

Table of Contents

1	SAFETY
2	PERIODIC INSPECTION LIST
3	OPERATION OF UNIT
4	RADIO REMOTE CONTROL
5	ACCESSORIES Pole Claws Bucket Hanger Can Handler Material Handling Jib Includes Installation Photos





Limited Warranty

On machines manufactured after July 1, 2010

Skylift, Inc. provides a **ONE (1) year** limited warranty on the entire machine.

Skylift, Inc. provides a **TWO (2) year** limited warranty on Skylift manufactured components.
(Parts built and manufactured by Skylift only)

Products designed and manufactured by Skylift, Incorporated, are warranted to be free from defects in material and workmanship at the time of initial delivery subject to the following provisions:

1. For **one (1) year** following initial delivery of the product, Skylift will, at its option, repair or replace any part found by Skylift to be defective in material or workmanship. The customer is obligated to contact Skylift, Inc. prior to any work being performed on equipment. A completed Skylift Warranty Claim Form is required within thirty (30) days of the date of failure of any warranted part. Skylift will inspect defective parts for approval prior to issuing credit to the customer. Defective parts shall be shipped to the factory pre-paid motor freight or UPS within 30 days of failure of any warranted part is factory requests return of said parts.
2. The Skylift limited warranty does not cover: (a) products which have not been operated and maintained in accordance with Skylift operators and maintenance schedules, programs, or bulletins; (b) products which have not been mounted in accordance with Skylift installation procedures; (c) products not manufactured by Skylift which are supplied by Skylift (d) products which are repaired without using original Skylift parts; or (e) transportation or delivery to a Skylift service facility or the customer's location.
3. The battery, generator, hydraulic components, electrical components, drive motors, and or other parts/equipment, but not limited to, not manufactured by Skylift is subject to warranty guidelines set forth by the respective manufacturers and their allowed warranty period. Such warranties shall be handled direct through the respective manufacturer or one of its distributors.

This warranty is in lieu of any other warranties, express or implied. There is no warranty of merchantability or fitness for a particular purpose, nor is there any other warranty, express or implied, except as specifically stated herein. No associate, agent or representative of Skylift is authorized to extend any warranty on Skylift's behalf. Skylift shall in no event be liable for any special, indirect, or consequential damages or claims of any third party against the Customer.

WARRANTY CLAIMS will NOT be processed unless there has been prior approval from the factory for the repair work that is to be performed. (This excludes travel time and or mileage which is NOT allowed or covered under the Skylift Limited Warranty.) NO EXCEPTIONS will be made.



Warranty Registration Pre-Delivery Inspection Form

IMPORTANT UNIT WARRANTY INFORMATION

Please note that the 12 month warranty period on your new SKYLIFT unit begins at the unit delivery date at your facility.

In order to insure the correct processing of any warranty claim, it is important that this page be filled out and returned to SKYLIFT, INC. at the address given below within ten (10) days of the delivery date of the equipment.

Fill out form and return to: SKYLIFT, INC.
ATTN: Susan Naso
3000 LEAVITT RD. UNIT 6,
LORAIN, OH 44052

Phone: 440-960-2100
Fax: 440-960-2104

Skylift Model Name: _____

Skylift Serial Number: _____

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Name: _____

Phone Number: _____ Fax Number: _____

Email Address: _____

Date Delivered to Customer: _____

WARRANTY GUIDELINES / INSTRUCTIONS

WARRANTY CLAIMS will NOT be processed unless there has been prior approval from the factory for the repair work that is to be performed. No exceptions!
Call: (440) 960-2100

All warranties are *pending approval of inspected parts* if there are circumstances where replacement parts are provided by Skylift.

Today's Date: _____

- Step 1. Report issue to Skylift's warranty department. Call 440-960-2100 or Email: susan@skyliftus.com
- Step 2. Provide the Skylift serial number of the equipment. _____
- Step 3. Provide pictures if requested by Skylift. Email: susan@skyliftus.com
- Step 4. Provide purchase order number for the request of parts if warranty is pending approval of inspected parts. _____

- Step 5. Provide billing address:
 - Company Name: _____
 - Contact Person: _____ Phone No.: _____
 - Address: _____
 - Email: _____

- Step 6. Provide information of the company that will perform the repairs if other than the reporting customer above.
 - Company Name: _____
 - Contact Person: _____ Phone No.: _____
 - Address: _____
 - Email: _____

- Step 7. Provide shipping information:
 - Company Name: _____
 - Contact Person: _____ Phone No.: _____
 - Address: _____

- Step 8. Fill out this instruction form and the warranty claim form provided below in its entirety. On the warranty claim form include a complete breakdown of the estimate of repairs. Claim must be broken down into a detail of each charge requested under warranty. Travel or mileage will not be covered under the standard warranty.

- Step 9. If an RMA is issued by Skylift for the return of parts please follow the instructions provided and return the parts within 7-10 days for a timely evaluation. If the requested parts are not received by Skylift within 30 days, the customer will be charged in full for all parts and shipping costs pertaining to the request. No exceptions!



Skylift Warranty Department
 FAX: (440) 960-2104
 susan@skyliftus.com

WARRANTY CLAIM FORM

Skylift, Inc.
 3000 Leavitt Rd., Unit 6
 Lorain, OH 44052

Today's Date: _____

Claim, Repair, or Work Order No. _____

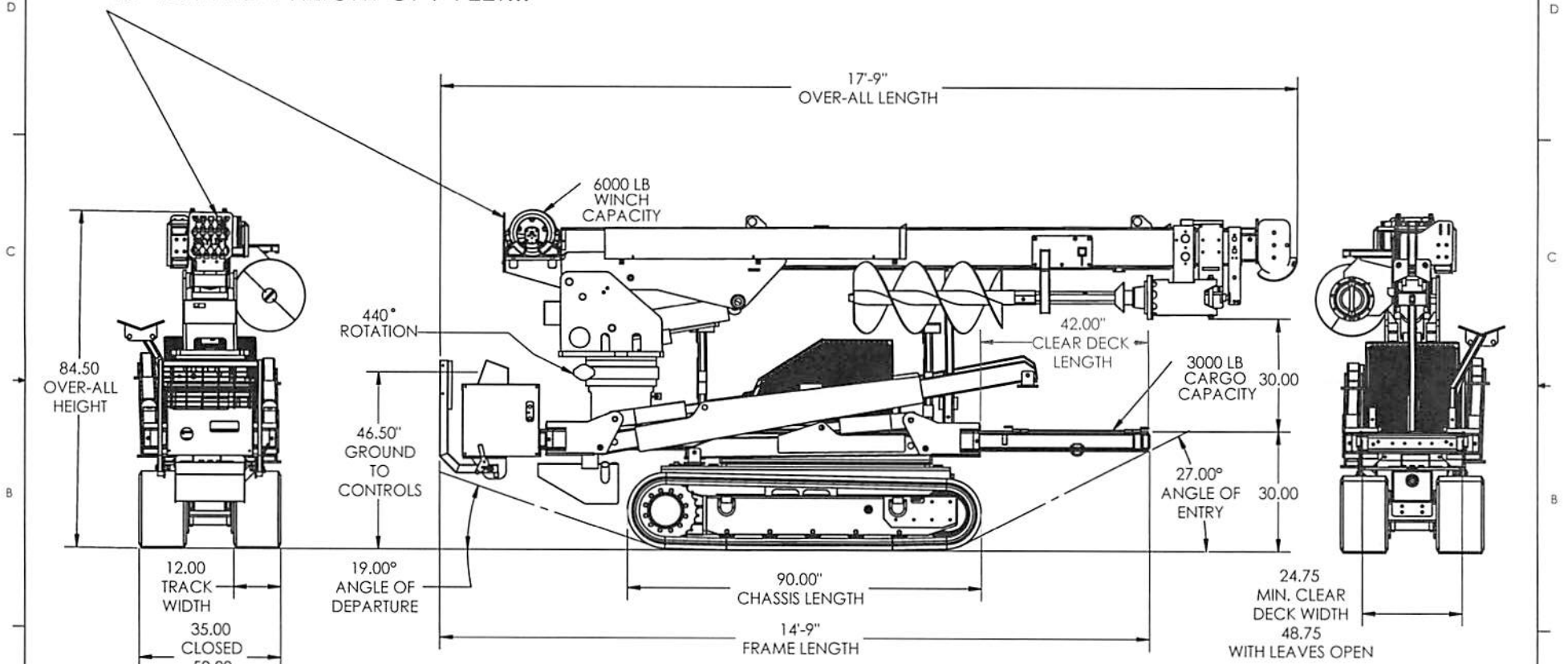
Skylift Model Type		Unit Serial No.	Trailer Serial No.	Hour Meter Reading
Company Name, Address & Contact Person		Phone No.		Fax No.
Detailed Description of Problem(s) and (if known) Cause of Failure				
Labor Rate Per Hour		Total Labor Time	Total Cost of Parts:	
			Total Labor Charge:	
			Other Charges (explain):	
			Sales Tax (if applicable):	
			TOTAL of Claim:	
Claim, Repair, or Work Order No. FOR OFFICE USE ONLY BELOW Notes: _____ _____ _____ _____ _____ _____			Skylift, Inc. Authorization WARRANTY CLAIMS will NOT be processed unless there has been prior approval from the factory for the repair work that is to be performed. Call: (440) 960-2100	

The **NEW SKYLIFT** **MINI-DERRICK SUPER 6000 LOW-PRO** model has a **NEW** capacity chart with ratings in “**ALL**” positions. It is no longer derated over the back of the machine.



8 7 6 5 4 3 2 1

-NEW LOW PROFILE WINCH DESIGN
DECREASING OVER-ALL HEIGHT BY
10" TO A NEW HEIGHT OF 7 FEET!!!

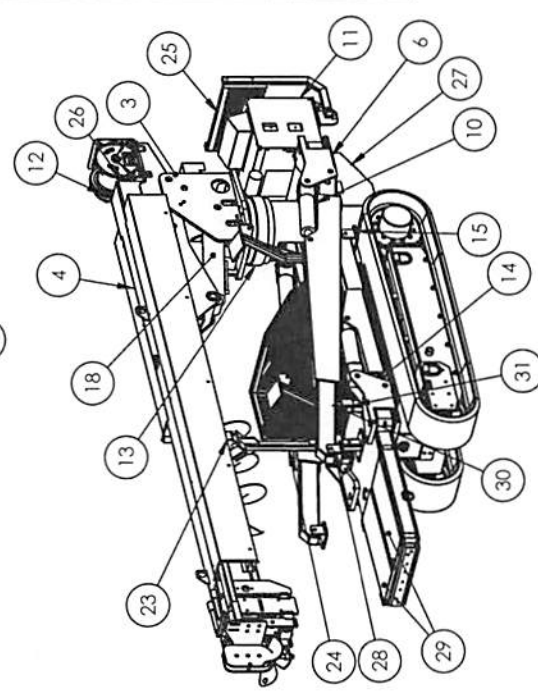
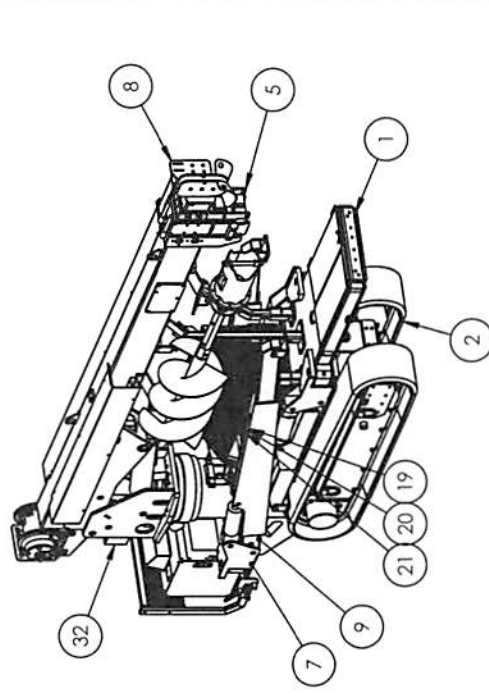


<p>USED ON SUPER 6000</p> <p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <INSERT COMPANY NAME HERE>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <INSERT COMPANY NAME HERE> IS PROHIBITED.</p>			UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	NAME	DATE	<p>TITLE: SUPER 6000 LOW PRO</p>
			MATERIAL SEE BOM	DRAWN KLB	6/14/12		SIZE B SCALE: 1:24
	NEXT ASSY	USED ON	INTERPRET GEOMETRIC TOLERANCING PER:	ENGINE APPR.		DWG. NO.
	APPLICATION		FINISH	MFG APPR.		REV
			DO NOT SCALE DRAWING	Q.A.		WEIGHT:
				COMMENTS:		SHEET 1 OF 2

8 7 6 5 4 3 2 1

1 2 3 4 5 6 7 8

ITEM NO.	Default/Qty.	PART NUMBER	DESCRIPTION
1	1	3501	SUPER 6000 SLAB WELDMENT
2	1	01250800	90° CHASSIS
3	1	2218	TURRET ASSY. MACHINED
4	1	2118	MAIN BOOM ASSEMBLY
5	1	2156	RANGER SECONDARY BOOM ASSEMBLY
6	2	2196	OUTRIGGER SOCKET, RH
7	2	2197	OUTRIGGER SOCKET, LH
8	1	50-700	INSULATED BOOM ASSEMBLY
9	2	3529	OUTRIGGER LEG, REAR
10	4	500-351600D	REAR OUTRIGGER CYL. BODY
11	1	3117	M.I.D. VALVE FRAME W/ COVERS AND GAUGE BOX
12	1	1H2	Winch Assembly
13	1	WD-L 0343-3-04557	IMO GEAR ASSEMBLY
14	2	3530	OUTRIGGER LEG, FRONT
15	4	2377	OUTRIGGER FOOT
16	1	2265	AUGER SWING HANGER MAIN ASSY
17	1	2168	AUGER STOW BRACKET
18	1	500-501750D	LIFT CYLINDER
19	1	KUBOTA D1105-T	TURBO DIESEL ENGINE
20	1	HONDA TO PRINCE OIL PUMP ADAPTER	ADAPTER
21	1	PRINCE SP20 HYD PUMP	HYDRAULIC PUMP
22	1	4532	ENGINE GUARD FRAME
23	1	2139	BOOM STOW BRACKET
24	1	3525	SUPER 5000 BOOM STOW ASSEMBLY
25	1	200-8100	OPERATOR PLATFORM
26	1	2115	MAIN BOOM REAR TUBE CAP
27	1	3140	WHEELED FUEL TANK ASSY
28	2	3545	BED EXTENSION ASSY
29	2	3545	POLE CARRIER
30	2	3414	POLE CARRIER SOCKET ASSEMBLY
31	4	3026	REAR TURRET COVER 5000
32	1	3534	BACK COVER, VALVE FRAME
34	1	3541	WINCH GUARD, TC2
35	1	3092	CATRACK COVER LARGE
36	1	2091	SMALL CATRACK COVER
37	1	2092	AUGER CATRACK TUBE ASSEMBLY
38	1	2147	CATRACK TUBE ASSEMBLY
39	1	2141	BRACKET, TRACK VALVE FITTING PROTECTOR
40	1	3597	ANTI ROTATION FORK
41	1	3598	ANTI ROTATION FORK EXTENSION BRACKET
42	1	3598	BRACKET, ROTATION STOP FORK
43	1	3589	HFBOLT 1/2"-13X2-1/2X1-1/4-N
44	1		SUPER 6000 AND RANGER BOOM FOR REAR MOUNTED WINCH
45	2	HFBOLT 0.25-28x0.5x0.5-N	
46	1	3630	

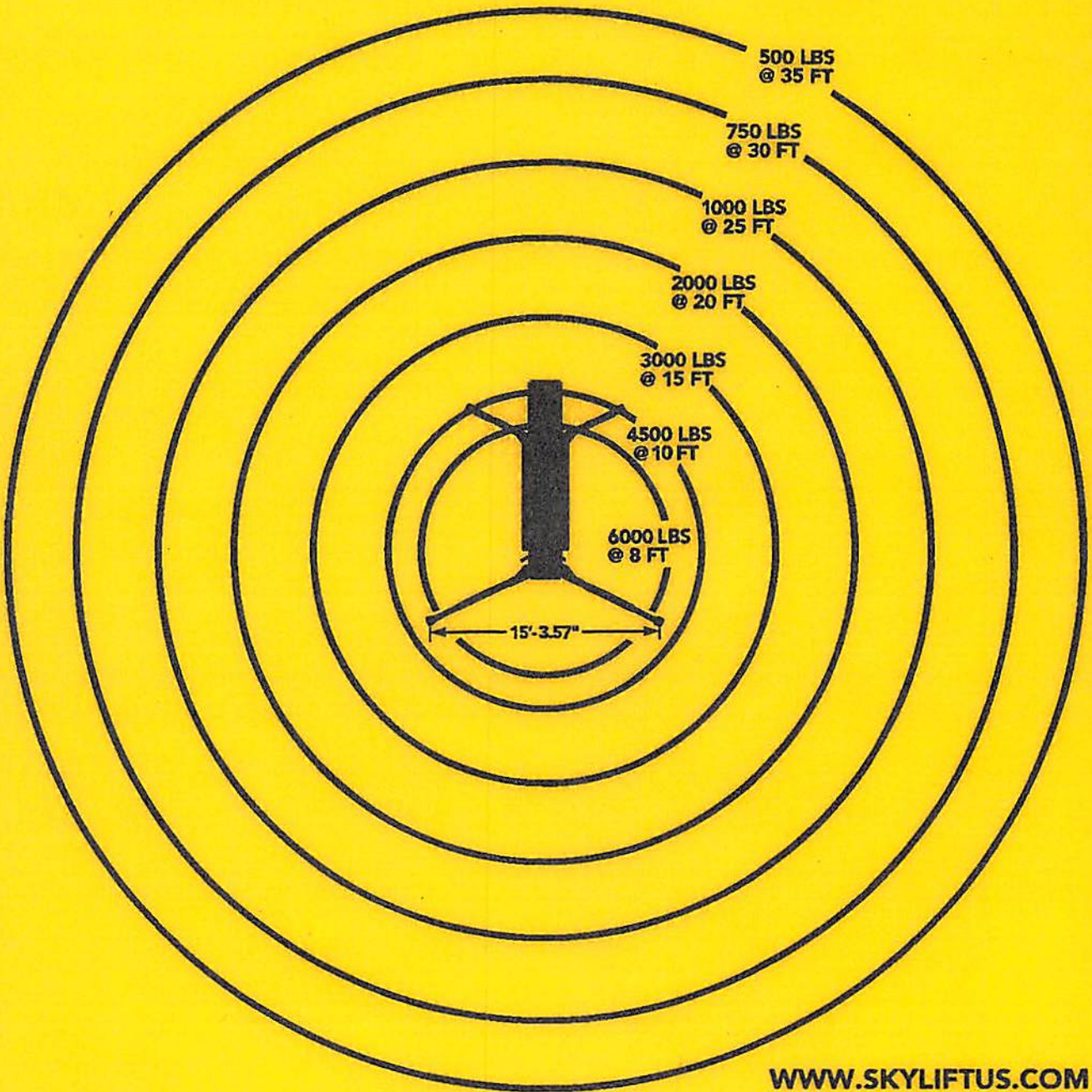


NAME	DATE
KLB	6/14/12
DRAWN	CHECKED
ENG APPR.	ENG APPR.
MFG APPR.	MFG APPR.
G.A.	G.A.
COMMENTS:	
SEE BOM	
FINISH	DO NOT SCALE DRAWING
APPLICATION	
USED ON	
SUPER 6000	
<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SUPER 6000. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR THE REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SUPER 6000. COMPANY NAME HERE'S E PROHIBITED.</p>	
TITLE:	REV
SUPER 6000	B
LOW PRO	SIZE / DWG. NO.
SCALE: 1:12	WEIGHT:
SHEET 2 OF 2	

A B C D

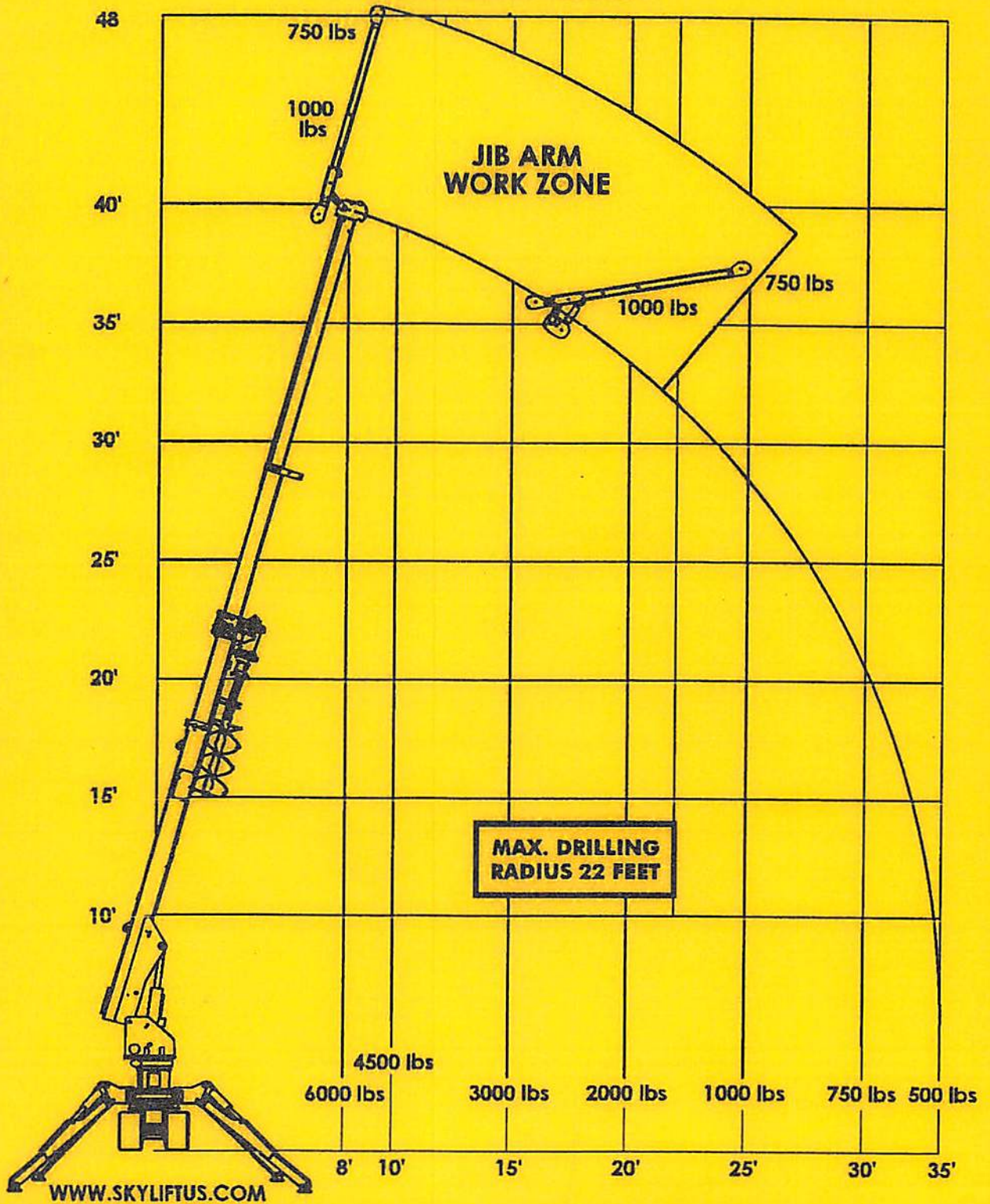
MINI-DERRICK *S-6000* LOW PRO

OVERHEAD WORK LOAD AREA



MINI-DERRICK S-6000 LOW PRO

WORK LOAD CHART



Winch Line Specs
Can Handler
Only

MFG: Cortland Puget Sound
3/8" dia X 60 ft.

Parts Ordering:
Skylift, Inc.

Call: (440) 960-2100
Part No. ROPE-102

CAN HANDLER WORK LOAD CHART RANGER & SUPER 6000



CHAPTER

1

SAFETY

The Mini-Derrick 33 Plus is equipped with accident prevention decals as well as identification decals. If for any reason any decals or signs are missing from the unit, contact Skylift, Inc., or an authorized representative, for replacement.

MACHINE DECAL
PICTURES

! CAUTION !

**KEEP CLEAR 10 FT WHEN
MINI-DERRICK IS IN MOTION**

! WARNING !
**UNIT EQUIPPED WITH OVERLOAD PROTECTION! ELEVATE BOOM
TO MIN. 45 PRIOR TO OPERATION OF BOOM EXTENSIONS**

DOWN	DOWN	DOWN	IN	OUT	OUT	DOWN	DOWN	
REAR JACKS	JIB/POLE GUIDE	AUGER WINCH	BOOM	BOOM 2	BOOM 1	BOOM	FRONT JACKS	HYDRAULIC TOOLS
UP	UP	UP	DOWN	IN	IN	UP	UP	

Pre-
Ready
Off
On
Start

DRIVE
CONTROLS

BOOM
CONTROLS

**BASKET CAPACITY
350 LB. MAX.**

CAUTION

**EXTEND
BOOM 1
MIN. 24" FOR
INSULATION**

PULL OUT
E-STOP FOR
OPERATION

CAUTION

**POLE GUIDE ONLY!
NOT FOR LIFTING**

**AUGER
RELEASE**



← **AUGER
WINCH** →

DIESEL ONLY

GAS ONLY

↓
CLOSE

↑
OPEN

CAUTION

**OUTRIGGERS MUST BE PINNED
FOR BOOM OPERATION!**

**DISCONNECT AUGER
AFTER EACH USE!**

**REMOVE REAR WHEELS
FOR GATES ONLY!**

BEFORE YOU OPERATE

- You must understand all control operations
- You must be a trained operator
- You must know and understand the load diagram and maximum capacity of the personnel bucket

! WARNING !

Outrigger and outrigger pads are included with each machine, and must be used each time the machine is operated! Use the hydraulic outriggers to level the Mini-Derrick 33 Plus.

! WARNING !

Overloading the unit can cause stability problems, resulting in tip-over!

OPERATION NEAR ENERGIZED POWER LINES

The Mini-Derrick 33 Plus uses fiberglass extension booms and components to qualify it as an insulated work platform and digger derrick, per ANSI standards.

! WARNING !

Operator must know and understand the category C insulation factor for which this unit is rated!

! DANGER !

This unit does not provide dielectric protection from contact with, or proximity to, an electrically charged conductor when the operator is in contact with, or proximity to, another conductor or ground source.

DEATH OR SERIOUS INJURY CAN RESULT FROM SUCH CONTACT!

- The fiberglass platform (bucket) does not provide electrical protection to the operator. A bucket liner should be used in conjunction with the bucket to provide some protection to the operator. The platform will not protect the operator(s) against contact between two different phase conductors, or between a single phase conductor and a ground source.
- The fiberglass boom, when extended minimum 24 inches from the intermediate boom, will also protect ground personal should the boom tip or platform come in contact with an energized conductor. However, if a non-insulated boom portion or a poorly maintained fiberglass component comes in contact with an energized conductor, the entire machine may become energized.

! DANGER !

Machine may become energized if a non-insulated boom portion or a poorly maintained fiberglass component comes in contact with an energized conductor. Personnel shall remain clear of the unit any time booms are elevated near energized power lines!

DEATH OR SERIOUS INJURY CAN RESULT FROM SUCH CONTACT!

- Always use radio controls (optional equipment) when operating near energized power lines.
- If unit is not equipped with radio controls, ground operator must use the following precautions:
 1. Stand on a high voltage tested rubber blanket on ground surface or stand on the operator platform which is located at the back of the unit under the control station. (See drawings and decals at end of this chapter)
 2. Use high tested rubber gloves prior to touching any controls.
 3. Use high voltage tested overshoes.
 4. Additional ground personnel near the machine shall wear high voltage tested overshoes when working near energized equipment.

! WARNING !

Operator is required by OSHA to wear approved fall protection system at all times when operating from the personnel platform (bucket).

! WARNING !

Operator should check all boom functions using ground controls and remote radio controls to ensure proper operation prior to entering the bucket!

! WARNING !

Use only the radio controls when in the basket. Ground control station is for emergency lowering only when operator(s) occupies the bucket(s)!

! WARNING !

Test the both the E-stop at the ground control station and the engine stop on the radio remote to ensure proper operation prior to using the machine.

