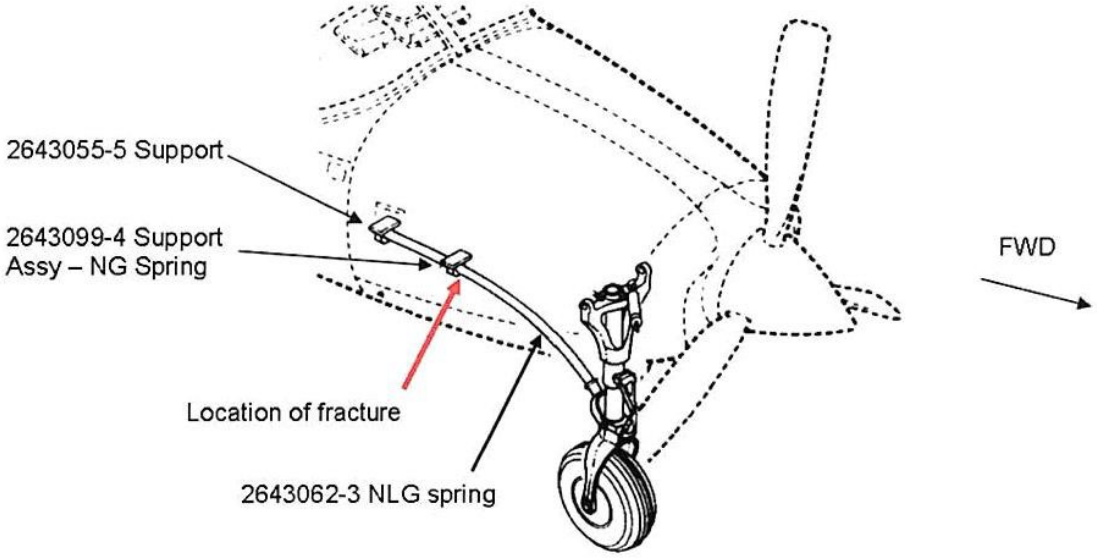
(The Wichita Aircraft Certification Office provides the following safety admonition. Aerospace Engineer Gary Park narrates the discussion; contact information follows the article.)

The FAA Wichita ACO received a Cessna 208 broken nose landing gear spring (P/N 2643062-3) shown in Photo 1. Installed on the airplane in December 2004, this NLG spring fractured during a landing in Puerto Rico in May 2010. It had nearly 3,000 flight hours. The fracture was analyzed and the following conclusions were identified: (1) Significant corrosion in the area of the fracture origin was present at the outside diameter of the NLG spring with pit depths slightly exceeding 0.02 inches; (2) stress-corrosion cracking was observed to a depth of nearly 0.02 inches, followed by ductile overload.

The schematic in Figure 1 shows the location of the fracture relative to the Support Assembly (P/N 2643099-4). Photo 2 is a magnified view showing the chevron pattern indicating the origin of the fracture at the lower outside diameter of the NLG spring. Photo 3 presents a tilted magnified view showing pitting corrosion along the outside diameter that coincides with the origin of the facture. Photo 4 depicts a longitudinal metallographic cross-section through the origin of the fracture showing the corrosion pitting.

The Corrosion Prevention and Control Inspections found in the Cessna Maintenance Manual (5-30-01 &-02) require reoccurring visual inspections of the NLG for evidence of corrosion. The inspection information from the manual for mild or moderate corrosion (airplanes without TKS anti-ice system) is shown in the Table 1. For severe corrosion (airplanes with TKS anti-ice system), divide the inspection intervals in this table by two.

Figure 1: Location of the fracture relative to the Support Assembly (P/N 2643099-4).



