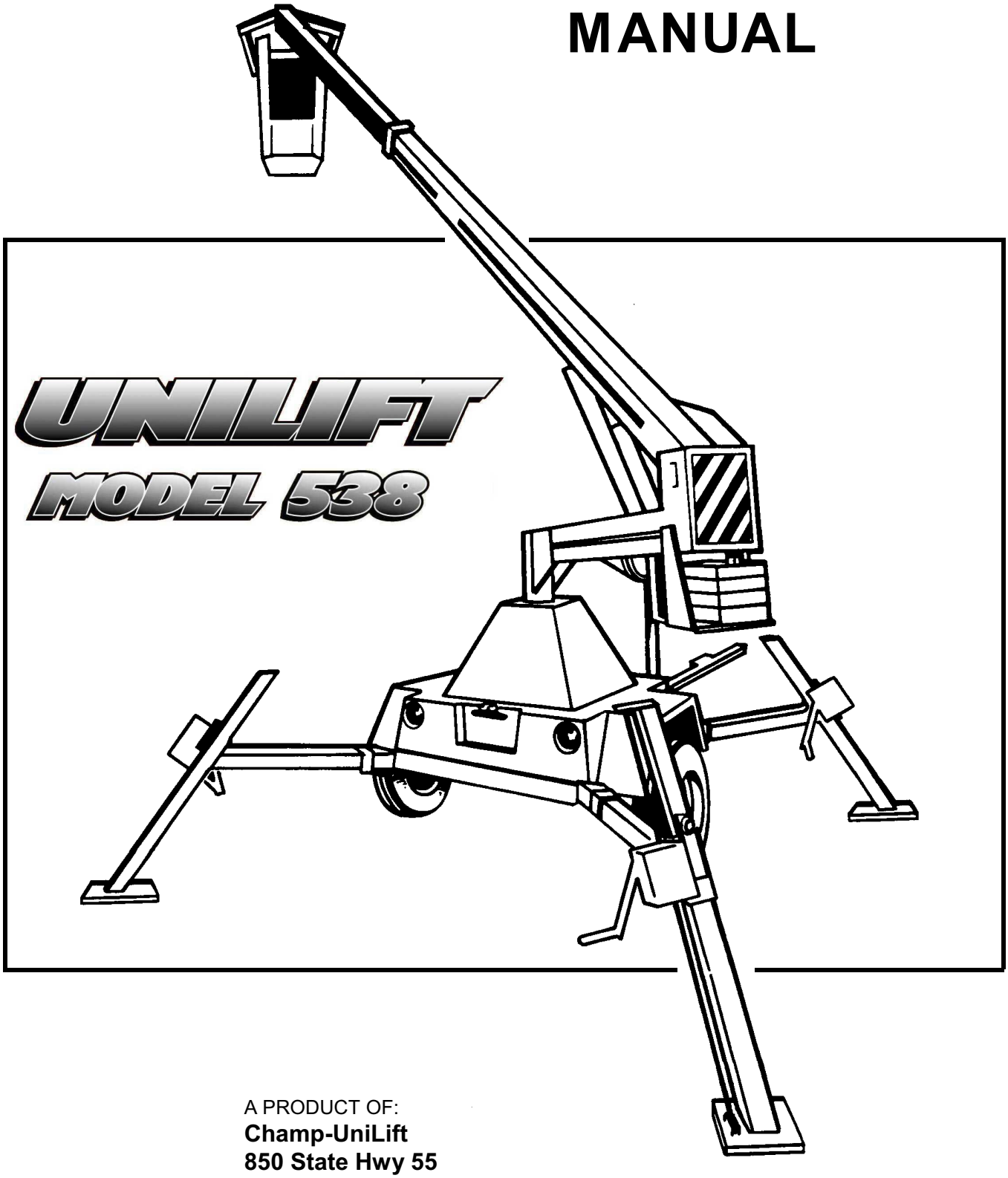
Universal Crane and Personnel Lift
OPERATOR'S MANUAL



A PRODUCT OF:
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OPERATOR SAFETY

Training Checklist For The 538 UniLift

Please review the Checklist items. Initial each item then sign and date this Checklist below.

_____ The **ONLY** person permitted to operate the 538 UniLift shall be the person who has received instructions prior to rental.

_____ I have received instructions and understand the operation and proper use of the 538 UniLift controls. I agree to use the 538 UniLift in a manner consistent with its intended application.

_____ I have received instructions and understand the use of the outriggers to set up and level the 538 UniLift.

_____ I understand that the maximum bucket capacity of the 538 UniLift is 300 lbs.

_____ I have received instructions and understand the use of the Emergency Manual Lowering Valve and other emergency procedures.

_____ I will not attempt to alter or disable any safety devices, guards, or interlocks.

_____ I have been shown the location of the Operators Manual, and was instructed to read the manual prior to operation.

_____ I understand that the 538 UniLift is **NOT INSULATED** and shall not be used within 10 feet of any power lines.

_____ I will wear the body harness, with the 4 ft. lanyard attached, at all times when operating the 538 UniLift from the bucket.

_____ I have received instructions and understand the procedures for stowing the boom and outriggers, and locking the bucket in place before transporting the 538 UniLift.

_____ Before transporting the 538 UniLift, I will verify that the tongue is securely attached and locked to a 2-inch hitch ball, safety chains are in place, and the trailer lights are operable.

Signed: _____ Date:

EQUIPMENT USE AND SAFETY

Safe Setup And Use Of The 538 UniLift

Please review the following setup and use instructions before operating the 538 UniLift.

1. Make sure the 538 UniLift has been safely set up away from power lines ***(maintain at least 10 feet of clearance)***.

2. Disconnect the 538 UniLift from the transporting vehicle before setup. If the unit is parked on a slope, chock the wheels or set the outriggers first, to prevent rolling.

3. Extend and set up the outriggers (setup instructions are located at each outrigger). Make sure the outriggers are set on solid footing. The green light on the lower control panel indicates that the outriggers are properly set. ***NOTE: If the green indicator light is lit before all four outriggers are set, the unit is not safe to operate.***

4. If the 538 UniLift is set on a slope (5° maximum), the outriggers **MUST** be used for leveling.

5. Make sure all electrical power cords are safely stored to prevent tangling or crushing.

6. Always wear the proper body harness, and keep the harness secured to the lanyard ring whenever operating the 538 UniLift from the bucket.

7. **DO NOT** exceed the manufacturer's rated lifting capacities.

8. The lower controls are for **emergency use only**, when a worker is present in the bucket.

9. It is **PROHIBITED** and **DANGEROUS** to use railings, planks, ladders, or other devices in the bucket to achieve additional working height or reach.

10. Watch for overhead obstructions when booming up.

11. Keep observers and other workers out of the work area.

12. **DO NOT** lift materials with the lanyard ring while operating the 538 UniLift from the bucket.

13. When using the 538 UniLift as a crane, **DO NOT** stand under the load.

14. Make sure the boom and outriggers are properly stowed, and the bucket is securely locked in place before transporting the 538 UniLift.

15. **DO NOT** operate the 538 UniLift if it is in need of repairs.

16. Be sure to read and thoroughly understand the **Operation Section** in the **Operators Manual**.

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DESCRIPTION

The UniLift Model 538 Universal Crane and Personnel Lift functions as both a personnel carrier and crane, in one unit. A single operator can use the UniLift as a personnel carrier or a universal crane with no conversion time. The unit is also light enough to be rolled by one person.

