Agpro Backhoe
BH 175 / 195 / 225
OPERATION MANUAL

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CONTENTS

INTRODUCTION

Introduction
The purpose of this manual is to assist you in Maintaining and operating your Agpro 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 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 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.

CHAPTER 1. SAFETY PRECAUTIONS

1.1 SAFETY

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

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

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

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

 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 cab or frame for your protection. See your tractor operator's manual for correct usage.

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

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

Operate the Backhoe smoothly when lowering or lifting loads.
Stay off of slopes too steep for safe operation. Shift down before you start up or down a hill with heavy load. Avoid "free wheeling"

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

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

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

CHAPTER 1. SAFETY PRECAUTIONS

1.2 SAFETY PRECAUTIONS

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 electrocution.

Make sure there is enough clearance between raised equipment and overhead power lines.

Add water to rear tires or rear wheel weights for increased stability.

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

Do not stand, walk or work under a raised backhoe attachment unless it is securely blocked or mechanically in position. Accidental 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 parked backhoe on stands are on a hard level surface with all safety devices engaged to prevent backhoe from falling and being damaged or injuring someone.

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

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 dusk 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 are ill, fatigued or under the influence of any substance or medication that could affect your vision, co-ordination or judgment.

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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.

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CHAPTER 2. SAFETY DECALS

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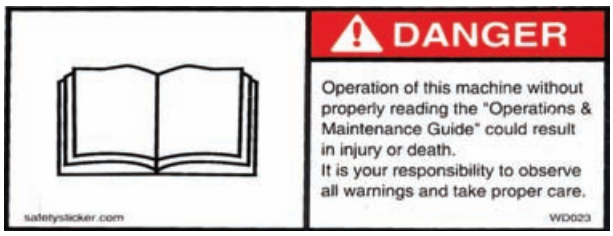

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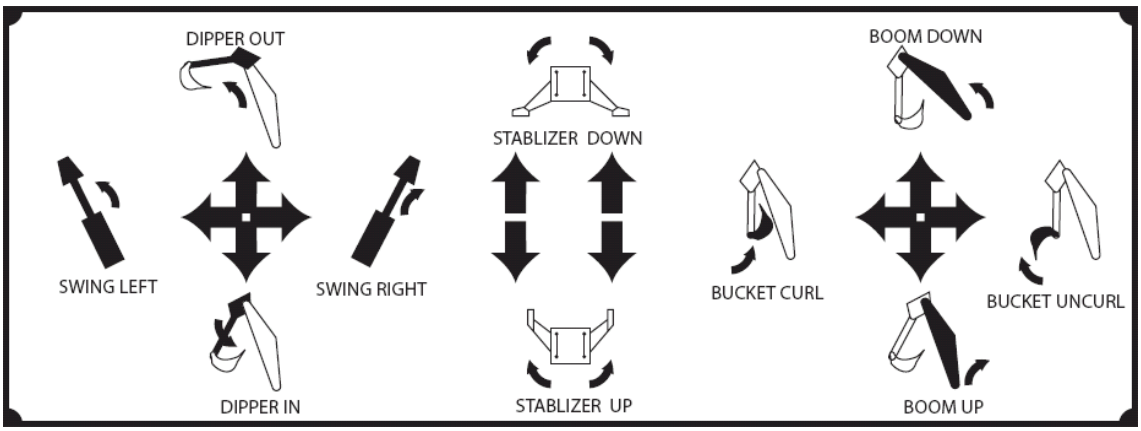


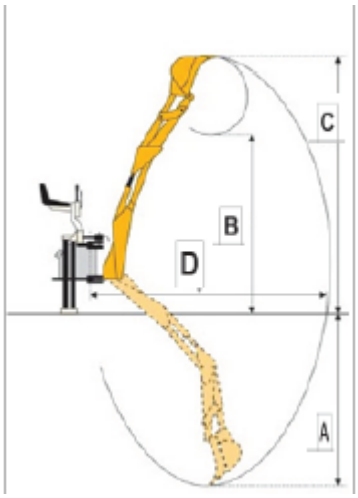
CHAPTER 3. BACKHOE SPECIFICATIONS

3.1 BRIEF INTRODUCTION

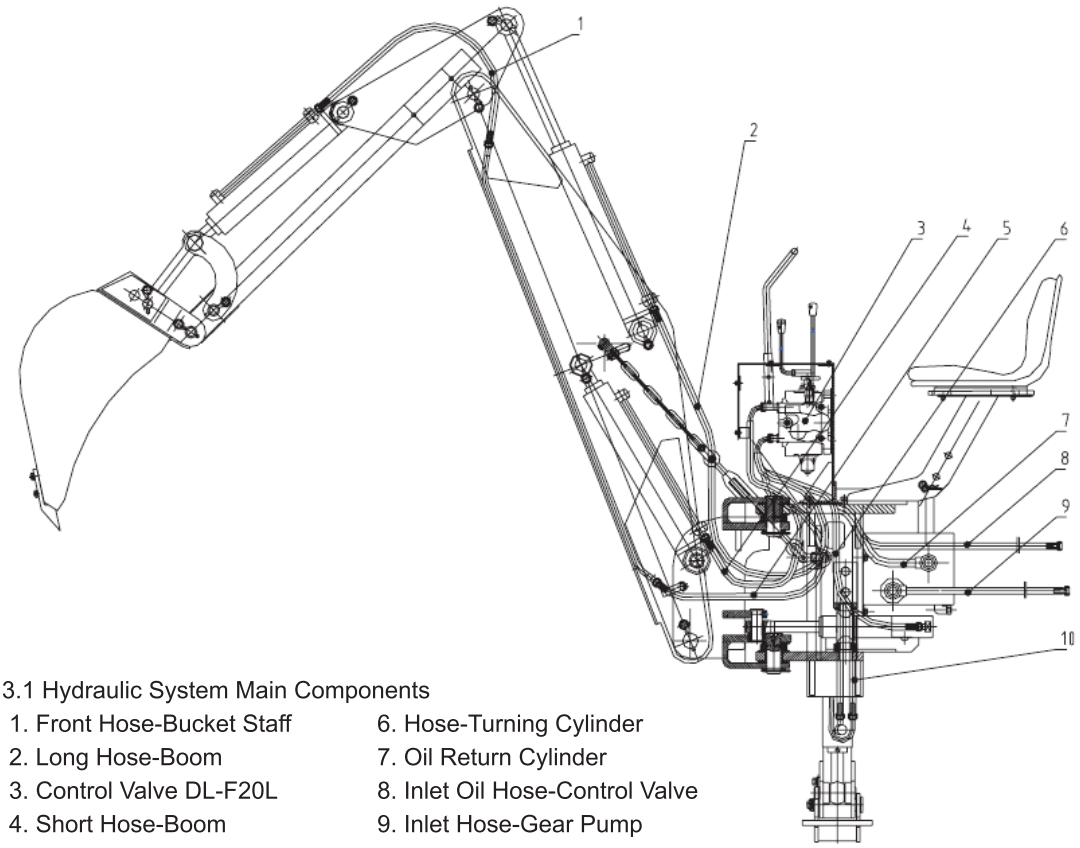
Agpro series Backhoes can be attached to several Brands of wheeled tractors and tracked dozers to increase their verasatility. Refer to specifications below.

