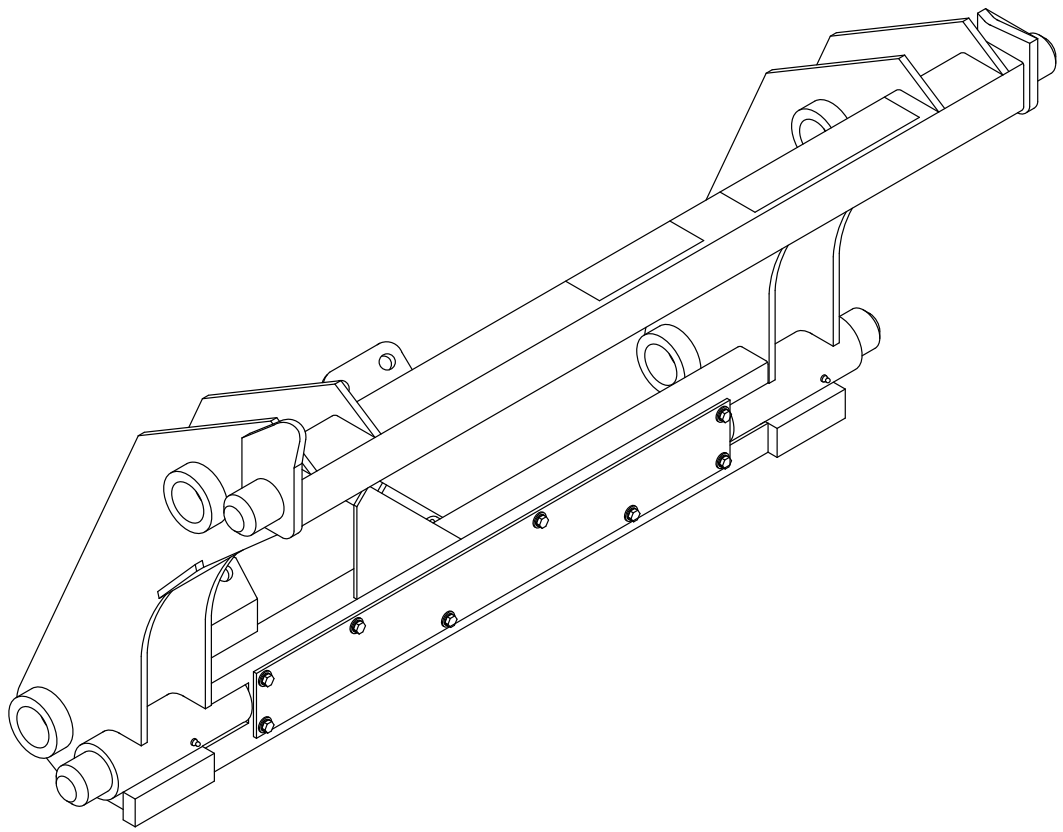
FFC
BY PALADIN

OPERATOR'S AND PARTS MANUAL

TOOL CARRIER
PATENTED



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: MR45520
Part Number: LAF1721 & LAF1731 (Manual); LAF1718, LAF1730 & LAF1769 (Hydraulic)
Rev. 3

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PREFACE

GENERAL COMMENTS

Congratulations on the purchase of your new attachment! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

WARNING! Never let anyone operate this unit without reading the "Safety Precautions" and "Operating Instructions" sections of this manual.
Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.

Unless noted otherwise, right and left sides are determined from the operator's control position when facing the attachment.

NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operators.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters: some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime mover, operator, and job site, it is not possible to get precise machine and operator sound pressure levels or vibration levels for this attachment.

NOTE: A list of all Paladin Patents can be found at http://www.paladinattachments.com/patents.asp.

SAFETY STATEMENTS

THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

DANGER **THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

WARNING **THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

CAUTION **THIS SIGNAL WORD IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.**

NOTICE **NOTICE INDICATES A PROPERTY DAMAGE MESSAGE.**

GENERAL SAFETY PRECAUTIONS

WARNING! READ MANUAL PRIOR TO INSTALLATION

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.

KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn and hard to read.

GENERAL SAFETY PRECAUTIONS

WARNING! PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

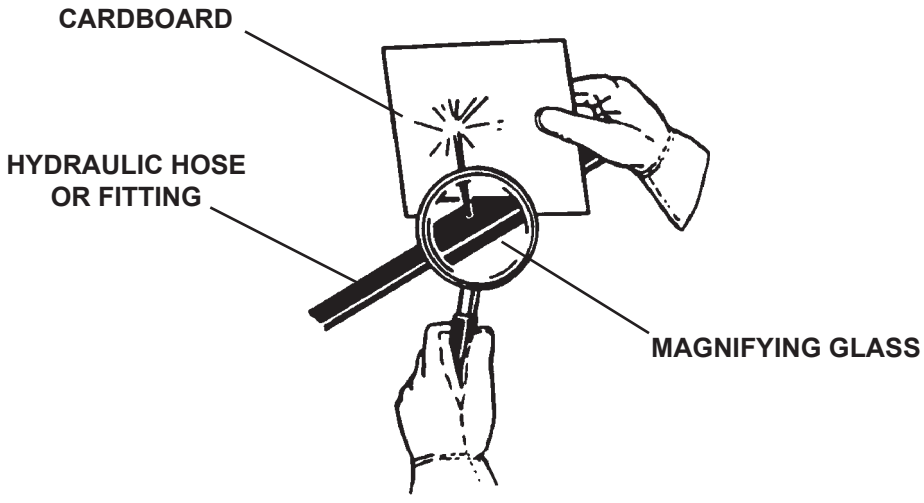
WARNING! LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or onto blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

WARNING! USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime movers operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



GENERAL SAFETY PRECAUTIONS

WARNING! DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

WARNING! SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing, or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tool for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.

WARNING! SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operators position.
- Never leave equipment unattended with the engine running or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

WARNING! KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

EQUIPMENT SAFETY PRECAUTIONS

WARNING!

EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

WARNING!

REMOVE PAINT BEFORE WELDING OR HEATING

Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly. Remove paint before welding or heating.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

WARNING!

END OF LIFE DISPOSAL

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

OPERATING THE TOOL CARRIER

- Verify that the connection pins are fully latched. Attachment may drop without warning if not properly attached.
- Keep out of all potential drop paths when repositioning the release handle.
- Keep clear of the area between the loader arms and the tilt cylinders or linkages when positioning the release handle.
- Do not exceed the lifting capacity of your prime mover.
- Operate only from the operator's station.
- When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Before exiting the prime mover, lower the attachment to the ground, apply the brakes, turn off the prime mover's engine and remove the key

EQUIPMENT SAFETY PRECAUTIONS

MAINTAINING THE TOOL CARRIER

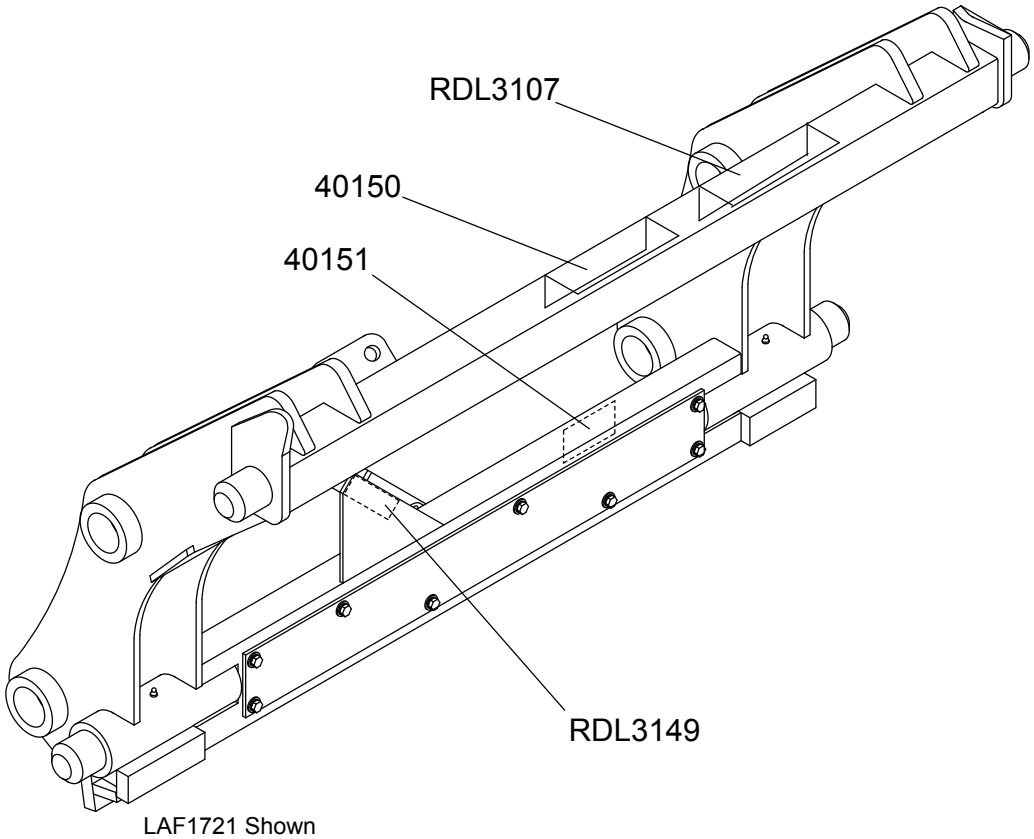
- Before performing maintenance (unless otherwise specified) lower the attachment to the ground, apply the brakes, turn off the engine and remove the key.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manuals before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag “DO NOT OPERATE” until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from “insert brand name”.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

TRANSPORTING THE TOOL CARRIER

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs etc., to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

DECALS

The diagram on this page shows the location of the decals used on the Tool Carrier. The decals are identified by their part numbers, with reductions of the actual decals located on the following page. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the attachment. They contain information you need to know for both safety and product longevity.