The UniLift Model 538 consists of the following basic components:

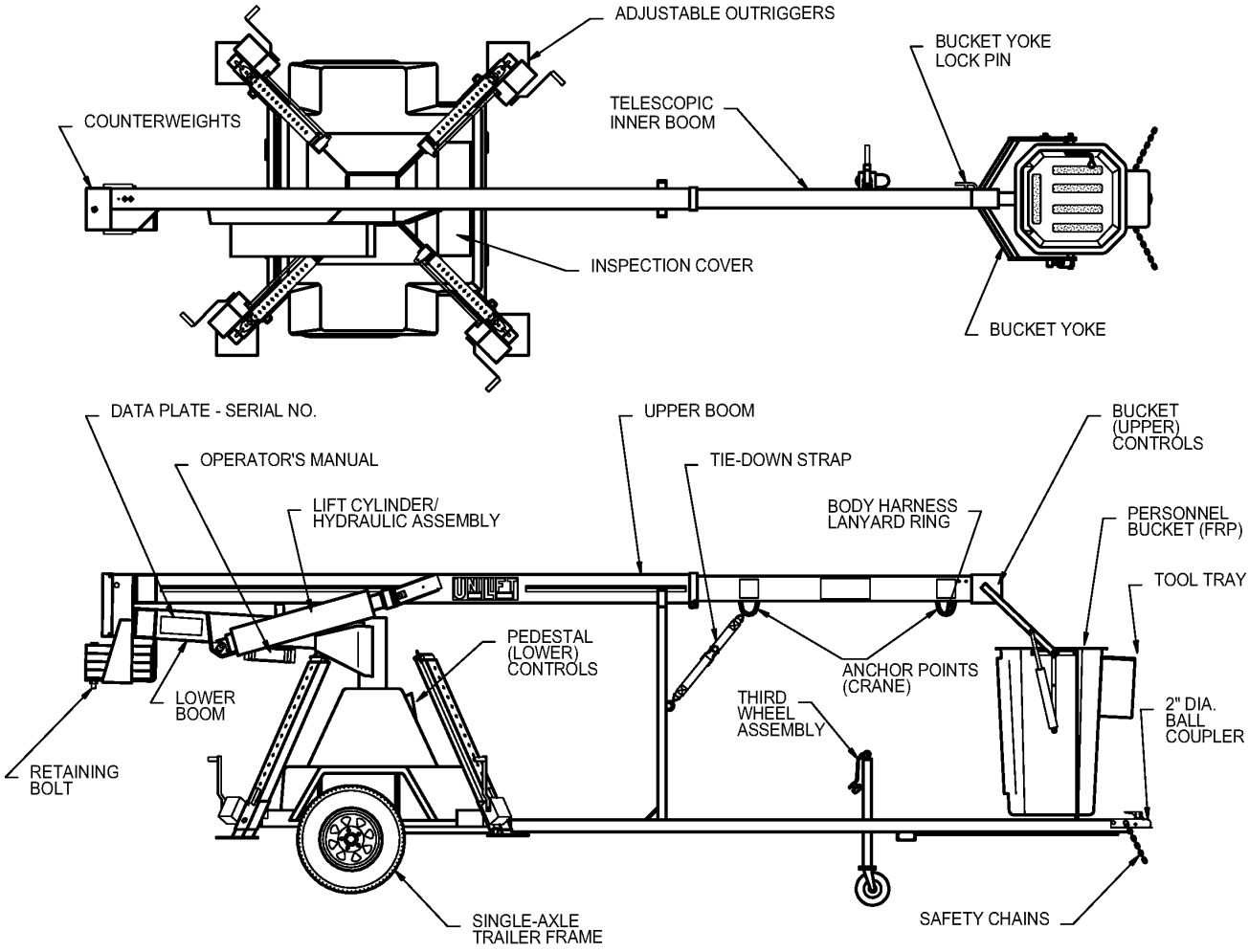

Figure i-1.
UniLift With Personnel Bucket Attached

ADJUSTABLE OUTRIGGERS

Outriggers are used for absorption of tipping load during use, and are manually set. Adjustable for up to three feet, the outriggers assure that the unit can be leveled and rest firmly on solid footing. Electrical interlocks prevent lift/crane operation until all four outriggers are fully extended and resting firmly on the ground. A green light is located on the lower control panel, indicating that all outriggers are set up on solid footing.

SINGLE AXLE TRAILER FRAME WITH 2" DIAMETER BALL COUPLER AND THIRD WHEEL

A torsion bar type of axle, rated at 3000 pounds, is used for road stability while towing. The 2" diameter ball coupler and third wheel assembly are provided as standard equipment, allowing the unit to be transported to a job site and unhitched. **WARNING: DO NOT ATTEMPT TO TOW THIS LIFT WITH A HITCH BALL OTHER THAN 2".** Safety chains are also provided and shall always be attached when the unit is to be transported. Tire size is P205/75R14 with a max load rating of 1532 Lbs. at 35 psi.

PEDESTAL AND UPPER CONTROLS

A full set of controls is provided at both the bucket and the pedestal. ENABLE-OFF-DOWN-OVERRIDE switch is located at the bucket controls, with an override switch located at the pedestal controls. A key switch is provided at the pedestal controls for security. A manual boom lowering valve is also provided at the base of the hydraulic pump assembly.

POWER REQUIREMENTS AND CHARGING CAPABILITIES

The unit is powered by two (2) 6 VDC deep cycle batteries, connected in series, yielding 12 VDC for approximately eight hours of operation under typical use. A built-in 12 VDC, 30 amp battery charger is provided to restore charge to the batteries, and is equipped with automatic cutoff when full charge is reached. The battery cutout relay permits operation while the unit is plugged in and the batteries are recharging. (See the section on Inspection and Maintenance for more details on battery system.)

HYDRAULIC LIFT AND TELESCOPING CYLINDERS

Aerial lift is provided by a 3" single acting cylinder, attached to the upper and lower booms. Telescoping lift is provided by a 1-1/2" double acting cylinder, located inside the upper boom/telescoping boom assembly. The telescoping boom will extend up to 9 feet allowing a side reach of approximately 24 feet. Hydraulic power is provided by a 12 VDC hydraulic system, connected to the 3" lift cylinder attached to the upper and lower booms.

COUNTERWEIGHTS

Four (4) counterweights are mounted at the back of the unit to provide proper stability. These counterweights must always remain in place when using the aerial lift.

SURGE BRAKES (OPTION)

Hydraulic brakes are available as an option. They are surge activated and use a standard 2" diameter ball coupler. A breakaway chain is provided for emergency stopping.

LEVELING SAFETY SWITCH (OPTION)

The leveling safety switch continuously monitors the trailer for an unsafe tilt condition (exceeding 5°) during set-up and operation. The green Trailer Level Indicator Light is on when the trailer tilt is within the 5° range. If the tilt exceeds the limit during set-up, the controls will not operate. If an unsafe condition occurs during operation, only the "in" and "down" functions will work.

PERSONNEL BUCKET

The fiberglass personnel bucket is gravity leveled and hydraulically dampened with positive work position locking. The bucket is made removable for crane operation if required. Travel limits prevent continuous rotation of the boom and bucket. A body harness is provided with each unit and shall be worn at all times when operating unit from the bucket.

UNIVERSAL CRANE

Two (2) anchor points are provided for lifting loads up to 500 pounds with the personnel bucket removed. The inner lanyard ring has a 500 pound load rating with the boom fully retracted. The outer lanyard ring has a 300 pound crane-load rating in any position. (See Figure i-2) ***Note: The 500 pound load rating is ONLY during crane operation, and ONLY on the inner ring with the boom fully retracted.***

WARNING:NEVER LIFT OVER SPECIFIED WEIGHT OR TIPPING CAN OCCUR, CAUSING SERIOUS INJURY OR DEATH TO OPERATOR.