Specs for Agpro Backhoes

	DISTANCE BETWEEN FRONT ARMS	 HP								
							A	B	C	D	
MODEL	cm	MIN	MAX	°	cm	PTO	cm	cm	cm	cm	kg
AGBH175	215	18	35	180	30	540	175	180	312	260	500
AGBH195	215	25	45	180	30	540	195	200	317	290	540
AGBH225	250	40	80	180	40	540	225	230	345	330	700

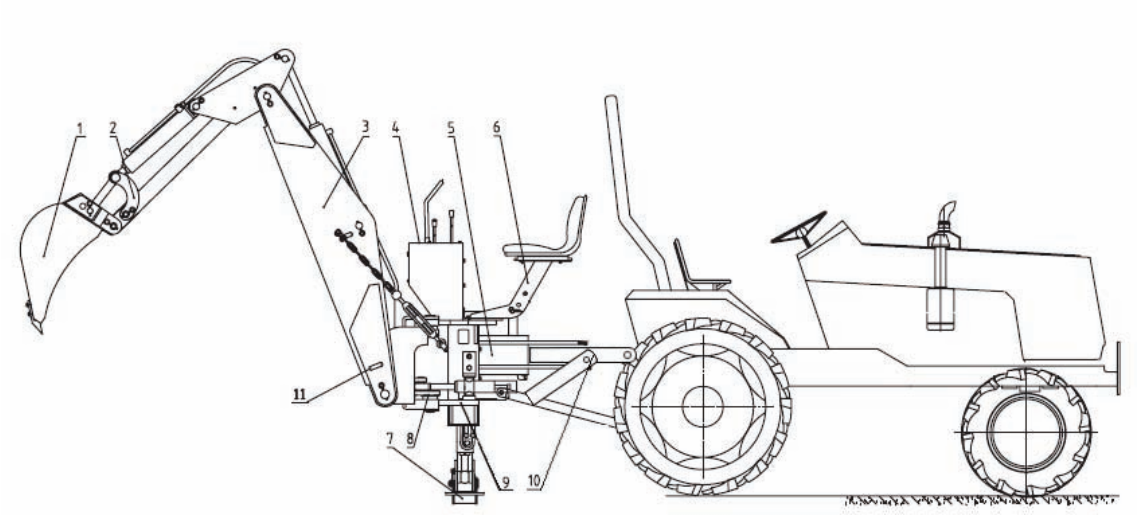


CHAPTER 3. BACKHOE SPECIFICATIONS



3.1 Hydraulic System Main Components

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



3.2 Backhoe Main Components

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

CHAPTER 4. TRACTOR PREPERATION

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

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

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 time.

Adhere to recommendation 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 Take 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 can prevent backhoe attachment from controlling the ground across its full width.

4.4 WHEEL TREAD SETTINGS

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

CHAPTER 4. TRACTOR PREPERATION

4.5 ATTACHMENT

Ensure your tractor's 3 point linkage system is fitted with sway chains before 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 that are part of the connection 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 front end loader) in tractor's front-end for increased stability. Refer to tractor operator' manual for specific recommendations on counter weighting tractor.

CHAPTER 5. 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.

5.1 PRECAUTIONARY NOTE.

- Read and understand this manual to avoid accidents.
- Check the hydraulic fitting lines to be correct and set tightly.
- Maintain and repair (if it is needed) the parts or assemblies, check bolts and pins to be sure they are positioned tightly.
- Check tractor with the tractor operator's manual that it can prepared for operating.
- Warn 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 the specified level.
- Do not operate the hydraulics when not seated in the backhoe operator's seat/
- Keep all assistants out of area of operation.
- Do not operate rapidly.
- Do not allow riders other than the operator to be on the tractor while operating.

Important

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

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

Important

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

Important

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

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

Keep the unit clean and perform regular service.

CHAPTER 5. BACKHOE OPERATION

We urge you to follow this advice:

1. Read and understand this manual as well as the Tractor Operator's Manual.

2. Remember and observe the safety Precautions brought to your attention in this manual, the tractor manual and on the machinery itself.

3. Use good common sense in the everyday operation of this unit. Safety recommendations can never be all-inclusive and you are responsible for watching out for and avoiding unsafe conditions.

4. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question, don't try it.

5. Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new backhoe and tractor.

CAUTION: When lowing a heavy load, east it downward 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.

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

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

5.2 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 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.

CHAPTER 5. BACKHOE OPERATION

5.3 COLD WEATHER OPERATION

For smooth operation in cold weather, let the tractor warn 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.