SAFETY

IMPORTANT NOTICE

WINCH ROPE

MAINTENANCE, INSPECTION
AND
REPLACEMENT GUIDELINES

WINCH ROPE

MAINTENANCE, INSPECTION AND, REPLACEMENT GUIDELINES

Continued

Since there are numerous uses for our products, it is impossible to cover all application factors. For a rope manufacturer to give blanket working load recommendation would be like a car manufacturer giving the "safe driving speed" of their car. However, if any of the following adverse conditions exist, we suggest that you use the high end of the safety factor:

- Smaller sized ropes are used (damage occurs more quickly by cuts, abrasion, and sunlight).
- The maximum Loading is not known.
- Dynamic loading is likely to occur.
- The rope is subject to rapid cyclic loading.
- Operators are poorly trained in rope handling
- Rope is not inspected on a regular basis.
- Rope may be exposed to harmful chemicals.
- Rope is used at elevated temperatures or have long term exposure to high temperatures
- Rope is has long term exposure to direct sunlight
- Knots are used in the rope
- Rope will be bent around small radius corners or pulleys.
- Death, injury, or loss of valuable property may result from failure

Rope Inspection

A regular inspection cycle should be established to determine the condition of the rope..

The following conditions should be looked for:

- Kinks or twists
- Heavy chafing or seriously worn surface areas
- Cut, broken or frayed strands (outer and inner strands)
- Surface fusion or melted strands
- Evidence of Chemical exposure
- Compacted or hard areas of rope
- Splice movement

Although visual inspection of your rope can not accurately predict the residual strength, it does indicate problem areas that may need attention. If any of the above conditions exist or you doubt the strength of the rope, an analysis of the safety factor ratio should be conducted.

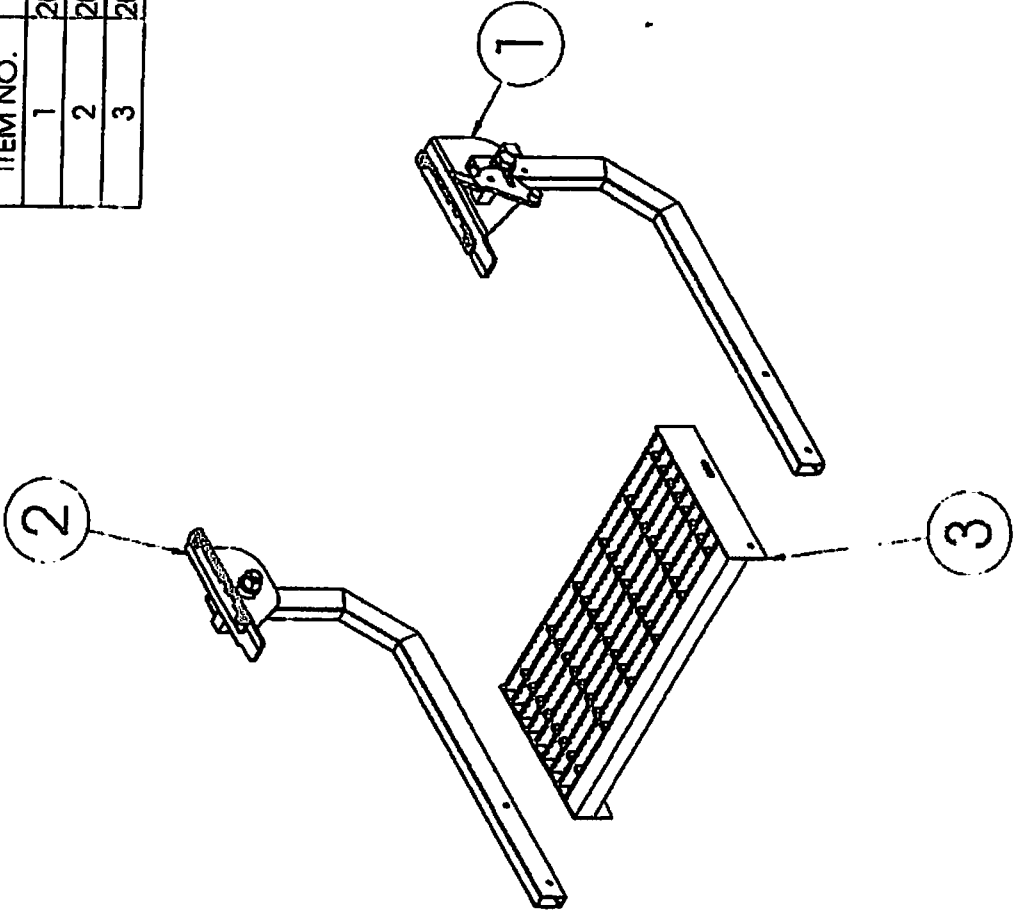
Rope Replacement

For a quote on a replacement of your winch rope,

please call Skylift, Inc at: (440) 960-2100

or email a request to: Susan@skyliftus.com

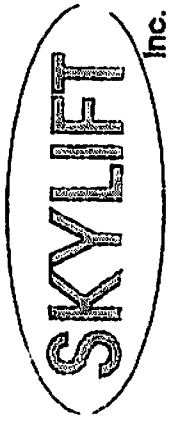
ITEM NO.	PART NUMBER	QTY.
1	200-8190	1
2	200-8191	1
3	200-8101	1



NAME	DATE	TITLE:
DRAWN		
CHECKED		
DWG APPR.		
MFG APPR.		
Q.A.		
COMMENTS:		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN INCHES		
TOLERANCES FRACTIONALS		
ANGULAR: MACH ± .0001 ± .0002		
TWO PLACE DECIMAL ± .005		
THREE PLACE DECIMAL ± .001		
INTERPRET GEOMETRIC TOLERANCING PER MATERIAL		
FINISH		
NET ASSY	USED ON	
APPLICATION		
DO NOT SCALE DRAWING		

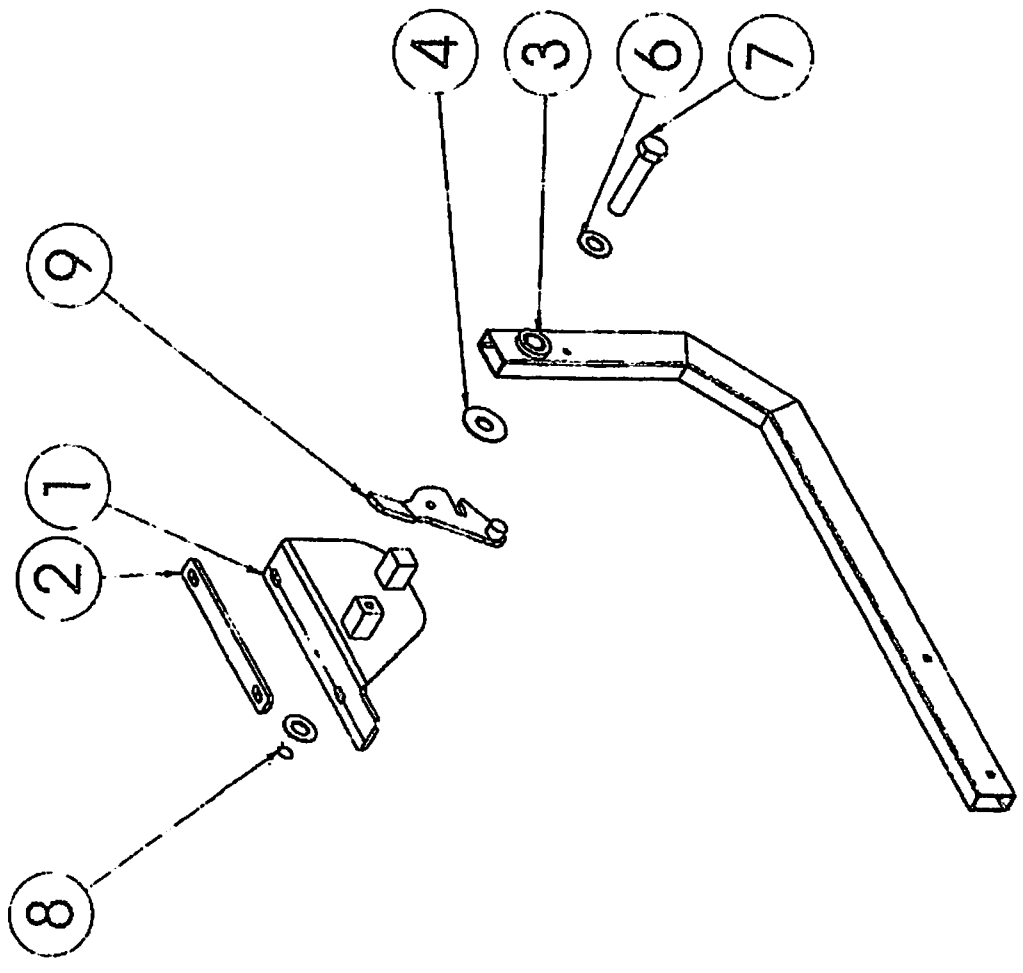
SIZE DWG. NO. REV
A 200-8100 |

SCALE: 1:12 WEIGHT: SHEET 1 OF 1



PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SKYLIFT, P.C. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SKYLIFT, P.C. IS PROHIBITED

ITEM NO.	PART NUMBER	QTY.
1	200-8104	1
2	200-8105	1
3	OP RIGHT ARM ASSY	1
4	OP RUBBER WASHER	1
5	.75 SHAFT COLLAR	1
6	.75 SAE WASHER	2
7	FBOLT 0.75-10x3.5x1.75-N	1
8	Hex Nut_A1	1
9	200-8106	1



NAME	DATE	TITLE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
G.A.		
CC/AGENTS		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN INCHES		
TOLERANCES:		
FRACTIONAL:		
ANGULAR: MACH: BEND :		
TWO PLACE DECIMAL :		
THREE PLACE DECIMAL :		
INTERPRET GEOMETRIC TOLERANCING PER:		
MATERIAL:		
FINISH:		
NEXT ASSY	USED ON	DO NOT SCALE DRAWING
APPLICATION:		

SKYLIFT Inc.

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SKYLIFT INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SKYLIFT INC. IS PROHIBITED.

SIZE DWG. NO. REV
A 200-8190 1

SCALE: 1:8 WEIGHT: SHEET 1 OF 1

**STANDING PLATFORM MUST BE
USED FOR BOOM OPERATION**

**DO NOT USE PLATFORM
WHILE DRIVING MACHINE**

**PLATFORM CAPACITY
300 LBS.**

DO NOT RIDE

DO NOT RIDE

DO NOT RIDE

DO NOT RIDE



OPERATION and SAFETY

For maximum stability, tracks of chassis must remain extended out to maximum width unless traveling through a narrow area or gate.

WARNING
BOOM MUST REMAIN IN STOWED POSITION WHILE TRAVELING WITH TRACKS RETRACTED TO THE 35 INCH WIDTH. BOOM MUST REMAIN IN STOWED POSITION UNTIL OUTRIGGERS ARE DEPLOYED
WARNING

You may ONLY travel with the unit in high speed when driving it straight. The machine must be low speed when making turns.

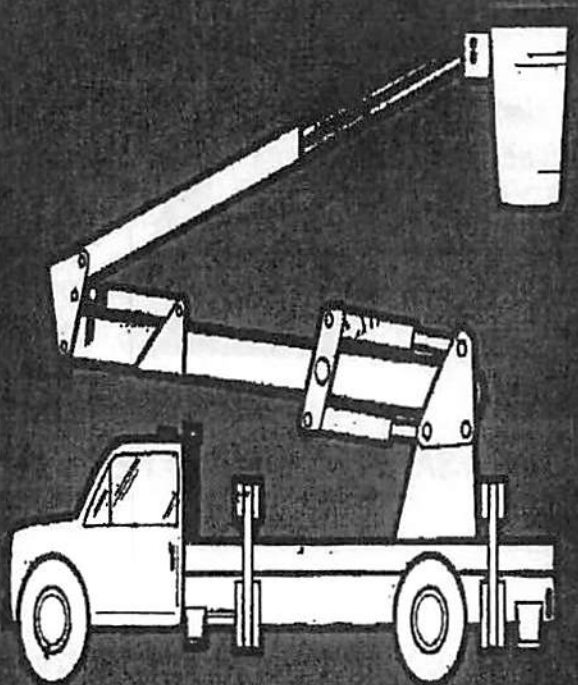
Check and grease track tensioner every eight (8) to ten (10) hours of operation.

Once outriggers are deployed, make sure pins to lock socket are correctly inserted.

Aerial Devices



**safety
manual**



EMI

Safety alert symbol

**This Safety Alert Symbol means:
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!**



The Safety Alert Symbol identifies important safety messages on machines, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to You?

- 3 BIG REASONS:**
- **ACCIDENTS CAUSE INJURY AND DEATH**
 - **ACCIDENTS COST TIME AND MONEY**
 - **ACCIDENTS CAN BE PREVENTED**

Foreword



This Safety Manual is intended to point out some of the basic safety situations which may be encountered during the normal operation and maintenance of your machine and to suggest possible ways of dealing with these conditions. This manual is **NOT** a substitute for the manufacturer's manual(s). Additional precautions may be necessary, depending on attachments used and conditions at the worksite or in the service area. The manufacturer has no direct control over machine application, operation, inspection, lubrication, or maintenance. Therefore, it is **YOUR** responsibility to use good safety practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's manual(s). Other information which may affect the safe operation of your machine is contained

on safety signs, or in insurance requirements, employer's safety programs, safety codes, local, state/provincial, and federal laws, rules, and regulations.



ATTENTION! IF YOU DO NOT HAVE THE MANUFACTURER'S MANUAL(S) FOR YOUR PARTICULAR AERIAL DEVICE, GET A REPLACEMENT MANUAL FROM YOUR EMPLOYER, EQUIPMENT DEALER, OR FROM THE MANUFACTURER OF YOUR AERIAL DEVICE. KEEP THIS SAFETY MANUAL AND THE MANUFACTURER'S MANUAL(S) WITH THIS AERIAL DEVICE. READ AND UNDERSTAND THE MANUFACTURER'S MANUAL(S) BEFORE OPERATING.

A word to the user/operator

It is YOUR responsibility to read and understand this safety manual and the manufacturer's manual(s) before operating this aerial device. This safety manual takes you step-by-step through your working day.

In reading this manual, you will note that any illustration depicting an unsafe work procedure or situation is labeled both with the words "wrong" and the mark of an "X" on the illustration. Each illustration is also numbered and the same number appears in the text in parenthesis. This number is placed at the end of the written text that refers to the illustrations.

While some of the illustrations appearing in this manual are in the nature of "cartoons", this approach is intended

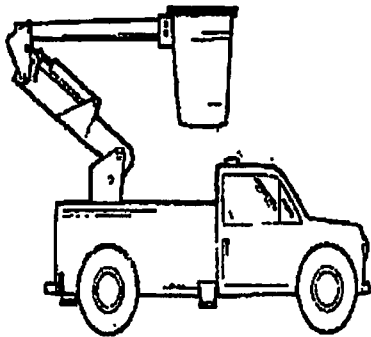
solely as a means to promote your attention to the text. As noted repeatedly throughout this manual, EMI and its Manufacturers of Aerial Devices and Digger Derricks Council ("MADDDC") are very serious about risks to human life and health caused by unsafe practices.

Remember that YOU are the key to safety. Good safety practices not only protect you but also protect the people around you. Study this manual and the manufacturer's manual(s) for your specific aerial device. Make them a working part of your safety program. Keep in mind that this safety manual is written only for vehicle mounted aerial devices. Practice all other usual and customary safe working precautions, and above all —

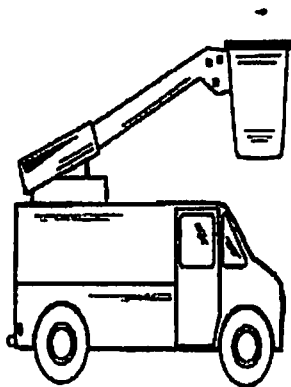
**REMEMBER - SAFETY IS UP TO YOU
YOU
CAN PREVENT SERIOUS INJURY OR DEATH**

Types of aerial devices

There are two basic types of aerial devices:



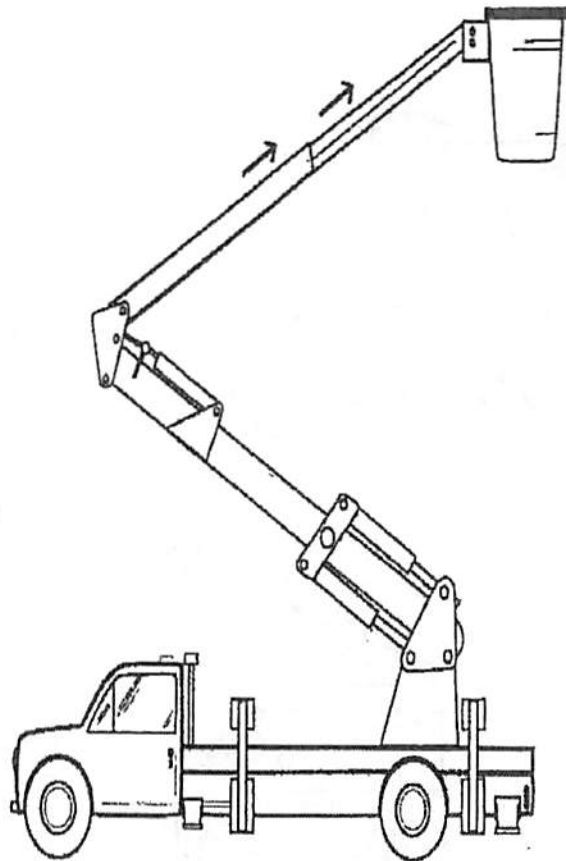
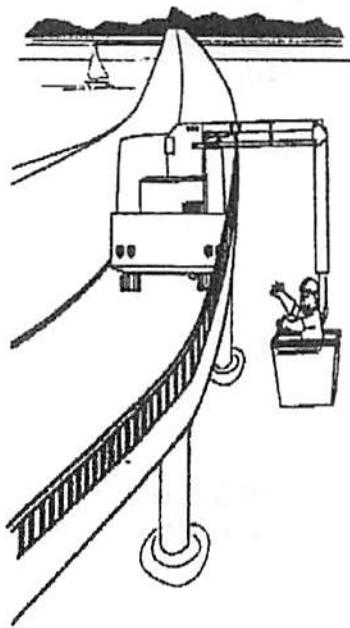
**Articulated Boom Aerial Devices
(insulated or non-insulated)**



**Extendible (telescopic) Boom Aerial
Devices (insulated or non-insulated)**

Types of aerial devices

There are also hybrid aerial devices which are essentially articulated aerial devices with extendible (telescopic) booms.



Safety - before you do anything

For Safe Operation

WARNING: For safe operation of this aerial device, all members of the crew must be qualified and authorized to perform their particular duties. (2)

To be qualified, you must:

- understand the written instructions supplied by the manufacturer, company rules, and OSHA regulations;
- have training, including actual operation of this aerial device;
- know and follow the safety rules and regulations for the jobsite.

DANGER: Use of this machine by an untrained person can result in severe injury or death.

On the job, you and your crew must not use drugs or alcohol; they can impair alertness and coordination. Anyone on prescription or over-the-counter drugs needs medical advice regarding whether or not he can safely operate machines.

The ground crew member must know how to lower the unit from the lower controls and rescue procedures.



2
RIGHT

Know the rules — LIVE by them.

Safety - before you do anything


Protect Yourself

Wear or use all the protective clothing and personal safety devices issued to you or called for by job conditions. You must always use fall protection.

You may also need:

- Safety belt or harness & lanyard
- An insulated hard hat
- Safety shoes
- First aid kit
- Safety glasses, goggles, or face shield
- Insulated gloves, sleeves
- Insulated shields, covers, mats & blankets
- Insulated tools
- Wet weather gear
- Cotton clothing

Wear whatever is needed, don't take chances. (3)

 **WARNING:** Do NOT wear loose clothing, neckties, scarves or unrestrained long hair. Do NOT wear rings, watches, bracelets or chains. Wrapping or entanglement can result in severe injury or death.

3
RIGHT



Use your head -- and your hard hat.

Safety - before you do anything

Be Alert!

Know where and how to get assistance. Know how to use a first aid kit and fire extinguisher/fire suppression system and be certain these items are available and easy to get to. Know CPR. (4)

Be Aware!

Take advantage of training programs offered.

Be Carefull

Human error is caused by many factors: carelessness, rushing to get a job done quickly, fatigue, overload, preoccupation, drugs, and alcohol to name a few. Damage to the aerial device can be fixed in a short period of time, but serious injury or death has a devastating effect. For your safety and the safety of others, encourage your fellow workers to act safely. Do not force or overextend yourself beyond your capabilities based on training and experience. Use the proper tool for the job at hand. Do not use tools and equipment beyond their design capabilities.



Play it safe. Know how to summon help.

Safety - before you do anything

Know Your Equipment

Aerial devices differ in their operation, capacity, mechanisms, maintenance, intended uses, etc., so your knowledge of one aerial device may not help you safely operate another.

Know your aerial device. Know how to operate all equipment on your aerial device. Know the purpose of all the controls, gauges, warning labels and indicators. Know the rated load capacity, speed range, braking and steering characteristics, turning radius, operating clearances, and ground slope limits. Keep in mind that rain, snow, ice, wind, loose gravel, soft ground, slope, etc., change the operating capabilities of your aerial device. Study the DANGER, WARNING, and CAUTION safety signs on your aerial device and all DANGER, WARNING, CAUTION and INFORMATION notes in the operator's manual.

STUDY THE MANUFACTURER'S OPERATOR'S MANUAL BEFORE OPERATING THE AERIAL DEVICE. IF THERE IS NO MANUAL WITH THE AERIAL DEVICE — GET ONE. STUDY IT BEFORE YOU START WORK. (5)

IF THERE IS SOMETHING IN THE MANUAL YOU DON'T UNDERSTAND, ASK YOUR SUPERVISOR TO EXPLAIN IT TO YOU.

ATTENTION: This manual covers safe practices for Aerial Devices. If your aerial device is equipped with other devices or special accessories, read the manufacturer's operating and safety manuals pertaining to that equipment before using it.



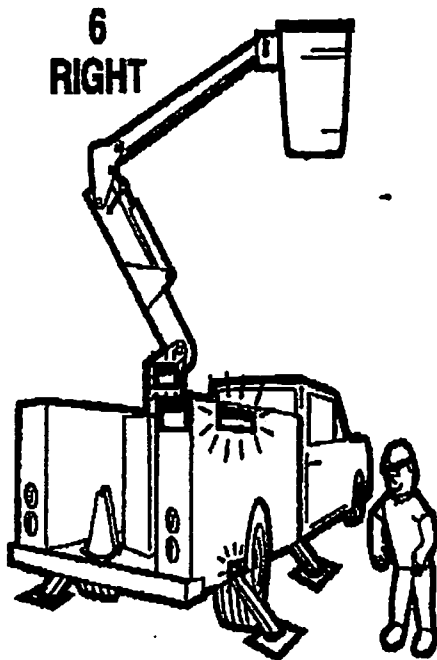
**5
RIGHT**

Respect your equipment. Make sure you know how it operates.

Safety before operation

Check The Safety Equipment

To protect you and others around you, see that applicable safety equipment is securely in place and in operating condition. Make certain all guards, railings, covers and safety signs are installed on the aerial device and vehicle as required by the manufacturer. (6)



- Platform door latch
- Fall protection device
- Safety chains across door openings (if equipped)
- Emergency controls
- Ground controls
- Intercom
- Interlock devices
- Barricade or barrier kits for vehicle
- Deadman control
- Outrigger pads (if applicable)
- Upper and/or lower boom latches
- Warning lights
- Safety signs
- Guards
- Insulated shields, covers and mats
- Back-up alarm
- Fire extinguisher/fire suppression system
- First aid kit
- Grounding equipment

Use them! Never remove or disconnect any safety device.

Play it safe. Take advantage of all the protection available.

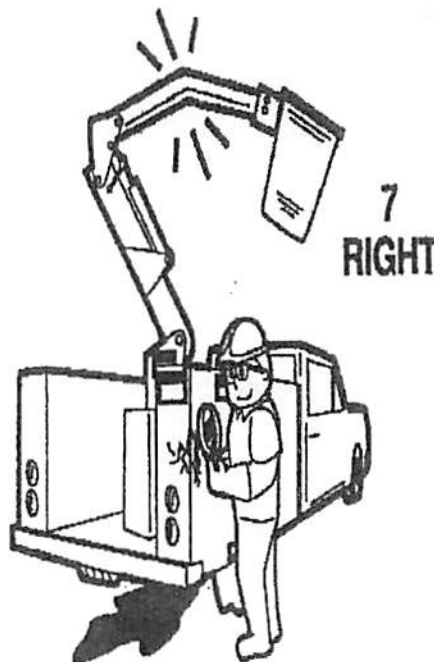
Safety before operation

Check The Aerial Device

Before you begin your workday, you should inspect your aerial device and have all systems in good operational condition as set forth in the manufacturer's manual. Do not operate the aerial device until all deficiencies are corrected by a qualified individual.

- Do pre-travel inspection test.
- Check for broken, missing or damaged parts. Have a qualified person make the necessary repairs. (7)
- Check the tires for cuts, bulges and correct pressure.
- Replace badly worn or damaged tires; properly inflate tires.
- Check the outriggers, if so equipped, or other stabilization equipment such as torsion bars.
- Check service, parking, and swing brake for proper operation.
- Check the boom, platform, rotation, rotation brake and boom winch operation (if so equipped) at both upper and lower controls.

- Check the hydraulic system. Repair any leaks. If the outriggers have crept down overnight, test check valve system.
- Ensure that regular lubrication is performed in accordance with the manufacturer's guidelines.
- Check cooling system.
- Check the electrical systems and components for deterioration or wear including those not readily visible on a frequent inspection.

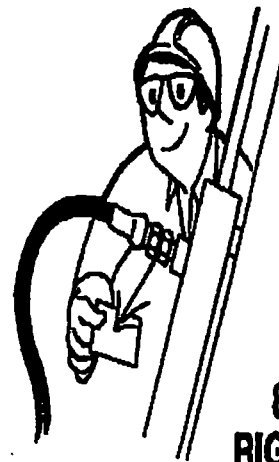


Safe operation begins with a safety-conscious operator.

Safety before operation

- Check bolts and fasteners for proper tightness and signs of wear.
- Examine welds for cracks or signs of rust, which can indicate potential problems.
- Check platform door latch for proper operation.
- If the boom is insulated, check insulation components to be certain they are dry and free of grease, oil, or dirt.
- Perform all maintenance procedures outlined by the manufacturer of your aerial device.

Refer to pages 9 and 13.



**8
RIGHT**



WARNING: Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious injury, blindness or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks but do not use your bare hand. (8) Wear a face shield or safety goggles for eye protection. If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury.

Don't let fluids get under your skin.

Safety before operation

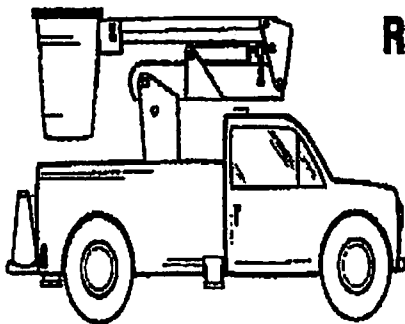
Safe Transport

While traveling on public roads or streets, be sure all local and state/provincial laws and regulations are followed.

Refer to your manufacturer's manual for instructions on preparing the unit for transport. Secure the boom and platform in the transport position. Make sure that outriggers are up and secured in the transport position. Make sure that all accessory equipment is properly stored and secure. (11)

When driving at night, use appropriate lights. Make sure you know your machine travel height and the height of all underpasses.

Always use hazard warning lights when parked at a job-site. Never park in traffic areas.



11
RIGHT

Know The Working Area



WARNING: Failure to properly evaluate the work area can lead to serious injury or death.

Learn — beforehand — as much about your working area as possible. Check for:

- Exact location of any overhead electrical, telephone, TV cable, or other utility lines.
- Location of slopes. Follow manufacturer's maximum slope lift can operate on.
- Potholes
- Broken curbs
- Open trenches
- Dropoffs or overhangs
- Soil conditions (soft or hard)
- Standing water and marshy areas
- Rocks, stumps and tall grass
- Overhead or side obstructions
- Conditions of roads
- Mud, snow or ice
- Heavy traffic
- Underground structures
- Thick dust, smoke, fog

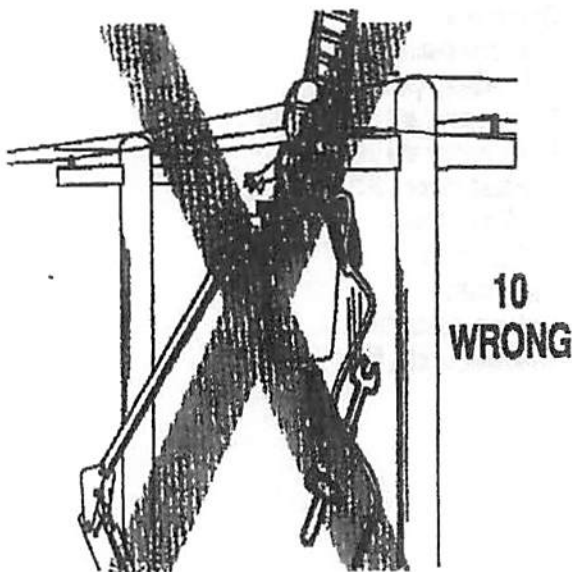
Obey your local traffic laws.

