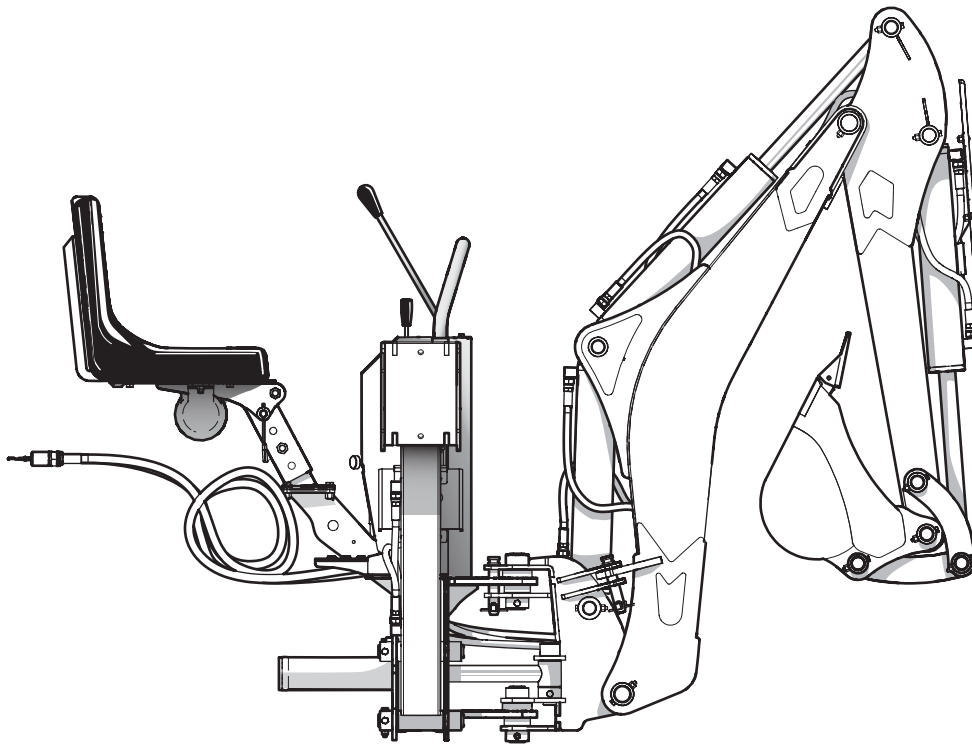


# OPERATOR'S MANUAL

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## GE, GX Series BACKHOE



# 1. Foreword

## 1.1 Introduction

### **Congratulations on your choice of a Wallenstein Backhoe!**

This equipment has been designed and manufactured for the property owner planning on digging, excavating, or trenching. These backhoes are designed for use on sub-compact tractors, compact utility tractors, and skid steers. Digging depths range from 6'-4" to 11'-4" (1.9 m – 3.5 m) depending on the model. The GX920XT features an extendible boom, capable of hydraulically extending an extra 24" (61 cm).

To install a backhoe on a tractor, it must have a front loader to offset the weight of the backhoe. The front loader provides the stability required to operate the backhoe safely.

This manual covers the following models:

- **GE605**
- **GX620**
- **GX720**
- **GX920**
- **GX920XT**

Safe, efficient, and trouble-free operation of this Wallenstein product requires that anyone using or servicing the machine reads the Safety, Operation, and Maintenance information contained within this Operator's Manual.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Wallenstein dealer or the distributor if you need assistance, information or additional copies of the manuals.

Units of measurement in Wallenstein Equipment technical manuals are written as: US Customary (SI metric)

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### **WARNING!**

**Do not attempt to start or operate the machine without thoroughly reviewing this manual for safe and proper operation.**

**Always keep this manual with the machine.**

W034



[www.wallensteinequipment.com](http://www.wallensteinequipment.com)

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## 1.2 Delivery Inspection Report

### Wallenstein GE and GX Series Backhoe

To activate warranty, register your product at: [www.wallensteinequipment.com](http://www.wallensteinequipment.com)

This form must be filled out by the dealer at the time of delivery, then signed by the dealer and customer.

The product manuals have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation, and applicable warranty policy.

I have thoroughly instructed the buyer on the equipment care, adjustments, safe operation and applicable warranty policy and reviewed the manuals.

\_\_\_\_\_  
Customer

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State/Province, ZIP/Postal Code

(        )  
\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Contact Name

\_\_\_\_\_  
Model

\_\_\_\_\_  
Serial Number

\_\_\_\_\_  
Delivery date

\_\_\_\_\_  
Dealer

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State/Province, ZIP/Postal Code

(        )  
\_\_\_\_\_  
Phone Number

### 1.2.1 Dealer Inspection Report

\_\_\_\_\_ Hydraulic hoses and fittings tight with no leaks

\_\_\_\_\_ Hydraulic lines routed to avoid chafing and in good condition

\_\_\_\_\_ Boom, stick, bucket, stabilizers function normally

\_\_\_\_\_ Hydraulic oil level checked in reservoir

\_\_\_\_\_ Hydraulic controls move freely

\_\_\_\_\_ All fasteners are tight

\_\_\_\_\_ Subframe included

\_\_\_\_\_ Machine lubricated

\_\_\_\_\_ Operating and safety instructions reviewed

#### Safety Checks

\_\_\_\_\_ All safety decals installed

\_\_\_\_\_ Guards and shields installed and secured

\_\_\_\_\_ Retainer installed through hitch points

\_\_\_\_\_ Boom lock pin installed

#### Optional Equipment

\_\_\_\_\_ Vertical stabilizers

\_\_\_\_\_ Ripper tooth

\_\_\_\_\_ Quick change bucket adapter

\_\_\_\_\_ Street pads

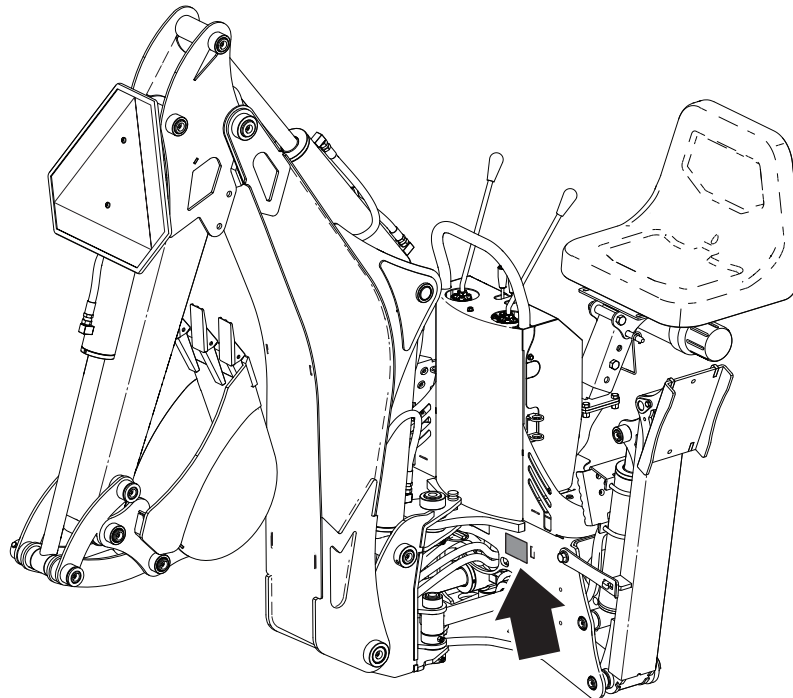
\_\_\_\_\_ Thumb kit

\_\_\_\_\_ PTO pump kit

## 1.3 Serial Number Location

Always provide the serial number of your Wallenstein product when ordering parts or requesting service or other information.

The Serial Number Plate location is shown in the illustration.  
**For future reference, record your product Model and Serial Number in the space provided below.**



**Fig. 1**—Serial Number Plate Location (Typical)

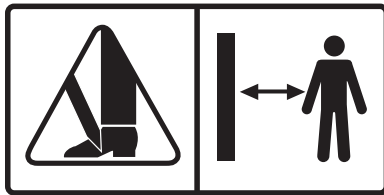
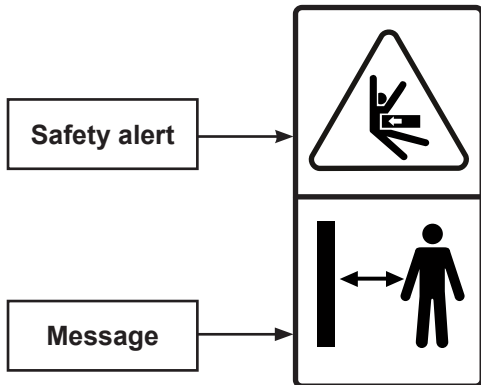
Record Product Information Here	
Model:	
Serial Number:	

## 1.4 Product Decal Identification

When getting familiar with your Wallenstein product, notice that there are different types of decals for safety, control functions, maintenance, and product information on the machine. The following section explains what they are for and how to read them.

**Safety Decals** are pictorial with a yellow background and generally two panels. They can be either vertical or horizontal orientation.

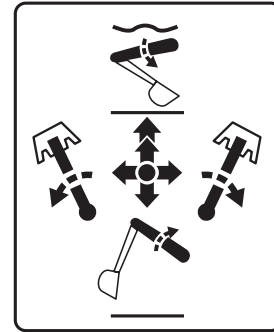
The top (or left-hand) panel shows the safety alert (the potential hazard), and the bottom (or right-hand) panel shows the message (how to avoid the hazard).



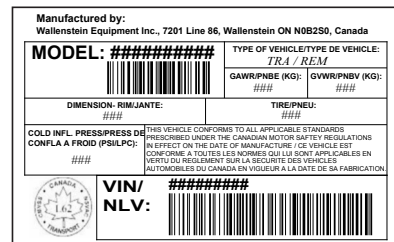
**Safety Notice Decals** are pictorial with a blue background and generally rectangular with single or multiple symbols. This decal informs what Personal Protective Equipment is required for safe operation.



**Control Decals** have white symbols on a black background. This type of decal explains the operation of a control.



**Product Decals** indicate machine model and serial number, and other important information.



**Maintenance Decals** have a green background. The decal indicates a maintenance procedure and frequency interval.



Refer to the section on safety signs for safety decal definitions on *page 15*.

For a complete illustration of decal locations for your machine, view the parts manual at [www.wallensteinequipment.com](http://www.wallensteinequipment.com).

## 2. Safety

### 2.1 Safety Alert Symbol

This Safety Alert Symbol means:

**ATTENTION! BE ALERT! YOUR SAFETY IS INVOLVED!**

The Safety Alert Symbol identifies important safety messages on the Wallenstein Backhoe and in the manual.

When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions on how the hazard is avoided.



### 2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** determine the seriousness level of the warning messages in this manual. The appropriate signal word for each message in this manual has been selected using the following guidelines:

#### **DANGER –**

Indicates an imminently 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 typically for machine components which, for functional purposes, cannot be guarded.

#### **WARNING –**

Indicates a potentially hazardous situation that, if not avoided, **could** result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

#### **CAUTION –**

Indicates a potentially hazardous situation that, if not avoided, **may** result in minor or moderate injury. It may also be used to alert against unsafe practices.

**IMPORTANT –** To avoid confusing equipment protection with personal safety messages, a signal word **IMPORTANT** indicates a situation that if not avoided, could result in damage to the machine.

## 2.3 Why Safety is Important

### Three Big Reasons:

- Accidents Disable and Kill
- Accidents Cost
- Accidents Can Be Avoided

The policy of Wallenstein Equipment Inc. is to produce products that are safe and reliable. However, even when using well-engineered equipment, there is always an element of risk. To minimize the risks and promote safety at all times, this section of the operator's manual details a number of safety rules that must always be obeyed.

YOU are responsible for the SAFE operation and maintenance of your Wallenstein Backhoe. Make sure anyone else who is going to operate or service the backhoe follows the procedures and related safety information contained in this manual.

YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program.

## 2.4 Safety Rules

- It is the operator's responsibility to read, understand and follow ALL safety and operation instructions in this manual. If you do not understand any part of this manual and require assistance, contact your dealer, distributor, or Wallenstein Equipment.
- The operator of this backhoe must be a responsible, physically able person familiar with machinery and trained in this machine's operation.
- Provide instructions to anyone else who is going to operate the machine. This equipment is dangerous to anyone unfamiliar with its operation.
- Review safety related items annually with all personnel who will be operating or performing maintenance.
- Make sure all safety signs on the machine are understood before operating, servicing, adjusting or cleaning. Safety sign explanations are on page 15. Being unfamiliar with a machine can lead to injuries.
- Replace any safety sign or instruction sign that is not readable or is missing. The location of all safety signs is indicated on page 14.
- Never exceed the limitations of the machine. If its ability to do the job, or to do it safely is in question—**STOP!**
- Have a first-aid kit and fire extinguisher available for use should the need arise and know how to use them.
- Do not modify the equipment in any way. Unauthorized



modifications may affect the integrity of the machine or the ability of the machine to perform as designed. Modifications can impair safety or function. They can affect the life of the equipment and void warranty.

- Make sure the subframe is correctly mounted and all hardware is torqued to specifications to prevent backhoe from moving when digging.
- Never operate the backhoe without the topline installed. Make sure it is correctly adjusted to prevent the backhoe from being pushed upward by digging force. If the backhoe moves upward the operator can be crushed against the ROPS, FOPS, or cab. Make sure there is adequate head room for the operator.
- Tractor must be equipped with a front loader and ROPS (Roll Over Protection Structure) or ROPS cab. Always wear your seat belt when operating the tractor. Serious injury or even death could result from falling off the tractor—particularly during a turnover when the operator could be pinned underneath. Keep a foldable ROPS system in 'raised-locked' position at all times.
- Do not install backhoe if the total machine weight exceeds the ROPS weight certification.
- Ensure subframe is firmly attached and all hardware is torqued to specifications to prevent backhoe from moving when digging.

## 2.5 Operating Safety

- Wear appropriate Personal Protective Equipment (PPE) when using this machine. This includes but is not limited to:
  - Hard hat
  - Hearing Protection
  - Protective shoes with slip resistant soles
  - Protective glasses
- Always wear hearing protection if the noise in any area you work in exceeds 80 dB.
  - Noise over 85 dB on a long-term basis can cause severe hearing loss.
  - Exposure to noise over 90 dB over a long-term basis may cause permanent, total hearing loss.
  - Hearing loss from loud noise (from engines, chainsaws, radios, and other such sources close to the ear) is cumulative over a lifetime, without hope of natural recovery.
- Know your controls and how to stop engine and attachment quickly in an emergency.
- Be aware of overhead hazards: branches, cables, electrical





wires. Have an underground utility locating/marketing service survey the area before digging.

