



HARDEE

■■■■■■■■■■ BY EVH MFG CO

Hydraulic Boom Mower



FEATURES

- * Two 4-function joystick cable controls
- * Category 1 Standard Hitch
- * Replaceable Bushing in all Pivots
- * Folds Behind Tractor For Compact Transport
- * 1/2" X 3 1/2" Free Swinging Blade
- * 540 RPM PTO Operating Speed
- * Self contained unit no remotes needed
- * 13' Reach & 42" Cutting Deck
- * No-Drift Load Holding Valve
- * Hydraulic Valve Features Both Vertical & Horizontal Break-away
- * Blade Tip Speed is 14,720
- * Cutting Capacity up to 4" in Diameter
- * Flip-up Gate
- * Cutter Weight 1625 lbs.

4895 Red Bluff Rd. Loris, S.C. 29569 Phone(843)756-2555 Fax(843)756-4436
www.hardeebyevh.com evhmfg@hardeebyevh.com

FOR SERIAL #'S UP TO 007189

MODEL NUMBER _____
 SERIAL NUMBER _____
 DATE OF PURCHASE _____

Customer Pre-Operation Check List		Reference
<input type="checkbox"/>	Read, understand and follow the general safety rules listed in this manual.	Page 2
<input type="checkbox"/>	Check all shields and guards.	Page 2
<input type="checkbox"/>	Cut driveshaft to the proper length for your tractor.	Page 7
<input type="checkbox"/>	Add ballast to the rear tractor tires and space them six feet or wider apart.	Page 7
<input type="checkbox"/>	Add ballast and front weights to your tractor, if needed.	Page 7
<input type="checkbox"/>	Check all fluid levels, tractor and cutter.	Page 8
<input type="checkbox"/>	Turn gate valve under the oil tank “on”.	Page 9
<input type="checkbox"/>	Check all grease fittings.	Page 11

Disclaimer

THIS CUTTER IS NOT DESIGNED TO CUT TREES FROM TOP TO BOTTOM (VERTICALLY) WITH THE CUTTER DECK IN THE HORIZONTAL POSITION (See Fig. 1). The cutter is designed to trim branches with the cutter deck in the VERTICAL position while moving the tractor forwards or backwards, repositioning the cutter deck after each path (See Fig. 2).

The cutter is also designed to cut tree trunks and branches up to 4” in diameter with the “Hinged Gate” in the unlocked, secured raised position and the cutter deck in the **HORIZONTAL** position, perpendicular to the trunk and/or branch of the tree (See Fig. 3).

Any modes of operation other than the ones described above and shown below, while cutting trees and/or branches are not permitted and shall void the warranty. Moreover, HARDEE by EVH Manufacturing Company, LLC does not accept any liability to any person and/or material when the cutter is operated in violation of the above information.

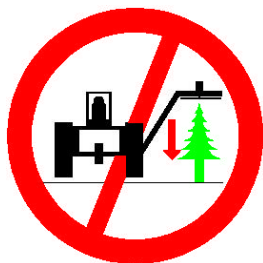


Fig. 1

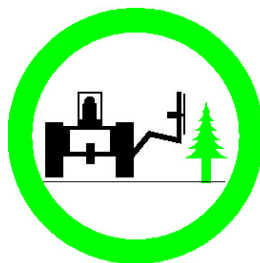


Fig. 2



Fig. 3

Introduction

To Our Customers

We at Hardee by EVH Manufacturing Company thank you for buying your new Long Reach Cutter.

We have tried hard to build a cutter to do the work you have in mind. Many hours of engineering, field-testing and improvement have gone into the design and fabrication of your cutter. We will strive to continue this quality of manufacturing in the future, always keeping the customer's needs clearly in mind.

The best performance of your cutter will depend on you. Proper lubrication, maintenance, hookup, adjustments and operation are essential for it to give you long and dependable service. However, as with any type of equipment, your cutter is designed to perform specific functions.

In this manual, you will find instructions on cutter features, maintenance and operation. If customer service or repair parts are required, contact your local Hardee dealer. Please specify model and serial number when ordering parts.

Owner's Responsibility

The manufacturer has no control over the ultimate use of the cutter and therefore assumes no responsibility or liability for damage or injury resulting from the use of this machine.

The upkeep of the hydraulic cutter is the responsibility of the user. This upkeep includes all shielding, guards, and safety decals (OSHA Regulation 1928.57). You can obtain replacement parts from any authorized Hardee dealer.

Read this Operator's Manual before operating the cutter. Failure to do so could result in injury to the operator or to others. Remember that most accidents occur due to neglect or carelessness. The operator is responsible for inspecting and making repairs as may be necessary. Cleaning after each use and storage under a shelter will extend the life of the cutter.

Purpose of This Manual

This manual provides information on safety, operation, adjustments, troubleshooting and maintenance of your new cutter. Please read and follow all the recommendations to help ensure that you get many years of service from your new Hardee cutter.

If you need additional copies of this manual, please contact your local Hardee dealer or download a copy from our website at www.evhmfg.com.

Safety-Alert Symbol



This symbol is the safety alert symbol. It appears throughout this manual to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.

Signal Words

Safety signal words are words that call attention to the safety sign and designate a degree or level of hazard seriousness. The signal words used throughout this manual are DANGER, WARNING and CAUTION. Please read and follow all safety messages that have these signal words shown for your protection.



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 minor or moderate injury.

Customer Assistance

The Hardee sales team would like you to be satisfied with your new Long Reach Cutter. If for some reason you have any questions about the information in this manual or have a problem with your cutter, please discuss the problem or question with the management of your local dealership. If further assistance is required, please contact:

EVH Manufacturing Company, LLC
Sales Department
 4895 Red Bluff Road
 Loris, SC 29569
 843-756-2555

Safety Information

General Safety Rules

This section of your manual will address the safe operation of your new cutter. We at Hardee strive to produce a machine that is both a quality product and safe to operate. Please take the time to read, understand and follow the safety rules listed below and throughout this manual.

Your safety also depends on you becoming familiar with the basic operation of your new cutter. You can find complete instructions for this cutter in the Operation Instruction section of this manual. We believe that using your cutter safely, in a safe environment will give you great results!

DANGER

This machine is designed for use on a closed cab tractor only! If your tractor has an open cab, then it MUST be equipped with operator protective equipment in the form of shielding from thrown objects and Roll Over Protective Structure (ROPS) to operate this equipment safely.

DANGER

Rotary cutters have the inherent ability to throw debris considerable distances when the blades are allowed to strike foreign objects. The operator must use caution or serious injury may result. Be sure bystanders are at a safe distance at all times when the cutter is in use.

WARNING

Always keep your tractor level as you reach over ditches, etc. Be careful to keep ample distance between the rear tire and the top of the ditch bank to avoid a cave-in of the bank.

WARNING

Failure to keep the tractor level may result in loss of traction, tipping, rollover, property damage, personal injury or death.

WARNING

Never stand, or allow others to stand, under the boom or cutterhead at any time. Never park the unit without placing the cutterhead squarely and firmly on the

ground. Serious injury or death by crushing may occur in case of hydraulic failure.

DANGER

Do not look under the cutterhead or attempt to remove objects or branches from under the cutterhead while the tractor is running. Serious injury, loss of limb or death may result.

DANGER

Do not reach under the cutterhead at any time. Cutting blades may cause serious injury, loss of limb or disfigurement.

WARNING

Never use the cutter for a crane or lifting device of any kind. It is not designed for this purpose. Serious damage to unit may occur. Serious bodily injury may be incurred from this misuse.

WARNING

Never use the cutter for a man-lift or personnel lift. It is not designed for this purpose. Serious damage to unit may occur. Serious bodily injury may be incurred from this misuse.

DANGER

Never operate the cutter within 10 feet of overhead power lines or utility lines. Do not trim trees with power lines running through them. Serious injury or death by electrocution may occur.

WARNING

Never allow the cutter to impact rock piles, piles of gravel, steel guardrails or concrete abutments. Contact with these objects could cause blade failure. Serious machine damage, property damage or bodily injury may occur. Check the area for these items before mowing.

DANGER

Never attempt to use the cutter to remove brush or trees larger than 4 inches in diameter. Failure to use caution when cutting trees, may lead to the tree falling on the cutter deck and tipping the tractor over.

Safety Information

Safety Decals

Your Hardee cutter ships with all safety decals in place. They are located in areas on the cutter that are potentially hazardous. Please locate, read and follow the information you find on these decals.

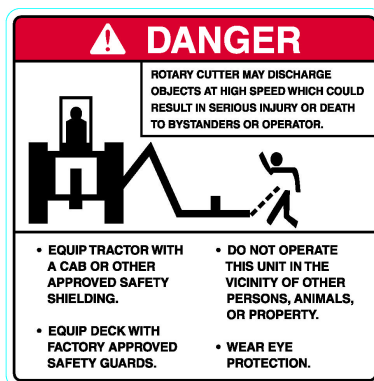
By law, you must replace any safety decals that are damaged or missing. You can order replacement decals from any local Hardee dealer. Just ask for part number 15845.

To apply the replacement decals:

- Clean the surface to place the new decal.
- Peel the decal away from the paper backing.
- Press firmly onto the clean surface.
- Squeeze out any air pockets using a straight edge.



