FFC BY PALADIN

OPERATOR'S MANUAL

PREPARATOR®

SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: MR95512
Models: LAF3566 & LAF3576
Serial Number: E042020 and UP
Release Date: February 2019
Rev. 6

800-456-7100 I www.paladinattachments.com 2800 N. Zeeb Rd., Dexter, MI. 48130, United States of America

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PREFACE

GENERAL COMMENTS

Congratulations on the purchase of your new product! 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 forward.

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.

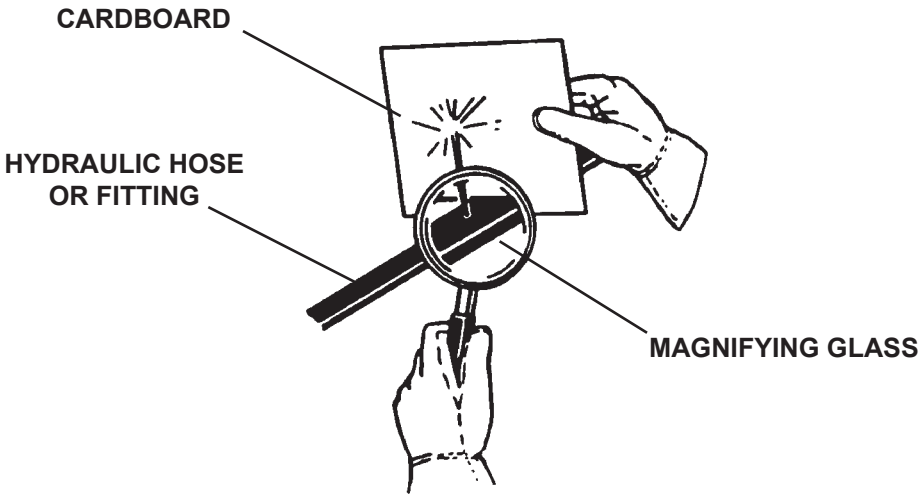
WARNING! **LOWER OR SUPPORT RAISED EQUIPMENT**

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.

WARNING! **END OF LIFE DISPOSAL**

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

OPERATING THE ATTACHMENT

- To avoid rolling over do not raise the attachment above five feet off the ground or to a height where visibility is obstructed, whichever is lower.
- Do not lock the auxiliary hydraulics of your prime mover in the “ON” position.
- Keep everyone at least nine feet away from this product when operating.
- Do not exceed the lifting capacity of your prime mover.
- Operate only from the operator’s station.
- When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.

EQUIPMENT SAFETY PRECAUTIONS

OPERATING THE ATTACHMENT

- 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

TRANSPORTING THE ATTACHMENT

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

MAINTAINING THE ATTACHMENT

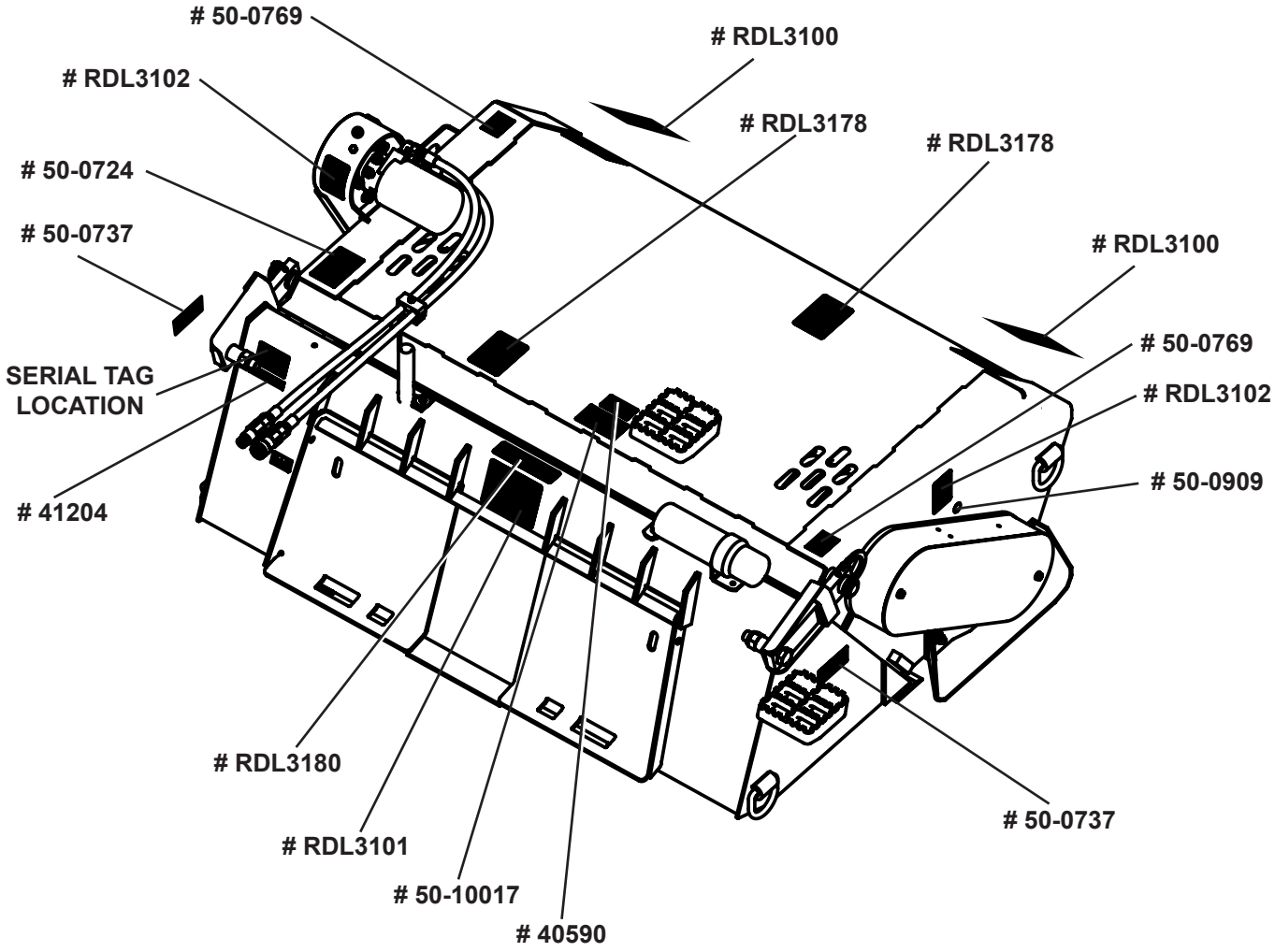
- Before performing maintenance, unless otherwise specified, lower the attachment to the ground, apply the brakes, turn off the engine and remove the key.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manuals before any repair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

DECALS

DECAL PLACEMENT

GENERAL INFORMATION

The diagram on this page shows the location of the decals used on your attachment. 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, illegible, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced. Safety decals are available, free of charge, from your local dealer or Paladin.

