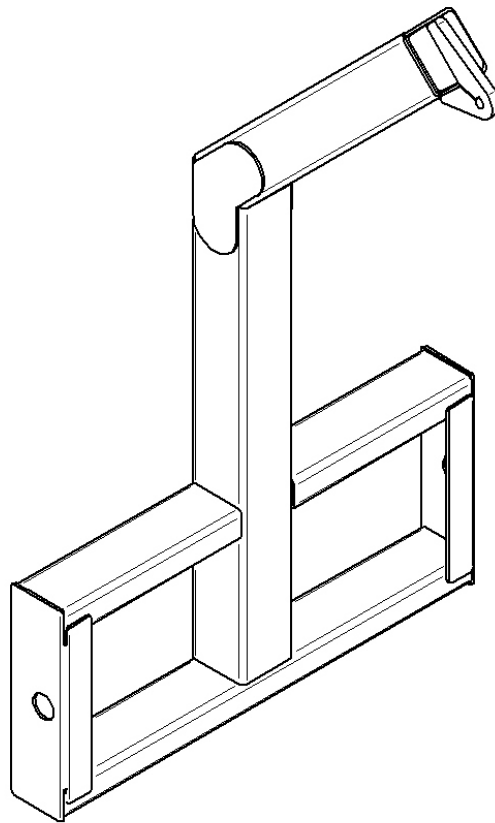




OPERATOR'S AND PARTS MANUAL

LOADER BOOM



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: MR15563
Part Number: LAF2210
Rev. 4

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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 INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.



WARNING

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



CAUTION

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.

NOTICE

NOTICE IS USED TO ADDRESS PRACTICES NOT RELATED TO PHYSICAL INJURY.

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 or 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 on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

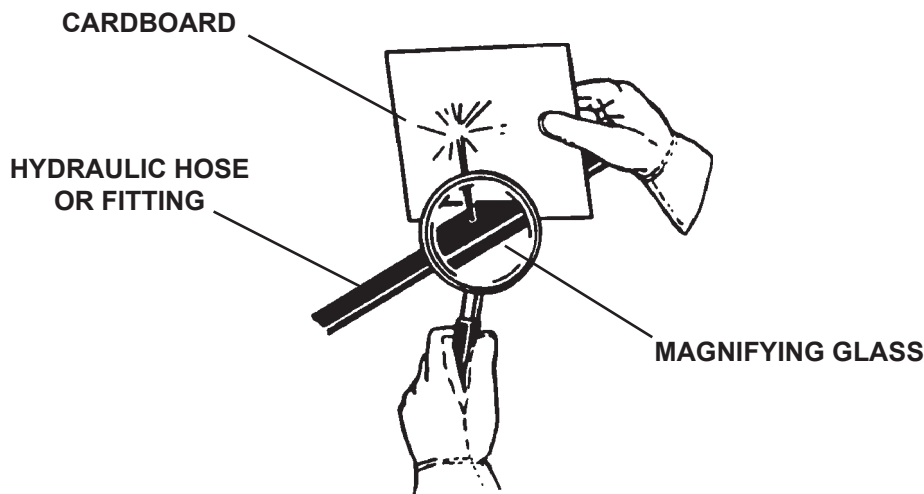
WARNING!



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 mover's 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 it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a 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 Protective 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 tools 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.



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 operator's 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!



CALIFORNIA PROPOSITION 65 WARNING

This product may contain a chemical known to the state of California to cause cancer, or birth defects or other reproductive harm. www.P65Warnings.ca.gov

EQUIPMENT SAFETY PRECAUTIONS

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.

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.



