TRANSTECH

AERO 60/90 2 COLOR

Release 1.02 as of 12/2013

Operation Manual

Trusted Partner for Your Product Decorating Needs
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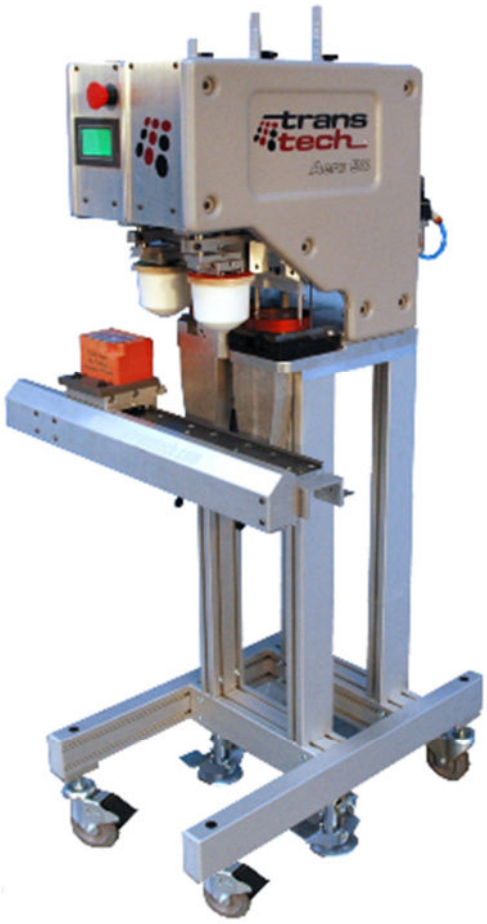
This pad printer is a very versatile machine. The printer on the left contains the master control and the printer on the right is the “drone”. The pneumatic shuttle unit will move the product from the first print position to the second print position and then return to the first print position with each cycle of the system.

Due to the versatility of this printer, there are quite a number of screens in the HMI (Human Machine Interface) which allow you to achieve the most optimum setup for the job at hand. The operational descriptions of these various screens presented in this manual, will guide you to solving the pad printing challenges of your decorating application.

It is very important to remember that our highly experienced staff is only a phone call away at 630-752-4000 to be of assistance. Please don’t hesitate to call if the need arises.



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1.1. Safety

1.1.1 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.

1.1.2 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 this 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.

1.1.3 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.

1.1.4 Application Restrictions

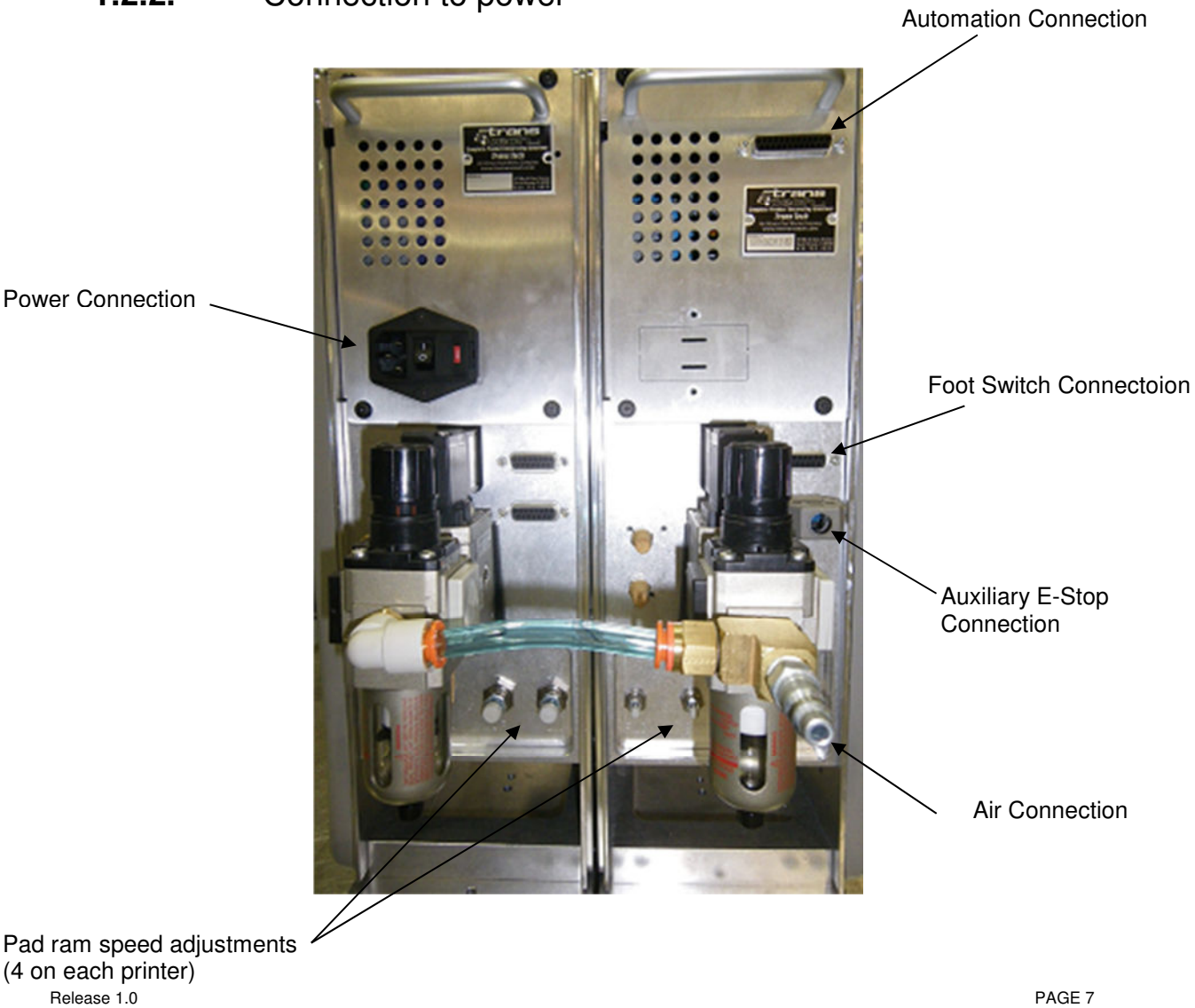
Any use other than described in this manual may cause damage to the equipment, personal injury or property damage.

1.2. Installation Instructions

1.2.1 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 with all four feet properly adjusted and secured. 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.

1.2.2. Connection to power



1.3. Description of SpaceFrame Tooling

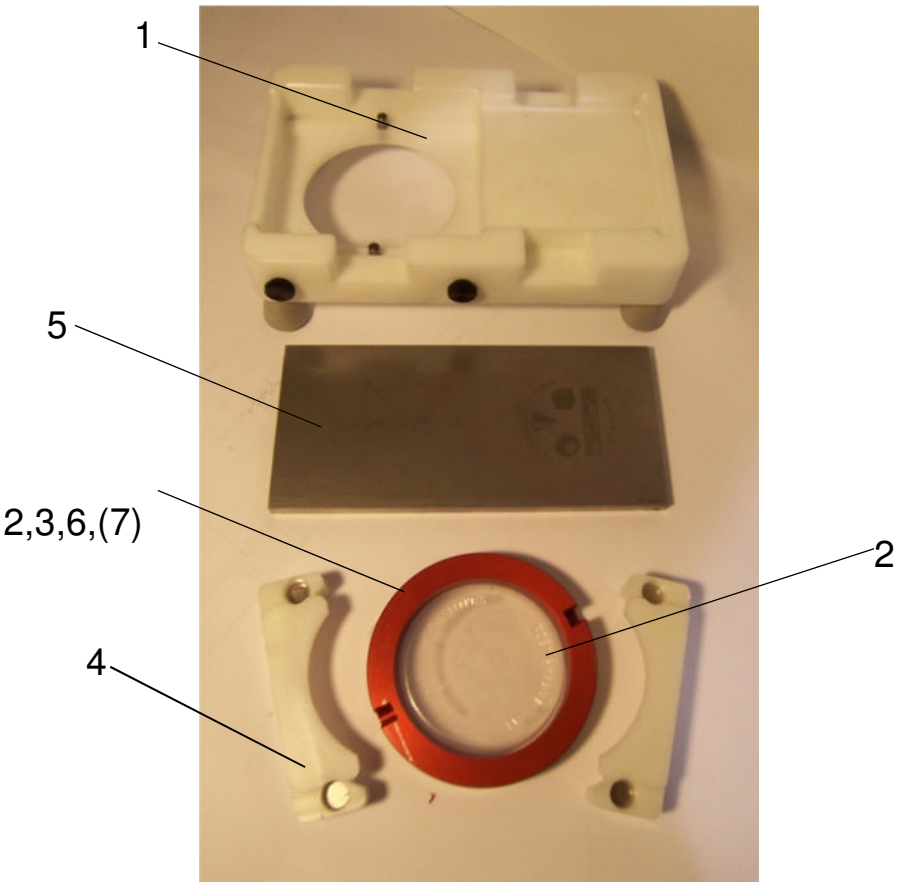


Illustration 2-1. Cliché assembly device

Bill of Materials for SpaceFrame Assembly			
No.	Description	90 cup Part number	60 cup Part number
1	Setup Table	9901-30-001	9901-31-001
2	ExpressLiner	9260-20-004 (std) 9260-20-005 (tall)	9260-10-004
3	SpaceFrame	9260-26-100	9260-16-100
4	Magnetic Cup Clamp	9901-30-002	9901-31-002
5	Cliché	Contact Trans Tech	Contact Trans Tech
6	Carbide Doctor Ring	10902002	9260-20-003
7	Ceramic Doctor Ring	10903003	9260-10-003

