PB13X

Operator's Manual

CE

HammerHead®

Issue 1.0
Original Instruction

960-1150

Overview

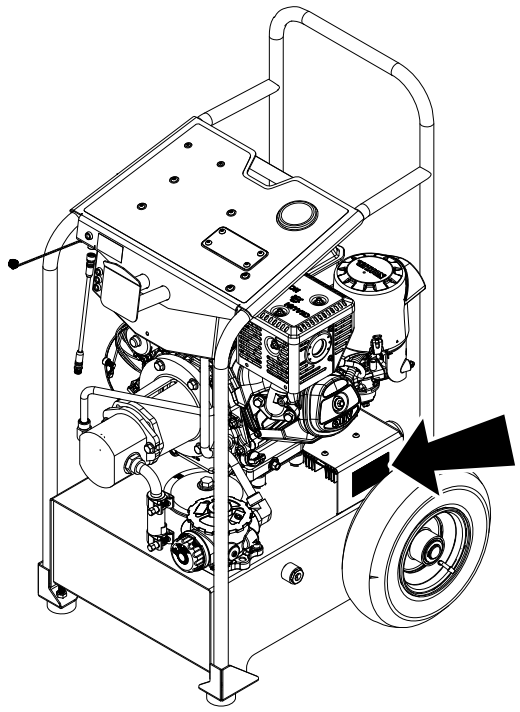
Chapter Contents

California Proposition 65

⚠WARNING Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. www.P65warnings.ca.gov.

Serial Number Location

Record serial numbers and date of purchase in spaces provided.



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Date of manufacture	
Date of purchase	

Intended Use

HammerHead® control units are intended to provide power to run HammerHead underground construction equipment. The PB13X is a 14 hp (10.44 kW), compact, portable control unit that provides hydraulic power to external equipment.

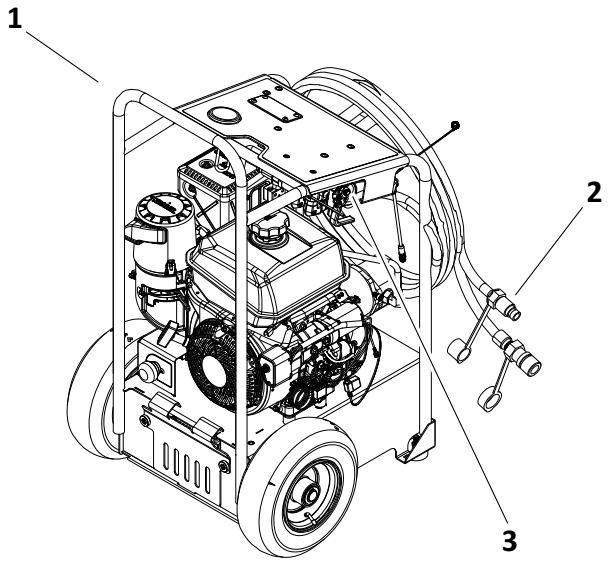
The unit is designed for operation in temperatures typically experienced in earth moving and construction work environments. Provisions may be required to operate in extreme temperatures. Contact your HammerHead dealer. Use in any other way is considered contrary to the intended use.

HammerHead pipe bursters and control units should be operated, serviced, and repaired only by persons familiar with their particular characteristics and acquainted with the relevant safety procedures.

Equipment Modification

This equipment was designed and built in accordance with applicable standards and regulations. Modification of equipment could mean that it will no longer meet regulations and may not function properly or in accordance with the operating instructions. Modification of equipment should only be made by competent personnel possessing knowledge of applicable standards, regulations, equipment design functionality/requirements and any required specialized testing.

Unit Components



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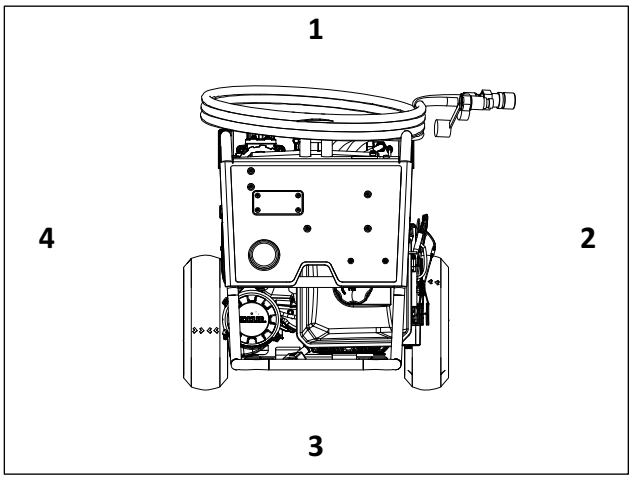
1. Control unit
2. Hydraulic connection hoses
3. Remote control

Operator Orientation

IMPORTANT: Top view of unit is shown.

1. Front of unit
2. Right side of unit
3. Rear of unit
4. Left side of unit



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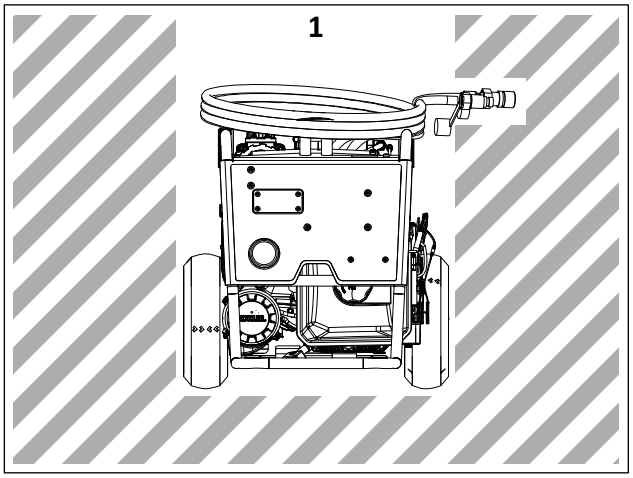
Operating Area

IMPORTANT: Top view of unit is shown.

Operator should stand only in the location(s) marked by number 1.



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About This Manual

This manual contains information for the proper use of this machine. See **Operation Overview** for basic operating procedures. Cross references such as "See page 50" will direct you to detailed procedures.

Bulleted Lists

Bulleted lists provide helpful or important information or contain procedures that do not have to be performed in a specific order.

Numbered Lists

Numbered lists contain illustration callouts or list steps that must be performed in order.

Foreword

This manual is an important part of your equipment. It provides safety information and operation instructions to help you use and maintain your HammerHead® equipment.

Read this manual before using your equipment. Keep it with the equipment at all times for future reference. If you sell your equipment, be sure to give this manual to the new owner.

If you need a replacement copy, contact your HammerHead dealer. If you need assistance in locating a dealer, visit our website at **www.hammerheadtrenchless.com** or write to the following address:

HammerHead Trenchless Equipment
500 South C.P. Avenue
Lake Mills, WI 53551
USA

The descriptions and specifications in this manual are subject to change without notice.
The Charles Machine Works®, Inc. dba HammerHead reserves the right to improve equipment. Some product improvements may have taken place after this manual was published. For the latest information on HammerHead equipment, see your HammerHead dealer.

Thank you for buying and using HammerHead equipment.

PB13X
Operator's Manual

Issue number 1.0/OM-02/24

Part number 960-1150

Safety

Chapter Contents

Safety Alert Classifications

These classifications and the icons defined on the following pages work together to alert you to situations which could be harmful to you, jobsite bystanders or your equipment. When you see these words and icons in the book or on the machine, carefully read and follow all instructions. YOUR SAFETY IS AT STAKE.

Watch for the three safety alert levels: **DANGER**, **WARNING** and **CAUTION**. Learn what each level means.

⚠ DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Watch for two other words: ***NOTICE*** and **IMPORTANT**.

NOTICE indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

IMPORTANT can help you do a better job or make your job easier in some way.

Guidelines

When you see this safety alert sign, carefully read and follow all instructions.
YOUR SAFETY IS AT STAKE. Read this entire section before using your equipment.

Follow these guidelines before operating any jobsite equipment.

- Complete proper training and read operator's manual before using equipment.
- Mark proposed path with white paint and have underground utilities located before working. In the US or Canada, call 811 (US) or 888-258-0808 (US and Canada). Also contact any local utilities that do not participate in the One-Call service. In countries that do not have a One-Call service, contact all local utility companies to have underground utilities located.
- Classify jobsite based on its hazards and use correct tools and machinery, safety equipment, and work methods for jobsite.
- Mark jobsite clearly and keep spectators away.
- Wear personal protective equipment.
- Do not wear jewelry or loose clothing.
- Review jobsite hazards, safety and emergency procedures, and individual responsibilities with all personnel before work begins. Safety Data Sheets (SDS) are available at www.hammerheadshop.com/resources/technical-sheets/.
- Fully inspect equipment before operating. Repair or replace any worn or damaged parts. Replace missing or damaged safety shields, safety signs, and decals. Contact your HammerHead dealer for assistance.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas, liquid, or dust may be present.
- Only operate equipment in well-ventilated areas.
- Contact your HammerHead dealer if you have any question about operation, maintenance, or equipment use.

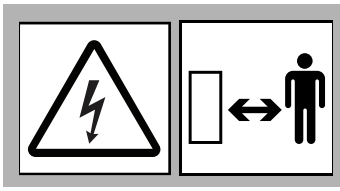
Emergency Procedures

⚠ WARNING Jobsite hazards. Exposure can cause death or serious injury. Use correct equipment and work methods. Use and maintain appropriate safety equipment.

Before operating any equipment, review emergency procedures and check that all safety precautions have been taken.

EMERGENCY SHUTDOWN - Turn ignition switch to stop position or push remote engine stop button (if equipped).

Electric Strike Description



⚠ DANGER Buried electrical lines. Contact will cause death or serious injury. Know location of lines. Stay away.

