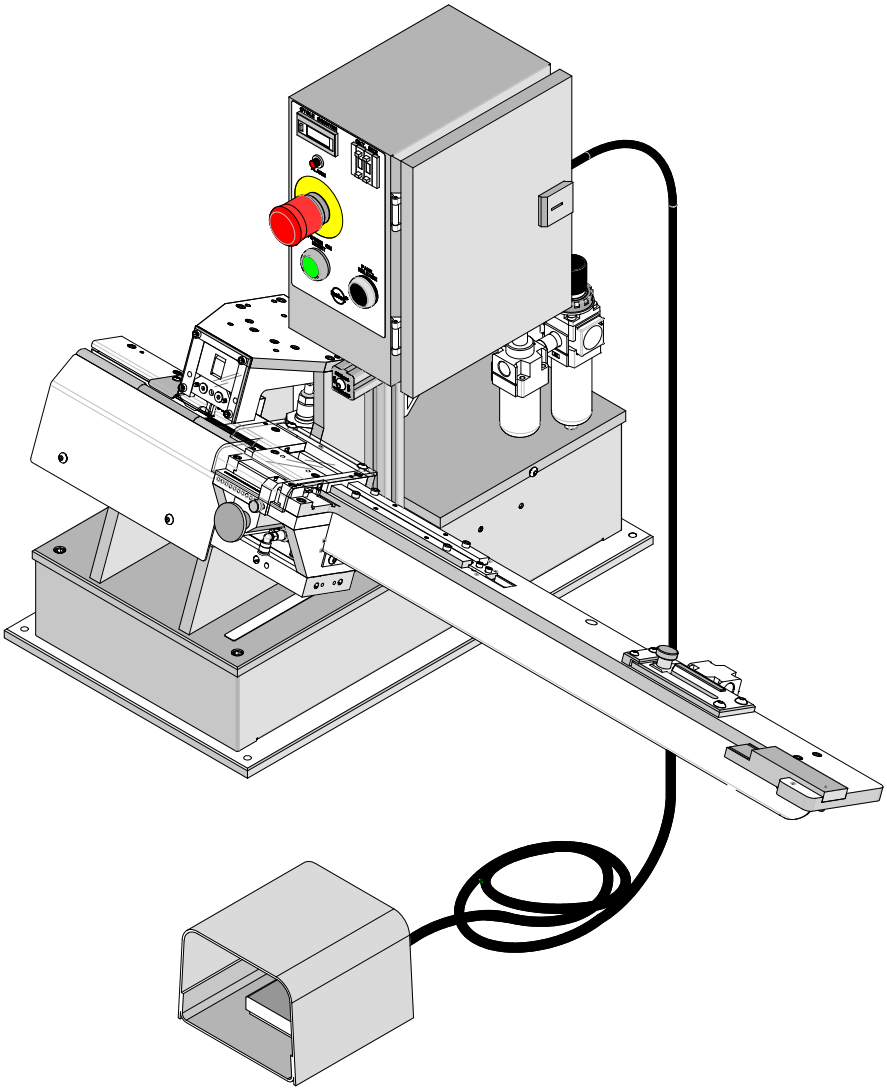

# Hawk Discrete Wire Termination Machine
## Operation Manual
## Order No. 11-20-0949
## Engineering No. AM-60520E

**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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B Options

# Section 1

# General Description

1.1. Description

1.2. Features

1.3. Technical Specifications

1.4. Delivery Check

1.5. Tools

1.6. Lifting

1.7. Installation

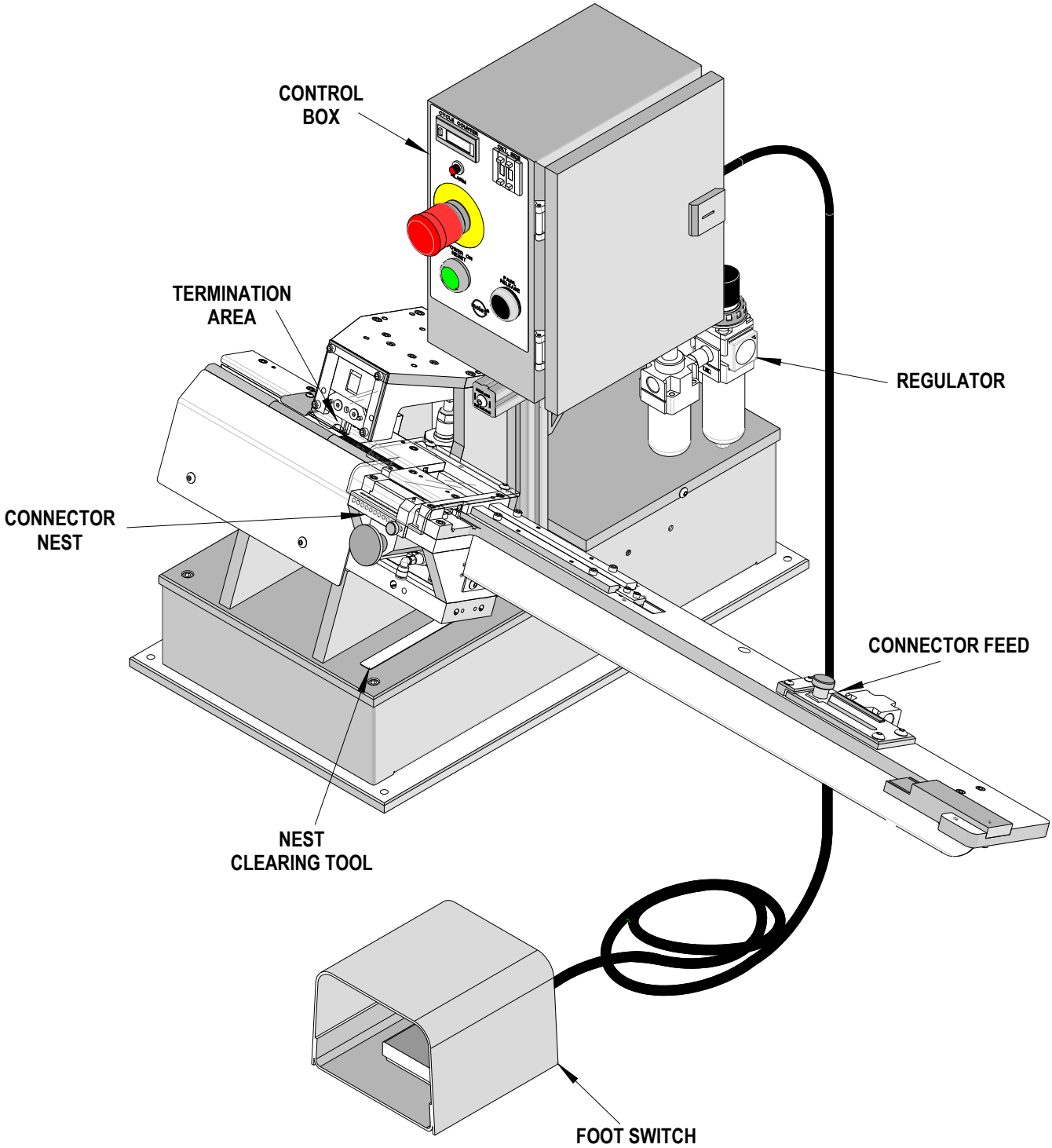

CONTROL BOX
TERMINATION AREA
REGULATOR
CONNECTOR NEST
CONNECTOR FEED
NEST CLEARING TOOL
FOOT SWITCH

Figure 1-1

# General Description

## 1.1 Description

The Molex AM-60520E Hawk Discrete Wire Termination Machine 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

## 1.3 Technical Specifications

**Dimensions** **Press with tooling**

| | |
|---|---|
| Height | 34.3cm (13.50") |
| Width | 99.1cm (39.00") |
| Depth | 50.8cm (20.00") |
| Unpacked weight | 48.1kg (103.00 lbs.) |

**Power Requirements**

| | |
|---|---|
| Voltage: | 110V AC or 220V AC<br>50/60 Hz |
| Current: | 2A @ 110V<br>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:

| Decription: | | Quantity |
|---|---|---|
| 11-20-0949 (AM-60520E) Discrete Wire Termination Machine | | 1 |
| TM-011200949 | Instruction Manual | 1 |
| 63800-8394 | Foot Switch Assembly | 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 110VAC service. It is installed into the control box; plug the other end into a grounded outlet.

The Hawk Discrete Wire Termination Machine will operate on 110VAC or 220VAC, 50 or 60 Hz.

**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.
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.

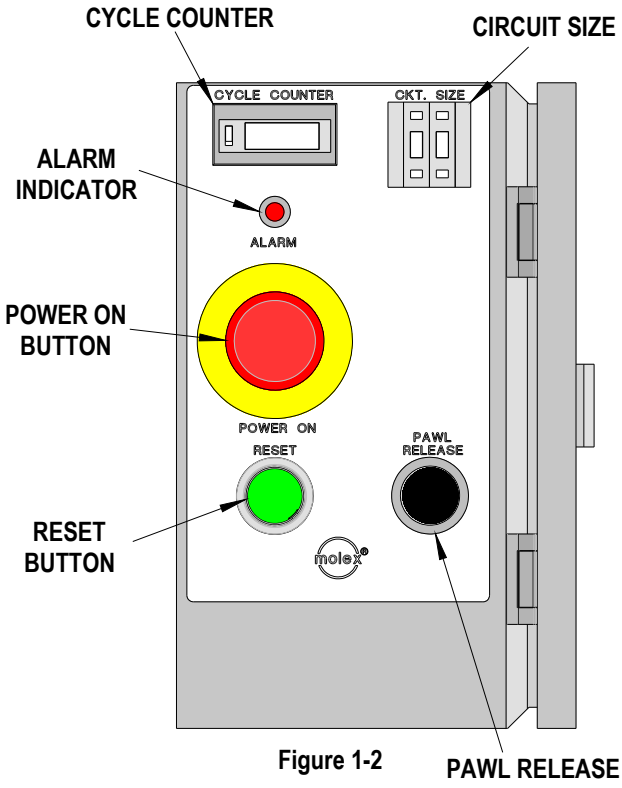



Figure 1-2

# 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**

## 2.2 Connector Feed Adjustment

### Shuttle Stop

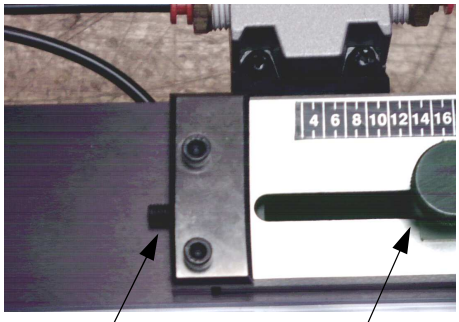



**Figure 2-2**

The shuttle stop is adjustable from 3 to 25 circuits.

1. To adjust the stop, 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**: 2 circuit connectors are loaded in pairs 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 2-2 circuits.) 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.

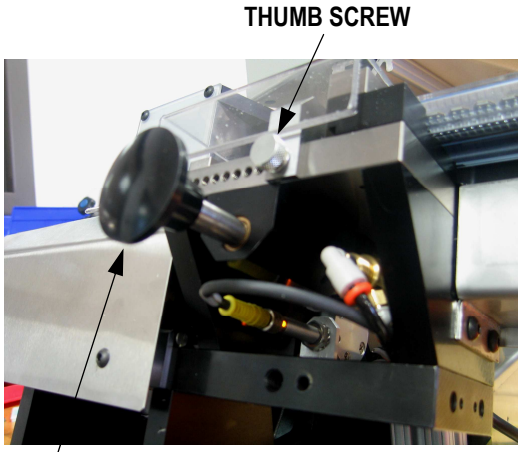



**Figure 2-3**

## 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 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 this 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.

