

Service Bulletin No: 27-014

Ref No: 215

Modification No: EC-19-0030, EC-20-0054

ATA Chapter: 27

**FLIGHT CONTROLS - PITCH CONTROL
INTRODUCTION OF ADDITIONAL TRIM TAB BALANCE MASS ON THE ELEVATORS**

1. Planning Information

A. Effectivity

MSN 101 thru MSN 313.

For these items held as spare or in stock:

LH	RH
Effective for MSN 103 thru 108, 153-154 (Pre SB 34-012)	Effective for MSN 103 thru 108, 153-154 (Pre SB 34-012)
Elevator assy, LH P/N 555.20.21.303 Tab assy, LH P/N 555.20.21.101 (part of assy)	Elevator assy, RH P/N 555.20.21.304 Tab assy, RH P/N 555.20.21.102 (part of assy)
Effective for MSN 103 thru 108, 153-154 (Post SB 34-012)	Effective for MSN 103 thru 108, 153-154 (Post SB 34-012)
Elevator assy, LH P/N 555.20.21.237 Tab assy, LH P/N 555.20.21.101 (part of assy)	Elevator assy, RH P/N 555.20.21.238 Tab assy, RH P/N 555.20.21.102 (part of assy)
Effective for MSN 109 thru 152	Effective for MSN 109 thru 152
Elevator assy, LH P/N 555.20.21.303 Tab assy, LH P/N 555.20.21.101 (part of assy)	Elevator assy, RH P/N 555.20.21.304 Tab assy, RH P/N 555.20.21.102 (part of assy)
Effective for MSN 155 thru 233	Effective for MSN 155 thru 233
Elevator assy, LH P/N 555.20.21.305	Elevator assy, RH P/N 555.20.21.306
Tab assy, LH P/N 555.20.21.101	Tab assy, RH P/N 555.20.21.102
Effective for MSN 234 thru 313	Effective for MSN 234 thru 313
Balanced elevator and trim tab, LH P/N 555.20.21.235 Elevator assy, LH P/N 555.20.21.305 (part of assy) Tab assy, LH P/N 555.20.21.101 (part of assy)	Balanced elevator and trim tab, RH P/N 555.20.21.236 Elevator assy, RH P/N 555.20.21.306 (part of assy) Tab assy, RH P/N 555.20.21.102 (part of assy)

B. Concurrent Requirements

None.

C. Reason

(1) Problem

An issue has been identified which results in dynamic instability in the extremely unlikely event of a disconnected elevator tab. This can be removed by an increase in the mass balance weight of the elevator trim tabs.

(2) Solution

The elevator and elevator trim tab mass balance weight is increased to the left and the right sides as follows:

- The elevator trim tab balance weight is replaced with a heavier balance weight that gives a weight increase of 55 g per tab
- An additional lead disk is added to the elevator mass balance assembly to keep the correct balance after the modification to the trim tab. The mass of the lead disk (55 g) may need adjustment during the balancing procedure.

D. Description

This Service Bulletin gives the instructions and data necessary to replace elevator trim tab balance weight and to add a lead disk to the mass balance assembly on the left and right sides.

Revision No. 1 is introduced to:

- Correct the Moment Change in Para. 1.1.(2) from +10.623 lb ft to +16.904 lb ft
- Correct the rivet length of the balance weight attachment rivets in the Mod. Kit 500.50.21.221 (EC-20-0054).

No further work is required on aircraft that had this Service Bulletin accomplished in accordance with the initial revision.

E. Compliance

Mandatory.

Accomplishment required not later than one year after the effective date of this Service Bulletin.

F. Approval

The technical content of this Service Bulletin is approved under the authority of Letter of DOA Acceptance ref. FOCA. 21J.002.

PILATUS advises Operators/Owners to check with their designated Airworthiness Authorities for any changes, local regulations or sanctions that may affect the embodiment of this Service Bulletin.

G. Copyright

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H. Manpower

	Man-Hours	Man-Hours Spares (Per Unit)
Preparation	1.00	-
Modification - on aircraft	6.00	-
Modification - spares	-	3.00
Close up	2.00	-
TOTAL MAN-HOURS	9.00	3.00

NOTE: Man-hours figures do not include the time required to cure adhesives, sealants or for primer and paint to dry.

I. Weight and Balance
(1) Weight Change

+0.220 kg (+0.485 lb).

(2) Moment Change

+2.337 kg m (+16.904 lb ft).

