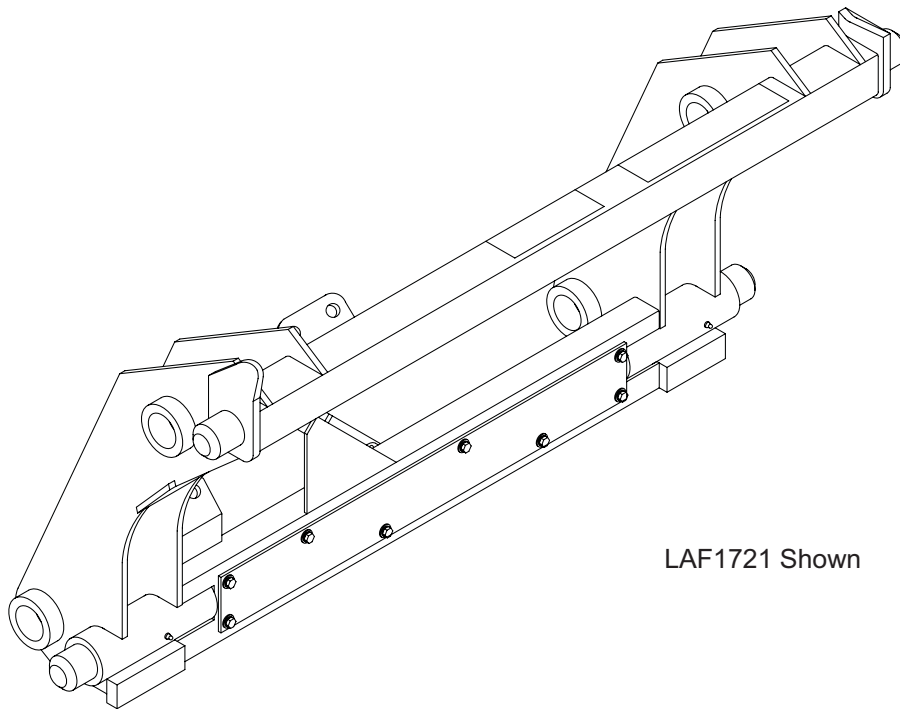




PATENTED TOOL CARRIER



PALADIN LIGHT CONSTRUCTION



LAF1721 Shown

FFC SERIAL NUMBER: _____

MACHINE SERIAL NUMBER: _____

Manual Number: MR45520

Models:

LAF1721 and LAF1731 (Manual);
LAF1718, LAF1730 and LAF1769
(Hydraulic)

Release Date: January 2007

TABLE OF CONTENTS

INTRODUCTION	2
GENERAL INFORMATION	2
SERIAL NUMBER	2
OWNER AND OPERATOR SAFETY INFORMATION	
SAFETY STATEMENTS	3
SAFETY PRECAUTIONS	3-6
SAFETY SIGNS	7
SPECIFICATIONS	8
MOUNTING	9-12
OPERATION	13-14
MAINTENANCE	15
PARTS ILLUSTRATION	
LAF1721 & LAF1731	16
LAF1718, LAF1730 & LAF1769	18
PARTS LIST	
LAF1721 & LAF1731	17
LAF1718, LAF1730 & LAF1769	19
CYLINDER ILLUSTRATION	20
HOSE KIT ILLUSTRATIONS	
LAF4064	21
LAF4506	22
LAF4685	23
WARRANTY	i

INTRODUCTION

Congratulations on your purchase of a new FFC Tool Carrier. This product has been designed and built to quickly connect to and disconnect from multiple loader products. You or any other person who will be assembling, operating, maintaining, or working with this product are required to read and completely understand the information and instructions contained in this manual. If anyone does not fully understand every part of this manual, please obtain further assistance by contacting the dealer from which this product was purchased or by contacting FFC at the telephone number or address listed on the cover of this manual. Keep this manual available for reference whenever this product is being handled or used. Provide this manual to any new owners and/or operators.

This manual covers model(s): **LAF1718, LAF1730, LAF1731, LAF1769** (for Case and New Holland Machines Only); and **LAF1721**. The difference between the models is the method of actuating the lower connection pins of the product, details of which are covered on the parts list and specifications page(s).

GENERAL INFORMATION

The purpose of this manual is to assist in assembling, mounting, operating, and maintaining your Tool Carrier. Read this manual carefully to obtain valuable information and instructions that will help you achieve years of safe and dependable service.

The illustrations and data used in this manual were current at the time of printing, but due to possible engineering and/or production changes, this product may vary slightly in detail. FFC reserves the right to redesign and/or change components as may be necessary without notification to anyone.

Throughout this manual, references may be made to:

Prime Mover	The engine-driven machine to which this product must be attached.
Right, Left, Front, Rear	Directions that are determined in relation to the operator of the equipment when seated in the normal operation position.
IMPORTANT	Precautions that must be followed to prevent substandard performance.

SERIAL NUMBER LOCATION

Always refer to the model and serial number when ordering parts or requesting information from your dealer. The serial number plate for this product is located on the top left surface of the loader attachment plate of your Tool Carrier.