Safety before operation

Use Caution When Fueling

WARNING: Never fill the fuel tank when the engine is running, while you're smoking or when the truck is near an open flame. Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately.

Ground the fuel funnel or nozzle against the filler neck to prevent sparks and be sure to replace the fuel tank cap. For additional information on fire hazards, refer to the section on Fire and Explosion Hazards.



Dirt, grease and moisture decrease insulation protection.

Clean Up

Make sure the operator's area, lift, platform, truck bed, steps and hand holds are clean and free of debris. Oil, grease, snow, ice or mud in these areas can cause you to slip and fall. Clean your boots of excess mud before getting on the machine.

Remove all loose personal items or other objects from the truck cab and operator's area on the aerial device. Secure these items in the tool box or remove them from the machine. (10)

WARNING: If the aerial device is insulated, the insulated portions of the aerial device **MUST** be dry and free of grease or oil to maintain maximum insulation protection.

WARNING: Dirt, grease, other foreign matter, moisture, and humidity will all dramatically increase the conductivity of synthetic rope.

Safety before operation



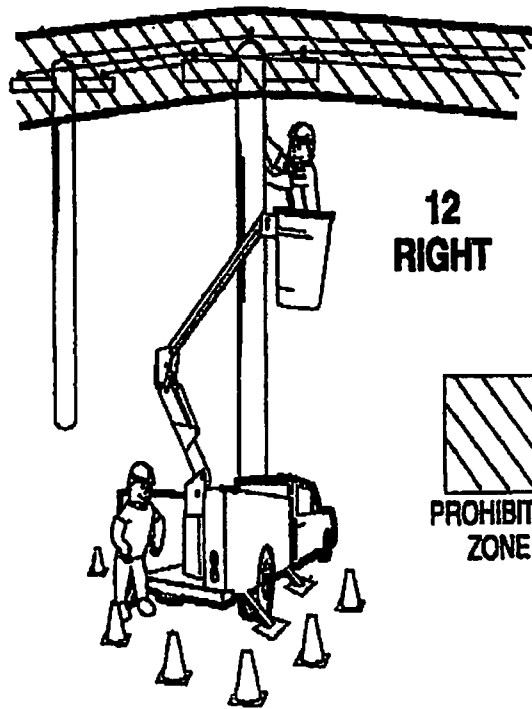
DANGER: Never approach any power line with any part of your machine unless all local, State/Provincial, company work rules and Federal (OSHA) required safety precautions have been taken. Use extreme caution; serious injury or death can result with contact from any power line.



DANGER: DO NOT maneuver machine or personnel inside PROHIBITED ZONE. (12) Allow for sway, drift, and platform movement in calculating safe distances.

ASSUME all electrical parts and wiring are ENERGIZED unless known otherwise.

Always follow State/Provincial, company work rules and Federal (OSHA) standards.



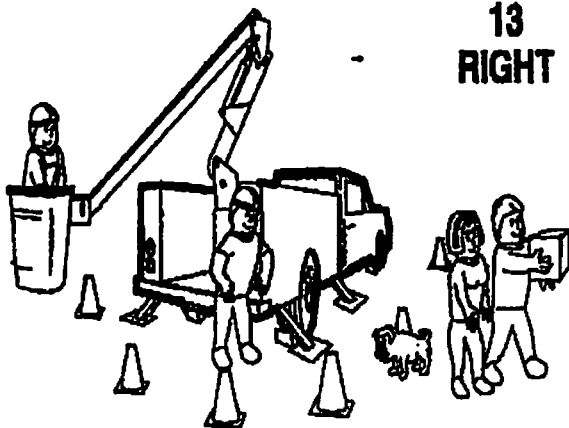
You must know your electrical safety zones.

Safety before operation

Before Starting

Before starting, walk around the equipment. Make sure no one is under, on or close to the unit. Let other workers or bystanders know you are starting up. Don't start until everyone is clear of the unit. (13)

When operating an aerial device inside a building, know what clearances you will encounter — overhead, doorway, aisles, etc.; also the weight limitations of floors and ramps. Make sure there is sufficient ventilation for inside operation.



13
RIGHT

Position Unit For Operation

1. Position vehicle on the most level ground, but the equipment must not be operated on an incline greater than as permitted in the manufacturer's operations manual. If on an incline, position the vehicle so that the platform would be operated on the upgrade side in a stable position.
2. Set the brakes.
3. Use wheel chocks (both sides).
4. Engage power source.
5. Set the outriggers (if so equipped). Use outrigger pads if ground is soft. Level the vehicle as much as possible, but observe manufacturer's maximum ground slope.
6. Spot your vehicle as close to the work as possible to minimize reach, but be sure there are no obstructions to prevent safe and proper lift and rotation.
7. Make sure the vehicle is stable.

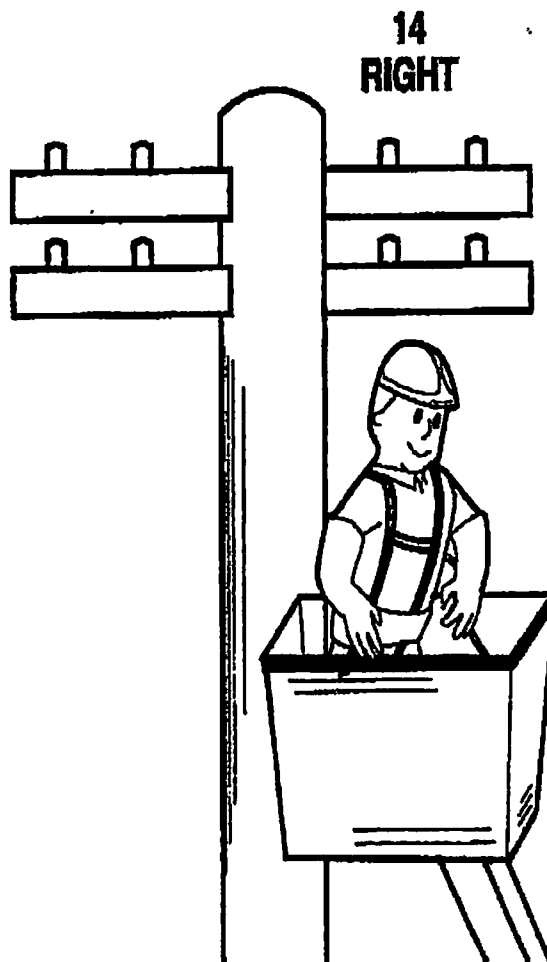
Look out for the other guy.

Work safely

Remember These Rules

When operating the boom(s):

- Keep your fall protection device fastened and comfortably snug. (14)
- Securely fasten any safety chain (if equipped).
- Use your personal protective equipment.
- Be in control of your aerial device at all times.
- Look and listen for malfunctions.
- Stop if a malfunction or erratic operation is detected.
- Correct or report trouble immediately.
- Keep both feet on the floor of the platform.
- Know your clearances.



Keep yourself safe and secure.

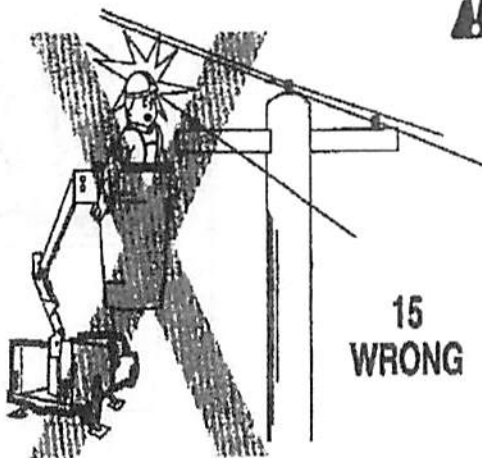
Work safely

Remember The Other Person

- Never allow an untrained or unqualified person to operate your aerial device. Handled improperly, this aerial device can cause severe injury or death.
- Know the pinch points and moving parts on the aerial device. Awareness on your part can prevent accidents.
- When traveling, never allow anyone to ride in the back of the truck or in the lift platform.

Aerial Device Safety Precautions

- Never allow the booms or turntable to enter traffic lanes without proper barricading. Exercise extreme care, especially with articulating boom and/or large offset turntable while rotating. Park to block traffic.
- Check the clearance overhead. Note any obstructions. Know exactly how much clearance all parts of your aerial device have around electric power lines.

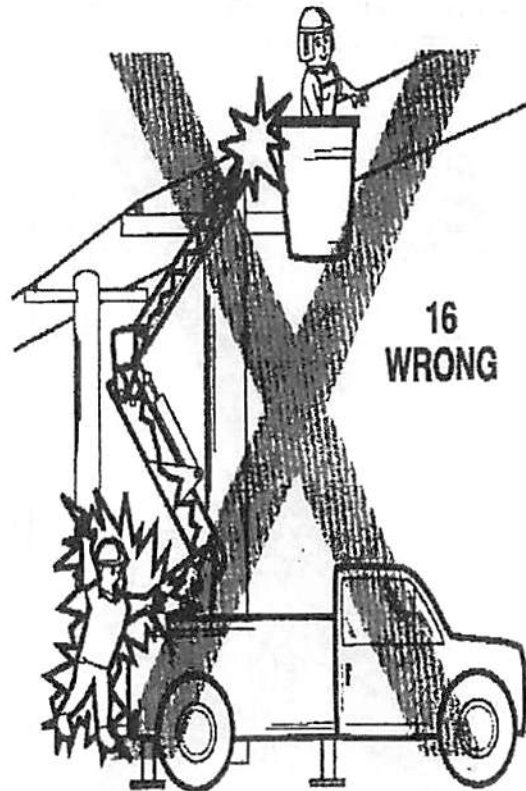


⚠ DANGER: NON-INSULATED machines shall **NOT** be used on or near any power line. Death or serious injury will result from contact or inadequate clearance to electrical power lines or apparatus.
(15)

DO NOT use non-insulated machinery near high tension power lines.

Work safely

- MAINTAIN SPECIFIED DISTANCE FROM ELECTRICAL LINES AND APPARATUS. Never approach power lines with any part of your machine unless all local, state/provincial and federal (OSHA) required safety precautions have been taken. Use extreme caution.
- YOU MUST ALLOW FOR PLATFORM SWAY, ROCK AND CREEP, ALSO ELECTRICAL LINE SWAYING.
- Ground personnel must not contact the vehicle when the unit is working on energized power lines. (18)
- Beware of strong and/or gusty wind conditions.
- Set brakes and chock the wheels before operating.
- Make sure the area is clear of all persons before you start operating.
- As necessary, use a signal person to control traffic.
- Keep yourself and others away from the outriggers when they are being operated.
- Always have outriggers in view when they are being extended, and/or use a signal person to watch.
- Always make sure that you follow the manufacturer's recommendations while operating the aerial device.



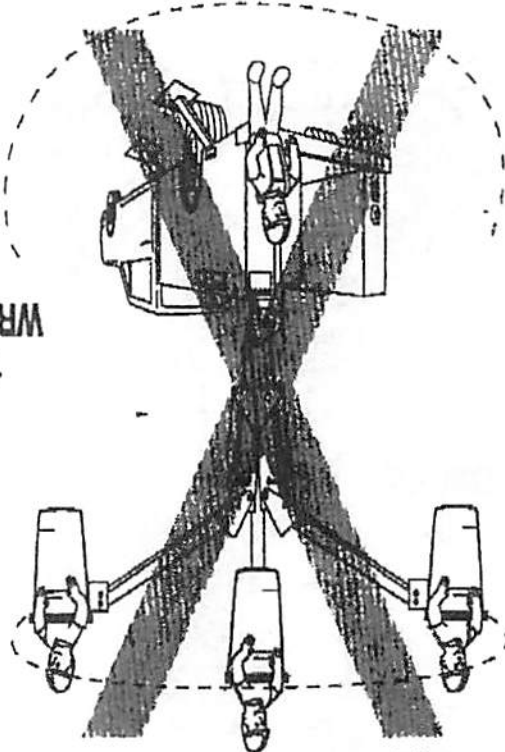
Keep your distance from power lines.

Work safely

Repositioning Vehicle

If your machine has a separate power source to operate the lifting and rotation functions, shut off the vehicle engine and remove key. Before moving the vehicle, stow the boom and platform in the transport position and secure it if required, raise the outriggers (if so equipped), remove the wheel chocks, disengage PTO, and then drive the machine forward or backwards, as required. After the machine has been repositioned, engage the parking brake, chock the wheels, and shift transmission controls to neutral or to gear for PTO operation. Lower the outriggers and level the machine.

WARNING: Never allow anyone else to enter ear-
l device's rotation area or walk under the platform
or suspended load. Death or serious injury can
result. (17)



Stand clear of outriggers and from under the aerial platform.

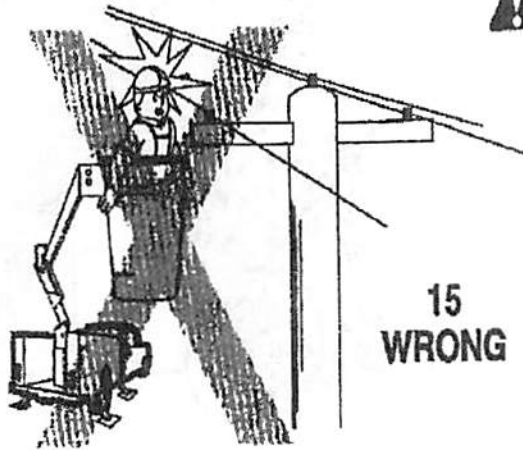
Work safely

Remember The Other Person

- Never allow an untrained or unqualified person to operate your aerial device. Handled improperly, this aerial device can cause severe injury or death.
- Know the pinch points and moving parts on the aerial device. Awareness on your part can prevent accidents.
- When traveling, never allow anyone to ride in the back of the truck or in the lift platform.

Aerial Device Safety Precautions

- Never allow the booms or turntable to enter traffic lanes without proper barricading. Exercise extreme care, especially with articulating boom and/or large offset turntable while rotating. Park to block traffic.
- Check the clearance overhead. Note any obstructions. Know exactly how much clearance all parts of your aerial device have around electric power lines.

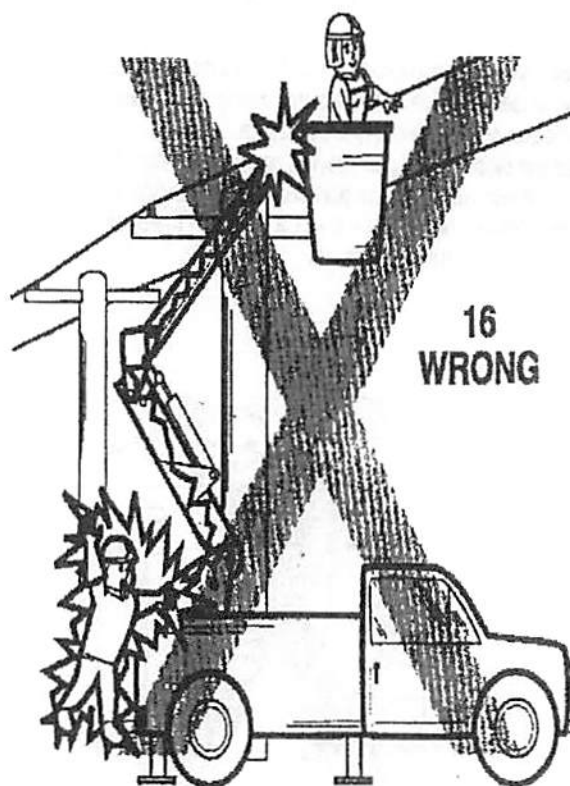


⚠ DANGER: NON-INSULATED machines shall NOT be used on or near any power line. Death or serious injury will result from contact or inadequate clearance to electrical power lines or apparatus. (15)

DO NOT use non-insulated machinery near high tension power lines.

Work safely

- MAINTAIN SPECIFIED DISTANCE FROM ELECTRICAL LINES AND APPARATUS. Never approach power lines with any part of your machine unless all local, state/provincial and federal (OSHA) required safety precautions have been taken. Use extreme caution.
- YOU MUST ALLOW FOR PLATFORM SWAY, ROCK AND CREEP, ALSO ELECTRICAL LINE SWAYING.
- Ground personnel must not contact the vehicle when the unit is working on energized power lines. (16)
- Beware of strong and/or gusty wind conditions.
- Set brakes and chock the wheels before operating.
- Make sure the area is clear of all persons before you start operating.
- As necessary, use a signal person to control traffic.
- Keep yourself and others away from the outriggers when they are being operated.
- Always have outriggers in view when they are being extended, and/or use a signal person to watch.
- Always make sure that you follow the manufacturer's recommendations while operating the aerial device.



Keep your distance from power lines.

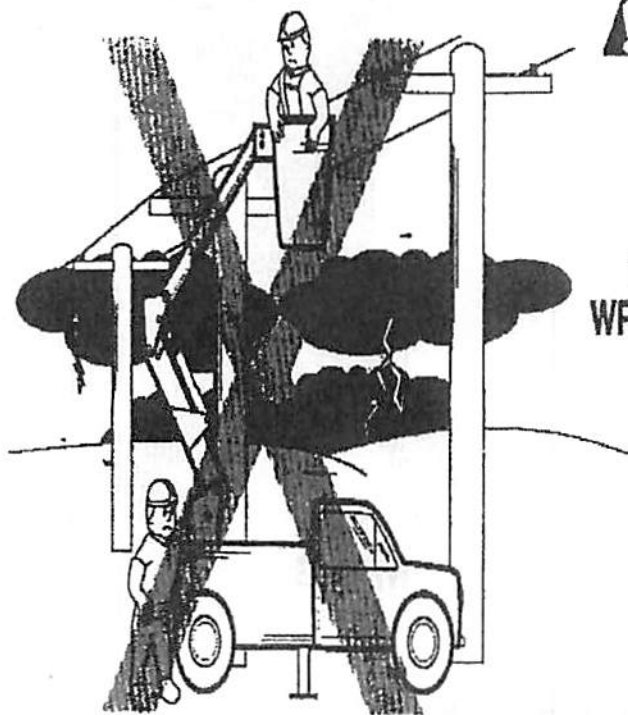
Work safely

DANGER: Contact with energized power lines can cause DEATH or serious injury to persons in the platform and those on the ground in contact with the machine. Maintain adequate clearance.

WARNING: Do not operate your aerial device during electrical storms. (19)

WARNING: Your platform and platform liner, synthetic winch cable and insulated boom section must be dry and clean before operating your aerial device on or near power lines and apparatus. Moisture, grease and debris will defeat the insulating value of these components, which could result in serious injury or death.

WARNING: DO NOT drill drain holes in insulated platform or platform liners.




19
WRONG


Lightning is dangerous.


Work safely

Utilities - Overhead

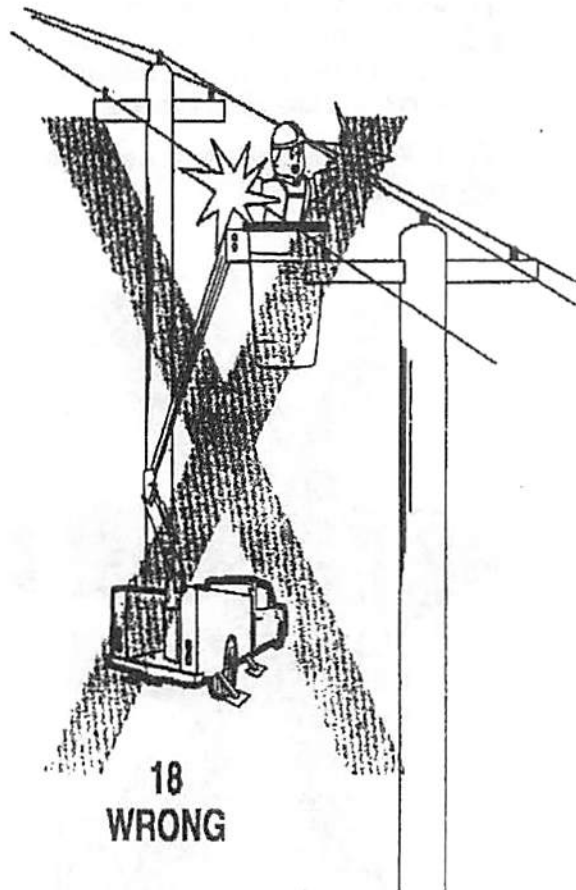
Electrocution can result from contacting or approaching overhead power cables. Only INSULATED machines are suitable for this work.

 **DANGER:** An insulated platform provides no protection from contact between two energized conductors or between an energized conductor and a grounded conductor by the operator, even with insulated machines. (18)

 **DANGER:** Never pass platforms between power lines, even with insulated machines. (18)

 **DANGER:** With an insulated machine, never approach overhead power lines with any part of your machine unless all local, State/Provincial, company work rules and Federal (OSHA) required safety precautions have been taken. Use extreme caution. **YOU MUST ALLOW FOR PLATFORM SWAY, ROCKING AND CREEP, AS WELL AS ELECTRICAL LINE SWAYING.**

Check overhead clearances: Know your margin of safety. If possible, have power to the lines disconnected. If not possible, request a signal person for guidance to maintain at least minimum distance required by OSHA from overhead power lines.



Inadequate clearance can be fatal.

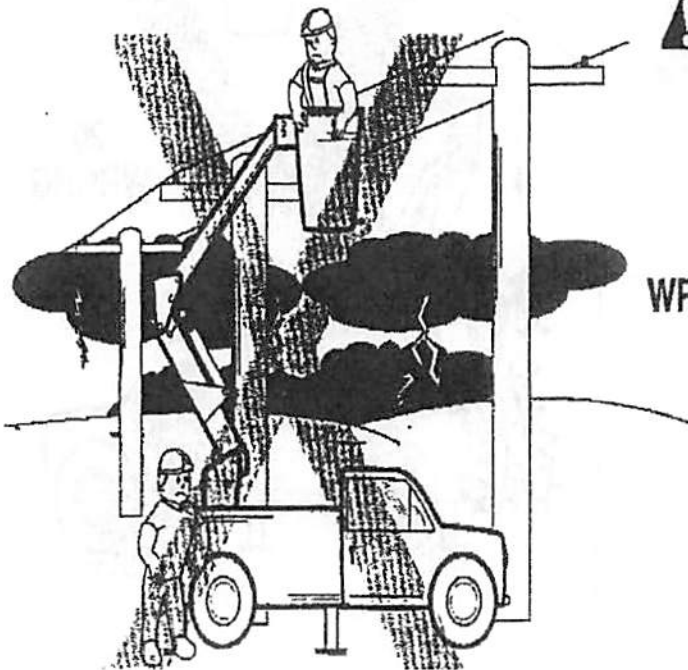
Work safely

⚠ DANGER: Contact with energized power lines can cause **DEATH** or serious injury to persons in the platform and those on the ground in contact with the machine. Maintain adequate clearance.

⚠ WARNING: Do not operate your aerial device during electrical storms. (19)

⚠ WARNING: Your platform and platform liner, synthetic winch cable and insulated boom section must be dry and clean before operating your aerial device on or near power lines and apparatus. Moisture, grease and debris will defeat the insulating value of these components, which could result in serious injury or death.

⚠ WARNING: DO NOT drill drain holes in insulated platform or platform liners.



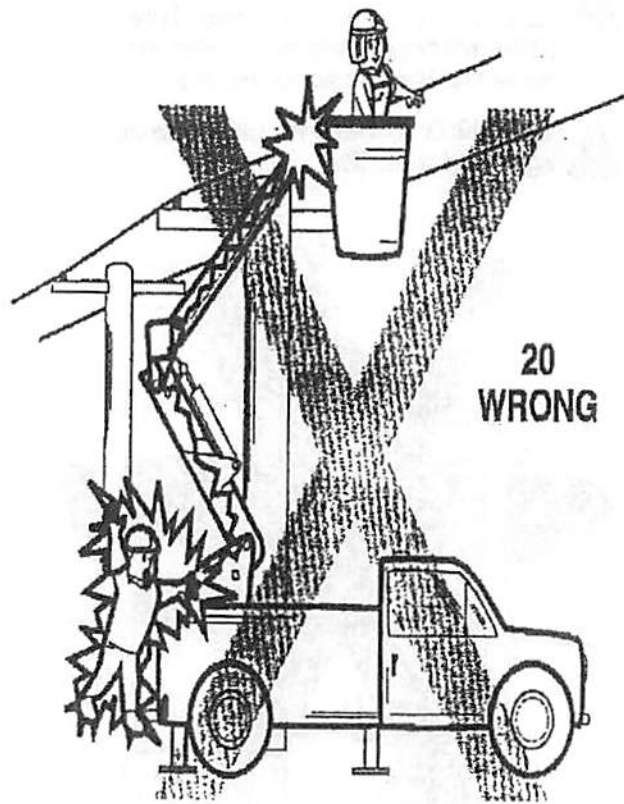
19
WRONG

Lightning is dangerous.

Work safely

⚠ DANGER: NO AERIAL DEVICE, WHETHER INSULATED OR NOT, PROVIDES ANY ELECTRICAL PROTECTION TO ANY OCCUPANT OF THE PLATFORM IF THERE IS PHASE-TO-PHASE OR PHASE-TO-GROUND CONTACT. SUCH CONTACT WILL CAUSE SEVERE INJURY OR DEATH. (20)

⚠ DANGER: Contact can be made when any portion of the boom tip is in contact with a phase or ground and the operator is in contact with another phase or ground and contact is made with any area of the boom tip by the operator.

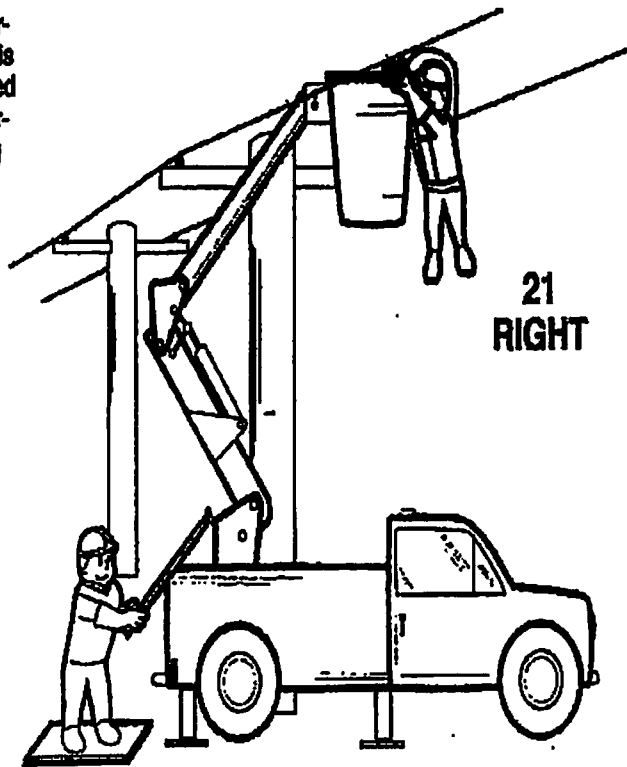


Contact with energized power lines can cause DEATH.

Work safely



WARNING: In case of an accident, or other emergency, involving any electrical source, **DO NOT** approach or enter the vehicle unless you are certain the vehicle is **NOT** energized. If the vehicle is energized, or you are not sure, stand on insulated pad or blanket, use a long insulated pole to operate the emergency/lower control system to bring the platform down. (21)



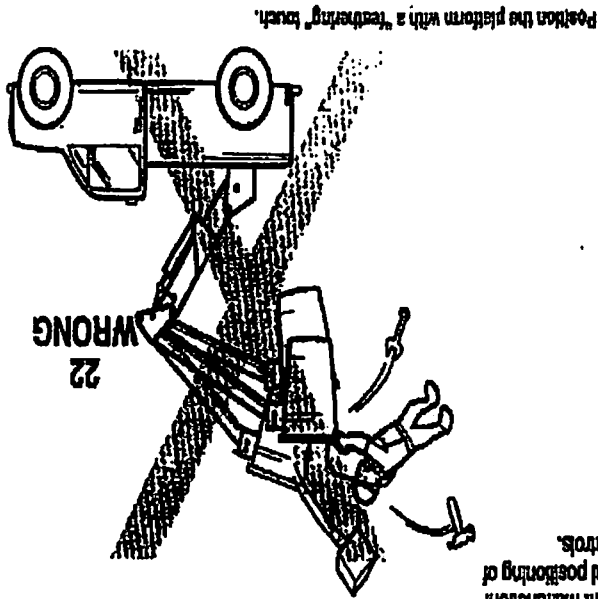
Don't risk yourself during a rescue.