- Keep boom and bucket away from overhead and underground power lines and utilities. High-voltage power lines can cause electrocution without direct contact.
- Be sure machine is properly mounted, adjusted and in good operating condition.
- Follow the **Pre-operation Checklist** before starting work (see *Pre-operation Checklist on page 29*).
- If the backhoe is powered by the tractor / skid steer hydraulic system, oil pressure and flow must be properly matched. If a PTO drive is used, be sure speed is correct and PTO shaft is properly shielded.
- Never operate controls from the ground. Operate only from the operator's seat to prevent unexpected boom movement that can lead to crushing between frame members. Ensure all control levers are in neutral or off position before starting.
- Keep all bystanders in the designated safe zone during operation. Never carry, lift or move people on boom or bucket.
- Do not allow riders on this machine at any time. There is no safe place for any riders.
- Have an assistant on site to help you stay aware of situations that may be dangerous. Have the assistant stay in the designated safe zone, wearing bright, reflective clothing.
- Inspect and secure all guards before starting.
- Before exiting the equipment, always lower the bucket to the ground and engage the parking brake.
- Operate the equipment at a speed that allows you maintain control at all times. Drive slowly over rough terrain and avoid obstacles.
- Use extreme caution on inclines and edges where the ground could give way.
- Do not try to turn on a steep slope as this could result in a roll-over.
- Face the equipment when getting on and off. Maintain 3-point contact with steps and handrails.
- Never operate this machine under the influence of alcohol or drugs. Consult your doctor about using this machine while taking prescription medications.
- Do not dig under machine or stabilizers. A cave-in could result causing the machine to fall into the excavation.
- Do not exceed machine lift capacity. Overloading can cause structural damage and lead to unsafe operating conditions.
- Position backhoe so that loads extend directly behind machine when lifting or placing heavy objects.
- Do not walk or work under a raised machine or attachment unless it is securely blocked or held in position. Do not

depend on the tractor hydraulic system to hold the load.

- Keep stabilizers and front bucket on the ground to stabilize the machine. Tractor wheels must be resting on the ground during operation. Working with the wheels raised off the ground could result in serious injury or death and may cause damage to the machine.
- Be careful operating the 3-point hitch or skid steer bucket/loader controls if the backhoe is attached that way. It could cause damage to the tractor subframe or skid steer tieback.
- Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person uses the machinery. A person who has not read and understood all instructions is not qualified to use the machine. An untrained operator can cause possible serious injury or death.
- If this machine is used by any other person, loaned or rented, it is the owner's responsibility to make certain that prior to using, every operator:
  - has read and understands the instructions in the operator's manual
  - is instructed in safe and proper use of the equipment
  - knows how to place the machine in a Safe Condition (see next page)

## 2.5.1 Safe Condition

Throughout this manual, we talk about a 'Safe Condition'. What this means is parking the machine in a manner that makes it safe to service or repair.

**Place the machine in a Safe Condition before performing any service, maintenance work or storage preparation by performing the following:**

Safe Condition
<ul style="list-style-type: none"> <li>• Install boom and swing lock pins, or rest bucket on ground.</li> <li>• Shut off hydraulic system.</li> <li>• Set parking brake and shut off engine. Remove ignition key.</li> <li>• Ensure all components have stopped moving.</li> <li>• Block or chock wheels.</li> </ul>

## 2.6 Maintenance Safety

- Have at least two workers present when performing maintenance on this equipment. Never work alone in case an emergency should arise.
- Keep service area clean and dry.
- Never operate the engine in a closed building. Make sure there is plenty of ventilation. Exhaust fumes can cause asphyxiation.
- Never work under unsupported equipment.
- Use only genuine OEM replacement parts. The manufacturer is not responsible for injuries or damage caused by the use of non-approved parts or accessories.
- Make sure all safety shields and devices are re-installed when a maintenance or service procedure is finished.
- Do not use gasoline or diesel fuel when cleaning any parts. Use a regular cleanser.
- Use proper tools that are in good condition. Make sure the procedure is understood before performing any service work.

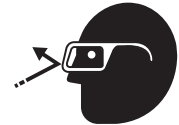
## 2.6.1 Hydraulic System Safety

- Make sure that all the components in the hydraulic system are kept clean and in good condition.
- Make sure all components are tight, and that lines, hoses and couplings are not damaged before applying pressure to the system.

- Do not use your hand to check for hydraulic oil leaks. Hydraulic fluid escaping under pressure can penetrate the skin causing serious injury. Use a piece of cardboard instead.



- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak.



- Seek medical attention immediately if injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. Doing so can cause sudden failure and create a hazardous and unsafe condition.
- Relieve pressure on the hydraulic system before working it. The hydraulic system operates under extremely high pressure.
- Replace any hydraulic hose immediately that shows signs of swelling, wear, leaks, or damage before it bursts.
- Do not bend or strike high-pressure lines, tubes or hoses, or reinstall them in a bent or damaged condition.
- Check to make sure hydraulic hoses are not worn or damaged, and are routed to avoid chafing.
- Never adjust a pressure relief valve or other pressure-limiting device to a higher pressure than specified.

## 2.7 Safe Zone

For safety of others during operation, set up a **Work Zone** around the machine. Mark the area with safety cones. Outside of that would be considered a designated **Safe Zone** for other workers or bystanders.

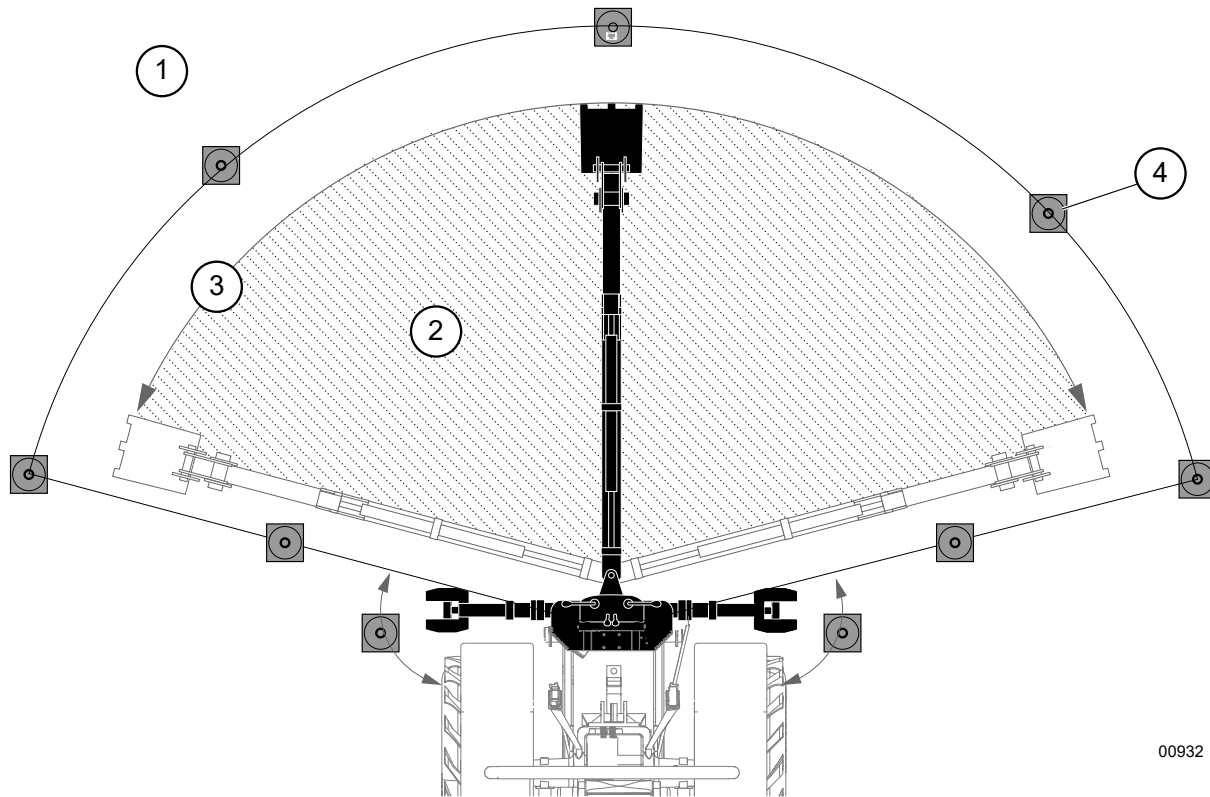
Always know where all workers and bystanders are when operating the backhoe. Have them stay outside of the work zone in the designated **Safe Zone**. They should only enter the work zone when:

- The person has made eye contact with and signaled the backhoe operator.
- The backhoe is in transport position or backhoe bucket is resting on the ground.
- The engine is shut off.

## 2.8 Work Zone

Establish a Work Zone perimeter the length of maximum boom reach and swing arc. Mark an additional area at least 3 ft (1 m) around the stabilizers.

While using the backhoe, always be aware of bystanders in the area. A swinging boom can create a collision hazard to workers or bystanders. Injury may occur from heavy material falling or dropping from the bucket.



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**Fig. 2**–Establish work zone perimeter

1. Designated Safe Zone
2. Work Zone
3. Boom Swing Arc
4. Safety Cones

## 2.8.1 Safety within your work zone

The safest place for the operator is in the operator's seat.  
Always operate the backhoe controls from the operator's seat.

Always be aware of the position of the boom and material being handled.

Be aware of bystanders and workers when lowering stabilizers.  
Make sure they are in the safe zone where they cannot be injured.

### Always be aware of hazards such as:

- Underground utilities
- Tree roots
- Structures close to the excavation site
- Excavating on a slope
- Excavating too close to the stabilizers

### Modify your work zone to account for overhead hazards:

- Telephone lines
- Tree branches
- Roof overhang
- Wash lines, ropes or cables
- Power lines—maintain a 20 ft (6 m) distance.  
Electrocution can occur without direct contact (arcing).

## 2.9 Sign-Off Form

Anyone using this machine must read and thoroughly understand all Safety, Operation and Maintenance information in this manual. An untrained operator should never use this machine.

To help document this training, the sign-off sheet provided below can be used.

Make periodic reviews of Safety and Operation a standard practice for all operators. Review again at the startup of every season.

The design and manufacture of this product conforms to relative provisions in the following standards:

ISO 4254-1 Agricultural machinery – Safety

ASABE S318 Safety for Agricultural Field Equipment

ISO 3600 Operator's Manual – Machinery for Agriculture, Forestry & Lawn Equipment

Sign-off Form		
Date	Owner	Employee

### 3. Safety Signs

#### 3.1 Safety Sign Locations

The location of safety signs on this equipment are shown in the illustrations that follow. **These areas require your safety awareness!**

Become familiar with each warning and the machine function related to that area.

**Think SAFETY! Work SAFELY!**

**IMPORTANT!** If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied.

(See Safety Sign Explanations starting on page 15.)

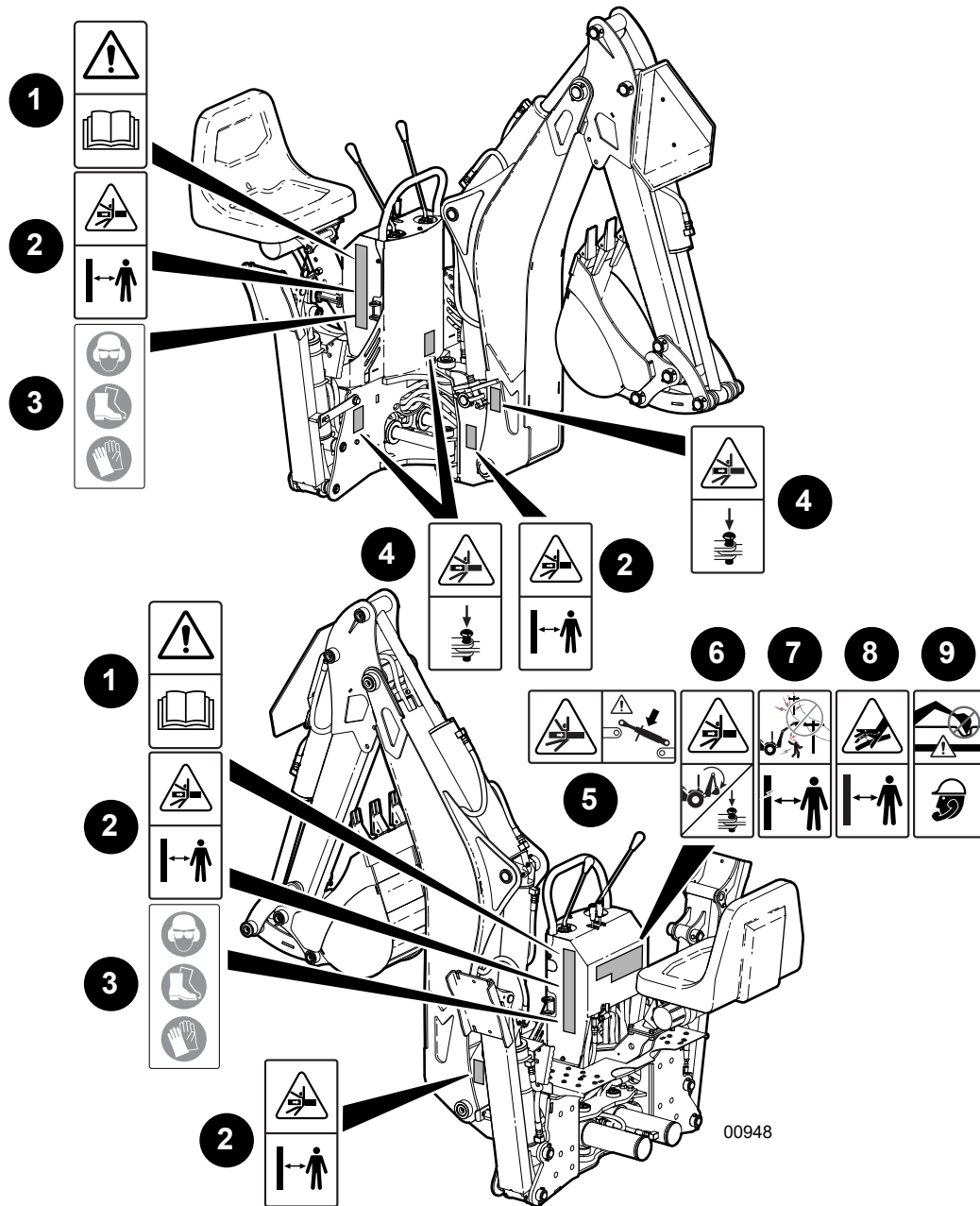


Fig. 3–Safety Decal Locations (Typical)

