

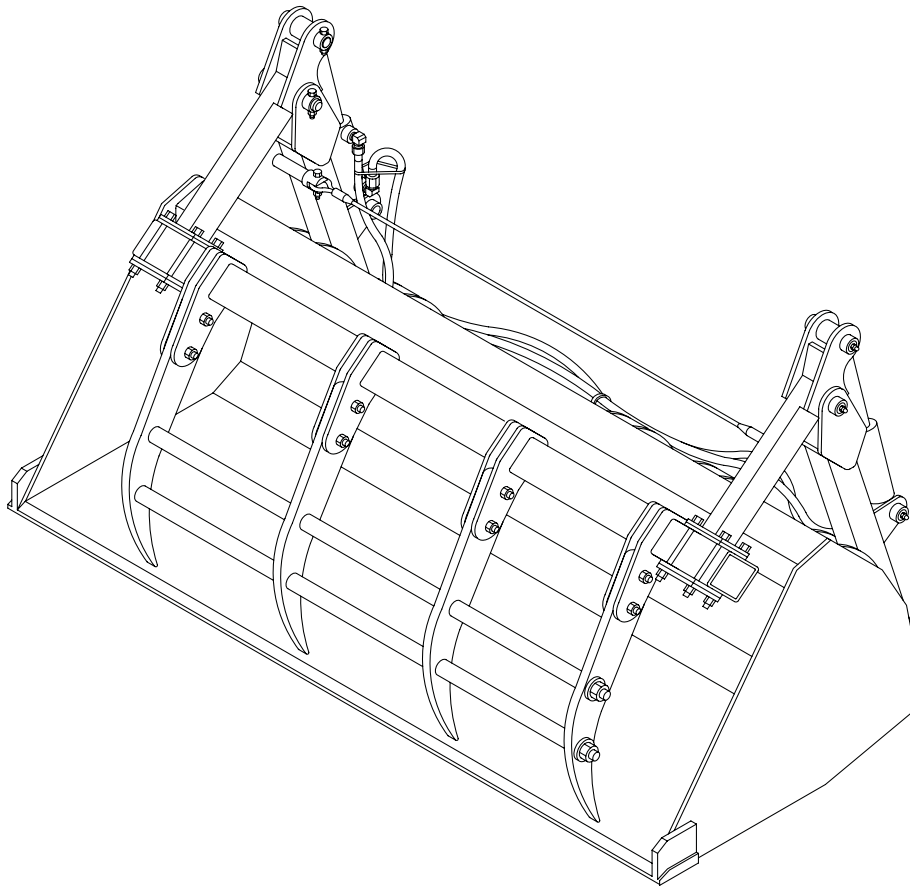


OPERATOR'S & PARTS MANUAL

BALE GRAPPLE



PALADIN LIGHT CONSTRUCTION



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: MR25607

Model Covered: LAF2501

Date: February 2007

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INTRODUCTION

Congratulations on your purchase of a new FFC Attachments **Bale Grapple**. This product has been designed and built to close on and hold items in a loader bucket. 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 Attachments 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) LAF2501.

GENERAL INFORMATION

The purpose of this manual is to assist in assembling, mounting, operating, and maintaining your Bale Grapple. 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 Attachments 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:

Tractor	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 operating position.
IMPORTANT	Precautions that must be followed to prevent damage to the equipment.
NOTICE	Precautions that must be followed to prevent substandard performance.

DEFINITION OF SAFETY TERMS AND SYMBOLS

Throughout this manual, the terms **DANGER**, **WARNING**, and **CAUTION** are used to indicate the degree of hazard to personnel if proper safety procedures are not followed. These words will be used in conjunction with the Safety Alert Symbol: a dark triangle containing a white exclamation mark.

	The Safety Alert Symbol means: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
DANGER	Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury; OR may also be used to alert against unsafe practices that may result in personal injury.

ACCIDENTS CAN BE PREVENTED WITH **YOUR HELP !**

No accident prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

To read equipment accident reports from all over the country is to be convinced that a large number of accidents can be prevented only by operators who consistently anticipate the results of their actions and thus prevent accidents from ever occurring. No power-driven equipment, whether it is on the highway, in a farm field, or in an industrial plant, can be any safer than is allowed by the person who is at the controls.

If accidents are to be prevented (and accidents can be prevented), that prevention will come from equipment operators who accept their complete responsibility.

The designer, the manufacturer, and the safety engineer all help create a safe product, but the operator of that product can wipe out their combined efforts with a single careless act.

The best safety device is a careful operator. FFC Attachments and your dealer ask that **YOU** be that careful, responsible equipment operator.

YOU ARE THE KEY TO SAFETY BECAUSE:

YOU are responsible for the SAFE operation and maintenance of **YOUR** Bale Grapple.

YOU are responsible to familiarize yourself, and anyone else who will assemble, operate, maintain, or work around this product, with the SAFETY information contained in this manual.

YOU are responsible to read ALL information contained in this manual to any operators or maintenance personnel who are not fully able to read the written English language. Whether **YOU** read the manual as written or translate it into another language, **YOU** must make certain that all operators and maintenance personnel have a complete understanding of the full and exact contents of this manual. Translations of this manual into other languages are available by submitting a written request to FFC Attachments.

