

JERR-DAN®

Operation And Safety Manual

Original Instructions

Keep this manual with machine at all times.

STANDARD DUTY CARRIER

SN 0220020282 to Present

5376000235

July 1, 2020

JERR-DAN®

An Oshkosh Corporation Company

 **WARNING**

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.

REVISION LOG

January 13, 2020 - A - Original Issue of Manual.

July 1, 2020 - B - Revised cover and page 6-13

Read This First

This manual provides Operational and Safety information for the Standard Duty Carrier. Read this manual and the Operation and Safety Manual provided with other equipment thoroughly prior to starting operation.

This manual is a very important tool! Keep it with the machine at all times.

The purpose of this manual is to provide owners, users, and operators with the precautions and operating procedures essential for the safe and proper machine operation for its intended purpose.

Due to continuous product improvements, Jerr-Dan Corporation reserves the right to make specification changes without prior notification. Contact Jerr-Dan Corporation for updated information.

OPERATOR QUALIFICATIONS

The operator of the machine must not operate the machine until this manual has been read, training is accomplished and operation of the machine has been completed under the supervision of an experienced and qualified operator.

Operators of this equipment must possess a valid, applicable driver's license, be in good physical and mental condition, have normal reflexes and reaction time, good vision and depth perception and normal hearing. Operator must not be using medication which could impair abilities nor be under the influence of alcohol or any other intoxicant during the work shift.

In addition, the operator must read, understand and comply with instructions contained in the following material furnished with the equipment:

- This Operation & Safety Manual
- All instructional decals and plates
- Any optional equipment instructions furnished
- Commercial vehicle's Operation & Maintenance Manuals

The operator must also read, understand and comply with all applicable Employer, Industry and Governmental rules, standards and regulations.

MODIFICATIONS

Any modification to this machine must be approved by Jerr-Dan.

HAZARD CLASSIFICATION SYSTEM

SAFETY ALERT SYSTEM AND SAFETY SIGNAL WORDS



This is the Safety Alert Symbol. It is used to alert to the potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Indicates an imminently hazardous situation. If not avoided, will result in serious injury or death. This decal will have a red background.



Indicates a potentially hazardous situation. If not avoided, could result in serious injury or death. This decal will have an orange background.



Indicates a potentially hazardous situation. If not avoided, may result in minor or moderate injury. It may also alert against unsafe practices. This decal will have a yellow background.



Indicates information or a comply policy that relates directly or indirectly to the safety of the personnel or protection of property.

Read This First

⚠ WARNING

This product must comply with all safety related bulletins. Contact Jerr-Dan Corporation or the local authorized representative for information regarding safety bulletins which may have been issued for this product.

NOTICE

Jerr-Dan Corporation sends safety related bulletins to the owner of record of this machine. Contact Jerr-Dan Corporation to ensure that the current owner of records are updated and accurate.

NOTICE

Jerr-Dan Corporation must be notified immediately in all instances where Jerr-Dan product have been involved in an accident involving bodily injury or death of personnel or when substantial damage has occurred to personal property on the Jerr-Dan product.

FOR:

- Accident Reporting and Product Safety Publications
- Current Owner Updates
- Questions Regarding Product Applications and Safety
- Standards and Regulations Compliance Information
- Questions Regarding Product Modifications

CONTACT:

Product Safety and Reliability Department
Jerr-Dan Corporation
13224 Fountainhead Plaza
Hagerstown, MD 21742
USA

or Your Local Jerr-Dan Office

In USA

Toll Free: 1-877-554-7233

Outside USA

Phone: 240-420-2661

Fax: 301-745-3713

E-mail

ProductSafety@Jerr-Dan.com

REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Jerr-Dan Corporation.

If NHTSA receives similar complaints, it opens an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Jerr-Dan Corporation.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to <http://www.safercar.gov>; or write to:

Administrator
NHTSA
400 Seventh Street S.W.
Washington, DC 20590

You can also obtain other information about motor vehicle safety from <http://www.safercar.gov>.

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TABLE OF CONTENTS

Revision Log

Read This First

Operator Qualifications.....	b
Modifications.....	b
Hazard Classification System.....	c
Safety Alert System and Safety Signal Words.....	c
Reporting Safety Defects.....	e

Table of Contents

Section 1 - General Safety Practices

1.1 General.....	1-1
1.2 Pre-Operation.....	1-2
Operator Training and Knowledge.....	1-2
Electrical Hazards.....	1-3
Crush and Collision Hazards.....	1-4
Winch Cable / Falling Load Hazards.....	1-5
Uncontrolled Towed Load Hazards.....	1-6
Fall Hazards.....	1-7
Tip-Over Hazards.....	1-7
Chemical Hazards.....	1-8
Battery Hazards.....	1-9
Personal Protective Equipment.....	1-9
Weather Conditions.....	1-10
Vehicle Equipment Damage.....	1-10

Section 2 - Pre-Operation and Inspection

2.1 Pre-Operation Check And Inspection.....	2-1
2.2 Decals.....	2-2
2.3 Walk-Around Inspection.....	2-8
2.4 Operational Checks.....	2-12
Operational Check.....	2-12

Section 3 - Controls & Indicators

3.1 General.....	3-1
3.2 Controls.....	3-2
Left Hand - Side Control Station.....	3-2
Right Hand - Side Control Station.....	3-2
3.3 2 Function Wireless Hand Controller (If Equipped).....	3-4
3.4 4 Function Wireless Hand Controller (If Equipped).....	3-5
3.5 6 Function Wireless Hand Controller (If Equipped).....	3-6
3.6 10 Function Wireless Hand Controller (If Equipped).....	3-7

Table of Contents

Section 4 - Operation

4.1	Tilting the Deck/Loading.....	4-2
4.2	Tilting the Deck/Unloading.....	4-9
4.3	Winch Operation - Manual Free-Spool.....	4-15
4.4	Winch Operation - Air Remote Free-Spool.....	4-17
4.5	Securing vehicle.....	4-19
4.6	“IRL” Wheel Lift Operation.....	4-22
4.7	“ZOD” (Zero Degree) Wheel Lift Operation.....	4-29
4.8	“L” Arm Grid Operation.....	4-36
4.9	“T37” Pivoting Grid Operation.....	4-38
4.10	Hydraulic Grid Operation.....	4-40
4.11	Tie-Down Straps - L-Arm Grid	4-41
4.12	Tie-Down Straps - “T37” Grid	4-43
4.13	Tie-Down Straps - Hydraulic Grid	4-45

Section 5 - Emergency Procedures

5.1	Electric/Hydraulic Failure Raising/Lowering/Extending/Retracting Deck.....	5-1
5.2	Engine Failure Raising/Lowering/Extending/Retracting Deck.....	5-2

Section 6 - Maintenance

6.1	Introduction.....	6-1
6.2	Maintenance And Lubrication.....	6-2
6.3	Oils And Greases.....	6-3
6.4	Wire Rope Handling And Inspection.....	6-5
6.5	Wire Rope Installation.....	6-7
6.6	Lubrication Chart.....	6-10
	Lubrication Points.....	6-11
6.7	Trouble Shooting.....	6-14
	Hydraulic System.....	6-14
	P.T.O. Functioning Improperly.....	6-15
	Hydraulic Pump.....	6-15
	Hydraulic Pump.....	6-16
	Winch Functioning Improperly.....	6-16
	Remote Hand Controller.....	6-17

Section 7 - Specifications

7.1	Product Specifications.....	7-1
	6Ton Standard Duty Carrier Series.....	7-1
	Truck Chassis.....	7-4
7.2	Capacities.....	7-5

Inspection, Maintenance and Repair Log

Transfer Of Ownership

SECTION 1 - GENERAL SAFETY PRACTICES

1.1 GENERAL

This section outlines the necessary precautions for proper and safe vehicle operation and maintenance. For proper vehicle, it is mandatory that a daily routine is established based on the content of this manual. A maintenance program, using the information provided in this manual must also be established by a qualified person and followed to ensure the vehicle is safe to operate.

The owner/user/operator of the vehicle must not operate the vehicle until this manual has been read, training is accomplished, and operation of the vehicle has been completed under the supervision of an experienced and qualified operator.

There may be times the vehicle may be exposed to direct contact with the public such as parades, charitable fundraisers, etc. Before allowing anyone other than a trained and experienced company employee near your vehicle, consult with the company safety officer and plan for safety.

If there are any questions with regard to safety, training, inspection, maintenance, application, and operation, please contact Jerr-Dan Corporation.

WARNING

Failure to comply with the safety precautions listed in this manual could result in vehicle damage, property damage, personal injury or death.

Section 1 - General Safety Practices

1.2 PRE-OPERATION

OPERATOR TRAINING AND KNOWLEDGE

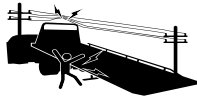
- Read and understand this manual before operating the vehicle.



- Do not operate this vehicle until complete training is performed by authorized persons.
- Only authorized and qualified personnel can operate the vehicle.
- Read, understand, and obey all DANGERS, WARNINGS, CAUTIONS, and operating instructions on the vehicle and in the manual.
- Use the vehicle in a manner which is within the scope of its intended application set by Jerr-Dan.
- All operating personnel must be familiar with the emergency operation of the vehicle as specified in this manual.
- Read, understand, and obey all applicable employer, local, and government regulations as they pertain to the operation of the vehicle.
- Become familiar with the loads that your unit can safely transport without exceeding the structural rating of the Jerr-Dan unit or the gross axle weight ratings (GAWR), gross vehicle weight rating (GVWR), and the gross combined vehicle weight rating (GCWR) of your chassis.

Section 1 - General Safety Practices

ELECTRICAL HAZARDS



- This vehicle is not insulated and does not provide protection from contact or being near electrical current. This includes lightning and lightning strikes.
- NEVER operate the vehicle in an area where overhead power lines, overhead or underground cables, or other power sources may exist without ensuring the appropriate power utility company de-energizes the lines.
- Always check for power lines before raising the deck.
- Look up and use light to search for power lines in the dark.
- Allow for vehicle movement and electrical line swaying.
- Do not step off or touch a charged vehicle.
- Maintain a clearance of at least 10 ft (3m) between any part of the vehicle from any electrical line or apparatus carrying up to 50,000 volts. Refer to the Minimum Approach Distance (MAD) chart. One foot additional clearance is required for every additional 30,000 volts or less.

Minimum Approach Distance (M.A.D.)

Voltage Range (Phases to Phase)	MINIMUM APPROACH DISTANCE in Feet (Meters)
0 to 50KV	10 (3)
Over 50KV to 200KV	15 (5)
Over 200KV to 350KV	20 (6)
Over 350KV to 500KV	25 (8)
Over 500KV to 750KV	35 (11)
Over 750KV to 1000KV	45 (14)

NOTE: This requirement shall apply except where employer, local or government regulations are more stringent.

- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the truck. The minimum approach distance shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person in accordance with the employer, local, or governmental requirements for work practices near energized equipment.

Section 1 - General Safety Practices

DANGER

Do not maneuver vehicle or personnel inside prohibited zone (MAD). Assume all electrical parts and wiring are energized unless known otherwise

CRUSH AND COLLISION HAZARDS

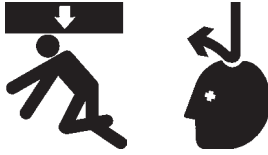


- Ensure to stay clear of oncoming traffic. Driver side and passenger side controls are standard on your Jerr-Dan carrier.
- Keep clear of rear stabilizer
- Stay clear of equipment to avoid crushing injury.
- Always use jack stands to support the deck and/or towbar/wheel-lift before working underneath a lifted load.
- Warn personnel not to work, stand, or walk under a raised deck. Position barricades if necessary.
- Set parking brake and chock wheels of the recovery vehicle when connecting equipment.
- KEEP ALERT! Avoid distractions during any operating sequences.
- Be aware of height clearances when travelling.



- Look out for and avoid other personnel, machinery, vehicles and obstructions in the area when driving the truck. Use a spotter if you do not have a clear view.

Section 1 - General Safety Practices



When opening tool compartments:

- Loose items may shift during transport. Properly secure items when not in use
- Ensure all tool compartment doors are properly closed prior to transport.

WINCH CABLE / FALLING LOAD HAZARDS

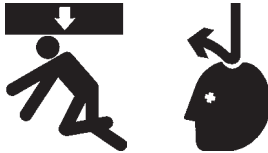


- Keep people away during operation.
- Never exceed capacity of rigging or cable.
- Never stand on or straddle cable.
- Always keep a minimum of five (5) wraps of cable on winch drum.
- Keep tension on cable when unwinding.
- NEVER work behind the truck with equipment on the deck unless the equipment is secured at the front of the deck. (Do not rely on the winch to hold the load).
- Stay to the side of the deck when winching.
- Keep cables from contacting sharp objects.
- Never wrap cables around objects. Use appropriate chains/straps to wrap around the equipment to be transported, and attach the cable hook to the chain/straps.
- Never allow the cable to cross over itself when wrapping on the drum.
- NEVER winch from the side of the bed. Winch only from the rear with load centered and in line with the winch. Failure to do so can result in winch or wire rope damage and/or bodily injury. Never use the deck winch for side pulling.
- Never use damaged cable. Never use cable menders. Replace damaged cable with cable and hooks of equal or greater rating.

Section 1 - General Safety Practices



- Keep hands away from cable and drum during operation.



- Block up the deck before performing any service or maintenance work under the deck. Jog winch clutch before pulling. Keep winch clutch engaged while the cable is loaded.
- Approved head gear must be worn during recovery operations.

UNCONTROLLED TOWED LOAD HAZARDS

- Always know the weight distribution of your load and ensure you are within your truck's Gross Axle Weight Rating (GAWR), Gross Vehicle Weight Rating (GVWR) and Gross Combination Weight Rating (GCWR) as well as any federal or state roading regulation. In addition, be aware of your vehicle's overall loaded height to be sure that you are under the federal bridge law height of 13 feet 6 inches.
- DO NOT exceed GAWR or GCWR of the chassis.



- Use two (2) safety chains and four (4) tie down chains.
- Check chain tension periodically while in transit.
- Always retract towbar as close as possible.
- Ensure safety chains are properly attached from tow vehicle to towed equipment.
- After you have placed equipment on the carrier for towing, do not start the tow until tie-down straps and chains have been installed per the equipment's recommended tie-down points.

Section 1 - General Safety Practices

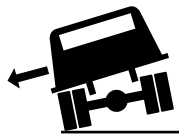
- Place the load evenly on the deck. Do not concentrate the load on one section of the deck, to the rear of the truck axles, or use towbar without a load on the deck.
- NEVER exceed towbar ratings. Overloading can cause unsafe steering and braking conditions.
- Secure equipment to the deck at both the front and rear before the vehicle is driven. NEVER rely on the winch as the only means of holding the load.
- Always use both wheel straps on wheel lift towbar.

FALL HAZARDS



- NEVER walk or climb on the deck surface when the deck is tilted.
- NEVER drive equipment onto the deck. Always use the winch to pull the equipment onto the deck.
- DO NOT carry riders outside the cab. Riders could fall off the vehicle.
- NEVER allow riders in the towed equipment during lifting or transport.
- Only use approved ladders and grab handles and steps provided on the left side of the vehicle when accessing the deck. Always maintain 3-point contact, using two hands and one foot or two feet and one hand, when mounting or dismounting. These surfaces can become slippery, ensure to keep them and footwear clean and free of debris.

TIP-OVER HAZARDS



- Set up on firm surface only.
- Deploy rear bumper onto proper firm surface.
- Ensure truck is level prior to any operations.
- Make sure that equipment load is centered side to side.

Section 1 - General Safety Practices

CHEMICAL HAZARDS

Exhaust Fumes

- DO NOT operate vehicle in an enclosed area without proper ventilation.
- DO NOT operate the vehicle in hazardous environments unless approved for that purpose by Jerr-Dan and site owner. Sparks from the electrical system and the engine exhaust can cause an explosion.

Flammable Fuel



- DO NOT fill the fuel tank or service the fuel system near an open flame, sparks or smoking materials. Engine fuel is flammable and can cause a fire and/or explosion.

Hydraulic Fluid



- DO NOT attempt to repair or tighten any hydraulic hoses or fittings while the engine is running or when the hydraulic system is under pressure.
- Stop engine and relieve trapped pressure. Fluid in the hydraulic system is under pressure and can penetrate the skin.
- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to protect hands from spraying fluid.

BATTERY HAZARDS



- Battery fluid is highly corrosive. Avoid contact with skin and clothing at all times.
- Keep sparks, flames, and lighted materials away from batteries.
- Charge batteries only in a well ventilated area.
- Wear proper eye protection when servicing battery.

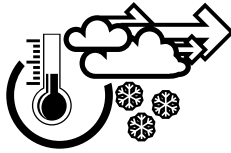
PERSONAL PROTECTIVE EQUIPMENT



- Use personal protective equipment when working on or around this vehicle.
- Remove rings, watches, jewellery, neckwear or other items that can catch in equipment.
- Wear :
 - o Snug fitting and sturdy long-sleeve shirt and long pants. Avoid loose fitting clothes.
 - o Sturdy gloves.
 - o Approved eye protection.
 - o Steel toed boots.
 - o Approved head gear.
 - o Approved hearing protection.

Section 1 - General Safety Practices

WEATHER CONDITIONS



- Be aware of the wind conditions. Wind may cause load to swing or shifting of load.
- If using in freezing conditions, you must be alert to possibility of ice forming on the device. Use caution when extending and retracting winch cables, towbar, and stabilizer. In addition use caution when opening/closing body panels
- Hydraulic cylinders are subject to thermal expansion and contraction. This may result in changes to the deck, stabilizer and/or towbar position while the vehicle is stationary. Factors affecting thermal movement can include the length of time the vehicle is stationary, hydraulic oil temperature, and ambient air temperature.

VEHICLE EQUIPMENT DAMAGE

- Ensure vehicle is positioned in an area free from overhead obstructions. Keep a safe working distance from overhead power lines, bridges, road signs and other objects.
- Do not use a vehicle that has not been properly maintained. Make sure mounting bolts are tight and moving parts are lubricated.
- Do not 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.
- Never attach the chain hooks in such a way as to damage brake lines or other functional parts.
- Make sure all brakes and locks are properly set on the recovery vehicle.
- Do not operate the engine faster than recommended. Excessive speeds can damage PTO, hydraulic pumps, and winches.
- Deck approach tip and subframe bumper may damage paved surfaces.
- NEVER drive a vehicle onto the deck. Always use the winch to pull the vehicle onto the deck.
- Do not travel with the PTO engaged. Damage to the vehicle transmission and hydraulic components will occur. Engage the PTO only when operating the hydraulic controls.

Section 1 - General Safety Practices

- Always put the rear bumper on the ground to support the body and truck frame.
- Make sure deck is in the locked position before travelling.
- Do not use vehicle as a ground when performing any welding operations.
- Store L-Arms when not in use. NEVER drive with the L-Arms in the wheel grids.
- Use CAUTION on air bag equipped vehicles when using a push bumper. Avoid sudden impact which could activate the air bag sensor while pushing.

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SECTION 2 - PRE-OPERATION AND INSPECTION

2.1 PRE-OPERATION CHECK AND INSPECTION

Note: Complete all required maintenance before operating unit.

⚠ WARNING

FALL HAZARD. Use extreme caution when checking items beyond your normal reach. Use an approved ladder.

The pre-operation check and inspection, performed at beginning of each work shift or at each change of operator, should include the following:

1. **Cleanliness** - Check all surfaces for any leakage (oil, fuel or battery fluid) or foreign objects. Report any leakage to the proper maintenance personnel.
2. **Structure** - Inspect the vehicle structure for dents, damage, weld or parent metal cracks or other discrepancies.
3. **Safety Decals Placards** - Ensure all safety decals are legible and in place. Clean or replace as required. See Section 2.2 for details.
4. **Operation and Safety Manual(s)** - Operation & Safety Manual(s) are in cab.
5. **Walk-Around Inspection** - See Section 2.3 for details.
6. **Fluid Levels** - Check all fluids, including hydraulic oil, and winch gear case oil. When adding fluids, refer to Section 6 - Maintenance and Lubrication and Section 7 - Specifications to determine proper type and intervals. Before removing filler caps or fill plugs, wipe all dirt and grease away from the ports. If dirt enters these ports, it can severely reduce component life.
7. **Attachments/Accessories** - Inspect all attachments for dents, damage, weld or parent metal cracks or other discrepancies. Inspect tie-down straps for cuts, frays or tears. Inspect chains for weld or parent metal cracks or other discrepancies.
8. **Operational Check** - Once the walk-around inspection is complete, perform a warm-up and operational check (Section 2.4) of all systems in an area free of overhead and ground level obstructions. See Section 3 - Controls and Indicators for more specific operating instructions.

