

WARRANTY CONDITIONS

Warranty Coverage :

LS Mtron Tractor Division, herein referred to as LS Mtron, undertakes to replace or repair any part of a LS Mtron Backhoe where damage has been proven to be caused by defects in material or workmanship.

This Warranty is valid for a period of 1 year from the date of the original retail sale. Parts replaced or repaired under the terms of this Warranty are guaranteed only until the original warranty expires. Warranty only applies to the original purchaser.

It is further understood and agreed that the defect should be immediately reported to the Selling Dealer. The Selling Dealer will generally perform Warranty repairs or replacements and the Purchaser shall deliver the LS Mtron Backhoe to the Dealer's place of business or repair.

The obligation of LS Mtron to the Purchaser under this Warranty is limited to the repair or replacement of defective parts by an authorized LS Mtron dealer. Repair or replacement in accordance with this Warranty shall constitute fulfillment of all liabilities of LS Mtron and the Selling Dealer in respect to LS Mtron Backhoe.

There are no warranties beyond those which expressly appear herein. Any implied warranty of merchantability or fitness for a particular purpose is specifically excluded here from.

Warranty Provisions :

LS Mtron's liability under this warranty is subject to the observance by the Purchaser of the following provisions:

- The purchaser shall at all times in the operation of any LS Mtron Product, use those brands and grades of lubricating oils, lubricants or fuel and spare parts officially approved by LS Mtron.
- The LS Mtron Backhoes shall have been used in accordance with the procedures specified in the Operator's Manual. This Warranty does not extend to damage resulting from misapplication, abuse, misuse, failure to perform maintenance, negligence, fire, accidents or changes or faulty mounting carried out by the Purchaser. When making a Warranty exchange of parts, the Purchaser shall compensate LS Mtron for the time that the parts have been used if they have been exposed to extreme wear.
- Compensation is not paid for physical harm, deadlock, resulting damages or other losses.
- To obtain warranty service, the Purchaser must (1) report the product defect to an authorized LS Mtron dealer and request repair within the applicable warranty term and (2) present evidence of purchase.
- The Warranty shall be void if the LS Mtron Backhoe has been altered or repaired outside of a LS Mtron dealership or travel of dealer personnel to customer location for Warranty repair. The customer shall also pay any premium for overtime labor requested by the customer.
- Temporary repairs or additional costs due to the work being performed after normal working hours will not be compensated.
- The above warranty is in lieu of all other warranties on LS Mtron's behalf and neither party assumes any other liability in connection with LS Mtron's Products.

Right To Make Design and Product Changes :

LS Mtron reserves the right to make changes in the design and other changes in its LS Mtron Products at any time without incurring any obligation with respect to any product previously ordered, sold or shipped.

PLEASE NOTE :

Make sure all potential operators of the this equipment review this manual and all safety messages contained within.



This safety symbol indicates important safety messages in this manual.
When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

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SAFETY PRECAUTIONS

Understand that your safety and the safety of other persons is measured by how you service and operate this backhoe. Know the position and operations of all controls before you they to operate. **Make sure you check all controls in all safe area before starting.**

Read this manual completely and thoroughly and make sure you understand all controls. All equipment has a limit Make sure you are aware of the stability and load characteristics of this backhoe before you begin operation.

The safety information given in this manual does not replace any safety codes, insurance needs, federal, state and local laws. Make sure your machine has the correct equipment required by your local laws and regulations.



This safety alert symbol indicates important safety messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

SAFETY PRECAUTIONS

Before starting the engine of your tractor, make sure all operation controls are in park lock or neutral position.

Operate controls only when seated in the operator's seat

Equip your tractor with a ROPS cab or frame for your protection. See your tractor operator's manual for correct seat belt usage.

A frequent cause of personal injury or death is persons falling off and being run over. Do not permit others to ride on your tractor. Only one person, the operator, should be on the machine when it is in operation.

Before leaving the tractor, stop the engine, put all controls in neutral, engage the parking brake and remove the key from the ignition.

When using remote hydraulic tractor valves on some tractors, the backhoe lift and dump cylinders will continue moving unless the control levers are manually returned to neutral, or until relief pressure is reached at the ends of piston strokes. Observe the bucket movement and maintain control with the control levers.

Stop the backhoe arms gradually when lowering or lifting loads.

Stay off of slopes too steep for safe operation. Shift down before you start up or down a hill with a heavy load. Avoid "free wheeling"

Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operation near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick or muddy surfaces.

Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. Escaping hydraulic oil or diesel fuel leaking under pressure can have sufficient force to penetrate the skin and cause infection or other injured by leaking fluid, seek medical attention immediately.

To prevent personal injury, relieve all pressure before disconnecting fluid lines

Before applying hydraulic pressure, make sure all hydraulic connections are tight and components are in good condition.

SAFETY PRECAUTIONS

Contact with overhead power lines can cause severe electrical burn or death from electrocution. Make sure there is enough clearance between raised equipment and overhead power lines.

Add recommended rear tire liquid weight or rear wheel weights for increased stability

A backhoe attachment should be transported in a low position at slow ground speeds. Make turns slowly and use the tractor brakes cautiously.

A loaded attachment in the raised position alters the center of gravity location of the machine and increases the possibility of mishaps.

Make sure all parked backhoe on stands are on a hard level surface with all safety devices engaged to prevent backhoe from falling and being damaged or injuring someone.

When using a backhoe, be alert of bucket, boom and arm position at all times

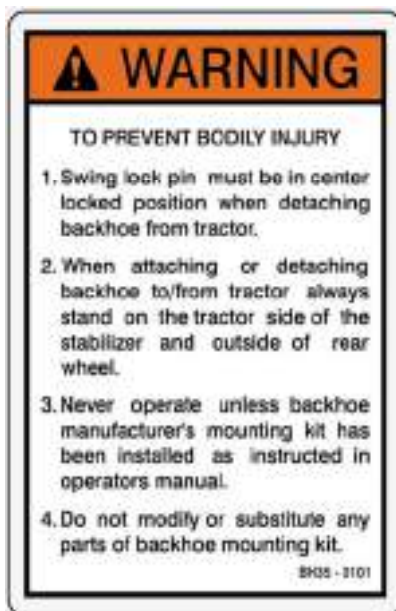
SAFETY DECALS

Safety Decal Locations

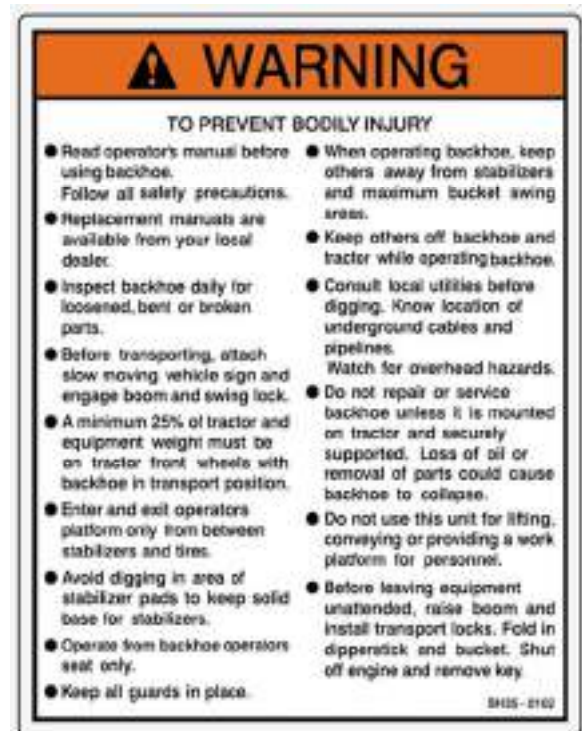
Important: Warning decals are visible when getting on backhoe. Refer to the left and right hands used in this manual, It's the position of the operator when seated in the operating position of Backhoe

Care of Safety Decals.

1. Keep safety decals clean and free of obstructing material.
2. Clean safety decals with soap and water and dry with a soft cloth.
3. If a component with a safety decal(s) affixed is replaced with a new part, make sure new safety decal(s) are attached in the same location(s) as the replaced components.
4. Mount new safety decals by applying on a clean dry surface and pressing air bubbles to outside edges.



