CESSNA AIRCRAFT COMPANY
P. O. BOX 7704
WICHITA, KANSAS 67277-7704

STRUCTURES

MODEL NO: 150 (and others)

REPORT NO: S-150-ATA25/01RD

REPAIR DEFINITION

STEEL SEAT FOOT / ROLLER HOUSING REPAIR

REPORT DATE: July 28, 2011

PREPARED BY: John Baldessari
John Baldessari

PREPARED BY: Gale Meek
Gale Meek

APPROVED BY: Tony Massucci
Tony Massucci

REVISIONS

LETTER	DATE	DESCRIPTION	BY	APPROVED
-	Jul. 19, 2011	Original release EC 099005	JJB	See cover page
A	3 Aug. 2011	Removed proprietary restrictions; added clarification for defined damage agreeing with actual damage; removed reference to Cessna drawing and referred to Fig. 3.2-1 and AD; provided clarification that substantiation is approved data; added sentence that the repair is cold forming with no heating; changed "annealed" to "normalized"; defined suitable tools for forming and bending; added reference to paragraph 3.2.4 for NDI in paragraph 3.0. EC099005	GLM	Sid Bauguess Tony Massucci

1.0 AIRCRAFT DATA

This repair is valid for the following aircraft models and serials numbers:

Model	Serial Range	
150	15059019	15079405
F150	F150-0001	F15001428
A150	A1500001	A1500734
FA150	FA1500001	FA1500120
FRA150	FRA1500121	FRA1500336
152	15279406	15286033
F152	F15201429	F15201980
A152	A1520735	A1521049
FA152	FA1520337	FA1520425
FA152	FA1520348	FA1520425

SPECIAL NOTES

- This Repair Definition covers only the damage defined in this document and it is the responsibility of the repair facility to assure that the defined damage agrees with the actual damage, i.e. no cracks, no twisting, or other damage. A
- All nondestructive inspections (NDI) specified in the Repair Definition must be performed by a qualified facility.

The repair described in the report satisfies applicable strength and fatigue, fail safe, and/or damage tolerance requirements. Approved data for structural substantiation and back-up data for this repair are contained in Engineering's Repair Definition Archive. A

The structural repairs designed herein for these aircraft do not affect the original structural inspection criteria (procedures or timing) as published in the appropriate Cessna Maintenance Manuals.

The repair definition contained within this document has been found to comply with the following regulations:

Part 3 of the Civil Air Regulations dated May 25, 1956, as amended by 3-4, Paragraphs 3.171, 3.172, 3.173, 3.174, 3.292, 3.293, 3.294, 3.295, 3.296, and 3.386.

2.0 DAMAGE DESCRIPTION

FAA Airworthiness Directive (AD) 2011-10-09 became effective June 17, 2011, and requires Cessna Aircraft owners to inspect seat rails and seat foot ("roller housing") structure for cracks, wear, or other deformations.

Among other requirements, the AD specifies that the geometry for the tangs of the seat roller housings must fall within certain limits -- reference. AD 2011-10-09 paragraphs (g)(6), (g)(6)(i), and Figure 4 (reproduced in Fig. 2.0-1 below). A

FIGURE 2.0-1 ROLLER HOUSING TANG GEOMETRY REQUIREMENTS PER AD 2011-10-09

(6) Due to wear or deformation of the tangs, inspect the tang length from the inner edge of the tang to the outer edge (the bend area) of the roller housing (see figure 4).