⚠ WARNING

If the vehicle does not operate properly, immediately bring the vehicle to a stop, and stop the engine. Determine cause and correct before continued use.

Section 2 : Pre-Operation and Inspection

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1001190625

FRONT VIEW

REAR VIEW

7330000330
IN SIDE DECK
BEAM BY WINCH

1001156252

1001190626

1001127221

DELUXE FIXED HEIGHT DECK MOUNTED HEADBOARD

1001132764

1001190625

1001153789

REAR VIEW

TOP VIEW

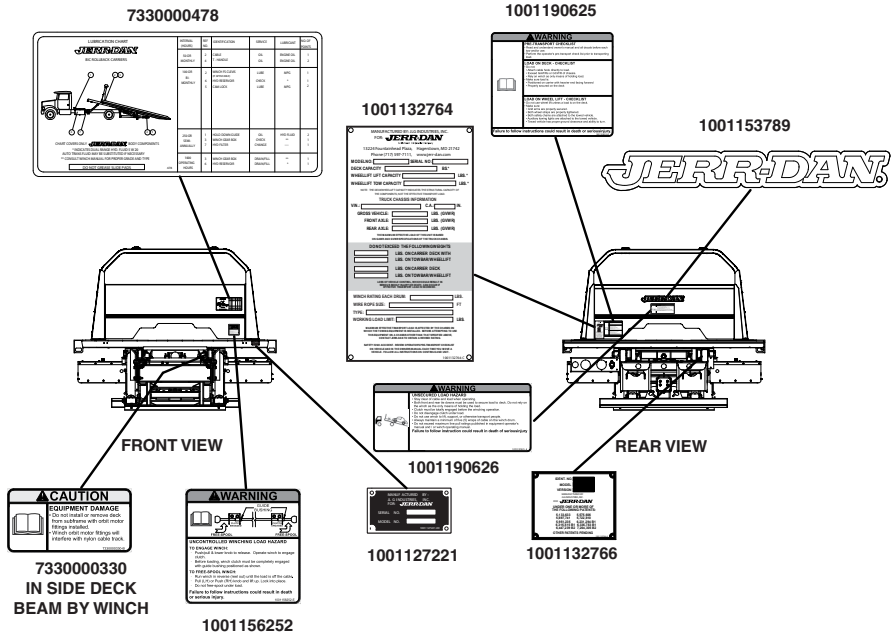
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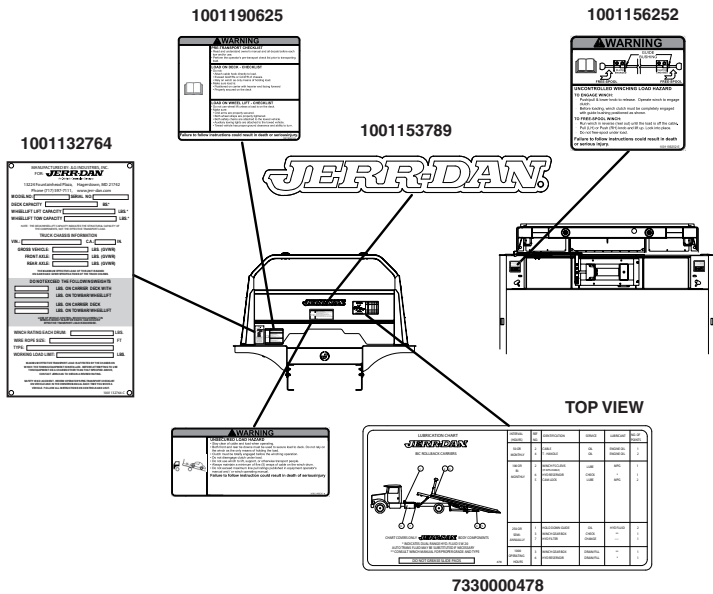
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DELUXE FIXED HEIGHT FRAME MOUNTED HEADBOARD

Section 2 : Pre-Operation and Inspection



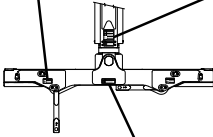
ADJUSTABLE HEIGHT DECK MOUNTED HEADBOARD



ADJUSTABLE HEIGHT FRAME MOUNTED HEADBOARD

Section 2 : Pre-Operation and Inspection

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BOTH
LH AND RH SIDES



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HYDRAULIC GRID WHEEL LIFTS

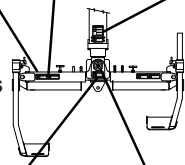
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BOTH
LH AND RH SIDES



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7330000385
BOTH
LH AND RH SIDES



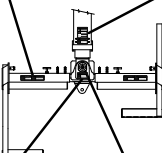
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IF EQUIPPED



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3,000 LB T-37 WHEEL GRIDS

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BOTH
LH AND RH SIDES



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IF EQUIPPED

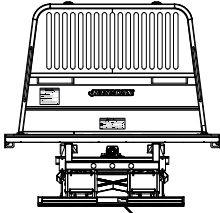
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3,000 LB L-ARM WHEEL GRIDS

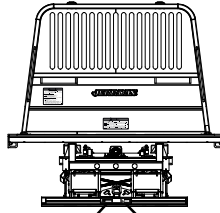
WHEEL GRID OPTIONS

Section 2 : Pre-Operation and Inspection



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REAR DOCK STABILIZER
IF EQUIPPED

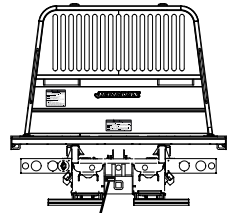


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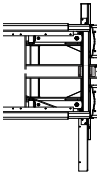
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REAR DOCK STABILIZER
WITH REESE HITCH
IF EQUIPPED



7330000274

STATIONARY REESE HITCH
AND PINTLE HITCH
IF EQUIPPED



TOW BAR
WITH PINTLE HITCH OR
BALL HITCH
(IF EQUIPPED)



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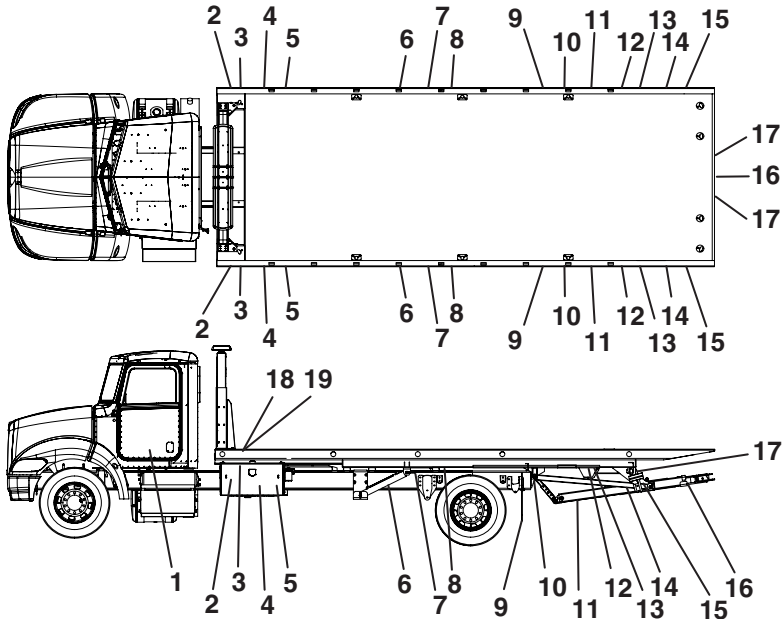


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STABILIZER OPTIONS

Section 2 : Pre-Operation and Inspection

2.3 WALK-AROUND INSPECTION



Begin your walk-around inspection at item 1, as noted below checking each item in sequence.

INSPECTION NOTE: On all components, make sure there are no loose or missing parts, that they are securely fastened and no visible leaks or excessive wear exists in addition to any other criteria mentioned. Inspect all structural members for cracks, excessive corrosion and other damage.

WARNING

FALL HAZARD. Use extreme caution when checking items beyond your normal reach. Use an approved ladder.

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 to follow component manufacturer's recommendations. Any worn, deformed, misused or overloaded products must be replaced immediately.

Section 2 : Pre-Operation and Inspection

1. Wireless Remote Hand Controller (If Equipped)
 - a. Undamaged and operational
 - b. Wireless Remote Control Transmitter Holder secure
2. Deck Hold-down System
 - a. Components undamaged
 - b. Hold-downs secure
3. Folding Step(s) (If Equipped)
 - a. Components undamaged and operational
 - b. Secure
4. Hydraulic Tank
 - a. Hydraulic fluid level full
 - b. Hydraulic hoses undamaged, not leaking
5. Toolbox/Storage Compartment(s)
 - a. Components undamaged
 - b. Toolbox/Storage Compartment(s) secure
6. Tilt Cylinders
 - a. Hydraulic hoses undamaged, not leaking
 - b. Cylinder, not leaking
 - c. Pins, secure
 - d. Check for presence of grease
7. Subframe
 - a. Components undamaged
8. Rollback Cylinder
 - a. Hydraulic hoses undamaged, not leaking
 - b. Cylinder, not leaking
 - c. Pins, secure

Section 2 : Pre-Operation and Inspection

9. Mud Flaps

- a. Components undamaged
- b. Mud Flaps secure
- c. Mud Flaps are present

10. Deck Pivot

- a. Components undamaged
- b. Pins, secure
- c. Check for presence of grease

11. Wheel-Lift/Tow Bar (If Equipped)

- a. Components undamaged
- b. Pins, secure

12. Controls

- a. Components and switches undamaged
- b. Hydraulic hoses and electric harnesses undamaged
- c. Valve and hydraulic hoses not leaking

13. Winch Air Controls (If Equipped)

- a. Components undamaged
- b. Air lines undamaged, not leaking
- c. Valves, not leaking

14. Stabilizer Arms (If Equipped)

- a. Components undamaged
- b. Pins, secure
- c. Check for presence of grease

15. IRL/Stabilizer Cylinder(If Equipped)

- a. Hydraulic hoses undamaged, not leaking
- b. Cylinder, not leaking
- c. Pins, secure

Section 2 : Pre-Operation and Inspection

16. Wheel-Lift/Tow Bar(If Equipped)

- a. Components undamaged
- b. Pins, secure

17. Chain Storage Boxes and Safety Chains

- a. Chain Storage Boxes undamaged
- b. Safety Chains are present
- c. Safety Chains are undamaged

18. Winch

- a. Hydraulic hoses undamaged, not leaking
- b. Gear oil level full

19. Wire Rope and Hook

- a. Wire Rope, undamaged
- b. Wire Rope, presence of grease
- c. Wire Rope Hooks, undamaged
- d. Wire Rope Hook Latches, undamaged and functional

Section 2 : Pre-Operation and Inspection

2.4 OPERATIONAL CHECKS

OPERATIONAL CHECK

When engine warms, perform an operational check:

1. Service brake and parking brake operation.
2. Horn and back-up alarm. Must be audible from inside vehicle cab with engine running.
3. Hydraulic filter condition indicator.
4. Power-Take-Off operation.
5. Driver side and passenger side controlled functions - all functions operate smoothly and the controls return to the "Neutral Off" position.
6. Wireless remote control functions - all functions operate smoothly and the controls return to the "Neutral Off" position. (If Equipped)
7. Wireless remote control transmitter holder "buzz box" in cab is operational. Audible alarm will sound when transmitter is removed with ignition switch "ON". (If Equipped)
8. All lighting systems, operational.
9. Emergency lighting operation.

SECTION 3 - CONTROLS & INDICATORS

3.1 GENERAL

This section provides the necessary information needed to understand the control functions.

The controls inside the vehicle cab control the emergency lights, auxiliary lights and the Power Take Off. The Power Take Off provides a transfer of power from the transmission to a hydraulic pump to provide hydraulic power to the carrier hydraulics

The controls at the rear of the body on both the left hand side and right hand side control all of the carrier functions.

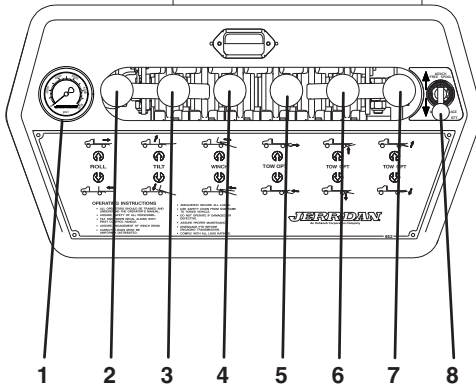
The carrier may also be supplied with various optional wireless remote controllers. The wireless remote controllers should be found inside the cab of the vehicle in the designated holder.

Note: *The manufacturer has no direct control over machine application and operation. The user and operator are responsible for conforming with good safety practices.*

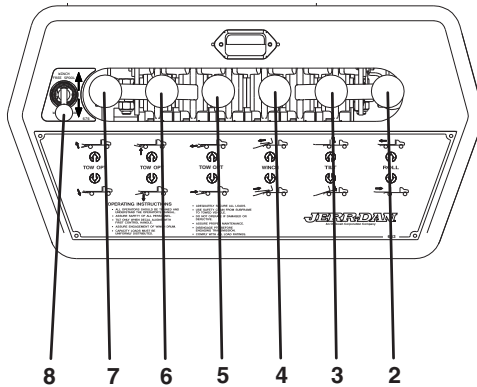
Section 3 - Controls & Indicators

3.2 CONTROLS

LEFT HAND - SIDE CONTROL STATION


















































RIGHT HAND - SIDE CONTROL STATION



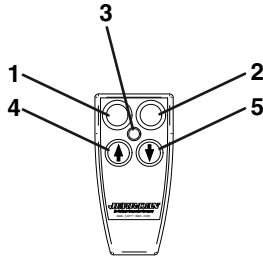
Section 3 - Controls & Indicators

- | | | | |
|----|--|---|--|
| 1. | Pressure Gauge | : | Indicates system hydraulic pressure |
| 2. | Deck Roll Control | : | Controls the deck roll - Forward/Back |
| 3. | Deck Tilt Control | : | Controls the deck tilt - Up/Down |
| 4. | Winch Control | : | Controls the wire rope winding/unwinding functions of the winch. |
| 5. | a. Winch Controls (If Equipped) | : | Controls the wire rope winding/unwinding functions of the winch |
| | b. Stabilizer Control (If Equipped) | : | Controls the Rear Stabilizer - Up/Down. |
| | c. Tow Option Control (If Equipped) | : | Controls the Tow Option - In/Out. |
| 6. | a. Tow Option Control (If Equipped) | : | Controls the Tow Option - Up/Down. |
| | b. Tow Option Control (If Equipped) | : | Controls the Tow Option - In/Out. |
| | c. Tow Option Control (If Equipped) | : | Controls the Tow Option - Up/Down |
| 7. | Tow Option Control (If Equipped) | : | Controls the Tow Option - Up/Down. |
| 8. | Winch Free-Spool Control (If Equipped) | : | Controls the Winch Free-Spool |

	1	2	3	4	5	6	7	8
STANDARD DECK		 ROLL	 TILT	 WINCH				
DUAL WINCH OPTION		 ROLL	 TILT	 WINCH	 WINCH			
STABILIZER OPTION		 ROLL	 TILT	 WINCH	 STABILIZER			
TOWBAR OPTION		 ROLL	 TILT	 WINCH	 TOW OPT	 TOW OPT		
STABILIZER with TOWBAR OPTION		 ROLL	 TILT	 WINCH	 STABILIZER	 TOW OPT		
TOWBAR OPTION		 ROLL	 TILT	 WINCH	 TOW OPT	 TOW OPT	 TOW OPT	
DUAL WINCH OPTION with TOWBAR OPTION		 ROLL	 TILT	 WINCH	 WINCH	 TOW OPT	 TOW OPT	

Section 3 - Controls & Indicators

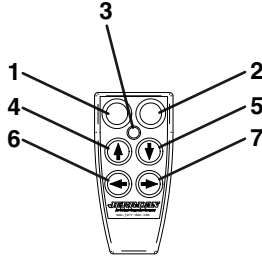
3.3 2 FUNCTION WIRELESS HAND CONTROLLER (IF EQUIPPED)



- | | | |
|--------------------------|---|--|
| 1. Power "OFF" Button | : | Turns "OFF" the Hand Controller Power. |
| 2. Power "ON" Button | : | Turns "ON" the Hand Controller Power. |
| 3. Power Indicator Light | : | Indicates that the Hand Controller is powered "ON" when Illuminated. |
| 4. Winch – In | : | Controls the wire rope winding function of the winch. |
| 5. Winch – Out | : | Controls the wire rope unwinding function of the winch. |

NOTE: Audible alarm will sound when transmitter is removed from the transmitter holder with the ignition switch turned "ON".

3.4 4 FUNCTION WIRELESS HAND CONTROLLER
(IF EQUIPPED)



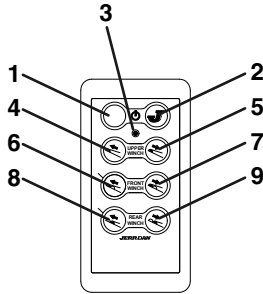
- | | | |
|-------------------------------------|---|--|
| 1. Power "OFF" Button | : | Turns "OFF" the Hand Controller Power. |
| 2. Power "ON" Button | : | Turns "ON" the Hand Controller Power. |
| 3. Power Indicator Light | : | Indicates that the Hand Controller is powered "ON" when Illuminated. |
| 4. Winch – In | : | Controls the wire rope winding function of the winch. |
| 5. Winch – Out | : | Controls the wire rope unwinding function of the winch. |
| 6. Optional (Specified by Customer) | : | Controls Option. |
| 7. Optional (Specified by Customer) | : | Controls Option. |

* Button options vary based on optional equipment

NOTE: Audible alarm will sound when transmitter is removed from the transmitter holder with the ignition switch turned "ON".

Section 3 - Controls & Indicators

3.5 6 FUNCTION WIRELESS HAND CONTROLLER (IF EQUIPPED)

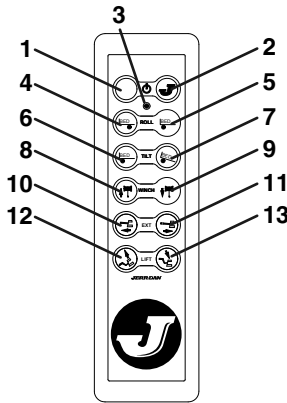


- | | | |
|-------------------------------------|---|--|
| 1. Power "OFF" Button | : | Turns "OFF" the Hand Controller Power. |
| 2. Power "ON" Button | : | Turns "ON" the Hand Controller Power. |
| 3. Power Indicator Light | : | Indicates that the Hand Controller is powered "ON" when Illuminated. |
| 4. Optional (Specified by Customer) | : | Controls Option. |
| 5. Optional (Specified by Customer) | : | Controls Option. |
| 6. Optional (Specified by Customer) | : | Controls Option. |
| 7. Optional (Specified by Customer) | : | Controls Option. |
| 8. Optional (Specified by Customer) | : | Controls Option. |
| 9. Optional (Specified by Customer) | : | Controls Option. |

* Button options vary based on optional equipment

NOTE: Audible alarm will sound when transmitter is removed from the transmitter holder with the ignition switch turned "ON".