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

DECALS

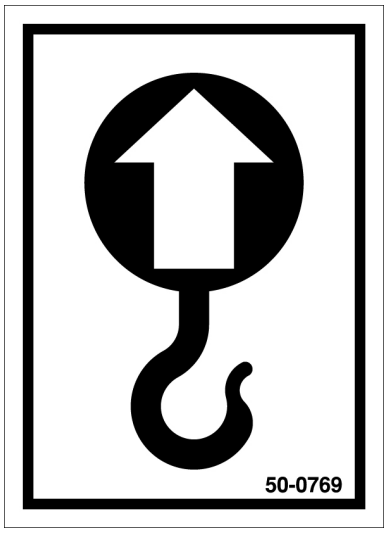
RDL3178 CAUTION! NOT A STEP

RDL3101 WARNING! ROLLOVER

50-0724 WARNING! HIGH PRESSURE FLUID HAZARD

40590 CAUTION! DO NOT USE HIGH FLOW

50-0909 MANDATORY ACTION! LUBE

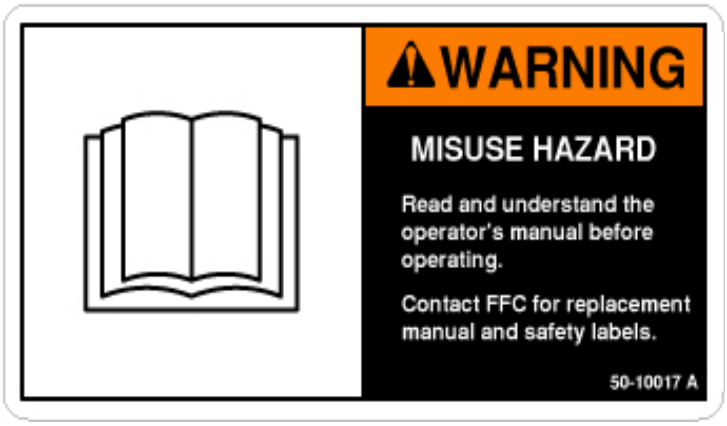


50-0769 LIFT POINT

DECALS

 # 41204 ALL PATENTS

 # RDL3100 WARNING! FLYING OBJECTS



 # 50-10017 WARNING! AVOID SERIOUS INJURY

 # RDL3102 WARNING! SHIELD

 # RDL3180 IMPORTANT - CHAIN TENSION

 # 50-0737 WARNING! PINCH POINT HAZARD

NOTE: CONTACT YOUR LOCAL DEALER FOR MODEL NUMBER AND LOGO DECALS

INSTALLATION

GENERAL INFORMATION

The following instructions will help you to mount your Preparator® onto your prime mover. The Preparator® uses the quick-attach system for ease of installation. Therefore, if you know how to attach your loader bucket, attaching the Preparator® should prove no problem.

Remember to read all safety warnings, decals and operating instructions before operating the attachment. If there is any portion of this manual that you do not understand, contact your dealer.

INSTALLATION

NOTICE! Lubricate all grease fittings before connecting this product to your prime mover's hydraulic system. See Lubrication Section.

1. Remove any attachment from the front of the prime mover.
2. Following all standard safety practices and the instructions for installing an attachment in your prime mover operator's manual, install the attachment onto your prime mover.

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

3. Lower the unit to the ground and relieve pressure to the auxiliary hydraulic lines.
4. Following the safety shut down procedure for your prime mover, shut down and exit the prime mover.
5. After making sure that the hydraulic couplers are free from any foreign material or contaminants, connect the couplers to the auxiliary hydraulic system of your prime mover.
6. Following the standard start up procedure for your prime mover, start the prime mover. Check for proper hydraulic connection, hose routing and hose length.
7. Attachment installation is complete.

DETACHING

1. 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.
2. Follow prime mover operator's manual to relieve pressure in the hydraulic lines.
3. Disconnect power and return hoses from the auxiliary hydraulics.
4. Follow your prime mover operator's manual for detaching (removing) an attachment.
5. Connect hydraulic couplers together or install caps to prevent contaminants from entering the hydraulic system. Store hoses off of the ground to help prevent damage.

OPERATION

INTENDED USE

This Preparator® has been designed to separate rocks and other debris from the soil while leveling and smoothing to prepare the soil for seeding or sod. Use in any other way is considered contrary to the intended use. Compliance with and strict adherence to operation, service and repair conditions as specified by the manufacturer, are also essential elements of the intended use.

WARNING! Do not lock the auxiliary hydraulics of your prime mover in the "ON" position. Failure to obey this warning could result in death or serious injury.

NOTICE! Operating this product continuously at hydraulic pressures greater than 2500 psi can result in damage to this product and <u>will</u> void all PALADIN warranties.

NOTICE! The use of the "float" position on the loader arm lift control can affect overall performance.

Before using the Preparator®, the area must be free of all boulders and rocks larger than 20" in diameter, logs, branches, wire, lumber and any other debris that is too large for the bucket or could get wrapped around the drum.

The Preparator® is not designed for removing large mounds of soil and/or filling in large or deep holes. Other equipment should be used to obtain a reasonable starting grade.
Before starting operation, determine soil condition and operation type and adjust your skid shoes accordingly.

SOIL CONDITIONS

HARD	Highly compacted soil. Usually inorganic (clay) or any soil that has been subjected to vehicle traffic.
MEDIUM	Untilled soil that has not been subject to compaction or traffic.
LOOSE	Rough tilled soil. Still lumpy and coarse.
VERY LOOSE	Soil that has been tilled to a fine texture.

OPERATION TYPE

ROCK COLLECTION	Collecting large rocks and debris that are resting on the soil surface.
FOLIAGE REMOVAL	Uprooting and collecting foliage that is growing or has been growing on the soil surface.
SOIL TILLAGE	Tilling the soil to create a looser soil condition.
ROUGHING	Scarifying, raking rocks, debris, foliage, and filling depressions in tilled or untilled soil.
FLAT MODE ROUGHING	Roughing with the shroud parallel to the ground.
ANGLE MODE ROUGHING	Roughing with the shroud at an angle to the ground surface.
FINISHING PASS	Collecting small rocks and debris that are in or on the soil surface.

OPERATION

Due to operator's experience and the various soil types, moisture, foliage density and debris, skid shoes may need re-adjusting during operation. Also, multiple passes requiring different skid shoe settings, drum speed, rotation direction and ground speed may be needed to achieve the desire end results.

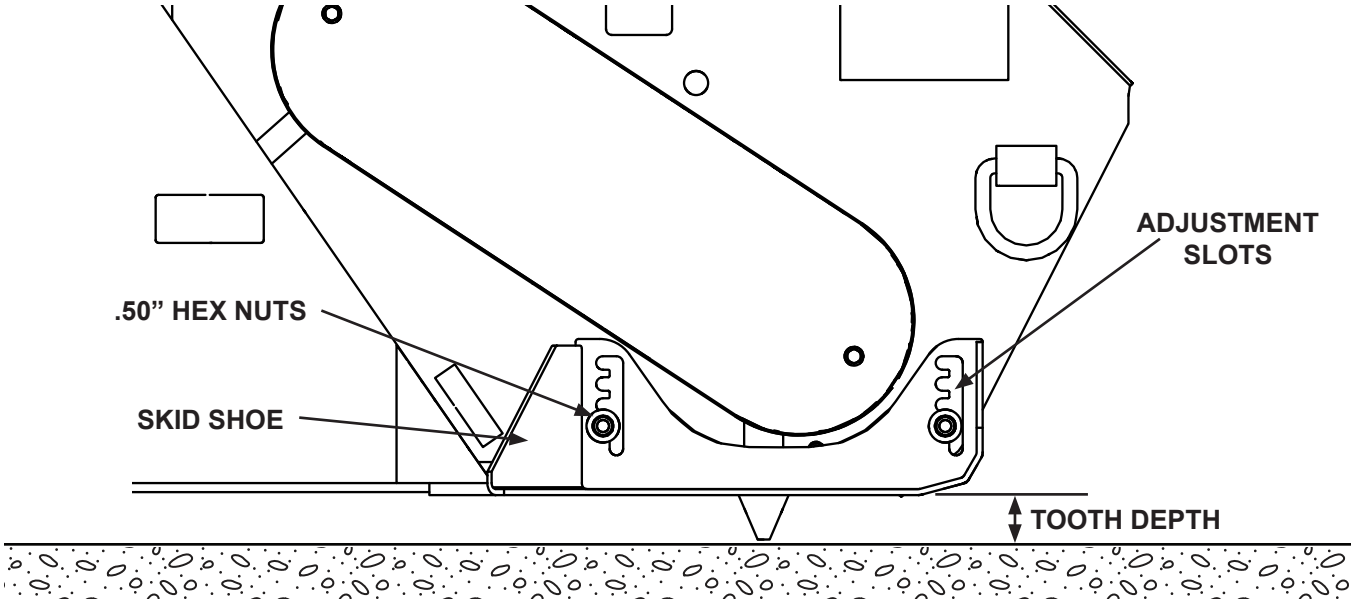
SKID SHOE ADJUSTMENT

1. Park your prime mover on a level surface with this product properly attached.
2. Place your prime mover's transmission in "Park" and engage the parking brake.
3. Lower this product onto preplaced blocking.