YOU can reduce the risk of injury or death by following all safety precautions and by using good safety practices.

SAFETY INSTRUCTIONS

WORK SAFELY - A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST ACCIDENTS !!

SECTION 1



WARNING

Obey all the safety instructions listed in this section and throughout this manual. Failure to obey instructions in this section could result in death or serious injury.

BEFORE ATTEMPTING ANY TYPE OF ASSEMBLY, OPERATION, MAINTENANCE, OR OTHER WORK ON OR NEAR THIS PRODUCT:

- **READ AND COMPLETELY UNDERSTAND THIS MANUAL.**
- **READ AND COMPLETELY UNDERSTAND THE MANUALS PROVIDED WITH YOUR TRACTOR, LOADER, and QUICK-ATTACH.**
- Read and understand all safety signs on this product and on your tractor, loader, and quick-attach.
- Know all your controls and know how to quickly stop all tractor movement, the Bale Grapple movement, and the engine in case of an emergency.
- Know and obey all applicable government rules, O.S.H.A. regulations, local laws and other professional guidelines for your operation.
- Make sure that anyone who will be assembling, mounting, maintaining, repairing, removing, and/or storing this product:
 - has been instructed in the safe operation of this product and of the tractor, loader, and quick-attach to which this product is attached.
 - is physically and mentally capable of the safe operation of this type of equipment.
 - is not under the influence of drugs or alcohol.
 - is carefully supervised from a safe distance, especially if such person is inexperienced.
 - wears appropriate protective equipment (i.e. hardhat, safety glasses, work gloves, protective shoes, respirator, ear protection, etc.).
 - does not wear loose fitting clothing, loose or uncovered hair, or any accessories (jewelry, necktie, scarf, wrist watch, etc.) that can catch in moving parts.
 - has annually reviewed all safety instructions.
- Know and follow good work practices when assembling, mounting, maintaining, repairing, removing, and storing this product:
 - Work on a level surface in a well-lit area.
 - Keep the area clean and dry.
 - Use properly grounded electrical outlets & tools.

- Use the right tool for the job at hand.
- Make sure that your tools are in good condition for performing the desired function.
- When using tools, wear the protective equipment specified by the tool manufacturer. (i.e. hardhat, safety glasses, work gloves, protective shoes, etc.)

WHEN YOUR TRACTOR IS USED DURING ANY TYPE OF ASSEMBLY, OPERATION, MAINTENANCE, OR OTHER WORK ON OR NEAR THIS PRODUCT:

- Before leaving the operator's station or before beginning any type of work on this product, lower this product to the ground, apply your tractor's parking brake, stop the engine, remove the starter key, wait for all moving parts to stop, and then relieve all pressure in the hydraulic lines. Refer to your tractor's operator's manual for instructions on how to relieve hydraulic pressure in lines.
- Know your loader's safe lifting and operating capacity and the weight of this product. See the specifications in this manual for the weight of this product and refer to your tractor's and your loader's operator's manuals for safe operating limits. Lift capacity may be reduced if using a quick-attach.
- Never allow anyone, except the operator, to be around the tractor or this product when either is in motion. Do not startup unless others are clear of the work area.
- Do not allow riders on this product or the tractor.
- Do not stand or climb on this product when raised.
- Do not place any part of your body under any part of this product unless this product is securely resting on adequate blocking or on the ground.
- Do not use blocking made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Do not use wood or steel blocking that shows any signs of material decay. Do not use blocking that is warped, twisted, or tapered.
- Never operate controls from the ground. Operate the controls only from the operator's station.
- Never leave equipment unattended with the engine running or with this product raised on the loader.
- Be aware of the added weight and width of this product. Reduce travel speeds accordingly, especially when traveling over rough ground.
- Keep this product close to the ground and under control when transporting.

SAFETY INSTRUCTIONS

WORK SAFELY - A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST ACCIDENTS !!

SECTION 1 (CONTINUED)



WARNING

Obey all the safety instructions listed in this section and throughout this manual. Failure to obey instructions in this section could result in death or serious injury.

WHEN DEALING WITH HYDRAULICS DURING ANY TYPE OF ASSEMBLY, OPERATION, MAINTENANCE, OR OTHER WORK ON OR NEAR THIS PRODUCT:

- Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible!
- If any fluid penetrates the skin, **GET IMMEDIATE MEDICAL ATTENTION!!**
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS!**
- Before connecting or disconnecting hydraulic hoses, read your tractor's operator's manual for detailed instructions on connecting and disconnecting hydraulic attachments.
- Make certain that all parts meet the specifications for this product when installing or replacing hydraulic hoses or fittings.
- After connecting hydraulic lines:
 - Slowly and carefully raise the loader and cycle the rollback / dump cylinders to check hose clearances and to check for any interference.
 - Operate the hydraulics on this product to check hose clearances and to check for any interference.
 - Make certain that the hoses cannot interfere with or actuate the quick-attach mechanism.
 - Make certain that hoses will not be pinched, or get tangled, in any equipment.
- Refer to your tractor's operator's manual and this manual for procedures and intervals, then inspect and maintain the entire hydraulic system to insure that the fluid remains clean, that all devices function properly, and that there are no fluid leaks.

