

T & S Equipment Company
2999 North Wayne St.
Angola, IN 46703
Ph. 219-665-7921
Fax 219-665-1339

Revised 08-99

A company dedicated to solving ergonomic and material handling problems since 1955.

OWNER'S MANUAL

Ground Lift Scissor Table • Series EHLTG

Contents

Warnings and Safety Instructions	1	Hydraulic Operation and Schematic	10-11
Receiving Instructions	1	Exploded Parts Drawing	12
Warnings and Safety Instructions	2	Parts Identification	13
Loading Instructions	3	Trouble Shooting Guide	14-15
Operating Instructions	3	Warning Label Identification	16
Installation Instructions	4	Material Safety Data Sheets	17-18
Periodic Maintenance Instructions	5	Warranty	19
Electric Schematic	6	Ergonomic Solutions	20
Power Conversion	7-9		

WARNINGS & SAFETY INSTRUCTIONS

Read owner's manual completely before operating unit!

- Not a personnel lift.
- Be sure maintenance stop is locked in place before getting under platform.
- Never go under platform if there is weight on unit.
- Remove weight & disconnect power before working on unit.
- Use only maintenance parts supplied or approved by the manufacturer.
- Do not change pressure relief valve setting.
- Do not clamp hydraulic cylinder in a vise as you may distort the barrel.
- Never operate the lift unless you are watching it.
- Load the lift as uniformly as possible.
- Consult the factory for uneven loading.
- Do not continue to operate the UP control if unit is not raising.
- Relieve system pressure by operating the DOWN control after the unit has come to rest.
- Consult factory if adding or performing any modification to the original equipment.
- Do not use brake fluids or jack oils. Use AW-32 Hydraulic Oil or equal.
- Make sure all operator safety labels and guards are in place.

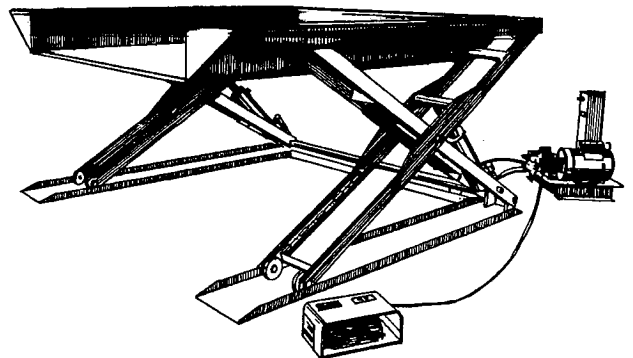
RECEIVING INSTRUCTIONS

Every unit is thoroughly tested and inspected prior to shipment. However, it is possible that the unit may incur damage during transit. If you see damage when unloading make a note of it on the SHIPPER RECEIVER.

Remove all packing and strapping material, inspect for damage. IF DAMAGE IS EVIDENT, FILE A CLAIM WITH THE CARRIER IMMEDIATELY! Also, check the unit size, type of power unit, etc., to ensure the unit is correct for the intended application.

SERIAL NUMBER AND CAPACITY

The serial number and capacity are inscribed on the nameplate. Please remember to include these numbers in any correspondence with your dealer or the factory.



**Ground Lift Scissor Table
Series EHLTG**

WARNINGS AND SAFETY INSTRUCTIONS

for Electric Hydraulic Scissor Lift Tables

****** Make copies of this page and post in a highly visible location where the lift is being operated and on the company bulletin board. ******

- Never go under platform if there is weight on the lift.
- Be sure all safety labels are in place (see Owner's Manual p.16).
- Always install maintenance stops before working on the lift. (see Owner's Manual pg. 3).
- Do not go near leaks - High pressure oil easily punctures skin causing serious injury, gangrene or death.
- Remove weight & disconnect power before working on unit.
- Do not operate lift unless it is securely anchored to the floor.
- Read and Understand Owner's Manual completely before operating or servicing this equipment.
- Never use a damaged lift or one that is making unusual noises.
- Do not change pressure relief valve setting on pump.
- Do not clamp hydraulic cylinder in a vise as you may distort the barrel.
- Never operate the lift unless you are watching it.
- Load the lift as uniformly as possible. Consult the factory for uneven loading capacities.
- Do not continue to operate the UP control if unit is not raising.
- Relieve system pressure by operating the DOWN control after unit has come to rest.
- Do not perform any modification to the original equipment without written manufacturer's approval.
- Do not use brake fluids or jack oils. Use AW-32 Hydraulic Oil or equal.
- Maintenance and repairs are to be done only by personnel trained and qualified to perform the required work.
- Use only maintenance parts supplied or approved by the manufacturer.

For further information, Fax: 219-665-1339

LOADING INSTRUCTIONS

The load capacity rating as inscribed on the nameplate of your unit designates the net capacity for an evenly distributed load. This capacity must never be exceeded, as permanent damage or injury may result.

When loading the lift always follow these guidelines:

- 1.) Always center the load on the platform.
- 2.) Lower the load *gently* on to the platform.

OPERATING INSTRUCTIONS

Scissor Lifts are furnished with a constant pressure hand held push button control or a dual foot pedal.

In order to operate the unit, pressure must be maintained on the **UP** or **Down** button/pedal to raise or lower the Scissor Lifts. On releasing either button/pedal, the deck will remain in that particular position until the **Up** or **Down** button/pedal is depressed again.

INSTALLING MAINTENANCE PROPS

The Scissor Lifts are equipped with dual safety maintenance props to aid in servicing or repairing the lift.

The maintenance props store in holders mounted between the scissor legs (see figure 1). To use the maintenance props, raise the table completely up and slide the pins into the brackets on the frame assembly (see figure 2). Lower the table until the rollers rest snugly against the maintenance props. The power may now be disconnected and maintenance performed.

RESPONSIBILITIES OF OWNERS/USERS

It is the responsibility of the owner/user for the following:

- 1.) The lift must be inspected and maintained in accordance with the guidelines in this manual.
- 2.) Any lift not in safe operating condition must be removed from service until it is returned to proper operating condition.

Unsafe condition may include, but is not limited to the following : excessive hydraulic or air leakage, missing rollers, pins, or fasteners, any cracked or deformed structural members, cut or frayed hydraulic hose, electric or air lines, and damaged controls or safety devices.

*All repairs and maintenance must be performed by trained and qualified personnel.

