



PILATUS AIRCRAFT LTD. CH-6371 STANS, SWITZERLAND

# SERVICE BULLETIN

SERVICE BULLETIN NO: 57-002

REF NO: 59

MODIFICATION NO:

ATA CHAPTER: 57

## WING - MAIN SPAR - INSPECTION OF THE MAIN-LANDING-GEAR FRONT ATTACHMENT-BRACKETS

### 1. Planning Information

#### A. Effectivity

All PC-9 aircraft from MSN 101 thru MSN 600 that have logged more than 3000 flying hours or have been in service 10 years or more.

#### B. Concurrent Requirements

None

#### C. Reason

##### (1) Problem

Cracks have occurred in the main-landing-gear (MLG) front attachment-brackets on some aircraft. The damage was found during a scheduled inspection procedure. All of the aircraft on which the cracks were found had logged more than 3000 flying hours or had been in service 10 years or more.

##### (2) Cause

The cause of the cracks is stress corrosion.

##### (3) Solution

Do an inspection of the left and right MLG front attachment brackets P/N: 111.34.07.105 and 111.34.07.106 for cracks. It is not necessary to inspect the replacement (improved) brackets Part No. 557.10.09.045 and 557.10.09.046.

#### D. Description

This Service Bulletin gives the data necessary for a one time Impedence-Plane Eddy-Current Inspection of the left and right MLG front attachment brackets P/N: 111.34.07.105 and 111.34.07.106 for cracks, and the criteria for acceptance/rejection if cracks are found.

A Revision to the Aircraft Maintenance Manual will include the inspection given in this Service Bulletin and the frequency of inspection.

**NOTE:** The minimum operator level necessary for this inspection procedure is NDI/NDT Level 2 or equivalent.

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**E. Compliance**

Mandatory.

Required within the next 3 calendar months after the effective date of this Service Bulletin, unless already accomplished.

**F. Approval**

The technical aspects of this Service Bulletin have been approved by the Federal Office for Civil Aviation (FOCA) of Switzerland as an Airworthiness Directive.

**NOTE:** PILATUS advises Operators/Owners to ask their local Airworthiness Authorities for changes, local regulations or sanctions which can have an effect on the embodiment of this Service Bulletin.

**G. Manpower**

	Total
Preparation	1.0
Inspection	2.0
Close up	1.0
<b>TOTAL MAN-HOURS</b>	<b>4.0</b>

**H. Weight and Balance**

**(1) Weight Change**

None.

**(2) Moment Change**

None.

**I. Electrical Load Data**

Not changed.

**J. Software**

Not changed.

**K. References**

Aircraft Maintenance Manual (AMM), Chapters 07-10-00, 08-10-00 and 20-31-00.

Service Bulletin 57-003 Wing - Main Spar - Replacement of the MLG Front Attachment Brackets.

**L. Publications Affected**

AMM, Chapters 05-10-20 and 57-10-01.

Structural Repair Manual (SRM), Chapter 57-10-01.

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**M. Interchangeability of Parts**

Not affected.

**2. Material Information**

**A. Materials Necessary for Each Aircraft**

**(1) Materials to be Procured**

None.

**(2) Operator Supplied Materials (Ref. Consumable Materials List, AMM 20-31-00)**

Part No.	Description	Qty	Remarks
908.18.12.080 or 908.18.12.085	Dinitrol AV 30 (water-displacing corrosion preventative)	A/R	Item No. P10-005C (MIL-C-16173). Part No. 908.18.12.080 is a 20 liter container. Part No. 908.18.12.085 is a 400 ml aerosol spray.
-	Isopropyl Alcohol	A/R	Item No. P01-011

**B. Tooling**

**(1) Tools to be Procured**

None

**(2) Operator Supplied Tools**

Part No.	Description	Remarks
N/A	Eddy Current NDT Equipment	Hocking Quick Check Eddy Current Instrument or equivalent
N/A	Shielded Probe and Lead Combination	3 mm Diameter, 500 KHz, 90-degree
N/A	Calibration Standard	2024 Aluminum with an EDM slot 0.5 mm deep
N/A	Marking Pen	