J. Electrical Load Data

Not changed.

K. Software

Not changed.

L. References

Aircraft Maintenance Manual (AMM), 00-50-00-00A-013A-A, 27-00-00-00A-012A-A, 27-00-00-00A-525A-A, 27-30-00-00A-520A-A, 27-30-00-00A-720A-A, 95-00-00-00A-012A-A.

Structural Repair Manual (SRM), 51-60-00-01A-276A-C

M. Publications Affected

Illustrated Parts Data (IPD), 21-B-55-20-00-010-941A-A, 21-B-55-20-00-020-941A-A, 21-C-55-20-00-01C-941A-A, 21-C-55-20-00-02C-941A-A, 21-D-55-20-00-01D-941A-A, 21-D-55-20-00-02D-941A-A, 21-E-55-20-00-01E-941A-A, 21-E-55-20-00-02E-941A-A, 21-E-55-20-00-03E-941A-A, 21-G-55-20-00-03G-941A-A.

N. Interchangeability of Parts

One way interchangeable. Pre-Service Bulletin parts must not be installed on post-Service Bulletin 27-014 aircraft or spares.

2. Material Information

A. Material - Price and Availability

Modification Kit No. 500.50.21.221 is necessary to do this Service Bulletin.

Operators who require further information on this subject should contact their Customer Liaison Manager at:

Pilatus Aircraft Limited,
6371 Stans,
Switzerland.

Operators are requested to advise Pilatus Aircraft Ltd. of the Manufacturer's Serial Number (MSN), the flying hours and landings of aircraft that are allocated for this Service Bulletin using the Service Bulletin Evaluation Form.

When you order the modification kit (P/N 500.50.21.221) from Pilatus Aircraft Ltd, you will also get a parts list. Use the numbers in column 1 (Pos. No.) to identify the parts in the kit (Ref. Para. 2.B.(1), Column 1).

B. Material Necessary for Each Aircraft

(1) Material to be Procured

Modification Kit No. 500.50.21.221.

The table below lists the parts in the Modification Kit (Ref. Para. 2.A.) and the disposition of the replaced parts:

Pos. No.	Description	Old Part No.	Qty	Disp. Code	Fig. No.	Item. No.
10	BALANCE WEIGHT, ELEVATOR TRIM TAB		2	N	1	6
		555.20.21.123	2	D	1	4
20	DISC, LEAD	-	2	N	2	3
30	WASHER, LOCKING	See Note	2	N	-	-
40	PROT. FILM, LABEL, SB INCORP	-	2	N	2	8
50	LABEL, SB INCORPORATED	-	2	N	2	9
100	CABLE TIE, TYB- 24M, PA66	See Note	2	N	-	-
110	RIVET, SOLID, CSK, MON, 3.2*15.1		4	N	1	2
		939.30.69.018	4	D	1	2

Pos. No.	Description	Old Part No.	Qty	Disp. Code	Fig. No.	Item. No.
120	COTTER PIN, MON, 1.6*12.7	See Note	4	N	-	-
Disposition Codes: N - New. D - Discard. R - Return to Pilatus.						

NOTE: These items are used during the installation procedure of the elevators, refer to AMM 27-30-00-00A-720A-A.

(2) **Operator Supplied Materials (Ref. AMM, 00-50-00-00A-013A-A):**

MATERIAL NO.	DESCRIPTION	QTY	REMARKS
P01-010	SOLVENT	A/R	Or equivalent
P02-031	ABSORBENT PAPER	A/R	Or equivalent
P08-094	SEALANT	A/R	PSU, MC-780 - Interfay, C-1/3
-	TOPCOAT	A/R	As applicable

C. Material Necessary for Each Spare

Modification Kit No. 500.50.21.221.

The table below lists the parts in the Modification Kit (Ref. Para. 2.A.) and the disposition of the replaced parts:

Pos. No.	Description	Old Part No.	Qty	Disp. Code	Fig. No.	Item. No.
10	BALANCE WEIGHT, ELEVATOR TRIM TAB		2	N	1	6
		555.20.21.123	2	D	1	4
20	DISC, LEAD	-	2	N	2	3
30	WASHER, LOCKING	See Note	2	N	-	-
40	PROT. FILM, LABEL, SB INCORP	-	2	N	2	8
50	LABEL, SB INCORPORATED	-	2	N	2	9
100	CABLE TIE, TYB- 24M, PA66	See Note	2	N	-	-

Pos. No.	Description	Old Part No.	Qty	Disp. Code	Fig. No.	Item. No.
110	RIVET, SOLID, CSK, MON, 3.2*15.1		4	N	1	2
		939.30.69.018	4	D	1	2
120	COTTER PIN, MON, 1.6*12.7	See Note	4	N	-	-

Disposition Codes: N - New. D - Discard. R - Return to Pilatus.