1.3.1. Installation of the Cliché and SpaceFrame

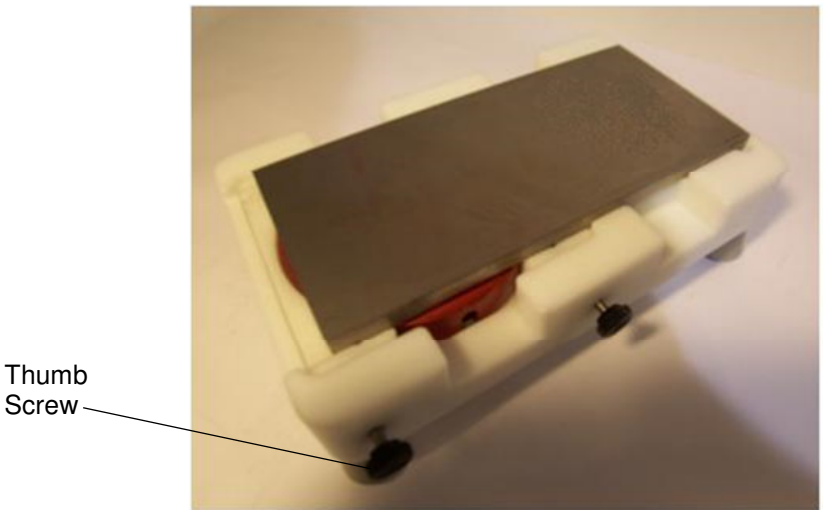


Illustration 2-2. SpaceFrame assembled on assembly table

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

1. Insert both 'MAGNETIC CUP CLAMPS' with the top down into the 'SETUP TABLE' (1) Tighten thumb screws snuggly to retain clamps.
2. Place the ExpressLiner /Doctor Ring assembly with the opening up into the SpaceFrame (3)
3. Place SpaceFrame assembly into 'MAGNETIC CUP CLAMPS' with both dowel pins engaged into the receiver pockets of the cup.
4. Fill ExpressLiner (2) with ink to desired fill level.
5. Place the 'CLICHÉ' carefully with the image facing down. Slide cliché back until it is located firmly against the back and side stops on the 'SETUP TABLE'
6. Loosen the thumb screws and carefully lift the SpaceFrame/cliché assembly out of the SETUP TABLE
7. Turn the assembly over (the cliché is now on the bottom)
   With the front guards open, slide the assembly into the Pad Printer.
8. Using a 4mm Allen wrench, tighten the cliché side locking device snugly. (do not over tighten)
   Using a 4mm Allen wrench, rotate the cliché front clamp upward and tighten it. Again snugly.
9. Turn the clamping lever to clamp the SpaceFrame
   Verify that the clamping fingers are properly engaged with the hold down ring
10. Remove the MAGNETIC CUP CLAMPS
11. Mount the pad onto the magnetic pad ram holding base

12. Close machine guard
    The machine is ready to operate

1.3.2 Removal of the Cliché and SpaceFrame

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

1. Stop the printer via the 'STOP' button in the 'HOME' position (Pad up).
2. Open the machine guard and remove pad
3. Place MAGNETIC CUP CLAMPS on the front and rear of the CUP
4. Loosen the cliché clamping screws and move the cliché clamp to clear the cliché
5. Turn the cup locking handle to lift the clamping fingers clear of the 'HOLD DOWN RING' (3)

If the machine has been assembled for an extended period of time, accumulation of ink may inhibit the removal of the cliché'. This may cause the SpaceFrame to pull free from the cliché' and to spill the ink. Verify that the cliché' and SpaceFrame slide out together!

6. Draw the cup/cliché assembly out of the machine and turn it over with the SpaceFrame facing down
7. Set assembly into the 'SETUP TABLE' (1) and tighten the thumb screws
8. Carefully slide the cliché off the SpaceFrame.

If the printing machine will not be in operation for an extended time, it is recommended that the cup and plate be removed from the machine. Ink in contact with the printing plate for extended periods of time, can cause damage to the printing plate. (This practice does vary based on the type of ink and or thinner used.

1.3.3 Handling of the SpaceFrame

- Always protect the doctor ring in the SpaceFrame from being damaged
- When not in use, place cup assembled with the cliché and clamped with the 'CLAMPING TOOL' (4) in the 'SETUP TABLE (1)' as shown in illustration 2.2
- If stored separately, place the SpaceFrame in the protective plastic container
- Rotate the cup frequently (steel cliché 2 hrs., polymer cliché 1 hr.) while in operation

WARNING

The doctor ring has a very sharp edge that may cause personal injury if improperly handled.

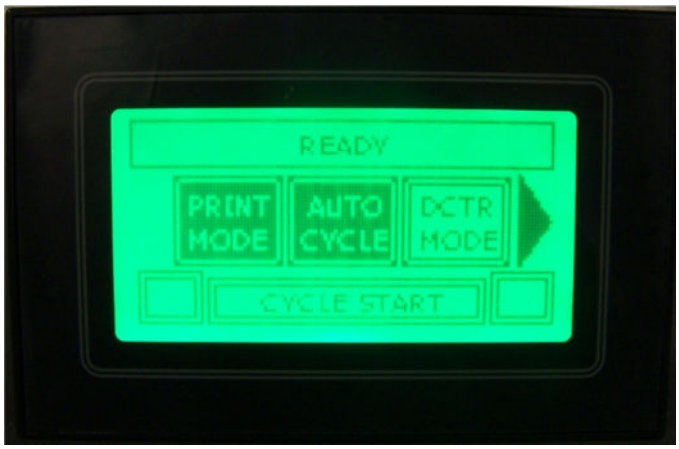
PLEASE HANDLE WITH CAUTION!

1.4. Main Operating Control

1.4.1 POWER-UP - screens

These screens will appear when power is applied to the printer and will remain visible until the servo motors have completed their “homing” action. Depending upon whether an E-Stop was active at the time of power-up, one or both of these screens will appear.

1.4.2 MAIN - screen



"PRINT MODE" (button dark) – Indicates that the machine is set to print when cycled.

"SINGLE CYCLE" (button light) – Indicates that the machine is set to complete one cycle when started.
(button dark) – Indicates that the machine is set to repeat the print cycle continuously once started.

"DCTR MODE" (button dark) – Indicates that the machine is set to doctor (run the SpaceFrame back and forth) continuously, thus doctoring the image, when started

"READY" – This area at the top of the screen indicates the current status/mode of the machine.

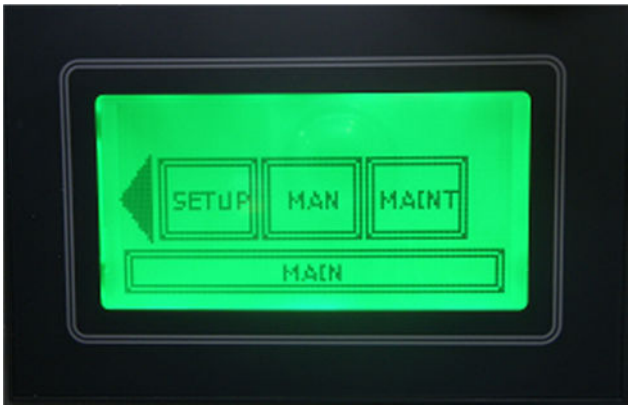
"CYCLE START" – This area at the bottom of the screen when touched, will start the machine cycle. (NOTE: When continuous cycling is selected this button will display **"STOP"** which When pressed, will cause the machine to complete the current print/doctor cycle and then stop.

"L" – This square box to the left of the bottom message display indicates if the left part has been detected via a vacuum switch if the VAC function has been enabled in the Maintenance Screen.

"R" – This square box to the right of the bottom message display indicates if the right part has been detected via a vacuum switch if the VAC function has been enabled in the Maintenance Screen.

"RIGHT ARROW" – When touched, will present another screen (Screen #2) with additional options.

1.4.3 MAIN SCREEN #2 (Accessed via the “Main Screen”)



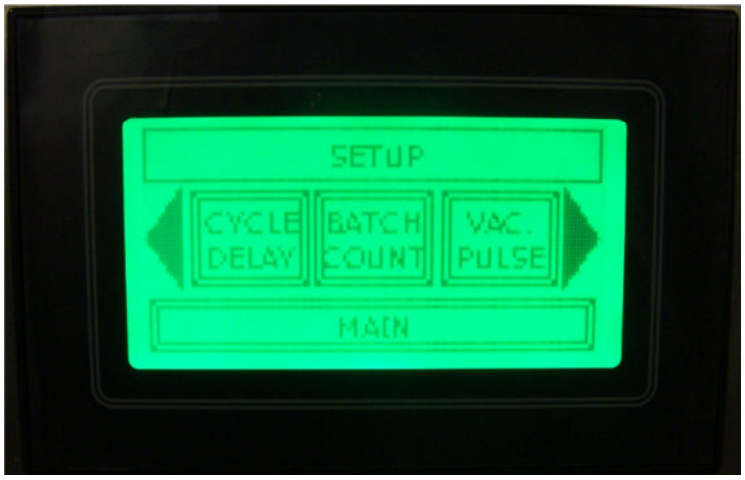
“LEFT ARROW” – When touched, will be taken back to the “MAIN” screen.

“SETUP” – When touched, will present another screen.

“MAN” (Manual mode) – When touched, will present another screen.

“MAINT” (Maintenance) – When touched, will present another screen.

1.4.4. SETUP – screen (Accessed via MAIN SCREEN #2)



"CYCLE DELAY" – When touched, will present another screen.

"BATCH COUNT" – When touched, will present another screen.

"VAC PULSE" – When touched, will present another screen.

"LEFT ARROW" – When touched, will return to "SCREEN #2"

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "Main" screen.

1.4.5. CYCLE DELAY – screen (Accessed via SETUP)

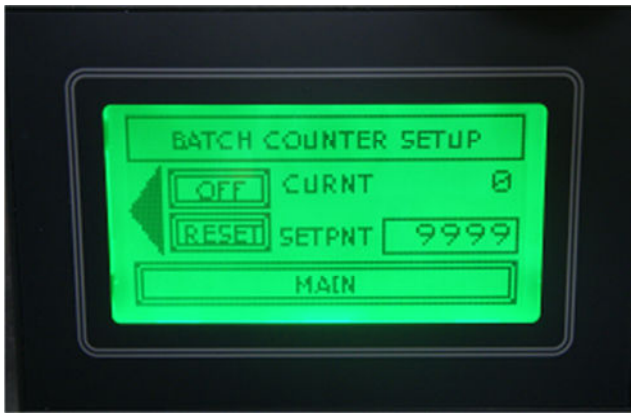
The setting in this screen is functional when running in the “Auto Cycle” mode. It adds a delay to when the next cycle starts.

Touching the data field causes a numeric keypad to appear whereby a time value in fractions of a second can be entered.

“LEFT ARROW” – When touched, returns you to the “SETUP” screen.

“MAIN” – When touched, will be taken to the “MAIN” screen.

