

HB 50

Operation and Maintenance Manual



135005

Register your
WARRANTY
within 30 days
of purchase



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BD-092

Introduction: Owner Information

Thank you for your decision to purchase a Blue Diamond® HB50 Breaker. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator's manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and /or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator's Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Blue Diamond is continually working to improve its products. Blue Diamond reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Blue Diamond makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Blue Diamond assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Blue Diamond Attachments Dealer for assistance, information, or additional copies of the manual. Contact www.bluediamondattachments.com or call 888-376-7027 for a complete list of dealers in your area.

Serial Number Location:

Please record attachment information in the space provided for future reference.



Model Number: _____

Serial Number: _____

Dealer Name: _____

Dealer Number: _____

Date of Purchase: _____

The serial number plate is located on the front of the attachment below the lifting hook.

Always use your serial number when requesting information or when ordering parts.

NOTE: The directions left, right, front and rear, as mentioned throughout this manual, are as viewed from the operator's position.

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1. Safety

1.1 General Safety Information



This SAFETY ALERT SYMBOL identifies important safety messages on the equipment and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



The signal word **IMPORTANT** identifies procedures which must be followed to avoid damage to the machine.



The signal word **DANGER** on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.



The signal word **WARNING** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



The signal word **CAUTION** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Operating Safety

- Read and follow instructions in this manual and the machine's Operators Manual before operating.
- The manual must always remain with the machine. In case of loss or damage, request a new copy from your dealer or from Blue Diamond.
- Strictly follow all rules prescribed by the safety pictograms/decals applied to the machine. Ensure that all safety pictograms/decals are legible. If pictograms/decals are worn, they must be replaced with new ones obtained from Blue Diamond and placed in the position indicated by this manual.
- Before using the machine, make sure that all safety devices are installed and in good working conditions. In case of damaged or missing shields, replace them immediately.
- It is absolutely forbidden to remove or alter safety devices and/or safety precautions
- Pay maximum attention to avoid any accidental contact with rotating parts of the machine.
- If the use of the machine is required at night or in conditions of reduced visibility, use the lighting system of the prime mover and possibly an auxiliary lighting system.

1. Safety



1.2 Operators

Qualified Operators

The operator is a person suited to the work and who is physically and psychologically able to withstand the demands connected with operating the equipment for its intended use. The operator must not allow anyone to approach the machine while it is working and must not allow external personnel to operate the machine or attachment.

He is to follow the given instructions in this manual and the machine operator's manual in order to obtain maximum performance, minimum consumption, and maximum safety for himself and for others.

The operator is responsible for scrupulously observing all the instructions given in this manual.

 **DANGER** 

AVOID SERIOUS INJURY OR DEATH

Operators must receive instructions before operating the machine. Untrained operators can cause serious injury or death.

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

For an operator to be qualified, he or she must have read and understood the instructions of this manual, he or she must make adequate preparation for the proper use of the machine, and he or she must hold a driving license.

In case of doubt regarding the use of the machine and/or the interpretation of this manual, the operator must contact either their dealer or Blue Diamond.

Operator Training

- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area.

Operator Safety

- Before starting, and during operation of the attachment, make sure there are no people or animals in the operation area; the machine can project material from the back with risks of serious injury or death.
- During operation, adjustment, maintenance, repairing, or transportation of the machine, the operator must always use appropriate Personal Protective Equipment (PPE) including but not limited to safety glasses, working gloves, dust-mask, safety helmet, and hearing protection.
- Do not operate the attachment or machine while wearing loose fitting clothing that can be entangled or caught in parts of the machine.
- Do not operate the implement when tired, not in good condition, or under the influence of alcohol or drugs.

2. Safety

1.2 Operators Cont'd

Operator Position and Zones

When the machine is running, the operator must pay particular attention to his own position (Item 1) [Figure 1] to prevent being a source of danger to himself or to bystanders. The area surrounding the equipment is divided into the operation or danger zone (Item 4) [Figure 1] and the safe zone (Item 5) [Figure 1].

The Operation or Danger Zone is the one the operator has to work in while the equipment is working normally. The Operator's Zone is considered as a potentially dangerous area. Individuals should not be present in the Operation Zone (Item 3) [Figure 1] while the equipment is running. It is extremely important that all accident prevention standards indicated are strictly applied.

The Safe Zone is where bystanders should remain while the equipment is running (Item 2) [Figure 1].

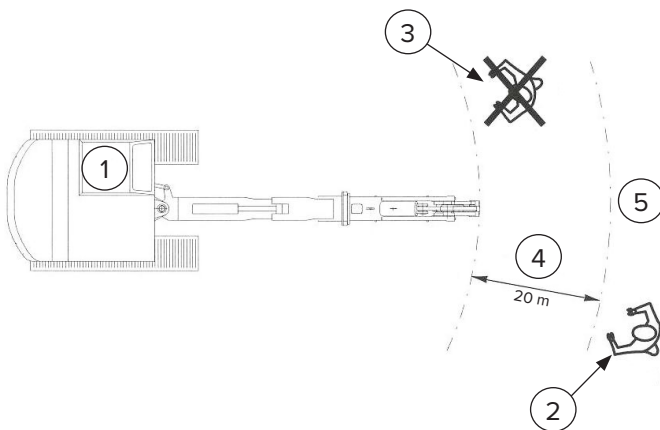


Figure 1

Personal Protective Equipment

The operator involved with the working of the equipment or in the surroundings of the equipment must always be equipped with adequate Personal Protective Equipment (PPE). The required PPE includes but is not limited to:



Proper Workclothes: To help ensure your safety as a designated operator wear proper workclothes.



