

OPTIMUS

HYDRAULIC LIFT TABLES

Bishamon[®]



Service & Operation **MANUAL**

Models Lift2K[®], Lift3K[™], Lift5K[™]



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GETTING STARTED

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE OPTIMUS™ Scissor Lift Table. The safety of all persons installing, using or servicing the OPTIMUS™ scissor lift is of utmost importance to Bishamon. All OPTIMUS™ series lifts are capable of supporting heavy loads and are capable of causing SEVERE PERSONAL INJURY if used improperly or certain safety precautions are not taken. When properly used and maintained, OPTIMUS™ lifts will provide many years of safe, trouble free service. If you have any questions about any of the instructions in this manual or about the use of this product, PLEASE contact your DEALER or Bishamon Industries Corporation.

OPTIMUS™ LK series refers Lift2K®, Lift3K™ and Lift5K™ scissor lift tables. Throughout this service manual the OPTIMUS™ scissor lift may be referred to as the "lift table" or the "lift".

INSPECTION

IMMEDIATELY upon receipt of the lift table, remove all packing and strapping material and visually inspect the unit for damage. Any damage to the unit MUST BE NOTED on the delivery receipt. After the preliminary inspection is conducted, the unit should be thoroughly inspected for any concealed damage that was not readily apparent during the preliminary inspection. Any concealed damage found that was not noted on the delivery receipt should be IMMEDIATELY reported in writing TO THE DELIVERING CARRIER.

SAFETY DEFINITIONS

Bishamon uses the following system to identify the degree of risk associated with hazards and unsafe practices.

DANGER - Immediate hazard which will result in SEVERE PERSONAL INJURY or DEATH.

WARNING - Hazard or unsafe practice which could result in SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE.

CAUTION - Hazard or unsafe practice which could result in MINOR PERSONAL INJURY and PROPERTY DAMAGE.

DANGERS

1. READ THIS MANUAL COMPLETELY BEFORE USING AND THOROUGHLY UNDERSTAND AND FOLLOW ALL SAFETY INSTRUCTIONS.
2. A falling lift table can cause SEVERE PERSONAL INJURY or DEATH. NEVER go under the platform until the load is removed and the scissor mechanism is secured in the raised position with the maintenance bars.
3. The maintenance bars have been designed for use only when the lift is UNLOADED. NEVER place any load on the platform with the maintenance bars engaged. SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE could result.
4. NEVER sit, stand or ride on the platform. Moving components could cause loss of balance. SEVERE PERSONAL INJURY or DEATH could result.
5. The lifts electrical circuits use voltages, which can cause SEVERE PERSONAL INJURY or DEATH. DO NOT work with the electrical components unless you are a QUALIFIED ELECTRICIAN
6. The lift's electrical components can create sparks. DO NOT install the lift in an area where potentially explosive dusts, gases, or vapors may be present. Failure to comply may result in an explosion and cause SEVERE PERSONAL INJURY or DEATH.

WARNINGS

1. The OPTIMUS lift table is designed for use with stable, uniformly distributed loads on a solid level floor. DO NOT concentrate the load at one point on the platform or pallet. ALWAYS uniformly distribute each layer of load over the supporting surface. DO NOT use the lift for any purpose other than its intended use.
2. DO NOT install the lift table on an unlevel or soft surface. The lift base frame must be supported along its entire length and width. Failure to completely support the base frame could result in damage to the lift.
3. DO NOT use the lift table with an unstable, unbalanced or loosely stacked load. Unbalanced loads may become unstable and fall. SEVERE PERSONAL INJURY and PROPERTY DAMAGE could result.
4. DO NOT overload the lift table. ALWAYS stay within the designated capacity ratings. SEVERE PERSONAL INJURY and PROPERTY DAMAGE could result.
5. SHEARING HAZARD. ALWAYS keep hands and feet clear of the scissor mechanism and all moving components. DO NOT put hands or fingers under the platform when in use. SEVERE PERSONAL INJURY could result.
6. CRUSHING HAZARD. ALWAYS keep hands and feet clear of all moving components. DO NOT put feet on the base frame when in use. SEVERE PERSONAL INJURY could result.
7. PINCH POINT HAZARD. ALWAYS keep feet, hands and fingers away from the underside of the platform and all moving components. SEVERE PERSONAL INJURY could result.
8. DO NOT change the relief valve setting. The relief valve is installed to protect the operator and the lift table. Changing the relief valve setting may compromise the performance and safety of the lift. SEVERE PERSONAL INJURY and PROPERTY DAMAGE could result.
9. NEVER leave the loaded lift table unattended unless the platform is in the fully-lowered position.
10. ALL lift servicing must be performed by qualified personnel only. Unauthorized modifications to this lift table, its hydraulic power unit or its control system may compromise the performance and safety of the system. UNDER NO CIRCUMSTANCES should you attempt any repair or service that is not covered in this manual.
11. The release of fluids under high pressure can cause SEVERE PERSONAL INJURY. Before servicing the lift, ALWAYS remove all load, engage the maintenance bars and RELEASE THE HYDRAULIC PRESSURE.

12. ALWAYS ensure all safety warning labels are in place and legible. If not, remove the lift table from service and replace the required labels.
13. ALWAYS securely anchor the base frame to the floor to ensure maximum stability.

⚠ CAUTIONS

1. DO NOT continue to operate the pump if a squealing noise is heard coming from the pump. The pressure relief valve is operating. Continued use of the pump with the relief valve operating may cause permanent damage the pump. REDUCE the load to prevent the relief valve from operating.

SAFETY WARNING LABEL LOCATIONS



Figure 1 Safety Warning Label Locations

RESPONSIBILITIES OF OWNERS/USERS

The following section is taken directly from section 5 of ANSI MH29.1-2012. Please note the following:

- Manufacturer refers to Bishamon's authorized representative the "DEALER" or to "Bishamon Industries Corporation".
- Industrial scissors lift refers to the OPTIMUS series lifts – models Lift2K, Lift3K and Lift5K.
- Operating and maintenance manual refers to this manual – "OPTIMUS LK Series Lift2K, Lift3K and Lift5K Series Operation and Service Manual".

Basic Principles - Owners/users shall apply sound principles of safety, training, inspection, maintenance, and expected operating environment. It shall be the responsibility of the owner/user to advise the manufacturer where deflection may be critical to the application.

Manuals - Owners/users shall keep and maintain a copy of the operating and maintenance manual and ensure its availability to operating and maintenance personnel.

Inspection and Maintenance - It shall be the responsibility of the users to inspect and maintain the industrial scissors lift as required to ensure proper operation. The frequency of inspection and maintenance shall be based upon the manufacturer's recommendations and be compatible with operating conditions and the severity of the operating environment. Industrial scissors lifts that are not in proper operating condition shall be immediately removed from service until repaired. Maintenance and repairs shall be made by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.

Maintenance Safety Precautions - Before adjustments and repairs are started on an industrial scissors lift, the following precautions shall be taken as applicable:

1. Remove the load from the platform.
2. Lower platform to the fully-lowered position if possible or secure by maintenance device and/or blocking as described by the manufacturer to prevent unintended platform movement.
3. Relieve system pressure from all hydraulic circuits before loosening or removing any components.
4. All controls in the "Off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.
5. Disconnect power and follow established owner/user lockout/tagout policies.
6. Follow precautions and directions as specified by the manufacturer.

Replacement Parts - When parts or components are replaced, they shall be replaced with parts or components approved by the original manufacturer of the industrial scissors lift.

Maintenance Training - The user shall ensure only qualified personnel inspect and maintain the industrial scissors lift in accordance with section 5.3, 5.4, and 5.6 of MH29.1-2012 and with the manufacturer's recommendations as described in the maintenance manual.