OPERATING THE LOADER BOOM

- Operate only from the operator's station with seatbelt properly latched.
- Do not exceed the recommended lifting capacity of the prime mover.
- Prevent the load from swinging by chaining or otherwise securing the load to the loader attachment plate using the two holes provided.
- Secure the load properly. Unsecured loads can fall unexpectedly. When transporting a load, keep the load as close to the ground as possible.
- Do not lift or pull loads using either of these holes as a point of support.
- All lifting should be vertical only. Never pull a load or lift a load from an off-center position.
- Never lift a load that is in any way attached to the ground or another object. This includes objects that are frozen down or have another object resting on top of the one being lifted.
- Remove or secure all chains or similar devices when not lifting a load.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid the load from swinging and/or 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



TRANSPORTING THE LOADER BOOM

- Travel only with the attachment as close to the ground as possible. 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 gas tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.



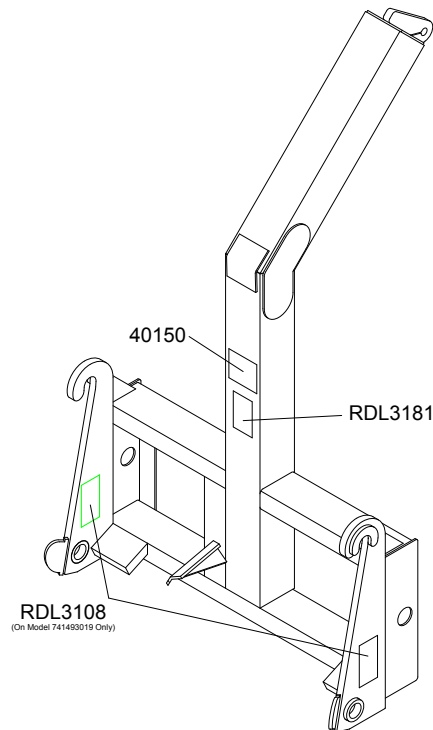
MAINTAINING THE LOADER BOOM

- Before performing maintenance, lower the attachment to the ground, apply the brakes, turn off the engine, and remove the key.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from Paladin.
- Never work under a raised attachment.

DECALS

GENERAL INFORMATION

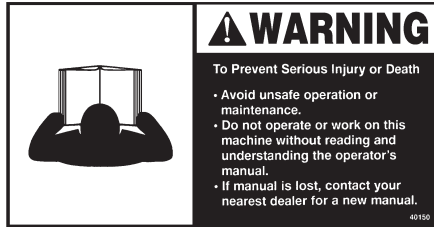
The diagrams on this page shows the location of the decals used on the FFC Loader Boom. The decals are identified by their part numbers, with reductions of the actual decals located on the following page. Use this information to order replacements for lost or damaged decals. Be sure to read all decals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



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.

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 #RDL3181
WARNING! OVERHEAD LINES



PART #RDL3108
WARNING! HANDS & FEET QA

NOTE: Used on Model 741493019 Only

INSTALLATION

GENERAL INFORMATION

The Paladin Loader Boom was designed to be easy to use and maintain. The Loader Boom mounts to the toolbar/quick attach mechanism for easy installation.

WARNING! Never exceed the recommended lifting capacity the prime mover.



WARNING! To avoid serious personal injury, make sure the loader boom is securely latched to the attachment mechanism of your unit. Failure to do so could result in separation of the attachment from the unit.



ATTACHING

Install the loader boom by following your power unit operator's manual for proper installation of an attachment. Make sure the attachment is securely latched to the prime mover.

DISCONNECTING LOADER BOOM

On firm, level ground, lower the lift arms against the frame and place the loader boom on the ground.

Follow your power unit operator's manual for detaching (removing) an attachment.

IMPORTANT: Follow all safety shutdown procedures listed in your power unit operator's manual before leaving the operator's station.

LOADER BOOM SET-UP

You must supply all chains, slings, cables, "chokers", or any other device that will be used to secure the load to your loader boom. These items are not supplied with your attachment.

Make sure the working load capacity of these devices when used in your particular configuration (angle of connection, hooking method, etc.) is greater than the load being lifted. This lifting capacity information should be obtained from the manufacturer of the device.

