

\$35.00

**HDR 70/85  
WRECKER**

**OPERATIONS AND MAINTENANCE  
MANUAL**

***JERR-DAN***<sup>®</sup>

An Oshkosh Corporation Company

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## FOREWORD

This manual serves as a guide for the owner and operator in the safe operation and optimum performance of your Jerr-Dan equipment.

For your safety, and the safety of others, you must

- know the proper use of the equipment
- use the equipment within its capability
- develop consistent habits of proper use
- use good judgement

Before attempting to operate the unit, carefully read all sections of this manual.

Keep this manual with your equipment at all times. Refer to it in doubt of proper operation.

Information contained in this manual reflects how your Jerr-Dan equipment was built at the factory. Modifications or additions by the distributor or owner are not reflected in this manual.

This manual does not include operation and maintenance information for the commercial chassis (International, Ford, GM, etc.). That information is provided by the chassis manufacturer.

When inquiring about operation, maintenance or warranty, please have ready your equipment's Sales Order Number, Serial Number and Model Number. This information can be found on the aluminum tag riveted inside the driver's side toolbox on the back wall in the upper right corner.



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Jerr-Dan Corporation strives to provide information that is accurate, complete and useful. All information contained in this manual is as accurate as known at the time of publication and is subject to change, without notice, as a result of continuous product improvements. Jerr-Dan reserves the right to amend the information in this document at any time without prior notice.

Should you find inadequacies in the text, please send your comments to the following address:

Jerr-Dan Corporation  
Attn: Technical Publications  
1080 Hykes Road  
Greencastle, PA 17225

or by e-mail at [technicalpublications@jerr-dan.com](mailto:technicalpublications@jerr-dan.com).

Always keep this manual in your vehicle so the operator can study it as needed before a recovery. Remember to replace the manual if lost.

Additional or replacement manuals or replacement safety warning labels can be ordered by calling Jerr-Dan Parts at 717-597-7111.

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# WARRANTY

# **JERR-DAN**

An Oshkosh Corporation Company

1080 Hykes Road  
Greencastle, PA 17225  
(717) 597-7111

## LIMITED WARRANTY

**Manufacturer's Warranty.** Manufacturer's sole warranty shall be the following, which Distributor shall make on behalf of Manufacturer by conspicuous notice in writing accompanying each contract or memorandum of sale:

**1. Warranty.** Jerr-Dan Corporation, ("Manufacturer") warrants each new product made by it to be free from defects in material or workmanship for one year from the date of initial sale, lease, rental, or other disposition of such product, and agrees only to repair or replace at its own expense, f.o.b. the place or places of manufacture, at manufacturer's option, any part or parts of the product found to be defective in material or workmanship, provided Manufacturer is notified of such defect or defects within the one year warranty period and given a reasonable time to correct the defect. In no case, shall the warranty extend to defects in materials, components, or services furnished by third parties. Defects caused by chemical action, or the presence of abrasive materials and defects arising following the operation beyond rated capacity or the improper use or application of any Products shall not be considered defects within the scope of the foregoing warranty. If any repairs or alterations are made or any parts are replaced during the period covered by any warranty above mentioned by other than an authorized Manufacturer's Distributor in accordance with authorized Manufacturer's service manuals or with other than parts, accessories, or attachments authorized by Manufacturer for use in its products, customer shall pay for all such repairs or parts without recourse against Manufacturer, and Manufacturer shall be relieved of responsibility for fulfillment of this warranty with respect to parts or components of all repairs, alterations or replacements so made. No claims for labor shall be considered unless authorized by Manufacturer.

**2. Disclaimer as to Consequential or Special Damages.** Under no circumstances shall Manufacturer be liable for any consequential or special damage which any person, firm, corporation, or other entity may suffer or claim to suffer or incur or claim to incur as a result of any defect in the product or in any correction or alteration thereof made or furnished by Manufacturer or others. "Consequential" or "special damages" as used herein includes but is not limited to costs of transportation, lost sales, lost orders, lost profits, lost income, increased overhead, labor and material costs and cost of manufacturing variances and operational inefficiencies.

**3. Maximum Liability.** The maximum liability of Manufacturer under the exclusive warranty set forth herein shall be the amount paid to Manufacturer by the vendor of the component with respect to the product to which such vendor warranty applies.

**4. Limitation of Liability.** The limitation of liability provisions herein shall apply to any and all claims or suits brought against Manufacturer, including any claim based upon negligence, breach of contract, breach of warranty, strict liability or any other theories upon which liability may be asserted against Manufacturer.

**5. Exclusive and Entire Warranty.** The warranty constitutes Manufacturer's entire warranty as to the product and it is expressly agreed that the remedies of dealer and those claiming under dealer as stated in this warranty are exclusive. Manufacturer does not assume (and has not authorized any other person to assume on its behalf) any other warranty or liability in connection with any product covered by this warranty.

MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND WHATSOEVER AS TO THE PRODUCT FURNISHED HEREUNDER, INCLUDING BUT NOT LIMITED TO EXPRESS OR IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD, DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

**6. Notice of Occurrence.** This warranty shall be void if, upon the occurrence of any incident involving any product made by Manufacturer, and resulting in any personal injury or property damage, customer shall fail to notify Manufacturer within 24 hours of such occurrence or permit Manufacturer audit representatives to have immediate access to such product and to all records of and within the control of the customer and/or distributor relating to the product and the occurrence.

**7. Filing of Warranty Claim.** Upon notifying the Manufacturer of a failure, the Manufacturer or its representative will verbally authorize and confirm by letter the repairs to be made. Verbal authorization will require the following information:

- A) Owner's name and telephone number.
- B) The dealer's name from whom it was purchased.
- C) The Manufacturer's unit serial number.
- D) Telephone number of the party making the repairs.
- E) The part numbers needed to make repairs.
- F) Owner to be informed of C.O.D. on parts, 50% to assure return of defective parts.

At this time, the Manufacturer will ship as soon as practical the parts needed to make the repair. Included with the parts will be the invoice for the parts and a Request for Warranty form, with the Warranty Return Tags.

The vehicle owner/dealer will complete the Request for Warranty form and the Warranty Return Tag marked "Return with Shipping Notice". Both documents should be attached to the shipping notice and returned to the Manufacturer by mail. The parts to be returned shall be tagged with the Warranty Return Tag (more than one part pertaining to the same warranty claim shall be identified with the same warranty claim number - see number on Warranty Return Tag). All parts under this claim shall be returned to the Manufacturer pre-paid for warranty evaluation.

Upon receiving the part or parts for warranty evaluation, the part will be inspected and tested. After being inspected and tested, the decision to honor or deny warranty claim shall be based on analysis of all available information.

When warranty is honored, the Manufacturer will reimburse the owner/dealer in the amount agreed to by both parties.

If warranty is denied, the owner and distributor will be notified in writing of the decision and a full explanation for the decision will be given.

**8.** Manufacturer may at any time amend the foregoing form of warranty without prior notice.

# TABLE OF CONTENTS

Section I: Safety	
Safety (General) .....	1
Ratings:HDR70/85 - 530 .....	4
Ratings:HDR70/85 - 565 .....	8
Safety Chains .....	17
Lift Safety .....	18
Boom Safety .....	19
Capacity/Rating Information Placards .....	26
Safety Warning Labels .....	28
Section II: Operation	
Under Lift .....	33
Spring Brackets .....	36
Frame Forks .....	40
Chain Forks (Optional) .....	42
Chain Hook Adapters (Optional) .....	45
Heavy Duty Tire Lift (Optional) .....	48
Trailer 5th Wheel Plate and Pintle Hook Ball Hitch Adapter (Optional) .....	55
Rear Hydraulic Stabilizers .....	58
Integral Spades .....	60
Outrigger Stabilizers .....	62
Outrigger Spades .....	66
Wrecker Boom Operation .....	68
Section III: Maintenance	
Maintenance and Lubrication .....	75
Fastener Torque Specifications .....	77
Oils and Greases .....	78
Wire Rope Handling and Inspection .....	79
Lubrication Points .....	81
Trouble Shooting .....	83
Hydraulic System .....	83
P.T.O. Functioning Improperly .....	84
Hydraulic Pump .....	84
Winch Functioning Improperly .....	85
Section IV: Glossary	
Glossary .....	87

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# SAFETY

The safe operation of your HDR is your responsibility. Read this manual and the truck manufacturer's manual and thoroughly understand them. You can be held legally responsible for injuries or damage resulting from unsafe operating practices.

The manufacturer's recommendations for operating this wrecker can help you avoid unsafe practices and their bad consequences. These recommendations are contained in this manual.

Jerr-Dan Corporation is not responsible for the results of any unsafe practice of wrecker operators or for the failure of the wrecker or its accessories resulting from improper maintenance.

The danger from a vehicle does not cease when it is disabled or wrecked. Recovering or towing vehicles can be dangerous too! The danger threatens wrecker operators and everyone else close by. As a wrecker operator you must develop an awareness of the hazards involved. You must use every safeguard within reason to prevent injuries.

For each step in operating your wrecker develop the habit of asking yourself if it is safe to proceed. Carefully check all rigging before starting a heavy lift or pull.

We cannot warn you of all the possible dangers you will encounter, but we will tell you of the most common hazards that we know about. We also recommend that you receive specialized and advanced training from a professional Towing and Recovery instructor before operating any recovery equipment.

To alert personnel to hazardous operating practices, safety messages are used throughout the manual. Each safety message contains a safety alert symbol and a signal word to identify the hazard's degree of seriousness.



## **CAUTION:**

Identifies when a potentially hazardous situation exists and may result in a minor or moderate injury or property damage.

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**DANGER:**

Identifies when an imminently hazardous situation exists and can result in death or serious injury.

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**WARNING:**

Identifies when a potentially hazardous situation exists and could result in death or serious injury.

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# WARNING

## **ONLY AUTHORIZED AND TRAINED PERSONNEL SHOULD BE PERMITTED TO OPERATE THIS WRECKER UNSUPERVISED.**

IN ORDER TO BE SUFFICIENTLY TRAINED TO OPERATE THIS WRECKER, A PERSON MUST HAVE, AS A MINIMUM, THE FOLLOWING QUALIFICATIONS:

1. SATISFACTORILY PERFORMED ALL WRECKER MANEUVERS AND FUNCTIONS UNDER THE SUPERVISION OF FULLY TRAINED PERSONNEL.
2. HAVE COMPLETELY READ AND UNDERSTAND THE OPERATIONS, MAINTENANCE, AND PARTS, MANUAL(S) IN THEIR ENTIRETY FOR THIS WRECKER.
3. HAVE COMPLETELY READ ALL WARNINGS AND PRECAUTIONS ON THIS WRECKER.
4. HAVE HAD EXPLAINED TO THEM THE HAZARDS OF MOVING THE PARTICULAR MATERIALS THEY WILL BE LOADING OR UNLOADING.
5. UNDERSTAND THE HAZARDS OF OPERATING AT A PARTICULAR JOB SITE, INCLUDING
  - ... THE IMPORTANCE OF STAYING WELL CLEAR OF ALL ELECTRICAL LINES,
  - ... GIVING CONSIDERATION TO GROUND CONDITIONS SUCH AS IRREGULAR CONTOURS, ICE, WATER, OR MUD,
  - ... ANY OTHER CONDITIONS WHICH MAY INTERFERE WITH ORDINARY CAREFUL OPERATION OF THIS WRECKER.

**UNTRAINED OPERATORS SUBJECT  
THEMSELVES AND OTHERS TO DEATH OR  
SERIOUS INJURY AND MAY CAUSE SERIOUS  
DAMAGE TO PROPERTY.**

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**DO NOT EXCEED THE FOLLOWING RATINGS:**

**HDR70/85 - 530**

Maximum Structural Limits

Boom Fully Elevated and Retracted over Rear ..... 170,000 lbs.

Maximum Rated Loads

Boom Fully Elevated and Retracted over Rear ..... 140,000 lbs.

BOOM RATING: (Two Stage Boom)

SAE Rating - Boom elevated at 30° Angle<sup>1</sup>

Retracted ..... 120,000 lbs.

Extended ..... 44,000 lbs.

BOOM RATING: (Optional Three Stage Boom)

SAE Rating - Boom elevated at 30° Angle<sup>1</sup>

Retracted ..... 120,000 lbs.

Mid ..... 44,000 lbs.

Extended ..... 26,000 lbs.

WINCH RATING: (Option 1 - Dp Planetary Gear)<sup>2</sup>

Each Drum (Two Speed, Variable Control) ..... 50,000 lbs.

WIRE ROPE:

Working Limit Each Line ..... 16,800 lbs.

Construction ..... 6 x 37 EIP IWRC

Diameter ..... 3/4 inch

Standard Length ..... 250 Feet

WINCH RATING: (Option 2 - Dp Planetary Gear)<sup>2</sup>

Each Drum (Single Speed, Variable Control) ..... 60,000 lbs.

WIRE ROPE:

Working Limit Each Line ..... 22,500 lbs.

Construction ..... 6 x 36 EEIP IWRC

Diameter ..... 7/8 inch

Standard Length ..... 245 Feet

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**UNDER LIFT RATING:**

Full Retracted ..... 53,000 lbs.<sup>3</sup>  
Full Extended ..... 17,000 lbs.<sup>3</sup>  
Tow Rating ..... 80,000 lbs.

**DRAG WINCH RATING: (Optional dp Planetary Gear) <sup>2</sup>**

Each Drum (Single Speed, Variable Control) ..... 35,000 lbs.

**WIRE ROPE: (Option 1)**

Working Limit Each Line ..... 22,500 lbs.  
Construction ..... 6 x 37 EIP IWRC  
Diameter ..... 7/8 inch  
Standard Length ..... 220 Feet

**WIRE ROPE: (Option 2)**

Working Limit Each Line ..... 11,770 lbs.  
Construction ..... 6 x 37 EIP IWRC  
Diameter ..... 5/8 inch  
Standard Length ..... 250 Feet

**HEAVY DUTY TIRE LIFT RATING (OPTION):**

Lifting Capacity (Each Arm) ..... 7,000 lbs.  
Lifting Capacity (Total) ..... 14,000 lbs.  
Towing Capacity (Maximum)<sup>4</sup> ..... 42,000 lbs.

**SUPER HEAVY DUTY TIRE LIFT RATING (OPTION):**

Lifting Capacity (Each Arm) ..... 12,000 lbs.  
Lifting Capacity (Total) ..... 25,000 lbs.  
Towing Capacity (Maximum)<sup>4</sup> ..... 42,000 lbs.

**5th WHEEL PLATE (OPTION):**

Lifting Capacity ..... 15,000 lbs.  
Towing Capacity ..... 25,000 lbs.

**PINTLE HOOK BALL HITCH (OPTION):**

2 in. Ball Hitch ..... 10,000 lbs. (GTW)  
Pintle Hook ..... 16,000 lbs. (GTW)

**GROSS TRAILER WEIGHT** ..... 3,000 Maximum Vertical Load

- 
- 1 SAE J2512: Surface Vehicle Recommended Practices - Towing Equipment Ratings and Practices
  - 2 SAE J706: Surface Vehicle Recommended Practices - Rating of Winches
  - 3 Rating Using Axle And Spring Lift Tools
  - 4 THE TOWING CAPACITY SHOULD NOT EXCEED THE GROSS COMBINED WEIGHT RATING (GCWR) OF THE TOWING VEHICLE OR 42,000 LBS. (GCW) GROSS COMBINED WEIGHT OF THE TOWED VEHICLE, WHICHEVER IS LOWER.
  - 5 The Maximum Structural Limit and Maximum Rated Load are based on lifting the load vertically directly over the rear with the swing lock engaged. The rear spades and outriggers must be properly set on firm level surface. Proper rigging for the wire rope limits must be utilized. Lifting the Maximum Structural Limit may cause permanent deformation of components.

**MAXIMUM LIFTING CAPACITY** - THE MAXIMUM LOAD THAT CAN BE LIFTED.

**GROSS COMBINED WEIGHT RATING (GCWR)** - THE VALUE SPECIFIED BY THE VEHICLE MANUFACTURER AS GCW.

**GROSS TRAILER WEIGHT (GTW)** - THE MAXIMUM TRAILER WEIGHT WITH LOAD.

**GROSS COMBINED WEIGHT (GCW)** - ACTUAL WEIGHT OF THE ENTIRE VEHICLE AT THE GROUND WITH TRAILER OR TRAILERS, INCLUDING VEHICLE EQUIPMENT, DRIVER, PASSENGER, FUEL AND PAYLOAD (EVERYTHING THAT MOVES WITH THE VEHICLE).

## **NOTE**

These ratings apply to the structural design of the HDR70/85 - 530 only . They might be limited by the axle rating and gross vehicle weight rating of the truck chassis.

The payload and towing capacity of any towing vehicle must meet the following:

- The actual payload on the towing vehicle must not exceed the posted rating and the towed vehicle load must not exceed the posted lift / towing ratings.
- The total weight of the towing vehicle (cab chassis, body, payload, driver, passenger(s), tools, fuel, etc.) and the towed vehicle load must not exceed the GVWR (Gross Vehicle Weight Rating) of the towing vehicle.
- The total weight of the towing vehicle and a towed vehicle load must be distributed so that each axle's GAWR (Gross Axle Weight Rating) is not exceeded.
- The total weight of the towing vehicle and towed vehicle (everything that moves with the towing vehicle) must not exceed the GCWR (Gross Combination Weight Rating) of the towing vehicle.

Staying within these ratings is necessary to maintain the safety and performance of the towing vehicle.

CHECK TRUCK MANUAL FOR SPECIFIC GVW & AXLE RATINGS. ALSO LOOK AT THE CERTIFICATION DECAL AFFIXED TO DRIVER'S SIDE DOOR JAMB, HINGE PILLAR OR LATCH POST AND THE STRUCTURAL CAPACITIES PLACARD ON THE UNIT.

---

**DO NOT EXCEED THE FOLLOWING RATINGS:**

**HDR70/85 - 565**

Maximum Structural Limits

Boom Fully Elevated and Retracted over Rear ..... 170,000 lbs.

Maximum Rated Loads

Boom Fully Elevated and Retracted over Rear ..... 140,000 lbs.

BOOM RATING: (Two Stage Boom) .....

SAE Rating - Boom elevated at 30° Angle<sup>1</sup>

Retracted ..... 120,000 lbs.

Extended ..... 44,000 lbs.

BOOM RATING: (Optional Three Stage Boom)

SAE Rating - Boom elevated at 30° Angle<sup>1</sup>

Retracted ..... 120,000 lbs.

Mid ..... 44,000 lbs.

Extended ..... 26,000 lbs.

WINCH RATING: (Option 1 - Dp Planetary Gear)<sup>2</sup>

Each Drum (Two Speed, Variable Control) ..... 50,000 lbs.

WIRE ROPE:

Working Limit Each Line ..... 16,800 lbs.

Construction ..... 6 x 37 EIP IWRC

Diameter ..... 3/4 inch

Standard Length ..... 250 Feet

WINCH RATING: (Option 2 - Dp Planetary Gear)<sup>2</sup>

Each Drum (Single Speed, Variable Control) ..... 60,000 lbs.

WIRE ROPE:

Working Limit Each Line ..... 22,500 lbs.

Construction ..... 6 x 36 EEIPS IWRC

Diameter ..... 7/8 inch

Standard Length ..... 245 Feet



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**UNDER LIFT RATING:**

Full Retracted ..... 56,500 lbs.<sup>3</sup>  
Full Extended ..... 17,600 lbs.<sup>3</sup>  
Tow Rating ..... 80,000 lbs.

**DRAG WINCH RATING: (Optional dp Planetary Gear) <sup>2</sup>**

Each Drum (Single Speed, Variable Control) ..... 35,000 lbs.

**WIRE ROPE: (Option 1)**

Working Limit Each Line ..... 22,500 lbs.  
Construction ..... 6 x 37 EIP IWRC  
Diameter ..... 7/8 inch  
Standard Length ..... 220 Feet

**WIRE ROPE: (Option 2)**

Working Limit Each Line ..... 11,770 lbs.  
Construction ..... 6 x 37 EIP IWRC  
Diameter ..... 5/8 inch  
Standard Length ..... 250 Feet

**HEAVY DUTY TIRE LIFT RATING (OPTION):**

Lifting Capacity (Each Arm) ..... 7,000 lbs.  
Lifting Capacity (Total) ..... 14,000 lbs.  
Towing Capacity (Maximum)<sup>4</sup> ..... 42,000 lbs.

**SUPER HEAVY DUTY TIRE LIFT RATING (OPTION):**

Lifting Capacity (Each Arm) ..... 12,000 lbs.  
Lifting Capacity (Total) ..... 25,000 lbs.  
Towing Capacity (Maximum)<sup>4</sup> ..... 42,000 lbs.

**5th WHEEL PLATE (OPTION):**

Lifting Capacity ..... 15,000 lbs.  
Towing Capacity ..... 25,000 lbs.

**PINTLE HOOK BALL HITCH (OPTION):**

2 in. Ball Hitch ..... 10,000 lbs. (GTW)  
Pintle Hook ..... 16,000 lbs. (GTW)

**GROSS TRAILER WEIGHT ..... 3,000 Maximum Vertical Load**

- 
- 1 SAE J2512: Surface Vehicle Recommended Practices - Towing Equipment Ratings and Practices
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  - 5 The Maximum Structural Limit and Maximum Rated Load are based on lifting the load vertically directly over the rear with the swing lock engaged. The rear spades and outriggers must be properly set on firm level surface. Proper rigging for the wire rope limits must be utilized. Lifting the Maximum Structural Limit may cause permanent deformation of components.

