



FEDERAL AVIATION ADMINISTRATION

Aviation Maintenance Alerts Template

Hello Aviation Industry Members,

The Federal Aviation Administration (FAA) received numerous requests from the Aviation Industry (Industry) to reinstate the Aviation Maintenance Alerts (AC-43-16) (AMA) to assist industry members when sharing information regarding any anomalies and safety issues found during aircraft maintenance or related to their in-flight experiences.

This newly created Aviation Maintenance Alerts (AMA) Template is available for voluntary submission of information that you will provide as a non-formatted document to add new data regarding any anomalies, adverse risks, safety issues, or problems encountered while using, inspecting, or modifying the aircraft. The FAA will add this data to our historical Alerts files.

Further, when populated and submitted, the data is included as individual Alerts to our FAA Safety Team (FAAST) site. The Site is located under the General Aviation section (see User Guide for additional information).

The FAA Alerts Team will log and track the Alerts in the FAAST site's historical files and is included in the Table of Contents (List). The List will be searchable by 'Product Category' 'Manufacturer', and 'Model' for the aircraft, power plants, rotors, or component part of the accessories. This information will assist the Industry in finding similar Alerts for products written by others. The FAA Alerts Team will update the site's List on a regular basis (either monthly or quarterly depending on the information received), and include copies of the original Alerts, as well as the updated List. The Word template is very simplistic and easy-to-populate.

The Industry will use the AMA Template to submit an Aviation Maintenance Alert that identifies anomalies and safety issues, [as well as experiences] found during daily usage or routine maintenance checks and inspections. Gathering this information will not only help the Industry to share their experiences, but will assist the entire Aviation Community to improve aeronautical product safety.

If the Industry submitter resolves the issues and successfully creates a workable solution, the submitter is encouraged to describe the corrective actions in Section III of the Template; or, if the submitter has found an option to correct future issues of the same nature, please include your recommendation in Section III. These actions will provide important information to other members of the aviation industry to ensure the information is captured and provided to industry personnel. These records will not only describe possible issues and resolutions, but will encourage feedback from other members regarding their experiences on similar products.

When an AMA is published, the corrective action may not be fully evaluated. As more knowledge is provided, the Alerts will be promptly updated to include all facts provided. This includes feedback from other Aviation personnel or government agencies who provide support to the Aviation Industry. When the Alert is received, the List is updated and published on a regularly established schedule.

Please use this Voluntary Template to document any safety issues, possible alerts, comments, or suggestions you may find. Download the Template to your electronic communication device, fill in as much information as possible, save the Template on your device, and email your completed document to us at FAA; ATTN: AFS-600 at: 9-AVS-Mxalerts@faa.gov.

Thank you.

SECTION I: DESCRIBE ALERT SUBJECT

PRODUCT CATEGORY	MANUFACTURER	MODEL	YEAR OF MFG	TOTAL TIME IN SERVICE
AIRCRAFT Note: This is the Word Template which must be populated by the submitter	There is a list of common manufacturers listed in the Instructions, should you require the preferred product title for the categories	Enter the Model Number of your product	If available, please list the manufactured year of the product	If available, please enter the Total Time in Service for the Product
AIRPLANES	Cessna	208 208B	2007 2007	5667 ♦ 9184 ♦♦
HELICOPTER/ ROTORCRAFT				
BALLOONS				
UAS				
POWERED PARACHUTE, WEIGHT-SHIFT CONTROL AND ULTRA-LIGHT				
POWERPLANT				
PROPELLER				
APPLIANCES/ACCESSORIES				

♦ Upper Wing Strut Fitting cracked

♦♦ Upper Wing Lift Strut Fitting fractured

SECTION II: DESCRIBE SAFETY ISSUE

Cracked Upper and Lower Wing Strut Fittings on Cessna 208 Airplanes

The FAA recommends that maintenance technicians pay close attention when they inspect the Upper Wing Strut Fittings, part numbers 2621008-1, -2, -3, -201, -202, -203 (Note: -201, -202, -203 are spares); and Upper Wing Strut Lift Fittings, part number 2622246-1, -2, -7, -8, -15, -16, -201, -202 (Note: -201, -202 are spares). The Maintenance Technicians should inspect the fittings for cracks and corrosion. In addition, cracks have been found in the Lower Wing Strut Fittings, part numbers 2621009-1 and -2; in Nuts on Attachment Bolts, MS17826-12 (Lower Wing Strut), and MS21042L5 (Upper Wing Strut). Therefore, it is important that other parts in the area are inspected per the maintenance manual. Note that any airplane operated on floats needs to use "Severe Inspection Time Limits".