LAF1721 Shown

IMPORTANT: Keep all safety decals clean and legible. Replace all missing, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced. Safety signs are available, free of charge, from your dealer or from FFC.

REPLACING SAFETY DECALS: Clean the area of application with a nonflammable solvent, then wash the same area with soap and water. Allow the surface to dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram, and smooth out any bubbles.

DECALS

PART # 40150
WARNING! READ MANUAL

PART # 40151
WARNING! HIGH PRESSURE FLUID

PART # RDL3107
WARNING! ENGAGE LATCH PINS

NOTE: A half-sized RDL3107 (RDL3251) is required to be installed on the dash of your prime mover for the LAF1718, LAF1730 and LAF1769 models.

PART # RDL3108
WARNING! HANDS & FEET QA

NOTE: RDL3108 <u>MUST</u> be on <u>ALL</u> pieces of equipment that are attached to this product.

PART # RDL3149
HANDLE LATCH REFLECTOR RED

NOTE: RDL3149 is used only on LAF1721 and LAF1731 models.

INSTALLATION

WARNING! READ MANUAL PRIOR TO INSTALLATION

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**

FOR ALL MODELS

1. Place this product on a firm, level surface that is large enough to safely accommodate this product, your prime mover and all workers involved in the mounting process.
2. Refer to the operator's manual(s) for your prime mover and loader and follow the mounting instructions contained therein.
3. Place your prime mover's transmission in "Park" and engage the parking brake.
4. Lower this product onto the level surface.
5. Shut off your prime movers engine, remove the starter key, wait for all moving parts to come to a stop, and relieve all pressure in the hydraulic lines.

(For **LAF1718, LAF1730 & LAF1769** (Hydraulic) continue with step 6 through 16)
(For **LAF1721 & LAF1731** (Manual) continue with step 16 on page 15)

6. Once your Tool Carrier is properly attached to your loader, the hydraulic connections to your prime mover must be made:
   a) Remove the plastic shroud from under the left side of the operator's station floor by removing three bolts. Then, remove the operator's station floor panel to gain access to the hydraulic fitting stacks.
   b) Remove the two hydraulic hoses that connect the male-male adapter on the loader control valve to two of the hydraulic tees in the fitting stack under the operator's station floor. One of these two hydraulic tees sends hydraulic fluid to the rod ends of the loader tilt cylinders and the other one sends hydraulic fluid to the butt ends of the loader tilt cylinders.
   c) Install a 90° hydraulic male-male elbow in the "A" port of the hydraulic manifold assembly and a #6 male JIC to male o-ring boss adapter in each of the other three ports.
   d) Install a 90° hydraulic male-female elbow on to the adapter in the "B" port of hydraulic manifold assembly. Connect one .25" diameter by 12'-10" long hydraulic hose to the elbow in the "A" port and connect the second 12'-10" hose to the elbow on the "B" port adapter of the hydraulic manifold assembly. Assemble a nylon cable tie to each end of the hose connected to the "A" port for later identification purposes.
   e) Create the hydraulic hose assemblies by:
      i. Connect the straight end of a .5" dia. by 2'-2" long hydraulic hose to a branch of a hydraulic branch tee.
      ii. Connect a #10 female to #6 male hydraulic adapter to the other branch of the same tee.
      iii. Connect the face seal end of a.25" diameter by 1'-5" long hydraulic hose to the other end of the adapter.
      iv. Connect the JIC end of the same hose to a 90° hydraulic male-female elbow.
      v. Repeat for the second set of hoses and fittings.
   f) Install the stem of each of the two hydraulic branch tees on to one of the hydraulic tee stems that were exposed as a result of removing the hoses in step "b)" above.

g) Connect the .5" dia. 90° end of the rod side hydraulic hose assembly which is assembled to the forward-most tee to the top open port of the loader control valve for all models except the LB75.B with Rexroth pilot controls, LB90.B with Rexroth pilot controls, LB110.B with Rexroth pilot controls, LB115 and LB115.B. For these models connect to the bottom open port of the loader control valve. The “rod side” hydraulic lines supply hydraulic fluid to the rod ends of the loader tilt cylinders. Connect the 90° hydraulic elbow end of this hose assembly to the “P” port adapter on the hydraulic manifold assembly.

h) Connect the .5" 90° end of the butt side hydraulic hose assembly which is assembled to the 2nd tee from the front to the bottom open port of the loader control valve for all models except the LB75.B with Rexroth pilot controls, LB90.B with Rexroth pilot controls, LB110.B with Rexroth pilot controls, LB115 and LB115.B. For these models connect to the top open port of the loader control valve. The “butt side” hydraulic lines supply hydraulic fluid to the butt ends of the loader tilt cylinders. Connect the 90° hydraulic elbow end of this hose assembly to the “T” port adapter on the hydraulic manifold assembly

CAUTION! Failure to obey the following procedures may result in personal injury.

- **To avoid electrical shock during the wiring harness installation, remove the ground cable from the battery of your prime mover.**

7. The electric power connections must be made:
   a) Remove the ground cable from the negative (-) post of your prime mover’s battery.
   b) Drill a .5" diameter hole for the toggle switch through the panel that is on the left side of your prime mover’s steering column. The center of the hole should be located by measuring 2.75" straight up from the center of the hazard light to a reference point and then, from that point, measuring .5" forward (toward the front of your prime mover). Be sure to check for other components beneath the panel before drilling to avoid doing damage there.
   c) Create the unswitched positive wire assembly:
      i. Cut a length of red wire, the unswitched positive wire, long enough to run from the toggle switch hole to the bottom of the fuse panel on your prime mover. Be sure to follow the exact route that such a wire would have to follow when installed.
      ii. Cut a 2” long piece off the fuse panel end of the unswitched positive wire. Strip both ends of the 2” long piece. Crimp a 16-14 .25" ring terminal on one end and crimp the other end to one end of the fuse holder.
      iii. Strip both ends of the remaining piece of the unswitched positive wire. Crimp the other end of the fuse holder on to one end of this wire and crimp a 16-14 .25" female spade connector on to the other end.
      iv. Cut a length of .5" I.D. corrugated wire loom that is the same length as the wire in the previous step.
   d) Cut a second length of red wire, the switched positive wire, long enough to run from the toggle switch hole to the wiring connection on the hydraulic manifold assembly. Be sure to follow the exact route that such a wire would have to follow when installed. Strip both ends and crimp a 16-14 .25" female spade connector on to one end.
   e) Cut a length of white wire, the ground wire, long enough to run from the bottom of the fuse panel on your prime mover to the wiring connection on the hydraulic manifold assembly. Be sure to follow the exact route of the red wires. Strip both ends and crimp a 16-14 .25" ring terminal on one end.
   f) Slip the female spade end of the unswitched positive wire assembly and the stripped end of the ground wire through the wire loom that was cut in step “7.c) iv” above.

g) Connect the ring terminal end of the unswitched positive wire assembly to the positive stud (marked “+ 15”) found in the lower left area of your prime mover’s fuse panel. Connect the ring terminal end of the ground wire to the ground stud found in the lower right area of your prime mover’s fuse panel.
h) Connect the female spade end of the unswitched positive wire assembly to one of the male spade connectors on the toggle switch. Connect the female spade end of the switched positive wire to the other male spade connector on the toggle switch.
i) Slide the threaded portion of the toggle switch out through the drilled hole so that the normal position of the toggle leans vertically upward. Slide the flat side of the spring-loaded switch cover over the threaded portion of the toggle switch. Discard the “ON-OFF” tab. Orient the hinge side of the cover straight down from the hole and secure the toggle switch to the panel with a nut.
j) Install the “LOCK-UNLOCK” instructional sign (RDL3250) on the panel immediately beside the switch so that the sign is centered vertically on the switch and is just to the prime mover’s rear of the switch.
k) Install the half-size “WARNING: Fully engage latch pins before operating” (RDL3251) safety sign on the panel near the toggle switch so that this sign is completely above the switch and is just to the prime mover’s front of the switch.
l) Slide the remaining .5" I.D. corrugated wire loom over the stripped ends of the red switched positive wire and the white ground wire.
m) Secure these two stripped wire ends to the outside wire terminals (NOT the center terminal) inside the female solenoid plug and secure this plug to the hydraulic manifold assembly.

