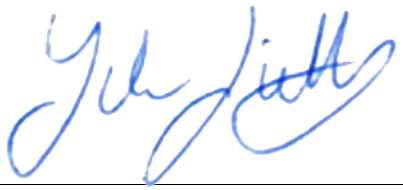
Aircraft Maintenance Manual Supplement

navAero Tablet EFB System installation on A320

Approval

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.669

	Name / Function	Date	Signature
Prepared	Johan Lindberg Design Engineer	09 Nov 2021	
Check/ Approved	Nicholas Martin Compliance Verification Engineer	09 Nov 2021	
Released	Nicholas Martin Head of Office of Airworthiness	09 Nov 2021	

Revision Record

Retain this record in front of the manual. Upon receipt of a revision, insert the revised pages in the manual; enter the revision number, date filed and initial.

Revision Number	Revision Date	Date Filed	By
A	09 Nov 2021		

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1 Introduction

General

This publication is a supplement to the airplane Maintenance Manual and pertains to the installation of the navAero Tablet EFB system containing Window Mounts, Tablet Holders (or Pivot Top), power supply for EFBs and Aircraft Interface Device, UAID. Operators are obligated to include this maintenance manual supplement information in their existing maintenance program.

Contents

This publication consists of a front matter, introduction (this section), description and operation, fault isolation, removal/installation, adjustment/test and inspection/check of the new system.

Effectivity

Aircraft modified in accordance with this navAero Avionics DOA project number 1320.

Revisions

Definition of terms used in Incorporation date Column:

a. NO EFFECT (NO EFF) – No change to the manual was necessary for that revision.

b. INCORP – The change to the manual was incorporated previously and no additional changes are required.

2 Description and Operation

2.1 Description of provisions

A. The purpose of the navAero Tablet EFB installation is to provide permanent mounting of a portable Tablet EFB. The system can also be configured for power provisions to charge the EFB Tablet as well as a UAID for connectivity to aircraft avionic systems for providing information to the pilots. Applicable installation kit part numbers are shown in Table 1.

Table 1: Tablet EFB Installation kit part numbers

Kit Configuration	MDL Conf. 1 Mount	MDL Conf. 2 Power Mount	MDL Conf. 2 Power Mount w/o crosslink	MDL Conf. 3 Power Mount UAID	MDL Conf. 3 Power Mount UAIDv2 w. modem	MDL Conf. 3 Power Mount UAIDv2 w/o modem
Surface Pro Tablet	18-A320-10-01-00	18-A320-20-01-00	18-A320-21-01-00	18-A320-30-01-00	18-A320-31-01-00	18-A320-32-01-00
iPad 9.7”/10.2” Tablet	18-A320-10-02-00	18-A320-20-02-00	18-A320-21-02-00	18-A320-30-02-00	18-A320-31-02-00	18-A320-32-02-00
iPad Pro 11”/12.9” Tablet	18-A320-10-03-00	18-A320-20-03-00	18-A320-21-03-00	18-A320-30-03-00	18-A320-31-03-00	18-A320-32-03-00
iPad Pro 10.5” Tablet	18-A320-10-04-00	18-A320-20-04-00	18-A320-21-04-00	18-A320-30-04-00	18-A320-31-04-00	18-A320-32-04-00
Panasonic Toughpad Tablet	18-A320-10-05-00	18-A320-20-05-00	18-A320-21-05-00	18-A320-30-05-00	18-A320-31-05-00	18-A320-32-05-00
Pivot Case	18-A320-10-06-00	18-A320-20-06-00	18-A320-21-06-00	18-A320-30-06-00	18-A320-31-06-00	18-A320-32-06-00

Each navAero Tablet EFB installation is made up of the following main parts and provisions as called out in Table 2:

Table 2: Components and Provisions

Applicable MDL Configuration	Components and Provisions
3	One (1) UAID Assembly
2-3	Two (2) 3 Amp Circuit Breakers
3	One (1) 3 Amp Circuit Breaker
2-3	Two (2) Interface Unit Assemblies
1-3	Two (2) Window Mount Assemblies
2-3	One (1) Power Harness Kit
3	One (1) UAID Harness Kit

B. ***Applicable to Configuration: 3***
The UAID is installed in the Avionics Bay 80VU and is connected to Flight Management and Guidance System (FMGC), Centralized Fault Display Interface Unit (CFDIU), Air Data Inertial Reference Unit (ADIRU), and to Arinc 717 bus coming from Flight Data Interface Unit (FDIU/FDIMU) system. Connection to mentioned systems allows Applications in the EFBs to access data parameters coming from the aircraft. The UAID power is secured by a C/B in the 122VU panel.

C. ***Applicable to Configurations: 2-3***
The power to the UAID and Tablet EFB's is supplied by 28VDC and protected against short circuit by a 3A Circuit Breakers as called out in Table 3.

Table 3: Circuit Breakers Location and Identification

ITEM	LOCATION	IDENTIFICATION	
3EFB	122VU	EFB LEFT	
4EFB	122VU	EFB RIGHT	
8EFB	122VU	UAID	Conf. 3 Only

D. ***Applicable to Configurations: 2-3***
The Interface panels are installed into side consoles' pockets. The Interface Panels are equipped with a Power Switch to turn power to the EFBs ON/OFF and Ethernet connectivity to the Portable Electronic Devices (PEDs) mounted on the window frames.

E. ***Applicable to Configurations: 1-3***
There is one window mount assembly for each side. LH and RH installations are similar but mirrored. Refer to Figure 3, 4, 4a, and 4b.