3.6 10 FUNCTION WIRELESS HAND CONTROLLER
(IF EQUIPPED)



- | | | |
|-----------------------------|---|--|
| 1. Power “OFF” Button | : | Turns “OFF” the Hand Controller Power. |
| 2. Power “ON” Button | : | Turns “ON” the Hand Controller Power. |
| 3. Power Indicator Light | : | Indicates that the Hand Controller is powered “ON” when Illuminated. |
| 4. Deck Roll – Forward | : | Controls the roll forward function of the deck. |
| 5. Deck Roll – Back | : | Controls the roll back function of the deck. |
| 6. Deck Tilt – Down | : | Controls the tilt down function of the deck. |
| 7. Deck Tilt – Up | : | Controls the tilt up function of the deck |
| 8. Winch – In | : | Controls the wire rope winding function of the winch. |
| 9. Winch – Out | : | Controls the wire rope unwinding function of the winch. |
| 10. Wheel-Lift Boom – In | : | Controls the wheel-lift boom retraction function. |
| 11. Wheel-Lift Boom – Out | : | Controls the wheel-lift boom extension function. |
| 12. Wheel-Lift Boom – Raise | : | Controls the wheel-lift boom raise function. |
| 13. Wheel-Lift Boom – Lower | : | Controls the wheel-lift boom lower function. |

NOTE: Audible alarm will sound when transmitter is removed from the transmitter holder with the ignition switch turned “ON”.

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SECTION 4 - OPERATION

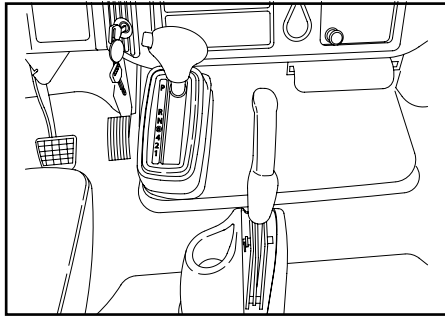
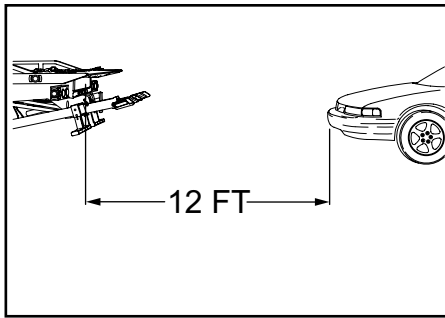
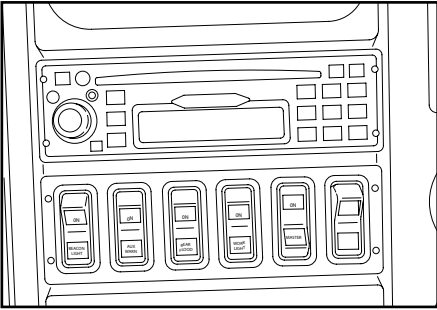
Operating controls for your carrier are conveniently located on the left hand side. Another set of controls are located on the right hand side. There is also a wireless handheld remote controller that controls all the carrier functions. Do not use the wireless remote controller from inside the vehicle

WARNING

CRUSH HAZARD. Always operate the controls from the side away from traffic.

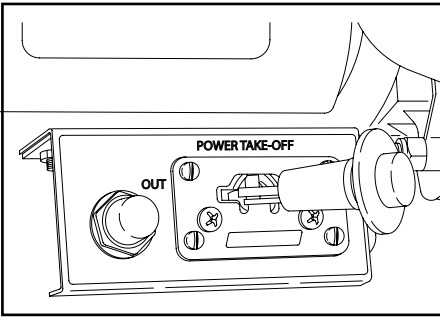
Section 4 : Operation

4.1 TILTING THE DECK/LOADING



1. Turn on the body lights and any work lights, as necessary. (Switches are located on the switch panel in the dash).
2. Position the rear of the carrier deck about 12 feet from the equipment you intend to load. Make sure the vehicle is in line with the equipment.
3. Place the carrier's transmission gear selector into Neutral or Park and set the parking brakes.

Section 4: Operation



4. Engage the power take-off (PTO). Refer to PTO operator's manual.

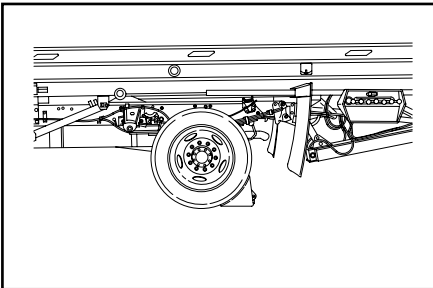
NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

5. Adjust the electronic or manual throttle control to set the engine speed to approximately 1000-1200 R.P.M. Refer to chassis operator's manual for proper operation of the auxiliary throttle. If your chassis is equipped with the remote throttle up option from the chassis manufacturer there is no need to set the throttle up control in the cab because the throttle will automatically increase when any of the carrier hydraulic functions are operated.

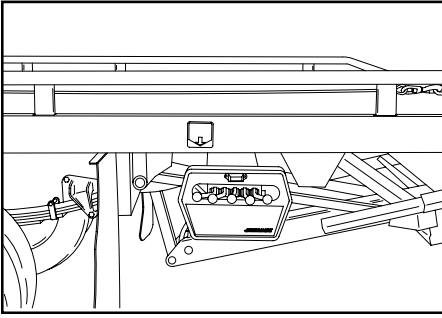
NOTICE

Never exceed 1200 R.P.M. When your ready to travel, reset the engine idle to normal.



6. Block the carrier's rear tires with wheel chocks to prevent accidental carrier movement. Check the area around the carrier and the equipment to be loaded for obstructions or hazards.

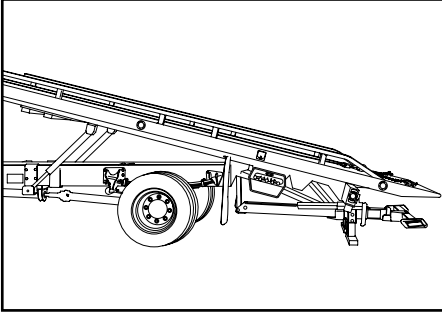
Section 4 : Operation



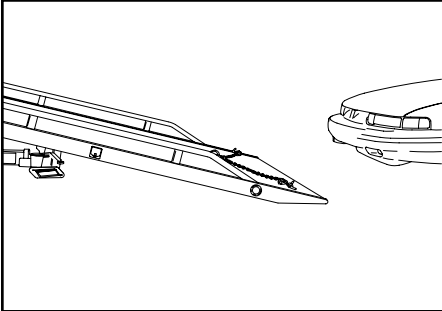
7. Slide the deck back. Align the arrow decal pointer on the side of the deck with the deck control switch in the control panel.

NOTICE

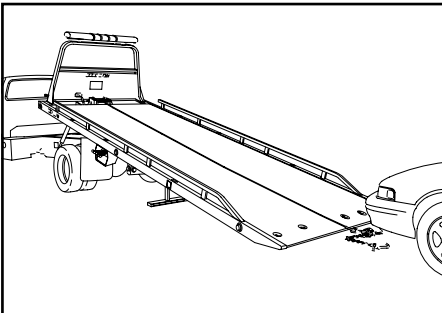
Tilting the deck too soon may cause damage to the mechanical hold down.



8. Raise the front of the deck until the rear bumper rests firmly on the ground.



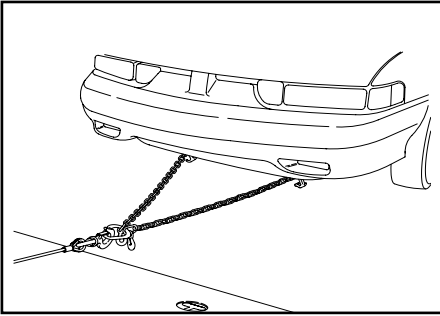
9. Slide the deck back again. Continue sliding the deck back until the approach plate makes firm contact with the ground. Make sure that the rear bumper and the approach plate are both in firm contact with the ground before loading so there is equal weight distribution between the rear bumper and the end of the deck.



10. Next, unreel enough of the wire rope/cable from the winch to make your hookup. If you are a two man operation, operate the winch control and unreel the wire rope/cable from the winch while the second man keeps the wire rope/cable taut. If you are a one man operation, you can use the remote winch free spool device. **(See Winch Operation, Sections 4.3 and 4.4)**

⚠ WARNING

Maintain a minimum of five (5) wraps of wire rope/cable on the winch drum at all times. Also maintain a uniform wrap of wire rope/cable on the drum to avoid crushing of the wire rope/cable.



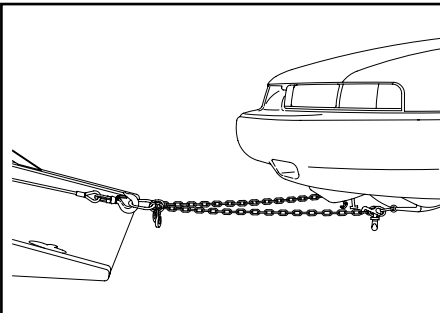
11. Attach the wire rope/cable to the equipment to be loaded. Always use V-straps or hook-up chains to attach the wire rope/cable to the equipment. **Refer to the equipment manufacturer's manual for correct tie-down attachment points.** For the best weight distribution of your load, make sure the equipment is loaded onto the deck with the heavy end forward.

⚠ CAUTION

Always use V-straps or hook-up chains. Never connect the wire rope/cable hook directly to equipment. Never hook the wire rope/cable back onto itself because damage to the wire rope/cable will occur.

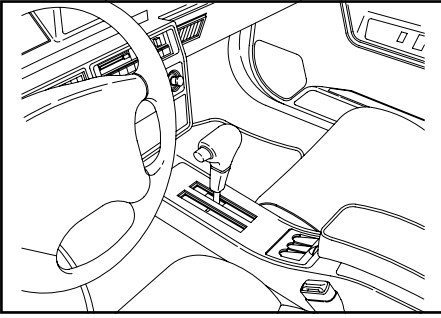
⚠ CAUTION

Always attach the wire rope/cable with the hook pointing up.



12. Re-engage the winch clutch. **(See Winch Operation, Sections 4.3 and 4.4)**
13. Slowly operate the Winch Control to remove any slack in the wire rope/cable.

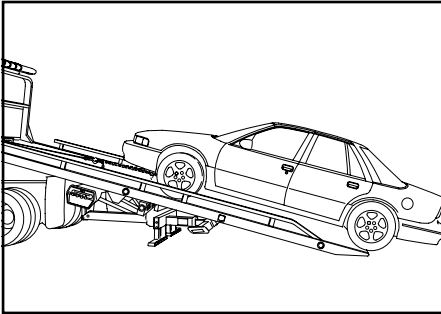
Section 4 : Operation



14. Make sure the equipment's parking brake is released and the transmission is in Neutral.

NOTICE

Properly chock the equipment's wheels to prevent it from rolling until the wire rope/cable is under tension.



15. Operate the Winch Control handle and begin winching the equipment onto the deck and into the transport position.

NOTICE

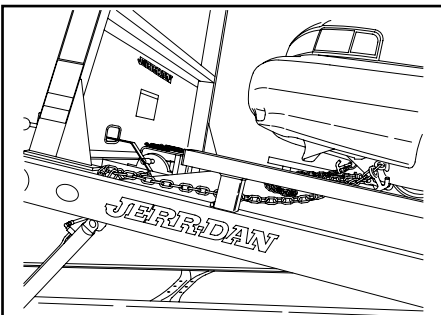
Make sure that the equipment is centered side to side.

⚠ CAUTION

Always winch the equipment onto the deck. Never drive equipment onto the deck.

⚠ CAUTION

Remain clear of the load while winching. Never walk between the winch and its load when the winch and wire rope/cable is under tension.

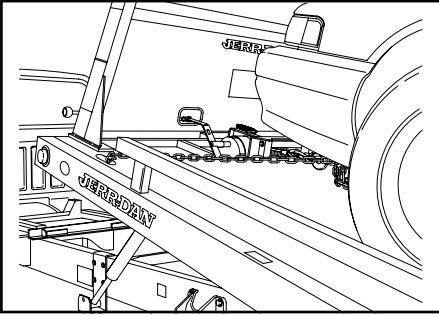


16. Secure the equipment to the front of the deck. NEVER rely on the winch to hold the load.

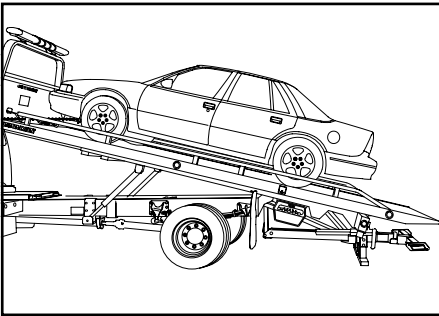
⚠ CAUTION

There is no need to access the equipment once it is loaded on the deck. NEVER walk or climb on the deck surface.

Section 4: Operation



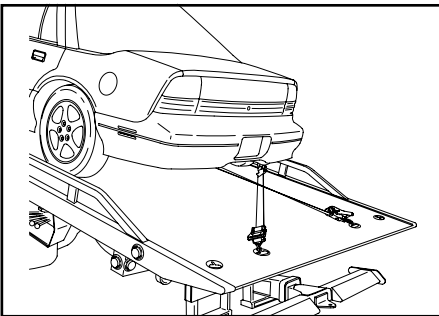
17. Operate the Winch to spool out some wire rope/cable to pre-load the tie-downs.



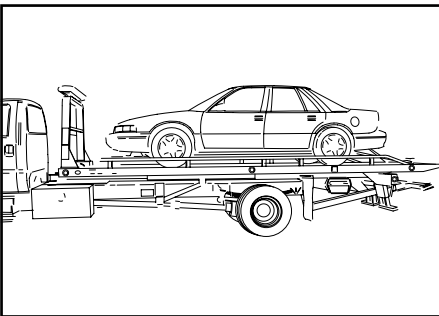
18. Slide the deck forward. Align the arrow decal pointer on the side of the deck with the deck control switch in the control panel.

NOTICE

Lowering the deck too late may cause damage to the mechanical hold down.

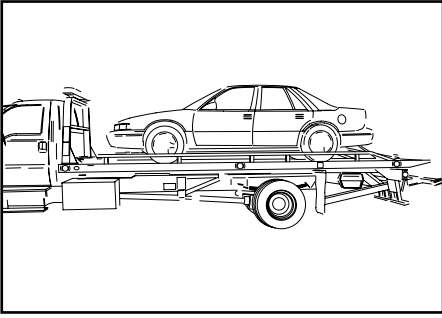


19. Secure the equipment to the rear of the deck.



20. Once the equipment is secured from movement in all directions, lower the front of the deck to the subframe.

Section 4 : Operation



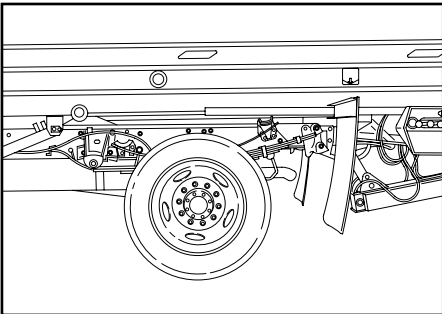
21. Slide the deck completely forward until it engages the hold downs and into the transport position.

⚠ WARNING

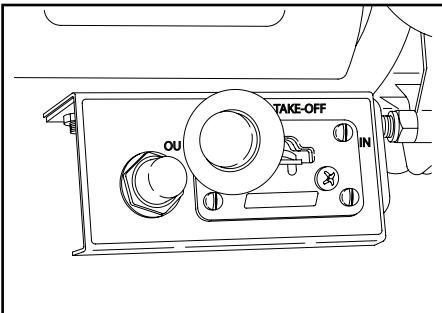
Always use approved tie downs per the equipment manufacturer's instructions. Although the winch wire rope/cable should remain attached to the equipment and taut during transport, never rely on the winch and wire rope/cable to secure the equipment to the carrier deck.

⚠ WARNING

Always refer to the Operator's Pre-Transport Checklist located on the headboard of the deck before transporting. Make sure you have followed all of the items on the list.



22. Remove the wheel chocks from the carrier's rear tires.

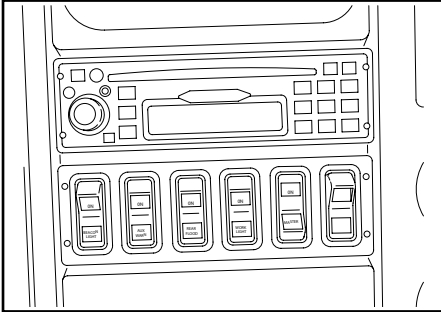


23. Disconnect the power take-off (PTO). Refer to PTO operator's manual.

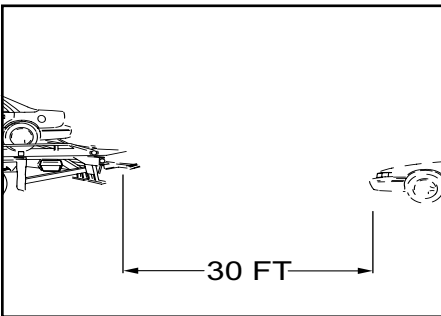
NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

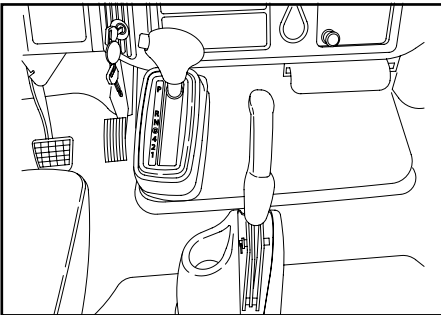
4.2 TILTING THE DECK/UNLOADING



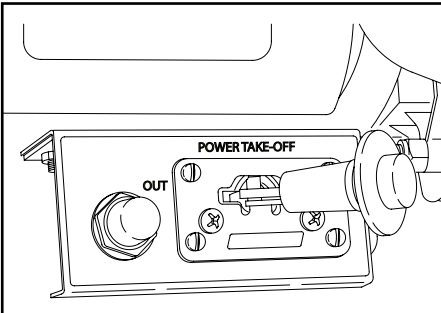
1. Turn on the body lights and any work lights, as necessary. (Switches are located on the switch panel in the dash).



2. Position the rear of the carrier allowing significant area to unload the equipment.



3. Place the carrier's transmission gear selector into Neutral or Park and set the parking brakes.



4. Engage the power take-off (PTO). Refer to PTO operator's manual.

NOTICE

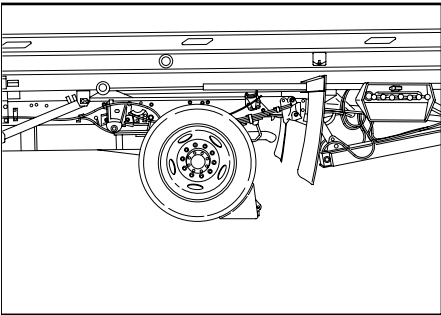
NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

Section 4 : Operation

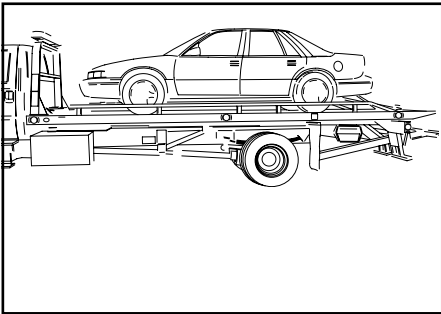
- Adjust the electronic or manual throttle control to set the engine speed to approximately 1000-1200 R.P.M. Refer to chassis operator's manual for proper operation of the auxiliary throttle. If your chassis is equipped with the remote throttle up option from the chassis manufacturer there is no need to set the throttle up control in the cab because the throttle will automatically increase when any of the carrier hydraulic functions are operated.

! CAUTION

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



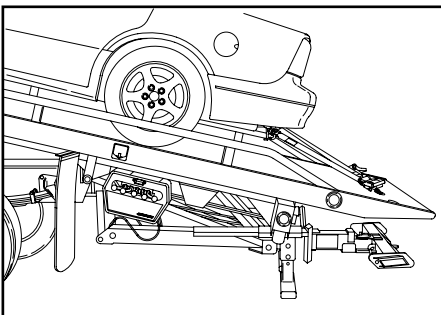
- Block the carrier's rear tires with wheel chocks to prevent accidental carrier movement. Check the area around the carrier and the equipment to be loaded for obstructions or hazards.