Work safely

Aerial Device Operation

WARNING: Jerking the controls will cause sudden starts and stops in aerial device operation. This can cause damaging shock loads and/or cause the platform to sway violently. When the platform has been raised to the working position, be extremely cautious to prevent any objects from sliding or interfering with the operating controls. Secure all tools, equipment or other materials placed on the platform to keep them from shifting or falling. (22)

- WARNING:** You must wear the fall protection device. Before raising the platform, attach the lanyard to an anchor point.
- WARNING:** Never allow anyone to tamper with, service, or operate an aerial device from the lower control station while personnel are in the platform, except in an emergency or equipment malfunction. Move the controls smoothly. For final positioning of the platform, gently "feather" the controls.



Work safely

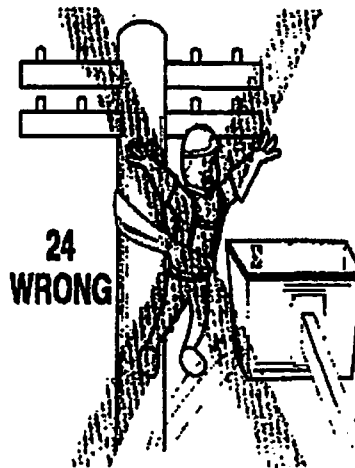
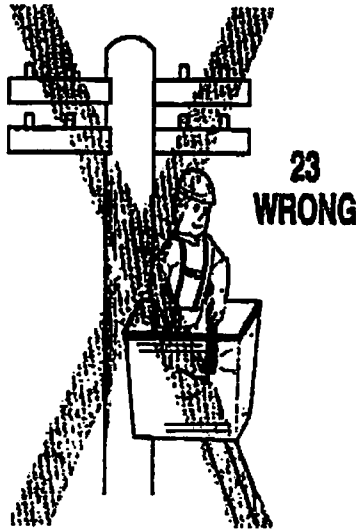
⚠ WARNING: Never disconnect your fall protection device while aloft. Any sudden machine movement can cause you to fall from the platform. (23)

⚠ WARNING: Never use ladders, planks, steps or other devices to provide additional reach or gain greater height. Do not lean over or sit or climb on the platform railing. Always keep both feet on the platform floor at all times.

⚠ WARNING: Never belt off to an adjacent pole, tree or other structure when working from an aerial platform. (24)

⚠ WARNING: Never attempt to transfer from the platform to a pole, tower, tree or any adjacent structure while the booms are in a raised position.

⚠ WARNING: On non-overcenter machine, do not attempt to readjust the boom safety stops for more reach. When raising, lowering or rotating the platform, use extreme caution. Always look in the direction of movement. Watch out for obstructions above, below and to all sides. If necessary, use a signal person on the ground to guide you.



Don't get hung up where you don't belong.

Work safely

▲ WARNING: OVERLOADING IS DANGEROUS.
Know the weight you are lifting. If you do not know

the weight, you must determine the weight before
lifting load. Make certain you are within the safe
load and work radius limitations of the aerial

device and are on solid level ground within man-
ufacturer's maximum slope before lifting any load.
Never attempt to lift an object at an angle. The

boom head must be directly over the load before
lifting. Always lower the outriggers to the ground
before lifting. If ground is soft, place flotation pads

under each outrigger. When lifting, be sure the
load is properly balanced. Move slowly so the load
does not sway or swing around. If necessary, use

a tag line for additional control. Avoid shock to
loads when lowering a load. Lower slowly and
smoothly. DO NOT attempt to pull a pole from the

ground with your aerial device. Use a pole puller.
DO NOT attempt to pull cable. This creates extra-
ordinary stresses in the booms, which can lead to pin

failure and boom collapse.

Lifting Loads With An Aerial Device

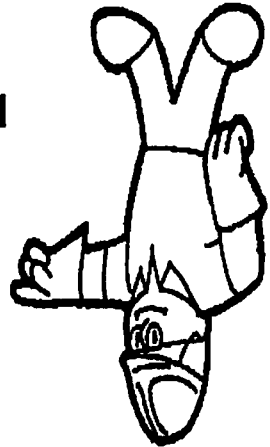
Do not use an aerial device to lift loads unless the aerial
device has been specifically designed and equipped with
attachments for material handling. Understand the lifting
capabilities of the boom and jo which package.

Before lifting a load, see the manufacturer's manual or
load chart attached to the boom for the lifting capacity of
your machine with the boom in various positions. (25)

Lift loads only if designed and equipped with attachments
for material handling.



RIGHT
25

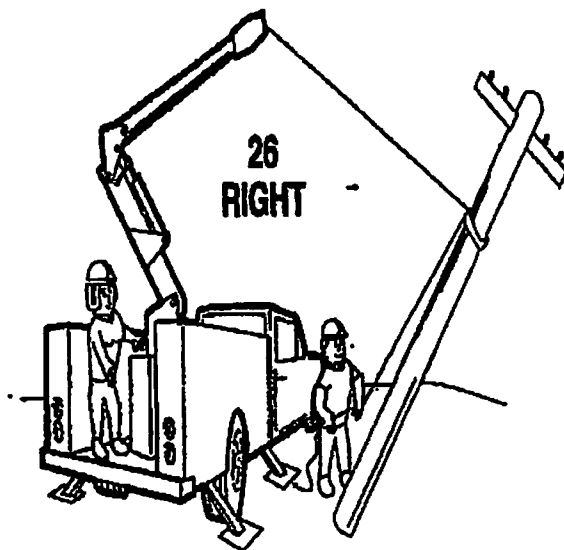


Don't overload your machine. Know your machine's lifting capacity.

Work safely

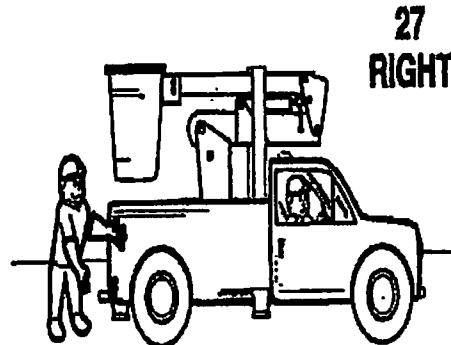
WARNING: Never tie a load to the platform or boom. The platform may bounce or sway violently when the load falls. Only use lifting device provided. (26)

WARNING: Allow extra overhead clearance in case boom does raise when load is relieved.



Stowing the Unit

1. Gently settle the boom(s) onto supports using a "feathering" movement of the controls.
2. Secure the boom(s) in the supports per manufacturer's instructions. (27)
3. Raise the outriggers (if so equipped) to their full "up" travel position.
4. Disengage the PTO.
5. Stop the engine.



Use proper lifting devices.

Perform maintenance safely

Definition of Qualified Individual:

A "Qualified individual" is defined as a person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to the subject matter, the work, or the project.

If you have been authorized to do maintenance, READ THE MANUFACTURER'S SERVICE AND OPERATORS MANUALS. Study the instructions, check the lubrication chart; examine all the instruction and warning messages on the machine for readability. Maintenance can be dangerous unless performed properly. Be sure you have the necessary skill, information, correct tools and equipment to do the job correctly. Use manufacturer's recommended hydraulic oil.

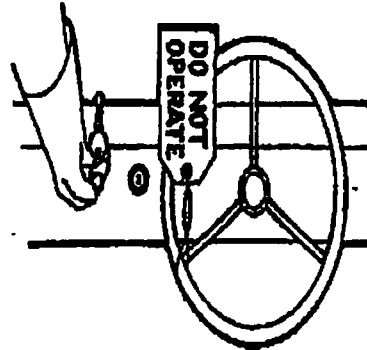
Attach a "DO NOT OPERATE" tag or similar warning tag to the starter switch or steering controls before performing maintenance on the machine.

If the machine should not be started, remove the ignition key. (28)

Proper maintenance is necessary to provide safe, reliable operation of the aerial device.

Be certain that the aerial device you are operating has been properly maintained by qualified personnel. Read and understand the manufacturer's manual(s) pertaining to your equipment. Perform all operator's inspections required by the manuals and or federal, local, or state/provincial regulations.

WARNING: Do not perform any work on a machine unless you are authorized — and qualified — to do so.



28
RIGHT

If you don't know what you're doing — don't do it.

Perform maintenance safely

Prepare The Work Area

Choose a clean, level work area. Make sure you have sufficient room. Check clearances. Make certain there is adequate light and ventilation. Clean the walking and working surfaces. Remove oil, grease, and water to eliminate slippery areas. Put sand or other absorbent material on slippery areas. (29)

29
RIGHT



Prepare Yourself

Wear all the protective clothing the job requires. Wear a rubber apron and rubber gloves when working with corrosive materials. Wear gloves and safety shoes when handling wooden blocks, wire rope or sharp-edged metal or heavy objects. Safety shoes must be worn at all times. (30)

Safety glasses, goggles or a face-shield are always needed for eye protection from electric arcs from shorts, fluids under pressure, while grinding, servicing batteries, and from flying debris or loose material when engine is running or tools are used. Wear a face-shield when you disassemble spring loaded components or work with battery acid. Wear a helmet or goggles with special lenses when you weld or cut with a torch.

30
RIGHT



Get a safe start.

Perform maintenance safely

Do not sand, grind, flame-cut, braze or weld without a NIOSH/MSHA approved respirator or appropriate ventilation. If welding is required on this machine, refer to the manufacturer's manuals or consult your equipment dealer for proper procedures including welder certification requirements, proper grounding procedures and disconnecting of alternator or battery.

Block the boom or purge the cylinders of all air when doing maintenance to prevent free fall.



31
RIGHT

Handle tools and heavy parts CAREFULLY — with regard for yourself and other persons. LOWER ITEMS — DON'T DROP THEM. (31)



WARNING: Keep clear of all rotating components. Wrapping or entanglement may result in serious injury or death. **KEEP HANDS — AND CLOTHING — AWAY FROM ALL MOVING PARTS.** Don't tempt fate with dangling ties, loose sleeves, rings or long hair. Keep pockets free of all objects which could fall out — and into machinery. (32)



32
WRONG

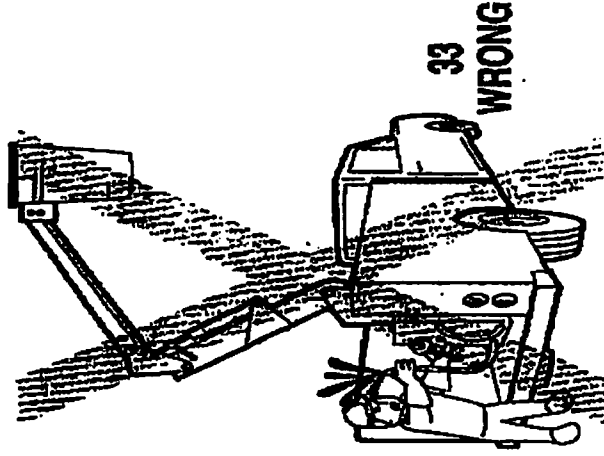
Protect yourself with the proper equipment.

Perform maintenance safely

Prepare The Machine

⚠ **WARNING: START THE ENGINE FROM THE DRIVER'S SEAT ONLY. NEVER ATTEMPT TO START THE ENGINE BY SHORTING ACROSS STARTER TERMINALS OR REACHING FROM THE GROUND OR OUTSIDE THE CAB. It may start in gear if neutral-start circuitry is bypassed. This could cause the unit to move suddenly and cause serious injury or death to anyone in its path. Move the machine onto a level surface. Stop engine, release all hydraulic pressure. Attach the cylinder rod support struts or block all hydraulically operated components if they must be in a raised position.**

⚠ **WARNING: DO NOT DISCONNECT HYDRAULIC COMPONENTS WHEN THERE IS PRESSURE IN THE SYSTEM. Disconnecting pressurized hose can result in serious injury to the exposed, unprotected face or other parts of your body. (33)**

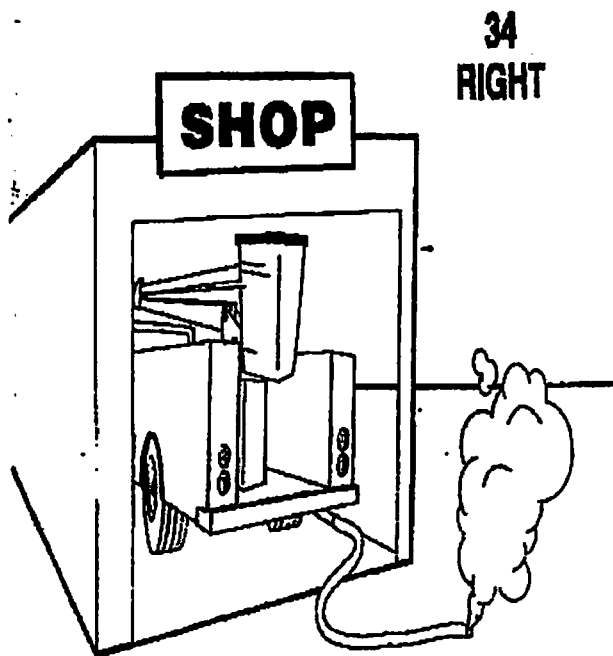


Relieve pressure before working on pressure components.

Perform maintenance safely

⚠ WARNING: Never work on machinery with the engine running unless so instructed for specific service, by the manufacturer's operator's or service manuals.

⚠ WARNING: Never operate any type of engine without proper ventilation — EXHAUST FUMES KILL. (34)



If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension. If you do not have an exhaust pipe extension, make sure you open the doors and get outside air into the area. If adjustments must be made with the engine running, always work as a two-person team with one person sitting in the driver's seat while the other works on the machine. Remove only guards or covers that provide access. Wipe away excess grease and oil. Never leave guards off or access doors open when unattended. Keep bystanders away if access doors are open. Make certain all guards, screens or panels, and safety signs are reinstalled on the machine as recommended by the manufacturer.

Exhaust fumes kill.

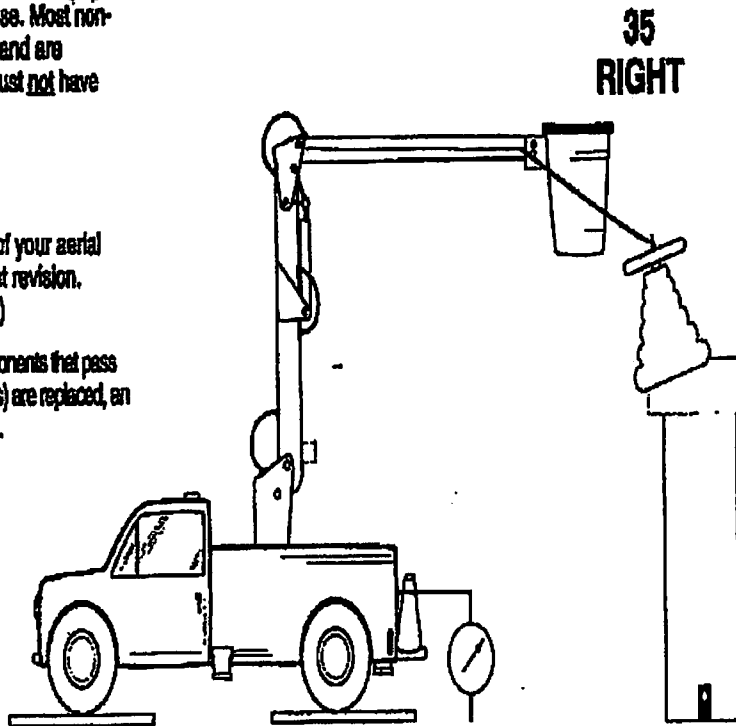
Perform maintenance safely

⚠ WARNING: Never substitute a conductive wire braid type hose for any insulated or nonconductive hose. Death or serious injury will result from the bridging of an insulated gap with a conductive hose. Most nonconductive hoses are orange in color and are marked as "nonconductive". Hoses must not have pinhole perforations, bubbles or cuts.

Insulated Test

Test the liner and insulated boom section(s) of your aerial device regularly per ANSI's A92 (A92.2) latest revision. (Periodic/Maintenance Test Procedures). (35)

⚠ WARNING: When hose, oil or other components that pass through the insulated section of the boom(s) are replaced, an electrical insulation test must be performed.




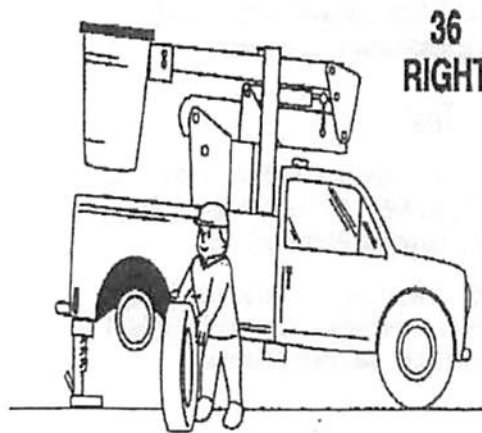
Perform a proper insulated test

Perform maintenance safely

Use Jacks And Hoists Carefully

If you must work beneath a raised vehicle during disassembly or maintenance, always use a truck lift or use wood (NOT CONCRETE) blocks, jack-stands or other rigid and stable supports to brace all movable portions of the aerial device. If these steps are not taken, components may shift or move during disassembly which could cause pinching or crushing injuries. When using jacks and hoists always be sure they are adequately supported. (36)

 **WARNING:** Never use concrete blocks for supports. They can collapse even under light loads. Make sure the hoist or jacks you use are in good repair. Never use jacks with cracked, bent or twisted parts. Never use frayed, twisted or pinched cables. Never use bent or distorted hooks.



Use jacks and hoists carefully.

Perform maintenance safely

Avoid Electrical System Hazards

Disconnect the battery before working on the electrical system. Remove the ground cables first. When reconnecting the battery, reconnect the ground cable last. Never work on the electrical system unless you are thoroughly familiar with system details and the special handling required. (37)

37
WRONG



Use care when servicing batteries.

Brake Safety Tips

Always follow manufacturer's manual(s) when adjusting brakes. Improperly adjusted brakes can cause an accident. Block wheels before purging air from the brake system. Air trapped in brake lines can cause erratic performance or loss of brakes.

Use only brake fluid recommended by manufacturer.

Be Careful With Fluids Under Pressure

The hydraulic system may be under pressure whenever the engine is running and may hold pressure even after shutdown. Install cylinder rod support struts or block the cylinders and equipment securely before working on the hydraulic system. Cycle all hydraulic steering and other controls after shutdown to relieve system pressure. When venting or filling the hydraulic system, loosen the filler cap slowly and remove it gradually. If the system is equipped with an accumulator, see the manufacturer's service manual for discharge and recharge instructions. Do not permit an open flame around the hydraulic system. Clean up spilled fluid immediately.

Perform maintenance safely

Avoid Fire And Explosion Hazards

Stop the engine and shut off electrical equipment while filling the fuel tank. Use extra caution when fueling a hot engine. Always ground the fuel nozzle against the filler neck to avoid sparks.



WARNING: NEVER SMOKE WHILE HANDLING FUEL OR WORKING ON THE FUEL SYSTEM. (40) THE FUMES IN AN EMPTY FUEL CONTAINER ARE EXPLOSIVE, NEVER CUT OR WELD ON FUEL LINES, TANKS OR CONTAINERS. Handle all solvents and dry chemicals according to procedures identified on manufacturer's containers or MSDS bar material. Work in a well-ventilated area. Make sure you know where fire extinguishers are kept and how to use them. Remove all trash or debris from the vehicle. Make sure that oily rags or other flammable material are removed from the machine. Check for fuel, oil or hydraulic fluid leaks. Repair the leaks and clean the machine before you operate.

Ether is flammable. Do not smoke when using Ether. Always follow the instructions on the Ether can and in the manufacturer's manual(s) for your machine. Do not use Ether if the engine is equipped with a glow plug or other type of preheater. Always use a nonflammable solvent when you clean parts. Do not use gasoline, diesel fuel or other flammable fluids. Store all flammable fluids and material away from your work area in suitable containers, as per local regulations. Do not store flammable fluid or gas containers in compartments with electrical controls. Check readiness of fire extinguishers.



Fuel and flame are a dangerous combination.

Perform maintenance safely

Avoid Battery Hazards

⚠ **WARNING:** Lead-acid batteries contain sulfuric acid which will damage eyes or skin on contact. Always wear a face shield to avoid acid in eyes. If acid contacts eyes, flush immediately with clean water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. If acid contacts skin, wash off immediately with clean water, then seek medical attention.

⚠ **WARNING:** Lead-acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away. Use flashlight to check battery electrolyte level. Always check with engine stopped.

Do not charge a battery or jump-start the engine if the battery is frozen. Warm to 60°F (15°C) or the battery may explode. (41)




41
WRONG

Use care when servicing batteries.

Perform maintenance safely

Tire Maintenance

 **WARNING:** Explosive separation of a tire and/or rim parts can cause serious injury or death. Always follow the manufacturer's recommendations or see your tire supplier.



42
WRONG

Special tools and procedures are required to change truck tires. To do it safely, it must be done correctly. Follow the step-by-step instructions given in a tire repair manual. Changing tires is a job better done by your tire service company. (42) Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Be sure to replace tire ballast if machine is so equipped. See manufacturer's specifications for ballast requirements. Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts or nuts. Never cut or weld on the rim or rim parts. This could cause explosive decompression. If the tires are filled with nitrogen DO NOT add air. Fill only with dry nitrogen, using proper inflating equipment. Keep wheel lug nuts tightened to manufacturer's recommendations. A rise in tire pressure is normal during operation. It should NOT be reduced. When adjusting tire pressure, do so from a distance. Use a long hose with self-attaching chuck. Always stand behind tread when adjusting tire pressure.

You're riding on them — you keep them safe.

Perform maintenance safely

Tire Repair

Tires are to be repaired only by a qualified individual using the proper procedures and safety equipment.



WARNING: Always use a safety cage or cable restraints when reinflating a repaired tire. (43)

Air Reservoir Tank

Drain tank (if so equipped) daily. In cold weather, it is especially important that the air tank(s) be thoroughly drained at least once per shift. Be sure drain is closed before starting engine.



43
RIGHT

Tire repair is for qualified personnel only.

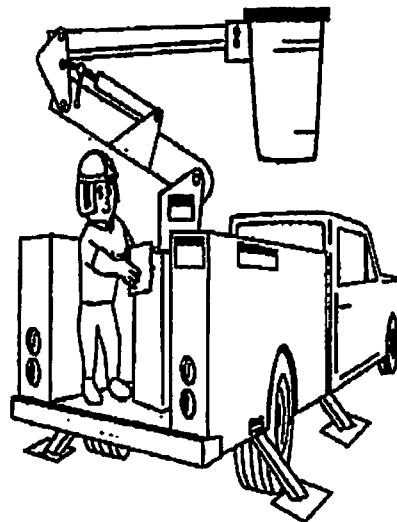
Perform maintenance safely

Complete Service And Repairs Before Machine Is Operated

Tighten all bolts, fittings, and connections to torques specified by the manufacturer. Install all guards, covers, and shields after servicing. Replace or repair any damaged ones. Fill and recharge pressure systems only with manufacturer approved or recommended fluids.

Start the engine and check for leaks. (See hydraulic fluid warning, page 40.) Operate all controls to make sure machine is functioning properly. Cycle the boom and swing controls several times to be sure cylinders are fully charged with oil. Road test machine if necessary. After testing, shut down, check the work you performed (any missing cotter pins, washers, locknuts, etc.). Recheck all fluid levels before releasing machine for operation.

Inspect all parts during repair and replace if cracked or damaged. Excessively worn or damaged parts can fail and cause injury or death. Replace any damaged or illegible decals. (44)



44
RIGHT

Wrong parts don't make a right machine.

Test your knowledge

Now that you have read this safety manual, do you understand . . .

- Your safety program?
- Your machine's manufacturer's manual(s)?
- Proper clothing and personal safety equipment?
- Your machine's controls, warning signs, devices, and safety equipment?
- How to properly inspect, mount, and start your machine?
- How to check your machine for proper operation?
- Your work area and any special hazards that may exist?
- Proper operating procedures?
- Operating safety precautions?
- Under what conditions you should not operate your machine?
- Proper parking, shutdown, and dismantling procedures?
- Proper maintenance procedures?



A final word to the user

You have just finished reading the EMI Aerial Device Safety Manual. It is impossible for this manual to cover every hazardous situation you may encounter. But, your knowledge of these safety precautions and your adherence to the basic rules of safety will help build good judgment in all situations. Our objective is to help you develop good safety habits and make you a better and safer Aerial Device operator.

Remember: safety is your business AND your responsibility.



Equipment Manufacturers Institute
10 S. Riverside Plaza • Chicago, Illinois 60608-3710
www.emi.org

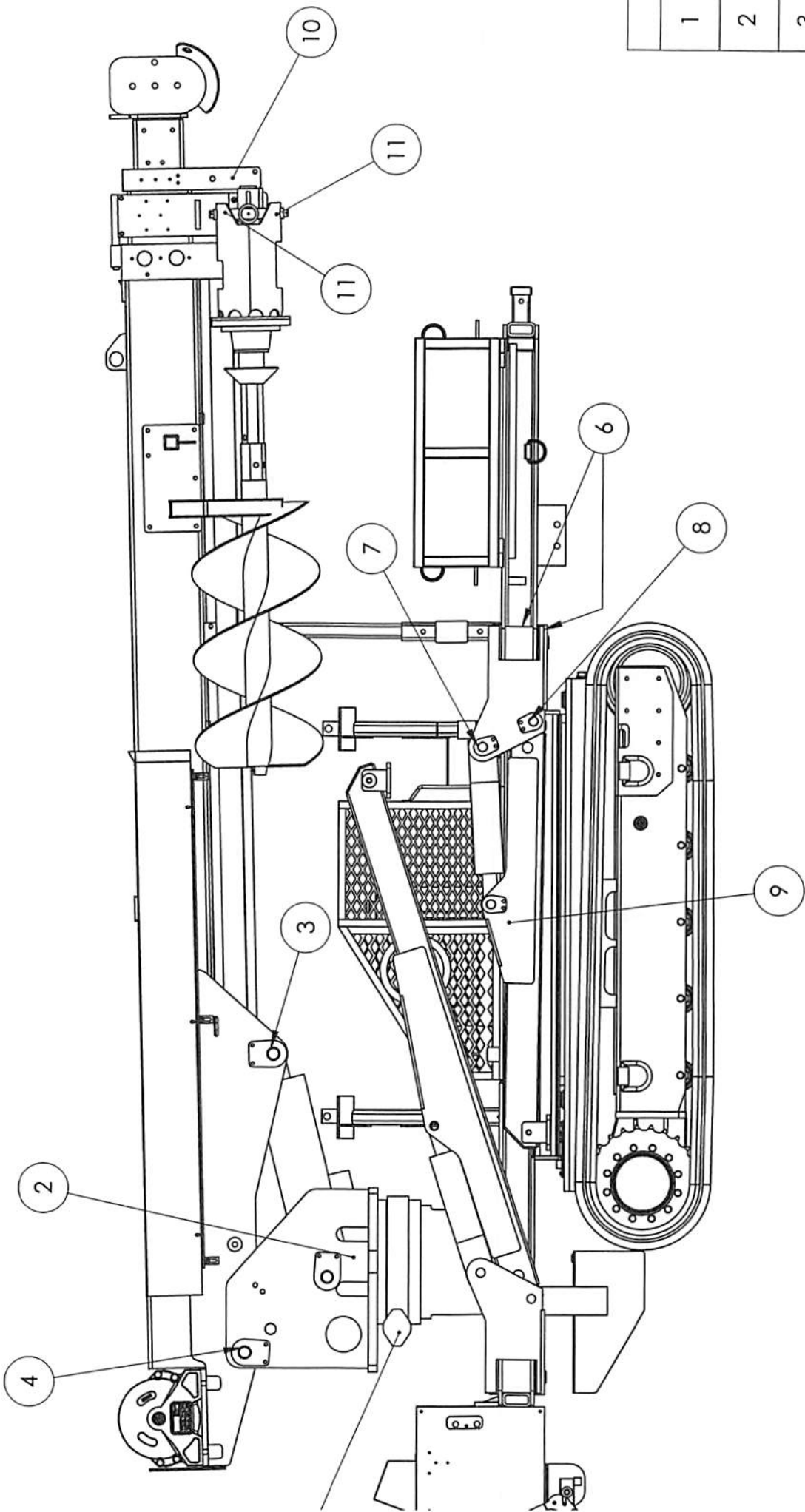
Form MDE-06

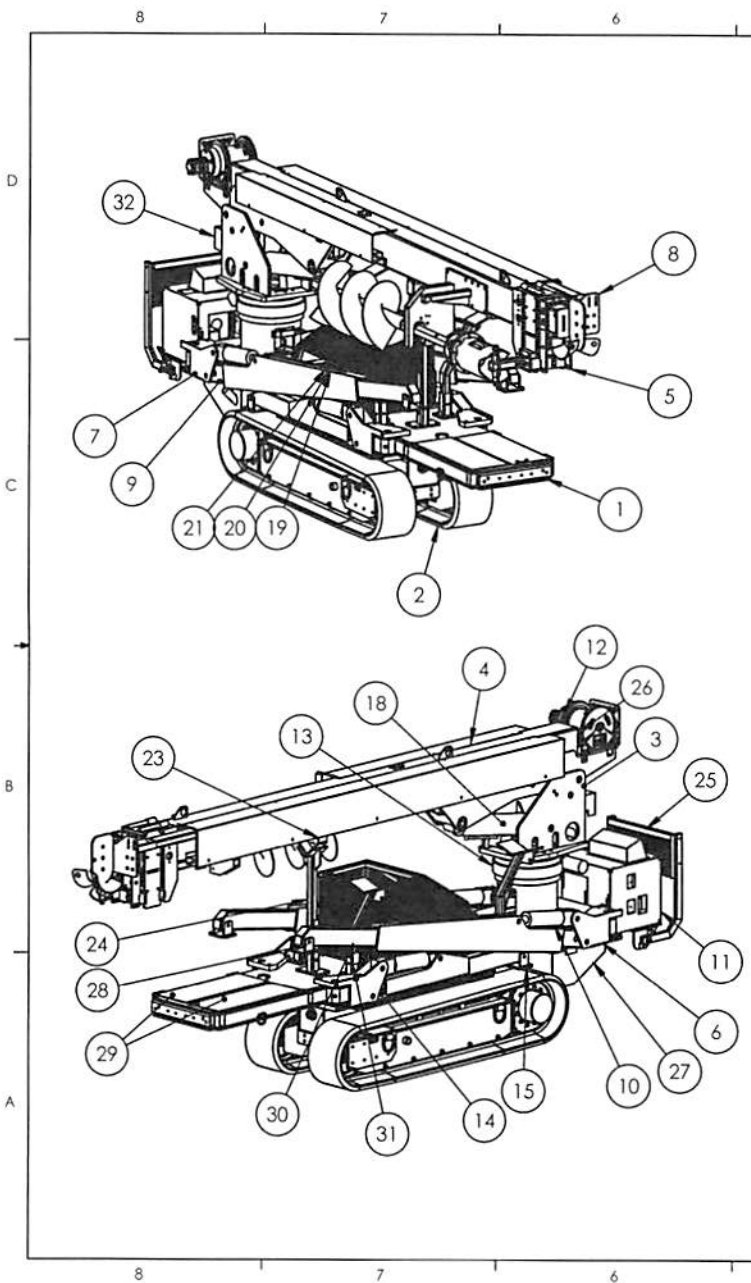
Printed in U.S.A.