- 3.) Lift may only be used by trained and authorized personnel. All lift operators must have read and understood all operating procedures and safety guidelines in this Owner's Manual.
- 4.) Lift must never be overloaded.
- 5.) Operator must ensure that all safety features of the lift are functioning properly before each use.
- 6.) Any modifications to the lift must be approved in writing by the manufacturer.

For additional information refer to ANSI National Standard for Industrial Scissor Lifts (ANSI MH29.1-1994)

ORDERING REPLACEMENT OR EXTRA PARTS

Our company takes pride in using the finest available parts for our equipment. We are not responsible for equipment failure resulting from the use of unapproved replacement parts. To order replacement or extra parts for your equipment contact Customer Service at the factory. In any correspondence with the factory please include the **Serial Number** which is inscribed on the nameplate of the piece of equipment. Use only the part numbers provided in this Owner's Manual. When ordering parts for AC power units please indicate the motor phase and voltage that the equipment is operating on.

INSTALLATION INSTRUCTIONS

Review Complete Owner's Manual Before Commencing Installation.

For installation you will need the following:

- 1.) A fork truck or hoisting means.
- 2.) Lag bolts, masonry drill, masonry bit, wrench for lag bolt, grout, and steel shims.
- 3.) A power circuit with the specified voltage, including fuses and disconnect or circuit breakers. (See pg. 6-9). Reference NEC (NFPA 70).
- 4.) Minimize motor voltage drop by using adequate wire size. Reference NEC (NFPA 70).

WARNING! ONLY INSTALL THE LIFT ON A STABLE MOUNTING SURFACE.

Move the lift with straps or forks under frame.

Read all the warning labels on the lift and be sure all of the labels on page 16 are on the lift.

The lift **must** be securely anchored to the floor before use (*Except those that are designed to be portable*).

Check for all local code requirements pertaining to your application's installation.

If the power unit is to be mounted externally and has been shipped separately, blow out the connecting hydraulic line with compressed air to be sure it is clear before connecting to the power unit.

Be sure maintenance stops are locked in place before getting under platform.

After anchoring to floor, shim or grout the full length on the frame sides.

The entire length of the frame sides must be supported.

Connect the power source as shown in electrical section. You must be a qualified electrician to do the hookup. Three-phase power units must be connected for the proper pump rotation. If the platform does not raise reverse any two leads at the motor connector.

Operate the lift through a few cycles. Check and add oil if necessary. See oil specification on page 5.

Clean up any debris or spilled oil.

GROUND LIFT PORTABILITY FEATURE

The unique design of our Ground Lift Scissor Table allows for portability with the use of a standard pallet jack using the following procedure.

- 1) Raise the lift table deck approximately 6".
- 2) Roll your pallet jack forks under the deck at the front of the lift table. Verify that your pallet jack is in the lowered position. **CAUTION!** Leave one inch gap between bottom of pallet truck fork and beveled lip to avoid damage to lip or electric toeguard.
- 3) Push the down pedal/button of the foot or hand control to lower lift table deck onto pallet jack forks.
- 4) Disconnect all power associated with lift table and any related equipment.
- 5) Disconnect the locking chains from the ring holders and hook them into the mated rings welded to the deck directly. Three locking chains are located on each side of the lift.
- 6) With the power already disconnected in STEP - 4, place the remote power unit onto the lift table deck. Use caution not to kink the hydraulic line or snag the power cord on sharp objects.
- 7) Raise the pallet jack until the frame of the lift table clears the floor.
- 8) Transport as needed.

Reverse procedure for installation.

PERIODIC MAINTENANCE INSTRUCTIONS

WARNING! BEFORE PERFORMING ANY MAINTENANCE WORK ALWAYS UNLOAD LIFT AND INSTALL MAINTENANCE SAFETY STOP(S)

(A) Before Each Use Check For The Following:

- 1.) Frayed wires
- 2.) Oil leaks
- 3.) Pinched or chafed hoses, loose fittings
- 4.) Structural deformation of platform or frame
- 5.) Unusual noise or binding
- 6.) Proper operation of the toe guard

Do not use the above checks reveal any problems!

(B) Monthly Inspections

- 1.) Check oil level. Oil should be 1" to 1-1/2" below the top of the tank with the lift in the fully lowered position. Add as necessary.
- 2.) Check for oil leaks. See Troubleshooting Section and correct as necessary.
- 3.) Check clevis and pivot points for wear.
- 4.) Check for worn or damaged hydraulic hoses, electrical wires, and cords. Repair as necessary.
- 5.) Check rollers for looseness and wear. See Troubleshooting.
- 6.) Check retaining rings at load rollers and clevis.
- 7.) Check for unusual noise. See Troubleshooting section.
- 8.) Make sure all warning labels are in place and in good condition.
- 9.) Clean off dirt and debris.

(C) Yearly Inspection

Hydraulic oil should be changed at least once a year, or sooner if the oil darkens or becomes gritty. Flush reservoir before refilling. Presence of water is indicated if the oil turns milky. Recommended oil: ISO 32 grade AW hydraulic fluid or equal.

All maintenance work must be performed by qualified personnel with training in the repair of electrical and hydraulic components.

ELECTRICAL SCHEMATIC

24V CONTROL CIRCUIT

new drawing

POWER CONVERSION FOR AC MODELS

Your new Scissor Lift has been wired and tested at the factory with the voltage specified at the time of order. If your application requires a voltage which is different than the original specifications, the motor and control transformer must be wired to correct voltage. If you require a change from a single-phase voltage to a three phase voltage, or vice-versa, the motor will have to be changed entirely. (contact the factory)

Transformer

<u>AVAILABLE VOLTAGE</u>	<u>PHASES</u>	<u>PRIMARY WIRES</u>	<u>SECONDARY WIRES</u>
115	1 only	White & Black	Red & White
208	1 or 3	White & Yellow	Red & White
230	1 or 3	White & Red	Red & White
460	3 only	White & Orange	Red & White

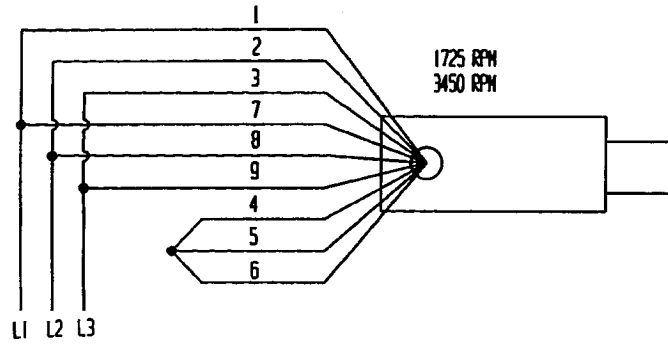
The control transformer unused primary wires must be individually "capped off" with wire nuts to isolate them from all other wires and metallic parts! They will be energized at all times!