8. Secure the manifold mount plate to the hydraulic manifold assembly with two .31” diameter by 3” long bolts, two flat washers, and two lock nuts.
9. Reinstall the operator’s station floor panel and secure the hydraulic manifold assembly to your prime mover by sandwiching the exposed end of the manifold mount plate between the plastic shroud and the left side of the operator’s station floor. The holes in the manifold mount plate should align with the rear two holes in the plastic shroud. Insert the bolts that were removed earlier and tighten those bolts to your prime mover manufacturer’s specifications as found in your prime mover’s operator’s manual.
10. Slide both of the 4’-0” long hydraulic hose protectors over the free pair of ends of the 12’-10” long hydraulic hoses that are attached to the “A” and “B” ports on the hydraulic manifold assembly. Slide one of the hydraulic hose protectors back near the hydraulic manifold assembly and leave the other hydraulic hose protector near the free ends of the hoses.
11. Feed these 12’-10” long hydraulic hoses out past the front of the operator’s station floor and up over the left loader hinge pin. The hose should then run down the inside of the left loader arm to the back of your Tool Carrier. The hoses should be loosely secured to the left loader arm periodically with nylon cable ties.
12. Connect the end of the hose from port “A” which has the pre-installed nylon cable tie to the top fitting on the back of your Tool Carrier and connect the end of the hose from port “B” to the bottom fitting on the back of your Tool Carrier.

INSTALLATION

IMPORTANT **Leaving too little or too much slack in the hydraulic hose CAN result in damage to this product and <u>WILL</u> void all FFC warranties.**

13. Slide the rear hydraulic hose protector into a position where the rear end of that protector begins just below the floor of the operator's station allowing that protector to cover the hydraulic hoses up over the loader arm hinge pin. Slide the front end of the front hydraulic hose protector up close to your Tool Carrier. Secure each of the two hydraulic hose protectors in place with two nylon cable ties and tighten the nylon cable ties that secure the hoses to the left loader arm. Be sure to leave enough slack in the hoses to permit the complete cycle of movement from fully dumped to fully rolled back and from fully raised to fully lowered.
14. Reconnect the ground cable to the negative (-) post of your prime mover's battery.
15. Restart your prime mover and test the activation of your Tool Carrier:
    a) Position your Tool Carrier so that the pins that secure your Tool Carrier to your loader arms are no more than 12" off the ground.

NOTICE **The self-leveling interlock on your loader will not permit the lower connection pins to retract on your Tool Carrier if the loader arms are significantly higher than the height recommended above.**

    b) Open the switch cover and move the toggle switch down to the "UNLOCK" position and firmly hold the switch in that position.
    c) With your Tool Carrier fully lowered, roll the tilt cylinders back.
    d) Continue holding your prime mover's hydraulic control lever even after the rollback stop is encountered. This will cause the lower connection pins to retract into the Tool Carrier frame.
    e) Release the toggle switch, allowing the toggle to flip up to the "LOCK" position. Allow the switch cover to close.
    f) Hold your prime mover's hydraulic control lever against the rollback stop as before. This will cause the lower connection pins to extend from the Tool Carrier frame.

16. Carefully raise the loader and cycle the tilt cylinders to check clearances and to verify that all mounting procedures have been successfully completed.

IMPORTANT **Lubricate all grease fittings before connecting any attachment to this product. Refer to TOOL CARRIER MAINTENANCE page and follow the instructions.**

OPERATION

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.

WARNING! Failure to obey the following procedures could result in death or serious injury.

- **Failure to fully latch the connection pins can result in allowing the attached equipment to fall off the loader on to the operator or others.**

ATTACHING EQUIPMENT

For **LAF1718, LAF1730 & LAF1769** (Hydraulic) ONLY

1. With your Tool Carrier fully lowered, retract the lower connection pins by flipping the toggle switch down to the “UNLOCK” position and firmly holding the switch in that position. Roll the tilt cylinders back to the rollback stops and continue holding the hydraulic lever until the lower connection pins retract completely into the frame.
2. While continuing to firmly hold the toggle switch in the “UNLOCK” position, slowly move the Tool Carrier straight forward toward the equipment that is to be attached. The Tool Carrier should be centered between the hooked ears and should be angled forward so that the upper connection pins will make the initial contact with the ears.
3. With the upper connection pins sliding against the ears, raise the loader arms until the upper connection pins are seated up in the hooks of the ears.
4. Roll the Tool Carrier back completely so that the lower connection pins line up with the holes in the lower portion of the ears. Release the toggle switch, allowing the toggle to flip up to the “LOCK” position, and continue holding the hydraulic lever in the rollback position until the lower connection pins extend completely through the lower portion of the ears of the equipment being attached. When fully extended through the lower portion of the ears, the ends of the lower connection pins will be visible from the operator’s position.

For **LAF1721 & LAF1731** (Manual) ONLY

1. Slowly move the Tool Carrier straight forward toward the equipment that is to be attached. The Tool Carrier should be centered between the hooked ears and should be angled forward so that the upper connection pins will make the initial contact with the ears.
2. With the upper connection pins sliding against the ears, raise the loader arms until the upper connection pins are seated up in the hooks of the ears.
3. Roll the Tool Carrier back completely so that the lower connection pins automatically snap into the holes in the base end of the ears.
4. Visually check the lower pin engagement by verifying that the red reflective tape on the Tool Carrier is completely hidden by the release handle. If any of the red reflective tape is visible, raise the equipment and jiggle the hydraulics to assist in getting the lower connection pins to seat. Repeat this step until no red reflective tape is visible beside the release handle.

For All Models

5. Test the lower pin seating by using your prime mover’s hydraulics to apply down pressure to the front edge of the equipment. If the equipment pivots away from the lower part of the Tool Carrier, repeat the necessary steps above until no separation occurs.
6. FOR EQUIPMENT REQUIRING HYDRAULIC CONNECTION: connect and check the hydraulic lines per the instructions supplied with the attached equipment and with your loader and prime mover.

OPERATION

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when operating this equipment.

WARNING! Failure to obey the following procedures could result in death or serious injury.

- **Failure to fully latch the connection pins can result in allowing the attached equipment to fall off the loader on to the operator or others.**

DETACHING EQUIPMENT

1. FOR EQUIPMENT CONNECTED TO HYDRAULICS: Disconnect the hydraulic lines as per the instructions supplied with the attached equipment and with your loader and prime mover.
2. Park your prime mover on a level surface with this product properly attached.
3. Place your prime mover's transmission in "Park" and engage the parking brake.
4. Lower the attached equipment to the ground in the normal operating/usage position.
5. Disconnect from the equipment:
   a) For **LAF1718, LAF1730 & LAF1769** (Hydraulic) ONLY: Flip the toggle switch down to the "UNLOCK" position and firmly hold the switch in that position. While continuing to firmly hold the toggle switch in the "UNLOCK" position, roll the tilt cylinders back to the rollback stops. Continue holding the hydraulic lever until the lower connection pins retract completely into the frame. Move the hydraulic lever to the dump position until the equipment is once again resting on the ground and continue with step 10 below.
   b) For **LAF1721 & LAF1731** (Manual) ONLY: Continue with step 6 below.
6. Raise the attached equipment straight up until no portion of the attached equipment or Tool Carrier is touching the ground. Clearance with the ground should not exceed six inches. For attached equipment that uses linkages to permit free-floating operation, raising all of the attached equipment completely off the ground is not necessary. The operator should raise the Tool Carrier a few inches so that there is no front-to-back force on the Tool Carrier's lower connection pin.
7. Shut off your prime mover's engine, remove the starter key, and wait for all moving parts to come to a stop.

WARNING! Failure to obey the following procedures could result in death or serious injury.

- **The loader arms, the tool carrier, and/or the attached equipment could drop down when released. Keep out of all potential drop paths when repositioning the release handle.**
- **Keep clear of the area between the loader arms and the tilt cylinder or linkages when positioning the release handle. Any loader or cylinder movement could result in crushing or shearing anything between those components.**

IMPORTANT Attempting to move the release handle when there is force against the connection pins

CAN result in damage to this product and
WILL void all FFC warranties.