C H A P T E R

2

1	2	3	4	6	7	8	9
---	---	---	---	---	---	---	---





ITEM NO.	Default/Qty.	PART NUMBER	DESCRIPTION
1	1	3501	SUPER 6000 SLAB WELDMENT
2	1	01250800	RETRACTED 90" CHASSIS
3	1	2218	TURRET ASSY, MACHINED
4	1	2118	RANGER MAIN BOOM ASSEMBLY
5	1	2156	RANGER SECONDARY BOOM ASSEMBLY
6	2	2196	OUTRIGGER SOCKET, RH
7	2	2197	OUTRIGGER SOCKET, LH
8	1	50-700	INSULATED BOOM ASSEMBLY
9	2	3529	OUTRIGGER LEG, REAR
10	4	500-351600D	Body REAR OUTRIGGER CYL. BODY
11	1	3117	M.D. VALVE FRAME W/ COVERS AND GUAGE BOX
12	1	1H2	Winch Assembly
13	1	WD-L 0343-3-04557	IMO GEAR ASSEMBLY
14	2	3530	OUTRIGGER LEG, FRONT
15	4	2377	OUTRIGGER FOOT
16	1	2265	AUGER SWING HANGER MAIN ASSY
17	1	2168	AUGER STOW BRACKET
18	1	500-501750D	LIFT CYLINDER
19	1	KUBOTA D1105-T	ENGINE TURBO DIESEL ENGINE
20	1	HONDA TO PRINCE OIL PUMP ADAPTER	ADAPTER
21	1	PRINCE SP20 HYD PUMP	HYDRAULIC PUMP
22	1	4532	ENGINE GUARD FRAME
23	1	2139	BOOM STOW BRACKET
24	1	3525	SUPER 5000 BOOM STOW ASSEMBLY
25	1	200-8100	OPERATOR PLATFORM
26	1	2115	MAIN BOOM REAR TUBE CAP
27	1	3140	WHEELED FUEL TANK ASSY
29	2	3545	BED EXTENSION ASSY
30	2	3414	POLE CARRIER
31	4	3026	POLE CARRIER SOCKET ASSEMBLY
32	1	3534	REAR TURRET COVER 5000
34	1	3541	BACK COVER, VALVE FRAME
35	1	3092	WINCH GUARD, TC2
36	1	2168 VECTOR	AUGER STOW BRACKET
37	1	2091	CATTRACK COVER LARGE
38	1	2092	SMALL CATTRACK COVER
39	1	2147	AUGER CATTRACK TUBE ASSEMBLY
40	1	2141	CATTRACK TUBE ASSEMBLY
42	1	3599	BRACKET, TRACK VALVE FITTING PROTECTOR
43	1	3597	ANTI ROTATION FORK
44	1	3598	ANTI ROTATION FORK EXTENSION BRACKET
45	1	3589	BRACKET, ROTATION STOP FORK
46	2	HFBOLT 0.25-28x0.5x0.5-N	HFBOLT 1/2"-13X2-1/2X1-1/4-N
47	1	3630	SUPER 6000 AND RANGER BOOM FOR REAR MOUNTED WINCH

USED ON SUPER 6000 <small>PROPRIETARY AND CONFIDENTIAL</small> <small>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <INSERT COMPANY NAME HERE>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <INSERT COMPANY NAME HERE> IS PROHIBITED.</small>	UNLESS OTHERWISE SPECIFIED:	NAME	DATE	TITLE: SUPER 6000 LOW PRO SIZE B DWG. NO. REV SCALE: 1:12 WEIGHT: SHEET 2 OF 2
	DIMENSIONS ARE IN INCHES	DRAWN	6/14/12	
	TOLERANCES:	CHECKED		
	FRACTIONAL: ±	ENG APPR.		
ANGULAR: MATCH ± BEND ±	MFG APPR.			
TWO PLACE DECIMAL ±	Q.A.			
THREE PLACE DECIMAL ±	COMMENTS:			
INTERPRET GEOMETRIC TOLERANCING PER:	FINISH			
MATERIAL: SEE BOM	APPLICATION			
NEXT ASSY	USED ON			
	DO NOT SCALE DRAWING			

MACHINE INSPECTION CHART

MINI-DERRICK SUPER 6000

ITEM	DESCRIPTION	SERVICE	D A I L Y	W E E K L Y	3 / M O N T H S	6 / M O N T H S	1 / Y E A R
1	Hydraulic Fluid	Check Level	X				
		Drain Fluid and Replace with Hydraulic or ATF (Where Applicable)					X
2	Engine Oil	Check Level	X				
		Change Oil (Check Engine Manual)					
3	Engine Air Filter	Clean and Inspect	X				
4	Drive Unit (Tracks)	If Equipt With Tracks, Check and Grease Track Tension Every Eight (8) to Ten (10) Hours Of Operation.	X				
5	Hydraulic Return Filter	Replace				X	
6	Outrigger Pin Grease Fittings	Grease Adequately (4 PLCS)	X				
7	Hydraulic Hose Fittings	Check For Leaks and or Cracks. Repair Leaks Immediately.	X				
8	Boom & Rotation	Grease All Fittings	X				
9	Main Rotation Gear	Check Torque On Bolts	X				
10	Outriggers	Grease All Fittings, Sockets, and Pins	X				
11	Load Hook	Inspect Hook & Latch	X				
12	Winch Line	Inspect for wear and broken strands	X				
13	Auger Strap	Inspect for wear and broken strands	X				
14	All Pin Retainers	Make sure pin retainers are in place and tightly bolted	X				
15	Tie Down Hooks	Make sure bolts are tight	X				
16	All Wheel Lug Nuts	If Equipt: Make sure bolts are tight	X				
17	Rotation Bearing Bolts	Make sure bolts are tight. Torque to 159 FT LBS			X		
18	Lift Cylinder Grease Fitting	Grease with mobile HP Grease			X		
19	Rotation Box Grease Fitting	Grease with mobile HP Grease			X		
20	Nylon Sheaves	Check for sharp edges and cuts		X			
21	Outrigger Pins Grease Fittings	Grease Adequately (4 PLCS)		X			
22	Auger Planetary Drive	Change After 50 Hours					X

TRAILER INSPECTION CHECK LIST

There are a number of simple rules to follow in caring for your trailer axle assembly that can add to its life – and in the case of some of these rules, you may be protecting your own life as well. Using the following checklist before starting a trip with your trailer is highly recommended. Some of these items should be checked 2-3 weeks prior to planned trip to allow sufficient time to perform maintenance.

1. Check your maintenance schedule and be sure you are up-to-date.
2. Check hitch. Is it showing wear? Is it properly lubricated?
3. Fasten safety chains and breakaway switch actuating chain securely. Make certain the breakaway battery is fully charged.
4. Inspect towing hookup for secure attachment.
5. Load your trailer so that approximately 10% of the trailers total weight is on the hitch. For light trailers this should be increased to 15%.
6. *Do Not Overload.* Stay within your gross vehicle rated capacity. (Consult your trailer identification plate.)
7. Inflate tires according to manufacturer's specifications; inspect tires for cuts, excessive wear, etc.
8. Check wheel mounting nuts/bolts with a torque wrench. Torque, in proper sequence, to the levels specified in the trailer owner's manual.
9. Make certain brakes are synchronized and functioning properly.
10. Check tightness of hanger bolt, shackle bolt, and U-bolts nuts per torque values specified in trailer owner's manual.
11. Check operation of all lights.
12. Check that your trailer is towing in a level position and adjust hitch height if required.

C H A P T E R

3

OPERATION – **SUPER 6000 LP**

The following instructions should be followed for proper operation & maintenance of the machine. All operators should be familiar with this manual.

STARTING INSTRUCTIONS

- Crank Engine.
- When engine starts, let warm up for 3-5 minutes.

REMOVING UNIT FROM TRAILER

!!! CAUTION !!!

Keep trailer hitched to vehicle when unloading to prevent nose from lifting!

- Lower ramps.
- Un-Strap from trailer.
- Back from trailer cautiously over ramps.
- Drive to level surface.
- Proceed to job site.

JOB LOCATION

- Carefully inspect job location for incline and ground condition.
- For safe operation should not exceed 5 degree side-to-side loading.
- Soft ground may change incline, "BEWARE" PROCEED WITH CAUTION!
- Upon arrival at job site open outriggers and place pins in locking position. Place outrigger pads under outrigger feet. Lower outriggers to stabilize machine.
- At this point you are ready to operate the machine for pole and transformer replacement.

CONTROLS

- All boom controls are located at the operator platform.
- Operate all functions cautiously and use the valve feathering trigger features for smooth operation.
- The hand held controller features simple toggle operation with finger trigger proportioning.

!!! IMPORTANT !!!

Always engage toggle switch prior to applying the proportioning finger trigger.

- Radio has approximately 300 ft range.

PERSONAL BUCKET (Optional)

!!! CAUTION !!!

350 LB MAX Basket Capacity

!!! DANGER !!!

Limited boom extension and rotation with bucket attached. See Load Charts.

READ ALL SAFETY LABELS ON BUCKET!

- Attach lanyard to eyelet on basket arm.
- Release bucket rotation brake.
- Use radio controls to position boom to desired level.
- Apply brake caliper when boom is stopped.
- Keep engine at or just above idle for smooth operation.

WINCH & AUGER OPERATION

- Winch and auger share a common valve function, and you must select either function with the selector valve located on the auger side of the boom.
- Operate the boom functions at low engine RPM, increase engine speed for auger and / or winch as required.
- When operating auger, stow winch line on main boom eyelet.
- To operate auger, you must first un-stow it.

ENGINE MUST BE OFF AND PRESSURE RELEASED

To remove build up pressure, move the winch / auger control valve handle to each position to bleed off pressure.

!!! CAUTION !!!

HYDRAULIC OIL UNDER PRESSURE CAN DO SEVERE DAMAGE TO HUMAN SKIN. BE CAUTIOUS AND WEAR PROPER EYE PROTECTION!

1. Raise auger up enough to release it from its cradle. Pull on release cable handle at right side of boom and unroll auger to ground position.
- For earth drilling, select the hole location, gently apply boom down boom pressure while spinning auger in forward position.
 - **Dig approximately 2 to 3 feet at a time only!** It is important to remove the auger and shake dirt from flits before trying to achieve the hole depth desired. When hole depth is achieved, stow auger back in auger stow bracket.

!!! INJURY OR SEVERE DAMANGE MAY OCCURE !!!

Stow auger by lockint it into the auger stow bracket before performing any other boom functions.

WINCH

- Shift selector valve to winch operation.
- Winch down to remove winch line from main boom eyelet. Place winch line over sheave head pulley.

To remove build up pressure, move the winch / auger control valve handle to each position to bleed off pressure.

!!! CAUTION !!!

HYDRAULIC OIL UNDER PRESSURE CAN DO SEVERE DAMAGE TO HUMAN SKIN. BE CAUTIOUS AND WEAR PROPER EYE PROTECTION!

- For setting pole, attach hydraulic pole claws (optional) to boom tip. Connect hydraulic lines to quick disconnects at boom tip.
- See pole guide instructions.
- Extend hydraulic fiberglass boom to desired location. Pay out enough winch line for extension.
- Determine pick location – You must know the weight of the pole.
- Consult Load Chart for maximum safe pick.
- Always use a choker strap and not the winch line to lift the pole.
- Be sure pole claws (optional) are in open position.
- When pole is safely cradled vertical in the tapered sheave head, close the pole claws (optional).
- Position pole over hole and lower pole to bottom.

TRANSFORMER JIB (OPTIONAL)

- Remove sheaves from boom
- Install transformer jib (optional)

SEE ILLUSTRATION FOR JIB INSTALLATION

- Connect hydraulic lines to quick disconnects at boom tip.

ENGINE MUST BE OFF AND PRESSURE RELEASED

Bleed off pressure as previously described. Note: Jib and pole guide share same valve function handle.

!!! IMPORTANT !!!
750 LB MAX JIB CAPACITY

POLE CARRIER BRACKETS (OPTIONAL)

- Balance pole continuously on carriers so as not to change stability of the machine.
- To remove pole from carrier brackets, raise boom to approx. 80 degrees and rotate to position sheave head over pole. Operate winch using radio remote control to cautiously handle pole. **!!! STAY CLEAR OF MACHINE & POLE !!!**

RADIO CONTROLS (OPTIONAL)

The machine uses a high tech radio control.

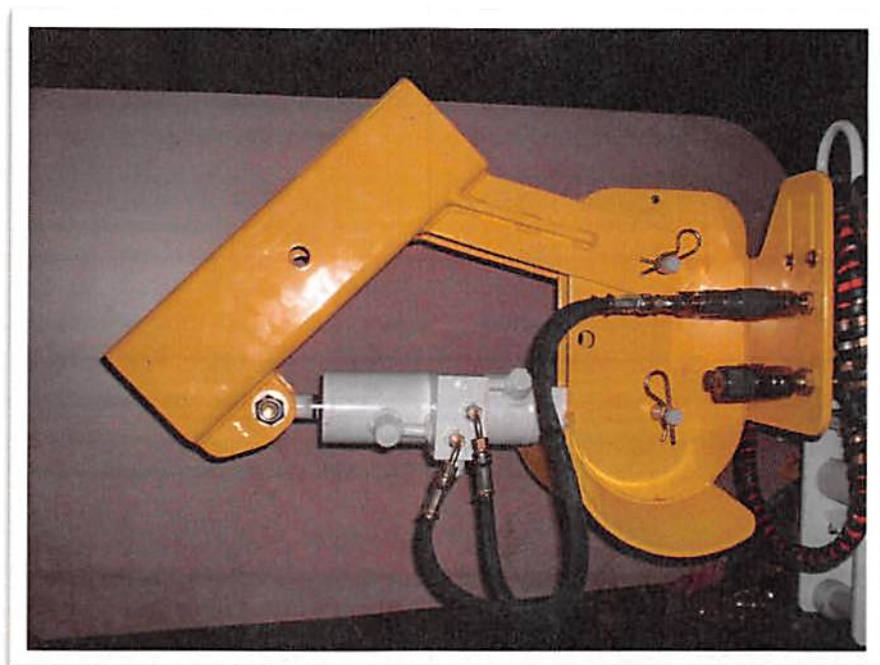
- The large red button located on the hand held remote must be pulled out to operate the radio. Depressing the red button on the remote will disable radio controls.
- **NOTE: Engage toggle for function first and then pull trigger to proportion smooth operation of function.**

JIB HOLDER ATTACHMENT PROCEDURE

1. Remove sheaves (blue pulleys) from sheave head. Attach jib holder as shown using the (2) $\frac{3}{4}$ " diameter x 4-1/2" long pins. NOTE: The small screws in the top of the sheave head prevent the jib cylinder from being pinned in the wrong hole.



2. Insert hairpins through hole of $\frac{3}{4}$ " diameter x 4-1/2" long pins to prevent pins from falling out. Attach hydraulic quick disconnect couplers to smaller set of quick disconnects on the sheave head.



POLE CLAW ATTACHMENT

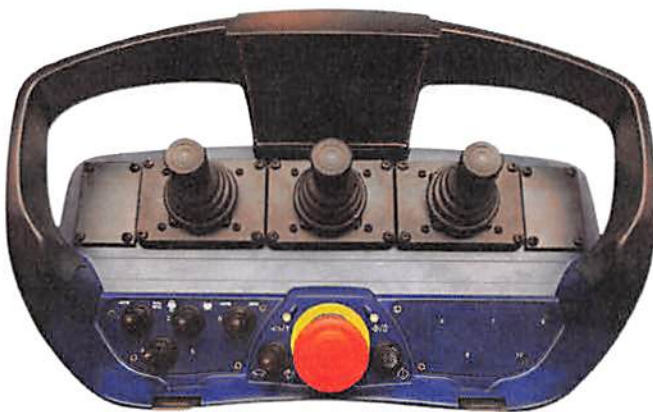


**C
H
A
P
T
E
R**

4

Installation and Quick Start Guide

G2B Radio Remote Control System



System Name	Manual Part Number	Revision	Date
Skylift MD 6000 Quick Start Guide	MAN-G2B-XX	Rev 3	Jan 2, 2014

Table of Contents

1	G2B System Overview	.....	3
2	CU Installation and Wiring	.....	4
2.A	Locating the CU	.....	4
2.B	Grease Contacts	.....	4
2.C	Feed Cable	.....	4
2.C	Secure Cable	.....	4
2.E	Terminal Schematic	.....	5
2.F	Special Logic Functions	.....	6
2.G	Wire I/O	.....	6
3	CU (Receiver) Overview	.....	7
3.1	CU Layout and Indicators	.....	7
3.2	RF Antenna	.....	7
3.3	Remote / Off / Manual Switch	.....	7
3.4	Tether/Programming Connector	.....	7
3.5	DV and Status LED's	.....	8
3.6	Internal LED Display	.....	8
	3.6.1 Operational Indicators	.....	8
	3.6.2 Error Indicators	.....	9
4	PCU (Transmitter) Overview	.....	11
4.1	Switch and Paddle Layout	.....	11
4.2	Power / Stop / Micro Switch Panel	.....	12
4.3	Battery and Charging	.....	12
4.4	Powering the PCU	.....	13
4.5	Micro Speed Switch Operation	.....	13
4.6	Downloading ID: Pairing PCU and CU	.....	14

Revision	Date	Name	Notes
1	07/23/2012	Scanreco NA	Initial Release
2	01/02/2014	AL	Added Travel Switch to 305

1 G2B System Overview

This guide is intended as a complement to the Service Manual and Remote Control System RC400 G2 Instruction manual. It is a brief overview of the important features of a specific radio remote control system. Installers and Operators must read the Service Manual and Instruction manual before installing / operating the system and adhere to all warnings and recommendations.

The Scanreco G2B Radio Control (RC) System offers the machine operator an extremely advanced remote control system with speed, precision, control and maximum safety. The G2B RC System is comprised of the following components:



No	SNA Part Number	Description	Qty
N/A		Typically includes all items listed below	N/A
1	PCU-MINI-XX	Portable Control Unit (PCU) Mini or Maxi (shown)	1
2	3011	Central Unit (CU)	1
3	434	Battery charger	1
4	592	Battery cassette (NiMH 7.2 VDC)	2
5	47545	Tether cable (10 meters)	1

2 CU Installation and Wiring

The following instructions will help an installer wire the Central Unit to the controls of your specific machine. The installer may choose to make the wiring harness himself or use the generic Scanreco wiring harnesses for ease of installation. Please consult your sales representative for more information regarding generic wiring harnesses.

Read this entire section before proceeding with the installation. In order to maximize product life and prevent involuntary service, **this section must be followed** when installing and wiring your CU.

Important Notice About Welding!



If you plan to do any welding on the machine after the CU has been installed; the CU's electrical connections **must always be disconnected!** Power supply cables (+ and -), all valve contacts, tether and all other wiring to the CU must be disconnected. Welding can cause severe damage to all vehicle electronics and if detected may void your warranty.

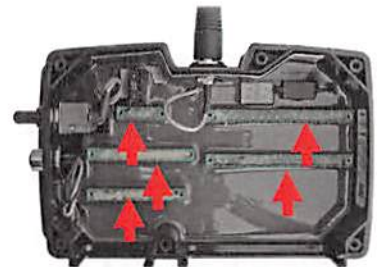
A. Locating the CU



- **For optimum radio communications** the CU or external antenna should be located as high on the machine and free from obstructions as possible. An antenna screened and surrounded by fixed objects (especially metal) will considerably reduce radio range
- The antenna pin must not touch any metal object
- The central unit should be mounted in a vibration free location and not be subjected to strong sources of heat (for example exhaust pipes etc.)

B. Apply Grease to Contact Pins

If grease is not already applied to all the connector pins of the CU (shown in the picture); be sure to add water resistant grease suitable for electronic applications to the areas noted.



C. Feed Cable Through Membrane



Pierce the membrane and feed the cable through. A tight fit ensures a good seal.

D. Secure Cable



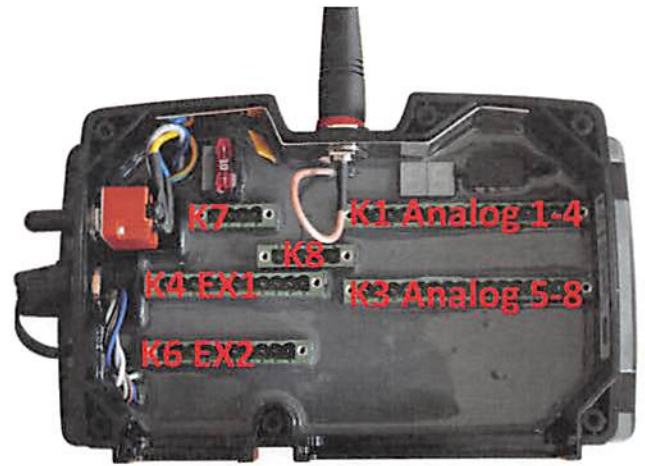
Secure the inner side of the cable with a cable tie or similar.

E. Terminal Schematic

K7 Main

Pin no	Function	
K7.1	Supply (+12/24VDC)	RED
K7.2	Ground (GND)	Black
K7.3	Dump Valve Out (DV+)	Org/Grn
K7.4	DV GND	Black

Note: An electrically controlled dump valve should always be connected, for safety reasons, between the function valves and the hydraulic tank. **During a system stop DV+ will be off** to ensure the system is without hydraulic



Note: Pin 1 starts on the Left for all connectors.

K1 Analog Outputs

Pin no	No	Function Name	
K1.1	1A	Jib/Pole Guide/Tilt/Can-H	Green
K1.2		GND	Black
K1.3	1B	Jib/Pole Guide/Tilt/Can-H	Gray
K1.4		GND	Black
K1.5	2A	Auger/Winch Down	Brown
K1.6		GND	Black
K1.7	2B	Auger/Winch Up	Blue/White
K1.8		GND	Black
K1.9	3A	Boom CW	Red/Black
K1.10		GND	Black
K1.11	3B	Boom CCW	Purple
K1.12		GND	Black
K1.13	4A	Boom 2 Out	Yellow/Black
K1.14		GND	Black
K1.15	4B	Boom 2 In	Yellow
K1.16		GND	Black

K3 Analog Outputs

Pin no	No	Function Name	
K3.1	5A	Boom 3 Out	Black/Red
K3.2		GND	Black
K3.3	5B	Boom 3 In	Black/Yellow
K3.4		GND	Black
K3.5	6A	Boom Down	Black/White
K3.6		GND	Black
K3.7	6B	Boom Up	White/Black
K3.8		GND	Black
K3.9	7A	Left Track Forward	Blk/Wht/Red
K3.10		GND	Black
K3.11	7B	Left Track Reverse	Blk/Wht/Ylw
K3.12		GND	Black
K3.13	8A	Right Track Forward	Blu/Wht/Blk
K3.14		GND	Black
K3.15	8B	Right Track Reverse	Blu/Gry/Pur
K3.16		GND	Black

K4 EX1—Digital Outputs / Inputs

Pin no	Function	
K4.1	RPM High	Orange
K4.2	Engine Start	Tan
K4.3	Engine Stop	Blue
K4.4	RPM Low	Not Used
K4.5	Boom Enabled	Org/Blk
K4.6	Tracks Enabled	Org/Red
K4.7	GND	
K4.8	Feeder Set Input	
K4.9	Digital input 2	
K4.10	Digital input 3	
K4.11	Input supply (+VDC)	

K6 EX2—Digital Outputs / Inputs

Pin no	Function	
K6.1	Unused Digital Output 7	Yellow/Green
K6.2	Unused Digital Output 8	White/Black/Red
K6.3	Pole Claw Tilt ON	Grn/Blk/Wht
K6.4	Pole Claw Tilt OFF	Not Used
K6.5	GND	
K6.6	Travel High	Red/Blk/Wht
K6.7	Unused Digital Output 12	
K6.8	Unused Digital Output 13	
K6.9	Unused Digital Output 14	
K6.10	GND	

K8 EX3—Optional Features

Pin no	Function
K8.1	CAN High
K8.2	CAN Low
K8.3	CAN GND
K8.4	Not Used
K8.5	Not Used

F. Special Logic Functions

BOOM/TRAVEL switch (S8) must be in the center OFF position for the transmitter to link to the receiver. Analog Outputs 1-6 and the POLE CLAW TILT outputs only operate with the switch in the Boom position. Analog Outputs 7 and 8 and SPEED HIGH are optional and only operate with the switch in the Travel position. Engine and RPM operate in both Boom and Travel. Engine Start is disabled in Boom or Travel.

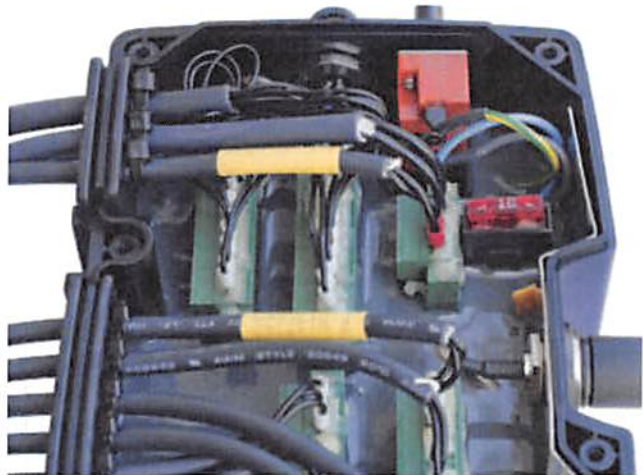
The transmitter will shut itself off as a battery saving measure after **10 minutes** of inactivity.

G. Wire Inputs / Outputs

Inputs and Outputs need to be wired to the appropriate functions on the machine and in the CU. Leave unused and spare functions un-terminated.

Install 22-18AWG wire, appropriate for current consumption of loads (1.5 Amps max per output) with proper sized Ferrell cable end.

Orient cables as shown and apply water resistant grease suitable for electronic applications to the terminal connectors.



