F100/70 Generic SB

SBF100-32-167

Revision -

LANDING GEAR - LANDING GEAR MECHANICAL CONTROL

A One-time Inspection of the Landing Gear Handle Teleflex Mechanism

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EASA approved procedure for electronic sign-off

1. General Information

A. General

LANDING GEAR		
Extension and Retraction	-	A One-time Inspection of the Landing Gear Handle Teleflex Mechanism

B. Table of Contents

- Section 1: General Information
- Section 2: Planning Information
- Section 3: Material Information
- Section 4: Accomplishment Instructions
- Service Bulletin Quality Reporting Form

and attachments (if applicable):

- List of drawings/parts lists
- Parts List Local source (PLL)
- Parts List Supply (PLS)
- Required drawings

C. Service Bulletin Revision History

Revision	**Date** (Mmm dd/yy)	**Reason for Revision**
-	Refer to footer	First Release

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2. Planning Information

A. Effectivity

(1) F28 Mark 0100 aircraft serial number(s):

11244 thru 11481 } If records show a post-SBF100-32-107 configuration.

B. Concurrent Requirements

(1) Not applicable.

C. Reason

(1) Recently a Fokker 100 received a Nose Landing Gear (NLG) Unsafe warning after selecting the landing gear handle to the down position. Subsequently, the aircrew tried to extend the NLG by following the abnormal procedure (NLG Unsafe) from the QRH. As the NLG remained Unsafe an emergency landing was made with the NLG partly extended. During the touchdown the NLG was pushed up. The NLG doors disintegrated and limited damage was done to the nose section.

(2) The operating crew confirmed that after take-off when Landing Gear (LG) Up was selected a noticeable effort was required to move the LG handle. When the LG was selected Down the handle was hard to move and did not stay in the fully down position.

(3) Investigation of the landing gear retraction/extension system showed that the NLG did not go down as result of a hydraulic lock. This was caused by a jammed Teleflex cable which is part of the landing gear control mechanism causing the landing gear handle to remain in a position close to but not fully in the down position. Detailed investigation of the Teleflex cable assembly showed lack of lubricant and excessive wear which resulted in a significant amount of debris which must have clogged the inner Teleflex cable in the conduit causing the inner cable to jam.

(4) Investigation revealed that a previous operator of the incident aircraft had reported to Fokker Services that SBF100-32-107 (which introduced a Teleflex cable conduit with a grease nipple and a stainless steel Teleflex cable) had been incorporated on the incident aircraft. Following that report, MRB/MPD task 323100-00-04 (Detailed inspection of the Teleflex cable, 12000 FH interval) had been removed from the scheduled maintenance program of the incident aircraft. However, a check on the aircraft after the incident revealed that the Teleflex cable conduit did not have the grease nipple installed. This had resulted in no apparent detailed inspection nor greasing of the Teleflex cable for more than 24.000 FC / 17 years.

(5) The investigation also revealed that more aircraft were incorrectly reported to be fully post-SBF100-32-107 while actually only the stainless steel Teleflex cable had been installed.

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D. Description

(1) This Service Bulletin tells you how to:
- Perform a one-time inspection of the Landing Gear Handle Teleflex Mechanism to determine if a Teleflex cable conduit connector with or without a grease nipple is installed.
- Ensure that the Teleflex cable mechanism is operating correctly if a Teleflex cable conduit connector without a grease nipple is installed.
- Inform Fokker Services that the aircraft is pre-SBF100-32-107 if a Teleflex cable conduit connector without a grease nipple is installed.
- Re-introduce MRB/MPD task 323100-00-04 in the scheduled maintenance program if a Teleflex cable conduit connector without a grease nipple is installed.

E. Compliance

(1) Recommended

Except where specified otherwise in Step H of this Service Bulletin, Fokker Services recommends the accomplishment of this Service Bulletin within 3 months after the issue date of this Service Bulletin, but not later than within the compliance time defined in the AD (if applicable, see note below), which takes precedence over the recommendation by Fokker Services.

NOTE: It is expected that EASA will issue an Airworthiness Directive (AD) with respect to this subject with the same compliance terms. Refer to the EASA website for the publication of a Proposed Airworthiness Directive for comments.

F. Approval

(1) The technical content of this document is approved under the authority of DOA ref. EASA.21J.059.

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G. Manpower

(1) Approximately 2.1 man-hours are necessary to do this Service Bulletin on one aircraft.

