

**BOXER**  
Agriculture Equipment

## Bachoe loader

BHM195 Series



### Important:

Read these instructions before installing and using this implement.

[boxeragri.nl](http://boxeragri.nl)

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## INTRODUCTION

**Introduction** The purpose of this manual is to assist you in Maintaining and operating your Redline backhoe. Read it carefully, it provides information and instructions that will help you achieve years of reliable performance. Some information may be general in nature due to unknown and varying conditions. However, through experience and these instructions, you should be able to develop operating procedures suitable to your particular situation. “Right” and “Left” as used throughout this manual are determined by position operator is facing 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 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 and Location

**Serial Number and Location** The serial and model number is important information about the machine and it may be necessary to know it before obtaining the correct replacement part. The identification plate is located on the right side of control console. It is also recorded by your dealer on back page of this manual.

### 1.1 SAFETY

Understand that your safety and the safety of other people is measured by how you service and operate this Backhoe.

## CHAPTER 1. SAFETY PRECAUTIONS

Know the position and operations of all controls prior to operation. Make sure you check all controls in safe area before starting.

Read this manual completely 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 operating.

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



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

## CHAPTER 1. SAFETY PRECAUTIONS



### 1.2 SAFETY PRECAUTIONS

Before starting the engine of your tractor, make sure all operation controls are in park lock or neutral position. Operate controls only when seated in the operator's seat. Equip your tractor with a ROPS cap or frame for your protection. See your tractor operator's manual for correct usage.

A frequent cause of personal injury or death is people 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. Operate the Backhoe smoothly when lowering or lifting loads. Stay off slopes too steep for safe operation. Use low range gear before you start up or down a hill with a heavy load. Avoid "free wheeling". Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operation near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick or muddy surface



### 1.2 SAFETY PRECAUTIONS



(CONT.)

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

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

Before operating hydraulic controls, make sure all hydraulic connections are tight and components are in good condition.

Contact with overhead power lines can cause severe electrical burn or electrocution. Make sure there is enough clearance between raised equipment and overhead power lines. Add water to rear tires or fit rear wheel weights for increased stability.

## **CHAPTER 1. SAFETY PRECAUTIONS**

A backhoe attachment should be transported in a low position at slow ground speeds. Make sure turns slowly and use the tractor brakes cautiously. A loaded attachment in the raised position alters the center of gravity location of the machine and increases the possibility mishaps.

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

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

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

Only operators who have been specially trained in backhoe operation and fully understand this manual can operate the backhoe.

Keep hands, feet and clothing away from all moving parts. Wear close fitting clothing and appropriate safety equipment (which includes, steel cap shoes, protective gloves, hard hat, safety glasses and dust mask). Prolonged exposure to loud noise can damage hearing. Wear suitable approved hearing protection such as ear muffs or plugs, operating equipment safely requires your full attention. Do not wear radio or music headphones. Secure hair above shoulder length.

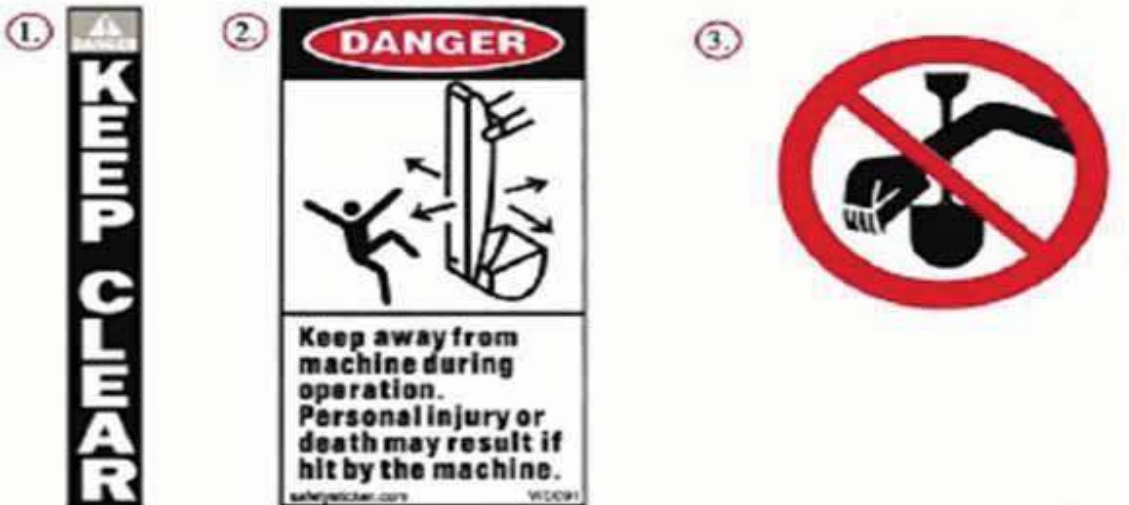
You must be in good physical and mental health to operate the backhoe safely. Do not operate the backhoe when you vision, co-ordination or judgment.

HIVIS clothing required when operating backhoe on work sites and road sides.

## CHAPTER 2. SAFETY DECALS

### SAFETY DECALS

- 1 Keep safety decals clean and free of obstructing material
- 2 Replace damaged or missing safety decals with new decals from your dealer.
- 3 If a component with a safety decal(s) affixed is replaced with a new part, ensure new safety decal(s) are attached in the same locations on the replacement components. Refer below for correct location of decals. Note decals appear on both sides of backhoe.





## CHAPTER 2. SAFETY DECALS

4.



5.



6.



7.



8.



9.



10.



11.



## CHAPTER 2. SAFETY DECALS

12



13



14



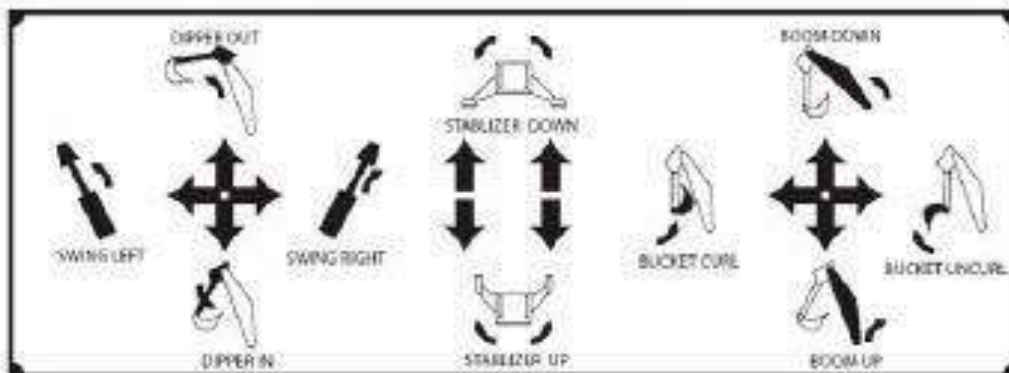
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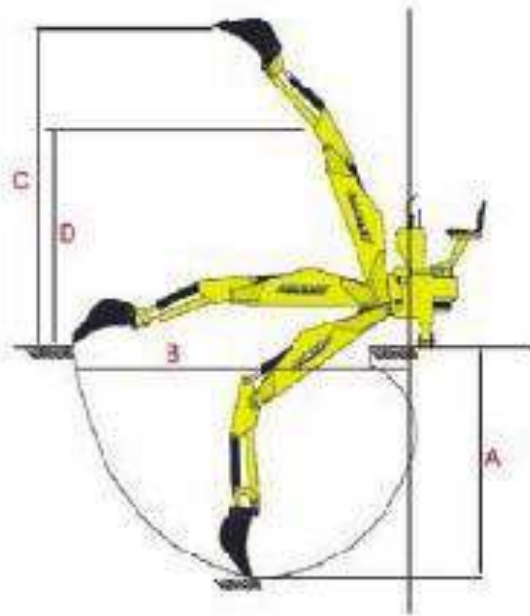




## CHAPTER 3. BACKHOE SPECIFICATIONS

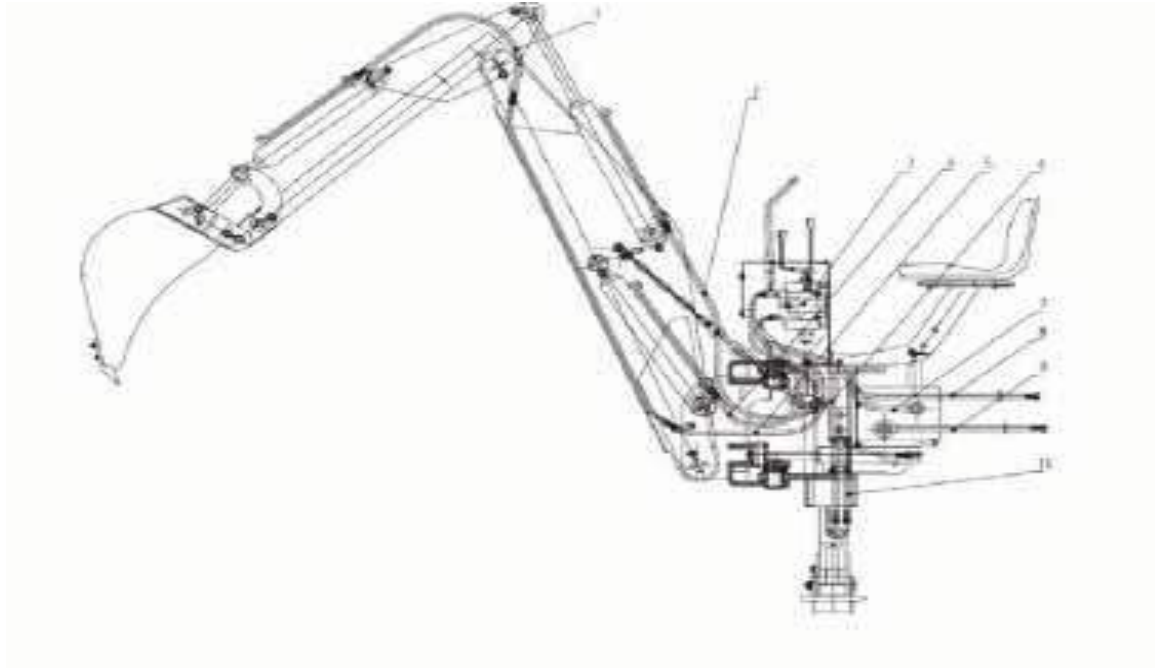
### 3.1 BRIEF INTRODUCTION

Redline backhoes can be attached to many brands of tractors and tracked dozers fitted with three point linkage, increasing their versatility.



## CHAPTER 3. BACKHOE SPECIFICATIONS

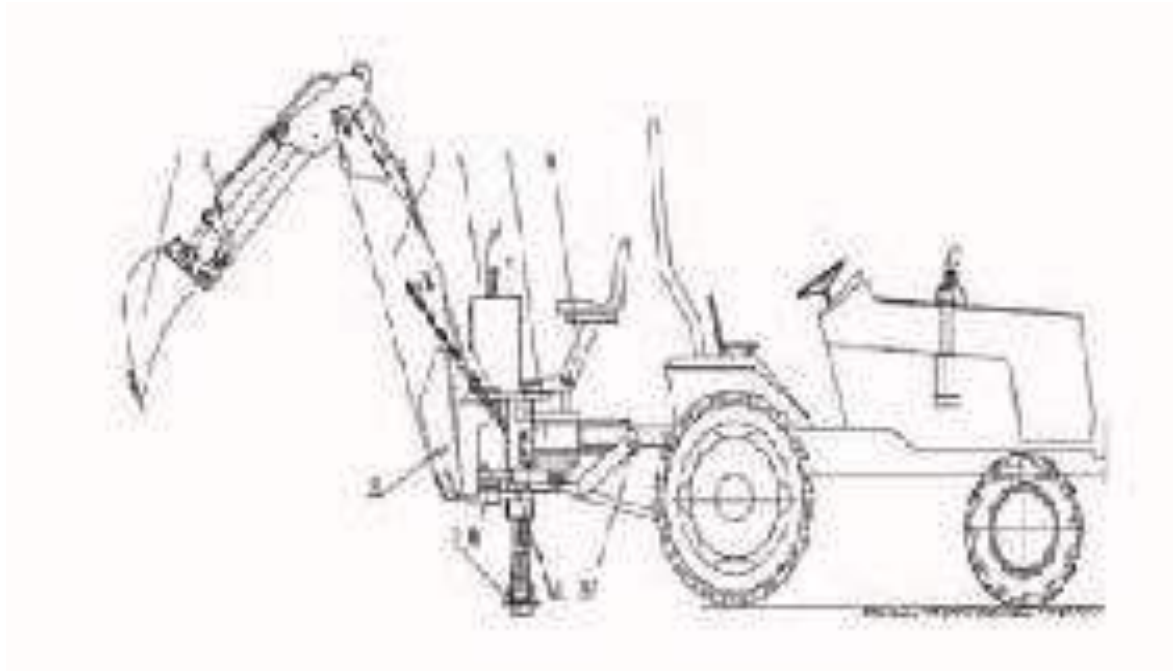
| Model                          | BHM-195 | BHL-225          |
|--------------------------------|---------|------------------|
| Structure weight (kg)          | 540     | 700              |
| Max digging depth (m) A        | 1.95    | 2.25             |
| Max digging radius (m) B       | 2.9     | 3.3              |
| Max digging height (m) C       | 3.17    | 3.45             |
| Max unloading height (m) D     | 2       | 2.3              |
| Stabilizer width (m)           | 1.7     | 1.7              |
| Swing angle for boom           | 180     | 180              |
| Bucket turning angle           | 195     | 203              |
| Bucket turning angle           | 0.02    | 0.035            |
| Bucket width (mm)              | 15L/MIN | 25L/MIN          |
| Min. hydraulic flow req.       | 25L/MIN | 40L/MIN          |
| Max. hydraulic flow allowed    | 13MPA   | 13MPA            |
| Min. hydraulic press. Allowed. | 16MPA   | 16MPA            |
| Bucket digging force (kg)      | 1100    | 1700             |
| Dipper arm digging force (kg)  | 850     | 1100             |
| Item                           | Service | Service Interval |
| Hydraulic System Oil Level     | Check   | Daily / 10 Hours |
| Hydraulic System Oil/Filter    | Replace | Every 50 Hours   |



### 3.2 Hydraulic System Main Components

1. Front Hose-Dipper Arm
2. Long Hose-Boom
3. Control Valve DL-F20L
4. Short Hose-Boom
5. Rear Hose-Dipper Arm
6. Hose-Turning Cylinder
7. Oil Return Cylinder
8. Inlet Oil Hose-Control Valve
9. Inlet Hose-Gear Pump
10. Hose-Stabilizer

## CHAPTER 3. BACKHOE SPECIFICATIONS



### 3.3 Backhoe Main Components

1. Bucket
2. Dipper Arm
3. Boom
4. Bracket for Control
5. Tank
6. Seat
7. Stabilizer
8. Swing Post
9. Main Frame
10. Sub A Frame
11. Boom Safety Lock Pin

## CHAPTER 4. TRACTOR PREPERATION



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

### 4.1 ROPS SYSTEM

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

### 4.2 HYDRAULIC SYSTEM

Models BHEF/ BHES Series

These models are driven by the tractors Hydraulic remotes. 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

The hydraulic system powering the backhoe must be compatible with the specifications of the backhoe. Refer to the minimum and maximum pressure and flow requirements shown in Backhoe Specifications. Many tractor hydraulic systems exceed the flow rate specified for your backhoe. The flow may need to be reduced to an acceptable rate by throttling the engine RPM. Adjusting the flow rate correctly could prevent sudden shock loads on the cylinders, hoses, etc. this results in a smooth operation and reduced maintenance costs and down tine.

