CA-800 APPLICATOR

FEEDS AND CRIMPS ***REEL SMART™***
CONTINUOUSLY MOLDED
TERMINALS, DISCONNECTS AND SPLICES IN AUTOMATIC
WIRE PROCESSING MACHINES AND BENCH PRESSES

OPERATION MANUAL

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INTRODUCTION

The CA-800 Applicator can feed and crimp the complete line of ***REEL SMART™*** continuously molded terminals, disconnects and butt splices offered by *PANDUIT*. Charges from one part to another, or changes from one gauge to another can be made by changing product reels or by one quick change of the die inserts. Die inserts can be changed without removing the applicator from the press.

The CA-800 is complete with the CP-861 Electric Flywheel Press.

This manual will guide you step-by-step in installing your CA-800 Applicator into the CP-861 Press, plus the operation and troubleshooting problems. If you have problems not covered, call:

1-888-506-5400, ext. 3255

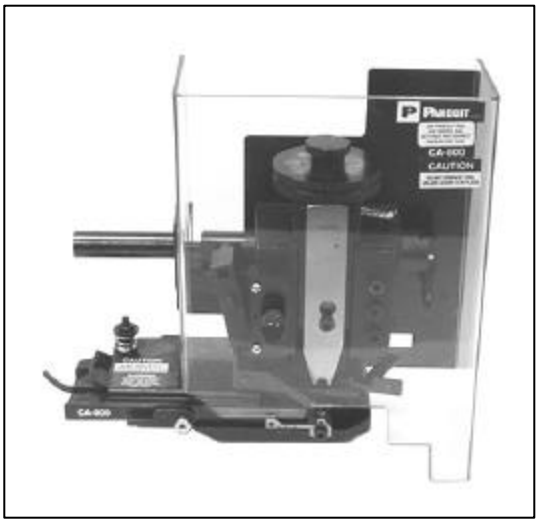
Ask for one of our Field Service Technicians

SYSTEM SPECIFICATIONS

TYPE: CA-800 Applicator

SIZE: (with safety shield)

Width - 10.25" (26.0 cm)
Depth - 4" (10.2 cm)
Height - 9.25" (23.5 cm)
Weight - 12.5 lbs. (5.7 kg)



SAFETY PRACTICES

The following safety precautions must be observed when operating the CA-800 Applicator.

1. Safety glasses must be worn at all times when using the system.
2. Always keep the plastic safety shield attached to the applicator when the power is “ON” or the press will not operate.
3. Keep fingers out from under the crimp/cut-off die inserts when the power is “ON”.
4. Always disconnect the power when changing the die inserts or making any adjustments.
5. Always install lower die inserts correctly before cycling applicator or press.

NOTE: The information contained in this manual is based on our experience to date and is believed to be reliable. It is intended as a guide for use by persons having technical skill at their own discretion and risk. We do not guarantee favorable results nor assume any liability in connection with its use. This publication is not to be taken as a license to operate under, nor a recommendation to infringe on any existing patents.