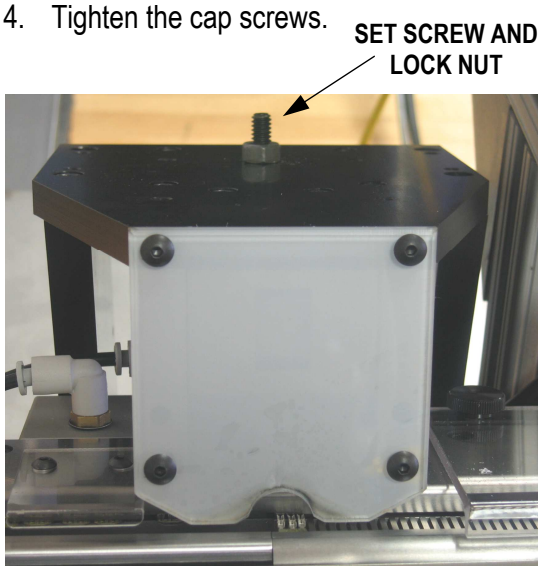



**Figure 2-4**

## 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 counter-clockwise. 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.
To adjust the punch:

1. 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. Retighten the jam nut to clevis.

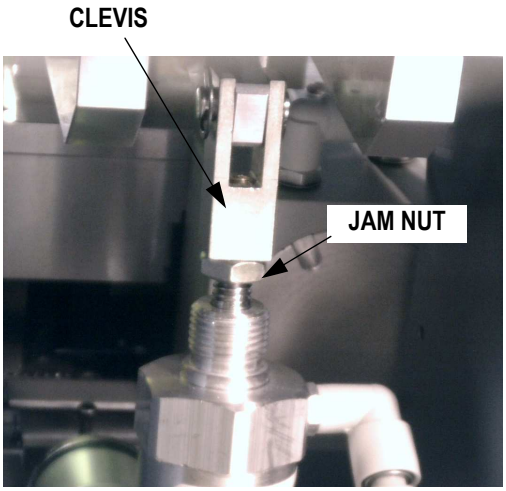



**Figure 2-5**

## 2.6 Programming The Controller

On the front of the base there is a pair of thumb wheels. These set the counter to the correct circuit size for the connector.

Example: a 3-circuit connector would be set at .03".

## 2.7 Safety Precautions

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

1. Check that the work area is well lighted. Adjust work light for best visibility.
2. 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.

3. 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.
   The machine should be located parallel and approximately 150mm (6 in) from the edge of the table. A chair or stool, with adjustable height and back rest, should be provided for maximum comfort and back support for the operator.
6. Be sure all setup procedures were followed and that terminations are within specifications. See Appendix A for termination specifications.

## 2.8 Operation

1. Set housing and shuttle stops and circuit counter as described in Sections 2.2 and 2.6.
2. Turn air "on" and push reset button to reset nest to the #1 position.
3. Load a tube of connectors with the terminals up and forward.
4. To start cycle, pull connector shift nest knob forward.
5. When the connector is in the shift nest, push the shift nest knob all the way "in". This will load the connector into the nest, ready for termination. If a connector is already in the nest it will automatically cycle through the insertion cycle and be ready for removal.
6. To load wires, insert appropriate wire under termination punches until it stops. 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
7. Repeat operation until connector is complete. Machine will automatically reset and loaded connector is ready for removal.
8. Repeat Steps 4 and 5 then remove connector by pulling the wires briskly to the left.
9. Repeat steps 6 through 8 until tube is empty or the run is complete.

**NOTE**: The machine should be kept clean and free of carrier strips and other debris.

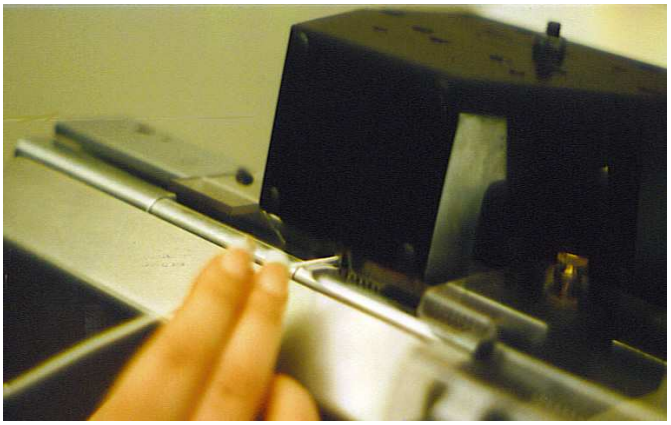


**Figure 2-6**

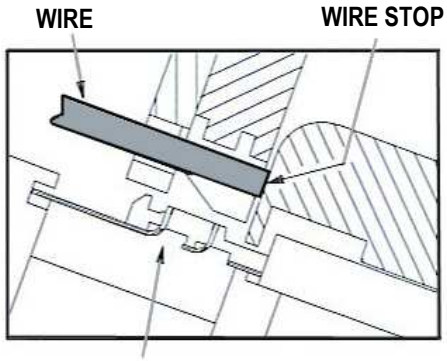



**Figure 2-7**

# Section 3

# Maintenance

3.1. Cleaning

3.2. Lubrication

3.3. Perishable Parts

3.4. Spare Parts

3.5. Troubleshooting

## 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.

**NOTE**: 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<br>Reapply greasing<br>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 *Maintenance* Section 3,. |
| | Damaged slide bearings | Replace |
| | Debris in anvil pockets | Remove and clean. See *Maintenance* Section 3,. |
| | Spring pressure on housing aligner bar too low | Replace spring. |
| | Nest return cylinder pressure regulator set too low | Adjust regulator. |
| | Improper adjustment of crimp and termination punch height | See *Setting Up and Operation* Section 2.4. |
| Improper crimp and termination depth | Improper adjustment of termination punch depth | See *Setting Up and Operation* Section 2.4 |
| | Debris in anvil pockets | Remove and clean. See *Maintenance* Section 3,. |
| | Air pressure too low | Check air supply and regulator. See *Setting Up and Operation* Section 2.1. |
| | Termination cylinder flow control set improperly | Reset flow control. |
| Improper insertion depth (Terminals in Housing) | 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. |
| | Insertion cylinder loose or binding | Tighten the rod connections or replace the cylinder if binding. |
| Carriers not breaking off properly | Debris caught under carrier bend slide | Carefully clean area under bend slide. See *Maintenance* 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. |
| | Loose carrier break-off cam block | Tighten all screws. |
| Tube feed not working | 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 |
| | Air feeder malfunctioning | Check air pressure and check for blockage of air passages. |
| Connector transfer Not working | 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. |
| | Terminal carrier thickness out of spec | Replace product. |
| Connector overshoots when transferred in | 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 counter clockwise. |
| | 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. |

# Section 4

4.1 Parts List and Assembly Drawings

4.2 Schematisc Drawings

4.3 Pneumatic Drawing

## 4.1 Main Parts List and Assembly

| 11-20-0949 AM60520E Hawk Discrete Wire Termination Machine | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **Quantity** | **Figure** |
| REF | 11-20-0949 | AM60520E | Main Assembly | 1 | 4-1 |
| 1 | N/A | N/A | Frame Assembly | 1 | 4-2 and 4-3 |
| 2 | N/A | N/A | Crimp Assembly | 1 | 4-4 |
| 3 | N/A | N/A | Feed Assembly | 1 | 4-5 and 4-6 |
| 4 | 62300-6510 | 62300-6510 | Control Assembly | 1 | 4-7 |
| 5 | 62300-6520 | 62300-6520 | Miscellaneous Electrical | 1 | 4-8 |