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

#### Models BHUF/BHUS Series

These Models are driven by the tractors Power Off, and are fitted with an in-built Hydraulic pump and tank. Check fluid level daily, ensure PTO shaft is greased and change hydraulic filter (refer to Lubrication and Maintenance).



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

### 4.3 TYRE INFLATION

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

Rear Tyres must be maintained at equal pressure within the recommended tyre inflation range. Unequal rear tyre inflation reduces stability and increases tipping hazard.

## **CHAPTER 4. TRACTOR PREPERATION**

### **4.4 WHEEL TREAD SETTINGS**

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

### **4.5 ATTACHMENT**

Ensure your tractor's point linkage system is fitted with sway chain attaching the backhoe. Failure to do can cause the backhoe to swing when travelling potentially causing bodily injury or machine failure.

Inspect for any worn or damaged parts between the tractor and backhoe. Replace if necessary with parts of suitable strength and quality.

### **4.6 COUNTER WEIGHT**

Add recommended ballast (either front weights or from end loader) to the tractor's front-end for increased stability. Refer to tractor operator manual for specific recommendations on counter weighting tractor.

## **CHAPTER 5. BACKHOE MOUNTING**

### **5.1 PTO SHAFT CONNECTION (BHUF AND BHUS MODELS)**

Ensure PTO shaft is correct length; correct PTO shaft length must have a minimal overlap of 150mm in drive position. Connect PTO shaft to tractor PTO output shaft and backhoe hydraulic pump shaft. Check PTO shaft has suitable angle prior to operation. Angle of PTO shaft universals must be less than 25°, to prevent major damage PTO Speed 540RPM for operation.

### **5.2 HYDRAULIC CONNECTION (BHEF AND BHES MODELS)**

Connect the Hydraulic quick connectors to the tractor's hydraulic remote outlets. Detent tractor hydraulic remote's control lever forward or back for correct flow of oil to backhoe.

### **5.3 FITTING BACKHOE TO TRACTOR**

-Choose some firm level ground to work on -Use hoist raise the backhoe mainframe onto 3 secured stands. -Align the backhoe with boom parallel to tractor (Refer to Photo 1) -Connect backhoe tractor 3.P.L lower Arm (Refer to Photo 2) -Connect solid top link at tractor end first (Refer to Photo 3) -Fit short bolt to rear hole loosely (use podgy bar to align holes) ( Refer to Photo 4) -Connect A-frame lockout bars to aligning holes and ensure all bolts are tight (Refer to Photo 5) -Connect PTO shaft for BHUF & BHUS Model (Refer to Photo 6)



## CHAPTER 5. BACKHOE MOUNTING

-For BHEF & BHES models, connect backhoe hydraulic hoses to tractor hydraulic remotes (Refer to Photo 7)

-Lift boom stabilizer legs into transport mode, fit boom safety pin and adjust 3.P.L sway chains. (Refer to Photo 8)



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

## CHAPTER 5. BACKHOE MOUNTING

### 5.4 REMOVE BACKHOE FROM TRACTOR

-Choose some firm level ground to work on -Place 3 secure stands under backhoe main frame and boom carrier. (Refer to Photo 1) -Lower stabilizer legs to ground. Position bucket flat on the ground with dipper arm vertical. (Refer to Photo 2) -Remove A-frame lockout upper and lower bolts. (Refer to Photo 3) -Remove A-frame lockout bars. (Refer to Photo 4) -Remove 2 piece solid top link; (Refer to Photo 5) -Lower 3.P.L onto 3 secure stands. (Refer to Photo 6) -Remove lower 3.P.L arm pins. (Refer to Photo 7) -Remove PTO shaft for BHUF & BHUS models. (Refer to Photo 8) -Disconnect backhoe hydraulic hoses from tractor remote outlet for BHEF & BHES models. (Refer to Photo 9 -Drive tractor forward slowly.(Refer to Photo 10)



Photo 1



Photo 2



Photo 3



Photo 4



## CHAPTER 5. BACKHOE MOUNTING



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

## CHAPTER 5. BACKHOE MOUNTING



three point linkages.

**CAUTION:** Backhoe should be mounted to the tractor



**CAUTION:** Never operate backhoe without secured solid top link and A-frame.



**CAUTION:** Never store backhoe without bucket attached to the backhoe.



**CAUTION:** Keep Feet and Hands well clear of underside of backhoe.



**CAUTION:** Never raise 3.P.L position / draft lever while backhoe is connected, damage could occur to linkage and hydraulic system. Use mechanical means to secure these levers down to tractor.



**CAUTION:** It is owner / Operator responsibility to ensure that the tractor 3.P.L top link & Hydraulic lift cover area is strong enough to accept 3.P.L rigid connection and backhoe while in operation as extra forces are exerted through top link. No liability can be accepted for damage to tractor.



**CAUTION:** The backhoe unit when not fully connected to the tractor is potentially unstable. Proceed with Caution. Do not raise the backhoe boom until it is fully connected to the tractor. Failure to comply with these requirements could cause death, bodily injury or property damage.



**CAUTION:** Do not operate the Backhoe if the fittings are leaking or if the hoses are damaged. A sudden line burst would cause the boom to drop suddenly potentially causing death, bodily injury or property damaged.



**CAUTION:** Before disconnecting hydraulic lines, turn the tractor off, relieve all hydraulic pressure. Escaping hydraulic oil under pressure can have sufficient force to prevent the causing serious personal Injury.

## CHAPTER 6. BACKHOE OPERATION



**CAUTION:** The tractor/backhoe should only be operated with all safety equipment properly installed.

Keep assistants or bystanders a safe distance from the equipment operating area.

### 6.1 PRECAUTIONARY NOTE.

- Read and understand this manual to avoid accident.
- Check the hydraulic lines are correctly attached and not leaking.
- Maintain and repair (if it is needed) all parts or assemblies, check bolts and pins to be sure they are positioned tightly.
- Check tractor is prepared for operation. Refer tractor operators manual.
- 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 to be at specified level. Add as required.
- Do not operate the hydraulics when not seated in the backhoe operator's seat/
  - Keep all assistants out of area of operation.

## CHAPTER 6. BACKHOE OPERATION

-Do not operate rapidly. -Do not allow riders other than the operator to be on the tractor while operating.

### Important

Limit tractor engine speed in line with your experience. At first set PTO RPM of the tractor to slow.

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

### Important

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

### Important

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

Position the backhoe as near as possible and in such a direction as to minimize the amount of turning required to dump.

Keep the unit clean and perform regular servicing.

We urge you to follow this advice:

- 1 Read and understand this manual as well as the Tractor Operator's Manual.
- 2 Remember and observe the safety precautions brought to your attention in this manual, the tractor manual and on the machinery itself.
- 3 Use good common sense in the everyday operation of this unit. Safety recommendations can never be allinclusive and you are responsible for watching out for and avoiding unsafe.
- 4 Never exceed the limits of a piece of machinery. If its ability to do the job, or to do it 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 down slowly. Never drop a loaded attachment and "Catch it hydraulically". Stopping a load after it has gained download momentum places undue strain on the unit and may cause unnecessary damage to the backhoe or tractor or even worse, personal injury.**



## CHAPTER 6. BACKHOE OPERATION



**CAUTION:** Before disconnecting hydraulic lines, relieve all hydraulic pressure. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic oil, seek medical attention immediately.



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

### 6.2 INITIAL BACKHOE OPERATION

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



**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.

When possible keep cylinders in a retracted position when the backhoe is in use guard against rust and contamination which may cause damage to the cylinder rods or hydraulic system. Also, lock the swing and boom while backhoe is being transported and storing for an extended period of time.

### 6.3 COLD WEATHER OPERATION

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



**CAUTION:** Operate controls only when seated in the operator's seat with seat belt on.

### 6.4 BACKHOE HYDRAULIC CONTROLS

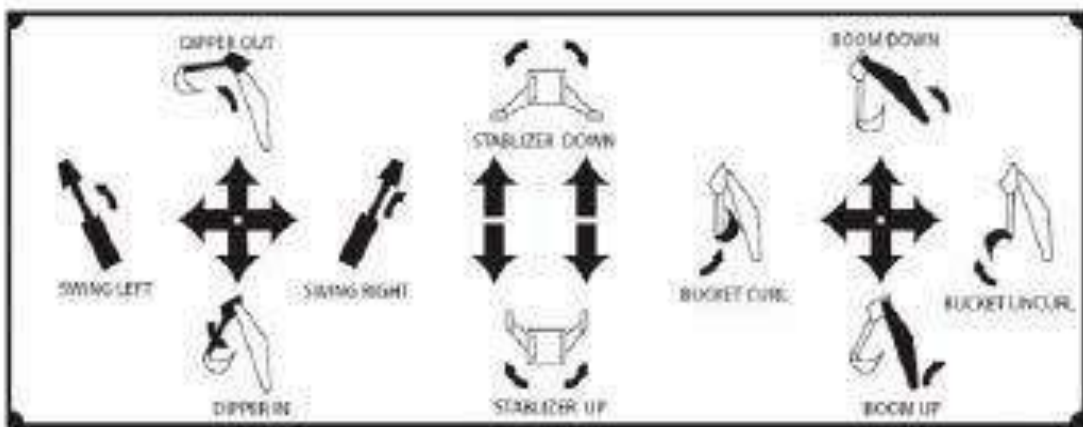
The backhoe hydraulic valve features 4 control levers. Refer to the diagram below for backhoe control functions. "Left" and "Right" are determined by the direction the operator is facing when seated in the backhoe.

The Diagram is located on the rear of the control valve bracket and is visible when operating the valve.

## CHAPTER 6. BACKHOE OPERATION



- 1. Boom / Bucket      3. Right Stabilizer
- 2. Dipper Arm / Swing      4. Left Stabilizer

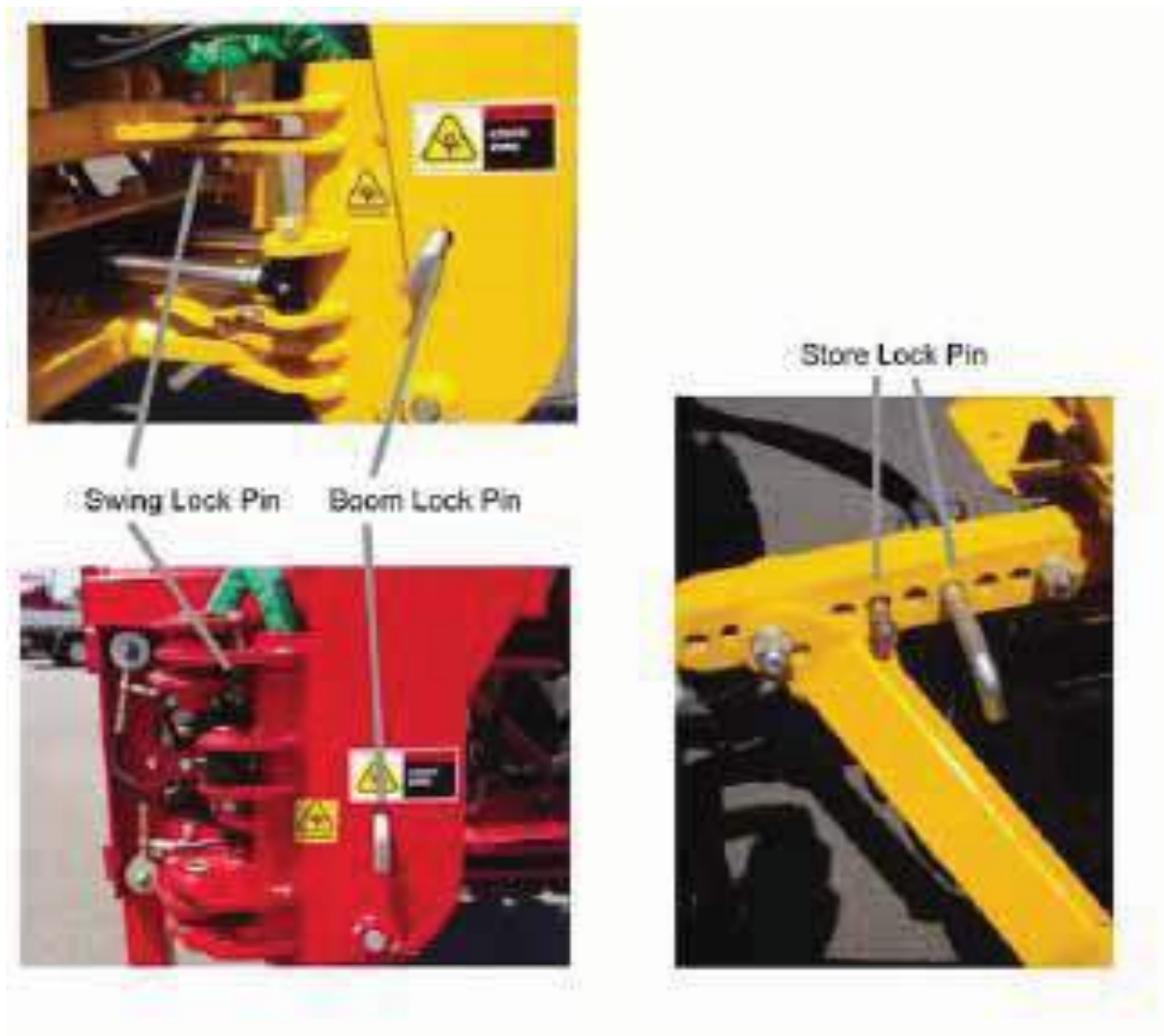


The two levers, 'Boom and swing control lever' and 'Bucket and dipper arm', provide four simultaneous operations. Both experience and practice are needed to eliminate excess motion and increase operating efficiency.

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.