Operator Training - An owner/user, who directs or authorizes an individual to operate an industrial scissors lift, shall ensure that the individual has been:

1. Trained in accordance with the manufacturer's operating manual.
2. Made aware of the responsibilities of operators as outlined in section 6 of ANSI MH29.1-2012.
3. Retrained, if necessary, based on the owners/user's observation and evaluation of the operator.

Modifications - Modifications and additions shall not be performed without the manufacturer's prior written approval. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

FIXED PLATFORM MODEL SPECIFICATIONS AND SPECIFICATION DRAWING

SPECIFICATIONS:							
	L2K		L3K		L5K		
Maximum Load Capacity	2000 lbs		3000 lbs		5000 lbs		
Lowered Height	8 1/2 in.		8 5/8 in.		8 3/4 in.		
Raised Height	38 1/2 in.		42 5/8 in.		48 in.		
Travel	30 in.		34 in.		39 1/4 in.		
Platform Width	28 in. x 48 in.	36 in. x 48 in.	28 in. x 48 in.	36 in. x 48 in.	32 in. x 56 in.	48 in. x 72 in.	
Platform Length							
Base Frame Width	24 5/16 in.		24 5/16 in.		28 5/16 in.		
Base Frame Length	49 in.		49 in.		56 in.		
Weight	460 lbs	490 lbs	530 lbs	560 lbs	730 lbs	1030 lbs	
Sound Pressure Level	<70dB(a)						
Operating Environment	Indoors						
Lighting Requirement	Good General Lighting						
Operating Environment Temp	See Table 1						

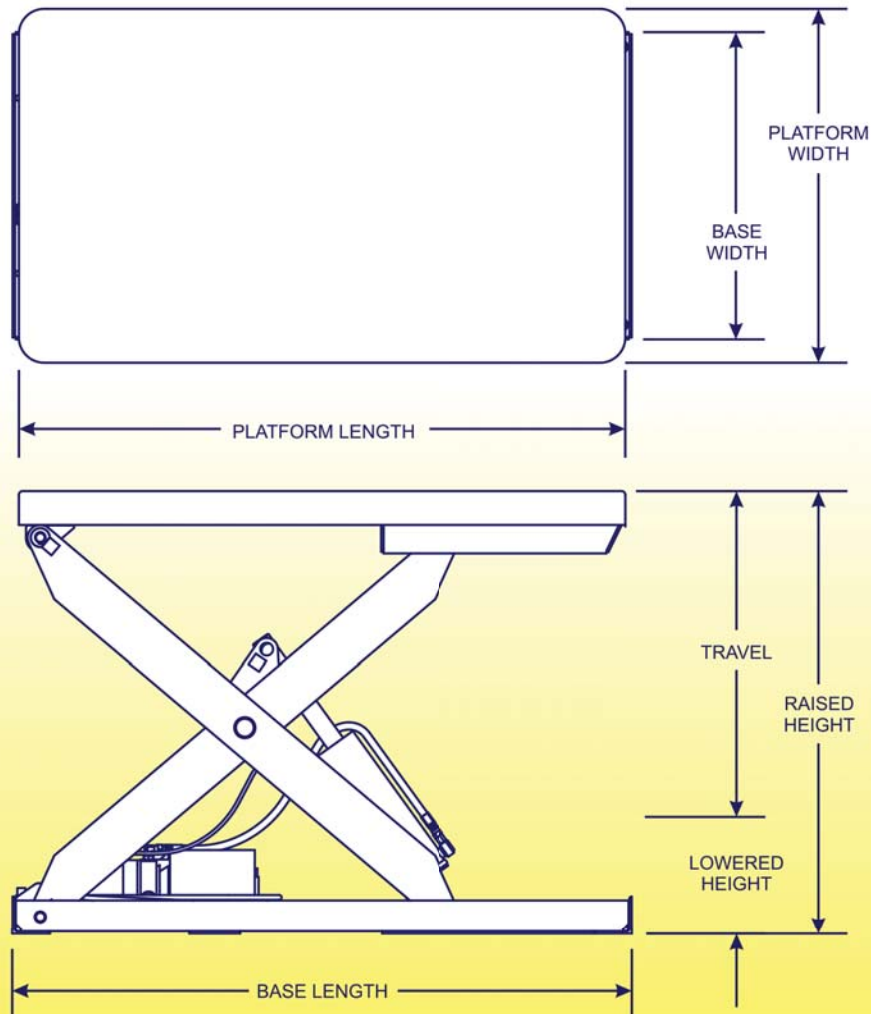


Figure 2 Fixed Platform Model Specification Drawing

TURNTABLE MODEL SPECIFICATIONS AND SPECIFICATION DRAWING

SPECIFICATIONS:

	L2K	L3K	L5K
Maximum Load Capacity	2000 lbs	3000 lbs	5000 lbs
Lowered Height	11 1/2 in.	11 5/8 in.	11 3/4 in.
Raised Height	41 1/2 in.	45 5/8 in.	51 in.
Travel	30 in.	34 in.	39 1/4 in.
Base Frame Width	24 5/16 in.	24 5/16 in.	28 5/16 in.
Base Frame Length	49 in.	49 in.	56 in.
Weight	540 lbs	680 lbs	830 lbs
Sound Pressure Level	<70dB(a)		
Operating Environment	Indoors		
Lighting Requirement	Good General Lighting		
Operating Environment Temp	See Table 1		

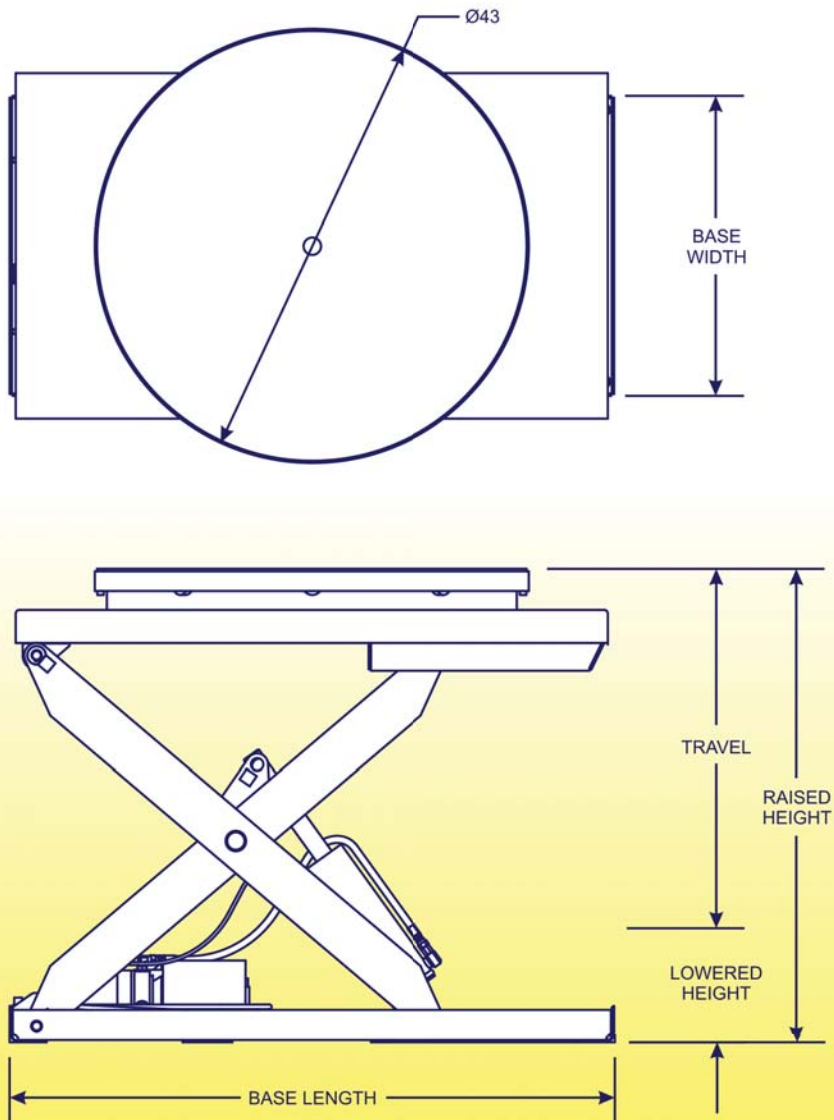


Figure 3 Turntable Model Specification Drawing

RECOMMENDED FLOOR AREA



Figure 4 Recommended Floor Area

The lift table's recommended floor area, shown in Figure 3, identifies the "Danger Zone" and the "Operating Zone". The Danger Zone is the area inside the base frame and under the platform structure. The recommended Operating Zone is a distance of 39 inches (1 meter) extending beyond the danger zone on all sides.

