
Number: SB 2X-32-19 R3

Issued: July 29, 2009

Revised: June 28, 2012

SNS SUBJECT: 32-20 NOSE GEAR - Nose Landing Gear Assembly Inspection and Reinforcement

1. COMPLIANCE

Mandatory: Cirrus Design considers this Service Bulletin to be MANDATORY. Accomplish this Service Bulletin within the next 100 flight hours or within the next 12 calendar months. Compliance time begins upon receipt of this Service Bulletin.

This Service Bulletin was revised to update model and effectivity. Operators who have successfully complied with the original release of this Service Bulletin, dated 29 Jul 2009, or subsequent revisions need take no further action.

Note: The information in this Service Bulletin will be incorporated into Inspection/Check - Nose Gear Assembly found in:

the SR20 Airplane Maintenance Manual by Temporary Revision 20AMM_TR_32-20-02 (Refer to AMM 32-20),

and the SR22 Airplane Maintenance Manual by Temporary Revision 22AMM_TR_32-20-02 (Refer to AMM 32-20).

2. EFFECTIVITY

Cirrus Design SR20 Serials 1878, 1886 thru 2035.

Cirrus Design SR22 Serials 0002 thru 3394, 3397, 3401 thru 3477, 3480 thru 3508, 3512 thru 3517, 3521 thru 3525, 3528 thru 3531, 3533 thru 3535, 3537 thru 3540, 3543 thru 3547, 3552 thru 3554, 3557 thru 3567, 3569 thru 3576, 3578 thru 3612.

3. APPROVAL

FAA approval has been obtained on all technical data in this Service Bulletin that affects type design.

4. PURPOSE

Some SR22 aircraft have developed cracks in the upper section of the nose landing gear (NLG). The cracks develop on the NLG assembly through the cross tube welds and gusset plate. To address this potential condition, a reoccurring inspection of the upper gusset plate, and forward surface of forward weld between the cross tube and strut is required.

If evidence of cracking is identified, it may be necessary to install hardware through the forward cross tube of the NLG assembly to strengthen load capabilities of the cross tube and prevent further cracking.

5. DESCRIPTION

This Service Bulletin contains instructions describing a reoccurring inspection to the NLG assembly for cracking, and, if necessary, installation of hardware through the forward cross tube of the NLG assembly.

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6. WARRANTY INFORMATION

For aircraft under warranty at the issue date of this Service Bulletin, Cirrus Design will cover parts and labor costs for the Upper Gusset Plate Inspection and Approved Repair - Nose Landing Gear Reinforcement portions of this Service Bulletin if the work is accomplished at an authorized Cirrus Design Service Center, through the duration of the warranty period.

If opting not to install Approved Repair - Nose Landing Gear Reinforcement, the part and labor cost for the Forward Nose Gear Strut Fillet Weld Inspection portion of this Service Bulletin are at the owner's expense.

7. MANPOWER REQUIREMENTS

Upper Gusset Plate Inspection: 0.75 man-hour.

Forward Nose Gear Strut Fillet Weld Inspection w/o dye pen: 0.25 man-hour.

Forward Nose Gear Strut Fillet Weld Inspection with dye pen: 0.5 man-hour.

Approved Repair - Nose Landing Gear Reinforcement: 0.5 man-hour.

8. OTHER PUBLICATIONS AFFECTED

SR20 Airplane Maintenance Manual (p/n 12137-001)

SR22 Airplane Maintenance Manual (p/n 13773-001)

SR20 Illustrated Parts Catalog (p/n 12138-001)

SR22 Illustrated Parts Catalog (p/n 13774-001)

9. WEIGHT AND BALANCE

N/A

10. MATERIAL INFORMATION

If Forward Nose Gear Strut Fillet Weld Inspection requires installation of hardware, order kit 70238-001 to obtain the following parts.

Item No.	Description	P/N or Spec.	Supplier	Quantity
1	Bolt Acceptable Alternate Part Numbers	NAS6610-73 NAS6610-74 NAS6810-73 NAS6810-74 NAS630-73 NAS630-74 NAS1276-73 NAS1276-74 AN10-53 AN10-53A AN10H53 AN10H53A AN180-53 AN180-53A AN180H53 AN180H53A	Cirrus Design	1
2	Washer	NAS1149F1063P	Cirrus Design	2
3	Nut	MS21044N10	Cirrus Design	1

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11. ACCOMPLISHMENT INSTRUCTIONS

A. Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Flashlight	-	Any Source	Inspect welds.
10X Magnifier	-	Any Source	Inspect welds.
Inspection Mirror	-	Any Source	Inspect for cracking.
Paint Remover	-	Any Source	Remove paint and primer.
Paint	DSS92813	PPG Industries, Inc. Pittsburgh, PA 15272 877-367-4721	Repair inspection area.
Primer	F3993		

B. Remove nose gear fairing. (Refer to AMM 32-20)

C. Remove engine cowling. (Refer to AMM 71-10)

D. Perform Upper Gusset Plate Inspection. **(See Figure 1)**

(1) Solvent clean area at upper gusset plate. (Refer to AMM 20-30)

At upper gusset plate, use flashlight and inspection mirror to visually inspect in accordance with FAA AC 43.13-1B, Chapter 5, Section 2 for evidence of cracking developing through the gusset plate and extending toward the puck stack fork slots.

- If no cracking is found, re-inspect Upper Gusset Plate every 100 flight hours in accordance with Chapter 5-20, Scheduled Maintenance Checks. (Refer to AMM 05-20)
- If cracking is found but does not extend into yoke tube, and does not reach either puck stack fork slot, crack length is allowable for continued operation. Re-inspect Upper Gusset Plate every 100 flight hours in accordance with Chapter 5-20, Scheduled Maintenance Checks. (Refer to AMM 05-20)
- If crack reaches either puck stack fork slot, NLG assembly must be replaced within 100 flight hours. (Refer to AMM 32-20)
- If crack extends into yoke tube, contact Cirrus Design for disposition.

Note: If so desired, it is acceptable to skip the following Forward Nose Gear Strut Fillet Weld Inspection and proceed directly to Approved Repair - Nose Landing Gear Reinforcement.

E. Perform Forward Nose Gear Strut Fillet Weld Inspection. **(See Figure 1)**

(1) At upper section of nose gear strut where strut enters the NLG assembly, use flashlight and 10X magnifier to visually inspect forward surface of forward fillet welds attaching strut to NLG assembly in accordance with FAA AC 43.13-1B, Chapter 5, Section 2 for indications of damage. If welds show indications of damage (i.e. cracks, rust lines, loose paint), determine extent of damage.

- (a) Solvent clean area at inside fillet welds attaching the strut to the NLG assembly. (Refer to AMM 20-30)
- (b) Using paint remover, remove surface protection to expose welds.
- (c) Wire brush area to remove all loose debris and/or corrosion.
- (d) Dye penetrant inspect in accordance with FAA AC 43.13-1B, Chapter 5, Section 5.

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- (e) If no cracking is found:
 - 1 Re-inspect Forward Nose Gear Strut Fillet Weld every 100 flight hours in accordance with Chapter 5-20, Scheduled Maintenance Checks. (Refer to AMM 05-20)
- (f) If crack is identified in either weld, a repair must be accomplished to reinforce the fillet welds where the strut enters the NLG assembly.
 - 1 Perform Approved Repair - Nose Landing Gear Reinforcement.