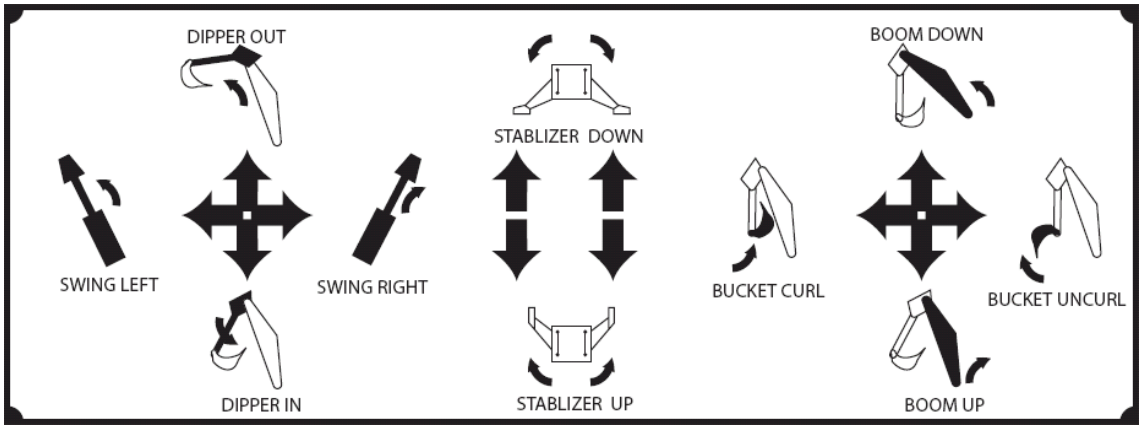
5.4 BACKHOE HYDRAULIC CONTROLS

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.

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

CHAPTER 5. BACKHOE OPERATION



The two levers, ‘Boom and swing control lever’ and ‘Bucket and crowd control Lever’, 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 lieft the tractor rear wheels by stabilizers. Also, be sure the stabilizers are seated on hard ground to support the backhoe / tractor.

CHAPTER 5. BACKHOE OPERATION

LEFT: BHUF, BHEF
BOTTOM LEFT: BHES, BHUS
BOTTOM: Store Lock Pins

5.5 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 drop pin through hoes in swing frame and boom. For models BHES and BHUS, side shift boom carriers 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.

5.6 STABILIZER CLIPS

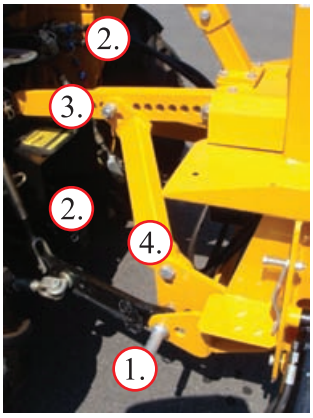
Stabilizer clips are also to be used for transporting and dismounting backhoe.

CHAPTER 6. BACKHOE MOUNTING

6.1 BACKHOE MOUNTING

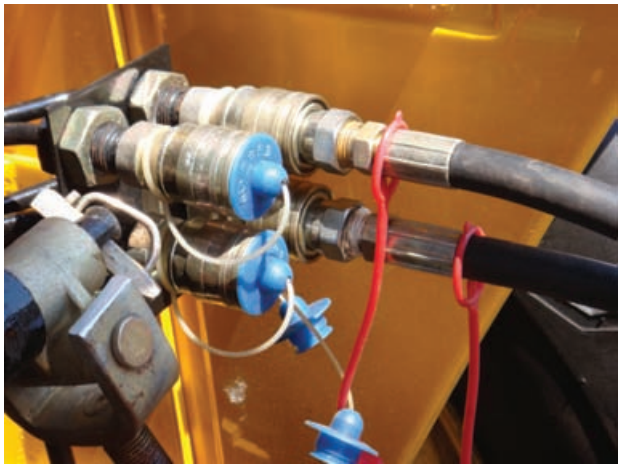
The 3.P.L mounting frame is adjustable to suit all tractor models with Cat 1 or Cat 2 three point linkage.

1. Connect tractor 3.P.L arms to lower mounting frame pins.
2. Connect PTO or Hydraulic oil lines and move bucket down to lift boom to move main frame into vertical position.
3. Connect and Adjust top link assembly.
4. Connect left hand and right hand lock out brace to the correct hole and secure the bolt and nut tightly.
5. Lower and manually lock the tractor 3.P.L position / Draft Lever. (See Tractor's Operation Manual)



6.2 PTO CONNECTION

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.



6.3 HYDRAULIC CONNECTION

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.

CHAPTER 6. BACKHOE MOUNTING

CAUTION: Backhoe should be mounted to the tractor three point linkage.

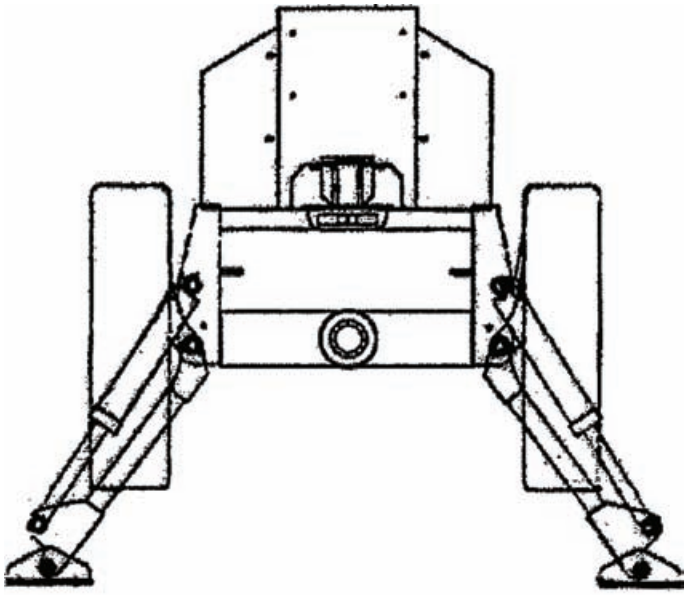
CAUTION: Never store backhoe without bucket attached to the backhoe.

