BE AGRI EASE
AG & INDUSTRIAL

BACKHOE
BE-BKXX

OPERATIONS & PARTS MANUAL

FOR MODELS:
- **BE-BK61**
- **BE-BK71**

PURCHASE DATE	MODEL NO.	SERIAL NUMBER

DEALER	

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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 try 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.

CAUTION

This safety alert symbol indicates important safety messages in this manual.

When you see this symbol, carefully read the message that flows and be alert to the possibility of personal injury or death.

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 in 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's cylinder 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 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 operating 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.

Contact with overhead power lines can cause severe electrical burn or death from the 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 the tractor brakes cautiously. A loaded attachment in the raised position alters the center of gravity location of the machine and increase the possibility of mishaps.

Do not stand, walk or work under a raised backhoe or attachment unless it is securely blocked or held in position. Accidental movement of a control lever or leak in the hydraulic system could cause the backhoe to drop, or attachments to dump, causing severe injury.

Make sure all parked backhoes 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.

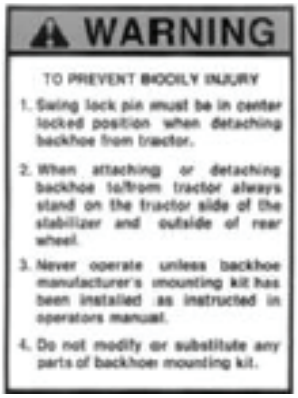
SAFETY DECAL LOCATION

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 positions of the backhoe.

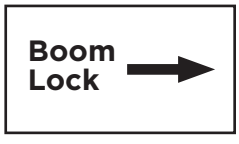
CARE OF SAFETY DECALS

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. Replace damaged or missing safety decals with new decals from your local dealer.
4. If a component with a safety decal(s) affixed is replaced with a new part, make sure new safety decals(s) are attached in the same location(s) as the replaced components.
5. Mount new safety decals by applying on a clean dry surface and pressing air bubbles to outside edges.

Location: Both sides of mainframe



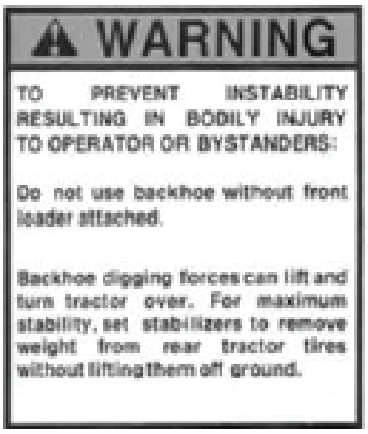
Location: Mainframe



Location: Beside Locking Hole at Boom Mainframe

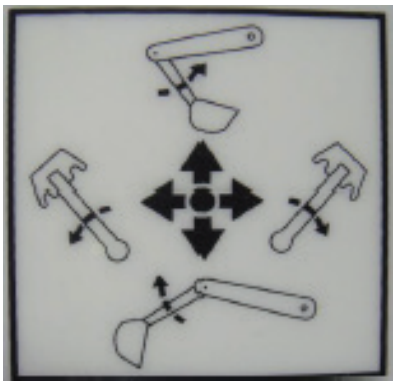
Location: Both leg cylinders

Location: Both sides of mainframe



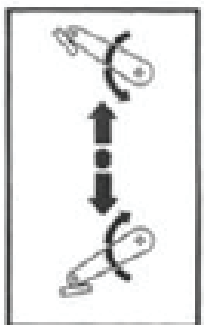
Location: Main valve cover

Location: Right leg guard

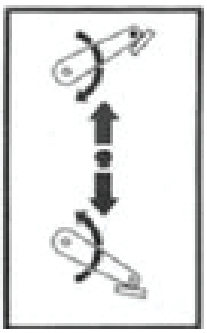


Location: Left side valve lever

Location: Right side valve lever



Location: Side or left inner lever



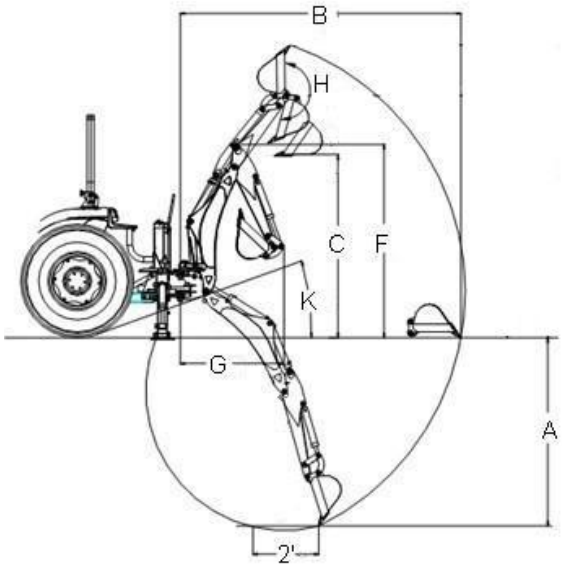
Location: Side or right inner lever

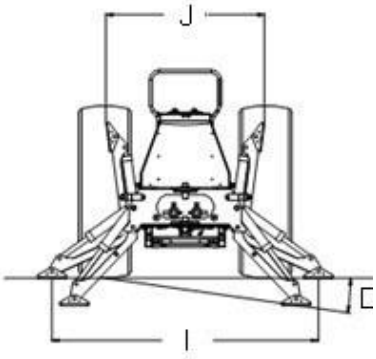
BK-61/BK-71

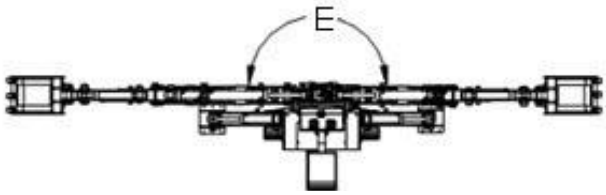
Location: Both sides of dipper stick

Location: Main valve cover

SPECIFICATIONS







REF	DESCRIPTION	BE-BK61	BE-BK71
A	Digging Depth (2ft Flat Boom)	1860mm	2160mm
B	Reach From Center Line of Swing Pivot	2820mm	3277mm
C	Loading Height (Bucket At 60°)	1590mm	2032mm
D	Maximum Leveling Angle	10°	10°
E	Swing Arc	180°	180°
F	Transport Height (Maximum)	1880mm	1930mm
G	Transport Overhang	1145mm	1320mm
H	Bucket Rotation	180°	180°
I	Stabilizer Spread (Down Position)	1730mm	1730mm
J	Stabilizer Spread (Up Position)	1320mm	1320mm
K	Angle of Departure	21°	21°
	Shipping Weight (Without Bucket)	430kg	463kg
	Bucket Digging Force	1050kg	1180kg
	Dipperstick Digging Force	700kg	860kg
	Operating Pressure	160bar	160bar

BUCKET	TEETH QTY	STRUCK CAPACITY	HEAPED CAPACITY	SHIPPING WEIGHT	
12”	3	1.01 cu. ft.	1.24 cu. ft.	35kg	77lbs

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 procedure 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.

⚠ 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.

SERIAL NUMBER & LOCATION

The serial number is important information about the machine it may be necessary to know it before obtaining the correct replacement part. The serial number is located on the right side of backhoe mainframe. The serial number should be recorded on the Delivery and Registration from and also below for your reference.

Made in China

Model	
Serial No:	
Date MFD	

CE

TRACTOR PREPARATION

Rear Counterweight

⚠ WARNING

Do not exceed the manufacturer's rating for maximum gross vehicle weight.

Refer to Operator's Manual or ROPS serial plate provided with tractor.

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.

TRACTOR HYDRAULIC SYSTEM

The 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.

⚠ WARNING

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.

WHEEL TREAD SETTINGS

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

BLACKHOE OPERATION

⚠ CAUTION

The tractor/backhoe should only be operated with all safety equipment properly installed. Keep assistants or by standers 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 tractor operator's manual that it can be 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 operators' 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 full objects. Use only to maneuver and operate the bucket.

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

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 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 the 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.

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 inured by escaping hydraulic oil, seek medical attention immediately.

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

INITIAL BACKHOE OPERATION

Before operating the backhoe, fully raise and lower the boom, arm, swing and stabilize 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.

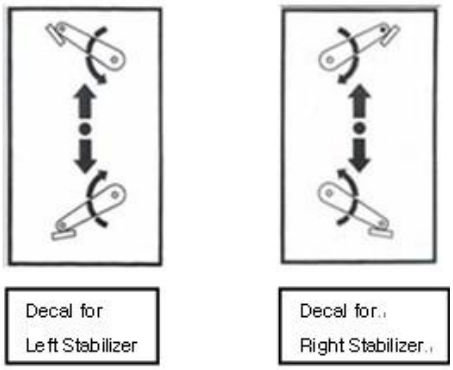
COLD WEATHER OPERATION

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 up to operating temperatures.

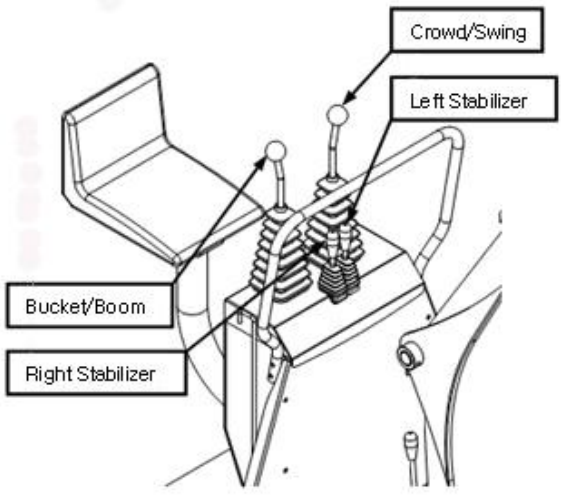
⚠ CAUTION

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

Push the left-hand inner control lever, left stabilizer lowers. Pull up the lever, left stabilizer raises. Push the right-hand inner control lever, Right stabilizer lowers. 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.