F. ***Applicable to Configurations: 2-3***
The Power Harness Kit is used to feed power to the Interface Unit Assemblies and PEDs and also the UAID for configuration 3. Refer to Figure 1.

G. ***Applicable to Configurations: 3***
The UAID Harness Kit connect the UAID to cockpit EFB's. There are discrete connections to the UAID for Weight on Wheels, Oil Low Pressure ENG 1 and Oil Low Pressure ENG 1 for EFB application control and information purposes. e. g. 3G/4G connectivity.
The ARINC wire harness connects the UAID to ARINC 429 channels and one ARINC 717 channel. The ARINC labels can be used for software applications running on the PEDs.

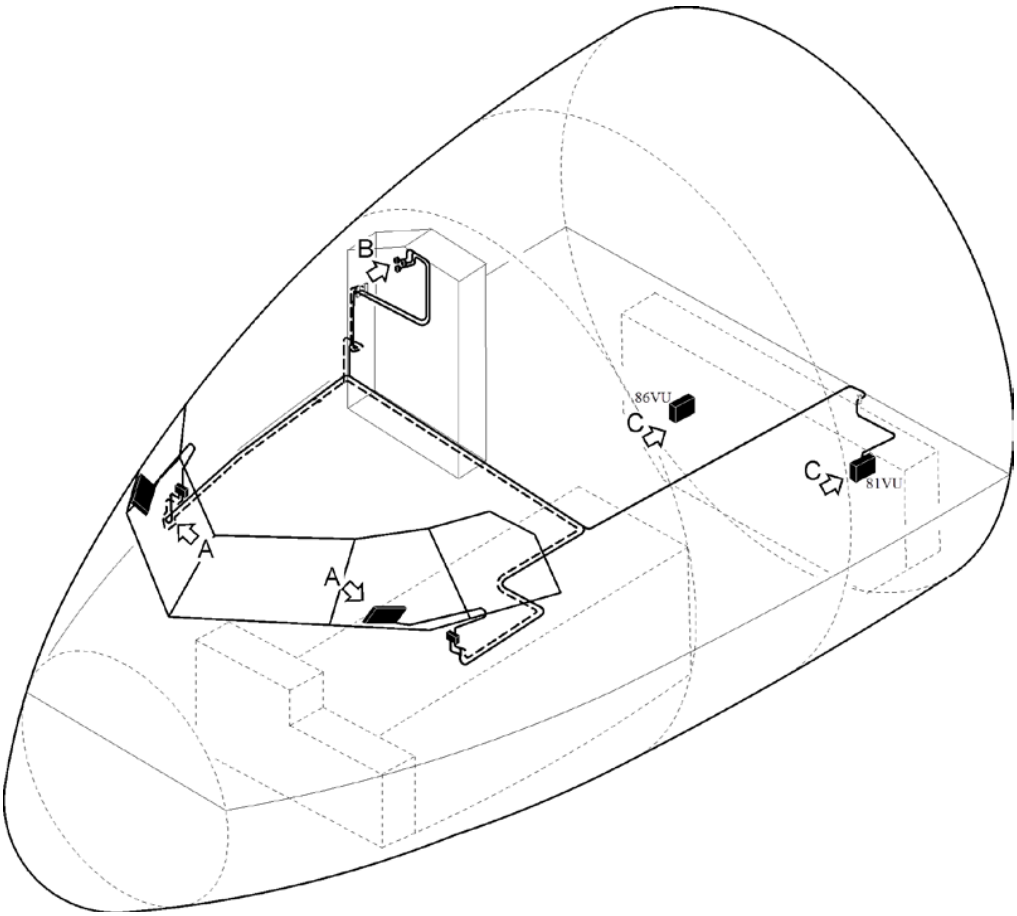

Figure 1.Tablet EFB System Overview

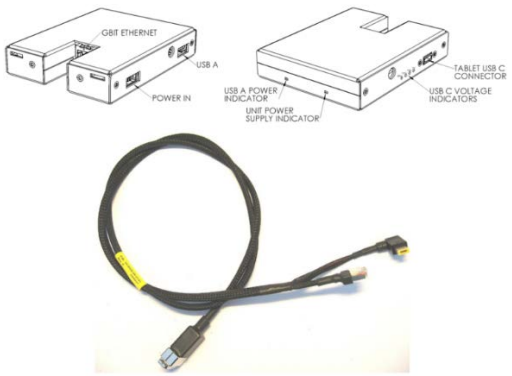

Figure 2. PED EFB System Overview

2.2 Operation

Refer to the Tablet manufacturer's instructions for the portable Tablet EFB operation as these are considered Portable Electronic Devices (PEDs).

Below instructions indicate which MDL Configuration they apply to.

Applicable MDL Configuration	
3	<u>UAID Assembly (Ref. Fig.8)</u> The UAID assembly mounted in the Avionics Bay 80VU does not have any operational controls. Computer communication with the UAID via Ethernet can be used for maintenance purposes.
2-3	<u>Circuit Breakers (Ref. Fig.7)</u> Each of the two EFBs are protected by separate circuit breakers in the Circuit Breaker panels 122VU. These circuit breakers control the 28VDC power to the units.
3	<u>Circuit Breaker (Ref. Fig.7)</u> The UAID is protected by a circuit breaker in the Circuit Breaker panel 122VU. The circuit breaker controls the 28VDC power to the unit.
2-3	<u>Interface Panels with Master Switch (Ref. Fig.6)</u> The Interface Panels installed into side consoles' pockets provides power and connectivity to the PEDs. It includes a Master Switch for removing the power to the EFB if required under abnormal conditions. This switch is closed in normal conditions. PED connectivity is by a 9-way D-Sub connector secured by a slide lock. PEDs can be disconnected manually by unlatching the slide lock on the mating connector.
1-3	<u>Tablet Holder with Swivel Mount (Ref. Fig. 4, 4a and 4b)</u> The EFB Tablet Holder (or Pivot Top) with Swivel Mount is mounted to the window frame. The position of Tablet Holder can be adjusted manually by changing the swivel mount angle.