Deck



Danger – Thrown Object



Oil Tank



Operating Safety and General Instruction



Danger – Rotating Driveline

Safety Information

Safety Decals, continued



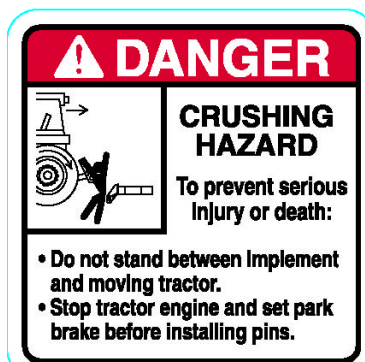
Deck



Warning – Rotating Components



Weight Box



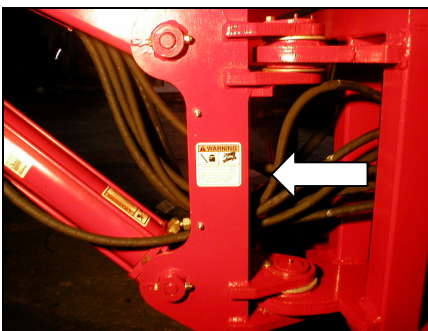
Danger – Crushing Hazard



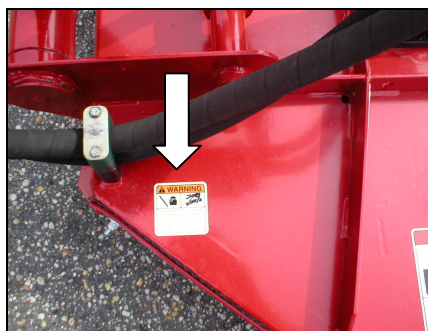
Swing Post



Warning – High Pressure Fluid Hazard



Swing Post



Deck

Safety Information

Safety Decals, continued



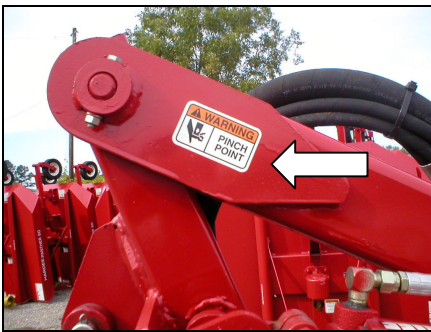
Deck Linkage



Deck Linkage



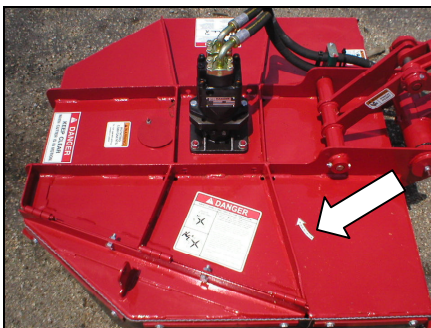
1st Stage Boom



1st Stage Boom



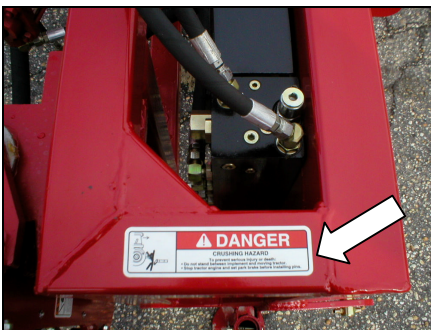
Warning – Pinch Point



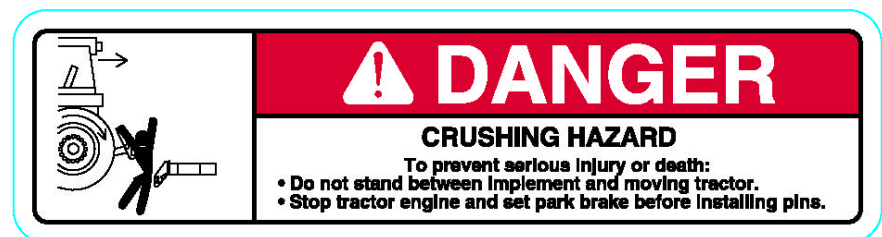
Deck



Blade Rotation



Hitch Frame



Danger – Crushing Hazard

Safety Information

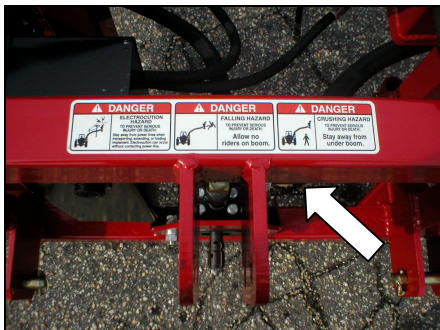
Safety Decals, continued



Deck



Danger – Keep Clear



Hitch Frame



Danger – Electrocution, Falling and Crushing Hazard

Assembly and Installation

Tractor Requirements

The Long Reach Cutter you have purchased is designed for use with tractors of 40-45 horsepower or above equipped with a (540 RPM 1 3/8" - 6 spline) rear power take-off (PTO).



To insure stability of your tractor, the rear tires should be spaced at their widest setting. We recommend six feet or wider. You should also add ballast to maintain proper steering control and balance. In addition, unless your tractor is 4-wheel drive, you may also need to add front weights. Please refer to the operator's manual for your tractor to determine the correct setup.



DANGER

This machine is designed for use on a closed cab tractor only! If your tractor has an open cab, then it MUST be equipped with operator protective equipment in the form of shielding from thrown objects and Roll Over Protective Structure (ROPS) to operate this equipment safely.

Driveshaft Installation

The make of your tractor will determine the length of driveshaft you require to connect from the end of the pump shaft to the PTO connection of your tractor. This step may require cutting the standard driveshaft included with the Hardee cutter. We recommend contacting your local Hardee dealer for assistance.

Driveshaft Installation on Pump Shaft

Refer to Figure 1 for reference

- ✓ Verify that driveshaft is the proper length.
- ✓ Grease both pump shaft and driveshaft.
- ✓ Attach equipment end of driveshaft to pump.
Tractor end has a figure of a tractor stamped onto the guard.
- ✓ Rotate driveshaft to line up holes for securing with the bolt and nut provided.
- ✓ Fix shaft guard to the cutter using anti-rotation chain.



Figure 1

Tractor Hook-Up Procedures

- ✓ Hook tractor 3-point hitch to cutter hitch frame. The MR1442 is designed to work with a standard category 1.
- ✓ Mount the joystick control box firmly inside your tractor cab.
- ✓ Connect joystick to 12-volt system.
 - Blue wire to hot.



WARNING

Before leaving the tractor seat, always engage the tractor brake and/or set the transmission of the tractor in parking gear. Stop engine and remove key. Always make sure that no one is between the tractor and the cutter when tractor is in motion.

- ✓ Attach driveline to tractor (PTO shaft). (See below for instructions)
 - Verify that the shaft is sufficiently lubed before attachment.
 - Verify that drive shaft is the proper length.

Operation Instruction

Operation Instructions

During Operation



WARNING

Ensure that all bystanders are clear of the cutter before starting tractor engine. Objects thrown by the cutter blades can cause severe personal injury or death.

Before any operation of the cutter, be familiar with the locations and functions of the unit's controls. Being familiar with the cutter and its controls will increase efficiency and reduce the possibility of serious injury or damage to the unit.

The operator should work slowly and carefully until he feels comfortable with the cutter. Speed and skill will be attained much more easily if the necessary time is spent to familiarize yourself with the cutter and its operation.

Get into the habit of completing a walkaround inspection before use. This procedure is a simple method of inspecting your unit's condition by walking around and looking at each component of the unit, including the tractor. This procedure has been used by airline pilots for many years as a final inspection before flight and is also used by long distance ground transportation drivers on buses and trucks. During the walkaround, you will visually search your units tire condition, look for hydraulic leaks, fuel leaks, inspect hose condition and condition of hydraulic cylinders. Look for loose or worn components, see that all guards are in place, check blade condition, look for broken or inoperative lights and determine that it is or is not operable before use. We recommend that you follow this procedure before start up.

Daily Start-Up Checklist		
	Check	Section
<input type="checkbox"/>	Check All Fluid Levels, Tractor & Cutter, <i>For best results, use Hardee hydraulic oil – EVH part number 23333</i>	-
<input type="checkbox"/>	Grease Points	Page 11
<input type="checkbox"/>	PTO Shaft, Check Grease	Page 11
<input type="checkbox"/>	Blade Tightness	Page 12

Operating Environment

Application Do's and Don'ts

There are obvious and hidden potential hazards in operating this mower. **REMEMBER!** This machine is often operated in rough terrain conditions that include gullies, holes, slopes and hidden obstructions. Serious injury or even death may occur unless care is taken to assure the safety of the operator and bystanders in the area.

Included here is a list of safety messages, which should be followed. Observing these messages and using common sense learned from experience help eliminate the hazards of operating this and other machinery.



DANGER

*Read this manual and the manual for the tractor carefully to acquaint yourself with both machines before operating. **REMEMBER**, power-driven equipment should be operated only by those trained and familiar with the operation and instructed to do so. Working with unfamiliar equipment or in unfamiliar conditions can lead to accidents.*



WARNING

Before leaving the tractor seat, always engage the tractor brake and/or set the transmission of the tractor in parking gear. Stop engine and remove key.



DANGER

Never allow riders on tractor or equipment. Falling off can cause serious injury or death.



WARNING

Worn or dull cutter blades can cause excessive cutter vibration resulting in damage to the gearbox and structural damage to the cutter. You should replace or sharpen blades in pairs. Excessive vibration can cause rotating parts to break and fly off the cutter, causing serious injury or death to the operator or bystanders.



DANGER

Do not modify or alter this machine or any of its components or any equipment function without consulting EVH Manufacturing Company.

Operation Instruction

Using Your Cutter

Getting Started

You will need to spend some time getting the “feel” of your new cutter. Spend time reviewing the following steps before using your cutter for the first time. The time that you take will greatly enhance your ability to get the desired results when you begin mowing.

