

CHAPTER

93

SURVEILLANCE

CHAPTER 93 - SURVEILLANCE
LIST OF EFFECTIVE PAGES

CHAPTER SECTION SUBJECT	PAGE	DATE
93-LOEP	1	Dec. 15/09
	2	Dec. 15/09
93-TOC	1	Dec. 15/09
	2	Dec. 15/09
93-50-00	1	Dec. 15/09
	2	Dec. 15/09
	3	Dec. 15/09
	4	Dec. 15/09
93-50-00	201	Dec. 15/09
	202	Dec. 15/09
	203	Dec. 15/09
	204	Dec. 15/09
	205	Dec. 15/09
	206	Dec. 15/09
	207	Dec. 15/09
	208	Dec. 15/09
	209	Dec. 15/09
	210	Dec. 15/09

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**CHAPTER 93 - SURVEILLANCE
TABLE OF CONTENTS**

SUBJECT	CHAPTER SECTION SUBJECT	PAGE	EFFECTIVITY
FLIR			
Description and Operation	93-50-00	1	
1. General		1	
2. Description		1	
 FLIR			
Maintenance Practices	93-50-00	201	
1. General		201	
2. Turret Flir Unit (TFU) - Removal		201	
3. Turret Flir Unit (TFU) - Installation		202	
4. Turret Flir Unit - Mechanical Connection Visual Check		203	
5. Flir Fairing - Removal		203	
6. Flir Fairing - Installation		203	
7. Consolle - Removal		203	
8. Consolle - Installation		203	
9. Flir Monitor (Pilot Compartment) - Removal		204	
10. Flir Monitor (Pilot Compartment) - Installation		204	

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FLIR - DESCRIPTION AND OPERATION

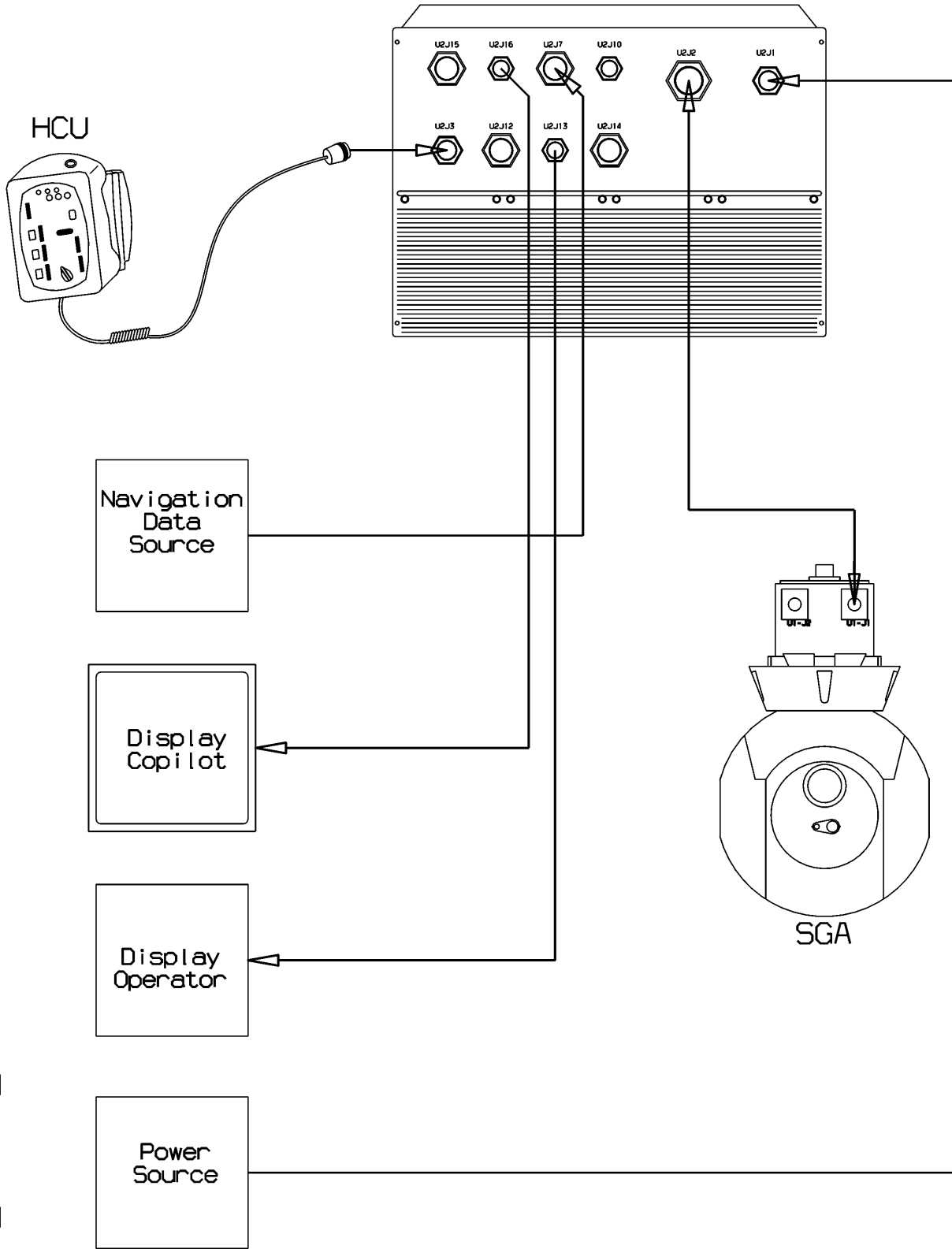
1. General (Ref. Fig.1)