Warning 3102E-00004



Warning 3102E-00005



Danger 3102E-00006

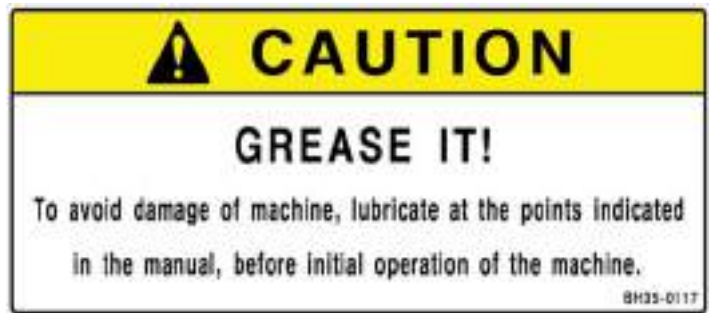


Danger 3102E-00007

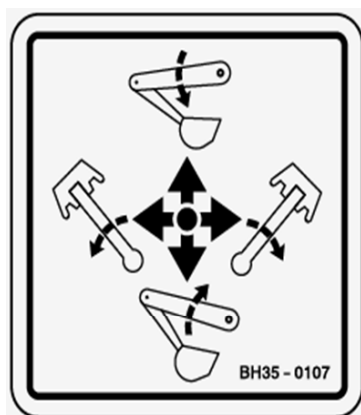
SAFETY DECALS



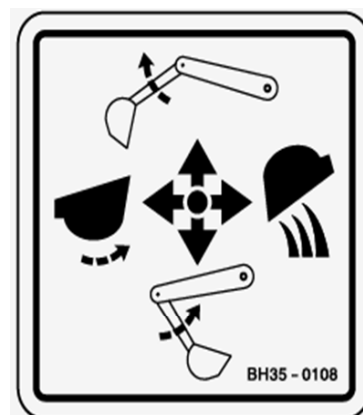
Warning 3102E-00008



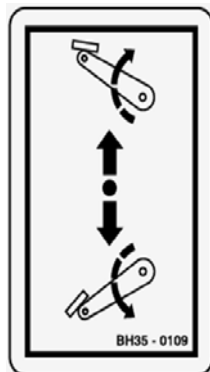
Caution 3102E-00009



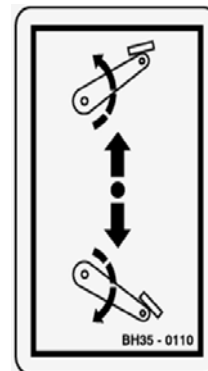
Warning 3103E-00003



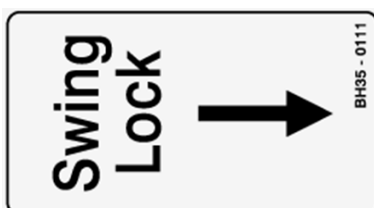
Warning 3103E-00004



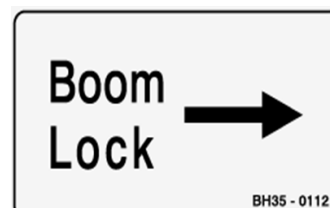
Warning 3103E-00005



Warning 3103E-00006



Warning 3103E-00007



Warning 3103E-00008

SAFETY DECALS



Inspection 3102E-00032



Ls Name 3101E-00227



Ls Name 3101E-00228

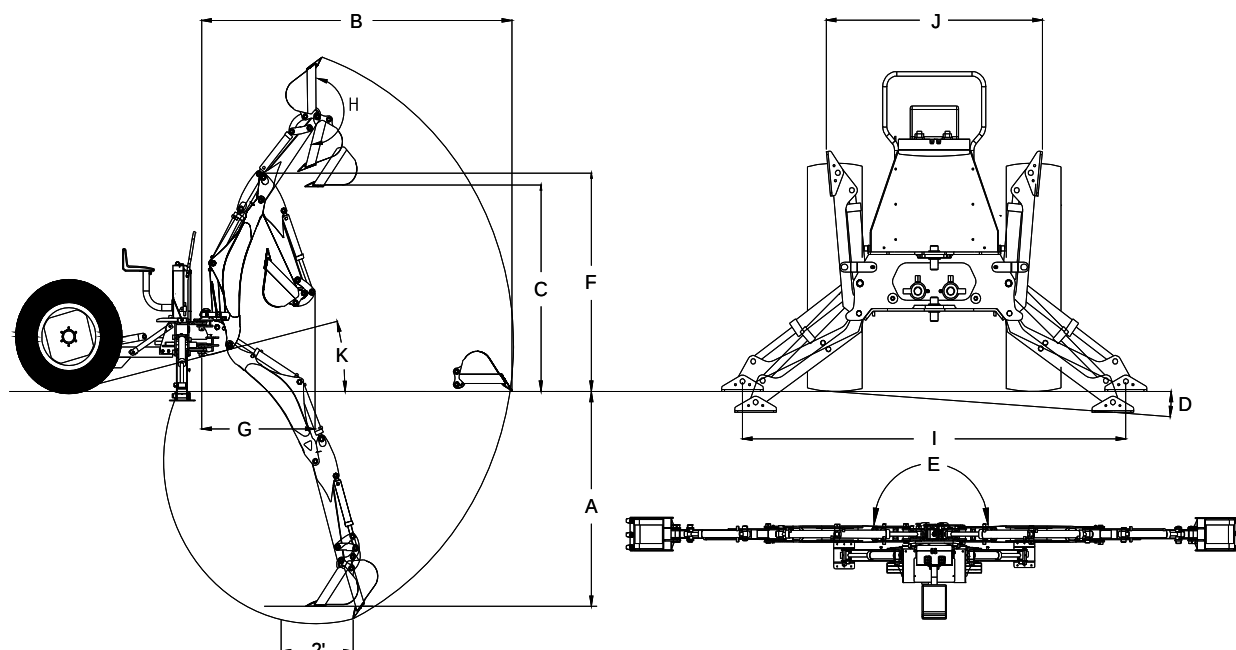


Model 3101E-00476



Name Plate 3104E-00016

BACKHOE SPECIFICATIONS



Backhoe Model LB1107

Tractor Model : MT1 Series

A. Digging Deth (two foot flat bottom)	1,910 mm	75.1 "
B. Reach from center line of Swing Pivot	2,921 mm	114.9 "
C. Loading Height (bucket at 60°)	1,513 mm	59.5 "
D. Maximum Leveling Angle	16.6 °	16.6 °
E. Swing Arc	135 °	135.0 °
F. Transport Height (maximum)	1,897 mm	74.6 "
G. Transport Overhang	1,131 mm	44.5 "
H. Bucket Rotation	169.4 °	169.4 °
I. Stabilizer Spread (down position)	1,996 mm	78.5 "
J. Stabilizer Spread (up position)	1,353 mm	53.2 "
K. Angle of Departure	20.0 °	20.0 °
Shipping Weight – Backhoe(without bucket)	300 kg	661 lbs
Bucket Digging Force	995 kg	2,194 lbs
Dipperstick Digging Force	604 kg	1,332 lbs
Operating Pressure	130 bar	1,886 psi

Cylinders	Cylinder	Bore DIA		Retracted Length		Stroke		Rod DIA	
		mm	inch	mm	inch	mm	inch	mm	inch
	Boom	65	2.6	575	22.6	365	14.4	35	1.4
	Bucket	65	2.6	535	21.1	290	11.4	35	1.4
	Dipperstick	65	2.6	524	20.6	303	11.9	40	1.6
	Swing	65	2.6	380	15.0	181	7.1	35	1.4
	Stabilizer	55	2.2	465	18.3	265	10.4	30	1.2

Buckets	Bucket	Teeth Q'TY	Struck Capacity	Heaped Capacity	Shipping Weight
	9" Bucket	3	0.73 cu. ft.	0.87 cu. ft.	46 lbs.
	12" Bucket	3	1.01 cu. ft.	1.24 cu. ft.	56 lbs.
	16" Bucket	3	1.38 cu. ft.	1.76 cu. ft.	64 lbs.

Specifications may vary depending on tractor model, tire size and bucket used.

INTRODUCTION

The purpose of this manual is to assist you in maintaining and operating your backhoe. Read it carefully, it furnishes information and instructions that will help you achieve years of dependable performance. Some information may be general in nature due to unknown and varying conditions. However, through experience and these instructions, you should be able to develop operating procedures suitable to your particular situation.

"Right" and "Left" as used throughout this manual are determined by facing the direction the machine will travel when in use.

The photos, illustrations and data used in this manual are current at the time of printing, but due to possible in-line production changes, your machine may vary slightly in detail. The manufacturer reserves the right to redesign the machine as may be necessary without notification.

Backhoe Components

Terms for backhoe components have some variations throughout the industry.

- 1 Bucket
- 2 Bucket Cylinder
- 3 Dipperstick
- 4 Dipperstick Cylinder
- 5 Boom
- 6 Boom Cylinder
- 7 Swing Frame
- 8 Swing Cylinder
- 9 Main Frame and Console
- 10 Stabilizer
- 11 Stabilizer Cylinder

Backhoe Serial Number Information

Date Purchased _____

Backhoe Serial Number _____

Subframe Serial Number _____

Dealer Name and Telephone Number _____

Important:

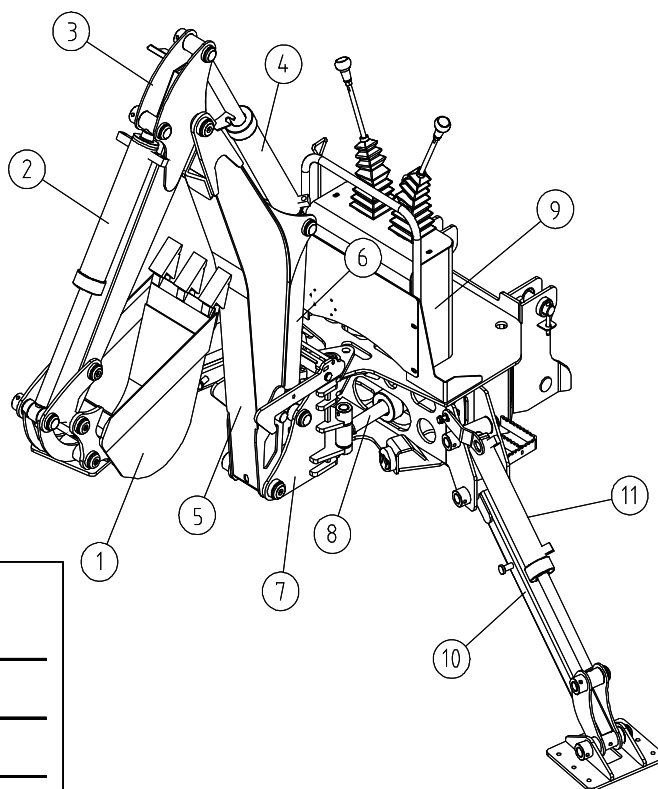
Illustrations used in this manual may not show all safety equipment that is recommended to ensure safe operation of tractor and backhoe. Refer to the Safety Precautions section of this manual for information concerning safety. consult your dealer for further information.

Warranty Registration

The Delivery and Warranty Registration forms must be filled out and signed to validate your warranty protection. The items on the form under "I hereby Acknowledge" should be read and understood. The terms and conditions of the warranty on this machine are specified in the front of this manual.

Serial Number and Location

The serial number is important information about the machine and it may be necessary to know it before obtaining the correct replacement part. The serial number is located on the front of valve cover. The serial number should be recorded on the Delivery and Registration form and also below for your reference.



TRACTOR PREPARATION



CAUTION:

Do not exceed the manufacturer's rating for maximum gross vehicle weight. Refer to Operator's Manual or ROPS serial plate provided with tractor.



CAUTION:

Certain specific conditions may not permit safe use of backhoe at backhoe rating or may require more careful restricted operation at the rated load.

ROPS System

The tractor must be equipped with an approved ROPS System to ensure adequate operator's protection.



CAUTION:

The tractor/backhoe must only be operated with all safety equipment properly installed.

Tire Inflation

Front tires must be maintained at the maximum recommended inflation to maintain normal tire profile with the added weight of backhoe/material.

Rear tires must be maintained at equal pressure within the recommended tire inflation range. Unequal rear tire inflation can prevent backhoe attachment from contacting the ground across its full width.

Tractor Hydraulic System

Tractor operation in a backhoe application significantly increase demands on the tractor Hydraulic System. Check the tractor Hydraulic system fluid level daily. Refer to your tractor Operator's Manual maintenance section for instructions regarding tractor hydraulic system maintenance.

