

ULTRALIFT™

OPERATION MANUAL

the best move you'll ever make!



Ultra Lift Corporation, 475 Stockton Avenue, Unit E, San Jose, CA 94126

(800) 346-3057; (408) 287-9400; Fax (408) 297-1199

www.ultralift.com; info@ultralift.com

ULTRA LIFT CORPORATION

OPERATOR'S MANUAL
MODEL 1500 POWERED HAND TRUCK
TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
I. STRAPPING THE LOAD.....	2
II. THE CONTROL SWITCH.....	4
III. BREAKING BACK THE LOAD.....	5
IV. MOVING OVER FLAT SURFACES.....	6
A. Four-Wheel Dolly.....	6
V. LOADING & UNLOADING TRUCKS.....	7
A. Loading.....	7
B. Unloading.....	8
C. Portable Dock Leveler.....	9
VI. STAIR MOVES.....	10
A. Climbing Stairs.....	10
B. Descending Stairs.....	11
VII. OVERCOMING CURBS & OBSTACLES.....	12
A. Curbs.....	12
B. Thresholds.....	12
C. Other Obstacles.....	12
VIII. MECHANICS OF OPERATION.....	13
A. Main Frame Assembly.....	14
B. Lift Frame Assembly.....	15
C. Drive System.....	16
D. Electrical System.....	17
IX. BATTERY CHARGING.....	19
X. OVERVIEW/MAINTENANCE & INSPECTION PROCEDURES.....	21
A. Objectives.....	21
B. Regular Maintenance.....	21
C. Routine Inspection.....	23
D. Anti-Reverse Brake.....	24
XI. SPECIFICATIONS: MODEL 1500 POWERED HAND TRUCK.....	i
XII. DRIVE SYSTEM ASSEMBLY: EXPLOSION.....	ii
XII. WARRANTY.....	iii



POWERED HAND TRUCK

ULTRA LIFT customers use a combination of motorized lifting, leverage and balance to greatly reduce the operator effort required and improve operator safety in all types of moves:

- **LOAD BREAK BACK**
- **ACROSS LEVEL SURFACES**
- **OVER OBSTACLES SUCH AS CURBS, THRESHOLDS & ROUGH TERRAIN**
- **TALL LOADS UNDER LOW DOORWAYS**
- **ON AND OFF TRUCKS**
- **UP AND DOWN STAIRS**
- **IN AND OUT OF CONTAINMENT AREAS**

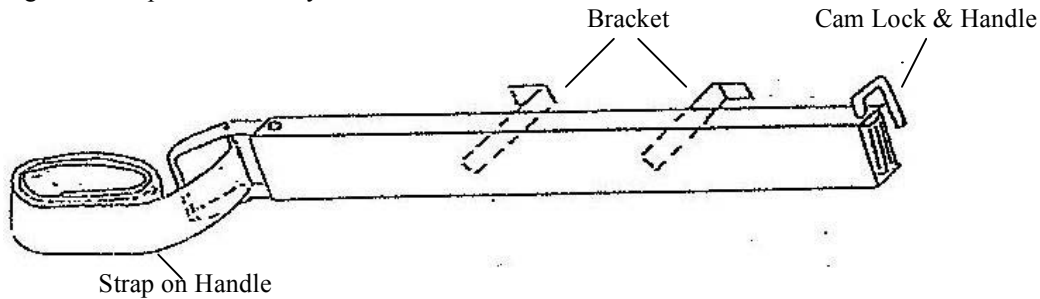
One person equipped with an ULTRA LIFT can safely move most loads weighing up to 650 – 750 pounds. Two people can handle many loads weighing up to 1500 pounds. The factors that determine the maximum load one or two operators can safely handle are the type of move being made (level surfaces, up stairs, etc.); load shape and weight distribution; operator skill level with ULTRA LIFT; and the physical size and strength of the operator(s).

Your ULTRA LIFT Powered Hand Truck will enable you to complete any hand truck move with reduced labor and increased operator safety.

1. STRAPPING THE LOAD

The adjustable Strap Bar can be positioned on the Lift Frame at the height required for the particular load being moved. Mounting brackets welded to the back face of the Strap Bar lock around the inside of the Lift Frame rails to hold the Strap Bar in place. See Figure 1 below:

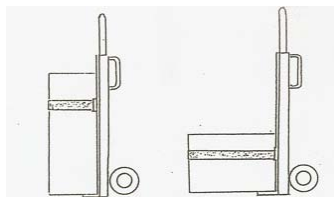
Figure 1. Strap Bar Assembly



1. Mount the Strap Bar to the Lift Frame at the best position for the load being moved. Open the strap handle as shown above and grip the handle end of the Strap Bar with your left hand. Grip the cam lock end of the Strap Bar with your right hand.
2. Rotate the Strap Bar. Angle the Strap Bar so that the brackets can be moved between the Lift Frame struts. With the Strap Bar in this position, place the back edge of the Strap Bar against the front face of the Lift Frame struts.
3. Slide the top end of the Strap Bar sideways to lock one bracket around the Lift Frame strut. Rotate the lower end upward until the second bracket locks behind the opposite strut and continue to rotate until the Strap Bar is firmly locked in place.

Note: The Strap Bar brackets can be adjusted as required if the Strap Bar is either too tight to fit onto the Lift Frame or is too loose and doesn't stay in place. To adjust an overly tight fit, lightly tap each bracket toward the center of the Strap Bar. To tighten a loose fit, lightly tap the brackets out. Do this adjustment off the Ultra Lift.

Figure 2. Strapping Alternatives



One Strap Bar



Two Strap Bars

4. With the Strap Bar positioned for your load (see Figure 2) tilt the load forward and slide the Lift Plate under it as you would with any hand truck.
5. Strap the load to the Lift Frame in the following sequence:
 - Open the Strap Handle and Cam Lock as shown in Figure 3.
 - Wrap the strap around the load and feed it through behind the Cam Lock as shown in Figure 3.
 - Leave a slight bit of slack in the strap and close the Cam Lock as shown in Figure 4.
 - Avoid the risk of pinched fingers! With the palm of your hand, close the Strap Handle to secure the load. Closing the Strap Handle will dramatically increase strap tension and it is normal for the Strap Handle to snap into position. If you have difficulty closing the Strap Handle, release the Cam Lock to create more slack. Retighten the Cam Lock and close the Strap Handle.