WARNING! 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. Failure to obey this warning could result in death or serious injury.

4. Shut off your prime mover's engine and remove the key. After all moving parts have to come to a stop, relieve all pressure in the hydraulic lines.
5. Loosen the two .50" hex nuts that secure the right shoe. See Figure #1

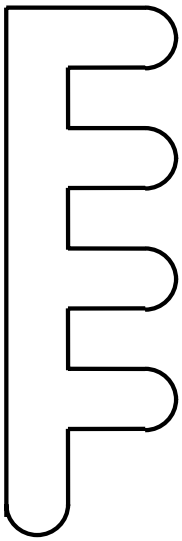
FIGURE #1



6. Move the shoe to the proper slot for your soil condition and the operation being performed. See Figure #2

NOTE: If, the operator determines that the best skid shoe setting for the conditions being encountered is between two adjustments shown, then the rear of the skid shoe may be set one slot above the front of the skid shoe.

FIGURE #2

Skid Shoe Adjustment Slots	Drum Tooth Depth (Below Skid Shoe)	Operation on Soil Condition [1]
	**(-) .62”**	Finishing Pass on Very Loose soil. Foliage Collection
	.25”	Flat Mode Roughing on Medium or Loose soil. Finishing Pass on Loose soil.
	1.12	Rock Collection on Hard or Medium soil. Soil Tillage on Medium soil. Flat Mode Roughing on Hard soil. Finishing Pass on Medium soil.
	2”	Foliage Uprooting on Hard or Medium soil. Angled Mode Roughing on Hard, Medium, or Loose soil. Soil Tillage on Hard soil.

[1] Initial settings only. Workability, moisture, experience, etc. effect settings.

7. Retighten the two .50” hex nuts to 84 ft. lbs. + or - 6.0 ft. lbs. of torque.
8. Repeat steps 5 through 7 for the left skid shoe.

OPERATION

1. Make sure that the skid shoes are in the correct position. See Skid Shoe Adjustment
2. Use the hydraulics on your prime mover to properly position the drum and bucket.
3. Activate the auxiliary hydraulics on your prime mover to rotate the drum in the correct direction.
4. Increase your engine speed to the desired level and slowly move your prime mover in the correct direction.
5. Gradually increase the ground speed until the desired balance between operating results and efficiency is achieved.

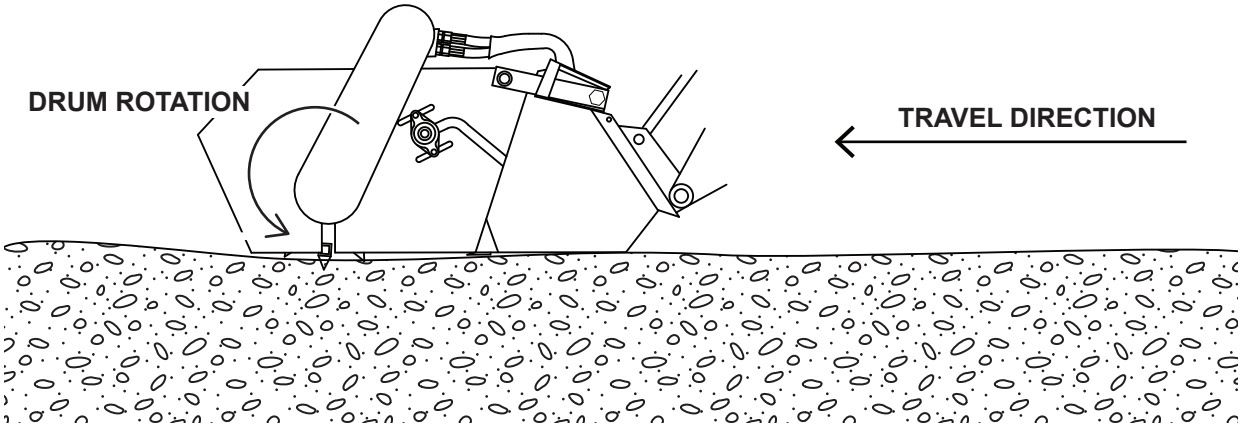
OPERATION

ROCK COLLECTION

This operation is where surface rocks (5” to 20” dia.) are collected in the bucket. See Figure #1

- The teeth should move toward the bucket when contacting the soil.
- The prime mover should move in a forward direction.
- The larger the rocks, the slower the ground speed.
- The loader should be in the float position. (Dumping of the bucket is required.)

FIGURE #1

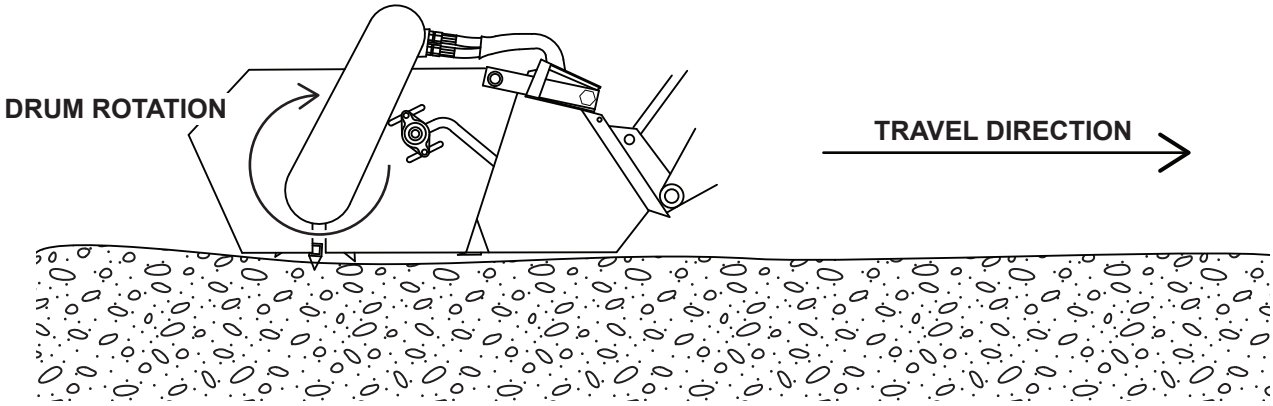


SOIL TILLAGE & FOLIAGE UPROOTING

This operation is for loosening undisturbed soil and uprooting foliage. See Figure #2

- The teeth should move away from the bucket when contacting the soil.
- The prime mover should move in a reverse direction.
- The loader should not be in the float position. (Dumping of the bucket is not required.)

