



# MANDATORY SERVICE BULLETIN

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**EFFECTIVITY:** BELL 407 MODEL HELICOPTERS EQUIPPED WITH AIRFILM  
CAMERA SYSTEMS G1 UTILITY MOUNT

**SUBJECT:** MANDATORY INSPECTION AND MODIFICATION OF NOSE  
CONSOLE AT G1 MOUNT FASTENERS

**DATE:** 10/20/2014

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## 1.0 REASON

Mandatory inspection for cracks on the Nose Console Flange at the forward G1 mount fasteners.

## 2.0 DESCRIPTION

Instances of cracking have been found on the Bell 407 airframe at the Airfilm G1 Utility Mount forward fasteners location. This bulletin describes the internal airframe inspection and subsequent repair and modification required for continued safe operation of the G1 Mount.

## 3.0 COMPLIANCE

MANDATORY – Within the next 40 flight hours

## 4.0 MANPOWER

Inspection: Estimated 3 man-hours  
Repair: Estimated 20 man-hours  
Modification: Estimated 10 man-hours

## 5.0 WEIGHT AND BALANCE

N/A

## 6.0 MATERIALS

Inspection:  
½" Socket, Flashlight, Inspection Mirror, 10X Magnifying Lens, Measuring Device (Scale, or Calipers) Capable of 2 Place (X.XX inch) Dimensional Accuracy.

Repair/Modification:

Standard sheet metals tools, standard riveting tool, marking pen, #30 Drill, #4 Clecos, Airfilm modification kit P/N G1-101-1

## 7.0 REFERENCES

STC No. SR01654LA – G1 Utility Mount, Airfilm Camera Systems  
AF-G1-006 – Installation Instructions, G1 Utility Mount.  
AF-G1-008 – Instructions for Continued Airworthiness, G1 Utility Bracket  
AF-G1-200 - Modification Drawing, Bell 407 Nose Console  
AF-G1-100 - Repair Drawings, Bell 407 Nose Console  
G1-101-1 – Modification Kit

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## 8.0 ACCOMPLISHMENT INSTRUCTIONS

