


SAFETY PRECAUTIONS

 The safety of the operator was a prime consideration in the design of this backhoe. Proper shielding, convenient controls, simple adjustments, and other safety features have been built into this backhoe.

PREPARATION -

Know your controls. Read this operator's manual and the manual provided with your tractor. Learn how to stop the tractor, the engine, and the backhoe quickly in an emergency.

Be sure the area is clear of underground obstructions.

Position a barricade around the work area.

Provide adequate front end weight to counter-balance the backhoe at all times.

Keep all bystanders a safe distance away.

Decal, 70020-00741 opposite, is located on the operator's console.

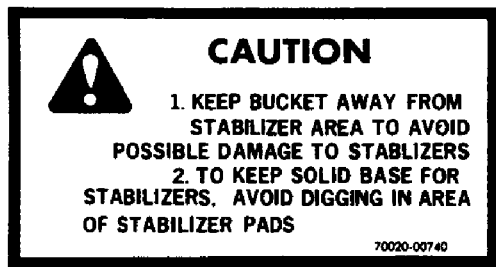
OPERATION -

Operate the backhoe from the operator's seat only.

Allow only one person to operate the backhoe at any time.

Never dig with the backhoe unless the stabilizers are properly set.

Do not dig under stabilizers or tractor-backhoe. Soft ground or sandy soil can cause cave-ins. The following decal is located on the operator's console:



Watch for overhead wires. Do not touch wires with any part of the backhoe.

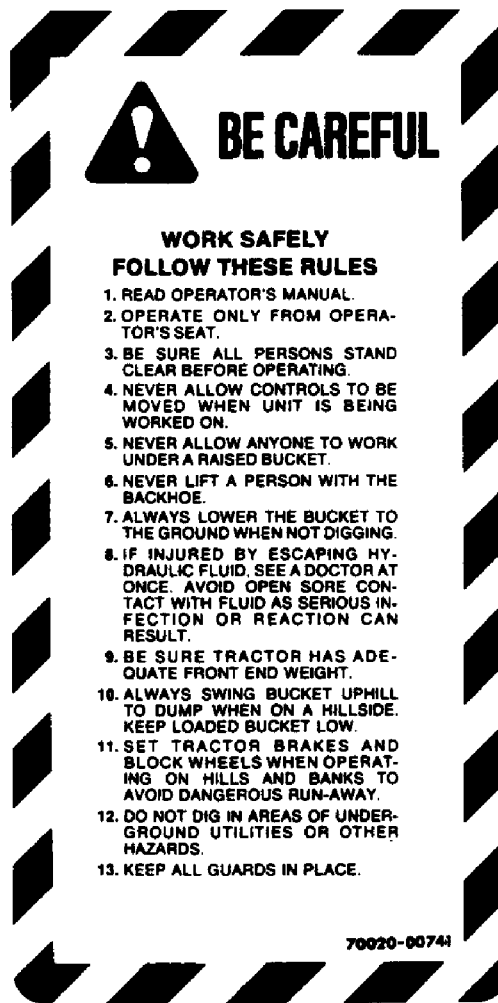
Never allow a person to work under a raised bucket.

Never lift a person with the backhoe.

Do not use the backhoe bucket as a battering ram.

Always lower the bucket to the ground before leaving the backhoe seat.

Never leave the tractor unattended with the engine running.



TRANSPORTATION -

Do not drive the tractor near the edge of a ditch or excavation.

The rate of travel and the orientation of the backhoe on hillsides and curves should always be such that there is no danger of tipping.

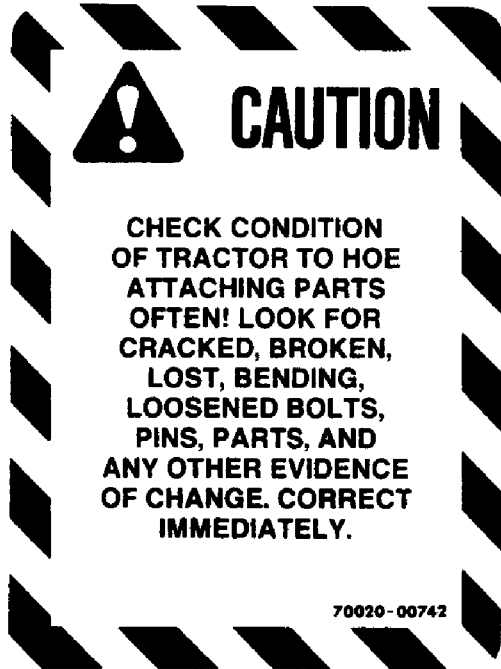
Always use accessory lights and devices, when transporting on a road or highway, to warn operators of other vehicles. Check your local government regulations. Be sure that the SMV emblem is visible to the rear.

KUBOTA TRACTOR
B670 BACKHOE

Figure: 2 - SAFETY PRECAUTIONS/BACKHOE - GENERAL OPERATION

ADJUSTMENTS AND INSPECTION -

Check pins that attach backhoe to tractor and all pivot pins for tightness several times daily. The following decal is located on the operator's console:



Do not oil, grease, or adjust the backhoe while it is in motion.

Do not change any backhoe relief valve settings. They are factory set for best backhoe performance and safety.

Escaping fluid, under pressure, can have sufficient force to penetrate the skin and cause serious injury. Be sure to relieve all pressure before disconnecting lines. Be sure all connections are tight and that lines, pipes, and hoses are not damaged before applying pressure to the system.

Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood - not your hands - to search for suspected leaks.

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


Protect your eyes - wear safety glasses.

Guard against injury when driving connecting pins or performing any repair in which particles can chip from work piece or striking tool.

Do not remove any guards on backhoe or tractor. The following decal is located on the operator's console:



BACKHOE - GENERAL OPERATION

 **CAUTION** - To avoid possible injury, observe the following safety rules **BEFORE** operating the backhoe:

1. Be sure area is clear of underground obstructions.
2. Position a barricade around work area.
3. Provide adequate front end weight to counter-balance backhoe at all times.
4. Keep bystanders a safe distance away.

DIRECTIONS -

The terms right, left, front, and back are determined from the position of the operator when seated in the operating position on the backhoe.

ENGINE SPEED -

The speed at which the backhoe operates is partially dependent upon engine RPM. Use moderate engine speed to start and increase it as your experience permits.

CONTROLS -

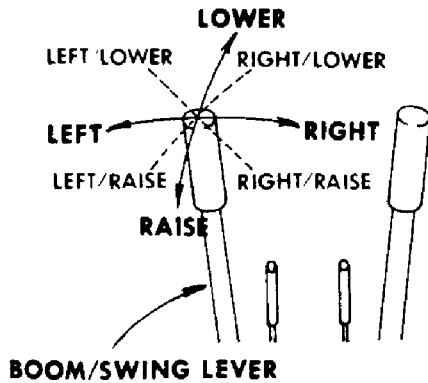
The Model B670 Backhoe has two major control levers plus the stabilizer control levers. These controls are located on the control panel directly ahead of the operator. Following is a list of the controls with the function of each reading from left to right:

1. Boom/Swing:

The boom/swing control lever, next page, controls four functions - raising or lowering the boom and swinging it to the left or right.

KUBOTA TRACTOR
B670 BACKHOE

Figure: 3 - BACKHOE - GENERAL OPERATION (CONTINUED)



LOWER the boom by pushing the control lever forward. RAISE the boom by pulling lever back.

SWING LEFT by moving the lever left and SWING RIGHT by moving the lever to the right.

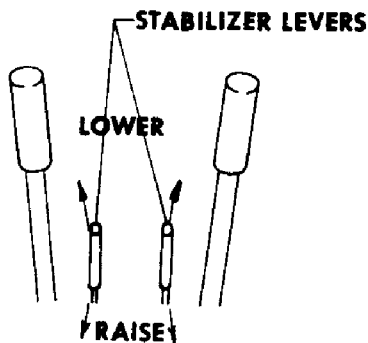
By moving the lever to one of the intermediate positions, the boom can be swung left or right at the same time it is being raised or lowered.

SWING LEFT AND LOWER the boom by moving the control lever forward and to the left.

SWING LEFT AND RAISE the boom by moving the control lever back and to the left.

SWING RIGHT AND LOWER the boom by moving the lever forward and to the right.

SWING RIGHT AND RAISE the boom by moving the lever back and to the right.



2. Left Hand Stabilizer:

LOWER the LH stabilizer by pushing the control lever forward. RAISE the LH stabilizer by pulling lever back.

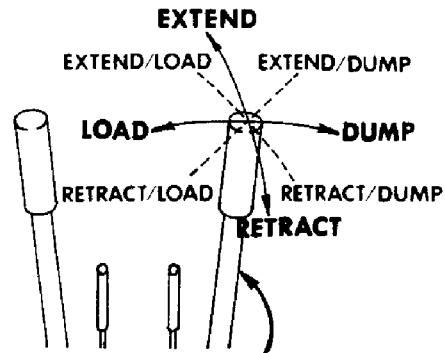
3. Right Hand Stabilizer:

LOWER the RH stabilizer by pushing the control lever

forward. RAISE the RH stabilizer by pulling lever back.

4. Dipperstick/Bucket:

The dipperstick bucket control lever, shown below, controls four functions - extending or retracting the dipperstick and loading or dumping the bucket.



DIPPERSTICK/BUCKET LEVER

EXTEND the dipperstick by pushing the control lever forward. RETRACT it by pulling the lever back.

LOAD the bucket by moving the control lever to the left. DUMP it by moving the lever to the right.

By moving the lever to one of the intermediate positions, the dipperstick can be extended or retracted at the same time the bucket is being loaded or dumped.

EXTEND AND LOAD the bucket by moving the lever forward and to the left.

RETRACT AND LOAD the bucket by moving the lever back and to the left.

EXTEND AND DUMP the bucket by moving the lever forward and to the right.

RETRACT AND DUMP the bucket by moving the lever back and to the right.

In general the direction of movement of a control lever corresponds to the movement of the operating member.

OPERATING THE BACKHOE -



CAUTION - To avoid possible injury, observe the following safety rules WHEN operating the backhoe:

1. Operate the backhoe from the operator's seat only.
2. Lower the stabilizers until the rear of the tractor is totally supported by them.

