

BEACON INDUSTRIES, INC.
12300 Old Tesson Road
St. Louis, MO 63128-2247
Ph: 314-487-7600 - 800-454-7159 Fax: 314-487-0100
www.beacontechnology.com

OWNER'S MANUAL

Model - BUNI

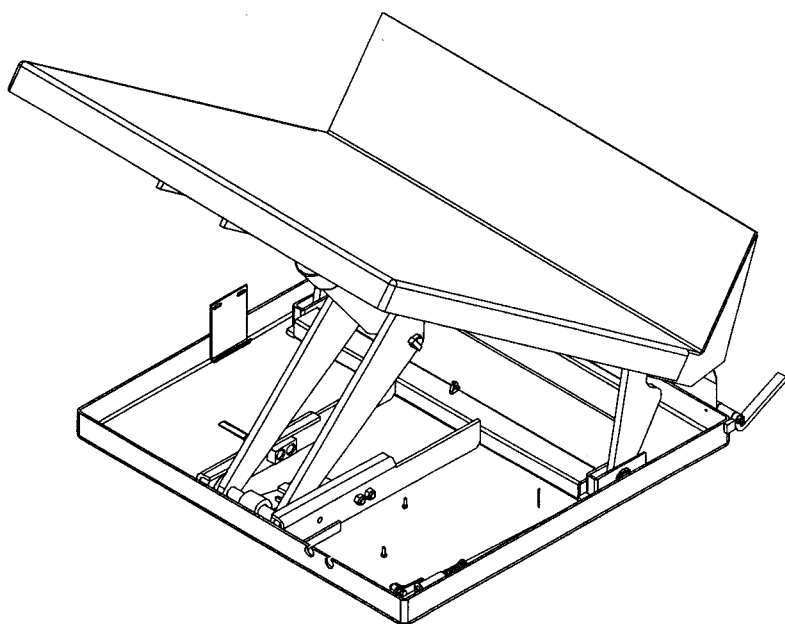
Serial number _____

Installation Instructions	2	Electrical & Hydraulic Diagrams & BOM	9-10
Operation Instructions	3-4	Power Unit's Operation	11
Routine Maintenance & Safety Checks	5	Troubleshooting	12
Exploded Structural Parts Drawing & BOM	6-7	Safety Label Identification	13
Motor and Transformer Connections	8	Warranty	14

IMPORTANT NOTES, WARNINGS AND SAFETY INSTRUCTIONS

Ensure that all employees understand and follow the following.

- Read and understand the owner's manual before using or servicing the BUNI-Tilt.
- The load must be removed and the platform supported or fully lowered before any work is performed on the lift.
- Ensure that all safety and warning labels stay in place and are legible.
- Do not use the BUNI-Tilt if any damage or unusual noise is observed.
- Always watch the platform and the container carefully when the tilter is in operation.
- Do not transport the BUNI-Tilt with any load on the platform.
- Do not use brake fluid or jack oils in the hydraulic system. If oil is needed, use an anti-wear hydraulic oil with a viscosity grade of 150 SUS at 100°F, (ISO 32 cSt @ 40°C), or Dexron transmission fluid.
- Contact the manufacturer for any needed MSDS information.
- ◆ Do not perform any modifications to the BUNI-Tilt without the manufacturer's approval. Failure to receive authorization for changes to the equipment could void the warranty.
- ◆ Maintenance and repairs are to be done only by personnel qualified to perform the required work. Warranty labor charges will not receive consideration without prior written authorization by the manufacturer.



WHEN ORDERING

REPLACEMENT PARTS:

We take pride in using quality parts on the equipment we manufacture. We are not responsible for equipment problems resulting from the use of unapproved replacement parts.

To order replacement or spare parts for this equipment, contact the factory.

In any communication with the factory please be prepared to provide the machine's serial number, which is indicated on the machine dataplate.

RECEIVING INSTRUCTIONS

Every unit is thoroughly tested and inspected prior to shipment. However, it is possible that the unit could incur damage during transit.

Inspect the unit closely when it arrives. *If you see evidence of damage or rough handling to either the packaging or to the product when it is being unloaded, immediately make a note of it on the Bill Of Lading!*

It is important that you remove the product's packaging upon its arrival to ensure that there is no concealed damage or to enable a timely claim with the carrier for freight damage.

Also verify that the product and its specifications are as ordered.

INSTALLATION INSTRUCTIONS – BUNI

Review this entire page before installing the BUNI-Tilt.

Consult the factory in the event there are any questions or problems at the time of installation, or for information regarding optional features not covered by the owner's manual.

- Modifications or additions to the BUNI-Tilt without prior manufacturer's authorization may void the unit's warranty. The addition of ancillary equipment to the platform may necessitate that its load capacity be reduced.
- The installation must be made so that it complies with all the regulations applicable to the machine and its location. The end-user must verify that the supplied equipment is installed so it will be suited to the environment in which it will be used.
- Installation must be performed by suitably trained personnel with access to the appropriate equipment. The electrical aspects of the installation should be performed by an electrician.

For a typical installation you will need the following:

1. A fork truck or hoisting means to unload the BUNI-Tilt from the freight truck and set it into place.
2. A smooth, level, and adequately strong concrete surface on which to mount and operate the BUNI-Tilt.
3. Concrete anchors, a masonry drill, a masonry bit, hand tools, grout, and steel shims. Consult the building's architect or facility engineer to determine the best size and type of hardware with which to anchor the machine to the floor.
- Portable units do not need to be anchored to the floor.
4. A power supply circuit and electrical disconnect matching the motor voltage and current requirements. Refer to the machine's dataplate, to the labels on the control enclosure, and to the electrical section in this manual for more information. The end-user is responsible for supplying the branch circuit's required ground fault and short-circuit protection. (Motor overload protection is provided by a thermostat built into the motor.)