⚠️ DANGER

A falling lift table can cause SEVERE PERSONAL INJURY or DEATH. NEVER go under the platform until the load is removed and the scissors mechanism is secured in the raised position with the maintenance bars. The maintenance bars have been designed for use only when the lift is UNLOADED. NEVER place any load on the platform with the maintenance bars engaged. SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE could result.

FUNCTIONAL DESCRIPTION

The OPTIMUS LK series hydraulic scissors lift tables provide a convenient solution to a wide variety of material handling applications. These electro-hydraulic lift tables are designed and manufactured to increase productivity and to reduce worker strain. By lifting and accurately positioning the load, OPTIMUS lifts eliminate unproductive lifting and stretching that ultimately leads to worker fatigue, injuries and product damage. They are well suited for handling a wide variety of products including work in progress, containers, bins, tools and dies.

Depressing the UP control actuates the hydraulic power unit and directs hydraulic fluid to the piston side of the hydraulic cylinder(s). The cylinder rod(s) extend and opens the scissors mechanism which in turn raises the platform. Lowering is achieved by depressing the "DOWN" control actuating a solenoid valve at the hydraulic power unit. Opening the valve allows hydraulic fluid to flow out of the cylinder and return to the reservoir. A pressure compensated flow control valve within the power unit controls the lowering speed.

MAINTENANCE BAR OPERATING INSTRUCTIONS

To Engage The Maintenance Bars:

1. Remove all load from the platform and raise the lift table to its fully-raised position.
2. Move to the roller end of the lift. As detailed in Figure 4, rotate each maintenance bar approximately 90° until the bar contacts the roller channel. Ensure both bars are positioned correctly.
3. Lower the lift by depressing the DOWN button or pedal. The lift will lower slightly until the scissors rollers contact the maintenance bars. Release the DOWN button or pedal. ALWAYS check the position of both maintenance bars before going under the platform or servicing the lift.

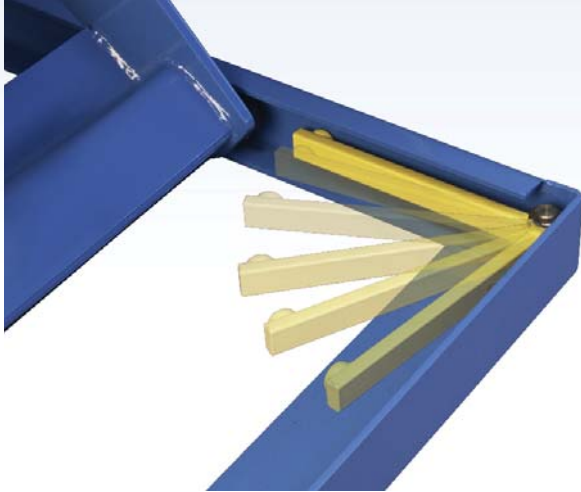


Figure 5 Maintenance Bar Operation

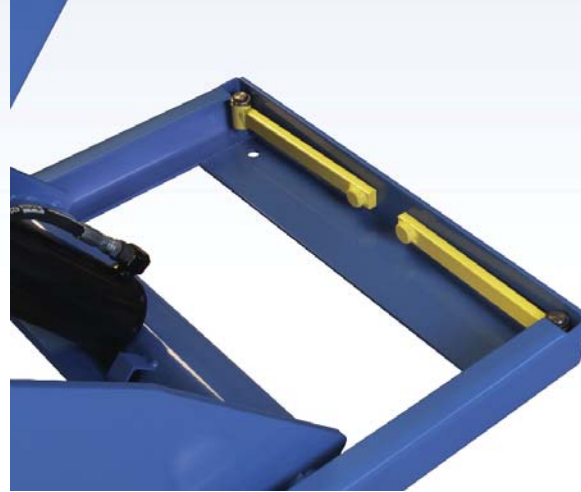


Figure 6 Maintenance Bars in Stored Position

To Disengage The Maintenance Bars:

5. Depress the UP button or pedal to raise the platform to its fully-raised position. When the lift is fully raised, release the UP button or pedal.
6. Move to the roller end of the lift and rotate each maintenance bar approximately 90° to its stored position. As shown in Figure 5, ENSURE both bars are in their stored position.

INSTALLATION INSTRUCTIONS

The OPTIMUS LK Series lift table is shipped on a pallet and only requires minor assembly before it is ready for use. Before you begin, locate and identify the components detailed in Figure 6. These components will be referred to in the installation procedures. Make sure you understand the function of each component proceeding.



Figure 7 Installation Components

Power Cord - All OPTIMUS lift tables are supplied with an eight (8) ft power cord of the proper size and rating for the hydraulic power unit.

Power Cord Plug - All 115 volt lifts are supplied with a power cord plug for use with a conventional 115 volt (20 amp) receptacle. For all other voltages, the power cord plug is supplied by others. A QUALIFIED ELECTRICIAN must install an electrical plug of the proper style and rating on the power cord.

Hand Control with Control Cord Disconnect Plug - All OPTIMUS lift tables are supplied with a hand control, Figure 9 (or optional foot control, Figure 10) that is used to raise or lower the lift. The control cord is ten (10) feet long and is supplied with molded control cord disconnect plug on the end.

Control Cord Disconnect Receptacle - All OPTIMUS lift tables are supplied with a control cord disconnect. The female receptacle is located at the power unit end of the base frame.

Reservoir Breather - All OPTIMUS lift tables are supplied with hydraulic fluid in the reservoir. The breather is conveniently located on top of the reservoir near the end of the lift table and must be removed to check the fluid level or to add hydraulic fluid.

Base Frame Anchor Holes - Four (4) predrilled base frame anchor holes are provided inside the base frame to secure the lift to the floor or installation surface.

