WORKHORSE PRODUCTS

PRECISION SCREEN PRINTING EQUIPMENT

Owner's Manual

Lumitron LED

67-1580 REV L16

Table of Contents

Introduction

Congratulations on your purchase of the Lumitron LED.

Check the crate for damages. DO NOT accept the crate if there are any damages caused by improper handling during shipping. Immediately report any damages to the carrier and contact Workhorse Products at, 800-778-8779.

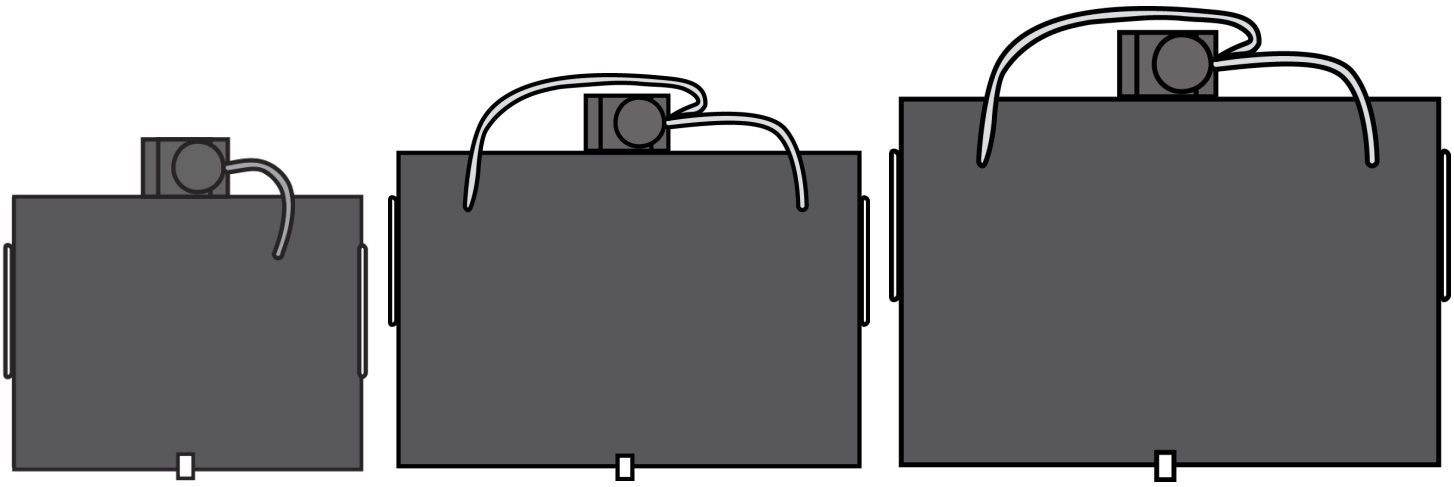
Be sure to inspect the crate contents IMMEDIATELTY, while the carrier is still present. Even though our packaging has been designed to handle normal shipping conditions, we cannot foresee damages done by the carrier. We will not be responsible for damages that occur during transportation.

If there are damages immediately notify the driver, file a claim with the carrier and call Workhorse Products.

The Importance of the Owner's Manual:

The purpose of the Owner's Manual is to familiarize you with the parts and operations of the Lumitron LED. There are step-by-step instructions to assemble the press, accompanied with links to videos for further assistance. Also included are explanations of the product's key features, and additional information that will help with the maintenance of your Exposure Unit.

Specifications



SMLUM-LED

Max Screen Size: 20” x 24”

Electric: 120V, 60Hz, 5 amps

Size: 37” x 37” x 6”

MDLUM-LED

Max Screen Size: 25” x 36”

Electric: 115V, 60Hz, 5 amps

Size: 41” x 43” x 6”

LGLUM-LED

Max Screen Size: 34” x 50”

Electric: 115V, 60Hz, 5 amps

Size: 41” x 58” x 6”

Safety Procedures

WARNING!