1.4.6. BATCH COUNT – Screen (Accessed via SETUP)



"OFF"(light)/"ON"(dark) – Selects the batch counter to be active. Once the number Machine cycles has been reached, the counter must be reset or turned off to allow the machine to be cycled.

"RESET" – When touched, will reset the count of elapsed cycles to be reset to "0" (zero).

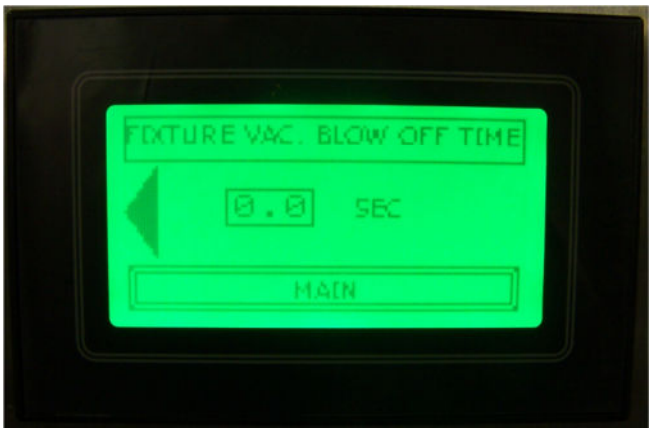
"CURNT" (CURRENT) – When the batch counter is active, this displays the count of completed cycles.

"SETPNT (SET POINT) – To set the number of batch count cycles, touching the data field will cause a numeric keypad to appear whereby a value can be entered. *See 1.3.24 (the maximum cycle count which can be entered is 9999)*

"LEFT ARROW" – When touched, returns you to the "SETUP" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.6.1 VACUUM PULSE - Screen (Accessed via SETUP)



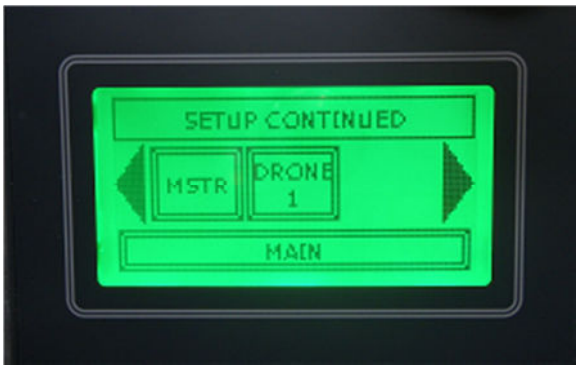
The setting in this screen is functional when the cycle ends. It turns on output Y1 for the duration of the inputted time.

Touching the data field causes a numeric keypad to appear whereby a time value in fractions of a second can be entered.

"LEFT ARROW" – When touched, returns you to the "SETUP" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.7. SETUP CONTINUED – Screen (Accessed via SETUP)



"MSTR" (MASTER) – When touched, will present another screen.

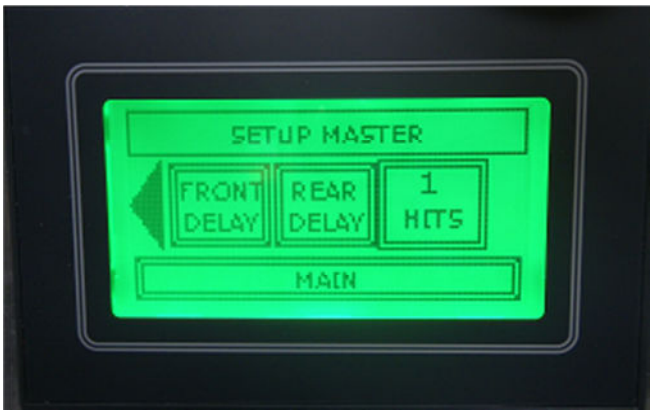
"DRONE 1" – When touched, will present another screen.

"LEFT ARROW" – When touched, returns you to the "SETUP" screen.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.8. SETUP MASTER – screen (Accessed via SETUP CONTINUED).



"FRONT DELAY" – When touched, will present another screen.

"REAR DELAY" – When touched, will present another screen.

"1 HITS (2,3,4)" – When touched, will change the number of hits (prints (4 max))

"LEFT ARROW" – When touched, returns you to the "SETUP CONTINUED" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.9. MASTER FRONT PAD DELAY – screen (Accessed via SETUP MASTER.

To change the amount of pad delay, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

NOTE: It is recommended that this time be set for a minimum of 3 tenths of a second, so that the pad ram is fully forward, thus insuring an accurate placement of the image.

"LEFT ARROW" – When touched, returns you to the "SETUP MASTER" screen.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.10 MASTER FRONT DOWN DWELL – screen (Accessed via MASTER FRONTPAD DELAY.

This function continues to extend the vertical pad ram cylinder for x.xxx seconds after the Front Down switch has been made. Note: this may cause the air cylinder to extend to its full stroke. Adjust the part height or lower the main air pressure to obtain the amount of pad compression required.

To change the amount of down dwell, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

"LEFT ARROW" – When touched, returns you to the "SETUP MASTER" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.11 MASTER REAR PAD DELAY screen (Accessed via SETUP MASTER).

Once the pad ram reaches its rearward position over the cliché, this setting determines how long the pad ram delays starting its downward motion to pick up the freshly inked image.

NOTE: It is recommended that this time be set for a minimum of 3 tenths of a second so that the pad ram is fully rearward, thus insuring an accurate pick-up of the image.

To change the amount of rear delay, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

"LEFT ARROW" – When touched, returns you to the "SETUP MASTER" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.12 SETUP DRONE 1 screen. (Accessed via SETUP CONTINUED)

"FRONT DELAY" – When touched, will present another screen.

"REAR DELAY" – When touched, will present another screen.

"1 HITS (2,3,4)" – When touched, will change the number of hits (prints (4 max))

"LEFT ARROW" – When touched, returns you to the "SETUP" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.13 DRONE 1 FRONT PAD DELAY (Accessed via SETUP DRONE 1)

To change the amount of pad delay, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

NOTE: It is recommended that this time be set for a minimum of 3 tenths of a second, so that the pad ram is fully forward, thus insuring an accurate placement of the image.

"LEFT ARROW" – When touched, returns you to the "SETUP DRONE 1" screen.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.14 DRONE 1 FRONT DOWN DWELL (Accessed via (DRONE 1 FRONT PAD DELAY)

This function continues to extend the vertical pad ram cylinder for x.xxx seconds after the Front Down switch has been made. Note: this may cause the air cylinder to extend to its full stroke. Adjust the part height or lower the main air pressure to obtain the amount of pad compression required.

To change the amount of pad down dwell, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

"LEFT ARROW" – When touched, returns you to the "DRONE 1 FRONT PAD DELAY" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.15 DRONE 1 REAR PAD DELAY (Accessed via SETUP DRONE 1)

To change the amount of rear pad delay, touching the data field will cause a numeric keypad to appear whereby a value can be entered.

NOTE: It is recommended that this time be set for a minimum of 3 tenths of a second so that the pad ram is fully rearward, thus insuring an accurate pick-up of the image.

"LEFT ARROW" – When touched, returns you to the "SETUP DRONE 1 SCREEN" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

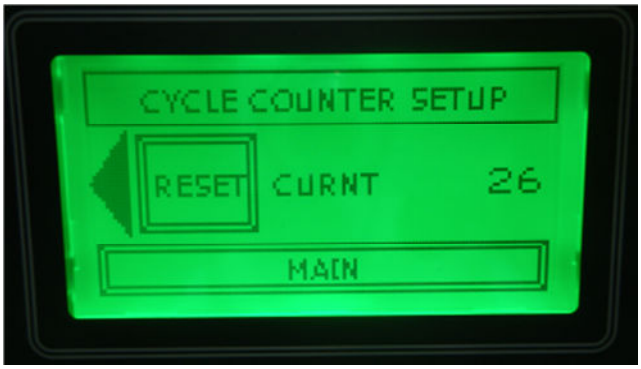
1.4.16 SETUP CONTINUED (Accessed from previous SETUP CONTINUED)

Pressing the CYCLE COUNT button will present another screen allowing the machine cycle counter to be reset.

"LEFT ARROW" – When touched, returns you to the "SETUP DRONE 1 SCREEN" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.17 CYCLE COUNTER SETUP (Accessed from previous “SETUP CONTINUED”)



The number displayed here is the current (curnt) total number of print cycles performed since the last reset.

Pressing the RESET button will reset the cycle count to “0”.

“LEFT ARROW” – When touched, returns you to the “SETUP CONTINUED” screen.

“MAIN” – When touched, will be taken to the “MAIN” screen.

1.4.18 SELECT DEVICE TO JOG (Accessed via MAN (manual) button)

"MSTR" (MASTER) – When touched, will present another screen.

"DRONE 1" – When touched, will present another screen.

"LEFT ARROW" – When touched, returns you to the "SETUP" screen.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.19 MASTER MANUAL MODE (Accessed from the “SELECT DEVICE TO JOG”).

“STEP” – When touched, will step the MASTER printer through its print sequence.

“JOG DOWN” – When touched, will cause the pad/ram to stroke down and back up.

“LEFT ARROW” – When touched, returns you to the “SELECT DEVICE TO JOG” screen.

“MAIN” – When touched, will be taken to the “MAIN” screen.

1.4.20 DRONE 1 MANUAL MODE (Accessed from the “SELECT DEVICE TO JOG”).

“STEP” – When touched, will step the DRONE 1 printer through its print sequence.

“JOG DOWN” – When touched, will cause the pad/ram to stroke down and back up.

“LEFT ARROW” – When touched, returns you to the “SELECT DEVICE TO JOG” screen.

“MAIN” – When touched, will be taken to the “MAIN” screen.

1.4.21 SELECT DEVICE TO JOG (Accessed from the first SELECT DEVICE TO JOG)

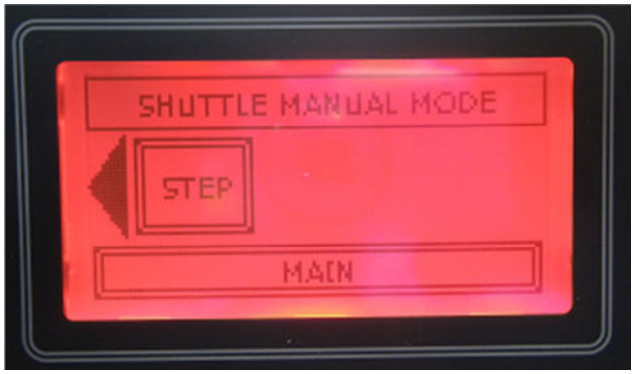
"SHUT (shuttle)**" –** When touched, will be taken to another screen.