Motor Wiring

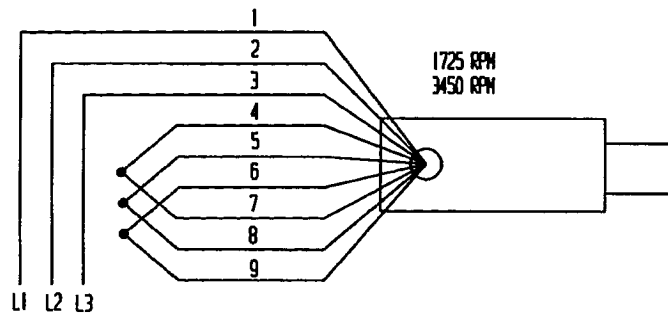
NEW STUFF COMING

Power Conversion

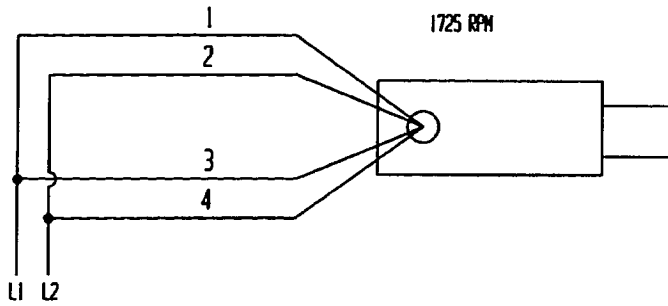
208-230 Volt 3-Phase



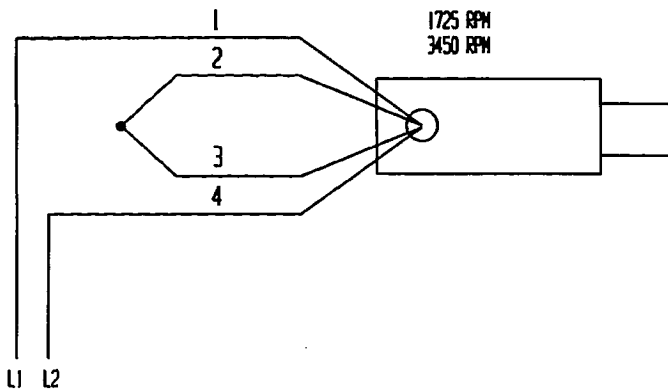
208-230 Volt 3-Phase



115 Volt 1-Phase

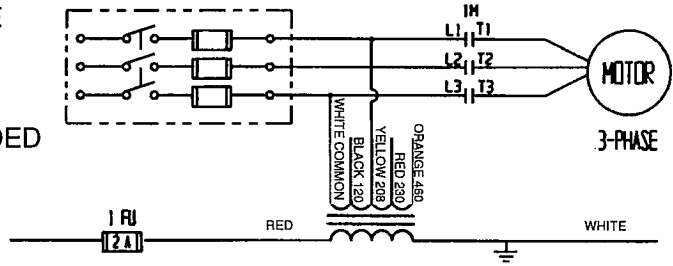


230 Volt 1-Phase

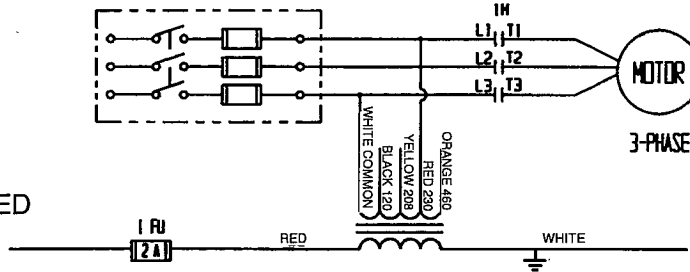


PRIMARY WIRING FOR CONTROL TRANSFORMER

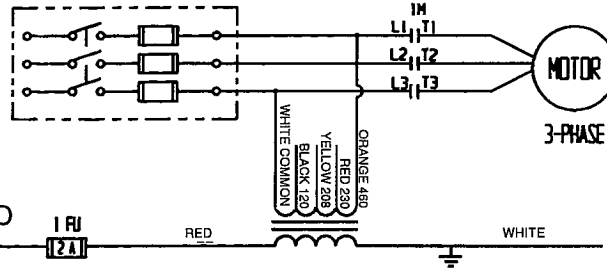
208V, 3-PHASE
FUSING AND
DISCONNECT
TO BE PROVIDED
BY OTHERS



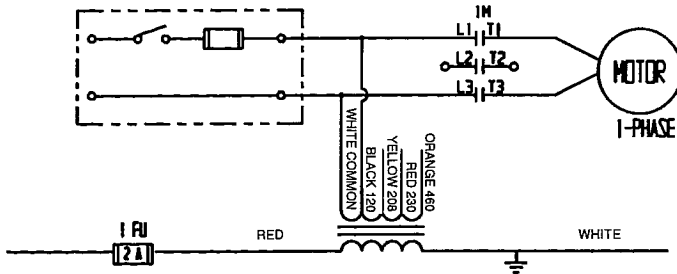
230V, 3-PHASE
FUSING AND
DISCONNECT
TO BE PROVIDED
BY OTHERS



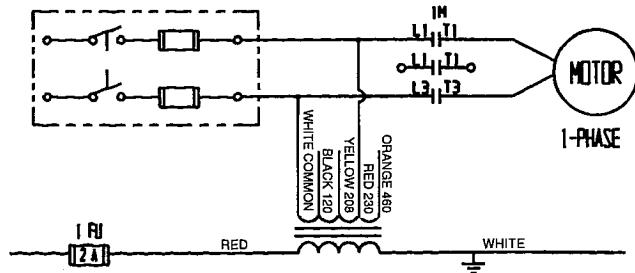
460V, 3-PHASE
FUSING AND
DISCONNECT
TO BE PROVIDED
BY OTHERS



120V, 1-PHASE
FUSING AND
DISCONNECT
TO BE PROVIDED
BY OTHERS



208V, 1-PHASE
FUSING AND
DISCONNECT
TO BE PROVIDED
BY OTHERS



HYDRAULIC OPERATION

When the operator wants to raise the unit, he/she depresses the **UP** button. This starts the electric motor (Item 3) which turns the hydraulic pump (Item 4). Oil from the reservoir (Item 1) is drawn in through the suction filter (Item 2) and into the pump. The pump delivers the pressurized oil through the check valve (Item 6) before entering the cylinders.