RISK OF ELECTRICAL SHOCK! Turn ALL power to unit OFF before service.

All service should be done by or under the supervision of a trained technician.

To ensure safe and reliable operation of your exposure unit, all personnel should be thoroughly trained on the following procedures:

1. For your safety, do not store or use gasoline or other flammable vapors and liquids in the vicinity of machine or within 3 feet (1 meter) of this or any other appliance.

2. **NEVER** alter the internal wiring of this machine.

3. Keep all loose articles (including clothing, hair, jewelry, etc.) away from the vacuum motor.

4. Ensure all outlets used are sufficiently grounded and never plug in a frayed or damaged cord.

5. Do not use this unit if it has become wet or while standing in water.

6. Do not store objects on top of exposure unit.

7. Disconnect power prior to removing the glass or opening the control box.

THIS ELECTRIC EXPOSURE UNIT IS INTENDED SOLELY FOR THE PURPOSE OF EXPOSING SCREENS USED FOR PRINTING ON TEXTILE AND CUT GOODS. THIS EPOSURE UNIT IS INTENDED FOR IN-DOOR USE ONLY.

THE EXCLAMATION WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER OF IMPORTANT SAFETY PRECAUTIONS SHOP PERSONNEL SHOULD BE AWARE OF DURING OPERATION.

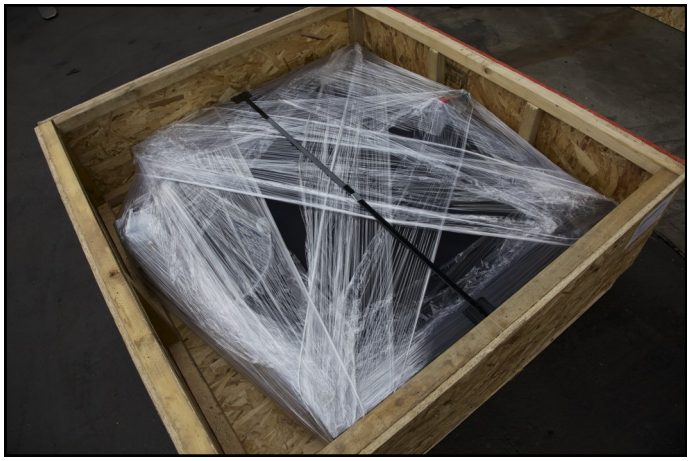
Step 1: Uncrating

1. The picture on the right is how the Lumitron LED is delivered. The first step is to remove the top of the crate.

2. After the top is removed, remove the front panel of the crate. The front panel is the side opposite of the vacuum motor.

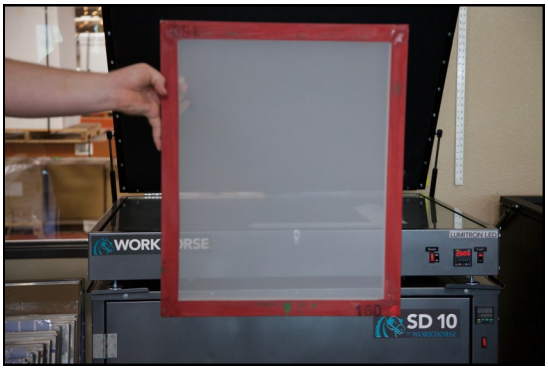
3. With two people lift the exposing unit and place it into the desired location. Remove all of the plastic wrap and foam packing. When the blanket of the Lumitron is opened there will be a small cord on the glass, do not throw it away. Plug the unit into a grounded wall outlet.

Congratulations! The Lumitron LED is now ready to use.



Exposing a Screen

There are many variables that influence how a screen is to be exposed. Some of these variables are: emulsion brand, emulsion type, coating technique, mesh count, humidity, atmospheric temperature, and even the light source itself. The Lumitron LED works best with pure photopolymer emulsion or film. The LED does work with duel cure emulations and other diazo based products, but exposure times will be longer compared to using pure photopolymer.