## CHAPTER 6. BACKHOE OPERATION



### 6.5 SWING LOCK AND BOOM LOCK

When transporting or dismounting backhoe, you must lock the backhoe's swing and boom, for models BHUF and BHEF, position boom straight back and the place the lock pins through holes in swing frame and boom. For models BHES and BHUS, side shift boom carries to one side swing boom to opposite side and drop pin through holes in swing frame and boom. When not in use, store pins in the adjustable top link

### 6.6 STABILIZER CLIP (BHEF & BHUF MODELS ONLY)

Stabilizer clips are also to be used for transporting.

## CHAPTER 6. BACKHOE OPERATION

### 6.7 OPERATING SIDE SHIFT (BHES AND

1 When operating backhoe you must be in the with the seat belt on. Do not from the ground beside it.

2 Ensure all other machinery are well and slide radius when operating the unit

3 When operating the relevant models ensure fully, the dipper arm is fully is fully crowded back. It is swing the boom around the opposite direction to the This takes the load off the and will allow it to slide the boom in the same about to slide it, the loading hitch plate with catch and dig in when you attempt to slide it across, this will eventually wear out the slides or create holes for the slide plate to catch in..

4 The stabilizer legs are to be on the ground at all times when operating the backhoe.

5 Before digging with the slide models ensure the hydraulic locks are engaged and locked into place. Do not attempt to slide the frame with the locks engaged

6 Ensure the boom and slew safely pins are removed before use and are reinstalled after use.



### HYDRAULIC BHUS MODELS)

any service on the operator's seat, operate the unit

bystanders and clear of the swing testing and

the side shift on the boom is lifted in and the bucket also a good idea to 10-15 Degrees in slide movement. boom hitch plate freely. If you slew direction you are edge of the boom

Observe the following safety warnings when working with your new backhoe / tractor.



**CAUTION: Boom Carrier must be locked prior to operation.**

**CAUTION: When using a backhoe, be aware of bucket and boom location at all times. When raising Boom And Deeper Arm, material can spill onto non-target arrest causing injury or damage.**

## CHAPTER 6. BACKHOE OPERATION



**WARNING:** Do not side shift Boom Carrier unless the boom, dipper arm and bucket are centralized and Retracted.



**WARNING:** Do not dig near stabilizers. Ground under stabilizers could collapse. Make all movements slow And gradual when practicing operation.



**CAUTION:** Operate from backhoe operator's seat only. Pay attention, be ready to stop immediately in case Of emergency.



**CAUTION:** To help prevent roll-over, adjust the rear wheel to their widest setting to maximize stability. Refer to your tractor Operator's Manual for recommendations.





## CHAPTER 7. LUBRICATION AND MAINTENANCE



## CHAPTER 7. LUBRICATION AND MAINTENANCE

| Model                          | BHM-195 | BHL-225 |
|--------------------------------|---------|---------|
| Structure weight (kg)          | 540     | 700     |
| Max digging depth (m) A        | 1.95    | 2.25    |
| Max digging radius (m) B       | 2.9     | 3.3     |
| Max digging height (m) C       | 3.17    | 3.45    |
| Max unloading height (m) D     | 2       | 2.3     |
| Stabilizer width (m)           | 1.7     | 1.7     |
| Swing angle for boom           | 180     | 180     |
| Bucket turning angle           | 195     | 203     |
| Bucket turning angle           | 0.02    | 0.035   |
| Bucket width (mm)              | 15L/MIN | 25L/MIN |
| Min. hydraulic flow req.       | 25L/MIN | 40L/MIN |
| Max. hydraulic flow allowed    | 13MPA   | 13MPA   |
| Min. hydraulic press. Allowed. | 16MPA   | 16MPA   |
| Bucket digging force (kg)      | 1100    | 1700    |



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

### Important

Securely support backhoe and relieve pressure in 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, ensure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood rather than your hands to search for suspected leaks. If injured by escaping fluid, seek medical attention immediately. Serious infection or reaction can develop if correct medical treatment is not administered immediately.

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



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



**CAUTION:** OPERATE THE BACKHOE FROM THE OPERATOR SEAT ONLY.



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

## CHAPTER 7. LUBRICATION AND MAINTENANCE



**CAUTION:** Operate from backhoe operator's seat only. Pay attention; be ready to stop immediately in case of emergency.



**CAUTION:** To help from backhoe roll-over, adjust the wheels to their widest setting to maximize stability. Refer to your tractor Operator's Manual for recommendations.

Check the tractor hydraulic system as outlined in the Tractor Operator's Manual. Note: when checking hydraulic system oil level, the backhoe should be on the ground and bucket fully retracted (all cylinders in retracted position).

Grease all backhoe pivot points daily (10 Hours). Refer to the tractor Operator's Manual for lubricant recommendations.

Inspect hydraulic hoses, connections, control valve and cylinders for evidence of leakage. Tractors tyres should be maintained at maximum recommended inflation to maintain normal tyre profile with added weight of backhoe/material.

Unequal rear tyre inflation reduces stability and increase tipping hazard.

## TROUBLE SHOOTING

### CHAPTER 8. TROUBLE SHOOTING

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

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

| Model                          | BHM-195 | BHL-225          |
|--------------------------------|---------|------------------|
| Structure weight (kg)          | 540     | 700              |
| Max digging depth (m) A        | 1.95    | 2.25             |
| Max digging radius (m) B       | 2.9     | 3.3              |
| Max digging height (m) C       | 3.17    | 3.45             |
| Max unloading height (m) D     | 2       | 2.3              |
| Stabilizer width (m)           | 1.7     | 1.7              |
| Swing angle for boom           | 180     | 180              |
| Bucket turning angle           | 195     | 203              |
| Bucket turning angle           | 0.02    | 0.035            |
| Bucket width (mm)              | 15L/MIN | 25L/MIN          |
| Min. hydraulic flow req.       | 25L/MIN | 40L/MIN          |
| Max. hydraulic flow allowed    | 13MPA   | 13MPA            |
| Min. hydraulic press. Allowed. | 16MPA   | 16MPA            |
| Bucket digging force (kg)      | 1100    | 1700             |
| Dipper arm digging force (kg)  | 850     | 1100             |
| Item                           | Service | Service Interval |

## CHAPTER 8. TROUBLE SHOOTING

| Model   | BHM-195   | BHL-225  |
|---|---|--|
| Structure weight (kg)   | 540   | 700  |
| Max digging depth (m) A   | 1.95  | 2.25   |
| Max digging radius (m) B  | 2.9   | 3.3  |
| Max digging height (m) C  | 3.17  | 3.45   |
| Max unloading height (m) D  | 2   | 2.3  |
| Stabilizer width (m)  | 1.7   | 1.7  |
| Swing angle for boom  | 180   | 180  |
| Bucket turning angle  | 195   | 203  |
| Bucket turning angle  | 0.02  | 0.035  |
| Bucket width (mm)   | 15L/MIN   | 25L/MIN  |
| Min. hydraulic flow req.  | 25L/MIN   | 40L/MIN  |
| Max. hydraulic flow allowed   | 13MPA   | 13MPA  |
| Min. hydraulic press. Allowed.  | 16MPA   | 16MPA  |
| Bucket digging force (kg)   | 1100  | 1700   |
| Dipper arm digging force (kg)   | 850   | 1100   |
| Item  | Service   | Service Interval   |
| Hydraulic System Oil Level  | Check   | Daily / 10 Hours   |
| Hydraulic System Oil/Filter   | Replace   | Every 50 Hours   |
| Tyre Inflation  | Check   | Weekly / 50 Hours  |
| Backhoe Pivot Points  | Lubricate / Grease  | Daily / 10 Hours   |
| Backhoe Hydraulic Lines, Hoses, Connections                               | Check for leaks, wear   | Daily / 10 Hours   |
| Boom, Arm, Swing and Bucket cylinder rod packing's                        | Check for seepage, service as needed                                  | Daily / 10 Hours   |
| Pivot Pin Bolts and Dust Covers   | Check, replace if missing   | Daily / 10 Hours   |
| Pin Wear  | Check, replace if necessary   | Daily / 10 Hours   |
| Backhoe Mount Hardware  | Check visually  | Daily / 10 Hours   |
| Structural Bolts and Nuts   | Re-torque   | Every 25 Hours   |
| PROBLEM   | Possible Cause  | Correction   |
|   | Low hydraulic fluid level   | Check and replenish hydraulic fluid.   |
|   | Hydraulic hoses connected improperly                                  | Check and correct hydraulic hose connections.  |
| Stabilizer Legs, Swing, Boom, Dipper Arm and Bucket Cylinders not working | Hydraulic hoses to / from control valve blocked                       | Check for damage (kinked) hoses, etc.  |
|   | Backhoe control valve or tractor main relief valve stuck open         | Check system pressure, repair or replace relief valve. Refer to the tractor Operator's Manual.                       |
|   | Lower system pressure supplied from hydraulic pump                    | Check system pressure. Repair or replace pump.   |
|   | Control valve linkage broken  | Inspect. Repair as required.   |
|   | Quick disconnected coupler(s) are not fully connected or "flow Check" | Check coupler connections. Replace coupler(s) if necessary.  |
| PROBLEM   | Possible Cause  | Correction   |
| Stabilizer Legs, Swing, Boom, Dipper Arm and Bucket Cylinders not working | Hydraulic Hose or tube line blockage                                  | Check for evidence of damage to hoses or tube lines that would block flow of oil between cylinders and control valve |
|   | Cylinder piston assembly defective (not sealing)                      | Check cylinder for internal leakage as described in service section under cylinder leakage tests.                    |
|   |   | Inspect for blockage. Disassemble  |

## CHAPTER 8. TROUBLE SHOOTING

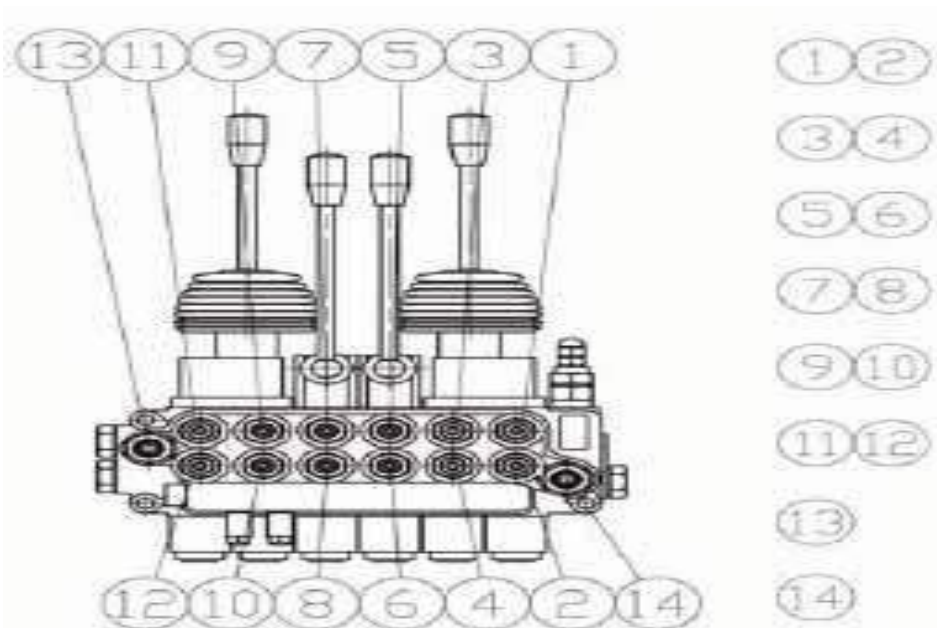
| Model   | BHM-195   | BHL-225  |
|---|---|--|
| Structure weight (kg)   | 540   | 700  |
| Max digging depth (m) A   | 1.95  | 2.25   |
| Max digging radius (m) B  | 2.9   | 3.3  |
| Max digging height (m) C  | 3.17  | 3.45   |
| Max unloading height (m) D  | 2   | 2.3  |
| Stabilizer width (m)  | 1.7   | 1.7  |
| Swing angle for boom  | 180   | 180  |
| Bucket turning angle  | 195   | 203  |
| Bucket turning angle  | 0.02  | 0.035  |
| Bucket width (mm)   | 15L/MIN   | 25L/MIN  |
| Min. hydraulic flow req.  | 25L/MIN   | 40L/MIN  |
| Max. hydraulic flow allowed   | 13MPA   | 13MPA  |
| Min. hydraulic press. Allowed.  | 16MPA   | 16MPA  |
| Bucket digging force (kg)   | 1100  | 1700   |
| Dipper arm digging force (kg)   | 850   | 1100   |
| Item  | Service   | Service Interval   |
| Hydraulic System Oil Level  | Check   | Daily / 10 Hours   |
| Hydraulic System Oil/Filter   | Replace   | Every 50 Hours   |
| Tyre Inflation  | Check   | Weekly / 50 Hours  |
| Backhoe Pivot Points  | Lubricate / Grease  | Daily / 10 Hours   |
| Backhoe Hydraulic Lines, Hoses, Connections                               | Check for leaks, wear   | Daily / 10 Hours   |
| Boom, Arm, Swing and Bucket cylinder rod packing's                        | Check for seepage, service as needed                                  | Daily / 10 Hours   |
| Pivot Pin Bolts and Dust Covers   | Check, replace if missing   | Daily / 10 Hours   |
| Pin Wear  | Check, replace if necessary   | Daily / 10 Hours   |
| Backhoe Mount Hardware  | Check visually  | Daily / 10 Hours   |
| Structural Bolts and Nuts   | Re-torque   | Every 25 Hours   |
| PROBLEM   | Possible Cause  | Correction   |
|   | Low hydraulic fluid level   | Check and replenish hydraulic fluid.   |
|   | Hydraulic hoses connected improperly                                  | Check and correct hydraulic hose connections.  |
| Stabilizer Legs, Swing, Boom, Dipper Arm and Bucket Cylinders not working | Hydraulic hoses to / from control valve blocked                       | Check for damage (kinked) hoses, etc.  |
|   | Backhoe control valve or tractor main relief valve stuck open         | Check system pressure, repair or replace relief valve. Refer to the tractor Operator's Manual.                       |
|   | Lower system pressure supplied from hydraulic pump                    | Check system pressure. Repair or replace pump.   |
|   | Control valve linkage broken  | Inspect. Repair as required.   |
|   | Quick disconnected coupler(s) are not fully connected or "flow Check" | Check coupler connections. Replace coupler(s) if necessary.  |
| PROBLEM   | Possible Cause  | Correction   |
| Stabilizer Legs, Swing, Boom, Dipper Arm and Bucket Cylinders not working | Hydraulic Hose or tube line blockage                                  | Check for evidence of damage to hoses or tube lines that would block flow of oil between cylinders and control valve |
|   | Cylinder piston assembly defective (not sealing)                      | Check cylinder for internal leakage as described in service section under cylinder leakage tests.                    |
|   | Control Valve blockage  | Inspect for blockage. Disassemble  |