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**3. Accomplishment Instructions - Aircraft**

**WARNING:** BE CAREFUL WHEN YOU USE THE CONSUMABLE MATERIALS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

**A. Preparation**

- (1) Raise the aircraft on jacks (Ref. AMM, 07-10-00).
- (2) Make the aircraft level (Ref. AMM, 08-10-00).
- (3) Clean the top and bottom flanges of the left and right MLG front attachment brackets with isopropyl alcohol or other approved solvent.
- (4) Calibrate the Eddy Current Instrument as follows:
  - (a) Initial gain 35 Db.
  - (b) Frequency 500 KHz.
  - (c) Alarm low OFF.
  - (d) Alarm high 50%.
  - (e) Probe selection Absolute.
  - (f) Refer to the manufacturer's handbook and calibrate the instrument for an 80% up-scale deflection from the 0.5 mm EDM slot of the calibration standard.

**B. Inspection of the MLG Front Attachment Brackets (Ref. Fig. 1)**

- (1) Put the probe on the inspection surface of the bottom flange of the left MLG attachment bracket so that it touches the washer of the fastener (Ref. Fig 1, Position A).
- (2) Do the balance procedure as given in the manufacturer's handbook.
- (3) From Position A, scan around the fasteners of the bottom flange. Use the washers as guides.
- (4) Scan the other accessible areas of the bottom flange. The inspection must include the radii of the support webs to a distance of 25 mm (1 inch) from the inspection surface.

**NOTE:** Edge effect and part geometry can cause a defect indication.

- (5) Scan the top flange as described for the bottom flange.
- (6) Record the results of the inspection (Ref. Para. D).
- (7) Scan the right MLG attachment bracket as described for the left MLG attachment bracket and record the results of the inspection (Ref. Para. D).

  
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**C. Acceptance/Rejection Criteria (Ref. Fig. 2)**

- (1) If the inspection shows more than five cracks, which extend from the edge of the washers, with a total crack length of more than 15 mm
  - Use the Inspection Report Form (Figure 4 and/or 5) to tell the result of the inspection to PILATUS.
  - Do not fly the aircraft until PILATUS have made an analysis of the the results. PILATUS will make a decision on the repair, replacement or inspection frequency necessary for each aircraft.
- (2) If the inspection shows no more than five cracks that extend along the flange and extend less than a total crack length of 15 mm from the edge of the washers, do as follows:
  - (a) Keep a record of the length and location of the crack(s) and the related aircraft details.

**NOTE:** The Aircraft Maintenance Manual (AMM) will be revised to include the inspection and inspection frequency.
- (3) Apply the Dinitrol AV 30 (Item No. P10-005C, liquid or spray) to the attachment nuts and washers and to the upper and lower flange. This will give protection against corrosion and ease regular inspection of the brackets.

**D. Reporting of Inspection Results (Ref. Fig. 3 and Fig. 4)**

- (1) Use a **photocopy** of the Inspection Report Forms (Fig. 3 and Fig. 4) to show the location and length of cracks found. If an aircraft has a bracket (or brackets) with no cracks, please use the Inspection Report Form to tell Pilatus the aircraft details. Fill in as many of the aircraft details as are known and send or fax the completed form(s), (if possible within 30 days) to:

PILATUS AIRCRAFT LTD.,  
B. Weekes, PC-9 Technical Support Manager  
6371 STANS,  
SWITZERLAND  
Fax No. + 41 41 610 33 51

**E. Close up**

- (1) Lower the aircraft to the ground (Ref AMM, 07-10-00).
- (2) Remove all tools and materials and make sure the work area is clean.