**MAXIMUM LIFTING CAPACITY** - THE MAXIMUM LOAD THAT CAN BE LIFTED.

**GROSS COMBINED WEIGHT RATING (GCWR)** - THE VALUE SPECIFIED BY THE VEHICLE MANUFACTURER AS GCW.

**GROSS TRAILER WEIGHT (GTW)** - THE MAXIMUM TRAILER WEIGHT WITH LOAD.

**GROSS COMBINED WEIGHT (GCW)** - ACTUAL WEIGHT OF THE ENTIRE VEHICLE AT THE GROUND WITH TRAILER OR TRAILERS, INCLUDING VEHICLE EQUIPMENT, DRIVER, PASSENGER, FUEL AND PAYLOAD (EVERYTHING THAT MOVES WITH THE VEHICLE).

## **NOTE**

These ratings apply to the structural design of the HDR70/85 - 565 only . They might be limited by the axle rating and gross vehicle weight rating of the truck chassis.

The payload and towing capacity of any towing vehicle must meet the following:

- The actual payload on the towing vehicle must not exceed the posted rating and the towed vehicle load must not exceed the posted lift / towing ratings.
- The total weight of the towing vehicle (cab chassis, body, payload, driver, passenger(s), tools, fuel, etc.) and the towed vehicle load must not exceed the GVWR (Gross Vehicle Weight Rating) of the towing vehicle.
- The total weight of the towing vehicle and a towed vehicle load must be distributed so that each axle's GAWR (Gross Axle Weight Rating) is not exceeded.
- The total weight of the towing vehicle and towed vehicle (everything that moves with the towing vehicle) must not exceed the GCWR (Gross Combination Weight Rating) of the towing vehicle.

Staying within these ratings is necessary to maintain the safety and performance of the towing vehicle.

CHECK TRUCK MANUAL FOR SPECIFIC GVW & AXLE RATINGS. ALSO LOOK AT THE CERTIFICATION DECAL AFFIXED TO DRIVER'S SIDE DOOR JAMB, HINGE PILLAR OR LATCH POST AND THE STRUCTURAL CAPACITIES PLACARD ON THE UNIT.

# LOAD CHART

(Refer to the actual chart in your unit)

## JERR-DAN 70/85 TON HEAVY DUTY RECOVERY SYSTEMS

MAXIMUM ALLOWABLE VERTICAL HOOK LOADS - LBS.

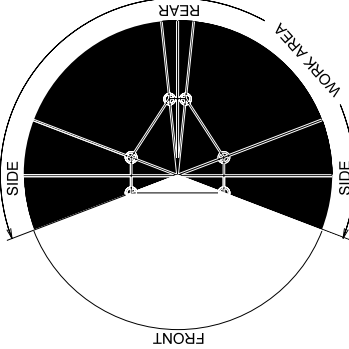
WRECKER BOOM OVER SIDE, & REAR QUARTER & REAR WORKING AREA

ALL LOADS BELOW THE BOLD LINE ARE 90% TIPPING LOADS.

REVIEW FOR THE NUMBER OF PARTS ROPE FOR USING EITHER ONE MICH OR TWO MICH WITH MINIMUM REEL TO PARTS RATIO OF 10:1 FOR MICH RATED 100,000 LB.

1	OR 1+	1	OR 1+	1	OR 1+	1	OR 1+	1	OR 1+
2	OR 2+	2	OR 2+	2	OR 2+	2	OR 2+	2	OR 2+
3	OR 3+	3	OR 3+	3	OR 3+	3	OR 3+	3	OR 3+

BOOM ANGLE (DEG.)	BOOM LENGTH - FEET									
	20	24	27	30	33	36	39	41	43	
50	84300	69400	61000	53950	48800	41500	34000	29000	24600	
45	73630	61900	53780	47250	42600	37950	31000	26600	22550	
40	70050	56600	49100	42650	37800	33200	25500	22000	18500	
35	63500	47000	43300	39750	33600	28500	23400	20250	17000	
30	61900	45000	41800	37100	31400	25800	21300	18500	16500	
25	57050	40000	40350	35050	29500	24400	20050	17500	15350	
20	56750	43000	38600	33450	27900	23000	18800	16500	14700	
15	55050	42000	37400	32100	26200	21750	18000	15900	14300	
10	54000	42000	36300	30300	25000	20500	17100	15300	13900	
5	53650	40800	33700	28100	23400	19650	16400	14750	13200	
0	50200	38000	31200	26000	21700	18200	15400	13900	12500	



- NOTES:
- 1- DO NOT EXCEED 32,500 LBS. PER EACH PART LIFTING LINE WITH 1 D.A. ROPE. DO NOT USE LESS THAN A 3.5 FACTOR SAFETY FACTOR WITH ANY OTHER WIRE ROPE.
  - 2- ALL SIDE OUTRIGGERS AND REAR SPACES MUST BE PROPERLY EXTENDED AND DOWN ON THE GROUND.
  - 3- WHEN BOOM LENGTH IS BETWEEN BOOM LENGTHS FOR THE LONGER BOOM LENGTH.
  - 4- WHEN BOOM ANGLE IS BETWEEN BOOM ANGLES SHOWN, THE APPROX. THEN MUST USE LOADS AND DOWN ON THE GROUND.
  - 5- DO NOT SWING BOOM OVER SIDE OF UNIT, UNLESS THE SIDE OUTRIGGERS ARE FULLY EXTENDED AND DOWN ON THE GROUND.
  - 6- WHEN USING TWO WINCHES THE CG. OF THE LOAD ATTACHMENT POINTS ON THE LOAD.
  - 7- ALL RATINGS COMPLY WITH SAE J2812 TOWING EQUIPMENT RATINGS AND PRACTICES.
  - 8- WHEN USING A SNATCH BLOCK, MOST LOADS SHOULD BE ATTACHED TO THE TOP OF THE BOTTOM LUG. NEVER USE THE SIDE OF RING. MID WITH THE EYE FULLY RETRACTED AND CAN BE FULLY RETRACTED.

### OUTRIGGER DEPLOYMENT

THE SIDE OUTRIGGERS ARE TO BE FULLY EXTENDED AND JACKED DOWN UNLESS THE SIDE OF GROUND AND THE UNIT IS LEVELLED TO WITHIN 1% DEGREE. THESE ARE TO BE FULLY EXTENDED TO PROPER. THEN THE REAR STABILIZERS ARE TO BE EXTENDED DOWN ON TO PROPER SOLID GROUND SUPPORT WITHOUT CHANGING THE LEVELING OF THE UNIT.

MANUFACTURED BY:



An Oshkosh Corporation Company

MFG BY: \_\_\_\_\_

DATE OF MFR: MO \_\_\_\_\_ YR. \_\_\_\_\_

GVWR: \_\_\_\_\_ KG ( \_\_\_\_\_ LB)

GAWR-FRONT:

\_\_\_\_\_ KG ( \_\_\_\_\_ LB)

WITH \_\_\_\_\_ TIRES,

\_\_\_\_\_ RIMS, @ \_\_\_\_\_ KPA

( \_\_\_\_\_ PSI) COLD \_\_\_\_\_

GAWR-INTERMEDIATE(1):

\_\_\_\_\_ KG ( \_\_\_\_\_ LB)

WITH \_\_\_\_\_ TIRES,

\_\_\_\_\_ RIMS, @ \_\_\_\_\_ KPA

( \_\_\_\_\_ PSI) COLD \_\_\_\_\_

GAWR-INTERMEDIATE(2):

\_\_\_\_\_ KG ( \_\_\_\_\_ LB)

WITH \_\_\_\_\_ TIRES,

\_\_\_\_\_ RIMS, @ \_\_\_\_\_ KPA

( \_\_\_\_\_ PSI) COLD \_\_\_\_\_

GAWR-REAR:

\_\_\_\_\_ KG ( \_\_\_\_\_ LB)

WITH \_\_\_\_\_ TIRES,

\_\_\_\_\_ RIMS, @ \_\_\_\_\_ KPA

( \_\_\_\_\_ PSI) COLD \_\_\_\_\_

THIS VEHICLE HAS BEEN COMPLETED IN ACCORDANCE WITH THE PRIOR MANUFACTURERS' IVD, WHERE APPLICABLE. THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS, [AND BUMPER AND THEFT PREVENTION STANDARDS, IF APPLICABLE] IN EFFECT IN:

MO. \_\_\_\_\_ YR. \_\_\_\_\_

VEHICLE IDENTIFICATION NUMBER: \_\_\_\_\_

VEHICLE TYPE: \_\_\_\_\_

**Certification Decal**

Affixed to the Driver's Side Door Jam, Hinge Pillar or Latch Post

Provided by the Final Stage Vehicle Manufacturer according to Title 49 Part 567 of the Code of Federal Regulations (CFR)



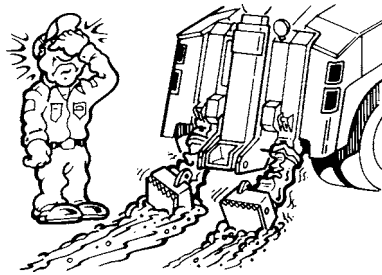
- Don't use a recovery vehicle that has not been properly maintained. Pay special attention to the mounting bolts, and lubrication of moving parts.



- Don't lower the rear hydraulic stabilizers unless the area under them is clear. Pay particular attention to keeping this area clear.



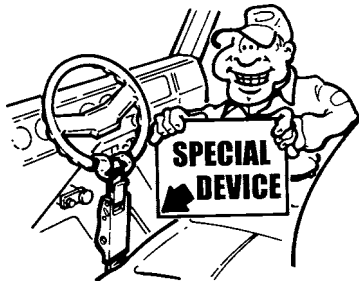
- Don't use rear spades on paved surfaces unless you are willing to accept responsibility for damage to such surfaces.



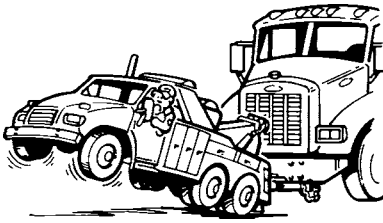
- Don't move the recovery vehicle while rear hydraulic stabilizers are extended. Damage is very likely to occur.



- Don't operate the wrecker's engine faster than recommended. Excessive speeds can damage PTO, hydraulic pumps, and winches.



- Don't rely on anti-theft steering locks to secure the steering wheel. Use a special steering wheel clamping device designed for this purpose.



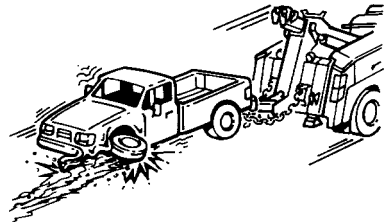
- Don't tow a vehicle that reduces the weight on the front wheels of the wrecker more than 50 percent. (SAE J2512)



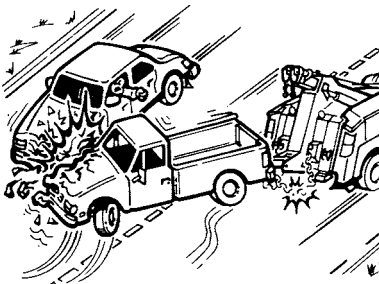
- After you have hooked up a vehicle for towing, don't start the tow until you have double checked the hook-up, installed safety chains, and released the parking brakes of the towed vehicle.



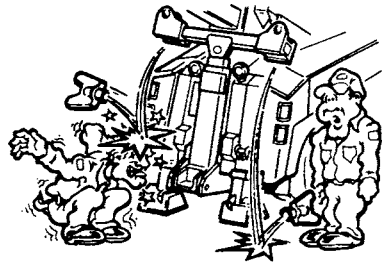
- Don't travel with the PTO engaged. Damage to the recovery vehicle's transmission and hydraulic components will occur. Engage it only while operating the controls.



- Don't tow a vehicle on its front wheels if they are damaged.



- Don't tow a vehicle on its front wheels unless the steering wheel is secured with the front wheels straight ahead.



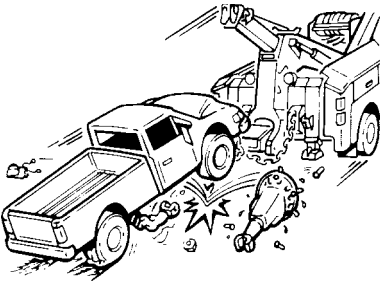
- Never fold the boom up into storage position without removing the towing adapters.



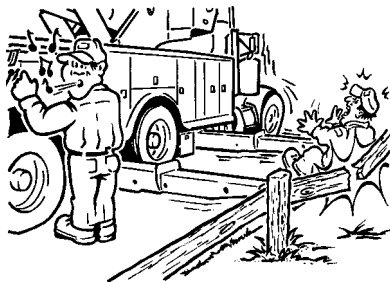
- Keep the underlift boom raised high enough off of the ground when roading to avoid dragging it over road surfaces.



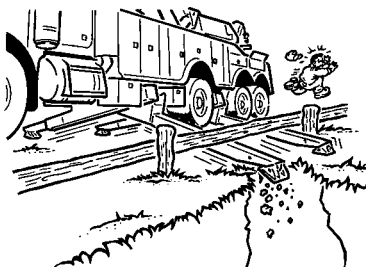
- Never exceed the front and/or rear axle ratings of your towing equipment.



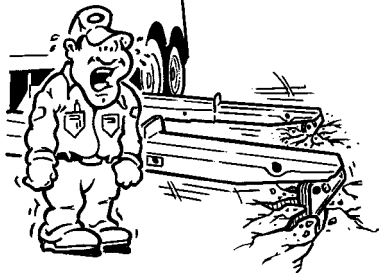
- Don't tow a vehicle on its drive wheels unless steps have been taken to protect its transmission and differential. Follow the recommendations of the vehicle manufacturer. As an alternative, use a towing dolly.



- Never extend or retract an outrigger unless it is in full view from its operating controls.



- Vehicle must be located on a firm level surface that will provide support for the outrigger loading. Use caution when sitting up near overhanging banks or excavations.



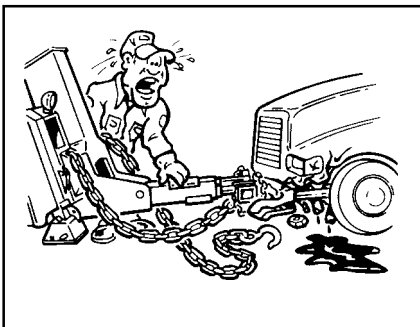
- Don't use outrigger spades on paved surfaces unless you are willing to accept responsibility for damage to such surfaces.



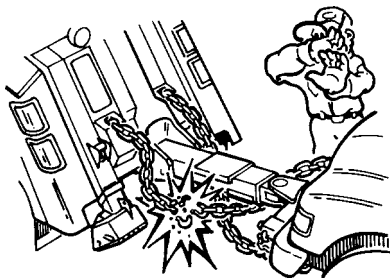
## SAFETY CHAINS AND TIE-DOWN CHAINS MUST BE USED WHEN TOWING AND TRANSPORTING

Safety chains and tie-down chains are provided for use with your new Jerr-Dan Recovery Vehicle. Periodically inspect all chains for any signs of fatigue or damage. Don't overlook the hooks; be sure they have not been bent or deformed. If chain or hook damage is noted, they must be replaced before being used. **Do not use safety chains for recovery operations.**

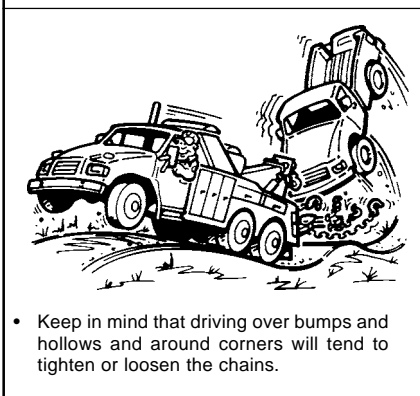
Many states require that the towed vehicle be secured to the wrecker body with safety chains. Check your local regulations and use your safety chains. Safety chains are provided for use with your new JERR-DAN.



- Never attach the chain hooks in such a way as to damage brake lines or other functional parts.



- Check that the chain does not become over tensioned when raising the towed vehicle to the towing position or during the towing operation.



- Keep in mind that driving over bumps and hollows and around corners will tend to tighten or loosen the chains.

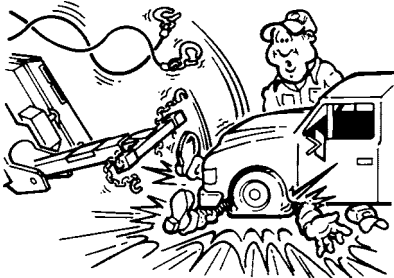


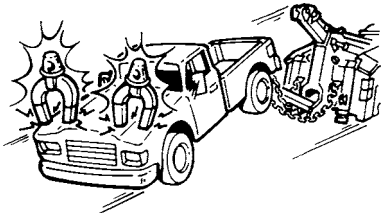


- Always use two safety chains and two tie-down chains when towing all vehicles, regardless of distance.

# LIFT SAFETY

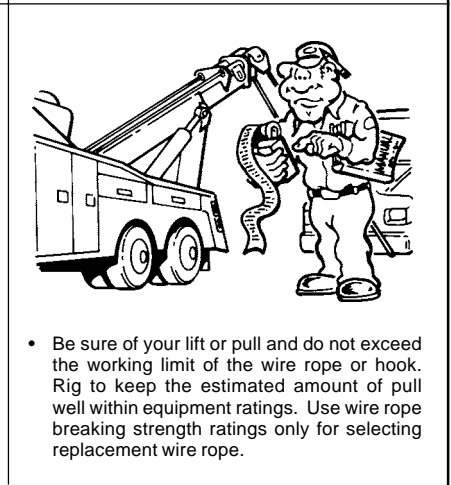
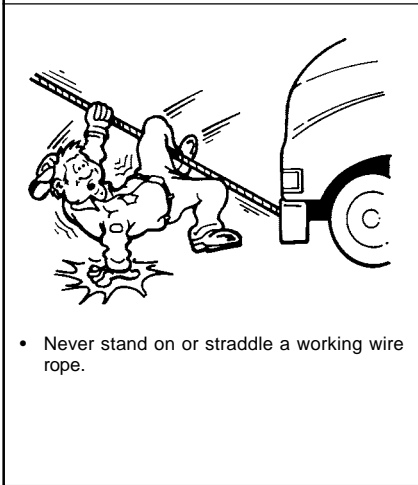
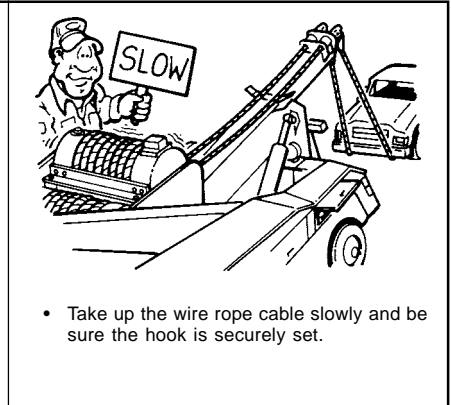
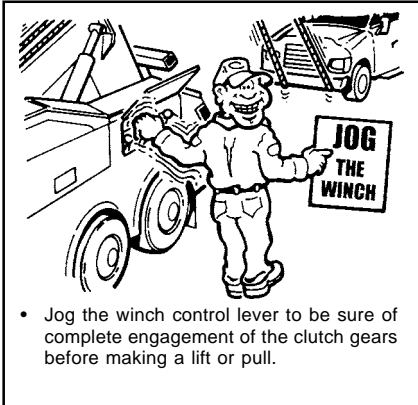
Careful consideration of the immediate surrounding conditions such as the weather, terrain, type or condition of the vehicle to be recovered and the condition and experience of the operator is foremost to the safety and success of the operation.

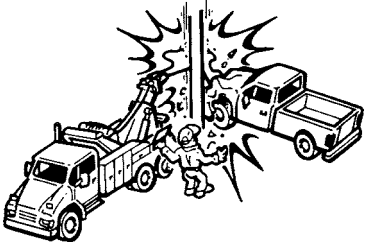
Your unit is unique. It not only can make lifts from level surfaces, our boom tilt feature allows pickup of vehicles that are parked on both inclines and declines.

 <ul style="list-style-type: none"><li>• You should never make a lift or movement while close to or under the vehicle being lifted!</li></ul>	 <ul style="list-style-type: none"><li>• Always use jack stands to support the vehicle if it is necessary to work under it.</li></ul>
 <ul style="list-style-type: none"><li>• Don't use towing forks that are not of proper size for the pickup requirements.</li></ul>	 <ul style="list-style-type: none"><li>• Magnetic towing lights are required in many areas and are always recommended for safe tows.</li></ul>

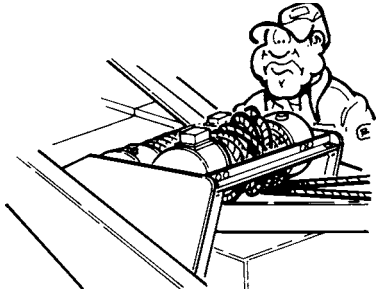
## BOOM SAFETY

Your unit is equipped with a wrecker boom and the following safety procedures must be observed:

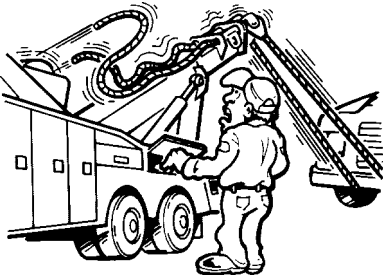




- Never lift or pull over or around a sharp obstacle.



- Never allow the wire rope to cross wrap (criss-cross) on the winch drum. Crushing of the wire rope can cause premature wire rope failure.



- Never completely unwind wire rope from a winch while loaded. Always be sure that a minimum of five (5) wraps of wire rope are on the drum at all times. (SAE J706)



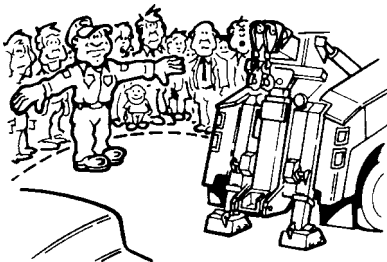
- Never make a lift or pull with the cable attached to light gauge or sheet metal parts; use the frame or major structural members.