Cessna 208, Broken Nose Landing Gear Spring, ATA 3222

Figure 1 Photo 1: An over overall view of the broken NLG Spring

Cessna 208, Broken Nose Landing Gear Spring, ATA 3222

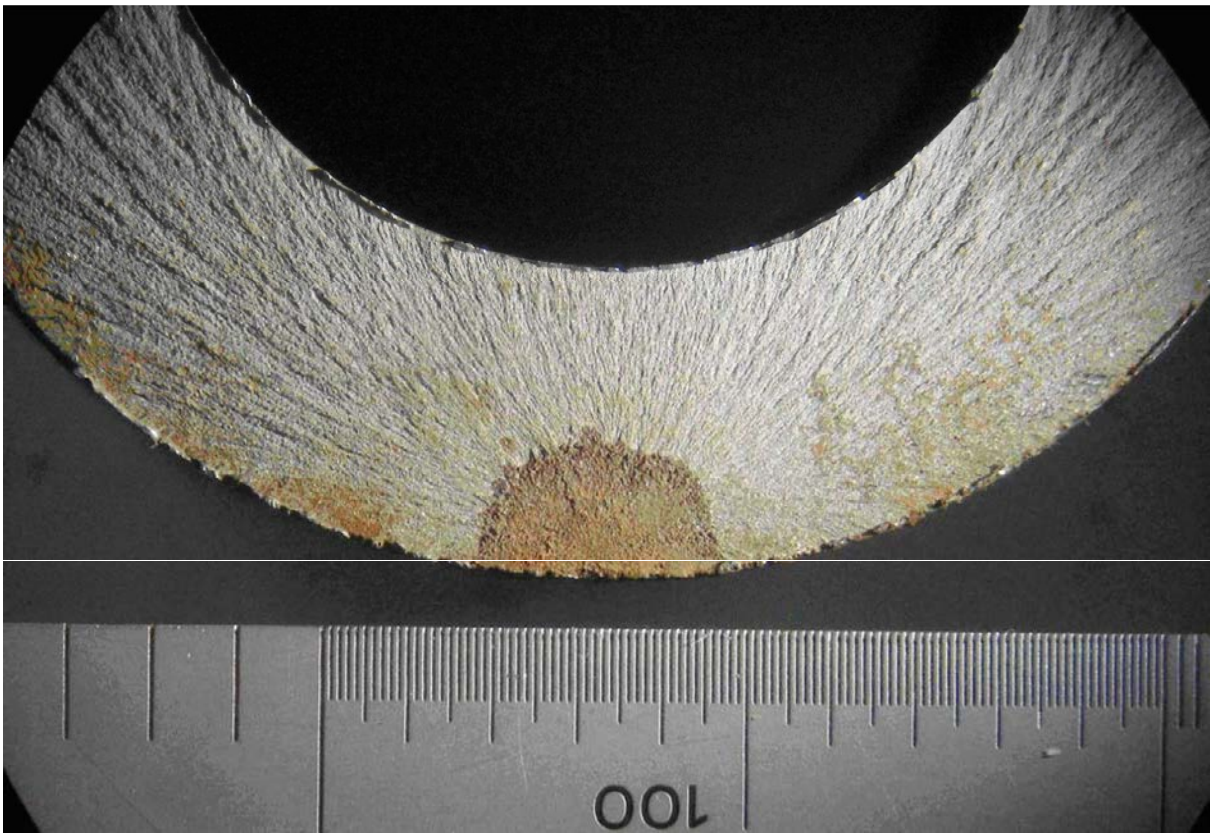


Figure 2 Photo 2, A magnified view of the fracture surface showing the Chevron pattern at the origin of the fracture