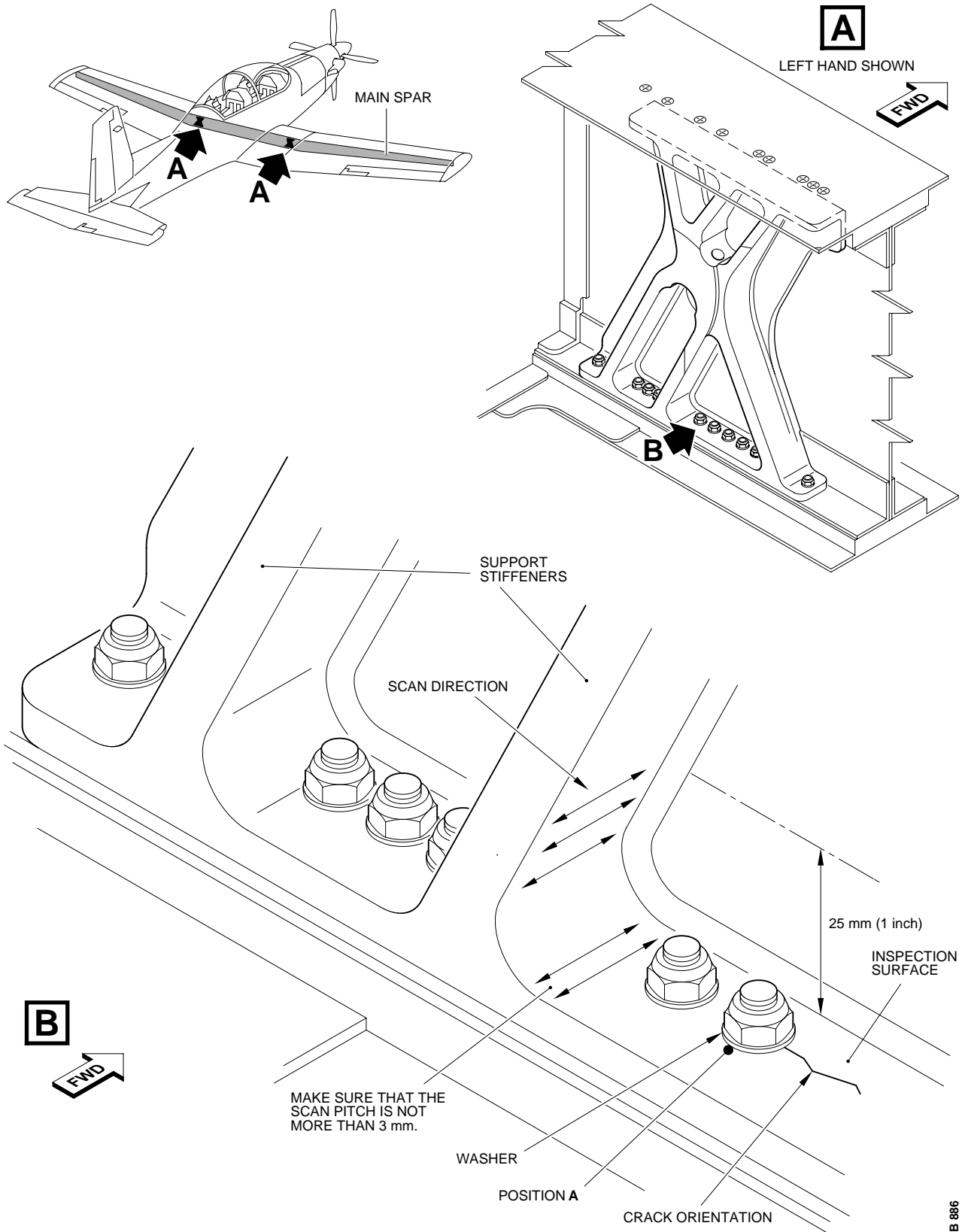
**F. Documentation**

- (1) Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.

**4. Accomplishment Instructions - Spares**

Not applicable.