- ✓ Position the joystick controls inside your tractor cab and move it through the positions shown in the following sections.
- ✓ The next step is to attach the cutter to the tractor, see the hook-up procedures on page 7 for complete instructions. After you have the cutter attached, double check to ensure that no part of the tractor is in contact with the cutter.
- ✓ Next, follow the instructions for installing the driveshaft. Check to see that all PTO guards are in place correctly.
- ✓ Make sure that all hoses and the joystick connection cable will not contact the PTO shaft.
- ✓ Check the blades for sharpness. Check the blade carrier castle nut and both blade bolts for tightness. Verify that the gate valve under the oil tank is “on”. *The cutter is shipped with the gate valve in the “off” position.*

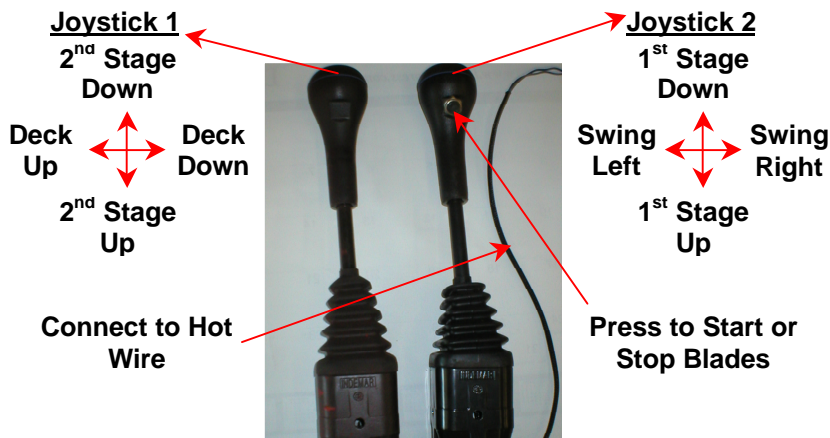
Danger

Before proceeding, make sure that no other persons are in close proximity to the cutter!

- ✓ With all controls in neutral, the tractor in park, the throttle in idle position and the joystick power switch off... Start the tractor engine.
- ✓ Now with the cutter under power, practice using the joystick to control the movement of the cutterhead and boom arms.

Joystick Control

- After connecting blue wire from **Stick 2** to the hot wire follow the motions as shown in figure below.
- Depress “Thumb Trigger” to start or stop blade motion.



Note: *If the hydraulics does not function, detent in the other direction or flip hoses.*

After you feel comfortable with the basic cutter control, the next step is to control the speed on the blades.

- ✓ Slowly increase the tractor throttle to a high idle speed and slowly engage the PTO.



Danger

Do not change the blade rotation direction! Blades must rotate in the clockwise direction indicated by the rotation decal on the mowing deck.

- ✓ After the cutter is running smoothly, increase the tractor to 540 PTO RPM and lift the cutterhead off the ground. Swing the cutterhead to the mowing position, which is three o'clock on the right side of your tractor.
- ✓ Release the tractor from park and put the transmission in low range. You are now in mowing mode and are underway.

Operation Instruction

The terrain and the kind of material being cut will determine your ground speed. Remember that you will need to raise and lower the cutterhead to follow the ground contour you are cutting.

Boom Breakaway

The MR1442 is designed with an automatic breakaway system to protect the cutter booms. This works when the cutterhead contacts a solid obstruction or the cutterhead is “grounded” while the tractor is in motion. The breakaway is activated through the hydraulic valve and will function mowing both forward and backward.

When the cutterhead strikes a solid object the booms will begin to break back, IMMEDIATELY stop your tractor and adjust the position of the booms to clear the object.

If you “ground” the cutterhead and the booms begin to break back, simply lift the boom slightly to free the cutterhead, then swing the boom back into normal cutting position. See figure 2

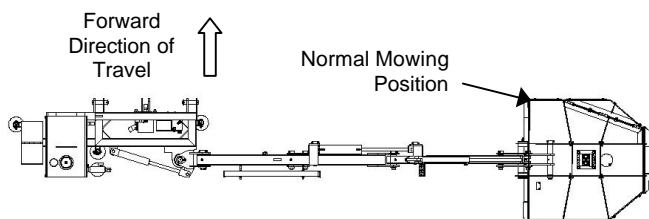


Figure 2

Mowing in Reverse

Your Hardee unit can cut as easily when the tractor is moving in reverse as forward. The breakaway protection works in the same way. The only difference being you must swing the booms to the rear 10 – 15 degrees. This will allow for more boom breakaway travel. This space is critical so as not to bottom-out the boom arm. See figure 3



Caution

You will do severe damage to your cutter if you allow the boom arm to reach the bottoming-out point!

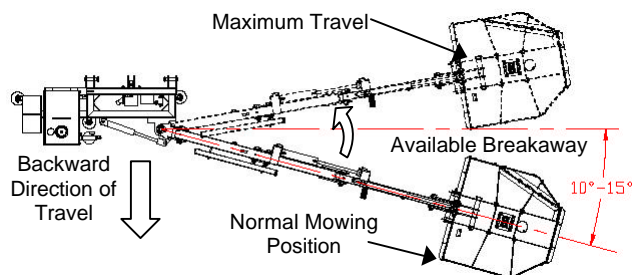


Figure 3



Caution

You must allow for the extra boom travel when mowing in reverse. See figure 3. If you have any questions about these instructions, please ask your local Hardee dealer immediately! Warranty claims for equipment used improperly will not be honored.

Side Dressing Trees

The design of your heavy-duty brush cutter will allow you to “side dress” trees if needed. To do this, raise the booms to the desired height and tilt the cutterhead to the vertical position. With the blades “on” move forward slowly, removing only approximately 12 inches of material per pass.



DANGER

Never operate the cutter within 10 feet of overhead power lines or utility lines. Do not trim trees with power lines running through them. Serious injury or death by electrocution may occur.



The above figure shows the gate folded up and bolted to the deck plate to allow cutting thick shrubs and bushes. **Do not** attempt to cut large trees and shrubs over 3 inches in diameter.

Maintenance

Maintenance and Service Schedule

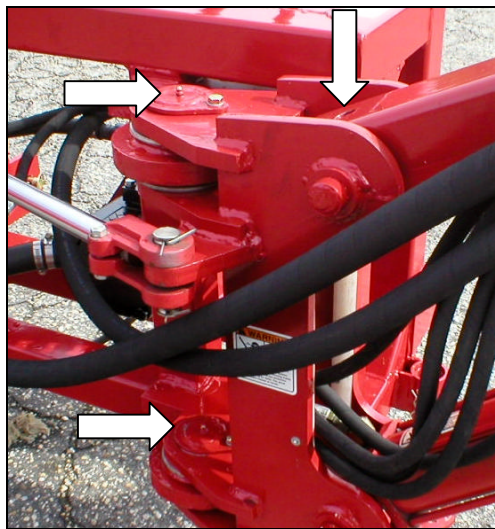
This section is dedicated to the maintenance of the MR1442. As with any piece of equipment, the performance and life span depends on the proper operation and maintenance.

DANGER

Never attempt any checks, repairs or adjustments with tractor engine running or the power take-off engaged. Adjustment of rotating parts while the tractor engine is running can result in serious personal injury or death if the PTO accidentally engages.

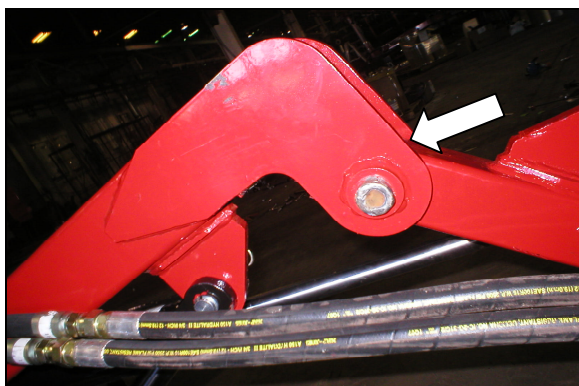
First Stage Boom

Inject with heavy multi-purpose grease. There are two grease fittings on the swing post.



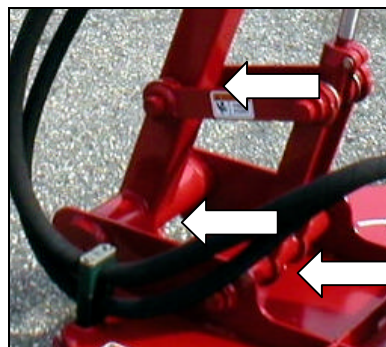
First Stage Boom to Second Stage Boom

Inject with heavy multi-purpose grease. There is a grease point at every hinge point.



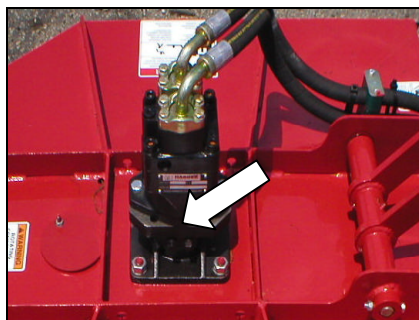
Deck and Second Stage Boom

Inject with heavy multi-purpose grease.



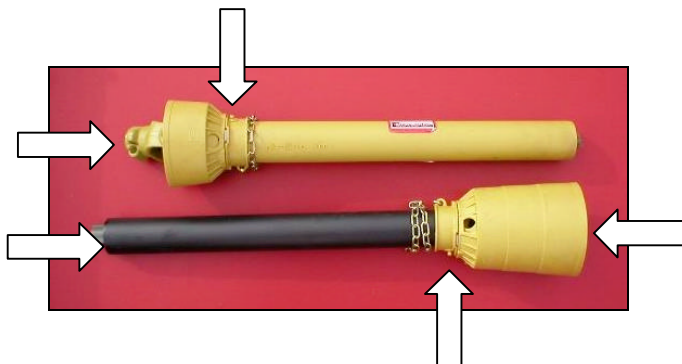
Hydraulic Motor Housing Assembly

Locate fitting on motor housing. Inject with 90W gear oil.



Greasing PTO Driveshaft to Pump

Remove PTO shaft from cutter before greasing. Use heavy multi-purpose grease at all grease fitting and on shaft. Remember to grease the shield grease fittings as well as the u-joints.



Maintenance

Replaceable Bushings

All pivot points are designed with replaceable bushings. They are all greaseable and should be checked for wear regularly. Locations and part numbers can be found by referencing the parts breakdowns located on the attached drawings.

Inspection and Replacement of Blades

The cutting blades on the Hardee cutter are designed and made to exact specifications and should be replaced with only original Hardee parts. Always replace blades in pairs to retain balance on the blade holder. Never weld the blades, as this will change the temper of the steel. Never modify the blades. Check for cross sectional thickness and deterioration of blades. Replace as necessary.