Step 1:

Properly prepare the screen to be exposed. The screen needs to be clean, dry and properly tensioned.

Step 2:

Direct emulsion should be applied with a scoop coater, which is available in a variety of sizes. The scoop coater should be able to fit just inside the screen and be slightly larger than the image. It's best to use a sharp edge scoop coater, because the sharp edge pushes a thin deposit of emulsion making it possible for fine details to be printed.

Working under subdued light, fill the coater's reservoir with room temperature direct emulsion. Put the screen in the vertical position with the print side facing out. Place the coater at the bottom edge and tilt it slightly forward until the emulsion touches the mesh. With even speed slowly pull the coater towards the top of the screen. Stop pulling the coater about two inches from the top and tilt the coater slightly backwards to let the emulsion settle into the reservoir. Repeat this process for the inside squeegee side.

It's important to coat the outside print side first because it will leave a heavier deposit emulsion on the outside of the screen, which is needed.

Most likely, a small amount of emulsion will escape from the reservoir during the coating process and leave thick deposits along the edge of emulsion. Just simply remove the thick deposits by scraping off the excess.

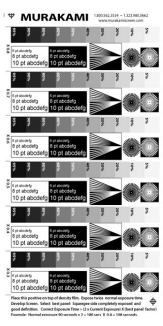
Exposing a Screen

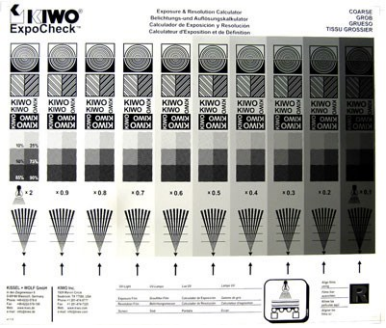
Step 3:

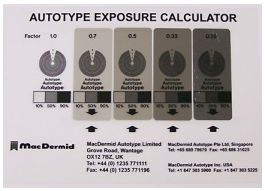
The screen needs to be dried in a dark location. Dry the screen in a horizontal position with the outside print side facing down. This positioning is essential to aid the drawing emulsion to create a flat and smooth surface. A fan can be used to circulate the air around the screen to decrease the drying time. The normal drying time for a properly coated screen can be anywhere from 30 –60 minutes. However, areas that have moisture in the air will take exceedingly longer.

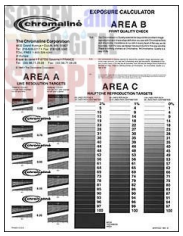
A Workhorse SD-10 drying cabinet will drastically speed up the drying process and eliminate the danger of dust, which will guarantee high quality screens and increase production speed.

Step 4:









There is no standard exposure time because of all of the variables involved. Use an exposure calculator to properly determine the correct exposure time. Most emulsion manufactures have their own exposure calculator, but they all relatively function in the same manner.

Exposure calculators are film positives that have various degrees of detailed lines that are covered with different factors. The purpose is to expose the calculator onto a screen as a starting time and each filter will have a factor number. After the screen is washed out, observe which image is the hardest while containing the most detail and multiply the factory number by the starting exposure time to get the correct exposure time.

For example, a screen is exposed for one minute with the calculator and the best image washed out has a filter factor of .5 , so 1:00 x .5 = 30 seconds. To guarantee the best screens, test every screen that has a different variable like: different mesh count, different emulsion brand, and different coating technique.

A dual cure emulsion will need a starting point of at least two minutes with an exposing calculator.

A basic diazo emulsion will need a starting point of at least five minutes with an exposing calculator.

It's best to test for each season change. The seasons influence temperature, humidity and moisture that will affect the exposing of a screen.

Exposing a Screen

Step 5:

Release the red latch and lift the hold down blanket to expose the glass. Inspect the glass to make sure that it's clean. Clean glass makes a better quality screen.

Step 6:

Attach the film positive to the print side. The positive should be positioned so that from the squeegee side, the positive is read left to right. It's very helpful to use a preregistration system to make sure each piece of film is attached to the screen in proper relation to the other images.

