PRINTING OPERATIONS
AIR GENERAL PERMIT REGISTRATION FORM

Part II. Notification to Permitting Office

(Detach and submit to appropriate permitting office; keep copy onsite)

Instructions: To give notice to the Department of an eligible facility's intent to use this air general permit, the owner or operator of the facility must detach and complete this part of the Air General Permit Registration Form and submit it to the appropriate Department of Environmental Protection or local air pollution control program office which has permitting authority. Please type or print clearly all information, and enclose the appropriate air general permit registration processing fee pursuant to Rule 62-4.050, F.A.C. *($100 as of the effective date of this form)*

0251352-001

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- ☒ Construct and operate a proposed new facility.
- ☐ Operate an existing facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit).

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- ☐ Continue operating the facility after expiration of the current term of air general permit use.
- ☐ Continue operating the facility after a change of ownership.
- ☐ Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C., or any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only

If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. In such case, check the first box, and indicate the operation permits being surrendered. If no air operation permits are held by the facility, check the second box.

- ☐ All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s):
- ☐ No air operation permits currently exist for this facility.

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)

Robert Herzog/ Bullet Line, LLC

Site Name (Name, if any, of the facility site; e.g., Plant A, Metropolis Plant, etc. If more than one facility is owned, a registration form must be completed for each.)

Bullet Line, LLC

Facility Location (Provide the physical location of the facility, not necessarily the mailing address.)

Street Address: 6301 E 10th Avenue, Suite 110

City: Hialeah County: Miami-Dade Zip Code: 33013 - 1100

Facility Start-Up Date (Estimated start-up date of proposed **new** facility.)(N/A for existing facility)

October 2012

Owner/Authorized Representative

Name and Position Title (Person who, by signing this form below, certifies that the facility is eligible to use this air general permit.)
Print Name and Title: Robert Herzog/ President

Owner/Authorized Representative Mailing Address
Organization/Firm: Bullet Line, LLC
Street Address: 6301 E 10th Avenue, Suite 110
City: Hialeah County: Miami-Dade Zip Code: 33013 - 1100

Owner/Authorized Representative Telephone Numbers
Telephone: (305) 623-9223 Fax:
Cell phone (optional):

Facility Contact (If different from Owner/Authorized Representative)

Name and Position Title (Plant manager or person to be contacted regarding day-to-day operations at the facility.)
Print Name and Title:

Facility Contact Mailing Address
Organization/Firm:
Street Address:
City: County: Zip Code:

Facility Contact Telephone Numbers
Telephone: Fax:
Cell phone (optional):

Owner/Authorized Representative Statement

This statement must be signed and dated by the person named above as owner or authorized representative

I, the undersigned, am the owner or authorized representative of the owner or operator of the facility addressed in this Air General Permit Registration Form. I hereby certify, based on information and belief formed after reasonable inquiry, that the facility addressed in this registration form is eligible for use of this air general permit and that the statements made in this registration form are true, accurate and complete. Further, I agree to operate and maintain the facility described in this registration form so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof.

I will promptly notify the Department of any changes to the information contained in this registration form.

Signature

3-6-12
Date

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2012 MAR 13 AM 8:22
FINANCE & ACCOUNTING REVENUE

Printing Process/InkType(s)

Check all that apply:

☒ Heatset Offset Lithographic	☒ Non-Heatset Offset Lithographic	☐ Digital
☒ Screen or Letterpress	☐ Water Based	☒ Ultraviolet Cured
☐ Flexographic	☐ Rotogravure	

Compliance Assurance - Initial Registration (Not Required for Re-Registration)

Below, or as an attachment to this form, provide the method (mass balance or material usage rates) expected to be used to demonstrate compliance with Rule 62-210.310(4)(f)2., F.A.C. Provide the estimated amount of materials containing hazardous air pollutants and solvent-containing materials expected to be used over a 12-month period.

Mass Balance Method:

1) Potential VOC emissions (tons per year) = 19.5
2) HAP emissions (tons per year) = 9.5
3) Individual HAPs
   Xylenes (tons per year) = 7.25
   Naphthalene (tons per year) = 0.02
   Ethylbenzene (tons per year) = 1.63
   Glycol Ethers (tons per year) = 0.31
   Esters (tons per year) = 0.10

See attached engineering report for Project Narrative and Emission Calculations.

Compliance Determination - Re-Registration (Not Required for Initial Registration)

Below, or as an attachment to this form, provide the highest 12-month total quantity of materials containing hazardous air pollutants and the highest 12-month total quantity of solvent-containing materials used in the last five years to show compliance with sub-subparagraph 62-210.310(4)(f)2.b., F.A.C. (material usage rates) or provide all calculations to show compliance with sub-subparagraph 62-210.310(4)(f)2.a., F.A.C. (mass balance).

Description of Facility

Below, or as an attachment to this form, provide a description of the printing operations at the facility in sufficient detail to demonstrate the facility's eligibility for use of this air general permit and to provide a basis for tracking any future equipment or process changes at the facility. Information should include a description of the number and types of printing processes, presses and ink systems being used at the facility. Describe all air pollutant-emitting processes and equipment at the facility, and identify any air pollution control measures or equipment used.

See attached engineering report.

Printing Operations Engineering Report

Bullet Line, LLC
6301 E 10th Avenue, Suite 110
Hialeah, Florida

March 2012

ES CONSULTANTS, INC.
environmental and civil engineering

7700 N. KENDALL DRIVE, SUITE 607, MIAMI, FLORIDA 33156
PH 305.412.8185 **FX** 305.412.8105 **WEB** www.esconsultants.net
CA #9043

PROJECT NARRATIVE

March 2012

Air General Permit Application

Bullet Line, LLC

Table of Contents

Figures

Attachments

1.0 Introduction

This narrative for an Air General Permit application has been prepared by ES Consultants, Inc. (ESC) on behalf of Bullet Line, LLC (Operator) to obtain an air construction permit and an operating permit for the proposed printing activities at the new facility located at 6301 E 10th Avenue, Suite 110 (Facility). (See **Figure 1**). This narrative along with the attached exhibits is provided to support the permit application.

1.1 Permits

The following table lists the other permits that will be obtained for the site establishment and the corresponding status:

Permit/Approval	Status
Building Permit	Submitted to PERA
IW-5	Submitted Concurrently to PERA
Air Permit	Submitted Concurrently to PERA

1.2 Site Location

The Facility is identified in the Miami-Dade County records with the Folio number 04-2132-001-0040. The Facility consists of a recently-constructed warehouse facility and a surrounding parking lot, located at 6301 East 10th Avenue, in Hialeah, Miami-Dade County, Florida. The Facility is not located within a Wellfield Protection Area. The surrounding properties are commercial/industrial. A location map is provided as **Figure 1.**

1.3 Schedule

The construction of the building is complete and the building plan review process is initiated. The facility will begin its operations after the applicable permits are obtained.

2.0 Facility Description

The facility operations include the following major areas:

- Printing Workstations
- Central Services Building
- Warehouse Racks
- Shipping
- Bulk Ink and Chemical Storage

The Facility encompasses an area of approximately 400,000 square feet and will be operated five days a week from 6:30 AM to 12:30 AM. The location of each of the areas mentioned above is shown on the floor production plan provided in **Exhibit A**. The equipment specifications are provided as **Exhibit B**. A more detailed description of the key areas, relevant to the air permit review, is provided in the following subsections.

2.1 Printing Workstations

The Facility will conduct printing operations using multiple workstations with many workstations configured to have multiple processes and/or use multiple inks systems depending on job requirements. The Facility performs silkscreen printing and lithographic offset printing that includes silk screening on promotional products including calculators, clocks, pens, bags, etc. Other activities include de-boss and laser engraving. A total of 18 ink systems will be used throughout the facility. The details on the type and number of process and press are provided in the following table.

Process	Number of Process	No of Presses	Purpose
Heatset Offset Lithographic	1	18	General Commercial Printing
Screen or Letterpress	2	87	Printing on Promotional Products
Non heatset offset lithographic	1	59	General Commercial Printing
Ultraviolet Cured	1	17	General Commercial Printing

Proper safety instructions and appropriate personnel protection equipments (PPE) will be practiced while performing these activities. The inks required for printing will be dispensed at the designated ink dispensing station into paper cups. Dispensed inks remaining after printing will be disposed into an ink disposal drum. The ink cups will be disposed into a hazardous waste receptacle along with mixing sticks and the rags used for cleaning excess ink are collected into a rag disposal waste bin and recycled by an approved rag service provider. In addition, wastes generated during laser engraving will be collected and disposed of by a licensed waste hauler.

The exhaust for the laser engraving workstation will be vented to the exterior of the building via 6"round vent. (See Sheet E-236 provided in **Exhibit A**). The workstations with dryers will be vented into the ceiling space to aid dissipation of heat generated. See **Exhibit A** for the production floor plan. Inks/chemicals will be stored in an enclosed and vented area in the vicinity of the production units. The extracted air from the Inks/chemicals storage room will vent into the common production area. There are no other air control measures or equipments used in the facility. The ink/chemical storage is discussed in **Section 2.3.** A process flow diagram illustrating the printing operations is provided in **Exhibit A**.

2.2 Central Services Building

This area encompasses screen washing activities and a filtration system. Four wash booths and a car wash will be used in the frame reclamation process and the process water from these locations will be pumped into the filtration system prior to disposal into the sanitary sewer. There will be no storms drains in the facility. The filtration system will be a new system and mainly consists of 300 gallon vertical polyethylene tank with float valve, bag filters in series and an activated carbon filter. The filtration system will be serviced by an approved vendor on a yearly basis. A sampling point location after the filtration and prior to discharge into sewer will be determined after the installation of the system. The floor plan and piping schematics is provided in **Exhibit A**.

2.3 Bulk Ink and Chemical Storage

Bulk ink and chemicals will be stored in two identified areas within the production floor as shown in **Exhibit A.** Inks will be stored in a room with ventilation fans and fire retardant drywalls. Inks will be organized along with like inks and stored in original containers or containers clearly labeling the contents. Thinners, retardants, hardeners, primer, and isopropanol alcohol will be stored nearby in drums on spill-containment pallets. Small quantities of chemicals will be stored in fireproof cabinets. A centrally displayed MSDS master binder for the inks, chemicals,

additives, etc. used will be maintained at the facility. MSDSs for the chemicals are provided in **Exhibit C.** Spill kits will be stored at the ink dispensing station in an event of spill. See **Exhibit D** for standard operation procedures.

The following table provides the quantity of inks/chemicals to be stored within the facility.

Product name	Product	Quantity	Unit	Product Use
Ink Type B NT	Ink	9.5	Gallons	Printing on Promotional Products
PA 10 White	All screen ink	50	Gallons	Printing on Promotional Products
9700 Series All Purpose Ink	Ink	50	Gallons	Printing on Promotional Products
H/C 100	Image Stain Remover	20	Gallons	Screenwash
ProChem Dual Strip "Part 1"	Screen Wash	20	Gallons	Screenwash
USA VF-184	Screen Wash	385	Gallons	Screenwash
Alcohol	Cleaning	110	Gallons	Clean Photographic Surface

Additionally, a waste storage area will be located within the warehouse and the waste storage container will be stored on secondary containment pallets until proper disposal and/or recycle.

3.0 Emission Calculations

Emission calculations are based on approximate quantities that will be utilized for the printing activities at the new facility. The following table lists emissions in tons per year for Volatile Organic Compounds (VOCs), Hazardous Air Pollutants (HAPs) and individual HAPs.

Compound	Emission (Tons per year)
VOCs	19.2
Total HAPs	9.3
Individual HAPS	
Xylenes	7.25
Naphthalene	0.02
Ethylbenzene	1.63
Glycol Ethers	0.3
Esters	0.1

Emissions calculations are provided as **Exhibit E.**

Figures

ES CONSULTANTS, INC.
environmental and civil engineering

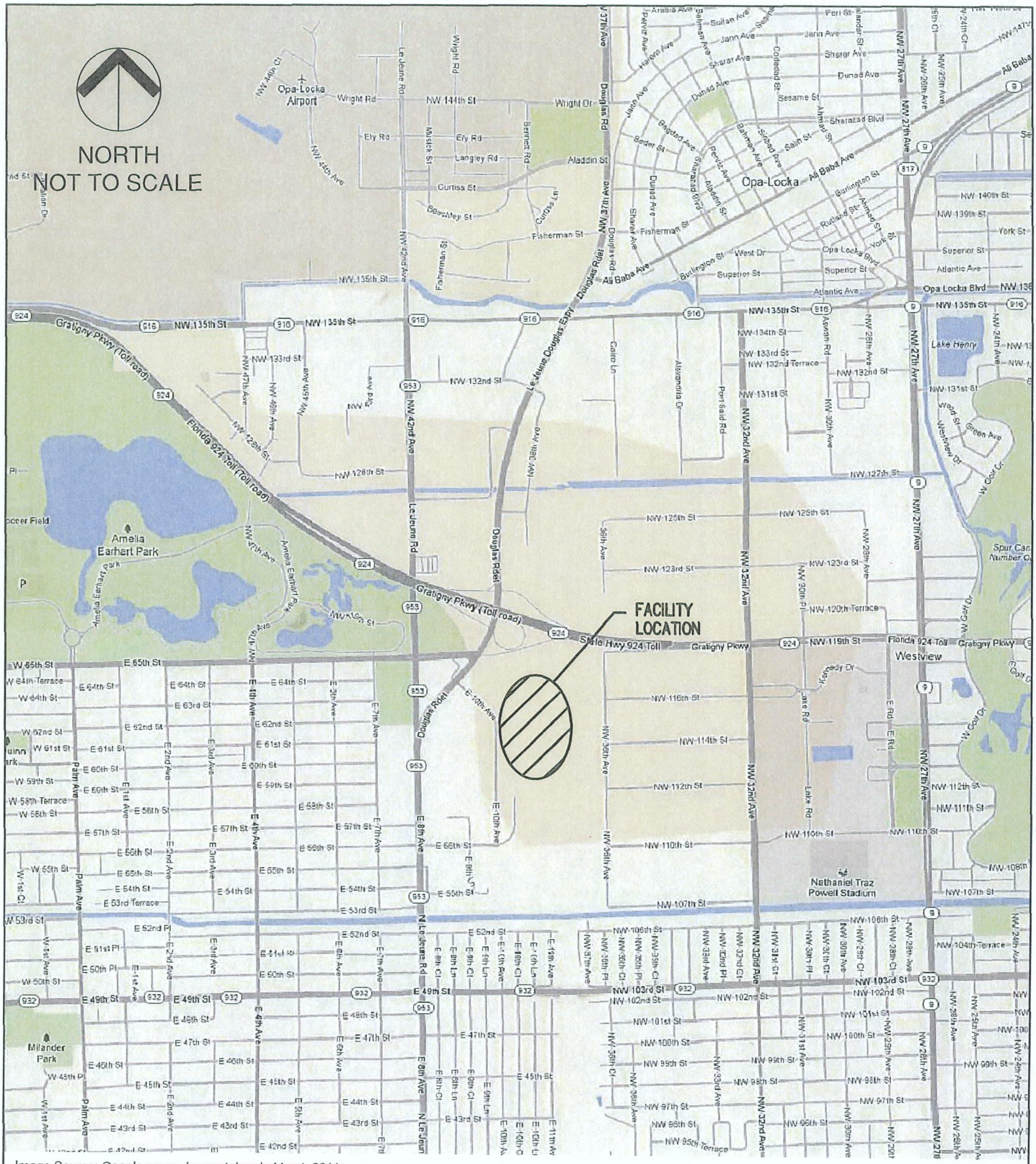


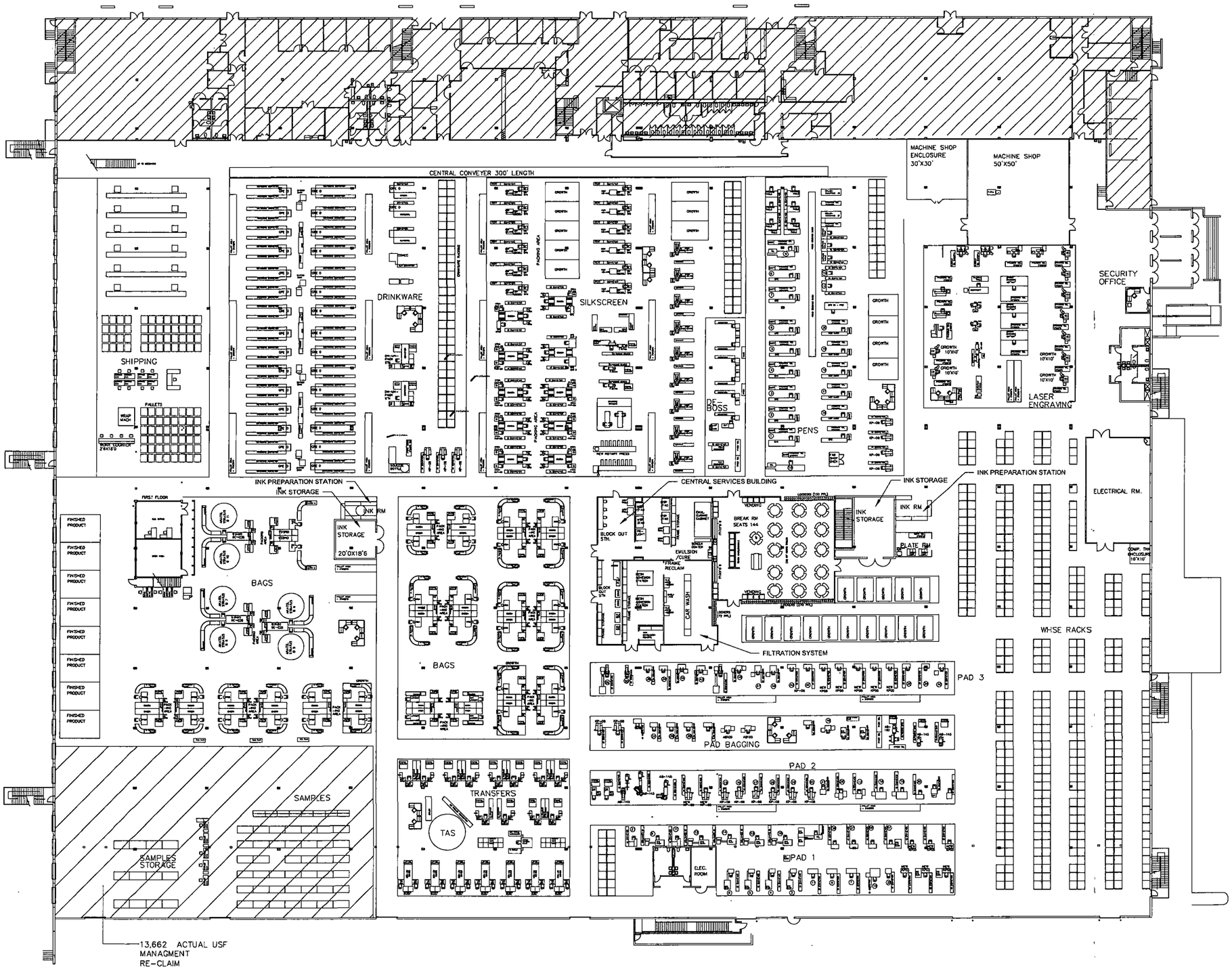
Image Source: Google maps, image taken in March 2011

BULLET LINE, INC	BULLET LINE, LLC 6301 EAST 10TH AVE HIALEAH, FL 33013	LOCATION MAP
ES CONSULTANTS, INC. environmental & civil engineering	PROJECT 2012004	FEBRUARY 2012 Fig. 1

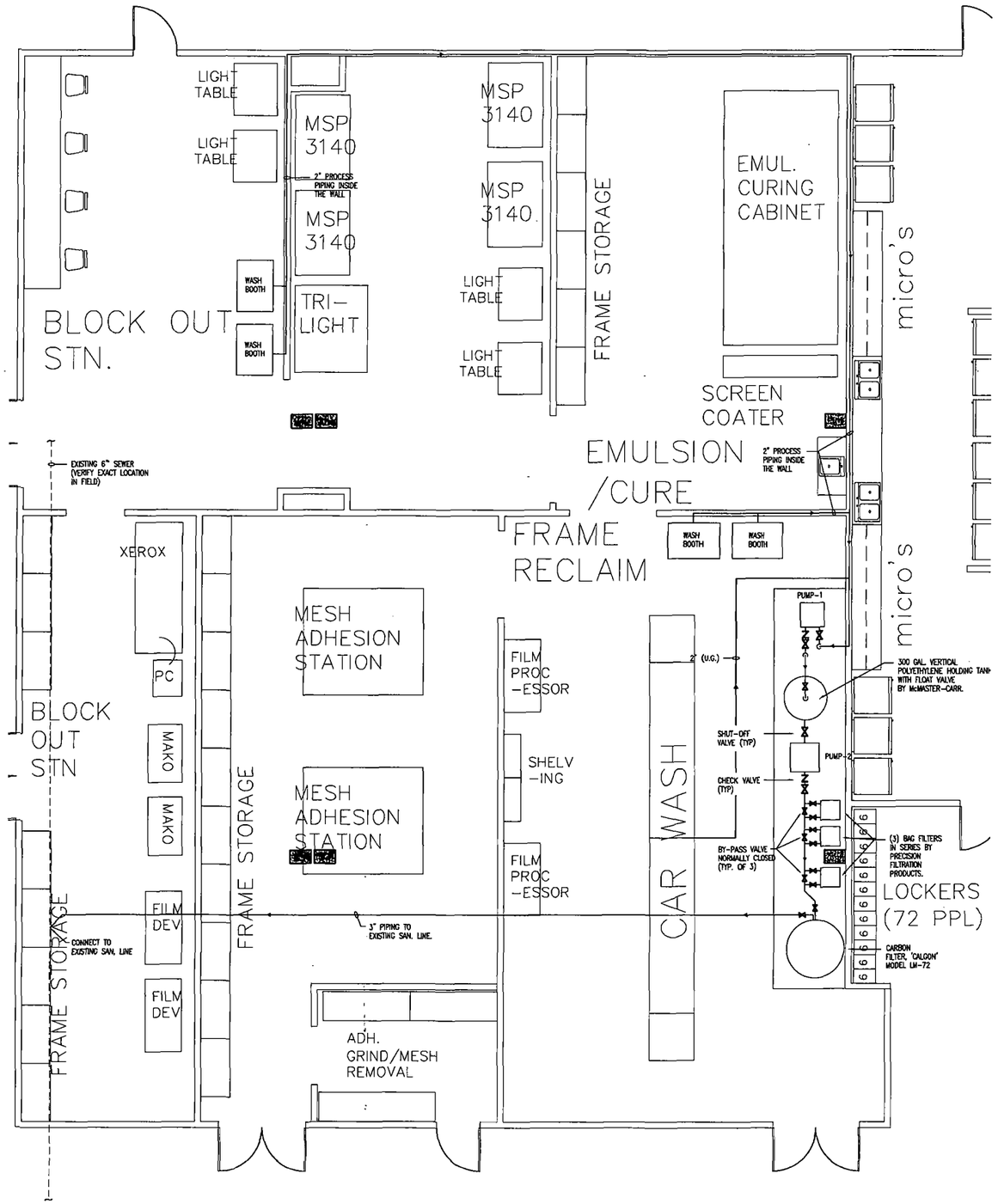
Exhibit A

Floor Plan
Process Filtration System Piping
First Floor Electrical Power Plan
Process Flow Diagram

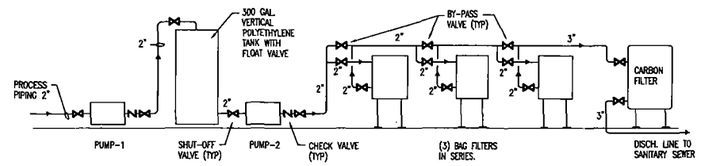
ES CONSULTANTS, INC.
environmental and civil engineering



PRODUCTION FLOOR – BULLET LINE, LLC



MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

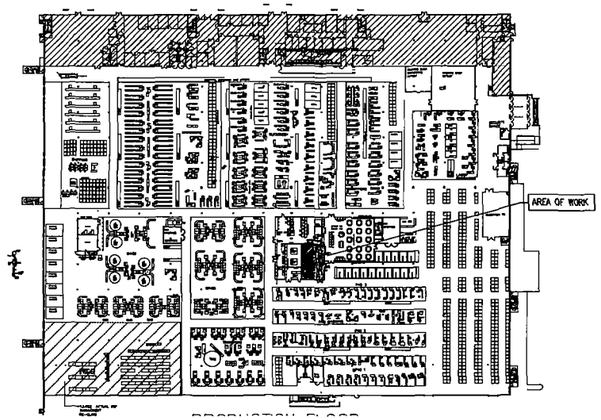


PIPING SCHEMATIC
N.T.S.

NOTE:
PROVIDE PIPE REDUCER / INCREASER FITTINGS AT EQUIPMENT AS REQUIRED.

NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FLORIDA BUILDING CODE AND OTHER APPLICABLE NATIONAL AND LOCAL CODES AND ORDINANCES.
2. ALL PIPING MATERIAL SHALL BE PVC AS SELECTED BY OWNER. PROVIDE FLEXIBLE CONNECTORS IF REQUIRED.
3. PUMP-1 (SUCTION) AND PUMP-2 (DISCHARGES): 'DAYTON' MODEL 3HJV9 AIR OPERATED DOUBLE DIAPHRAGM NON-METALIC, SELF PRIMING, 35 GPM, 100 PSI MAX. OPERATING PRESSURE. 3/8" AIR INLET. AIR PROVIDED BY OWNER.
4. ALL PIPING SHALL BE RUN PER EQUIPMENT MANUFACTURES RECOMMENDATIONS.



KEY PLAN
N.T.S.

INNOVATIVE ENGINEERING GROUP. INC
5532 N.W. 72nd AVENUE
MIAMI, FLORIDA 33166
(305) 888-8626
SUDHIR K. GUPTA P.E. 29189

BULLET LINE, 6301 EAST 10TH AVE, HIALEAH, FL. 33013
PROCESS FILTRATION SYSTEM PIPING

OWNERS REP: GARY FEINMAN
BULLET LINE, 15969 NW 15TH AVE. MIAMI, FL. 33169
TEL. 1-800-749-7367 EXT. 7720

REVISIONS

PROJECT No.
DRAWN BY: J.C.
DESING BY: S.G.
CHECKED BY: S.G.
DATE: 01-31-12
SCALE: AS SHOWN

M-1

LASER ENGRAVING

60' x 60' vent duck to be hung from rafter (6" duck)

6" round vent duck is required

Need an 15" L bracket to support a 15"x 6' shelf which will hold #2 extractor fans electrical requirments are *single phase* 115 volt 20 w 16 amp outlets x #2

1 1ST FLOOR ELECTRICAL POWER PLAN – PRODUCTION AREA

E-291 SCALE: 1/8"=1'-0"

TRUE NORTH

ISSUE FOR PERMIT 02/23/11

RLC Architects
14 SE 4th Street, Boca Raton, FL 33432
Tel 561 393 6333 Fax 561 393 6007
Web www.rlcarchitects.com

J. DAVID PUGA LICENSE NO. 41153 STATE OF FLORIDA PROFESSIONAL ENGINEER

Puga and Associates, Inc.
Engineers/Consultants
EB 0005803
7320 S.W. 48th Street
Miami, Florida 33155
(305) 661-7700

BULLETLINE T.I.
CENTERGATE AT GRATIGNY
HIALEAH, FL 33013
FLAGLER DEVELOPMENT GROUP

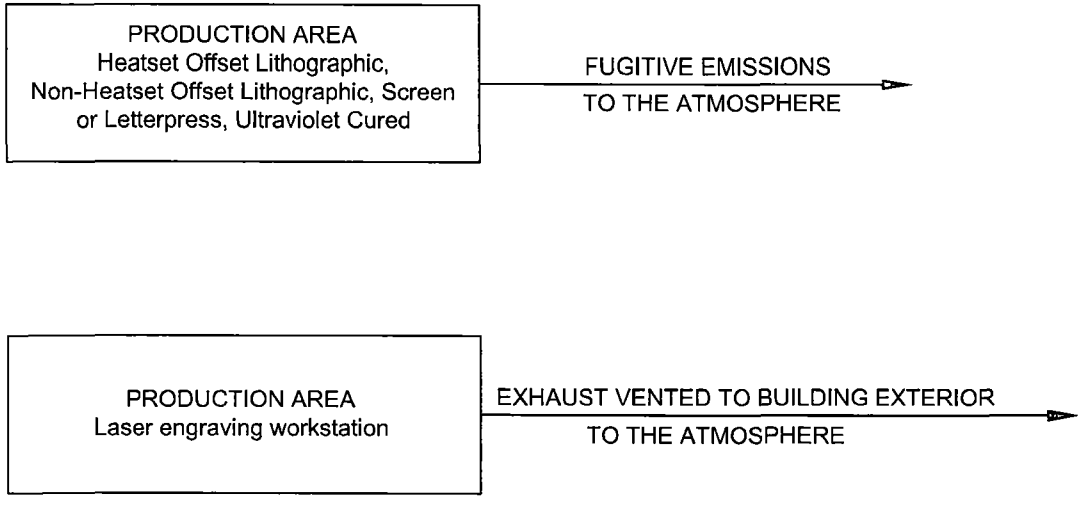
REVISIONS

Drawing Title
1ST FLOOR ELECTRICAL POWER PLAN PRODUCTION AREA

Scale	AS NOTED
Project No.	11096.01
Date	02/23/11

Principal:	LAL
Project Director:	LAL
Project Manager:	CSM
Drafted by:	PUGA
Checked by:	PUGA

Sheet No.
E-236



ES CONSULTANTS, INC.
environmental & civil engineering
EB#9043
7700 N. KENDALL DRIVE, SUITE 607
MIAMI, FLORIDA 33156
PHONE (305) 412-8185
FAX (305) 412-8105

SCALE: N.T.S.

DATE	MARCH 2012
FILE	-
DRAWN	SSK
DESIGNED	-
CHECKED	-
APPROVED	-

SIGN & SEAL

Bulletline, LLC
6301 E 10th Avenue, Suite 110
Hialeah, Florida 33013

AIR PERMIT APPLICATION

PROCESS FLOW DIAGRAM

PROJECT 2012007
DRAWING NUMBER FIGURE 1
SHEET NUMBER 1 OF 1

Exhibit B

Equipment Specifications

ES CONSULTANTS, INC.
environmental and civil engineering

LIST OF EQUIPMENT SPECIFICATIONS

Air General Permit Application
Bullet Line, LLC

Attachment A Mini Flat Screen Printer

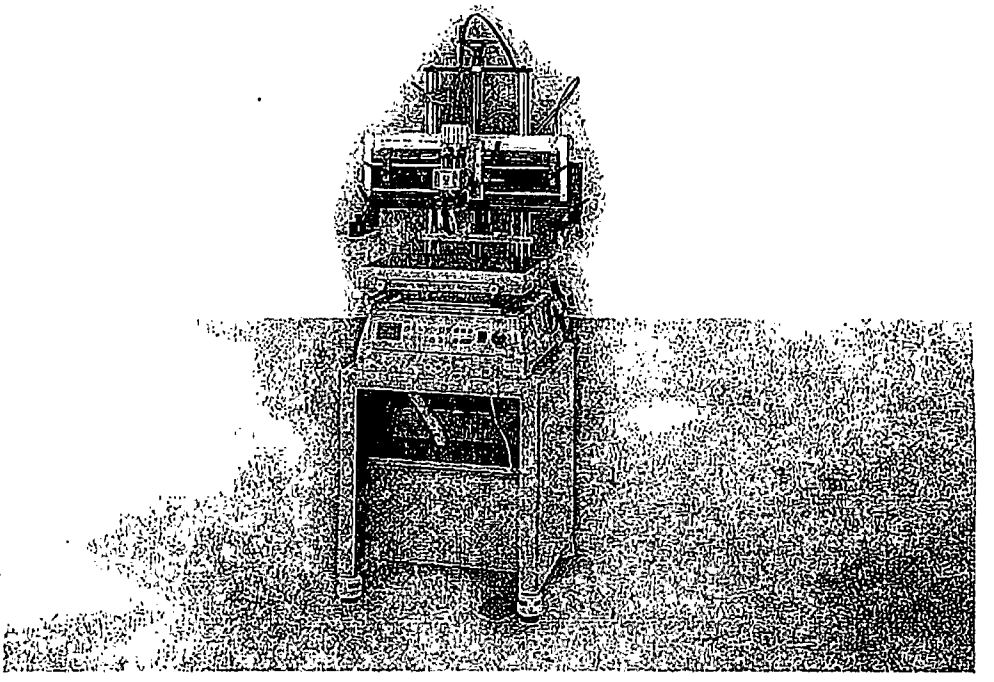
Attachment B Lawson Omega

Attachment C Cobalt 1000 Laser

Attachment D Programming Keyboard

Attachment A

Mini Flat Screen Printer



Mini Flat Screen Printer

TY-300FAT(400、500)

INSTRUCTION MANUAL

S/N _____

東遠精技工業股份有限公司

TABLE OF CONTENTS: TY-300FA/T, 400FA/T, 500FA/T

SPECIFICATION: TY-300FAT, 400FA/T, 500FA/T

MODEL	TY-300FA/T	TY-400FA/T	TY-500FA/T
WORKING TABLE SIZE	25x40cm	32x50cm	40x60cm
MAX. PRINTING AREA	20x26cm	25x36cm	30x46cm
MAX. O/D SCREEN SIZE	40x52cm	45x62cmm	45x72cm
MAX. SUBSTRATE HEIGHT	15cm	15cm	15cm
SCREEN MICRO-ADJUSTMENT RANGE	+/- 10mm	+/-10mm	+/-10mm
AIR CONSUMPTION/CYCLE	6.4L	8.6L	9.6L
VOLTAGE/AMPERAGE	1 Ø, 110V/5A, 220V/3.5A		
PRINTING SPEED	720-1800P/H	600-1800P/H	600-1500P/H
OVERALL DIMENSION	65x55x166cm	72x58x166cm	82x63x166cm
PACKING DIMENSION	95x88x183cm		
NET WEIGHT	170kgs	180kgs	190kgs
GROSS WEIGHT	230kgs	240kgs	250kgs
ADAPTABLE AIR COMPRESSOR	1HP		

APPLICATION: TY-300FA/T, 400FA/T, 500FA/T

APPLICATION: TY-200.300.400.500 FA/T PNEUMATIC FLAT SCREEN PRINTER

This model comes in four specs on Printing Areas, matching with the standard max. printing height allowance for substrates, suitable for printing substrates in Film, Sheet, Board or Cube forms which with smooth flat surface. The substrates can be made of any material except those are shape-changing under pressure of printing.

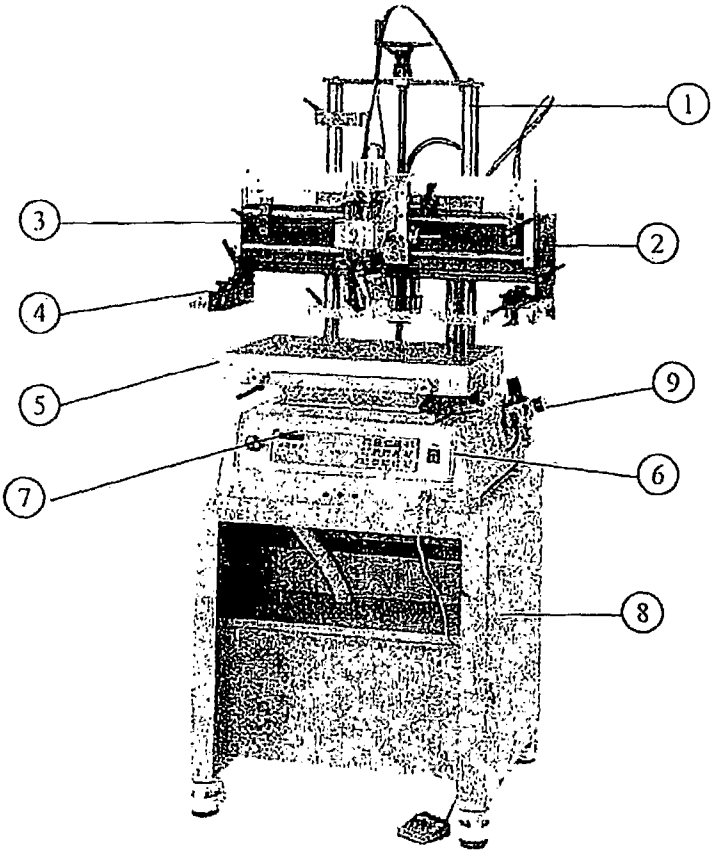
Standard model is equipped with a Vacuum Table for suctioning the substrates of Film, Sheet or Board forms fixed on the Vacuum Table during printing(set another three marks on the Vacuum Table for substrate's loading positioning); For the substrates of Cube form, an optional non-vacuum Trough Table is to be indicated, make a special Holding Die according to substrate's shape and its location on the table to fix the substrate, then fix the Holding Die on the Trough Table. If the substrate is an slightly soft cubic container which has a nozzle/mouth, can be indicated to add a set of Blower Center to blow it hard enough for printing. A Dust Blower is also to be indicated to add for cleaning and cooling the printing face. The max. printing height for substrate can be indicated to be increased upto max. 450mm by heightening the two Main Erect Shafts.

For high-precision leveling & stable low-speeded printing for fine line printing, multi-layer circuit printing, SMT-solder paste printing, conductive ink printing, adhesive printing, etc. special purposes, can modify the Rod Cylinder to be driven by hydraulic pressure.

For printing one same pattern design on a cubic substrate which is with symmetrical two faces or four faces, an Index Die-Set Device can be indicated.