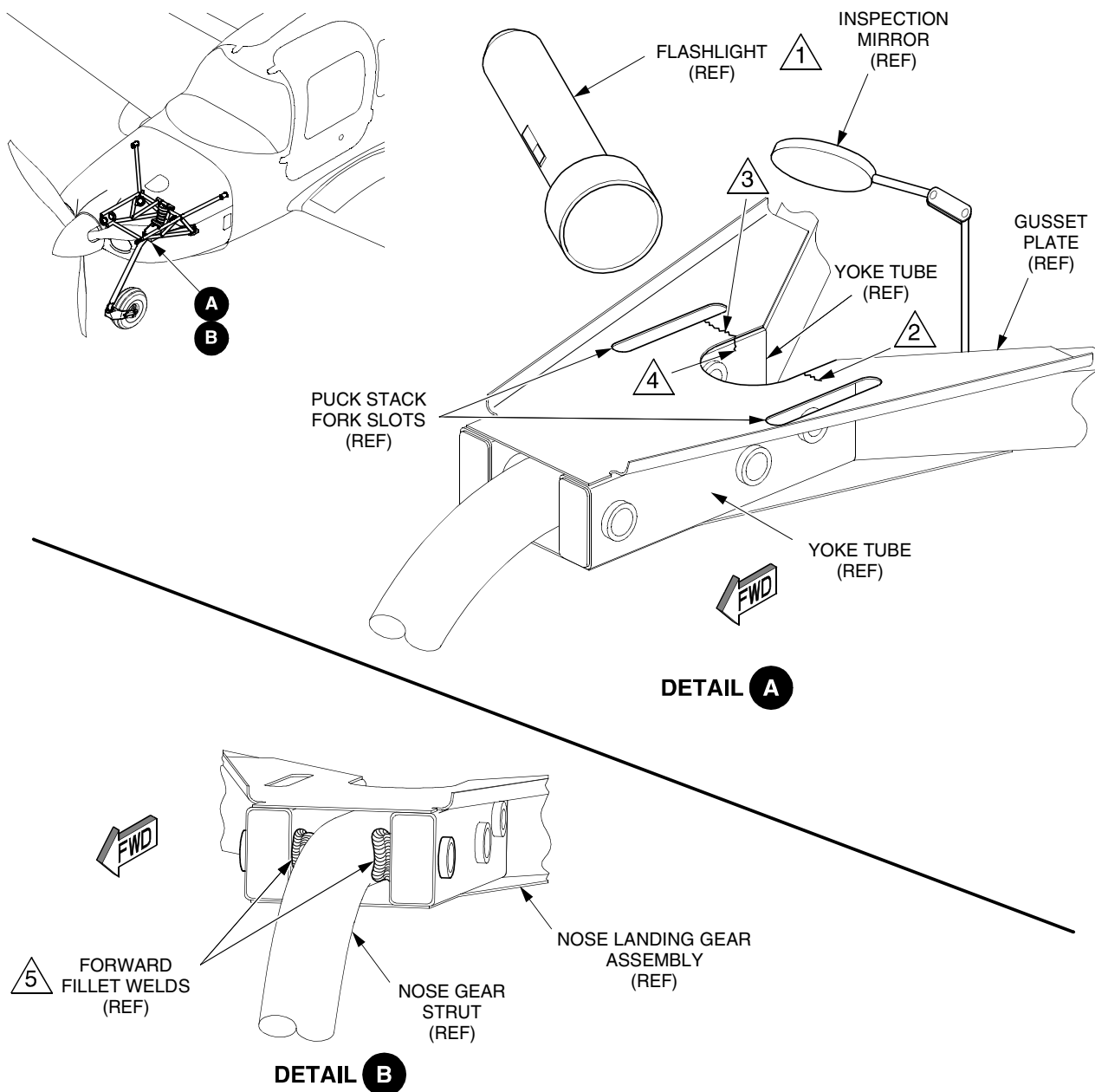
F. Approved Repair - Nose Landing Gear Reinforcement **(See Figure 2)**

- (1) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
NLG Hardware Kit	See Material Information in this Service Bulletin	Cirrus Design	Reinforce fillet welds.
Reamer	0.625-inch	Any Source	Enlarge inner cross tube diameter.
Compressed Air	-	Any Source	Remove debris.
Hammer	-	Any Source	Facilitate bolt insertion.
Grease	ASG22	Aeroshell	Corrosion protection.
Torque Wrench	1100 to 1300 in-lb	Any Source	Torque hardware.

- (2) Apply sufficient grease to fully coat bolt.
 - (3) Ensure bolt passes through forward cross tube of NLG assembly. If necessary, lightly tap bolt through forward cross tube with hammer.
 - (4) If inner diameter of cross tube prevents bolt insertion, use reamer to enlarge cross tube to 0.635 inch (16.129 mm) maximum.
 - (5) Using compressed air, remove any debris from forward cross tube.
 - (6) Install bolt, washers, and nut through forward cross tube of NLG assembly. Torque to 1100 to 1300 in-lb (124.3 to 146.9 Nm).
- G. Apply paint and primer to inspection areas as necessary. (Refer to AMM 51-20)
- H. *SR20 Serials*: Insert Temporary Revision 20AMM_TR_32-20-02 into SR20 Airplane Maintenance Manual Revision A2.
- I. *SR22 Serials*: Insert Temporary Revision 22AMM_TR_32-20-02 into SR22 Airplane Maintenance Manual Revision A3.
- J. Complete airplane records by noting compliance with SB 2X-32-19 R3 in Aircraft Logbook.