FIGURE #2



OPERATION

FLAT MODE ROUGHING OR ANGLED MODE ROUGHING

These operations scarify, rake materials into piles or windrows and fill depressions. See Figures #3 & #4

- The teeth should move toward the bucket when contacting the soil.
- The prime mover should move in a reverse direction.
- The loader should not be in the float position. (Dumping of the bucket is not required, unless the bucket is closed at the end of a Flat Mode pass.)

FIGURE #3

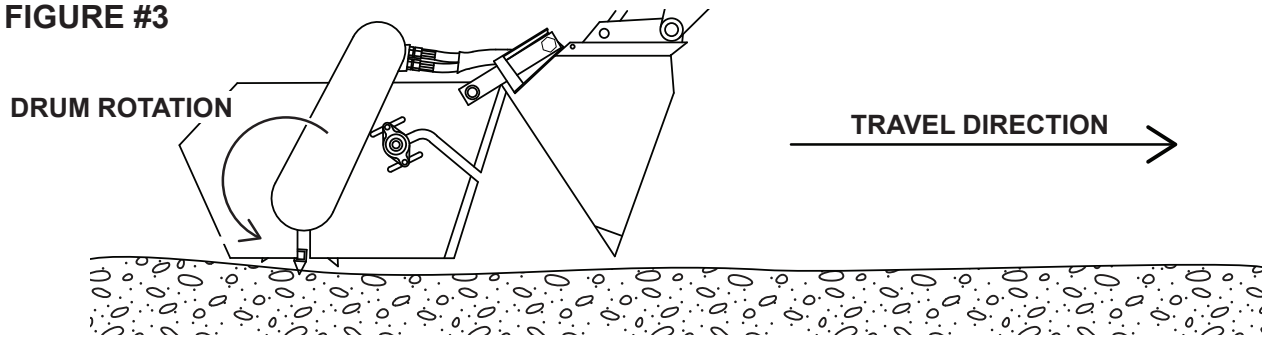
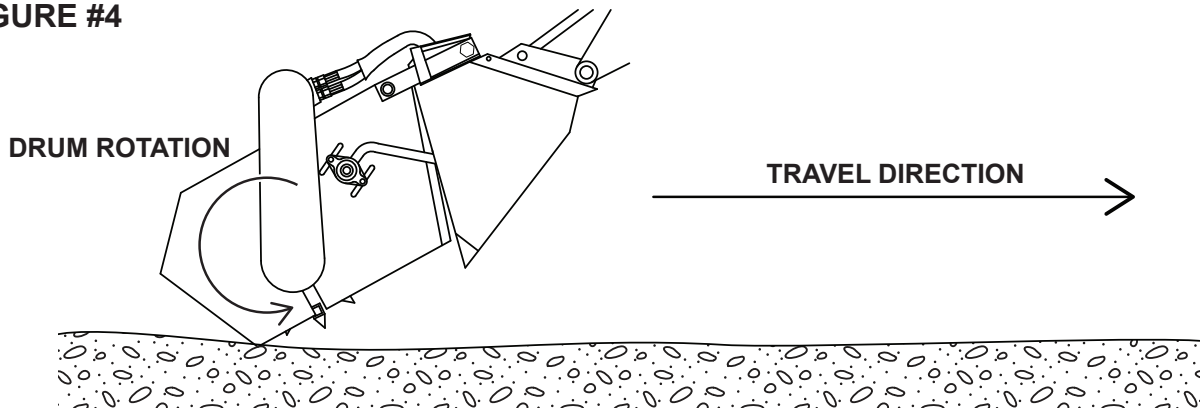


FIGURE #4

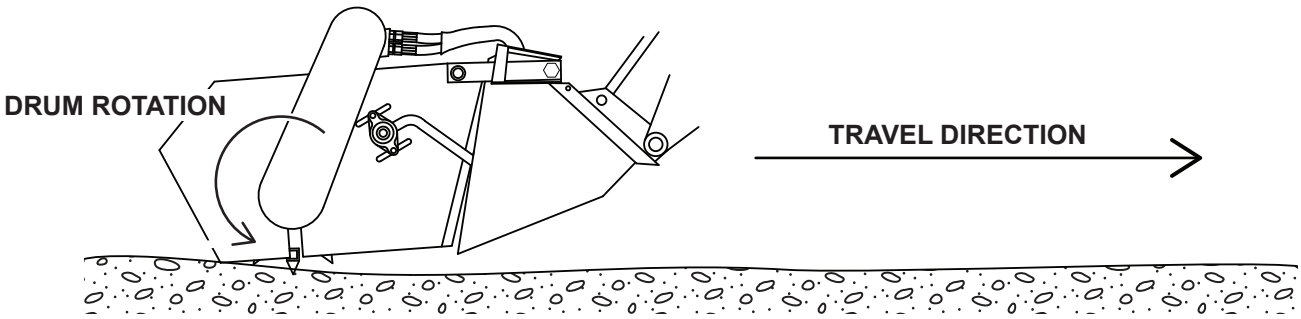


FOLIAGE COLLECTION & FINISH PASS

This operation is where foliage, small rocks (up to 5” dia.) and debris are collected in the bucket. See Figure #5

- The teeth should move toward the bucket when contacting the soil.
- The prime mover should move in a reverse direction.
- The loader should be in the float position. (Dumping of the bucket is required.)

FIGURE #5



OPERATION

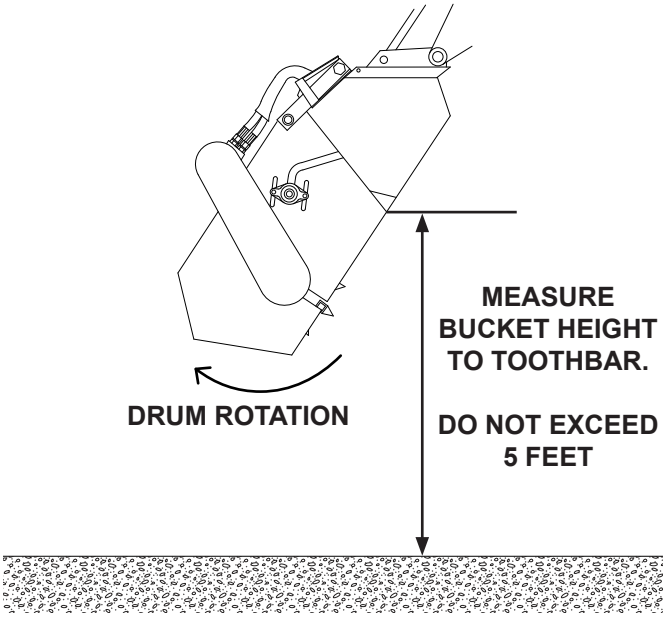
ADDITIONAL OPERATING TIPS

- In certain conditions, if the drum carries rocks past the brush and drops them back on the ground, reducing the drum speed will correct this situation.
- The bucket will hold more material if, when the bucket starts to get full, the bucket is rolled back to shift the material further back into the bucket. Some unwanted soil can also be removed at this time if the roll-back/dump cylinder(s) on the loader are used to “shake” the unit.

DUMPING

1. Shut off the auxiliary hydraulics.
2. Raise the unit about four feet above the ground. See Figure #1

FIGURE #1



3. Dump the bucket.
4. If some materials do not slide out, engage the auxiliary hydraulics so that the teeth on the bottom of the drum move away from the bucket.