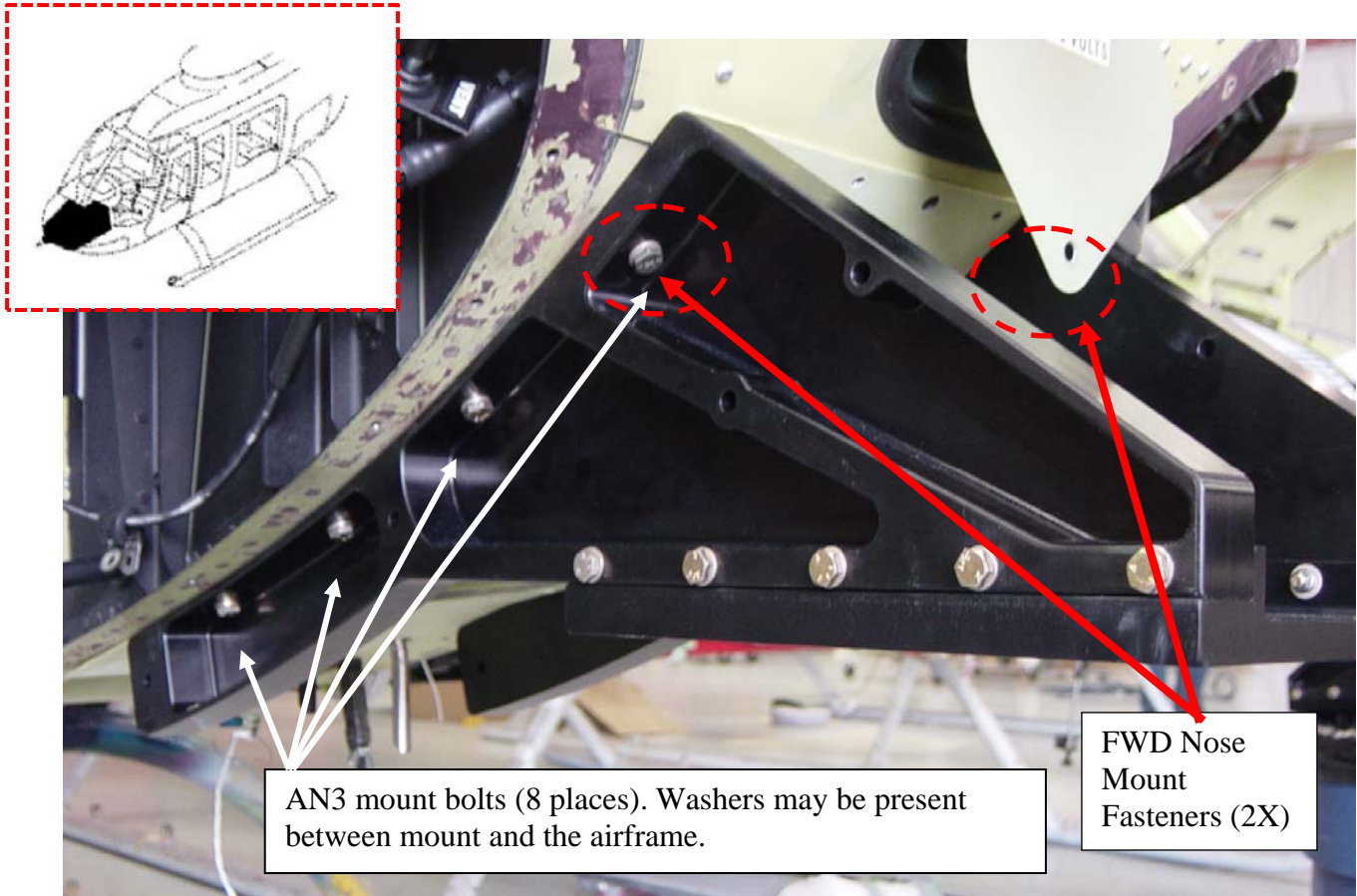
**NOTE**

Ensure that standard practices per AC43.13-1B and manufacturer's manuals are complied with.

- (1) Remove G1-1 Utility Mount to gain access to the Internal Nose Console (airframe) by removing the 8 AN3 mounting bolts on the outboard upper flanges of the G1 Mount. Reference Install Instruction (AF-G1-006) for detailed description of removal procedures.

**NOTE**

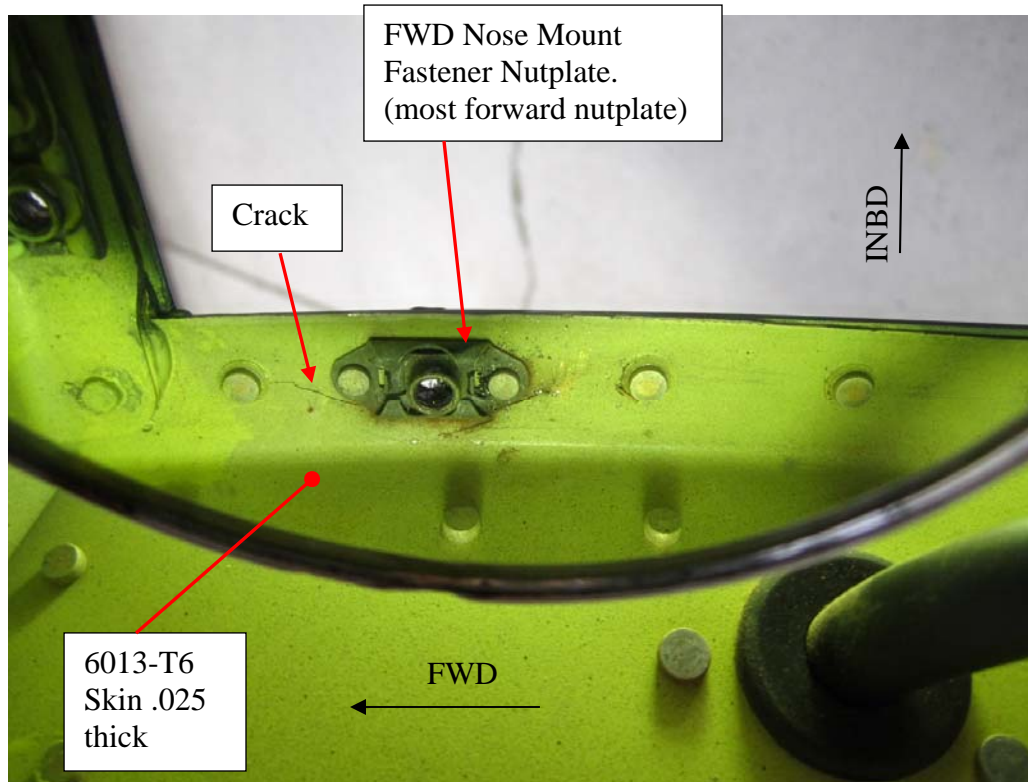
Washers may be present as shims between G1 mount and airframe. Note the location and quantity of the shims for reinstallation.