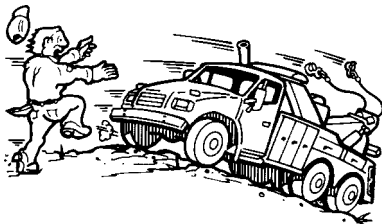
- Never tie down the front end of your wrecker for recovery work of heavy lifts. You will likely damage the truck frame if you do.



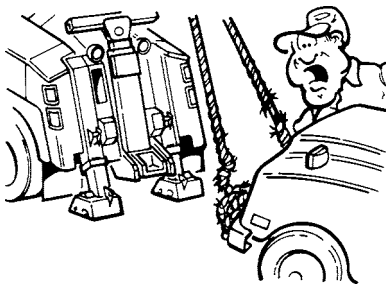
- Don't disengage the winch drum clutch while the wire rope is loaded.



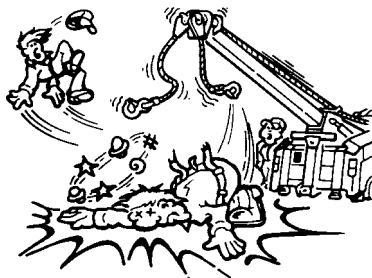
- Don't permit bystanders in the area while performing recovery work.



- Be sure all brakes and locks are properly set on the recovery vehicle.



- Never wrap the wire rope around frames or cross members. Use chains and hook the wire rope to the chains.



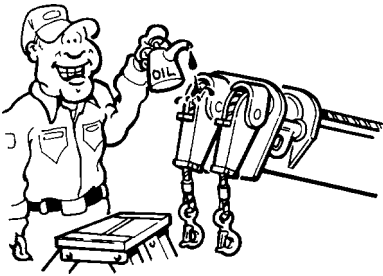
- Never under any circumstances use the winch or boom to lift people!



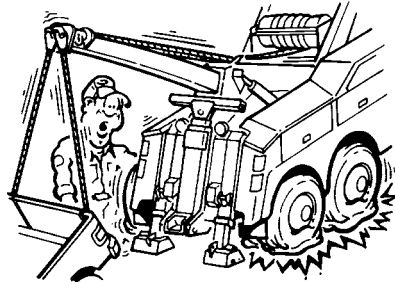
- Don't use damaged wire ropes on your wrecker. Become familiar with the various types of wire rope damage and periodically inspect the entire wire rope for wear and corrosion. **Never use wire rope menders.** Replace with similar rated wire rope and hooks.



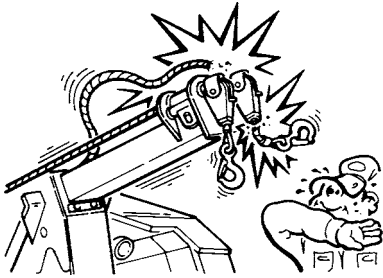
- Death or Serious Injury can occur when working near power lines. Be sure that exact locations of overhead power lines, and other obstructions or hazards are known.



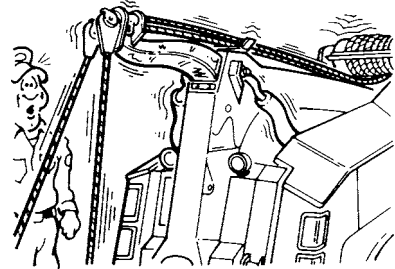
- Lubricate and maintain both the wire rope and winch on regular intervals. (See maintenance charts.) Inspect the wire rope for damage. Damaged, deformed or frayed wire rope should be replaced before use.



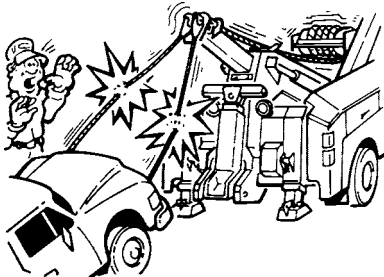
- Avoid using the boom raise or boom up control to lift a load. This causes undue stress and weight loading on the rear axle. Use the winch to lift the load.



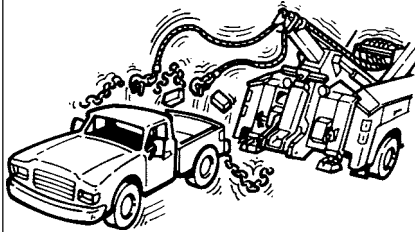
- Don't continue to wind in wire rope after the hook is against the boom end.



- Caution should be taken when retracting or extending the boom extension while under load.



- All boom placement functions should be made with the winch wire ropes set in "free spool" to avoid over tensioning or breaking the winch wire ropes.



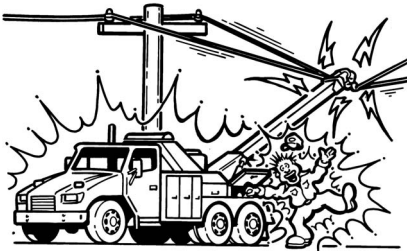
- After rigging wire ropes, don't begin pulling without rechecking connections. Make sure that all wire ropes and snatch blocks are securely attached and cannot accidentally pull loose.



- Don't expect your wrecker to tow loads equal to the wrecker ratings. Wrecker ratings apply to loads imposed during recovery with the wrecker properly stabilized.



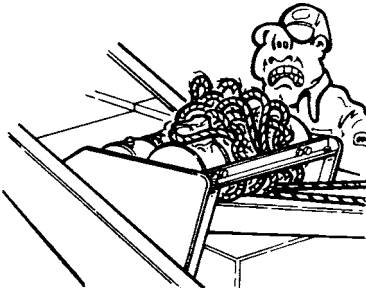
- Don't exceed ratings of booms, wire ropes, snatch blocks, or winches. Stay within nameplate ratings. Note that boom ratings decrease significantly as the boom is extended.



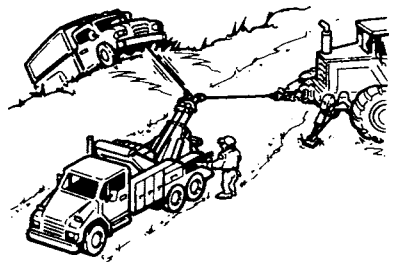
- Do not raise, lower, or move the boom near power lines. Hazardous voltage will cause severe injury or death.



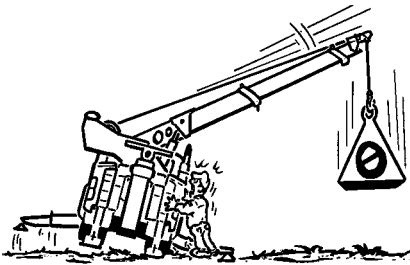
- Don't drive with the wrecker boom extended.



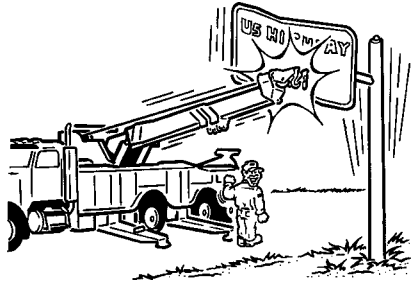
- To avoid birdnesting and premature failure of the wire rope, always keep tension on the wire rope when winding or unwinding.



- When making a pull to the side, always apply an equal load in the opposite direction of the pull to stabilize the wrecker.



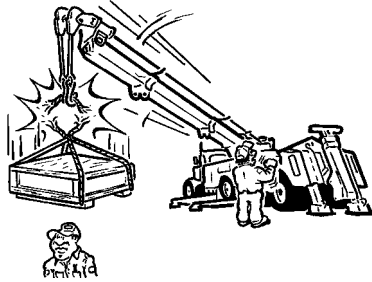
- Know the load to be moved. **DO NOT OVERLOAD!**



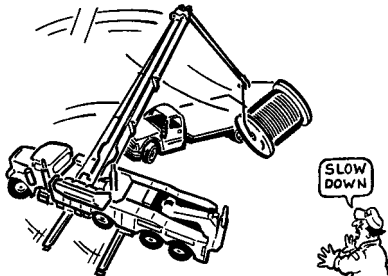
- Make sure vehicle is positioned in an area free from overhead obstructions. **KEEP A SAFE WORKING DISTANCE!**



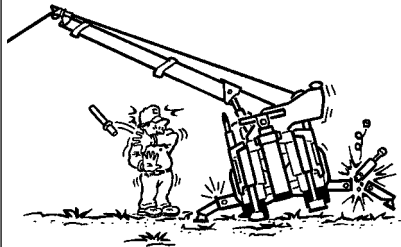
- Do not drive without locking the slew lock. The boom may rotate unexpectedly.



- Do not rotate or extend a load over anyone.

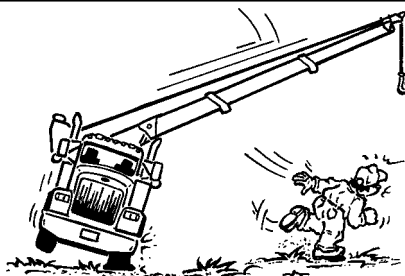


- When swinging a load, watch out for centrifugal force. As you swing a load this force will cause the load to swing away from the machine and may cause instability.

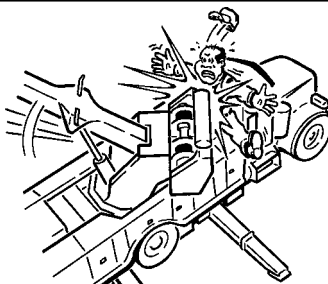


- All outrigger sections must be fully pinned before starting recovery work to avoid damage to outriggers and outrigger extension cylinders.





- Do not swing the wrecker boom without extending the outrigger stabilizers.



- Stay clear of rotating equipment to avoid crushing injury.

# CAPACITY/RATING INFORMATION PLACARDS

These placards provide information about carrier and vehicle ratings, capacities and load limits. You must stay within these ratings/capacities when using the Jerr-Dan HDR. These placards must not be obliterated, removed or painted over. They are there to remind and protect the operator. (Not all placards are used on all units) If a placard becomes lost or unreadable, it should be replaced. Replacements are available through the Service Parts Department.

SERIAL NO. [REDACTED]
MODEL NO. [REDACTED]
<b>UNDERLIFT</b>
<b>UNDERLIFT RATINGS (MAXIMUM)</b>
EXTENDED [REDACTED] LBS.
RETRACTED [REDACTED] LBS.
<b>WRECKER BOOM</b>
<b>BOOM RATINGS (MAXIMUM)</b>
(SAE J2512 - BOOM AT 30° ANGLE)
EXTENDED [REDACTED] LBS.
RETRACTED [REDACTED] LBS.
<b>WINCH RATING</b>
(SAE J706)
EACH DRUM [REDACTED] LBS.
<b>CABLE / WIRE ROPE</b>
SIZE [REDACTED] FT.
TYPE [REDACTED]
WORKING LIMIT [REDACTED] LBS.
<b>▲ WARNING ▲</b>
READ OPERATOR'S MANUAL AND FAMILIARIZE YOURSELF WITH THE OPERATION PRIOR TO USING THIS EQUIPMENT. KNOW THE LOADS BEING MOVED. DO NOT EXCEED RATED CAPACITIES.
<b>▲ WARNING ▲</b>
ALL RATINGS ARE BASED ON THE STRUCTURAL CAPACITY OF ABOVE MODEL. ACTUAL TOWING AND RECOVERY CAPACITY MAY BE LIMITED BY THE CAPACITY OF THE CHASSIS AND EQUIPMENT SELECTED.
MANUFACTURED BY:
JERR-DAN CORPORATION 1080 HYKES ROAD GREENCASTLE, PA 17225 1-800-926-9666

189

SERIAL NO. [REDACTED]  
MODEL NO. [REDACTED]

## UNDERLIFT

### UNDERLIFT RATINGS (MAXIMUM)

EXTENDED [REDACTED] LBS.  
RETRACTED [REDACTED] LBS.

### WINCH RATING (OPTIONAL)

(SAE J706)  
EACH DRUM [REDACTED] LBS.

### CABLE / WIRE ROPE

SIZE [REDACTED] FT.  
TYPE [REDACTED]  
WORKING LIMIT [REDACTED] LBS.

## WRECKER BOOM

### BOOM RATINGS (MAXIMUM)

#### STRUCTURAL LIMIT - BOOM AT 51° ANGLE

RETRACTED [REDACTED] LBS.

#### SAE J2512 - BOOM AT 30° ANGLE

EXTENDED [REDACTED] LBS.  
MID [REDACTED] LBS.  
RETRACTED [REDACTED] LBS.

### WINCH RATING

(SAE J706)  
EACH DRUM [REDACTED] LBS.

### CABLE / WIRE ROPE

SIZE [REDACTED] FT.  
TYPE [REDACTED]  
WORKING LIMIT [REDACTED] LBS.

### WARNING

READ OPERATOR'S MANUAL AND FAMILIARIZE YOURSELF  
WITH THE OPERATION PRIOR TO USING THIS EQUIPMENT.  
KNOW THE LOADS BEING MOVED.  
DO NOT EXCEED RATED CAPACITIES

### WARNING

ALL RATINGS ARE BASED ON THE STRUCTURAL CAPACITY OF  
ABOVE MODEL. ACTUAL TOWING AND RECOVERY CAPACITY  
MAY BE LIMITED BY THE CAPACITY OF THE CHASSIS  
AND EQUIPMENT SELECTED.

#### MANUFACTURED BY:

JERR-DAN CORPORATION  
1080 HYKES ROAD  
GREENCASTLE, PA 17225  
1-800-926-9666

862

## SAFETY WARNING LABELS

These safety warning labels describe hazards and what happens if you encounter them. Read each safety warning label and figure out how to avoid the hazard. These labels must not be obliterated, removed or painted over. They are there to remind and protect the operator. (Not all decals are used on all units) If a decal becomes lost or unreadable, it should be replaced. Replacements are available through the Service Parts Department.



### CAUTION

#### OPERATOR'S PRE-TRANSPORT CHECKLIST

REVIEW THIS CHECKLIST BEFORE EACH TOW. FAILURE TO FOLLOW CHECKLIST COULD CREATE A DANGEROUS CONDITION FOR YOU, OTHER MOTORISTS AND PEDESTRIANS, AND MIGHT RESULT IN SERIOUS INJURY OR DEATH.

##### VEHICLE ON UNDER LIFT - CHECKLIST:

- HEED ALL WARNINGS ON EQUIPMENT AND CONTROLS.
- DO YOU HAVE TURNING CLEARANCE FOR TOWED VEHICLE?
- ARE BOTH SAFETY CHAINS ATTACHED FROM TOWING TRUCK TO TOWED VEHICLE?
- IS THERE SUFFICIENT GROUND CLEARANCE FOR TOWED VEHICLE?
- IS THE UNDER LIFT RETRACTED AS CLOSE AS POSSIBLE TO OBTAIN MAXIMUM WEIGHT DISTRIBUTION?
- ARE CHAINS SECURED FIRMLY AROUND THE AXLE OF THE FRAME OF THE TOWED VEHICLE?
- ARE AUXILIARY TOWING LIGHTS ATTACHED TO TOWED VEHICLE?
- DO NOT OVERLOAD. STOP VEHICLE AT ONCE AND REARRANGE LOAD IF YOU NOTICE FRONT END OF TRUCK FEELS LIGHT OR BOUNCES EXCESSIVELY OR IF STEERING FEELS EXCESSIVELY LIGHT. LOSS OF VEHICLE CONTROL CAN RESULT FROM AN OVERLOAD AND CAN CAUSE A SERIOUS ACCIDENT.

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200



### WARNING

**ONLY AUTHORIZED AND TRAINED PERSONNEL SHOULD BE PERMITTED TO OPERATE THIS WRECKER UNSUPERVISED.**

IN ORDER TO BE SUFFICIENTLY TRAINED TO OPERATE THIS WRECKER, A PERSON MUST HAVE, AS A MINIMUM, THE FOLLOWING QUALIFICATIONS:

1. SATISFACTORILY PERFORMED ALL WRECKER MANEUVERS AND FUNCTIONS UNDER THE SUPERVISION OF FULLY TRAINED PERSONNEL.
2. HAVE COMPLETELY READ AND UNDERSTAND THE OPERATIONS, MAINTENANCE AND PARTS MANUAL(S) IN THEIR ENTIRETY FOR THIS WRECKER.
3. HAVE COMPLETELY READ ALL WARNINGS AND PRECAUTIONS ON THIS WRECKER.
4. HAVE HAD EXPLAINED TO THEM THE HAZARDS OF MOVING THE PARTICULAR MATERIALS THEY WILL BE LOADING OR UNLOADING.
5. UNDERSTAND THE HAZARDS OF OPERATING AT A PARTICULAR JOB SITE, INCLUDING:
  - ...THE IMPORTANCE OF STAYING WELL CLEAR OF ALL ELECTRICAL LINES.
  - ...GIVING CONSIDERATION TO GROUND CONDITIONS SUCH AS IRREGULAR CONTOURS, ICE, WATER, OR MUD,
  - ...ANY OTHER CONDITIONS WHICH MAY INTERFERE WITH ORDINARY CAREFUL OPERATION OF THIS WRECKER.

**UNTRAINED OPERATORS SUBJECT THEMSELVES AND OTHERS TO DEATH OR SERIOUS INJURY AND MAY CAUSE SERIOUS DAMAGE TO PROPERTY**

199

**⚠ WARNING**

**HAVE YOU REVIEWED THE OPERATOR'S PRE-TRANSPORT CHECK LIST ON THE UNIT?**

139

MANUFACTURED BY  
**JERR-DAN**  
 GREENCASTLE, PENNSYLVANIA

MODEL NO. HDTL- [REDACTED]

**⚠ CAUTION ⚠**

DO NOT EXCEED THE FOLLOWING RATINGS:

LIFTING CAPACITY (Each Arm) .....	7,000 lbs
LIFTING CAPACITY (Total) .....	14,000 lbs
TOWING CAPACITY (Maximum) .....	80,000 lbs

**THE TOWING CAPACITY SHOULD NOT EXCEED THE GROSS COMBINED WEIGHT RATING (GCWR) OF THE TOWING VEHICLE OR THE 80,000 LB. STRUCTURAL CAPACITY OF THE TIRE LIFT, WHICHEVER IS LOWER.**

277

**⚠ CAUTION**

**THE BUS BAR GRID MUST BE SECURED TO THE CROSS TUBE AT ALL TIMES WITH THE RETAINING PINS.**

**TO AVOID DAMAGE TO THE WRECKER BODY THE BUS BARS AND GRID TUBES MUST BE IN THEIR OUTER MOST POSITIONS FOR STORAGE ON THE UNDER LIFT WHEN FOLDED UP INTO THE TRAVEL POSITION**

278

**⚠ WARNING**

**MOVING PARTS  
 KEEP HANDS AND FEET CLEAR  
 OF THIS AREA**

037

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 **WARNING**

MOVING PARTS  
KEEP HANDS AND FEET CLEAR  
OF THIS AREA

037

 **WARNING**

KEEP AREA UNDER  
SPADES CLEAR WHILE  
OPERATING

198

 **CAUTION**


TO AVOID BIRDNESTING AND PREMATURE  
FAILURE OF THE WIRE ROPE  
ALWAYS KEEP TENSION ON THE  
WIRE ROPE WHEN UNWINDING

253

 **WARNING**

ELECTRICAL HAZARD  
POWER DISTRIBUTION PANEL

202

 **WARNING**

A MINIMUM OF 5 WRAPS OF CABLE MUST BE LEFT ON DRUM  
TO ACHIEVE RATED LOAD. NOT TO BE USED IN THE MOVING  
OR LIFTING OF PERSONS

262

 **WARNING**

TOWED VEHICLE MUST BE SECURED  
TO CROSSBAR WHEN USING  
FRAME FORKS AND SPRING HANGERS

211

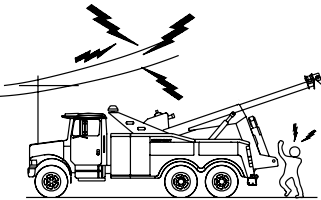
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**⚠ WARNING**

**TOWED VEHICLE MUST BE  
CONNECTED TO TOW TRUCK BODY  
WITH SAFETY CHAINS**

122

**⚠ DANGER**



**Hazardous voltage.  
Will cause severe  
injury or death.**

**Do not raise, lower  
or move boom within  
near power lines.**

203

**⚠ CAUTION**

**ELECTRICAL HAZARD  
BATTERIES ENCLOSED**

579

**⚠ WARNING**

**STAND CLEAR OF  
OUTRIGGER/STABILIZERS  
TO AVOID CRUSHING INJURY**

580

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 **WARNING**

**ALL OUTRIGGER SECTIONS  
MUST BE PINNED BEFORE  
STARTING RECOVERY WORK.**

591

 **DANGER**


**DO NOT SWING  
WRECKER BOOM  
WITHOUT EXTENDING  
OUTRIGGER/STABILIZERS**

592

 **WARNING**

**TURNTABLE LOCKING PIN  
MUST BE ENGAGED ANYTIME  
VEHICLE IS MOVING.**

593

 **WARNING**


**REFER TO LOAD CHARTS  
PRIOR TO PERFORMING ANY  
LIFTING OR RECOVERY WORK.**

594

 **CAUTION**

**ALL SPADES MUST BE PINNED  
IN WORKING POSITION  
BEFORE STARTING  
RECOVERY WORK.**

595

 **WARNING**

**STAY CLEAR OF ROTATING  
EQUIPMENT TO AVOID  
CRUSHING INJURY**

596

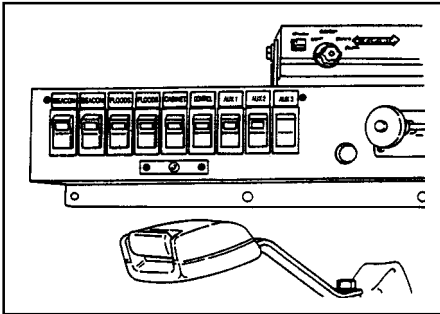


# OPERATION

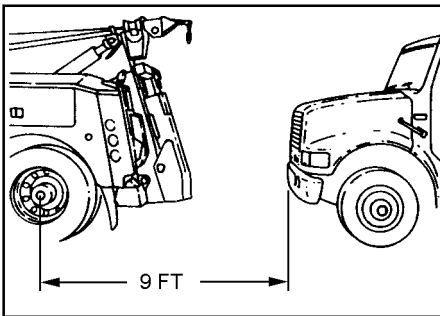
## UNDER LIFT OPERATION

Your HDR is one of the most useful and efficient towing and recovery vehicles available. It is hydraulically powered and careful consideration should be given to the selection of commands. You can afford to work smart, the vehicle will do most of the work for you.

