

SERVICE BULLETIN

SERVICE BULLETIN NO: 32-020

REF NO: 209

MODIFICATION NO: EC-06-1061, EC-07-0072

ATA CHAPTER: 32

LANDING GEAR - MAIN LANDING GEAR SPECIAL BOLTS - INSPECTION AND REPLACEMENT

1. Planning Information

A. Effectivity:

- (1) All PC-12, PC-12/45 and PC-12/47 aircraft from MSN 101 up to, and including, MSN 749.
- (2) All Main Landing Gear (MLG) assemblies (P/N 532.10.12.037, P/N 532.10.12.038, P/N 532.10.12.041, P/N 532.10.12.042, P/N 532.10.12.043, P/N 532.10.12.044, P/N 532.10.12.047, P/N 532.10.12.048, P/N 532.10.12.049, P/N 532.10.12.050, P/N 532.10.12.051 and P/N 532.10.12.052) delivered before Dec. 31/06 and held as spare.
- (3) Special bolts P/N 532.10.12.110, P/N 532.10.12.205, P/N 532.10.12.077 and P/N 532.10.12.202 delivered before Dec. 31/06 and held as spare.
- (4) Modification kit numbers 500.50.12.267, 500.50.12.286 and 500.50.12.299 delivered before Dec. 31/06 and held as spare.

B. Concurrent Requirements

None

C. Reason

(1) Problem

It is possible for some bolts of the MLG assemblies to be defective. The problem is only applicable to specific bolts with serial numbers that start with the letters AT or have the supplier code AT. If the bolt is not marked or has a mark other than AT (for example VLG), the bolt is not affected.

(2) Cause

It is known that it is possible for hydrogen embrittlement to occur during the manufacture of the special bolts.

(3) Solution

Unless already accomplished at initial issue of this Service Bulletin, do a check of all special bolts that have serial numbers that start with the letters AT or have the supplier code AT and replace them.

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D. Description

This Service Bulletin gives the data and instructions necessary to check all special bolts that have serial numbers that start with the letters AT or have the supplier code AT which are installed on MLG assemblies, MLG assemblies held as spare, special bolts held as spare and modification kits held as spare, and replace them.

Revision No. 1 of this Service Bulletin is issued to help identify special bolts which are not affected by this Service Bulletin and therefore do not require replacement.

E. Compliance

Mandatory.

Required within the next 100 hours time-in-service or 3 calendar months after the effective date of this Service Bulletin, whichever comes first.

F. Approval

The technical content of this Service Bulletin is approved under the authority of DOA No. EASA. 21J. 357.

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

G. Manpower

The following man-hours are given for inspection and replacement for the two MLG assemblies:

	Total	Total
Inspection	0.50	-
Preparation	-	1.00
Replacement	-	2.00
Close up	-	1.00
TOTAL MAN-HOURS	0.50	4.00

H. Weight and Balance

(1) Weight Change

Not affected.

(2) Moment Change

Not affected.

I. Electrical Load Data

Not changed.

J. Software

Not changed.

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K. References

Aircraft Maintenance Manual (AMM): 07-10-00, 20-20-00, 20-20-01, 24-00-00, 29-00-00 and 32-30-00.

L. Publications Affected

None.

M. Interchangeability of Parts

Not applicable.

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2. Material Information - Part B

A. Material - Price and Availability

If replacement of bolt (or bolts) (P/N 532.10.12.110, P/N 532.10.12.205, P/N 532.10.12.077 and P/N 532.10.12.202) is necessary, Operators should send orders for Service Bulletin Modification Kits, to their Authorized Pilatus Service Center or:

PILATUS AIRCRAFT LTD.,
CUSTOMER SUPPORT MANAGER,
CH-6371 STANS,
SWITZERLAND

General Aviation:
Tel: + 41 41 619 6208
Fax: + 41 41 619 7311
eMail: SupportPC12@pilatus-aircraft.com

PILATUS BUSINESS AIRCRAFT LTD.,
PRODUCT SUPPORT DEPARTMENT
11755 AIRPORT WAY
BROOMFIELD, CO 80021.
UNITED STATES OF AMERICA

Tel: 303 465 9099
Fax: 303 465 6040
eMail: Productsupport@PilBal.com

PILATUS AUSTRALIA (PTY.) LTD,
17 JAMES SCHOFIELD DRIVE,
ADELAIDE AIRPORT SA 5950,
AUSTRALIA

Tel: (08) 8234 4433
Fax: (08) 8234 4499
Free Call: 1800 445 007
eMail: info@pilatus.com.au

Operators are requested to advise Pilatus Aircraft Ltd, of the Manufacturer's Serial Number (MSN) and the flying hours of aircraft which are affected by this Service Bulletin.