When the replacement of cutter blade is required, a few rules should be followed:

- Replace blades in pairs.
- Inspect bolt holes.
- If bolt holes are elongated, replace blade holder. *See instructions below.*
- Cutting heavy brush causes excess stress on the blade bolts, because of this they will require inspection that is more frequent.
- When replacing blades always replace bolts and nuts. Never reuse blade bolts and nuts.

Inspection and Replacement of Blade Holder

Inspection

- ✓ First, completely extend boom. Rotate cutter deck all the way up; drop boom until deck rests on ground. Switch off tractor, secure parking brake and remove key.
- ✓ When inspecting, pay particular attention to any small hairline cracks between spindle bolt hole and blade bolt holes. This indicates metal fatigue from severe abuse and holder must be replaced.
- ✓ Blade and spindle bolts and nuts should be checked daily.

Replacement

- ✓ Remove cotter pin and castle nut.

- ✓ With an assistant, carefully remove the blade holder.
- ✓ Then position the new blade holder in place.
- ✓ Replace the castle nut and cotter pin.
See parts breakdown drawing.

Unhook and Post Use Care

Before unhooking the tractor from your mower, always clean the unit thoroughly to remove any grass, mud or debris. This mower should always be stored on a hard level surface.

Unhooking the MR1442

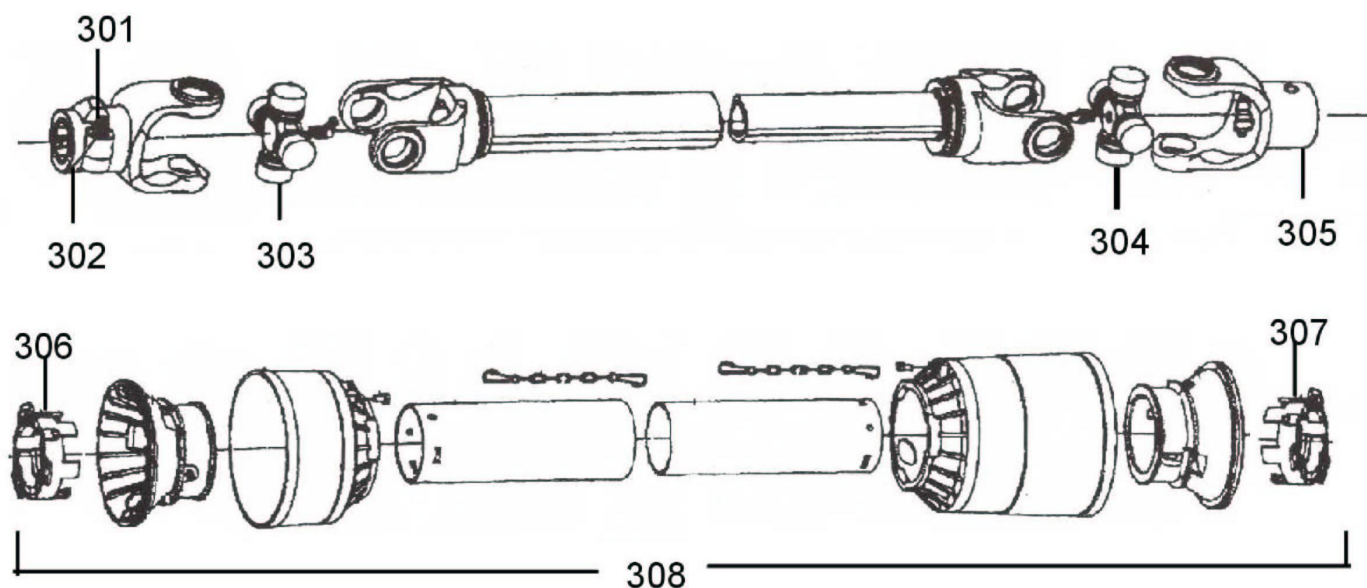
- ✓ To unhook from your unit, first lower all jack stands to the storage position.
- ✓ Lower the tractor lift arms so that the mower will rest firmly and evenly on all jack stands.
- ✓ Lower the boom arms and cutter deck so that they too rest firmly and evenly on the ground.
- ✓ Be sure to relieve all hydraulic pressure on the boom arms and deck before unhooking.
- ✓ Disconnect driveshaft from tractor.
- ✓ Disconnect joystick cable wire from the tractor.
- ✓ Unhook tractor hitch from 3-point frame on mower.