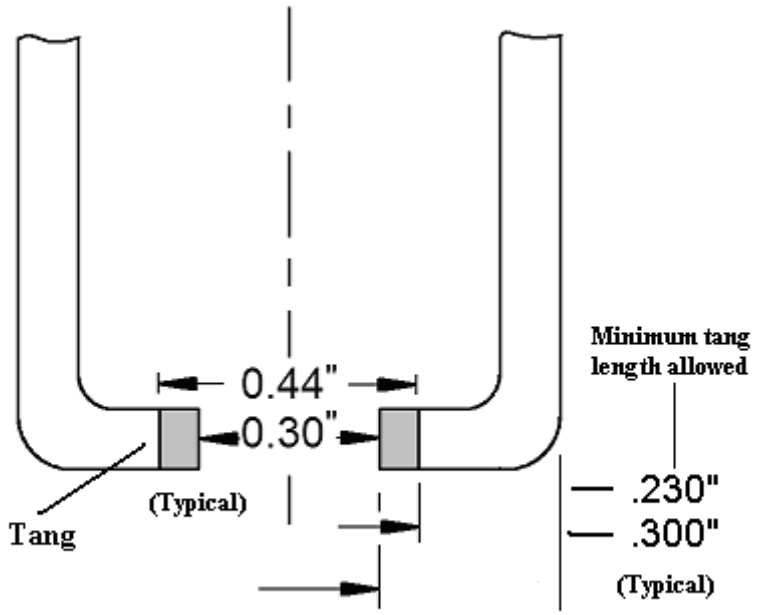


Figure 4. Closeup of seat roller housing and tang gap width

(i) The minimum measurement allowed for the remaining tang length is 0.230 inches remaining on either of the tangs, from the inner edge of the tang to the outer edge (the bend area) of the roller housing. If the measurement is less than 0.230 inches on either of the tangs, before further flight, replace the roller housing.

In the case of seats which use steel roller housings (e.g. as defined by Cessna drawings 0311310 “Roller, Pilot Seat”, and 0514016 “Housing Assy – Seat Roller”), the tangs may not meet the dimensional requirements set forth in the AD due to primarily to deformation or bending of the seat feet, rather than being caused by actual wear / loss of material. Ref. Figures 2.0-2 and 2.0-3 for examples of this type of deformation / bending of roller housing geometry.