NOTE: These items are not applicable to the modification to the spares.

D. Re-identified Parts

The part number for the elevator will be updated and shown on the new SB incorporated label, included in the kit.

E. Tools and Equipment

PART NO.	DESCRIPTION	QTY	REMARKS/APPLICATION
990.00.02.004	MECHANICAL TOOL KIT	1	-
-	SCRAPER	1	Non metallic

3. Accomplishment Instructions - Aircraft

WARNING: MAKE SURE THAT BOTH EJECTION SEATS HAVE THE SAFETY PINS INSTALLED IN THE SAFE FOR SERVICING LOCATIONS AND THAT THE CFS HAS THE SAFETY PIN INSTALLED IN THE SAFE POSITION BEFORE YOU GO INTO THE COCKPIT (REF. AMM, 95-00-00-00A-012A-A).

WARNING: BE CAREFUL WHEN YOU OPERATE THE FLIGHT CONTROL SURFACES. MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE AWAY FROM THE AREA AROUND THE FLIGHT CONTROL SURFACES. A SUDDEN MOVEMENT OF THE FLIGHT CONTROL SURFACES CAN CAUSE AN INJURY TO PERSONNEL AND CAN CAUSE DAMAGE TO THE EQUIPMENT.

WARNING: BE CAREFUL WHEN YOU USE THE CONSUMABLE MATERIALS. OBEY THE MANUFACTURERS HEALTH AND SAFETY INSTRUCTIONS.

NOTE: The mechanical tool kit (P/N 990.00.02.004) is necessary to do this procedure.

NOTE: This procedure is applicable to the left and the right elevators.

A. Preparation

- (1) Do the safety procedures for the Flight Control System (FCS), before you do work on the flight controls (Ref. AMM, 27-00-00-00A-012A-A).
- (2) Put a warning sign 'DO NOT OPERATE THE FLIGHT CONTROLS', in the front cockpit and the rear cockpit.
- (3) Remove the left and right elevators (Ref. AMM, 27-30-00-00A-520A-A).

B. Modification

- (1) Do the modification to replace the elevator trim-tab balance-weight (Ref. Fig. 1).
 - (a) Move the elevator trim tab assembly (3) and hold in the deflected position to get access to the balance weight (4).
 - 1 Use a 3,2 mm diameter drill and carefully remove the two rivets (2) from the balance weight (4).
 - 2 Remove and discard the balance weight (4) from the elevator trim tab assembly (3).
 - 3 If necessary, use a non-metallic scraper to remove any residual sealant from the work area.
 - 4 Use absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010) to clean the work area.
 - (b) Remove the balance weight (4) from the elevator trim tab assembly (3).
 - 1 Use a 3,2 mm diameter drill and carefully remove the two rivets (2) from the balance weight (4).
 - 2 Remove and discard the balance weight (4) from the elevator trim tab assembly (3).
 - 3 If necessary, use a non-metallic scraper to remove any residual sealant from the work area.
 - 4 Use absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010) to clean the work area.
 - (c) Install the new balance weight (6) (Pos. No. 10) on the elevator trim tab assembly (3).

- 1 Apply a layer of sealant (Material No. P08-094) on the mating surfaces of:
 - The new balance weight (6) (Pos. No. 10)
 - The elevator trim tab assembly (3).
 - 2 Put the new balance weight (6) (Pos. No. 10) in position.
 - 3 Use the gripper pins/clamps (or equivalent) to help hold the new balance weight (6) (Pos. No. 10) in position.
 - 4 Apply a layer of sealant (Material No. P08-094) on each rivet before you install it.
 - 5 Install two new rivets (2) (Pos. No. 110) to attach the new balance weight (6) (Pos. No. 10) in position.
 - 6 Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-010) to remove unwanted sealant.
- (d) Apply the applicable topcoat as necessary to the new balance weight (6) (Pos. No. 10) and work area.
- (e) Let the topcoat dry.
- (2) Do the modification to install an additional lead weight in the mass balance assembly (Ref. Fig. 2).
- (a) Remove the five screws (2) and remove the mass balance assembly (7) from the elevator (1).
 - (b) At the inboard position of the mass balance assembly (7), remove the attachment hardware that follows:
 - The nut (4)
 - The two washers (5)
 - The special washer (6).
 - (c) Install the new lead disk (3) (Pos. No. 20) in position at the inboard position on the mass balance assembly (7).
 - (d) At the inboard position of the mass balance assembly (7), install the attachment hardware that follows:
 - The nut (4)
 - The two washers (5)
 - The special washer (6).
 - (e) Put the mass balance assembly (7) in position on the elevator (1) and install the five screws (2).
- (3) Install the new SB incorporated label (Ref. Fig. 2).
- (a) Find the existing identification label.

