WALLENSTEIN

BY EMB MFG INC.

EMB Manufacturing Inc.
4144 Boomer Line · St. Clements, On · N0B 2M0 · Canada
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TIMBER TALON

Log Grapple and Log Trailer Accessories

INSTALLATION AND OPERATION MANUAL

Kits for Timber Talon Models LX95, LX115, LT30 and LT60

Please read these instructions before attempting to assemble, install and operate any of these kits

This Safety Alert symbol means
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
The Safety Alert symbol identifies important safety messages in this instruction. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

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WALLENSTEIN

WARRANTY

Effective on products retailed on or after January 1, 2015.

Register your product online at www.wallensteinequipment.com
within 30 days of purchase to activate warranty.

This product is warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five (5) Years for Consumer
Two (2) Year for Commercial/Rental

from the date of purchase, when operated and maintained in accordance with the Operating and Maintenance Instructions supplied with this unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty does not cover the following items:

1) Machines or parts lost or damaged during shipment,
2) Normal maintenance or adjustments after initial pre-service and set up is completed
3) Normal replacement of service items.
4) Accessory items / parts not supplied by EMB MFG INC.
5) Damages resulting from:
   - misuse, negligence, accident, theft or fire
   - use of improper or insufficient fuel, fluids or lubricants
   - use of parts or after market accessories other than genuine EMB MFG INC. 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 EMB dealer or distributor

Engines are covered by the manufacturer of the engine and covered by the warranty period specified by that manufacturer. **Engine warranty must be registered at the engine manufactures website.** For service contact your local engine dealer.

Under no circumstances will the manufacturer be liable for any consequential damage or expense of any kind, including loss of profits. The manufacturer is under no circumstances liable for tow vehicle of any kind. The manufacturer is not liable for the maintenance of the product.

This warranty is extended only to the original purchaser and is not transferable. Warranty is void if repairs are attempted by anyone other than a Wallenstein Authorized Service Centre.

If a difficulty develops with the product, contact the local dealer from which you purchased the unit. Only Wallenstein authorized dealers are authorized to make repairs to the product or affect the replacement of defective parts, which will be done at no charge within a reasonable time after the receipt of the product. Unit or parts shall be returned at the customer's expense to the Authorized Service Centre. Damage in transit is not covered by warranty. Include the original purchase receipt with any claim (keep a copy of the receipt for your files).

The distributor's liability under warranty is limited to the repair of the product and/or replacement of parts and is given to the purchaser in lieu of all other remedies including incidental and consequential charges. There are no warranties, expressed or implied, other than those specified herein.

EMB MFG Inc
4144 Boomer Line, St Clements, ON N0B 2M0 Canada
Phone: 519-699-9283 Fax: 519-699-4146 : attention to Warranty Dept
Email: warranty@embmfg.com

rev.170216

WARRANTY IS VOID IF NOT REGISTERED

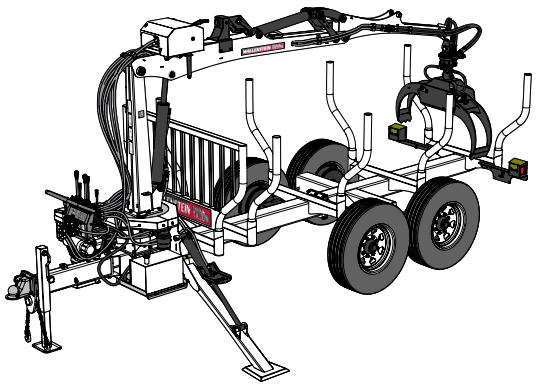
1 INTRODUCTION

Congratulations on your choice of Wallenstein log handling equipment to compliment your operation. This equipment has been designed and manufactured to meet the needs of a discerning timber and landscaping industry. Accessories available for the Timber Talon grapples and trailers include, backhoe, post hole auger,dump box, flat bed and more.
Safe, efficient and trouble free operation of your Wallenstein Log Grapple Trailer requires that you and anyone else who will be using or maintaining the Trailer, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

Use the Table of Contents or Index as a guide to locate required information.

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.

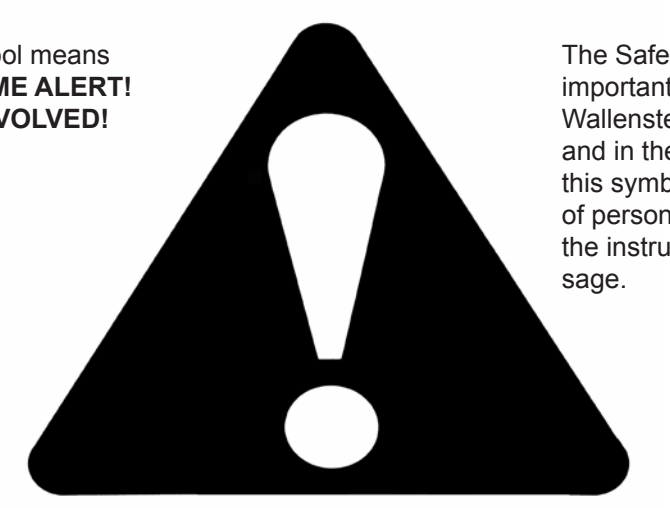
OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are determined when standing at the operating station and looking over the machine.



2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



The Safety Alert symbol identifies important safety messages on the Wallenstein Trailer Wood Chipper and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER, WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

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.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Wallenstein, 4144 Boomer Line, St. Clements, ON, N0B 2M0. Phone (519) 699-9283 or Fax (519) 699-4146.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Wallenstein Timber Talon Log Grapple & Trailer. **YOU** must ensure that you and anyone else who is going to use, maintain or work around the Timber Talon be familiar with the use and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be used while using the Timber Talon Log Grapple.

Remember, **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. Be certain that **EVERYONE** using this equipment is familiar with the recommended use and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

2.1 SAFETY DO'S & DON'TS

- **DO** give operating instructions to operators or employees before allowing them to operate the machine, and REVIEW annually thereafter.
- **DO** read and understand ALL Safety and Operating instructions in the manual and follow them. Most accidents can be avoided. The most important safety device on this equipment is a SAFE operator.

- **DO** review safety related items annually with all personnel who will be operating or maintaining the Log Grapple
- **DO** have a first-aid kit available for use should the need arise and know how to use it.

- **DO** read and understand all safety signs located on the machine before using, maintaining, adjusting or cleaning the Log Grapple
- **DO** have a fire extinguisher available for use should the need arise and know how to use it.

- **DO** inspect and secure all guards before starting.
- **DO** wear appropriate protective gear. This list includes but is not limited to:

  - Hard hat
  - Heavy gloves
  - Hearing protection
  - Protective shoes with slip resistant soles
  - Protective glasses, goggles or face shield
- **DO** prepare before transport, servicing, adjusting or repairing :
  - grapple closed and resting on trailer
  - install boom pin lock
  - shut off the engine
  - turn fuel valve off
  - ensure load is secure
  - secure the trailer from movement
- **DO NOT** touch hot engine parts, muffler cover, hoses, engine body, coolants, engine oil, etc. during operation and after the engine has been shut off. Contact may cause burns.
- **DO NOT** expect a person who has not read and understood all use and safety instructions to operate the machine. An untrained operator is not qualified and exposes himself and bystanders to possible serious injury or death. It is the owners responsibility to the operator to ensure familiarity and understanding of the machine.
- **DO NOT** modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- **DO NOT** allow riders.
- **DO NOT** risk injury or death by ignoring good safety practices.
- **DO** think SAFETY! Work SAFELY!

⚠**Caution**: When installing any kits be sure to use the torque charts at the back of this manual to ensure that components are safely and correctly attached.

3 AUGER KIT

3.1 INSTALLATION

The Wallenstein Timber Talon Log Grapple Trailer is a versatile multi use work system designed to not only lift, load and transport wood or logs, but can be easily refitted to auger holes.

To outfit the LX boom for augering, the grapple will need to be removed and the auger installed. Hydraulic lines will have to be removed, so have some rags on hand for fluid drips, and have a container handy to store parts that have been removed. Note: Installation and operation for both kits are similar.

#LA610 6" DIAMETER AUGER KIT (LX95)
#LA910 9" DIAMETER AUGER KIT (LX115)

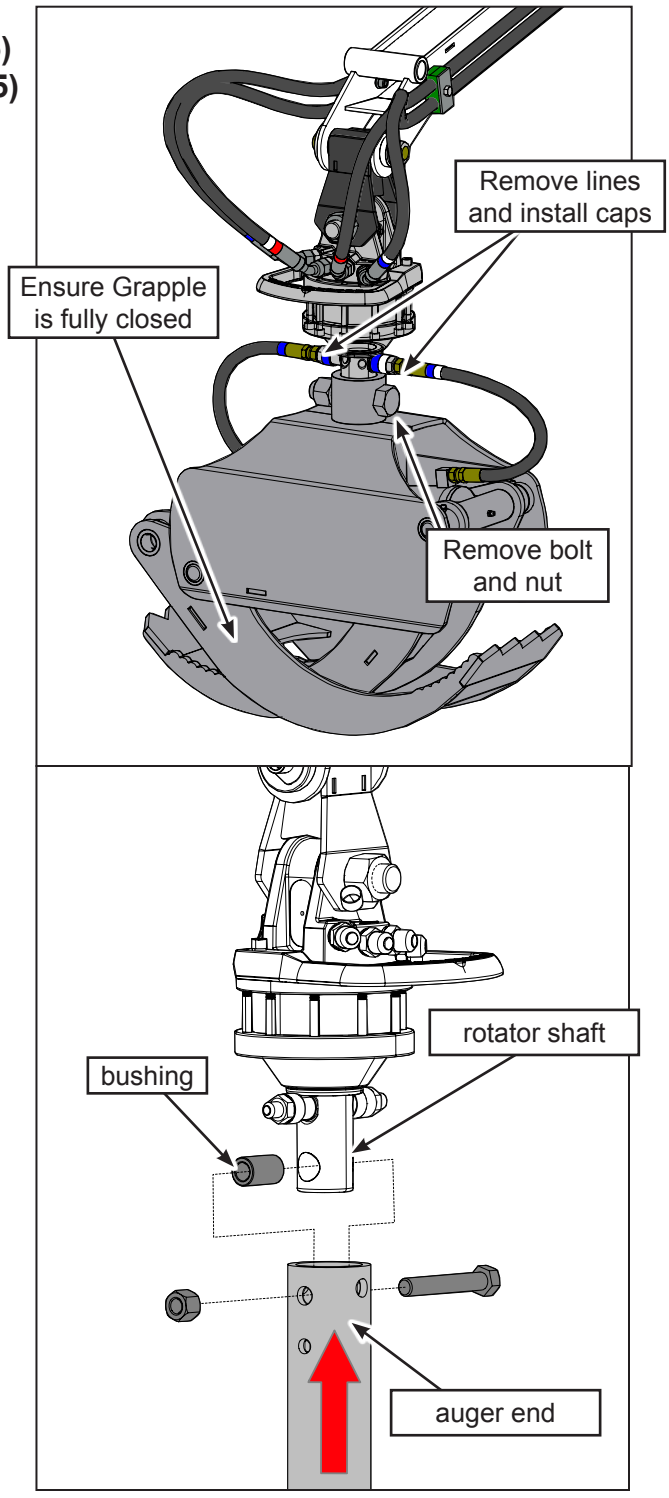
1 x Pengo Agressor general purpose auger
1 x 5/8 x 4.0 hex bolt & 5/8 hex lock nut
1 x Bushing, Rotator
2 x Cap Nuts FJIC06

Prepare for Installation:

1. Ensure the grapple is fully closed
2. Move the boom/grapple off to the side of the trailer with the grapple sitting on the ground.
3. Power down the boom (shut off the engine and remove the key)
4. Move control levers back and fourth to equalize the pressure in the hydraulic lines.
5. Remove the 2 hydraulic lines from the rotator, that control the grapple jaws.(Blue colour coded disconnects) Prepare for some dripping of hydraulic fluid. (To prevent fluid contamination, cap off the lines or wrap the ends with a clean cloth.)
6. Find the two JIC 06 caps that came with the kit and install them on the rotator where the hydraulic hoses were. Ensure the caps are on tight.
7. Next remove the grapple hex bolt that fastens the grapple to the rotator, and set the nut and bolt aside.
8. Power up the boom and lift the boom end free of the grapple till it is approximately 55" (145cm) off the ground
9. Replace the nut and bolt into the grapple.

Install the auger,

1. Find the auger bushing, and insert it in the rotator shaft.
1. Find the auger fastening bolt that came with the kit
2. Lift the auger end to the rotator and align the auger tube with the rotator shaft, move auger so the bolt holes are in alignment.
3. Lift the auger over the rotator shaft and install the auger fastening bolt and locknut.
4. Tighten to proper torque (see bolt torque specification chart)
5. Auger is ready to use.

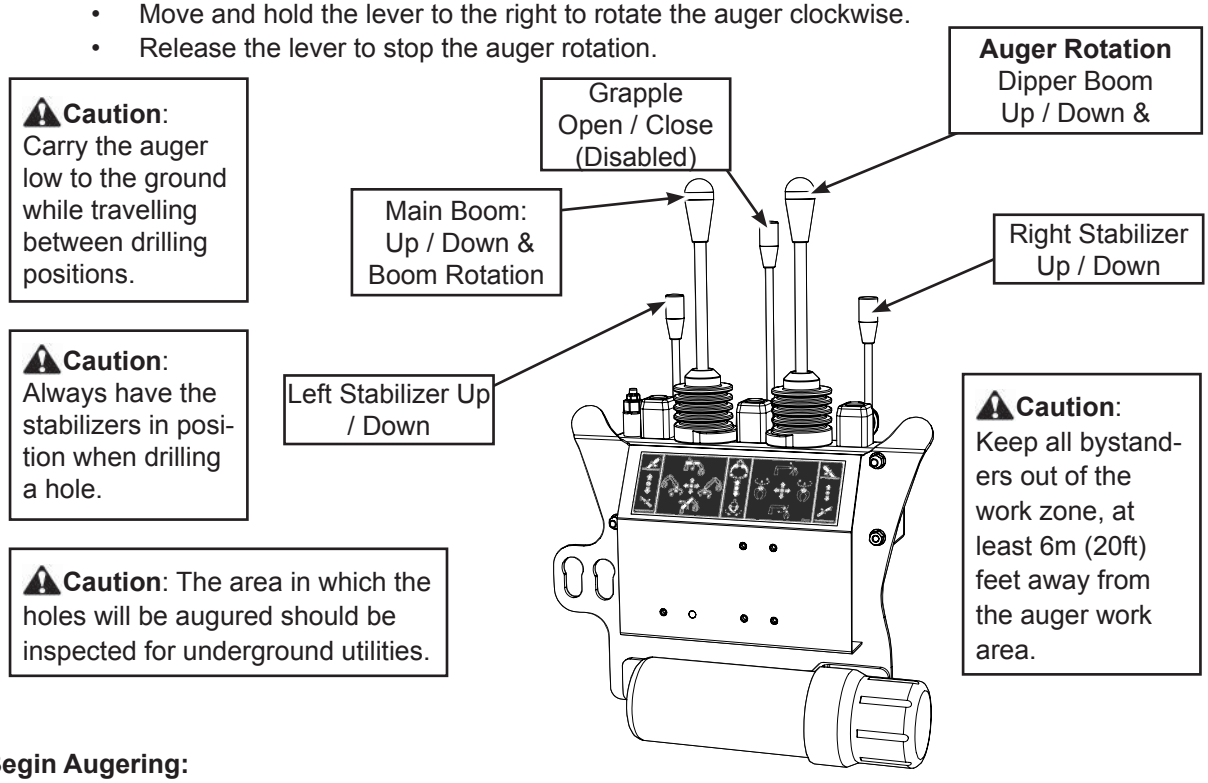


3.2 OPERATION

It is recommended that the main boom be used to move the auger up or down, instead of the dipper boom. This will keep the auger straighter, but will still require adjustment to keep the auger true. Practice will be required to achieve the best results.

