



Hawk Discrete Wire Termination Machine
Order No. 62300-3100
"CE" Certified

For C-Grid SL IDT Connector, 70400 Series

- Description
- Operation
- Maintenance

WARNING

- NEVER** USE THIS MACHINE WITHOUT THE GUARDS OR SAFETY DEVICES THAT ARE INTENDED TO PREVENT HANDS FROM REMAINING IN THE TERMINATION OR FEED AREAS. **RUNNING THIS MACHINE WITHOUT GUARDS, UNDER ANY CIRCUMSTANCES, CAN CAUSE SERIOUS INJURY.**

- NEVER** LIFT THIS MACHINE WITHOUT THE AID OF MECHANICAL LIFTING DEVICES. **SEVERE BACK OR OTHER INJURIES CAN RESULT.**

- NEVER** OPERATE, SERVICE, OR ADJUST THIS MACHINE, OR INSTALL TERMINATION TOOLING, WITHOUT PROPER INSTRUCTION AND WITHOUT FIRST READING AND UNDERSTANDING THE INSTRUCTIONS IN THIS MANUAL.

- NEVER** INSTALL TERMINATION TOOLING OR SERVICE THIS MACHINE WHILE IT IS CONNECTED TO ANY ELECTRICAL POWER SOURCE. **DISCONNECT POWER BY UNPLUGGING THE MACHINE FROM ITS POWER SOURCE.**

WORK SAFELY AT ALL TIMES

**For Service, Contact Your
Local Molex Sales Office**

Molex Application Tooling Group
2200 Wellington Court
Lisle, Illinois 60532
Tel: 630-969-4550
Fax: 630-505-0049

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Section 1

General Description

- 1.1. Description
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- 1.4. Delivery Check
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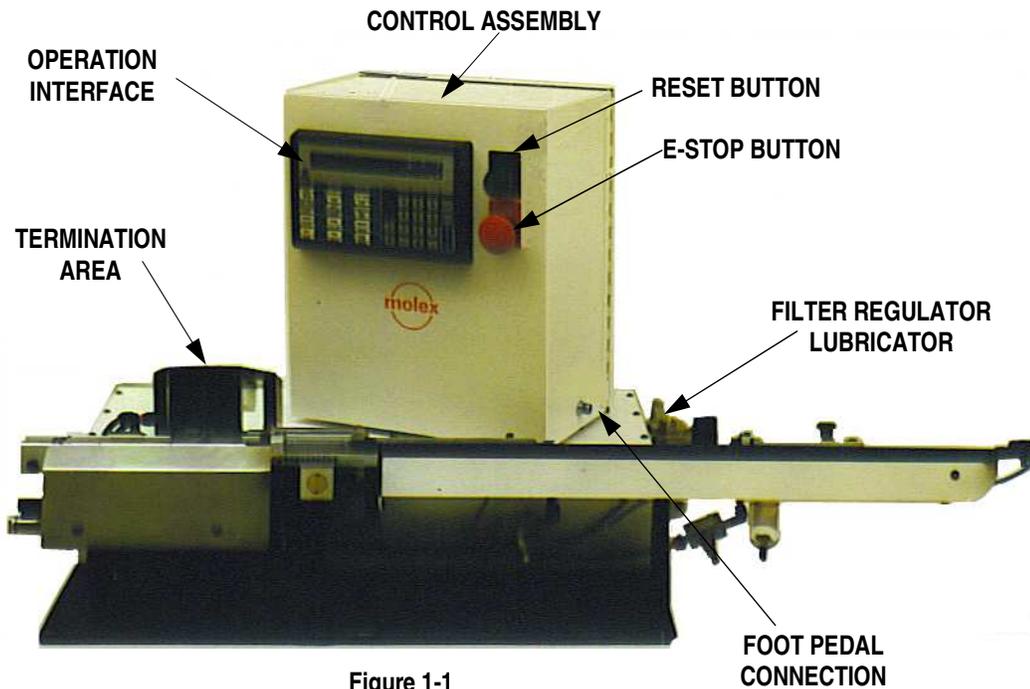


Figure 1-1

General Description

1.1 Description

The Molex Hawk Discrete Wire Termination Machine 62300-3100 was developed to assemble .100 S.L. IDT series (.100 in. centers Insulation Displacement Technology) discrete wire harnesses. An operator loads a cartridge containing preloaded connectors (70400 series) ranging from 2 to 25 circuits. As each connector assembly is completed, the machine automatically loads a new connector into the terminating nest, pushing the previously loaded connector into the next station. Then it inserts the terminals and breaks off the carrier strip. The operator then removes the completed harness, loads a wire (in its proper assembly order), then depresses the foot pedal. The machine then terminates that wire and indexes to the next position. This machine is ideally suited for mid- volume, semi-automatic applications.

1.2 Features

- Automatic loading and indexing of termination nest
- Automatic insertion of terminals
- Automatic break-off of carrier strip
- A rugged, sealed operator interface with a 12 key tactile feedback keypad for data entry, and a 40 character, 2-line display for displaying circuit numbers, wire colors, fault messages, etc.
- Voids can be programmed

- Wire colors can be programmed (up to 15 different colors)
- Operator settable batch counter
- Totally enclosed for operator safety
- “CE” certified for sale in Europe

1.3 Technical Specifications

Dimensions	Press with tooling
Height	43.8cm (17.00")
Width	96.5cm (38.00")
Depth	45.7cm (18.00")
Unpacked weight	48.1kg (103.00 lbs.)

Power Requirements

Voltage:	110V AC or 220V AC 50/60 Hz
Current:	2A @ 110V 1A @ 220V

Pneumatics

Pressure:	5 BAR (80psig) minimum
Consumption:	14L/minimum (0.5 SCFM)

Rate

This machine terminates up to 1200 per hour, depending on operator skill and connector size.

1.4 Delivery Check

Remove the top and sides of the crate. Then remove the screws that mount the machine to the skid. Check to see that following items are included in this package:

<u>Decription:</u>	<u>Quantity</u>
62300-3100 Termination Machine	1
ATS-623003100 Instruction Manual	1
69002-5715 Foot Pedal Assembly	1
11-32-1659 Power Cord	1
11-31-5302 Nest Cleaning Tool	1
11-31-1744 Carrier Tray	1

1.5 Tools

The following tools are recommended for setup and adjustments to the this tool.

- ✓ English Hex Wrench Set (inch)
- ✓ Large and small straight screwdriver
- ✓ Small Crescent Wrench
- ✓ Needle nose pliers
- ✓ Eye Loupe - 5X

1.6 Lifting

WARNING: The Molex Hawk Terminator weights 48kg (103 lbs.). It is **NOT** intended to be lifted by a single individual. The guarding or housing load assemblies are not attached to provide support for lifting purposes. Mechanical lifting devices should be used from below the unit. A person lifting this machine could sustain severe back or other injuries. Care should be taken at all times.

An electrical, hydraulic, or mechanical lift should be used to lift this termination machine

1.7 Installation

Foot Pedal

Connect the 5-pin DIN plug on the foot pedal to the 5-pin socket in the right side of the terminator control assembly. Note the locking action of the plug.

Power Connection

A power cord is supplied for standard 10VAC service. To use in this manner plug the power cord

into the socket on the left side of the control assembly, then plug the other end into a grounded outlet.

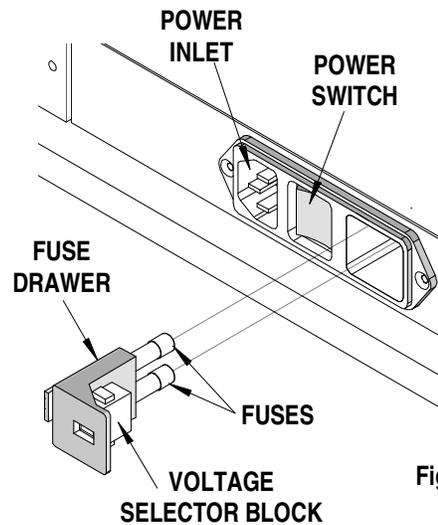


Figure 1-2

The Hawk Discrete Wire Termination Machine will operate on 110VAC or 220VAC, 50 or 60 Hz. To change from one service to the other, do the following: (Refer to Figure 1.2) Locate the power inlet module on the left side of the control assembly. With a small screwdriver remove the fuse drawer. Remove the voltage selector block and rotate until the correct voltage will show in the window. Reinsert the voltage selector block. Change to the proper size fuse (see Electrical Schematics) and replace the fuse drawer. Install the proper power cord.

WARNING: When servicing this machine, disconnect this power cord to insure complete safety to service person.

Air Connection

Because there are so many variations in air connections, Molex does not supply any type of fitting for air installation. Thus the user must supply a fitting of his choice to attach air of the correct pressure and volume to the 1/4 NPT port on the F-R-L unit. Use 1/4 inch line minimum. Once attached, adjust the regulator on the F-R-L to 80-85psig. Air will not flow into the machine proper until power is on and the "RESET" button is pressed.

Section 2

Setting Up And Operation

- 2.1. Air Pressure
- 2.2. Connector Feed Adjustment
- 2.3. Shuttle Position Fine Adjustment
- 2.4. Termination Depth Adjustment
- 2.5. Termination Punch up Adjustment
- 2.6. Programming the Controller
- 2.7. Safety Precautions
- 2.8. Operation

Set Up

2.1 Air Pressure

Set the air pressure regulator on the air inlet to 5 - 6 BAR (80 - 90 PSI). This is done by pulling out the adjustment knob and setting to the proper pressure, then pushing in the knob. See Figure 2-1.

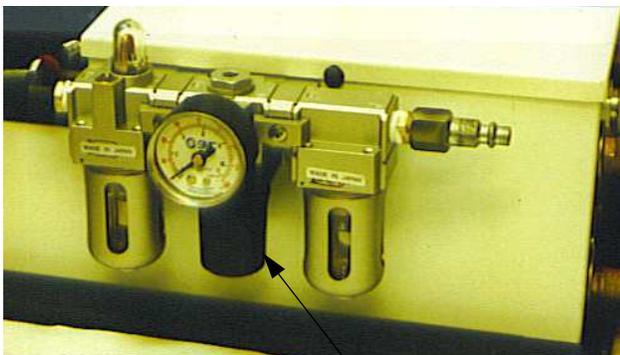


Figure 2-1 ADJUSTMENT KNOB

2.2 Connector Feed Adjustment

Shuttle Stop

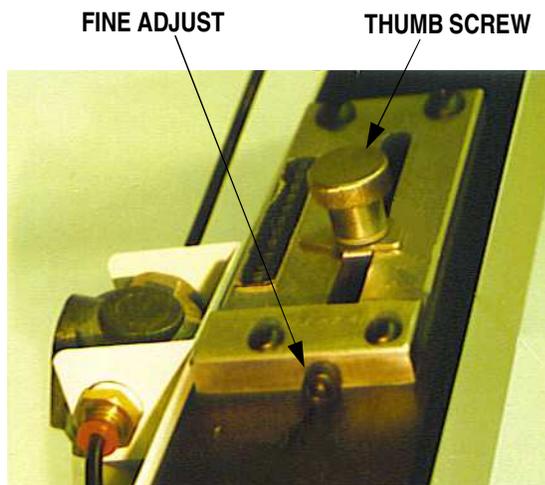


Figure 2-2

The shuttle stop is adjustable from 3 to 25 circuits. To adjust the stop:

1. Loosen the thumb screw on top of the cartridge holder. This holds and locates the cylinder stop on the bottom side. Starting from "3" circuit to the left, each notch represents 1 circuit position on the shuttle. The left side of the connector

must always go to the left end of the termination anvil when fed in.

2. Move the stop to the correct circuit size.
3. Tighten the thumb screw.

Note: 2circuit connectors are loaded in pairs thus stop is set for 4 circuits.