STORAGE

- Clean the unit thoroughly, removing all snow, dirt and grease.
- Inspect for visible signs of wear, breakage or damage. Order any parts required and make the necessary repairs to avoid delays upon removal from storage.
- Tighten loose nuts, capscrews and hydraulic connections.
- Lubricate grease fittings.
- Seal hydraulic system from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Store unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

Additional Precautions for Long Term Storage

- Touch up all unpainted surfaces with paint to avoid rust.

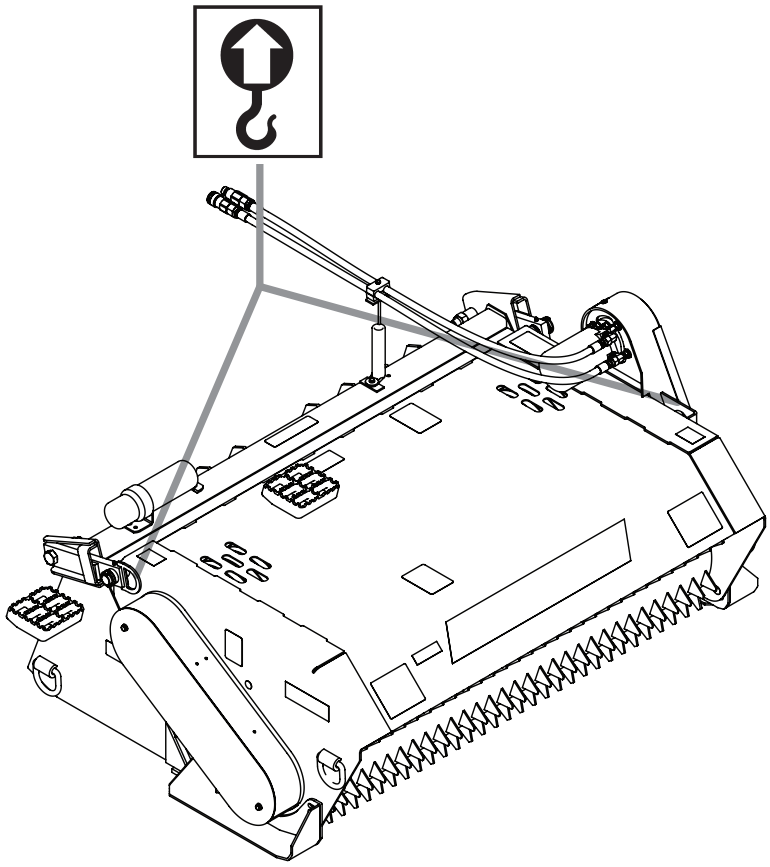
OPERATION

REMOVAL FROM STORAGE

- Wash unit and replace any damage and/or missing parts.
- Lubricate grease fittings.
- Check hydraulic hoses for damage and replace as necessary.

LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram:



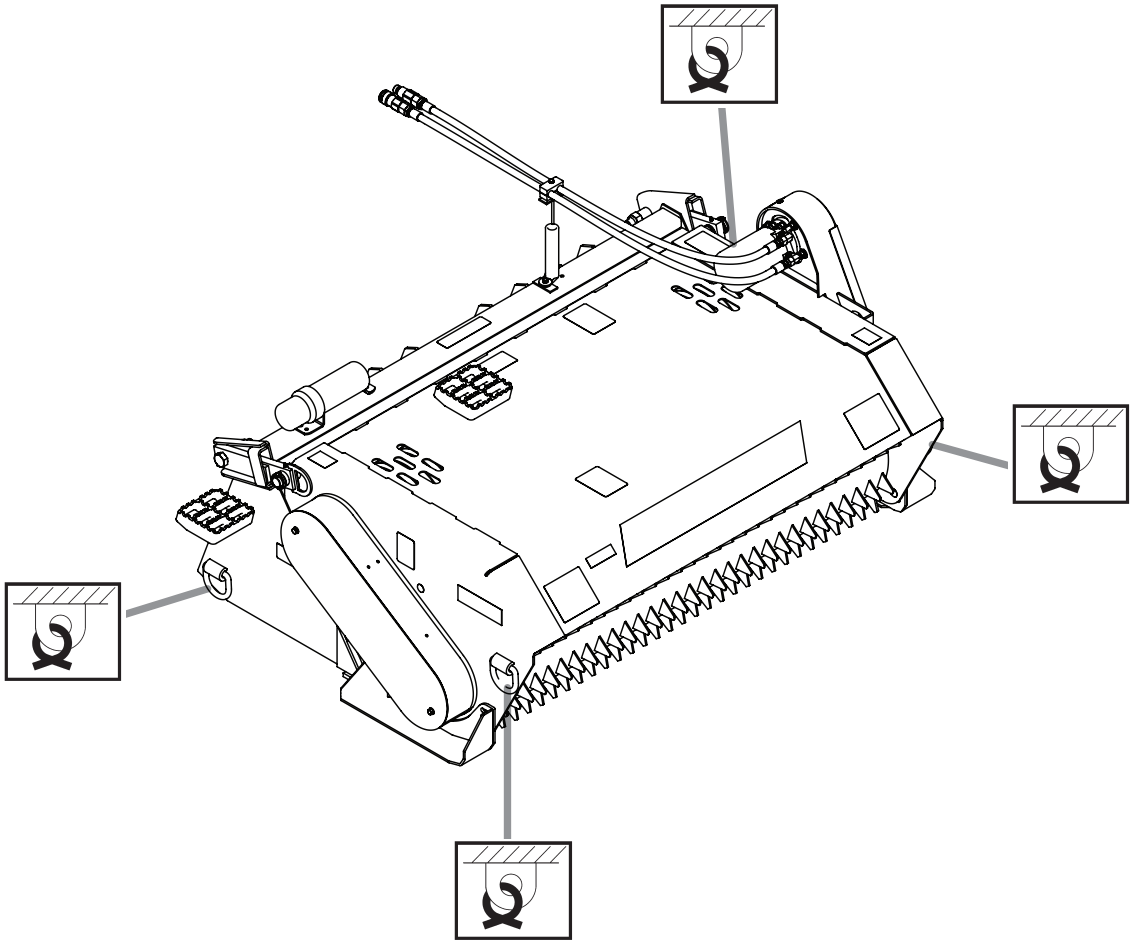
- Attach lifting accessories to unit at recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.

WARNING! Use lifting accessories (chains, slings, ropes, shackles and etc.) that are capable of supporting the size and weight of your attachment. Secure all lifting accessories in such a way to prevent unintended disengagement. Failure to do so could result in the attachment falling and causing serious personal injury or death.

OPERATION

TIE DOWN POINTS

Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram.



- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.

WARNING! Verify that all tie down accessories (chains, slings, ropes, shackles and etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit. Failure to do so could result in serious personal injury or death.