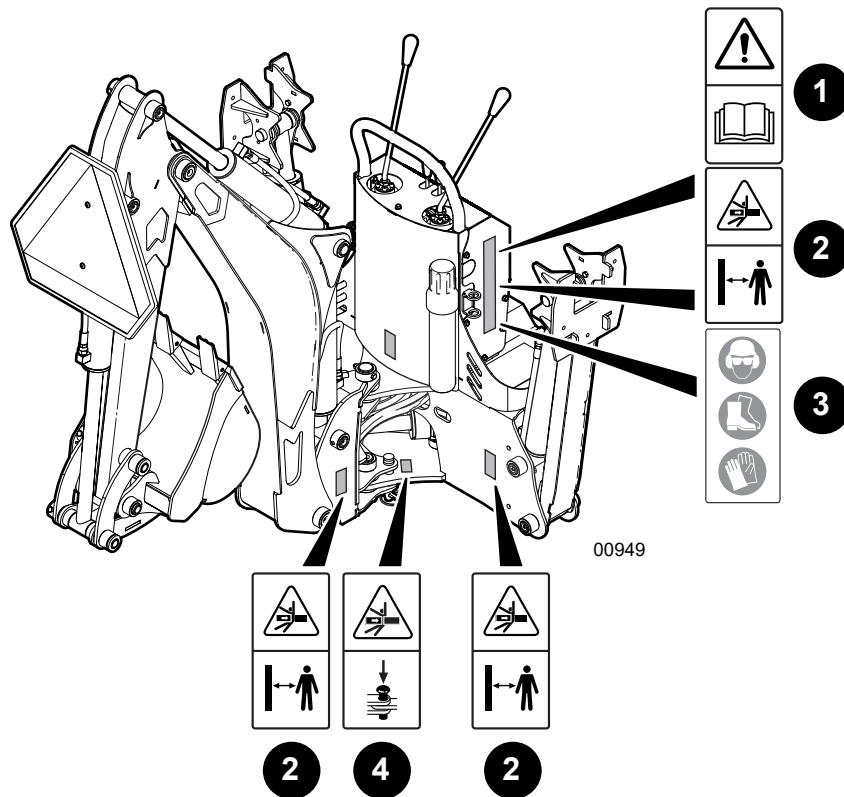


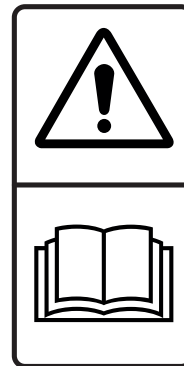
Fig. 4–Safety Decal Locations (GE605)

## 3.2 Safety Sign Explanations

### 1. Safety Awareness

**Caution!** Refer to the operator's manual. Read ALL operating instructions in the manual and learn the meaning of ALL safety signs on the machine.

**The best safety feature is an informed operator!**



### 2. Boom and Stabilizers

**Warning!** Risk of collision or pinching hazard in this area. Stay clear of moving boom and stabilizers.



### 3. Personal Protective Equipment

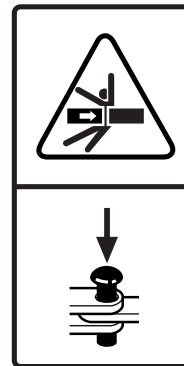
**Caution!** Always wear appropriate Personal Protective Equipment when using this machine. For example:

- A hard hat
- Heavy gloves
- Hearing protection
- Protective shoes with slip resistant soles
- Protective glasses, goggles or face shield



### 4. Main Boom and Swing Lock Pins

**Warning!** Risk of collision or pinching hazard in this area from unsecured boom. Install main boom and swing lock pins to prevent unintentional movement before servicing or transporting the backhoe.



### 5. Toplink

**Warning!** Risk of crushing injury if top link is not installed. Never operate the backhoe without the top link installed. Digging force could push the backhoe upward crushing the operator against the ROPS, FOPS, or cab.



### 6. Main Boom and Swing Lock Pins

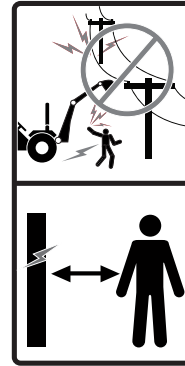
**Warning!** Risk of collision or pinching hazard in this area from unsecured boom. Install main boom and swing lock pins before servicing, or rest bucket on ground.





## 7. Electrical Cables/wires

**Warning!** Risk of electrocution resulting in serious injury or death. Stay at least 20 ft (6 m) away from overhead electrical cables. Electrocution is possible (from arcing) without direct contact.



## 8. Hydraulic System

**Warning!** Risk of serious injury from injection of high-pressure fluid. Never check for leaks with your hand or finger when system is pressurized. Use caution when removing panels or shields or disconnecting hydraulic connections.



## 9. Buried Utilities

**Warning!** Risk of serious personal injury or damage to the backhoe. Be aware of the location of buried utilities (cable, pipes, electrical conduit). Have an underground utility locating/marketing service survey the area before digging.



## 3.3 Replacing Damaged Safety Signs

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Parts that were replaced with a safety decal on them must also have the safety sign replaced.
- Replacement safety signs are available from your authorized Distributor, Dealer Parts Department, or Wallenstein Equipment.

## Procedure

1. Be sure that the installation area is clean and dry.
2. Be sure temperature is above 50 °F (10 °C).
3. Determine exact position before removing from the backing paper.
4. Pull the decal off the backing sheet, align the sign over the specified area, then carefully press the exposed sticky backing in place.
5. Use a piece of the backing paper to smooth the decal out, pressing from the center outwards.
6. Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

## 4. Familiarization

### 4.1 To the New Operator

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly.

By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to use the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to use the machine safely and provide maximum operating efficiency. By following the instructions in conjunction with a good maintenance program, your backhoe can provide many years of trouble-free service.

**IMPORTANT!** Make sure all operators understand how to put the backhoe in a Safe Condition before working with this machine. See Safe Condition *page 10*.

#### 4.1.1 Training

Each operator must be trained in the proper set-up and operating procedures before using the machine.

- Move the unit to a large open area to allow the operator to become familiar with control functions and machine response.
- Do not allow untrained operators to use the machine. They can endanger themselves and others, or damage property and the machine.

### 4.2 Operator Orientation

**IMPORTANT!** The directions for left-hand, right-hand, backward and forward mentioned throughout this manual are determined when sitting in the backhoe seat, facing the bucket.

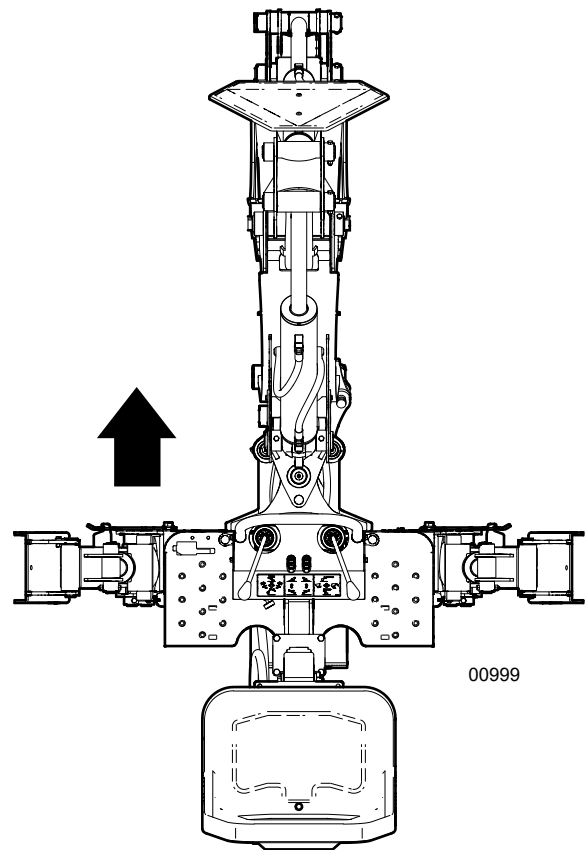


Fig. 5—Operator Orientation

### 4.3 Machine Components

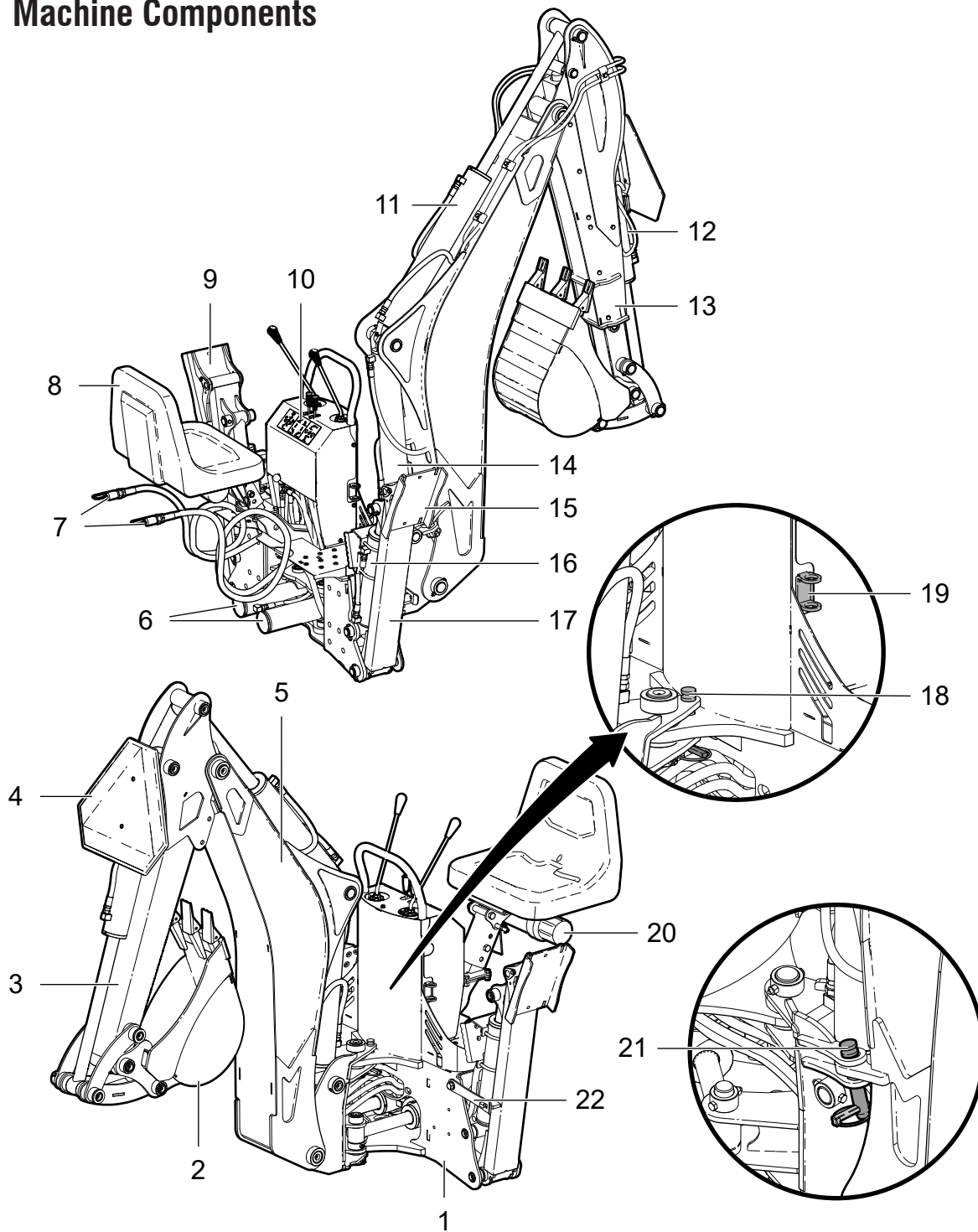


Fig. 6—Backhoe Components

- |                              |                               |                             |                                 |
|------------------------------|-------------------------------|-----------------------------|---------------------------------|
| 1. Main Frame                | 7. Hydraulic Hose Connections | 13. Extendable Dipper Boom  | 19. Boom Swing Lock Pin         |
| 2. Bucket                    | 8. Operator Seat (optional on | (GX920XT only)              | Storage                         |
| 3. Dipper (Outer) Boom       | GE605)                        | 14. Main Boom Cylinder      | 20. Manual Tube (front tower on |
| 4. Slow Moving Vehicle Sign  | 9. Stabilizer Foot            | 15. Stabilizer Foot         | GE605)                          |
| 5. Main Boom                 | 10. Control Panel             | 16. Stabilizer Leg Cylinder | 21. Main Boom Lock Pin          |
| 6. Swing Cylinders (only one | 11. Dipper Boom Cylinder      | 17. Stabilizer Leg          | 22. Stabilizer Lock (all models |
| on GE605)                    | 12. Bucket Cylinder           | 18. Boom Swing Lock Pin     | except GE605)                   |

## 5. Installation

### 5.1 Equipment Matching

To ensure the safe and reliable operation of the Wallenstein backhoe, it must be correctly matched to your carrier machine (tractor or skid steer). Consult your machine owner's manual for specifications. Use the following guideline to make sure the backhoe requirements match your machine.

#### Tractor / Skid Steer Size

The weight and size of the tractor or skid steer determines backhoe size for optimum stability during operation. Use the following table as a reference to match backhoe model to carrier machine.

Model	Engine hp (kW) Range	Carrier Machine Type
GE605	15–35 (11–26)	Tractor only
GX620	20–40 (15–30)	Tractor
	20–50 (15–37)	Mini Skid Steer / Skid Steer
GX720	30–65 (22–48)	Tractor
	30–75 (22–56)	Skid Steer
GX920	45–120 (34–89)	Tractor
	45–120 (34–89)	Skid Steer
GX920XT	60–120 (45–89)	Tractor
	60–120 (45–89)	Skid Steer

#### Hydraulic Oil Flow Requirements

Backhoe pressure and return hoses are connected to spare hydraulic ports on the carrier machine.

**IMPORTANT!** Wallenstein backhoes are designed to operate at a specific flow rate. Operating the backhoe above the specified flow rate can damage seals and void the warranty.

Backhoe Model	Oil Flow Required
GE605, GX620	4–12 gpm (15–45 Lpm)
GX160, GX920, GX920XT	5–27 gpm (19–102 Lpm)

**IMPORTANT!** When mounting a GE605 or GX620 backhoe to a skid steer that has a flow rate greater than 8 gpm (32 Lpm), BFC501 Flow Divider Kit is required to prevent damage to the seals and voiding the warranty.

#### Tractor Weight

The tractor or skid steer must have sufficient weight to provide stability. It is recommended that a tractor be equipped with a front-end loader. This provides the required weight on the front

for transport stability and counterbalance during operation.

### 5.2 Mounting Requirements

The backhoe is shipped from the factory in a basic configuration. It can be mounted to any model tractor or mini skid steer with one of the following appropriate mounting kits.

#### 5.2.1 Tractor Subframe

Wallenstein backhoes are designed to be attached to a tractor with a model-specific subframe.