Hand Protection: To help ensure your safety as a designated operator wear protective gloves.



Protective Shoes: To help ensure your safety as a designated operator wear protective shoes.



Safety Helmet: To help ensure your safety as a designated operator wear a safety helmet.



Eye and Ear Protection: To help ensure your safety as a designated operator wear eye and ear protection.

2. Operation

2.1 Entering and Exiting the Prime Mover

! IMPORTANT !



See the machine's Operator's Manual for detailed information on operating the loader.

Entering The Operator's Position

Use the attachment safety treads, handles and steps (on the machine) to enter the operator's position.

When in the operator's position, lower safety seat bar, start the engine and release the parking brake.

Leaving The Operator's Position

! WARNING !

AVOID SERIOUS INJURY OR DEATH

- Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Park the machine/attachment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

2.2 Transporting the Attachment

! CAUTION !

The operator in charge of transportation and installation of the attachment must be acquainted with the following instructions. Pay careful attention to the weight of the breaker.

Determine the total weight of the breaker including the adapting plate and the mounted tool using section 6.1 Attachment Specifications on page 18.

In order to move the breaker safely when not attached to the excavator, it is necessary to use a suitable and safe lifting system as seen in Figure 2.

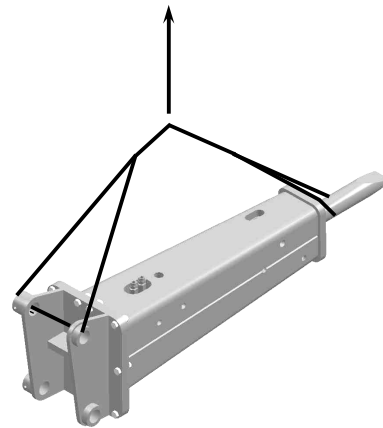


Figure 2

Always use a means of transport and lifting that can accommodate the weight of the breaker.

! WARNING !

Always move with care. Each movement can be very dangerous. **DO NOT** pass or stop under the breaker when it is lifted up.

2. Operation

2.3 Hydraulic Connections

Connect the pressure line hose to the entry side labeled “IN” [Figure 3].

Connect the return line hose to the exit side labeled “OUT” [Figure 3].

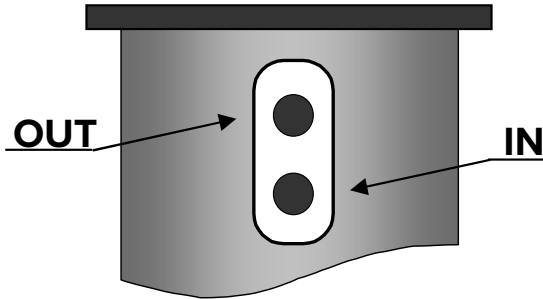


Figure 3

2.4 Attachment Installation on Excavators

Connecting Attachment To The Machine



WARNING



AVOID SERIOUS INJURY OR DEATH

The locking pins must extend through the holes in the attachment mounting frame. Failure to secure locking pins can allow attachment to come off.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

1. Place the breaker horizontally with its axis parallel to the excavator boom on the ground in a stable position.
2. Remove the pins holding the bucket and take the bucket away, if present.
3. Insert the boom end in the middle of the adapting plate.
 - Line up the hole of the excavator boom with the equivalent one on the adapting plate. Insert the first pin.
 - Line up the hole of the connecting rod with the second pin and secure.



WARNING



Stop the hydraulic system of the excavator!

- Remove the end caps from the hoses. Follow the instructions in Section 2.2 Hydraulic Connections on page 8.
- Store the caps of the hoses to be used when the attachment is uninstalled.

Disconnecting Attachment From the Machine

1. Place the breaker horizontally on the ground in a safe area.



WARNING



Stop the hydraulic system of the excavator.

2. Close the hoses' flow if possible.
3. Disconnect the hoses and close up the ends of the flexible hoses in order to prevent oil leaking and dirt intake.
4. Remove the connecting rod pin.
5. Remove the excavator boom pin.
6. After unblocking the hydraulic system, take the excavator boom out of the adapting plate.

2. Operation

2.5 Breaker Operation



WARNING



- The operator **MUST** follow all manufacturer's instructions.
- Do not use without the tool retaining pin.
- Use only tools authorized by the manufacturer.

The tool contact area must be visible to the operator to ensure full contact.

Engine Speed

During the breaker inspection, the installer determines the exact ratio of excavator engine revs to the appropriate oil flow rate for the breaker.