Controls: **Auger Rotation & Dipper Boom Up / Down** The joy stick located right of centre.

1. This 4 position spring-loaded-to-neutral-center lever (joy stick) controls the hydraulic rotator as well as the up / down position of the dipper.
    - Move and hold the lever to the left to rotate the auger counter clockwise.
    - Move and hold the lever to the right to rotate the auger clockwise.
    - Release the lever to stop the auger rotation.



Begin Augering:

1. Ensure auger rotation is stopped and then lower auger point to the ground.
2. Start auger turning clockwise, apply down pressure to assist ground penetration. If auger speed slows or stops, back off down pressure. Excessive down pressure could stall the auger.
3. Periodically adjust the booms position to keep the auger and hole vertical. Be careful not to damage rotator or auger.
4. After penetrating the ground approximately 24", slowly raise it up to remove soil and debris from the hole. Lower auger back down to continue digging. Dig another 24" or until hole is at its final depth and again raise the auger up as before to clear out the soil and debris.
5. Allow auger to turn several revolutions at final depth. With auger still turning, raise auger up to within 1 to 2 feet of being out of the hole. Stop auger rotation and continue to raise auger out of the hole.
6. Raise auger up to clear obstacles and debris when transporting from one digging site to the next. Be careful to watch out for people, obstructions, and uneven terrain.

IMPORTANT: Avoid side pressure on the auger. This can damage auger and drive components.
IMPORTANT: Stop auger from turning immediately if auger begins to screw itself into the soil, hits a large obstruction or becomes stalled, Slowly reverse and raise auger up to free it and then cautiously continue normal digging operations. If the auger does not penetrate the obstruction, raise auger out of the hole and remove obstruction, or dig a new hole nearby.

⚠**Caution**: It is best to leave drilling through hard rock to high pressure drilling equipment professionals

4 L101 TRACTOR HYDRAULIC KIT

4.1 INSTALLATION

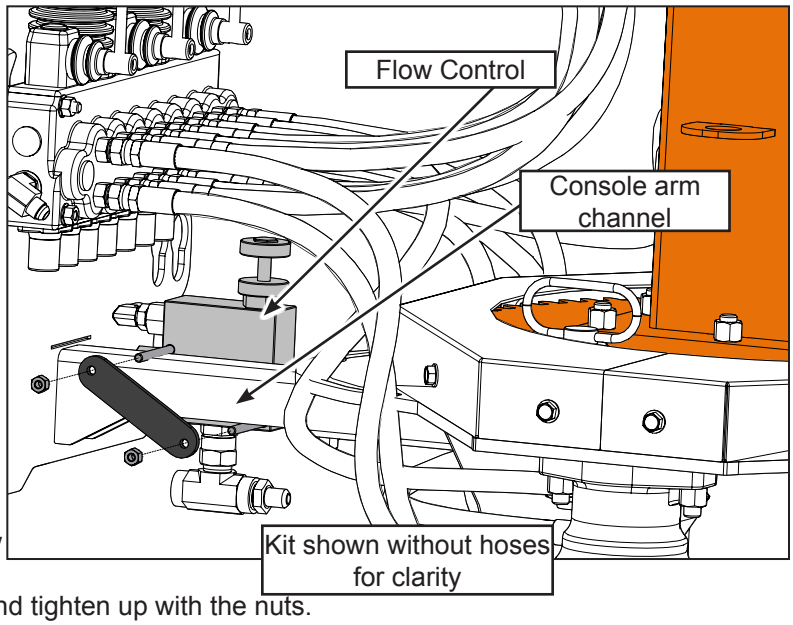
The Wallenstein Timber Talon Log Grapple Trailer can be powered by power pack or, if you can make use existing tractor remotes, by adding the #L101 Tractor Hydraulic Kit. L101 comes with everything you need to attach and control your LX boom hydraulics. (L101 included in L400 3 point hitch grapple version)
To outfit the LX boom with the hydraulic kit, the kit will need to be mounted by the grapple console arm. Installation is completed when the hoses are connected to the main control valve. Note: Installation and operation for both LX95 & LX115 are similar.

Kit includes:

- flow control valve
- all hydraulic hoses
- fasteners and hardware

Prepare for Installation:

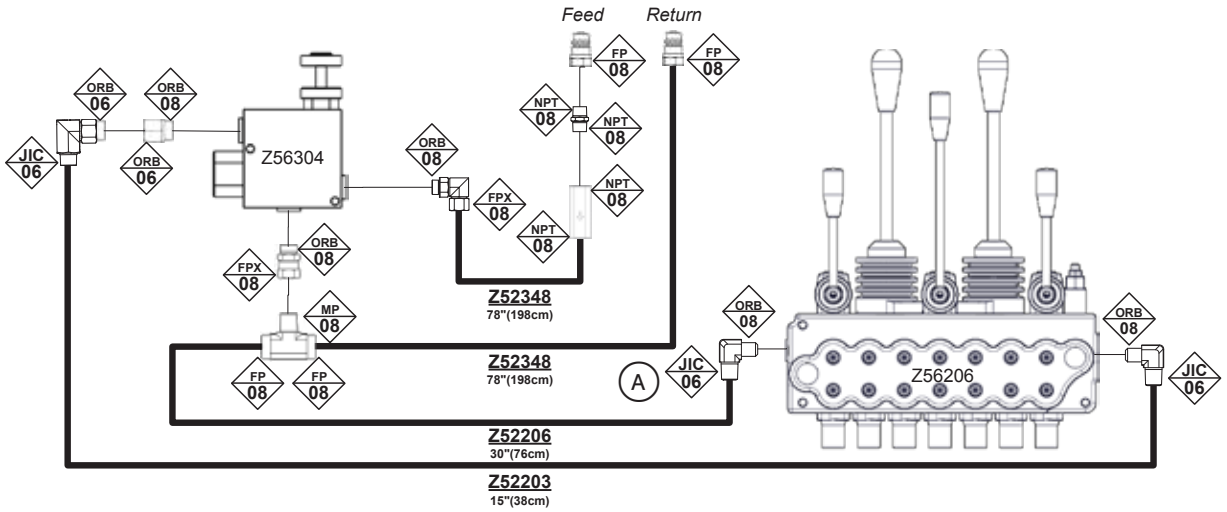
1. If connected to a power pack, power down the boom (shut off the engine and remove the key)
2. Move control levers back and fourth to equalize the pressure in the hydraulic lines.
3. Determine if you have the a winch installed, hose connection is different if you do.



Install the kit:

1. Find the flow control valve, two 1/4 x 4.0 hex bolts and matching nuts, and the mount plate.
2. The flow control mounts on the console arm channel (behind and under the valves). Position the flow control as shown in the illustration and install the bolts and bracket, and tighten up with the nuts.

3. Review the hydraulic schematic, if you have a winch installed then (A) hose connection is switched with the hose connection at the return port of the winch hydraulic control.

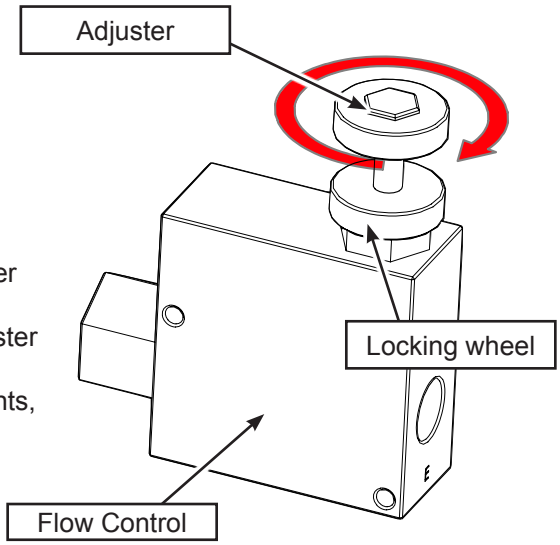


4.2 OPERATION

Most tractor remotes have a flow too high for the LX / LT hydraulics to operate properly, resulting in damaged seals and erratic operation. The Wallenstein L101 hydraulic kit provides the ability to lower the flow to the recommended 1-2 gallons per minute. Once you have made the initial adjustment, no further adjustments need to be made.

Adjustment:

- Start up your tractor,
- Set operating speed: typically 540 RPM.
- Turn the locking wheel up to release the adjustor
- Turn the adjustor on the flow control clockwise down to the halfway point
- Operate the controls, boom, turret, and stabilizers:
  - If operation has sudden jerky movements, then further adjustment clockwise is required.
  - If operation seems unusually slow then turn the adjuster counterclockwise.
  - If operation is smooth with no sudden jerky movements, and good speed then adjustment is complete.
- Turn the locking wheel to the bottom of the tread and tighten.



5 BA 201 BACK HOE KIT

The Wallenstein Timber Talon Log Grapple Trailer is designed for ease of use and built for rugged durability. Outfitting your Timber Talon with the versatile back hoe kit is just one of the many useful options available.

The optional Dump Box is an excellent match to the BA 201, and will make the most of your BackHoe kit.

As well you require, and have the choice four sizes of optional Buckets available to handle the job at hand:
BK 2690 9" 3 Tooth Bucket
BK 2612 12" 3 Tooth Bucket
BK 2615 15" 4 Tooth Bucket
BK 2618 18" 4 Tooth Bucket

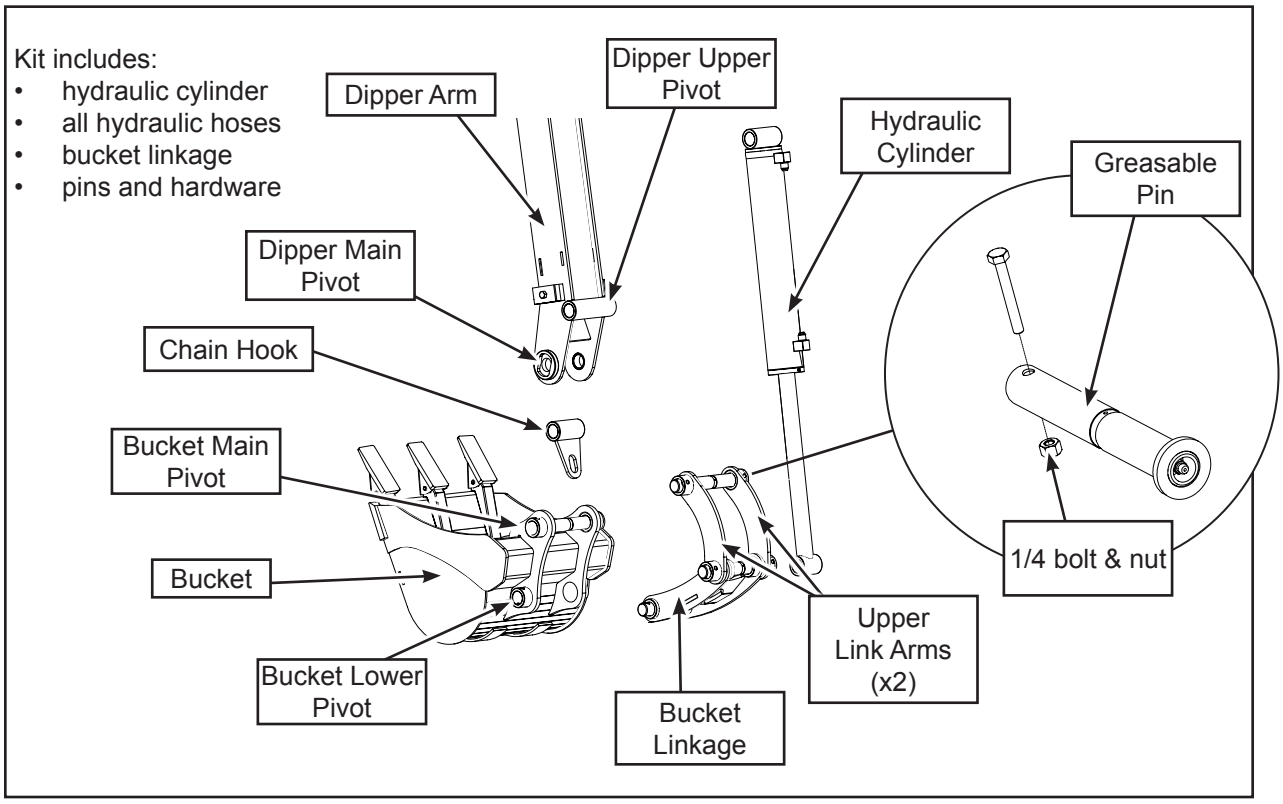
5.1 INSTALLATION

To outfit the LX boom for digging, the grapple / rotor assembly will need to be removed and the #BA 201 Back Hoe Kit and BK bucket installed. Hydraulic lines will have to be removed, so have some rags on hand for fluid drips, and have a container handy to store parts that have been removed.

Caution: When the LX boom is installed on a tractor via the L400 Three Point Hitch Adaptor, ensure the tractor is equipped with a front end loader. This will provide the required weight / stability on the front for transport and to stabilize the dynamic loads during operation.