WHEN MOUNTING THIS PRODUCT TO YOUR TRACTOR:

- Refer to the operator's manuals of your tractor, your loader, and your quick-attach for special or detailed mounting instructions.
- This product should fit onto the loader bucket(s) specified in the mounting instructions on page 6.

- If this product does not fit properly, contact FFC Attachments before operating.
- Never place your finger into the mounting plate or loader holes. A slight movement of the tractor or this product could cause serious injury.

BEFORE EACH USE, THOROUGHLY INSPECT THIS PRODUCT AND:

- Make certain that all safety signs are in place and legible. Refer to the safety sign page in this manual for the placement of safety signs for this product.
- Replace all damaged or excessively worn parts and hardware only with genuine FFC Attachments parts or with properly rated fasteners, hydraulic hoses, or fittings.
- Make certain that all locking pins, latches, and connection devices are properly installed and secured.
- Make certain that all protective guards, canopies, doors, etc. are in place and secure.

WHEN OPERATING THIS PRODUCT IN ACCORDANCE WITH DESIGN INTENTIONS:

- **THE GRAPPLE MOVES QUICKLY!** Do not allow anyone near the grapple.
- Never get between the grapple and the bucket.
- Do not lift any load that is taller than the height of the fully opened grapple.
- Do not roll back this product so far that the load falls toward the operator.

WHEN ADJUSTING, SERVICING OR REPAIRING THIS PRODUCT:

- Make no modifications to your Bale Grapple.
- When making repairs, use only genuine FFC Attachments parts or, for fasteners, hydraulic hoses, or hydraulic fittings, use only properly rated parts.
- Replacement parts, for parts with safety signs attached, must also have safety signs attached.

SECTION 2

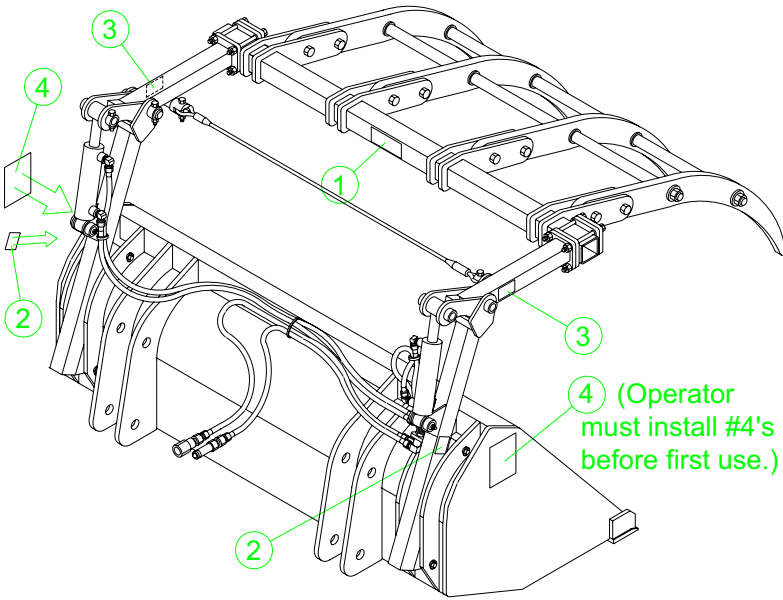


CAUTION

Obey all the safety instructions listed in this section and throughout this manual. Failure to obey instructions in this section may result in personal injury.

- Never leave the grapple open when this product is not in use.

SAFETY SIGN LOCATIONS



ITEM	QTY.	PART # - DESCRIPTION
1	1	50-0723 – READ MANUAL
2	2	50-0724 – HYDRAULICS
3	2	50-0737 – PINCH POINT
4	2	RDL3125 – CRUSH HAZARD

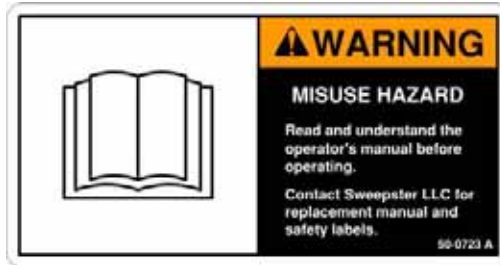
INSTRUCTIONS

- 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 Attachments.

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



TRACTOR SPECIFICATIONS

IMPORTANT

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

DESCRIPTION	SPECIFICATIONS
Hydraulic Pressure Output	4,000 psi. maximum
Rear Ballast	As required to maintain full tractor stability. (note the Shipping Weight on page 13, the see the operators manual(s) for your tractor, loader, and quick-attach for ballasting needs).