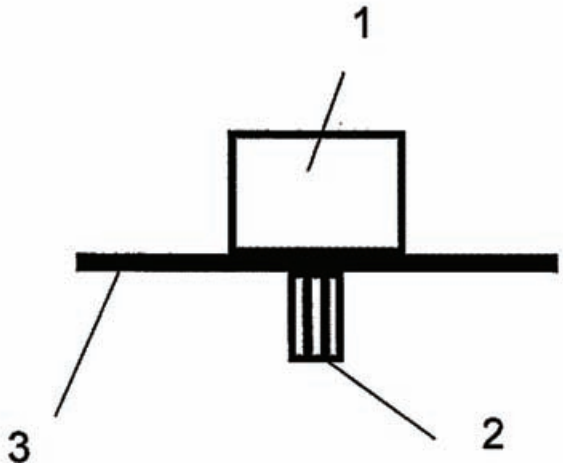
CAUTION: Never raise 3.P.L position / draft lever while backhoe is connected, damage could occur to linkage and hydraulic system. Use mechanical means to secure levers in down positions.

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.

CHAPTER 7. HYDRAULIC PUMP ASSEMBLY

HYDRAULIC PUMP ASSEMBLY





REF	Description	Specification	Part No.	Qty
1	Hydraulic pump			1
2	Hydraulic pump shaft	13/8”6 Splines		1
3	Bracket			1

CHAPTER 8. LUBRICATION AND MAINTENANCE

Total of 27 grease nipples on series Grease nipples are located on every moving part

CHAPTER 8. LUBRICATION AND MAINTENANCE

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 packings	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
Bolt and Nut Release	Re-torque	Every 25 Hours

CHAPTER 8. LUBRICATION AND MAINTENANCE

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, besure 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 sear 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.

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

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

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.

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

CHAPTER 9. TROUBLE SHOOTING

TROUBLE SHOOTING

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

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

PROBLEM	Possible Cause	Correction
Swing, Boom, Dipper Arm and Bucket Cylinders	Low hydraulic fluid level	Check and replenish hydraulic fluid.
	Hydraulic hoses connected improperly	Check and correct hydraulic hose connections.
	Hydraulic hoses to / from control valve blocked	Check for damage (kinked) hoses, etc.
	Backhoe control valve or tractor main relief valve stuck open	Check system pressure, Repair or replace relief valve. Refer to the Tractor Operator's Manual.
	Low system pressure supplied from hydraulic pump	Check system pressure. Repair or replace pump.
	Control valve linkage broken	Inspect. Repair as required.
	Quick disconnect coupler(s) are not fully connected or "Flow Check"	Check coupler connections. Replace coupler(s) if necessary.
	Hydraulic Hose or 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 cylinders for internal leakage as described in service section under cylinder leakage tests.
	Control Valve blockage	Inspect for blockage.
	Disassemble valve if necessary.	
	Safety lock pins (2) not removed	Remove and store safety pins.
	Stabilizer legs safety clip not released	Release the clips.

CHAPTER 9. TROUBLE SHOOTING

PROBLEM	Possible Cause	Correction
Cylinders operate in wrong direction relative to control valve lever position.	Hydraulic Hoses connected incorrectly.	Correct hydraulic hoses connections.
Slow or erratic move of cylinders (Noisy operation of cylinders)	Low hydraulic fluid level	Check and replenish hydraulic fluid.
	Cold hydraulic fluid	Allow hydraulic system to warm up to operating temperature
	Hydraulic oil viscosity too heavy or Incorrect oil	Check oil number and viscosity, refill correct hydraulic oil.
	Engine R.P.M too slow (hydraulic pump R.P.M too slow).	Increase engine speed to obtain satisfactory backhoe operation.
	Excessive weight in bucket. Material weight exceeds maximum specified backhoe capacity.	Reduce material load. (Digging load)
	Control valve linkage binding / defective	Check control valve linkagae and repair if work / defective.
	Aeration of hydraulic fluid	Refer to “Aeration of hydraulic Fluid”
	Quick disconnect coupler restriction or coupler “Flow checks”	Check coupler connections. Repair or replace.
	Hydraulic hose or tube line restriction choses / Tube line) Kinked or pinched	Check hoses and tubelines for evidence of restriction.
	Boom, Dipper arm or Bucket cylinder piston assembly leakage.	Check cylinders for leakage. Repair as needed.
	Relief valve erratic or set below specifications	Check and reset relief valve. Setting as needed.
	Control valve leaking internally. (bypassing fluid within valve).	Replace control valve and recheck operation.

CHAPTER 9. TROUBLE SHOOTING

PROBLEM	Possible Cause	Correction
Inadequate lifting capacity	Engine R.P.M too slow	Increase engine R.P.M
	Excessive load. Material loading exceeds specified backhoe capacity.	Reduce Load
	Relief valve setting below specifications	Check and reset relief valve setting as needed.
	Bucket, Boom and Dipper arm cylinder piston assembly leakage	Check Cylinders for leakage. Repair as needed.
	Control Valve leaking internally	Replace control valve and recheck operation.
	Hydraulic pump defective	Refer to “Hydraulic Pump Capacity Inadequate”
Aeraion of Hydraulic Fluid (Generally indicated by foamy appearance of fluid)	Low Hydraulic fluid level	Check and refill hydraulic system to proper level.
	Air leing into suction side of hydraulic pump	Check for loose or defective connections between reservoir and hydraulic pump.
	Hydraulic fluid foaming due to improper hydraulic oil usage	Refer to tractor Operator’s Manual and replace hydraulic oil using recommended hydraulic oil
System relieve valve squeals	Cold Hydraulic Fluid	Allow hydraulic fluid to warm up to operating temperature.
	Hydraulic Oil viscosity too heavy or Incorrect Oil	Check Oil Number and Viscosity, refill correct hydraulic oil
	Excessive load in bucket. Loading exceeds specified backhoe capacity	Reduce Load
	Relief Valve setting below specifications.	Check and reset valve setting as needed.
	Hydraulic hose, tube line or quick disconnect coupler restriction	Check for evidence of restriction in the hydraulic oil flow. Repair or replace defective components.

CHAPTER 9. TROUBLE SHOOTING

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

AGPRO IMPLEMENT WARRANTY

Warranty Policy

This warranty refers to the product listed in this Operation Manual, sold by Agpro Australia. In order to qualify for this warranty, the registration form attached must be completed and returned to Midway Sales at their registered address within 10 days from date of purchase.