3 Removal / Installation

3.1 General

Following section details maintenance instructions for removal and installation of the following components.

Applicable MDL Configuration	Section	Description
1-3	3.2	Tablet Holder (or Pivot Top) and Swivel Mount
1-3	3.3	Pivot Case (if installed)
2-3	3.4	EFB Interface Panel
2-3	3.5	Circuit Breakers
3	3.6	UAID Unit and Mounting Bracket

3.2 Tablet Holder (or Pivot Top) and Swivel Mount (Task 46-20-00-100)

(See Figure 3, 4, 4a and 4b)

A. Removal (Subtask 46-20-00-100-01)

1. Remove and retain the four (4) screws (Item 1) securing the Tablet holder (or Pivot Top) (Item 2) to the Swivel Mount (Item 5). Remove the Tablet Holder (and Insert or PDI Plate (item 3) if installed).
2. Remove and retain the four screws (Item 4) securing the Swivel Mount (Item 5) to the Wedge (Item 7). Remove the Swivel Mount.

B. Installation (Subtask 46-20-00-100-02)

1. Reverse the removal procedure.

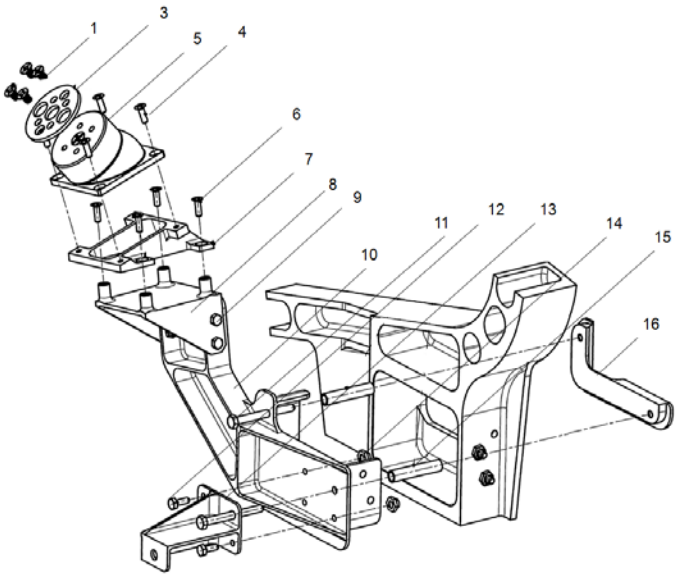

Figure 3. Tablet EFB Mount

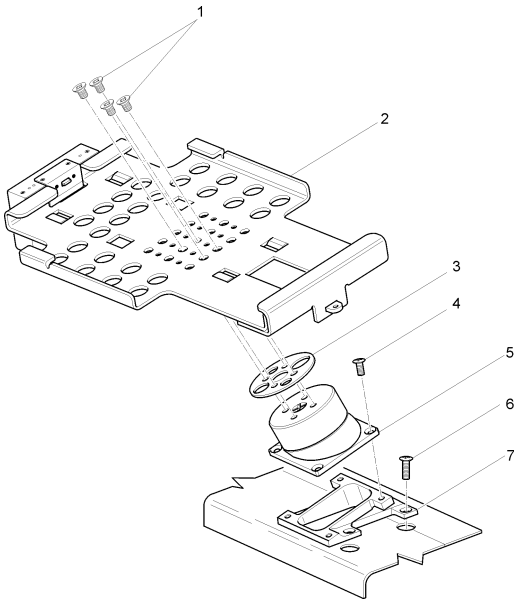

Figure 4. Tablet EFB Mount

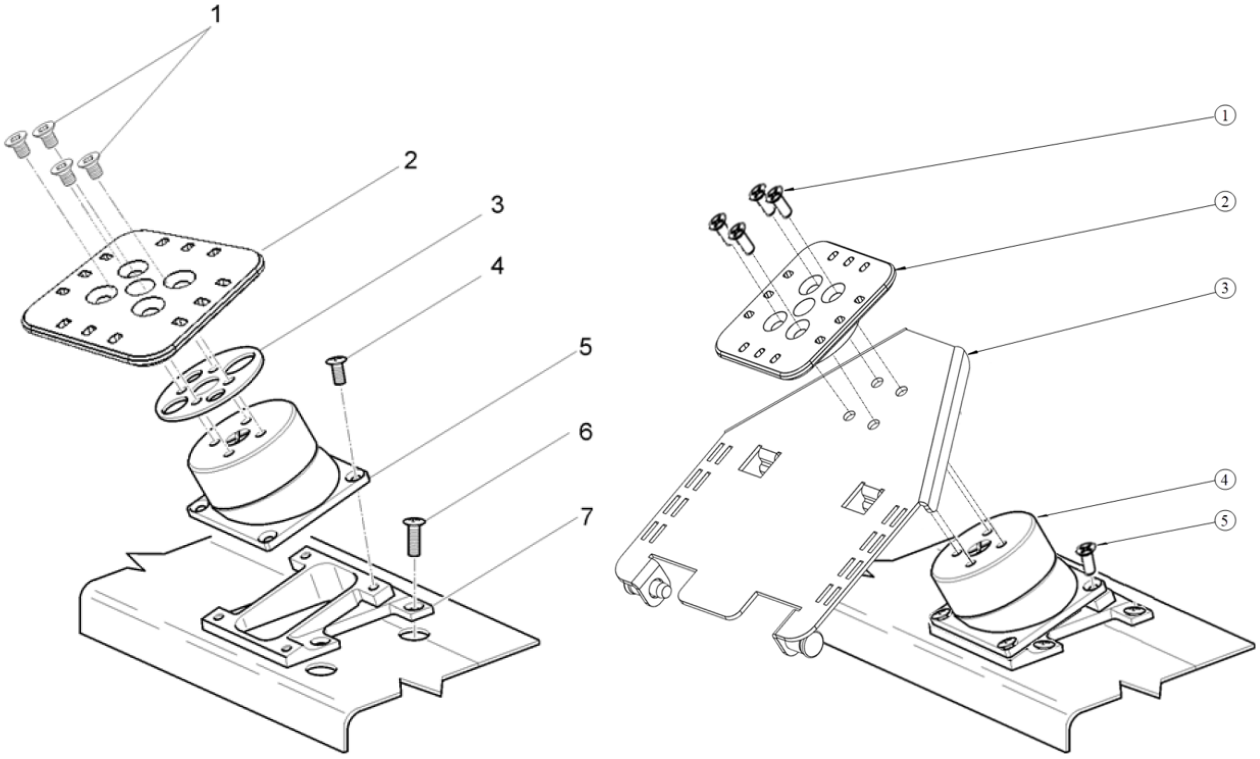

Figure 4a. Pivot EFB Mount and Pivot EFB Mount with PDI Plate

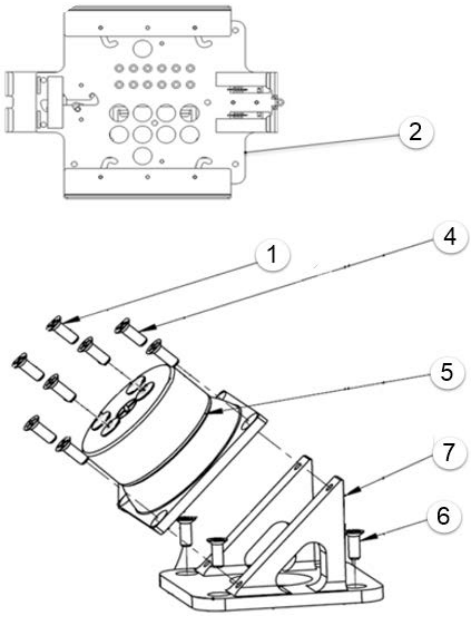

Figure 4b. Tablet EFB Mount With P/N 48-0393-01 Wedge

3.3 Pivot Case (see Figure 5) (Task 46-20-00-105)

C. Removal (Subtask 46-20-00-105-01)

