



BLUE DIAMOND ATTACHMENTS

Light Duty Root Grapple Operation and Maintenance Manual

RG-OM-01

Publication Date: August 8, 2014

Light Duty Root Grapple

Document History

The table below lists all revisions of the Root Grapple Operation and Maintenance Manual.

Document Revision	Summary of Changes	Publication Date
First publication	First revision	8/8/2014

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Light Duty Root Grapple

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Light Duty Root Grapple

About this Manual

This manual contains information about the usage and maintenance required for the equipment. This document must be available for review by the operator before using the attachment to ensure proper safety, maintenance, and usage.

Hazard Notices Used in this Manual

The following hazard notices are used in this document:

NOTE – Notes are used to indicate important information. This information may be repeated in other areas of the manual.

CAUTION – Cautions are used to indicate a potentially hazardous situation which, if not avoided, may result in damage to the equipment or other property.

WARNING – Warnings are used to indicate a potentially hazardous situation which, if not avoided, could result in serious injury or death.

DANGER – Danger is used to indicate a potentially hazardous situation which, if not avoided, will result in serious injury or death.

Terminology

Prime Mover: The root grapple can be attached to many different pieces of equipment; therefore the term “prime mover” will be used. A prime mover is any equipment, tractor, or skid steer providing power to the attachment.

Safety

Safety Notices

Before operating or conducting maintenance on this equipment, it is important to wear proper protection. Recommended safety equipment when operating and maintaining this equipment includes earplugs, eye protection, and a hard hat.

NOTE: Additional safety equipment may be required depending on the operating environment and worksite conditions.

Only qualified and trained personnel should operate, maintain, and service this attachment. It is recommended that this equipment be inspected regularly for leaks, cracks, or other conditions that may impair proper usage of the equipment. Verify that all repairs have been completed and inspected prior to using the attachment under load.

It is the responsibility of the user to follow all local, state, and federal safety regulations. Improper use of this equipment may result in personal injury, property damage, and/or damage to the equipment.

Modifications to Equipment

Any modifications made to this equipment may void any warranty and relieve the manufacturer of liability of any resulting injury or damage.

Light Duty Root Grapple

About the Root Grapple Attachment

The root grapple attachment is intended for use in materials handling. The primary use of the root grapple attachment includes land clearing, landscaping, demolition, construction, and grounds maintenance. Use of this equipment in any other manner is considered to be contrary to the intended use of the attachment.

Root Grapples

The root grapple attachment is vital in the tree industry and is quickly becoming a necessity among all contractors today. This unique root grapple is offered in a variety of sizes for a variety of applications.



Figure 1 – Root Grapple

With the Root Grapple, you can perform three jobs in one. In a single pass the Root Grapple rakes away debris, keeps it in a manageable pile to move around with ease, and the round bottom bar provides the necessary tool for backfill. The wide tine opening makes easy loading of logs, brush, rocks, demolition debris, and many other materials into the large bucket area. It is ideal for separating dirt from rock, lumber, or building materials with ease. Hydraulic cylinders operate independently to adjust for uneven loads. Tines curve upward in order to slide across the land without damaging topsoil or catching utility lines or cables.

Light Duty Root Grapple

The Light Duty Root Grapple is intended for skid steers or tractors with a lift capacity of 1500 lbs or less. The Root Grapple is an industrial grapple built for moderate use. It is constructed of 3/8" top-quality steel plate. 1" pivot pins with grease fittings increase the durability. The Hydraulic cylinders are 2" bore and 8" stroke. Opened, distance from tine to tine is 38 inches. Depth from inside front to back of the Root Grapple is 28 inches. Available in 66"

Light Duty Root Grapple

Attaching the Root Grapple to the Prime Mover

NOTE: Before attempting to attach the root grapple to the prime mover, verify that all hydraulic couplings are compatible.

WARNING – Improper attachment to the prime mover may cause personal injury.

CAUTION – All hydraulic connections must be clean and free of debris before making any connection.

1. Place the root grapple attachment on a level surface.
2. Position and align the prime mover to the rear of the attachment, within proximity of the front of prime mover.
3. Insert and connect the prime mover into the attachment.
4. Connect the hydraulic lines from the attachment to the prime mover.
5. Close latches (or other locking mechanism) to secure the attachment to the prime mover.
6. Using the prime mover, raise the attachment and move the attachment to ensure hydraulic lines are clear of air and operate properly.