CA9 EZAIR™, CA-800EZ and CA-800 APPLICATORS

WIRE PROCESSING MACHINE / PRESS COMPATIBILITY BY MANUFACTURER

Manufacturer	Wire Processing Machine w/Press (WPM) or Bench Press only	*PANDUIT* Applicators		
		CA9 EZAIR™	CA-800EZ*	CA-800*
PANDUIT®	CP-851 Bench Press only			**A**
	CP-861 Bench Press only			**A**
	CP-862 Bench Press only	**A**[1]		
AMP	CLS III G w/G Press (WPM)	**A**[1]		
	CLS IV w/G Press (WPM)	**A**[1]		
	CLS IV Plus w/G Press (WPM)	**A**[1]		
	G Bench Press only	**A**[1]	**B**	
	CLS II w/T Press (WPM)	**A**[1]		
	CLS III w/T Press (WPM)	**A**[1]		
	T Bench Press only	**A**[3]	**A**	
	K Bench Press only		**A**	
ARTOS	CS-600 w/AMP G Press (WPM)	**A**[1]		
	CS-600 w/TU-7M Press (WPM)		**A**	
	CS-600 w/TU-10 Press (WPM)	**A**[1]		
	MTX Series 5 w/TU-10 Press (WPM)	**A**[1]		
GAMMA MECCANICA	T20P-110V Bench Press only	**A**[1]		
KODERA	Series C451/C450 (WPM)	**A**[1]		
	Series C551/C550 (WPM)	**A**[1]		
KOMAX	Gamma 311 w/Mecal K300 Press	**A**[1]	**B**[2]	
	Gamma 333 w/mci 711 Press (WPM)	**A**[1]		
	Alpha 411 w/Mecal PE7 or P107 Press	**A**[1]	**B**[2]	
	Alpha 433 w/Mecal PE7 or P107 Press	**A**[1]		
	40T w/Mecal PE7 Press (WPM)	**A**[1]		
	40T w/*PANDUIT* CP-861 Press (WPM)			**A**
	bt711 Bench Press only		**A**[4]	
MEGOMAT	ASM 3001A / APE 300 Press (WPM)	**A**[1]		
	Contact (WPM)	**A**[1]		
	Primo w/MP-3.0 Press (WPM)	**A**[1]		
MOLEX®	EP-20 Bench Press only		**A**	
	TM-2000 Bench Press only		**A**	
SCHLEUNIGER	Crimp Center 12 w/ACP01 Press (WPM)	**A**[1]		
SHINMAYWA	TR101 (WPM)		**A**	
	TRD111/TR111 (WPM)	**A**[1]	**B**	

A = Best Choice (suited for particular application); **B = Second Choice** (also suited for particular application).

Special Requirements:

* Refer to the specific applicator operation manual for installation instructions.

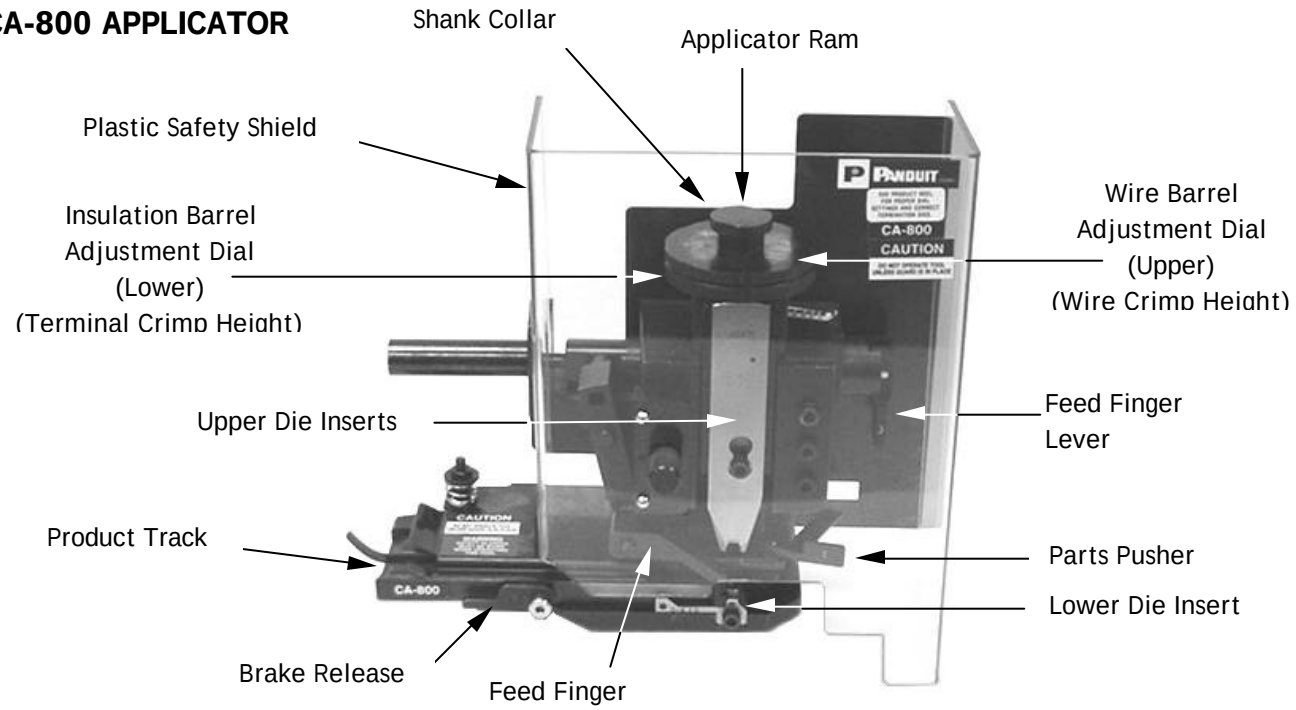
[1] See specific section for installation details.