1. Remove and retain the Pivot Case by depressing the PIVOT Clip and reverse the installation process to unmount the case.

D. Installation (Subtask 46-20-00-105-02)

1. Raise the PIVOT case ABOVE the Pivot Top to ensure all corners of the mounting plate are below the widest opening of the mounting channel on the case body.

2. Next, lower the case body onto the Pivot Top. You will feel the Pivot Top being guided into the case's mounting channel.

3. The connection is complete when you hear the audible "CLICK" of the clip and Pivot Top engaging. It is not necessary to depress the clip during install as it is designed to lock onto the Pivot Top when properly inserted.

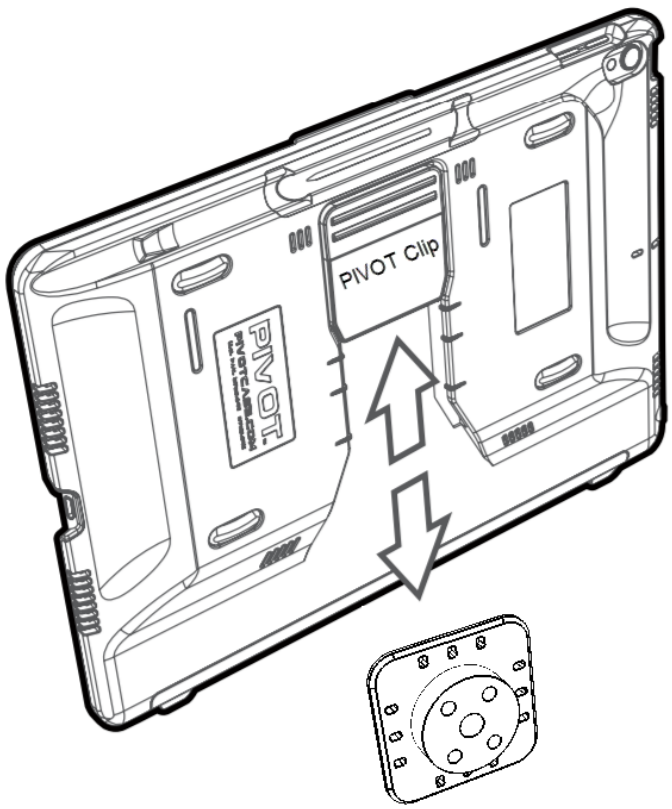

Figure 5: Pivot Case Installation / Removal

3.4 EFB Interface Panel (Task 46-20-00-200)

(See Figure 6)

A. Removal (Subtask 46-20-00-200-01)

1. Ensure that the related Tablet EFB is powered down or removed from the Tablet holder. Open and collar the related circuit breaker EFB LEFT/EFB RIGHT on the 122VU circuit breaker panel.
2. Disconnect the tablet cable from the Interface Panel by disengaging the D-Sub connector slide lock. Remove and retain the tablet cable or secure according to Airbus Standard Practices.
3. Remove and retain parts as necessary referring to IPC Supplement for the applicable MDL configuration 1320-IPCS-A320-XX.