Upper Wing Strut Fitting Fracture (P/N 2621008)

Transport Canada informed the FAA of a Service Difficulty Report (SDR) that described where a right-hand Upper Wing Strut Fitting (Part Number 2621008-202) was found cracked during an inspection of a Cessna 208 airplane on June 25, 2012. The Cessna 208 had 5,667 flight hours. The airplane operated on Wipaire Floats using Supplemental Type Certificate (STC) SA1311GL that allows it to operate at heavier weight than the Cessna certified airplane in Type Certificate Data Sheet (TCDS) A37CE. As reference, see page four (4) of the Transport Canada's Feedback for issue 4/2013.

Textron Aviation Material and Process (M&P) lab report, dated July 26, 2012 regarding the cracked Upper Wing Strut Fitting, stated: "Presence of closely spaced fatigue striations indicated that the mode of cracking was by *high-cycle fatigue*."

The maintenance manual inspection requirements for typical airplane use are in "**Typical Inspection Time Limits**" where Eddy Current Inspections are to be performed "**at the first 10,000 hours and every 5,000 hours thereafter**." For severe airplane use, the inspection requirements are in "**Severe Inspection Time Limits**" where Eddy Current Inspections are to be [performed "**at the first 5,000 hours and every 3,600 hours thereafter**".

The location of the Upper Wing Strut Fitting, P/N 2621008 is displayed in the Figure 1 photograph and in the Figure 4 schematic. The Lower Wing Strut Fitting, P/N 2621009-1 and -2, is shown schematically in Figure 5. Cracking has occurred in the lower fitting. The crack, shown in Figure 2 and Figure 3, was found during a scheduled inspection. Only about a quarter-inch of material remained where the crack ended. Figure 2 shows indentation damage caused by the spacer, part number 2621013-2, and Figure 3 shows dark rub marks, a slight twist, and a few white-colored linear scratches. The schematics in Figure 6 and 7 show where the maintenance mechanic should do the Eddy Current Inspection on the Upper and Lower Wing Strut Fittings.

Upper Wing Lift Strut Fitting Fracture (P/N 2622246):

During a normal inspection on March 2, 2013, the aft Upper Wing Lift Strut Fitting (Part Number 2622246-16) on a Cessna 208B was found fractured through the bolt hole that attaches the wing lift strut to the wing. The airplane had accumulated 9,184 flight hours.

Textron Aviation M&P lab report dated July 15, 2013 determined that the "mode of the cracking was due to *fatigue*." "The crack origin was located along the surface of the bore hole."

The Eddy Current inspection intervals for the 2622000 parts are at the **first 20,000 hours and every 5,000 hours thereafter** for standard bolt S3561-77 (typical usage), **4,400 hours thereafter** for S3561-163 (severe usage), and **3,600 hours thereafter** for S3561-164 (severe usage).

Figures 8 and 9 display the broken fitting while still installed on the airplane and after the removal.

SECTION III: DESCRIBE ALERT CORRECTIVE ACTION/ RECOMMENDATION

NOTE: If a resolution or correction action is identified, please describe below. If not, mark this section to be determined (TBD). Thank you.

The FAA recommends that Maintenance Technicians pay close attention when they inspect the Upper Wing Strut Fittings, part numbers 2621008-1, -2, -3, -201, -202, -203 (Please Note: -201, -202, -203 are spares); and the Upper Wing Strut Lift Fittings, part number 2622246-1, -2, -7, -8, -15, -16, -201, -202 (Please Note: -201, -202 are spares). The Maintenance Technicians will inspect the fittings for cracks and corrosion.

In addition, cracks have been found in the Lower Wing Strut Fittings, part numbers 2621009-1 and -2; and in nuts on attachment bolts, MS17826-12 (Lower Wing Strut) and MS21042L5 (Upper Wing Strut). The Maintenance Technicians will inspect other parts in the area pursuant to the Maintenance Manual. Any airplane operated on floats needs to use "Severe Inspection Time Limits".