When working near electric cables, remember the following:

- Electricity follows all paths to ground, not just path of least resistance.
- Pipes, hoses, and cables will conduct electricity back to all equipment.
- Low voltage current can injure or kill. Many work-related electrocutions result from contact with less than 440 volts.

Most electric strikes are not noticeable, but indications of a strike include:

- power outage
- smoke
- explosion
- popping noises
- arcing electricity

If any of these occur, assume an electric strike has occurred.

If an Electric Line is Damaged

If you suspect an electric line has been damaged, DO NOT MOVE. Take the following actions. The order and degree of action will depend on the situation.

- If you are in pit:
  - DO NOT TOUCH ANYTHING.
  - Remain in pit.
  - Warn people nearby that an electric strike has occurred. Instruct them to leave the area and contact utility.
  - Contact utility company to shut off power.
  - Do not leave pit until given permission by utility company.
- If you are out of pit:
  - DO NOT TOUCH ANY EQUIPMENT.
  - LEAVE AREA. The ground surface may be electrified, so take small steps with feet close together to reduce the hazard of being shocked from one foot to the other.
  - Contact utility company to shut off power.
  - Do not return to jobsite or allow anyone into area until given permission by utility company.
- If you are on another piece of equipment:
  - Warn people nearby that an electric strike has occurred. Instruct them to leave the area and contact utility.
  - Contact utility company to shut off power.
  - Do not return to area or allow anyone into area until given permission by utility company.

If a Gas Line is Damaged

If you suspect a gas line has been damaged, take the following actions. The order and degree of action will depend on the situation.

- Immediately shut off engine(s), if this can be done safely and quickly.
- Remove any ignition source(s), if this can be done safely and quickly.
- Warn others that a gas line has been cut and that they should leave the area.
- After warning others to leave the area, leave jobsite as quickly as possible.
- Immediately call your local emergency phone number and utility company.
- If jobsite is along street, stop traffic from driving near jobsite.
- Do not return to jobsite until given permission by emergency personnel and utility company.

If a Fiber Optic Cable is Damaged

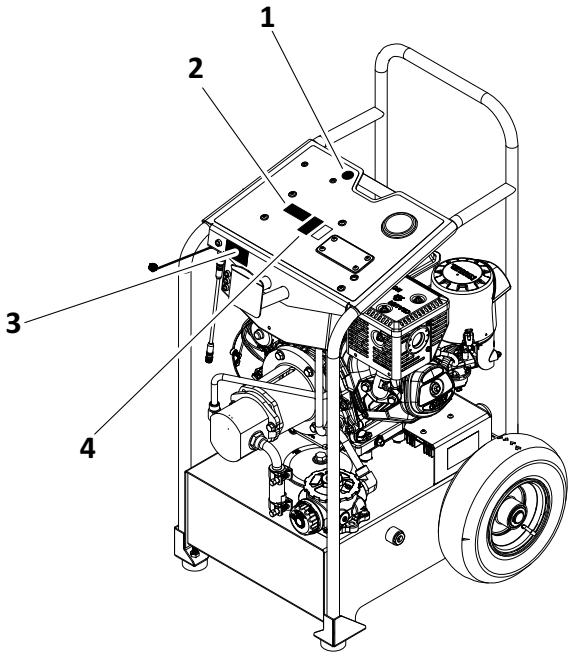
Do not look into cut ends of fiber optic or unidentified cable. Vision damage can occur. Contact utility company.

If Machine Catches on Fire

Perform emergency shutdown procedure and then take the following actions. The order and degree of action will depend on the situation.

- Immediately move battery disconnect switch (if equipped and accessible) to disconnect position.
- If fire is small and fire extinguisher is available, attempt to extinguish fire.
- If fire cannot be extinguished, leave area as quickly as possible and contact emergency personnel.

Machine Safety Alerts



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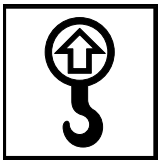
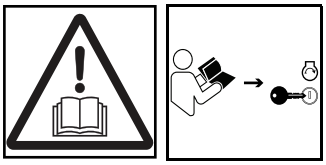
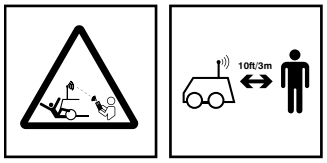
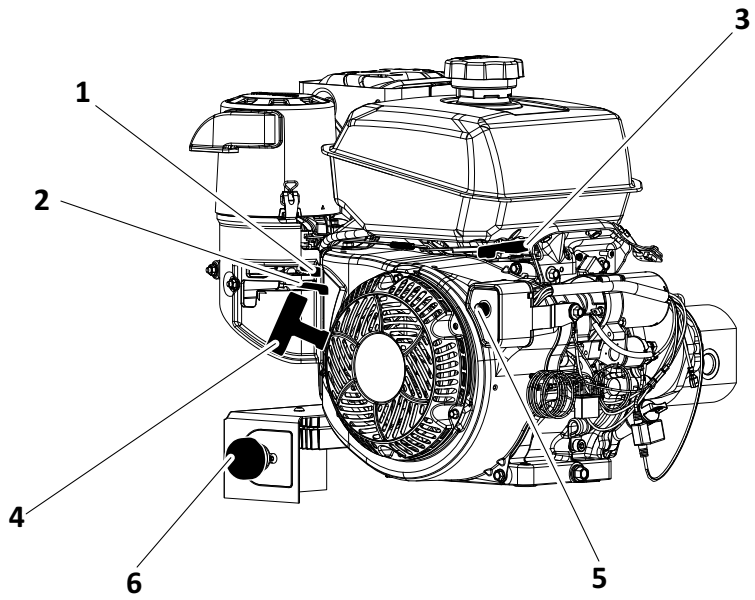
1		Lift point. See Transport chapter for more information.
2		**⚠ WARNING** Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use. Know how to use all controls.
3		**⚠ CAUTION** Remote-controlled equipment. Impact can cause death or serious injury. Stay away.
4		**⚠ CAUTION** High noise levels. Exposure can cause hearing loss. Wear hearing protection.

Controls

Chapter Contents

Engine Controls



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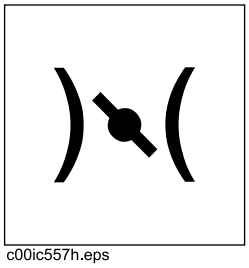
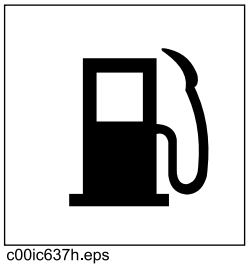
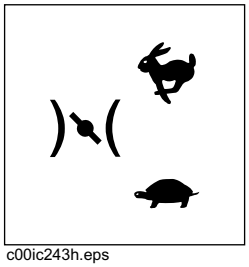
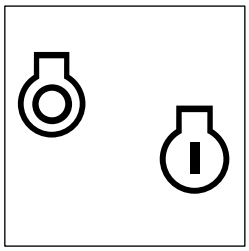
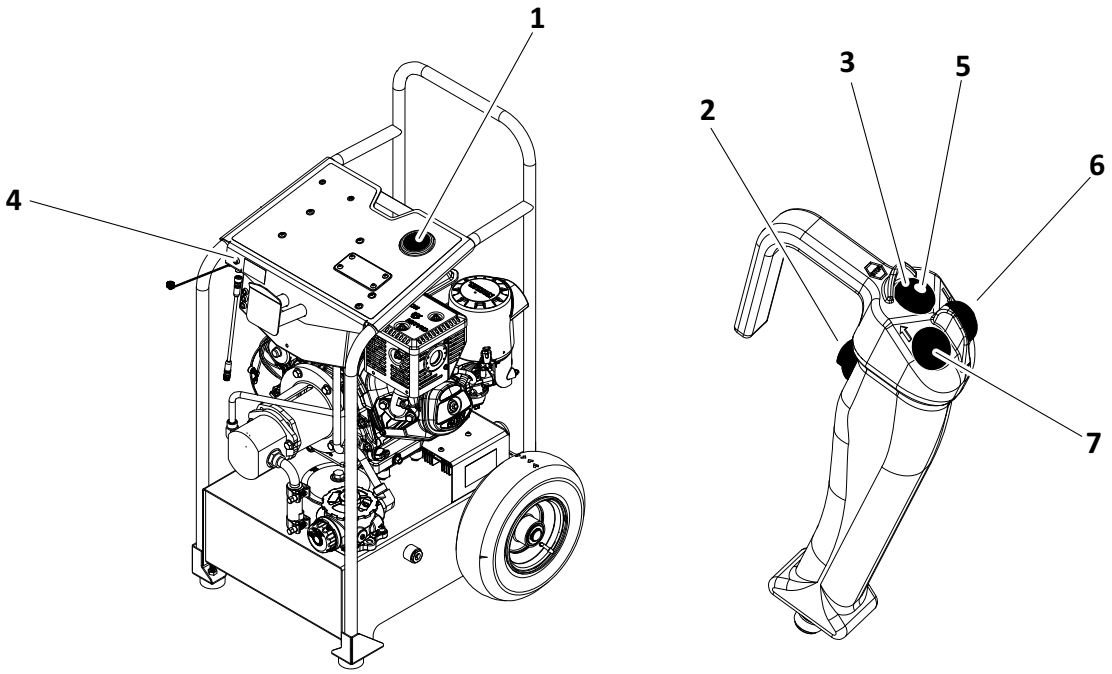
1. Choke control
2. Fuel shut-off valve
3. Throttle control
4. Rope start
5. Ignition switch
6. Battery disconnect switch

Item	Description	Notes
1. Choke control  c00ic557h.eps	To close choke valve, slide choke control lever away from engine.	This valve can be closed to enrich air/ fuel mixture and help start cold engine. Open choke valve after engine runs for a few seconds.
2. Fuel shut-off valve  c00ic637h.eps	To stop fuel flow from fuel tank to engine, slide lever away from engine. To allow fuel flow, slide lever toward engine.	Close valve when transporting unit to or from jobsite, or whenever machine is parked.