B. Installation (Subtask 46-20-00-200-02)

1. Reverse the removal procedure.

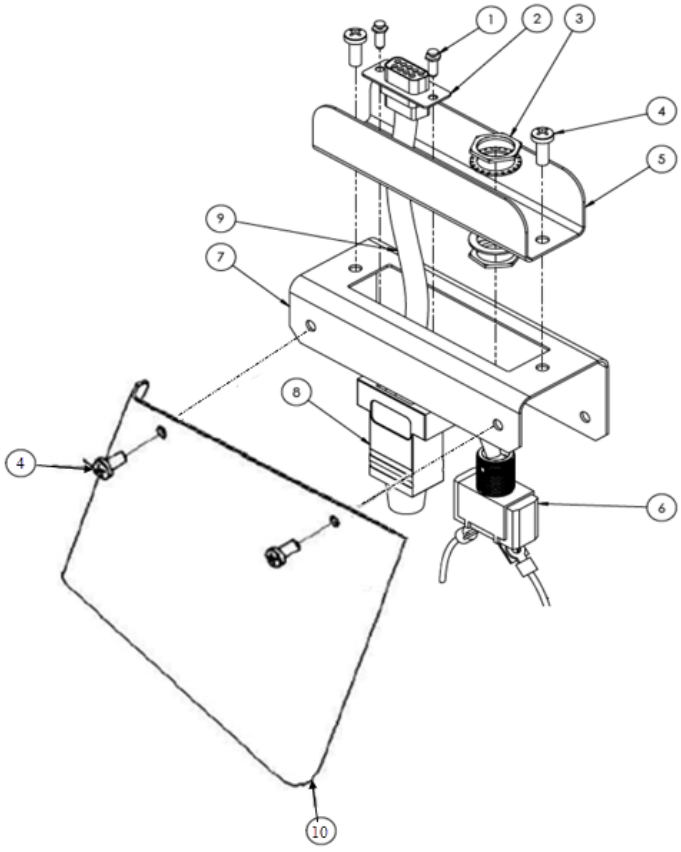

Figure 6. EFB Interface Panel (exploded view)

3.5 Circuit Breakers (Task 46-20-00-300)

(See Figure 7)

A. Removal (Subtask 46-20-00-300-01)

1. Remove power from the aircraft.
2. Remove cockpit back side C/B Panel according to original aircraft maintenance manual.
3. Remove nut (4) with washer (3) attaching circuit breaker (1) to C/B Panel (2).
4. Remove circuit breaker (1) from C/B Panel (2).
5. Remove wires

B. Installation (Subtask 46-20-00-300-02)

1. Reverse the removal procedure. Ref Wiring Diagram for the applicable MDL configuration 1320-WDMS-A320-XX for electrical connection of C/Bs.

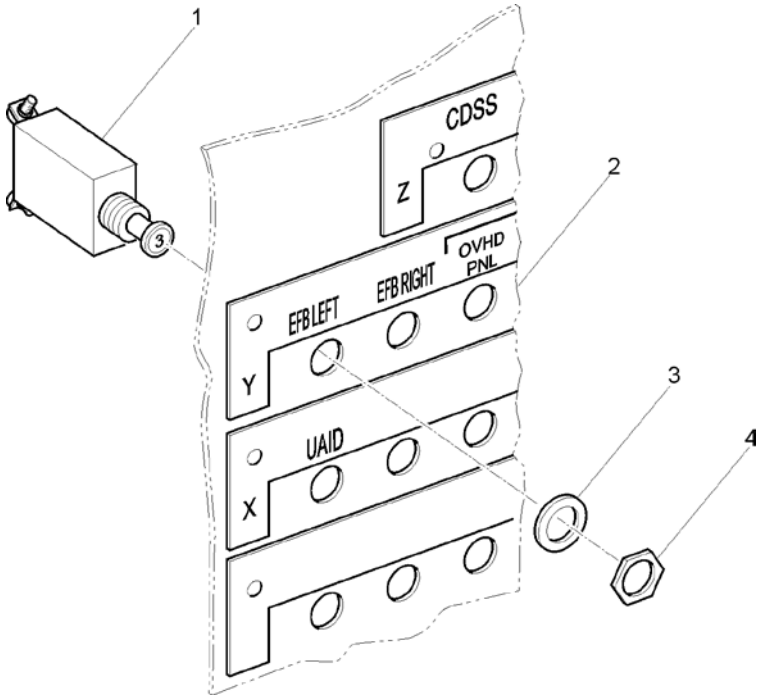

Figure 7. EFB Circuit Breakers

3.6 UAID Unit and Mounting Bracket (Task 46-20-00-400)

(See Figure 8)

A. Removal (Subtask 46-20-00-400-01)
Ref. Figure 8

1. Remove power from the aircraft.
2. Get access to UAID unit in the electronics compartment under the floor.
3. Disconnect J101, J102, J103, and J104 connectors from UAID (1).
4. Release lock (8).
5. Remove rack (2) with UAID (1) from pins on base plate (5).
6. Remove four screws (9) with washers (10).
7. Remove UAID (1) from aircraft.
8. Remove two screws (3) and two screws (7) with four washers (4) and four nuts (6).
9. Remove base plate (5) from the aircraft.
10. Install two screws (3) and two screws (7) with four washers (4) and four nuts (6) into original console of the aircraft, if necessary.