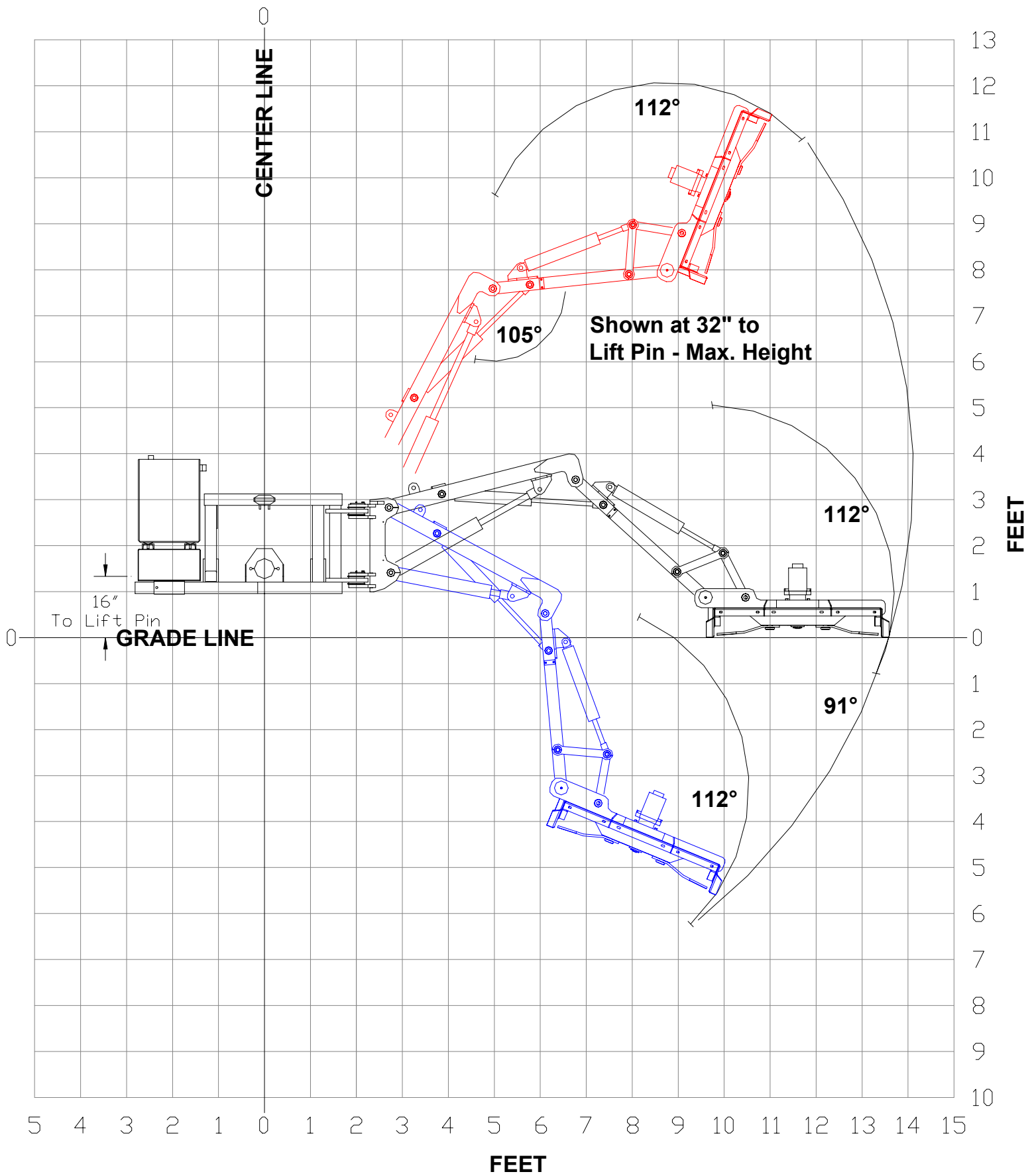
NOTE

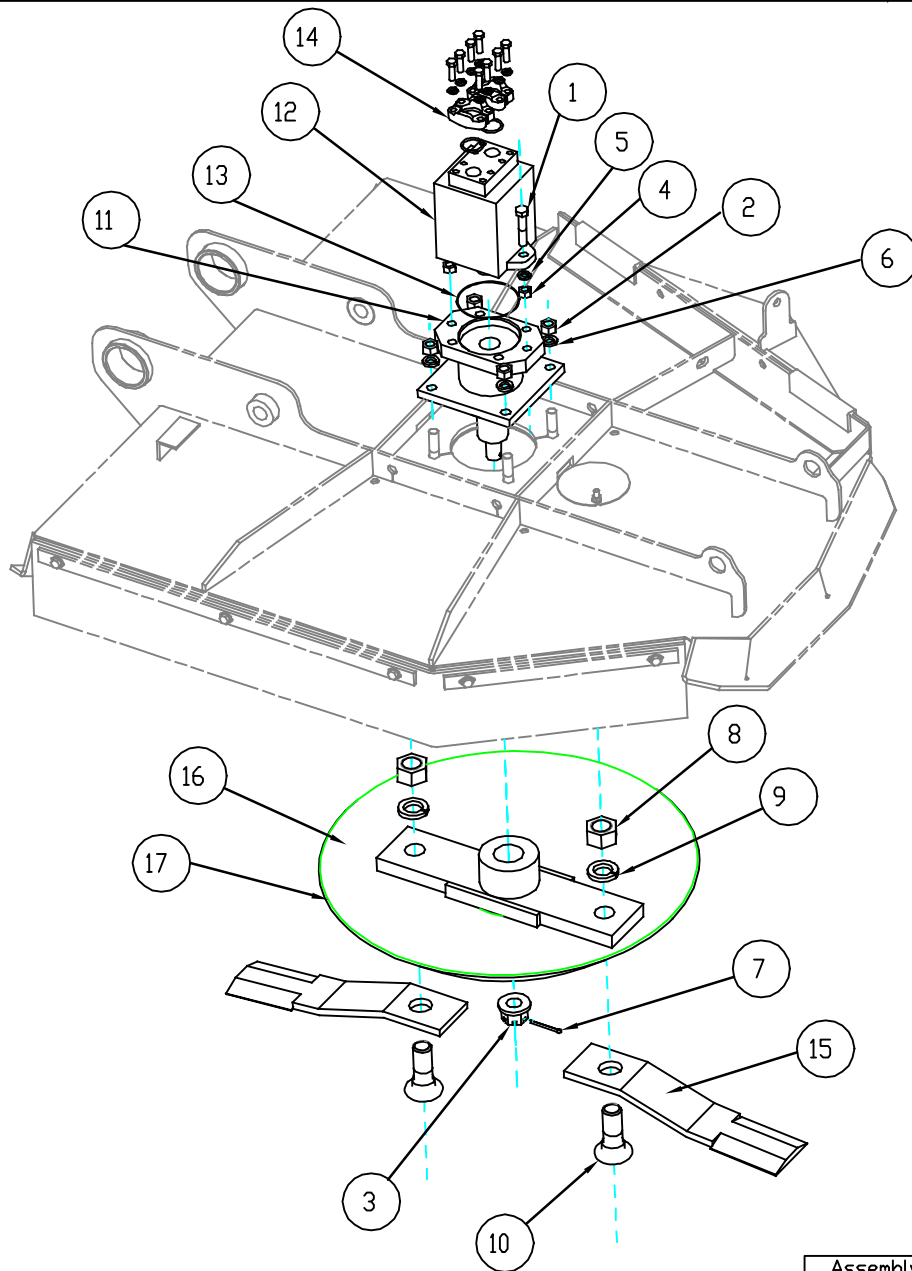
Never leave driveshaft hanging down and touching the ground.

10601 Driveshaft



Key #	Part No.	Description	Key #	Part No.	Description
301	15579	Push pin complete	305	11443	Yoke, Imp end
302	11441	Yoke, Tractor end	306	15804	Shield bearing
303	11200	Cross kit	307	15805	Shield bearing
304	11200	Cross kit	308	11448	Shield kit complete





DWG. NO.	24420		REV.		IR
REV	CHANGE		BY	DATE	ECN
IR	INITIAL RELEASE		R.T.N.	1/27/06	---

Motor & Blade Holder

Item	Part Number	Qty.	Description
1	10074	2	Hex Bolt 1/2 x 2-1/2 gr.5 plated
2	10166	4	Lock Nut 5/8 plated
3	10173	1	Castle Flange Nut
4	10176	6	1/2" Locknut (Gr.5 Plated)
5	10184	2	Lockwasher 1/2 plated
6	10185	4	Lockwasher 5/8" Plated
7	10252	1	Cotter Pin 3/16" X 2" Plated
8	10311	2	Blade Bolt Nut
9	10312	2	Blade Bolt Lockwasher
10	10313	2	1 1/4" Blade Bolt
11	11846	1	Hydraulic Motor Housing Assembly
12	11847	1	Hydraulic Vane Motor
13	11848	1	O-Ring
14	11877	2	Pressure Flange Set (#16 Cd. 61)
15	15237	2	Blade
16	22810	1	Blade Holder Assembly
17	23323	1	Blade Holder Weldment

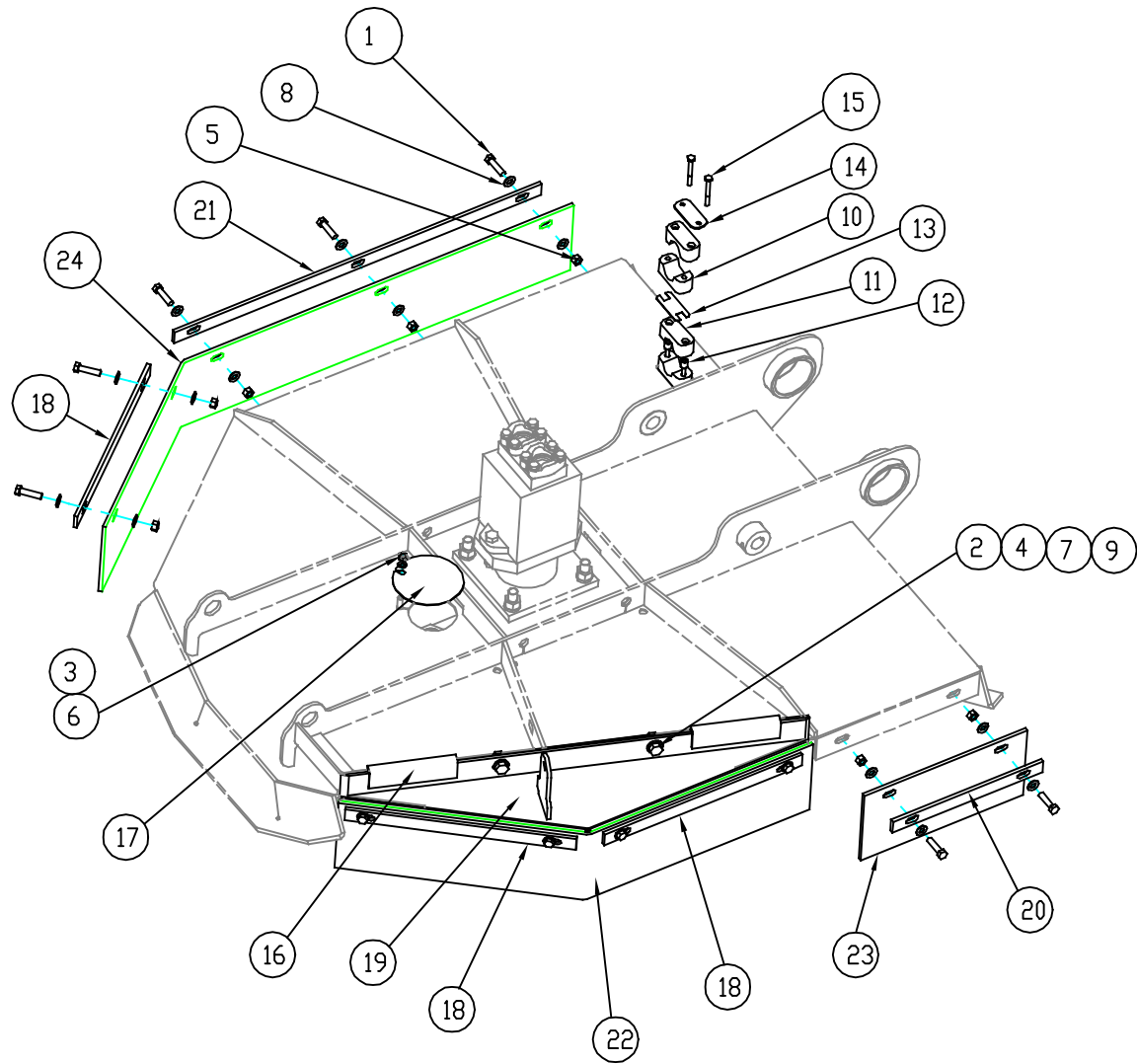
MODELED BY	R.T.N.	1/24/06	EVH MFG. CO. LORIS S.C.	
DRAWN BY	R.T.N.	1/27/06		
MATERIAL		R.M.N.	DESCRIPTION	SHEET 1 of 6
		N/A	MR1442 Boom Mower Assembly	
Manufactured By: EVH Mfg. Co. LLC		DO NOT SCALE	DWG. NO.	24420

Assembly Weight Lbs.	
All Dimensions in Inches Unless Otherwise Specified Dimensions in [] are in Millimeters	
Tolerance Unless Otherwise Specified Fractional Dimensions $\pm 1/16"$ Decimal Dim. to Limits Shown	
Angular Dimensions $\pm 1^\circ$ All Holes to be $+0 -1/32"$	