- Slide the deck back. Align the arrow decal pointer on the side of the deck with the deck control switch in the control panel.

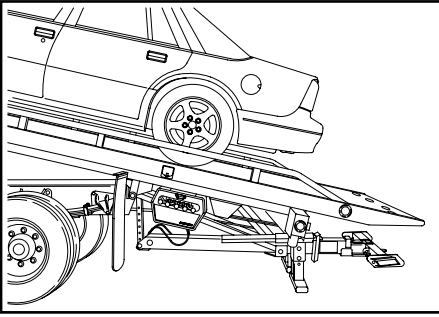
NOTICE

Tilting the deck too soon may cause damage to the mechanical hold down.



- Raise the front of the deck until the rear bumper rests firmly on the ground.

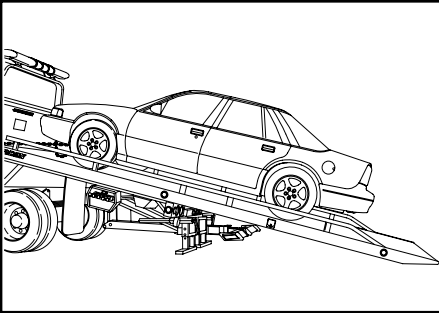
Section 4: Operation



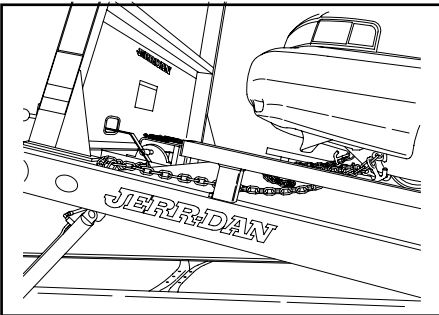
9. Remove the tie-downs from the equipment at the rear of the deck.

! CAUTION

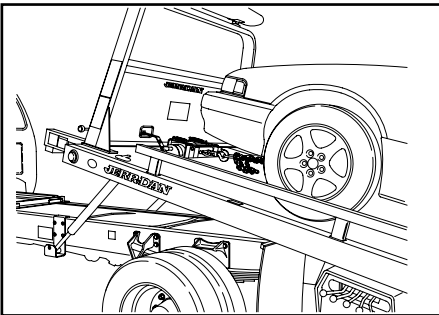
NEVER walk or climb on the deck surface.



10. Slide the deck back. Slide the deck back until the approach plate makes firm contact with the ground. Make sure that the rear bumper and the approach plate are both in firm contact with the ground before loading so there is equal weight distribution between the rear bumper and the end of the deck.

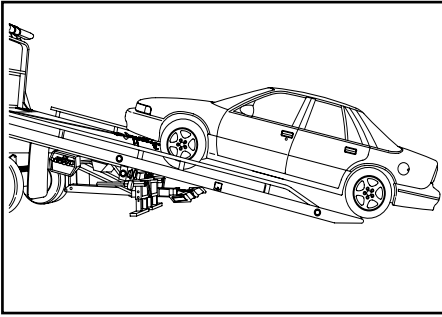


11. Slowly operate the Winch Control handle to take-up any slack in the wire rope/cable to allow the front tie-downs to become slack and loose.



12. Remove the tie-downs from the equipment at the front of the deck.

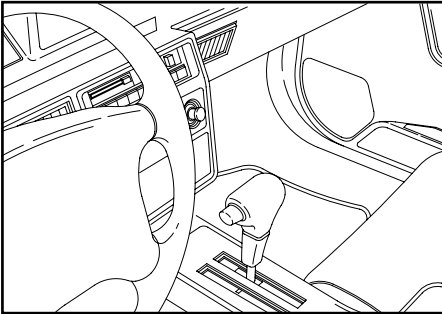
Section 4 : Operation



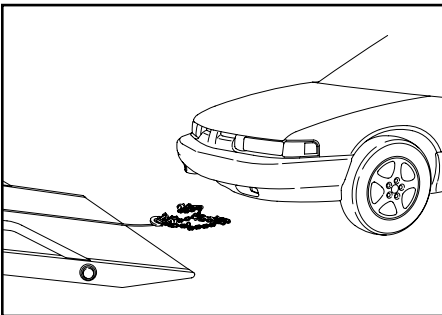
13. Operate the Winch Control handle and start unreeling the wire rope/cable from the winch. Unreel enough of the wire rope/cable from the winch to allow the equipment to roll/slide off of the carrier deck.

WARNING

Maintain a minimum of five (5) wraps of wire rope/cable on the winch drum at all times. Also maintain a uniform wrap of wire rope/cable on the drum to avoid crushing of the wire rope/cable.

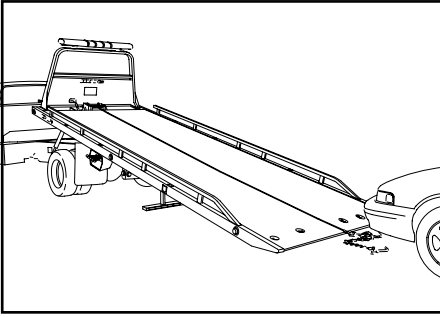


14. Set the equipment's parking brake and put the transmission into Park (if equipped).

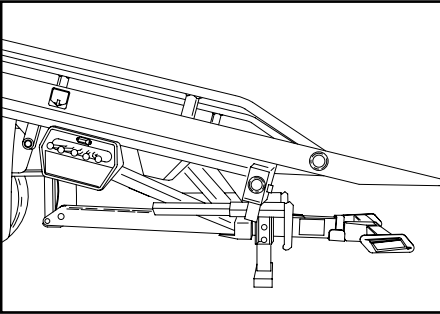


15. Remove the hook-up chains and wire rope/cable.

Section 4: Operation



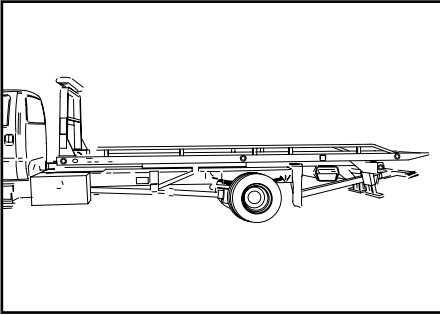
16. Spool the wire rope/cable back onto the winch drum. Keep tension on the wire rope/cable so that the wire wraps properly on the winch spool to avoid birdnesting.



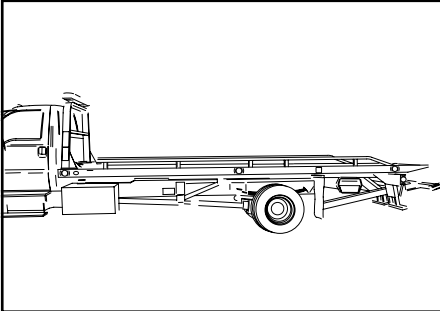
17. Slide the deck forward. Align the arrow decal pointer on the side of the deck with the deck control switch in the control station.

NOTICE

Lowering the deck too late may cause damage to the mechanical hold down.

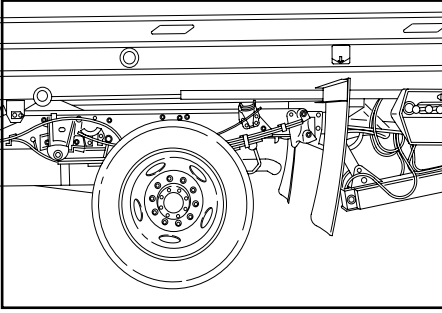


18. Lower the front of the deck to the subframe.

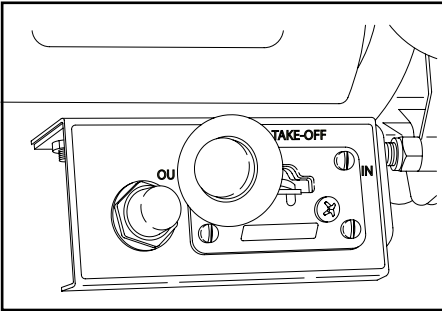


19. Slide the deck completely forward until it engages the hold downs and into the transport position.

Section 4 : Operation



20. Remove the wheel chocks from the carrier's rear tires.

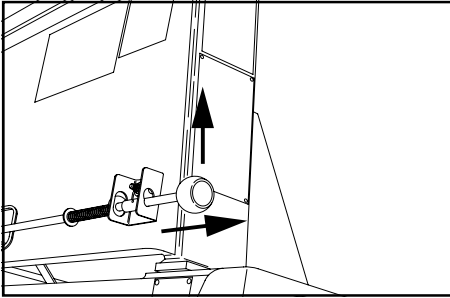


21. Disconnect the power take-off (PTO). Refer to PTO operator's manual.

NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

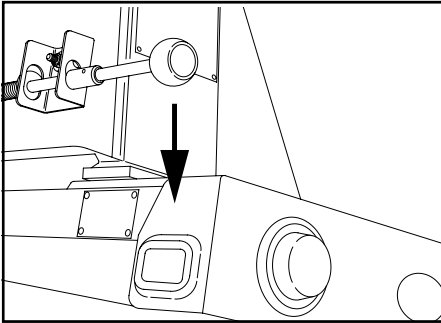
4.3 WINCH OPERATION - MANUAL FREE-SPOOL



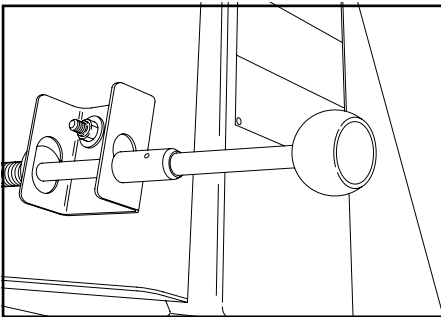
1. To disengage the winch clutch, raise the Winch Control handle to run the winch in the reverse (reel out) direction until the load is off the wire rope/cable. Raise and lift the free spool knob and pull it toward you.

⚠ WARNING

Never move the free spool lever while the wire rope/cable is under load.



2. Then lower the knob and release.
3. Look to make sure that the free spool knob is locked in the free spool position. The winch clutch is now disengaged and the wire rope/cable may be pulled off by hand.



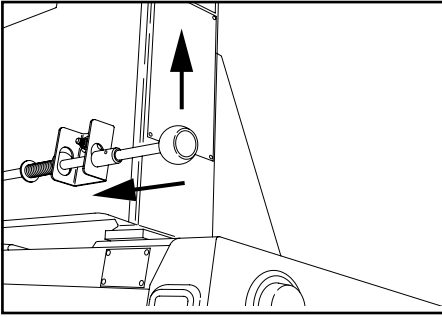
⚠ WARNING

Maintain a minimum of five (5) wraps of wire rope/cable on the winch drum at all times. Also maintain a uniform wrap of wire rope/cable on the drum to avoid crushing of the wire rope/cable.

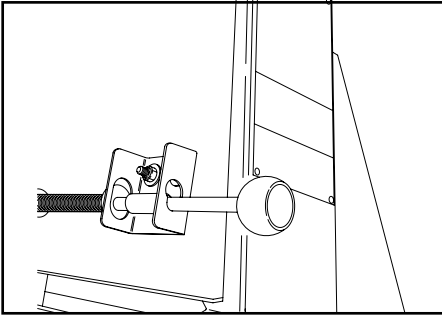
⚠ WARNING

Always wear gloves when handling wire rope/cable.

Section 4 : Operation



1. To re-engage the winch clutch, simply raise and lift the free spool knob and release. The free spool knob should spring back into the engaged position. Raise the Winch Control handle to run the winch in reverse (reel out) direction until the free spool snaps fully in position or until the winch drum starts turning.

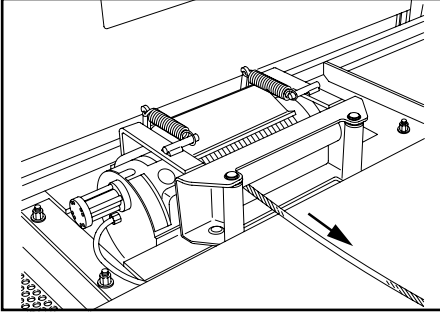


2. Run the winch in reverse (reel out) direction until the winch drum starts turning. After the winch clutch is fully engaged, the winch is ready for winching.

⚠ CAUTION

Do not attempt to pull a load unless the winch free spool is completely engaged.

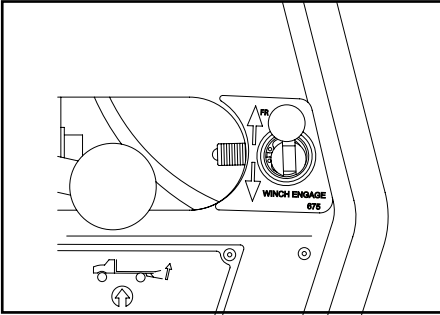
4.4 WINCH OPERATION - AIR REMOTE FREE-SPOOL



1. To disengage the winch clutch, run the winch in the reverse (reel out) direction until the load is off the wire rope/cable.

⚠ WARNING

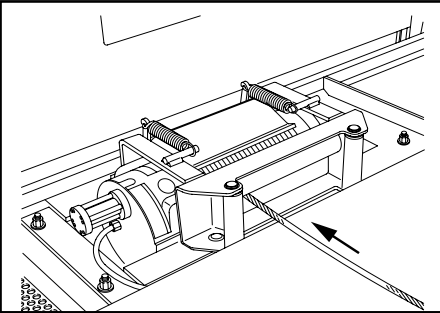
Never move the free spool lever while the wire rope/cable is under load.



2. Move the free spool lever in the control station up into the free spool position.
3. Run the winch in the forward (reel in) direction to disengage the clutch. The winch clutch is now disengaged and the wire rope/cable may be pulled out by hand.

⚠ WARNING

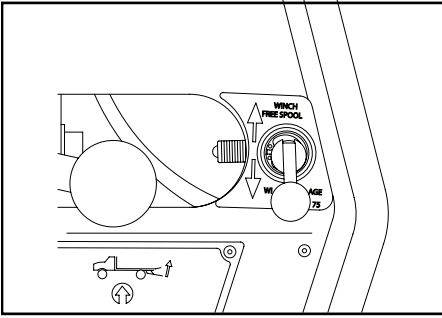
Maintain a minimum of five (5) wraps of wire rope/cable on the winch drum at all times. Also maintain a uniform wrap of wire rope/cable on the drum to avoid crushing of the wire rope/cable.



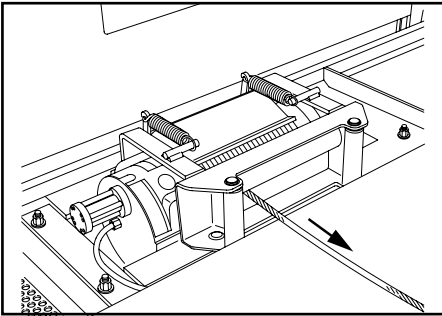
⚠ WARNING

Always wear gloves when handling wire rope/cable.

Section 4 : Operation



1. To re-engage the winch clutch simply move the free spool lever in the control station down into the engage position



2. Run the winch in reverse (reel out) direction until the winch drum starts turning. After the winch clutch is fully engaged, the winch is ready for winching.

⚠ CAUTION

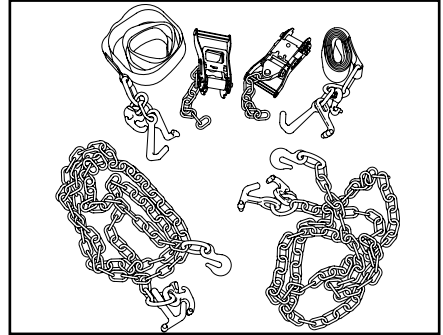
Do not attempt to pull a load unless the winch free spool is completely engaged.

4.5 SECURING VEHICLE

Each Standard Duty Carrier is supplied with a set of high strength polyester web tie-down strap and chain assemblies. They are to be used to secure the vehicle to the carrier deck. **NEVER TOW A VEHICLE WITHOUT TIE-DOWNS INSTALLED.** For specialty equipment other than vehicles, the user assumes all responsibility for choosing and providing the proper tie-down devices.

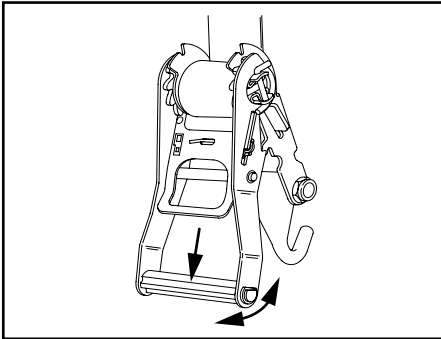
The tie-down strap and chain assembly is comprised of the following components:

1. (2) RTJ Hook Cluster Chains
2. (2) RTJ Hook Cluster Straps
3. (2) Ratchet Spool Mechanisms



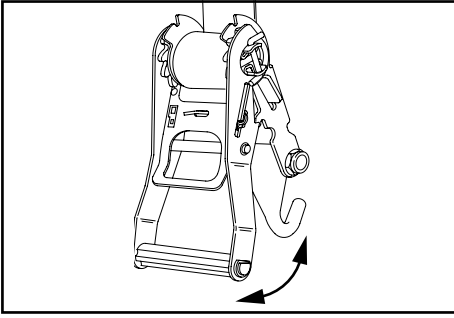
Follow these steps to properly install the tie-down strap and chain assemblies:

USING THE RATCHET SPOOL MECHANISM



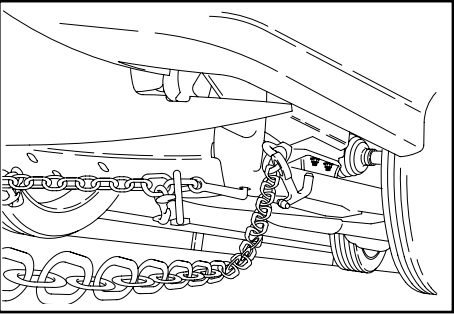
1. First set the spool into “free spool”. This is done by pulling the lock bar out and swinging the handle upward until it rests in the free spool notch and then simply pulling out the amount of strap required to fit over the tire.
2. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.

Section 4 : Operation

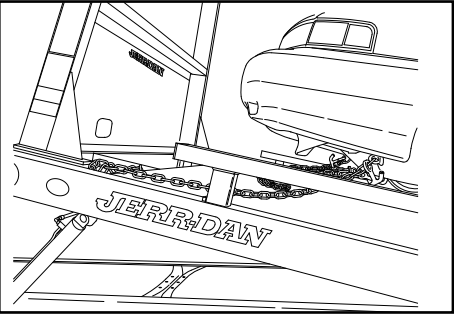


3. To release the ratchet, simply pull on the locking bar, disengaging the teeth and raise the handle to the “free spool” position.

INSTALLING THE FRONT TIE-DOWN CHAINS

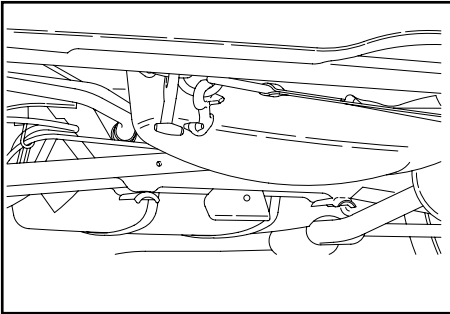


1. Using the RTJ hook cluster chains, insert the appropriate hook into the vehicle frame tie down hole or slot. **Refer to the AAA or vehicle manufacturer’s towing manual for the correct attachment points.**

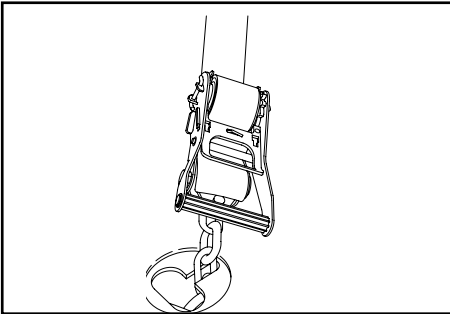


2. Insert the other end of the chain into the key slot in the deck. Adjust the chain so that it is as tight as possible.
3. Repeat for the other side.