TRANSPORTING

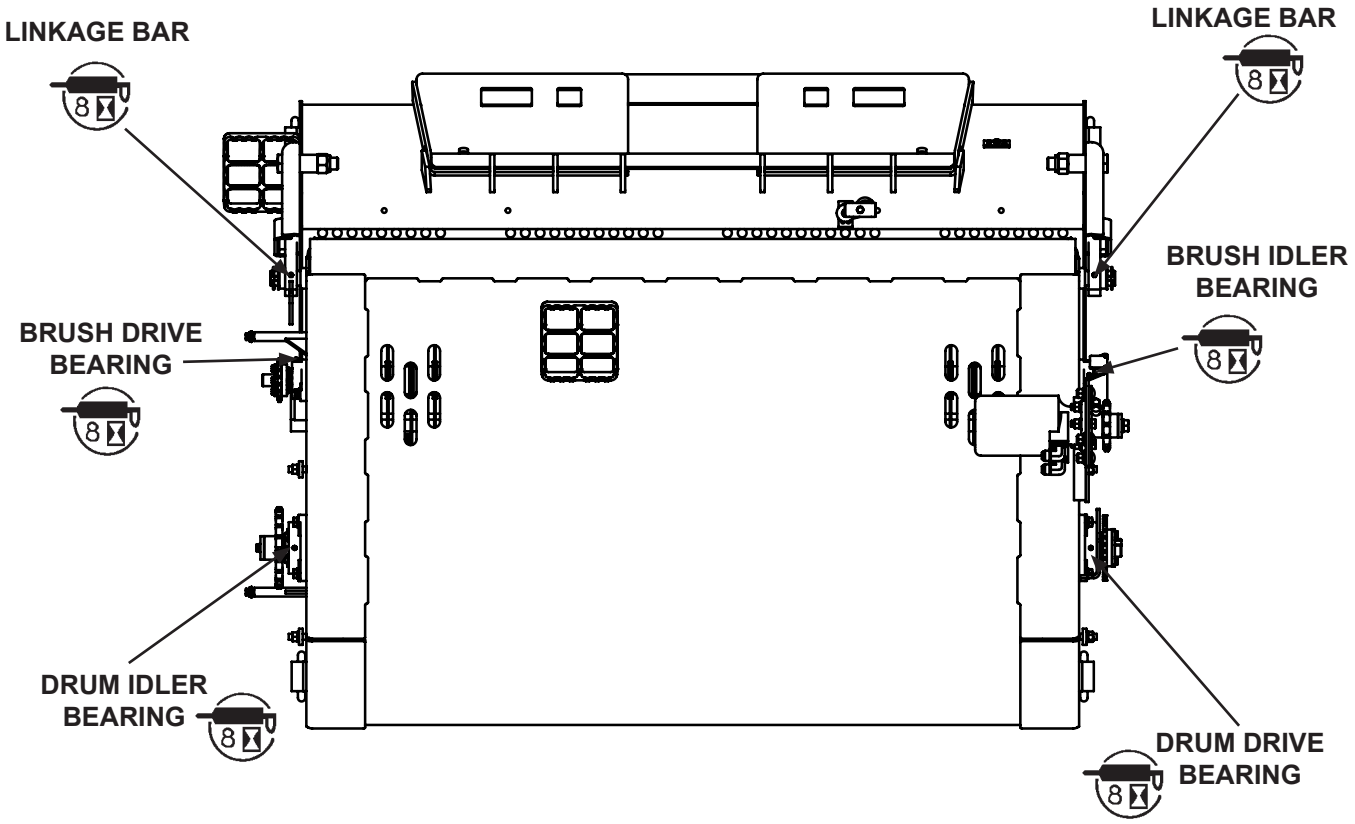
"Follow all local government regulations that may apply along with recommended tie down points and any equipment safety precautions at the front of this manual when transporting your attachment."

LUBRICATION

LUBRICATION

All parts provided with grease fittings should be lubricated as indicated. If any grease fittings are missing, replace them immediately. Clean all fittings thoroughly before using grease gun.

Lubricate daily or every 8 hours of operation, whichever comes first, with SAE Multi-Purpose Lubricant or an equivalent SAE Multi-Purpose type grease.



IMPORTANT: Avoid excessive greasing. Dirt collects on exposed grease and greatly increases wear. After greasing, wipe off excessive grease from fittings.

MAINTENANCE

GENERAL INFORMATION

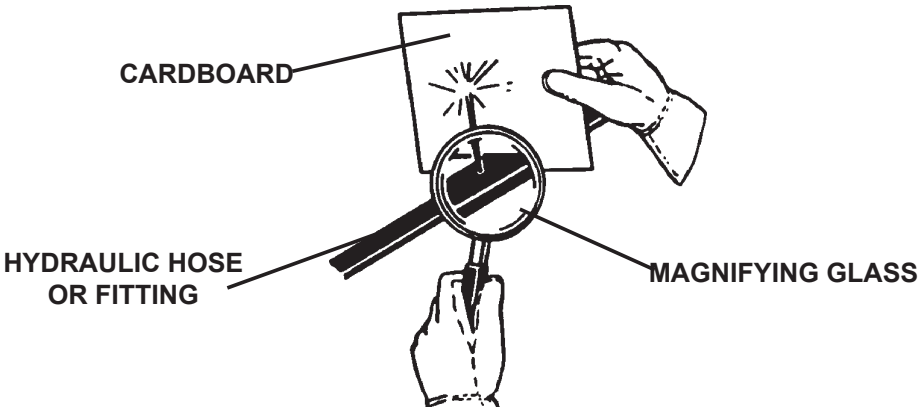
Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to the absolute minimum. However, it is very important that these maintenance functions be performed as described below.

Procedure	Daily (Every 8 hours)	Weekly (Every 40 hours)	Monthly (Every 250 Hours)
Check for missing or loose hardware. Replace or tighten if necessary. See Bolt Torque Specifications	✔		
Check hydraulic system for leaks and tighten as necessary. Check for damage and replace as needed.	✔		
Check for missing or damaged safety decals and replace as necessary.	✔		
Visually inspect the machine for worn parts or cracked welds, and repair as necessary.	✔		
Lubricate all grease fittings.	✔		
Check Chain Tension. See Chain Tension Adjustments		✔	
Oil Drive & Rake Chains.		✔	
Check four Taper Lock Adapter assemblies, tighten as necessary, See Bearing Lock Adjustment.		✔	
Check Drive Chain, Sprockets and Shafts for wear. Replace as necessary.			✔

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

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

Stop the engine and relieve pressure before connecting or disconnecting lines. Tighten all connections before starting engine or pressurizing lines



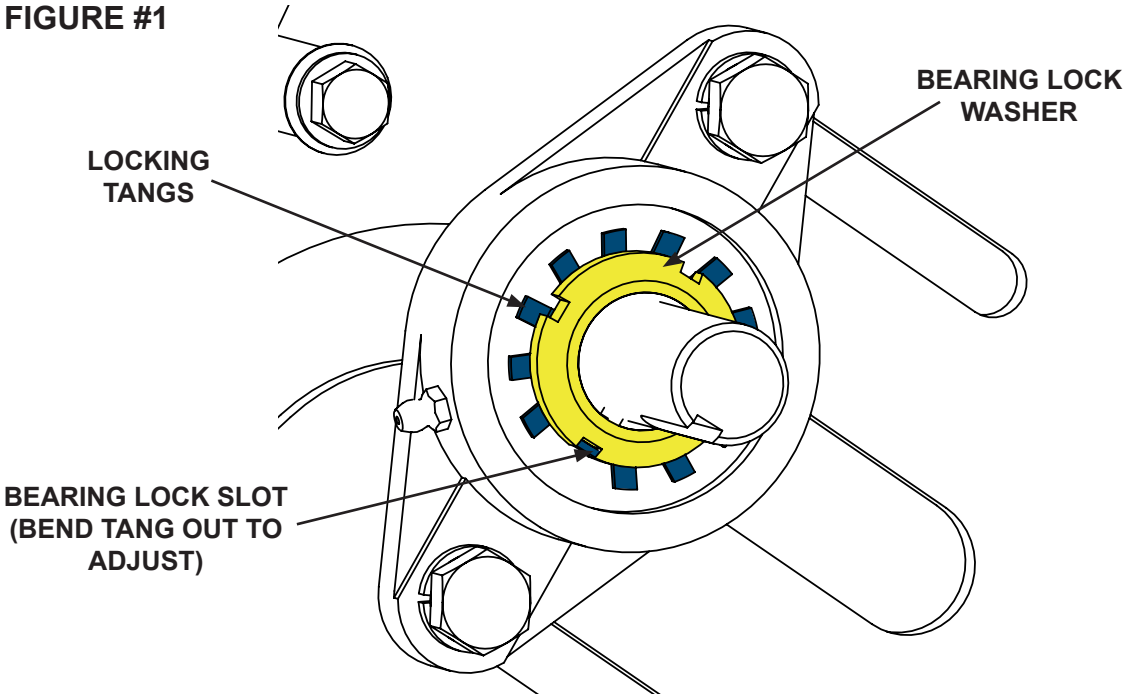
MAINTENANCE

NOTICE! When replacing parts use only factory approved replacement parts. Manufacturer will not claim responsibility for use of unapproved parts or accessories and/or other damages as a result of their use.