- A. This system is employed for maritime surveillance diurnal & nocturnal and provided to enhances, detected, recognized and identification of both stationary and mobile targets with high resolution and infrared imaging.
- B. The installation provides a rigid interface structure with removable Torret Flir Unit (TFR) element and relative streamlining by external operations on the A/C. The full installation foresees the Display Unit (DU) into the passenger cabin left side and a small display positioned into the pilot cabin (copilot side).

2. Description (Ref. Fig. 2)

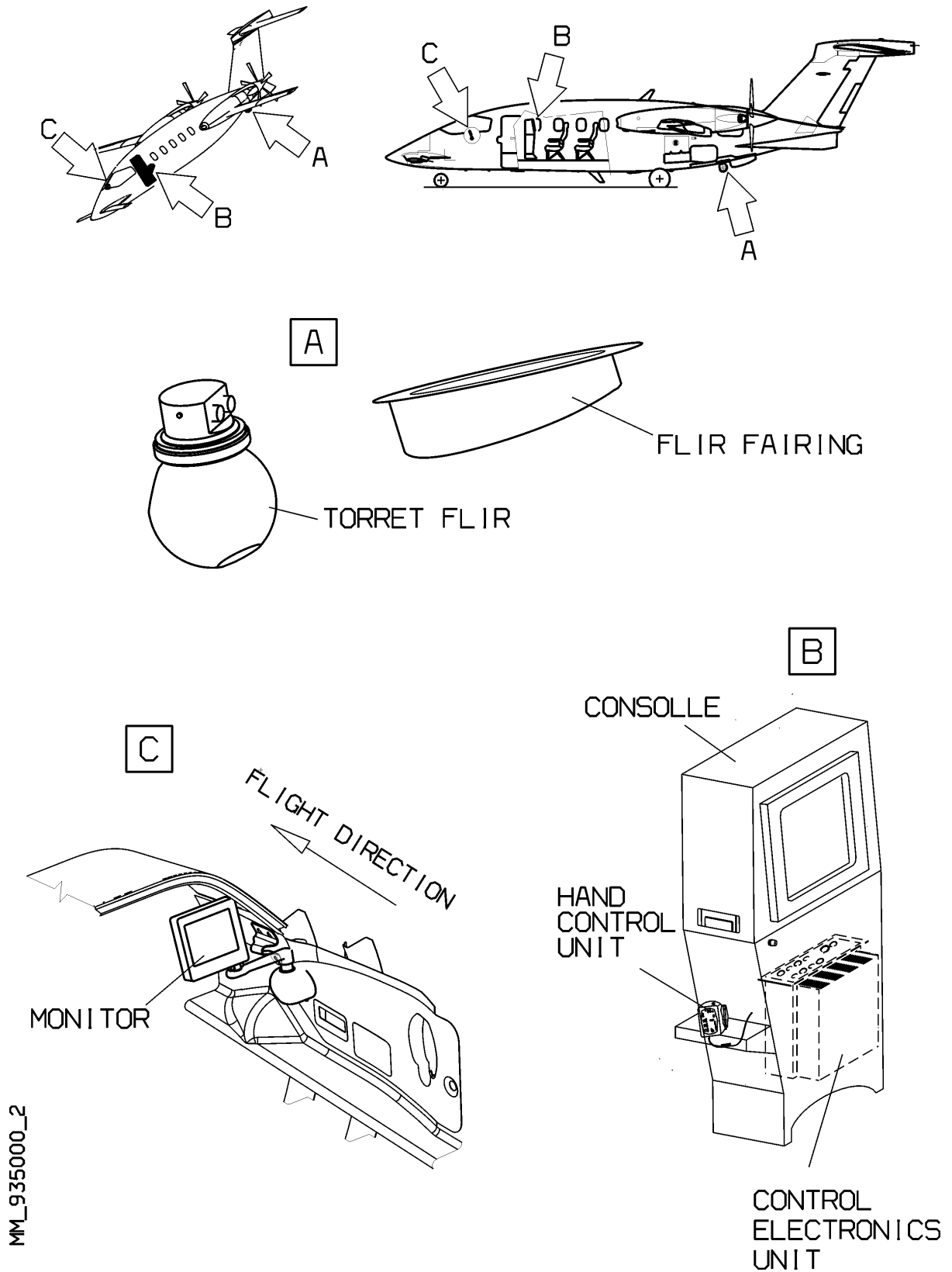
- A. The Flir system comprises:
 - The gyro-stabilized (SGA) (1), two axis, Gimbaled ball structure containing mutually bore-sighted sensor: the forward looking Infrared (IR) camera, a Charge Coupled Device (CCD) color camera and a optional Laser Pointer.
 - The IR camera allows the operator to see in total darkness, through smoke, and other low visibility, low contrast situations.
 - The CCD camera provides visible light imagery under normal and a low light conditions.
 - The stabilized Gimbal system provides stable video during aircraft vibration and motion regulate the setting of the speed control spring, Beta valve and feathering dump valve of the propeller governor.
 - The Control Electronics Unit (CEU) (2) provides system voltages, stabilization circuits, servo system and video processing.
 - The Hand Control Unit (HCU) (3) is a multifunctional device employing natural contours and easily reached buttons to activate the different functions and contains all the control necessary to operate the SeaFLIR Imaging System.
 - The FLIR monitor (4) located in Pilot cabin on the right of the copilot.
 - The FLIR Console (5) located in Passenger Compartment.
 - The FLIR Fairing (6) that improves the airflow.