The function of the check valve is to allow the oil to flow in only one direction, i.e. towards the cylinders. It prevents the flow of oil back into the pump circuit when the pump stops running. This holds the oil in the cylinders and maintains the desired elevation.

If the load is excessive, and the **UP** button is still depressed, excessive pressure will build up in the circuit between the pump and the cylinders. This forces the "ball" or "poppet" in the relief valve (Item 5) to unseat allowing the pump flow to return to the inlet and preventing hydraulic system or structural damage.

When the operator wants to lower the unit, he depresses the **DOWN** button. This energizes the down solenoid valve coil (Item 7). The poppet in the solenoid valve is unseated and oil now returns from the cylinders through the return screen (Item 9), solenoid valve, flow control valve (Item 8), oil return/intake hose, and into the reservoir.

The pressure compensated flow control valve pressure-compensated (Item 8) controls the lowering speed of the table. It is preset and cannot be adjusted. Releasing the **DOWN** button will de-energize the solenoid, closing the valve poppet. This prevents the oil from returning to the reservoir and the cylinders will stop retracting. The unit is now maintained at that particular elevation.

CARTRIDGE VALVES

The lowering valve, as discussed above, is of cartridge construction and is virtually maintenance-free. If there is a faulty operation, check Troubleshooting Section. To clean the cartridge valve, follow this procedure:

- 1.) **WARNING:** Remove any load and support weight of the table with maintenance stops before removing cartridge valve.
- 2.) Use a sharp object and push the poppet in from the bottom to open the valve.
- 3.) Repeat several times while the valve is immersed in kerosene or mineral spirits.
- 4.) Blow compressed air through the valve while holding it open as described in step 2.
- 5.) Inspect the "O" rings and the teflon extrusion washer.
- 6.) Reinstall. The valve should be tightened to approximately 20 ft. lbs. and the coil retaining nut to 5 ft./lbs.

VELOCITY FUSE

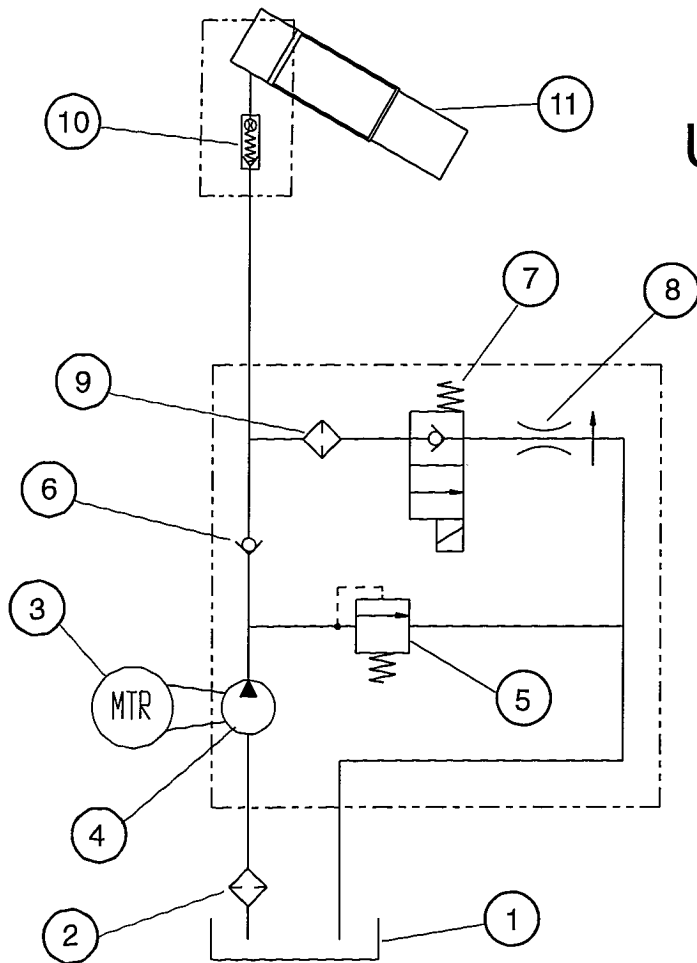
There is a brass velocity fuse with a stainless steel spring in the base of each cylinder (Item 10). In the event of a catastrophic hydraulic hose or fitting failure, the platform starts to drop at a fast rate. As soon as the descent speed exceeds the preset speed, the velocity fuse will shut off the oil flow and the platform will remain virtually stationary until pressure is reapplied after repairs are done. This safety feature reduces the possibility of accidental personal injury or damage to the table or contents. If air has been introduced into the system, the velocity fuse can lock up even though no failure has occurred. To reset the velocity fuse just activate the pump by depressing the **UP** button. Remove the load and follow the air bleed procedure shown on page 11.

AIR BLEED PROCEDURE

If your unit descends very slowly or will not descend at all, air could be trapped in the hydraulic circuit and must be "bled" from the system. The Scissor Lift Table utilizes a "bleeder" fitting at the end of the cylinder near the cross tube. If you experience the above, follow these directions.

- 1.) Remove any load from the platform.
- 2.) Raise the table and install the safety maintenance props.
- 3.) Hold a rag or paper towel over the cylinder bleeder screw to catch any oil that comes out.
- 4.) Loosen the bleeder screw at the top of the cylinder approximately 1/4 to 1/2 turn to allow any trapped air to escape. Leave it open until no more sputtering is heard or felt, and only clear oil comes out.
- 5.) When the cylinder is free of air, tighten the bleeder screw and remove the plastic hose.
- 6.) Repeat the procedure with the each cylinder.