Tools Required

1. Banding or Strap Cutters
2. Drill with 1/2" concrete drill
3. 3/4" closed end wrench

⚠ DANGER

The lifts electrical circuits use voltages, which can cause SEVERE PERSONAL INJURY or DEATH. DO NOT work with the electrical components unless you are a QUALIFIED ELECTRICIAN

1. Using a fork lift or similar equipment, move the palletized lift to the location it is to be installed. The installation area should be clean and have good general lighting
2. Next, using the strap cutter, remove the bands securing the lift to the pallet. Remove all packing material and place it off to the side.
3. Locate a separate box that contains the hand control or optional foot control. This box is located under the primary packaging material at the end of the base frame. Remove the hand or foot control with the control cord from the box. Next, insert the control cord disconnect plug into the mating receptacle at the end of the base frame. Ensure the plug is fully connected and the locking tabs are positioned over the posts on the disconnect receptacle.
4. Locate the power cord attached to the lift's base frame.
115 Volt Power Units - All 115 volt lifts are supplied with a power cord plug for use with a conventional 115 volt (20 amp) receptacle. Ensure the receptacle to be used is rated for 115 volt, 20 amp operation. Insert the plug into the receptacle.
All Other Voltage Power Units - A power plug is not supplied with the lift, due to the many different types of electrical outlets. Next, have a QUALIFIED ELECTRICIAN install an electrical plug of the proper style and rating on the power cord. Ensure both the power source and outlet have the proper amperage rating for the lift's electric motor. Finally, insert the plug into the electrical outlet.
5. Using the hand control, depress the UP button to raise the lift to its maximum raised height. In the case of a foot control, depress the UP pedal to raise the lift to its maximum raised height. Following the maintenance bar operating instructions, rotate the maintenance bars into the maintenance position. DO NOT lower the lift to engage the maintenance bars at this time.
6. Using a forklift, position the forks under the platform structure, as detailed in Figure 7. Lift the LK lift off the pallet. Next, remove the pallet and place it off to the side. Position the lift in the desired location. Use care not to damage the lift's power cord or control cord.



Figure 8 Handling the OPTIMUS Lift



Figure 9 Anchor Bolt Detail

The OPTIMUS base frame must be secured to the floor for maximum stability. Contact your Dealer or Bishamon Industries Corporation if you have any questions regarding the proper installation of the lift. Complete steps 7 and 8 to secure the lift to the floor.

7. Inside the base frame are four (4) 5/8 in. holes for lagging the unit securely to the floor. Using the four (4) holes as a template, drill a 1/2 in. diameter hole, 3 in. minimum depth at each location. The floor surface should be level and the drilled holes perpendicular to the floor. If required, shift the position of the lift with a forklift to allow room for drilling, then drill. When complete, reposition the lift.
8. As detailed in Figure 8, prepare the 1/2 in. diameter x 4 in. long anchor bolts (USE type SUP-R-STUD #26-12400 or equivalent) by assembling the washer and nut on the anchor bolt. The nut should be screwed onto the anchor bolt approximately 1/2 the nut height. Drive the assembled anchor through the mounting hole into the concrete until the washer is flush with the top of the anchor plate. Expand the anchor shield by tightening the nut three (3) to five (5) turns. Repeat step 8 for the remaining anchors. NOTE: Make sure the underside of the base frame surface is fully supported with shims or concrete grout.
9. Rotate the maintenance bars to their stored position and run the lift up and down several times to remove any air that may have been trapped in the hydraulic system due to shipping.
10. The lift is now ready for operation. Refer to the following section for complete operating instructions.

OPERATING INSTRUCTIONS

Raising the Lift Platform

1. Before raising the platform, BE SURE that all others are well clear of the lift. If the platform is loaded, RECHECK the position and condition of the load.
2. As shown in Figures 9 and 10, depress the UP button or pedal to raise the platform to a convenient position. CONTINUOUSLY WATCH the condition of the load as the platform is raised. If the load appears to be shifting, STOP, lower the platform and adjust the load.



Figure 10 Hand Control Operation



Figure 11 Foot Control Operation

Loading / Unloading the Lift Platform

1. Check the load or component weight to ensure the total load does not exceed the capacity of the lift. Refer to the capacity decal on the end of the lift platform.
2. If required, raise the platform to a convenient working height.
3. Uniformly distribute the load over the platform or supporting surface and ensure the load is tightly stacked.

⚠ WARNING

DO NOT concentrate the load at one point on the pallet or platform. ALWAYS uniformly distribute each layer of load over the supporting surface. DO NOT use the lift table with an unstable, unbalanced or loosely stacked load. Unbalanced loads may become unstable and fall. SEVERE PERSONAL INJURY and PROPERTY DAMAGE could result.

DO NOT overload the lift table. ALWAYS stay within the designated capacity ratings. SEVERE PERSONAL INJURY and PROPERTY DAMAGE could result.

Lowering the lift Platform

1. Before lowering the platform, BE SURE that you, as well as all others, are well clear of the lift. If the platform is loaded, RECHECK the position and condition of the load.
2. Depress the DOWN button or pedal (see Figures 9 and 10) to lower the lift platform. CONTINUOUSLY WATCH the condition of the load as the platform is lowering. If the load appears to be shifting, STOP and adjust the load.

ROUTINE MAINTENANCE

The OPTIMUS lift table is designed to provide years of trouble free service and requires very little maintenance. However, a routine inspection and maintenance program will prevent costly replacement of parts and/or downtime. All service should be performed by a qualified service person who has an understanding of lift equipment and hydraulic diagrams. This person should be thoroughly familiar with the operation and use of this type of equipment.

⚠ DANGER

A falling lift table can cause SEVERE PERSONAL INJURY or DEATH. NEVER go under the platform until the load is removed and the scissors mechanism is secured in the raised position with the maintenance bars.

The maintenance bars have been designed for use only when the lift is UNLOADED. NEVER place any load on the platform with the maintenance bars engaged. SEVERE PERSONAL INJURY or DEATH and PROPERTY DAMAGE could result.

Daily Inspection

1. If the OPTIMUS lift is equipped with an accordion bellows skirt, lift the bottom of the bellows skirt and secure it in the raised maintenance position with the maintenance ties.
2. ALWAYS engage the maintenance bars and ensure the scissors mechanism is securely blocked in the raised position before performing ANY lift inspection or maintenance.
3. Before use, visually inspect the lift for worn, damaged or broken components. If any of these conditions exist, REMOVE the lift from service and contact a qualified service person.
4. Raise the platform and visually inspect the hydraulic components (i.e. pump, hoses, fitting and cylinders) for oil leakage. If oil leakage exists, REMOVE the lift from service and contact a qualified service person.
5. Check the condition of the warning labels. The warning labels are for the safety of the operator. If the labels are worn, missing or unreadable, REPLACE them before placing the lift back in service.
6. Finally, raise the lift and disengage the maintenance bars by returning them to their stored position.

Monthly Inspection and Maintenance

1. If the OPTIMUS lift is equipped with an accordion bellows skirt, lift the bottom of the bellows skirt and secure it in the raised maintenance position with the maintenance ties.
2. ALWAYS engage the maintenance bars and ensure the scissors mechanism is securely blocked in the raised position before performing ANY lift inspection or maintenance.
3. Inspect snap rings and roll pins at all pivot shaft and axle locations. If not in place and/or secure, replace or repair at once.
4. Inspect the scissors rollers, cylinder pivot pins, cylinder bushings, scissors pivot pins and scissors bushings for signs of wear. If worn, replace at once. All pivot locations have lifetime lubricated bushings; therefore they do not need grease or lubrication.
5. Inspect the hydraulic power unit and cylinder(s) for signs of leakage. The presence of a small amount of fluid around the cylinder rod is normal. However, fluid flowing from around the top of the cylinder head cap indicates worn seals. Replace the cylinder seals at once.
6. Inspect the flexible hydraulic lines for chaffing and sign of wear. If worn, replace at once.
7. Inspect the hydraulic line connections for tightness. Tighten if necessary.
8. Check the level and appearance of the hydraulic fluid. To do so, raise the unloaded platform and engage the maintenance bars. All OPTIMUS lifts are equipped with translucent plastic reservoirs making it possible to visually determine the fluid level without opening the reservoir cap. The proper fluid level is the lift on the maintenance bars. If required, add oil to the reservoir. Next, remove the reservoir breather and check the condition of the oil, it should appear light in color. The oil should be changed if the color has darkened or if the oil feels gritty. Obtain an oil sample to feel between your fingers by dipping a shaft-shaped object into the top of the reservoir opening. Re-install the reservoir breather.
9. Finally, raise the lift and disengage the maintenance bars by returning them to their stored position.



