# AIPS
# Airbus Industrie Process Specification

# Installation of terminals ASNE0223TL for aluminium cable



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## Contents list

# 1 Scope

The purpose of this specification is to give Design and Quality requirements to manufacturers. Although the essential requirements of a process will be described in detail, the specification does not give complete in-house operating instructions. these shall be given in the manufacturers supporting work instructions.

This specification shall not be used as an inspection document unless parts or assemblies have been manufactured to this specification.

This document specifies the process and the tools to be used to install the terminal lug ASNE0223 for aluminium cable.

# 2 Normative references

| | |
|---|---|
| AIPS 07-02-001 | General requirements for the stripping of electrical cables |
| AIPS 07-03-001 | General requirements for the crimping of electrical connections |
| AIPS 07-03-002 | Crimping procedure with hydraulic and manual tools |
| AIPS 07-07-001 | Heat shrinkable tubings and sleeves |

# 3 Applicability, limitations and definitions

This document is applicable for any manufacture or installation of bundles and harnesses during the life time of the aircraft.

Only the practices defined in this document are authorized.

# 4 Requirements to be met by a process

## 4.1 Design requirements

See AIPS 07-02-001 and AIPS 07-03-001.

## 4.2 Quality requirements

See chapter 6.2.

# 5 Process qualification

Not applicable.

# 6 Process work and quality control instructions

## 6.1 Process work instructions

### 6.1.1 Terminals ASNE0223

These terminals are made of tin-plated electrolytic copper (copalum) and designed to be used as connecting elements on size 4/0 aluminium cables. They can withstand temperatures up to 130ºC. They are equipped with a inner brass lattice which shall be preserved.

The code number which follows the standard number allows to identify the connection stud diameter (see standard)

Once a terminal is crimped, it shall be sealed and insulated with heat-shrinkable tubing.

### 6.1.2 Cables

Two aluminium cables can be used:

a) NSA 935290 YA 0000. (Inactive for new design).

b) NSA 935308 YU 0000.

### 6.1.3 Heat-shrinkable tubing and sleeves

The following types of tubing are used:

- Kynar heat-shrinkable sleeve ASNE0718-08-xx.
- Silicone heat-shrinkable sleeve ASNE0484 KMJ 07 xx.
- Polyolefine heat-shrinkable tubing NSA 937502 - 07.

### 6.1.4 Tools

Three types of tools are necessary to use these splices:

- Stripping tools.
- Crimping tools.
- Hot air generators.

#### 6.1.4.1 Stripping tools

Scalpels and inserted blade tools are authorized as stripping tools.

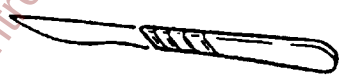

**Figure 1: Scalpel**

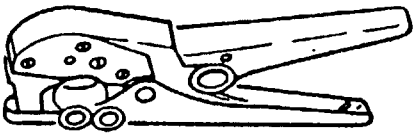

**Figure 2: Rotary stripping tools (example)**

### 6.1.4.2 Crimping tools

The crimping tools shall be checked periodically. Each tool shall bear a dated and stamped disk certifying its has been checked.

The following items are necessary for crimping:

- Foot-operated ram hydraulic tool:
  - . American reference No. AMP 69 064 or
  - . European reference No. 781 019 or
  - . Hydraulic electric tool No. AMP 69 120 or
  - . Hydraulic pressure tool No. 992.27179.00.
- Crimping head No. AMP 69 082.
- Set of dies No. AMP 68 050.

