REV 1 - #000

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Contents

1. Safety

1.1 Symbols and their Interpretations

WARNING Neglecting a safety instruction identified with the WARNING symbol may lead to personal injury.

CAUTION Neglecting a safety instruction identified with the CAUTION symbol may lead to property damage.

POINTER It is strongly recommended to observe instructions identified with a POINTER symbol.

1.2 Liability

- In no event will ***ITW TRANS TECH*** be responsible or liable for indirect or consequential damages resulting from the use of this equipment.
- The information contained in this manual is subject to change due to improvements in design.
- Though this document has been checked for inaccuracies, ***ITW TRANS TECH*** does not assume responsibility for any errors contained herein.
- This manual is provided as an aid when operating the Aero 60/90 pad printing machine. Prior to operation, it is strongly advised that the user be thoroughly familiar with the Aero 60/90 operating manual.
- ***ITW TRANS TECH*** is not responsible or liable for any disadvantage occurred for not following the operating instructions.

All operators must be sufficiently trained.

1.3 Warnings and Cautions

- Switch off main switch prior to connecting/disconnecting power.
- Disconnect power prior to opening the electrical enclosure.

Switch the MAIN DISCONNECT off and disconnect the power cord prior to working on the electrical system.

1.4 Application Restrictions

Any use other than described in this manual may cause damage to the equipment, personal injury or property damage.

2. Installation Instructions

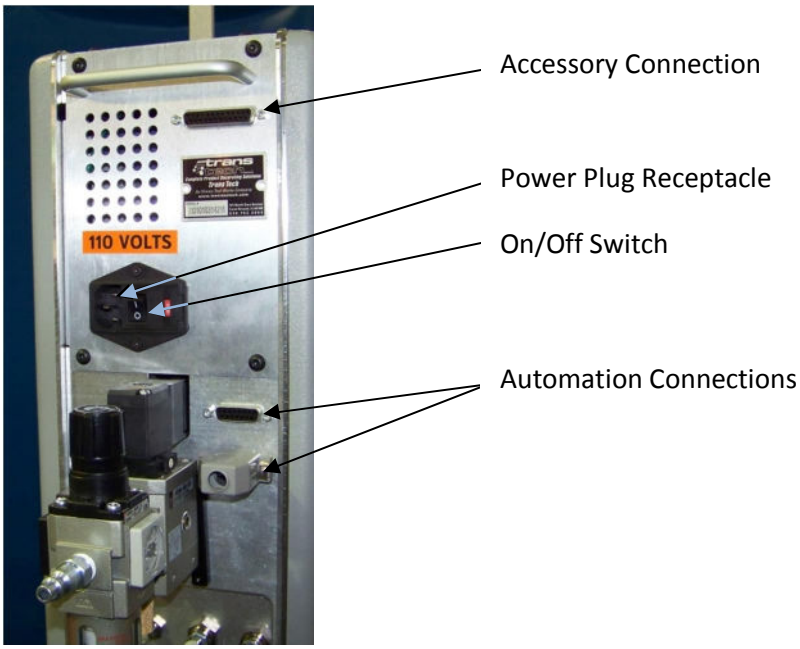
2.1 Selecting the location

Choose a well ventilated area away from direct sunlight to install your pad printing machine. The ideal conditions for the inks used in pad printing are approximately 20° C (68° F) and 40 - 60 % humidity.
Make sure the machine is positioned away from walls and other obstructions and placed on a flat surface. The guards, operating panel and other machine openings must be accessible. Ensure adequate area for setup tooling and for storage of parts before and after printing.

2.2 Connection to power

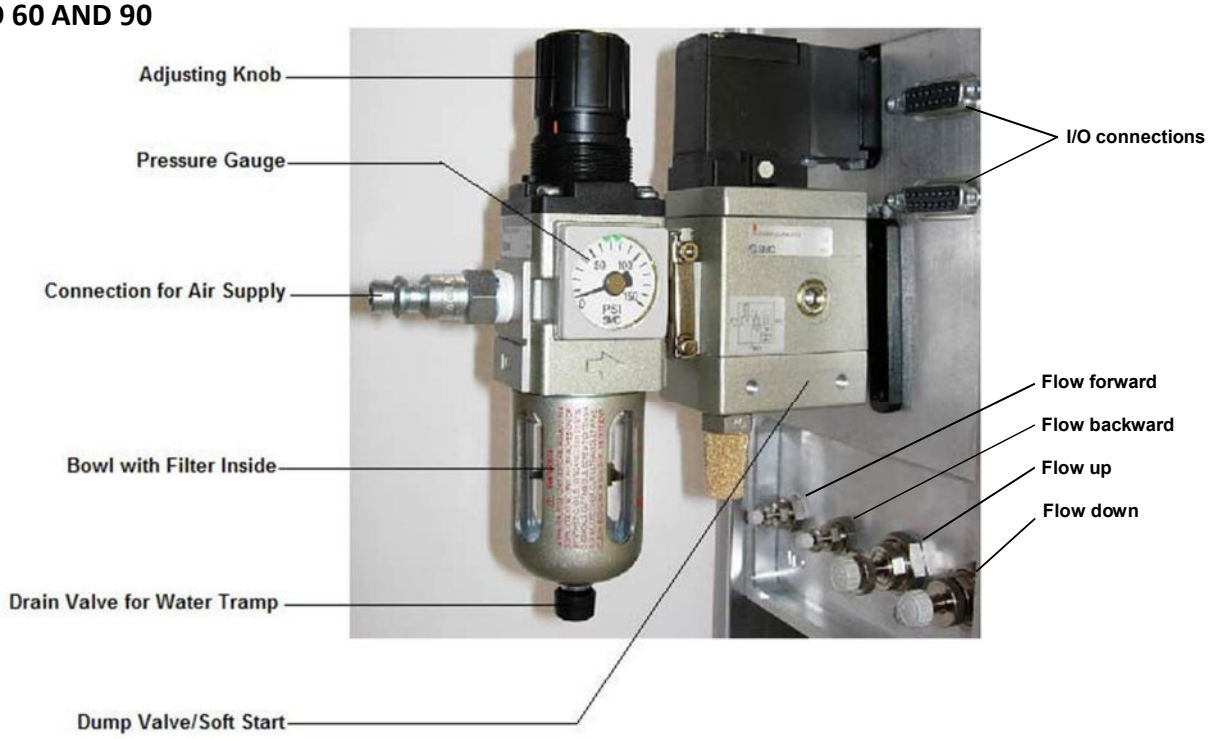
Use the included power cord to power the machine. The female end plugs into the printer Power Cord Receptacle, the male end plugs into a standard 115V/15A grounded outlet. The Aero consumes less than 0.5amps.

Also shown is the DB25 Accessory receptacle connection and the DB15 Automation and Footpedal receptacle connections.



