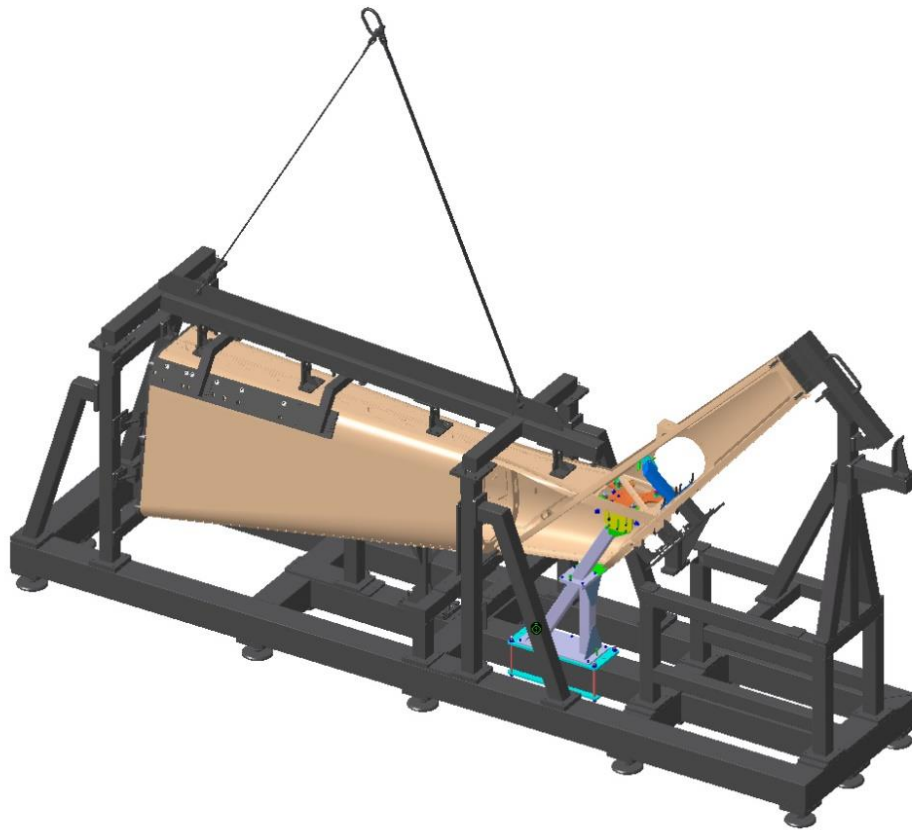




# USE AND MAINTENANCE MANUAL

## INTEGRATIVE KIT TAIL BEAM ASSEMBLY / REPAIR JIG AW139 – VERSIONS 135 AND 136 P/N 3G5350A00231A001A

## TOOL KIT TAIL FIN FWD LONGERON REPLACEMENT



**P/N PEC-139-018-01**

01	03/11/22	ISSUE	C. RUGI	M. IACOPONI	F. MORELLI
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REV.	Date	Pages / Paragraphs concerned	Reasons for changes
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## DISTRIBUTION LIST

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## TABLE OF CONTENTS

<b>1</b>	<b>OBJECT</b>	<b>4</b>
<b>2</b>	<b>TARGET</b>	<b>4</b>
<b>3</b>	<b>DOCUMENTS</b>	<b>5</b>
3.1	<i>APPLICABLE DOCUMENTS</i>	5
3.2	<i>STANDARD</i>	5
3.3	<i>SYMBOLS AND ACRONIM USED</i>	6
<b>4</b>	<b>USE AND STORAGE OF THE MANUAL</b>	<b>7</b>
4.1	<i>WHO IS THE INSTRUCTION MANUAL ADDRESSED TO?</i>	7
4.2	<i>PURPOSE OF THE INFORMATION CONTAINED IN THE MANUAL</i>	7
4.3	<i>LIMITS OF USE OF THE MANUAL</i>	7
4.4	<i>WHERE AND HOW TO KEEP THE INSTRUCTION MANUAL</i>	7
4.5	<i>UPDATES</i>	8
<b>5</b>	<b>ID PLATE</b>	<b>8</b>
<b>6</b>	<b>GENERAL INFORMATION OF THE TOOL KIT</b>	<b>9</b>
6.1	<i>GENERAL DESCRIPTION</i>	9
<b>8</b>	<b>USE OF THE SUPPLEMENTARY KIT</b>	<b>14</b>
8.1	<i>GENERAL DESCRIPTION</i>	14
<b>9</b>	<b>GENERAL INSTRUCTIONS FOR USE IN SAFETY</b>	<b>17</b>
9.1	<i>GENERAL INDICATIONS</i>	17
9.2	<i>INSTRUCTIONS FOR USE</i>	17
<b>10</b>	<b>GENERAL INSTRUCTIONS FOR USE IN SAFETY</b>	<b>18</b>
<b>11</b>	<b>MAINTENANCE</b>	<b>19</b>
11.1	<i>CLEANING</i>	19
11.2	<i>GREASING AND LUBRICATION</i>	19
11.3	<i>CHECKS</i>	20
<b>12</b>	<b>REPLACEMENT PARTS</b>	<b>21</b>
<b>13</b>	<b>LIST OF DOCUMENTATION ATTACHED</b>	<b>22</b>



## 1 OBJECT

The subject of this document is the Supplementary Kit “TOOL KIT TAIL FIN FWD LONGERON REPLACEMENT” P/N PEC-139-018-01.

## 2 TARGET

The purpose of this document is to illustrate to specialized operators how to first install the supplementary kit P/N **PEC-139-018-01** on the Jig Tail beam AW139 P/N 3G5350A00231A001A in AW139 configuration, version valid for Tail -135 & 136, and the use and maintenance methods.



### 3 DOCUMENTS

#### 3.1 APPLICABLE DOCUMENTS

Applicable documents are shown in the following table:

REF	DOCUMENT REFERENCE	TITLE
[1]	3G5350A00231A001A	Construction drawing Jig Tail AW139 in Tail configuration -135 and -136
[2]	PEC-0139-MAN-0007	Use and Maintenance Manual Tail boom repair
[3]		

**Table 1. Applicable documents.**

#### 3.2 STANDARD

Ref	DOCUMENT REFERENCE	TITLE
[1]		
[2]		

**Table 2. Standards.**






### 3.3 SYMBOLS AND ACRONIM USED

The main acronyms and abbreviations used in this document are listed below:

P / N	Part Number
TGB	Tail Gear Box
IGB	Intermediate Gear Box

Furthermore, specific symbols are used throughout the document to identify the type of indication to which the operator is required to pay attention. The meaning of these symbols is shown below.