CONTROL ELECTRONICS UNIT (CEU)



MM_935000_1

Fig. 1 - Flir - Schematic Diagram



MM_935000_2

Fig. 2 - Flir - Components Location

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FLIR - MAINTENANCE PRACTICES

1. General

This topic gives the Maintenance Practices for the components of the FLIR system that include:

- Turret Flir Unit.
- Flir Fairing.
- Consolle.
- Flir Monitor (Pilot Compartment).

2. Turret Flir Unit (TFU) - Removal (Ref. Fig.201)

A. Fixtures, Test and Support Equipment

Blanking Cap

Not Specified

B. Procedure

- (1) Check the position of the Bolts (5) that secure the Turret Flir (4) to the Spacer (2).

CAUTION: IF ONE OR MORE BOLTS ARE MOVED FROM THE PREVIOUSLY MARKED POSITION CONTACT P.A.I. SERVICE CENTER.

NOTE: The Turret Flir removal must be performed by two persons.

WARNING: SINCE THE TURRET FLIR IS HEAVY, DURING THE REMOVAL HOLD ON FIRMLY.

- (2) Remove the five screws (9) and the shim washers (10).
- (3) Unscrew the six screws (8) that secure the Hatch (7) to the airplane fuselage.
- (4) Disconnect the electrical connector (13) and the bonding strip from the Flir Gimbal assy.
- (5) Unscrew the five bolts (6) that join the Turret Flir (4) to the Spacer (2).
- (6) Remove the Turret Flir.
- (7) Put the blanking cap on the Turret Flir Connector.
- (8) Remove the Rubber Gasket (3).
- (9) Check the position of the Bolts (5) that join the Spacer (2) to the Hat (1).

CAUTION: IF ONE OR MORE BOLTS ARE MOVED FROM THE PREVIOUSLY MARKED POSITION CONTACT P.A.I. SERVICE CENTER.

- (10) Unscrew the eight bolts (5) that join the Spacer (2) to the Hat (1).
- (11) Remove the Spacer (2).
- (12) Install the Connector Plate (14) with the screws.
- (13) Assure the electrical connector (13) in position to the Connector Plate (14).

EFFECTIVITY:

(14) Install the Flir Cover (11) with eleven screws (12).

NOTE: The five screws that secure to the fuselage the flir cover (11) round side have a grip longer than the others.

3. Turret Flir Unit (TFU) - Installation (Ref. Fig.201)

A. Fixtures, Test and Support Equipment

Loctite	01-006
Blanking Cap	Not Specified

B. Procedure

NOTE: The Turret Flir installation must be performed by two persons.

WARNING: SINCE THE TURRET FLIR IS HEAVY, DURING THE INSTALLATION, HOLD ON FIRMLY.

- (1) Unscrew the eleven screws (12) that secure the Flir Cover (11) to the fuselage.
- (2) Remove the Flir Cover (11).
- (3) Remove the electrical connector (13) from the connector plate (14).
- (4) Remove the Connector Plate (14).