Figure 12 Reservoir Fluid Level

Changing the Hydraulic Oil (Every 12 Months)

1. Change the hydraulic oil every 12 months of service or more often if conditions warrant. The frequency of fluid change will depend upon the general working conditions, severity of use and the overall cleanliness and care given to the lift. To do so, raise the unloaded platform to its maximum height and engage the maintenance bars. Lower the lift onto the maintenance bars. Depress and hold the DOWN button or pedal for several seconds to allow any residual hydraulic pressure to diminish.
2. For models L2K and L3K remove the snap ring that secures the upper cylinder pin and then remove the upper cylinder pin. The L5K uses roll pins to secure the upper cylinder pins. Using a small punch drive the roll pins out and then remove the upper cylinder pins.
3. The hydraulic fluid inside the cylinder needs to be purged from the system. Disconnect the hydraulic line from the power unit and place

the hose end into a suitable container that will hold the spent hydraulic fluid. The cylinder rod can now be pressed back into the cylinder pushing the fluid out of the cylinder into the container. Press the rod firmly and slowly until it has completely bottomed and re-attach the hydraulic line to the power unit.

4. The fluid remaining in the power unit reservoir needs to be purged from the system as well. Disconnect the hydraulic line from the cylinder and place it in the container. Press the UP button and run the power unit until the fluid is purged from the reservoir. Next, add a small amount of new hydraulic fluid to the reservoir and run the pump. Repeat this process until the old hydraulic fluid is completely purged from the system. Re-attach the hydraulic line to the cylinder.
5. The old hydraulic fluid is considered hazardous waste and should be handled and disposed of properly. Clean all spilled oil and thoroughly inspect the lift and all hydraulic components.

Bishamon Industries supplies the OPTIMUS LK series lift tables with Goldenwest Lubricant Premium AW Hydraulic Oil 32, a quality hydraulic oil with rust and oxidation inhibitors and anti-wear properties for use in normal ambient temperatures.

Type	Manufacturer
Premium AW Hydraulic Oil 32	Goldenwest Lubricants
Conoco 32	Conoco
DTE 24	Exxon/Mobile
NUTO H32	Exxon/Mobile
AMOCO AW32	Chevron (AMOCO CO.)
AW32	CITGO

Chart 1 Hydraulic Oil Specifications

6. Fill the reservoir with the new hydraulic fluid (refer to chart 1 for the recommended hydraulic fluid) and run the motor by pressing the UP button to prime the pump and extend the hydraulic cylinder. Jog the UP button to slowly extend the cylinder until the hole in the cylinder rod lines up with the holes in the cylinder mounting clevis. Replace the upper cylinder pin and corresponding snap ring(s) or roll pins.
7. Raise the lift to its maximum height and disengage the maintenance bars. Completely raise and lower the lift three (3) times to remove any trapped air from the hydraulic system.
8. Completely raise the lift and engage the maintenance bars. Recheck the fluid level, as detailed in the "Monthly Inspection and Maintenance" section. The lift is now ready for use.

Cylinder Seal Replacement

In the event the pump or cylinder seals are leaking, detailed instructions and replacement part kits are available. Contact the DEALER or Bishamon Industries Corporation to obtain service kits and instructions for these items.

