
5	SWG9414074	NUT, Lock, 1/2-13	6

# ASSEMBLY

## INSTALLING LOADER TO MOUNTING BRACKETS

Mounting brackets can be installed using tools ordinarily available. Shut off engine and engage brakes.

**NOTE:** Leave all attaching hardware loose until loader is completely assembled to facilitate assembly and proper alignment. Tighten all hardware to torque specifications listed below.

### TRACTOR PREPARATION

1. Remove tractor hood side panels and front grille to prevent damage during installation.
2. Loosen lower side hood support panel by removing two rear bolts from both left and right side of tractor.
3. Remove all dust plugs from transmission housing on left and right side.
4. Remove cap screw and inspection cover plate from right side clutch housing. Leave original gasket in place. Inspection opening will be covered by loader mid mount bracket. Store for later possible use.
5. Remove two rear 12mm x 35mm cap screws from side frame on both sides of tractor.
6. Remove two inner 14mm x 35mm cap screws on sway bar mounting plates on both sides.

### INSTALLING MOUNTING BRACKETS

1. Install front mount (4) with four 1/2 x 1-1/2 cap screws (18), lock nuts (20) and flat bar with two 1/2 x 2 cap screws (19) and lock nuts (20). Torque hardware to 72 ft. lbs.
2. Install right mid mount (2) to transmission housing with four 14mm x 40mm cap screws (12) and lock washers (15) and to engine block with two 12mm x 50mm cap screws (11) and lock washers (14). Torque 14mm hardware to 103 ft. lbs. and 12mm hardware to 62 ft. lbs.
3. Install left mid mount (1) to transmission housing with four 14mm x 40mm cap screws (12) and lock washers (15) and to engine block with two 12mm x 50mm cap screws (11) and lock washers (14). Torque 14mm hardware to 103 ft. lbs. and 12mm hardware to 62 ft. lbs.
4. Install right side bar assembly (8) by raising left side of front axle with floor jack to oscillate right side down. Slide bar (8) over right side axle, through right side mid mount (2) back to sway bar mount. Secure bar to engine block with two 12mm x 45mm cap screws (21), lock washers and flat washers (16). Secure to sway bar mount holes with two 14mm x 45mm (17) and lock washers (15). Torque 14mm hardware to 103 ft. lbs. and 12mm hardware to 62 ft. lbs. Remove floor jack.
5. Install left side bar assembly (7) by sliding over left side front axle, through left side mid mount back to sway bar mount. Secure bar to engine block with two 12mm x 45mm cap screws (21), lock washers and flat washers (16). Secure to sway bar mount holes with two 14mm x 45mm (17) and lock washers (15). Torque 14mm hardware to 103 ft. lbs. and 12mm hardware to 62 ft. lbs.
6. Install cross tie (plate) to connect left and right mid mounts and side bars (7 & 8) with four 1/2 x 3 cap screws (13) and lock nuts (9). Torque hardware to 72 ft. lbs.
7. Replace and tighten bolts in lower side hood support panel on both sides of tractor.
8. Install tractor hood side panels and front grille

## INSTALLING LOADER TO MOUNTING BRACKETS



**WARNING:** To avoid injury during installation of quick attach loader, do not permit bystanders within ten feet of loader.

1. Loop chain or strap around each tilt cylinder above base port and hook onto chain or through strap loop. Using overhead hoist to support loader remove hardware securing loader to pallet. Lift loader and remove pallet.
- CAUTION:** Do not damage grease fitting on end of cylinder. Be sure chain does not pinch tilt cylinder hose.
2. Using overhead hoist, lower loader from vertical shipping position to horizontal position leaving enough room to install yoke (scraps of cardboard may be used to protect paint). Install yoke assembly (3) using 3/4 x 2-1/2 cap screws (10) and 3/4 lock nuts (9). Lower loader completely to the ground.

**NOTE:** Hardware connecting yoke to loader sideframes should be snug but do not torque completely. After loader has been mounted to tractor and aligned with midmounting brackets and front mounting brackets, torque hardware to 262 ft. lbs.

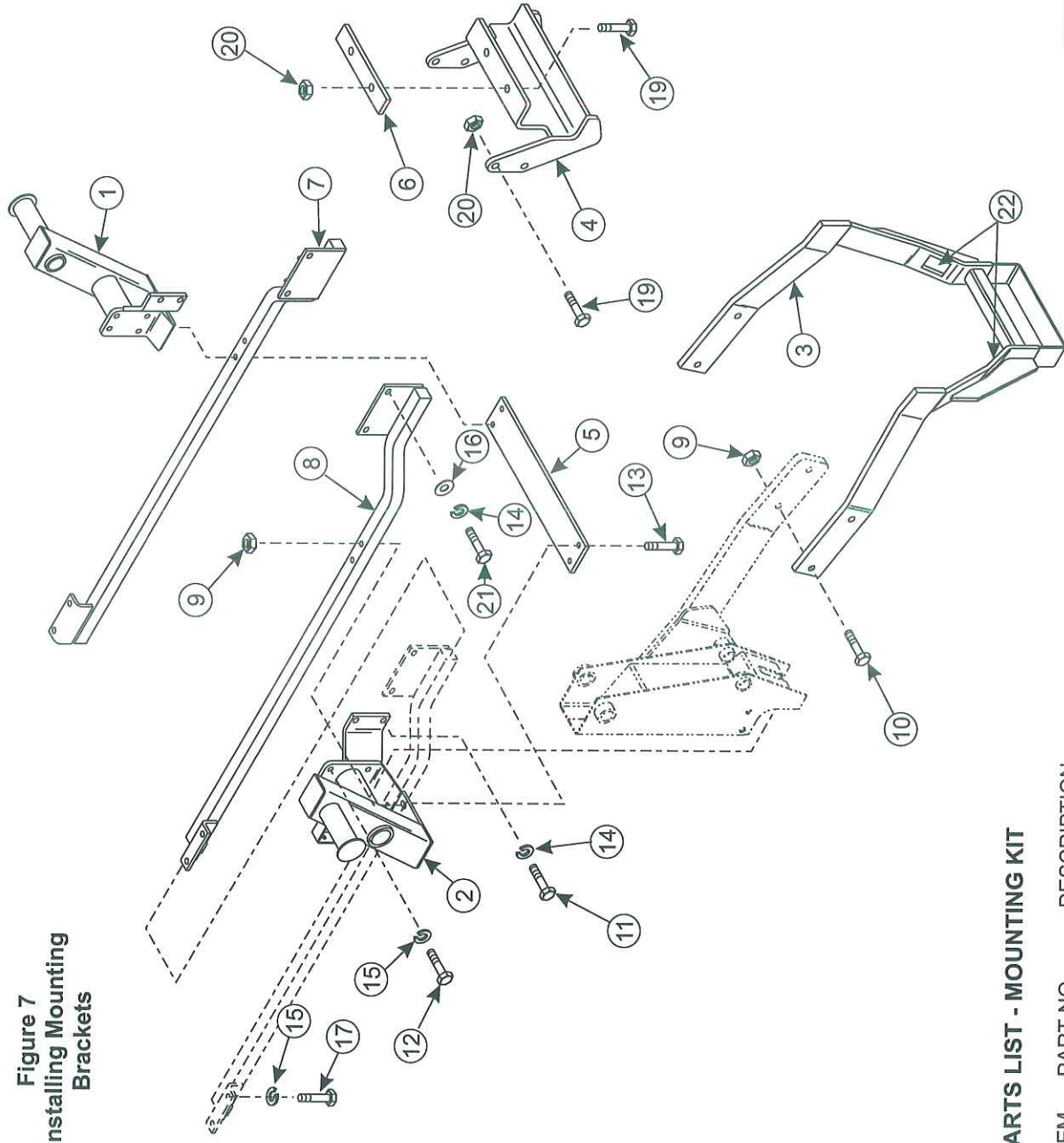
3. Install valve or hose kit to tractor and loader. Refer to installation instructions packed with kit.
4. Position tractor close enough so plumbing can be connected to tractor. Route hoses loosely to allow maximum reach. Using nylon straps reposition overhead hoist to loader boom arms near pivot point to side frames.
5. Operate loader control valve to extend lift cylinders until front yoke is resting on ground and side frame uprights will clear front tires. Shut off tractor engine and engage tractor brakes. Reroute loader hoses to inside of right midmount bracket. Remove locknut and washer from loader hinge and swing each hinge open.
6. Start tractor engine, release tractor brakes and slowly drive forward while operating lift control levers to retract lift cylinders. Position loader so hinges hook over mid mounting tubes. Use of overhead hoist will facilitate positioning loader into mid mounting tubes.