Figure 3. Thread the Strap

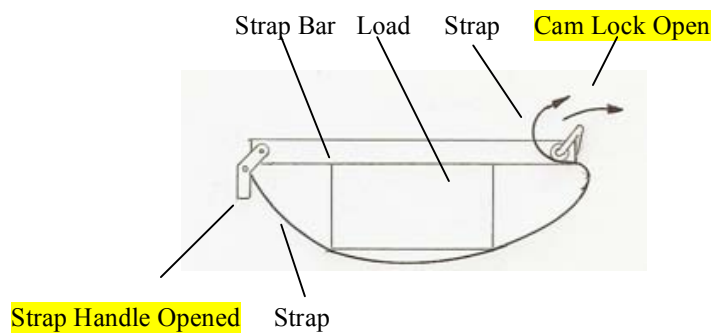


Figure 4. Lock the Strap

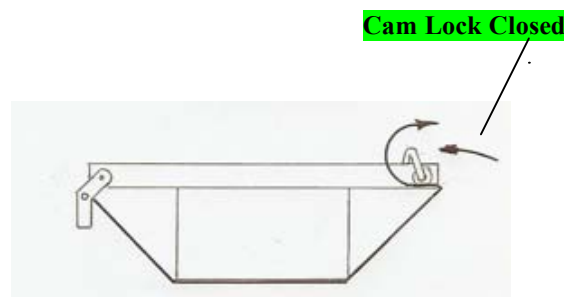
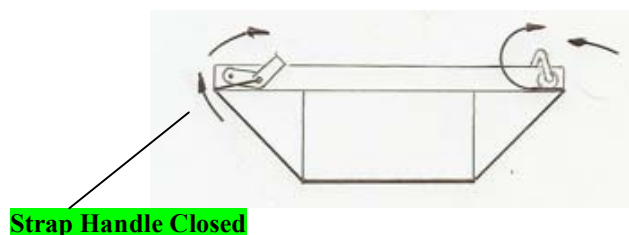


Figure 5. Tighten the Strap



II. THE CONTROL SWITCH

Your ULTRA LIFT has been designed for ease of operation. A single control switch moves the load and the wheels.

PUSH the switch to raise the wheels
or to lower the load.

PULL the switch to lower the wheels
or to raise the load.

A. RAISING THE LOAD

Think of raising the load as a three-step process:

1. The operator steps to the level onto which the load will be raised (e.g. truck bed, loading dock or curb). The extension handle is then pushed slightly forward to keep the load on the ground.
2. **PUSH** the control switch away from you to raise the wheels to the higher level.
3. With a firm grip pull the extension handle toward you; then **PULL** the control switch to raise the load to the higher level.

NOTE: When climbing stairs never put the Ultra Lift and the load on the same step! See page 10 for specifics of stair climbing.

B. LOWERING THE LOAD

Lowering the load is a reverse of the three-step process. The operator must be standing at the same level as the load to start the move.

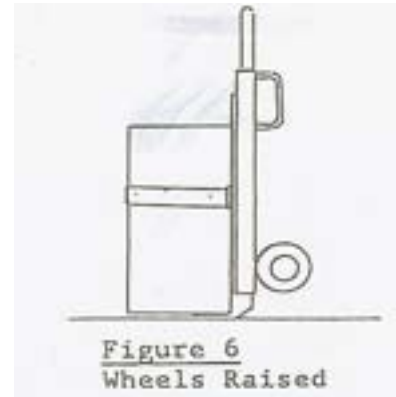
1. Roll the load toward the edge of the truck, loading dock, or curb so that the main wheels stop within 3” to 6” of the edge. While holding back firmly on the extension handle **PUSH** the control switch away from you to lower the load to the ground. Keep a firm grip on the extension handle while lowering the load.
2. When the load is on the ground push the extension handle forward, then **PULL** the control switch toward you to lower the wheels to the load.
3. Start to roll the load away from you while you are still on the higher level, then step down to the lower level to continue the move.

NOTE: See page 10 and 11 for specifics on descending stairs.

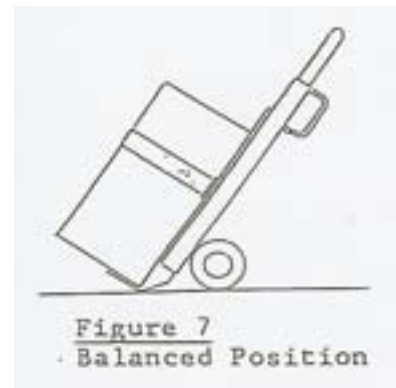
III. BREAKING BACK THE LOAD

Breaking back a heavy load with a standard hand truck is a difficult task. The operator must physically lift the load off the ground and raise it over the wheels. The wheels are the fulcrum (break back point) and the load is at maximum distance from the fulcrum. Your ULTRA LIFT takes the work out of breaking back even the heaviest loads.

1. PUSH the control switch to raise the wheels as shown. This reduces the effort required for two reasons:
 - a. The fulcrum shifts from the wheels to the edge of the load.
 - b. With the wheels 'out of the way' the load can be tilted backward until the wheels rest on the ground as shown. No lifting is required.

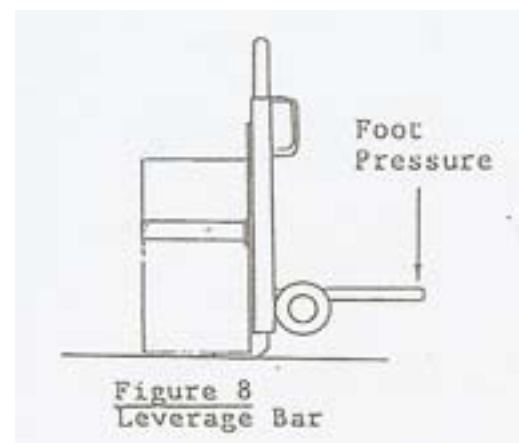


2. If the wheels are raised to the correct height before break back, the load will balance in an inclined position as shown.



IMPORTANT

To further reduce the effort required to break back tall or heavy loads, drop the leverage bar as shown and push down firmly with your foot.



IV. MOVING OVER FLAT SURFACES

Start with the load inclined in the balance position as shown in Figure 7. Grasp the extension handle with your left hand and the main handle with your right and proceed as follows:

1. Tilt the load back by pulling down on the extension handle. You will feel some of the weight of the load.
2. PULL or PUSH the control switch to move the load up or down along the frame. Find the point where the load is well balanced over the wheels. When the balance point is found, very little effort is required to hold the load steady, and the operator can concentrate on pushing the load to the final destination.
3. At the final destination Ultra Lift takes the work out of setting a heavy load down and also protects the load from damage during the process. The problem with a standard hand truck is that the operator often reaches a point where “the load takes over” as it is tilted down and slams to the ground. Such impact can cause costly damage to delicate items such as computers, copy machines, and appliances.