## CHAPTER 8. ROUBLE SHOOTING

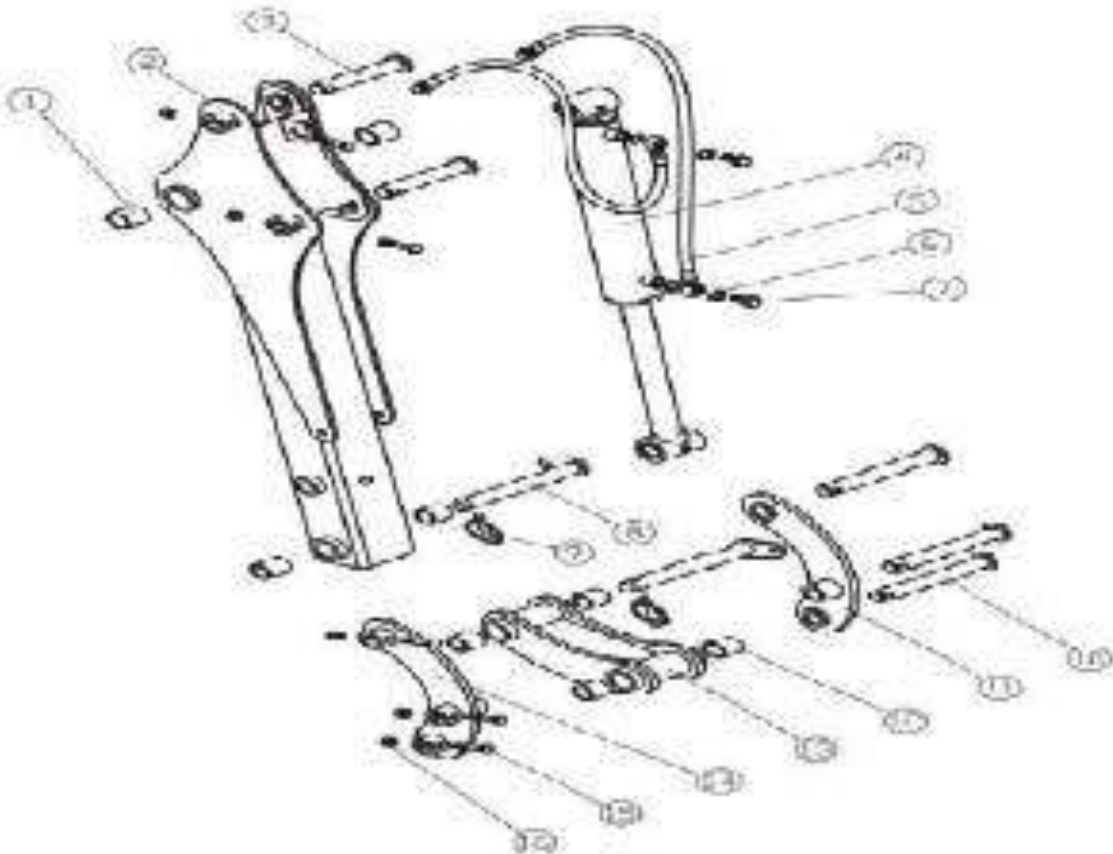
| Model                          | BHM-195 | BHL-225 |
|--------------------------------|---------|---------|
| Structure weight (kg)          | 540     | 700     |
| Max digging depth (m) A        | 1.95    | 2.25    |
| Max digging radius (m) B       | 2.9     | 3.3     |
| Max digging height (m) C       | 3.17    | 3.45    |
| Max unloading height (m) D     | 2       | 2.3     |
| Stabilizer width (m)           | 1.7     | 1.7     |
| Swing angle for boom           | 180     | 180     |
| Bucket turning angle           | 195     | 203     |
| Bucket turning angle           | 0.02    | 0.035   |
| Bucket width (mm)              | 15L/MIN | 25L/MIN |
| Min. hydraulic flow req.       | 25L/MIN | 40L/MIN |
| Max. hydraulic flow allowed    | 13MPA   | 13MPA   |
| Min. hydraulic press. Allowed. | 16MPA   | 16MPA   |
| Bucket digging force (kg)      | 1100    | 1700    |

## CHAPTER 9. HYDRAULIC CONTROL VALVE CONNECTION DIAGRAM



1—2 to bucket cylinder 3—4 to arm cylinder 5—6 to right stabilizer cylinder 7—8 to left stabilizer cylinder 9—10 to swing cylinder 11—12 to boom cylinder 13 out oil 14 in oil

## CHAPTER 10. PARTS LIST – SIDE SHIFT

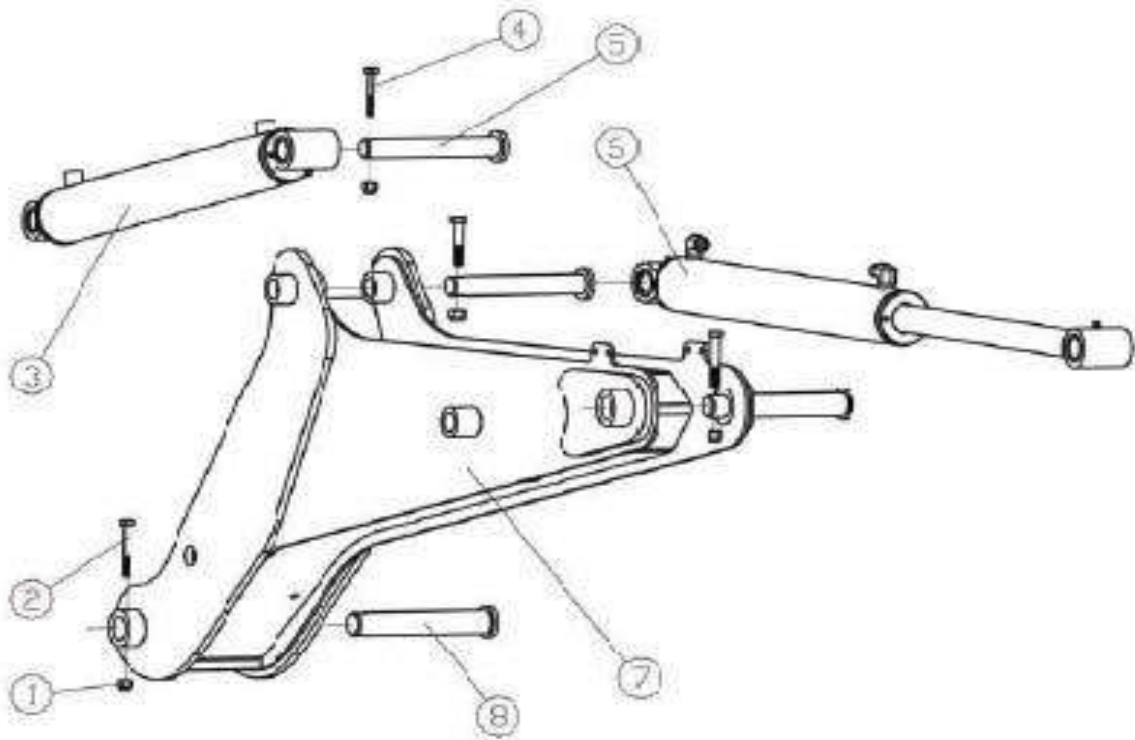


FRONT ARM

[29]

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification      | Qty |
|---------|--------------|-----------------|--------------|---------------------------|-----|
| 1       | MBH-6.02.101 | MBH-6.02.101    | MBH-6.02.101 | SLEEVE                    | 2   |
| 2       | MBH-6.02.011 | MBH-7.02.011    | MBH-8.02.011 | FRONT ARM WELDMENT        | 1   |
| 3       | MBH-6.02.017 | MBH-6.02.017    | MBH-6.02.017 | PIN SHAFT 136             | 2   |
| 4       | MBH-6.08.011 | MBH-6.08.011    | MBH-8.08.011 | BUCKET CYLINDER           | 1   |
| 5       | MBH-5.08.035 | MBH-5.08.035    | MBH-5.08.035 | HOSE FOR BUCKET CYLINDER  | 2   |
| 6       |              |                 |              | WASHER 14                 | 4   |
| 7       | GB3541-83    | GB3541-83       | GB3541-83    | BOLT M14 X 1.5            | 2   |
| 8       | MBH-6.02.015 | MBH-6.02.015    | MBH-6.02.015 | PIN SHAFT FOR BUCKET      | 2   |
| 9       | 200.56.011   | 200.56.011      | 200.56.011   | LOCKING PIN               | 2   |
| 10      | MBH-6.02.016 | MBH-6.02.016    | MBH-6.02.016 | PIN SHAFT 185             | 3   |
| 11      | MBH-6.02.013 | MBH-7.02.013    | MBH-8.02.013 | MOON PLATE WELDMENT LEFT  | 1   |
| 12      | MBH-6.02.102 | MBH-6.02.102    | MBH-6.02.102 | SLEEVE                    | 6   |
| 13      | MBH-6.02.014 | MBH-7.02.014    | MBH-8.02.014 | BUCKET ADAPTER WELDMENT   | 1   |
| 14      | MBH-6.02.012 | MBH-7.02.012    | MBH-8.02.012 | MOON PLATE WELDMENT RIGHT | 1   |
| 15      | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M10 X 55             | 5   |
| 16      | GB6182-86    | GB6182-86       | GB6182-86    | NUT M10                   | 5   |

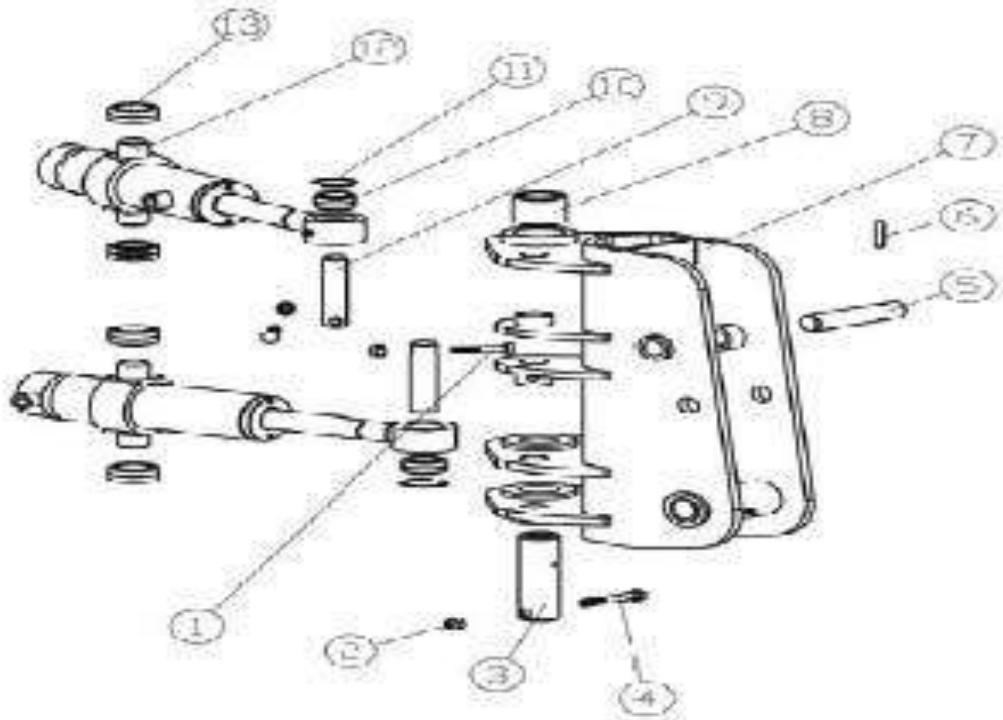
## CHAPTER 10. PARTS LIST – SIDE SHIFT



### MAIN BOOM

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification | Qty |
|---------|--------------|-----------------|--------------|----------------------|-----|
| 1       | GB6182-86    | GB6182-86       | GB6182-86    | NUT M10              | 4   |
| 2       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M 10 X 65       | 2   |
| 3       | MBH-6.08.013 | MBH-7.08.013    | MBH-8.08.013 | BOOM CYLINDER        | 1   |
| 4       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M10 X 55        | 2   |
| 5       | MBH-6.02.016 | MBH-6.02.016    | MBH-6.02.016 | PIN SHAFT 185        | 2   |
| 6       | MBH-6.08.012 | MBH-7.08.012    | MBH-8.08.012 | FRONT ARM CYLINDER   | 1   |
| 7       | MBH-6.03.011 | MBH-7.03.011    | MBH-8.03.011 | BOOM WELDMENT        | 1   |
| 8       | MBH-6.03.012 | MBH-6.03.012    | MBH-6.03.012 | PIN SHAFT 186        | 2   |