Adhere to recommendation in your Tractor Operator's Manual concerning hydraulic fluid and filter specifications, and change intervals

Wheel Tread Settings

Tractor front wheel tread setting must be restricted to wheel tread spacing recommended in the tractor Operator's Manual.

BACKHOE OPERATION



CAUTION:

The tractor/backhoe should only be operated with all safety equipment properly installed. Keep assistants or bystanders a safe distance from the equipment operating area.

Precautionary Notes

- Check below items before operating for your safety.
- Read and understand this manual to avoid accidents.
- Check the hydraulic fitting lines to be correct and set tightly.
- Maintain and repair (if it is needed) the parts or assemblies, check bolts and pins to be sure they are positioned tightly.
- Check tractor with the tractor operator's manual that it can prepared for operating.
- Warm up and operate the tractor and backhoe carefully. Purge any air in the hydraulic lines and cylinders by fully cycling all cylinders several times.
- Check hydraulic level in the tank. It should be full (Refer to the Tractor Operator's Manual).
- Do not operate the hydraulics when not seated in the backhoe operator's seat.
- Keep all assistants out of area of operation.
- Do not operate rapidly.
- Do not allow riders other than the operator to be on the tractor while operating.

Important:

Use tractor engine speed that your experience permits. At first set PTO RPM of the tractor to slow.

Do not use the boom, dipperstick, swing and stabilizers to lift, push or pull objects. Use only to maneuver and operate the bucket.

Important:

Practice quickly turning off the engine or stopping the backhoe immediately in case of an emergency situation.

Important:

Do not operate while the rear tractor wheels are off the ground by stabilizer. It is dangerous to operate the backhoe while rear wheels are off the ground.

Position vehicle so that the backhoe is as near to the pile as possible and in such a direction as to minimize the amount of tractor turning required to dump.

Keep the unit clean and perform regular service. Observe safety messages whenever cleaning, servicing, or lubricating.

We urge you to follow this advice:

1. Read and understand this manual as well as the Tractor Operator's Manual.
2. Remember and observe the Safety Precautions brought to your attention in this manual, the tractor manual and on the machinery itself.
3. Use good common sense in the everyday operation of this unit. Safety recommendations can never be all-inclusive and you are responsible for watching out for and avoiding unsafe conditions.
4. Never exceed the limits of a piece of machinery. If its ability to do a job or to do so safely is in question, don't try it.
5. Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new backhoe and tractor.



CAUTION: When lowering a heavy load, ease it downward slowly. Never drop a loaded attachment and "catch it hydraulically". Stopping a load after it has gained downward momentum places undue strain on the unit and may cause unnecessary damage to the backhoe or tractor or even worse, personal injury.



CAUTION: Before disconnecting hydraulic lines, relieve all hydraulic pressure.

Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic oil seek medical attention immediately.



CAUTION: Do not operate the backhoe if the fittings are leaking or if the hoses are damaged. A sudden line burst would cause the mainframe to drop suddenly, causing damage to the tractor or backhoe or injury to personnel.

BACKHOE OPERATION

Initial Backhoe Operation

Before operating the backhoe, fully raise and lower the boom, arm, swing and stabilizers two or three times. Then raise the bucket above the ground and cycle the bucket cylinders three times. Lower the bucket to the ground. Check the tractor hydraulic oil and the correct oil level.



CAUTION:

Before leaving the machine, stop the engine, remove the key, place all controls in neutral, and either set the parking brake or place tractor in park as equipped.

Always keep cylinders in a retracted position when the backhoe is not in use to guard against rust and contamination which may cause damage to the cylinder rods or hydraulic system.

Also, lock the swing and boom while tractor is moving and storing for an extended period of time.

Cold Weather Operation

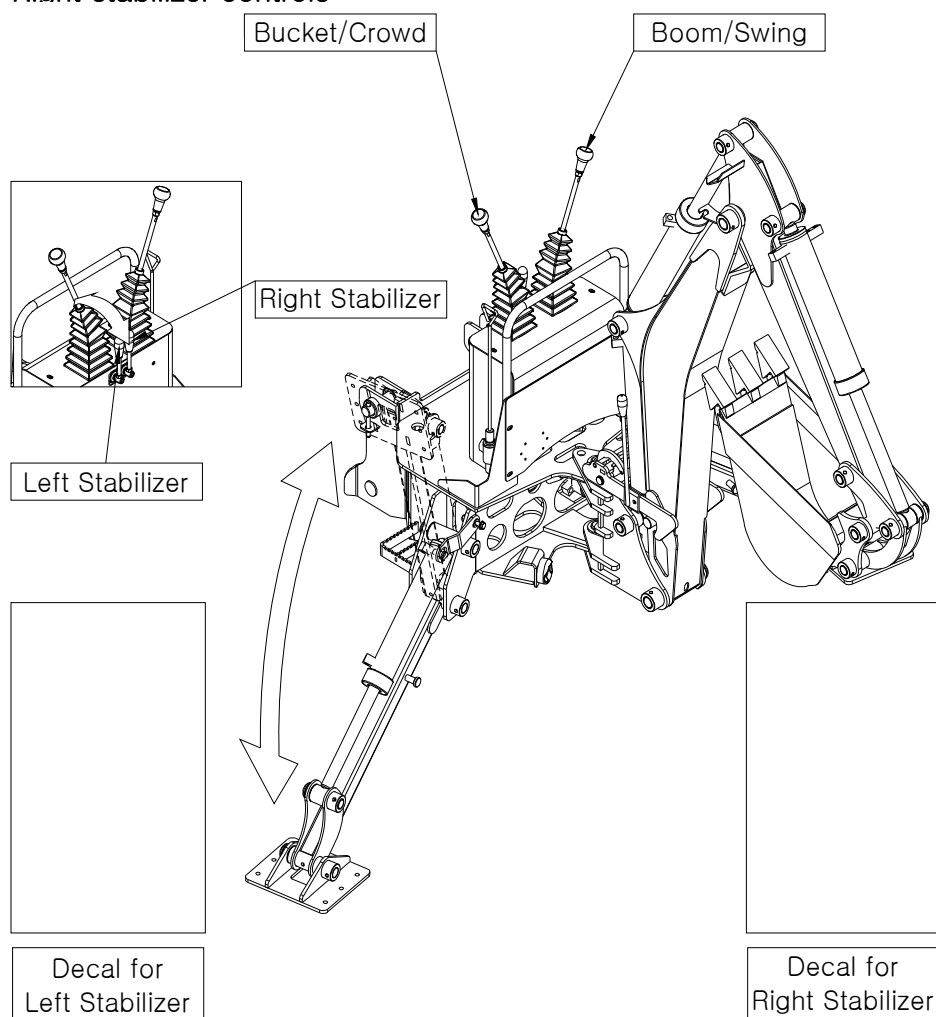
For smooth operation in cold weather, let the tractor warm up. Slowly cycle all of the cylinders several times to warm the oil in the hydraulic system. The backhoe may operate erratically until the hydraulic oil has warmed to operating temperatures.



CAUTION:

Operate controls only when seated in the operator's seat.

Left and Right stabilizer controls



Push the left hand inner control lever, left stabilizer lowers. And pull up the lever, left stabilizer raises.

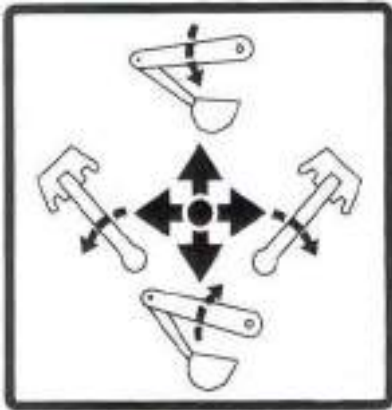
BACKHOE OPERATION

Push the right hand inner control lever, right stabilizer lowers. And pull up the lever, right stabilizer raises.

Do not dig near the stabilizers to avoid possible accident.

Do not lift the tractor rear wheels by stabilizers. Also, be sure the stabilizers are seated on hard ground to support. The backhoe/tractor.

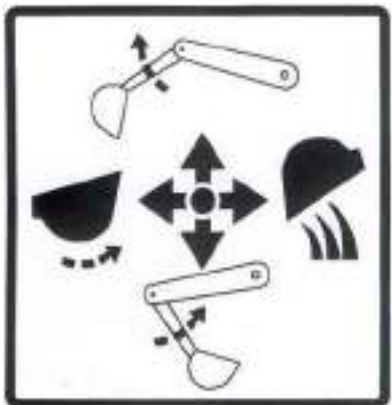
Boom and swing controls



Push the left hand outer control lever, boom moves down, and pull back the lever, boom moves up. Also, pushing the lever fully forward into the detent position, allows the boom to float. In the float position, the boom can drift up or down without pressure.

Move the left hand outer control lever to the left, boom swings to the left. Move lever right, backhoe boom swing moves to the right.