2.3 Connecting to Air Supply

AERO 60 AND 90

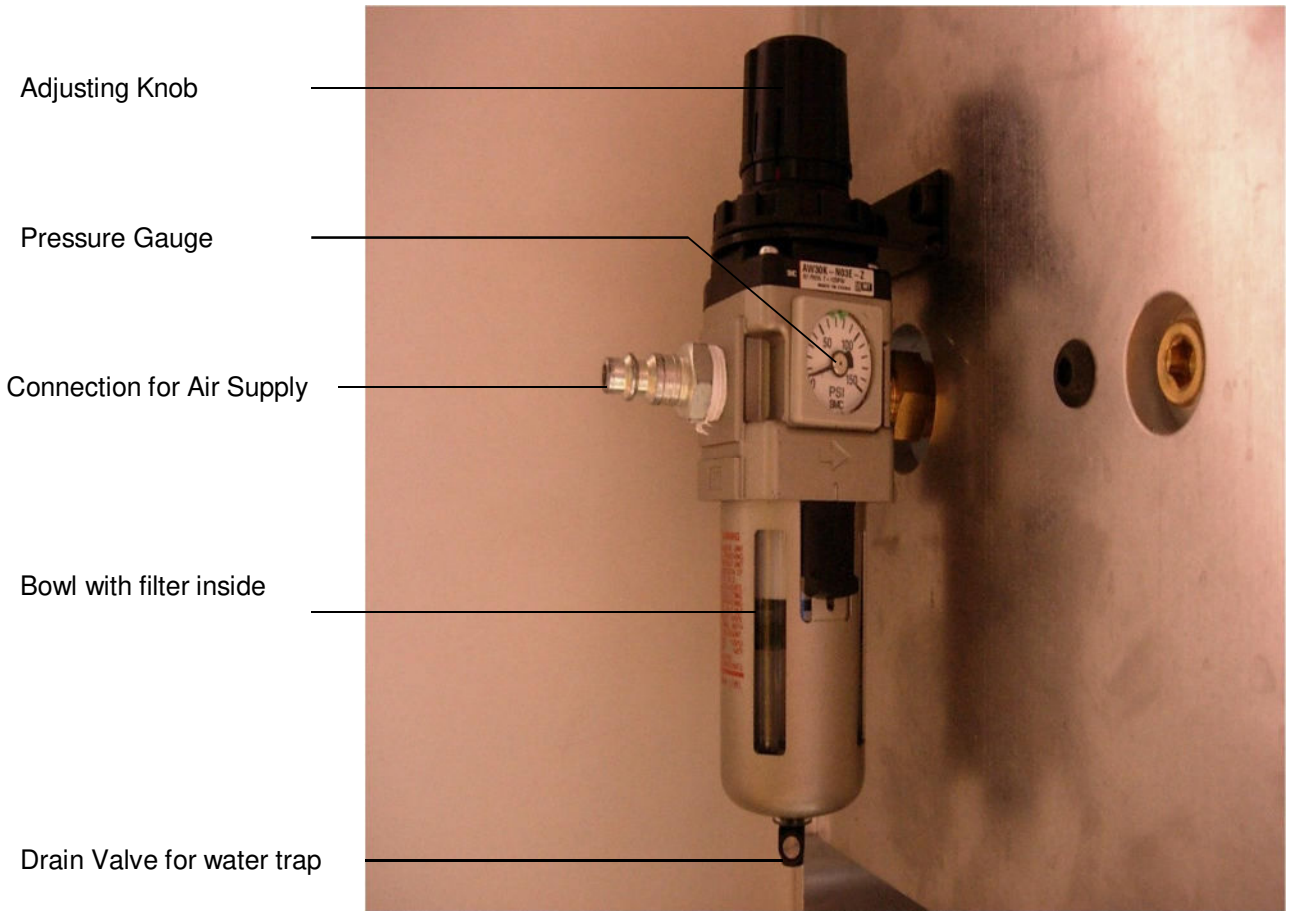


The machine requires clean, dry air.
Minimum requirement:

- 6 bar (85 psi)
- 3 cfm

Air connection is to quick disconnect adapter (included) or to ¼

AERO 130



The machine requires clean, dry air. Minimum requirement:
- 6 bar (85 psi)
- 5 cfm