KUBOTA TRACTOR
B670 BACKHOE

Figure: 5 - BACKHOE - GENERAL OPERATION (CONTINUED)/SERVICE

Raise the bucket to the top of the trench and dump it on the spoil pile. With a little practice, raising, swinging, and dumping can be accomplished in one smooth operation.

When loading high, continue rolling the bucket, as it is being raised, to prevent spilling the contents.

2. Using The Dipperstick To Dig:

Lower the bucket to the digging area, with bucket pivot 18 to 24 inches forward of the boom/dipper pivot, see diagram. Rotate the bucket until the cutting edge teeth are flat on the ground.

Using only the dipperstick cylinder, retract the dipperstick, dragging the bucket through the trench until it is about half full. Begin to roll the bucket while you continue to retract the dipperstick.

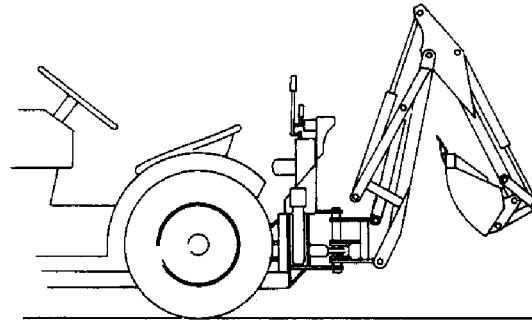
Raise the bucket and swing the boom until the bucket can be dumped in the spoil area.

TRANSPORTING THE BACKHOE



CAUTION - To avoid possible injury, observe the following safety rules when **TRANSPORTING** the backhoe:

1. Travel slowly over rough terrain, on hillsides, and around curves to prevent tipping.



Before mounting tractor, position the backhoe for transport by raising boom, crowding dipperstick in, curling bucket in, and raising the stabilizers, as shown.

When transporting for long distances, periodically examine the backhoe and raise it back up to full transport height. It is normal for the hoe to slowly settle while being transported.

SERVICE



CAUTION - To avoid possible injury, observe the following safety rules when **SERVICING** the backhoe:

1. Do not oil, grease, or adjust the backhoe while it is in motion.
2. Do not change any backhoe relief valve settings. They are factory set for best backhoe performance and safety.
3. Escaping fluid under pressure can have sufficient force to penetrate the skin and cause serious injury. Be sure to relieve all pressure before disconnecting lines. Be sure all connections are tight and that lines, pipes, and hoses are not damaged before applying pressure to the system.
4. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood - not your hands - to search for suspected leaks.
5. See a doctor at once if injured by escaping fluid. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

6. Protect your eyes - wear safety glasses. Guard against injury when driving connecting pins or performing any repair in which particles can chip from work piece or striking tool.

BEGINNING OF SEASON -

Remove all protective covering.

Check hydraulic hoses for deterioration and replace if necessary.

Check hydraulic system for loss of fluid and fill to proper level if necessary.

Lubricate all grease fittings and oil handle linkage.

Tighten all loose bolts, nuts, and set-screws.

Inspect bucket teeth and sharpen or replace them if necessary.

Operate the backhoe slowly for a short time before placing the unit under full load.

BLEEDING BACKHOE HYDRAULIC SYSTEM -

If the hydraulic hoses have been disconnected from the backhoe or tractor, all trapped air must be removed after the hoses are connected. Start tractor engine and operate backhoe through all movements fully, several times, to purge the system of air.

HYDRAULIC SYSTEM HOSES -

Oil leaks in the pressure side of the system can be located by carefully inspecting the external area of the hoses and fittings.

Check the return side of the system for leaks by examining the oil in the reservoir. If air is being drawn into the system, the oil will contain air bubbles and appear to foam.

When tightening connections, always use two wrenches.

IMPORTANT - Do not over-tighten fittings. Make them just tight enough to prevent leaks.

Never use teflon tape on pipe thread fittings. Always use a paste type sealer.

Hoses on any backhoe are very severely worked and will fail in time. Examine them regularly and replace any that show signs of failure. Pay careful attention to the routing of hoses so they can move fully and freely, without kinking, and can not be pinched or cut by any part of the backhoe.

HYDRAULIC SYSTEM RESERVOIR -

Maintain the reservoir fluid level at 2-½ inches below the tank top when the bucket is extended to full reach, bucket rolled back for loading and resting on the ground, stabilizers fully raised. Do not over-fill, fluid may be forced out of the breather filler cap.

Fill with:

SAE 10W40 engine oil with API "SD" classification in northern climates.

SAE 40W engine oil with API "SD" classification in southern climates.

Change oil every 200 hours or more often if necessary.

HYDRAULIC SYSTEM FILTER -

Use any good quality automotive filter:

AC	PF2
APCO	KF-1/APH-8A
FRAM	PH8A
HASTING	P115
NAPA	1015
PUROLATOR	PER-1
WIX	PC-15

Change filter every time oil is changed.

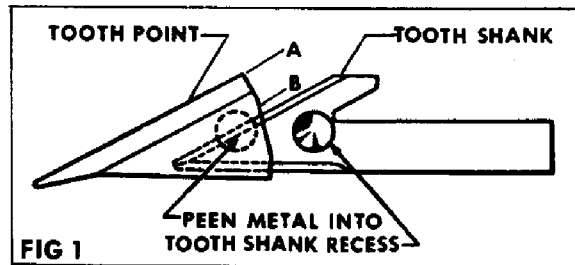
HYDRAULIC SYSTEM PRESSURE -

The hydraulic system is set to operate up to 1500 PSI by the relief valve in the backhoe control valve.



CAUTION - Never adjust the relief valve setting to above 1500 PSI. The backhoe becomes unstable and could upset the tractor causing injury and equipment damage.

BUCKET TOOTH POINTS -



The bucket tooth points are self-sharpening and will require little attention; however, these points on the bucket shanks can be replaced when they become badly worn or broken.

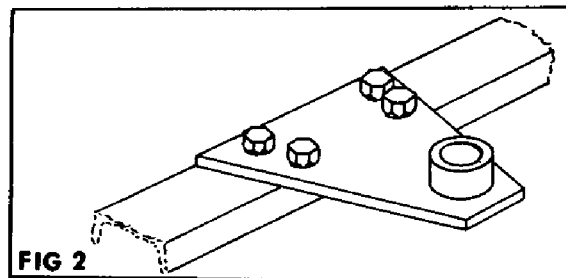
A tooth point can be removed from the welded tooth shank by hammering at (A) on the tooth point or by driving a chisel at (B) just between the tooth point box section and the tooth shank. Install the new point and anchor it to the shank by peening at the location shown, Fig 1.

If a tooth shank breaks off, becoming lost or damaged so that it can not hold a tooth point, a new shank should be welded to the bucket in its place.

TIGHTENING NUTS AND BOLTS -

Periodically, check to be sure all bolts and nuts are tight. Tighten all hardware to torque requirements specified in torque chart on page 7.

Regularly (daily when hoe is new) check the four bolts that hold the top bearing plate to the frame channel. Bolts are located under the reservoir. Keep these bolts torqued to 140 ft lbs, Fig 2.






Check all pins for cotter pins, washers and retainers, replace if missing.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 7 - SERVICE (CONTINUED)

TORQUE VALUES

Common bolts and nuts.

Tightening Torque \pm 20%

SIZE	GRADE 2 	GRADE 5 	GRADE 8 
1/4-20 NC	70 in lb	115 in lb	165 in lb
1/4-28 NF	85 in lb	140 in lb	200 in lb
5/16-18 NC	150 in lb	250 in lb	350 in lb
5/16-24 NF	165 in lb	270 in lb	30 ft lb
3/8-16 NC	260 in lb	35 ft lb	50 ft lb
3/8-24 NF	300 in lb	40 ft lb	60 ft lb
7/16-14 NC	35 ft lb	55 ft lb	80 ft lb
7/16-20 NF	45 ft lb	75 ft lb	105 ft lb
1/2-13 NC	50 ft lb	80 ft lb	115 ft lb
1/2-20 NF	70 ft lb	105 ft lb	165 ft lb
9/16-12 NC	75 ft lb	125 ft lb	175 ft lb
9/16-18 NF	100 ft lb	165 ft lb	230 ft lb
5/8-11 NC	110 ft lb	180 ft lb	260 ft lb
5/8-18 NF	140 ft lb	230 ft lb	330 ft lb
3/4-10 NC	150 ft lb	245 ft lb	350 ft lb
3/4-16 NF	200 ft lb	325 ft lb	470 ft lb

NOTE - See tractor instruction manual or your tractor dealer for tightening of metric bolts.

LUBRICATION -

Economical and efficient operation of any machine is dependent upon regular and proper lubrication of all moving parts with a quality lubricant.

All parts provided with grease fittings should be lubricated with a good quality chassis lube type grease. If any grease fittings are missing, replace them immediately. Clean all fittings thoroughly before using grease gun.

Lubricate all grease fittings at least twice daily, once at the beginning of operation and again approximately halfway through the work day.

See Fig 3 for the location of all grease fittings: each swing cylinder: three on rod end and one on base end, each stabilizer cylinder: one on rod end and one on base end.