Connector Feed Stop

This stop is also adjustable from 3 to 25 circuits. To adjust the stop:

1. Remove the nest guard
2. Loosen the thumb screw on the connector feed stop located in front of the shift nest.
3. Starting from "3" circuits to the right, stop locates on every circuit position to 25 circuits. Adjust so that only 1 connector (except 2 - 2circuits.) at a time can enter the shift nest from the cartridge feed.
4. When adjustment is set, tighten thumb screw.
5. Replace guard. See Figure 2-3.

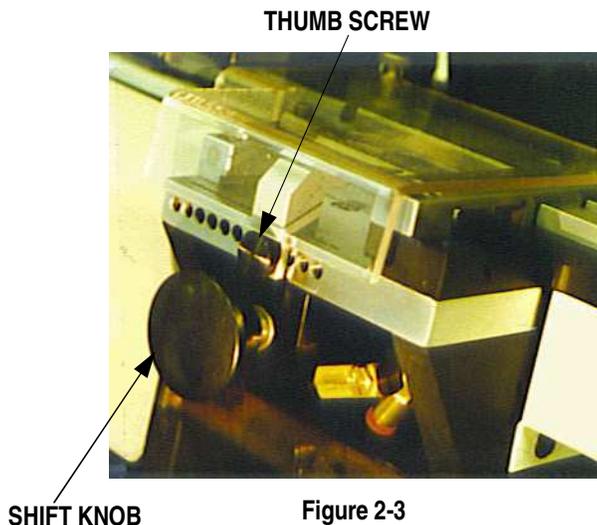


Figure 2-3

2.3 Shuttle Fine Adjustment

With a connector in the nest and the shuttle full forward against the stop, the first terminal should be centered on the terminal punch. Due to tolerance variations in connector lengths, it may be necessary to occasionally make a fine adjustment to the shuttle.

To adjust the shuttle:

1. Load a connector into the termination head in manual mode.
2. With the shuttle blade in the forward position, loosen the cap screws at the rear of the shuttle adjustment base.
3. Then fine adjust the location shuttle adjustment base by turning the set screw on the edge of the stop block located to the right. Hold the connector against the shuttle blade while making adjustment. Turning the set screw "in" moves the connector to the right and "out" moves it to the left. See Figure 2-4.
4. Tighten the cap screws.

SET SCREW AND
LOCK NUT

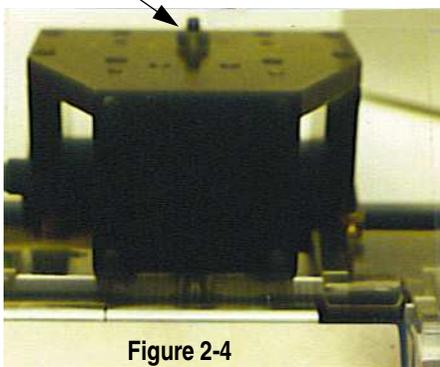


Figure 2-4

2.4 Termination Depth Adjustment

Termination depth is set by:

1. Loosening the lock nut located on top of the termination head.
2. To raise the punch depth, turn the screw clockwise. To lower, turn the screw counterclockwise. The punch depth should be adjusted so that a terminated wire is touching the lower surface of the terminal, but is not crushed and the crimp tongs are securely gripping the wire without cutting into the insulation. See Appendix A for termination specifications.
3. Terminate a wire and check the settings.
4. Repeat steps 2 and 3 until the termination depth is correct.
5. Then tighten the lockout.

2.5 Punch Up Adjustment

Termination punches should be adjusted so that the bottom of the punch is about .015 - .020 inch above the top of the terminals.

1. To adjust, loosen the jam nut on the clevis attached to the crimp and termination cylinder rod end.
2. Turning the rod end clockwise lowers the punches and counterclockwise raises them. The rod end can be turned with the jam nut by turning the jam nut down snug against the end of the threads on the rod. Then turn off the air supply and turn the jam nut to adjust. See Figure 2-5.
3. Turn the air back on to check punch height
4. Tighten the jam nut to clevis.

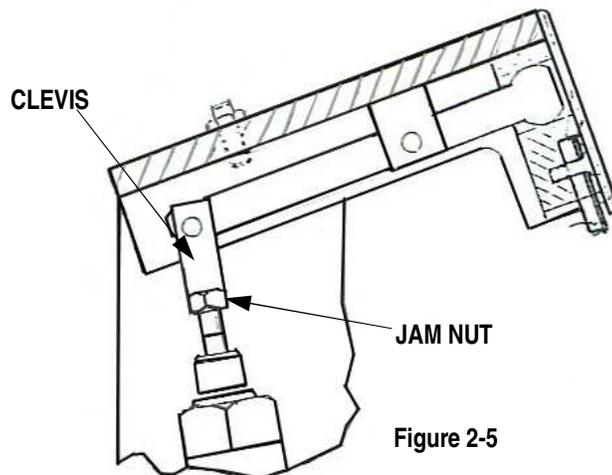


Figure 2-5

2.6 Programming The Controller

1. Turn the power switch located on the left side of the control box next to the power cord. (A greeting appears on the screen first, followed by the main menu.)
2. Press the green "POWER ON" button on the upper right corner of the control cabinet. The button should light up. See Figure 2.6.
3. Press F3 "SETUP" on the Operator Interface. Now you may edit the existing job or enter a new set of data.
4. If you elect to edit, press F6. If you elect to enter a new set of data, enter the number of circuits in the new connector.
5. To enter the number of circuits
6. Press "CLEAR", then the number of circuits.
7. Press, "ENTER".
8. Press the Right Arrow.
Note: If the number of circuits doesn't change, simply press the Right Arrow.
9. If colors and/or voids are required, press F5. Display line 1 will show the circuit number

currently being addressed. Press the void key of the desired color key or key combination. Selected color (or void) will appear on the bottom line of the display for 2 seconds before moving to the next circuit.

- Continue entering colors or void until all circuits have been addressed. See Table 2.1 Color chart.

Table 2-1	
Color Chart	
Color	“F” Key(s)
Void	F2
Black	F4
Brown	F5
Red	F6
Orange	F7
Yellow	F8
Green	F9
Blue	F10
Violet	F11
White	F12
Gray	F1 & F4
Light Red	F1 & F6
Light Green	F1 & F9
Light Blue	F1 & F10

- If you elected to edit by pressing F6, pressing F3 will step you through the data currently in the machine. If at any time there appears to be a color or void that needs to be changed, simply press the correct key, then F3.
- When all circuits have been addressed, the display will change to the mode select screen. Select “AUTO” or “MANUAL” and proceed. See Section 2.8, Operation.

Setting Void Termination Function

This section applies only to those machines that have a software revision sticker with a “C” or later revision.

There is an option available on the controller that allows the operator to set whether or not the termination head comes down and crimps the terminal at a void position. This control comes from the factory set to crimp the terminal at a void

position, and then index the connector to the next position. If desired, the controller can be changed so that the termination head does not come down and crimp the terminal on a void, the connector is simply indexed to the next position. This is done by adding a jumper between wire #50 and PLC terminal 15. See Section 6 Electrical Schematic, sheet 2.

WARNING: Inserting an uncrimped terminal into housing, may cause skiving or other damage to the plastic housing and may increase the force required to insert a mating connector.

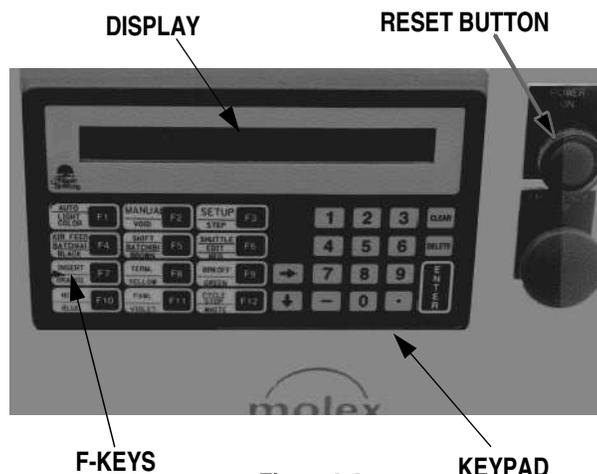


Figure 2-6

2.7 Safety Precautions

The following safety precautions should be taken before operating the terminator.

- Check that the work area is well lighted. Adjust work light for best visibility.
- Check that the area is clean and free of debris. Check that no tools have been left in the machine or work area.

NEVER operate in areas of excess moisture.

- Be sure all guards are in place. Both the operator and bystanders must wear approved safety glasses when terminator is in operation.

NEVER operate this terminator without guards in place.

4. Make sure the unit is plugged into a grounded outlet. Check the connection at both ends of the power cord. Also check that the power cord is not damaged or in danger of being damaged.
5. Check that the terminator position is suitable for the operator's size. The foot pedal should be positioned for ease of use. A stool or chair with adjustable height and backrest should be provided for maximum comfort and back support to the operator.

2.8 Operation

After setup is completed, this machine can be operated in either of two modes, Manual or Automatic. Select a mode when screen says "SELECT MODE", simply press F2 for Manual or F1 for Automatic.

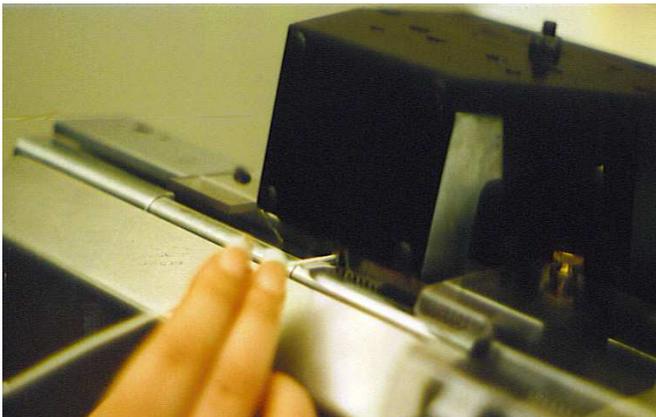


Figure 2-7

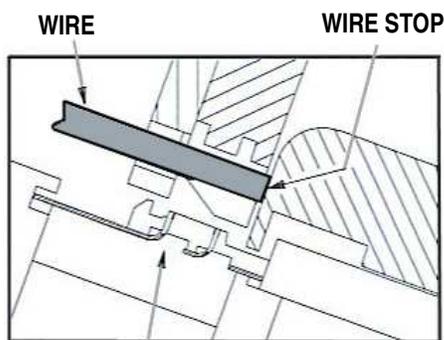


Figure 2-8

Manual Mode

In this mode each function can be individually toggled on and off. This is used mainly in trouble shooting. For example, pressing F7 will cause the Termination Punches to come down. Pressing F7 a second time returns the Termination Punches to the up position.

Automatic Mode

F1 Auto

Pressing F1 starts the Automatic cycle by loading the first connector into the termination position. The operator would then insert the proper wire into the locator slot. The wire must be perpendicular to the face of the tooling and not angled up or down. See Figure 2-7 and 2-8 for correct position. When the wire is in the correct position, press the foot switch. The machine will terminate wire #1 and then index to termination position #2. When the last wire in a connector has been terminated, the nest will automatically return home, a new connector will be loaded and the insertion and break off will be performed on the loaded connector.

F12 Cycle Stop

If F1 is pressed any time during the automatic cycle, the machine will run as described above except that when the termination is completed another connector will not be loaded and insertion and break off will not occur.

Note: Regardless of the condition of the current connector, a new connector will be loaded when you return to automatic.

Section 3

Maintenance

- 3.1. Cleaning
- 3.2. Lubrication
- 3.3. Perishable Parts
- 3.4. Spare Parts
- 3.5. Troubleshooting
- 3.6. Fault Messages Diagnostics

3.1 Cleaning

WARNING: Disconnect the compressed air line and the power cord from the power source during all maintenance operations.

For efficient operation, the Hawk Discrete Wire Termination Machine should be cleaned daily with a soft bristle brush to remove any carrier strip debris and terminal plating dust from the tooling area. For continuous operation this may have to be done several times throughout the day.

See Chart 3.1 for recommended Preventive Maintenance Schedule.

