SUBJECT:

Required maintenance for the FLIR U8000 / U8500 System Installation (P/N 120-901814).

APPLICABILITY:

Aircraft with the subject modification embodied in accordance with TCCA STC. No. SH05-47 or any corresponding foreign approvals.

	NAME AND SIGNATURE	DATE	COMPANY / DEPARTMENT
PREPARED BY:	D. Kerr	28 Oct. /08	ECL ENGINEERING
PREPARED BY:			ECL ENGINEERING
CHECKED BY:	C. Timmins	28th Oct 08	ECL ENGINEERING
CHECKED BY:	M. Merritt	2008-10-29	ECL QUALITY ASSURANCE
APP'D / ACCEPTED (Civil A/W Authority)	SEE ICA CHECKSHEET	3rd December 2008	TCCA
RELEASED BY:	R. Manson	4 Dec 2008	ECL ENGINEERING

RECORD OF REVISIONS

Rev.	Pages at this Revision	Description, Reason, Changed Pages	Prepared (name and date)	Checked (name and date)	App'd/Acc'd (Civil A/W Authority) (name and date)	Released (name and date)
0	1 through 22 A1-A10	Original Issue	D. Kerr 5 October 2005	C. Timmins 5 October 2005	TCCA Jim Palmer 8 November 2005	R. Manson 8 November 2005
1	1 through 31 A1-A10	General, Control and Operation, Inspection Schedule and Maintenance Action and Removal and Replacement sections revised. Wiring diagrams revised. Circuit breaker panel modified. FLIR Switch removed and replaced with FLIR push-button on LACU. (Pages 3 to 7, 9 to 18, and 21 to 29)	See Page 1.	See Page 1.	See Page 1.	See Page 1.

NOTE: Revisions to this document will be distributed to operators of this equipment by the STC holder.

NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.

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CONTENTS

FIGURES

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TABLES

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1. GENERAL

A. Introduction

The FLIR (Forward Looking Infrared) U8000 / U8500 System Installation is designed to provide high quality thermal images.

There are 2 variants to this installation: FLIR U8000 System Installation, and FLIR U8500 System Installation. The FLIR U8500 System Installation has a higher resolution in Infrared.

B. Description

The FLIR U8000 / U8500 System Installation consists of the following main components:

COMPONENT	LOCATION
Gimbal Mount Assembly	FWD LHS under aircraft
Mount Spacer (Isolation Collar)	FWD LHS under aircraft
Gimbal Sensor	FWD LHS under aircraft
Cable Assembly	LHS of aircraft
Electronic Control Unit (ECU)	Rear avionic shelf
Monitor and Support	LHS of instrument panel
FLIR Hand Controller	Mounted to bracket on back of LH seat

The gimbal mount assembly is mounted to the left lateral beam at the hammer weight attachment point under the cabin floor. The gimbal mount assembly extends from the underside of the cabin through an opening in the front bottom fairing. The gimbal mount assembly is secured to the mount spacer with a dovetail assembly for quick installation and removal. The mount spacer is secured between the dovetail aligning plates and the FLIR to reduce vibration. Refer to Figure 1.

The hand control is stowed on the rear of the observer's seat. The hand control is operated by an observer, not the pilot.

The monitor is secured into a monitor support on the LHS of the instrument panel. The monitor is operated from six illuminated buttons on the lower RHS of the monitor.

For instructions for initial installation, see IP-ECL-114.

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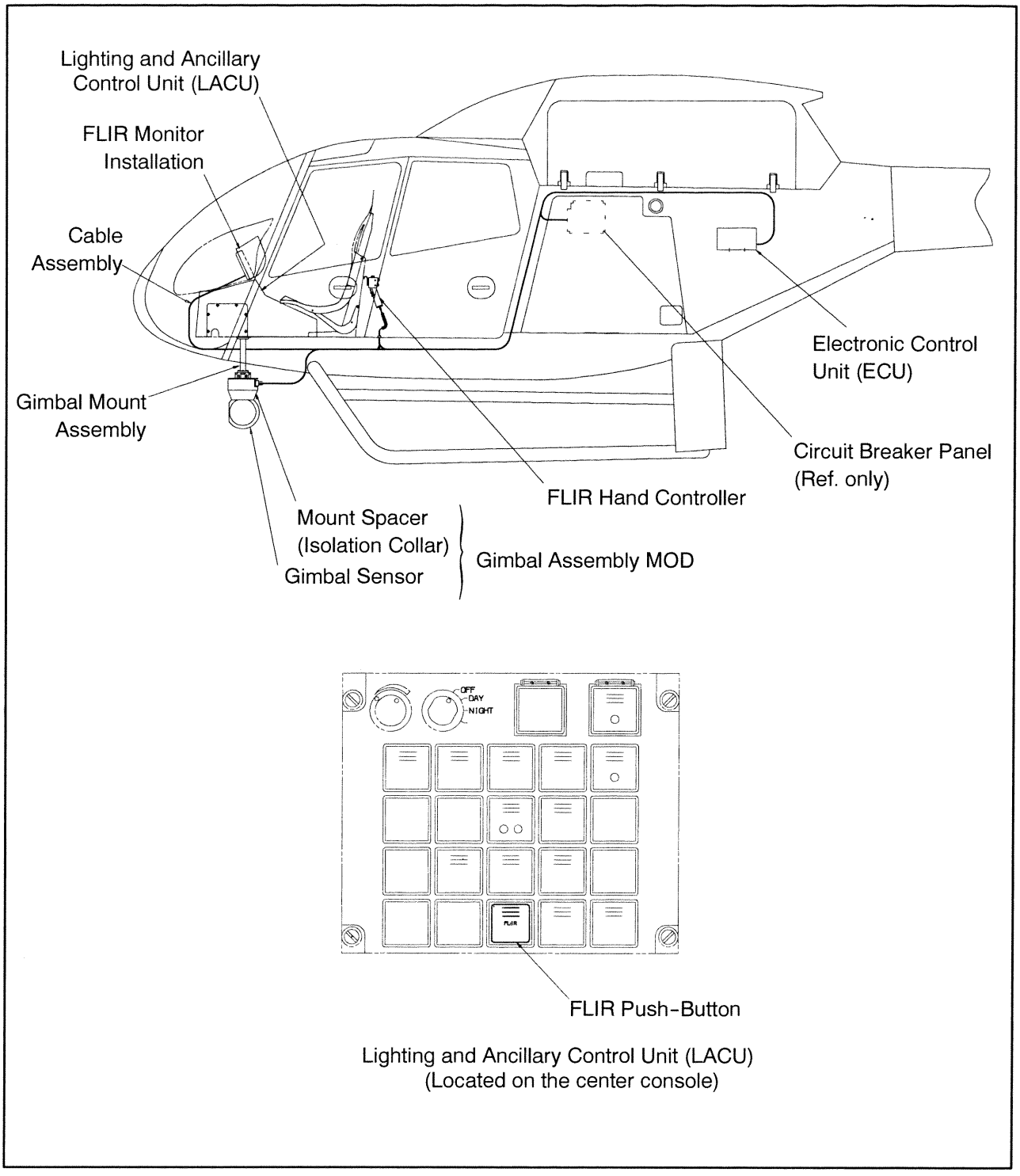