8. Rotate the release handle past the latch bar that is welded to the rear of the attached equipment. Allow the release handle to rotate back and be supported in the released position by the latch bar.
9. Restart your tractor and lower the attached equipment until the equipment is once again resting on the ground.
10. Very slowly back straight away from the attached equipment while hydraulically rotating the Tool Carrier forward. This rotation should cause the upper connection pins to move down and out of the hooked portion of the ears, allowing the Tool Carrier to freely back away. Once clear of the latch bars, the release handle on the LAF1721 & LAF1731 (manual) should snap back into the latched position and be ready to attach to another piece of equipment. On the LAF1718, LAF1730 & LAF1769 (hydraulic), the operator may release the toggle switch, allowing the toggle to flip up to the "LOCK" position.

MAINTENANCE

GENERAL INFORMATION

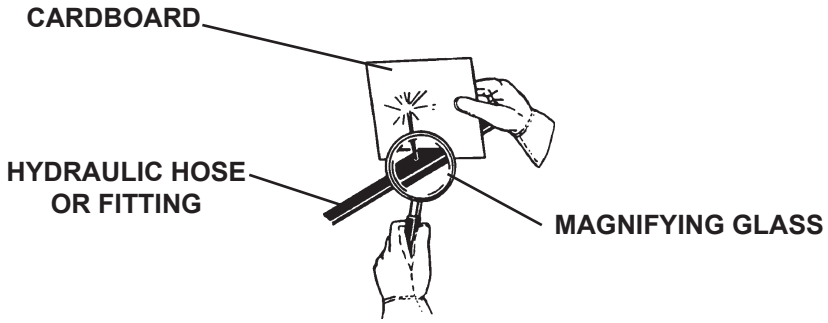
Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to the absolute minimum. However, it is very important that these maintenance functions be performed as described below.

PROCEDURE	DAILY	EVERY 10 HOURS	ANNUALLY
Hardware - Check for tightness (see Bolt Torque Specifications)	✔		
Make sure that all other fasteners are in place and are performing their specified function.	✔		
Hydraulic System - Check for leaks and tighten as necessary. Check for damage and replace as needed.	✔		
Decals - Check for missing or damaged safety decals and replace as necessary.	✔		
Inspect attachment for any worn parts or cracked welds. Repair as required.	✔		
Grease 5 fittings: one on top of each of the two lower connection pin bushings and one on the release handle bushing.		✔	
Remove the cover plate that protects the connection pin linkages. Clean out any accumulated debris and lightly oil any pivot points. Insert new foam blocks at each end of the cover plate, replace the cover plate, and tighten all bolts to 17 ft. lbs.			✔

WARNING! **Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.**

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.



MAINTENANCE

CYLINDER SEAL REPLACEMENT

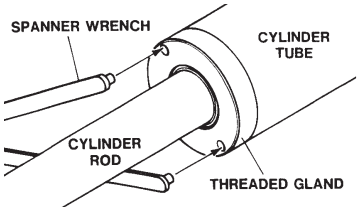
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic cylinders. Always protect the active part of the cylinder rod (the chrome section). Nicks or scratches on the surface of the rod could result in cylinder failure. Clean all parts thoroughly with a cleaning solvent before reassembly.

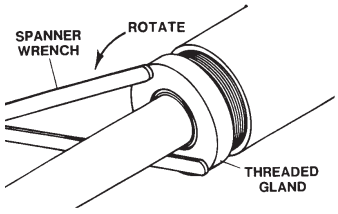
DISASSEMBLY PROCEDURE

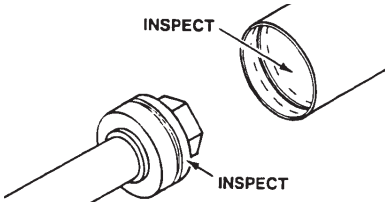
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

THREADED TYPE GLAND

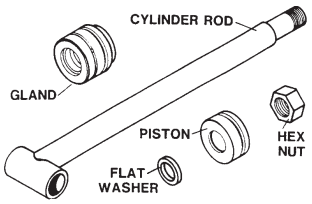
1. Rotate the gland with a spanner wrench counterclockwise until the gland is free of the cylinder tube.
2. Pull the cylinder rod from the cylinder tube and inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston AND the cylinder tube must be replaced.

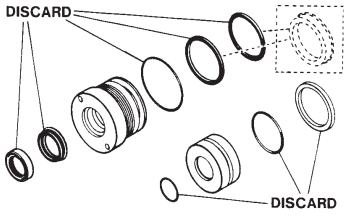






3. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.
4. Remove and discard all the old seals.



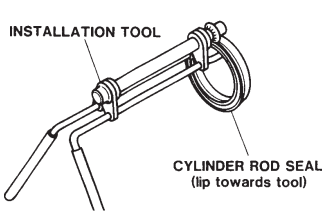


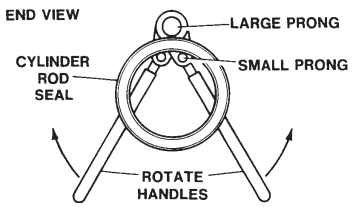
ASSEMBLY PROCEDURE

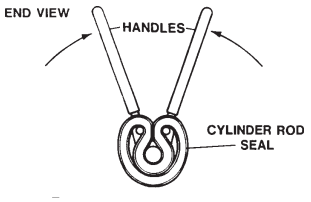
IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure.

1. Install the cylinder rod seal in the gland first. Be careful not to damage the seal in the process, as it is somewhat difficult to install.

NOTE: A special installation tool (Part #70002-00691) is available to help with installing the seal. Simply fit the end of the tool over the seal so that the large prong of the tool is on the outside of the seal, and the two smaller prongs on the inside. The lip of the seal should be facing towards the tool. Rotate the handles on the tool around to wrap the seal around the end of the tool.

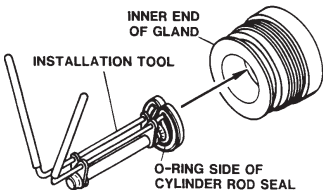






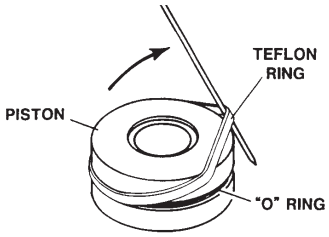
MAINTENANCE

Now insert the seal into the gland from the inner end. Position the seal in its groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.



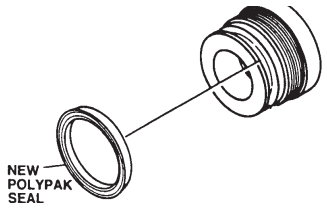
2. Install the new piston ring, rod wiper, O-rings and backup washers, if applicable, on the piston.

   Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.



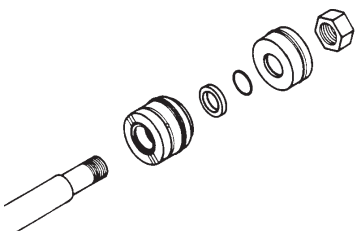
3. After installing the rod seal inside the gland, as shown in step #1, install the external seal.

NOTE: Threaded glands may have been equipped with a separate O-ring and backup washer system or a polypak (all in one) type seal. Current seal kits contain a polypak (all in one) type seal to replace the discarded seal types on ALL THREADED GLANDS.

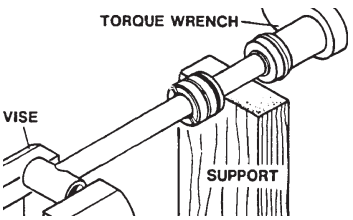


4. Slide the gland onto the cylinder rod, being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small o-ring, piston, and hex nut onto the end of the cylinder rod.

5. Secure the cylinder rod (mounting end) in a vise with a support at its center. Torque the nut to the amount shown for the thread diameter of the cylinder rod (see chart).



Thread Diameter	POUNDS - FEET
7/8"	150-200
*1"	230-325
1-1/8"	350-480
1-1/4"	490-670
1-3/8"	670-900
*** 1" Thread Diameter WITH 1.25" Rod Diameter Min. 230 ft. lbs. Max. 250 ft. lbs.**	



IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

6. Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.

IMPORTANT: Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

7. Use a spanner wrench to rotate the gland clockwise into the cylinder. Continue to rotate the gland with the spanner wrench until it is tight.

WARNING! **Cylinders serviced in the field are to be tested for leakage prior to the attachment being placed in work. Failure to test rebuilt cylinders could result in damage to the cylinder and/or the attachment, cause severe personal injury or even death.**

MAINTENANCE

MAINTENANCE RECORD

Use this log to record maintenance performed on the attachment.

Date	Maintenance Procedure Performed	Performed by	Comments

PRIME MOVER SPECIFICATIONS

IMPORTANT Exceeding any of the maximum recommended prime mover specifications **CAN** result in damage to this product and **WILL** void all FFC warranties.

DESCRIPTION	SPECIFICATIONS
Weight of Prime Mover without Tool Carrier	20,000 lbs. maximum
Lift Capacity of Prime Mover's Loader	10,000 lbs. maximum
Hydraulic Pressure Output	3,200 psi maximum
Rear Ballast	As required to maintain full prime mover stability. (Note the Shipping Weight on the specifications page, then see the operator's manual(s) for your prime mover and loader for ballasting needs.)