Bucket and crowd controls

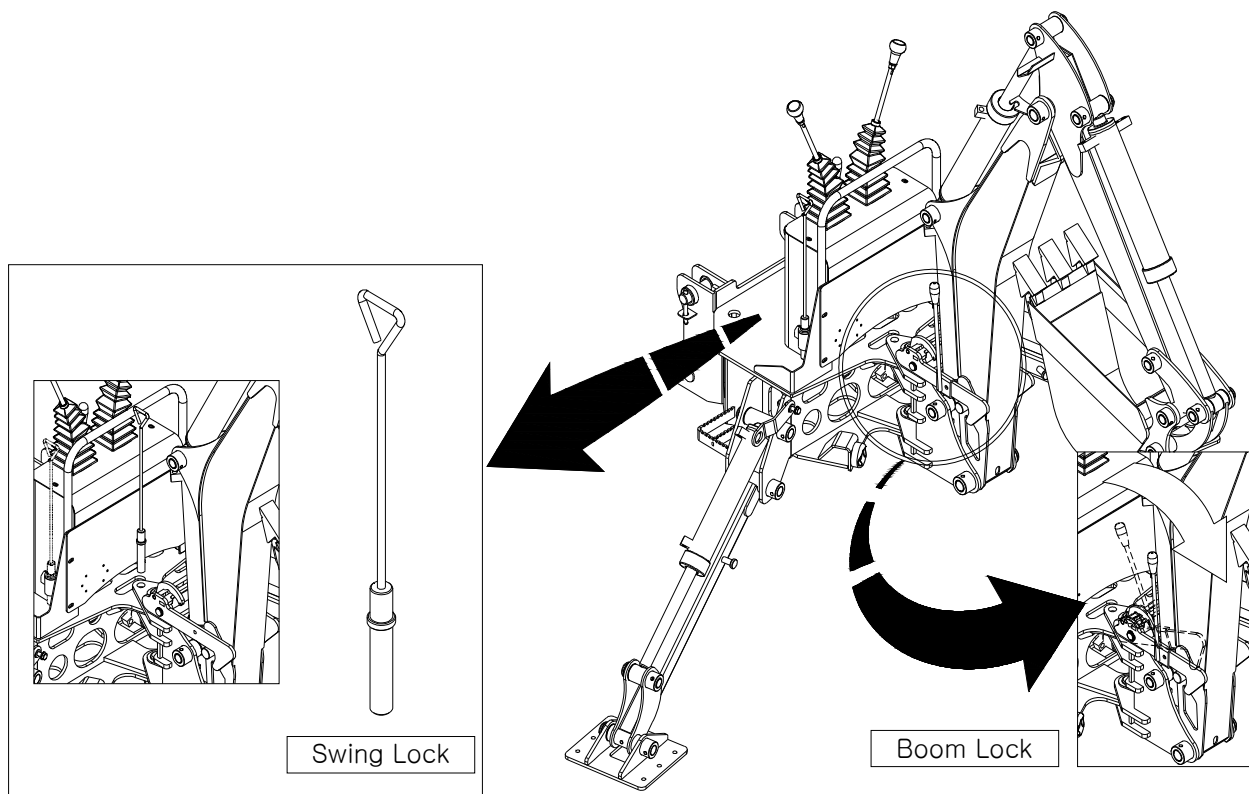


Push the right hand outer control lever, arm(dipperstick) moves away from operator, and pull back the lever, arm(dipperstick) moves toward the operator.

Move the right hand outer control lever to the left, bucket curls in. Move lever right, bucket extends out from operator.

These two levers (Boom and swing control lever, Bucket and crowd control lever) provide four simultaneous operations. Both experience and practice are needed to eliminate excess motion and increase operating efficiency.

BACKHOE OPERATION



Swing Lock and Boom Lock

When transporting or dismounting backhoe, you must lock the backhoe's swing and boom. Position boom straight back and drop pin through holes in swing frame and boom. When not in use, store pin in hole provided on swing frame and boom. Observe the following safety warnings when working with your new backhoe/tractor.



CAUTION:

When using a backhoe, be aware of bucket and boom location at all times. When raising a arm(dipperstick) with bucket rolled forward, material can spill onto non target area causing injury to assistant or damage other objects.



CAUTION:

Do not dig near stabilizers. Ground under stabilizers could collapse. Make all movements slow and gradual when practicing operation.



CAUTION:

Operate from backhoe operators seat only. Pay attention, be ready to stop, immediately in case of an emergency.



CAUTION:

To help prevent roll-over, adjust the rear wheels to their widest setting to maximize stability. Refer to your Tractor Operator's Manual for recommendations.

BACKHOE REMOVAL



CAUTION:

Move the backhoe to flat, firm and wide place to remove the equipment.



CAUTION:

Do not allow to be removed without bucket and stabilizers. Also, Dump the remaining material from the bucket to empty.



WARNING:

Use other lifting equipment to remove when the backhoe has damage.

STEP 1.

Move the tractor to backhoe storage place.

STEP 2.

Use the inner two levers to lower the stabilizers until they contact to the ground. Use the boom and dipperstick control lever to raise the boom & dipperstick completely.

STEP 3.

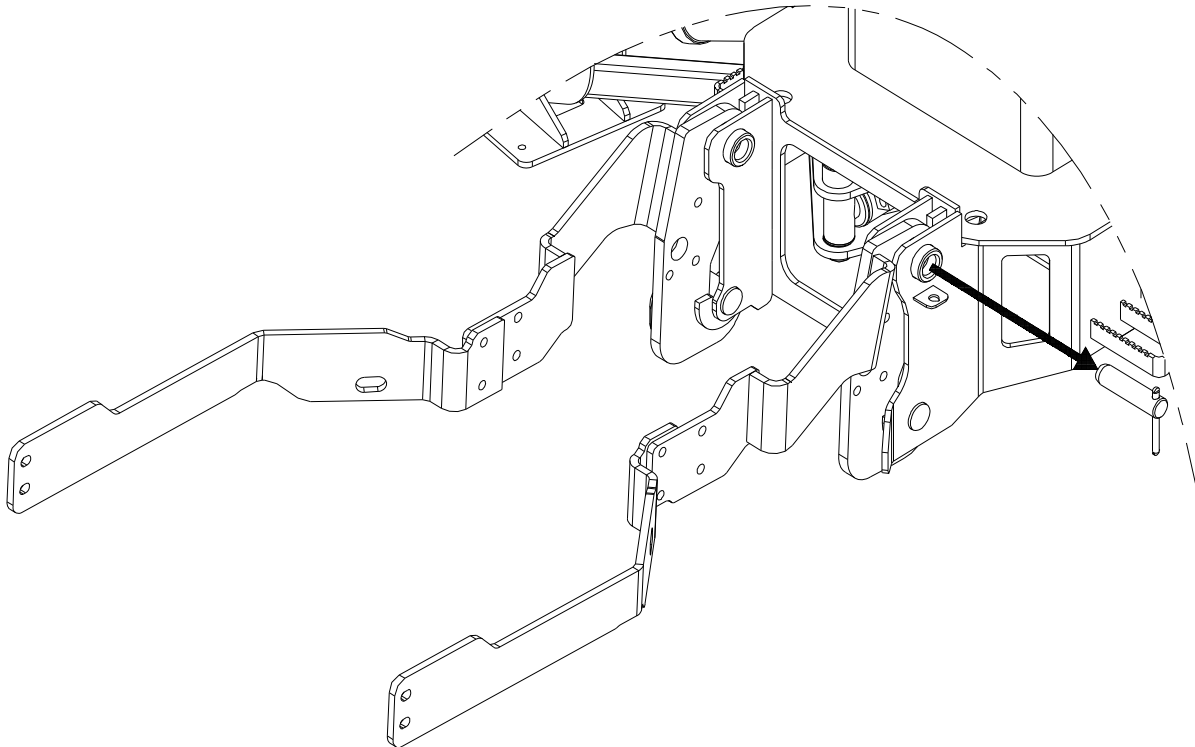
Center the boom and then lock the swing with lock pin.

STEP 4.

Using the control levers, position the dipperstick vertically, curl the bucket until its bottom is level with the ground, and lower the boom until bottom of the bucket rests on the ground.

STEP 5.

Remove the lock pin from the Frame.



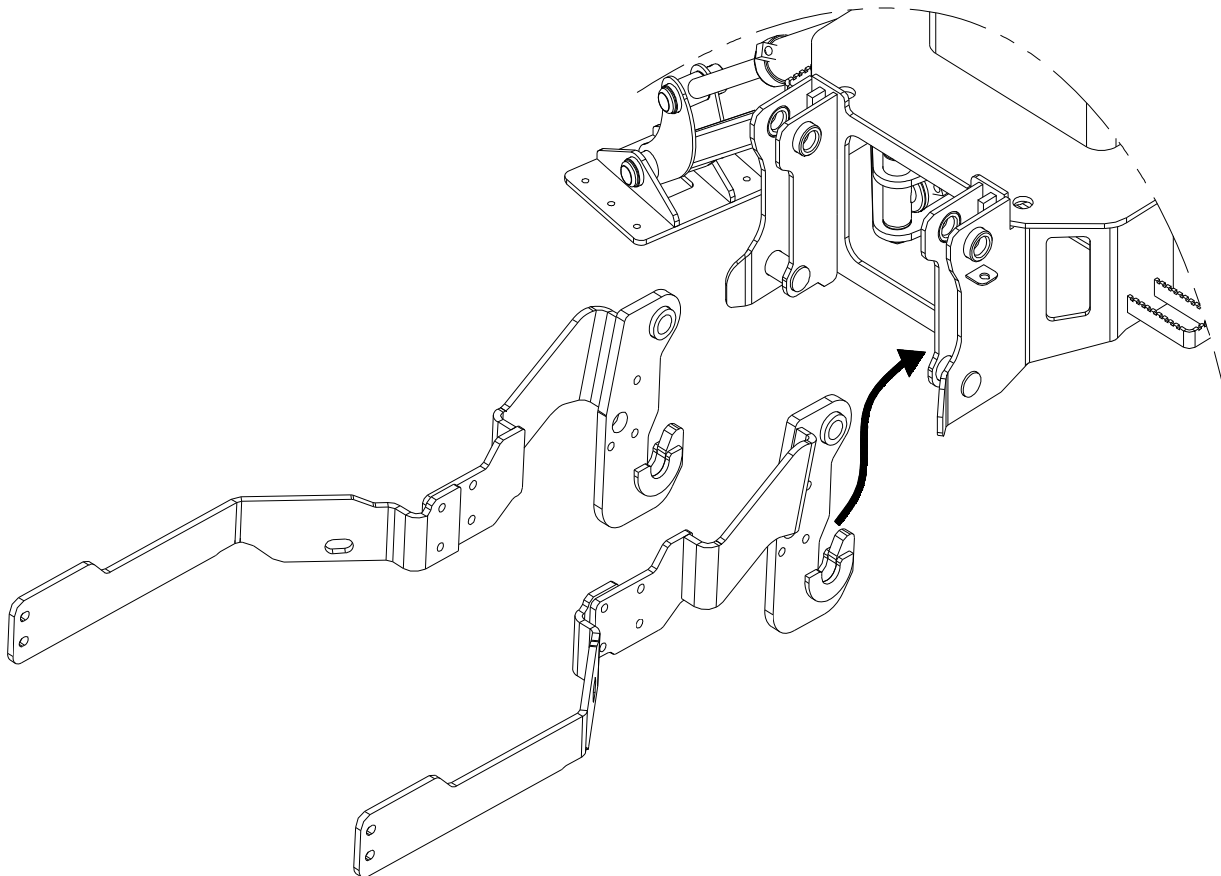
BACKHOE REMOVAL

STEP 6.