Figure 1 FLIR U8000 / 8500 System Installation

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C. REFERENCES

DOCUMENT	DOCUMENT TITLE
AMM	Aircraft Maintenance Manual
IP-ECL-114	Installation Procedure, Ultra 8500 FLIR System
MTC	Standard Practices Manual

D. ABBREVIATIONS & DEFINITIONS

ABBREVIATION	DESCRIPTION
CCD	Charge Coupled Device
EC	Eurocopter (France)
ECL	Eurocopter Canada Limited
ECU	Electronic Control Unit
FLIR	Forward Looking Infrared
FWD	Forward
LACU	Lighting and Ancillary Control Unit
LHS	Left Hand Side
P/N	Part Number
RHS	Right Hand Side
SLASS	Slaved Searchlight System
U8000	Ultra 8000
U8500	Ultra 8500

E. UNITS OF MEASUREMENT

ABBREVIATION / SYMBOL	UNIT OF MEASUREMENT
hrs	hours
in	inch
kg	kilogram
lb	pound
m	meter

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2. AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

No airworthiness limitations associated with this installation.

3. CONTROL AND OPERATION

Apart from the following, control and operation of the aircraft remains unchanged.

The system is powered on with the FLIR push-button located on the LACU (Lighting and Ancillary Control Unit) on the center console. Once "ON" the Hand Control can be powered on. The Hand Control operates the FLIR camera, the Laser Pointer and a colour CCD Camera. The FLIR Monitor is mounted to the left of the Instrument Panel.

4. INSPECTION SCHEDULE AND MAINTENANCE ACTION

For additional information on maintenance of the FLIR refer to the "Ultra 8000" or "Ultra 8500" Airborne Imaging System Operator's Manual.

For additional information on inspection and maintenance, refer to the "Meeker Aviation" MA100 Series Isolation Collar, Instructions for Continued Airworthiness located in Appendix A as indicated below.

NOTE: Use torque per EC 120 AMM, Volume 1, Chapter 20-10-00, 3-2, unless otherwise specified.

NOTE: Maintenance on dovetail set and mount spacer (isolation collar) must be performed in accordance with manufacturer's instructions and AC 43.13-1B.

4.1. INSPECTION SCHEDULE

4.1.1. Before the first flight of each day:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Inspect mount spacer (isolation collar), item 2, in Figure 2.	Refer to Maintenance Instructions in Appendix A.
B	- Inspect mount spacer (isolation collar), item 2, in Figure 2 for: a. security	a. Secure as required.
C	- Visually inspect the floating ring and the outer collar of the mount spacer (isolation collar), item 2, in Figure 2 for: a. aligning the "AFT" on the three surfaces.	a. Realign all three surfaces. Refer to Appendix A.
D	- Visually inspect Gimbal Assembly, item 1, in Figure 2 for: a. obstructions	a. Carefully remove any obstructions. Refer to the "Ultra 8500" or "Ultra 8500" Airborne Imaging System Operator's Manual before cleaning.
E	- Check that Gimbal Assembly item 1, in Figure 2: a. is in stowed position (optical lense up)	a. Refer to Airborne Imaging System Quick Reference Guide and Operating Checklist.

Table 1 Inspection Schedule and Maintenance Action
Before the first flight of each day
(continued on following page)

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4.1. INSPECTION SCHEDULE (continued)

4.1.1. Before the first flight of each day (continued):

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
F	- Visually inspect upper and lower dovetail aligning plates, items 3 and 7, in Figure 2 for:	
	a. security	a. Secure as required.
	b. missing hardware	b. No missing hardware is allowed. If hardware is missing, contact supplier for replacement parts.
	c. security of thumbscrews and safety pins (items 8 and 9)	c. Secure as required.
G	- Visually inspect external electrical plug connections and operation cable, item 16, in Figure 2 for:	
	a. security	a. Secure as required.
	b. cracking and corrosion	b. No cracking or corrosion is allowed, if cracking or corrosion is found contact FLIR Systems Inc.
H	- Visually inspect Gimbal Assembly, item 1, in Figure 2 for:	
	a. obstructions	a. Carefully remove any obstructions. Refer to the "Ultra 8000" or "Ultra 8500" Airborne Imaging System Operator's Manual before cleaning.
I	- Visually inspect hand control cable assembly, item 5, in Figure 5 for:	
	a. security	a. Secure as required.
	b. cracking and corrosion	b. No cracking or corrosion is allowed. If cracking or corrosion is found contact supplier.