When it is necessary to change tooling, care should be taken to remove any debris from tapped holes or mounting surfaces. Debris can prevent tooling from being properly locked into position.

Keep the air filter clean. A visible coating of dirt in the bowl indicates that the unit needs cleaning. To clean, remove the bowl with the filter unit and wipe with denatured alcohol.

CAUTION: Using compressed air to clean tooling is *not* recommended. Chips can wedge in the tooling and/or fly at an operator.

3.2 Lubrication

1. Check the oil level in the lubricator bowl periodically and fill as needed with SAE 10W motor oil.
2. Sparingly lubricate the sliding parts approximately every month with SAE 10W motor oil or equivalent.
3. Lubricate with multipurpose synthetic lubricant with Teflon or an equivalent. Molex ships its presses pre-greased with Permatex multi-purpose synthetic grease with Teflon No. 82329. SAE 10 non-detergent oil or light spindle oil or 3-in-1 oil should be used on pivot points.

WARNING: Never use penetrates such as WD40 for any lubrication on the Termination machine.

An example of a maintenance chart is shown below. Copy and use this chart to track the maintenance of your Press or use this as a template to create your own schedule or use your company's standard chart, if applicable.

Preventive Maintenance Chart

Daily: Clean. See Section 3.1.

Monthly: Check air filters and clean as necessary, See Section 3.1.

Lubricate sliding parts, See Section 3.2.

Check oil level in lubricator, See Section 3.2.

CHECK SHEET MONTH _____ YEAR _____

Week	Monthly	Daily Clean	Days of the Week							Solution
			MON	TUE	WED	THU	FRI	SAT	SUN	
1										
2										
3										
4										
Air Filters	Yes									SAE 10W motor oil
Lubricate	Yes									SAE 10 non-detergent oil
Oil Level	Yes									SAE 10W motor oil
Cleaning Reapply greasing Reapply oil		Yes								Soft Brush Industrial Degreaser
Inspect all tooling for wear		Yes								Replace if signs of wear.

Schedule should be adjusted up or down depending on usage. Molex recommends that a log of preventive maintenance be kept with the press.

3.3 Perishable Parts

Customers are responsible for maintaining the Hawk Discrete Wire Termination Machine. Perishable parts are those parts that come in contact with the product and will wear out over time. Molex recommends that all customers keep at least one set of the perishable tool kit in stock at all times. This will reduce the amount of production down time. These parts are identified in the parts list in Section 4.

3.4. Spare Parts

Customers are responsible for maintaining the Hawk Discrete Wire Termination Machine. Spare parts are moving and functioning parts that can be damaged or wear out over time and will require replacement. Molex recommends that the customer keep some or all of them in stock to reduce production down time. These parts are identified in the parts list in Section 4.

3.5 Troubleshooting

▪ Symptom	▪ Cause	▪ Solution
Switch does not turn on power	▪ No current	Check power source.
	▪ Fuse blown	Replace.
	▪ Defective power switch	Replace.
Smashed terminals during Termination	▪ Improper shuttle fine adjustment	See Setting Up and Operation. Section 2.3.
	▪ Damaged crimp or termination punches	Repair or replace.
	▪ Nest Return cylinder rod end loose	Tighten.
	▪ Carriers or other debris in lower slide area	Remove and clean. See Section 3, Maintenance.
	▪ Damaged slide bearings	Replace
	▪ Debris in anvil pockets	Remove and clean. See Section 3, Maintenance.
	▪ Spring pressure on housing aligner bar too low	Replace spring.
	▪ Nest return cylinder pressure regulator set too low	Adjust regulator.
Improper crimp and termination depth	▪ Improper adjustment of crimp and termination punch height	See Setting Up and Operation Section 2.4.
	▪ Improper adjustment of termination punch depth	See Setting Up and Operation Section 2.4
	▪ Debris in anvil pockets	Remove and clean. See Section 3, Maintenance.
	▪ Air pressure too low	Check air supply and regulator. See Setting Up and Operation Section 2.1.
Improper insertion depth (Terminals in Housing)	▪ Termination cylinder flow control set improperly	Reset flow control.
	▪ Carriers or other debris caught behind insertion slide mechanism	Carefully clean out area behind slide.
	▪ Screws loose in insertion slide assembly	Tighten all insertion slide screws.
Carriers not breaking off properly	▪ Insertion cylinder loose or binding	Tighten the rod connections or replace the cylinder if binding.
	▪ Debris caught under carrier bend slide	Carefully clean area under bend slide. See Section 3.
	▪ Bend cylinder loose or binding	If binding, replace the cylinder and tighten all rod fittings.
	▪ Improper coining on terminal carrier strip	Replace product.
Tube feed hang-up	▪ Loose carrier break-off cam block	Tighten all screws.
	▪ Shift nest not positioned properly	Adjust shift nest so connectors transition smoothly.
	▪ Shift cylinder binding	Replace cylinder
	▪ Tube bowed excessively or burred at ends	Replace tube
Connector transfer hang up	▪ Air feeder malfunctioning	Check air pressure and check for blockage of air passages.
	▪ Improper clearance in connector feed guide or carrier guide I nest	Contact Molex Application Tooling Group.
	▪ Debris in anvil pocket	Remove debris and clean area.
	▪ Debris behind shift nest slide	Remove debris and clean area.
	▪ Shuttle cylinder binding	Replace or repair cylinder.
	▪ Shuttle cylinder flow controls improperly adjusted	Readjust flows controls so cylinder extends and retracts but does not slam.
	▪ Improper alignment in transition areas	Adjust alignments so that connector moves through smoothly.
Connector overshoots when transferred in	▪ Terminal carrier thickness out of spec	Replace product.
	▪ Shuttle cylinder flow control improperly set	Adjust flow control on front of cylinder to slow down cylinder extension.
	▪ Spring pressure on housing aligner too loose	Replace spring.

Symptom	Cause	Solution
Nest Step not stepping to next circuit position	Nest return cylinder pressure set too high	Set separate regulator to a lower pressure, turn the knob (CCW).
	Debris caught in ratchet mechanism	Carefully clean ratchet mechanism. See Section 3.1.
	Nest step cylinder loose or binding	Repair joints or replace cylinder.
	Nest step cylinder flow controls set too far closed	Open flow control slightly.
	Damaged pawls on ratchet mechanism	Replace pawls.
	Valve malfunctioning or control problem	Contact Molex Application Tooling Group.
	Air pressure too low	See Section 2.1.
Nest step overshooting beyond next position	Nest return cylinder pressure set too low	Open separate regulator very slightly.
	Nest step cylinder flow controls too open	Close down flow controls a little bit at a time until proper flow is achieved.
Nest does not return	Control problems	Contact Molex Application Tooling Group.
	Pawl release cylinder loose or binding	Repair or replace cylinder.
	Nest return cylinder pressure set too high	Reduce pressure at separate regulator.
	Air pressure too low	Check pressure supply and pressure setting at main regulator. See Section 2.1.

3.6 Fault Messages Diagnostics

This machine has built in fault diagnostics. When some action fails to occur properly, a fault message will appear on the display. This message will indicate what did not happen and what sensor the controller expects to see on or off.

For example the following message appears: **"FAULT - SHUTTLE NOT FORWARD S2"**

This message tells us either:

1. The shuttle did not move at all;
OR
2. The shuttle moved but jammed part way;
OR
3. The shuttle moved all the way and the sensor is not seeing it; and it also tells us
4. The controller looking to see Sensor S2 on.

Action: (Typical for all fault messages.)

The Trouble Shooting Chart may help in finding and fixing these problems

1. Determine where shuttle is--is it all the way back, or part way forward or is it all the way forward?
2. If the shuttle is all the way forward, jump to step 5.
3. Check air pressure, See Section 2.1 for resetting instructions.
4. Check for bent cylinder rod, loose mechanical joints, or debris. Clean, repair or replace cylinder as required.
5. Locate the appropriate sensor and determine if it is functioning properly by placing a piece of steel in front of sensor. If the LED on the back goes on the sensor is OK. If LED does not go on, replace the sensor.

CAUTION: Machine may be cycle and move when sensor is activated.

6. Make sure the shuttle flag is at least halfway in front of the sensor face and within 1mm of the face.
7. From the wiring schematic (See Section 4) it is determined that Sensor 2 is wired to input 011. Find input 011 LED on the controller on the door of the control cabinet. Check to see if this LED goes on when sensor LED goes on. If not, check wiring between sensor and controller.

Section 4

- 4.1 Parts List and Assembly Drawings
- 4.2 Schematisc Drawings
- 4.3 Pneumatic Drawing