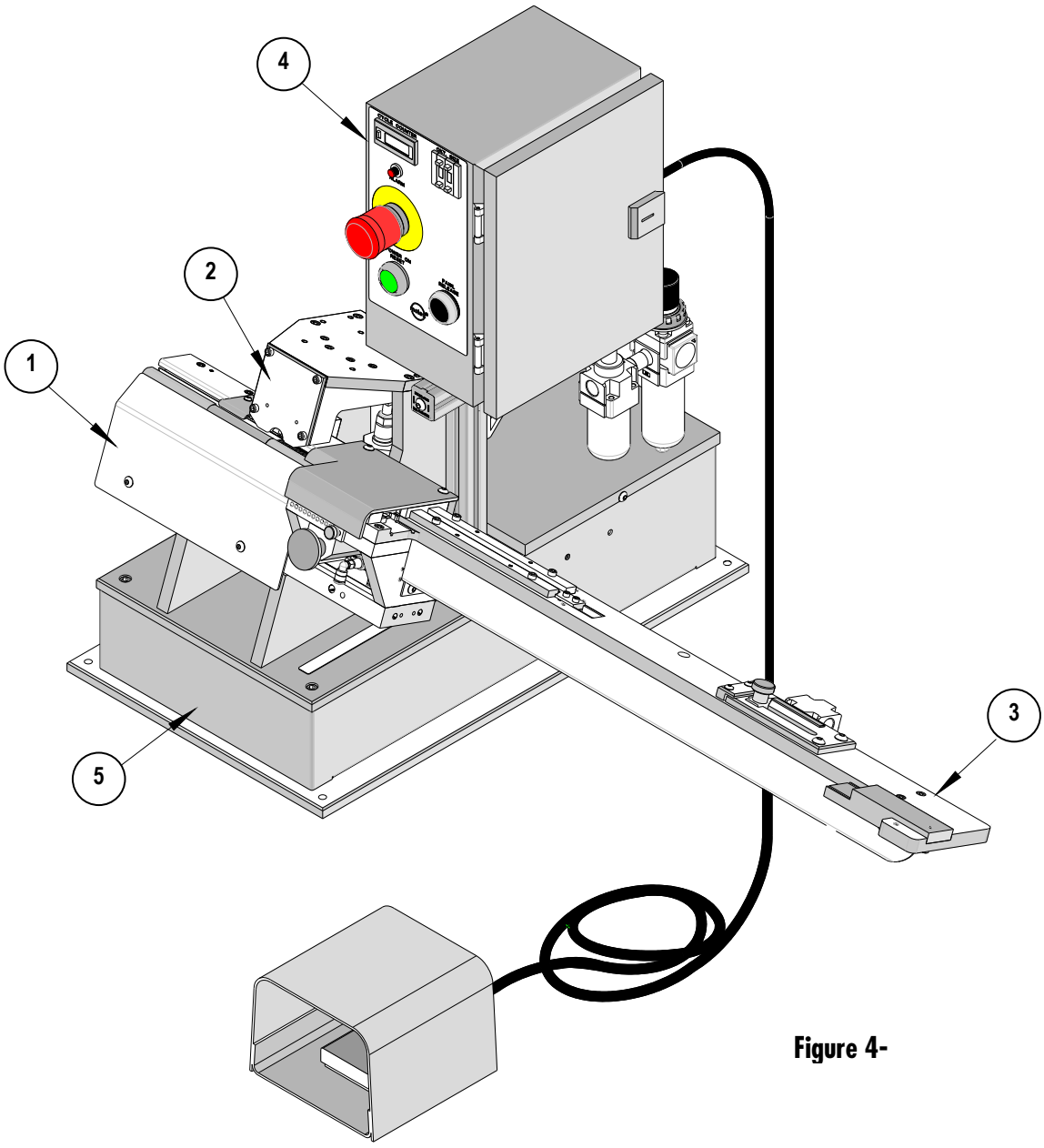


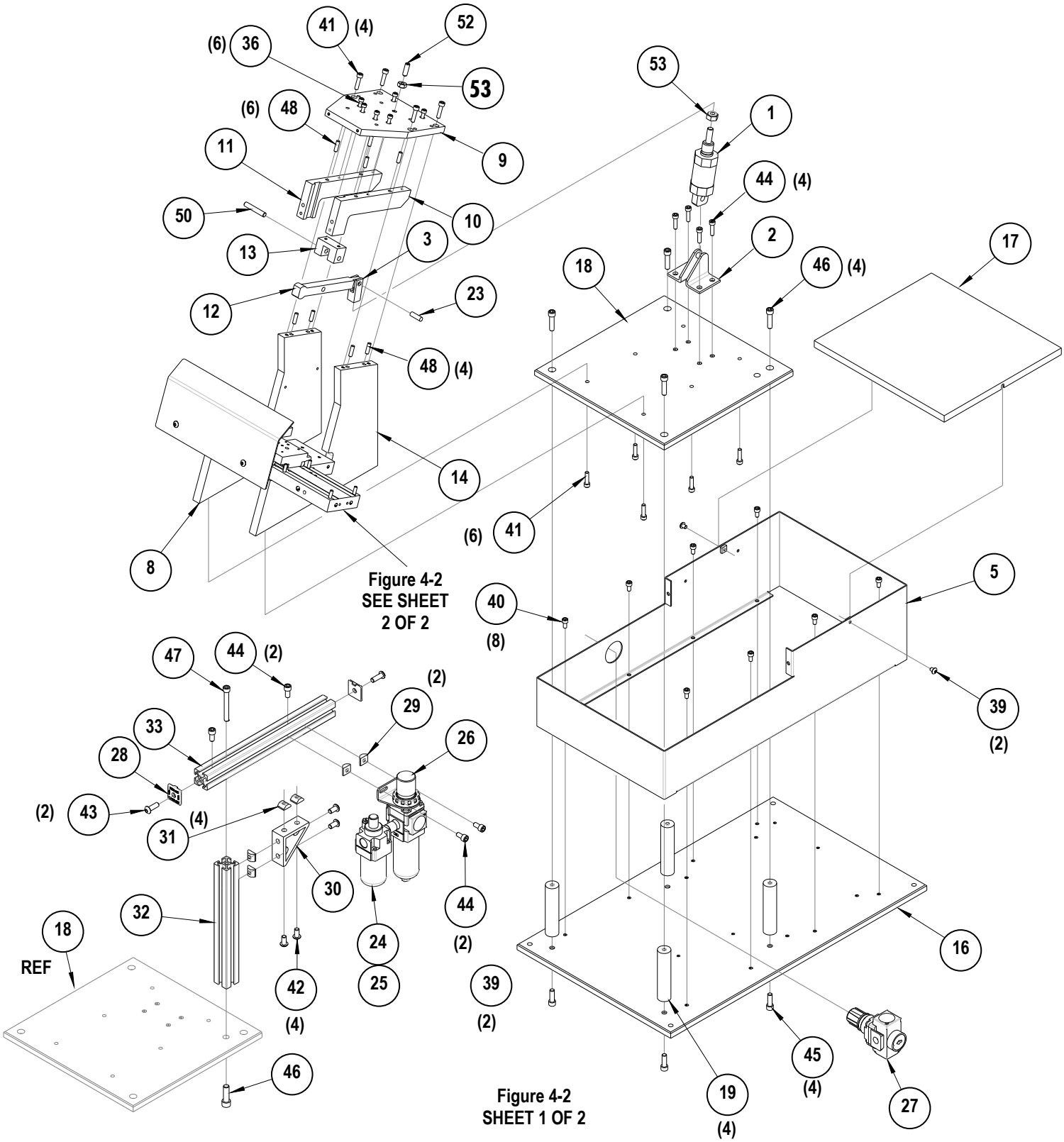

**Figure 4-**

## Frame Parts List

| Frame Assembly Figure 4-2 amd 4-3 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and notes** | **Quantity** |
| 1 | 11-31-0149 | AM60510-5 | Cylinder | **RSP** | 1 |
| 2 | 11-31-0156 | AM60510-12 | Bracket, Clevis | | 1 |
| 3 | 11-31-0157 | AM60510-13 | Clevis, Rod | | 1 |
| 4 | 11-31-0173 | AM60510-15 | Bearing, Slide | | 2 |
| 5 | 11-31-1231 | AM60520-14A | Enclosure | | 1 |
| 6 | 11-31-1730 | AM60510-26 | Front Slide Guide | | 1 |
| 7 | 11-31-1731 | AM60510-27 | Rear Slide Guide | | 1 |
| 8 | 11-31-1754 | AM60510-50 | Left Frame Upright | | 1 |
| 9 | 11-31-1755 | AM60510-51 | Termination Head Top Plate | | 1 |
| 10 | 11-31-1756 | AM60510-52 | Right Termination Guide | | 1 |
| 11 | 11-31-1757 | AM60510-53 | Left Termination Guide | | 1 |
| 12 | 11-31-1759 | AM60510-55 | Termination Lever | | 1 |
| 13 | 11-31-1760 | AM60510-56 | Termination Pivot | | 1 |
| 14 | 11-31-1784 | AM60510-83 | Frame Upright Right | | 1 |
| 15 | 11-31-1804 | AM60510-115 | Spacer | | 2 |
| 16 | 11-31-2017 | AM60520-21A | Machine Base | | 1 |
| 17 | 11-31-3288 | AM60520-15A | Enclosure Cover | | 1 |
| 18 | 11-31-3289 | AM60520-22A | Machine Mount Plate | | 1 |
| 19 | 11-31-3290 | AM60520-23A | Standoff, Mount Plate | | 4 |
| 20 | 11-31-4538 | AM60570-21 | Slide, Nest | | 1 |
| 21 | 11-31-4539 | AM60570-22 | Slide Base | | 1 |
| 22 | 11-31-4571 | AM60570-97 | Front Guard | | 1 |
| 23 | 11-31-5584 | AM60510-70 | Clevis Pin | | 1 |
| 24 | 62500-2056 | 62500-2056 | Air Lubricator, 2000 Series | | 1 |
| 25 | 62500-2762 | 62500-2762 | Pipe Nipple 1/4" BSPT 1 1/2" Long | | 1 |
| 26 | 62500-2820 | 62500-2820 | Filter/Regulator Combo With Gauge And Bracket | | 1 |
| 27 | 62500-2861 | 62500-2861 | Regulator 0-30psi W/Gauge | | 1 |
| 28 | 63600-2591 | 63600-2591 | 25 by 25 End Cap | | 2 |
| 29 | 63700-1242 | 63700-1242 | #10-32 T-Nut | | 2 |
| 30 | 63700-1784 | 63700-1784 | Corner Bracket | | 1 |
| 31 | 63700-2068 | 63700-2068 | #1/4-20 T-Nut | | 4 |
| 32 | 63700-2370 | 63700-2370 | 1.0 by 1.0 Extrusion by 8.0” Long | | 1 |
| 33 | 66694-1662 | 66694-1662 | 1.0 by 1.0 Extrusion by 10.0” Long | | 1 |
| **Hardware** | | | | | |
| 34 | N/A | N/A | #5-40 by 3/8“ Long SHCS | | 32** |
| 35 | N/A | N/A | #8-32 by 1/2“ Long BHCS | | 2** |
| 36 | N/A | N/A | #8-32 by 5/8“ Long SHCS | | 6** |
| 37 | N/A | N/A | #8-32 by 1.0“ Long SHCS | | 4** |
| 38 | N/A | N/A | #8-32 by 3/16“ Long SSS | | 8** |
| 39 | N/A | N/A | #10-32 by 1/4“ Long BHCS | | 2** |
| 40 | N/A | N/A | #10-32 by 1/2“ Long SHCS | | 7** |
| 41 | N/A | N/A | #10-32 by 3/4“ Long SHCS | | 14** |
| 42 | N/A | N/A | #1/4-20 by 1/2“ Long BHCS | | 4** |
| 43 | N/A | N/A | #1/4-20 by 3/4“ Long BHCS | | 2** |
| 44 | N/A | N/A | #1/4-20 by 1/2“ Long SHCS | | 8** |
| 45 | N/A | N/A | #1/4-20 by 3/4“ Long SHCS | | 4** |
| 46 | N/A | N/A | #1/4-20 by 1.0“ Long SHCS | | 5** |
| 47 | N/A | N/A | #1/4-20 by 2.0“ Long SHCS | | 1** |
| 48 | N/A | N/A | #3/16 by 5/8” Long Dowel Pin | | 12** |
| 49 | N/A | N/A | #1/8 by 3/8” Long Dowel Pin | | 2** |
| 50 | N/A | N/A | #1/4 by 1.5” Long Dowel Pin | | 1** |

| Frame Assembly Figure 4-2 amd 4-3 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and notes** | **Quantity** |
| 51 | N/A | N/A | #1/4-20 by .226“ Thick Hex Nut | | 1** |
| 52 | N/A | N/A | #1/4-28 by 3/4“ Long Set Screw (Cup Point) | | 1** |
| 53 | N/A | N/A | #5/16-18 Lock Nut | | 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). | | | | | |