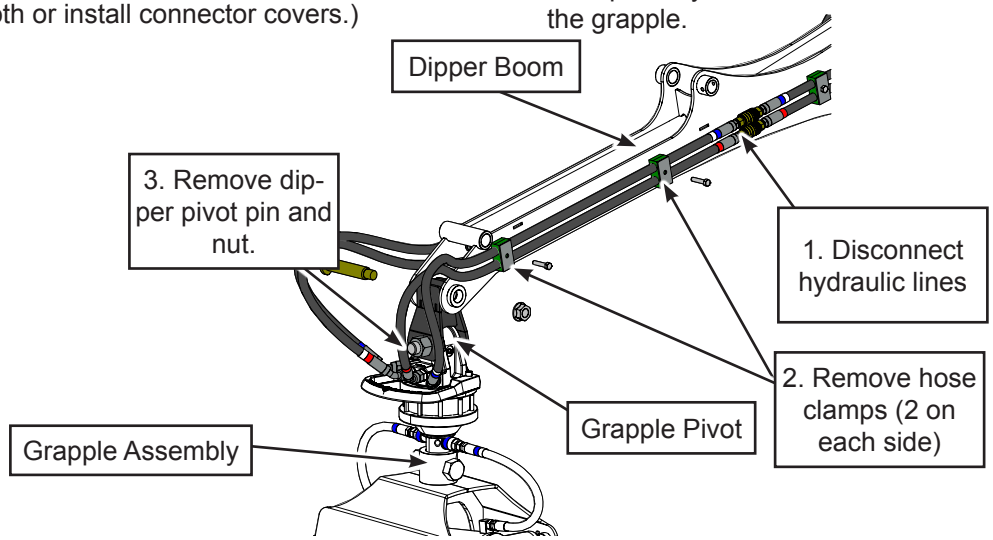
Note: Installation and operation of the kit for both LX95 & LX115, are similar, and all sizes of buckets mount the same.

5.1.1 BACKHOE KIT COMPONENTS



5.1.2 PREPARE FOR INSTALLATION:

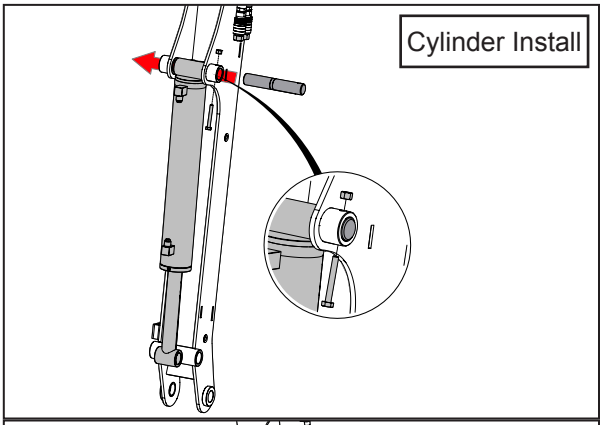
1. Ensure the grapple is fully closed
2. Move the boom/grapple off to the side of the trailer with the grapple sitting on the ground.
3. Power down the boom (shut off the engine and remove the key)
4. Move control levers back and fourth to equalize the pressure in the hydraulic lines.
5. Disconnect the 4 hydraulic lines from the quick connects on the dipper boom (To prevent fluid contamination, wrap the ends with a clean cloth or install connector covers.)
6. Remove the 4 hose clamps (2 each side) to free up the grapple hydraulic lines.
7. Locate the grapple pivot, remove the nut on the dipper pivot pin, and using a drift punch and mallet, gently tap the pivot pin out of the pivot.
8. Reassemble the pivot & nut to the grapple pivot.(ensure the two conex bushings remain inside the pivot)
9. The entire grapple assembly should be free, coil up the hydraulic hoses and set aside with the grapple.

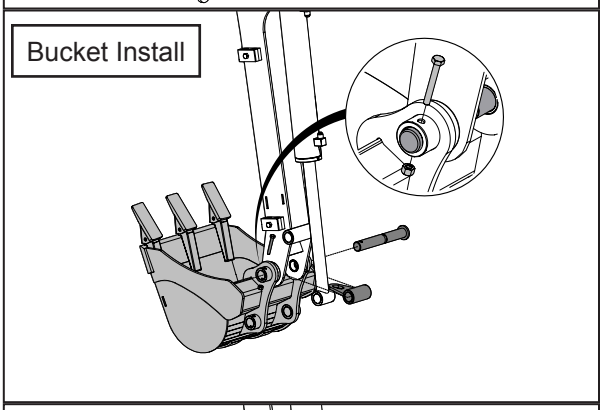


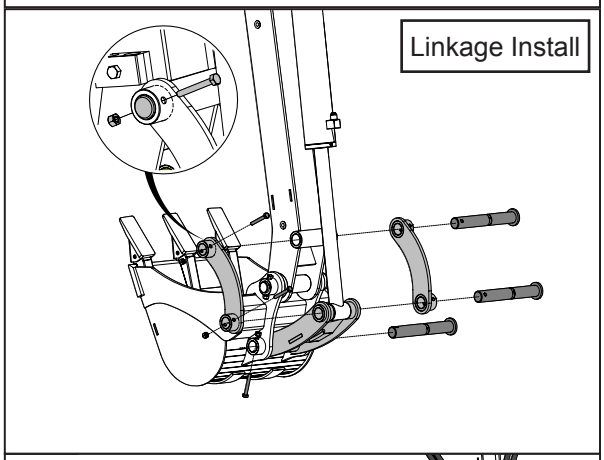
5.1.3 INSTALL THE KIT:

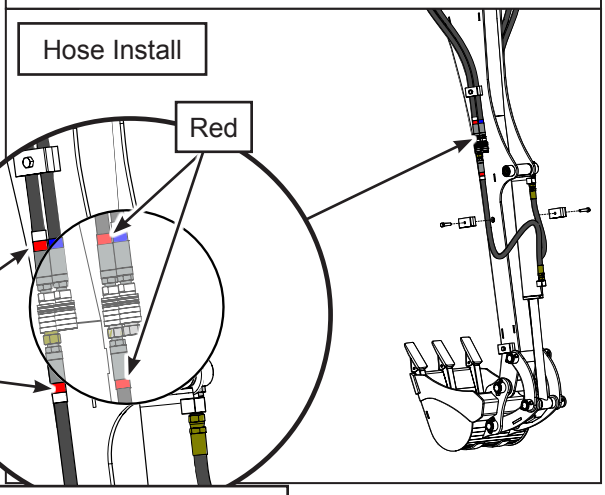
1. Install the bucket cylinder:
   - line up the cylinder end bushing to the cylinder attach point on the dipper arm, and
   - insert the 1.0 x 5.6" greasable pin and
   - secure with the 1/4 x 2.0 bolt and matching nut.
2. Install the bucket:
   - align the bucket main pivot to the dipper main pivot,
   - position the chain hook with the dipper main pivot,
   - insert a 1.0 x 7.45" greasable flanged pin, through dipper, hook and pivot,
   - secure with the 1/4 x 2.0 bolt and matching nut.
3. Install the linkage:
   - fit the bucket link weldment into the secondary bucket pivot.
   - insert a 1.0 x 7.45" greasable flanged pin through secondary pivot and link weldment.
   - secure with the 1/4 x 2.0 bolt and matching nut.
   - fit the linkage arms to the secondary dipper pivot
   - insert a 1.0 x 7.45" greasable flanged pin through secondary dipper pivot and link arms.
   - secure with the 1/4 x 2.0 bolt and matching nut.
   - align the cylinder rod end bushing, the two linkage arms, and the bucket linkage weldment,
   - insert a 1.0 x 7.45" greasable flanged pin, and secure with the 1/4 x 2.0 bolt and matching nut.
4. Connect hydraulic hoses:
   Each hose is colour coded to the colour coded quick connects on the dipper arm:
   - red
   - red and white,

   Match the hoses up to the corresponding colour and connect the quick connects (first, wipe the connectors to prevent fluid contamination).
5. Secure the hoses to the dipper arm with one hose clamp on each side. Fasten the 2 remaining unused hose clamps to the dipper boom for safe keeping.









Cutaway view showing hydraulic connections.

OPERATING SAFETY

- Please remember it is important that you read the operator's manual and heed the safety signs on the Timber Talon. They are there for your safety, as well as the safety of others. **The safe use of this machine is strictly up to you, the operator.**
- Before moving, making, adjustments or servicing, put the machine in safe condition:
  - install boom pin lock
  - shut off the engine
  - turn fuel valve off
  - ensure boom is in safe position
  - secure the tow vehicle / trailer from movement
- Review section 2.6 on Boom Safety in the **operators manual** and set up the operator safe zone and work zone.
- Position the trailer to provide a firm base for the stabilizer pads before beginning excavation.
- Extend stabilizers to support frame while excavating.
- Keep the unit attached to the tow vehicle for extra stability.
- Review the work site and plan the project before starting, clearly mark the area to be excavated.
- To avoid cave in hazards, keep stabilizer and trailer tires at least 1 meter (2 ft) away from the edge of the trench.
- Have the area surveyed for underground utilities before starting to dig.
- Stay away from overhead utilities and obstructions.
- Stay 15m (50 ft) away from power lines. Electrocution can occur without direct contact.
- Be aware of your operator safe zone, and keep boom and material out.
- Keep all bystanders out of the work zone, at least 6m (20ft) feet away from trailer and boom while excavating or when engine is running.
- Position the controls and operate the machine opposite the work zone.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Do not walk or work under a raised machine or attachment. It is potentially hazardous to depend on the hydraulic system to hold the machine or attachment in place.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Do not allow riders, move or carry people on this machine at any time.
- Never allow children or unauthorized people to operate or be around this machine.
- Keep hydraulic lines and fittings tight, free of leaks, in good condition and clean.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- When operating this equipment it is recommended to have at least 2 operators present and trained in safe operation of the machine. All operators must be completely familiar with all components of the machine and their function.
- Review safety instructions before each use or at least annually.

5.2 OPERATION & FEATURES

The BA 201 Back Hoe Kit for the LX boom is ideal for those light duty, but essential excavating jobs. Great for moving and distributing material piles over the job site.
Before beginning work be sure to review the work area and ensure the operator is fully trained in the use of the LX boom, review the control layout section, and note the differences between grapple control and back hoe control configurations.
Practice will be required to achieve the best results.

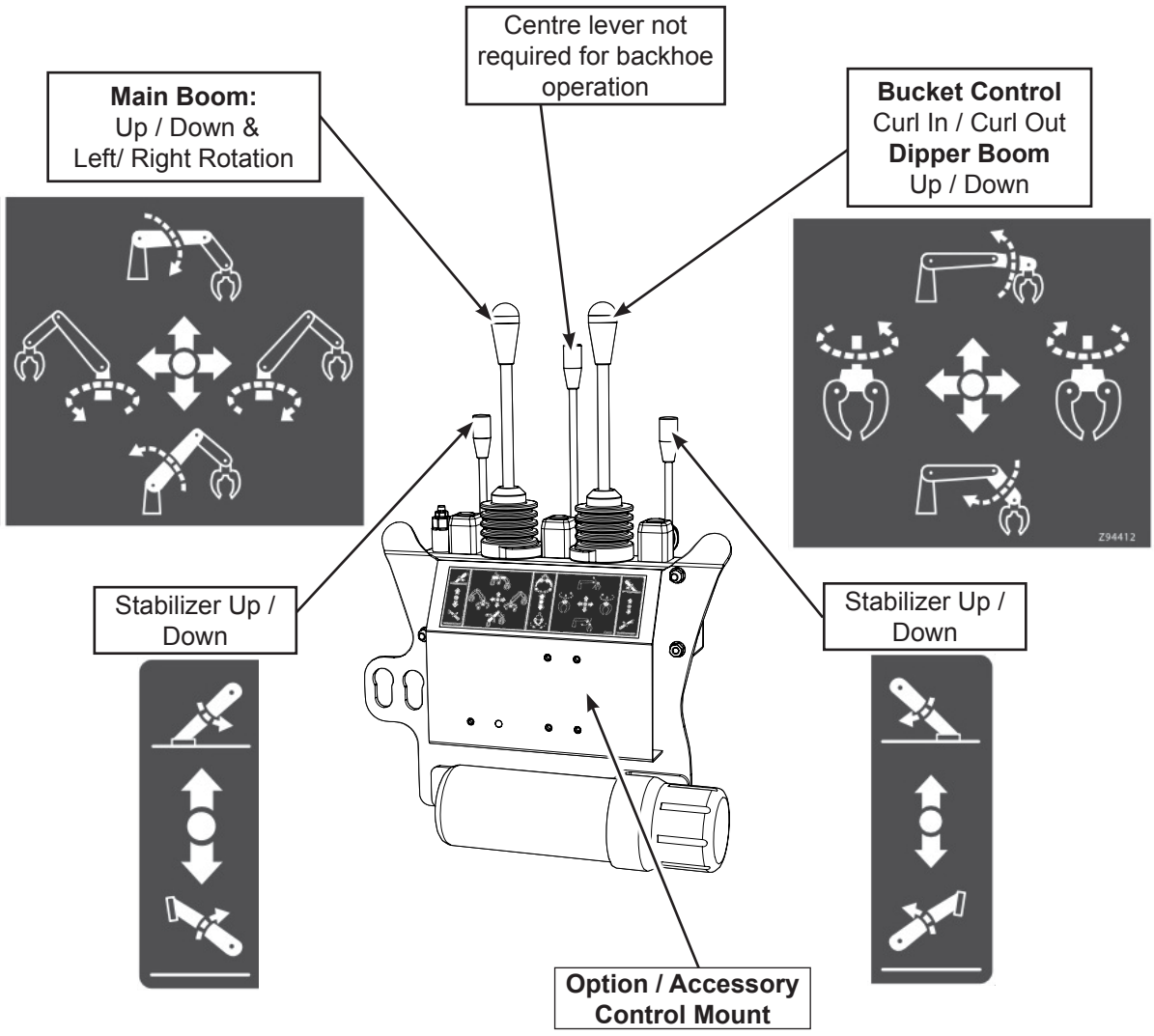
5.2.1 CONTROL PANEL:

The LX comes complete with hydraulic hose and connectors to connect to your tractor hydraulics. An optional Hydraulic Power Pack is also available (trailer models only).

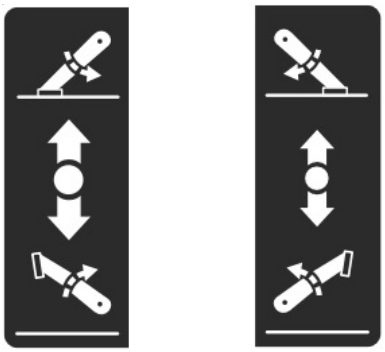
The control panel is laid out so that the controls are easy to see and use. All hydraulic control valves are mounted on control panel attached to the main frame. The two outer levers control the position of the stabilizers and the inner joy stick controls operate the function of the boom, dipper and bucket.

As an added safety feature, the main boom has been fitted with an hydraulic "lock". Which means that if hydraulic pressure is lost (broken hose, engine stops) the boom cylinder will keep its position until hydraulic pressure is returned.

Below the main controls is a **Option / Accessory Control Mount**, for the optional Hydraulic Winch Accessory control (LX95 / LX115).

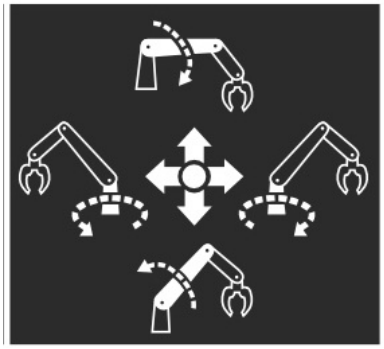


1. **Left and Right Stabilizer Controls:**
   The levers located on the far left and far right. These 2 position spring-loaded-to-neutral-center levers control the flow of oil to the stabilizer cylinder.
   - Push and hold to lower the stabilizer to the desired position.
   - Pull and hold the lever to raise the stabilizer.
   - Release the lever when the stabilizer is in its desired position, and it will spring return to its neutral position.