3 CU (Receiver)

3.1 CU Layout and Indicators

The Central Unit is equipped with 2 individual positions where status and operational indications can be read, the external LED's: DV and STATUS provide basic information. The internal LED display provides more detailed information. Below is the layout of the CU:



No	Description
1	RF Antenna
2	Remote / OFF / Manual Switch
3	Tether / Programming Connector
4	DV and STATUS LED's
5	Internal LED Display




Note: For CU's build before Fall 2010 the CU cover must be removed to view the Internal LED Display; for later units there is a viewing window as shown.

3.2 RF Antenna

The Central Unit show has a standard whip antenna with TNC connector. Optional antennas are available for various types of installations and range requirements. Please consult your sales representative for more information.

3.3 Remote / OFF / Manual Switch

The Central Unit is equipped with a Remote / OFF / Manual Switch to power the CU in different modes of operation:

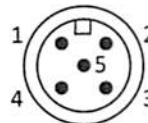
-  OFF: there is no power to the internal electronics, Dump Valve or any outputs
-  REMOTE: electronics are powered; PCU can link to CU and Dump Valve and outputs operate as specified
-  MANUAL: there is no power to the internal electronics or any outputs; Dump Valve is ON. This bypasses the Dump Valve output to enable operation of manual or hand lever controls, if equipped.

3.4 Tether / Programming Connector

The CU can be connected through the Tether Connector to the PCU via a 5 wire tether cable. The cable has M12 connectors at each end.

The tether cable disables the RF transmission and charges the PCU battery, if installed. The cable is available in standard lengths of 10 meters.

The CU can also be connected to a PC for programming an calibration. Refer to Service Manual and WinSCI Manual for further details.



Pin No	Description
1	Data
2	Ground
3	RS232 TX
4	RS232 RX
5	+ Battery (VDC)

SCANRECO

3.5 DV and STATUS LED's

Operational status indications can be read from the DV and STATUS LED's as follows:

Status LED	Description
OFF	CU is OFF or not powered
RED	CU is ON with no link to PCU
GREEN	CU is ON and linked with PCU (via cable or RF)
RED Flashing	Error code on Internal LED Display (see Section 3.6.2)

DV LED (Dump Valve)	Description
OFF	Dump Valve Output is OFF
RED	Dump Valve Output is ON



3.6 Internal LED Display

3.6.1 Operational Indicators

The Central Unit will indicate various operational states via the Internal LED display as shown below:

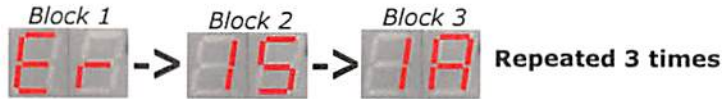
Indication		Meaning
Block 1	Block 2	
	(Rotating CCW)	CU is powered and not Linked to PCU
	N/A	Primary PCU is linked to CU via Radio, Hopping (1H flashes as link gets weaker)
	N/A	CU is linked to primary PCU (ID programmed) via tether cable
	N/A	CU is linked via tether cable to PCU (ID not programmed)
		ID Programming initiated. See section 4.6 for details
		ID Programming Blocked; reset power on CU and Download ID again. See section 4.6 for details

SCANRECO

3.6.2 Error Indicators

The Central Unit will indicate detected errors via the internal double 7-segment LED display. If the Central Unit detects an error it will be indicated by the STATUS LED flashing red; while the Internal LED Display indicates the error code. The digits "Er" are flashed, followed by two blocks with the corresponding error code.

Example of an error code sequence:



The example above would indicate that there is a Short Circuit on PWM Output 1A

The error code sequence will repeat itself three times if the error is considered a soft error and reboot to standby mode to try and clear the error. If the error is considered a hard error the error code sequence will repeat until the power is disconnected.

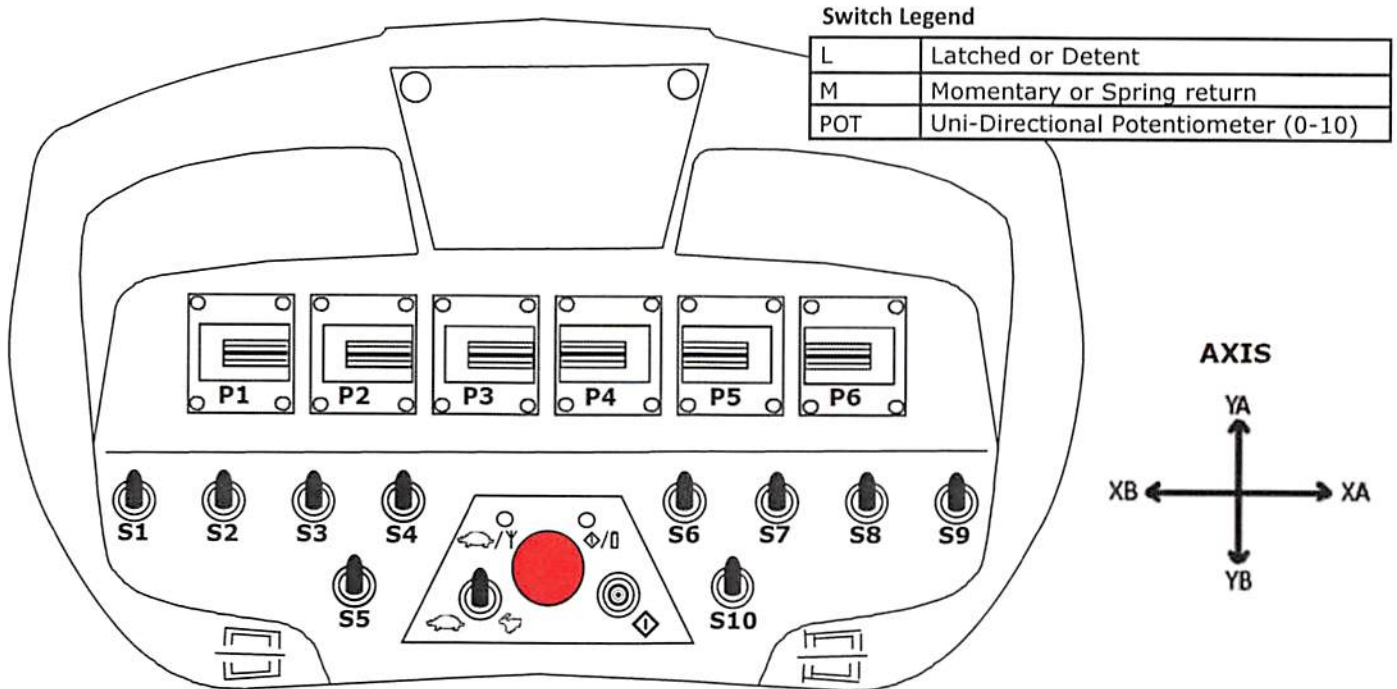
Below is a list of error codes and their meaning:

Block 2	Block 3	Description	Cause	Action
01	01	EEPROM Failure	Incorrect checksum on EEPROM, last stored data will be set.	Reset system, if persistent; Re-load application program.
01	02	Flash Memory Failure	Incorrect checksum on flash memory.	Reset system, if persistent; Re-load application program.
01	03	Stack Memory Failure	Incorrect sizes of data in CANopen protocol, incorrect dataflow or stack overflow.	System will self reset automatically. If persistent; Re-load application program.
01	04	RAM memory failure	Incorrect RAM and/or hardware identification.	System will self reset automatically. If persistent; Re-load application program.
02	01	Illegal voltage DV-output	DV-output (DV+) externally supplied System will self reset.	Check DV-output connection. Remove terminal connector and reset system.
02	02	Short circuit DV-output	DV-output error; DV output (DV+) short circuited or overloaded.	System will self reset. Check DV-output connection. Remove terminal connector and reset system.
02	03	Safety switch error	Safety switch output read back error, incorrect voltage (High instead of Low).	System will self reset. Remove all terminal connectors and reset system.
02	04	Safety switch error	Safety switch output read back error, incorrect voltage (Low instead of High).	System will self reset. Remove all terminal connectors and reset system.
02	05	CAN Safety loop error	Incorrect status of CAN safety loop.	System will self reset. Check CAN safety loop connection. Reset system.
03	00	Illegal voltage Digital output	Digital output (1-14) illegal voltage, expected low signal but read as high (could be any of the available 14).	System will self reset. Check digital output connections. Remove terminal connector and reset system.
04	00	Short circuit; Digital output	Digital output (1-14) short circuited or overloaded (could be any of the available 14 outputs).	System will self reset. Check digital output connections. Remove terminal connector and reset system.
05	00	Error input triggered (Danfoss CU only)	Error signal for Danfoss valve triggered (Could be any of the available 8 inputs)	System will self reset. Check analog output connections. Remove terminal connector and reset system.
06	xx	Illegal voltage Analog output	Wrong voltage on analog output (Block 3 declares related output; 1A,1B...).	System will self reset. Check analog output connections. Remove terminal connector and reset system.

3.6.2 Error Indicators (cont'd...)

Block 2	Block 3	Description	Cause	Action
07	xx	Illegal voltage Analog output	Wrong current on analog output (Block 3 declares related output; 1A,1B....).	System will self reset. Check connections. Remove terminal connector and reset system.
08	01	CAN Passive	CAN bus in passive mode.	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08	02	CAN I/O buffer overflow	CAN overrun; either the CAN input or CAN output buffer are full.	System will self reset. Reset system, re-initiate via CAN controller.
08	03	CAN physical layer error	Bad communication/transmission.	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08	04	CAN PDO length exceeded	PDO length is too long.	System will self reset. Reset system, re-initiate via CAN controller.
08	05	CAN PDO length error	PDO length is too short.	System will self reset. Reset system, re-initiate via CAN controller.
08	06	CAN Transmit COB-ID collision	To many collisions on CANbus.	System will self reset. Check CAN connections. Check other nodes on bus and reset system, re-initiate via CAN controller.
10	N/A	PCU failure; E-Stop	Error transmitted from PCU: Illegal signal from PCU emergency stop switch.	System will self reset. Check emergency stop switch on PCU.
11	N/A	PCU failure; Analog input	Error transmitted from PCU: Analog input active on start-up.	System will self reset. Ensure all analogue inputs on PCU are at zero/neutral position. Restart PCU.
13	N/A	PCU failure; Analog input	Error transmitted from PCU: Signal redundancy test; illegal signal from analog input.	System will self reset. Diagnose PCU via TEST MODE.
14	01	ID programming failure	ID-code and/or parameter settings not accepted.	System will self reset. Retry ID-programming procedure.
14	02	Program failure	Programmable logic parameter error.	System will self reset. Reset application program.
15	xx	PWM output failure	Analog output short circuited or overloaded. (Block 3 declares related output; 1A,1B....).	System will self reset. Check analog output connections. Remove terminal connector and reset system.
16	xx	PWM output failure	Analogue output not connected (programmable feature). (Block 3 declares related output; 1A,1B....).	System will self reset. Check analog output connections. Remove terminal connector and reset system.
17	01	Low supply power	Low power supply (Below 8.5 VDC).	System will self reset. Check power supply and supply connections.
17	02	High supply power	High power supply (Above 36 VDC).	System will self reset. Check power supply and supply connections.

4.1 Mini Switch and Joystick Layout



Paddles

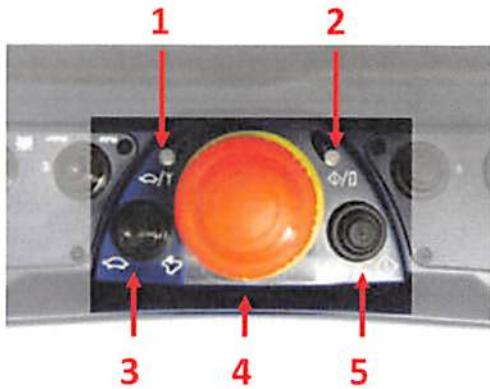
Axis	Function in (A) Direction	Function in (B) Direction
P1	Jib Down/Pole Guide Close	Jib Up/Pole Guide Open
P2	Auger/Winch Down	Auger/Winch Up
P3	Boom CW/Left Track FWD	Boom CCW/Left Track Rev
P4	Boom 2 Out/Right Track FWD	Boom 2 In/Right Track Rev
P5	Boom 3 Out	Boom 3 In
P6	Boom Down	Boom Up

Switches

Position	Axis	Function A		Center	Function B	
		Type	Name		Type	Name
S1						
S2	Y	M	Pole Claw Tilt Down	OFF	M	Pole Claw Tilt Up
S3						
S4	Y	M	Engine Start	OFF	M	Engine Stop
S5	Y	L	Travel High	N/A	L	Speed Low
S6	Y	M	RPM High	OFF	M	RPM Low
S7						
S8	Y	L	Boom	OFF	L	Travel
S9						
S10	Y	M	Tool Circuit On	OFF	M	Tool Circuit On

SCANRECO

4.2 Power / Stop / Micro Speed Switch Panel



No	Description
1	Micro Speed (Green) / RF Indicator (Red) LED
2	Power ON / Low Battery LED
3	Micro Speed Switch
4	Stop Function Mushroom Button; twist to reset
5	Power / Function Button

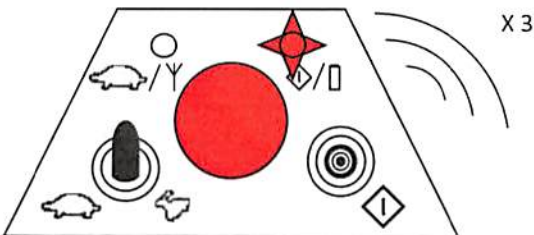
The above figure and table detail the layout of a **Maxi** generic Power / Stop / Micro Speed Switch panel. **Mini** switch panels are very similar in layout with the same functionality. Indicators and switch functions are detailed in the sections below.

4.3 PCU Battery and Charging

- Each Battery needs to be fully charged before use. Connect charger to 10-32 VDC or 120 VAC depending on type supplied.
- PCU battery compartment is located in the bottom of the PCU housing. Batteries are keyed to ensure correct orientation.



- Ensure terminals are clean and free from debris before installation of a battery
- A new fully charged battery will last approximately 8 hours on a charge. Extremely cold conditions can reduce battery performance.
- PCU's are typically programmed with a 5 minute inactivity timeout as a battery saving feature; turning off the PCU after X minutes of paddle / joystick inactivity. This is a configurable feature that can be adjusted or removed as requested.

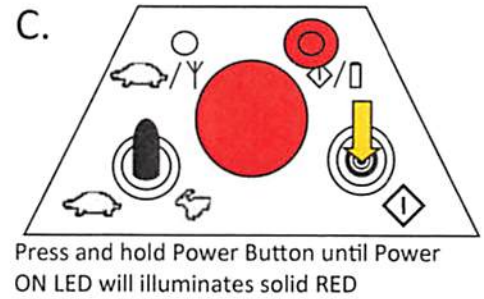


Low Battery is indicated on the PCU when the internal Buzzer beeps 3 times and the Power ON / Low Battery LED flashed Red.

SCANRECO

4.4 Powering the PCU

A. Install charged battery or connect tether cable

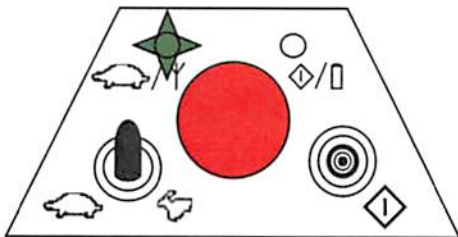


Note: If no link is established the RF indicator LED will flash RED 4 times then turn off. Continue to Section 4.6 Downloading ID: Pairing PCU and CU.

Tether Note: Tether connection has priority over RF transmission, if a tether link is present between the PCU and CU the radio will be disabled and battery will be charged (if installed). The PCU inactivity timeout will also be disabled when connected via tether cable.

4.5 Micro Switch Operation

The Micro Speed Switch can be programmed to reduce the maximum speed of any Proportional Paddle / Joystick outputs. Typically in five (5) steps as indicated in the table below. The number of steps and percentage of reductions is adjustable.



Micro / RF LED Green	Indication
not lit	0 to 100 % speed (normal speed)
1 blink every third second	0 to 60 % speed
2 blink every third second	0 to 50 % speed
3 blink every third second	0 to 40 % speed
4 blink every third second	0 to 30 % speed
5 blink every third second	0 to 20 % speed



Pressing the Micro Speed switch to the Turtle position will decrease the proportional outputs by one step in the above table.



Pressing the Micro Speed switch to the Rabbit position will return the proportional outputs to 100% operation.

- For safety reasons, a return to 100% steering can only be made if all Paddles / Joysticks are in their center positions.
- When the green LED is blinking, the Micro-speed function is activated. The number of blinks indicates the operating speed as defined in the table above. If the Stop Function is pressed on the PCU, the PCU will start from the last chosen speed.

SCANRECO

4.6 Downloading ID: Pairing PCU and CU

Programs the unique ID-code required for radio communication between the Portable Control Unit and Central Unit. Typically the CU may store a maximum of 1 PCU ID-code. If another PCU is required to operate the CU via radio, the ID-code procedure is required to be done and the previous ID-code will be overwritten.

A.

Remove battery from PCU and connect tether cable between CU and PCU.

B.



Release E-Stop; Rotate CW

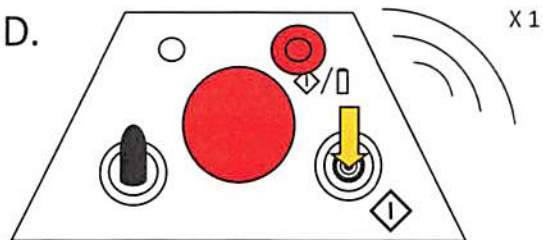
C.

Remote / OFF / Manual Switch

Cycle power on CU -> Toggle switch from OFF (center) to Remote (up) position. *Step D. must be done within 45 seconds of C.*



D.



Press and hold Power Button (approx. 10 Seconds) until Power ON LED illuminates solid RED and Buzzer in PCU beeps once.

PCU ID is now being sent to CU.



E.

The PCU will beep in quick succession to confirm programming is completed.

F.

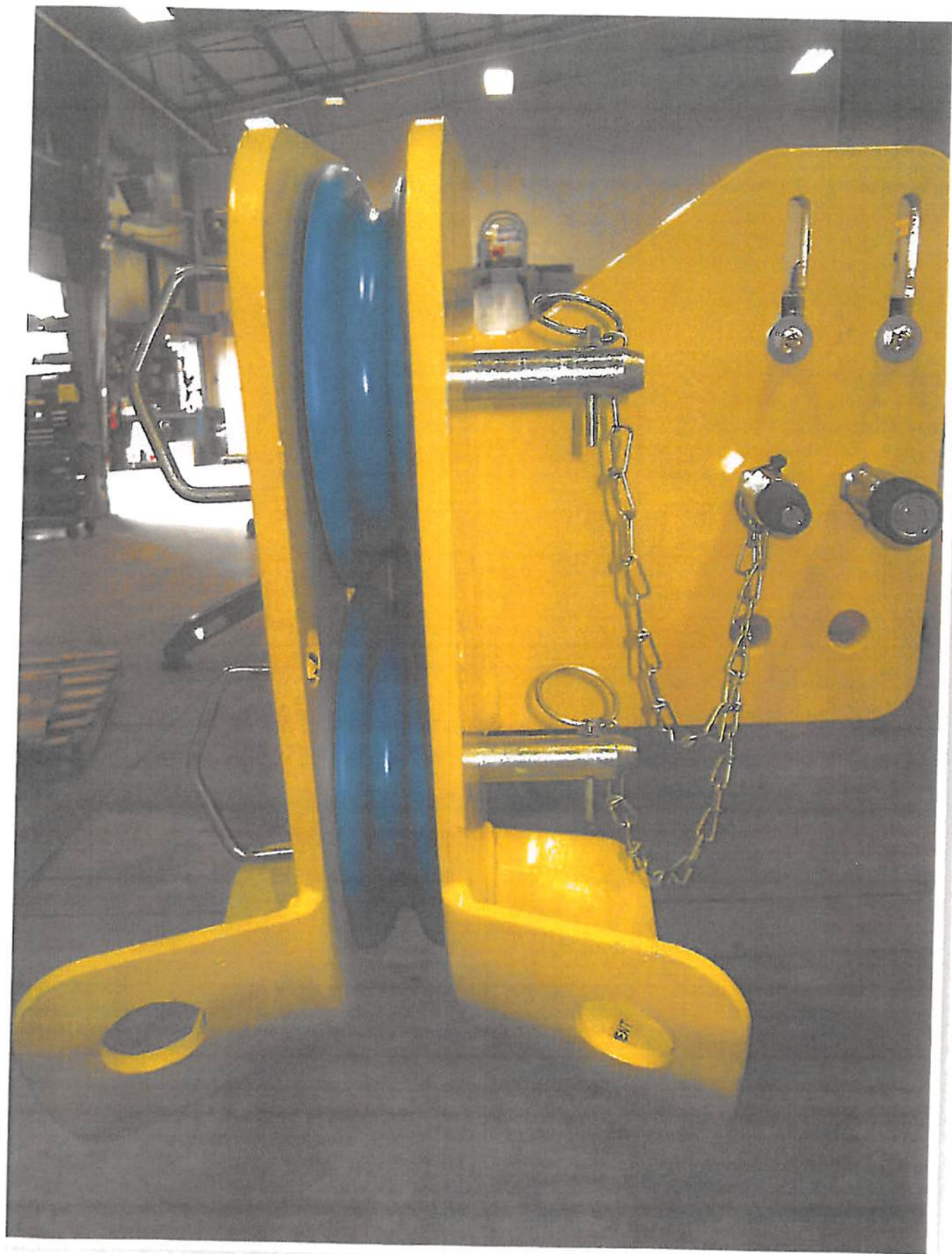
If this procedure does not work, repeat the programming (see items B-E). If it still does not work, contact Scanreco North America.

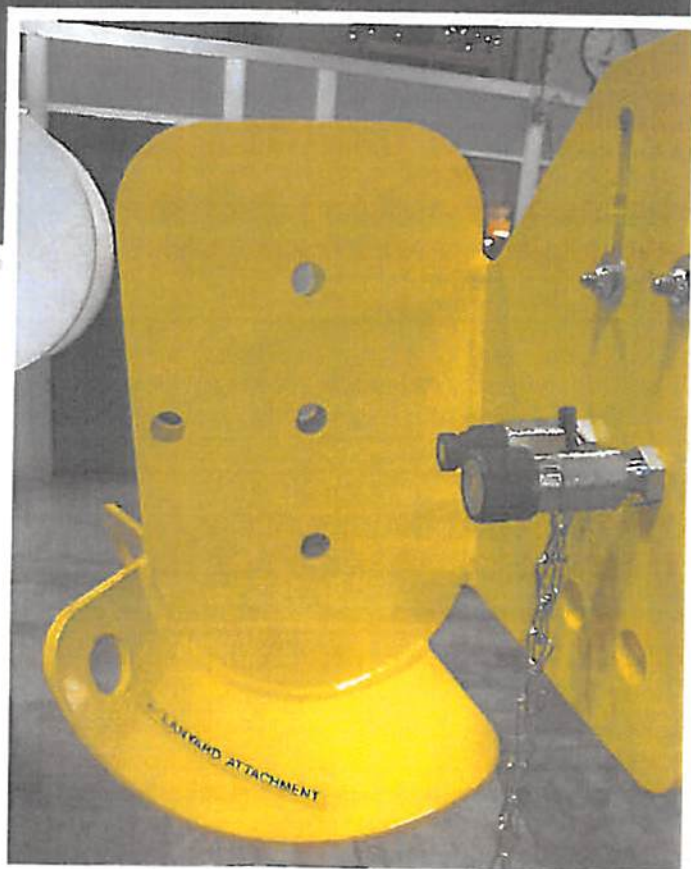
C H A P T E R

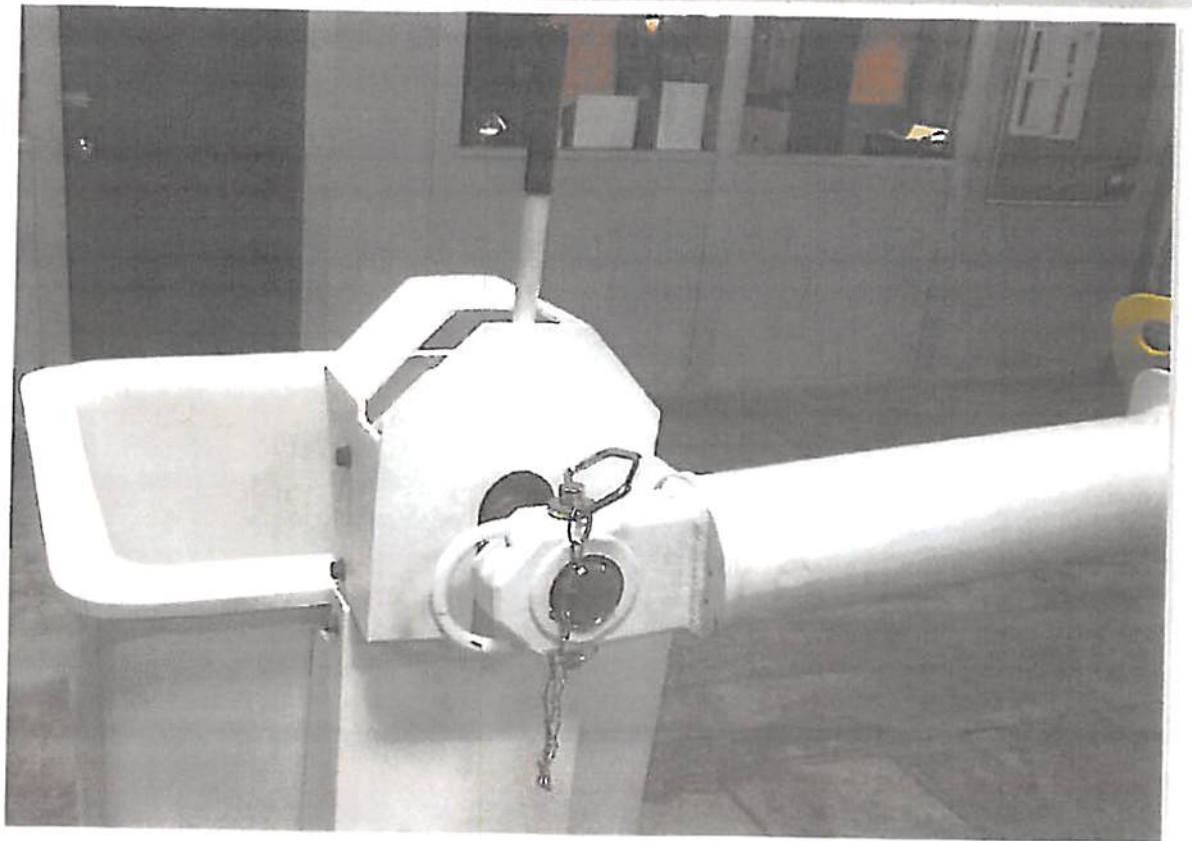
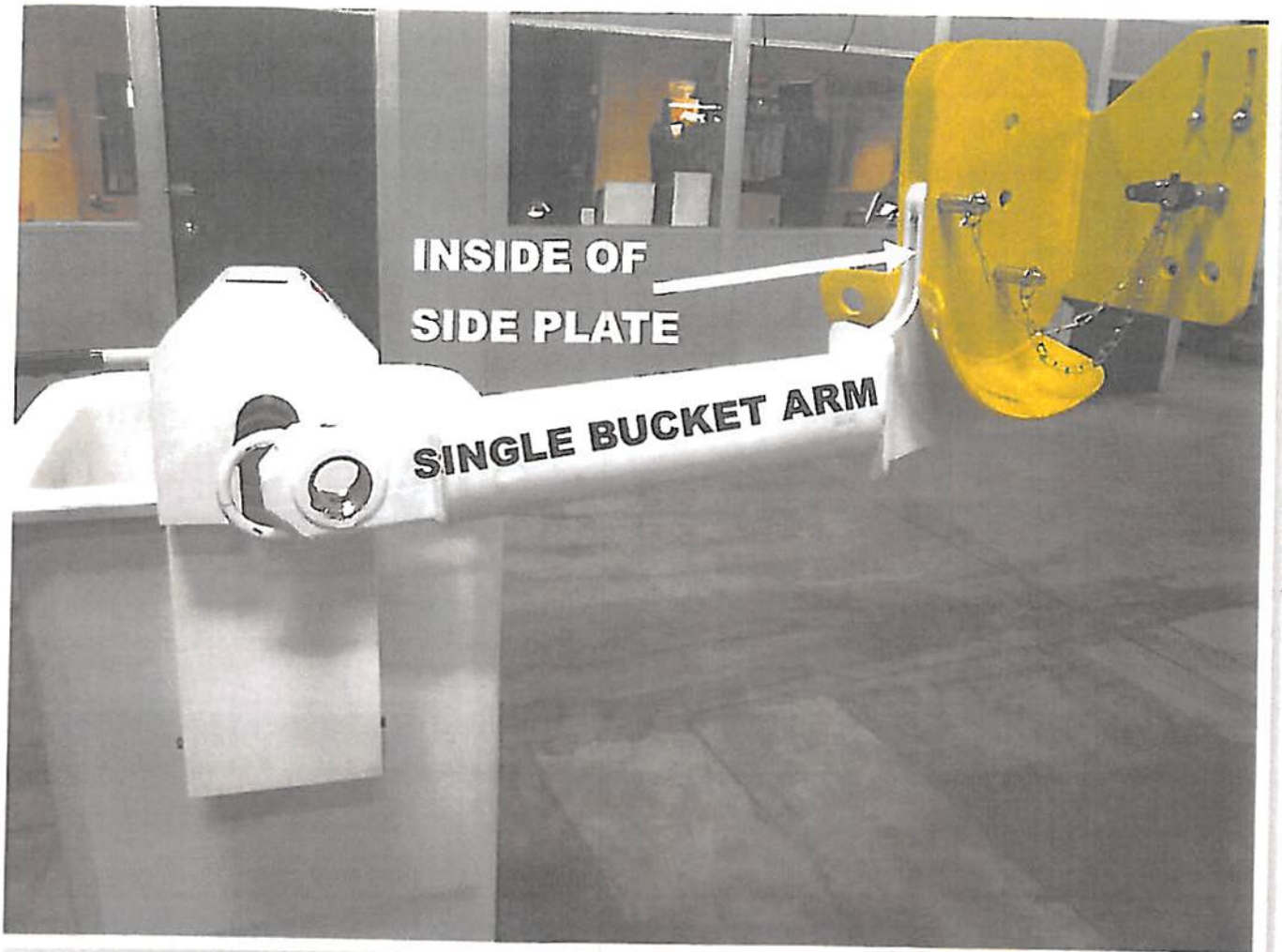
5