Modification Kit Number	Price	Availability
500.50.12.311 (Note 1)	Contact address above	Contact address above
500.50.12.312 (Note 2)	Contact address above	Contact address above

NOTE 1: Use modification kit 500.50.12.311 when you have to replace the special bolt P/N 532.10.12.077 and 532.10.12.202. This kit is for 1 MLG assembly.

NOTE 2: Use modification kit 500.50.12.312 when you have to replace the special bolts P/N 532.10.12.110 and P/N 532.10.12.205. This kit is for 1 MLG assembly.

A. Warranty

Credit will be issued for all affected aircraft and landing gear assemblies held as spare on approval of a warranty claim, provided the:

- Work is done at an authorized service center during the next 100 hour inspection or within three months from the effective date of this Service Bulletin, whichever comes first.
- Removed parts are sent to PILATUS and receipt is confirmed.

Credit will not be issued for labour or parts for the replacement of non-affected bolts.

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B. Material Necessary for Each Main Landing Gear

- (1) Modification Kit No. 500.50.12.311 is for when you have to replace the special bolt, which attaches the retraction actuator to the MLG assembly (left or right). This kit is for 1 MLG assembly and has these parts:

New Part No.	Description	Old Part No.	Qty	Disp. Code	Fig	Item
532.10.12.218 532.10.12.202 (See Note)	BOLT, SPECIAL	532.10.12.077 532.10.12.202	1	R	1 2	2 6
938.77.11.129	WASHER (NAS1149F1290P)	938.77.11.129	1	D	2	3
938.08.71.212	NUT (MS17825-12)	938.08.71.212	1	D	2	2
940.17.02.264	COTTER PIN (MS24665-355)	940.17.02.264	1	D	2	1

Disposition Codes: D - Discard / R - Return to Pilatus

NOTE: The bolt P/N 532.10.12.202, with a serial number which includes the supplier code "VLG", is an acceptable alternate for P/N 532.10.12.218.

- (2) Modification Kit No. 500.50.12.312 is for when you have to replace the special bolts (upper or lower), which attaches the shock absorber to the MLG assembly (left or right). This kit is for 1 MLG assembly and has these parts:

New Part No.	Description	Old Part No.	Qty	Disp. Code	Fig	Item
532.10.12.219 532.10.12.205 (See Note)	BOLT	532.10.12.110 532.10.12.205	2	R	1 3	1 2
940.17.02.248	COTTER PIN (MS24665-285)	940.17.02.248	2	D	3	6

Disposition Codes: D - Discard / R - Return to Pilatus

NOTE: The bolt P/N 532.10.12.205, with a serial number which includes the supplier code "VLG", is an acceptable alternate for P/N 532.10.12.219.

- (3) Operator Supplied Materials

Material No.	Description	Qty	Remarks
P01-008	Solvent	A/R	Or approved alternative (Pilatus P/N 908.63.81.101)
P02-003	Cloth	A/R	(Pilatus P/N 904.49.73.004)
P04-012	Corrosion Preventative	A/R	(Pilatus P/N 910.31.20.040)

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C. Material Necessary for Each MLG Assembly Spare

- (1) Modification Kit No. 500.50.12.311 is for when you have to replace the special bolt, which attaches the retraction actuator to the MLG assembly (left or right) held as spare. This kit is for 1 MLG assembly.
- (2) Modification Kit No. 500.50.12.312 is for when you have to replace the special bolts (upper or lower), which attaches the shock absorber to the MLG assembly (left or right) held as spare. This kit is for 1 MLG assembly.