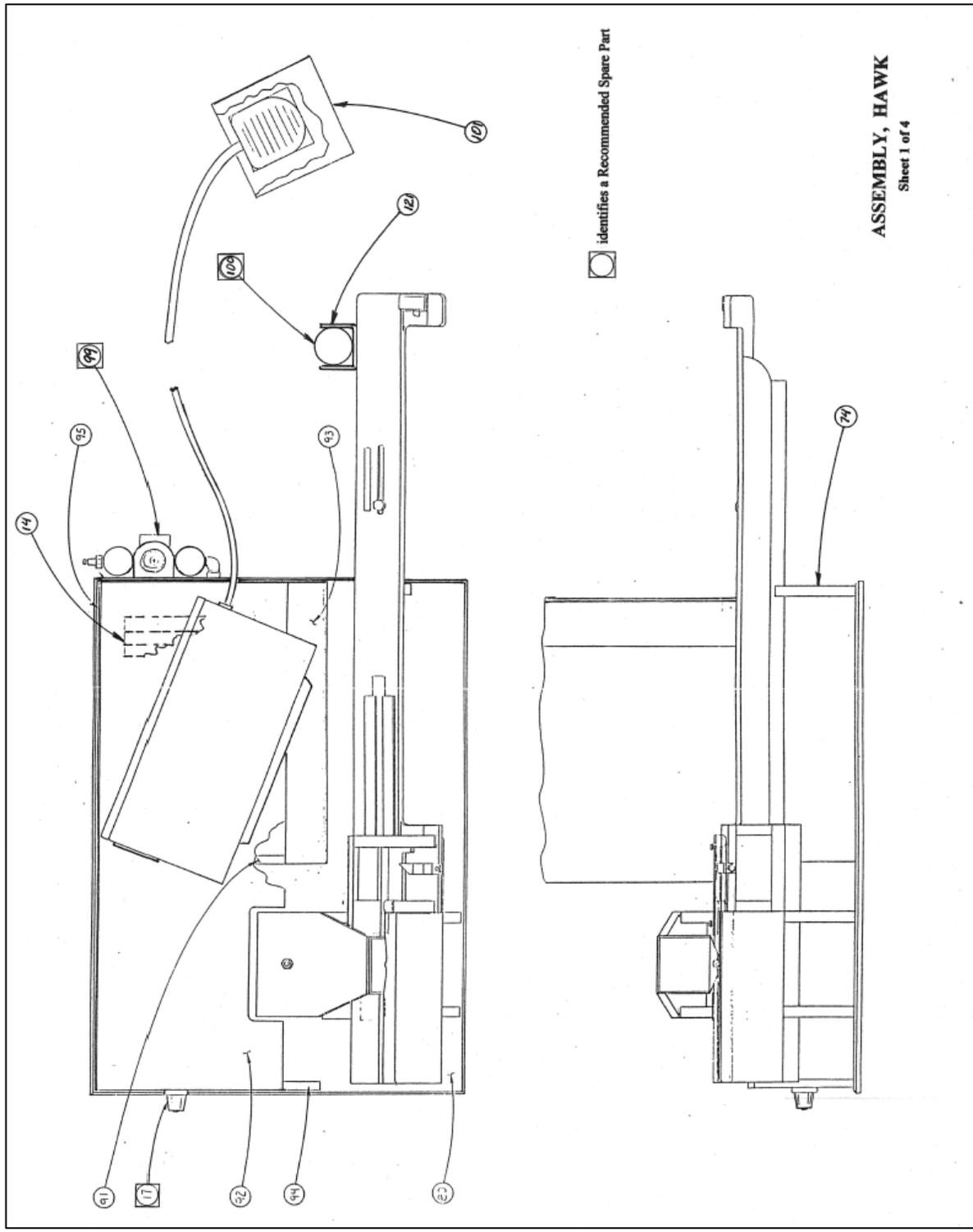
4.1 Parts List

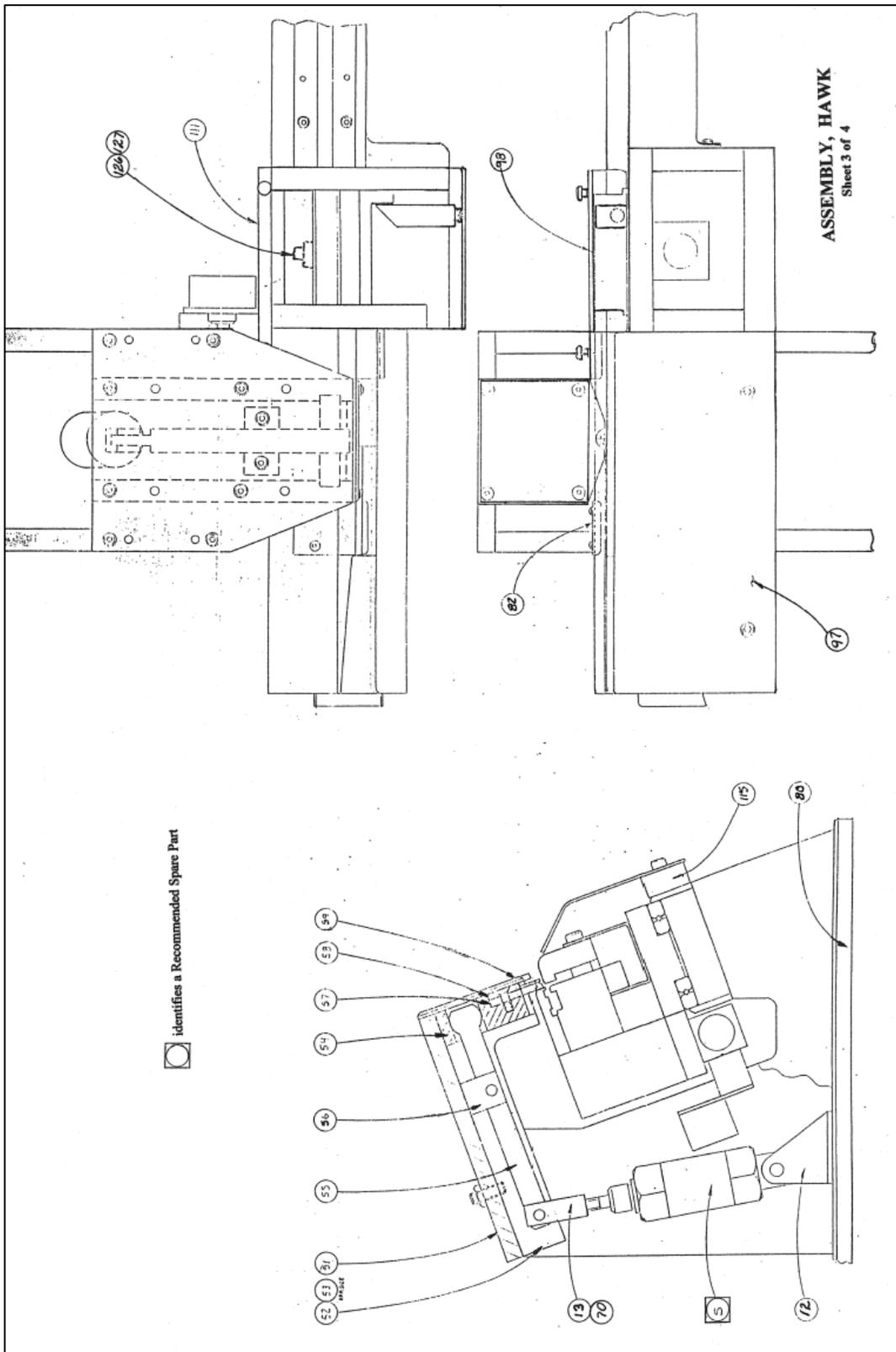
62300-3100 Hawk Discrete Wire Termination Machine Sheets 1 thru 4				
Item	Order No	Description	RSP / PP Parts and notes	Quantity
1	11-31-0145	Cylinder, Connector Shift	RSP	1
2	11-31-0146	Cylinder, Connector Shuttle	RSP	1
3	11-31-0147	Cylinder, Insertion	RSP	1
4	11-31-0148	Cylinder, Carrier Bend	RSP	1
5	11-31-0149	Cylinder, Crimp & Terminate	RSP	1
6	11-31-0150	Cylinder, Nest Step	RSP	1
7	11-31-0151	Cylinder, Pawl Release	RSP	1
8	11-31-0152	Cylinder, Main Nest Return	RSP	1
9	11-31-0153	Bracket, Cylinder		1
10	11-31-0154	Bracket, Cylinder		1
11	11-31-0155	Bracket, Cylinder		1
12	11-31-0156	Bracket, Clevis		1
13	11-31-0157	Clevis, Rod		1
14	11-31-0172	Assembly, 8-Valve		1
15	11-31-0173	Bearing, Slide		1
16	11-31-0256	Knob		1
17	11-31-0332	Regulator	RSP	1
20	11-31-4537	Nest		1
21	11-31-4538	Slide, Nest		1
22	11-31-4539	Base, Slide		1
23	11-31-4540	Cover, Nest		1
24	11-31-1728	Spacer, Nest		2
25	11-31-1729	Guide, Insertion		2
26	11-31-1730	Guide, Front Slide		1
27	11-31-1731	Guide, Rear Slide		1
28	11-31- 7464	Aligner, Rod		1
29	11-31-6067	Plug, Orifice		1
30	11-31-4541	Aligner, Housing		1
31	11-31-1735	Spring		2
32	11-31-4542	Anvil, Termination		1
33	11-31-4543	Guide, Carrier		1
34	11-31-4544	Slide, Inner Insertion		1
35	11-31-4545	Slide, Outer Insertion		1
36	11-31-4546	Bar, Insertion		1
37	11-31-4547	Plate, Insertion Bar		1
38	11-31-1742	Cam, Break-off		1
40	11-31-1744	Tray, Carrier	(Not Shown)	1
41	11-31-4548	Ratchet		1
42	11-31-1746	Pawl, Ratchet		2
43	11-31-1747	Spring		2
44	11-31-1748	Guide, Stationary Pawl		1
45	11-31-1749	Cover, Pawl Sliding		1
46	11-31-1750	Cover, Pawl Slide		1
47	11-31-1751	Link Pawl Slide		1
48	11-31-1752	Retract, Pawl		1
49	11-31-1753	Track, Ratchet pawl		1
50	11-31-1754	Upright, Left Frame		1
51	11-31-1755	Plate, Termination Head Top		1
52	11-31-1756	Guide, Right Termination		1

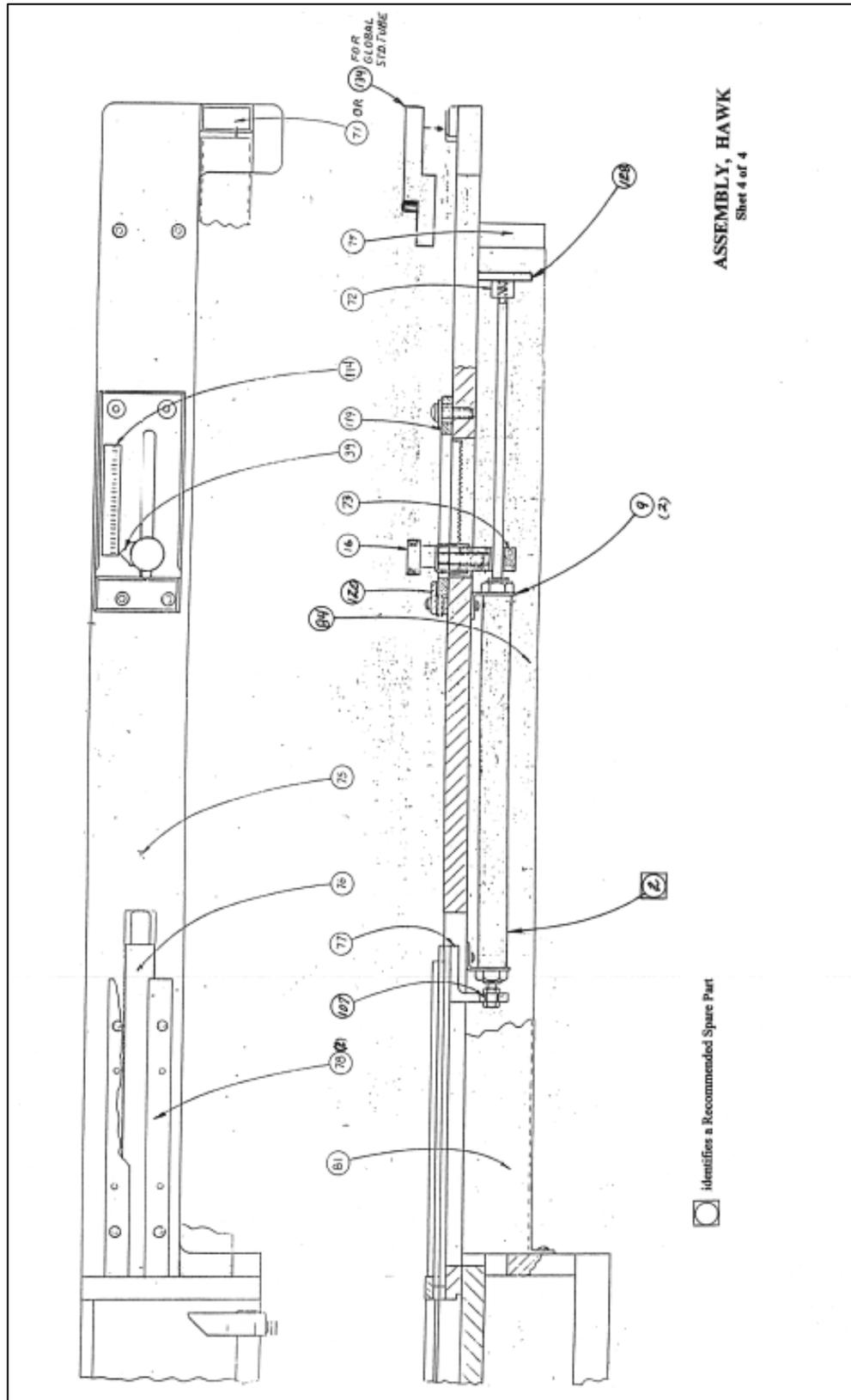
62300-3100 Hawk Discrete Wire Termination Machine Sheets 1 thru 4				
Item	Order No	Description	RSP / PP Parts and notes	Quantity
53	11-31-1757	Guide, Left Termination		1
54	11-31-1758	Slide, Termination		1
55	11-31-1759	Lever, Termination		1
56	11-31-1760	Pivot, Termination		1
57	11-31-0418	Punch, Termination	PP	1
58	11-31-0419	Punch, Crimp	PP	1
59	11-31-1761	Cover, Termination Head		1
60	11-31-1762	Base, Shift		1
61	11-31-1763	Spacer, Left		1
62	11-31-1764	Spacer, Right		1
63	11-31-1765	Nest, Shift		1
64	11-31-1766	Guide, Left Shift		1
65	11-31-1767	Guide, Right Shift		1
66	11-31-1768	Cover, Shift Nest		1
67	11-31-1769	Stop, Cartridge Feed		1
68	11-31-1770	Bracket, Shift Nest		1
69	11-31-1771	Stop, Shift		1
70	11-31-5584	Assembly, Clevis Pin		1
71	11-31-1772	Nozzle, Cartridge Feed Air		1
72	11-31-1773	Stop, Shuttle Cylinder		1
73	11-31-1774	Stop, Adjustable Shuttle		1
74	11-31-1775	Arm, Support		1
75	11-31-1776	Holder, Cartridge		1
76	11-31-1777	Blade, Shuttle		1
77	11-31-1778	Arm, Shuttle		1
78	11-31-1779	Guide, Shuttle		1
79	11-31-1780	End, Shuttle Guard		1
80	11-31-1781	Base, Machine		1
81	11-31-1782	Guard, Shuttle Front		1
82	11-31-1783	Guard, Insertion		1
83	11-31-1784	Upright, Right Frame		1
84	11-31-1785	Guard, Shuttle Rear		1
85	11-31-1786	Bracket, Sensor		4
86	11-31-1787	Bracket, Dual Sensor		1
88	11-31-1789	Flag, Sensor		1
89	11-31-1790	Flag, Insertion Sensor		1
90	11-31-1791	Stand, Right Control		1
91	11-31-1792	Stand, Center Control		1
92	11-31-1793	Base, Control		1
93	11-31-1794	Cover, Front Valve		1
94	11-31-1795	Stand, Left Control		1
95	11-31-1796	Cover, Rear		1
96	11-31-1797	Guide, Terminal Feed		1
97	11-31-4571	Guard, Front		1
98	11-31-1799	Guard, Housing Shift		1
99	11-21-0008	FRL Assembly with Gauge	RSP	1
100	11-31-0422	Filter, Coalescing	RSP	1
101	69002-5715	Assembly, Foot Switch		1
102	11-32-1659	Cord, 3-Conductor Power		1
103	11-32-8840	Switch, 8MM Proximity	RSP	5
104	11-39-0131	Assembly, Control	See Control Drawing	1
105	11-41-0264	Logo, Molex		1