### Follow these simple steps:

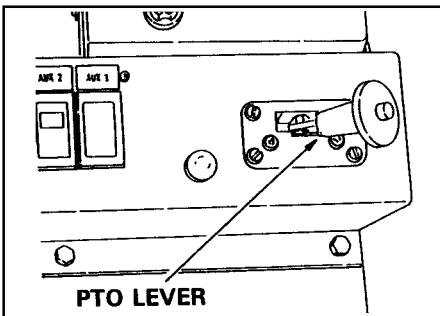


1. Turn on the safety and work lights. (Switches located on panel on the floor beside the driver's seat.) If the remote hand controller is going to be used the CONTROL switch must be turned "ON".



2. Using the rear axle as a guide, position the recovery vehicle within nine (9) ft. of the subject casualty vehicle and as close to the direction of the pull as possible.

3. Place the recovery vehicle's transmission gear selector into neutral and set the parking brakes.



4. Engage the power take-off (PTO) by moving the control lever. See PTO operator's manual. **NEVER TRAVEL WITH THE POWER TAKE-OFF CONTROL ENGAGED.** This could result in damage to the PTO unit and the recovery vehicle's transmission.

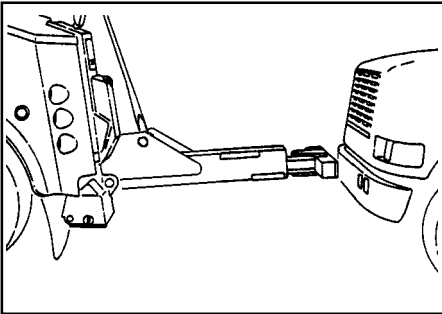
- 
- Adjust the electronic or manual throttle control to elevate the engine speed to approximately 1000-1200 R.P.M. of P.T.O. output shaft speed for optimum performance.
- 

 **CAUTION:**

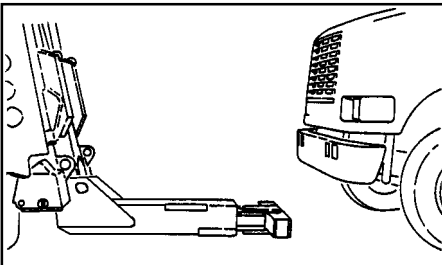
Never exceed 1200 R.P.M. When your hook up is complete, reset the engine idle to normal.

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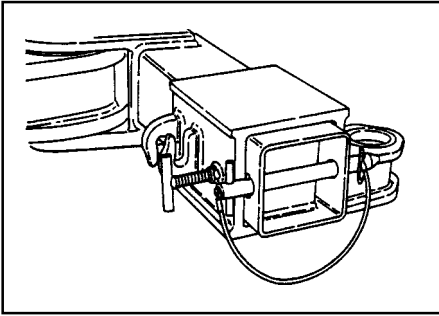
- Confirm the recovery vehicle's position in relation to the casualty vehicle to be towed. Nine (9) ft. is recommended. Reposition the recovery vehicle if necessary. **Be sure the casualty vehicle is not in gear or park. Keep the brake set.**



- Using the tilt function, unfold the under lift boom down until it is in the horizontal position.



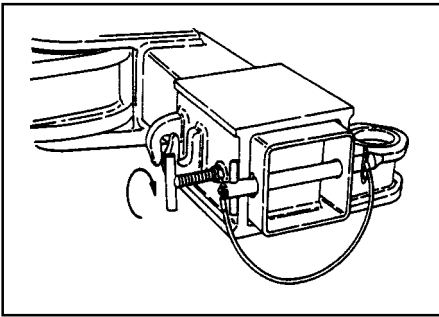
- Lower the under lift boom to about one (1) in. from the ground and swing the crossbar parallel to the casualty vehicle.



- Attach the lift receivers to the crossbar by sliding them over the ends of the crossbar. Install the retaining pin into the end of the crossbar and secure with the safety pin.

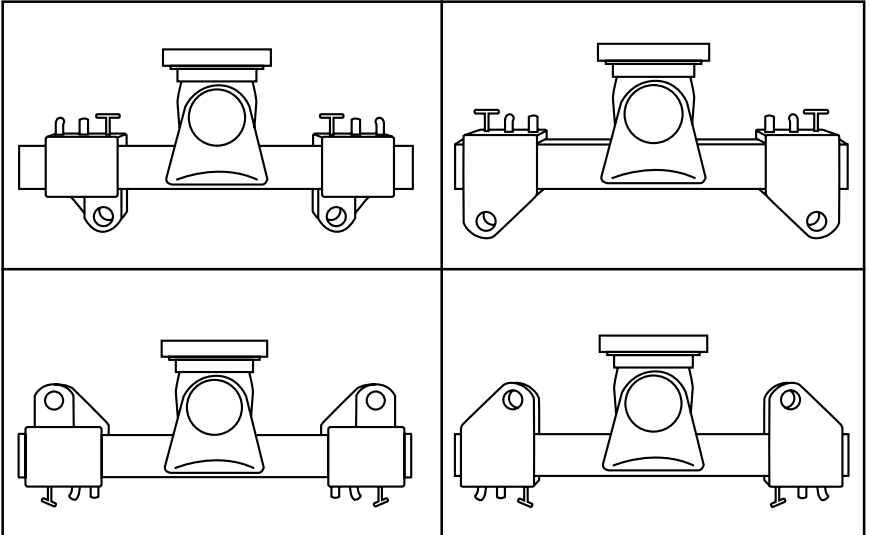
**! CAUTION:**

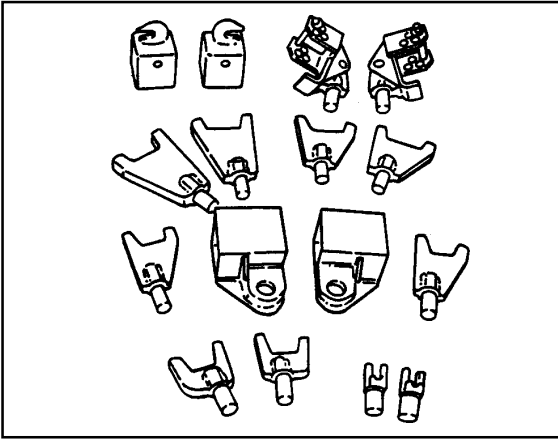
The retaining pins must be in place during all towing applications.



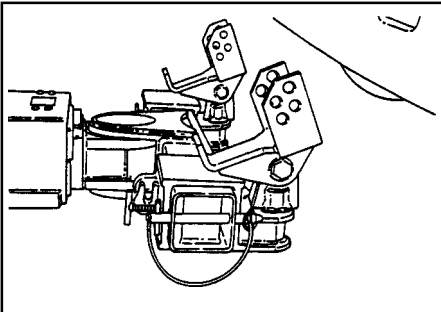
- Adjust the lift receivers on the crossbar to the desired position and tighten the "T" handles to secure the receivers on the crossbar.

### Various Positions for Lift Receiver Use

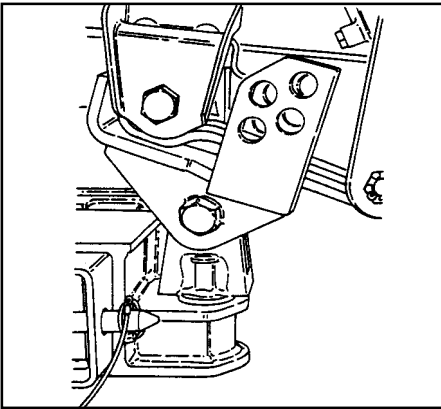


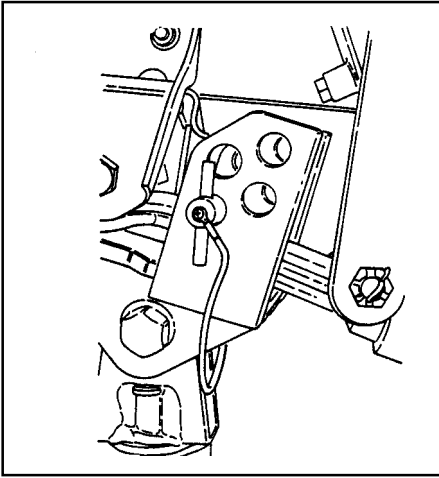


## SPRING BRACKETS



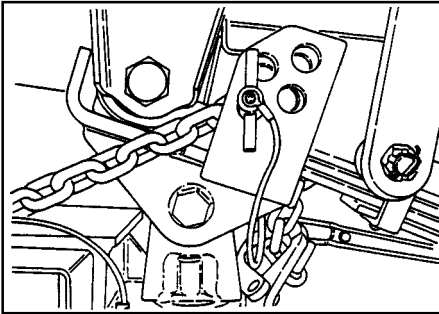
1. Insert the spring brackets into the receivers that you put onto the crossbar.
2. Extend the under lift boom under the casualty vehicle so that the spring brackets are in the proper position for lifting. Make sure that the spring brackets are against the front part of the spring hanger as shown. **At the same time make sure you are not attaching the spring brackets to any steering components.**





3. Raise the boom to lift the casualty vehicle slightly.

4. Secure the casualty vehicle to the spring brackets with the retaining pins and safety pins.



5. Secure the casualty vehicle to the crossbar with chains and a chain binder.

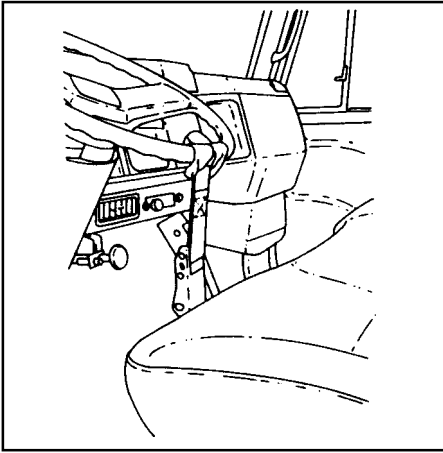
6. After securing the casualty vehicle and before making the final lift, check to be sure that the casualty's parking brake is released, the transmission is in neutral, and the wheels are straight.

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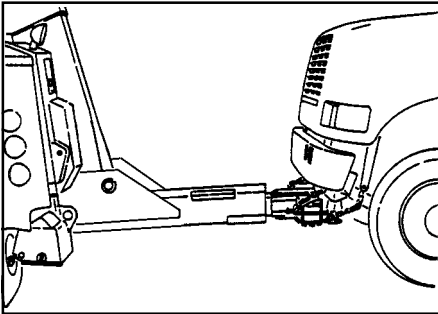
 **CAUTION:**

If vehicle to be towed is on a slope, do not release the brake until the load is secured.

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7. It is recommended that the steering wheel be secured by a steering wheel strap for any front or rear tow.
8. With the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled.
9. Power retract the under lift until the casualty vehicle is about three (3) to four (4) feet from the back of the recovery vehicle. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the fly boom is extended at least four (4) in. from the middle boom section to ensure unobstructed cross-bar pivoting.**



10. Raise the casualty vehicle into the final towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular road surfaces into consideration. Observe the lift function from the side and away from both vehicles if possible.

**NOTE:**

*When towing, the Underlift Boom should be as close to horizontal as possible. You will have better turning and maneuvering capabilities and it will prolong the life of your under lift and pivot pin.*

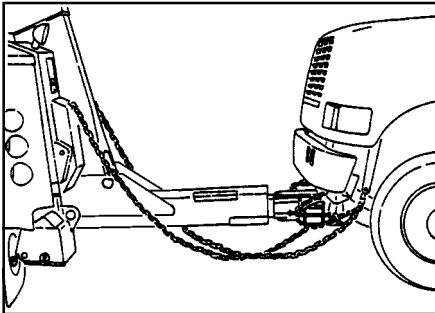


**CAUTION:**

Always follow the chassis manufacturer's recommended procedures for towing. Remove drive lines and drive shafts as directed. Many vehicles can be severely damaged unless these components are removed prior to towing.

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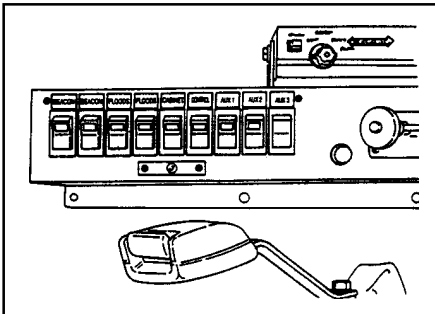
11. Be sure to maintain sufficient ground clearances with the bottom of the casualty vehicle.



12. Attach the safety chains and auxiliary towing lights.

13. Hook-up and connect air and braking systems.

14. If the remote hand controller was used, turn the CONTROL switch "OFF". (Switch is located on panel on the floor.)



**WARNING:**

Never fold the boom up into the storage position without removing the towing adapters from the crossbar receivers.

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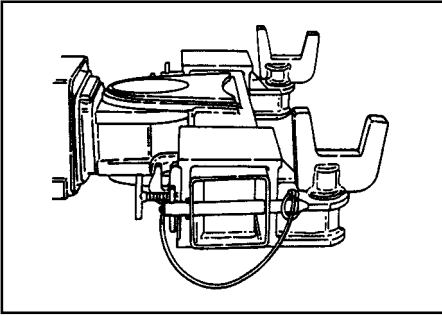
**CAUTION:**

The use of secondary tie-down chains is recommended. Install the tie-down chains between the axle or substantial chassis component and the towbar.

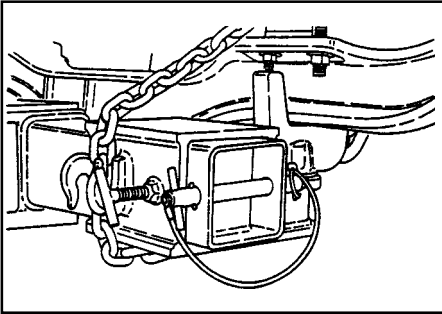
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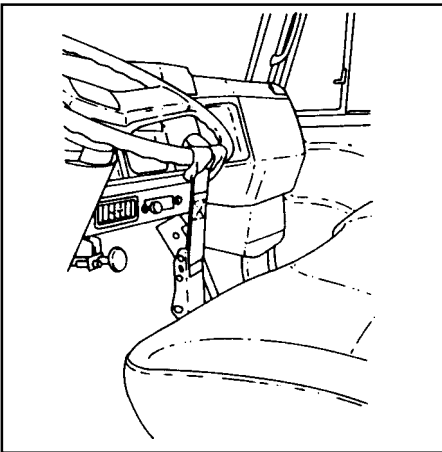
## FRAME FORKS



1. Choose the frame forks that are best suited to your needs and insert them into the receivers on the crossbar.
2. Extend the under lift boom under the vehicle so that the frame forks are in the proper position for lifting. **At the same time make sure you are not attaching the frame forks to any steering components.**



3. Raise the boom to lift the casualty slightly.
4. Secure the casualty vehicle to the crossbar with chains and a chain binder.
5. After securing the casualty vehicle and before making the final lift, check to be sure that the casualty's parking brake is released, the transmission is in neutral, and the wheels are straight.

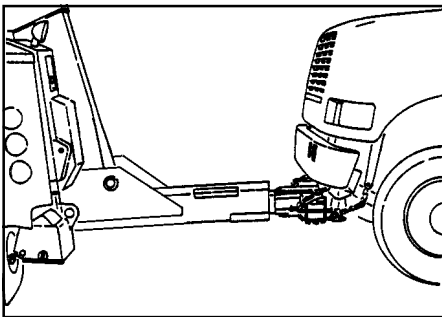


### **CAUTION:**

If vehicle to be towed is on a slope, do not release the brake until the load is secured.

6. It is recommended that the steering wheel be secured by a steering wheel strap for any front or rear tow.



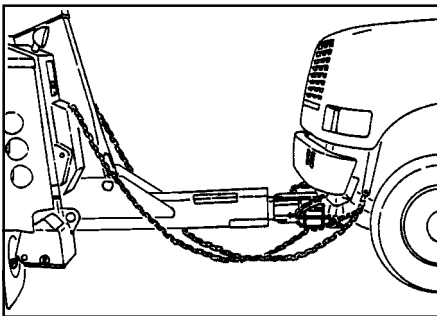


7. With the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled.

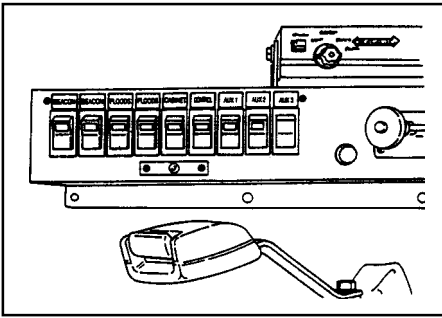
8. Power retract the under lift until the casualty vehicle is about three (3) to four (4) feet from the back of the recovery vehicle. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the fly boom is extended at least four (4) in. from the middle boom section to ensure unobstructed cross-bar pivoting.**
9. Raise the casualty vehicle into towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular road surfaces into consideration. Observe the lift function from the side and away from both vehicles if possible.

**NOTE:**

*When towing, the Underlift Boom should be as close to horizontal as possible. You will have better turning and maneuvering capabilities and it will prolong the life of your under lift and pivot pin.*



10. Be sure to maintain sufficient ground clearances with the bottom of the casualty vehicle.
11. Attach the safety chains and magnetic towing lights.
12. Hook-up and connect air and braking systems.



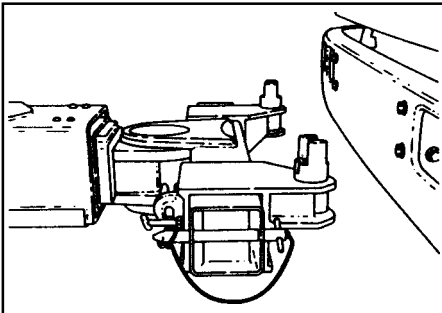
13. If the remote hand controller was used, turn the CONTROL switch "OFF". (Switch is located on panel on the floor.)



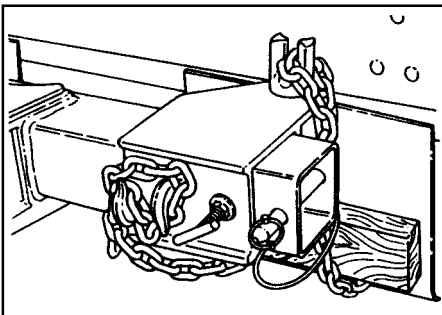
**WARNING:**

Never fold the boom up into the storage position without removing the towing adapters from the crossbar receivers.

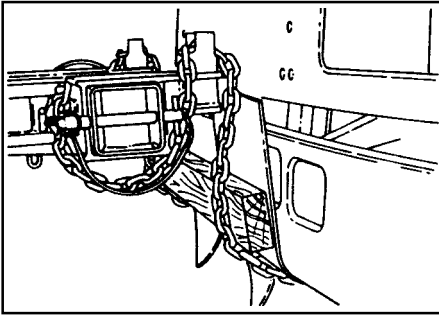
## CHAIN FORKS (OPTIONAL)



1. Insert the chain forks into the receivers on the crossbar.
2. Extend the under lift boom up to the casualty vehicle so that the chain forks are in the proper position for lifting.



3. Attach the hook-up chains to the casualty vehicle. Hook the chains through the chain forks and secure any extra chain to the hooks on the lift receivers. The use of wood blocks and rubber mats may be required to protect the casualty vehicle.
4. Raise the boom to lift the casualty vehicle slightly. At the same time make sure that you are not going to damage any components.



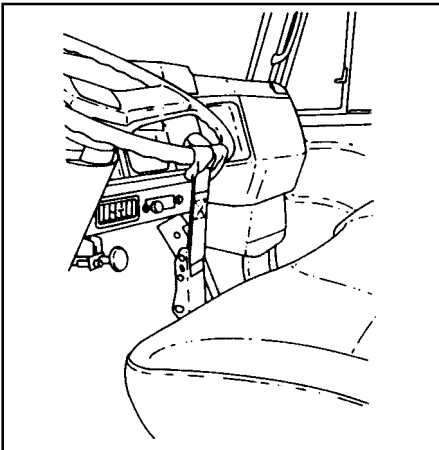
5. Before making the final lift, check to be sure that the casualty's parking brake is released, the transmission is in neutral, and the wheels are straight.

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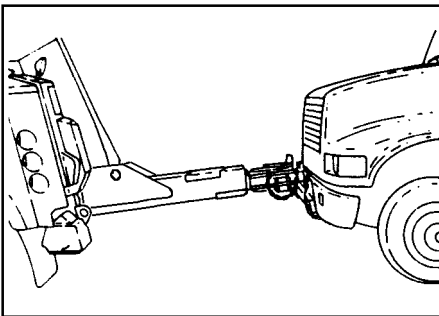
**!** **CAUTION:**

If vehicle to be towed is on a slope, do not release the brake until the load is secured.