ILLUSTRATION: TY-300FA/T, 400FA/T, 500FA/T

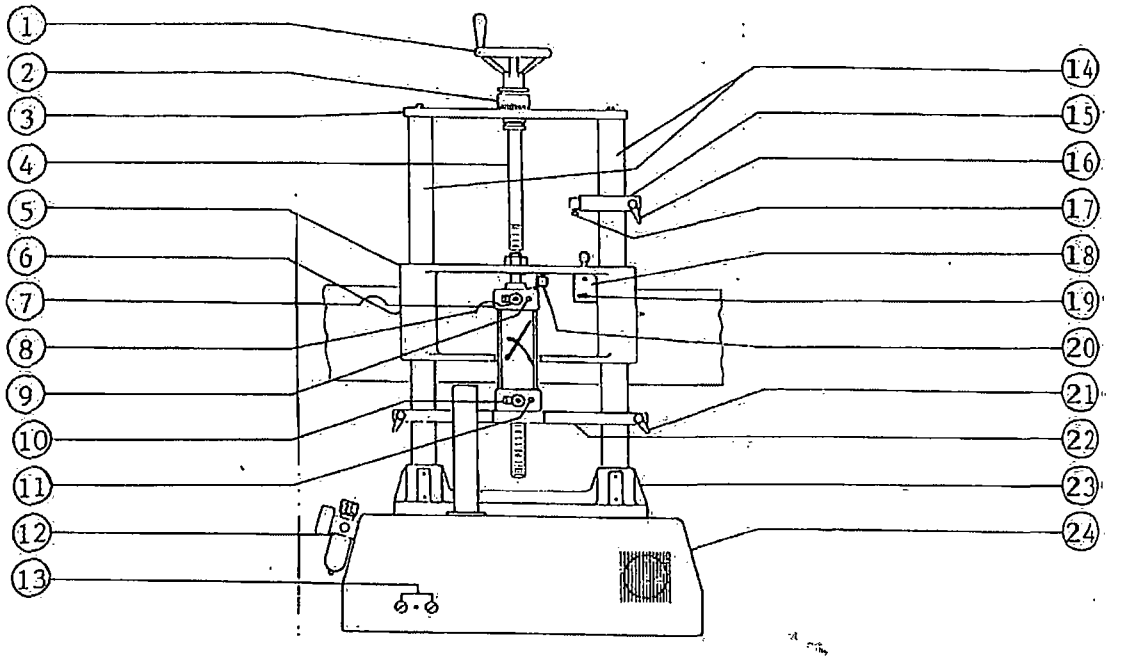
A. OVERALL APPEARANCE



1. VERTICAL SLIDER SECTION
2. HORIZONTAL SLIDER SECTION
3. PRINT HEAD SECTION
4. SCREEN HOLDER SECTION
5. WORKING TABLE
6. MACHINE MAIN BASE
7. ELECTRIC CONTROL PANEL
8. BASE CABINET
9. AIR FRL

ILLUSTRATIONS: STW-300FA/T, 400FA/T, 500FA/T

B. VERTICAL SLIDER SECTION & BACK VIEW:



(1) HAND WHEEL

(2) GRADUATED RING

(3) TOP FIXING BLOCK OF MAIN ERECT SHAFTS

(4) SCREW ROD

(5) VERTICAL SLIDER

(6) GREASE NOZZLE

(7) BACK ERECT CYLINDER

(8) SPEED-ADJUSTING VALVE(#0813)

(9) SHOCK-ABSORBING SPEED-ADJUSTING VALVE

(10) SPEED-ADJUSTING VALVE(#0813)

(11) SHOCK-ABSORBING SPEED-ADJUSTING VALVE

(12) AIR FRL

(13) MUFFLERS

(14) MAIN ERECT SHAFTS

(15) UP MARGIN SETTER BLOCK

(16) UNIVERSAL SCREW LOCK(10mmØx50mmL)

(17) PROXIMITY SWITCH

(18) SHOCK ABSORBING CYLINDER

(19) SPEED-ADJUSTING VALVE(#0619)

(20) MICRO SWITCH

(21) UNIVERSAL SCREW LOCK(8mmØx50mmL)

(22) BOTTOM FIXING BLOCK OF BACK ERECT CYLINDER

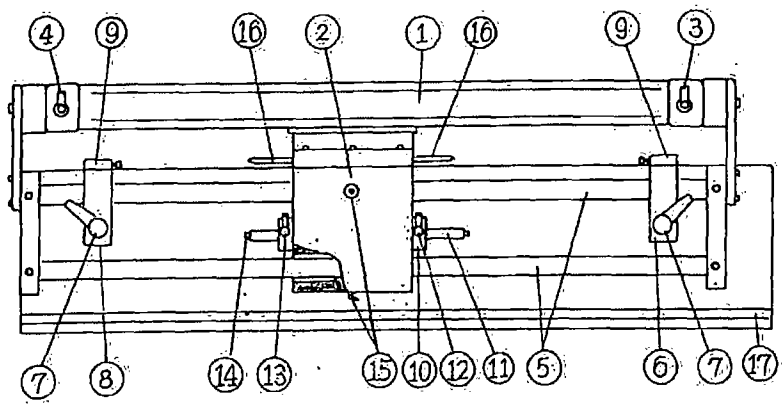
(23) MAIN ERECT SHAFTS' BASE

(24) MACHINE MAIN BASE

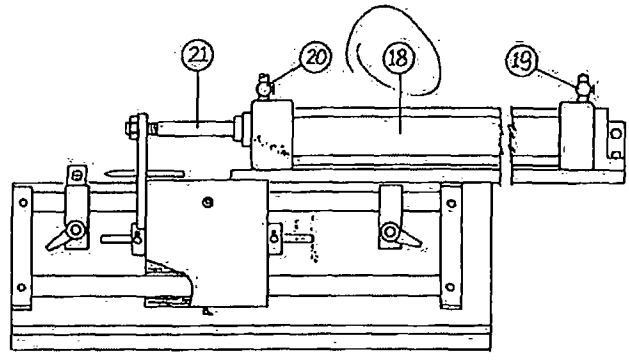
ILLUSTRATIONS: TY-300FA/T, 400FA/T, 500FA/T

C. HORIZONTAL SLIDER SECTION:

RODLESS CYLINDER TYPE



ROD CYLINDER TYPE



(1) RODLESS CYLINDER

(2) HORIZONTAL SLIDER

(3) RIGHT SPEED-ADJUSTING VALVE(#0610)

(4) LEFT SPEED-ADJUSTING VALVE(#0610)

(5) CROSS SHAFTS

(6) RIGHT MARGIN SETTER BLOCK

(7) UNIVERSAL SCREW LOCK(8mmØx40mmL)

(8) LEFT MARGIN SETTER BLOCK

(9) PROXIMITY SWITCH

(10) CLOSED CHAMBER SHOCK ABSORBING DEVICE

(11) SHOCK ABSORBER'S SHAFT

(12) RIGHT SPEED-ADJUSTING EXHAU VALVE(#0419B)

(13) LEFT SPEED-ADJUSTING EXHAUS VALVE(#0419B)

(14) PLASTIC PROTECTION CUSHION

(15) GREASE NOZZLES

(16) PROXIMITY SWITCH CONTACT S (LENGTH ADJUSTABLE)

(17) STENCIL HOLDERS' T-TROUGH T

(18) ROD CYLINDER

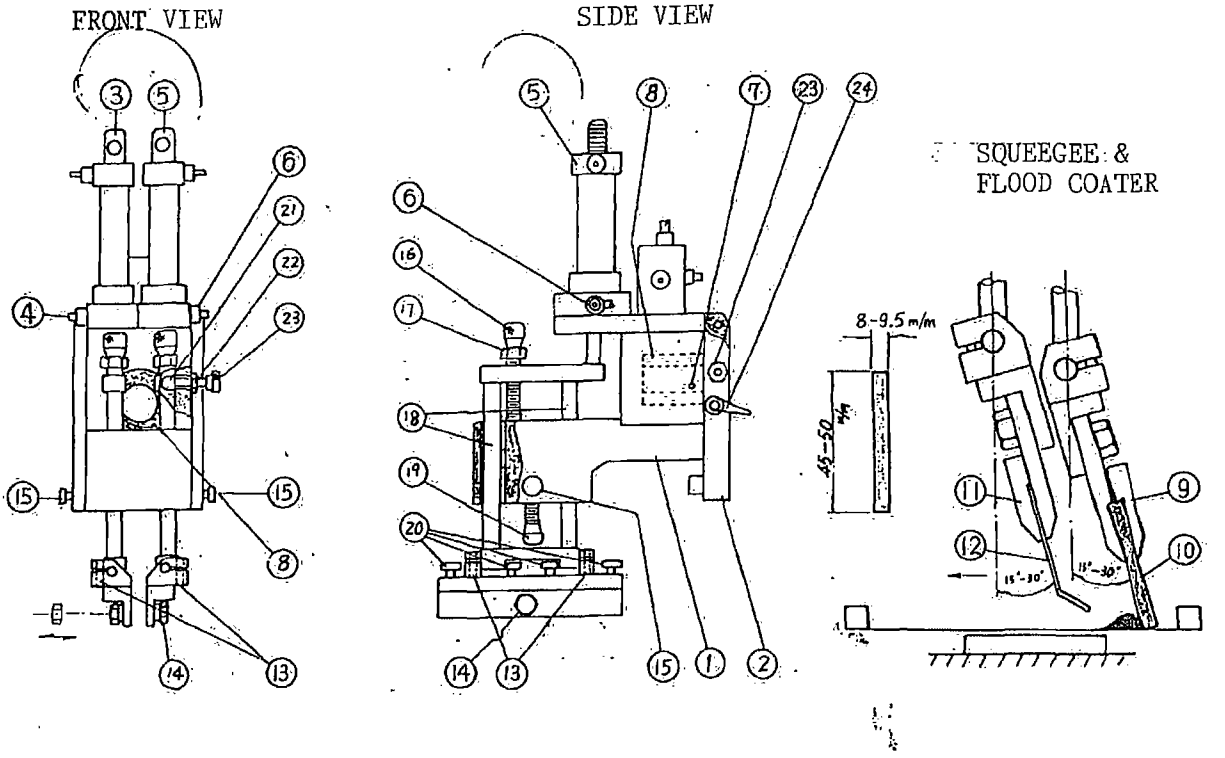
(19) RIGHT SPEED-ADJUSTING VALVE (#0610)

(20) LEFT SPEED-ADJUSTING VALVE (#0610)

(21) CYLINDER ROD

ILLUSTRATIONS: TY-300FA/T, 400FA/T, 500FA/T

D. EXCHANGE HEAD SECTION:



(1) EXCHANGE HEAD SECTION

(2) EXCHANGE HEAD'S BASE BLOCK

(3) FLOOD COATER'S DOWN/UP CYLINDER

(4) SPEED-ADJUSTING VALVE(#0610)

(5) SQUEEGEE'S DOWN/UP CYLINDER

(6) SPEED-ADJUSTING VALVE(#0610)

(7) SPAN EXTENSION'S SCREW LOCK

(8) SPAN EXTENSION SHAFT

(9) SQUEEGEE CLAMP

(10) SQUEEGEE

(11) FLOOD COATER CLAMP

(12) FLOOD COATER BLADE

(13) INCLINATION-ANGLE-ADJUSTMENT'S SCREW LOCKS

(14) SQUEEGEE CLAMP HOLDING SCREW

(15) SQUEEGEE/FLOOD COATER UPWARD STROKE STOPPERS' SCREW LOCKS

(16) SQUEEGEE'S DOWNWARD STROKE ADJUSTMENT KNOB

(17) NUT LOCK

(18) SQUEEGEE/FLOOD COATER'S TWO SHAFTS

(19) SQUEEGEE UPWARD STROKE STOPPER

(20) SQUEEGEE'S LEVEL ADJUSTMENT SCREWS

(21) AUTO COTTER LOCK'S PIN

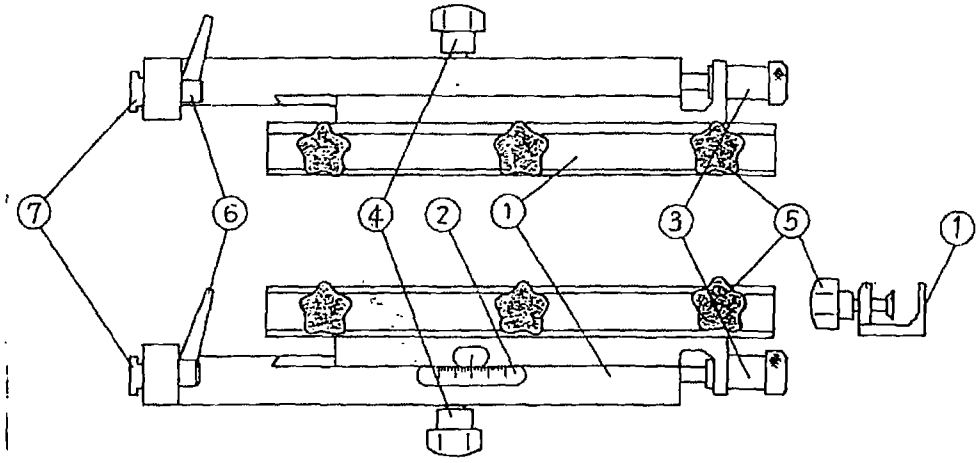
(22) AUTO COTTER LOCK'S FIXING NUT

(23) AUTO COTTER LOCK'S PULLER HANDLE

(24) UNIVERSAL SCREW LOCK(8mmØx30mmL)

ILLUSTRATIONS: TY-300FA/T, 400FA/T, 500FA/T

E. STENCIL HOLDER SECTION:



① STENCIL HOLDERS

② GRADUATED SCALE

③ MICRO-ADJUSTMENT KNOB

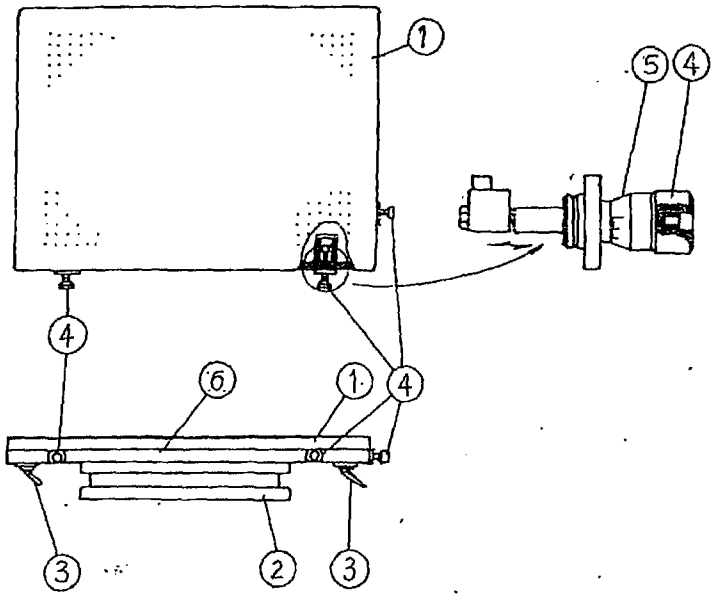
④ SCREW LOCKS

⑤ CLAMPING SCREWS

⑥ UNIVERSAL SCREW LOCKS(8mmØx30mm

⑦ T-SHAPE NUTS

F. VACUUM TABLE SECTION:



① DRILLED TABLE

② VACUUM TABLE BASE

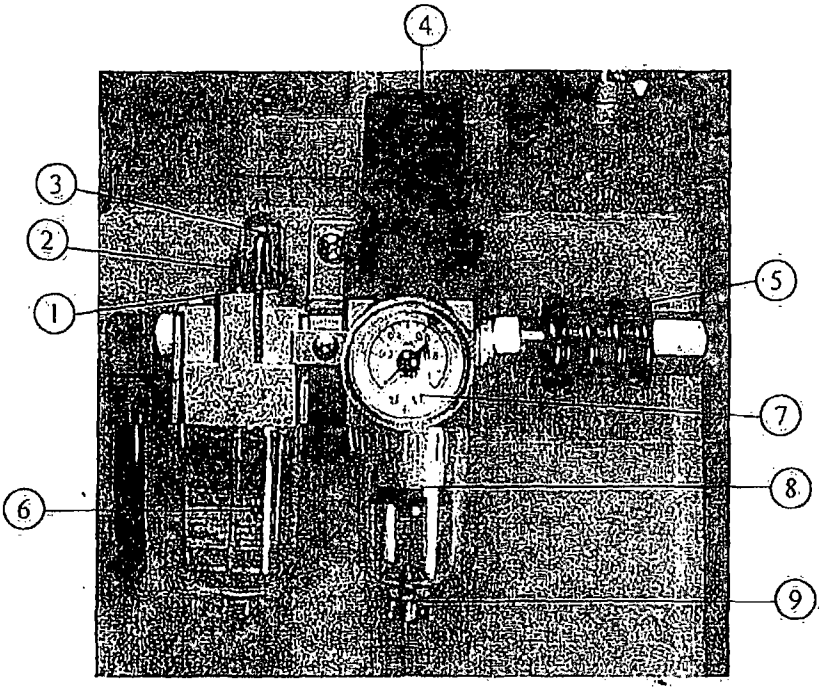
③ UNIVERSAL SCREW LOCKS(8mmØx50mmL)

④ MICRO-ADJUSTMENT KNOB

⑤ GRADUATED RING

ILLUSTRATION: TY-300FA/T, 400FA/T, 500FA/T

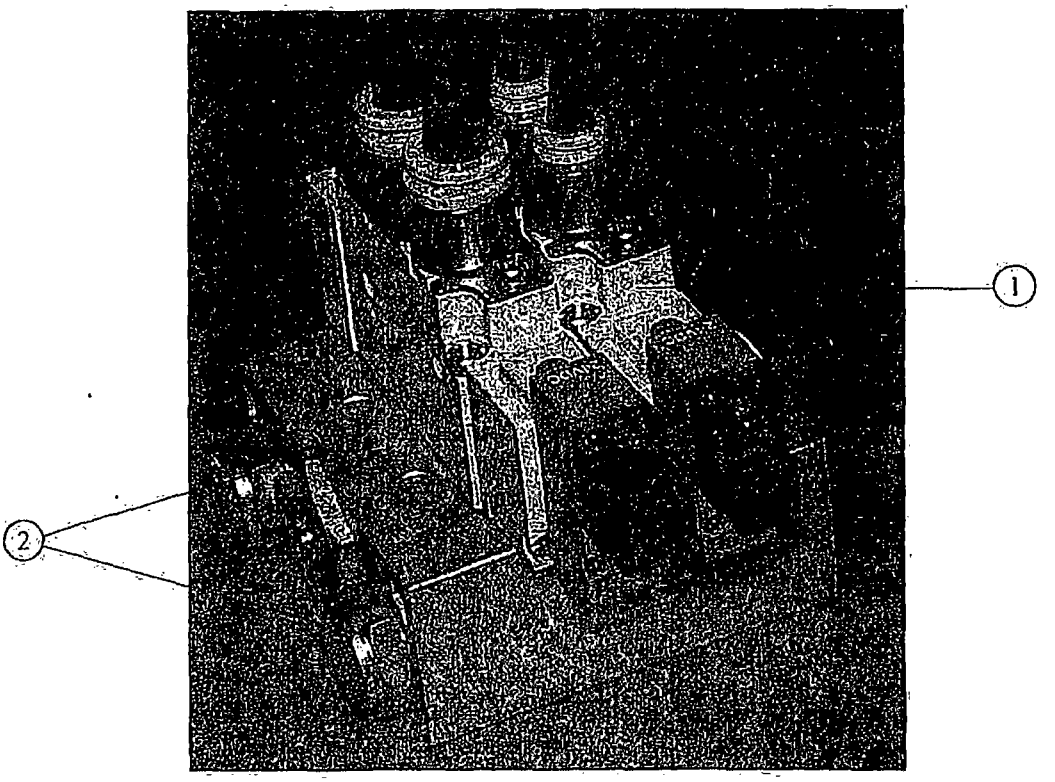
H. AIR FRL (FILTER + REGULATOR + LUBRICATOR)



1. OIL SUPPLY ADJUSTING SCREW
2. OIL SUPPLY CAP
3. OIL SUPPLY OBSERVATION CAP
4. PRESSURE ADJUSTING KNOB
5. SLIDE VALVE
6. OIL CUP
7. PRESSURE MANOMETER
8. WATER CUP
9. WATER DRAINING NUT

ILLUSTRATION: TY-300FA/T, 400FA/T, 500FA/T

I. SOLENOID VALVE

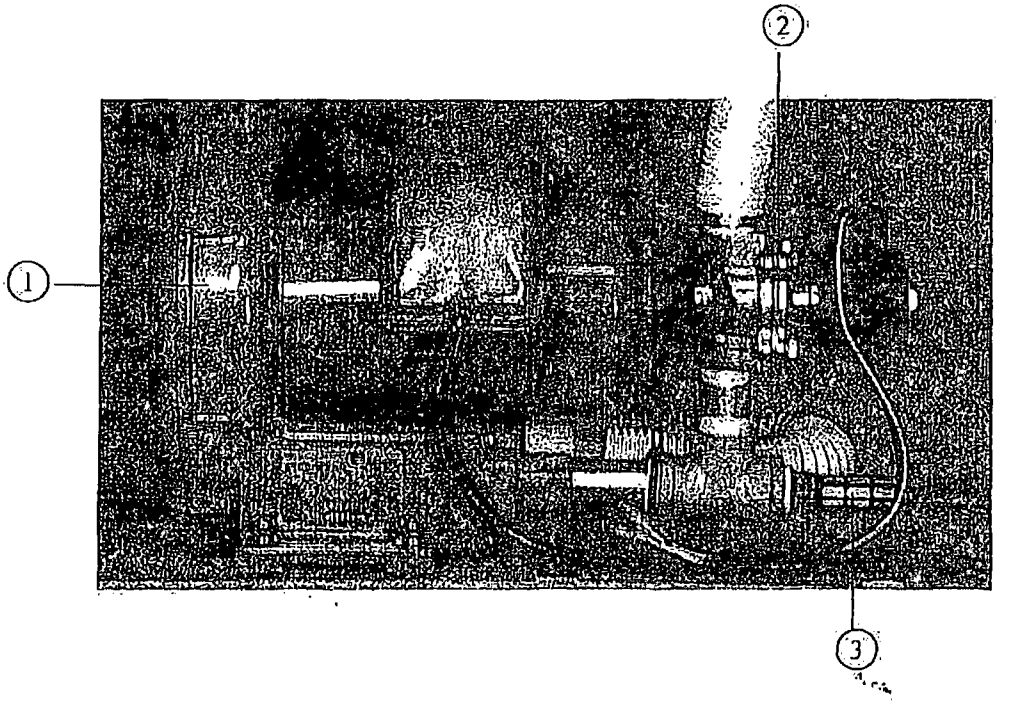


1. SOLENOID VALVE
2. MUFFLER

c6

ILLUSTRATION: TY-300FA/T, 400FA/T, 500FA/T

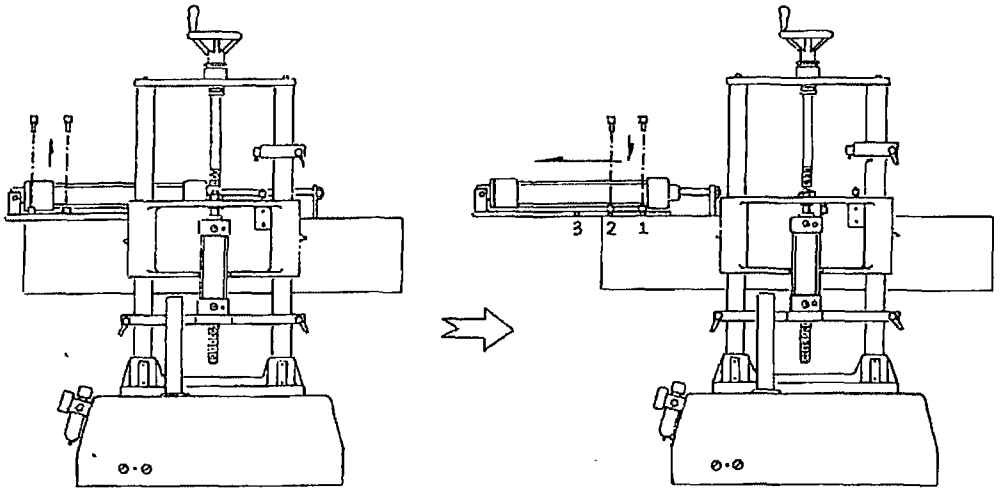
J. RING BLOWER



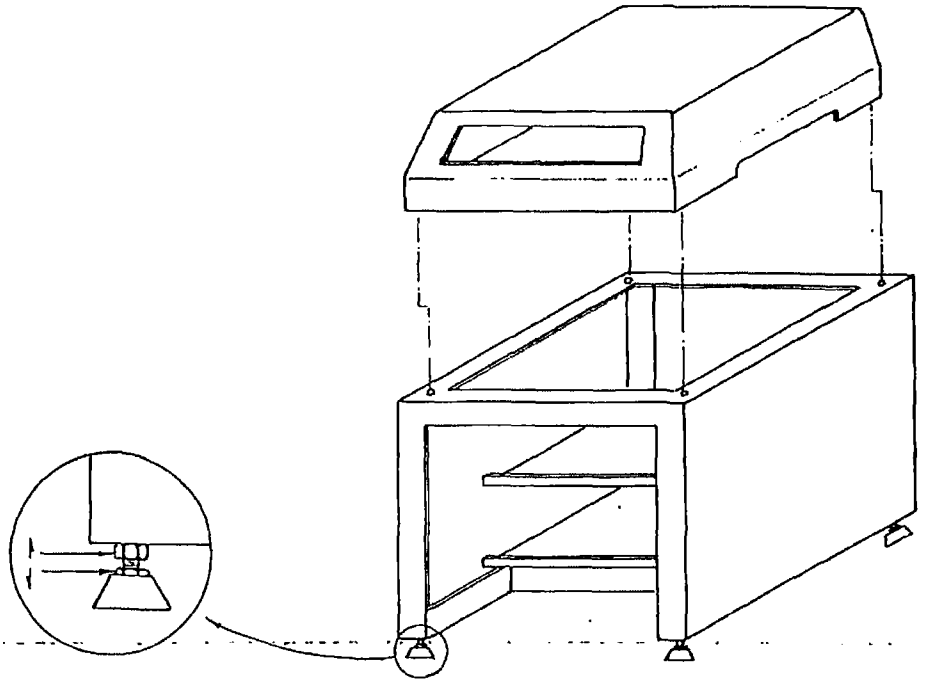
1. RING BLOWER
2. SOLENOID VALVE
3. MUFFLER

ILLUSTRATIONS: TY-300FA/T, 400FA/T, 500FA/T

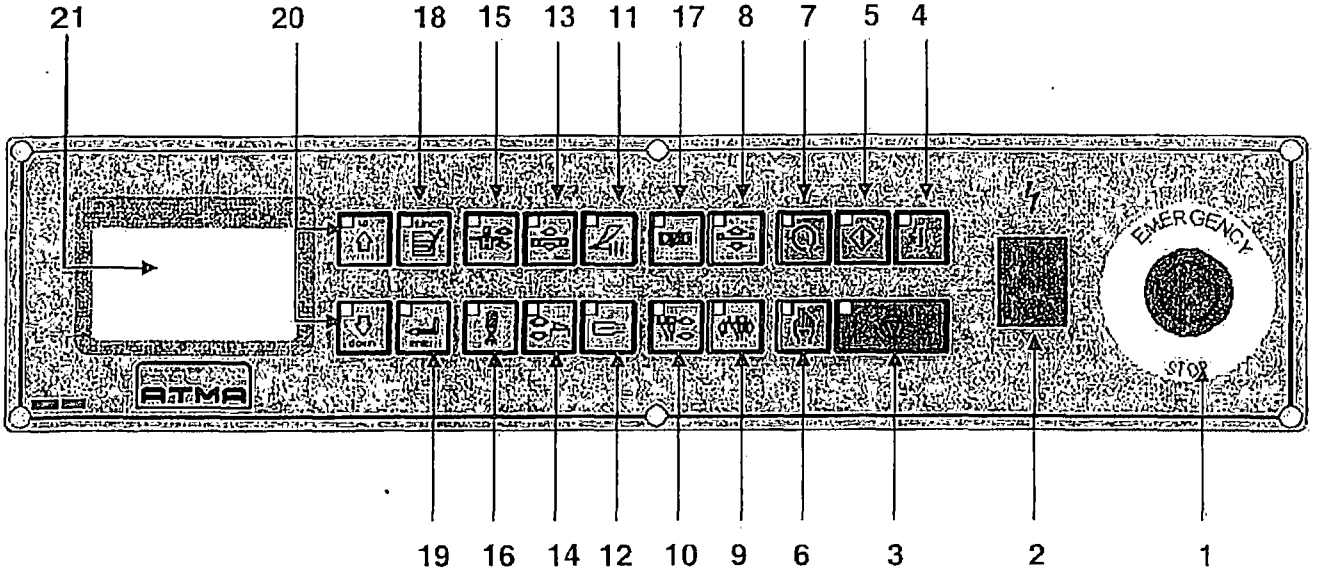
K.. EXTENSION OF ROD CYLINDER(ROD CYLINDER TYPE):



L. DISMANTLE OF BASE CABINET & BALANCE LEG:



●Control Panel



1. 

【 **EMERGENCY STOP BUTTON**】: push to stop printing stroke and shut off circuit power supply , screen back to upward origin 。

2.  【 **MAIN SWITCH** 】: Control Main Switch , Mark" **I** "is read as **POWER ON** 、" **O** " as **POWER OFF** 。

3.  【**SYSTEM POWER OFF BUTTON**】: To control the system power , the power will be "**OFF**" when **MANUAL** Mode , and it will be "**OFF**" after printing cycle completed when **AUTO** Mode 。

4.  【**SYSTEM POWER ON BUTTON**】: To control the system power , use for start up the Power System。

5.  【 **START KEY** 】: use when cycle /auto operation mode is set 。

6.  【 **MANUAL OPERATION MODE** 】: needed to set up when each single action stroke to be used 。

7.  【 **OPERATION MODE SELECTION MENU** 】: used to set continuous auto operation and single cycle stroke operation (single or multiple auto printing function) 。

8.  **[SCREEN UP/DOWN OPERATION KEY]** : switching for control the scree upward /downward 。

9.  **[PRINT HEAD LEFT/RIGHTWARD OPERATION KEY]** : switching for contr the print head leftward and stops at leftward margin / rightward and stops at rightward margin , also control the squeegee/flood coater up/down 。

10.  **[PRINT HEAD UP/DOWN OPERATION KEY]** : two step function Push(light o for print head upward /or downward 。

11.  **[VACUUM ON/OFF KEY]** : switch **ON / OFF** to control vacuum operatic (vacuum start / vacuum stop) 。

12.  **[INFLATION FUNCTION KEY]** : switching for enable /disable the inflation function 。(use only for **TY-FAB/TY-FB** series)

13.  **[TABLE- IN / OUT KEY]** : switching for enable / disable the single strok moving of the sliding table 。(use only for **TY-HH** series)

14.  **[POP-PIN UP / DOWN BUTTON]** : switching for control up/down the sing stroke of the Top - Pin 。(option for the series of **TY-FA 、TY-H 、TY-HH**

15.  **[REGISTRATION-PIN UP/DOWN BUTTON]** : switching for control the sing stroke of the Registration-Pin that is convenient for fine registration of the substrate 。(option for the series of **TY-FA 、TY-H 、TY-HH**)

[REGISTRATION - MOTOR CONTROL] : switching for control the singl stroke of the Registration-Motor that is convenient for fine registration the substrate 。(option for the series of **TY-FAB 、TY-FB**)

16.  **[DUST-BLOW FUNCTION KEY]** : single stroke action of dust-cleaning (option)

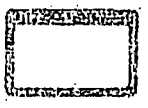
17.  【 **STROKE FUNCTION BUTTON**】 : needed to set on **MANUAL OPERATION MODE** and then the function of stroke action 、cycle time 、pre-set production will be enable 。

18.  【**DATA MEMORY MENU**】 : needed to set on **MANUAL OPERATION MODE** , and then the following function will be enable (As " **SET FUNCTIONS** " page) 。

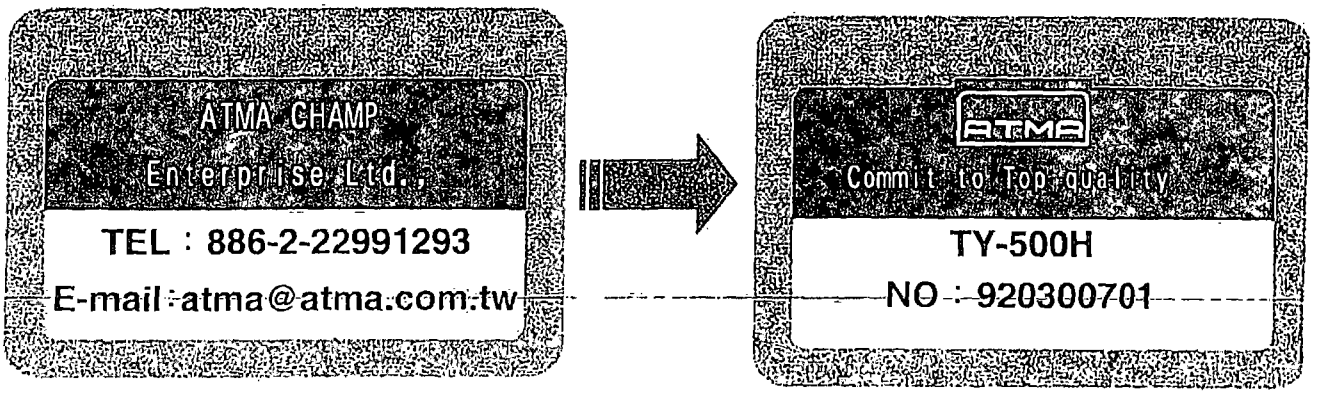
(*Passward (**Log in Code**) needed and use only for manufacturer , e.g. **Special Functions** and **Machine Type** , **Serial Number**'s edit function) 。

19.  【 **FUNCTION SELECTION KEY**】 : stroke function setting 、edit and makesure the function selected on the **LCD** 。

20.  【**TARGET UP/DOWN SELECTION KEY**】 : digital and function's setting cooperate with " **FUNCTION SELECTION KEY** "on the **LCD** 。

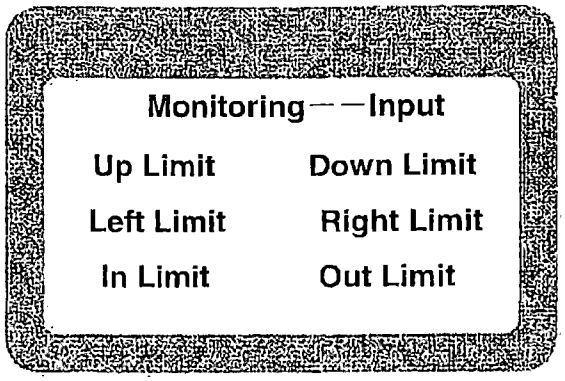
21.  【 **LCD : Liquid Crystal Display** 】 :
the contents of LCD show as follow :

❻ " **POWER ON** " page : when **POWER ON** , switch the (2) 【 **MAIN SWITCH** 】 button , the page show as follow 。



● **" INPUT MONITORING "** page :

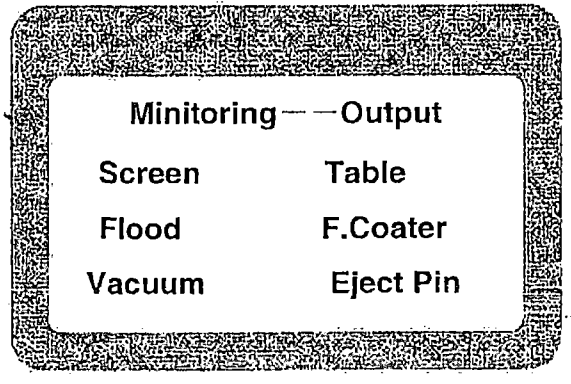
to monitor " Input " functions as follows : Up Limit 、Down Limit 、Left Limit 、Right Limit 、In Lm 、Out Lm and Vacuum 、Start 、Stop etc. 。



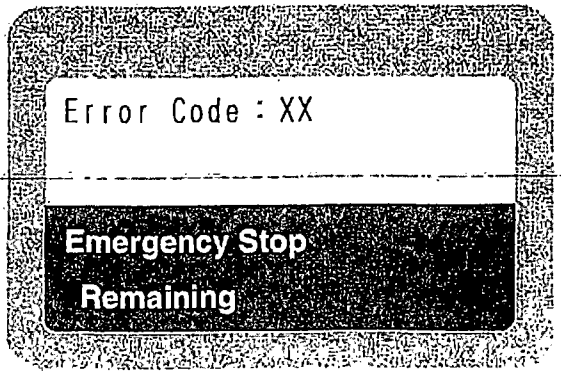
●

● **" OUTPUT MONITORING "** page :

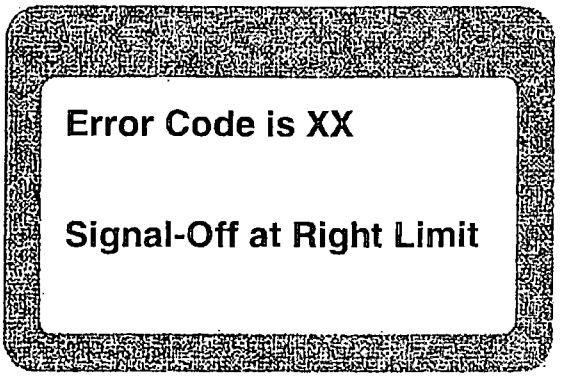
to monitor " Output " functions as follows : Screen Up / Down 、Table In / Out 、Squeegee / F.coater Up / Down 、Print / Flood 、Vacuum 、Inflation or Eject Pin On / Off 、Register Pin On / Off 、Vacuum Motor 、Register Motor 、Dust – blow 、Print Head Up / down etc. 。



● **" EMERGENCY STOP "** page : when push （1）**【Emergency Stop】** button，page show as follow，the power circuit immediately **OFF**；after clockwise rotating the button of **【 Emergency Stop 】**, it will be reset automatically 。

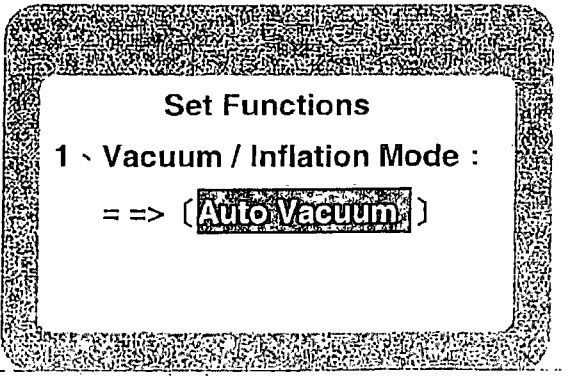


❁" **ABNORMAL STOP** " page :
the page will display when " **Register Limit Error** "happened，the system power will be **OFF** and it can be reset after trouble shooting。



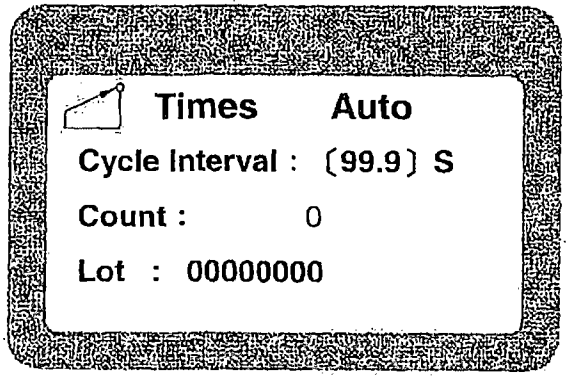
❁" **SET FUNCTIONS** "page :
use only when **Manual Mode**，push the button ->(18)【**DATA MEMORY MENU**】, the following page will display : **Vacuum Mode** (**Auto vacuum** or **Continuous Vacuum**) 、**Language Selection** (**Chinese** or **English**) 、**Inflation Mode** (**Auto Inflation** or **Continuous Inflation**) , use only for **TY- FB Series** 。

※ The following functions will be special design or option : Time setting for following functions : **Vacuum function** 、**Eject-Pin Function** 、**Dust-blow Time** 、**Vacuum Dwell** 、**Inflation Dwell** 、**Screen - Up Delay** etc. 。



●" STROKE FUNCTIONS " page :

when Manual Mode , push the button -> (17) 【 Stroke Functions Button】, the following page will display ; it can be selected by Operation Mode and Times 、Auto Mode 、Cycle Time 、Lot (Preset) etc. 。



1. Air source is switched on/off by a Slide Valve on the Air FRL, fast and convenient. The Air FRL filters the moisture of the compressed air and sprays oil automatically, lasts machine's life. With Air Pressure Adjusting Knob and manometer.