NOTE: Assure that the threads of the Barrel nuts placed into the Hat (1) are clean and dry.

- (5) Place the Spacer into position (2).

NOTE: Before to insert the bolts assure that the threads are clean and dry.

- (6) Install the eight washers and bolts (5) that secure the Spacer (2) to the Hat (1). Tighten the bolts with 35÷38 - lb x inch torque.
- (7) Mark the position of the bolts (5) with inerasable pen.
- (8) Remove the blanking cap from the Turret Flir Connector.

NOTE: Before to insert the bolts assure that threads are clean and dry.

- (9) Install the Rubber Gasket (3) on the Turret Flir.
- (10) Lean the Turret Flir (4) against the front side of the opening and pull it up in order to insert it into the right position.
- (11) Apply screwlock (Ref. to Chapter 91-00-00) and tighten with appropriate torque (85÷95 - Lb x inch) the five bolts (6) that secure the Turret Flir (4) to the Spacer (2).
- (12) Mark the position of the bolts (6) with inerasable pen.
- (13) Connect the electrical connector (13) and the Bonding strip to the Turret Flir (4).
- (14) Place the Hatch (7) in position.
- (15) Install the six washers and screws (8) that secure the Hatch (7) to the fuselage.

(16) Install the shim washers (10) with the screws (9).

4. Turret Flir Unit - Mechanical Connection Visual Check

A. Procedure

- (1) Check if the five Bolts (6) that secure the Turret Flir (4) to the Spacer (2) are moved from previously marked position.

CAUTION: IF ONE OR MORE BOLTS ARE MOVED FROM THE PREVIOUSLY MARKED POSITION CONTACT P.A.I. SERVICE CENTER.

5. Flir Fairing - Removal (Ref. Fig. 202)

A. Procedure:

- (1) Remove the nineteen screws (2) that secure the Flir Fairing to the fuselage.
- (2) Remove the Flir Fairing Assy (1).
- (3) Install the nineteen washers and screws NAS 7902A5 on the fuselage skin.

6. Flir Fairing - Installation (Ref. Fig. 202)

A. Procedure:

- (1) Remove the nineteen screws NAS 7902A5 from the fuselage skin.
- (2) Place the Flir Fairing Assy (1).
- (3) Secure the Flir Fairing with the nineteen washers and screws (2).

7. Console - Removal (Ref. Fig. 203)

A. Procedure:

NOTE: The FLIR Console removal must be performed by two persons.

- (1) Disconnect the three Electrical Connectors (1) located on the floor under the console.
- (2) Remove the two washers (3), bolts (2), and nuts (4) that secure the Flir Console (7) to the Rear Seat Fittings (6).
- (3) Loosen the collars of the two Front Seat Fittings (5).
- (4) Remove the Flir Console (7).
- (5) Protect with the cover the electrical connectors located on the floor under the console.

8. Console - Installation (Ref. Fig. 203)

A. Procedure:

NOTE: The FLIR Consolle installation must be performed with two persons.

- (1) Remove the connectors protection cover located on the floor.
- (2) Place the Flir Consolle into its own position over the left passenger compartment tracks with the Front Seat Fittings axis (5) positioned at the 69 mm. from the F.S. 2160 toward operator seat.
- (3) Connect the Electrical Connectors(1).
- (4) Screw the two Front Seat Fittings locking collars (5).
- (5) Install the two washer (3), bolts (2) and nuts (4) that secure the Flir Consolle to Rear Seat Fittings (6).

9. Flir Monitor (Pilot Compartment) - Removal (Ref. Fig. 204)

A. Procedure:

- (1) Push the Button (1) over the bracket (2) and remove the Monitor (3) and Bracket (2)

10. Flir Monitor (Pilot Compartment) - Installation (Ref. Fig. 204)

A. Procedure:

- (1) Insert the Bracket (2) with monitor in its own position.

