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SERVICE BULLETIN . . .

Light Aircraft Safir

Aerospace Division  
Saab-Scania

Date: November 1980 No 91.4.002

Subject: Dye penetrant inspection of components in flight control system.

Reason: Cracks found in bellcranks manufactured from Hydronaulium.

Aircraft concerned: Saab Safir 91B, 91B2, 91C and 91D (S/N 91,201 thru 91,474) and spare part.

Time of compliance: Within 50 flying hours or latest May 1, 1981 whichever occurs first.

Materials, drawings required: Please advise components needed as soon as possible but not later than June 1, 1981 to enable us to coordinate spare parts.

Report to Saab-Scania regarding action required Yes No

The following components are concerned

TABELL 1

Hydranalium castings in flight control systems.

ELEVATOR	Blank No.	Draw. No.	Item in Part Cat.
<u>Applicable to all aircraft 91</u>			
Forward Bellcrank	M505640	505637-1	91.4105/02/01
Rear Bellcrank	M505666	505665-1	91.4105/03/12
ELEVATOR MOUNTING			
<u>Applicable to all aircraft 91</u>			
Lever	M507061	507061	91.3405/01/20
RUDDER			
<u>Applicable to all aircraft 91</u>			
Forward Bellcrank	M505641	505638-1	91.4115/02/01
Rear Bellcrank	M505662	505661-1	91.4115/02/14
RUDDER MOUNTING			
<u>Applicable to all aircraft 91</u>			
Bearing Bracket	M507063	507126-1	91.3205/01/13
Bearing Bracket	M507040	507040-1	91.3205/01/10
AILERON			
<u>Applicable to aircraft 91B</u>			
Inner Bellcrank LH & RH	M505512	505512	91.4125/02/03
Outer Bellcrank LH	M505513	505513	91.4125/02/13
Outer Bellcrank RH	M505511	505511 Drawn. on 505513	91.4125/02/23
AILERON			
<u>Applicable to aircraft 91B2, 91C, 91D</u>			
Inner Bellcrank LH	M505512	1077326	91.4125/02a/06
Outer Bellcrank LH	M505513	1077342	91.4125/02a/22
Inner Bellcrank RH	M505512	1077813 Drawn on 1077326	91.4125/02a/33
Outer Bellcrank RH	M505511	1077348 Drawn on 1077342	91.4125/02a/35

Different materials have been used in existing castings. The components in which cracks have occurred are only those manufactured of Hydronalium norm BS2L53.

The components can be divided into three groups:

- 1. A component which has a blank number followed by H9 and the stamp



- 2. A component which has neither blank number nor H9 or the stamp



These markings have been removed during machining of the component. See as an example component 1077342.

- 3. Component which has a blank number only.

For component in accordance with group 1 proceed as follows:

- a Dismount the component. Except bearing bracket 507040-1 which has to be tested without being dismounted.
- b Remove paint and primer and clean carefully.
- c Carry out dye penetrant inspection.  
Note: Special attention should be given to control cable and pushrod attachment points and levers as well as areas with steps of different material thickness.
- d A component found free from cracks should be re-installed. No painting or priming needed.
- e A component found with cracks must be replaced with accurate component.

For component in accordance with group 2 proceed as follows:

If a conductivity tester is available the material of the component could be determined by means of a comparison test. Should the test show that the component is manufactured of Hydronalium a dye penetrant inspection must be carried out. See group 1.

If no conductivity tester is available the component must be dye penetrant inspected. See group 1.

Component in accordance with group 3 is not concerned.

Miscellaneous

A disadvantage of the material Hydronalium is that the elongation falls with age. Renewed heat treatment can however restore the elongation properties. Therefore we recommend that prior to re-installation of checked components of Hydronalium they shall be heated ½ to 1 hour in 100-110°C followed by aircooling in room temperature.