Reference Information	
Model Number	Loader Make
Serial Number	Loader Model
Date Purchased	Loader Serial Number

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



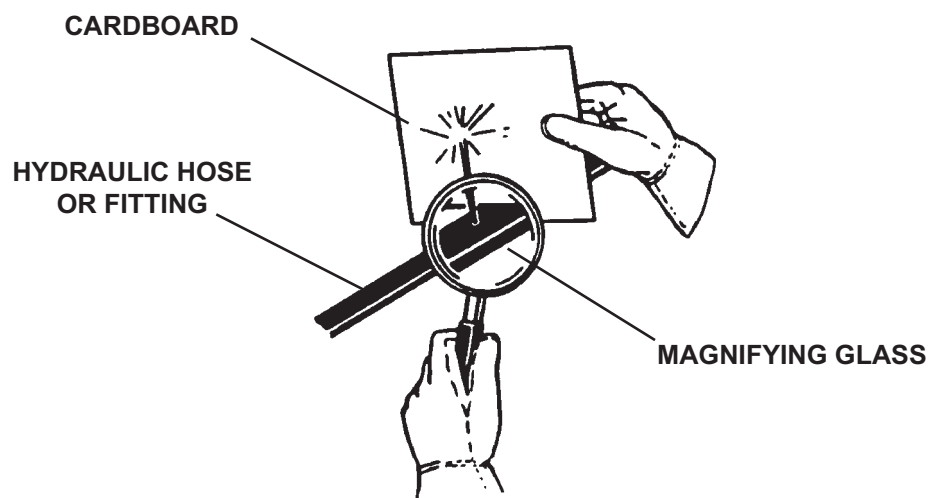
Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground 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! WHEN OPERATING THIS PRODUCT IN ACCORDANCE WITH DESIGN INTENTIONS:



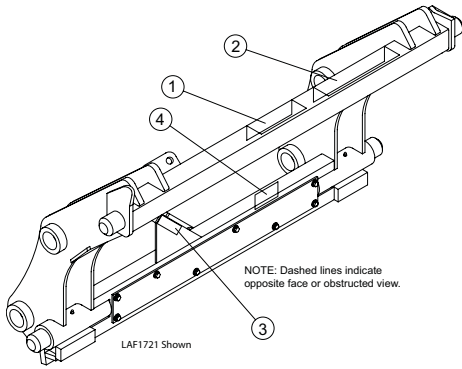
- Failure to fully latch the connection pins can result in allowing the attached equipment to fall off the prime mover on to the operator or others.
- The loader arms, the tool carrier, and/or the attached equipment could drop down when released. Keep out of all potential drop paths when repositioning the release handle.
- Keep clear of the area between the loader arms and the tilt cylinders or linkages when positioning the release handle. Any loader or cylinder movement could result in crushing or shearing anything between those components.

CAUTION! AVOID ELECTRICAL SHOCK



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

SAFETY SIGN LOCATIONS



ITEM	QTY.	PART #	DESCRIPTION
1	1	50-10017	Read Manual
2	1	RDL3107	Secure Latch
3	1	RDL3149	Reflective Red
4	1	50-0725	Warning Hydraulics

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.

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

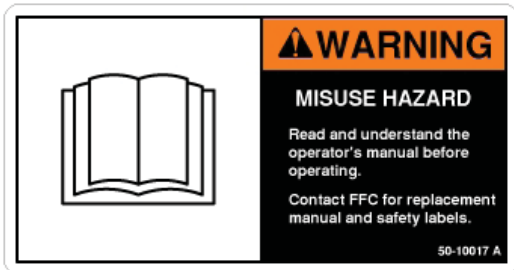
INSTRUCTIONS

- Keep all safety signs clean and legible.
- Replace all missing, illegible, or damaged safety signs.
- Replacement parts for parts with safety signs attached must also have safety signs attached.
- Safety signs are available, free of charge, from your dealer or from FFC.

PLACEMENT OR REPLACEMENT OF SAFETY SIGNS

1. Clean the area of application with non-flammable solvent, and then wash the same area with soap and water.
2. Allow the surface to fully dry.
3. Remove the backing from the safety sign, exposing the adhesive surface.
4. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

ITEM 1



ITEM 2



ITEM 3



ITEM 4



RDL3108 (shown left) **MUST** be on **ALL** pieces of equipment that are attached to this product.

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	50-1/2"	27-13/16"	20-3/16"	260 lbs.
LAF1731	50-1/2"	27-13/16"	20-3/16"	260 lbs.
LAF1718	50-1/2"	27-13/16"	20-3/16"	270 lbs.
LAF1730	50-1/2"	27-13/16"	20-3/16"	270 lbs.
LAF1769	50-1/2"	27-13/16"	20-3/16"	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.

TORQUE SPECIFICATIONS FOR STANDARD MACHINE HARDWARE (FOR REFERENCE ONLY)

Bolt Size	SAE Grade Bolt	Torque Ft./ Lbs	Bolt Size	SAE Grade Bolt	Torque Ft./ Lbs
5/16" - 18	5	17	3/8" - 16	8	45
3/8" - 16	5	30			

TOOL CARRIER MOUNTING

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 12)

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 ¼" 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 ½" 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 ¼" 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.

TOOL CARRIER MOUNTING

- g) Connect the ½" 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 ½" 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 ½" 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 2¾" straight up from the center of the hazard light to a reference point and then, from that point, measuring ½" 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 ¼" 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 ¼" female spade connector on to the other end.
 - iv. Cut a length of ½" 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 ¼" 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 ¼" 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.

TOOL CARRIER MOUNTING

- 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 ½" 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 5/16" 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.

TOOL CARRIER MOUNTING

IMPORTANT Leaving too little or too much slack in the hydraulic hose **CAN result in damage to this product and WILL 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.

TOOL CARRIER 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.

TOOL CARRIER 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.