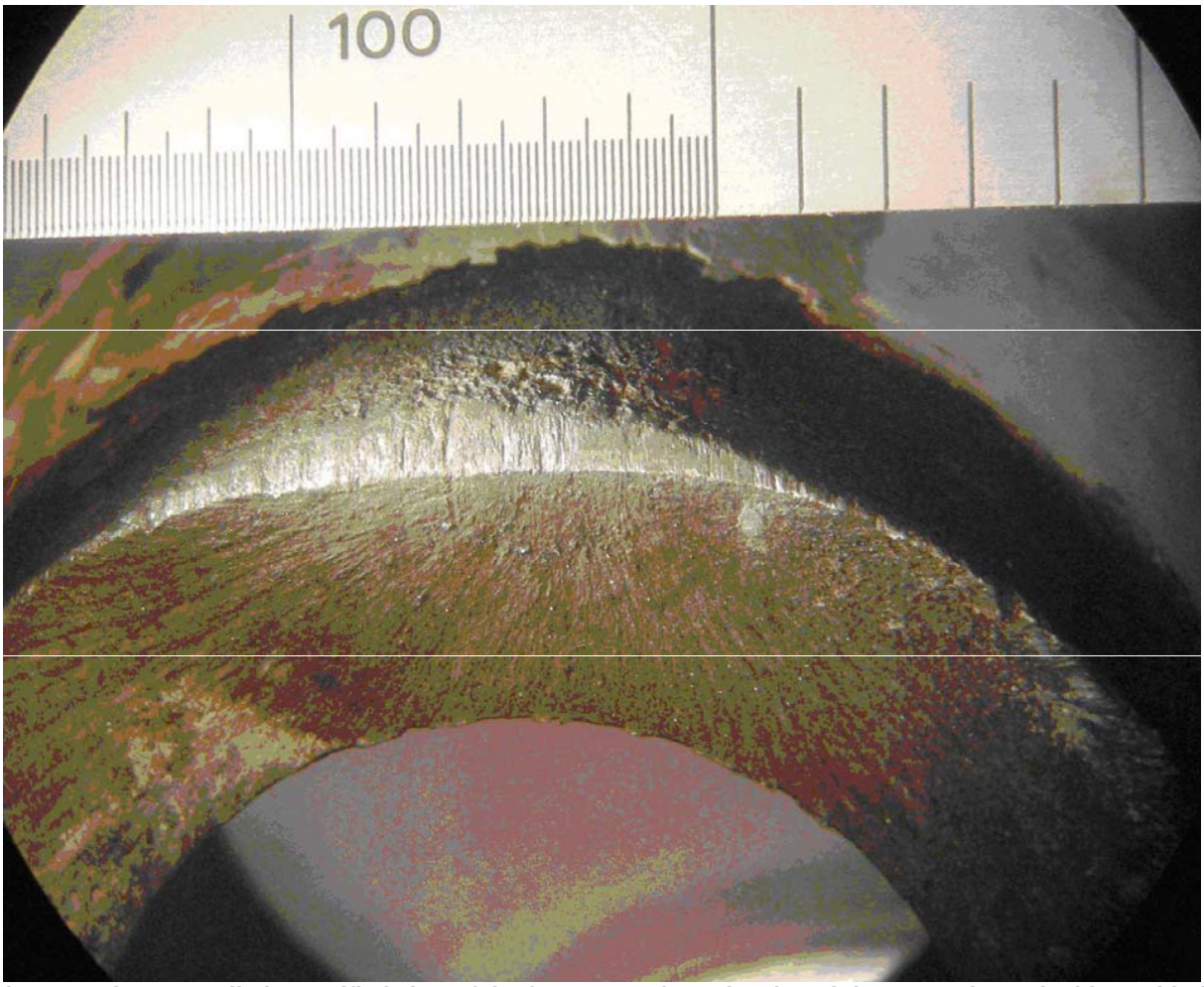


Figure 3 Photo 3, A tiled magnified view of the fracture surface showing pitting corrosion coincident with the area at the origin of the fracture