 <b>ATTENTION</b>	Information or procedure which, if not strictly followed, could result in the injury or death of persons.
 <b>WARNING</b>	Information or procedure which, if not strictly carried out, can cause damage or destruction of the plants and systems concerned.
 <b>NOTE</b>	Particularly important information or procedure that you want to highlight.



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## 4 USE AND STORAGE OF THE MANUAL

This manual is considered an integral part of the Tool Kit to which it must be attached. The operators must be adequately trained and prepared, therefore it is absolutely necessary that before the first use of the Tool the operators have read and learned the indications, precautions and use and maintenance procedures indicated in this manual.

### ***4.1 WHO IS THE INSTRUCTION MANUAL ADDRESSED TO?***

This manual has been written for the personnel assigned to the use of the Tail AW139 assembly and repair yard including the Tool object of this document (Operator) and for the technician in charge of routine maintenance (Maintenance Technician) of the machine.

This Manual is intended for the managerial, responsible and operating personnel of the plant where the equipment in question is used.

### ***4.2 PURPOSE OF THE INFORMATION CONTAINED IN THE MANUAL***

The Manual is used to provide all the main general information for correct use of the kit and for its installation on the Tail AW139 Jig to be carried out at first use.

### ***4.3 LIMITS OF USE OF THE MANUAL***

It should be noted that the Manual can never completely replace an adequate user experience; the personnel must have obtained adequate and specific technical training.

This Manual provides indications and instructions on the installation and use of the equipment that are added, but are not intended to replace, supplement or modify any standard, prescription, decree or law of a general or specific nature in force in the place where the use of the tool.

### ***4.4 WHERE AND HOW TO KEEP THE INSTRUCTION MANUAL***

The Manual must always be available for consultation near the equipment and stored in a protected, dry place, away from sunlight and heat sources.



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#### 4.5 UPDATES

The Manual represents the state of the art at the time of the construction of the Tool Kit.

## 5 ID PLATE

The main data of identification of the equipment, the manufacturer's logo and address.

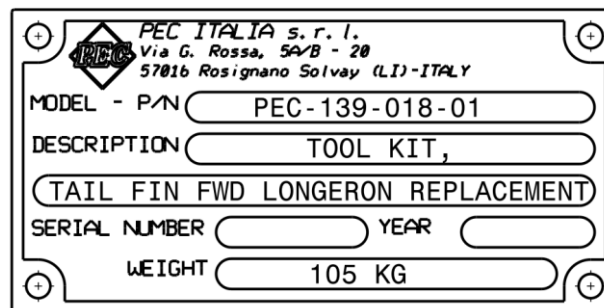


Figure1: ID plate.





## 6 GENERAL INFORMATION OF THE TOOL KIT

### 6.1 GENERAL DESCRIPTION

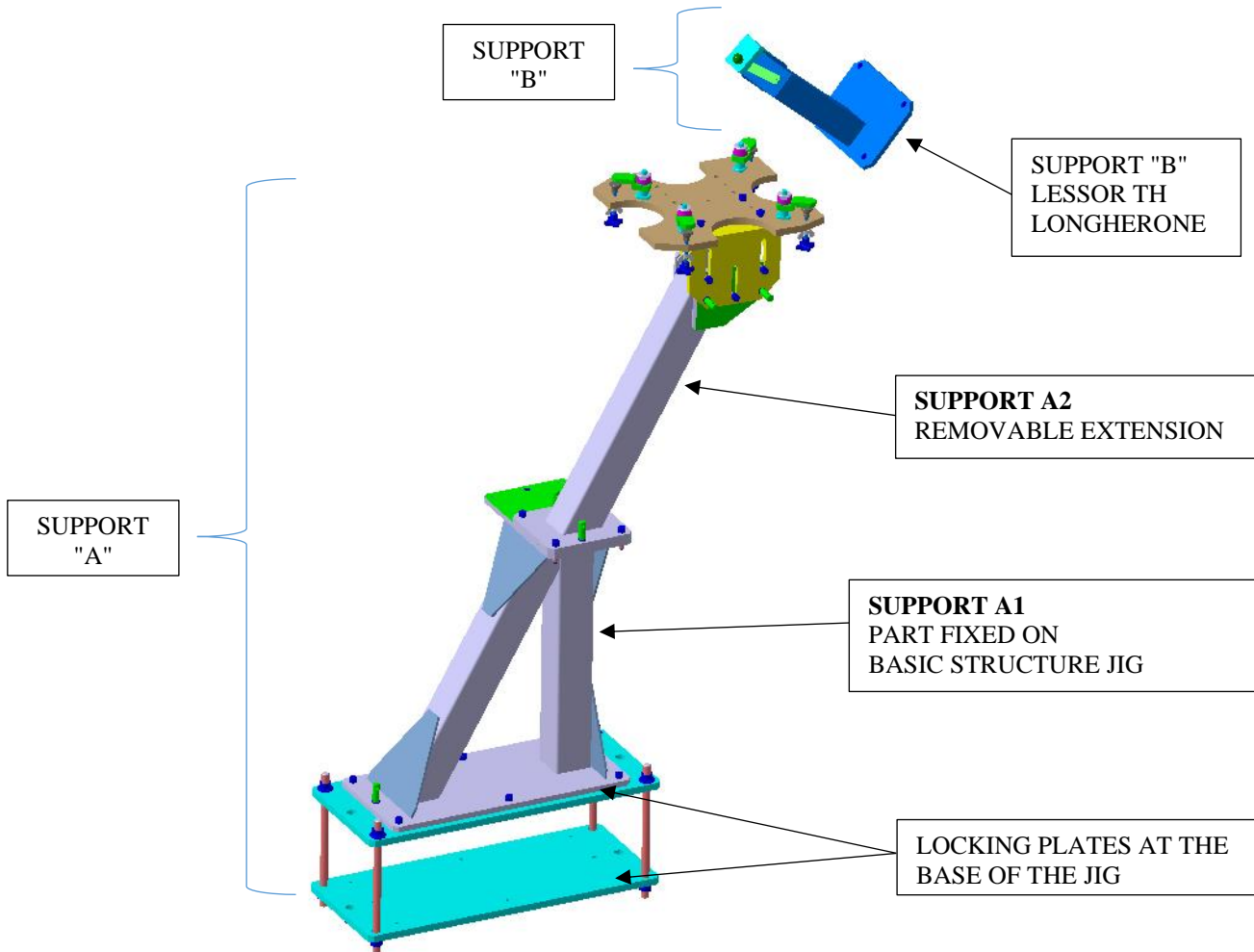
The Integrative Kit P/N PEC-139-018-01 is used together with Jig Tail AW139 P/N 3G5350A00231A001A (version valid for Tail -135 & 136) for the replacement / repair activities of the FWD Longeron Tail Fin AW139.