This information **MUST** be communicated to the operator.



WARNING



It is absolutely necessary that the operator respects the ratio of revs to oil flow rate. Working with a higher or lower number of revs can cause serious damage to the a hammer.

Usage Instructions

The breaker can work in all the positions allowed by the joints of the excavator boom, as long as it is always pressed perpendicular to the surface of the material to be demolished.



WARNING



The correct position must be kept during the whole phase of feed of the tool, operating on the controls of the bucket and the excavator boom.

The operator must maintain the correct pressure to the breaker. If the pressure is too low, the breaker retains a part of the energy which will be released to the excavator boom. The boom will then undergo dangerous vibration and shaking.

If the pressure is too powerful, the structure of the breaker can be compromised as well as the metal plate and the tool.

Excavator Boom Extension

While the breaker is in operation, shorten the distance between the excavator and breaker as much as possible. Extend the cylinder piston rods only partially (Items 1 and 2) [Figure 4].

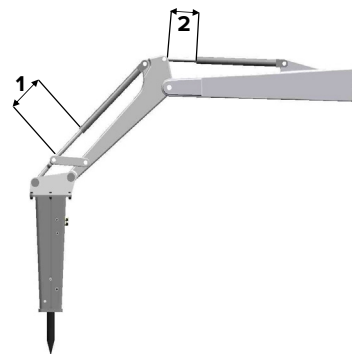


Figure 4

Avoid Blank Firing

Ensure that the tool does not slip from the surface [Figure 5]. If the tool is placed incorrectly or is held weakly to the material, dangerous blank firing can occur.

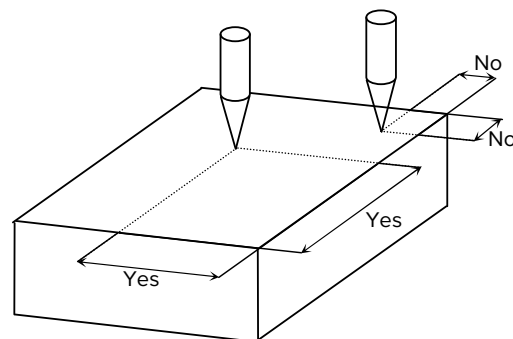


Figure 5

2. Operation

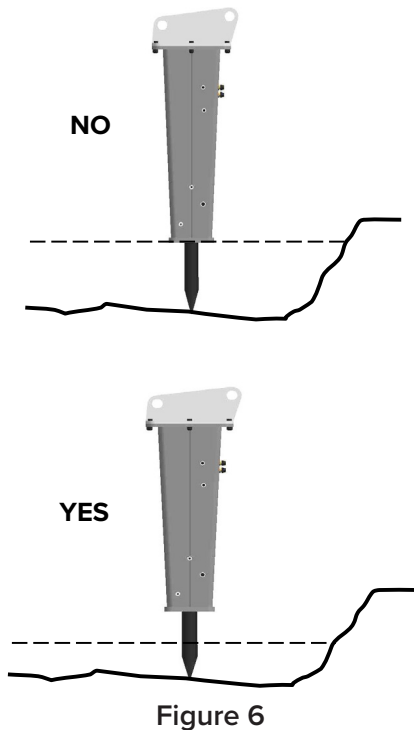
2.5 Breaker Operation Cont'd

Usage Instructions Cont'd

Operation Near/In Water or Wet Conditions

The breaker cannot operate in water if the water level exceeds the tool stroke [Figure 6], unless the breaker is set up for it.

If in doubt, contact Blue Diamond® Product Support.



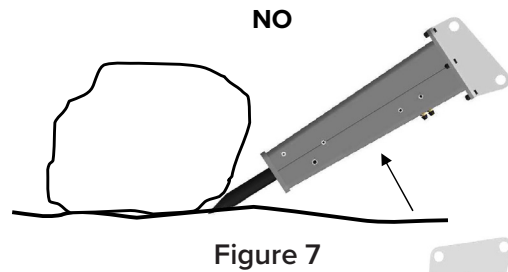
2.6 Breaker Operations to Avoid

Blank Firing

Avoid blank firing the breaker. Blank firing causes early wear and chipping to the tool retainer pin and the tool itself. Chips from the tool can cause serious damage. Blank firing can cause the tool to break prematurely.

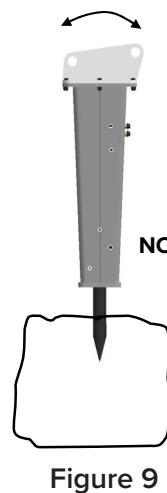
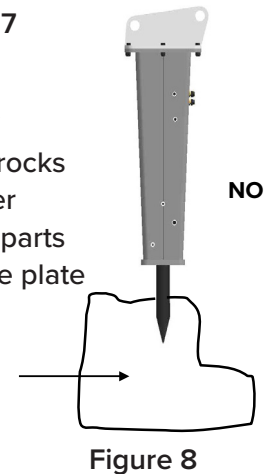
Do not Use as a Lever

The tool cannot be used as a lever to move rocks or other debris. This operation can cause the tool to break or seize especially if this is done while the breaker is working [Figure 7].