[2] Komax press shim is required to operate CA-800EZ Applicator.

[3] Bench press air feed capability is required.

[4] Remove press wire stripper.

CA-800 APPLICATOR



APPLICATOR INSTALLATION

Carefully follow the installation procedure for proper operation. All hex wrenches required for installation or set-up of system are supplied with the press and/or applicator.

Applicator Installed on CP-861 Electric Flywheel Press

1. Verify that the electric cord is not plugged into the power source.

2. Remove the front clamp from the CP-861 Press by removing the hex socket head cap screw.

3. Install the safety interlock system on the applicator and press. The interlock (included with the CP-861 Press) must be installed correctly for the system to operate. Screw the switch end of the safety interlock cable into the opening on the back of the applicator until it sets against the applicator.

4. Place the applicator on the base of the press and slide the applicator to the left until it contacts the left stop on the press. Pull up on the applicator ram until the shank collar is aligned with the groove of the press ram.

5. Slide the applicator back while aligning the toe clamp with the keyway on the back of the applicator base. Verify that the applicator shank collar is aligned with the groove of the press ram.

   CAUTION: DO NOT OPERATE THE PRESS IF THE APPLICATOR IS NOT ALIGNED IN THE PRESS RAM GROOVE. DAMAGE WILL RESULT. (See warning label on press for correct installation.)

6. Install the front clamp on the press base using the existing cap screw.

7. Connect the plug end of the safety interlock cable into the matching electrical outlet on the CP-861 Press in back of the applicator. **This must be done for the system to operate.**

8. Install the appropriate die inserts according to Die Insert Installation instructions on next page.

APPLICATOR SET-UP

Die Insert Installation

1. Verify that the press is disconnected from the power source.

2. With applicator installed in press, push parts pusher (marked with the number 1) back until it hooks on the back of the applicator.

3. Rotate the brake release (marked with the number 2) 90° upward until it stops.

4. Lift the feed finger lever (marked with the number 3) upward 90° until it points toward the right.

5. Set the crimp height adjustment dials initially to “E” and “5”. See product reel for specific shut height settings (this will be different for each product type).

6. Loosen the upper die inset screw by turning it counterclockwise two (2) complete turns, using the supplied 5/32” hex wrench.

   NOTE: When installing the die inserts, verify that each contains the same color code and die insert number suffix. Refer to the ***REEL SMART™*** System Reference Chart on Page 6.

7. With the color coding facing toward you, install the lower die insert in the lower die insert area by lifting up on the feed finger to allow the locator arm to fit under it. Turn die insert screw clockwise to start it. Push down on the feed finger lever (marked with the number 3) until it points down and stops. Tighten screw securely using the supplied 5/32” hex wrench.

   NOTE: It is recommended to grease (molybdenum disulfide) both faces and sides of the upper crimp die insert before installation into applicator.

8. With the die insert number and color coding facing toward you, install the upper crimp die insert by sliding the top in first and slowly pushing the bottom in so that the square hole in the die insert fits onto the square block on the ram. Next, install the upper cut-off die insert using the same method as the crimp die insert, except that the larger hole fits over the die insert screw.

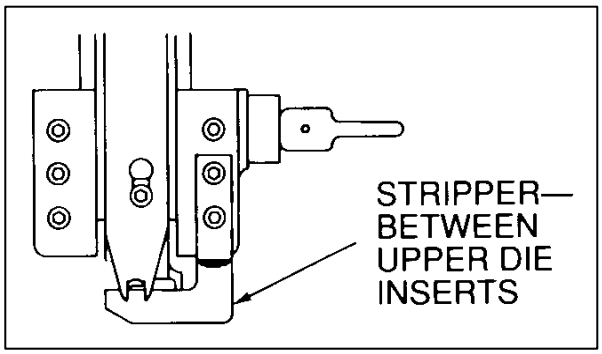
   NOTE: Use caution when tightening upper dies in Step 9.

9. Push up on the cut-off die insert (with slot) until it stops against the crimp height adjustment dials. Hold in this position while tightening die insert screw. Proceed to Crimp Shut Height Tolerance Test on Page 5.