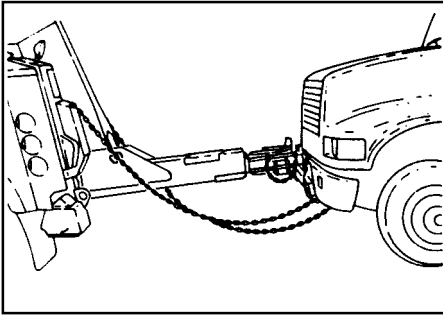
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6. It is recommended that the steering wheel be secured by a steering wheel strap for any front or rear tow.
7. With the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled.



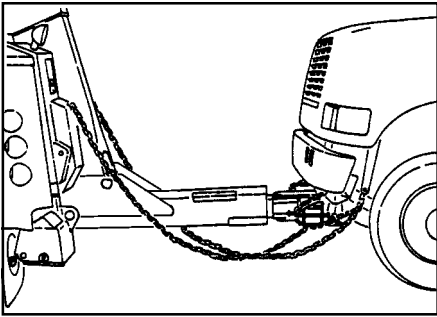
8. Power retract the under lift until the casualty vehicle is about three (3) to four (4) feet from the back of the recovery vehicle. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the fly boom is extended at least four (4) in. from the middle boom section to ensure unobstructed cross-bar pivoting.**



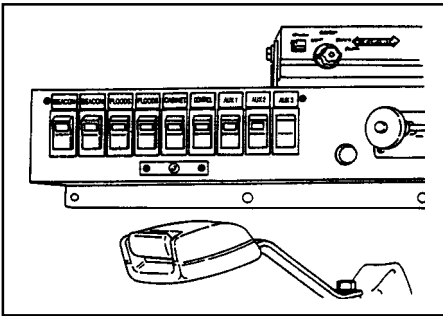
9. Raise the casualty vehicle into towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular road surfaces into consideration.

**NOTE:**

*When towing, the Underlift Boom should be as close to horizontal as possible. You will have better turning and maneuvering capabilities and it will prolong the life of your under lift and pivot pin.*



10. Be sure to maintain sufficient ground clearances with the bottom of the casualty vehicle.



11. Attach the safety chains and auxiliary towing lights.
12. Hook-up and connect air and braking systems.
13. If the remote hand controller was used, turn the CONTROL switch "OFF". (Switch is located on panel on the floor.)

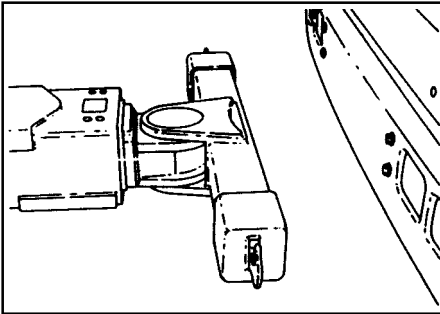


**WARNING:**

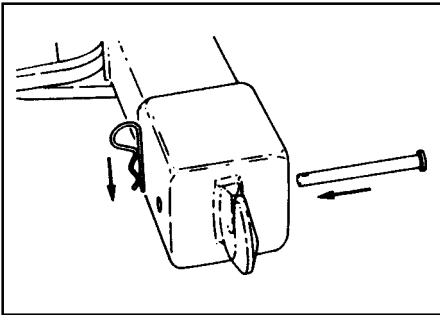
Never fold the boom up into the storage position without removing the towing adapters from the crossbar receivers.

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## CHAIN HOOK ADAPTERS

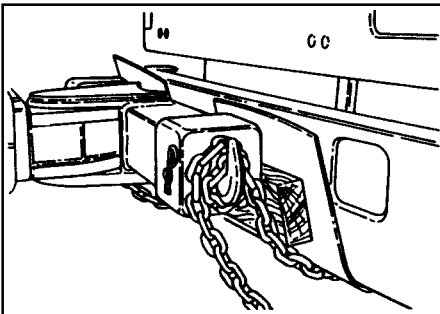


1. Slide the chain hook adapters onto the crossbar.



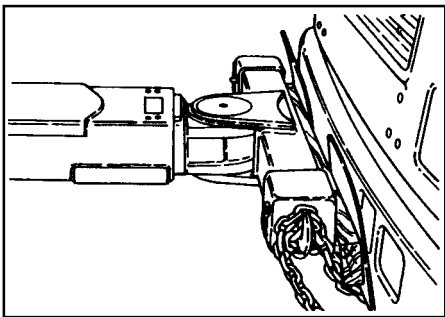
2. Install the retaining pin from the back side of the crossbar through the adapter and crossbar and install the hair pin.

3. Extend the under lift boom up to the casualty vehicle so that the chain hook adapters are in the proper position for lifting.



4. Attach hook-up chains to the casualty vehicle. Fasten the chains in the hooks on the end of the adapters and safety wrap the chain around the bottom of the hook as shown. Secure the remaining chain.

5. Raise the boom to lift the casualty vehicle slightly. At the same time make sure that you are not going to damage any components.

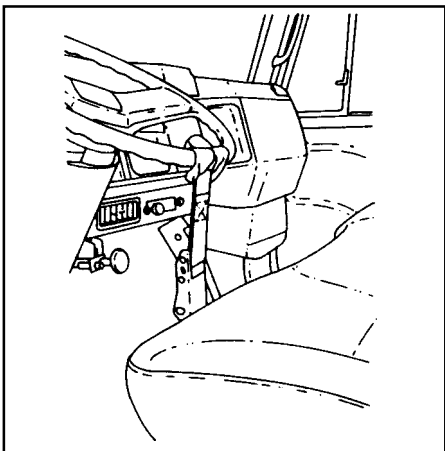


6. Before making the final lift, check to be sure that the casualty's parking brake is released, the transmission is in neutral, and the wheels are straight.

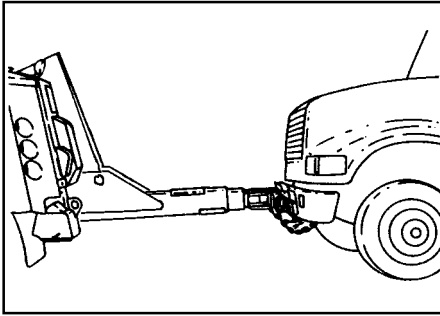


**CAUTION:**

If vehicle to be towed is on a slope, do not release the brake until the load is secured.



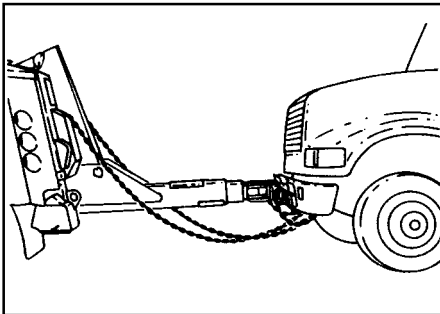
7. It is recommended that the steering wheel be secured by a steering wheel strap for any front or rear tow.
8. With the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled.
9. Power retract the under lift until the casualty vehicle is about three (3) to four (4) feet from the back of the recovery vehicle. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the fly boom is extended at least four (4) in. from the middle boom section to ensure unobstructed cross-bar pivoting.**



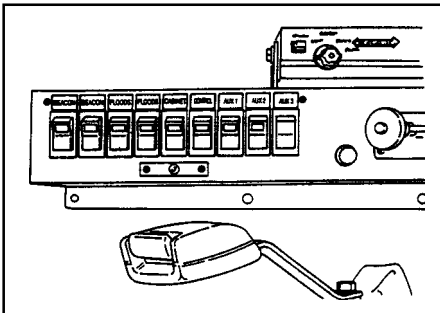
10. Raise the casualty vehicle into towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular road surfaces into consideration.

**NOTE:**

*When towing, the Underlift Boom should be as close to horizontal as possible. You will have better turning and maneuvering capabilities and it will prolong the life of your under lift and pivot pin.*



11. Be sure to maintain sufficient ground clearances with the bottom of the casualty vehicle.
12. Attach the safety chains and auxiliary towing lights.
13. Hook-up and connect air and braking systems.



14. If the remote hand controller was used, turn the CONTROL switch "OFF". (Switch is located on panel on the floor.)

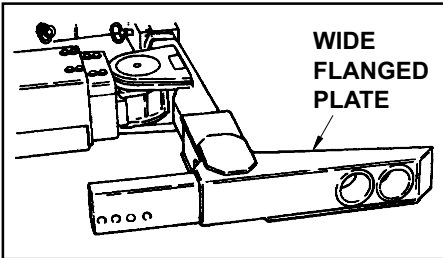
# HEAVY DUTY TIRE LIFT (OPTIONAL)

DO NOT EXCEED THE FOLLOWING RATINGS:

	<b>HDTL</b>	<b>SHDTL</b>
Lifting Capacity (Each Arm) .....	7,000 lbs. ....	12,000 lbs.
Lifting Capacity (Total) <sup>2</sup> .....	14,000 lbs. ....	25,000 lbs.
Towing Capacity (Maximum) <sup>1</sup> .....	80,000 lbs. ....	80,000 lbs.

<sup>1</sup> THE TOWING CAPACITY SHOULD NOT EXCEED THE GROSS COMBINED WEIGHT RATING (GCWR) OF THE TOWING VEHICLE OR 42,000 LBS. (GCW) GROSS COMBINED WEIGHT OF THE TOWED VEHICLE, WHICHEVER IS LOWER.

<sup>2</sup> **MAXIMUM LIFTING CAPACITY** - THE MAXIMUM LOAD THAT CAN BE LIFTED.

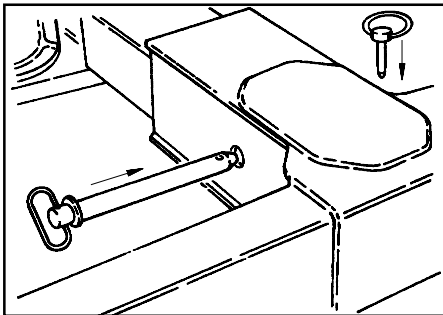


1. Slide the tire lift grid onto the crossbar.



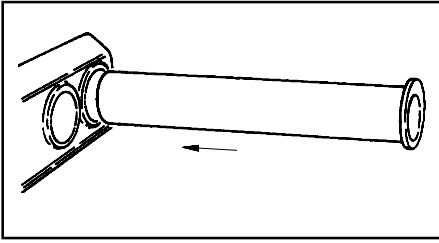
**CAUTION:**

Make sure that the tire lift Grid is installed as shown with the wide flanged plate on top. The flanges are marked with an "L" for left hand and an "R" for right hand.

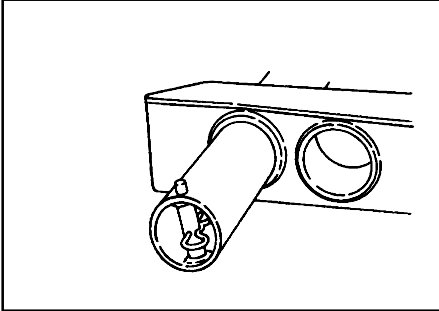


2. Install the retaining pin from the back side of the crossbar through the grid and crossbar and secure with the pin. There are two width positions. One for wider front end lifts and one for narrower rear end lifts.

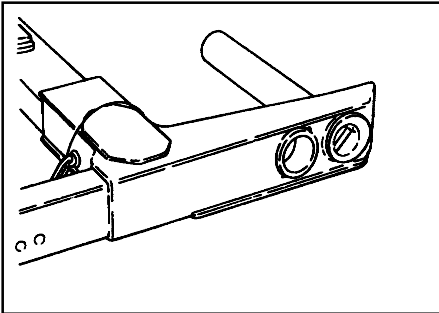




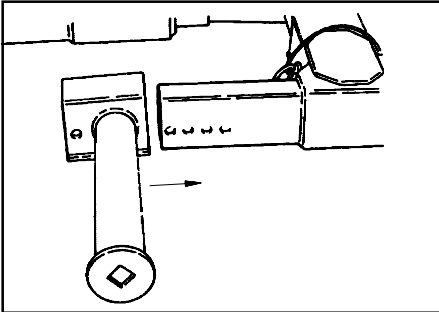
3. Insert the round tube into the desired position in the grid.



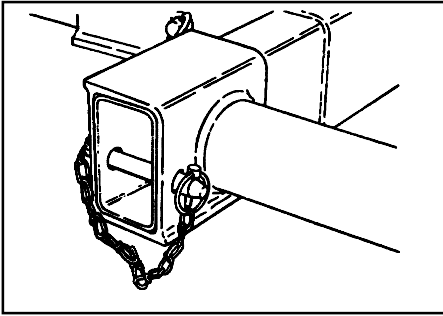
4. Install the retaining pin and hairpin.



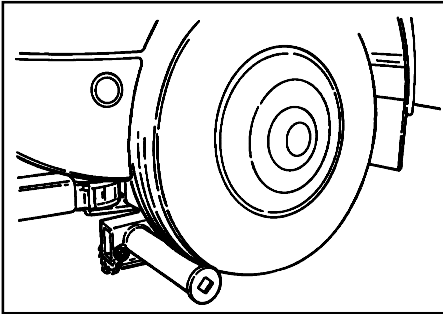
5. Retract the tube inward to the loading position.



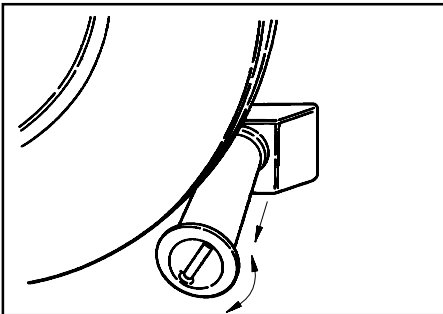
6. Slide the arm weldment over the end of the grid and adjust to the desired position for loading.



7. Install the retaining pin through the grid and arm weldment and secure with the pin.



8. Extend the under lift under the casualty vehicle so that the arm makes contact with the front of the tires. **At the same time make sure that you are not going to damage any under body components.**

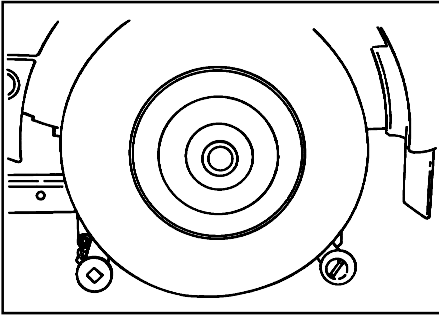


9. Using the pulling tool, extend the round tube to capture the back of the tire. After extending the tube, make sure that the flanged edge of the tube is turned up to prevent the tire from sliding off the end of the tube.

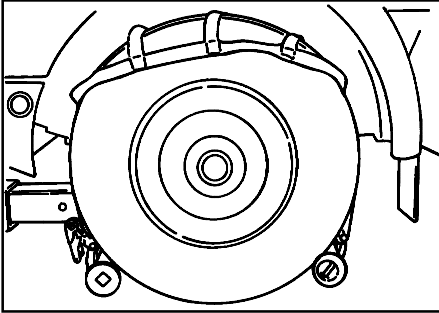


**CAUTION:**

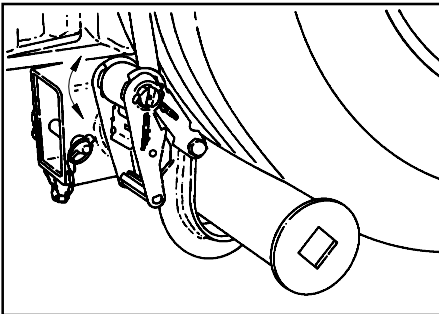
When lifting a vehicle that has dual tires from the rear, only extend the round tube out to capture the inside tire. The flanged edge of the tube must be between the tires and turned up to prevent the tire from sliding off the end of the tube.



10. Raise the boom to lift the casualty vehicle slightly. At the same time make sure that you are not going to damage any components.



11. Attach the hook end of the tie-down strap to the round tube behind the tire. Pull the strap up and cover the tire and attach the hook on the ratchet end of the strap to the arm in front of the tire.

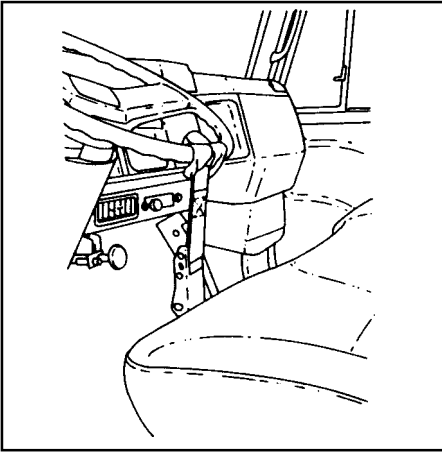


12. Take up the slack in the strap by ratcheting the takeup spool arm. Continue until the tires show some compression.



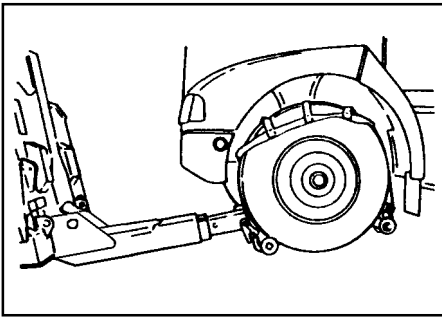
**CAUTION:**

If vehicle to be towed is on a slope, do not release the brake until the load is secured.



13. Always secure the steering wheel with a steering wheel strap for any front or rear tow.

14. With the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled.

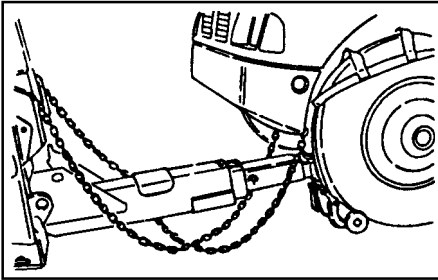


15. Power retract the under lift until the casualty vehicle is about three (3) to four (4) feet from the back of the recovery vehicle. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the fly boom is extended at least four (4) in. from the middle boom section to ensure unobstructed cross-bar pivoting.**

16. Raise the casualty vehicle into towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular road surfaces into consideration.

**NOTE:**

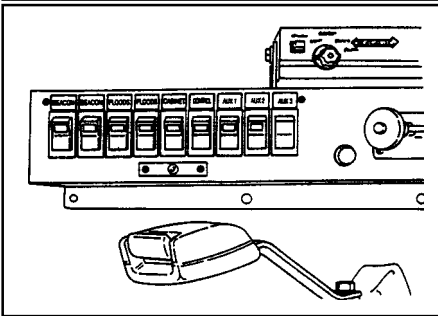
*When towing, the Underlift Boom should be as close to horizontal as possible. You will have better turning and maneuvering capabilities and it will prolong the life of your under lift and pivot pin.*



17. Be sure to maintain sufficient ground clearances with the bottom of the casualty vehicle.

18. Attach the safety chains and auxiliary towing lights.

19. Hook-up and connect air and braking systems.



20. If the remote hand controller was used, turn the CONTROL switch "OFF". (Switch is located on panel on the floor.)



**WARNING:**

Do not use the tire lift if the tire(s) of the casualty vehicle are flat or if there is damage to the wheels or suspension.



**CAUTION:**

The tire lift and grid tubes must be in their outermost positions for storage on the under lift when folded up in the travel position to avoid damage to the body.



**CAUTION:**

Retighten the tie-down straps periodically during a tow as the tires settle into the grid from towing.



**CAUTION:**

The use of secondary tie-down chains is recommended. Fit the secondary tie-down chains to the axle (not to any part of the suspension or body which will rise and fall with the suspension) arranged so as to hold the wheel down in the grid and prevent it from jumping up, forwards, or backwards. Use load binders as required.

---

---



**CAUTION:**

The use of trailer brakes or secondary braking devices while towing is recommended.

---

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**CAUTION:**

Do not tow any vehicle without safety chains being installed.

---

---



**CAUTION:**

Always follow the chassis manufacturer's recommended procedures for towing. Remove drive lines and drive shafts as directed. Many vehicles can be severely damaged unless these components are removed prior to towing.

---

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**CAUTION:**

All products are subject to age, wear and deterioration, all of which cause a reduction in the products breaking strength capacity. It is recommended that all products be regularly inspected. Any worn, deformed, misused or overloaded products should be replaced immediately.

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# TRAILER 5TH WHEEL PLATE AND PINTLE HOOK BALL HITCH ADAPTER (OPTIONAL)

DO NOT EXCEED THE FOLLOWING RATINGS:

## 5TH WHEEL PLATE

LIFTING CAPACITY ..... 15,000 lbs.

TOWING CAPACITY ..... 25,000 lbs.

## PINTLE HOOK BALL HITCH

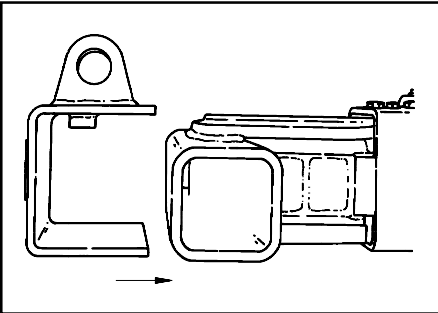
2 IN. BALL HITCH ..... 10,000 lbs. (GTW)

PINTLE HOOK ..... 16,000 lbs. (GTW)

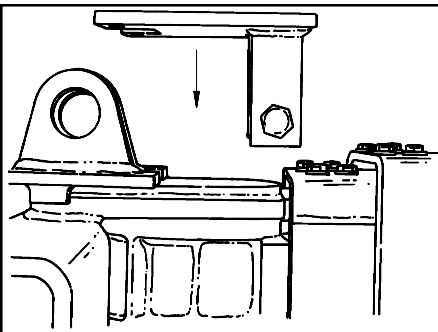
GROSS TRAILER WEIGHT ..... 3,000 lbs.