- (b) Make sure that the data given on the new SB incorporated label (9) (Pos. No. 50) is complete and correct and relates to the SB being incorporated.
- (c) Use a permanent marker to add the date of incorporation of the SB in the DATE field of the new SB incorporated label (9) (Pos. No. 50).
- (d) Use the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010) and clean the installation area for the new SB incorporated label (9) (Pos. No. 50).

NOTE: Install the new SB incorporated label (9) (Pos. No. 50) adjacent and in-line with the existing identification label in a position that can be read easily.

- (e) Let the installation area dry.
- (f) Remove the backing strip from the new SB incorporated label (9) (Pos. No. 50).
- (g) Align the SB incorporated label (9) (Pos. No. 50) and apply it correctly into position. Make sure that:
 - There are no folds in the label
 - There are no air bubbles caught between the label and the surface.
- (h) When the new SB incorporated label (9) (Pos. No. 50) is fully bonded in position, remove the backing strip from the protective film (8) (Pos. No. 40).
- (i) Align the protective film (8) (Pos. No. 40) with the SB incorporated label (9) (Pos. No. 50) and apply it correctly into position. Make sure that:
 - There are no folds in the protective film and it completely covers the label
 - There are no air bubbles caught between the label and the protective film.

- (4) Do Steps 3.B.(1) thru (3) for the other elevator.

C. Close up

- (1) Do the elevator balance procedure for the left and right elevators (Ref. SRM, 51-60-00-01A-276A-C).
- (2) Install the left and right elevators (Ref. AMM, 27-30-00-00A-720A-A).
- (3) Remove the warning panels.
- (4) Do the close up procedure for the FCS (Ref. AMM, 27-00-00-00A-525A-A).
- (5) Remove all equipment, materials and tools from the work area. Make sure that the work area is clean.

D. Documentation

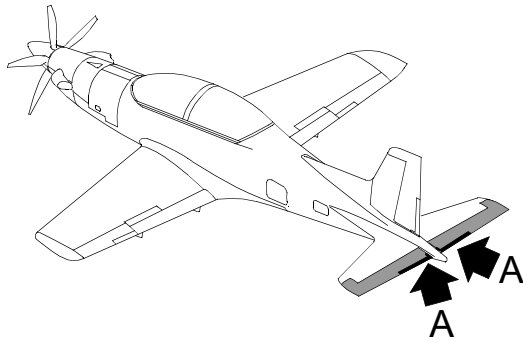
- (1) Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.
- (2) Use the Service Bulletin Evaluation Sheet and report your results and the serial number of the aircraft to PILATUS.

