

Technology Safety Data Sheet

Ultra Lift

Section 1: Ultra Lift

Technology Name(s):		Emergency Contact:	
Ultra Lift/Stair Climber		Ultra Lift Corporation	
Manufacturer's Name and Address:		Information Contact:	
Ultra Lift Corporation 475 Stockton, Unit E San Jose, CA 95126 408-287-9400/800-346-3057/408-297-1199 fax		Ultra Lift Corporation 475 Stockton, Unit E San Jose, CA 95126 408-287-9400/800-346-3057/408-297-1199 fax	
Date Prepared:	September 2002	Date Revised:	Not yet revised

Section 2: Technology Pictures



Figure 1: User Extends the Ultra Lift up to the Truck Bed



Figure 2: User Pulls the Load up Using the Screw Drive System



Figure 3: The barrel successfully loaded on the truck bed using the Ultra Lift



Figure 4: Ultra Lift Switch Used to Raise and Lower Both the Load and Wheels.

Section 3: Technology Description

The Ultra Lift is a motorized two-wheeled handcart that lifts heavy objects in order to ease loading into vehicles or onto loading docks with the ability to traverse stairs and steps while loaded. The Ultra Lift is designed specifically for difficult moving and handling applications. The Ultra Lift contains a battery operated screw drive that vertically lifts heavy objects and walks the load over steps and obstructions. The Ultra Lift uses a leveraged break back design to make heavy loads manageable by a single person by keeping the weight over the wheels. It is capable of lifting objects up to 1,500 lbs. to a height of 36 inches. The unit is height adjustable with a variable position strap, has a four-wheel swing out dolly attachment, safety override clutch, and fully automatic anti-reverse brake. The battery is a sealed, spill proof 12v, 34-amp hour battery with charger and pre-wired charging plug.

Section 4: Safety Hazards

Hazard Category:

(Adapted from Appendix A to MIL-STD-882D, February 10, 2000, Department of Defense Standard Practice for System Safety.)

- 4 - Could result in death or permanent total disability
- 3 - Could result in permanent partial disability or injuries or occupational illness that may result in hospitalization of at least three persons
- 2 - Could result in injury or occupational illness resulting in one or more lost work days
- 1 - Could result in injury or illness not resulting in a lost work day
- N/A - Is not applicable to this technology and poses no appreciable risk

A. Buried Utilities, Drums, and Tanks

Hazard Rating: N/A

Is not applicable to this technology and poses no appreciable risk.

B. Chemical (Reactive, Corrosive, Pyrophoric, etc)

Hazard Rating: N/A

Is not applicable to this technology and poses no appreciable risk.

C. Confined Space

Hazard Rating: N/A

Is not applicable to this technology and poses no appreciable risk.

D. Electrical

Hazard Rating: 1

- The Ultra Lift is powered using a 34-amp hour Gel Cel battery enclosed in an aluminum housing mounted on the mainframe.
- Gel Cel batteries are leak proof.
- Slight hazard exists when charging the battery or replacing the battery.

E. Explosives	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
F. Fire Protection	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
G. Gas Cylinders	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
H. Ladders/Platforms	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
I. Lockout/Tagout	Hazard Rating: 1
<ul style="list-style-type: none"> • The Ultra Lift uses a screw drive system to raise and lower its load. During maintenance and repair, users may contact moving mechanical parts or stored electrical energy. • The Gel Cel battery should be removed before maintenance and repair. 	
J. Mechanical Hazards	Hazard Rating: 2
<ul style="list-style-type: none"> • The Ultra Lift uses a screw drive system to raise and lower its load. During maintenance and repair, users may contact moving mechanical parts. • During operation, users should ensure screw drive system remains guarded and never insert hands into drive system. 	
K. Moving Vehicles	Hazard Rating: 2
With the snap out four-wheel dolly attachment extended, the Ultra Lift may be considered a moving vehicle weighing up to 1500 lbs.	
L. Overhead Hazards	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
M. Pressure Hazards	Hazard Rating: N/A
Is not applicable to this technology and poses no appreciable risk.	
N. Slips/Trips/Falls	Hazard Rating: 2
<ul style="list-style-type: none"> • Users should ensure the surface is not slick and stable while operating the Ultra Lift. • Manufacturer recommends users seek help when moving larger or awkward loads. 	