Item	Description	Notes
3. Throttle control  c00ic243h.eps	To increase engine speed, push left. To decrease engine speed, push right.	
4. Rope start	To start engine, pull rope.	Ignition must be in ON position and fuel shut-off valve open for engine to start. If engine does not start after three pulls, turn ignition switch to OFF position and check for fuel blockage or electrical system problems.
5. Ignition switch  c00ic008c.eps	To activate accessories, turn right. To start engine, turn fully right. To shut off machine, turn left.	
6. Battery disconnect switch	To disconnect, press. To connect, pull.	***NOTICE:*** • Do not disconnect with engine running. • To avoid equipment damage, wait two minutes after turning engine off before disconnecting battery.

Control Unit Controls



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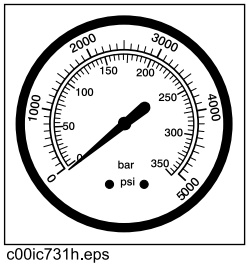
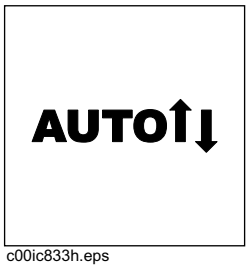
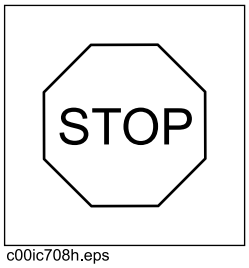
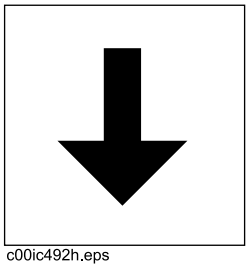
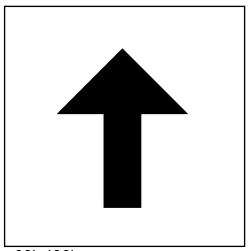
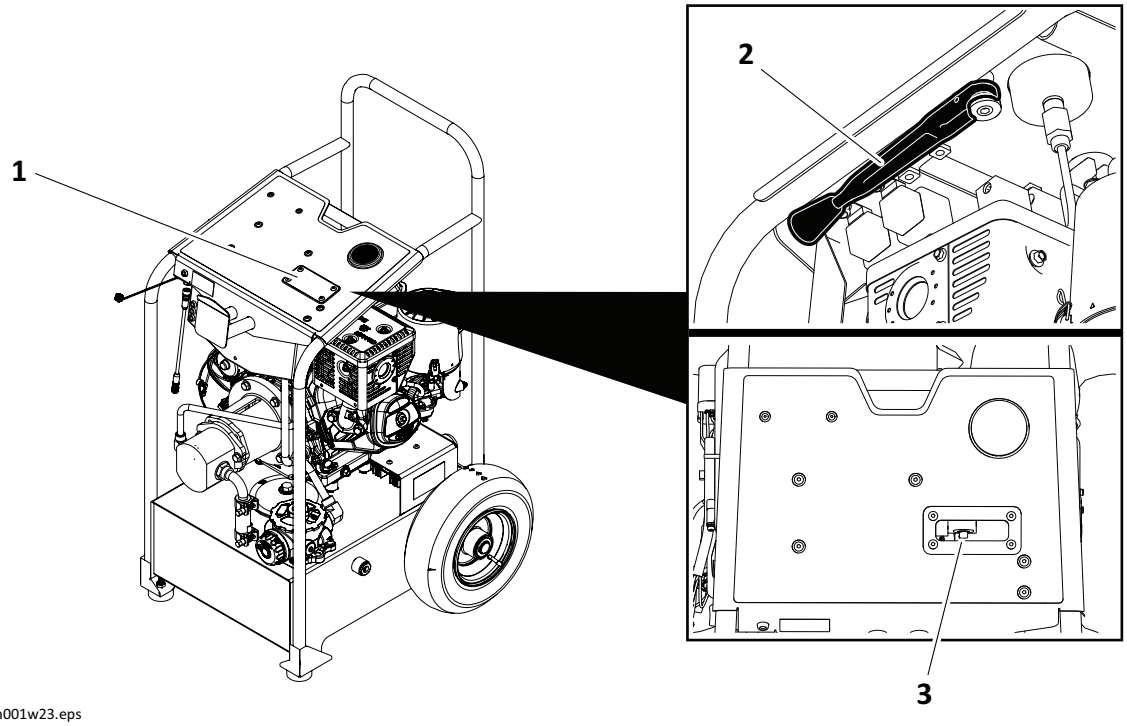
1. Hydraulic pressure gauge
2. Automatic RUN
3. Remote engine shutdown
4. Remote power indicator
5. Remote power indicator
6. Down control
7. Up control

Item	Description	Notes
1. Hydraulic pressure gauge  c00ic731h.eps	Indicates hydraulic fluid pressure when hydraulic hoses are attached and system is in use.	Gauge shows control unit pressure. System force must be calculated based on connected equipment.

Item	Description	Notes
2. Automatic RUN  c00ic833h.eps	To run auto cycle, press and hold. Unit will cycle down to end of stroke, then up to end of stroke.	Cycle will continue indefinitely as long as button is held.
3. Remote engine shutdown  c00ic708h.eps	To remotely shut off valve outputs and shut down engine, press.	
4. Remote power indicator	LED on control unit panel will illuminate when remote has power to control unit.	
5. Remote power indicator	LED on remote will illuminate when remote has power to control unit.	
6. Down control  c00ic492h.eps	To manually move down-hole unit down (retract cylinders), press.	
7. Up control  c00ic496h.eps	To manually move down-hole unit up (extend cylinders), press.	

Hydraulic Control



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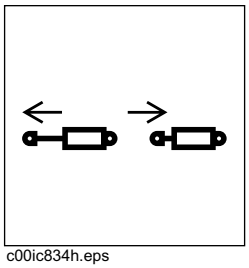
1. Cover
2. Hydraulic control lever
3. Lever attachment point

IMPORTANT:

- Hydraulic control lever is only intended as a backup control. Only use when battery has been depleted, or remote or cable has been lost or damaged. Contact your HammerHead dealer for replacement remote or cable.
- Lever should be removed and cover replaced after use.
- Remove panel and attach lever to valve to operate hydraulic control.

Item	Description	Notes
1. Cover	Remove cover to attach hydraulic control lever.	

Item	Description	Notes
2. Hydraulic control lever  c00ic834h.eps	To extend main cylinder on external equipment, push lever left. Machine is neutral when lever is in the middle position. To retract main cylinder on external equipment, push lever right.	***NOTICE:*** Do not install or operate remote when manual lever is installed. Remove and store lever, and replace cover panel before using remote.
3. Lever attachment point	Attach hydraulic control lever to this point.	

Prepare

Chapter Contents

Gather Information

A successful job begins before the pull. The first step in planning is reviewing information already available about the job and jobsite.

Review Job Plan

Review blueprints or other plans. Check for information about existing or planned structures, elevations, or proposed work that may be taking place at the same time.

Arrange for Traffic Control

If working near a road or other traffic area, contact local authorities about safety procedures and regulations.

Prepare for Working Near Existing Utilities

If jobsite may contain electrical lines, wear protective boots and gloves meeting the following standards:

- Boots must have high tops and meet the electric hazard protection requirements of ASTM F2413 or ASTM F1117, when tested at 14,000 volts. Tuck legs of pants completely inside boots.
- Gloves must have 17,000 AC maximum use voltage, according to ASTM specification D120.

If working around higher voltage, use gloves and boots with appropriately higher ratings.

Plan for Emergency Services

Have the telephone numbers for local emergency and medical facilities on hand. Check that you will have access to a telephone.

Inspect Site

Inspect jobsite before transporting equipment. Check for the following:

- changes in elevation such as hills or open trenches
- obstacles such as buildings, railroad crossings, or streams
- signs of utilities
  - – "buried utility" notices
  - – utility facilities without overhead lines
  - – gas or water meters
  - – junction boxes
  - – drop boxes
  - – light poles
  - – manhole covers
  - – sunken ground
- traffic
- access
- soil type and condition
- depths of existing pipes

Identify Hazards

- Identify safety hazards. Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.
- Have an experienced locating equipment operator sweep area within 20' (6 m) to each side of burst path. Verify previously marked line and cable locations.
- Mark location of all buried utilities and obstructions.

WARNING Jobsite hazards. Exposure can cause death or serious injury. Use correct equipment and work methods. Use and maintain appropriate safety equipment.

To help avoid injury:

- Wear personal protective equipment including hard hat, safety eye wear, and hearing protection.
- Do not wear jewelry or loose clothing.
- Notify One-Call and companies which do not subscribe to One-Call.
- Comply with all utility notification regulations before digging or bursting.
- Verify location of previously marked underground hazards.
- Mark jobsite clearly and keep spectators away.

Prepare Jobsite

WARNING Jobsite hazards. Exposure can cause death or serious injury. Use correct equipment and work methods. Use and maintain appropriate safety equipment.

To help avoid injury:

- Cutting high voltage cable can cause electrocution. Expose lines by hand before digging.
- All vegetation near operator's station must be removed. Contact with trees, shrubs, or weeds during electrical strike could result in electrocution.

- Ensure area where control unit will be operated is on level and firm ground.
- Clear the area where control unit will be operated.
- Select a solid area to stand on while operating control unit.

