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TITLE

## FLASH HW Components Use & Maintenance Manual

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 2 of 26

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## REVISION HISTORY

ISSUE	CHANGE DESCRIPTION	ISSUE DATE
<b>A</b>  No. Pages 23	First Issue	20/01/2022
<b>B</b>  No. Pages 23	Updated Template  In §5.3.3 the National Instrument CD (501497x-xx) is removed from delivered media List	16/01/2023
<b>C</b>  No. Pages 26	<i>New document template</i> §2 – Added P/N for FLASH family and AW101 NAW SARH §5.1 – Added sub-paragraph 5.1.1 for FLASH Family and §5.1.2 for FLASH AW101; updated Fig.1 Added §5.5.1 as “FLASH Family” and previous §5.5.1 to 5.5.4 demoted Added §5.5.2 as “FLASH AW101” and all their sub-paragraphs §5.5.1.1 – Tab 6 updated	AT AUTHORIZATION DATE

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 3 of 26

<i>Export Classification</i>
------------------------------

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# FLASH HW Components Use & Maintenance Manual

<i>Export Classification</i>
<b>UNCLASSIFIED</b>

## TABLES OF CONTENTS

<b>1</b>	<b>SCOPE</b>	<b>6</b>
<b>2</b>	<b>APPLICABILITY</b>	<b>7</b>
<b>3</b>	<b>REFERENCED DOCUMENTS</b>	<b>8</b>
3.1	Contract Documents	8
3.2	Applicable Documents	8
3.3	Other Documents and Standards	8
<b>4</b>	<b>ACRONYMS AND DEFINITIONS</b>	<b>9</b>
4.1	Acronyms	9
4.2	Definitions	9
<b>5</b>	<b>DESCRIPTION</b>	<b>10</b>
5.1	<b>TOP ASSEMBLY DRAWINGS</b>	<b>10</b>
5.1.1	FLASH Family	10
5.1.2	FLASH AW101	11
5.2	IDENTIFICATION	12
5.3	OVERALL DIMENSION	13
5.4	WEIGHT	13
5.5	<b>MAIN PARTS</b>	<b>14</b>
5.5.1	<b>FLASH Family</b>	<b>15</b>
5.5.1.1	<i>Harnesses</i>	15
5.5.1.2	<i>Hardware Tools</i>	15
5.5.1.3	<i>Software Media</i>	16
5.5.1.4	<i>Transportation Tool</i>	17
5.5.2	<b>FLASH AW101</b>	<b>19</b>
5.5.2.1	<i>Harnesses</i>	19
5.5.2.2	<i>Hardware Tools</i>	19
5.5.2.3	<i>Software Media (Facultative)</i>	19
5.5.2.4	<i>Transportation Tool</i>	20
5.6	<b>MAIN FEATURE DESCRIPTION</b>	<b>21</b>
<b>6</b>	<b>SAFETY NOTES</b>	<b>22</b>
6.1	Warnings and Recommended Behavior	22
6.2	Residual Hazards	22
<b>7</b>	<b>STORAGE</b>	<b>23</b>
7.1	LUBRIFICATION BEFORE STORAGE	23
7.2	STORAGE CONFIGURATION	23
<b>8</b>	<b>MAINTENANCE</b>	<b>24</b>
8.1	<b>CLEANING</b>	<b>24</b>
8.1.1	<b>SPECIAL TOOLS, FIXTURE AND EQUIPMENT</b>	<b>24</b>
8.1.2	<b>PART REQUIREMENTS</b>	<b>24</b>
8.1.3	<b>MANUAL CLEANING</b>	<b>24</b>
8.2	<b>CHECKS</b>	<b>25</b>
8.2.1	<b>SPECIAL TOOLS, FIXTURE AND EQUIPMENT</b>	<b>25</b>
8.2.2	<b>VISUAL EXAMINATION</b>	<b>25</b>
8.3	<b>REPLACEMENT</b>	<b>26</b>
<b>9</b>	<b>CALIBRATION</b>	<b>26</b>
<b>10</b>	<b>SPARE PARTS</b>	<b>26</b>
<b>11</b>	<b>CE MARKING</b>	<b>26</b>



# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 5 of 26

<i>Export Classification</i>
<b>UNCLASSIFIED</b>

## LIST OF FIGURES

Figure 1 – FLASH Product Tree .....	10
Figure 2 – FLASH identification tag Allocation .....	12
Figure 3 – FLASH identification tag Prototype .....	12
Figure 4 – FLASH Hardware Kit .....	14
Figure 5 – FLASH Tool CD .....	16
Figure 6 – FLASH Tool kit case .....	17
Figure 7 – FLASH Tool kit Case – PANEL 01 and PANEL 02 .....	18

