

Service Bulletin No: 32-029**Ref No: 429****Modification No: EC-19-0639****ATA Chapter: 32****LANDING GEAR - NOSE LANDING GEAR - FORK ASSEMBLY - INSPECTION AND REPLACEMENT****1. Planning Information****A. Effectivity**

All PC-12 Nose Landing Gear (NLG) cylinder pipe P/N 532.20.12.145 with Serial Numbers SI-0871 thru 0894 and SI-0897 thru 0899 installed as part of the NLG fork assembly P/N 532.20.12.112 and/or NLG strut assembly P/N 532.20.12.044 on PC-12, PC-12/45, PC-12/47 and PC-12/47E Series aircraft and/or held as spares.

The cylinder pipes with the above listed P/N and Serial Numbers were installed on new production NLG strut assemblies P/N 532.20.12.044 with Serial Numbers SI-1211 thru SI-1238 and SI-1243 thru SI-1252 on some of the new production PC-12/47E MSN 1852, 1853, 1859, 1861, 1862, 1865 thru 1871, 1879, 1884, 1889 thru 1893, 1898, 1899, 1903, 1904, 1907 thru 1910, 1919, 1934 and 1935 or were delivered as spares within P/N 532.20.12.112 or 532.20.12.044.

This Service Bulletin has been incorporated during production on MSN 1890, 1898, 1904, 1908, 1919, 1934, 1935 thru 1942 and 2001 and up. In-service MSN 1764, 1868 and 1869 were corrected based on aircraft malfunction reports.

All PC-12, PC-12/45, PC-12/47 and PC-12/47E Series aircraft which have replaced the NLG fork assembly P/N 532.20.12.112 or NLG strut assembly P/N 532.20.12.044 between 13 March 2019 and the issue date of this Service Bulletin may also be affected by the use of spares.

B. Concurrent Requirements

None.

C. Reason**(1) Problem**

Reports have been received of corrosion found on the NLG cylinder pipe P/N 532.20.12.145.

(2) Cause

The corrosion is a result of a manufacturing deviation in the cadmium plating of a batch of cylinder pipes resulting in exposed unprotected raw material. The affected area is either cadmium or hard chrome plated, or primer and top coat.

(3) Solution

Inspect the NLG and replace the fork assembly as necessary. The cylinder pipe Serial Numbers are visible after disassembly of the NLG fork assembly P/N 532.20.12.112. The exposed raw material and corrosion are visible without disassembly of the NLG.

D. Description

This Service Bulletin gives the data and instructions to inspect the nose landing gear fork assembly and to replace the fork assembly as necessary.

The NLG strut serial number can be found on the NLG identification label on the forward face of the NLG strut casing.

E. Compliance

Mandatory.

To be incorporated not later than the next 660 flying hours or 13 months, whichever comes first after the issue date of this Service Bulletin.

NLG held as spares shall be checked before the installation on an aircraft or within 13 months, whichever comes first after the issue date of this Service Bulletin.

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 designated Airworthiness Authority for any changes, local regulations or sanctions that may affect the embodiment of this Service Bulletin.

G. Copyright and Legal Statement

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H. Manpower

Description	Man hours - Aircraft	Man hours - Spare NLG
Preparation	0.25	-
Inspection - Aircraft	0.5	-
Inspection - Spare NLG	-	0.25
Replacement of the Fork Assembly	6.0	6.0
Close up	0.25	-
TOTAL MAN-HOURS	7.0	6.25

I. Weight and Balance

Not changed.

J. Electrical Load Change Data

Not changed.

K. Software

Not changed.

L. References

Aircraft Maintenance Manual (AMM):

12-B-07-10-00-00A-901A-A

12-B-12-20-04-00A-902A-A

12-B-20-31-00-00A-070A-A

12-B-32-00-00-00A-901A-A

12-B-32-00-00-00A-901B-A

12-B-32-20-00-00A-902A-A

12-B-32-30-00-00A-903A-A

12-B-32-30-00-00A-903B-A

12-B-32-40-02-00A-920A-A

Tool and Equipment Manual (TEM):

12-B-00-00-00-00A-060A-A

Component Maintenance Manual (CMM):

Document No. 02100

M. Publications Affected

Not applicable.