Left and Right Stabilizer Controls



Left and Right Stabilizer Controls

Crowd and Swing Controls

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

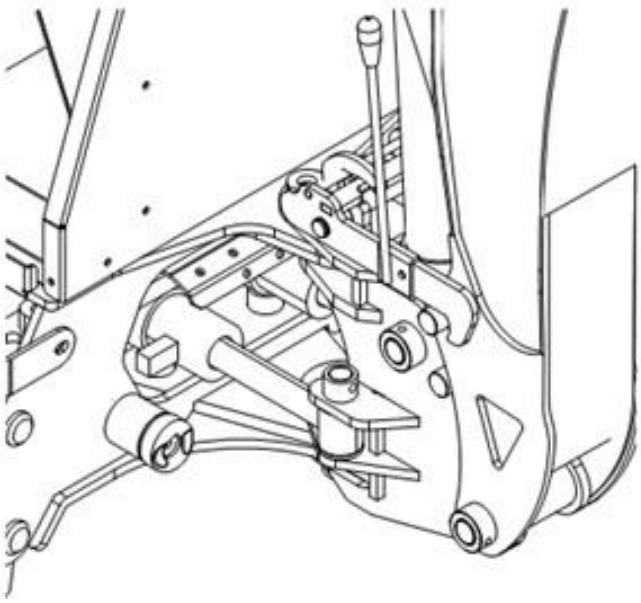
Move the left-hand outer control lever to the left, boom swing moves to the left. Move lever right, boom swing moves to the right.

Bucket and Boom Controls

Push the right-hand outer control lever, boom moves down, and pull back the lever, boom moves up.

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

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



Swing Lock & 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 i 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 & boom location at all times. When raising arm (dipperstick) with bucket rolled forward, material can spill onto non-target area causing injury to assistant or damage other objects.

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

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

To help prevent roll-over, adjust the rear wheels to their widest setting to maximize stability.

Refer to your Tractor's Operator's Manual for recommendations.

⚠ CAUTION

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

Do not allow to be removed without bucket and stabilizers. Also, dump the remaining material from the bucket to empty. Use other lifting equipment to remove when the backhoe has damage.

1. Move the tractor to backhoe storage place.
2. Use inner two levers to lower the stabilizers until they contact ground. Use the boom and dipperstick control lever to raise the boom and dipperstick completely.
3. Center the boom and then lock the swing with lock pin.
4. Using the control levers, position the dipperstick vertically, curl the bucket until it's bottom is level with the ground then lower the boom until bottom of the bucket rests on the ground.
5. Remove pins that secure the backhoe.

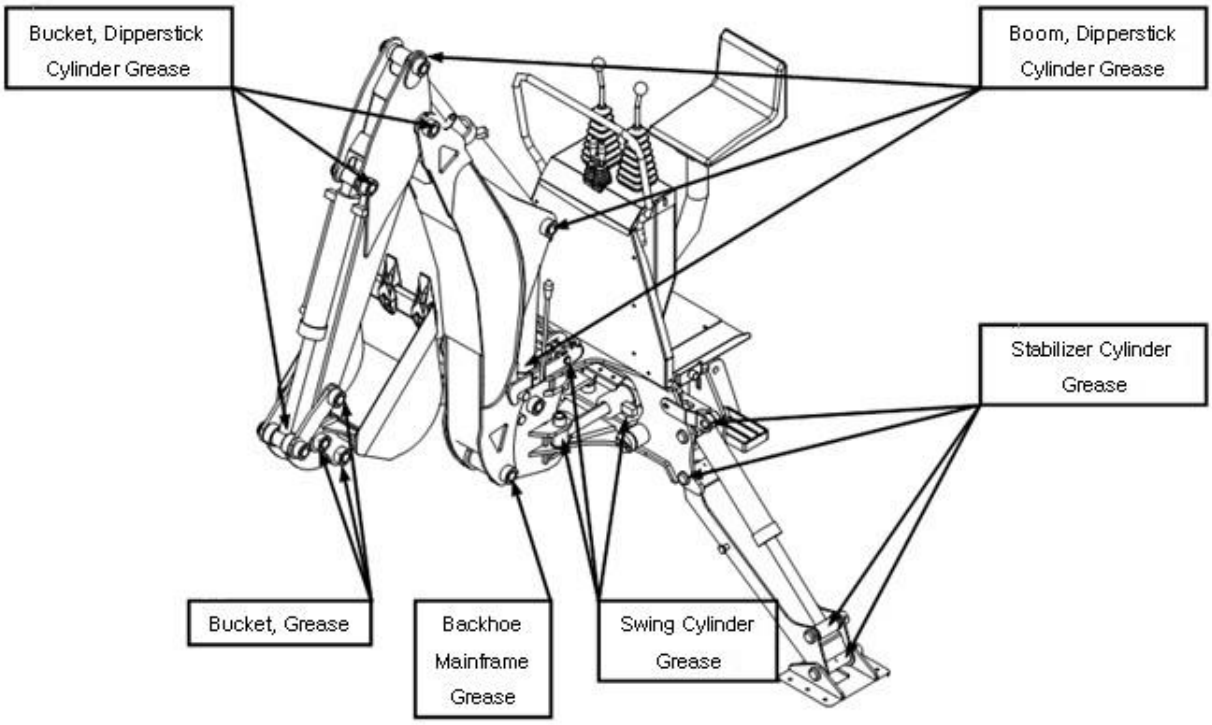
⚠ CAUTION

Remove the backhoe on firm level ground. Do not allow other persons in the area.

Be careful to avoid injury during removal of the backhoe.

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

6. Lower the backhoe mainframe to the ground by raising stabilizers and boom. Use the wood plate or block if necessary.
7. Turn off the tractor engine, relieve hydraulic pressure by actuating all the control levers in each direction, then disconnect the backhoe hose couplers from the tractor hydraulic couplers.



ITEM	SERVICE	SERVICE INTERVAL
Hydraulic System Oil Level	Check	Daily/10 Hours
Hydraulic System Oil/Filter	Replace	As specified in Tractor 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, Arm, Swing & Bucket	Check for seepage,	Daily/10 Hours
Cylinder Rod Packing	service as needed	Daily/10 Hours
Pivot Pin Bolts & 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	Every 25 Hours
Bolts & Nut Release	Re-torque	

⚠ 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 & 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.

Operate the backhoe from the operator seat only.

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 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’s Operator 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