Table 1 Inspection Schedule and Maintenance Action
Before the first flight of each day

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4.1. INSPECTION SCHEDULE (continued)

4.1.2. Every 100 flight hrs or 12 months (to coincide with the 100 hrs or 12 month helicopter inspection)

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Inspect mount spacer (isolation collar), item 2, in Figure 2.	Refer to Maintenance Instructions in Appendix A.
B	- Visually inspect Gimbal Mount Assembly, item 6, in Figure 2 for: a. security	 a. Secure as required.
C	- Visually inspect upper and lower dovetail aligning plates, items 3 and 7, in Figure 2 for: a. security b. missing hardware c. security of thumbscrews and safety pin (items 8 and 9) d. condition of sliding plate surface	 a. Secure as required. b. No missing hardware is allowed. If hardware is missing, contact supplier for replacement parts. c. Secure as required. d. Lubricate surface, a teflon based lubricant is recommended.
D	- Check operation cable assembly, item 16, in Figure 2, for a. excessive wear (fraying, cuts, etc.)	 a. Excessive wear is not permitted. If excessive wear is evident, contact supplier.
E	- Visually inspect the front bottom fairing cut-out in Figure 2 for: a. general condition	 a. If cracking or delamination is found, repairs must be performed by qualified personnel. Repairs may be accomplished in accordance with EC MTC, Volume 2, Chapter 20.03.07.101 or AC 43.13-1B, Chapter 3, Section 1.
F	- Inspect mount spacer (isolation collar), item 2, in Figure 2, for: a. security b. missing hardware c. frayed wire rope isolators **NOTE:** Lubricate wire rope isolators with corrosion protection spray.	 a. Retighten as required. b. No missing hardware is allowed. If hardware is missing, contact supplier for replacement parts. c. No fraying is allowed, if any wire rope isolators are frayed, contact supplier for replacement parts.

Table 2 Inspection Schedule and Maintenance Action
Every 100 flight hrs or 12 months
(continued on following page)

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4.1. INSPECTION SCHEDULE (continued)

4.1.2. Every 100 flight hrs or 12 months (to coincide with the 100 hrs or 12 month helicopter inspection)

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
G	- Visually inspect webbing, item 2 on FLIR Hand Controller, item 1, in Figure 4 for: a. wear (tears, areas have become worn) b. security	 a. Wear is not permitted. If wear is evident replace webbing. b. Secure button snap as required..
H	- Visually inspect FLIR Hand Controller Cable Assembly, item 5, Figure 4 for: a. excessive wear (fraying, cuts, etc.)	 a. Excessive wear is not permitted. If excessive wear is evident, contact supplier.
I	- Check placards and markings (refer to Section 10) for: a. legibility b. secure mounting	 a. If placards have become illegible, contact ECL for replacement parts. b. Secure, reattach placards as required.

Table 2 Inspection Schedule and Maintenance Action
Every 100 flight hrs or 12 months

4.1.3. Every 500 flight hrs or 24 months, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Check mounting hardware, items 8, 9, 10, 17, 18, 19, 20 and 22 securing the three struts, item 11 to the LH door frame and FLIR monitor, item 1, in Figure 3 for: a. general condition	 a. Secure as required.
B	- Check FLIR monitor, item 1, stabilizing hardware, items 15 and 16 in Figure 3 for: a. security	 a. Secure as required.
C	- Visually inspect electrical wiring harness for: a. wear (nicks, cuts, burns and chafing) b. security	 a. Repair using approved methods. If burns are found, determine cause and contact ECL for replacement parts. b. Secure as required.

Table 3 Inspection Schedule and Maintenance Action
Every 500 flight hrs or 24 months, whichever occurs first
(continued on following page)

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4.1. INSPECTION SCHEDULE (continued)

4.1.3. Every 500 flight hrs or 24 months, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
D	- Visually inspect electrical connectors and ground studs for: a. security b. corrosion	 a. Secure as required. b. No corrosion is allowed. If corrosion is found, contact vendor for replacement parts.

Table 3 Inspection Schedule and Maintenance Action
Every 500 flight hrs or 24 months, whichever occurs first

4.1.4. Every 1000 flight hrs

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Inspect mount spacer (isolation collar), item 2, in Figure 2.	Refer to Maintenance Instructions in Appendix A.
B	- Remove upper and lower dovetail aligning plates, items 3 and 7, in Figure 2 and visually inspect for: a. security b. missing hardware c. scratches, nicks or wear d. corrosion e. cracking **NOTE**: Protect exposed hardware with corrosion protection spray.	 a. Retighten as required b. No missing hardware is allowed. If hardware is missing, contact supplier for replacement parts. c. No scratches, nicks or wear is allowed. If component has a scratch, nick or is worn in excess of 0.025 inches (0.635 mm) deep, contact supplier for replacement parts. d. No corrosion is allowed, if corrosion is found, contact supplier for replacement parts. e. No cracking is allowed, if cracking is found, contact supplier for replacement parts.

Table 4 Inspection Schedule and Maintenance Action
Every 1000 flight hrs
(continued on following page)

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4.1. INSPECTION SCHEDULE (continued)

4.1.4. Every 1000 flight hrs

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
C	- Visually inspect Gimbal Mount Assembly, item 6, in Figure 2, for:	
	a. damage to bolt holes	a. No damage to bolt holes is allowed. If damage found, remove down post utility bracket from aircraft and return to supplier.
	b. cracks, nicks or deep scratches	b. No cracking, nicks or deep scratches are allowed. If component has a scratch, nick, or deep scratches in excess of 0.010 inches (0.254 mm) deep, remove down post utility bracket from aircraft, and return to supplier.