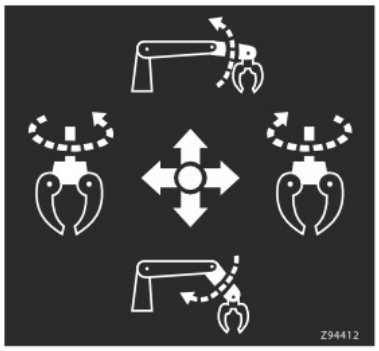


Caution: Always have the stabilizers in position when operating the backhoe

2. **Main Boom Up/Down & Boom Left/Right Rotation:**
   The joy stick located left of centre. This 4 position spring-loaded-to-neutral-center lever (joy stick) controls the horizontal rotation and up / down position of the main boom.
   - Move and hold the lever to the left to swing the boom to the left.
   - Move and hold the lever to the right to swing the boom to the right.
   - Push and hold the lever to lower (extend) the boom.
   - Pull and hold the lever to raise (retract) the boom.
   - Release the joystick, it will spring return to its neutral position and stop movement of the boom.

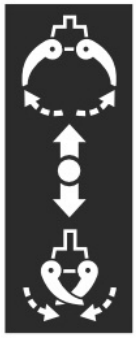


3. **Dipper Boom: Up / Down & Bucket In / Out**
   The joy stick located right of centre.
   This 4 position spring-loaded-to-neutral-center lever (joy stick) controls the up / down position of the dipper and rotation of the grapple.
   - Move and hold the lever to left to curl the bucket in.
   - Move and hold the lever to the right to left to curl the bucket out.
   - Push and hold the lever to move the dipper up.
   - Pull and hold the lever to move the dipper down .
   - Release the lever to stop the motion of the dipper boom and the grapple rotation and they will remain in their position.



Caution: Note operation is replaced with bucket operation

4. **Centre Lever - NOT USED**
   This lever control is not required for backhoe operation



5.2.2 OPERATION:

1. **Training:**
   Each operator must be trained in the proper operating procedures prior to being allowed to operate the machine.
   a. Review control location, function and movement directions.
   b. Move the unit to a large open area to allow the operator to become familiar with control function and machine response.
   c. When a new operator is familiar and comfortable with the machine, they can proceed with the work. Do not allow untrained operators to use the machine. They can endanger themselves and others or damage property and the machine.
2. **Job Site:**
   It is the responsibility of the operator to be thoroughly familiar with the work site prior to starting. Prevent the chance or possibility of problems or accidents by not being in the situation to start with. Some items the operators should check include but are not limited to:
   a. Underground wires, cables, pipes or other obstructions. Contact your local utility to identify exactly the location of the lines, pipes, etc. Turn off, disconnect, etc. as required to prevent a problem if contact is made.
   b. Overhead power lines, obstructions or overhangs. Power lines can lead to electrocution if the machine gets too close without contacting the line. Overhead obstructions can cause a loss of control or tipping from the contact. Overhangs can collapse or give way causing it to move as the footing gives way.
   c. Close or cramped work site. Be sure there is sufficient space and clearance for the machine to dig, swing and dump while working. If the working area is cramped, modify the work site to provide more area. Unplanned contact with adjacent buildings, equipment or terrain can cause the operator to lose control of the machine leading to injury or damage to buildings or equipment
3. **Working Lay-Out:**
   Organize the work site to minimize the distance the support equipment has to travel between digging and dumping. The shorter the travel distance the faster the dig / dump cycle will be and the more that can be done.
   a. **Prevailing Winds:**
      Set-up the work site so the prevailing winds will blow dust, dirt, debris, etc. away from the air intakes for the engine and cooling system. As a result, there will be less need to clean these systems and more time can be spent working.
   b. **Smooth the Surfaces:**
      A rough surface will require slow speeds of support equipment while working. Smoothing the surface prior to starting to work will shorten the work cycle and result in higher productivity.
4. **Machine Placement:**
   It is the responsibility of the operator to review the work site layout and how to best position the machine. Items to consider include but are not limited to:
   a. **Enclosed Area's:**
      Gas engines produce carbon monoxide that can asphyxiate operators and bystanders in a very short amount of time. Do not operate in an enclosed area or near open windows or doors.
   b. **Bystanders:**
      Do not place the backhoe where there will be any bystanders, on-lookers or unauthorized personnel. Stop the machine whenever unauthorized personnel enter the working area. Unauthorized personnel can get in the way or get pinched / caught by components. Do not resume work until the unauthorized people have left.
   c. **Slopes:**
      The machine is designed to carry the operating loads when the frame is vertical. Working on a slope creates the potential for tipping, avoid working on slopes.
      - Never operate the machine on a severe slope.
      - To minimize tipping hazard, always position the trailer so it is up and down the slope and not across the slope.
      - Swing the boom up the slope when dumping the bucket to minimize the chance of tipping.
      - Always keep the bucket close to the ground when swinging the boom to reduce tipping loads.
      - Always block and chock the wheels and apply the brakes on the tow vehicle.

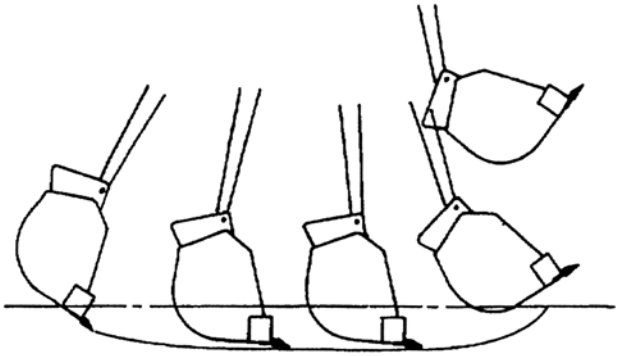
5.2.3 BEGIN WORK:

Dipper Method:

1. Set the bucket at the appropriate angle as shown by profile.
2. Set the dipper so the bucket teeth hit the ground approximately 2 feet (0.6 m) ahead of pivot.
3. Retract the dipper to pull the bucket through the soil until it is full.
4. Raise the boom and dump the bucket.

> **NOTE**
> Be sure the dipper and bucket angles are set so that the heel of the bucket does not hit the bottom of the hole.

5. Repeat this procedure to continue digging by extending the bucket 75 to 150 mm (3 to 6 inches) further each time.

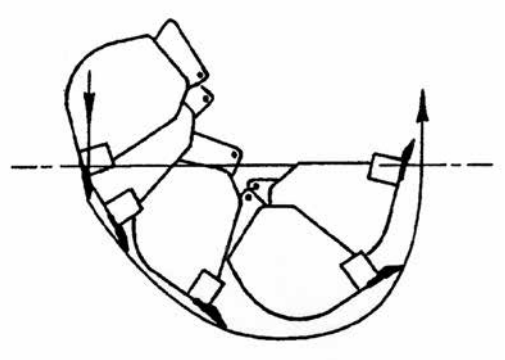


> ⚠ **Caution**: The area in which the digging will be occur should be inspected for underground utilities.

Bucket Method:

This is the procedure recommended when a vertical wall is desired at the end of a trench.

1. Set the bucket so the bucket teeth are nearly vertical.
2. Use the boom to force the bucket into the ground.
3. Use the boom to force the bucket further into the ground and at the same time roll the bucket back (curl) until it is full.
4. Raise the boom and dump the bucket.
5. Continue to dig in the same way by digging 75 to 150 mm (3 to 6 inches) deeper each time.



> ⚠ **Caution**: Place the boom in safe position when not in use or when transporting.

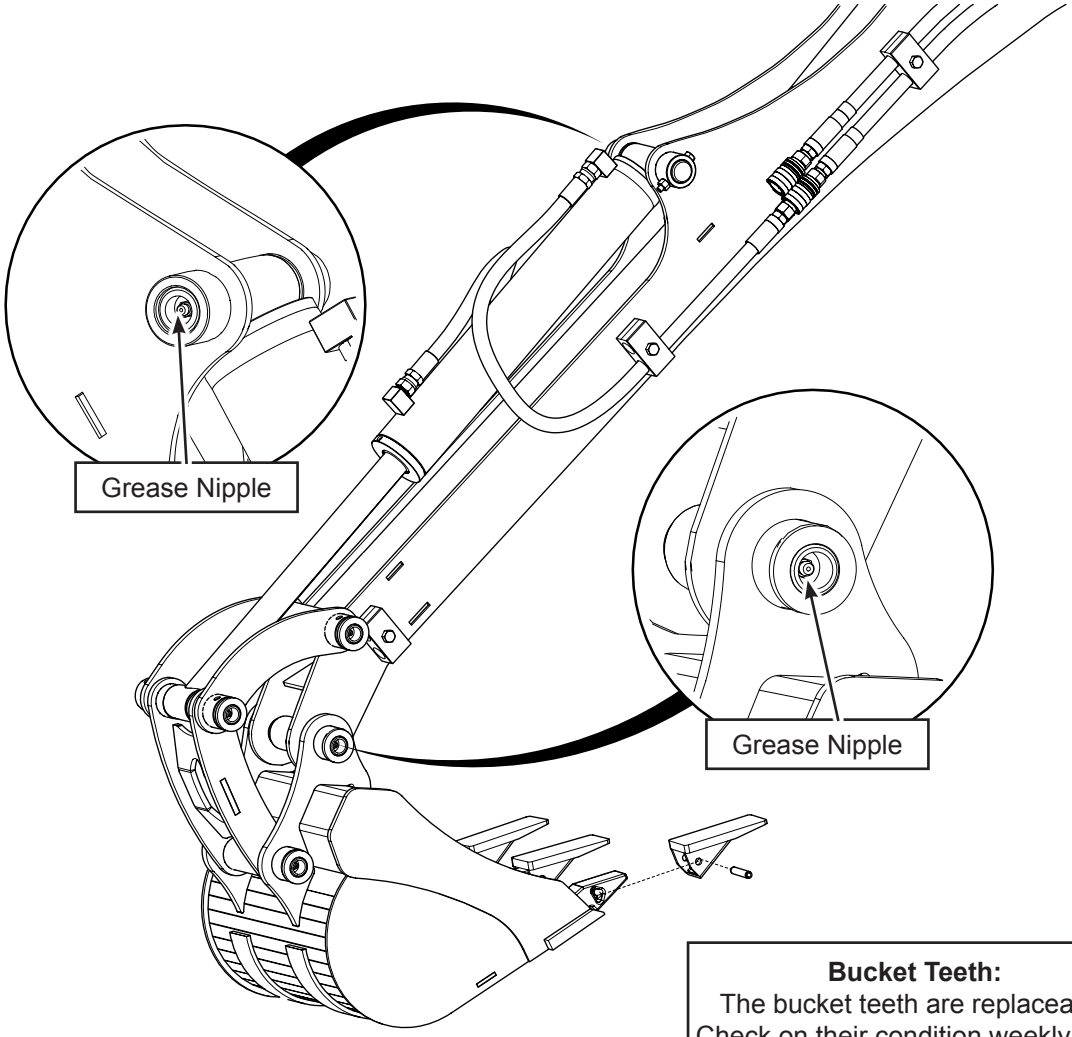
> ⚠ **Caution**: Keep all bystanders out of the work zone, at least 6m (20ft) feet away from the excavation work area.

5.3 BACKHOE KIT / BUCKET SERVICE ILLUSTRATION

This illustration shows the location of service grease points for BA-201 and BK series buckets. BK-2612 bucket is shown, but grease points are the same for all BK series buckets.
Follow the maintenance schedule in the owners manual.

Every 100 hrs or annually. Wash and clean the boom and bucket, remove entangled material, small debris

Every 50 hrs or annually.
5 x grease points:
greasable pins.



Bucket Teeth:
The bucket teeth are replaceable Check on their condition weekly. Replace if chipped, bent or damaged.

On a regular basis 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.

5.4 TRANSPORTING

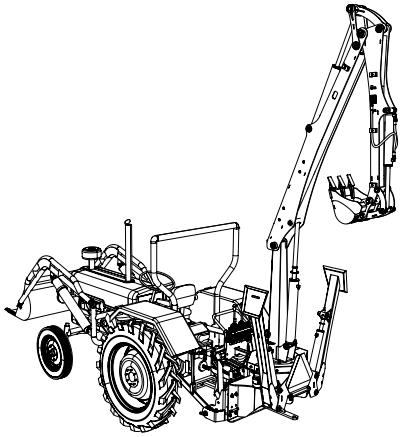
TRANSPORT SAFETY

- Comply with state and local laws governing safety and transporting of machinery on public roads.
- Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
- Do not exceed a safe travel speed. Slow down for rough terrain and cornering.
- Place the boom and bucket in safe position before moving or transporting.
- Do not drink and drive.
- Be sure the trailer is hitched positively to the tractor and a retainer is used through the drawbar. Always attach a safety chain between the hitch and the tractor.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
- Never allow riders on the machine.
- Review the transport safety section of the LX / LT owners manual

When transporting the machine, review and follow these instructions:

5.4.1 TRACTOR MOUNT

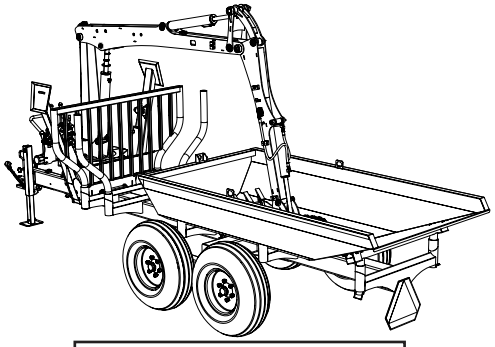
1. Be sure the three point hitch connections are secure, and pins are installed in all retainers.
2. Raise the main boom to its highest position and curl the in dipper arm and bucket. The main boom features a counter balance valve to prevent the boom from dropping due to cylinder drift.
3. Install the boom swing pin and secure with its retainer.
4. Be aware of overhead utilities and obstructions in your travel path.
5. When transporting by highway, check that a Slow Moving Vehicle (SMV) sign is attached,



Tractor mount boom ready for transport

5.4.2 TRAILER MOUNT

1. Be sure the trailer is hitched positively to the vehicle and a retainer is used through the drawbar.
2. Manoeuvre the boom and rest the bucket in the dump box / trailer.
3. Install the boom swing pin and secure with its retainer.
4. Retract the drop leg jack.
5. Do not exceed maximum load capacity:
   - LT 30 5000 lbs (2267 kg)
   - LT 60 10,000 lbs (4536 kg)
6. When transporting by highway, check that a Slow Moving Vehicle (SMV) sign is attached, and reflectors are installed and in good working condition.