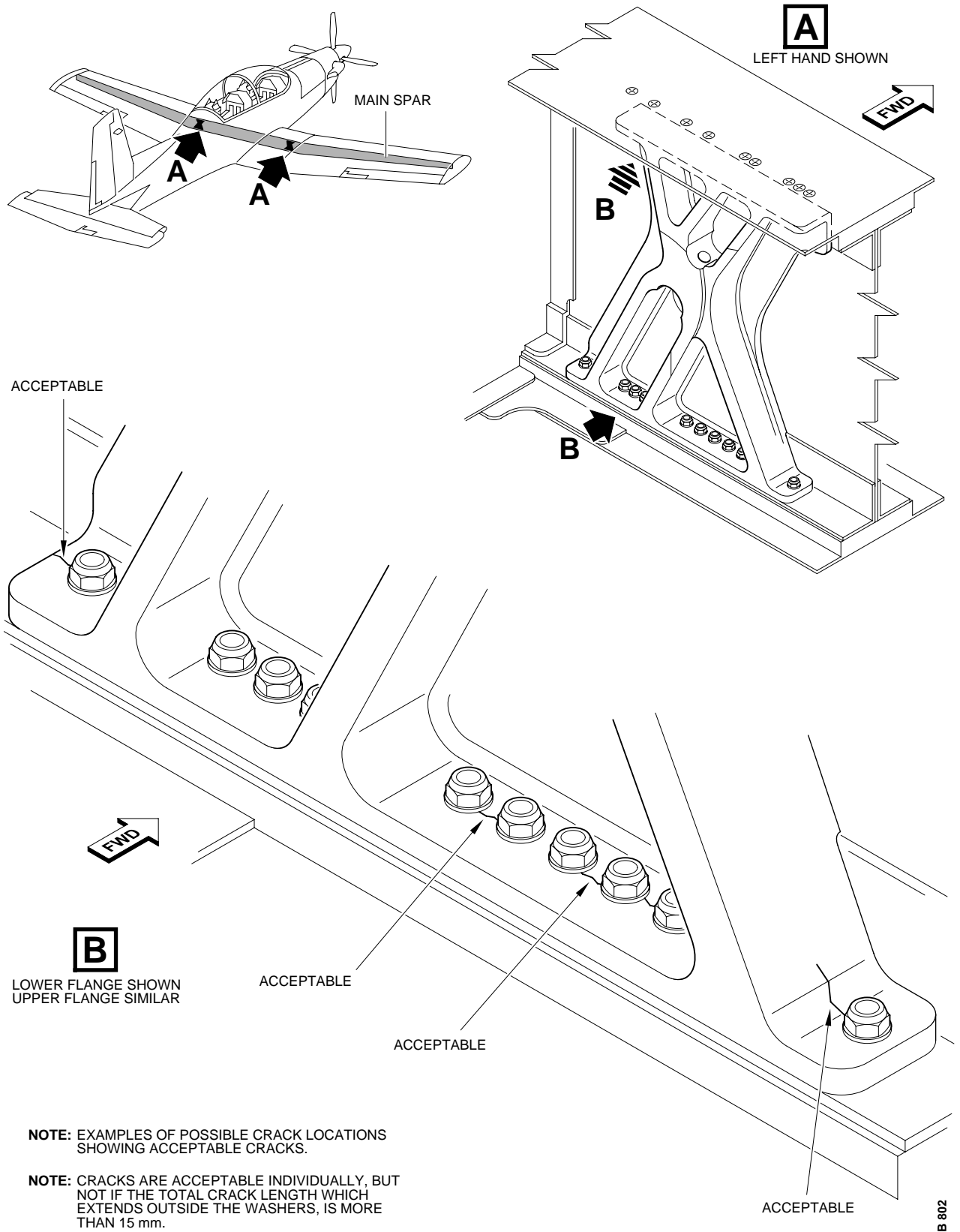
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Inspection of the MLG Front Attachment Brackets - Surface and Scan Path Data  
 Figure 1