NOTE: If you need to replace a single bolt held as spare or a bolt that is part of a Service Bulletin kit, only order the specific bolt, not the complete kit.

- (3) Operator Supplied Materials

Material No.	Description	Qty	Remarks
P01-008	Solvent	A/R	Or approved alternative (Pilatus P/N 908.63.81.101)
P02-003	Cloth	A/R	(Pilatus P/N 904.49.73.004)
P04-012	Corrosion Preventative	A/R	(Pilatus P/N 910.31.20.040)

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3. Accomplishment Instructions

A. Inspection (Ref. Fig. 1)

- (1) Do a check of the special bolts (2) that attach the MLG retraction actuators to the MLG assemblies for serial numbers that start with the letters AT. If you find a special bolt (2) with a serial number that starts with the letters AT, replace the bolt (Ref. 3. B.).

NOTE: On affected bolts, the serial number is permanently marked on the bolt head.

- (2) Do a check of the special bolts (1) that attach the shock absorbers to the MLG assemblies for supplier code AT. If you find a special bolt (1) with a supplier code AT, replace the special bolt (Ref. 3. B.).

NOTE: On affected bolts, the supplier code is permanently marked on the threaded (tail) end of the bolt.

B. Replacement Instructions

WARNING: BE CAREFUL WHEN YOU OPERATE THE LANDING GEAR SYSTEMS. MOVING COMPONENTS CAN CAUSE INJURY.

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

- (1) Preparation

- (a) Obey the safety instructions given in:

- Hydraulic Power - Maintenance Practices (Ref. AMM, 29-00-00, Page Block 201)
- Landing Gear - Maintenance Practices (Ref. AMM, 32-30-00, Page Block 201)

- (b) Lift the aircraft with jacks (Ref. AMM, 07-10-00, Page Block 201).

- (c) Energize the aircraft electrical system (Ref. AMM, 24-00-00, Page Block 201).

- (d) Disengage the landing-gear actuator down-lock.

- (i) Make sure it is safe to move the landing gear.

- (ii) In the flight compartment set the landing-gear selector handle to UP. Do this until the landing-gear actuator down-lock disengages, then open and safety the circuit breaker HYDR CTL (NON ESSENTIAL BUS). The MLG will now stay in the disengaged position.

- (e) De-energize the aircraft electrical system (Ref. AMM, 24-00-00, Page Block 201).

- (f) Put the warning sign (DO NOT OPERATE THE LANDING GEAR) in position in the flight compartment near the landing gear controls.

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- (2) Replacement of a special bolt P/N 532.10.12.077 and P/N 532.10.12.202 (Ref. Fig. 2)

NOTE: This procedure is only necessary if you found a special bolt that has a serial number that starts with the letters AT (Ref. 3. A. (1)).

NOTE: The procedure given is for the left MLG assembly. The procedure for the right MLG assembly is the same.

- (a) From the applicable bolt, remove the cotter pin (1), the nut (2), the washer (3) and the bolt (6) and disconnect the actuator (7) from the left MLG assembly (4). Discard the cotter pin (1), the nut (2) and the washer (3).
 - (b) Send the bolt (6) to PILATUS.
 - (c) Use the cloth (Material No. P02-003) made moist with the solvent (Material No. P01-008) and clean the bolt holes in the MLG assembly (4) and eye end of the actuator (7).
 - (d) Apply layers of the corrosion preventative (Material No. P04-012) on the faying surfaces of the new bolt (6), the eye end of the actuator (7) and the MLG assembly (4).
 - (e) Align the eye end of the actuator (7) with the bolt hole in the MLG assembly (4). Put the new bolt (6) in position.
 - (f) Put the new washer (3) on the bolt (6) and install the new nut (2).
 - (g) Torque the nut (2) to between 1800 and 2000 lbf in. (200 and 220 Nm). (Ref. AMM, 20-20-01, Page Block 1).
 - (h) Use the cloth (Material No. P02-003) made moist with the solvent (Material No. P01-008) and remove the unwanted corrosion preventative (Material No. P04-012).
 - (i) Install the new cotter pin (1) (Ref. AMM, 20-20-00, Page Block 1).
 - (j) Do Steps 3. B. (2)(a) thru (i) again for the right MLG assembly (5) if the special bolt fails the inspection (Ref. 3. A. (1)).
- (3) Replacement of a special bolt P/N 532.10.12.110 and P/N 532.10.12.205 (Ref. Fig. 3)

NOTE: This procedure is only necessary if you found a special bolt that has supplier code AT (Ref. 3. A. (2)).