"ROT. FIX." – This button currently has no function.

"LEFT ARROW" – When touched, returns you to the first "SELECT DEVICE TO JOG" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.22 SHUTTLE MANUAL MODE (Accessed from the second SELECT DEVICE TO JOG)



Pressing the STEP button will cause the shuttle to move to the opposite position from where it is.

"LEFT ARROW" – When touched, returns you to the second "SELECT DEVICE TO JOG" screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.23 "PASSWORD ENTRY SCREEN" (Accessed from the MAINT (maintenance) button). *See 1.3.3*

Touching the data field "0000" will take cause a numeric keypad to open allowing you to enter the appropriate password. *See 1.3.24*

"LEFT ARROW" – When touched, returns you to the second "MAIN SCREEN #2" screen.

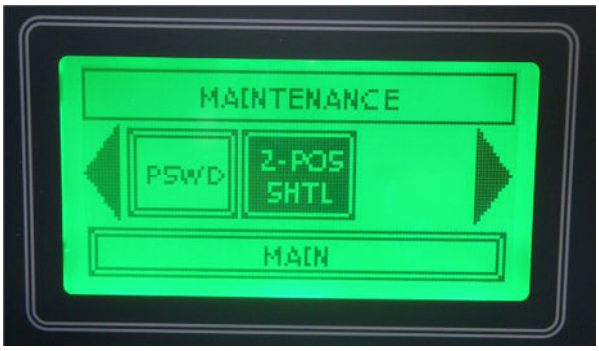
"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.24 NUMERIC KEYPAD

This screen will appear whenever a numeric entry is required.

After your entry is complete, touch the return symbol to record it.

1.4.25 MAINTENANCE (Accessed from the NUMERIC KEYPAD)



"PSWD" (password) **–** When touched, a numeric keypad will appear thereby allowing entry of a new password.

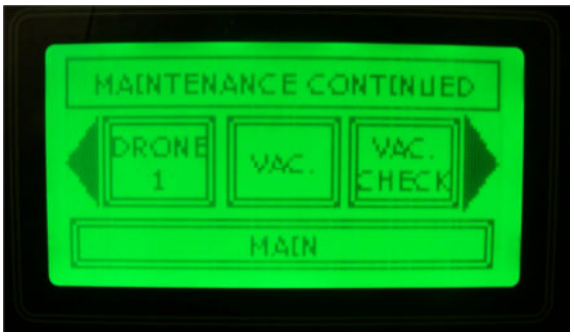
"2-POS SHTL" (two position shuttle) **–** When touched, will change. Dark = (shuttle on) light = (shuttle off).

"LEFT ARROW" – When touched, returns you to the MAIN SCREEN #2.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.3.26 MAINTENANCE CONTINUED (Accessed from the MAINTENANCE screen.



"DRONE 1" – When touched, will change. Dark = (Drone active) light = (Drone inactive).

"VAC." – When touched, will change. Dark = (Vacuum output active) light = (Vacuum output inactive). The vacuum valve output Y1 will remain on and only turn off at the end of the cycle for the period specified in the "Vacuum Off Delay" screen.

"VAC. CHECK" – When touched, will change. Dark = (Vacuum Check for Left and Right active) light = (Vacuum Checks inactive). The left part input is X0. The right part input is X1.

"LEFT ARROW" – When touched, returns you to the MAINTENANCE screen.

"RIGHT ARROW" – When touched, will present another screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.4.27 MAINTENANCE CONTINUED (Accessed via the other MAINTENANCE CONTINUED screen)

This screen is intended to be used if more than one Drone printer is part of the system and has no function in this 2-color model.

Touching the "MSTR POS" button will cause the machine to fault. To reset this fault, Push in and then release the E-STOP button and then re-initiate power to the printer by touching the HMI.

"LEFT ARROW" – When touched, returns you to the previous screen.

"MAIN" – When touched, will be taken to the "MAIN" screen.

1.5. Recommended Maintenance

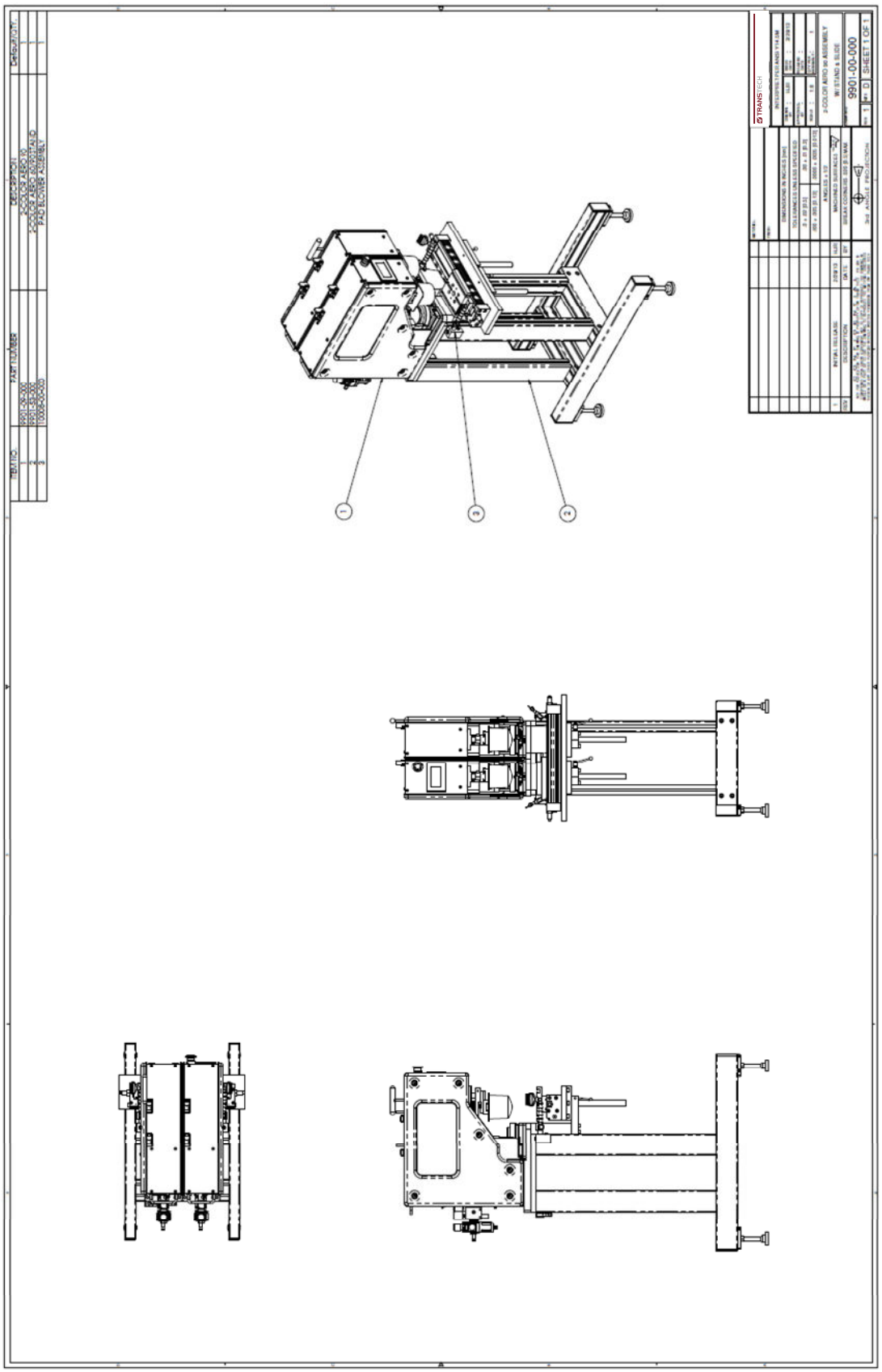
It is important to remember that our service team is only a phone call away at **00-1-630-752-4000. (8:00am – 5:00pm Central USA time)**