Ultra Lift power eliminates the problem. To set the load down, PUSH the control switch and “power” the load to the ground. With the edge of the load on the ground, tilt the load forward until the bottom of the load is flat on the ground. For very heavy loads, drop the leverage bar before tilting the load forward and use foot pressure for added control.

A. FOUR WHEEL DOLLY

If the load must be moved a long distance over a flat surface, assemble the four wheel dolly before breaking back the load. Refer to Section VIIIA for assembly instructions.

Break the load back until the dolly wheels are on the ground. PUSH or PULL the control switch as required to stabilize the load on the four-wheel dolly and push it to the final destination. Set the load down as described above and disassemble the dolly.

V. LOADING AND UNLOADING TRUCKS

The procedure for loading and unloading trucks is easy to learn. Try it with various types of loads to develop the technique that best suits you.

- PRACTICE WITH A LIGHT LOAD TO DEVELOP YOUR SKILLS BEFORE MOVING A HEAVY LOAD.
- LEARN THE LIMITS OF YOUR OWN STRENGTH.
Although Ultra Lift provides the power, you must provide back-pressure in loading trucks, climbing stairs, and overcoming obstacles.
- LOAD SHAPE IS AN IMPORTANT FACTOR IN ALL TYPES OF MOVES.
For example, tall loads are easier to move than short compact loads of the same weight.
- ACCESSORIES SUCH AS THE MODEL SCL (STRAP AND CHANNEL LOADING SYSTEM), MODEL THB (TRUCKBED HOOK BOX), OR OTHER TIE DOWN DEVICES (ITEM C BELOW) GREATLY REDUCE THE EFFORT REQUIRED IN LOADING A TRUCK.

A. LOADING A TRUCK

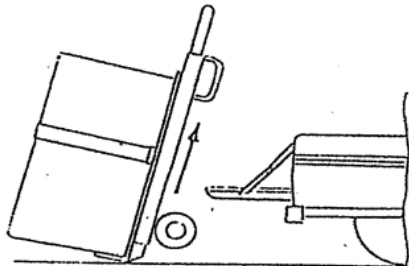


Figure 9, Position the Load

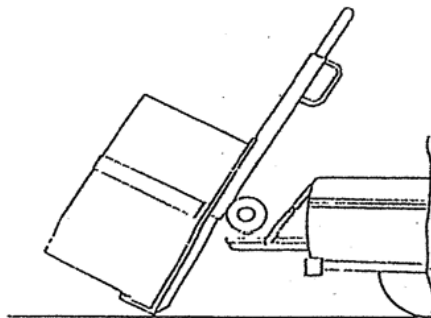


Figure 10, Raise the Wheels

1. Move your Ultra Lift to the tailgate of the truck as illustrated. Leave enough space for the wheels to clear the tailgate when they are raised.
2. PUSH the control switch to raise the wheels as illustrated. Test the strength of the tailgate before raising a heavy load. A heavy load may dent or buckle a light duty tailgate. Some tailgates may be removed during loading. A second alternative is to place a piece of plywood over the tailgate during loading.

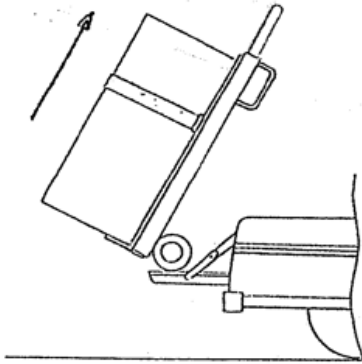


Figure 11, Raise the Load

3. Grip the extension handle firmly with your left hand and the main handle with your right to counter balance the Ultra Lift while PULLING the control switch to raise the load to the truck bed. When the load is just above truck bed level, roll the Ultra Lift back into the truck and set the load down.

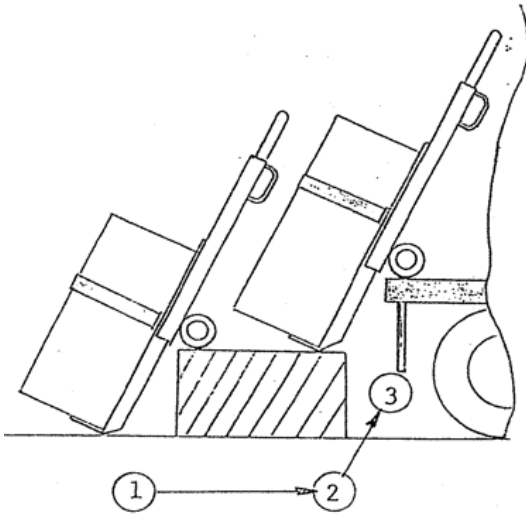


Figure 12, Two-Step Approach

4. Your Ultra Lift has a vertical lifting capability of 36". Any truck with a bed height of 36" or less can be loaded in one step. Higher trucks, such as over-the-road trailers, can be reached in two steps by placing a platform or box behind the truck and moving the load from ground level to the box and then to the truck bed.

B. UNLOADING A TRUCK

Unloading requires a reverse of the loading procedure. Start with the wheels approximately 4" from the edge of the truck bed and let the wheels roll slightly forward as the load approaches the ground.

NOTE: For some loads it will be necessary to drop the leverage bar and apply foot pressure for extra counterbalance force as you raise or lower the load. Loads that are heavier may require additional tie down assistance for counterbalance.

C. PORTABLE DOCK LEVELER

Your Ultra Lift can be used as a dock leveler to move loads between docks and trucks that are at different heights. For heavy loads, use the 4 wheel dolly configuration and apply foot pressure to the tripod cross bar for extra counterbalance force as you raise or lower the load. If the load is too heavy for the operator to counterbalance, a second person is required. Both the operator and the second person should always remain above the load.

NOTE: Never operate the machine with anyone below the load.

VI. STAIR MOVES

Moving loads up and down stairs requires a variation of the procedures used for loading and unloading trucks. An important Ultra Lift safety feature is that the operator is always ABOVE THE LOAD during stair moves.