## LIST OF TABLES

Table 1 – FLASH P/N Applicability .....	7
Table 2 – Applicable documents.....	8
Table 3 – Acronyms.....	9
Table 4 – Case dimensions .....	13
Table 5 – Case Weight and Floatability .....	13
Table 6 – Harnesses Cables .....	15
Table 7 – HW Tools.....	15
Table 8 – Case materials.....	17
Table 9 – Thermal capability.....	17

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 6 of 26

<i>Export Classification</i>
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---------------------

## 1 SCOPE

This document provides all information regarding the hardware components that are used for a correct operation of FLASH SW Tool

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 7 of 26

**Export Classification**

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## 2 APPLICABILITY

Table 1 is reporting the current handled applicable FLASH assy P/N.

	<b>FLASH ASSY P/N</b>
FAMILY FLEET (AW169/AW189/AW609)	TA00AWHL-FLASH-ACB TA00AWHL-FLASH-BAA
AW101 FLEET	TA01NSRH-FLASH-AAA

Table 1 – FLASH P/N Applicability

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 8 of 26

**Export Classification**

**UNCLASSIFIED**

## 3 REFERENCED DOCUMENTS

### 3.1 CONTRACT DOCUMENTS

N/A

### 3.2 APPLICABLE DOCUMENTS

Applicable documents are reported in the table below:

Ref.	Title	Number	Issue
[1]	FLASH Software Manual	THSS-MULG0205M004	E
[2]	AW101 NAWSARH FLASH Handbook	THSS-EA02M0010A	02

Table 2 – Applicable documents

### 3.3 OTHER DOCUMENTS AND STANDARDS

N/A

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# FLASH HW Components Use & Maintenance Manual

## 4 ACRONYMS AND DEFINITIONS

### 4.1 ACRONYMS

All the acronyms used in this document are reported in the following table:

<b>AFDX</b>	Avionics Full Duplex Switched Ethernet
<b>AMMC</b>	Aircraft & Mission Management Computer
<b>AW</b>	AgustaWestland
<b>CAN</b>	Control Area Network
<b>DMG</b>	Digital Map Generator
<b>FLASH</b>	Field Loadable Avionic Software for Helicopter
<b>H/C</b>	HeliCopter
<b>HW</b>	Hardware
<b>ICS</b>	Internal Communication System
<b>IOM</b>	Input Output Module
<b>LH</b>	Leonardo Helicopter
<b>LRU</b>	Line Replaceable Unit
<b>MFD</b>	Multi Function Display
<b>N/A</b>	Not Applicable
<b>PM</b>	Personality Module
<b>P/N</b>	Part Number
<b>REF</b>	Reference
<b>REPU</b>	Remote Electrical Power Unit
<b>SW</b>	Software
<b>THSS</b>	Training & Helicopter Support Systems
<b>USB</b>	Universal Serial Bus
<b>VDAM</b>	Vibration Data Acquisition Module

Table 3 – Acronyms

### 4.2 DEFINITIONS

N/A



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## 5 DESCRIPTION

The FLASH is a portable system constituted by a SW kit and a HW kit whose purpose is to optimize the actual process of SW management (update mainly) for several avionic LRUs.

### 5.1 TOP ASSEMBLY DRAWINGS

#### 5.1.1 FLASH Family

In the following figure is showed the product tree of P/N TA00AWHL-FLASH-BAA.