MAXIMUM VERTICAL LOAD

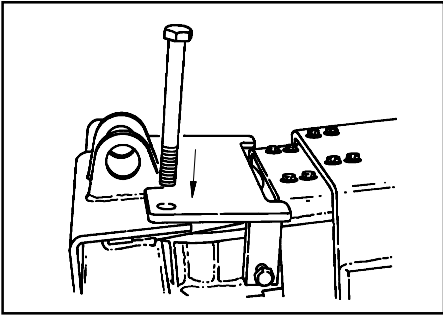
**GROSS TRAILER WEIGHT (GTW)** - THE MAXIMUM TRAILER WEIGHT WITH LOAD.



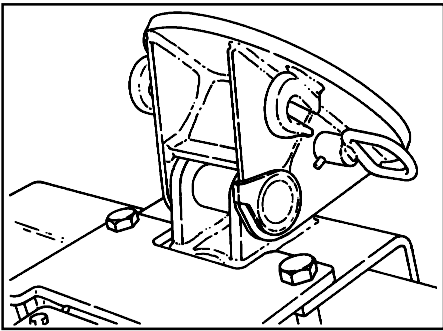
1. Slide the 5th wheel plate adapter onto the crossbar pivot.



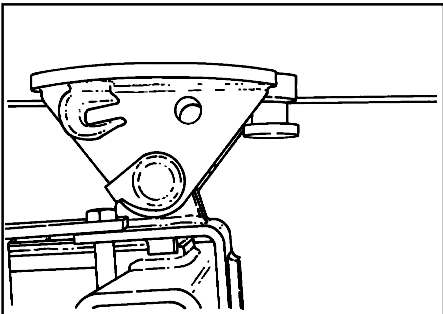
2. Install the keeper bracket down onto the crossbar pivot adapter.



3. Install the retaining bolts thru the keeper bracket and into the adapter. Tighten the retaining bolts.

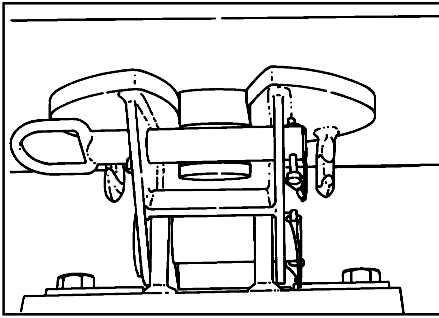


4. Install the 5th wheel plate onto the adapter with the attaching pin. Secure the attaching pin with the linchpin.
5. Remove the king pin locking pin from the 5th wheel plate and position the recovery vehicle in front of the casualty and in-line with the king pin.



6. Extend the under lift up to the king pin.





7. Engage the 5th wheel plate with the king pin. Install the king pin locking pin and linchpin.
8. Connect the air lines from the recovery vehicle to the casualty trailer to release the trailer brakes.
9. Raise the trailer jack stands.
10. Attach the safety chains.



**CAUTION:**

If the trailer to be towed is on a slope, do not release the brake until the load is secured.



**CAUTION:**

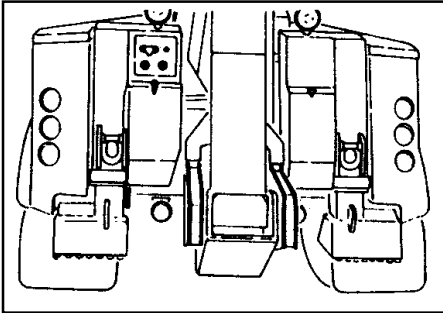
Always install safety chains before towing any vehicle.

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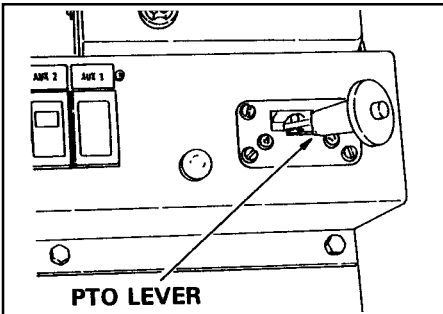
## REAR HYDRAULIC STABILIZERS

Your HDR is equipped with rear hydraulic stabilizers. The stabilizers serve two purposes. First, they may be used as a chassis support when lifting heavy loads which would otherwise cause the front axle of the vehicle to lift off the ground. Second, they can be used to provide a resistance to winching forces. **USE CAUTION AND GOOD JUDGEMENT!**

### Follow these simple steps:



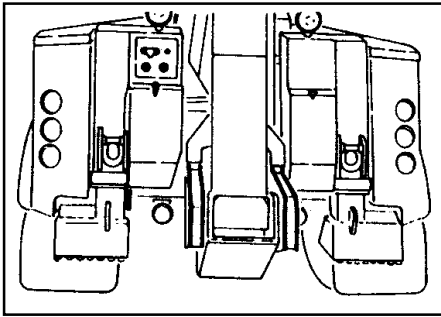
1. Position the recovery vehicle as close as possible to the work and set the parking brakes and place the transmission in neutral.
2. Engage the power take-off (PTO). See PTO operator's instruction manual.
3. Adjust the electronic or manual throttle control to elevate the engine speed to approximately 1000-1200 R.P.M. of P.T.O. output shaft speed for optimum performance.



### **CAUTION:**

Never exceed 1200 R.P.M. When your hook up is complete, reset the engine idle to normal.

---



4. Using the control levers, lower the stabilizers to the ground. The stabilizers work independently from each other so that they can be used on uneven ground.



**WARNING:**

Area should be clear of feet when lowering the rear stabilizers.

---



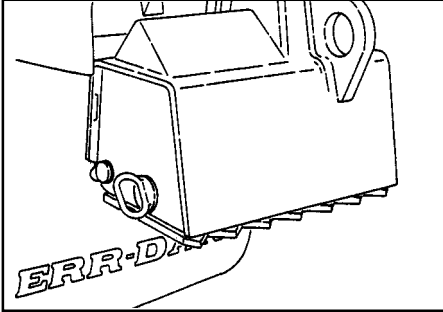
**CAUTION:**

Do not move the recovery vehicle with the stabilizers on the ground or damage to the chassis can occur.

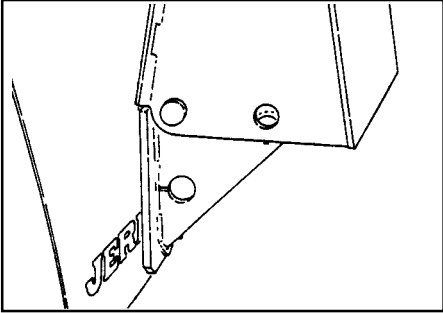
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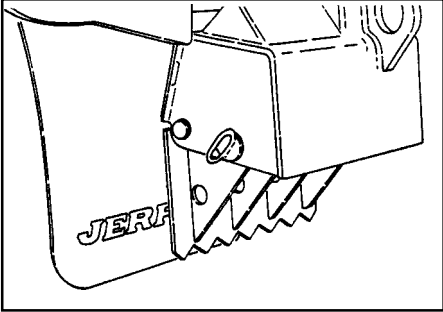
## INTEGRAL SPADES



1. Remove the safety pin and spade retaining pin.



2. Allow the integral spade to swing down exposing the spade blades.



3. Line up holes and insert spade retaining pin and safety pin.

---

**NOTE:**

When the spade is on the ground the eye plate on the back side of the stabilizers can be used for the attachment of snatch blocks or to terminate the wire rope hook during winching operations.

---



**WARNING:**

Area should be clear of feet when lowering the rear stabilizers.

---



**CAUTION:**

Do not move the recovery vehicle with the stabilizers on the ground or damage to the chassis can occur.

---



**CAUTION:**

Do not use spades on pavement or concrete. Damage to the pavement or concrete may result.

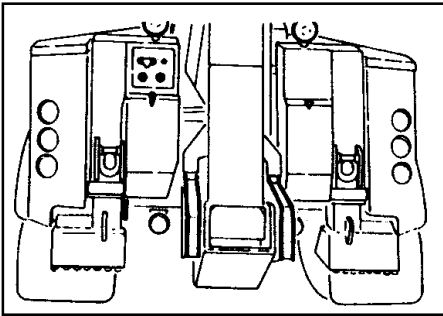
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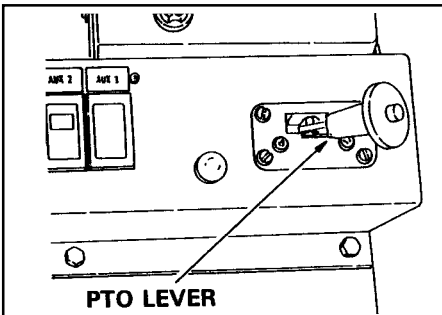
## OUTRIGGER STABILIZERS

Your HDR is equipped with hydraulic outrigger stabilizers. The stabilizers serve two purposes. First, they are used as a chassis support when lifting or pulling heavy loads over the sides of the truck which would otherwise cause the chassis to become unstable and possibly roll over. Second, they can be used to provide a resistance to winching forces. **USE CAUTION AND GOOD JUDGEMENT!**

### Follow these simple steps:



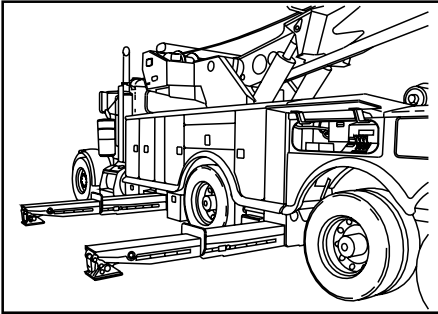
1. Position the recovery vehicle as close as possible to the work and set the parking brakes and place the transmission in neutral.
2. Engage the power take-off (PTO). See PTO operator's instruction manual.
3. Adjust the electronic or manual throttle control to elevate the engine speed to approximately 1000-1200 R.P.M. of P.T.O. output shaft speed for optimum performance.



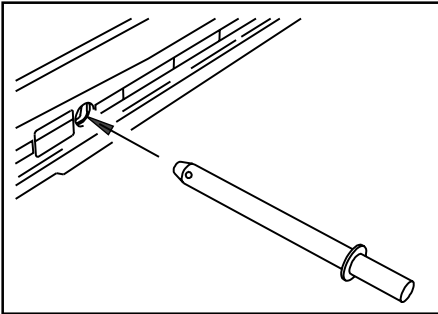
### **CAUTION:**

Never exceed 1200 R.P.M. When your hook up is complete, reset the engine idle to normal.

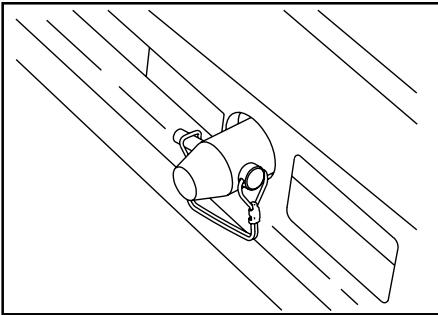
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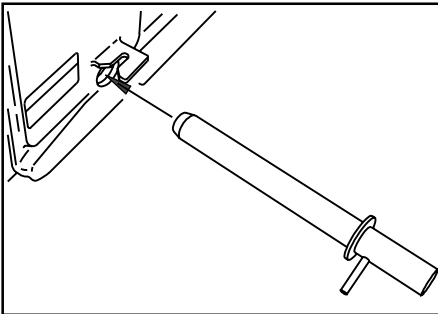
4. Using the control levers, extend the outriggers to the full extended position.
5. Retract the inner outrigger sections about 1" to align the locking pin holes.



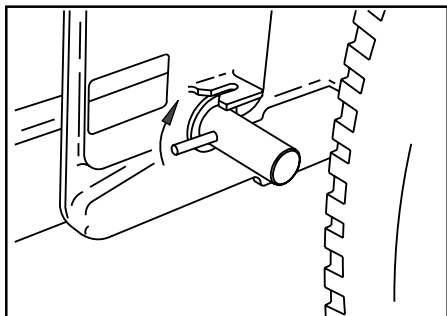
6. Remove the outrigger pins from the storage compartments. Install the pins into the inner sections of the outrigger and secure with the retaining pins.



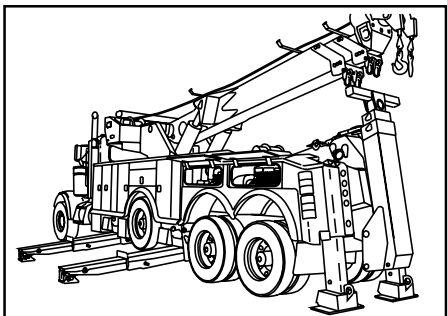
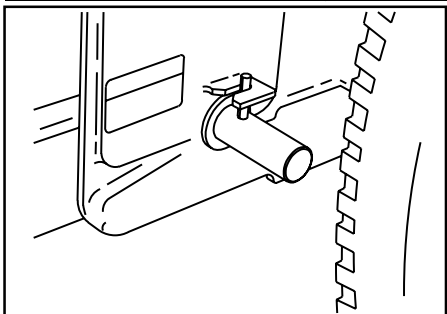
7. Retract the outer outrigger sections about 1" to align the locking pin holes.



8. Lower the outriggers slightly to gain access to the pinning locations at the upper, inboard ends of the outriggers.
9. Install the pins into the outer sections of the outriggers.



10. Turn the pin to lock into the pin into position.



11. Lower the outriggers to the ground. Raise the chassis to get the tires off the ground. Level the chassis as required.



**WARNING:**

Area should be clear of feet when lowering the rear stabilizers.





**CAUTION:**

Do not move the recovery vehicle with the stabilizers on the ground or damage to the chassis can occur.

---

**NOTE:**

When the stabilizer is on the ground the "D Rings" on the ends of the stabilizers can be used for the attachment of snatch blocks or to terminate the wire rope hook during winching operations.

---



**CAUTION:**

When using stabilizer pads on pavement or concrete, it is suggested that you use larger steel plates and pads to help distribute the heavy loads. Damage to the pavement or concrete may result.

---



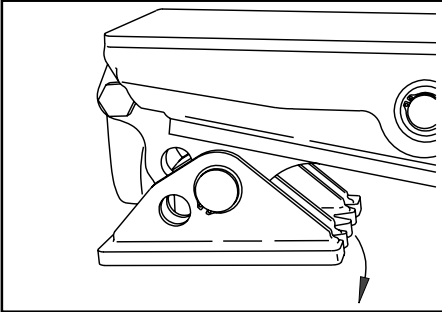
**WARNING:**

All outrigger sections must be pinned before starting recovery work.

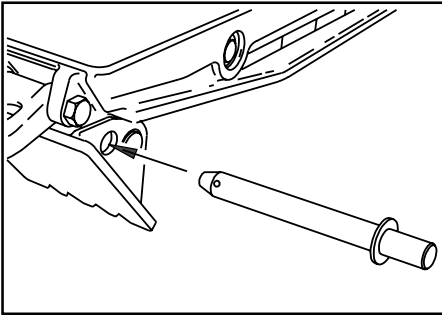
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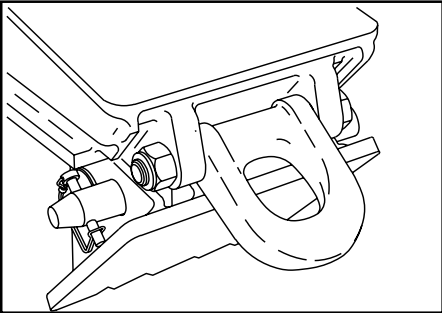
## OUTRIGGER SPADES



1. Swing down the spade pads.



3. Line up holes and insert spade retaining pin and secure with the safety pin.



### **WARNING:**

Area should be clear of feet when lowering the rear stabilizers.

---



**CAUTION:**

Do not move the recovery vehicle with the stabilizers on the ground or damage to the chassis can occur.

---

---



**CAUTION:**

Do not use spades on pavement or concrete. Damage to the pavement or concrete may result.

---

---



**CAUTION:**

All spades must be pinned in working position before starting recovery work.

---

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## WRECKER BOOM OPERATION

The wrecker boom is probably one of the most useful accessories on your HDR. It allows the operator to perform lifting and retrieval tasks that cannot be performed in any other way. Safe operation of the wrecker boom demands knowledge of the controls and the boom functions. Review the boom safety section of this manual and **USE CAUTION AND GOOD JUDGEMENT!**

Position the recovery vehicle to best take advantage of the leverage the boom affords. A vertical lift is the best and most efficient, so attempt to place the boom over the work. This reduces the chance of the work breaking free and swinging during the lift. Place the recovery vehicle as close as possible to the work. A shorter boom extension will result in less rear axle loading. When pulling, align the recovery vehicle with the work so that the direction of pull is in line with the length of the truck. Always use more stabilizing lines than pull lines. If the front wheels of the recovery vehicle raise completely from the ground,

**Stop! And Re-Rig.**

---

 **WARNING:**

Do not exceed the working limit of the wire rope. Use snatch blocks and multiple lines to reduce the load on the wire rope. Always apply an equal load in the opposite direction of the pull to stabilize the load.

---

 **DANGER:**

Do not swing the wrecker boom without extending the outrigger/stabilizers.

---

 **WARNING:**

Refer to load charts prior to performing any lifting or recovery work.

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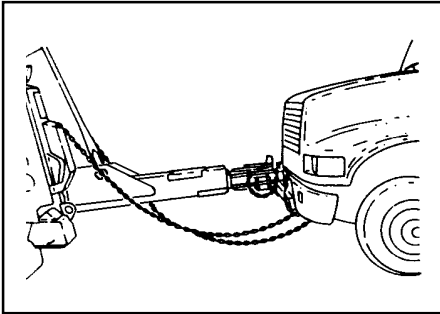


**WARNING:**

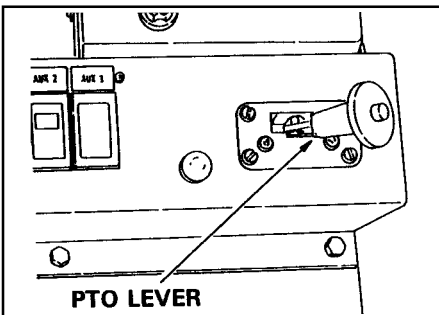
Stay clear of rotating equipment to avoid crushing injury.

---

When making a heavy lift or pull with the wrecker boom, the following steps should be taken:



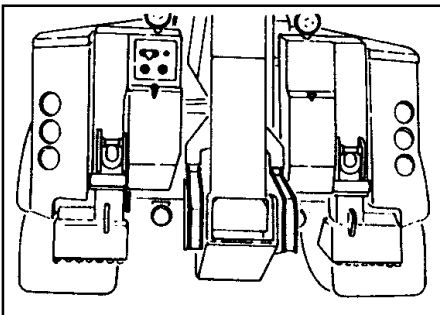
1. Position the recovery vehicle as close as possible to the work and set the parking brakes and place the transmission in neutral.
2. Turn "ON" the CONTROL switch if the remote hand controller is going to be used.
3. Engage the power take-off (PTO). See PTO operator's instruction manual. Adjust the electronic or manual throttle control to elevate the engine speed to approximately 1000-1200 rpm of P.T.O. output shaft speed for optimum performance.



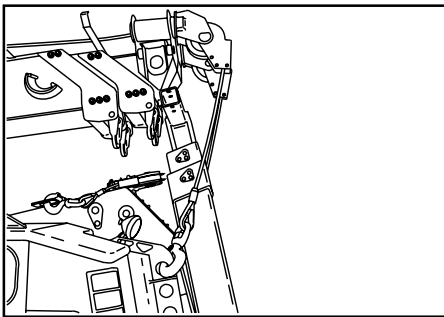
**CAUTION:**

Never exceed 1200 R.P.M. When your hook up is complete, reset the engine idle to normal.

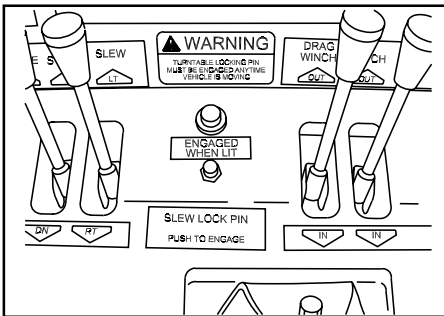
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4. Confirm that the recovery vehicle is positioned properly and rests on firm ground. The outriggers, stabilizers and spades can be lowered to provide additional support if necessary.



- Wearing gloves, unhook the wire ropes from their stored position. Moving the boom head with the wire rope locked can result in damage to both the wire ropes and the boom.



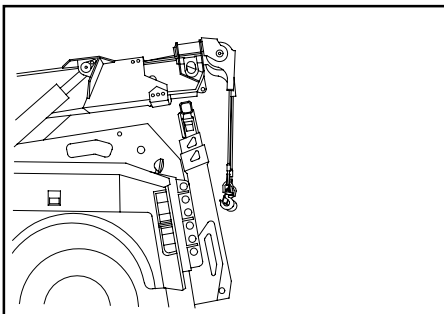
- If you are going to be making a lift or pull off the corners or sides of the truck, use the controls to unlock the slew pin to allow the wrecker boom to rotate.



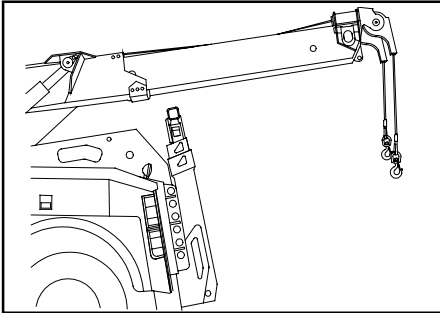
**DANGER:**

Do not swing the wrecker boom without extending the outrigger/stabilizers.