TOOL CARRIER MAINTENANCE



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.

BEFORE EACH USE

- Make sure that all nuts and bolts are in place and properly tightened.
- Make sure that all other fasteners are in place and are performing their specified function.
- Make sure that all hydraulic fittings are tightened and that there are no leaks in any fittings or hoses.
- Make sure that all safety signs are in place, are clean, and are legible.
(SEE THE SAFETY SIGN SECTION.)
- Replace any damaged parts and excessively worn parts.

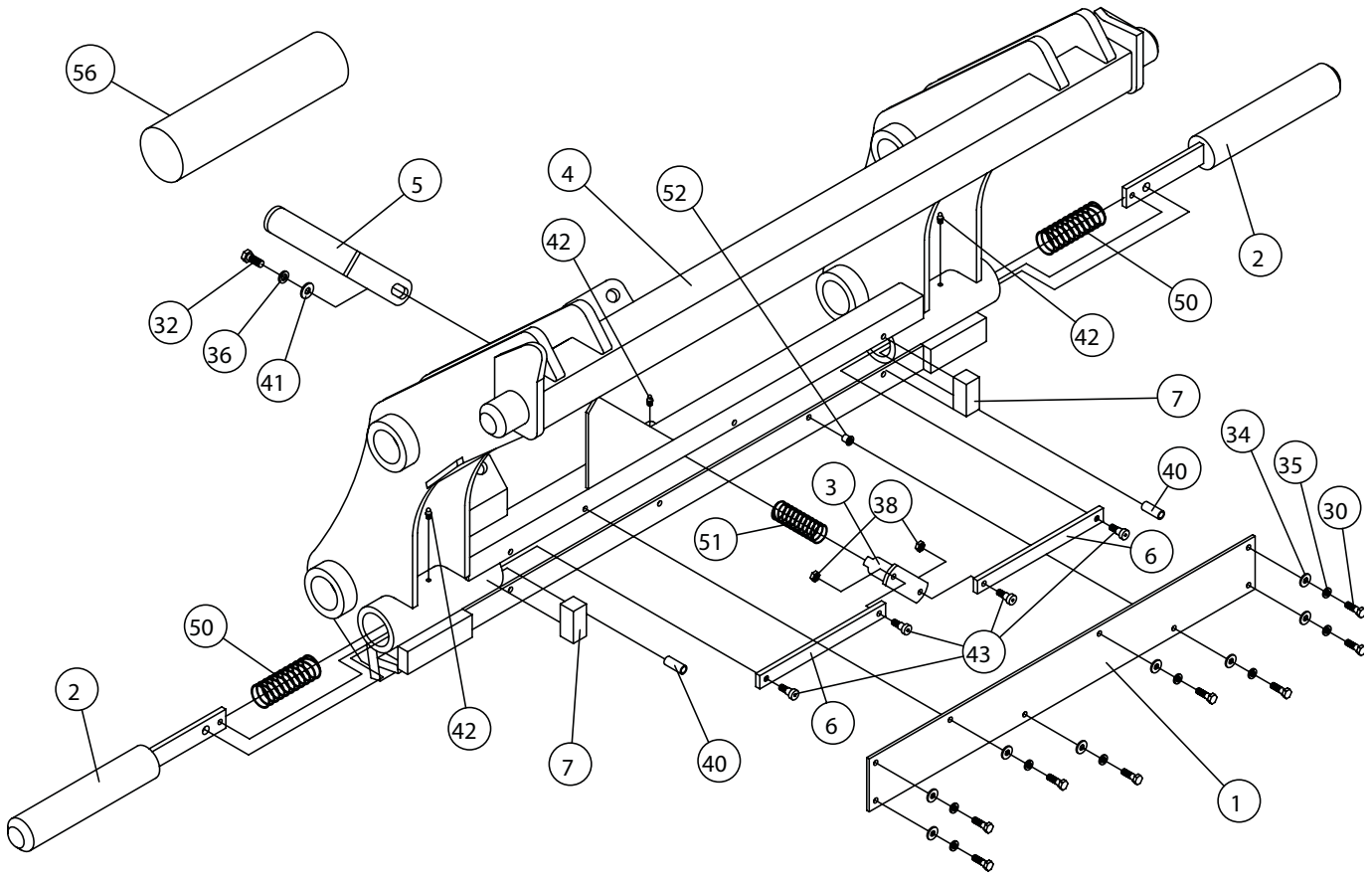
AFTER EVERY 10 HOURS OF USE

- **LAF1718, LAF1730 & LAF1769** (Hydraulic) Only: Grease 4 fittings: one on top of each of the tow lower connection pin bushings.
- **LAF1721 & LAF1731** (Manual) Only: Grease 5 fittings: one on top of each of the two lower connection pin bushings and one on the release handle bushing.

ANNUALLY

- 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.