BALE GRAPPLE MOUNTING



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE MOUNTING

1. This product can be mounted **only** on the following FFC Attachments buckets:

LAF2572	72" Heavy Duty Utility Bucket
LAF2584	84" Heavy Duty Utility Bucket
LAF2596	96" Heavy Duty Utility Bucket
LAF2508	108" Heavy Duty Utility Bucket

 - If you do not have one of these buckets, this product will not fit and you should contact your dealer.
 - If you have one of the above buckets, but your bucket does not have four extra ears on the back of the bucket for mounting this product, you will need to purchase and install a Bale Grapple Mounting Ears Kit (LAF2502) before proceeding with step 2 below. Contact your dealer to obtain this kit.
 - If you have one of the above buckets, but your bucket has a spill guard, you will not be able to pick up any round bale with a diameter greater than 5'. To lift bales with diameters greater than 5', the spill guard must be unbolted or cut off, depending on the age of the bucket.
2. Park your tractor and this product on a firm, level surface that is large enough to safely accommodate this product, your tractor, and all workers involved in the mounting process.
3. Place your tractor's transmission in "Park" and engage the parking brake.
4. Lower the loader bucket completely so that the floor of the bucket rests fully on the level surface.
5. Shut off your tractor's engine, remove the starter key, wait for all moving parts to come to a stop, and relieve all pressure in the hydraulic lines.
6. Install the Left Mounting Tube (Item 11) between the left pair of Bale Grapple Mounting Ears and the Right Mounting Tube (Item 12) between the right pair of Bale Grapple Mounting Ears by securing each tube with two Mounting Tube Attachment Pins (Item 10). Secure each pin with two Lynch Pins (Item 28).
7. Place an Extension Tube (Item 17) in the top yolk of each Mounting Tube and secure with a (5-1/4" long) Connection Pin (Item 14). Be sure that the two cable securing yolks point toward one another after installation. Secure each of the two pins with a 1/4" Dia. x 2" Long Grade 8 Hex Head Cap Screw (Item 21) and a 1/4" Dia. Center Dent Locknut (Item 25) tightened to 12.4 ft. lbs. + or – 0.9 ft. lbs.
8. Slide a looped end of the Cable Assembly (Item 13) into the yolk of each Cable Anchoring Pin which is welded to each of the mounting tube. Secure each end of the cable with a 3/8" Dia. x 2" Long Grade 5 Hex Head Cap Screw (Item 22) and a 3/8" Dia. Center Dent Locknut (Item 26) tightened to 34 ft. lbs. + or – 2.0 ft. lbs.
9. Remove the two port plugs from each of the two Hydraulic Cylinders (Item 4). With the two hose connection ports pointed down over an appropriate container, fully extend the rod of each Hydraulic Cylinder, allowing the fluid inside each cylinder to flow into the container. This fluid should be recycled according the laws and regulations governing your particular area.
10. Install the two Hydraulic Cylinders with the barrel ends down, the rod ends up, and the hose connection ports rotated toward the center of the bucket. Secure the cylinders with the Hydraulic Cylinder / Mounting Tube Connection Pin (Item 19) (4-3/4" Long) and the Hydraulic Cylinder / Extension Tube Connection Pin (Item 20) (4-1/4" Long). Secure each of the two pins with a 1/4" Dia. x 2" Long Grade 8 Hex Head Cap Screw (Item 21) and a 1/4" Dia. Center Dent Locknut (Item 25) tightened to 12.4 ft. lbs. + or – 0.9 ft. lbs.

(Continued on the next page)