Table 4 Inspection Schedule and Maintenance Action
Every 1000 flight hrs

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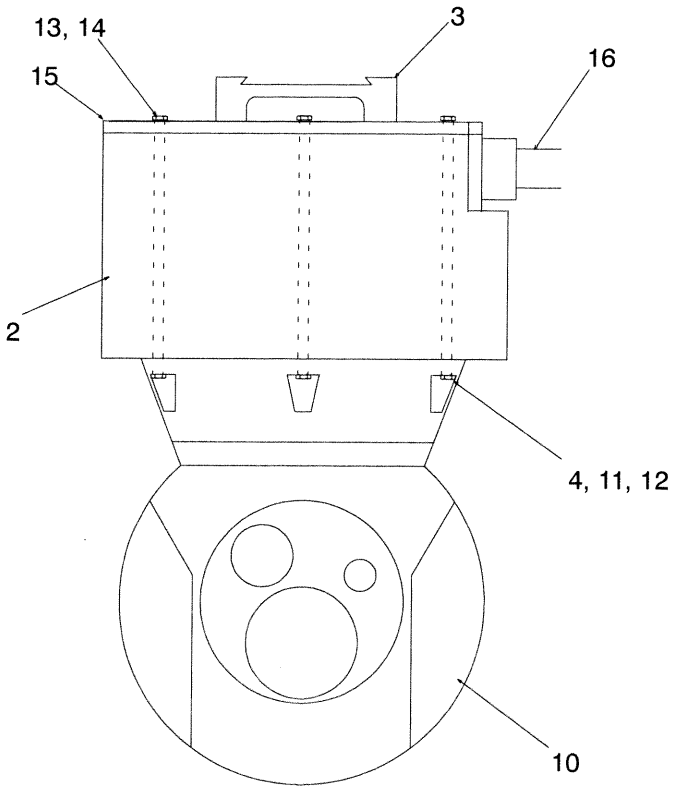
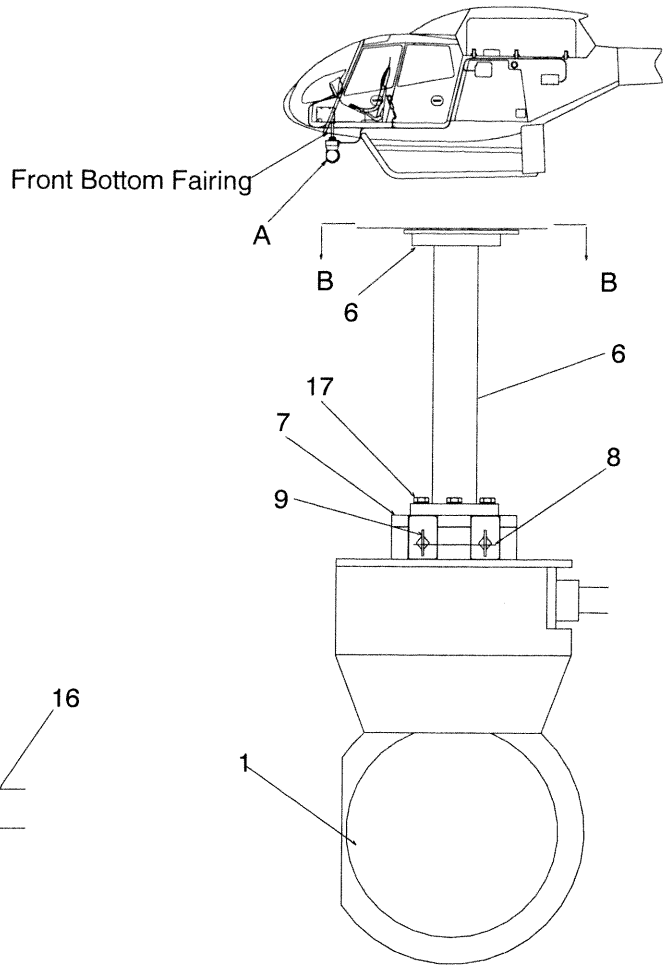
Legend (for Figure 2)

Item Description

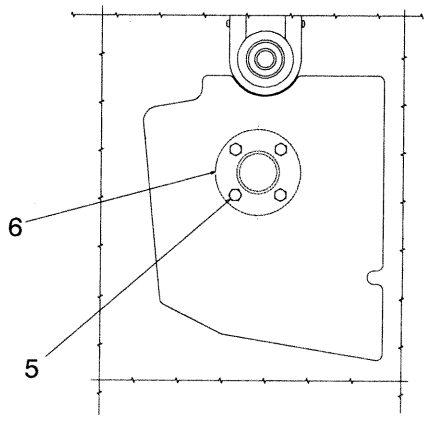
1. Gimbal Assembly
2. Mount Spacer (Isolation Collar)
3. Lower Dovetail Aligning Plate
4. Lock Nuts
5. Bolts
6. Gimbal Mount Assembly
7. Upper Dovetail Aligning Plate
8. Safety Pin
9. Thumbscrews
10. FLIR Imager
11. Washer
12. Bushing
13. Bolt
14 Washer
15. Plate
16. Operation Cable Assembly
17. Mounting Hardware