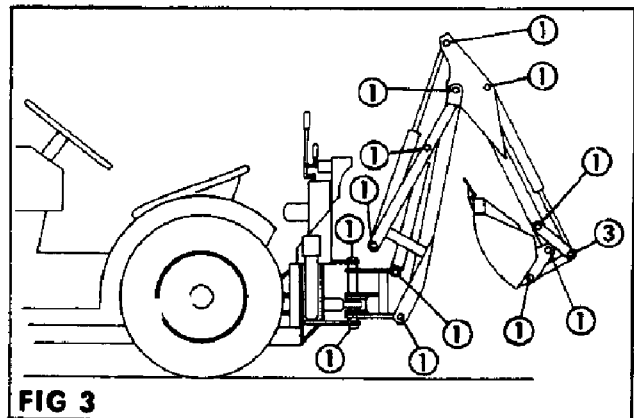


FIG 3

The following locations should be oiled with SAE 30 oil:

1. Control valve handle linkage.
2. Stabilizer leg pivots.

IMPORTANT - Avoid excessive greasing. Dirt collects on exposed grease and greatly increases wear. After greasing, wipe off excessive grease from fittings.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 8 - HYDRAULIC TROUBLE SHOOTING

HYDRAULIC TROUBLE SHOOTING

PROBLEM:	POSSIBLE CAUSE -	AND CORRECTION:
Backhoe fails to lift or swing:	Low oil supply	add oil.
	Pump not running	engage PTO drive.
	Improper hose hook-up	check hydraulic diagram and reinstall hoses properly.
	Worn control valve section	replace section.
	Pump damaged or worn	replace pump.
	Broken hydraulic line	check for leaks, replace line.
	Faulty relief valve	clean relief valve or replace inlet section with relief.
	Lift or swing restrictors improperly assembled	assemble correctly.
	Jammed swing linkage	remove interference.
	Bent piston rod	replace or repair cylinder.
Backhoe lifting or swinging too slowly:	Cold oil	warm oil with engine at idle.
	Engine speed too slow	open throttle.
	Oil leaking past control valve	replace or repair worn section.
	Oil too heavy	use recommended oil.
	Scored cylinder	replace cylinder.
	Pump damaged or worn	replace or repair pump.
	Oil leaking past cylinder packings	replace packings.
Backhoe fails to hold up load; note - all loads will settle down over a period of time, this is normal.	Pinched supply hose	replace hose, route to prevent kinking or pinching.
	Broken hydraulic lines	check for leaks and replace line.
	Oil leaking past cylinder packings	replace packings.
Oil heating:	Oil leaking past control valve	replace or repair worn section.
	Dirty oil	drain oil, replace filter, and refill.
	Control valve handle held open too long	return control handle to neutral position when not in use.
	Oil too light in hot weather	use recommended oil.
	Engine running too fast	reduce throttle.
External leakage:	Damaged hydraulic lines	replace damaged lines.
	Damaged O-rings between valve sections	repair control valve.
	Damaged O-rings on valve spools	repair control valve.
	Cylinder seals damaged	repair cylinder.
Swing cylinder malfunctioning:	Broken hydraulic line	check for leaks and replace line.
	Oil leaking past packing or seals	replace packing or seals.
	Swing restrictors improperly assembled	assemble correctly.
	Faulty cross-over relief valve	clean or replace.
Control valve sticking or working hard:	Scored bore or bent spool	replace valve section.
	Control linkage misaligned	correct misalignment.
	Return spring binding or broken	replace spring.

KUBOTA TRACTOR
B670 BACKHOE

Figure: 9 - HYDRAULIC TROUBLE SHOOTING (CONTINUED)/REMOVAL FROM TRACTOR

Foreign matter in spool bore	clean valve.
Dirty oil	drain oil, replace filter, and refill.
Spongy or jerking action of cylinders and/or very noisy pump action:	Low oil supply
	add oil.
	Cold oil too stiff
	use recommended oil.
	Air in system
	purge system of air by operating machine at maximum oil flow and through full movements.
Pinched suction line to pump	replace hose, route to prevent kinking or pinching.

REMOVAL FROM TRACTOR AND STORAGE

The backhoe is self-assisting during removal and reattaching procedures. For removal and storage follow these steps:

1. Put the stabilizers down and lift the backhoe slightly.

2. Move the boom and dipperstick, with or without bucket, to a near vertical position, see drawing. Rest the dipperstick, with a little down force, solidly on the floor.

3. Place blocking under the frame at (A) to support the hoe. The round crossshaft should be aligned with the hooks as shown at (B).

4. Remove two bolts at (C). Move the tractor a few inches away from the hoe. To facilitate this procedure the hoe can still be hydraulically; raised, lowered, or moved to release the connection points of the carrying force.

5. With the hoe supported by blocking at (A), drop the frame about an inch at (D) by increasing the boom down pressure. Add blocking (E) under the swing frame.

6. Leave the stabilizers firmly in contact with the floor for added stability. The dipperstick should remain on the floor.

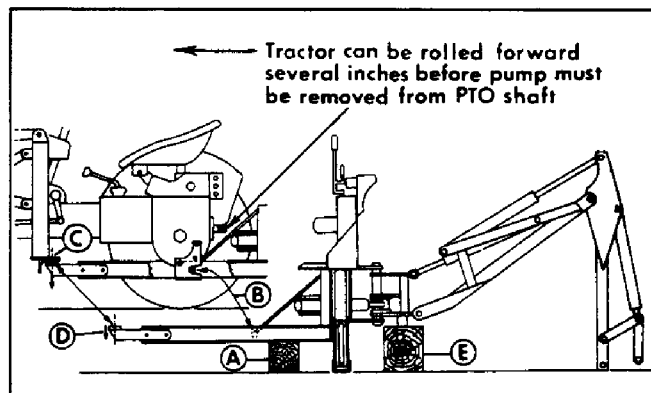
7. The hydraulic system can now be deactivated. Remove the pump from the PTO shaft. Hoses and oil lines will not be disconnected during correct removal and storage procedure. The hydraulic system should always remain complete.

8. Slowly drive the tractor forward, away from the backhoe. Be careful that all parts clear during separation and the backhoe remains solidly supported by blocking.

9. The seat adapter can remain in place on the tractor.

10. Refer to the attaching kit instructions for help with the removal and reattaching.

11. Reverse this procedure to reattach backhoe. Do not remove any blocking or raise the dipperstick or stabilizers until the round cross-shaft is in place on the hooks at (B) and the hoe is bolted to the loader at (C).



END OF THE SEASON -

If disconnected install capplugs on any pressure and return hoses to prevent contamination of the hydraulic fluid system.

Drain hydraulic system and replace with new hydraulic fluid. Replace the hydraulic filter.

Coat the exposed piston rods of all hydraulic cylinders with a grease or corrosion preventive.

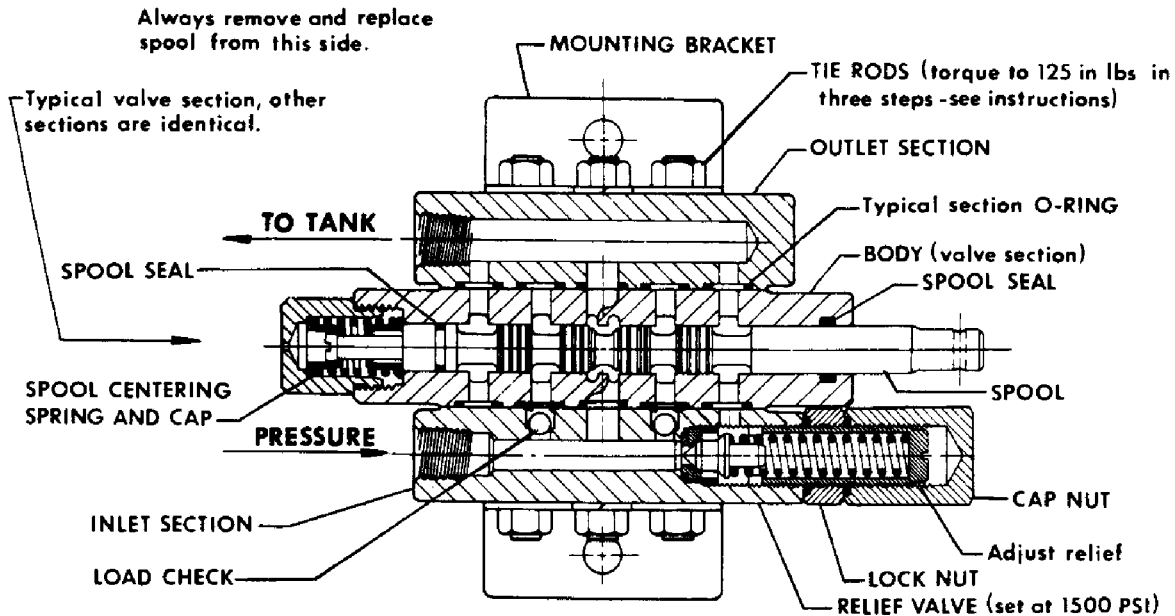
Lubricate all grease fittings and oil all pivots requiring oil; control handle linkage and stabilizer pivot pins.

Clean the exterior of the unit to remove all dirt, grease, and any other foreign material. To prevent rust touch up painted surfaces that have been scratched or chipped.

If possible, store the backhoe in a dry, protected place. If it is necessary to store the backhoe outside cover it with a protective material.

KUBOTA TRACTOR
 B670 BACKHOE
 Figure: 10 - VALVE REPAIR - DISASSEMBLY

VALVE REPAIR - DISASSEMBLY



DISASSEMBLY -

1. Remove the valve from the backhoe and clean the exterior thoroughly.
2. Before progressing further, be sure the work area is very clean.
3. Remove nuts, mounting bracket, and washer from inlet end of valve.

NOTE - When removing the inlet section which will have load checks, watch for the check balls. They will fall free from the inlet section when removed. Remove ball retainers from the inlet side of the first valve section too.

4. Remove the inlet section. Between the inlet, each center section and the outlet, are three (3) mylar shims, one over each tie rod. Keep these shims, they will be needed during assembly.
5. Remove valve sections, one at a time, removing O-rings and mylar shims between each section.
6. After all valve sections are removed, detach stabilizer handle assemblies from sections two and five.
7. Remove the spring cap from the valve section.

8. Remove the spool from the body. Push spool on handle end, remove from spring cap end. Keep body and spool together, they are a matched set. **Do NOT interchange.**

9. Remove O-ring from inside bore on handle end of body.

10. To remove the O-ring on the spool, remove the spring centering assembly, then remove the O-ring.

11. Wash all parts in clean solvent, then dry with a low pressure air hose.

ASSEMBLY -

1. Inspect all parts before assembly. Remove any nicks or burrs from body and spool. Remove pipe sealant from ports. Replace any parts or components that are worn or damaged.

2. Lubricate all O-rings with clean hydraulic system oil. Note, it is wise to use all new O-rings.

3. Replace O-ring on handle end of body. Be sure O-ring is not twisted in groove.

4. Replace O-ring on spool making sure it is not twisted.

5. Replace spring centering assembly on end of spool. Torque to 30 in lbs.

6. Lubricate spool with clean hydraulic system oil. Place spool in its bore with a slight twisting action, this will prevent the possibility of O-ring shearing.

NOTE - No O-ring is used on the centering spring cap.