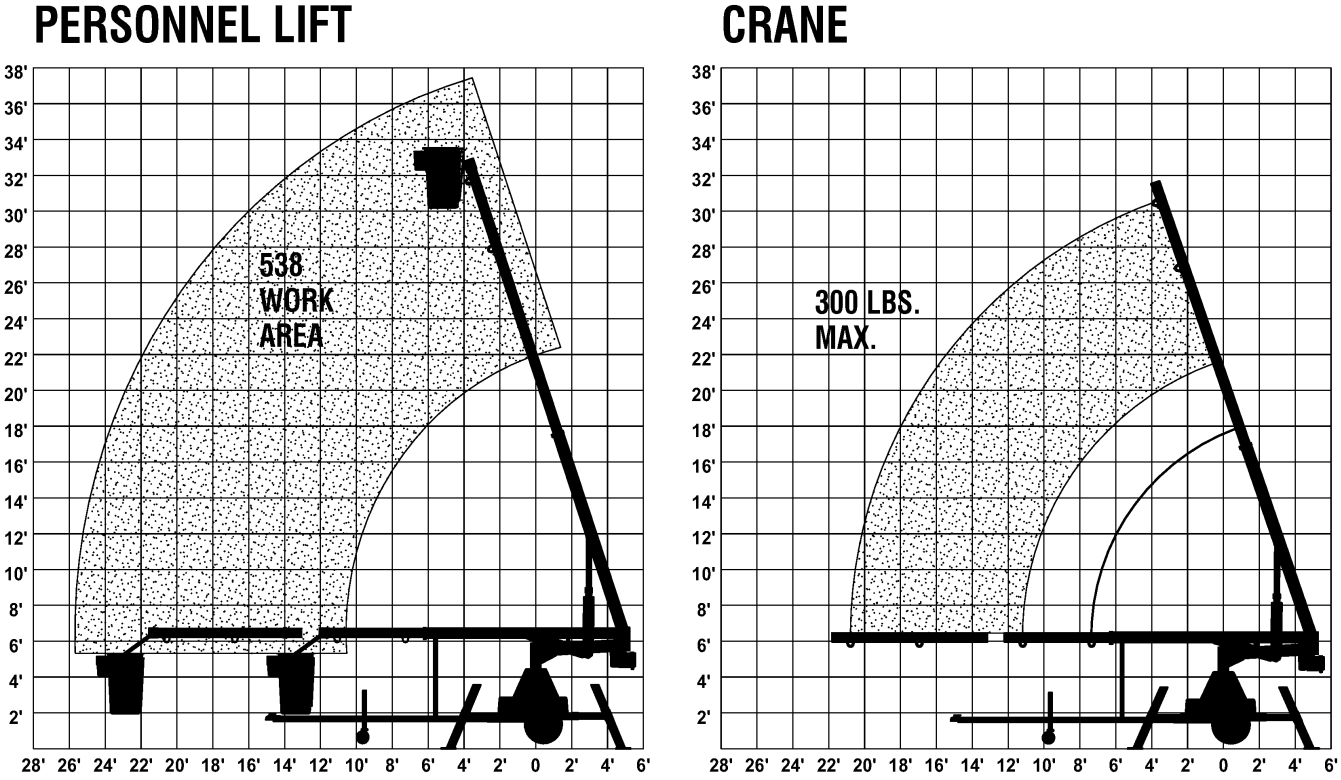

Figure i-2
Personnel Lift/Crane Work Area

DANGER
ELECTROCUTION HAZARD, STAY AT LEAST 10 FEET FROM POWER LINES. THIS UNIT IS NOT INSULATED FROM ELECTRIC SHOCK. DEATH OR SERIOUS INJURY TO OPERATORS AND/OR BYSTANDERS CAN RESULT FROM CONTACT WITH ELECTRICAL WIRES.

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SPECIFICATIONS

GENERAL	Personnel Bucket	Crane
Working Height	36' (11.00 m)	31' (9.45 m)*
Rated-Platform Height	30' (9.14 m)	----
Platform Reach from Center of Rotation	24' (7.32 m)	21' (6.40 m)
Stowed Travel Height	6'-6" (1.98 m)	6'-6" (1.98 m)
Stowed Travel Width	6'-4" (1.93 m)	6'-4" (1.93 m)
	6'-1" (1.85 m)†	6'-1" (1.85 m)†
Stowed Travel Length	22' (6.71 m)	22' (6.71 m)
Rated Load Capacity	300 lbs. (136 kg)	300/500 lbs. (136/227 kg) **
Shipping Weight	2750 lbs. (1250 kg)†	2750 lbs. (1250 kg)†
	2950 lbs. (1340 kg)	2950 lbs. (1340 kg)
Tongue Weight	140 lbs. (64 kg)	140 lbs (64 kg)
System Operating Voltage	12 VDC	12 VDC
Minimum Temperature for Operation	0° F (-18° C)	0°F (-18° C)
Leveling Capability	10°	10°

HYDRAULIC SYSTEM

Hydraulic Fluid	Dexron III
Hydraulic Fluid Capacity	16 qt. (15.1 L)
Hydraulic Tank Capacity	12 qt. (11.4 L)
Hydraulic System Rated Pressure	2500 PSI (17.24 MPa)
Normal Operation Pressure	700 PSI (4.83 MPa)
Maximum Operating Pressure	1350 PSI (9.31 MPa)***

* At point where boom hook is 8 feet from center of rotation.
** 500 lb. (227 kg) rating at full retraction only (inner arc - Figure i-2).
*** Should be 1100 PSI (7.6 MPa) on 534 Models.
† Unit with Jack-Type outriggers

MINIMUM VEHICLE TIPPING LOAD, HORIZONTALLY EXTENDED

On level ground (1-1/2 x rated load)	450 lbs. (204 kg)
On 5° slope (1-1/3 x rated load)	400 lbs. (182 kg)

BUCKET TRAVEL

Boom Travel 0° to + 80° (Hydraulically Operated/Electrical Limit Switch)
Top section extends 9' (2.74 m)
Rotation 350° non-continuous with Electrical Limit Switch

NOTE: UniLift Model 538 Lift/Cranes are designed to comply with ANSI Standard A92.2. Dealers, owners, users, operators, renters, lessors and lessees shall comply with the appropriate section(s) of ANSI Standard A92.2. Use of products must conform to safe practice and applicable statutes, codes and ordinances. Drawings are illustrative only and do not necessarily depict exact configuration of products offered at a particular time. Specifications contained herein are subject to change without notice.

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OPERATION

DANGER

UNDER NO CIRCUMSTANCES SHOULD THE AERIAL LIFT BE USED UNLESS THE OPERATOR IS FULLY VERSED IN THE SAFE OPERATION OF THE MACHINE.

OPERATION INSTRUCTIONS, WARNINGS AND SAFETY INSTRUCTIONS ARE PROVIDED IN CONSPICUOUS LOCATIONS ON THE EQUIPMENT.

DEFACED OR UNREADABLE DECALS AND SIGNS SHOULD BE REPLACED IMMEDIATELY. REFER TO THE PARTS MANUAL FOR THE PART NUMBERS OF DECALS AND SIGNS.

TRANSPORTING

The UniLift must only be transported by a vehicle weighing at least 3000 lbs. Always connect the lights and safety chains, and use safe towing practices.
The boom must be stored in the boom cradle when the trailer is in motion. A tie down strap is provided for travel and will prevent excessive wear due to vibration and oscillation. Also, the bucket should be hinged up and locked into position. For maximum safety, limit the towing speed to 45 MPH or less.

CAUTION:DO NOT MOVE THE TRAILER UNLESS THE BOOM AND BUCKET ARE IN THEIR STORAGE POSITION AND PROPERLY SECURED.

PARKING

Park the trailer on firm, level ground.

CAUTION:NEVER OPERATE THE LIFT ON A STEEP SLOPE.

Operating the lift on a steep slope can cause the trailer to become unstable and tip over. Additionally, excessive loads are induced in the rotation system. If it is necessary to work on a slight incline, it is recommended that the outriggers be jacked to position the trailer in a level position.
DO NOT OPERATE THE LIFT ON A SLOPE EXCEEDING 5°.

Leveling Safety Switch Option - An optional leveling safety switch monitors the tilt of the trailer. When the green "Trailer Level" lamp is lit, the unit is within the 5° range. If the tilt of the unit exceeds 5°, the green lamp goes off and allows operation of the "in" and "down" controls only.

CAUTION:NEVER OPERATE LIFT UNLESS ALL FOUR OUTRIGGERS ARE EXTENDED AND LOCKED. THE GROUND AROUND OUTRIGGER SUPPORT PADS MUST BE SOLID. IF GROUND IS NOT SOLID, REPOSITION THE LIFT OR PROVIDE SOLID GROUND SUPPORT.

SETTING THE OUTRIGGERS

Jack-type

1. Disengage pin A and pull the outrigger assembly out until pin A re-engages at the furthest outward outrigger position. Refer to Figure 1-1.

2. Grasp the top of the outrigger tube firmly. Disengage pin B and carefully slide the outrigger foot down. **CAUTION - WATCH YOUR FEET, OUTRIGGERS SLIDE DOWN RAPIDLY!** Refer to Figure 1-2. Extend all 4 outriggers and lower all 4 outrigger feet to solid footing before proceeding.

3. Insert the jacking bar, through the jack hole, into a hole in the outrigger tube. Disengage, and hold, pin B and pull or push up on the jacking bar to lower the outrigger. Release pin B to hold the outrigger in place. Refer to Figure 1-2.