This table of manpower will help you to schedule and do this Service Bulletin:

Instructions	Men	Man-hours	Elapsed time (hours)
Removal	1	1.0	1.0
Modification Inspection	1	0.1	0.1
Installation	1	1.0	1.0
Testing	-	-	-
Total		2.1	2.1

NOTE: This estimate does not include the time necessary to perform the corrective action if so required.

(2) The estimated hours are for direct labor done by experienced personnel. They are calculated based on the conditions given in SBF100-00-001 (Service Bulletin Introduction, section 2.C., “Manpower”).

H. Weight and Balance

(1) Weight change: None.
Index change: None.

I. Electrical Load Data

(1) Direct Current (DC) Loads:

(a) Not changed.

(2) Alternating Current (AC) Loads:

(a) Not changed.

J. Software Accomplishment Summary

(1) Not applicable.

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K. References

(1) Fokker 70/100 Aircraft Maintenance Manual (AMM)
Fokker 70/100 Quick Reference Handbook (QRH)
Fokker 70/100 Maintenance Review Board Document (MRB)
Fokker 70/100 Maintenance Planning Document (MPD)
Fokker Consumable Material List (CML)
Fokker Standards & Process Manual (SPM).

L. Publications Affected

(1) This Service Bulletin affects the publications listed below:

(a) Maintenance Documentation

The AMM and IPC are affected in case the configuration of the a/c is actually pre-mod SBF100-32-107 with regard to the connector of the Teleflex cable, refer to figure 1 and accomplishment instruction G for more details.

(b) Maintenance Programs

The scheduled maintenance program of the aircraft may be affected, refer to accomplishment instruction I.(4) for more details.

(c) Special Instructions for Continued Airworthiness (ICA)

The effect of this Service Bulletin on the special ICA is as follows:

	YES	NO
- Electrical Wiring Interconnection System (EWIS)	-	X
- Fokker 70/100 Airworthiness Limitations Section (ALS):		
• Fuel Tank Safety (FTS)	-	X
• Damage Tolerance of Fatigue Critical Structure (FCS)	-	X
• Certification Maintenance Requirements (CMR)	-	X

NOTE: If “YES”, when not already incorporated, the changed ICA will be incorporated in the MRB, the Airworthiness Limitations Section (ALS) and/or the AMM document(s) within one calendar year from the date of issue of this Service Bulletin. Until then, no actions are required.

(d) Operational Documentation

Not affected.

(2) Report to Fokker Services that this Service Bulletin has been carried out on the applicable aircraft.

(3) You have the possibility to send your SB feedback to Fokker Services per “Service Bulletin Reporting Quality Form”. This form is located on the last Service Bulletin page.

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(4) For incorporation of this Service Bulletin in your documentation refer to SBF100-00-001 (Service Bulletin Introduction, section 4 “Incorporation of Service Bulletins in Documentation of Fokker Services”).

M. Interchangeability or Intermixability of Parts

(1) Not applicable.

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3. Material Information

A. Material – Price and Availability

(1) Not applicable.

B. Material Required

(1) Not applicable.

C. Tooling – Price and Availability

(1) Not applicable.

D. Tooling Required

(1) Not applicable.

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4. Accomplishment Instructions

General:

- For CML material number references refer to “MyFokkerFleet.com > Documentation and select CML” and/or AMM chapter 20-30-00.
- For Standards and Process Manual (SPM) references refer to “MyFokkerFleet.com > Documentation and select SPM”.
- Use standard application and inspection of torque values acc to AMM chapter 20-12-00 and/or TH6.3202.

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

A. Put these Warning Signs:
   - "DO NOT OPERATE THE LANDING GEAR CONTROLS" in the flight-compartment.
   - "DO NOT PRESSURIZE THE HYDRAULIC SYSTEM" in the flight compartment, and at the hydraulic ground-servicing panel.

B. Put the access platform 1 m below the panel 124AR.

C. Open the MLG inboard doors to depressurize the landing-gear hydraulic system refer to AMM procedure 52-82-01-010-812.

D. Open, tag, and safety the circuit breaker(s):

   - HYDR SYS 1 ELEC DRIVEN PUMP

E. Make sure the ground-lock safety pins are installed in the nose landing gear and the main landing gear.

F. Remove the access panel 124AR.

Refer to figure 1.