HYDRAULIC TOOL CARRIER SPECIFICATIONS

Model Number	Overall Width	Overall Height	Overall Depth*	Shipping Weight
LAF1721	50.5"	27.81"	20.19"	260 lbs.
LAF1731	50.5"	27.81"	20.19"	260 lbs.
LAF1718	50.5"	27.81"	20.19"	270 lbs.
LAF1730	50.5"	27.81"	20.19"	270 lbs.
LAF1769	50.5"	27.81"	20.19"	270 lbs.
All replacement hydraulics must have a minimum rated working pressure of 3,200 psi.				

*NOTE: These dimensions are for typical mounting ears. All units require mounting ears, but their size varies significantly depending on the loader model.

BOLT TORQUE

BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

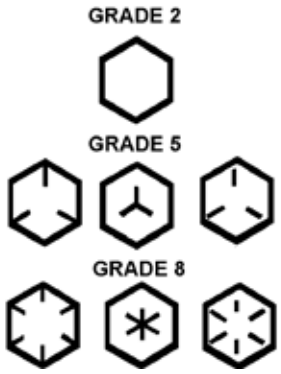
Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.

SAE BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE			
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters	
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF
1/4	6.35	8	9	11	12	10	13	14	18
5/16	7.94	14	19	19	23	20	25	27	34
3/8	9.53	30	36	41	49	38	46	52	62
7/16	11.11	46	54	62	73	60	71	81	96
1/2	12.70	68	82	92	111	94	112	127	152
9/16	14.29	94	112	127	152	136	163	184	221
5/8	15.88	128	153	174	207	187	224	254	304
3/4	19.05	230	275	312	373	323	395	438	536
7/8	22.23	340	408	461	553	510	612	691	830
1	25.40	493	592	668	803	765	918	1037	1245
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103

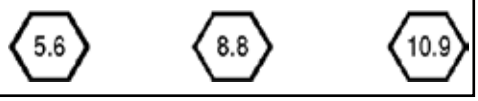
Bolt head identification marks as per grade.
NOTE: Manufacturing Marks Will Vary



METRIC BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.



Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-.4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3
	8.8		34-40	46.1-54.2		35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6
	8.8		51-59	69.1-79.9		56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7
	8.8		81-93	109.8-126		90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.5-112.5
	8.8		116-130	157.2-176.2		120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5
	8.8		150-168	203.3-227.6		177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3
	8.8		186-205	252-277.8		206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

Limited Warranty

Except for the Excluded Products as described below, all new products are warranted to be free from defects in material and/or workmanship during the Warranty Period, in accordance with and subject to the terms and conditions of this Limited Warranty.

1. Excluded Products. The following products are excluded from this Limited Warranty:

(a) Any cable, part that engages with the ground (i.e. sprockets), digging chain, bearing, teeth, tamping and/or demolition head, blade cutting edge, pilot bit, auger teeth and broom brush that either constitutes or is part of a product.

(b) Any product, merchandise or component that, in the opinion of Paladin Light Construction[1], has been (i) misused; (ii) modified in any unauthorized manner; (iii) altered; (iv) damaged; (v) involved in an accident; or (vi) repaired using parts not obtained through Paladin Light Construction.

2. Warranty Period. The Limited Warranty is provided only to those defects that occur during the Warranty Period, which is the period that begins on the first to occur of: (i) the date of initial purchase by an end-user, (ii) the date the product is first leased or rented, or (iii) the date that is six (6) months after the date of shipment by Paladin Light Construction as evidenced by the invoiced shipment date (the "Commencement Date") and ends on the date that is twelve (12) months after the Commencement Date.

3. Terms and Conditions of Limited Warranty. The following terms and conditions apply to the Limited Warranty hereby provided:

(a) Option to Repair or Replace. Paladin Light Construction shall have the option to repair or replace the product.

(b) Timely Repair and Notice. In order to obtain the Limited Warranty, (i) the product must be repaired within thirty (30) days from the date of failure, and (ii) a claim under the warranty must be submitted to Paladin Light Construction in writing within thirty (30) days from the date of repair.

(c) Return of Defective Part or Product. If requested by Paladin Light Construction, the alleged defective part or product shall be shipped to Paladin Light Construction at its manufacturing facility or other location specified by Paladin Light Construction, with freight PRE-PAID by the claimant, to allow Paladin Light Construction to inspect the part or product.

Claims that fail to comply with any of the above terms and conditions shall be denied.

LIMITATIONS AND EXCLUSIONS.

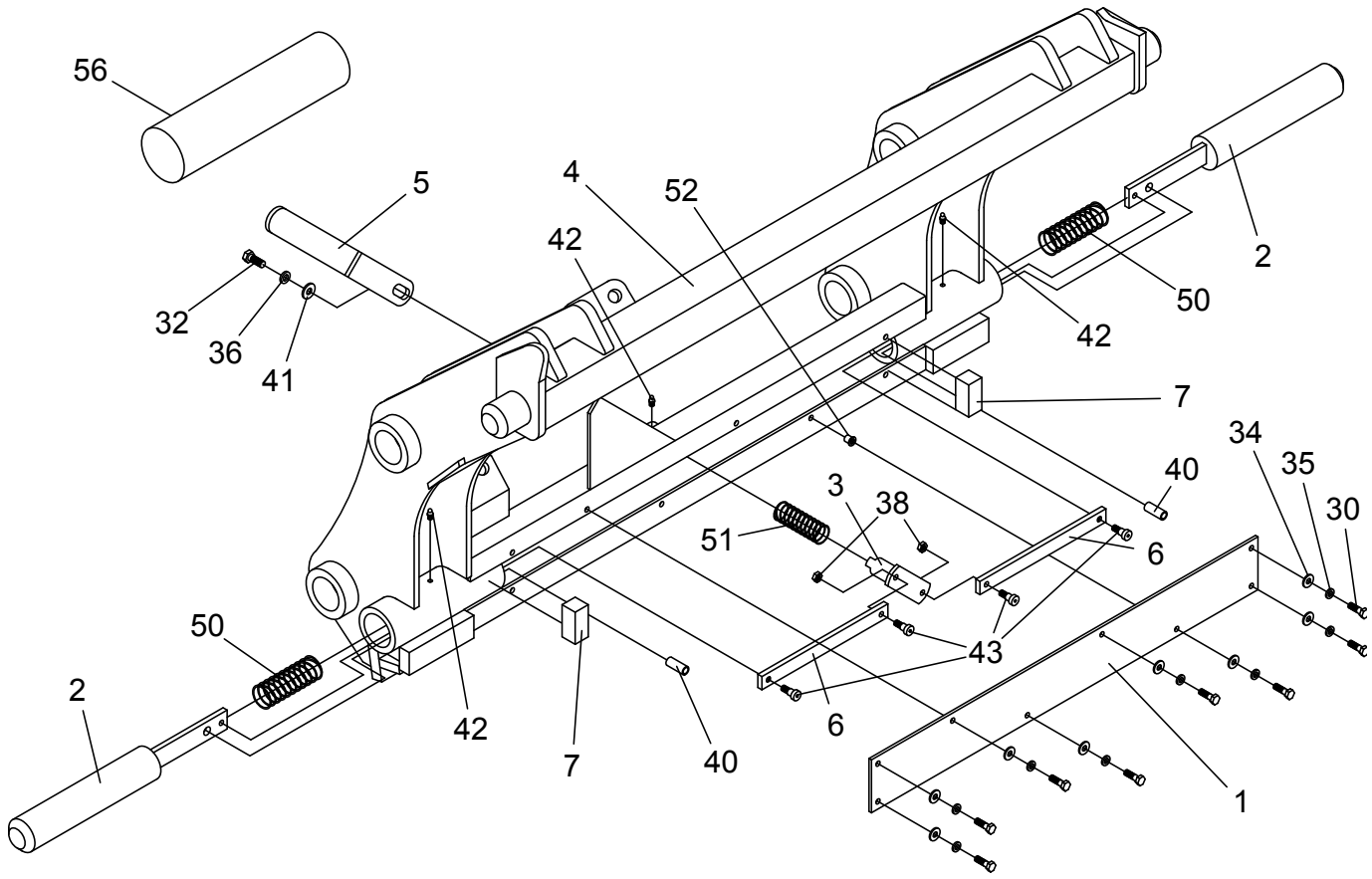
THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY BASED ON A COURSE OF DEALING OR USAGE OF TRADE.

IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES.

IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR ANY LOSS OR CLAIM IN AN AMOUNT IN EXCESS OF THE PURCHASE PRICE, OR, AT THE OPTION OF PALADIN LIGHT CONSTRUCTION, THE REPAIR OR REPLACEMENT, OF THE PARTICULAR PRODUCT ON WHICH ANY CLAIM OF LOSS OR DAMAGE IS BASED. THIS LIMITATION OF LIABILITY APPLIES IRRESPECTIVE OF WHETHER THE CLAIM IS BASED ON BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHER CAUSE AND WHETHER THE ALLEGED DEFECT IS DISCOVERABLE OR LATENT.