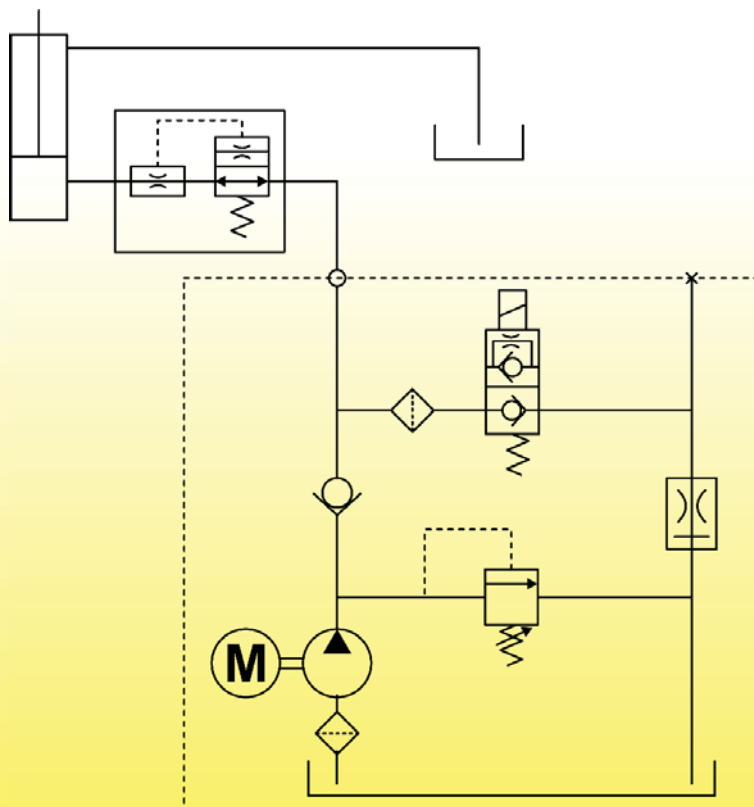


Figure 13 Hydraulic Schematic - Plumbing Diagram

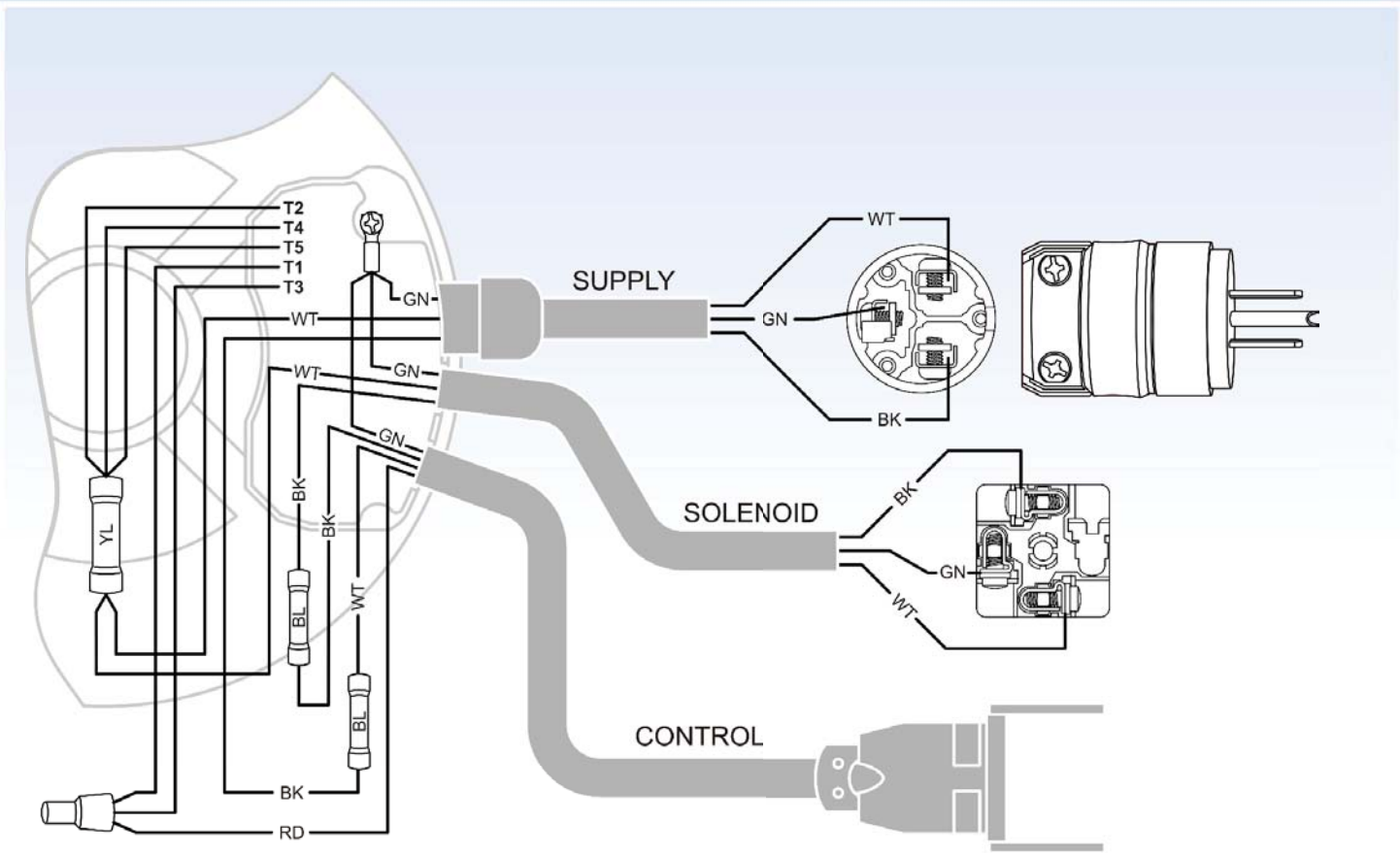


Figure 14 Lift2K 115 Volt Wiring Diagram

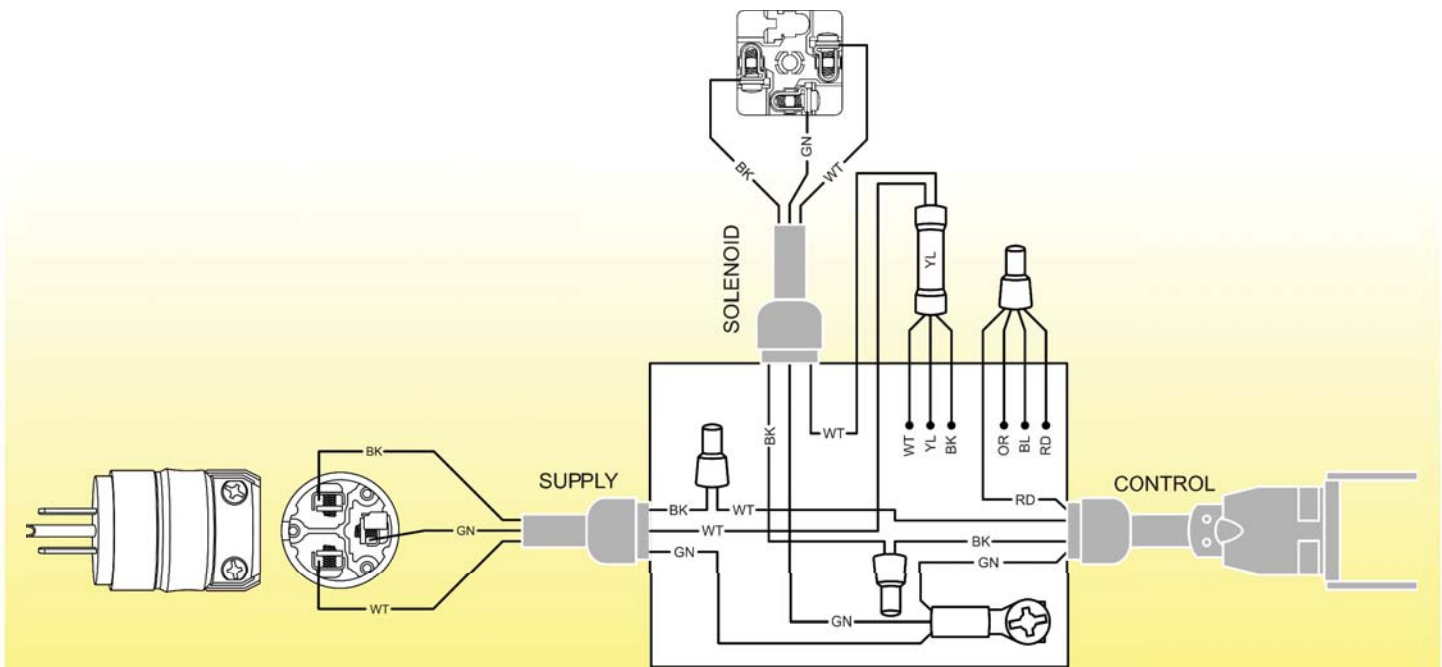


Figure 15 Lift3K, Lift5K 115 Volt Wiring Diagram

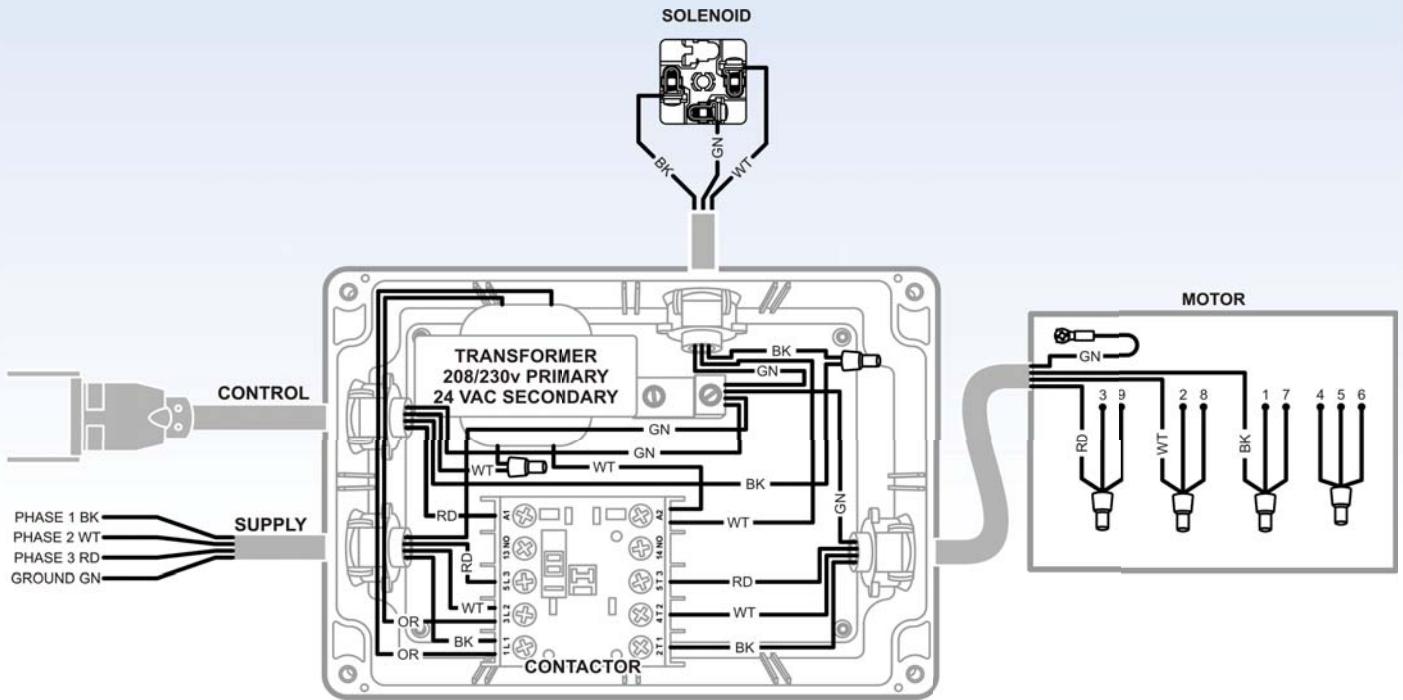


Figure 16 Lift3K, Lift5K 208/230 Volt 3 Phase Wiring Diagram

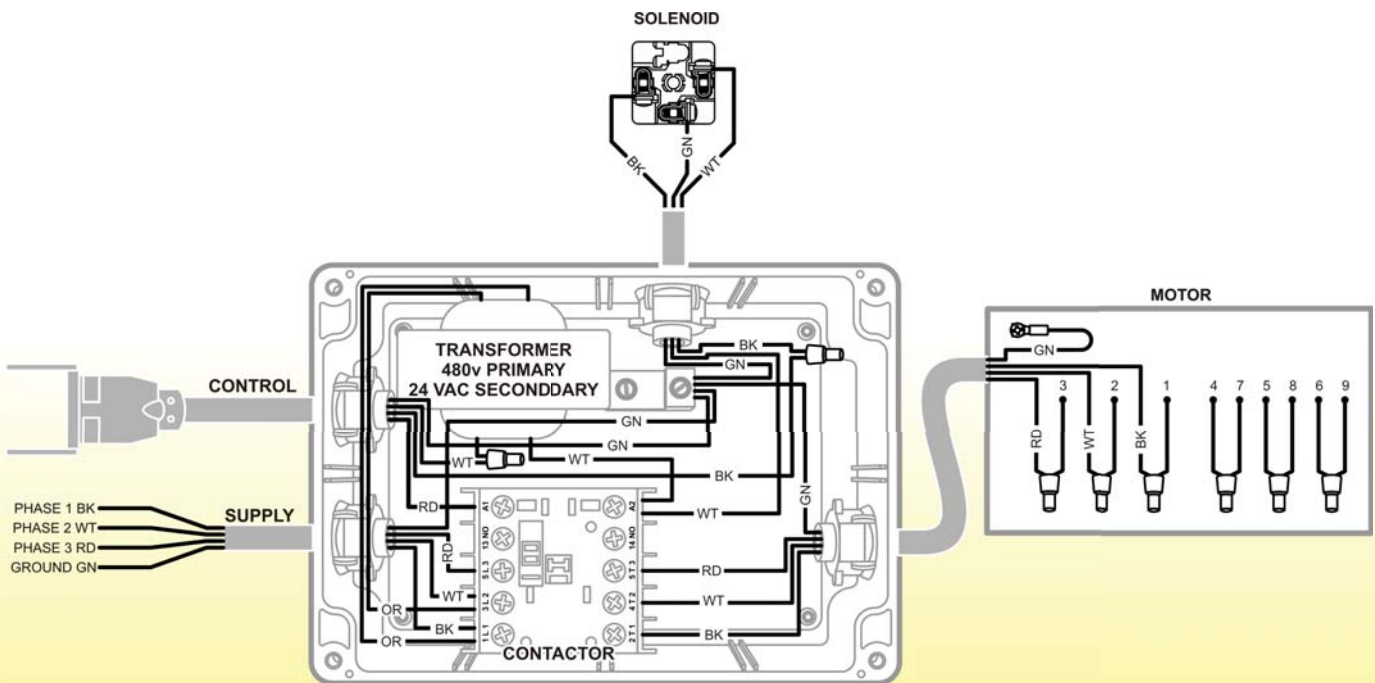


Figure 17 Lift3K, Lift5K 480 Volt 3 Phase Wiring Diagram

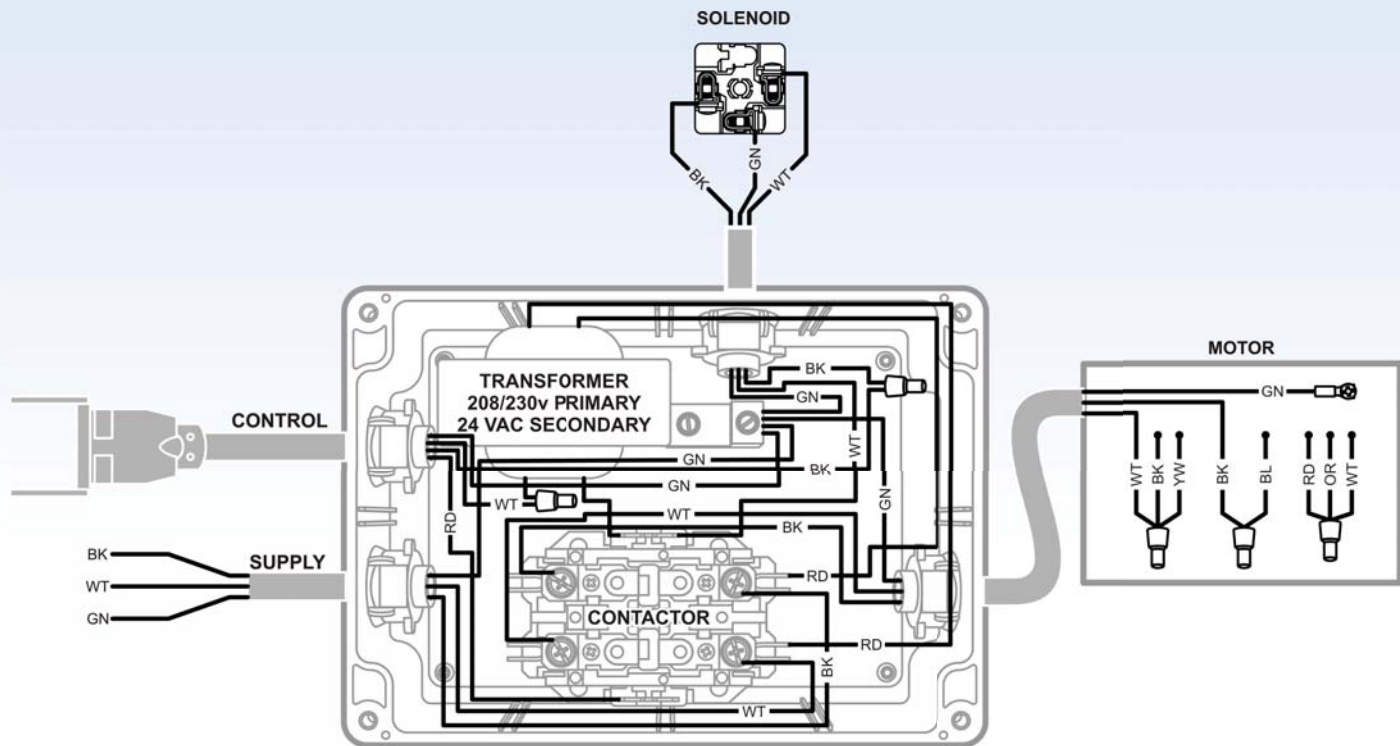


Figure 18 Lift3K, Lift5K 230 Volt Single Phase Wiring Diagram

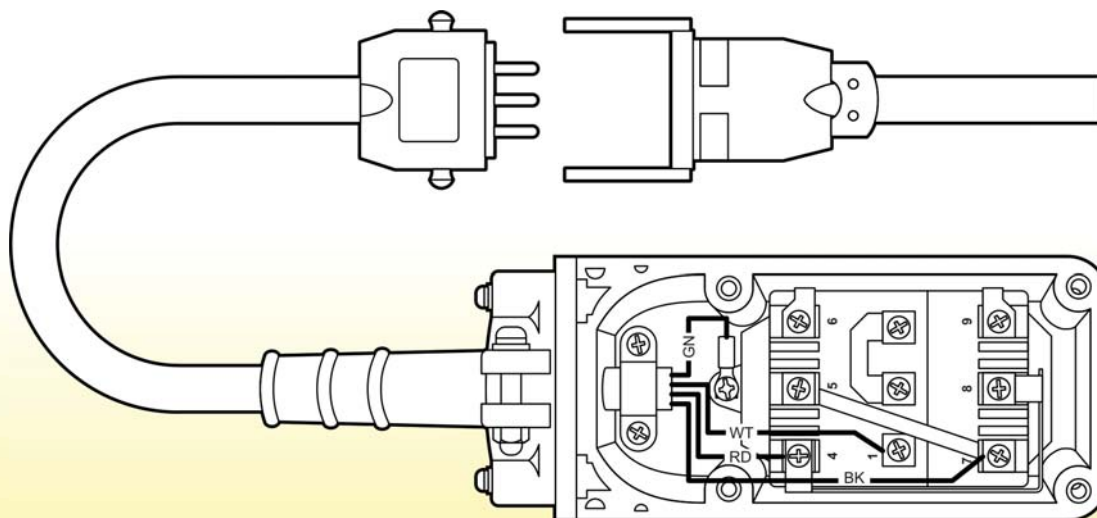


Figure 19 Hand Control Wiring Diagram

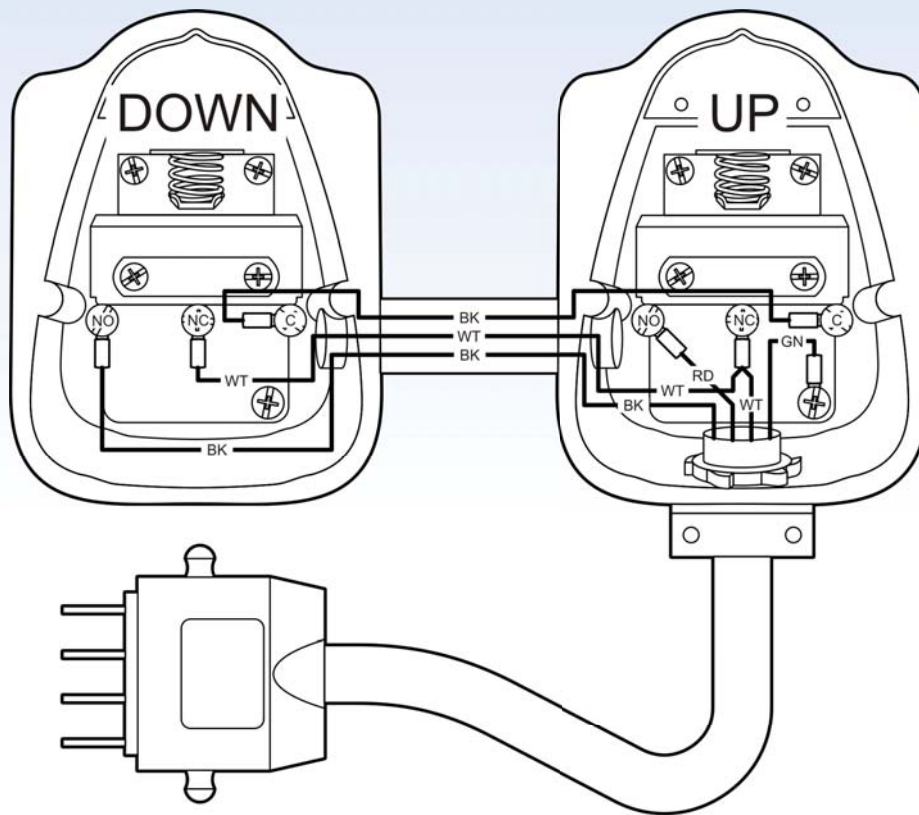


Figure 20 Foot Control Wiring Diagram - 20A

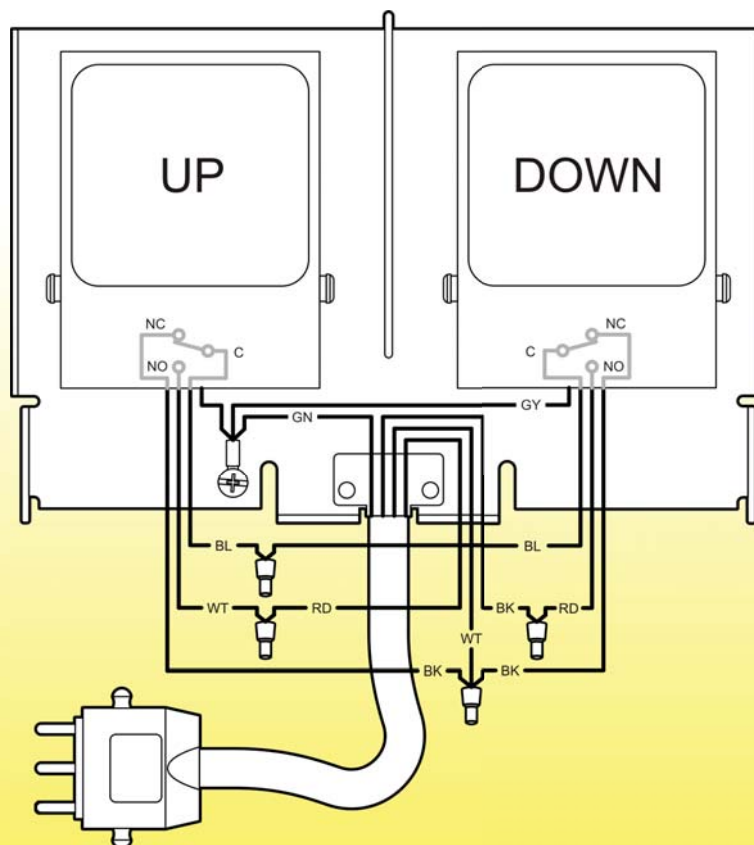