SECTION IV: INCLUDE GRAPHICS, DRAWINGS, AND PICTURES

Note: Please place graphics, drawings, and pictures on separate pages. Include a page break at the end of each item. See instructions for additional guidance.

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Figure 8 The Photograph shows the fractured Upper Wing Lift Strut Fitting prior to removal. The inboard portion of the fitting was completely separated from the main body of the fitting..... 13

Figure 9 References: There are two views of the fractured part. a) Looking at the aft side of the part and b) Looking at the forward side 14

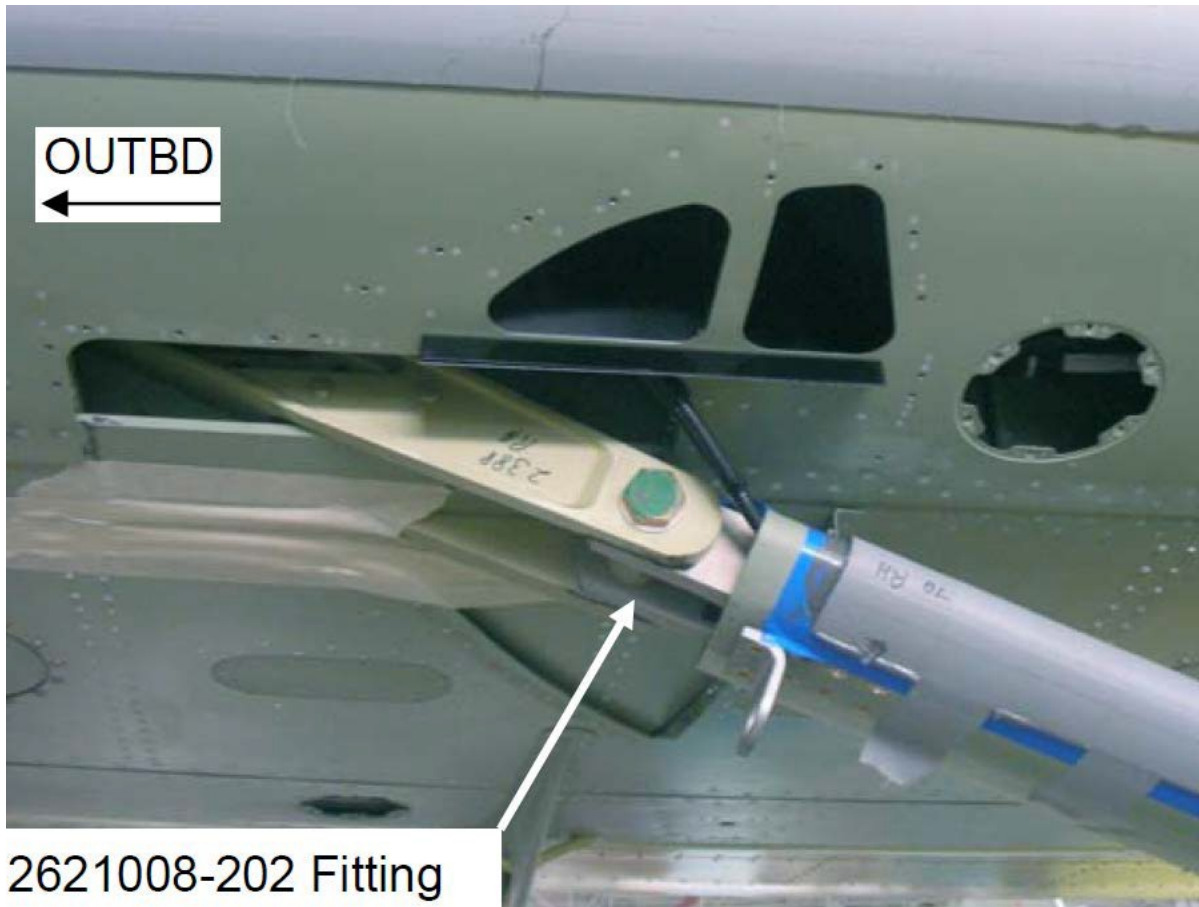


Figure 1 View looking Aft of the Upper Wing Strut attach location on a Cessna 208. Also shown is the bolt head of the S3461-77 Bolt MPI Upper Attach