-
1. Move the tilter into place with a fork truck having at least a 2,000 lb capacity.
 2. Temporarily connect the power supply to the pigtail cord supplied with the Uni-tilt, and raise the platform so the unit's safety maintenance prop(s) can be utilized. Lower the platform so the unit is supported by the prop(s).
 - The maintenance prop(s) is located in the BUNI-Tilt's frame next to the lifting assembly. It is a rod with a 90° bend. To install the prop(s), raise the platform to its full raised height and insert the longer end through the holes in the frame roller weldment. Lower the frame roller assembly unit it rests on the prop.
 - If the platform must be raised without first having the proper power supply connected, raise the platform at the side of the table opposite the platform cradle. Use rigging or insert a lift truck's forks under the front edge of the platform to tilt the platform up. Hold the frame down at the ends of the shipping 4 x 4's on the hinged side of the BUNI-Tilt while the platform is raised.
 3. Anchor the frame to the floor through the holes located at the frame's corners. (Non-portable units only.)
 4. Make permanent connection to the power supply, using an appropriate wiring method.
 5. Operate the BUNI-Tilt through several full raise and lower cycles. Verify that the upper travel limit switch functions properly.
 6. Check the hydraulic oil level. It should be filled to within 1" to 1½" of the reservoir's fill hole. If oil is needed, use an anti-wear hydraulic oil with a viscosity grade of 150 SUS at 100° F (ISO 32 at 40° C) or a non-synthetic automatic transmission fluid.
 7. Clean up any debris or spilled oil, and verify that all of the warning and safety labels are intact.

OPERATION INSTRUCTIONS – BUNI

- Consult ANSI MH29.2 - 2000, Safety Requirements for Industrial Tilters, Section 12, for the owner's / user's responsibilities regarding the operation, care, and maintenance of this machine.
- Ensure that all employees involved in the operation of this machine understand and follow these instructions!

The standard model BUNI(stationary) and BUNI-P(portable) is suitable for use indoors in most industrial locations and many commercial locations. It is intended to be used to lift and tilt stable, non-hazardous loads and containers having a size or footprint approximately the same size as the platform.

Loading:

The load rating, in pounds, is shown on the machine dataplate located on the right front corner of the loading (opposite the backstop) side of the platform. It indicates the net capacity of the machine, with a static load that is centered and evenly distributed on the platform and having a vertical center of gravity not more than 20" above the platform surface.

For applications involving side loading or loads with higher centers of gravity, consult the manufacturer.

The standard design BUNI-Tilt is intended to be loaded with a fork truck or similar material handling equipment.

Always center the load, and place it up against the back cradle of the platform to prevent sudden load shifting when the platform is tilted.

Do not exceed a rate of two feet per second when moving loads onto the platform.

Note: The addition of any ancillary equipment to the platform by third parties must be taken into account when determining the maximum working load to be placed on the platform.

Warning: Do not exceed the BUNI-Tilt's load ratings. Injury to personnel or permanent damage to the structure could result from exceeding the listed capacity.

Operation:

Warning: Keep all personnel clear of the machine when it is in operation. Be certain no part of any person or object is under any part of the platform before lowering the unit.

Caution: Always carefully watch the container and any load in it when it is in operation.

- ❖ To raise or tilt the platform back toward the operator, press the "UP" pushbutton.
- ❖ To lower or tilt the platform toward the floor, press the "DN" pushbutton.
- ❖ When a pushbutton is not being pressed, the unit will hold its position wherever it is in its travel range.
- ❖ The Uni-tilt can be operated in either one of two movement sequences.
- **Sequence #1:**
- Starting with the platform in the fully lowered position, press and hold the "UP" pushbutton while you push the sequence selector pedal in against the frame of the table with your foot. After about five seconds, the pedal can be released.
- The platform will tilt back toward the operator until it reaches a tilt angle of 40° to the floor. It then will lift vertically until the bottom of the cradle reaches a height of 16½" above the floor.
- To lower the platform, press and hold the "DN" pushbutton. The platform will drop vertically until the bottom of the cradle is about 12" above the floor, and then the platform will tilt down away from the operator until it is again fully collapsed and level with the floor.
- **Sequence #2:**
- Again starting with the platform in the fully lowered position, press and hold the "UP" pushbutton. (Do not press the sequence selector pedal.) The platform will rise and tilt back at the same time, until it reaches a height of 19" from the floor to the bottom of the cradle and a tilt angle of 35°.
- To return to the fully collapsed position, press and hold the "DN" pushbutton. The platform will both lower and tilt down towards the floor concurrently until the unit is again fully collapsed and level with the floor.

On DC-powered units, attempting to raise the lift when the battery is low will cause the motor relay protection to prevent the motor's operation. Adequate battery voltage is indicated by a green LED on the motor relay. See the next page for more notes regarding operation of battery-powered units.

Ensure that all safety and warning labels stay in place and are legible. Refer to the labels page in this manual.

ADDITIONAL INSTRUCTIONS FOR BATTERY-POWERED UNITS

Warning!

- ! Working with or near lead acid batteries is dangerous. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- ! Do not smoke or allow a spark or flame near batteries. Charge batteries in locations that are clean, dry, and well ventilated. Do not lay tools or anything metallic on top of any battery. All repairs to a battery must be made by experienced and qualified personnel.
- ! When working with batteries, remove personal items such as rings, bracelets, necklaces, and watches. Batteries can produce enough energy to weld jewelry to metal, causing a severe burn.
- ! Always have fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- ! Operating the battery with a low battery voltage can cause premature motor contact failure.
- ! Do not expose the lift or charger to rain or adverse conditions.
- ! Replace defective cords or wires immediately.
- ! Check the battery's water level frequently.

Battery Charger Operating Instructions

Never operate the charger with either of the cables coiled. Operating a battery charger with the cord either coiled or wrapped around itself could cause the cord to overheat, melt, and cause a short-circuit or a fire.

Connection: the ribbed wire of the charger's output cord must be connected to the battery's negative (-) terminal. The non-ribbed wire (with words printed on it) must be connected to the battery's positive (+) terminal.

When properly connected, the charger will indicate the status of charger output:

Flashing green LED - the charger is not seeing a good connection to the battery.