Removing Large Rocks

Do not remove or pull large rocks or boulders using the breaker frame. This can cause some parts to become unwelded and the plate can warp [Figure 8].



Stagnant Movement

Do not hammer in the same location without moving for more than 30 seconds. In the event of a very hard surface, it will be necessary to change position very often until softer ground is found [Figure 9].

Preheat Oil

Never forget to preheat the oil before beginning operation, especially when there are low outdoor temperatures. It is a good practice to operate the translation control and those of the excavator boom's central piston to the end of the stroke until the oil reaches a temperature of 77–86°F (20–30°C).



WARNING



If you stay in the same location too long, the drill can swell up, the tool can seize, and the oil can overheat.

3. Breaker Tool

3.1 Tool Replacement

Removing the Tool



WARNING



Always wear proper heat resistant work gloves before replacing the tool because the tool gets very hot during use.

Position the breaker vertically, touching the ground [Figure 10]. Lift it up from the ground a few inches so that the excavator boom supports the breaker's weight, but the tool is still making contact with the ground.



Figure 10

Press the retainer pin with a screwdriver so that the prominent part returns into its seat (Operation 1) [Figure 11].

With a second screwdriver, press on the retainer pin for the tool and push it out almost completely (Operation 2) [Figure 11].

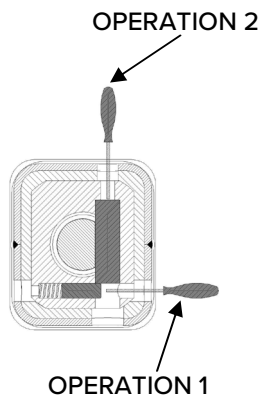


Figure 11

Remove the retainer pin with gloved hands and place the pin on the ground.

Enter the Operator's position (see section 2.1 Entering and Exiting the Prime Mover on page 7) and unblock the hydraulic system.

Lift the breaker vertically until the damaged tool slips off.

Coupling a New Tool

Place the breaker horizontally on the ground with the tool lined up in front of it.

Grease the part that must fit into the guide well.

Fit the tool end (the one with the retainer flat/flats) into the guide manually. Two operators may be necessary if the tool weight exceeds 65 lbs. Check the weight in the technical specifications.

Then, push from the other side and fit the tool completely into the guide [Figure 12]. Rotate the tool so that its milled side sets parallel to the pin guide. Insert the tool retainer pin.



Figure 12

3. Breaker Tool

3.2 Tool Types and Uses

Tools are different based on the different shapes of their terminal parts. There are various types of tools capable of meeting the requirements of every kind of application.

Blunt Terminal Tool

The Blunt Terminal Tool (Item A) [Figure 13] is suitable for stone crushing. These are normally used on small and medium breakers.

Chisel Terminal Tool

The Chisel Terminal Tool (Item B) [Figure 13] is used for mining in general. It is essential in demolitions where a high cutting capacity is required such as walls, floors, reinforced concrete buildings, fixed section diggings, and stone excavations.

Not suitable for stone crushing. This tool covers 80% of the applications on small and large breakers.

Pyramidal Terminal Tool

The Pyramidal Terminal Tool (Item C) [Figure 13] is used similar to those of the Chisel Terminal Tool. This tool is suitable for small breakers.

Cone-Shaped Terminal Tool

The Cone-Shaped Terminal Tool (Item D) [Figure 13] is suitable for the demolition of walls and non-reinforced concrete structures, stones, and quite soft materials. To be mounted on the whole range of breakers.

Small Spade Terminal Tool & Asphalt-Cutter Tool

The Small Spade Terminal Tool (Item E) and Asphalt-Cutter Tool (Item F) [Figure 13] is suitable for tracing the lines marking the limits of the diggings. To be mounted only on small and medium breakers.

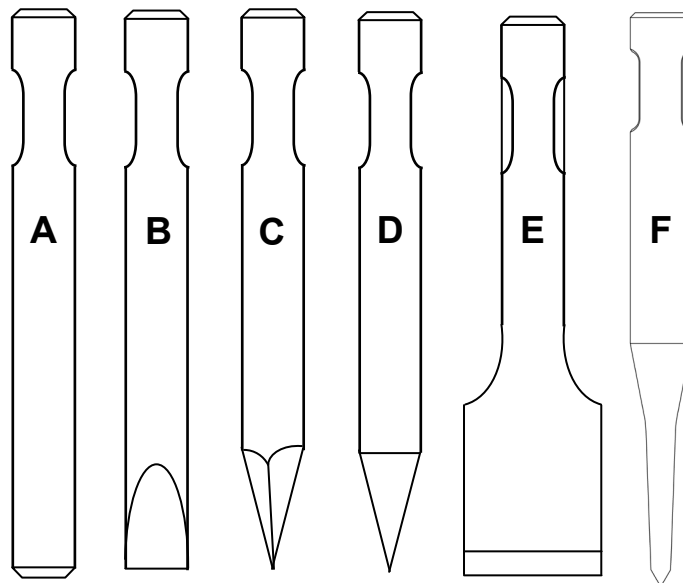


Figure 13

4. Maintenance



WARNING



Never operate on the breaker or on the hydraulic system when they are under pressure or at high temperatures.