OPERATION

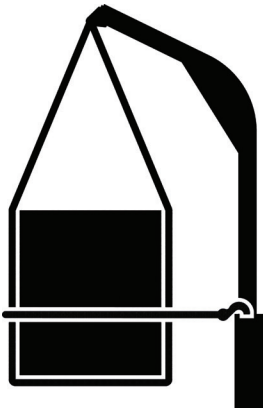
GENERAL INFORMATION

The Paladin Loader Booms were designed and built to vertically lift loads with a chain or similar device (not included) and transport those loads for a short distance. You or any other person who will be operating or working with this product is required to read and completely understand the information and instructions contained in this manual. This Loader Boom was designed to handle up to 6,000 lbs (2722 kg). Use the specific manufacturer's Rated Operating Load for your power unit and loader to calculate a specific maximum load.

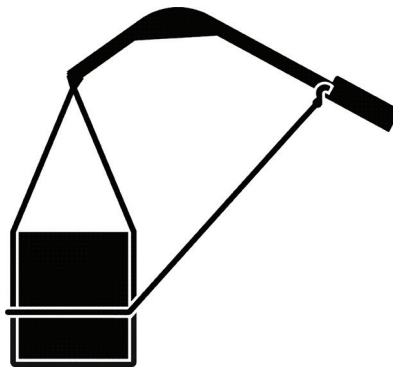
WARNING! Know your loader's safe lifting and operating capacity and the weight of this product and refer to your prime mover and loader's operator's manuals for safe operating limits. Lift capacity may be reduced if using a quick-attach. Do not lift loads weighing more than the maximum limits listed below. Failure to comply could result in death or serious injury.



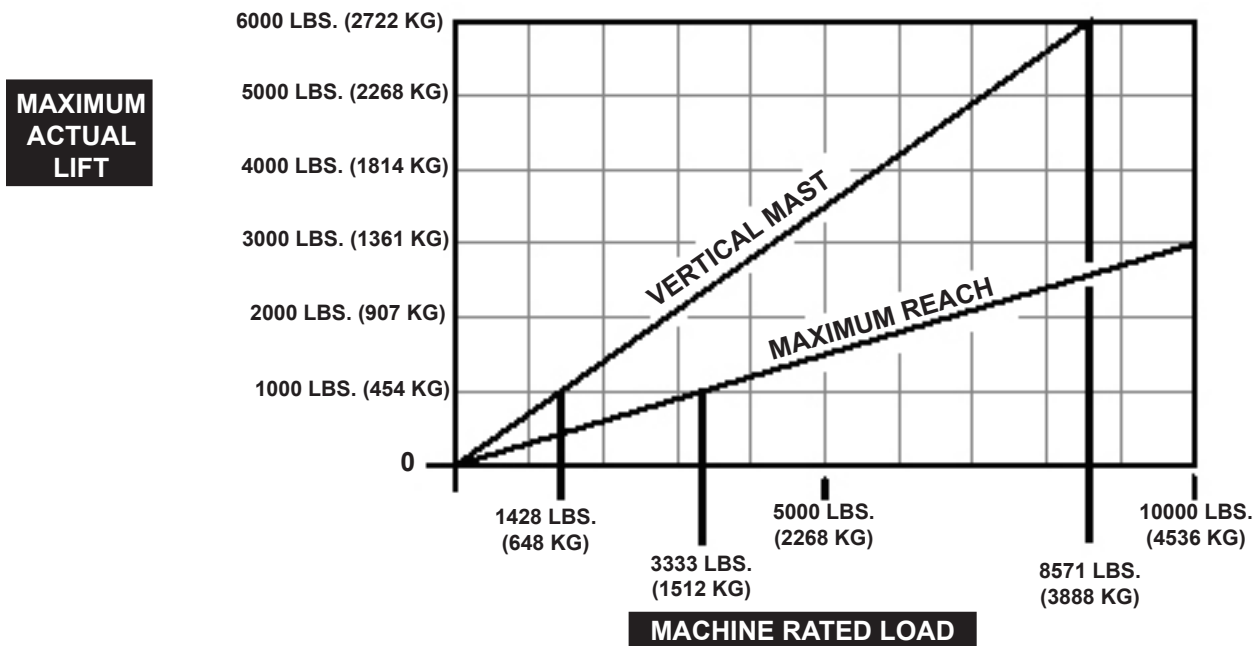
MAXIMUM LOADS THAT CAN BE LIFTED.