   NOTE: FOR USE WITH CD-800-9 DIE INSERTS

   When installing Die Inserts CD-800-9, the TD18485A01 stripper must be installed by removing the two (2) lower screws from the right of the upper die inserts. Line up the two (2) holes on the stripper with the two (2) holes on the applicator and position the stripper so that it is between the two (2) upper die inserts and points toward the left. Fasten using the existing screws.

   CAUTION: The TD18485A01 stripper must be removed from the applicator when using die inserts other than CD-800-9.



Die Insert Changeover

To change die inserts, remove upper inserts and then lower insert. Follow Die Insert Installation instructions above, beginning with Step 1.

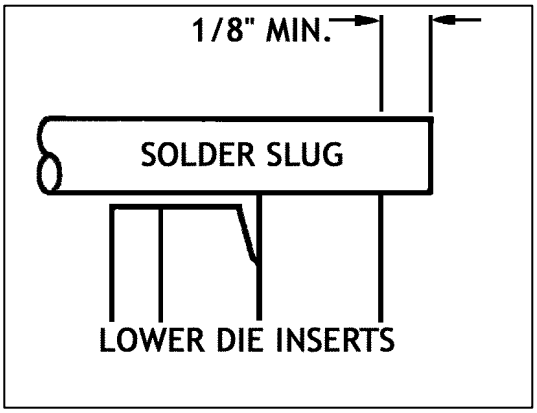
Crimp Shut Height Tolerance Test

Proper crimp shut height is a **critical** factor in crimping performance. **Prior to operation (at the beginning of each work shift, or when die inserts are changed or removed), it is recommended to gauge the shut height dimension of the crimp die using the Crimp Shut Height Tolerance Test procedure.** The Crimp Shut Height Tolerance Test involves crimping a length of 60/40 solid wire solder which is then measured with calipers for acceptable shut height dimensions listed for each specific product on the **product reel**.

1. Connect press to power source.

2. Install the safety shield on the applicator.

3. Insert the proper diameter size solder slug (as listed on the ***REEL SMART™*** System Reference Chart or the product reel) between die inserts so it extends about 1/8" beyond the back of the die inserts. Measure the solder slug to ensure that it is within the specified size and tolerance.

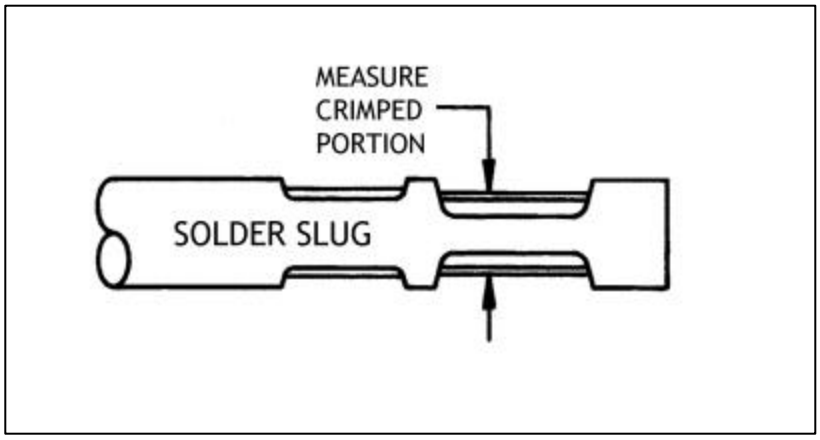


4. Depress foot switch and crimp solder.

5. Measure crimped portion of solder slug with calipers. Check actual dimension with product reel label tolerances (±.004" or ±.10mm). Shut height dimensions for wire crimp die inserts should not be greater than or less than tolerance dimension.

6. If the wire crimp shut height dimension is more than .004" (.10mm) less than the product reel label shut height dimension, then the wire crimp dial must be turned clockwise to the higher letter to increase the crimp shut height.

   If the crimp shut height dimension is more than .004" (.10mm) greater than the product reel label shut height dimension, then the wire crimp dial must be turned counterclockwise to the lower letter to decrease the crimp shut height.



7. Insert a new solder slug after the above adjustment and repeat Steps 4 and 5 to ensure that the crimp shut height meets the dimensional specification shown on the product reel.

REEL SMART™ SYSTEM REFERENCE CHART

Follow the requirements on the product reels for best results. The product reels contain information such as Initial Applicator Settings and Crimp Shut Height Dimensions for the specific terminal, disconnect, or butt splice. The following table is for reference only.