4. Accomplishment Instructions - Off Aircraft**A. Modification**

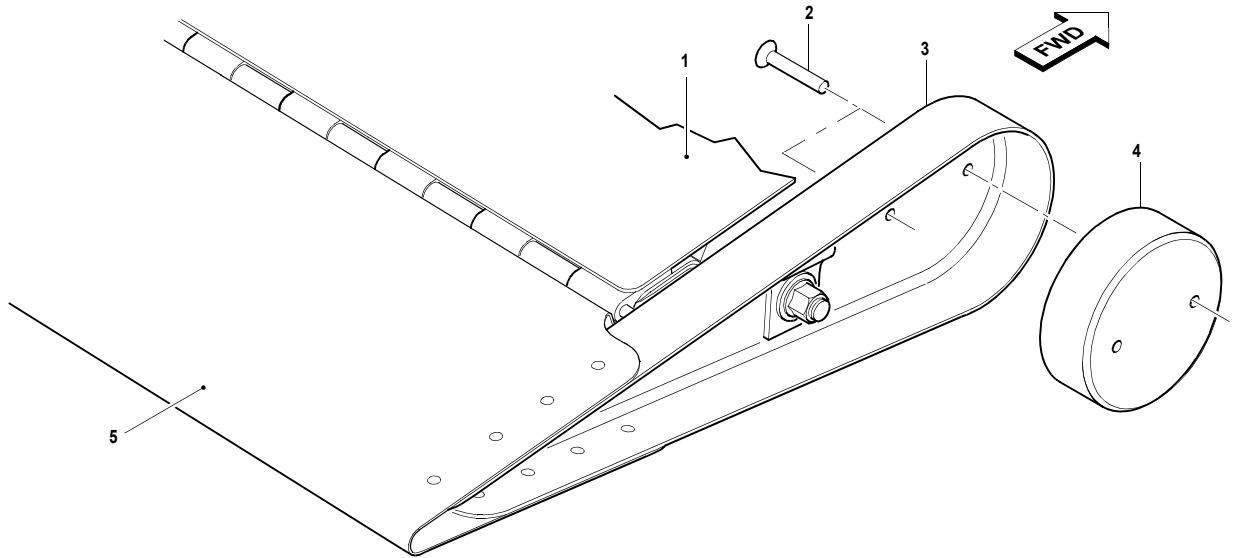
- (1) Do the modification to the elevator assemblies held as spare or in stock, refer to Para. 3.B. and Para. 3.C.(1).

B. Documentation

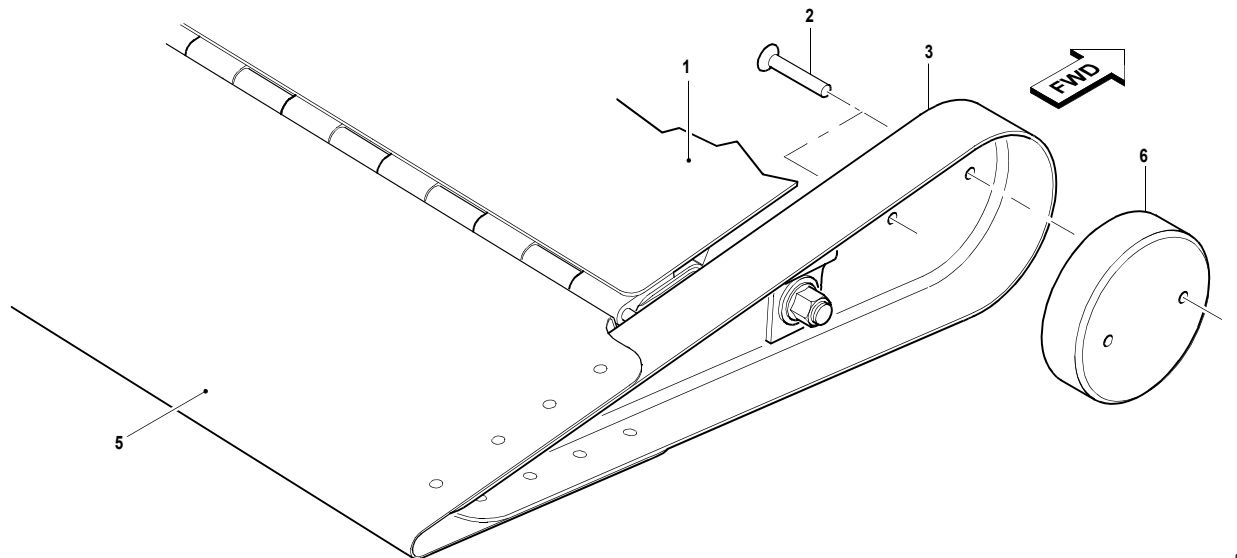
- (1) If applicable, make an entry on the elevator Log-Card that this Service Bulletin has been incorporated and that the part number has changed.
- (2) Use the Service Bulletin Evaluation Sheet and report your results to PILATUS.



