

Crimping Euro Contacts for the DIN41612 96 pin connector Sierra Automated Systems Engineering Brief EB022608

Many Sierra Automated Systems products use the 96 pin DIN41612 connector for user interface. Gold plated contacts are crimped onto discrete wire and inserted into the 96 pin housing before connecting to the equipment. The contacts snap into the housing to provide a permanent, high reliability point of connection.

The diagrams which follow detail how to crimp and how to recognize good and bad crimps. Please review them well before starting to wire.

SAS recommends a Tyco ProCrimper tool, part number AMP 58495-1.

The contacts may not be removed from the housing without an extraction tool, and Engineering Brief 111094 is repeated below for information on this.

Crimp Contact Removal, EB111094

Please review the enclosed diagrams SAS32CR1 and SAS32CR2. These documents provide good insight into recognizing a properly crimped contact, but do not offer enough information on removal and re-insertion of contacts. This process is a skill that anyone can learn in a short time.

It is very important to grasp the wire from the rear and press it forward in the housing to release any pressure between the locking tang of the contact and the plastic retaining tab inside of the housing. The wire/contact should be held forward while the extraction tool is used to depress the locking tang of the contact enough to release the contact from the housing. Failure to hold forward pressure during the depression of the contact tang may result in the plastic retaining tab of the housing breaking off. Once the housing is damaged in this manner it must be discarded and a new housing must be used.

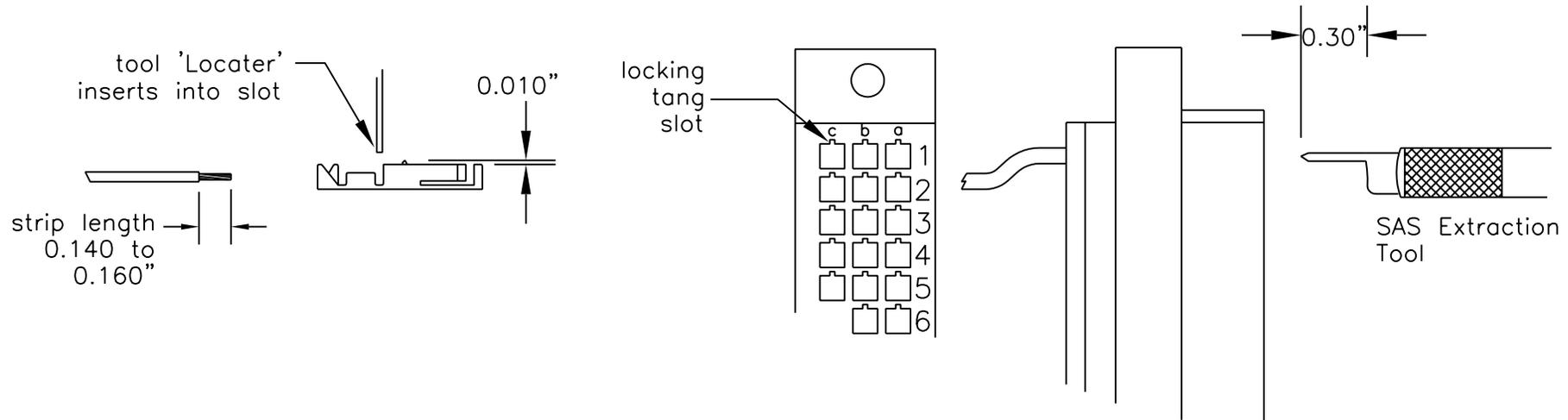
When inserting the extraction tool, keep the probe straight and centered. It does not take much pressure to depress the locking tang of the contact if it is free and unobstructed. If the extraction tool is inserted at too much of an angle you run the risk of hitting the plastic retaining tab, and if too much pressure is used you can break or damage the tab. Once the contact locking tang is depressed the wire/contact may be freely removed. Do not exert force. If the wire/contact does not easily slide out of the housing the tang has not been depressed enough to clear the retaining tab.

Once the contact has been successfully extracted the locking tang will be slightly depressed or 'flattened'. Carefully lift the tang straight up until the tang is about level with the upper surface of the contact box zone. You may alternately use the extraction tool nose to press up from the underside of the contact box zone until the locking tang is restored to the correct height.

It is very important to practice before extracting contacts from a housing which has many wires inserted. SAS can provide a spare housing for practice on request. You may even wish to cut a housing apart to see the physical construction of the locking tabs.

If you proceed cautiously and practice you should be able to easily extract and re-insert contacts many times without damage.