2. Standard model adopts Rodless Cylinder to transmit the leftward/rightward strokes of the Horizontal Slider Section, with one Speed-Adjusting Valve for each of the two strokes, provides stable speed for precision printing. Can be changed to use Rod Cylinder to buyer's option, functions are the same but its body juts out the right side of the machine, occupies more working space and is easy to be damaged by careless hit. With a newly designed Closed Chamber Shock Absorbing Device on the Horizontal Slider Section, substitutes the old type Pneumatic Shock Absorbors on the left & right Margin Setter Blocks. This new Shock Absorbing Device is with one each Speed-Adjusting Exhaust Valve for the leftward and rightward strokes.

3. Upward and downward strokes are transmitted by a erect Rod Cylinder on the back side of the machine, with one each Speed-Adjusting Valve and Shock-Absorbing Speed-Adjusting Valve for each the upward and downward strokes' speed adjustment and shock absorption. Another additional Shock Absorbing Cylinder is equipped on the Vertical Slider Section to increase stability of upward stroke.

4. Upward/downward strokes of each Squeegee and Flood Coater's Holding Device(on the Exchange Head) are transmitted by two small cylinders separately, with one each Speed-Adjusting Valve for these two cylinders. * The downward pressure can be set up by one each Pressure Adjusting Knob and Manometer for constant-pressured printing.

5. With two Exhaust Mufflers on the back side, noiseless while operating.

REGISTRATION ADJUSTMENT: TY-300FA/T, 400FA/T, 500FA/T

1. DISTANCE BETWEEN STENCIL AND SUBSTRATE ADJUSTMENT: from the Hand Wheel on the Screw Rod(range: 0-150mm as standard, can be indicated to increase upto 450mm by heightening the two Main Erect Shafts), with Graduated Ring and Universal Screw Locks(two pieces on the bottom Base Block of the Screw Rod).

2. STENCIL HOLDERS' LEFT/RIGHT MARGIN ADJUSTMENT: from the Universal Screw Lock on each Stencil Holder, adjust along the T-Trough Track.

3. STENCIL'S IN/OUT MICRO-ADJUSTMENT: make rough adjustment while th Stencil is being held, then adjust from the Micro-Adjustment Knob on each Stencil Holder for precise registration. With Graduated Scale and Universal Screw Lock for each.

4. PRINTING(LEFTWARD) STROKE'S LEFT/RIGHT MARGIN ADJUSTMENT: from the left and right Margin Setter Blocks on the Cross Shaft, adjust long the T-Trough Track, with Universal Screw Lock on each Margin Setter Block.

5. SQUEEGEE/FLOOD COATER'S DOWNWARD STROKE ADJUSTMENT: Squeegee is on the right Holder, Flood Coater's on the left(contrary to curve-printing), adjust from a Micro-Adjustment Knob on the Top Fixing Block on the two erect shafts of each the Squeegee Holder and Flood Coater Holder, with Graduated Ring and Nut Lock for each.

6. SQUEEGEE/FLOOD COATER'S UPWARD STROKE ADJUSTMENT: loosen one each Screw Nut on each left & right side of the Exchange Head, adjust from the Screw Stopper under the Exchange Head & locates between the two erect shafts. After adjustment, fasten the Screw Nuts.

7. SQUEEGEE/FLOOD COATER'S LEVELING ADJUSTMENT: from four bolts on each Squeegee and Flood Coater Holders for leverage adjustment.

8. SQUEEGEE/FLOOD COATER'S ELEVATION ANGLE ADJUSTMENT: only using rectangular squeegee needs, from a bolt on the Bottom Fixing Block of each squeegee and flood coater's two erect shafts, adjust by hand-lift. Angle range; 15°-30°.

9. EXCHANGE HEAD'S SPAN EXTENSION ADJUSTMENT: from a screw on the right side of the Exchange Head, adjust by hand-lift. Max. extension length: 40mm.

10. EXCHANGE HEAD'S ELEVATION ANGLE LIFT-UP ADJUSTMENT(PATENT REGISTERED): loosen the Universal Screw Lock on the right side of Horizontal Slider Device, lift up the Exchange Head by hand, the Exchange Head is locked at a 30° elevation angle by a Auto Cotter Lock higher above the Universal Screw Lock. To put it down, hold the Exchange Head by left hand, use right hand to pull out the Auto Cotter Lock, then the Exchange Head can be put down. After putting down the Exchange Head, fasten the Universal Screw Lock. Very convenient for Stencil's removal and wash.

11. VACUUM TABLE'S LEFT/RIGHT, IN/OUT MICRO-ADJUSTMENTS: from the two Micro-Adjusting Knobs on the front side of the table for In/Out adjustment; From the one Micro-Adjusting Knob on the right side of the table for Left/Right micro-adjustment. Locked by the two Universal Screw Locks under the table.

D. The machine is with four wheels & Balance Legs, portable and easy to obtain stability of whole machine.

E. The Base Cabinet is to increase stability of whole machine and also to be used as a Cabinet for inks, tools, etc.. This Base Cabinet can be dismantled from the four screws on its four top corners, then used as an on-table type machine. Model without Base Cabinet can be indicated optionally, cancel "/T" from the model number.

OPTIONAL FUNCTION: TY-300FA/T, 400FA/T, 500FA/T

G. OPTIONS OF THIS MODEL:

1. USE ROD CYLINDER TYPE: an economy type.

2. W/O BASE CABINET TYPE: use as an on-table type, cancel "/T" from model number.

3. W/O VACUUM TABLE: cancel a Vacuum Pump, change the standard drilled Vacuum Table to a Trough Table for substrates in cubic form.

4. ADD BLOWER CENTER: for blowing the slightly soft cubic container with nozzle/mouth to be hard enough for printing. The location to equip the Blower Center is subject to the location of the substrate's nozzle/mouth, buyer's sample thus is required for our reference.

5. ADD DUST BLOWER: for cleaning dust from the printing face or for cooling.

6. ADD SQUEEGEE/FLOOD COATER PRESSURE ADJUSTMENTS: for setting most suitable constant printing/ink-coating pressure.

7. HEIGHTEN THE TWO MAIN ERECT SHAFTS: for printing substrates whose height is above 150mm. Can be indicated to heighten by every 100mm upto a max. 450mm from the standard 150mm.

8. MODIFY PNEUMATIC ROD CYLINDER TO BE DRIVEN BY HYDRAULIC PRESSURE:

   Add one Pneumatic-to-Hydraulic Transfer Device to drive the Rod Cylinder to do hi-precision leveling & stable low-speeded printing for fine line printing, multi-layer printing, SMT solder paste printing, conductive ink printing, adhesive printing, etc. special purposes. Special modification for ink sheveling & moving functions can be indicated.

9. ADD INDEX DIE-SET DEVICE: for printing one same pattern design on a cubic substrate which with symmetrical two faces or four faces. With Two-Face and Four-Face two types. Use with an Trough Table. Buyer's sample is required for making it.

Other designs or modifications for special purposes are welcome for our study and development.

(REFER TO FEATURES)

1. After unpacking of the machine, move the machine to a proper working space. For avoiding any damage and loss of accuracy, the Air FRL & the Stencil Holders are not to be taken as points of application of the move, better all on the Machine Main Base. After move, if the machine is with Base Cabinet, put down its four Balance Legs to stablize the machine on the floor; If not with the Base Cabinet, lay the machine on a strong & stable table or platform with flat surface. Prepare ready the stencil, ink, printing substrates, stencil cleaning solvent, and holding dies if they are needed.

2. If the machine adopts Rod Cylinder, dismantle the two screws which fix the base of the Cylinder on the Cross Shaft Base, pull out the Cylinder, select two of the three Extension Setting Holes which near to the left end of the Cylinder to fix again the Cylinder with these two screws. Normally only when printing specially small substrates will the two holes which make the extension shorter be selected.

3. Loosen the two Universal Screw Locks on the Bottom Base Block of the Screw Rod which on the back side of the machine to release the lock for the Vertical Slider Section, adjust higher the Up Margin Setter Block, adjust the height of the Vertical Slider Section from the Hand Wheel to a proper height under which the distance between the Stencil Holders' bottom side and the working table is big enough to load a substrate on the working table(including the holding die if it is needed).

4. Outspread the two Stencil Holders and the left & right Margin Setter Blocks. The two Margin Setter Blocks must be a bit inwarder than the two Stencil Holders, for avoiding the Squeegee/Flood Coater Holders to hit the Stencil Holders.

5. Check the oil of the Air FRL, fill in fresh oil when it is below the minimum limit. Connect air source from the Connector on the Air FRL. Push on the Sliding Valve of the Air FRL slowly, the horizontal & Vertical Slider Sections will return separately back to the right & up origins automatically. The air pressure is required to be within 4-7kgs/cm^2.

6. Connect the electricity, switch on the power.

7. In accordance to holding methods for each kind of substrate, if holding die is needed, install the holding die on a proper position on the Trough Table, then load the substrate on the holding die; If not, put the substrate on the Vacuum Table, stick three guides along its inner & left edges for loading positioning(the guides can be adhesive tape, paper board, plastic chip or whatever which is a bit thinner than the substrate in height); If a Blower Center is needed for blowing the soft substrate hard, install the holding die on the Trough Table on a position that the Blower Center Head is just fit to plug up the substrate's nozzle/mouth, adjust the stroke, speed & blowing speed of the Blower Center.

8. Lift up the Exchange Head, refer to the position of the substrate, adjust the positions of the Stencil Holders to hold the stencil with the Screen side down, then adjust the left & right Margin Setter Blocks to proper positions accordingly. Put down the Exchange Head (the Exchange Head should be put down before operation). Operate the Up/Down Mono Operation Switch to lay down the Vertical Slider Section. Adjust the distance(1-3mm) between the Screen and the printing face from the Hand Wheel, then fasten the two Universal Screw Locks to lock up the Vertical Slider Section. Set up the position of the Up Margin Setter Block then lock it. Alternatively operate the Up/Down Mono Operation Switch to check & adjust the upward/downward speed & shock absorption of the Upward/Downward strokes.

9. Lay down the Vertical Slider Section, see through the stencil, make precise registrations from each adjustments on the Stencil Holders and/or from those on the working table for the stencil & substrate including their in/out, left/right relative positioning. Also make precise adjustment for the left/right margins. Operate alternatively the Left/Right Mono Operation Switch to check & adjust the leftward/rightward speed & shock absorption of the Leftward/Rightward strokes.

10. Lift up the Exchange Head, cut one piece of the Squeegee in proper length, select a Squeegee Clamp of proper length to clamp it. Match another Flood Coater Blade, clamp it with a properly long Flood Coater Clamp. With the Squeegee on the right, Flood Coater on the Left(the bended edge faces to the squeegee), install the Squeegee Clamp & Flood Coater Clamp on the Holders on the Exchange Head. Put down the Exchange Head and lock it. Adjust each the Downward stroke & leveling of the Squeegee & Flood Coater as well as the needed inclination angle adjustment for the Squeegee & Flood Coater as the Square Squeegee is being used. The Squeegee is supposed to press down the Screen to contact just right the printing face. The Flood Coater is supposed to press down the Screen at 0-1mm range, but not to contact the printing face. Operation alternatively the Left/Right Mono Operation Switch to check & adjust the Downward speed of each Squeegee & Flood Coater.

11. Pour some ink on the stencil, run test the scraping & ink-coating actions to see if they work normally, then load a substrate to make trial printing and make final precise micro-adjustments. Till getting perfect enough printing effect, start for formal printing. If vacuum suction is needed, select the intermittent or continuous vacuum function. If there is an emergency matter, push the Emergency-Stop Button to stop the machine. (When Auto or Semi-Auto operation is selected, be aware that both the two Mono Operation Switches must be on positions which make all strokes return back to their origins.)

12. During printing, if ink drys and seals the meshes of the stencil, use a piece of cloth which is moistened with Stencil Cleaning Solvent to rub the sealed meshes back to open again. Pay attention to the Water Cup of the Air FRL from time to time, if it is full of water, loosen the nut at its bottom to release the water. Daily maintenance as per sticker on the Machine Main Base.

13. After finishing printing, recover the rest ink, remove the stencil, Squeegee Clamp & Flood Coater Clamp and have them be cleaned for next time of use. Disconnect the air source & electricity. Cover the machine with the plastic cover from dust. If the machine is not to be used in a long period, cover the black-colored portions of the machine with grease to keep it from rust.

MAINTENANCE: TY-300FA/T, 400FA/T, 500FA/T,

1. Moisture in the Air Source is what mostly shortens the machine's life, always keep the machine away from the moisture. If possible, add one Freezer Dehydrator on the Air Compressor, and if the pipe or hose for the machine is a branch line of a main pipe, make it a U-Curve higher above the main pipe, then connects to the machine to avoid all water in the main pipe accumulates into the machine.

2. 8mm inner dia. Reinforced Air Hose and a Hose Clip for fixing the hose on the hose connector are required.

3. Air FRL: (1) pressure must be always kept within ~~4-7~~ 5-6 kg/cm^2.
   (2) release the water in the Water Cup upon it is over the max. limit.
   (3) fill in fresh Lubrication Oil upon it is below the min. limit. This Oil can be any lubrication oil for pneumatic purpose, EX: #R68 of Chinese Petroleum Corp. or ESSO Esstic #32.
   (4) standard oil supplying speed: 1drop for 20-30 cycle runs(see through the transparent Oil Cap and adjust from a nut beside it.

4. All slider's shafts must be well lubricated all the time, for this all lubrication points must be filled with full enough grease by a Grease Applicator at lease every 3-6 months. Also clean all shafts from dirts, if any, from time to time. Upon black-colored friction spot appears on the surface of the shaft, it means the lubrication grease has run short.

5. As almost all parts concern about precision of the machine, avoid any hit to any part of the machine.

6. If machine is going to stop for a long period, cover the black portion of steel parts with grease to avoid getting rusty.

7. Abnormal operation, adjustment and modification to the machine are to be avoided, once causes any damage or break-down, one should take the responsibility by himself.

B: BREAKDOWN R: REASON S: SOLUTION

1. B: While on Semi-Auto mode, machine acts without depressing the Foot Pedal Switch.
   R: Breakdown of Foot Pedal Switch.
   S: Replace the Foot Pedal Switch or open its cap to repair the micro-switch inside.

2. B: While on Semi-Auto mode, after depressing the Foot Pedal Switch, machine acts down only then stops.
   R: (1) The Micro-Switch on top end of the Back Cylinder has not yet been well touched or already out of order or broken circuit.
   (2) The Micro-Switch on the Up Margin Setter Block has been out of order or broken circuit.
   S: (1) Adjust or replace or repair the micro-switch.
   (2) Replace or repair the micro-switch.

3. B: While on Semi-Auto mode, after depressing the Foot Pedal Switch, machine acts down & left, then stops.
   R: Micro-Switch on the left Margin Setter Block has not yet been touched or already out of order.
   S: Adjust the contact or replace the micro-switch.

4. B: While on Semi-Auto mode, after depressing the Foot Pedal Switch, machine acts down, left & up, then stops.
   R: (1) Micro-Switch on the up Margin Setter Block has been out of order or broken circuit or just too high to contact.
   (2) The Shock Absorption for upward stroke is too strong to have the micro-switch well touched.
   S: (1) Repair or replace the micro-switch or just adjust lower the up Margin Setter Block to improve the contact.
   (2) Adjust slower the the Shock Absorption to improve the contact.

5. B: While on Semi-Auto mode, after depressing the Foot Pedal Switch, machine acts, but immediately acts back up as soon as the depression releases.
   R: Micro-Switch on the left Margin Setter Block has been out of order or broken circuit or its control Relay(RC4P) has been out or order.
   S: Replace the micro-switch or re-connect the circuit or replace the relay.

6. B: Machine acts not while on either Auto, Semi-Auto or Mono-Operation modes.
   R: (1) Air supply is too weak.
   (2) Electricity power supply is off or fuse has been burned out.
   (3) (1) & (2) are OK, but machine still acts not while Mono-Operation Switches are operated, then it's the Solenoid Valve out of order.
   S: (1) Improve the air supply.
   (2) Switch on the electricity power or replace the fuse.
   (3) replace the solenoid valve's parts or replace the whole solenoid valve.

7. B: Vacuum breakdown of the Vacuum Table(flat-printing models)
   R: (1) Vacuum Motor has been out of order or broken circuit.
   (2) Vacuum motor OK, but the control Solenoid Valve has been out of order.
   (3) Vacuum Selection Switch has been out of order or broken circuit
   (4) Transformer for the Vacuum Motor has been out of order(220V models)
   S: (1) Check & repair the circuit of the motor or replace it.
   (2) Check & repair the coil of the solenoid valve or replace it.
   (3) Check & re-connect the circuit or replace the switch,
   (4) Replace the transformer.

BREAKDOWN SHOOTING: TY-300FA/T, 400FA/T, 500FA/T

B: BREAKDOWN R: REASON S: SOLUTION

8. B: While Auto is selected, vacuum doesn't switch off automatically.
   R: (1) Diaphragm of the Solenoid Valve has been broken.
   (2) Selection Switch has been out of order or broken circuit.
   S: (1) Replace the diaphragm.
   (2) Check & repair the selection switch or replace it.

9. B: Air leak of the Air FRL.
   R: Water Cup or Oil Cup has been broken.
   S: Replace the water cup or oil cup.

10. B: Slow action of Vertical Slider Section.
   R: (1) Lubrication grease for the shaft bearings have run short.
   (2) The shafts have been hit bended or losing accuracy.
   S: (1) Fill in full enough grease.
   (2) replace the shafts or adjust the accuracy.

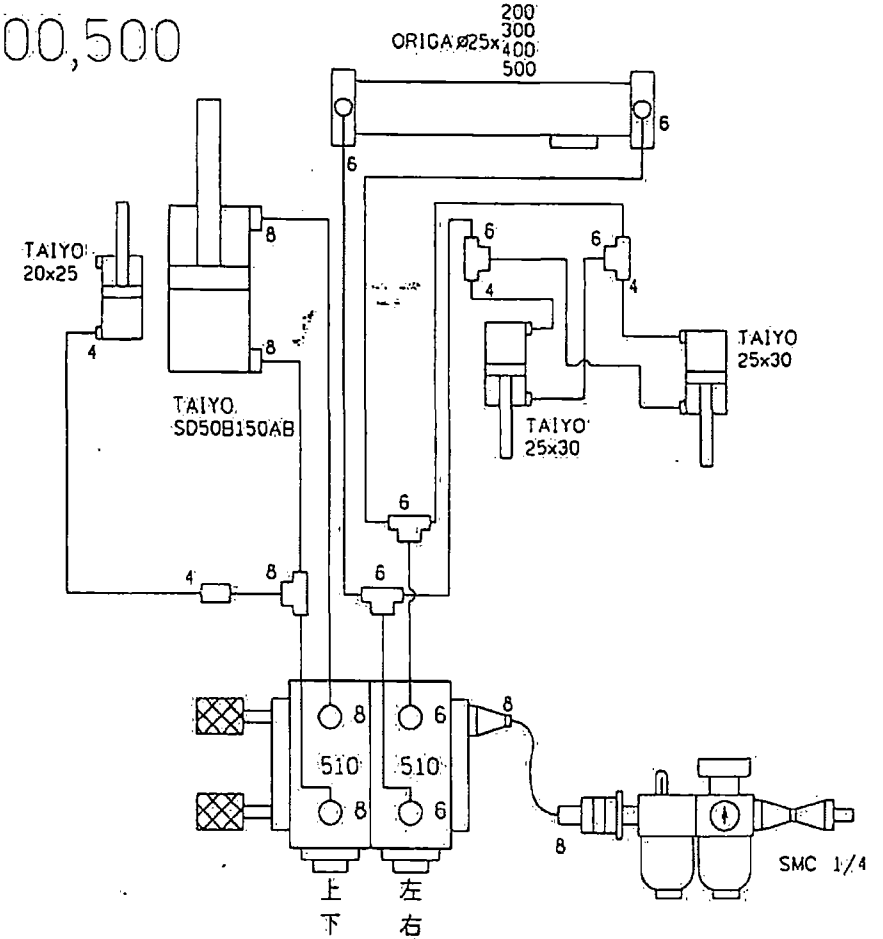
11. B: Upward stroke starts too slow after having been shifted on, but speed remains normal.
   R: Solenoid Valve has been out of order.
   S: Replace the solenoid valve.

12. B: Bad shock absorption on the Closed Chamber Shock Absorbing Device.
   R: (1) Exhaust Valve wasn't adjusted to proper speed or has been out of order.
   (2) Inside Piston Ring has been worn out.
   (3) The white plastic steel Piston Ring Base is too big for the cylinder tube.
   S: (1) Adjust the exhaust valve or the speed of the transmission cylinder.
   (2) Replace the piston ring.
   (3) Replace the piston ring base.

13. B: Strokes act normally, but speed goes very slow.
   R: (1) Air supply is too weak.
   (2) Muffler are stuffed with dirts or oil.
   S: (1) Improve the air supply.
   (2) Dismantle the mufflers to clean out the dirts or oil.

TY-FA網印機

F200,300,400,500



註:200FA上下汽缸用SD50B100AB

AIR DIAGRAM : TY-300FA/T, 400FA/T, 500FA/T

1. SCREEN UP/DOWN
2. SCREEN LEFT/RIGHTWARD,
   SQUEEGEE/FLOOD COATER UP/DOWN

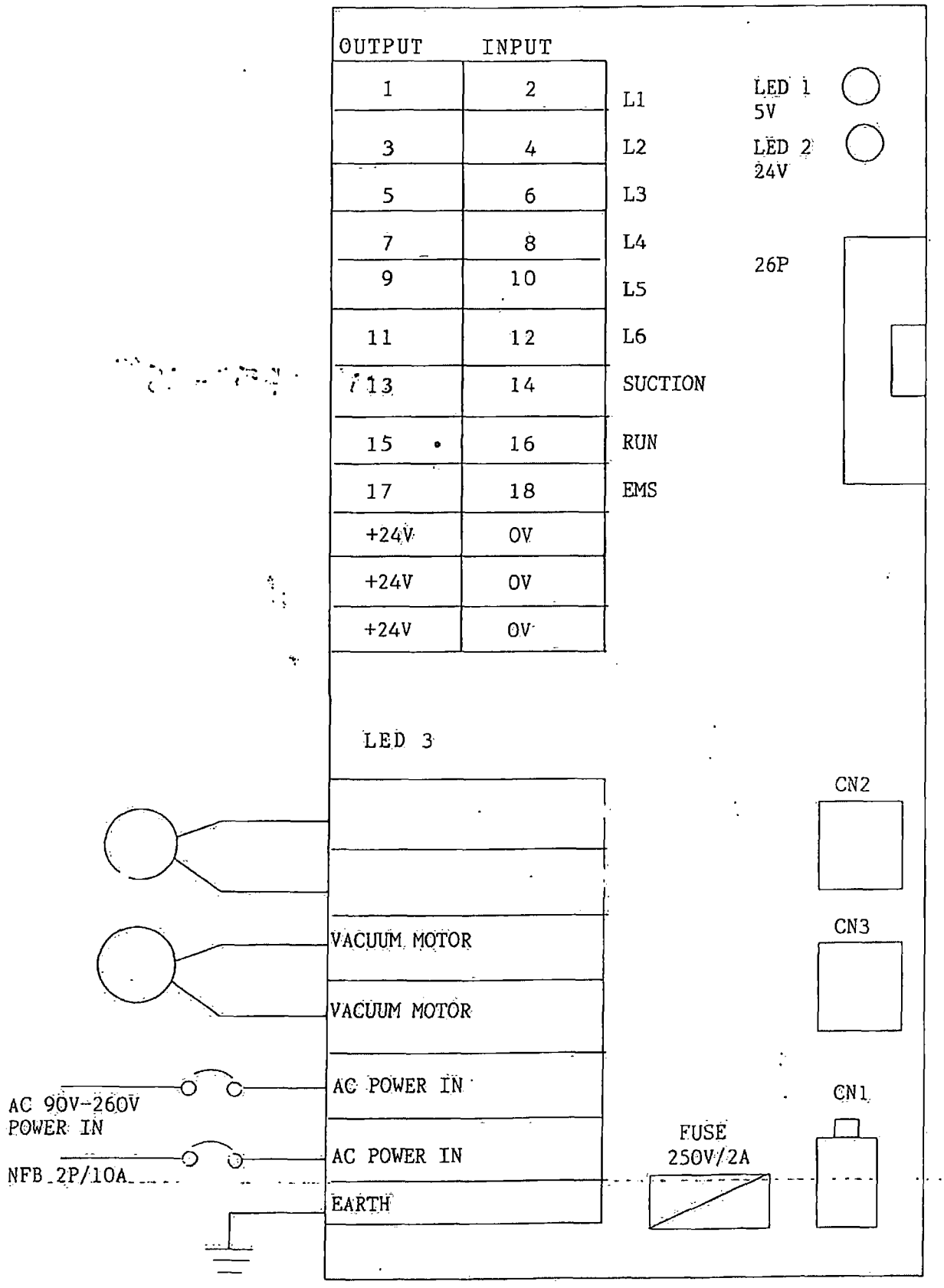
STANDARD ATTACHMENTS: TY-300FA/T, 400FA/T, 500FA/T

	TY-300FA/T	TY-400FA/T	TY-500FA/T
SQUEEGEE CLAMP	50/75/100/150/200mm, 1 each	75/100/150/200/250 1 each	100/150/200/250/300 1 each
FLOOD COATER CLAMP	50/140mm 1 each	50/140mm 1 each	50/140 1 each
FLOOD COATER BLADE	65/85/110/160/210mm, 1 each	85/110/160/200/260mm, 1 each	110/160/210/260/310mm, 1 each
SQUEEGEE	9x50x500mm 1 pc	9x50x500mm 1 pc	9x50x500mm 1 pc
TOOLS	1. hexagonal head wrench 3/4/5/6 1 each 2. screw driver 6" 1 pc 3. nut wrench 10/12mm 1 pc 4. foot switch 1 pc		

CONNECTING BASE DIAGRAM: TY-300FA/T, 400FA/T, 500FA/T

1.	SCREEN DOWNWARD	14.	VACUUM
2.	SCREEN DOWNWARD MARGIN	15.	SQUEEGEE/FLOOD COATER UP/DOWN
3.	PRINTING HEAD LEFTWARD	16.	START
4.	PRINTING HEAD LEFTWARD MARGIN	17.	EARTH
5.	(NOT APPLICABLE)	18.	EMERGENCY STOP
6.	(NOT APPLICABLE)	LED 1	POWER INDICATION LAMP
7.	PRINT HEAD RIGHTWARD	LED 2	POWER INDICATION LAMP
8.	PRINT HEAD RIGHTWARD MARGIN	LED 3	INPUT/OUTPUT SIGNAL INDICATION LAMP
9.	(NOT APPLICABLE)	CN1	TO POWER SUPPLY
10.	(NOT APPLICABLE)	CN2	TO POWER SUPPLY
11.	(NOT APPLICABLE)	CN3	TO POWER-ON SWITCH
12.	(NOT APPLICABLE)	26P	SOCKET TO PANEL
13.	VACUUM		

CONNECTING BASE DIAGRAM :



CR-QA50-150

b

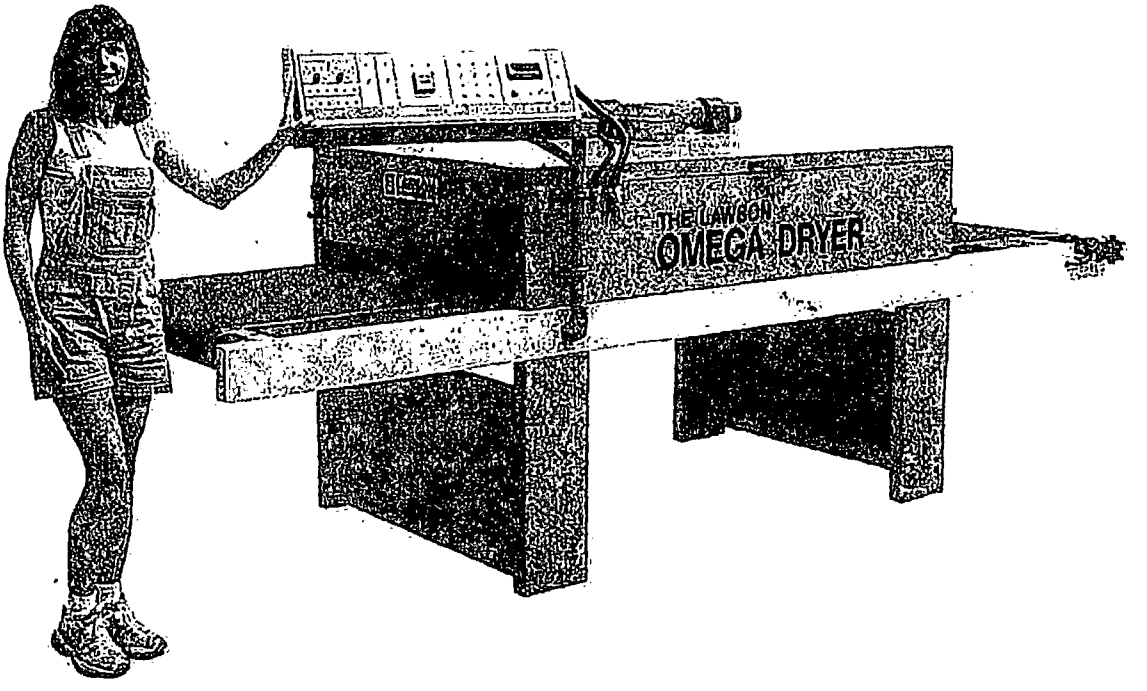
ATMA
東遠精技工業股份有限公司
ATMA CHAMP ENT. CORP.

臺灣新北市五股工業區五權七路65號
65, WUCHUEN 7TH RD, WUKU IND. ZONE NEW TAIPEI CITY TAIWAN
TEL:886-2-22991293 FAX:886-2-22991291
http://www.atma.com.tw E-mail:atma@atma.com.tw

Attachment B

Lawson Omega

INSTRUCTIONAL MANUAL
LAWSON OMEGA



LAWSON
SCREEN & DIGITAL PRODUCTS, INC.

ST. LOUIS HEADQUARTERS
5110 Penrose St. • St. Louis, Mo 63115
314-382-9300 • 800-325-8317 • Fax 314-382-3012
E-mail: info@lawsonsp.com • www.lawsonsp.com

Congratulations on your purchase of the ***Lawson Omega Dryer***.

To ensure successful performance of your **Lawson Dryer**, please read this entire manual thoroughly. Even the very best equipment requires some minor preventive maintenance and a complete understanding of its operations and control systems. This manual is offered to help you get the best possible performance from this equipment. Your attention to the principles on which the ***Lawson Omega Dryer*** has been designed can help make your new dryer one of the most profitable equipment investments you have ever made. Should you need it, Lawson's centralized service department (located at the St. Louis headquarters) is always available to assist.

If you have any questions, about the ***Lawson Omega Dryer***, please contact our Equipment Service Department. We are always ready to help. Your comments and suggestions are always welcome.

Phone: (314) 382-9300
Fax: (314) 382-0389
After Hours Pager: (314) 382-9865 and press option #6
Website: www.lawsonsp.com
E-Mail: info@lawsonsp.com

INSTRUCTIONS: LAWSON OMEGA DRYER

Manufactured by: **Lawson Screen Products, Inc.**
5110 Penrose St.
St. Louis, MO 63115

Service Telephone: (314) 382-9300

Web Site: www.lawsonsp.com

Serial Number:_____ Voltage:_____Phase_____Amps

(Please fill-in for future reference by your maintenance department). Refer to this serial number when speaking with Lawson's Service Department...it contains valuable information related to this piece of equipment.

Uncrating:

1. Use care when uncrating and removing packing materials. Be careful not to cut or damage any dryer components while uncrating this unit. Falling debris during the uncrating process and accidental damage can occur if appropriate precaution and care are not taken. Be especially careful not to damage (or cut) the conveyor dryer belt (by lifting one end of conveyor without lifting other end) or the dryer control panel (while removing top of crate).

2. Take extreme care when lifting the Lawson Omega Dryer from off the bottom skid. If a fork lift must be used, use the "side approach" method and make sure that both forks are properly nested along the underneath side of both main channel supports. Do not lift from either roller end and do not lift from underneath the dryer legs. Frequently, it is easier to simply use "muscle power" that is equally distributed along the entire length on both sides of the dryer for skid removal and placement.

3. If any damage is noted when the crated dryer is received at your dock, do not uncrate the machine. Note any and all damages on the Trucker's Bill of Lading while the truck driver is still at your facility! If damage appears extensive, call Lawson's Equipment Service Department at (314) 382-9300 for assistance, or refuse shipment. This is your responsibility to view for damage. The trucker will not tell you of any damage.

   Immediately call the freight carrier and submit a freight claim. We are not allowed to submit this claim on your behalf. According to federal transportation law, you must immediately contact the freight carrier and submit this claim upon receipt of merchandise.

Assembly:

1. The *Lawson Omega Dryer* is shipped "fully assembled". However, some minor assembly may be required on your part. Usually you will need to install the floor legs and the dryer belt. On larger dryers (16' or longer), installation of "in-feed/out-feed modules may be necessary (refer to "In-feed/Out-feed Belt installation instructions).

2. Remove all banding and strapping material from the dryer. In many cases dust and debris may be on the dryer. This is normal and occurs during the shipment process. Simply dust the dryer, removing any foreign objects that may have fallen in the crate during shipment. Also, clean inside the heat chamber.

3. Install the floor legs while the dryer is mounted on "saw horses" or is being firmly held in place via "people power". This is a straight forward process of bolting the dryer legs in place using the bolts provided (located in the mounting holes).

4. Follow tagged instructions regarding the heating element lock plate removal. Loosen the upper screw and completely remove the lower screw. This plate helps eliminate heat loss through the panel adjustment openings.

5. Follow control box support removal instructions tagged on the control box.

Safety Precautions:

To ensure safe and reliable operation of your *Lawson Omega Dryer,* all personnel should become thoroughly familiar with this unit by paying close attention to these basic instructions:

1. Do not store any combustible material within three (3) feet of this unit.

2. It is your responsibility to ensure that the electrical hook-up, etc. is performed in accordance with local codes and regulations. Consult the serial number nameplate on the control panel. Voltage, phase, amperage draw and cycle information is stamped on this plate for permanent identification.

3. Proper electrical installation and grounding must be provided by a licensed, certified and bonded electrician. If the electrician has any questions at the time of installation, please have him/her call 314-382-9300 and ask for the Dryer Service department--while still at your shop!

4. Never alter the internal wiring of this dryer.

5. Never place anything but the substrate to be dried on the conveyor belt. This *Omega Dryer* has been designed to dry a variety of textile related products only.

6. Do not let the conveyor belt track off the conveyor drive rollers.

7. Keep all loose articles including clothing, hair, etc. away from the conveyor belt drive system.

8. Regularly clean any lint from the conveyor rollers, electrical control box, jet-air blowers (if ordered--System 2) and heat chamber.

9. Never leave the dryer unattended when it is in operation.

10. Always turn off the power to the dryer at its main fuse box prior to any maintenance or servicing of the dryer. The incoming power circuit breakers must be off prior to any service. Also turn off main fuse box at night for safety.

11. There may be an unusual smell from the dryer for approximately two (2) to four (4) hours during the initial start-up and break-in period. The odor is not harmful to the equipment, material being dried or operators in the general vicinity. This is normal.

12. This unit should be vented in compliance with any local codes as may be necessary. A qualified HVAC contractor should install exhaust systems.

13. For best results, please allow a 15 to 20 minute warm-up period prior to initiation of any production.

14. Cool down dryer (no heat) for approximately 5 - 10 minutes prior to turning off all power to unit.

Electrical Information and Connection

The *Lawson Omega Dryer* has been designed to operate at 120/230 volts-1 phase (4 wire system) or 230 volts - 3 phase (with no neutral) depending upon individual customer specifications. Always have a qualified electrician connect the unit according to the electrical schematic furnished and tagged instruction in the control box.

The power circuit must be protected by a fuse or comparable circuit breaker and grounded in accordance with national electric codes, and any local requirements. Always disconnect the dryer (turn off main fuse) when not in use or when servicing unit.

Electrical Wiring

We recommend that you use a fuse or circuit breaker rated at least 10% over your dryer's amperage draw. This is necessary because of the variance in power supplied by the electric utility company servicing your area. Connect the 230 volt single phase service in the control box at terminals T-1, T-2 and T-3. This must be a 3-Pole, 4-Wire Service with terminal T-2 being where the neutral is connected. You must provide a master disconnect switch or a means of cutting off the power that comes into the control panel; this is normally known as a "fused cut-off".

Connect the 230 volt three phase service in the control box at terminals A, B, and C. This must

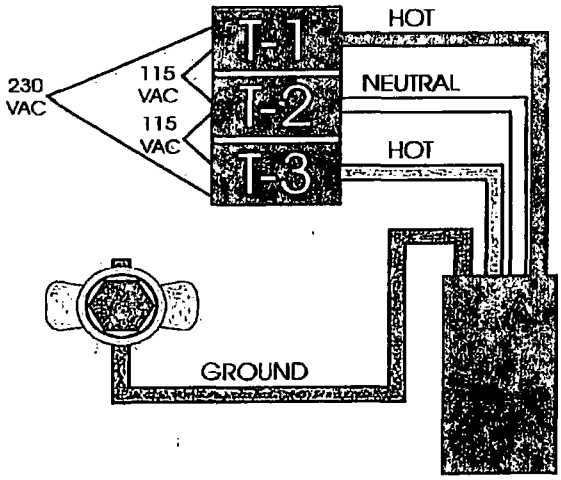
be a 3-Pole, 4-Wire Service with a ground but no neutral. You must provide a master disconnect switch or a means of cutting off the power that comes into the control panel; this is normally known as a "fused cut-off

Connect dryer with AWG gauge THHN wire or equal. These wires should all be connected to a 4-wire, 230 volt, single phase service of suitable amperage (see nameplate on control box for amount of amps unit draws).

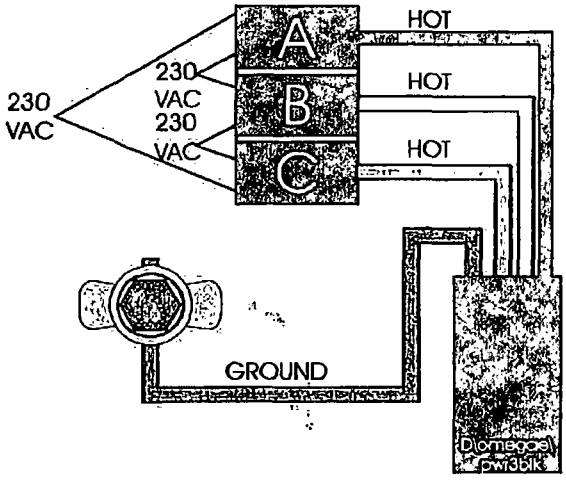
VOLTAGE CHECKS: Note: Remove both Panel Mount Fuses (F1 and F2) prior to supplying power to the dryer. Do not replace the fuses until the voltage checks are complete and verified.