HYDRAULIC SCHEMATIC

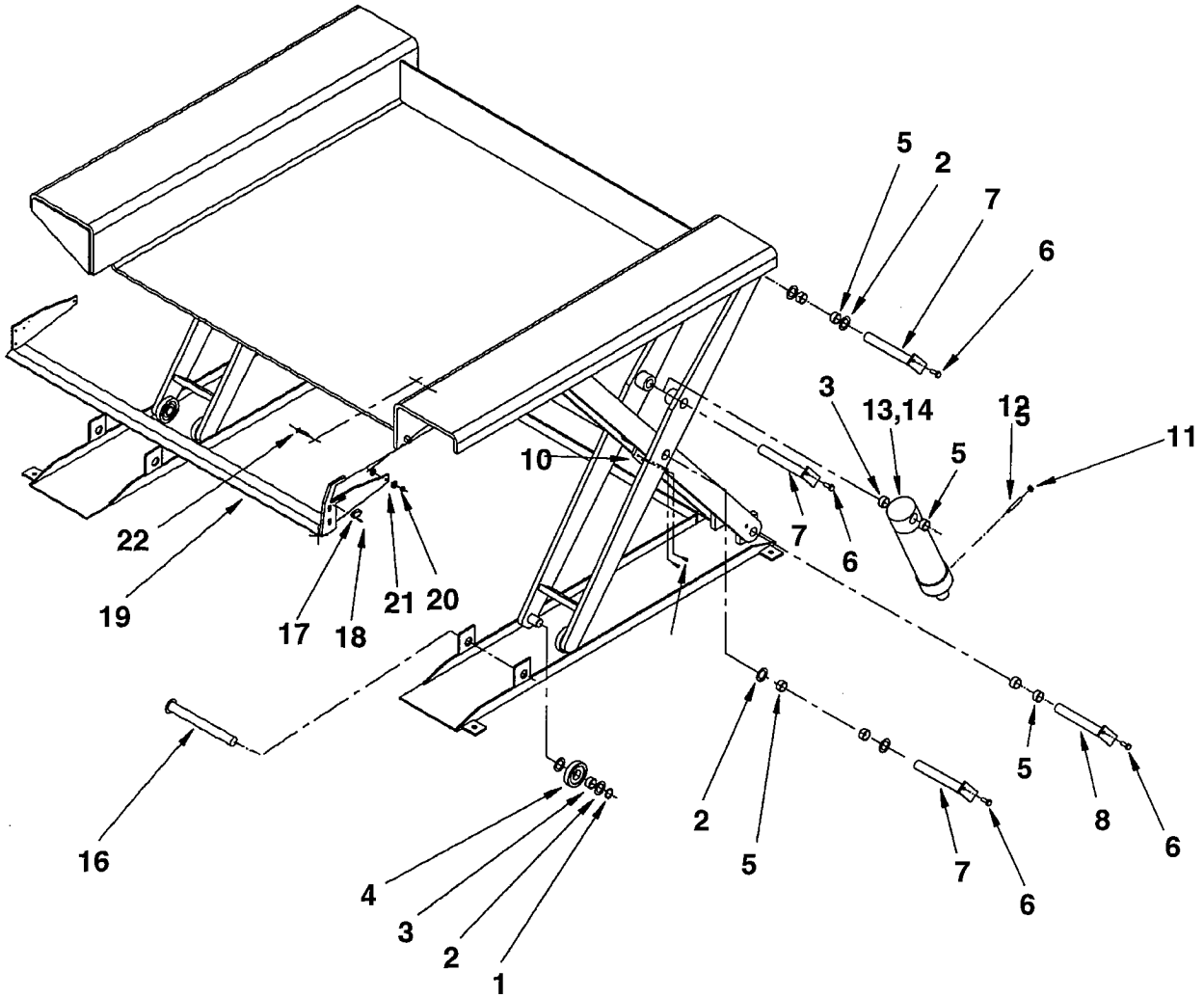


UPDATE DRAWING

- 1.) Oil Reservoir
- 2.) Suction Filter
- 3.) Electric Motor
- 4.) Hydraulic Pump
- 5.) Pressure Relief Valve
- 6.) Check Valve
- 7.) Down Solenoid Valve
- 8.) Flow Control Valve
- 9.) Return Filter
- 10.) Velocity Fuse
- 11.) Hydraulic Cylinder

Drawing No. 24-125-001

EXPLODED PARTS DRAWING
Ground Lift Scissor Table • Series EHLTG



**PARTS IDENTIFICATION FOR GROUND SCISSOR LIFT
SERIES EHLTG**

ITEM NO.	DESCRIPTION	ENGINEER NO.	PART NO.	QTY.	LIST EACH
1	Retainer, Snap Ring 1-1/8" dia. External	n/a	n/a	8	3.00
2	Washer, Thrust Bearing 1-1/8" dia. x .06 thk.	01-115-001	EHLTG-WTB	16	3.00
3	Bearing, Sleeve 1-1/8" dia. x 5/8" long	01-111-001	EHLTG-BRGS	8	10.50
4	Roller, 3-1/4" dia. 3/4"	01-027-001	EHLTG-RLR	8	24.50
5	Bearing, Sleeve 1-1/8 dia. x 3/4"	01-111-002	EHLTG-BRSLV	16	10.50
6	Screw, Self Tapping 5/16" dia. 3/4" long	n/a	n/a	8	3.00
7	Pin, ZLTT retainer 1-1/8" dia. x 8-1/2"	04-612-006	EHLTG-PNRTR	6	22.50
8	Pin, Inner Leg 1-1/8" dia.	04-612-002	EHLTG-INLGPN	2	20.50
9	n/a	n/a	n/a	n/a	n/a
10	Switch, Limit Upper Travel	01-022-001	EHLTG-UTLS	1	32.65
11	Nut, Jam hex 1/2 - 13 unc	n/a	n/a	2	3.00
12	Bolt, Cylinder Retaining	01-118-011	EHLTG-CYRTNBT	2	8.50
13	Cylinder, Hyd. 3" dia x 10" stk	24-021-010	EHLTG-CYL	2	332.00
14	Screw, 6 - 32 unc s 1-1/2 long PAN HD	n/a	n/a	2	3.00
15	Nut, Nylock Hex 6-32 unc	n/a	n/a	2	3.00
16	Pin Locking Assy (maint prop)	04-612-005	EHLTG-LKPN	2	18.50
17	Switch, Electrical Limit N.C.	01-022-022	EHLTG-ECLSWT	1	27.95
18	Screw, #4-40 x 1/2 lg. Button HD Socket	n/a	n/a	2	3.00
19	Toe Guard, EHLTG 5250	04-515-027	EHLTG-TGRD	1	237.50
20	Nut, Nylock Hex 5/16" - 18 unc	n/a	n/a	2	3.00
21	Washer, Fender 5/16 - 18 unc x 1-1/2" lg.	n/a	n/a	4	3.00
22	Bolt, Carriage 5/16 - 18 unc x 1-1/2" lg.	n/a	n/a	2	3.00