A. CLIMBING STAIRS

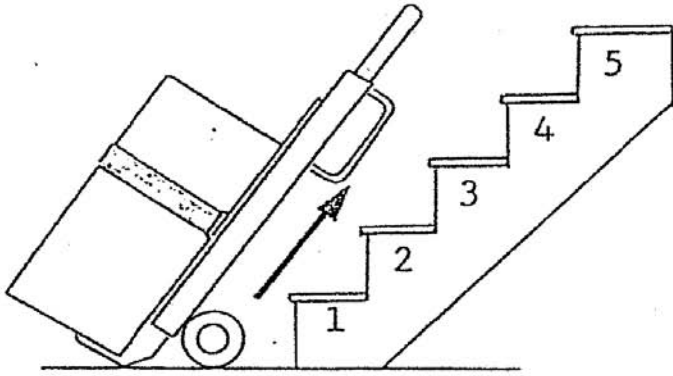


Figure 16

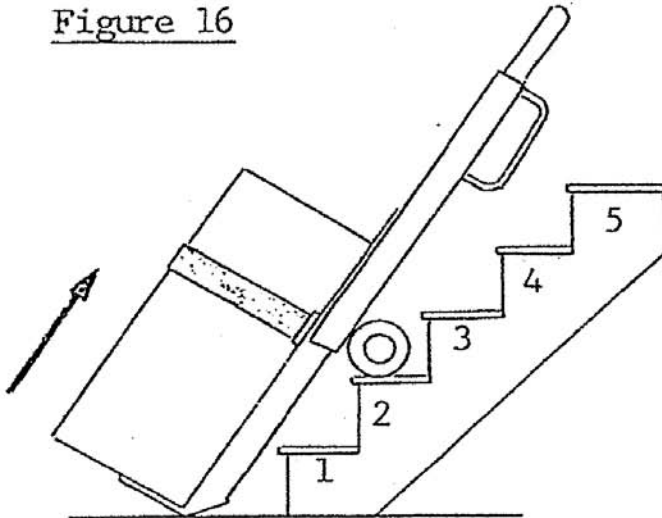


Figure 17

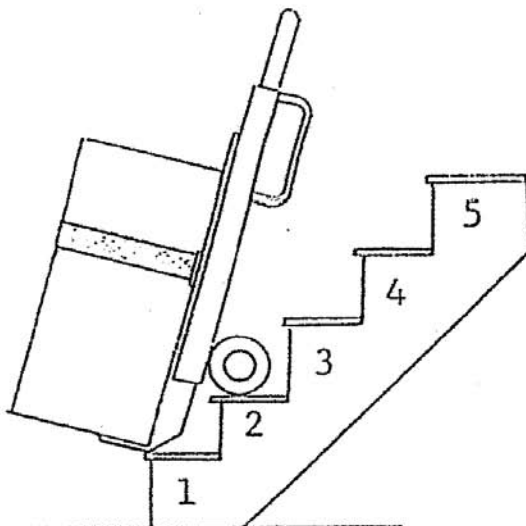


Figure 18

1. Roll the loaded Ultra Lift to the stairs as shown. Leave approximately 6" – 8" between the wheels and the first stair.
2. PUSH the control switch to raise the wheels and tilt the load back until the wheels rest on the second stair as shown.
3. Push downward on the extension handle to counterbalance the load and at the same time PULL the control switch to move the load up to the first stair as shown.

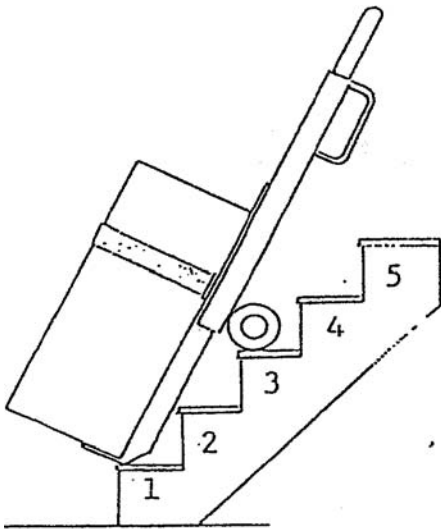


Figure 19

4. Repeat the second step. Pivot the load forward on the heel of the lift plate and raise the wheels to the third stair as shown.

To complete the climb, repeat the third step and continue to repeat steps two and three until the next floor is reached.

SAFETY FIRST! NEVER OPERATE THE MACHINE ON STAIRS WITH ANYONE BELOW THE LOAD!

NOTE: If you are moving a heavy load on wood stairs, be certain to bring the the lift plate well onto the stair. Do not set the lift plate down on the overhanging lip of a wood stair.

B. DESCENDING STAIRS

Descending stairs is a reverse of the stair climbing procedure; however, it will be necessary to break back the load an additional 3” inches so the lift frame clears the stair.

When lowering the load you will note that it continues to travel downward for 2” to 4” after the control switch is released. This is by design. The overtravel allows you to coast onto the next stair. Practice with a light load to develop this technique.

VII. OVERCOMING CURBS AND OBSTACLES

Obstacles such as curbs, thresholds, broken pavement, and even icy patches can be overcome by variations of the operating techniques described above.

A. CURBS

Climbing over or off of a curb can be thought of as loading or unloading a very short truck.

1. Roll the load up to the curb and PUSH the control switch to raise the wheels at least 18 inches.
2. Tilt the load back until the wheels rest on the ground beyond the curb.
3. With downward pressure on the extension handle PULL the control switch toward you to raise the load up to the curb level.

To step off a curb, reverse the process. Remember to break the load back a little further so that the left frame clears the curb. Also, be certain to extend the load far enough off the curb to allow space for the wheels to be lowered behind the load.

B. THRESHOLDS

Thresholds are handled in a similar fashion. The loaded Ultra Lift is backed up to the threshold:

1. PUSH the control switch to raise the wheels at least 18 inches and as much as 36 inches beyond the threshold.
2. Tilt the load back until the wheels rest on the floor beyond the threshold.
3. Push down on the extension handle to move the load off the ground while PULLING the control switch towards you to pull the wheels over the threshold without allowing the load to hit the threshold.

C. OTHER OBSTACLES

Broken pavement, depressions, bumps, and icy patches can be stepped over in a similar fashion. You can either power the wheels over the obstacle and bring the load on behind or extend the load over the obstacle and bring the wheels along behind the load.

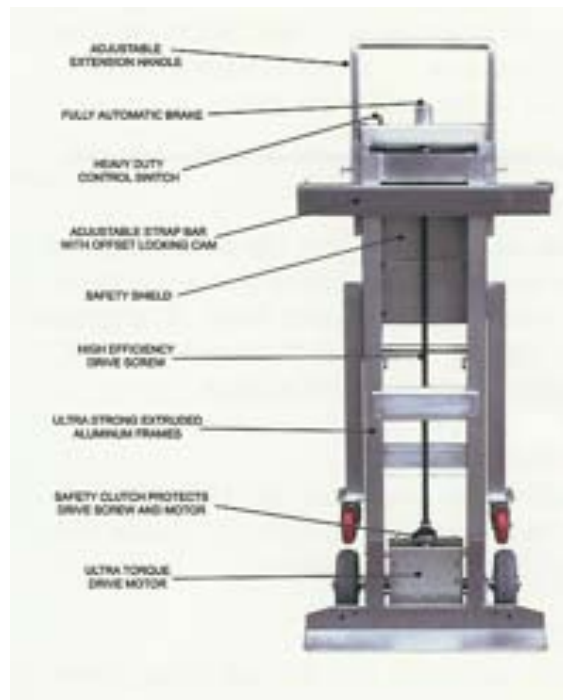
VIII. MECHANICS OF OPERATION

Your ULTRA LIFT consists of two primary structural members, a drive system, and an electrical system.