The Agpro product shown in this operation manual is warranted against defects in workmanship and materials for a period of six (6) months from the date of purchase. In the case of products purchased specifically for agricultural use the warranty shall be extended to a period of twelve (12) months provided that this intended use is made known to the manufacturer/dealer at the time of purchase.

Hydraulic components, including cylinders and controls, are warranted against faulty parts and/ or workmanship for a period of six (6) months commercial use/(12) twelve months agricultural use from the date of delivery of the implement to the' original end-user.

This warranty is limited to faults or defects occurring in the product under normal operating conditions. The replacement or repair of any defective parts, or correction of operating parts under this warranty is made only after Midway Sales or their authorised representatives have examined the unit to their satisfaction. Implements are to be returned to Midway Sales or their authorised dealer, freight forward and return pre-paid. The manufacturer shall not be liable for indirect, special or consequential damages arising out of or in connection with the use or performance of the product including damage with respect to economic loss, loss of property, loss of revenue or profits, cost of removal, installation or reinstatement.

This warranty does not extend to cover any products manufactured to the purchaser's specifications, or modifications or repairs by customers or third parties, carried out without the written permission of the manufacturer.

This warranty does not extend to cover parts subject to normal wear such as, but not limited to chains, bearings, seals, filters and blades.

This warranty extends only to the original purchaser and is not transferable. This warranty does not extend to cover damage in transit, damage or failure caused by or attributed to Acts of God, exceeding the power limits specified in the technical data, abuse, using non-genuine parts, improper or abnormal use by the purchaser, its servants, employees or agents, faulty installation, improper maintenance or any repair other than those provided by the manufacturer or it's duly authorised dealers.

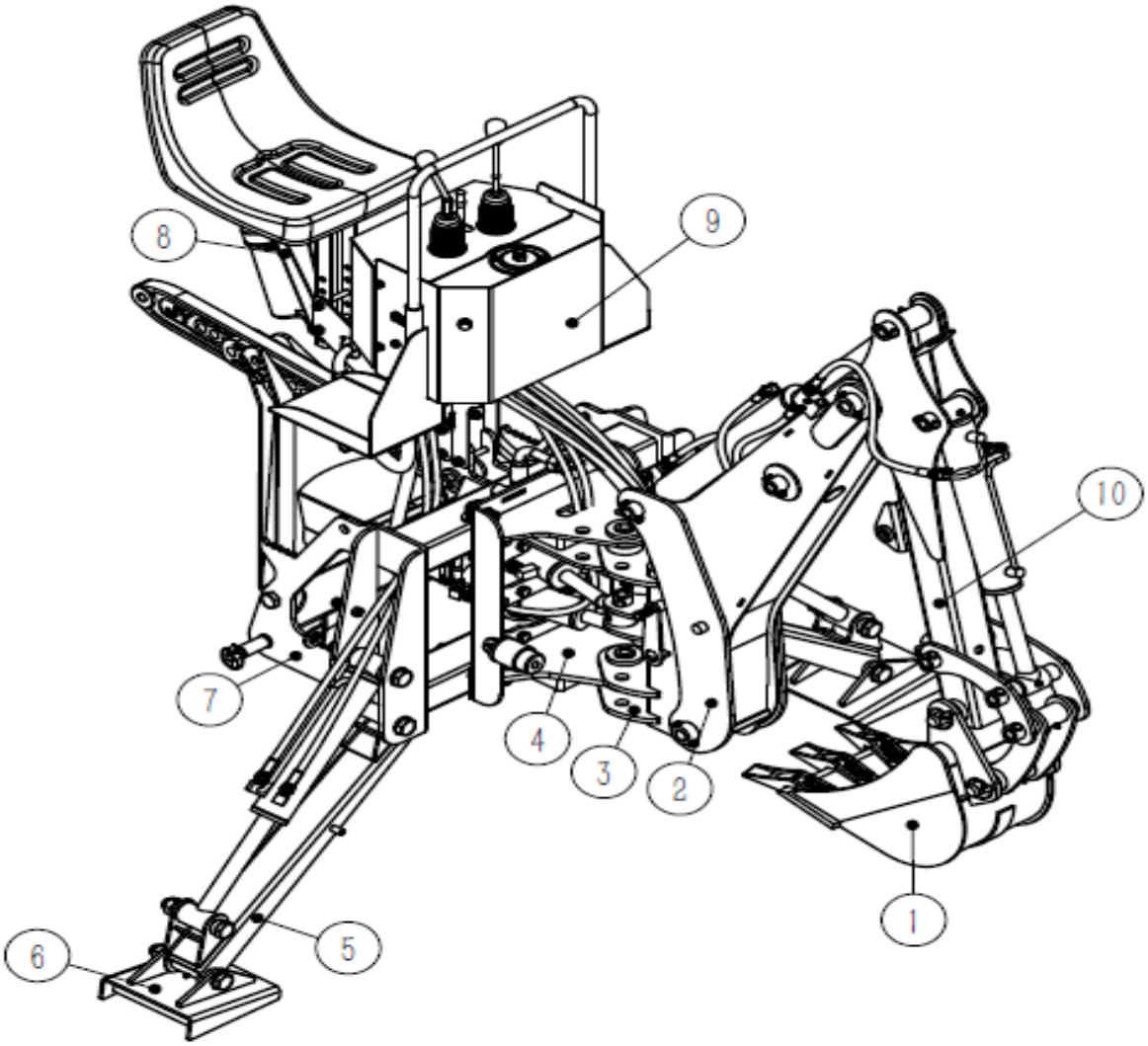
This warranty does not authorise any person to create for it any other obligation or liability in connection with its products.

Other than the warranty hereby expressly given, the manufacturer makes no implied warranty of merchantability or fitness for purpose in so far as any such implied warranty is deemed to be given under any Commonwealth or State Law, then the manufacturer shall only be liable to the extent expressed in any such law.