Disconnect Backhoe from the Subframe by using control lever.

STEP 7.

Disconnect the hydraulic hoses.



CAUTION:

Remove the backhoe on firm level ground. Also, Do not allow the other person in the area.



CAUTION:

Be careful to avoid injury during removal of the backhoe.



CAUTION:

The hydraulic oil is dangerous for skin or eyes. Wash the skin and seek medical service if it is necessary.

BACKHOE MOUNTING



CAUTION:

Backhoe should be mounted on the proper subframe assembly.



CAUTION:

Never store backhoe without bucket attached to the backhoe.

STEP 1.

Install the Subframe to the tractor with hardware.

STEP 2.

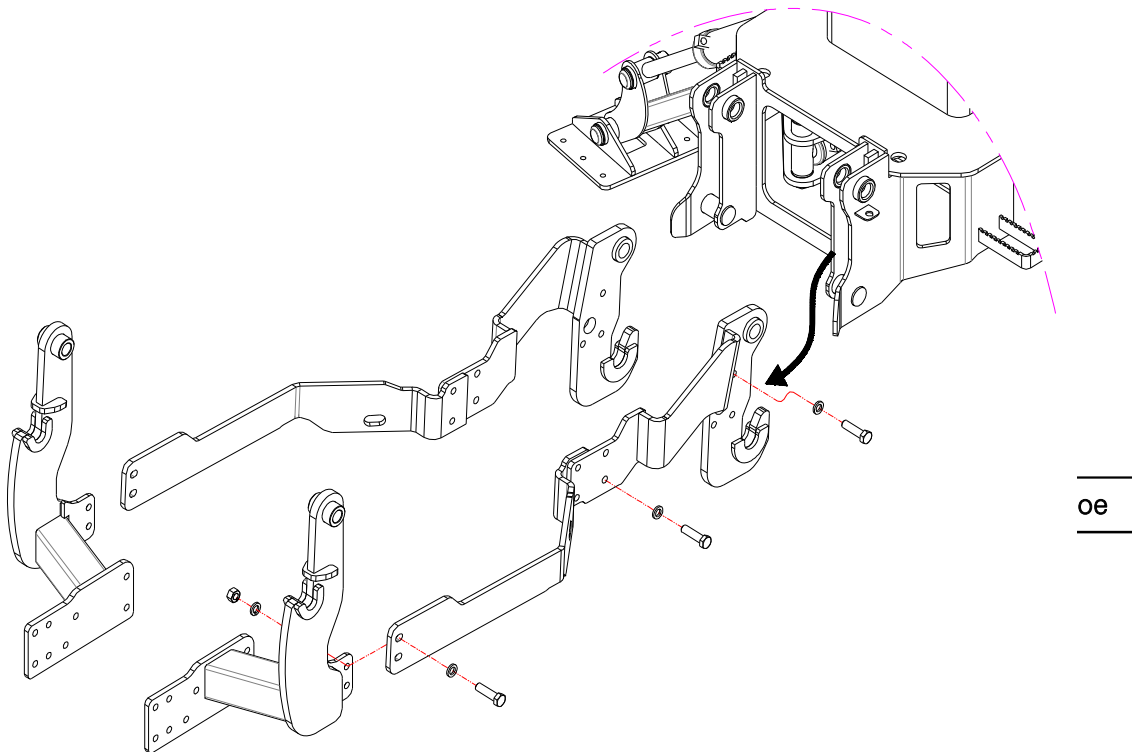
Back tractor slowly toward the backhoe parallel to subframe assembly, until the couplers on the backhoe hoses are able to connect with the hose kit hydraulic couplers or tractor auxiliary couplers located rear of the tractor. Then, put the couplers to connected.

STEP 3.

Set the parking brake of the tractor, Make sure the PTO switch is in the off position

STEP 4.

Put down the legs(stabilizer) to the ground and install the Backhoe to the Subframe by using boom and dipper control lever.



BACKHOE MOUNTING



CAUTION:

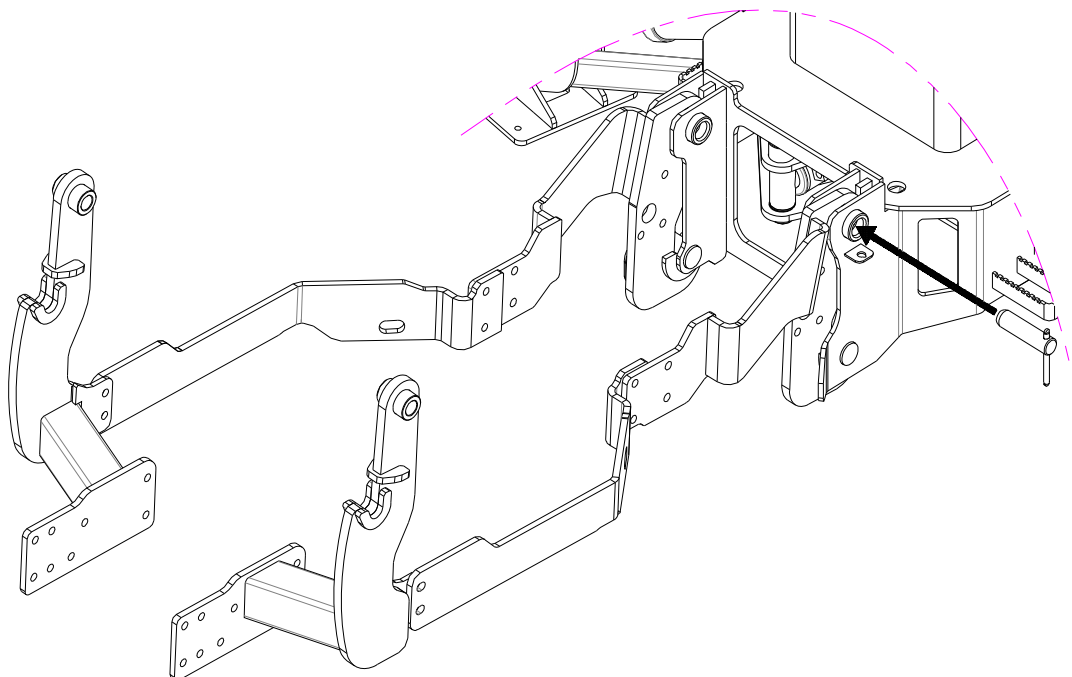
This is the Backhoe's Operator's manual for Safety Precautions and Tractor Preparations.

STEP 5.

Make the holes aligned by using control lever and lock with the Pins.

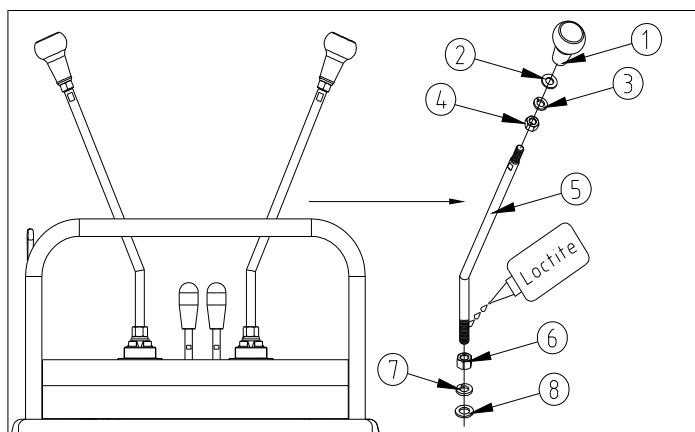
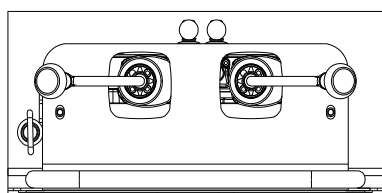
STEP 6.

Raise the boom and stabilizers from the ground.



STEP 7.

Lever Assembly

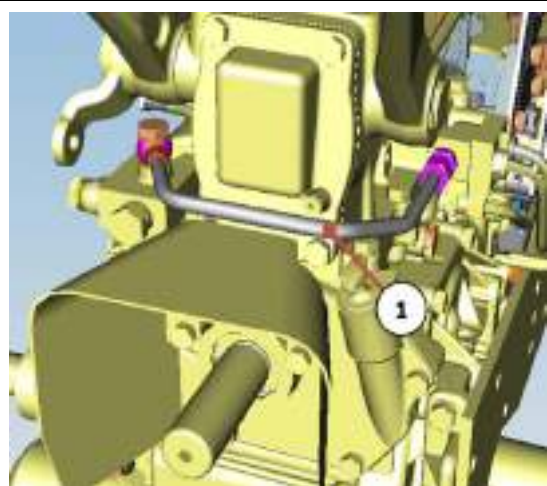


- (1) PLASTIC BALL, 2EA
- (2) WASHER PLAIN M10, 2EA
- (3) WASHER SPRING M10, 2EA
- (4) HEX. NUT M10-1.25P, 2EA
- (5) LEVER, 2EA
- (6) HEX. NUT M12-1.5P 2EA
- (7) WASHER SPRING M12, 2EA
- (8) WASHER PLAIN M12, 2EA

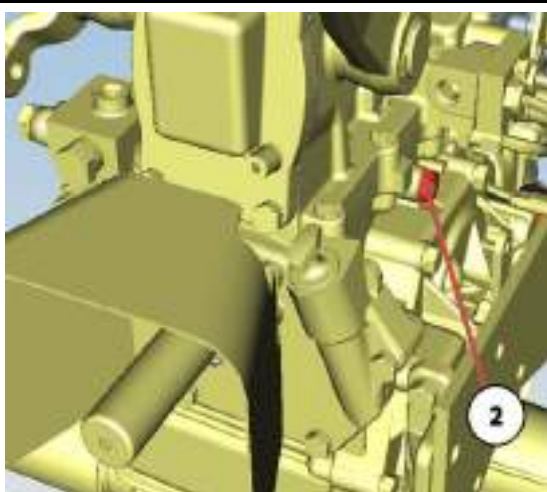
*** Notice**

Apply the loctite on tap as shown in figure.