Gimbal Assembly MOD



VIEW A



DETAIL B

Figure 2 Gimbal Assembly MOD and Gimbal Mount Assembly details

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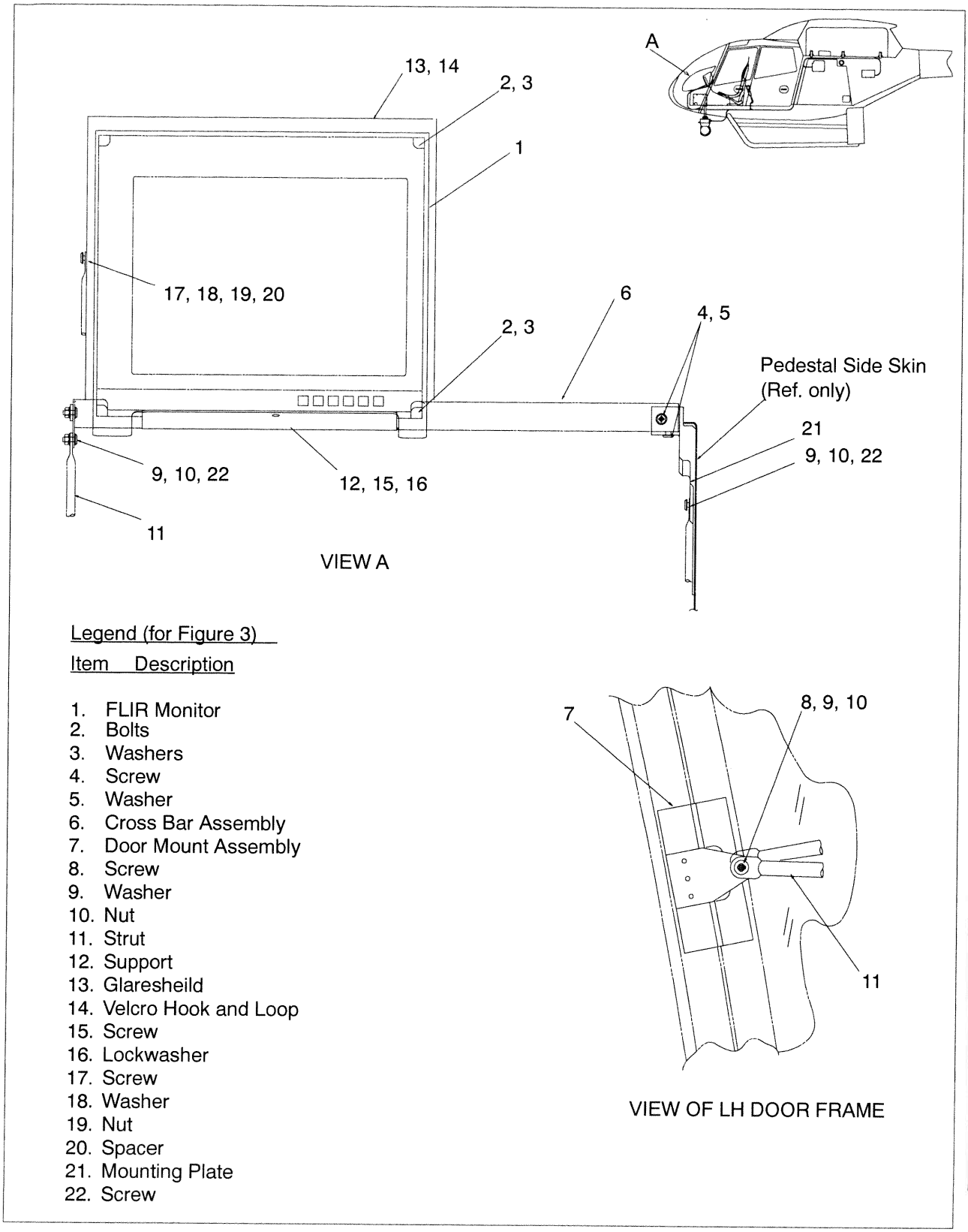

Figure 3 FLIR Monitor Details

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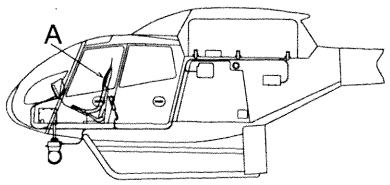
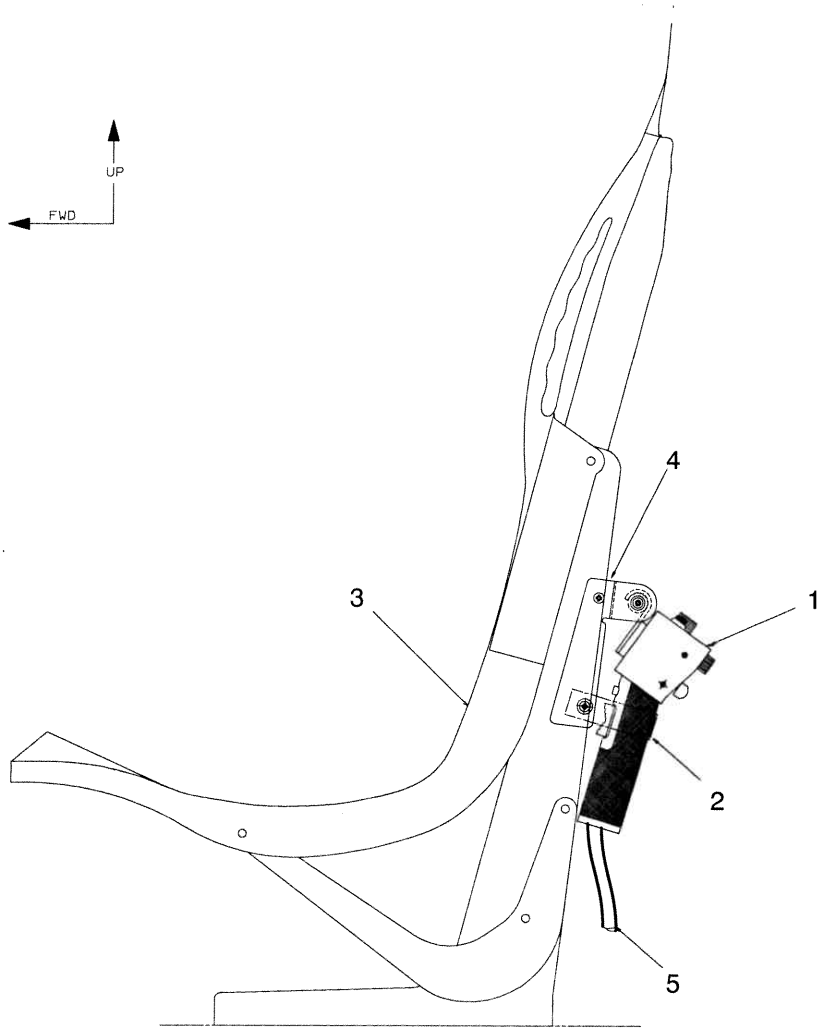


Legend (for Figure 4)

Item	Description
1.	FLIR Hand Controller
2.	Webbing
3.	LH Seat
4.	Bracket
5.	FLIR Hand Controller Cable Assembly



VIEW A

Figure 4 FLIR Hand Controller

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5. OVERHAUL REQUIREMENTS

CAUTION Do not repair or overhaul the FLIR U8000 / U8500 System Installation, components. Contact FLIR Systems Inc., for information on component repair or overhaul.