It is always essential to remove the connecting hoses between the breaker and the excavator.

4.1 Cleaning

The breaker does not require particular care. The only necessary precaution consists in preventing dirt from entering hose connections.



IMPORTANT



Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the hydraulic system.

4.2 Maintenance and Inspection

The breaker requires some important maintenance in order to work correctly and not break prematurely.

Greasing



IMPORTANT



The breaker must be greased at minimum every 2 hours of operation. A proper quantity of grease must be used.

Remember to only use a grease that meets the following requirements:

- Resistant to high loads
- Water resistant, anti-rust, anti-corrosive
- NLGI-2 Penetration
- Dripping point of 200 – 220°C
- Temperature of use until t=170–180°C

We recommend only using authorized grease for a longer lifespan of the parts.

Inspection

	ITEMS
✓	Make sure that there are no oil leakages along the tool shank.
✓	Make sure that no cracks are evident on the frame or on the linking bracket.

4.3 Hydraulic System Checks

Hydraulic Oil Temperature

Make sure that the temperature during work does not exceed 80°C.

Higher temperature can cause an irregular working condition and the breaker could stop.

Hydraulic Oil Levels

It is absolutely necessary to pay attention to the hydraulic oil level in the excavator tank. If oil is under the lowest limit, the breaker can vibrate or work irregularly.

It is important to check the rigid and flexible hoses in order to find damage, crushing, or oil leaks.

4. Maintenance

4.4 Weekly Maintenance

Chipping or Cracks on the Tool or Pin

Take the tool out in order to determine possible chipping or cracks in the bush and on the surface of the tool pin.

Marks indicate insufficient lubrication, use of unsuitable oil, or improper use of the breaker.

With the help of a sanding disk, polish the trimmings that can be seen on the surface between the tool and the tool retainer pin (Items B) [Figure 14].

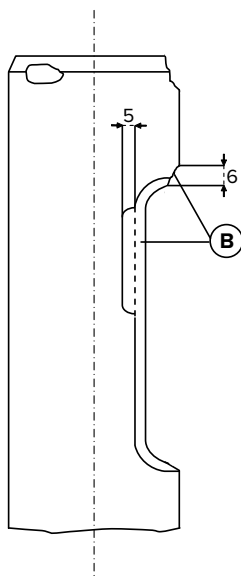


Figure 14

Retainer Pin Wear

Check the wear of the tool retainer pin; in case of excessive wear, invert the assembly or replace it.

Tool Bushings Wear

Check the wear on the tool bushings. If the inside diameter is larger than the value indicated in the technical specifications, contact Blue Diamond® Product Support for assistance changing the bushes.

Breaker Bolt Loosening

At regular intervals, check the possible loosening of bolts; particularly:

- The screws fixing the head/bracket
- The screws fixing the flanges/hose joints

4.5 Ending Operation and Storage

Ending the Day's Operation

End the work day with a hot breaker. During the night, the breaker should be driven vertically into the ground. When the breaker is left in this position, the condensed water is easily emptied through the prominent part of the piston avoiding oxidation.

Long Term Storage

When the breaker is disconnected from the excavator boom and is left in storage for a long time, it is necessary to do the following:

- Remove the tool, push the piston (with a tube) as high as possible, grease abundantly, and re-install the tool.
This operation prevents the piston terminal from rusting.
- The breaker must be stored in an enclosed place sheltered from weather.