The Tool Kit consists of two main parts:

- A. Support “A” needed to hold the FWD-AFT Tail Fin Longeron connection plate in position;**
- B. Support “B” for positioning the FWD Longeron through the T / H hole.**

**The "A" support.** it allows to hold in position and lock the connection plate of the front and rear Longerons when replacing the Tail Fin front Longeron. The locking of the connecting plate must be carried out before the disassembly / un-nailing operations of the FWD Tail Fin Longeron. Support A is divided into two parts: Support "A1" represents the fixed part that will be installed in position on Tail Jig AW139 with the first use of the tool (Paragraph 7). This part of the kit can remain as a fixed component on the basic Jig structure; Support “A2” represents the removable extension positioned above the interface plate of the support “A1” and installed when the replacement of the FWD Tail Fin Longeron is required. To position the support A2 above the fixed support A1 it is necessary that the side panel of the tail fin has been previously removed.

**Support B.** it is used for locking the front Longeron through the T / H hole (4.8mm dia). In this case, the Kit support will be positioned and locked as a reference on the IGB support interface plate on the Jig, using the 4 special plugs and keys present on the Jig.



**Figure2: Composition of the supplementary kit P/N PEC-139-018-01**

## 7 KIT INSTALLATION PROCEDURE ON FIRST USE

The logical sequence of the operations necessary to integrate the Tool Kit for the repair of the tail beam inside the jig, which must necessarily be in the last configuration and therefore valid for Tail -135 & -136, is illustrated below:

1. Position the Support A1 fixed part on the jig on the central upright of the existing Tail gate base structure by interposing the two locking plates and inserting and locking the 6 tie rods by tightening the 8 nuts + 8 washers supplied with the Kit (Fig.3). The plates must be positioned at a distance of approximately 1868mm from the rear crossbeam of the yard structure (Fig. 4). The exact position of the plates with respect to the slipway structure will be carried out in phase .2 with the tail beam inserted at the slipway and with the Support A2 installed.