4. Jack all 4 outriggers evenly. Raise the unit 2-3 holes on one outrigger, then proceed to the next outrigger. **DO NOT OVER-EXTEND ANY ONE OUTRIGGER. OUTRIGGERS MUST BE LOWERED EVENLY, AND IN SEQUENCE.** The unit must be level with the weight of the unit supported by all 4 outriggers. *Note: When outriggers are set on a slope (5° maximum), the outriggers on the downhill side will be extended further than those on the uphill side in order to level the lift.*

5. Continue the jacking sequence until both wheels are a minimum of 1/2" above the surface. The green lamp on the lower control panel will light when all four outriggers are properly set. This green lamp indicates a ready operational condition. **CAUTION - BE SURE PIN A AND PIN B ARE FULLY RE-ENGAGED ON ALL 4 OUTRIGGERS BEFORE OPERATING THE UNIT.**

6. Store the outriggers using the reverse sequence. **CAUTION - MAKE SURE THE BOOM IS IN THE RETRACTED TRAVELING POSITION BEFORE STORING THE OUTRIGGERS.**

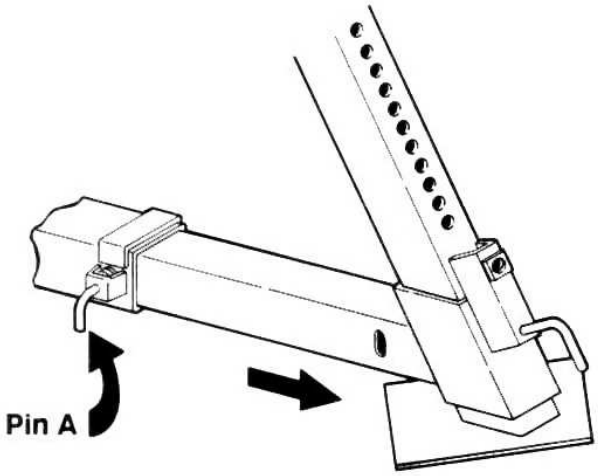


Figure 1-1
Extending Outriggers

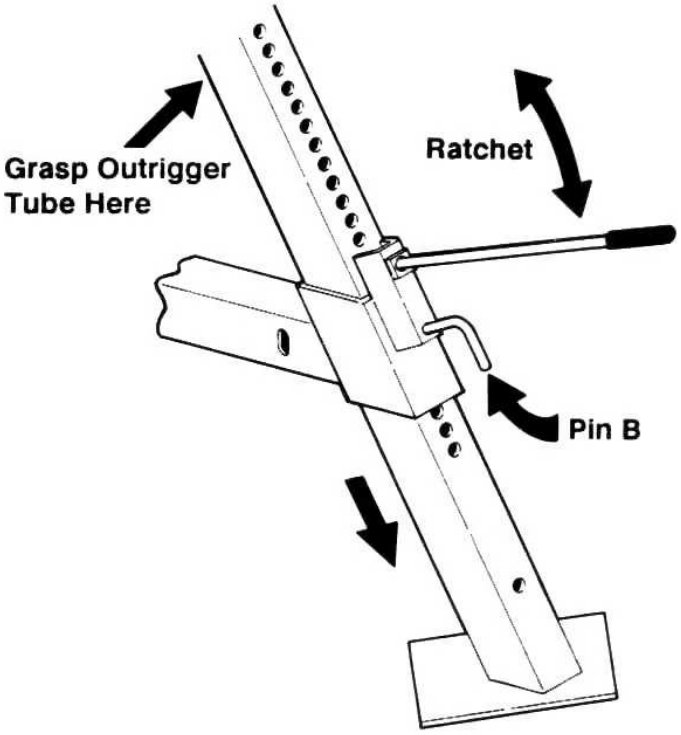


Figure 1-2
Jack-Type Outriggers

SETTING THE OUTRIGGERS WITH THE POWER JACK OPTION

1. Trailer the UniLift to the work area and position for operation. If on a slope, block the wheels as needed. Disconnect the tongue trailer wires, the safety chains and release the ball coupler. Place the third wheel in the horizontal, stowed position while setting the outriggers.

2. Turn the key switch on the lower control panel to SET UP (Refer to Figure 1-2A). Press the toggle switch on the power jack UP to raise the tongue above the hitch ball. Remove the towing vehicle from the work area. Press DOWN on the power jack switch to lower the tongue to the ground.

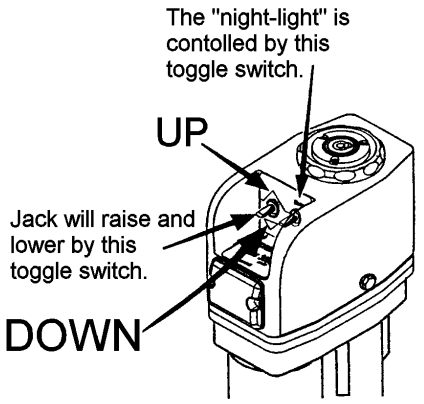


Figure 1-2A

3. On the rear outriggers, disengage pin A and slide the horizontal outrigger out until it locks. Refer to Figure 1-1. Grasp the vertical outriggers, disengage pin B and lower to the ground.
CAUTION - WATCH YOUR FEET, OUTRIGGERS SLIDE DOWN RAPIDLY!
Refer to Figure 1-2. Disengage pin B, lift up the horizontal outrigger until there are 8 holes showing at the bottom of the vertical leg. Check pins A and B on the rear outriggers to be sure that they are fully re-engaged.

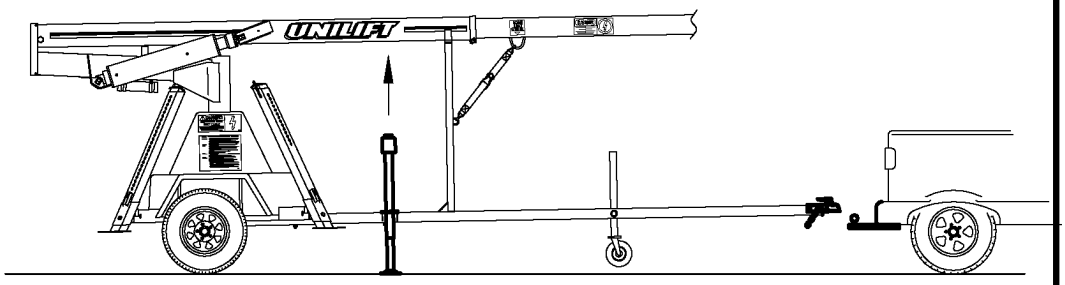
4. Press the power jack switch UP until the front of the UniLift is above level. This can be determined by watching the position of the tongue. On the front outriggers, disengage pin A and slide the horizontal outrigger out until it locks. Grasp the front vertical outriggers, disengage pin B and lower to the ground. Disengage pin B, lift up the horizontal outrigger until there are 8 holes showing at the bottom of the vertical leg. Check pins A and B on the front outriggers to be sure that they are fully re-engaged. Press the power jack switch DOWN until the power jack foot is off the ground. Turn the key switch on the lower control from SETUP to ON. The green OUTRIGGER INDICATOR LIGHT will show that the unit is ready for operation.

CAUTION - BE SURE PIN A AND PIN B ARE FULLY RE-ENGAGED ON ALL FOUR OUTRIGGERS BEFORE OPERATING THE UNILIFT.

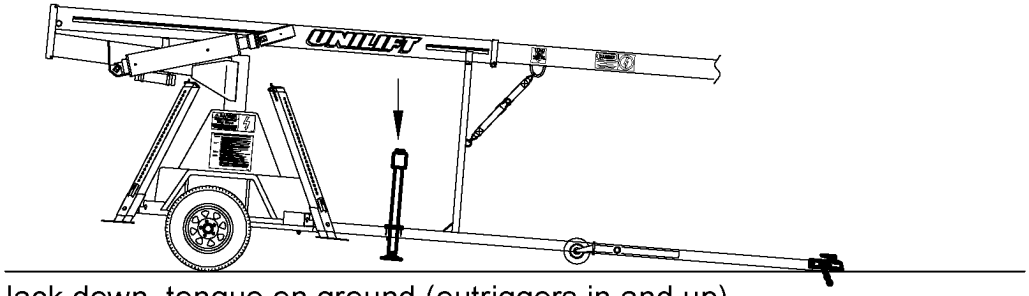
NOTE:
Eight holes showing on the lower part of each leg will accomplish a set up on level surfaces. For set up on a slope, the outrigger height setting will vary as needed to level the UniLift. Use the level indicator on the power jack to determine if the machine set up is level.

To prepare the UniLift for towing, stow the boom and reverse the above procedure, being sure that the power jack is in the fully raised position for towing.