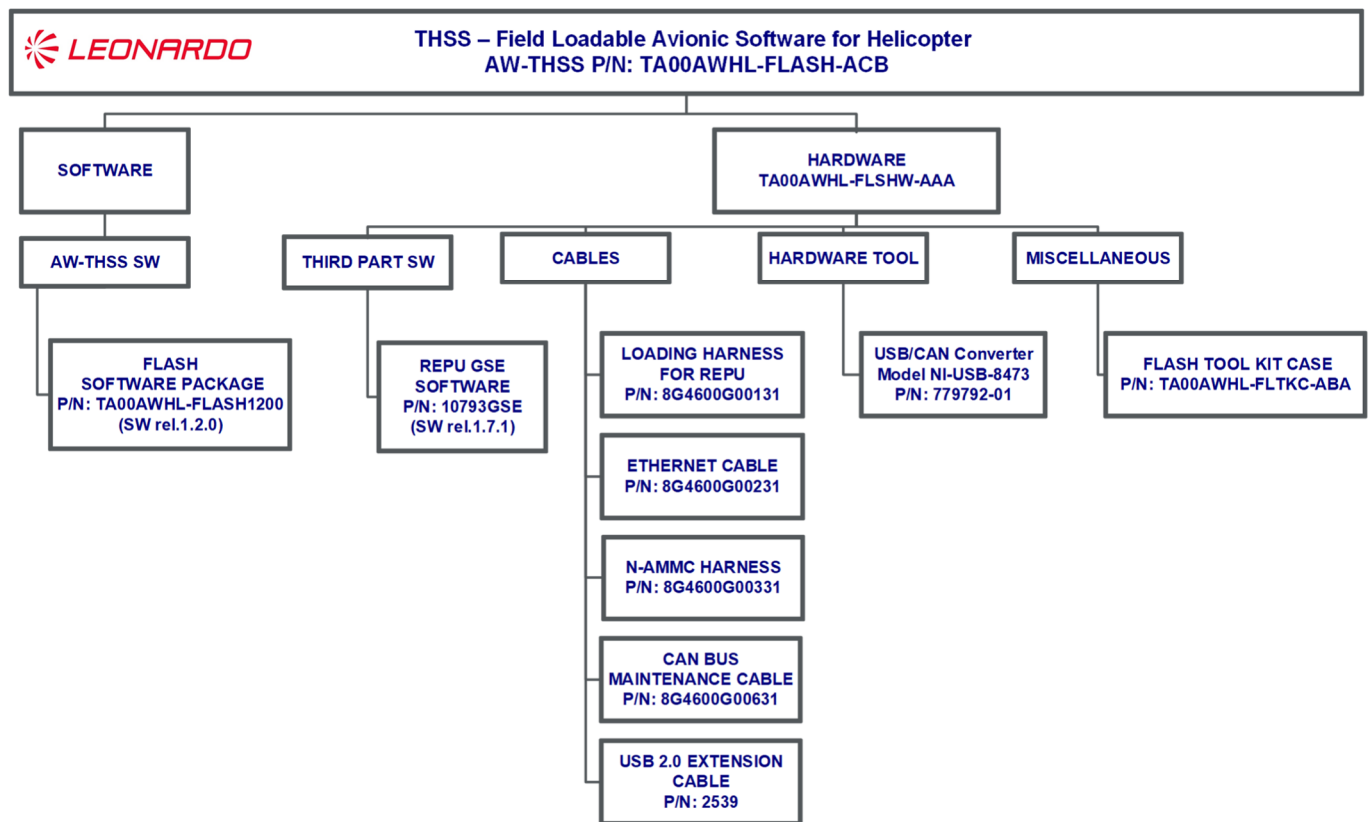


Figure 1 – FLASH Product Tree for Family



# FLASH HW Components Use & Maintenance Manual

## 5.1.2 FLASH AW101

In the following figure is showed the product tree of P/N TA01NSRH-FLASH-AAA

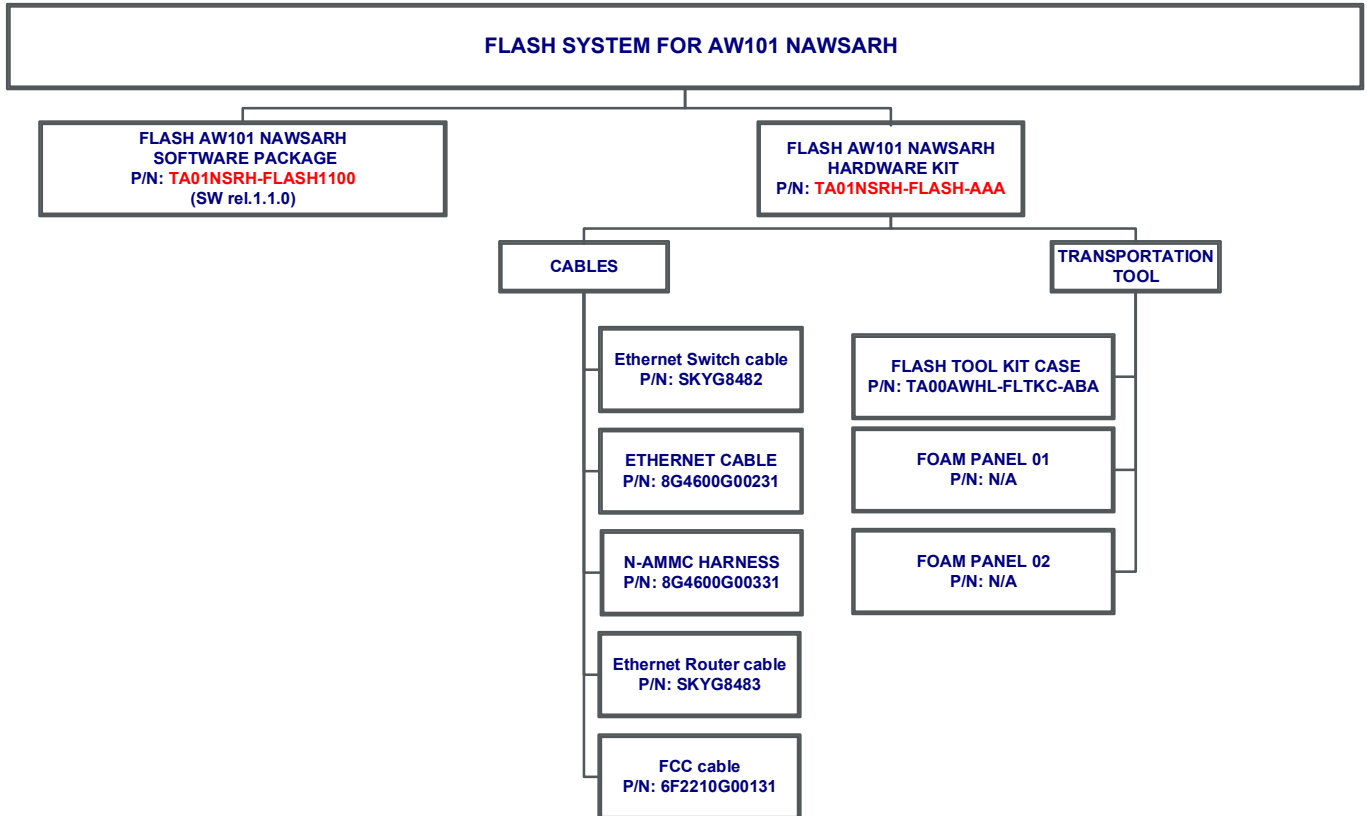


Figure 2 – FLASH Product Tree for AW101



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## 5.2 IDENTIFICATION

The current tool identification P/N is TA00AWHL-FLASH-ACB.  
 The last three letters of the P/N will change in accordance with future releases;  