N. Interchangeability of Parts

Not applicable.

2. Material Information

A. Material - Price and Availability

Operators that require additional information and/or Service Bulletin Material should contact their authorized Pilatus Service Center, or Pilatus Customer Support on www.pilatus-aircraft.com → contact us.

NOTE: Part Numbers given in this Service Bulletin are correct at the time of approval. Pilatus Aircraft Ltd reserves the right to change the part numbers as necessary. Part numbers of items delivered with a kit are correct when the kit is dispatched. This could lead to differences between those part numbers quoted in a Service Bulletin and the kit if parts are superseded. Operators are requested to check the IPD for delivered parts which differ from those listed in the Service Bulletin Materials Kit List.

B. Warranty

Credit will be issued for parts and labor for all affected aircraft on approval of a warranty claim, provided:

- The work is accomplished by an authorized Service Center within the compliance time given in Para 1.E. of this Service Bulletin.
- The affected fork assembly and the feedback sheet have been returned to Pilatus Aircraft Ltd.

C. Material Necessary for Each Aircraft
(1) Material to Order From Pilatus

New Part No.	Description	Old Part No.	Qty	Disp. Code	Fig	Item
532.20.12.240	FORK ASSEMBLY	532.20.12.112	1	R	2	11
511.23.12.026	PLACARD, A/C GROUND	-	2	N	-	-
511.23.12.027	PLACARD, JACK POINT	-	1	N	-	-
940.17.02.502	COTTER PIN	-	2	N	2 2	5 14
946.97.11.224	PISTON SEAL	-	1	N	2	13
946.97.16.342	RING, SCRAPER	-	1	N	2	32
946.97.02.233	RETAINER, PACKING	-	1	N	2	29
946.91.26.893	PACKING, PREFORMED	-	1	N	2	28
946.97.10.331	ROD SEAL	-	1	N	2	27

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

(2) Operator Supplied Materials, AMM 12-B-20-31-00-00A-070A-A

Material No.	Description	Qty	Remarks
P01-008	WHITE SPIRIT	AR	Or equivalent
P02-041	LINT-FREE CLEANING CLOTH	AR	Or equivalent
P02-001	LOCKWIRE	AR	Or equivalent
P10-017	HYDRAULIC FLUID	AR	Or equivalent
P04-028	GREASE	AR	Or equivalent
P10-005	CORROSION PREVENTIVE	AR	Or equivalent
P02-031	ABSORBENT PAPER	AR	Or equivalent

(3) Tooling - Cost and Availability

Tool No.	Description	Qty	Remarks
T07-040	NWS LOCKING SCREW	AR	
513.32.12.061	PIN EXTRACTOR/ INSERTION	AR	Part of toolkit T32-036
513.32.12.063	RUBBER GUIDE	AR	Part of toolkit T32-036
513.32.12.064	SPANNER	AR	Part of toolkit T32-036

Tool No.	Description	Qty	Remarks
513.32.12.074	EXTRACT TOOL	AR	Part of toolkit T32-036
Local supply	METAL SCRAPER	AR	
Local supply	NON-METALLIC BRISTLE BRUSH	AR	
Local supply	MAGNIFYING GLASS X10	AR	Or equivalent
T12-030	SAFETY CLIP, CIRCUIT BREAKER HOLD OPEN	AR	Or equivalent

3. Accomplishment Instructions - Aircraft

WARNING: BE CAREFUL WHEN YOU USE THE CONSUMABLE MATERIALS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS AND ALL APPLICABLE LOCAL INSTRUCTIONS. THE CONSUMABLE MATERIALS CAN BE DANGEROUS AND CAUSE DEATH OR INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

NOTE: To identify the consumables used in this procedure refer to the Consumable Materials List, refer to AMM 12-B-20-31-00-00A-070A-A.

NOTE: To identify the AGE and tools used in this procedure refer to the List of AGE and Tools, TEM 12-B-00-00-00-00A-060A-A.