*Figure 1 G1 Mount Fastener Locations*

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- (2) Once the G1 Mount is removed, gain access to the internal nose console structure near the forward G1's forward fasteners location.



*Figure 2 View (looking Down) Showing the LH Side Forward Fastener with Crack Damage*

- (3) Inspect for cracks in the Nose Console area at the G1 mount forward fastener nutplates (RH & LH sides). Figure 3 shows a typical crack near the nutplate at the radius of the formed flange.

Use 10X magnified visual inspection or fluorescent penetrant inspection (per ASTM E1417) to inspect for cracks in the areas noted.

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- (4) If no cracks are found, proceed to step 5. If cracks are present, repair in accordance with Airfilm Drawing AF-G1-100.

**WARNING**

If any cracks or loose rivets are found during this inspection, the aircraft must be repaired before returning to service.

**CAUTION**

If the damage is outside the maximum damage criteria defined in the repair drawing, contact Airfilm Camera Systems for Engineering Support.



*Figure 3 View Showing the Repair Fitting Installed (RH Side)*

- (5) If no cracks are found, Install Airfilm modification kit P/N G1-101-1 in accordance with Airfilm Drawing AF-G1-200.



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- (6) Before reinstalling the G1 Utility Mount, perform 1000 hr inspection on the G1 Mount Assembly in accordance with AF-G1-008 (ICA) as noted below.

The mount must be removed from the helicopter and disassembled.

## FITTING INSPECTIONS

Inspect. Interval Hours	Inspection	Maintenance Personnel Initial
1000	Visually inspect bolt holes for damage	
	Visually inspect brackets for cracks, nicks or deep scratches	

## INSPECTION LIMITS

The G1-1 Universal Mount is to be removed from service and returned to Airfilm Camera Systems if the following inspection limits are exceeded.

- Cracks: Any indication
- Bolt hole elongation: Any Indication
- Dents, scratches or nicks: Greater than 0.010 inches

- (7) Reinstall the G1 Utility Mount in accordance with Airfilm Camera Systems Installation Instructions AF-G1-006.

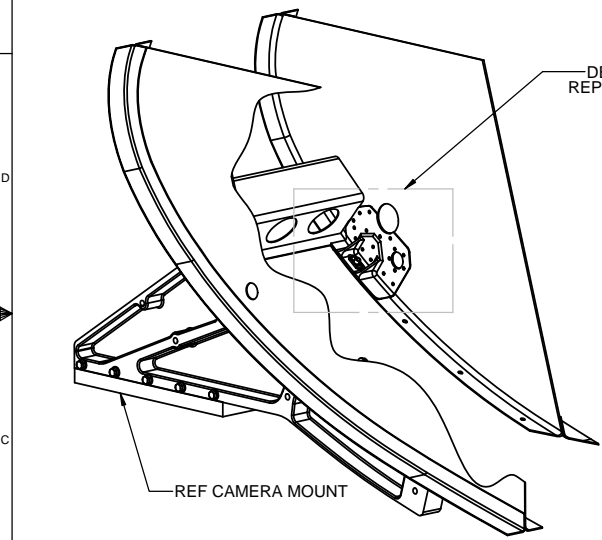
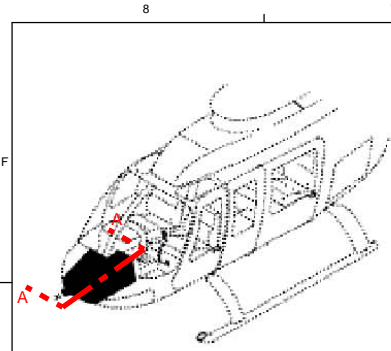
## **9.0 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS**

The structural repair/modification and adjacent structure identified in this Bulletin should be visually inspected 100 flight-hours after installation. After the initial inspections, the repair should be inspected in the same interval as the STC'ed Airfilm Nose Mount. The inspection should verify that there are no cracks, or loose rivets in the repair and the adjacent structure. Special attention should be given to the formed radius in the original skin, forward of the repair.