Die Inserts Part No.	Color Code	AWG Wire Range	Part No. Prefix	60-40 Solder Slug Dia. (mm) Part No.
CD-800-1	RED	22-18	PN, PNF, PV, DNF-M, DV-MB	.188 (4.78)/TA13722A01**
		22-16	BSN, BSP	
CD-800-1D***	RED	22-18	DV-B	
CD-800-2	BLUE	16-14	PN, PNF, PV, DNF-M, DV-MB	
		18-14	BSN, BSP	
CD-800-2D***	BLUE	16-14	DV-B	
CD-800-3	YELLOW	12-10	PN, PNF, PV, PV12, DNF-M, DV, DV-M	
		14-10	DV-C	
		16-12	PN12, PV12	
CD-800-4	RED	22-18	DNF-FIB, DNF-FIM, DNF-FIMB, DNF-LPB	
CD-800-5	BLUE	16-14		
CD-800-6	RED	22-18	DNF-FIBX	
CD-800-7	RED	22-18	DNF-110FIB, DNF-111FIB, DNF-112FIB	.125 (3.18)/TA13721A01*
CD-800-8	BLUE	16-14	DNF-FIBX, DNF-FIMX	.188 (4.78)/TA13722A01**
	RED	22-18	DNF-FIMX	
CD-800-9	RED/BLUE	22-14	DNFR-FIB	.125 (3.18)/TA13721A01*
CD-800-10	RED	22-18	DPF-FIB, DPF-FIM, DPF-FIMB, DPF-LPB	.188(4.78)/TA13722A01**
CD-800-11	BLUE	16-14	DPF-FIB, DPF-FIM, DPF-FIMB, DPF-LPB	
CD-800-12	RED	22-18	DPF-110FIB, DPF-111FIB	.125 (3.18)/TA13721A01*
CD-800-13	YELLOW	12-10	DNF-FIB, DPF-FIB	.188(4.78)/TA13722A01**
CD-800-14	22-18 16-14	RED BLUE	DNG-FL	.125 (3.18)/TA13721A01*
CD-800-15	22-18	RED	DNG-FB	.188 (4.78)/TA13722A01**
CD-800-16	16-14	BLUE	DNG-FB	
CD-800-17	12-10	YELLOW	BSN	
CD-800-18	12-10	YELLOW	DNF-FIMB	

* TA13721A01 = 60/40 Solder Slug with 1/8" (.125) outer diameter.

** TA13722A01 = 60/40 Solder Slug with 3/16" (.188) outer diameter.

*** Modified lower die for barrel insulated disconnects.
Available as a complete die set, or just lower die assembly.

Applicator Loading

Follow the procedure for installation of Reel Arm Assembly in the appropriate press manual and follow the instructions below to correctly load your desired disconnects, terminals, or butt splices into the CA-800 Applicator.

1. Verify that the power is disconnected from the press.

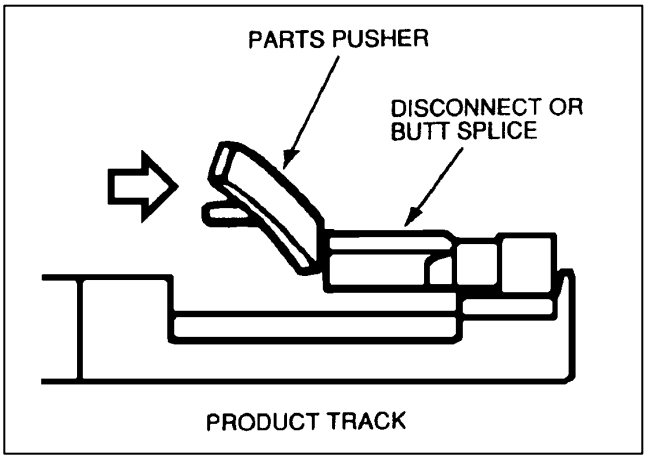
2. To load applicator, verify that the tabs and levers marked 1, 2, and 3 are in the correct positions. See Steps 2, 3, and 4 of the Die Insert Installation section on Page 4 for correct position.

3. Insert strip of product into the track on the left side of the applicator, making sure that the ends of the parts are forward against the front rail. Place the interleaf paper outside of the product, so as not to interfere with the parts being fed into the applicator.