BALE GRAPPLE MOUNTING



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE MOUNTING

11. Partially install (3) Cross Tube Mounting Plates (Item 15) on each Extension Tube by placing (2) ½" Dia. x 5-½" Long Grade 8 Hex Head Cap Screws (Item 24) and (2) ½" SAE Grade 8 flat washers (Item 35) on one edge of each mounting plate. These bolts should also go through the lower two holes in the end plate of one Extension Tube and the outer two holes in the end plate of the other Extension Tube. Secure each bolt with a ½" SAE Grade 8 flat washer (Item 35) and a ½" top lock flanged Grade 8 nut (Item 34) installed finger tight plus a half turn. Slide the mounting plates away from the tube as far as the bolts will allow.
 12. Carefully pick up the Cross Tube (Item 18) with the tooth lugs pointed away and down from the Extension Tube. Slide one end of the Cross Tube between the Cross Tube Mounting Plates with (1) mounting plate against the extension tube and where the bolts have been installed on the outer edge. With that end fully inserted, lay the other end of the Cross Tube between the other Cross Tube Mounting Plates, also with (1) mounting plate against the other extension tube and where the bolts have been installed on the lower edge. Securing that end with a third ½" Dia. x 5-½" Long Grade 8 Hex Head Cap Screw, (2) ½" SAE Grade 8 flat washers, and a ½" Dia. Locknut. Be sure to steady the Cross Tube in place while installing the third bolt so that the Cross Tube does not slide out of position and fall. Center the Cross Tube between the two Extension Tube, install the other three bolts, flat washers, and locknuts, and evenly tighten all eight locknuts a small amount at a time until a torque of 84 ft. lbs., + or – 6.0 ft. lbs., is attained.
 13. Insert a Grapple Tooth (Item 16) between each pair of the tooth lugs on the Cross Tube and secure the rear of each tooth with a ½" Dia. x 2" Long Grade 5 Hex Head Cap Screw (Item 23) and a ½" Dia. Center Dent Locknut (Item 27) finger tightened. Pull up on the Cross Tube enough to permit the second bolt to be installed in each tooth. Tighten all eight locknuts to 84 ft. lbs., + or – 6.0 ft. lbs.
- NOTE: If your loader's auxiliary hydraulics are on the left loader arm, reverse the left/right instructions below.**
14. Install (2) ¾" SAE Grade 8 flat washers (Item 33) and (1) Grapple spacer (Item 32) between each grapple tooth, while inserting a stiffener rod (Item 36) through the upper holes in the grapple teeth. Repeat this process for the lower holes. Install (1) ¾" SAE Grade 8 flat washer and (1) ¾" top lock Grade 8 flange nut (Item 31) on each end of both stiffener rods. Tighten each rod's nuts to 300 ft. lbs. +/- 10 ft. lbs. making sure that the thread of the rods extend outside of each nut.
 15. Install the four 90° Male-Male Hydraulic Elbows (Item 6) on the Hydraulic Cylinder ports. Three of the elbows should be installed with the leg of the elbow pointed down toward the base of the cylinder barrel. The fourth elbow (i.e. the elbow on the lower port of the right cylinder) should be installed with the leg pointed up toward the top of the cylinder rod. For each elbow: (1) Insert the o-ring end of the elbow into a port and fully tighten the elbow. (2) Back the elbow off until the leg of the elbow points the correct direction. (3) Tighten the captive jamb nut to 27 ft. lbs., + or - 2.0 ft. lbs. to hold the elbow in position.
 16. Insert the long legs of the two Hydraulic Bulkhead Run Tees (Item 5) down through the two holes in the plate on the inside of the Right Mounting Tube. Point the horizontal legs of the tees directly toward the other mounting tube so that those legs are parallel with the back of your bucket. Rotate the horizontal legs 30° toward the bucket and secure the tees in that position by installing the two Hydraulic Jamb Nuts (Item 3) on the long legs underneath the mounting tube plate and tightening to 27 ft. lbs., + or - 2.0 ft. lbs.
 17. Install the two 90° Female-Male Hydraulic Elbows (Item 2) on the long legs of the Hydraulic Bulkhead Run Tees, just below the jamb nuts. The male legs of each elbow should be rotated so that exact alignment (i.e. 30° angle) is achieved with the horizontal leg of the tee above. Tighten the elbow to 27 ft. lbs., + or - 2.0 ft. lbs.
 18. Install the Hydraulic Orifice (Item 7) on the male leg of the rear 90° Female-Male Hydraulic Elbow. Tighten the orifice to 27 ft. lbs., + or - 2.0 ft. lbs.
 19. Install the two 1'-6" Hydraulic Hoses (Item 8): one between the top elbow on the right Hydraulic Cylinder and the vertical leg of the front Hydraulic Bulkhead Run Tee and the other between the bottom elbow on the right Hydraulic Cylinder and the vertical leg of the rear Hydraulic Bulkhead Run Tee. Tighten all four fittings to 27 ft. lbs., +/- 2.0 ft. lbs.
 20. Install the 6-0" Hydraulic Hose (Item 1) between the top elbow on the left Hydraulic Cylinder and the horizontal leg of the front Hydraulic Bulkhead Run Tee. Tighten both fittings to 27 ft. lbs., + or - 2.0 ft. lbs.
 21. Install the 5'-3" Hydraulic Hose (Item 9) between the bottom elbow on the left Hydraulic Cylinder and the horizontal leg of the rear Hydraulic Bulkhead Run Tee. Tighten both fittings to 27 ft. lbs., + or - 2.0 ft. lbs.
 22. Install and snug up a Nylon Cable Tie (Item 30) around the two Left Hydraulic Cylinder hoses just below the lower Male-Male Hydraulic Elbow.

(Continued on the next page)

BALE GRAPPLE MOUNTING (Continued)

23. Install and snug up another Nylon Cable Tie around the two Right Hydraulic Cylinder hoses just above the lower Male-Male Hydraulic Elbow. Note this will result in the rear hose being held twice in an inverted “J” shape by the tie.
24. The remaining Nylon Cable Tie will be installed as a part of the **BALE GRAPPLE HYDRAULIC CONNECTION** on p.8.
25. Carefully raise the loader and cycle the tilt cylinders to check clearances and to verify that all mounting procedures have been successfully completed. Make sure that no portion of this product makes any contact with your loader arms or dump cylinders. If such a problem is encountered, stop the setup procedure immediately and contact FFC before proceeding further.

IMPORTANT

Lubricate all grease fittings before connecting this product to your tractor's hydraulic system. Refer to BALE GRAPPLE MAINTENANCE on page 10 and follow the instructions.