Air connection is to quick disconnect adapter (included) or to 3/8

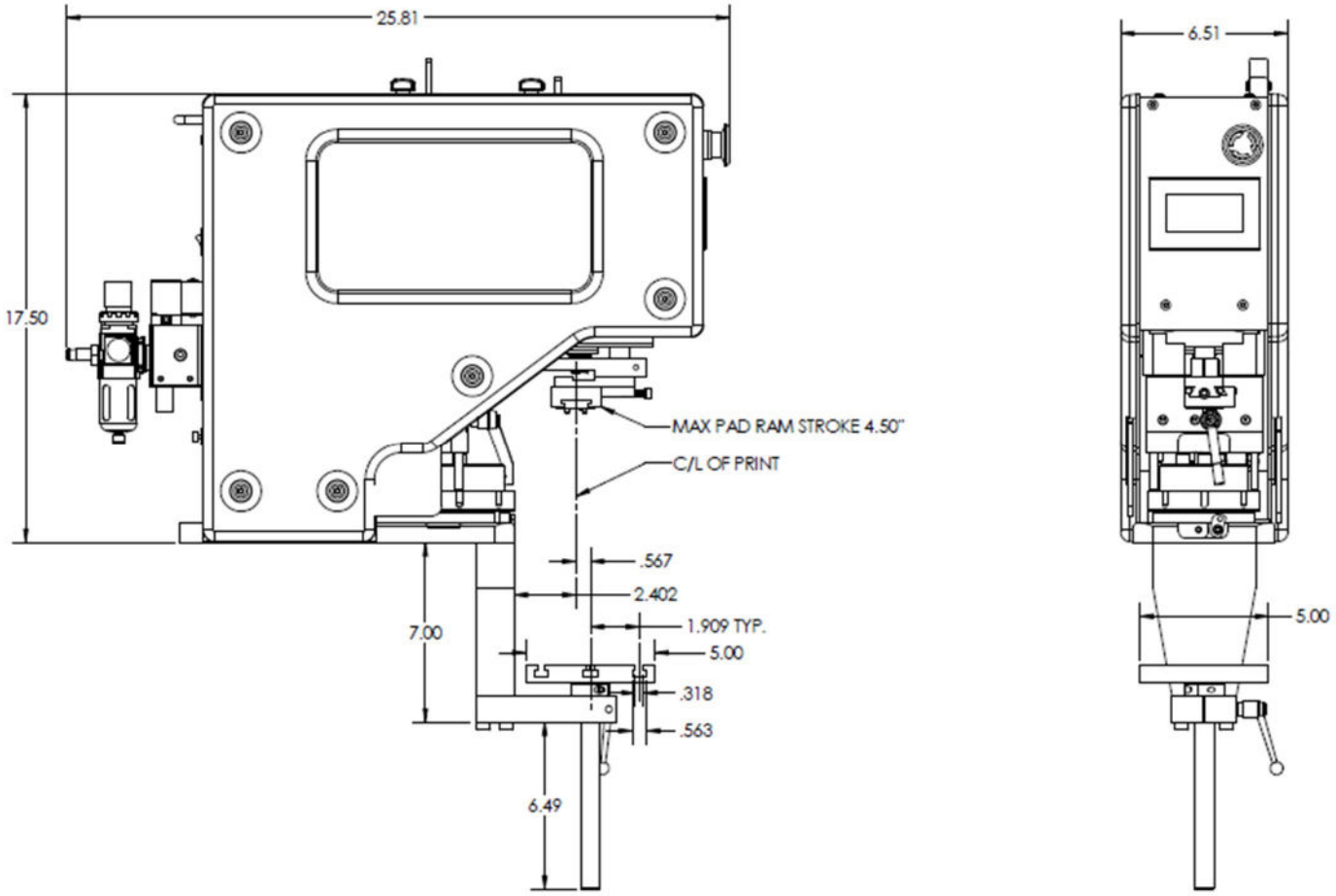
2.4 Mounting the Machine

AERO 60 AND 90

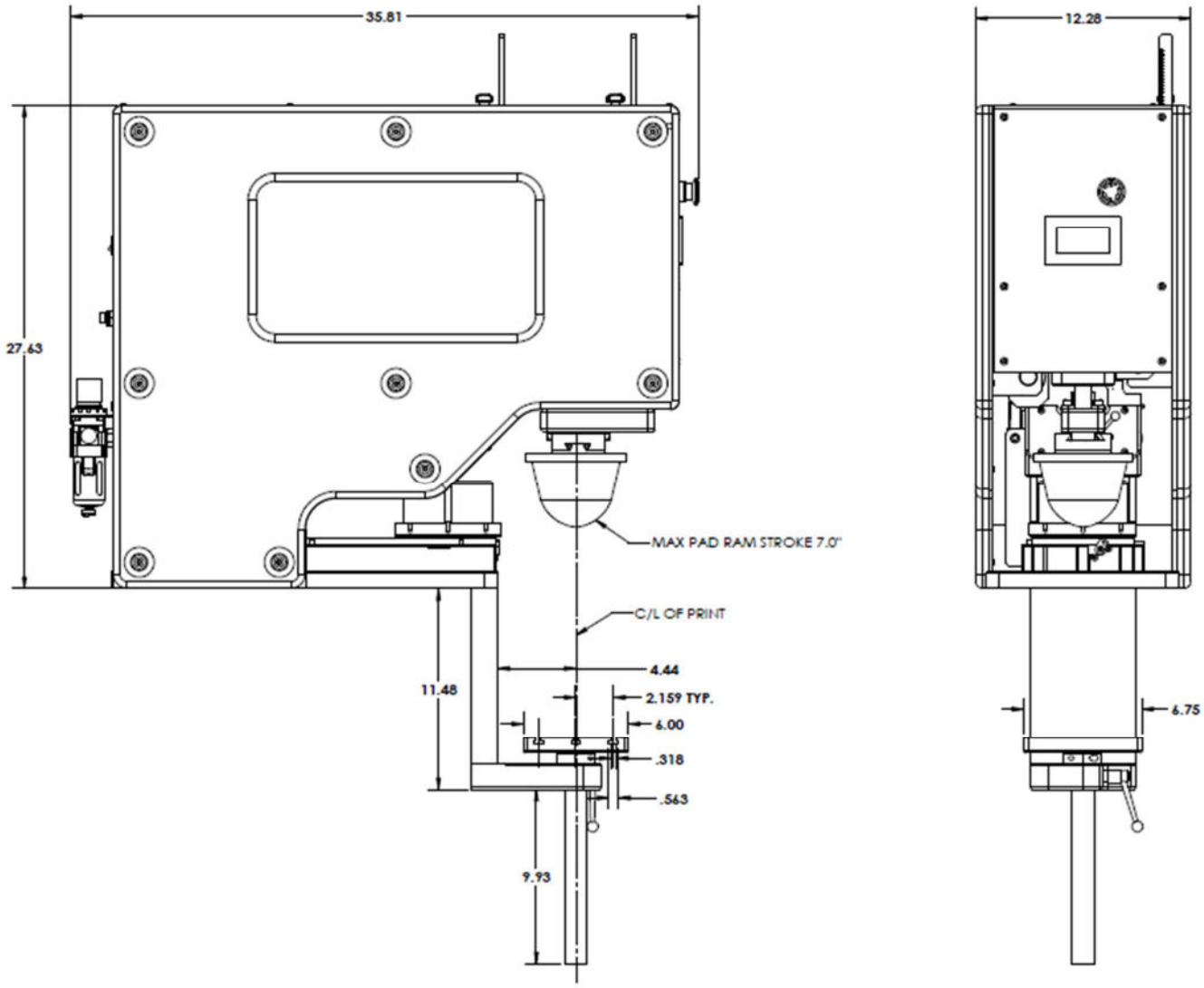
Using the holes marked

2.5 Machine Dimensions

AERO 60 AND 90



AERO 130


35.81
27.63
MAX PAD RAM STROKE 7.0"
C/L OF PRINT
11.48
4.44
2.159 TYP.
6.00
.318
.563
9.93
12.28
6.75

3. Printer Operation

3.1 Description of Ink Cup Tooling

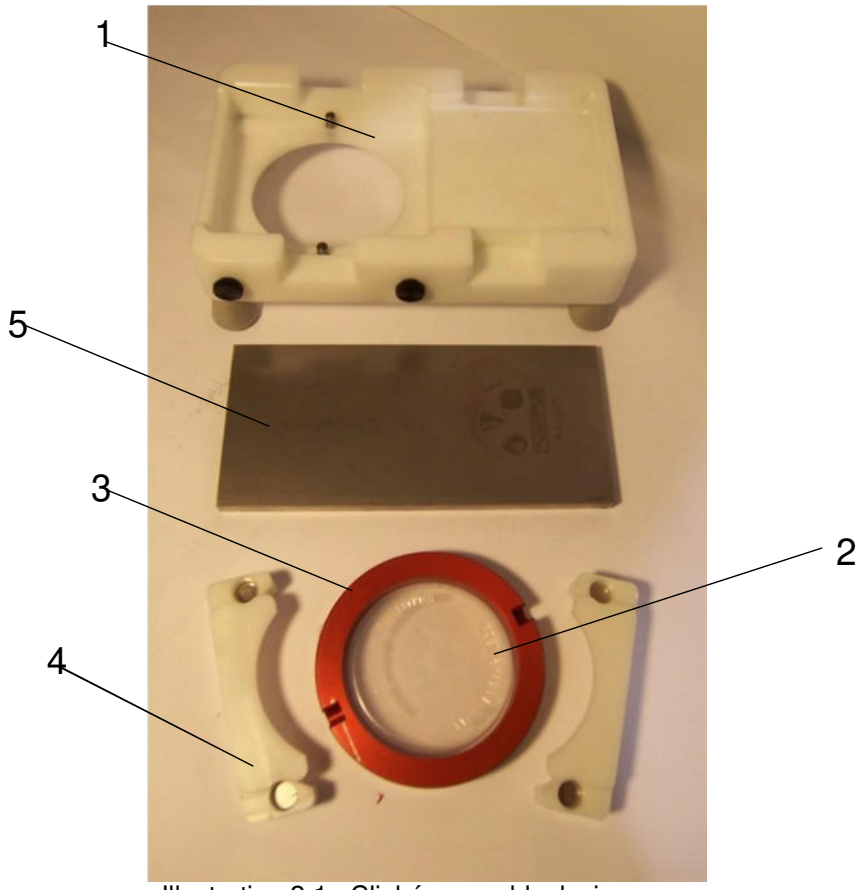


Illustration 2-1. Cliché assembly device

AERO 60 and 90

Bill of Materials for Ink Cup Assembly			
No.	Description	Part number Aero 90	Part number Aero 60
1	Setup Table	9901-30-001	9901-20-001
2	ExpressLiner	9260-62-102 (std)	9260-10-004
3	SpaceFrame	9260-62-100	9260-16-000
4	Magnetic Cup Clamp	9901-30-002	9901-20-002
5	Cliché	Contact Trans Tech	Contact Trans Tech

AERO 130

Bill of Materials for Setup System 9902-30-000		
No.	Description	Part number Aero 130
1	Setup Table	9902-30-001
2	ExpressLiner	9260-63-102
3	SpaceFrame	9260-63-100
4	Magnetic Cup Clamp	9902-30-002
5	Cliché	Contact Trans Tech