Check Supplies and Prepare Equipment

Check Supplies

- personal protective equipment, such as hard hat, hearing protection and safety glasses
- notepad and pencil

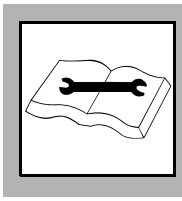
Prepare Equipment

Check Levels

- hydraulic fluid
- engine oil

Check Equipment for Condition and Function

- all controls



⚠WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

- couplers
- hoses and valves

Assemble Accessories

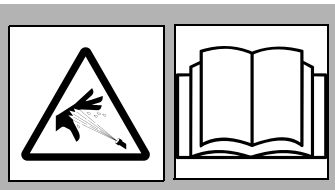
Fire Extinguisher

If required, mount a fire extinguisher near the control unit but away from possible points of ignition. The fire extinguisher should always be classified for both oil and electric fires. It should meet legal and regulatory requirements.

Pressure Setting Procedure

IMPORTANT:

- Factory setting is at 3000 PSI (206.8 bar).
- Maximum pressure is 3000 PSI (206.8 bar). Do not set above 3000 PSI (206.8 bar). System failure and/or injury could occur.
- Complete this procedure when changing cable size on a PB30X machine or based on requirements of connected equipment.



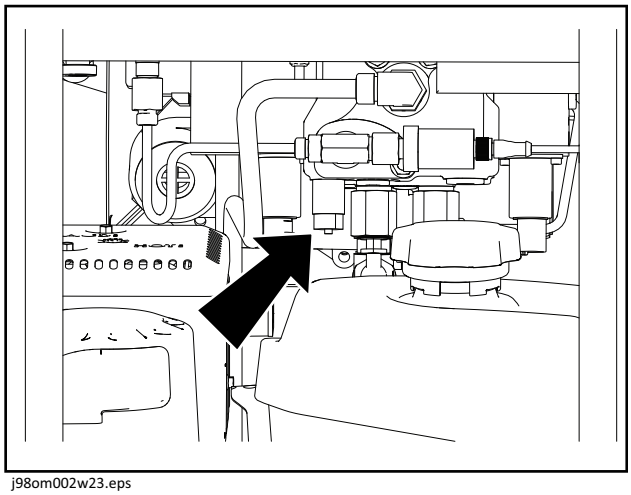
WARNING Pressurized fluid or air. Contact can cause death or serious injury. Refer to operator's manual for proper use.

To help avoid injury:

- Cycle controls to relieve all pressure in hydraulic hoses before disconnecting.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

1. Adjust pressure setting on valve (shown) based on requirements of connected equipment. Refer to connected equipments Operator's Manual for pressure settings.



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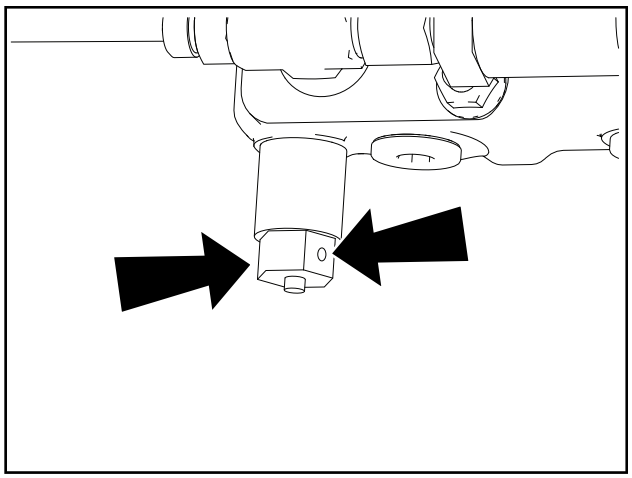
2. Loosen both lock set screws (shown) 180 degrees away from each other.



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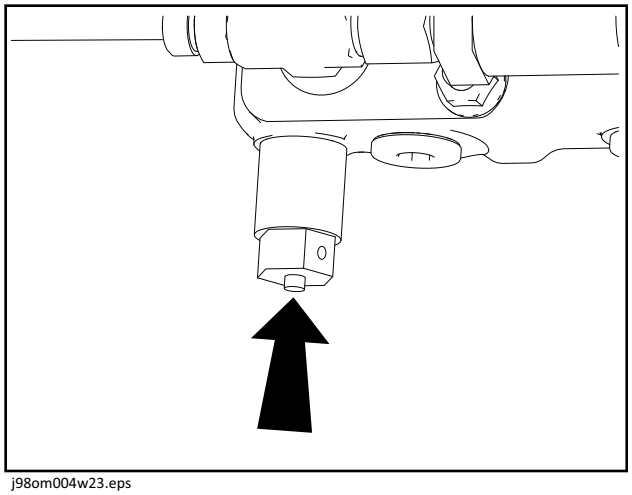
3. Adjust pressure setting screw (shown) to needed pressure.

IMPORTANT:

- To increase pressure, turn screws clockwise.
- To decrease pressure, turn screws counter-clockwise.



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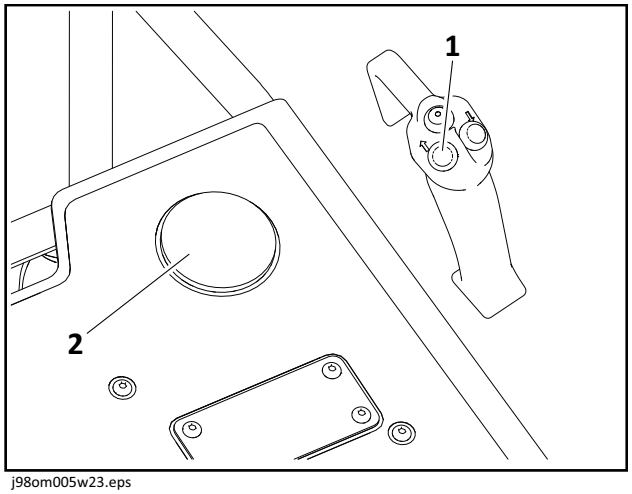
4. Press up control (1) on remote to verify pressure setting.
5. Verify hydraulic pressure gauge reading (2) on control unit.
6. Adjust pressure by repeating steps 1-5 if necessary.



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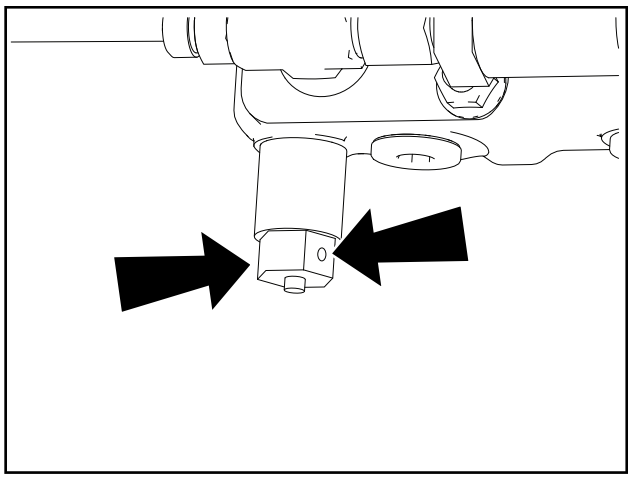
7. Tighten both lock set screws 180 degrees towards each other.

IMPORTANT: For proper auto functionality, pressure switch (shown) should be set based on settings listed in connected equipments Operator's Manual.



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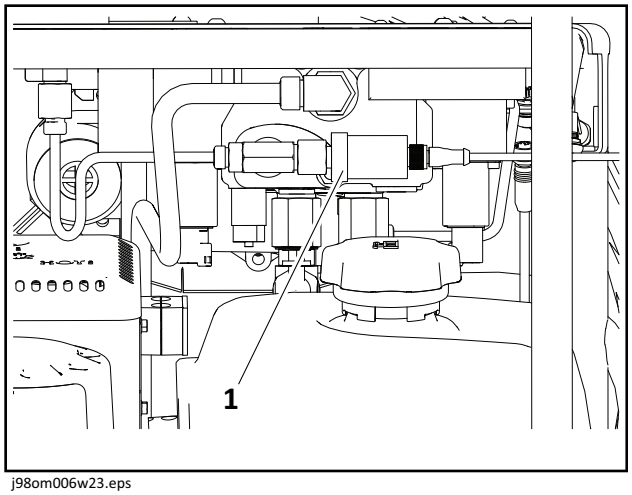
8. Adjust pressure switch (1) by rotating lock ring (2) until unlock symbol aligns with setting marks.



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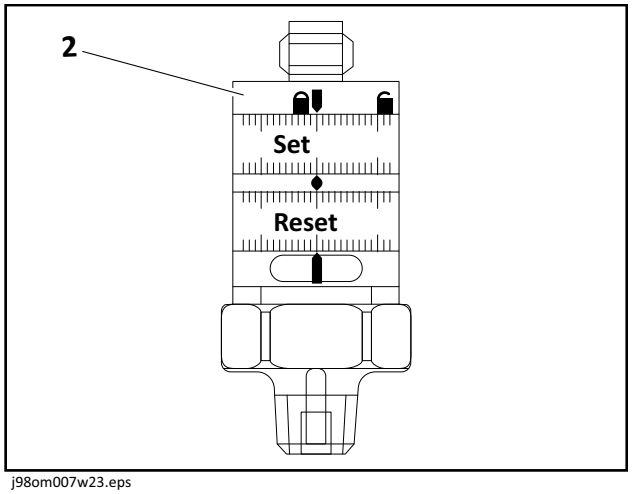
9. Turn set ring clockwise past 500 PSI (34.5 bar) mark, as shown.
10. Turn set ring counter-clockwise to needed pressure setting.