**IMPORTANT:** Position loader uprights so mid mounting tubes are tight against fully opened hinges until loader has finished rotating so loader front bumper tube does not hit lower flange of front mounting channel.

7. With tractor in neutral, retract lift cylinders, bringing side frame up so front yoke tube contacts lower surface of tractor frame. Move tractor ahead until front yoke tube engages in front mounting channel and upright hinges can clamp around mid mounting tube. Engage tractor brakes and shut off tractor engine.
  8. Clamp hinges to midmounting tubes with 3/4 flat washers and 3/4 flex-lock nuts (supplied with loader).
  9. Start tractor engine and slowly cycle lift and bucket cylinders several times to purge air out of system, then retract cylinders and shut off tractor engine. Add additional tractor hydraulic fluid as specified in tractor owners manual to bring level of hydraulic fluid up to full.
- IMPORTANT:** Be sure to use flex-lock nuts to clamp hinge. Tighten flex-lock nuts against hinge securely, but not to more than 125 ft.-lb. torque.
10. Adjust front wheel tread settings or steering stops, if necessary to prevent interference between tires and loader. Refer to tractor operator's manual for adjustment procedures.

# ASSEMBLY

**Figure 7**  
Installing Mounting  
Brackets



## PARTS LIST - MOUNTING KIT

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW47811	MID MOUNT, Assembly, Left	1
2	SW47810	MID MOUNT, Assembly, Right	1
3	SW47884	YOKE, with Decals (SW39240) attached	1
4	SW47820	FRONT MOUNT, Assembly	1
5	SW47817	CROSS TIE	1
6	SW47819	FLAT	1
7	SW47828-1	BAR Assembly, Left	1
8	SW47828-2	BAR Assembly, Right	1
9	SWG9414076	NUT, Lock 3/4-10	4
10	SWG271773	SCREW, Cap, 3/4-10 x 2-1/2	4
11	SW6090-17	SCREW, Cap, 12mm-1.25 x 50mm	4
12	SW6090-2	SCREW, Cap, 14mm-1.5 x 40mm	8
13	SWG180190	SCREW, Cap, 1/2-13 x 3	4
14	SWG120384	WASHER, Lock, 1/2	8
15	SWG120898	WASHER, Lock, 9/16	12
16	SWG120396	WASHER, Flat, 1/2	4
17	SW6090-3	SCREW, Cap, 14mm-1.5 x 45mm	4
18	SWG180177	SCREW, Cap, 1/2-13 x 1-1/2	4
19	SWG180181	SCREW, Cap, 1/2-13 x 2	2
20	SWG9414074	NUT, Lock, 1/2-13	10
21	SW6090-83	SCREW, Cap, 12mm-1.25 x 45mm	4
22	SW39240	DECAL, Warning	2

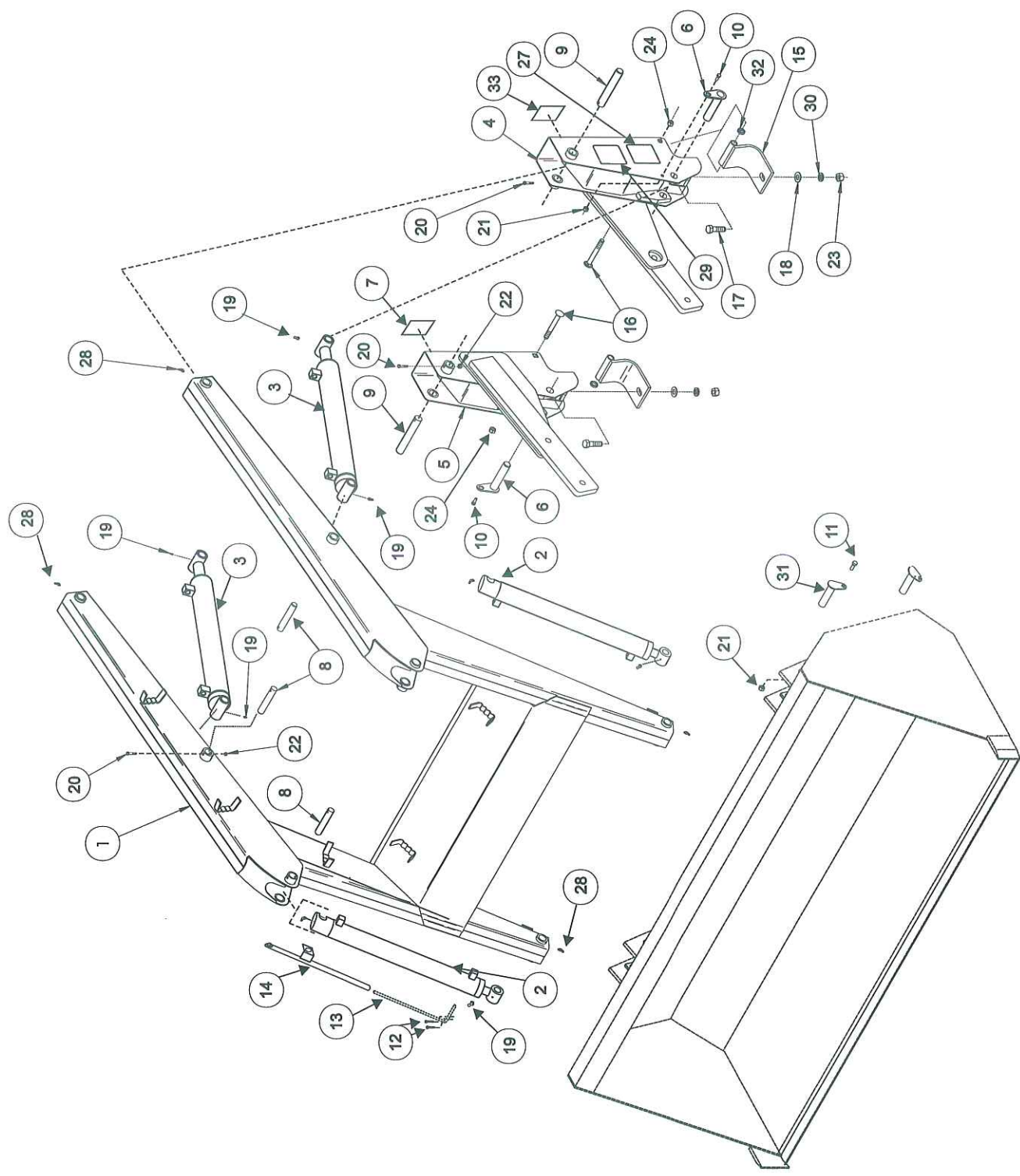


Figure 8  
MAIN FRAME

# ASSEMBLY

## PARTS LIST - MAIN FRAME

Item	Part No.	Description	Qty.
1	SW49401	FRAME, Lift Boom	1
2	SW43753	CYLINDER, Bucket (Code KF) 2"	2
3	SW43752	CYLINDER, Lift (Code KE) 2.50"	2
4	SW49472	SIDEFAME ASSEMBLY, Left, with Decals	1
5	SW49473	SIDEFAME ASSEMBLY, Right, with Decal	1
6	SW31332-5	PIN, 1 x 4-3/8	2
7	SW25801	DECAL, Warning	1
8	SW35957-4	PIN, 1 x 5-1/4	4
9	SW35957-5	PIN, 1 x 6-1/4	2
10	SW40053	BOLT, Shoulder, 3/8 x 1	2
11	SW31353	BOLT, Shoulder, 3/8 x 3/4	4
12	SWG137185	PIN, Cotter, 1/8 x 1	2
13	SW35505	ROD, Bucket Level Indicator	1
14	SW44094	TUBE, Indicator Guide	1
15	SW44090	HINGE	2
16	SWG127132	BOLT, Carriage, 5/8-11 x 5-1/2	2
17	SWG271724	SCREW, Cap, 5/8-11 x 2-1/4	2
18	SWG131016	WASHER, Flat, 5/8	2
19	SW6075-4	FITTING, Grease, Straight 1/4-28	8
20	SWG180087	SCREW, Cap, 5/16-18 x 2	6
21	SWG9413534	NUT, Lock, 3/8-16	6
22	SWG9413447	NUT, Lock, 5/16-18	6
23	SWG124589	NUT, 5/8-11	2
24	SWG9414075	NUT, Lock, 5/8-11	2
25	SW38151	DECAL, Kiotti	2
26	SW47926	DECAL, KL249	2
27	SW36932	DECAL, Warning: Loader Safety	1
28	SW6075-3	FITTING, Grease, 45° x 1/4-28	4
29	SW26871	DECAL, Warning	1
30	SWG121574	WASHER, Flat, 5/8	2
31	SW31332-10	PIN, 1 x 5-1/2	4
32	SW11661	SPACER, 7/32	2
33	SW7794	DECAL, Caution	1

### INSTALLING BUCKET LEVEL INDICATOR

Attach guide tube (14) to bucket cylinder pin on inside of knee plate. Slide indicator rod (13) thru tube and attach to bucket using 1/8 x 1 cotter pins (12).