G. Check the configuration of the a/c with regard to the Teleflex connector as introduced with SBF100-32-107 as follows:

   (1) Inspect the connector assembly as identified in figure 1 for the presence of a grease nipple. Please note that:

   - A connector without grease nipple is pn 188971 (pre-mod SBF100-32-107).

   - A connector with grease nipple is pn D76394-401 (post-mod SBF100-32-107).

   (2) If a grease nipple is present, continue with step J.

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(3) If no grease nipple is present, inform Fokker Services via the website (MFF) or via the e-mail address on the last page of this Service Bulletin that the affected a/c serial number is pre-mod SBF100-32-107.

H. Check the a/c history.

(1) Inspect the a/c history of the last 3 months with respect to write-ups concerning erratic and/or hard to move LG handle. If such (a) report(s) exist(s) then before further flight perform step I. Corrective action.

(2) Check the maintenance history of the a/c to identify the most recent date when the Teleflex cable has been replaced i.a.w. AMM task 32-31-03-000/400-814 or inspected and lubricated over its full length i.a.w. AMM task 32-31-03-200-816 ref. MRB/MPD task 323100-00-04.

NOTE 1: The lubrication of only the Teleflex cable sliding ends i.a.w. MRB/MPD task 323100-00-01 with connector pn 188971 installed does not lubricate the inner cable over its full length i.e. thus also not in the area where the jam occurred.

NOTE 2: These a/c sn's: 11340, 11352, 11353, 11354, 11355, 11356, 11359, 11360, 11361, 11367, 11368, 11369, 11370, 11376, 11377, 11385, 11395, 11396, 11397, 11403, 11404, 11405, 11406, 11407, 11408, 11411, 11412, 11413, 11414, 11415, 11416, 11417, 11418, 11419, 11425, 11426, 11427, 11428, 11434, 11435, 11436, 11437, 11446, 11447, 11448, 11449, 11456, 11457, 11458, 11459, 11460, 11464, 11465, 11466, 11467, 11468, 11469, 11478, 11479, 11480, 11481 were only equipped with new stainless steel Teleflex cables in the period of April 1998 thru November 1999 and not with the connector with a grease nipple i.e. pn D76394-401.

(3) If it cannot be established when the last installation and/or the last inspection/lubrication was performed, then before further flight perform step I. Corrective action.

(a) If the cable has accumulated more than 18.000 FC since installation or since last inspection/lubrication or if the replacement or inspection/lubrication was done more than 12 years ago then before further flight perform step I. Corrective action.

(b) If the cable has accumulated more than 12.000 FH since installation or since last inspection/lubrication or if the replacement or inspection/lubrication was done more than 8 years ago then perform step I. Corrective action, within 6 months.

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I. Corrective action

(1) Remove the Teleflex cable i.a.w. AMM task 32-31-03-000-814 (Remove the Cable and Rod System).

(2) Do a detailed inspection of the Teleflex cable as follows:

(a) Clean the Teleflex cable thoroughly with a cloth, cleaning (material No. Fk05-044) and the solvent, MEK (material No. FK11-003).

(b) Inspect the Teleflex cable for signs of corrosion and/or damage.

(c) If the Teleflex cable is unserviceable, replace the Teleflex cable by a new one i.e. pn 188780-003-00 or 188780-003-50 ref. item 20B of IPC 32-31-03 figure 2.

(d) Apply a large amount of synthetic grease (material No. Fk04-002) over the complete length of the Teleflex cable.

(3) Install the Teleflex cable i.a.w. AMM task 32-31-03-400-814 (Install the Cable and Rod System).

(4) Update the scheduled maintenance program (as required) of the affected a/c by including MRB/MPD task 323100-00-04.