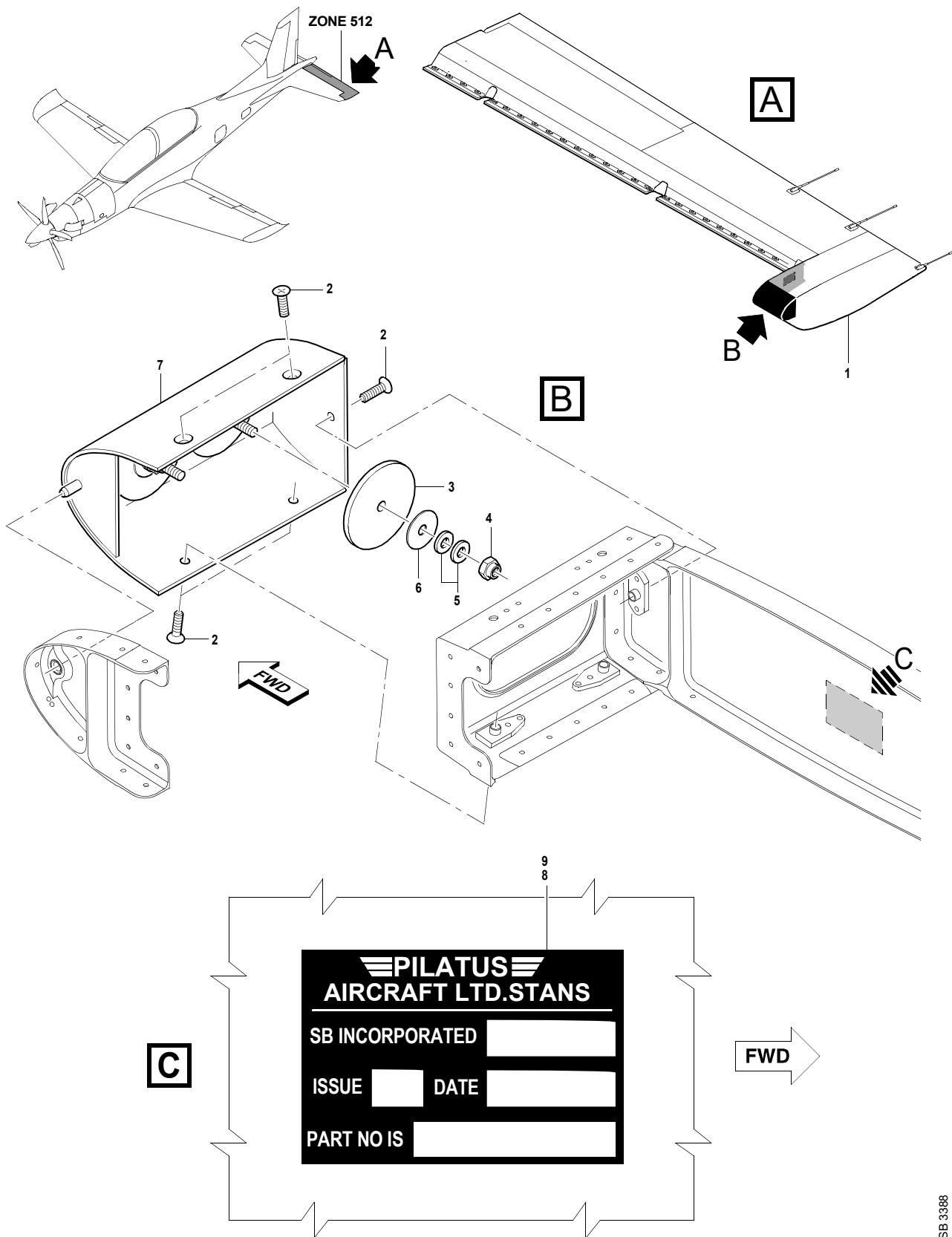
PRE SB 27-014



POST SB 27-014



Replacement of the Elevator Trim Tab Weight on the Left and Right Elevator Trim Tabs
Figure 1



Installation of an Additional Weight to the Left and Right mass balance assemblies
Figure 2

SERVICE BULLETIN EVALUATION SHEET FOR SB No. 27-014			
Title	Flight Controls - Pitch Control Introduction of Additional Trim Tab Balance Mass on the Elevators		
Customer			
Service Center			
EMBODIMENT REPORTING			
This SB has been embodied:		<input type="checkbox"/>	On the entire fleet
		<input type="checkbox"/>	Only partially
Provide embodiment details per aircraft (use additional copies of this table, if necessary)			
MSN	Flying Hours	MSN	Flying Hours
Additional embodiment comments/findings			
EDITORIAL COMMENTS (procedure, kit quality, suggested improvements, etc.)			
Name	Signature	Date	
Please complete and forward this form to: Pilatus Aircraft LTD, Customer Technical Support (MCC), P.O. BOX 992, 6371 Stans, Switzerland Fax: +41 (0)41 619 6773 Email: Techsupport@pilatus-aircraft.com			

SERVICE BULLETIN EVALUATION SHEET

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