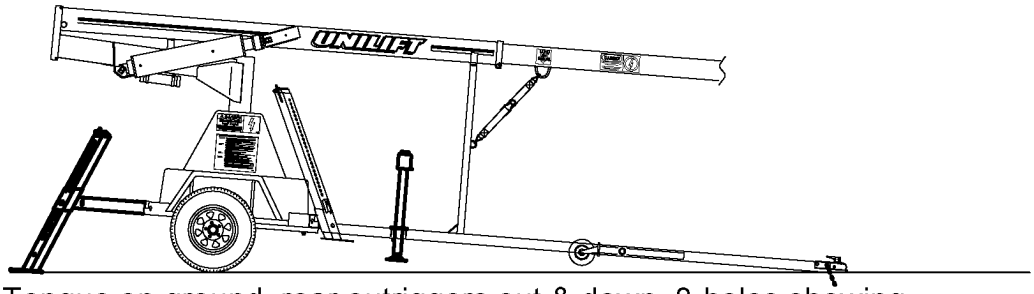
Power Jack SET UP



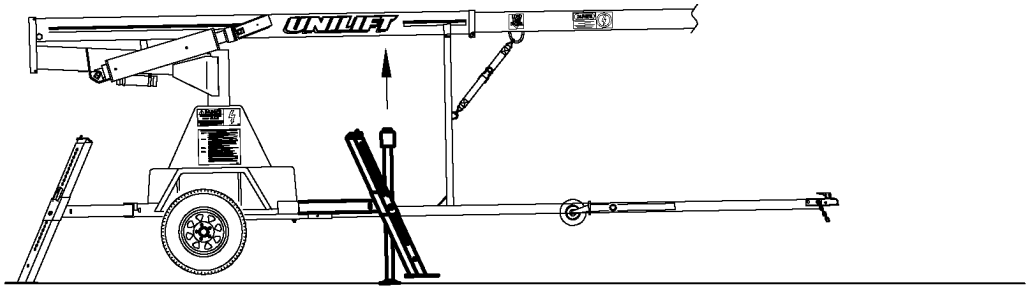
Jack up to raise tongue above hitch (outriggers in and up).



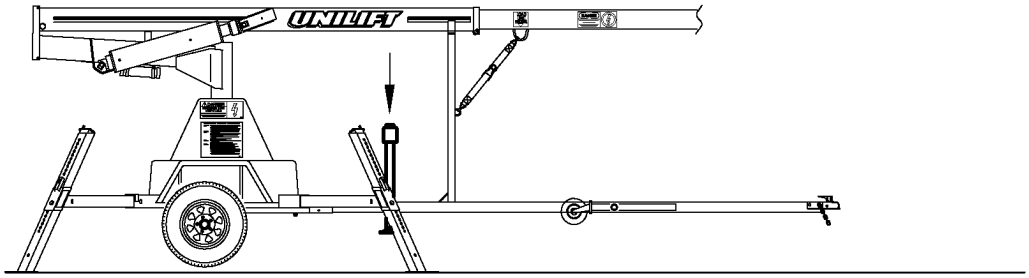
Jack down, tongue on ground (outriggers in and up).



Tongue on ground, rear outriggers out & down, 8-holes showing.



Jack up above level, front outriggers out & down, 8-holes showing.



Jack down and off ground, machine level and set.

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Crank-type

1. Disengage pin A and pull the outrigger assembly out until pin A re-engages at the furthest outward outrigger position. Refer to Figure 1-3.

2. Attach the winch handle securely to the high-speed drive shaft (make sure handle clip securely engages the groove in the high-speed shaft). Refer to Figure 1-3.

3. Disengage (and hold) pin B and crank the winch handle counter-clockwise to lower the outrigger foot. Refer to Figure 1-3. Extend all 4 outriggers and lower all 4 outrigger feet to solid footing before proceeding.

4. Remove the winch handle and re-attach it securely to the low-speed drive shaft (make sure handle clip securely engages the groove in the low-speed shaft). Refer to Figure 1-3.

5. Disengage (and hold) pin B and crank the winch handle clockwise to set the outrigger foot. Crank all 4 outriggers evenly. Raise the unit 2-3 holes on one outrigger, then proceed to the next outrigger. **DO NOT OVER-EXTEND ANY ONE OUTRIGGER. OUTRIGGERS MUST BE LOWERED EVENLY, AND IN SEQUENCE.** The unit must be level with the weight of the unit supported by all 4 outriggers. *Note: When outriggers are set on a slope (5° maximum), the outriggers on the downhill side will be extended further than those on the uphill side in order to level the lift.*

6. Continue the cranking sequence until both wheels are a minimum of 1/2" above the surface. The green lamp on the lower control panel will light when all four outriggers are properly set. This green lamp indicates a ready operational condition. **CAUTION - BE SURE PIN A AND PIN B ARE FULLY RE-ENGAGED ON ALL 4 OUTRIGGERS BEFORE OPERATING THE UNIT.**

7. Store the outriggers using the reverse sequence. **CAUTION - MAKE SURE THE BOOM IS IN THE RETRACTED TRAVELING POSITION BEFORE STORING THE OUTRIGGERS.**

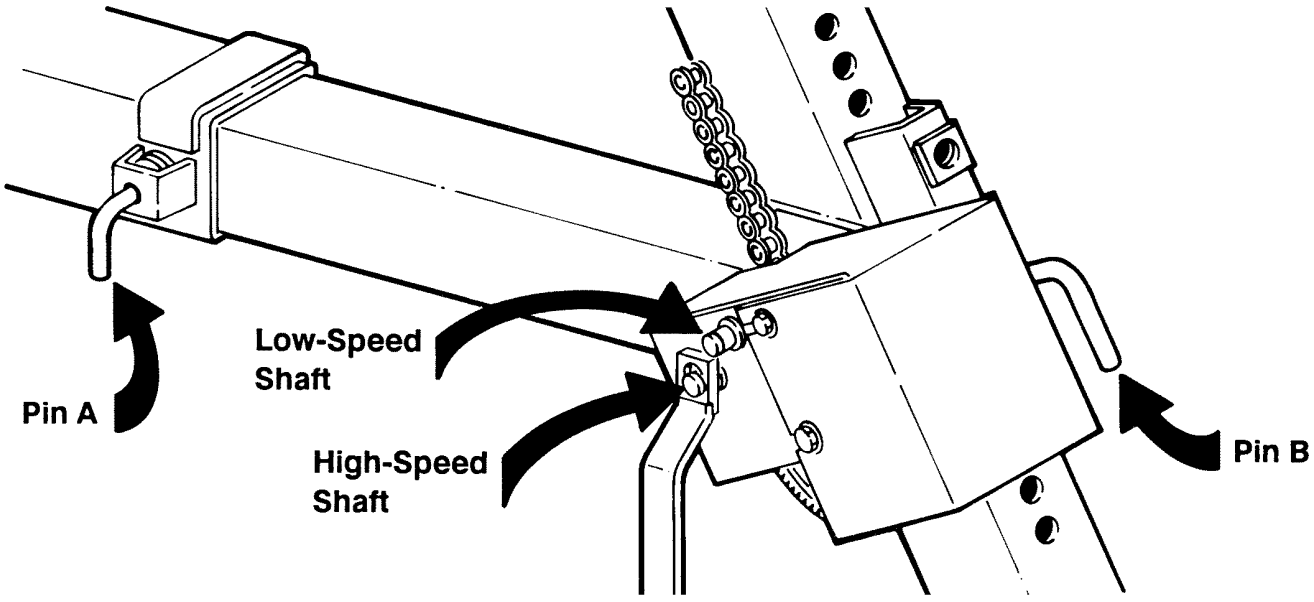


Figure 1-3
Crank-Type Outriggers

CONTROLS (THRU S/N: 2234)

The movement of the lift may be controlled from the bucket or at the pedestal.

The bucket controls consist of four toggle switches located on the control panel at the upper end of the telescoping boom, within easy reach of the operator (see Figure 1-4). The first is an EMERG. DOWN-OFF-ON switch which applies or removes power to all control switches. The EMERG. DOWN-OFF-ON switch also serves as a means to allow the lowering and retracting of the boom in an emergency situation due to an electrical system malfunction. The three directional control switches are oriented so that a movement of a switch results in a corresponding movement of the bucket. They are spring loaded to the neutral position. Moving the directional switch handle in the direction of an arrow while holding the EMERG. DOWN-OFF-ON switch to the ON position, causes the bucket to move in a corresponding direction. When the directional switch handle is released, it springs back to the neutral position, and lift movement stops. It will also stop if you release the EMERG. DOWN-OFF-ON switch.

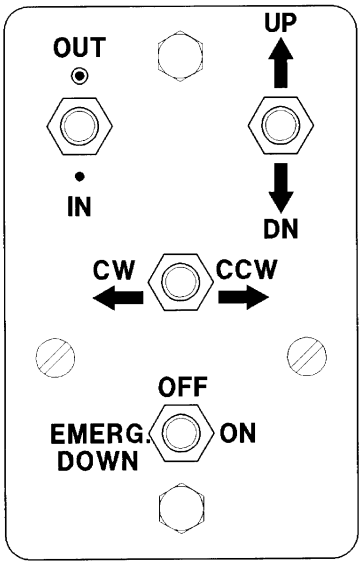


Figure 1-4
Upper Controls

The lift may also be operated by using the four control switches at the pedestal (see Figure 1-5). The UPPER CONTROL-LOWER CONTROL Switch handle must be held in the LOWER CONTROL position before the directional control switches are operable.

