

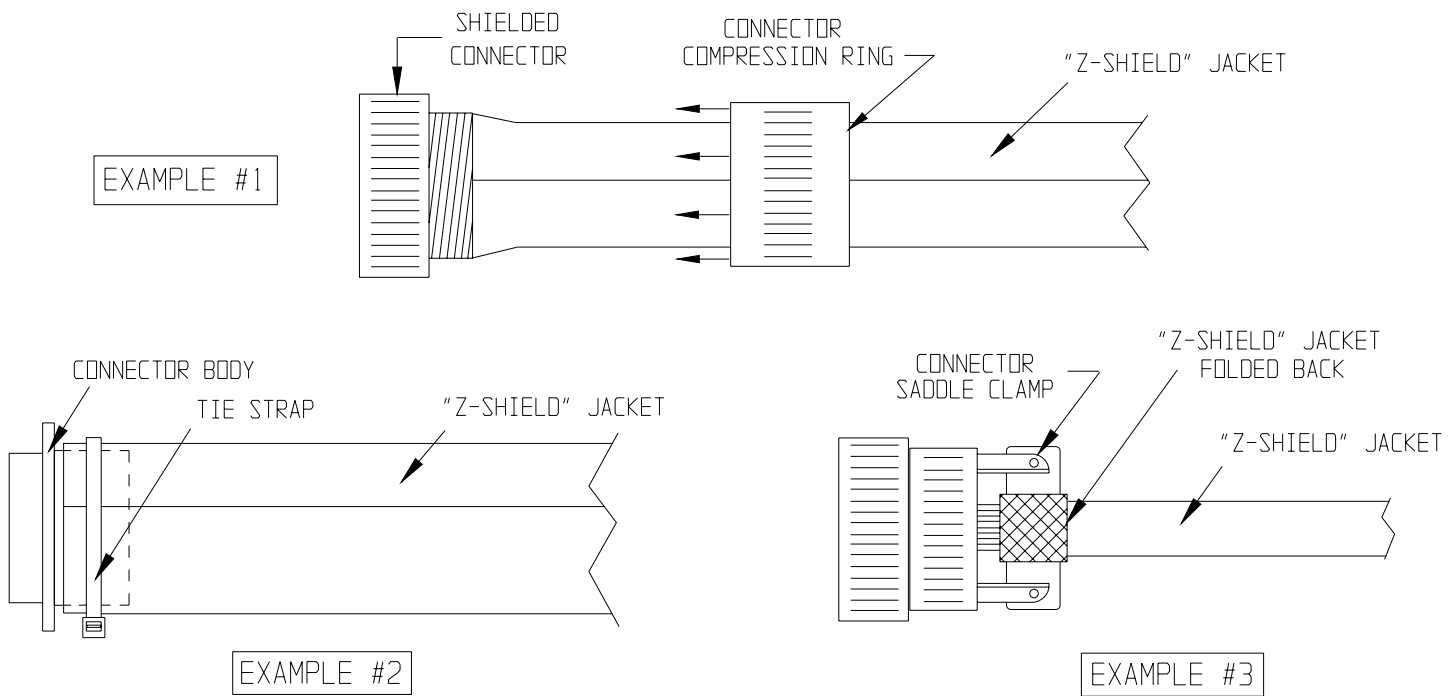
TERMINATION GUIDE FOR "Z-SHIELD" PRODUCTS

( ZT93-98-002 ) ( 4/96 )

THIS PROCEDURE DESCRIBES GENERIC METHODS FOR ELECTRICALLY TERMINATING ZIPPERTUBING'S "Z-SHIELD" PRODUCTS WHICH UTILIZE METAL PLATED WOVEN AND NONWOVEN FABRICS AS THE THE EMI SHIELD. THE FOLLOWING METHODS ILLUSTRATE COMMON TERMINATION METHODS WHICH HAVE BEEN USED WITH SUCCESS. ALL IN-HOUSE ENGINEERING REQUIRMENTS SHOULD BE REVIEWED PRIOR TO MAKING ANY INSTALLATION. ALL METHODS DESCRIBED HAVE BEEN FOUND TO PROVIDE GOOD ELECTRICAL PERFORMANCE, HOWEVER THE ZIPPERTUBING COMPANY DOES NOT ENDORSE ONE OVER ANOTHER.