CAUTION – Hydraulics should operate in an even and smooth manner. Hydraulic movement that is not even and smooth may indicate that air is in the hydraulic lines.

7. Lower the attachment to ground level.
8. Inspect that the attachment is mounted properly and securely. If the attachment does not meet this requirement, follow the instructions to remove the Root Grapple and re-attach using the instructions above.

Removing the Root Grapple from the Prime Mover

WARNING – Improper disconnection may result person injury or damage to the attachment and prime mover.

CAUTION – All hydraulic connections must be clean and free of debris before disconnection.

1. Using the prime mover, lower the attachment to the ground.
2. To prevent contamination, remove any dirt and debris from the couplings. Disconnect the hydraulic connection between the attachment and the prime mover.

NOTE: Hydraulic connections must be disconnected before disengaging latches to prevent damage to the prime mover or the attachment.

3. Disengage the prime mover latches (or other locking mechanism) from the attachment.
4. Move the prime mover from the attachment.

Light Duty Root Grapple

Operation and Maintenance

Equipment Inspection

It is recommended to inspect the equipment for damage and wear before use. Use the following list as a guideline during equipment inspection.

- Check all hardware connections to the prime mover for damage or fatigue such as cracks or other structural flaws.
- Check that all latches or locks are closed.
- Check that all hydraulic fittings are tight and free of leaks
- Check that all hydraulic lines are free of leaks, holes, or cracks.

WARNING – Do not use hands to check for hydraulic leaks. Keep body parts away from leaking hydraulic lines and couplings that are under pressure.

- Check that the tires on the prime mover are in good condition and have proper load ratings.

NOTE: Replace any damaged hardware, hoses, and fitting before using the equipment.

Usage Guidelines

Before each use do the following:

- Perform daily maintenance as indicated in the Daily Maintenance Schedule.
- Inspect the attachment by performing a walk around
- Use the root grapple for materials handling only.

DANGER – Keep all body parts away from the root grapple when in use. The upper tines may open or close unexpectedly causing serious bodily injury or death.

Inspect the root grapple daily before use. It is also recommended to inspect the root grapple after extreme use or damage. Use the following inspection checklist as a guideline.

Inspection Checklist

- Are all safety notices and warning decals in proper locations and visible?
- Are there any visible hydraulic leaks?
- Are any cracks visible in root grapple structure?
- Are the tines worn or bent?
- Have all grease fittings (zerk fittings) have been greased?
- Are the bolts holding pins secure and tight?
- Has the prime mover been properly inspected for hydraulic leaks and proper tire inflation?
- Has the prime mover been properly maintained?