The switch marked UP and DOWN controls the up and down movement of the boom. The switch marked OUT and IN controls the action of the upper telescoping section of the boom. The switch marked CCW and CW controls the rotation of the boom.

The rotation system is equipped with two limit switches that prevent more then 350° of rotation. When the boom is rotated so that limit switch is reached, the rotation will stop. Simply reverse the control and rotate in the opposite direction to position the bucket in the desired location.

Both upper and lower booms have stops to limit their travel. When this stop is reached, release the control switch to prevent overheating of the hydraulic oil and shortened pump life. Actuation of a control switch automatically starts the DC motor so that this motor runs only when required, conserving battery life.

Two or three controls may be actuated simultaneously, depending on the bucket load and which functions are operated. Generally, rotation (which is a DC motor function) may be operated in conjunction with any other function. Also, IN, DOWN, and ROTATION (as would be used in returning the boom to the stowed position from a working position) may be operated simultaneously.

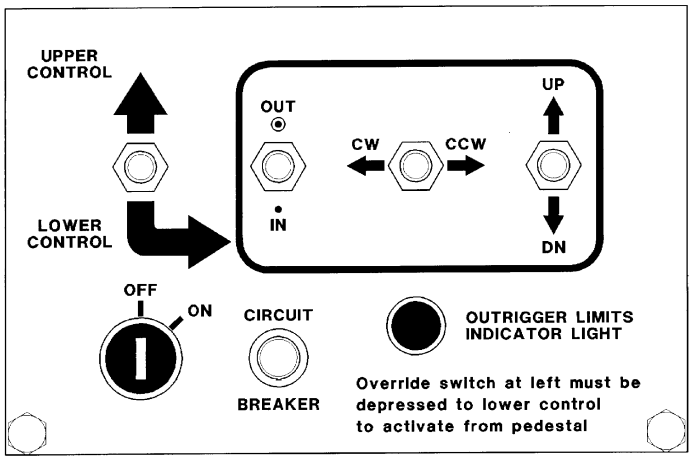


Figure 1-5
Pedestal Controls

CONTROLS (S/N: 2235 & Above)

The movement of the lift may be controlled from the Platform Control Station (bucket) or the Lower Control Station (base).

Platform Control Station

The Platform Control Station is located at the upper end of the telescoping boom (see Figure 1-4A) and contains five toggle switches and a power indicator lamp. The Platform Control Station is used to control movement of the machine from the bucket.

The Platform Control Station has five control toggle switches: an EMERGENCY STOP switch, a DOWN OVERRIDE-OFF-ENABLE switch, and three control switches. The EMERGENCY STOP switch applies or removes power to the Platform Control Station, and must be in the ENABLE position to operate the machine from the bucket. The DOWN OVERRIDE-OFF-ENABLE switch applies or removes power to the control switches. Activating a switch in a certain direction results in a corresponding movement of the bucket. The switch actuators are spring loaded to the neutral position.

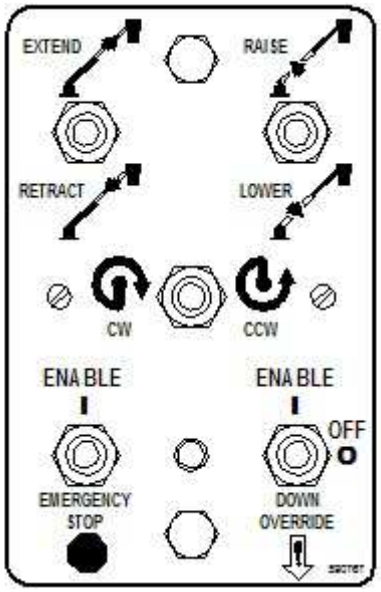


Figure 1-4A
Platform Control Station

To operate the machine from the Platform Control Station:

- Set the EMERGENCY STOP switch to the “ENABLE” position. The power indicator lamp will light.
- Hold the DOWN OVERRIDE-OFF-ENABLE switch to the “ENABLE” position.
- Activate a control switch in the chosen direction to move the bucket/boom in the corresponding direction.
- When the control switch is released, the actuator returns to the neutral position, and movement stops.
- Movement will also stop when the DOWN OVERRIDE-OFF-ENABLE switch is released.

The DOWN OVERRIDE position serves as a means of lowering and retracting the boom in an emergency situation due to an electrical system malfunction or interlock concern. Activating the switch to the DOWN OVERRIDE position allows operation of the LOWER and RETRACT functions only.

Lower Control Station

The lift may also be operated from the base (see Figure 1-5A). The Lower Control Station contains four toggle switches, a key switch, and an EMERGENCY STOP button.

The EMERGENCY STOP button must be pulled out and the PLATFORM CONTROL-LOWER CONTROL switch must be held in the LOWER CONTROL position before the control switches at the base will operate. This prevents accidental activation of the Lower Control Station.

IMPORTANT: The Lower Control Station is intended for crane operation and stowing of the booms. When a worker is present in the bucket, the base controls may be used for an emergency only!

The toggle switches control movement of the booms and rotation system. Activating a switch in a certain direction results in a corresponding movement of the bucket. The switch actuators are spring loaded to the neutral position.

The rotation system is equipped with two limit switches that prevent more then 350°of rotation. When the boom is rotated, and a limit switch is reached, rotation will stop. Simply reverse the control and rotate in the opposite direction to reposition the bucket.

(Lower Control Station - cont'd)

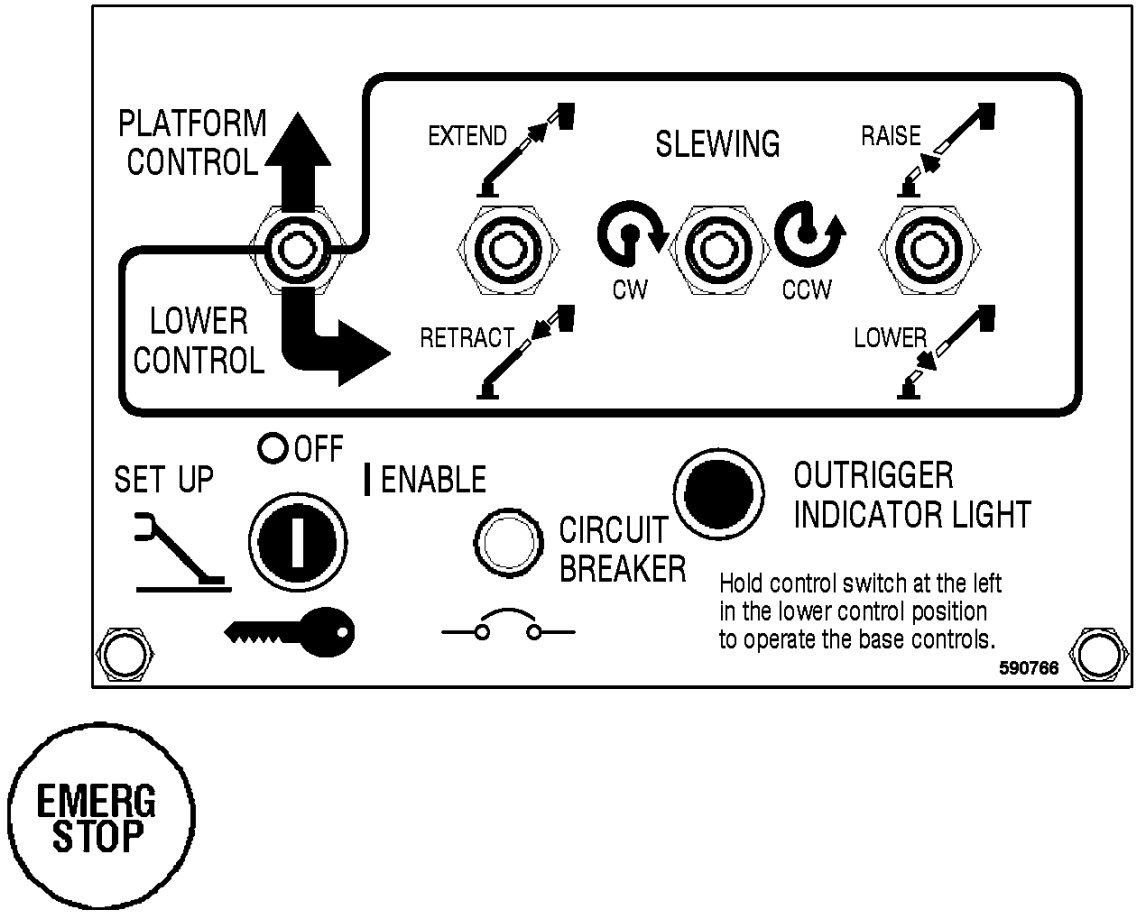


Figure 1-5A
Base Control Station

Both booms have interlocks that limit travel. When a stop is reached, release the control switch to prevent overheating of the hydraulic oil and damage to the pump. Actuation of a control switch automatically starts the DC motor so the motor runs only when required, conserving battery life.