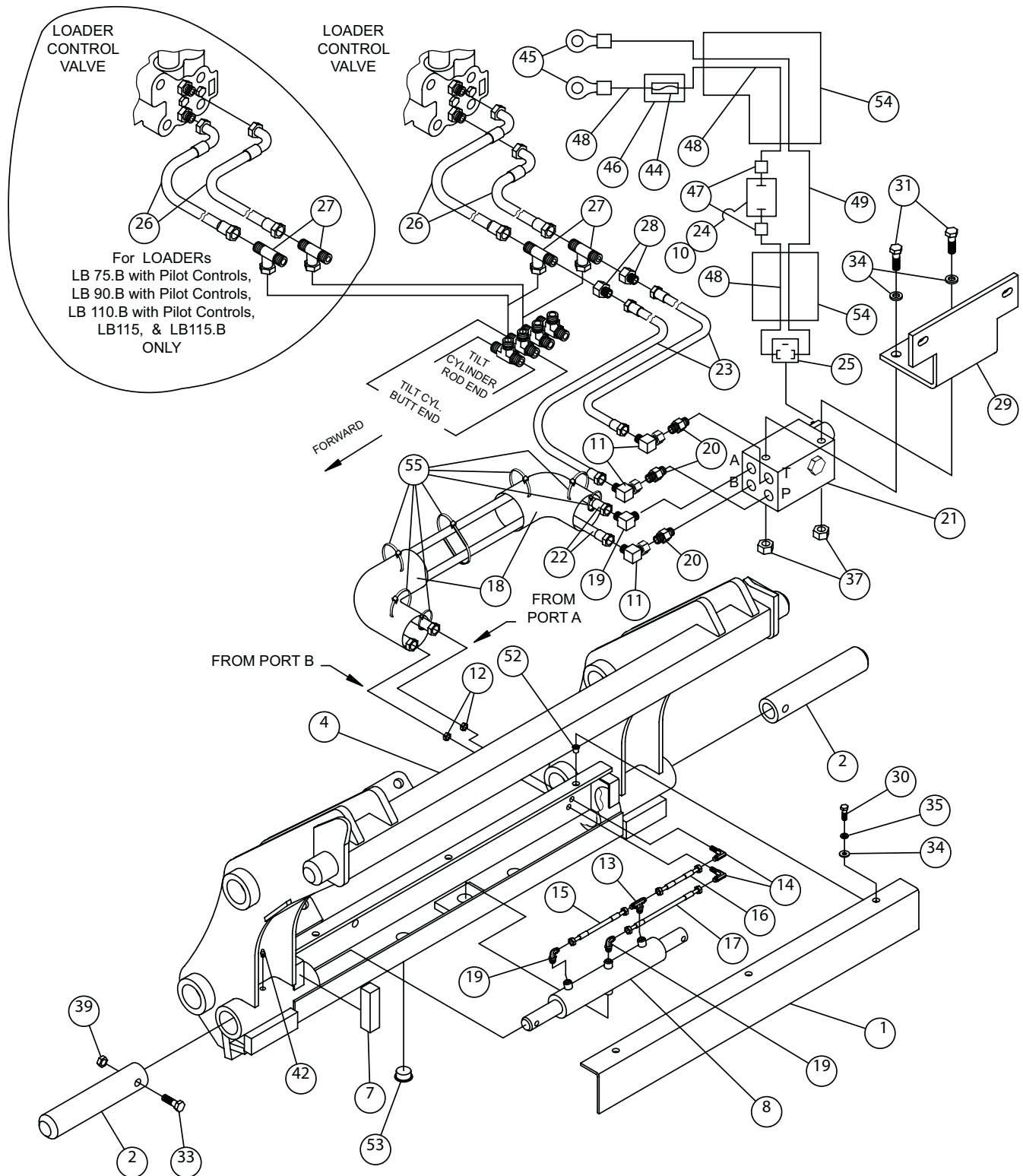
TOOL CARRIER (Manual) PARTS ILLUSTRATION



TOOL CARRIER (Manual) PARTS LIST

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	RHW1105		Grade 5 Hex Head Cap Screw 5/16" x 1"
32	1	RHW1205		Grade 5 Hex Head Cap Screw 5/16" x 3"
34	8	RHW5162		Grade 5 Flat Washer 5/16" USS
35	8	RHW 6102		Grade 5 Lock Washer 5/16"
36	1	RHW6202		Grade 5 Lock Washer 3/8"
38	2	RHW7104		Grade Jam Nut 5/16"
40	2	RHW8030		Roll Pin 1/2" x 1-1/4"
41	1	RHW8086		Grade 2 Fender Washer 3/8" x 1-1/4" 5/64" thick
42	3	RHW8090		Grease Zerk 1/4" 28 tpi. self-tapping
43	4	RHW8202		Allen Head Shoulder Screw 3/8" x 3/8" with nylon pellet
50	2	RHW8504		Compression Spring 1-11/16" x 5"
51	1	RHW8505		Compression Spring 1-1/4" x 2"
52	8	RHW8642		Rivet Nut 5/16"
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) PARTS ILLUSTRATION