**There are two types of Subframes:**

**Four-point mount**—Left and right-hand braces that extend underneath the tractor connected to a four-point link mount.

**Belly mount**—A one-piece frame mounted to the bottom of the tractor and backhoe.

Because of the extra forces a backhoe places on a tractor frame, a subframe kit is required. Subframes are not available for tractors over 75 hp (56 kW).

Wallenstein subframes are built to be model-specific. The subframe must be installed on the tractor before installing the backhoe. If you intend on using this backhoe on a different model tractor, a different subframe kit is required.

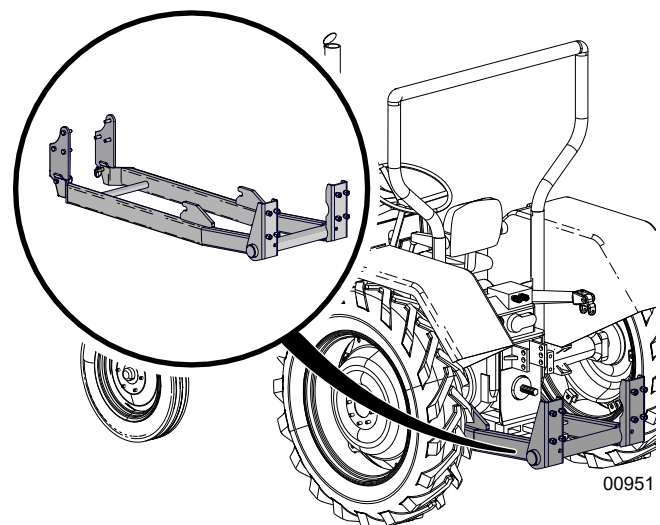


Fig. 7 – Belly-mounted subframe

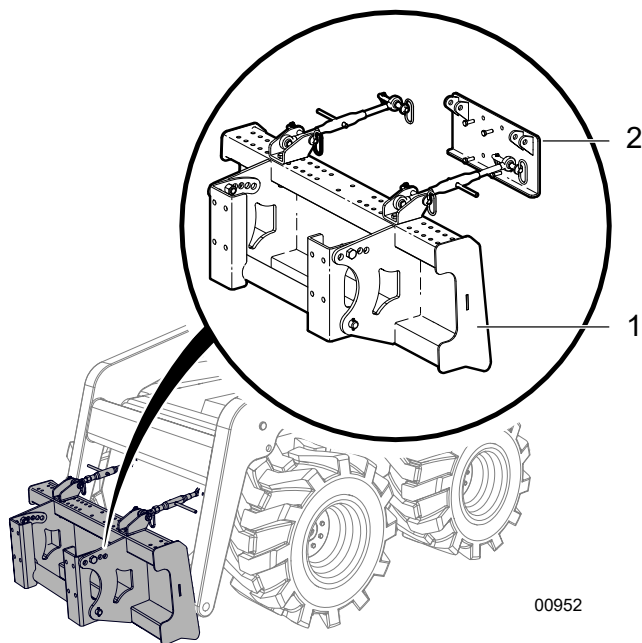
## 5.2.2 Skid Steer Universal Quick Attach Plate

Mounting a backhoe on a skid steer requires the Universal Quick Attach Plate (1) plus a machine-specific Tieback kit (2). The backhoe bolts directly to the quick attach plate. The kit includes flat face couplers.

Skid steer loaders require a tieback kit to properly and safely distribute the stress produced by a backhoe attachment.

The two main reasons for a skid steer tieback kit are:

1. Avoid inadvertent movement of skid steer controls while an operator is on the backhoe.
2. Reduce pressure spikes in hydraulic lines preventing damage to the hydraulic system.



**Fig. 8–** Mounting on a Skid Steer

1. Universal Quick Attach Plate
2. Tieback Kit (may not be exactly as shown)

If you intend on using this backhoe on a different model skid steer, a different Tieback kit is required.

## Three-point Hitch Mount

In some cases, a Wallenstein backhoe can be mounted on a 3-point hitch with one of the following kits:

**PT300 Three-point hitch CAT I**— Suitable for light duty digging only. For out-of-production tractors equipped with a CAT I three-point hitch for which no sub frame is available.

**PT322 Three-point hitch CAT II**—For tractors with engine power above 75 hp (56 kW) or equipped with a CAT II three-point hitch that do not require a subframe.

**NOTE:** *The GE605 backhoe is not designed or equipped to be used with a 3-point hitch.*

## PTO-driven Pump Kits

Tractors without rear hydraulics available for implements require a PTO-driven pump kit. The tractor must have a 1-3/8", 6-spline PTO shaft to fit the pump drive coupler. Shaft adapters cannot be used, and the tractor cannot operate at any speed other than 540 rpm.


It is not recommended that tractors with a variable speed PTO be used with the backhoe. Operating at speeds higher than 540 rpm can over speed the pump and cause early failures.

## 5.3 Installing the Backhoe

Place the backhoe in a flat, level area clear of other machines and equipment. Leave the backhoe on the shipping skid.

1. Make sure there is enough room and clearance to reverse the tractor up to the backhoe.
2. Stop close enough to the backhoe so the hydraulic lines can reach the couplers on the tractor.
3. Attach the hydraulic hoses. Use a clean rag or paper towel to clean any dirt from around the coupler on the hose end and on the tractor. Connect the pressure line to a circuit that has a detent (or on/off) control to allow for steady oil flow. Make sure the couplers are securely seated.

**IMPORTANT!** Return line has a black nipple cover. Pressure line has a red nipple cover.

 **NOTE:** The backhoe is equipped with a directional control valve that does not allow reverse flow if lines are connected incorrectly.

4. Attach the backhoe mount assembly to the backhoe main base bracket. Use the 5/8" NC bolts and nuts provided — 4 for each left- and right-hand side.
5. Use the dipper arm / stabilizer legs to tilt the bracket / backhoe on an angle, so that the bottom attach points line up with the hooks on the bottom of the sub-frame on the tractor.
6. Use the backhoe hydraulics to raise the bracket assembly into the bottom of the hooks for positive attachment.
7. Use the backhoe hydraulics to rotate the bracket assembly into the top attach points on the sub-frame. Rotate the bracket until it reaches the stop. The pin holes will then be aligned.
8. Insert the two welded universal pins into the pin holes and secure with lynch pins.
9. Install the toplinek. Check that all moving parts have clearance and do not interfere with the sub-frame.

### WARNING!

Hydraulic oil under pressure can penetrate the skin or eyes causing serious injury.

- Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard or wood, not your hand. Take care to protect hands and body from high-pressure fluids. Wear a face shield or goggles for eye protection.
- If an accident occurs, see a doctor familiar with this type of injury immediately.

W040

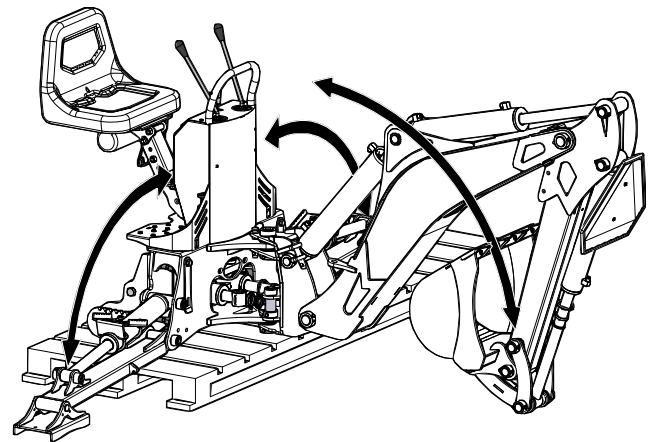


Fig. 9 – Tilting Backhoe on an Angle

**IMPORTANT!** Wallenstein backhoes have been designed to rigidly attach to the tractor or skid steer. Operating the tractor 3-point hitch or the skid steer bucket / loader controls should be avoided. Doing so can damage the subframe or skid steer tieback mount.

### WARNING!

Risk of crushing injury! Do not operate the backhoe without toplinek installed.

W059



## 6. Controls

### 6.1 Backhoe Controls

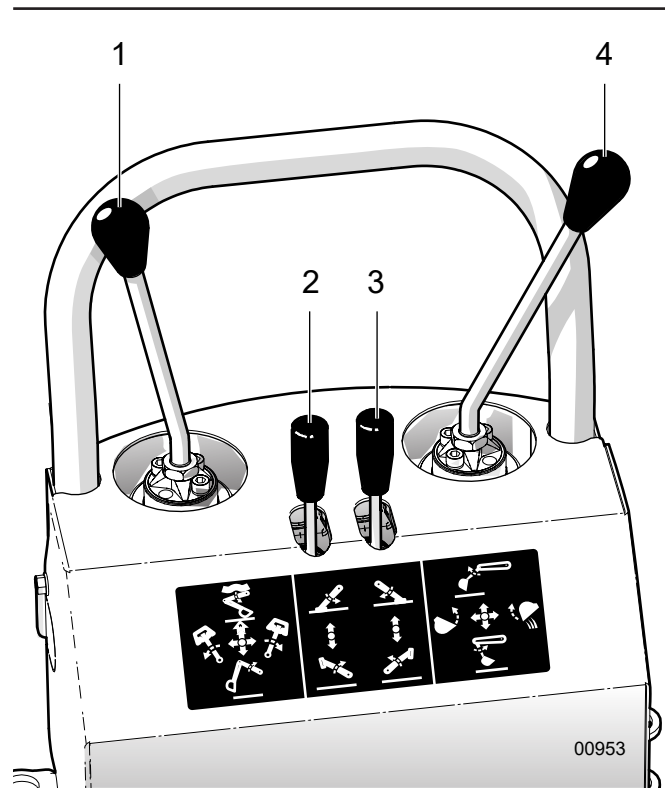
Wallenstein backhoe controls are configured in the SAE control pattern. All controls are mounted on top of the main frame within easy reach of the operator, when sitting in the seat.

**All operators should review this section of the manual to become familiar with the location and function of all machine controls before starting.**

#### **WARNING!**

**Do not operate the machine until you are thoroughly familiar with the position and function of the various controls. Read the operator's manual thoroughly. Your safety is involved!**

W065

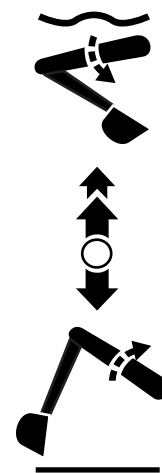
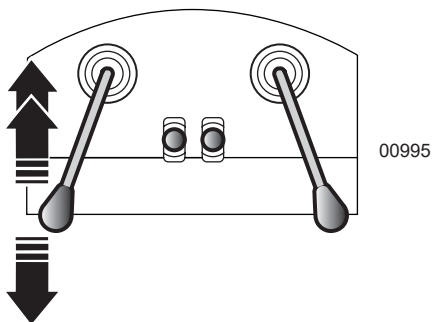


**Fig. 10**–Backhoe Controls

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. Main Boom Raise-Lower and Swing | 3. Right-hand Stabilizer          |
| 2. Left-hand Stabilizer            | 4. Dipper Boom and Bucket Control |

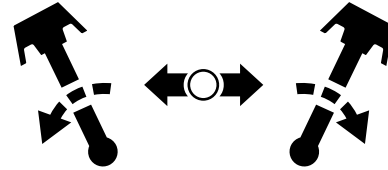
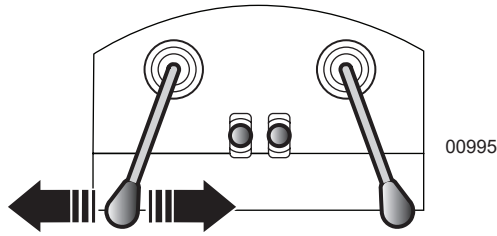
### Main Boom, Up–Down

- Push the left-hand control lever forward to lower the boom.
- Pull back on the lever to raise the boom.
- Push the lever all the way forward to the detent to place the boom in float.



### Boom Swing, Left–Right

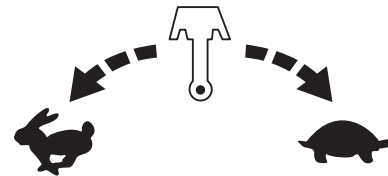
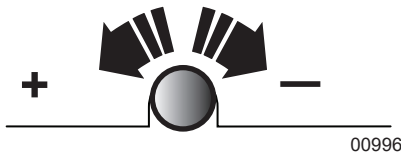
- Move the left-hand lever to the left to swing the boom left.
- Move the lever to the right to swing the boom right.



### Boom Swing Speed

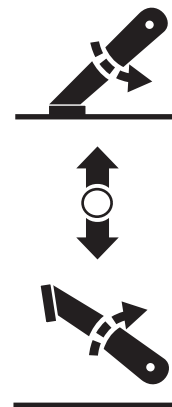
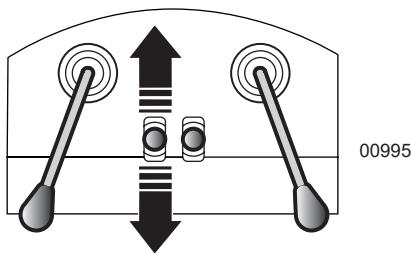
Turning the control valve knob on the lower console varies boom swing speed by changing the amount of oil flow to the circuit.

- Turn the knob right to slow boom swing speed. Turn it left to increase speed.



### Left-hand Stabilizer, Down–Up

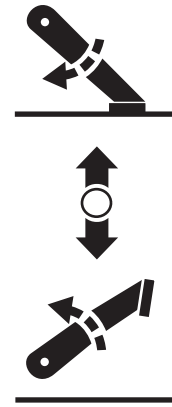
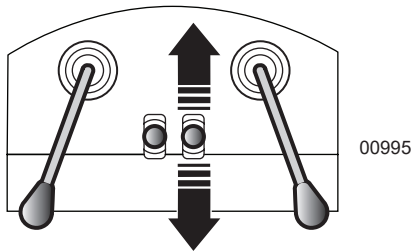
- Push the control lever second from the left forward to lower the left-hand stabilizer.
- Pull back on the lever to raise the stabilizer.





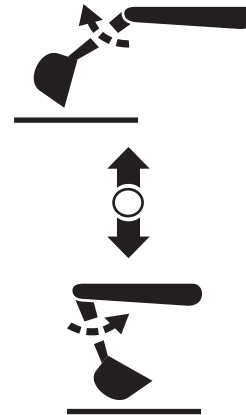
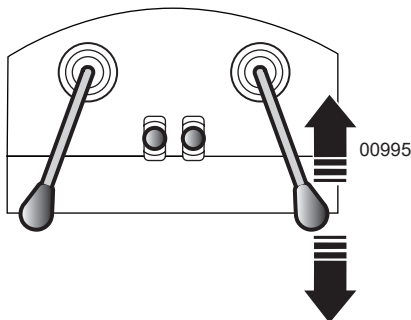
### Right-hand Stabilizer, Down-Up

- Push the control lever second from the right forward to lower the right-hand stabilizer.
- Pull back on the lever to raise it.