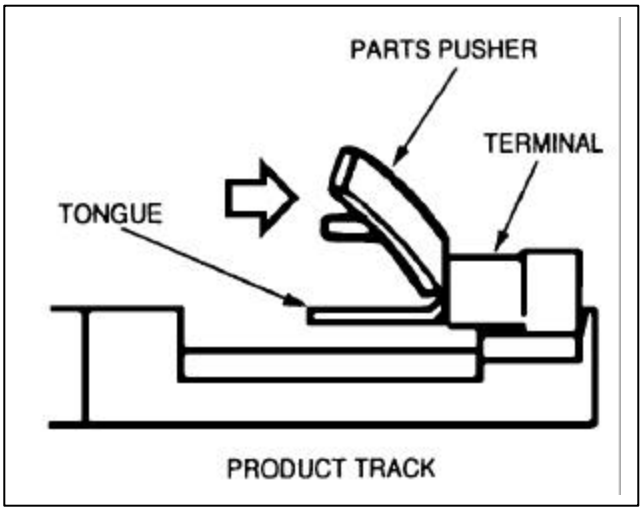
4. Push the strip of parts in until the first part is past the feed finger and between the upper and lower die inserts. If the first part goes past the inserts, lift up on the feed finger and pull the strip of parts out until the first part is between the die inserts.

5. Pull out on the parts pusher (marked with the number 1) so that it releases and springs forward. This pushes the product forward into position and holds them against the front rail.

WHEN USING DISCONNECTS OR BUTT SPLICES:
Verify that the parts pusher moves forward against the end of the disconnects or butt splices.



WHEN USING TERMINALS:
Verify that the parts pusher moves forward over the terminal tongue and against the insulation of the terminals.



6. Rotate the brake release (marked with the number 2) downward to the left 90° until it stops. This lowers the brake (track cover) to hold the parts down as they are fed into the applicator.

7. Push down on the feed finger lever (marked with the number 3) until it points down and stops. This moves the feed finger forward against the lower die insert which feeds and locates the product between the upper and lower die inserts.

8. Install the safety shield on the applicator.

OPERATION

Follow the operation procedure to terminate the terminals, disconnects, or butt splices correctly. If terminations are not acceptable, see Troubleshooting on Page 9.

Safety Checklist

For CA-800 Applicator	**Yes**	**No**
1. Is the safety shield in place?		
2. Is the crimp area free of foreign mater?		
3. Is a part positioned between the die inserts?		
4. Is parts pusher (No. 1) forward?		
5. Is brake release (No. 2) pointing toward the left?		
6. Is feed finger lever (No. 3) pointing downward?		
7. Do upper & lower die numbers match?		

For CP-861 Press	**Yes**	**No**
1. Is the electric cord disconnected?		
2. Is the on/off switch in the “off” position?		
3. Has the safety interlock been installed correctly?		

Operation

1. Verify that the safety shield has been installed on the applicator.

2. Connect power cord or air hose of press to power source and turn press “on” (if applicable).

3. Turn on the press light.

4. Place a striped wire in the terminal, disconnect, or butt splice and depress the foot switch. The part will be crimped and cut off from the carrier strip. The next part will automatically feed into the crimping position.

   NOTE: If a problem occurs, proceed to Troubleshooting on Page 9.
   If additional problems occur, see Page 1.

Maintenance

Lubricating the applicator should be completed at the recommended intervals to ensure trouble-free operation and longevity of the applicator linkage and ram. Listed below are the areas requiring lubrication, the prescribed lubricants and intervals.

1. **Feed Link**---Lubricate with a light machine oil every 200,000 cycles.

2. **Feed Finger**---Lubricate with a light machine oil very 200,000 cycles.

3. **Ram Slides**---Lubricate the sides of the ram with a light machine oil every 100,000 cycles.

4. **Grease Fitting**---Lubricate by adding a small amount of grease through the grease fitting on the back of the applicator every 200,000 cycles. Recommended grease: Molybdenum Disulfide.

TROUBLESHOOTING

Determining Correct and Incorrect Terminations

Terminations are determined to be correct or incorrect based on certain standards and tests. There are many variables, which may affect a terminated assembly's pass/fail recognition. The variables listed below should be considered when terminating wires and determining an acceptable crimp or termination.

1. **Wire Size**---Is it relative to the product barrel size, crimp height and die inserts?