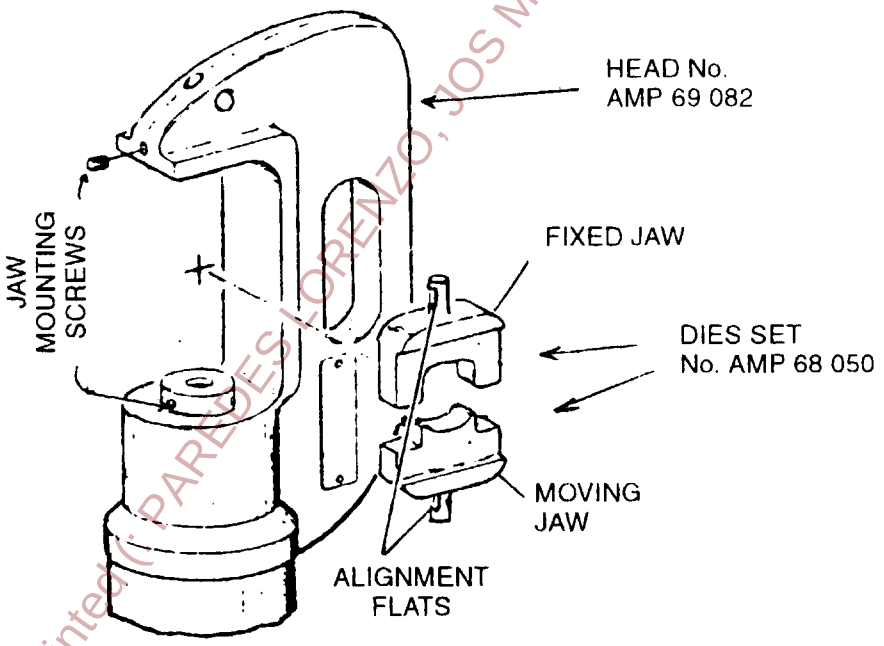


**Figure 3: Crimping head details**

### 6.1.4.3 Hot air generators

To shrink the tubing, a hot air generator can be used as insulation and sealing tool. It must comply with AIPS 07-07-001.

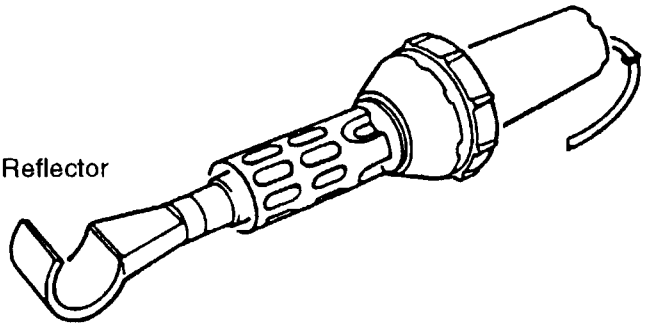


**Figure 4: Hot air generator**

### 6.1.5 Cable stripping

Cables shall be stripped in accordance to AIPS 07-02-001.

***Note 1:*** *Specific instructions concerning aluminium cables.*

*When the aluminium cable drum is taken, the cable shall be checked for oxidation marks. In all cases:*

*Trim the cable end, cut approximately 50 mm of the cable and show this "reference" cable piece to the Quality Department or other qualified personnel to have it checked for oxidation marks on the strands.*

***Note 2:*** *When putting the drum away, on the cable end which has been cut, shrink a piece of sleeve NSA 937502 or equivalent and hot pinch the end to make sure it is sealed. Further requirements see AIPS 07-07-001.*

***Note 3:*** *If only one end of a cable piece has been connected, the other end shall be protected as per Note 1 (protect both ends when they are not connected).*

***Note 4:*** *On cables with a section greater than 5 mm$^2$ (AWG10), a number of strands within the limits given in the following table may be damaged accidentally.*

**Table 1**

| AWG* | Section (mm$^2$) | Max. number of marked strands |
|---|---|---|
| 8 - 4 | 9 to 22 | 4 |
| 2 - 0000 | 34 to 107 | 12 • |

* AWG: American Wire Gage

**Stripped length:**

Strip the cable as shown in figure 5 below:

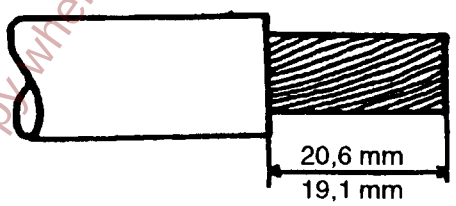


**Figure 5: Stripping length**

### 6.1.6 Crimping

Before crimping make sure the tools comply with:

a) applicable periodic maintenance requirements,

b) correct operation and appearance requirements between two inspections.