70% OF OPERATING LOAD, NOT TO EXCEED 6000 LBS. (2722 KG)



30% OF OPERATING LOAD, NOT TO EXCEED 6000 LBS. (2722 KG)



OPERATION

WARNING!



Do not exit the prime mover by crawling over or under raised loader arms. Any load requiring the loader arms to be in a raised position to allow for the chain to be connected must be hooked to the clevis by a person other than the operator.

Do not contact overhead power lines.

Do not operate with anyone near the load.

Failure to comply could result in death or serious injury.

LOAD LIFTING AND HANDLING PROCEDURE

1. Park the prime mover next to the load to be lifted.
2. After inspecting the area for overhead utility lines and insuring that there is sufficient clearance for lifting the load, then position the Loader Boom's clevis directly above the center of gravity of the load and maintain that centered position while fully lowering the loader arms.

NOTE: If the shape or volume of the load will not permit the loader arms to be fully lowered, then a second person will be required to attach the load to the Loader Boom. The operator could be seriously injured while leaving the operator's station if the loader arms are left in a raised position when the operator leaves the operator's station.

WARNING!



Prevent the load from swinging by chaining or otherwise securing the load to the loader attachment plate using the two holes provided. Do not lift or pull loads using either of these holes as a point of support.

All lifting should be vertical only. Never pull a load or lift a load from an off-center position.

Never lift a load that is in any way attached to the ground or another object. This includes objects that are frozen down or have another object resting on top of the object being lifted.

Failure to comply could result in death or serious injury.

3. Follow all safety shut down procedures listed in your power unit operator's manual before leaving the operator's station. (Apply the parking brake, shut off the engine and remove the key.)
4. Connect the load to the Loader Boom so that all lifting is performed by the clevis.
5. Use a second chain to other device to secure the load to the holes in the loader attachment plate. This chain should only be tight enough to minimize the swinging of the load and should never be used to fully or even partially lift or pull the load.

OPERATION

6. Make sure the clevis is centered directly above the center of gravity of the load. Restart the prime mover and raise the loader arms to remove all slack from the chain, sling, or device connected to the load.
7. Raise the loader arms enough to begin lifting the load.
 - If some object or condition is preventing the load from freely being lifted, then fully lower the loader arms, repeat step 3 and use other equipment or tools to free the load before restarting the lifting process.
 - If the load begins to move to the side, then lower the load and reposition the load before restarting the lifting process.
 - If the second chain or other device begins to assist in lifting or pulling the load, then lower the load and reposition the chain before restarting the lifting process.

WARNING! Always carry the load as close to the ground as possible. Failure to comply could result in serious personal injury or death.



8. After inspecting the path of travel, slowly transport the load to the desired location.
9. After safely placing the load at the desired location, follow the safety shutdown procedure for your prime mover and disconnect all chains or other devices used for securing the load.
10. Secure the loose chains, slings, etc to prevent them from swinging and inadvertently injuring the operator and/or other bystanders.

PRIME MOVER/LOADER SPECIFICATIONS

IMPORTANT Exceeding any of the maximum recommended prime mover/loader specifications

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

DESCRIPTION	SPECIFICATIONS
Rear Ballast	As required to maintain full prime mover stability. (Note the shipping weight of your model, then see the operator's manual(s) for your prime mover and loader for ballasting needs.)

ATTACHMENT SPECIFICATIONS

Model Number	Overall Width	Overall Height	Overall Depth	Shipping Weight
LAF2210	47"	73.25"	31"	400#

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




GRADE 2



GRADE 5



GRADE 8



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

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LIMITED WARRANTY

In order to provide you with the most UP-TO-DATE Warranty information, Paladin Warranty Statement and Warranty Procedures along with Warranty Registration and Claim Forms have been moved to our website at [*www.paladinattachments.com*](http://www.paladinattachments.com).