3.2 Installation of the Cliché and Ink Cup

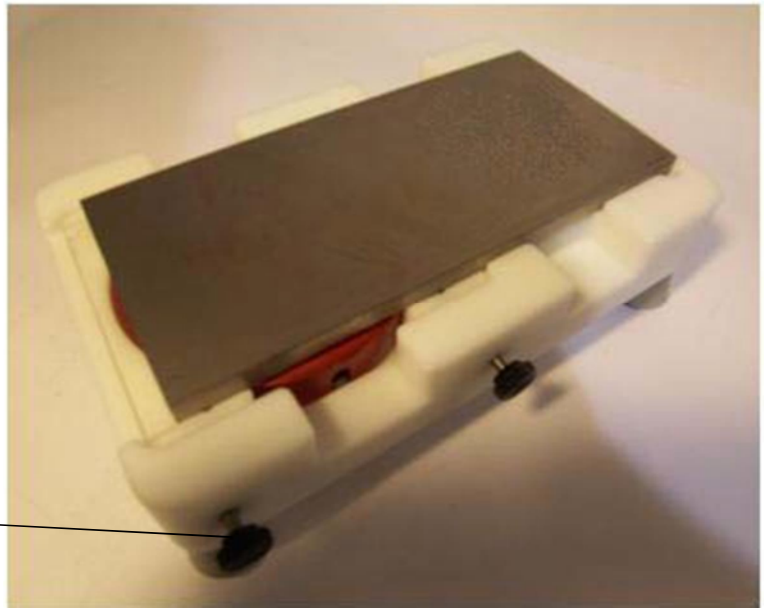


Illustration 2-2. Ink cup assembled on assembly table

When preparing the ink cup to be placed into the machine for printing, proceed as described in the following instruction:

1. Insert both

7. Remove the ink cup assembly from the

3.3 Removal of the Cliché and Ink Cup

When removing the ink cup from the machine, proceed as described in the following instruction:

1. Stop the AERO printer via the

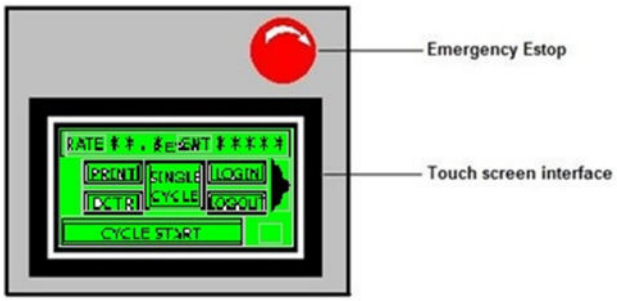
3.4 Handling of the Ink Cup

- Always protect the doctor ring in the ink cup from being damaged
- When not in use, place cup assembled with the cliché and clamped with the

[redacted]

4. Operating Controls

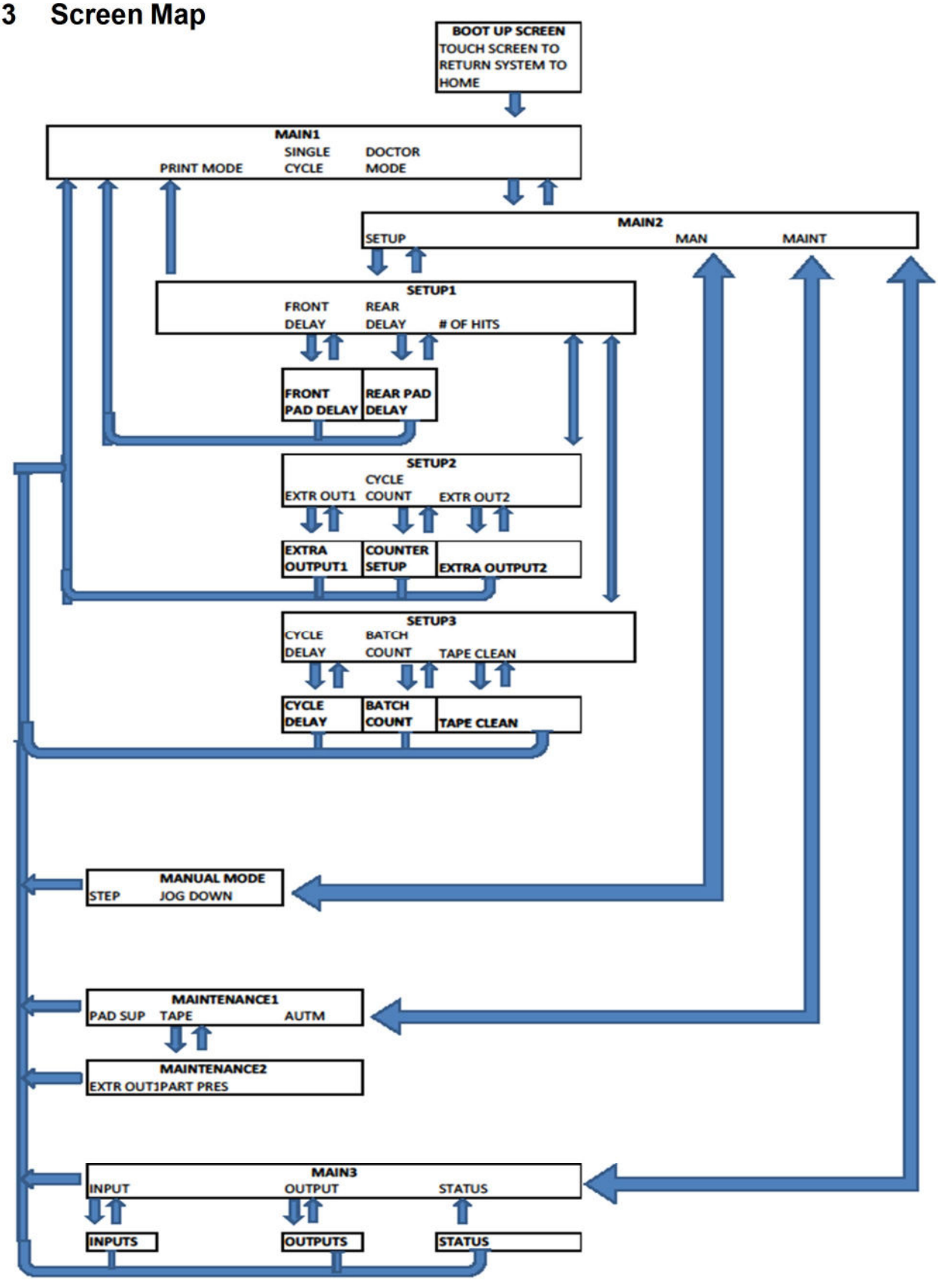
4.1 Description of the Operating Panel



4.2 The Operating Control Functions

Button	Description	Result
Touch Screen	Active when power is on	All setup, operating mode, start and stop command and manual functions are input via the touch screen.
E-Stop	Press to activate. Pull to release.	Interrupts power to inputs and outputs. Machine motion is immediately disabled. The machine may continue to move for a short distance after E-STOP is pressed.
Pad stroke down limit	Adjust the pad down stroke limit	Loosen lock screw before making adjustment. Move slide up to shorten stroke. Move slide down to lengthen stroke. Tighten lock screw after making adjustment.
Flow controls	Adjust the speed of the pad ram. Adjust the speed of the pad slide.	Loosen the lock ring. Turn knurled screw clockwise to slow down movement. Turn knurled screw counterclockwise to speed up movement. Tighten lock ring after making adjustment
Foot Switch And START button on control screen	Stop and start the printer.	When in single cycle mode, pressing the foot pedal or the START button will start the print cycle. When in continuous cycle mode, pressing the foot pedal once or pressing the START button will start the print cycle. Pressing the foot pedal again will stop the printer at the end of the active step of the print cycle. Press again to continue the print cycle.