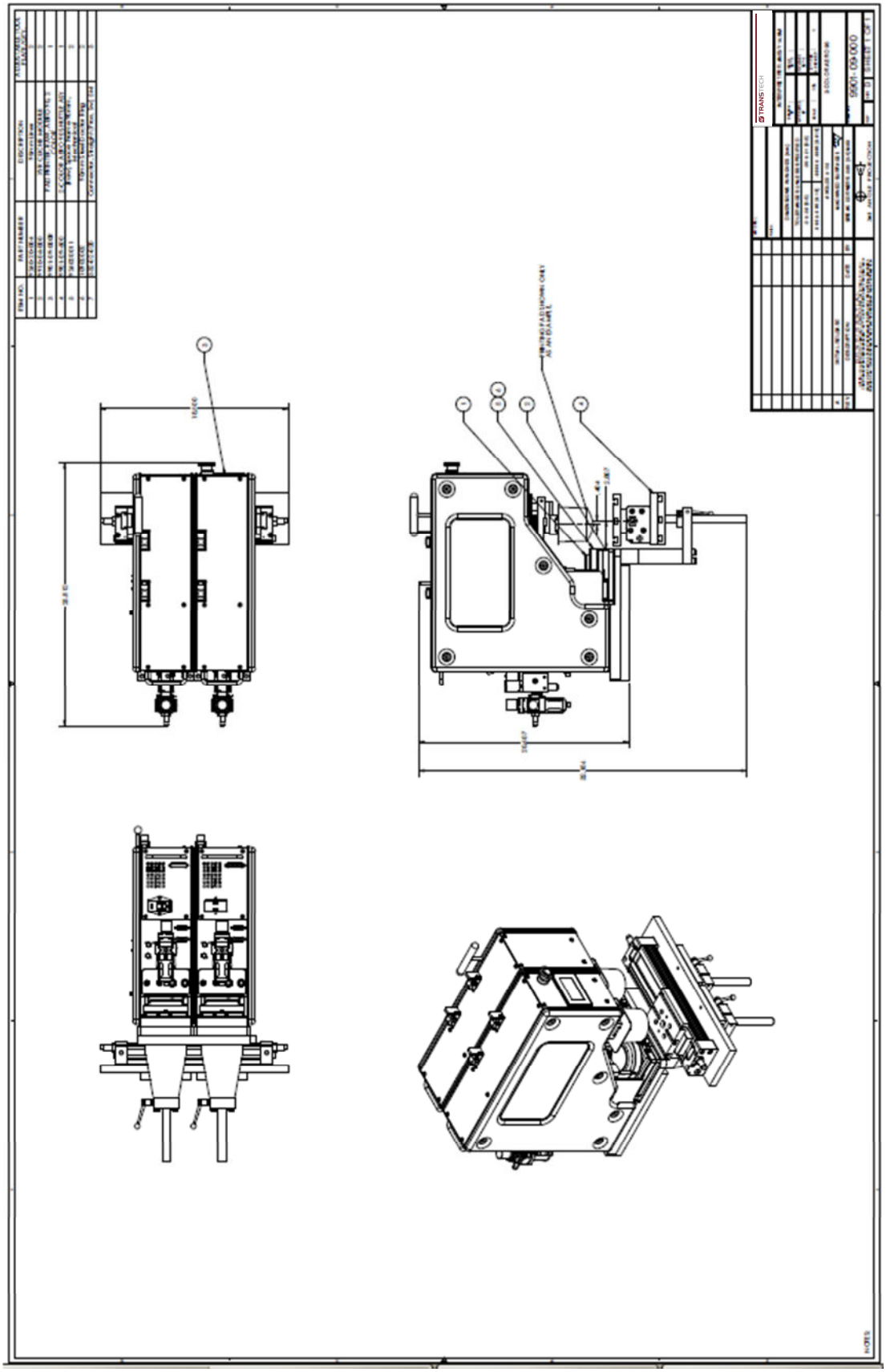
	Description	How Often
1	**Check for any build-up of ink on and about the cliché holder and clean away as necessary. (NOTE: This is especially necessary when a 2 part ink (with a hardener) is used, as this type of ink when fully dried, cannot be wiped away.)**	**Daily**
2	**Verify proper operation. When something doesn't seem right or isn't working like it used to, notify a supervisor or maintenance person.**	**Daily**
3	**Check the pneumatic filter/regulator assembly for any build-up of water and/or contaminants. It is most important that the filter bowl not fill with water as water will then migrate into the internal valves and cylinders.**	**Daily**
4	**Inspect the general appearance of the printer and clean as necessary. The bearings which run on the guide rails within this machine are sealed and require no lubrication.**	**Weekly**

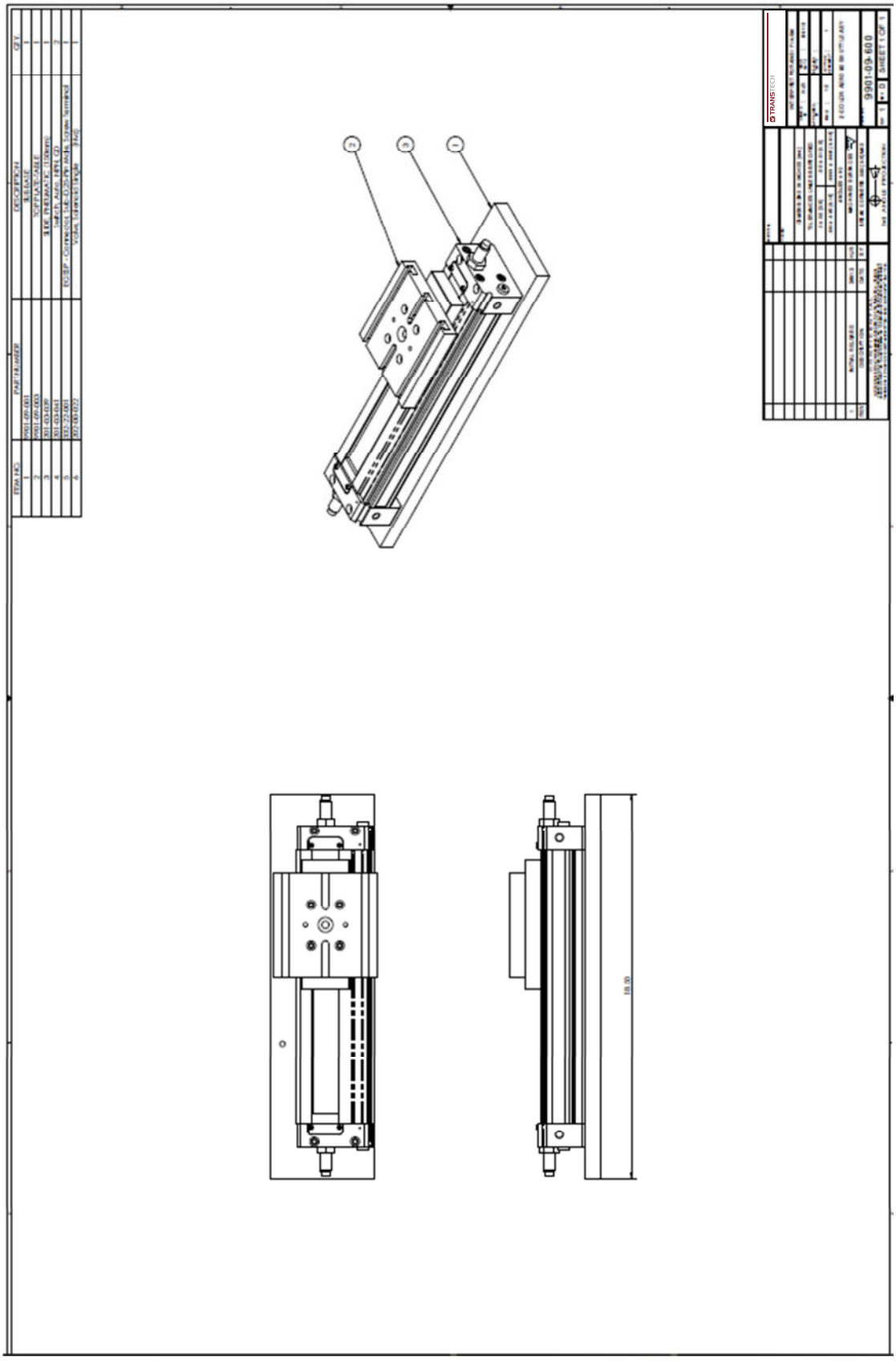
1.6. Recommended spare parts

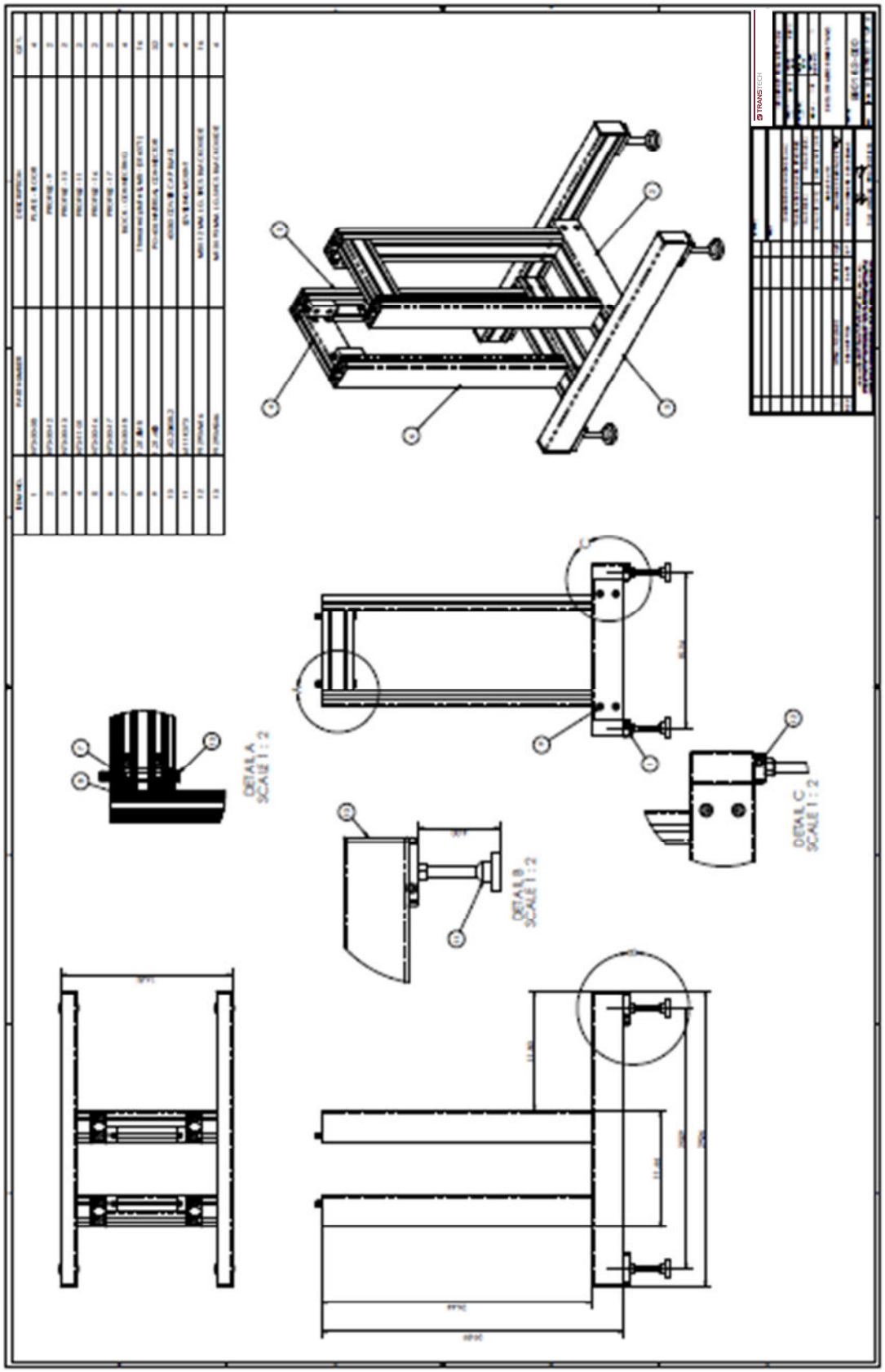
Part Number	Description	Quan.
332-33-001	Proximity switch, magnetic	**2**
332-08-017	Reed Switch	**2**
9901-41-001	Cable, Hi-Flex, Up/Down Sensors	**1**
9901-41-000	Kit, Cable Mounting	**1**
230-01-040	Shock Absorber	**2**
9901-01-001	Pad Ram Washer	**1**
204-04-570	Speed Control	**2**
204-04-571	Speed Control	**2**
	For Aero 60 Setup	
10903003	60mm Steel Doctor Ring	**1**
926010004	Express Liner, 60mm (100 Pack)	**1**
	For Aero 90 Setup	
10902002	90mm Steel Doctor Ring	**1**
926020004	Express Liner, 90mm (100 Pack)	**1**