NOTE: The procedure given is for the left MLG assembly. The procedure for the right MLG assembly is the same.

- (a) From the applicable bolt, remove the cotter pin (6), the nut (7) the washer (5) and the special bolt (2). Discard the cotter pin (6).
- (b) Send the special bolt (2) to PILATUS.
- (c) Use the cloth (Material No. P02-003) made moist with the solvent (Material No. P01-008) and clean the bolt holes in the MLG assembly (4) and the upper and/or lower eye end of the shock absorber (3).
- (d) Apply layers of the corrosion preventative (Material No. P04-012) on the faying surfaces of the new bolt (2), the upper and/or lower eye end of the shock absorber (3) and the MLG assembly (4).

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- (e) Make sure the shock absorber (3) is in the correct position.
 - (f) Put the new special bolt (2) in position and install the washer (5) and the nut (7).
 - (g) Use the cloth (Material No. P02-003) made moist with the solvent (Material No. P01-008) and remove the unwanted corrosion preventative (Material No. P04-012).
 - (h) Install the new cotter pin (6) (Ref. AMM, 20-20-00, Page Block 1).
 - (i) Do Steps 3. B. (3)(a) thru (h) again for each special bolt that fails the inspection (Ref. 3. A. (2)).
- (4) Close-Up
- (a) Make sure the landing-gear operating lever is set to DOWN.
 - (b) Close the circuit breakers:

HYDR CTL (NON ESSENTIAL BUS)
LG IND (BATTERY BUS)
 - (c) Remove the warning signs from the flight compartment.
 - (d) Energize the aircraft electrical system (Ref. AMM, 24-00-00, Page Block 201).
 - (e) Do the functional test of the extension and retraction system (Ref. AMM, 32-30-00, Page Block 501).
 - (f) Remove all tools and materials. Make sure the work areas are clean.
 - (g) Lower the aircraft (Ref. AMM, 07-10-00, Page Block 201).

C. Documentation

Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.

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4. Accomplishment Instructions - Spares

A. Inspection (Ref. Fig 1)

- (1) Do an inspection of all MLG assemblies delivered before Dec. 31/06 and held as spare.
- (a) Do a check of the special bolts (2) that attach the MLG retraction actuators to the MLG assemblies for serial numbers that start with the letters AT. If you find a special bolt (2) with a serial number that starts with the letters AT, replace the bolt (Ref. 4. B.(1)).

NOTE: On affected bolts, the serial number is permanently marked on the bolt head.

- (b) Do a check of the special bolts (1) that attach the shock absorbers to the MLG assemblies for supplier code AT. If you find a special bolt (1) with a supplier code AT, replace the special bolt (Ref. 4. B.(2)).

NOTE: On affected bolts, the supplier code is permanently marked on the threaded (tail) end of the bolt.

- (2) Do an inspection of all bolts P/N 532.10.12.110, P/N 532.10.12.205, P/N 532.10.12.077 and P/N 532.10.12.202 delivered before Dec. 31/06 and held as spare, but not installed in MLG assemblies.

- If you find a special bolt (1) with a supplier code AT, send the bolt to Pilatus.
- If you find a special bolt (2) with a serial number that starts with the letters AT, send the bolt to Pilatus.

- (3) Do an inspection of modification kit numbers 500.50.12.267, 500.50.12.286 and 500.50.12.299 delivered before Dec. 31/06 and held as spare.

- If you find a special bolt (1) with a supplier code AT, send the bolt to Pilatus.
- If you find a special bolt (2) with a serial number that starts with the letters AT, send the bolt to Pilatus.