Locate loader on level surface. With bottom of bucket resting flat on ground, cut off rod (13) flush with top of guide tube (14).

### INSTALLING DECALS

Be sure sides of boom are clean and dry. Install decals (25) and (26) (packed with owner's manual) to both sides of boom as shown.

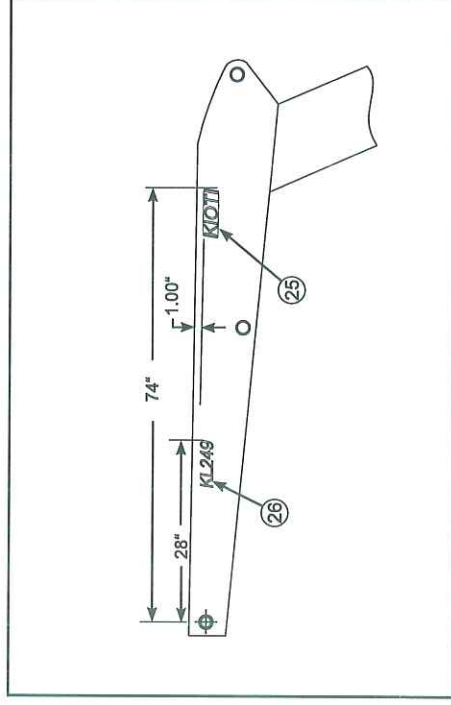
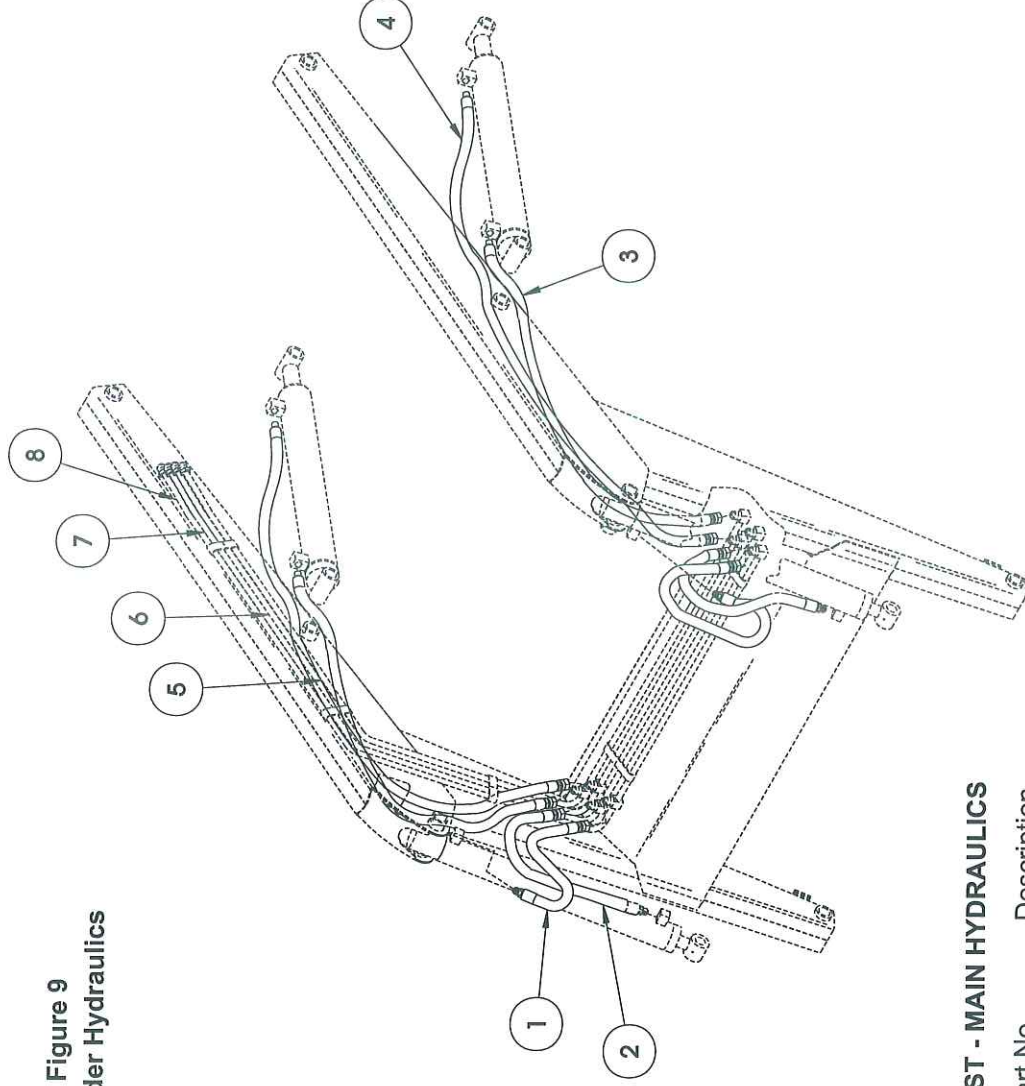


Figure 9  
Loader Hydraulics



## PARTS LIST - MAIN HYDRAULICS

Item	Part No.	Description	Qty.
1	SW38576-9	HOSE, 3/8 x 16	2
2	SW38576-10	HOSE, 3/8 x 24	2
3	SW38576-11	HOSE, 3/8 x 40	2
4	SW38576-12	HOSE, 3/8 x 60	2
5	SW36187	**TUBE, Oil Line(LCB)	1
6	SW36188	**TUBE, Oil Line (LCR)	1
7	SW36189	**TUBE, Oil Line (TCR)	1
8	SW36190	**TUBE, Oil Line (TCB)	1
	*SW35762	REPLACEMENT, Oil Line Tee Fitting	
	*SW35763	REPLACEMENT, Oil Line 90° Fitting	
	*SW35764	REPLACEMENT, Oil Line Stright Fitting	
	*SW35765	REPAIR, Oil Line Tube Splice Fitting	

**\* NOTE:** If a fitting or oil line is damaged, it can be repaired with replacements listed rather than replacing the complete oil line. No specific tools are required, only common wrenches and a hacksaw.

**\*\* NOTE:** Because of difficulty in shipping oil line tubes, they have been broken down into sections for shipping. The two sections of tube must be threaded together to construct the original one piece tube which is not available for repairs.



**WARNING:** Escaping hydraulic fluid under pressure can penetrate skin causing serious personal injury.

- DO NOT use your hand to check for leaks, Use a piece of cardboard or paper to search for leaks.

- Stop engine and relieve pressure before connecting or disconnecting lines.

- Tighten all connections before starting engine or pressurizing lines.

- If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.



## QUICK ATTACH DEVICE

Quick attach device can be installed using tools ordinarily available.

**NOTE:** Leave all attaching hardware loose until quick attach device is completely assembled to facilitate assembly and proper alignment. Tighten all hardware to torque specifications listed on page 4.

Shut off the tractor engine and engage the tractor brakes during installation.

Only quick attach, skid steer compatible attachments can be used with the quick attach device. Pin on style attachments can be used on the loader, but necessitate removal of the quick attach device and relocation of the bucket level indicator.

All references to left and right used in these instructions are as they would appear to the operator standing at the rear of the unit facing forward.

## ASSEMBLING QUICK ATTACH DEVICE (Figure 10)

1. Quick attach device is pre-assembled at the factory.
2. Unband the quick attach device (1) and wood blocks.

## INSTALLING QUICK ATTACH DEVICE (Figures 10 & 11)



**WARNING:** Always use a drift and hammer made of non-sparking material (a shot-filled mallet is recommended) to install or remove pins. A steel hammer or drift could generate flying metal fragments and result in injury. Always wear safety glasses when using a hammer to remove or install pins.