REVISIONS	
DATE	DESCRIPTION
01/98	updated for use with ProCrimp tool and SAS extractor



CRIMPING:

1. Strip wire as shown. Use sleeving on drain wires as req'd.
2. Insert terminal in tool. See tool instructions. The tool has a 'Locator' which should rest in the 'wire stop slot'.
3. Insert wire until it contacts the locator stop. Crimp and release the finished connection.

INSERTION:

1. Ensure the locking tang is slightly above (0.01") the contact box.
2. Insert terminal with locking tang aligned to the keyway.

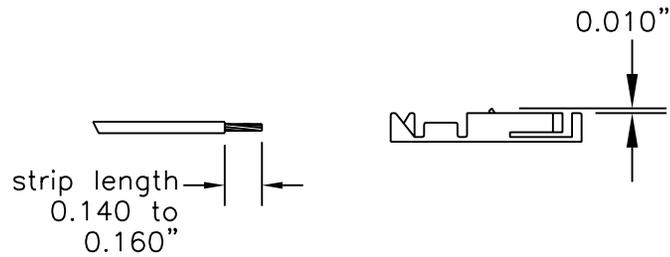
REMOVAL:

1. Hold extraction tool perpendicular to the housing face.
2. Insert the tool through the front face of the housing.
Push the wire from the rear toward the front to relieve locking tang pressure.
3. Gently pull the wire and contact from the slot.
4. Carefully bend the locking tang back to the correct position before re-inserting the connection to ensure proper retention.

		Sierra Automated Systems	
		SAS32000 CONNECTOR CRIMP DETAIL	
DRAWN	EOF	<div style="border: 1px solid black; width: 100%; height: 100%;"></div>	
CHK'D			
DATE	05/89		
		A SAS32CR1	

REVISIONS

DATE	DESCRIPTION
01/98	Rev A; General Update



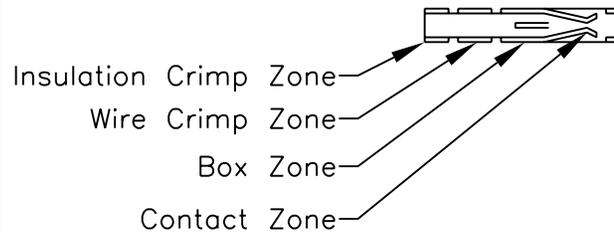
CORRECT



DO NOT USE



Here the Box Zone has been distorted due to incorrect insertion in the crimp tool. See text.



CRIMPING:

1. Please start by referring to drawing SAS32CR1.
2. This sheet attempts to help you get off to a good start by explaining the basics of crimping and how to recognise a good contact.
3. Use the 28–24 gauge die only, even for 22 gauge wire. The contacts provided are for this opening only.
4. Align the contact in the tool so that the 'Locator' sits in the slot separating the crimp zone from the contact box zone of the contact. Refer to the Pro-Crimper instruction sheet 408–9819, Figure 3. Close the tool 3 or 4 clicks of the ratchet until the contact is held securely. fully cycle the tool.
5. The Locator provides a positive stop for the insertion of the stripped wire into the tool. Insert the wire and fully cycle the tool.
6. Inspect the contact closely before inserting into the connector housing. The insulation crimp zone should wrap around the wire insulation. The Wire Crimp Zone should have only bare wire in it. Ensure the insulation did not get in too far. Ensure the box zone did not get into the crimp die, distorting the contact.
7. Orient the contact carefully. Pairs are often best inserted together, rather than one wire at a time. Use care to place the wires in the correct housing location. If you must extract contacts, please practice and use care not to damage the housing. Read and practice extraction instructions 'EB111094 – Crimp Contact Removal'.

DRAWN		Sierra Automated Systems	
		SAS32000 CONNECTOR CRIMP DETAIL	
CHK'D		HELPFUL HINTS!	
DATE		05/93	A SAS32CR2

4. CONTACT SUPPORT ADJUSTMENT (Figure 3)

NOTE 2: The contact support is preset prior to shipment, but minor adjustment may be necessary.

1. Make a sample crimp and determine if the contact is straight, bending upward, or bending downward.
2. If adjustment is required, loosen the screw that holds the contact support onto the locator assembly.

NOTE 3: The ratchet has detents that create audible clicks as the tool handles are closed.

3. Place a contact with wire into the proper nest and close the tool handles until the ratchet reaches the sixth click, or until the contact support touches the contact.
4. Slightly loosen the nut that holds the locator assembly onto the tool frame.
5. Move the contact support as required to eliminate the bending of the contact.
6. Tighten the nut and close the handles until the ratchet releases.
7. Remove and inspect the contact.
8. Make another sample crimp. If the contact is straight, tighten the contact support screw. If the contact is still being bent during crimping, repeat the adjustment procedure.