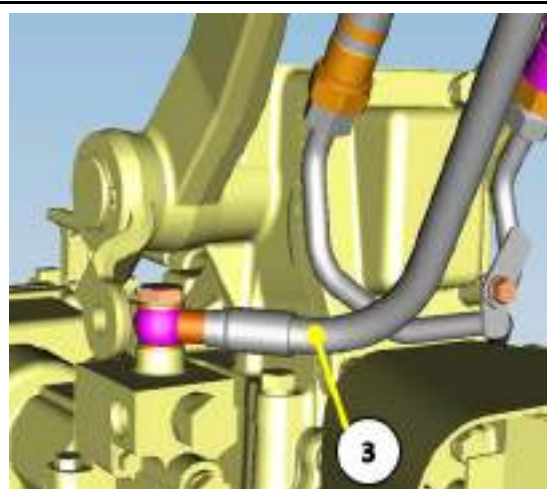
TRACTOR HYDRAULIC KIT MOUNTING



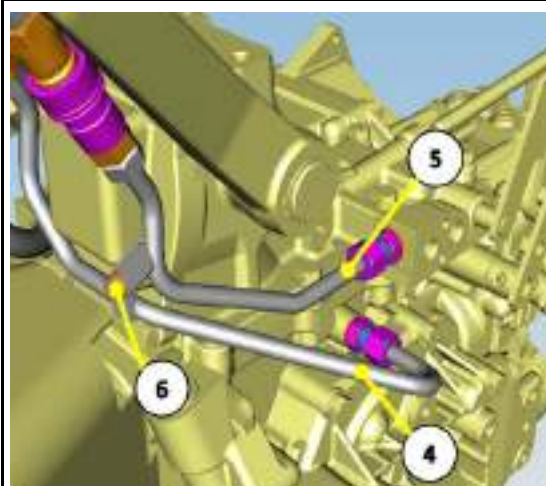
1. Remove pipe(1)



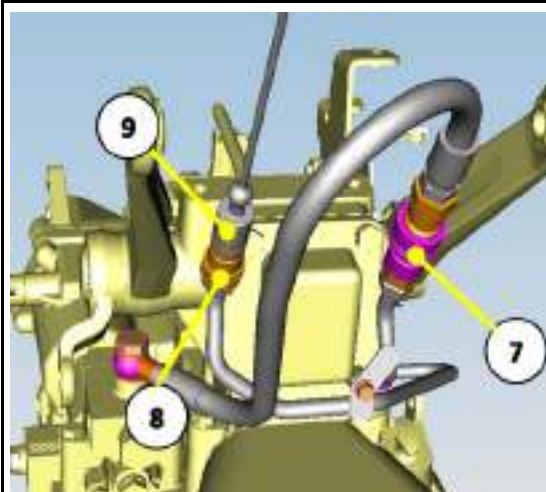
2. Remove plug(2)



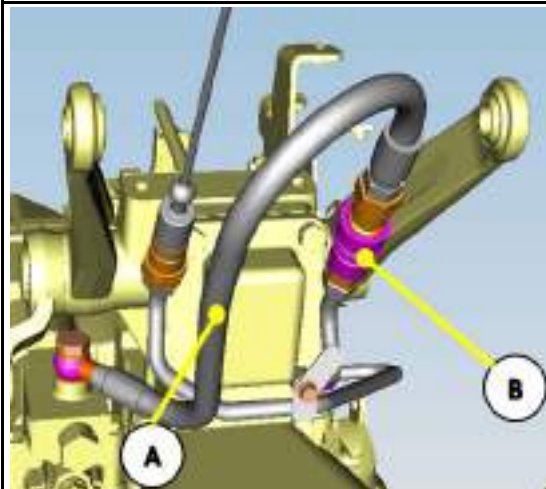
3. Assemble hose(3)-40337406



4. Assemble pipe(4)-40337623
Assemble pipe(5)-40337414
Assemble bolt(6)-40028921

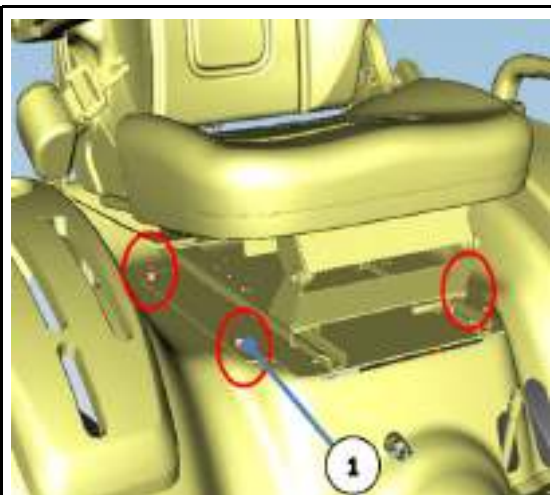


5. Assemble Female coupler(7)-40233022
Assemble Male coupler(8)-40330336
put on cap(9)-40348110

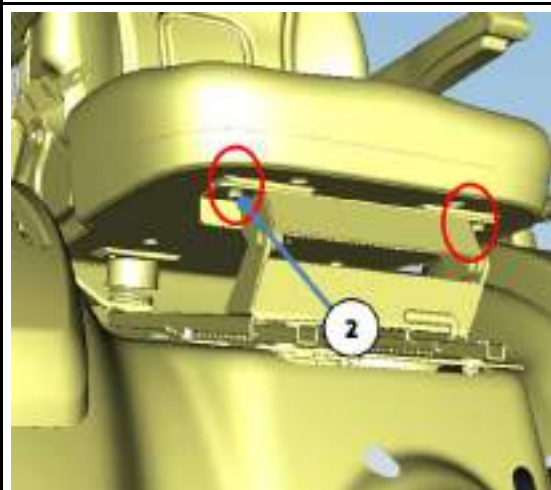


6. Connect the hose A to B coupler

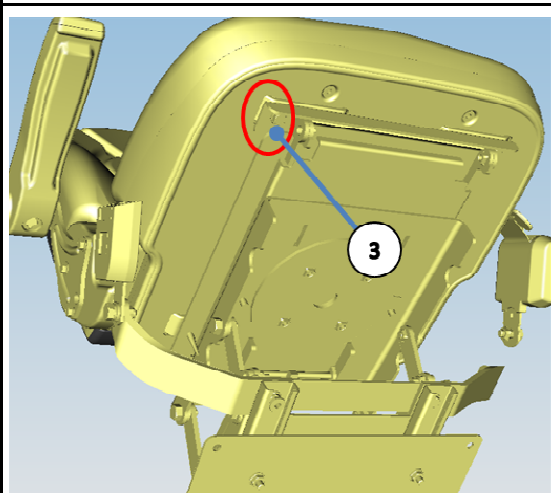
TRACTOR SEAT MOUNTING



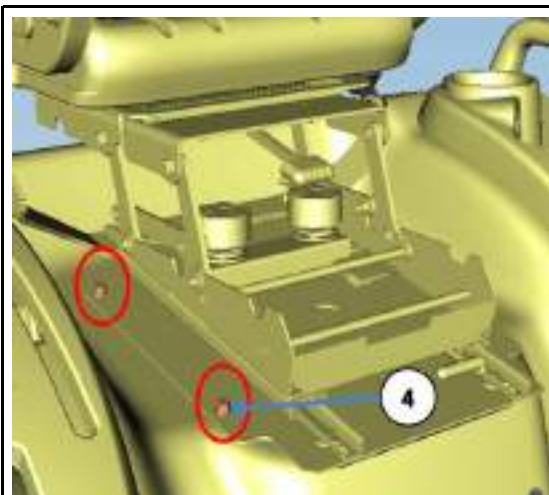
1. Remove 4-bolts for disassemble the STD seat(1)



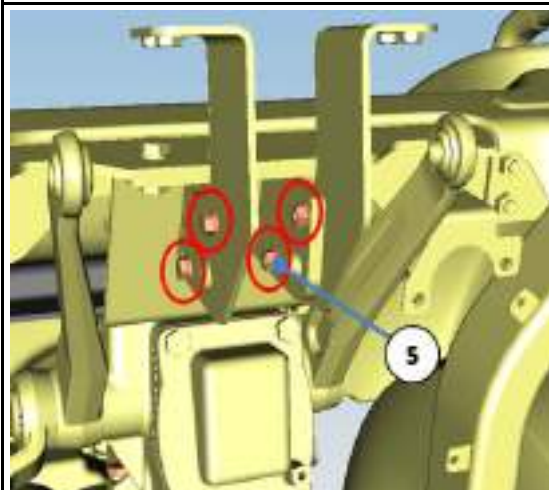
2. Remove bolts(2-points) for disassemble the STD low frame(2)



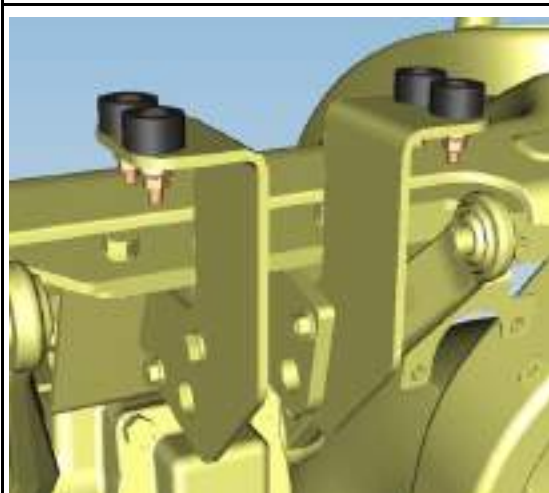
3. Assemble 2-bolts for attaching the seat and Backhoe low frame(3)