FIGURE 2.0-2 DETAIL OF BENDING / DEFORMATION OF SEAT ROLLER HOUSING SIDE WALL

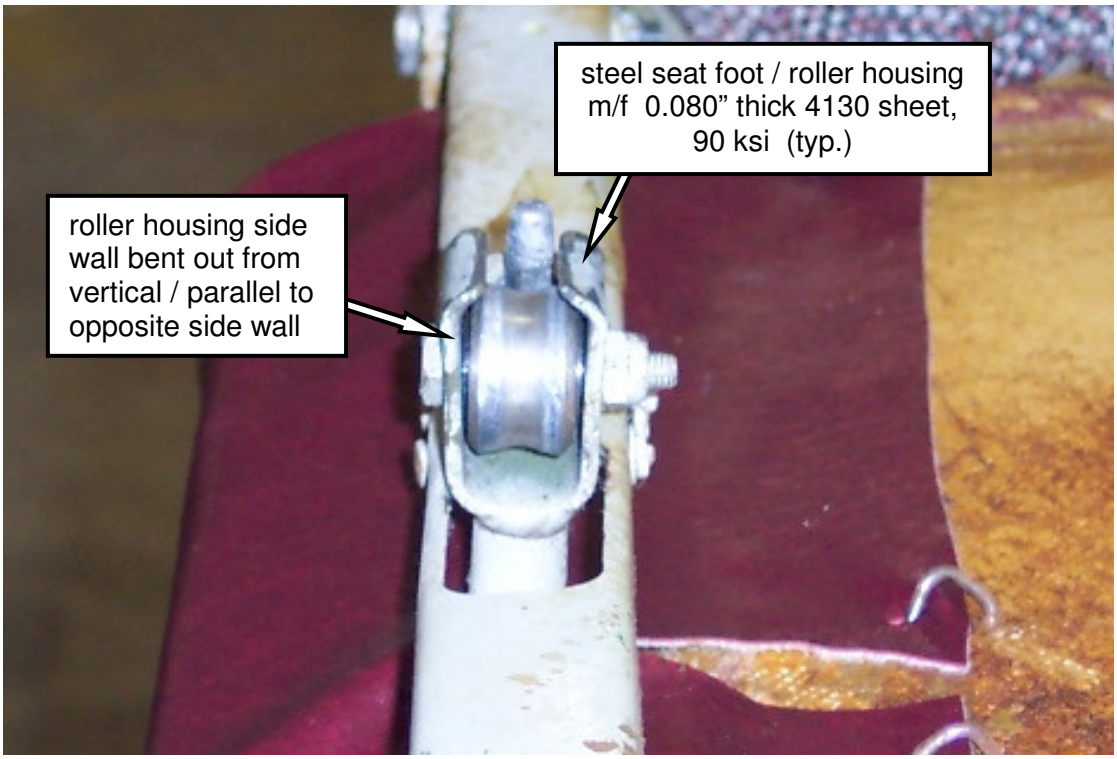
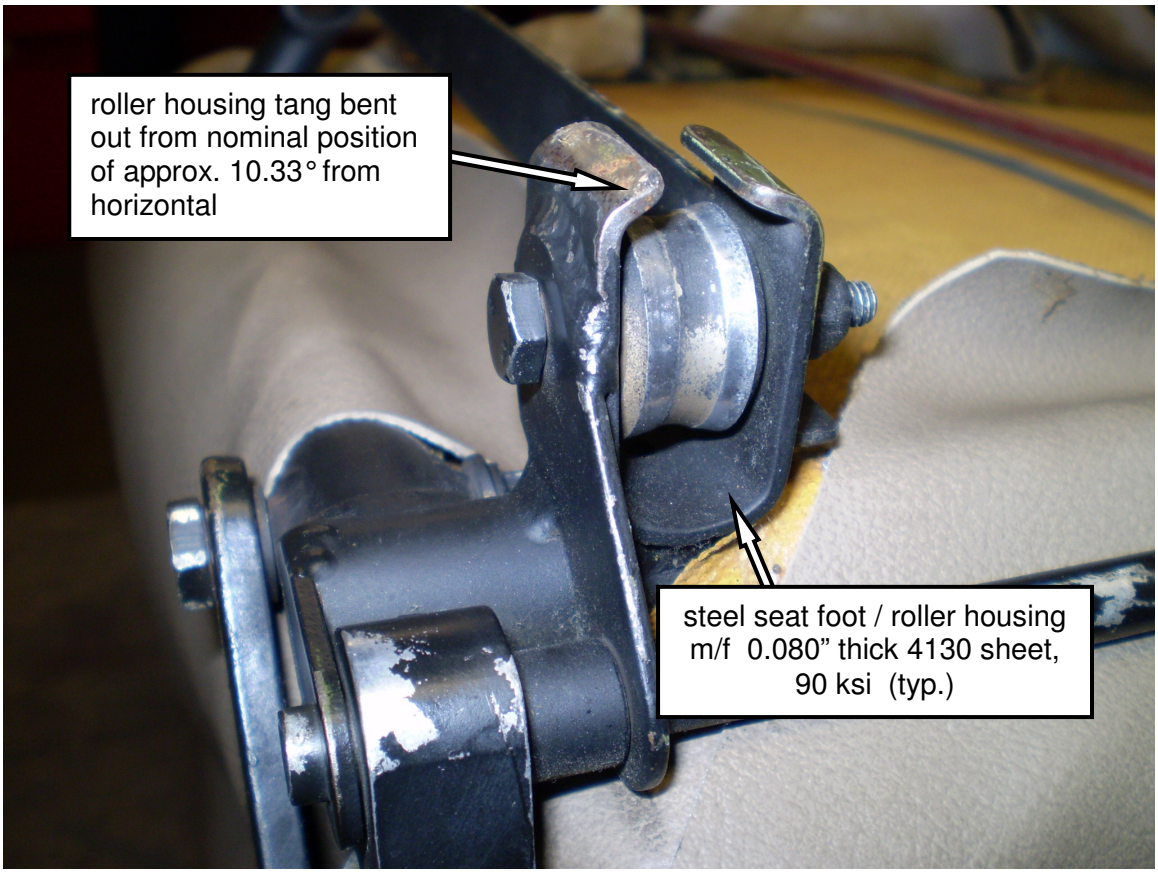


FIGURE 2.0-3 DETAIL OF DEFORMED / BENT SEAT ROLLER HOUSING TANGS



3.0 REPAIR DEFINITION

Read the entire service document prior to beginning the repair; contact Cessna Customer Service if the repair cannot be performed as described below. Steel seat roller housings may be gently formed (or “bent”) back to a configuration conforming to specifications as shown in Figure3.2-1 below and AD 2011-10-09, followed by an NDI inspection (as identified in paragraph 3.2.4) for any cracking. Note that this is a cold forming operation. No heating is to be done for this operation. A A

This repair procedure is only applicable to seats which are listed in Section 1.0 which have not been modified with non-production roller housings. Production seat roller housings are made of 4130 steel and in normalized (90 ksi) condition. A