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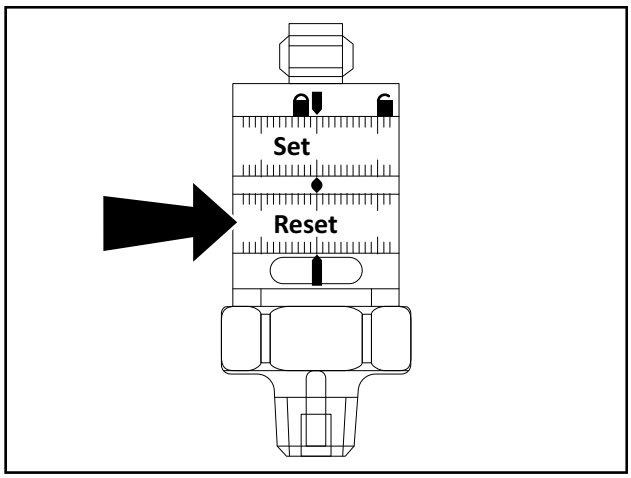
11. Turn reset ring (shown) counter-clockwise to 100 PSI (6.9 bar) below set point.
12. Rotate lock ring until lock symbol aligns with setting marks.
13. Verify set ring settings aligns with setting marks.
14. Verify reset ring is 100 PSI (6.9 bar) lower than set ring.



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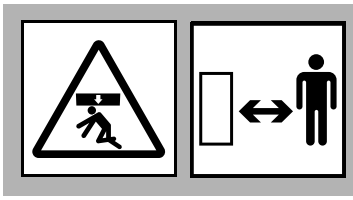
Transport

Chapter Contents

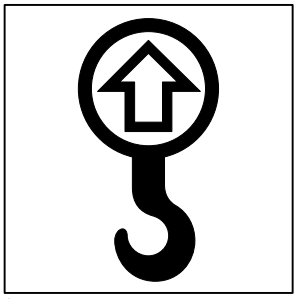
Lift



WARNING Crushing weight could cause death or serious injury. Stay away.

Points

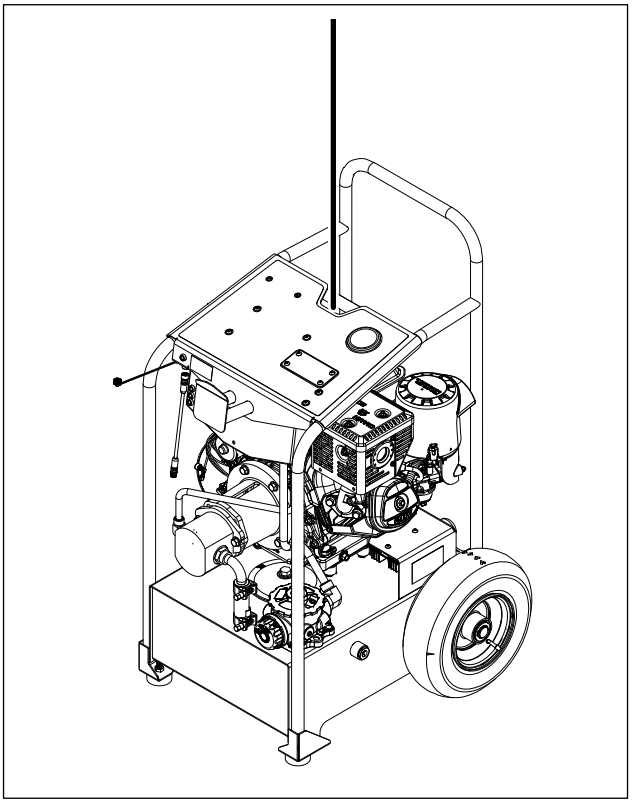
Lifting points are identified by lifting decals. Lifting at other points is unsafe and can damage machinery.



ic1319a.eps

Procedure

Use equipment capable of supporting the unit's size and weight. See “PB13X” on page 58 or measure and weigh equipment before lifting.



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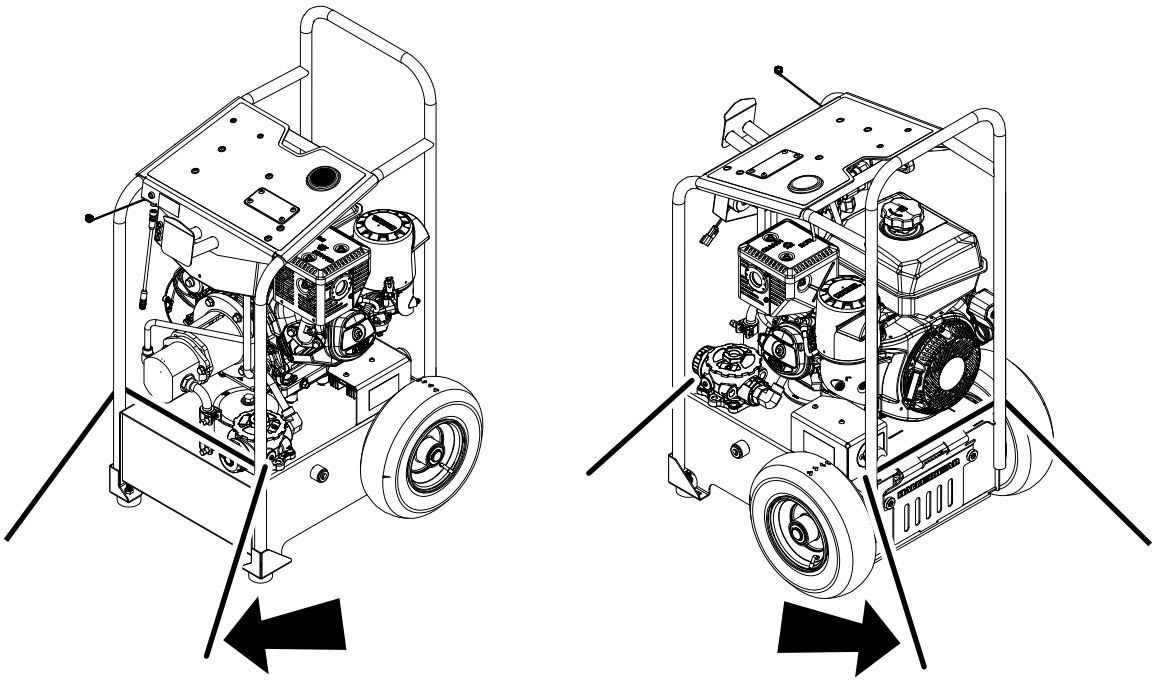
Tie Down

Procedure

When tying down control unit and/or accessories, use extra caution to prevent any movement during sudden take-offs and stops. Secure the system in a way that prevents movement of the system, as shown.



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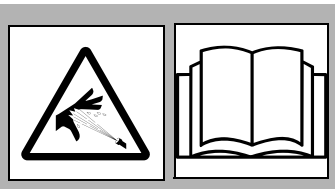
Operate

Chapter Contents

Connect Hydraulic Hoses



WARNING Pressurized fluid or air. Contact can cause death or serious injury. Refer to operator's manual for proper use.

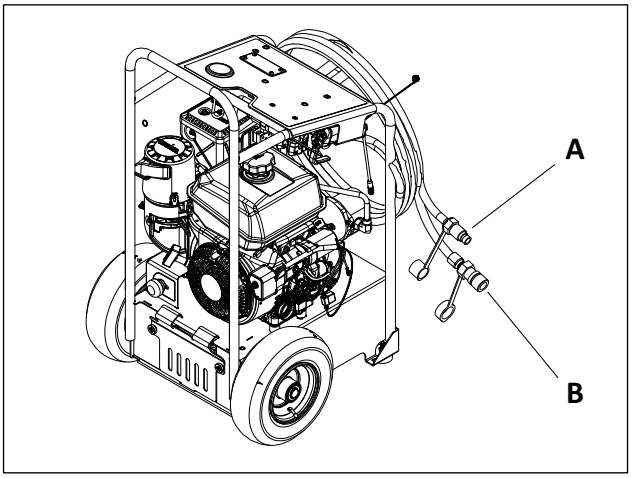
To help avoid injury:

- Cycle controls to relieve all pressure in hydraulic hoses before disconnecting.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

Control Unit

Connect hydraulic hoses (A,B) from control unit to external equipment to operate.



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Start Unit

IMPORTANT: For more information, see "Engine Controls" on page 20.

1. Turn engine ON/OFF switch to ON position.
2. Close choke valve.
3. Open fuel shut-off valve.
4. Start engine.
5. Open choke valve after engine has been running for a few minutes.

IMPORTANT: In case of depleted battery, pull rope start to start unit.

Operate Unit

IMPORTANT: Follow external equipment operator's manual instructions.

Operate external equipment using remote control. See page 22 and page 40 for more information.

Shut Down Unit

Turn engine ON/OFF switch to OFF position.

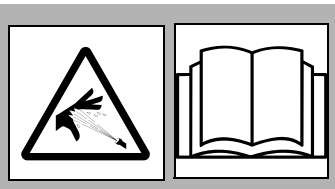
OR

1. Press remote shutdown.
2. Turn engine ON/OFF switch to OFF position.

Complete the Job

Chapter Contents

Disconnect Hoses



WARNING Pressurized fluid or air. Contact can cause death or serious injury. Refer to operator's manual for proper use.

To help avoid injury:

- Cycle controls to relieve all pressure in hydraulic hoses before disconnecting.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

1. Disconnect both hoses from external equipment.
2. Wrap hoses around the hooks on the control unit.

Stow Components

Load unit as specified. See "Transport" on page 33 for more information.

Stow Tools

Make sure all accessories and tools are loaded and properly secured.

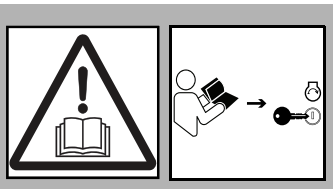
Decommission Machine

Before decommissioning machine, follow local regulations for disposing of hazardous substances. For more information on draining fluids, see Service chapter or contact your HammerHead dealer.

Service

Chapter Contents

Service Precautions



WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use. Know how to use all controls.