PRODUCT IMPROVEMENT

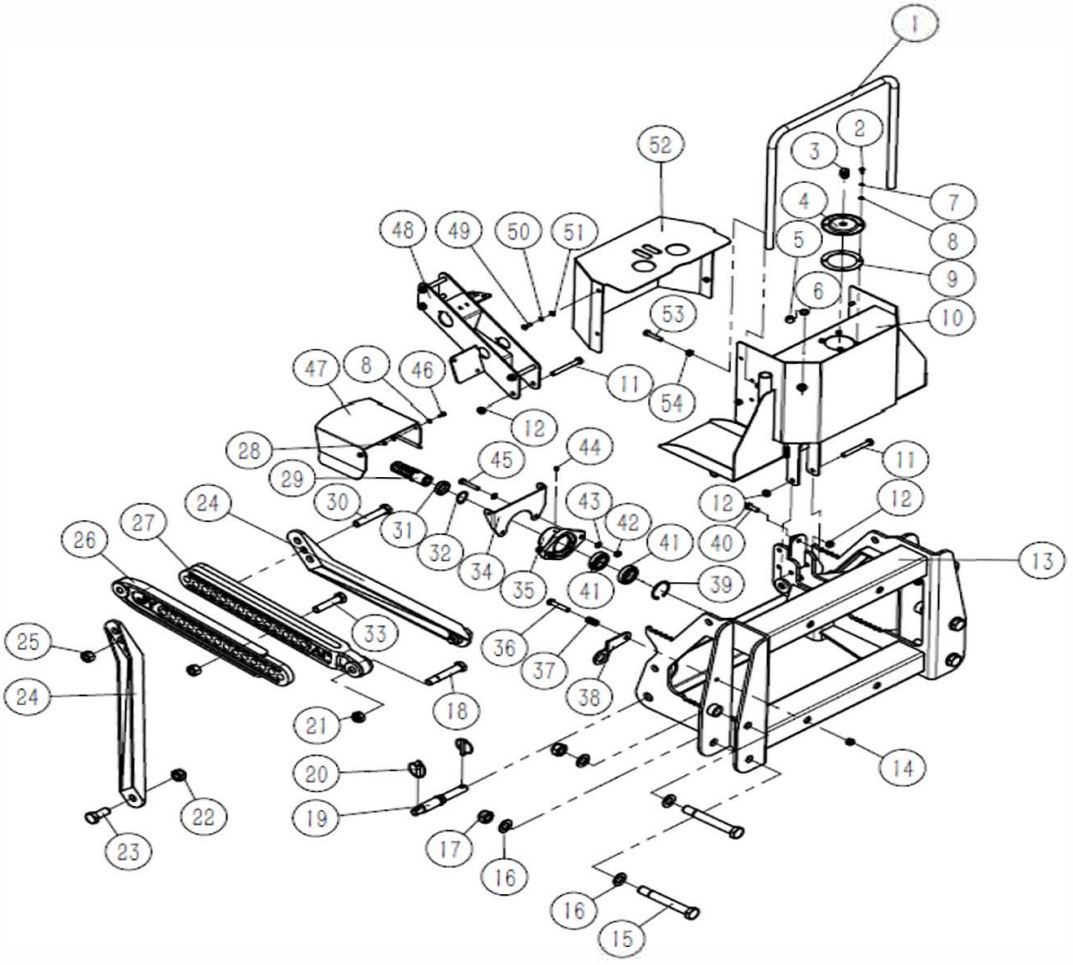
Due to a continual product development program, Agpro reserves the right to change models and specifications without notice.

Backhoe BH175, BH195, BH225 Assembly



Part	Code	Name	Quantity
1	BHM225-0026-12	Bucket	1
2	BHM175-0021	Big Arm	1
3	BHM175-0019	Swivel	1
4	BHM175-0018	Side Movement Plate	1
5	BHM175-0012	Supporting Leg	2
6	BHM175-0013	Supporting Leg Brace	2
7	BHM175-0011	Base	1
8	BHM225-0017	Seat Adjustment Frame	1
9	BHM175-0014	Control Box Weldment	1
10	BHM175-0022	Small Arm	1

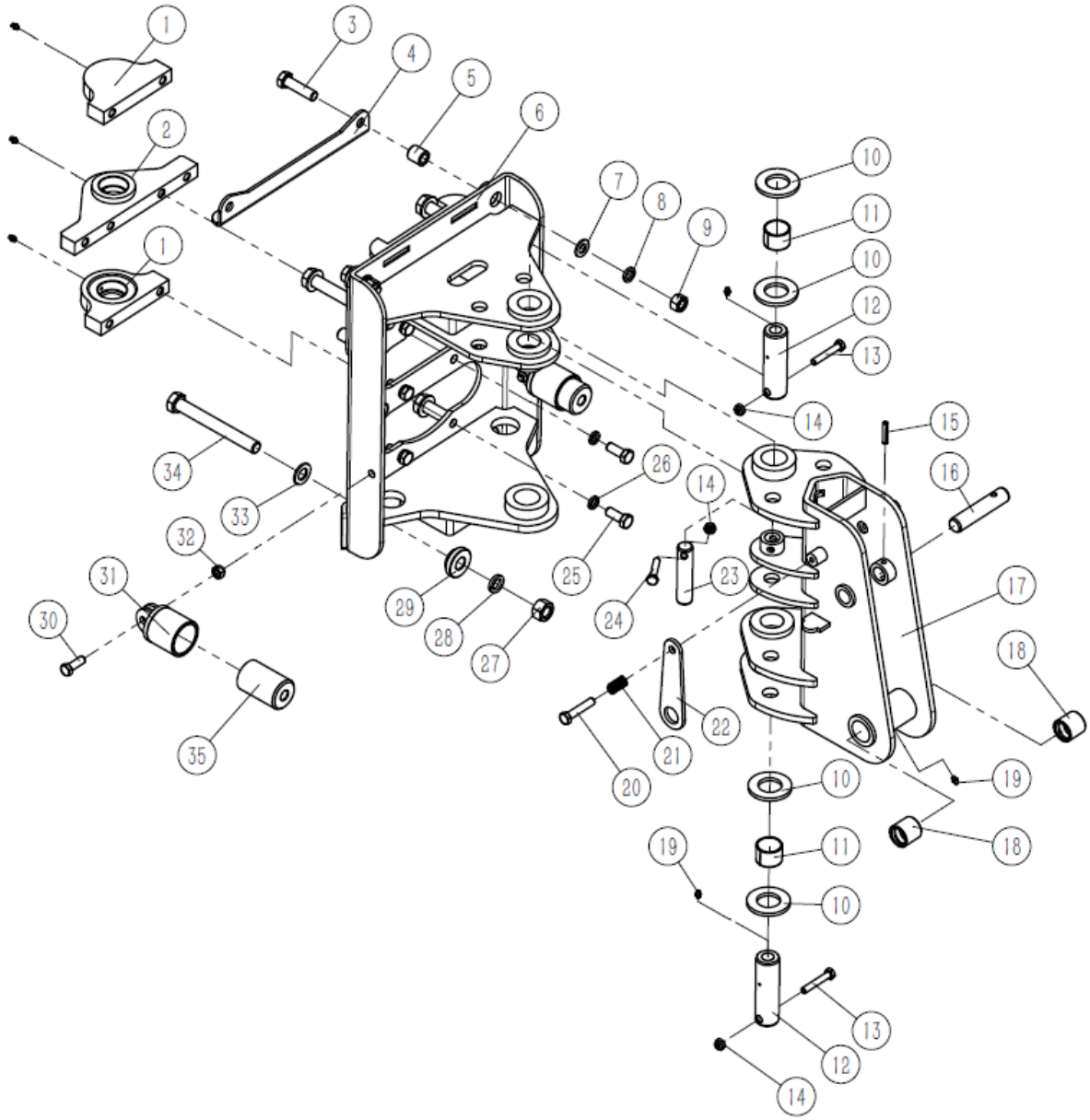
Back Hoe Seat and Control Panel Assembly