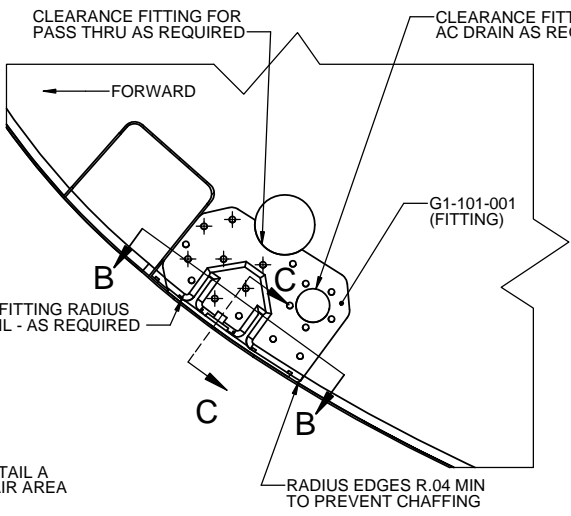
### **Airfilm Camera Systems Support Contact:**

(530) 333-0193  
[info@airfilm.com](mailto:info@airfilm.com)

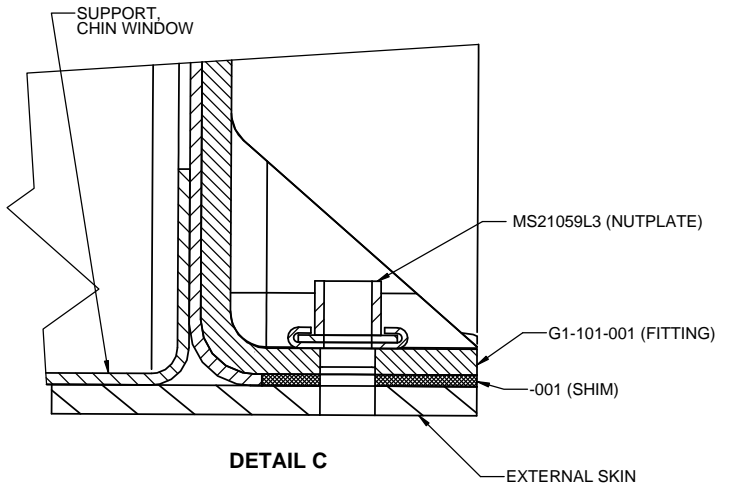




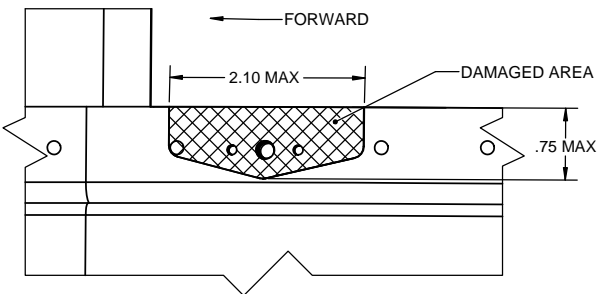
**NOSE VERTICAL SUPPORTS AND BULKHEAD  
VIEW LOOKING FORWARD**



**DETAIL A  
RH SHOWN (LH OPPOSITE)**



**DETAIL C**



**DETAIL B  
REPAIR DOUBLE NOT SHOWN**

REV.	DESCRIPTION	DATE	APPROVED
N/C	INITIAL RELEASE	10/20/2014	SPH

**NOTES:**

**DAMAGE REMOVAL:**

1. REMOVE RIVETS IN REPAIR AREA
2. REMOVE DAMAGED FLANGE BY CUTTING/GRINDING.
3. ALL INTERNAL RADII .125 MIN.
4. POLISH CUT SURFACES, 63 RHR MAX (MILL FINISH).
5. INSPECT DAMAGE AREA AND ADJACENT RIVET HOLES USING 10X MAGNIFIED VISUAL INSPECTION OR FLUORESCENT PENETRANT (PER ASTM E1417).
6. FABRICATE SHIM FROM .025 THICK 2024-T3 CLAD PER AMS-QQ-A-250/5.