230 volts single phase: Across terminals T-1 and T-3 - 230 volts
Across terminals T-1 and T-2 -115 volts

230 volts single phase:



230 volts three phase:



Across terminals T-2 and T-3 -115 volts

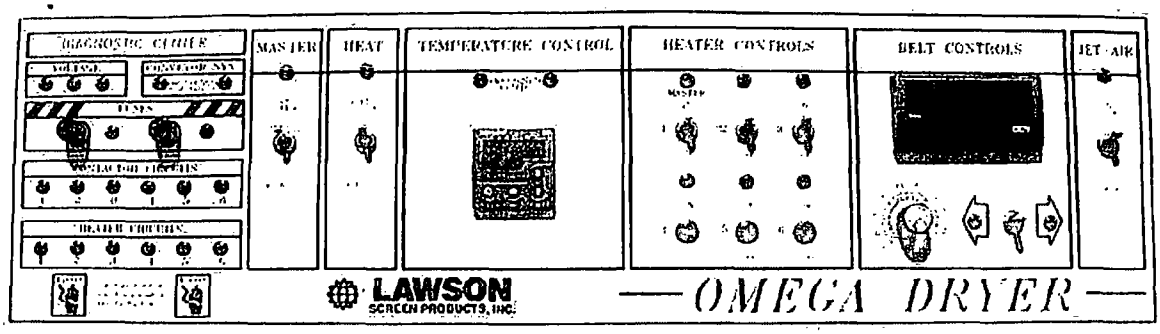
230 volts, three phase: Across terminals A-B--230 volts
Across terminals B-C-- 230 volts
Across terminals A-C-- 230 volts.

The dryer must be grounded. A transformer is provided for 120 volts to power the belt motor controller, the temperature controller, and the jet air blowers.

An electrician must wire the dryer to ensure proper hook-up and wiring. You are responsible to meet any local wiring codes.

NOTE: It is a good idea to pull fuses 1 and 2 from the face of the control panel when making the incoming connections to the dryer. This procedure will prevent damage to the belt speed controller and/or temperature controller. Before replacing the fuses, check the voltages across the connections of the power block. Redo the incoming leads if the voltages are different from the above diagram. Re insert the fuses once you are sure the leads are correct.

Control Panel:



Control Panel Nomenclature:

Diagnostic Center

Voltage: Indicates there is incoming power. When the power is supplied to the dryer, the two outer lamps of a single-phase unit will be illuminated and the center position will be plugged. All three lamps will be illuminated for a three-phase unit. It is an indication of an incoming power problem if any lamp(s) is out.

Conveyor System: The "input" lamp indicates power to the belt speed controller. The "output" lamp indicates a DC voltage output from the speed controller.

Fuses: Fuse 1 is a 1-3 amp fast acting fuse (size depends on motor size). It protects the belt speed controller.
Fuse 2 is a 1 amp fast acting fuse. It protects the temperature controller.

Contactor Circuits: There is an indicator lamp for each heater panel. When the lamp is on , the mercury contactor is open and the heater is not heating. When the lamp is off, the mercury contactor is closed and the heater is heating.

Heater Circuits: There is an indicator lamp for each heater panel which indicates power being supplied to the heating element. When the lamp is on the heater is on. When the lamp is off the heater is off.

Switches

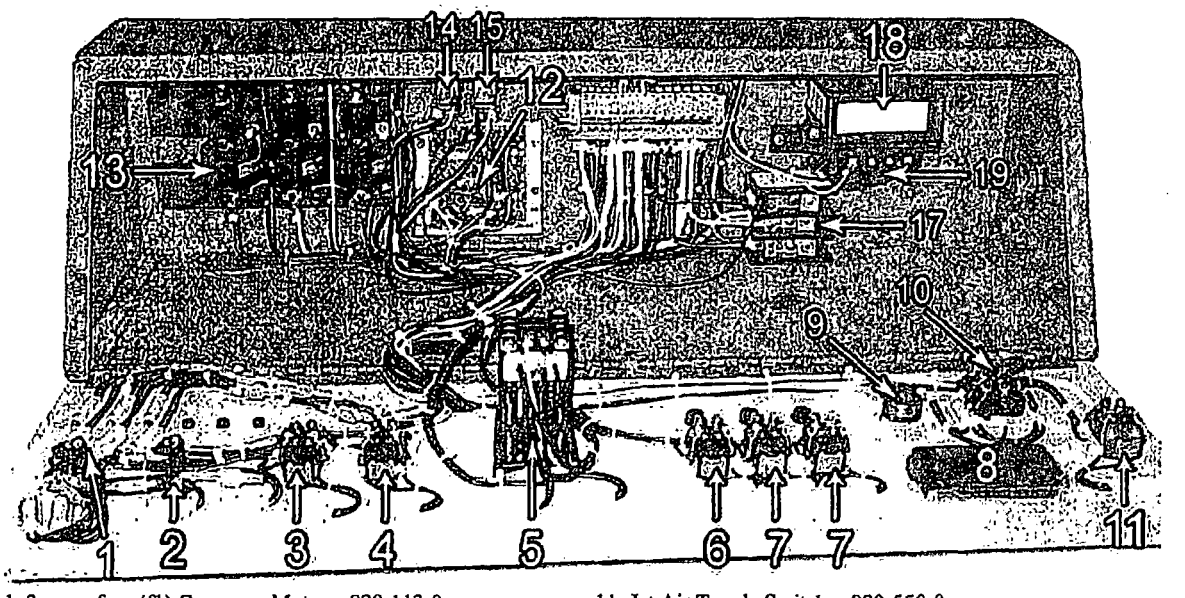
Master Switch: Provides power to the temperature controller (through the heat switch), the belt speed controller, and the jet air blower motor(s).
Heat Switch: Provides power to the temperature controller (the master switch must be in the on position).
Temperature Controller: Allows digital control of the temperature. The lower readout is the set (desired) temperature and the upper readout is a calibrated representation of the temperature of the heater panel. This readout is used for reference purposes only. You can switch this controller from automatic mode (where it is controlled by the heat sensor reading displayed in the upper readout) to a percentage timer. Being in the percentage mode allows operation in case of heat sensor failure. The controller will cycle with the bottom number representing the percentage of the cycle time that the unit is on. Example: if the cycle time is 10 seconds and the bottom readout is 60 (percent) then the dryer will be on for 6 seconds and off for 4 seconds.

Input/Output Voltage (Temperature) Indicators: The input indicator signifies voltage is provided to the temperature controller. The output indicator signifies voltage through the controller. This light should blink in unison with the L1 lamp on the temperature controller.

Heater Controls: Shut off switches for the heating elements. You can shut off individual heating panels by using these switches. IMPORTANT NOTE: Do not switch off heater 1. The heat sensor is mounted to that element and shutting it of would cause erroneous temperature readings. There will be the same number of switches as the number of elements. Example: a standard 12' dryer has 3 heating elements. Consequently there will be only 3 switches. Since this control box panel is used on all Omega dryers, some of the holes may be plugged.

Belt Control: Allows control of the belt speed. The dial on the standard unit has no relative time values and must be used as a reference only. The digital display on the AT packages also may have no relative time value but is a more accurate reference for adjusting the belt speed. The belt direction indicator lamps indicate the direction of belt travel. The direction is reversible, but the normal direction is toward the belt drive motor. The belt on the dryer is originally tracked moving toward the motor. If you reverse the direction, then you will need to readjust the tracking. Adjust it ONLY if the edge of the belt moves off the roller.

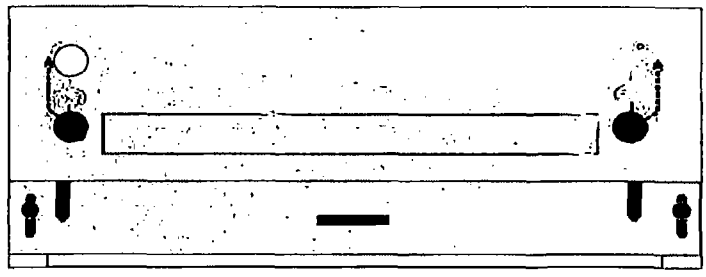
Jet Air: This switch controls the jet air blowers.



1. 3 amps fuse (f1) Conveyor Motor – 920-113-0
2. I amp fuse for temp control - 920-112-6
3. Master Toggle Switch - 920-550-0
4. Heat Toggle Switch - 920-550-0
5. Temperature Control
6. Heater 1 Toggle Switch: Master Control – 920-550-0
7. Heater Toggle Switch – one per heater – 920-550-0
8. At Digital Speed Indicator – LD1G0001
9. Belt Speed Control Potentiometer - LPOT95K
10. Belt Direction Toggle Switch - 920-551-6
11. Jet Air Toggle Switch - 920-550-0
12. Belt Speed Controller - 920-112-4
13. Mercury Contactor - 920-101-3 Each
14. Relay for heater on/off switches LREDPDT1 (base LBSEDPDT)
15. Relay for System Two Blowers
16. Temp Buzzer - ALARM01 – *Not Shown*
17. In-coming Terminal Block - LTBK1953
18. Control Box x-former - LXFMR004
19. Control Box Fan -920-507-0 Replacement Filter - 920-507-3

Operator:

Please allow approximately 20 minutes after switching the dryer on for it to be at the operating temperature.
Also, you must allow 5-15 minutes for the dryer to stabilize after making adjustments to the temperature.



Start-Up

1. Flip the main electrical breakers/disconnect to on.

2. Turn the master switch to on.

3. Turn the heat switch to on. The temperature controller will be activated after several seconds. Set the desired temperature by depressing the UP and/or DOWN arrow buttons. The desired temperature setting will be displayed in the bottom readout. Some dryers may have an audible alarm that sounds indicating a temperature differential between the actual temperature reading and the set temperature. Simply depress the "lower right-hand" button once while the alarm is sounding to disable it. Once the dryer reaches the set temperature, the alarm will reset and again be active if the temperature differential becomes greater than the + or - 15 degree preset parameters.

4. Check the belt speed. The recommended time in the chamber is at least 1 minute, but set the specific time for your particular application.

5. The Jet-Air Switch allows more heat to be applied to the substrate with "less scorching", due to the additional air movement within the heat chamber. With the Jet-Air on, the temperature settings will need to be increased by approximately 50 – 70 degrees higher.

Shut-Down

1. Switch the heat switch to off.

2. Switch on the jet air (if it is not already on).

3. Let the belt run for 5 to 10 minutes. (Allowing the belt to run much longer than this may cause belt-tracking problems).

4. Switch the master switch off.

5. Disconnect the power at the main electrical breaker/disconnect box. Disconnecting the power reduces the chance of electrical component damage caused by electrical storms and/or power spikes or failures.

Panel Height Adjustments

The distance from the face of the heating element to the belt is easily adjustable. Simply grab the black star shaped knob (2 at either end of the dryer). Slightly lift and keep pressure toward the outer edge of the dryer. The rod will slide up or down in the slot. It is possible for one person to adjust all four corners. Simply adjust one corner at a time.

Conveyor Belt Tracking

Please keep in mind your belt has tracked and was running in perfect order prior to shipment. The belt will always travel on the pulleys. As long as the belt does not go over the edge of the pulley, the belt is tracking properly.

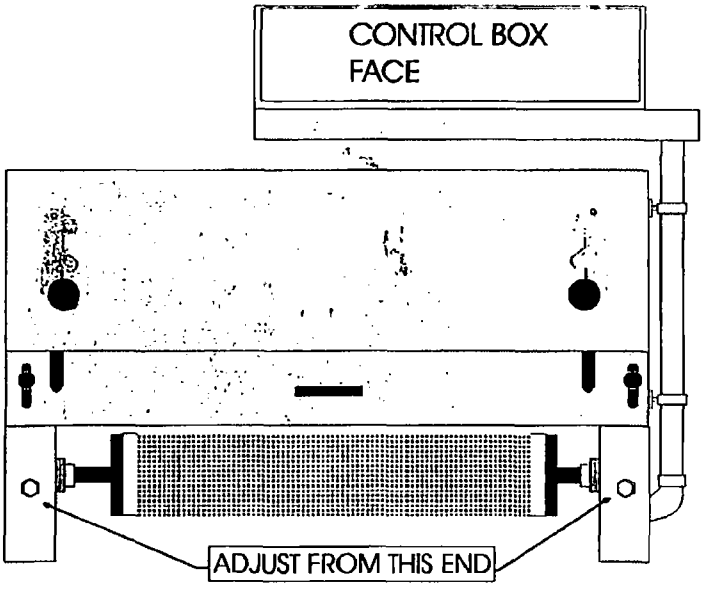
1. Check all bolts and bracing on frame to be sure they are tight.

2. Dryer should be level and on a solid base (so that a "rocking" motion will not develop). Place a level on the frame in order to level the dryer.

3. Make your belt adjustments with the heat on. The heat generated is needed for the initial adjustment.

4. Always run the belt as loose as possible. The belt should have approximately ½" deflection measuring four inches away from the pulleys. NOTE: Pay special attention to the alligator clip as it goes around the end pulleys. If the belt tends to slow down and struggle as it goes around the corner, then it is too tight. Release the tension. If you can pull the belt from side to side, the belt is too loose.

5. If the belt is over the end of the pulley then go to the side where the belt is over-hanging the pulley, and tighten that side so the belt will "walk" the opposite direction. Once the belt starts to "walk", loosen the tension by half the amount tightened on the side you adjusted. Try to make all adjustments to the end opposite the motor. Unless absolutely necessary, do not adjust the motor end.



6. **If your belt is too tight:** Loosen one end, re-center the belt and then follow steps 4 and 5.

7. Remember, if the belt slows down when the connecting link goes over the pulley, the belt tension is too tight. If the belt starts to have an "S-Curve" develop where the belt connects, the belt to too tight. The belt will always walk on the pulleys. As long as the belt does not go over the edge of the pulley, the belt is tracking properly. Again, the belt will always walk from side to side.

8. *The preferred direction of belt movement is towards the motor. It is easier to track the belt in this direction.* You can run the belt in the opposite direction if you choose, but when you change directions of the belt, you most likely will have to re-track the belt.

Special Trouble-Shooting Checking:

1. The pulleys should be perpendicular to the imaginary centerline of the conveyor belt.

2. The pulleys should be (approximately) centered on pulley shaft and locked with an allen wrench.

3. Shafts should be locked tight in pillow block bearings.

4. The running thread bolts (connected to pulley bearings) distance should be approximately equal in length from the frame. However, they can vary for individual dryer tracking.

5. Motor brushes should be inspected every 500 hours, or as needed.

Conveyor Belt Control

The dryer belt drive unit is provided with a variable D.C. speed drive control. The standard speed varies from 0 - 20 feet per minute. Different motors can replace the standard model to increase or decrease the speed range. If you constantly have to run the belt at full or slowest speed, we recommend you consult us about purchasing a different motor range. The conveyor belt speed control knob is located on the control box. Remember that there is a direct correlation between belt speed and heat absorption (curing of garment).

No Belt Movement

The main reason the belt will quit working is the belt speed controller (or control fuse) has failed. If the belt does not work on initial set-up, the most probable cause of the problem is the electrician did not wire a neutral into the terminal block correctly, thus not creating 120 volts. If a customer does not have a neutral at terminal block T2, the belt speed controller will not receive a 120 volts that it takes to operate. More importantly, if the neutral is switched with the hot leg at T-3, then there will be 230 volts supplied to the speed controller. This mistake will destroy the belt speed controller. The motor that drives the belt is a 90-volt DC motor. Therefore, you cannot plug in the motor to 120-volt outlet to check for proper operation.
Another reason a belt will not work is the set-screw, or connecting pin, that goes through the shaft into the motor is loose.

The gear motor will always have movement between 1/8 and 1/4 inch of travel up and down/ in and out...this is normal. Never tighten the belt gear motor so tight to the frame support bracket that the motor is not moving! If the motor can not move, the gearbox will fail due to excessive stress.

Temperature Control

The temperature controller provides a **digital read out** of the temperature. It has two (2) displays--one for the set-point (desired) temperature in the bottom display, and one for the actual process temperature in the top display

The Lawson Temperature System has some Unique Features

1. The readout can be changed from temperature readout to percentage readout in the event of a heat sensor failure!

To enter the percentage mode: (see next page for details)

A. Depress and hold the UP and DOWN temperature arrow buttons on the temperature controller simultaneously for approximately 3 seconds. Release the buttons as soon as the bottom display changes to **LOC**. Continually depress the down arrow button until the top readout is 0.

B. Depress and release the **M** button. Continue this process until the bottom display returns to the temperature display.

C. Quickly depress the **A/M** button two times. The small **MAN** light on the controller should be on steadily.

D. Follow the same procedure to return to the automatic mode.

Note: it is important to return the temperature controller to LOC 3 after changing the modes. Failure to do so may lead to accidental changes to the controller parameters, which could lead to improper controller operation.

2. The visual or sound alarm (on AT package dryers only) parameters can be changed from the factory pre-set 10 degree deviation.

To change the alarm parameters:

A. Follow steps A item 1 above to enter the controller parameters.

B. Depress and release the **M** button until **ALO** appears in the bottom display. Use the UP or DOWN arrow buttons until the desired number appears. This will be the temperature deviation on the low side. Example: if this parameter is -15 and the set point is 325, then the alarm will sound if the temperature drops to 310 or lower.

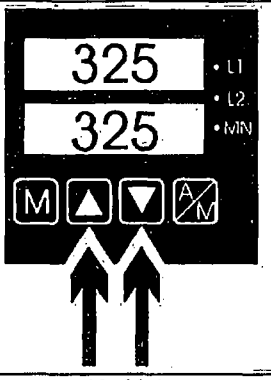
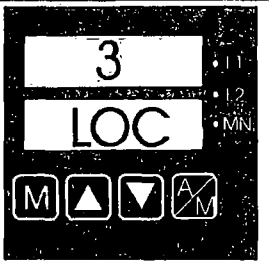
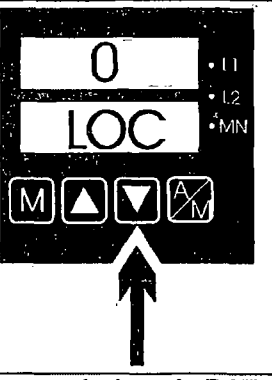
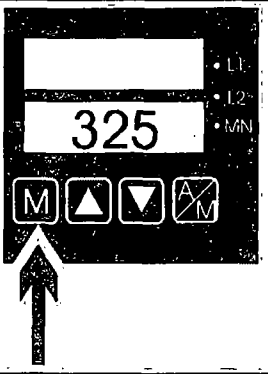
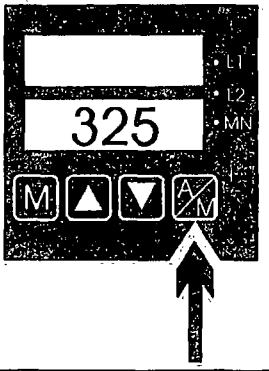
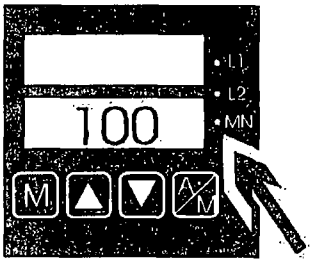
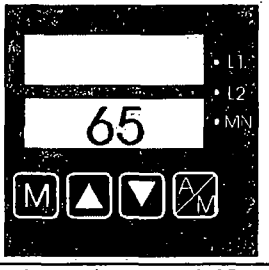
C. Depress and release the **M** button until **AHI** appears in the bottom display. Use the UP or DOWN arrow buttons until the desired number appears. This will be the temperature deviation on the high side. Example: if this parameter is -15 and the set point is 325, then the alarm will sound if the temperature rises to 340 or higher.

Note: it is important to return the temperature controller to LOC 3 after changing the modes. Failure to do so may lead to accidental changes to the controller parameters, which could lead to improper controller operation.

3. An off-set temperature readout adjustment can adjust what the dial says the temperature is without changing true heat output. This adjustment will bring the actual temperature readout in line with the set temperature.

SWITCHING THE 965 TEMPERATURE CONTROLLER TO MANUAL MODE

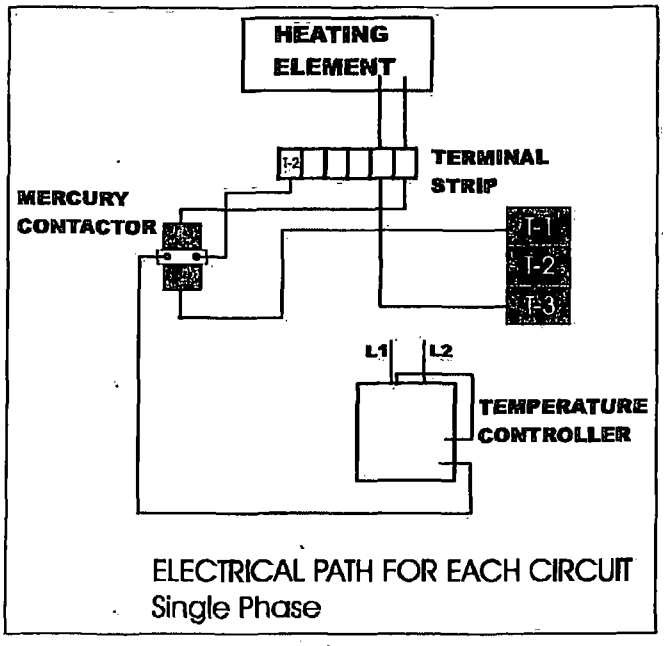
To enter the percentage mode:

		
1. Depress and hold the UP▲ and the DOWN▼ buttons until LOC appears in the bottom display.		2. Depress and release the DOWN▼ buttons. Continue to do this until the top display is 0
		
3. Depress and release the M button through the parameters. Continually depress it until the bottom readout is back to the temperature setting.	4. Quickly depress and release the $^{A}/_{M}$ button 2 times.	5. The MN light should be on steadily. If it is not on, or if it is *blinking*, quickly depress the $^{A}/_{M}$ button again.
		
6. Use the UP▲ and the DOWN▼ buttons to change the percentage. Start at 65% and adjust according to the garment heat absorption.		

Note: it is important to return the temperature controller to LOC 3 after changing the modes. Failure to do so may lead to accidental changes to the controller parameters, which could lead to improper controller operation. Also, DO NOT push the up or down arrows when performing this entire operation. If you push either of the buttons, you will change the parameters, which will change the performance of the dryer.

To return the controller to LOC 3, follow steps 1-3 above, except at step 2, use the UP▲ button until the upper display is at 3.

Electrical Flow

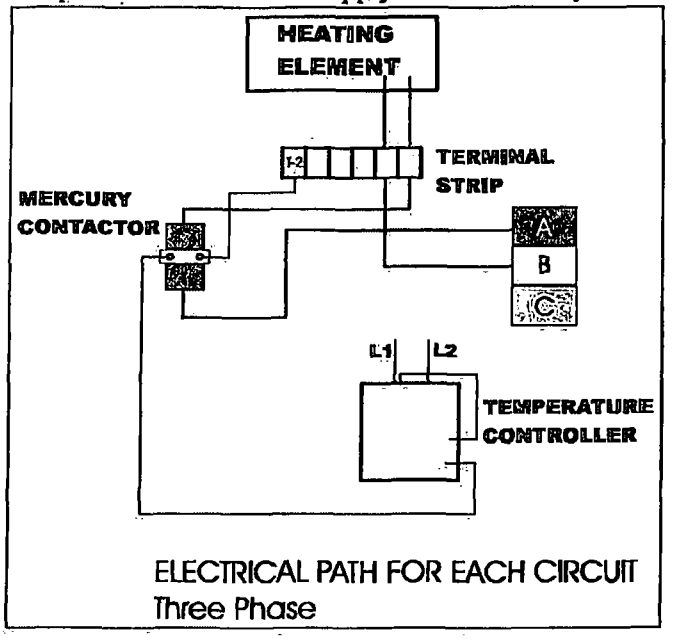


ELECTRICAL PATH FOR EACH CIRCUIT
Single Phase

230 Volt electricity comes in at the terminal block and is distributed to the major electrical opponents. The **voltage indicator lights** will be lit when incoming voltage is being supplied to the terminal block. If any of the voltage lights are off with the heat switch in the off position, then voltage may not be supplied to the dryer. The lights over each **heater panel** work in the following way: When no voltage is going **through** the heater panel the heater circuit light is on, thus the heater circuits lights will be on when the dryer is in the off position. The heater circuit indicator light goes off when voltage is going <u>through</u> the heater and heat is being supplied. Once the dryer is at temperature, "or within range" the lights will pulsate on and off every ten-eleven seconds.

Understanding the electric flow will help in trouble shooting process. The heat sensors tells the temperature controller to supply more electricity to the heater panels. The temperature controller will then send 120 volts to the switching device. A light on the controller (L1) will flash on and off showing that voltage is being supplied to the switch.

The switch will close when it receives the electrical signal from the temperature controller. This allows voltage to the heater panel causing it to heat.

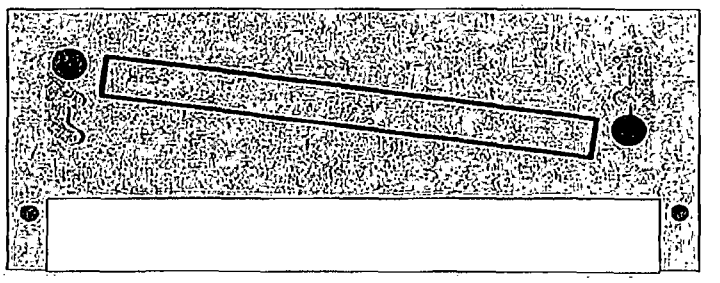


ELECTRICAL PATH FOR EACH CIRCUIT
Three Phase

HOW TO SET THE DRYER TO CURE

The goal is to cure the ink (as fast as possible without scorching the garment). For best results the following is recommended:

1. Keep the heater height on top setting furthest away from the belt. Keep the garment in the heat chamber approximately one (1) minute. Be aware that the thicker the ink deposit, the longer/harder it will be to cure. Curing faster than 45 seconds in the chamber is very hard on a 6 foot heat chamber and smaller. Often times a printer can "out print" the dryer...you must get a bigger dryer or slow down!



2. When the jet air is in operation, the heat controller needs to be set hotter (will be on longer) but there is less chance for scorching. The circulating air helps prevents scorching. Consistency is very important in the drying process.

3. The size of the wire, the length of wire to the electrical source, and actual voltage (208/230/240v) will effect the ability of the heater to be consistent. Remember the smaller the dryer the harder it is to cure!

Always test before and throughout the curing process.

4. Air drafts - fans blowing on operator and directed at or across the heat chamber will effect the temperature in the heat chamber. The same holds true with opening the exhaust vent. The JET air blower(s) will change the temperature in the heat chamber.

WHEN YOU WANT MORE HEAT

You have 2 choices to allow the garment to heat more: 1) turn up the temperature controller or 2) slow down the belt speed. When the temperature controller is adjusted, there is a 10-15 minute "settling in" time period before the temperature will be consistent. When the belt speed is adjusted the heat settings do not change. Therefore the temperature absorption change is instantaneous. The garment will now absorb more heat due to the length of time in the heat chamber. Lowering the height of the heater will produce more heat, but also increases the chance of scorching the fabric. Be sure to test

WHEN YOU WANT LESS HEAT

The same principle applies to allowing the garment to heat less, except in reverse: 1) turn down the temperature (again you must allow time for the heat to stabilize inside the heat chamber) or 2) increase the belt speed.

To Dry Caps

You can choose between tilting the heaters (one side of the rack on the top setting, one side on the lowest setting) or removing the end doors and sending the cap through in one of three (3) ways:

1. Cap bill flat on belt
2. Cap bill facing up towards heaters singularly
3. Pyramid with two cap bills (supporting each other) facing the heater.

FOR BEST RESULTS

Document your work. Remember the key elements effecting curing: Quantity of Ink deposited, style and color of fabric, amount of heat at a particular height from garment, length of time in the heat chamber and consistent 230 volt incoming supply voltage. **Always test your results!**

Special Troubleshooting Section

Symptom	Problem	Corrective Action
Blown fuse(s).	Overloaded conveyor drive motor.	Check/correct conveyor belt tension. If the belt struggles when the alligator clip goes around the end pulleys, then the belt must be loosened. Reduce load on motor..
	Conveyor motor brushes worn 1/4" or less.	Replace brushes. To seat new brushes, run motor near rated speed for one hour under a no-load condition.
	Poor AC or DC power line connection.	Check power connections and rectify any poor connections.
	Poor control power connection to potentiometer (speed control pot), inhibit terminals.	Check power connections and rectify any poor connections.
Motor not running	Potentiometer (speed control pot) defective.	Replace potentiometer.
	Motor brushes making poor contact with commutator. Bad speed controller.	Clean and or replace brushes. Replace. Check commutator for wear or scoring, sand smooth or replace if worn.
Belt not moving.	Motor is running, but pulley not turning.	Check connecting drive pin.
Belt speed changing	Irregular belt speed and load jumping	Check belt tightness. Check/replace conveyor bearings. Check gear reducer for proper operation. Check motor has 1/8" - 1/4" free play movement.
Conveyor belt does not track	Take-up and drive rollers are not parallel to each other.	Track belt when warm, not cold. Adjust belt tension. Extend the roller side that the belt is tracking towards. **Note:** Do this only to the point that the belt tension does not become too great. Check belt direction (change?)
Conveyor motor makes noise.	Worn brushes.	Replace brushes.

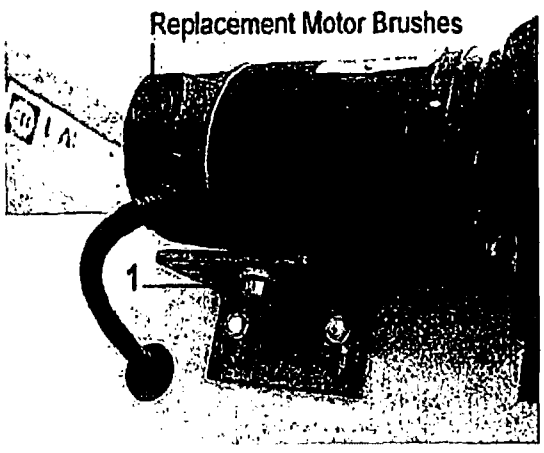
Symptom	Problem	Corrective Action
Conveyor drive does not run.	Blow fuse. Inoperative motor or lines leading to the motor.	Replace fuse. Check input 120 volt at control box. Check circuit and power to the speed controller and motor.
The speed on conveyor belt does not remain constant, or the conveyor does not run at all.	Inoperative solid-state motor controller.	Remove and replace the solid-state motor controller
	Belt too tight.	Loosen belt tension, then retrack
	Motor controller potentiometer is defective.	Remove and replace
	Motor or brushes on the conveyor motor are defective.	Remove and replace motor or motor brushes.
Shirt or transfer sheets flutter out of control on the belt.	Too much air is entering the master unit at the ends.	Open the exhaust panel to increase the amount of air re-circulation.
		Adjust end door panels

Symptom	Problem	Corrective Action
Ink does not cure.	Insufficient time is provided in the curing unit for the particular ink type.	Reduce the belt speed to provide more time (at least 1 minute).
	Temperature setting too low.	Increase temperature.
	Ink over modified.	Try ink unmodified.
	Element heights different	Keep parallel to belt.
Garment scorched.	Too much time or heat is provided in the heat chamber for particular type of garment.	Increase belt speed.
		Raise the height of the heaters.
		Adjust temperature.
		Check jet-air (turn on or off).
		Check style of garment.
		Check power fluctuation at power source.

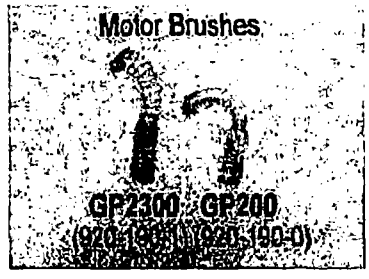
Please, if you need assistance or do not understand these instructions, call our Dryer Service Department at (314) 382-9300.

Omega Dryer Motor Replacement, Style 1

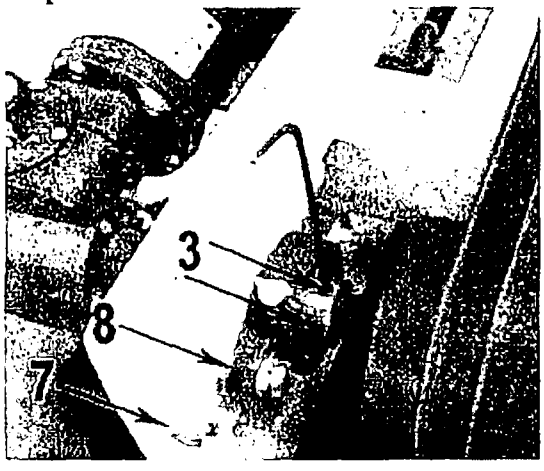
Step #1

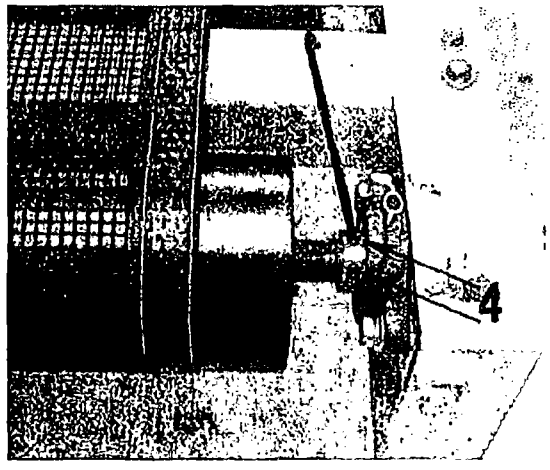


Remove the motor attachment bolt (#1). Note that the bolt being used allows the motor to move approximately ¼" – ½" of an inch. If the motor is bolted so that it cannot move, it will prematurely wear out the motor. If the motor bolt cannot be removed, detach the motor bracket (#2) screws.



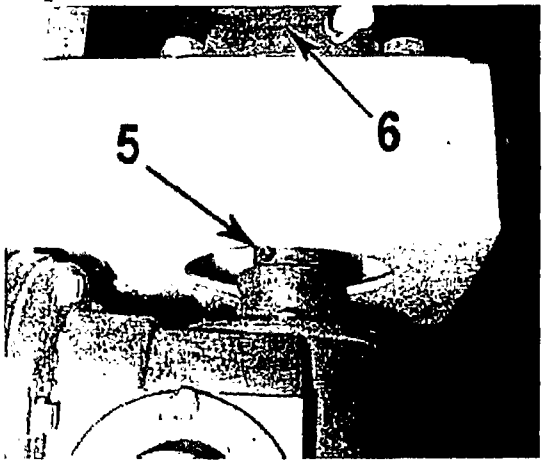
Step #2





Loosen both ends of the pulley bearing mount (#3 & #4) bolts. Use a 1/8" Allen wrench to accomplish this task. Loosening the bolts will allow the pulley to slide towards the motor, so that the attachment pin or bolt can be removed. The shaft may need to be cleaned to slide the shaft.

Step #3



Drive the pin (#5) or unscrew the attachment screw out of the pulley shaft to remove the motor.
#5 Screw: 10/32" x ¾" Long Set Screw (920-201-8) or
1/8" Diameter x 1" Long Roll Pin (920-201-9)
#6 Replacement Flange Bearing – 920-199-1
#7 Belt Tension Bolt – 920-199-0
#8 Flange Bearing Attachment Block – 920-199-2

Motor Maintenance:

- The motor screw attachment bolt (#1) allows ¼" – ½" free play movement. This ensures that the motor gear head is not placed in a binding position that would lead to pre-mature wear.
- The motor brushes should be inspected six months and replaced every year.

Temperature Control:

The *Digital Temperature Controller* has been PRE-SET at Lawson Screen Products' factory for your use. The Set-up information on the following pages is for future reference and technical information only! There is NO need to do any programming to your digital controller! The dryer has been calibrated and tested with the heaters on the "Top Height Setting" with the garment in the heat chamber for One Minute. Be sure to remove the shipping screws on the heater adjustment plates, so the element height may be adjusted to the top level (your dryer has been sent with the heaters locked in the lowest level for shipping purposes only).

To set-up the dryer for curing, turn on your circuit breakers so you have power to the dryer. Next, turn on the "Master" switch and turn up the dial on your "Belt Speed" switch so the conveyor belt is running. Finally, turn on your "Heat" switch. When the "Heat" switch is on, you will notice the digital display on the *Temperature Controller* light up. You are now ready to make the proper adjustments for running a job.

NOTE: YOU MUST ALLOW A 15 - 20 MINUTE WARM-UP PERIOD FOR THE DRYER TO REACH DESIRED TEMPERATURE ON WARM-UP/START-UP.

There are two (2) very important adjustments in determining "ink cure": 1) the TEMPERATURE SETTING; and 2) the BELT SPEED setting. To set the temperature on the digital controller, all you need to touch are the "UP" and "DOWN" arrows on the controller. Simply push and hold either of these arrows until you arrive at the desired temperature (for t-shirt curing, most plastisol inks cure between 320°F and 330°F. You need to test for heat absorption with heat strips (Lawson Termo-Tels, stock # 400-100-5) for proper temperature setting.

The heat setting most likely will need to be set higher than the desired absorption heat. For example, you may need to set the Temperature Controller at 375 degrees to achieve an absorption temperature of 320 degrees. New dryers will have an inspection tag attached to the Control Box indicating the heat setting used in calibrating the particular controller on the dryer.

The other critical adjustment is your BELT SPEED: plastisol inks need to be in the heat chamber for a recommended MINIMUM OF ONE MINUTE. To adjust the belt speed, you will need: 1) a stopwatch; and 2) a test garment. You will need to "experiment" a little with the belt speed control until you have it set to where the garment takes one (1) minute to go through the heat chamber. You must "time" the garment beginning at the point where it enters the chamber, to the point where it exits the heat chamber.

Once you have determined your belt setting of at least one (1) minute in the heat chamber, you will need to run a heat tape (stock #400-100-5) through the dryer to ensure that you are at the proper temperature. You may need to adjust your "Set-Point" temperature a few times after running several heat tapes to finally achieve 320°F - 330°F on the heat tape

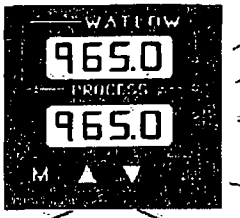
Series 965 Quick Reference

Use this page as a quick reference for the Series 965. Tear along the perforation.

Keys & Displays

Upper Display: Red or green, LED display, indicating either process actual temperature, the operating parameter values, or an open sensor.

Lower Display: Red or green, four digit LED display, indicating the set point, output value, parameters for data in the upper display, or error and alarm codes.



L1: When lit it indicates Output #1 is energized.

L2: When lit it indicates when Output #2 is active. This output can be configured as a control or alarm output

MN: Lit when in manual operation. Press A/M twice to enter Automatic. When blinking, press A/M to toggle between Auto and Manual. After 5 seconds without key activations it returns to its previous state.

MODE Key: Steps the control through the operating menu, also, in the Auto mode, new data is self entering in 5 seconds.

UP Key: Increases the value of the displayed parameter. New data is self entering in 5 seconds.

DOWN Key: Decreases the value of the displayed parameter. New data is self entering in 5 seconds.

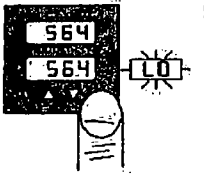
A/M Key: Press once to clear latched alarms and toggles between Auto and Manual. If pressed within 5 seconds it changes from Auto to Manual or vice versa. While in Manual, percent power is in the lower display.