A. Preparation

(1) Obey the safety instructions given in Landing Gear Maintenance Practices, refer to AMM 12-B-32-00-00-00A-901A-A or 12-B-32-00-00-00A-901B-A.

(2) If the aircraft is on jacks and/or trestles:

(a) Put a warning sign (DO NOT OPERATE THE LANDING GEAR) in the flight compartment.

(b) Open and install a safety clip, circuit breaker hold open (Tool No. T12-030) on the circuit breaker:

HYDR CTL (NON ESSENTIAL BUS)

or

LDG GEAR PWR (RH POWER JUNCTION BOX).

B. Inspection

NOTE: The NLG strut serial number can be found on the NLG identification label on the forward face of the NLG strut casing.

(1) Use a lint-free cloth (Mat. No. P02-041) and white spirit (Mat. No. P01-008) to clean the NLG sliding tube at the NLG fork interface, refer to "Figure 1" on page 14 for the area to be inspected.

(2) Inspect the NLG sliding tube at the NLG fork interface for corrosion. If necessary, use a magnifying glass to do the inspection.

(3) If you find corrosion, or see untreated material, replace the fork assembly, refer to para 3.C, 3.D and 3.E.

(4) If you find no corrosion or untreated material, refer to para 3.G.

C. Disassembly

WARNING: THE NITROGEN PRESSURE IN THE SHOCK ABSORBER IS 58 BAR (850 PSI). DO NOT RELEASE THE NITROGEN PRESSURE TOO QUICKLY. IT CAN CAUSE SERIOUS INJURY.

Refer to "Figure 2 Sheet 1" on page 15 and "Figure 2 Sheet 2" on page 16.

It is recommended that you record the installed positions of NLG components during the disassembly procedure. This will help you when you assemble the NLG.

NOTE: You need two people to do the following steps.

- (1) Raise the aircraft on jacks, refer to AMM 12-B-07-10-00-00A-901A-A.
- (2) Put spillage containers below the NLG.
- (3) Clean the area around the two charging valves (1 and 3) with absorbent paper (Mat. No. P02-031).
- (4) Remove the caps (2 and 4) from the two charging valves (1 and 3).
- (5) Connect a drain hose and slowly open the STAGE 1 charging valve (3) (to release the nitrogen pressure from the shock absorber. Do not close the STAGE 1 charging valve but remove the drain hose.
- (6) Adjust the STAGE 2 pressure to 4 bar (60 psi).

NOTE: The pressure in STAGE 2 is needed to keep the seals seated and the STAGE 2 piston in the correct position.

- (7) Remove the nosewheel, refer to AMM 12-B-32-40-02-00A-920A-A.
- (8) Disconnect the torque link (17) from the fork assembly (11):
 - (a) Remove and discard the cotter pin (14).
 - (b) Remove the nut (15), the washer (16) and the bolt (18).
 - (c) Remove the lubrication bolt (19).
- (9) Remove the sleeve plug (12):
 - (a) Remove and discard the cotter pin (5).
 - (b) If necessary, remove the sealant from around the nut (10).
 - (c) Remove the nut (10), the bolt (8), the safety washers (9), the pins (6) and the stop plate (7).
 - (d) Use the sleeve extractor tool (P/N 513.32.12.074) and remove the sleeve plug (12) from the shock absorber (11).
 - (e) Remove and discard the sealing ring (13) from the sleeve plug (12).
- (10) Release the barrel nut (30):
 - (a) Remove and discard the lockwire from the two screws in the barrel nut (30).
 - (b) Loosen the two screws in the barrel nut (30).
 - (c) Use the spanner (P/N 513.32.12.064) to loosen the barrel nut (30).