O. Suspended Loads	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
P. Trenching/Excavation	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
Section 5: Health Hazards		
A. Inhalation	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
B. Skin Absorption	Hazard Rating: 1	
<ul style="list-style-type: none"> The Gel Cel battery and its aluminum case is leak proof. In the event the Ultra Lift is damaged and the battery breached, users should use caution with the spilled contents avoiding contact with bare skin. 		
C. Noise	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
D. Heat Stress/Cold Stress	Hazard Rating: 2	
While the Ultra Lift is an improvement over the traditional methods, users may experience heat stress problems while moving heavy, awkward loads. Heat stress will be compounded with the use of PPE such as protective clothing.		
E. Ergonomics	Hazard Rating: 1	
<ul style="list-style-type: none"> Ergonomic hazards exist with large, awkward loads. Ergonomic hazards are compounded depending on the type of lift performed, examples being up a long flight of stairs, or in the bed of a tall truck. While ergonomic hazards exist with the Ultra Lift, the technology is a marked improvement over the baseline. 		
F. Ionizing Radiation	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
G. Non-ionizing Radiation	Hazard Rating: N/A	
Is not applicable to this technology and poses no appreciable risk.		
H. Biological Hazards	Hazard Rating	N/A
Is not applicable to this technology and poses no appreciable risk.		

Section 6: Phase Analysis

A. Construction/Start-up

- Follow manufacturer's recommendation for strapping the load on the Ultra Lift.
- Place the Ultra Lift in the center of the load ensuring the lift plate is under the load.
- Thread the strap(s) around the load and close the locking cam.
- Close the strap handle, pulling the strap tight around the load.

B. Operation

- To break back the load, or pull the load back on its wheels, raise the wheels using the switch and pull back on to the wheels, this reduces the effort associated with traditional hand trucks. Additional assistance to break back the load may be acquired by using the leverage bar on the back of the Ultra Lift.
- Pushing and pulling the control switch allows the user to raise and lower the load and wheels. Users may move up and down stairs, on or off platforms such as truck beds and docks, raising and lowering the load and wheels.
- Traversing on a relatively flat surface may be accomplished by placing the load back on its wheels by extending the four-wheel.

C. Maintenance (Emergency and Routine)

- The drive screw and ball nut, located in the center of the Ultra Lift, are the main moving components of the drive system. The ball nut contains sixty-seven 1/8" diameter ball bearings, which rotate in the drive screw groove to convert rotary motion of the drive screw into up and down movement of the frames. The drive screw must be kept well lubricated, up to two times a week.
- The Gel Cel battery requires periodic recharging. The manufacturer recommends using ONLY the Exide Model 7032206 Charger provided with the Ultra Lift.

D. Shutdown (Emergency and Routine)

The control switch, in the neutral position, effectively shuts down the Ultra Lift, for both emergencies and routine situations.

E. Decontamination/Decommissioning

The Ultra Lift is equipped with a number of exposed, moving parts that are susceptible to contamination if the unit is used in a contaminated area. Users will have to decontaminate each internal component before the unit is considered decontaminated.

Section 7: Worker Protection Measures

A. Exposure Monitoring

No exposure monitoring other than site specific is required for the Ultra Lift.

B. Worker Training

- Technology specific training
- Ergonomic training including lifting techniques
- PPE

C. Medical Surveillance

The Ultra Lift does not create any additional medical surveillance requirements other than site specific.

D. Engineering Controls

The Ultra Lift is an engineering control.

E. Administrative Controls

No additional administrative controls are required other than training and site specific requirements.

F. Personal Protective Equipment

- Safety shoes with steel-toes
- Gloves
- Site-specific requirements depending on the area and type of material being moved

Section 8: Emergency Preparedness

The Ultra Lift does not create a need for any additional emergency preparedness other than what would already be in place.

Section 9: Comments, Lessons Learned, & Special Considerations

The Ultra Lift is a truly innovative engineering control designed to alleviate ergonomic stressors associated with moving and lifting heavy objects.

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Copies of this Technology Safety Data Sheet and others developed by the Operating Engineers National Hazmat Program can be found on the internet at: www.iuoeiettc.org.