Generally, only one pump function should be operated at a time. Rotation (which is a DC motor function) may be operated in conjunction with any boom function. The LOWER function also does not require pump activation, so it may be used in conjunction with the RETRACT and ROTATION controls (as would be used in returning the boom to the stowed position from a working position).

To operate the machine from the Lower Control Station:

- Make sure the EMERGENCY STOP button is pulled out.
- Hold the PLATFORM/LOWER CONTROL switch in the "LOWER CONTROL" position.
- Activate a control switch in the chosen direction to move the bucket/boom in the corresponding direction.
- When the control switch is released, the actuator returns to the neutral position and movement stops.
- Movement will also stop when the PLATFORM/LOWER CONTROL switch is released.

PRE-START INSPECTION

Prior to each days operation, the operator shall check for defects using the Pre-Start Inspection list.

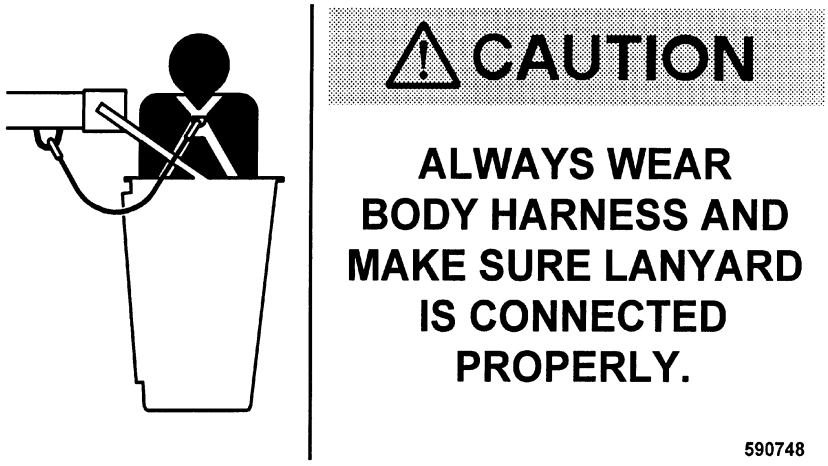
BUCKET LOCK

The bucket is gravity leveled and hydraulically dampened, with a positive bucket-locking knob that prevents swinging of the bucket after it has been placed in a working position. This locking mechanism is located inside the bucket to the operator's right when facing the platform control station. To lock the bucket, turn the locking knob CW until tight. To release the bucket lock, rotate knob CCW.

BUCKET OPERATION

After the trailer has been properly parked and outriggers properly extended and set, disconnect the boom tie-down strap and turn the key switch “ON”. The green light on the Lower Control Station will be lit. Raise the boom out of the boom rest and rotate away from the tongue using the lower controls. Check to make sure that the bucket is properly installed. Check the bucket-yoke lock pins to insure it is positioned in the hole, and the bucket yoke is securely locked to the boom.

IMPORTANT: A body harness with a 4 ft. lanyard (p/n: 532051) is furnished with each machine. DO NOT use a body harness unless it is designed to meet the appropriate standards and has a 4 ft. lanyard - NO EXCEPTIONS!



Put on the body harness and enter the bucket. Route the 4-foot lanyard over the bucket yoke arm, and attach the hook to the "D" ring. **NEVER ROUTE THE BODY HARNESS LANYARD THROUGH THE HOLE IN THE BUCKET OR BETWEEN THE YOKE AND THE BUCKET. THE LANYARD MUST BE PLACED ON TOP OF THE YOKE ARM.**

WARNING:NEVER OPERATE ANY AERIAL EQUIPMENT WITHOUT WEARING AN APPROVED BODY HARNESS. ATTACH THE HARNESS LANYARD TO THE "D" RING ON THE BOTTOM OF THE UPPER BOOM. DO NOT OVERLOAD BUCKET.

Use the Platform Control Station to rotate, raise, and extend the boom as necessary to get to the working position. When the working position is reached, engage the bucket lock.

DANGER
ELECTROCUTION HAZARD, STAY AT LEAST 10 FEET FROM POWER LINES. THIS UNIT IS NOT INSULATED FROM ELECTRIC SHOCK. DEATH OR SERIOUS INJURY TO OPERATORS AND/OR BYSTANDERS CAN RESULT FROM CONTACT WITH ELECTRICAL WIRES.

To return to the stowed position, unlock the bucket lock then operate the controls as necessary to fully retract the telescoping section and position the boom to the side of the boom rest. Exit the bucket. Use the lower controls to move the boom to the stored position in the boom rest.

CRANE OPERATION

After the trailer has been properly parked, and all four outriggers are properly extended and set, the bucket must be removed. **NOTE: The green light on the Lower Control Station will be "ON" if the unit is set-up properly.** To remove the bucket, pull the bucket yoke lock pin and rotate it away from the hole. Remove the bucket from the boom and move it clear of the work area. Loads of 500 pounds maximum can be lifted by the inner lanyard ring, **with the telescoping boom fully retracted. Do not extend the boom when lifting over 300 lbs.** Loads of 300 pounds maximum can be lifted to approximately 31 feet high with a side reach of approximately 22 feet by using the outer lanyard ring (See Figure i-2).

Proper sequence of operation to lift objects from ground to desired height is:

1. Make sure the telescoping boom is completely retracted and secure the load to the lanyard ring using safe rigging practices. The optional lifting bale may be useful for pallet loads.

2. Using the Lower Control Station, lift the load off the ground, then rotate to desired direction. Use the RAISE control and raise the boom to the desired angle.

3. Extend the telescoping boom, using the EXTEND control to achieve desired height.

Reverse the sequence to bring objects down from a height, i.e.:

1. Use the RAISE control to lift the load. Retract the telescoping boom, using the RETRACT control.

2. Lower the load, using the boom LOWER function; then rotate.

SHUTDOWN

After the boom has been stored in the boom rest, make sure that the bucket is properly attached and the bucket yoke lock pin is securely locked. Swing the bucket up and insert the lock clip. Use the bucket lock and secure the bucket in the stowed position. Secure the boom tie-down strap, and lower the third wheel assembly. Retract and lock outriggers in stored position. Turn the key switch to OFF.

CAUTION: DO NOT MOVE TRAILER UNLESS BOOM IS STORED AND SECURED!

SYSTEM RECHARGING

After each day's use, plug in 120 volt power to recharge batteries with built-in battery charger. The battery charger will automatically shut off when full charge has been reached.

EMERGENCY CONTROLS

A description of the Emergency Controls Follows:

Power "ENABLE" Switches

Power ENABLE switches are provided at both the Platform Control Station and Lower Control Station (See Figures 1-4 & 1-5). To prevent uncontrolled movement of the boom in the event of a switch malfunction, either ENABLE switch may be switched OFF. The Platform Control Station has a DOWN OVERRIDE-OFF-ENABLE toggle switch that remains in the OFF position unless activated. When released, this switch returns to the OFF position, removing power from the switches and stopping boom movement. The Lower Control Station has a key switch. Switching the key to the OFF position cuts all power to the system. The OFF-ENABLE key switch also provides for security during transportation and storage.

Station Override Switch

A station override switch is located on the left side of the Lower Control Station. This switch has two (2) positions, PLATFORM CONTROL and LOWER CONTROL. For normal operation of the lift from either control station, the switch is spring loaded to the PLATFORM CONTROL position. In the event a bucket operator becomes disabled, or the Emergency Stop switch on the Platform Control Station controls is activated, depress the override switch to LOWER CONTROL. This will give the lower control station priority over the system.