Solid yellow LED - the charger is providing charging current to the battery.

Solid green LED - the charger is maintaining a fully charged battery.

Plug the charger into a standard 115V receptacle. If an extension cord must be used, keep it as short as possible.

Caution: Remember to unplug the charger before moving the equipment. Failure to do so could cause damage to cords, receptacles, and other equipment.

The battery charger can be left connected to the battery indefinitely without risk of harming the battery.

Troubleshooting:

If the unit does not operate, check all of the wiring connections to make sure they're both mechanically and electrically sound - specifically at the battery, the motor, and at any location a wire is connected to the chassis. Also, make sure the quick-connect plug on the end of the pendant control cord is plugged in correctly (if applicable).

A fully charged lead acid battery in good condition at room temperature should read 12.65 volts. At 11.9 volts it is considered to be fully discharged and in need of charging. When checking battery voltage, wait at least 1/2 hour after the charger has been turned off before checking the battery's voltage.

If the batteries don't seem to be taking a charge, check the charger's 115V supply circuit and the charger's output with a voltmeter. If all check okay, confirm the battery's state of charge using a hydrometer or a voltmeter.

ROUTINE MAINTENANCE & SAFETY CHECKS – BUNI

- *Warning: Care should be taken to identify all potential hazards and comply with applicable safety procedures before beginning work.*
- *Warning: Raise the platform and install the maintenance props before beginning any inspections or work on the unit.*
- *Only qualified individuals trained to understand mechanical devices and their associated electrical and hydraulic circuits should attempt troubleshooting and repair of this equipment*

(A) Before each use inspect for the following:

- 1.) Frayed wires
- 2.) Oil leaks
- 3.) Pinched or chafed hoses
- 4.) Damage or structural deformation to the structural members, the cylinder brackets, etc.
- 5.) Unusual noise or binding, or evidence thereof.
- 6.) Proper functioning of all limit switches, including those on the perimeter pinch point guard (if applicable).

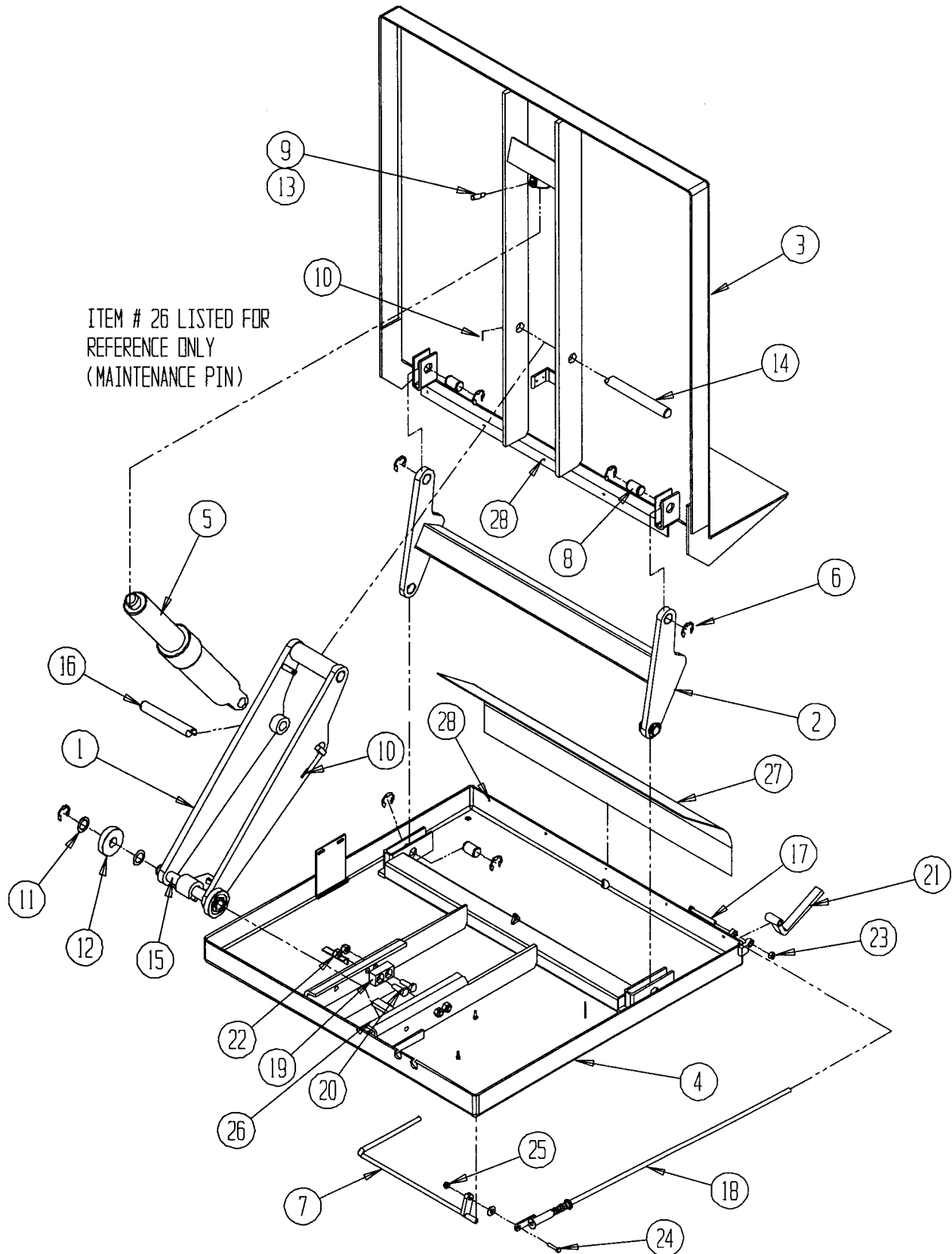
(B) Inspect monthly for:

- 1.) The oil level. Oil should be 1½” to 2” below the reservoir’s fill hole with the lift in the fully raised position. See below for oil specification.
- 2.) Worn or damaged hydraulic hoses and electrical wires.
- 3.) Pivot point wear.
- 4.) Rollers’ looseness and wear.
- 5.) Integrity of the retaining rings on all rollers and on all pivot point pins.
- 6.) The integrity of the frame anchor bolts, and for cracks in the concrete around them.
(Non-portable units only.)
- 7.) Damage or evidence of fatiguing to the fork tubes. (Portable units only.)
- 8.) Proper functioning of the foot-operated sequencing mechanism.
- 9.) Proper water level in the battery (DC units only.)
- 10.) Unusual noises or movement during operation.
- 11.) All the information, safety, and warning labels being in place and in good condition.
- 12.) The need to clean off dirt and debris.