Trailer mount boom ready for transport

7. Check that trailer brakes are functioning properly. (if installed)
8. Ensure your tow vehicle has the correct sized towing ball (**LT30** - 2", **LT60** 2 5/16") and a retainer is used through the ball hitch latch.
9. **LT60** articulating drawbar: ensure drawbar is straight and drawbar pin is installed.

6 L310 / L620 DUMP BOX

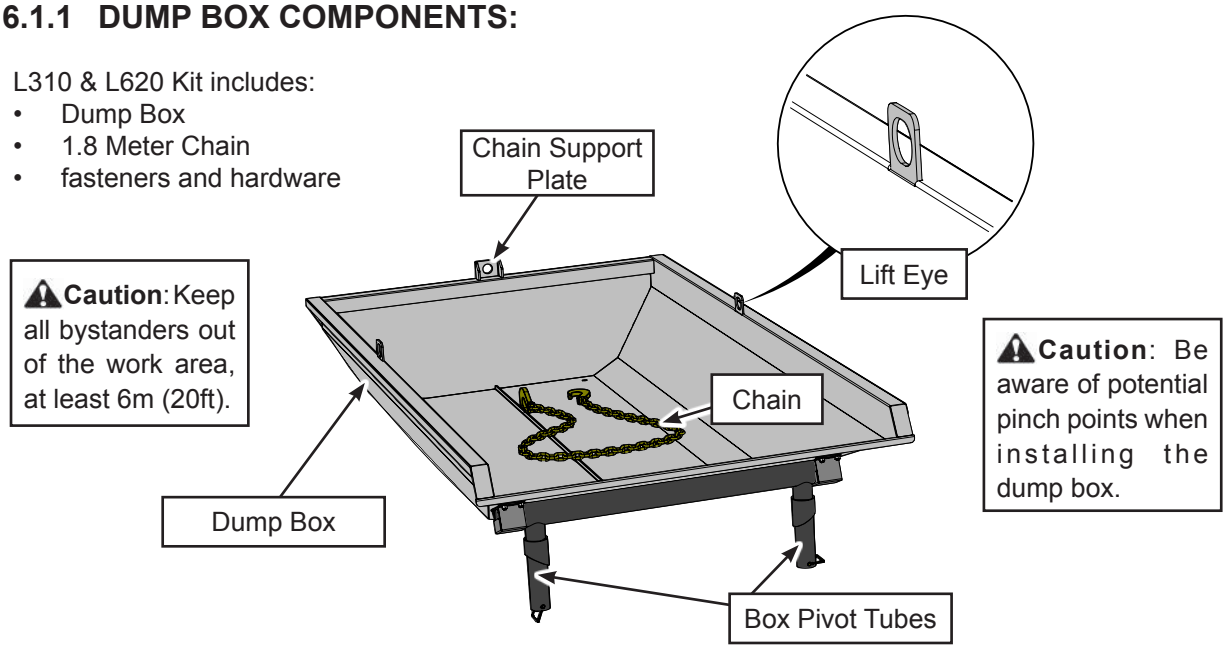
The Wallenstein Timber Talon Dump Box, the perfect match to the BA-201 Back Hoe Kit, allows you to load up, transport and easily dump your loads. For **LT30 trailer the L310** holds 0.7 cubic meters (25 cu.ft). For the **LT60 trailer the L620** holds 1.3 cubic meters (45 cu.ft), both dump boxes come complete with a 1.8 meter (6 foot) chain used for dumping.
Note: Installation and operation for both L310 & L620 are similar.

6.1 INSTALLATION

The dump box must be installed using the LX boom, and the bunk posts will need to be removed from the trailer. Plan a space to keep your bunk posts while using the dump box and have a container handy to store parts that have been removed.

6.1.1 DUMP BOX COMPONENTS:

L310 & L620 Kit includes:
- Dump Box
- 1.8 Meter Chain
- fasteners and hardware



6.1.2 PREPARE FOR INSTALLATION:

- You will need 2 people for the installation.
- Move the trailer to an level,open area.
- To avoid tripping hazards, ensure there is no debris or objects in the area.
- Remove all the bunk posts, have the flat bed beside the trailer.
- Ensure the trailer is clean and clear of debris

6.1.3 INSTALL THE KIT:

1. Start up the LX boom and lower the bucket over the dump box to waist level.
2. Slide the 1.8 meter chain through the chain hook located at the main pivot of the bucket,
3. Attach the chain to the lift eye tabs on each side of the dump box.
4. With one person at the boom controls, take the slack out of the chain and begin to lift the dump box.
5. Slowly and carefully continue to lift, ensure the dump box is level from side to side, adjust the chain if necessary,
6. The second person must steady and keep the box level from front to back.
7. Slowly and carefully move the dump box into position over the trailer.
8. Line up the box pivot tubes with the end bunk post sockets.
9. Slowly and carefully lower the dump box so the pivot tubes insert into the bunk post sockets.
10. Use the snap lock pins to secure the pivot tubes in place.
11. Lower the boom and disconnect the chain.

OPERATING SAFETY

- Please remember it is important that you read the operator's manual and heed the safety signs on the Timber Talon. They are there for your safety, as well as the safety of others. **The safe use of this machine is strictly up to you, the operator.**
- Before moving, making, adjustments or servicing, put the machine in safe condition:
  - install boom pin lock
  - shut off the engine
  - turn fuel valve off
  - ensure boom is in safe position
  - secure the tow vehicle / trailer from movement
- Review section 2.6 on Boom Safety in the **operators manual** and set up the operator safe zone and work zone.
- Review Operating Safety in section 4.2 of this manual before using the dump box.
- Be aware of potential pinch points when installing and using the dump box. Keep clear and keep bystanders clear during installation and use.
- Do not over load the dump box, too much weight could cause the box to collapse or trailer to tip.
- Be aware and keep clear of overhead utilities and obstructions.
- Stay 15m (50 ft) away from power lines. Electrocution can occur without direct contact.
- Do not walk or work under a raised machine or attachment. It is potentially hazardous to depend on the hydraulic system to hold the machine or attachment in place.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- When operating this equipment it is recommended to have at least 2 operators present and trained in safe operation of the machine. All operators must be completely familiar with all components of the machine and their function.
- Review safety instructions before each use or at least annually.

6.2 OPERATION

The Dump Box Kit is the perfect match to BA 201 Back Hoe Kit with the LX boom.

Before beginning work be sure to review the work area and ensure the operator is fully trained in the use and capacity of the dump box, how to load and dump.

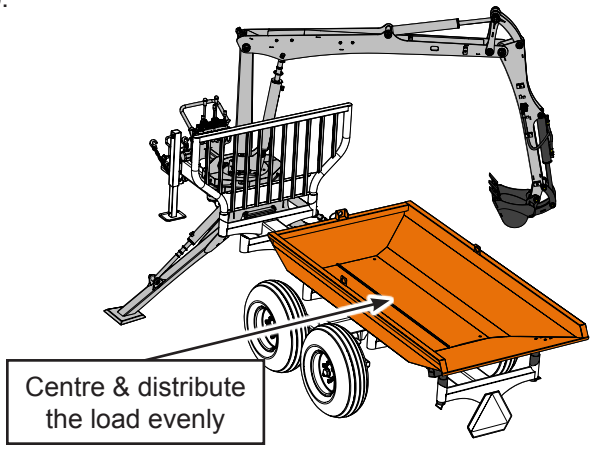
Practice will be required to achieve the best results.

6.2.1 LOADING:

a. Load the dump box as required.
b. Distribute the load evenly from side to side, avoid overloading one side.
c. Distribute the load evenly from front to back.
d. Partial loads placed to the rear will make dumping easier.

Caution: Maximum load capacity:
- LT 30 5000 lbs (2267 kg)
- LT 60 10,000 lbs (4536 kg)

Do not overload, damage may occur.



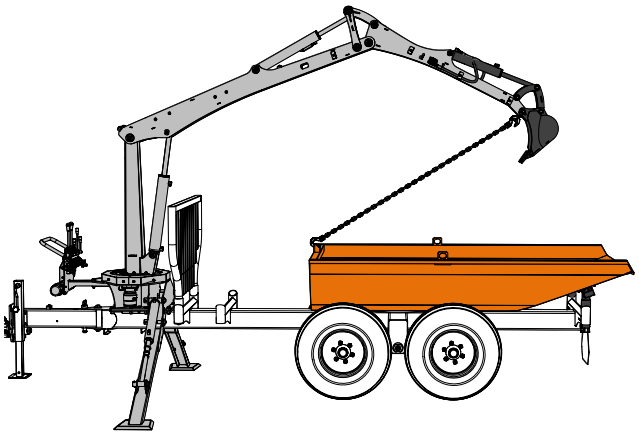
Centre & distribute the load evenly

Caution: Ensure pivot tubes snap lock pins are in place to secure the dump box to the trailer.

6.2.2 DUMPING

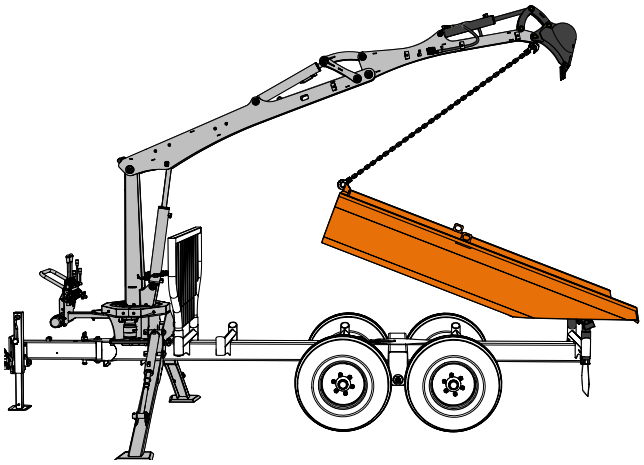
Please follow the procedure below to unload the dump box. Failure to follow the procedure could cause damage to the dump box or chain. Take time to practice dumping before proceeding.

a. Swivel the main tower so that it is centred on the trailer / dump box.
b. Raise the main boom just above 90° (approximately 115°)
c. Move the dipper boom so that you can easily attach the chain:
   - hook one end of the chain to the chain hook on the bucket
   - hook the other end to the chain support plate on the end of the dump box
d. Carefully move the dipper boom out till the chain is taught.



> ⚠ **Caution**: Ensure pivot tubes snap lock pins are in place to secure the dump box to the trailer.

e. Continue to move the dipper boom out as far as it will go.

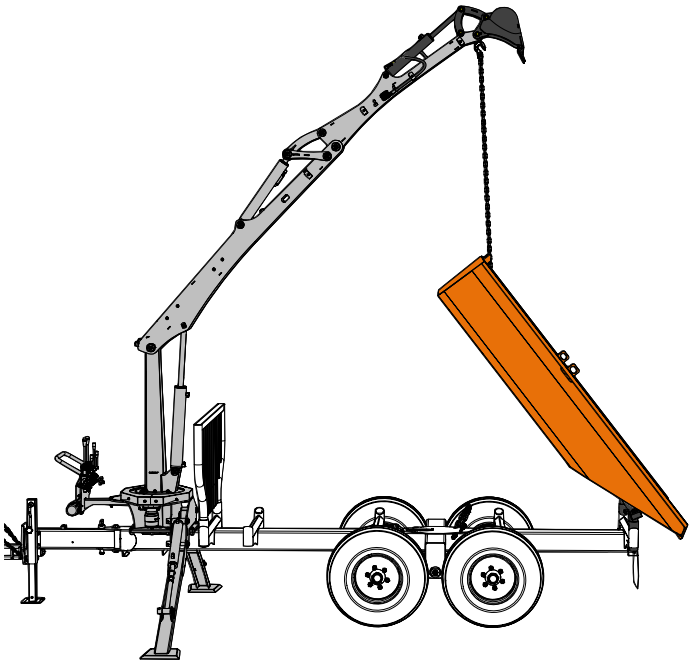


> ⚠ **Caution**: Keep all bystanders out of the work area, at least 6m (20ft).

> ⚠ **Caution**: Be aware of potential pinch points when raising / lowering the dump box.

> ⚠ **Caution**: Maximum load:
> - LT 30 5000 lbs (2267 kg)
> - LT 60 10,000 lbs (4536 kg)
>
> Do not overload, damage may occur to dump box or boom.

f. Raise the main boom approximately another 20°, until the load dumps. (Do not raise the boom too far or the dump box will be damaged)
g. Reverse the procedure when lowering the dump box.



7 L330 / L630 FLAT BED

The Wallenstein Timber Talon Flat Bed, allows you to convert you timber trailer to haul material and equipment easily. For **LT30 trailer the L330** has a 274 cm x 152 cm (9.0' x 5.0') cargo bed. For the **LT60 trailer the L630** has a 321 cm x 179 cm (10' 6"' x 5'.8") cargo bed. Note: Installation and operation for both L330 & L630 are similar.

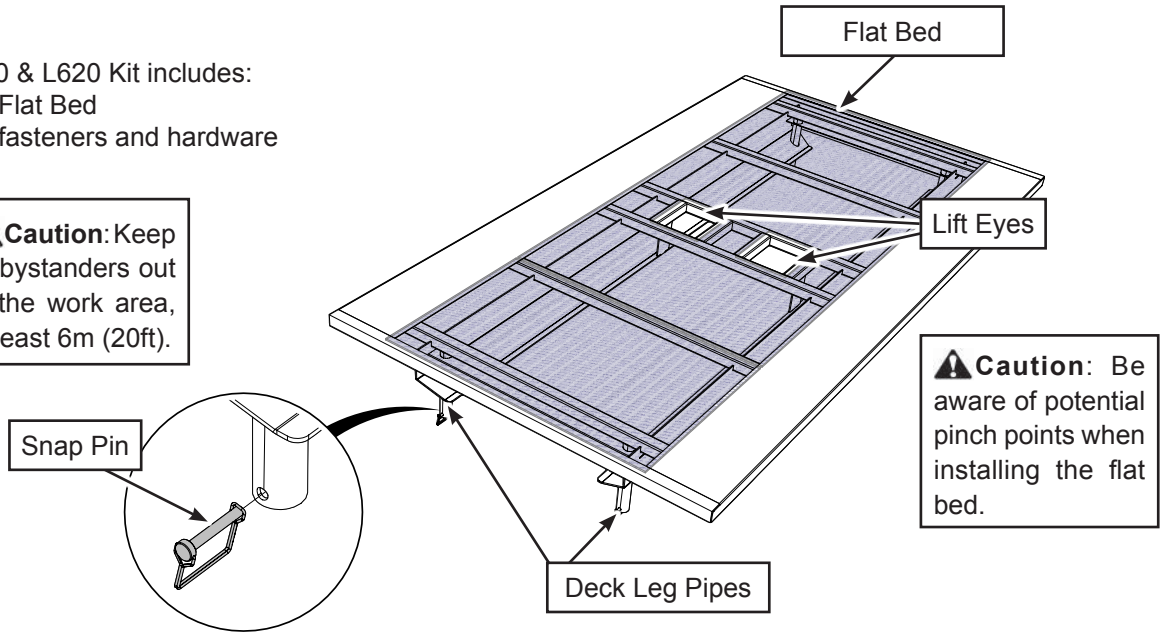
7.1 INSTALLATION

The flat bed must be installed using the LX boom, and the bunk posts will need to be removed from the trailer. Plan a space to keep your bunk posts while using the flat bed and have a container handy to store parts that have been removed.