DWG. NO.	24420		REV. IR	
REV	CHANGE	BY	DATE	ECN
IR	INITIAL RELEASE	R.T.N.	1/27/06	---

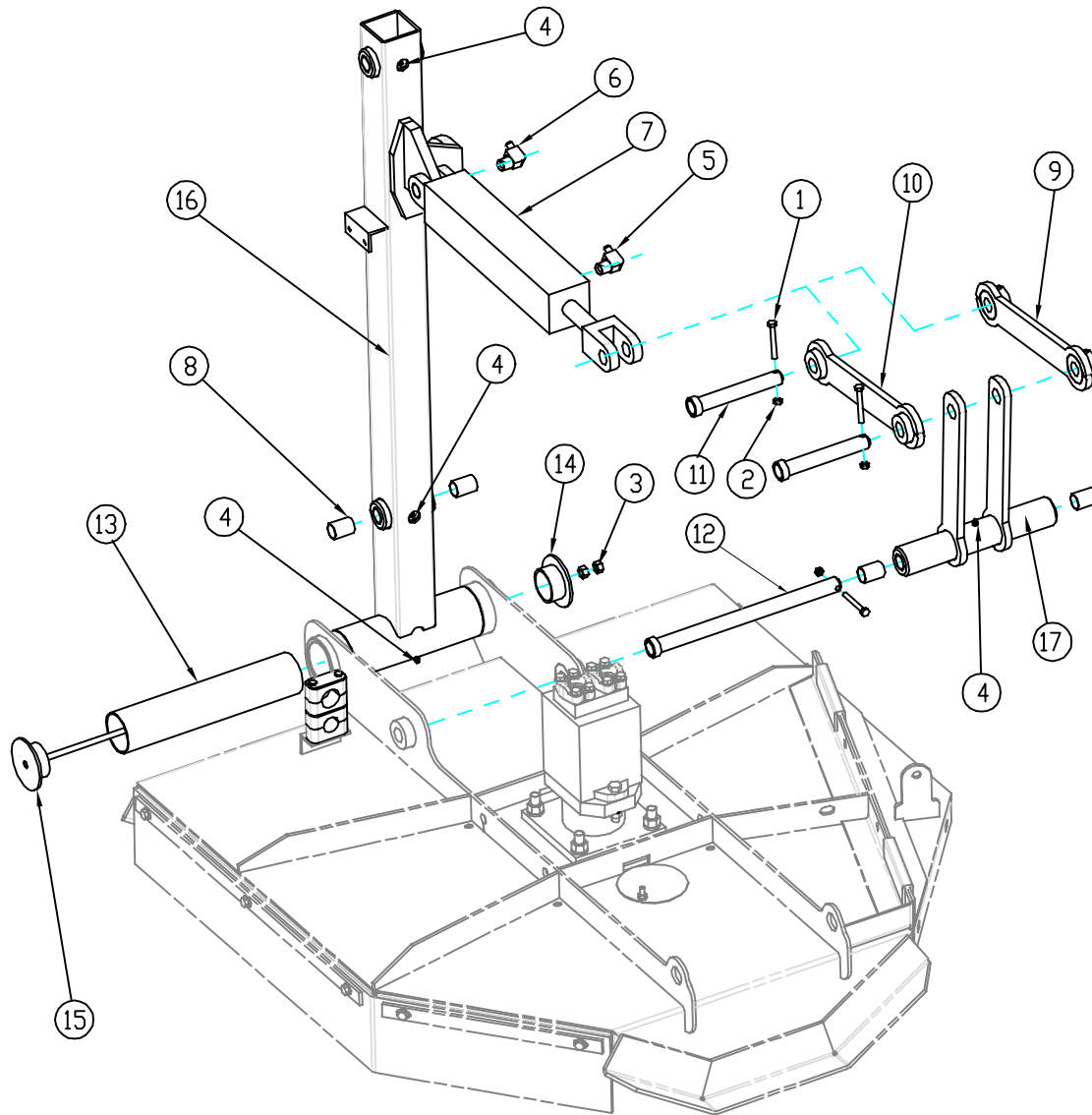
Belting & Hinge Gate

Item	Part Number	Qty.	Description
1	10032	11	Hex Bolt 3/8 x 1-1/2 gr.5 plated
2	10071	2	Hex Bolt 1/2 x 1 gr.5 plated
3	10154	1	Lock Nut 5/16" Plated
4	10164	2	1/2" Hex Nut (Gr.5 Plated)
5	10175	11	3/8" Locknut (Gr.5 Plated)
6	10181	1	Lockwasher 5/16" plated
7	10184	4	Lockwasher 1/2 plated
8	10202	22	3/8" Flatwasher (Plated)
9	10204	6	1/2 Flatwasher (Plated)
10	15251	2	1" Hose Clamp Half
11	15252	2	3/4" Hose Clamp Half
12	15253	2	Hose Clamp Stack Bolts
13	15254	1	Hose Clamp Safety Plate
14	15255	1	Hose Clamp Cover Plate
15	15256	2	Hex Bolt (1/4" X 2-3/8" Gr. 5 Plated)
16	16163	2	Butt Hinge
17	22898	1	Access Cover
18	22902	3	Rubber Shield Flat
19	24430	1	Hinge Gate Weldment
20	24466	1	Rubber Shield Left-Short Flat
21	24467	1	Rubber Shield Right Flat
22	24468	1	Deck Hinge Shielding
23	24469	1	Rubber Short Shielding
24	24470	1	Rubber Right Shielding



Assembly Weight Lbs.	
All Dimensions in Inches Unless Otherwise Specified	
Dimensions in [] are in Millimeters	
Tolerance Unless Otherwise Specified	
Fractional Dimensions ± 1/16"	Angular Dimensions ± 1°
Decimal Dim. to Limits Shown	All Holes to be +0 -1/32"

MODELED BY	R.T.N.	1/24/06	EVH MFG. CO. LORIS S.C.	
DRAWN BY	R.T.N.	1/27/06		
MATERIAL		R.M.N. N/A	DESCRIPTION	SHEET 2 of 6
Manufactured By: EVH Mfg. Co. LLC			MR1442 Boom Mower Assembly	
DO NOT SCALE	DWG. NO.	24420		



DWG. NO.	24420			REV.	IR
REV	CHANGE	BY	DATE	ECN	
IR	INITIAL RELEASE	R.T.N.	1/27/06	---	

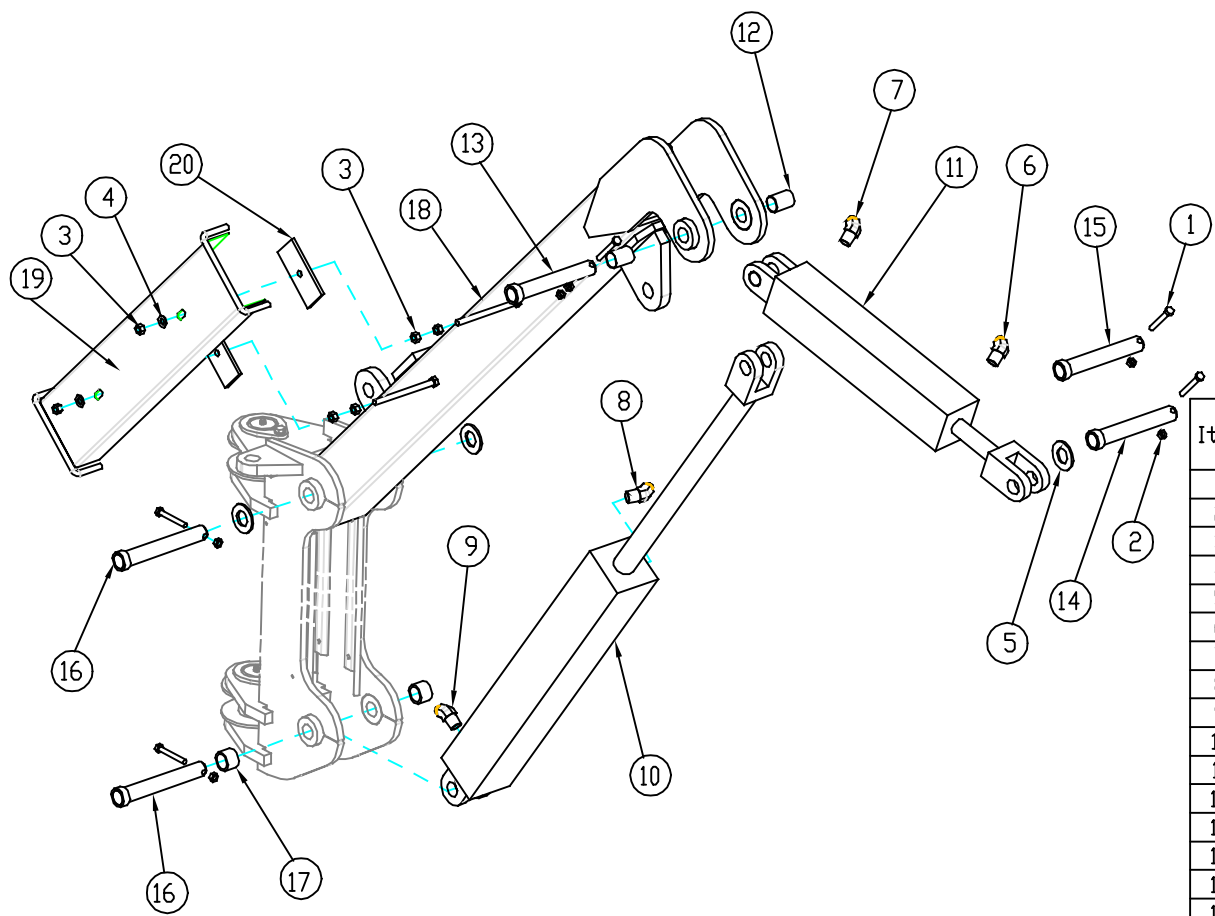
Second Stage Boom

Item	Part Number	Qty.	Description
1	10020	3	Hex Bolt 5/16" X 2 1/2" gr.5 Plated
2	10154	4	Lock Nut 5/16" Plated
3	10196	2	7/16" Locknut (Gr. 5 Plated)
4	10322	4	1/4" Grease Fitting
5	13914	1	6-M-NPT x 6-M-JIC 90 Deg. Elbow
6	13914	1	6-M-NPT x 6-M-JIC 90 Deg. Elbow w/orifice
7	16141	1	3" Cylinder (24 1/4" to 38 1/4")
8	15838	4	Bearing
9	22880	1	Linkage Weldment (with holes)
10	22881	1	Linkage Weldment (without holes)
11	22884	3	Pin Weldment
12	22917	1	Pin Weldment (14-3/4")
13	23130	1	Pivot Sleeve
14	23131	1	End Cap Weldment
15	23345	1	Head Mounting Bracket Weldment
16	24450	1	Second Stage Boom Weldment
17	24460	1	Deck Clevis Weldment

MODELED BY	R.T.N.	1/24/06	EVH MFG. CO. LORIS S.C.	
DRAWN BY	R.T.N.	1/27/06		
MATERIAL		R.M.N. N/A	DESCRIPTION	SHEET 3 of 6
Manufactured By: EVH Mfg. Co. LLC			MR1442 Boom Mower Assembly	
DO NOT SCALE	DWG. NO.	A	24420	

Assembly Weight Lbs.	
All Dimensions in Inches Unless Otherwise Specified Dimensions in [] are in Millimeters	
Tolerance Unless Otherwise Specified	
Fractional Dimensions $\pm 1/16"$	Angular Dimensions $\pm 1^\circ$
Decimal Dim. to Limits Shown	All Holes to be $+0 -1/32"$