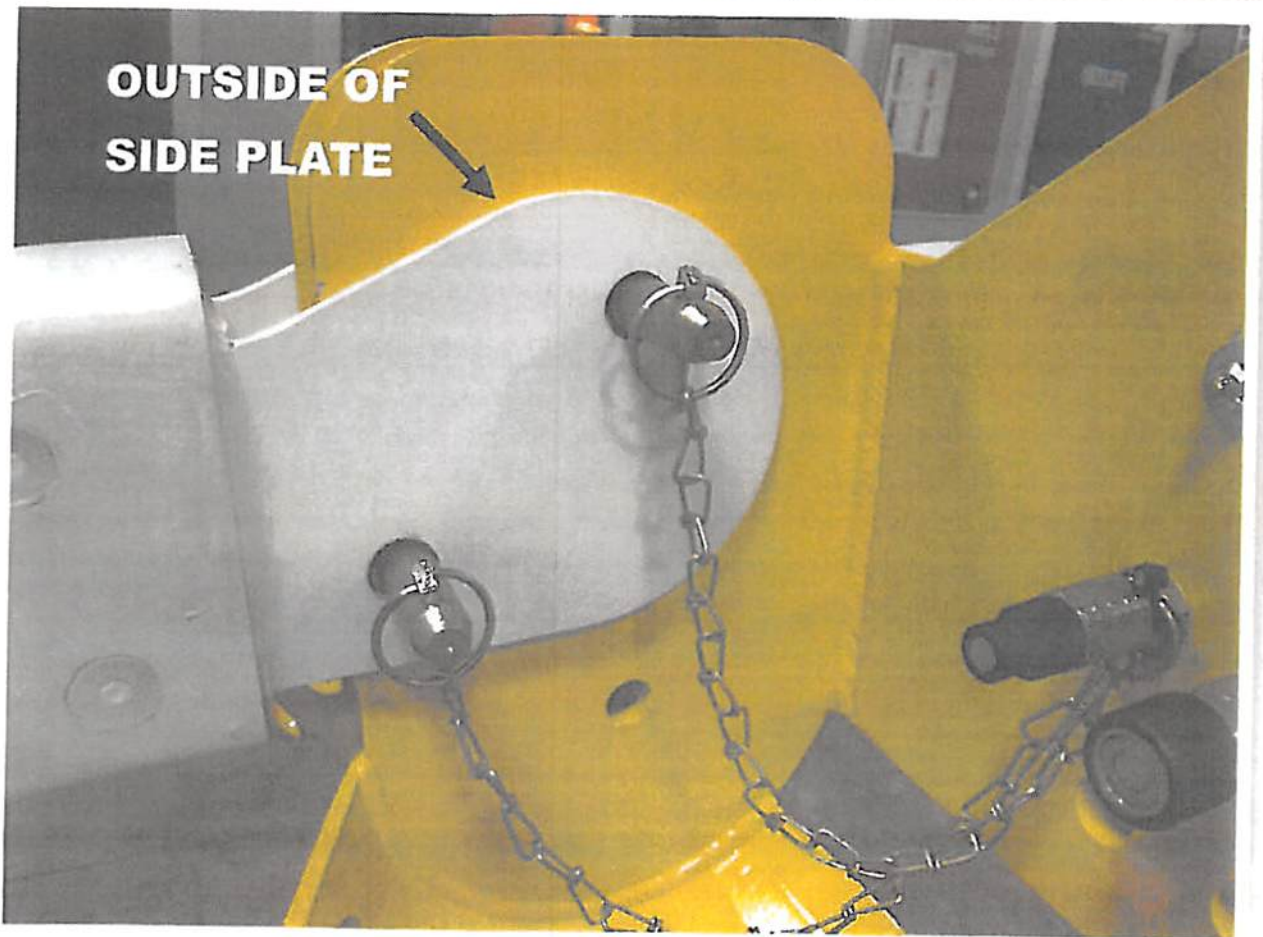
**MINI-DERRICK
SUPER 6000**

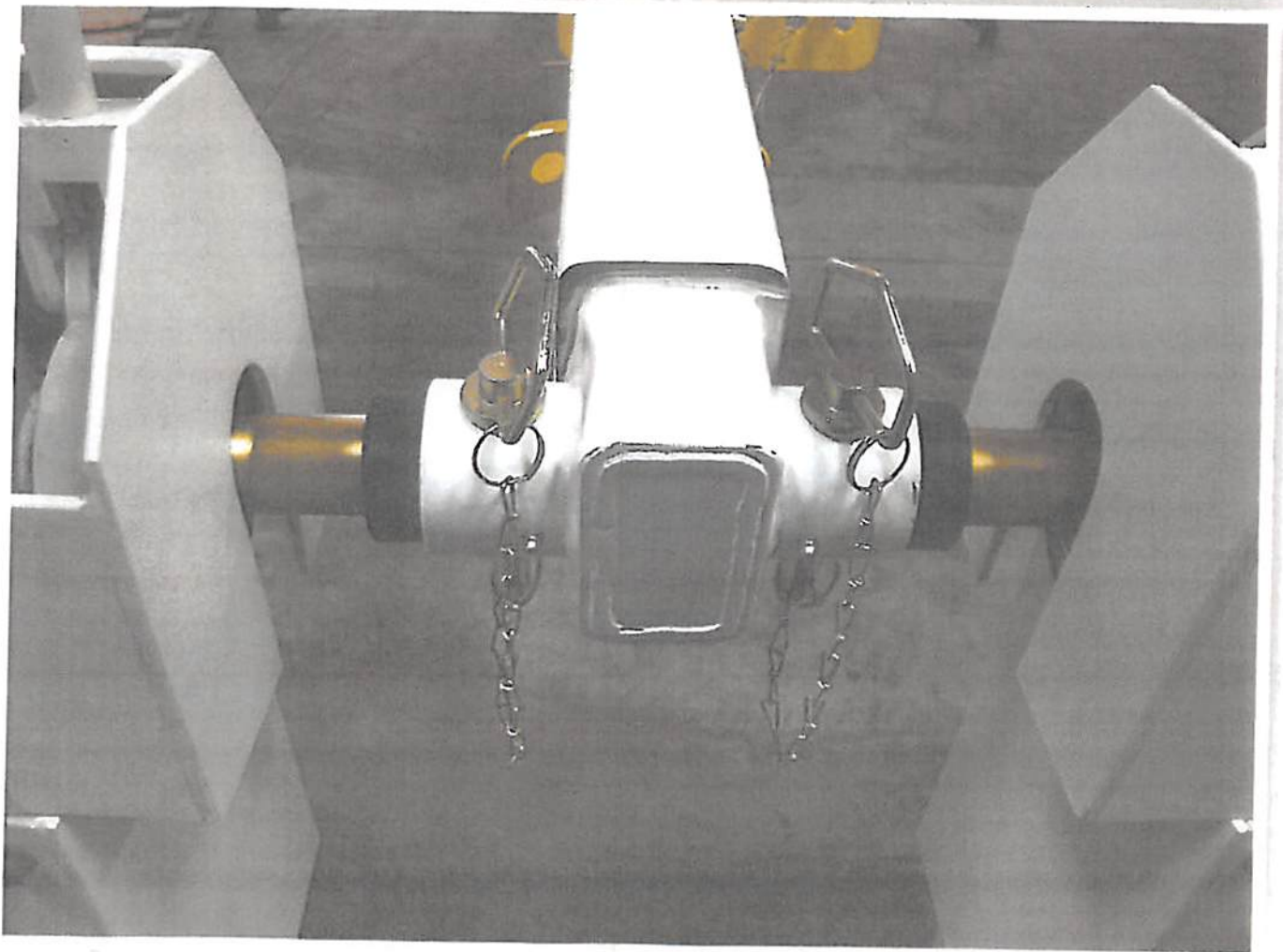
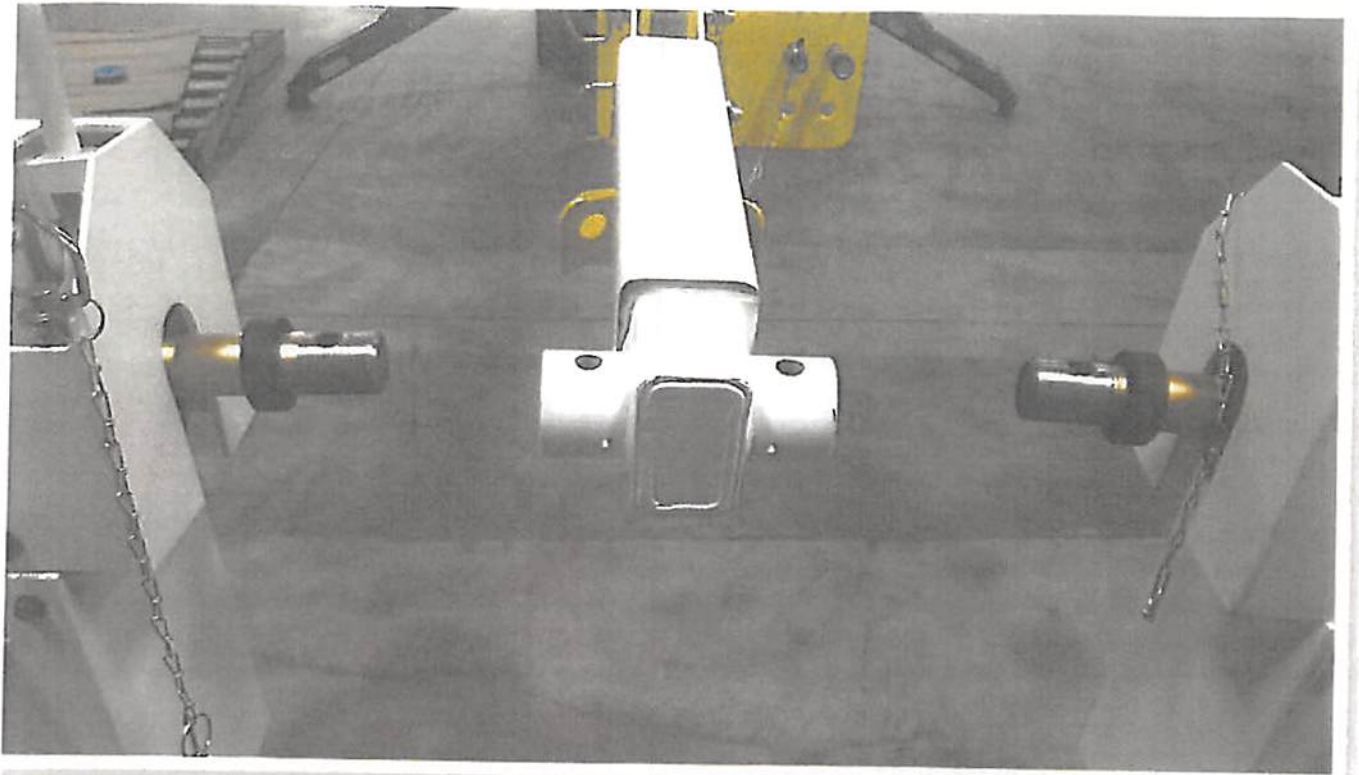
Photos *and*
Installation
of Accessories





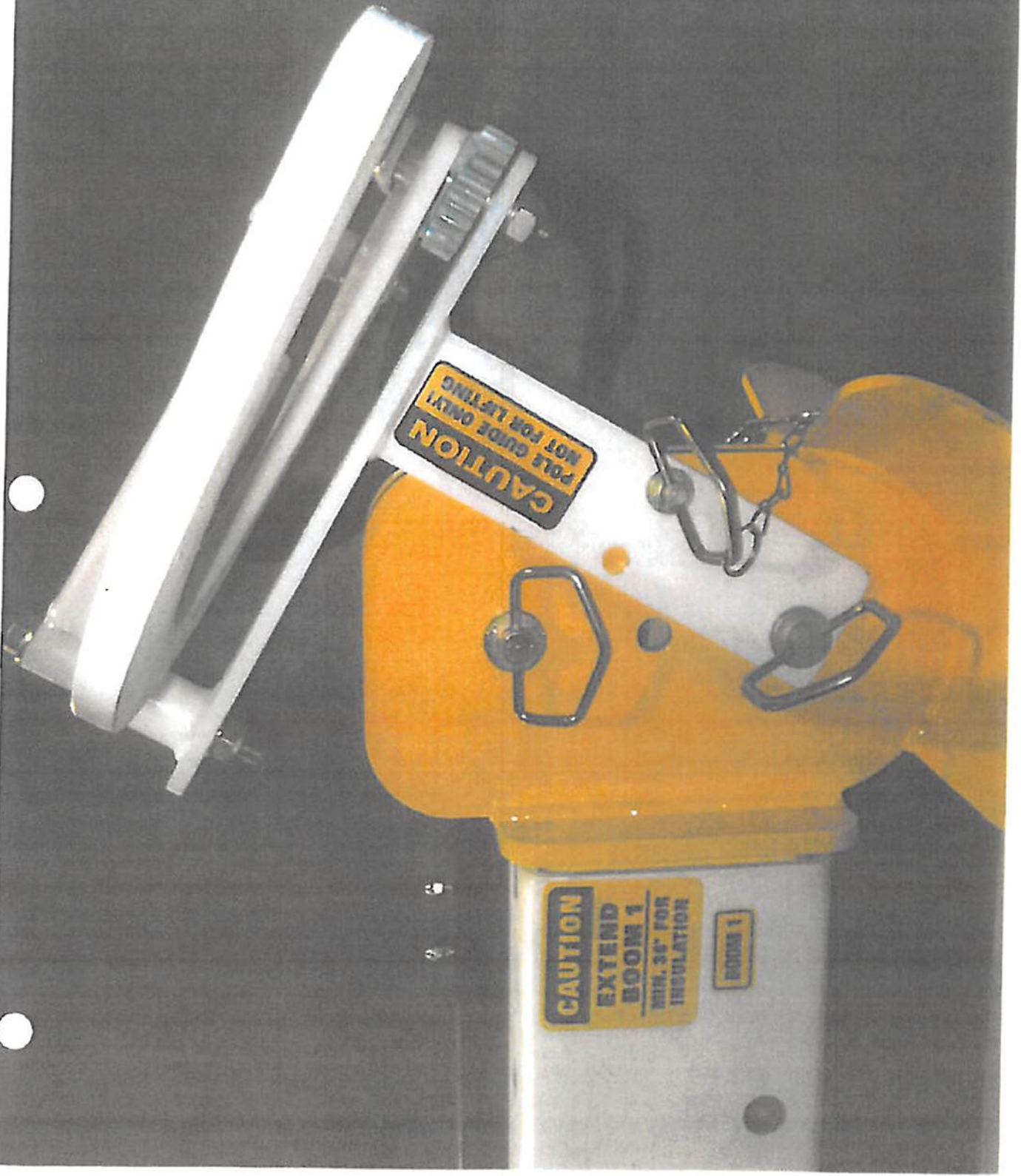








Pole Claws

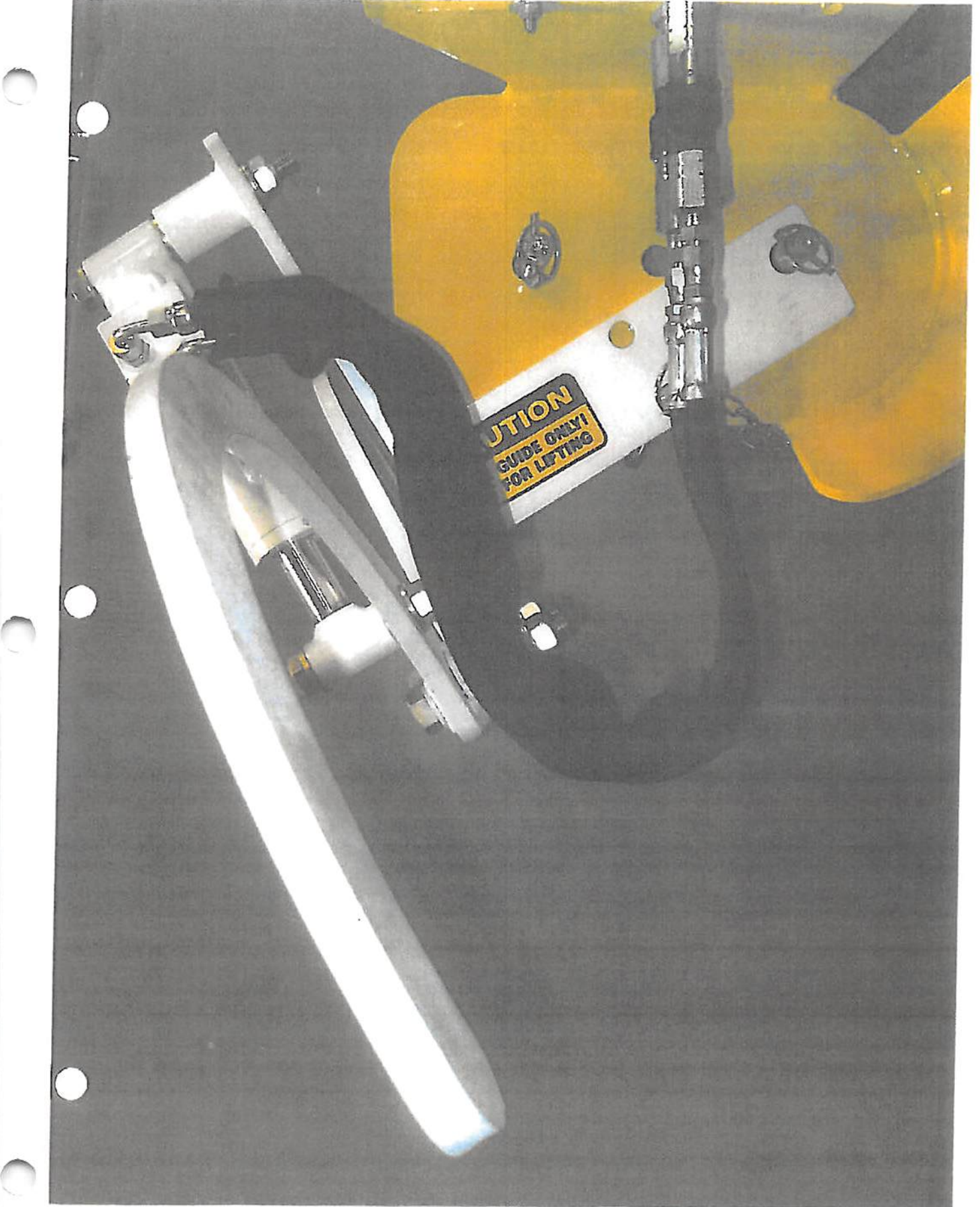


CAUTION
NOT FOR LISTING
POLE GUIDE ONLY

CAUTION
EXTEND
BOOM 1
MIN. 36" FOR
INSULATION

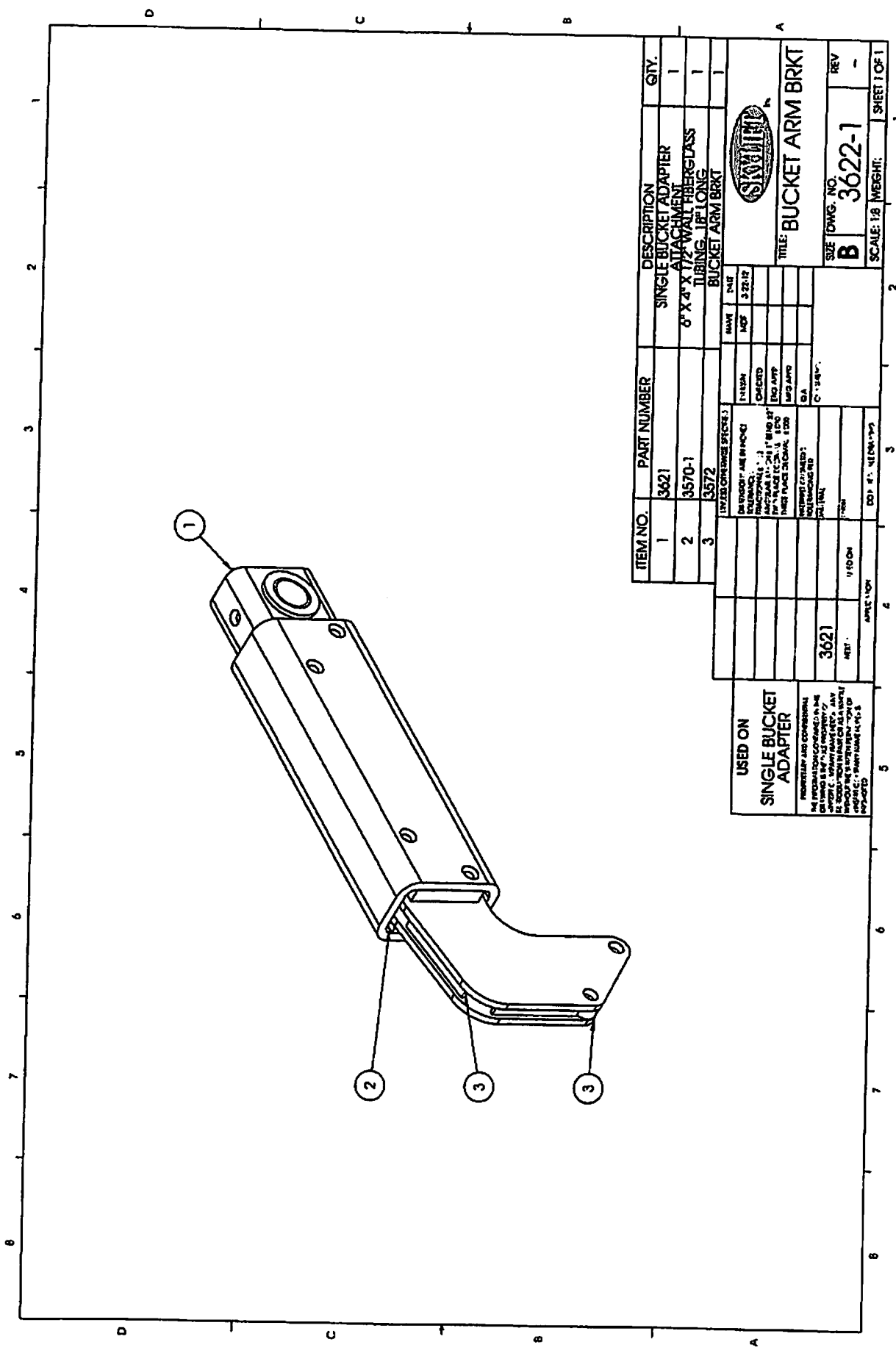
BOOM 1





UTION
GUIDE ONLY!
FOR LIFTING

Bucket Hanger

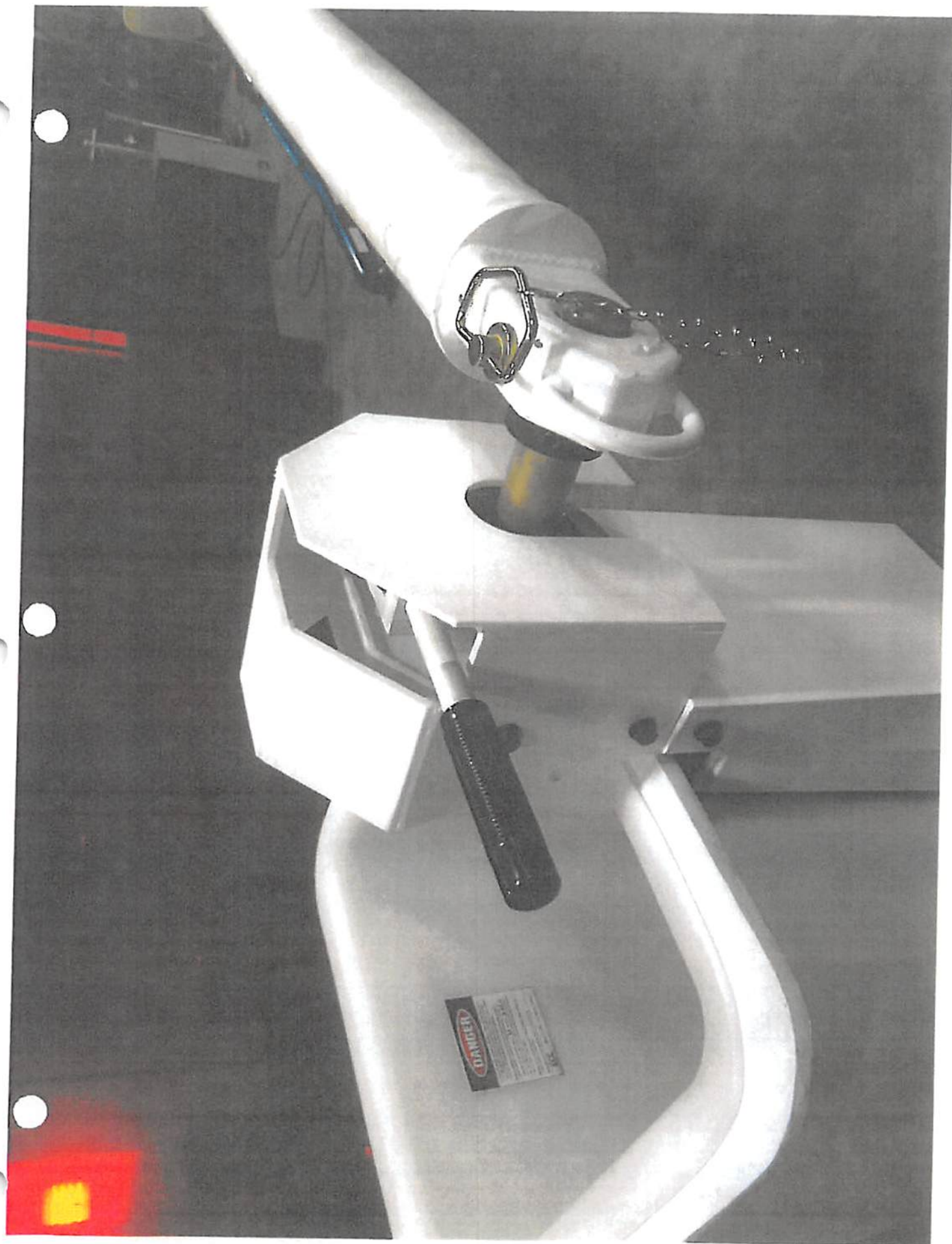


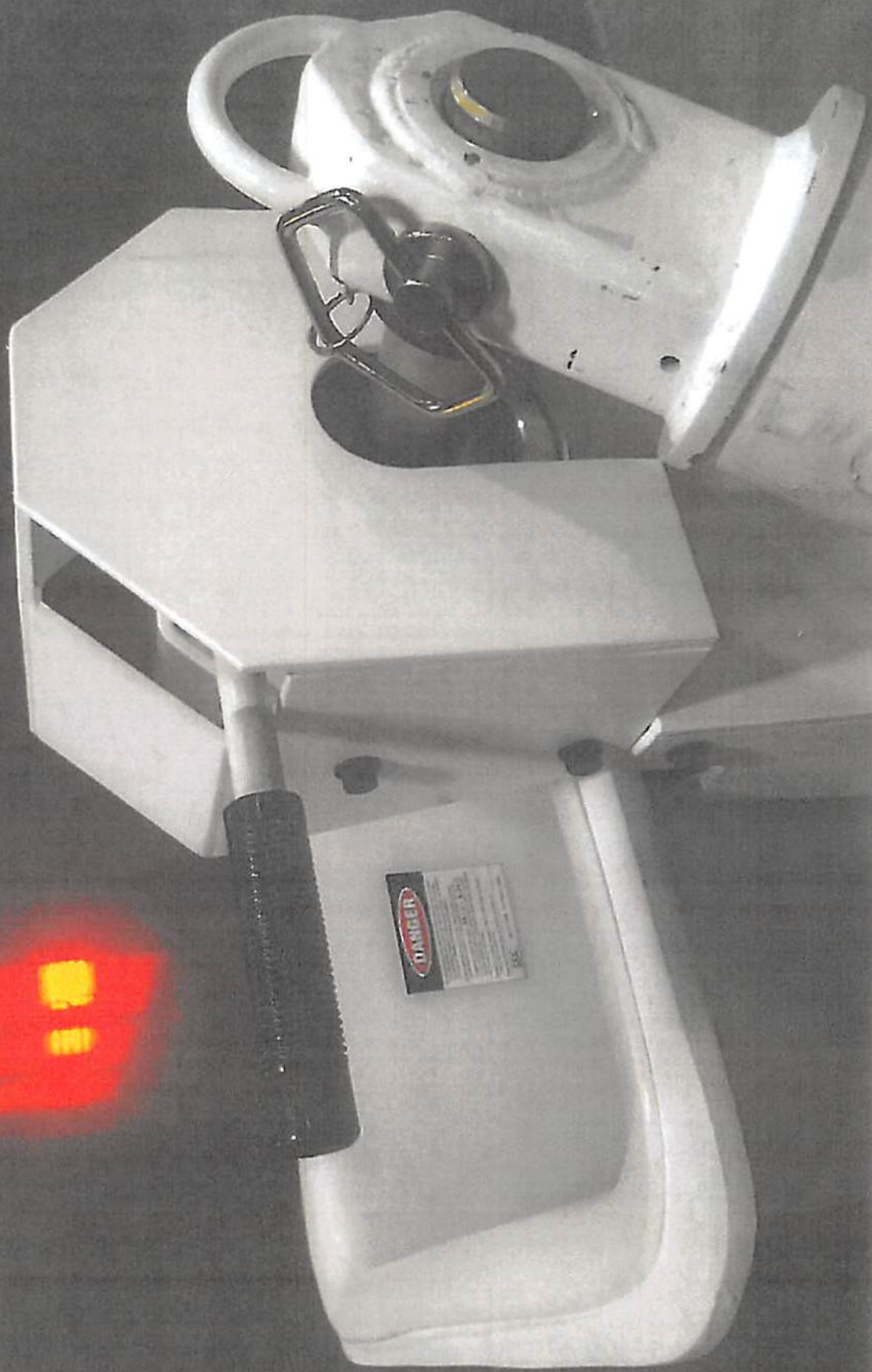
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3621	SINGLE BUCKET ADAPTER	1
2	3570-1	6" X 4" X 1/4" ALUMINUM TUBING, 18' LONG	1
3	3572	BUCKET ARM BRKT	1

USED ON
SINGLE BUCKET ADAPTER
 THE INFORMATION CONTAINED ON THIS DRAWING IS THE PROPERTY OF SULLY INC. IT IS TO BE USED ONLY FOR THE PROJECT AND EQUIPMENT SPECIFICALLY IDENTIFIED HEREON. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF SULLY INC. IS PROHIBITED.