1. Fasten quick attach device to lower boom arms and bucket tilt cylinders using 1x 4-3/8 anti-rotation pins, 3/8 x 3/4 shoulder bolts, and 3/8 lock nuts (supplied with loader). Refer to figure 11.
2. Attach bucket leveling rod indicator (supplied with loader), to outside of right ear on quick attach as shown in figure 11. Secure bucket leveling rod indicator with two 1/8 x 1 cotter pins (supplied with loader).

## MOUNTING ATTACHMENT TO LOADER (Figures 10 & 11)



**WARNING:** To avoid injury during installation of the loader attachment, do not allow bystanders within 10 feet of loader or attachment.

1. Locate tractor and attachment on level ground. Lower boom to rest on the ground. Extend the bucket cylinders slightly, while raising the boom to provide three to five inches of ground clearance, drive the tractor ahead slowly toward the attachment, aligning the loader quick attach device as shown in figure 11.
2. While driving the tractor ahead slowly to maintain contact with the attachment, activate the lift cylinders to raise the loader until the quick attach engages under the attachment lip, see figure 11, page 26.
3. Then activate bucket cylinders to retract, continuing to roll the attachment back completely.
4. Place tractor in neutral, set parking brake, shut off tractor. Move latch pin handles to latch (down) position (refer to figure 11).
5. Start tractor activate lift cylinders to raise attachment one or two feet off the ground and extend bucket cylinders to tilt attachment at a slight downward angle, so quick attachment latch pins are visible. Visually inspect the attachment mechanism to verify that the pins are engaged through the latch plate on the back of the attachment.

**NOTE:** If the attachment is not securely attached, follow the instructions for detaching it and repeat the above procedure.

## DETACHING QUICK ATTACH DEVICE (Figures 10 & 11)



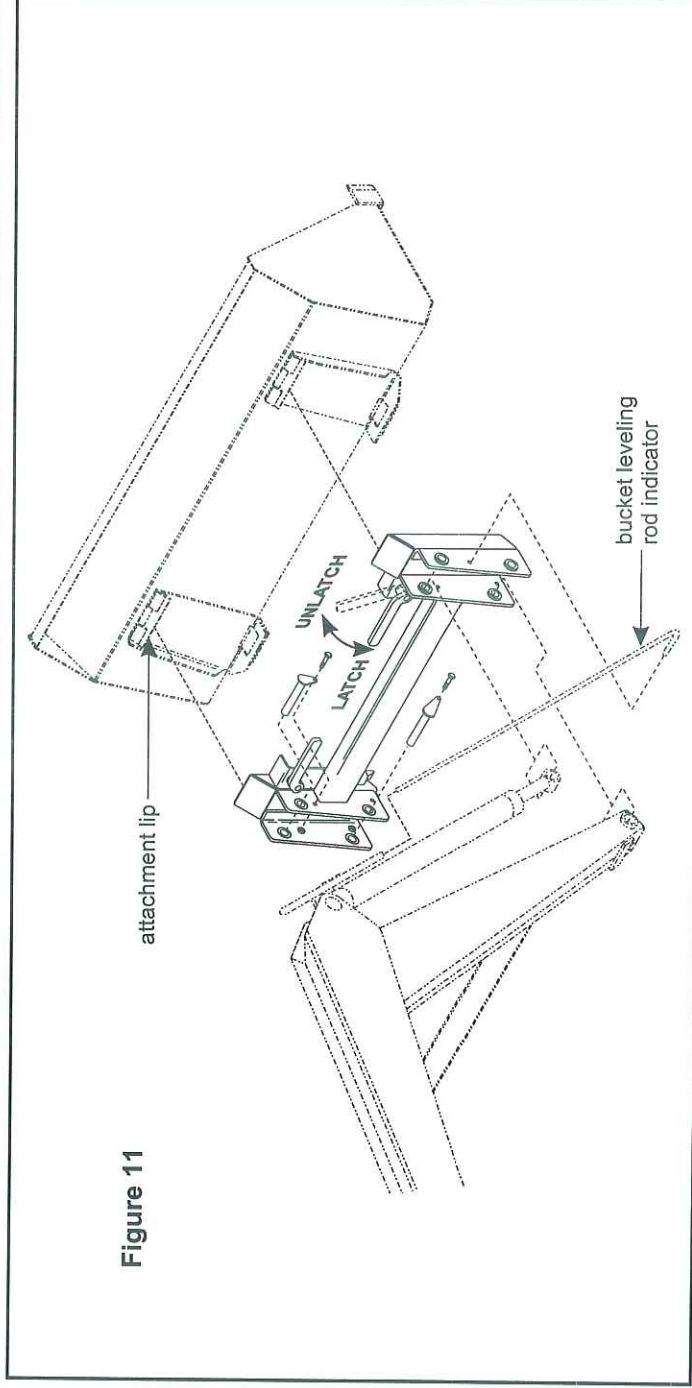
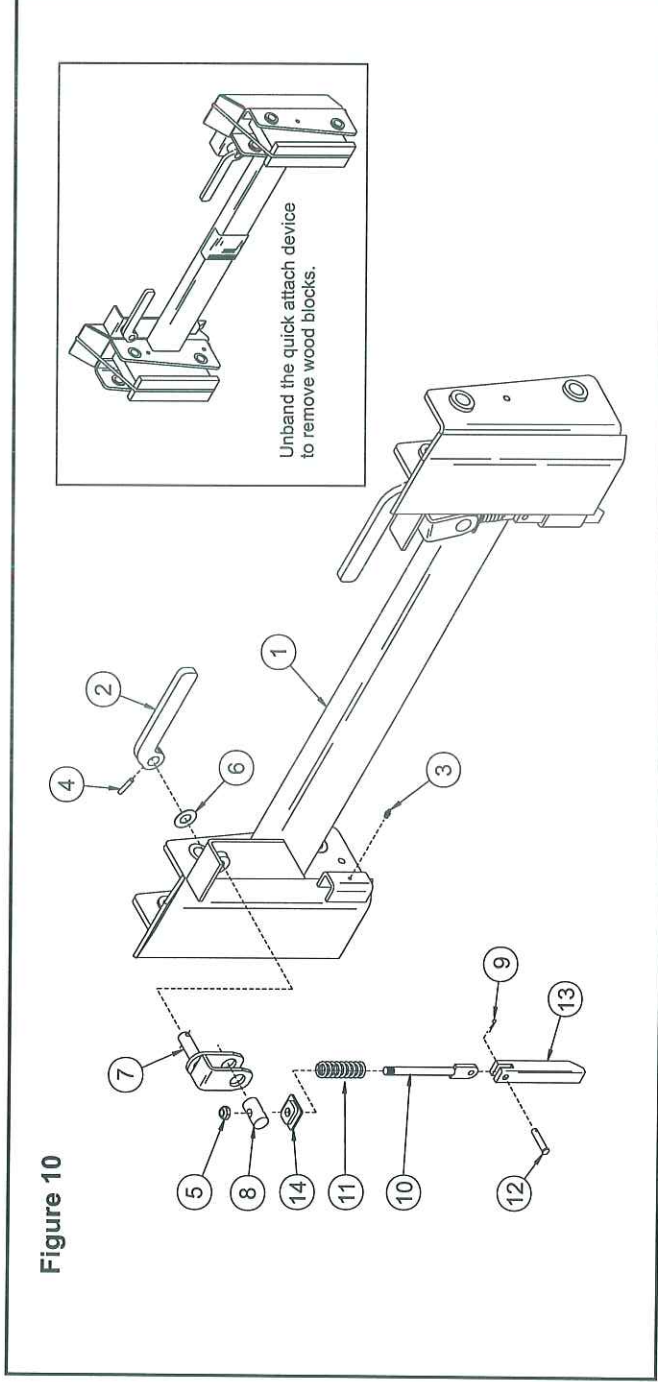
**WARNING:** To avoid injury during installation/removal of the loader attachment, do not allow bystanders within 10 feet of loader or attachment.

1. Locate tractor and loader on level ground.
2. Lower boom arms until the attachment is level and resting on ground.
3. Place tractor in neutral, set parking brake, shut off tractor engine and disengage quick attach device latch pins by moving handles to unlatch position.
4. Start tractor engine, release brake and extend bucket cylinders while slowly backing the tractor away from attachment, until quick attach disengages from attachment.