## CHAPTER 10. PARTS LIST – SIDE SHIFT

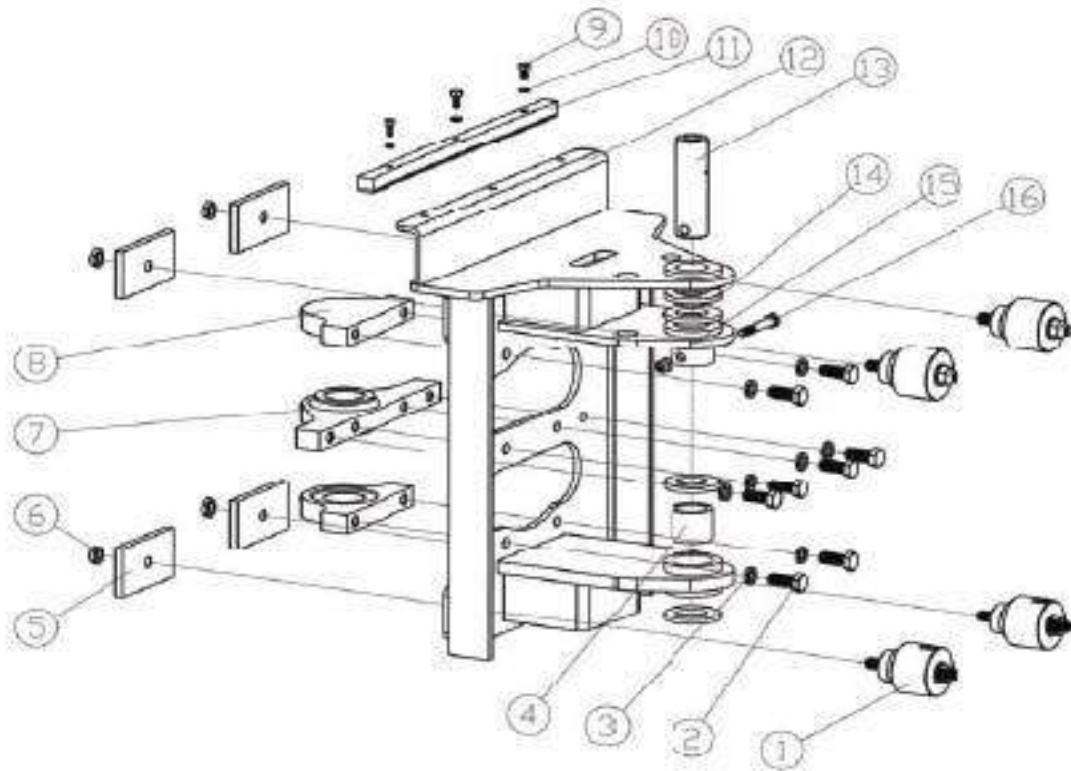


### SWING JOINT

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification | Qty |
|---------|--------------|-----------------|--------------|----------------------|-----|
| 1       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M10 X 55        | 2   |
| 2       | GB6182-86    | GB6182-86       | GB6182-86    | NUT M10              | 3   |
| 3       | MBH-5.04.103 | MBH-5.04.103    | MBH-5.04.103 | SWING SHAFT          | 1   |
| 4       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M10 X 70        | 1   |
| 5       | MBH-6.04.101 | MBH-6.04.101    | MBH-6.04.101 | PIN SHAFT 118        | 1   |
| 6       | GB879-86     | GB879-86        | GB879-86     | SPRING SHAFT 8 X 40  | 1   |
| 7       | MBH-6.04.011 | MBH-6.04.011    | MBH-6.04.011 | KNUCKLE              | 1   |
| 8       | MBH-5.04.119 | MBH-5.04.119    | MBH-5.04.119 | SLEEVE               | 1   |
| 9       | MBH-5.04.104 | MBH-5.04.104    | MBH-5.04.104 | PIN SHAFT            | 2   |
| 10      | GE25ES-2RS   | GE25ES-2RS      | GE25ES-2RS   | JOINT BEARING A      | 2   |
| 11      | GB893.1-86   | GB893.1-86      | GB893.1-86   | CIRCLIP 42           | 2   |
| 12      | MBH-5.08.023 | MBH-5.08.023    | MBH-5.08.023 | SWING CYLINDER       | 2   |
| 13      | GE30ES-2RS   | GE30ES-2RS      | GE30ES-2RS   | JOINT BEARING B      | 4   |



## CHAPTER 10. PARTS LIST – SIDE SHIFT

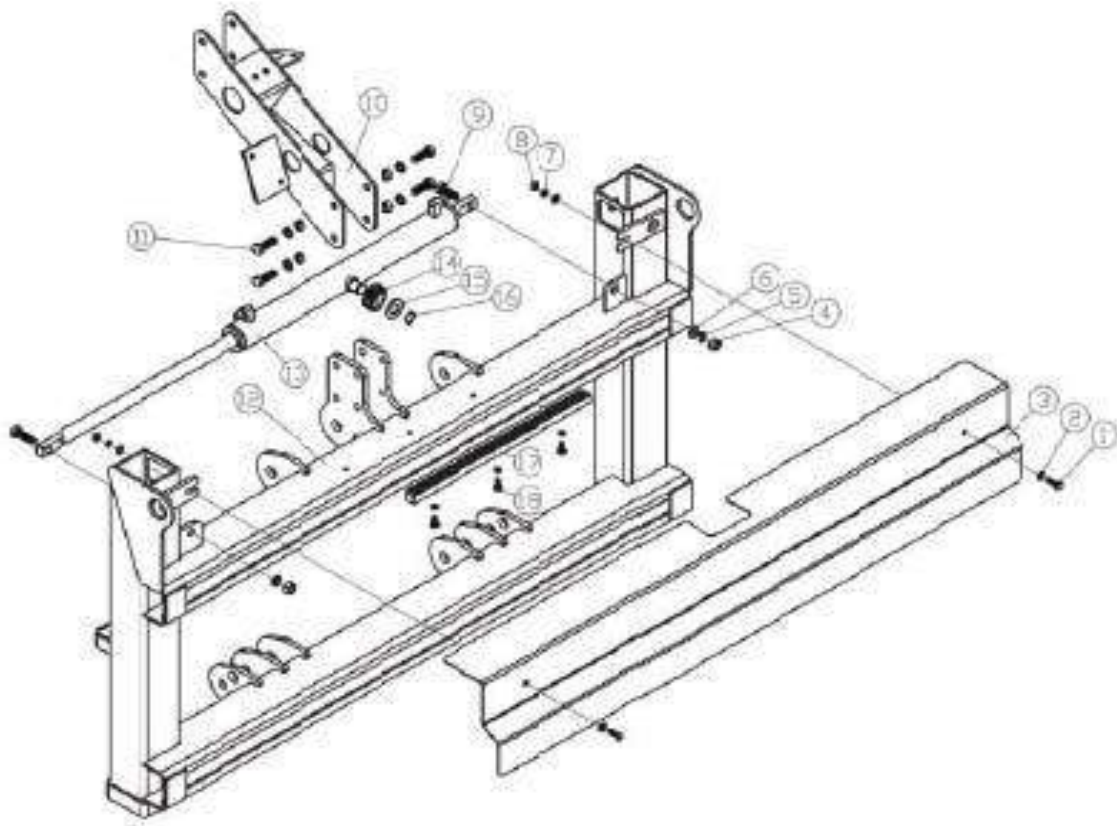


**SIDE SHIIFT FRAME**

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification                   | Qty |
|---------|--------------|-----------------|--------------|--|-----|
| 1       | MBH-5.08.040 | MBH-5.08.040    | MBH-5.08.040 | LOCKING CYLINDER                       | 4   |
| 2       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M14 X 35                          | 8   |
| 3       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 14                       | 8   |
| 4       | MBH-5.04.119 | MBH-5.04.119    | MBH-5.04.119 | SLEEVE                                 | 1   |
| 5       | MBH-5.08.103 | MBH-5.08.103    | MBH-5.08.103 | LOCK PLATE                             | 4   |
| 6       | GB6172-86    | GB6172-86       | GB6172-86    | BOLT M14 X 1.5                         | 4   |
| 7       | MBH-5.04.013 | MBH-5.04.013    | MBH-5.04.013 | SWING CYLINDER BASE<br>WELDMENT MIDDLE | 1   |
| 8       | MBH-5.04.108 | MBH-5.04.108    | MBH-5.04.108 | SWING CYOLINDER BASE<br>WELDMENT OUTER | 2   |
| 9       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M8 X 16                           | 3   |
| 10      | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 8                        | 3   |
| 11      | MBH-6.04.106 | MBH-6.04.106    | MBH-6.04.106 | RACK                                   | 1   |
| 12      | MBH-6.04.012 | MBH-6.04.012    | MBH-6.04.012 | SIDE SHIFT BASE WELDMENT               | 1   |
| 13      | MBH-5.04.103 | MBH-5.04.103    | MBH-5.04.103 | SWING SHAFT                            | 2   |
| 14      | MBH-5.04.105 | MBH-5.04.105    | MBH-5.04.105 | SUPPORTING WASHER                      | 4   |
| 15      | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M10 X 70                          | 2   |
| 16      | GB6182-86    | GB6182-86       | GB6182-86    | NUT M10                                | 2   |



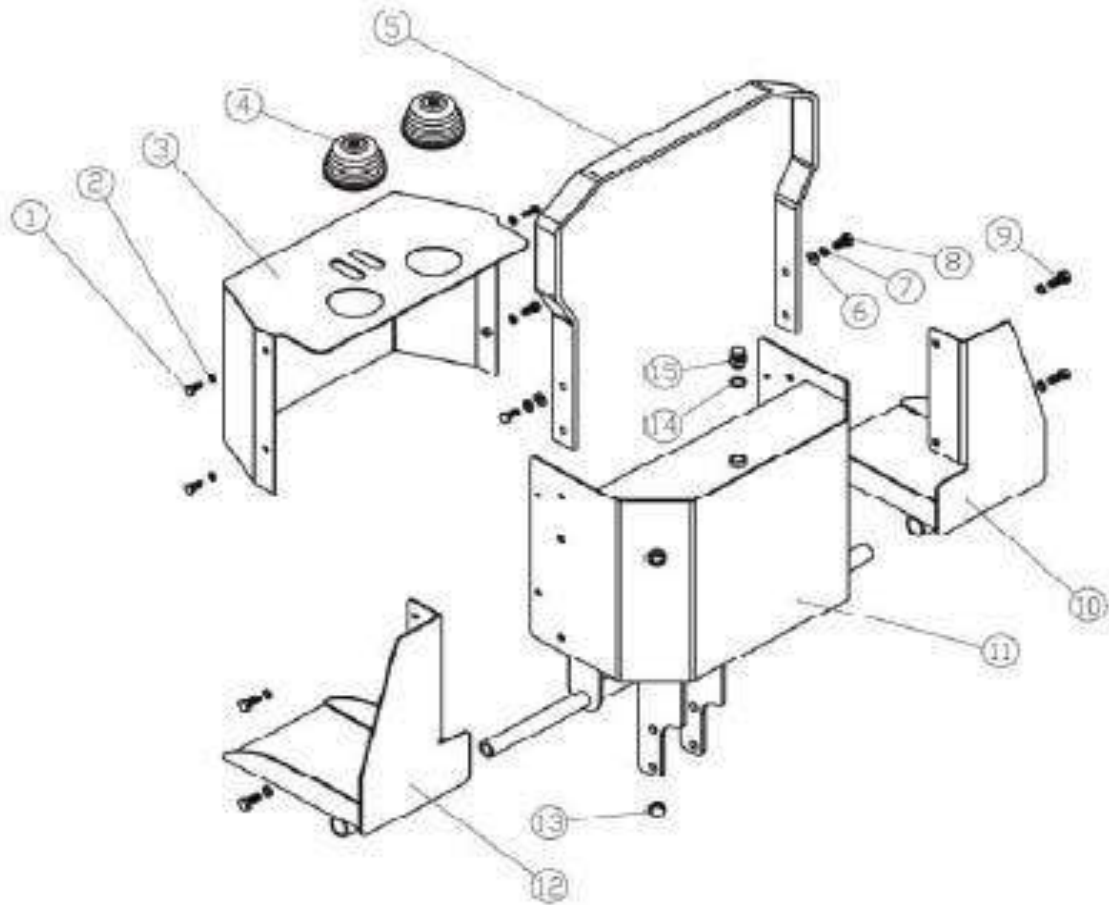
## CHAPTER 10. PARTS LIST – SIDE SHIFT



**BASE**

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification | Qty |
|---------|--------------|-----------------|--------------|----------------------|-----|
| 1       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M10 X 25        | 2   |
| 2       | GB97.1-85    | GB97.1-85       | GB97.1-85    | PLAIN WASHER 8       | 4   |
| 3       | MBH-6.05.102 | MBH-6.05.102    | MBH-8.05.102 | COVER                | 1   |
| 4       | GB6170-86    | GB6170-86       | GB6170-86    | NUT M12              | 6   |
| 5       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 12     | 6   |
| 6       | GB97.1-85    | GB97.1-85       | GB97.1-85    | PLAIN WASHER 12      | 1   |
| 7       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 8      | 2   |
| 8       | GB6170-86    | GB6170-86       | GB6170-86    | NUT M8               | 2   |
| 9       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M12 X 40        | 2   |
| 10      | MBH-5.05.016 | MBH-5.05.016    | MBH-5.05.016 | SEAT BASE WELDMENT   | 1   |
| 11      | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M12 X 35        | 4   |
| 12      | MBH-6.05.011 | MBH-6.05.011    | MBH-8.05.011 | SLIDE BASE WELDMENT  | 1   |
| 13      | MBH-6.08.014 | MBH-6.08.014    | MBH-8.08.014 | SLIDE CYLINDER       | 1   |
| 14      | MBH-5.08.102 | MBH-5.08.102    | MBH-5.08.102 | GEAR                 | 1   |
| 15      | GB97.1-85    | GB97.1-85       | GB97.1-85    | PLAIN WASHER 20      | 1   |
| 16      | GB894.1-86   | GB894.1-86      | GB894.1-86   | CIRCLIP 20           | 1   |
| 17      | MBH-6.04.106 | MBH-6.04.106    | MBH-6.04.106 | RACK                 | 1   |
| 18      | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M8 X 16         | 3   |

## CHAPTER 10. PARTS LIST – SIDE SHIFT

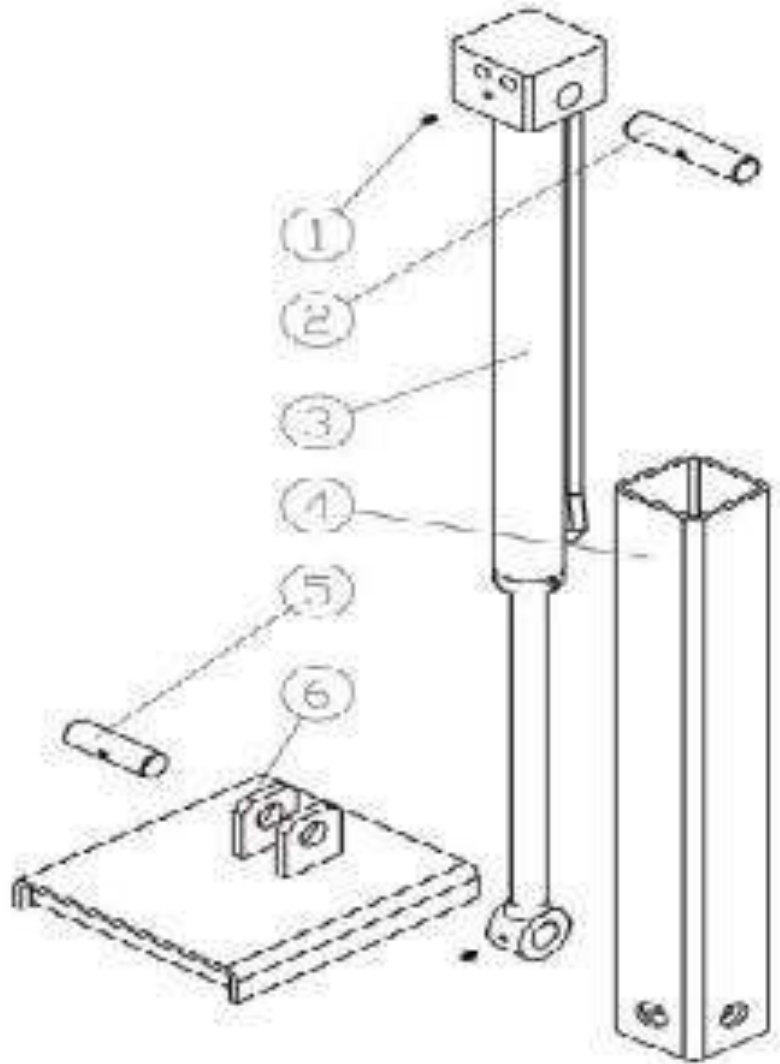


### OPERATION PANNEL AND OIL TANK

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification | Qty |
|---------|--------------|-----------------|--------------|----------------------|-----|
| 1       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M8 X 20         | 4   |
| 2       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 8      | 4   |
| 3       | MBH-5.05.015 | MBH-5.05.015    | MBH-8.05.015 | REAR COVER WELDMENT  | 1   |
| 4       | BH-6.08.105  | BH-6.08.105     | BH-6.08.105  | RUBBER COVER         | 2   |
| 5       | MBH-5.05.106 | MBH-5.05.106    | MBH-8.05.106 | PROTECTION ROD       | 1   |
| 6       | GB97.1-85    | GB97.1-85       | GB97.1-85    | PLAIN WASHER 10      | 2   |
| 7       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 10     | 6   |
| 8       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M10 X 20        | 2   |
| 9       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M10 X 25        | 4   |
| 10      | MBH-5.05.013 | MBH-5.05.013    | MBH-8.05.013 | LEFT PEDAL WELDMENT  | 1   |
| 11      | MBH-6.05.014 | MBH-6.05.014    | MBH-8.05.014 | CONTROL BOX WELDMENT | 1   |
| 12      | MBH-5.05.012 | MBH-5.05.012    | MBH-8.05.012 | RIGHT PEDAL WELDMENT | 1   |
| 13      |              |                 |              | OIL NUT M16 XX 1.5   | 1   |
| 14      |              |                 |              | WASHER 16            | 1   |
| 15      | CBW-00.011   | CBW-00.011      | CBW-00.011   | OIL SEALING BOLT     | 1   |