4.3 Screen Map



4.4 Setup

4.4.1 Boot Up Screen

Normal Boot up screen after power on

Touch screen or push Foot Pedal to jump to Main screen.

4.4.2 Main Screen

Main Screen with single mode selected

Main Screen with auto mode selected

Touch Print Mode to select Print

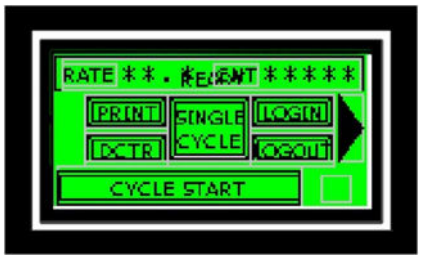
Single Cycle selected, Touch Single Cycle to select Auto Cycle mode

Auto Cycle selected, Touch Auto Cycle to select Single Cycle mode

Touch Doctor Mode to select Doctor mode

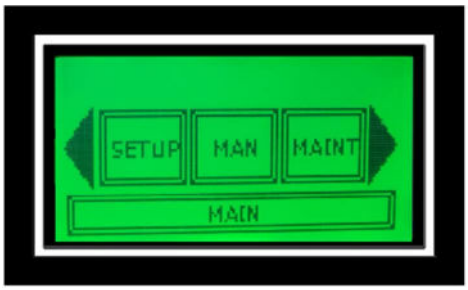
Touch Login push button to Login using the default password (9999), to allow access to the printer functions from the Main screen if PASSWORD in Maintenance screen is selected. Box is dark if the password feature is selected.

or



*Note: During a cycle, RATE and CYCLE CT are displayed.

4.4.3 Second Screen



Touch SETUP button to jump to the SETUP screen.

Touch MAN button to jump to the MANUAL screen

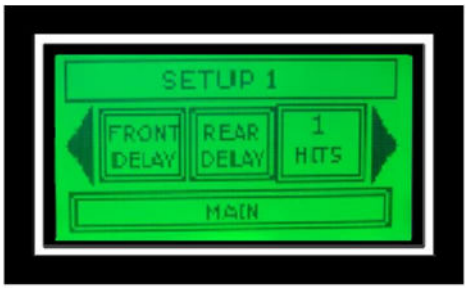
Touch MAINT button to jump to the MAINTENANCE screen. Before the Maintenance screen is displayed a valid password must be entered. If the password entered is correct then the Maintenance screen will be displayed. (Note: Maintenance screen will allow the printer configuration to be modified. Only turn on options that are installed on the machine. The password is 9999.)

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the next screen

Touch arrow button to jump to the previous screen

4.4.4 Setup 1



Touch FRONT DELAY button to jump to the FRONT PAD DELAY screen.

Touch REAR DELAY button to jump to the REAR PAD DELAY screen

Touch to increase the number of prints per cycle in Single Cycle mode from 1 to 4. Pressing again after 4 will return to 1.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the next screen

Touch arrow button to jump to the previous screen

4.4.5 Front Pad Delay

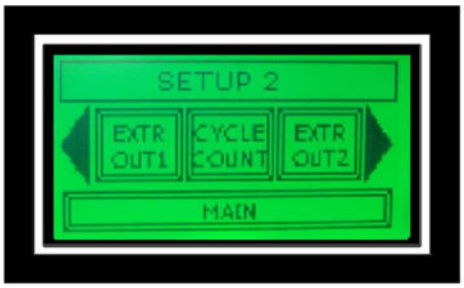
FRONT PAD DELAY UP

required to go from the Tape Cleaning Plate height to the Cliché height at the given speed.

Touch Main Button to jump back to the MAIN screen


Touch arrow button to jump to the previous screen

4.4.7 Setup 2



Touch EXTR OUT1 button to jump to the EXTRA OUTPUT1 screen.

Touch CYCLE COUNT button to jump to the CYCLE COUNT screen

Touch EXTR OUT2 button to jump to the EXTRA OUTPUT2 screen.

Touch Main Button to jump back to the MAIN screen


Touch arrow button to jump to the next screen


Touch arrow button to jump to the previous screen

4.4.8 Extra Output 1

Output Y0 turns on at the beginning of the 1st print and turns off at the completion of the 1st print. The pad will then go down to print the 2nd image (without picking up a new image) after the rising edge of input X2. Input X2 can be connected via diodes to auto switches in parallel to monitor slide/rotary fixture position. For example, position slide to print the 1st image on one side of the part and then print the 2nd image on the other side of the part with only one image pickup and one foot switch activation. Typically used with two small images and two printing pads.

Output Y0 turns on at the beginning of the 1st print and turns off at the start of the 2nd print. The printer will initiate its own 2nd print. Input X2 can be connected via diodes to auto switches in parallel to monitor slide/rotary fixture position. For example, position slide to print the image on one section of the part and then pick up and print the same image of a 2nd section of the part with one foot switch activation. Typically used with one large image and one printing pad

Output Y0 turns on at the beginning of the cycle every other cycle for the entire print cycle. Input X2 must be on to allow the printer to finish the cycle. For example, Pneumatic rotary dial table that goes changes directions with a 2 position single valve. Input X2 can be connected via diodes to auto switches in parallel to monitor table position.

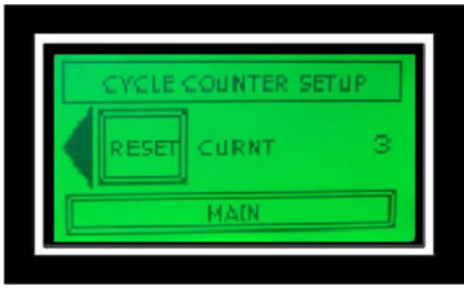
Output Y0 turns on at the beginning of the cycle and then turns off at the rising edge of input X2. For example, electric rotary indexing dial.

Select this to turn on or off the Y0 output mode. When selected to on, the Y0 will operate to the mode selection. When selected to off the Y0 output will not operate and the printer will run without the mode selection.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.9 Cycle Counter

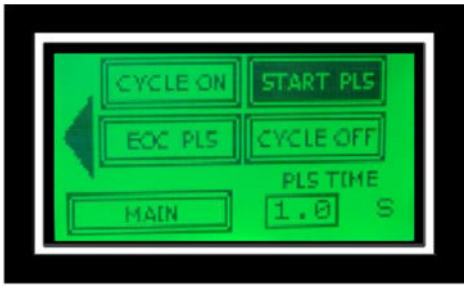


Touch to RESET current cycle count value to 0.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.10 Extra Output 2 Setup



Output Y1 turns on at the start of the print cycle for the duration print cycle

Output Y1 turns on at the start of the 1st print cycle for the duration selected in the Pulse Length.

Output Y1 turns on at the completion of the print cycle for the duration selected in the Pulse Length.

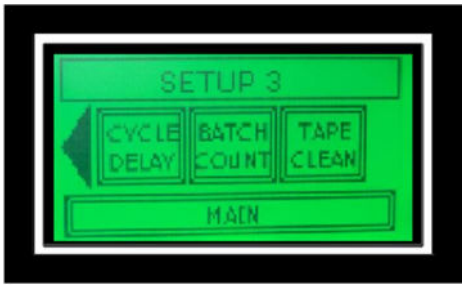
Output Y1 turns off at the start of the print cycle for the duration print cycle and then remains on until the next print cycle is started. Y1 initially turns on after the main air is on.

Touch here to enter the length of time for output Y1 to pulse on

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.11 Setup 3



Touch CYCLE DELAY button to jump to the CYCLE DELAY SETUP screen.