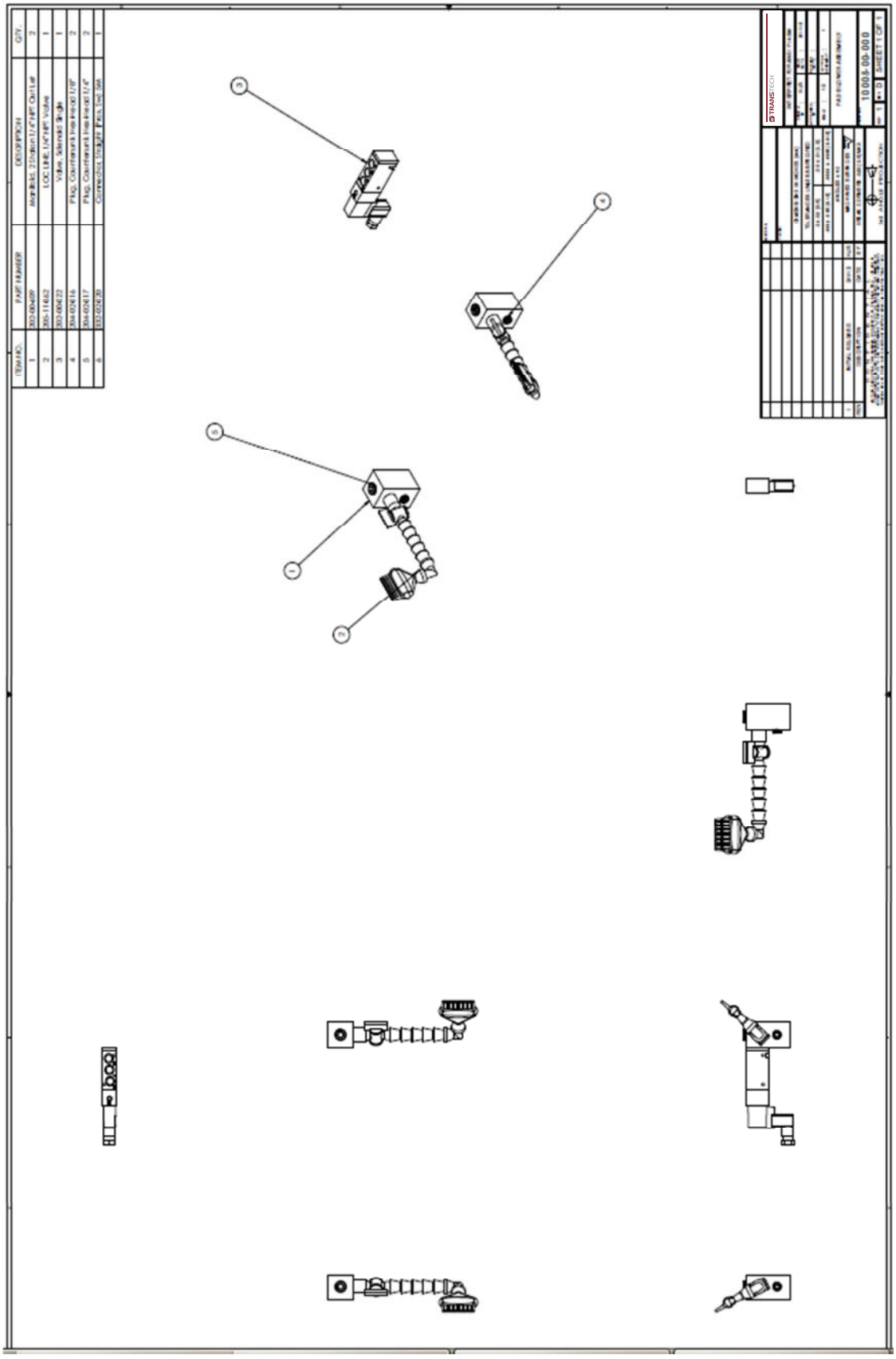
1.7. Mechanical Drawings



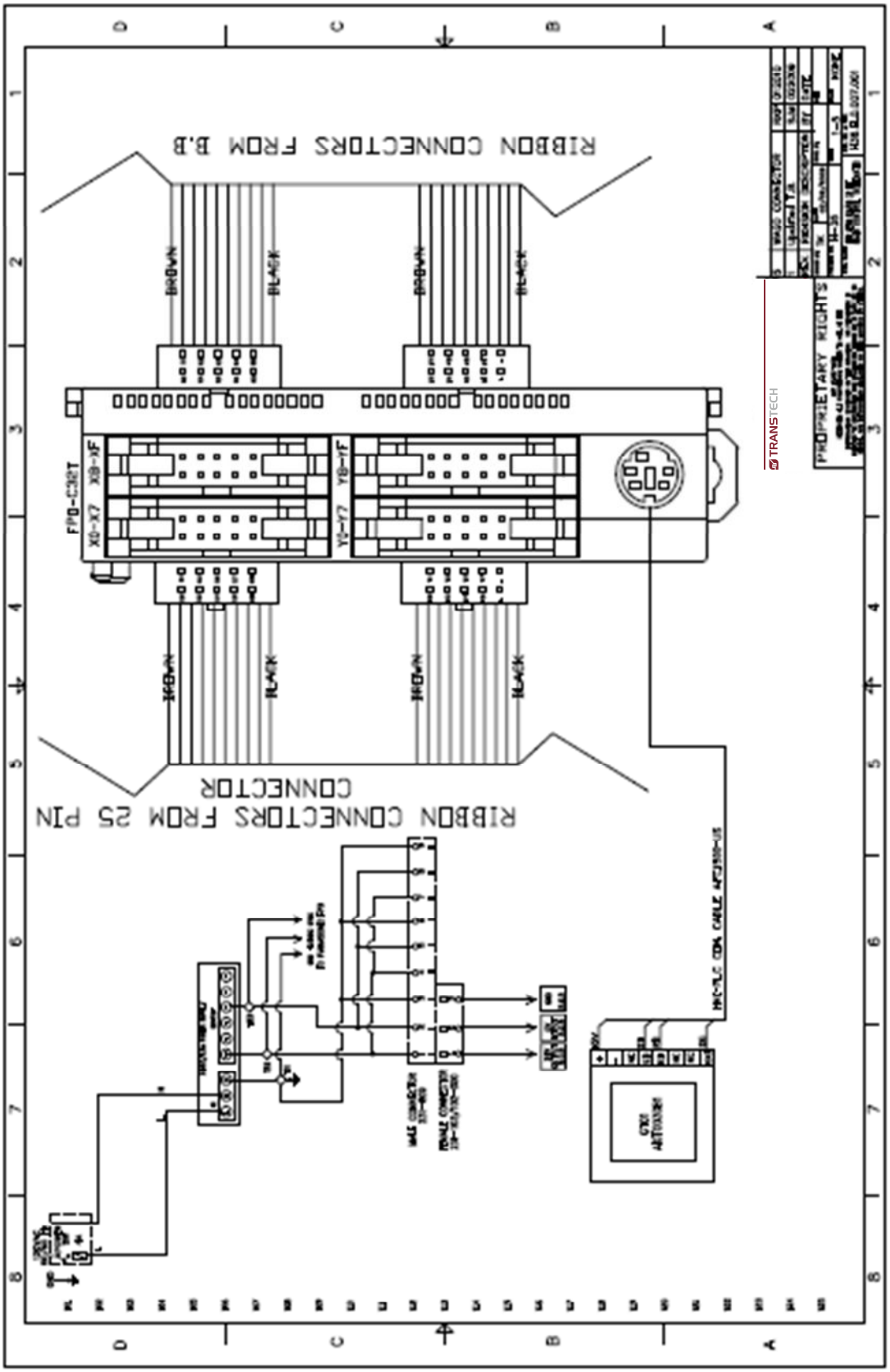


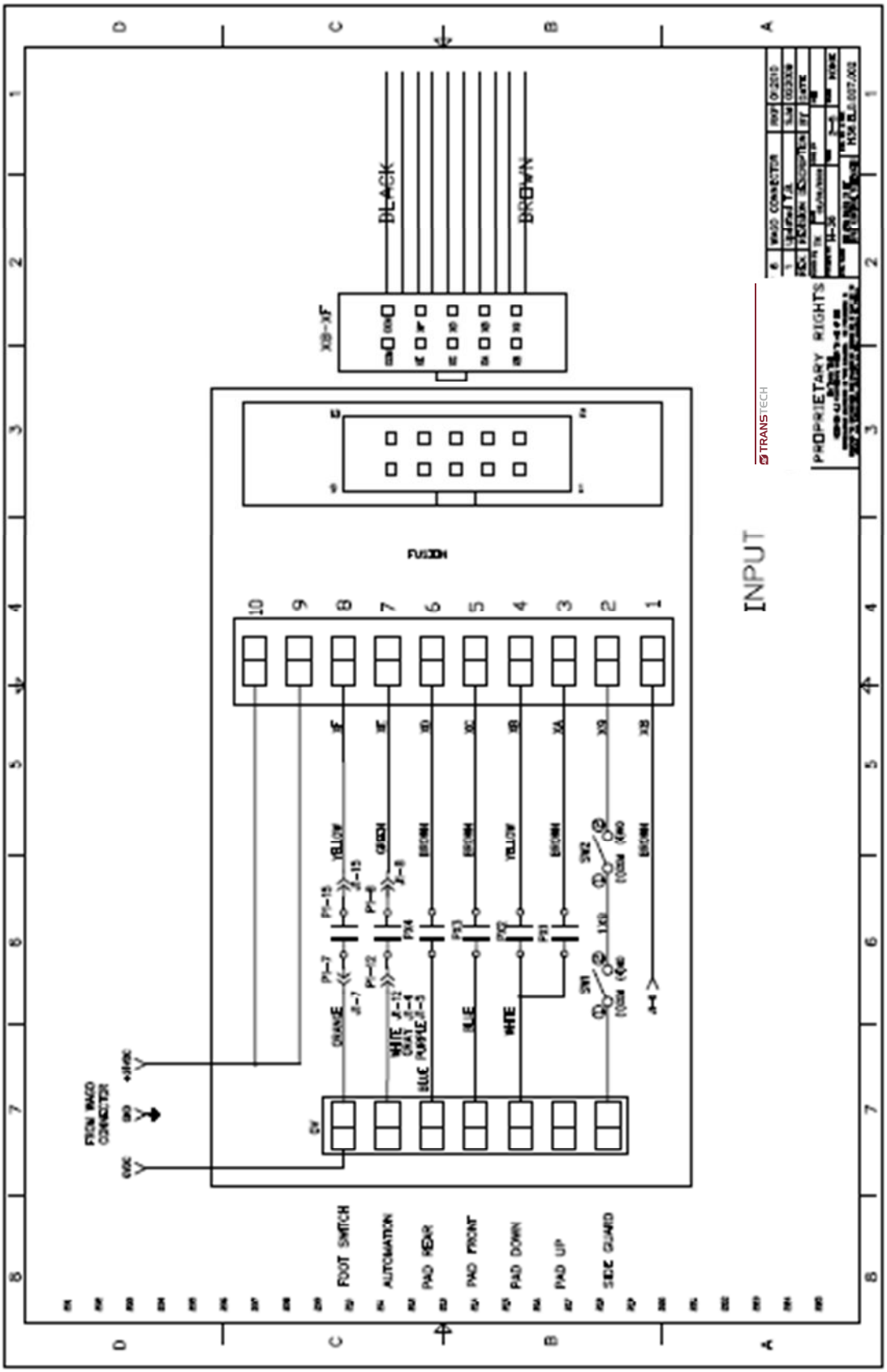


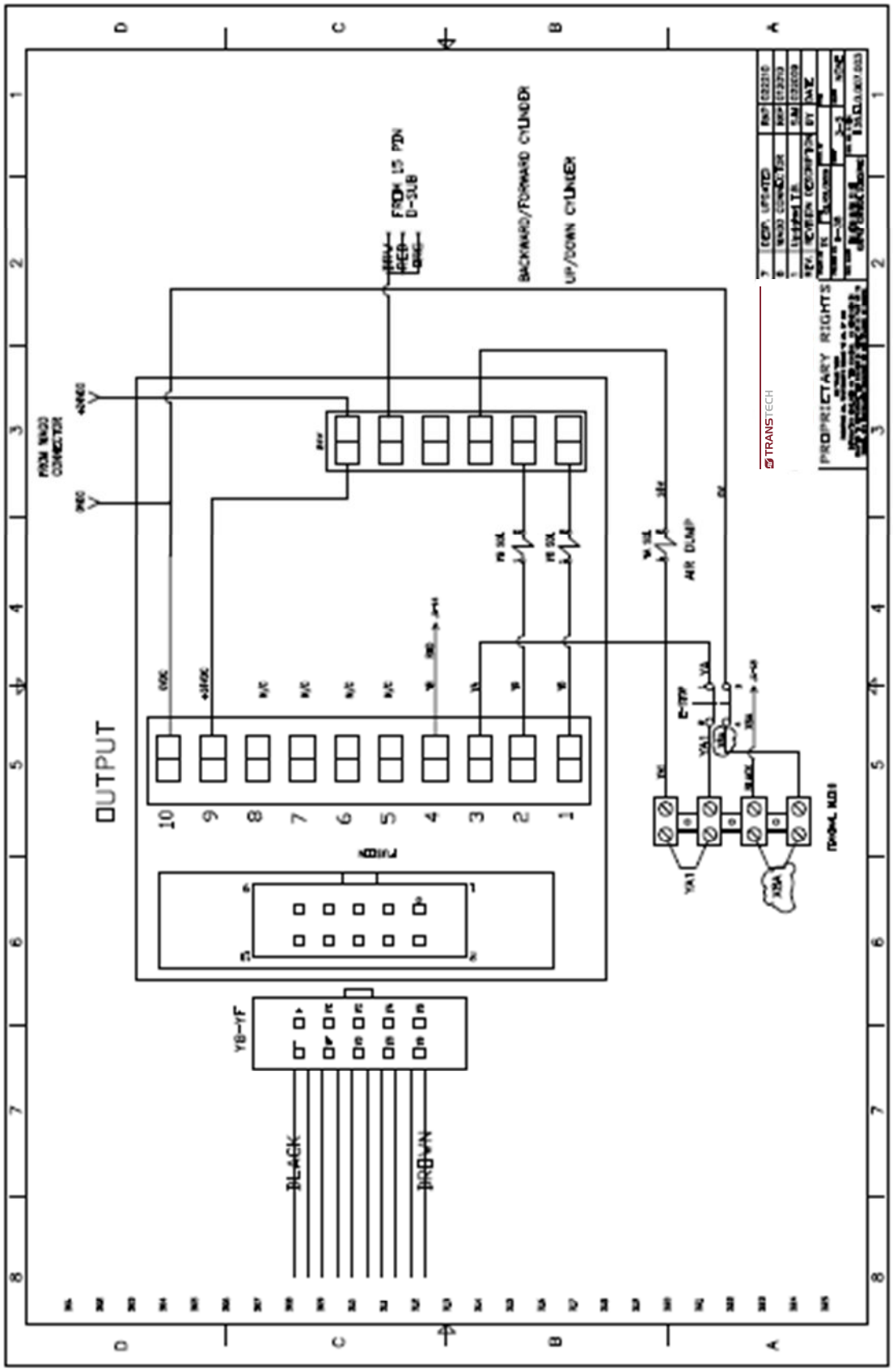

DETAIL A
SCALE 1 : 2
DETAIL B
SCALE 1 : 2
DETAIL C
SCALE 1 : 2

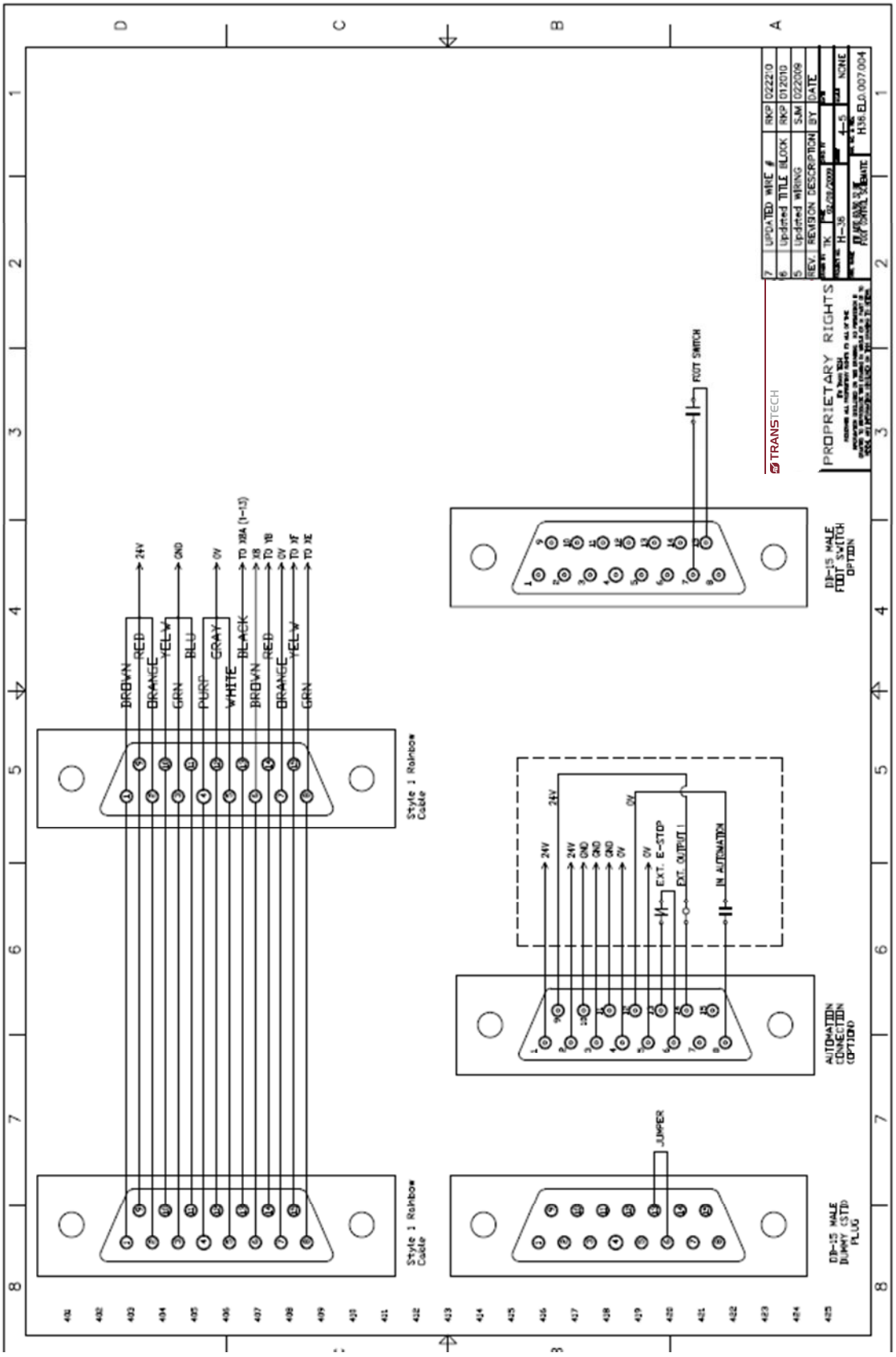


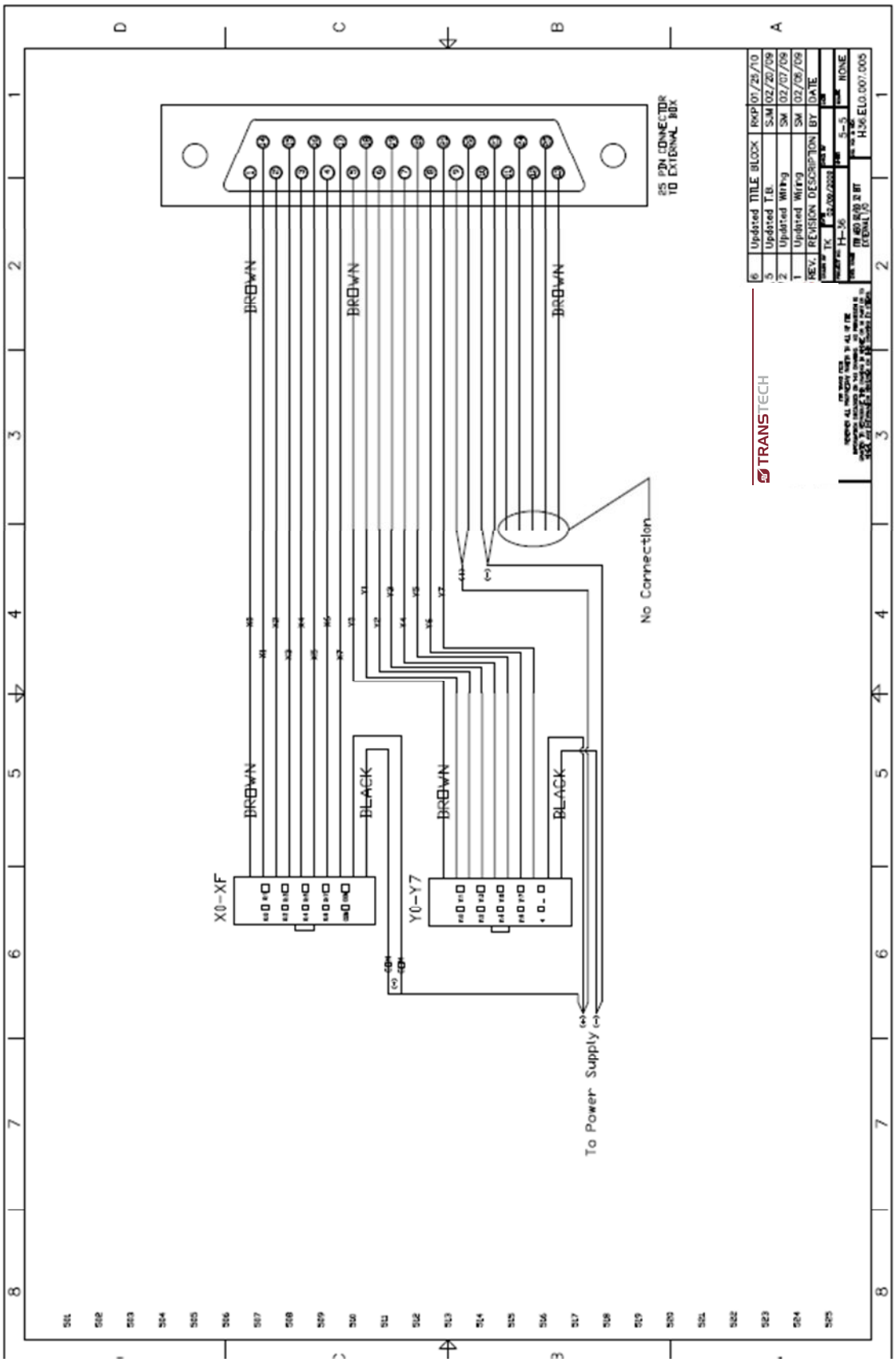
1.8. Electrical Drawings


RIBBON CONNECTORS FROM B.B
BROWN
BLACK
BROWN
BLACK
FPD-C32T
X8-XF
X8-X7
Y8-YF
Y8-Y7
BROWN
BLACK
BROWN
BLACK
RIBBON CONNECTORS FROM 25 PIN
CONNECTOR
PROPRIETARY RIGHTS
TRANSTECH

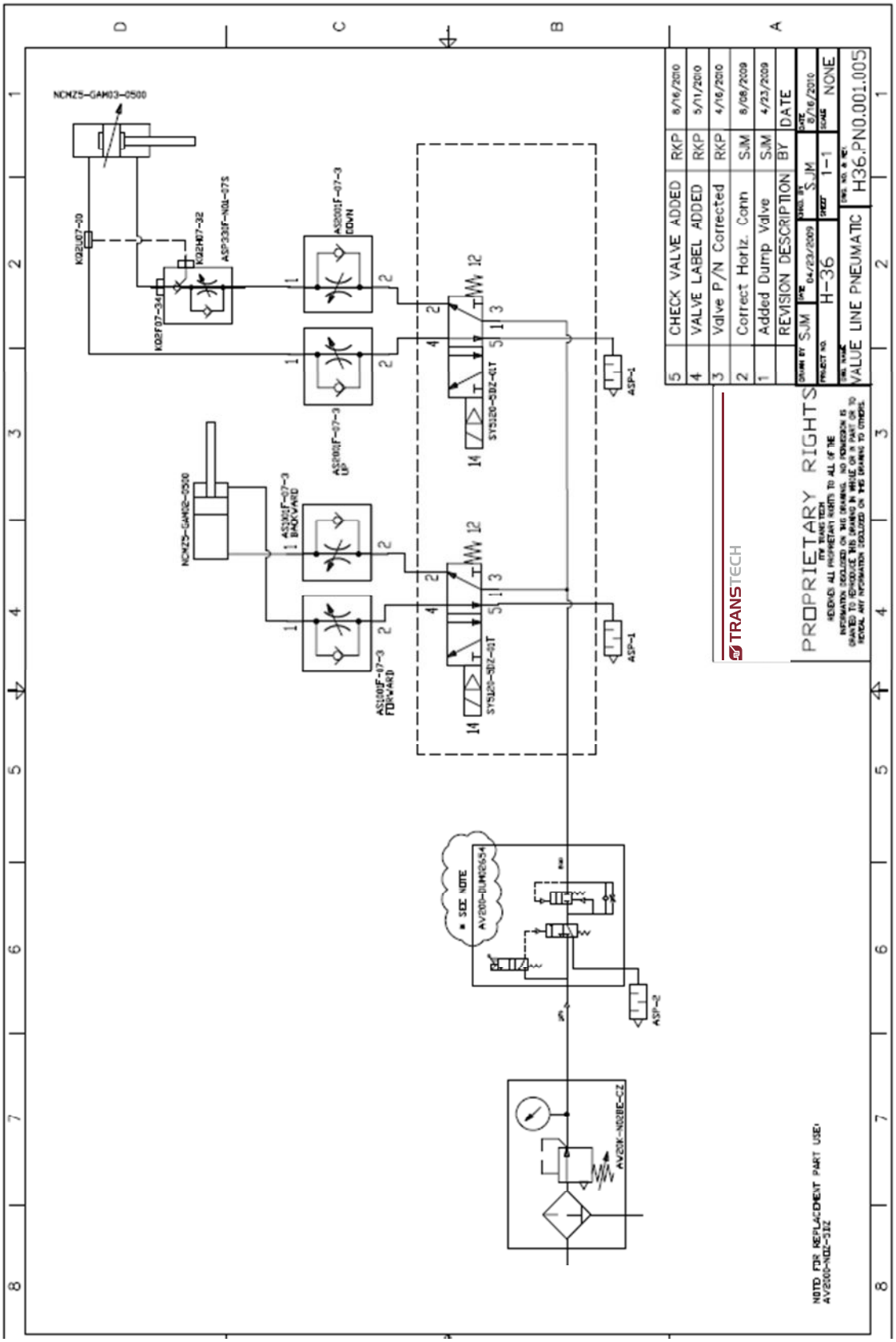

INPUT
FOOT SWITCH
AUTOMATION
PAD REAR
PAD FRONT
PAD DOWN
PAD UP
SIDE GUARD
BLACK