## Frame Assembly (Sheet 1)



## Frame Assembly (Sheet 2)

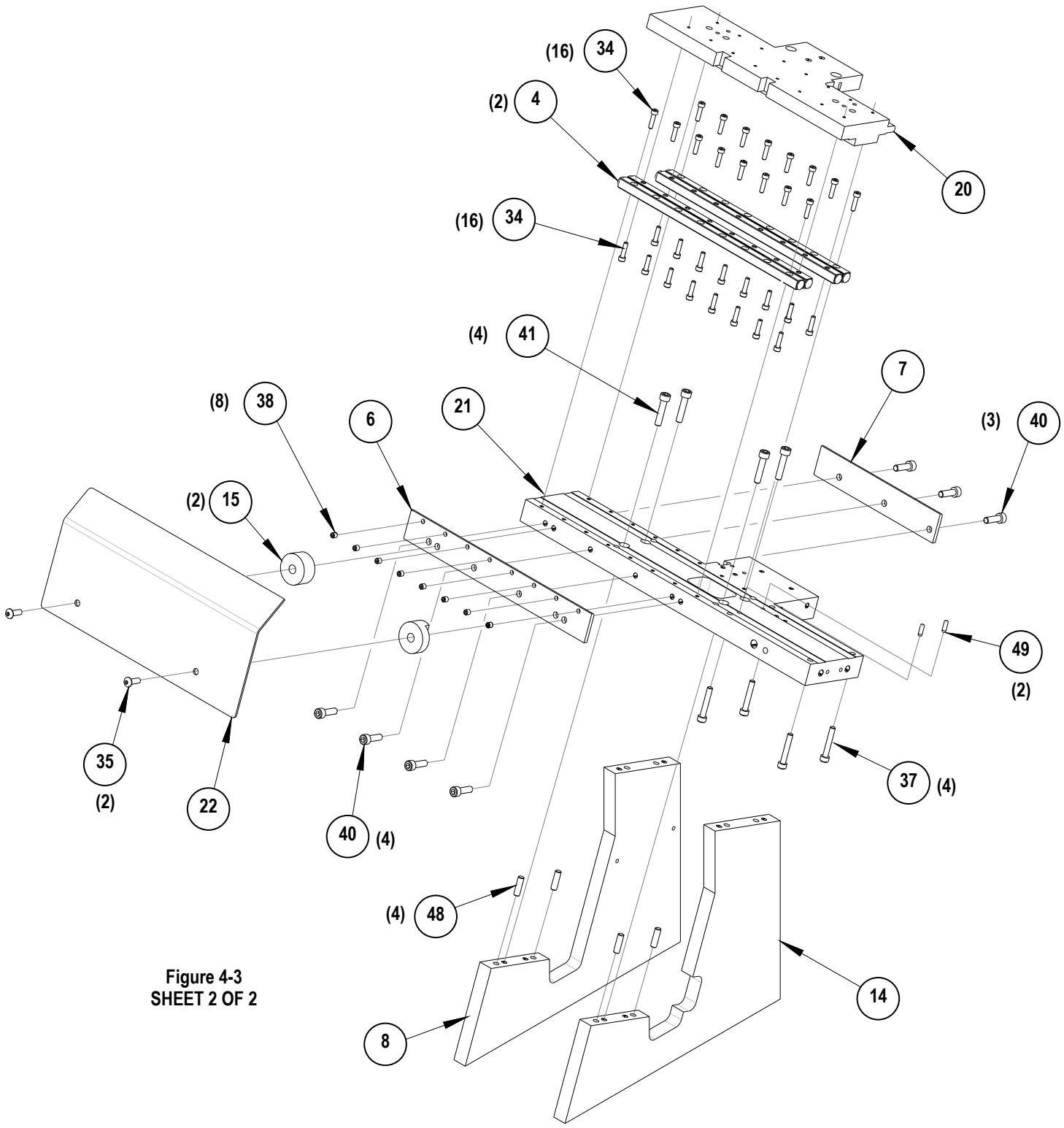



**Figure 4-3**
**SHEET 2 OF 2**

## Crimp Parts List

| Crimp Assembly Figure 4-4 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and Notes** | **Quantity** |
| 1 | 11-31-0147 | AM60510-3 | Insertion Cylinder | **RSP** | 1 |
| 2 | 11-31-0150 | AM60510-6 | Nest Step Cylinder | **RSP** | 1 |
| 3 | 11-31-0151 | AM60510-7 | Pawl Release Cylinder | **RSP** | 1 |
| 4 | 11-31-0152 | AM60510-8 | Main Nest Return Cylinder | **RSP** | 1 |
| 5 | 11-31-0154 | AM60510-10 | Cylinder Bracket | | 1 |
| 6 | 11-31-0155 | AM60510-11 | Cylinder Bracket | | 2 |
| 7 | 11-31-0418 | AM60510-57 | Termination Punch | **PP** | 1 |
| 8 | 11-31-0419 | AM60510-58 | Crimp Punch | **PP** | 1 |
| 9 | 11-31-1219 | AM60520-1 | Insertion Bar | | 1 |
| 10 | 11-31-1220 | AM60520-2 | Insertion Slide | | 1 |
| 11 | 11-31-1221 | AM60520-3 | End Cover | | 1 |
| 12 | 11-31-1439 | AM60510-117 | Pawl Release Guard | | 1 |
| 13 | 11-31-1728 | AM60510-24 | Nest Spacer | | 2 |
| 14 | 11-31-1729 | AM60510-25 | Insertion Guide | | 2 |
| 15 | 11-31-1735 | AM60510-31 | Compression Spring | | 2 |
| 16 | 11-31-1746 | AM60510-42 | Ratchet Pawl | | 2 |
| 17 | 11-31-1748 | AM60510-44 | Stationary Pawl Guide | | 1 |
| 18 | 11-31-1749 | AM60510-45 | Sliding Pawl Guide | | 1 |
| 19 | 11-31-1750 | AM60510-46 | Pawl Slide Cover | | 1 |
| 20 | 11-31-1751 | AM60510-47 | Pawl Slide Link | | 1 |
| 21 | 11-31-1752 | AM60510-48 | Pawl Retract | | 1 |
| 22 | 11-31-1753 | AM60510-49 | Ratchet Pawl Track | | 1 |
| 23 | 11-31-1758 | AM60510-54 | Termination Slide | | 1 |
| 24 | 11-31-1761 | AM60510-59 | Termination Head Cover | | 1 |
| 25 | 11-31-1783 | AM60510-82 | Insertion Guard | | 1 |
| 26 | 11-31-1917 | R8432-40 | Exhaust Muffler (1/8 NPT) | | 1 |
| 27 | 11-31-4548 | AM60570-41 | Ratchet | | 1 |
| 28 | 11-31-4537 | AM60570-20 | Nest | | 1 |
| 29 | 11-31-4540 | AM60570-23 | Nest Cover | | 1 |
| 30 | 11-31-4541 | AM60570-30 | Housing Aligner | | 1 |
| 31 | 11-31-4542 | AM60570-32 | Termination Anvil | **PP** | 1 |
| 32 | 11-31-4543 | AM60570-33 | Carrier Guide | | 1 |
| 33 | 11-31-5302 | AM60510-122 | Nest Clearing Tool | Not Shown | 1 |
| 34 | 11-31-7464 | AM60510-28 | Rod Aligner | | 1 |
| **Hardware** | | | | | |
| 35 | N/A | N/A | #4-40 by 3/16“ Long SSS | | 1** |
| 36 | N/A | N/A | #6-32 by 1/4“ Long BHCS | | 2** |
| 37 | N/A | N/A | #8-32 by 1/4“ Long SHCS | | 4** |
| 38 | N/A | N/A | #8-32 by 3/8“ Long SHCS | | 10** |
| 39 | N/A | N/A | #8-32 by 5/8“ Long SHCS | | 8** |
| 40 | N/A | N/A | #8-32 by 1-1/4“ Long SHCS | | 2** |
| 41 | N/A | N/A | #8-32 by 1/2“ Long SSS | | 1** |
| 42 | N/A | N/A | #10-32 by 1/2“ Long SHCS | | 1** |
| 43 | N/A | N/A | #10-32 by 3/4“ Long FHCS | | 2** |
| 44 | N/A | N/A | #10-32 by 3/4“ Long SHCS | | 2** |
| 45 | N/A | N/A | #10-32 by 1-1/4“ Long SHCS | | 2** |
| 46 | N/A | N/A | #10-32 by 2“ Long SHCS | | 4** |
| 47 | N/A | N/A | #1/4-20 by 1“ Long SHCS | | 4** |
| 48 | N/A | N/A | #5/16-18 by 1“ Long SHCS | | 2** |
| 49 | N/A | N/A | #3/8-18 by 1“ Long SHCS | | 1** |
| 50 | N/A | N/A | #1/8 by 3/8” Long Dowel Pin | | 2** |

| Crimp Assembly Figure 4-4 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and Notes** | **Quantity** |
| 51 | N/A | N/A | #1/8 by 5/8" Long Dowel Pin | | 8** |
| 52 | N/A | N/A | #1/8 by 1" Long Dowel Pin | | 2** |
| 53 | N/A | N/A | #1/8 by 1-1/2" Long Dowel Pin | | 4** |
| **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). | | | | | |