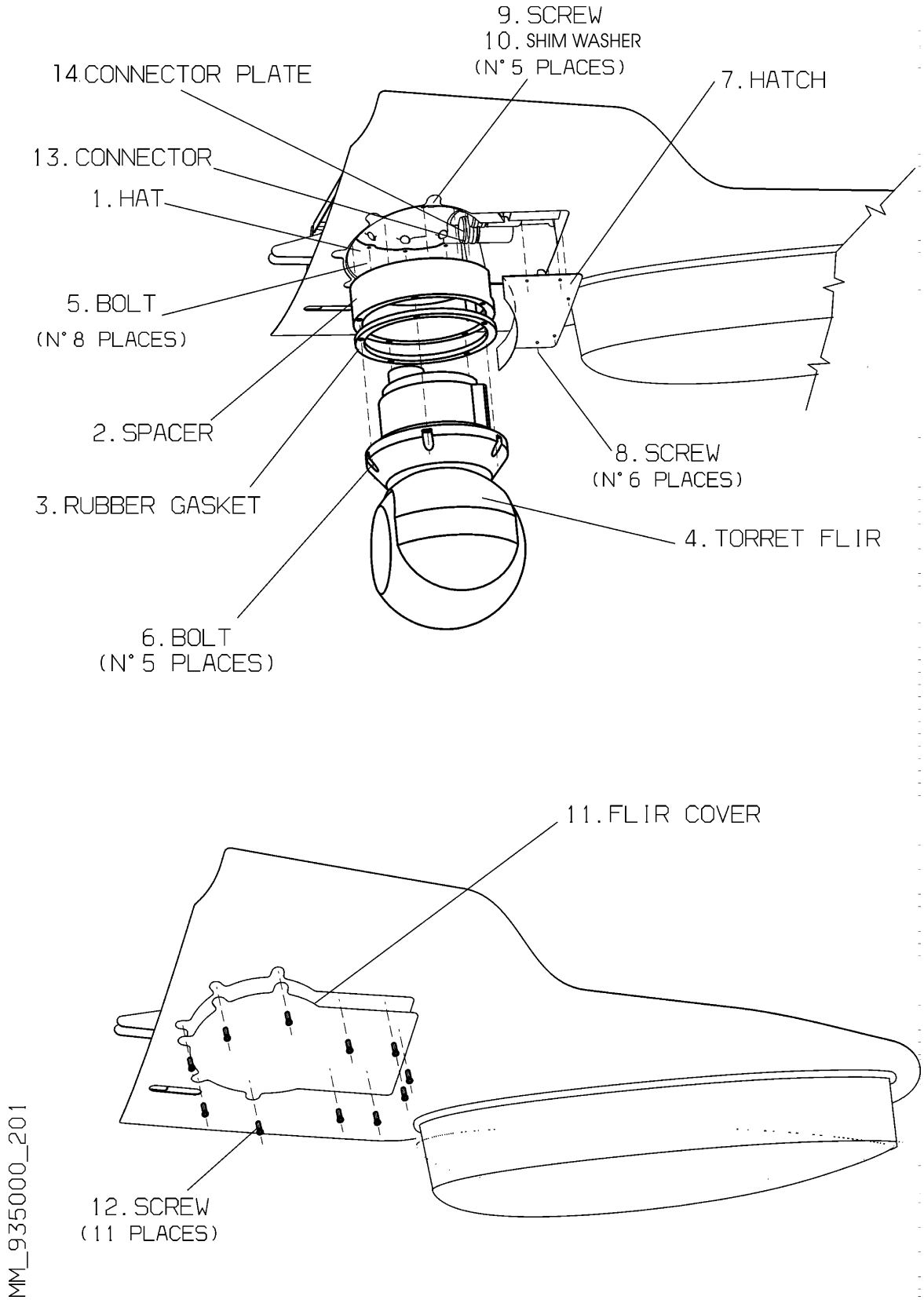
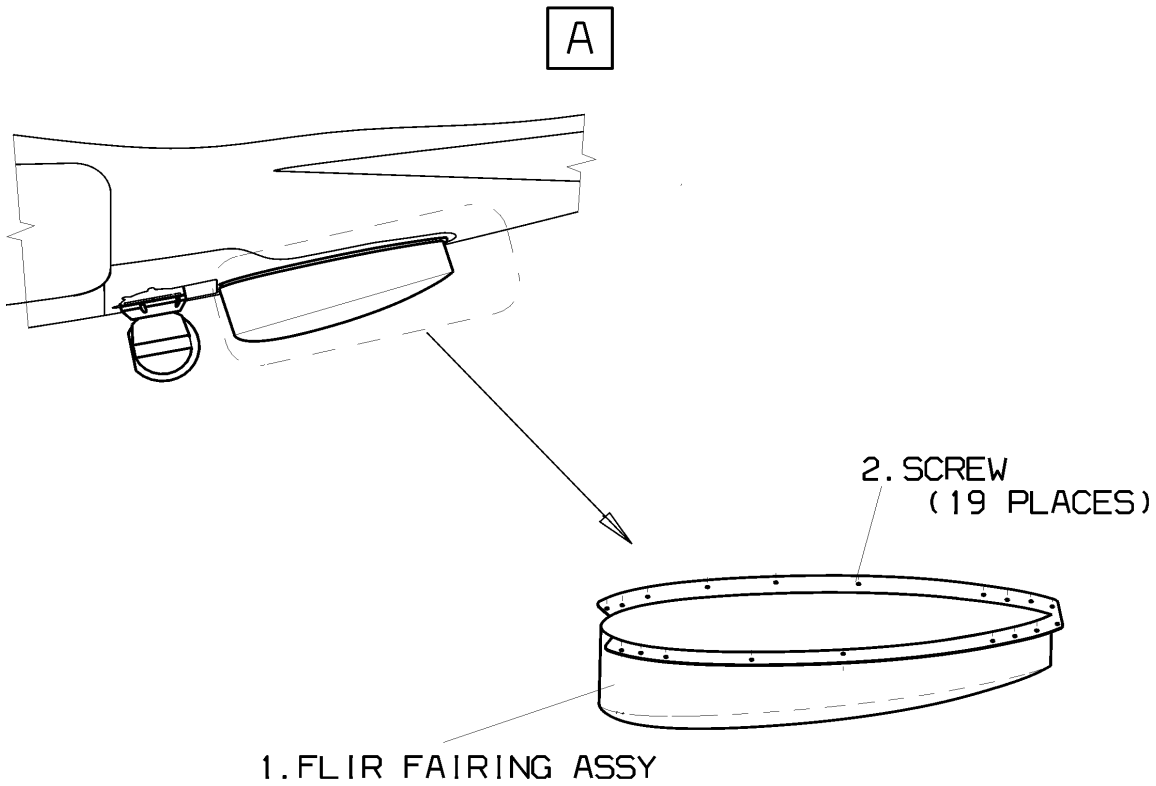
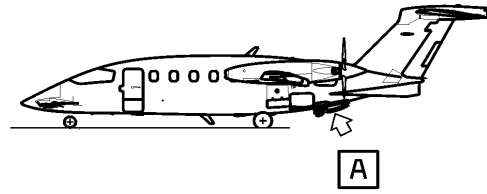