B. Installation (Subtask 46-20-00-400-02)

1. Remove two screws (3) and two screws (7) with four washers (4) and four nuts (6) from original console of the aircraft, if necessary.
2. Place base plate (5) onto console in the aircraft.
3. Install two screws (3) and two screws (7) with four washers (4) and four nuts (6) attaching base plate (5).
4. Install four screws (9) with washers (10) attaching UAIDv2 (1) on the rack (2).
5. Inserts the rack (2) with UAIDv2 (1) into pins on base plate (5).
6. Secure the lock (8).
7. Connect J101, J102, J103, and J104 connectors to UAIDv2 unit.

NOTE: If the UAID has been replaced it is necessary to configure the unit according to 1320-GT-A320-30.

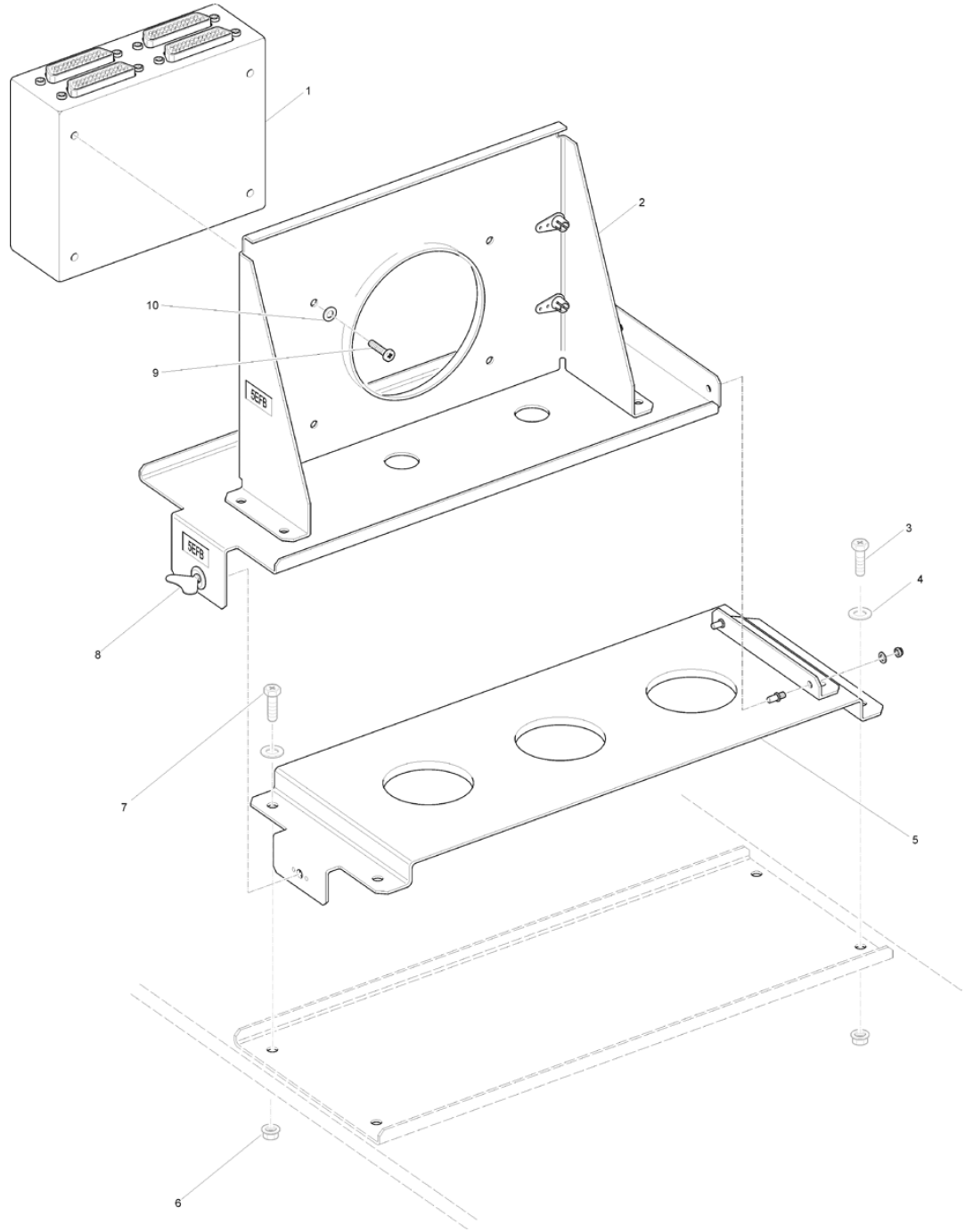

Figure 8. UAID and Mounting Bracket

4 Adjustment / Test

4.1 Tension of Swivel Mount adjustment (Task 46-20-00-500)

Applicable to Configurations: 1-3

If necessary, the following instructions can be used to adjust the Swivel Mount (Part No. 14-MDU-010) tension.

Tools and Test Equipment

- Screwdriver, Phillips No. 2
- Open end wrench, 14 mm

Procedure (Refer to Figure 9)

a. Remove Tablet from holder (or Pivot case reference section 3.3).

b. Remove and retain the Tablet holder (or Pivot top), insert (or PDI Plate) and swivel mount reference section 3.2.

c. Tighten screw (3) and nut (7) so washer (8) and retainer (4) make contact. Loose screw (3) and nut (7) ½ turn for factory default setting or as much as appropriate for correct function.

d. Install the Swivel Mount, Insert (or PDI Plate), Tablet holder (or Pivot Top) reference section 3.2.

e. Re-install the Tablet (or PIVOT Case reference section 3.3).