(C) Yearly inspection

The oil should be changed if the oil darkens, becomes gritty, or turns a milky color (indicating the presence of water). Replace with an anti-wear hydraulic oil with a viscosity grade of 150 SUS at 100°F, (ISO 32 at 40°C). Ex: AW 32 or HO 150 hydraulic oil, or a non-synthetic transmission fluid. You may use a synthetic transmission fluid if you flush the system with the synthetic fluid before filling the reservoir.

EXPLODED PARTS VIEW -- BUNI



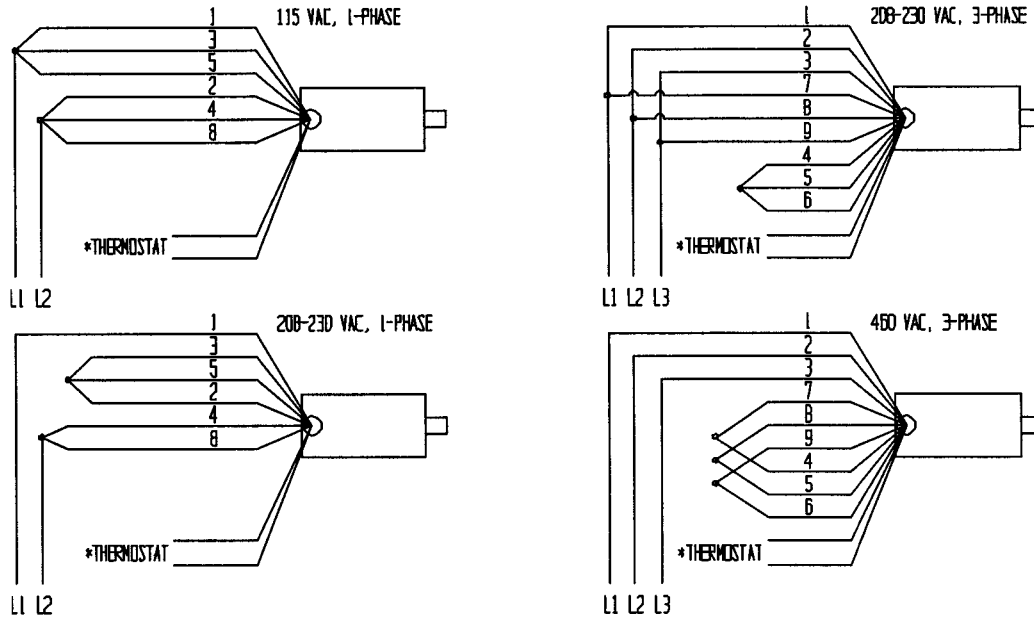
BILL OF MATERIALS -- BUNI

Item #:	Description	Part number	Qty.
1	Weldment assembly, back leg	03-510-001	1
2	Weldment assembly, front leg	03-510-002	1
3	Weldment assembly, deck	03-513-035	1
4	Weldment assembly, frame	03-514-022	1
5	Cylinder, hydraulic, 3" x 10" displacement-style	99-021-901	1 or 2
6	Snap ring, external, 1 ¹ / ₈ "Ø	A/L	10
7	Weldment assembly, foot lever mode selector arm	03-540-003	1
8	Pin, hinge, 1 ¹ / ₈ "Ø x 1 ¹³ / ₁₆ " long	01-112-004	4
9	Bolt, cylinder retainer	01-118-001	2
10	Pin, roll, ³ / ₁₆ "Ø x 1 ¹ / ₈ " long	A/L	2
11	Bushing, machine, 1 ¹ / ₈ " ID x 1 ³ / ₄ " OD x 18 gauge	A/L	6
12	Roller assembly, w/ bushing, 3 ¹ / ₄ " OD x 1 ¹ / ₈ " ID	01-527-001	2
13	Nut, jam, ½-13 UNC	A/L	2
14	Pin, w/ stop boss, 1 ¹ / ₈ " OD x 9 ¹ / ₄ " long	01-112-001	1
15	Pin, roller, 1 ¹ / ₈ " OD x 9 ⁵ / ₁₆ " long	03-112-002	1
16	Pin, cylinder clevis w/ stop boss, 1 ¹ / ₈ " OD x 7 ³ / ₄ " long	01-112-015	1
17	Screw, ⁵ / ₁₆ "-16 UNC x 3 ¹ / ₂ " long HHCS	A/L	1
18	Weldment assembly, foot lever push rod	03-540-004	1
19	Stop, wheel	03-037-001	2
20	Screw, grade 5, ½"-13 UNC x 1 ¹ / ₂ " long HHCS	A/L	4
21	Weldment assembly, foot lever pedal	03-540-004	1
22	Nut, nylock, ½"-13 UNC	A/L	4
23	Nut, ³ / ₈ "-16 UNC hex	A/L	1
24	Screw, ⁵ / ₁₆ "-18 UNC x 1 ¹ / ₂ " long HHCS	A/L	1
25	Nut, 5/16"-18 UNC hex	A/L	2
26	Pin, maintenance	03-130-001	1
27	Guard, vinyl, 16" wide x 38" long	A/L	1
28	Rivet, blind	A/L	10