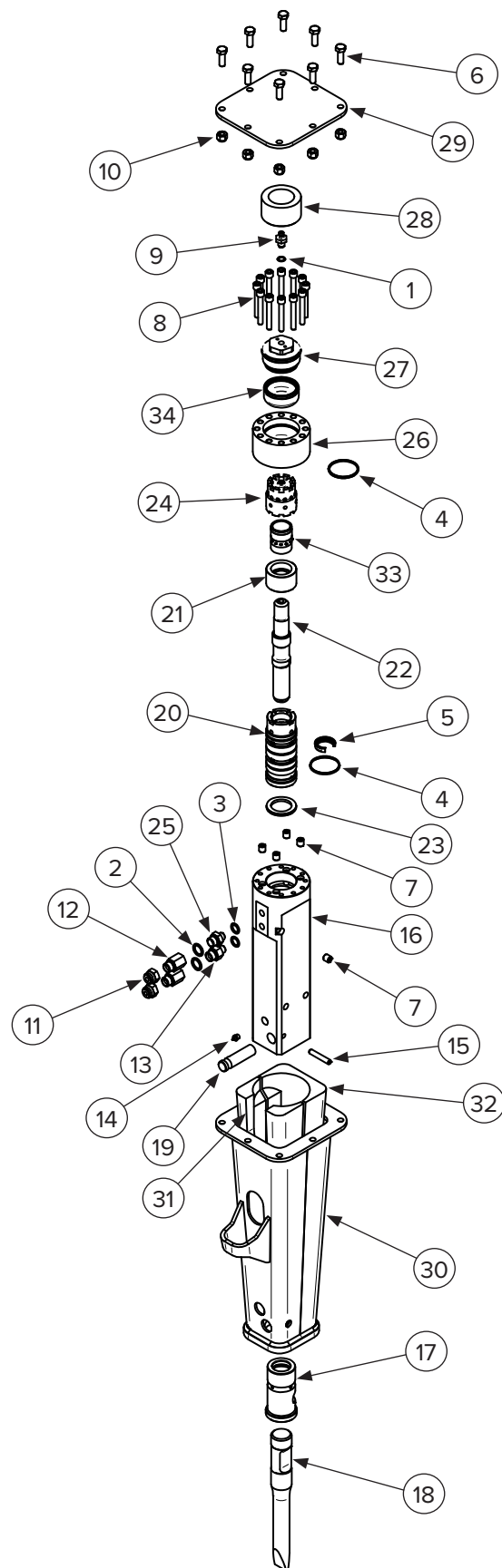
4. Maintenance

4.6 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Frequency loss with heavy and violent blows.	Very high back pressures on the return line.	Check for blockages in the return line. Remove obstacle.
		Check if the filters are partially or totally blocked. Remove blockage.
		Check if the taps are partially or totally blocked. Remove obstacles.
Even though the breaker is lifted up, the tool does not slide downward.	Insufficient greasing or dirt has entered between the bushing guides and the tool.	Take down the tool, check the bush, and eliminate the seizing marks. Clean, grease, and re-install the tool.
The breaker suddenly stops after four or five blows just after touching the ground surface.	The piston is at the bottom of the automatic brake and the tool is completely out.	The material is usually soft. The tool sticks out but does not go in again. The breaker must be reloaded correctly and the load must be kept constant. Improve operation by keeping the breaker as vertical as possible while working.
Oil leaking from the hoses' connection block.	The O-Ring is damaged.	Take down the block and change the seals.
Oil leaking from the hoses.	The rubber hose is damaged.	Reinstall and replace the flexible rubber hose.
	The rubber hose is installed incorrectly and not correctly tightened.	Reinstall the hose correctly with proper tightness.
The breaker stops after a few blows even after being reinstalled.	Dirt entered the breaker through the hose connections.	Take down the breaker; clean and replace the damaged components.
Oil leaking from the tool.	Seals are work out and there are marks on the piston surface.	Replace seals and any other damaged parts.
The breaker beats with a weak penetration force and there are too many vibrations on the high pressure rubber hose.	The accumulator has lost the pre-charge or the diaphragm is broken.	Restore the correct pressure.
		The diaphragm may need to be replaced before restoring the correct nitrogen pressure.
The breaker increases the number of blows but the power decreases.	The tool support seat (support ring) is worn out. The piston shortens the stroke.	Make sure the tool support seat (support ring) is intact. Proceed as follows: <ol style="list-style-type: none"> Lay the breaker on the ground and trace a mark on the tool at the level of the bush end. Remove the tool and make sure that the value between the mark and the plate end of the tool is lower or equivalent to the one indicated in the technical specifications. If it is higher, replace the support ring immediately.

5. Parts

5.1 Breaker Parts Breakdown



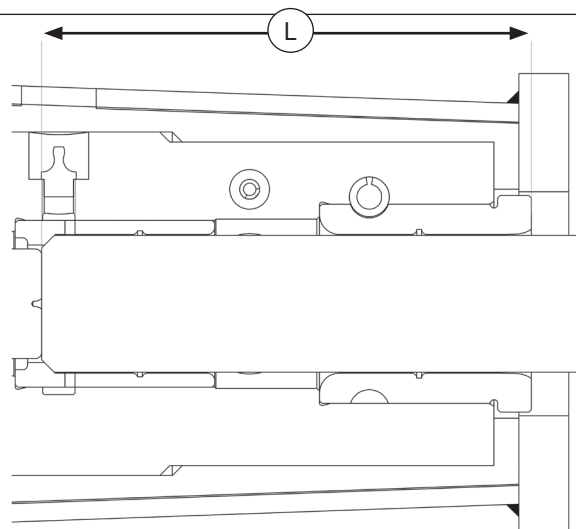
5. Parts

ITEM	PART NUMBER	DESCRIPTION	QTY
1	236504	O-Ring	1
2	235305	Bonded Washer	2
3	236535	Bonded Washer	2
4	235229	O-Ring	2
5	235275	Seal	1
6	235276	Screw	8
7	235277	Plug	5
8	235278	Screw	12
9	235205	Nitrogen Charging Valve	1
10	235267	Nut	8
11	235320	Plug	2
12	235254	Coupling	2
13	235255	Reduction	1
14	235279	Grease Nipple	1
15	235232	Elastic Pin	1
16	—	Monoblock	1
17	235280	Support Bush	1
18	235000	Chisel Tool	1
19	235234	Tool Retainer	1
20	235281	Lower Body Bush	1
21	235233	Upper Body Bush	1
22	235282	Piston	1
23	235231	Body Bush Ring	1
24	235283	Distributor Bush	1
25	235228	Reduction	1
26	—	Accumulator Base	1
27	—	Accumulator Cover	1
28	235284	Upper Buffer	1
29	235285	Adapting Plate	1
30	—	Metal Case	1
31	235286	Front Shell	1
32	235287	Back Shell	1
33	235288	Distributor Valve	1
34	235289	Diaphragm	1