Touch BATCH COUNT button to jump to the BATCH COUNT SETUP screen

Touch TAPE CLEAN button to jump to the TAPE CLEAN SETUP screen.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.12 Cycle Delay

CYCLE DELAY will delay the printer at the end of its print cycle after the preset time delay has occurred in Auto mode.

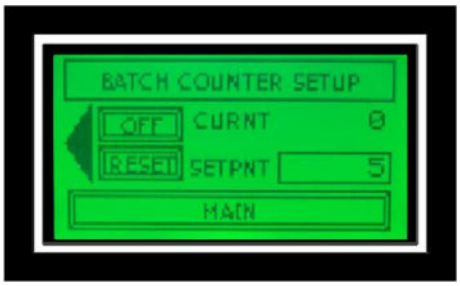
Touch to enter the value of the delay between cycles.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

Note: Entering a value of zero will result in no delay

4.4.13 Batch Count

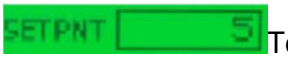


Displays Batch Counter functions; Batch Counter will stop the printer at the end of its print cycle once the preset number of BATCH COUNT print cycles has occurred. The printer will stop cycling and a message will be displayed to indicate BATCH count achieved. To reset and start the printer, the BATCH COUNTER will need to be reset.

Press the ON/OFF button to disable/enable BATCH COUNTER

Press the RESET button to rest the BATCH COUNTER

Displays the current count of the batch cycle.



Touch the cell to display a numeric keypad. Enter a preset value which will stop the machine when the preset count is achieved.

Touch Main Button to jump back to the MAIN screen


Touch arrow button to jump to the previous screen

4.4.14 Tape Clean

Note: The printer is pre-programmed with the tape cleaner option. (TAPE CLEANER IS PURCHASED SEPARATELY)
The Tape Cleaner is an optional device that uses a moving

4.4.15 Manual Screen

Default display for Manual screen.

*Note:

1. The production count will not increment in JOG mode.
2. The PAD DELAY is not active in JOG mode.

The printer completes **one** step of the printer cycle **each** time the Step button is pressed.

The pad ram will complete **one** down/up cycle **each** time the JOG DOWN button is pressed.

.

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.16 Maintenance 1 Screen

Touch to select this option if Pad Support is installed (The button will display dark). If Pad support is not installed this option should not be selected (the button should display light). Pad Support activates an NPN output Y6 (sinking) on pin 8 when a part is being printed (Support Up), and then toggles to pin 21 (output Y7) when the part is not being printed (Support Down). The system monitors these inputs when activated as NPN inputs X6 (Support Up, pin 4), and X7 (Support Down, pin 17).

Touch to select this option if Tape Cleaner is installed (The button will display dark). If Tape Cleaner is not installed this option should not be selected (the button should display light). Tape Cleaner activates an NPN output Y4 (sinking) on pin 7 when the tape cleaner goes into the machine (clean position) (Tape Clean In), and then toggles to pin 19 (output Y3) when the pad is not being cleaned (Tape Clean Out). The system monitors these inputs when activated as NPN inputs X4 (Tape Clean In, pin 3), and X3 (Tape Clean Out, pin 15).

Touch to select this option if Automation is installed (The button will display dark). If Automation is not installed this option should not be selected (the button should display light).

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

Touch arrow button to jump to the next screen

Note: A fault/message will occur if the accessory electrical autoswitches are not present/correct once a device has been selected as

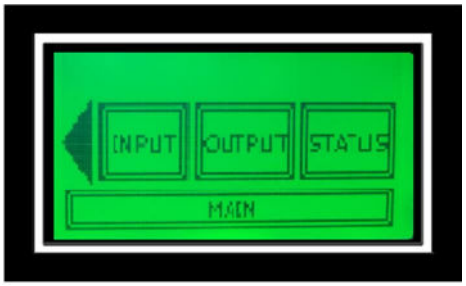
4.4.17 Maintenance 2 Screen

Touch to select this option if Part Present is installed (The button will display dark). If Part Present is not installed this option should not be selected (the button should display light). Part Present looks at the state of an NPN input X5 (sinking) on pin 16 when a cycle is being started. The cycle will only be started if a part is sensed and while the foot switch or Start softkey are being pushed. A alarm message will appear if no part is sensed during the start activation. A

Touch arrow button to jump to the previous screen

Note: A fault/message will occur if the accessory electrical autoswitches are not present/correct once a device has been selected as

4.4.18 Third Screen



Touch INPUT button to jump to the INPUTS screen.

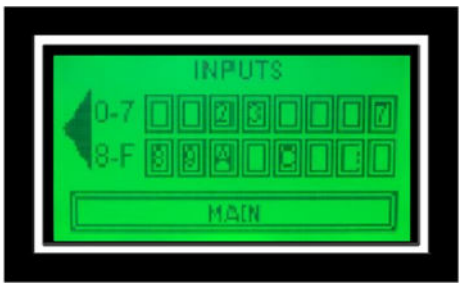
Touch OUTPUT button to jump to the OUTPUTS screen

Touch STATUS button to jump to the STATUS screen

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.19 Inputs



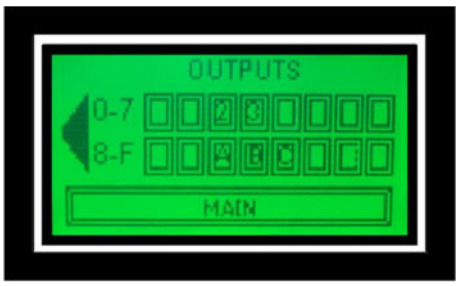
Displays the current status of the PLC inputs

Note: When input is active the input number is displayed on screen

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.20 Outputs



Displays the current status of the PLC outputs

Note: When input is active the output number is displayed on screen

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.21 Status

Displays the current status of the PLC program

Touch Main Button to jump back to the MAIN screen

Touch arrow button to jump to the previous screen

4.4.22 Alarms

Note: Correct the fault causing condition and then press reset fault button.

Press the Reset button to clear displayed alarms. Once the alarms are clear the screen will return to green.

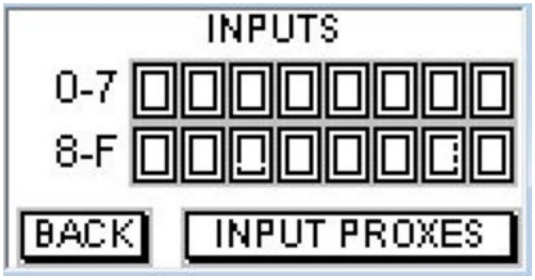
Touch arrow button to jump to the next screen

4.4.23 Emergency Stop Active

This screen is displayed when the Emergency Stop has been pushed. Twist to release the Red Emergency Stop button and continue to the next screen.

INPUTS	Push to jump to the PLC input screen

4.4.24 Inputs Screen (for E-Stop condition only)



This screen displays the PLC inputs as in section 4.4.19 except that the option of jumping to the Proximity Screen is added.