- (11) Carefully remove the fork assembly (33) together with the barrel nut (30) and guide pipe assembly (25) from the steering tube (22).
- (12) Remove the guide pipe (25):
 - (a) Remove the guide ring (23) from the guide pipe (25).
 - (b) Use the pin extractor (P/N 513.32.12.061) to remove the three pins (26), then remove the guide pipe (25) from the fork assembly (33).
- (13) Remove the barrel nut (30) from the fork assembly (33).
- (14) Disassemble the barrel nut (30):
 - (a) Remove and discard the preformed packing (28) and packing retainer (29) from the barrel nut (30).
 - (b) Remove and discard the scraper ring (32) from the barrel nut (30).
 - (c) Remove and discard the sealing ring (27) (three pieces) from the barrel nut (30).

D. Cleaning

- (1) Do the applicable steps in CMM Document Number 02100 Page Block 4001 - Cleaning.

E. Assembly

CAUTION: MAKE SURE THAT YOU IDENTIFY THE CORRECT INSTALLED POSITION OF ALL THE SEALS BEFORE YOU REMOVE THEM FROM THEIR TRANSIT PACKING.

NOTE: Soak all new preformed packings, retainers and sealing rings in clean hydraulic fluid (Mat. No. P10-017).

- (1) Assemble the barrel nut (30):
 - (a) Install the scraper ring (32) into the bottom of the barrel nut (30).

NOTE: The scraper ring has a U contour and is installed with the open side of the contour pointing out of the barrel nut.
 - (b) Install the sealing ring (27) into the top of the barrel nut (30).

NOTE: The sealing ring has three parts, a T seal with a top and bottom sealing ring. The sealing rings have a contour and are installed with the contour pointing to the T seal.
 - (c) Install the packing retainer (29) and preformed packing (28) on the barrel nut (30).
 - (d) Apply a thin layer of grease (Mat. No. P04-028) to the inner side of the barrel nut (30).
 - (e) Carefully install the barrel nut (30) on the new fork assembly (33) (P/N 532.20.12.240).
- (2) Attach the guide tube (25) to the fork assembly (33):

- (a) Put the guide pipe (25) on the fork assembly (33) in the position where the holes in the guide pipe are aligned with the holes in the fork assembly.
 - (b) Use the pin extractor/insertion tool (P/N 513.32.12.061) and install the three pins (26) in the guide pipe (25) and fork assembly (33).
 - (c) Install the guide ring (23) on the guide pipe (25).
- (3) Put the rubber guide (P/N 513.32.12.063) into the steering tube (22).
- (4) Carefully put the fork assembly (33) together with the barrel nut (30) and the guide pipe assembly (25) into the steering tube (22). Remove the rubber guide.
- (5) Install the barrel nut (30):

NOTE: Make sure that the retainer, packing (29) stays in the correct position when you install the barrel nut (30).

- (a) Measure the run-down torque of the barrel nut (30) in the steering tube (22).
 - (b) Use the spanner (P/N 513.32.12.064) and torque tighten the barrel nut (30) to between 10,2 and 11,3 Nm (90 and 100 lb in) plus the run-down torque.
 - (c) Tighten the two screws in the barrel nut (30).
 - (d) Safety the two screws in the barrel nut (30) to the taxi light bracket bolts with lockwire (Mat. No. P02-007).
 - (e) Put the torque link (17) in position on the fork assembly (33).
 - (f) Install the lubrication bolt (19).
 - (g) Install the bolt (18), washers (16) and nut (15).
 - (h) Safety the nut (15) with a new cotter pin (14) (P/N 940.17.02.502).
 - (i) Apply corrosion preventive (Mat. No. P10-005) around the nut (15), the bolt (18) and the barrel nut (30).
- (6) Install the sleeve plug (12):
- (a) Install the sealing ring (13) on the sleeve plug (12).
 - (b) Lubricate the sleeve plug (12) with hydraulic fluid (Mat. No. P10-017) and install it in the shock absorber (11).
 - (c) Put the stop plate (7) in position and install the pins (6).
 - (d) Install the bolt (8), the safety washers (9) and the nut (10).
 - (e) Safety the nut (10) with a new cotter pin (5) (P/N 940.17.02.502).
 - (f) Apply corrosion preventive (Mat. No. P10-005) around the nut (10) and the bolt (8).
- (7) Remove the NWS locking screw (T07-040).