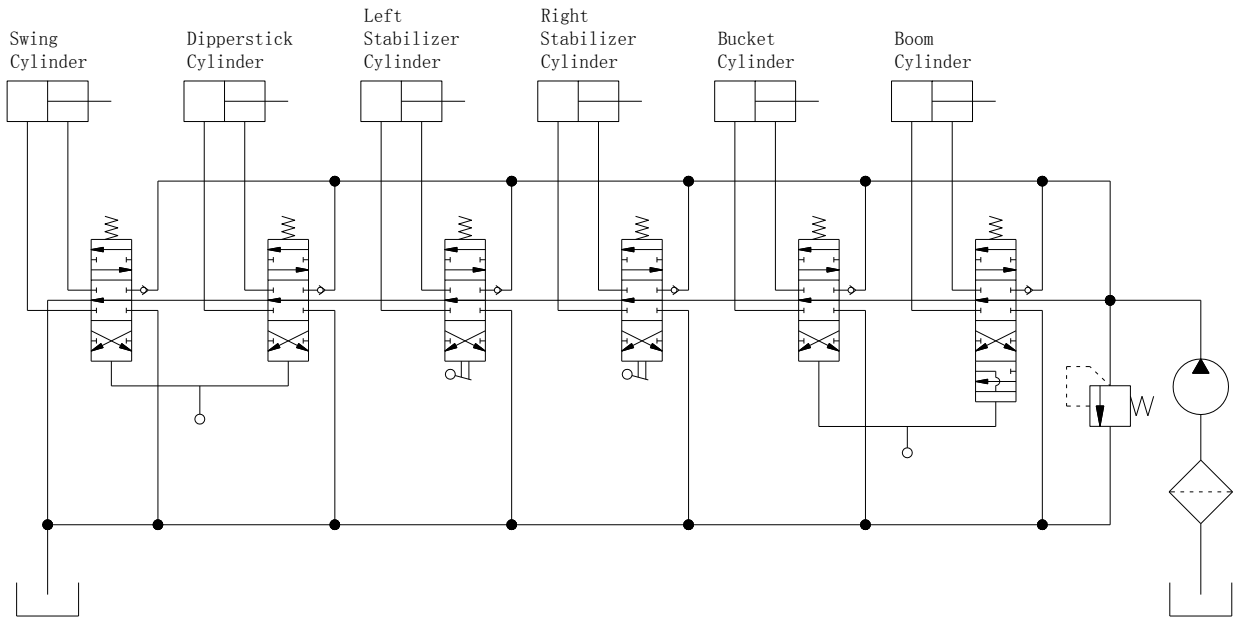
TROUBLESHOOTING

The 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	POSSIBLE REMEDY
Swing, Boom, Dipperstick & Bucket Cylinders not operating properly.	• Low hydraulic fluid level. • Hydraulic hoses connected improperly. • Hydraulic hoses to/from control valve are blocked.wwwwwwwww	• Check & replenish hydraulic fluid. • Check & correct hydraulic hose connections. • Check for damage (kinked) hoses, etc. • Check system pressure. Repair or replace relief valve. Refer to the Tractor Operator's Manual. • Check system pressure. Repair or replace pump. • Inspect. Replace as required. • Check coupler connections. Replace coupler(s) if necessary. • Check for evidence of damage to hoses or tube lines that would block flow of oil between cylinders & control valve. • Check cylinders for internal leakage as described under cylinder leakage tests. • 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.
Inadequate lifting capacity.	• Engine RPM too slow • Excessive load. Material loading exceeds specified backhoe capacity. • Relief valve setting below specifications. • Bucket, Boom & Dipperstick Cylinder Piston Assembly leakage. • Control valve leaking internally. • Hydraulic Pump defective.	• Increase engine RPM. • Reduce Load. • Check & reset relief valve setting as needed. • Check cylinders for leakage. Repair as needed. • Replace control valve & recheck operation. • Refer to "Hydraulic Pump Capacity Inadequate".
Slow or erratic movement of Cylinder (Noisy operation of cylinder).	• Low hydraulic fluid level. • Cold hydraulic fluid. • Hydraulic oil viscosity too heavy or incorrect oil. • Engine RPM too slow (hydraulic pump RPM too slow). • Excessive weight in bucket. Material weight exceeds maximum specified backhoe capacity. • Control valve linkage binding/defective. • Aeration of hydraulic fluid. • Quick disconnect coupler restriction or coupler "Flow checks". • Hydraulic hose or tube line restriction (hoses/tube line) kinked or pinched. • Boom, Dipperstick or Bucket cylinder piston assembly leakage. • Relief valve erratic or set below specifications. • Control valve leaking internally.(hypassing fluid within valve).	• Check & replenish hydraulic fluid. • Allow hydraulic system to warm up to operating temperature. • Check oil number & viscosity, Refill correct hydraulic oil. • Increase engine speed to obtain satisfactory backhoe operation. • Reduce material load (Digging load). • Check control valve linkage & repair if worn/defective. • Refer to "aeration of Hydraulic Fluid". • Check coupler connections. Repair or replace. • Check hoses & tube lines for evidence of restriction. • Check cylinders for leakage. Repair as needed. • Check & reset relief valve. Setting as needed. • Replace control valve & recheck operation.
Aeration of Hydraulic Fluid (Generally indicated by foamy appearance of fluid).	• Low hydraulic fluid level. • Air leaking into suction side of hydraulic pump. • Hydraulic fluid foaming due to improper hydraulic oil usage.	• Check & refill hydraulic system to proper level. • Check for loose or defective connections between hydraulic oil using recommended hydraulic oil. • Refer to Tractor Operator's Manual & replace hydraulic oil using recommended hydraulic oil.
System relief valve squeals.	• Cold Hydraulic Fluid. • Hydraulic Oil viscosity too heavy or incorrect oil. • Excessive load in bucket. Loading exceeds specified backhoe capacity. • Relief valve setting below specifications. • Hydraulic hose, tube line or quick disconnect coupler restriction.	• Allow hydraulic fluid to warm up to operating temperature. • Check oil number & viscosity, Refill correct hydraulic oil. • Reduce load. • Check & reset valve setting as needed. • Check for evidence of restriction in hydraulic oil flow. Repair or replace defective components.

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
Backhoe drops with valve spool in "centered" position (no external oil leakage evident) Note: A gradual drop over an extended period of time is a normal condition.	• Cylinder piston assembly leakage. • Control valve internal leakage.	• Check cylinders for leakage. • Replace control valve & recheck.
Control valve spool(s) will not return to centered position.	• Control lever linkage binding. • Control valve spool centering is broken. • Control valve spool binding in valve body spool bore.	• Determine origin of binding & repair. • Replace centering spring. • Disassemble valve for inspection & repair.
External hydraulic fluid leakage.	• Loose hydraulic connection. • Defective hydraulic hose, tube line, adapter fitting or adapter fitting o-ring. • Control valve spool or body damaged or worn. • Cylinder rod packing set leakage	• Check for origin of oil leak & replace defective part. • Replace defective o-rings. • Check cylinders for leakage. Repair as needed.
Hydraulic pump capacity inadequate.	• Cold hydraulic fluid. • Engine RPM too slow. • Low hydraulic fluid supply. • Hydraulic hose restriction. • Hydraulic pump defective.	• Allow hydraulic fluid to warm up to operating temperature. • Increase engine RPM. • Refer to Tractor Operator's Manual for service recommendations. • Check for evidence of restriction in hydraulic hoses. • Refer to Tractor Operator's Manual for service recommendations. • Check for evidence of restriction in hydraulic hoses. • Refer to Tractor Operator's Manual for recommended service procedures. Replace hydraulic pump if determined to be defective.
Cylinder rod bend when cylinders extended.	• Excessive shock load on cylinder during transport.	• Replace defective parts. Review and observe proper and safe operational practices.

HYDRAULIC SYSTEM SCHEMATIC AUXILIARY HYDRAULIC VALVE PACKAGE.



TORQUE TIGHTENING CHART 1

Note:Use these torques, unless special torques are specified. Values are for UNF thread fasteners, plasted or unplated as received from supplier. Fasteners can be dry or lubricated with normal engine oil. Values do not apply if graphite, moly-disulphide or other extreme pressure lubricant is used.

SAE Grade No.	2				5				8*			
Bolt head identification (see note 1)												
Bolt size	LB - FT		Nm		LB - FT		Nm		LB - FT		Nm	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1/4	5	6	7	8	9	11	12	15	12	15	16	20
5/16	10	12	14	16	17	20.5	23	28	24	29	33	39
3/8	20	23	27	31	35	42	48	57	45	54	61	73
7/16	30	35	41	47	54	64	73	87	70	84	95	114
1/2	45	52	61	70	80	96	109	130	110	132	149	179
9/16	65	75	88	102	110	132	149	179	160	192	217	260
5/8	95	105	129	142	150	180	203	244	220	264	298	358
3/4	150	185	203	251	270	324	366	439	380	456	515	618
7/8	160	200	217	271	400	480	542	651	600	720	814	976
1	250	300	339	406	580	696	787	944	900	1080	1220	1464
1 1/8					800	880	1085	1193	1280	1440	1736	1953
1 1/4					1120	1240	1519	1681	1820	2000	2468	2712
1 3/8					1460	1680	1980	2278	2380	2720	3227	3688
1 1/2					1940	2200	2631	2983	3160	3560	4285	4827

Note 1: Bolt head identification marks as per grade. Manufacturing marks will vary. *Thick nuts must be used with Grade 8 bolt

TORQUE TIGHTENING CHART 2

METRIC FASTENER (ISO) TORQUE CHART

Note: Use these torques, unless special torques are specified. Values are UNC and UNF thread fasteners,plated or unplated as received from supplier. Fasteners can be dry or lubricated with normal engine oil. Values do not apply if graphite, moly-disulphite or other extreme pressure lubricant is used

ISO Class No.	8.8				10.9				12.9			
Bolt head identification (see note1)												
Bolt Size	Nm		LB - FT		Nm		LB - FT		Nm		LB - FT	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
M4	3	4	2	3	4	5	3	4				
M5	6.5	8	5	6	9.5	11	7	8				
M6	10.5	12	8	9	15	17.5	11	13				
M8	26	31	19	23	37	43	27	32				
M10	52	61	38	45	73	87	54	64				
M12	90	107	66	79	125	150	93	112				
M14	144	172	106	127	200	245	149	179				
M16	217	271	160	200	310	380	230	280				
M20	434	515	320	380	610	730	450	540				
M24	675	815	500	600	1050	1275	780	940				
M30	1250	1500	920	1100	2000	2400	1470	1770				
M36	2175	2600	1600	1950	3500	4200	2580	3090				

Because of the low ductility of these fasteners, the torque range is to be determined individually for each application. As a general rule, the torque ranges specified for grade 10.9fasteners can be used satisfactorily on 12.9 fasteners

*M14 is not a preferred size.

Note 1: Bolt head identification marks as per grade. Manufacturing mark will vary.

GENERAL INFORMATION

ILLUSTRATIONS

The individual parts in their normal relationship to each other. Reference numbers are used in the illustrations.

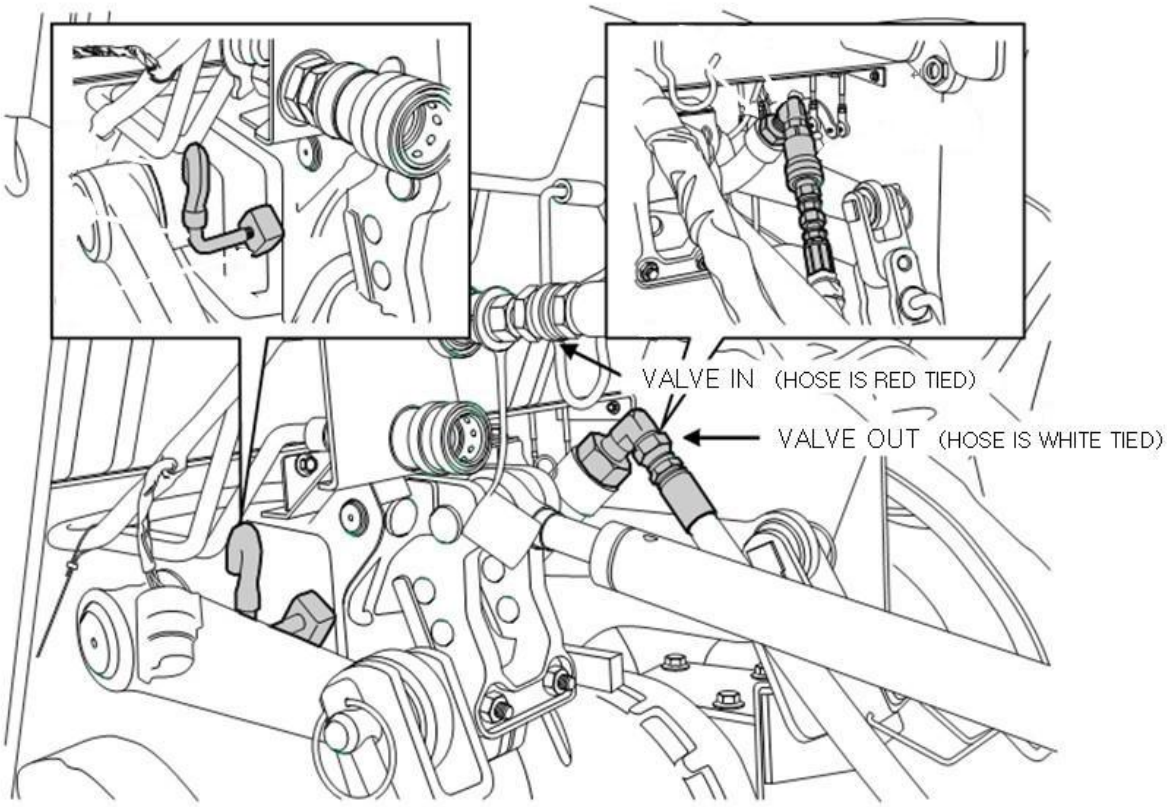
These numbers correspond to those in the: Number" Column and are followed by the quantity required and description.