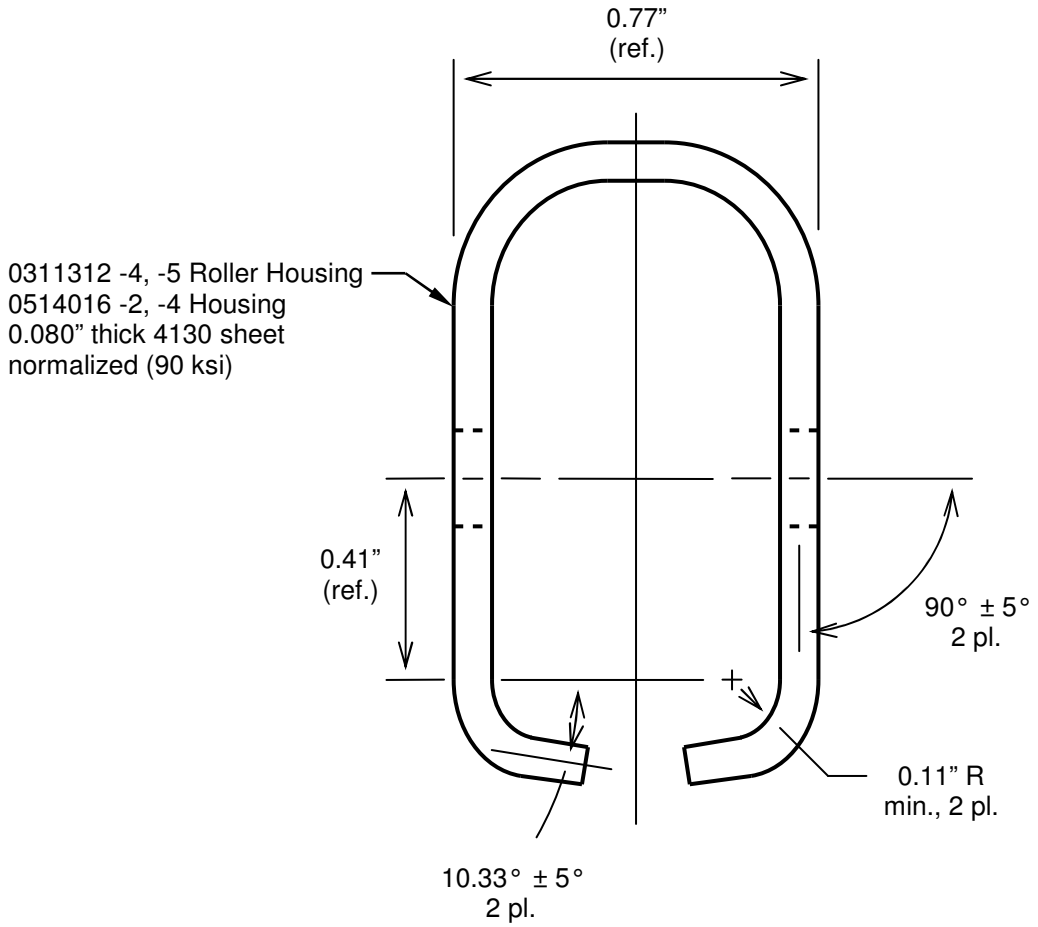
3.1 MATERIALS REQUIRED FOR REPAIR

No special materials are required to perform this repair.

3.2 REPAIR PROCEDURE

1. Using suitable tools, form (or “bend”) the roller housing side walls and tangs to match the geometry specifications shown in Figure 3.2-1 below (or as close as possible, while still preventing interference with the seat rail and allowing free movement). Suitable tools include a hardwood block that will fit inside the roller housing, a non-marring hammer, pliers or vice grips with smooth jaws, or similar tools suitable for forming or bending without damage to the roller housing. A

FIGURE 3.2-1 ROLLER HOUSING GEOMETRY SPECIFICATIONS



A

2. Polish to a surface finish of 125 RMS (surface smoothness, ref. ASME B46.1-2009) or better following all forming operations. Take care not to nick, gouge, or wrinkle any of the roller housing surfaces during forming operations. A
3. Following forming operations, check roller housing geometry against the requirements set forth in AD 2011-10-09. If the geometry still does not meet the requirements of AD 2011-10-09, the roller housing must be replaced.
4. Following forming operations, check all surfaces of the roller housing for cracks using dye penetrant and/or eddy current inspection methods. If any cracks are found, the roller housing must be replaced.
5. Repair surface finish / paint where required in accordance with the appropriate Cessna Maintenance Manual for the model of aircraft being repaired.
6. Make a logbook entry stating compliance with this repair definition.

3.3 GENERAL

- This repair is authorized for the stated Serial Numbered airplanes only.
- This repair is for an unmodified airplane. Any non-Cessna modification that affects the aircraft gross weight, original design, or performance may invalidate published Continued Airworthiness requirements (i.e., inspection techniques and/or interval). Contact the STC Holder or originator of the modification for revised inspection criteria.