## Crimp Assembly

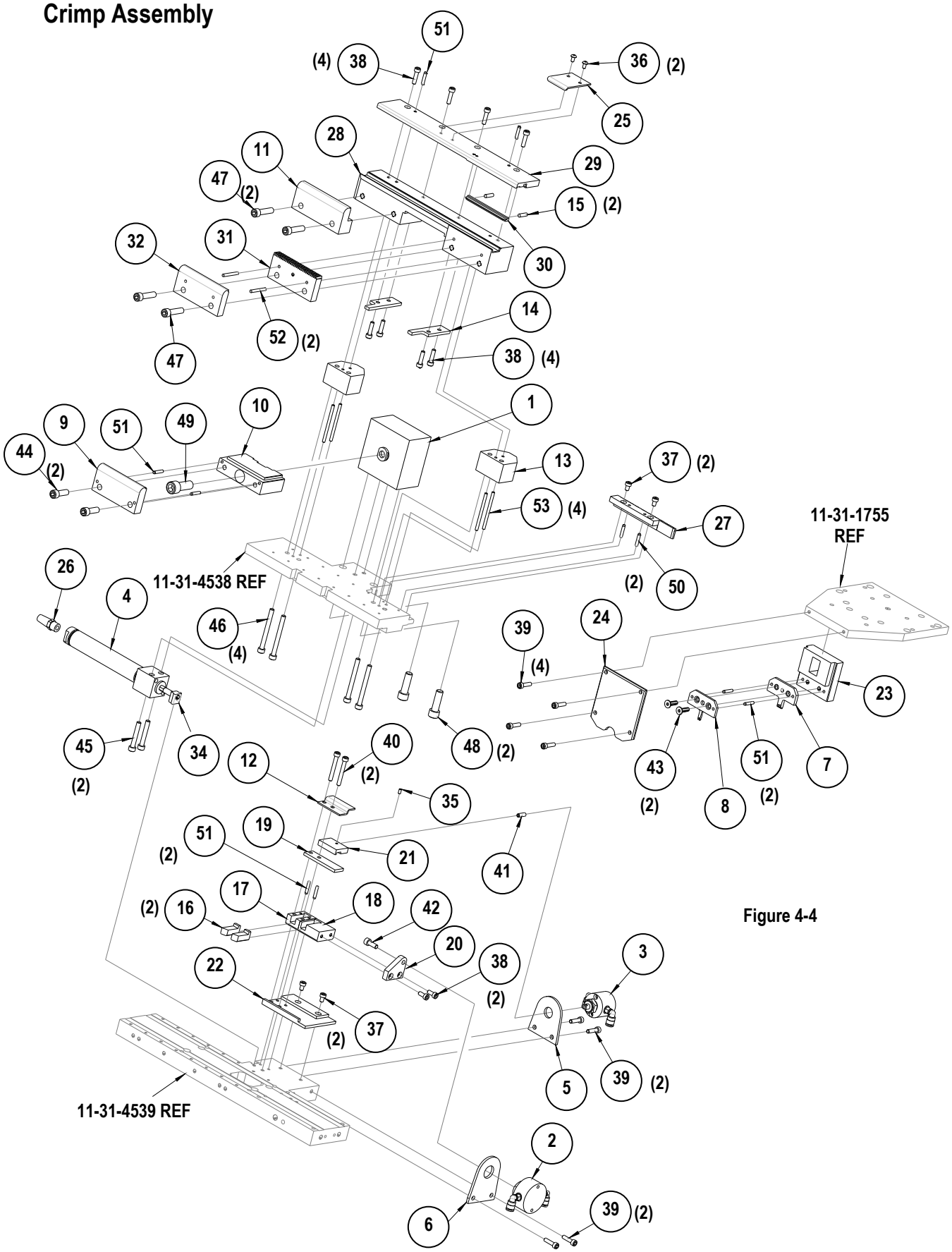



Figure 4-4

## Feed Parts List

| Feed Assembly Figure 4-5 and 4-6 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and notes** | **Quantity** |
| 1 | 11-21-5835 | AM8230-29 | Feeder Arm Bushing | | 1 |
| 2 | 11-31-0146 | AM60510-2 | Connector Shuttle Cylinder | **RSP** | 1 |
| 3 | 11-31-0153 | AM60510-9 | Mounting Bracket | | 2 |
| 4 | 11-31-0256 | AM60510-16 | Knob | | 1 |
| 5 | 11-31-1222 | AM60520-5 | Knob-Shift Rod | | 1 |
| 6 | 11-31-1223 | AM60520-6 | Guide Block, Shift Rod | | 1 |
| 7 | 11-31-1224 | AM60520-7 | Bearing, Shift Rod | | 1 |
| 8 | 11-31-1226 | AM60520-8 | Valve Bracket | | 1 |
| 9 | 11-31-1229 | AM60520-12 | Push Button 2-Way Valve | | 1 |
| 10 | 11-31-1233 | AM60520-4 | Shift Rod | | 1 |
| 11 | 11-31-1743 | AM60510-39 | Shuttle Adjustment Indicator | | 1 |
| 12 | 11-31-1762 | AM60510-61 | Shift Base | | 1 |
| 13 | 11-31-1763 | AM60510-62 | Left Spacer | | 1 |
| 14 | 11-31-1764 | AM60510-63 | Right Spacer | | 1 |
| 15 | 11-31-1765 | AM60510-64 | Shift Nest | | 1 |
| 16 | 11-31-1766 | AM60510-65 | Shift Guide | | 1 |
| 17 | 11-31-1767 | AM60510-66 | Shift Guide Rt. | | 1 |
| 18 | 11-31-1768 | AM60510-67 | Shift Nest Cover | | 1 |
| 19 | 11-31-1769 | AM60510-68 | Stop Cart. Feed | | 1 |
| 20 | 11-31-1770 | AM60510-69 | Shift Nest Bracket | | 1 |
| 21 | 11-31-1771 | AM60510-61 | Shift Stop | | 1 |
| 22 | 11-31-1773 | AM60510-73 | Shuttle Cylinder Stop | | 1 |
| 23 | 11-31-1774 | AM60510-75 | Adjustable Shuttle Stop | | 1 |
| 24 | 11-31-1776 | AM60510-76 | Cartridge Holder | | 1 |
| 25 | 11-31-1777 | AM60510-77 | Shuttle Blade | | 1 |
| 26 | 11-31-1778 | AM60510-78 | Shuttle Arm | | 1 |
| 27 | 11-31-1779 | AM60510-79 | Shuttle Guide | | 2 |
| 28 | 11-31-1780 | AM60510-81 | End Shuttle Guard | | 1 |
| 29 | 11-31-1782 | AM60510-73 | Front Shuttle Guard | | 1 |
| 30 | 11-31-1785 | AM60510-84 | Rear Shuttle Guard | | 1 |
| 31 | 11-31-1786 | AM60510-85 | Sensor Bracket | | 2 |
| 32 | 11-31-1789 | AM60510-88 | Sensor Flag | | 1 |
| 33 | 11-31-1797 | AM60510-96 | Terminal Feed Guide | | 1 |
| 34 | 11-31-1799 | AM60510-98 | Housing Shift Guard | | 1 |
| 35 | 11-31-1800 | AM60510-111 | Guard Mount | | 1 |
| 36 | 11-31-1803 | AM60510-114 | Shuttle Adjustment Scale | | 1 |
| 37 | 11-31-3116 | AM60510-119 | Shuttle Adjustment Base | | 1 |
| 38 | 11-31-3117 | AM60510-120 | Fine Adjustment Pad | | 1 |
| 39 | 11-31-7475 | AM60510-126 | Bushing | | 1 |
| 40 | 11-31-7476 | AM60510-127 | Washer | | 1 |
| 41 | 11-31-7722 | AM60510-128 | Shuttle Cylinder Stop Guide | | 1 |
| 42 | 62300-3101 | 62300-3101 | GPS Tube Rest | | 1 |
| 43 | 62500-0816 | 62500-0816 | Filter Regulator | | 1 |
| 44 | 66801-5187 | 66801-5187 | 8mm Proximity Switch, 10-30vdc NPN, 1.5mm Sensing Range | | 3 |
| **Hardware** | | | | | |
| 45 | N/A | N/A | #6-32 by 3/8“ Long SHCS | | 9** |
| 46 | N/A | N/A | #6-32 by 3/8“ Long SSS | | 1** |
| 47 | N/A | N/A | #8-32 by 1/4“ Long BHCS | | 2** |
| 48 | N/A | N/A | #8-32 by 1/2“ Long BHCS | | 2** |
| 49 | N/A | N/A | #8-32 by 3/8“ Long FHCS | | 2** |
| 50 | N/A | N/A | #8-32 by 1/2“ Long SHCS | | 6* |

| Feed Assembly Figure 4-5 and 4-6 | | | | | |
|---|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **RSP / PP Parts and notes** | **Quantity** |
| 51 | N/A | N/A | #8-32 by 5/8“ Long SHCS | | 8** |
| 52 | N/A | N/A | #8-32 by 1.0“ Long SHCS | | 2** |
| 53 | N/A | N/A | #8-32 Thumb Screw | | 1** |
| 54 | N/A | N/A | #10-32 by 1/4“ Long BHCS | | 4** |
| 55 | N/A | N/A | #10-32 by 3/8“ Long BHCS | | 2** |
| 56 | N/A | N/A | #10-32 by 1/2“ Long BHCS | | 4** |
| 57 | N/A | N/A | #10-32 by 3/8“ Long SHCS | | 2** |
| 58 | N/A | N/A | #10-32 by 1/2“ Long SHCS | | 1** |
| 59 | N/A | N/A | #10-32 by 5/8“ Long SHCS | | 2** |
| 60 | N/A | N/A | #10-32 by 3/4“ Long SHCS | | 7** |
| 61 | N/A | N/A | #10-32 by 1/2“ Long SSS | | 3** |
| 62 | N/A | N/A | #10-32 by 1/8“ THK Hex Jam Nut | | 3** |
| 63 | N/A | N/A | #10-32 by 11/16“ THK Lock Nut | | 2** |
| 64 | N/A | N/A | #10-32 Flat Washer | | 1** |
| 65 | N/A | N/A | #1/4-20 by 3/4“ Long BHCS | | 2** |
| 66 | N/A | N/A | #3/32 by 1.0” Long Dowel Pin | | 1** |
| 67 | N/A | N/A | #1/8 by 1/4” Long Dowel Pin | | 11** |
| 68 | N/A | N/A | #1/8 by 3/4” Long Dowel Pin | | 8** |
| 69 | N/A | N/A | #1/8 by 1.0” Long Dowel Pin | | 4** |
| 70 | N/A | N/A | #3/16 by 3/8” Long Dowel Pin | | 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). | | | | | |