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.

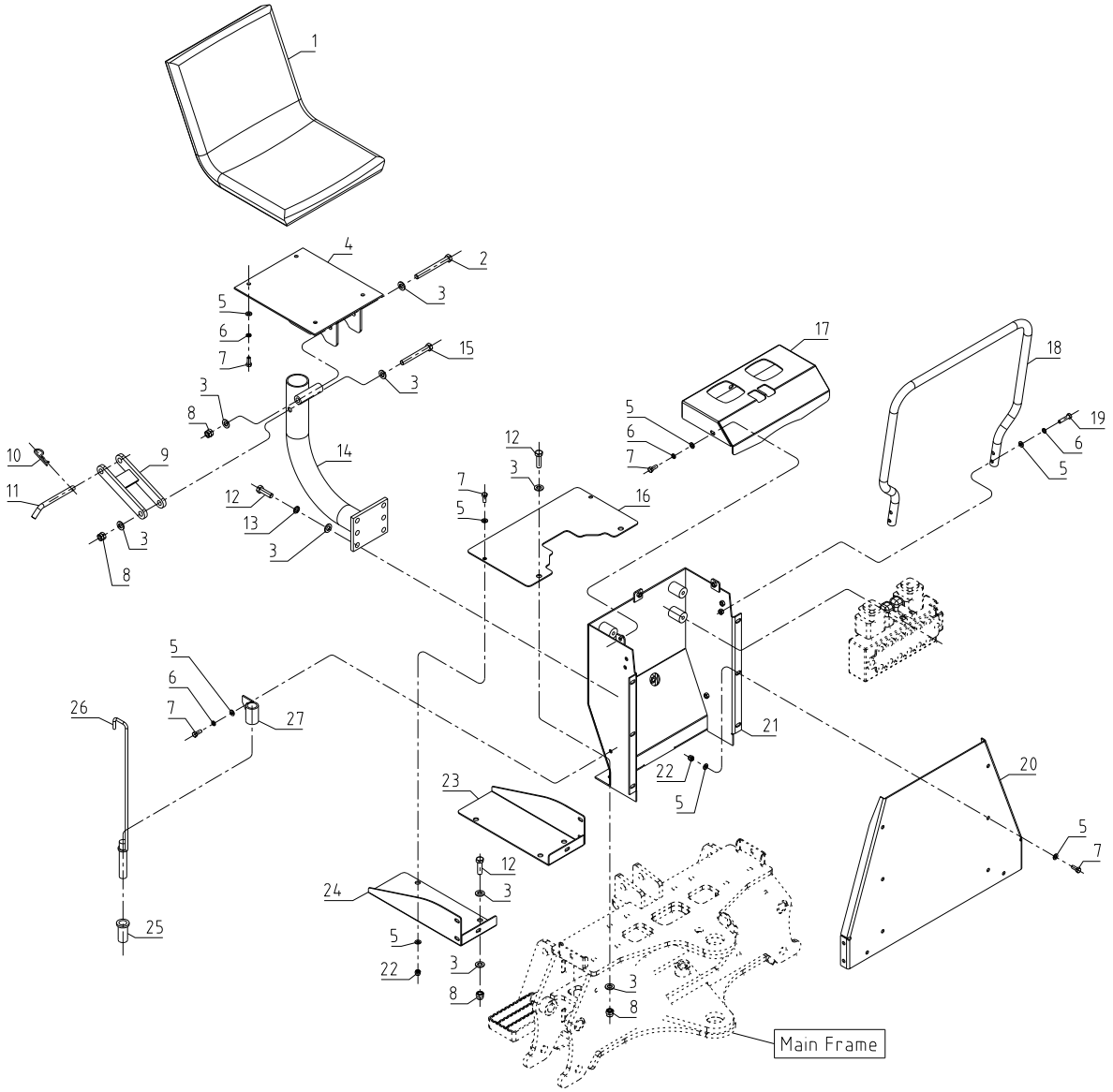
PART ORDER

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.



EXPLODED VIEW & PARTS LIST

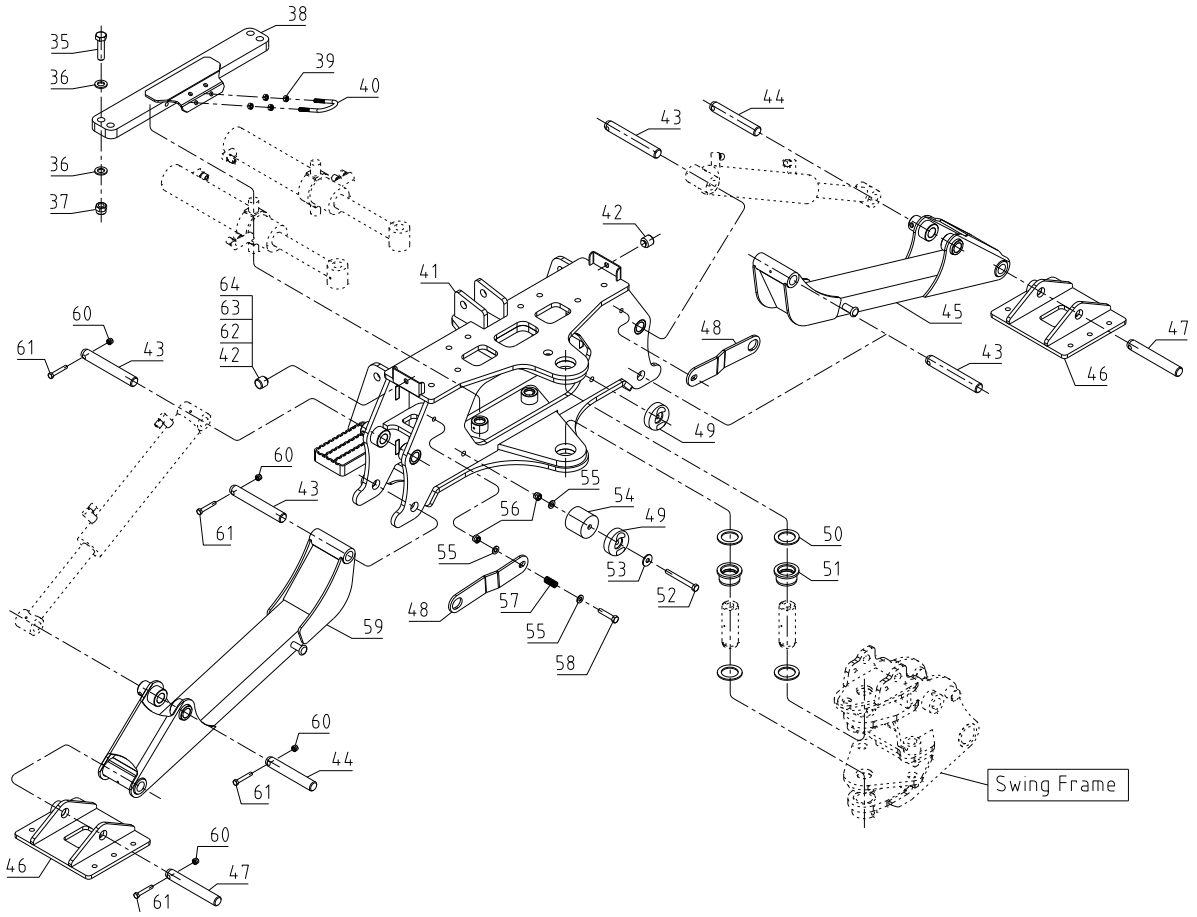
12.2 SEAT CONTROL ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
1	BK215.033	Seat	1
2	GB5782-M12x115	Bolt-M12x115	1
3	GB97.1-12	Washer-Plain 12	24
4	BK215.016	Seat Plate	1
5	GB97.1-8	Washer-Plain 8	40
6	GB93-8	Washer-Spring 8	12
7	GB5782-M8x20	Bolt-M8x20	22
8	GB889.1-M12	Nut Lock -M12	10
9	BK215.015	Link Assembly	1
10	BL25.10.110	R-Pin, Ø3.2	1
11	BK215.106	Pin, Ø12	1
12	GB5782-M12x40	Bolt - M12x40	12
13	GB93-12	Washer - Spring 12	4
14	BK215.013	Support Seat	1

REF.	PART NO.	DESCRIPTION	QTY
15	GB5782-M12x100	Bolt - M12x100	1
16	BK215.104	Foot Plate - Center	1
17	BK215.105	Top Cover	1
18	BK215.107	Guide Bar	1
19	GB5782-M8x35	Bolt - M8x35	4
20	BK215.124	Front Cover	1
21	BK215.014	Valve Room Assembly	1
22	GB889.1-M8	Nut Lock - M8	14
23	BK215.103	Foot Plate - LH	1
24	BK215.102	Foot Plate - RH	1
25	BK215.123	Rubber Boss	1
26	BK215.027	Swing Bin	1
27	Bk215.028	Swing Pin Hanger	1