 the old handled releases are showed in Table 1 – FLASH P/N Applicability.

The tool identification is marked on the identification tag. The identification tag is fixed with adhesive on the external upper side of the transportation tool as showed in the following figure.

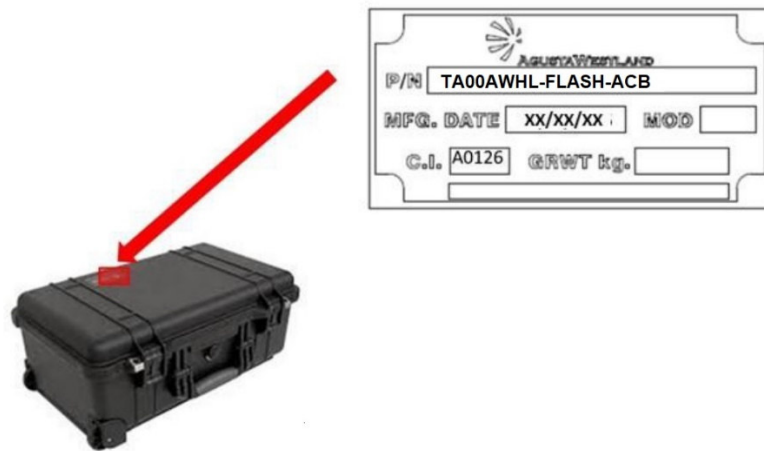


Figure 3 – FLASH identification tag Allocation

The identification tag prototype is showed in the following picture



Figure 4 – FLASH identification tag Prototype

The identification tag shall report the FLASH Assy P/N, the production date and the field C.I. that for LH is A0126.