KUBOTA TRACTOR
B670 BACKHOE

Figure: 11 - VALVE REPAIR - DISASSEMBLY (CONTINUED)

7. Replace the centering spring cap.

8. Replace the handle assemblies on sections two and five for stabilizers.

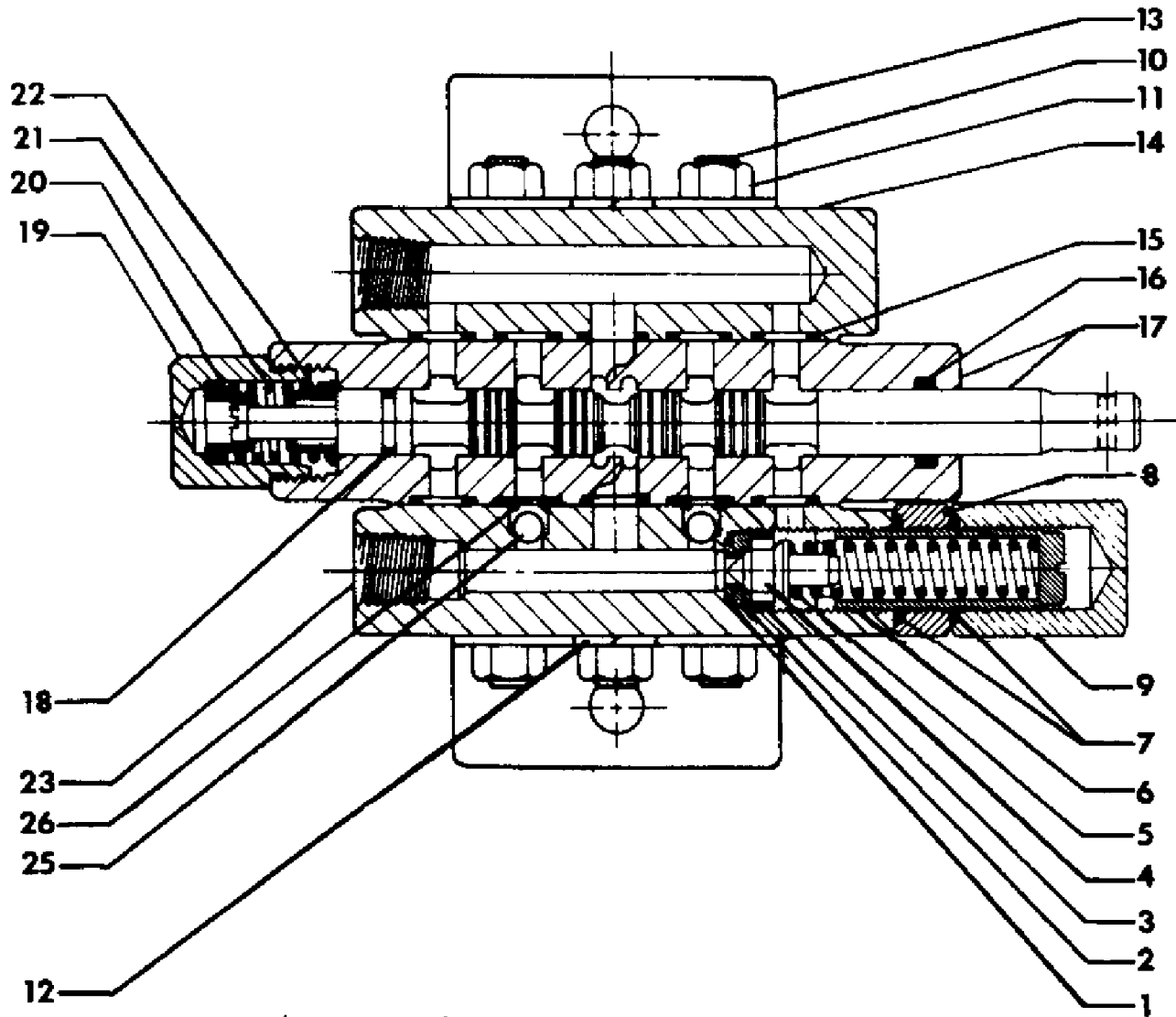
9. Install one nut on each tie rod. Place two tie rods through the mounting bracket. Place one flat washer on the third tie rod. Push the tie rods through the outlet section. An aid in assembling sections is to place the mounting bracket in a vice or on the edge of a flat surface with the tie rods in a vertical position. Replace O-rings on outlet section. Place one mylar shim over each tie rod and push them down onto the outlet sections. Install a valve section over the tie rods. Place the O-rings and mylar shims on this section. Replace remaining sections as above.

10. Installation of load checks; before installing O-rings in the section next to the inlet place the ball retainers, with center prongs up, in the flow passages on both sides of the center flow passage. Do not place retainers in the two outside passages. Place O-rings in the counter-bores. Place the mylar shims, one over each tie rod, on the section. Then stand the ball on the retainers.

11. Install the inlet section. Place the mounting bracket over the lower tie rods and install the two nuts. Place the flat washer over the top tie rod and install the nut.

12. Torque the tie rods in three steps of; 75 in lbs, 100 in lbs, and finally 125 in lbs each.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 12 - HYDRAULIC VALVE



24 - Mylar Shim (not shown)

KUBOTA TRACTOR
B670 BACKHOE
Figure: 12 - HYDRAULIC VALVE

Ref	Part Number	Qty	Description
1			* O-Ring (1 Per Valve)
2			* Seat (1 Per Valve)
3			* Retainer (1 Per Valve)
4			* Poppet (1 Per Valve)
5			* Spring (1 Per Valve)
6			* Adjusting Screw (1 Per Valve)
7			* O-Ring (2 Per Valve)
8			* Lock Nut (1 Per Valve)
9			* Cap Nut (1 Per Valve)
10	70020-00743		Tie Rod, Six-Spool (3 Per Valve)
11	70050-00017		Nut, 5/16 NC (6 Per Valve)
12	70020-00724		Washer, 5-16 SAE (2 Per Valve)
13	70020-00744		Bracket (2 Per Valve)
14	70020-00745		Outlet (1 Per Valve)
15			** O-Ring (5 Per Section)
16			** O-Ring (1 Per Section)
17			* Body and Spool (Matched) (6 Per Valve)
18			* O-Ring (1 Per Section)
19	70020-00746		Spring Cap (1 Per Section)
20	70020-00747		Spring Shaft (1 Per Section)
21	70020-00748		Spring (1 Per Section)
22	70020-00749		Spring Guide (2 Per Section)
23	70020-00750		Inlet with Relief, set at 1500 PSI (1 Per Section)
24			** Mylar Shim (3 Per Section)
25			** Load Check Ball (2 Per Valve)
26			** Load Check Retainer (2 Per Valve)
	70020-00753		Section Seal Kit, Consisting Of: Parts 15, 16, 18, 24 (1 Per Section)
	70020-00754		Load Check Kit, Consisting Of: Parts 25, 26 (1 Per Valve)
	70020-00752		Valve Section Complete (6 Per Valve)
	70020-00760	1	Six-Spool Valve Complete
			* Not Available As A Separate Repair Part, Order Complete Section.
			** Not Available As A Separate Repair Part, Order Kit.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 13 - HOSE DIAGRAM

Ref	Part Number	Qty Description
125	70050-00003	Hydraulic Cylinder, 2" Dia.
126	70020-00701	Hydraulic Cylinder, 2" Dia.
127	70020-00702	Hydraulic Cylinder, 2" Dia.
128	70020-00703	Hydraulic Cylinder, 2" Dia
129	70050-00023	Street Elbow, 1/4 NPT x 90 Degrees
130	70020-00759	Cushion Valve, 1000 PSI
131	70020-00760	Hydraulic Control Valve, Six-Spool, 1500 PSI
132	70020-00761	Hydraulic Hose, 1/4 NPT x 3/8 NPT x 13"
133	70020-00762	Hydraulic Hose, 1/4 NPT x 3/8 NPT x 20"
134	70020-00763	Hydraulic Hose, 1/4 NPT x 1/4 NPT x 42"
135	70020-00764	Hydraulic Hose, 1/4 NPT x 1/4 NPT x 65"
136	70020-00765	Hydraulic Hose, 1/4 NPT x 1/4 NPT x 92"
137	70020-00766	Hydraulic Hose, 1/4 NPT x 1/4 NPT x 108"
138	70010-00018	Adapter Union, 9/16-18 O-Ring x 3/8 NPT
139	70020-00769	Adapter Union, 9/16-18 O-Ring x 1/4 NPT
140	70050-00050	Adapter Union, 1/4 NPT x 1/4 NPT
141	70020-00770	Adapter Union, 3/8 NPT x 3/8 NPT x 90 Degrees
142	70050-00052	Insert Adapter, 3/8 NPT x 1/2 Hose Barb x 90 Degrees
143	70050-00063	Hose Clamp, 9/16 - 1-1/16
144	70020-00787	Return Hose, 1/2 ID x 32"
145	70020-00824	Restrictor Housing
146	70020-00825	Orifice Plate
147	70020-01065	Relief Valve, 1600 PSI
148	70020-01062	Hydraulic Hose, 1/4 NPT x 1/4 NPT x 28"
149	70020-01061	Adapter Union, 1/4 NPT x 1/4 NPT x 45 Degrees