- Using the winch control levers, unwind some wire rope from the winches to relieve the pressure on the winch free-spool device.
- Pull the winch free-spool knobs to the “out” position to set both boom winches into the “free spool” mode.



- Position the boom head by using the boom up, down, in, out and slew left and right levers as necessary.



10. Manually, “free-spool” enough wire rope to make the hook-up being sure that a minimum of five (5) wraps remains on the cable drums.



**WARNING:**

Wear gloves to protect hands from wire ropes.

---

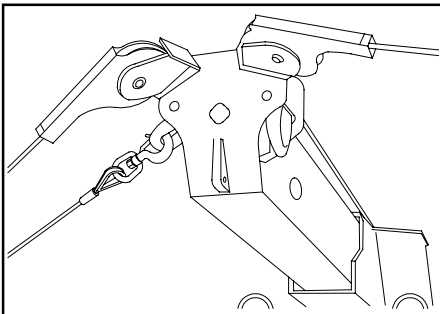


**CAUTION:**

To avoid birdnesting and premature failure of the wire rope, always keep tension on the wire rope when winding or unwinding.

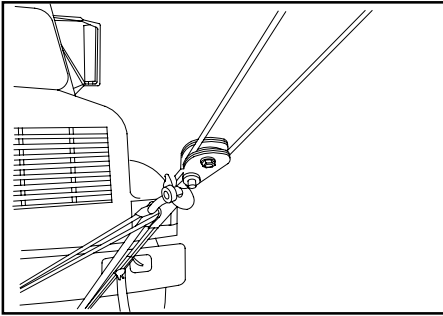
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11. Make the hook-up in such a way as to afford an even pull on both wire ropes. Over stressing one wire rope can happen if care isn't taken in hook placement.

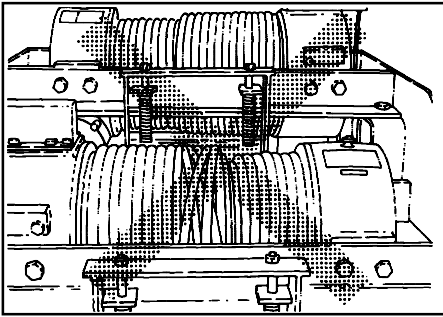


12. If a heavy lift or pull is to be made additional cable lines may be necessary. **Always use more stabilizing lines than pull lines. RIG FOR SAFETY.**

13. **DO NOT EXCEED THE WORKING LIMIT OF THE WIRE ROPE.** When making a recovery and pulling to the side, always apply an equal or lesser load in the opposite direction of the pull to stabilize the load.



14. The use of snatch blocks and multiple lines will allow you to pull, stabilize the recovery vehicle, and minimize deflection of the wrecker boom.



15. Push the winch free-spool knobs to the in position to re-engage the winch. Slowly take up the slack in the wire ropes. Inspect the hook-up points for slippage before continuing the lift or pull. Manually control each winch to ensure wire ropes are stressed evenly. As the wire rope is retrieved, be sure it doesn't criss-cross on the spool.

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 **WARNING:**

When swinging a load, watch out for centrifugal force. As you swing a load this force will cause the load to swing away from the machine and may cause instability.

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 **DANGER:**

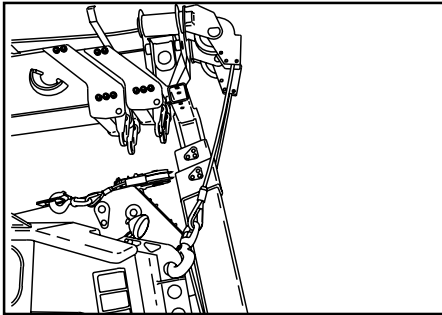
Do not swing the wrecker boom without extending the outrigger/ stabilizers.

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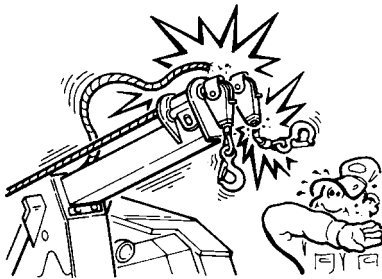
16. Complete the lift or pull being sure the work is placed in a stable location where it won't slip or roll. If there is any question about stability, use blocks or tie the work down before removing wire rope and chains.



17. Using the winch controls, unwind enough wire rope to remove the hooks or chains and remove them carefully. Avoid straddling the wire rope.

18. Respool both wire ropes and take this opportunity to inspect them for damage. Keep tension on the wire rope while respooling.

19. Retract and lower the boom to normal horizontal position and carefully snug up any loose wire rope.



---

**⚠ CAUTION:**

Don't stress the wire rope by over retrieving or tightening and exceeding the working limit. Over stressing the wire rope beyond its working limit can cause damage resulting in premature wire rope failure.

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# MAINTENANCE

## MAINTENANCE AND LUBRICATION

Your HDR has been designed to give you excellent service and long life but like all equipment, it requires proper and periodic maintenance. The truck chassis itself is on a maintenance schedule recommended by the manufacturer. Follow these guidelines and protect your vehicle warranty. There are a number of different lubricants used on your HDR. The following Lubricant Chart shows the proper lubricant and the most common brands and specification which meet the requirements.

Use only safe practices when maintaining this equipment. Always shut off the engine before reaching into pinch areas.

Inspect your vehicle and wheel lift system periodically for damage or evidence of pending failure. Damaged or broken parts should be replaced immediately. Never operate the carrier or any of its components if they are defective or operating improperly. The cause of any binding or leakage should be determined immediately and the problem promptly fixed.

Critical wear points on your HDR must be lubricated at regular intervals. Sliding surfaces are to be cleaned and coated with a heavy grease periodically. Cleaning every month is recommended for normal highway operations, but this frequency will vary appreciably with the type of service. Sliding on dirty wear surfaces will cause rapid wear. Fittings on linkage pivots should be greased with an anti-seize lubricate every two (2) months, again depending upon usage. The turntable bearing should be greased with a general purpose lithium based grease every two (2) months. The turntable gear should be greased with an open gear lubricant every two (2) months. The following chart and diagram shows the location of these points, and when and what type of lubricant to use.

Check the hydraulic oil level bi-monthly or after any leakage. A sight glass has been provided on the hydraulic tank. The proper oil level is best checked with all cylinders fully retracted. Use a Super Premium Grade Multi-Viscosity hydraulic oil. (See Chart) (Automatic transmission fluid may be used in the hydraulic system if necessary.)

The hydraulic filters located on the return side of the hydraulic tank come equipped with restriction indicator gauges. The gauge shows the condition of the filter element. When the needle reaches the red band (25 psi), the filter is starting to bypass and the element needs to be changed. Failure to

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change the filter element will result in premature wear and/or failure of any or all of the hydraulic components. **Only check gauge when hydraulic fluid is at operating temperature. Cold oil is more dense and will give a false indicator gauge reading.**




Cold temperatures can cause hydraulic oils to thicken and adversely affect the hydraulic functions of your carrier. If this is the case, it will be necessary to change the hydraulic oil to maintain maximum system efficiency. A hydraulic oil such as Mobil DTE 11M or Conoco AW Hydraulic Fluid MV 32 can be used to replace the factory installed oil or it can be added to the hydraulic oil in your factory system.

If a cylinder seal leaks, disassemble the cylinder and find the cause of the leak. Small scores caused by chips or contaminated fluid can usually be worked out with fine emery cloth to avoid repetition of the trouble. Whenever any seal replacement is necessary, it is always advisable to replace all seals in that component. These seals are available in kits. Also, thoroughly clean all components before reassembly.

The HDR and over components are mounted to the truck chassis by bolts. We recommend that these bolts be inspected within the first 30 days and inspected and retorqued every 90 days thereafter. Replace any broken or damaged bolts immediately. **Refer to chart on the following page.**

The body of your Jerr-Dan has been built from high strength aluminum and composite material which has been carefully assembled in our factory. To keep it clean and free of dirt use any non-abrasive soap or detergent recommended for automotive finishes. Use a soft cloth or sponge and finish with a thorough rinsing. Drying with a soft cloth or chamois will prevent spotting or streaking. A coat of automotive wax is recommended.

## FASTENER TORQUE SPECIFICATIONS

TIGHTENING TORQUES (FOOT-POUNDS) FOR SCREWS AND NUTS			
SIZE INCHES (MM)	 GRADE 2	 GRADE 5	 GRADE 8
1/4 (6.350)	6	8	10
5/16 (7.938)	10	14	19
3/8 (9.525)	17	27	33
7/16 (11.112)	28	45	60
1/2 (12.700)	45	68	90
9/16 (14.288)	63	100	120
5/8 (15.875)	90	135	180
3/4 (19.050)	145	230	310
7/8 (22.225)	145	380	500
1 (25.400)	220	570	760

- All torque values shown are for bolts (cap screws) and nuts that are either zinc-plated or lubricated.
- Torques shown above apply only to screws and nuts used for assembly and installation of all carrier components, not to the chassis.
- Different torque values may be given in instructions for certain components due to short thread engagement or low-strength internal threads.
- When nuts are used, tighten nuts to torques shown (screws or bolts should be held but not turned). **Always use a calibrated torque wrench.**
- Retighten nuts of all mounting screws that secure the carrier and carrier-body within 30 days after putting the vehicle into service. Thereafter, inspect and retorque such screws and nuts every 90 days and after each job that imposes extremely heavy loads on the equipment.
- Convert ft/lbs to Nm (Newton metres) by using the following formula:

$$\begin{array}{l} \text{Multiply:} \\ \text{ft/lbs} \end{array} \times \begin{array}{l} \text{by:} \\ 1.3558 \end{array} = \begin{array}{l} \text{to get:} \\ \text{Nm (Newton metres)} \end{array}$$

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## OILS AND GREASES

The following oils and greases are suitable for use with your Jerr-Dan Carrier.

### Company

### Product

#### HYDRAULIC OILS

- |            |  |
|------------|--|
| 1. Chevron | AW Hydraulic Oil MV                                |
| 2. Exxon   | Univis N32   |
| 3. Mobil   | DTE13  |
| 4. Texaco  | Rando HDZ-32                                       |
| 5. Shell   | Tellus Oil T 32                                    |
| 6. Citgo   | A/W All Temp                                       |
| 7. Amoco   | Rycon Oil 32                                       |
| 8. Conoco  | AW Hydraulic Fluid MV 46                           |
| 9. Mobil   | DTE11M<br>(for cold weather use)                   |
| 10. Conoco | AW Hydraulic Fluid MV 32<br>(for cold weather use) |

#### GREASES

- |            |                |
|------------|----------------|
| 1. Drydene | HD Lithium EP2 |
| 2. Gulf    | Crown EP2      |
| 3. Amoco   | Amolith EP2    |
| 4. Shell   | Alvania EP2    |
| 5. Texaco  | Marfax EP2     |
| 6. Mobil   | Mobilux EP2    |
| 7. Sunoco  | Prestige EP2   |

#### WINCH AND GEAR LUBE

- |             |  |
|-------------|--|
| 1. Phillips | 140 wt. EP Gear Lube 93301<br>(or approved equivalent)           |
| 2. Mobil    | Mobil SCH624<br>(or approved equivalent for<br>cold weather use) |

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## WIRE ROPE HANDLING AND INSPECTION

### **WARNING**

Wire Rope **WILL FAIL** if worn-out, overloaded, damaged, improperly maintained or abused.

Wire rope failure may cause serious injury or death!

Protect yourself and other:

- **ALWAYS INSPECT** wire rope for **WEAR, DAMAGE** or **ABUSE BEFORE USE.**
- **NEVER USE** wire rope that is **WORN-OUT, DAMAGED** or **ABUSED.**
- **NEVER OVERLOAD** a wire rope.
- **INFORM YOURSELF:** Read and understand manufacturer's literature or "Wire Rope and Sling Safety Bulletin"

**REFER TO APPLICABLE CODES, STANDARDS and REGULATIONS for INSPECTION REQUIREMENTS and REMOVAL CRITERIA.**

A new wire rope requires a break in period. Run the wire rope through several cycles at low speeds gradually increasing the load on the wire rope. Make sure that the wraps of the wire rope are tight and evenly wound on the winch drum. A loose wire rope on the winch drum will cause crushing of the wire rope when heavy loads are applied.

All wire rope in continuous service should be observed during normal operation and visually inspected on a weekly basis. A complete and thorough inspection of all ropes in use must be made at least once a month and all rope which has been idle for a period of a month or more should be given a thorough inspection before it is put back into service. All inspections should be the responsibility of and performed by an appointed competent person with the training and experience to look for deterioration of the wire rope.

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It is good practice , where the equipment is consistently in use, to give the rope a certain length of service, several hundred hours, several weeks or months and then renew the rope regardless of it's condition. This method eliminates the risk of fatigue causing rope failure.

Any deterioration, resulting in a suspected loss of original rope strength, should be carefully examined and a determination made as to whether further use of the wire rope would constitute a safety hazard.

There are certain points along any given rope which should be given more attention than others, since some areas will be subjected to greater stresses, forces, and hazards. Some of these areas include at the winch drum, at the boom sheaves and at the end attachments.

All products are subject to age, wear and deterioration, all of which cause a reduction in the products breaking strength capacity.

Probably the most common sign of rope deterioration and approaching failure is broken wires. Inspection criteria are specific as to the number of broken wires allowable under various circumstances. It is important that a diligent search be made for broken wires, particularly in critical areas. Inspection of wire rope ends should include hooks and thimbles.

Replace any wire ropes that have been abraded, crushed, kinked or twisted.

Wire rope should be routinely cleaned monthly of any and all debris. Grit and gravel can quickly reduce a wire ropes life. A wire rope should be well lubricated so that it can act and perform as it was designed. Lubrication keeps a wire rope flexible and free from rust.

Consult the manufacturer or your local distributor for the proper replacement wire rope.

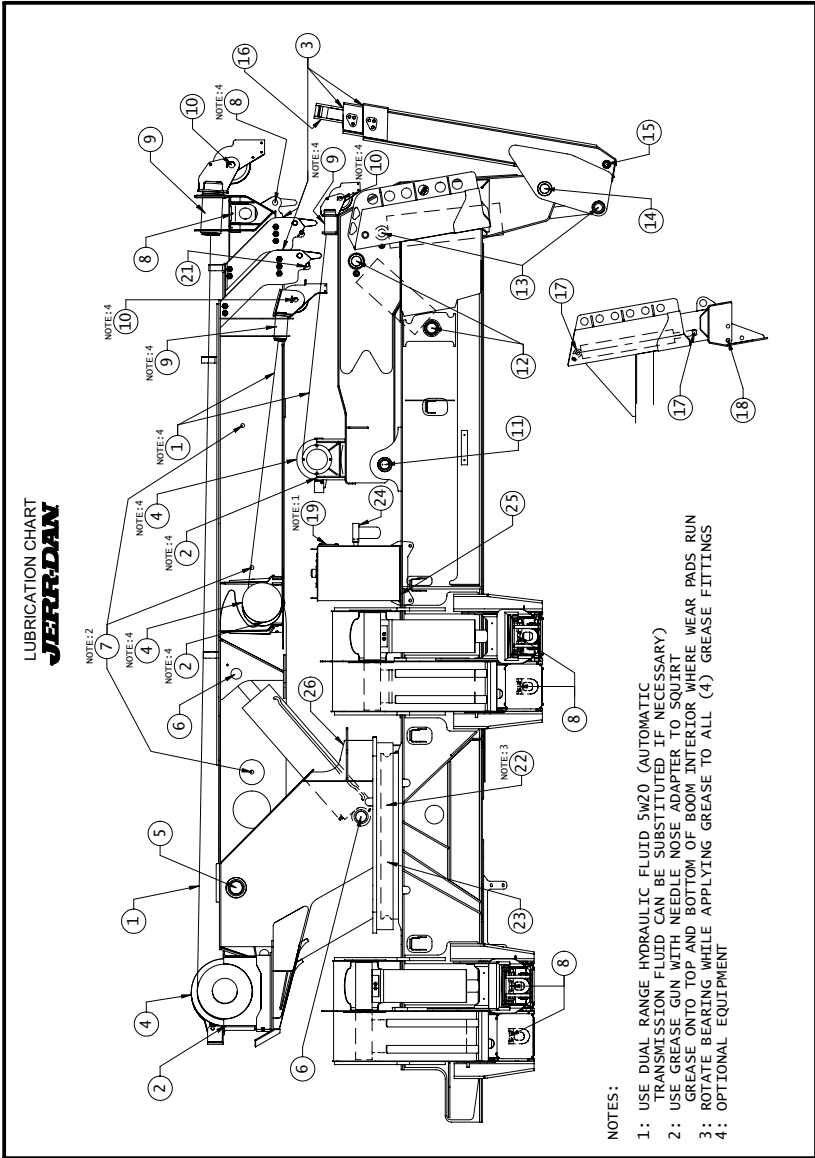


## HDR70/85 - 530 LUBRICATION POINTS

The following lubrication charts are located inside the tool box door on the driver's side of the HDR body.

643 LUBRICATION CHART					
<b>JERR-DAN</b>					
INTERVAL (HOURS)	REF NO.	IDENTIFICATION	SERVICE	LUBRICANT	NO. OF POINTS
WEEKLY	1	CABLE	OIL	ENGINE OIL	5
50 OR TWICE A MONTH	2	WINCH GEAR BOX	CHECK	MPG	5
	3	NYLATRON PADS	COAT		4
	4	WINCH CASE BREATHERS	CHECK		5
	5	BOOM PIVOT	LUBE	NEVER-SEEZ	1
	6	WRECKER BOOM LIFT CYLINDER	LUBE	NEVER-SEEZ	4
100 OR MONTHLY	7	BASE/MID BOOM	LUBE	MPG	10
	8	"D" - RING	LUBE	MPG	12
	9	SHEAVE HEAD	LUBE	MPG	5
	10	SHEAVE PIN	LUBE	MPG	5
	11	UNDERLIFT LIFT BOOM	LUBE	MPG	2
	12	UNDERLIFT LIFT CYLINDER	LUBE	MPG	2
	13	UNDERLIFT TILT CYLINDER	LUBE	MPG	2
	14	UNDERLIFT PIVOT	LUBE	MPG	3
	15	UNDERLIFT EXTEND CYLINDER	LUBE	MPG	1
	16	CROSSTUBE PIVOT	LUBE	MPG	1
	17	SPADE EXTEND CYLINDER	LUBE	MPG	4
	18	SPADE CLAW PIVOT	LUBE	MPG	2
	19	HYDRAULIC RESERVOIR	CHECK		1
20	CONTROL VALVE HANDLES	CLEAN & OIL	ENGINE OIL	ALL	
21	CAM LOCK	LUBE	MPG	4	
50 OR EVERY TWO MONTHS	22	TURNTABLE BEARING	LUBE	MOBILUX EP2	4
	23	TURNTABLE GEAR	LUBE	MOBITAC 375 NC	1
1000 OR YEARLY	24	HYDRAULIC FILTER	CHANGE		3
	25	MAGNETIC PLUG	CLEAN & OIL		1
	26	TURNTABLE GEAR DRIVE	CHECK		1

# HDR70/85 - 530 LUBRICATION POINTS



# TROUBLE SHOOTING

You probably won't require anything but preventive maintenance to keep your HDR running, however, the following chart should help you isolate and correct minor problems if they occur with use. Any service work on the hydraulic system should be performed by qualified mechanics.