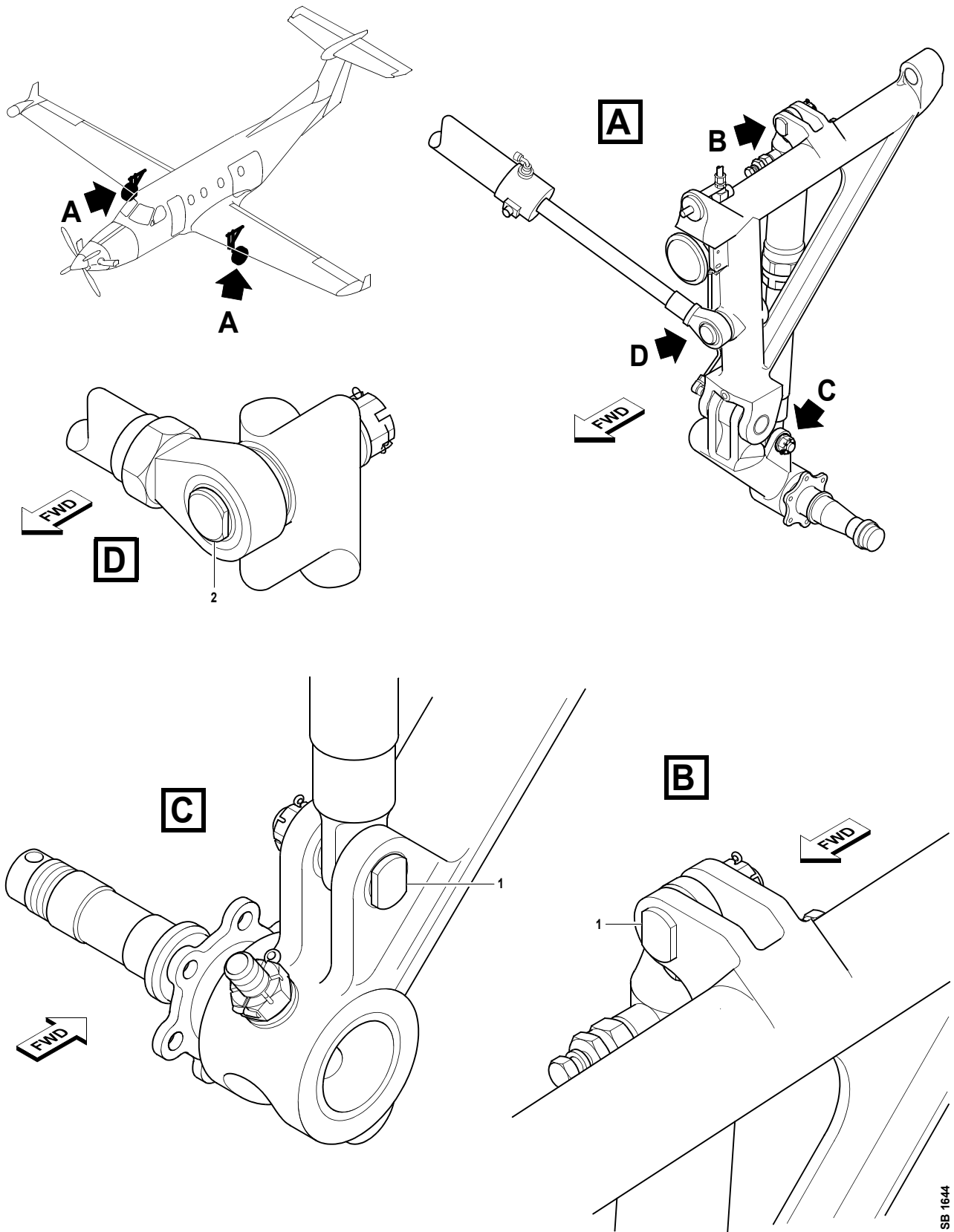
B. Replacement

- (1) Replace bolts P/N 532.10.12.077 and P/N 532.10.12.202 (Ref. 3. B. (2)). Send removed bolts to PILATUS.
- (2) Replace bolts P/N 532.10.12.110 and P/N 532.10.12.205 (Ref. 3. B. (3)). Send removed bolts to PILATUS.