Figure: 15 - BACKHOE - MAIN FRAME AND SWING FRAME

Ref	Part Number	Qty Description
1	70050-00003	Hydraulic Cylinder, 2" Diameter
2	70020-00701	Hydraulic Cylinder, 2" Diameter
3		* Carriage Bolt, 3/8 NC x 1"
4		* Bolt, 5/16 NF x 1-1/2
5		* Bolt, 5/16 NC x 1-3/4
6		* Bolt, 5/16 NC x 2"
7		* Bolt, 3/8 NF x 7/8
8		* Bolt, 3/8 NF x 1"
9		* Lock Nut, 5/16 NC
10		* Lock Nut, 5/16 NF
11	70050-00018	Nut, 3/8 NC
12		*Nut, 3/8 NF
13	70050-00026	Lockwasher, 5/16
14	70050-00027	Lockwasher, 3/8
15		* Lockwasher, 3/8 Shakeproof
16		* Flat Washer, 1/4
17	70050-00030	Flat Washer, 5/16
18	70050-00031	Flat Washer, 3/8
19	70020-00727	Machinery Bushing, 1-1/2 OD x 1" ID x 18 Ga.
20		* Cotter Pin, 3/32 x 3/4
21	70020-00731	Cotter Pin, 9/64 x 1" Hardened
22		* Cotter Pin, 3/16 x 1-1/4
23		* Cotter Pin, 1/4 x 1-1/2
24		* Cotter Pin, 5/16 x 2-1/2
25	70020-00737	Spring, 7/16 ID x 16 Ga x 1-3/4
26		* Roll Pin, 3/16 x 1"
27	70020-00755	Oil Filter
28	70020-00756	Breather
29	70020-00759	Cushion Valve, 1000 PSI
30	70020-00760	Six-Spool Valve, 1500 PSI
31	70020-00775	Bronze Bearing, 1-1/4 OD x 1" ID x 1"
32	70020-00776	Bronze Bearing, 1-3/4 OD x 1-1/2 ID x 1"
33	70020-00777	Wheel Nut, 9/16-18
34	70020-00778	Wheel Bolt, 9/16-18 x 1-1/8
35	70020-00779	Clevis Pin, 1/4 x 7/8
36	70020-00782	Bumper
37	70020-00784	Ball Joint
38	70090-00022	Handle Grip
39	70050-00065	Grease Fitting, 1/4 Self-Tapping
40	70020-00789	Filter Nipple
41	70020-00791	Pin Retainer
42	70020-00792	Main Frame Weldment
43	70020-00793	Pivot Plate Assembly
44	70020-00794	Swing Frame Weldment
45	70020-00797	Stabilizer Weldment
46	70020-00798	Upper Swing Link Weld
47	70020-00799	Lower Swing Link Weld
48	70020-00800	Reservoir Weldment
49	70020-00802	Yoke Link Weldment
50	70020-00803	Stabilizer Pad
51	70020-00805	Bumper Spacer
52	70020-00806	Pin, 5/8 Dia. x 3-1/2

KUBOTA TRACTOR
B670 BACKHOE

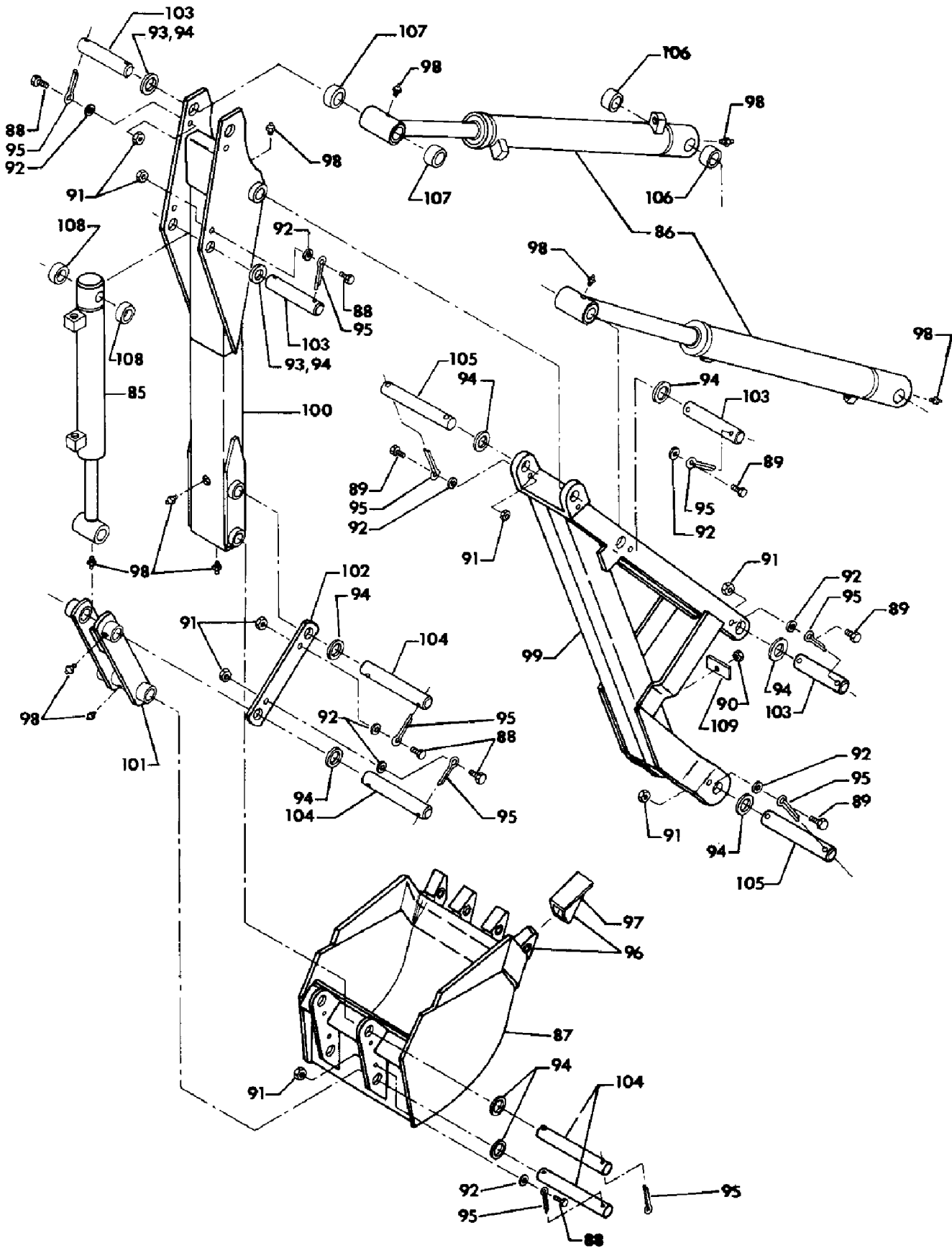
Figure: 15 - BACKHOE - MAIN FRAME AND SWING FRAME

Ref	Part Number	Qty Description
53	70020-00807	Pin, 5/8 Dia. x 5-7/8
54	70020-00808	Pin, 1" Dia. x 4-1/4
55	70020-00809	Pin, 1" Dia. x 4-1/4
56	70020-00813	Pin, 1" Dia. x 7-1/8
57	70020-00725	Flat Washer, 5/8 SAE
58	70020-00816	Handle Base
59	70020-00817	Handle Pipe
60	70020-00818	Cross Link
61	70020-00819	Center Link
62	70020-00820	Pivot Link
63	70020-00821	Spacer, 5/8 OD x 21/64 ID x 7/8
64	70020-00823	Handle Loop
65	70020-00826	Thrust Washer
66	70020-00783	U-Bolt, With Nuts
67	70020-00828	Pin, 5/8 Dia. x 4-15/16
68		* Pipe Plug, 1/4 NPT
69	70050-00016	Nut, 1/4 NC
70	70020-01063	Close Nipple, 1/2 NPT
71	70020-01064	Pipe Bushing, 1/2 NPT x 1/4 NPT
72	70050-00025	Lockwasher, 1/4
73	70020-01065	Relief Valve, 1600 PSI
74	70020-00856	Handle Only

* Obtain Locally

KUBOTA TRACTOR
B670 BACKHOE

Figure: 17 - BACKHOE - BOOM, DIPPERSTICK, AND BUCKET



B670 BACKHOE

Figure: 17 - BACKHOE - BOOM, DIPPERSTICK, AND BUCKET

Ref	Part Number	Qty Description
85	70020-00702	Hydraulic Cylinder, 2" Diameter
86	70020-00703	Hydraulic Cylinder, 2" Diameter
87	B671	** Bucket, 9"
87	B672	** Bucket, 13"
87	B673	** Bucket, 16"
88		* Bolt, 5/16 NF x 1"
89		* Bolt, 5/16 NF x 1-1/4
90		* Lock Nut, 5/16 NC
91		* Lock Nut, 5/16 NF
92		* Flat Washer, 5/16 SAE
93		* Flat Washer, 1" SAE
94	70020-00727	* Machinery Bushing, 1-1/2 OD x 1" ID x 18 Ga
95		* Cotter Pin, 5/16 x 1-1/2
96	70020-00780	Bucket Tooth and Shank Assembly
97	70020-00781	Bucket Tooth
98	70050-00065	Grease Fitting, 1/4 Self-Tapping
99	70020-00795	Boom Weldment
100	70020-00796	Dipperstick Weldment
101	70020-00801	Bucket Link Weldment
102	70020-00804	Bucket Guide Link
103	70020-00810	Pin, 1" Dia. x 5-3/4
104	70020-00811	Pin, 1" Dia. x 7-3/8
105	70020-00812	Pin, 1" Dia. x 7-7/8
106	70020-00814	Spacer, 1-7/16 OD x 1-1/8 ID x 7/16
107	70020-00815	Spacer, 1-7/16 OD x 1-1/8 ID x 3/16
108	70020-00822	Spacer, 1-7/16 OD x 1-1/8 ID x 11/16
109	70020-00827	Hose Retainer

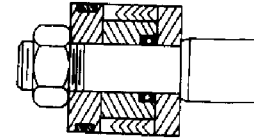
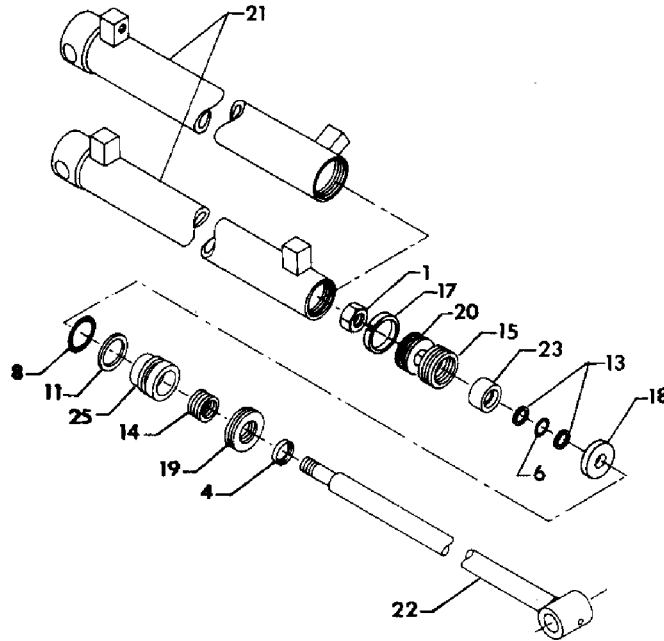
* Obtain Locally