PARTS IDENTIFICATION - Remote Power Unit

ITEM NO.	DESCRIPTION	ENGINEER NO.	PART NO.	QTY.	LIST EACH
1	Motor / Pump assembly (complete)		PU-MPA	1	CALL
2	Hydraulic Pump (includes new solenoid)		PU-PO	1	CALL
3	Electric Motor 1 phase		PU-MO-1	1	CALL
4	Electric Motor 3 phase		PU-MO-3	1	CALL
5	Junction Box Only (6" x 6" x 4")		PU-JB	1	48.42
6	Motor Contactor		PU-MC	1	69.00
7	Control Transformer	01-129-001	PU-CT	1	24.00
8	UP/DOWN Foot Control with Guard	01-522-012	PU-FC	1	166.65
9	UP/DOWN Hand Pendant Control	01-522-015	PU-HC	1	70.69
10	Cartridge Valve with Coil		PU-CV	1	111.54
11	Cartridge Valve Only		PU-CVO	1	59.91
12	Solenoid Coil		PU-CO	1	69.84
13	Hydraulic Reservoir Breather Cap		PU-RBC	1	5.75
14	Hydraulic Reservoir		PU-RES	1	35.50
15	Replacement Cover		PU-DC	1	39.75
16	Hydraulic Hose Kit (includes pressure hose, rod drain hose, intake hose and all hose end fittings)		PU-HK	1	69.25

Please include serial number of equipment with all orders for replacement parts.

a/k Available only with purchase of kit
n/a Not available

HYDRAULIC EQUIPMENT

Trouble Shooting Quick Reference Guide
(For further information contact the factory)

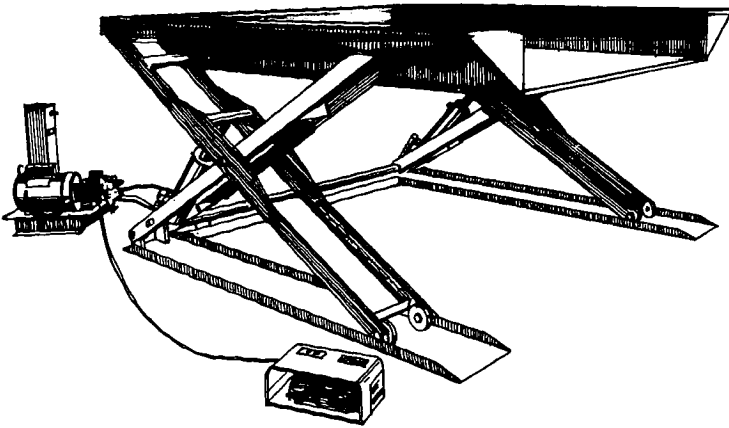
WARNING! BEFORE PERFORMING ANY MAINTENANCE WORK ALWAYS UNLOAD LIFT AND INSTALL MAINTENANCE SAFETY STOPS

Observation	Possible Cause	Remedy
1.) Table does not raise but pump is running or humming.	a. Motor may be single phasing (humming) if it is a three phase unit.	a. Check wiring and overloads, fuses, etc. Ascertain that all 3 phases are present at the motor.
	b. Voltage at motor terminals may be too low to run pump at existing load.	b. Measure voltage at the motor terminals or as near to them as possible, while motor is running under load. If voltage is sufficient, check for inadequate or incorrect wiring as this can starve the motor. Correct as necessary.
	c. Hose or hydraulic line is leaking.	c. Correct as necessary.
	d. Fluid level in reservoir is low.	d. Add fluid. Refer to Owner's Manual for proper fluid levels.
	e. Load exceeds capacity requirements. Relief Valve is bypassing the fluid back into the reservoir.	e. DO NOT CHANGE RELIEF VALVE SETTING. Instead, reduce the load to the tables rated capacity.
	f. Suction filter is clogged, starving pump.	f. Remove and clean.
	g. Suction line may be drawing in air, due to loose fittings.	g. Inspect all fittings for proper tightness.
	h. Filler/Breather cap on tank may be clogged.	h. Remove and clean.
	i. Down Valve may be energized by faulty wiring or stuck open.	i. Check wiring remove Solenoid Valve. Check and clean. (Refer to Hydraulic Section of Owner's Manual p.10-11).
	j. Hydraulic pump may be inoperative.	j. Disconnect hydraulic line at power unit. Put pressure line in a large container and cycle pump. If no output, check the pump motor coupling, which may be defective, and correct as necessary. If pump is worn, consult factory for replacement parts service.
2.) Table raises too slowly.	a. Foreign material stuck in Down Solenoid, causing some fluid to bypass back into tank.	a. Remove the load and rest the unit on its maintenance prop (s). Remove the Solenoid Valve and clean. (Refer to Hydraulic Section of Owner's Manual p. 10-11).
	b. Foreign material clogging suction filter, breather cap, or a pinched hose.	b. Correct as necessary. (See also, 1(f), (h)).
	c. Low motor voltage.	c. See 1(b).
	d. Table overloaded.	d. See 1(e).
	e. Pump is inoperative.	e. See 1(j).
3.) Motor labors, or is excessively hot.	a. Voltage may be low.	a. See 1(b).
	b. Incorrect wiring.	b. Check that one leg of the motor lines is not connected to ground.
	c. Oil starvation causes pump to bind. High internal heat is developed. If this occurs, pump may be permanently damaged.	c. See 1(d), (f), (g), (h), (j).
	d. Binding cylinders.	d. Align cylinders correctly.
4.) "Spongy" or "Jerky" table operation. Do not confuse spongy operation with small surges caused by foreign material on table wheel roller plate.	a. Fluid starvation.	a. See 1(d), (f), (g), (j).
	b. Air in system.	b. See air bleed procedure p.9.