Figure 21 Foot Control Wiring Diagram - 15A

Troubleshooting

Problem	Cause	Solution
Platform will not raise (pump running)	No hydraulic fluid in reservoir. Load too heavy (relief valve operating) Lowering valve held open	Fill reservoir Reduce load Check lower control for malfunction Clean and/or replace lowering solenoid
Platform will not remain elevated	Lower valve held open Pump check valve not seated	Check lower control for malfunction Clean and/or replace lowering solenoid Clean/repair/replace valve Flush outlet check
Platform will not lower	Platform or scissors obstruction Lowering valve not opening Obstruction in flow limiting valve	Remove obstruction or reposition lift Clean and/or replace lowering solenoid Flush flow limiting valves
Platform lowers too slowly	Lowering valve not opening completely Obstruction in flow limiting valve(s)	Clean and/or replace lowering solenoid Flush flow limiting valve(s)
Cylinder(s) leaking	Cylinder seals worn or damaged Valves, fitting or hoses loose	Repack cylinder(s) Tighten valves, fittings or hoses
Pump leaking	Reservoir over-filled with oil Hose or fitting loose	Drain excess fluid Tighten fittings or hoses
Spongy platform	Air in hydraulic circuit	Raise and lower platform several times to remove air and check fluid level

Chart 2 Troubleshooting

REPLACEMENT PARTS

Bishamon has carefully selected the components used in the manufacture of the OPTIMUS lift tables. In the event replacement parts are required, ALWAYS use genuine OPTIMUS components provided by Bishamon. These parts can be obtained from your Bishamon DEALER or by contacting **Bishamon Industries Corp.**