## Feed Assembly (Sheet 1 of 2)

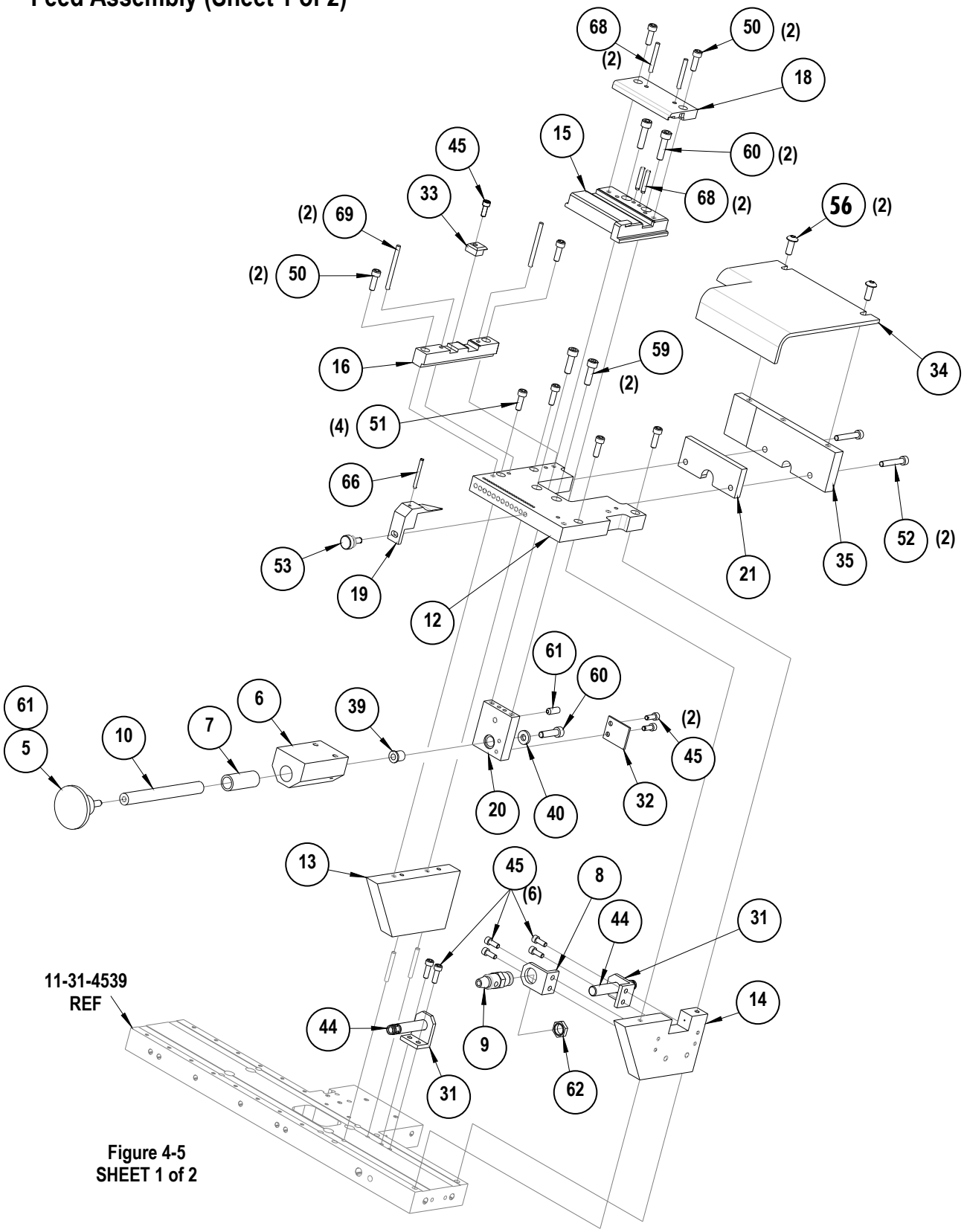



Figure 4-5
SHEET 1 of 2

## Feed Assembly (Sheet 2 of 2)

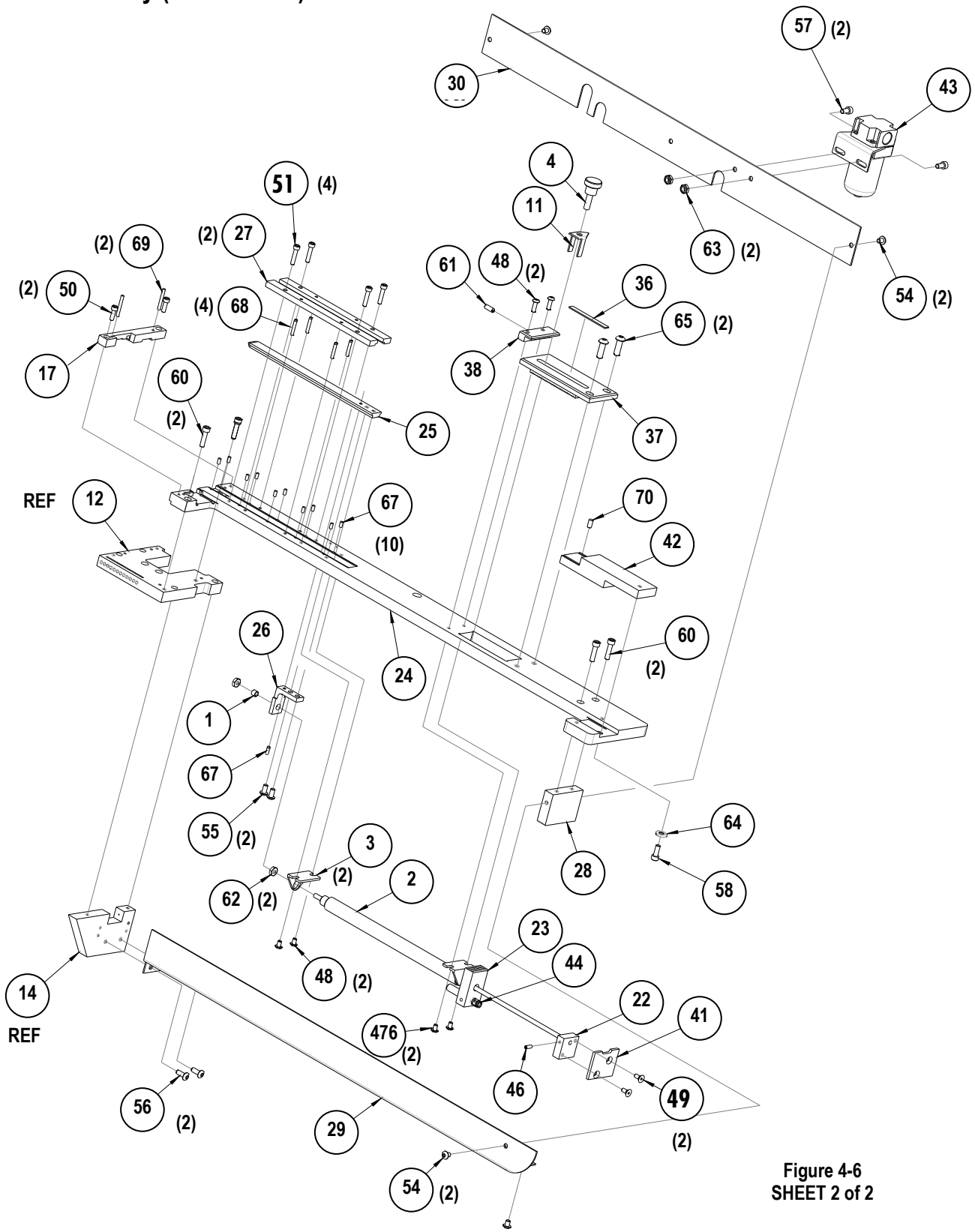



Figure 4-6
SHEET 2 of 2

## 4.1 Control Box Parts List

| 62300-6510 Control Box Assembly Figure 4-7 | | | | |
|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **Quantity** |
| 1 | 11-31-8646 | AM60585-E204 | LED Red 28 VDC 3/8 OD, Cylindrical Cap | 1 |
| 2 | 11-41-0264 | KM241 | Molex 3" diameter Logo (red on white) | 1 |
| 3 | 62500-0667 | 62500-0667 | Ring Ferrite | 1 |
| 4 | 62500-0694 | 62500-0694 | Terminal Block, Dbl Pos. Jumperable | 10 |
| 5 | 62500-0721 | 62500-0721 | Jumper For 4mm Wago Term Block | 4 |
| 6 | 62500-0762 | 62500-0762 | Resettable, Or Non-Resettable, 8 Digits Counter | 1 |
| 7 | 62500-1023 | 62500-1023 | Din Rail 6 inches | 1 |
| 8 | 62500-1055 | 62500-1055 | Micro-Dc Series 4 Pin Female,22awg W/12" Leads Receptacle | 1 |
| 9 | 62500-1330 | 62500-1330 | Cord Grip 0.20-0.47 by 1/2NPT Plastic | 1 |
| 10 | 62500-1331 | 62500-1331 | Cord Grip 0.35-0.71 by 3/4NPT Plastic | 1 |
| 11 | 62500-1382 | 62500-1382 | Homerun Straight Conn X 2m Long Black Conn/Cable | 1 |
| 12 | 62500-1519 | 62500-1519 | Terminal Ground Block, Top Wire, 3 Conductor, 24-12 Awg | 1 |
| 13 | 62500-1620 | 62500-1620 | Plate Separator For 279 Terminal Blocks, Orange Oversized | 3 |
| 14 | 62500-2324 | 62500-2324 | Cord Plug, 15 Amp | 1 |
| 15 | 62500-2361 | 62500-2361 | Cable W/Con M8 Straight Single Ended X 4m Long | 3 |
| 16 | 62500-2362 | 62500-2362 | Cable W/Con M8 Rt. Angle Single Ended by 4m Long Black Cable | 1 |
| 17 | 62500-2366 | 62500-2366 | Breaker 4 Amp Single Pole | 1 |
| 18 | 62500-2523 | 62500-2523 | 10"H By 8"W By 6" Deep Hinge Cover Box Rla7035 Enclosure | 1 |
| 19 | 62500-2527 | 62500-2527 | Subpanel For Jb100806hc Enclosure | 1 |
| 20 | 62500-2812 | 62500-2812 | E-Stop, Illuminated (1) N.O. (2) N.C. Switch | 1 |
| 21 | 62500-2813 | 62500-2813 | M22-K10 Block N.0. Contact Block For M22 Series PB's | 1 |
| 22 | 62500-2816 | 62500-2816 | Illuminated PB Green Flush Type, 24vdc Led (1) N.O Switch | 1 |
| 23 | 62500-2819 | 62500-2819 | 24vdc,30watt Supply | 1 |
| 24 | 62500-2823 | 62500-2823 | 1.5mfd @400vdc Capacitor | 1 |
| 25 | 62500-2826 | 62500-2826 | Non-Illum. Flush Black Mom. (1) N.O. Switch | 1 |
| 26 | 62500-2832 | 62500-2832 | Relay DPDT 24vdc, (2) Form "C", 8amp Contacts | 1 |
| 27 | 62500-2964 | 62500-2964 | Overlay for am60520 hawk control | 1 |
| 28 | 62500-2965 | 62500-2965 | 12 Dc In 8 Trans Out, 24vdc Input Supply, 13watts | 1 |
| 29 | 63800-8394 | 63800-8394 | Foot Switch Assembly | 1 |
| 30 | 66801-5293 | 66801-5293 | 6mm End Stop | 2 |
| 31 | 66801-5318 | 66801-5318 | Omron TW Switch | 2 |
| 32 | 66801-5319 | 66801-5319 | Omron TW End Plate Switch | 1 |

## Control Box Assembly

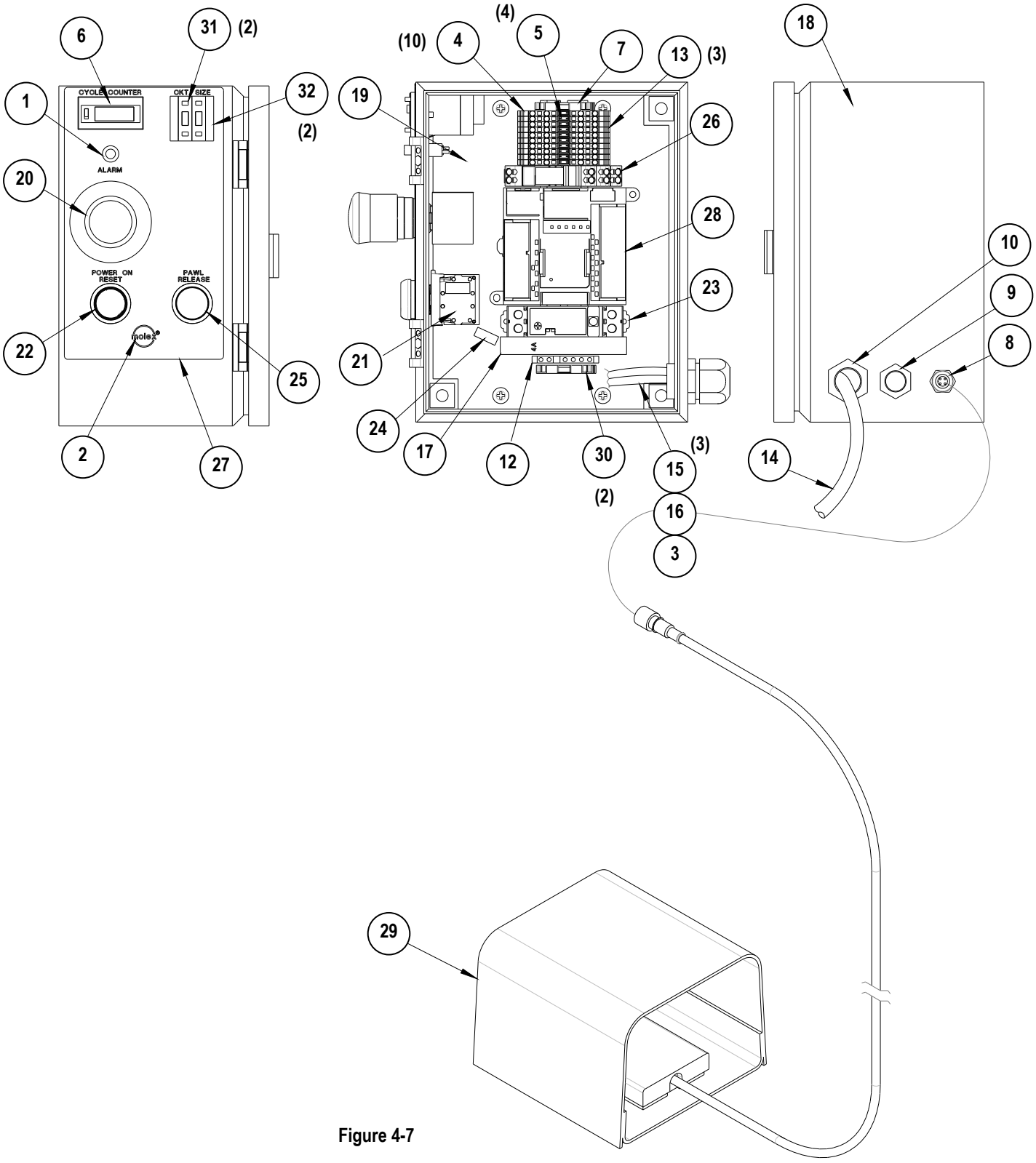



Figure 4-7

| 62300-6520 Miscellaneous Electrical Control Box Assembly Figure 4-8 | | | | |
|---|---|---|---|---|
| **Item** | **Order No** | **Engineering No.** | **Description** | **Quantity** |
| 1 | 11-31-1229 | AM60520-12 | Valve 2-Way | See Figure 4-5 |
| 2 | 62500-0816 | 62500-0816 | Micromist Seperator,1/4", .01 Micron Filtration | See Figure 4-6 |
| 3 | 62500-2025 | 62500-2025 | J-Box 8 Port Picofast, 3-Pin Snap Lock, No LEDS | 1 |
| 4 | 62500-2045 | 62500-2045 | Blank Plate For SY5000 Series Valves On Bar Stock Manifold | 1 |
| 5 | 62500-2056 | 62500-2056 | SMC AI20-02b-2 Lubricator 2000 Series | See Figure 4-2 |
| 6 | 62500-2124 | 62500-2124 | Spacer Individual Supply, For SS5Y Manifolds | 2 |
| 7 | 62500-2192 | 62500-2192 | Manifold Bar Stock, 6 Station For Sy5100 Valves | 1 |
| 8 | 62500-2607 | 62500-2607 | Valve Single Solenoid W/Integrated M8 Pico Connector | 5 |
| 9 | 62500-2610 | 62500-2610 | Valve Single Solenoid W/Integrated M8 Pico Connector | 1 |
| 10 | 62500-2699 | 62500-2699 | Cable M8 Pico Right Angle, For SMC SV Valves .5m Long | 5 |
| 11 | 62500-2762 | 62500-2762 | 1/4" BSPT by 1 1/2" Long Pipe Nipple, Brass | (1 )See also Figure 4-2 |
| 12 | 62500-2820 | 62500-2820 | Filter/Regulator 2000 Series Combo With Built In Gauge | See Figure 4-2 |
| 13 | 62500-2861 | 62500-2861 | Regulator 0-30ps1, 1/8 NPT Ports, Self Relieving | See Figure 4-2 |
| 14 | 66801-5187 | 66801-5187 | 8mm Proximity Switch, 10-30vdc NPN, 1.5mm Sensing Range | See Figure 4-5 and 4-6 |