Observation	Possible Cause	Remedy
5.) Table lowers too slowly when loaded.	<ul style="list-style-type: none"> a. Down Valve filter clogged. b. Pinched tube or hose. c. Foreign material in Flow Control Valve. d. Binding cylinders e. Foreign material in Velocity Fuse. 	<ul style="list-style-type: none"> a. Remove Solenoid Valve and clean filter. b. Correct as necessary. (In case of pipe, check for obstruction in line.) c. Remove and clean Flow Control Valve. (Refer to Hydraulic Section of Owner's Manual p. 10-11). d. Align cylinders correctly. e. Remove and clean Velocity Fuse. (Refer to Hydraulic Section of Owner's Manual p. 10-11).
6.) Table lowers too quickly.	<ul style="list-style-type: none"> a. Leaking hoses and/or cracked fittings. b. Check valve is stuck open. c. Foreign material stuck in Flow Control Valve. (In this case, table lowers initially at a normal rate then speeds up as the platform descends.) 	<ul style="list-style-type: none"> a. Correct as necessary. b. Remove and clean Check Valve. (Refer to Hydraulic Section of Owner's Manual p. 10-11). c. Remove Flow Control Valve from the Valve Block and clean. (Refer to Hydraulic Section of Owner's Manual p. 10-11).
7. Table raises then lowers slowly.	<ul style="list-style-type: none"> a. Down Solenoid Valve may be incorrectly wired or is stuck open due to dirt. b. Check Valve may be stuck open. c. Check for leaking hoses, fittings, pipes. d. Cylinder packing may be worn or damaged. 	<ul style="list-style-type: none"> a. See 2(a). b. Remove and clean Check Valve. (Refer to Hydraulic Section of Owner's Manual p. 10-11). c. Correct as necessary. d. Replace packing. (Consult Factory for replacement parts.)
8. Table has raised, but does not lower.	<ul style="list-style-type: none"> a. Blown electrical fuse. b. Incorrect Down Solenoid Valve wiring. c. Down Solenoid Valve is stuck. d. Faulty Down Solenoid Coil. e. Maintenance safety bar, or some other object blocking down travel. f. Binding cylinders. g. In case of excessive down speeds, the Velocity Fuse will become operative and shut off the oil flow from the cylinders, thus the platform will remain stationary. h. Check if the Limit Switch is inoperative and the platform has raised all the way so that the mechanical stops are engaged. If mechanical stops are engaged, the Velocity Fuse has been locked up. 	<ul style="list-style-type: none"> a. Check and replace. b. Correct as necessary. (Refer to Electrical Section of Owner's Manual.) c. Lightly tap down the Solenoid Coil body to seat it properly. (DO NOT hit coil hard as it will permanently damage the internal stem). DO NOT remove the Solenoid Valve from the Block as the unit will come down at a dangerous speed. d. Remove and replace. (Refer to Electrical Section of Owner's Manual. e. Raise table and remove the safety bar, or whatever object is blocking the down travel, then press the down button. f. See 2(e). g. To unlock, repressurize the hydraulic system. h. Refer to Velocity Fuse Section of the Owner's Manual p.8.

WARNING LABEL IDENTIFICATION

MAKE SURE ALL WARNING LABELS ARE IN PLACE!



U.S. DEPARTMENT OF LABOR
Occupational Health and Safety Administration
MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME DR LUBRICANTS, INC.		EMERGENCY TELEPHONE NUMBER (219) 422-3240
ADDRESS 2701 S. Coliseum Blvd., Suite 1139, Fort Wayne, IN 46803		
CHEMICAL NAME AND SYNONYMS Not applicable		TRADE NAME AND SYNONYMS HO 150/200/300/500/1000
CHEMICAL FAMILY Hydraulic Oil	FORMULA Complex Mixture	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS Not applicable			BASE METAL Not applicable		
CATALYST "			ALLOYS "		
VEHICLE "			METALLIC COATINGS "		
SOLVENTS "			FILLER METAL "		
ADDITIVES "			OTHERS "		
OTHERS "					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Note: Ethyl Corp. has reported to the U.S. EPA that in preliminary tests, certain zinc dialkydithiophosphates, when applied to the skin of male rabbits over a period of time, adversely effected spermatogenic activity.					
Exxon Chemicals Americas has reported to the U.S. EPA that in preliminary test, certain calcium salts of alkylated phenol sulfides, when applied to the skin of male rabbits over a period of time, adversely effected spermatogenic activity.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	ND	SPECIFIC GRAVITY (H ₂ O = 1)	0.88
VAPOR PRESSURE (mm Hg)	NIL	PERCENT VOLATILE BY VOLUME (%)	NIL
VAPOR DENSITY (AIR = 1)	ND	EVAPORATION RATE (H ₂ O = 1)	NIL
SOLUBILITY IN WATER	NIL		
APPEARANCE AND ODOR Bright and clear with little or no odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 228° C (COC)	FLAMMABLE LIMITS	Lel ND	Uel ND
EXTINGUISHING MEDIA Dry chemical, water fog, foam, carbon dioxide			
SPECIAL FIREFIGHTING PROCEDURES Wear self-contained breathing apparatus if serious chemical fire			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

Form OSHA 20

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

8 Hr. time weighted permissible exposure 5.0 mg/m³ as oil mist

EFFECTS OF OVEREXPOSURE

EYE: may cause slight irritation

INHALATION - none expected

SKIN - See notes in Section II

INGESTION - If large amount of material is swallowed, call physician.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT - Flush with water for 15 minutes. See a physician if irritation persists.

SKIN CONTACT - Wash with soap and water.

INGESTION - If large amount of material is swallowed, call physician.

SECTION VI - REACTIVITY DATA

STABILITY

STABLE

CONDITIONS TO AVOID

UNSTABLE

X

Heat and flame

INCOMPATIBILITY (Materials to avoid)

Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon Monoxide and asphyxiant

HAZARDOUS POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

None known

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Consult local spill plan. Contain spilled liquid and absorb on suitable medium.

WASTE DISPOSAL METHOD

Incinerate in an approved manner or use approved land fill facility. Conform to local disposal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

Usually not required

VENTILATION

LOCAL EXHAUST

Usually not required in open area.

SPECIAL

NA

MECHANICAL (General)

As needed to comply with exposure limit.