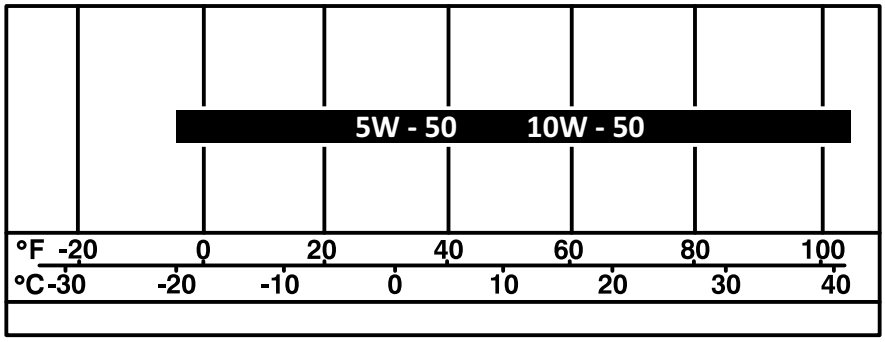
To help avoid injury:

- Unless otherwise instructed, all service should be performed with engine off.
- Refer to engine manufacturer's manual for engine maintenance instructions.

Recommended Lubricants/Service Key

Item	Description		
GEO	Full synthetic gasoline engine oil meeting or exceeding API SJ. See oil temperature chart for recommended viscosity grade for each model.		
HF	Hydraulic fluid, similar to Phillips 66® HG or equivalent meeting or exceeding ISO 46.		
	Check level of fluid or lubricant		Check condition
	Filter		Change, replace, adjust, service or test

Engine Oil Temperature Chart



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Temperature range anticipated before next oil change

Proper lubrication and maintenance protects HammerHead® equipment from damage and failure. Service intervals listed are minimum requirements. In extreme conditions, service machine more frequently. Use only recommended lubricants.

NOTICE:

- Use only genuine HammerHead parts and approved lubricants to maintain warranty.
- Use the "Service Record" on page 67 to record all required service to your machine.

Each Use

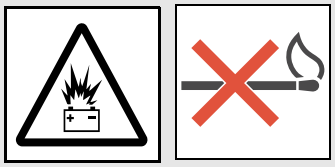
Tasks	Notes
Check battery	
Check starter rope and starter grip	
Check engine oil level	GEO
Check air filter elements	
Check hydraulic fluid level	

Battery

WARNING Corrosive fluid. Contact can cause death or serious injury. Avoid contact. Wear appropriate gloves. See Safety Data Sheet (SDS) for more information.

To help avoid injury:

- Never attempt to charge a battery that is leaking, bulging, heavily corroded, frozen, or otherwise damaged.
- Refer to Safety Data Sheet (SDS) for additional information regarding battery.



WARNING Explosive hydrogen gas. Fire or explosion can cause death or serious injury. Keep heat flames, sparks, and other sources of ignition away.

To help avoid injury:

- Use a single 12V maximum source for charging. Never connect to rapid chargers or dual batteries.
- Never lean over battery when making connections.
- Never allow vehicles to touch when charging.
- Never short-circuit battery terminals for any reason or strike battery posts or cable terminals.
- Refer to Safety Data Sheet (SDS) for additional information regarding battery.

NOTICE:

- Electronic components can be easily damaged by electrical surges. Jump starting can damage electronics and electrical systems, and is not recommended. Try to charge the battery instead. Use quality large diameter jumper cables capable of carrying high currents (400 amps or more). Low quality cables may not allow enough current flow to charge a dead/discharged battery.
- Read all steps thoroughly and review illustration before performing procedure.

Check battery before each use.

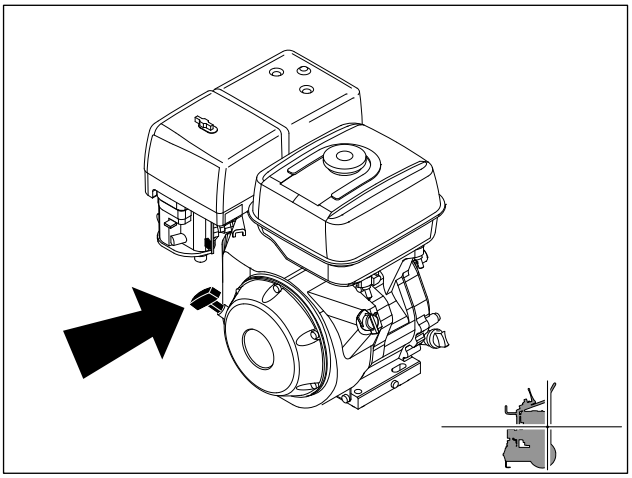
Check Battery

1. Disconnect battery at battery disconnect switch, if equipped.
2. Ensure no ignition sources are near battery.
3. Loosen and remove battery cable clamps carefully, negative (-) cable first.
4. Clean cable clamps and terminals to remove dull glaze.
5. Check for signs of internal corrosion in cables.
6. Connect battery cable clamps, positive (+) cable first.
7. Tighten any loose connections.
8. Ensure that battery tiedowns are secure.
9. Turn battery disconnect, if equipped, on.

Check Starter Rope and Starter Grip

Check starter rope and starter grip for wear or damage before each use.

IMPORTANT: Do not start unit if worn or damaged. Contact you Ditch Witch® dealer for replacement parts.



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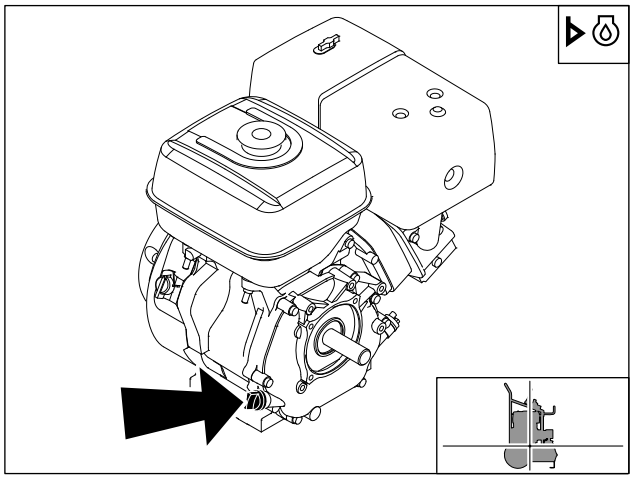
Check Engine Oil Level

Check engine oil at dipstick before each use. If low, add GEO until oil level is at highest line on dipstick.

IMPORTANT: For more information on engine oil, see "Recommended Lubricants/Service Key" on page 46 or see engine manual.



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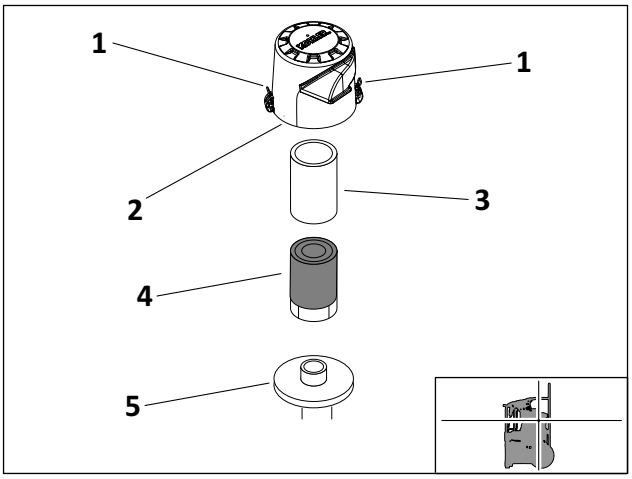
Check Air Filter Elements

Check air filter elements before each use. Replace elements if dirty or damaged.

To check:

1. Remove latch (1) and air cleaner cover (2).
2. Remove elements (3, 4, and 5) and separate them.
3. Replace elements if dirty or damaged. See "Change Air Filter Elements" on page 53.
4. Wipe inside of housing and wash cover.



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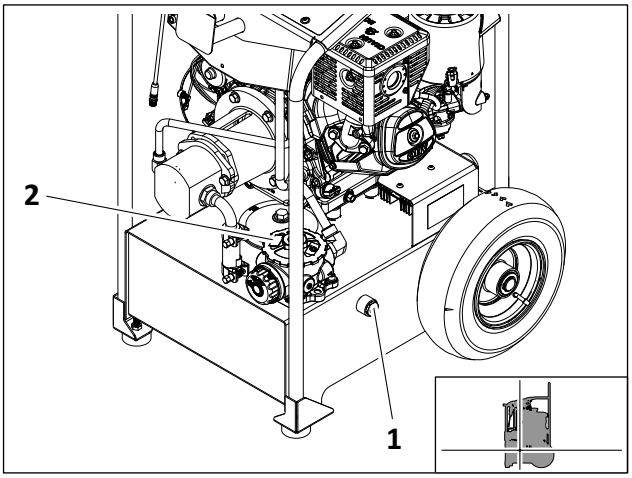
NOTICE: Change air filter elements. Do not attempt to clean them.

- Compressed air or water may damage the elements.
- Tapping filter elements to loosen dirt may damage the elements.

Check Hydraulic Fluid Level

With frame level, check fluid at sight glass (1) before each use. Maintain fluid level on midway point on sight glass. Add HF at fill (2) as needed.