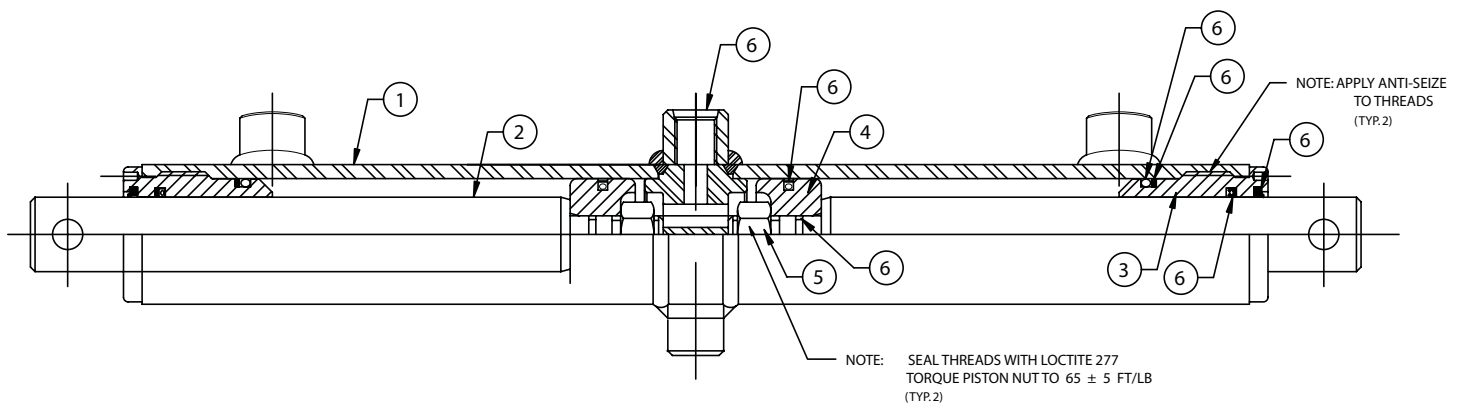


TOOL CARRIER (Hydraulic) PARTS LIST

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 1-1/2" x 4" double-acting
10	1	LAF1761	Not Used	Not Used	Switch Cover
11	3	LAF4093	Not Used	Not Used	Hydraulic Elbow 90° 6MJ-6FJSW
12	2	LAF4098			Bulkhead Jam Nut #6 (9/16" 18 tpi.)
13	1	LAF4124	03-10078		Hydraulic Tee
14	2	LAF4157	03-10080		Hydraulic Bulkhead Elbow 90°
15	1	Contact FFC to obtain the correct item			Hydraulic Hose 1/4" x (length varies) 6FJ-6FJ
16	1	Contact FFC to obtain the correct item			Hydraulic Hose 1/4" x (length varies) 6FJ-6FJ
17	1	Contact FFC to obtain the correct item			Hydraulic Hose 1/4" x (length varies) 6FJ-6FJ
18	2	LAF4283	Not Used	Not Used	Hydraulic Hose Protector 1-9/16" x 48"
19	2	LAF4298	03-10079		Hydraulic Elbow 90°
20	3	LAF4406	Not Used	Not Used	Hydraulic Adaptor 6MB-6MJ
21	1	LAF4567	Not Used	Not Used	Hydraulic Block Assembly
22	2	LAF4568	Not Used	Not Used	Hydraulic Hose 1/4" x 158" 6FJ-6FJ
23	2	LAF4569	Not Used	Not Used	Hydraulic Hose 1/4" 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 1/2" x 26" 10FFS90-10FFS
27	2	LAF4624	Not Used	Not Used	Hydraulic Branch Tee 10MFS-10MFS-10FFSX
28	2	LAF4626	Not Used	Not Used	Hydraulic Adaptor 6MFS-10FFS
29	1	LAF9579	Not Used	Not Used	Manifold Mount
30	3	RHW1105			Grade 5 Hex Head Cap Screw 5/16" x 1"
31	2	RHW1114	Not Used	Not Used	Grade 5 Hex Head Cap Screw 5/16" x 3"
33	2	RHW1243			Grade 8 Hex Head Cap Screw 3/8" x 2-1/2"
34	varies	(5)RHW5162	(3)	(3)	Grade 5 Flat Washer 5/16" USS
35	3	RHW 6102			Grade 5 Lock Washer 5/16"
37	2	RHW7103	Not Used	Not Used	Grade 5 Lock Nut 5/16"
39	2	RHW7203			Grade 5 Lock Nut 3/8"
42	2	RHW8090			Grease Zerk 1/4" 28 tpi. self-tapping
44	1	RHW8372	Not Used	Not Used	Fuse 2 Amp 1/4" x 1-1/4"
45	2	RHW8370	Not Used	Not Used	Ring Terminal 16-14 x 1/4"
46	1	RHW8371	Not Used	Not Used	Fuse Holder crimp-on for 1/4" x 1-1/4" tube
47	2	RHW8374	Not Used	Not Used	Spade Terminal Female 1/6-12 1/4" (insulated)
48	1	RHW8375	Not Used	Not Used	Wire Red 16 ga.
49	1	RHW8376	Not Used	Not Used	Wire White 16 ga.
52	3	RHW8642			Rivet Nut 5/16"
53	2	RHW8643			Plug 1-1/4" x 1/2" (polyethylene)
54	1	RHW8383	Not Used	Not Used	Corrugated Wire Loom 1/2" x 96"
55	varies	(10)RMR5002	(2)	(2)	Nylon Cable Ties 1/4" x 6"