BEARING LOCK ADJUSTMENT

1. Shut off engine, remove the key, wait for all moving parts to come to a stop. Relieve all pressure in the hydraulic lines.
2. Remove the brush drive shield and the side and lower drum drive shields.
3. Make sure that the four taper lock adapter assemblies are tight by turning the bearing locknut by hand.
4. Bend the locking tang of each bearing lock washer out to free the bearing locknut. See Figure #1

FIGURE #1



5. Loosen the bearing locknut with the spanner wrench included with this product.
6. Retighten the bearing locknut until finger tight.
7. Use the spanner wrench to tighten the locknuts an additional 1.25 turns and if necessary, continue tightening until one tang of the bearing lock washer is aligned with a notch on the locknut and bend into notch.
8. Install the brush drive shields, sides and lower drum shields with existing hardware & torque to specification.

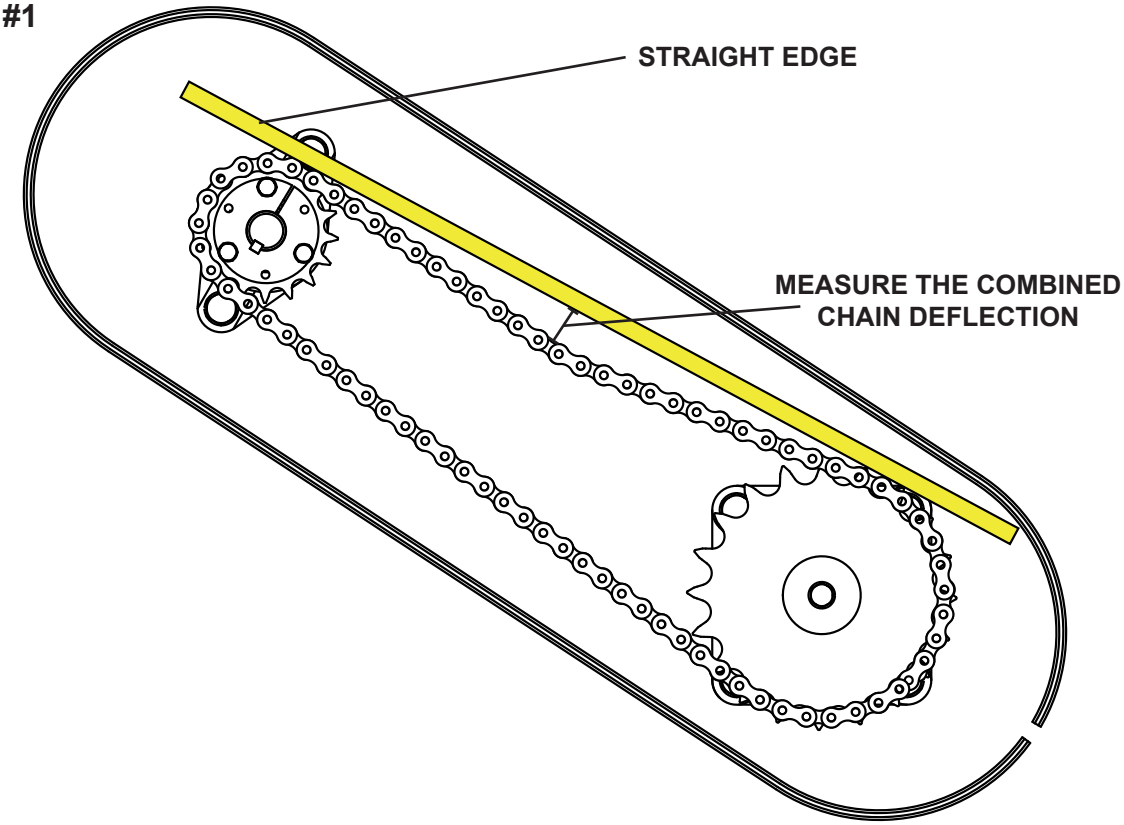
MAINTENANCE

CHAIN TENSION ADJUSTMENT

Motor side

1. Shut off engine, remove the key, wait for all moving parts to come to a stop. Relieve all pressure in the hydraulic lines.
2. Remove drive shields.
3. Check chain to see if adjustment is needed: Remove one link if possible (It may be necessary to add back in 1/2 link). There should be at least 0.25” of movement in the chain. See Figure #1

FIGURE #1



4. Loosen the .38” tensioner bolt on the top of the chain case to increase tension.
5. Replace and properly secure the appropriate drive shields.

Brush Drive Side

1. Shut off engine, remove the key, wait for all moving parts to come to a stop. Relieve all pressure in the hydraulic lines.
2. Remove the brush drive shield.
3. Check chain to see if adjustment is needed: Remove one link if possible (It may be necessary to add back in 1/2 link).
4. Adjust the brush leaving a 0.25” of movement in the chain and a maximum of 0.31” between the brush and the drum. If there is more than 0.31” between the brush and the drum, then remove a 1/2 link from the chain. Be sure to adjust both ends of the brush so it remains parallel to the drum.
5. Replace and properly secure the appropriate drive shields.