** Available Wholegoods

KUBOTA TRACTOR
 B670 BACKHOE
 Figure: 19 - HYDRAULIC CYLINDERS

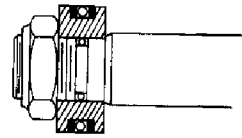
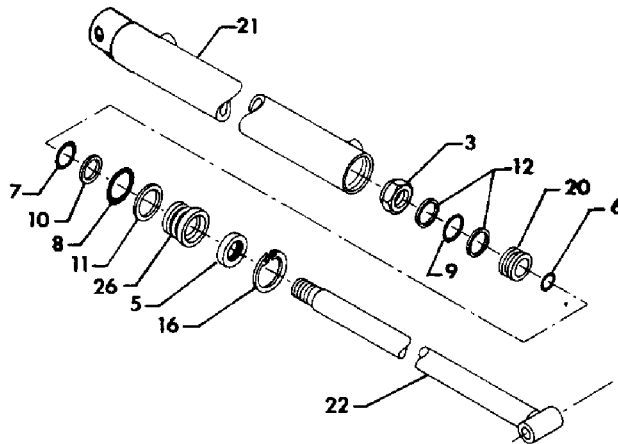
70020-00703
 BOOM/DIPPER

70020-00702
 BUCKET



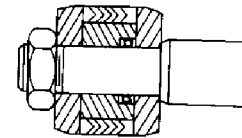
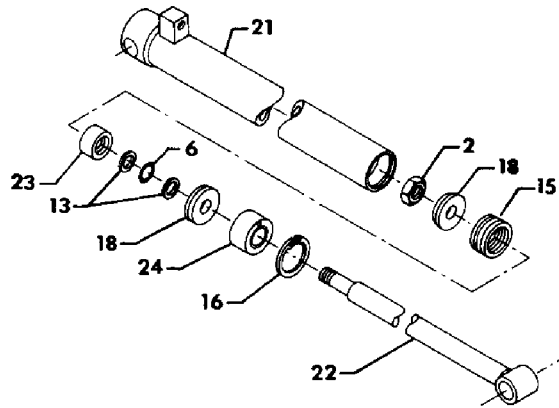
**Proper Piston
 Assembly**

70050-00003
 STABILIZER



**Proper Piston
 Assembly**

70020-00701
 SWING



**Proper Piston
 Assembly**

KUBOTA TRACTOR
B670 BACKHOE
Figure: 19 - HYDRAULIC CYLINDERS

Ref	Part Number	Qty Description
		[A] 70020-00703 [B] 70020-00702 [C] 70050-00003 [D] 70020-00701
1	70090-00068	[A] [B] Lock Nut, 3/4 NF Nyloc
2		* Jam Nut, 3/4 NF Nyloc
3	70050-00021	[C] Jam Nut, 1" NF Nyloc
4	70020-00771	[A] [B] Oil Seal, 1-1/4 OD x 1" ID
5	70050-00059	[C] Oil Seal, 1-5/8 OD x 1-1/8 ID
6	70010-00020	[A] [B] [C] [D] O-Ring, 1" OD x 3/4 ID
7	70010-00021	[C] O-Ring, 1-3/8 OD x 1-1/8 ID
8	70010-00022	[A] [B] [C] O-Ring, 2" OD x 1-3/4 ID
9	70010-00023	[C] O-Ring, 2" OD x 1-5/8 ID
10	70010-00024	[C] Leather Washer, 1-3/8 OD x 1-1/8 ID
11	70010-00025	[A] [B] [C] Back-Up Ring, 2" OD x 1-3/4 ID
12	70010-00026	[C] Back-Up Ring, 2" OD x 1-5/8 ID
13	70020-00772	[A] [B] [D] Back-Up Ring, 1" OD x 3/4 ID
14	70020-00773	[A] [B] Packing Assembly, 1-3/8 OD x 1" ID x .647
15	70020-00774	[A] [B] [D] Packing Assembly, 2" OD x 1-1/2 ID x .824
16	70010-00029	[C] [D] Retaining Ring, Internal
17	70020-01066	[A] [B] Wear Ring, 2" OD x 1-3/4 ID x 3/8
18	70020-01067	[A] [B] Piston Washer
18	70020-00840	[C] Piston Washer
19	70020-00841	[A] [B] Gland Nut
20	70020-01068	[A] [B] Piston
20	70010-00065	[C] Piston
21	70020-00848	[A] Cylinder Tube Weldment
21	70020-00846	[B] Cylinder Tube Weldment
21	70050-00125	[C] Cylinder Tube Weldment
21	70020-00843	[D] Cylinder Tube Weldment
22	70020-00849	[A] Piston Rod Weldment
22	70020-00847	[B] Piston Rod Weldment
22	70050-00126	[C] Piston Rod Weldment
22	70020-00844	[D] Piston Rod Weldment
23	70020-00842	[A] [B] [D] Piston Spacer, With O-Ring And Back-Ups
24	70020-00845	[D] Rod Guide Assembly
25	70020-00839	[A] [B] Gland, With O-Ring And Back-Up
26	70010-00066	[C] Gland
	70020-00703	[A] For Complete Cylinder, Order
	70020-00702	[B] For Complete Cylinder, Order
	70050-00003	[C] For Complete Cylinder, Order
	70020-00701	[D] For Complete Cylinder, Order
	70020-00851	[A] [B] Seal Repair Kit (Includes All Packings, Wear Rings, O-Rings, Back-Up Rings, Wipers, And Snap Rings For One Cylinder)
	70050-00123	[C] Seal Repair Kit (Includes All

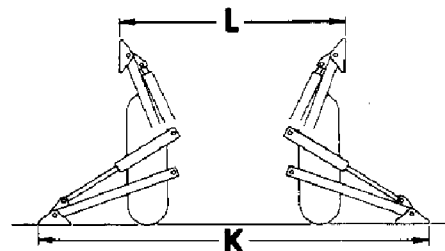
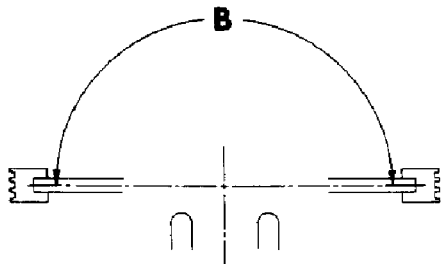
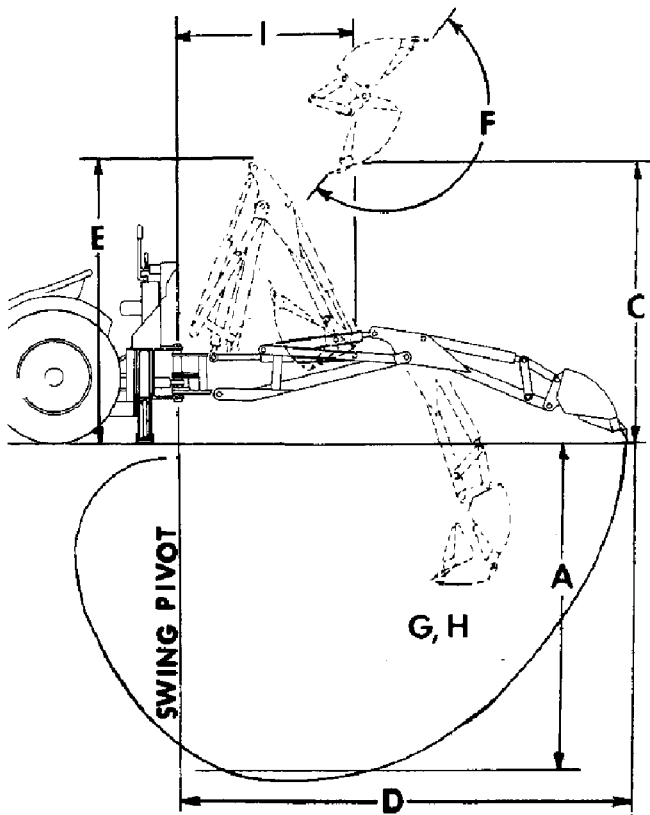
KUBOTA TRACTOR
B670 BACKHOE
Figure: 19 - HYDRAULIC CYLINDERS

Ref	Part Number	Qty	Description
			Packings, Wear Rings, O-Rings, Back-Up Rings, Wipers, And Snap Rings, For One Cylinder)
	70020-00850		[D] Seal Repair Kit (Includes All Packings, Wear Rings, O-Rings, Back-Up Rings, Wipers, And Snap Rings, For One Cylinder)
			* Obtain Locally