Fig. 201 - Turret Flir Unit (TFU)- Removal / Installation

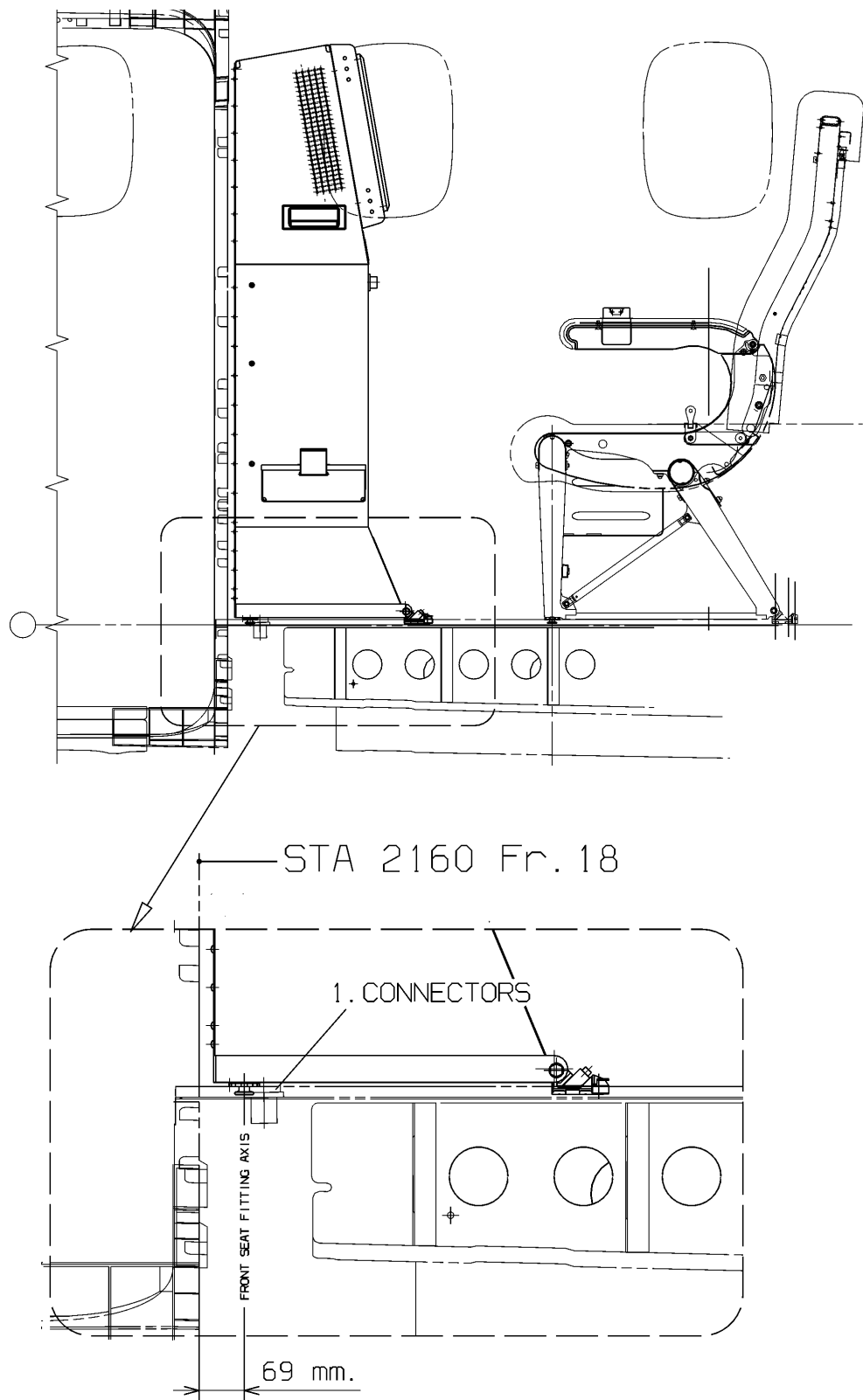
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Fig. 202 - Flir Fairing - Removal / Installation