Light Duty Root Grapple

Detailed Parts List

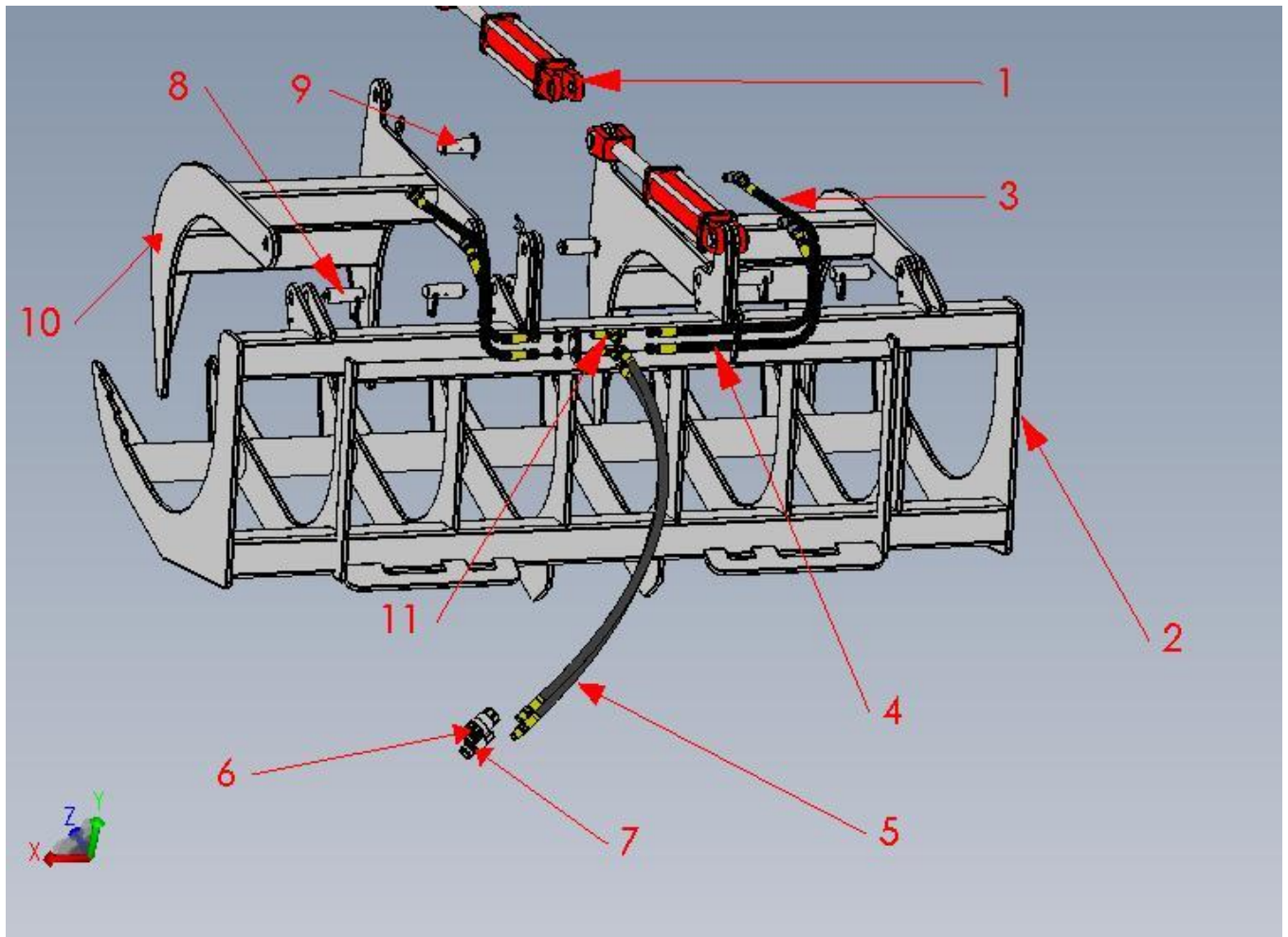


Figure 2 – Root Grapple – Parts List

Light Duty Root Grapple

Table 1 - Parts List

#	Part Name	Description	Size	Part No.	Qty.
1	cylinder	Tie rod cylinder 206110	2"bore X 8" stroke	Ae07010	2
2	Main frame	Main frame weldment needs part numbers	66"	Ae07302	1
3	hose	Hydraulic hose kit	1/4"	AE07303	1
4	hose	Hydraulic hose kit	1/4"	AE07303	1
5	hose	Hydraulic hose to machine 206150 set	1/4" X 5'	AE07306	2
6	coupler	Female flat face 224011	1/2"	AE24010	1
7	coupler	Male flat face 224012	1/2"	AE24005	1
8	pin	Pivot pin greasable 206105	1"	AE07309	4
9	pin	Pin and retainer clip 206115	1"	AE07312	2
10	Top tine	Top tine weldment left 206145	For 66"	AE07315	1
	Top tine	Top tine weldment right 206140	For 66"	AE07316	1
11	T fitting	Branch t fitting #6 JIC male	OAL 75"	AE07317	2

Top tine **206206** GRAPPLE, CYLINDER COVER, LEFT SIDE, FITS LIGHT DUTY ROOT (FOR 3/8" TINE MODELS ONLY)
 Top clamp for single clamp version **206147**
206205 GRAPPLE, CYLINDER COVER, RIGHT SIDE, FITS LIGHT DUTY ROOT (FOR 3/8" TINE MODELS ONLY)
 Sold as full set only **206150**

Root Grapple Specifications

Table 2 - Root Grapple Specifications

Hydraulic Cylinders			Bucket Tines			Grapple Tines		
Bore	Stroke	Pins	Spacing	Thickness	Material	Opening Height	Opening Depth	Material
2"	8"	1"	8"	3/8" x 4"	3/8" 60,000 psi min	38"	30"	3/8" 60,000 psi min.