KUBOTA TRACTOR
 B670 BACKHOE
 Figure: 21 - SPECIFICATIONS

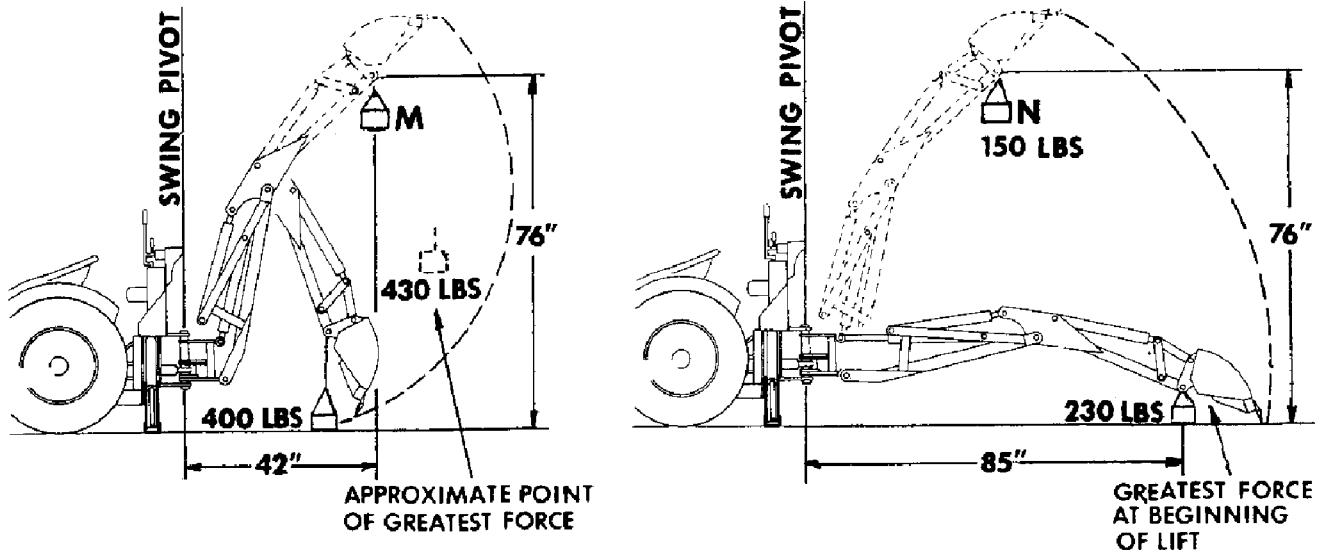
**specification -
 general data:**

- A. Digging Depth 6'1"
 (two foot flat bottom)
- B. Swing Arc 180°
- C. Loading Height 5'0"
- D. Reach from Center Line of Swing Pivot 8'4"
- E. Transport Height (maximum) 5'1"
- F. Bucket Rotation 180°
- G. Bucket Roll Force (at 1500 PSI) 2400 lbs.
- H. Bucket Pry-Out Force in excess of 4000 lbs.
 (depending on fulcrum established by
 bucket attitude)
- I. Transport Overhang 3'7"
- J. Undercut 1'11"
 (from center line of swing pivot)
- K. Hydraulic Stabilizer Spread, down -
 approximately 6'0"
- L. Hydraulic Stabilizer Spread, up -
 approximately 3'6"
- M. Dipperstick Lift Ability 400 lbs.
 (boom up, lifting with dipper cylinder only,
 weight attached as shown, at 1500 PSI)
- N. Boom Lift Ability 150 lbs.
 (dipper arm and boom extended, lifting
 with boom cylinder only, weight attached
 as shown, at 1500 PSI)
- O. Shipping Weight 710 lbs.
 (less bucket)



KUBOTA TRACTOR
B670 BACKHOE
Figure: 22 - SPECIFICATIONS

specifications - general data - continued



Bucket Data:

Bucket	Width	SAE Struck Capacity	Heaped Capacity	Shipping Weight
B671**	9 in.	0.50 cu. ft.	0.63 cu. ft.	33 lbs.
B672**	13 in.	0.75 cu. ft.	1.00 cu. ft.	38 lbs.
B673**	16 in.	0.94 cu. ft.	1.25 cu. ft.	43 lbs.

Cylinder Data:

Cylinder	Piston Dia.	Stroke	Retracted Length	Extended Length	Rod Dia.	Pivot Pin Dia.	Type of Action
*70020-00703 Boom	2	15-3/4	23-1/2	39-1/4	1	1	DA
*70020-00703 Dipper	2	15-3/4	23-1/2	39-1/4	1	1	DA
70020-00702 Bucket	2	13-1/8	20-5/8	33-3/4	1	1	DA
70050-00003 Stabilizer	2	11-1/4	17	28-1/4	1-1/8	5/8	DA
70020-00701 Swing	2	8-9/16	15	23-9/16	1	1	SA

* Identical cylinders used for both functions

** Available Wholegoods

ATTACHING KIT

General Description:

This Kit will attach the Kubota B670 Backhoe to the Kubota B6100 or B7100 tractors equipped with a Kubota B219 Loader. The backhoe is attached to a pair of hangers that bolt to the tractor's rear frame and to a pair of hangers that bolt to the loader frame. The kit includes its own self-contained hydraulic system. The tractor seat is remounted with a device that permits it to be positioned for convenient backhoe operation or changed back to convenient tractor operation. After initial installation, the Adapter Kit allows the backhoe to be removed or reinstalled in a short time. See the "Removal and Storage" section of this manual for details.

Tractor Preparation:

The following items must be removed from the tractor before installing the Attaching Kit: lower links and chains, lower link mounting brackets, upper link, seat, rubber bumpers from seat mount bracket, seat pivot bracket, and loader reinforcing plates (see Fig. 6).

CAUTION: The rockshaft quadrant arms must also be removed to provide clearance and to eliminate possible injury to the operator if they are activated.

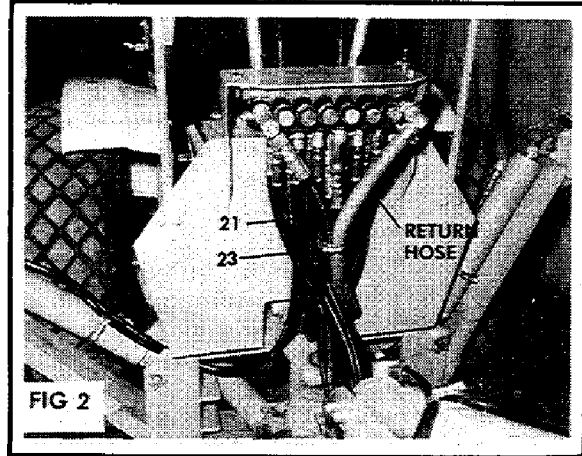
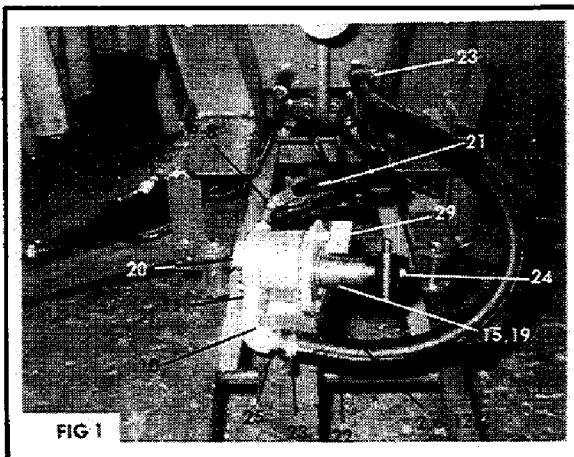
Assembly:

NOTE: When installing hoses and fittings, always use thread sealant in permanent connections. Do not use sealant in union ends of adapters. Do not overtighten fittings -- they can expand or split causing leakage.

IMPORTANT: Tighten all hardware to torque requirements specified in torque chart, Page 7 of this manual.

1. Hydraulic Hook-Up (Figs. 1, 2, 9, & 10)

A. Assemble one pipe bushing (9) and one 3/8 NPT x 90° street elbow (8) to smaller outlet port of pump (20) directing adapter approximately as shown.



B. Assemble one pipe bushing (11), one 3/4 NPT x 90° street elbow (10), and one hose nipple (25) to larger inlet port of pump (20) directing elbow and nipple approximately as shown.

C. Note that pump plate (29) has a wide and a narrow stop bar. Attach pump plate to pump (20) using two 3/8 NC x 1-1/4 bolts, nuts, and lockwashers (2, 6, 12) with narrow stop bar on outlet side of pump, as shown in Fig. 9, for tractors with serial numbers **before** those listed below:

B6100D	S/N 21331
B6100E	S/N 11601
B7100C	S/N 45296

Attach pump plate to pump with wide stop bar on outlet side of pump, as shown in Fig. 10, for tractors beginning with serial numbers listed above.

D. Assemble PTO adapter (24) to pump shaft sliding adapter as far as possible onto pump shaft, then tightening two setscrews (15) to secure adapter.

E. Install suction hose (22) to hose nipple of pump assembly securing with hose clamp (23). Install 3/8 NPT x 46 hydraulic hose (21) to street elbow of pump assembly.

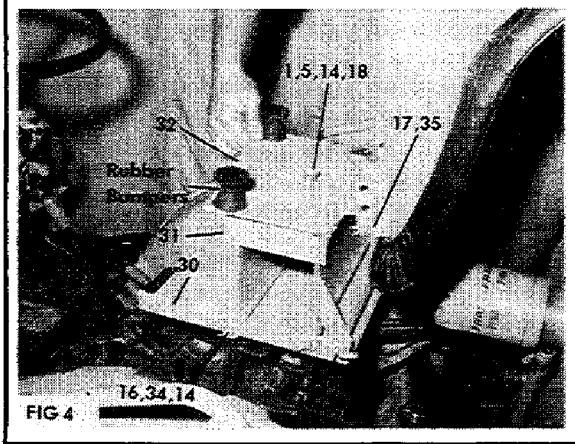
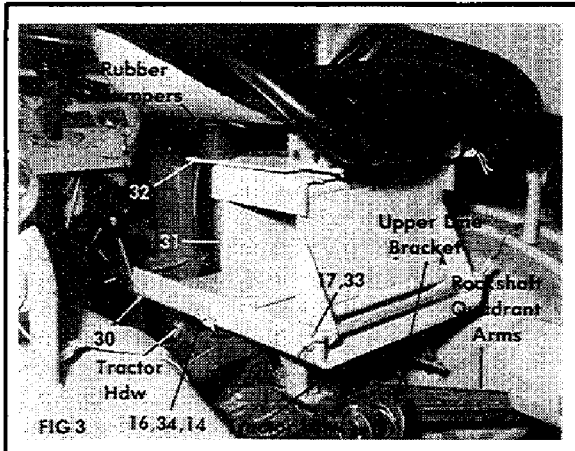
F. Remove pipe plug from right suction tube of backhoe reservoir and secure suction hose (22) to tube using hose clamp (23).

G. Remove pipe plug from inlet adapter of backhoe valve and install 3/8 NPT x 46" hydraulic hose (21), routing hose under reservoir through notch in front plate as shown. Tie pressure hose and backhoe return hose together with hose clamp (23) (Fig. 2).

2. Seat Adapter to Tractor (Figs. 3 & 4)

A. Assemble pivot plate (32) to seat channel assembly (31) using one spring (18) and one 5/16 NF x 1-1/2 bolt, lock nut, and flat washer (1,5,14). **NOTE:** Tighten lock nut as far as possible allowing stop pin of pivot plate to still be lifted out of lock hole to turn pivot plate.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 24 - ATTACHING KIT (CONTINUED)



B. Install seat channel assembly (31) to seat bracket (30) with locking bars toward rear of tractor using two pins (34), four 5/16 flat washers (14) and four cotter pins (16).

C. Remove two top bolts from upper link bracket. Mount seat bracket assembly to tractor using tractor hardware.

D. Raise seat channel assembly to backhoe operating position (up) and lock into place with one L-pin (33) and one hair pin clip (17). Insert seat rubber bumpers into large holes of pivot plate. Attach tractor seat to pivot plate using one seat pin (35) and two hair pin clips (17).