J. Close these circuit breakers:

- HYDR SYS 1 ELEC DRIVEN PUMP

K. Close the MLG inboard doors refer to AMM procedure 52-82-01-410-812.

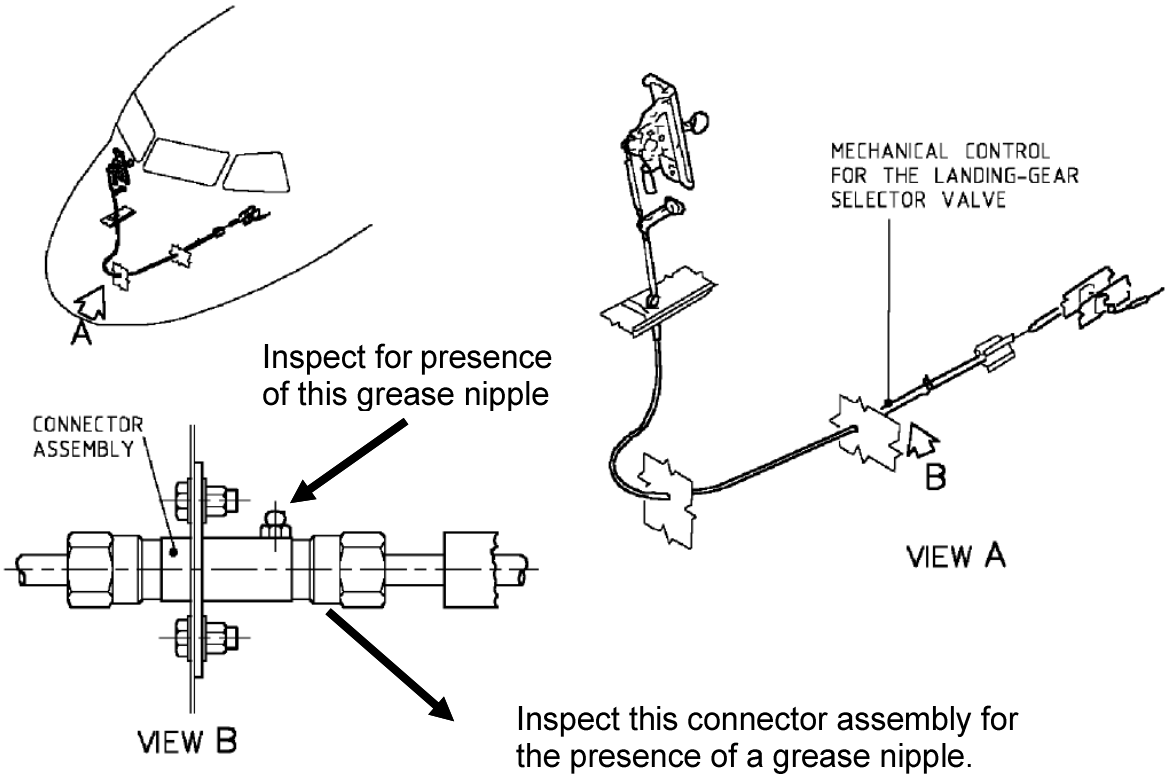
L. Remove all tools, materials and equipment from the work area. Make sure that the area is clean.

M. Close access panel 124AR ref. AMM task 06-30-03-ZZ1-810-A – General – Access Panels, which was opened in step F.

N. Remove the warning signs and the access platform.

O. Report any discrepancies to Fokker Services.

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RECOMMENDATION for A/C without a grease nipple as identified above:

- Inspect the a/c history over the last 3 months with respect to write-ups concerning erratic and/or hard to move LG handle. If such (a) report(s) exist(s) then before further flight perform Par. I. Corrective action.
- If it cannot be established when the last installation/inspection/lubrication was performed, then before further flight perform Par. I. Corrective action.
- If the cable has more than 18.000 FC / 12 years (since complete lubrication) then before further flight inspect/lubricate the cable i.a.w. Par. I. Corrective action.
- If the cable has more than 12.000 FH / 8 years (since complete lubrication) then inspect/lubricate the cable i.a.w. Par. I. Corrective action, within 6 months.

Figure 1 – Landing Gear Control Mechanism

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SB Title: A One-time Inspection of the Landing Gear Handle Teleflex Mechanism

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* Rate the scale of 1 to 4, with 1 the lowest score and 4 the highest score.

Chapters *	1	2	3	4
a) Quality rating of this SB (overall)	☐	☐	☐	☐
b) Quality rating of the Planning Information	☐	☐	☐	☐
c) Quality rating of the Material Information	☐	☐	☐	☐
d) Quality rating of the Accomplishment Instructions	☐	☐	☐	☐
e) Quality rating of the Test Instructions (if applicable)	☐	☐	☐	☐
f) Quality rating of the Illustrations or Drawings (if applicable)	☐	☐	☐	☐
g) Timely delivery of the SB	☐	☐	☐	☐

If you have had difficulties with one of the chapters of this Service Bulletin and/or one of your rating(s) is lower than 3, please give a short description of the issue.

Comments:

Operator: Date:

Name / Title:

Please return this form to: Fokker Services B.V.
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