Step 7:

Lay the frame on the glass with the film side down and the squeegee side up. Next, lay the rope from inside the screen across the screen edges and in front of the vacuum hole. The rope creates an escape route for the air inside the frame, it also keeps the vacuum port from sealing against the glass.

Step 8:

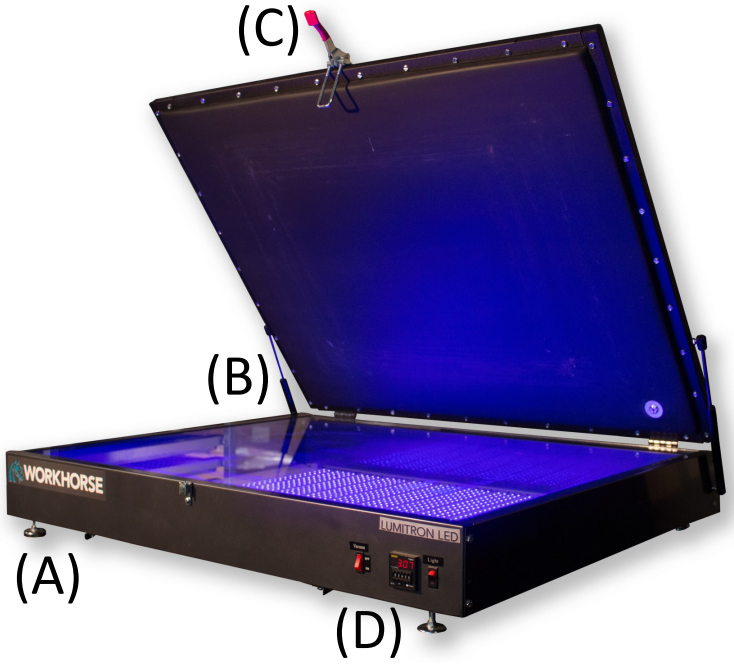
Close the vacuum lid and latch it into place with the red latch/seal mechanism. First, turn the power button on. Second, hit the vacuum switch and allow the vacuum blanket to form a complete draw down around the frame. Third, when starting the timer, the rocker switch for the light needs to be turned on and this will begin the countdown of the timer. When starting over, turn the light rocker switch off and then back on again. This will begin the countdown again.

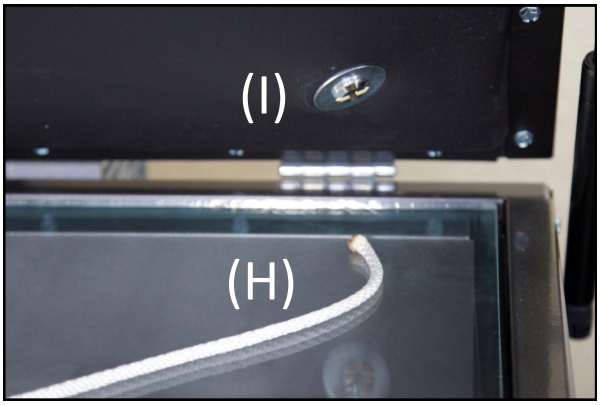
Exposing a Screen

Step 9:

When the exposure time ends turn the vacuum switch to the off position. Release the latch handle and very slowly lift the lid to release the air. **Opening the lid slowly is very critical**, because the screen could potentially be pressurized to the top of the lid and if lifted too quickly it could fall and break the glass.

Next, take the exposed screen to be washed out in a sink.





(A) Leveler Legs

(B) Gas Lifters

(C) Vacuum Lid Latch and Seal

(D) Controls

(E) Vacuum Switch

(F) Exposure Timer

(G) Power Switch

(H) Rope for Air Escape

(I) Vacuum Port

Exposure Timer

There are five setting displays on the timer face:

- The center character is a letter: S for seconds, M for minutes and H for hours.
- The two digits to the left of the letters are for whole units.
- The two digits to the right of the letters are for fractions of units.

For example: 01M10 = 1 minute and 10 seconds

18S00 = 18 seconds

04S50 = 4.5 seconds

To adjust the digits press the buttons located directly over and under each digit. The top button increases the number, whereas the bottom button decreases it.

When the Lumitron is powered on for the first time that day, the timer will count up from zero to the set point. For every exposure afterwards, just simply turn off the light rocker switch and turn back on. This will start the LED lights and begin the count down again.

Parts List

11609 **LED LUMITRON - SMALL SIZE 115V**

31-76051	000	VACUUM PUMP 115V	1	EA
30-1265	000	TIMER, DIGITAL CODED SWITCH SESTOS	1	EA
30-1545	000	POWER SUPPLY, 12V 20A	1	EA
30-3100-2	000	SWITCH ROCKER LIGHTED	1	EA
30-6227	000	SWITCH ROCKER	1	EA
39-76212	000	DUPLEX RECEPTACLE 15 AMP GROUNDING	1	EA
39-1020	000	ADHESIVE CLAMP	2	EA
39-1070	000	TIE WRAP, 4" BLACK	15	EA
39-1120	000	WIRE TIE BLOCKS	2	EA
39-1150	000	STRAIN RELIEF	1	EA
39-2126	000	LEVER NUT, 3 PORT COMPACT CONNECTOR	1	EA
30-1695	000	RELAY, 40A 120V SPST	1	EA
40-75021	000	GAS LIFTERS	1	EA
SA-3315R	A	LED SUB PANEL ASSEMBLY, MEDIUM	1	EA
20502R	A	NYLON BACKED VACUUM BLANKET	1	EA
EA-0048	000	HARNESS, POWER	1	EA
40-94462	A	LID LATCHING CLAMP	1	EA
391048	000	HARNESS, AC POWER	1	EA
40-75015	A	BALL STUD	1	EA
391049	000	HARNESS, DC POWER	1	EA

For more extensive parts and trouble shooting help with ANY Workhorse Product please visit our on-line Parts store and Support Center at:

http://support.workhorseproducts.com/store/

Parts List

11610		**LED LUMITRON - MEDIUM SIZE 115V**		
31-76051	000	VACUUM PUMP 115V	1	EA
30-1265	000	TIMER, DIGITAL CODED SWITCH SESTOS	1	EA
30-1545	000	POWER SUPPLY, 12V 20A	1	EA
30-3100-2	000	SWITCH ROCKER LIGHTED	1	EA
30-6227	000	SWITCH ROCKER	1	EA
39-76212	000	DUPLEX RECEPTACLE 15 AMP GROUNDING	1	EA
39-1020	000	ADHESIVE CLAMP	2	EA
39-1070	000	TIE WRAP, 4" BLACK	15	EA
39-1120	000	WIRE TIE BLOCKS	2	EA
39-1150	000	STRAIN RELIEF, HEYCO 1237	1	EA
39-2126	000	LEVER NUT, 3 PORT COMPACT CONNECTOR	1	EA
30-1695	000	RELAY, 40A 120V SPST	1	EA
40-75021	000	GAS LIFTERS	1	EA
SA-3315R	A	LED SUB PANEL ASSEMBLY, MEDIUM	1	EA
20502R	A	NYLON BACKED VACUUM BLANKET	1	EA
EA-0048	000	HARNESS, POWER	1	EA
40-94462	A	LID LATCHING CLAMP	1	EA
391048	000	HARNESS, AC POWER	1	EA
40-75015	A	BALL STUD	1	EA
391049	000	HARNESS, DC POWER	1	EA

For more extensive parts and trouble shooting help with ANY Workhorse Product please visit our on-line Parts store and Support Center at:

http://support.workhorseproducts.com/store/

Parts List

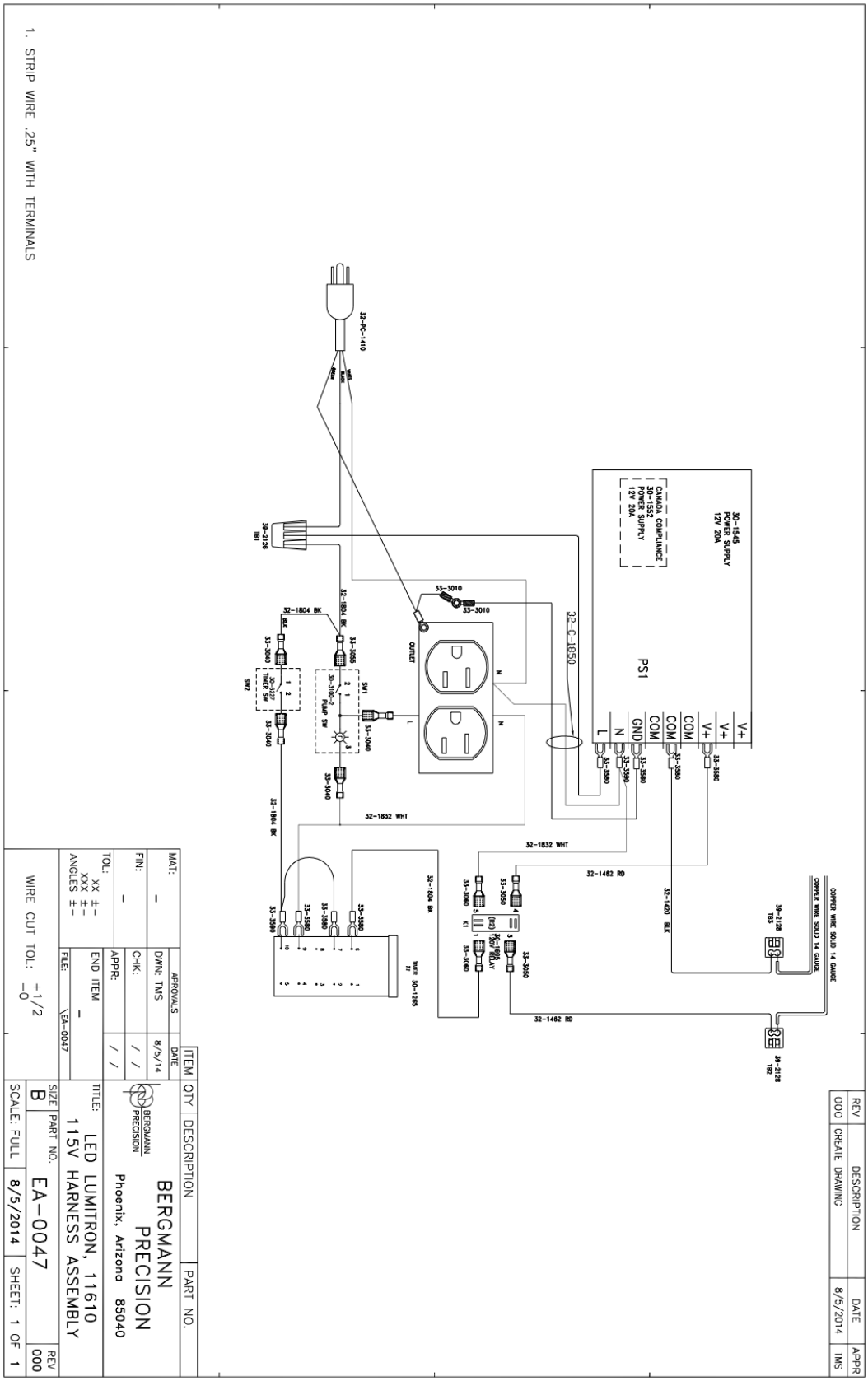
11611 **LED LUMITRON - LARGE SIZE 115V**

31-76051	000	VACUUM PUMP 115V	1	EA
30-1265	000	TIMER, DIGITAL CODED SWITCH SESTOS	1	EA
30-1547	000	POWER SUPPLY, 12V 30A	1	EA
30-3100-2	000	SWITCH ROCKER LIGHTED	1	EA
30-6227	000	SWITCH ROCKER	1	EA
39-76212	000	DUPLEX RECEPTACLE 15 AMP GROUNDING	1	EA
39-1020	000	ADHESIVE CLAMP	2	EA
39-1070	000	TIE WRAP, 4" BLACK	15	EA
39-1120	000	WIRE TIE BLOCKS	2	EA
39-1150	000	STRAIN RELIEF, HEYCO 1237	1	EA
39-2126	000	LEVER NUT, 3 PORT COMPACT CONNECTOR	1	EA
30-1695	000	RELAY, 40A 120V SPST	1	EA
40-75021	000	GAS LIFTERS	1	EA
SA-3315R	A	LED SUB PANEL ASSEMBLY, MEDIUM	1	EA
20502R	A	NYLON BACKED VACUUM BLANKET	1	EA
EA-0048	000	HARNESS, POWER	1	EA
40-94462	A	LID LATCHING CLAMP	1	EA
391048	000	HARNESS, AC POWER	1	EA
40-75015	A	BALL STUD	1	EA
391049	000	HARNESS, DC POWER	1	EA

For more extensive parts and trouble shooting help with ANY Workhorse Product please visit our on-line Parts store and Support Center at:

http://support.workhorseproducts.com/store/

Wiring Diagram



Limited Warranty

Although every effort has been made to provide accurate specifications, Workhorse Products does not assume any liability for damages, whether consequential or incidental, that may result from the use or misuse of the indicated specifications. Workhorse Products requires the use of a licensed industrial electrician for the installation of electrical service to equipment requiring electrical power.

Workhorse Products reserves the right to alter specifications in the manufacture of its products. It is understood and agreed that Seller's liability for any equipment whether liability in contract, in tort, under any warranty, in negligence, in strict liability or otherwise shall not exceed the return of the amount of the purchase price paid by Buyer. Not withstanding the foregoing provision, under no circumstances shall Seller be liable for special, indirect or consequential damages. The price stated for the equipment is a consideration in limiting Seller's liability. No action regardless of form, arising out of the transactions under this Agreement may be brought by Buyer more than one (1) year after the cause of action has occurred. Our warranty is specified is exclusive and no other warranty, whether written or oral, is expressed or implied. Workhorse Products specifically disclaims the implied warranties of merchantability and fitness for a particular purpose. Equipment manufactured or sold by Workhorse Products is warranted against defects in workmanship and materials for a period of one year from receipt by customer. All warranties initiate from date of shipment to original customer. Replacement parts are covered for the term of the equipment warranty period. Parts not under warranty are covered for thirty (30) days from receipt by customer. Any part found by Workhorse Products to be defective in material or workmanship within the stated warranty period will be replaced or repaired at Workhorse's option without charge.

AFTER OBTAINING AN RMA# SEND RETURNED FREIGHT PREPAID TO 3730 E. Southern Avenue, PHOENIX, AZ 85040 USA.

Written authorization must be obtained from Workhorse before any part will be accepted. Replacement parts are sent out freight collect.

Parts sent out prior to receiving defective require a credit card hold for cost plus freight. Upon return of defective part, if it is deemed that the part was not damaged by customer but failed, the cost of the replacement part will be refunded.

This warranty does not extend to expendable parts such as filters, fuses, elements and brushes. Workhorse does not warrant failure of parts or components resulting from misuse or lack of proper maintenance. Installation, inspection, and

Registration Form

Company Name: _____ Contact Name: _____

Address: _____ Phone Number: _____

_____ Fax Number: _____

City: _____ Email : _____

State: _____ Cell Number: _____

Country: _____

Zip Code: _____ Serial Number: _____

Date Recivied: _____

Model Number: _____

Date Purchased _____

Please Fax Registration Form for warranty to take place