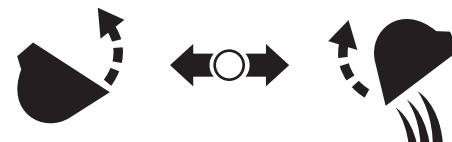
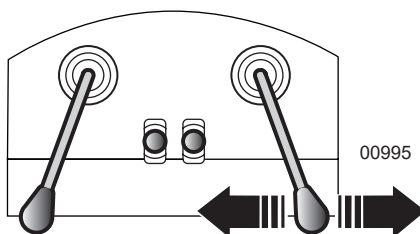
### Dipper (Stick) Boom, Away-Close

- Push the far-right control lever forward to extend the dipper boom.
- Pull back on the control lever to pull in the dipper boom.



### Bucket, Curl in (Close)-Curl out (Dump)

- Move the right-hand control lever to the left to curl the bucket in.
- Move the control lever to the right to dump the bucket.



## 6.2 Main Boom Lock and Swing Lock Pins

Swing lock and boom locks pins are provided to secure the boom when servicing or traveling. The pins prevent the boom from swinging and keep it in the fully raised position.

Insert the pins with lynch pin retainers before servicing or traveling with the backhoe.

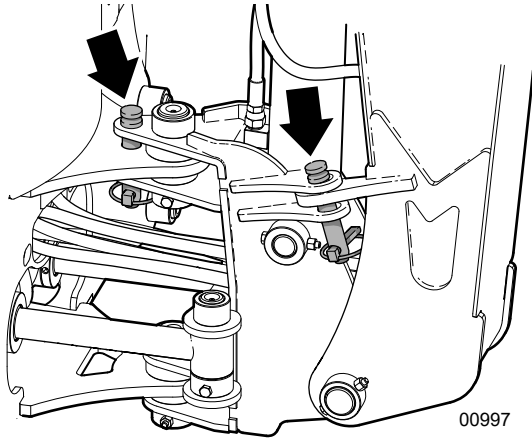


Fig. 11 – Lock Pins

## 6.3 Stabilizer Lock Plates

Stabilizer lock plates are located on both sides of the GX720, GX920 and GX920XT models. The lock plates secure the stabilizers in place when traveling with the backhoe.

Raise the stabilizer up and swing the lock plate into position to lock it.

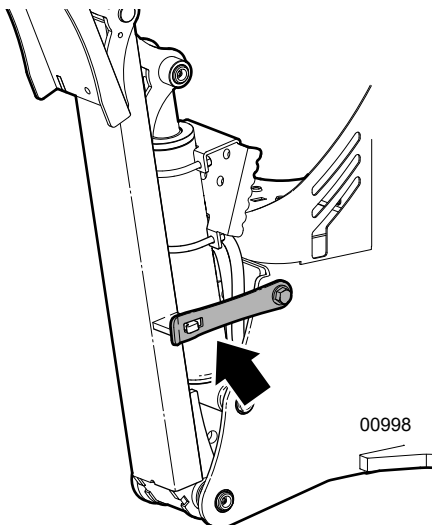


Fig. 12 – Stabilizer Lock Plates

## 6.4 Extendable Dipper Control (GX920XT)

The GX920XT has an extendable dipper stick to provide extra reach. It is capable of hydraulically extending an extra 24" (61 cm). The extension allows digging to depths of 11'-4" (3.5 m).

A foot pedal on the left-hand side of the console controls the extender cylinder. Flip the pedal cover up to use the foot pedal control.

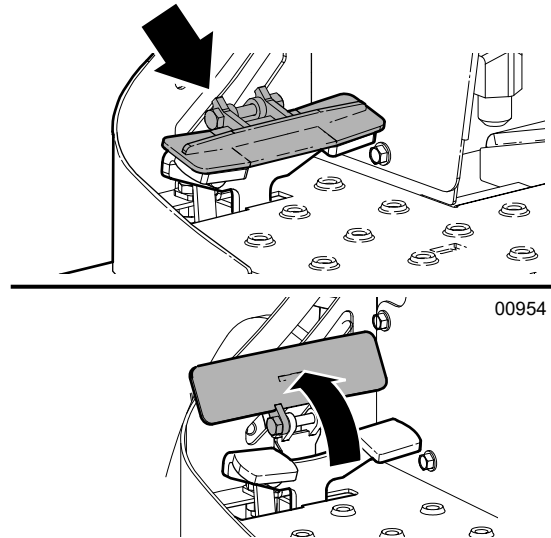


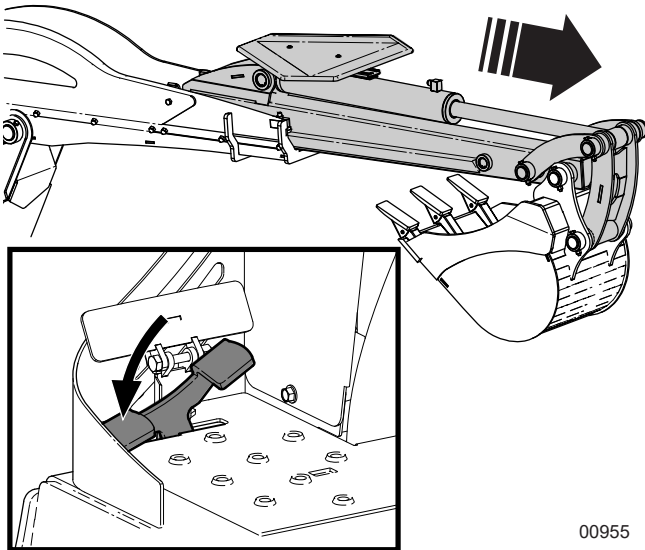
Fig. 13 – Foot Control Cover

### CAUTION!

**Operation hazard – Replace the foot control cover when not in use. Backhoe could move unexpectedly.**

W066

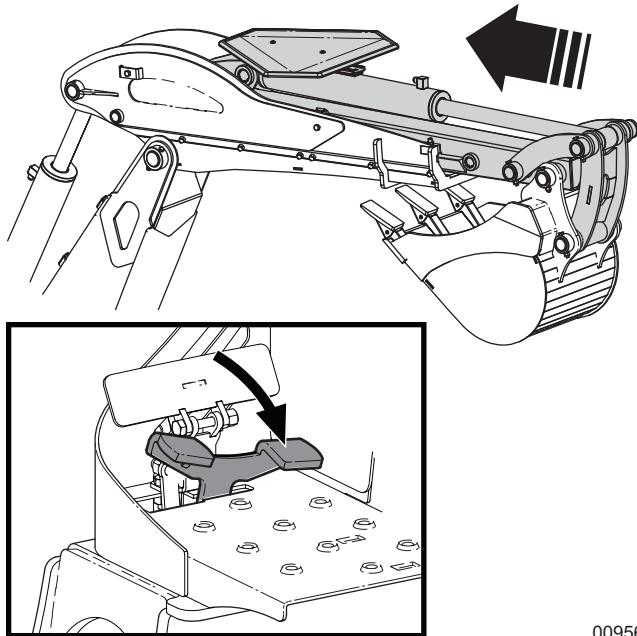
- Push down on the left-hand side of the pedal and hold to extend the boom. Releasing the pedal stops boom movement.



00955

**Fig. 14—Extend Dipper Boom**

- Push down on the right-hand side and hold to retract the boom.



00956

**Fig. 15—Retract Dipper Boom**

In the center position, the extender is stationary. When not in use replace the foot control cover.

When retracted, the bucket and dipper stick can curl up tight to the boom for easy travel and compact storage.

## 6.5 Hydraulic Thumb

### (If Equipped)

A hydraulic thumb is available as a factory-installed option on GX720 and GX920 backhoes. The hydraulic thumb must be ordered with the backhoe at the time of manufacture. It cannot be installed afterwards.

The thumb cannot be installed on a GX920XT (with extendable dipper arm). There is no provision for mounting it with the telescopic dipper, and no provision for operating it in the hydraulic circuit.

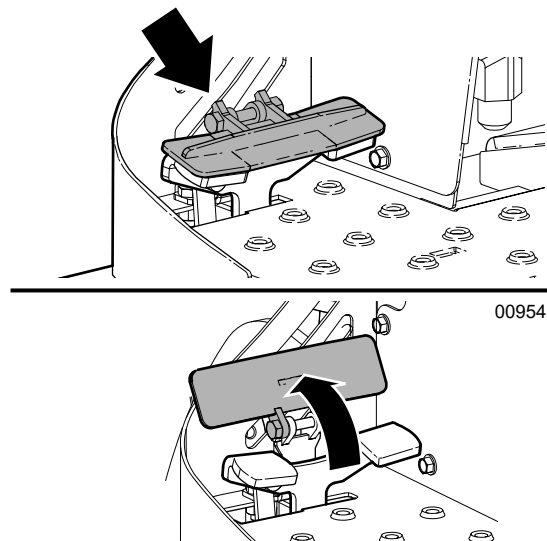
The hydraulic thumb makes it easier to pick, hold and move awkward material such as rocks, concrete, branches, and debris that does not fit into the bucket. Use the thumb for grasping objects between the thumb and bucket for precision material handling, land clearing, and utility applications.

### 6.5.1 Operation

The hydraulic thumb has been designed to match Wallenstein backhoes and buckets. The thumb can be fully retracted against the boom for full unobstructed use of the bucket.

Become familiar with the added weight when picking up a load with the thumb. Use caution to avoid sudden stops and starts.

A foot pedal on the left-hand side of the console controls the thumb cylinder. Flip the pedal cover up to use the foot pedal control.



00954

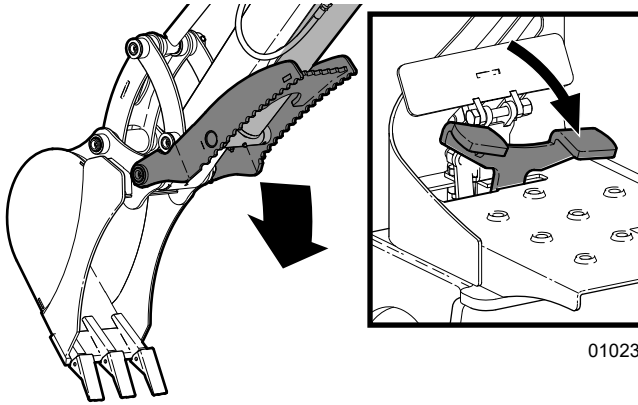
**Fig. 16—Foot Control Cover**

## ⚠ CAUTION!

**Operation hazard – Replace the foot control cover when not in use. Backhoe could move unexpectedly.**

W066

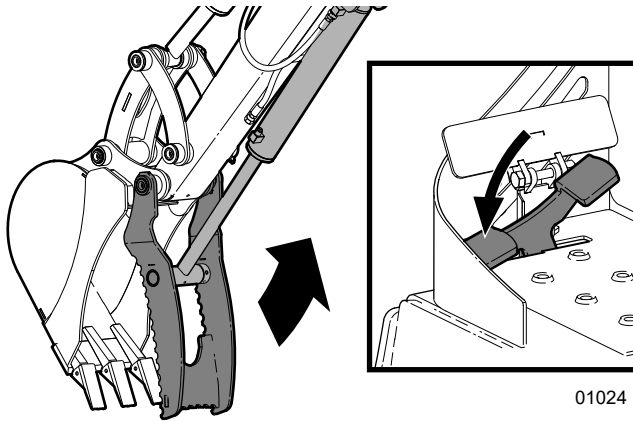
- Push down and hold on the right-hand side of the pedal to close the thumb on the bucket. Releasing the pedal stops thumb movement.



01023

**Fig. 17**–Close the Thumb onto the Bucket

- Push down and hold on the left-hand side to open the thumb.



01024

**Fig. 18**–Open the Thumb

In the center position, the thumb is stationary. When not in use replace the foot control cover.

When fully retracted, the thumb can curl up tight against the dipper boom for easy travel and compact storage.

## 6.5.2 Improper Usage

Do not use the thumb to rake material, to push off or pull material, or to pry or dislodge objects. Do not use the side of the thumb to move material. Never use the thumb as a lifting device with ropes or chains. Never slam the thumb into the stored position.

## 6.5.3 Maintenance

Grease the thumb every **8 hours** of operation.

# 7. Operation

## 7.1 Jobsite Safety

- For safety of others during operation, set up a **Work Zone** around the machine. Mark the area with safety cones. See *2.8 Work Zone on page 11*.
- Plan your excavation ahead of time. Determine where excavated soil will be dumped. Position the machine to minimize swinging distance between digging and dumping. The shorter the travel distance, the faster the dig / dump cycle and more work that can be done.
- Be aware of buried or overhead wires, cables, pipes or other obstructions. Contact your local utility company to mark their location.
- If working in a close or cramped space, be sure there is sufficient room for the machine to dig, swing, and dump. Modify the work site to provide more area. Unplanned contact with adjacent buildings, equipment or terrain can cause loss of control leading to injury or damage.
- Be aware of prevailing winds. Set-up the work site so prevailing winds blow exhaust, dust, and debris away from the operator. As a result, the work zone becomes safer as vision is not be obscured while digging and dumping.
- Do not operate inside a building. Gas and diesel engines produce carbon monoxide that can cause asphyxiation.
- Be aware of bystanders. Do not position the backhoe where there could be bystanders, on-lookers or unauthorized personnel. Stop the machine if anyone enters the working area. There is always the risk of someone getting in the way or getting pinched / caught by components. Do not resume work until the work zone is clear.
- Keep the tractor wheels in contact with the ground to provide the widest stabilizer stance and the lowest center of gravity.


## 7.2 Before Startup

Each operator must be trained in the proper operating procedures prior to operating the machine.

- Review location of the controls, their function, and movement direction when activated.
- Follow the Pre-Operation Checklist.
- Set up the machine correctly. See *Machine Set-up on page 30*.

### 7.2.1 Pre-operation Checklist

Before operating the machine, check the following:

<b>Pre-operation Checklist</b>	
Check that the backhoe is properly attached to the power unit. Be sure retainers are used on the mounting pins and mounting hardware is tightened to their specified torque.	
Check that hoses and pivot points are free of any debris or entangled material.	
Check the machine has been lubricated following the schedule outlined in the Maintenance section.	
Check that all boom assembly pivot points move freely.	
Check that stabilizers move freely.	
Check that hydraulic hoses are not rubbing anywhere, pinched or crimped.	
Check for hydraulic leaks. Tighten connections or replace components to stop leaks.	
Check and ensure that all covers, guards and shields are in place, secured, and can function as designed.	
Check and tighten all fasteners. Make sure the equipment is in good condition.	
Check that appropriate equipment for personal protection is available and being used.	
Check that jewelry, loose-fitting clothing are not worn. Make sure long hair is tied back.	