62300-3100 Hawk Discrete Wire Termination Machine Sheets 1 thru 4				
Item	Order No	Description	RSP / PP Parts and notes	Quantity
106	11-32-6778	Overlay, Operator Interface		1
107	11-21-5835	Bushing, Feeder Arm		1
111	11-31-1800	Mount, Guard		1
114	11-31-1803	Scale, Shuttle Adjustment		1
115	11-31-1804	Spacer, Front Guard		2
116	11-31-1805	Chute, Carrier		1
117	11-31-1439	Guard, Pawl Release		1
119	11-31-3116	Base, Shuttle Adjustment		1
120	11-31-3117	Pad, Fine Adjustment		1
121	11-31-2187	Bracket, Filter		1
122	11-31-5302	Tool, Nest Cleaning	(Not Shown)	1
126	11-31-7475	Bushing, Shift Cylinder Rod Align		1
127	11-31-7476	Washer, Shift Cylinder Rod Align		1
128	11-31-7722	Guide, Shuttle Cylinder Stop		1
	11-31-0421	Valve, Replacement	RSP	Ref
	11-31-5939	Strip, Bearing Replacement	RSP	Ref
129	62800-7317	Tag, "CE" Serial Number		1
130	11-32-3060	Cable, Right Angle Proximity		3
131	11-32-3061	Cable, Straight Proximity		2
132	11-31-0332	Regulator, Pressure (with gauge)		1
133	11-32-1177	Control, In-Line Flow		7
134	62300-3101	Tube rest, Global Standard Tube		1
66X	62300-3102	Cover, Shift Nest	(Xerox Only)	1
RSP - Part is a Molex Recommended Spare Part.				
PP - Part is a Perishable Part.				
** Available from an industrial supply company such as MSC (1-800-645-7270).				

4.1 Main Assembly Drawings







4.1 Controls Parts List

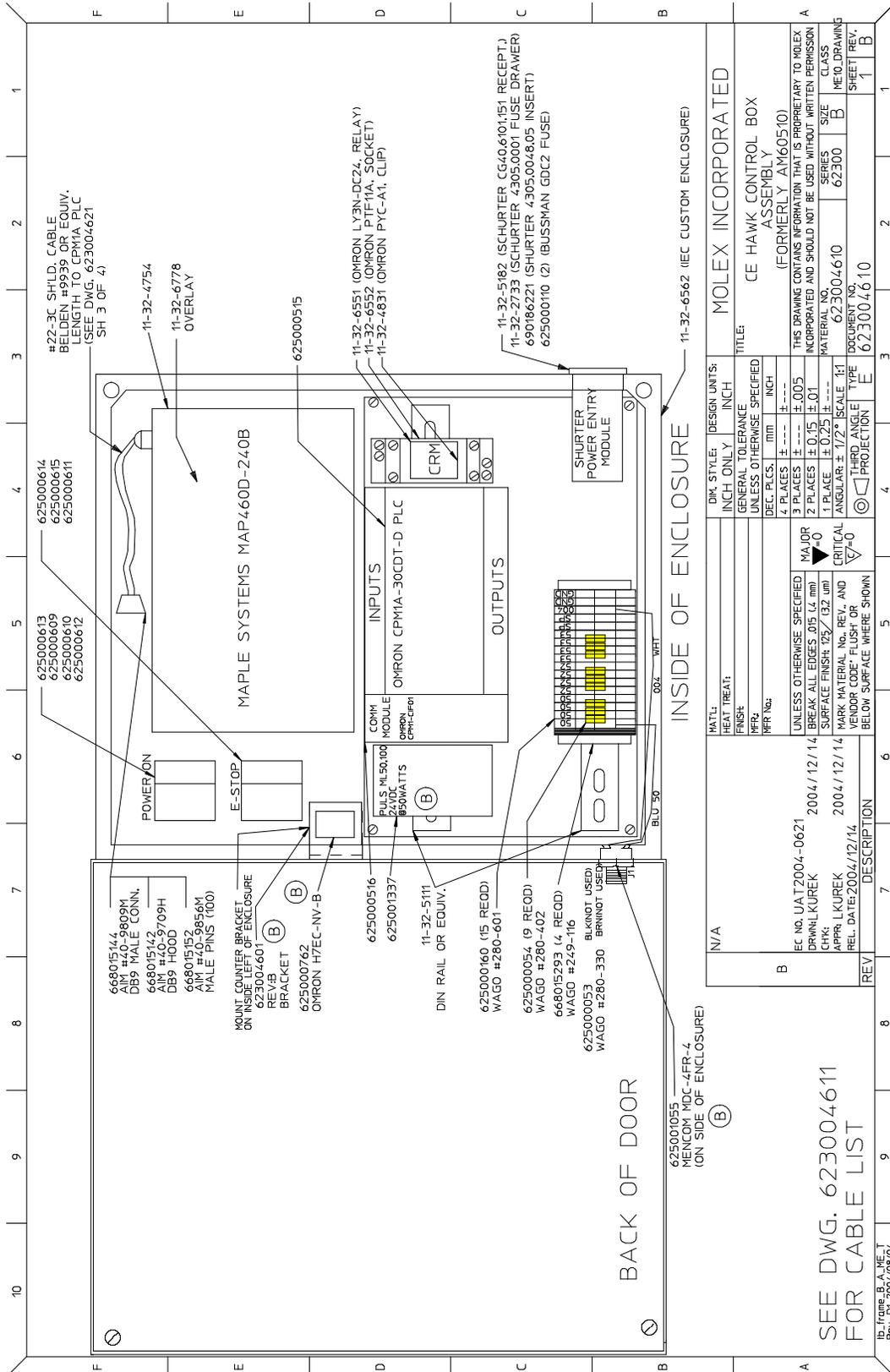
CE Hawk Controls Assembly 62300-4600			
Item	Order No	Description	Quantity
1	11-31-1781	Base Machine	1
2	11-31-1791	Stand Control, Right	1
3	11-31-1792	Stand Control, Center	1
4	11-31-1793	Base Control	1
5	11-31-1794	Front Valve Cover	1
6	11-31-1795	Stand Control, Left	1
7	11-31-1796	Rear Cover	1
8	62300-4610	CE Haw Control Box Assembly with Slow Start Hardware	1
9	62300-4620	CE Hawk Control Box Misc. Parts (Old 60510)	1
10	62300-4621	Molex Schematic Electrical CE Hawk	1
11	AM60510-103	Schematic Cylinder and Sensor	1
12	AM60510-118	Pneumatic Tubing Layout	1

CE Hawk Control Box Assembly 62300-4610				
Item	Order No	Description	RSP / PP Parts	Quantity
1	11-31-5111	Din Rail 1mm Long		1
2	11-32-1659	Power Cord Detachable		1
3	11-32-2733	2-Pole Fuse Drawer		1
4	11-32-4754	Operator Interface		1
5	11-32-4831	Relay Spring Clip		1
6	11-32-5182	Power Entry Module		1
7	11-32-6551	3 Pole 24V DC Relay		1
8	11-32-6552	Socket Relay		1
9	11-32-6562	Hawk Enclosure		1
10	11-41-0264	Molex Logo 3.0" Diameter (Red On White)		1
11	62300-4601	Counter Bracket CE Hawk Omron		1
12	62500-0053	End Plate		1
13	62500-0054	Jumper		9
14	62500-0110	2AMP Slowblo Fuse, 5 by 20mm	RSP	2
15	62500-0160	5mm Terminal Block, Single Deck		15
16	62500-0188	Electrical Warning Label		1
17	62500-0490	Slow Start Valve		1
18	62500-0508	Spacer		1
19	62500-0515	CPU Plc, 18 inch 12 out, DC Powered		1
20	62500-0516	Communications Adapter		1
21	62500-0609	SWITCH		1
22	62500-0610	Operator Push Button		1
23	62500-0611	Legend Plate		1
24	62500-0612	Legend Plate		1
25	62500-0613	Green Led 24V DC		1
26	62500-0614	Red Push Button Mushroom Head-Twist		1
27	62500-0615	N.C. Cont Block For E-Stop		1
28	62500-0667	EMI SHIELD BEAD		1
29	62500-0668	CAPACITOR		1
30	62500-0762	24v Re-settable Counter		1
31	62500-1055	Micro-Dc Series 4 Pin Female 22 AWG		1
32	625001337	24v 50watt Power Supply		1
33	66687-8885	Cable Assembly Db25		1
34	66801-5142	DB9 Connector Back Shell		1
35	66801-5144	DB9 Male Plug		1
36	66801-5152	DB Male Pins		1

CE Hawk Control Box Assembly 62300-4610				
Item	Order No	Description	RSP / PP Parts	Quantity
37	66801-5293	6mm End Stop		4
38	69018-6221	Voltage Selector		1
RSP - Part is a Molex Recommended Spare Part.				
PP - Part is a Perishable Part.				
** Available from an industrial supply company such as MSC (1-800-645-7270).				

CE Hawk Control Misc. Parts 62300-4620				
Item	Order No	Description	RSP / PP Parts	Quantity
1	11-21-0008	Filter Regulator Lubricator with Gauge		1
2	11-31-0332	Pressure Regulator With Gauge		1
3	11-32-1071	Fitting Blank Plug, 3/8"		1
4	11-32-1084	Reducer Air Fitting		6
5	11-32-1177	Flow Control, 5/32" Tube, In-Line		7
6	62500-0251	Single Solenoid Valve, Vq2000 Series		8
7	62500-0765	Proximity Sensor		5
8	62500-0766	Prox Plug & Cord (90)		5
9	62500-1255	Manifold 8-Station With Connector		1
10	63700-1193	Exhaust Port Silencer		2
RSP - Part is a Molex Recommended Spare Part.				
PP - Part is a Perishable Part.				
** Available from an industrial supply company such as MSC (1-800-645-7270).				