**REPAIR INSTALLATION:**

7. USE REPAIR FITTING TEMPLATE (G1-101-003) TO LAYOUT REPAIR FITTING PROFILE GIVEN EXISTING FEATURES & HOLE LOCATIONS. TRIM REPAIR FITTING AS REQUIRED TO CAPTURE THE REQUIRED NUMBER OF FASTENERS AND MAINTAIN 2D EDGE DISTANCE ON ALL FEATURES.
8. LAYOUT NEW REPAIR FASTENERS APPROX AS SHOWN  $\otimes$ . MAINTAIN A MINIMUM OF 2D EDGE DISTANCE ON ALL FEATURES. MINIMUM 6 FASTENERS ON EITHER SIDE OF DAMAGE AREA
9. DRY FIT REPAIR FITTING AND SHIM.
10. MATCH DRILL FASTENER HOLES INTO DOUBLER, SHIM, AND SKIN.
11. DEBURR ALL HOLES.
12. TREAT EFFECTED AIRFRAME AND REPAIR COMPONENTS FOR CORROSION PREVENTION IAW BTH-ALL-SPM.
13. INSTALL SHIMS, REPAIR FITTING, AND RIVETS WET WITH CORROSION INHIBITING SEALANT (P/S 890 OR EQUIVALENT).
14. USE MS20426AD4 RIVETS FOR FLUSH INSTALLATION ON THE EXTERIOR AND MS20470AD4 RIVETS IN WEB.

ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL
1	G1-101-1	MODIFICATION KIT	N/A
2	-001	SHIM	.025 2024-T3 CLAD

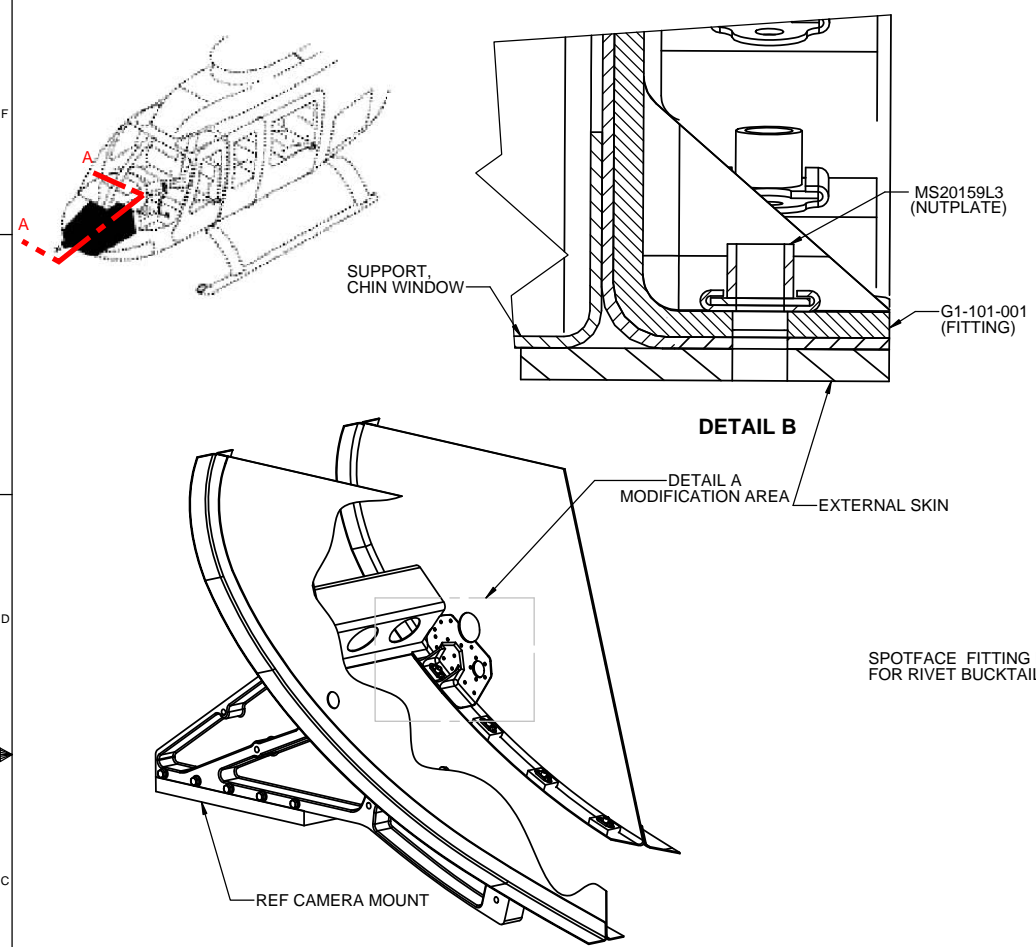
UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES	DRAWING		
	NAME	DATE	
	DRAWN J. MUELLER	10/7/2014	
	CHECKED C. MEEKER	10/16/2014	
TOLERANCES:	APPROVED	SPH	10/20/2014
.X ± .1	<b>PROPRIETARY NOTICE</b> THIS DRAWING AND SPECIFICATION IS THE PROPERTY OF AIRFILM CAMERA SYSTEMS, INC AND SHALL NOT BE COPIED OR DIVULGED IN WHILE IN PART AS THE BASIS FOR MANUFACTURING OR SALE OF THE ITEM OR ITEMS DISCLOSED.		
.XX ± .03			
.XXX ± .010			
ANGULAR: ± .5°			
BREAK ALL SHARP EDGES			