## CHAPTER 10. PARTS LIST – SIDE SHIFT

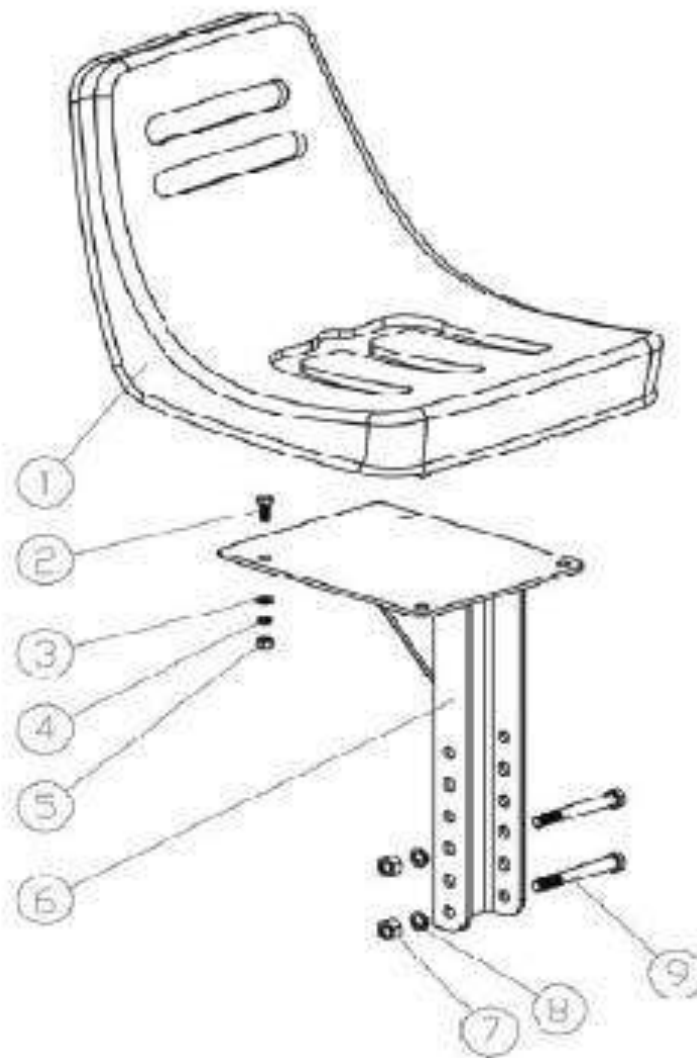
### SUPPORTING LEG



| Ser No. | 175         | Part No.<br>195 | 225         | Name & Specification     | Qty |
|---------|-------------|-----------------|-------------|--------------------------|-----|
| 1       | GB78-85     | GB78-85         | GB78-85     | BOLT M8 X 12             | 2   |
| 2       | MBH-6.8.101 | MBH-6.8.101     | MBH-8.8.101 | UPPER SHAFT              | 1   |
| 3       | MBH-6.8.019 | MBH-6.8.019     | MBH-8.8.019 | SUPPORTING LEG CYLINDER  | 1   |
| 4       | MBH-6.6.012 | MBH-6.6.012     | MBH-8.6.012 | SUPPORTING LEG WELDMENT  | 1   |
| 5       | MBH-6.8.014 | MBH-6.8.014     | MBH-8.8.014 | BOTTOM SHAFT             | 1   |
| 6       | MBH-6.6.011 | MBH-6.6.011     | MBH-8.6.011 | SUPPORTING FEET WELDMENT | 1   |

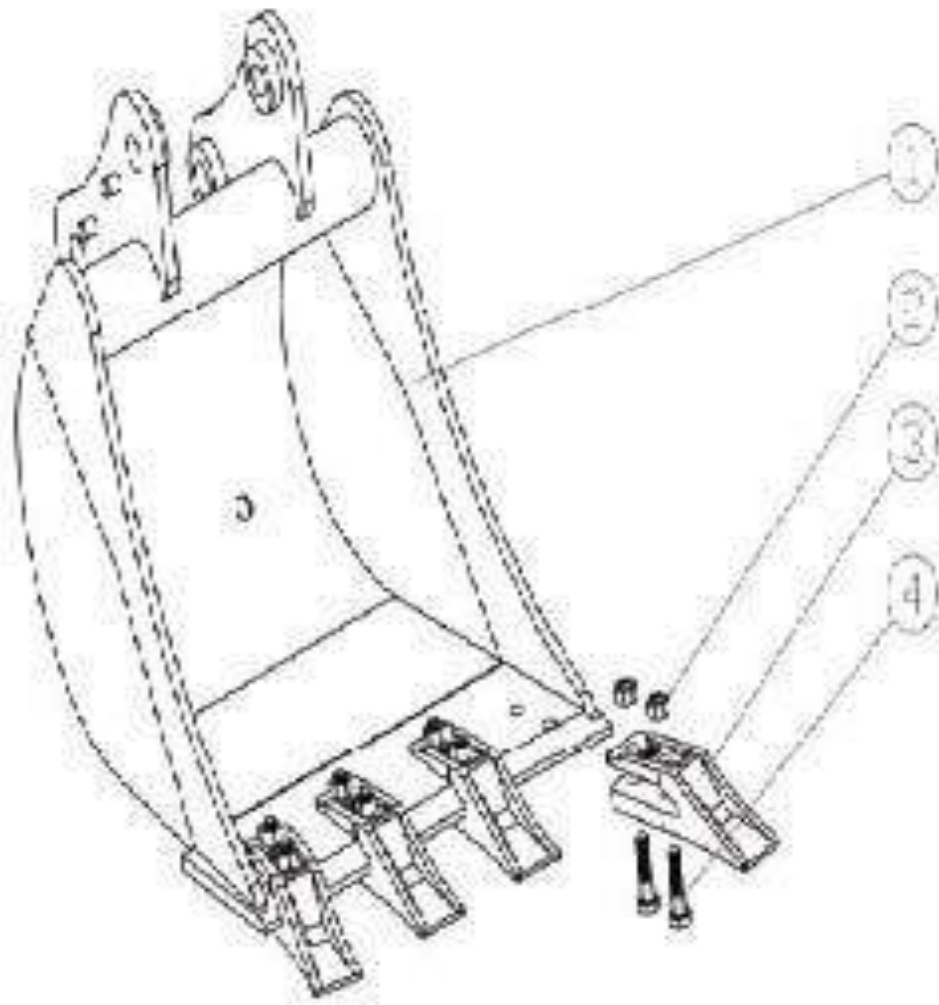
## CHAPTER 10. PARTS LIST – SIDE SHIFT

### SEAT



| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification      | Qty |
|---------|--------------|-----------------|--------------|---------------------------|-----|
| 1       | LW-7.06.101  | LW-7.06.101     | LW-7.06.101  | SEAT                      | 1   |
| 2       | GB5783-86    | GB5783-86       | GB5783-86    | BOLT M8 X 20              | 4   |
| 3       | GB97.1-85    | GB97.1-85       | GB97.1-85    | PLAIN WASHER 8            | 4   |
| 4       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 8           | 4   |
| 5       | GB6170-86    | GB6170-86       | GB6170-86    | NUT M8                    | 4   |
| 6       | MBH-5.07.011 | MBH-5.07.011    | MBH-5.07.011 | HEIGHT ADJUSTING WELDMENT | 1   |
| 7       | GB6170-86    | GB6170-86       | GB6170-86    | NUT M12                   | 4   |
| 8       | GB93-87      | GB93-87         | GB93-87      | SPRING WASHER 12          | 4   |
| 9       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M12 X 100            | 4   |

**CHAPTER 10. PARTS LIST – SIDE SHIFT**



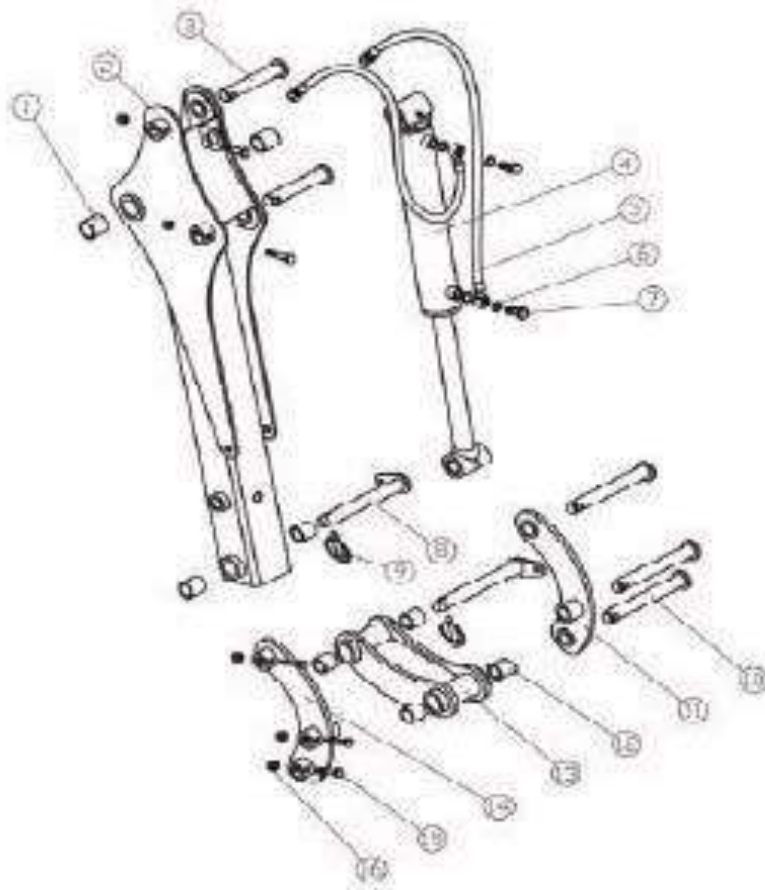
**BUCKET**

| Ser No. | 175          | Part No.<br>195 | 225          | Name & Specification | Qty |
|---------|--------------|-----------------|--------------|----------------------|-----|
| 1       | MBH-6.01.011 | MBH-6.01.011    | MBH-6.01.011 | BUCKET WELDMENT      | 1   |
| 2       | GB6170-86    | GB6170-86       | GB6170-86    | NUT M12              | 8   |
| 3       | GB5782-86    | GB5782-86       | GB5782-86    | BOLT M12 X 45        | 8   |
| 4       | MBH-5.01.101 | MBH-5.01.101    | MBH-5.01.101 | BUCKET TEETH         | 4   |



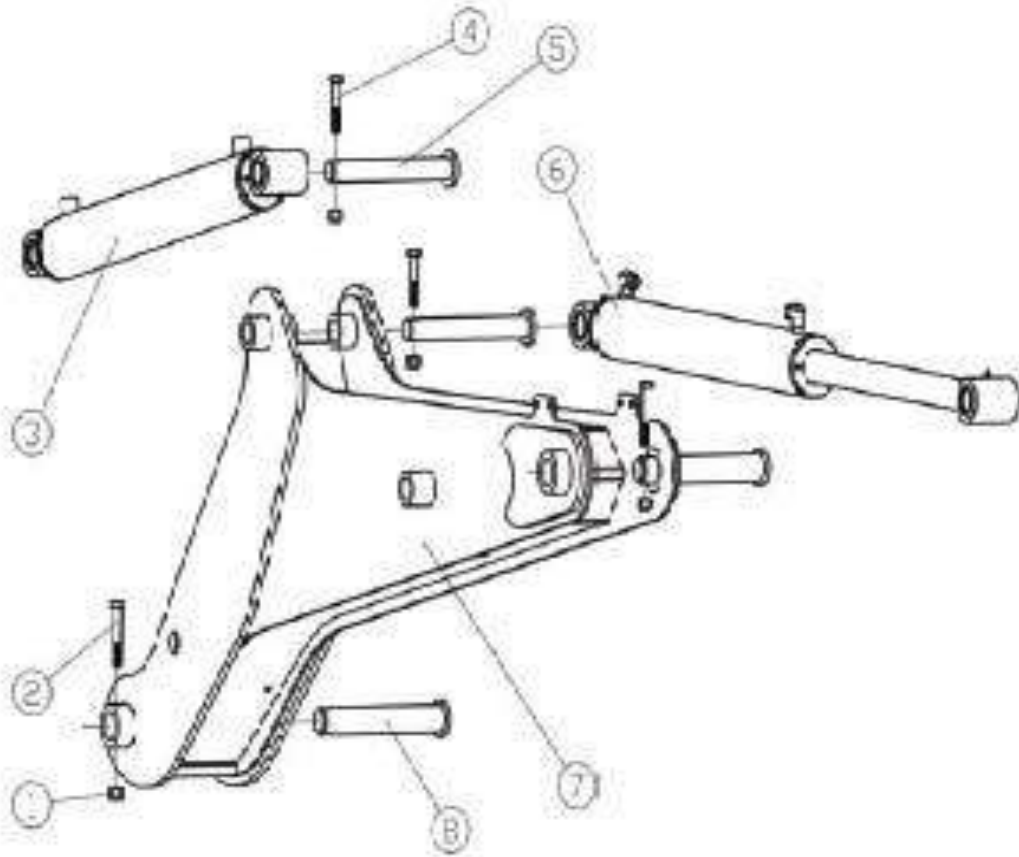
## CHAPTER 10. PARTS LIST – FIXED

### FRONT ARM ASSEMBLY



| Ser No. | Part No.                  | Name & Specification      | Qty |
|---------|---------------------------|---------------------------|-----|
| 1       | 175 MBH-6.02.101 195      | SLEEVE                    | 2   |
| 2       | MBH-6.02.011 MBH-7.02.011 | ARM WELDMENT              | 1   |
| 3       | MBH-6.02.017              | PIN                       | 2   |
| 4       | MBH-6.08.011              | BUCKET CYLINDER           | 1   |
| 5       | MBH-5.08.035              | HOSE                      | 2   |
| 6       |                           | BONDED WASHER 14          | 4   |
| 7       | GB3541-83                 | SWING BOLT M14 x 1.5      | 2   |
| 8       | MBH-6.02.015              | PIN                       | 2   |
| 9       | 200.56.011                | LOCK PIN                  | 2   |
| 10      | MBH-6.02.016              | PIN SHAFT 185             | 3   |
| 11      | MBH-6.02.013              | LEFT MOON BOARD WELDMENT  | 1   |
| 12      | MBH-6.02.102              | SLEEVE                    | 6   |
| 13      | MBH-6.02.014              | BUCKET CONNECTOR WELDMENT | 1   |
| 14      | MBH-6.02.012              | RIGHT MOON BOARD WELDMENT | 1   |
| 15      | GB5782-86                 | BOLTM10 x 55              | 5   |
| 16      | GB6182-86                 | NUT M10                   | 5   |