## 7.3 Machine Set-up

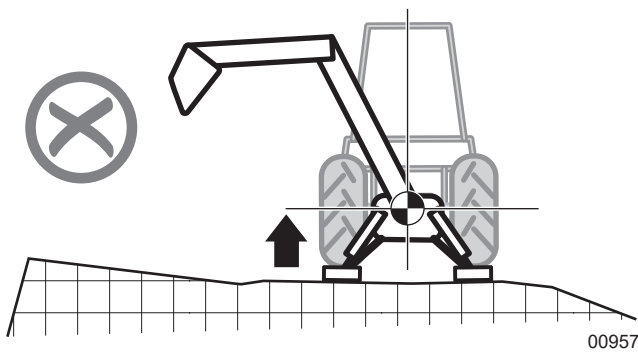
### CAUTION!

**Collision hazard!** When operating the boom and stabilizers during setup, make sure the area is clear of bystanders. The operator must be safely seated, and a work / safe zone is clearly defined. Run the engine at low speeds and proceed cautiously.

W068

1. Position the machine at the work site and set the park brake.
2. Set the stabilizers down to remove some of the weight from the tires.
3. On a tractor, lower the front bucket and set the stabilizers to remove some weight off the tires. Keep the tires in contact with the ground.

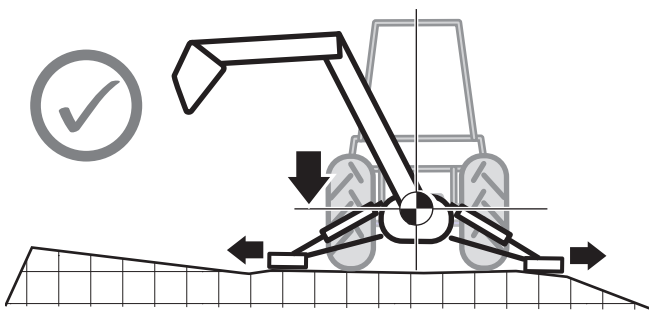
Raising the wheels off the ground reduces stability and digging depth and causes unnecessary stress on the stabilizers and backhoe.



00957

**Fig. 19**—Center of gravity too high

The wheels must remain in contact with the ground as this provides the widest stabilizer stance and the lowest centre of gravity.



00958

**Fig. 20**—Stabilizers lowered. Tires in contact with the ground.

4. Remove the main boom swing lock pin.

### WARNING!

**Stability Hazard for Tractors!** Use the front-end loader and backhoe stabilizers to relieve some weight off the tractor tires. Using the backhoe with tires raised off the ground could result in damage to the tractor or the backhoe subframe.

W070

## 7.4 Machine Break-in

Although there are no operational restrictions on the backhoe when used for the first time, it is recommended that the following mechanical items be checked:

### After operating for 1/2 hour—

1. Check all nuts, bolts and other fasteners. Tighten to torque specification. See *page 43*.
2. Check the condition of all hydraulic lines, hoses and fittings. Replace any that are damaged. Re-route those that are rubbing, pinched or crimped. Tighten any fitting that is leaking.
3. Check the condition of the teeth on the bucket. Replace any that are bent, chipped, broken or missing.
4. Check the oil level in the hydraulic reservoir if so equipped. Add as required.
5. Check the boom, dipper and bucket pivot pins. Be sure all are anchored securely in position.
6. Check the stabilizer pins are in place.
7. Lubricate all grease points (refer to Maintenance Section for their location).
8. After operating the machine for 5 and 10-hour periods, repeat steps 1–7.

## 7.5 Safe Operating Techniques

The backhoe must be installed on the machine, set up and otherwise ready to operate. Tractor / skid steer manual should also be reviewed before starting.

### 7.5.1 Working on Slopes

Use extreme caution when excavating on a slope. Always lower the stabilizers and bucket. If the ground is soft, use pads or timbers under the stabilizers.

Do not attempt excavating on a slope while the backhoe is positioned on an angle. The danger of a tip over is greater as the center of gravity moves to the downside of the backhoe.

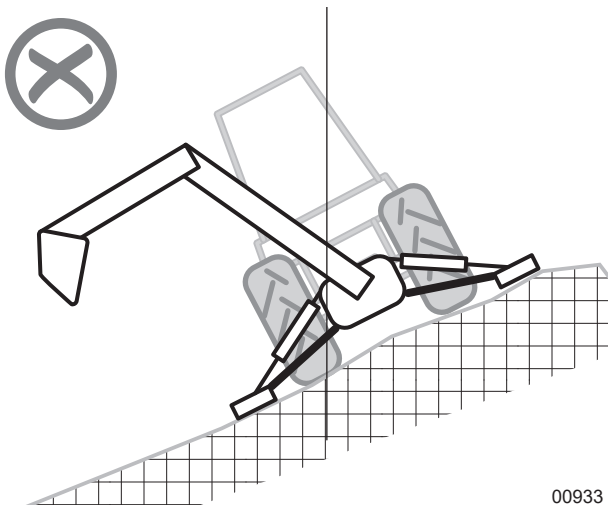


Fig. 21 – Tip Over Hazard

Backhoes are designed to work with the frame horizontal. The stabilizers are used to level the machine. If this is not the case, planks or blocking can be placed under the stabilizers to level the machine. All four wheels must be touching the ground.

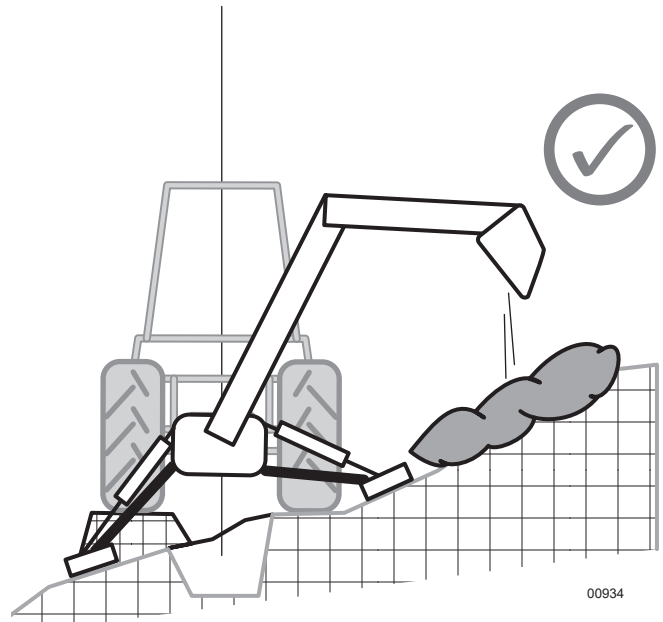


Fig. 22 – Swing boom up slope when possible

Refrain from swinging the boom to the downside of the hill. Danger of tip over is much greater since the center of gravity moves further to the downside of the backhoe as swing increases.

For the greatest stability, always swing the boom up slope. If swinging down slope must be done, do so with extreme caution. Swing only as far as necessary to dump the bucket.

### 7.5.2 Excavating

Always lower the stabilizers and front loader bucket. If the ground is soft, use pads or place wood blocking under the stabilizers.

Do not undercut the stabilizers. Doing so could cause the stabilizer to give way and the backhoe could tip over into the excavation.

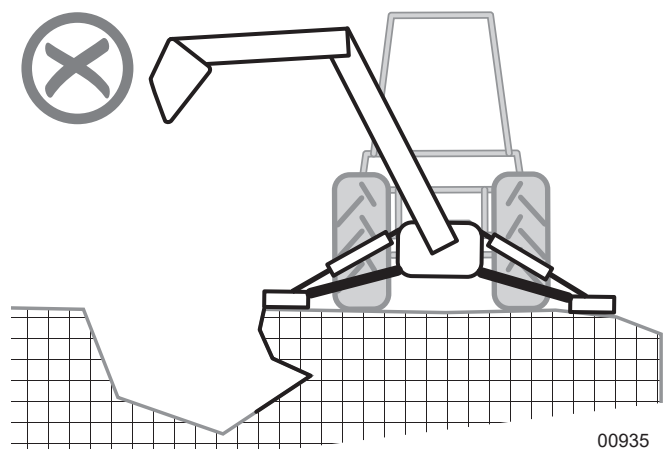


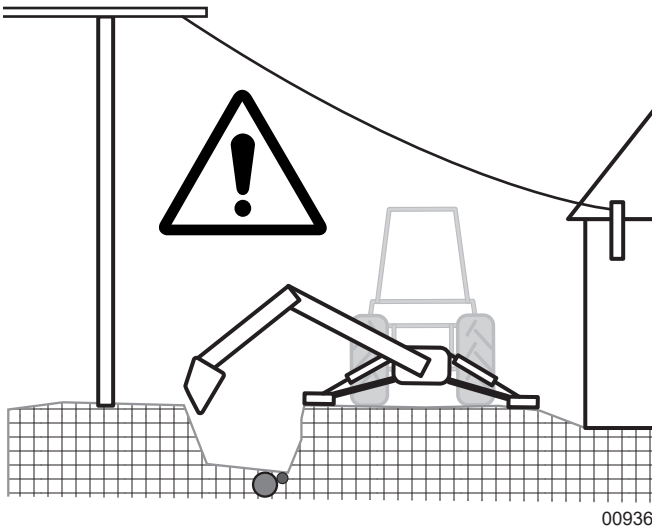
Fig. 23 – Do not undercut the stabilizers.

**WARNING!**

**Underground utility hazard. Contact an underground utility locating and marking service before digging.**

W017

Always have an underground utility locating/marketing service survey the area before digging. Be aware of overhead hazards.



00936

**Fig. 24**—Be aware of underground and overhead hazards

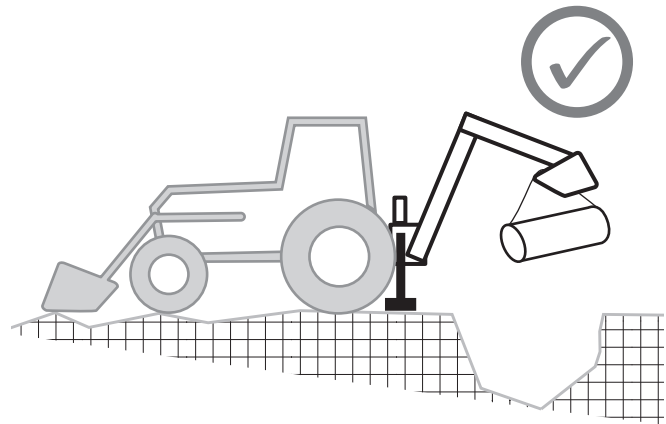
### 7.5.3 Using the backhoe for lifting or moving a load

Always lower the stabilizers and front loader bucket.

Always position the machine so the backhoe is lifting in line with the frame.

When moving while carrying a load, travel slowly and be aware along the travel path.

Use a tag line to keep the load from swinging. Refrain from swinging the boom when transporting a load. An uncontrolled swinging load could cause serious injury or death.



00937

**Fig. 25**—Lower stabilizers and front bucket before lifting a load

### Boom Lift Capacity

Do not lift objects that are beyond the lifting limits of the backhoe. The values in the table below are with the boom fully extended, at 3 ft (1 m) off the ground.

Model	Lifting Capacity
GE605	250 lb (113 kg)
GX620	385 lb (175 kg)
GX720	925 lb (420 kg)
GX920	750 lb (340 kg)
GX920XT	710 lb (322 kg) Retracted
	580 lb (263 kg) Extended

### 7.6 Digging with the Backhoe

1. Increase engine speed to mid-range or rated PTO rpm.
2. Engage hydraulic circuit or place hydraulic control in detent. If you have the optional PTO pump, engage PTO (refer to tractor manual).
3. Remove the boom swing and boom lock pins.
4. Swing the driver's seat around or take position in the operator's seat. Use the controls to begin digging.
5. Swing the dipper out and adjust bucket so the teeth can dig into the ground at a slight angle. Lower the boom down to set teeth into the ground. Keep the heel of the bucket up higher than the teeth.
6. Retract the dipper to pull the bucket through the soil as it fills. Slowly close the bucket at the same time. If necessary, apply a downward pressure on the boom to increase digging force.



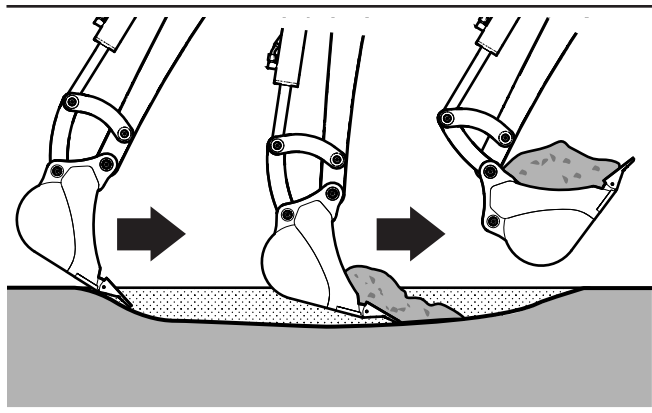


Fig. 26—Digging with the Dipper Boom

7. Curl the bucket up when full. Raise the boom and at the same time, move the dipper out a little to keep soil from building up under the machine.

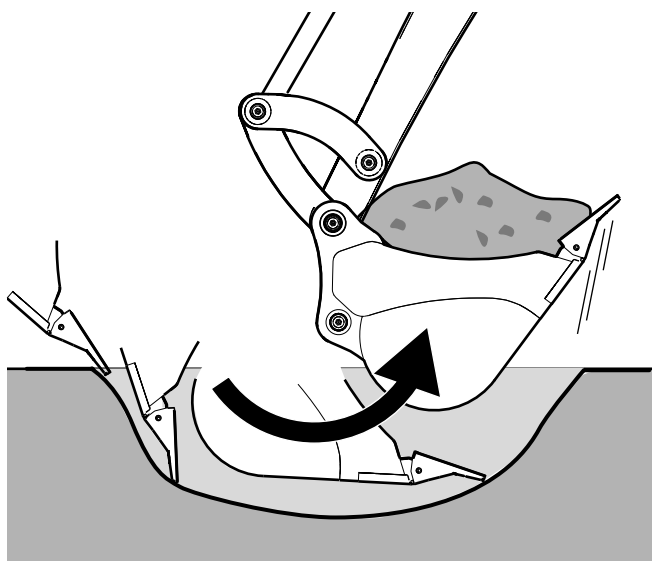


Fig. 27—Digging with Bucket

8. Swing away from your excavation and dump the bucket. Start dumping as the bucket approaches the pile. Do not waste time by dumping too far from the excavation. Swing back to start the next dig.
9. Deepen the dig with each pass.