**Airfilm Camera Systems**  
www.airfilm.com Georgetown CA

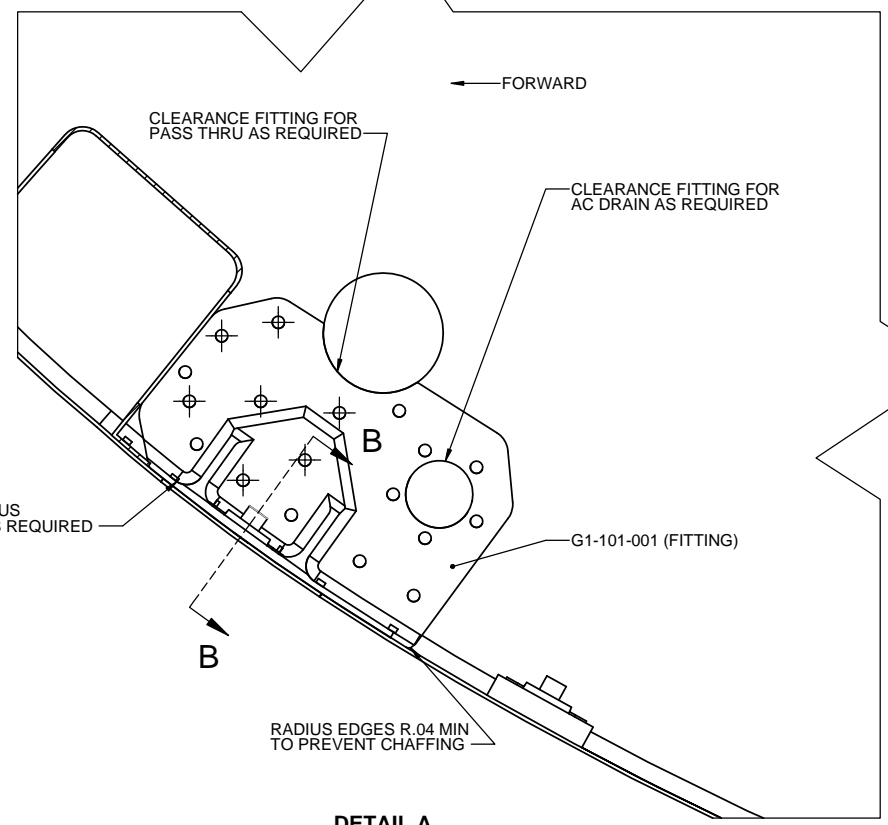
**TITLE: REPAIR, BELL 407 NOSE CONSOLE**