MOTOR & TRANSFORMER CONNECTION DIAGRAMS

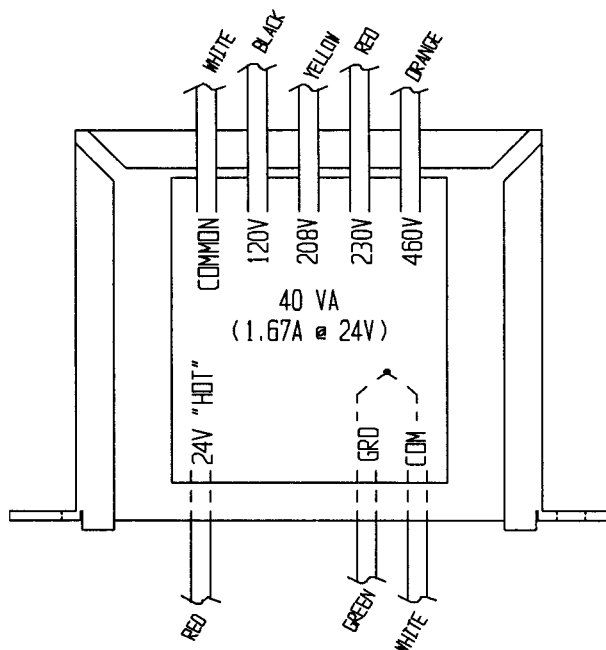
CAUTION! If the motor voltage is changed, the wire on the control transformer's primary wire has to be changed to match the new motor voltage also.

MOTOR LEAD CONNECTION DIAGRAM FOR ALL
.5HP, .75HP AND 3HP SINGLE-PHASE MOTORS AND FOR
ALL 2HP, 5.5HP, AND 6.5HP THREE-PHASE MOTORS



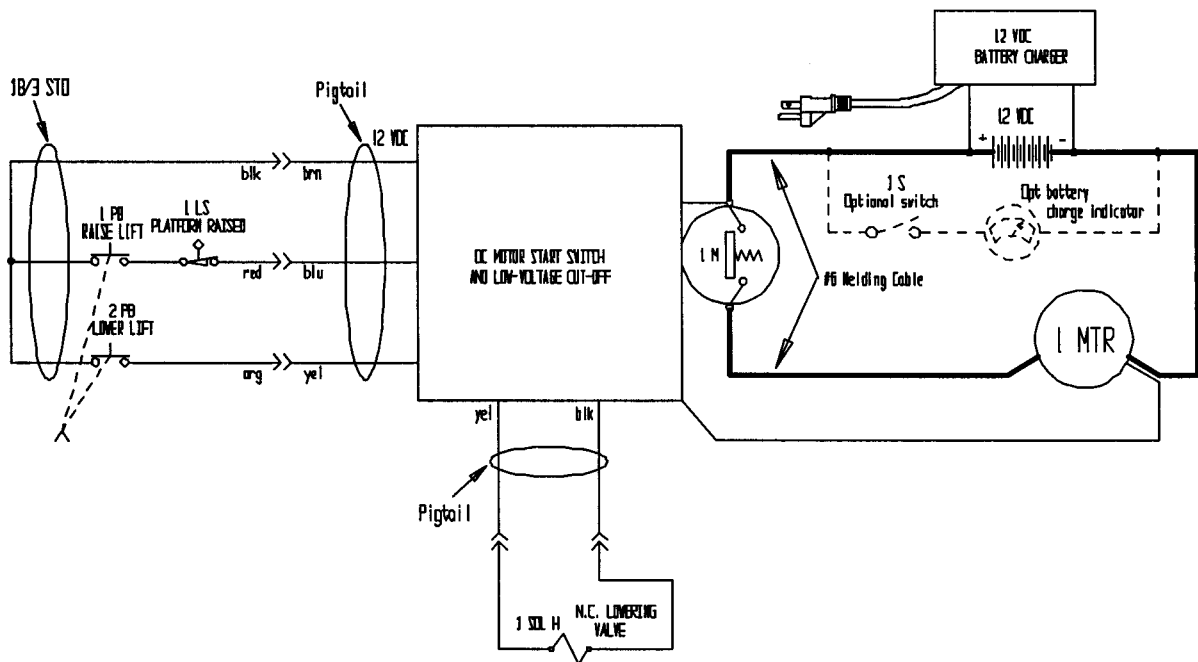
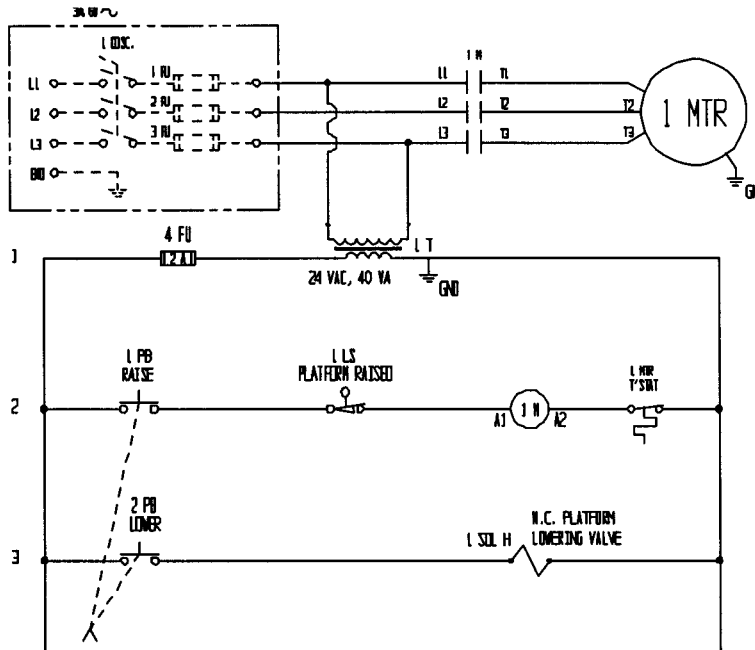
* The two thermostat leads go to: 1) the grounded side of the transformer secondary, and; 2) the motor relay coil, in either order.