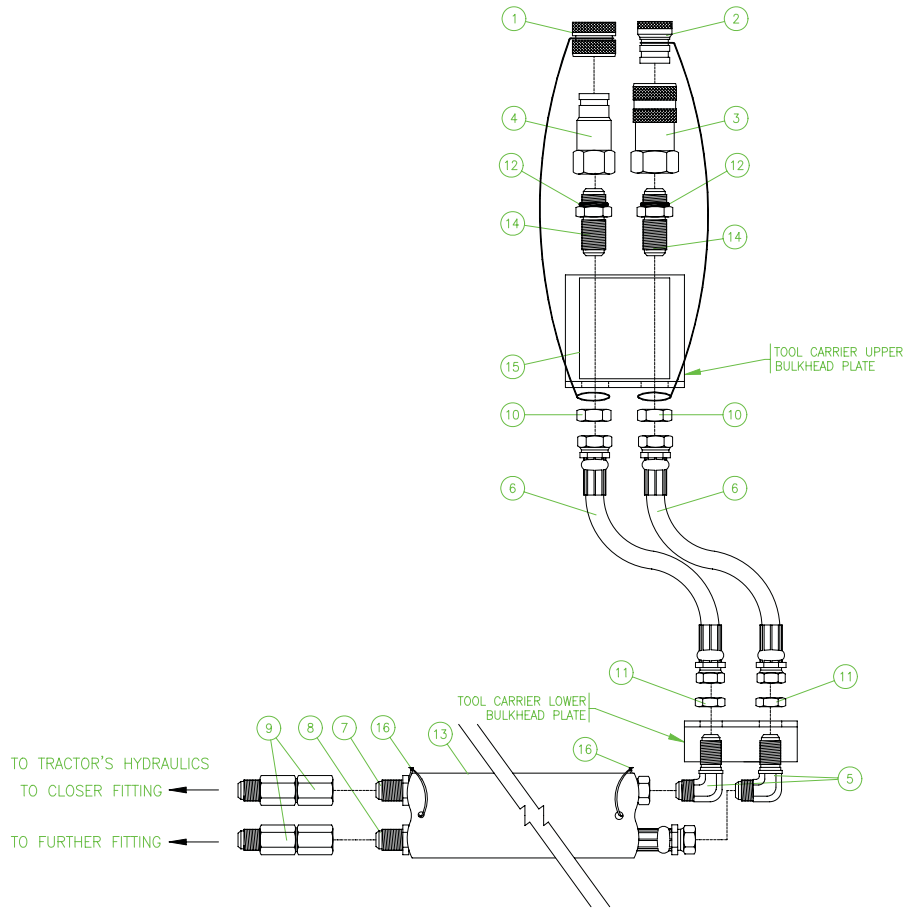
NOTE: All parts are the same as LAF1718 except for the parts numbered under the other models.

HYDRAULIC CYLINDER ILLUSTRATION: LAF4011



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

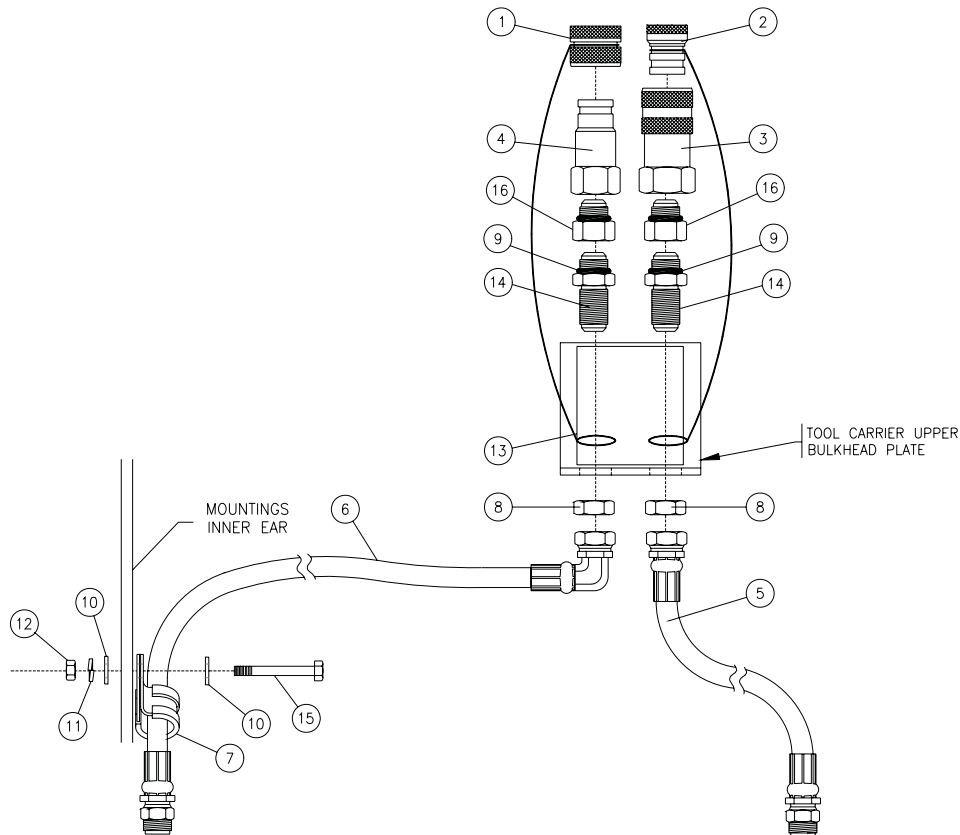
HOSE KIT ILLUSTRATION: LAF4064



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	LAF4069	Hydraulic Hose: 1/2" I.D. x 16-1/2" Long, #12 Female JIC x #10 Female JIC
	OR	03-10119	Hydraulic Hose: 1/2" I.D. x 18-1/2" Long, #12 Female JIC x #10 Female JIC
7	1	LAF4070	Hydraulic Hose: 1/2" I.D. x 24-3/4" Long, #10 Female JIC x #10 Male JIC
8	1	LAF4071	Hydraulic Hose: 1/2" I.D. x 28-1/4" Long, #10 Female JIC x #10 Male JIC
9	2	LAF4072	Hydraulic Swivel: #10 Male JIC x #10 Female JIC
10	2	LAF4074	Hydraulic Jam Nut: #12 (1-1/16" Dia.) With 12 Threads Per Inch
11	2	LAF4075	Hydraulic Jam Nut: #10 (7/8" Dia.) With 14 Threads Per Inch
12	2	LAF4079	Hydraulic O-Ring: 1-3/64" O.D. x 15/16" I.D. for #12 Fitting
13	1	LAF4082	Hydraulic Hose Protector: 1-7/8" Dia. x 1'-2" Long
14	2	LAF4294	Hydraulic Bulkhead Adapter: #12 Male JIC x #12 Male JIC
15	1	RDL3129	Hydraulic Safety Sign
16	2	RMR5002	Nylon Cable Ties: 1/4" x 11" Long, Black, Outdoor Use