BALE GRAPPLE HYDRAULIC CONNECTION



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE HYDRAULIC CONNECTION

1. You must purchase and install two hydraulic hoses that have fittings permanently attached to each end. These hoses and fittings must meet the following specifications: (NOTE: If your Bale Grapple was supplied with hoses, skip to step 4.)
 - Inside Diameter:..... 0.375” (3/8”)
 - Minimum Operating Pressure:..... 4,000 psi.
 - Hose End Fittings:..... One hose end must be a #6 female JIC fitting. The fitting for the other end can be whatever you determine to be the most beneficial to making the connection to your tractor.
 - Length:..... You must make this determination based upon recommendations provided in your tractor's operator's manual. The hoses must be long enough to avoid applying any tension to them (i.e. stretching) in all operating positions of this product. The hoses must not be excessively long either, because this could cause the hoses to drag on the ground, be pinched in the equipment, become entangled in moving parts, etc., any of which will shorten the life of the hose and could cause injury to the operator or others near the equipment. Keep in mind step 5 below when determining the correct length.
2. Remove all the protective plastic caps from the hose ends and this product's connection fittings.
3. Make certain that the male and female threads, as well as the inside of the hoses, are clean, then place the #6 hose ends on/in to the fittings on this product and tighten to 27 ft. lbs., + or - 2.0 ft. lbs. (#6 is 9/16” dia. with 18 tpi.)
4. Make the connection to your tractor using the appropriate method below for your tractor:
 - If your tractor has female threads for connecting the hydraulic hoses to the valve body, make certain that you have all necessary adapters and the male and female threads, as well as the inside of the hoses and possibly fittings, are clean. Insert the male o-ring ends of the hoses or fittings into the threaded valve body and tighten as per the recommendations in your tractor's owner's manual.
 - If your tractor uses quick-couplers for connecting the hydraulic hoses to the valve body, you must purchase the proper male quick-coupler fittings that you must install on the free ends of the two hoses. In most cases, the owner's manual for your tractor will describe the exact type of fitting that is needed for your hydraulic coupling system, but in no case should any fitting have an allowable operating pressure of less than 4,000 psi. These male fittings, or adapters for these fittings, must have threads that match the hose ends you specified above. Once all the quick-coupler fittings are properly installed and tightened to manufacturer's specifications, then the hoses can be coupled to the tractor's hydraulic valve body as per the instructions found in your tractor's operator's manual.
5. Install and snug up a Nylon Cable Tie (Item 30) around these two hoses and the two longer hoses previously installed. The tie should be just on the bucket-center side of the loader's nearest dump cylinder to keep the hoses from being damaged by the dump cylinder movement. (For center dump loaders, the tie should be just on the bucket-center side of the nearest loader arm.)
6. Carefully raise the loader and cycle the tilt cylinders to check hose clearances and to check for any interference. Operate the hydraulic cylinder(s) on this product to make the same checks.
7. Cycle the hydraulic cylinder(s) on this product several times from fully retracted to fully extended until all air has been completely removed from the cylinder(s).

NOTICE: When shipped, the hydraulic cylinder(s) on this product contained air or an air-fluid mixture. Also, there are orifices beneath the port(s) in the hydraulic cylinder barrel(s) that will restrict the exit of that air. Failure to remove all the air from the hydraulic cylinder(s) can cause uneven, jerky cylinder movement when the hydraulic controls are being operated and unwanted cylinder movement when those controls are not being operated.

BALE GRAPPLE OPERATION



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE OPERATION



WARNING

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

- **THE GRAPPLE MOVES QUICKLY! Do not allow anyone near the grapple.**
- **Never get between the grapple and the bucket.**
- **Do not lift any load that is taller than the height of the fully opened grapple.**
- **Do not roll back this product so far that the load falls toward the operator.**

POSITIONING THE LOAD

1. Approach the load so that the weight will be centered on the bucket. If the load has a heavy side, then that side should be closest to the back of the bucket rather than near the tip of the bucket edge.

NOTICE When transporting large round bales, approaching the bale from a rounded side while the bale is resting on the rounded side will produce the greatest bale stability.

IMPORTANT Using the partially open grapple as a rake **CAN** result in damage to this product and **WILL** void all FFC Attachments warranties.

If the grapple is ever used as a rake to drag materials into a position for being picked up, **the grapple must be completely open**. Applying a raking-type force to the partially open grapple will greatly magnify the fluid pressure in the hydraulic hoses, fittings, and cylinders and may cause those components to fail.

2. Make certain that the bucket is under the load as far as possible and is level.
3. Close the grapple to the fullest extent possible.
4. Lift the load slightly and make sure that the load is secure. If the load appears to be unstable, lower the load, open the grapple, reposition the load to achieve full stability, and repeat steps 2 through 4 until full stability is achieved.

TRANSPORTING THE LOAD

1. Raise the load to the **minimum** height required for the surfaces that must be crossed with the load.
2. Operate your tractor so that:
 - the load always remains level,
 - accelerating, turning, and braking are done very gradually,
 - and any obstacles, bumps, or holes in your intended path are avoided.
3. Frequently check the load to make sure that the load has not become unstable.



CAUTION

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

- **Never leave the grapple open when this product is not in use.**

BALE GRAPPLE MAINTENANCE



SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE MAINTENANCE

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 to specifications and that there are no leaks in any fittings or hoses. (SEE THE HYDRAULIC CONNECTION SECTION ON PAGE 8.)
- Make sure that all safety signs are in place, are clean, and are legible. (SEE THE SAFETY SIGN SECTION ON PAGE 5.)
- Replace any damaged parts and excessively worn parts.