Emergency Stop Switches

Emergency Stop switches are located at both the Platform Control Station and the Lower Control Station (See Figures 1-4 & 1-5). To shut off power to the system, either Emergency Stop switch may be activated. The Platform Control Station has a Emergency Stop toggle switch. To shut off power, activate the toggle switch to the Emergency Stop position. To resume operation, place the toggle switch in the Enable position. The Lower Control Station has a red Emergency Stop pushbutton, located below the main control switches. To shut off power, depress the red pushbutton. To resume operation, twist the red Emergency Stop pushbutton clockwise to disengage.

IMPORTANT: ACTIVATING THE EMERGENCY STOP SWITCH AT THE LOWER CONTROL STATION, COMPLETELY SHUTS OFF POWER TO THE ENTIRE SYSTEM. ALL SYSTEM CONTROLS ARE DISABLED WHEN THE LOWER EMERGENCY STOP PUSHBUTTON IS ACTIVATED.

EMERGENCY MANUAL LOWERING VALVE

The Emergency Manual Lowering Valve is located at the base of the hydraulic pump (See Figure 1-6) and is intended to be used as an emergency "down" valve in the event of power failure or down relay/lowering valve failure. Turn the "T-handle" counterclockwise until load descends. After cylinder is lowered, turn the "T- handle" clockwise to close the valve, and resume normal operation.

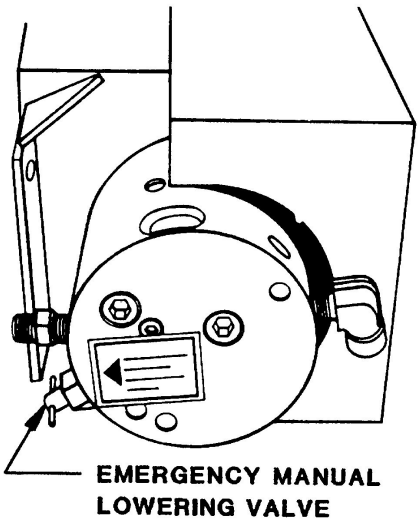


Figure 1-6
Emergency Manual Lowering Valve

EMERGENCY PROCEDURES

In the event the unit is damaged while a man is in the air, or an emergency arises after he has gone aloft, immediately rotate the bucket away from any dangerous obstruction, into a clear line of descent when the booms are lowered. **The machine should be operated through the shortest cycle possible to get the bucket on the ground,** then operated from the lower control station to finish storing the boom. Possible conditions and suggested procedures:

PLATFORM CONTROL STATION SWITCH FAILURE

Should any movement not stop when a control switch is released, immediately release the ENABLE-OFF-DOWN OVERRIDE switch. Hold the control switch in the opposite position and activate the ENABLE switch to test for proper function.

The DOWN OVERRIDE switch at the Platform Control Station allows the operator to use the RETRACT and LOWER functions in the event of an electrical system malfunction.

LOWER CONTROL STATION SWITCH FAILURE

Should any movement not stop when the control switch is released, immediately turn the key switch to OFF, or push the red EMERGENCY STOP pushbutton. Hold the control switch in the opposite position and turn the power ON to test for desired function. The red EMERGENCY STOP pushbutton must be twisted clockwise to reset and resume normal operation.

HYDRAULIC LINE FAILURE

If partial failure is experienced and holding valves do not lock, use the controls in short intervals to store the booms. Should a complete line failure occur, the holding valve will lock. The failed line must be repaired to release the holding valve.

POWER FAILURE

Standby power may be obtained by using booster cables connected to an automotive power system in the event of a battery system failure (See Figure 2-1). If the defect occurs beyond the batteries, requiring manual operation, the following procedure can be used:

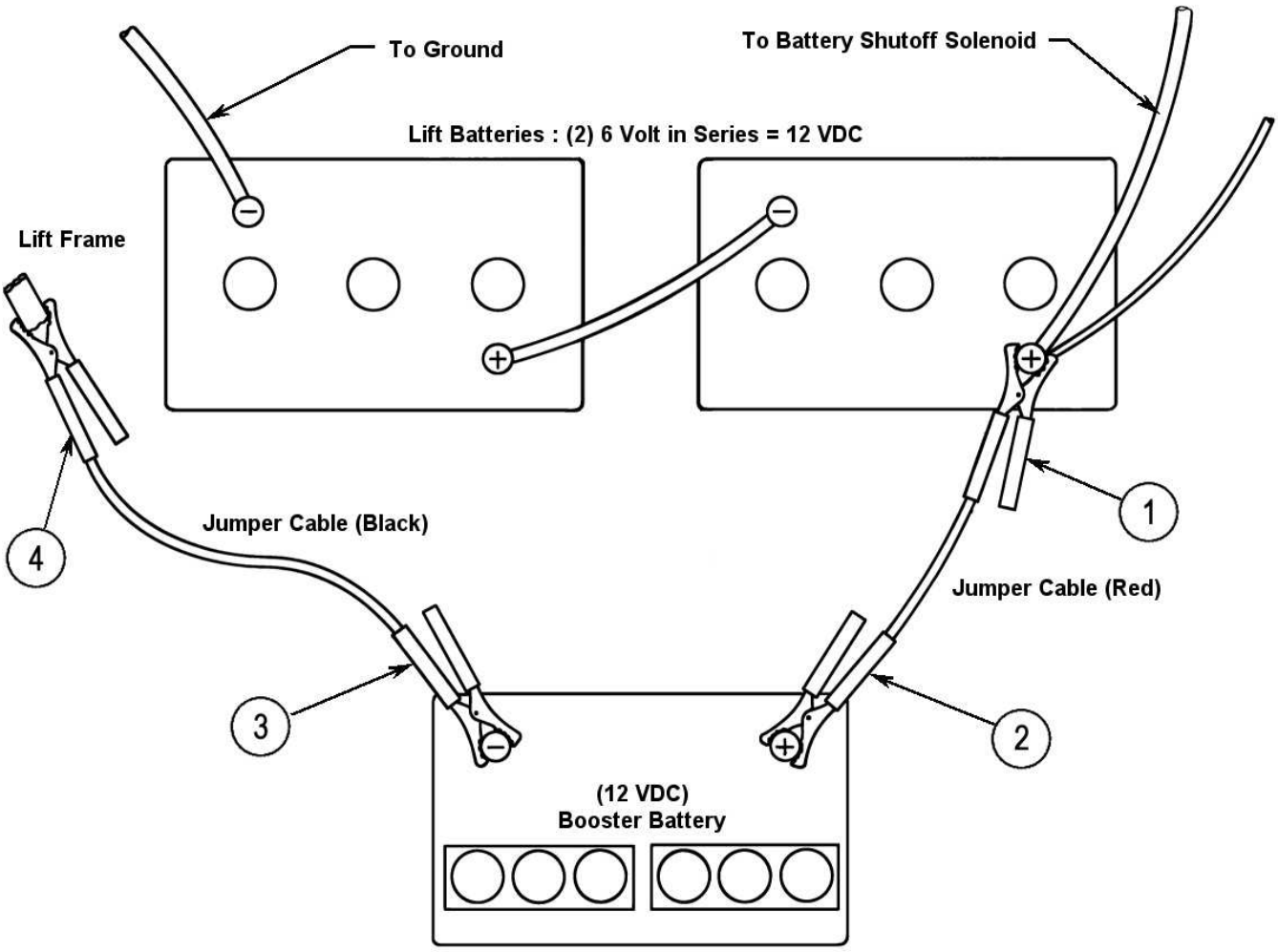
1. The boom can be lowered by releasing the cylinder fluid through the Emergency Lowering Valve located at the base of the hydraulic pump (See Figure 1-6).

2. The boom can be rotated manually as follows: Remove the rotation drive motor belt, then rotate drive pulley, item 18 in Figure 8-4, until the boom is above the stored position.

3. The telescoping boom can be retracted by removing the pilot-operated check valve (located at the base of the telescoping cylinder) and manually pushing the upper section fully in.

BUCKET OPERATOR DISABLED

Hold the station override switch in the LOWER CONTROL position. Using the controls at the Lower Control Station, rotate the boom clear of obstructions, retract the upper boom and lower to the ground.



NOTE: Make certain vehicles do not touch

Figure 2-1
Booster Cable Instructions

DANGER
READ SAFETY PRECAUTIONS ON PAGE 4 - 6 BEFORE USING BOOSTER CABLES

1. Connect positive (+) cable to positive post of discharged batteries.
2. Connect other end of booster cable to positive (+) post of booster battery.
3. Connect second cable to negative (-) post on booster battery.
4. Make final connection on unit frame away from battery to prevent sparking.
5. Remove cables in reverse order of installation.