Back Hoe Seat and Control Panel Parts List

Part	Code	Name	Quantity	Part	Code	Name	Quantity
1	BHM225-0119	Guard Bar	1	30	GB5782-86	Bolt M20 x 110	1
2	GB5783-86	Bolt M6 x 12	4	31	BHM225-0137	Spacer 45 x 35 x 12	1
3	WG-0003	Breather G3/8	1	32	GB894.1-86	Roing 35	1
4	BHM225-0121	Oil Case Cover	1	33	GB5782-86	Bolt M20 x 90	1
5	JB/T 7941.2-1995	Oil Cup A10	1	34	BHM225-0134	Cover Bracket	1
6	JB/T 982-1977	Washer 16	1	35	BHM225-0136	Bearing Seat	1
7	GB93-87	Spring Washer 6	4	36	GB5782-86	Bolt M12 x 60	2
8	GB97.1-85	Washer 6	8	37	BHM225-0110	Lock Pin Spring	2
9	BHM225-0120	Rubber Mat	1	38	BHM225-0118	Supporting Leg	2
10	BHM175-0014	Control Panel Weldment	1	39	GB893.1-86	Ring 62	1
11	GB5782-86	Bolt M12 x 100	5	40	GB5783-86	Bolt M12 x 30	1
12	DIN985-87	Nut M12	6	41	GB276-94	Bearing 6007	2
13	BHM175-0011	Base	1	42	DIN985-87	Nut M10	2
14	GB6170-86	Nut M12	2	43	GB97.1-85	Washer 10	4
15	GB27-88	Bolt M24 x 180	4	44	GB1152-89	Oil Cup M6	3
16	GB97.1-85	Washer 24	8	45	GB5783-86	Bolt M10 x 55	2
17	DIN985-87	Nut M24	4	46	GB5783-86	Bolt M6 x 16	2
18	GB27-88	Bolt M20 x 120	1	47	BHM225-0135	Protection	1
19	BHM225-0139	Lower Linkage Pin Shaft	2	48	BHM225-0016	Seat Frame	1
20	TY-SXZJ-12	Lock Pin 12	4	49	GB5783-86	Bolt M8 x 20	4
21	DIN985-87	Nut M20	1	50	GB93-87	Spring washer 8	4
22	DIN985-87	Nut M22	2	51	GB97.1-85	Washer 8	4
23	GB5783-86	Bolt M22 x 50	2	52	BHM175-0015	Rear Cover	1
24	BHM225-0133	Jackstay	2	53	GB5783-86	Bolt M10 x 50	2
25	GB6170-86	Nut M20	2	54	GB6170-86	Nut M10	2
26	BHM175-0132	Upper Link	1				
27	BHM175-0131	Rod End York	1				
28	DIN985-87	Nut M6	2				
29	BHM225-0138	Input Shaft	1				