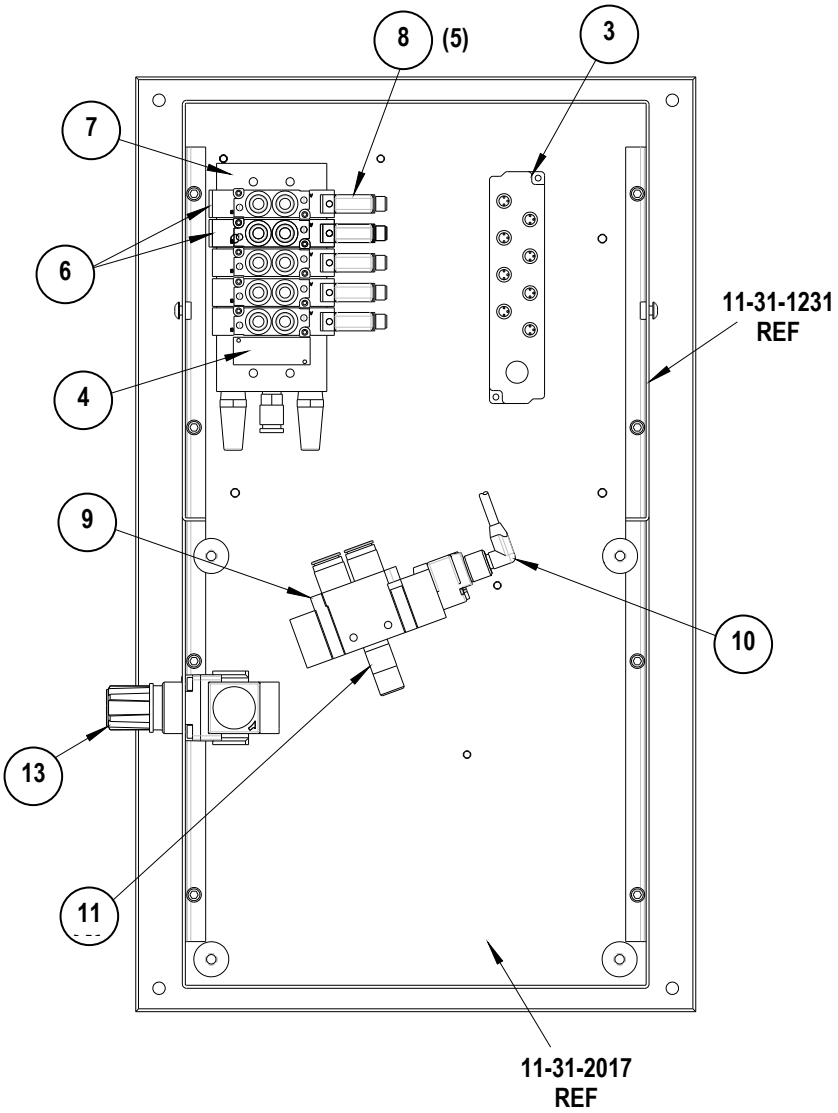
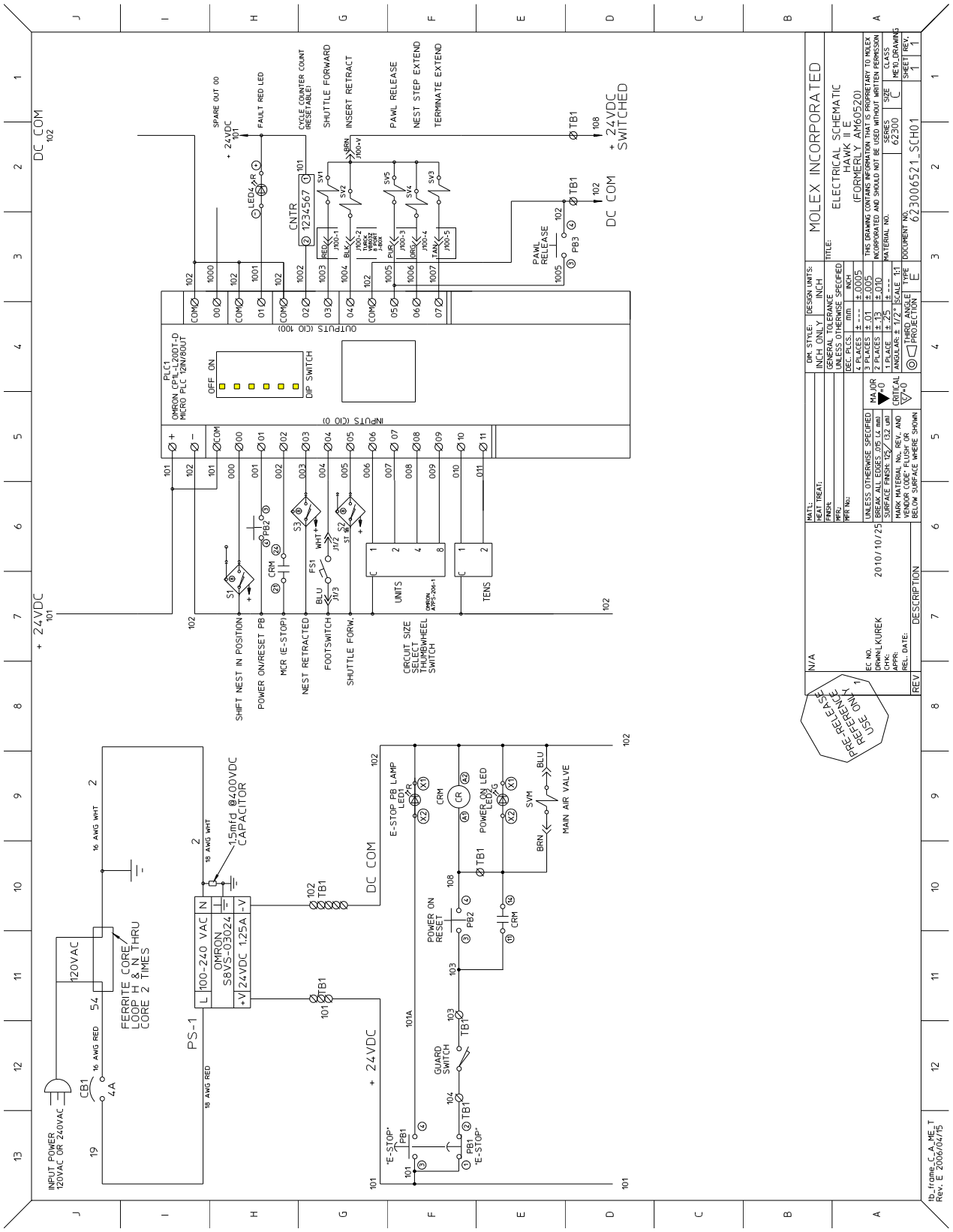
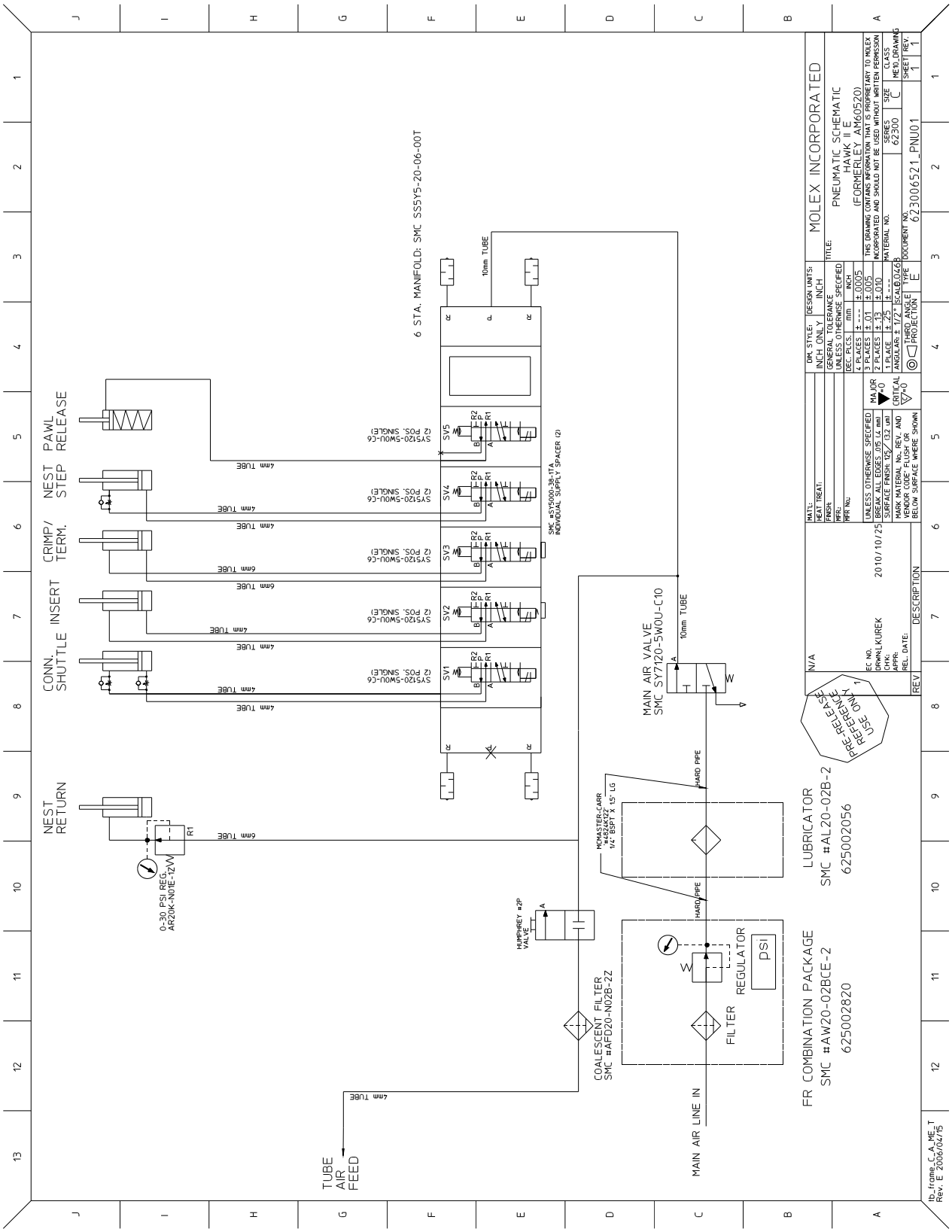