DATE: 01/14/10	BY: [Signature]	REV: -
SIZE: B	DRWG. NO.: 3622-1	REV: -
SCALE: 1/8" = 1'-0"		
SHEET 1 OF 1		

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3621	SINGLE BUCKET ADAPTER	1
2	3570-1	6" X 4" X 1/4" ALUMINUM TUBING, 18' LONG	1
3	3572	BUCKET ARM BRKT	1





DANGER
LASER RADIATION
CLASS 2
DO NOT STARE INTO BEAM
DO NOT POINT AT OTHERS
SEE INSTRUCTIONS FOR SAFETY
PRECAUTIONS

CAN HANDLER

! CAUTION !

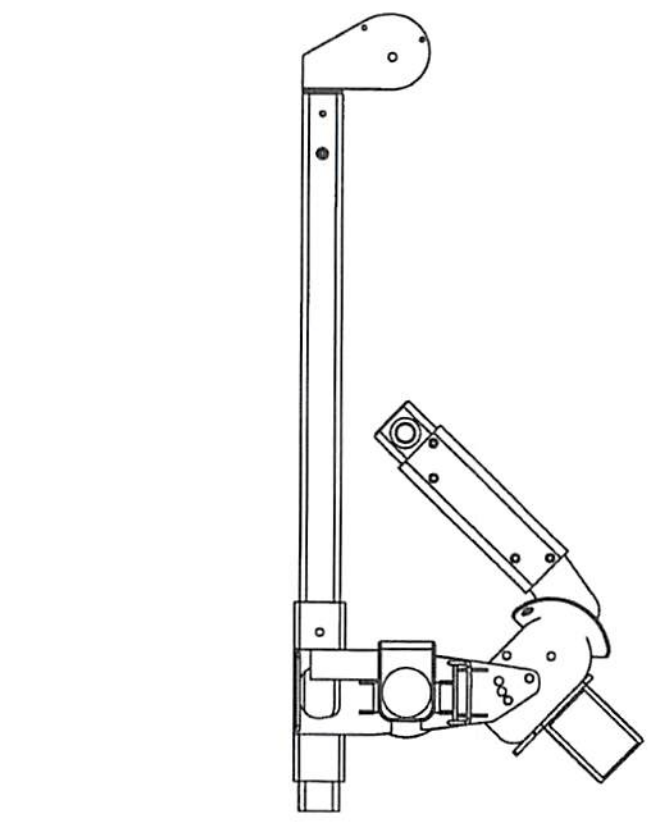
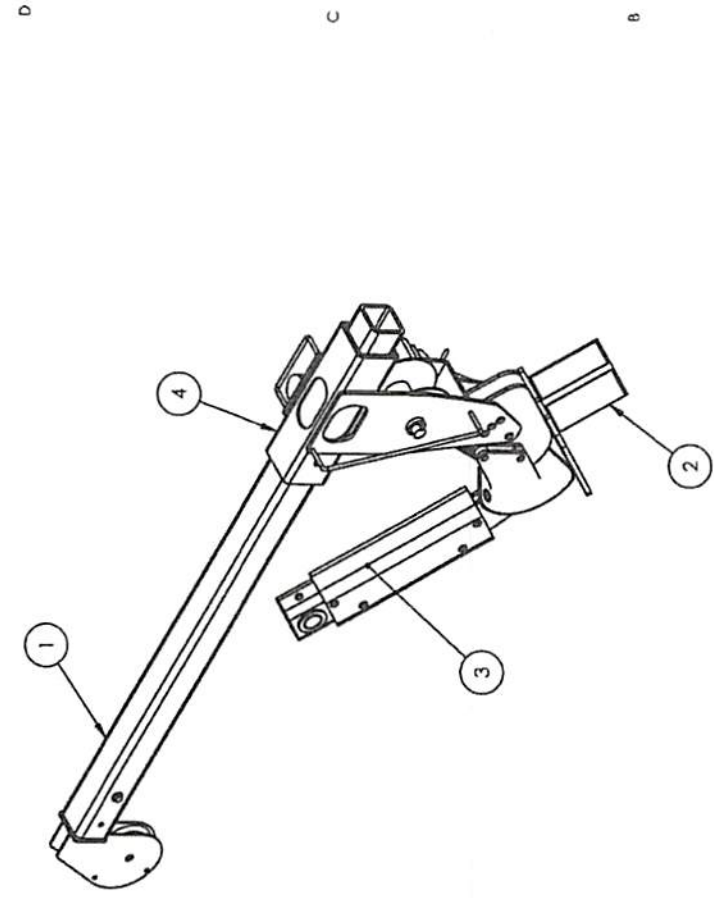
CAN HANDLER

CAN ONLY BE USED

WITH

A SINGLE BUCKET

8 7 6 5 4 3 2 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3578	JIB EXTENSION TUBE ASSEMBLY	1
2	2338	SHEAVE HEAD WELDMENT ASSY	1
3	3570	BUCKET ARM BRKT	1
4	3592A	WINCH MOUNT ASSEMBLY	1

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES: FRACTIONALS 1/32 DECIMALS .0005
 UNLESS OTHERWISE SPECIFIED
 FINISH: SEE BOM BLACK
 DC 1:12 SCALE DRAWING

DATE: 11-30-11
 DRAWN: [blank]
 CHECKED: [blank]
 MOD: [blank]
 MATERIAL: [blank]
 INTERFERING METRIC: [blank]
 FINISH: BLACK
 USED ON: [blank]

3591
 RANGER SUPER 6000
 USED ON: [blank]
 APPLICATION: [blank]

PROPERTY AND CONFIDENTIAL INFORMATION OF SKYLIFT INC. THIS DRAWING IS THE SOLE PROPERTY OF SKYLIFT. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SKYLIFT IS PROHIBITED.

SKYLIFT Inc.
 TITLE: CAN HANDLER ASSEMBLY
 SIZE DWG. NO. B 3591
 REV -
 SCALE: 1:12 WEIGHT: 86 lbs. SHEET 1 OF 1

POLE CLAW
CAN HANDLER

Parts Ordering:
Skyjift, Inc.
Call: (440) 960-2100
Part No. FOPE-102





ANDLER
WILEY

CAUTION
EXTEND
BOOM 1'
MILS. AS FOR
REGULATION

Boom 1

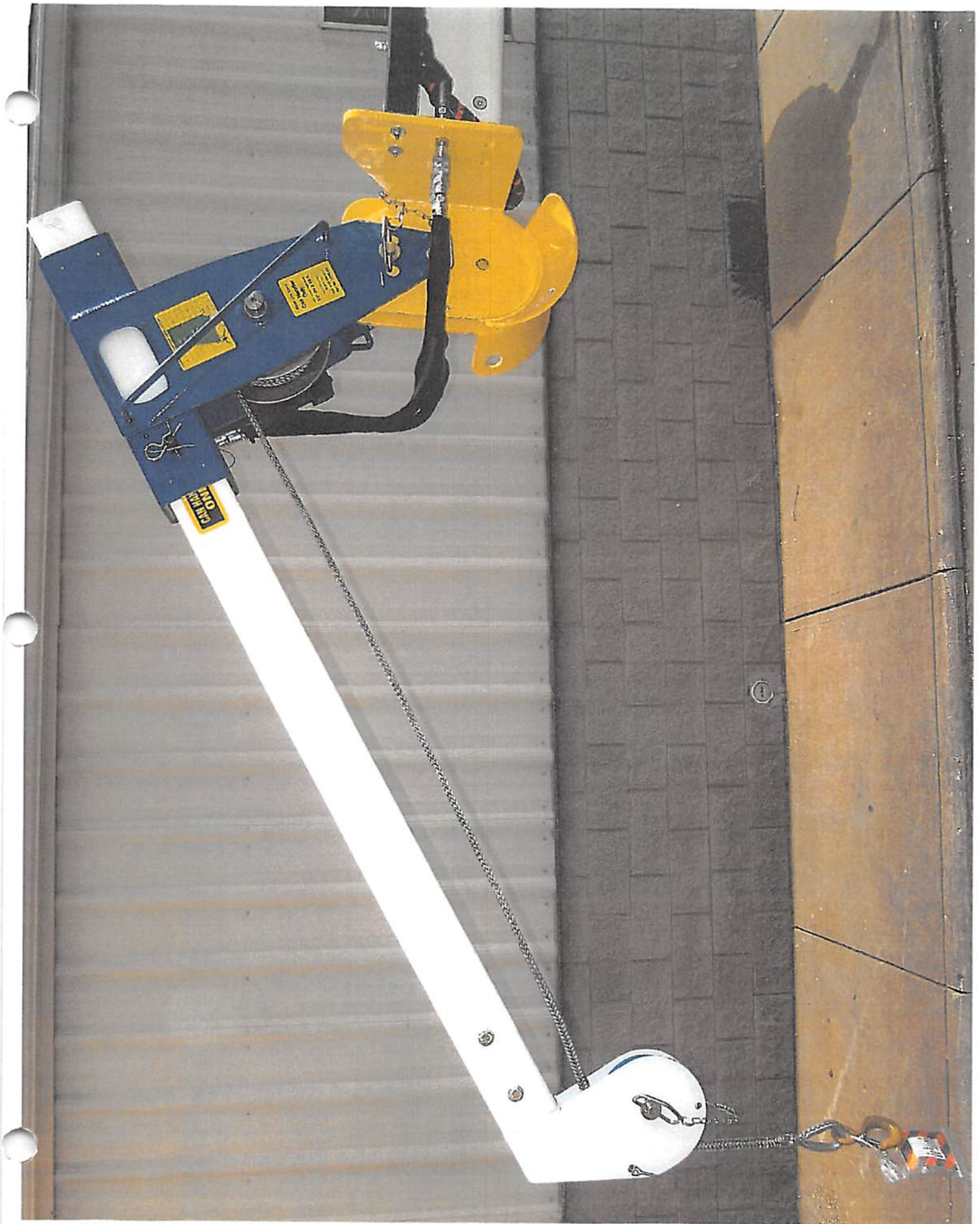


HANDLER ONLY

CAUTION
EXTEND
BOOM 1
MIN. 36" FOR
INSULATION

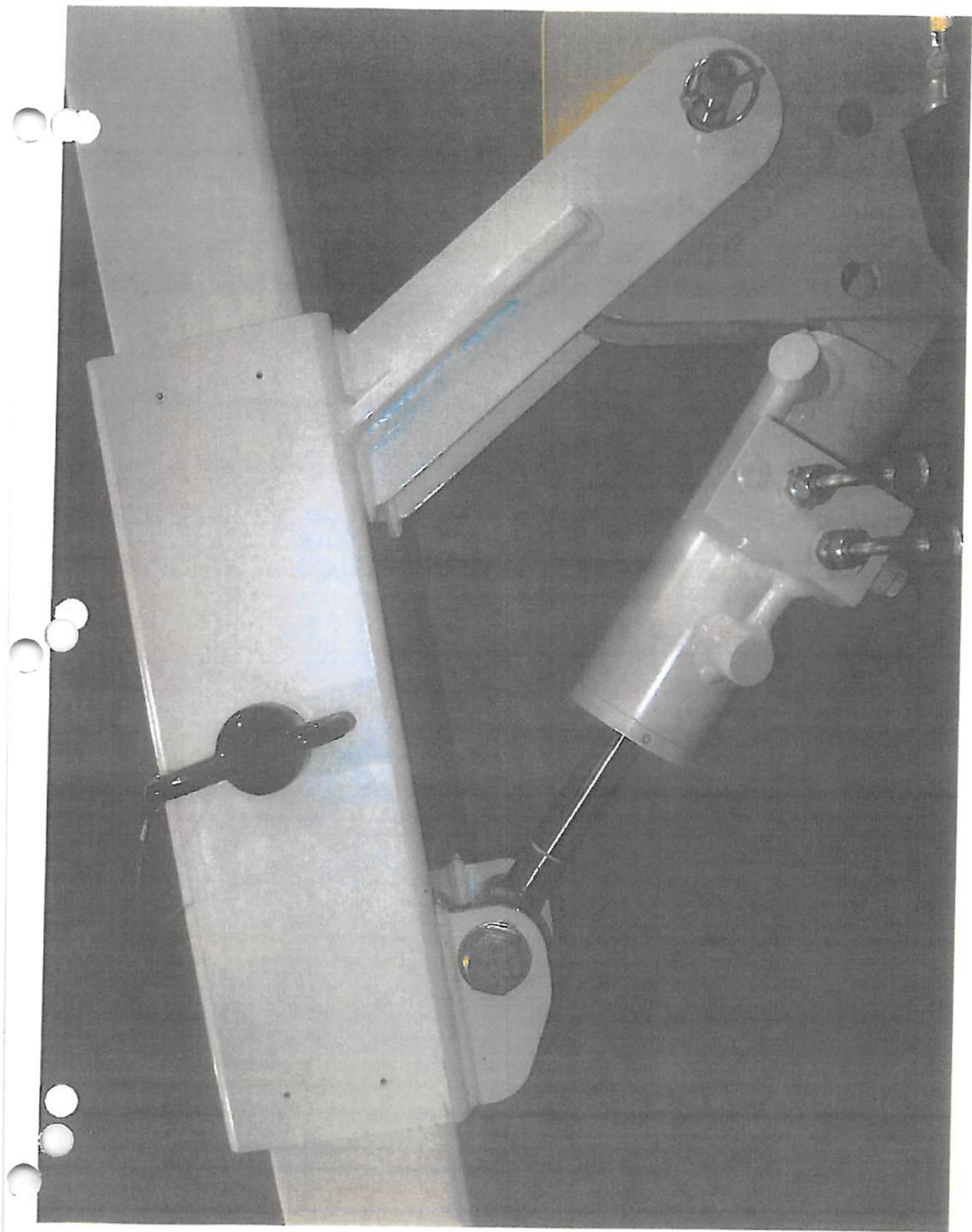
BOOM 1

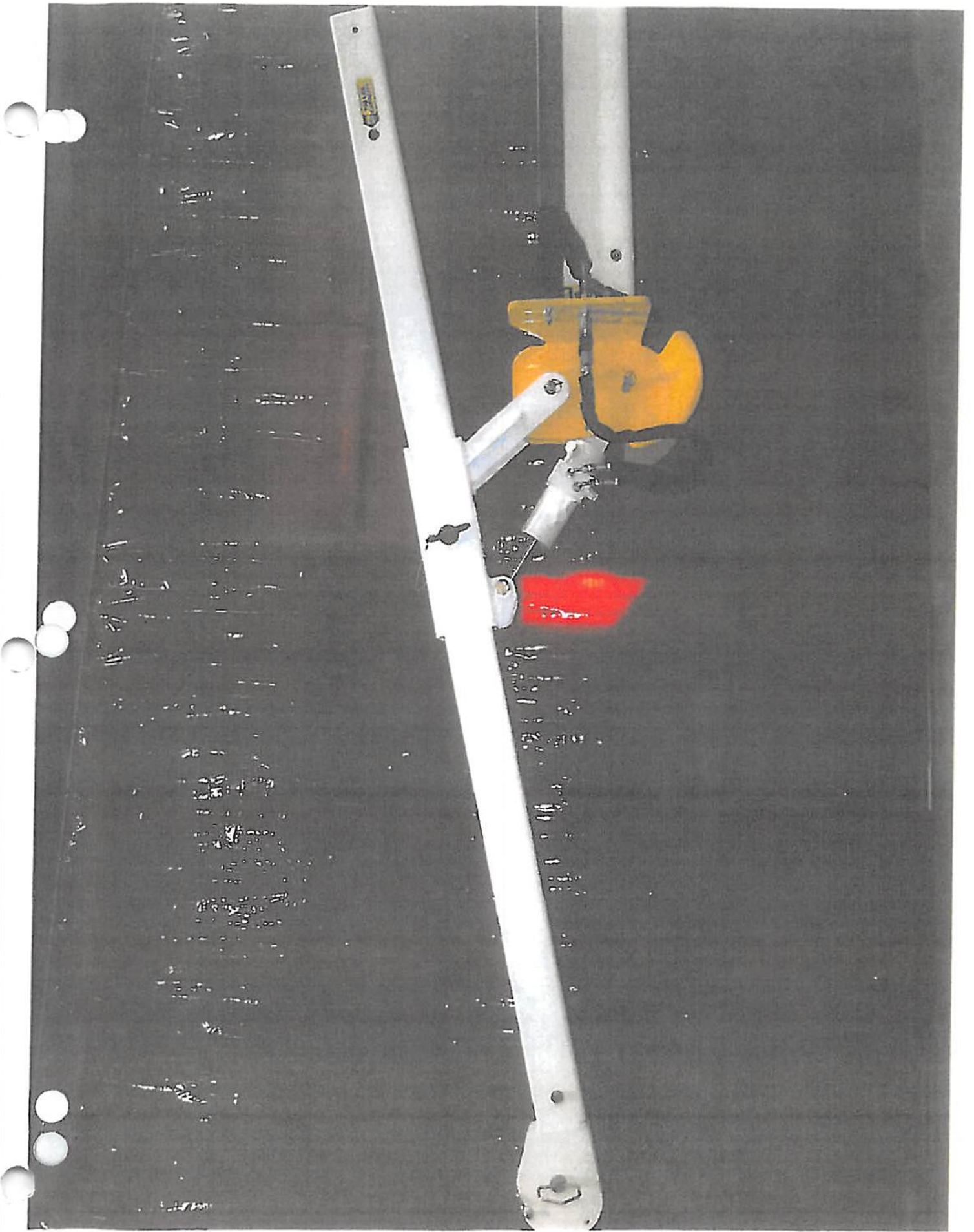
STITCH MARK





Material Handling Jib





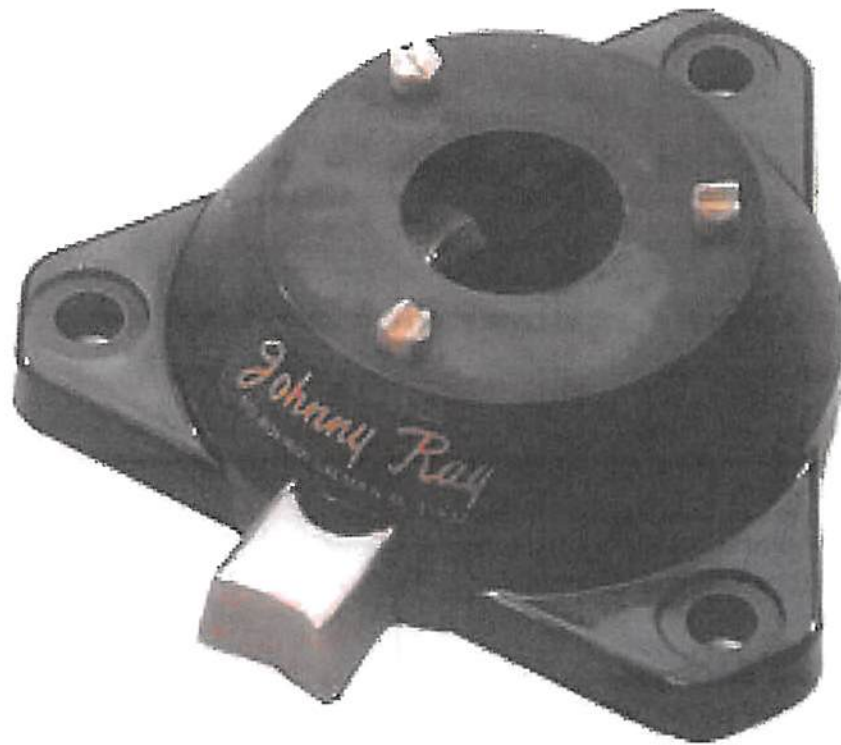
WORK LIGHTS

LED Clear Utility Light, 12 Volt

- 5" Clear Acrylic Lens
- (6) 3 Watt, Hi Powered LED diodes, 1350 Lumens
- 12-24 VDC
- 1.5 Amps at 12 VDC
- Cast Aluminum Housing with Black Powder Coat Finish
- Adjustable Stainless Steel Mounting Bracket and Fasteners
- Shock Resistant & Waterproof
- 120 degree Viewing Angle with Built-in Visor
- Sealed Power & Ground Wires



12v LED Swivel Mount



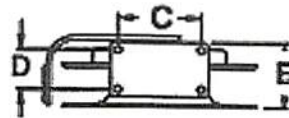
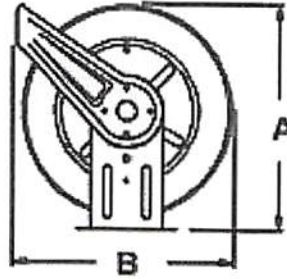
7

- Push button
- Ratchet style locking system
- For use with 12v LED lights

TWIN LINE HOSE REEL

PART# MEC-288

REPLACEMENT HOSES PART# HOSE-107



Series	THA6000
Weight	44.00 lb
Pressure	3000 psi 207 bar
I.D.	3/8 in
O.D.	0.640 in
Inlet (F) NPTF	3/8 in
Outlet (F) NPTF	3/8 in
Hose Length	30 ft
Hose Included	No
Max. Temperature	210 °F 99 °C
A	20 1/4 in
B	19 in
C	7 13/16 in
E	7 in

SINGLE PHASE LIFT ARM

SINGLE PHASE LIFT ARM

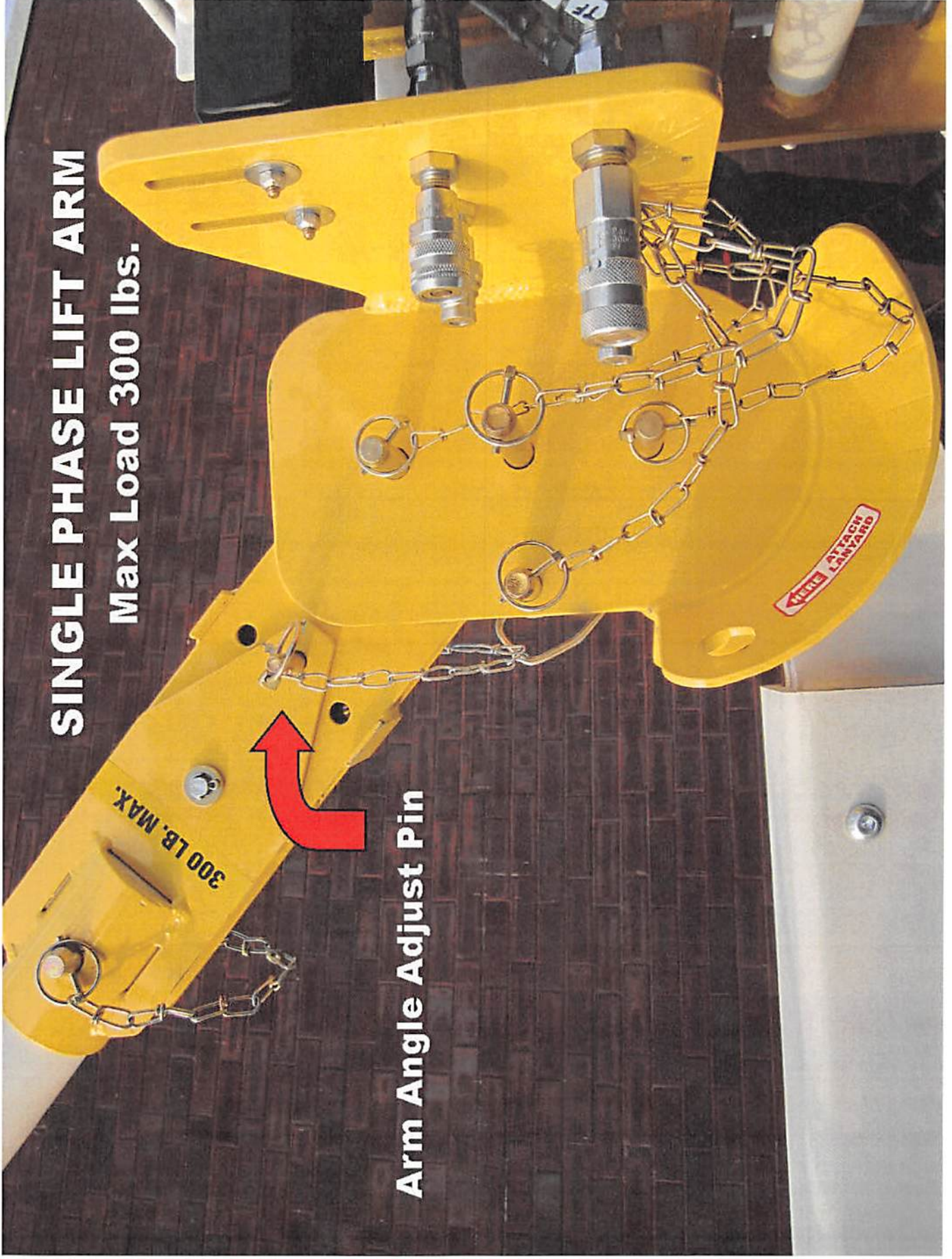
Max Load 300 lbs.

300 LB. MAX.

Arm Angle Adjust Pin



NEVER REACH FORWARD



SINGLE PHASE LIFT ARM

Max Load 300 lbs.

**PIN ON W/ SINGLE
BUCKET ARM ONLY!**