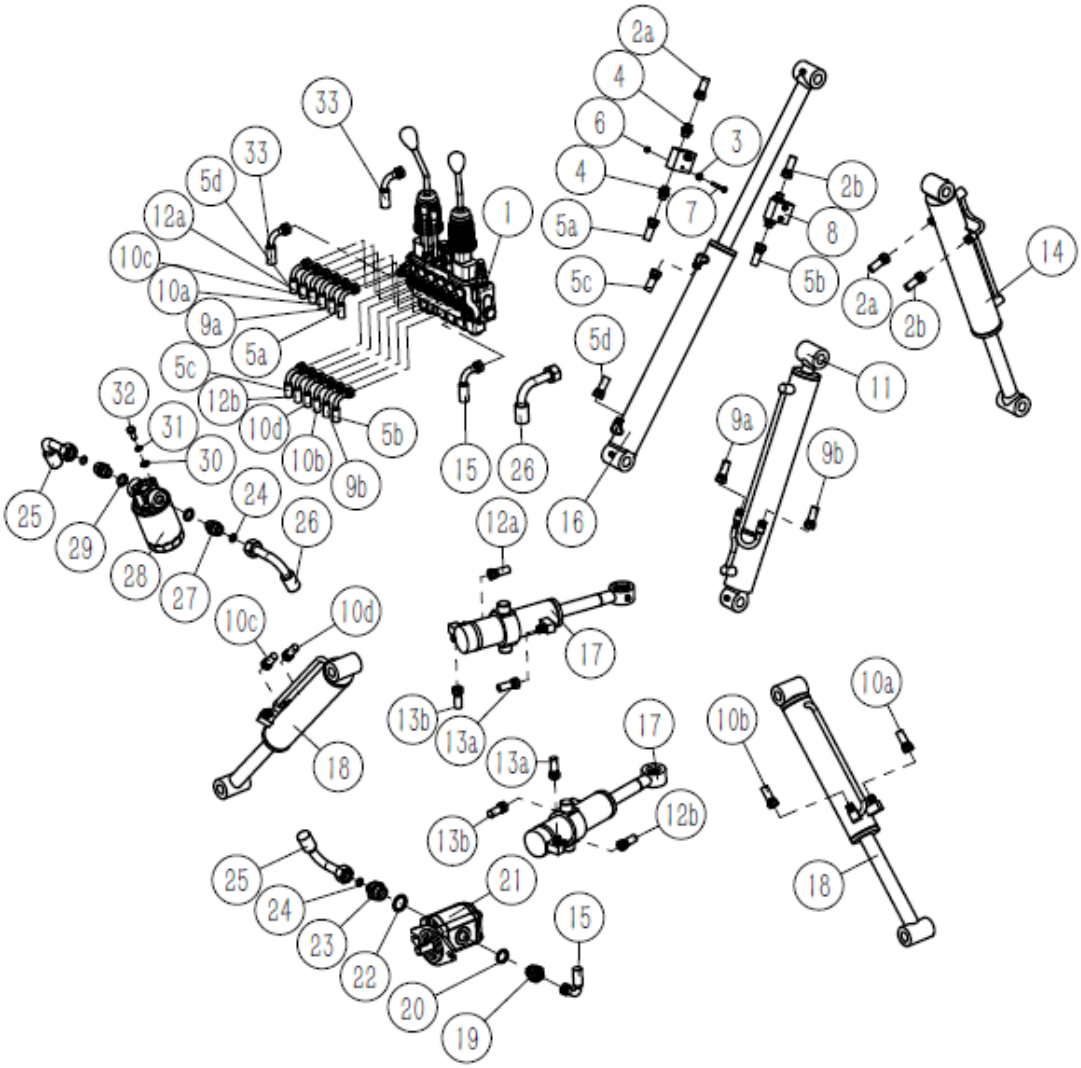
Back Hoe Arm Attachment Assembly



Back Hoe Arm Attachment Parts List

Part	Code	Name	Quantity
1	BHM175-0114	Joint bearing seat	2
2	BHM175-0035	Joint bearing seat	1
3	GB5782-86	Bolt M16x60	2
4	BHM175-0117	Limit folded plate	1
5	BHM225-0116	Bush 25×16.2×25.5	2
6	BHM175-0018	Side shift frame	1
7	GB97.1-85	Washer16	2
8	GB93-87	Spring washer 16	2
9	GB6170-86	Nut M16	2
10	BHM175-0112	Liner 70×38.5×6	4
11	GB12613-90	bushP42x38x30	2
12	BHM175-0111	Swivel pin shaft	2
13	GB5782-86	Bolt M10x60	2
14	DIN985-87	Nut M10	4
15	GB879.1-2000	Pin 8x40	1
16	BHM175-0108	Big arm cylinder ebd pin	1
17	BHM175-0019	Swivel	1
18	BHM225-0102	Bush	2
19	GB1152-89	Oil cup M6	6
20	GB5782-86	Bolt M12x60	2
21	BHM225-0110	Lock pin spring	2
22	BHM225-0109	Big arm lock plate	2
23	BHM175-0113	Steering cylinder pin shaft	2
24	GB5782-86	Bolt M10x50	2
25	GB5783-86	Bolt M14x35	8
26	GB93-87	Spring washer 14	8
27	GB6170-86	Nut M20	4
28	GB93-87	Spring washer 20	4
29	BHM175-0115	Press plate	4
30	GB5783-86	Bolt M12x35	2
31	BHM175-0036	Buffer plate	2
32	DIN985-87	Nut M12	2
33	GB97.1-85	Washer 20	4
34	GB5782-86	Bolt M20x170	4
35	HRM220-01101	Buffer block	2

Back Hoe Hydraulic Controls Assembly



Back Hoe Hydraulic Controls Parts List

No.	Part N.	Description	Qty
1	ZT6-F15-T／60-5	Valve	1
2	BHM175-0068	Bowl cylinder tube	2
3	GB6170-86	Nut M8	6
4	1CB-16-06WD	Oil pipe connector	4
5	BHM175-0063	Small arm cylinder tube	4
6	DIN985-87	Nut M6	4
7	GB5782-86	Bolt M6x45	4
8	BHM225-0104	Oil transition block	2
9	BHM175-0067	Big arm cylinder tube	2
10	BHM175-0066	Supporting leg cylinder tube	4
11	BHM175-0055	Big arm cylinder	1
12	BHM175-0064	Steering cylinder tube	2
13	BHM175-0065	Steering cylinder tube	2
14	BHM175-0057	Digging cylinder	1
15	BHM175-0062	Tube (pump to valve)	1
16	BHM175-0056	Small arm cylinder	1
17	BHM175-0052	Swivel cylinder	2
18	BHM175-0051	Supporting leg cylinder	2
19	BHM225-0152	Pump out connection	1
20	JB／T 982-1977	Bonded washer 27	1
21	CBF-F425-ALPL	Gear pump	1
22	JB／T 982-1977	Bonded washer 33	1
23	BHM225-0151	Pump in connection	1
24	GB3452.1-82	O ring 14x2.65	4
25	BHM225-0061	Tube (filter to pump)	1
26	BHM225-0060	Tube(oil case to filter)	1
27	BHM225-0150	Filter connector	2
28	YX0811A	Oil filter	1
29	JB／T 982-1977	Bonded washer 22	2
30	GB97.1-85	Waher 10	2
31	GB93-87	Spring washer 10	2
32	GB5783-86	Bolt M10x25	2
33	BHM225-0069	Tube(valve to oil case)	1