Fit dies No. AMP 68 050 to head AMP 69 082. Make sure the die alignment slots (flats) are positioned on the same side opposite the mounting screws. Apply the instructions given in AIPS 07-03-002.

- Slide the terminal insulating sleeves or sleeves over the cables.
- Take the latticed cylinder out of the terminal barrel if the insertion of cable into the terminal is difficult
- Position the terminal in the dies (see terminal position on figure 6).

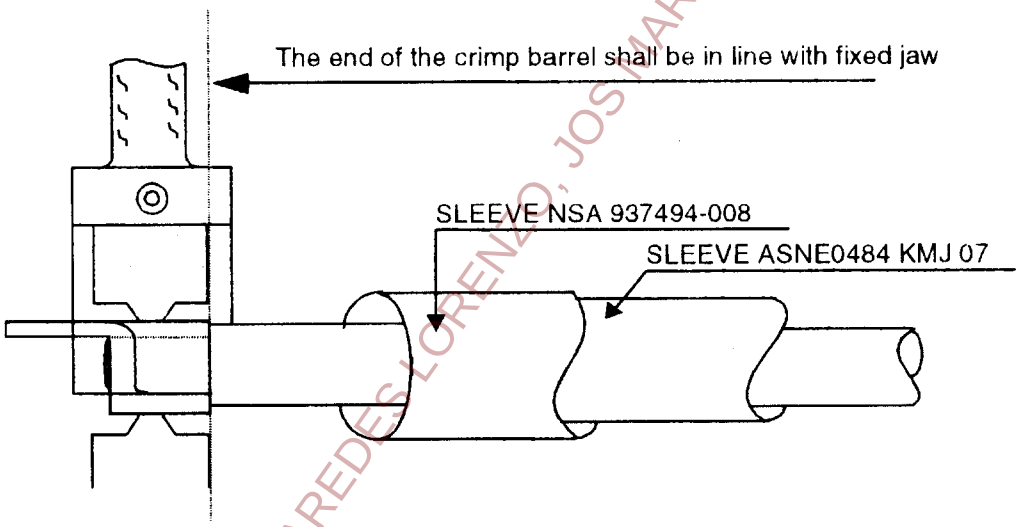


**Figure 6: Location of lug into the crimping dies**

- Operate the tool to bring the die into contact with the terminal barrel without deforming it.
- Insert the stripped cable end into the latticed cage, then insert this assembly into the terminal or insert directely the stripped cable into the crimp barrel and hold it throughout the crimping operation.
- Operate the generator until automatic release or crimping pressure is obtained.
- After the dies open, remove the crimped assembly and check it for good appearance.
- Insulate as described in chapter 6.1.6.

### 6.1.7 Insulation

- Before crimping, slide sleeve ASNE0484 KMJ 07 (length: 52 mm) and sleeve ASNE0718-08 (length: 50 mm) over the cable.
- After crimping, bring back and shrink tubing ASNE0484 KMJ 07 52 with overlap on the terminal barrel and cable insulator. Shrink tubing ASNE0718-08-50 on top of the KMJ tubing.

***Note 5:*** *After shrinking, tubing ASNE0484 shall slightly protrude with respect to upper tubing ASNE0718, on the cable side. However, two tubings fitted with ends flush can be accepted.*

### 6.2 Quality control instructions

#### 6.2.1 Before crimping : Make sure that the following steps has been carried out:

- Check cable stripping as per AIPS 07-02-001.
- Check the aluminium cable for absence of oxidation.
- Check that the dies area adapted to the terminal to be crimped.
- Check that the tools used have been subject to periodic checks.

#### 6.2.2 After crimping

Visually check the aspect of the terminal.

#### 6.2.3 After insulating

Check that the insulating sleeves do not protude on the terminal lug.

## 7 Health and safety

This specification does not necessarily detail all the precautions necessary to meet the requirements of health and safety.

It is the responsibility of the user of this specification to consult and establish appropriate health and safety precautions and the method should be operated only by trained personnel.