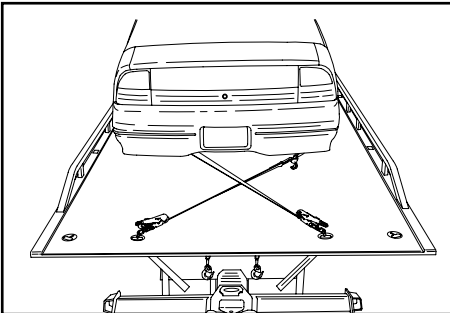
INSTALLING THE REAR TIE DOWN STRAPS



1. Using the RTJ hook cluster straps and ratchet spool mechanisms, insert the appropriate hook into the vehicle frame tie down hole or slot. **Refer to the AAA or vehicle manufacturer's towing manual for the correct attachment points.**



2. Insert the chain on the end of the ratchet into the key slot in the deck. Adjust the chain so that it is as tight as possible. Using the ratchet, tighten the tie down strap.



3. Repeat for the other side.

NOTICE

The rear Tie-Downs should be crossed from right to left and left to right whenever possible.

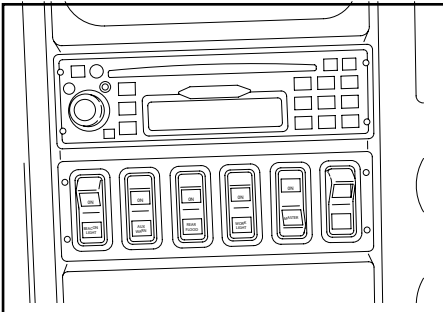
Section 4 : Operation

4.6 “IRL” WHEEL LIFT OPERATION

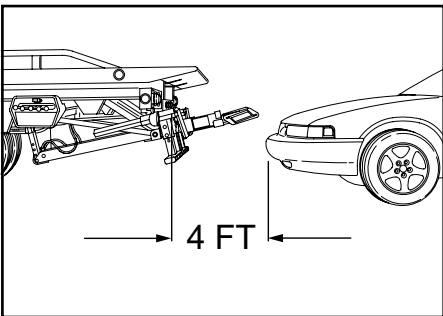
The optional wheel lift allows a second vehicle to be towed damage free on its own suspension by utilizing a wheel grid. The wheel lift cross bar may also be used as a conventional tow bar for badly damaged or heavier vehicles. **Refer to the AAA or vehicle manufacturer’s towing manual for the correct towing procedures and attachment points.**

⚠ WARNING

Because of the additional boom extension and load point of the towed vehicle, the wheel lift places more load on the rear axle and unloads the front axle more than a conventional tow bar. Overloading the wheel lift may result in unsafe steering and braking conditions and may damage truck frame. Never use the wheel lift without a vehicle on the deck. Single vehicle recovery must utilize the deck only.

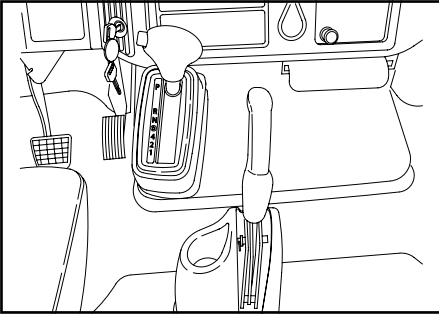


1. Turn on the body lights and any work lights, as necessary. (Switches are located on the switch panel in the dash).

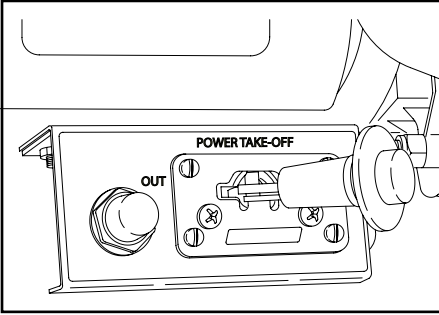


2. Position the rear of the carrier about 4 feet from the vehicle you intend to load. Make sure you are in line with the vehicle to tow.

Section 4: Operation



3. Place the carrier's transmission gear selector into Neutral or Park and set the parking brakes.



4. Engage the power take-off (PTO). Refer to PTO operator's manual.

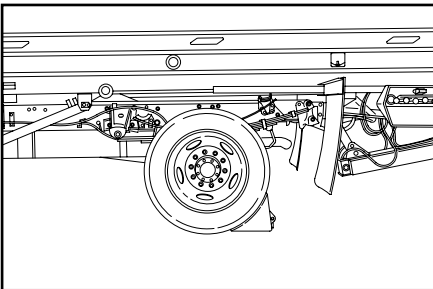
NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

5. Adjust the electronic or manual throttle control to set the engine speed to approximately 1000-1200 R.P.M. Refer to chassis operator's manual for proper operation of the auxiliary throttle. If your chassis is equipped with the remote throttle up option from the chassis manufacturer there is no need to set the throttle up control in the cab because the throttle will automatically increase when any of the carrier hydraulic functions are operated.

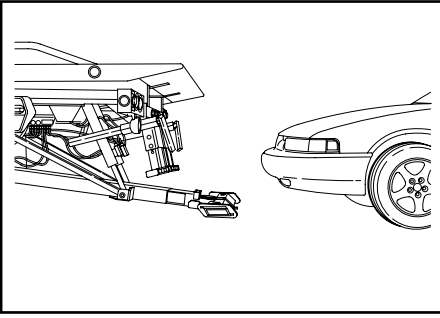
NOTICE

Never exceed 1200 R.P.M. When your ready to travel, reset the engine idle to normal.

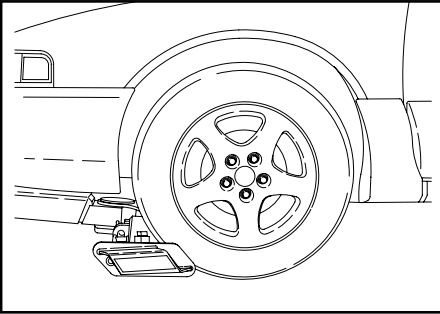


6. Block the carrier's rear tires with wheel chocks to prevent accidental carrier movement. Check the area around the carrier and the equipment to be loaded for obstructions or hazards.

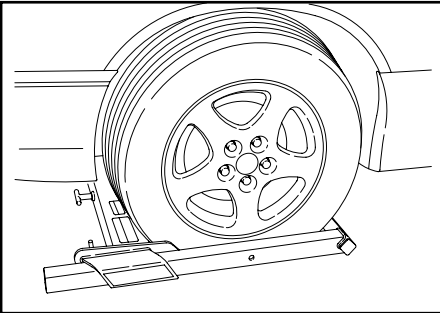
Section 4 : Operation



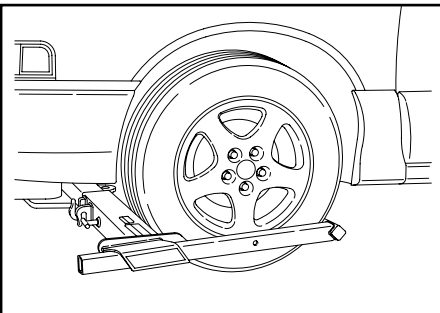
7. Lower the Tow Option Raise/Lower Control handle to lower the wheel lift to about 1-1/2" from the ground. Make sure that it will clear the underside of the vehicle when the wheel lift boom is extended.



8. Raise the Tow Option Extend/Retract Control handle to extend the wheel lift under the vehicle. Make sure all undercarriage parts are cleared and that the ramp portion of the of grid is in contact with the tires.

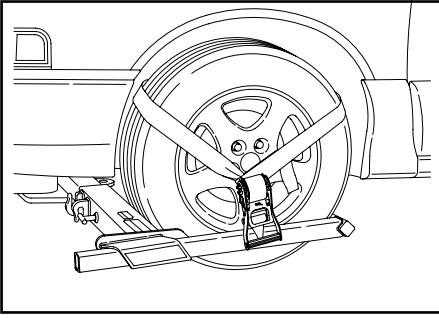


9. Load the vehicle onto the wheel lift. (**See Wheel Grid Operation, Sections 4.8, 4.9 and 4.10**)

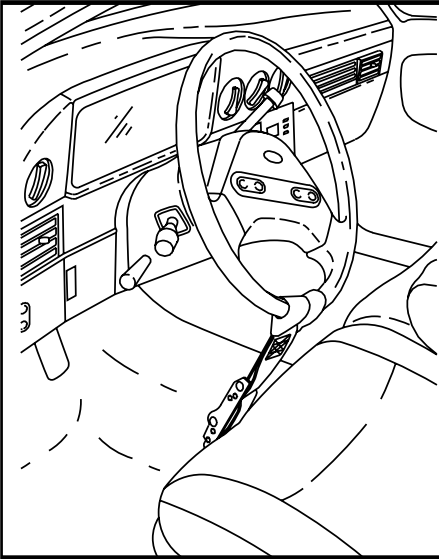


10. Raise the Tow Option Raise/Lower Control handle to raise the wheel lift until the vehicle's tires have cleared the ground.

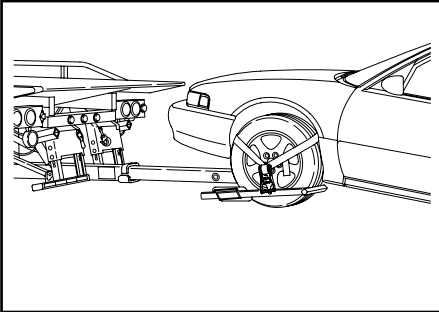
Section 4: Operation



11. Install tie-down straps to secure the wheels in the grid. (See **Tie-Down Straps Installation, Sections 4.11 4.12 and 4.13**)

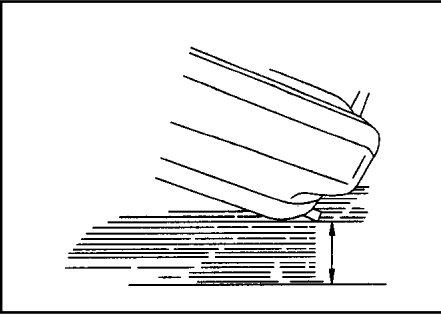


12. Place the vehicle's transmission in Neutral and release the parking brake. Make sure that the wheels are straight and install a steering wheel strap. It is recommended that the steering wheel be secured by a steering wheel strap for any tow.

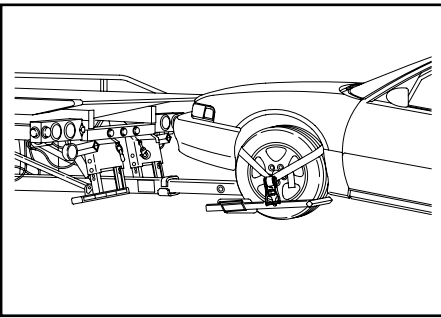


13. Raise the Tow Option Raise/Lower Control handle to raise the wheel lift until the vehicle is in the final towing position.

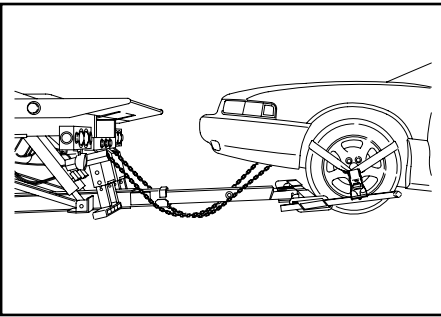
Section 4 : Operation



14. Make sure that the far end of the vehicle has enough ground clearance. It is possible to set the rear of a front lifted vehicle completely on the ground. Take irregular road surfaces into consideration. Make sure that there are no under body components of the vehicle in contact with the L-Arms or wheel grid device. Readjust if necessary.



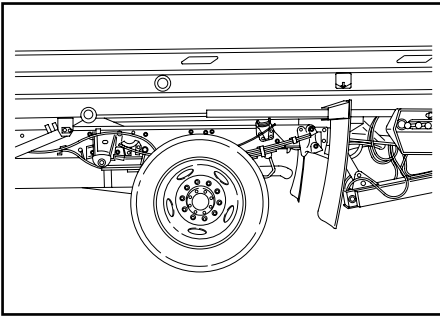
15. Lower the Tow Option Extend/Retract Control handle to retract the wheel lift until the vehicle is about 3 to 4 feet from the back of the truck. Leave enough room to maneuver around corners without corner binding or causing contact between the (2) vehicles. Be sure that the boom is extended adequately to ensure unobstructed crossbar pivoting.



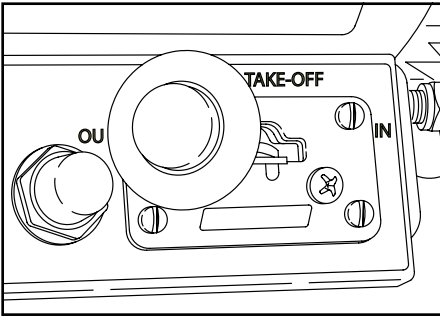
16. Be sure to maintain sufficient clearances with the bottom of the vehicle.

17. Attach the safety chains and magnetic towing lights. The safety chains are located in the chain boxes at the rear of the recovery vehicle. **Safety chains must be crossed from one side of the carrier vehicle to the opposite side of the vehicle.**

Section 4: Operation



18. Remove the wheel chocks from the carrier's rear tires.



19. Disconnect the power take-off (PTO). Refer to PTO operator's manual.

NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

20. Use the reverse order for unloading.

⚠ WARNING

Properly secure the vehicle to the wheel grid using tie-down straps. Tie-down straps should be tightened periodically during the tow as the tires settle into the grid from towing.

⚠ WARNING

Properly secure the vehicle using safety chains from the vehicle to the carrier subframe.

⚠ WARNING

The wheel lift is designed to transport a second vehicle. Never tow a vehicle on the wheel lift without a equipment on the deck. Unsafe braking and steering conditions may result.

Section 4 : Operation

⚠ CAUTION

After unloading the vehicle, fully retract the wheel lift boom before operating any deck functions.

⚠ CAUTION

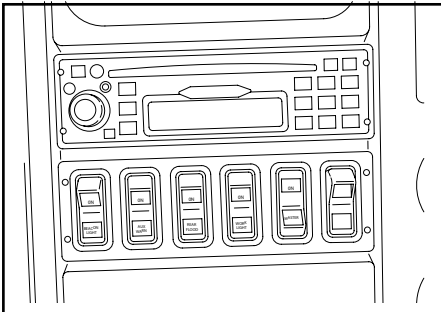
Always store the L-Arms in the storage location provided when not in use. Do not store the L-Arms in the wheel grids.

4.7 “ZOD” (ZERO DEGREE) WHEEL LIFT OPERATION

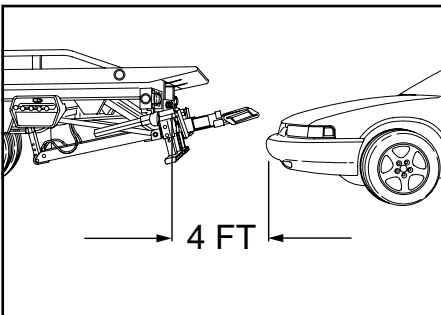
The optional wheel lift allows a second vehicle to be towed damage free on its own suspension by utilizing a wheel grid. The wheel lift cross bar may also be used as a conventional tow bar for badly damaged or heavier vehicles. **Refer to the AAA or vehicle manufacturer’s towing manual for the correct towing procedures and attachment points.**

WARNING

Because of the additional boom extension and load point of the towed vehicle, the wheel lift places more load on the rear axle and unloads the front axle more than a conventional tow bar. Overloading the wheel lift may result in unsafe steering and braking conditions and may damage truck frame. Never use the wheel lift without a vehicle on the deck. Single vehicle recovery must utilize the deck only.

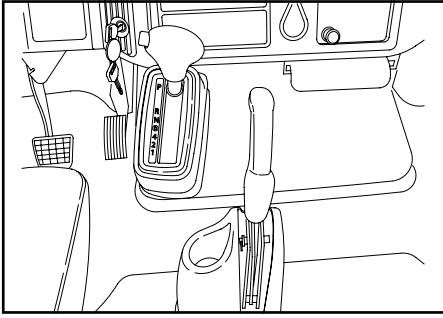


1. Turn on the body lights and any work lights, as necessary. (Switches are located on the switch panel in the dash).

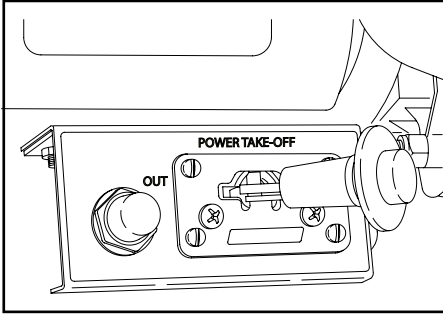


2. Position the rear of the carrier about 4 feet from the vehicle you intend to load. Make sure you are in line with the vehicle to tow.

Section 4 : Operation



3. Place the carrier's transmission gear selector into Neutral or Park and set the parking brakes.



4. Engage the power take-off (PTO). Refer to PTO operator's manual.

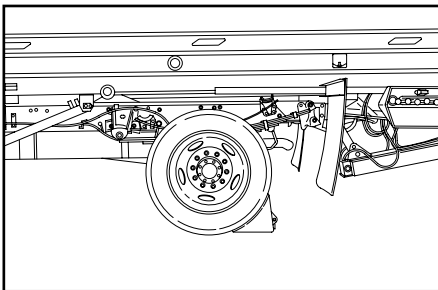
NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

5. Adjust the electronic or manual throttle control to set the engine speed to approximately 1000-1200 R.P.M. Refer to chassis operator's manual for proper operation of the auxiliary throttle. If your chassis is equipped with the remote throttle up option from the chassis manufacturer there is no need to set the throttle up control in the cab because the throttle will automatically increase when any of the carrier hydraulic functions are operated.

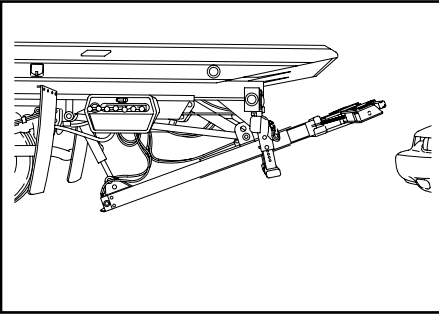
NOTICE

Never exceed 1200 R.P.M. When your ready to travel, reset the engine idle to normal.

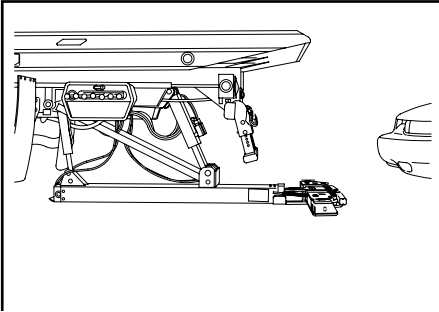


6. Block the carrier's rear tires with wheel chocks to prevent accidental carrier movement. Check the area around the carrier and the equipment to be loaded for obstructions or hazards.

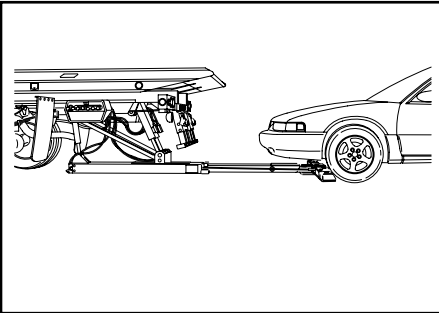
Section 4: Operation



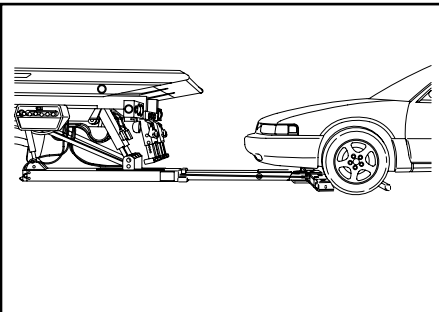
7. Lower the Tow Option Raise/Lower Control handle to lower the wheel lift to about 1-1/2" from the ground. Make sure that it will clear the underside of the vehicle when the wheel lift boom is extended.