# ASSEMBLY

## PARTS LIST - QUICK ATTACH DEVICE (Figures 10 & 11)

ITEM	KIOTI NO.	DESCRIPTION	QTY.
1	SW48695	FRAME ASSEMBLY	1
2	SW48686	HANDLE	2
3	SW6075-4	FITTING, Grease, 1/4-28	4
4	SWG413315	SPRING PIN, 1/4 X 1-1/2	2
5	SW6543-7	NUT, Jam, 1/2	2
6	SW47408-1	DISC SPRING	2
7	SW47615	PIVOT ASSEMBLY	2
8	SW47394	PIVOT PIN	2
9	SW41903-1	COTTER PIN 5/32 X 1	2
10	SW47618	SPADE BOLT ASSEMBLY	2
11	SW47614	SPRING	2
12	SW41902-14	CLEVIS PIN	2
13	SW48687	LATCH PIN	2
14	SW47526	SPRING GUIDE ASSEMBLY	2



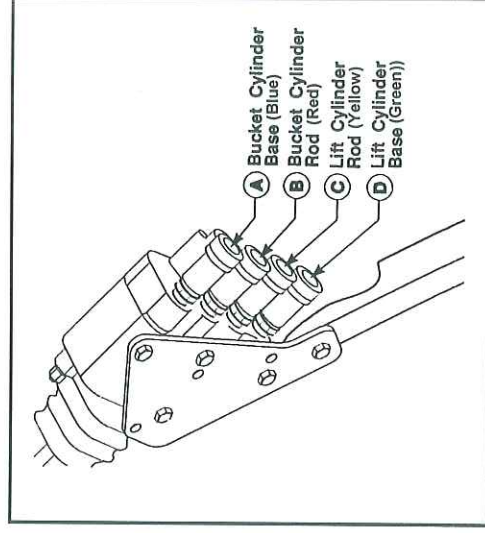
# ASSEMBLY

**VALVE AND PLUMBING KIT** can be installed on tractor using tools ordinarily available. Valve control handle has been factory preassembled for ease of installation. Shut off the tractor engine, engage tractor brakes and completely lower three point hitch during installation.

**NOTE:** Apply sealant only to all tapered threads unless coupled with swivel adapters. When using teflon tape, wrap tape clockwise (as viewed from end) and wrap tape only twice. Keep sealant away from first two threads of tapered end to prevent contamination of hydraulic fluid. Do not use sealant on o-ring or flare adapter threads.

## ATTACHING VALVE AND STAND TO LOADER MOUNTING BRACKET

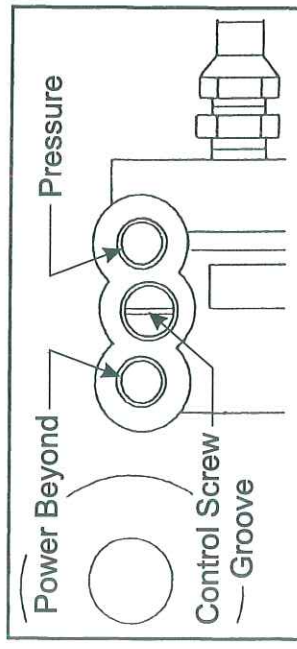
1. Install 3/4 x 9/16 elbow fitting (9) to valve (1). Point elbow fitting (9) downward. Install adapter fittings (23), female quick couplers (15) and 1" colored bands (16) to working ports of valve (1).
2. Fasten valve mounting bracket (2) to right mid mounting bracket using 1/2 x 2-1/2 cap screws (17), 1/2 flat washers (18) and 1/2 lock nuts (19).
3. Fasten valve mounting plate (5) to valve mounting bracket (2) using 3/8 x 2-1/4 cap screws (13) and 3/8 lock nuts (14).
4. Fasten valve (1) to valve mounting plate, with power beyond port on the bottom, using 5/16 x 3/4 cap screws (6) and 5/16 lock washers (7).
5. Fasten decal mounting plate (4) to valve (1) using 5/16 x 3/4 cap screw (6) and 5/16 lock washer. Making sure surface of valve box is clean and dry, remove backing from decal (20) and apply it to decal mounting plate.
6. Thread nut (29) onto handle (3). Attach handle (3) to valve (1). Secure handle using jam nut (29). Slip boot (28) over handle and cover handle linkage assembly. Attach ball (8) to handle.



## PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS

1. Install 3/8 x 38 hose (11) to elbow fitting (9).

2. Install 3/8 x 40 hose (10) to pressure port in valve (1). Install 3/8 x 36 hose (12) to tank port in valve (1).
3. Remove plugs from pressure, power beyond and tank ports of tractor hydraulic block. Install 3/8 adapter fittings (21) to all three ports. Install 3/8 elbow fittings (30) to pressure and power beyond ports in tractor hydraulic block.
4. Route hoses (10, 11 & 12) from valve, down along valve mounting tube and between mid mounting and tractor frame to fittings on tractor hydraulic block. Connect power beyond hose (11) to power beyond port in tractor hydraulic block. Connect pressure hose (10) to pressure port in tractor hydraulic block. Connect tank hose (12) to tank port in tractor hydraulic block.



5. Turn control screw on tractor hydraulic block so groove is in "vertical" position.
- NOTE:** If valve kit is removed from tractor turn control screw on tractor hydraulic block so groove is in "horizontal" position.
6. Secure hoses (10, 11 & 12) together and to valve mounting bracket (2) using plastic tie straps (22).

## PLUMBING LOADER TO CONTROL VALVE

1. Install 3/8 x 44 hoses (26) onto boom oil line tubes. Install and tighten hose fittings one at a time from bottom up. Loosening closest oil line clamp will ease installation.
  2. Install male quick couplers (24) to free ends of hoses (26). Install 5/8 spiral bands (25) onto male quick couplers (24) to match bands (16) on female quick couplers. Secure hoses together with tie strap (22).
- Proceed to step 4 on page 3 of 2-6684, KL249 Loader Mounting Kit instructions to continue loader installation.
- NOTE:** When cycling loader, operate loader according to operation decal (20) on valve box. If direction of control lever is wrong, or loader will not lower, re-check connections shown.



**WARNING:** Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin causing serious personal injury. If injured by escaping hydraulic fluid, obtain medical treatment immediately.

# ASSEMBLY



**WARNING:** Escaping hydraulic fluid under pressure can penetrate skin causing serious injury.

- Tighten all connections before starting engine or pressurizing lines.

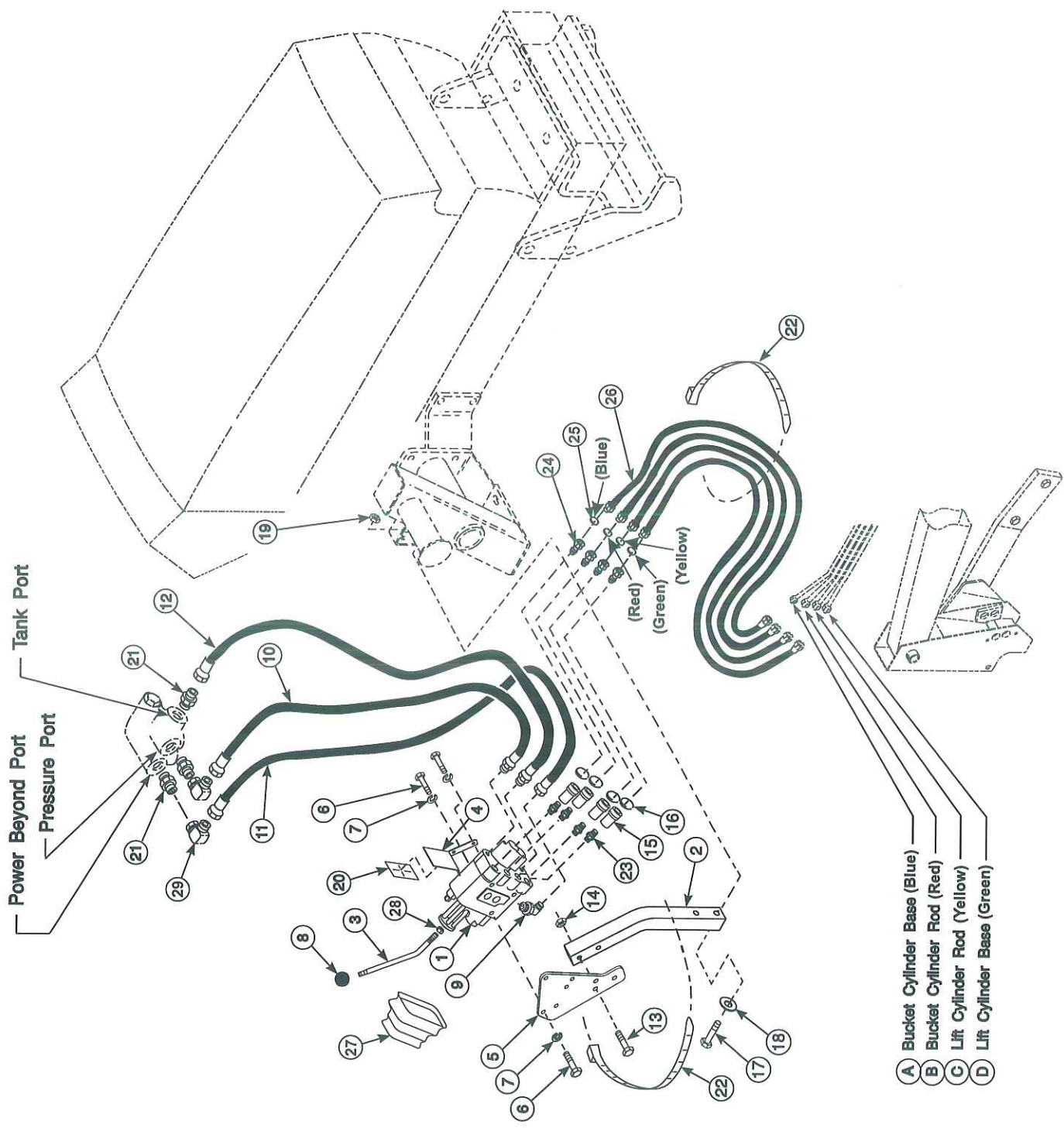
*If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.*