For replacement components and repair / overhaul information on the FLIR U8000 or U8500 System Installation contact:

FLIR Systems Ltd.,
5230 South Service Road, Suite 125
Burlington, ON Canada L7L 5K2
Telephone: 1-905-637-5696
Telephone: 1-800-613-0507
Fax: 1-905-639-5488

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6. TROUBLESHOOTING

For electrical system troubleshooting, refer to Figures 5 and 6, Wiring Diagram, FLIR U8000 / U8500 System Installation.

FLIR Monitor troubleshooting:

ITEM	TROUBLE / SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1	No display on Monitor	FLIR input not selected	Select FLIR input
		Monitor not receiving power	Check monitor power in-line fuse behind monitor
			Check FLIR monitor system circuit breaker
			Remove and replace ECU with a serviceable unit or contact FLIR Systems Inc., for troubleshooting
		Monitor not receiving signal	Remove and replace ECU with a serviceable unit or contact FLIR Systems Inc., for troubleshooting
		Monitor defective	Remove and replace monitor with a serviceable unit or contact the manufacturer for troubleshooting.

Table 5 FLIR Monitor Troubleshooting Guide

Gimbal troubleshooting:

2	Gimbal does not respond to control	System not receiving power	Check FLIR System circuit breaker
			Remove and replace ECU with a serviceable unit or contact FLIR Systems Inc., for troubleshooting
			Check that Hand Controller is connected to the ECU
		System malfunction or defective system	Remove and replace gimbal with a serviceable unit or contact FLIR Systems Inc., for troubleshooting.

Table 6 Gimbal Troubleshooting Guide

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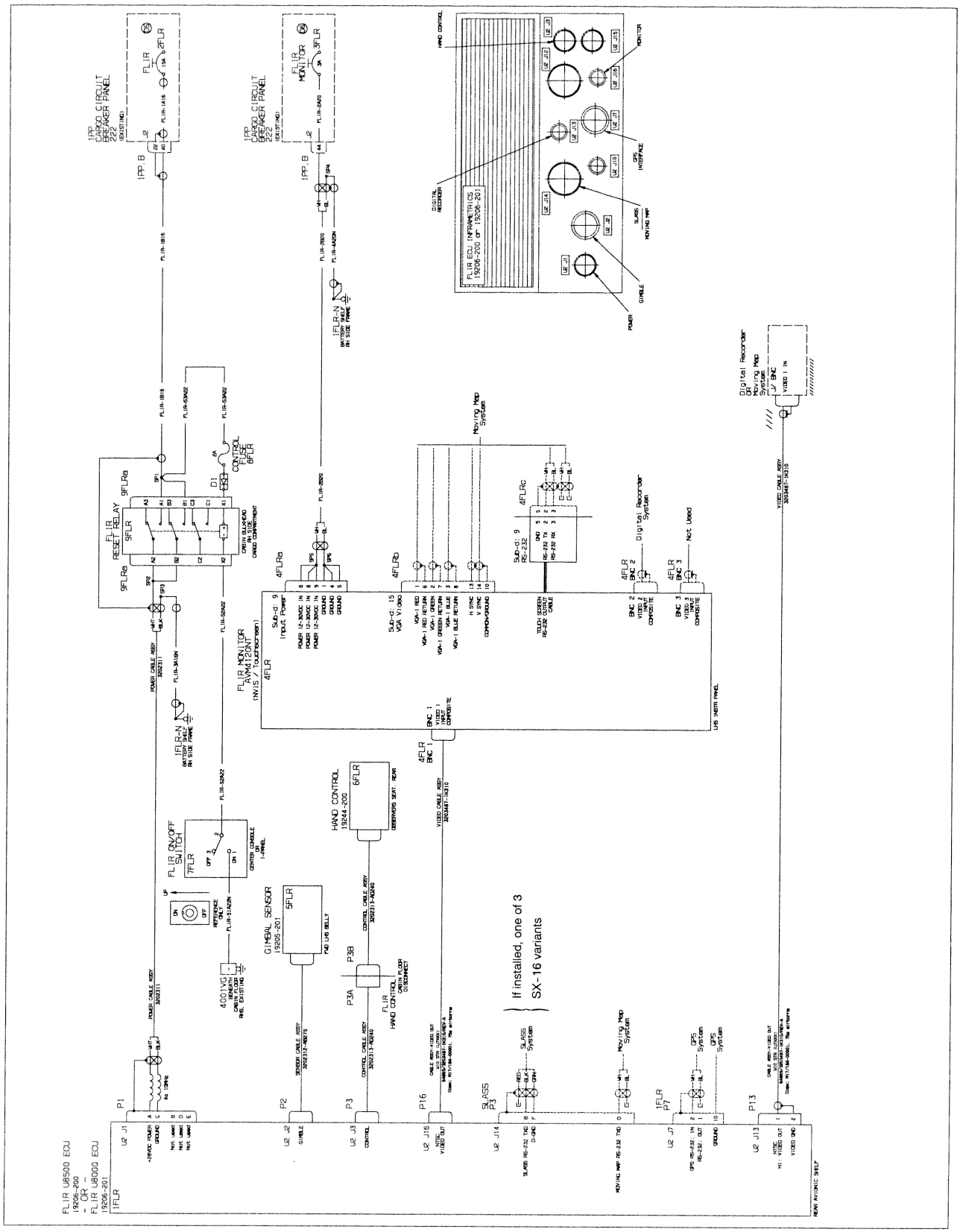