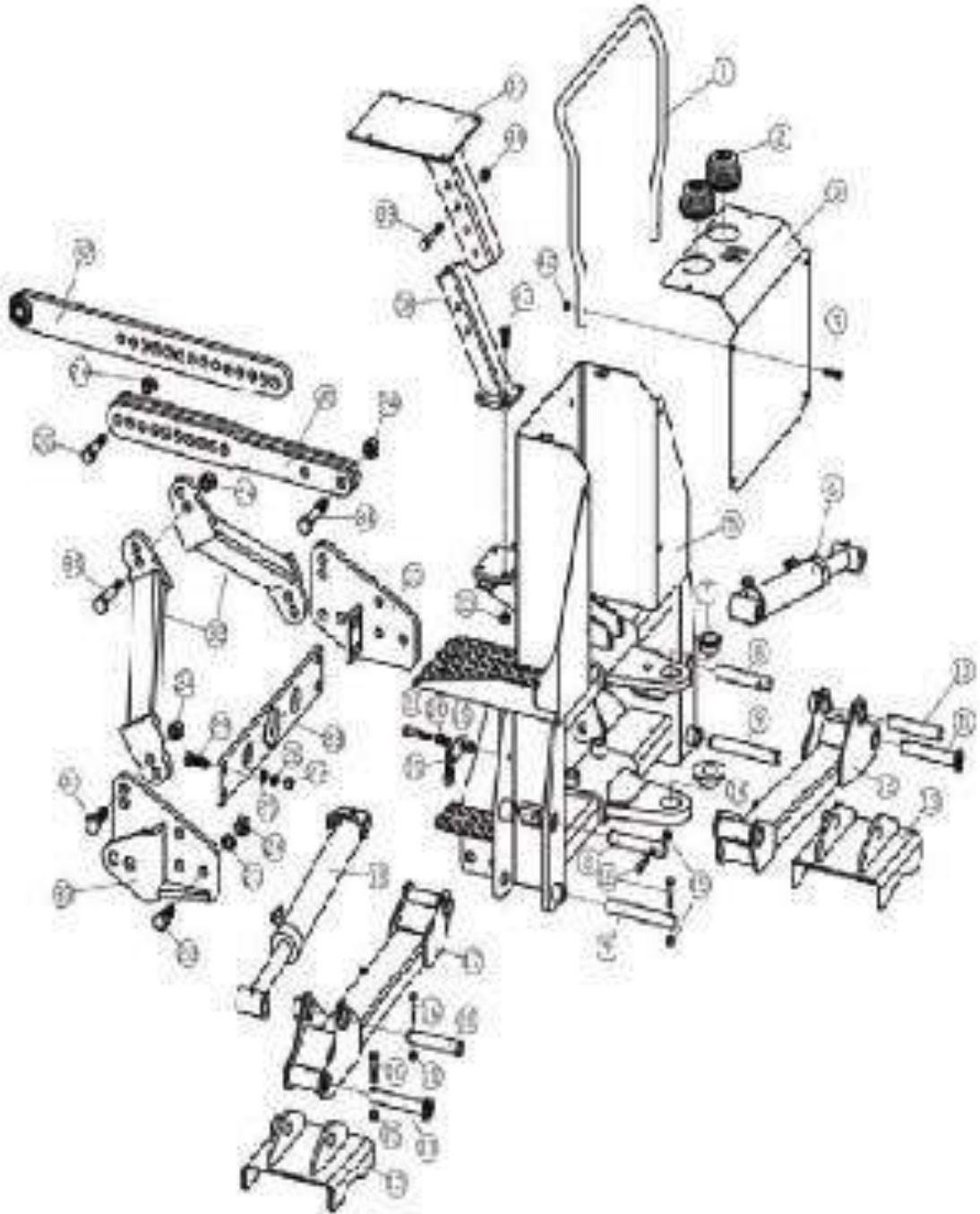
## CHAPTER 10. PARTS LIST – FIXED



### MAIN BOOM

| Ser No. | Part No.                  | Name & Specification | Qty |
|---------|---------------------------|----------------------|-----|
| 1       | 172 GB6182-86 195         | NUTM10               | 4   |
| 2       | GB5782-86                 | BOLT M10 X 65        | 2   |
| 3       | MBH-6.08.013 MBH-7.08.013 | BOOM CYLINDER        | 1   |
| 4       | GB5782-86                 | BOLT M10 X 55        | 2   |
| 5       | MBH-6.02.016              | PIN                  | 2   |
| 6       | MBH-6.08.012 MBH-7.08.012 | FRONT ARM CYLINDER   | 1   |
| 7       | MBH-6.03.011 MBH-7.03.011 | BOOM WELDMENT        | 1   |
| 8       | MBH-6.03.012              | PIN                  | 2   |

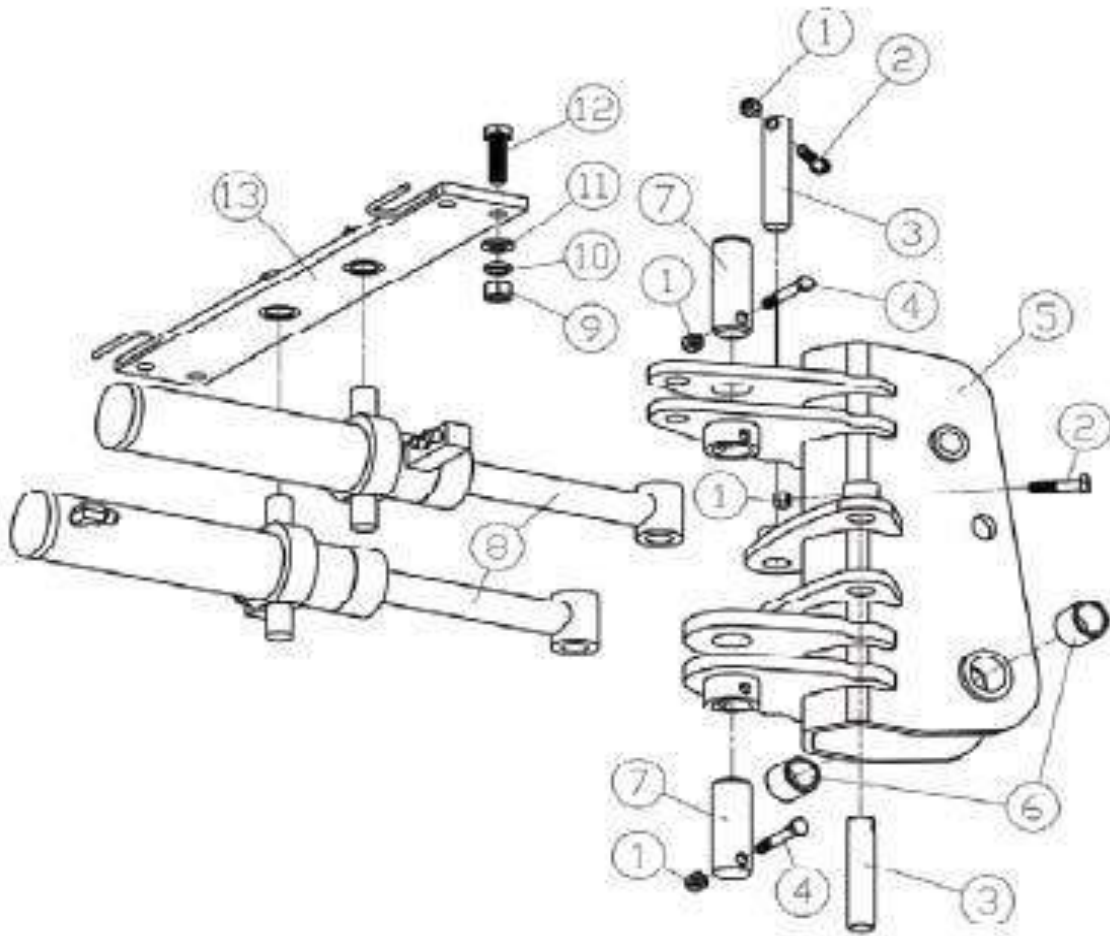
**CHAPTER 10. PARTS LIST – FIXED**



**CHAPTER 10. PARTS LIST – FIXED****BOTTOM SEAT ASSEMBLY**

| Ser<br>No. | Part No.    | Name & Specification      | Qty |
|------------|-------------|---------------------------|-----|
|            | 175 195     |                           |     |
| 1          | BH-6.05.101 | HANDRAIL                  | 1   |
| 2          | BH-6.08.105 | RUBBER COVER              | 2   |
| 3          | BH-6.05.102 | UP COVER BOARD            | 1   |
| 4          | GB57782-86  | BOLT M8 x 40              | 2   |
| 5          | BH-6.05.011 | BRACKET OF VALVE WELDMENT | 1   |
| 6          | BH-6.08.019 | LEFT STABILIZER CYLINDER  | 1   |
| 7          | BH-6.05.110 | COPPER BUSH               | 1   |
| 8          | BH-6.05.104 | PIN SHAFT 25 X 146        | 2   |
| 9          | BH-6.03.102 | PIN SHAFT 25 X 182        | 2   |
| 10         | BH-6.02.101 | PIN SHAFT 25 X 140        | 2   |
| 11         | BH-6.06.012 | PIN SHAFT ASSEMBLY        | 2   |
| 12         | BH-6.06.013 | STABILIZER ROD            | 1   |
| 13         | BH-6.06.011 | STABILIZER BOARD WELDMENT | 2   |
| 14         | BH-6.05.108 | COPPER BUSH               | 1   |
| 15         | GB6182-86   | NUT M10                   | 10  |
| 16         | GB5782-86   | BOLT M10 X 50             | 8   |
| 17         | BH-6.06.014 | RIGHT STABILIZER ROD      | 1   |
| 18         | BH-6.08.025 | RIGHT STABILIZER CYLINDER | 1   |
| 19         | BH-6.05.106 | FIX PLATE FOR STABILIZER  | 2   |
| 20         | BH-6.05.107 | SPRING                    | 2   |
| 21         | GB5782-86   | BOLT M10 X 65             | 2   |
| 22         | GB5783-86   | BOLT M20 X 55             | 6   |
| 23         | GB93-87     | ADJUSTING WASHER          | 6   |
| 24         | GB6170-86   | NUT M20                   | 11  |
| 25         | GB97.1-85   | PLAIN WASHER              | 4   |
| 26         | GB93-87     | ADJUSTING WASHER          | 4   |
| 27         | GB6170-86   | NUT M16                   | 4   |
| 28         | BH-6.05.141 | THE PLATE FIX THE PUMP    | 1   |
| 29         | GB5782-86   | BOLT M16 X 50             | 4   |
| 30         | BH-6.05.015 | RIGHT BRACKET             | 1   |
| 31         | GB5783-86   | BOLT M20 X 60             | 2   |
| 32         | BH-6.05.016 | SUSPENSIVE PLATE          | 2   |
| 33         | BH-6.05.013 | LEFT BRACKET              | 1   |
| 34         | GB5782-86   | BOLT M20 X 110            | 2   |
| 35         | BH-6.05.017 | PULL PLATE                | 1   |
| 36         | GB5782-86   | BOLT M20 X 80             | 1   |
| 37         | BH-6.05.018 | ADJUSTING PLATE           | 1   |
| 38         | BH-6.07.012 | SEAT SUSTAIN PLATE        | 1   |
| 39         | GB5782-86   | BOLT M12                  | 2   |
| 40         | GB6170-86   | NUT M12                   | 2   |
| 41         | BH-6.07.011 | ADJUSTING SEAT PLATE      | 1   |
| 42         | GB6170-86   | NUT M8                    | 4   |
| 43         | GB5782-86   | BOLT M10 X 40             | 4   |