UP/DOWN Keys: When pressed simultaneously for 3 seconds, the Setup Menu appears displaying the LOC parameter. Continue to press the UP/DOWN keys, and the Calibration menu appears.

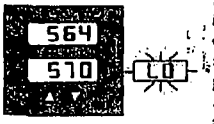
Alarms

Process Alarm sets an absolute temperature. When the process exceeds that absolute temperature limit an alarm occurs. The process alarm set points may be independently set high and low. Under the Setup menu, select the type of alarm output with the Ot2 parameter.
PrA = Process alarm
Pr = Process alarm with no alarm message displayed

Deviation Alarm: Alerts the operator when the process strays too far from set point. The operator can enter independent high and low alarm settings. The reference for a deviation alarm is set point. Any change in set point causes a corresponding shift in the deviation alarm. Under the Setup menu, select the type of alarm output with the Ot2 parameter.
dEA = Deviation alarm
dE = Deviation alarm with no alarm message displayed



Press once to clear a latched and corrected alarm.



Flashing LO or HI in the lower display indicates an alarm when Ot2 = PrA or dEA. The lower display alternately shows information from the current parameter and a LO or HI alarm message at one second intervals. The alarm output is de-energized, L2 is lit.

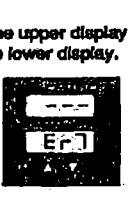
Alarm silencing is available with the deviation alarm. When SIL is selected as on, the non-latching mode automatically enables the alarm output on initial power up. In the latching mode, the operator must manually disable the alarm by pressing the A/M key once. In both cases alarm silencing disables the alarm output relay, but the L2 LED displays the alarm condition until the process value is within the safe region of the deviation alarm band. Once the process value enters into the safe region, both a latching or a non-latching alarm is ready. Any future deviation outside this safe band triggers an alarm. Both alarms can be latching or non-latching. When the alarm condition is removed a non-latching alarm automatically clears the alarm output. You must manually clear a latching alarm before it will disappear.

To clear an alarm...

- First correct the alarm condition, then...
  - **If the alarm is latching...**
    Clear it manually; press the A/M key once as soon as the process temperature is inside the HSA parameter alarm limit.
  - **If the alarm is non-latching...**
    The alarm clears itself automatically as soon as the process temperature is inside the HSA parameter alarm limit.

Error Codes

Three dashes, "- - -" in the upper display indicate a Series 965 error. The error code is visible in the lower display.



Er 2 - Sensor underrange error (For RTD units only)
The sensor input generated a value lower than the allowable signal range, or the A/D circuitry malfunctioned. Enter a valid input. Make sure the In parameter matches your sensor and DIP switch setting. Refer to the table below for the appropriate input type and range.

Er 4 - Configuration error
The unit's microprocessor is faulty; call the factory.

Er 5 - Non volatile checksum error
The nonvolatile memory checksum discovered a checksum error. Unless a momentary power interruption occurred while the unit was storing data, the nonvolatile memory is bad. Call the factory.

Er 6 - A/D underflow error
The A/D circuit is underrange. An open or reversed polarity sensor is the most likely cause. Check the sensor; if the connection is good and functions properly, call the factory. The A/D underrange voltage is too low to convert an A/D signal. Make sure the In parameter matches your sensor and the DIP switches are set accordingly.

Er 7 - A/D overflow error
The A/D circuit is overrange. An open or reversed polarity sensor is the most likely cause. Check the sensor; if the connection is good and the sensor functions properly, call the factory. The A/D overrange voltage is too high to convert an A/D signal. Make sure the In parameter matches your sensor and the DIP switches are set accordingly.

THERMO-TEL TEMPERATURE TAPES

Thermo-Tel Tapes come in 8 different temperature ranges, have a pressure sensitive backing and are and easy and inexpensive way to estimate the temperature of your conveyor dryer, your flash cure unit or your transfer press.

PACKAGE#	TEMPERATURE RANGE	STOCK#
1	100° - 130° F	400-100-1
2	140° - 180° F	400-100-2
3	190° - 230° F	400-100-3
4	240° - 280° F	400-100-4
5	290° - 330° F	400-100-5
6	340° - 380° F	400-100-6
7	390° - 435° F	400-100-7
8	450° - 500° F	400-100-8

The three most commonly used packages used with plastisol ink are #3 for flash curing or gelling transfers and #5 and #6 for curing.

HOW TO USE THERMO-TEL TAPES

Each package contains eight strips with five different temperature (#5 = 290°, 300°, 310°, 320°, 330° F). When exposed to heat, the strip will darken. Where they stop darkening, will tell you what temperature you have attained.

Simply peel a strip off the protective backing and press firmly and evenly upon the item you expose to heat. Different substrates/materials react differently to heat. Some absorb heat faster others, repeal heat. Because of the different materials, deposits of ink, brands of ink, etc. the dwell time inside the heat chamber needs to be adjusted accordingly. Each dryer, each job, and each shop is different. As a result, you will need to understand and adjust your dryer. Belt speed, heater element height and jet-air especially effects temperature. Also, always test in a type you will be printing on (not a rag, belt or different color) and run the same number of garments/pieces through the heat chamber a you will be doing in production.

Remember: Dwell time (amount of time in heat chamber) is affected by composition of materiel, amount of ink deposit, height of heating element, type if elements, voltage into the dryer, room temperature, amount of ventilation, jet-air, etc.

Dwell time is a variable that must be set by you after testing.
Testing is advised at least twice daily.

Warranty/Service Info. Highlights:

Please thoroughly read the entire instruction manual prior to operating this piece of equipment. Please call if you have any questions regarding the operation and maintenance of your equipment. Lawson's Service Department is here to help!

Note: this "Warranty/Service Info. Highlights" is a supplement, and does not supersede Lawson's standard warranty policies, terms and conditions.

Service Hotline = 314-382-9300 (Mon. - Fri. 8:00 AM - 5:00 PM/CST)

After Hours/24 Hour Service = 314-382-9865 and press option #6

Special Items of Interest:

1. Your Lawson warranty is a Parts Warranty. It does not include installation, training, maintenance, repair or general labor. These services are available at additional charge either via an "Extended Service Contract" or just on an "as needed" basis.

2. Replacement parts are sent at your request (or upon our diagnosis) prior to receiving the potentially defective part back. As a result, "down time" is minimized. However, it is your responsibility to return the "defective part" within ten (10) days! Otherwise, credit may not be issued. We need the part returned as soon as possible for analysis.

3. Lawson will pay for standard ground UPS on warranty parts. We do not pay for Air Shipments! If air shipment is desired, these charges must be paid by your company.

   If you do not have an "open account" already established with Lawson, you may pay the air freight charges via COD, Master Charge, Visa or provide us with your Federal Express account number.

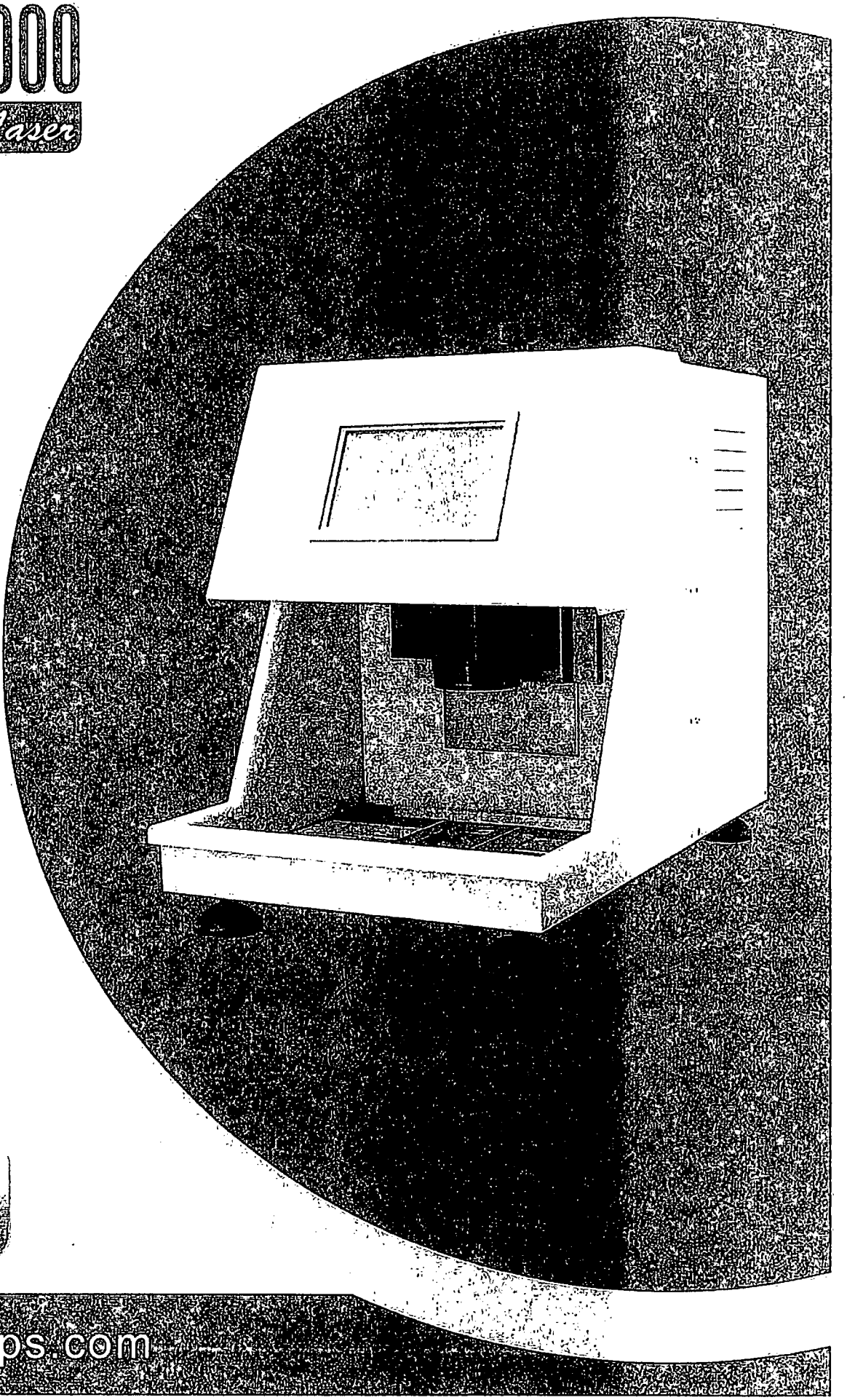
4. Lawson's warranty is to the original owner for the specified period. It is based on a single eight (8) hour shift, five (5) days per/week operating schedule.

Attachment C

Cobalt 1000 Laser

Cobalt 1000

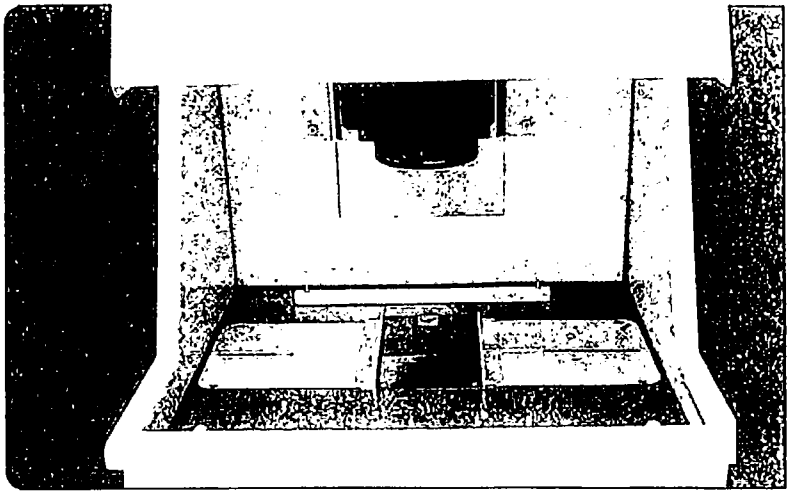
Laser



INKCUPS NOW

www.inkcups.com

Cobalt 1000 Laser



Inkcups Now introduces the revolutionary COBALT 1000 laser system - a direct-to-plate etching system designed to produce high resolution pad printing plates. This highly productive, compact system is a breakthrough product for the pad printing industry.

The COBALT 1000 eliminates many inconsistencies in the pad printing process while at the same time offering dramatic quality, efficiency and process improvements over existing plate technologies. And if this were not enough the COBALT 1000 is able to engrave thin steel and thick steel clichés as well as other metallic items.

10 watt fiber laser

Self-centering plate clamp system

Vertical micro-adjust system

120mm x 120mm marking area

400mm x 400mm operating area

Cobalt Software package - handles Adobe Illustrator and .dxf files

Adjustable power, frequency and speed settings

Variable halftone settings

Network capable

Current: 5 Amps Voltage: 110V

Machine dimensions: 19"W x 31"L x 27"H

Shipping weight: 145 lbs

Improved print quality - laser plates are 1st generation so there is no loss of resolution due to film

Etched Cobalt laser plates are 100% repeatable

Improved ink lay down - laser engraved plates have a straight walled etching and more precise inkwell profile than polymer plates

Cobalt plates can be made with "combination etching" - halftones for bold areas and open etch for fine graphics

Used plates are easily stored and edges do not curl over time

Reduce plate usage - double sided COBALT plates can accommodate up to four images

Eliminate film costs - image-setter or laser film

Eliminate chemical costs -Image-setter fixer, developer, and plate toner cartridges

Eliminate Maintenance Contracts for Image-setter and processor

Eliminate hazardous waste stream and supply shipping costs

Reduce plate making time - 2-3 minutes for a Cobalt laser plate vs. 15 minutes for a polymer plate

Eliminate bad plates - total depth control gives consistent plates every time

Eliminate machine downtime - operators waiting for bad plates to be re-delivered

INKCUPS NOW
20 Locust Street, Suite 104
Danvers, MA 01923
Telephone 978.646.8980 Fax 978.646.8981
E-mail: info@inkcups.com

INKCUPS NOW

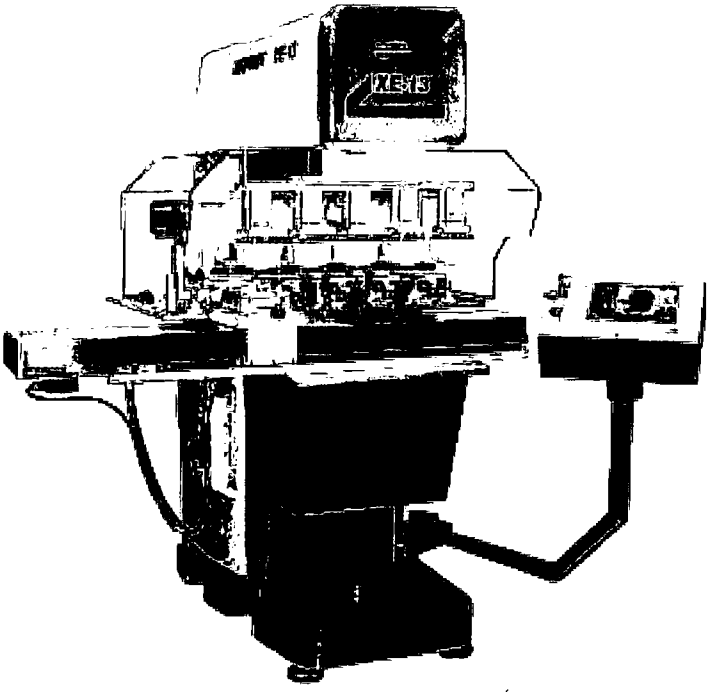
Attachment D

Programming Keyboard

COMEC® Italia

COMEC ITALIA srl
P.le del Lavoro, 149 - 21044 CAVARIA (Va) Italy
Tel. 0331/219516 Fax: 0331/216161

XE 13



TASTIERA DI PROGRAMMAZIONE
PROGRAMMING KEYBOARD

REDAZIONE-Redaction:	EDIZIONE-Edition:	REVISIONE-Revision:	CODICE - Code:
COMEC ITALIA 01-09-03	01-2003	-	06.113.000.00

INDICE

TABLE OF CONTENTS

Premessa

Prima d'iniziare la consultazione di questo manuale d'istruzione, vogliamo segnalare che il contenuto di questo documento mette in condizione l'utilizzatore di attrezzare e programmare la macchina con le ricette di lavoro desiderate.

Errate operazioni di attrezzamento e di programmazione o modifica dei parametri esistenti, possono essere dannose per il buon funzionamento della macchina, per cui, raccomandiamo di permettere l'accesso alle operazioni SOLO a personale qualificato.

È inteso che eventuali interventi errati, motivo di danni alla macchina o alle persone, esonerano il costruttore da eventuali responsabilità e quindi da interventi in garanzia.

A. Introduzione

Scopo della presente guida è quello di fornire un valido strumento per apprendere velocemente l'uso e le principali funzioni della macchina.

Obbiettivo preliminare è quello di fornire uno strumento rapido ed efficace per l'attrezzamento, la programmazione, il controllo ed il monitoraggio dello stato della macchina.

Per aumentare la capacità d'intervento dell'operatore è stato utilizzato un particolare ambiente di sviluppo grafico, che ha permesso di ridurre a pochi comandi basilari la gestione della macchina.

Con questo capitolo, si vogliono definire i **principali standard grafici**: *menù, bottoni,finestre* tramite i quali l'utente impartirà i comandi alla macchina.

L'operatore infatti si trova ad agire in un ambiente di lavoro avanzato dotato di computer e video grafico tipo **Touch screen** con il quale può facilmente programmare le funzioni della macchina toccando il video.

B. Standard grafici

L'**interfaccia utente** è stata realizzata tramite l'impiego di ***aree sensibili*** composte da ***bottoni*** di azione, ***box*** di selezione, ***finestre*** per l'inserimento dati e ***box*** di sola lettura dati e messaggi.

C. Menù generale

Le ***aree sensibili*** hanno la funzione di visualizzare il contenuto associato, descritto con testo o rappresentato graficamente.

Please note

Before starting to read this instruction manual, we should like to point out that the content of this document will place the user in the position to equip and program the machine with the work recipes they want.

As any mistakes in the operations involved in equipping and programming the machine, or any changes to existing parameters can damage the functioning of the machine, we therefore advise that ONLY qualified staff be allowed access to the operations.

It is understood that the manufacturers accept no liability for any incorrect operation, causing any damage to the machine or to any person, which is therefore not covered by guarantee.

A. Introduction

The aim of this guide is to provide an effective tool for learning quickly about the use and main functions of the machine.

The preliminary objective is to provide a rapid and effective tool for equipping, programming, control and monitoring the status of the machine.

In order to increase the operator's abilities, a particular type of graphics has been used, which has enabled us to reduce the management of the machine to just a few basic commands.

This chapter gives the definitions of the **main standard graphics:** *menu, buttons, windows* through which the user can give commands to the machine.

The operator will in fact find himself dealing with an advanced working environment, provided with a computer and **Touch screen** type video graphics, with which he can easily program the functions of the machine by simply touching the screen.

B. Standard graphics

The user interface has been made by using ***sensitive areas*** *composed of action* ***buttons****, selection* ***boxes****, windows for entering data and* ***boxes*** *for reading data and messages only.*

C. General Menu

The ***sensitive areas*** are where the associated content, described by words or represented with graphics, can be viewed, or where programming or functioning actions can be carried out, etc...

D. Finestre

Le ***finestre*** sono gli strumenti di scrittura dati e testi rappresentate da calcolatrice e tastiera da utilizzare quando si devono inserire o modificare dati e scrivere messaggi.

E. Pulsanti

I ***pulsanti*** sono associati a un **titolo** o **descrizione** e cambiano di stato se toccati visualizzando l'azione eseguita.
La descrizione è molto importante poiché identifica il comando che è stato associato al ***pulsante***.

F. Menu

Le pagine ***menù*** sono un insieme di ***finestre, pulsanti, box, ecc....*** nelle quali è possibile intervenire toccando le aree sensibili.

In ogni pagina menù è previsto un'area sensibile per ritornare alla pagina precedente e per passare ad un'altra pagina menù.

G. Box

I ***box*** sono rettangoli mediante i quali l'utente può solo visualizzare i valori o dati associati alla descrizione o alla rappresentazione grafica.

D. Windows

The ***windows*** are tools for writing data and text, and are represented by a calculator and keyboard to be used for entering and modifying data, and for writing messages.

E. Buttons

The ***buttons*** are associated with a **title** or **description** and change status if they are touched, displaying the action carried out.
The description is very important because it identifies the command that is associated with the ***button.***

F. Menu

The ***menu*** pages show the ***windows, buttons, boxes, etc...*** in which it is possible to operate by touching the sensitive areas.

There is a sensitive area in each menu page, for returning to the previous page and for going to another menu page.

G. Boxes

The ***boxes*** are rectangular, and through them the user can only view values or data associated with the description or the graphic representation.

1. ATTREZZAMENTO DELLA MACCHINA

Attrezzare la macchina con cliché, tamponi e calamai (vedere l'allegato Procedura di avviamento).
Verificare che le attrezzature disponibili sulla macchina siano pronte al funzionamento.

2. ACCENSIONE DELLA MACCHINA

2.1 Comandi sul pulpito

1 Pulsante luminoso blu MASTER ON; *riarmo funzionamento.*
2 Joystick: *leva per eseguire lo spostamento sugli assi.*
3 Lampada bianca: *linea elettrica inserita.*
4 Pulsante di emergenza di tipo palmare rosso ad aggancio: *arresta il funzionamento con la sconnessione della alimentazione elettrica agli utilizzi e lo scarico dell'impianto pneumatico. Per riarmare il pulsante ruotarlo nella direzione indicata dalla freccia sopraimpressa.*
5 Video tipo Touch screen; *toccare un'area sensibile per aprire l'azione associata.*
6 Floppy disk
7 Connettori e porte collegamento computer.

1. EQUIPPING THE MACHINE

Equip the machine with clichés, pads and ink trays (see the Starting up Procedure annexe). Check that the equipment available on the machine is ready to start work.

2. SWITCHING ON THE MACHINE

2.1 Controls on the console

1 Luminous blue MASTER ON button; *function resetting.*
2 Joystick: *lever for moving along the axes.*
3 White lamp: *electricity supply line connected.*
4 Red palm-type emergency coupling button: *stops the machine by disconnecting it from the electricity supply and discharging the pneumatic system. To reset the button turn it in the direction shown by the arrow printed on it.*
5 Touch type screen; *touch a sensitive area to open the associated action.*
6 Floppy disk
7 Connectors and ports connecting to the computer.

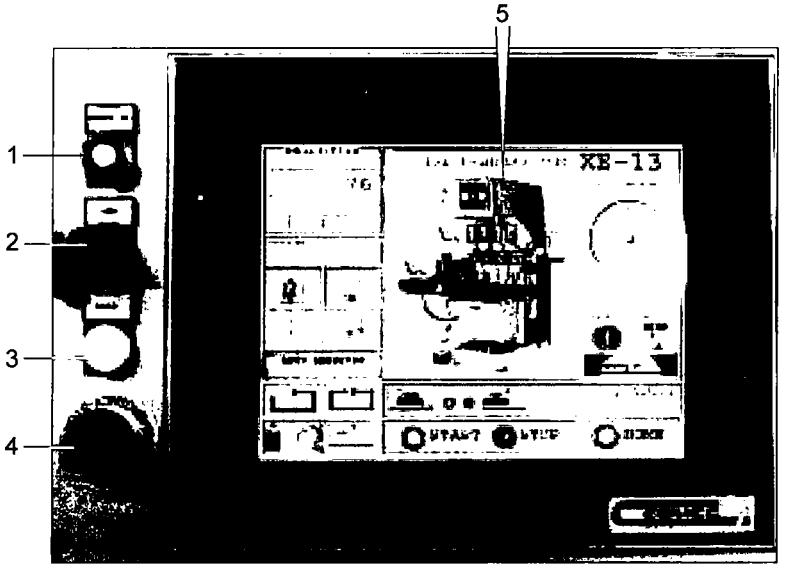


Fig.1

Fig.2

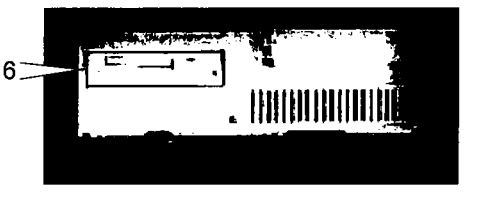


Fig.3

2.2 Avvio macchina

Durante l'attrezzamento e uso della macchina pulire immediatamente le macchie d'inchiostro che possono fuoriuscire dalle attrezzature affine di evitare che seccando possano compromettere il funzionamento dei meccanismi. Operazioni da eseguire a macchina spenta con l'alimentazione elettrica e pneumatica disinserite.

- Avviare la macchina dopo il montaggio dei clichè, calamai e tamponi.
- Posizionare sulla mensola un pezzo da stampare.

La tavola portapezzo deve essere regolata in altezza in modo che la superficie su cui stampare sia allo stesso piano dei clichè.
Ogni qualvolta si avvia la macchina controllare l'efficienza delle protezione e verificare il funzionamento dei pulsanti di emergenza.

- Inserire l'alimentazione pneumatica e l'alimentazione elettrica di linea quindi l'interruttore generale a bordo macchina. Attendere l'attivazione del video poi premere il pulsante MASTER ON e quindi premere START.

  A video appare la pagina menù iniziale

2.2 Starting up the machine

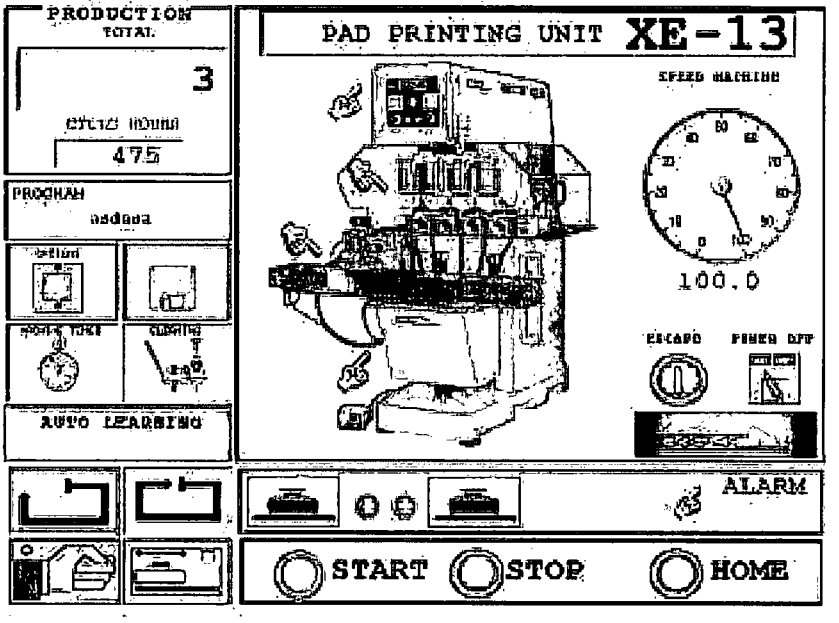
While equipping and using the machine, immediately clean off any ink spots that drip out of the equipment; this is in order to avoid the ink drying and possibly compromising the functioning of the mechanisms. Operations to carry out when the machine is off with the electricity and pneumatic supplies disconnected.

- Start the machine after mounting the clichès, ink trays and pads.
- Place a piece that is to be printed, on the bracket.

The height of the piece-holder table must be adjusted so that the surface to be printed on is at the same level as the cliché. Each time the machine is started, check the effectiveness of the safety attachments and make sure that the emergency buttons work properly.

- Switch on the pneumatic supply and the electricity supply, then the main switch on the machine. Wait until the screen starts up, press the MASTER ON button and then press START.

  The initial menu page will appear on screen.

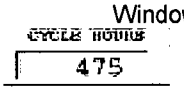


Area sensibile - box impostazione pezzi da produrre

Sensitive area – box to set number of pieces to produce

Finestra - media cicli/ora di produzione

Window – mean cycles/hours of production



Finestra - nome ricetta caricata

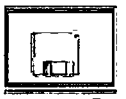
Window – name of recipe loaded

Area sensibile - box menù selezione dispositivi macchina

Sensitive area – select machine devices menu box

Area sensibile - box menù gestione ricette

Sensitive area – recipe management menu box



Area sensibile - box menù tempi macchina

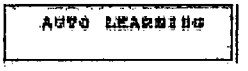
Sensitive area – machine times menu box

Area sensibile - box menù pulizia tampone

Sensitive area – pad cleaning menu box

Area sensibile - box menù apprendimento quote assi

Sensitive area – learn axes' quotas menu box



Area sensibile - pulsante funzionamento modo semi-automatico

Sensitive area – semiautomatic mode functioning button

Area sensibile - pulsante funzionamento modo automatico

Sensitive area – automatic mode functioning button

Area sensibile - pulsante funzionamento modo manuale

Sensitive area – manual mode functioning button

Area sensibile - pulsante funzionamento inchiostratura in continuo

Sensitive area – continual inking functioning button

Area sensibile - pulsante indietro calamai

Sensitive area – ink trays backwards button

Area sensibile - pulsante avanti calamai

Sensitive area – ink trays forwards button

Area sensibile - pulsante start funzionamento

Sensitive area – start functioning button

Area sensibile - pulsante stop funzionamento

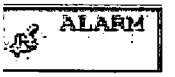
Sensitive area – stop functioning button

Area sensibile - pulsante reset assi

Sensitive area – reset axes button

Area sensibile - pulsante menù allarmi

Sensitive area – alarm menu button



Finestra - segnalazione presenza allarme

Window – warning: alarm on

Area sensibile - pulsante uscita programma macchina

Sensitive area – exit machine program button

Area sensibile - pulsante spegnimento macchina

Sensitive area – switch off machine button

Area sensibile - box impostazione velocità funzionamento

Sensitive area – set operating speed box

100.0

Finestra - rappresentazione grafica velocità funzionamento

Window – graphics on operating speed

Area sensibili - accesso rapido menù sistema

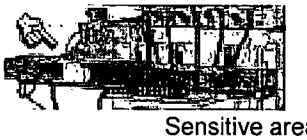
Sensitive area – rapid access to system menu

Area sensibili - accesso rapido menù assi

Sensitive area – rapid access to axes menu

Area sensibili - accesso rapido menù alimentatore

Sensitive area – rapid access to feeder menu

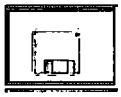


Area sensibili - accesso rapido menù mensola

Sensitive area – rapid access to bracket menu

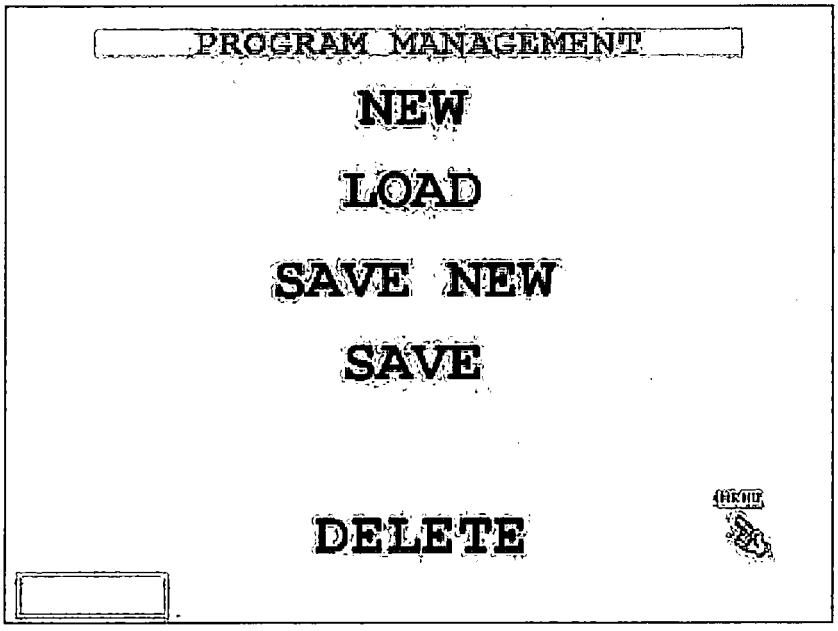
Caricare in macchina la ricetta in memoria da utilizzare.

Load the recipe in the memory to use in the machine.

Toccare il box  Touch the box

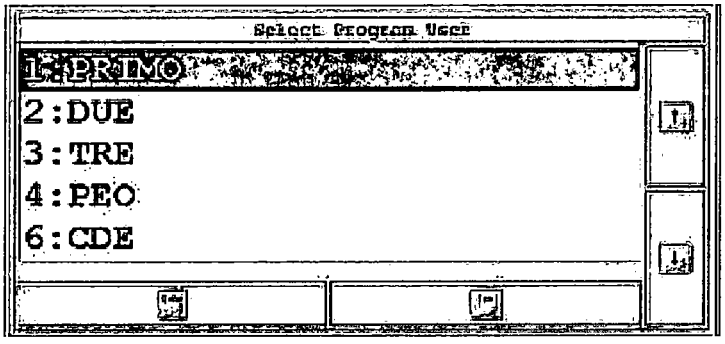
a video appare

the following appears on the screen



Toccare il box LOAD, appare

touch the LOAD box, the following appears



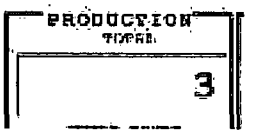
spostarsi con le frecce laterali sul nome della ricetta desiderata e poi toccare il pulsante ENTER.

using the sideways arrows, move onto the name of the recipe required, then touch the ENTER button.

La ricetta viene caricata in macchina con il nome visualizzato nella finestra

The recipe is loaded into the machine with the name shown in the window.

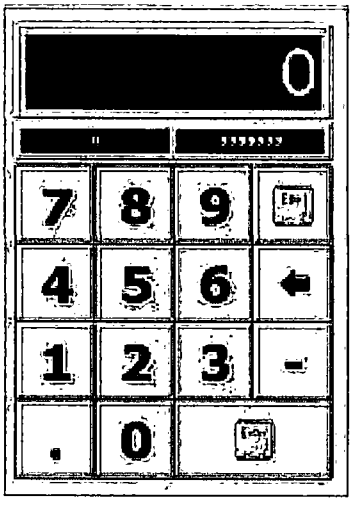
Toccare il box



Touch the box

a video appare

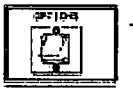
the following appears on the screen



digitare il numero di pezzi da produrre e toccare il pulsante ENTER. Nel box PRODUCTION TOTAL della pagina iniziale apparirà il valore digitato.

Key in the number of pieces to produce and touch the ENTER button. The value keyed in will appear in the PRODUCTION TOTAL box on the first page.

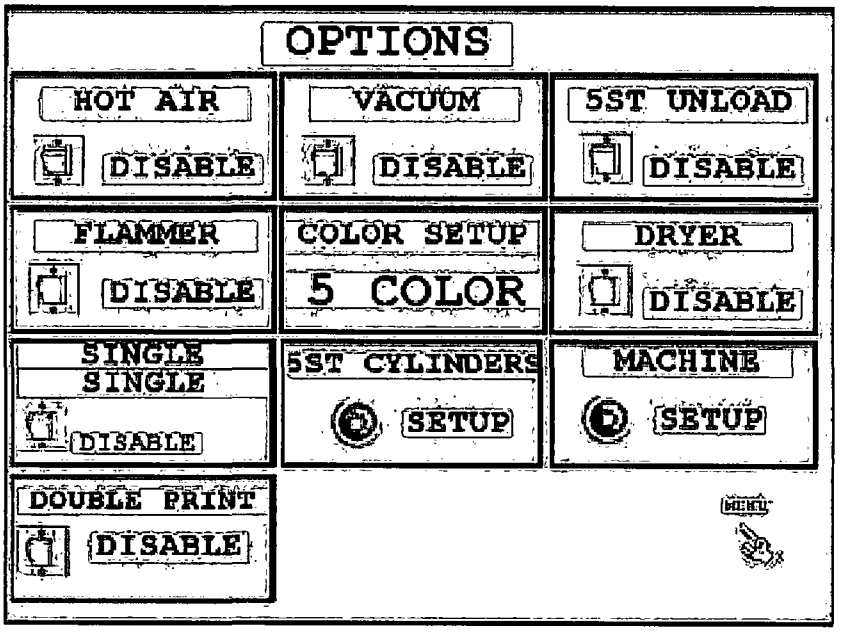
Toccare il box



Touch the box

appare

The following appears



Nel menù OPTIONS è possibile abilitare e disabilitare i dispositivi montati sulla macchina toccando i selettori contenuti in ogni singolo box (verde = inserito / rosso = disinserito).

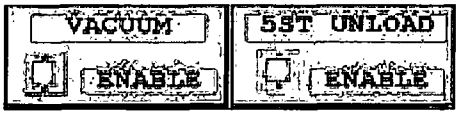
Using the OPTIONS menu, it is possible to enable and disable the devices mounted on the machine by touching the selectors contained in each single box (green = entered / red = disengaged).

Dispositivo aria calda abilitato

Hot air device enabled

Dispositivo vacuum e scaricatore abilitati

Vacuum device and discharger enabled



Dispositivo di flammatura abilitato

Flame-hardener device enabled

Scelta numero posizioni di stampa (da 1 a 10 posizioni)

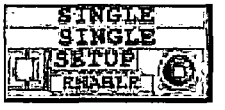
Choice of number of printing positions (from 1 to 10 pos.)

Dispositivo di essiccazione abilitato

Drying device enabled

Cilindri indipendenti ON/OFF

Independent cylinders ON/OFF



Ripetizione stampa abilitato

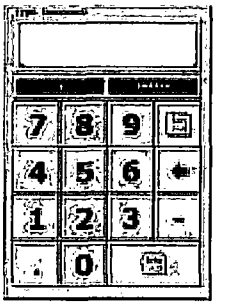
Repeat printing enabled

Toccare il box

Touch the box

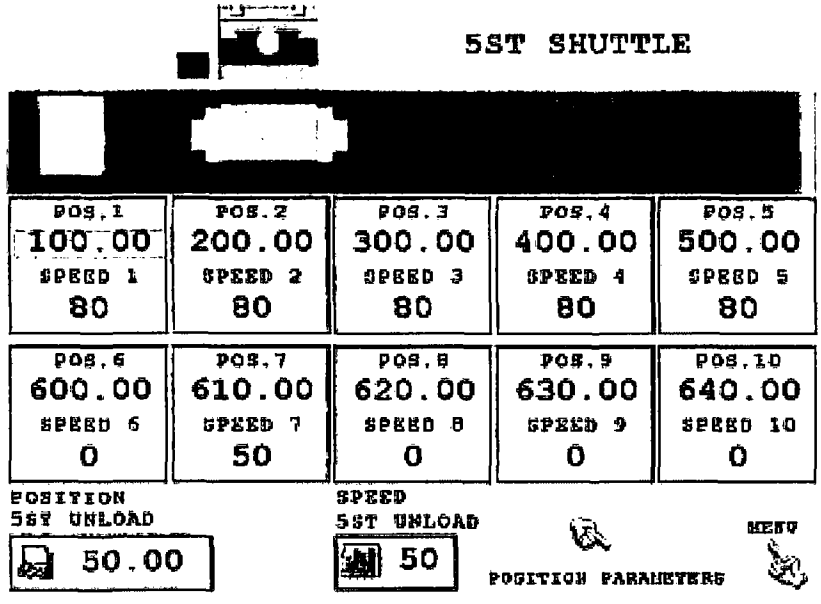
digitare la password e toccare ENTER

key in password and touch ENTER



A video appare il menù delle posizione dell'alimentatore 5ST. In ogni box di posizione (da POS.1 a POS.10) sono visualizzati la quota di spostamento e la relativa velocità.
Inoltre appaiono due box per definire una eventuale posizione di scarico POSITION 5ST UNLOAD e la relativa velocità di spostamento SPEED 5ST UNLOAD.