4. Assemble 4-bolts again for assembling the Backhoe seat(4)

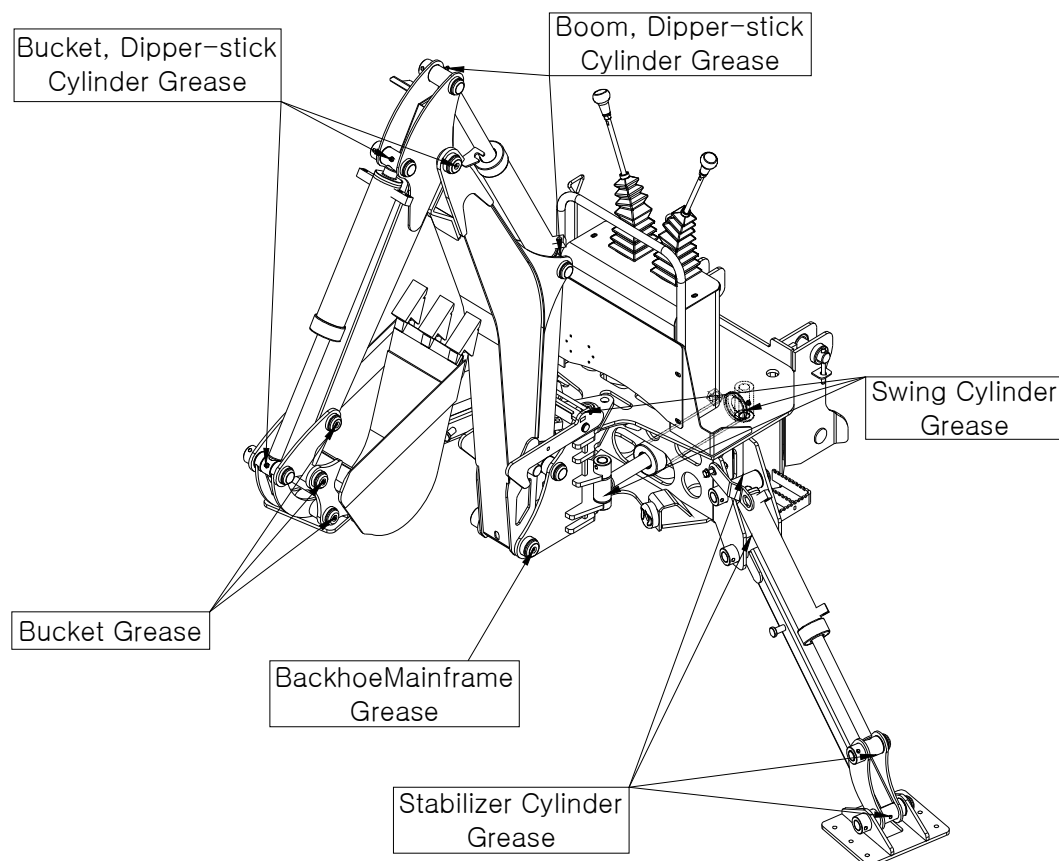


5. Assemble 4-M8 bolts and 4-M8 nut for assembling the Bracket(5)



6. Assemble 4-M8 bolts and 4-M8 nut for assembling the rubber damper(6)

LUBRICATION AND MAINTERNANCE



ITEM	SERVICE	SERVICE INTERVAL
Hydraulic System Oil Level	Replace	As specified in Tractor Operator's Manual
Hydraulic System Oil Level	Check	Daily/10 hours
Hydraulic System Oil/Filter	Replace	As specified in Tractor Operator's Manual
Tire Inflation	Check	Weekly/50 hours
Backhoe Pivot Points	Lubricate	Daily/10 hours
Backhoe Hydraulic Lines, Hoses, Connections	Check for leaks, wear	Daily/10 hours
Boom, Dipperstick, Swing and Bucket cylinder rod packings	Check for seepage, service as needed	Daily/10 hours
Pivot pin bolts and dust covers	Check, replace if missing	Daily/10 hours
Friction of All pins	Check, replace if necessary	Daily/10 hours
Backhoe mount hardware	Check visually	Daily/10 hours
Bolts and Nut release	Re-torque	Every 25 hours

LUBRICATION AND MAINTERNANCE



CAUTION:

Do not perform service or maintenance Operations with backhoe raised off the ground. For additional access to tractor components remove backhoe.

Important:

Lower the backhoe to the ground and relieve pressure in backhoe hydraulic lines prior to performing any service or maintenance operations on the tractor or backhoe.



CAUTION:

Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood rather than your hands to search for suspected leaks. If injured by escaping fluid, seek medical attention immediately. Serious infection or reaction can develop if correct medical treatment is not administered immediately.

Refer to "Lubrication and Maintenance Chart" for quick reference to Maintenance Operations.



CAUTION:

Do not operate the backhoe if the fittings are leaking or if the hoses are damaged. A sudden line burst could cause the boom, dipperstick or bucket to drop suddenly, causing damage to the tractor or backhoe or injury to personnel.



CAUTION:

Operate the backhoe from the operator seat only.



CAUTION:

Do not stand or walk under a raised backhoe. Accidental movement of control lever or leak in hydraulic system could cause boom or dipperstick to drop, causing severe injury.

Check the tractor hydraulic system as outlined in the Tractor Operator's Manual.

Note:

When checking hydraulic system oil level, the backhoe should be on the ground and bucket fully retracted(all cylinders in retracted position).

Grease all backhoe pivot points daily(10 hours). Refer to Tractor Operator's Manual for lubricant recommendations.

Inspect hydraulic hoses, connections, control valve and cylinders for evidence of leakage.

Tractor tires should be maintained at maximum recommended inflation to maintain normal tire profile with added weight of backhoe/material. Unequal rear tire inflation can result in bucket not being level to the ground.

TROUBLE SHOOTING

This Trouble Shooting Chart is provided for reference to possible backhoe operational problems.

Determine the problem that best describes the operational problem being experienced and eliminate the possible causes as listed by following the correction procedures.

PROBLEM	POSSIBLE CAUSE	CORRECTION
Swing, Boom, Dipperstick and Bucket Cylinders	Low hydraulic fluid level.	Check and replenish hydraulic fluid.
	Hydraulic hoses connected improperly.	Check and correct hydraulic hose connections.
	Hydraulic hoses to/from control valve blocked	Check for damage(kinked) hoses, etc.
	Backhoe control valve or tractor main relief valve stuck open.	Check system pressure. Repair or replace relief valve. Refer to the Tractor Operator's Manual
	Low system pressure supplied from hydraulic pump.	Check system pressure. Repair or replace pump.
	Control valve linkage broken.	Inspect. Repair as required.
	Quick disconnect coupler(s) are not fully connected or "Flow Check"	Check coupler connections. Replace coupler(s) if necessary.
	Hydraulic hose or tubeline blockage.	Check for evidence of damage to hoses or tubelines that would block flow of oil between cylinders and control valve.
	Cylinder piston assembly defective(not sealing)	Check cylinders for internal leakage as described in service section under cylinder leakage tests.
	control valve blockage.	Inspect for blockage. Disassemble valve if necessary.
Cylinders operate in wrong direction relative to control valve lever position.	Hydraulic hoses connected incorrectly.	Correct hydraulic hose connections.
Aeration of Hydraulic Fluid(Generally indicated by foamy apperance of fluid).	Low hydraulic fluid level.	Check and refill hydraulic system to proper level.
	Air leaking into suction side of hydraulic pump.	Check for loose or defective connections between reservoir and hydraulic pump.
	Hydraulic fluid foaming due to improper hydraulic oil usage.	Refer to Tractor Operator's Manual and replace hydraulic oil using recommended hydraulic oil.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Slow or erratic move of Cylinders (Noisy operation of cylinders)	Low hydraulic fluid level.	Check and replenish hydraulic fluid.
	Cold hydraulic fluid.	Allow hydraulic system to warm up to operating temperature.
	Engine R.P.M. too slow(hydraulic pump R.P.M. too slow).	Increase engine speed to obtain satisfactory backhoe operation.
	Excessive weight in bucket. Material weight exceeds maximum specified backhoe capacity.	Reduce material load. (Digging load)
	Control valve linkage binding/defective.	Check control valve linkage and repair if worn/defective.
	Aeration of hydraulic fluid	Refer to "Aeration of Hydraulic Fluid".
	Quick disconnect coupler restriction or coupler "Flow checks"	Check coupler connections. Repair or replace.
	Hydraulic hose or tubeline restriction(hoses/tubline) kinked or pinched.	Check hoses and tubelines for evidence of restriction.
	Boom, Dipperstick or Bucket cylinder piston assembly leakage.	Check cylinders for leakage. Repair as needed.
	Relief valve erratic or set below specifications.	Check and reset relief valve. Setting as needed.
	Control valve leaking internally.(hypassing fluid within valve).	Replace control valve and recheck operation.
	Hydraulic Oil viscosity too heavy or Incorrect oil	Check oil number and viscosity, Refill correct hydraulic oil.
Inadequate lifting capacity	Engine R.P.M. too slow.	Increase engine R.P.M.
	Excessive load – material weight exceeds specified loader capacity.	Reduce Load.
	Relief valve setting below specifications.	Check and reset relief valve setting as needed.
	Bucket, Boom and Dipperstick cylinder piston assembly leakage.	Check cylinders for leakge. Repair as needed.
	Control valve leaking internally	Replace control valve and recheck operation.
	Hydraulic pump defective.	Refer to "Hydraulic Pump Capacity Inadequate".