AFTER EVERY 10 HOURS OF USE

Grease 6 fittings: one on the end of each of the four hydraulic cylinder pins and one on the end of each of the two cable anchoring connection pins.

BALE GRAPPLE SERVICE

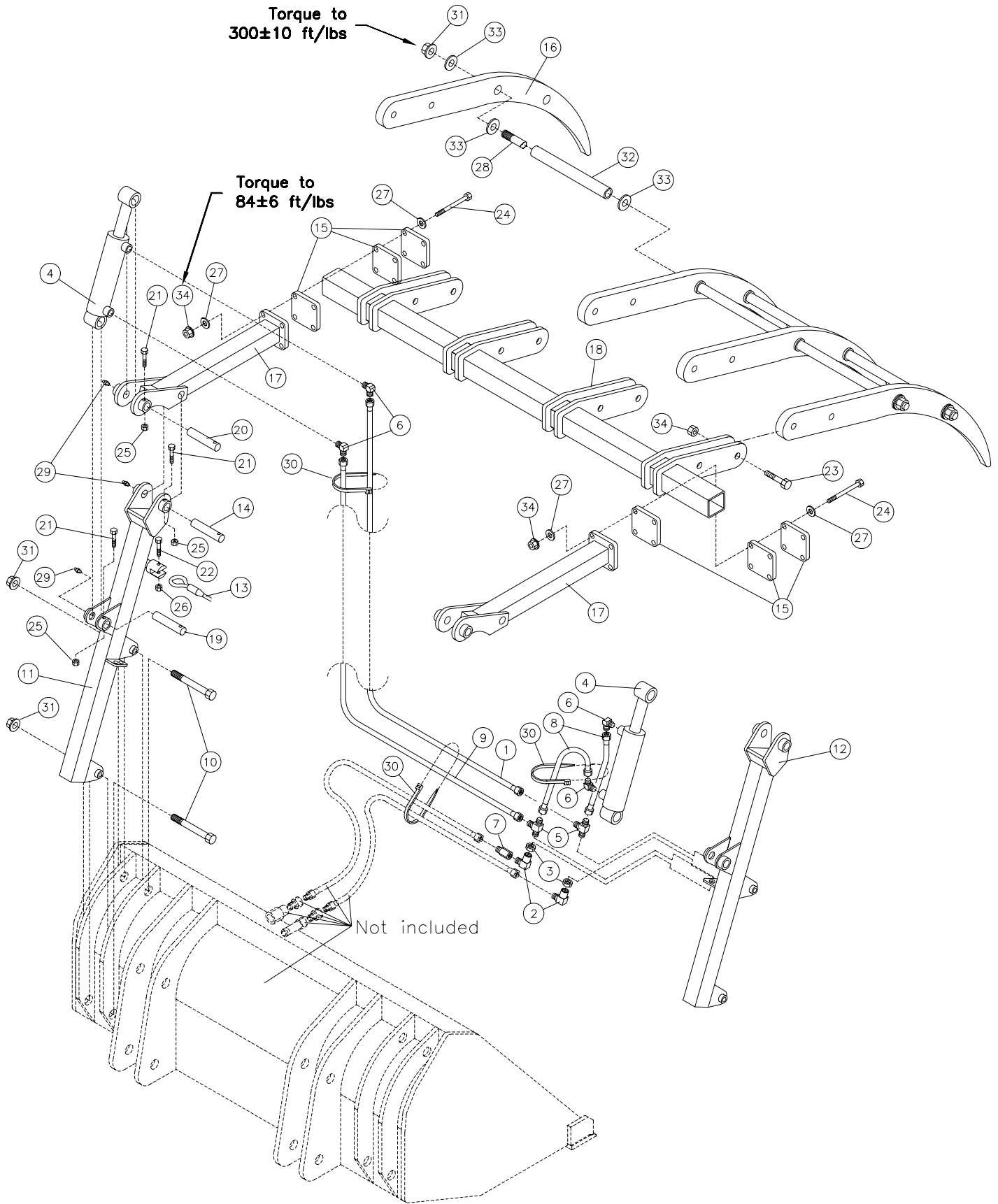


SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS (pages 2 – 5 of this manual) BEFORE BEGINNING ANY BALE GRAPPLE SERVICE

To replace grapple teeth, perform these steps from pages 6 and 7: 2, 3, 4, 5, and the reverse of 13 to remove the old tooth. Upon proper disposal of the old tooth, install a new tooth as per step 13.

NOTE: a tooth should be removed if straightening is needed.