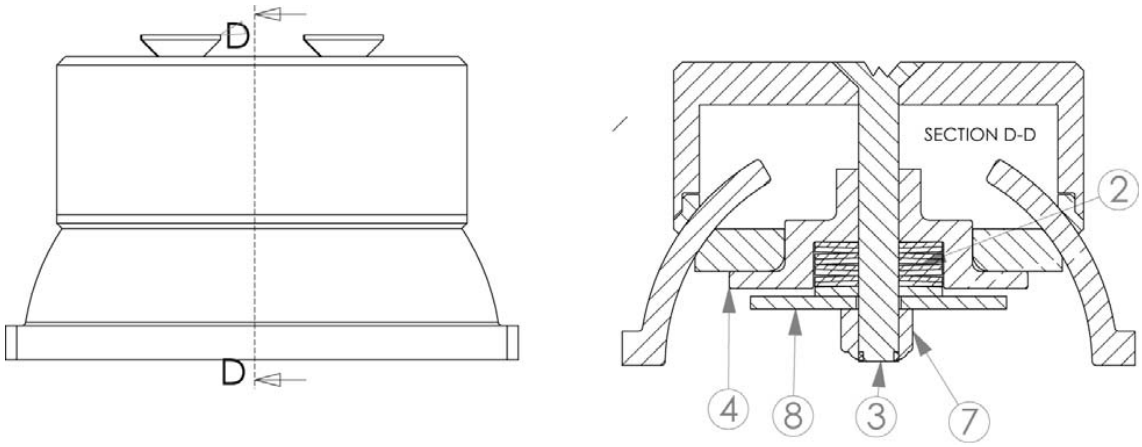

Figure 9: Swivel Mount Friction Adjustment

4.2 Functional Check of the Power Supply System (Task 46-20-00-600)

Applicable to Configurations: 2-3

a. Energize the aircraft electrical network.

b. Check the following c/b's are closed:

ITEM	LOCATION	IDENTIFICATION
3EFB	122VU	EFB LEFT
4EFB	122VU	EFB RIGHT

c. On EFB Interface Panels, put Captain and First Officer EFB ON/OFF switches to ON.

d. On both Captain and First Officer EFB Connector Panel, check the presence of 28 VDC between contact 9 and 5 (+28Vdc presence at contact 9 and GND at contact

e. Put Captain and First Officer EFB ON/OFF switches to OFF and, on both Captain and First Officer EFB Connector Panel, check the presence of no voltage between contact 9 and 5.

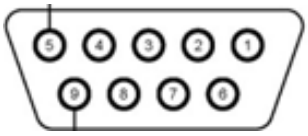

Figure 7. EFB Interface Panel Connector pins

f. Put Captain and First Officer EFB ON/OFF switches to ON and open C/Bs per step b).

g. On both Captain and First Officer EFB Interface Panel, check the presence of no voltage between contact 9 and 5.

h. Close the following C/Bs per step b).

i. On EFB Interface Panels, put Captain and First Officer EFB ON/OFF switches to OFF.

j. De-energize the aircraft electrical network.

k. Make sure the working area is clear and clean of tools and other item of equipment.

l. Close any previously opened panels.

m. Put the aircraft back to serviceable conditions.

5 Inspection / Check

5.1 General

A. This procedure gives the instructions to inspect the navAero EFB System for damage and wear.

B. Refer to STC ICA document for inspection schedule. Refer to Section 3 for removal/installation procedures and Section 4 for adjustment/test procedure.