- (8) Install the nosewheel, refer to AMM 12-B-32-40-02-00A-920A-A.
- (9) Install a new placard (P/N 511.23.12.027) on the left side of the fork assembly.
- (10) Install a new placard (P/N 511.23.12.026) on the left and the right side of the fork assembly.
- (11) Service the NLG shock absorber, refer to AMM 12-B-32-20-00-00A-902A-A:
 - (a) Pressurize STAGE 2 with nitrogen.
 - (b) Fill STAGE 1 with hydraulic fluid (Mat. No. P10-017).
 - (c) Pressurize STAGE 1 with nitrogen.
- (12) Grease the NLG, refer to AMM 12-B-12-20-04-00A-902A-A.

F. Close-up

- (1) Remove all tools and materials. Make sure that the work areas are clean.
- (2) Remove the safety clip and close the circuit breaker:

HYDR CTL (NON ESSENTIAL BUS)
or
LDG GEAR PWR (RH POWER JUNCTION BOX).
- (3) Remove the warning sign (DO NOT OPERATE THE LANDING GEAR) from the flight compartment.
- (4) Do the functional test of the extension and retraction of the landing gear, refer to AMM 12-B-32-30-00-00A-903A-A or 12-B-32-30-00-00A-903B-A.
- (5) Lower the aircraft off jacks, refer to AMM 12-B-07-10-00-00A-901A-A.

G. Documentation

- (1) Make an entry in the Aircraft Logbook that this Service Bulletin is incorporated.
- (2) Make sure that the Aircraft Logbook shows any new Pilatus Part Number(s) and/or Serial Number(s), as applicable.
- (3) Make an entry in the Pilot's Operating Handbook, Document No. 01973, 02211, 02277 or 02406 to record the incorporation of this Service Bulletin.
- (4) If the fork assembly was replaced, return the completed feedback sheet and the fork assembly to Pilatus Aircraft Ltd.
- (5) Inform CAMP of the incorporation of this Service Bulletin and any new Pilatus Part Number(s) and/or Serial Number(s), as applicable. Send the completed feedback sheet to: fax@campsystems.com.

4. Accomplishment Instructions - NLG Held as Spare**A. Preparation**

- (1) Use a lint-free cloth (Mat. No. P02-041) and white spirit (Mat. No. P01-008) to clean the NLG sliding tube at the NLG fork interface (refer to Figure 1 for the area to be inspected).

B. Inspection

- (1) Inspect the NLG sliding tube at the NLG fork interface for corrosion. If necessary, use a magnifying glass to do the inspection.
- (2) If you find corrosion, or see untreated material, replace the fork assembly.

C. Replacement

- (1) Refer to Component Maintenance Manual (CMM) Document Number 02100 for the disassembly, cleaning and assembly procedures. Use a new fork assembly (P/N 532.20.12.240) when you assemble the NLG.