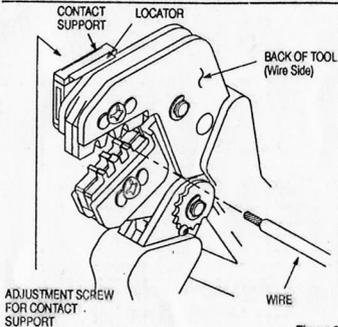


Figure 3

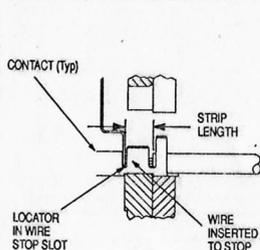
5. CRIMPING PROCEDURE

NOTE 2: This tool is provided with a crimp adjustment feature. Initially, the crimp height should be verified as specified in Figure 4. Refer to Section 6, CRIMP HEIGHT INSPECTION, and Section 7, CRIMP HEIGHT ADJUSTMENT, to verify crimp height before using the tool to crimp desired contacts and wire sizes.

Refer to the table in Figure 1 and select wire of the specified size and insulation diameter. Strip the wire to the length indicated in Figure 1, taking care not to nick or cut wire strands. Select an applicable contact and identify the appropriate crimp section according to the wire size markings on the tool. Refer to Figure 3 and proceed as follows:

1. Hold the tool so that the back (wire side) is facing you. Squeeze tool handles together and allow them to open fully.
2. Holding the contact by the mating end, insert the contact — insulation barrel first — through the front of the tool and into the appropriate crimp section.
3. Position the contact so that the mating end of the contact is on the locator side of the tool, and so that the open "U" of the wire and insulation barrels must face the top of the tool. Place the contact up into the nest so that the movable locator drops into the slot in the contact. Refer to Figure 3. Butt the front end of the wire barrel against the movable locator.

CAUTION: Make sure that both sides of the insulation barrel are started evenly into the crimping section. Do NOT attempt to crimp an improperly positioned contact.



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4. Hold the contact in position and squeeze the tool handles together until ratchet engages sufficiently to hold the contact in position. Do NOT deform insulation barrel or wire barrel.

5. Insert stripped wire into contact and wire barrels until it is butted against the wire stop, as shown in Figure 3.

6. Holding the wire in place, squeeze tool handles together until ratchet releases. Allow tool handles to open and remove crimped contact.

NOTE 3: The crimped contact may stick in the crimping area, but the contact can be easily removed by pushing downward on the top of the locator (see Figure 3).

7. Check the contact's crimp height as described in Section 6, CRIMP HEIGHT INSPECTION. If necessary, adjust the crimp height as described in Section 7, CRIMP HEIGHT ADJUSTMENT.

6. CRIMP HEIGHT INSPECTION

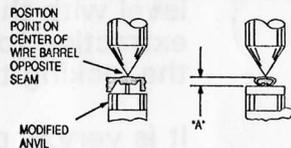
This inspection requires the use of a micrometer with a modified anvil. AMP recommends the modified micrometer (Crimp Height Comparator RH-1019-LAP) which may be purchased from:

York Machinery & Supply Co.
20 North Penn Street
York, PA, 17401-1014

or VALCO
1410 Stonewood Drive
Bethlehem, PA 18017-3527

Proceed as follows:

1. Refer to Figure 4 and select a wire (maximum size) for each crimp section listed.
2. Refer to Section 5, CRIMPING PROCEDURE, and crimp the contact(s) accordingly.
3. Using a crimp height comparator, measure the wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that shown in the table, the tool is considered dimensionally correct. If not, the tool must be adjusted. Refer to Section 7, CRIMP HEIGHT ADJUSTMENT.



WIRE SIZE AWG (MAX)	CRIMP SECTION (WIRE SIZE MARKING)	CRIMP HEIGHT DIM. (A) AND TOLERANCE (±)
16	18-16	1.295 ± .051 [.0510 ± .0020]
20	24-20	1.003 ± .051 [.0395 ± .0020]
24	28-24	.787 ± .051 [.0310 ± .0020]

Figure 4

7. CRIMP HEIGHT ADJUSTMENT (Figure 5)

1. Remove the lock screw from the ratchet adjustment wheel.
2. With a screwdriver, adjust the ratchet wheel from the locator side of the tool.

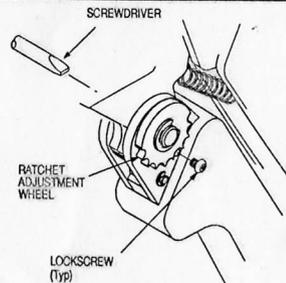


Figure 5