2. **Barrel Size**---Is it relative to the wire size, crimp height and die inserts?

3. **Die Inserts**---Are they correct for the specific product and wire size being terminated?

4. **Crimp Shut Height**---Is it set at the suggested reading for the specific product/wire relation?

5. **Strip Length**---Has the wire been stripped to the correct length per product reel specifications?

6. **Turned Back Strands**---Have all the wire strands been inserted into the product?

7. **Solid/Stranded Wire**---Has the testing been designed for both types of wires?

Troubleshooting Checklist

PROBLEM	CAUSE	SOLUTION
System will not operate.	1. Safety shield not installed. 2. Power cord or air hose not connected to power source. 3. Safety interlock not installed or installed incorrectly.	1. Install safety shield. 2. Connect power cord or air hose to correct power source. 3. Check applicator installation on appropriate press for correct safety interlock installation.
Parts will not feed into crimping area.	1. Parts pusher (No. 1) is not against parts properly. 2. Brake release (No. 2) is not pointing to the left. 3. Feed finger lever (No. 3) is not pointing downward. 4. Incorrect die inserts being used for the parts being terminated.	1. See Step 5 of Applicator Loading on Page 7. 2. See Step 6 of Applicator Loading on Page 8. 3. See Step 7 of Applicator Loading on Page 8. 4. Check the ***REEL SMART*™** System Reference Chart on Page 6 for the appropriate die inserts.
Parts are not being positioned correctly between die inserts---overfeed.	1. Brake release (No. 2) is not pointing to the left. 2. Incorrect die inserts being used for part being terminated.	1. See Step 6 of Applicator Loading on Page 8. 2. Check the ***REEL SMART*™** System Reference Chart on Page 6 for the appropriate die inserts.
Parts are not being positioned correctly between die inserts---underfeed.	1. Feed finger lever (No. 3) is not pointing downward. 2. Excessive tension on parts reel. 3. Incorrect die inserts being used for the parts being terminated.	1. See Step 7 of Applicator Loading on Page 8. 2. Check parts reel for binding. 3. Check the ***REEL SMART*™** System Reference Chart on Page 6 for the appropriate die inserts.
Unacceptable crimps---poor cutoffs.	1. Parts pusher (No. 1) is not against parts properly. 2. Brake release (No. 2) is not pointing to the left. 3. Feed finger lever (No. 3) is not pointing downward. 4. Incorrect die inserts being used for the parts being terminated. 5. Die inserts are worn or damaged.	1. See Step 5 of Applicator Loading on Page 7. 2. See Step 6 of Applicator Loading on Page 8. 3. See Step 7 of Applicator Loading on Page 8. 4. Check the ***REEL SMART*™** System Reference Chart on Page 6 for the appropriate die inserts. 5. Replace die inserts (See Die Insert Changeover on Page 5.
Unacceptable crimps---smashed terminals, disconnects or butt splices.	1. Brake release (No. 2) is not pointing to the left. 2. Feed finger lever (No. 3) is not pointing downward. 3. Incorrect die inserts being used for the parts being terminated. 4. Crimp height adjustment dial is set incorrectly. 5. Die inserts are worn and crimp height adjustment dial is at lowest setting. 6. Die insert screws are not snug.	1. See Step 6 of Applicator Loading on Page 8. 2. See Step 7 of Applicator Loading on Page 8. 3. Check the ***REEL SMART*™** System Reference Chart on Page 6 for the appropriate die inserts. 4. Adjust dial to appropriate setting (refer to product reel & Crimp Shut Height Tolerance Test on Page 5). 5. Replace die inserts (See Die Insert Changeover on Page 5. 6. Tighten die insert screws (See Die Insert Installation on Page 4.

Troubleshooting Checklist (cont.)

Unacceptable crimps---low crimp (Part being crimped at wire Insertion end.)	1. Parts pusher (No. 1) is not forward.	1. See Step 5 of Applicator Loading on Page 7.
Unacceptable crimps---low wire pullout.	1. Crimp height adjustment dial is set incorrectly for part being crimped. 2. Die shut height is not correct. 3. Product is being crimped with incorrect die.	1. Adjust dial to appropriate setting (refer to product reel & Crimp Shut Height Tolerance Test on Page 5). 2. Perform Crimp Shut Height tolerance test on Page 5. 3. Refer to product reel label to verify proper die is being used.