Figure 20. Side View: 4 Wheel Dolly Assembled



Figure 21. Front View: 2 Wheel Dolly Configuration



A. MAIN FRAME ASSEMBLY

The Main Frame is of welded aluminum construction and all components, except the Lift Frame and strap bar, are attached directly to it.

1. Frame Extension Handle. As shown in Figure 21, the handle fits through brackets welded to the top of the main frame and is held in place by two lock pins. Remove the pins to raise or lower the handle and vary overall machine height from 62" (for working in tight quarters) to 72" for extra leverage and control of tall, heavy loads. The adjustable extension handle makes Ultra Lift a "one size fits all" powered hand truck.

2. Fold Out 4 Wheel Dolly. As shown in Figure 20, the dolly is a tripod attachment that swings out from the Main Frame and locks to the leverage bar to form a 4 Wheel Dolly. The assembly procedure takes just seconds:
 - Release the leverage bar from its stored position by removing the lock pin that holds it in place.
 - Release the tripod legs by turning the swivel lock that holds the tripod against the main frame.
 - Swing the tripod and leverage bar together so that the holes in the tripod legs align with the leverage bar tubes. Slide the large lock pins through the tubes and into the tripod legs to lock the dolly assembly together.

To disassemble the 4 Wheel Dolly, set the load down in a balanced position with the caster wheels off the ground and reverse the above procedure.

3. Drive System. Described in detail below, all components of the drive system are mounted on the Main Frame and move with it.

4. Electrical System. Described in detail below, all components of the electrical system are mounted on the Main Frame and move with it.

B. LIFT FRAME ASSEMBLY

The Lift Frame is of welded aluminum construction and the sides of the frame fit inside the Main Frame. The Drive Screw, which is fixed at top and bottom to the Main Frame, passes through a device called a ball nut which is bolted to the top cross brace of the Lift Frame. Rotation of the Drive Screw moves the Lift Frame relative to the Main Frame via the bearings in the ball nut.

1. Adjustable Strap Bar. The strap bar can be positioned along the Lift Frame as required for the particular load being moved. Mounting brackets on the back of the strap bar fit around the inside of the Lift Frame. To move the strap bar (Figure 21), face the front of the machine and grasp one end firmly in each hand. Pull one end up while pushing the other down. The strap bar will twist loose and can be moved to a new location by reversing the procedure.

The strap bar can be adjusted as required if it is either too tight to fit onto the Lift Frame or is too loose and doesn't stay in place. To adjust an overly tight fit, lightly tap each bracket toward the center of the strap bar. To tighten a loose fit, lightly tap the brackets out. Do this adjustment off the Ultra Lift.

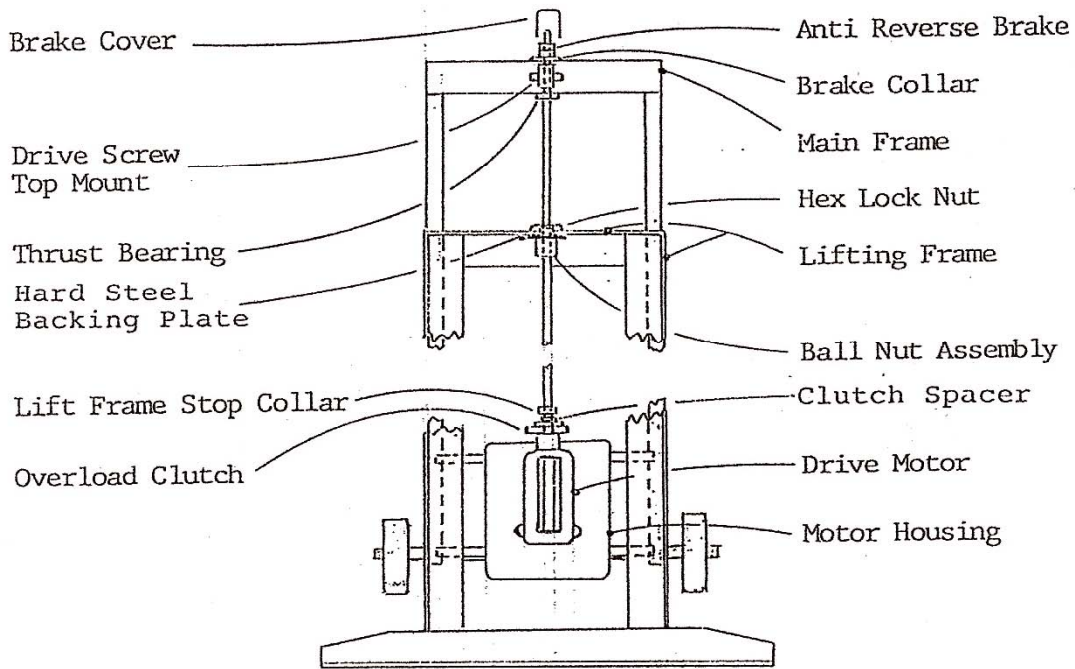
The strap bar serves as a connection point for many Ultra Lift Accessories, including the Concave Barrel Attachment, Double Cylinder Attachment, File Handling Attachment, Horizontal Move Assembly, Vertical Move Assembly, and Set Offs.

An optional second strap bar can be added for increased stability on very bulky or odd-shaped loads.

C. DRIVE SYSTEM

The drive is an electromechanical system that is powered by a non-hazardous 12 volt, deep cycle, spill-proof, sealed battery. As illustrated in Figure 23, the entire drive is mounted to the Main Frame and moves with it.

Figure 23



1. Drive Motor. The dual direction 1.2 H.P. motor is mounted in the motor housing at the bottom of the Main Frame. When the control switch is activated, the motor turns the drive screw.
2. Overload Clutch. Mechanical power is transferred from the motor to the drive screw via a ball détente type of clutch which protects the drive screw from over-running in either direction. Over-running occurs when the operator continues to apply power after the Lift Frame has reached its extreme up or down position relative to the Main Frame. At such extremes, the clutch will slip and protect the drive screw. As the clutch begins to slip, a loud warning sound (ratchet) will be heard. **Immediately** release the power switch.