- DO NOT use your hands to check for leaks. Use a piece of cardboard or paper to search for leaks.
- Stop engine and relieve pressure before connecting or disconnecting lines.

## PARTS LIST - Valve and Plumbing Kit

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW43585	VALVE, Prince LVR (2500 PSI)	1
2	SW43541	BRACKET, Valve Mounting	1
3	SW43517	HANDLE, Standard	1
4	SW44287	ANGLE, Decal Mounting	1
5	SW43450	PLATE, Valve Mounting	1
6	SW41838-26	SCREW, Cap, 5/16-18 x 3/4	4
7	SW41837-2	WASHER, Lock, 5/16	4
8	SW38902	BALL, Handle	1
9	SW32845-7	FITTING, Elbow, 9/16-18 JIC x 3/4-16 O-Ring, 90°	1
10	SW43454-2	HOSE, 3/8 x 36	1
11	SW36386-9	HOSE, 3/8 x 38	1
12	SW43454-7	HOSE, 3/8 x 44	1
13	SW41838-19	SCREW, Cap, 3/8-16 X 2-1/4	2
14	SW41840-3	NUT, Lock, 3/8-16	2
15	SW6147-4	COUPLER, Female	4
16	SW36240-9	SPIRAL BAND, Plastic, Blue, 1"	1
	SW36240-10	SPIRAL BAND, Plastic, Red, 1"	1
	SW36240-11	SPIRAL BAND, Plastic, Yellow, 1"	1
	SW36240-12	SPIRAL BAND, Plastic, Green, 1"	1
17	SW41838-25	SCREW, Cap, 1/2-13 x 2-1/2	2
18	SW42502-10	WASHER, Flat, 1/2	2
19	SW41840-5	NUT, Lock, 1/2-13	2
20	SW43453	DECAL, Single Handle Control	1
21	SW43518-1	FITTING,	3
22	SW8137-1	STRAP, Adjustable	2
23	SW39280-7	FITTING, Adapter, 3/4-16 O-Ring x 3/8 NPT	2
24	SW6137-4	COUPLER, Male	4
25	SW36240-5	SPIRAL BAND, Plastic, Blue, 5/8 (Bucket cylinder base)	1
	SW36240-6	SPIRAL BAND, Plastic, Red, 5/8 (Bucket cylinder rod)	1
	SW36240-7	SPIRAL BAND, Plastic, Yellow, 5/8 (Lift cylinder rod)	1
	SW36240-8	SPIRAL BAND, Plastic, Green, 5/8 (Lift cylinder base)	1
26	SW36336-8	HOSE, 3/8 x 44	1
27	SW43635	BOOT	4
	SW43635	BOOT	1
28	SWG271506	NUT, Hex, 7/16-20	1
29	SW34128-3	FITTING, Elbow, 9/16-18 Female JIC x 9/16-18 Male JIC Swivel, 90°	2

Figure 12  
Valve and Plumbing  
Kit



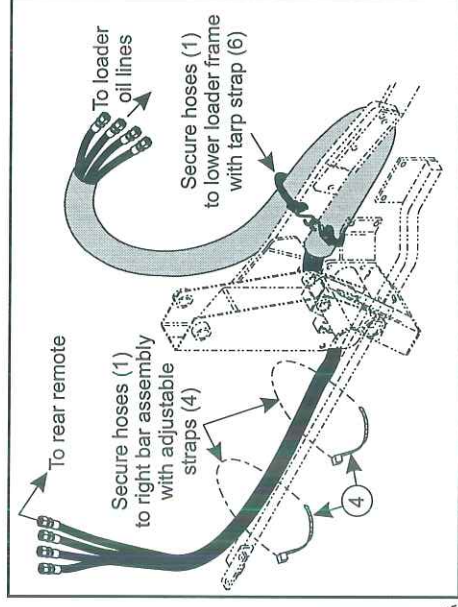
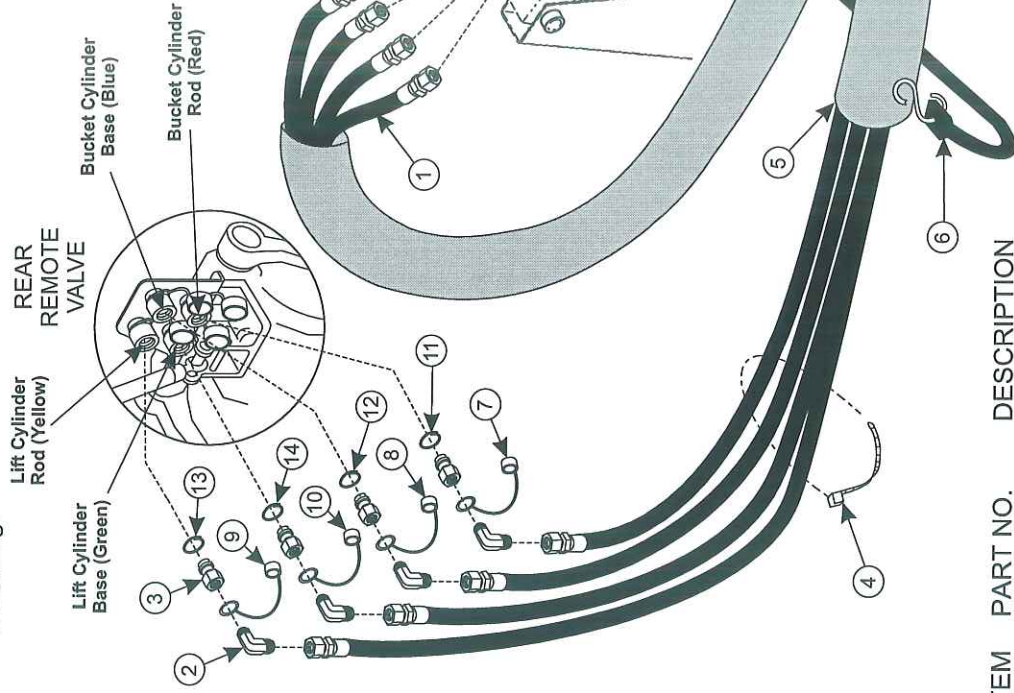
- A Bucket Cylinder Base (Blue)
- B Bucket Cylinder Rod (Red)
- C Lift Cylinder Rod (Yellow)
- D Lift Cylinder Base (Green)

# ASSEMBLY

## PLUMBING KIT TO REAR REMOTE (Figure 13)

Plumbing Kit can be installed using tools ordinarily available. Shut off tractor engine and engage tractor brakes during installation.

1. Attach 90° elbows (2), male couplers (3) and dust caps (7, 8, 9 & 10) to .375 x 126" hoses (1).
2. Temporarily mark color on each hose (1) end. Install nylon sleeve (5) over hoses (1) and connect hoses to loader hydraulic oil lines in the order as shown in figure 13. Route .375 x 126" hoses (1) to rear remote down and along right bar assembly of loader mounting.