1 "CONNECTOR TERMINATION"

THERE ARE TOO MANY CONNECTOR AND BACKSHELL HARDWARE VARIATIONS TO GIVE SPECIFIC DETAILS AS TO EXACTLY HOW "Z-SHIELD" SHOULD BE TERMINATED TO A PARTICULAR CONNECTOR. THE FOLLOWING IS A GENERAL DESCRIPTION OF HOW THE SHIELD MIGHT BE TERMINATED GIVEN THE PROPER HARDWARE SIZE. EXAMPLE #1 SHOWS THE "Z-SHIELD" CLOSED AND COMPRESSED UNDER THE SHIELD COMPRESSION RING OF AN EMI SHIELDED CONNECTOR. IN EXAMPLE #2, THE "Z-SHIELD" IS SIMPLY WRAPPED AROUND THE THE BACK OF THE CONNECTOR BODY AND HELD IN PLACE USING A BAND CLAMP OR CABLE TIE. IN EXAMPLE #3 THE "Z-SHIELD" HAS BEEN FOLDED BACK ONTO ITSELF AND COMPRESSED IN A SADDLE CLAMP.



## ① "CONNECTOR TERMINATION" CONTINUED

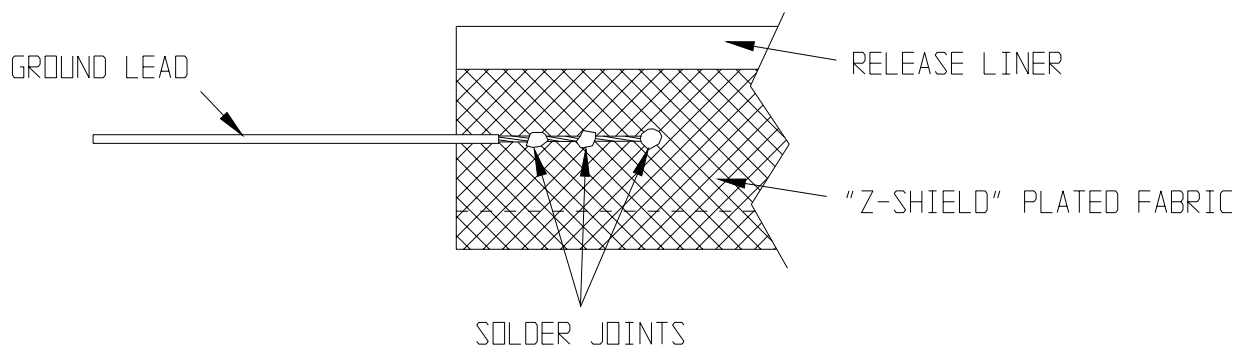
WHEN FOLDING BACK THE "Z-SHIELD" JACKET IT IS POSSIBLE TO SLIT THE MATERIAL USING SCISSORS TO CREATE TWO FLAT TONGUES WHICH WILL EASE THE INSTALLATION.

NOTE: INSURE THAT ANY CONNECTOR BONDING SURFACES ARE FREE OF NONCONDUCTIVE FINISHES THAT MIGHT CREATE A HIGH RESISTANCE JOINT.

CAUTION: UNDER EXTREMELY HIGH COMPRESSION FORCES THE ADHESIVE BACKING ON THE POLYURETHANE INSULATING FILM COULD BE DRIVEN THROUGH THE CONDUCTIVE SHIELD MATERIAL. THIS COULD RESULT IN A HIGH RESISTANCE ELECTRICAL BOND JOINT. TO INSURE THAT THE BOND JOINT DOES NOT CHANGE UNDER THIS CONDITION IT IS RECOMMENDED THAT THE BONDING SURFACES OF THE "Z-SHIELD" CONDUCTIVE CLOTH BE COATED WITH A THIN COAT OF ELECTRICALLY CONDUCTIVE EPOXY. THIS MATERIAL WILL BLOCK ANY NONCONDUCTIVE ADHESIVE FROM BLEEDING THROUGH DURING COMPRESSION.

## ② "SOLDERED" GROUND LEAD

IT IS POSSIBLE TO SOLDER A GROUND LEAD TO THE NICKEL PLATED "Z-SHIELD" FABRICS. SINCE NICKEL FORMS A TOUGH OXIDE LAYER, AN "RA" TYPE ROSIN FLUX MUST BE USED. SOLDER ALLOYS OF 63/37 TIN-LEAD OR 58/42 BISMUTH-TIN SHOULD BE USED. BEST RESULTS WILL BE OBTAINED IF THE SOLDERING IRON TEMPERATURE IS SET 20-40 DEGREES (C) ABOVE THE MELT TEMPERATURE OF THE SOLDER USED (63/37 MELTS AT 183 C; 58/42 MELTS AT 138 C). KEEP HEATING DWELL TIME TO A MINIMUM TO AVOID MELTING THE POLYESTER BASE FABRIC. KEEP GROUND LEAD SIZE TO A MINIMUM TO INSURE EQUAL HEAT PENETRATION OF THE LEAD AND THE SHIELD FABRIC. SEVERAL SMALL SOLDER JOINTS ARE DESIRABLE OVER A SINGLE LARGE JOINT SINCE THE STRENGTH OF THE JOINT IS NO STRONGER THAN THE PEEL STRENGTH OF THE PLATING TO THE BASE FABRIC.