7.1.1 FLAT BED COMPONENTS:

L310 & L620 Kit includes:
- Flat Bed
- fasteners and hardware

⚠Caution: Keep all bystanders out of the work area, at least 6m (20ft).



7.1.2 PREPARE FOR INSTALLATION:

- You will need 2 people for the installation.
- Move the trailer to an level,open area.
- To avoid tripping hazards, ensure there is no debris or objects in the area.
- Remove all the bunk posts, have the flat bed beside the trailer.
- Ensure the trailer is clean and clear of debris

7.1.3 INSTALL THE KIT:

1. Start up the LX boom and lower the grapple over the flat bed, and open the grapple jaws.
2. Align the jaws with the lift eye's on the flat bed,
3. Slowly and carefully lower the grapple jaws into the lift eye's, slowly close the jaws as you lower.
4. When the grapple jaws are inserted, ensure the jaws are fully closed.
5. Slowly and carefully lift the flat bed,
6. The second person must steady and keep the bed level from front to back.
7. Slowly and carefully move the flat bed into position over the trailer.
8. Line up the deck leg pipes with the bunk post sockets.
9. Slowly and carefully lower the bed so the deck leg pipes insert into the bunk post sockets.
10. Use the snap lock pins to secure the deck leg pipes in place.
11. Carefully remove the grapple.

OPERATING SAFETY

- Please remember it is important that you read the operator's manual and heed the safety signs on the Timber Talon. They are there for your safety, as well as the safety of others. **The safe use of this machine is strictly up to you, the operator.**
- Before moving, making, adjustments or servicing, put the machine in safe condition:
  - install boom pin lock
  - shut off the engine
  - turn fuel valve off
  - ensure boom is in safe position
  - secure the tow vehicle / trailer from movement
- Review section 2.6 on Boom Safety in the **operators manual** and set up the operator safe zone and work zone.
- Review Operating Safety in section 4.2 of this manual before using the dump box.
- Be aware of potential pinch points when installing and using the flat bed. Keep clear and keep bystanders clear during installation and use.
- Do not over load the flat bed, too much weight could cause the bed to bend, collapse or trailer to tip.
- Be aware and keep clear of overhead utilities and obstructions.
- Stay 15m (50 ft) away from power lines. Electrocution can occur without direct contact.
- Do not walk or work under a raised machine or attachment. It is potentially hazardous to depend on the hydraulic system to hold the machine or attachment in place.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- When operating this equipment it is recommended to have at least 2 operators present and trained in safe operation of the machine. All operators must be completely familiar with all components of the machine and their function.
- Review safety instructions before each use or at least annually.

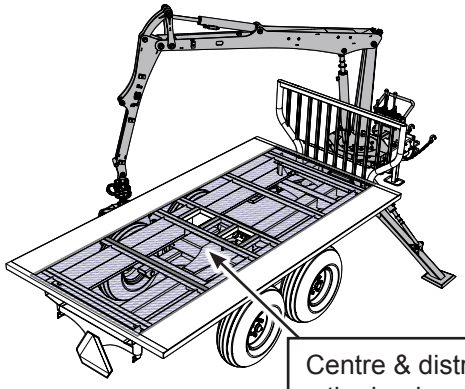
7.2 OPERATION

Before beginning work be sure to review the work area and ensure the operator is fully trained in the use and capacity of the flat bed and how to load and unload

Practice will be required to achieve the best results.

7.2.1 LOADING:

a. Load the flat bed as required.
b. Distribute the load evenly from side to side, avoid overloading one side.
c. Distribute the load evenly from front to back.
d. Ensure loads are secured, to keep loads from moving or shifting during transportation.



Centre & distribute the load evenly

Caution: Maximum load capacity:
- LT 30 5000 lbs (2267 kg)
- LT 60 10,000 lbs (4536 kg)

Do not overload, damage may occur.

Caution: Ensure deck leg pipe snap lock pins are in place to secure the flat bed to the trailer.

8 L650 HYDRAULIC ARTICULATED DRAWBAR

The Wallenstein Timber Talon Hydraulic Articulated Drawbar kit**,** allows your LT60 trailers draw bar to be control hydraulically, to make those tight bush corners easier to navigate. **The drawbar kit requires the use of your tractors hydraulic remotes.**

8.1 INSTALLATION

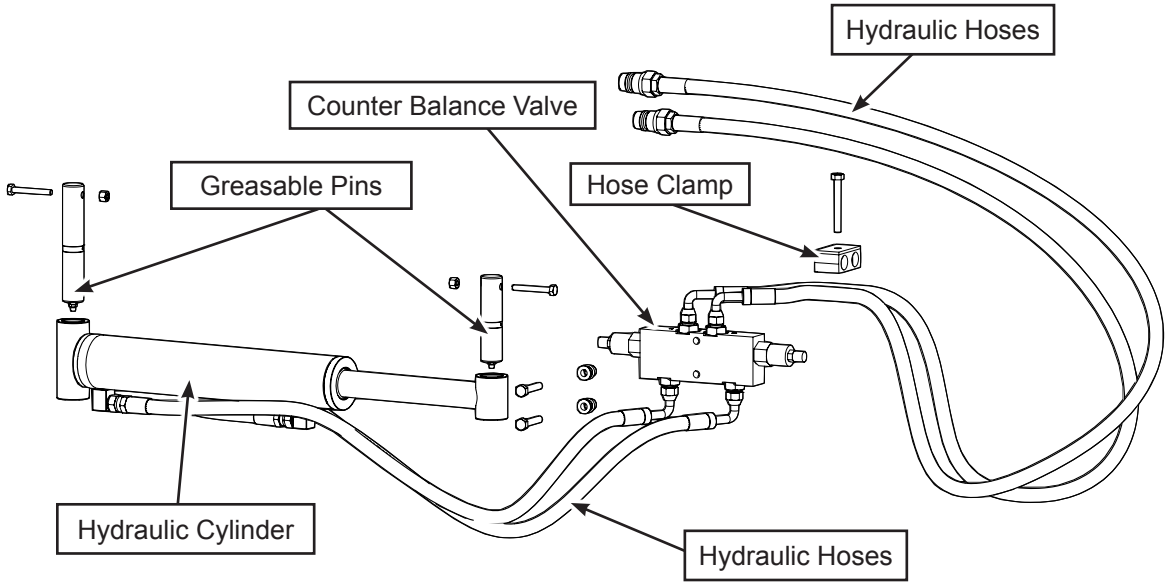
The Hydraulic Articulated Drawbar kit is installed on the drawbar of the LT60 trailer. The trailer features mounting points required to mount the kit, no modification is required. Have a container handy to store parts that have been removed.

8.1.1 DRAWBAR COMPONENTS:

L650 Kit includes:

- Hydraulic Cylinder
- Counter Balance Valve
- Hydraulic hoses w/Pioneer style ball connectors
- Hardware

⚠Caution: Keep all by-standers out of the work area, at least 6m (20ft).



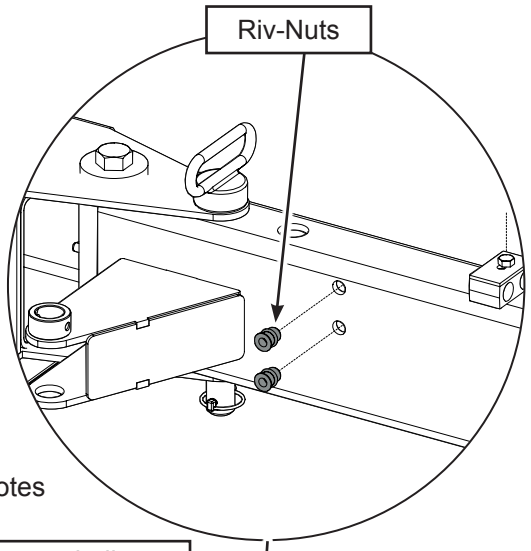
⚠Caution: Be aware of potential pinch points when installing the kit.

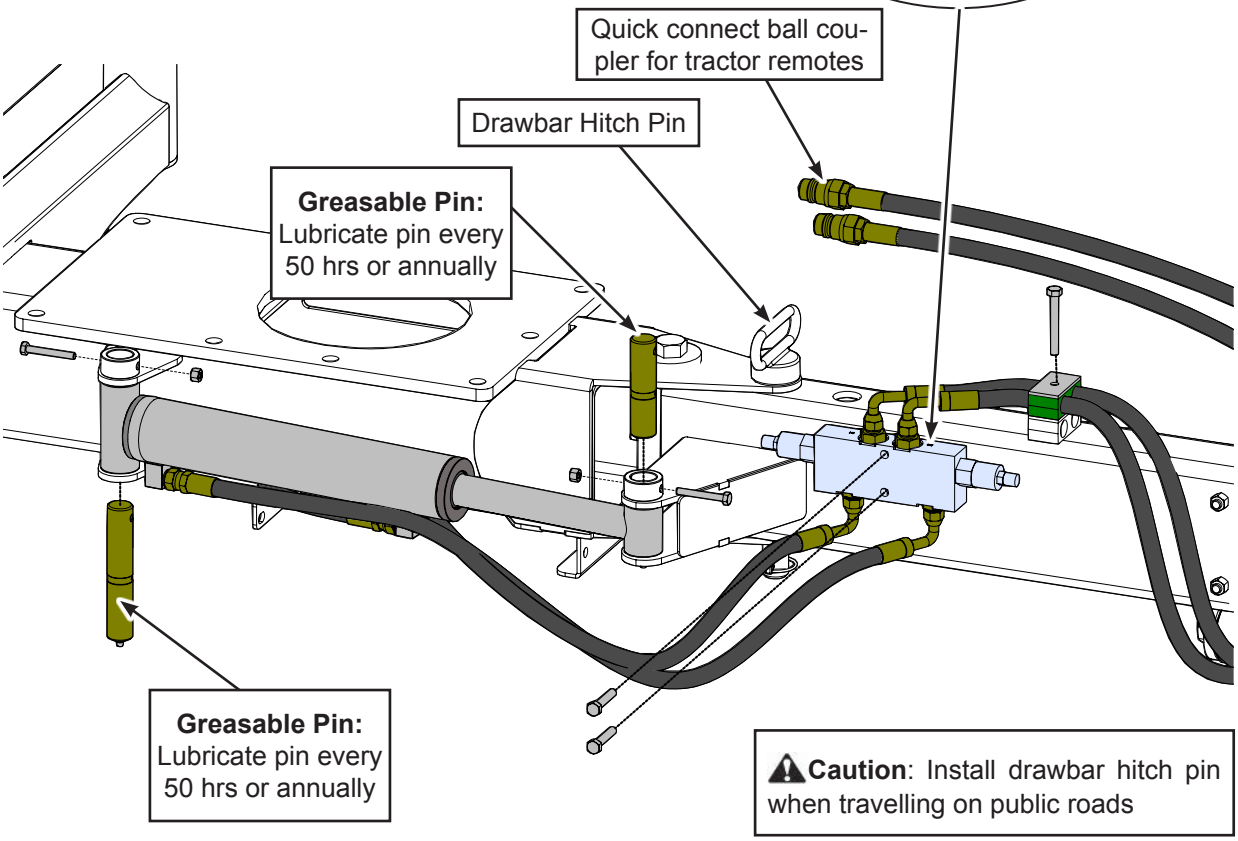
8.1.2 PREPARE FOR INSTALLATION:

- Move the trailer to an level, open area.
- To avoid tripping hazards, ensure there is no debris or objects in the area.
- Ensure the trailer is clean and clear of debris
- 2 x Riv-nuts need to be installed, you will need a riv-nut installation tool.

8.1.3 INSTALL THE KIT:

1. Install the 2 x riv-nuts into the drawbar.
2. Install the cylinder:
   - Remove the greasable pins from the cylinder
   - Place the cylinder in position on the drawbar
   - Install the greasable pins into the draw bar
   - Secure each pin with the nut and bolt.
3. Install the Valve:
   - Line the valve up with the riv-nuts
   - Install the 2 bolts and tighten down
   - Secure hoses with the hose clamp
4. Remove the drawbar hitch pin.
5. Insert the quick connect hydraulic lines to tractor remotes





8.2 OPERATION:

1. Use your tractor remotes to steer as required.
2. Do not use the cylinder when not moving, damage may occur.
3. Remove drawbar hitch pin when using the articulating drawbar.
4. Install the drawbar hitch pin when travelling on roads.

9 L301 & L601 POWER PACKS

The Wallenstein Timber Talon Power Packs**,** allows independently power your LX grapple: **L601 for LX115** features a Subaru 9HP engine, and the **L301 for LX95** contains a 7HP Subaru. Both power packs include hydraulic pump and 17.5 litre (4.6 us gal) reservoir tank.

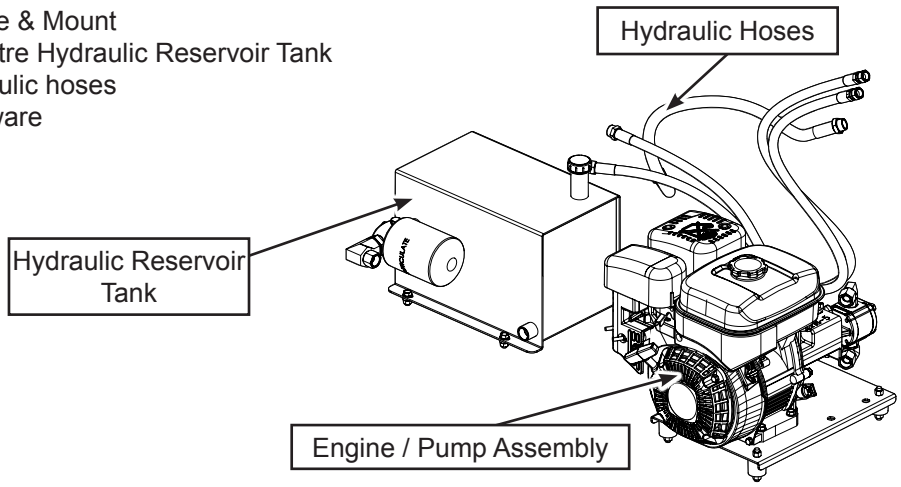
9.1 INSTALLATION L301

The Power Packs are installed on the drawbar of the LT trailers. The trailer features mounting points required to mount the kit, no modification is required. Operation is similar for both L301 & L601 models.