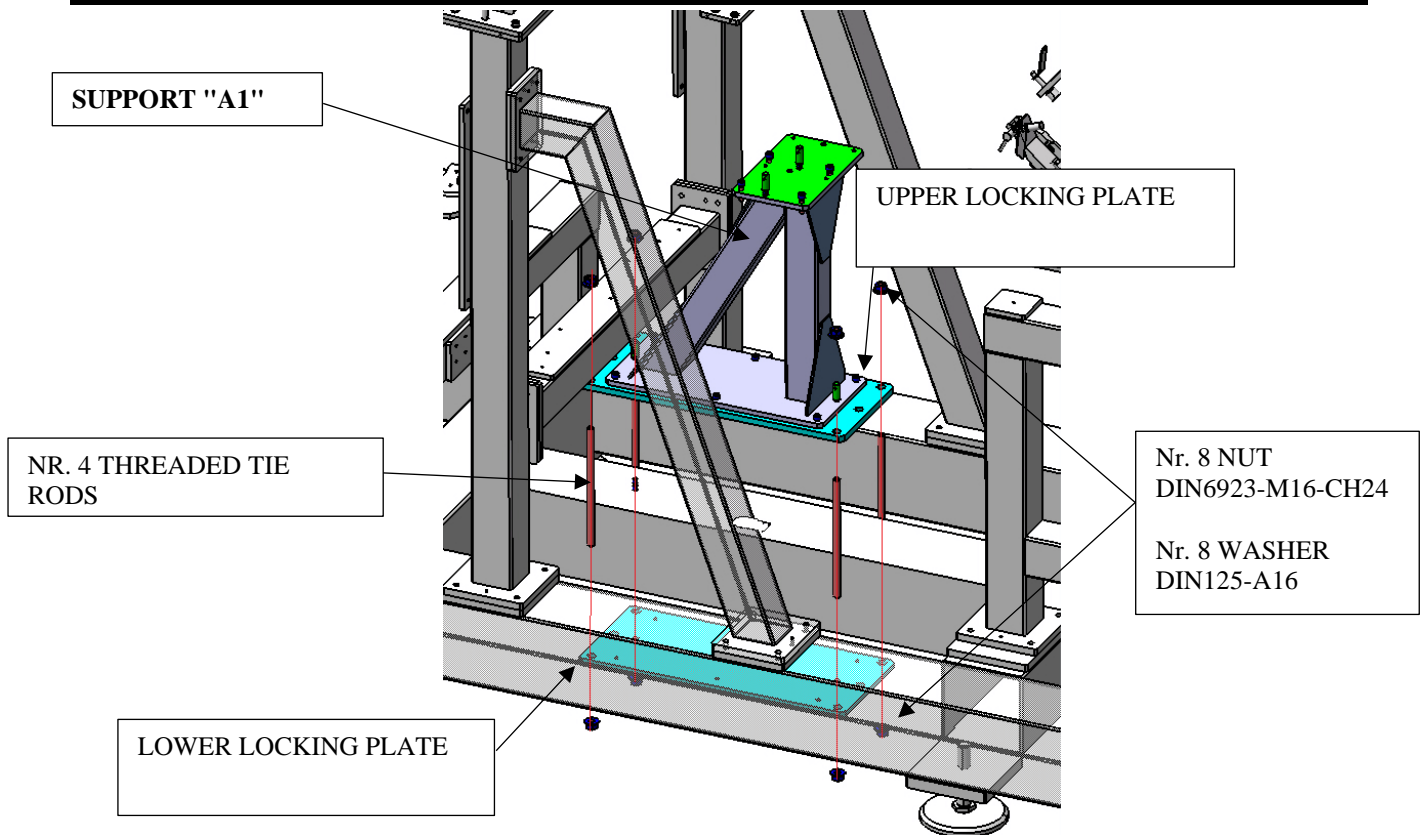


Figure 3: Locking plates Fixed support "A1" and fixing elements

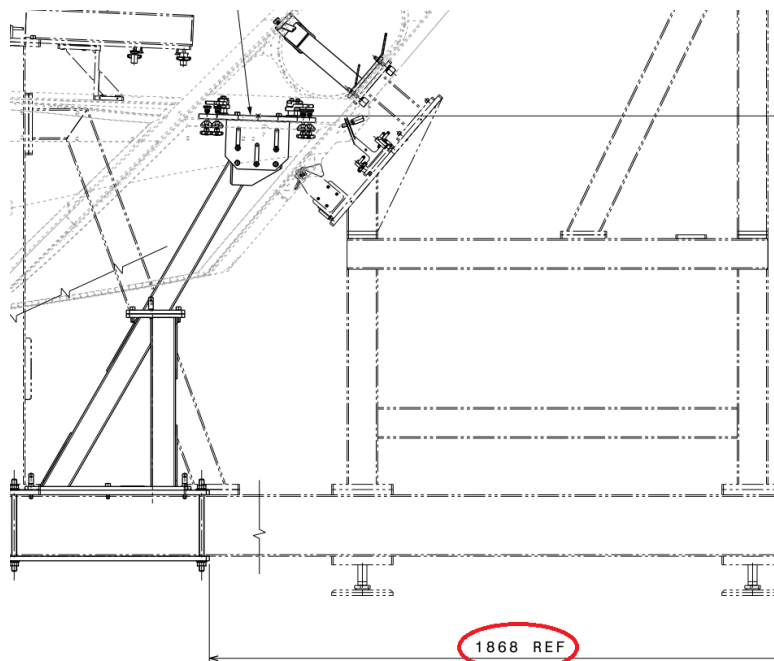
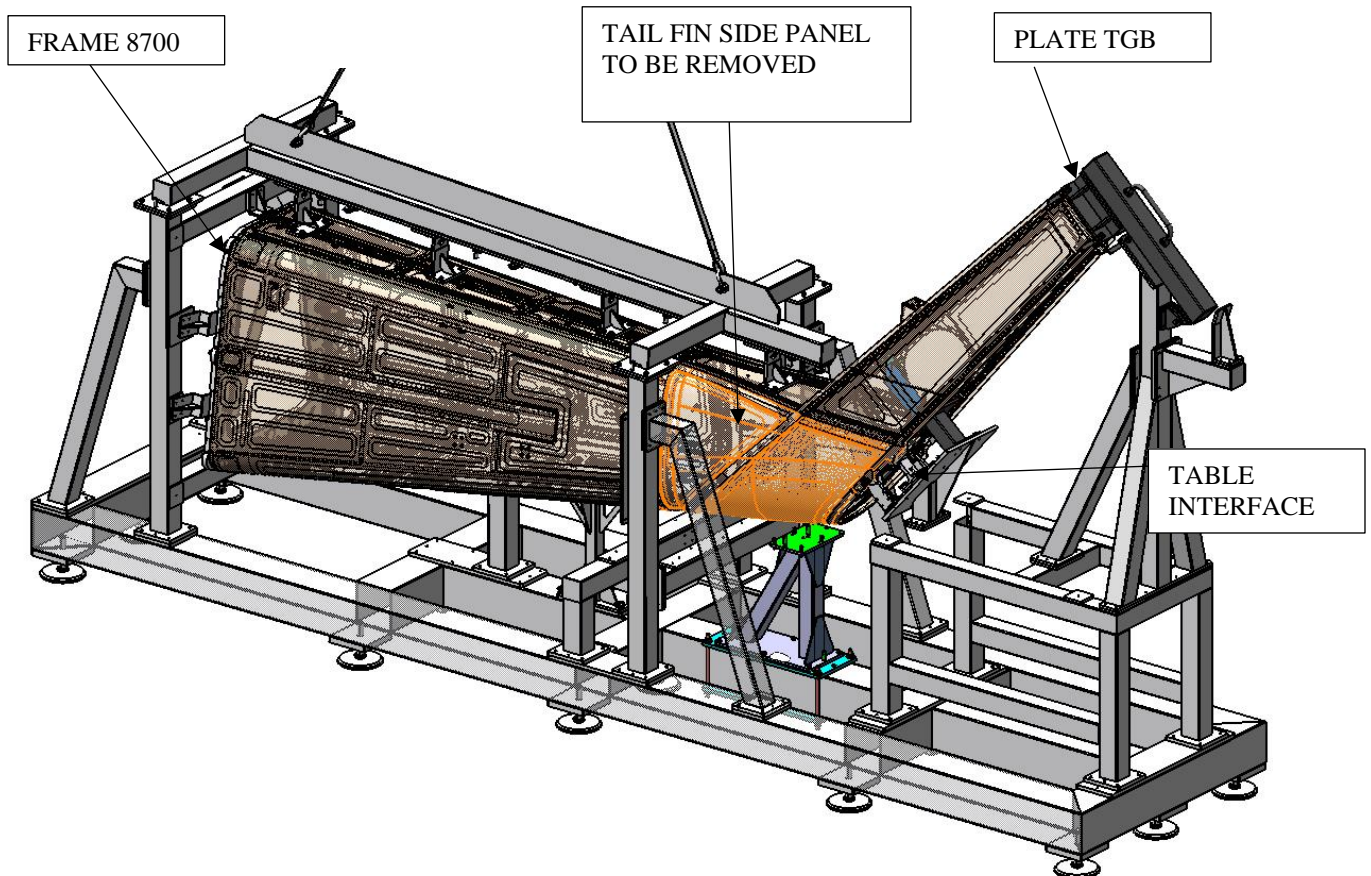