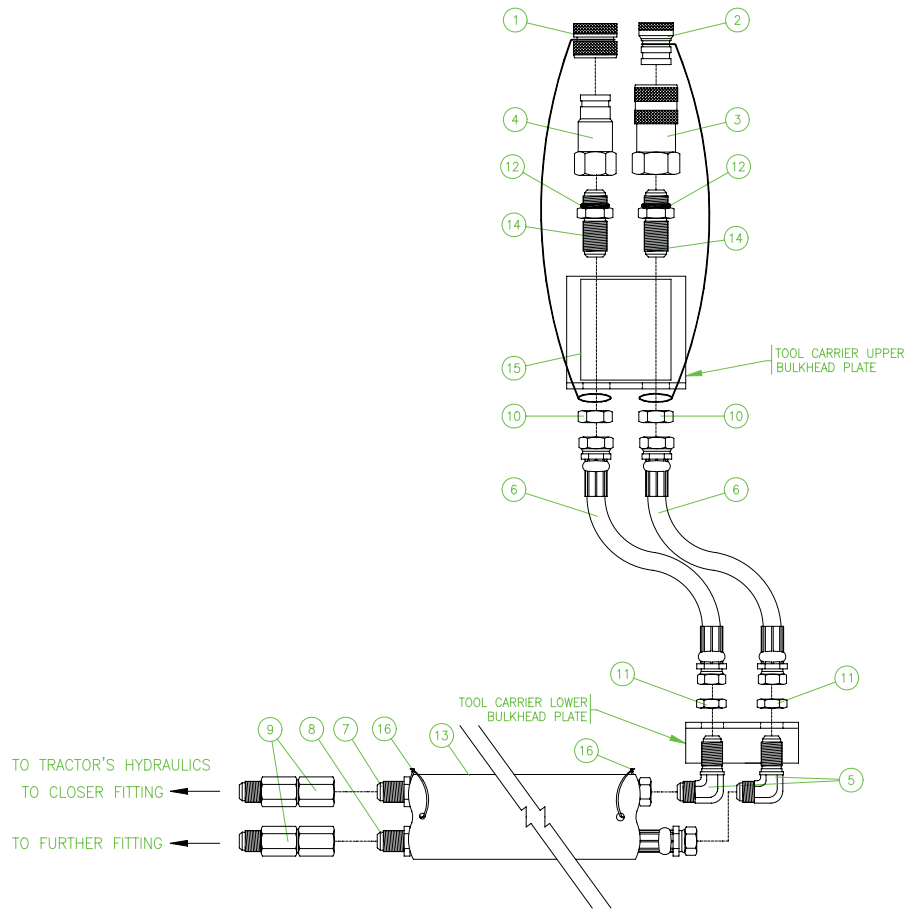
*Kits made before 11/2006 use LAF4069 and kits made after 11/2006 use 03-10119.

HOSE KIT ILLUSTRATION: LAF4506



ITEM	QTY.	LAF4506	DESCRIPTION
1	1	LAF4224	Dust Cap: Regular SS Male Flat Face Fitting
2	1	LAF4223	Dust Cap: Regular SS Female Flat Face Fitting
3	1	LAF4258	Hyd. Hose Quick Coupler: #12 Fem O-Ring Boss With NH SS Fem Flat Face
4	1	LAF4259	Hyd. Hose Quick Coupler: #12 Fem O-Ring Boss With NH SS Male Flat Face
5	1	LAF4525	Hydraulic Hose: 3/8" I.D. x 31-1/2" Long, #8 Male Face Seal x #8 Female JIC
6	1	LAF4526	Hydraulic Hose: 3/8" I.D. x 55" Long, #8 Male Face Seal x #8 Fem JIC 90 Deg.
7	1	RHW8319	Hose Clamp: 3/4" Loop
8	2	LAF4010	Hydraulic Jam Nut: #8 (3/4" Dia.) With 16 Threads Per Inch
9	2	LAF4635	Hydraulic O-Ring: for #8 Fitting
10	2	RHW5062	Flat Washer: 1/4" Dia. USS
11	1	RHW6002	Lock Washer: 1/4" Dia.
12	2	RHW7001	Hex. Nut: 1/4" Dia.
13	1	RDL3129	Hydraulic Safety Sign
14	2	LAF4636	Hydraulic Fitting: Bulk Head Straight #8 Male JIC x #8 Male JIC w/o nut
15	1	RHW1006	Hex Head Cap Screw: 1/4"-20 TPI x 1" Long Grade 5
16	2	LAF4271	Adapter #12 Male O-Ring to #8 Female O-Ring