9.1.1 L301 LX95 / LT30 POWER PACK COMPONENTS:

L301 Kit includes:

- Engine & Mount
- 17.5 litre Hydraulic Reservoir Tank
- Hydraulic hoses
- Hardware



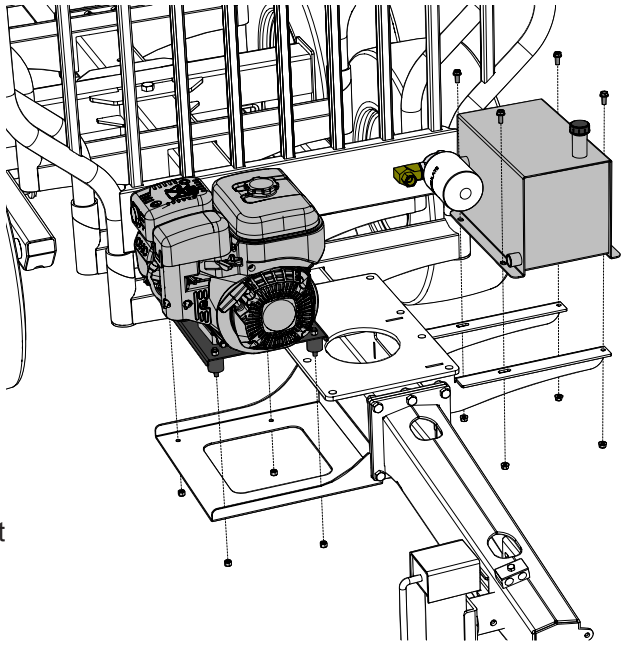
9.1.2 PREPARE FOR INSTALLATION:

- Move the trailer to an level, open area.
- To avoid tripping hazards, ensure there is no debris or objects in the area.
- Ensure the trailer is clean and clear of debris

9.1.3 INSTALL THE KIT:

Brackets to mount the Power Pack components are preinstalled on the LT30 trailer.

1. Mount the engine to the engine mount bracket with the hardware included
2. Next mount the reservoir tank to the mount brackets with the nuts and bolts included.
3. Use the hydraulic hose connection schematic and connect the hoses as described in the schematic. (see hydraulic fitting torque chart at the back of this manual).



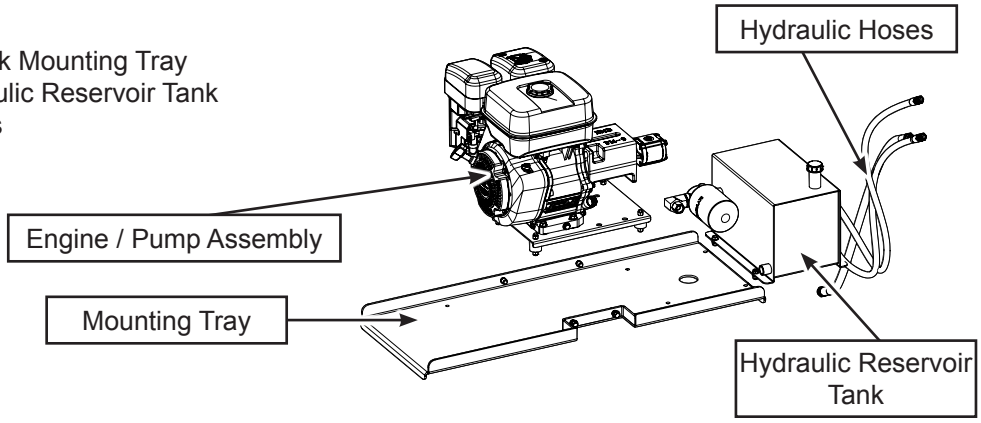
9.2 INSTALLATION L601

The Power Packs are installed on the drawbar of the LT trailers. The trailer features mounting points required to mount the kit, no modification is required. Operation is similar for both L301 & L601 models.

9.2.1 L601 LX115 / LT60 POWER PACK COMPONENTS:

L301 Kit includes:

- Engine
- Engine and Tank Mounting Tray
- 17.5 litre Hydraulic Reservoir Tank
- Hydraulic hoses
- Hardware

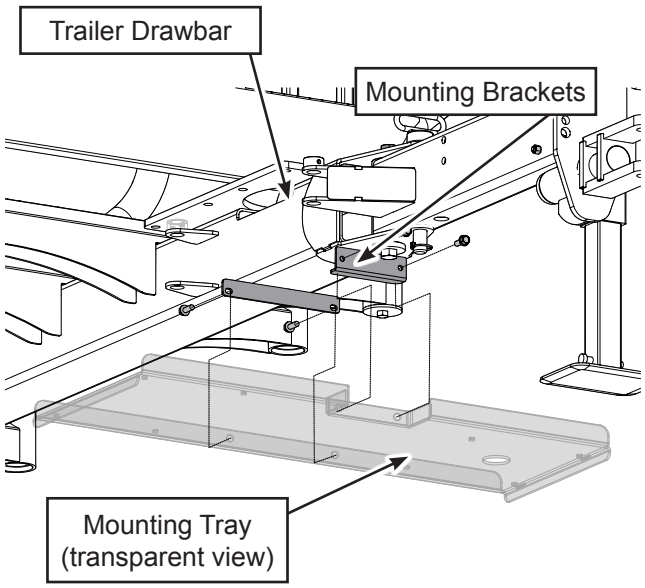


9.2.2 PREPARE FOR INSTALLATION:

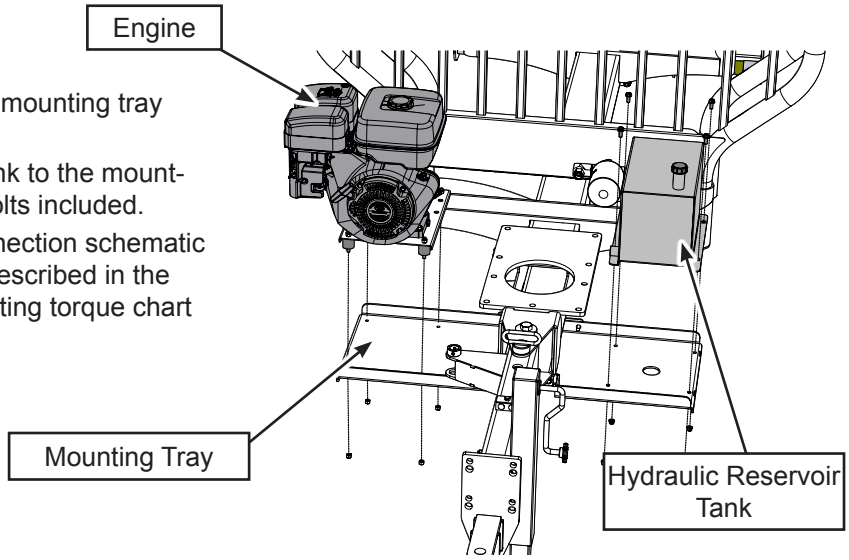
- Move the trailer to an level, open area.
- To avoid tripping hazards, ensure there is no debris or objects in the area.
- Ensure the trailer is clean and clear of debris

9.2.3 INSTALL THE KIT:

1. Assemble the mounting tray to the mounting brackets on LT60 trailer drawbar .



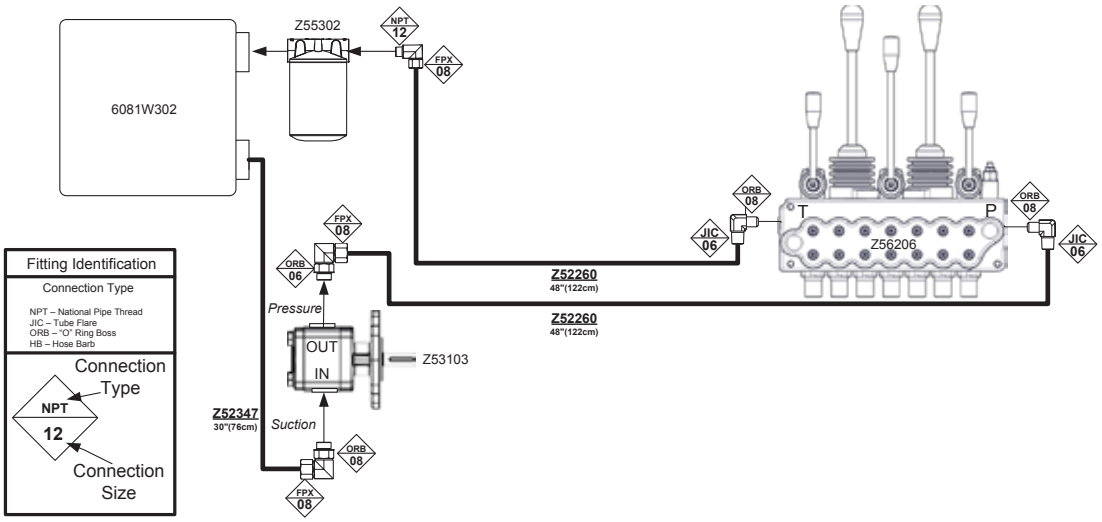
2. Assemble the engine to the mounting tray with the hardware included
3. Next mount the reservoir tank to the mounting tray with the nuts and bolts included.
4. Use the hydraulic hose connection schematic and connect the hoses as described in the schematic. (see hydraulic fitting torque chart at the back of this manual).



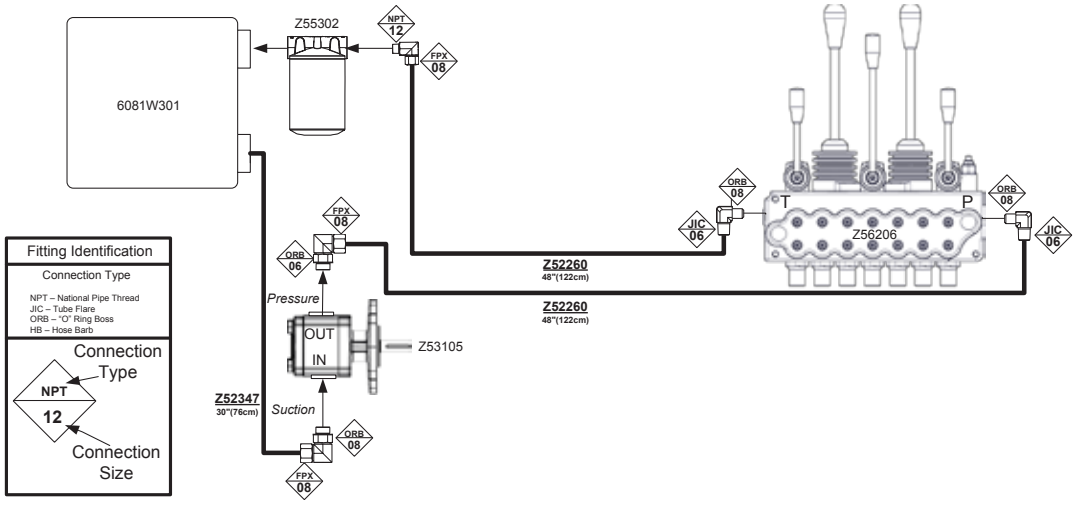
9.3 POWER PACK SCHEMATICS

Illustrated below are the schematics for the LX Power Packs. Use the schematics to ensure the correct connections are made for your model.

9.3.1 L301 LX95 / LT30 POWER PACK



9.3.2 L601 LX115 / LT60 POWER PACK



9.4 POWER PACK FEATURES

The LX Series Timber Talon have a LT trailer mount Hydraulic Power Pack kit accessory. The LX95 and LX115 each have their own kit but both have similar features. The following describes the functions of the features in each kit. The kit requires installation into the grapples hydraulic system.

Always read the engine Operator's manual supplied with the machine for the detailed operating procedures.

Before starting to work, all operators should familiarize themselves with the location and function of controls.

1. **Gas Engine:**
   Always read the engine Operator's manual supplied with the machine for detailed procedures.

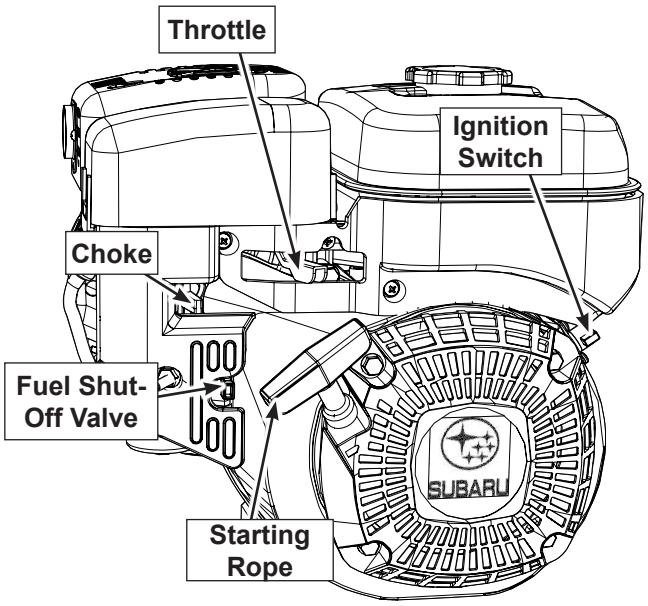
   a. **Ignition Switch:**
   This rotary switch controls the electrical power to the engine electrical system. Turn the switch clockwise to turn the electrical system ON and the engine will run. Turn counter-clockwise to stop the engine.

   b. **Fuel Shut-Off Valve:**
   Each engine is equipped with a valve between the fuel tank and the carburettor. Slide the fuel valve upwards to turn the fuel OFF and down to turn ON. Turn the fuel OFF before transporting.

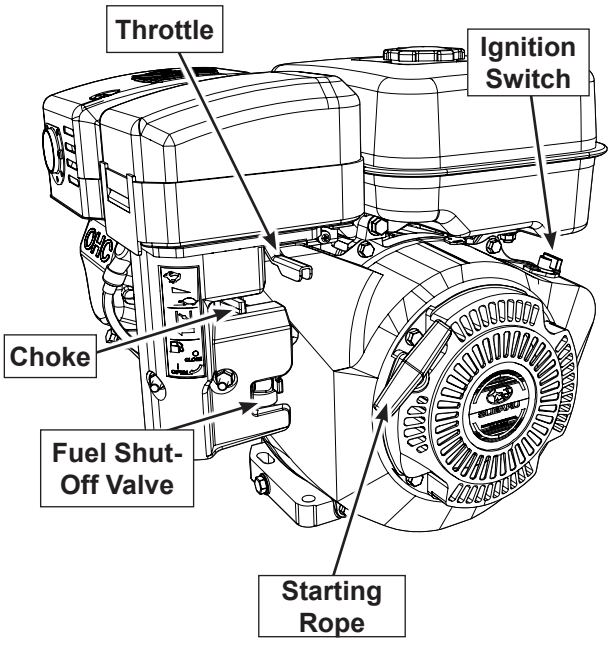
   c. **Throttle:**
   This lever controls the engine RPM. Move the lever laterally to increase or decrease the RPM. Always run at maximum throttle while operating.

   d. **Choke:**
   The choke controls the fuel/air mixture to the engine. Move choke laterally to the left, to close the choke when starting if the engine is cold. Open the choke as the engine warms. Always open the choke fully during operation.

   e. **Starting Rope:**
   This retracting rope and T-bar is used to turn the engine over before starting. Grasp the T-bar firmly and pull the rope sharply to start the engine.