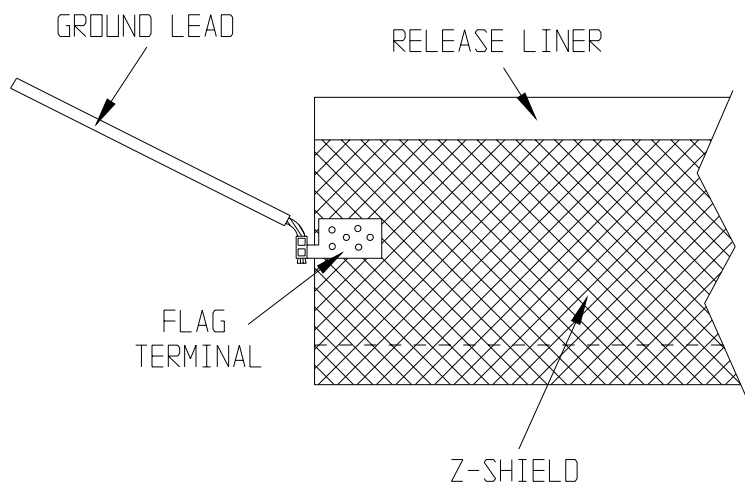
## ③ "CONDUCTIVE EPOXY BONDED" GROUND LEAD

IT IS POSSIBLE TO BOND A GROUND LEAD TO THE NICKEL PLATED "Z-SHIELD" FABRICS. USE A NICKEL OR SILVER LOADED EPOXY. A WOVEN TIN PLATED COPPER GROUND STRAP IS BEST SINCE IT PROVIDES GOOD BONDING SURFACE AREA AND IS POROUS LIKE THE "Z-SHIELD" FABRIC. FOLLOW THE MANUFACTURER'S STORAGE, MIXING AND CURING INSTRUCTIONS. IF HEAT CURING IS REQUIRED, DO NOT EXCEED 100 DEGREES CELCIUS.

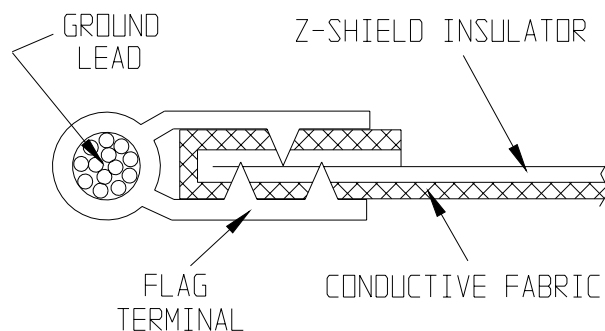
#### ④ CRIMPED "FLAG" TERMINAL LEAD

GROUND TERMINATION CAN BE MADE USING CRIMPED FLAG TERMINALS WHICH HAVE SERRATED TEETH AND PRE-INSTALLED GROUND LEAD WIRE. THESE TERMINALS ARE DESIGNED FOR TERMINATING FOIL TYPE EMI SHIELDS BUT WORK EQUALLY WELL WITH "Z-SHIELD" PRODUCTS. ONE EXAMPLE OF THIS TYPE OF TERMINAL ARE "TERMI-FOIL" BRAND TERMINALS FROM AMP CORPORATION. THE "Z-SHIELD" JACKET SHOULD BE FOLDED BACK ONTO ITSELF SO AS TO CREATE A METALLIC SURFACE CONTACT WITH BOTH SIDES OF THE FLAG TERMINAL. IT ALSO FILLS THE TERMINAL JAWS BETTER WHEN DOUBLED. CARE SHOULD BE TAKEN TO INSURE THAT THE NO STRAIN IS PLACED ON THE TERMINAL LEAD WHICH MIGHT CAUSE THE "Z-SHIELD" JACKET TO TEAR.

TERMINAL INSTALLATION



SHIELD/TERMINAL X.S. VIEW



#### ⑤ "SEWN-IN" GROUND LEAD

"Z-SHIELD" PRODUCTS CAN BE ORDERED WITH A 15 AWG FLAT GROUND STRAP SEWN TO THE SHIELD ALONG THE JACKET'S ENTIRE LENGTH OR SHORT PIGTAILS CAN BE ATTACHED AT THE ENDS PER CUSTOMER SPECIFICATIONS. TERMINAL HARDWARE AND GROUND STRAP INSULATION CAN ALSO BE SUPPLIED UPON REQUEST.