DWG. NO.	24420			REV.	IR
REV	CHANGE	BY	DATE	ECN	
IR	INITIAL RELEASE	R.T.N.	1/27/06	---	

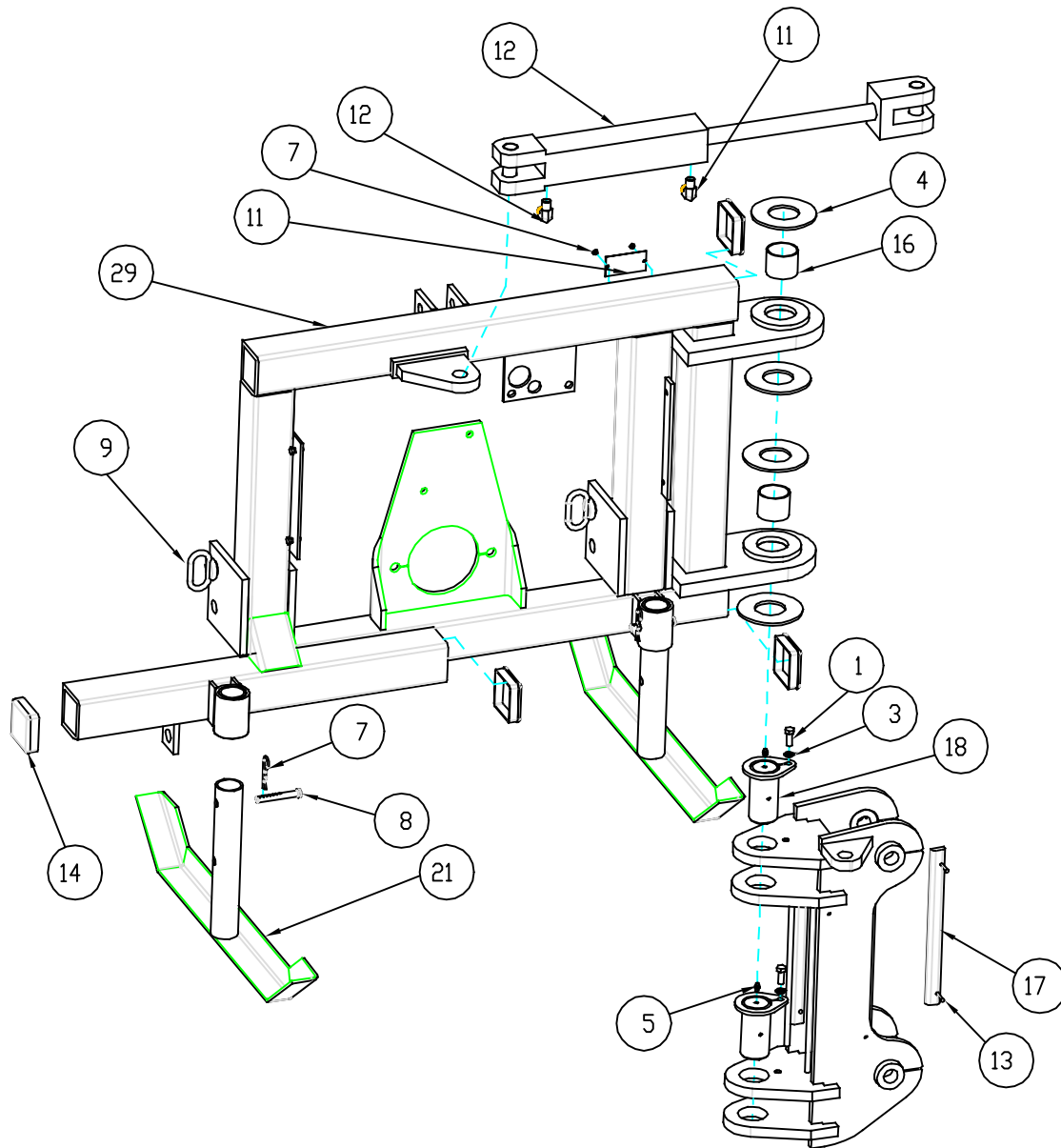


First Stage Boom

Item	Part Number	Qty.	Description
1	10020	5	Hex Bolt 5/16" X 2 1/2" gr.5 Plated
2	10154	6	Lock Nut 5/16" Plated
3	10175	6	3/8" Locknut (Gr.5 Plated)
4	10202	2	3/8" Flatwasher (Plated)
5	10207	7	Flatwasher, 1" plated
6	11872	1	6-M-NPT x 6-M-JIC 90 Deg. Elbow
7	25553	1	6-M-NPT x 6-M-JIC 90 Deg. Elbow w/orifice
8	13905	1	6-M-JIC X 8-M-NPT 90 Deg. Elbow
9	13906	1	6-M-JIC X 8-M-NPT 90 Deg. Elbow w/orifice
10	15833	1	3 1/2" Cylinder X 22" Stroke
11	16158	1	3" x 16"-Stroke Cylinder
12	15838	4	Bearing
13	22884	1	Pin Weldment
14	22887	1	Pin (8-3/8")
15	22895	1	Pin (9-1/4")
16	22896	2	Pin Weldment (7-3/8")
17	23373	2	Spacer (1" SCH40 Pipe X 15/16")
18	24445	1	First Stage Boom Weldment
19	24448	1	Hose Guard Weldment
20	24478	2	Hose Guard

MODELED BY	R.T.N.	1/24/06	EVH MFG. CO. LORIS S.C.		
DRAWN BY	R.T.N.	1/27/06			
MATERIAL		R.M.N.	DESCRIPTION		
		N/A	MR1442 Boom Mower Assembly		
Manufactured By: EVH Mfg. Co. LLC			DO NOT SCALE	A DWG. SIZE	DWG. NO. 24420

All Dimensions in Inches Unless Otherwise Specified
Dimensions in [] are in Millimeters
Tolerance Unless Otherwise Specified
Fractional Dimensions ± 1/16"
Decimal Dim. to Limits Shown
Angular Dimensions ± 1°
All Holes to be +0 -1/32"



DWG. NO.	24420			REV.	IR
REV	CHANGE	BY	DATE	ECN	
IR	INITIAL RELEASE	R.T.N.	1/27/06	---	

Hitch Frame & Swivel

Item	Part Number	Qty.	Description
1	10031	2	Hex Bolt 3/8 x 1 gr.5 plated
2	10153	2	Lock Nut, 1/4\" Plated
3	10182	2	Lockwasher 3/8 plated
4	10216	4	2\" Type A Plain Washer
5	10322	2	1/4\" Grease Fitting
6	10339	2	Rivet For Serial Number Plate
7	10390	4	Clip Pin (1/8 x 2)
8	10393	2	Universal Clevis Pin
9	10469	2	Hitch Pin
10	11727	1	Serial Number Plate
11	11872	1	6-M-NPT X 6-M-JIC 90 Deg. Elbow
12	25553	1	6-M-NPT X 6-M-JIC 90 Deg. Elbow w/Drifce
13	11882	6	3/16\" X 1.072\" Pop Rivet
14	15465	6	Tubing Insert, 3\" Sqr. X 5-8 Gage
15	15836	1	2 1/2\" Cylinder X 10\" Stroke
16	15839	2	2\" X 1-3/4\" Bearing
17	22842	4	Hose Wear Guard For LR40142
18	22888	2	Pin Weldment (2\" Dia.)
19	24435	1	Weldment, Hitch Frame MR1442
20	24442	1	Weldment, Swing Arm MR1442
21	24485	2	Weldment, Stand - Angle Foot

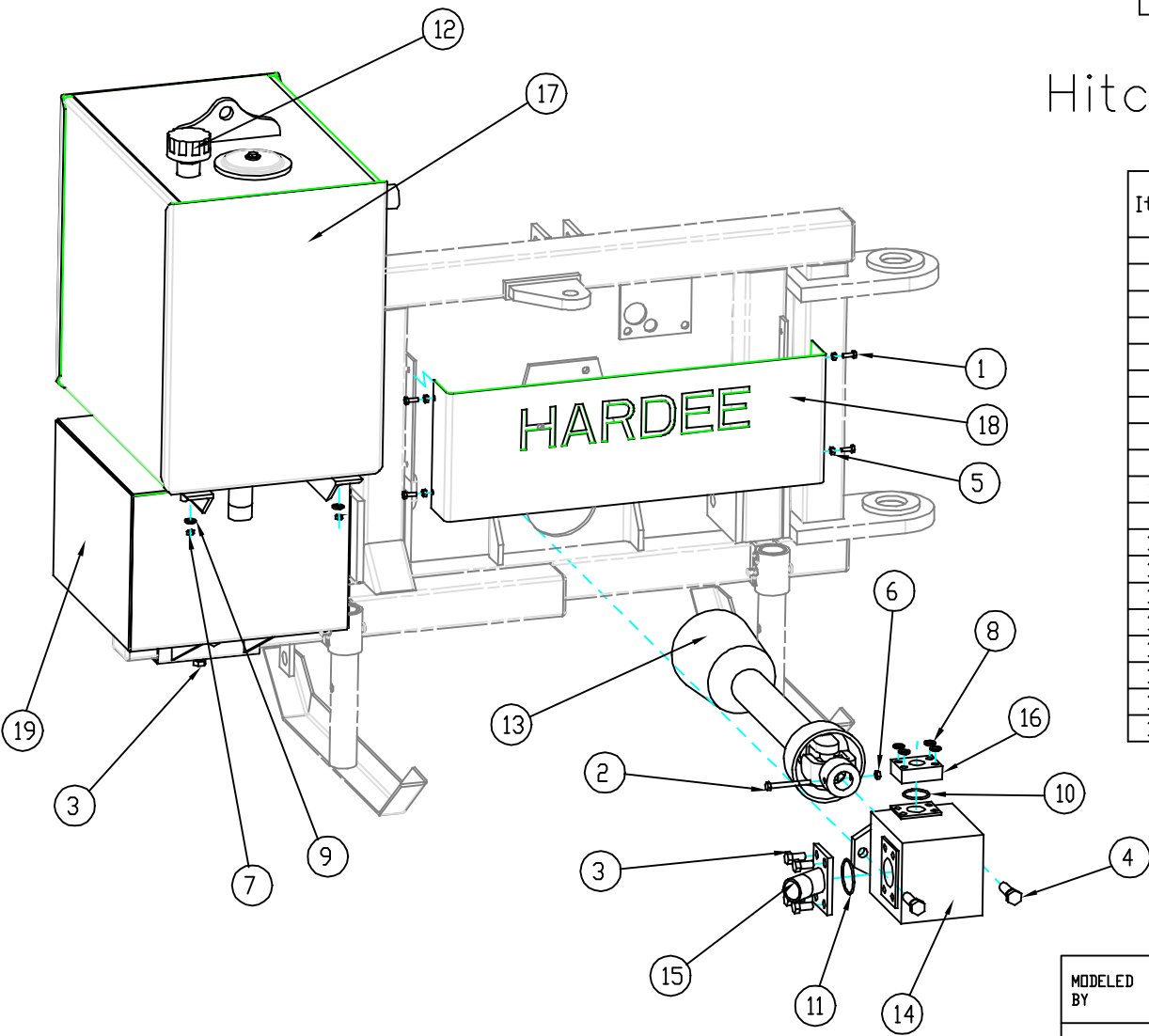
MODELED BY	1 R.T.N.	1/24/06	EVH MFG. CO. LORIS S.C.	
DRAWN BY	R.T.N.	1/27/06		
MATERIAL		R.M.N. N/A	DESCRIPTION	SHEET 5 of 6
Manufactured By: EVH Mfg. Co. LLC			MR1442 Boom Mower Assembly	
DO NOT SCALE	DWG. NO.	24420		