SIZE <b>C</b>	DWG. NO. <b>AF-G1-100</b>	REV <b>N/C</b>
SCALE 1:3	DO NOT SCALE DRAWING	SHEET 1 OF 1

REV.	DESCRIPTION	DATE	APPROVED
N/C	INITIAL RELEASE	10/20/2014	SPH
A	REVISED NOTE 8 TO INCLUDE ALTERNATE RIVET CR3213-4 (BLIND RIVET)	12/1/2015	SPH



**NOSE VERTICAL SUPPORTS AND BULKHEAD  
VIEW LOOKING FORWARD**



**DETAIL A  
RH SHOWN (LH OPPOSITE)**

**NOTES:**

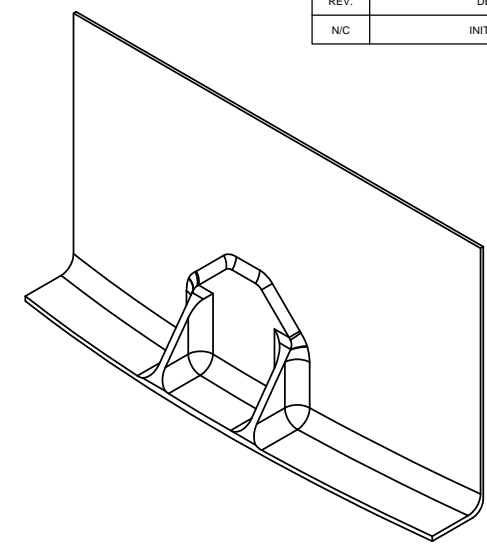
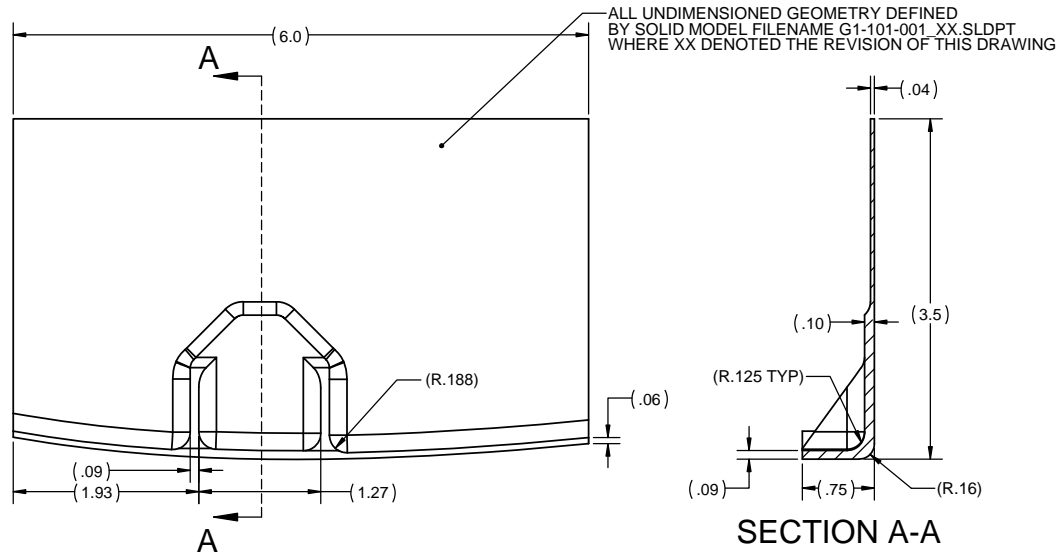
- USE FITTING TEMPLATE (G1-101-003) TO LAYOUT FITTING PROFILE GIVEN EXISTING FEATURES & HOLE LOCATIONS. TRIM FITTING AS REQUIRED TO CAPTURE THE REQUIRED NUMBER OF FASTENERS AND MAINTAIN 2D EDGE DISTANCE ON ALL FEATURES.
- LAYOUT NEW FASTENERS APPROX AS SHOWN ⊗. MAINTAIN A MINIMUM OF 2D EDGE DISTANCE ON ALL FEATURES. MINIMUM 6 FASTENERS ON EITHER SIDE OF FORWARD MOUNT FASTENER.
- DRY FIT FITTING.
- MATCH DRILL FASTENER HOLES INTO FITTING AND SKIN.
- DEBURR ALL HOLES.
- TREAT EFFECTED AIRFRAME AND NEW COMPONENTS FOR CORROSION PREVENTION IAW BTH-ALL-SPM.
- INSTALL FITTING AND RIVETS WET WITH CORROSION INHIBITING SEALANT (P/S 890 OR EQUIVALENT).
- USE MS20426AD4 RIVETS FOR FLUSH INSTALLATION ON THE EXTERIOR AND MS20470AD4 (OR CR3213-4) RIVETS IN WEB.

ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL
1	G1-101-1	MODIFICATION KIT	N/A

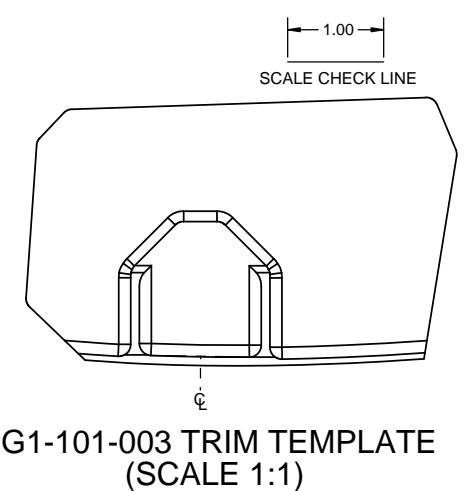
  

DRAWING		Airfilm Camera Systems			
UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES	NAME	www.airfilm.com Georgetown CA			
TOLERANCES: .X ± .1 .XX ± .03 .XXX ± .010 ANGULAR: ± .5° BREAK ALL SHARP EDGES	DATE	<b>TITLE: MODIFICATION, BELL 407 NOSE CONSOLE</b> SCALE: C    DWG. NO. AF-G1-200    REV A SCALE 1:3    DO NOT SCALE DRAWING    SHEET 1 OF 1			
	DRAWN			J. MUELLER	10/7/2014
	CHECKED			C. MEEKER	10/16/2014
	APPROVED	SPH	10/20/2014		
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REV.	DESCRIPTION	DATE	APPROVED
N/C	INITIAL RELEASE	10/15/2014	S. RIOLINO



G1-101-001 FITTING (RH SHOWN)  
G1-101-002 (OPPOSITE)



G1-101-003 TRIM TEMPLATE  
(SCALE 1:1)

ITEM NO.	QTY (G1-101-1)	PART NUMBER	DESCRIPTION	MATERIAL
1	1	G1-101-001	FITTING RH	6061-T651 PER AMS 4025 ALT 6061-T6 or T651 PER AMS 4117 ALT 6061-T6511 PER AMS-QQ-A-200/8
2	1	G1-101-002	FITTING LH	6061-T651 PER AMS 4025 ALT 6061-T6 or T651 PER AMS 4117 ALT 6061-T6511 PER AMS-QQ-A-200/8
3	2	G1-101-003	TRIM TEMPLATE	N/A
4	A/R	MS20426AD4	RIVET	N/A
5	A/R	MS20426AD3	RIVET	N/A
6	A/R	MS20470AD4	RIVET	N/A
7	2	MS21059L3	NUTPLATE	N/A
8	A/R	P/S 890 (OR EQUIV.)	SEALANT	P/N PER PPG AEROSPACE

- NOTES:
1. DEBURR ALL SHARP EDGES.
  2. BAG AND TAG ALL PARTS WITH INDIVIDUAL PART NUMBERS.
  3. TRIM TEMPLATE TO BE PRINTED IN FULL SCALE FOR USE AS TEMPLATE.

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES		DRAWING		Airfilm Camera Systems www.airfilm.com Georgetown CA		
TOLERANCES: .X ± .1 .XX ± .03 .XXX ± .010 ANGULAR: ± .5° BREAK ALL SHARP EDGES		NAME	DATE	TITLE: <b>MODIFICATION KIT</b>		
		DRAWN	J. MUELLER			10/7/2014
		CHECKED	G. MUSSO			10/15/2014
		APPROVED	S. RIOLINO	10/15/2014		
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SIZE	DWG. NO.	REV				
C	G1-101	N/C				
SCALE 1:3	DO NOT SCALE DRAWING	SHEET 1 OF 1				