**IMPORTANT!** Do not use the side of the excavation to stop the bucket. The backhoe could be damaged.

## ⚠ CAUTION!

**Operation Hazard!** Under certain conditions it is possible to contact the stabilizers with the bucket.

Always be aware of the location of the bucket. Maintain the 3 ft (1 m) safety zone around the stabilizers.

W069

## 7.7 Stopping and Parking the Machine

Park the machine on dry, level ground.

1. Lower the boom to the ground.
2. Set the parking brake.
3. Allow the engine to idle for 5 minutes to cool.
4. Turn the hydraulic circuit OFF or disengage the PTO clutch (as equipped).
5. Turn ignition to OFF and remove the key.
6. Turn battery disconnect switch OFF (if equipped).
7. Dismount the machine using three points of contact. Step only on non-slip surfaces.

## 7.8 Stopping in an Emergency

Know your machine controls and how to stop engine and attachment quickly in an emergency.

1. Immediately release all controls to neutral to stop backhoe movement.
2. Carefully and quickly step off the machine. Be careful not to touch the hydraulic control levers unintentionally.
3. Use three points of contact, facing the machine. Do not jump—clothing, boot laces and so on can catch on levers or other protruding parts.
4. Turn the tractor ignition switch to OFF when safe to do so.

## 7.9 Transporting

### 7.9.1 Transport Safety

- Follow provincial / state and local laws governing safety and transporting of machinery on public roads.
- Follow local laws for all highway lighting and marking requirements.
- Do not exceed 20 mph (32 km/h). Use flashing amber warning lights, and a Slow Moving Vehicle (SMV) sign. Reduce speed on rough roads and surfaces.
- Plan your route to avoid heavy traffic.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, and so on. Watch for traffic when operating near or crossing roadways.
- Turn into curves or go up or down hills only at a low speed and a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steering capability. Slow down on rough or uneven ground.
- Never allow riders.
- Ensure the backhoe is in transport mode with the main boom and boom swing lock pins and retainers installed.

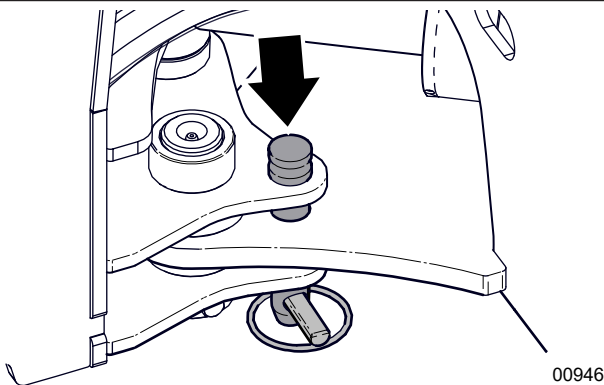


Fig. 28—Boom swing lock pin installed (GE605)

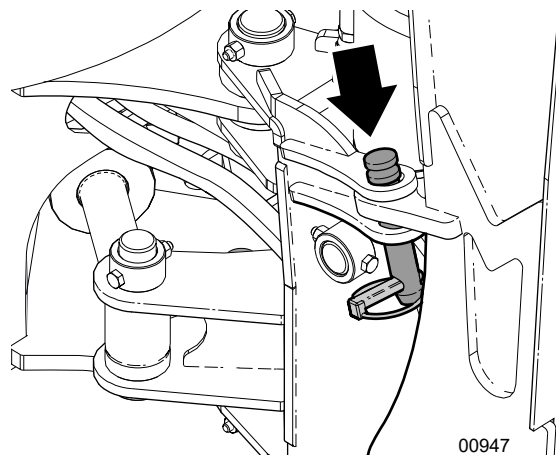


Fig. 29—Boom lock pin installed

### 7.9.2 Preparing to Transport the Backhoe

1. Be sure all bystanders are clear of the machine.
2. Clean off any debris on the backhoe and bucket.
3. Fully retract the boom and bucket.
4. Install the swing lock and boom lock pins. Install the lynch pin in each lock pin.
5. Be sure the Slow Moving Vehicle sign is on the backhoe dipper boom. Make sure it is clean and in good condition.
6. GX720, GX920, GX920XT models—install the stabilizer locks.

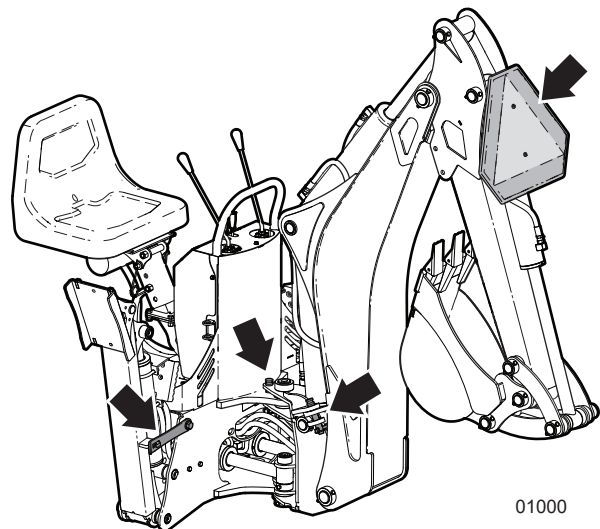



Fig. 30—Transport Position

## 7.10 Storage

After the season's use or and the backhoe is not going to be used for a period of time, disconnect it from the machine and place it away in storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at next use.

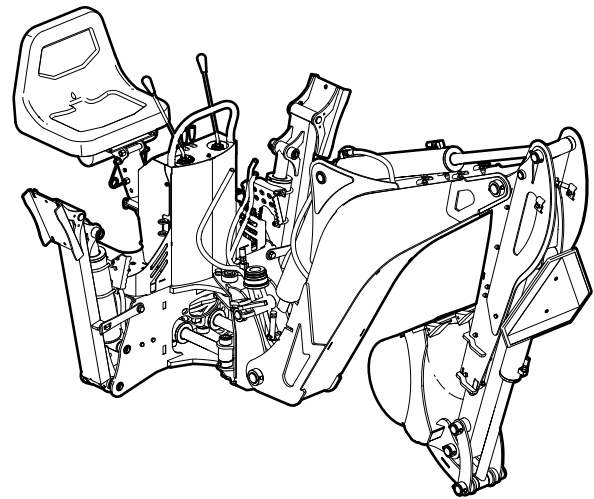
 **NOTE:** *If the backhoe is mounted on a tractor, the subframe should remain on the tractor on not be removed.*

To ensure a long, trouble-free life for your backhoe, follow these steps:

1. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, and debris.
2. Inspect the bucket, dipper, and boom for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.
3. Check the oil in the optional reservoir (if so equipped). Add as required.
4. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
5. Touch up all paint nicks and scratches to prevent rusting.
6. Store the machine in an area away from human activity. Select an area that is dry, level and free of debris.
7. Place blocks or planks under the base and bucket.
8. Unhook from tractor.
9. Put plastic caps on hose ends and stow hoses in storage brackets to keep them off the ground.
10. Apply a coat of heavy grease to exposed cylinder rams to prevent rusting.
11. If the machine cannot be placed inside, cover with a waterproof tarp. Tie securely in place.
12. Do not allow children to play on or around the stored machine.

### 7.10.1 Removing the Backhoe from Storage

1. Hook up the backhoe to the machine.
2. Check oil level. Add if required.
3. Check all hardware. Tighten as required.
4. Check all hydraulic lines, fittings and connections for leaks.
5. Lubricate all grease fittings.
6. Clean off cylinder rams.
7. Go through the pre-operation checklist before using. See *page 29*.



**Fig. 31** – Storage Position

## 8. Service & Maintenance

### CAUTION!

**Do not risk injury by working in an unsafe situation. Take steps to make the machine safe to work on before performing any maintenance or service procedure.**

**Follow steps listed to put the machine in a Safe Condition.**

W049

#### Safe Condition

- Install boom and swing lock pins, or rest bucket on ground.
- Shut off hydraulic system.
- Set parking brake and shut off engine. Remove ignition key.
- Ensure all components have stopped moving.
- Block or chock wheels.

### 8.1 Maintenance Safety

- Have at least two workers present when performing maintenance on this equipment. Never work alone in case an emergency should arise.
- Keep service area clean and dry.
- Never operate the engine in a closed building. Make sure there is plenty of ventilation. Exhaust fumes can cause asphyxiation.
- Never work under unsupported equipment.
- Use only genuine OEM replacement parts. The manufacturer is not responsible for injuries or damage caused by the use of non-approved parts or accessories.
- Make sure all safety shields and devices are re-installed when a maintenance or service procedure is finished.
- Do not use gasoline or diesel fuel when cleaning any parts. Use a regular cleanser.
- Use proper tools that are in good condition. Make sure the procedure is understood before performing any service work.

#### 8.1.1 Hydraulic System Safety

- Make sure that all the components in the hydraulic system are kept clean and in good condition.
- Make sure all components are tight, and that lines, hoses and couplings are not damaged before applying pressure to the system.
- Do not use your hand to check for hydraulic oil leaks. Hydraulic fluid escaping under pressure can penetrate the skin causing serious injury. Use a piece of cardboard.



- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak.



- Seek medical attention immediately if injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. Doing so can cause sudden failure and create a hazardous and unsafe condition.
- Relieve pressure on the hydraulic system before working it. The hydraulic system operates under extremely high pressure.
- Replace any hydraulic hose immediately that shows signs of swelling, wear, leaks or damage before it bursts.
- Do not bend or strike high-pressure lines, tubes or hoses, or reinstall them in a bent or damaged condition.
- Check to make sure hydraulic hoses are not worn or damaged, and are routed to avoid chafing.
- Never adjust a pressure relief valve or other pressure-limiting device to a higher pressure than specified.

## 8.2 Maintenance Schedule

Perform maintenance procedures at time shown or hour interval, whichever comes first.

As Required Maintenance	
Remove any entangled material from backhoe.	
Check that all fasteners are tight.	
Check the condition of all hydraulic lines, hoses, and fittings. Replace any that are damaged. Re-route those that are rubbing, pinched, or crimped. Tighten any fitting that is leaking. Ensure fittings are clean and free of dirt.	

Every 8 hours of operation or daily	
Grease Backhoe	See page 38

Every 50 hours of operation or weekly	
Grease PTO shaft (if equipped)	—
Check condition of bucket teeth	—

Every 100 hours of operation or annually	
Clean machine—remove any entangled material or debris build-up.	—
Check oil level in PTO Pump Kit reservoir (if equipped)	—

Every 500 hours of operation	
Replace return filter on PTO Pump Kit (if equipped)	—

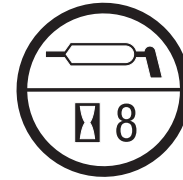
## 8.3 PTO Pump Kit

If the backhoe is equipped with a PTO pump kit, check the oil level every 100 hours. If adding oil, use Dexron® III Automatic Transmission Fluid (ATF). Dexron VI or Mercon® ATF are also acceptable substitutions.

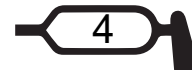
Check that all circuit connections are tight.

## 8.4 Grease Points

Look for this decal on your machine, it indicates a grease point and the number of hours between greasing.



Refer to Fig. 32—Grease Points (typical on all models) on page 38. Look for the following symbol on the drawing. It shows the number of grease points at each location.




Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium-based grease.

Grease the backhoe regularly to keep it working efficiently and extend machine life. Use a hand-held grease gun. Normally two shots per fitting is enough, but pump grease until it is visible at the joint.

- Wipe off grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
- If fittings do not take grease, remove and clean them thoroughly. Replace grease fittings as necessary.

Always grease the machine after pressure-washing it.

### 8.4.1 GX920XT

 **NOTE:** The plastic guides on the GX920XT extendable boom do not require lubrication.

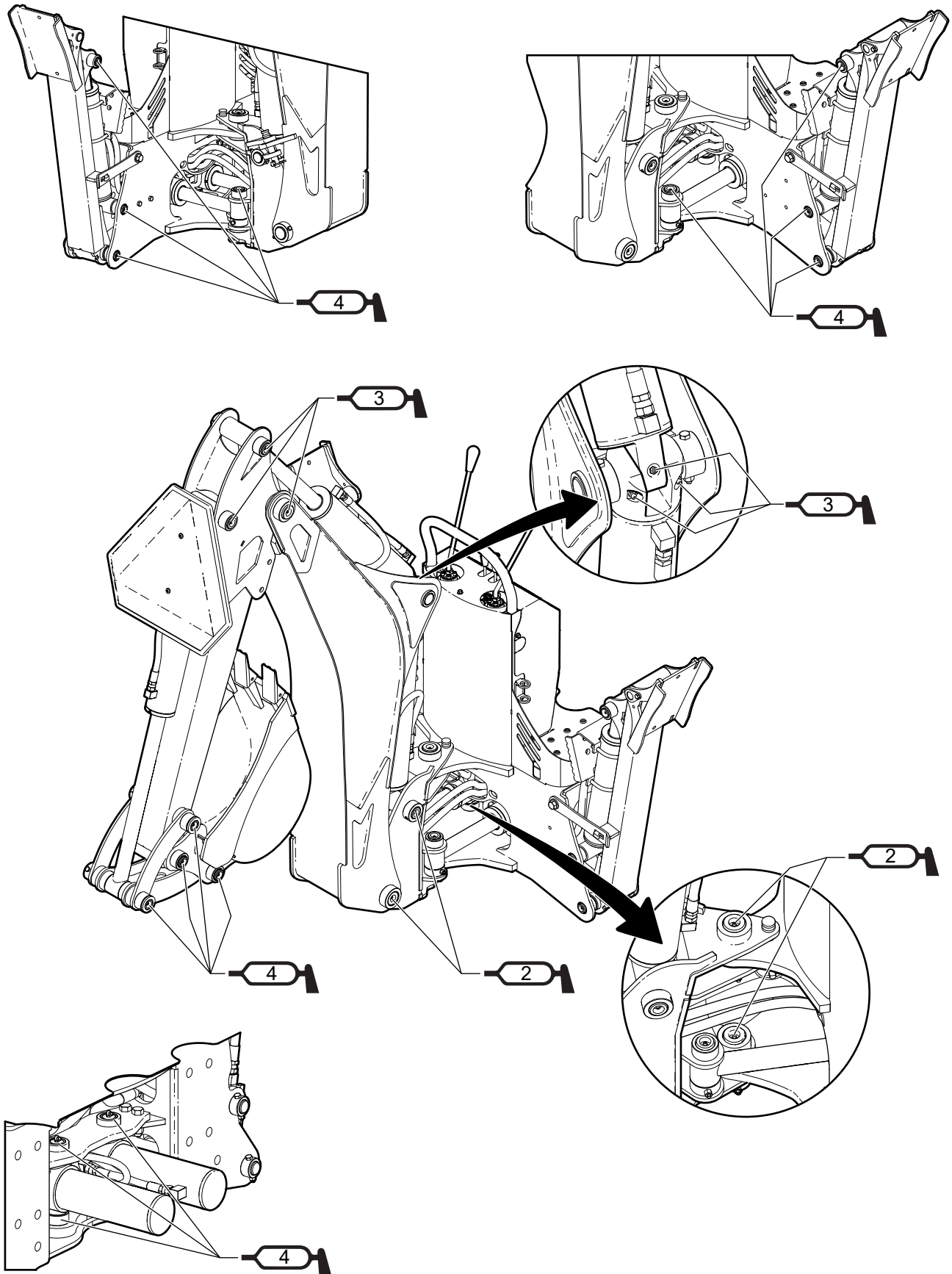


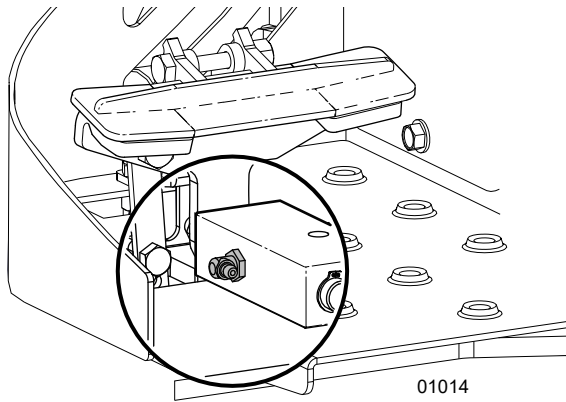
Fig. 32—Grease Points (typical on all models)

## 8.4.2 Foot Pedal

### (If Equipped)

On machines equipped with the foot pedal, there is one grease point accessible under the floor plate.