The menu of the 5ST feeder positions appears on screen. Each position box (from POS.1 to POS. 10) displays the movement quotas and the related speed. There are also two more boxes describing a possible unloading position, POSITION 5ST UNLOAD, and the related speed of movement SPEED 5ST UNLOAD.



Per modificare i parametri toccare il box interessato e digitare il nuovo valore quindi ritoccare lo stesso box per acquisire il nuovo dato.

In order to change the parameters, touch the relevant box and key in the new value; then re-touch the same box to acquire the new data.

Dalla pagina menù 5ST SHUTTLE è possibile passare al menù POSITIONS PARAMETERS toccando l'area sensibile

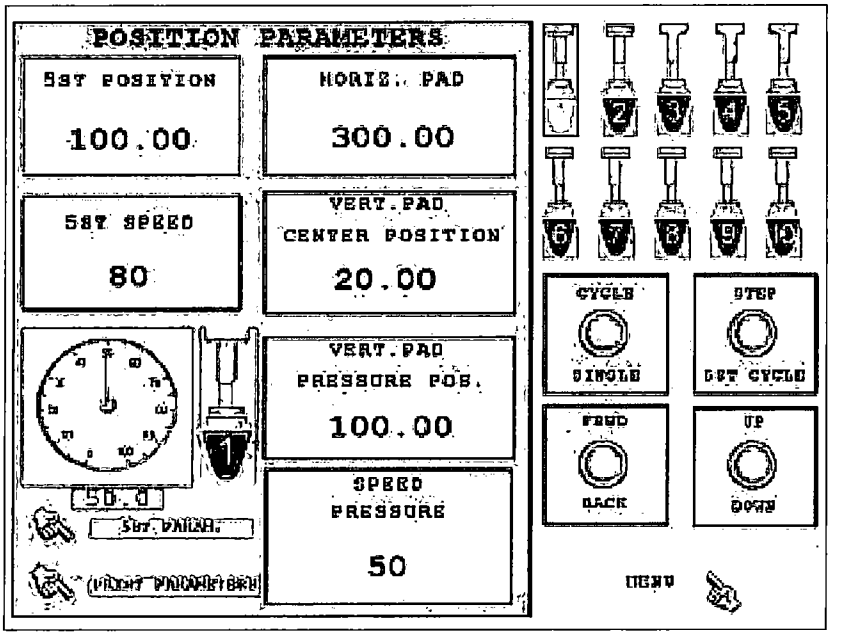
It is possible to go to the POSITIONS PARAMETERS menu from the 5ST SHUTTLE menu page, by touching the sensitive area,

oppure tornare al menù iniziale toccando l'area sensibile MENÙ

or by returning to the initial menu by touching the sensitive area MENU.

Nella pagina menù POSITION PARAMETERS è possibile controllare i parametri di ogni singolo tampone. Toccare uno dei tamponi numerati che cambierà di stato diventando verde. Nelle finestre saranno disponibili tutti i parametri relativi al tampone selezionato. Per modificare i valori, toccare il box interessato digitare il nuovo valore e poi ritoccare lo stesso box per acquisire il dato.

On the POSITION PARAMETERS menu page, it is possible to check the parameters of each single pad. Touch one of the numbered pads, which will change status by becoming green. All the parameters relating to the selected pad will be available in the windows. In order to change the values, touch the relevant box, key in the new value and then touch the same box again, to acquire the data.



Ad esempio, nella grafica sopra riportata è selezionato il tampone Nr.1 con i suoi parametri.

For example, the pad No. 1 with its parameters has been selected in the graphics shown above.

Se in modo manuale si tocca l'area sensibile viene eseguito un ciclo singolo del tampone 1.

If you are in Manual Mode and touch the sensitive area, pad 1 will complete a single cycle.

Se in modo manuale si tocca l'area sensibile viene eseguito lo step dell'alimentatore sul tampone 1.

If you are in Manual Mode and touch the sensitive area, the feeder will carry out a step on pad 1.

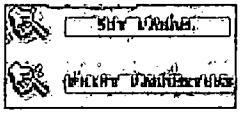
Se in modo manuale si tocca l'area sensibile viene eseguito lo spostamento avanti o indietro dei tamponi.

If you are in Manual Mode and touch the sensitive area, the forwards or backwards movement of the pads will occur.

Se in modo manuale si tocca l'area sensibile vengono eseguiti gli spostamenti discesa/salita del tampone 1. Prima scende il tampone 1 e poi l'asse elettrico della testa mentre se non sono abilitati i cilindri indipendenti scenderà solo l'asse della testa.

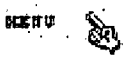
If you are in Manual Mode and touch the sensitive area, the descent/ascent movements of pad 1 will be carried out. First pad 1 will descend and then the electrical axis of the head, whereas if the independent cylinders are not enabled, only the axis of the head will descend.

Dalla pagina menù POSITION PARAMETRS è possibile passare al menù PRINT PARAMETERS o 5ST PARAM.



From the POSITION PARAMETERS menu page, it is possible to go to the PRINT PARAMETERS or 5ST PARAM. menu,

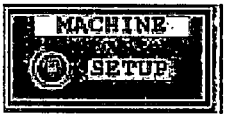
oppure tornare al menù iniziale toccando l'area sensibile MENÙ



or return to the initial menu by touching the sensitive area MENU.

Toccare il box

Touch the box



A video appaiono le pagine menù dove è possibile definire la sequenza di stampa dei tamponi secondo la posizione del pezzo sull'alimentatore 5ST.

Le pagine sono programmate per visualizzare dieci posizioni per dieci tamponi.

Nella grafica di esempio è rappresentata la selezione di stampa del tampone 2 in cinque posizioni (da Pos.1 a Pos.5).

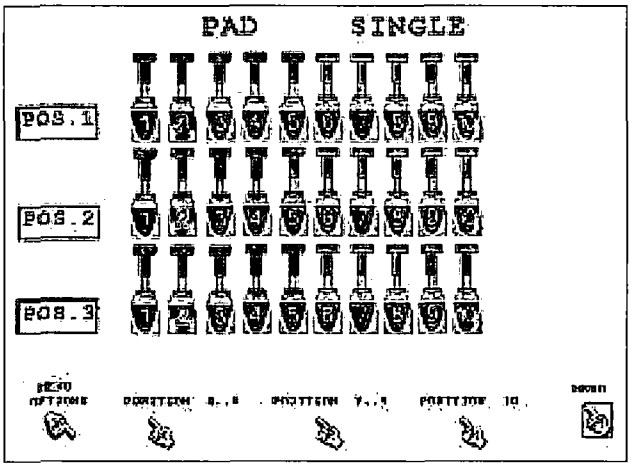
Per modificare la selezione, toccare il tampone verde che cambia di stato e diventerà blu per indicare che è stato disinserito, poi toccare il numero del tampone desiderato che da blu diventerà verde per indicare che è inserito.

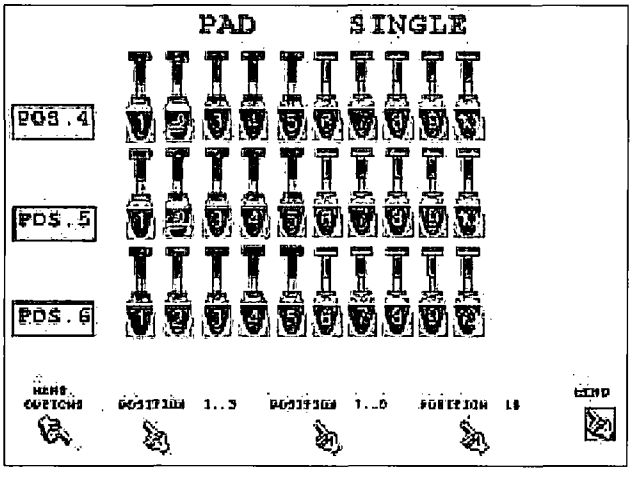
The screen will show the menu pages where it is possible to define the printing sequence of the pads according to the position of the piece on the 5ST feeder.

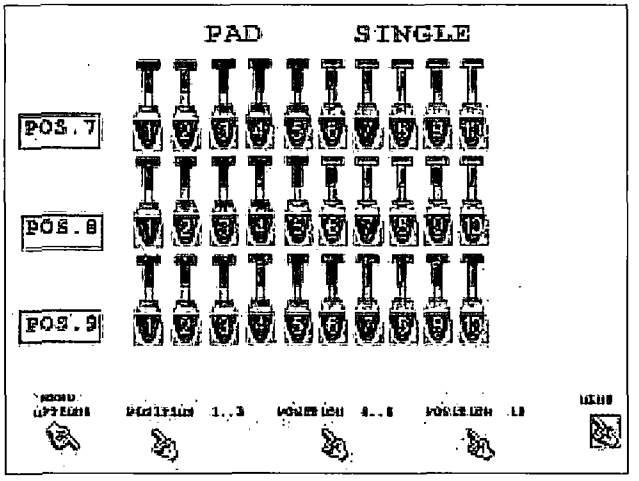
The pages are programmed to display ten positions for ten pads.

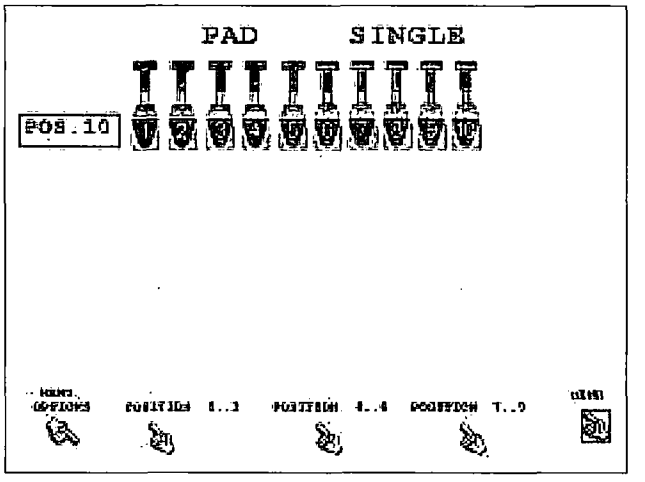
The printing selection in five positions (from Pos.1 to Pos. 5) for pad 2 is given in the example graphic.

To change the selection, touch the green pad, which will change, becoming blue, to show that it has been disengaged, then touch the number of the required pad, which will change from blue to green to show that it is entered.









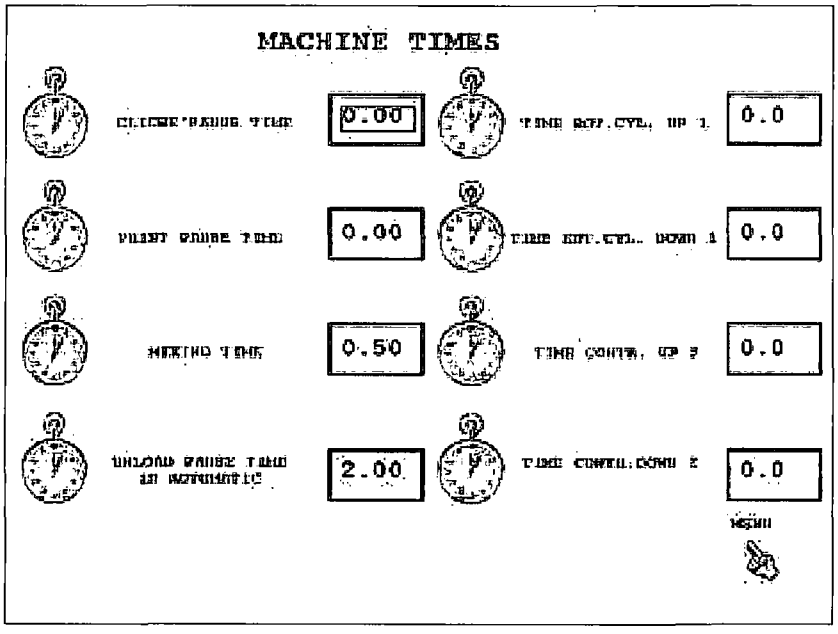
Per scorrere le pagine, toccare una delle aree sensibili POSITION 1...3, POSITION 7...9, POSITION 10 oppure toccare MENU OPTIONS per tornare indietro di pagina o toccare MENU per tornare alla pagina iniziale.

To scroll through the pages, touch one of the sensitive areas POSITION 1...3, POSITION 7...9, POSITION 10 Or touch MENU OPTIONS to go previous pages, or touch MENU to return to the initial page.

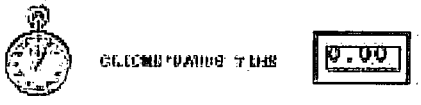
Toccare il box  Touch the box

a video appare

The following appears on screen



Pausa del tampone prima della discesa sul cliché



The Pause time for the pad before descending onto the cliché

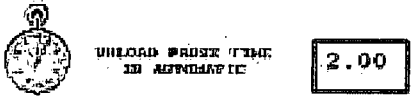
Pausa del tampone prima della discesa sul pezzo

The Pause time for the pad before descending onto the piece

Cadenza inchiostratura

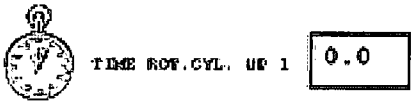
Inking rhythm

Pausa di scarico fra un ciclo e l'altro in modo automatico



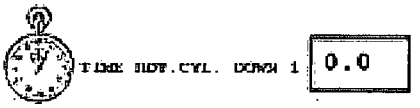
Pause for unloading between one cycle and another in automatic mode

Tempo ritardo attivazione rotazione cilindro 1



Time delay activation of rotation cylinder 1

Tempo ritardo disattivazione rotazione cilindro 1



Time delay disactivation of rotation cylinder 1

Tempo ritardo attivazione contrasto cilindro 2

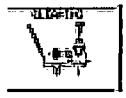
Time delay activation of contrast cylinder 2

Tempo ritardo disattivazione contrasto cilindro 2

Time delay disactivation of contrast cylinder 2

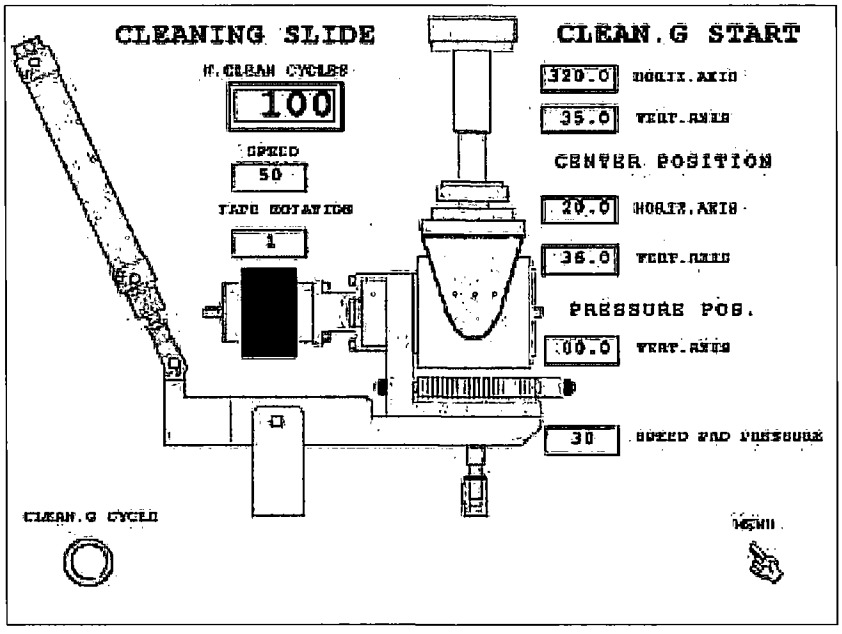
Per modificare i tempi toccare il box interessato e digitare il nuovo valore quindi ritoccare lo stesso box per acquisire il nuovo dato.

To change the times, touch the relevant box and key in the new value; then touch the same box again to enter the new data.

Toccare il box  Touch the box

a video appare

The following appears on screen



Toccare il box CLEAN CYCLES e inserire il numero di cicli macchina da eseguire fra un ciclo di pulizia e l'altro.

Touch the CLEAN CYCLES box and enter the number of machine cycles to be done between one cleaning cycle and the next.

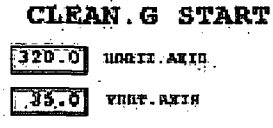
Toccare il box SPEED e inserire la velocità di discesa del tampone sul nastro.

Touch the SPEED box and enter the speed of descent for the pad onto the belt.

Toccare il box TAPE ROTATION e inserire il numero di rotazioni carta da eseguire dopo l'esecuzione del ciclo di pulizia tamponi.

Touch the TAPE ROTATION box and enter the number of paper rotations to be done after the pad cleaning cycle has been carried out.

I dati contenuti nei box sotto CLEAN G. START non vanno normalmente modificati in quanto sono impostati in fase di collaudo della macchina.

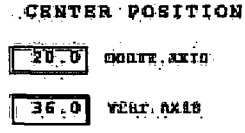


The data contained in the boxes beneath CLEAN G. START are not normally changed, as they are set during the machine testing stage.

Questi dati sono riferiti ai punti di start del dispositivo e possono essere modificati a cura di personale qualificato e autorizzato dal costruttore.

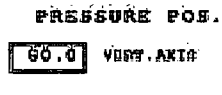
These data are referred to the start points of the device and can be modified by qualified staff, authorized by the manufacturer.

Toccare i box HORIZ. AXIS e VERT. AXIS e inserire le coordinate di partenza della discesa tamponi sul nastro di pulizia.



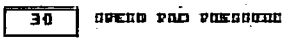
Touch the HORIZ. AXIS e VERT. AXIS boxes and enter the starting coordinates for the descent of the pads onto the cleaning belt.

Toccare il box VERT. AXIS e inserire il valore di discesa dei tamponi sul nastro di pulizia.



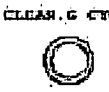
Touch the VERT. AXIS box and enter the descent value for the pads onto the cleaning belt.

Toccare il box SPEED PAD PRESSURE e inserire la velocità con cui i tamponi scendono a schiacciarsi sul nastro di pulizia (velocità di discesa).



Touch the SPEED PAD PRESSURE box and enter the speed with which the pads descend and press onto the cleaning belt (speed of descent).

Toccare il pulsante sotto CLEAN G. CYCLES per eseguire in modo manuale un ciclo di pulizia tamponi



Touch the button beneath CLEAN G. CYCLES to carry out a pad cleaning cycle in manual mode,

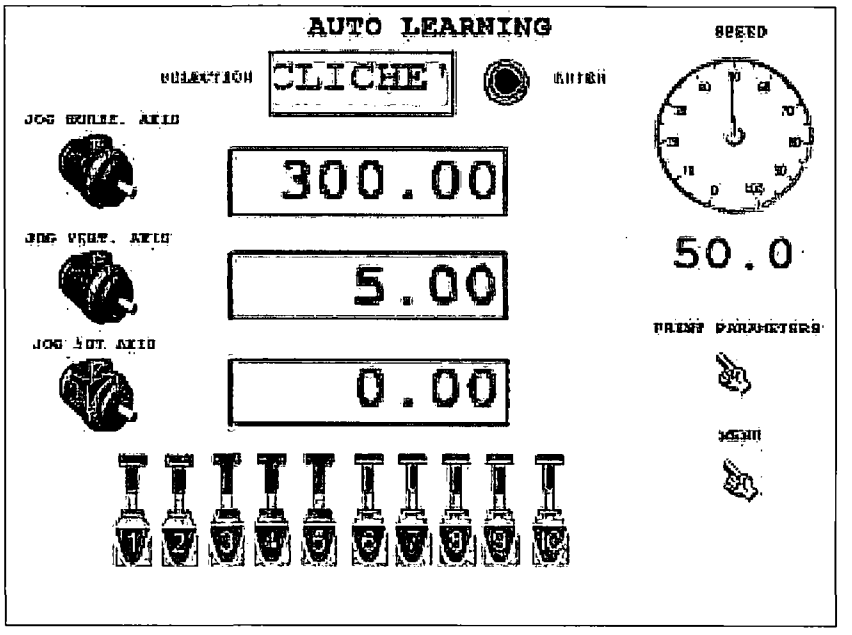
oppure l'area sensibile sotto MENU per ritornare al menù iniziale.

or touch the sensitive area under MENU to return to the initial menu.

Toccare il box  Touch the box

a video appare

The following appears on screen



In questo menù e nelle pagine seguenti, si determinano le coordinate sugli assi orizzontale e verticale dei tamponi, la posizione dell'alimentatore 5ST rispetto al numero di tampone da utilizzare e le relative velocità di esecuzione dei movimenti.

The coordinates on the horizontal and vertical axes of the pads, the position of the 5ST feeder in relation to the number of the pad to be used and the respective speeds of carrying out the movements, are all determined in this menu and on the following pages.

Toccare l'area sensibile sotto SPEED e definire la velocità di movimento apprendimento quote.

Touch the sensitive area beneath SPEED and define the speed of movement

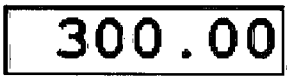
Toccare il box SELECTION per selezionare cliché o posizione stampa

Touch the SELECTION box to select clichés or printing position.

La descrizione CLICHÉ indica che si desiderare apprendere le quote relative alla posizione dei tamponi sui clichè.

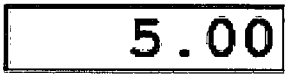
The description: CLICHÉ indicates the wish to learn the amounts relating to the position of the pads on the clichés.

Toccare il box JOG HORIZ. AXIS e spostare con il joystick i tamponi alineati all'incisione dei clichè. Definita la posizione, toccare ENTER per confermare l'acquisizione della quota.



Touch the JOG HORIZ. AXIS box and, using the joystick, move the pads aligned at the cliché engraving. Once the position has been defined, touch ENTER to confirm that the amount has been acquired.

Toccare il box JOG VERT. AXIS e abbassare con il joystick i tamponi in posizione di prelievo sui clichè (tamponi schiacciati sui clichè). Definita la posizione, toccare ENTER per confermare l'acquisizione della quota.

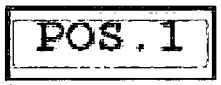


Touch the JOG VERT. AXIS box and, using the joystick, lower the pads into the take-up position on the clichés (pads pressed onto the clichés).
Once the position has been defined, touch ENTER, to confirm that the quota has been acquired.

Ripetere la stessa procedura con selezionato PRINT per apprendere le quote di stampa dei tamponi sul pezzo.

Repeat the same procedure with PRINT selected, in order to learn the printing quotas of the pads on the piece.

Toccare il box SELECTION per visualizzare la posizione POS.1, quindi toccare l'area sensibile del tasto ENTER per accettare la posizione.



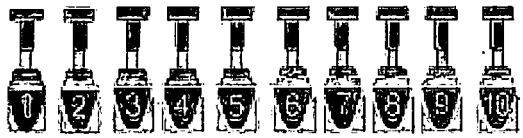
Touch the SELECTION box to view the POS. 1 position, then touch the sensitive area on the ENTER key to accept the position.

La descrizione POS.1 indica che si desiderare apprendere le quote relative a questa posizione.

The POS.1 description indicates the wish to learn the quotas relating to this position.

Toccare il box relativo al tampone da utilizzare, questo cambia di stato diventando verde.

Touch the box relating to the pad that is to be used; this will change, becoming green.



Eseguire la procedura di apprendimento quote e velocità descritta in precedenza tenendo conto che si dovrà acquisire anche la posizione dell'alimentatore 5ST nel box JOG 5ST AXIS.

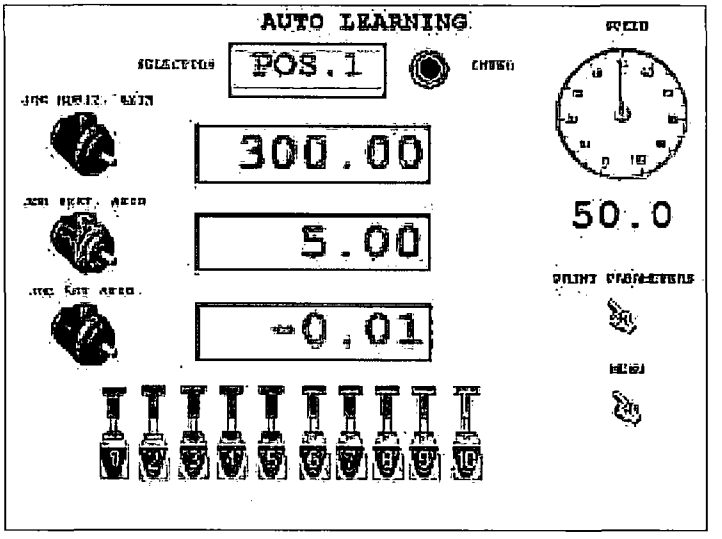
Carry out the procedure for learning quotas and speeds as described previously, taking into account that the 5ST feeder position in the JOG 5ST AXIS box must also be acquired.

Continuare in AUTO LEARNING fino ad avere acquisiti tutti i parametri di posizione.

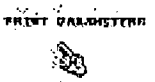
Continue in AUTO LEARNING until all the position parameters have been acquired.

Dalla pagina menù AUTO LEARNING

It is possible to go from the AUTO LEARNING menu to



è possibile passare al menù PRINT PARAMETERS toccando l'area sensibile



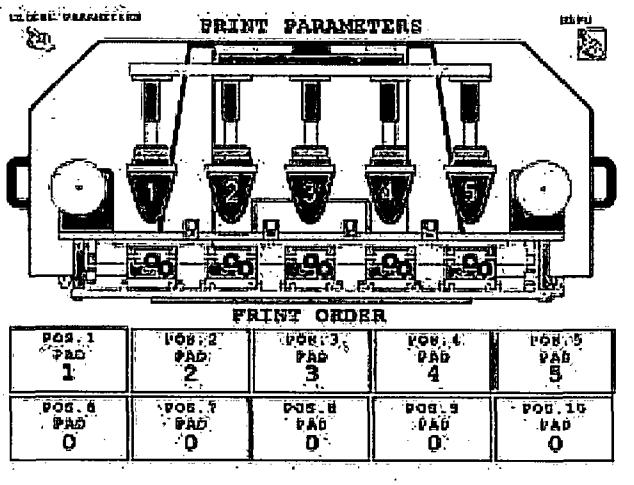
the PRINT PARAMETERS menu by touching the sensitive area,

oppure tornare al menù iniziale toccando l'area sensibile sotto MENÙ

or to return to the initial menu by touching the sensitive area beneath MENU.

Nella pagina menù PRINT PARAMETERS sono rappresentate le posizioni da uno a dieci associate al numero del tampone che stamperà.

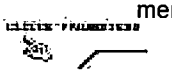
The PRINT PARAMETERS menu page gives the positions from one to ten associated with the number of the pad that will print.



Per definire la sequenza di stampa, toccare il box POS.1 sotto PRINT ORDER e poi il corrispondente numero di tampone da utilizzare quindi ritoccare il box POS.1. Nel box sarà rappresentato il numero del tampone associato.
Definire l'ordine di stampa nelle POS.2 - POS.3 - POS.4 - POS.5. Le altre posizioni non sono disponibili.

To define the printing sequence, touch the POS.1 box under PRINT ORDER and then the corresponding number of the pad to be used; then touch the POS.1 box again. The box will show the number of the associated pad.
Define the printing order in the POS.2 - POS.3 - POS.4 - POS.5. The other positions are not available.

Dalla pagine menù PRINT PARAMETERS è possibile passare al menù CLICHÈ PARAMETERS



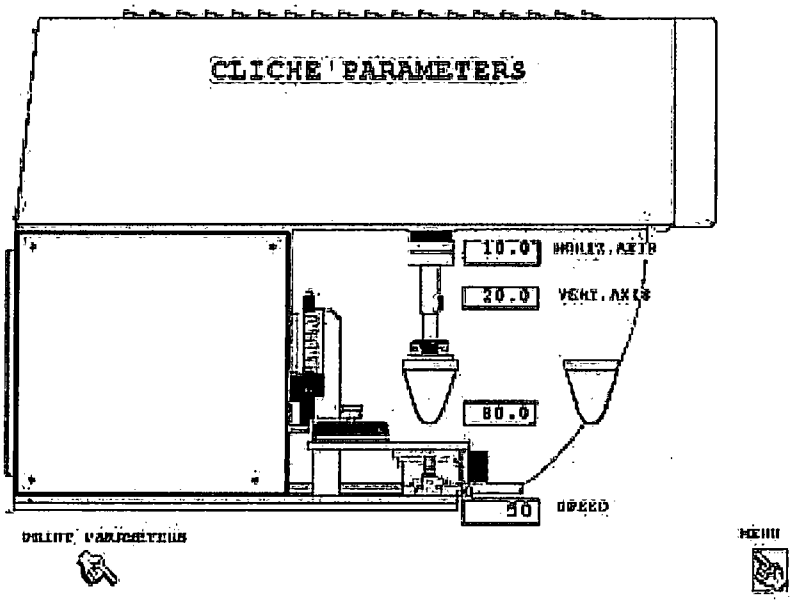
It is possible to go from the PRINT PARAMETERS menu pages to the CLICHÈ PARAMETERS menu,

oppure ritornare al menù principale toccando l'area sensibile sotto MENÙ

or to return to the main menu by touching the sensitive area beneath MENU.

Nella pagina menù CLICHÈ PARAMETERS sono visualizzati i parametri relativi alla posizione dei tamponi rispetto al clichè

The parameters relating to the position of the pads in respect of the clichés can be viewed in the CLICHÈ PARAMETERS menu page.



Per modificare un parametro occorre toccare il box relativo, digitare il nuovo dato e poi ritoccare lo stesso box per acquisire il dato.

To change a parameter, touch the relevant box, key in the new data and then touch the same box again to acquire the data.

3. SELEZIONE MODO FUNZIONAMENTO

La macchina può funzionare in tre diversi modi operativi selezionabili tramite le apposite aree sensibili. Per selezionare un modo toccare il box corrispondente che cambierà di stato.

MODO MANUALE

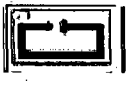
In modo manuale è possibile azionare i movimenti singolarmente, programmare i cicli di lavoro e modificare i parametri macchina.

MODO SEMI-AUTOMATICO

Con il modo semi-automatico inserito è possibile eseguire un ciclo completo toccando il pulsante START o azionando il pedale.
Si consiglia di utilizzare questa funzione come test per controllare la corretta esecuzione generale del ciclo.

MODO AUTOMATICO

Con il modo automatico si predispone il funzionamento a cicli continui.
Toccando il pulsante START si avvia la lavorazione mentre se si tocca il pulsante STOP durante il funzionamento si ferma il ciclo nel punto in cui si trova.
Riavviando il funzionamento con START il ciclo riprende dall'inizio per cui non viene concluso il ciclo interrotto con STOP.
Per fermare il funzionamento a fine ciclo, selezionare il modo semi-automatico mentre è in funzione il modo automatico. La macchina completerà il ciclo in corso e poi si ferma.



3.1 Inchiostratura

La fase di inchiostratura in continuo può essere avviata toccando l'area sensibile che cambierà di stato. È molto utile utilizzare questa funzione quando necessita inchiostrare completamente i clichè dopo la loro sostituzione o pulizia, in caso di reintegro inchiostro nei calamai o di sosta della macchina con l'inchiostro nei calamai.
Se viene avviato il funzionamento in modo semi-automatico o automatico con inserita l'inchiostratura, i calamai si fermano e seguiranno il corso dei cicli. Al fermo macchina successivo l'inchiostratura riprenderà a funzionare fino a quando non verrà disinserita.

3. SELECT FUNCTIONING MODE

The machine can function in three different operating modes, which can be selected by using the appropriate sensitive areas. To select a mode, touch the corresponding box, which will change status.

MANUAL MODE

In manual mode, it is possible to carry out the movements singly, program the work cycles and modify the machine parameters.

SEMIAUTOMATIC MODE

With the semiautomatic mode entered, it is possible to carry out a complete cycle by touching the START button or by using the pedal. It is advisable to use this function as a test for checking that the general execution of the cycle is correct.

AUTOMATIC MODE

The continual cycles function can be set when the machine is in automatic mode. When the START button is touched the working cycle started, whereas if the STOP button is touched while the machine is running, the cycle stops where it is. When the function is started up again using START, the cycle starts from the beginning again, so the cycle that was interrupted by the STOP is not completed. To stop at the end of the cycle, select the semiautomatic mode while the automatic mode is functioning. The machine will complete the cycle that is running and then it will stop.

3.1 Inking

The continual inking phase can be started by touching the sensitive area, which will then change status. It is very useful to use this function when it is necessary to ink the clichés completely after they have been replaced or cleaned, in the event of restoring ink in the ink trays or when the machine pauses with ink in the ink trays.
If the machine is started up in semiautomatic or automatic mode with the inking entered, the ink trays will stop and will follow the course of cycles. At the next machine stop, the inking will start functioning again until it is disengaged.

Il movimento dei calamai può essere eseguito toccando i box che cambieranno di stato cosí come il led grafico adiacente al box.

The ink trays can be moved by touching the boxes, which will change status, as will the LED graphic adjacent to the box.



Prima di azionare questa funzione manuale, occorre controllare che i tamponi siano in alto.

Before activating this manual function, it is necessary to check that the pads are up.

Toccando il box
i calamai si porteranno in avanti

By touching the box, the ink trays will go forwards,

mentre toccando il box
i calamai si riporteranno indietro.

and by touching the box the ink trays will go back again.

Toccare il box attivo per riportarlo all'origine.

Touch the active box so that it returns to its original state.

4. ALLARME

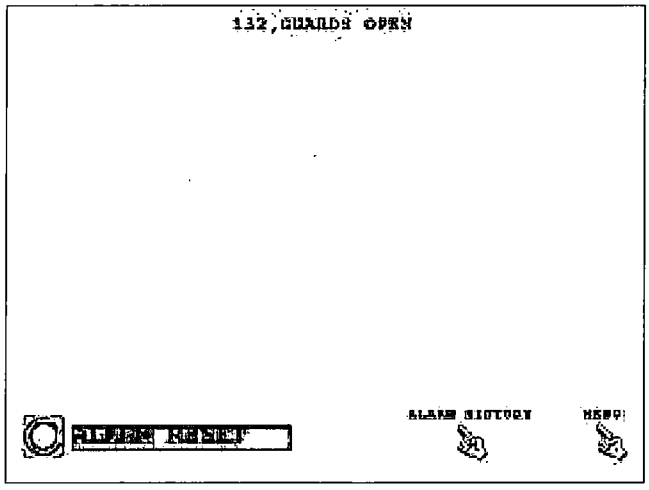
4. ALARM

Quando la macchina si ferma in stato di allarme appare la scritta ALARM nel box

When the machine stops in a state of alarm, the word ALARM appears in the box.

Premere il pulsante MASTER ON, poi toccare l'area sensibile (mano) e apparirà

Press the MASTER ON button, then touch the sensitive area (hand) and it will appear



dove saranno visualizzati i messaggi di allarme scattati.

where the alarm messages that have been triggered are viewed.

Toccare l'area sensibile pulsante giallo

Touch the sensitive area of the yellow button

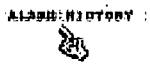
e poi

and then

per ritornare al menù iniziale dove non sarà più visualizzata la scritta ALARM.

to return to the initial menu where the ALARM message will no longer be viewed.

Se si tocca l'area sensibile
si aprirà l'elenco storico dei messaggi scattati.

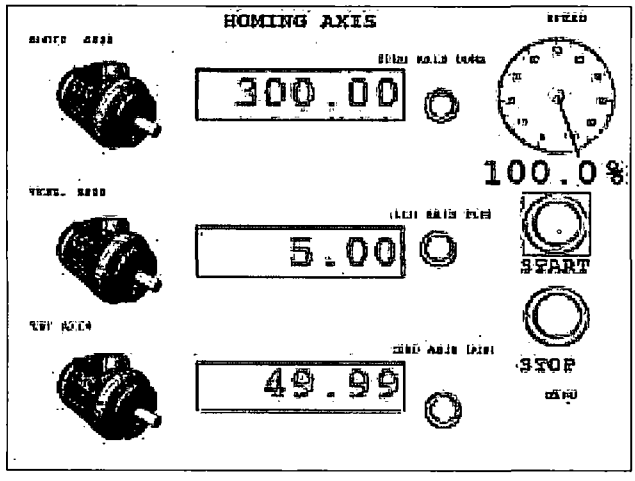


If the sensitive area is touched, the list of past messages triggered will be shown.

5. EMERGENZA

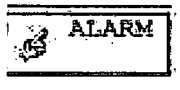
Quando la macchina si ferma in stato di EMERGENZA appare la scritta EMERGENCY

Premere il pulsante MASTER ON e appare

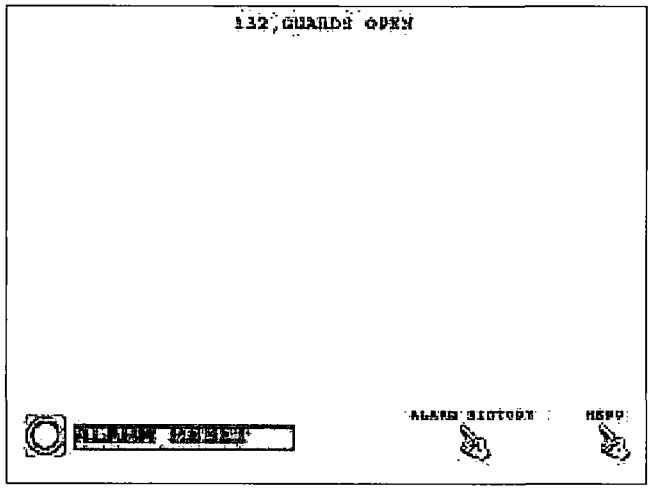


A questo punto è necessario toccare l'area sensibile START per eseguire l'azzeramento assi.
Se durante l'azzeramento si rende necessario arrestare i movimenti, toccare l'area sensibile STOP. Dopodichè ripremere ancora STOP per ripristinare la funzione e poi START.

Al termine verrà visualizzato il menù principale con visualizzata la scritta ALARM



toccare l'area sensibile (mano) e apparirà



Toccare l'area sensibile pulsante giallo

per ritornare al menù iniziale dove non sarà più visualizzata la scritta ALARM.

5. EMERGENCY

When the machine stops in a state of EMERGENCY, the word EMERGENCY will appear.

Press the MASTER ON button and it appears

At this stage it is necessary to touch the sensitive area START to reset the axes.
If it becomes necessary to stop the movements while the axes are being reset, touch the sensitive area STOP. After this, press STOP again to reset the function then press START.

At the end, the main menu with the word ALARM on it will be displayed.

Touch the sensitive area (hand) and it will appear.

Touch the sensitive area of the yellow button

to return to the initial menu, where the word ALARM will no longer be displayed.