**Figure 4-8**

## 4.2 Electrical Schematic



## 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.

**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.

**Discrete Wire** A single cable or wire. Contrast it to ribbon cable, which consists of multiple cables or wires.

**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.

**Insertion** Pushing terminals into the housing.

**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.

**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 indentor.

**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.

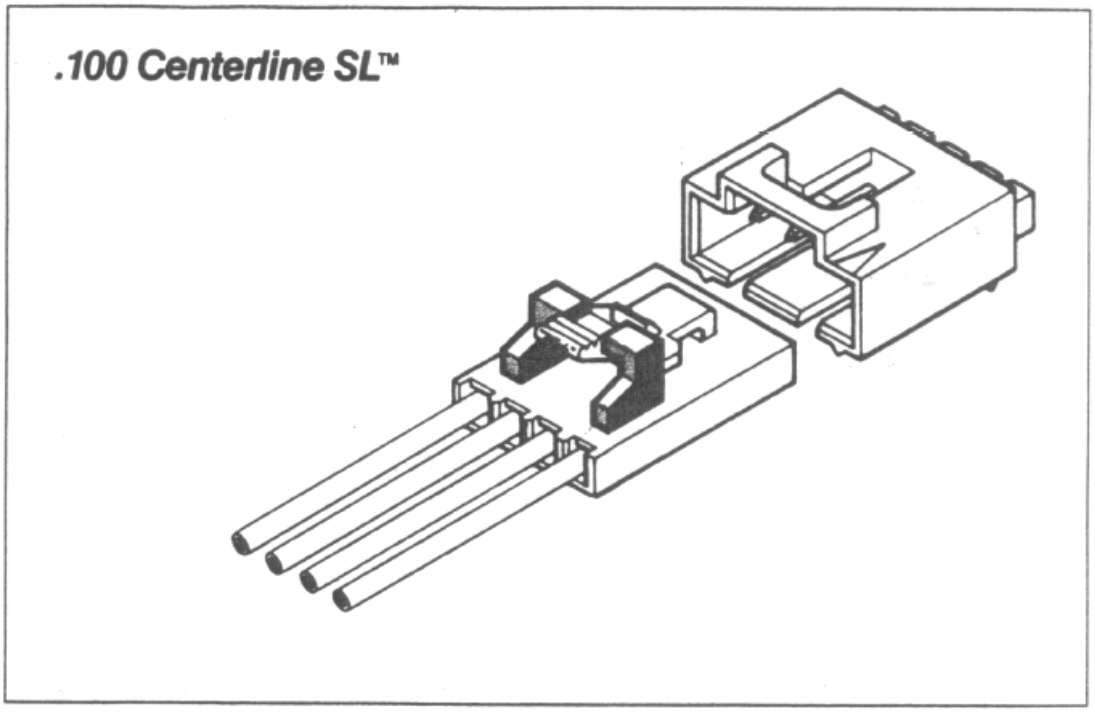
**Terminal** A device designed to terminate a conductor that is to be affixed to a post, stud, chassis, or other conductor, to establish an electrical connection. It is a synonym for contact.

**Termination** The process of attaching a wire(s) to a terminal(s).

**Termination Head** The part of the machine that holds the crimp and termination punches and terminates the wires.

# Appendix A

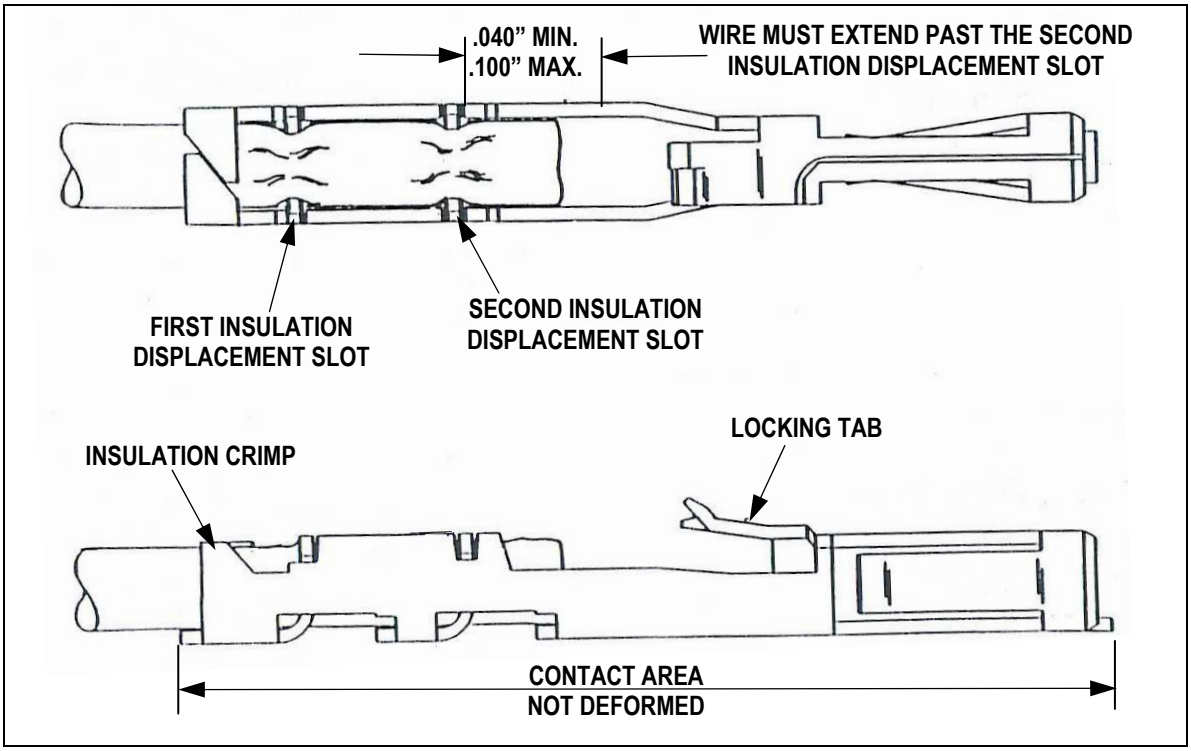
## Termination Information

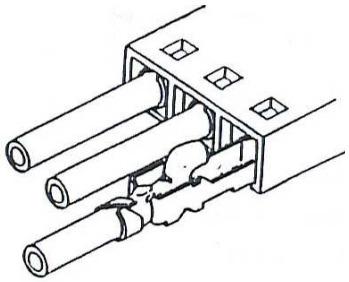
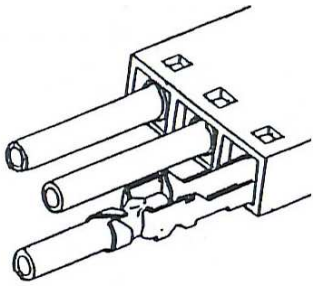
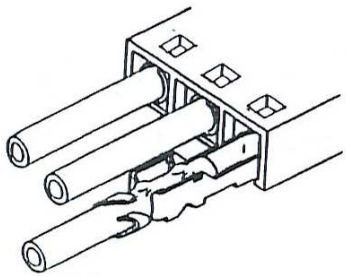
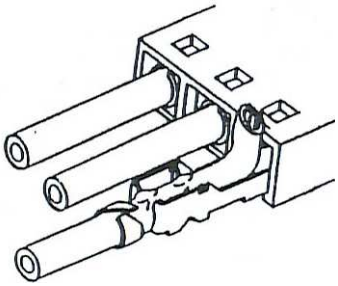



**NOTE**: The following document is uncontrolled and may not be the latest revision.
For the latest product specifications and product drawings (SDES-70400), contact Molex or visit our Web site at http://www.molex.com.

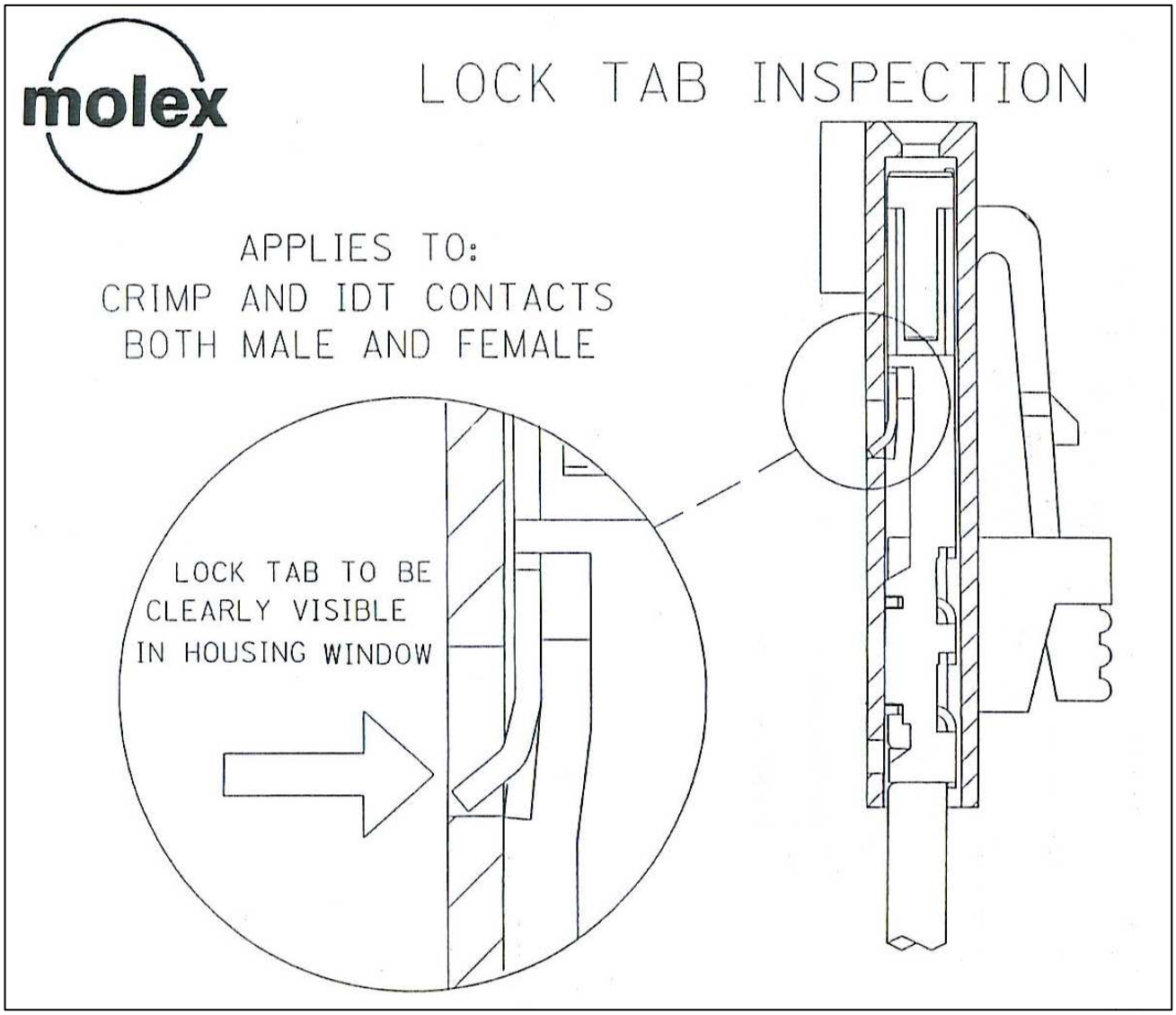
## SL IDT CONTACT INSPECTION

(Applies to both male and female terminals




| SL IDT INSPECTION BAD TERMINATIONS | |
|---|---|
| **Wire Not Seated In Second Insulation Displacement Slot**  |  **Wire Too Short** |
| **One or Both Insulation Crimp Tabs are Not Folded Around the Wire Insulation**  |  **Wire Too Long** |

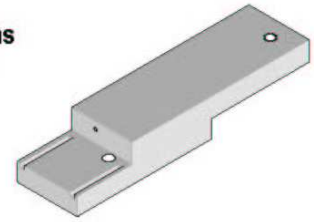
## LOCKING TAB INSPECTION



# 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 adapter 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.

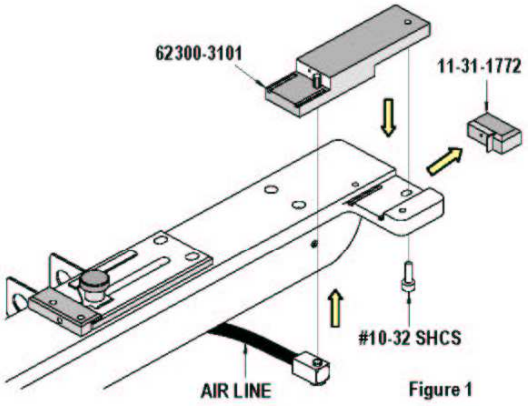



Figure 1

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Revision: B Revision Date: 02-26-08

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*ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703*

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