Bucket Cylinder Base (Blue)  
 Bucket Cylinder Rod (Red)  
 Lift Cylinder Rod (Yellow)  
 Lift Cylinder Base (Green)

Figure 13

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW36844-22	HOSE, .375 x 126" Long	4
2	SW39609-4	FITTING, Elbow, 1/2 NPT x 3/4-16, 90°	4
3	SW6137-6	FITTING, Coupling, Male, 1/2-14	4
4	SW8137-6	STRAP, Adjustable, Black	2
5	SW34853-26	SLEEVE, Nylon, 2.07 I.D. x 52"	1
6	SW7438-1	STRAP, Tarp	1
7	SW4838-3	CAP, Dust, Red	1
8	SW4838-8	CAP, Dust, Blue	1
9	SW4838-9	CAP, Dust, Yellow	1
10	SW4838-10	CAP, Dust, Green	1
11	SW36240-10	SPIRAL BAND, 1", Red	1
12	SW36240-9	SPIRAL BAND, 1", Blue	1
13	SW36240-11	SPIRAL BAND, 1", Yellow	1
14	SW36240-12	SPIRAL BAND, 1", Green	1

3. Connect .375 x 126" hoses (1) to rear remote female couplers and install colored spiral bands (11, 12, 13 & 14) onto each female coupler on rear remote, to correspond with the color of each dust cap installed above, as shown in figure 13.

**NOTE:** Hoses must be color coded and attached to the proper ports and oil lines for loader operation.

Secure hoses (1) to loader mounting right bar assembly with adjustable straps (4) and draw surplus hose forward and attach to lower loader frame with tarp strap (6) as shown in figure 13.

# ASSEMBLY

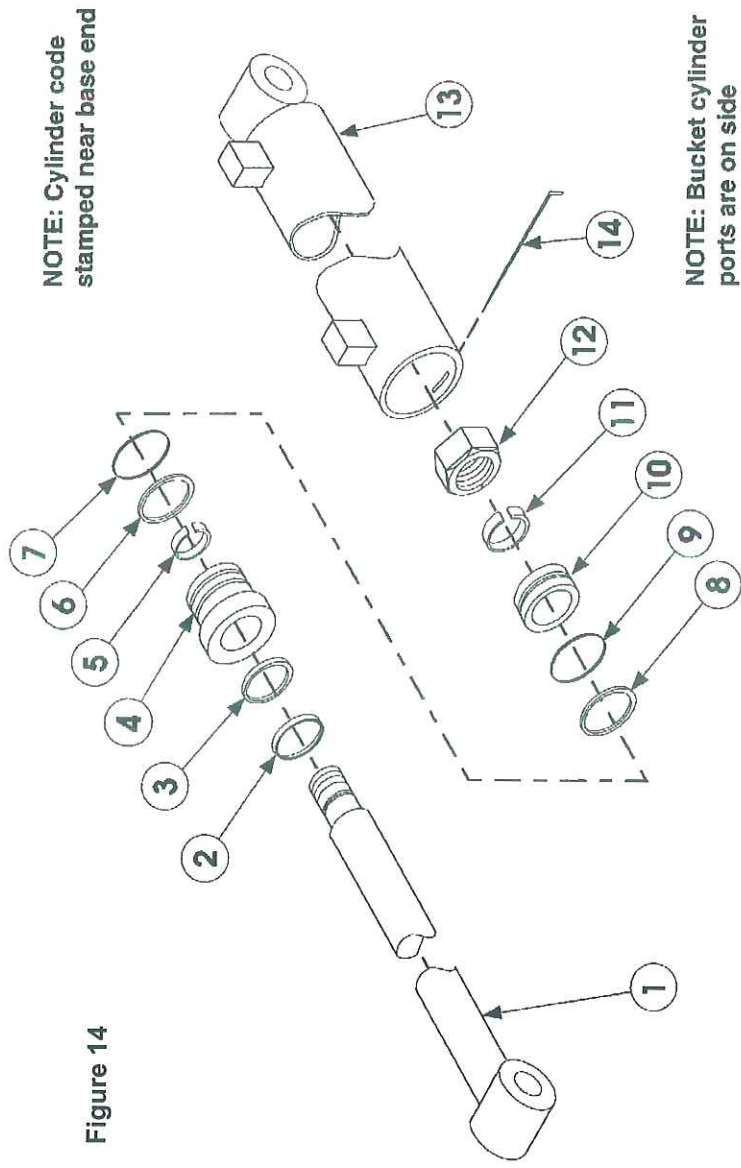


Figure 14

## PARTS LIST - KL249 LIFT CYLINDER, SW43752 (KE) 2-1/2"

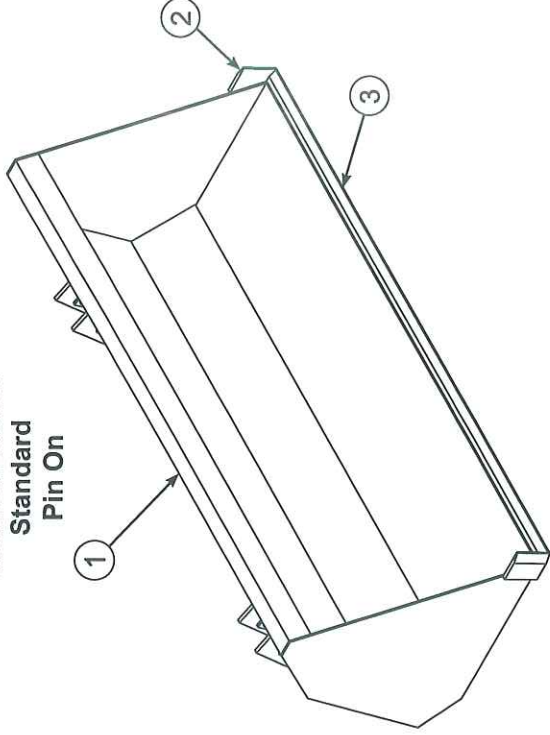
ITEM	PART NO.	DESCRIPTION	QTY.
1	SW44040	ROD, Cylinder, 1-3/8"	1
2	*	SEAL, Wiper	1
3	*	SEAL, Rod	1
4	SW44043	HEAD, Cylinder	1
5	*	RING, Wear	1
6	*	WASHER, Backup	1
7	*	O-Ring	1
8	*	SEAL, Piston	1
9	*	O-Ring	1
10	SW44041	PISTON	1
11	*	RING, Wear	1
12	SW38998-3	NUT, Lock, 1-14	1
13	SW44035	TUBE, Cylinder	1
14	*	WIRE, Retaining	1
15	SW43754	REPAIR KIT, (* Parts in Kit)	1

## PARTS LIST - KL249 BUCKET CYLINDER, SW43753 (KF) 2"

ITEM	PART NO.	DESCRIPTION	QTY.
1	SW44046	ROD, Cylinder, 1-3/8"	1
2	*	SEAL, Wiper	1
3	*	SEAL, Rod	1
4	SW44021	HEAD, Cylinder	1
5	*	RING, Wear	1
6	*	WASHER, Backup	1
7	*	O-Ring	1
8	*	SEAL, Piston	1
9	*	O-Ring	1
10	SW36592	PISTON	1
11	*	RING, Wear	1
12	SW38998-3	NUT, Lock, 1-14	1
13	SW44045	TUBE, Cylinder	1
14	*	WIRE, Retaining	1
15	SW43755	REPAIR KIT, (* Parts in Kit)	1

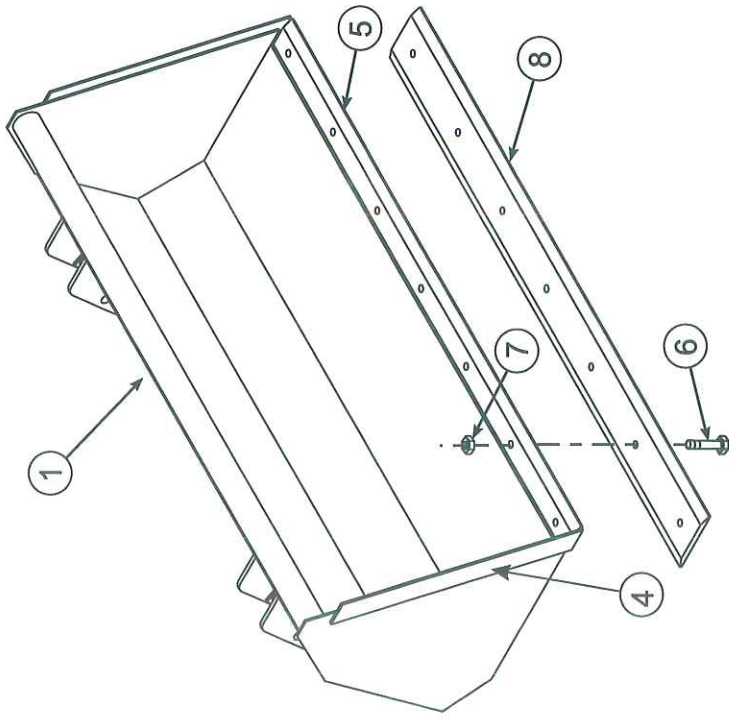
# ASSEMBLY

Material Bucket  
Standard  
Pin On



Material Bucket  
Heavy Duty  
Pin On & SSL Quick Attach  
(Quick Attach Not Shown)