⚡ BE SURE ALL POWER IS OFF BEFORE ATTEMPTING TO WORK ON THIS EQUIPMENT!
CAUTION: SERVICE WORK SHOULD BE PERFORMED ONLY BY TRAINED & QUALIFIED PERSONNEL.



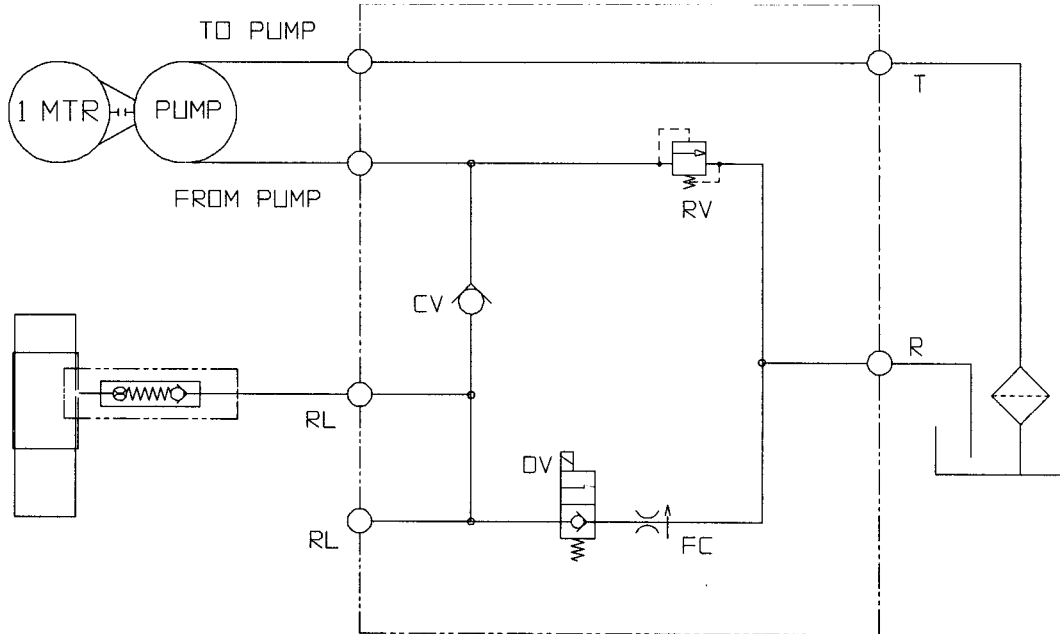
ELECTRICAL DIAGRAM -- BUNI

- Warning: Care should be taken to identify all potential hazards and comply with applicable safety procedures before beginning work. Fully lower or secure the platform with the maintenance props, and ensure that all system pressure and power have been removed, before attempting to work on the electrical or hydraulic systems.
- Raise the platform and install the maintenance props before beginning inspections or work on the unit.
- Only qualified individuals trained to understand mechanical devices and their associated electrical and hydraulic circuits should attempt troubleshooting and repair of this equipment



HYDRAULIC DIAGRAM – LIFT-HOLD-LOWER CIRCUITS

- **Warning:** Care should be taken to identify all potential hazards and comply with applicable safety procedures before beginning work. Fully lower or secure the platform, and ensure that all system pressure and power have been removed, before attempting to work on the electrical or hydraulic systems.
- Only qualified individuals trained to understand mechanical devices and their associated electrical and hydraulic circuits should attempt troubleshooting and repair of this equipment
- **Caution:** Do not use brake fluid or jack oils in the hydraulic system. If oil is needed, use an anti-wear hydraulic oil with a viscosity of 150 SUS at 100°F (ISO 32 @ 40°C), or non-synthetic transmission fluid.



ELECTRIC / HYDRAULIC BOM – BUNI

Item #:	Qty.:	Part number:	Part description:
		Electrical parts:	
1	1	01-135-XXX	Motor; varies by customer spec; contact factory
2	1	LC1-D1810-24V	Motor contactor, 30A, w/ 24 VAC coil
3	1	01-129-001	Transformer, control; w/ 24 VAC secondary
4	1	AGC 2	Fuse, for control circuit
5	1	01-029-006	Control enclosure, 6" W x 6" L x 4" D
6	1	01-522-015	Pushbutton control on 8' cord
7	1	99-034-008	Solenoid coil, 24 VAC
8	1	01-033-017	Connector cord, for solenoid coil
9	1	01-033-015	Cord, power, 14/3, 9' long, w/ NEMA 5-15 plug (115V units)
10	1	01-022-001	Limit switch, roller-arm (N.C.)
11	1	01-033-002	Cable, 18/2 coil cord, 12"-60" (to toe guard switches)
12	2	159/D	Multi-pole terminal strip
		Hydraulic parts:	
13	1	99-153-006	Valve, relief, 210 bar
14	1	99-153-015	Valve, solenoid, N.C.
15	1	99-153-011	Valve, check
16	1	99-153-040	Flow control spool, 2 gpm
17	1 or 2	99-021-XXX	Cylinder, displacement; varies by model; contact factory
18	1 or 2	99-136-XXX	Cylinder seal kit; varies by model; contact factory
19	1	99-127-001	Manifold, lift-hold-lower
20	1	01-143-XXX	Pump, hydraulic; varies by model; contact factory
21	1	DPS-40-N06	Breather plug
22	1	01-031-005	Fitting, intake screen
23	1½	HO 150	Hydraulic fluid (gallons)

THE POWER UNIT'S OPERATION -- BUNI

The electric / hydraulic BUNI-TH utilizes an electric motor directly coupled to a gear-type hydraulic pump to produce the needed fluid pressure and flow to allow the cylinders to perform the work of tilting a container or pallet.

A hydraulic manifold houses the hydraulic control components, and is bolted directly onto the gear pump.

The power unit's hydraulic components are all rated for 3,000 psi working pressure.