D. Close Up

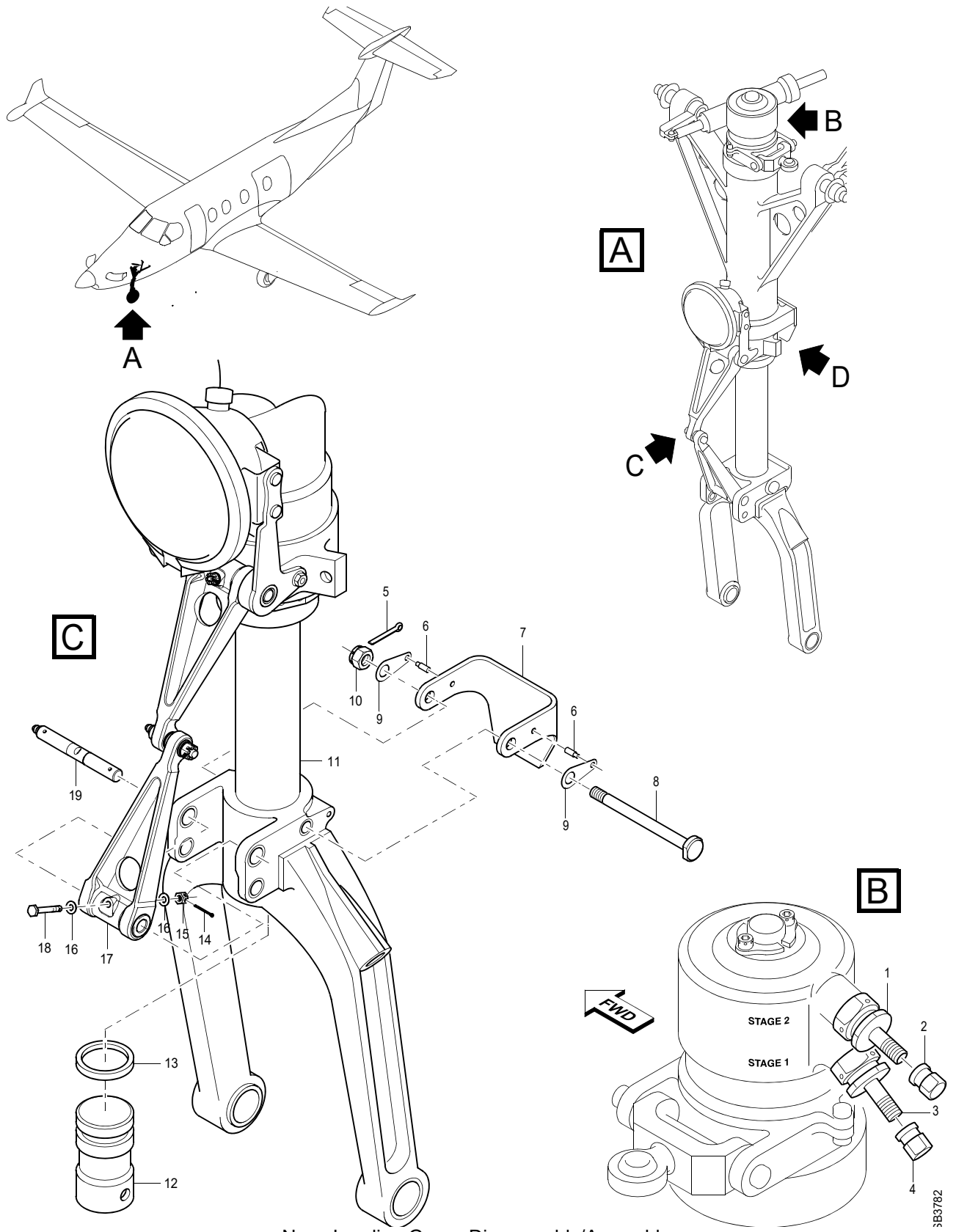
- (1) Make sure that the work area is clean and clear of tools and other items.

E. Documentation

- (1) Make an entry in the NLG logbook that this Service Bulletin is incorporated.
- (2) If the fork assembly was replaced, return the completed feedback sheet and the fork assembly to Pilatus Aircraft Ltd.
- (3) Inform CAMP of the incorporation of this Service Bulletin and any new Pilatus Part Number(s) and/or Serial Number(s), as applicable. Send the completed feedback sheet to: fax@campsystems.com.