Assembly Weight Lbs.	
All Dimensions in Inches Unless Otherwise Specified Dimensions in [] are in Millimeters	
Tolerance Unless Otherwise Specified	
Fractional Dimensions $\pm 1/16$ "	Angular Dimensions $\pm 1^\circ$
Decimal Dim. to Limits Shown	All Holes to be $+0 -1/32$ "

DWG. NO.	24420		REV.	IR	
REV	CHANGE		BY	DATE	ECN
IR	INITIAL RELEASE		R.T.N.	1/27/06	---

Hitch Frame Components

Item	Part Number	Qty.	Description
1	10001	4	Hex Bolt, 1/4" X 3/4" Gr.5 Plated
2	10021	1	Hex Bolt 5/16" X 3" gr.5 Plated
3	10071	4	Hex Bolt 1/2 x 1 gr.5 plated
4	10092	2	Hex Bolt 5/8 x 2 gr.5 plated
5	10153	4	Lock Nut, 1/4" Plated
6	10154	1	Lock Nut 5/16" Plated
7	10176	4	1/2" Locknut (Gr.5 Plated)
8	10183	4	Lockwasher 7/16 plated
9	10204	4	1/2 Flatwasher (Plated)
10	10386	1	O-ring
11	10387	1	O-ring
12	10501	1	Breather / Dipstick
13	10601	1	Driveshaft
14	11775	1	Hydraulic Pump
15	22833	1	LR40142 Fluid Connector Weldment
16	23136	1	Pressure Flange
17	23335	1	Weldment, Oil Tank
18	24471	1	Cover, Pump MR1442
19	24475	1	Weldment, Weight Box MR1442

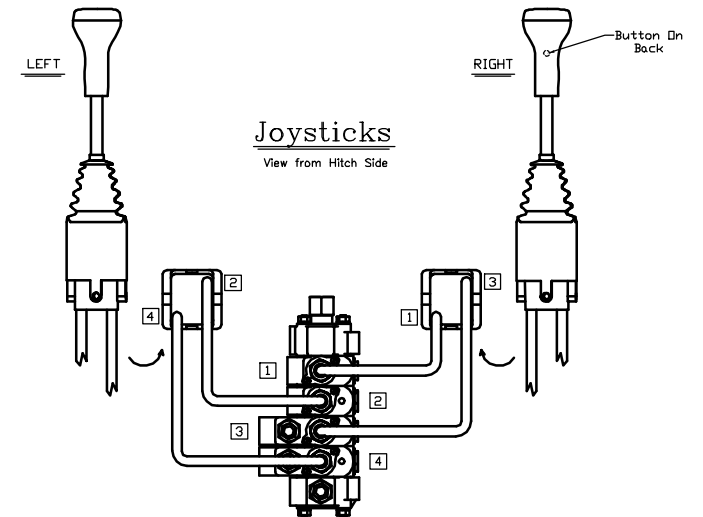
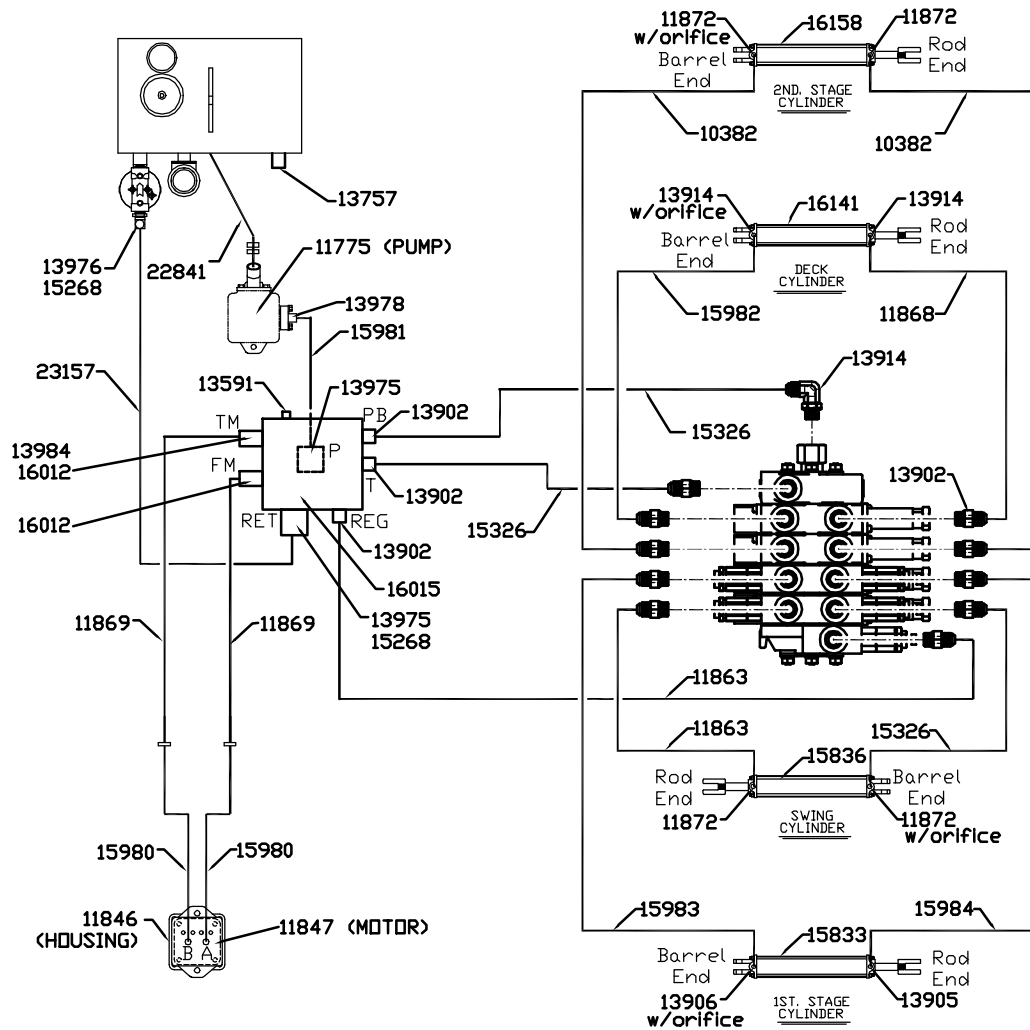


BY		R.T.N.	1/27/06	DESCRIPTION		SHEET 6 of 6	
MATERIAL		R.M.N.		MR1442 Boom Mower Assembly			
		N/A					
Manufactured By:		EVH Mfg. Co. LLC		DO NOT SCALE	A	DWG. NO.	24420
					DWG SIZE		

All Dimensions in Inches Unless Otherwise Specified	
Dimensions in [] are in Millimeters	
Tolerance Unless Otherwise Specified	
Fractional Dimensions ± 1/16"	Angular Dimensions ± 1°
Decimal Dim. to Limits Shown	All Holes to be +0 -1/32"

Assembly Weight Lbs.	
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CYLINDER AND VALVE SCHEMATIC FOR MR1442



NOTES:

Warranty

LIMITED WARRANTY

This is to certify that EVH Manufacturing Company warrants this new implement to be free of defects in material and workmanship under normal use and service for a period of 12 months for Standard Use and 90 days for Commercial Use from the original date of delivery to the original purchaser with exceptions of items listed below.

Parts Warranted	Duration
Gearboxes (STANDARD USE)	3 Years from date of delivery
Hydraulic Pump & Motor (STANDARD USE)	3 Years from date of delivery
Gearboxes (COMMERCIAL USE)	90 Days from date of delivery
Hydraulic Pump & Motor (COMMERCIAL USE)	90 Days from date of delivery

Our obligation under this warranty shall be limited to repair or replacement of any part or parts of this implement which in our judgment shows evidence of such defect and provided further that said part or parts shall be removed and returned by the owner at the owner's expense to EVH Manufacturing Company, Loris, SC, through an authorized dealer, transportation prepaid, free and clear of liens or encumbrances. **This warranty shall not include normal wear items.**

Changes or alterations to the implement made without the written authorization of the manufacturer will render this warranty void.

This warranty does not obligate this company to bear any labor costs in replacement of defective parts.

EVH Manufacturing Company reserves the right to make changes or improvements in its equipment at any time, with the express understanding that such changes or improvements do not impose any obligation of the company to install such changes or improvements on implements previously manufactured.

This warranty is void unless registration card is returned to us within thirty (30) days of date of purchase.

EVH Manufacturing Company



EVH MANUFACTURING COMPANY, LLC
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PHONE: 843-756-2555
WWW.HARDEEBYEVH.COM EVHMFG@HARDEEBYEVH.COM