**Grease one shot annually.**

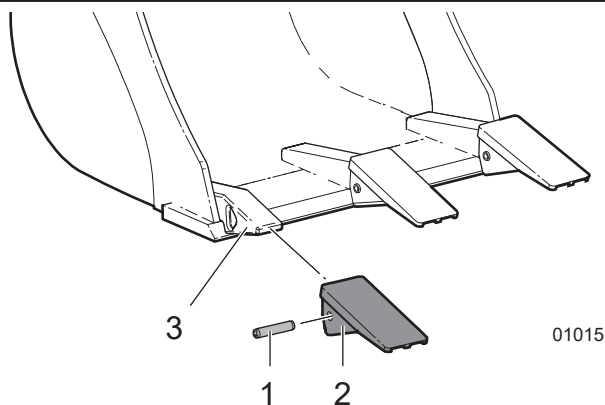


**Fig. 33**—Foot Pedal Grease Point

## 8.5 Bucket Teeth, Changing

**Check bucket teeth condition weekly.** Replace if bent, damaged, or worn out.

1. Bucket teeth are held in place with a roll pin (1). Drive out the roll pin to remove the tooth (2).
2. Clean the shank (3) with a wire brush.
3. Install the new tooth as shown, then drive the roll pin back in to hold it on.



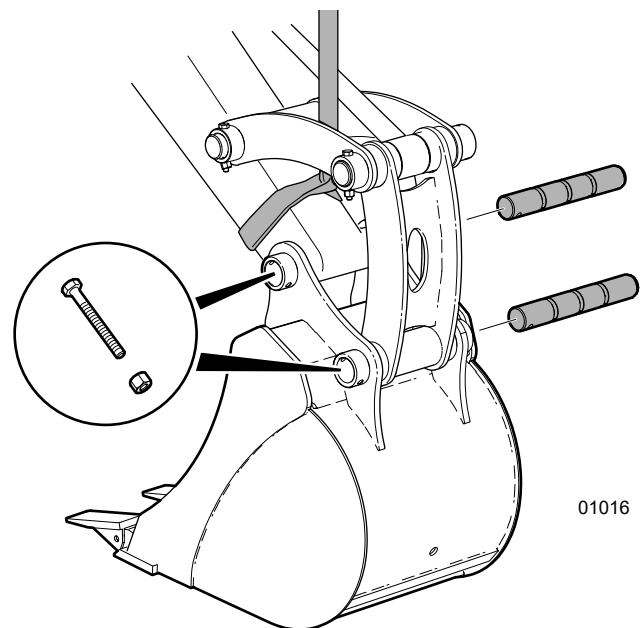
**Fig. 34**—Bucket Teeth

1. Roll Pin
2. Tooth
3. Tooth Shank

## 8.6 Bucket, Removing

If changing to a different accessory or size of bucket, support the boom so that the bucket is resting on the ground. Make sure the boom cannot move unexpectedly when the pins are driven out.

1. Remove retaining bolts and nuts that secure the pins.
2. Carefully drive the pins out. If the pins do not move, shift the boom, link, or bucket (be careful that the bucket doesn't drop). Do not pound hard on the end of the pin. It could mushroom and become stuck.
3. Remove the bucket and position the new attachment in place.
4. Clean and lightly grease the pins.
5. Insert the pins and carefully drive them in. Adjust the position of the boom or link as required.
6. Install the retaining bolts and nuts.
7. Lubricate both pins through the grease fitting on the end before putting the backhoe into operation.



**Fig. 35**—Bucket Removal

## 9. Troubleshooting Guide

If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, contact your local dealer, distributor or Wallenstein Equipment. Know your machine serial number. See *Serial Number Location* on page 5.

Problem	Cause	Solution
<b>Cylinder rods do not move or move slowly.</b>	No pressurized hydraulic oil.	Oil filter plugged. Change filter. Low hydraulic oil level. Add oil to reservoir.
	Pressure and return hoses to backhoe are reversed.	Change hose connections.
	Not enough oil flow.	Flow control set too low. Adjust for more flow.
	Stuck / damaged / mismatched couplers.	Clean or replace couplers. Make sure mating couplers are same style.
	Check valve stuck.	Clean or replace.
	Engine speed too slow.	Increase engine speed to correct rpm.
<b>Cylinder movements jerky.</b>	Hydraulic system leak. Air in hydraulic system.	Tighten all hydraulic connections. Cycle cylinders to remove air.
<b>Control handle does not go to neutral when released.</b>	Return springs collapsed.	Check and replace if required.
	Control valve may be damaged.	Call technician. Valve may need to be serviced or replaced.
<b>Hydraulic hose leaking.</b>	Hose worn or damaged.	Replace hose. Check hose routing to avoid chafing or rubbing.
	Loose hose connection. Adapters or hose ends damaged.	Tighten or replace if damaged.
<b>Cylinder leaking oil.</b>	Seals worn.	Call technician. Seal replacement may be required.
<b>Hydraulic system behaving erratically.</b>	Mismatched control valve. Valve type must be same as tractor hydraulic circuit (open or closed center).	Determine if hydraulic system on tractor is open or closed center. Make sure is same.
<b>Boom drifts down.</b>	Seals leaking (bypassing).	Replace seals.
	Counterbalance valve defective.	Repair or replace.
<b>Boom does not swing or swings slowly.</b>	Boom swing lock pin in place.	Remove boom lock pins before starting work.
	No oil pressure.	Oil filter plugged. Change filter. Low hydraulic oil level. Add oil to reservoir.
	Oil flow too low.	Flow control set too low. Adjust control to increase flow.
	Engine speed too low.	Increase speed to correct rpm.



# 10. Specifications

## 10.1 Machine Specifications<sup>1</sup>

Model	GE605	GX620	GX720	GX920	GX920XT
Digging Depth	6' 4" (193 cm)	6' 4" (193 cm)	7' 8" (234 cm)	9' 4" (284 cm)	9' 4" (284 cm)
Digging Depth (extended)	N/A	N/A	N/A	N/A	11' 4" (345 cm)
Engine HP Range (Tractor)	15 – 35	20 – 40	30 – 65	45 – 120	60 – 120
Engine HP Range (Skid Steer)	—	20 – 50	30 – 75	45 – 120	60 – 120
Required Hydraulic Flow	4 – 12 gpm (15 – 45 Lpm)	4 – 12 gpm (15 – 45 Lpm)	5 – 27 gpm (19 – 102 Lpm)	5 – 27 gpm (19 – 102 Lpm)	5 – 27 gpm (19 – 102 Lpm)
Stabilizer Width (Spread)	72" (183 cm)	74" (188 cm)	89" (226 cm)	89" (226 cm)	89" (226 cm)
Main Boom Cylinder Diameter	2-1/2" (64 mm)	2-1/2" (64 mm)	3" (76 mm)	3" (76 mm)	3" (76 mm)
Dipper Cylinder Diameter	2-1/4" (57 mm)	2-1/4" (57 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)
Bucket Cylinder Diameter	2" (51 mm)	2-1/4" (57 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)
Extender Cylinder Diameter	N/A	N/A	N/A	N/A	1-3/4" (44 mm)
Swing Cylinder Diameter	2-1/2" (64 mm)	2" (51 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)	2-1/2" (64 mm)
Stabilizer Cylinder Diameter	2" (51 mm)	2" (51 mm)	2-1/2" (64 mm)	3" (76 mm)	3" (76 mm)
Reach from Swing Post	8'-4" (254 cm)	8'-4" (254 cm)	10'-3" (312 cm)	11'-9" (358 cm)	11'-9" (358 cm)
Reach from Swing Post (extended)	N/A	N/A	N/A	N/A	13'-8" (417 cm)
Includes Flow Divider	No	No	Yes	Yes	Yes
Bucket Rotation	180°	180°	180°	180°	180°
Swing Arc	150°	180°	180°	180°	180°
SAE Dipper Boom Digging Force	1,250 lb (5 560 N)	1,250 lb (5 560 N)	2,300 lb (10 230 N)	3,200 lb (14 234 N)	2,200 lb (9 786 N)
SAE Bucket Digging Force	2,054 lb (9 137 N)	2,600 lb (11 565 N)	3,800 lb (16 903 N)	3,925 lb (17 459 N)	3,925 lb (17 459 N)
Boom Lift Capacity	250 lb (113 kg)	385 lb (175 kg)	925 lb (420 kg)	750 lb (340 kg)	580 lb (263 kg)
Ground Clearance	8-1/2" (22 cm)	10-1/2" (27 cm)	10-1/2" (27 cm)	10-1/2" (27 cm)	10-1/2" (27 cm)
Loading Height:	5'-2" (158 cm)	5'-2" (158 cm)	6'-8" (203 cm)	7'-5" (226 cm)	8'-8" (264 cm)
Overall Operating Height (fully raised)	7'-7" (231 cm)	7'-8" (234 cm)	9'-11" (302 cm)	11'-3" (343 cm)	12'-8" (386 cm)
Total Weight:	500 lb (227 kg)	575 lb (261 kg)	765 lb (347 kg)	791 lb (359 kg)	980 lb (445 kg)
Transport Dimensions (Length x Width x Height)	56" x 41" x 65" (142 cm x 104 cm x 165 cm)	68" x 40" x 63" (173 cm x 102 cm x 160 cm)	80" x 43" x 79" (203 cm x 109 cm x 201 cm)	81" x 43" x 92" (206 cm x 109 cm x 234 cm)	81" x 43" x 92" (206 cm x 109 cm x 234 cm)
Operating Pressure	1800 psi (124 bar)	1800 psi (124 bar)	2250 psi (155 bar)	2250 psi (155 bar)	2250 psi (155 bar)
Mounting System Type	Subframe	Tractor – Subframe Mini Skid Steer – Universal Plate, Cat I	Tractor – Subframe Skid Steer – Universal Plate Cat I, Cat II	Tractor – Subframe Skid Steer – Universal Plate Cat I, Cat II	Tractor – Subframe Skid Steer – Universal Plate Cat I, Cat II

<sup>1</sup> Specifications subject to change without notice.

## 10.2 Accessories

Model	GE605	GX620	GX720	GX920	GX920XT
Power Pack Kit	X	X	X	X	X
Operator's Seat	X	N/A	N/A	N/A	N/A
Street Pad Kit	X	X	X	X	X
Clamp-on Mechanical Thumb	X	X	X	X	X
Hydraulic Thumb <sup>1</sup>	N/A	N/A	X	X	N/A
Ripper Tooth	N/A	X	X	X	X
Quick Attach Bucket Adapter	N/A	N/A	X	X	X
Vertical Stabilizer Kit	N/A	N/A	X	X	X
CAT I, 3-point Hitch	N/A	—	—	—	—
CAT II, 3-point Hitch	N/A	N/A	—	—	—

<sup>1</sup> Factory-installed Option


## 10.3 Common Bolt Torque Values

### Bolt Torque, Checking

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

**IMPORTANT!** If replacing hardware, use fasteners of the same grade.

**IMPORTANT!** Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

 **NOTE:** Bolt grades are identified by their head markings.

Imperial Bolt Torque Specifications						
Bolt Diameter	Torque Value					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4"	6	8	9	12	12	17
5/16"	10	13	19	25	27	36
3/8"	20	27	33	45	45	63
7/16"	30	41	53	72	75	100
1/2"	45	61	80	110	115	155
9/16"	60	95	115	155	165	220
5/8"	95	128	160	215	220	305
3/4"	165	225	290	390	400	540
7/8"	170	230	420	570	650	880
1"	225	345	630	850	970	1320



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications				
Bolt Diameter	Torque Value			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1 495	1,550	2 100



8.8



10.9

## 10.4 Hydraulic Fitting Torque Values

### Tightening Flare Type Tube Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Hand-tighten swivel nut until snug.
4. To prevent twisting the tube, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second. Torque to values shown.

If a torque wrench is not available, use the FFFT (Flats From Finger Tight) method.

Hydraulic Fitting Torque							
Tube Size OD	Hex Size Across Flats	Torque value		Flats From Finger Tight			
		Inches	Inches	lbf•ft	N•m	Flats	Turns
3/16	7/16			6	8	2	1/6
1/4	9/16			11–12	15–17	2	1/6
5/16	5/8			14–16	19–22	2	1/6
3/8	11/16			20–22	27–30	1-1/4	1/6
1/2	7/8			44–48	59–65	1	1/6
5/8	1			50–58	68–79	1	1/6
3/4	1-1/4			79–88	107–119	1	1/8
1	1-5/8			117–125	158–170	1	1/8

Values shown are for non-lubricated connections.

## 11. Warranty



### LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

**Five Years for Consumer Use**  
**Two Years for Commercial/Rental Use**

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

**This warranty does not cover the following:**

- 1) Normal maintenance or adjustments
- 2) Normal replacement of wearable and service parts
- 3) Consequential damage, indirect damage, or loss of profits
- 4) Damages resulting from:
  - Misuse, negligence, accident, theft or fire
  - Use of improper or insufficient fuel, fluids or lubricants
  - Use of parts or aftermarket accessories other than genuine Wallenstein parts
  - Modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
  - Any device or accessories installed by parties other than an authorized dealer
- 5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at [www.wallensteinequipment.com](http://www.wallensteinequipment.com)

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