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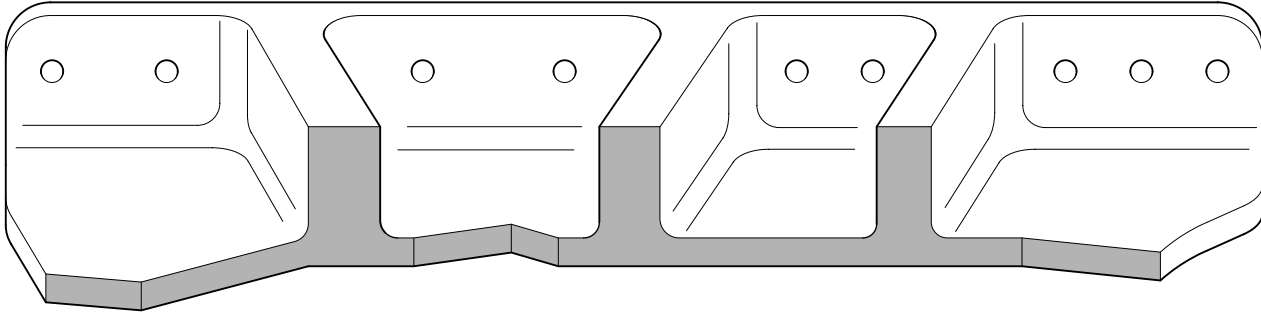


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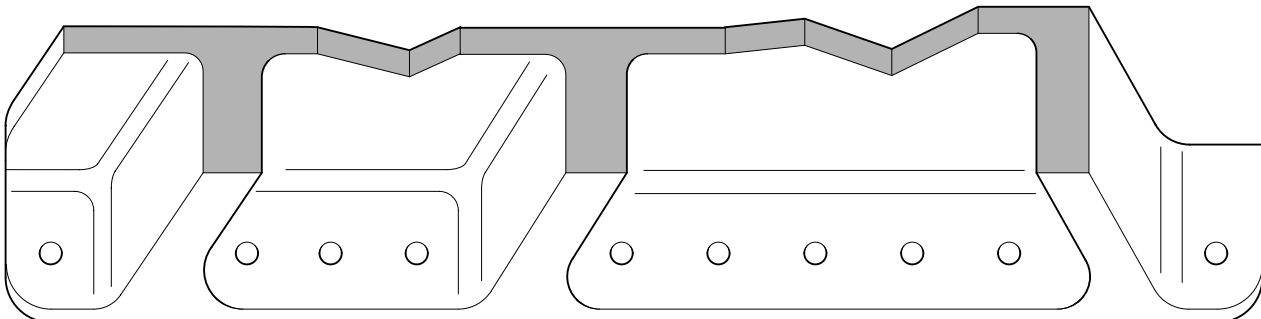
Inspection of the MLG Front Attachment Brackets - Crack Acceptance/Rejection Criteria  
Figure 2