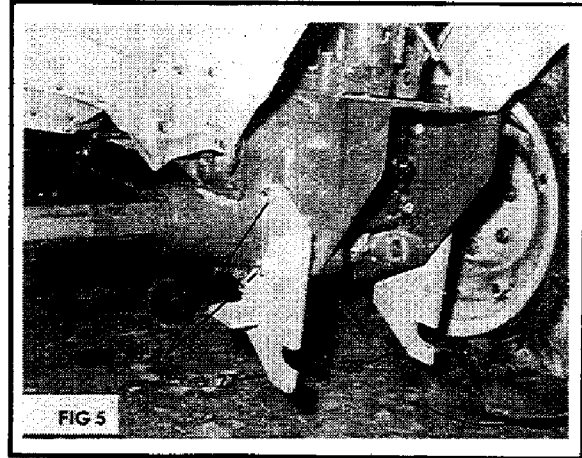
3. Rear Hangers to tractor (Fig. 5)

A. Mount RH and LH rear hangers (27,28) to tractor rear axle housing using six M12 x 1.75 x 60 metric bolts (4) and six 1/2 lock washers (13).

4. Front Hangers and Backhoe to Tractor (Figs. 6,7,8)

A. Attach front hangers (26) to backhoe channels using four 1/2 NF x 1-1/2 bolts, nuts, and lock washers (3,7,13). NOTE: Do not tighten bolts until backhoe is in position under tractor.

B. Fill the backhoe reservoir with recommended fluid to correct level, refer to Service, Page 6.



C. Back tractor over backhoe subframe until close enough to attach pump assembly to tractor PTO. Slide pump assembly onto tractor PTO so that pump plate bar extends through slot in tractor PTO guard (Fig. 7) and lock pin on PTO adapter snaps into place. Be sure kinks do not develop in any of the lines. Suction hose can be shortened to prevent this problem. The backhoe can now be raised off the ground by extending its stabilizer legs and can be kept level by extending the boom.

D. Raise the backhoe and back tractor so that bar on backhoe subframe slips into slots of rear hangers (Fig. 8) and front hangers are under loader subframe (Fig. 6). CAUTION: When backing tractor into backhoe, be sure pump clears the braces on backhoe main frame and that suction and pressure hoses do not kink. Fittings on pump may have to be turned slightly to eliminate all kinks.

E. Attach front hangers to loader subframe using two 1/2 NF x 1-1/2 bolts, nuts, and lock washers (3,7,13). NOTE: Tighten all front hanger bolts at this time.

F. Re-install loader reinforcing plates (Fig. 6).

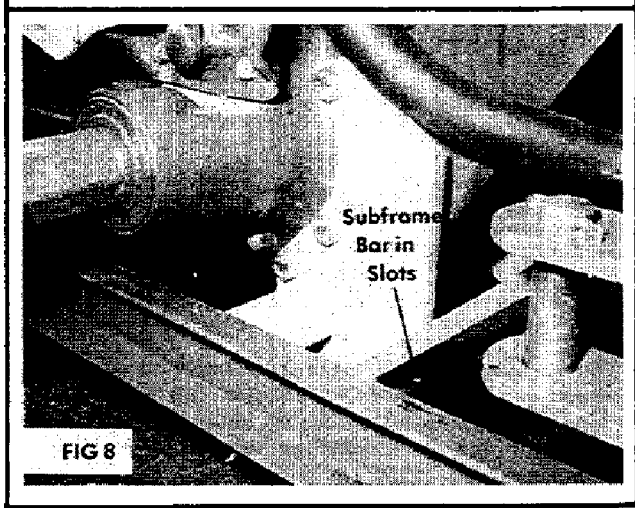
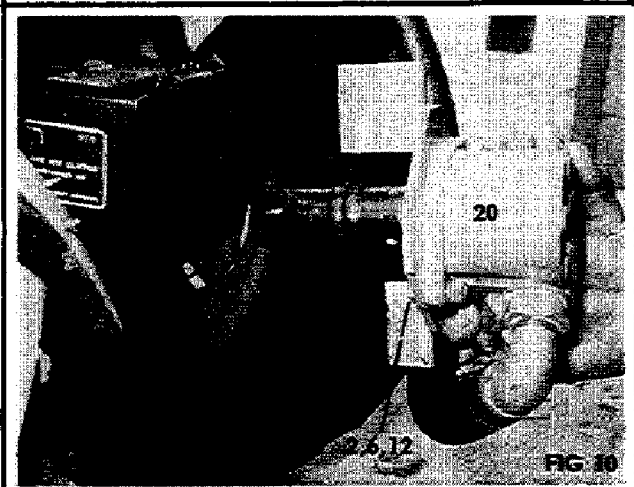
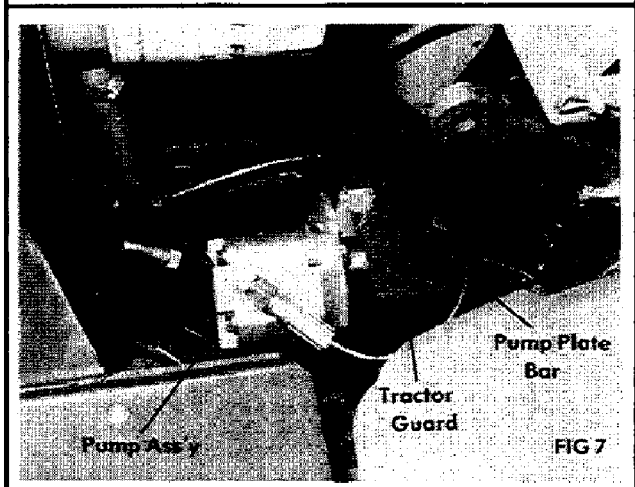
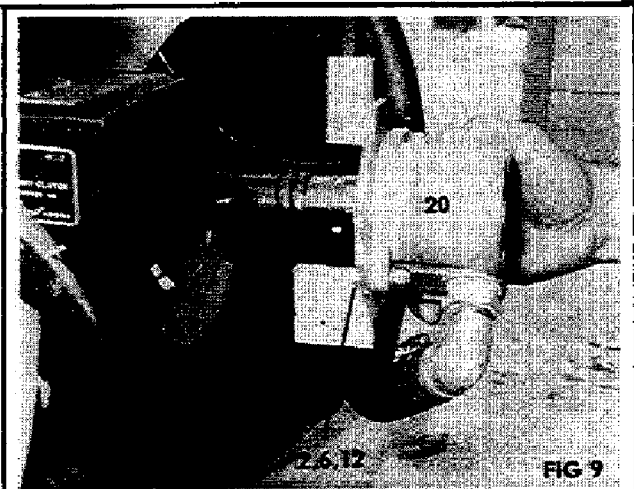
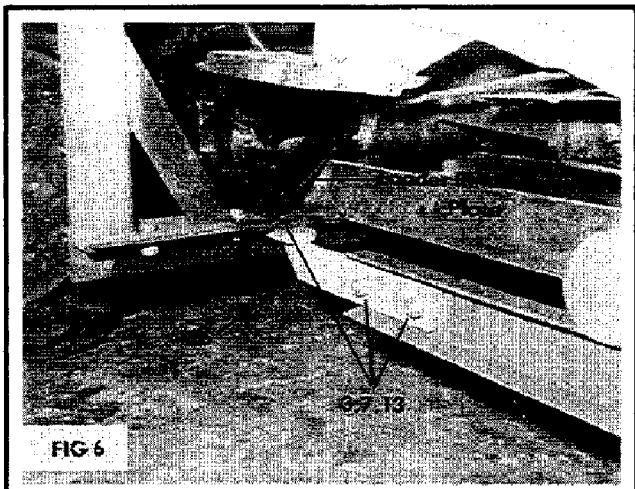
Using the Attaching Kit:

The Attaching Kit is made to permit quick removal and reattaching of the backhoe to the tractor. The backhoe is self-storing as explained in the Storage Section, page 9.

To change the operator's seat from backhoe operating position to tractor operating position, tilt seat ahead, lift stop pin of pivot plate out of hole, and pivot seat around until stop pin locks pivot plate in forward position. Remove L-pin (33) from locking bars of seat mount assembly and lower seat into tractor operating position. Store L-pin in holes of seat frame. To change operator's seat to backhoe operating position, reverse above procedure. Complete backhoe operation is explained on pages 2 thru 5. Be sure to read all operating and safety suggestions.

IMPORTANT: Check all bolts attaching the front and rear hangers to the tractor before each day of backhoe operation. Tighten if necessary. Refer to torque chart on page 7. Keep all shields and guards in place.

KUBOTA TRACTOR
B670 BACKHOE
Figure: 25 - ATTACHING KIT



KUBOTA TRACTOR
B670 BACKHOE
Figure: 25 - ATTACHING KIT

Ref	Part Number	Qty Description
1		* Bolt, 5/16 NF x 1-1/2
2		* Bolt, 3/8 NC x 1-1/4
3		* Bolt, 1/2 NF x 1-1/2
4		* Bolt, M12 x 1.75 x 60
5		* Lock Nut, 5/16 NF
6		* Nut, 3/8 NC
7		* Nut, 1/2 NF
8		* Street Elbow, 3/8 NPT x 90 Degrees
9		* Pipe Bushing, 1/2 M x 3/8 F
10		* Street Elbow, 3/4 NPT x 90 Degrees
11		* Pipe Bushing, 1" M x 3/4 F
12		* Lock Washer, 3/8
13		* Lock Washer, 1/2
14		* Flat Washer, 5/16
15		* Set Screw, 5/16 NC x 3/8 Soc.
16		* Cotter Pin, 1/8 x 3/4
17		* Hair Pin Clip
18		* Spring
19		* Key 3/16 Square x 1-1/4
20	70020-00757	Hydraulic Pump
21	70020-00767	Hydraulic Hose, 3/8 NPT x 46"
22	70020-00768	Suction Hose, 1" ID x 36"
23		* Hose Clamp
24	70020-00786	PTO Adapter
25	70020-00790	Hose Nipple
26	70020-00829	Front Hanger Weldment
27	70020-00830	RH Rear Hanger Weldment
28	70020-00831	LH Rear Hanger Weldment
29	70020-00832	Pump Plate Weldment
30	70020-00833	Seat Bracket Weldment
31	70020-00834	Seat Channel Assembly
32	70020-00835	Pivot Plate Weldment
33	70020-00836	L-Pin
34	70020-00837	Pin
35	70020-00838	Seat Pin

* Obtain Locally