Weight
66" Wide
454lbs

Light Duty Root Grapple

Warning Decal Placement

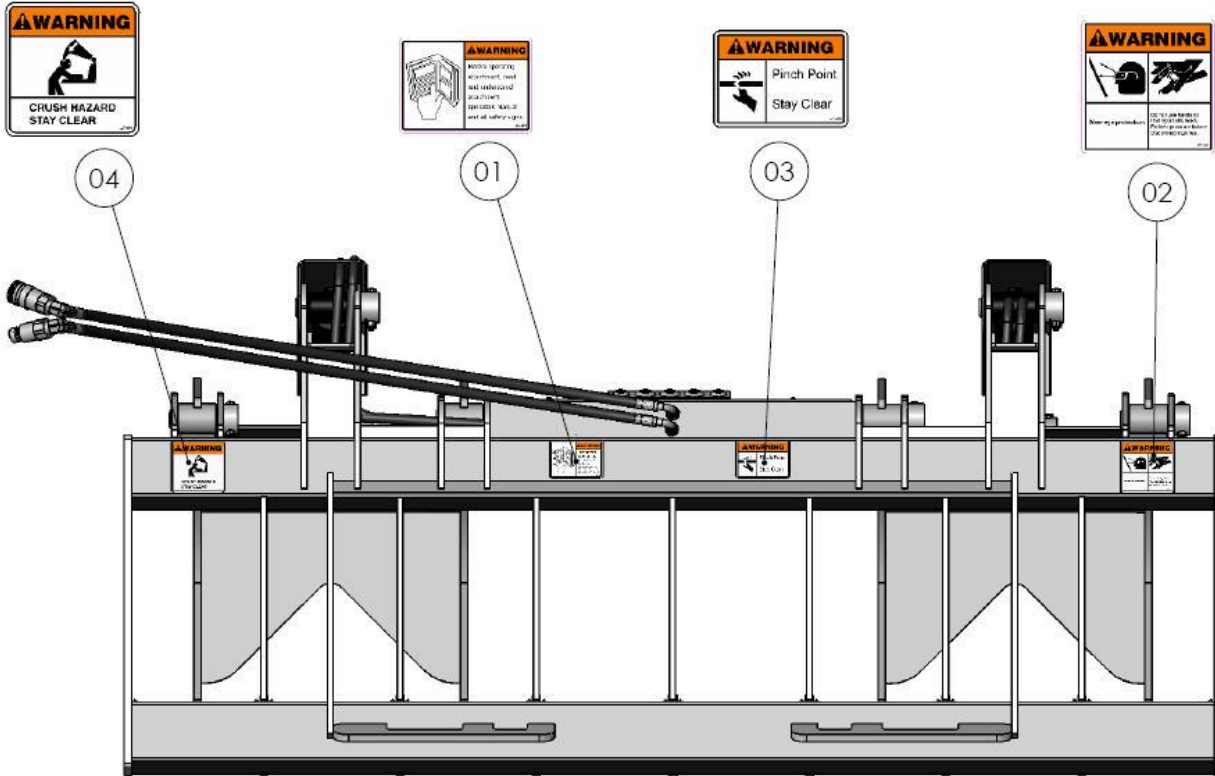


Figure 3 - Root Grapple – Rear View

Table 3 - Parts List - Warning Decals

#	Part Name	Description	Size	Part No.	Qty.
01	RG Warning Decal	Warning Before Operating Read Manual	2-1/2"H x 3-1/2"L	BD-01	1
02	RG Warning Decal	Warning Wear Eye Protection; Relieve Hydraulic Pressure	3-1/2"H x 3-1/2"L	BD-02	1
03	RG Warning Decal	Warning Pinch Point Stay Clear	2-1/2"H x 3-1/2"L	BD-03	1
04	RG Warning Decal	Warning Crush Hazard Stay Clear	3-1/2"H x 3-1/2"L	BD-04	1

Table 4 – Warning Stickers

Warning Decal 01	Warning Decal 02	Warning Decal 03	Warning Decal 04

Light Duty Root Grapple

Manufacturer's Warranty

One-Year Limited Warranty

Blue Diamond Attachments, LLC, hereinafter referred to as BLUE DIAMOND ATTACHMENTS, a manufacturer of quality machinery since 1996, warrants new BLUE DIAMOND ATTACHMENTS machinery and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by BLUE DIAMOND ATTACHMENTS.