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TOP FLANGE



BOTTOM FLANGE



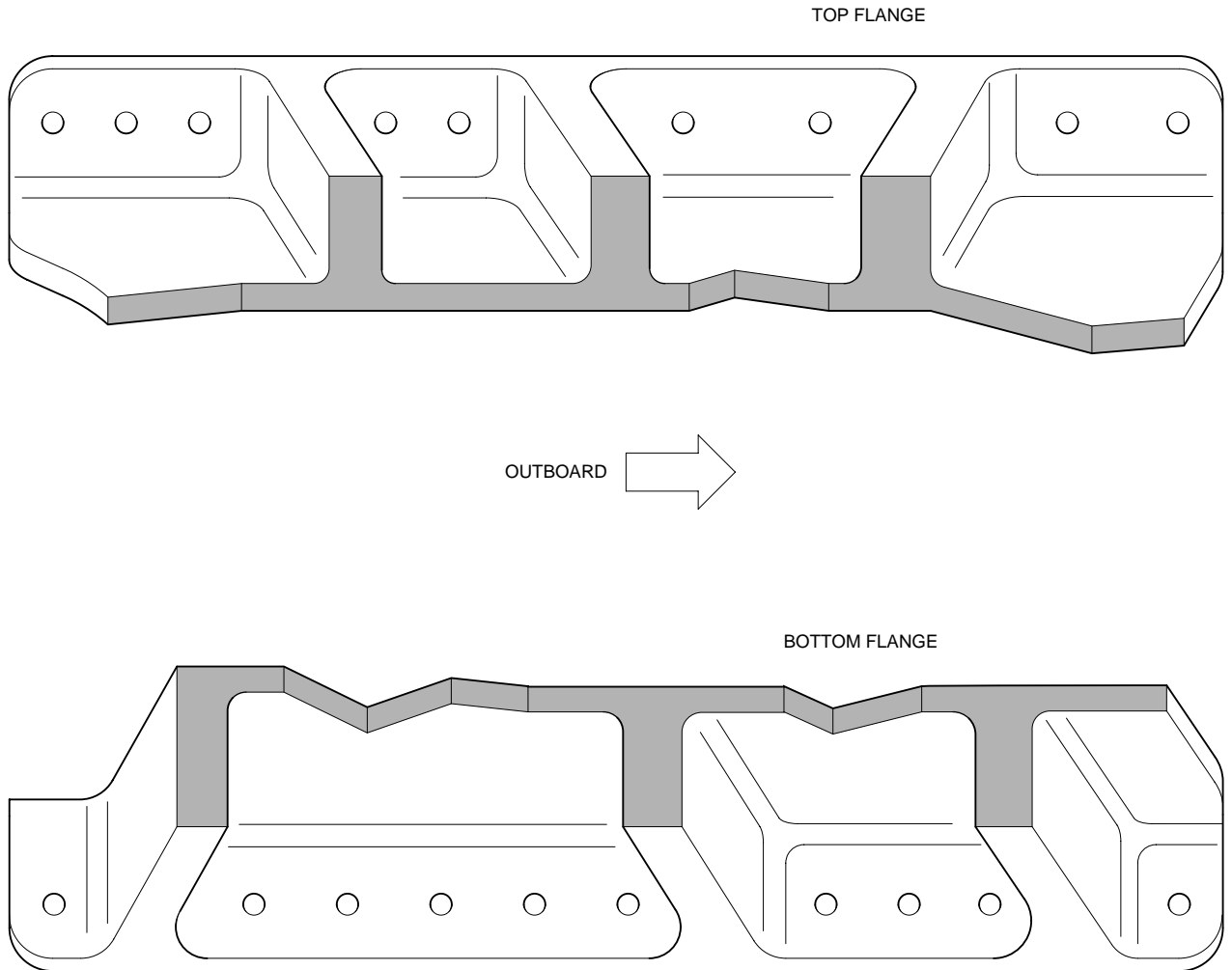
DATE:	AIRCRAFT MSN:	FLYING HOURS:	LANDINGS:
CRACK 1 LENGTH:	mm	ADDITIONAL COMMENTS:	
CRACK 2 LENGTH:	mm		
CRACK 3 LENGTH:	mm		
CRACK 4 LENGTH:	mm		
CRACK 5 LENGTH:	mm		

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Left MLG Front Attachment Bracket - Inspection Report Form  
Figure 3



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DATE:	AIRCRAFT MSN:	FLYING HOURS:	LANDINGS:
CRACK 1 LENGTH:	mm	ADDITIONAL COMMENTS:	
CRACK 2 LENGTH:	mm		
CRACK 3 LENGTH:	mm		
CRACK 4 LENGTH:	mm		
CRACK 5 LENGTH:	mm		

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Right MLG Front Attachment Bracket - Inspection Report Form  
Figure 4