6. Specifications

6.1 Attachment Specifications

DESCRIPTION	135005
Energy per Stroke	120 J
Maximum Frequency	1200 s/min
Maximum oil flow	17 – 25 L/min
Maximum working pressure	120 bar
Maximum exhaust back pressure	20 – 30 bar
Accumulator charging pressure	32 bar
Calibration pressure of the hydraulic system maximum valve	150 bar
Breaker weight in working conditions	60 kg
Tool weight	3 kg
Weight of the tool retainer	0.3 kg
Pressure line pipe diameter (EN 856 – 4SP)	1/2 G
Return line pipe diameter (EN 853 – 2SN)	1/2 G
Tool diameter	45 mm
Breaker height with tool without adapting plate	750 mm
Maximum length of the tool inner guide (L)	119 mm
Maximum diameter in front and back the tool bushings	48 mm
Maximum oil temperature in the tank	80°C
Maximum absorbed power	5 Kw
Excavator weight	0.7 – 1.2 t



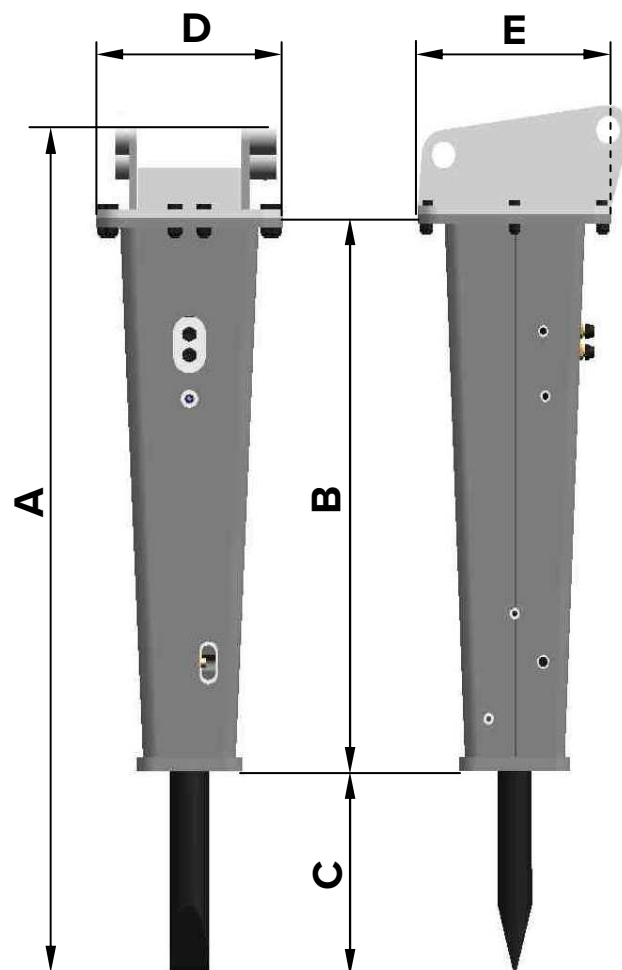
6. Specifications

6.1 Attachment Specifications Cont'd

TIGHTENING VALUES	
DESCRIPTION	135005
Accumulator screw	50 Nm
Accumulator cover	500 Nm

OPTIMAL ENVIRONMENTAL WORKING CONDITIONS	
DESCRIPTION	135005
Temperature Range for safe operation	-5 – 45°C
Humidity Range for safe operation	40 – 90%