## CHAPTER 10. PARTS LIST – FIXED



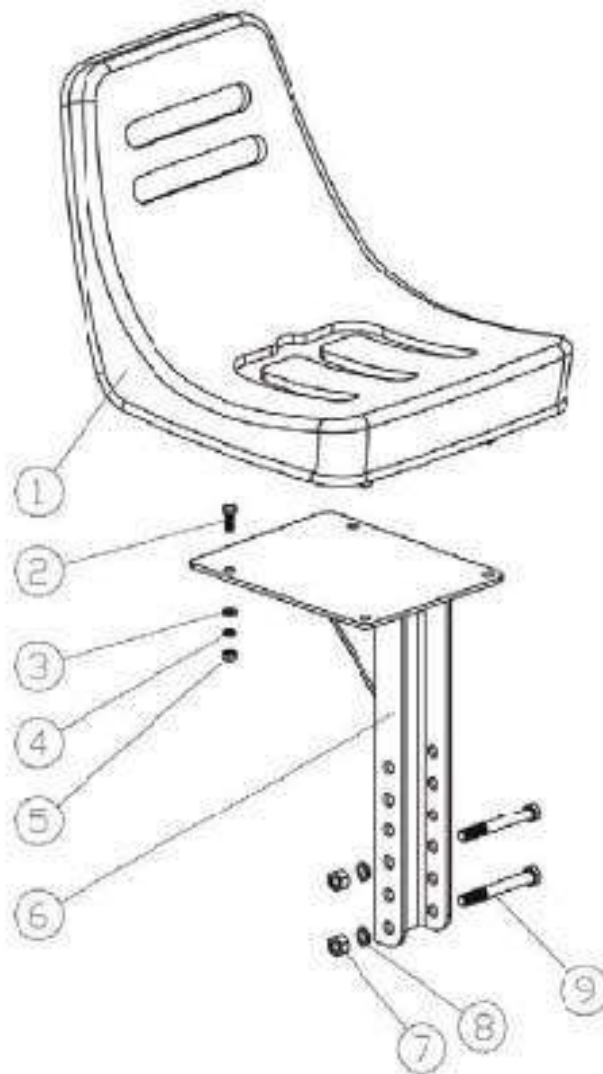
**SWING POST ASSEMBLY**

| Ser No. | Part No.     | Name & Specification        | Qty                 |   |
|---------|--------------|-----------------------------|---------------------|---|
|         | 175          |                             | 195                 |   |
| 1       | GB6182-86    | NUT M10                     | 4                   |   |
| 2       | GB5782-86    | BOLT M10 X 50               | 2                   |   |
| 3       | BH-6.04.104  | PIN SHAFT 25 X 122          | 2                   |   |
| 4       | GB5782-86    | BOLT M10 X 70               | 2                   |   |
| 5       | BH-6B.04.011 | BH-7.04.011                 | SWING POST WELDMENT | 1 |
| 6       | BH-6.02.102  | BUSH                        | 2                   |   |
| 7       | BH-6.04.103  | PIN SHAFT                   | 2                   |   |
| 8       | BH-6.08.023  | SWING POST CYLINDER NUT M16 | 2                   |   |
| 9       | GB6173-86    | NUT M16                     | 4                   |   |
| 10      | GB93-87      | ADJUSTING WASHER 16         | 4                   |   |
| 11      | GB97--.1-85  | PLAIN WASHER 16             | 4                   |   |
| 12      | GB5783-86    | NUT M16 X 50                | 4                   |   |
| 13      | BH-6.05.012  | UP SUSTAIN PLATE            | 1                   |   |



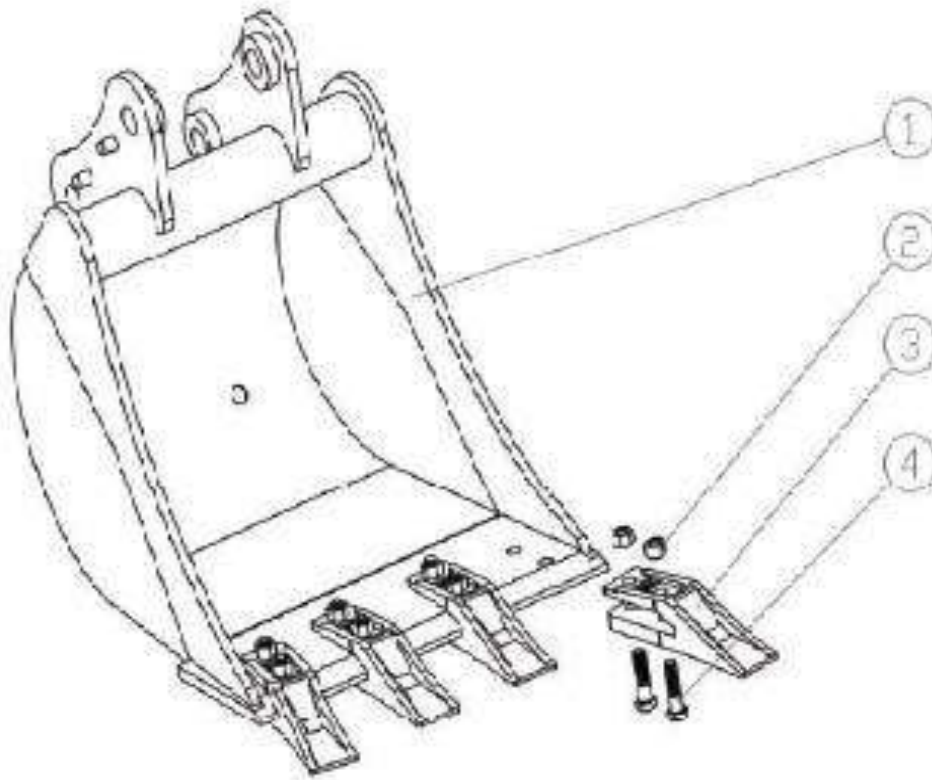
## CHAPTER 10. PARTS LIST – FIXED

### SEAT



| Ser No. | Part No.     | Name & Specification     | Qty |
|---------|--------------|--------------------------|-----|
| 1       | LW-7.06.101  | SEAT                     | 1   |
| 2       | GB5783-86    | HEX. HEAD BOLT M8 X 20   | 4   |
| 3       | GB97.1-85    | PLAIN WASHER 8           | 4   |
| 4       | GB93-87      | SPRING LOCK WASHER 8     | 4   |
| 5       | GB6170-86    | HEX. NUT M8              | 4   |
| 6       | MBH-5.07.011 | SEAT BRACKET WELAMENT    | 1   |
| 7       | GB6170-86    | HEX. NUT M12             | 4   |
| 8       | GB93-87      | SPRING LOCK WASHER 12    | 4   |
| 9       | GB5782-86    | HEX. HEAD BOLT M12 X 100 | 4   |

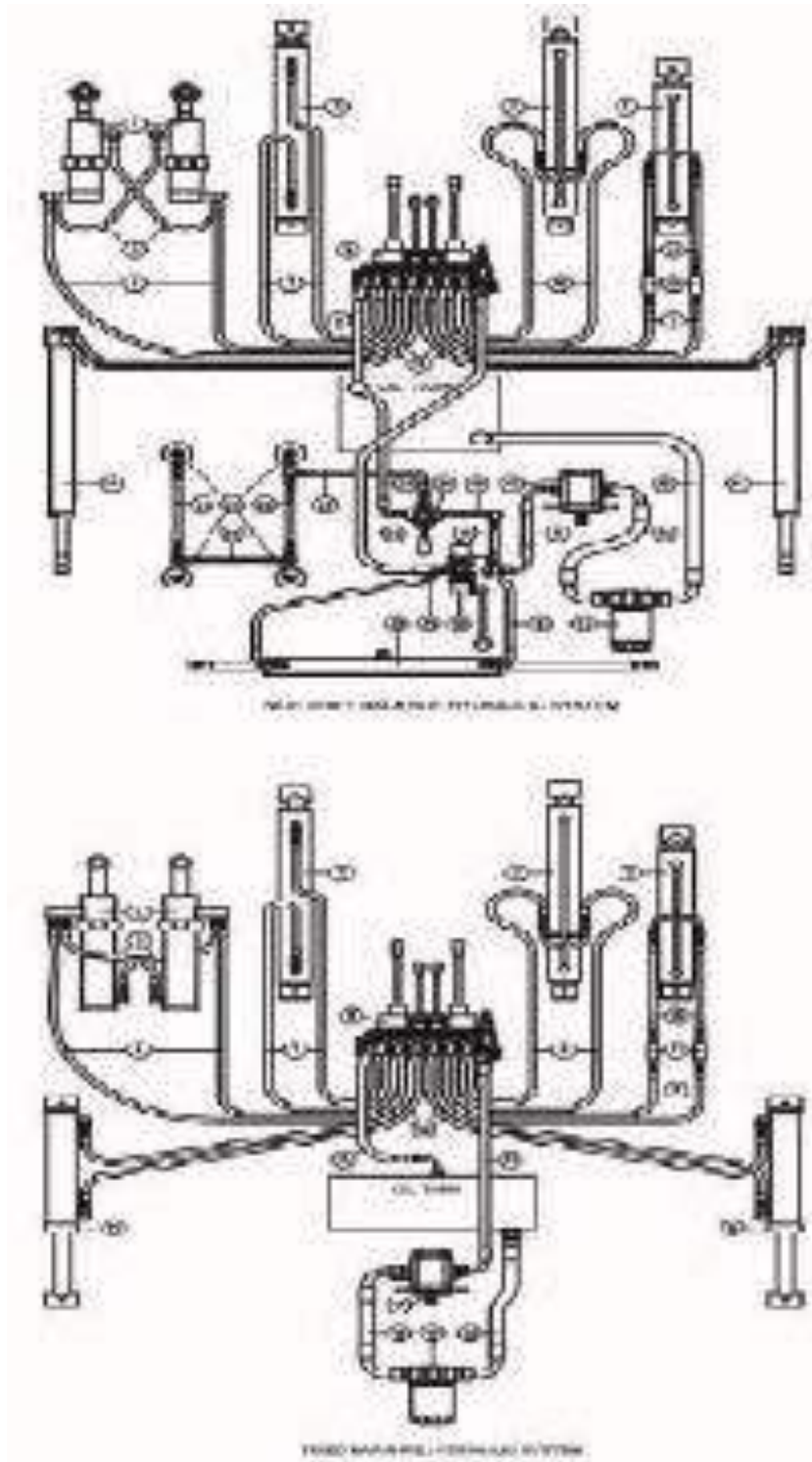
**CHAPTER 10. PARTS LIST – FIXED**



**BUCKET**

| Ser No                   | Part No. | Name & Specification | Qty |
|--------------------------|----------|----------------------|-----|
| Model                    | 175 195  | BHM-195<br>DHL-225   |     |
| Structure weight (kg)    |          | 540 700              |     |
| Max digging depth (m) A  |          | 1.95 2.25            |     |
| Max digging radius (m) B |          | 2.9 3.3              |     |

**CHAPTER 10. PARTS LIST – FIXED**



## CHAPTER 10. PARTS LIST – FIXED

| Model   | BHM-195   | BHL-225  |
|---|---|--|
| Structure weight (kg)   | 540   | 700  |
| Max digging depth (m) A   | 1.95  | 2.25   |
| Max digging radius (m) B  | 2.9   | 3.3  |
| Max digging height (m) C  | 3.17  | 3.45   |
| Max unloading height (m) D  | 2   | 2.3  |
| Stabilizer width (m)  | 1.7   | 1.7  |
| Swing angle for boom  | 180   | 180  |
| Bucket turning angle  | 195   | 203  |
| Bucket turning angle  | 0.02  | 0.035  |
| Bucket width (mm)   | 15L/MIN   | 25L/MIN  |
| Min. hydraulic flow req.  | 25L/MIN   | 40L/MIN  |
| Max. hydraulic flow allowed   | 13MPA   | 13MPA  |
| Min. hydraulic press. Allowed.  | 16MPA   | 16MPA  |
| Bucket digging force (kg)   | 1100  | 1700   |
| Dipper arm digging force (kg)   | 850   | 1100   |
| Item  | Service   | Service Interval   |
| Hydraulic System Oil Level  | Check   | Daily / 10 Hours   |
| Hydraulic System Oil/Filter   | Replace   | Every 50 Hours   |
| Tyre Inflation  | Check   | Weekly / 50 Hours  |
| Backhoe Pivot Points  | Lubricate / Grease  | Daily / 10 Hours   |
| Backhoe Hydraulic Lines, Hoses, Connections                               | Check for leaks, wear   | Daily / 10 Hours   |
| Boom, Arm, Swing and Bucket cylinder rod packing's                        | Check for seepage, service as needed                          | Daily / 10 Hours   |
| Pivot Pin Bolts and Dust Covers   | Check, replace if missing                                     | Daily / 10 Hours   |
| Pin Wear  | Check, replace if necessary                                   | Daily / 10 Hours   |
| Backhoe Mount Hardware  | Check visually  | Daily / 10 Hours   |
| Structural Bolts and Nuts   | Re-torque   | Every 25 Hours   |
| PROBLEM   | Possible Cause  | Correction   |
|   | Low hydraulic fluid level                                     | Check and replenish hydraulic fluid.   |
|   | Hydraulic hoses connected improperly                          | Check and correct hydraulic hose connections.  |
| Stabilizer Legs, Swing, Boom, Dipper Arm and Bucket Cylinders not working | Hydraulic hoses to / from control valve blocked               | Check for damage (kinked) hoses etc.   |
|   | Backhoe control valve or tractor main relief valve stuck open | Check system pressure, repair or replace relief valve. Refer to the tractor Operator's Manual. |
|   | Lower system pressure supplied                                | Check system pressure. Repair o  |

### UNIVERSAL SIDE SHIFT BACKHOE 175

## CHAPTER 10. PARTS LIST – FIXED

| Model  | BHM-195                              | BHL-225           |
|--|--------------------------------------|-------------------|
| Structure weight (kg)                              | 540                                  | 700               |
| Max digging depth (m) A                            | 1.95                                 | 2.25              |
| Max digging radius (m) B                           | 2.9                                  | 3.3               |
| Max digging height (m) C                           | 3.17                                 | 3.45              |
| Max unloading height (m) D                         | 2                                    | 2.3               |
| Stabilizer width (m)                               | 1.7                                  | 1.7               |
| Swing angle for boom                               | 180                                  | 180               |
| Bucket turning angle                               | 195                                  | 203               |
| Bucket turning angle                               | 0.02                                 | 0.035             |
| Bucket width (mm)                                  | 15L/MIN                              | 25L/MIN           |
| Min. hydraulic flow req.                           | 25L/MIN                              | 40L/MIN           |
| Max. hydraulic flow allowed                        | 13MPA                                | 13MPA             |
| Min. hydraulic press. Allowed.                     | 16MPA                                | 16MPA             |
| Bucket digging force (kg)                          | 1100                                 | 1700              |
| Dipper arm digging force (kg)                      | 850                                  | 1100              |
| Item   | Service                              | Service Interval  |
| Hydraulic System Oil Level                         | Check                                | Daily / 10 Hours  |
| Hydraulic System Oil/Filter                        | Replace                              | Every 50 Hours    |
| Tyre Inflation                                     | Check                                | Weekly / 50 Hours |
| Backhoe Pivot Points                               | Lubricate / Grease                   | Daily / 10 Hours  |
| Backhoe Hydraulic Lines, Hoses, Connections        | Check for leaks, wear                | Daily / 10 Hours  |
| Boom, Arm, Swing and Bucket cylinder rod packing's | Check for seepage, service as needed | Daily / 10 Hours  |

### UNIVERSAL FIXED BACKHOE 175