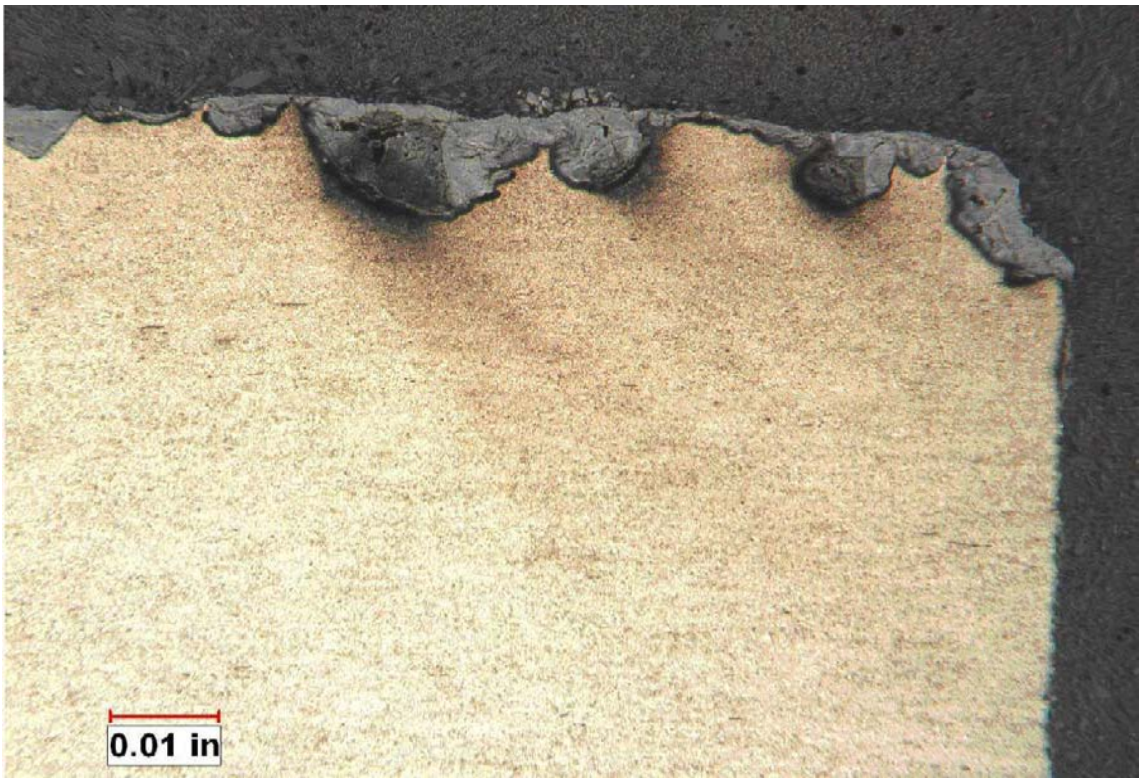


Figure 4 Photo 4. The view depicts a longitudinal metallographic cross-section through the origin of the fracture showing the depth of the corrosion pitting

Table 1: This describes Mild or Moderate Corrosion Inspections (airplanes without TKS anti-ice system). For Severe Corrosion (airplanes with TKS anti-ice system), divide the inspection intervals by 2. (Please use the PDF "zoom" function to view table—Ed.)

TASK NUMBERS	INTERVAL		ZONE	ACCESS	MAINTENANCE MANUAL REFERENCE	208B CORROSION PREVENTION AND CONTROL PROGRAM
	TI (YRS)	RI (YRS)				TASK DESCRIPTION
C32.701.02E	4	2	701	NOTE	12-21-03 32-00-00 32-20-00	Nose gear spring assembly and support assembly. Make sure you examine these areas: 02.01 Nose Gear Spring Surface. 02.02 Forward and Aft Support. 02.03 Nose Gear Spring Fork and Attach Bolts. **NOTE:** Remove the nose gear fairing to get access. STATION: FS 61.78 Models 208 and 208B
C32.701.02I	4	2	701	NOTE	12-21-03 32-00-00 32-20-00 32-40-00	Nose gear support liner, support inner bore, nose gear spring support attach location, nose gear spring fork lug inner bore. Make sure to examine these areas: 02.01 Nose Gear Support Liner. 02.02 Forward and Aft Support Inner Bore Surface. 02.03 Nose Gear Spring Surface at Forward and Aft Support Attach Location. 02.04 Nose Gear Spring Fork Lug Inner Bore Surface. **NOTE:** Remove the nose gear support from the spring to get access STATION: FS 61.78 Models 208 and 208B

(For further information contact Aerospace Engineer Gary Park; Wichita Aircraft Certification Office, 1801 Airport Road, Room 100; Wichita, Kansas; 67209; phone: 316-946-4123)

Part Total Time 3,000 Hours (Approximately)