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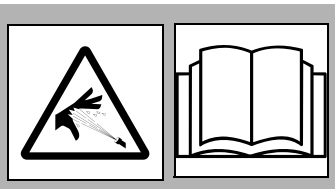
10 Hours

Check Hydraulic Hoses



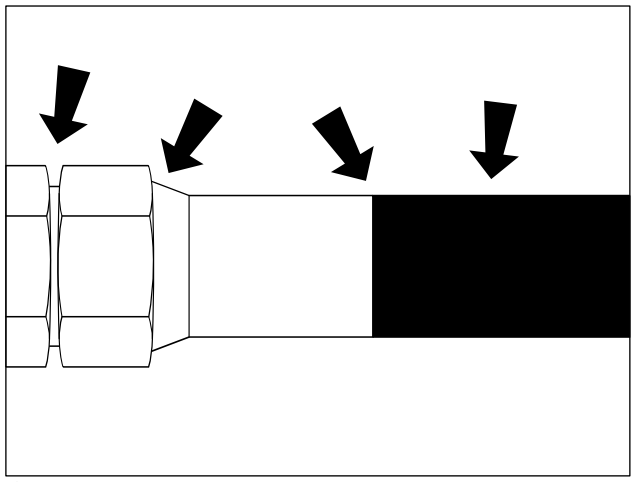
WARNING Pressurized fluid or air. Contact can cause death or serious injury. Refer to operator's manual for proper use.

To help avoid injury:

- Before disconnecting a hydraulic line, turn engine off and operate all controls to relieve pressure. Lower, block, or support any raised component with a hoist. Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in a container.
- Before using system, check that all connections are tight and all lines are undamaged.
- Use a piece of cardboard or wood, rather than hands, to search for leaks.
- Wear protective clothing, including gloves and eye protection.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

Check all hydraulic hoses every 10 hours.



CheckHoses.eps

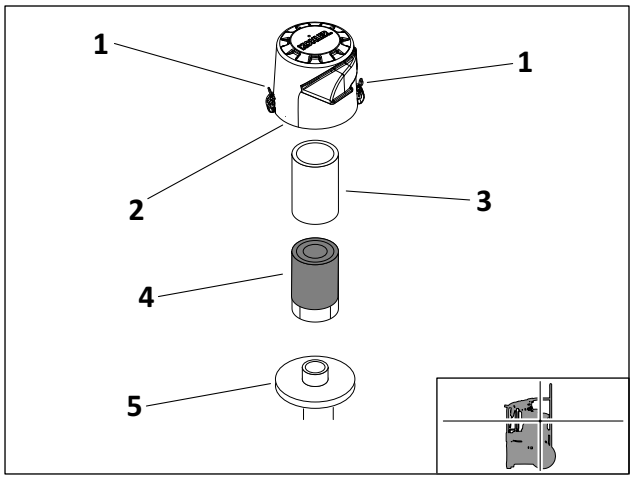
50 Hours

Change Air Filter Elements

Change air filter elements every 50 hours.

To change:

1. Remove latch (1) and air cleaner cover (2).
2. Remove elements (3) and replace with new ones.
3. Reverse procedure to install.



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NOTICE: Change air filter elements. Do not attempt to clean them.

- Compressed air or water may damage the elements.
- Tapping filter elements to loosen dirt may damage the elements.

100 Hours

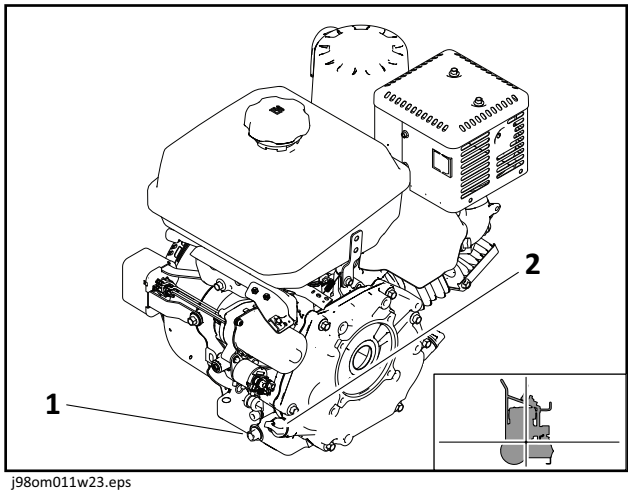
Tasks	Notes
Change engine oil	GEO
Check spark plug	

Change Engine Oil

Change engine oil every 100 hours or annually.

1. Drain at plug (1) while oil is still warm.
2. Replace plug.
3. Slowly add GEO at fill (2).

> ***NOTICE:*** Engine oil capacity is 35-37 ounces (1.1 L). Do not overfill.



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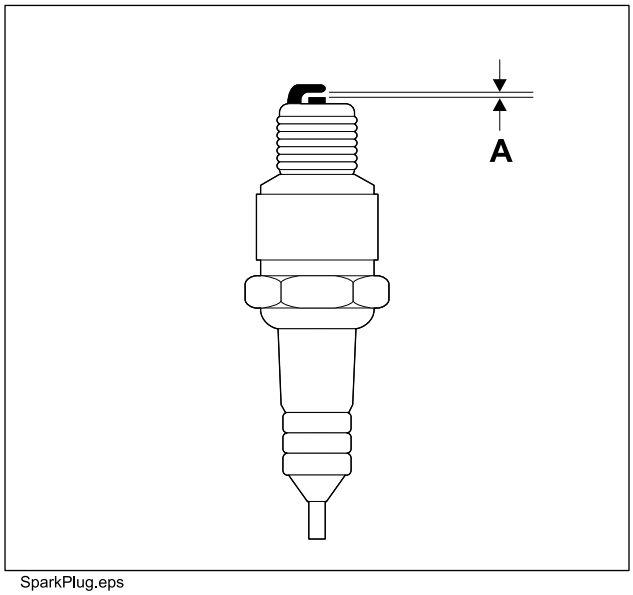
Check Spark Plug

Check spark plug gap every 100 hours. Correct spark plug gap (A) is 0.030" (0.76 mm).

See engine service manual for specific procedure and recommended replacement spark plugs.



SparkPlug.eps

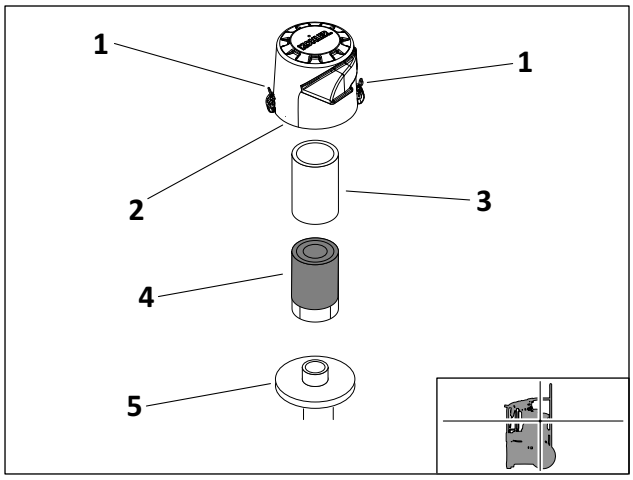
200 Hours

Change Air Filter Elements

Change air filter elements every 200 hours.

To change:

1. Remove latch (1) and air cleaner cover (2).
2. Remove elements (3 and 4) and replace with new ones.
3. Reverse procedure to install.



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NOTICE: Change air filter elements. Do not attempt to clean them.

- Compressed air or water may damage the elements.
- Tapping filter elements to loosen dirt may damage the elements.

500 Hours

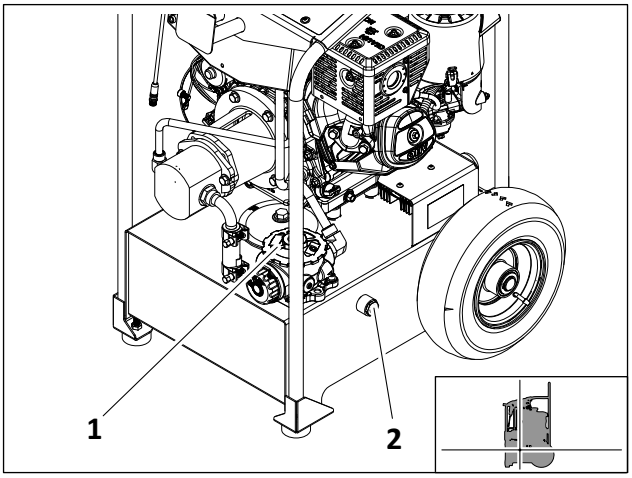
Tasks	Notes
Change Hydraulic Fluid and Filter	
Change Spark Plug	

Change Hydraulic Fluid and Filter

Change hydraulic oil and filter every 500 hours.

1. Unscrew hydraulic fluid filter (1).

1. Remove drain plug (2).
2. Drain fluid and replace plug.
3. Add HF at fill (1). Hydraulic reservoir capacity is 6 gal (22.7 L).
4. Install new hydraulic filter and tighten.



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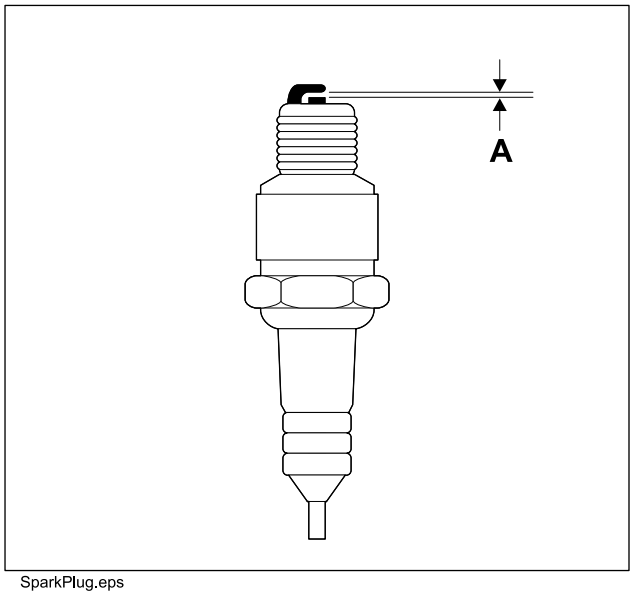
Change Spark Plug

Change spark plug every 500 hours or annually. Correct spark plug gap (A) is 0.030" (0.76 mm).