- Important parts of the power unit include:
 - The electric motor. Motors are available for operation on single- or three-phase AC supplies (all are dual-voltage capable).
 - The gear pump. Its shaft is coupled directly to the shaft of the electric motor. Several displacements are available, depending on the motor horsepower used.
 - The check valve. Its purpose is to prevent the backflow of fluid through the pump. In this way it allows the platform to be held at a given elevation indefinitely.
 - The pressure relief valve. Its job is to open a path for fluid to flow back to the reservoir in the event that the fluid pressure built up by the pump exceeds 3,000 psi. Thus the system cannot see more than 3,000 psi.
 - The lowering solenoid valve. This is an electrically-operated cartridge valve. It contains a screen to keep contaminants from entering the valve.
 - The pressure-compensated flow control spool. This regulates the fluid flow back to the reservoir when the valve opens. It allows the platform to always lower at the same rate regardless of whether there is a load on the platform or not. Several sizes are available.
 - The hydraulic lifting cylinder(s). This is a displacement style cylinder. The cylinder has a bleeder valve located at the blind end to allow air to be bled from the hydraulic system. See the note below to bleed air from the cylinder.
 - The safety velocity fuse. This is a device that is installed in the cylinder's hose port. It closes quickly in the event of a catastrophic hose failure to prevent the platform from collapsing down. The platform will remain stationary until pressure is reapplied to the system.
 - The hydraulic fluid. The system uses HO150 hydraulic fluid. Any anti-wear hydraulic fluid with a viscosity grade of 150 SUS at 100° F (ISO 32 @ 40° C) such as AW-32 or Dexron transmission fluid are acceptable.
 - When the platform is to be tilted, press the "RAISE" pushbutton. The motor turns, and in turning it spins the hydraulic gear pump. Oil is drawn from the reservoir through the suction filter and into the pump.
 - ◆ The pump pushes the pressurized oil through the check valve and out to the lift cylinder(s). Releasing the pushbutton at any point will stop the motion, and the platform will hold at that height and angle. An upper travel limit switch turns off the motor when the platform is at its full lift height or tilt angle.
 - When the platform is to be lowered, press one of the "LOWER" pushbuttons.
 - ◆ The lowering valve opens, bypassing the check valve and allowing the oil in the cylinder to return back to the reservoir through the return hose. The rate at which the platform lowers is regulated by the internal pressure-compensated flow spool. Releasing the pushbutton at any point will stop the motion, and the platform will hold at that height and angle.
 - In the event that the platform creeps down slowly after releasing a "LOWER" control, it will be necessary to remove the lowering cartridge valve for inspection and cleaning, as follows:
 - ◆ Remove any load from the platform.
 - ◆ Raise the platform, install the maintenance prop, and lower the platform until the unit rests on the prop.
 - ◆ Remove the nut holding the solenoid coil on the valve stem, then remove the coil, and then unscrew the valve from the manifold.
 - ◆ Inspect the valve for contaminants, and the valve's o-rings and back-up washers for cuts, tears, or other damage.
 - ◆ With the valve immersed in mineral spirits or kerosene, use a thin tool such as a small screwdriver or a small hex wrench to push the poppet in and out several times from the bottom end of the valve. The valve should move freely, about 1/16" from closed to open position. If it sticks in, the valve stem could be bent and will need to be replaced if it doesn't free up after cleaning. Blow the valve off with a compressed-air gun while again pushing the poppet in and out.
 - ◆ Inspect the bottom of the manifold's valve cavity for contaminants.
 - ◆ Again with the thin tool, press on the middle of the flow control spool located in the bottom of the cavity. It should move down and back up freely.
 - ◆ Reinstall the valve into the manifold, tightening the valve with approximately 20 lb-ft of torque.
 - If the platform lowers extremely slowly, or not at all, the cylinder's velocity fuse could be closing. This can be caused by air in the hydraulic cylinder. To bleed the air from the system:
 - ◆ Remove any load from the platform.
 - ◆ Raise the platform, install the maintenance prop, and lower the platform until the unit rests on the prop.
 - ◆ Drop the rod end of the cylinder down out of its push cup, hold a rag over the cylinder's bleeder valve (it looks like a grease zirk) and open the valve about ½ turn with a 5/16" wrench. Push the cylinder rod in. Oil and air will sputter from the valve - once no air is observed, close the bleeder valve and reinstall the cylinder rod into its push cup.