C. Documentation

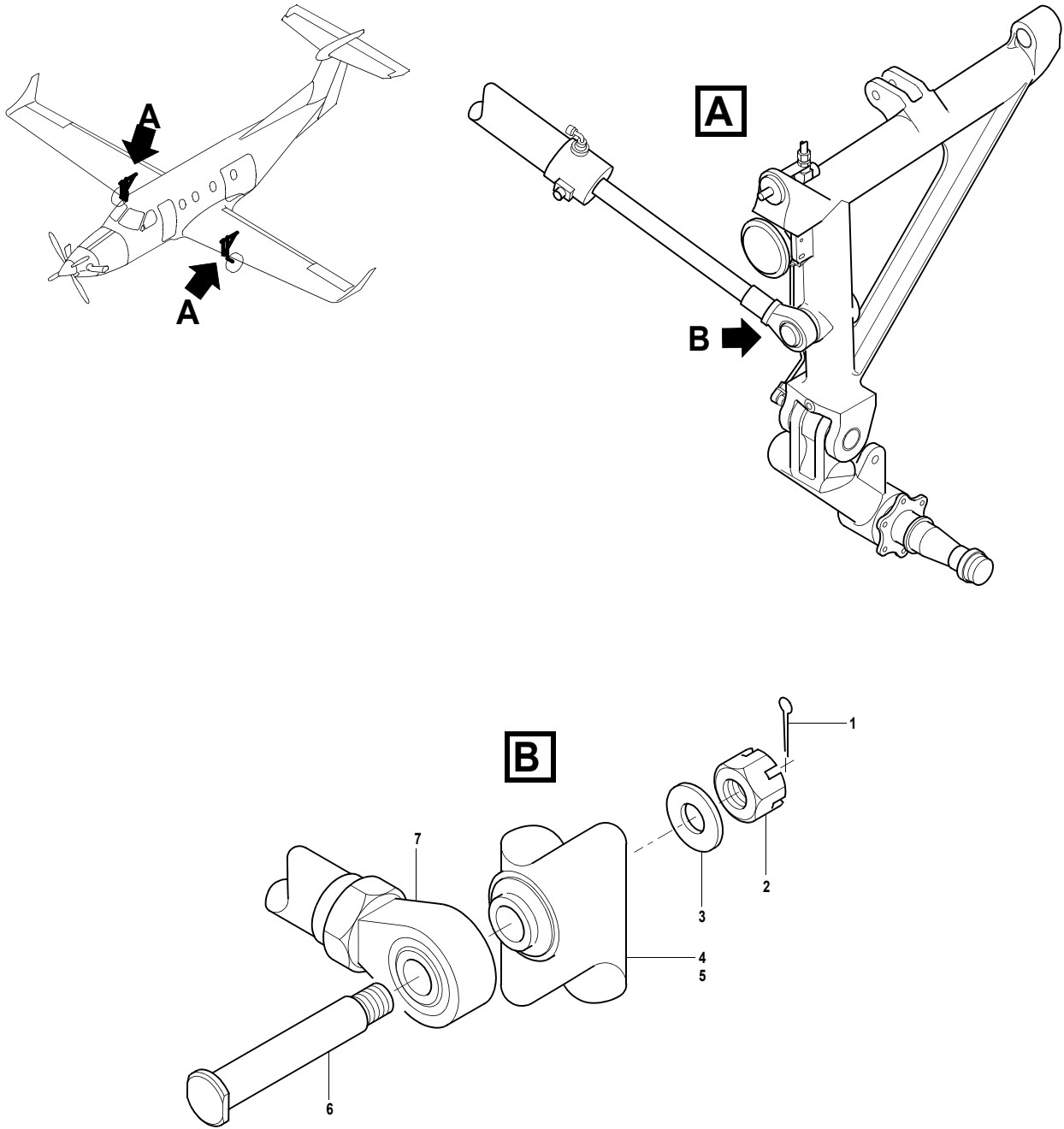
Make an entry in the spare parts inventory list that this Service Bulletin has been incorporated on the applicable MLG assemblies held as spare.