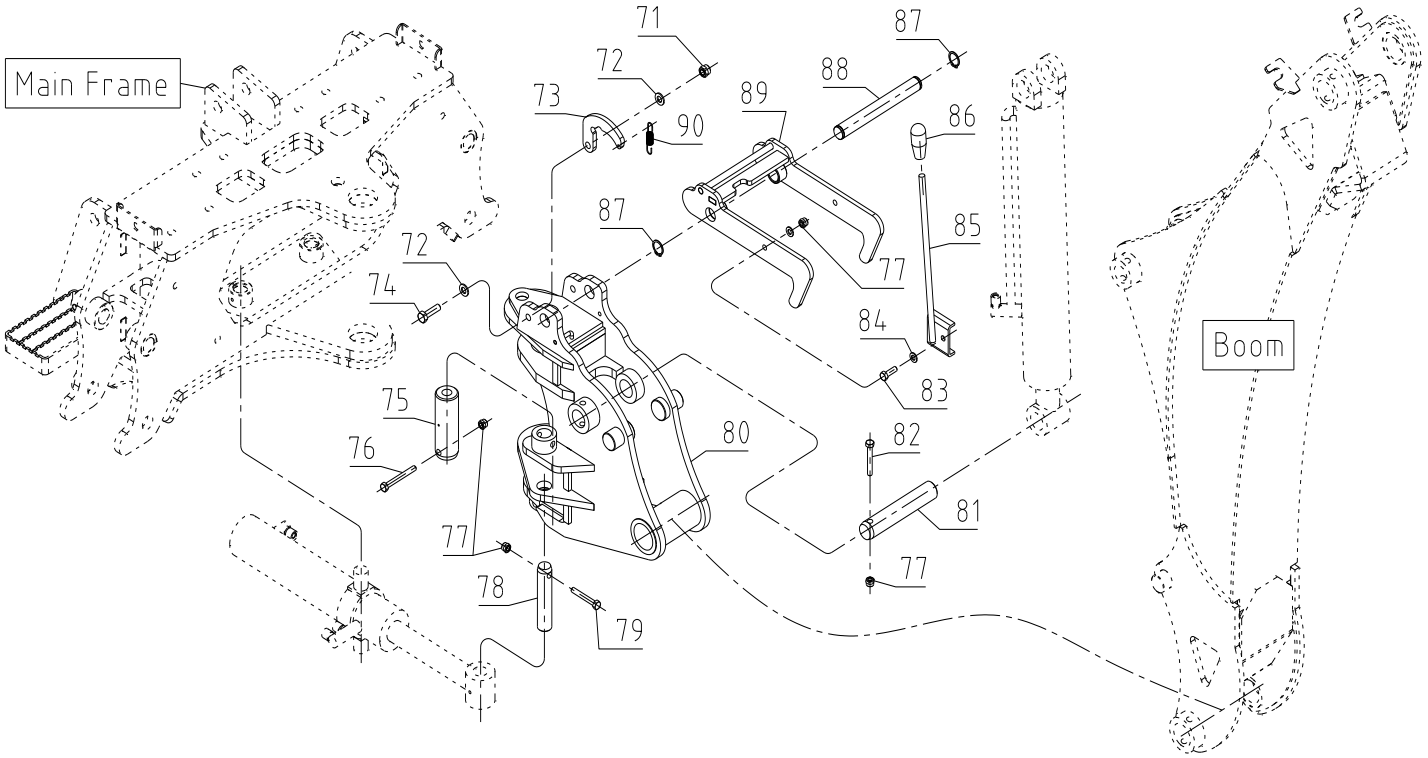
12.3 MAIN FRAME ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
35	GB5782-M16x60	Bolt - M16x60	4
36	GB97.1-16	Washer - Plain 16	8
37	GB889.1-M16	GB889.1-M16	4
38	BK215.026	Cross Bar	1
39	GB6172.1-M8	Nut - M8	4
40	BK215.402	U-Bolt	1
41	BK215.011	Main Frame Assembly	1
42	BK215.128	Rubber Stop	2
43	BK215.127	Pin, Ø24.5x173	4
44	BK215.126	Pin, Ø24.5x154	2
45	BK215.031	Stabilizer Assembly - LH	1
46	BK215.029	Foot Plate	2
47	BK215.125	Pin, Ø24.5x166	2
48	BK215.121	Stabilizer Lock	2
48	BK215.131	Rubber Cushion	2

REF.	PART NO.	DESCRIPTION	QTY
50	BK215.130	Washer	4
51	BK215.129	Bushing	2
52	GB5782-M10x95	Bolt - M10x95	2
53	GB96.2-10	Big Washer - Plain 10	2
54	BK215.032	Bracket - Cushion	2
55	GB97.1-10	Washer - Plain 10	6
56	GB889.1-M10	Nut Lock - M10	4
57	BK215.122	Spring	2
58	GB5782-M10x50	Bolt - M10x50	2
59	BK215.030	Stabilizer Assembly - RH	1
60	GB889.1-M8	Nut Lock - M8	8
61	GB5782-M8x50	Bolt - M8x50	8
62	GB/T97.1-6	Plain Washer 6	2
63	GB/T889.1-M6	Nut Lock - M6	2
64	GB/T70.1-M6x40	Bolt - M6x40	2

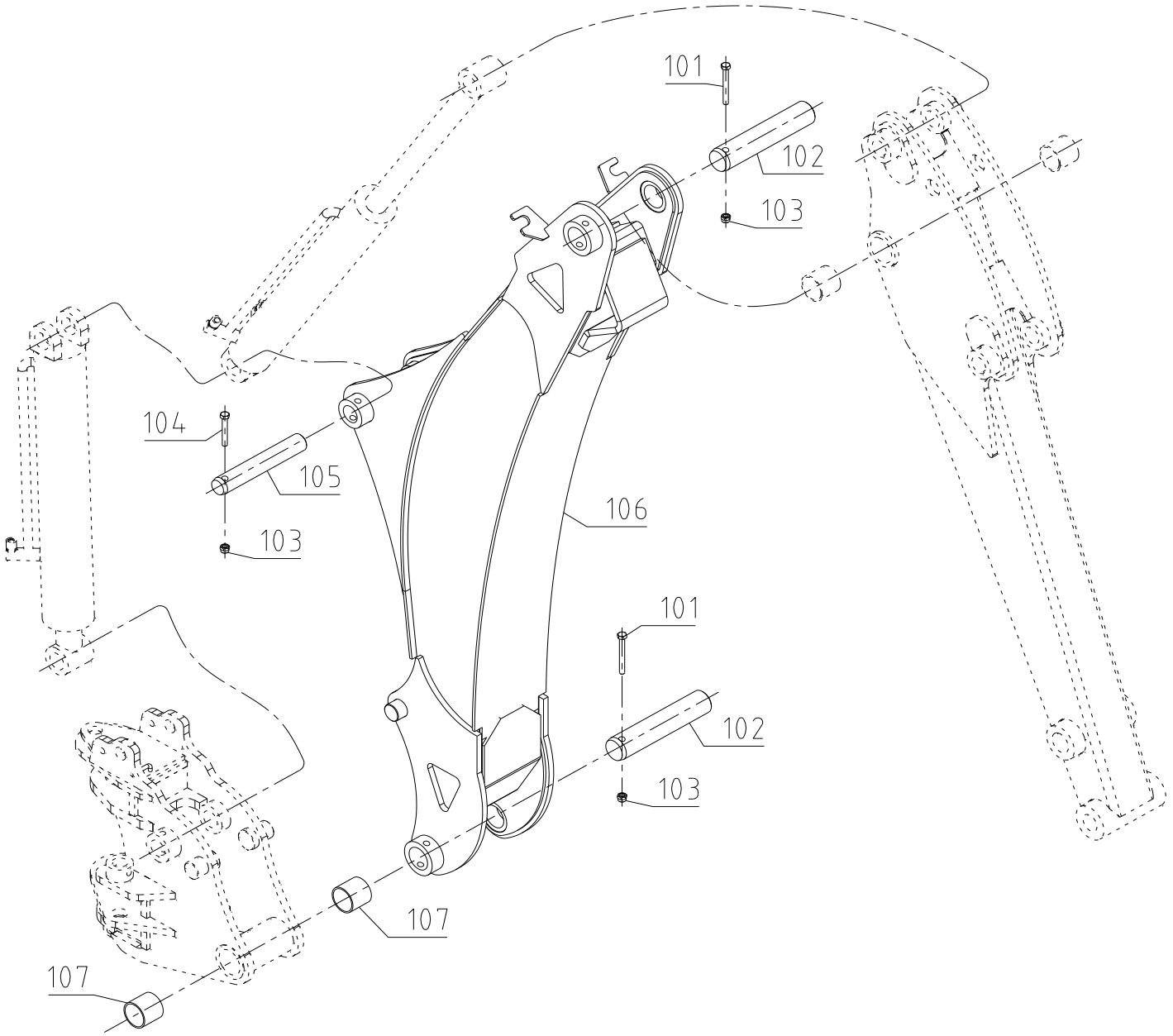
12.4 SWING FRAME ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
71	GB889.1-M10	Nut Lock - M10	1
72	GB97.1-10	Washer - Plain 10	2
73	BK215.118	Lock Plate	1
74	GB5782-M10x35	Bolt - M10x35	1
75	BK215.101	Pin, Ø39.5x115	2
76	GB5782-M8x70	Bolt - M8x70	2
77	GB889.1-M8	Nut Lock - M8	6
78	BK215.120	Pin, Ø24.5x117	2
79	GB5782-M8x55	Bolt - M8x55	2
80	BK215.012	Swing Frame Assembly	1