## HYDRAULIC SYSTEM

Problem	Cause	Solution
Slow operation	<ul style="list-style-type: none"> <li>a. Low engine RPM</li> <li>b. Low oil level</li> <li>c. Blocked or restricted hose</li> <li>d. Dirty hydraulic oil</li> <li>e. Hydraulic pump worn</li> <li>f. Frozen hydraulic lines</li> </ul>	<ul style="list-style-type: none"> <li>a. Speed up engine</li> <li>b. Check level and fill with the specified oil</li> <li>c. Inspect: remove blockage</li> <li>d. Drain, flush and refill with clean oil, replace filter</li> <li>e. Rebuild or replace</li> <li>f. Thaw and remove water</li> </ul>
Valve handle sticks tight or frozen	<ul style="list-style-type: none"> <li>a. Insufficient lubrication</li> <li>b. Broken centering spring or clogged with foreign material</li> </ul>	<ul style="list-style-type: none"> <li>a. Lubricate per lube chart</li> <li>b. Inspect, clean or replace</li> </ul>
Valve leaks	<ul style="list-style-type: none"> <li>a. Defective seals</li> </ul>	<ul style="list-style-type: none"> <li>a. Inspect and replace</li> </ul>
Cylinder leaks	<ul style="list-style-type: none"> <li>a. Defective seals or rods</li> </ul>	<ul style="list-style-type: none"> <li>a. Inspect and replace</li> </ul>
Erratic cylinder function	<ul style="list-style-type: none"> <li>a. Air in the system</li> <li>b. Defective pump (pulsating)</li> </ul>	<ul style="list-style-type: none"> <li>a. Cycle hydraulic system 10 to 15 times to remove air</li> <li>b. Replace if necessary</li> </ul>
Remote hand controller fails to respond	<ul style="list-style-type: none"> <li>a. Electric power turned off</li> <li>b. Discharged battery</li> <li>c. Defective battery</li> <li>d. Emergency - Off switch depressed</li> </ul>	<ul style="list-style-type: none"> <li>a. Turn on CONTROL power switch in cab</li> <li>b. Charge battery</li> <li>c. Replace</li> <li>d. Release/pull switch on transmitter</li> </ul>

## TROUBLESHOOTING

### P.T.O. FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Cable tight or frozen	a. Cable kinked or bent b. Cable and PTO connection not adjusted properly c. Mounting bracket nuts are over tightened at P.T.O.	a. Straighten or replace b. Inspect and adjust c. Loosen if necessary
Rattling noise in P.T.O.	a. P.T.O. backlash too loose (Consult P.T.O. Manual)	a. Shims must be removed
Howling noise in P.T.O.	a. P.T.O. backlash too tight (Consult P.T.O. Manual)	a. Shims must be added
Gear oil leak between P.T.O. and pump	a. Defective shaft seal	a. Remove and replace
P.T.O. will not engage or disengage	a. Cable and PTO connection not adjusted properly b. Defective shifter cover	a. Inspect and adjust b. Inspect and replace

### HYDRAULIC PUMP

Problem	Cause	Solution
Pump noisy (Cavitation)	a. Low oil supply b. Heavy oil c. Dirty oil filter d. Restriction in suction line e. Pump worn	a. Fill to proper level b. Fill with proper oil (See chart) c. Replace filter d. Clean out and remove e. Repair or replace
Pump slow or fails to respond	a. Low oil supply b. Cold Thick Oil	a. Fill to proper level b. Drain and refill with a low temperature oil.
Oil heating up	a. Foreign material lodged in relief valve b. Using too light oil c. Dirty oil d. Oil level too low e. Pump worn (slippage)	a. Inspect and remove/replace filter b. Drain and refill with clean oil c. Drain, flush and refill with clean oil/replace filter d. Fill to proper level e. Repair or replace
Oil foaming	a. Air leaking into suction line b. Wrong kind of oil c. Oil level too low	a. Tighten all connections b. Drain and refill with non-foaming type of hydraulic oil (See lube chart) Replace filter c. Refill to proper level

## TROUBLESHOOTING

### HYDRAULIC PUMP

Problem	Cause	Solution
Hydraulic oil leak between P.T.O. and pump	a. Defective shaft seal	a. Replace shaft seal
Pump leaks at front and rear covers	a. Defective seals	a. Replace seals

### WINCH FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Winch screeches during operation	a. Insufficient lubrication	a. Lubricate per lube chart
Winch will not pull load or take in wire rope	a. Free-spooling device not engaged b. Sheared keys or broken coupling c. Hydraulic pump worn	a. Engage b. Inspect or replace c. Inspect and replace
Free-spool device	a. No air pressure b. Insufficient air pressure c. Defective pressure switch d. Leaking air line	a. Turn truck on b. Allow truck to run c. Inspect and replace d. Inspect and replace
Cable tensioner device non-functional	a. No air pressure b. Insufficient air pressure c. Defective pressure switch d. Leaking air line	a. Turn truck on b. Allow truck to run c. Inspect and replace d. Inspect and replace
Cable speed shift nonfunctional	a. No air pressure b. Insufficient air pressure c. Defective pressure switch d. Leaking air line	a. Turn truck on b. Allow truck to run c. Inspect and replace d. Inspect and replace

## TROUBLESHOOTING

### BOOM SLEW FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Boom will not rotate	<ul style="list-style-type: none"> <li>a. Slew locking pin engaged</li> <li>b. Swing brake control valve clogged with foreign material</li> <li>c. Faulty swing brake control valve</li> </ul>	<ul style="list-style-type: none"> <li>a. Disengage locking pin</li> <li>b. Inspect: remove blockage</li> <li>c. Replace</li> </ul>
Slew locking pin will not engage	<ul style="list-style-type: none"> <li>a. No air pressure</li> <li>b. Insufficient air pressure</li> <li>c. Defective pressure switch</li> <li>d. Leaking air line</li> <li>e. Defective air cylinder</li> <li>f. Jammed locking pin</li> <li>g. Ice buildup on pin and/or air cylinder</li> </ul>	<ul style="list-style-type: none"> <li>a. Turn truck on</li> <li>b. Allow truck to run</li> <li>c. Inspect and replace</li> <li>d. Inspect and replace</li> <li>e. Inspect and replace</li> <li>f. Inspect and replace</li> <li>g. Thaw</li> </ul>
Slew locking pin will not disengage	<ul style="list-style-type: none"> <li>a. No air pressure</li> <li>b. Insufficient air pressure</li> <li>c. Defective pressure switch</li> <li>d. Leaking air line</li> <li>e. Defective air cylinder</li> <li>f. Jammed locking pin</li> <li>g. Ice buildup on pin and/or air cylinder</li> </ul>	<ul style="list-style-type: none"> <li>a. Turn truck on</li> <li>b. Allow truck to run</li> <li>c. Inspect and replace</li> <li>d. Inspect and replace</li> <li>e. Inspect and replace</li> <li>f. Inspect and replace</li> <li>g. Thaw</li> </ul>
Slew lock indicator light stays illuminated	<ul style="list-style-type: none"> <li>a. Limit switch out of adjustment</li> <li>b. Ice buildup on limit switch</li> <li>c. Defective limit switch</li> <li>d. Locking pin is not disengaged</li> <li>e. Electrical circuit wiring problem</li> </ul>	<ul style="list-style-type: none"> <li>a. Inspect: adjust</li> <li>b. Thaw</li> <li>c. Inspect and replace</li> <li>d. Disengage locking pin</li> <li>e. Check/repair electrical wiring circuit</li> </ul>
Slew lock indicator light will not illuminate	<ul style="list-style-type: none"> <li>a. Limit switch out of adjustment</li> <li>b. Ice buildup on limit switch</li> <li>c. Defective limit switch</li> <li>d. Locking pin is not engaged</li> <li>e. Electrical circuit wiring problem</li> <li>f. Defective controls compartment door activation switch</li> <li>g. Indicator light burned out</li> </ul>	<ul style="list-style-type: none"> <li>a. Inspect: adjust</li> <li>b. Thaw</li> <li>c. Inspect and replace</li> <li>d. Engage locking pin</li> <li>e. Check/repair electrical wiring circuit</li> <li>f. Check, repair or replace</li> <li>g. Repair or replace</li> </ul>

## GLOSSARY OF TERMS

### A

**Anchoring Device** - Used to attach cable ends, snatch blocks, safety chains, and tie-down assemblies to the towing vehicle.

**Approach Angle** - Angle between the plane of the platform and the ground.

**Attachment** - Any device that can be added to a basic unit or assembly.

**Auxiliary Braking Device** - A device which attaches to the disabled vehicle to assist the tow truck's brakes in retarding or stopping both vehicles.

**Auxiliary Equipment** - Equipment that is not necessary to perform the basic function of the primary equipment.

**Auxiliary Towing Lights** - Stop, tail, and turn signal lights attached to the trailing end of the towed vehicle and operated as part of the towing vehicle lighting system.

### B

**Bending Moment** - The force times the distance from a reference point to the point the force is applied causing bending.

**Bird Nesting** - The tangling and intertwining of wraps and layers on a drum.

**Body** - The structure mounted on a chassis cab or that portion of the vehicle that carries the load.

**Body Hinge** - The attachment mechanism connecting the body to the hinge pin at the pivot axis about which the body rotates into the tilt position.

**Body Subframe** - Another term for body understructure or mounting frame.

**Body Weight** - Unmounted weight of a body with applicable options.

**Boom** - The structure member that supports the load.

**Boom Angle** - The boom angle is measured between a horizontal line and a line through the boom pivot and center of sheave.

**Boom Head** - The structural member at one end of the boom which can swivel and support the load lifted through the sheave and sheave support device.

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**Boom Length** - The straight line distance from center of the revolving base to the center of the boom head.

**Brakes - Parking** - A system used to hold a stopped machine in a stationary position.

**Brakes - Service** - A primary brake system used for retarding and stopping the truck.

**Bumper - DOT** - A bumper designed to provide rear-end protection that meets the requirements of FMCSR 393.86.

**Bus Bar Grid** - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

## C

**CA (Cab to Axle)** - The distance from the back of the truck cab to the center of the rear axle.

**CG (Center of Gravity)** - The point at which the weight of the chassis, body/equipment and payload, if collectively or individually supported, would balance vertically, horizontally, and laterally.

**CT (Cab to Tandem)** - The distance from the back of the truck cab to a point midway between the tandem axles.

**Cable** - Steel wire rope used for pulling.

**Car Carrier** - Vehicles equipped to transport other vehicles mounted on a flat platform and/or with an additional assembly attached to the rear to facilitate towing a second vehicle. These units are also known as slidebacks, rollbacks, transporting equipment carriers and flatbeds. See Carrier.

**Carrier** - A platform body with a winch for loading.

**Casualty Vehicle** - The damaged or disabled vehicle.

**Capacity** - The load that a machine can lift at any given point.

**CAUTION** - A signal word used when a potentially hazardous situation exists that might result in minor injury or property damage.



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**Certification Label** - Required by Public Law 89-563, which states that a motor vehicle or item of motor vehicle equipment complies with all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect on the date of manufacture.

**Chain Assemblies** - Chain with all hardware and coupling devices.

**Chassis Cab** - A vehicle consisting of a chassis upon which is mounted a cab; capable of being driven by the addition of wheel or other items of running gear, but lacking a body or load-carrying structure.

**Completed Vehicle** - A vehicle that requires no further manufacturing operations to perform its intended function, other than minor finishing operations such as painting.

**Component** - Any part of an assembly on a machine when referred to individually.

**Control** - A device used to control the functions of a unit.

**Control Lever**- A device for imparting motion into a control linkage.

**Crossbar** - A transverse horizontally pivoting member attached to the boom of a wheel-lift or underlift for attaching towing accessories.

**Curb Side** - The right or passenger side of the vehicle when viewed from the rear, opposite side from *ROADSIDE*.

**Curb Weight** - The weight of a vehicle in operational status, with all standard and commonly installed equipment and the fuel tank(s) filled to capacity.

**Cylinder** - A device which converts fluid power into a linear mechanical force and motion usually consisting of a movable piston and piston rod within a cylinder bore.

## D

**DANGER** - A signal word used when an imminently hazardous situation exists that can result in death or serious injury.

**Disabled Vehicle** - Any vehicle that cannot operate under its own power.

**Dolly** - A four-wheeled carriage used in towing to support the trailing end of the towed vehicle.

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**DOT (Department of Transportation)** - A federal agency dealing with regulations concerning both the manufacture and operation of motor vehicles and motor vehicle equipment. See NHTSA.

**Driveline** - The driveshaft and associated joints.

**Drum** - Any spool on which are wrapped ropes used in machine operation.

## E

**Extend Cylinder** - Cylinders used to extend or retract boom structures.

## F

**Filter**- A device whose primary function is the retention by a porous media of insoluble contaminants from a fluid.

**Final Stage Manufacturer** - A person, firm, or corporation who performs such manufacturing operations on an incomplete vehicle that it becomes a completed (end-user) vehicle.

**FMVSS (Federal Motor Vehicle Safety Standards)** - Regulations promulgated by NHTSA under Public Law 89-563, which are mandatory and must be complied with when motor vehicles or items of motor vehicle equipment are manufactured and certified thereto.

**Frame** - Structure on which either the upper or lower equipment is located.

**Frame Cutoff** - Centerline of rear axle(s) to the rearmost point of the chassis frame as modified for body installation.

**Frame Lift** - See Underlift.

**Frame Section Modulus** - The engineering term that indicates the relative strength of frames as it relates to shape. It takes into account frame depth, flange width, and material thickness. All other things being equal, the frame with the largest section modulus will have the greatest strength and stiffness, i.e., the ability to more effectively resist deflection under load.

**Free Spool** - The operation of unspooling wire rope from a drum by pulling on the end of the wire rope while the winch is stationary. The drum is disconnected (declutched) from its powertrain during this operation.

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**Forks** - A device attached to the lift bar for lifting a vehicle by the tires, axle, frame, or structural member. May be classified as chain, axle, or frame forks.

**FW (Frame Width)** - The overall width of the chassis frame measured outside to outside behind the cab.

## G

**GAWR (Gross Axle Weight Rating)** - The value specified by the manufacturer as the load-carrying capacity of a single-axle system as measured at the tire-roadway interface.

**GCWR (Gross Combination Weight Rating)** - Represents the entire weight of a vehicle on the ground with a trailer or trailers including vehicle, equipment, driver, fuel, and payload (everything that moves with the vehicle.) Gross combination weights published represent maximum allowed.

**Grab Hook** - For use with chains and some tow-sling hookups.

**Grid** - A device that attaches to the lift bar for engaging the tires of a towed vehicle.

**GVWR (Gross Vehicle Weight Rating)** - The maximum total vehicle rated capacity, measured at the tire ground interface, as rated by the chassis manufacturer.

**GVW (Gross Vehicle Weight)** - Value specified by the manufacturer as the maximum loaded weight of a single vehicle including all equipment, fuel, body, payload, driver, etc.

## H

**Headboard** - Structure on which an emergency light bar is mounted.

**Hook-up Chains** - Length of chain used to connect a recovery vehicle to a casualty vehicle.

**Horizontal Center of Gravity (HCG)** - The point at which half of the gross weight is forward and half is aft.

**Hydraulic Control Valve** - A mechanical device to divert or control the flow of fluid in a hydraulic system.

**Hydraulic Hose** - Flexible oil lines used to transmit fluid.

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**Hydraulic Oil** - Fluid used in operation of hydraulic systems.

**Hydraulic Relief Valve** - A mechanical device used to limit the pressure in a hydraulic circuit.

## I

**Incomplete Vehicle** - As assemblage consisting, as a minimum, of a frame and chassis structure, powertrain, steering system, suspension system and braking system to the extent that those systems are to be part of the complete vehicle that requires further manufacturing operations.

**Independent** - The Wrecker Boom and Underlift Boom are separate (independent) from each other.

**Integrated** - The Wrecker Boom and Underlift Boom are combined together as a complete unit.

## J

**J-Hook** - Attachment device used for towing/recovery.

## L

**L-Arm** - See Wheel Arm

**Layer** - All wraps of the same diameter on a drum.

**Lift Bar** - A traverse horizontally pivoting member attached to the boom of a wheel-lift or underlift for attaching towing accessories.

**Lift Cylinder** - Cylinders used to raise or lower boom structures.

**Lift Forks** - See Forks.

**Lifting Capacity** - The load that a machine can lift at any given point.

**Lift Tow Rating** - Maximum Steering Towing Load.

**Light Bar (Emergency)** - An array of lamps used in accordance with local ordinances.

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**Light Pylon** - Structure on which an emergency light bar is mounted.

**Line Pull** - The maximum wire rope pull, in pounds, at the drum, at full-load engine speed, with specified lagging diameter.

**Line Speed** - Speed in feet per minute of a single rope, based on full load engine speed with specified lagging diameter.

## M

**Marker Lights** - Small amber and red lights attached to bodies to indicate overall clearance at night.

**Maximum Loaded Vehicle Weight** - The sum of curb weight, passengers and cargo.

**Motor** - A rotary motion device which changes hydraulic energy into mechanical energy.

**Motor Vehicle Safety Standards** - See FMVSS.

**Mud Flap** - Splash-Deflecting shields at rear of wheel.

## N

**NHTSA (National Highway Traffic Safety Administration)** - The federal agency responsible for promulgating and insuring compliance of regulations dealing with the manufacture and certification of motor vehicles or items of motor vehicle equipment. See DOT.

## O

**Outriggers** - A beam type device attached to frame of a truck or rubber tired carrier, to provide maximum stability by reducing load on tires and increasing width of operating base.

**Overall Vehicle Height** - Distance from the ground to the highest point on the vehicle with equipment in stowed position.

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**Overall Vehicle Width** - The design dimension of the widest part of the vehicle, exclusive of signal lamps, outside rearview mirrors, flexible fender extensions, and mud flaps, determined with doors and windows closed and the wheel in the straight ahead position.

**Overhang** - The horizontal distance for the centerline of a single rear axle or center point of a tandem rear axle to a point where the vertical component is imposed.

## P

**Payload** - The weight of the commodity being hauled. Payload capacity is computed by subtracting the completed weight of the vehicle (including driver and passengers) from the GVWR.

**Pintle Hook** - Hook mounted on a truck or semitrailer used to couple a full trailer.

**PTO (Power Takeoff)** - Mechanical device used to transmit engine power to auxiliary equipment. Power takeoffs can be mounted on either a main or auxiliary transmission. Front mounted and flywheel mounted power takeoffs are also used in various applications.

**Push Bumper** - Device used to push a vehicle, sometimes equipped with a rubber face.

## R

**Rating** - The specified design operating limit of a device.

**Rear Jack** - One or more devices designed, when used, to stabilize chassis.

**Recovery** - Act of moving a vehicle to a position from which it can be driven or towed.

**Recovery Vehicle** - Vehicle to retrieve and if necessary lift and tow other vehicles.

**Resisting Bending Moment (RBM)** - A calculation used to compare frames of different section modulus and of different material. It is the product of the section modulus times the yield strength of the frame material.

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**Roadside** - The left or driver's side of the vehicle when viewed from the rear, opposite side from *Curbside*.

**Rolling Resistance** - The restraining forces contributed to the load when rolling on wheels.

**Rollback** - See Car Carrier

**Rope** - See Wire Rope

**Rub Rail** - Member running longitudinally providing rub service on side of body.

## S

**SAE** - Society of Automotive Engineers.

**Safety Chain(s)** - Used to connect the towing and towed vehicle as a secondary coupling system to prevent separation of a vehicle trailer, converter dolly, or towed vehicle, should the primary coupling become detached.

**Safety Wrap** - Wrapping the tow chain(s) around the grab hooks of the tow bar inboard of chain.

**Scotch Blocks** - A device used to prevent chassis movement.

**Serial Number** - An identification number stamped on a metal plate by the passenger car, van, or truck manufacturer (see VIN), or the towing equipment manufacturer, and placed on chassis, body, or components for identification purposes.

**Sheave** - A wheel grooved for a wire rope to transfer power.

**Shipping Weight** - The dry weight of a complete truck with all standard equipment including grease and oil but without and fuel or coolant.

**Side Rail** - Horizontal extensions of the body sides, either sheet or tubular metal.

**Slew** - A rotating super structure about a vertical axis.

**Snatch Block** - A single or multiple pulley used to reduce line tension or change cable direction.

**Spacer Blocks** - Used in conjunction with wood beams to provide additional clearance between the tow bar, chains, and the body of the casualty vehicle.

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**Spade** - One or more ground penetrating devices designed primarily, when used, to stabilize rearward chassis movement.

**Stabilizers** - A hydraulic or manually operated leg device (i.e., outboard legs, outriggers, or jack legs) attached to trucks to give additional support down to the ground for improved stability.

**Steering Wheel Securing Device** - Used to secure front wheels in lieu of standard steering column lock.

**Stroke** - The length of travel of a cylinder rod or piston.

**Suction Line** - A tubular connection line to convey fluid between a reservoir or tank and the inlet of a hydraulic pump.

**Supply Tank** - An oil reservoir used in the hydraulic system.

**Swivel Head** - See Boom Head.

## T

**T-Hook** - Attachment device used for towing.

**Tail Plate** - Rearmost part of the towing vehicle body.

**Tail Swing** - Clearance distance from center of rotation to the extreme rear extension of the revolving superstructure.

**Tie-Down Assemblies** - Device(s) used to restrain cargo or vehicles (i.e., strap, bridle, chain, or cable.)

**Tie-Down Chains** - Chains used to restrain cargo or vehicles.

**Tilt Cylinder** - Cylinders used to change the attitude of a structure or body.

**Tire Clearance** - Necessary space between tires and the nearest component to allow operation of truck without damage to tires.

**Tire Lift** - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

**Tow** - Act of transporting a vehicle from one point to another by a second vehicle.

**Towed Vehicle** - The vehicle being towed.



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**Towing** - See Tow.

**Tow Bar** - A device for positioning a towed vehicle behind a towing vehicle.

**Tow Chain** - Length of chain used to connect the sling with the towed vehicle.

**Tow Sling** - A device used for lifting and towing vehicles with a partial load supported on rubber straps.

**Tow Vehicle** - Vehicle used to lift-tow other vehicles.

**Towing Light/Bar** - See Auxiliary Towing Lights.

**Trailer 5th Wheel Plate** - A plate attached to a tow truck-lifting device that captivates the kingpin on trailers allowing a trailer to be towed in the same manner as intended by the trailer manufacturer.

## U

**Underlift** - A device used for towing vehicles by lifting one end of the towed vehicle from under the axle or structural member.

**Unloaded Vehicle Weight** - The weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo or occupants. Also referred to as curb weight.

## V

**Valve** - A device which controls fluid flow direction, pressure, or flow rate.

**VIN (Vehicle Identification Number)** - The number assigned to a vehicle by the manufacturer primarily for registration purposes. It may consist of numerals, letters, or a combination thereof.

## W

**WARNING** - A signal word used when a potentially hazardous situation exists and could result in death or serious injury.

**Weight Distribution** - The portion of total weight of the vehicle on each axle.

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**Wheel Arm** - A device that attaches to the lift bar for engaging the tires of a towed vehicle.

**Wheelbase** - Horizontal dimension from centerline of front axle to the effective centerline of the rear axle(s).

**Wheel Chock** - A device used to prevent chassis movement.

**Wheel Fork** - See Wheel Arm.

**Wheel-Lift** - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

**Wheel Securing Device** - A strap or mechanical device, when attached to the lift-bar, which limits the potential for separation of the towed vehicle from the underlift, during operating conditions.

**Wheel Straps** - Used to tie down wheels of the towed vehicle when using wheel-lift, car carrier, or dolly towing equipment to limit the potential for separation of the towed vehicle from the towing apparatus.

**Winch** - A device for winding and unwinding cable.

**Wire Rope** - See Cable

**Working Load Limit** - Minimum breaking strength divided by the factor of safety.

**Wrap** - A single coil of wire rope wound on a drum.

**Wrecker** - See Tow Vehicle, or Recovery Vehicle.