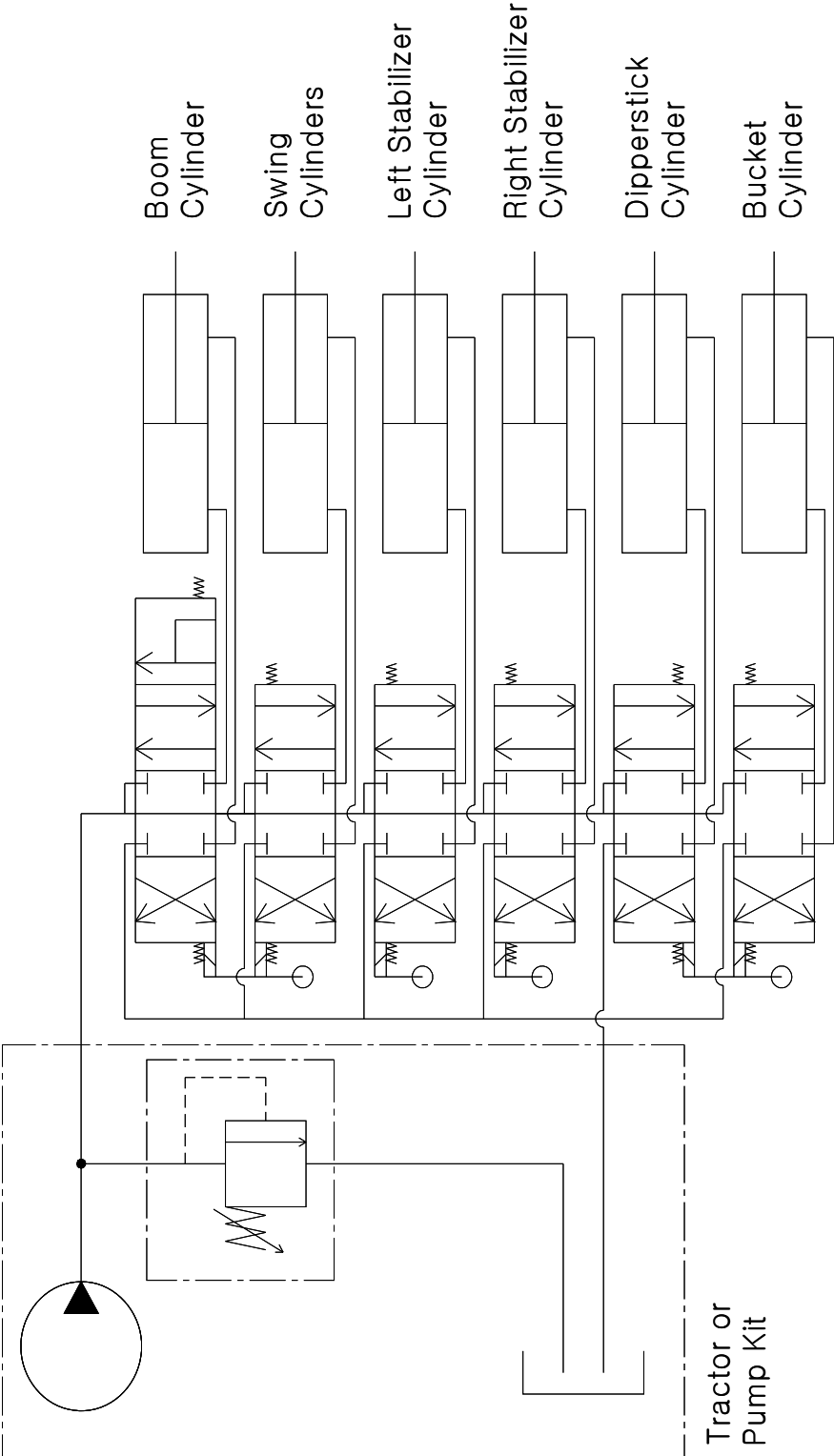
TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
System relief valve squeals.	Hydraulic Oil viscosity too heavy or Incorrect oil	Check oil number and viscosity, Refill correct hydraulic oil.
	Excessive load in bucket. Weight exceeds specified backhoe capacity.	Reduce load.
	Relief valve setting below specifications.	Check and reset valve setting as needed.
	Hydraulic hose, tubeline or quick disconnect coupler restriction.	Check for evidence of restriction in hydraulic oil flow. Repair or replace defective components.
Backhoe drops with control valve spool in "centered" position (no external oil leakage evident.)	Cylinder piston assembly leakage.	Check cylinders for leakage.
Note: A gradual drop over an extended period of time is a normal condition.	Control valve internal leakage.	Replace control valve and recheck.
Control valve spool(s) will not return to centered position.	Control lever linkage binding.	Determine origin of binding and repair.
	Control valve spool centering is broken.	Replace centering spring.
	Control valve spool binding in valve body spool bore.	Disassemble valve for inspection and repair.
External hydraulic fluid leakage.	Loose hydraulic connection.	Tighten loose connections.
	Defective hydraulic hose, tubeline, adapter fitting or adapter fitting o-ring.	Check for origin of oil leak and replace defective part.
	Control valve o-rings defective.	Replace defective o-rings.
	Control valve spool or body damaged or worn.	Replace control valve.
	Cylinder rod packing set leakage.	Check cylinders for leakage. Repair as needed.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Hydraulic pump capacity inadequate.	Cold hydraulic fluid.	Allow hydraulic fluid to warm up to operating temperature.
	Engine R.P.M. too slow.	Increase engine R.P.M.
	Low hydraulic fluid supply.	Refer to Tractor Operator's Manual for service recommendations.
	Hydraulic hose restriction.	Check for evidence of restriction in hydraulic hoses.
	Hydraulic pump defective.	Refer to Tractor Operator's Manual for recommended service procedures. Replace hydraulic pump if determined to be defective.
cylinder rod bend when lift cylinders extended.	Excessive shock load on lift cylinders during transport.	Replace defective parts. Review and observe proper and safe operational practices.

HYDRAULIC SYSTEM SCHEMATIC



TORQUE TIGHTENING CHART

MINIMUM HARDWARE TIGHTENING TORQUES IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

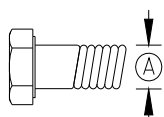
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

Fasteners must always be replaced with the same grade as specified in the manual parts list.

Always use the proper tool for tightening hardware : SAE or SAE hardware and Metric for metric hardware.

Make sure fastener threads are clean and you start thread engagement properly.

INCH HARDWARE



SAE SERIES TORQUE CHART



SAE Grade 2
(No Dashes)

SAE Bolt Head
Identification



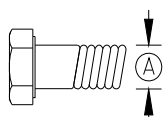
SAE Grade 5
(3 Radial Dashes)



SAE Grade 8
(6 radial Dashes)

 Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"	110	149	170	230	240	325
3/4"	1-1/8"	192	261	297	403	420	569
7/8"	1-5/16"	306	416	474	642	669	907
1"	1-1/2"	467	634	722	979	1020	1383

METRIC HARDWARE



METRIC SERIES TORQUE CHART



Metric
Grade 8.8

Metric Bolt Head
Identification



Metric
Grade 10.9

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	COARSE THREAD				FINE THREAD				Ⓐ Diameter & Thread Pitch (Millimeters)
		MARKING ON HEAD				MARKING ON HEAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
		N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	
6 x 1.0	10mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16mm	39	29	54	40	41	30	57	42	10 x 1.25
12 x 1.75	18mm	68	50	94	70	75	55	103	76	12 x 1.25
14 x 2.0	21mm	109	80	151	111	116	87	163	120	14 x 1.5
16 x 2.0	24mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

PART ILLUSTRATIONS

GENERAL INFORMATION

Illustrations

The individual parts in their normal relationship to each other. Reference numbers are used in the illustrations. These numbers correspond to those in the "Number" column and are followed by the quantity required and description.

Directional Reference

"Right hand" and "left hand" sides are determined by standing at the rear of the unit and facing in the direction of forward travel.

Parts Order

Orders must give the complete description, correct part number, the total amount required, the product model, all the necessary serial numbers, the method of shipment and the shipping address.

Instructions

1. GROUP NAME

: Detail classification name for parts.

2. SECTION NAME

: Classification name for parts.

3. COMPONENTS

: The components of an assembly are identified by a bracket.

4. NO.

: Reference numbers are assigned to parts in the figure.

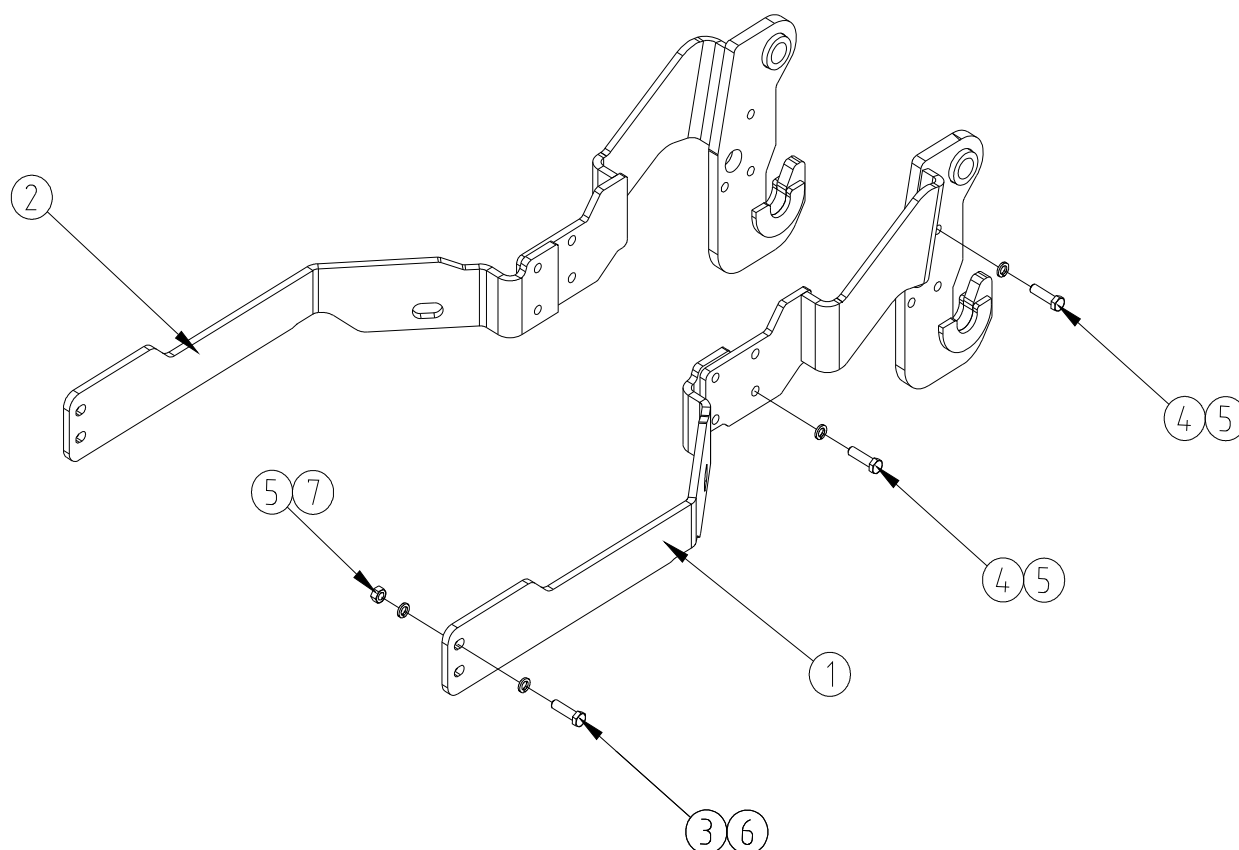
INTERCHANGEABILITY

: Indicates the interchangeability of parts due to design change

	Indicates that a new part can be used instead of an old part when you order this part, please order new part.
	Indicates that either parts can be used.
	Indicates that either parts can not be used.
 ~4265-99999 5265-00001~	Indicates that a part has a serial number break. When you order this part, please order a part according to the serial number of the Loader.

★ Due to our policy of continuously improving products, The information contained herein is subject to change without notice.

SUBFRAME ASSEMBLY

[illegible]