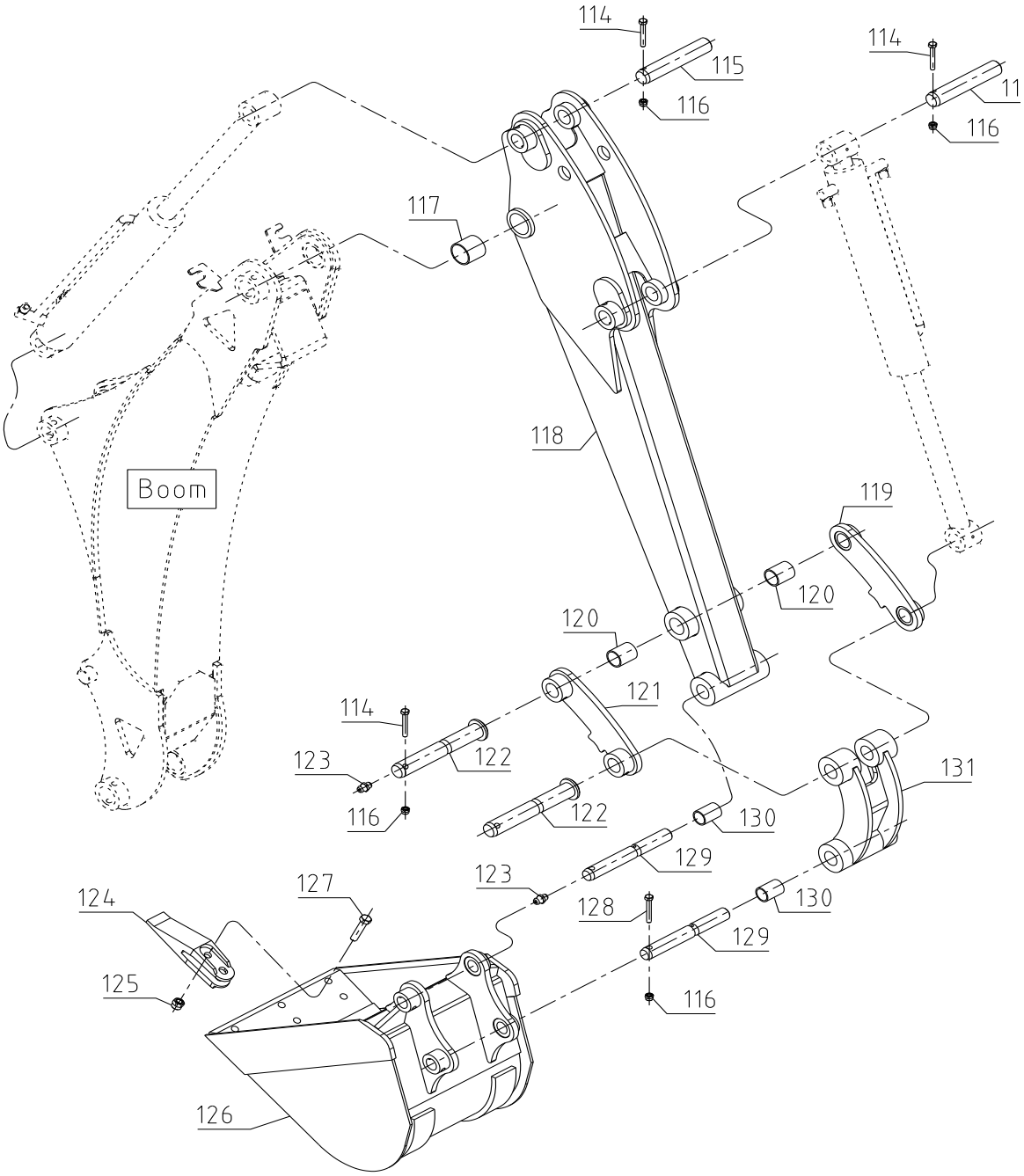
REF.	PART NO.	DESCRIPTION	QTY
81	BK215.112	Pin, Ø29.5x161	1
82	GB5782-M8x60	Bolt - M8x60	1
83	GB5782-M8x25	Bolt - M8x25	1
84	GB97.1-8	Washer - Plain 8	2
85	BK215.022	Handle Set	1
86	BK215.114	Plastic Ball	1
87	GB894.1-22	Snap Ring, 22	2
88	BK215.117	Pin, Ø22x190	1
89	BK215.023	Lock Frame Assembly	1
90	BK215.119	Spring	1

12.5 BOOM ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
101	GB5782-M8x70	Nut Lock - M10	2
102	BK215.115	Washer - Plain 10	2
103	GB889.1-M8	Lock Plate	3
104	GB5782-M8x60	Bolt - M10x35	1
105	BK215.113	Pin, Ø39.5x115	1
106	BK215.017	Bolt - M8x70	1
107	BK215.116	Nut Lock - M8	2

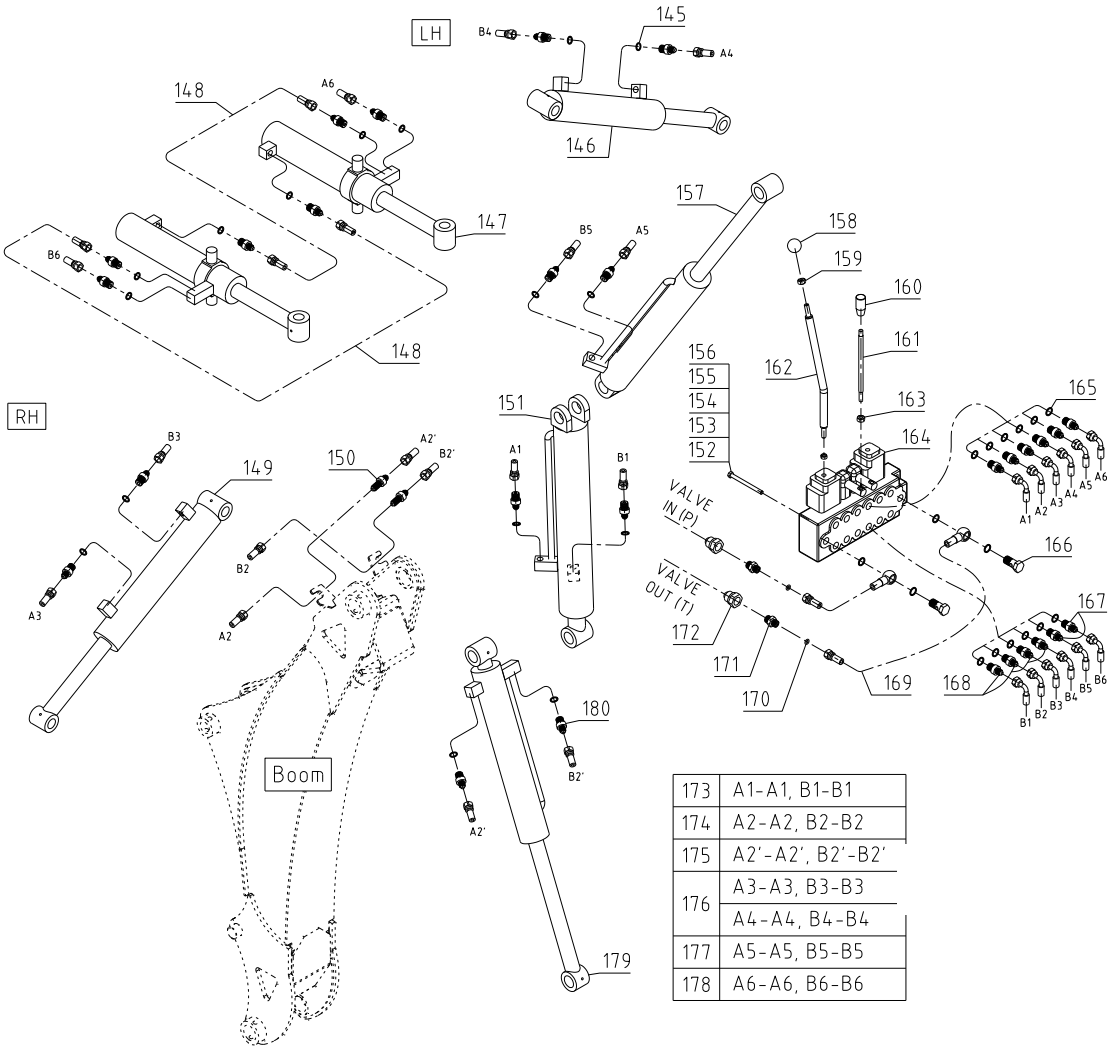
12.6 BUCKET, DIPPERSTICK ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
114	GB5782-M8x60	Bolt-M8x60	4
115	BK215.112	Pin, Ø29.5x161	2
116	GB889.1-M8	Nut Lock-M8	6
117	BK215.116	Bushing, Ø40	2
118	BK215.021	Dipperstick Assembly	1
119	BK215.019	Link-LH	1
120	BK215.111	Bushing, Ø30	2
121	BK215.018	Link-RH	1
122	BK215.110	Pin, Ø29.5x198	2

REF.	PART NO.	DESCRIPTION	QTY
123	JB7940.1-M6	Grease Nipple-M6	26
124	BK6N.01.105	Bucket Teeth	3
125	GB889.1-M12	Nut Lock-M12	6
126	BK215.025	Bucket Assembly	1
127	GB5782-M12x45	Bolt-M12x45	6
128	GB5782-M8x55	Bolt-M8x55	2
129	BK215.108	Pin, Ø24.5x200	2
130	BK215.109	Bushing, Ø25	4
131	BK215.020	Link Assembly	1