The overload clutch is an important Ultra Lift innovation. It is a patented device that eliminates the bent or damaged drive screws that were a common problem with earlier powered hand trucks.

3. Stop Collar. The stop collar fits over the drive screw and is held in position just above the clutch by a set screw. The stop collar limits downward travel of the Lift Frame so that the clutch can slip in the extreme downward position. Without a stop collar, the Lift Frame could compress the clutch and limit the slipping action.
4. Ball Nut. As stated previously, the ball nut assembly is bolted to the Lift Frame. Rotary motion of the drive screw is transformed to vertical frame motion by the ball bearings in the ball nut.
5. Drive Screw Top Mount. The top mount is bolted to the Main Frame and anchors the top end of the drive screw to the frame. The aluminum mounting bracket is lined with a nylon tube to minimize friction as the drive screw rotates.
6. Anti-Reverse Brake. The purpose of the brake is to prevent the weight of the load from turning the drive screw in the downward direction when power is off. The Ultra Lift brake is a wrap spring design and does not need adjustment. It is automatically on when the load is moving downward, but is off when the load is being raised. The result is that no battery power is wasted overcoming the friction type of brake that was used in earlier powered hand trucks.

D. ELECTRICAL SYSTEM

The heart of the electrical system is a 12 volt, spill-proof, deep cycle, sealed battery that powers the motor. All electrical components described below are mounted on the Main Frame and move with it.

1. Battery. The battery is enclosed in an aluminum housing mounted to the Main Frame. Since the battery is spill-proof, the Ultra Lift can be laid down flat with no concern that chemicals will spill and damage either the machine or floor. The deep cycle battery has been specifically designed to be discharged and recharged for as long as 1 – 2 years.

2. Control Switch. Mounted on the top of the main frame, the three-position control switch directs current through one set of circuits to turn the drive screw one direction and a second set to reverse rotation. The center position is a neutral or “off” position. Single switch operation allows the operator to maintain a firm grip on the extension handle with his or her left hand while gripping the right side main handle in the right hand and operating the switch with the right thumb.

3. Motor and Solenoids. The 1.2 H.P. motor and four solenoids are mounted in the motor housing at the base of the main frame. The solenoids are electrical devices which establish circuits for current flow as the control switch is operated.

4. Charge Level Indicator. A push button on the side of the battery housing allows you to obtain a direct reading of the charge left in the battery. The charge level meter is divided into green, yellow, and red zones and when the push button is depressed the dial will indicate the remaining charge. If the dial is well into the green area, the battery is well charged. As the dial drops lower into the green and toward the yellow charging is advisable before attempting any heavy move, particularly if the move involves stairs. If the dial is in the yellow or red zones, no load should be moved until the battery is charged or replaced. See Section IX B for battery charging instructions.

5. Charging Plug. It is not necessary to remove the battery housing cover to charge the battery. To simplify charging, the battery terminals are wired to a charge receptacle which is accessible on the side of the battery housing. The battery charger provided with your Ultra Lift has a hard-wired charging plug that interfaces with the receptacle in the battery box. See Section IX B.

6. Transit Charging System. To charge your Ultra Lift directly from the 12 volt system of your vehicle, the most effective technique is to purchase an inverter that will plug into the vehicle power outlet. Plug the Ultra Lift battery charger into the inverter. The charge plug on the battery charger then connects to the Ultra Lift through the receptacle in the battery housing. This system will not be required at all if you are able to charge your Ultra Lift at the end of each workday, as is recommended.

IX. BATTERY CHARGING

Your Ultra Lift is equipped with a spill proof 12 volt, deep cycle, sealed battery and a fully automatic battery charger. The battery should provide well over a year of reliable service if the charging procedures detailed below are followed consistently.

1. **Use only the battery charger provided with your Ultra Lift.** It has been pre-set at the factory to raise the battery voltage to a maximum of 14.1 volts (2.35 volts per cell) as specified by the battery manufacturer.
2. **Charge the battery as soon as possible after each day of use.** As the battery is discharged during machine operation, a component of the electrolyte is absorbed into the battery plates. Prompt recharging dissolves and recycles the electrolyte back to useable form. If the battery remains discharged for an extended period of time the electrolyte in the battery plates **will not** dissolve during recharging. The result will be reduced battery capacity and life.

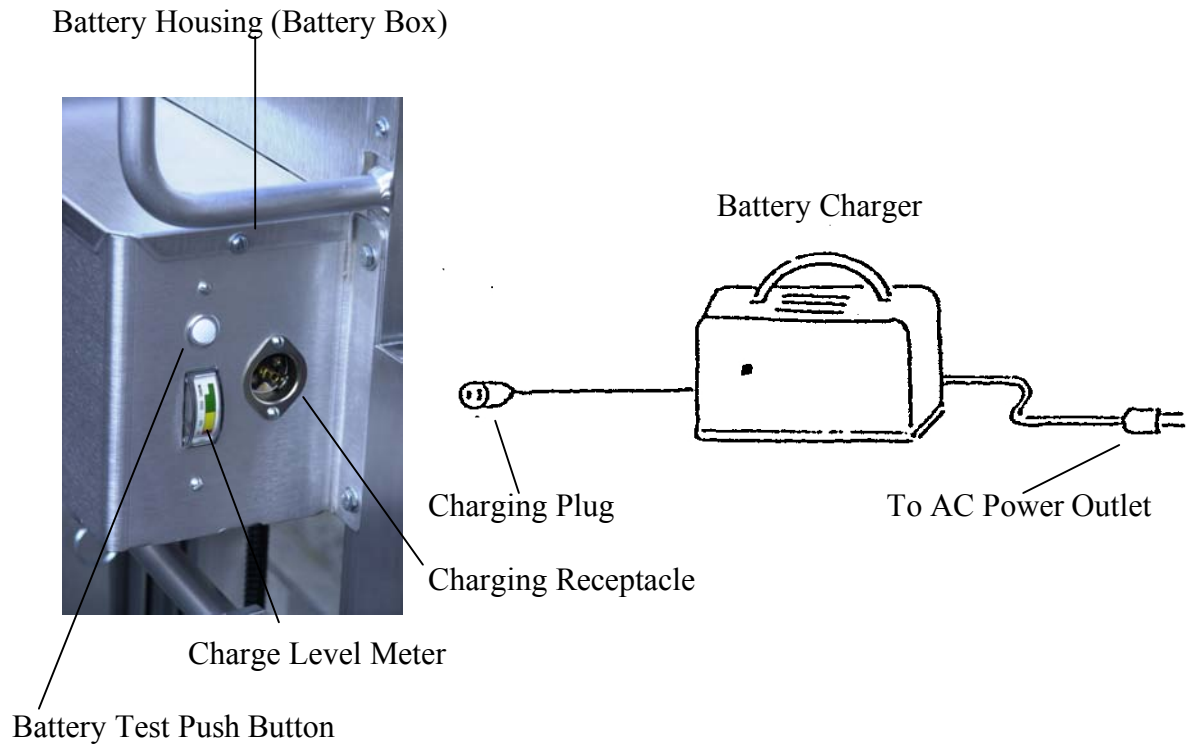
NOTE: Batteries that are in storage must be topped off monthly to prevent crystallization of the electrolyte.