Figure 15



BUCKET MODEL	BUCKET WIDTH		STRUCK CAPACITY	
	Inches	Centimeters	Cubic Yards	Cubic Meters
60"	60	152	.33	.26
68"	68	173	.37	.28
60" H.D.	60	152	.34	.26
68" H.D.	68	173	.38	.29
72" H.D.	72	183	.40	.31

ITEM	PART NO.	DESCRIPTION	QTY.
1	*	BUCKET, 60" Pin On, (Includes cutting edges)	1
	*	BUCKET, 68" Pin On, (Includes cutting edges)	1
	*	BUCKET, 60" Heavy Duty Pin On or SSL Quick Attach, (Includes cutting edges)	1
	*	BUCKET, 68" Heavy Duty Pin On, (Includes cutting edges)	1
	*	BUCKET, 72" Heavy Duty Pin On or SSL Quick Attach, (Includes cutting edges)	1
2	SW22541-9	CUTTING EDGE, Side, (Standard Buckets)	2
3	SW22541-3	CUTTING EDGE, Bottom (60")	1
	SW22541-6	CUTTING EDGE, Bottom (68")	1
4	SW44408	CUTTING EDGE, Side (Heavy Duty Buckets, Pin On or SSL Quick Attach)	2
5	SW44465	CUTTING EDGE, Bottom (60") (with holes for adding replaceable edges)	1
	SW44468	CUTTING EDGE, Bottom (68") (with holes for adding replaceable edges)	1
	SW47751	CUTTING EDGE, Bottom (72") (with holes for adding replaceable edges)	1
6	SWARP6550	PLOW BOLT, 1/2-13 x 1-3/4	-
7	SWG9414074	NUT, Lock, 1/2-13	-
8	*	60" Bolt On Blade (Order 2-6363)	1
	*	68" Bolt On Blade (Order 2-6364)	1
	*	72" Bolt On Blade (Order 2-6703)	1
		* NOT SOLD AS A REPAIR PART	



## ATTACHING PIN ON BUCKET (Figure 14)

Attach bucket to lift boom frame and bucket cylinders with four 1-1/4 x 5-1/2 pins (10), 3/8 x 3/4 shoulder bolts (11) and lock nuts (21). Make sure grease fittings are facing up.

**NOTE:** Make sure grease fittings on bucket cylinder rods are facing up.

**WARNING:** Always wear safety glasses when removing or installing buckets.

**WARNING:** Always use a drift and hammer made of non-sparking material (a shot-filled mallet is recommended) to install or remove pins. A steel hammer or drift could generate flying metal fragments and result in injury. Always wear safety glasses when using a hammer to remove or install pins.

## ATTACHING SSL QUICK ATTACH BUCKET

Refer to pages 25 & 26 (Figure 11).



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# ASSEMBLY

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**NOTES**

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# ASSEMBLY

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**ASSEMBLY  
NOTES**

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# ASSEMBLY

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# NUMERICAL PART NUMBER INDEX

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
SW11661	23	SW42502-10	29	SW47828-1	21
SW22541-3	33	SW43450	29	SW47828-2	21
SW22541-6	33	SW43453	29	SW47884	21
SW22541-9	33	SW43454-2	29	SW47926	23
SW25801	23	SW43454-7	29	SW4838-10	31
SW26871	23	SW43517	29	SW4838-3	31
SW31332-10	23	SW43518-1	29	SW4838-8	31
SW31332-5	23	SW43541	29	SW4838-9	31
SW31353	23	SW43585	29	SW48686	26
SW32845-7	29	SW43633	17	SW48687	26
SW34128-3	29	SW43635	17,29	SW48695	26
SW34853-26	31	SW43636	17	SW49401	23
SW35505	23	SW43637-2	17	SW6075-3	23
SW35762	24	SW43638	17	SW6075-4	23,26
SW35763	24	SW43639	17	SW6090-17	21
SW35764					
SW35764	24	SW43640	17	SW6090-2	21
SW35765	24	SW43641	17	SW6090-3	21
SW35957-4	23	SW43642	17	SW6090-83	21
SW35957-5	23	SW43643	17	SW6137-4	29
SW36187	24	SW43752	23	SW6137-6	31
SW36188	24	SW43753	23	SW6147-4	29
SW36189	24	SW43754	32	SW6543-7	26
SW36190	24	SW43755	32	SW7438-1	31
SW36240-10	29,31	SW44021	32	SW7794	23
SW36240-11	29,31	SW44035	32	SW8137-1	29
SW36240-12	29,31	SW44040	32	SW8137-6	31
SW36240-5	29	SW44041	32	SWARP6550	33
SW36240-6	29	SW44043	32	SWG120375	17
SW36240-7	29	SW44045	32	SWG120376	17
SW36240-8	29	SW44046	32	SWG120384	21
SW36240-9	29,31	SW44075-1	23	SWG120396	21
SW36336-8	29	SW44075-2	23	SWG120898	21
SW36386-9	29	SW44090	23	SWG121574	23
SW36592	32	SW44094	23	SWG124589	23
SW36844-22	31	SW44287	29	SWG127132	23
SW36932	23	SW44408	33	SWG131016	23
SW38151	23	SW44460	17	SWG137185	23
SW38576-10	24	SW44465	33	SWG180087	23
SW38576-11	24	SW44468	33	SWG180177	21
SW38576-12	24	SW44476-3	17	SWG180181	21
SW38576-9	24	SW44707	17	SWG180190	21
SW38900-5	17	SW44743-1	17	SWG271506	17,29
SW38902	29	SW44743-2	17	SWG271724	23
SW38998-3	32	SW44743-3	17	SWG271773	21
SW38998-3	32	SW44744	17	SWG413315	26
SW39240	21	SW47394	26	SWG9413447	23
SW39280-7	29	SW47408-1	26	SWG9413534	23
SW39609-4	31	SW47526	26	SWG9414074	33
SW40053	23	SW47614	26	SWG9414074	21
SW41837-2	29	SW47615	26	SWG9414075	23
SW41838-19	29	SW47618	26	SWG9414076	21
SW41838-25	29	SW47751	33		
SW41838-26	29	SW47810	21		
SW41840-3	29	SW47811	21		
SW41840-5	29	SW47817	21		
SW41902-14	26	SW47819	21		
SW41903-1	26	SW47820	21		
SW43640					
SW43640	17	SW6090-2	21		
SW43641	17	SW6090-3	21		
SW43642	17	SW6090-83	21		
SW43643	17	SW6137-4	29		
SW43752	23	SW6137-6	31		
SW43753	23	SW6147-4	29		
SW43754	32	SW6543-7	26		
SW43755	32	SW7438-1	31		
SW44021	32	SW7794	23		
SW44035	32	SW8137-1	29		
SW44040	32	SW8137-6	31		
SW44041	32	SWARP6550	33		
SW44043	32	SWG120375	17		
SW44045	32	SWG120376	17		
SW44046	32	SWG120384	21		
SW44075-1	23	SWG120396	21		
SW44075-2	23	SWG120898	21		
SW44090	23	SWG121574	23		
SW44094	23	SWG124589	23		
SW44287	29	SWG127132	23		
SW44408	33	SWG131016	23		
SW44460	17	SWG137185	23		
SW44465	33	SWG180087	23		
SW44468	33	SWG180177	21		
SW44476-3	17	SWG180181	21		
SW44707	17	SWG180190	21		
SW44743-1	17	SWG271506	17,29		
SW44743-2	17	SWG271724	23		
SW44743-3	17	SWG271773	21		
SW44744	17	SWG413315	26		
SW47394	26	SWG9413447	23		
SW47408-1	26	SWG9413534	23		
SW47526	26	SWG9414074	33		
SW47614	26	SWG9414074	21		
SW47615	26	SWG9414075	23		
SW47618	26	SWG9414076	21		
SW47751	33				
SW47810	21				
SW47811	21				
SW47817	21				
SW47819	21				
SW47820	21				

———— NUMERICAL PART NUMBER INDEX ————