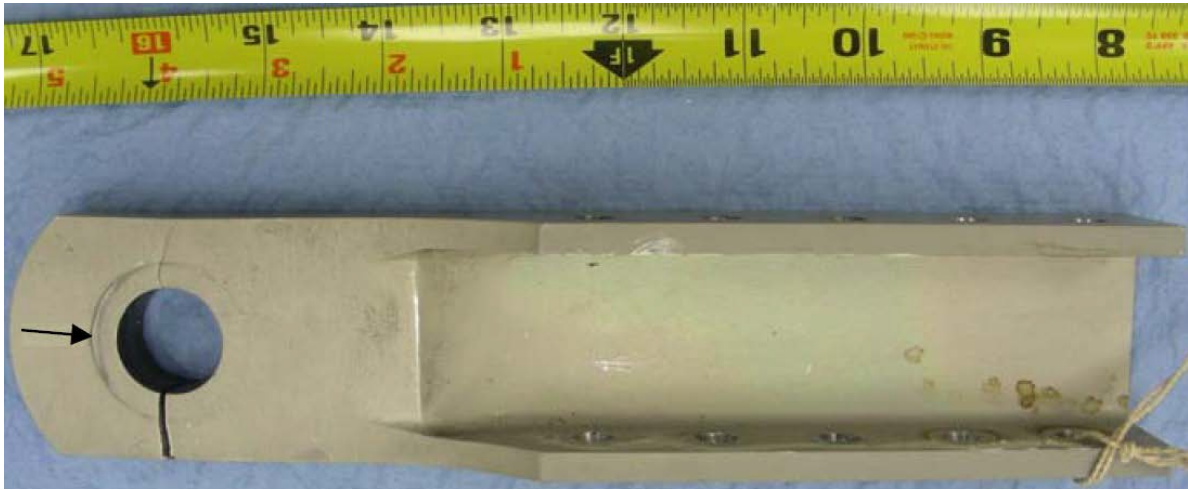


Figure 2 View of the forward surface of the fitting, showing indentation damage due to contact with the 2621013-2 spacer (see arrow)