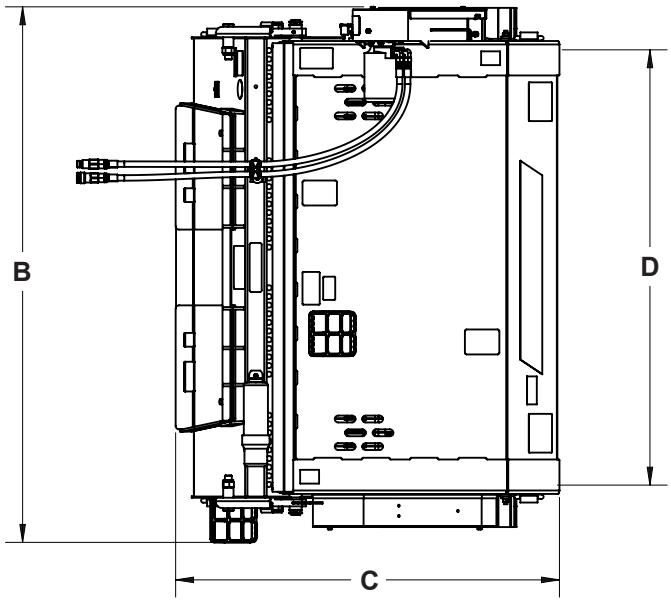
TROUBLESHOOTING

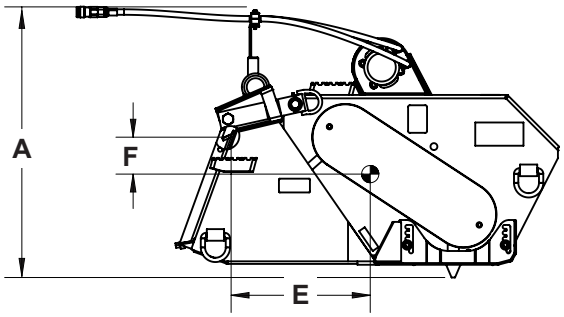
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
DRUM DOES NOT TURN.	Drum drive chain is loose.	Adjust chain tension.
	Drum drive chain is broken.	Repair or replace the drive chain.
	Drum drive sprocket is off the shaft.	Reinstall or replace the drive sprocket.
	Drum idler sprocket is off the shaft.	Reinstall or replace the idler sprocket.
	Drum bearing is seized.	Replace bearing.
	Obstruction (i.e. rock, etc.) is lodged against the drum.	Following all safety precautions, remove the obstruction.
	Low level of hydraulic fluid in the Prime Mover.	Refer to Prime Mover operator's manual.
	Defective hydraulic valve on the Prime Mover.	Refer to Prime Mover operator's manual.
	Defective hydraulic pump on the prime mover.	Refer to Prime Mover operator's manual.
LOSS OF POWER TO DRUM.	Hydraulic fitting is leaking.	Tighten or replace the hydraulic fitting.
	Hydraulic motor seal is leaking.	Replace the hydraulic motor seal.
	Low level of hydraulic fluid in the Prime Mover.	Refer to Prime Mover operator's manual.
	Air in the Prime Mover's hydraulic system.	Refer to Prime Mover operator's manual.
DRUM TURNS ERRATICALLY.	Air in the Prime Mover's hydraulic system.	Refer to Prime Mover operator's manual.
	Drum drive chain is slipping on the sprocket.	Adjust chain tension.
BRUSH DOES NOT SWEEP AGAINST THE DRUM.	Brush drive chain is loose.	Adjust the chain tension.
	Brush drive chain is broken.	Repair or replace the drive chain.
	Sprocket square key is missing or broken.	Replace the sprocket key.
SKID SHOES DIG IN OR SLIDE WITH EXCESSIVE RESISTANCE ON THE GROUND.	Float circuit on the Prime Mover is not activated or is not properly operating.	Activate or repair the Prime Mover's hydraulic controls. Refer to Prime Mover operator's manual.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
SLUGGISH OPERATION	Insufficient oil flow from Prime Mover.	Check compatibility between Preparator® hydraulic flow requirements and Prime Mover.
		Increase throttle.
	Hydraulic motor damaged or seals blown.	Check for leaks and replace motor if necessary.
	Prime Mover hydraulic filter is dirty.	Refer to Prime Mover operator's manual.
OIL LEAKS FROM THE MOTOR	Motor seals damaged.	Replace motor shaft seal or motor if necessary.
	Seals on hydraulic fitting damaged.	Replace hydraulic fitting.
	Hydraulic fittings loose or damaged.	Tighten or replace as required.
	Hydraulic lines loose or damaged.	Tighten or replace as required.
DRUM ROTATES IN WRONG DIRECTIONS	Hoses installed incorrectly.	Switch hoses at the motor end.
EXCESSIVE HYDRAULIC OIL TEMPERATURE	Low hydraulic oil level on the prime mover.	Refer to Prime Mover operator's manual.
	Hydraulic hoses are obstructed.	Check hose routing.
		Remove obstruction and replace if necessary.
	Hydraulic oil is dirty.	Refer to Prime Mover operator's manual.
	Quick couplers are loose.	Tighten or engage quick couplers. Replace if necessary.
HYDRAULIC QUICK COUPLER LEAKS	Quick coupler poppet is unseated.	Tighten or replace quick couplers.
THE MOTOR RUNS BUT THE DRUM DOES NOT RUN	Sheared motor shaft key.	Replace motor key.

SPECIFICATIONS





DESCRIPTION	LAF3566	LAF3576
A. Overall Height	39.20” (99.57 cm)	39.20” (99.31 cm)
B. Overall Width	77.70” (197.36 cm)	87.70” (222.76 cm)
C. Overall Length	55.50” (140.97 cm)	55.50” (140.97 cm)
D. Working Width	66.00” (167.64 cm)	76.00” (193.04 cm)
E. Center of Gravity - Horizontal	20.40” (51.81 cm)	20.40” (51.81 cm)
F. Center of Gravity - Vertical	5.70” (14.48 cm)	5.70” (14.48 cm)
Weight (lbs)	1445# (655 kg)	1565# (709 kg)

Hydraulic Flow - Continuous	20 GPM (76 lpm)
Maximum Pressure - Intermittent	3500 PSI (241 bar)
Maximum Pressure - Continuous	2500 PSI (172 bar)

BOLT TORQUE SPECIFICATION

GENERAL TORQUE SPECIFICATION TABLES

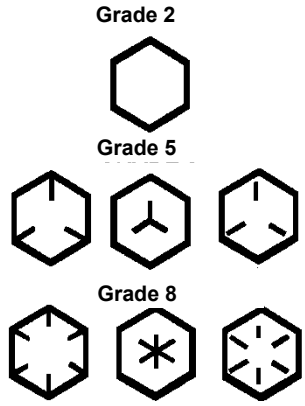
Use the following charts when determining bolt torque specifications, when special torques are not given. Always use grade 5 or better when replacing bolts.

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			
		Ft-lbs		Newton-Meter		Ft-lbs		Newton-Meter	
Inches	mm	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	17	19	23	20	25	27	34
3/8	9,53	30	36	41	49	38	46	52	62
7/16	11,11	46	54	62	73	60	71	81	96
1/2	12,70	68	82	92	111	94	112	127	152
9/16	14,29	94	112	127	152	136	163	184	221
5/8	15,88	128	153	174	207	187	224	254	304
3/4	19,05	230	275	312	373	323	395	438	536
7/8	22,23	340	408	461	553	510	612	691	830
1	25,40	493	592	668	803	765	918	1037	1245
1-1/8	25,58	680	748	922	1014	1088	1224	1475	1660
1-1/4	31,75	952	1054	1291	1429	1547	1700	2097	2305
1-3/8	34,93	1241	1428	1683	1936	2023	2312	2743	3135
1-1/2	38,10	1649	1870	2236	2535	2686	3026	3642	4103

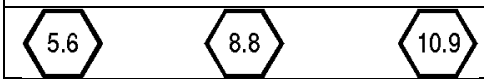
Bolt head identification marks as per grade.
NOTE: Manufacturing Marks Will Vary



METRIC BOLT TORQUE SPECIFICATIONS

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

Bolt head identification marks as per grade.



Bolt Size	Grade No.	Pitch (mm)	Ft-lbs	Newton-Meter	Pitch (mm)	Ft-lbs	Newton-Meter
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

PARTS

In order to provide you with the most UP-TO-DATE part information, all parts for this attachment have been moved to our website at ***www.paladinattachments.com/Manuals***. Please use these diagrams and parts lists to locate replacement parts.

When servicing your attachment, remember to use only original manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering when contacting the factory, please have the product control number (PCN or C/N) or model and serial number of your product ready to ensure that you receive the correct parts for your specific attachment.

The product control number, model and serial number for your attachment should be recorded in the space provided on the cover of this manual. This information may be obtained from the serial number identification plate located on your attachment.

NOTE: Most daily and emergency parts orders (in stock) received by 10:30 A.M. (Eastern Standard Time) will be shipped UPS Ground the same day received. UPS Next Day orders must be received by 1:30 PM (Eastern Standard Time.)

SERVICE DEPARTMENT
(734) 996-9116
(800) 456-7100

For Fax and E-mail Orders
PLC_Sales@paladinattachments.com
(734) 996-9014

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***.