HOSE KIT ILLUSTRATION: LAF4685



ITEM	QTY.	LAF4685	DESCRIPTION
1	1	LAF4224	Dust Cap: Reg-SS Male Flat Face
2	1	LAF4223	Dust Cap: Reg-SS Female Flat Face
3	1	LAF4258	Hydraulic Hose Quick Coupler: NH SS Flat Face Female #12FB
4	1	LAF4259	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	LAF4069	Hydraulic Hose: 1/2" I.D. x 16-1/2" Long, #12 Female JIC x #10 Female JIC
	OR	03-10119	Hydraulic Hose: 1/2" I.D. x 18-1/2" Long, #12 Female JIC x #10 Female JIC
7	1	LAF4070	Hydraulic Hose: 1/2" I.D. x 24-3/4" Long, #10 Female JIC x #10 Male JIC
8	1	LAF4071	Hydraulic Hose: 1/2" I.D. x 28-1/4" Long, #10 Female JIC x #10 Male JIC
9	2	LAF4072	Hydraulic Swivel: #10 Male JIC x #10 Female JIC
10	2	LAF4074	Hydraulic Jam Nut: #12 (1-1/16" Dia.) With 12 Threads Per Inch
11	2	LAF4075	Hydraulic Jam Nut: #10 (7/8" Dia.) With 14 Threads Per Inch
12	2	LAF4079	Hydraulic O-Ring: 1-3/64" O.D. x 15/16" I.D. for #12 Fitting
13	1	LAF4082	Hydraulic Hose Protector: 1-7/8" Dia. x 1'-2" Long
14	2	LAF4294	Hydraulic Bulkhead Adapter: #12 Male JIC x #12 Male JIC
15	1	RDL3129	Hydraulic Safety Sign
16	2	RMR5002	Nylon Cable Ties: 1/4" x 11" Long, Black, Outdoor Use

*Kits made before 11/2006 use LAF4069 and kits made after 11/2006 use 03-10119.



PALADIN LIGHT CONSTRUCTION

Warranty Registration Form and Delivery Inspection Report

IMPORTANT! Warranty **Void** if card is not returned with 10 days.
All Applicable sections **must** be filled in.

This section to be filled out and signed by Dealer at time of delivery.

Warranty Registration

Customer's Name _____	Dealer's Name _____
Address _____	Address _____
City _____ State _____ Zip _____	City _____ State _____ Zip _____
Phone _____	CHECK ONE:
Loader / Tractor Model _____	Construction Use _____
Delivery Date _____	Agricultural Use _____
Model or Part # _____	Landscape Use _____
Serial # _____	Other: _____

Dealer Inspection (check items applicable)

- | | |
|---|---|
| <input type="checkbox"/> All Decals installed (see operator's manual) | <input type="checkbox"/> Review Operating and Safety Instructions |
| <input type="checkbox"/> Hydraulic fittings tight and free of leaks | <input type="checkbox"/> Guards and covers in place and secure |
| <input type="checkbox"/> Fasteners tight | <input type="checkbox"/> Does Product Function Properly |

I have thoroughly instructed the buyer on the above described equipment. This review included: The Operator's manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. signature _____

This section to be completed and signed by the customer

	1 Excellent	2 Good	3 Average	4 Unsatisfactory	5 Poor
QUALITY ASSURANCE RATING					
Question:		FFC		Local Dealer	
Quality of Product: Appearance		_____			
Construction		_____			
Quality of Service		_____		_____	
Value (Priced Fairly)		_____		_____	
Does it perform as claimed		_____			

The above described equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date: _____ Owner's signature _____

NOTE! Make one copy each for the dealer's and owner's records. Mail original to FFC Attachments.



PALADIN LIGHT CONSTRUCTION

FFC LIMITED 12 MONTH WARRANTY

Thank you for purchasing a FFC product. Warranty protection is valid only when this Warranty Registration is completed and signed by the customer and dealer, and mailed to FFC. I hereby acknowledge that I have received a copy of the owners Limited Warranty and I accept the terms therein.

For a period of 12 months from date of delivery of product to the original user, FFC, warrants each product to be free from manufacturing defects, subject to the limitations contained in this policy.

This warranty does not apply to defect caused, in whole or in part, by unreasonable use while in the possession of the user, including, but not limited to: failure to properly set up product; failure to provide reasonable and necessary maintenance; normal wear; routine tune ups or adjustments; improper handling or accidents; operation at speed or load conditions contrary to published specification; improper or insufficient lubrication; improper storage. This warranty is also not a guarantee that the performance of each product will meet the expectations of the purchaser.

FFC shall not be liable for consequential damages of any kind, including, but not limited to: consequential labor costs or transportation charges in connection with the replacement or repair of defective parts; lost time or expense which may have accrued because of said defects. In no event shall FFC, Inc.'s total liability hereunder exceed the product purchase price.

FFC makes no warranty with respect to trade accessories or any component or accessory of the product which was not manufactured by FFC, including any purchased components on any kind. These are subject to the warranties of their respective manufacturers. The warranty will be considered void if the product or any part of the product is modified or repaired in any way not expressly authorized by FFC, or if closed components are disassembled prior to return. Closed components include, but are not limited to: gearboxes, hydraulic pumps, motors, cylinders, and actuators.

Our obligation under the warranty is expressly limited, at our option, to the replacement or repair at FFC, of Lee, Illinois, or at a service facility designated by us, or such part or parts as inspection shall disclosed to have been defective. We are not responsible for unauthorized repairs or replacements. Any implied or statutory warranties, including any warranty of merchantability or fitness for a particular purpose, are expressly limited to the duration of this written warranty. We make no other express or implied warranty, nor is anyone authorized to make any in our behalf. This warranty cannot be extended, broadened, or changed except in writing by an authorized officer of FFC.