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## 5.3 OVERALL DIMENSION

See the following table

<b>EXTERNAL (L x W X D)</b>	55.9 x 35.1 x 22.9 cm
<b>INTERIOR (L x W X D)</b>	50.1 x 27.9 x 19.3 cm
<b>DEPTH COVER</b>	4.5 cm
<b>DEPTH CASE</b>	14.7 cm

Table 4 – Case dimensions

## 5.4 WEIGHT

See the following table

<b>CASE</b>	9.0 Kg
<b>MAX FLOATABILITY</b>	29.0 Kg

Table 5 – Case Weight and Floatability



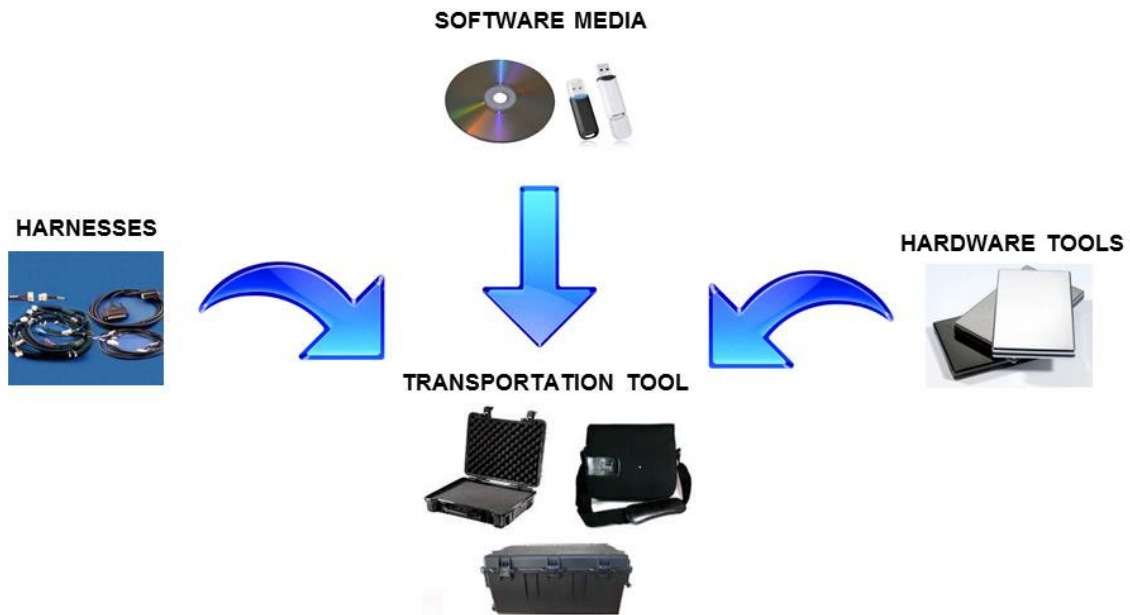
# FLASH HW Components Use & Maintenance Manual

## 5.5 MAIN PARTS

FLASH Hardware kit is constituted by following items:

- Cable Harnesses
- Hardware Tools
- Software media
- Transportation tool

Figure 5 – FLASH Hardware Kit





# FLASH HW Components Use & Maintenance Manual

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## 5.5.1 FLASH Family

### 5.5.1.1 Harnesses

Cable Harnesses included in FLASH HW kit are listed in the following table:

LRU	Cable Harness P/N	Cable Harness Description
ARINC 615A LRU	Switch	Ethernet cable
	AMMC	
	MFD	
	EDCU	
VDAM AMMC	8G4600G00331	N-AMMC Harness
DMG AMMC		
BACKLIGHT DIMMER	8G4600G00631	CAN BUS Maintenance Cable
REPU	8G4600G00131	Loading Harness for REPU
Mass Memory AMMC	TA00AWHL-FLEXC-BAA	USB 2.0 Extension Cable

Table 6 – Harnesses Cables

**NOTE:** The cable necessary to interface the AMU ICS with the host PC (USB CABLE MALE-MALE) shall be procured by the user in loco (local supply).