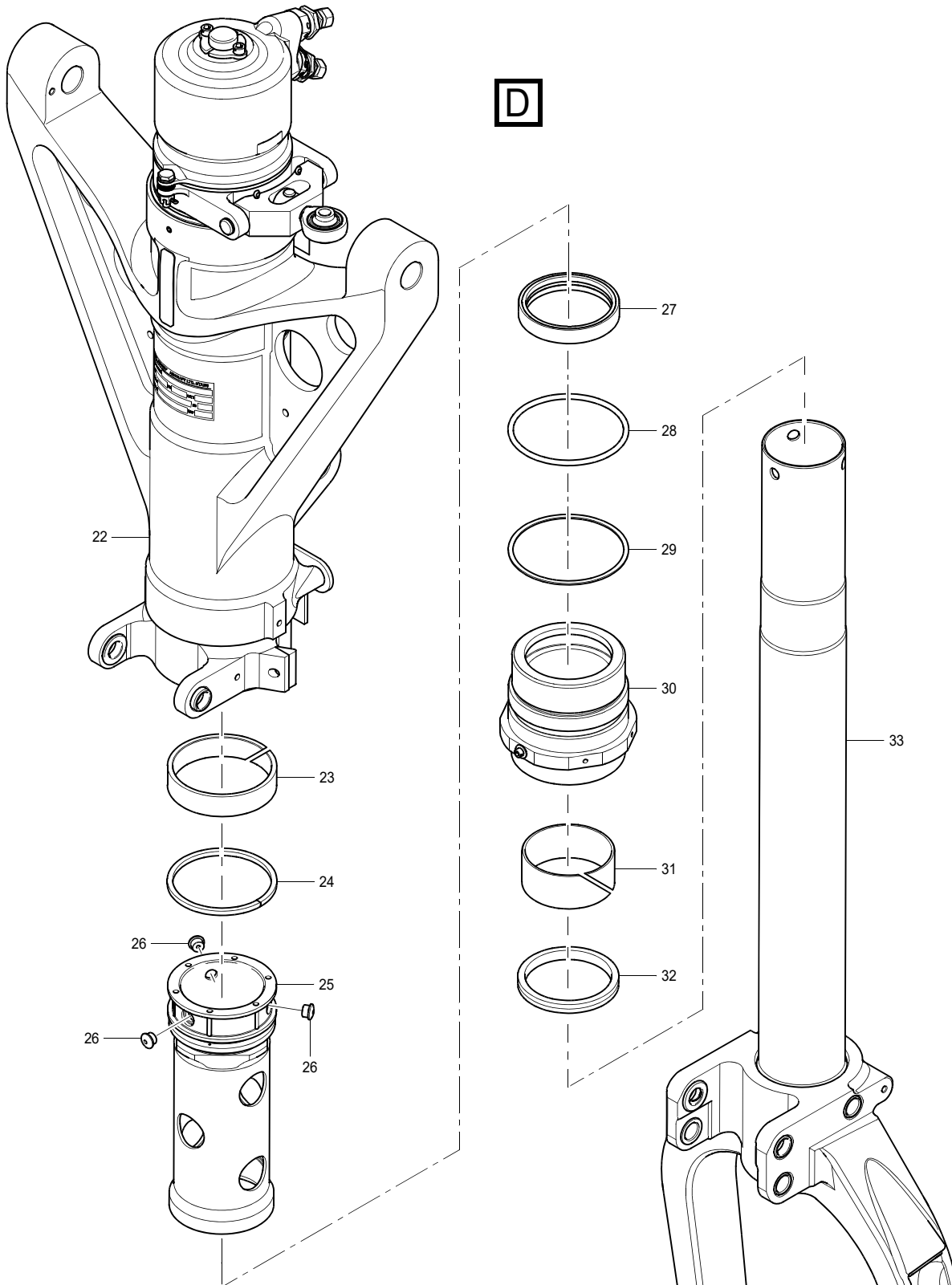


Nose Landing Gear Fork Assembly - Inspection
Figure 1



3B3782

Nose Landing Gear - Disassembly/Assembly
Figure 2 Sheet 1



Nose Landing Gear - Disassembly/Assembly
Figure 2 Sheet 2

SB3783

Feedback sheet for accomplishment of SB 32-029

The purpose of this feedback sheet is to provide CAMP with the current information on each individual PC-12/47E series aircraft. Please complete the grey cells as appropriate using black ink and block letters.

Print out and send the completed feedback sheet to: fax@campsystems.com

Information

Please identify your aircraft status by ticking the correct option

<input type="checkbox"/>	We have embodied/accomplished this SB	<input type="checkbox"/>	Fully
<input type="checkbox"/>	We will not embody/accomplish this SB	<input type="checkbox"/>	Partially
The undersigned confirms the accomplishment of this Service Bulletin			
Date of accomplishment	Name	Signature	
Comments (procedure, kit quality, suggested improvements, etc.)			

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