The charger provided with your Ultra Lift is fully automatic and shuts off completely with the battery is charged. It will also automatically turn on again when the battery is discharged. **This means that the charger can remain connected to the battery indefinitely without damaging the battery.** It is, therefore, recommended that you plug your Ultra Lift into the battery charger at the end of each day of use and leave the Ultra Lift plugged into the charger until you are ready to use it again.

The charger is equipped with an automatic monitoring system. Plug the charger into a power outlet. When the charging plug is inserted into the charge receptacle in the battery housing a yellow indicator light will appear. The yellow light indicates that the battery is being charged. A steady green light indicates charging is complete. The charger will then automatically issue a periodic pulse to maintain voltage at the proper level.

See "Battery Charging Diagram" on the following page.

Figure 24
Battery Charging Diagram



1. Position the charging plug so that the large, curved slot is opposite the large terminal in the charging receptacle. Slide the plug straight into the receptacle until it bottoms out. **Do Not** rotate the plug. Leave the charger plugged in until you are ready to use the Ultra Lift again.

DO NOT FORCE THE PLUG!

2. When you are ready to use the Ultra Lift pull the charging plug straight out.

DO NOT FORCE THE PLUG!

MAINTENANCE & INSPECTION PROCEDURES
Models 1500, 1000, 1200 & 1000EV Powered Hand Trucks

I. OBJECTIVES

The Maintenance & Inspection Procedures detailed below will keep your Ultra Lift Powered Hand Truck in safe and proper operating condition. The procedures will minimize machine down time due to normal wear on specific components and will help identify any operating problems as they develop. Early problem identification will enable personnel to quickly make small corrections and avoid costly repairs. Review Section VIII of your Operator's Manual and refer to Drawing 600.

II. REGULAR MAINTENANCE

1. Lubrication

- a. Drive Screw and Ball Nut. The ball nut contains sixty-seven 1/8" diameter bearing balls which rotate in the drive screw groove to convert rotary motion of the drive screw into up and down movement of the frames. To minimize drive screw and bearing wear and to reduce drag on the machine, it is very important to keep the drive screw properly lubricated. In heavy usage situations it is recommended that the drive screw be lubricated at least twice each week. Lubricate the screw more often if the machine is being used heavily on stair climbs or in a dusty or dirty environment.
- The spray can form of Tri-Flow™ Superior Lubrication with Teflon is recommended. Tri-Flow is a blend of oil and Teflon with a low evaporation rate. It will both clean and lubricate the drive screw. A similar product from another manufacturer (such as Super Lube or Break Free) may be substituted if Tri-Flow is not locally available.

NEVER use grease on the drive screw. It picks up and holds dirt and grit and will eventually build up inside the ball nut.

NEVER use WD-40 as a lubricant. It is an effective cleaner, but has no lubricating value.

- Apply Tri-Flow as follows:
 - Fully extend the Lift Frame. This can be done in the 4 Wheel Dolly position or with the machine laying flat on the floor.
 - As you pull the power switch to raise the Lift Frame, spray Tri-Flow directly onto the drive screw at the main hex nut. Spray the entire length of the screw as the Lift Frame travels upward.

NOTE! DO NOT SPRAY TRI-FLOW INTO THE CLUTCH OR BRAKE!

- When the entire screw has been sprayed, run the Lift Frame up and down 2 or 3 times to throw off excess lubrication and any dirt that might have been on the screw. This is a very important procedure. If excess spray is left on the screw it can seep down to the clutch or migrate up to the brake and affect operation.
- b. Frame Rollers and Axles. On a monthly basis extend the Lift Frame and spray Tri-Flow around the ends of the axles of all four frame rollers. Run the machine up, down, and up again to disperse the spray.
- c. Main Wheels. The two main wheels are provided with grease fittings. Lubricate each wheel twice per year with lithium grease.

2. Rust Prevention

When you are required to use your Ultra Lift in rainy weather at the end of the day, prior to battery charging, run the machine up and down to throw water off the drive screw. Then wipe the machine off with a cloth. Pay particular attention to the brake dust cover, drive screw and clutch. The aluminum will not rust, but water setting on the aluminum can drip onto steel drive system components.

3. Battery Charging

To obtain maximum battery life, it is essential that your Ultra Lift's battery be charged after each day of use. Charging instructions are provided on page 19 and page 20 of this manual.

III. ROUTINE INSPECTION

Consistent lubrication, rust prevention and battery charging procedures will eliminate many possible sources of operating problems. It is also very important for each operator to be aware of the general condition of his Ultra Lift. Each machine should be inspected on a daily basis as detailed below:

1. Structural Condition

- Inspect welds for any cracks that may be developing.
- Inspect components for any bending or bulging.
 - a. Main Frame including Main Handles
 - b. Lift Frame
 - c. Extension Handle
 - d. Leverage Bar
 - e. Tripod. Assemble Tripod and Leverage Bar into 4 Wheel Dolly position to confirm that they fit properly.
- Confirm that the main wheels and axle are straight.

2. Hardware

- Check to see that all screws, nuts, and bolts are tight in place. Tighten any that are loose and immediately replace any that are missing.
- Check speed pins and confirm that all are in place:
 - a. Two ¼” speed pins in the Extension Handle
 - b. One ¼” speed pin connecting the Leverage Bar to the Tripod Dolly Legs
 - c. Two ½” speed pins in the Leverage Bar

- Check and confirm that the Brake Dust Cover is firmly in position. Using the machine without a dust cover can result in improper brake operation.

NOTE! REPORT AND CORRECT ANY PROBLEMS IDENTIFIED IN THE PROCEEDING SECTION BEFORE USING YOUR ULTRA LIFT.

3. Drive System Operation

Lean the machine back and run the Lift Frame up and down twice to confirm that the drive screw operates smoothly. If significant vibration is observed, identify the cause and make necessary repairs before using the Ultra Lift.