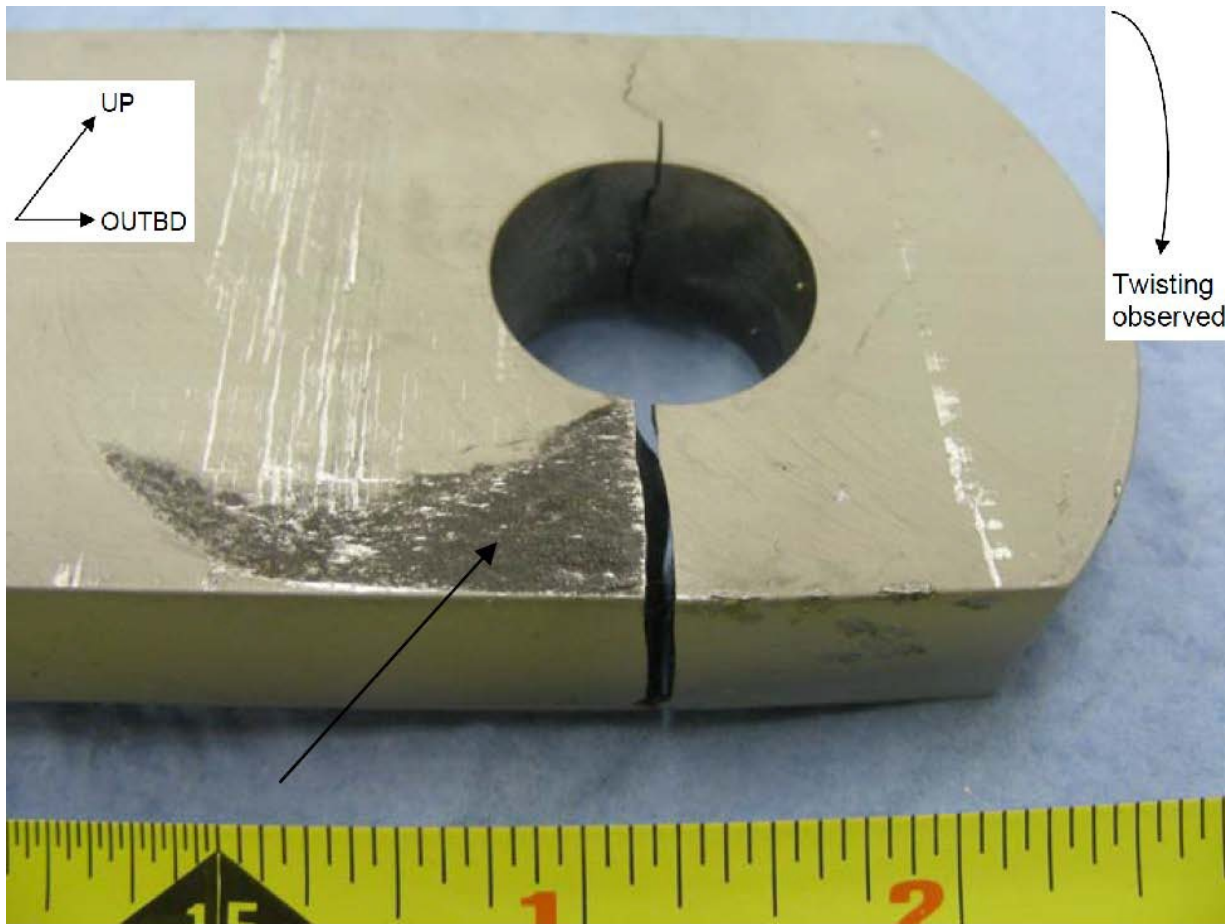


Figure 3 View of the aft side of the fitting showing dark rub marks and slight twisting deformation (arrows). Cracking extended all the way through the lower ligament, and approximately 80 – 90% through the upper ligament