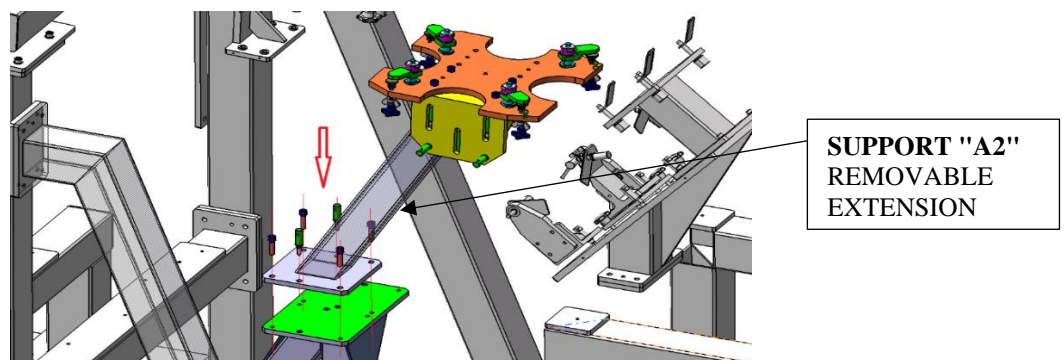
Figure 4: Reference position of the plates of the Support "A1"

- Position the tail boom inside the jig fixing it on the main known points (Frame 8700 Rear Structure interface / TGB interface / IGB shelf interface supports) and remove the side panel of the Tail Fin highlighted in fig. 4. The extension can be locked in two positions: in fig. 4 shows the lock in the left position. If it is necessary to remove the right panel, the extension must be locked in the right position by screwing it into the two holes on the right side of the interface plate of the A1 Support (fig. 12).



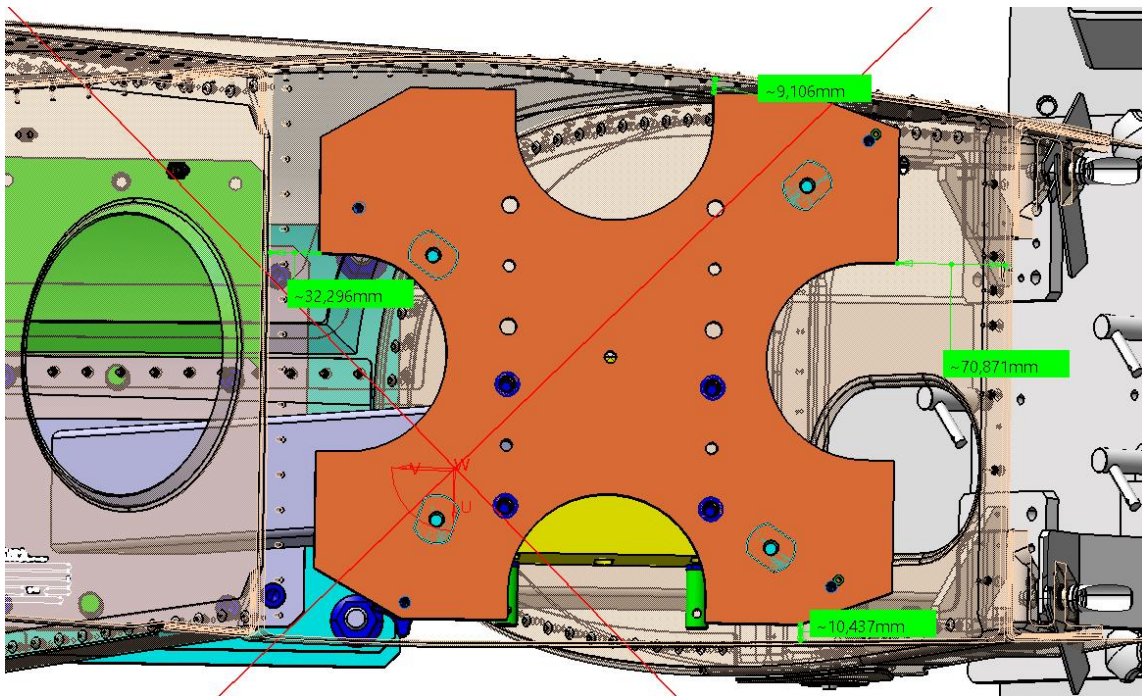
**Figure 4: Positioning of Tail AW139 on slipway and removal of side panel Tail fin.**

- Position the removable support "A2" using the 4 screws and 2 pins supplied with the Tool Kit.



**Figure 5: Positioning of the removable "A2" Support.**

- After positioning the removable A2 support, check that there are sufficient spaces for maneuvering and releasing it between the upper plate inserted inside the Tail Fin. The figure below (Fig. 6) shows the theoretical measurements obtained from the 3D model which approximately identify the offsets to be detected (for reference only, not binding for installation purposes). If it is necessary to center the indicated plate more in order to obtain the right gaps, it is possible to act by moving the whole Support "A" by slightly releasing the nuts of the tie rods of the locking plates indicated in Fig. 3 and tightening them again once the position has been found optimal.