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NOTE

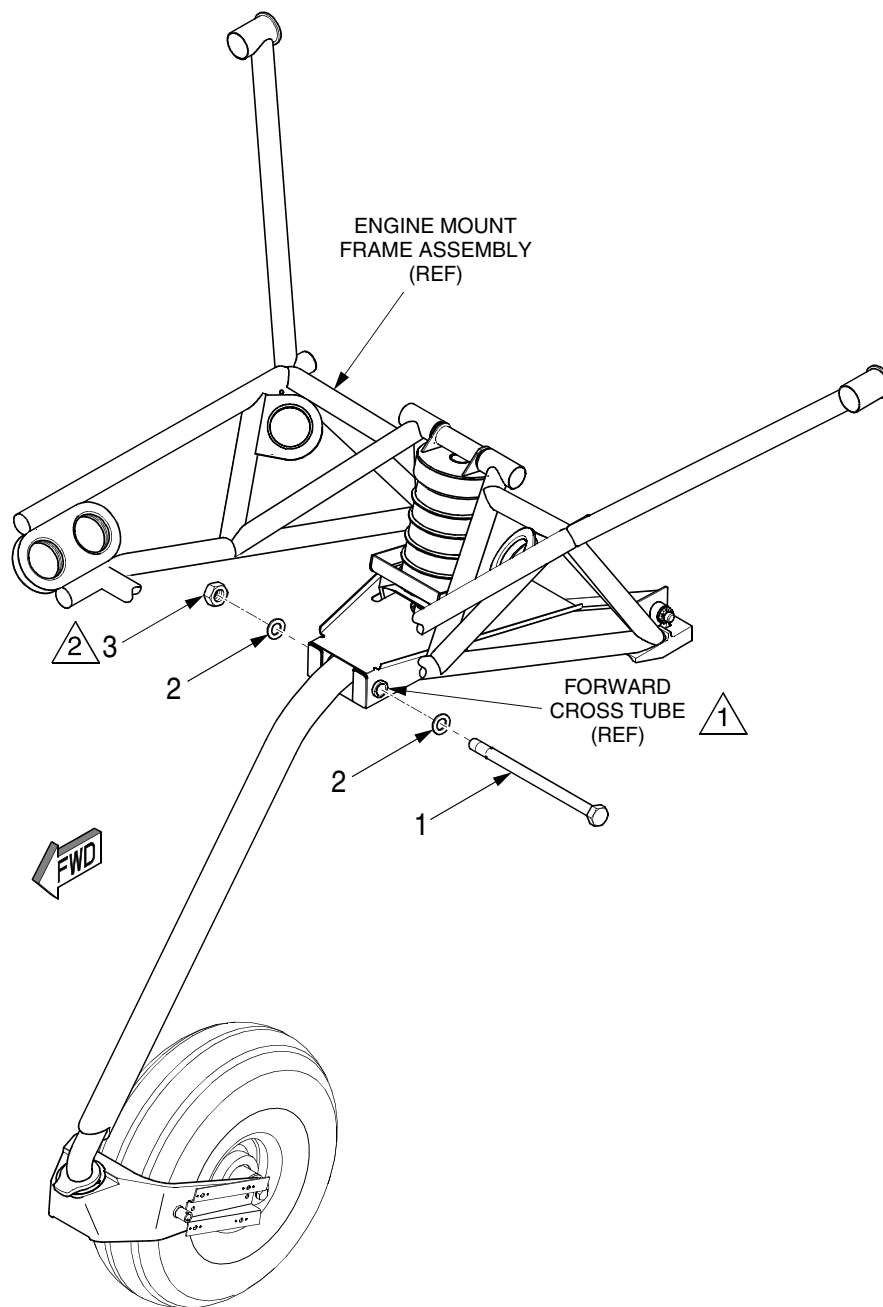
- 1 At upper gusset plate, use flashlight and inspection mirror to visually inspect upper gusset plate for evidence of cracking developing through the gusset plate and extending toward the puck stack fork slots in accordance with FAA AC 43.13-1B, Chapter 5, Section 2.
- 2 If crack does not extend into yoke tube, and does not reach either puck stack fork slot, crack length is allowable for continued operation. Re-inspect Upper Gusset Plate every 100 flight hours in accordance with Chapter 5-20, Scheduled Maintenance Checks.
- 3 If crack reaches either puck stack fork slot, NLG assembly must be replaced within 100 flight hours.
- 4 If crack extends into yoke tube, contact Cirrus Design for disposition.
- 5 At upper section of nose gear strut where strut enters the NLG assembly, use flashlight and 10X magnifier to visually inspect the forward surface of the forward fillet welds attaching the strut to the NLG assembly in accordance with FAA AC 43.13-1B, Chapter 5, Section 2.

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Figure 1
Nose Landing Gear Assembly Inspection

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NOTE

- ① If inner diameter of cross tube prevents bolt insertion, use reamer to enlarge cross tube to 0.635 inch (16.129 mm) maximum.
- ② Torque to 1100 to 1300 in-lb (124.3 to 146.9 Nm).

LEGEND

- 1. Bolt
- 2. Washer
- 3. Nut

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Figure 2
Nose Landing Gear Assembly Reinforcement

EFFECTIVITY:

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