5.2 Detailed inspection of EFB Window Mount and Tablet holder (Task 46-20-00-700)

A. Perform a detailed inspection of the Window Mount and Tablet Holder (or Pivot Top).

B. Inspect both Window Mounts for wear and tear and replace as necessary.

C. Inspect Tablet Holders for wear and tear and replace as necessary.

D. Check both Tablet Holders (or Pivot Case) for proper friction in Swivel Mount. Adjust per Section 4 if required.

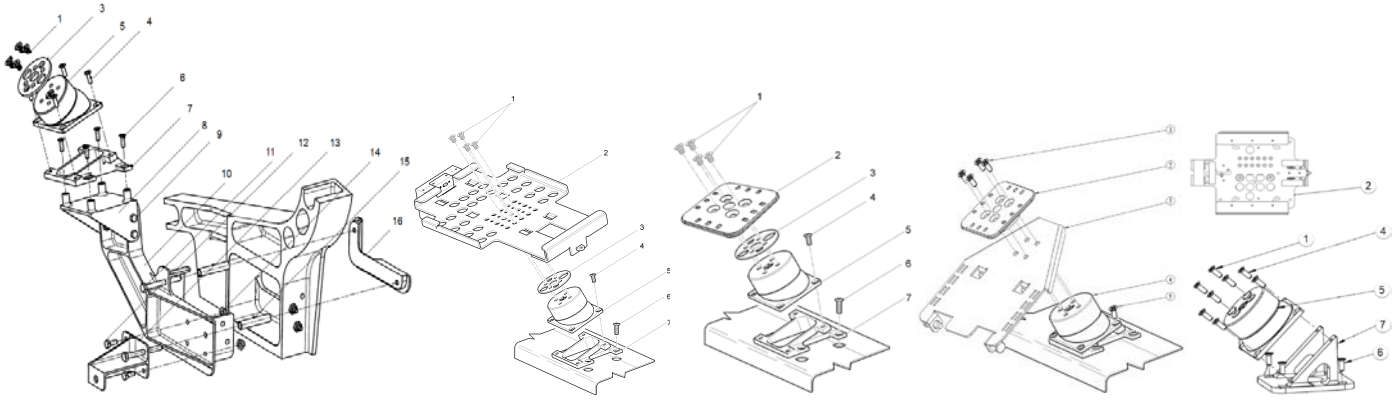

Figure 601: Overview window mount assembly

5.3 Detailed Inspection of UAID and Mounting Brackets (Task 46-20-00-900)

Applicable to Configurations: 3

A. Perform a detailed inspection of the UAIDv2 and Base Plate assembly.

B. Inspect the Base Plate for any damage or cracks and replace as necessary.

C. Inspect UAIDv2 for proper mounting and no damage and replace as necessary.

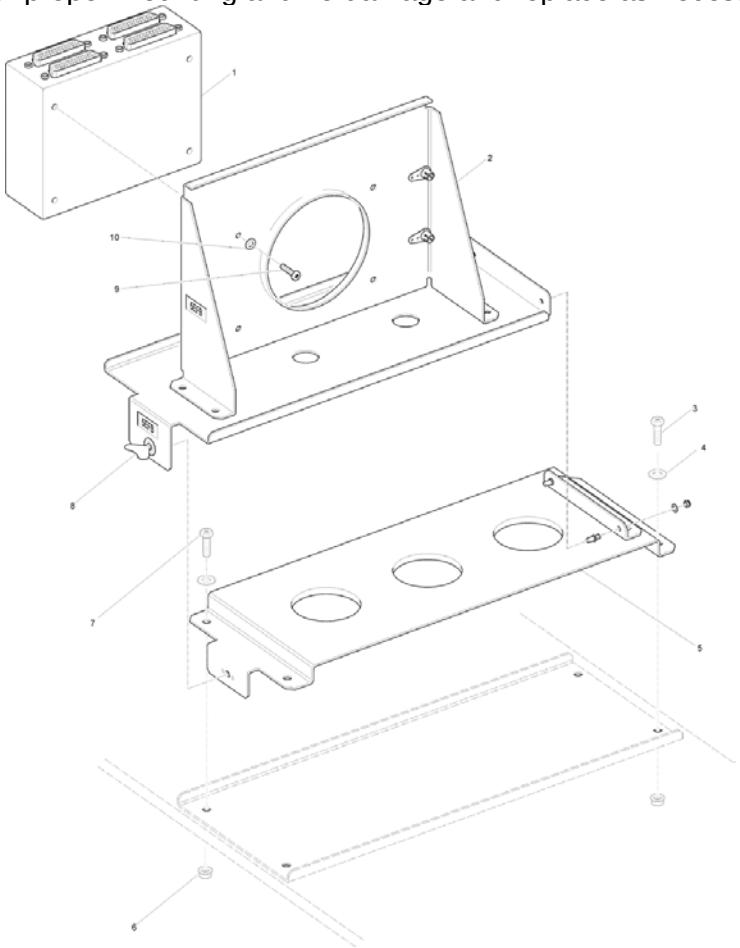

Figure 602. UAID and Mounting Bracket

6 EFB Deactivation / Activation

Applicable to Configurations: 2-3

6.1 Deactivation of the EFB (Task 46-20-00-1000)

See Figure 1, Arrow B for location.

A. Open and safety tag the circuit breaker EFB LEFT or EFB RIGHT of the related EFB.

6.2 Activation of the EFB (Task 46-20-00-1100)

See Figure 1, Arrow B for location.

A. Remove safety tag and close the circuit breaker EFB LEFT or EFB RIGHT of the related EFB.

6.3 Deactivation of the UAID (Task 46-20-00-2000)

See Figure 1, Arrow B for location.

A. Open and safety tag the UAID circuit breaker.

6.4 Activation of the UAID (Task 46-20-00-2100)

See Figure 1, Arrow B for location.

A. Remove safety tag and close the UAID circuit breaker.

Based on the requirements of EASA Part 21, paragraph 21A.3 the installer/operator is requested **to collect informations** from all known operator/users of related product / modification (STC of EFB provisions on affected aircraft).
We therefore ask you, as the representative of the operator of the aircraft with this STC / Minor Change installed, **it is mandatory to report** to us any occurrences which may involve **failures, malfunctions or defects** to this product / modification covered in this EO, caused by design.

Furthermore we ask the operator to notify navAero Avionics AB upon any subsequent operator change.

Refer to modification 1320-A320.

AIRCRAFT TYPE / VERSION _____ MSN _____ REG_____

TYPE OF FEEDBACK:

☐ **OCCURRENCE** (failures, malfunctions or defects)

☐ **IMPROVEMENTS / OTHER**

☐ **AIRCRAFT MODIFIED**

☐ **AIRCRAFT DE-MODIFIED**

☐ **CHANGE OF OWNERSHIP**

☐ **UPDATE OF OWNER DATA**

COMMENTS:

_____

_____

_____

_____

_____

_____

MAINTENANCE / OPERATOR / OWNER REPRESENTATIVE:

NAME: _____ POSITION: _____

SIGN: _____ DATE: _____

E-MAIL: _____ PHONE: _____

Send the completed form to:

navAero Avionics AB, Sweden, DOA dept. via E-mail navAero.DOA@anuvu.com