Exhibit C

Material Safety Data Sheets

ES CONSULTANTS, INC.
environmental and civil engineering

LIST OF MSDS

Air General Permit Application
Bullet Line, LLC

Attachment A INK Type B NT

Attachment B PA10 (SCREEN INK)

Attachment C 9700 Series All Purpose SCREEN INK

Attachment D H/C Ghost and Ink Remover

Attachment E Dual Strip Emulsion

Attachment F USA VF-184 (screenwash)

Attachment G Alcohol

Attachment A

INK Type B NT

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Trade Name **INK TYPE B NT**

MSDS Number 358

Supplier TRANS TECH AMERICA, INC.
475 N. GARY AVENUE
CAROL STREAM, IL 60188 USA

Telephone Numbers - 24 Hour Emergency Assistance

Emergency (352)323-3500

Telephone Numbers - General Assistance

Information (630)752-4000

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration	Exposure Limits / Health Hazards
BUTYL GLYCOL ACETATE	112-07-2	15 - 20 %	N/A
2-METHOXY-1-METHYLETHYL ACETATE	108-65-6	10 - 15 %	NA
BISPHENOL-A-EPICHLORHYDRIN	25068-38-6	5 - 10 %	NA
CYCLOHEXANONE	108-94-1	1 - 5 %	ACGIH TLV: 100 mg/m3
SOLVENT NAPHTHA, heavy aromat.	64742-94-5	1 - 5 %	NA
XYLENE	1330-20-7	1 - 5 %	ACGIH TLV: 435mg/m3

Composition Comments

Epoxiresin Reaction Product: Bisphenol-A-Epichlorhydrin

3 HAZARDS IDENTIFICATION

Signs & Symptoms of Short-Term (Acute) Exposure

Excessive vapor concentration in air, especially in confined spaces, may cause asphyxiation. Excessive inhalation of vapors can cause nasal, throat and respiratory irritation, dizziness, weakness, fatigue, nausea, headache and possible unconsciousness. Eye contact causes irritation, redness, tearing, blurred vision. Vapors may cause severe eye irritation, redness, tearing and blurred vision. Prolonged skin contact may lead to extraction of natural oils with resultant dry skin, cracking, irritation and determatitis. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Notice: intentional misuse by deliberately concentrating and inhaling the contents maybe harmful or fatal.

Effects of Long-Term (Chronic) Exposure

Health studies have shown that many solvents pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids and vapors should be minimized. -Prolonged or continuous inhalation of vapors may result in delayed lung damage. Repeated or prolonged inhalation of vapor may cause liver and kidney damage. Repeated inhalation of vapor in high concentration can change the blood picture.

4 FIRST AID MEASURES

Skin

Wash area thoroughly with soap and water and rinse.

Eye

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing.

Ingestion

Do not induce vomiting.

Medical Conditions Aggravated by Exposure

ND

5 FIRE FIGHTING MEASURES

Extinguishing Media

Foam, carbon dioxide, dry chemical power

Basic Fire Fighting Procedures

Water may be ineffective. Water should be used to cool containers exposed to fire. Fire fighting personnel should wear self-contained breathing apparatus.

Unusual Fire & Explosion Hazards

Keep container tightly closed, isolate from heat, sparks, electrical equipment and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions over exposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

Flash Point	38 °C
Flammability Limits in Air, Lower, % by Volume	6
Flammability Limits in Air, Upper, % by Volume	10

6 ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedure

Remove all sources of ignition, avoid breathing vapors, ventilate area, remove with liquid binding material.

7 HANDLING & STORAGE

Handling

Keep product away from ignition sources, such as heat, sparks, pilot lights, static electricity, and open flames.

Storage

Store out of direct sunlight.

Ventilation

Adequate ventilation is required. Provide ventilation to keep vapor concentration below the given tlv.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection: Personal Protection Equipments (PPE)

Use safety eyewear designed to protect against splash of liquids.

General

Eye bath and shower should be available. Chemical resistant boots, protective clothing appropriate for exposure risk.

9 PHYSICAL & CHEMICAL PROPERTIES

Odor and Appearance

Colored paste with odor of organic solvent

Boiling Point	137 - 195 °C

Specific Gravity	1 - 1.6 (H20=1)
Melting Point	n.a.
Percent Volatile	29 - 50 %
Vapor Pressure	9 (mm Hg.) hPa
Evaporation Rate	n.a. (Butyl Acetate=1)
Vapor Density	> 1 (Air - 1)
Solubility In Water	no

10 STABILITY & REACTIVITY

Stability/Incompatibility

Stable under normal conditions of use.

Hazardous Reactions/Decomposition Products

Carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Hazardous Polymerization

Will not occur.

11 TOXICOLOGICAL INFORMATION

Routes of Exposure

Inhalation, ingestion, skin and eye contact.

12 ECOLOGICAL INFORMATION

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Incinerate in an approved facility, do not incinerate closed containers. Dispose of in accordance with federal, state, and local pollution control requirements.

14 TRANSPORT INFORMATION

Department of Transportation (DOT) Requirements:

General Transportation Information for Bulk Shipments

Proper Shipping Name	Printing Ink		
Hazard Class	3	UN/NA Code	1210
Packaging Group	Class III		
Labels Required	Flammable liquid		

15 REGULATORY INFORMATION

NFPA Ratings					
Health		Flammability		Reactivity	Special Hazards
HMIS Ratings					
Health	2	Flammability	2	Reactivity 1	Personal Prot. Equip. C

Following ingredients of this product are listed in SARA313

SARA Listed Ingredient Name	CAS Number	Maximum %
XYLENES	1330-20-7	

Listed on the following Regulatory List(s)

SARA 313

16 OTHER INFORMATION

Disclaimer

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Trans Tech America, Inc. The data on this sheet applies only to the specific material designated herein. Trans Tech America, Inc. assumes no legal responsibility for use of reliance upon this data.

Completed On	11/11/2004	**Replaces Sheet Dated**	1/24/2003
Completed By	TRANS TECH AMERICA, INC.		

Attachment B

PA10 (SCREEN INK)

NAZDAR®

Material Safety Data Sheet

Prepared in accordance with ISO 11014-1/ANSI standard Z400.1-2004

Print Date Mar-12-2009 Revision Date Mar-11-2009

1. PRODUCT AND COMPANY IDENTIFICATION

Product code PA10
Product name White
Product description PA Series Poly-All Screen Ink

Manufacturer or supplier's details

UNITED STATES
Nazdar Company
8501 Hedge Lane Terrace
Shawnee, KS 66227
Tel: 1-913-422-1888
Tel: 1-800-677-4657
Fax: 1-913-422-2294

UNITED KINGDOM
Nazdar Limited
7 Barton Road
Heaton Mersey Industrial Estate
Stockport, Chesire SK4 3EG
Tel: +44 161 442 2111

Emergency Telephone Number

USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887

Website: www.nazdar.com
MSDS Information: 1-913-422-1888 ext 2305
MSDS Contact: Regulatory Compliance
email: regcomp@nazdar.com

2. HAZARDS IDENTIFICATION

This product is a preparation. Health hazard information is based on its components.

Appearance Viscous liquid..
Flammable Properties Combustible liquid and vapor.
Emergency Overview Harmful. Aspiration hazard. Harmful: may cause lung damage if swallowed. May cause drowsiness and dizziness.

Eyes May cause eye irritation.
Skin Harmful in contact with skin. May be absorbed through the skin in harmful amounts. May cause skin irritation and/or dermatitis.
Inhalation Harmful by inhalation. Avoid breathing vapors or mists. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.
Ingestion Harmful if swallowed. Potential for aspiration if swallowed. Risk of serious damage to the lungs (by aspiration).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Titanium dioxide	13463-67-7	30 - 60
Naphtha (petroleum), heavy aromatic	64742-94-5	10 - 30
Petroleum naphtha, light aromatic	64742-95-6	5 - 10
Xylenes (o-, m-, p- isomers)	1330-20-7	1 - 5
1,2,4-Trimethylbenzene (contaminant)	95-63-6	1 - 5
Naphthalene (contaminant)	91-20-3	1 - 5
Ethyl benzene (contaminant)	100-41-4	< 1

- *Component names which have the word (contaminant) are constituents contained in Aromatic Hydrocarbon ingredients and are an integral part of the ingredient and cannot be separated. The percentage listed for the contaminant is as contained in the Hydrocarbon ingredient. (Example: 100% Hydrocarbon, 10% Contaminant A, 3% Contaminant B)*

4. FIRST AID MEASURES

Skin Contact Wash off immediately with soap and plenty of water. Use a mild soap if available. Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation develops, get medical attention.

Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately if irritation develops and persists.
Inhalation	Move to fresh air. If breathed in, move person into fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.
Ingestion	If swallowed, DO NOT induce vomiting. Call a physician or Poison Control Centre immediately. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Combustible liquid and vapor.
Suitable Extinguishing Media	Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep away from fire, sparks and heated surfaces. Keep container tightly closed. Cool containers / tanks with water spray. Fire or intense heat may cause violent rupture of packages.
Specific Hazards Arising from the Chemical	Thermal decomposition can lead to release of irritating gases and vapours. Burning produces obnoxious and toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Remove all sources of ignition. Heat, flames and sparks. Ventilate the area. Avoid breathing dust or vapor. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Methods for Cleaning Up	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not use sparking tools.
Environmental Precautions	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

Handling	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Remove and wash contaminated clothing before re-use. Discard contaminated shoes. When using do not smoke. Take notice of labels and material safety data sheets for the working chemicals. Do not take internally. Harmful or fatal if swallowed.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep out of the reach of children. Keep away from heat and sources of ignition. Take notice of the directions of use on the label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component	Weight %	ACGIH TLV	OSHA PEL	Ontario TWAEV
Titanium dioxide	30 - 60	TWA: 10 mg/m^3	TWA: 10 mg/m^3 TWA: 15 mg/m^3	TWA: 10 mg/m^3

Component	Weight %	ACGIH TLV	OSHA PEL	Ontario TWAEV
Xylenes (o-, m-, p- isomers)	1 - 5	TWA: 100 ppm STEL: 150 ppm	TWA: 100 ppm TWA: 435 mg/m³ STEL: 150 ppm STEL: 655 mg/m³	TWA: 100 ppm TWA: 435 mg/m³ STEL: 150 ppm STEL: 650 mg/m³
1,2,4-Trimethylbenzene (contaminant)	1 - 5	TWA: 25 ppm		TWA: 25 ppm TWA: 123 mg/m³
Naphthalene (contaminant)	1 - 5	TWA: 10 ppm Skin STEL: 15 ppm	TWA: 50 mg/m³ TWA: 10 ppm STEL: 15 ppm STEL: 75 mg/m³	TWA: 10 ppm TWA: 52 mg/m³ STEL: 15 ppm STEL: 78 mg/m³
Ethyl benzene (contaminant)	< 1	TWA: 100 ppm STEL: 125 ppm	TWA: 435 mg/m³ TWA: 100 ppm STEL: 125 ppm STEL: 545 mg/m³	TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 540 mg/m³

Component	Weight %	NIOSH IDLH	Mexico OEL (TWA)
Titanium dioxide	30 - 60	5000 mg/m³	TWA: 10 mg/m³ STEL: 20 mg/m³
Xylenes (o-, m-, p- isomers)	1 - 5		TWA: 435 mg/m³ TWA: 100 ppm STEL: 150 ppm STEL: 655 mg/m³
1,2,4-Trimethylbenzene (contaminant)	1 - 5		TWA: 125 mg/m³ TWA: 25 ppm STEL: 35 ppm STEL: 170 mg/m³
Naphthalene (contaminant)	1 - 5	250 ppm	TWA: 10 ppm TWA: 50 mg/m³ STEL: 75 mg/m³ STEL: 15 ppm
Ethyl benzene (contaminant)	< 1	800 ppm 10% LEL	TWA: 100 ppm TWA: 435 mg/m³ STEL: 545 mg/m³ STEL: 125 ppm

NIOSH IDLH: *Immediately Dangerous to Life or Health*

Engineering Measures Use only with adequate ventilation. Use ventilation adequate to keep exposures below recommended exposure limits. See MSDS. In case of insufficient ventilation, wear suitable respiratory equipment.

Personal Protective Equipment

Respiratory Protection Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Respirator with a vapour filter.

Eye Protection Ensure that eyewash stations and safety showers are close to the workstation location. Avoid contact with eyes. Safety glasses with side-shields. Goggles. Face-shield.

Skin Protection Wear protective gloves/clothing. Solvent-resistant apron and boots.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands before eating, drinking, or smoking. Remove and wash contaminated clothing before re-use. Regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection.

9 PHYSICAL AND CHEMICAL PROPERTIES

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Viscous liquid	**Physical State**	Liquid
Odor	Characteristic	**Odor Threshold**	No information available
pH	No information available	**Autoignition Temperature**	No information available
Boiling point/Boiling Range	>149°C / >300°F	**Melting Point/Range**	No information available
Freezing Point/Range	No information available	**Solubility**	No information available
Evaporation Rate	No information available	**Partition Coefficient (n-octanol/water)**	No information available
Vapour Pressure	No information available	**Vapour Density**	Heavier than air
Flammability (solid, gas)	No information available		
Flammability Limits in Air		**Flash Point**	49°C / 120°F
Upper No information available		**Method**	Setaflash closed cup
Lower No information available			
		Photochemically Reactive	Yes
Weight Per Gallon (lbs/gal)	10.747	**Specific Gravity**	1.29
VOC by weight	38.213	**VOC by volume**	50.922
VOC lbs/gal	4.111	**VOC grams/liter**	492.588

10. STABILITY AND REACTIVITY

Chemical Stability Stable under normal conditions.

Conditions to Avoid Heat, flames and sparks.

Incompatible Products Strong acids. Strong bases. Strong oxidizing agents. Reducing agents.

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapours. Carbon dioxide (CO_2). Carbon monoxide.

Possibility of Hazardous Reactions None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Titanium dioxide	10000 mg/kg (Rat)		
Naphtha (petroleum), heavy aromatic	5000 mg/kg (Rat)	2000 mg/kg (Rabbit)	590 mg/m^3 (Rat) 4 h
Petroleum naphtha, light aromatic	8400 mg/kg (Rat)	2000 mg/kg (Rabbit)	5.2 mg/L (Rat) 4 h 3400 ppm (Rat) 4 h
Xylenes (o-, m-, p- isomers)	4300 mg/kg (Rat)	1700 mg/kg (Rabbit)	5000 ppm (Rat) 4 h 47635 mg/L (Rat) 4 h
1,2,4-Trimethylbenzene (contaminant)	3400 mg/kg (Rat) 8970 mg/kg (Rat)	3160 mg/kg (Rabbit)	18 g/m^3 (Rat) 4 h
Naphthalene (contaminant)	490 mg/kg (Rat)	2500 mg/kg (Rat) 20 g/kg (Rabbit)	340 mg/m^3 (Rat) 1 h
Ethyl benzene (contaminant)	3500 mg/kg (Rat)	15354 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h

Chronic Toxicity

Component	ACGIH	IARC	NTP	OSHA
Titanium dioxide		Group 2B		X
Naphthalene (contaminant)		Group 2B	Reasonably Anticipated	X
Ethyl benzene (contaminant)	A3	Group 2B		X

Legend:

ACGIH: (American Conference of Governmental Industrial Hygienists) *A3 - Animal Carcinogen*

IARC: (International Agency for Research on Cancer)	*Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*Reasonably Anticipated to be a Human Carcinogen*
OSHA: (Occupational Safety & Health Administration)	*X - Present*

Sensitisation	No information available
Mutagenic Effects	No information available
Reproductive Effects	No information available
Developmental Effects	No information available
Teratogenicity	No information available
Chronic Effects	Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effect, such as mucous membrane and respiratory system irritation and adverse effect on kidney, liver and central nervous system.
Target Organ Effects	Blood, Central nervous system, Eyes, Kidney, Liver, Lungs, Respiratory system, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

We have no quantitative data concerning the ecological effects of this product. Should not be released into the environment.

Component	Freshwater Algae	Freshwater Fish	Water Flea
Naphtha (petroleum), heavy aromatic	72 Hr EC50 Skeletonema costatum: 2.5 mg/L	96 Hr LC50 Pimephales promelas: 19 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 2.34 mg/L; 96 Hr LC50 Lepomis macrochirus: 1740 mg/L [static]	48 Hr EC50 Daphnia magna: 0.95 mg/L
Petroleum naphtha, light aromatic		96 Hr LC50 Oncorhynchus mykiss: 9.22 mg/L	48 Hr EC50 Daphnia magna: 6.14 mg/L
Xylenes (o-, m-, p- isomers)		96 Hr LC50 Pimephales promelas: 13.4 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 8.05 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 16.1 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 26.7 mg/L [static	48 Hr EC50 water flea: 3.82 mg/L; 48 Hr LC50 Gammarus lacustris: 0.6 mg/L
1,2,4-Trimethylbenzene (contaminant)		96 Hr LC50 Pimephales promelas: 7.72 mg/L [flow-through]	48 Hr EC50 Daphnia magna: 6.14 mg/L
Naphthalene (contaminant)	96 Hr EC50 Skeletonema costatum: 0.4 mg/L	96 Hr LC50 Pimephales promelas: 1.99 mg/L [static]	48 Hr EC50 water flea: 2.16 mg/L
Ethyl benzene (contaminant)	72 Hr EC50 Selenastrum capricornutum: 4.6 mg/L; 96 Hr EC50 Selenastrum capricornutum: >438 mg/L	96 Hr LC50 Oncorhynchus mykiss: 14.0 mg/L [static]; 96 Hr LC50 Pimephales promelas: 9.09 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 150.0 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 4.2 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 32 mg/L [static]; 96 Hr LC50 Pimephales promelas: 48.5 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 9.6 mg/L [static]	48 Hr EC50 Daphnia magna: 1.8-2.4 mg/L

Persistence and Degradability	No information available
Bioaccumulation	No information available
Mobility in Environmental Media	No information available

Component	log Pow
Naphtha (petroleum), heavy aromatic	2.9 - 6.1
Xylenes (o-, m-, p- isomers)	2.77 - 3.15

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of contents/container in accordance with local regulation.

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

UN1210, Printing Ink, 3, III

ICAO/IATA

UN1210, Printing Ink, 3, III

IMDG/IMO

UN1210, Printing Ink, 3, III

15. REGULATORY INFORMATION

International Inventories

Listed on TSCA. For further information, please contact: Manufacturer, importer, supplier

U.S. Federal Regulations

SARA 313 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Ethyl benzene (contaminant)	100-41-4	< 1	0.1
Naphthalene (contaminant)	91-20-3	1 - 5	0.1
1,2,4-Trimethylbenzene (contaminant)	95-63-6	1 - 5	1.0
Xylenes (o-, m-, p- isomers)	1330-20-7	1 - 5	1.0

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following HAPs:

Component	CAS-No	Weight %
Naphthalene (contaminant)	91-20-3	1 - 5
Xylenes (o-, m-, p- isomers)	1330-20-7	1 - 5

U.S. State Regulations

California Prop. 65 WARNING! This product contains a chemical known in the State of California to cause cancer. WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Component	CAS-No	Weight %
Ethyl benzene (contaminant)	100-41-4	< 1
Naphthalene (contaminant)	91-20-3	1 - 5
Toluene	108-88-3	< 0.5
Benzene	71-43-2	< 0.001
Mercury	7439-97-6	< 0.0001
Quartz, crystalline silica	14808-60-7	< 0.001

State Right-to-Know

Component	Minnesota	Florida	New Jersey	Pennsylvania	Massachusetts	Rhode Island
Titanium dioxide	Not Listed	Not Listed	X	X	X	X
Naphtha (petroleum), heavy aromatic	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Petroleum naphtha, light aromatic	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Xylenes (o-, m-, p- isomers)	Not Listed	Not Listed	X	X	X	X
1,2,4-Trimethylbenzene (contaminant)	Not Listed	Not Listed	X	X	X	X
Naphthalene (contaminant)	Not Listed	Not Listed	X	X	X	X
Ethyl benzene (contaminant)	Not Listed	Not Listed	X	X	X	X

Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

Component	WHMIS Classifications of Components
Titanium dioxide	D2A
Petroleum naphtha, light aromatic	B3, D2B
Xylenes (o-, m-, p- isomers)	B2, D2A, D2B
1,2,4-Trimethylbenzene (contaminant)	B3
Naphthalene (contaminant)	B4, D2A
Ethyl benzene (contaminant)	B2, D2A, D2B

Component	NPRI - National Pollutant Release Inventory
Naphtha (petroleum), heavy aromatic	Part 5 Substance Part 4 Substance
Petroleum naphtha, light aromatic	Part 5 Substance
Xylenes (o-, m-, p- isomers)	Part 4 Substance Part 1, Group 1 Substance; Part 5 Substance
1,2,4-Trimethylbenzene (contaminant)	Part 1, Group 1 Substance; Part 5 Substance Part 5 Substance (except 1,2,4-Trimethyl benzene) Part 4 Substance
Naphthalene (contaminant)	Part 1, Group 1 Substance Part 4 Substance
Ethyl benzene (contaminant)	Part 1, Group 1 Substance Part 4 Substance

REACH: Substances of Very High Concern (SVHC): Article 57 of Regulation (EC) No 1907/2006
Does NOT contain a listed substance

HMIS:	Health	Flammability	Instability	PPE
	2*	2	0	X

16. OTHER INFORMATION

Revision Date Mar-11-2009

Revision Summary New MSDS format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of MSDS

Attachment C

9700 SERIES ALL PURPOSE SCREEN INK

DATE OF LAST CHANGE: 06/05/06 DATE PRINTED.....: 06/05/06

MANUFACTURER'S NAME:

NAZDAR SHAWNEE
8501 HEDGE LANE TERRACE
SHAWNEE
KS 66227 USA

EMERGENCY TELEPHONE #: (800)424-9300
(U.S. and Canada)
EMERGENCY TELEPHONE #: (703)527-3887
(Outside U.S. and Canada, collect calls are accepted)
INFORMATION TELEPHONE #: (800)677-4657

SECTION 1 -- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CODE: 97PB

TRADE NAME...: 9700 SERIES ALL PURPOSE SCREEN INK

PRODUCT CLASS: SCREEN INK (LEADED)

INK SERIES...:

- HMIS CODES -
HEALTH - 2*
FLAMMABILITY - 2
REACTIVITY - 0
PPE - X

Item Description	WT lb/gal	VOC g/L	VOC lb/gal	% VOC volume	Item Description	WT lb/gal	VOC g/L	VOC lb/gal	% VOC volume
9710 PRIMROSE YELLOW	10.2	558	4.7	62	9711 LEMON YELLOW	10.0	563	4.7	62
9712 MEDIUM YELLOW	9.9	569	4.7	63	9713 EMERALD GREEN	9.0	586	4.9	65
9718 SCARLET RED	9.2	578	4.8	64	9720 BRILLIANT ORANGE	9.9	566	4.7	63

SECTION 2 -- COMPOSITION, INFORMATION ON INGREDIENTS

CHEMICAL NAME; COMMON NAME; CAS NUMBER	PERCENT BY WEIGHT	OCCUPATIONAL EXPOSURE LIMITS -ACGIH- TLV	-OSHA- PEL	VAPOR PRESSURE IN mmHg	NOTES
* 2-BUTOXYETHANOL; ETHYLENE GLYCOL MONOBUTYL ETHER; CAS #: 111-76-2	45-55	20 ppm	25 ppm Skin	0.6 @ 20C	
RESIN MIXTURES; CAS #: NOT AVAILABLE	26-31	NOT ESTABLISHED	NOT ESTABLISHED	<1 @ 20C	
BUTYL BENZYL PHTHALATE; PLASTICIZER; CAS #: 85-68-7	< 2	NOT ESTABLISHED	NOT ESTABLISHED	0.16 @ 150C	(1)
SILICON DIOXIDE; AMORPHOUS FUMED SILICA; CAS #: 112945-52-5	< 2	NOT ESTABLISHED	20 mppcf	N/A	(2)
* LEAD SULFOCHROMATE; PIGMENT; CAS #: 1344-37-2	0-24	0.05 mg/m3 Pb 0.01 mg/m3 CrVI	0.05 mg/m3 Pb 5 micrograms/m3 CrVI	N/A	(3)
* LEAD CHROMATE/MOLYBDATE; PIGMENT; CAS #: 12656-85-8	0-21	0.05 mg/m3 Pb 0.01 mg/m3 CrVI	0.05 mg/m3 Pb 5 micrograms/m3 CrVI	N/A	(4)
TITANIUM DIOXIDE; CAS #: 13463-67-7	0-4	10 mg/m3	10 mg/m3	N/A	
PIGMENTS; MIXTURE; CAS #: NOT AVAILABLE	0-3	10 mg/m3	15 mg/m3 Total dust	N/A	(5)

* SUBJECT TO REPORTING REQUIREMENT OF SECTION 313 OF TITLE III OF SARA (40 CFR PART 372).

1) Supplier recommended exposure limit of 5.0 mg/m3.
2) When referencing TSCA, use Silica CAS# 7631-86-9. CAS# 112945-52-5 was created to help further categorize the family of Silica. It has not yet been listed on TSCA.
3) Exposure limits are for inorganic lead dusts and fumes and chromium metal respectively.
This chemical is included on the list of Hazardous Air Pollutants (HAPs) from Title III of the Clean Air Act Amendments of 1990 (Lead Compounds and Chromium Compounds). However, emissions of this chemical are not expected when using this product as intended.
4) Exposure limits are for inorganic lead dusts and fumes and chromium metal respectively. Molybdate (insoluble compounds, as Mo) has a vacated PEL TWA of 10 mg/m3.
This chemical is included on the list of Hazardous Air Pollutants (HAPs) from Title III of the Clean Air Act Amendments of 1990 (Lead Compounds and Chromium Compounds). However, emissions of this chemical are not expected when using this product as

intended.

5) The above ACGIH TLV exposure limit of 10 mg/m3 is for inhalable fraction. See Section 8 Exposure Controls, Personal Protection - Exposure Guidelines for more information on exposure limits.

The recommended permissible exposure limits (PEL) indicated above reflect the levels adopted by OSHA in 1989. Although, some of the 1989 levels have since been vacated, the Nazdar Company recommends that the lower exposure levels be observed as reasonable worker protection.

NOTE: Due to the broad spectrum of colors each MSDS may represent, ranges of some ingredients listed in Section 2 may exceed those specified in the Canadian Controlled Product Regulations. If specific concentration information is needed to comply with this regulation contact Nazdar's Regulatory Compliance Department at 913-422-1735.

SECTION 3 -- HAZARDS IDENTIFICATION

GENERAL HEALTH EFFECTS

THE FOLLOWING INFORMATION HAS BEEN DEVELOPED BASED UPON USING THE PRODUCT AS INTENDED BY THE MANUFACTURER. The potential health effects of this product are based on the hazards of its components. The use of this product in combination with other products may produce synergistic (additive) health effects. Cautionary labeling and material safety data sheets of all materials used with this product should be reviewed before use.

EYES

Eye contact with liquid, vapors or mists may cause moderate to severe irritation, including burning, tearing, redness or swelling.

SKIN

Skin contact may cause irritation. Symptoms may include dryness, chapping and redness. Penetrates the skin readily. Toxic and may be harmful if absorbed through the skin.

INHALATION

Repeated and prolonged overexposure by inhalation may cause respiratory tract irritation. Symptoms may include central nervous system disorders such as headaches, dizziness, weakness and fatigue.

INGESTION

Ingestion may cause gastrointestinal tract irritation. Symptoms may include headaches, nausea and vomiting. Contains material that may be moderately toxic if ingested.

CHRONIC EFFECTS/TARGET ORGANS

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. "Lead compounds and inorganic lead" is classified as a (Group 2B) carcinogen by IARC. Repeated and prolonged overexposure to lead by ingestion may cause a metallic taste in the mouth, nausea, digestive disorders, abdominal cramps and insomnia as well as blood, nervous, urinary and reproductive disorders and birth defects. Lead exposure is not normally expected when using this product as intended. "Chromium and certain chromium compounds" is included in the NTP and IARC lists of carcinogens.

ANIMAL STUDIES

2-Butoxyethanol has caused reproductive and blood disorders resulting in kidney, liver and lung damage in lab animals. Butyl benzyl phthalate produced limited evidence of damage to the liver, kidney and male reproductive system and harm to the fetus in lab animals after overexposure. The relevance of these findings to humans is uncertain. For animal studies, reference TSCA Section 4 Test Rule Results or contact the manufacturer for further details.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Pregnant women and persons with pre-existing health disorders should consult their physician before using this product. Repeated and prolonged overexposure and/or individual sensitivity may increase the potential for and degree of adverse health effects. See Section 3 "Hazards Identification" for effects of certain hazardous ingredients.

ROUTES OF EXPOSURE

Primary exposure routes: Inhalation-Dermal (Contact/Absorption)-Ingestion

SECTION 4 -- FIRST AID MEASURES

EYES

After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If irritation persists have eyes examined and tested by medical personnel.

SKIN

In case of contact, immediately wash skin with a mild soap and plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Cool water is initially suggested to prevent the pores of the skin from opening. This will minimize both the area and time of skin contact. Lukewarm water may then be used to ensure all contaminants are removed. Skin should be monitored for reddening or chemical burns. Mild soap is suggested to help prevent abrading the skin or rubbing the chemicals into pores during cleansing. Get medical attention if irritation persists or significant contact has occurred. Thoroughly wash (or discard) clothing and shoes before reuse.

INHALATION

Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate

medical attention if breathing difficulty is experienced.

INGESTION
If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

OTHER COMMENTS
No Data Available

SECTION 5 -- FIRE FIGHTING MEASURES

FLASH POINT
143 Degrees - 145 Degrees Fahrenheit (PMCC)

OSHA FLAMMABILITY CLASSIFICATION (NFPA)
Class IIIA Combustible Liquid

LEL - LOWER EXPLOSIVE LIMIT / UEL - UPPER EXPLOSIVE LIMIT
1.1% volume in air / No Data Available

EXTINGUISHING MEDIA
Foam-CO2-Dry Chemical-Water Spray

FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Keep containers tightly closed. Vapors may be heavier than air and can travel to a source of ignition then flash back. Closed containers may explode when exposed to extreme heat.

FIRE FIGHTING EQUIPMENT
Full protective equipment including self-contained breathing apparatus (SCBA) is recommended to protect firefighters.

SPECIAL FIRE FIGHTING PROCEDURES
Water may be ineffective but may be used to cool containers. Fumes released on burning may be toxic and dangerous.

SECTION 6 -- ACCIDENTAL RELEASE MEASURES

RELEASE MANAGEMENT MEASURES
Remove all sources of ignition (flames, hot surfaces and electrical, static or frictional sparks). Avoid contact or breathing vapors. Ventilate area. Contain release and remove with inert absorbent. Use non-sparking tools to place material in appropriate container for disposal. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. The National Response Center (800-424-8802) and local authorities should be contacted for any reportable spill/release.

SECTION 7 -- HANDLING AND STORAGE

HANDLING AND STORAGE METHODS
Use in a well ventilated area. Follow all MSDS/label precautions even after container is emptied; container may retain product residues. Store in closed containers in cool, dry, well ventilated area away from sources of ignition. Keep containers closed when not in use. Smoke in designated areas only. Avoid prolonged or repeated overexposure to this product. Keep out of reach of children. Follow label directions carefully. Do not take internally. Harmful or fatal if swallowed.

SECTION 8 -- EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION
If concentrations of hazardous ingredients exceed exposure limits listed in Section 2 an appropriate NIOSH (National Institute for Occupational Safety and Health) approved respirator with an organic vapor cartridge should be used. If material is handled under mist, spray or dust forming conditions, a P100 (99.97% efficiency) filter should be used in addition to the organic vapor cartridge. Protection provided by air-purifying respirators is limited. If no exposure limits are listed in Section 2, follow general safety guidelines in 29 CFR 1910.134 Respiratory Protection or other applicable respiratory standard.

SKIN PROTECTION
Use neoprene, nitrile or other gloves resistant to chemicals listed in Section 2. Contact a reputable safety supply company for appropriate gloves. Solvent resistant aprons are recommended. Prevent prolonged skin contact with contaminated clothing.

EYE PROTECTION
Use ANSI (American National Standards Institute) approved safety glasses, faceshield or splash proof goggles to prevent eye contact. Contact a reputable safety supply company for appropriate eye protection. The availability of an eye wash is highly recommended.

EXPOSURE GUIDELINES
See Section 2 "Composition, Information on Ingredients" for occupational exposure limits. Excessive concentrations of nuisance dusts or particulates not otherwise classified (PNOC) or regulated (PNOR) may reduce visibility and cause unpleasant

deposits in the eyes, ears, and nasal passages. The TLV and PEL has been established for all non-toxic "nuisance dusts" that are not otherwise classified and refers to both organic and inorganic dusts. Exposure or generation of these dusts is not anticipated during normal printing operations. The use of dry pigments and powders, grinding or sanding of printed products may generate quantities of these particulates. Refer to Section 2 Composition, Information on Ingredients for exposure limits.

HYGIENIC PRACTICES
Wash with soap and water before eating, smoking or using toilet facilities. Separately wash or discard clothing and footwear before reuse. NEVER try to remove product from the skin by using solvent or thinner. Such action is likely to increase the possibility of undesirable effects. Remove contaminated clothing to prevent prolonged skin contact.

ENGINEERING CONTROLS
Use applicable engineering controls, work practices and personal protective equipment to ensure all concentrations are kept below the exposure limits listed in Section 2. Adequate controls should be implemented to ensure employee safety from fine mists which may be produced under some printing conditions.

OTHER PROTECTION
No Data Available

SECTION 9 -- PHYSICAL AND CHEMICAL PROPERTIES

**

APPEARANCE:
Viscous liquid

ODOR:
Characteristic

PHYSICAL STATE:
Liquid

pH
Not applicable

VAPOR PRESSURE
See Section 2 for individual ingredients.

VAPOR DENSITY
Heavier than air

BOILING POINT
Greater than 300 degrees Fahrenheit

FREEZING POINT
Not available

SOLUBILITY IN WATER
Not tested

EVAPORATION RATE
Slower than ether

VISCOSITY
Greater than water

PERCENT VOLATILE BY VOLUME: SEE SECTION ONE

WEIGHT PER GALLON: SEE SECTION ONE

VOC: SEE SECTION ONE

PHOTOCHEMICALLY REACTIVE
No

Percent volatile = Percent VOC

SECTION 10 -- STABILITY AND REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID

Avoid excessive heat, ignition sources, sparks and open flame.

INCOMPATIBILITY WITH OTHER MATERIALS
Strong acids/bases, oxidizing/reducing agents and reactive chemicals.

HAZARDOUS DECOMPOSITION PRODUCTS
May produce hazardous fumes when heated to decomposition e.g. carbon monoxide, carbon dioxide and other noxious gases.

HAZARDOUS POLYMERIZATION
Not anticipated during normal printing and storage conditions.

SECTION 11 -- TOXICOLOGICAL INFORMATION

EXPERIMENTAL TOXICITY DATA
Refer to Section 3 Hazards Identification for additional toxicological data. Experimental toxicity data on 2-butoxyethanol has given the following results: Oral LD50 Rat; 1746 mg/kg; Intraperitoneal LD50 Rat; 550 mg/kg.

SECTION 12 -- ECOLOGICAL INFORMATION

ECOTOXICITY
Because this product may be a mixture of chemicals, some of which may be ecologically toxic, it is strongly suggested that it not be disposed of into the environment, i.e. soil, water courses, lakes, landfills, sewers, etc.

ENVIRONMENTAL FATE
No Data Available

SECTION 13 -- DISPOSAL CONSIDERATIONS

DISPOSAL METHODS
This product, as supplied, is considered non-hazardous for disposal purposes by the U.S. Environmental Protection Agency Resource Conservation and Recovery Act (RCRA). If combined with other products, the user should determine if hazardous waste codes are required. It is the responsibility of the user to determine if local, county, state, or provincial regulations may also apply to the disposal of this product and/or the container.

SECTION 14 -- TRANSPORT INFORMATION

TRANSPORT INFORMATION
Not regulated. The product(s) described by this Material Safety Data Sheet do not meet the definition of nor are they classified as a hazardous material/dangerous good as defined by the United States Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO) or the Canadian Transportation of Dangerous Goods Act (TDG). Questions concerning transportation requirements should be directed to Nazdar's Regulatory Compliance Department 913-422-1735.

SECTION 15 -- REGULATORY INFORMATION

SARA TITLE III 313 INFORMATION
See Section 2 "Composition, Information on Ingredients" for applicable chemicals.

TOXIC SUBSTANCES CONTROL ACT STATUS
All ingredients in Section 2 are listed on the U.S. Environmental Protection Agency's Toxic Substances Control Act (TSCA) Inventory and the Canadian Domestic Substance List.

OTHER REGULATORY INFORMATION
OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION (OSHA) - MSDS is compliant with Occupational Safety and Health Administration Hazard Communication Standard - 29 CFR 1910.1200. AMERICAN NATIONAL STANDARDS INSTITUTE - This MSDS follows the ANSI Z400.1-1998 format. WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS) - This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION (CANADA):
B3 _ Combustible Liquids; D1A _ Material causing immediate and serious toxic effects, very toxic material; D2A _ Materials causing other toxic effects, very toxic material; D2B _ Materials causing other toxic effects, toxic material;

SECTION 16 -- OTHER INFORMATION

DISCLOSURE
The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind express or implied is made with respect to the information contained herein. The data in this MSDS relates only to the specific material designated herein and does not apply to use in combination with any other material or

Attachment D

H/C GHOST AND INK REMOVER

MATERIAL SAFETY DATA SHEET

I. GENERAL INFORMATION

TRADE NAME (as labeled): H/C-100

Description: Ghost/Image Stain Remover

DATE PREPARED/ REVISED:
May 09, 2008

MANUFACTURER'S NAME

Chemical Consultants, Inc.
1850 Wild Turkey Circle
Corona, CA 92880-1799 USA

PREPARER
H.SD.

PHONE NUMBER:
(951)735-5511

II. COMPONENT SAFETY DATA

Chemical Names	CAS Numbers	%	Exposure Limits in Air (give units) ACGH TLV	OSHA PEL	Other (specify)
Sodium Hydroxide	1310-73-2	<20	2 mg/m3	2 mg/m3	(dust or mist)

III. PHYSICAL PROPERTIES

Vapor density (air =1): >1
Specify gravity: 1.215
Solubility in water: complete
Vapor pressure, mmHg at 20°C: 17.5
Melting point or range, °F Unknown
Boiling point or range, °F 211
Evaporation rate (butyl acetate =1): >1
pH (1% solution): 12.33

Appearance and odor:
Thick paste-like white in color.

IV. FIRE AND EXPLOSION

Flash point, °F (give method): 215 (TCC)
Auto ignition temperature, °F: Not Tested
Flammable limits in air volume %: lower (LEL) Unknown upper (UEL) Unknown
Fire extinguishing materials: water spray X carbon dioxide ____ other ____
foam X dry chemical X

Special fire fighting procedures:
Caution. Do NOT enter confined fire space without full bunker gear including a positive pressure NIOSH approved self-contained breathing apparatus.

Unusual fire and explosion hazards:
When diluted with water spray, product can produce a slippery, alkaline run-off.

V. REACTIVITY DATA

Stability: Stable X Unstable ____

Conditions to avoid:
Do not store close to oxidizers.