[1]Attachment Technologies Inc., a subsidiary of Paladin Brands Holding, Inc. (PBHI) is referred to herein as Paladin Light Construction.

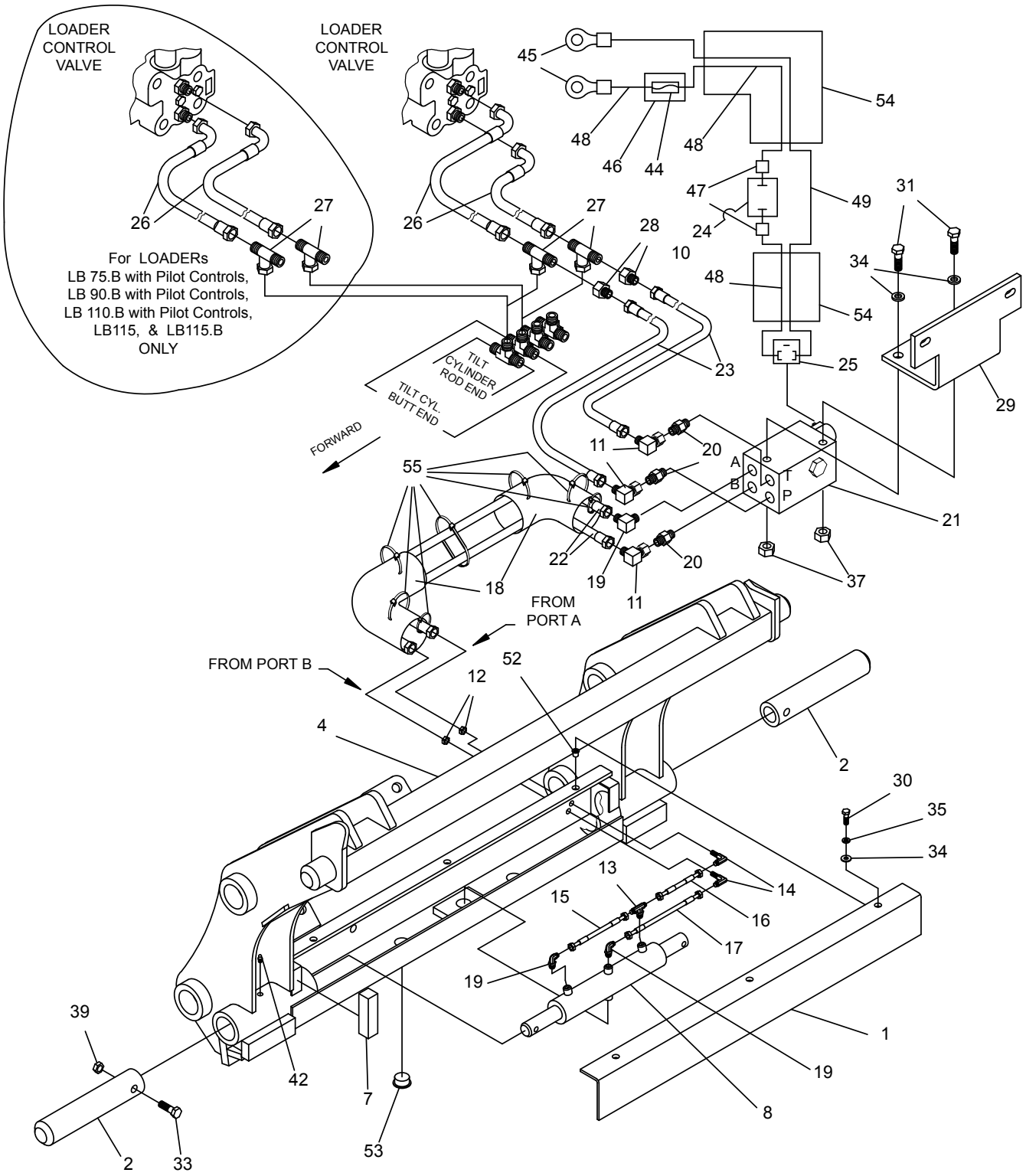
TOOL CARRIER - MANUAL



TOOL CARRIER - MANUAL

ITEM	QTY.	LAF1721	LAF1731	DESCRIPTION
1	1	Contact FFC to obtain the correct item		Cover Plate
2	2	LAF1738		Lower Connection Pin
3	1	LAF1739		Pivot Pin
4	1	LAF1740		Main Frame
5	1	LAF1742		Release Handle
6	2	LAF1743		Linkage Bar
7	2	LAF1773		Foam Block
30	8	1022		Grade 5 Hex Head Cap Screw .31" x 1"
32	1	1043		Grade 5 Hex Head Cap Screw .38" x 1"
34	8	1513		Grade 5 Flat Washer .31" USS
35	8	1502		Grade 5 Lock Washer .31"
36	1	1503		Grade 5 Lock Washer .38"
38	2	1239		Grade Jam Nut .31"
40	2	RHW8030		Roll Pin .5" x 1.25"
41	1	RHW8086		Grade 2 Fender Washer .38" x 1.25" .08" thick
42	3	6616		Grease Zerk .25" 28 tpi. self-tapping
43	4	RHW8202		Allen Head Shoulder Screw .38" x .38" with nylon pellet
50	2	RHW8504		Compression Spring 1.69" x 5"
51	1	RHW8505		Compression Spring 1.25" x 2"
52	8	RHW8642		Rivet Nut .31"
56	1	Not Used	LAF4454	Flow Restrictor Kit (LAF1731 ONLY)
NOTE: All parts are the same as LAF1721 except for the part numbered under the other model.				