DESCRIPTION	SIZE (mm)
A	900
B	553
C	197
D	216
E	228



6. Specifications

6.2 Torque Specifications

Standard Hardware and Lock Nuts

BOLT TYPE	CLASS 4.8		CLASS 8.8 OR 9.8		CLASS 10.9		CLASS 12.9	
	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry
M6	4.8 N•m	6 N•m	9 N•m	11 N•m	13 N•m	17 N•m	15 N•m	19 N•m
	3.5 in / lb	4.5 in / lb	6.5 in / lb	8.5 in / lb	9.5 in / lb	12 in / lb	11.5 in / lb	14.5 in / lb
M8	12 N•m	15 N•m	22 N•m	28 N•m	32 N•m	40 N•m	37 N•m	47 N•m
	8.5 in / lb	11 in / lb	16 in / lb	20 in / lb	24 in / lb	30 in / lb	28 in / lb	35 in / lb
M10	23 N•m	29 N•m	43 N•m	55 N•m	63 N•m	80 N•m	75 N•m	95 N•m
	17 in / lb	21 in / lb	32 in / lb	40 in / lb	47 in / lb	60 in / lb	55 in / lb	70 in / lb
M12	40 N•m	50 N•m	75 N•m	95 N•m	110 N•m	140 N•m	130 N•m	165 N•m
	29 in / lb	37 in / lb	55 in / lb	70 in / lb	80 in / lb	105 in / lb	95 in / lb	120 in / lb
M14	63 N•m	80 N•m	120 N•m	150 N•m	175 N•m	225 N•m	205 N•m	260 N•m
	47 in / lb	60 in / lb	88 in / lb	110 in / lb	130 in / lb	165 in / lb	150 in / lb	190 in / lb
M16	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 in / lb	125 in / lb	195 in / lb	250 in / lb	275 in / lb	350 in / lb	325 in / lb	410 in / lb
M18	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 in / lb	125 in / lb	195 in / lb	250 in / lb	275 in / lb	350 in / lb	325 in / lb	410 in / lb
M20	190 N•m	240 N•m	375 N•m	475 N•m	530 N•m	675 N•m	625 N•m	800 N•m
	140 in / lb	180 in / lb	275 in / lb	350 in / lb	400 in / lb	500 in / lb	460 in / lb	580 in / lb
M22	260 N•m	330 N•m	510 N•m	650 N•m	725 N•m	925 N•m	850 N•m	1075 N•m
	190 in / lb	250 in / lb	375 in / lb	475 in / lb	540 in / lb	675 in / lb	625 in / lb	800 in / lb
M24	330 N•m	425 N•m	650 N•m	825 N•m	925 N•m	1150 N•m	1075 N•m	1350 N•m
	250 in / lb	310 in / lb	475 in / lb	600 in / lb	675 in / lb	850 in / lb	800 in / lb	1000 in / lb
M27	490 N•m	625 N•m	950 N•m	1200 N•m	1350 N•m	1700 N•m	1600 N•m	2000 N•m
	360 in / lb	450 in / lb	700 in / lb	875 in / lb	1000 in / lb	1250 in / lb	1150 in / lb	1500 in / lb
M30	675 N•m	850 N•m	1300 N•m	1650 N•m	1850 N•m	2300 N•m	2150 N•m	2700 N•m
	490 in / lb	625 in / lb	950 in / lb	1200 in / lb	1350 in / lb	1700 in / lb	1600 in / lb	2000 in / lb
M33	900 N•m	1150 N•m	1750 N•m	2200 N•m	2500 N•m	3150 N•m	2900 N•m	3700 N•m
	675 in / lb	850 in / lb	1300 in / lb	1650 in / lb	1850 in / lb	2350 in / lb	2150 in / lb	2750 in / lb
M36	1150 N•m	1450 N•m	2250 N•m	2850 N•m	3200 N•m	4050 N•m	3750 N•m	4750 N•m
	850 in / lb	1075 in / lb	1650 in / lb	2100 in / lb	2350 in / lb	3000 in / lb	2750 in / lb	3500 in / lb



Warranty

MANUFACTURER'S LIMITED WARRANTY

BLUE DIAMOND® ATTACHMENTS, a manufacturer of quality attachments, warrants new BLUE DIAMOND® ATTACHMENTS products and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by BLUE DIAMOND® ATTACHMENTS, LLC.

BLUE DIAMOND® ATTACHMENTS liability for any defect with respect to accepted goods shall be limited to repairing the goods at a BLUE DIAMOND® ATTACHMENTS designated location or at an authorized dealer location, or replacing them, as BLUE DIAMOND® ATTACHMENTS shall elect. The above shall be in accordance with BLUE DIAMOND® ATTACHMENTS warranty adjustment policies. BLUE DIAMOND® ATTACHMENTS obligation shall terminate twelve (12) months for the HB50 Breaker after the delivery of the goods to original purchaser.

This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the BLUE DIAMOND® ATTACHMENTS factory or authorized BLUE DIAMOND® ATTACHMENTS dealership or in any way so as in BLUE DIAMOND® ATTACHMENTS judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident beyond the company recommended machine rated capacity.

WARRANTY CLAIM

To submit a warranty claim, a claim must be filed with BLUE DIAMOND® ATTACHMENTS before work is performed. The BLUE DIAMOND® PRODUCT SUPPORT TEAM will advise repairs and applicable parts exchanges. Tampering with the failed part may void the warranty. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls, and pickup/delivery charges are the customers' responsibility.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, BLUE DIAMOND® ATTACHMENTS makes no representation or warranty of any kind, expressed or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. BLUE DIAMOND® ATTACHMENTS shall not be liable for incidental or consequential damages for any breach or warranty, including but not limited to inconvenience, rental of replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability for all personal injury and property resulting from the handling, possession, or use of the goods by the buyer.

No agent, employee, or representative of BLUE DIAMOND® ATTACHMENTS has any authority to bind BLUE DIAMOND® ATTACHMENTS to any affirmation, representation, or warranty concerning its machinery and/or attachments except as specifically set forth herein.

This warranty policy supersedes any previous documents.

NOTE: Blue Diamond® Attachments is a trademark of BLUE DIAMOND® ATTACHMENTS



QUALITY | DEPENDABILITY | INTEGRITY

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