12.7 HOSE FITTING ASSEMBLY

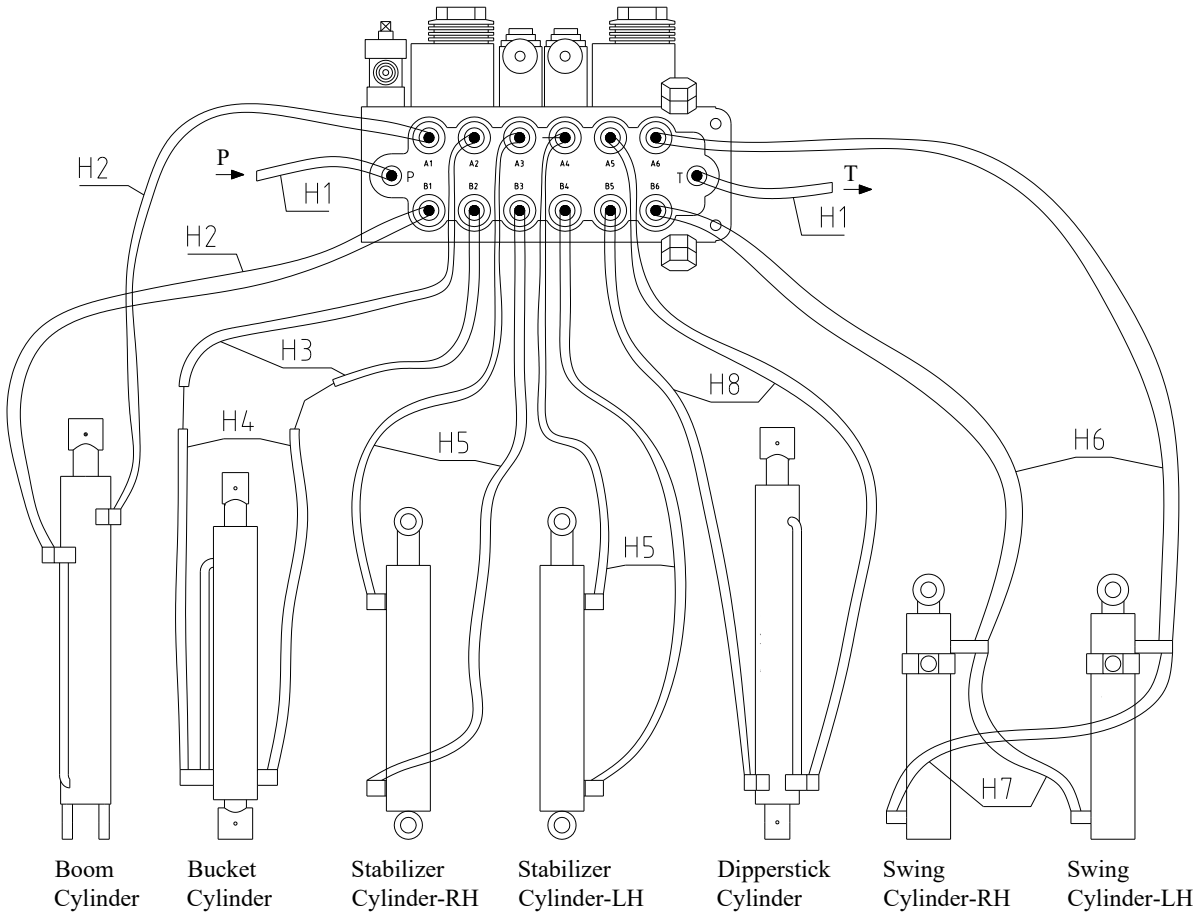


173	A1-A1, B1-B1
174	A2-A2, B2-B2
175	A2'-A2', B2'-B2'
176	A3-A3, B3-B3
	A4-A4, B4-B4
177	A5-A5, B5-B5
178	A6-A6, B6-B6

REF.	PART NO.	DESCRIPTION	QTY
145	JB/T982-14	Combination Washer 14	16
146	BK215.044	Stabilizer Cylinder-LH	1
147	BK215.045	Swing Cylinder	2
148	BK215.416	Hose, Swing To Swing	2
149	BK215.043	Stabilizer Cylinder-RH	1
150	BK215.406	Long Adapter, M14Z-M14Z	2
151	BK215.041	Boom Cylinder	1
152	GB5782-M8x100	Bolt- M8x100	2
153	GB97.1-8	Plain-Washer 8	5
154	GB889.1-M8	Nut Lock-M8	2
155	GB5782-M8x60	Bolt- M8x60	1
156	GB93-8	Spring-Washer 8	1
157	BK215.046	Dipperstick Cylinder	1
158	JB7271.1-M10x32	Plastic Ball-M10x32	2
159	GB6172.1-M10	Nut-M10	4
160	JB7271.5-M10x50	Plastic Ball-M10x50	2
161	BK215.401	Lever stick	2
162	BK215.040	Hand Lever	2

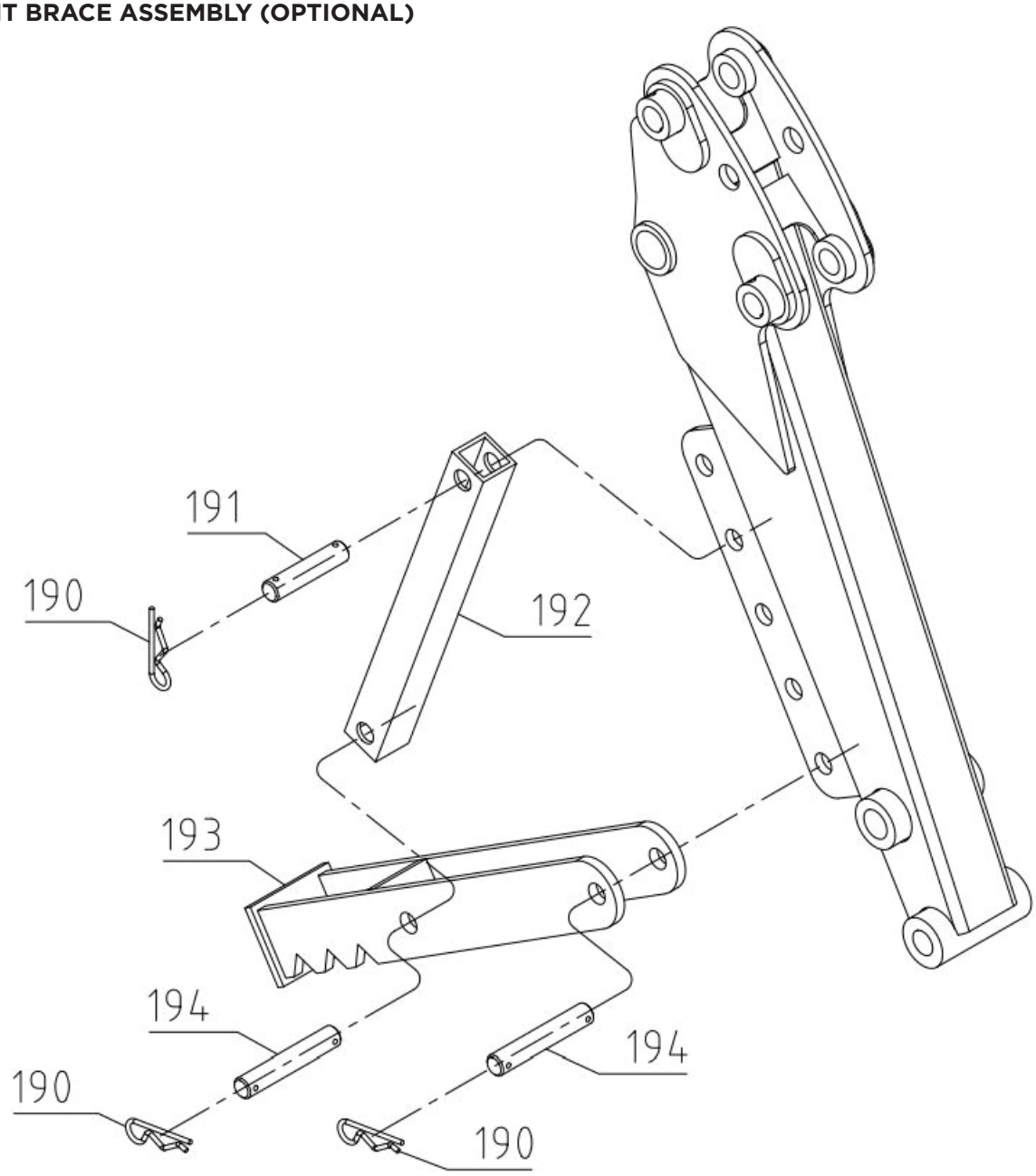
REF.	PART NO.	DESCRIPTION	QTY
163	GB/T6172.1-M8	Nut-M8	2
164	HC-TR55/6	Control Valve	1
165	JB/T982-18	Combination Washer 18	16
166	BK215.403	Hollow Bolt-G3/8	2
167	BK215.408	Adapter-2, M14Z-G3/8	4
168	BK215.405	Adapter-1, M14Z-G3/8	8
169	BK215.410	Hose, Valve To In Out	2
170	GB3452.1-13x2.4	O-Ring, 13x2.4	2
171	BL25.40.102	Adapter, M18-R1/2	2
172	GB8606-G1/2-M	Quick Coupler-G1/2-M	2
173	BK215.411	Hose, Valve To Boom	2
174	BK215.412	Hose, Valve To Adapter	2
175	BK215.413	Hose, Adapter To Bucket	2
176	BK215.414	Hose, Valve To Stabilizer	4
177	BK215.417	Hose,Valve To Dipperstick	2
178	BK215.415	Hose, Valve To Swing	2
179	BK215.042	Bucket Cylinder	1
180	BK6N.06.104	Adapter, M14Z-M14	16