TOOL CARRIER - HYDRAULIC

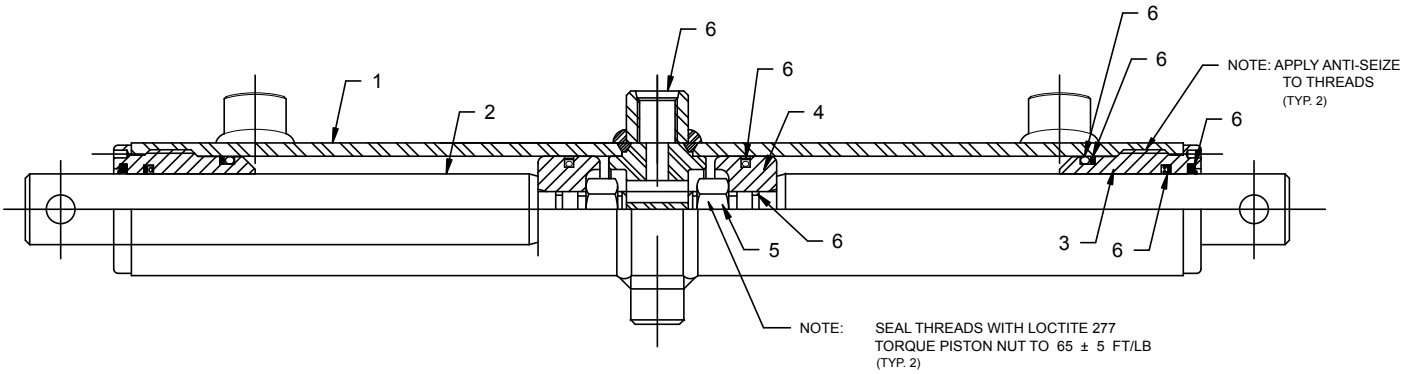


TOOL CARRIER - HYDRAULIC

ITEM	QTY.	LAF1718	LAF1730	LAF1769	DESCRIPTION
1	1	Contact FFC to obtain the correct item			Cover Plate
2	2	LAF9963			Lower Connection Pin
4	1	LAF9964			Main Frame
7	2	LAF1750			Foam Block
8	1	LAF4011			Hydraulic Cylinder 1-.5" x 4" double-acting
10	1	LAF1761	Not Used	Not Used	Switch Cover
11	3	3430	Not Used	Not Used	Hydraulic Elbow 90° 6MJ-6FJSW
12	2	3217			Bulkhead Jam Nut #6 (9/16" 18 tpi.)
13	1	30137	03-10078		Hydraulic Tee
14	2	3282	03-10080		Hydraulic Bulkhead Elbow 90°
15	1	Contact FFC to obtain the correct item			Hydraulic Hose .25" x (length varies) 6FJ-6FJ
16	1	Contact FFC to obtain the correct item			Hydraulic Hose .25" x (length varies) 6FJ-6FJ
17	1	Contact FFC to obtain the correct item			Hydraulic Hose .25" x (length varies) 6FJ-6FJ
18	2	LAF4283	Not Used	Not Used	Hydraulic Hose Protector 1-9/16" x 48"
19	2	3434	30204		Hydraulic Elbow 90°
20	3	3457	Not Used	Not Used	Hydraulic Adaptor 6MB-6MJ
21	1	LAF4567	Not Used	Not Used	Hydraulic Block Assembly
22	2	38395	Not Used	Not Used	Hydraulic Hose .25" x 156" 6FJ-6FJ
23	2	LAF4569	Not Used	Not Used	Hydraulic Hose .25" x 17" 6FJ-6FFS
24	1	LAF4570	Not Used	Not Used	Toggle Switch 2 Pole 2 Position Momentary
25	1	LAF4571	Not Used	Not Used	Solenoid Plug Female
26	2	LAF4623	Not Used	Not Used	Hydraulic Hose .5" x 26" 10FFS90-10FFS
27	2	LAF4624	Not Used	Not Used	Hydraulic Branch Tee 10MFS-10MFS-10FFSX
28	2	30371	Not Used	Not Used	Hydraulic Adaptor 6MFS-10FFS
29	1	LAF9579	Not Used	Not Used	Manifold Mount
30	3	1022			Grade 5 Hex Head Cap Screw .31" x 1"
31	2	1030	Not Used	Not Used	Grade 5 Hex Head Cap Screw .31" x 3"
33	2	RHW1243			Grade 8 Hex Head Cap Screw .38" x 2-.5"
34	varies	(5)1513	(3)	(3)	Grade 5 Flat Washer .31" USS
35	3	1502			Grade 5 Lock Washer .31"
37	2	1934	Not Used	Not Used	Grade 5 Lock Nut .31"
39	2	1837			Grade 5 Lock Nut .38"
42	2	6616			Grease Zerk .25" 28 tpi. self-tapping
44	1	RHW8372	Not Used	Not Used	Fuse 2 Amp .25" x 1.25"
45	2	RHW8370	Not Used	Not Used	Ring Terminal 16-14 x .25"
46	1	RHW8371	Not Used	Not Used	Fuse Holder crimp-on for .25" x 1.25" tube
47	2	RHW8374	Not Used	Not Used	Spade Terminal Female 1/6-12 .25" (insulated)
48	1	80294	Not Used	Not Used	Wire Red 16 ga.
49	1	RHW8376	Not Used	Not Used	Wire White 16 ga.
52	3	RHW8642			Rivet Nut .31"
53	2	RHW8643			Plug 1.25" x .5" (polyethylene)
54	1	RHW8383	Not Used	Not Used	Corrugated Wire Loom .5" x 96"
55	varies	(10)7104	(2)	(2)	Nylon Cable Ties .3" x 15.25"

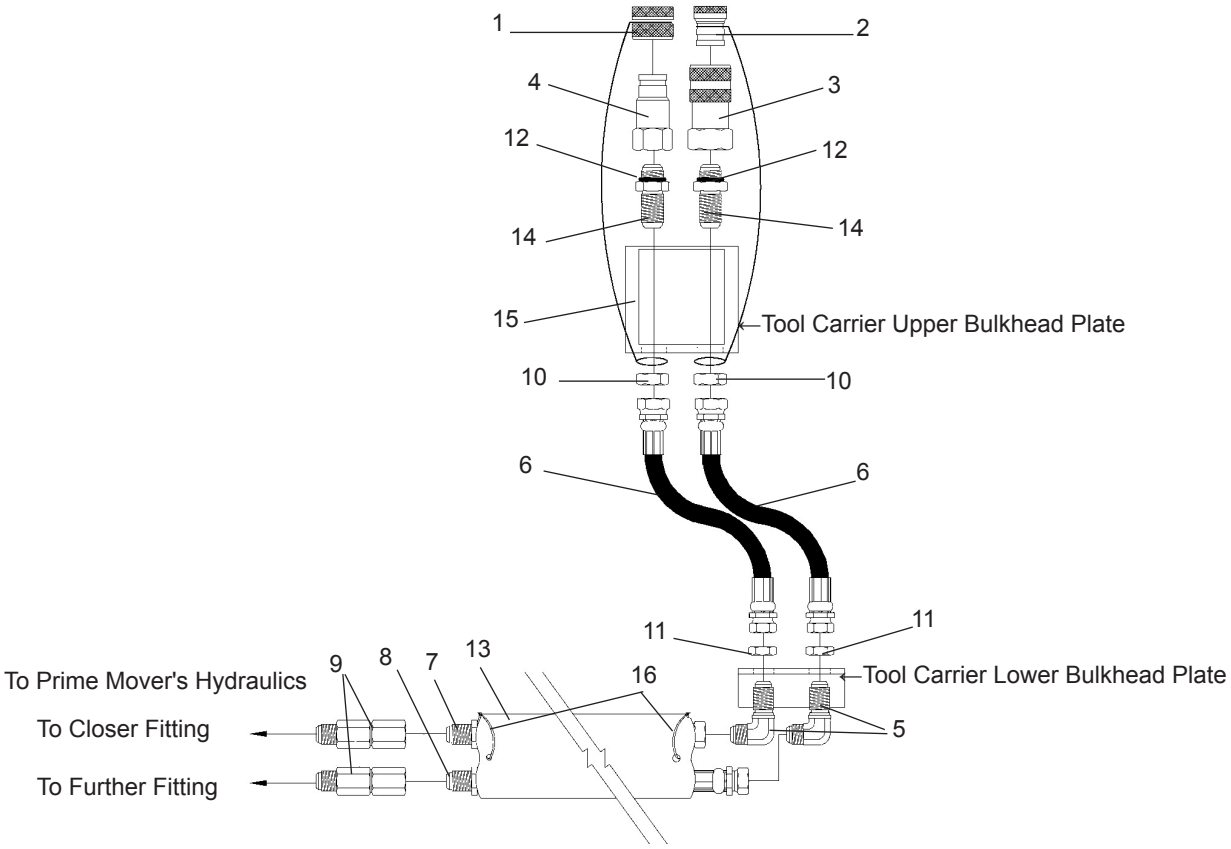
NOTE: All parts are the same as LAF1718 except for the parts numbered under the other models.

HYDRAULIC CYLINDER #LAF4011



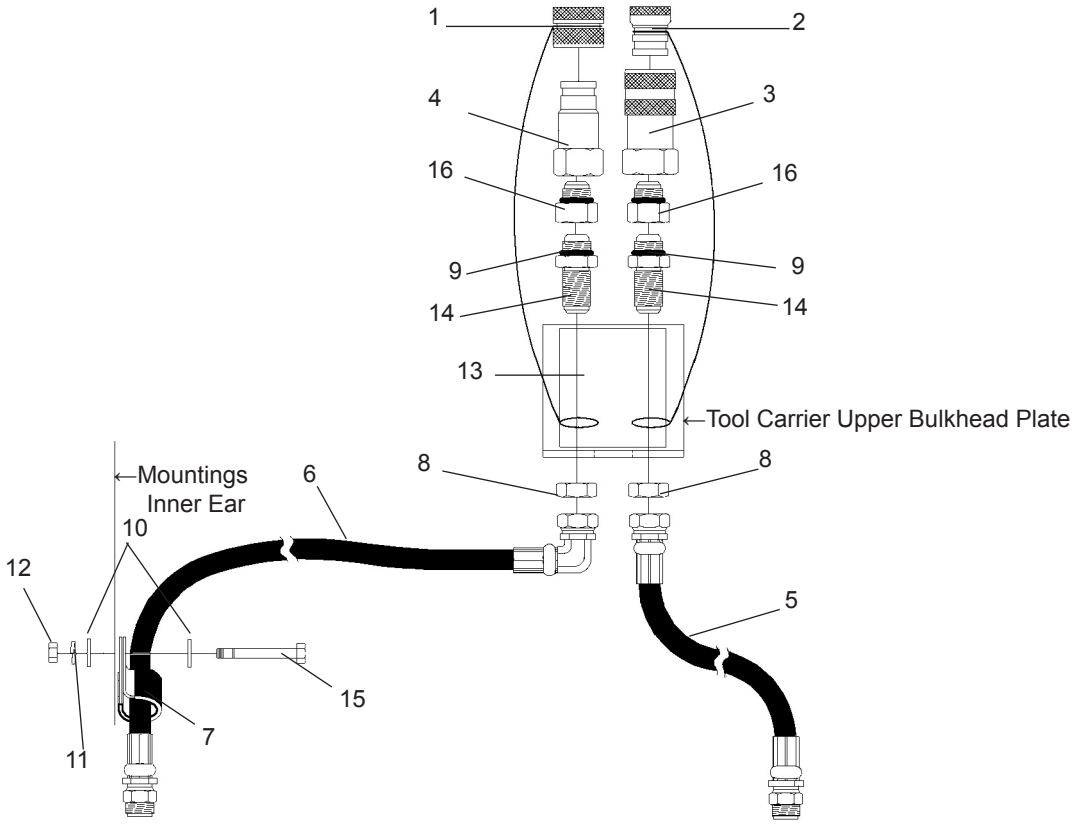
ITEM	QTY.	LAF4011	DESCRIPTION
1	1	LAF4193	Barrel 1-.5" x (2) 4" strokes
2	2	LAF4194	Shaft 1" drilled end
3	2	LAF4195	Head 1-.5" nominal
4	2	LAF4196	Piston 1-.5" x .5" nominal
5	2	LAF4197	Grade 8 Nut .5" 20 tpi
6	1	LAF4198	Seal Kit (includes all seals, o-rings, etc.