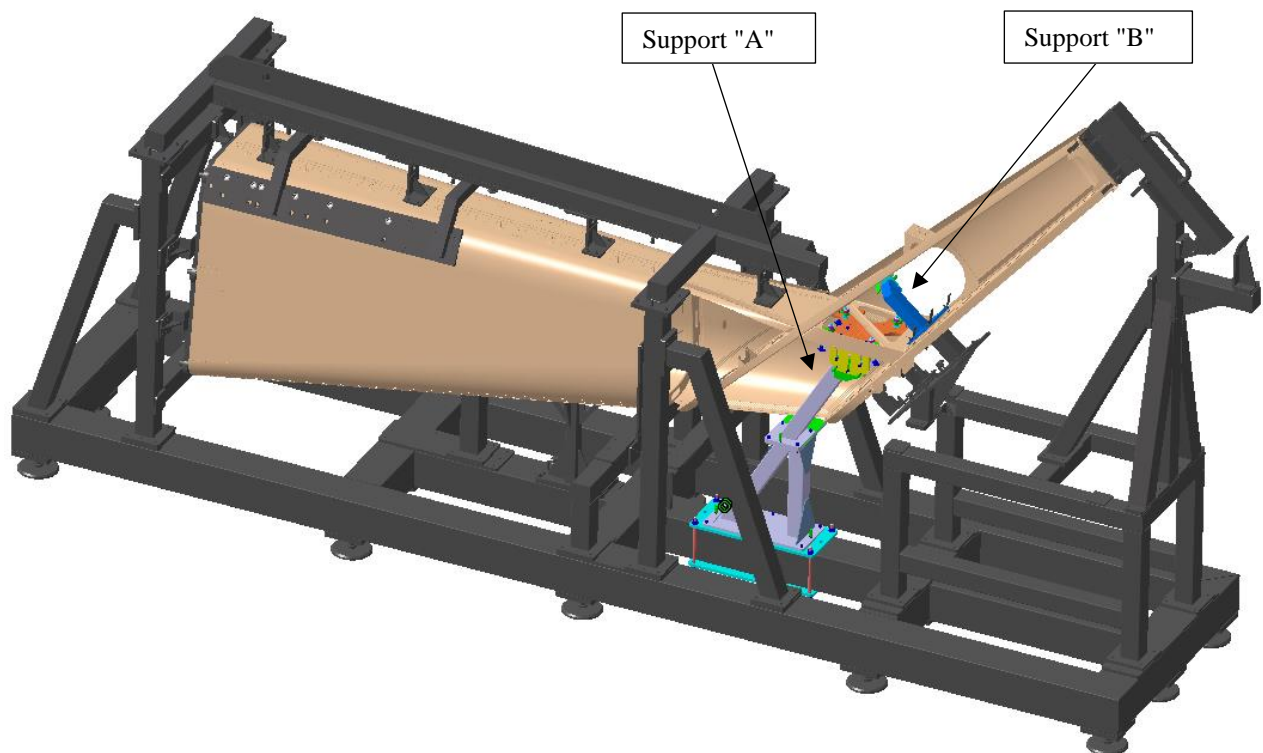


**Figure 6: Offset measurements between the upper inner plate of the Tool Kit and the Tail Fin fairings.**

- After carrying out the operations indicated in points 1 to 4, the kit is ready to be used. No further dimensional verification activities are necessary.

## 8 USE OF THE SUPPLEMENTARY KIT

### 8.1 GENERAL DESCRIPTION



**Figure 7: Integrative Kit installed on the Jig.**

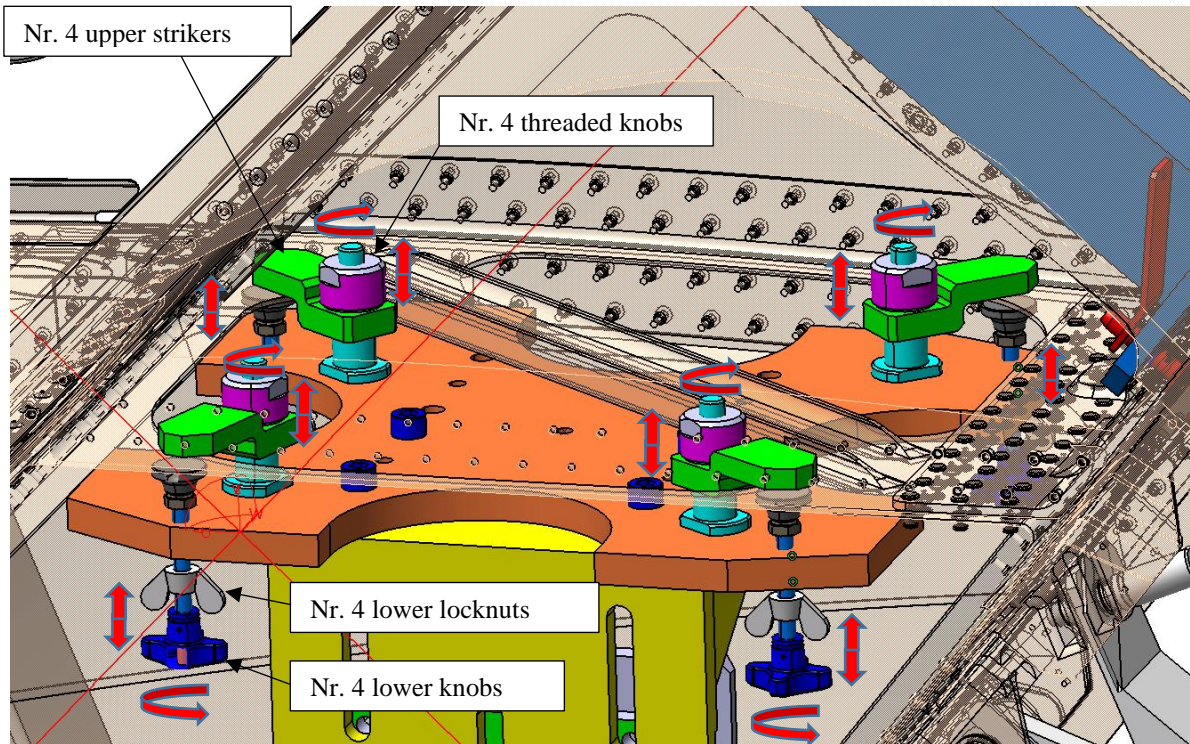
The **Support A**, it allows to lock in the detected position the machined plate connecting the FWD and AFT Longerons through the 4 adjustable strikers on the upper plate of the tool as shown in fig. 8.

**Procedure for locking the internal connecting plate of the FWD and AFT Longerons:**

- Bring the lower pads to rest on the lower surface of the Longeron machined plate without forcing it by acting on the threaded knobs.
- Block the nr. 4 lower knobs by screwing the 4 lock nuts up to the stop with the tool plate.
- Rotate the nr. 4 upper strikers aligned with the lower pads and screw the nr. 4 threaded knobs and properly tighten until they lock, taking care not to damage the machine Fin.