TROUBLESHOOTING GUIDE -- BUNI

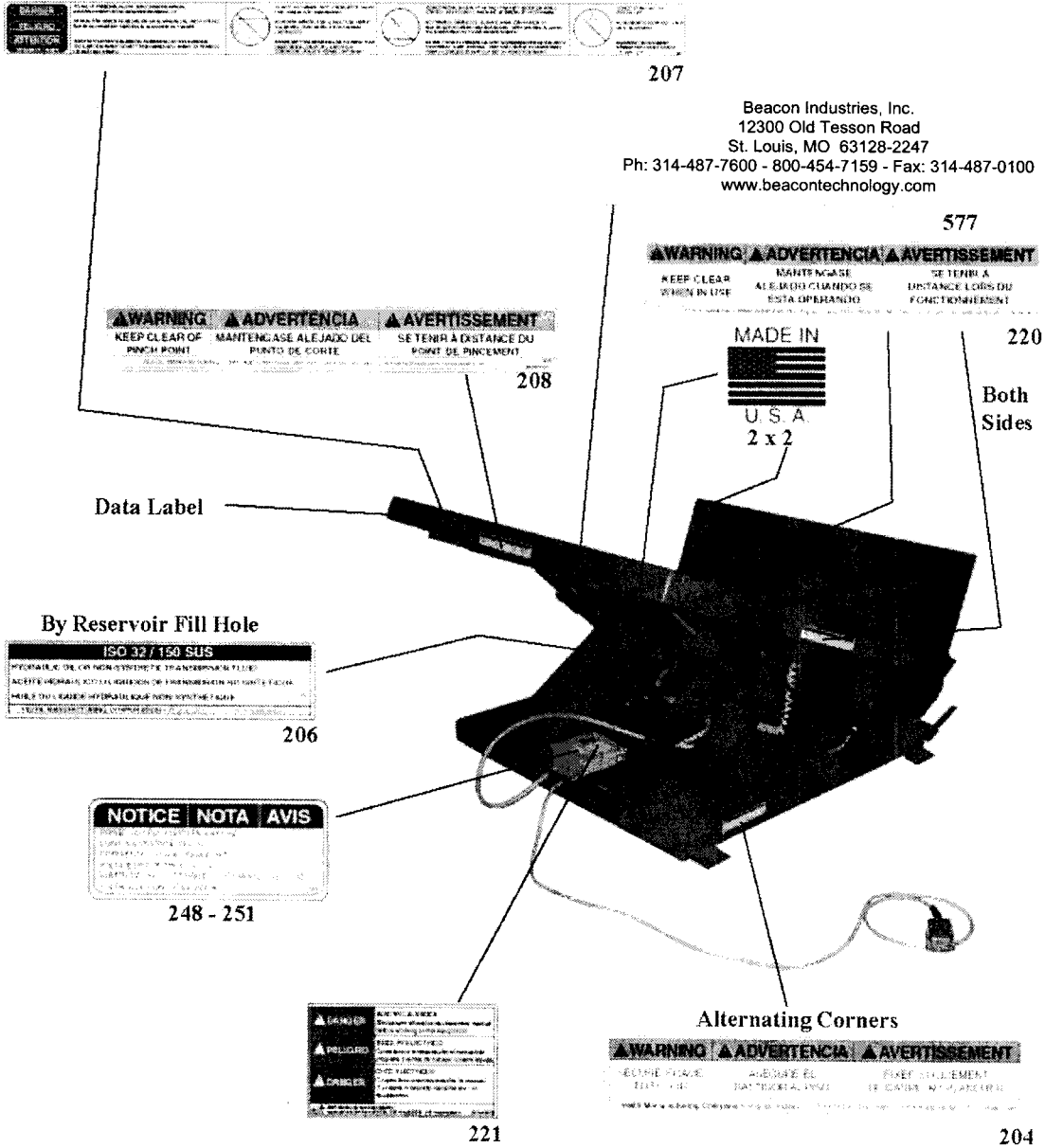
Warning: Before performing any task under the platform, remove any load, install the maintenance prop and disconnect the power supply.

Consult the factory for problems at time of installation, or for any problems not addressed below.

<u>Problem:</u>	<u>Possible cause(s):</u>	<u>Action:</u>
Power unit doesn't run when "UP" button is pressed.	Transformer fuse is blown. No supply voltage.	Test with meter; replace if bad. Test with meter. Check fuses, breakers, and overloads to determine the cause.
	Upper-travel limit switch is engaged or bad.	Inspect and test switch. Replace if bad.
	Bad connection in control circuit. Bad control transformer.	Test all parts of circuit with meter. Check for 24 VAC; replace if bad.
	Open motor relay coil.	Test with meter; replace if bad.
	Battery voltage low (DC units).	Test with meter. Charge battery if low (is motor relay LED on?)
Motor runs properly, platform doesn't move. Motor and pump not noisy.	Motor rotation is wrong.	Verify motor shaft rotates CCW.
	Pump has failed.	Consult factory for replacement.
	Fluid level is low.	Ensure reservoir is filled.
Motor or control enclosure hums, chatters, or buzzes, or some type of squeal can be heard; the platform does not move, or the platform moves only slowly..	See second item above, for when platform doesn't raise.	Same as above.
	Excess voltage drop to motor, due to power wire size too small, wire run to long, or incoming voltage too low.	Check power installation for adequacy. Check incoming voltage <i>while motor is running</i> . Correct problem found.
	Motor is "single-phasing".	Determine cause of loss of voltage on one phase; correct.
	Pressure relief opening at full pressure.	Check for structural damage or binding of the scissor legs, etc. Check for platform overload condition.
	Contamination holding open the lowering valve or the check valve.	Remove and inspect. Clean per instructions in this manual.
Platform raises, then drifts down.	See last paragraph, above.	Same as above.
Platform lowers too quickly.	See above.	Same as above.
	Flow control spool is stuck.	See below.
Platform lowers too slowly.	Flow control spool is stuck.	Remove plug from FC port; push on flow spool to ensure it is fully pressed into the cavity.
	Pinched hose.	Check pressure, supply, and return hoses for kinks.
	Velocity fuse locking (platform only slowly creeps down).	Same as for jerky platform motion.
	Velocity fuse locking.	Same as for jerky platform motion.
Platform won't lower.	Control transformer fuse blown.	Test with meter; replace if bad.
	No supply voltage.	Test with meter. Check for cause of power loss.
	Valve solenoid is bad.	Check with multimeter on diode-check function. (Reading for ohms will not provide an accurate test of the coil.)
	Bad connection in control circuit.	Test all parts of circuit with meter.
	Physical blockage of the structure.	Inspect for foreign material or objects that might block the platform.
	Solenoid valve or suction hose screen plugged.	Remove and inspect. Clean per instructions in this manual.
Spongy or jerky platform motion.	Excessive air in the hydraulic cylinders.	Bleed air per procedure described in this manual.

SAFETY LABEL IDENTIFICATION -- BUNI

* Product safety signs or labels should be periodically inspected and cleaned by the product users as necessary to maintain good legibility for safe viewing distance -- ANSI 535.4 (10.21). Contact the manufacturer for replacement labels.



POWERED PRODUCTS' 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 shipment (not to exceed 15 months after date of manufacture). Any part that 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 or pre-approved in advance by the manufacturer. 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.

All specifications are subject to change without notice.

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 does not cover labor or consequential damages including, but not limited to, business interruption costs, lost profits, or lost business opportunities.

WARRANTY DISCLAIMER

The manufacturer has made a diligent effort to accurately illustrate and describe their products. 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 that proves to be defective within the Limited Warranty Period. Warranty claims must be made in writing within said year.