Figure 5 Wiring Diagram, FLIR Switch on IP or center console

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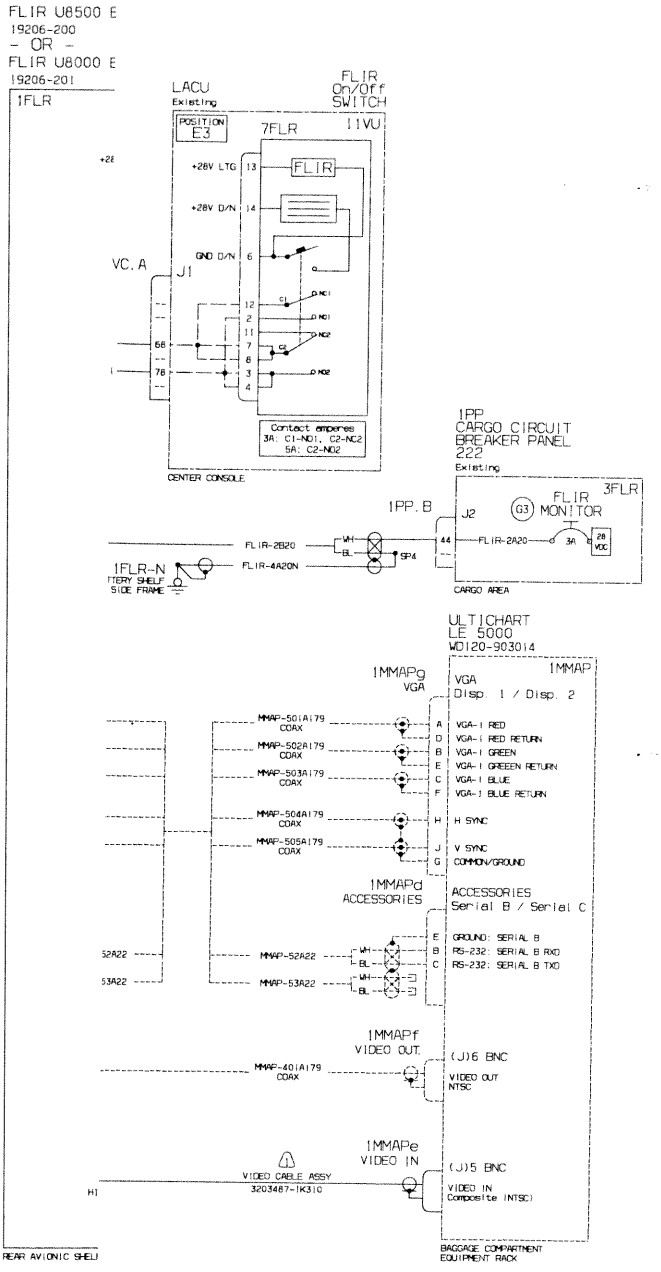

IR Switch on LACU (Sheet 1 of 2)

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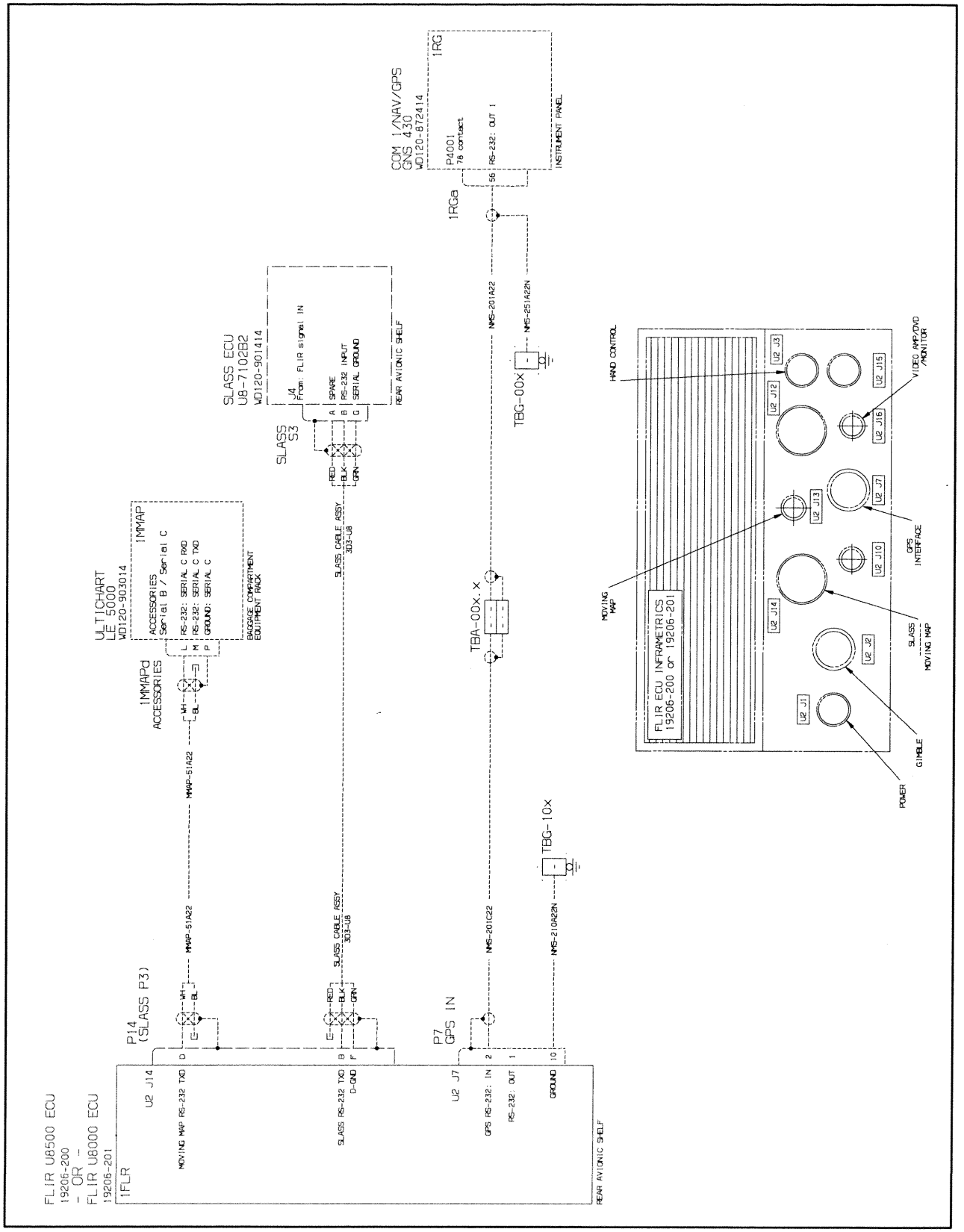

Figure 7 Wiring Diagram, FLIR switch on LACU (Sheet 2 of 2)

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7. SPECIAL TOOLING

No special test equipment or tools are required. Standard tools are adequate.