BACK	Push to jump back to the Emergency Stop screen
INPUT PROXES	Push to jump to the Input Proxes screen

4.4.25 Prox Switch I/O

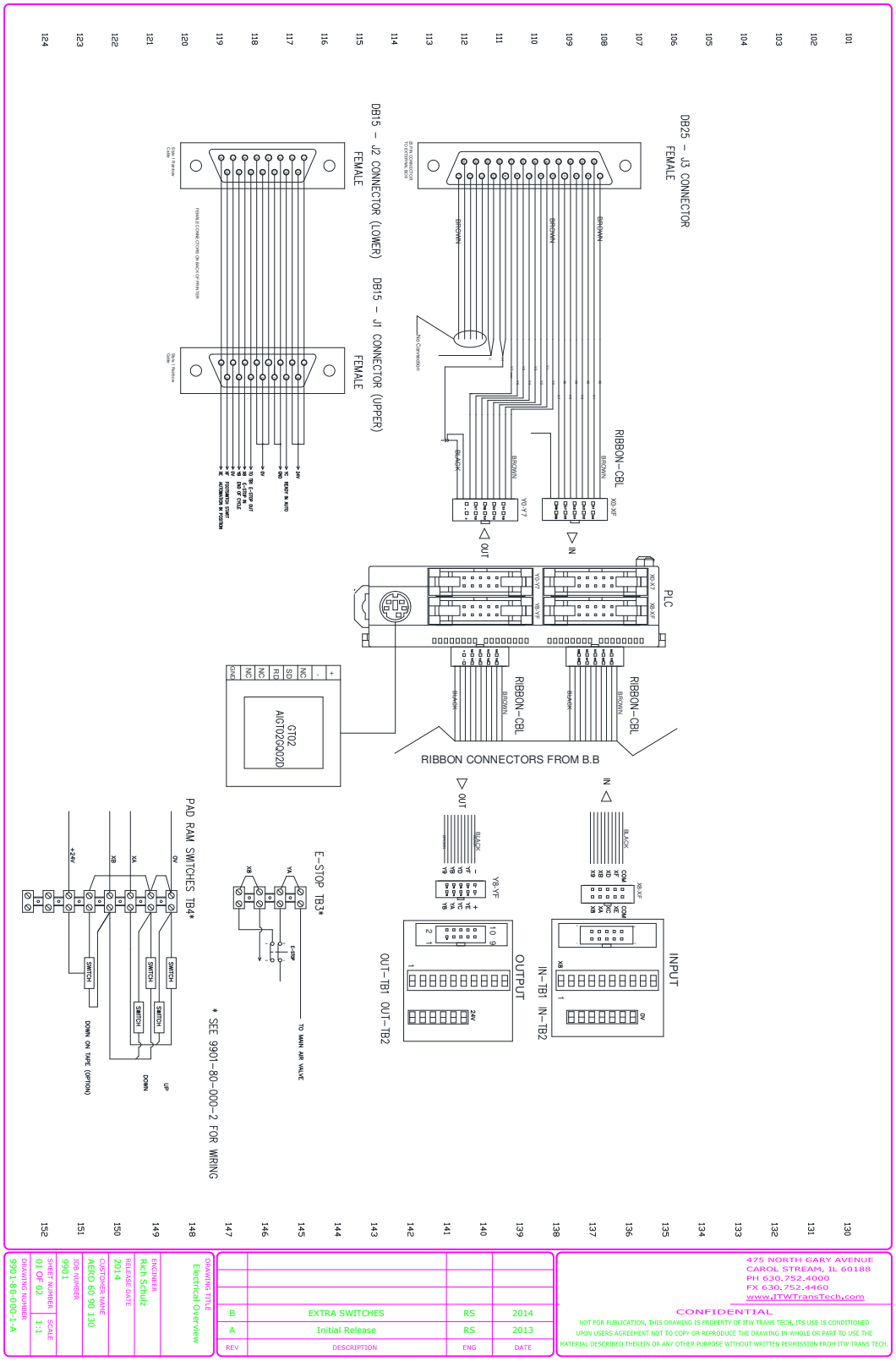
This screen shows a visual indicator of where the 6 Aero proximity switches (magnetic) are located inside the machine for easier troubleshooting. This screen is accessed via a duplicate Input screen which has an extra jump touch cell programmed for this purpose. The 4 blue magnets activate the white switches. The 6 boxes will show the PLC input A,B,C, and/or D when

1.1 Standard Errors

Error	Action
PAD RAM DOWN TIMEOUT	Check bottom proximity switch on vertical cylinder Check up/down valve
PAD RAM REAR TIMEOUT	Check rear proximity switch on horizontal cylinder Check pad forward/back valve
E-STOP	Pull E-Stop to release
NO AIR	Check air connection Check up proximity switch Check front proximity switch Check up/down valve Check pad forward/back valve
TAPE CLEANER POS TIMEOUT	Check tape cleaner proximity switches on cylinder Check tape cleaner in/out valve
PAD RAM UP TIMEOUT	Check top proximity switch on vertical cylinder Check up/down valve
BATCH CT. FINISH	Press reset to clear batch count, then press back to go to previous screen
PAD RAM FRONT TIMEOUT	Check front proximity switch on horizontal cylinder Check pad forward/back valve
AUTOMATION IN POSITION TIMEOUT	Check XE INPUT

PAD SUPPORT NOT IN UP POSITION	Check X6 proximity switch on cylinder. Check pad support up/down valve
PAD SUPPORT NOT IN DOWN POSITION	Check X7 proximity switch on cylinder. Check pad support up/down valve
PAD AT FRONT PROX STUCK ON	Check XC proximity switch stuck in the on state. Check prox on cylinder.
PAD AT REAR PROX STUCK ON	Check XD proximity switch stuck in the on state Check prox on cylinder.
PAD AT UP PROX STUCK ON	Check XA proximity switch stuck in the on state. Check prox on cylinder.
PAD AT DOWN PROX STUCK ON	Check XB proximity switch stuck in the on state Check prox on cylinder.
DIAL MOTION NOT COMPLETED	Check X2 proximity switch. Dial is selected and installed for the Extra Output1. A complete dial index consists of Prox X2 starting