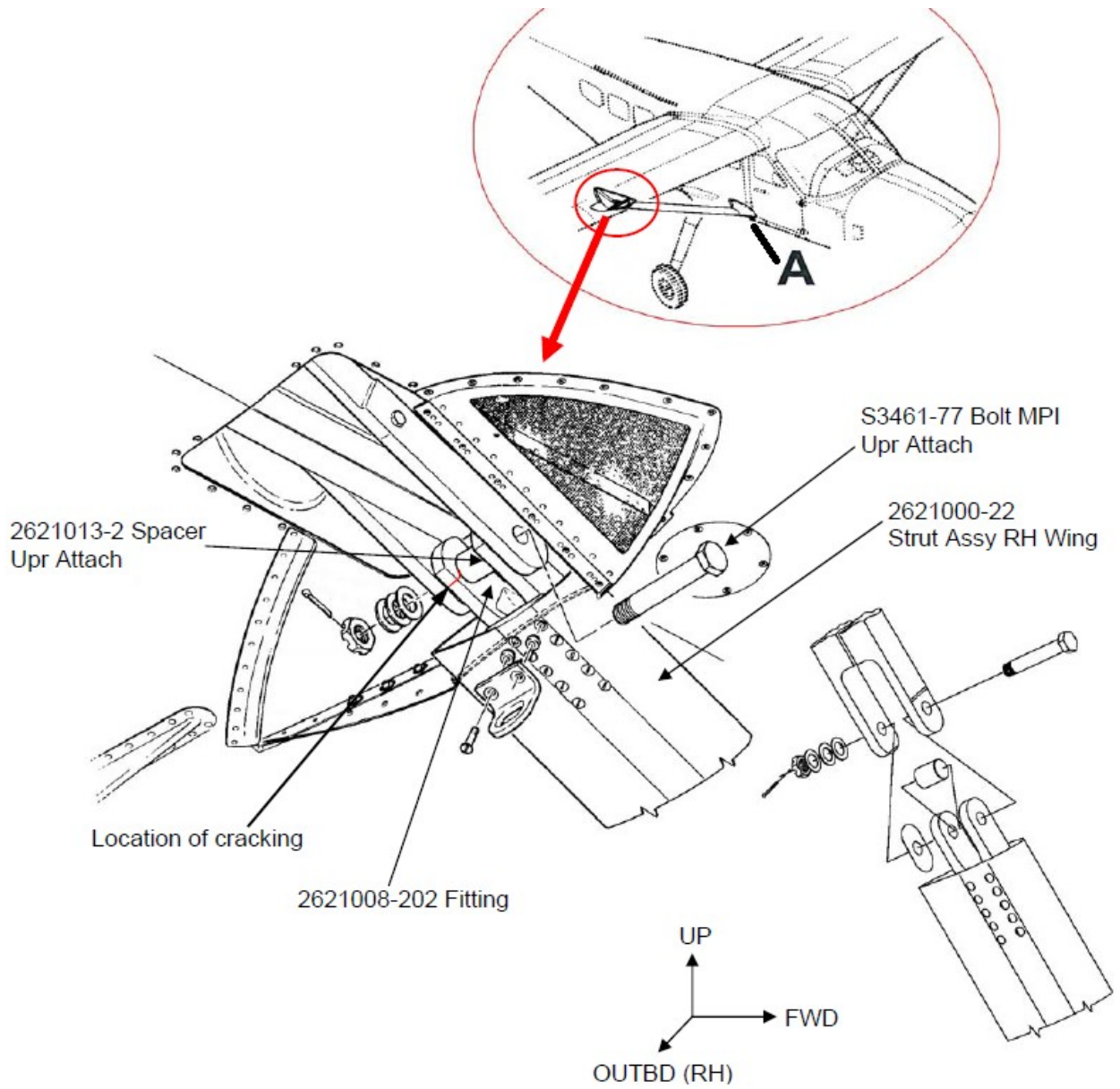


Figure 4 The Schematic displays the location of the Upper Wing Strut Fitting, part number 2621008-202. The Schematic also shows the S3461-77 Bolt MPI UPR Attach, 2621013-2 Spacer UPR Attach, and the 2621000-22 Strut Assembly RH Wing

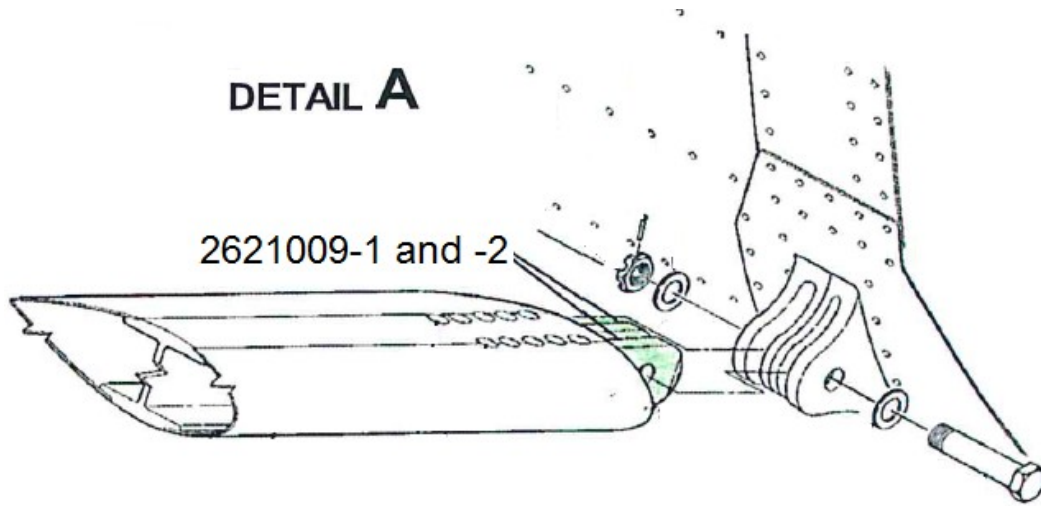


Figure 5 The Schematic displays the Lower Wing Strut Fitting (Detail A), part numbers 2621009-1 and -2. (Please Note: Photographs are unavailable for cracked fittings)