PARTS ILLUSTRATION



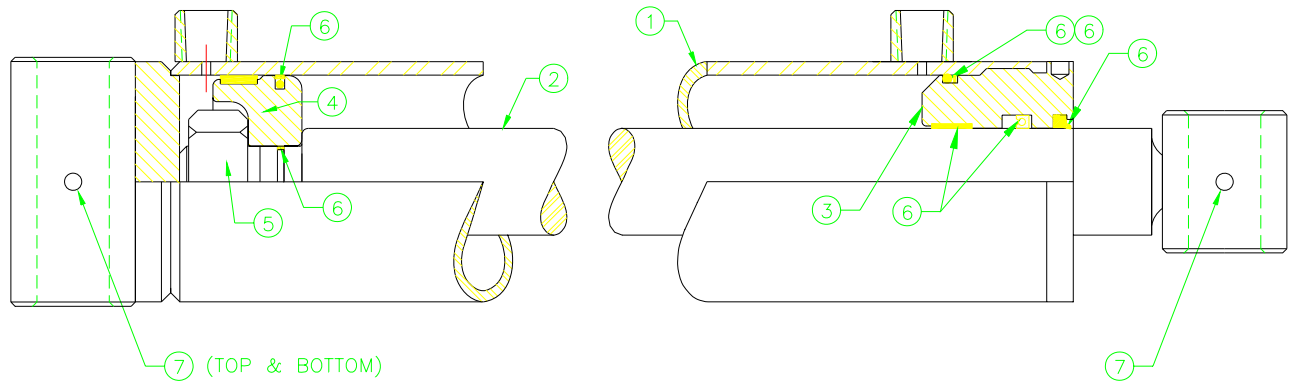
BALE GRAPPLE PARTS LIST

ITEM	QTY.	LAF2501	DESCRIPTION
1	1	LAF4089	Hydraulic Hose: 3/8" x 72", 6FJ – 6FJ
2	2	LAF4093	Hydraulic Elbow: 90°, 6MJ – 6FJ SW
3	2	LAF4098	Hydraulic Jam Nut:: 6J, 9/16", 18 tpi.
4	2	LAF4605	Hydraulic Cylinder: 2" x 8" x 1-1/4", 4000 psi.
5	2	LAF4275	Hydraulic Fitting: Bulkhead Run Tee, 6MJ
6	4	LAF4298	Hydraulic Elbow: 90°, 6MB – 6MJ
7	1	LAF4300	Hydraulic Fitting: Orifice, 6MJ – 6FJ, 5/8"
8	2	LAF4324	Hydraulic Hose: 3/8" x 18", 6FJ – 6FJ
9	1	LAF4353	Hydraulic Hose: 3/8" x 63", 6FJ – 6FJ
10	4	RHW1747	Grade 8 Hex Head Cap Screw: 3/4" x 6"
11	1	LAF9586	Left Mounting Tube
12	1	LAF9587	Right Mounting Tube
13	1	LAF9605	Cable Assembly
14	2	LAF9811	Pin: 1" x 5-1/4", Greasable
15	6	LAF9866	Cross Tube Mounting Plate
16	4	LAF9867	Grapple Tooth
17	2	LAF9873	Extension Tube
18	1	LAF9874	Cross Tube
19	2	LAF9978	Pin: 1" x 4-3/4", Greasable
20	2	LAF9979	Pin: 1" x 4-1/4", Greasable
21	6	RHW1041	Grade 8 Hex Head Cap Screw: 1/4" x 2"
22	2	RHW1211	Grade 5 Hex Head Cap Screw: 3/8" x 2"
23	8	RHW1407	Grade 5 Hex Head Cap Screw: 1/2" x 2"
24	8	RHW1451	Grade 8 Hex Head Cap Screw: 1/2" x 5-1/2"
25	6	RHW7003	Grade 5 Lock Nut: 1/4"
26	2	RHW7203	Grade 5 Lock Nut: 3/8"
27	16	RHW5492	Grade 8 Flat Washer: 1/2", Hardened, SAE
28	2	LAF9570	Stiffener Rod
29	6	RHW8090	Grease Zerk: 1/4", 28 tpi., self-tapping
30	3	RMR5002	Wiretie: 1/4" x 6"
31	8	RHW8604	Grade 8 Lock Nut: Flange Top, 3/4"
32	6	LAF9569	Sleeve: Grapple Spacer
33	20	RHW5792	Grade 8 Flat Washer: 3/4", Hardened, SAE
34	16	RHW8601	Grade 8 Lock Nut: Flange Top, 1/2"

BALE GRAPPLE PARTS LIST

HYDRAULIC CYLINDER PARTS LIST			
ITEM #	QTY.	PART #	DESCRIPTION
1	1	LAF4621	Barrel: 2" I.D. x 8" Stroke With Cross Tube End and Ports Parallel to Cross Tube
2	1	LAF4620	Shaft: 1-1/4" Dia. With Cross Tube End
3	1	LAF4619	Head: 2" O.D. x 1-1/4" I.D., Nominal
4	1	LAF4618	Piston: 2" O.D. x 3/4" I.D., Nominal
5	1	LAF4129	Nut: 3/4" Dia., 16 Threads Per Inch, Grade 8
6	1	LAF4617	Seal Kit (Includes All Seals, O-Rings, Etc.)

HYDRAULIC CYLINDER ILLUSTRATION (LAF4605)



BALE GRAPPLE SPECIFICATIONS

Model Number	Overall Width	Overall Height		Overall Depth		Shipping Weight
		Open*	Closed*	Open	Closed	
LAF2501	67-11/16"	84-3/4"	56-1/4"	64-7/8"	47-11/16"	380 lbs.

All replacement hydraulic hoses and fittings must have a minimum rated working pressure of 4,000 psi.
 *NOTE: These dimensions are from the base of the bucket.



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:					
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.