OTHER

NA

PROTECTIVE GLOVES

Neoprene or Nitrile Rubber

EYE PROTECTION

Safety glasses, goggles optional

OTHER PROTECTIVE EQUIPMENT

None

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Normal handling and storage of petroleum products. Do not weld, heat, or drill container. Recap or bung, empty container still contains material which may ignite with explosive violence if heated suffuciently.

OTHER PRECAUTIONS

LIMITED WARRANTY

ONE YEAR LIMITED WARRANTY. The manufacturer warrants for the original purchaser against defects in materials and workmanship under normal use one year after date of purchase. (Not to exceed 15 months after date of manufacture.) Any part which is determined by the manufacturer to be defective in material or workmanship and returned to the factory, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at our option. Labor costs for warranty repairs and/or modifications are not covered unless done at manufacturer's facilities. Any modifications performed without written approval of the manufacturer may void warranty. This limited warranty gives purchaser specific legal rights which vary from state to state.

LIMITATION OF LIABILITY. To the extent allowable under applicable law, the manufacturer's liability for consequential and incidental damages is expressly disclaimed. The manufacturer's liability in any event is limited to, and shall not exceed, the purchase price paid. Misuse or modification may void warranty.

WARRANTY DISCLAIMER. Our company has made a diligent effort to illustrate and describe the products shown accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

The provisions of the warranty shall be construed and enforced in accordance with the UNIFORM COMMERCIAL CODE and laws as enacted in the State of Indiana.

DISPOSITION. Our company will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within the Limited Warranty. Warranty claims must be made in writing within said year.

SERVICE RECORD

DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

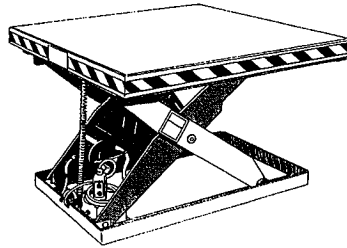
DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

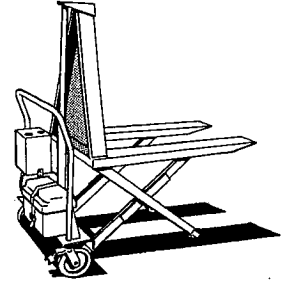
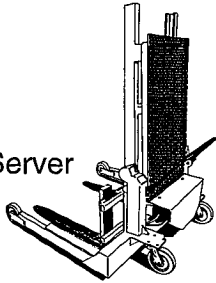
DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____

Material Handling Problem Solvers

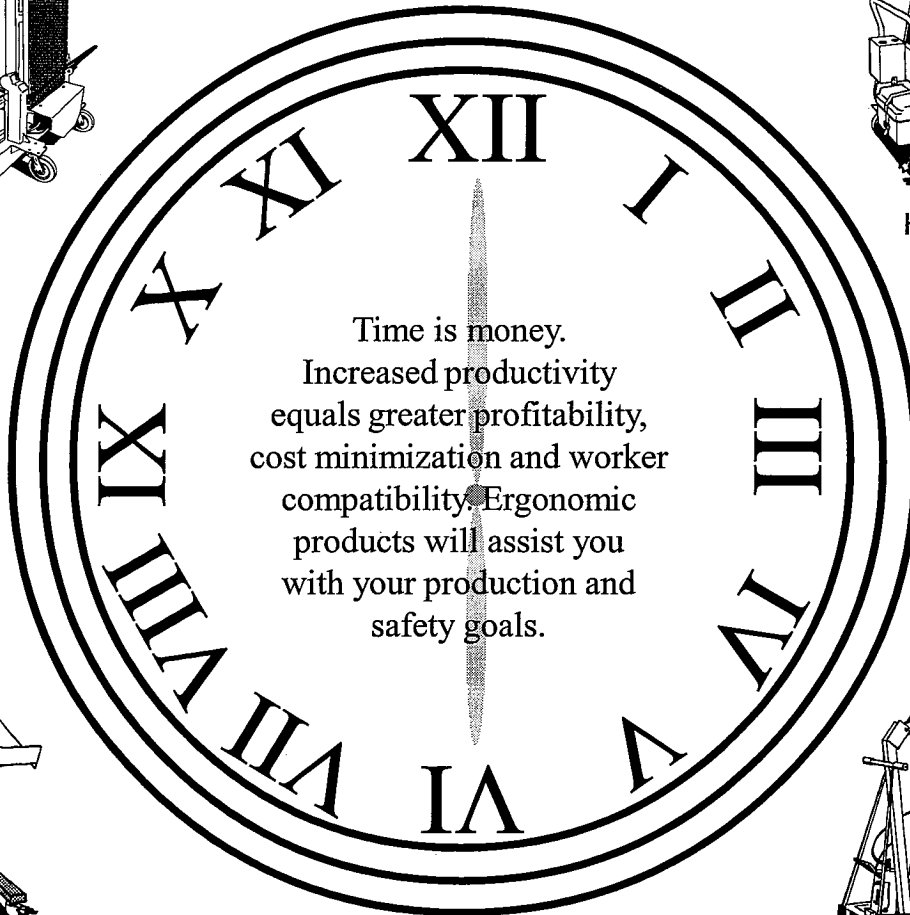
Scissor Lift Table



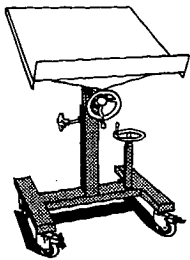
Pallet Server



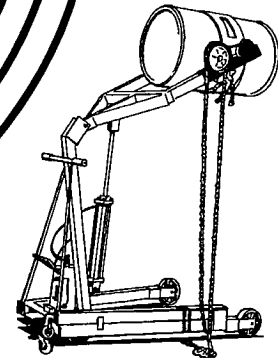
High Rise Lift



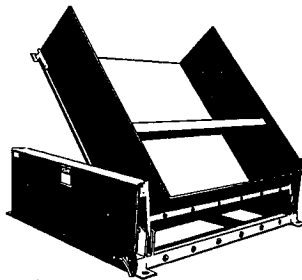
Time is money.
Increased productivity
equals greater profitability,
cost minimization and worker
compatibility. Ergonomic
products will assist you
with your production and
safety goals.



Mobile Lift & Tilt
Work Stand



Drum Carrier/Rotator



Ground Lift Tilter