BLUE DIAMOND ATTACHMENTS' liability for any defect with respect to accepted goods shall be limited to repairing the goods at a BLUE DIAMOND ATTACHMENTS designated location or at an authorized dealer location, or replacing them as BLUE DIAMOND ATTACHMENTS shall elect. The above shall be in accordance with BLUE DIAMOND ATTACHMENTS warranty adjustment policies. BLUE DIAMOND ATTACHMENTS'S obligation shall terminate twelve (12) months after the delivery of the goods to original purchaser. This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the BLUE DIAMOND ATTACHMENTS factory or authorized BLUE DIAMOND ATTACHMENTS dealership or in any way so as in BLUE DIAMOND ATTACHMENTS'S judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident beyond the Company recommended machine rated capacity.

Warranty Claim

To submit a warranty claim, a return authorization from BLUE DIAMOND ATTACHMENTS must be obtained. The failed part may then be returned. Tampering with the failed part may void the warranty. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls, and pickup/delivery charges are the customers' responsibility.

Exclusions of Warranty

Except as otherwise expressly stated herein, BLUE DIAMOND ATTACHMENTS makes no representation or warranty of any kind, expressed or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. BLUE DIAMOND ATTACHMENTS shall not be liable for incidental or consequential damages for any breach or warranty, including but not limited to inconvenience, rental of replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability for all personal injury and property resulting from the handling, possession, or use of the goods by the buyer.

No agent, employee, or representative of BLUE DIAMOND ATTACHMENTS has any authority to bind BLUE DIAMOND ATTACHMENTS to any affirmation, representation or warranty concerning its machinery and/or attachments except as specifically set forth herein.

This warranty policy supersedes any previous documents.

Light Duty Root Grapple

Blue Diamond Attachments, a manufacturer of quality attachments, warrants new Blue Diamond Attachments products and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by Blue Diamond Attachments, LLC. *To file a warranty claim, please contact your nearest Blue Diamond Dealer or sales representative.*

Brush Cutters:

The Blue Diamond Brush Cutters have a two(2) year warranty policy: one year on parts and labor, and the second year on parts only. Dis-assembly of the cutter in any way, including the blade carrier, housing components, and/or motor, may void the warranty. Please contact Blue Diamond Attachments for instructions and authorization before taking apart to verify warranty.

Augers:

Warranty coverage on Blue Diamond Auger attachments is four(4) years on the Heavy Duty Series, and six(6) years on the Extreme Duty. Bent or Broken auger shafts are void from warranty. Coverage may be refused by Blue Diamond Attachments if the unit appears to have been abused or misused.

Pallet Forks:

Blue Diamond Pallet Forks have a one(1) year warranty. If the forks are put in an application where the weight that is lifted exceeds the fork rating, all warranty coverage will be voided.

Grapples:

All Grapples manufactured by Blue Diamond Attachments have a one(1) year warranty. Faulty cylinders are covered by warranty. Bent tines and/or bent hydraulic cylinders are not covered nor implied by warranty.

Thumbs:

Blue Diamond Thumbs have a one(1) year warranty on manufacturing defects, including weld cracks and leaking cylinders. Bent cylinders and/or bent tines/frame are not covered by warranty.

Other Attachments:

All other attachments that are not listed above, have a one(1) year warranty. This covers any manufacturing defect. Bent tines and/or bent cylinders are not covered. Any modification or alteration in any way may void the warranty on any piece. Blue Diamond Attachments, LLC reserves the right to decline any warranty claim at their digression.



****WARRANTY MAY BE VOIDED IF ATTACHMENT IS ALTERED IN ANY WAY****
(May weaken unit and cause damage)

Warranty Registration:

Please fill out this warranty registration within 30 days of the purchase of your attachment. It can be faxed to 865-246-2007 or emailed to: warranty@bdattachments.com

Name and address _____

Phone # _____

Attachment part # _____

Attachment serial # _____

Date purchased _____

Name of dealer attachment was purchased from:

Comments: _____



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