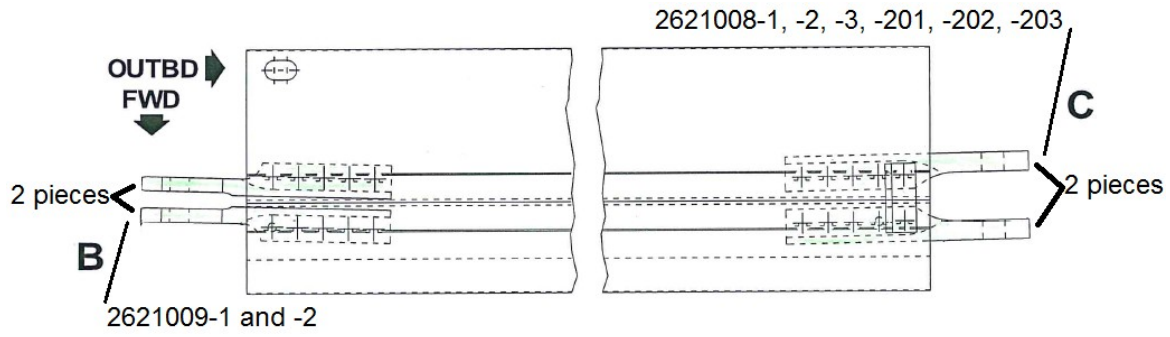


Figure 6 The Schematic (View B) displays the Right Wing Strut Assembly with view looking up. (Left side of the Schematic (View C) is opposite view)

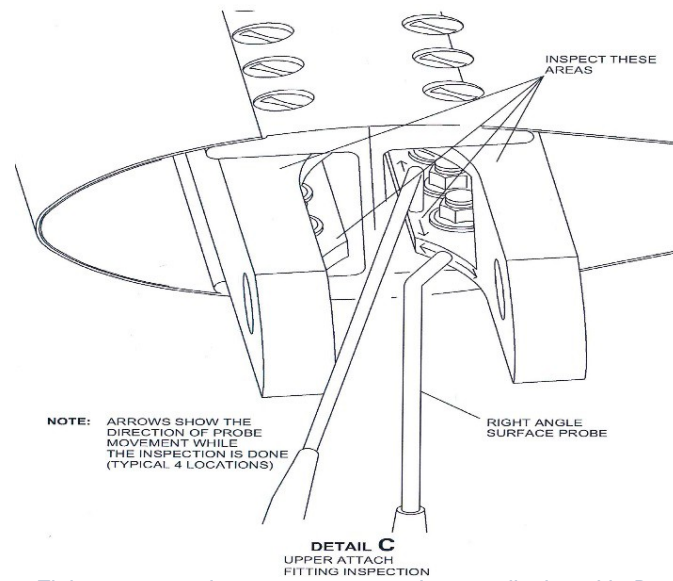
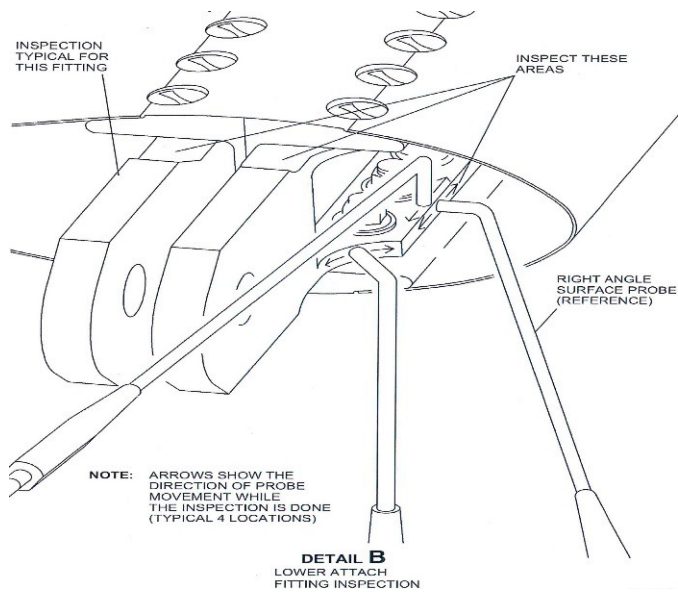


Figure 7 The Schematic of Eddy Current inspections for the Lower Wing Strut Fitting, part numbers 2621009-1 and -2 are displayed in Detail B; the Upper Wing Strut Fitting, part numbers 2621008-1, -2, -3, -201, -202, and -203 are displayed in Detail C