8. Lower the Tow Option Raise/Lower Control handle to lower the back end of the wheel lift to about 1-1/2" from the ground so that it will clear the underside of the vehicle when the wheel lift boom is extended.

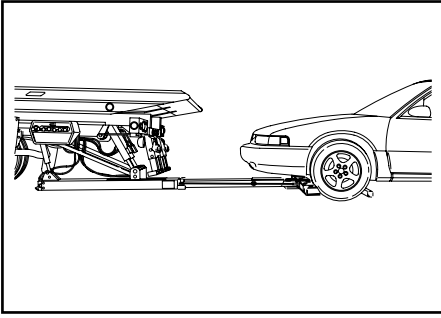


9. Raise the Tow Option Extend/Retract Control handle to extend the wheel lift under the vehicle. Make sure all undercarriage parts are cleared and that the ramp portion of the of grid is in contact with the tires.

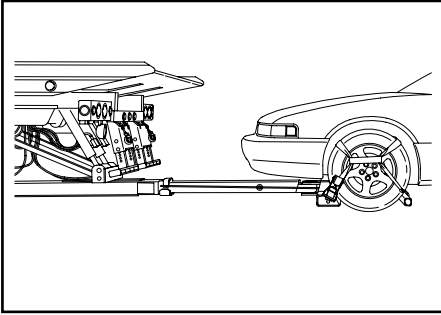


10. Load the vehicle onto the wheel lift. (See **Wheel Grid Operation, Sections 4.8, 4.9 and 4.10**)

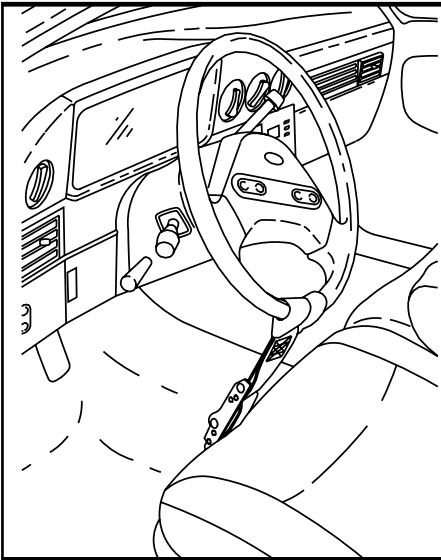
Section 4 : Operation



11. Raise the Tow Option Raise/Lower Control handle to raise the wheel lift until the vehicle's tires have cleared the ground.

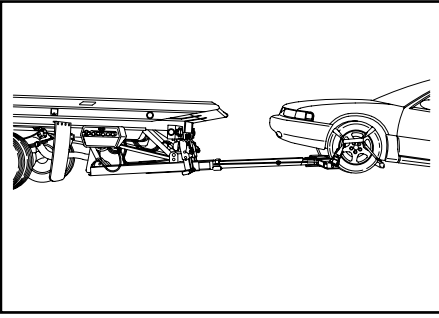


12. Install tie-down straps to secure the wheels in the grid. (See **Tie-Down Straps Installation, Sections 4.11 4.12 and 4.13**)

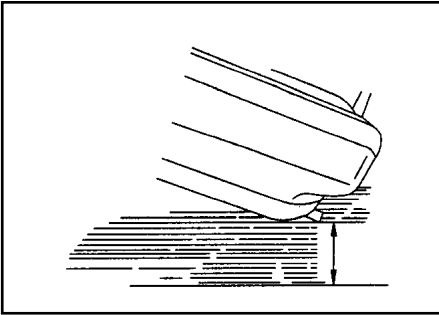


13. Place the vehicle's transmission in Neutral and release the parking brake. Make sure that the wheels are straight and install a steering wheel strap. It is recommended that the steering wheel be secured by a steering wheel strap for any tow.

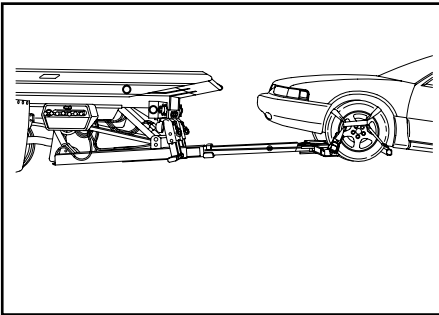
Section 4: Operation



14. Raise the Tow Option Raise/Lower Control handle to raise the wheel lift until the vehicle is in the final towing position.

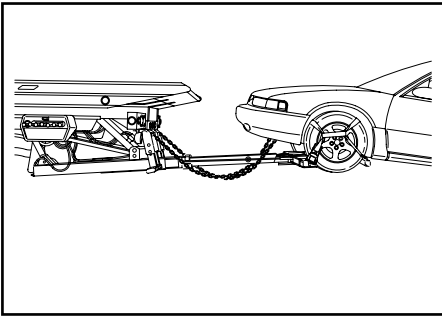


15. Make sure that the far end of the vehicle has enough ground clearance. It is possible to set the rear of a front lifted vehicle completely on the ground. Take irregular road surfaces into consideration. Make sure that there are no under body components of the vehicle in contact with the L-Arms or wheel grid device. Readjust if necessary.



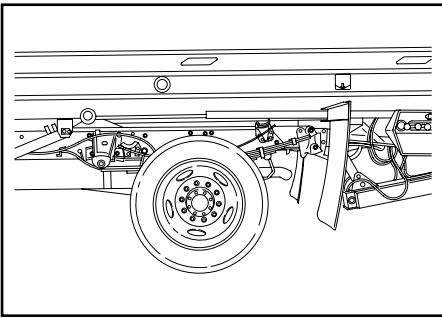
16. Lower the Tow Option Extend/Retract Control handle to retract the wheel lift until the vehicle is about 3 to 4 feet from the back of the truck. Leave enough room to maneuver around corners without corner binding or causing contact between the (2) vehicles. Be sure that the boom is extended adequately to ensure unobstructed crossbar pivoting.

Section 4 : Operation

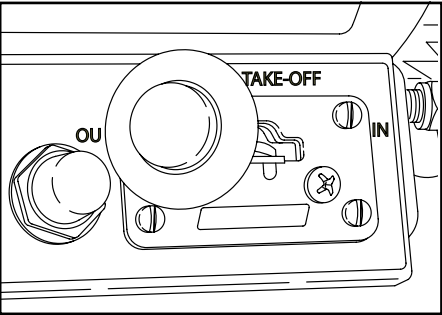


17. Be sure to maintain sufficient clearances with the bottom of the vehicle.

18. Attach the safety chains and magnetic towing lights. The safety chains are located in the chain boxes at the rear of the recovery vehicle. **Safety chains must be crossed from one side of the carrier vehicle to the opposite side of the vehicle.**



19. Remove the wheel chocks from the carrier's rear tires.



20. Disconnect the power take-off (PTO). Refer to PTO operator's manual.

NOTICE

NEVER TRAVEL WITH THE POWER TAKE OFF CONTROL ENGAGED. This could result in damage to the PTO unit and the recovery vehicle's transmission.

21. Use the reverse order for unloading.

⚠ WARNING

Properly secure the vehicle to the wheel grid using tie-down straps. Tie-down straps should be tightened periodically during the tow as the tires settle into the grid from towing.

⚠ WARNING

Properly secure the vehicle using safety chains from the vehicle to the carrier subframe.

⚠ WARNING

The wheel lift is designed to transport a second vehicle. Never tow a vehicle on the wheel lift without a equipment on the deck. Unsafe braking and steering conditions may result.

⚠ CAUTION

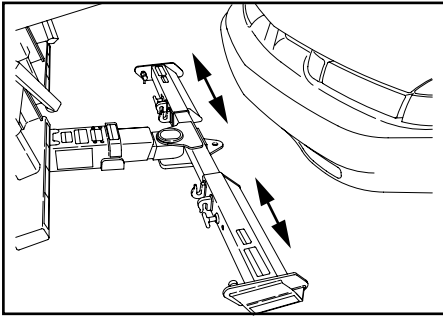
After unloading the vehicle, fully retract the wheel lift boom before operating any deck functions.

⚠ CAUTION

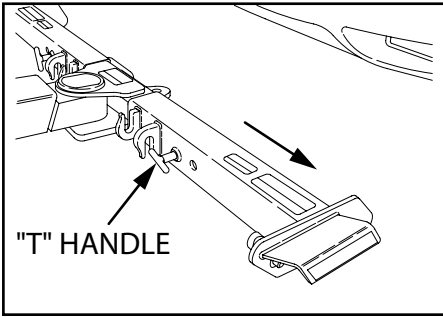
Always store the L-Arms in the storage location provided when not in use. Do not store the L-Arms in the wheel grids.

Section 4 : Operation

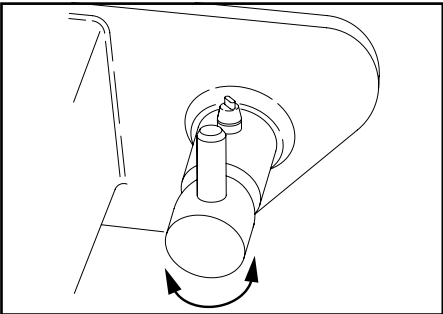
4.8 "L" ARM GRID OPERATION



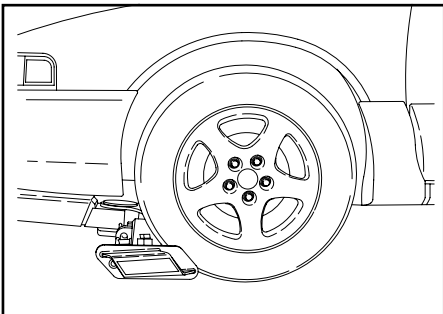
1. Set the grid width as required for the casualty vehicle to be towed.



2. To set the grid width, loosen the "T" handles on the front of the grid arms and pull out. Be sure both grids are as close to the center of the boom as possible, and wide enough to allow the L-Arms to slide into their channels. Tighten the "T" handles to secure the grids.



3. Retract the "Cam" handle locking pin on the grid by turning it 180°. It should remain in the open position.

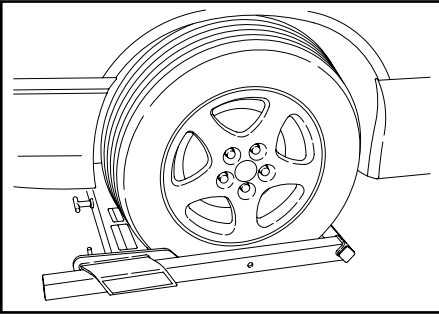


4. Extend the lift arm under the casualty vehicle. Make sure that all under carriage parts are cleared and that the front portion of the grid is in contact with both tires. Lower the grid fully to the ground.

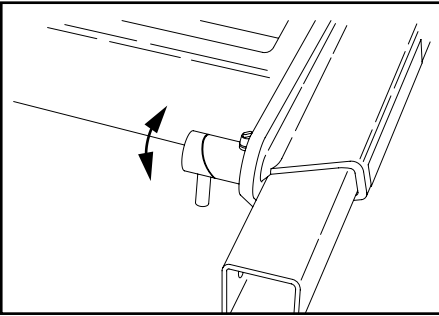
NOTICE

There is no reason for the operator to get under the casualty vehicle.

Section 4: Operation



5. Visually inspect the tire to grid contact before proceeding.



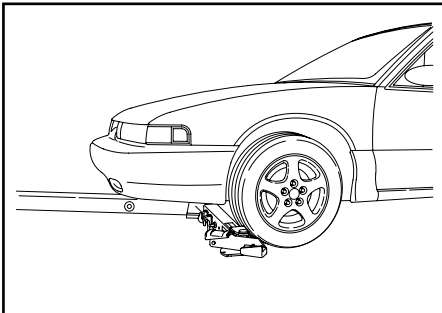
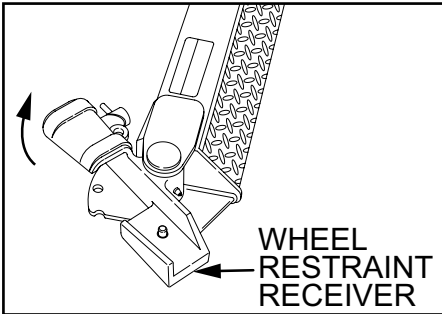
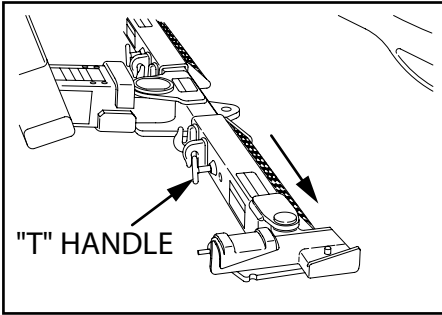
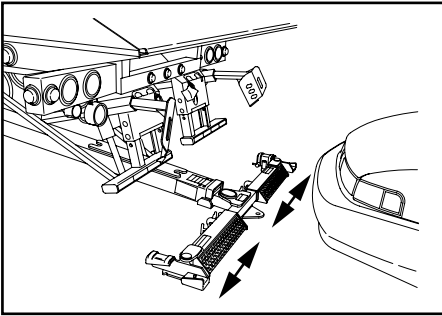
6. Take the L-Arms and slide them into the channels on the side of the grid. Make sure that they are resting snugly against the tires, with the L-Arms in close contact with the tires. Then reset the locking pin by turning the “Cam” handle back to the original position. The tires are now confined front and back.

NOTICE

Be sure that the pin seats in one of the holes.

Section 4 : Operation

4.9 "T37" PIVOTING GRID OPERATION

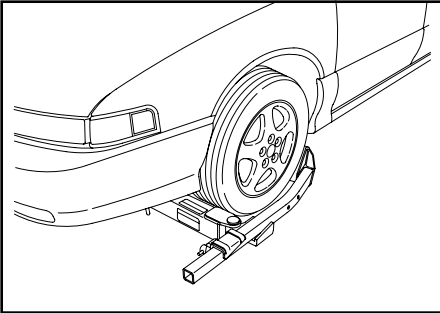
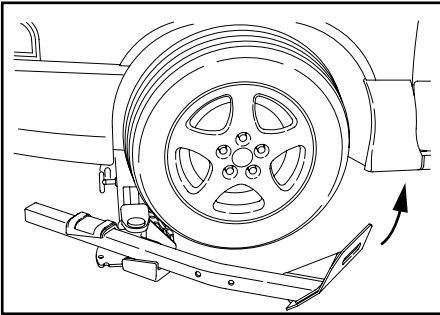
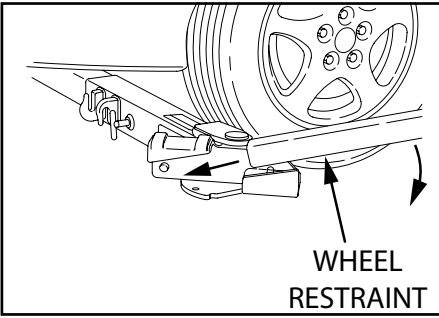


1. Set the grid width as required for the casualty vehicle to be towed.
2. To set the grid width, loosen the "T" handles on the front of the grid arms and pull out. Be sure both grids are as close to the center of the boom as possible, and wide enough to allow the wheel restraints to fit into their receivers. Tighten the "T" handles to secure the grids.
3. Pivot the wheel restraint receivers on the end of the grid arms outward by lifting up on the receiver. Rotate the "Cam" handles on the receivers 180° to the open position for easier placement of the restraint into the receiver.
4. Extend the lift arm under the casualty vehicle. Make sure that all under carriage parts are cleared and that the front portion of the grid is in contact with both tires. Lower the grid fully to the ground.

NOTICE

There is no reason for the operator to get under the casualty vehicle.

Section 4: Operation



5. Visually inspect the tire to grid contact before proceeding.
6. Take the L-Arms and slide them into the channels on the side of the grid. Make sure that they are resting snugly against the tires, with the L-Arms in close contact with the tires. Then reset the locking pin by turning the “Cam” handle back to the original position. **Be sure that the pin seats in one of the holes.** The tires are now confined front and back.

NOTICE

Be sure that the pin seats in one of the holes.

7. Pivot the receivers and wheel restraints in line with the tires. Make any adjustments to the wheel restraints making sure that you clear body and undercarriage components.

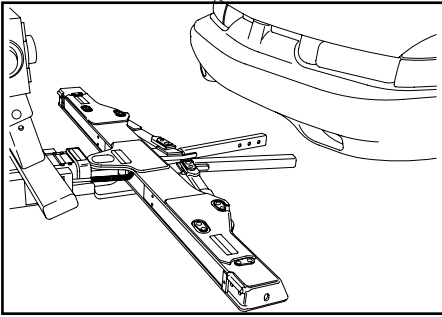
NOTICE

Be sure that the holes in the bottom of the restraints lock over the retaining pin on the receivers.

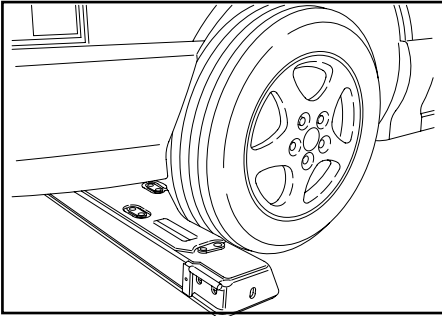
8. Rotate the “Cam” handles back to their original positions making sure that they fully retract to the closed position. The tires are confined front and back. Readjust the wheel restraints to insure that they are resting snugly against the tires.

Section 4 : Operation

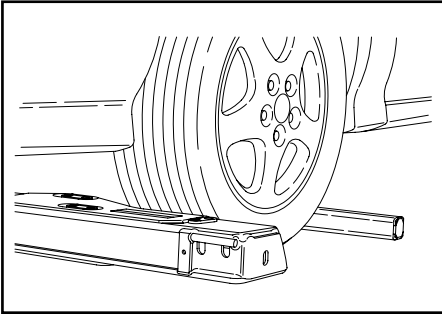
4.10 HYDRAULIC GRID OPERATION



1. Lower the grid arms open/close control handle to unfold and open the arms for loading.



2. Extend the lift arm under the casualty vehicle being sure that all under carriage parts are cleared and that the front portion of the grid is in contact with both tires. Lower the grid fully to the ground.



3. Visually inspect the tire to grid contact before proceeding.
4. Lower the grid arms open/close control handle again to fully close the arms around the casualty vehicle's tires.

NOTICE

There is no reason for the operator to get under the casualty vehicle.

NOTICE

Make sure that the arm is fully closed and in its over-center, locked, position..

4.11 TIE-DOWN STRAPS - L-ARM GRID

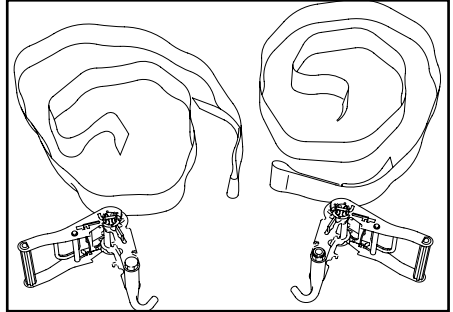
The L-Arm grid is supplied with a set of high-strength polyester web tie-down straps. They are to be used to secure wheels of the towed vehicle to the wheel lift grid.

⚠ WARNING

Never tow a vehicle without the tie-down straps installed.