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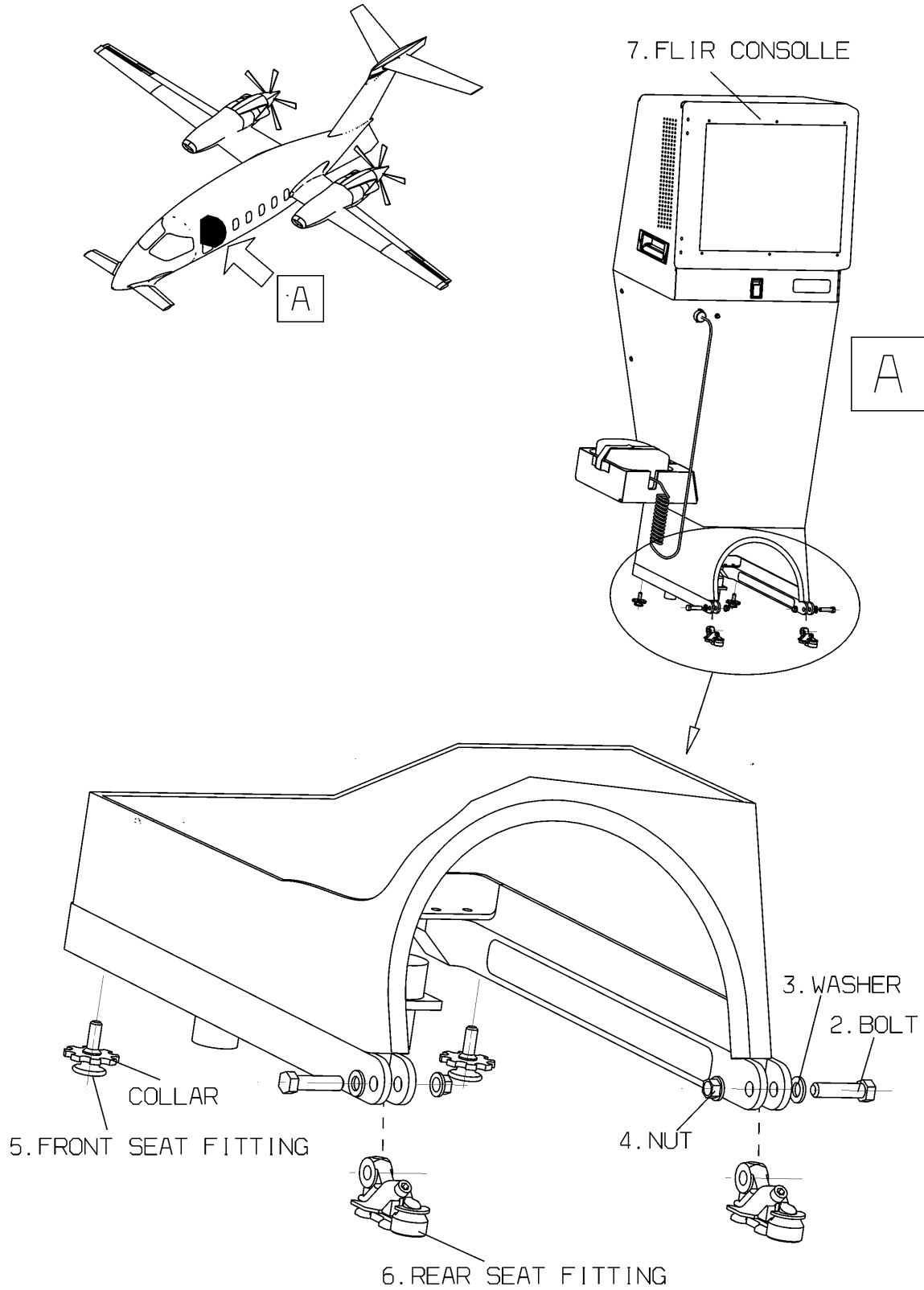
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Fig. 203 - Consolle - Removal / Installation (Sheet 1 of 2)