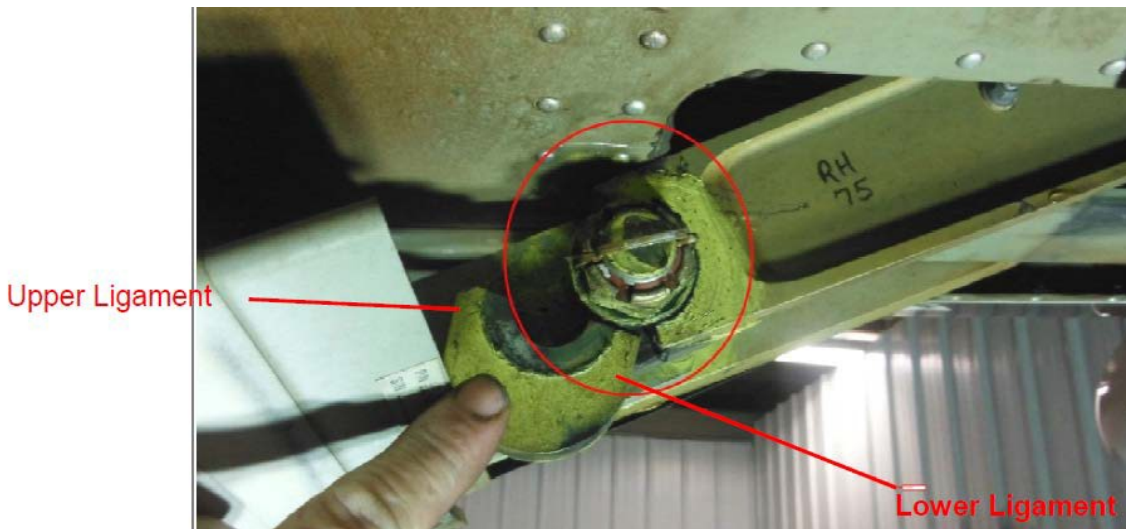
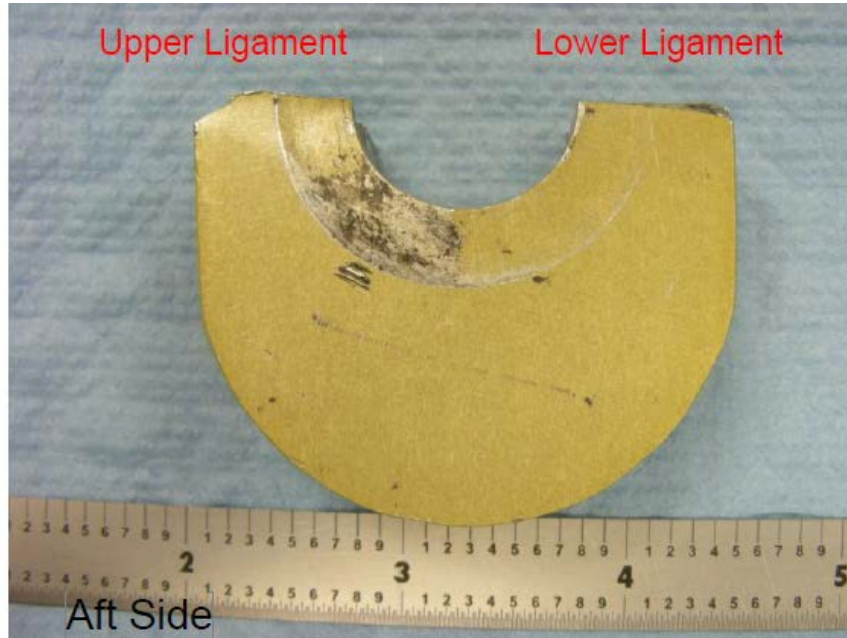


Figure 8 The Photograph shows the fractured Upper Wing Lift Strut Fitting prior to removal. The inboard portion of the fitting was completely separated from the main body of the fitting

Note: Relative to Figure 1, this view is looking forward instead of aft

a)



Note: The primer shown in Figure 8 was removed for examination.

b)



Figure 9 References: There are two views of the fractured part. a) Looking at the aft side of the part and b) Looking at the forward side