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Special Bolts - Inspection
Figure 1

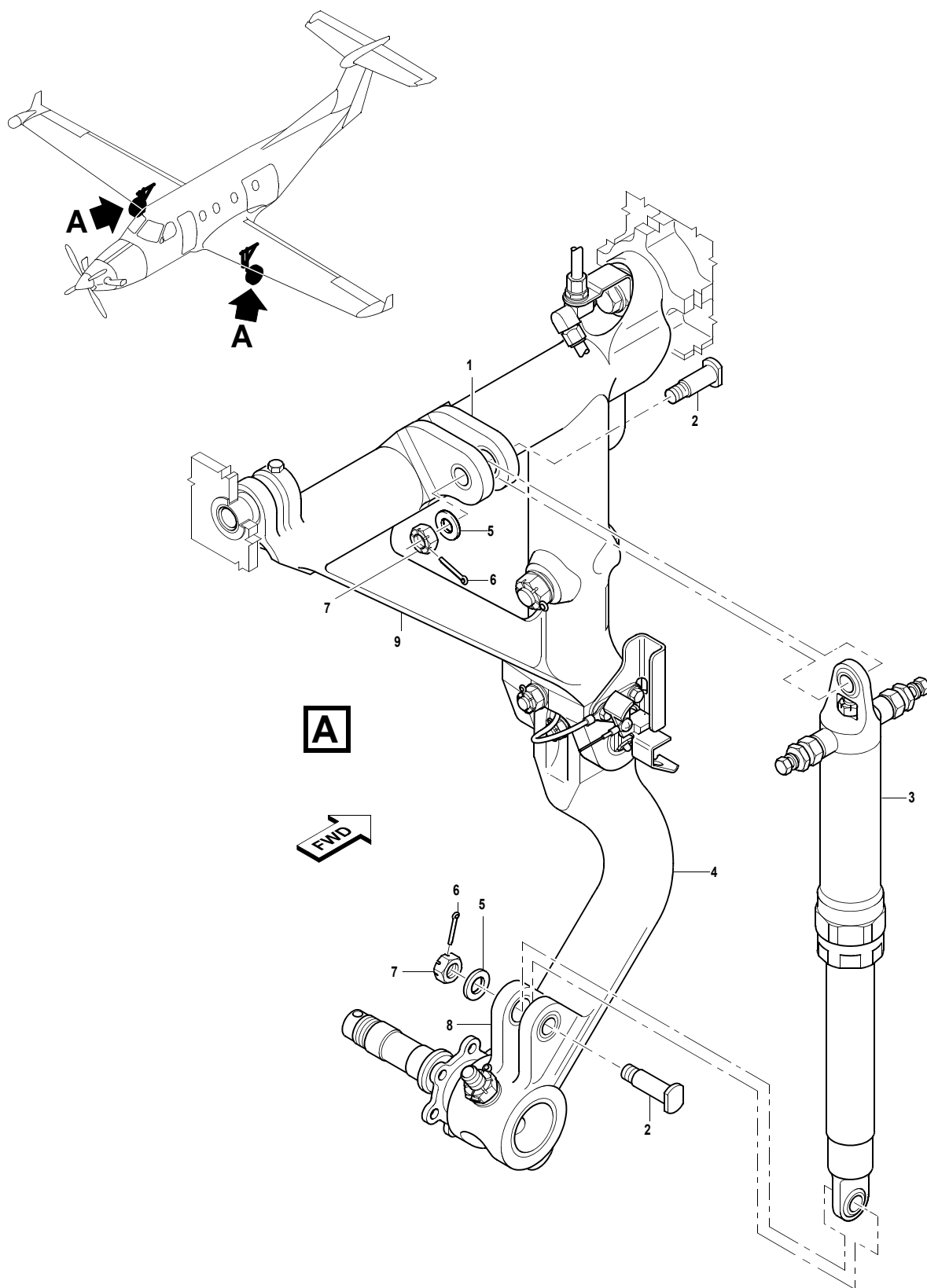
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Retraction Actuator - Special Bolt - Replacement
Figure 2

SB 1103

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Shock Absorber - Special Bolt - Replacement
Figure 3