4.1 Control Assembly Drawings



REV	DESCRIPTION	DATE	BY	CHKD	APPR	REL. DATE
B	UAT 2004-0621	2004/12/14				2004/12/14
	DRINK KUREK					
	CHK: KUREK					
	APPR: L KUREK					
	REL. DATE: 2004/12/14					

MAT'L	HEAT TREAT	FINISH	WFR No.
N/A			

DM. STYLE	DESIGN UNITS
INCH ONLY	INCH

GENERAL TOLERANCE	UNLESS OTHERWISE SPECIFIED
4 PLACES ± .005	± .005
2 PLACES ± 0.15	± 0.15
1 PLACE ± 0.25	± 0.25
ANGULAR ± 1/2°	SCALE 1:1

EC NO.	UAT	2004-0621
DRINK	KUREK	
CHK:	KUREK	
APPR:	L KUREK	
REL. DATE:	2004/12/14	

UNLESS OTHERWISE SPECIFIED	BREAK ALL EDGES .015 (L4 mm)	SURFACE FINISH: 125 / 32 (µm)	MARK MATERIAL, REV. AND VENDOR CODE* ELUSP OR BELOW SURFACE WHERE SHOWN
3 PLACES ± .005			
2 PLACES ± 0.15			
1 PLACE ± 0.25			

DOCUMENT NO.	SHEET	REV.
623004610	B	1

DOCUMENT NO.	SHEET	REV.
623004610	B	1

DM. STYLE	DESIGN UNITS	TITLE
INCH ONLY	INCH	MOLEX INCORPORATED

CE HAWK CONTROL BOX ASSEMBLY (FORMERLY AM60510)
THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

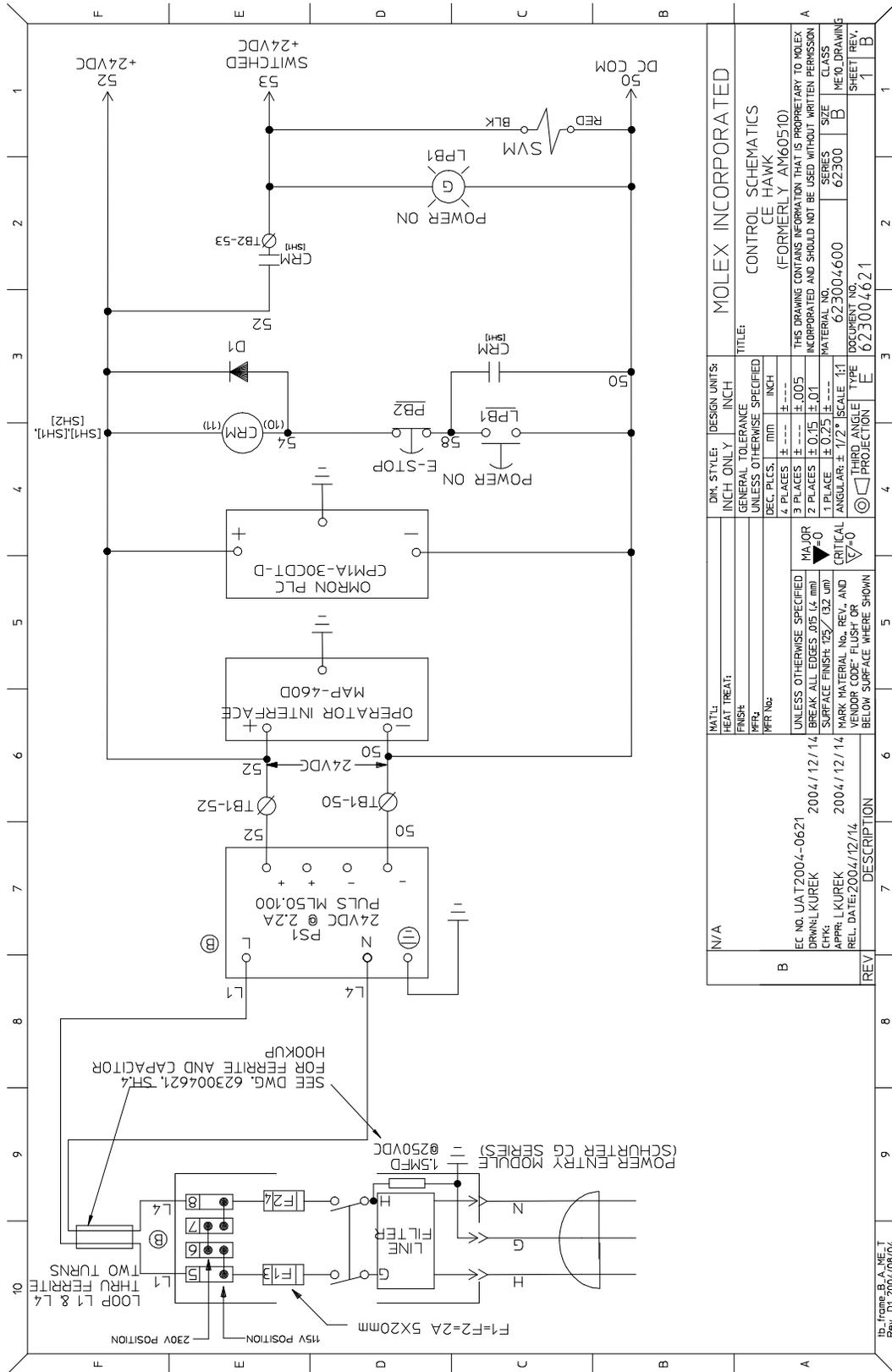
SERIES	SIZE	CLASS
62300	B	MEIO DRAWING

PROJECTION	TYPE
1	E

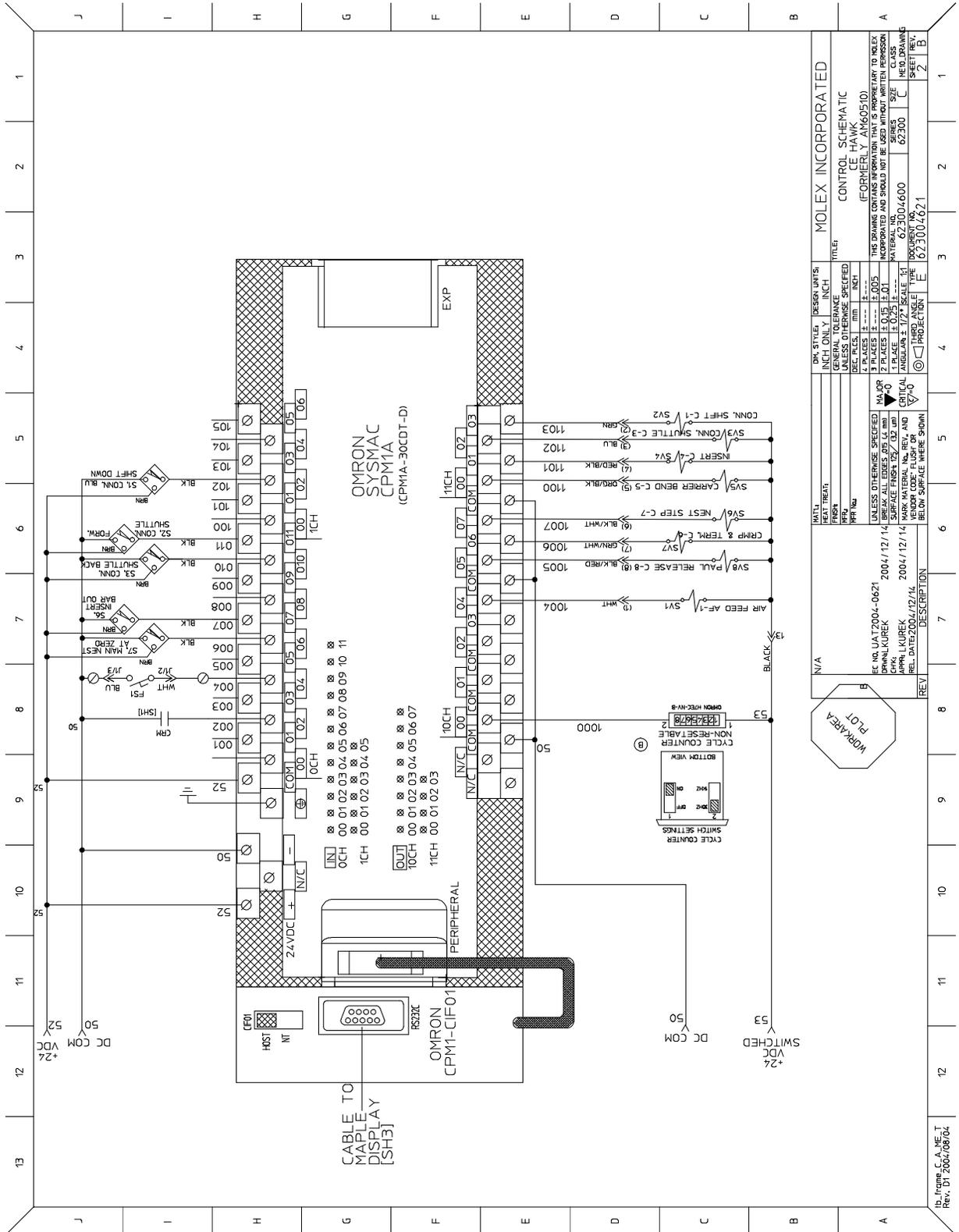
SEE DWG. 623004611 FOR CABLE LIST

10
9
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7
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4
3
2
1