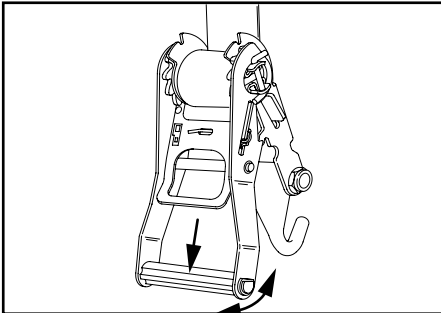
The tie-down strap assembly is comprised of 2 basic components:

1. (2) The Strap/Hook Assemblies
2. (2) The Ratchet Spool Mechanisms

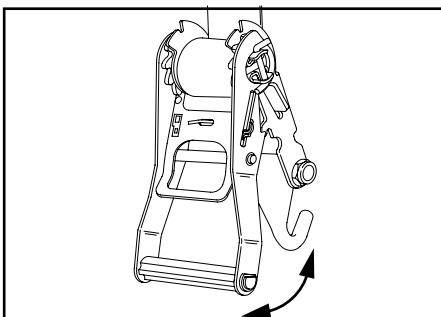


Follow these steps to properly install the tie-down straps:

USING THE RATCHET SPOOL MECHANISM



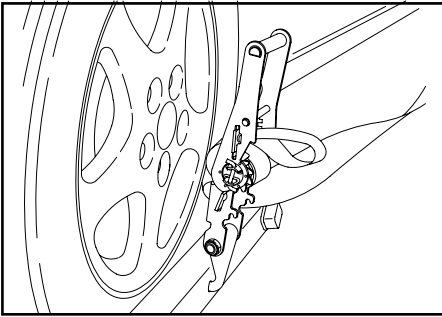
1. First set the spool into “free spool”. This is done by pulling the lock bar out and swinging the handle upward until it rests in the free spool notch and then simply pulling out the amount of strap required to fit over the tire.



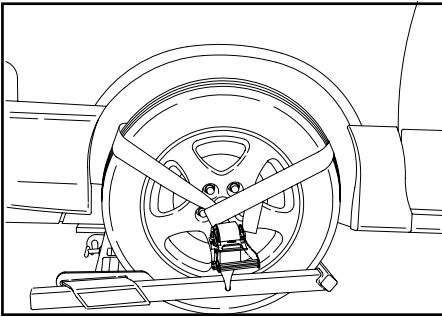
2. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take-up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.

3. To release the ratchet, simply pull on the locking bar, disengaging the teeth and raise the handle to the “free spool” position.

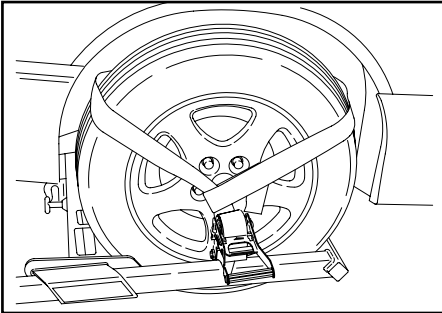
INSTALLING THE TIE DOWN STRAPS



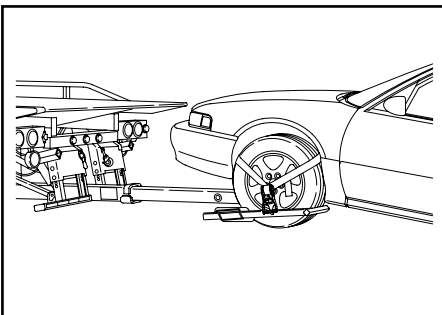
1. With the vehicle lifted just barely off the ground, attach the strap to the L-Arm. Be sure the hook on the ratchet is securely seated in the L-Arm.



2. Set the ratchet spool in "free spool" position and pull the webbed strap out and form a loop which will wrap around the tire. Be sure the loop is over a minimum of 1/3 of the tire.



3. Take up the slack in the strap by ratcheting the take-up spool arm. Continue until the tires show some compression. Repeat for other side.
4. Raise the wheel grid to the towing position.



NOTICE

Re-tighten the ratchet periodically as the tire settles in grid from towing.

NOTICE

Never tow a vehicle without tire tie-down straps and safety chains installed.

4.12 TIE-DOWN STRAPS - "T37" GRID

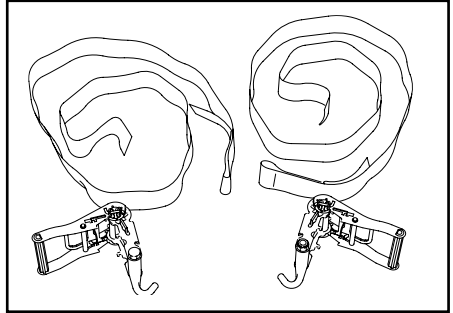
The "T37" pivoting grid is supplied with a set of high-strength polyester web tie-down straps. They are to be used to secure wheels of the towed vehicle to the wheel lift grid.

⚠ WARNING

Never tow a vehicle without the tie-down straps installed.

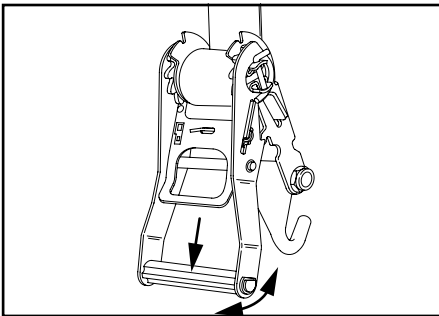
The tie-down strap assembly is comprised of 2 basic components:

1. (2) The Strap/Hook Assemblies
2. (2) The Ratchet Spool Mechanisms

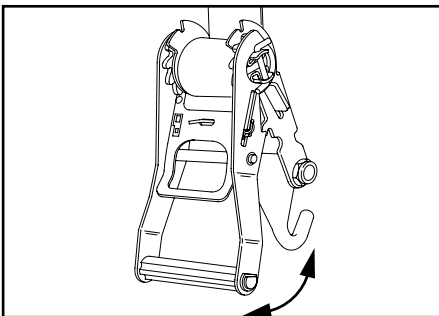


Follow these steps to properly install the tie-down straps:

INSTALLING THE RATCHET SPOOL MECHANISM

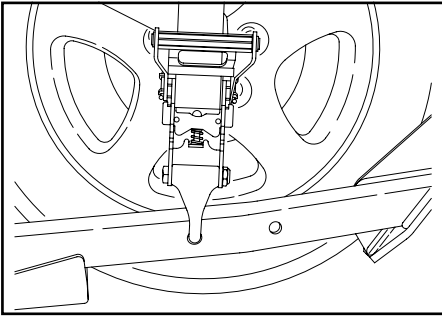


1. First set the spool into "free spool". This is done by pulling the lock bar out and swinging the handle upward until it rests in the free spool notch and then simply pulling out the amount of strap required to fit over the tire.

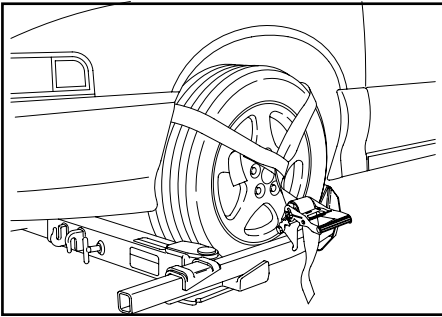


2. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take-up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.
3. To release the ratchet, simply pull on the locking bar, disengaging the teeth and raise the handle to the "free spool" position.

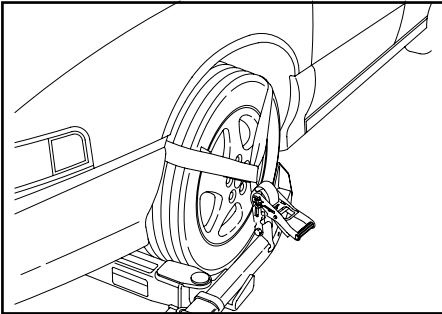
INSTALLING THE TIE DOWN STRAPS



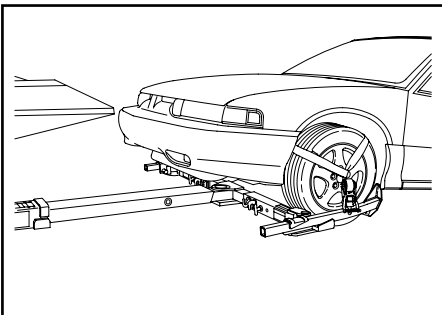
1. With the vehicle lifted just barely off the ground, attach the strap to the wheel restraints. Be sure the hook on the ratchet is securely seated in the wheel restraint.



2. Set the ratchet spool in "free spool" position and pull the webbed strap out and form a loop which will wrap around the tire. Be sure the loop is over a minimum of 1/3 of the tire.



3. Take up the slack in the strap by ratcheting the take-up spool arm. Continue until the tires show some compression. Repeat for other side.
4. Raise the wheel grid to the towing position.



NOTICE

Re-tighten the ratchet periodically as the tire settles in grid from towing.

NOTICE

Never tow a vehicle without tire tie-down straps and safety chains installed..

4.13 TIE-DOWN STRAPS - HYDRAULIC GRID

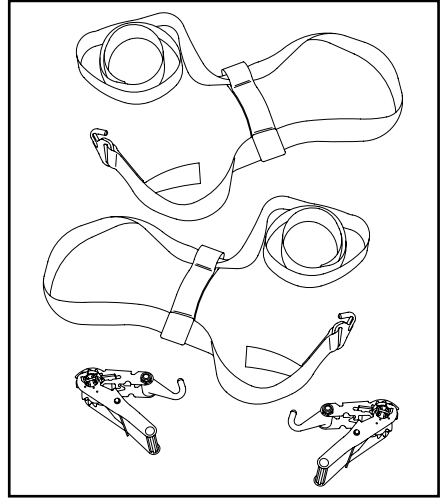
The hydraulic grid is supplied with a set of high-strength polyester web tie-down straps. They are to be used to secure the wheels of the towed vehicle to the wheel grid.

⚠ WARNING

Never tow a vehicle without the tie-down straps installed.

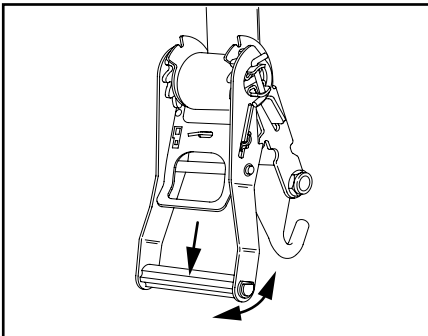
The tie-down strap assembly is comprised of 2 basic components:

1. (2) The Strap/Hook Assemblies
2. (2) The Ratchet Spool Mechanisms



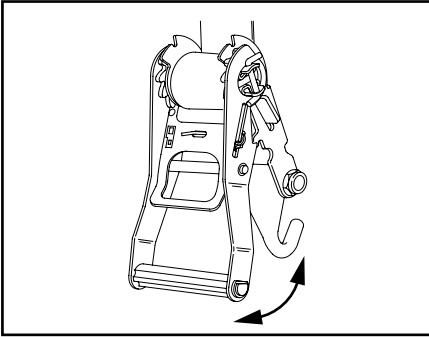
Follow these steps to properly install the tie-down straps:

INSTALLING THE RATCHET SPOOL MECHANISM



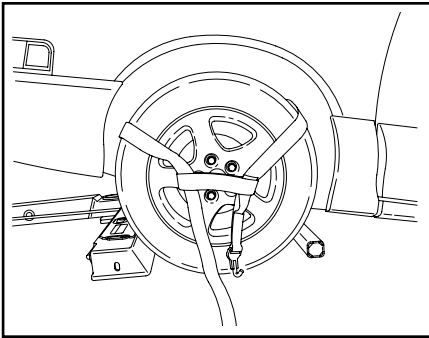
1. First set the spool into “free spool”. This is done by pulling the lock bar out and swinging the handle upward until it rests in the free spool notch and then simply pulling out the amount of strap required to fit over the tire.
2. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take-up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.

Section 4 : Operation

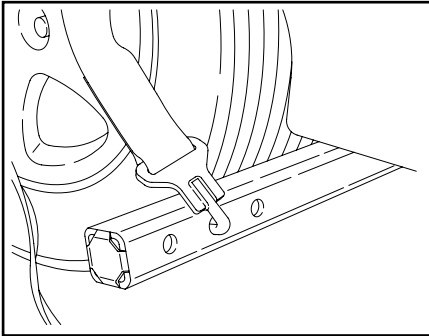


3. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take-up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.

INSTALLING THE TIE DOWN STRAPS

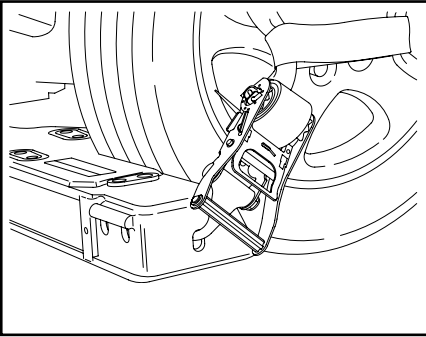


1. With the vehicle lifted just barely off the ground, insert the end of the strap through the sewn loop on the other end of the strap to form a loop. Put the loop over the tire as shown with the strap resting on the tire at the ten o'clock and two o'clock positions. Place the choker strap across the center of the tire..

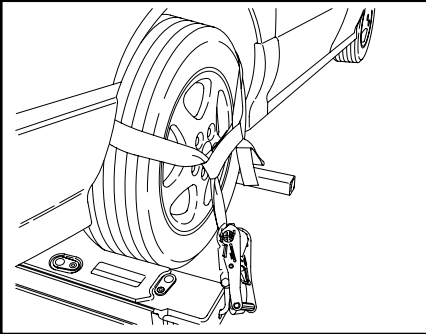


2. Place the rear hook of the strap assembly into a hole on the back side of the grid arm. Use the hole that is closest to the tire.

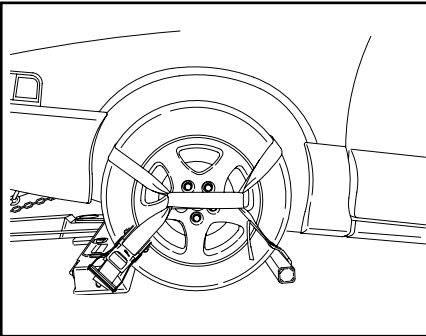
Section 4: Operation



3. Place the ratchet hook of the strap assembly into a hole on the front side of the grid arm. Use the hole that is closest to the tire.



4. Take up the slack in the strap by ratcheting the take-up spool arm. Continue until the tires show some compression. Repeat for other side.



5. Raise the wheel grid to the towing position

NOTICE

Re-tighten the ratchet periodically as the tire settles in grid from towing.

NOTICE

Never tow a vehicle without tire tie-down straps and safety chains installed..

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SECTION 5 - EMERGENCY PROCEDURES

5.1 ELECTRIC/HYDRAULIC FAILURE

RAISING/LOWERING/EXTENDING/RETRACTING DECK

In the event of loss of electric power with an elevated or extended deck, the hydraulics can be operated manually. **Contact a local Authorized Distributor for specific instructions.**

Secure the vehicle using the following procedures:

1. Clear the area around the unit of all personnel.
2. Engage the parking brake. Place the transmission control lever in "PARK".
3. Chock the vehicle's front and rear wheels.
4. If equipment is unsecured on the deck, secure equipment.
5. Section off the area to restrict any personnel from entering the area

Section 5 : Emergency Procedures

5.2 ENGINE FAILURE RAISING/LOWERING/EXTENDING/RETRACTING DECK

In the event of total loss of engine power or hydraulic pump failure with an elevated or extended deck, **Contact a local Authorized Distributor for specific instructions.**

Secure the vehicle using the following procedures:

1. Clear the area around the unit of all personnel.
2. Engage the parking brake. Place the transmission control lever in "PARK".
3. Chock the vehicle's front and rear wheels.
4. If equipment is unsecured on the deck, secure equipment.
5. Section off the area to restrict any personnel from entering the area.

SECTION 6 - MAINTENANCE

6.1 INTRODUCTION

Service the product in accordance with the maintenance schedule on the following pages.

Wear all the protective clothing and personal safety devices issued to you or called for by job conditions.

DO NOT wear loose clothing or jewelry that can get caught on controls or moving parts.

Clean lubrication fittings before lubricating.

Intervals shown are for normal usage and conditions. Adjust intervals for abnormal usage and conditions.

Check all lubricant levels when lubricant is cool. For ease of filling hydraulic reservoir, use a funnel with a hose or flexible tube for best results.

When performing maintenance that requires accessing the top of the truck, use only an approved ladder.



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

Place Do Not Operate Tags on the ignition switch and the steering wheel before attempting to perform any service or maintenance. Remove the key and disconnect battery leads.

⚠ WARNING

CUT/CRUSH/BURN HAZARD. Do not perform service or maintenance on the machine with the engine running, with the exception of the hydraulic return filter indicator checks.

⚠ WARNING

The vehicle hydraulic system operates at extremely high and potentially dangerous pressures. The operator must relieve any system pressure before disconnecting or removing any portion of the system.

Section 6 - Maintenance

6.2 MAINTENANCE AND LUBRICATION

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 vehicle. The following Lubricant Chart shows the proper lubricant and the most common brands and specification which meet the requirements. Refer to Section 6.3.

The hydraulic filter located on the return side of the hydraulic tank comes 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 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. Refer to Section 6.6.

For all sling, strap, chain and lifting components refer to the manufacturer inspection and maintenance schedules.

6.3 OILS AND GREASES

The following oils and greases are suitable for use with the Jerr-Dan Vehicle.

Company	Product
HYDRAULIC OILS	
1. Chevron	Clarity AW 46
2. Exxon	Univis N46
3. Mobil	Mobilfluid 424
4. Texaco	Rando HD 46
5. Kendall	AW 46
6. Citgo	Mystik AW 46
7. Amoco	AW 46
8. Conoco	Super
9. Mobil	DTE10 Excel 32 (for cold weather use below 20°F)
10. Conoco	AW Hydraulic Fluid MV 32 (for cold weather use below 20°F)
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	
Mobil	SAE 75W-90 Synthetic Gear Lube (or approved equivalent)

Section 6 - Maintenance

Company	Product
Mobile	WIRE ROPE Motor Oil (or other approved deep penetrating equivalent)

6.4 WIRE ROPE HANDLING AND INSPECTION

⚠ WARNING

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

Wire rope failure may cause serious injury or death!

Protect yourself and others:

- NEVER USE wire rope that is WORN-OUT, DAMAGED or ABUSED.
- NEVER OVERLOAD a wire rope.
- 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. Drag another truck, forklift or other heavy object to induce a 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.

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 its condition. This method reduces the risk of fatigue causing a rope failure.

Any deterioration, resulting in a suspected loss of original rope strength, the wire rope should be replaced.

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.

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.

Section 6 - Maintenance

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.

Refer to the placard on your unit or consult the manufacturer or your local distributor for the proper replacement wire rope.

6.5 WIRE ROPE INSTALLATION

Proper Unreeling Procedures

Wire rope can be permanently damaged by improper unreeling or uncoiling practices. The majority of wire rope performance problems start here. Improper unreeling practices lead to premature rope replacement, hoisting problems and rope failure.

Place the payout reel as far away from the boom tip as is practical, moving away from the chassis. Never place the payout reel closer to the chassis than the boom point sheave. Doing so may introduce a reverse bend into the rope and cause spooling problems. Take care to determine whether the wire rope will wind over or under the drum before proceeding.