HOSE KIT #LAF4064



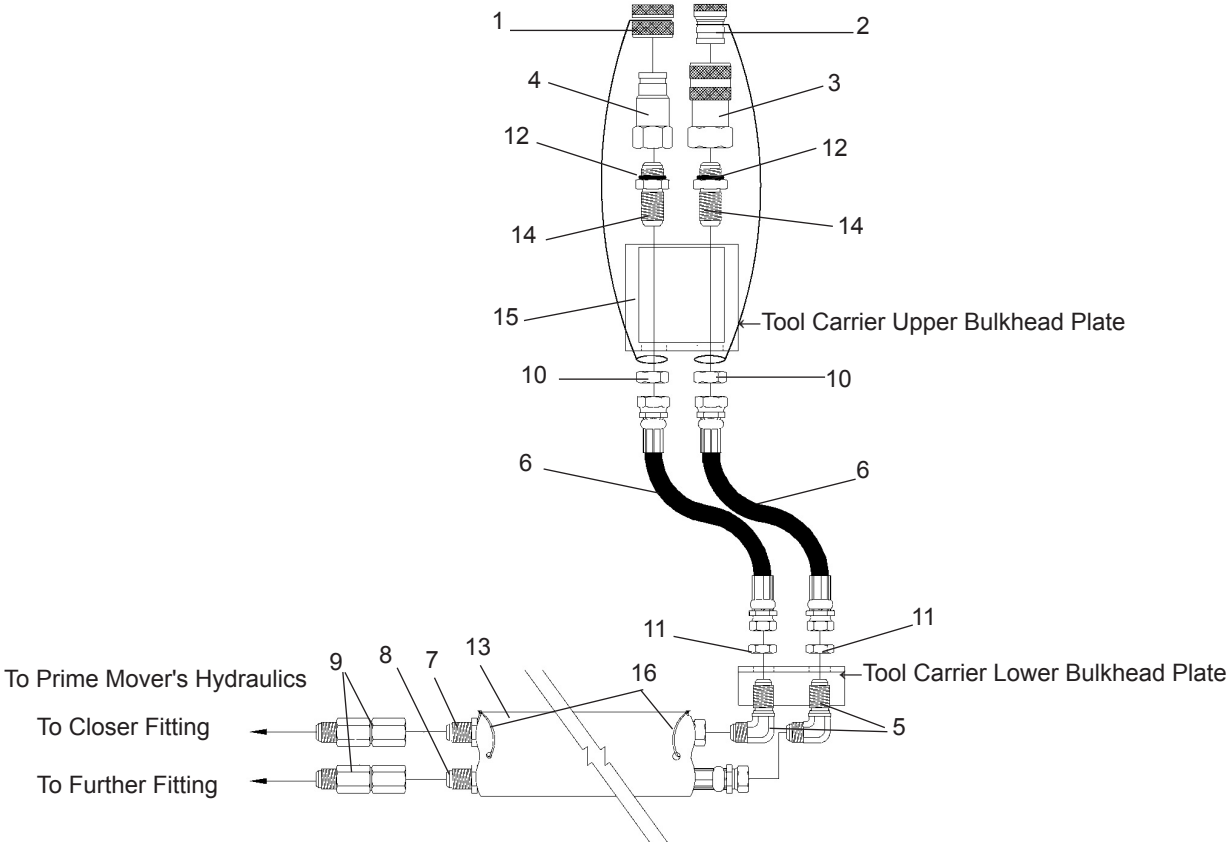
ITEM	QTY.	LAF4064	DESCRIPTION
1	1	LAF4018	Dust Cap Male Flat Face Fitting
2	1	LAF4019	Dust Cap Female Flat Face Fitting
3	1	LAF4065	Hydraulic Hose Quick Coupler #12 Female O-Ring Boss with Female Flat Face
4	1	LAF4066	Hydraulic Hose Quick Coupler #12 Female O-Ring Boss with Male Flat Face
5	2	LAF4068	Hydraulic Bulkhead Elbow 90° #10 Male JIC x #10 Male JIC
6	2	03-10119	Hydraulic Hose .5" ID x 19" Long #12 Female JIC x #10 Female JIC
7	1	LAF4070	Hydraulic Hose .5" ID x 25" Long #10 Female JIC x #10 Male JIC
8	1	LAF4071	Hydraulic Hose .5" ID x 29" Long #10 Female JIC x #10 Male JIC
9	2	LAF4072	Hydraulic Swivel #10 Male JIC x #10 Female JIC
10	2	3221	Hydraulic Jam Nut #12 (1.06" Dia.) with 12 Threads per Inch (included in item #14)
11	2	LAF4075	Hydraulic Jam Nut #10 (.88" Dia.) with 14 Threads per Inch
12	2	LAF4079	Hydraulic O-Ring 1.05" OD x .94" ID for #12 Fitting (included in item #14)
13	1	LAF4082	Hydraulic Hose Protector 4" Dia. x 26" Long
14	2	30421	Hydraulic Bulkhead Adapter #12 Male O-Ring Boss x #12 Male JIC with Nut
15	1	50-0724	Hydraulic Safety Sign
16	2	7104	Nylon Cable Ties .3" x 15.25" Long Black Outdoor Use

HOSE KIT #LAF4506



ITEM	QTY.	LAF4506	DESCRIPTION
1	1	LAF4224	Dust Cap Reg-SS Male Flat Face Fitting
2	1	LAF4223	Dust Cap Reg-SS Female Flat Face Fitting
3	1	22518	Hydraulic Hose Quick Coupler NH SS Flat Face Female #12FB
4	1	19632	Hydraulic Hose Quick Coupler NH SS Flat Face Male #12FB
5	1	LAF4525	Hydraulic Hose .38" ID x 32" Long #8 Male Face Seal x #8 Female JIC
6	1	LAF4526	Hydraulic Hose .38" ID x 55" Long #8 Male Face Seal x #8 Female JIC 90°
7	1	RHW8319	Hose Clamp .75" Loop
8	2	3203	Hydraulic Jam Nut #8 (.75" Dia.) with 16 Threads per Inch
9	2	LAF4635	Hydraulic O-Ring for #8 Fitting
10	2	1512	Flat Washer .25 Dia. USS
11	1	1501	Lock Washer .25" Dia.
12	2	1224	Hex Nut .25" Dia.
13	1	50-0724	Hydraulic Safety Sign
14	2	3275	Hydraulic Bulkhead Adapter #8 Male JIC x #8 Male JIC
15	1	1003	Hex Head Cap Screw .25"-25 TPI x 1" Long Grade 5
16	2	30377	Adapter #12 Male O-Ring to #8 Female O-Ring

HOSE KIT #LAF4685



ITEM	QTY.	LAF4685	DESCRIPTION
1	1	LAF4224	Dust Cap Reg-SS Male Flat Face Fitting
2	1	LAF4223	Dust Cap Reg-SS Female Flat Face Fitting
3	1	22518	Hydraulic Hose Quick Coupler NH SS Flat Face Female #12FB
4	1	19632	Hydraulic Hose Quick Coupler NH SS Flat Face Male #12FB
5	2	LAF4068	Hydraulic Bulkhead Elbow 90° #10 Male JIC x #10 Male JIC
6	2	03-10119	Hydraulic Hose .5" ID x 19" Long #12 Female JIC x #10 Female JIC
7	1	LAF4070	Hydraulic Hose .5" ID x 25" Long #10 Female JIC x #10 Male JIC
8	1	LAF4071	Hydraulic Hose .5" ID x 29" Long #10 Female JIC x #10 Male JIC
9	2	LAF4072	Hydraulic Swivel #10 Male JIC x #10 Female JIC
10	2	3221	Hydraulic Jam Nut #12 (1.06" Dia.) with 12 Threads per Inch
11	2	LAF4075	Hydraulic Jam Nut #10 (.88" Dia.) with 14 Threads per Inch
12	2	LAF4079	Hydraulic O-Ring 1.05" OD x .94" ID for #12 Fitting
13	1	LAF4082	Hydraulic Hose Protector 4" Dia. x 26" Long
14	2	30249	Hydraulic Bulkhead Adapter #12 Male JIC x #12 Male JIC
15	1	50-0724	Hydraulic Safety Sign
16	2	7104	Nylon Cable Ties .3" x 15.25" Long Black Outdoor Use