12.8 HYDRAULIC SYSTEM ASSEMBLY



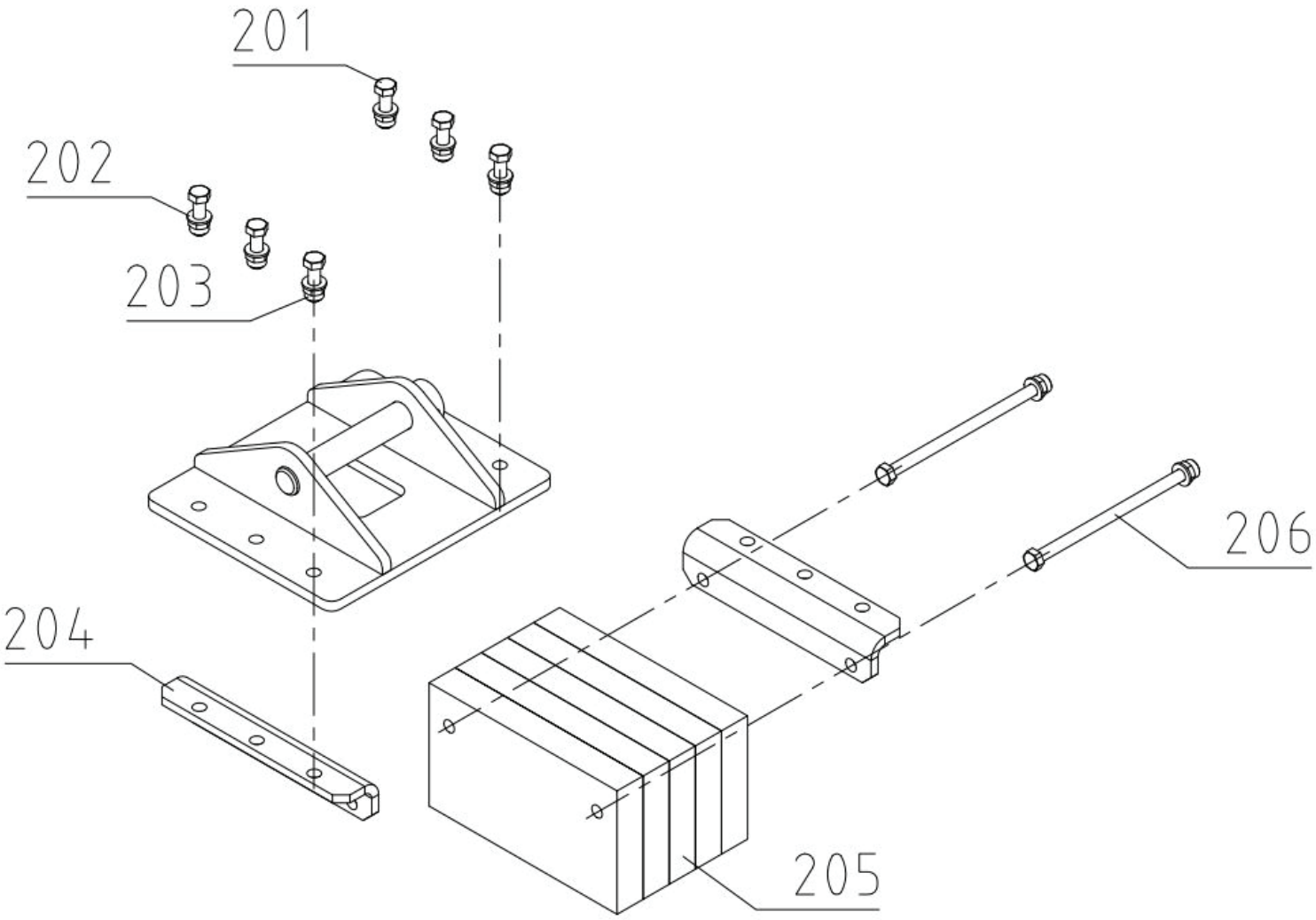
REF.	PART NO.	DESCRIPTION	QTY
H1	BK215.410	Hose, Valve To In Out	2
H2	BK215.411	Hose, Valve To Boom	2
H3	BK215.412	Hose, Valve To Adapter	2
H4	BK215.413	Hose, Adapter To Bucket	2
H5	BK215.414	Hose, Valve To Stabilizer	4
H6	BK215.415	Hose, Valve To Swing	2
H7	BK215.416	Hose, Swing To Swing	2
H8	BK215.417	Hose,Valve To Dipperstick	2

12.9 FRONT BRACE ASSEMBLY (OPTIONAL)



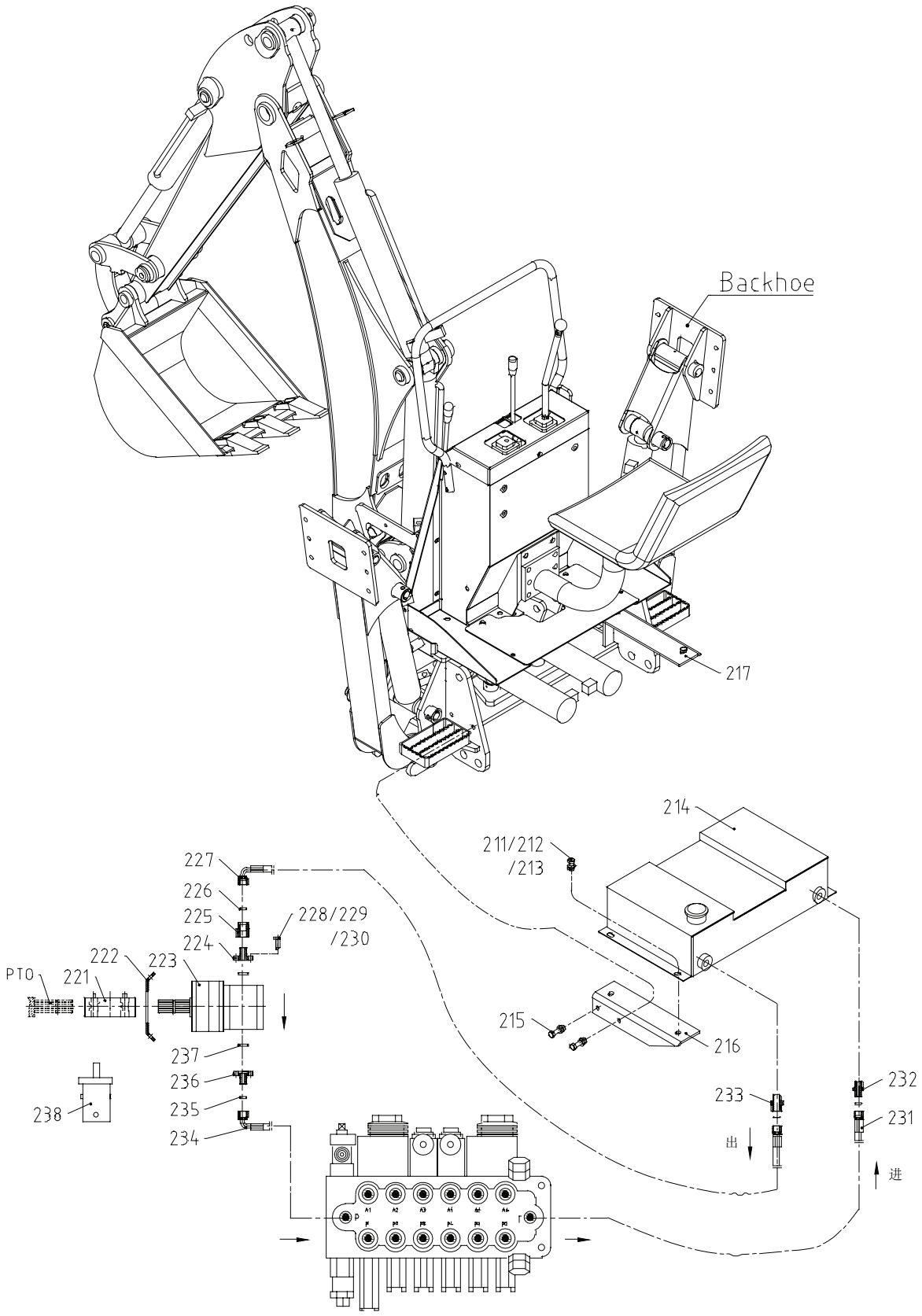
REF.	PART NO.	DESCRIPTION	QTY
190	FEL - Ø5	Ø5 - R Pin	3
191	BK215.132	Short Pin	1
192	BK215.133	Square Tube	1
193	BK215.034	Front Brace	1
194	BK215.134	Long Pin	2

12.10 RUBBER BRACE ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
201	GB/T5872-2000	Bolt - M10x35	12
202	GB/T97.1-2002	Plain Washer 10	16
203	GB/T889.1-2000	Nut M10	16
204	BK215.05.101	Clip Board	2
205	BK215.05.102	Rubber	5
206	GB/T5872-2000	Bolt - M10x180	2

12.11 TANK MOUNT ASSEMBLY



REF.	PART NO.	DESCRIPTION	QTY
211	GB/T5872-2000	Bolt - M10x25	4
212	GB/T97.1-2002	Plain Washer 10	4
213	GB/T889.1-2000	Nut - M10	4
214	BK215.07.048	Tank	1
215	GB/T5872-2000	Bolt - M10x40	4
216	BK215.07.422	Tank Mount - Left	1
217	BK215.07.421	Tank Mount - Right	1
221	BK6N.07.001	Spline Hub Weldment	1
222	BK6N.06.114	Mount Plate	1
223	BK215	Gear Box	1
224	BK6N.06.115	Joint - M20	1
225	BK6N.06.116	Joint - M20-M27	1
226	GB/T3452.1-92	O-Ring - M20x15.2x2.4	2
227	BK6N.06.117	Pipe - M27x27	1
228	GB/T5872-2000	Bolt - M8x25	8
229	GB/T97.1-2002	Plain Washer 8	8
230	GB/T93-2002	Spring Washer 8	8
231	BK215.410	Pipe - M18xØ18	1
233	BK6N.06.122	Joint - M18-M20	1
234	BK6N.06.121	Joint - M20-M27	1
235	BK215.410	Pipe - M18x1Ø8	2
236	BK6N.06.118	Joint - M18	1
237	GB/T3452.1-92	O-Ring - M24x19.2x2.4	2
238	CBN-E316	Pump	1

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