**NOTE:** The cable necessary to interface the IOM with the host PC (P/N 8G4600G00431, “IOM & PM MAINTENANCE cable”) shall be procured by the user as loose part (the cable is not included in the FLASH kit)

**NOTE:** The cable necessary to interface the FCC with the host PC (P/N 6F2210G00131, “AW169 AFCS Cable”) shall be procured by the user as loose part (the cable is not included in the FLASH kit)

### 5.5.1.2 Hardware Tools

Hardware Tools necessary to interact with LRUs by using FLASH SW are listed in the following table:

LRU	HW Tool P/N	HW Tool Description
BACKLIGHT DIMMER	784661-01	USB/CAN Converter Model USB-8502 1 Port

Table 7 – HW Tools

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 16 of 26

**Export Classification**

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## 5.5.1.3 Software Media

FLASH HW Kit is containing following Media:

- AMETEK CD containing SW tool xfor REPU (P/N 10793GSE)

Note 1: CD containing FLASH SW tool is now delivered via web

Note 2: (NATIONAL INSTRUMENTS) CD containing drivers for CAN/BUS converter isn't yet delivered in this kit:

Prior to installing your device, it's necessary to download the latest driver from ni.com. Go to [ni.com/r/downloadnext](http://ni.com/r/downloadnext) to download the latest version of the NI-XNET driver. If you need physical media, contact [orders@ni.com](mailto:orders@ni.com)



Figure 6 – FLASH Tool CD

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## 5.5.1.4 Transportation Tool

Harnesses (see §5.5.1.1), Hardware Tools (see §5.5.1.2) and Software media (see §5.5.1.3) are stored in a dedicated case. The case is identified as follow:

- P/N : TA00AWHL-FLTKC-ABA.
- Description : FLASH TOOL KIT CASE



Figure 7 – FLASH Tool kit case

The case is certificated as per Def Stan 81-41/S TANAG 4280 and with a Protection Index of IP67 which means:

- protection against contact
- protection from dust infiltration
- protection against full immersion (1-meter submersion for 30 minutes)

Main physical features of the case are reported in the tables below

### **MATERIALS**

<b>BODY</b>	Polypropylene
<b>CLOSURE</b>	ABS
<b>O-RING COVER</b>	Polymer Stainless Steel

Table 8 – Case materials

### **THERMAL CAPABILITY**

<b>MAX TEMPERATURE</b>	99° C
<b>MIN TEMPERATURE</b>	-40° C

Table 9 – Thermal capability



# FLASH HW Components Use & Maintenance Manual

<b>Export Classification</b>
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The case is handleable and hasn't got any wheels.

Internally the case is provided with two foam panels (PANEL 01 and PANEL 02) where FLASH items are allocated

PANEL 01			PANEL 02		
ITEM	P/N	DESCRIPTION	ITEM	P/N	DESCRIPTION
1	784661-01	USB/CAN CONVERTER MODEL AND DRIVERS DOWNLOAD REFERENCES	7	8G4600G00131	LOADING HARNESS FOR REPU
3	10793GSE	REPU GSE SOFTWARE (1 CD)	8	8G4600G00331	N-AMMC HARNESS
5	TA00AWHL-FLEXC-BAA	USB 2.0 EXTENSION CABLE	9	8G4600G00631	CAN BUS MAINTENANCE CABLE
6	8G4600G00231	ETHERNET CABLE			

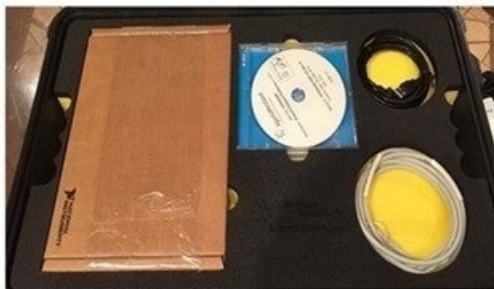
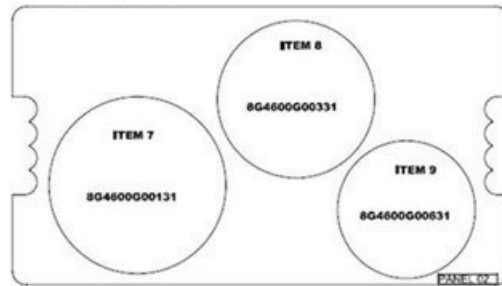
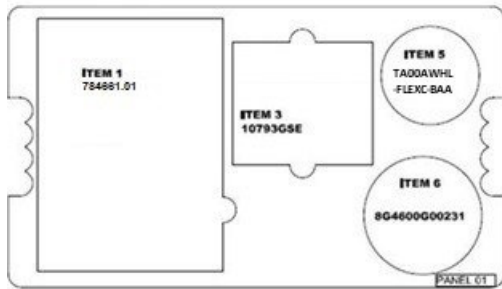


Figure 8 – FLASH Tool kit Case Family – PANEL 01 and PANEL 02



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<b>Export Classification</b>
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## 5.5.2 FLASH AW101