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93-50-00

Page 207
Dec. 15/09

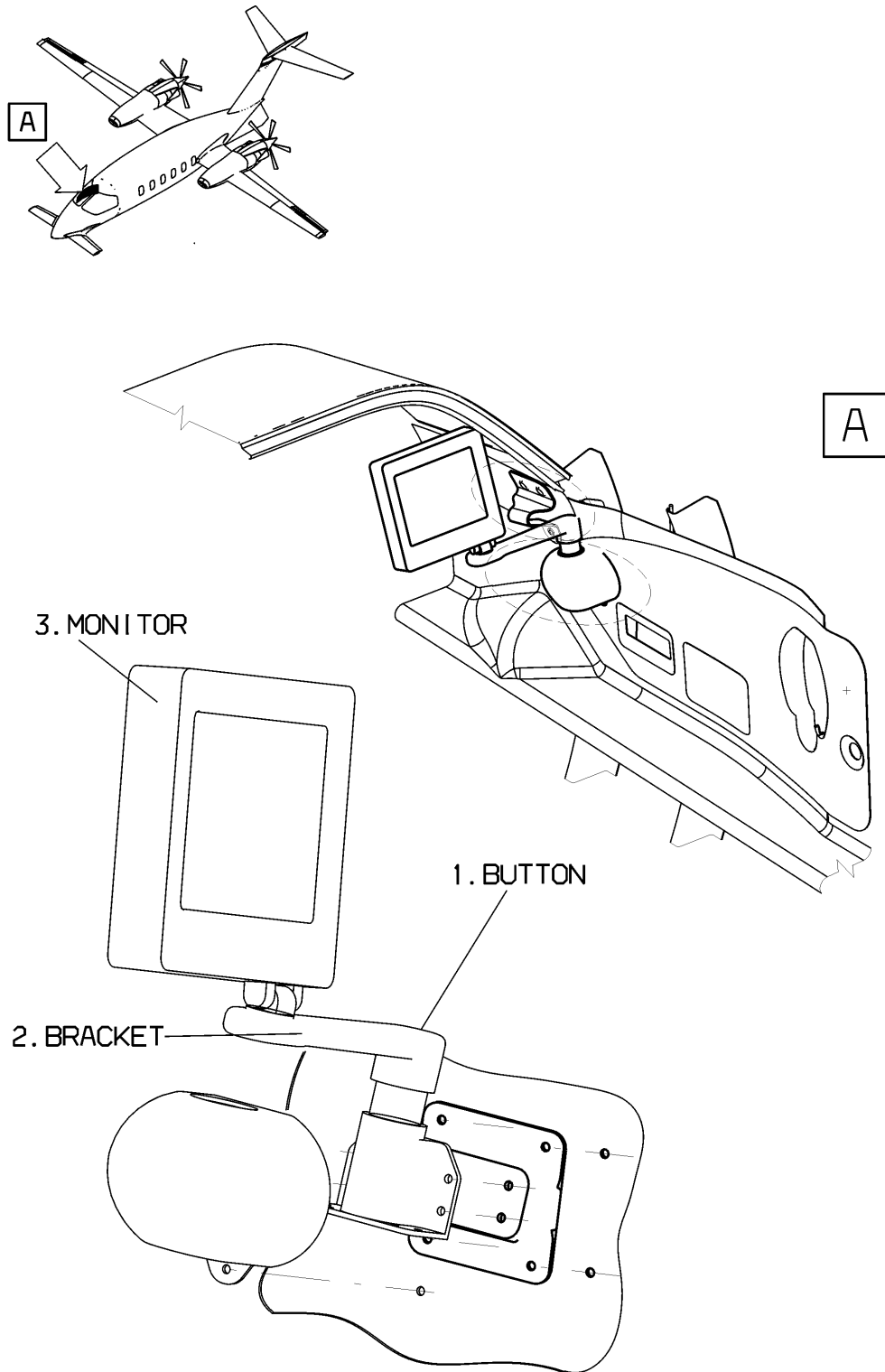


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Fig. 203 - Consolle - Removal / Installation (Sheet 2 of 2)

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Fig. 204 - Flir Monitor (Pilots Compartment) Removal / Installation

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