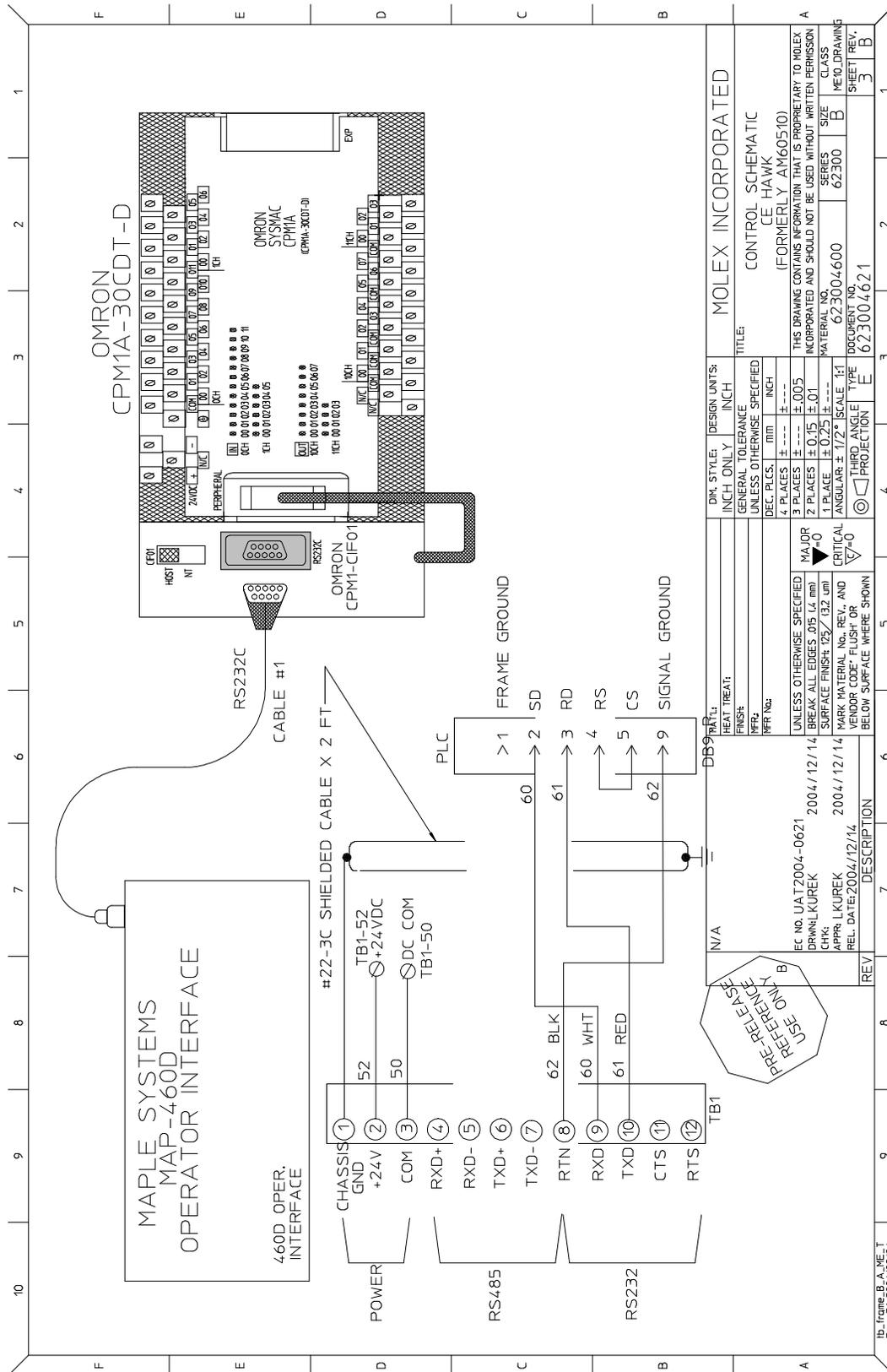
4.2 Electrical Drawings



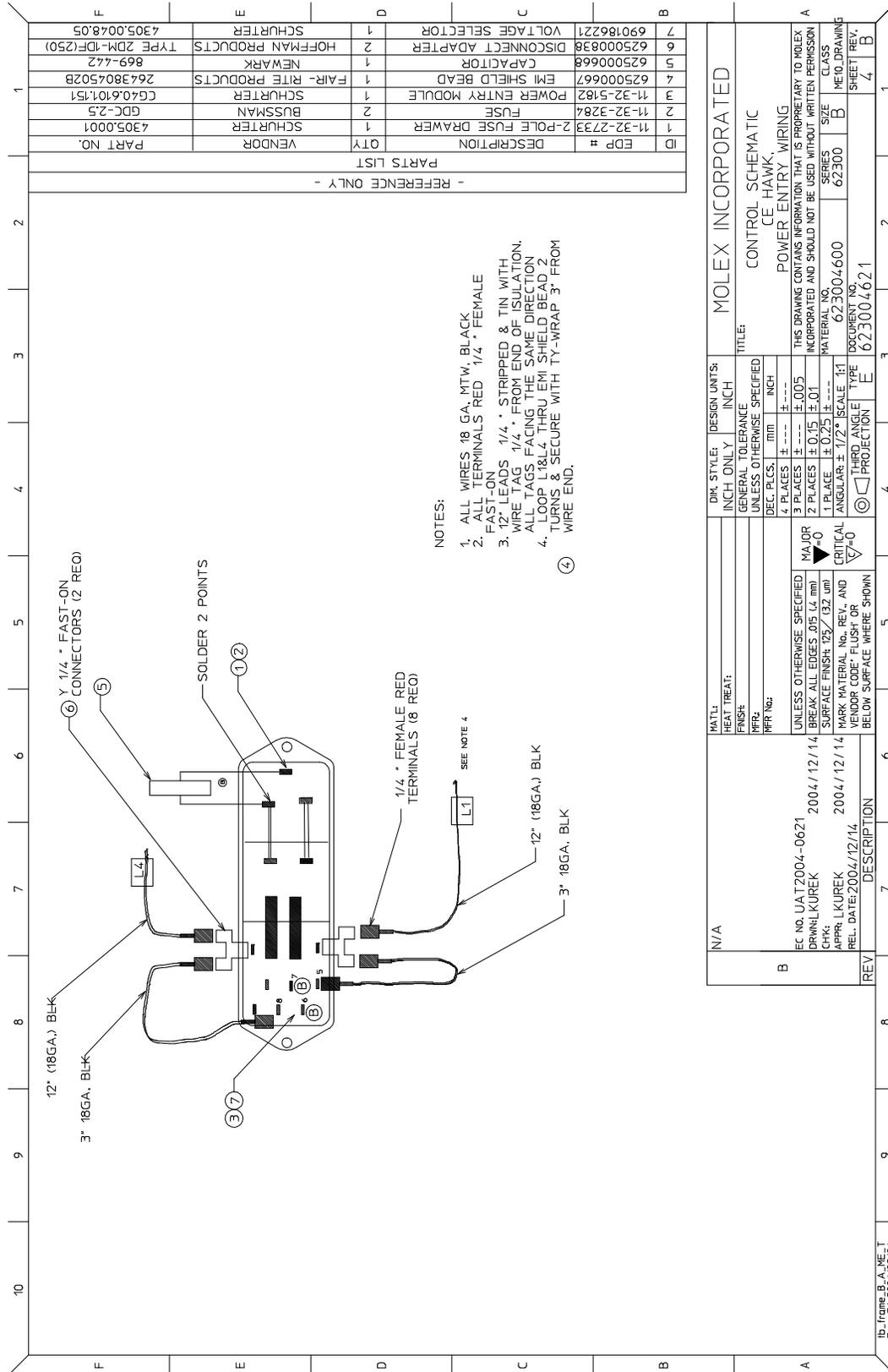
4.2 Electrical Drawings



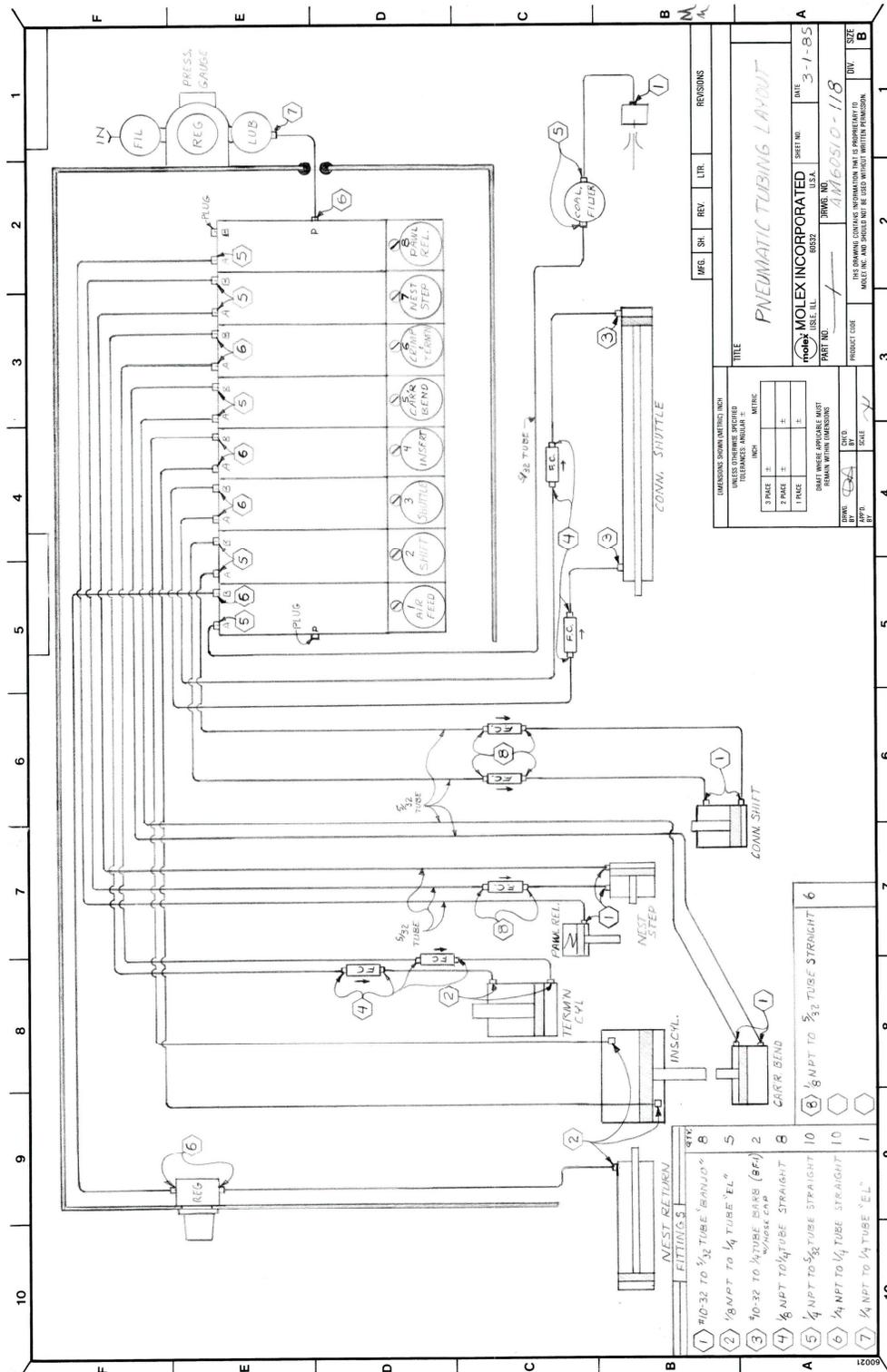
4.2 Electrical Drawings



4.2 Electrical Drawings



4.3 Pneumatic Drawing



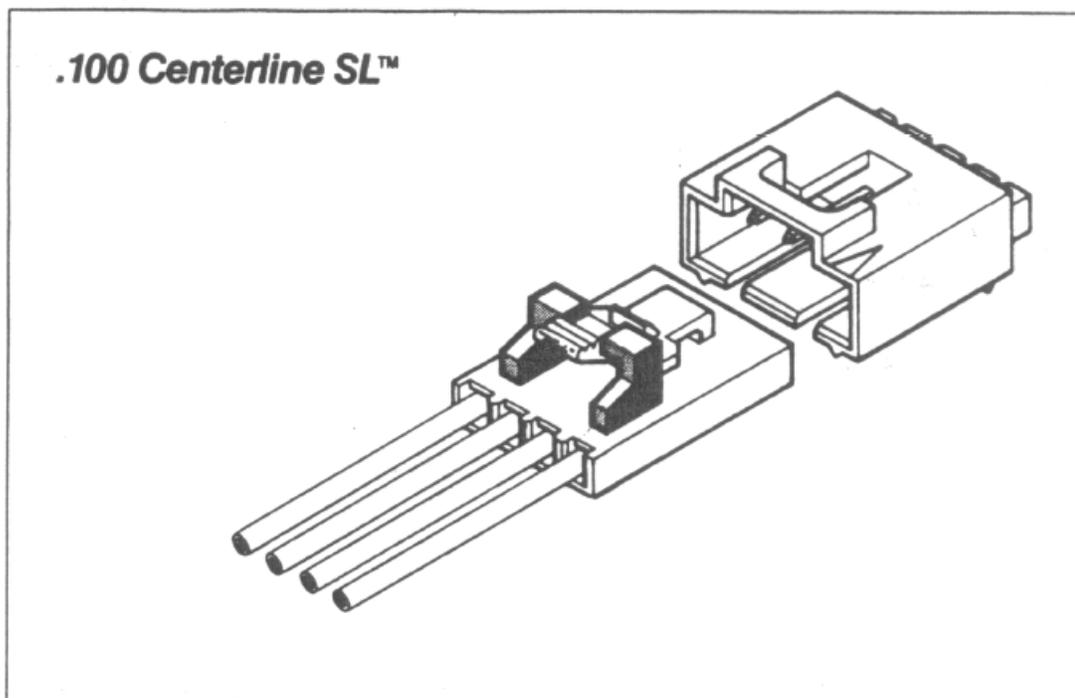
Section 5

GLOSSARY OF TERMS

Carrier	A metal strip that temporarily holds the terminals together on a reel. It must be removed upon completion of an assembly.	IDT	It means Insulation Displacement Technology. A termination method in which insulated wire is forced into a slot smaller in width than the diameter of the conductor. The sharp edges of the slot displace the insulation and make a permanent electrical interface between the wire conductor and the walls of the slot.
Circuit Size	The number of terminals/pins in the assembly which represents the number of electrical circuits the connector can transmit/carry		
Crimp	A controlled-dynamic process and method of mechanical bonding, i.e., a connector-to-conductor termination where one end of the connector (containing the conductor or wire positioned in a crimp barrel) is highly compressed and deformed (connector + conductor together) in order to create an interface that "bonds" the two dissimilar metals (usually different materials for the connector and conductor, respectively) intimately together. On crimped terminal, a second crimp is often added to the insulation area for added strain relief.	Nest	Part of a crimping die set that provides the location and support for the terminal barrel as it is being deformed into the desired crimp configuration by the indenter.
		Pawl	A spring loaded device which moves and holds the nest during termination.
		Punch	The tooling piece that crimps or terminates wires to terminals.
		Sensor	An electrical non-contact switch that detects the presence of metal moving into its field and signals the machine control.
Discrete Wire	A single cable or wire. Contrast it to ribbon cable, which consists of multiple cables or wires.	Terminal	A device designed to terminate a conductor that is to be affixed to a post, stud, chassis, or other conductor, to establish an electrical connection. It is a synonym for contact.
Housing	A device, usually plastic, used to contain and insulate electrical contacts. Also used for mating or locking with a specified mating connector. Housings are also called shells.	Termination	The process of attaching a wire(s) to a terminal(s).
Insertion	Pushing terminals into the housing.	Termination Head	The part of the machine that holds the crimp and termination punches and terminates the wires.