Subaru SP210 - LX95 Power Pack



Subaru EX27 - LX115 Power Pack

9.5 STARTING PROCEDURE

These procedures can be applied to L301 & L601 Power Packs.

After following operating safety and preparation procedure in the LX / LT owners manual, the grapple / trailer should be set up and ready to run. Power Pack engine manual should also be reviewed. Review Section 2.6 of the owners manual for safe zone and work zone.

9.5.1 POWER PACK

a. Close the choke if the engine is cold.

b. Move the throttle to its 1/4 throttle position.

c. Open the fuel supply valve.

d. Turn the ignition switch to "on". Grasp the T bar on the pull cord firmly, and pull the rope sharply to start the engine.

e. Run the engine for a few minutes to allow it to warm.

f. Gradually open the choke.

g. Increase engine speed to full throttle.

h. Ensure stabilizers are lowered and firmly placed and proceed with work.

9.5.2 STOPPING:

a. Move grapple to safe location,
- secure the trailer from movement
- close the grapple and set it on the ground, or clamp the grapple to trailer frame or log.
- if possible, install boom pin lock
- shut off the engine
- turn fuel valve off
- ensure load is secure

b. Slow engine RPM.

c. Stop engine using ignition switch.

9.5.3 EMERGENCY STOPPING:

If an emergency occurs:
- **shut off the engine,**
- **if possible, carefully lower the grapple load onto the trailer or ground**
- Correct emergency situation before restarting engine and resuming work.

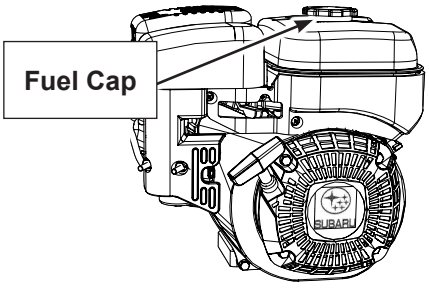
9.5.4 REFUELLING:

Timber Talon Power Packs require fuel to run. Avoid running the tank dry. Use the appropriate grade of fuel, and use caution to prevent spilling. Do not smoke while refuelling.

Please review the engine owners manual for additional instructions.

To add fuel:

1. Enure the machine is in **safe condition** before beginning to fuel (see 4.1.1)
2. Allow the engine and muffler to cool.
3. Clean area around fuel fill cap and remove cap.
4. Using a clean funnel, fill fuel tank to 1.25cm (1/2”) below bottom of filler neck to provide space for any fuel expansion. Do not overfill.
5. Install fuel fill cap securely and wipe up any spilled fuel.



Subaru SP210 Fuel Tank

9.6 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.
Put the machine in **safe condition** before working on this machine,

- grapple closed and resting on trailer
- install boom pin lock
- shut off the engine
- turn fuel valve off
- ensure load is secure
- secure the trailer from movement

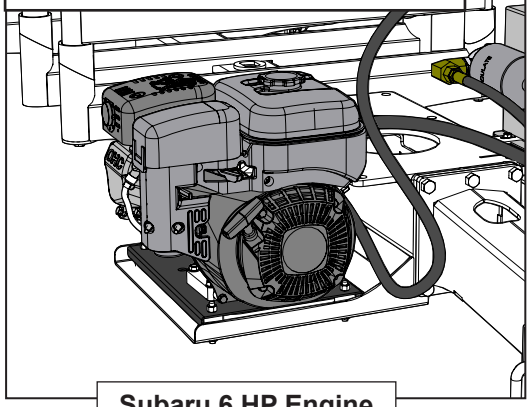
9.6.1 LX90 / LX115 POWER PACK ENGINE

See Service Record Chart

Engine Service: refer to engine owners manual for service:

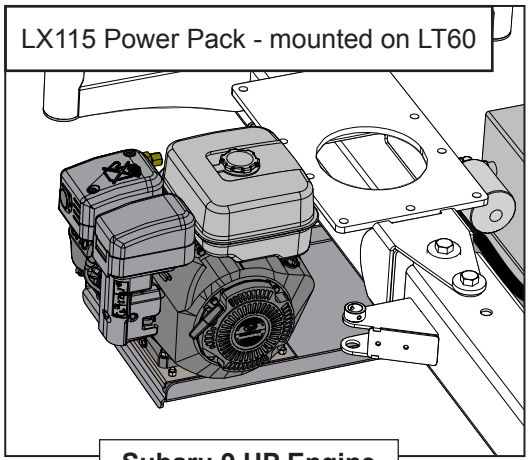
- Air cleaner
- Oil change

LX95 Power Pack mounted on LT30



Subaru 6 HP Engine and Hydraulic Pump

LX115 Power Pack - mounted on LT60



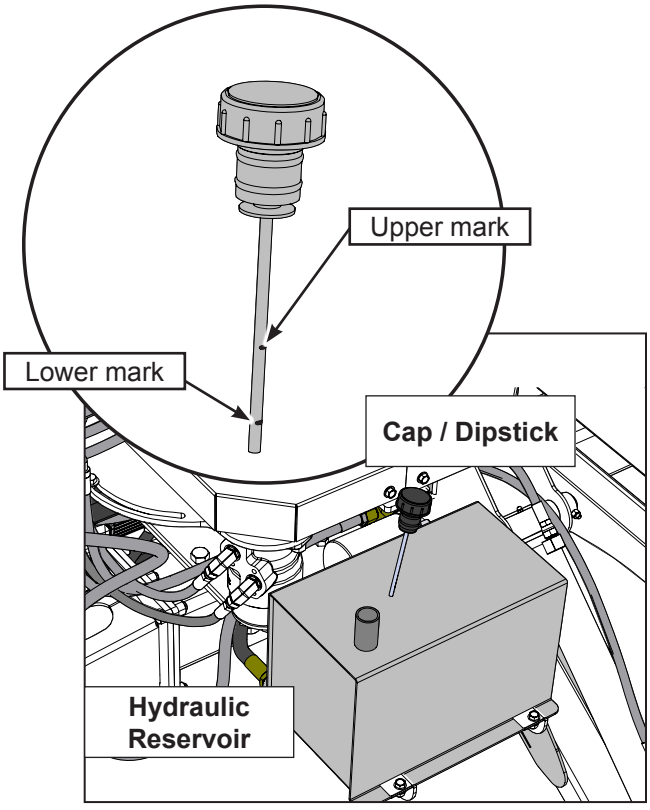
Subaru 9 HP Engine and Hydraulic Pump

9.6.2 HYDRAULIC OIL FILL

The hydraulic tank on both the LX95 & LX115 power pack is located opposite the engine beside the trailer tongue. They are equipped with a cap / dipstick that shows the level of oil in the tank. Hydraulic oil level should be checked daily, and the quality of the oil should be inspected every 50 hrs. If the oil is dirty or smells burnt, it should be replaced.

1. Enure the machine is in **safe condition** (see 8.2)
2. Allow the engine and muffler to cool.
3. Clean area around fill cap and remove cap.
4. Using a clean funnel, fill the tank according to the oil dip stick:
   - Never fill the oil tank above the **upper** (maximum) line at the top of the dip stick.
   - Do not run the machine with the oil level below the **bottom** (minimum) line at the bottom of the dip stick.
   - Reservoir Capacity 17.5 L (4.6 US Gal.)
   - Use Dexron III hydraulic oil for all operating conditions.
5. Install fill cap securely and wipe up any spilled fuel.

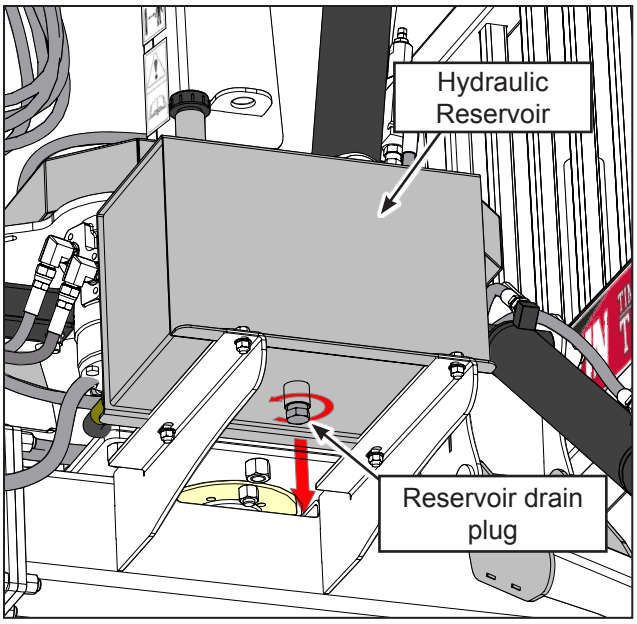
Check levels after changing filters or servicing hydraulic components.



9.6.3 HYDRAULIC OIL DRAIN

The hydraulic tank may occasionally need to be drained. The drain plug is located at the bottom of the hydraulic tank. Follow this procedure to drain the tank:

1. Enure the machine is in **safe condition** (see 8.2)
2. Allow the machine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin. It is best to change oil while the machine is warm to keep the contaminants in suspension.
3. Have a drain pan ready than can hold 17.5 L (4.6 US Gal.)
4. Clean area around drain and remove the bolt.
5. Allow the oil to drain, then flush the tank.
6. Replace the bolt, and refill the tank with 17.5 L (4.6 US Gal.) of Dexron III hydraulic oil.
7. Dispose of used oil in a environmentally acceptable fashion.

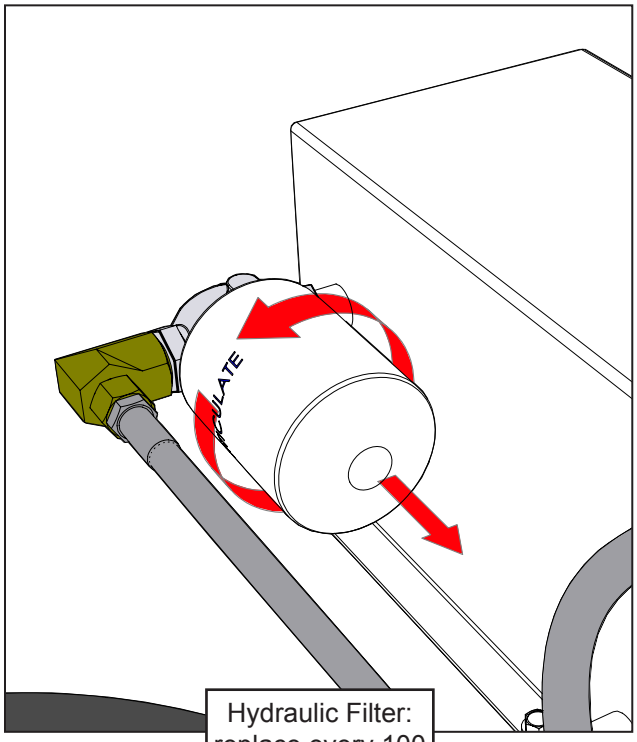


IMPORTANT
Use care when draining the tank to prevent spilling the contents and contaminating the workplace.

9.6.4 HYDRAULIC OIL FILTER

The hydraulic filter needs to be changed at least every 100 hours or annually. The filter is located below the control panel. Follow this procedure to change out the filter:

1. Enure the machine is in **safe condition** (see 8.2)
2. Allow the machine to cool before changing the oil filter. Hot oil can cause burns if it contacts exposed skin. Have a drain pan ready to catch any dripping oil.
3. Clean area around filter, then remove the filter.
4. Apply a light coat of oil to the "O" ring and install the replacement filter (AE-25). Snug up by hand and then tighten 1/2 turn.
5. Run the machine for 1-2 minutes while operating hydraulics and check filter head for oil leaks.
6. If leaks are found around the filter, tighten slightly.
7. Check hydraulic reservoir oil level. Top up as required.
8. Dispose of used oil filter in a environmentally acceptable fashion.



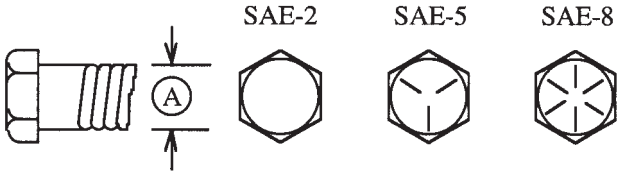
10 BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

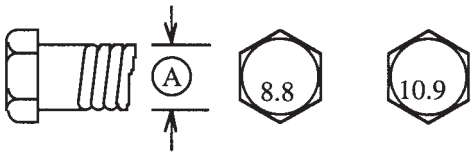
ENGLISH TORQUE SPECIFICATIONS

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



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*			
	8.8		10.9	
	(N.m)	(lb-ft)	(N.m)	(lb-ft)
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

11 HYDRAULIC FITTING TORQUE

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. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value• (N.m)	(lb-ft)	Recommended Turns To Tighten (After Finger Tightening) (Flats)	(Turn)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	**11/16**	**24**	**18**	**1**	**1/6**
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

The torque values shown are based on lubricated connections as in reassembly.

12 WHEEL LUG TORQUE

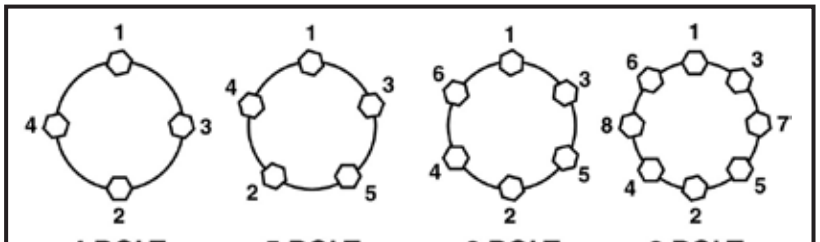
It is extremely important safety procedure to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

Wheel lugs should be torqued before first road use and after each wheel removal. Check and re torque after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter.

Note: Wheel lugs must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.

1. Start all lugs by hand to prevent cross threading.
2. Tighten lugs in sequence, per wheel lug torque sequence chart.
3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements chart.

Wheel Torque Requirements				
Wheel Size	Torque Unit	1st Stage	2nd Stage	3rd Stage
8"	ft-lbs	12 - 20	30 - 35	45 - 55
	Nm	16 - 26	39 - 45.5	58.5 - 71.5
12"	ft-lbs	20 - 25	35 - 40	50 - 60
	Nm	26 - 32.5	45.5 - 52	65 - 78
13"	ft-lbs	20 - 25	35 - 40	50 - 60
	Nm	26 - 32.5	45.5 - 52	65 - 78
14"	ft-lbs	20 - 25	50 - 60	90 - 120
	Nm	26 - 32.5	65 - 78	117 - 156
15"	ft-lbs	20 - 25	50 - 60	90 - 120
	Nm	26 - 32.5	65 - 78	117 - 156



Wheel Lug Torque Sequence