Unreeling & Uncoiling and Kinks

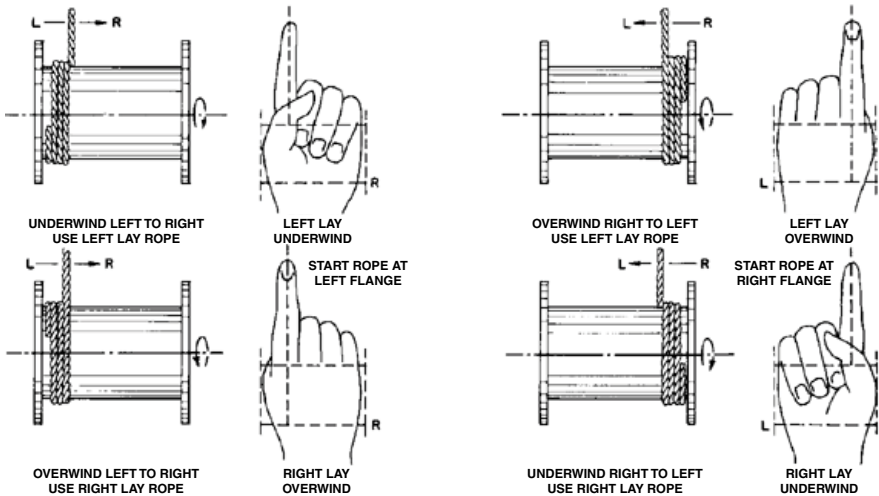
- **The Right Way To Unreel.** To unreel wire rope from a heavy reel, place a shaft through the center and jack up the reel far enough to clear the floor and revolve easily. One person holds the end of the rope and walks a straight line away from the reel, taking the wire rope off the top of the reel. A second person regulates the speed of the turning reel by holding a wood block against the flange as a brake, taking care to keep slack from developing on the reel, as this can easily cause a kink in the rope. Lightweight reels can be properly unreeled using a vertical shaft; the same care should be taken to keep the rope taut.
- **The Wrong Way To Unreel.** If a reel of wire rope is laid on its flange with its axis vertical to the floor and the rope unreeled by throwing off the turns, spirals will occur and kinks are likely to form in the rope. Wire rope always should be handled in a way that neither twists nor unlays it. If handled in a careless manner, reverse bends and kinks can easily occur.
- **The Right Way To Uncoil.** There is only one correct way to uncoil wire rope. One person must hold the end of the rope while a second person rolls the coil along the floor, backing away. The rope is allowed to uncoil naturally with the lay, without spiralling or twisting. Always uncoil wire rope as shown.
- **The Wrong Way To Uncoil.** If a coil of wire rope is laid flat on the floor and uncoiled by pulling it straight off, spirals will occur and kinking is likely. Torsions are put into the rope by every loop that is pulled off, and the rope becomes twisted and unmanageable. Also, wire rope cannot be uncoiled like hemp rope. Pulling one end through the middle of the coil will only result in kinking.
- **Kinks.** Great stress has been placed on the care that should be taken to avoid kinks in wire rope. Kinks are places where the rope has been unintentionally bent to a permanent set. This happens where loops are pulled through by tension on the rope until the diameter of the loop is only a few inches. They are also caused by bending a rope around a sheave having too severe a radius. Wires in the strands at the kink are permanently damaged and will not give normal service, even after apparent “restraightening.”

Section 6 - Maintenance

Drum Winding

When wire rope is wound onto a sheave or drum, it should bend in the manner in which it was originally wound. This will avoid causing a reverse bend in the rope. Always wind wire rope from the top of the one reel onto the top of the other. Also acceptable, but less so, is re-reeling from the bottom of one reel to the bottom of another. Re-reeling may also be done with reels having their shafts vertical, but extreme care must be taken to ensure that the rope always remains taut. It should never be allowed to drop below the lower flange of the reel. A reel resting on the floor with its axis horizontal may also be rolled along the floor to unreel the rope.

Wire rope should be attached at the correct location on a flat or smooth-faced drum, so that the rope will spool evenly, with the turns lying snugly against each other in even layers. If wire rope is wound on a smooth-face drum in the wrong direction, the turns in the first layer of rope will tend to spread apart on the drum. This results in the second layer of rope wedging between the open coils, crushing and flattening the rope as successive layers are spooled.



A simple method of determining how a wire rope should be started on a drum is shown above. The observer stands behind the drum, with the rope coming towards him. Using the right hand for right-lay wire rope, and the left hand for left lay wire rope, the clenched fist denotes the drum, the extended index finger the oncoming rope.

Keep Wraps Tight

The end of the rope must be securely and evenly attached to the drum anchorage point by the method recommended by the equipment manufacturer. At least five wraps of wire rope must remain on the drum as dead wraps when the rope is unwound during normal operations. Locate the dead end rope anchorage point on the drum in relation to the direction of the lay of the rope. Do not use an anchorage point that does not correspond with the rope lay. Mismatching rope lay and anchorage point will cause the wraps to spread apart from each other and allow the rope to cross over on the drum. Very gappy winding will occur resulting in crushing damage in multilayer applications.

Back tension must be continually applied to the payout reel and the crewman installing the rope must proceed at a slow and steady pace whether the drum is smooth or grooved. Regardless of the benefits of a grooved drum, tension must be applied to ensure proper spooling. An improperly installed rope on a grooved drum will wear just as quickly as an improperly installed rope on a smooth drum. If a wire rope is poorly wound and as a result jumps the grooves, it will be crushed and cut under operating load conditions where it crosses the grooves.

Every wrap on the first or foundation layer must be installed very tightly and be without gaps. Careless winding results in poor spooling and will eventually lead to short service life. The following layers of rope must lay in the grooves formed between adjacent turns of the preceding layer of rope. If any type of overwind or crosswinding occurs at this stage of installation and is not corrected immediately, poor spooling and crushing damage will occur.

On a multilayer spooling drum be sure that the last layer remains at least two rope diameters below the drum flange top. Do not use a longer length than is required because the excess wire rope will cause unnecessary crushing and may jump the flange. Loose wraps that occur at any time must be corrected immediately to prevent catastrophic rope failure.

The use of a mallet is acceptable to ensure tight wraps, however a steel-faced mallet should be covered with plastic or rubber to prevent damage to the rope wires and strands.

Section 6 - Maintenance

6.6 LUBRICATION CHART

The following lubrication chart located on the headboard on the driver's side of the carrier deck.

INTERVAL (HOURS)	REF NO.	IDENTIFICATION	SERVICE	LUBRICANT	NO. OF POINTS
50 OR MONTHLY	2 4	CABLE T - HANDLE	OIL OIL	ENGINE OIL ENGINE OIL	1 2
100 OR BI-MONTHLY	2 6 5	WINCH FS CLEVIS (IF APPLICABLE) HYD RESERVOIR CAM LOCK	LUBE CHECK LUBE	MPG * MPG	1 1 2
250 OR SEMI-ANNUALLY	1 3 7	HOLD DOWN GUIDE WINCH GEAR BOX HYD FILTER	OIL CHECK CHANGE	HYD FLUID ** ---	2 1 1
1000 OPERATING HOURS	3 6	WINCH GEAR BOX HYD RESERVOIR	DRAIN/FILL DRAIN/FILL	** *	1 1

LUBRICATION CHART

TEREX

BIC ROLLBACK CARRIERS

CHART COVERS ONLY **TEREX** BODY COMPONENTS

* INDICATES DUAL RANGE HYD. FLUID S.W. 20
AUTO TRANS FLUID MAY BE SUBSTITUTED IF NECESSARY

** CONSULT WINCH MANUAL FOR PROPER GRADE AND TYPE

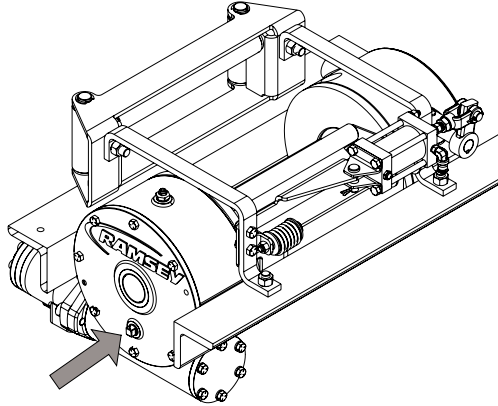
DO NOT GREASE SLIDE PADS

478

LUBRICATION POINTS

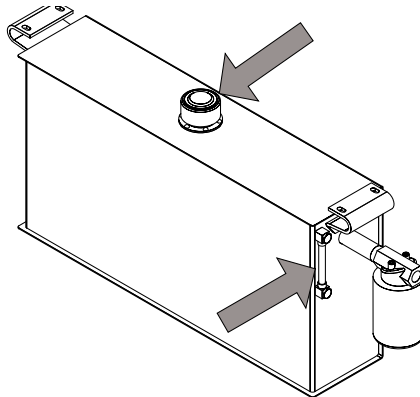
Note: The following numbers correspond to those shown on the lubrication chart on Page 6-10.

1. Winch Gear Case



- Lube Point(s) – Fill Plug
- Lube – Reference winch manufacturer’s manual.
- Interval – Check level every 250 hours or semi-annually
Change every 1000 hours

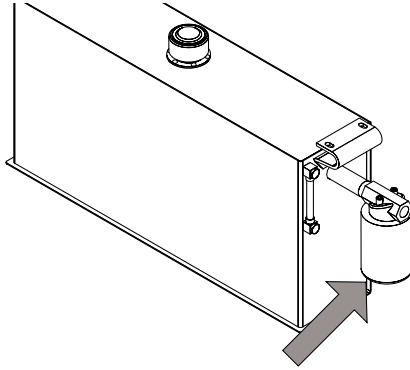
6. Hydraulic Reservoir Oil Level



- Lube Point(s) – Site Glass/Fill Cap
- Interval – Check level every 100 hours or bi-monthly
Change every 1000 hours

Section 6 - Maintenance

7. Hydraulic Reservoir Return Filter



Lube Point(s) – Replaceable Element

Interval – Check level every 250 hours or semi-annually

Section 6 - Maintenance

Spool operated hydraulic control valves may build up debris, dirt and/or corrosion under the spring cap. Slower operation of that hydraulic function, even when the control handle is fully actuated, may occur.

It is recommended to annually remove the spring caps on the valve section (usually the opposite side from the spool end clevis) and clean the cap and the items under the cap, to remove any build up.



Apply an approved lubricant to protect those components and reduce the likelihood of further build up. Apply the lubricant generously to spring cap end hardware parts (spring seat, spool end, spring and the inside of the cap itself) to insure complete exposure of all part surfaces to the lubricant. This will ensure optimum operation of your valve sections over the life your equipment.

APPROVED LUBRICANTS:

Mobiltemp SCH Grease (red)

Mobilith SCH PM (white)

Section 6 - Maintenance

6.7 TROUBLE SHOOTING

You probably won't require anything but preventive maintenance to keep your Jerr-Dan 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	a. Low engine RPM b. Low oil level c. Blocked or restricted hose d. Dirty hydraulic oil e. Hydraulic pump worn f. Frozen hydraulic lines	a. Speed up engine b. Check level and fill with the specified oil c. Inspect: remove blockage d. Drain, flush and refill with clean oil, replace filter e. Rebuild or replace f. Thaw and remove water
Valve leaks	a. Defective seals	a. Inspect and replace
Cylinder leaks	a. Defective seals or rods	a. Inspect and replace
Erratic cylinder function	a. Air in the system b. Defective pump (pulsating)	a. Cycle hydraulic system 10 to 15 times to remove air b. Replace if necessary
Remote hand controller fails to respond	a. Electric power turned off	a. Turn on CONTROL power switch in cab
Electric Control Switches fail to respond	a. Electric power turned off b. Electric circuit wiring	a. Turn on CONTROL power switch in cab a. Check/repair electrical wiring circuit problem.

P.T.O. FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Intermittent operation	a. Poor Electrical connection	a. Check electrical connections
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. Electrical circuit wiring	a. Check/repair electrical wiring problem circuit.
	b. Solenoid Valve malfunctioning	b. Repair or replace
	c. Blown fuse	c. Replace fuse

HYDRAULIC PUMP

Problem	Cause	Solution
Pump noisy (Cavitation)	a. Low oil supply	a. Fill to proper level
	b. Thick oil	b. Fill with proper oil (See chart)
	c. Dirty oil filter	c. Replace filter
	d. Restriction in suction line	d. Clean out and remove
	e. Pump worn	e. Repair or replace
Pump slow or fails to respond	a. Low oil supply	a. Fill to proper level
	b. Cold Thick Oil	b. Drain and refill with a low temperature oil
Oil heating up	a. Foreign material lodged in relief valve filter	a. Inspect and remove/replace
	b. Using too light oil	b. Drain and refill with clean oil
	c. Dirty oil	c. Drain, flush and refill with clean oil/replace filter
	d. Oil level too low	d. Fill to proper level
	e. Pump worn (slippage)	e. Repair or replace

Section 6 - Maintenance

HYDRAULIC PUMP

Problem	Cause	Solution
Oil foaming	<ul style="list-style-type: none"> a. Air leaking into suction line b. Wrong kind of oil c. Oil level too low 	<ul style="list-style-type: none"> 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
Hydraulic oil leak between P.T.O. and pump	<ul style="list-style-type: none"> a. Defective shaft seal 	<ul style="list-style-type: none"> a. Replace shaft seal
Pump leaks at front and rear covers	<ul style="list-style-type: none"> a. Defective seals 	<ul style="list-style-type: none"> a. Replace seals

WINCH FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Winch screeches during operation	<ul style="list-style-type: none"> a. Insufficient lubrication 	<ul style="list-style-type: none"> a. Lubricate per lube chart
Winch will not pull load or take in wire rope	<ul style="list-style-type: none"> a. Free-spooling device not engaged b. Sheared keys or broken coupling c. Hydraulic pump worn 	<ul style="list-style-type: none"> a. Engage b. Inspect or replace c. Inspect and replace
Free-spool device	<ul style="list-style-type: none"> a. No air pressure b. Insufficient air pressure c. Defective pressure switch d. Leaking air line 	<ul style="list-style-type: none"> a. Turn truck on b. Allow truck to run c. Inspect and replace d. Inspect and replace

REMOTE HAND CONTROLLER

Problem	Cause	Solution
Transmitter not working. LED not on or blinking.	a. Electric power turned off b. Discharged Battery	a. Turn on CONTROL power switch in cab or control station b. Replace Battery
Transmitter not working. LED not on or blinking	a. Discharged Battery b. Receiver power turned off c. Out of range d. Communication error	a. Replace Battery b. Check receiver power input c. Make sure transmitter is in range of receiver d. Make sure transmitter and receiver are matched.
Poor Range	a. Discharged Battery b. Communication error c. Communication error	a. Replace Battery b. Obstructions, interference, and adverse weather can affect range c. Check receiver antenna and cable connections
Does not operate correctly	a. Communication error	a. Check/ Verify antenna Wiring

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SECTION 7 - SPECIFICATIONS

7.1 PRODUCT SPECIFICATIONS

6TON STANDARD DUTY CARRIER SERIES

Including Models

19NGADF	19STRB-8	20RRSB	21NGAR
19NGADF-W	19STRB-8W	20RRSB-W	21NGAR-W
19NGAF	19WSRB	20SLPB	21NGAT-8
19NGAF-W	19WSRB-W	20SLPB-W	21NGAT-8W
19NGAR	20NGADF	20STRB-8	21RRSB
19NGAR-W	20NGADF-W	20STRB-8W	21RRSB-W
19NGAT-8	20NGAF	20WSRB	21SLPB
19NGAT-8W	20NGAF-W	20WSRB-W	21SLPB-W
19RRSB	20NGAR	21NGADF	21STRB-8
19RRSB-W	20NGAR-W	21NGADF-W	21STRB-8W
19SLPB	20NGAT-8	21NGAF	21WSRB
19SLPB-W	20NGAT-8W	21NGAF-W	21WSRB-W

OPERATING SPECIFICATIONS AND PERFORMANCE DATA

DO NOT EXCEED THE FOLLOWING RATINGS:

DECK RATING:..... 12,000 lb

WINCH RATING: (Ramsey Worm Gear)¹
Each Drum (Single Speed, Variable Control) 8,000 lb

WINCH RATING: (Ramsey Worm Gear)¹
Each Drum (Single Speed, Variable Control) 10,000 lb

WINCH RATING: (Ramsey Planetary Gear)¹
Each Drum (Single Speed, Variable Control) 10,000 lb

WINCH RATING: (Ramsey Worm Gear)¹
Each Drum (Single Speed, Variable Control) 12,000 lb

WIRE ROPE: (8,000 lb (3600 kg) Winch)
Working Limit Each Line..... 4,314 lb
Nominal Breaking Strength 15,100 lb
Construction 6 x 25 EIPS RRL IWRC
Diameter 3/8 in
Standard Length..... 56 ft

Section VII : Specifications

WIRE ROPE: (10,000 lb (4500 kg) Winch)

Working Limit Each Line.....	5,828 lb
Nominal Breaking Strength	20,400 lb
Construction	6 x 25 EIPS RRL IWRC
Diameter.....	7/16 in
Standard Length.....	56 ft

WIRE ROPE: (12,000 lb (4500 kg) Winch)

Working Limit Each Line.....	5,828 lb
Nominal Breaking Strength	20,400 lb
Construction	6 x 25 EIPS RRL IWRC
Diameter.....	7/16 in
Standard Length.....	56 ft

TOW OPTION RATINGS:

	Lift	Tow
IRL Wheel Lift with L-Arm Grids	3,000 lbs	7,500 lbs ²
IRL Wheel Lift with T-37 Grids.....	3,000 lbs	7,500 lbs ²
IRL Wheel Lift with Hydraulic Grids	3,000 lbs	7,500 lbs ²
ZOD Wheel Lift with L-Arm Grids	3,000 lbs	7,500 lbs ²
ZOD Wheel Lift with T-37 Grids.....	3,000 lbs	7,500 lbs ²
2-1/2" Reese Receiver		
on Rear Stabailizer.....	1,200 lbs	12,000 lbs
Hydraulic Towbar with Pintle Hook Mounting		
on Rear Stabailizer.....	3,500 lbs	7,500 lbs
2" Reese Hitch Receiver	500 lbs	5,000 lbs
2-1/2" Reese Hitch Receiver	1,200 lbs	12,000 lbs
Stationary Pintle Hitch.....	4,000 lbs	15,000 lbs

- ¹ SAE J706: Surface Vehicle Recommended Practices - Rating of Winches
- ² SAE J2512: Surface Vehicle Recommended Practices - Towing Equipment Ratings and Practices

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 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 carrier 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 DRIVER'S SIDE OF THE HEADBOARD.

Section VII : Specifications

TRUCK CHASSIS

OPERATING SPECIFICATIONS AND PERFORMANCE DATA

Refer to Final Stage Vehicle Manufacturer Label affixed to the Driver's Side Door Jam, Hinge Pillar or Latch Post of the cab chassis and the chassis manufacturer's manual.

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: _____

7.2 CAPACITIES

Hydraulic System

Operating Pressure2500 psi

System Flow 18 gpm

System Capacity14 gal

Reservoir Capacity12 gal

Type of Oil

0° to 104° F (-20° to 40° C) Mobilfluid® 424

-40° to 0° F (-40° to -20° C) Mobile DTE 10 Excel 32M

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An Oshkosh Corporation Company

TRANSFER OF OWNERSHIP

To Product Owner:

If you now own but ARE NOT the original purchaser of the product covered by this manual, we would like to know who you are. For the purpose of receiving safety-related bulletins, it is very important to keep Jerr-Dan Corporation updated with the current ownership of all Jerr-Dan products. Jerr-Dan maintains owner information for each Jerr-Dan product and uses this information in cases where owner notification is necessary.

Please use this form to provide Jerr-Dan with updated information with regard to the current ownership of Jerr-Dan products. Please return completed form to the Jerr-Dan Product Safety & Reliability Department via facsimile or mail to address as specified below.

Thank You,
Product Safety & Reliability Department
Jerr-Dan Corporation
13224 Fountainhead Plaza
Hagerstown, MD 21742
USA
Telephone: +1-717-485-6591
Fax: +1-301-745-3713

NOTE: Leased or rented units should not be included on this form.

Mfg. Model : _____

Serial Number : _____

Previous Owner : _____

Address : _____

Country : _____ Telephone : (_____) _____

Date of Transfer : _____

Current Owner : _____

Address : _____

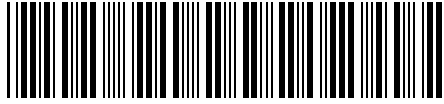
Country : _____ Telephone : (_____) _____

Who in your organization should we notify?

Name : _____

Title : _____

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JERR-DAN

An Oshkosh Corporation Company

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Hagerstown, MD 21742
Phone (717) 597-7111*

TOW 
SUPPORT
by **JERR-DAN**

Phone (800) 926-9666

www.jerr-dan.com