### 5.5.2.1 Harnesses

Cable Harnesses included in FLASH HW kit are listed in the following table:

LRU		Cable Harness P/N	Cable Harness Description
ARINC 615A LRU	Switch	8G4600G00231	Ethernet cable
	AMMC		
	MFD		
FTP LRU	DTD		
VDAM AMMC		8G4600G00331	N-AMMC Harness
DMG AMMC			
FCC		6F2210G00131	FCC Cable
ETHERNET SWITCH		SKYG8482	Ethernet Switch Cable
ETHERNET ROUTER		SKYG8483	Ethernet Router Cable

Table 10 – Harnesses Cables

### 5.5.2.2 Hardware Tools

N/A

### 5.5.2.3 Software Media (Facultative)

FLASH HW Kit is containing following Media:

- FLASH SW PACKAGE (P/N TA01NSRH-FLASH1100)

Note 1: FLASH SW tool is delivered via web



# FLASH HW Components Use & Maintenance Manual

<b>Export Classification</b>
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## 5.5.2.4 Transportation Tool

Harnesses (see §5.5.2.1), Hardware Tools (see §5.5.2.2) and Software media(see §5.5.2.3) are stored in a dedicated case. The case is identified as follow:

- P/N : TA00AWHL-FLTKC-ABA.
- Description : FLASH TOOL KIT CASE



Figure 9 – FLASH Tool kit case

The case is certificated as per Def Stan 81-41/S TANAG 4280 and with a Protection Index of IP67 which means:

- protection against contact
- protection from dust infiltration
- protection against full immersion (1-meter submersion for 30 minutes)

Main physical features of the case are reported in the tables below

### **MATERIALS**

<b>BODY</b>	Polypropylene
<b>CLOSURE</b>	ABS
<b>O-RING COVER</b>	Polymer Stainless Steel

Table 11 – Case materials

### **THERMAL CAPABILITY**

<b>MAX TEMPERATURE</b>	99° C
<b>MIN TEMPERATURE</b>	-40° C

Table 12 – Thermal capability



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<b>Export Classification</b>
<b>UNCLASSIFIED</b>

The case is handleable and hasn't got any wheels.

Internally the case is provided with two foam panels (PANEL 01 and PANEL 02) where FLASH items are allocated

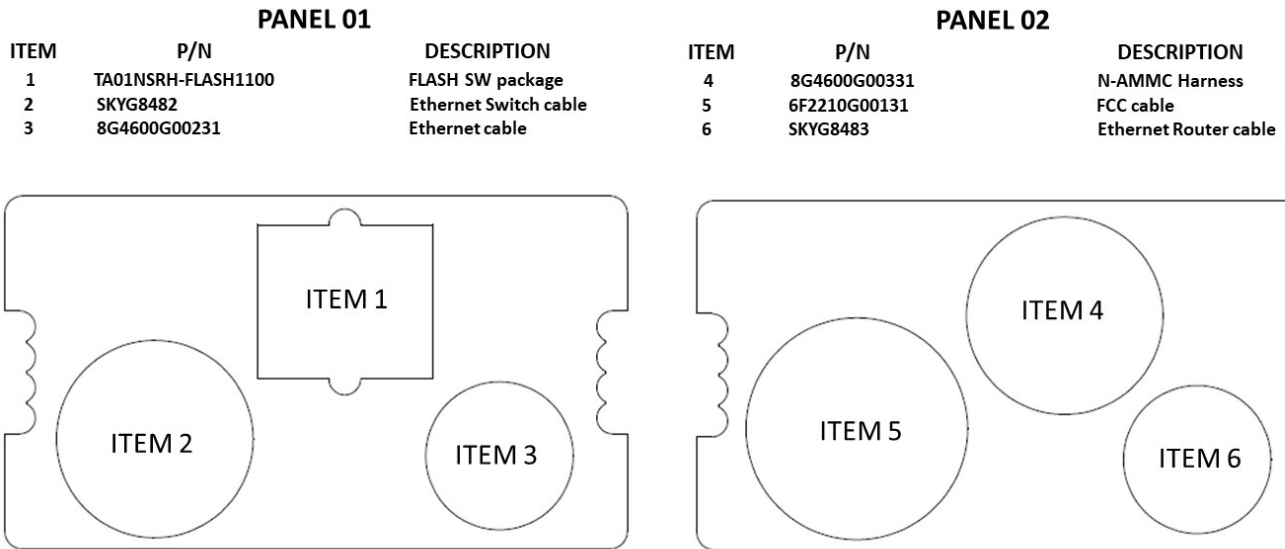


Figure 10 – FLASH Tool kit Case AW101 – PANEL 01 and PANEL 02

## 5.6 MAIN FEATURE DESCRIPTION

The FLASH is used for SW management (update mainly) of several avionic LRUs.



# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 22 of 26

<i>Export Classification</i>
------------------------------

<b>UNCLASSIFIED</b>
---------------------

## 6 SAFETY NOTES

This section describes general rules to prevent risks of injuring or damaging the system during operation.

### 6.1 WARNINGS AND RECOMMENDED BEHAVIOR

**WARNING:** Never perform operations that differ from what has been specified in this manual.

**WARNING:** A use of the system in a way non-compliant to the manufacturer's instructions may seriously impair the correct operation of the safety devices installed.

**WARNING:** Introducing hands and/or other objects into the system may damage the system and cause serious injuries.

**WARNING:** Never lean on the protective frames of the system during its operation.

**WARNING:** Do not put fluids into the system.

**WARNING:** If the system needs to be moved from the installation site, make sure that this operation is carried out by qualified personnel.

**CAUTION:** Only introduce the LRU to be programmed during the downloading cycle.

### 6.2 RESIDUAL HAZARDS

To protect the users and the system from residual hazards, that is from unpredictable risks or from hazards that cannot be completely eliminated, we recommend users to strictly follow the warnings listed in paragraph "**Warnings and recommended behavior**" and to follow the instructions given here below:

- Avoid wearing loose clothing or apparel with parts (hems, sleeves) which could get tangled or clamped into the system during operation
- Avoid wearing ties or scarves
- Avoid wearing long necklaces, bracelets or rings
- If necessary, wear a cap to keep long hair out of the way

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 23 of 26

<i>Export Classification</i>
------------------------------

<b>UNCLASSIFIED</b>
---------------------

## 7 STORAGE

The Tool shall be properly stored into a cool and dry place to provide protection from external weather conditions, damage and dirty particles.

The cable Kit shall be stored in the transportation box as described in Figure 8.

Ensure that the tool parts are clean before storage.

### 7.1 LUBRIFICATION BEFORE STORAGE

N/A

### 7.2 STORAGE CONFIGURATION

NOTE: Insert the caps on the MIL connectors.

NOTE: The cables shall be put in their corresponding slot as described in Figure 8.

Apart from that, the tool has no particular storage configuration.

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 24 of 26

<i>Export Classification</i>
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## 8 MAINTENANCE

Correct and regular material checks is necessary to prevent most faults; this safeguards the tool performance in time, thereby making it last longer.

### 8.1 CLEANING

No particular cleaning is required.

#### 8.1.1 SPECIAL TOOLS, FIXTURE AND EQUIPMENT

N/A

#### 8.1.2 PART REQUIREMENTS

N/A

#### 8.1.3 MANUAL CLEANING

N/A

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SL&SS Report Format - Rev. 19 Jan. 2024

Company Internal





# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 25 of 26

<i>Export Classification</i>
------------------------------

<b>UNCLASSIFIED</b>
---------------------

## 8.2 CHECKS

Before each use carry out the check of kit component.  
Verify that MIL connectors have their corresponding caps.

### 8.2.1 SPECIAL TOOLS, FIXTURE AND EQUIPMENT

N/A

### 8.2.2 VISUAL EXAMINATION

NOTE: The task must be performed by operators, with intermediate skill levels.

- A. Examine the connectors for damage to the pins and to the shell.
- B. Examine the cables for damage to the insulation sleeves and wires.
- C. Examine all parts for any of the visible damage that follows:
  - Evidence of impact;
  - Crushing or stripping
  - Cracks;
  - Dents;
  - Wear;
  - Distortions;
  - Corrosion;
  - Loose or defective attaching parts (warning flag).
  - Unsticking of parts

#### D. Marking

Visually examine the marking.

Make sure that external surface and adhesion is in good condition. If the marking is damaged or not readable, proceed to restore it.

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# FLASH HW Components Use & Maintenance Manual

THSS-MULG0205M013

Iss. C

Page 26 of 26

<b>Export Classification</b>
------------------------------

<b>UNCLASSIFIED</b>
---------------------

## 8.3 REPLACEMENT

N/A

## 9 CALIBRATION

The calibration is not applicable.

## 10 SPARE PARTS

N/A

## 11 CE MARKING

No CE marking is required.

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