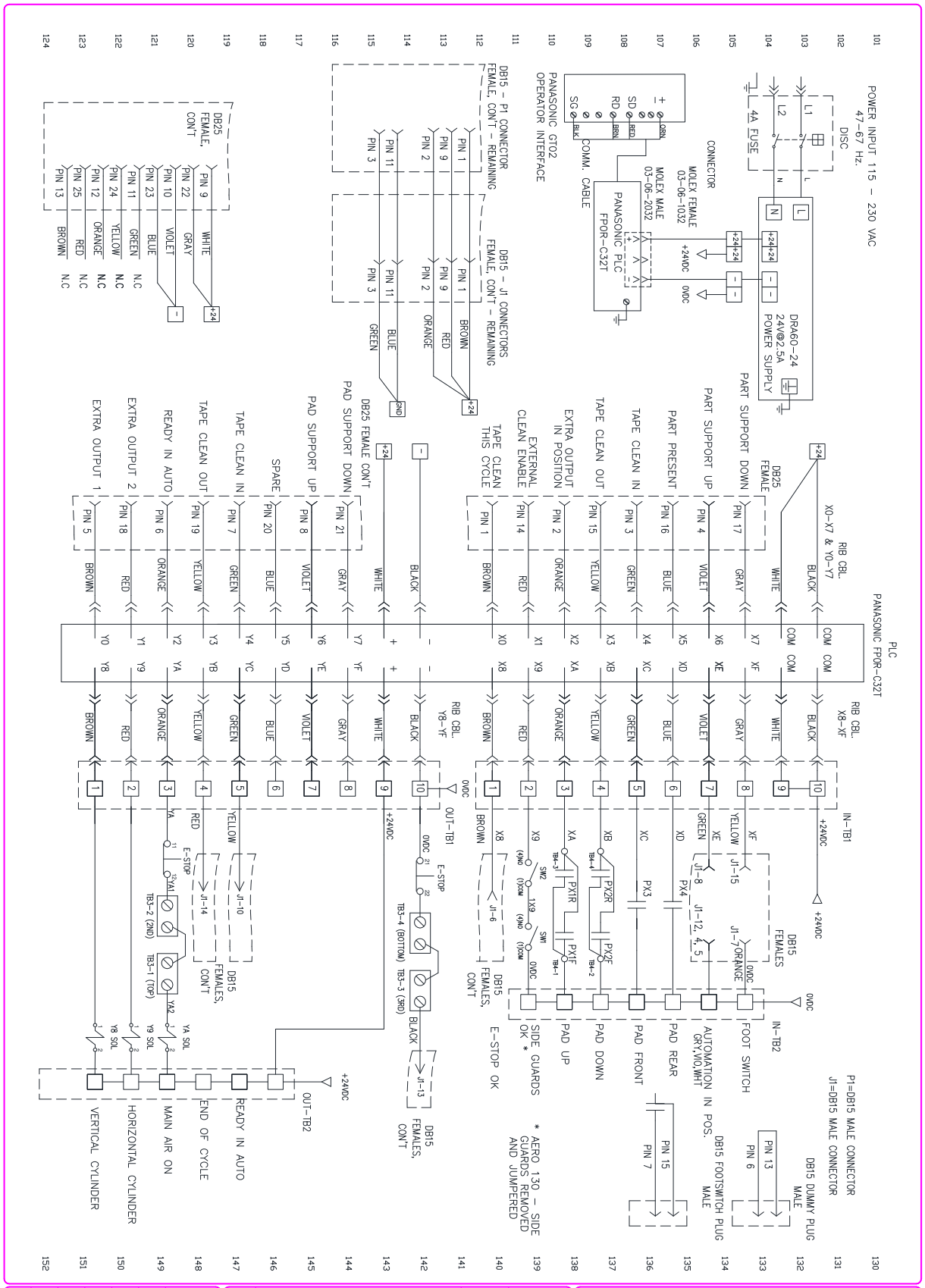
2. **Electrical Schematics**



B	EXTRA SWITCHES	RS	2014
A	Initial Release	RS	2013
REV	DESCRIPTION	ENG	DATE

DRAWING TITLE: Electrical Overview
ENGINEER: Rich Schulz
RELEASE DATE: 2014
CUSTOMER NAME: AERO 60 90 130
JOB NUMBER: 9901
SHEET NUMBER: 01 OF 02
SCALE: 1:1
DRAWING NUMBER: 9901-80-000-1-A

475 NORTH GARY AVENUE
CAROL STREAM, IL 60188
PH 630.752.4000
FX 630.752.4460
www.ITWTransTech.com



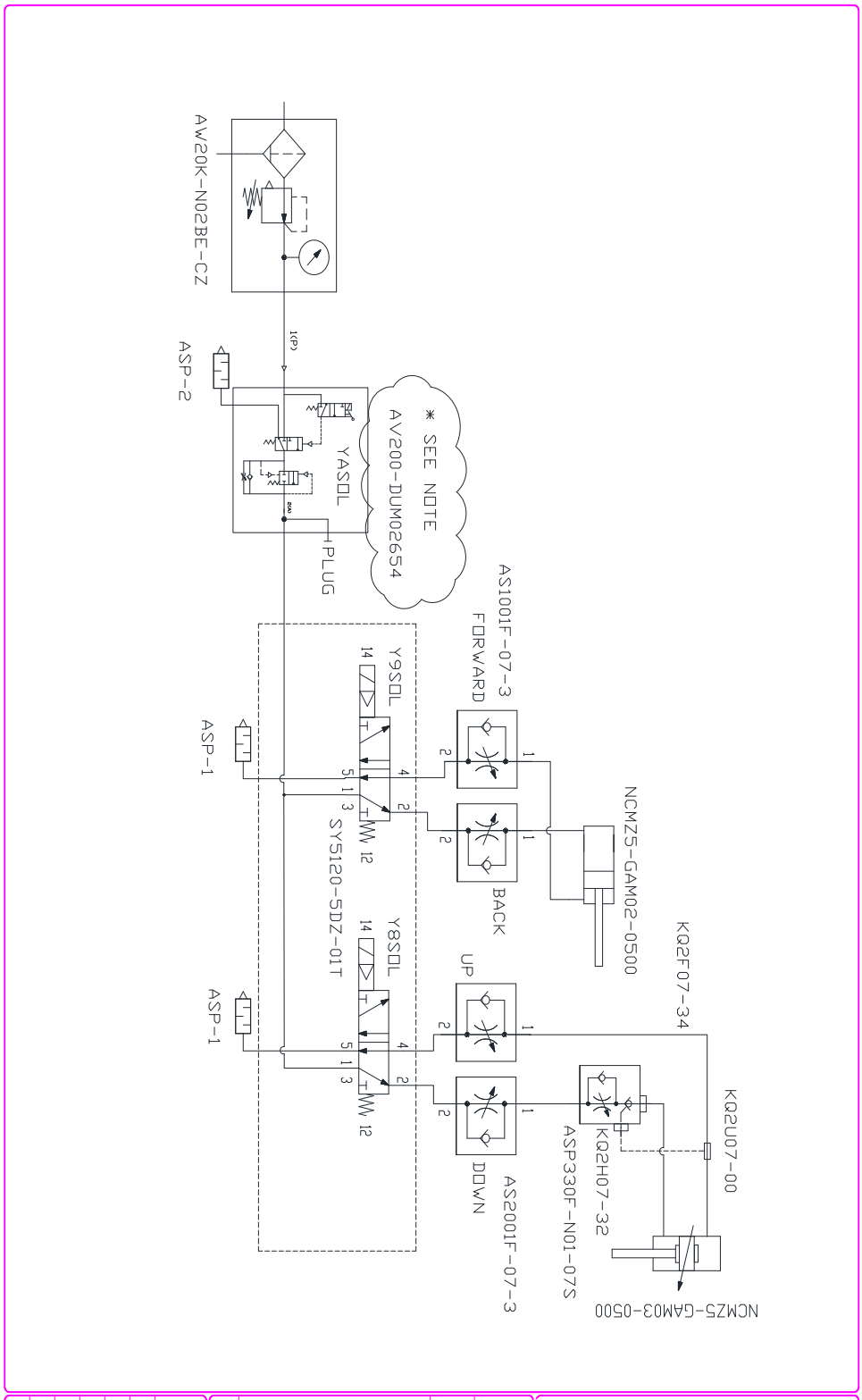
475 NORTH GARY AVENUE
CAROL STREAM, IL 60188
PH 630.752.4000
FX 630.752.4460
www.ITWTransTech.com

REV	DESCRIPTION	ENG	DATE
B	X8 6-13 changed	RS	2014
A	Initial Release	RS	2013

DRAWING TITLE: Electrical Schematic
ENGINEER: Rich Schulz
RELEASE DATE: 2014
CUSTOMER NAME: AERO 60 90 130
JOB NUMBER: 9901
SHEET NUMBER: 02 OF 02
SCALE: 1:1
DRAWING NUMBER: 9901-80-000-2-A

3. **Pneumatics Schematics**

3.1 Version AERO 60/90



DRAWING TITLE	Pneumatics			
	Aero 60/90			
ENGINEER	RS			
RELEASE DATE	3/12/2013			
CUSTOMER NAME	Standard			
JOB NUMBER	9901			
SHEET NUMBER	01 OF 01			
SCALE	1:1			
DRAWING NUMBER	9901-90-000-1-A			
REV	DESCRIPTION		ENG	DATE
A	Initial Release		RS	3/12/13

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3.2 Version AERO 130