Use and Maintenance Manual AW139 Tail Beam Jig Integrative Kit: P / N PEC-139-018-01

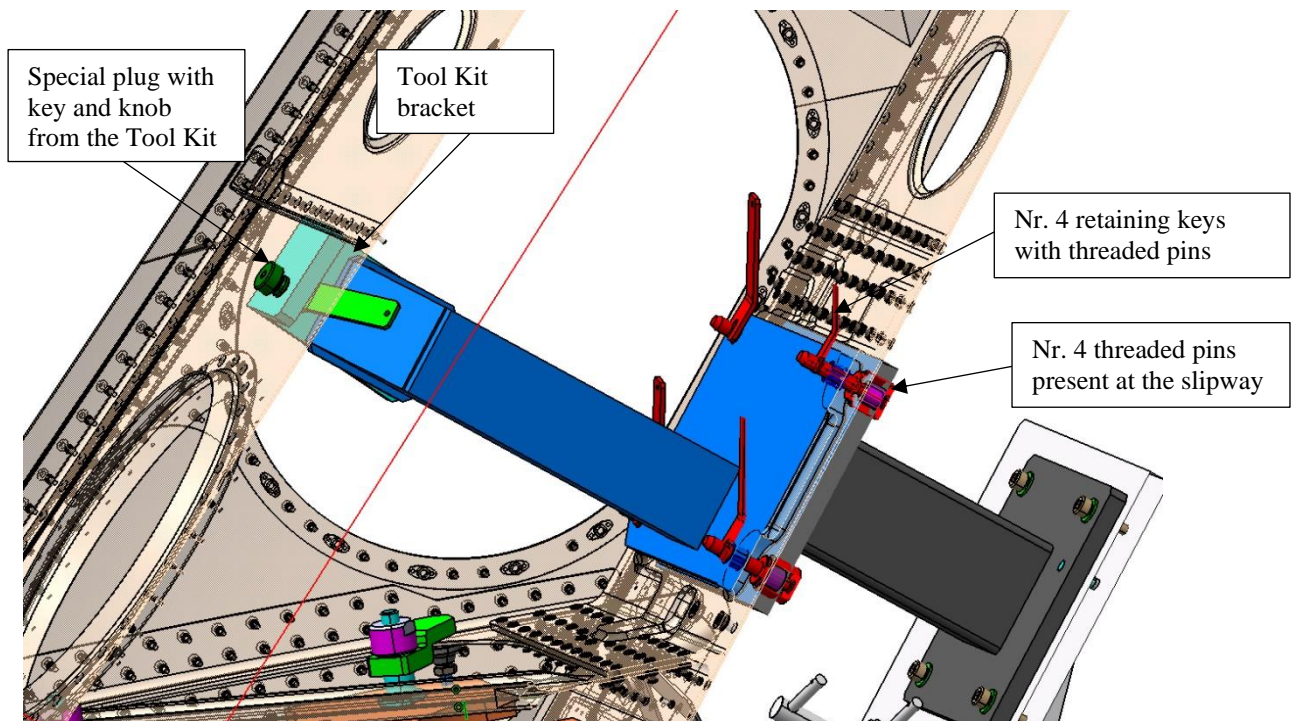
After reassembling the FWD Longeron it is possible to release the Support “A” by carrying out the operations in reverse until removal.



**Figure 8: Plane locking Machined for joining the longitudinal side panels.**

**Support B.** it will be used to lock the replaced FWD Longeron in position through the T / H hole (4.8mm dia). Support installation and use operations:

- Position the Support B in correspondence with the IGB interface surface and insert and tighten the 4 pins and keys present in the jig.
- Insert the special pin supplied with the Tool Kit into the bracket hole of the Support A and the T/H hole of the FWD Longeron and tighten the knob (Fig. 9).



**Figure 9: Support B installed at the Jig in correspondence with the IGB level.**





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## 9 GENERAL INSTRUCTIONS FOR USE IN SAFETY

The use of the equipment for any operation other than those mentioned in this document is strictly prohibited, except with the explicit authorization of the technical office of PEC ITALIA srl.

Before starting to operate, all operators must be properly instructed, in particular by exploiting the contents of this manual, on the operation of the equipment, on assembly and on safety.

It will be up to the manager of the department where the equipment is used to ensure the preparation of its personnel and to verify compliance with the prescriptions and instructions, as well as to ensure that the use of the equipment corresponds to the requirements of this Manual.

### ***9.1 GENERAL INDICATIONS***

- PEC ITALIA Srl declines any responsibility resulting from incorrect use of the equipment.
- Always follow the instructions in this manual.

### ***9.2 INSTRUCTIONS FOR USE***

- Before starting work, check for any visible defects on the various parts of the equipment.
- The connection and handling of the parts must be carried out by expert operators equipped with gloves, safety shoes, helmet and all the personal protections required by law.
- DO NOT USE clothing that can get caught between the parts of the equipment during use (scarves, rings, bracelets, etc.).
- USE overalls, shoes with non-slip soles, protective gloves, helmet.



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## 10 GENERAL INSTRUCTIONS FOR USE IN SAFETY


Following a careful analysis of the dangers during the design phase, all possible measures were taken to eliminate or minimize the dangers for the operating personnel;

- **risks related to non-compliance with the signs:** the attention of all operators and people exposed to the signs and signs is drawn during all assembly, harnessing and lifting operations; particular attention must be paid to the signs indicating personal accident prevention protections, such as shoes, gloves, overalls and helmets, and to the signs of "suspended loads".  
PEC ITALIA Srl declines all responsibility for the non-presence and observance of the same. The general signs to highlight the dangers are the responsibility of the company using the tool.
- **risks deriving from moving parts:** during lifting operations, the operator must move outside the dangerous area included in the range of action of the same and must also constantly check that no one approaches the area near moving parts. It is forbidden to pass or stand under suspended loads and in the handling area of the equipment.
- **risks related to relative positioning and assembly:** carefully follow the instructions given in this manual.
- **risks related to errors or human behavior:** whoever works must be adequately trained, must have read and understood the contents of this Manual;
- **risks due to the inefficiency of the security systems:** in order to avoid all the dangers deriving from inefficiency of the safety systems, make sure to periodically check correct operation.



## 11 MAINTENANCE

It is necessary to carry out all routine maintenance operations before using the equipment. The procedures to be implemented are indicated below.

 <b>NOTE</b>	For maintenance of commercial components, refer to the technical manuals of the respective manufacturers.
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### *11.1 Cleaning*

Before each inspection and each use, clean the equipment according to the procedures described below.

#### Purpose of cleaning:

The parts after cleaning must be free from any processing residue or other impurities.