Appendix A

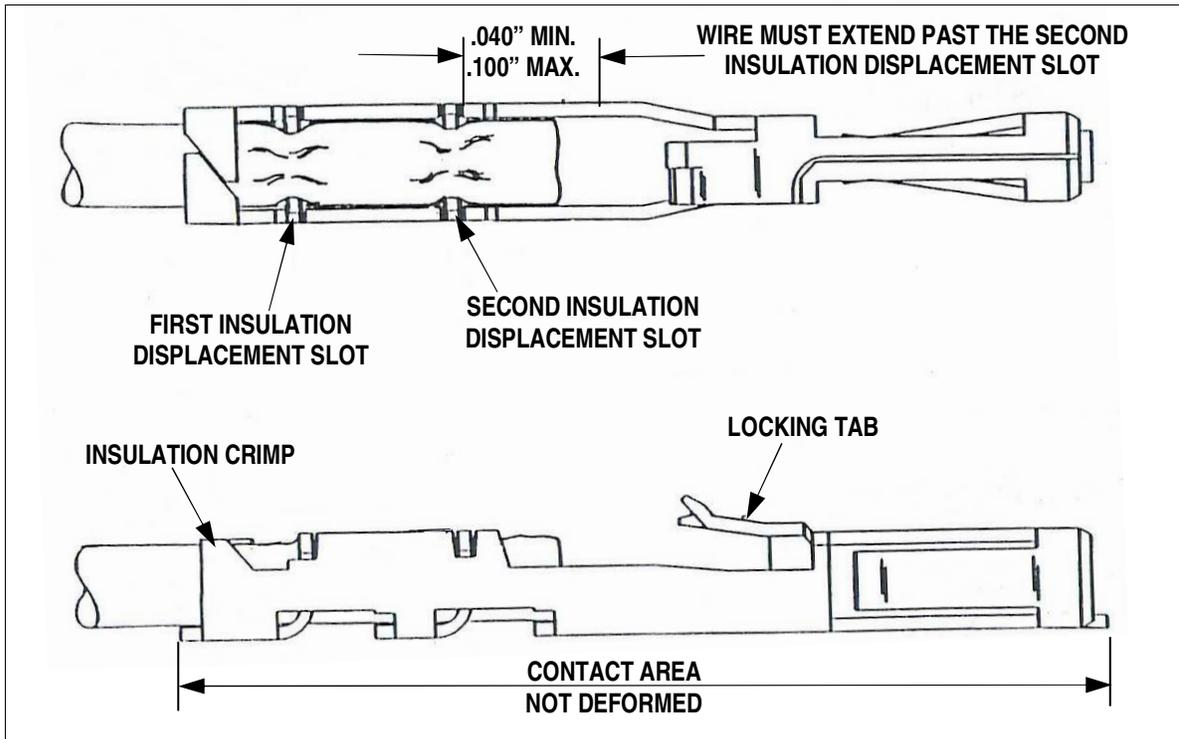
Termination Information



NOTE: The following document is uncontrolled and may not be the latest revision.
For the latest product specifications and product drawings (SDES-70400), contact Molex or visit our
Web site at <http://www.molex.com>.

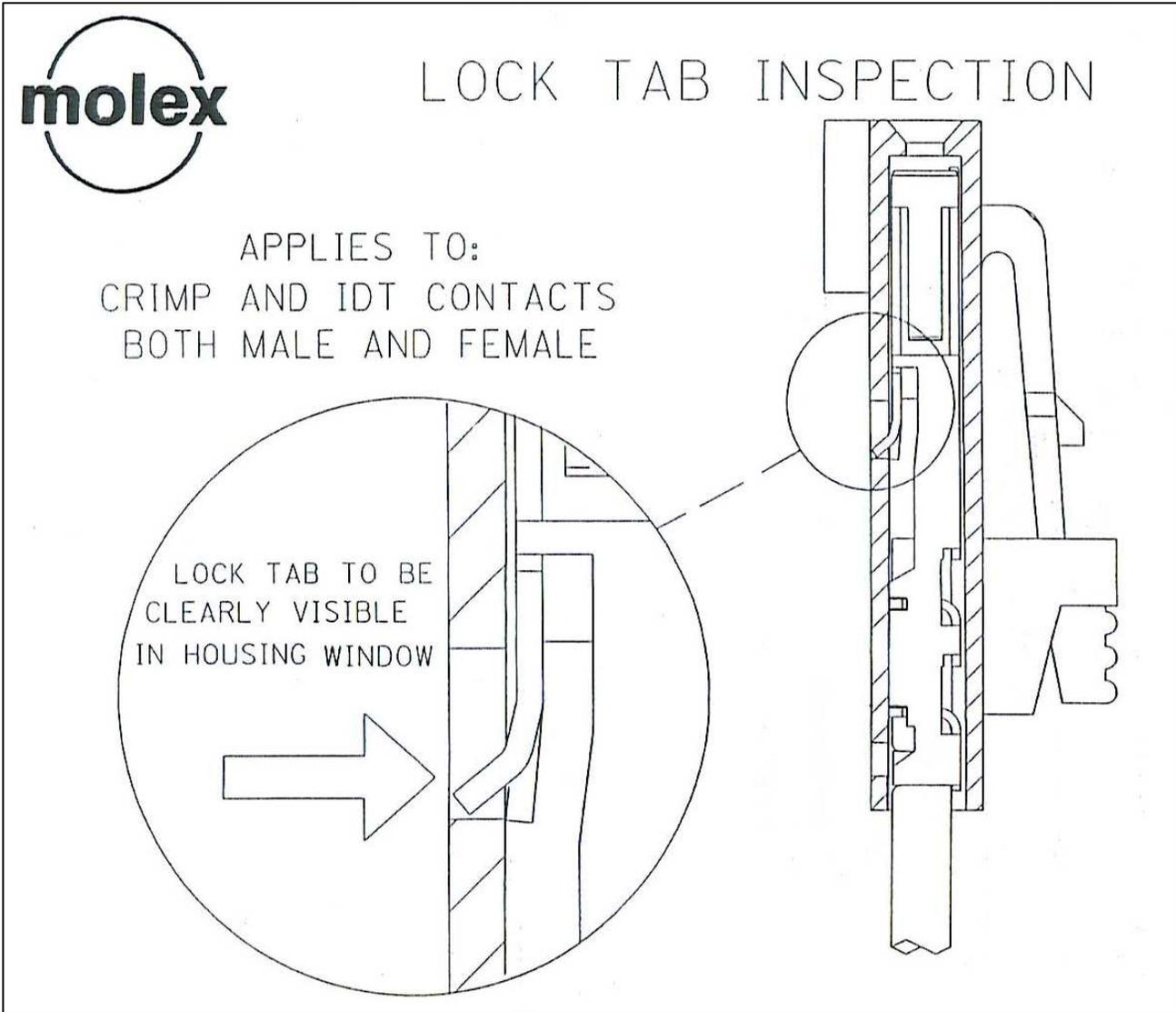
SL IDT CONTACT INSPECTION

(Applies to both male and female terminals)



SL IDT INSPECTION BAD TERMINATIONS	
<p>Wire Not Seated In Second Insulation Displacement Slot</p>	<p>Wire Too Short</p>
<p>One or Both Insulation Crimp Tabs are Not Folded Around the Wire Insulation</p>	<p>Wire Too Long</p>

LOCKING TAB INSPECTION

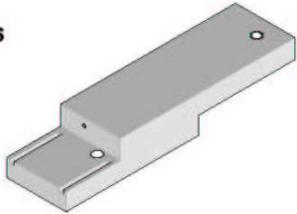


Appendix B Options

Instruction Sheet for Tube Rest Adaptor



**SL / IDT Termination Machine Conversions
For Molex Global Packaging Standard
Instruction Sheet
Order No. 62300-3101**



FEATURES

- An adaptor to accommodate global standard tubes.

SCOPE

In 2000, the length of the SL / IDT connector packaging tube has change from 633.7mm (24.95") to 560.0 mm (22.05"). A conversion part no. 62300-3101 will be required and supplied at *no charge* upon request for the "Hawk" termination machines with the following order numbers:

Order No	Engineering No.	Order No	Engineering No.	Order No	Engineering No.
11-20-0781	AM-60510	11-20-1148	AM-60510US	11-20-1305	AM-60510E
11-20-0853	AM-60520	11-20-1185	AM-60520EC	11-20-1337	AM-60510EU
11-20-0908	AM-60560	11-20-1197	AM-60520EU	11-20-1356	AM-60560U
11-20-0949	AM-60520E	11-20-1223	AM-60510A	62300-3100	62300-3100
				62300-4900	62300-4900

Installation:

1. Remove the air line and the fitting from the air nozzle, order no. 11-31-1772 (AM60510-71).
2. Remove the #10-32 socket head screw that holds the air nozzle to the tube holder from below.
3. Remove the air nozzle. See Figure 1.
4. Install the tube support order no.62300-3101 where the air nozzle was located and fasten with the #10-32 screw and the nut provided with this kit.
5. Re install the air line in the tapped hole located on the lower surface of the tube support.

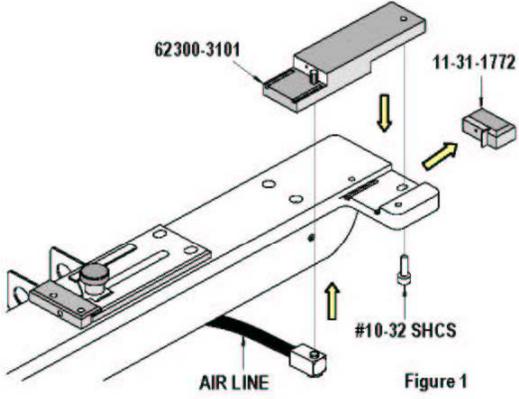


Figure 1

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630-969-4550
Fax: 630-969-1352

Visit our Web site at <http://www.molex.com>

Doc No: ATS-623003101
Revision: B
Release Date: 01-27-05
Revision Date: 02-26-08
UNCONTROLLED COPY
Page 1 of 1

Appendix C EC Declaration of Conformity



EC Declaration of Conformity

We hereby declare that the following product is in conformity with the requirements of the following EC Directive:

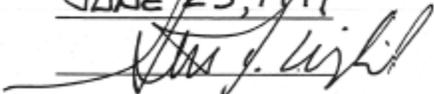
Product:	Termination Machine
Type:	HAWK #62300-3100
Title & No. of Directive:	Low Voltage Directive 89/392/EEC

This product is designed and manufactured in accordance with the following standards.

EMC:	Emissions	EN50081-1 EN 55011-Level A
	Immunity	EN50082-1
Electrical Safety:		EN60204-1

Manufacturer:	Name:	Molex Connector Corp.
	Address:	1150 East Diehl Road Naperville, Illinois 60563

Date: JUNE 23, 1999

Signed: 

Typed Name: Steven F. Wright

Title: Director of Engineering,
Application Tooling Group

MOLEX CONNECTOR CORP.
2222 WELLINGTON COURT, LISLE, IL 60532-1682

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