Incompatibility (materials to avoid):
Avoid contact with strong acids, organic materials, reactive metals such as aluminum, magnesium, and copper.

Hazardous decomposition products (including combustion products):
CO,CO2 & Unidentified Organic Compounds.

Hazardous polymerization: May occur ____ Will not occur X

Conditions to avoid:
None known.

VI. HEALTH HAZARD INFORMATION

SYMPTOMS OF OVEREXPOSURE for each potential route of exposure.

Inhaled: Inhalation of vapors or mists may cause respiratory irritation. May cause chemical burns to the respiratory tract.

Skin: May cause irritation or burns to the skin. Eye contact: Low concentrations of mists or vapors can be irritating, causing redness. Concentrated mists, vapors or splashed liquid can cause severe irritation, burns and possible permanent damage.

Swallowed: Ingestion may produce burns to the lips, mouth, upper airway, esophagus, and stomach. Will cause irritation of the digestive tract. Nausea. Intestinal burns possible.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: Explain in lay terms.

Acute: Product is a strong alkaline and will cause chemical burns upon direct contact with eyes. Possible burns to the skin with prolonged contact.

Chronic: Prolonged contact can cause dermatitis.

FIRST AID EMERGENCY PROCEDURES:

Eye contact: Flush immediately with fresh water for at least 15 minutes. Contact a physician if irritation persists.

Skin contact: Remove contaminated clothing. Wash with soap and water. Seek medical attention if irritation persists.

Inhaled: Remove victim to fresh air. Provide oxygen if breathing is difficult. Seek medical aid.

Swallowed: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. GET MEDICAL ATTENTION IMMEDIATELY.

CARCINOGENICITY? YES: _____ **NO:** X

This product's ingredients are found in this list. Federal OSHA_____ **NTP** _____ **IARC**_____ **ACGIH** _____

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Severe irritant, particularly to pre-existing skin conditions.

VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill response procedures (include employee protection measures): Absorb small spills onto suitable absorbent. Contain large spills by diking. Flush spill area with water. Caution: spill area may be extremely slippery wear suitable protective clothing, boots, and eye protection.

Disposal Methods: May be supplied to biological treatment plant or incinerated.

NOTE: Dispose of all wastes in accordance with federal, state, and local regulations.

VIII. SPECIAL HANDLING PROCEDURES

Respiratory protection (type): None required under normal operating conditions. An appropriate NIOSH approved respirator with an organic vapor cartridge may be used.

Ventilation and engineering controls: Local exhaust to maintain below PEL

Eye protection (type): Safety glasses.

Gloves (specify material): Nitrile gloves to prevent direct skin contact.

Other clothing and equipment: Rubber boots and apron

Work practices, hygienic practices: Wash skin with soap and water thoroughly after handling.

Other handling and storage requirements: Store away from ignition sources and in a cool, dry area.

IX. REPORTING REQUIREMENTS & ADDITIONAL INFORMATION

HMIS Code System Rating = Health 2; Flammability 1; Reactivity 0.
NFPA 704 Code System Rating = Health 2; Flammability 1; Reactivity 0.
Volatile Organic Compound (VOC) = 194 grams per liter, (1.61 lbs/gallon)
DOT Proper shipping name: Corrosive liquids, N.O.S.(Contains Sodium Hydroxide), 8, UN1760, PGIII
This product contains no Proposition 65 designated chemicals.
This product is in compliance with California SCAQMD Rule 1171 as a clean up material.
Non-photochemically reactive.
Biodegradable, considered drain safe into all sewer systems.
Contains no chlorinated or petroleum hydrocarbons.

Attachment E

DUAL STRIP EMULSION

MATERIAL SAFETY DATA SHEET

I. GENERAL INFORMATION

TRADE NAME (as labeled): ProChem Dual Strip "Part 1"

Description: Two Part Screen Wash

DATE PREPARED/ REVISED: October 20, 2006

MANUFACTURER'S NAME

Chemical Consultants, Inc.
1850 Wild Turkey Circle
Corona, CA 92880-1799 USA

PREPARER

H.S.D.

PHONE NUMBER:
(951)735-5511

II. COMPONENT SAFETY DATA

Chemical Names	CAS Numbers	%	Exposure Limits in Air (give units) ACGH TLV	OSHA PEL	Other (specify)
Propylene Glycol Ethers	Mixture	<30	Not Est'd	Not Est'd	
Glycol Ethers	Mixture	>30	100 PPM	100 PPM	(Recommended)
Surfactants	Mixture	<20	Not Est'd	Not Est'd	
Esters	Mixture	>10	Not Est'd	Not Est'd	

III. PHYSICAL PROPERTIES

Vapor density (air =1):	>1	**Melting point or range, °F**	N/A
Specify gravity:	1.02	**Boiling point or range, °F**	355
Solubility in water:	Complete	**Evaporation rate (butyl acetate =1):**	<1
Vapor pressure, mmHg at 20 °C:	<2 (calc.)	**pH (1% solution):**	7.15

Appearance and odor:
Amber liquid with very slight odor.

IV.F IRE AND EXPLOSION

Flash point,° F (give method): 210 (TCC)

Auto ignition temperature, °F: Unknown

Flammable limits in air volume %: **lower (LEL)** Unknown **upper (UEL)** Unknown

Fire extinguishing materials: **water spray** X **carbon dioxide** X **other** _____
foam X **dry chemical** X

Special fire fighting procedures:
CAUTION: COMBUSTIBLE.D o NOT enter confined fire space without full bunker gear including a positive pressure NIOSH approved self-contained breathing apparatus.

Unusual fire and explosion hazards:
Containers exposed to intense heat should be cooled with water to prevent vapor pressure build up, which could result in container rupture.

V. REACTIVITY DATA

Stability: **Stable** X **Unstable** _____

Conditions to avoid:
Keep away from heat, flames and sparks.

Incompatibility (materials to avoid):
Strong oxidizing agents.

Hazardous decomposition products (including combustion products):
CO, CO2, and unidentified organic compounds.

Hazardous polymerization: **May occur** _____ **Will not occur** X

Conditions to avoid:
None known.

VI. HEALTH HAZARD INFORMATION

SYMPTOMS OF OVEREXPOSURE for each potential route of exposure.

Inhaled: Mist may cause irritation of mucous membranes,n ose, eyes and throat.

Skin: May cause irritation or dermatitis in some individuals upon prolonged contact.E ye contact: Low concentrations of mists or vapors can be irritating, causing redness. Concentrated mists,v apors or splashed liquid can cause severe irritation, burns and possible permanentd amage.

Swallowed: May cause irritation of mouth and throat.N ausea and vomiting.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: Explain in lay terms.

Acute: Possible blurred vision,h eadache, nausea.

Chronic: Prolonged skin contact can cause dermatitis.

FIRST AID EMERGENCY PROCEDURES:

Eye contact: Flush immediately with water for at least 15 minutes.C ontact a physician if irritation persists.

Skin contact: Remove contaminated clothing. Wash with soap and water. If irritation occurs,s eek medical aid.

Inhaled: Remove victim to fresh air. Provide oxygen if breathing is difficult. Seek medical aid.

Swallowed: Do not induce vomiting. Drink large quantities of milk or water. Seek medical aid.

CARCINOGENICITY? YES: _____ **NO:** X

This product's ingredients are found in this list. Federal OSHA_____ **NTP** _____ **IARC**_____ **ACGIH** _____

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing skin conditions

VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill response procedures (include employee protection measures): Small spills should be wiped. Large spills should be contained and recovered for use or disposal. Persons should wear appropriate protective equipment (respiratory, eyes, and skin).

Disposal Methods: RCRA Class: Not Regulated. EPA Hazardous substance reportable quantity: Not listed. May be supplied to biological treatment plant or incinerated.

NOTE: Dispose of all wastes in accordance with federal, state, and local regulations.

VIII. SPECIAL HANDLING PROCEDURES

Respiratory protection (type): None required under normal use conditions.

Ventilation and engineering controls: General ventilation recommended, to maintain below exposure limits.
Eye protection (type): Safety glasses.
Gloves (specify material): Nitrile gloves to prevent direct skin contact.
Other clothing and equipment: Adequate protective clothing to prevent skin contact.
Work practices, hygienic practices: Wash hands thoroughly after handling.
Other handling and storage requirements: Store away from ignition sources.

IX. REPORTING REQUIREMENTS & ADDITIONAL INFORMATION

HMIS Code System Rating = Health 1; Flammability 1; Reactivity 0.
NFPA 704 Code System Rating = Health 1; Flammability 1; Reactivity 0.
Volatile Organic Compound (VOC) = 445 grams per liter or 3.71 lbs. per gallon (EPA Method 24)
This product contains chemicals subject to the reporting requirements of SARA Title III, Section 313.
This product contains no Proposition 65 designated chemicals.
This product is in compliance with California SCAQMD rule 1171 as a clean up material.
Non-photochemically reactive.
Contains no chlorinated or petroleum hydrocarbons.

Attachment F

USA VF-184 (SCREENWASH)

533

Volume II
MSDS Index # 5540

MATERIAL SAFETY DATA SHEET

DATE OF LAST CHANGE: 07/21/98

DATE PRINTED.....: 07/24/98

MANUFACTURER'S NAME:

NAZDAR CHICAGO
1087 N. NORTHBRANCH ST.
CHICAGO
IL 60622 USA

EMERGENCY TELEPHONE #: (800)424-9300
(U.S. and Canada)
EMERGENCY TELEPHONE #: (703)527-3887
(Outside U.S. and Canada. collect calls are accepted)
INFORMATION TELEPHONE #: (800)736-7636

SECTION 1 -- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT CODE.: VF184

TRADE NAME...: VF184 SCREEN WASH

PRODUCT CLASS: SCREEN WASH

INK SERIES...:

- HMIS CODES -
HEALTH - 2*
FLAMMABILITY - 3
REACTIVITY - 0
PPE - X

SECTION 2 -- COMPOSITION, INFORMATION ON INGREDIENTS

CHEMICAL NAME; COMMON NAME; CAS NUMBER	PERCENT BY WEIGHT	OCCUPATIONAL EXPOSURE LIMITS -ACGIH- TLV	-OSHA- PEL	VAPOR PRESSURE IN mmHg	NOTES
ACETONE 2-PROPANONE: CAS #: 67-64-1	45-50	500 ppm STEL 750 ppm	750 ppm STEL 1000 ppm	186 @ 20C	
* XYLENE; DIMETHYLBENZENE; CAS #: 1330-20-7	40-45	100 ppm STEL: 150 ppm	100 ppm STEL: 150 ppm	6.6 @ 20C	
* ETHYL BENZENE CAS #: 100-41-4	5-10	100 ppm STEL: 125 ppm	100 ppm STEL: 125 ppm	7.1 @ 20C	

* SUBJECT TO REPORTING REQUIREMENT OF SECTION 313 OF TITLE III OF SARA (40 CFR PART 372).

The recommended permissible exposure limits (PEL) indicated above reflect the levels adopted by OSHA in 1989. Although, some of the 1989 levels have since been vacated. the Nazdar Company recommends that the lower exposure levels be observed as reasonable worker protection.

SECTION 3 -- HAZARDS IDENTIFICATION

ENERAL HEALTH EFFECTS
THE FOLLOWING INFORMATION HAS BEEN DEVELOPED BASED UPON USING THE PRODUCT AS INTENDED BY THE MANUFACTURER. The potential health effects of this product are based on the hazards of its components.

YES
Eye contact with liquid, vapors or mists may cause moderate to severe irritation, including burning, tearing, redness or swelling and reversible eye damage.

KIN
Skin contact may cause irritation. Symptoms may include dryness, chapping, redness and skin damage. This material may be absorbed through the skin. Repeated and prolonged skin contact may cause blister formation (burns), dermatitis, allergic reaction and/or sensitization.

NHALATION
Inhalation may cause respiratory tract irritation. Symptoms may include headaches, nausea, dizziness and intoxication.

NGESTION
Ingestion may cause moderate gastrointestinal tract irritation. Symptoms may include signs of nervous system depression, headaches, nausea and vomiting. Ingestion may cause vomiting. Aspiration of material into lungs may cause chemical pneumonitis which can be fatal.

HRONIC EFFECTS/TARGET ORGANS
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

NIMAL STUDIES
Acetone has been suggested as a cause of the following effects, after overexposure, in laboratory animals, and may aggravate pre-existing disorders of these organs in humans; mild, reversible liver effects and mild, reversible kidney effects. Acetone

has been shown to cause harm to the fetus in lab animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relavance of these findings to humans is uncertain. Xylene causes harm to the fetus in lab animal studies. The relevance of these findings to humans is uncertain. Repeated and prolonged overexposure to high concentrations of xylene has been suggested to cause the following effects in laboratory animals; hearing loss, mild reversible liver effects, kidney, lung, heart, spleen and nervous system effects. For animal studies, reference TSCA Section 4 Test Rule Results or contact the manufacturer for further details.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Pregnant women and persons with pre-existing health disorders should consult their physician before using this product. Repeated and prolonged overexposure and/or individual sensitivity may increase the potential for and degree of adverse health effects. See Section 3 "Hazards Identification" for effects of certain hazardous ingredients.

ROUTES OF EXPOSURE
Primary exposure routes: Inhalation-Dermal (Contact/Absorption)-Ingestion

SECTION 4 -- FIRST AID MEASURES

EYES
After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If irritation persists have eyes examined and tested by medical personnel.

SKIN
In case of contact, immediately wash skin with soap and plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists. Thoroughly wash (or discard) clothing and shoes before reuse.

INHALATION
Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention if breathing difficulty is experienced.

INGESTION
If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

OTHER COMMENTS
Not Applicable

SECTION 5 -- FIRE FIGHTING MEASURES

FLASH POINT
Less than 60 Degrees Fahrenheit (SETA Flash)

OSHA FLAMMABILITY CLASSIFICATION (NFPA)
Class IB Flammable Liquid

FLAMMABLE LIMITS (LEL-LOWER EXPLOSIVE LIMIT)
1.0% volume in air

EXTINGUISHING MEDIA
Foam-CO2-Dry Chemical-Water Spray

FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Keep containers tightly closed. Vapors may be heavier than air and can travel to a source of ignition then flash back. Closed containers may explode when exposed to extreme heat.

FIRE FIGHTING EQUIPMENT
Full protective equipment including self-contained breathing apparatus (SCBA) is recommended to protect firefighters.

SPECIAL FIRE FIGHTING PROCEDURES
Water may be ineffective but may be used to cool containers. Fumes released on burning may be toxic and dangerous.

SECTION 6 -- ACCIDENTAL RELEASE MEASURES

RELEASE MANAGEMENT MEASURES
Remove all sources of ignition (flames, hot surfaces and electrical, static or frictional sparks). Avoid contact or breathing vapors. Ventilate area. Contain release and remove with inert absorbent. Use non-sparking tools to place material in appropriate container for disposal. The National Response Center (800-424-8802) and local authorities should be contacted for any reportable spill/release.

SECTION 7 -- HANDLING AND STORAGE

HANDLING AND STORAGE METHODS
Use in a well ventilated area. Follow all MSDS/label precautions even after container is emptied: container may retain product residues. Store in closed containers in cool, dry, well ventilated area away from sources of ignition. Keep containers closed when not in use. Smoke in designated areas only. Avoid prolonged or repeated overexposure to this product. Keep out of reach of children. Follow label directions carefully. Do not take internally. Harmful or fatal if swallowed.

SECTION 8 -- EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION
If concentrations of hazardous ingredients exceed exposure limits listed in Section 2 or if material is handled under mist, spray or dust forming conditions, an appropriate half mask or full face NIOSH (National Institute for Occupational Safety and Health) approved respirator with N100 (99.97% efficiency) cartridges should be used. If no exposure limits are listed in Section 2, follow general safety guidelines in 29 CFR 1910.134 Respiratory Protection or other applicable respiratory standard.

SKIN PROTECTION
Use neoprene, nitrile or other gloves resistant to chemicals listed in Section 2. Contact a reputable safety supply company for appropriate gloves. Solvent resistant aprons are recommended. Prevent prolonged skin contact with contaminated clothing.

EYE PROTECTION
Use ANSI (American National Standards Institute) approved safety glasses, faceshield or splash proof goggles to prevent eye contact. Contact a reputable safety supply company for appropriate eye protection. The availability of an eye wash is highly recommended.

EXPOSURE GUIDELINES
See Section 2 "Composition, Information on Ingredients" for occupational exposure limits.

HYGIENIC PRACTICES
Wash with soap and water before eating, smoking or using toilet facilities. Separately wash or discard clothing and footwear before reuse. NEVER try to remove ink from the skin by using solvent or thinner. Such action is likely to increase the possibility of undesirable effects. Remove contaminated clothing to prevent prolonged skin contact.

ENGINEERING CONTROLS
Use applicable engineering controls, work practices and personal protective equipment to ensure all concentrations are kept below the exposure limits listed in Section 2.

OTHER PROTECTION
Not Applicable

SECTION 9 -- PHYSICAL AND CHEMICAL PROPERTIES

**

APPEARANCE:
Thin liquid

ODOR:
Characteristic

PHYSICAL STATE:
Liquid

pH
Not applicable

VAPOR PRESSURE
See Section 2 for individual ingredients.

VAPOR DENSITY
Heavier than air

BOILING POINT
Greater than 300 degrees Fahrenheit

FREEZING POINT
Not available

SOLUBILITY IN WATER
Not tested

EVAPORATION RATE
Slower than ether

PERCENT VOLATILE BY VOLUME: 75.00 %

WEIGHT PER GALLON: 6.92 lbs/gal

VOC: 719.00 g/L
5.99 lb/gal

PHOTOCHEMICALLY REACTIVE
Yes

Percent volatile = Percent VOC

SECTION 10 -- STABILITY AND REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
Avoid excessive heat, ignition sources, sparks and open flame.

INCOMPATIBILITY WITH OTHER MATERIALS
Strong acids/bases, oxidizing/reducing agents and reactive chemicals.

HAZARDOUS DECOMPOSITION PRODUCTS
May produce hazardous fumes when heated to decomposition e.g. carbon monoxide, carbon dioxide and other noxious gases.

HAZARDOUS POLYMERIZATION
Not anticipated during normal printing and storage conditions.

SECTION 11 -- TOXICOLOGICAL INFORMATION

EXPERIMENTAL TOXICITY DATA
Experimental toxicity data on acetone has given the following results: Oral LD50 Rat: 9700 mg/kg: Dermal LD50 Rabbit: 20 ml/kg: Inhalation LCLO Rat: 16000 ppm. Experimental toxicity data on xylene has given the following results: Oral LD50 Rat: 4300 mg/kg: Inhalation LC50 Rat: 6700 ppm.

SECTION 12 -- ECOLOGICAL INFORMATION

ECOTOXICITY
No Data Available

ENVIRONMENTAL FATE
No Data Available

SECTION 13 -- DISPOSAL CONSIDERATIONS

DISPOSAL METHODS
Dispose of in accordance with applicable local, county, state, provincial and federal regulations. Emptied containers may retain hazardous properties. Empty containers should be disposed of in an environmentally safe manner in accordance with applicable regulations.

SECTION 14 -- TRANSPORT INFORMATION

TRANSPORT INFORMATION
DOT Proper Shipping Description: Paint Related Material, 3, UN1263, PG II.

SECTION 15 -- REGULATORY INFORMATION

SARA TITLE III 313 INFORMATION
See Section 2 "Composition, Information on Ingredients" for applicable chemicals.

TOXIC SUBSTANCES CONTROL ACT STATUS
All ingredients in Section 2 are listed on the Environmental Protection Agency's Toxic Substances Control Act (TSCA) Inventory.

OTHER REGULATORY INFORMATION
Not Applicable

SECTION 16 -- OTHER INFORMATION

DISCLOSURE

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind express or implied is made with respect to the information contained herein.

DEFINITIONS

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

CEILING: (TLV-Ceiling and PEL Ceiling Limit) The ceiling exposure limit or concentration not to be exceeded for even brief times.

DOT: Department of Transportation

HMIS: The Hazardous Materials Identification System (HMIS) developed by the National Paint and Coatings Association (NPCA) to provide information on the acute health hazards, reactivity and flammability encountered in the workplace at room temperatures.

IARC: International Agency for Research on Cancer

NFPA: National Fire Protection Association

NTP: National Toxicology Program

STEL: Short-Term Exposure Limit: ACGIH terminology for the short-term exposure limit or maximum concentration for a continuous exposure period of 15 minutes.

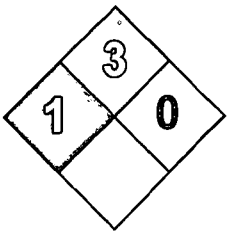
TLV: Threshold Limit Value. A term ACGIH uses to express the airborne concentration of a material to which most workers can be exposed during a normal daily and weekly work schedule without adverse effects.

TWA: Time-Weighted Average

VOC: Volatile Organic Compound

Attachment G

ALCOHOL



Health	2
Fire	3
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Isopropyl Alcohol, 70% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Isopropyl Alcohol, 70%

Catalog Codes: SLI1669

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Isopropyl alcohol; Water

CI#: Not available.

Synonym: 2-Propanol, 70%; Isoprpanol, 70%; Isopropyl Rubbing Alcohol

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Isopropyl alcohol	67-63-0	70
Water	7732-18-5	30

Toxicological Data on Ingredients: Isopropyl alcohol: ORAL (LD50): Acute: 5045 mg/kg [Rat]. 3600 mg/kg [Mouse]. 6410 mg/kg [Rabbit]. DERMAL (LD50): Acute: 12800 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Slightly hazardous in case of skin contact (sensitizer, permeator). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC [Isopropyl alcohol]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Development toxin [POSSIBLE] [Isopropyl alcohol]. The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: The lowest known value is 399°C (750.2°F) (Isopropyl alcohol).

Flash Points: CLOSED CUP: 18.3°C (64.9°F) - 24 deg. C (75 deg. F)

Flammable Limits: The greatest known range is LOWER: 2% UPPER: 12.7% (Isopropyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Flammable in presence of oxidizing materials. Non-flammable in presence of shocks

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of open flames and sparks, of heat. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Vapor may travel considerable distance to source of ignition and flash back. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME. Hydrogen peroxide sharply reduces the autoignition temperature of Isopropyl alcohol. After a delay, Isopropyl alcohol ignites on contact with dioxgenyl tetrafluorborate, chromium trioxide, and potassium tert-butoxide. When heated to decomposition it emits acrid smoke and fumes. (Isopropyl alcohol)

Special Remarks on Explosion Hazards:
Secondary alcohols are readily autooxidized in contact with oxygen or air, forming ketones and hydrogen peroxide. It can become potentially explosive. It reacts with oxygen to form dangerously unstable peroxides which can concentrate and explode during distillation or evaporation. The presence of 2-butanone increases the reaction rate for peroxide formation. Explosive in the form of vapor when exposed to heat or flame. May form explosive mixtures with air. Isopropyl alcohol +

phosgene forms isopropyl chloroformate and hydrogen chloride. In the presence of iron salts, thermal decompositon can occur, whicn in some cases can become explosive. A homogeneous mixture of concentrated peroxides + isopropyl alcohol are capable of detonation by shock or heat. Barium perchlorate + isopropyl alcohol gives the highly explosive alkyl perchlorates. It forms explosive mixtures with trinitormethane and hydrogen peroxide. It produces a violent explosive reaction when heated with aluminum isopropoxide + crotonaldehyde. Mixtures of isopropyl alcohol + nitroform are explosive. (Isopropyl alcohol)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Isopropyl alcohol TWA: 983 STEL: 1230 (mg/m3) [Australia] TWA: 200 STEL: 400 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 980 STEL: 1225 (mg/m3) from NIOSH TWA: 400 STEL: 500 (ppm) from NIOSH TWA: 400 STEL: 500 (ppm) [United Kingdom (UK)] TWA: 999 STEL: 1259 (mg/m3) [United Kingdom (UK)] TWA: 400 STEL: 500 (ppm) from OSHA (PEL) [United States] TWA: 980 STEL: 1225 (mg/m3) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Alcohol like.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Clear Colorless.

pH (1% soln/water): Neutral.

Boiling Point: The lowest known value is 82.5°C (180.5°F) (Isopropyl alcohol). Weighted average: 87.75°C (189.9°F)

Melting Point: May start to solidify at -88.5°C (-127.3°F) based on data for: Isopropyl alcohol.

Critical Temperature: The lowest known value is 235°C (455°F) (Isopropyl alcohol).

Specific Gravity: Weighted average: 0.84 (Water = 1)

Vapor Pressure: The highest known value is 4.4 kPa (@ 20°C) (Isopropyl alcohol). Weighted average: 3.77 kPa (@ 20°C)

Vapor Density: The highest known value is 2.07 (Air = 1) (Isopropyl alcohol). Weighted average: 1.63 (Air = 1)

Volatility: Not available.

Odor Threshold: The highest known value is 22 ppm (Isopropyl alcohol)

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility: Easily soluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, flame, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts violently with hydrogen + palladium combination, nitroform, oleum, COCl2, aluminum triisopropoxide, oxidants Incompatible with acetaldehyde, chlorine, ethylene oxide, isocyanates, acids, alkaline earth, alkali metals, caustics, amines, crotonaldehyde, phosgene, ammonia. Isopropyl alcohol reacts with metallic aluminum at high temperatures. Isopropyl alcohol attacks some plastics, rubber, and coatings. Vigorous reaction with sodium dichromate + sulfuric acid. (Isopropyl alcohol)

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 5143 mg/kg (Mouse) (Calculated value for the mixture). Acute dermal toxicity (LD50): 18286 mg/kg (Rabbit) (Calculated value for the mixture).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC [Isopropyl alcohol]. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Development toxin [POSSIBLE] [Isopropyl alcohol]. Contains material which may cause damage to the following organs: kidneys, liver, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (sensitizer, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive/teratogenic effects (fertility, fetoxicity, developmental abnormalities(developmental toxin)) based on animal studies. Detected in maternal milk in human. (Isopropyl alcohol)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause mild skin irritation, and sensitization. Eyes: Can cause eye irritation. Inhalation: Breathing in small amounts of this material during normal handling is not likely to cause harmful effects. However, breathing large amounts may be harmful and may affect the respiratory system and mucous membranes (irritation), behavior and brain (Central nervous system depression - headache, dizziness, drowsiness, stupor, incoordination, unconciousness, coma and possible death), peripheral nerve and senstation, blood, urinary system, and liver. Ingestion: Swallowing small amouts during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Swallowing large amounts may cause gastrointestinal tract irritation with nausea, vomiting and diarrhea, abdominal pain. It also may affect the urinary system, cardiovascular system, sense

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Isopropanol, solution (Isopropyl alcohol) UNNA: 1219 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Isopropyl alcohol Illinois toxic substances disclosure to employee act: Isopropyl alcohol Rhode Island RTK hazardous substances: Isopropyl alcohol Pennsylvania RTK: Isopropyl alcohol Florida: Isopropyl alcohol Minnesota: Isopropyl alcohol Massachusetts RTK: Isopropyl alcohol New Jersey: Isopropyl alcohol New Jersey spill list: Isopropyl alcohol TSCA 8(b) inventory: Isopropyl alcohol; Water TSCA 4(a) final testing order: Isopropyl alcohol TSCA 8(a) IUR: Isopropyl alcohol TSCA 8(d) H and S data reporting: Isopropyl alcohol: Effective date: 12/15/86 Sunset Date: 12/15/96 TSCA 12(b) one time export: Isopropyl alcohol SARA 313 toxic chemical notification and release reporting: Isopropyl alcohol 70%

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R36- Irritating to eyes. S2- Keep out of the reach of children. S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves (impervious). Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:53 PM

Last Updated: 11/01/2010 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Exhibit D

Standard Operating Procedures

ES CONSULTANTS, INC.
environmental and civil engineering

Bullet Line Environmental Standard Operating Procedure

Originating Office:	Revision:	Prepared by:	Approved by:
Engineering	1/30/12	Gary Feinman	Tom Swanstrom

Title: ESOP – Ink, Chemical, Hazard Waste: Disposal

1.0 PURPOSE

The purpose of this Standard Operating Procedure is to provide operating guidelines for the disposal of inks, chemical and their byproducts.

2.0 APPLICATION

This guidance applies to those individuals working with the decoration process at Bullet Line.

3.0 REFERENCES

MSDS sheets kept at ink mixing station.

4.0 PROCEDURE

4.1) Discussion:
Improper disposal can contribute to an upset in the environment, water supply, hazards to health, and adverse regulatory actions.

4.2) Operational Controls:
The following procedures apply:

STORAGE of Items being disposed:

1) Inks, chemicals & by-products are stored in an approved container in a well ventilated area they are clearly labeled.

1B) Thinners, retardants, hardeners, primer, and isopropanol alcohol are stored on spill-containment pallets.

HANDLING:

(Note: Make sure proper safety attire is worn according to MSDS)

1) Only employees trained in safe handling of chemicals will facilitate the storage and handling of Bullet Lines Chemical and by product disposal

DISPOSAL:

1) Bullet Line Operators will dispose excess ink into ink disposal collection drum.
2) Ink cups will have excess ink wiped off and disposed of into hazardous waste receptacle along with mixing sticks.
3) Rags which are used to wipe screens and clean pad print ink cups are to be dropped into rag disposal waste bin. These rags will be picked up by a vendor to be recycled.

4.3) Training:

All affected personnel must be trained with this Standard Operating Procedure.

4.4) Emergency Response Procedures:

Refer to attached MSDS.

4.5) New Filteration System *(I.E: New Building Installation)*

1) Effective Oct 1, 2012(New Building), Bullet Line will install a new water filtration system which is carbon based.
2) The carbon based system will be serviced by yearly or as needed by Photographic Waste Control INC.

Bullet Line Summary of Vendor Disposal Process

1. All Ink, dry paint, debri, paint related material, petroleum naptha & carbon etc will be picked up and disposed of Photographic Waste Control Inc.
2. All soiled, and non usable utility rags will be picked up and disposed of by GNK Services Inc.

Bullet Line Environmental Standard Operating Procedure

Originating Office:	Revision:	Prepared by:	Approved by:
Engineering	Original	William Billini	Chuck Ertzberger

Title: ESOP – Screen Washing

1.0 PURPOSE

The purpose of this Standard Operating Procedure is to provide operating guidelines for the reclamation of silk screening frames.

2.0 APPLICATION

This guidance applies to those individuals working with reclamation of silk screening frames at Bullet Line.

3.0 REFERENCES

1) H/C-100 ghost and ink remover MSDS.
2) Dual Strip emulsion remover MSDS

4.0 PROCEDURE

4.1) Discussion:

Improper management of screen reclaiming solutions can contribute to an upset in the environment, water supply, hazards to health, and adverse regulatory actions.

4.2) Operational Controls:

The following procedures apply:

1) Wear rubber gloves, safety glasses, and apron.
2) Dip silk screening frames into dip tank containing Dual Strip emulsion remover for 10 minutes. Preparation of dip tank consists of pouring 2 gallons of Dual Strip emulsion remover and topping off tank with water.
3) Remove silk screening frames from dip tank and apply H/C-100 ghost and ink remover with scrubbing pad to both sides of mesh.
4) Place silk screening frames in wash out booth and rinse with pressurized water. Contaminated water is treated by activated carbon filter. Activated carbon water filtration system is flushed daily into sewer.

4.3) Documentation and Record Keeping:

The following records must be maintained for silk screen frame washing management.

1) H/C-100 ghost and ink remover MSDS
2) Dual Strip emulsion remover MSDS

4.4) Training:

All affected personnel must be trained with this Standard Operating Procedure.

4.5) Emergency Response Procedures:

Refer to attached MSDS.

Bullet Line Environmental Standard Operating Procedure

Originating Office:	Revision:	Prepared by:	Approved by:
Engineering	Original	Gary Feinman	Tom Swanstrom

Title: ESOP – Spill Discharge

1.0 PURPOSE

The purpose of this Standard Operating Procedure is to provide operating guidelines for removing and cleaning spills .

2.0 APPLICATION

This guidance applies to those individuals working with inks, additives, chemicals etc at Bullet Line.

3.0 REFERENCES

1) MSDS. (All inks, chemicals, additives etc are contained in the centrally displayed MSDS master binder)

4.0 PROCEDURE

4.1) Operational Controls:

The following procedures apply:

1) Contact supervisor and or trained chemical containment person(s)

1a) If an immediate hazard and or danger is present, call 911

2) **QUARANTINE** area if needed, by floor signage-

3) Obtain spill kit from the designated area **(INK DISPENSING STATIONS)**

4) Obtain proper safety gloves, safety glasses, shoes and respirator if needed.

5) Once spill is contained all debri, spent rags etc. are to be placed in a portable non-flammable **bag,** the bag must then be placed in a **HAZMAT non-flammable drum**

4.2) Documentation and Record Keeping:

1. Upon completion of any and all spills a record of the event is to be filled out using the spill kit containment form

2. Upon completion of spill cleanup and documentation: **Bullet must contact Photographic Waste Control to remove and replace the non-flammable drum**

Exhibit E

Emission Calculations

ES CONSULTANTS, INC.
environmental and civil engineering

Bullet Line, LLC - Centergate at Gratigny
VOC/HAP Emission Calculation

Quantities Per Month - Provided by the Client			
Ink Type	Quantity		Units
Ink Type B NT	35 liters	9.25	Gallons
PA-10	50 Gallons	50	Gallons
9700 series	50 Gallons	50	Gallons
H/C Ghost and Ink Remover	20 Gallons	20	Gallons
Dual Strip Emulsion	20 Gallons	20	Gallons
ScreenWash (USA VF-184)	7 Drums (55 gal)	385	Gallons
Alcohol	2 Drums (55 gal)	110	Gallons

VOC/HAP Emission Calculation Spreadsheet - Per MSDS							
Material	Density lbs/Gallon	% VOC	% Xylenes	% Naphthalene	% Ethylbenzene	% Glycol ethers	% Esters
INK Type B NT	13.3	50%	5%	0%	0%	0%	0%
PA10 (SCREEN INK)	10.8	38%	0.5%	0.5%	1%	0%	0%
9700 series all purpose SCREEN INK	10.2	62%	0%	0%	0%	0%	0%
H/C Ghost and Ink Remover	10.1	0%	0%	0%	0%	0%	0%
Dual Strip Emulsion	8.5	70%	0%	0%	0%	30%	10%
USA VF-184 (screenwash)	6.9	75%	45%	0%	10%	0%	0%
Alcohol	6.6	70%	0%	0%	0%	0%	0%

Notes: General volatile content of alcohols = 70%; Sp gravity=0.786

Emission Calculation Spreadsheet								
Material	Amount Used	VOC	HAPs					
			Xylenes	Naphthalene	Ethylbenzene	Glycol Ethers	Esters	
	gallon/month	ton/month	ton/month	ton/month	ton/month	ton/month	ton/month	
INK Type B NT	9.25	0.03	0.00	0.00	0.00	0.00	0.00	Total HAPs (tons/month)
PA10	50	0.10	0.00	0.00	0.00	0.00	0.00	
9700 series all purpose SCREEN INK	50	0.16	0.00	0.00	0.00	0.00	0.00	
H/C Ghost and Ink Remover	20	0.00	0.00	0.00	0.00	0.00	0.00	
Dual Strip Emulsion	20	0.06	0.00	0.00	0.00	0.03	0.01	
USA VF-184	385	1.00	0.60	0.00	0.13	0.00	0.00	
Alcohol	110	0.25	0.00	0.00	0.00	0.00	0.00	
Total	**644.25**	**1.60**	**0.60**	**0.001**	**0.14**	**0.03**	**0.01**	**0.78**

Emissions (tons per year)	
VOC	19.2
Total HAPs	9.30
Individual HAPs (tons per year)	
Xylenes	7.25
Naphthalene	0.02
Ethylbenzene	1.63
Glycol Ethers	0.31
Esters	0.10

Letter of Transmittal

Flagler Construction Corporation
2855 S. LeJeune Road, 4th Floor
Coral Gables, Florida. 33134
Phone: (305) 520-2300
Fax: (305) 520-2422

FLAGLER CONSTRUCTION

To:	**Florida Department of Environmenta;l Proterction**
	3800 Commonwealth Blvd.
	Mail Station 77
	Tallahassee, Fl. 32399
	800-722-7457

Date:	**3/12/2012**
Job #:	
Attention:	
Re:	**Bulletline**

We are sending you: **ATTACHED** via: **Fed-x** the following item(s):

_____ **Shop Drawings** _____ Prints __x__ Plans _____ Samples _____ Specifications
_____ Copy of Letter _____ Change Order _____ Purchase Order _____ Other: _____

Copies	Date	No.	Description
1			**Check # 000705 - FDEP $100.00**
1			**Permit for Printing Operations Air General Permit Registration Form (completed)**
1			**ES Consultants Report**

THESE ARE TRANSMITTED as checked below:

_____ For Approval _____ Approved as Submitted _____ Resubmit _____Copies for Approval
__x__ For Your Use _____ **Approved as Noted** _____ Submit _____Copies for Distribution
_____ As Requested _____ **Returned for Corrections** _____ Return _1_Corrected Prints
_____ For Review and *Comment* _____ Other: _____
_____ For Bid Due: _____ _____ Prints Returned After Loan to Us

REMARKS:

Signed: John Elletson

PRINTING OPERATIONS
Air General Permit Example Registration Worksheet

The Department of Environmental Protection ("Department" or "DEP") has established an "air general permit" at Florida Administrative Code ("F.A.C.") Rule 62-210.310(4)(f) for printing operations. An air general permit is an authorization by rule to construct or operate a specific type of air pollutant emitting facility. Use of such authorization by any individual facility does not require action by the Department. The terms and conditions of the air general permit are set forth in the rule, rather than in a separately issued air construction or air operation permit.

If you are the owner or operator of an eligible facility comprising one or more printing operations, you may register to use the air general permit at Rule 62-210.310(4)(f), F.A.C., by following the general procedures given at subsections 62-210.310(2) and 62-210.310 (3), F.A.C. To register, use the Department's electronic registration system (currently under development) or submit all the information specified in the above rules to either of the following addresses, along with the air general permit registration processing fee ($100.00), payable to FDEP.

Regular USPS Mail Delivery
Department of Environmental Protection
Receipts
Post Office Box 3070
Tallahassee, Florida 32315-3070

or

Overnight Delivery (FedEx, UPS, DHL, etc.)
Department of Environmental Protection
3800 Commonwealth Blvd.
Mail Station 77
Tallahassee, Florida 32399

If you properly register to use an air general permit, and are not denied use of the air general permit by the Department, you are authorized to construct and operate the facility in accordance with the general terms and conditions of Rule 62-210.310, F.A.C., and the specific terms and conditions of Rule 62-210.310(4)(f), F.A.C. Your facility may vary, so be sure your registration describes the operations at your facility in sufficient detail to demonstrate the facility's eligibility for use of the air general permit and to provide a basis for tracking any future equipment or process changes. Your registration should describe all air pollutant-emitting processes and equipment at the facility, and it should identify any air pollution control measures or equipment used.

The rules do not require any specific format for the registration. This worksheet, however, has been designed to assist owners and operators. Using it as a template for a general permit registration will help ensure that all necessary information is submitted.

Additional information can be found on the Department's air general permit program website (http://www.floridadep.org/air/emission/air_gp.htm) or by calling the Small Business Environmental Assistance Program Hotline at 1-800-SBAP-HLP (1-800-722-7457).