#### Manual Cleaning:

- Carry out a general cleaning of the painted metal surfaces with a soft clean cloth moistened with a cleaning solvent (MIL-PRF-680C, Type II or similar characteristics)
- Repeat the cleaning process with another cloth without wetting it with solvent
- Drying. Check that the product has not left stagnation in any cavity. Normally the solvent evaporates in a short time at room temperatures.


### *11.2 Greasing and lubrication*

Every 12 month sand / or when deemed necessary, grease all parts that require movement.

Once the parts have been greased, move them empty.



### 11.3 Checks

 <b>NOTE</b>	Check the equipment before each use and at least once a year.
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Examine all parts for:

1. Loose parts
2. Worn parts
3. Parts disconnected
4. Evidence of an impact
5. Breakage or flaking
6. Cracks or cracks in mechanical elements
7. Usury
8. Sprains
9. Oxidation / Corrosion

Case 1. Simply restore the tightening of the screws, in accordance with EN 1090-2.

Case 2. Replacement of STD worn parts. (Data Screws Etc.) of the type indicated in the drawing

Case 3. Restore the binding of the loose part.

Case 4-9. Collect the equipment from the service: extraordinary maintenance is required. Contact the manufacturer to agree on the necessary interventions for restoring and putting back into service.

## 12 REPLACEMENT PARTS

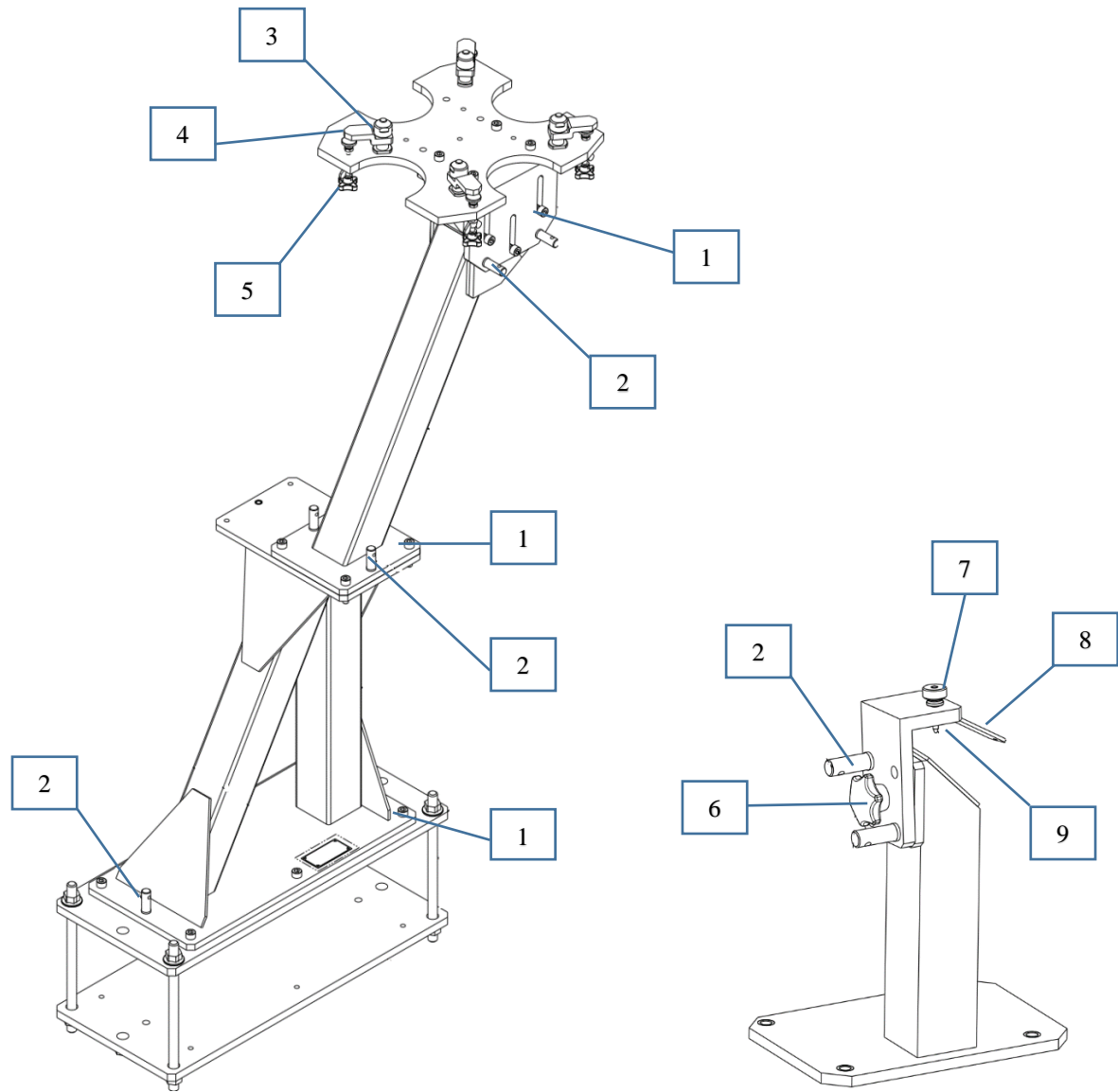


Figure 10: PEC-139-018-01 SPARE PARTS

ITEM	P / N - CODE	DESCRIPTION	SUPPLIER
1	UNI5931-M10X40 - A2	SCREW	STD
2	PEC-139-018-02-08	SPECIAL PIN	PEC
3	PEC-139-018-02-11	KNOB	PEC
4	PEC-139-018-02-10	BRACKET	PEC
5	PEC-139-018-01-04	ADJUSTABLE FOOT ASSY	PEC
6	M10X25.10 code 24690.0152	KNOB	HALDER
7	PEC-139-018-02-13	KNOB	PEC
8	PEC-139-018-02-14	KEY	PEC
9	PEC-139-018-02-12	SPECIAL PIN	PEC

Use and Maintenance Manual AW139 Tail Beam Jig Integrative Kit: P / N PEC-139-018-01



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## 13 LIST OF DOCUMENTATION ATTACHED

The following documents have been attached to this use and maintenance manual:

- Annex I: 2D Drawings of Assembly P/N **PEC-139-018-01**.