See engine service manual for specific procedure and recommended replacement spark plugs.



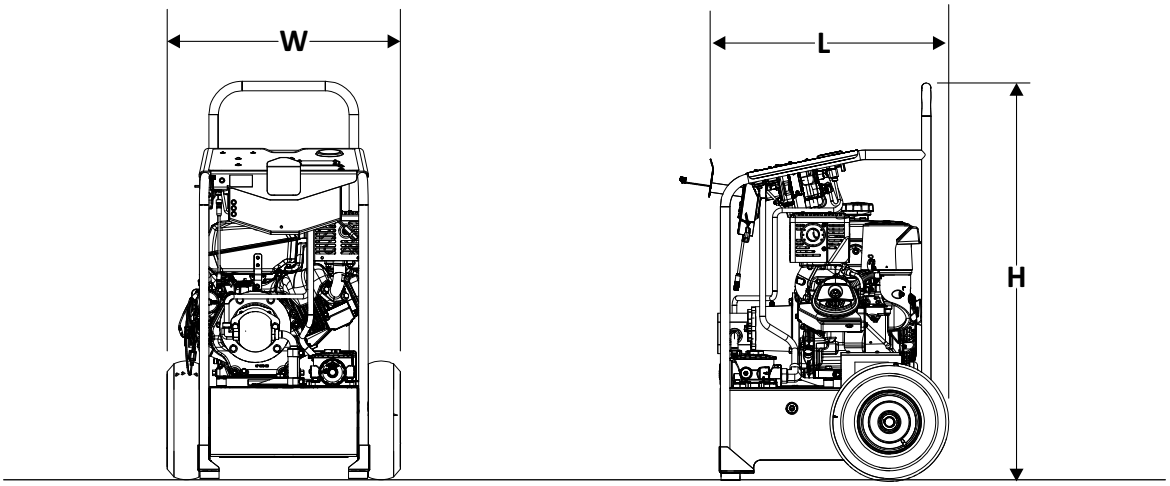
SparkPlug.eps

Specifications

Specifications are called out according to SAE recommended practices. Specifications are general and subject to change without notice. If exact measurements are required, equipment should be weighed and measured. Due to selected options, delivered equipment may not match that shown.

Chapter Contents

PB13X



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Dimensions	U.S.	Metric
L, length	29.0 in	73.7 cm
W, width	31.0 in	78.7 cm
H, height	42.0 in	106.7 cm
Total system weight, mass	290 lb	131.5 kg

Operational	U.S.	Metric
Maximum hydraulic flow	6 gpm	23 L/min

Noise Levels
Operator ear 91 dBA sound pressure per ISO 6394
Exterior 102 dBA sound power per ISO 6393

Battery
18Ah, 12V AGM

Power	U.S.	Metric
Engine: Kohler CH440		
Fuel: gasoline		
Cooling medium: air		
Displacement	26.2 in^3	429 cm^3
Bore	3.5 in	89 mm
Stroke	2.72 in	69 mm
Manufacturer's net power rating (per SAE J1349) @ 3600 rpm	14 hp	10.44 kW
Rated speed	3600 rpm	3600 rpm
Maximum engine lubrication tilt angle*	20°	20°
*Exceeding these operational angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.		

EU Declaration of Conformity Information

Countries in the European Union should have received a Declaration of Conformity (DOC) with the machine similar to the example below:

Earth Tool Company, A Division of The Charles Machine Works Inc., 500 South C.P. Avenue, Lake Mills, Wisconsin, USA, declares that the following unit(s):

Model	Serial Number	Description
XXXXX	XXXXXXXXXXXXXXXX	Control Unit

Conform(s) to the following directives:

2000/14/EC (Noise) and 2006/42/EC (Machine Directive)
The Technical Construction File is maintained at the manufacturer's location.

Each model listed has been evaluated with the following standards and/or other normative documents:

EN ISO 12100, EN ISO 4413, ISO 6393, and ISO 6394

Data for 2000/14/EC Noise Emission Directive:

Model	Classification	Measured Sound Power (dBA)	Guaranteed Sound Power (dBA)	Engine Speed (rpm)	Engine Power (kW)
XXXXX	Control Unit	XXX	XXX	XXXX	XXX

Determined in accordance with ISO 6395:2008.
Conformity Assessment: Annex II A

The Technical Construction File is maintained at the manufacturer's location.

This declaration has been issued under the sole responsibility of the manufacturer.
The object of the declaration is in conformity with relevant Union harmonization legislation.

Certified:

Authorized Representative:

Marcel Dutrieux
Manager European Product Integrity
Toro Europe NV
Nijverheidsstraat 5
2260 Oevel
Belgium

Mark Randa
Sr. Manager, Research, Development, and Engineering
500 South C.P. Avenue
Lake Mills, Wisconsin, 53551,USA

Date _____

UK Declaration of Conformity Information

Countries in the United Kingdom should have received a Declaration of Conformity (DOC) with the machine similar to the example below:

Earth Tool Company, A Division of The Charles Machine Works Inc., 500 South C.P. Avenue, Lake Mills, Wisconsin, USA, declares that the following unit(s):

Model	Serial Number	Description
XXXXX	XXXXXXXXXXXXXXXX	Control Unit

Conform(s) to the following UK national laws:

2000/14/EC (Noise) and 2006/42/EC (Machine Directive)
The Technical Construction File is maintained at the manufacturer's location.

Each model listed has been evaluated with the following standards and/or other normative documents:

EN ISO 12100, EN ISO 4413, ISO 6393, and ISO 6394

Data for 2000/14/EC Noise Emission Directive:

Model	Classification	Measured Sound Power (dBA)	Guaranteed Sound Power (dBA)	Engine Speed (rpm)	Engine Power (kW)
XXXXX	Control Unit	XXX	XXX	XXXX	XXX

Determined in accordance with ISO 6395:2008.
Conformity Assessment: Annex II A

The Technical Construction File is maintained at the manufacturer's location.

This declaration has been issued under the sole responsibility of the manufacturer.
The object of the declaration is in conformity with relevant UK legislation.

Certified:

Mark Randa
Sr. Manager, Research, Development, and Engineering
500 South C.P. Avenue
Lake Mills, Wisconsin, 53551,USA

Date _____

Authorized Representative:

Marcel Dutrieux
Manager European Product Integrity
Toro U.K. Limited
Spellbrook Lane West
Bishop's Stortford
CM23 4BU
United Kingdom

Support

Procedure

Notify your dealer immediately of any malfunction or failure of HammerHead equipment.

Always give model, serial number, and approximate date of your equipment purchase. This information should be recorded and placed on file by the owner at the time of purchase.

Return damaged parts to dealer for inspection and warranty consideration if in warranty time frame.

Order genuine HammerHead replacement or repair parts from your authorized HammerHead dealer. Use of another manufacturer's parts may void warranty consideration.

Resources

Publications

Contact your HammerHead dealer for publications and videos covering safety, operation, service, and repair of your equipment.

HammerHead Training

For information about on-site, individualized training, contact your HammerHead dealer.

Warranty

The Charles Machine Works, Inc. dba HammerHead Trenchless ("HammerHead") warrants that all new products it manufactures (with the exception of cured in place pipe consumable materials, which are covered by a separate warranty) will be free from defects in materials, under normal use and service, for one year after delivery to the purchaser (or such other party as the purchaser may direct) or 1000 operating hours, whichever occurs first. The warranty period for any item repaired or replaced pursuant to this warranty shall be the remainder, if any, of the original, defective Product's warranty period.

For any covered issue during the warranty period, Buyer must timely notify HammerHead in writing of such defect, and HammerHead shall, at its option, supply a functionally equivalent replacement product or request the return of the product to its plant in Lake Mills, Wisconsin so that HammerHead may repair it, each without charge. Such repair or replacement is the purchaser's sole and exclusive remedy against Hammerhead, whether in contract or arising out of warranties, representations, or defects. Hammerhead reserves the right to use remanufactured replacement parts under this warranty as it deems appropriate.

No item may be returned without prior written authorization from HammerHead.

This warranty does not cover:

- CIPP Consumables
- Defects other than those in materials (including but not limited to workmanship and design defects)
- Transportation expenses in connection with the repair or replacement of covered products
- Failures caused due to a product that has been installed or used in a manner inconsistent with written warnings, instructions, or recommendations by HammerHead, including but not limited to in product decals or in the owner's guide/user manual; or installed in a manner inconsistent with applicable law or standard industry practices
- Any product that has been neglected, altered, misused, abused, or used in any way which, in HammerHead's opinion, adversely affects its performance
- Failures caused by improper storage; handling installation or maintenance; use of non-HammerHead approved parts or materials; unapproved modifications or alterations; or use of unapproved accessories
- Failures caused by outside influence, including but not limited to Acts of God, fire, or other accident
- Wear items or components failing due to normal wear
- Items that are not manufactured by us (which are warranted only to the extent of the original manufacturer's warranty and subject to their allowance to us, if found defective by them)
- Any additional training or consulting services which may be provided by HammerHead or its representatives or agents (nor shall such training or services extend any product warranty period)
- Damages that arose in whole or in part due to HammerHead's reliance upon drawings, specifications, samples, descriptions, documentation, requirements, requests, or instructions received from the customer, the installer, or either of their agents
- Charges for labor and/or parts beyond those needed to complete the warrantied repair or replacement

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NO ACTION AGAINST HAMMERHEAD ARISING OUT OF OR RELATED TO THIS WARRANTY MAY BE FILED NO MORE THAN ONE (1) YEAR AFTER THE CLAIM ARISES.

Service Record

Service Performed	Date	Hours

Service Performed	Date	Hours