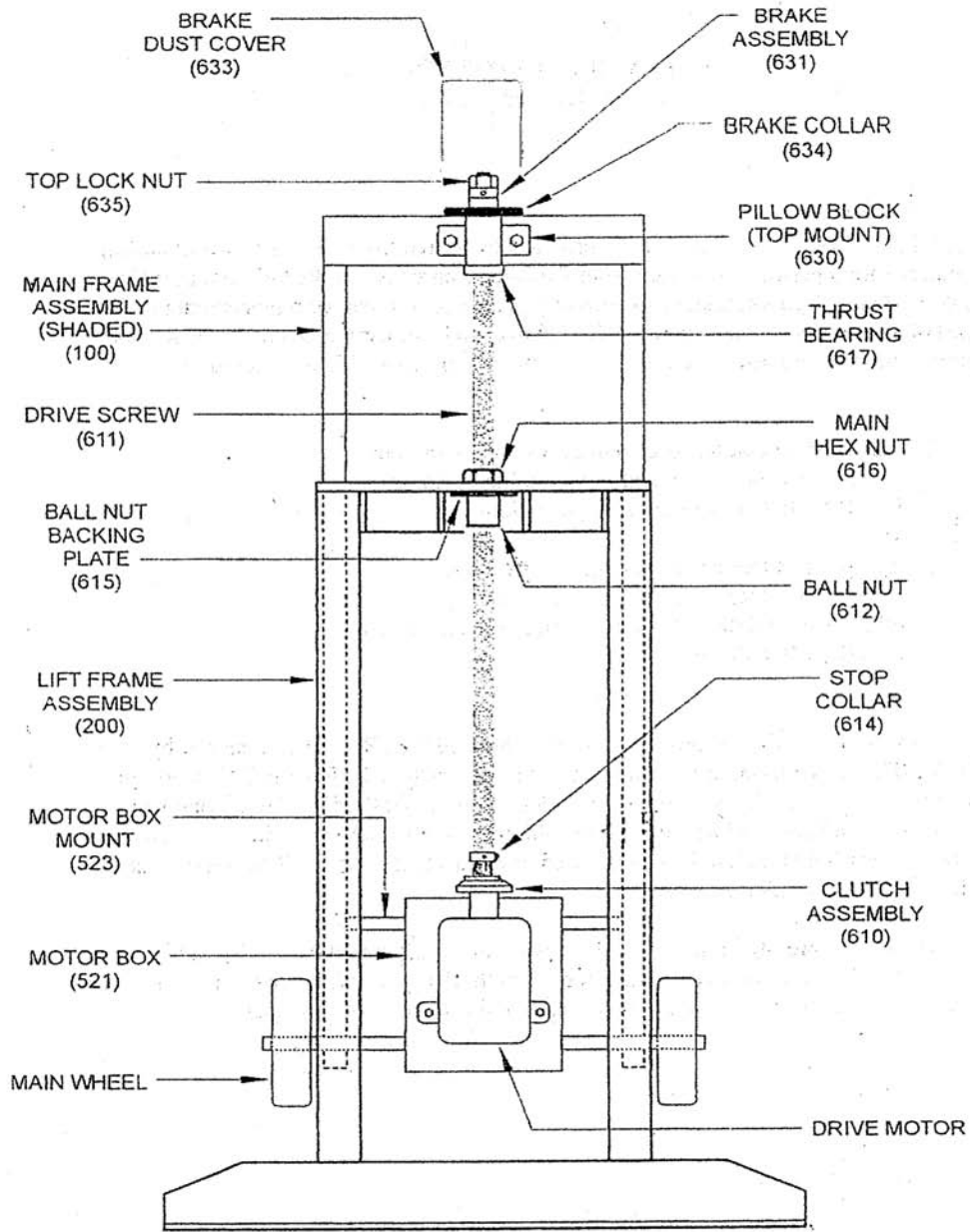
IV. ANTI-REVERSE BRAKE

The anti-reverse brake contains two oilite friction bearings and one roller bearing that are subject to wear and will eventually require replacement. The procedure for disassembling the brake, examining the components, and reassembling the brake takes approximately 15 minutes. The first brake inspection should be conducted after a year of operation and should be repeated at six month intervals thereafter. Contact your Ultra Lift Dealer or Ultra Lift Corporation for detailed brake inspection procedures.

SPECIFICATIONS
Ultra Lift Model 1500 Powered Hand Truck

RATED LOAD CAPACITY:	1500 Pounds
ACTUAL LIFTING CAPACITY:	1500 Pounds
MAXIMUM VERTICAL LIFT:	36 Inches
MAXIMUM FRAME EXTENSION:	41 Inches
WEIGHT (Including 4 Wheel Dolly & Battery):	120 Pounds
OVERALL HEIGHT (Adjustable):	63 Inches Minimum 72 Inches Maximum
LIFT PLATE:	27" Wide x 6" Deep
STRAP BAR:	27" Wide x 3" High
STRAP:	2" Wide x 14' Long
MAIN WHEELS:	8" Diameter x 2.5" Wide Dual Sealed Ball Bearings
CASTERS:	4" Diameter x 1.25" Wide Polyurethane Wheels
BATTERY:	12 Volt, Deep Cycle, Spill-Proof & Permanently Sealed, Class U-1, Capacity 33 to 35 Amp Hour
DRIVE MOTOR:	1.2 Horsepower D.C. Dual Direction

Each Model 1500 is shipped complete with battery, one strap bar, snap-out 4 wheel dolly, adjustable extension handle, and fully automatic battery charger with charging plug attached.



DRIVE SYSTEM ASSEMBLY
ULTRALIFT CORPORATION

ULTRA LIFT CORPORATION
One Year Limited Warranty

Ultra Lift Corporation warrants its products to be free from defects in workmanship and material for a period of one year from the date of purchase by the Original End Use Purchaser. Our obligation under this warranty is limited to repair or replacement (at our option) of any product or part thereof which proves to be defective, at no charge for parts or labor to the Original End Use Purchaser. This warranty specifically excludes:

1. Any product that has been subject to misuse or abuse or which has been operated or maintained contrary to Ultra Lift Corporation's instructions.

2. Any product that has been damaged by alteration or by service, either performed or attempted, by anyone other than Ultra Lift Corporation or an authorized Ultra Lift Dealer.

All warranty service, whether provided by an authorized Ultra Lift Dealer or by Ultra Lift Corporation, must be approved in advance by Ultra Lift Corporation. Contact Ultra Lift Corporation at (800) 346-3057 or (408) 287-9400 to obtain an authorization number. Products that require shipment to the factory for warranty repair must be shipped freight prepaid. The repaired or replaced products will be returned at Ultra Lift Corporation's expense.

This warranty is expressly in lieu of all other warranties, expressed or implied, and Ultra Lift Corporation neither assumes nor authorizes any other person to assume for it any other liability in connection with the sales and service of our products.