BROWN
YELLOW
GREEN
ORANGE
BLUE
WHITE
PROPRIETARY RIGHTS
TRANSTECH


OUTPUT
BLACK
BROWN
BACKWARD/FORWARD CYLINDER
UP/DOWN CYLINDER
AIR DUMP
PROPRIETARY RIGHTS
TRANSTECH


PROPRIETARY RIGHTS
TRANSTECH
FOOT SWITCH
DB-15 MALE
FOOT SWITCH
OPTION
AUTOMATION
CONNECTION
OPTION
DB-15 MALE
DUMMY (STD)
PLUG
Style 1 Rainbow
Cable
Style 1 Rainbow
Cable
JUMPER
EXT. E-STOP
EXT. OUTPUT 1
IN AUTOMATION
24V
GND
0V
BROWN
RED
ORANGE
YELLOW
GRN
BLU
PURP
GRAY
WHITE
BLACK


25 PIN CONNECTOR
TO EXTERNAL BOX
BROWN
BROWN
BROWN
BROWN
BLACK
BROWN
BLACK
X0-XF
Y0-Y7
No Connection
To Power Supply
TRANSTECH
Updated TITLE BLOCK
Updated T.B.
Updated Wiring
Updated Wiring
REVISION DESCRIPTION
DATE
NONE
H36.EL0.007.005

1.9. Pneumatic Drawings


5 CHECK VALVE ADDED RKP 8/16/2010
4 VALVE LABEL ADDED RKP 5/11/2010
3 Valve P/N Corrected RKP 4/16/2010
2 Correct Horiz. Conn SJM 8/08/2009
1 Added Dump Valve SJM 4/23/2009
REVISION DESCRIPTION BY DATE
DRAWN BY SJM DATE 04/23/2009 CHKD. BY SJM DATE 8/16/2010
PROJECT NO. H-36 SHEET 1-1 SCALE NONE
DWG. NAME VALUE LINE PNEUMATIC DWG. NO. & REV. H36.PN0.001.005
PROPRIETARY RIGHTS
TRANSTECH
NOTED FOR REPLACEMENT PART USE:
AV2000-N02-5DZ
NCMZ5-GAM03-0500
NCMZ5-GAM02-0500
AS1001F-07-3 DOWN
AS1001F-07-3 UP
AS1001F-07-3 BACKWARD
AS1001F-07-3 FORWARD
SY5120-5DZ-01T
ASP-1
ASP-2
* SEE NOTE
AV200-DUM02654
AV20K-N02BE-CZ

NOTES: