



***BOSS/394* EMBOSSING SHUTTLE PRESS**

**INSTRUCTION MANUAL**

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### MACHINE SET UP

It is recommended that the BOSS Embossing Press be positioned on a flat floor surface and that each CASTER WHEEL'S BRAKE pressed to the "ON" position. This will anchor the press and prohibit it from moving during

operation. Allow air hook-up to enter from the rear of the machine. Be certain to allow enough space between back of machine and any potentially interfering objects. DO NOT mount the machine against a wall.

#### STEPS TO FOLLOW:

- Step 1 Connect air hose from the air compressor to valve located at the rear of the machine.
- Step 2 Plug power cord into 220 volt outlet.
- Step 3 Turn on air supply and listen for any air leaks in the system. Contact GEO Knight & Co if a leak is detected.
- Step 4 Turn On MAIN TOGGLE SWITCH (rear of cabinet): Once on the TIMER will energize and the EXHAUST FAN will come on.
- Step 5 The BOSS Embosser has been set at 350 degrees F. The digital controller will rise until it reaches the set point. Normally this will take between 20-30 minutes for the entire heat platen to reach 350° F. If your process requires a different set temperature please refer to the OGDEN manual.
- Step 6 Turn air pressure adjustment to 50 psi. This is a good starting point. It will be necessary to experiment with pressure settings for various processes. Note the exact setting on the gage as you perform your test.

#### ELECTRICAL REQUIREMENTS

The BOSS Embossing Press runs on 220 volts. It is recommended that a separate single phase 25 amp service be used to supply electricity to the machine. A standard 220 volt, 3-pronged plug is provided. Be certain that the Power Cord does not interfere with the operation of the machine.

#### AIR REQUIREMENTS

The BOSS Embossing Press requires air pressure to operate. We recommend a compressor that has the following rating:

- 5 Horse Power Motor
- 25+ Gallon Reserve Tank
- >4 CFM at 90 psi

Please Note: These are minimum compressor requirements. For high production/continuous operation environments a larger compressor is suggested: >5 HP Motor, 30+ Gallon Reserve Tank, >5 cfm at 90psi. The Air Filter on the machine is equipped with an Aro #210 Male Coupler. This is compatible with an Aro #2608 Connector fitting which is available at most hardware stores. Attach Female fitting to 3/8" ID (inside diameter) hose and firmly attach a clamp. Cut hose to the proper length and join machine with your compressor.

#### SHUTTLE RACK - BASE TABLES

The BOSS Shuttle Rack is secured for shipping with Urethane Bumpers that are held in position with hex head bolts. After uncrating the machine, remove these shipping bolts and urethane bumpers using the 3/16" Allen

Wrench supplied with the Starter Kit. The bolts are located on the machine beneath the base tables. Remove both the bolts and the urethane bumpers. Once these are removed, the Shuttle Rack will slide from side to side. If the work table slides to one side or the other by itself, the machine is likely not level. Once the machine is positioned for production, please engage the locks on all four (4) wheels casters.

## TIMER OPERATION

Use the SET SWITCHES beneath the center digits to select the time setting between 0000 and 9999 seconds. DO NOT TOUCH the OPERATIONAL MODE SELECTOR or the TIME UNIT SELECTOR. These settings have been preset by the factory. The letter "H" on the left side of the timer is the correct setting for the OPERATIONAL MODE; letter "S" is the correct setting for the UNIT SETTING. If these settings have been altered, please reset them to their proper setting.

EXAMPLES:           H005S = 5 SECONDS  
                      H010S = 10 SECONDS  
                      H060S = 60 SECONDS (or 1 MINUTE)

## TEMPERATURE CONTROLS

The large Red display of the Ogden temperature controller indicates the actual temperature of the Heat Platen at that moment in degrees Fahrenheit (°F). The smaller Yellow display is the desired, or set temperature. As the press heats up initially, a solid yellow light to the left of the LED display indicates that the Heat Platen is heating or simply adjusting to the set temperature. When the desired temperature is reached a solid green light will display.

## ADJUSTING TEMPERATURE

Temperature can be adjusted by pressing either the UP or the DOWN Arrow. The digital display will scroll at .10°F increments. When arrow is depressed continually, display will scroll initially at .10° until it reaches the single degree digit, at which point it will adjust at single degree increments.

**CAUTION:** Do not alter the Scroll or Return buttons. These are factory set and adjustments will change internal adjustments of the Control.

## AIR PRESSURE

Pressure applied by the press is fully adjustable and can be varied by turning the Pressure Regulator - located on the front panel of the machine - to the desired setting. It is recommended that this setting not exceed 100 psi.

TO SET AIR PRESSURE:

To adjust air pressure pull out the Air Adjustment Knob until it engages (clicks!)

Turn knob clockwise to increase pressure

Turn knob counter-clockwise to decrease pressure.

All adjustments will be displayed on the pressure Gauge. Push Black Knob back to original position to insure that consistent pressure is applied during applications.

## EMBOSSING DIES

Embossing Dies are purchased from a Photo-engraver, who creates the die from original artwork (usually camera-ready art) that you supply. Simple designs work best for embossing. Intricate details will limit the ability of the fabric to be pressed into narrow spaces. Important lines on the artwork should not be less than 1/8" thick. Thin lines create a low embossing height.

The Die companies are all very cooperative. Don't hesitate to call or fax them any questions you may have. Based on the fax, they can advise you if changes to your submitted artwork are necessary to insure a quality embossed image. Be clear as to which portions of your design are to be raised up. Give the die companies any and all information you can to get their expertise working for you.

Foil embossing requires a Counter Die - generally made from a silicone compound. The die itself is different in that they have a cutting edge which slits the foil material on contact against the male counter. The die will act as a "cookie cutter" creating a stencil out of the foil while embossing the garment.

NOTE: The Dies may discolor with use - this will have no effect on its life or performance.

## **DIE COMPANIES**

A & G Engraving, Inc

3846 S Santa Fe Avenue

Los Angeles, CA 90058

Tel: (213) 583-9085

Fax: (213) 583-5487

Notes: Can produce counter dies  
required for foil and some leather

and denim.

Augustine Company, Inc  
1210 Industrial Blvd.  
Marshalltown, IA 50158  
Tel: (515) 753-3875  
Fax: (515) 753-0635  
Notes: Garments must be turned  
inside-out to use Augustine's dies.  
All dies come with a counter die.  
This die can be mounted using either  
the silicone cement or double-faced tape.

Monarch Engraving Company, Inc  
5602 Clark Avenue  
Cleveland, OH 44102  
800: (800) 886-2303  
Tel: (216) 651-2300  
Fax: (216) 651-2299

Owosso Graphic Arts, Inc  
151 N Delaney Road  
Owosso, MI 48867  
800: (800) 444-5552  
Tel: (517) 725-7112  
Fax: (517) 723-5399

USA Graphics  
PO Box 911  
Murfreesboro, TN 37133  
800: (800) 927-0701  
Tel: (615) 890-5249  
Fax: (615) 890-3916

## BASIC PRESS OPERATION

The BOSS Embosser is a twin station shuttle press. The shuttle table runs along slide rails which are lined with roller bearings for smooth table movements. The Twin Station has two (2) loading pallets that slide from side to side of the heat platen: while one pallet is under the heat, the other is ready for loading and unloading.

The machine ACTUATES when a series of safety switches have been depressed:

- 1- The Bottom Shuttle Rack must be pushed all the way in (to the left or to the right) and held in that position.

- 2- Two (2) ACTUATION BUTTONS must be depressed at the same time for the press to close:
- ACTUATE BUTTON (Black) on the Front Panel of press
  - ACTUATE BUTTON located at the top of each vertical handle
- \* Use thumb to actuate handle button \*

Please Note: Press will close once buttons have been simultaneously depressed and released. Press will not actuate until buttons are released.

- 3- Once the press has been actuated an electronic signal travels to the LCD Timer; the timer sends a signal to the air valve to allow air to enter the air bag. The bag will inflate to the preset pressure and remain there for the preset length of time (dwell time). At the end of the dwell time, the timer de-energizes the air valve to allow the air bag to deflate.

Please Note: Please refer to the section on the LCD TIMER.

**!! CAUTION !!**

BE CERTAIN OPERATOR'S HANDS ARE CLEAR OF WORK  
AREA BEFORE ACTUATING MACHINE.

**!! CAUTION !!**

DO NOT OPERATE MACHINE UNTIL SHUTTLE HAS  
COME TO A STOP AND THE SAFETY TABLE SWITCH IS ENGAGED.

## FABRIC EMBOSSING

- STEP 1 Create your design to be made into an Emboss Die. Choose a die manufacturer and send in the camera-ready artwork. \*See Embossing Dies section in manual - page 3.
- STEP 2 Cut the backing material to the approximate size and shape of actual die design. A small amount of overhang (at least 1/4") is necessary to insure a quality seal - too much can be cumbersome to the garment wearer.
- STEP 3 Choose Rubber Counter that is approximately the size and shape of the embossing die. Position and secure the Counter to the center of each of the Base Tables. Use the grid pattern to identify the center of table.

- STEP 4 Position Embossing Die face down on the Counter. Cut and peel a section of Thermal Tape and place it on the die. Keep the amount of tape used to a minimum, since the tape can be difficult to remove. Keep tape as smooth as possible. If there is excess tape on the back of the die it should be cleaned or scraped off using the Cleaning Spray included in the Starter Kit. A clean, level die will work best.
- STEP 5 To mount the die on the Heat Platen of the machine, set the timer for 30 seconds, air pressure at 60 psi and temperature at 350°F. Shuttle the table under the Heat Platen and activate the press. Once mounted, the die will begin to heat up to the temperature of the Heat Platen. This will take only 2-3 minutes.
- STEP 6 Refer to the Application Guidelines included in the Starter Kit for suggested time, temperature and pressure settings for various fabrics. Set the BOSS to the required set points for each.
- STEP 7 Position the cut backing material on the counter with the adhesive side up. Pull the garment over the table, isolating the area to be embossed. Garment must be positioned single layered! We strongly suggest that you run some tests on sample fabric prior to embossing actual garments.
- ! NOTE !** If embossing a small garment or item that is difficult to position over the standard 16" x 20" Base Table, there are smaller Tables available to make this application much easier. Please refer to the Optional Items section of the manual or contact your Mbossers Dealer.
- STEP 8 Once garment is positioned (be certain that backing has not moved during loading sequence and misaligned itself relative to the counter), shuttle the table under the Heat Platen and activate the machine.
- STEP 9 After press has finished its dwell time cycle, shuttle press back to its original position and remove garment from Base Table. At this point the backing material is still relatively hot and can be damaged if it is not allowed to cool before being folded or handled directly. Carefully remove and place on finished table.

## **Congratulations!**

You have just successfully completed your first fabric embossing. You will soon be creating your own unique designs using all sorts of new embossing techniques.

## **HINTS FOR FABRIC EMBOSSING**

Fabric embossing is not an exact science. It does require some experimentation. The following guidelines are just a starting point. It is important for you to find the proper "recipe" for each application. Factors such as fabric content, thickness and color as well as size and complexity of the die can affect the variables of time, temperature and pressure settings. Some materials can handle higher temperatures than others. As one variable is altered, it will affect another. For example an increase in temperature can often require less dwell time if the pressure setting is appropriately adjusted.



Your goal will be to get a good, strong embossed imprint without scorching or burning the garment. Check the backing material after an application to be certain that it is well adhered to the fabric. Wash testing prior to production is standard practice when working with unfamiliar material. Common sense is important. Some materials melt at lower temperatures. This will create clean-up problems with the die and Heat Platen. Be careful!

#### RECIPE GUIDELINES:

Fabric	Temperature	Time (Seconds)	Pressure
T-Shirt	350°	10 - 15 seconds	40 - 60 lbs
Fleece 7 oz	350°	15 - 20 "	40 - 60 "
Fleece 9 oz	350°	15 - 30 "	50 - 70 "
Denim	350°	20 - 40 "	60 - 80 "
Leather	300°	15 - 40 "	60 - 80 "

The same die will work on most all fabrics. Always inform the die company of the material you will be embossing. They may have some suggestions that will enhance the process. A molded or metal Counter Die is recommended for heavy denim. Backing may not be necessary for some leathers.

#### GLOSSARY OF TERMS

*Backing Material:* A non-woven material that fuses with the embossed fabric to create a permanent impression.

*Bump:* Clarity or sharpness of the design edges on an embossed garment. A "nice bump" refers to a crisp, clean, well-defined design edge.

*Cookie Sheet:* The aluminum tray that sits on top of the Base Table. This allows you to permanently mount a counter die to it and therefore interchange the cookie sheets to speed up switching out dies.

*Counter Die:* A reverse cast of the engraved die used to push the garment into the die. With most fabric embossing the silicone pad works sufficiently as a counter die. When working with foil, some denims & leather an exact Counter Die is often required.

*Deboss:* To recess a design - opposite of emboss.

*Die Tape:* A double sided, heat sensitive tape that is used to fasten the die to the Heat Platen. The suggested tape is 3M - item #583.

*Die:* A mold made from magnesium that contains the image to emboss or deboss.

*Dwell Time:* The actual time that heat and pressure are applied to the fabric.

*Emboss:* To raise a design

*Fabric Embossing:* The pressing of a three dimensional image into a garment and permanently bonding a backing material to the fabric.

*Memory:* The ability of a fiber to return to its original shape.

*Platen:* 16" x 20" Top Heater Casting of Boss

*Silicone Pad:* Counter rubber pad - usually 3/8"-1/2" thick - that the embossing die presses into. Adhered to the Base Table or Cookie Sheet.

*Silicone Adhesive:* Used to adhere the Silicone Counter to the Base Table or Cookie Sheet. GE Silicone II is suggested.

*Strike-through:* Improper embossing application that occurs when backing adhesive bleeds through to the front of the garment. Usual cause is too much heat for too long a period of time.

*Table:* The lower Base onto which the garment is positioned.

*Teflon:* The material used to cover the platen when using the BOSS as a heat transfer machine.

## EMBOSSING SUPPLIES & OPTIONAL ITEMS

### MBosser STARTER KIT

- (2) 3/8" x 12" x 18" Silicone Pad
- (1) Roll 12" x 25 yds Emboss II Backing
- (1) Roll 3-M Die Tape (1" x 25 yds)
- (1) Tube Silicone Cement
- (1) Pair Thermal Gloves
- (1) 5/16" Allen Wrench (Long Shaft)
- (1) 3/16" Allen Wrench
- (1) 16 oz Can Adhesive Remover
- (1) Freudenberg "Guide To Embossing"
- (2) Free Die Certificates

## TRANSFER PACKAGE

(2) Boss Locating Sheet	
(2) 3/8x16x20 Silicone w/ Adhesive	
(1) Teflon Heater Block Cover Sheet w/ Rod & Tension Springs	
BOS-TRSTPK	300.00

## OPTIONAL ITEMS

CAV-3941012	10" x 12" Bottom Table Casting	250.00 ea
BOS-CUSTTC	Custom Bottom Table Casting	400.00 ea
SHN-39401A	Boss Locating Sheet	60.00 ea
BOS-LOCSSL	Boss Locating Sheet w/ Grid	65.00 ea
BOS-25DTPE	3-M Die Tape (1" x 25 yds)	25.00
XXN-C60	Adhesive Remover (16 oz)	15.00
SRM-381620	3/8x16x20 Silicone w/ Adhesive	90.00
NSR-381620	3/8x12x18 Silicone - No Adhesive	80.00
394-THBCKT	Teflon Heater Block Cover Assembly Kit	125.00
394-TEFHBC	Teflon Heater Block Cover	65.00
Laser Mount Assembly - Includes (6) Lasers	Factory Quote	
Silicone Cement (6 oz)		6.95
Thermal		15.00

## BOSS - PARTS LIST

### I. AIR COMPONENTS:

1	Bottom Air Bag - #AR-7092 Firestone
2	Air Filter - F07-200MITA Filter
3	General Purpose Air Valve - 250E13102135 240volt Humphrey
4	Pressure Regulatory - R364-02C Watts
5	Quick Exhaust Valve - QE-2 Humphrey
6	Red 3/8 Air Line 17.5" Long - PE-60-R Tubing
7	Yellow 3/8 Air Line 25" Long - PE-60-Y Tubing
8	Natural 3/8 Air Line 35" Long - PE-60-N Tubing
9	Gray 1/4 Tubing - Gry Flex
10	Male Elbow - 269P 04 X 02
11	Female Connector - 56642
12	1/4-3/8 Male Elbow (4) - Flareless Tube Fitting 5053K65
13	1/4-3/8 Male Connector (2) - Flareless Tube Fitting 5053K53
14	1/4-1/4 Male Elbow - Flareless Tube Fitting 5053K62
15	Air Line Speed Coupler - 3/8 Male Pipe Thread 5343K16
16	90° Street Elbow 3/8 (2) - 4517K22
17	3/8 Nipple - 4549K552
18	Hex Bushing - 4535K54

### II. ELECTRICAL COMPONENTS:

- 1 Ogden Temperature Control - ELN-9090-132
- 2 Omron LCD Timer - ELN-1A983
- 3 Black Button Push Button - 2610-1150
- 4 Black Push Button - ABB-1
- 5 20 Amp Circuit Breaker - W5XB1A4A-20AMP
- 6 Front-12 Terminal Barrier Strip - 12-141
- 7 Rear-3 Terminal Barrier Strip - 3-141
- 8 Internal Exhaust Fan Screen - 060011
- 9 Solid State Relay Heat Sync - HE54
- 10 External Fan Guard - 8452
- 11 Front Panel Alarm Plug - VP875
- 12 220V Straight Blade Plug - GED 0611
- 13 14/3 10 ft Power Cord - 14/3-10FT- 2W376
- 14 Bottom Table Safety Micro Switch (2) - UNIMAX AJ-Y
- 15 220 Volt Alarm Buzzer - CAT 1066-R5 240VAC
- 16 BUS Bar Jumper (5) - CINCH 541J
- 17 Wire Conduit Clamps - H40
- 18 Wire Conduit Pipe - Electrical Metallic Tubing 1/2 x 15
- 19 16" x 20" Heater Block Casting - BP20A16A/3C
- 20 Timer Activate Push Button "Black" Mini (2) - C&K 8552TIN2QE
- 21 Timer Button Retractable Cord (2) 22235-12
- 22 Cord Clamp for Power Cord Heyco Cord Clamp
- 23 Nylon Wire Ties (12) - 6X752
- 24 Plastic Retractable Cord Clamp (2) - 3/8 ID
- 25 Conduit Metallic Tubing for Lower Level - 1/2" x 13"
- 26 Conduit Clamp for #34 - HC-101 Set Screw Connector
- 27 Nylon Tie Clamps/Adhesive (6) - 1A872
- 28 Steel Cord Clamps for Retractable Cord (2) - MED40 Jiffy Clip
- 29 Copper Toggle Switch Jumper "small" (2) - Toggle Connector
- 30 Copper Toggle Switch Jumper "large" (2) - Toggle Connector

### **III. *HARDWARE COMPONENTS***

- 1 10-32 x 1/2 Nickel Plate PHMS (10)
- 2 #10 Lock Washers (4)
- 3 #10 External Star Washers (10)
- 4 6-32 x 1/2" PHMS (8)
- 5 8-32 x 1" SHCS (4)
- 6 8-32 x 1/4" BHCS (14)
- 7 6-32 x 2" RHMS (4)
- 8 #8 Flat Washers (8)
- 9 1/4 x 1/2 Length Compression Springs (4)
- 10 6-32 Hex Nuts (4)
- 11 8-32 Hex Nuts (2)
- 12 10-32 x 1/4" RHMS (2)
- 13 6-32 x 1/4" Nickel Plate PHMS (4)
- 14 Fender Washers (5)
- 15 Heli Coil Threaded Inserts 5/16 (5)
- 16 #10 Pan Head Self Tapping Screws (14)
- 17 5/16 x 1 SHCS (4)
- 18 3/8 Lock Washers (4)
- 19 1/4 x 1 SHCS (4)
- 20 5/16 Lock Washers (4)
- 21 5/16-18 x 3" Threaded Rod (5)
- 22 1/4-20 x 5/8 BHCS (8)
- 23 1/4-20 x 1 3/4 SHCS (4)
- 24 5/16-18 x 2 1/2 SHCS (4)

- 25 5/16-18 x 1 SHCS (4)
- 26 5/16 Lock Washers (4)
- 27 3/8-16 x 1 SHCS (6)
- 28 3/8 Lock Washers (14)
- 29 3/8-16 x 3/4 SHCS (8)
- 30 Roller Bearings (12)
- 31 10-32 x 3/8 BHCS (4)
- 32 3/8-16 x 6" Hex Head Screws (4)
- 33 Blue 4½" x 1" OD Compression Springs (4)
- 34 3/8 Flat Washers (8)
- 35 5/16 x 1 3/4 Shoulder Allen Bolts(8)
- 36 ¼-20 x 1¼ SHCS (4)
- 37 10-32 x 3/4 RHMS (4)
- 38 3/4-10 x 15½ Threaded Rod (4)
- 39 3/4-10 Jam Nuts (8)
- 40 3/4-10 Lock Nuts (4)
- 41 3/4-10 Lock Washers (4)
- 42 Plastic Handle Grips (4)

**IV. MISC ITEMS**

- 1 Raised Bottom Table Casting (2) 373RTB
- 2 Air Bag Frame Casting
- 3 Fiberglass Insulation

**Geo Knight & Co  
LIMITED WARRANTY**

1. Geo Knight & Co warrants that its heat transfer machines are free from defects in both material and workmanship for one (1) year from the date of invoice to the buyer. If any parts or workmanship are found to be defective in manufacture, Geo Knight & Co will repair or replace the defective parts or workmanship.
2. This limited one (1) year warranty covers all parts and labor to repair the defects, except when damage results from accident, alteration, misuse or abuse, or when machine has been improperly installed, or modified in any way.
3. If a machine becomes defective during the limited warranty period of one year, Geo Knight & Co reserves the right to recall the defective machine to the factory for repairs. A RETURN AUTHORIZATION must be granted by Geo Knight & Co prior to its return.
4. If a machine covered by the one year limited warranty must be returned to the factory for repairs, Geo Knight & Co shall make every effort to repair buyer's machine. However, Geo Knight & Co reserves the exclusive right to determine whether to repair or replace a defective machine. If Geo Knight & Co authorizes a replacement machine, the warranty of the replacement machine shall expire on the anniversary date of the original machine's invoice to the buyer.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. SELLER DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND BUYER AGREES THAT THE GOODS ARE SOLD "AS IS".

**REPLACEMENT PARTS**

REPLACEMENT PARTS are sold to the customer with a thirty (30) day warranty (beginning at invoice date). Since Geo Knight & Co (the "COMPANY") has no guarantee that parts have been correctly installed by the Customer or that other deteriorating components might also affect the life & performance of replaced parts, there is no liability assumed by the COMPANY beyond the thirty (30) day warranty period. Those who choose to repair their own machine do so at their own risk! Geo Knight & Co is not liable for damages due to or as a result of repair work done by the Customer. REPLACEMENT ASSEMBLIES are sold to the Customer with a sixty (60) day warranty (beginning at invoice date). The COMPANY supplies a complete subassembly and is responsible for its performance for sixty days. HEATER BLOCK CASTINGS are sold with a Limited Lifetime Warranty. This warranty applies ONLY to the original owner of the machine. Original ownership is determined from the records of Geo Knight & Co by means of the machine's model & serial number; both of which MUST be supplied by the Customer.

#### **REPAIR WARRANTY**

REPAIR WORK performed by Geo Knight & Co is warranted for ninety (90) days from the date of invoice and covers ONLY the specific area of concern identified by either the Customer or Geo Knight & Co.

#### **EXCHANGE WARRANTY**

EXCHANGE WARRANTY implies that a machine is within the one (1) year Limited Warranty. Any work performed or parts exchanged is done at No Charge to the Customer. Geo Knight & Co will pay for return freight ONLY via UPS Ground Service or LTD Trucking Charges. Premium freight service is the responsibility of and at the discretion of the Customer. Exchange Warranty of parts & repair is warranted for 30 (thirty) days past the warranty date of the ORIGINAL machine.