8. REMOVAL AND REPLACEMENT

Proceed as follows if any of these items need to be removed.

PRELIMINARIES

- disconnect the external power and battery (Removal/Installation refer to EC 120 B Aircraft Maintenance Manual Chapter 24-33-00, 4-1)
- pull floor covering back far enough to reveal bolts (5, 4 places) securing the gimbal mount assembly (6), shown in Figure 2. (Removal/Installation refer to EC 120 Aircraft Maintenance Manual Chapter 25-23-00, 4-1)
- remove front bottom fairing (Removal/Installation refer to EC 120 Aircraft Maintenance Manual Chapter 53-70-00, 4-1) once gimbal assembly (1) and mount spacer (2, isolation collar) are removed, shown in Figure 2.
- open and secure FLIR and FLIR MONITOR circuit breakers before any servicing action, shown in Figure 7.

A. REMOVAL

1) Gimbal Assembly (Refer to Figure 2)
   a) Disconnect Operation Cable Assembly (16) cable from mount spacer (2, isolation collar).
   b) Remove safety pin (8) and loosen thumbscrews (9, 2 places).
   c) Slide Gimbal Assembly (1) and lower dovetail aligning plate (3) out of the upper dovetail aligning plate (7).
   d) Remove mounting hardware (17) from upper dovetail aligning plate (7). Retain mounting hardware (17) for reinstallation.
2) Gimbal Mount (Refer to Figure 2)
   a) Remove bolts (5, 4 places) extending through the doubler and floor through to the gimbal mount assembly (6).
   b) Remove gimbal mount assembly (6).
3) Mount Spacer (Isolation Collar) (Refer to Figure 2)
   a) Remove lock nuts (4, 5 places), washer (11, 5 places), bushing (12, 5 places), bolt (13, 5 places), and washer (14, 5 places) from mount spacer (2, isolation collar).
   b) Remove FLIR Imager (10) from mount spacer (2, isolation collar).
4) FLIR Electronic Control Unit (ECU)

NOTE The ECU is located on the Rear Avionics Shelf.

   a) Disconnect power, FLIR monitor, FLIR hand control, and gimbal cables.
   b) Remove screws (4 places) from the bottom of the unit.
   c) Remove the ECU.

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8 REMOVAL AND REPLACEMENT (continued)

A. REMOVAL (continued)

5) FLIR Monitor (Refer to Figure 3)

a) Disconnect Monitor cable assembly.

b) Remove bolts (2, 4 places) and washers (3, 4 places) from the corners of the monitor (1).

c) Remove screw(15) and lockwasher (16) securing bottom of monitor to support (12).

d) Remove the monitor (1).

6) FLIR Monitor Support Assembly (Refer to Figure 3)

a) Remove screws (8, 2 places), washers (9, 2 places), and nuts (10, 2 places) securing struts (11, 3 places) to the door mount assembly (7, 2 places).

b) Remove cross bar assembly (6) by removing screws (4, 2 places) and washers (5, 2 places) from mounting plate (21).

c) Remove the cross bar assembly (6).

7) FLIR Hand Controller Unit

a) Disconnect FLIR hand controller cable from cabin floor.

b) Remove webbing (2) from around hand controller (1) and lift from bracket (4).

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8 REMOVAL AND REPLACEMENT (continued)

B. REPLACEMENT

NOTE Use torque per EC 120 AMM, Volume 1, Chapter 20-10-00, 3-2, unless otherwise specified.

1) Gimbal Mount Assembly (Refer to Figure 2)
   a) Position Gimbal Mount Assembly (6) under the cabin floor.
   b) Secure using bolts (5, 4 places).
   c) Reinstall front bottom fairing.
   d) Reinstall the upper dovetail aligning plate (7) using mounting hardware (17).
2) Gimbal Mount (Refer to Figure 2)
   a) Position gimbal mount assembly (1) and lower dovetail aligning plate (3) into the upper dovetail aligning plate (7) and slide into place.
   b) Tighten thumbscrews (9, 2 places) and secure using safety pin (8).
   c) Reconnect Operation Cable Assembly (16).
3) Mount Spacer (Isolation Collar) (Refer to Figure 2)
   a) Align FLIR Imager (10) to mount spacer (2).
   b) Secure using to mount spacer (2) using lock nuts (4, 5 places), washer (11, 5 places), bushing (12, 5 places), bolt 13, 5 places), and washer (14, 5 places).
4) Electronic Control Unit (ECU)
   a) Position ECU on the Rear Avionics Shelf.
   b) Secure using screws (4 places) at bottom of the unit.
   c) Reconnect power, FLIR monitor, FLIR hand control, and gimbal cables.
5) FLIR Monitor Support Assembly (Refer to Figure 4)
   a) Align cross bar mounting holes with mounting holes on mounting plate (21) and secure using screws (4, 2 places) and washers (5, 2 places).
   b) Align struts (11, 3 places) to the door mount assembly (7, 2 places) and secure using screws (8, 2 places), washers (9, 2 places), and nuts (10, 2 places).
6) FLIR Monitor (Refer to Figure 4)
   a) Position FLIR monitor (1) on support (12) on the cross bar (6) and secure using bolts (2, 4 places) and washers (3, 4 places).
   b) Secure bottom of FLIR monitor (1) to support (12) using screw (15) and lockwasher (16).
   b) Reconnect monitor cable.

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8 REMOVAL AND REPLACEMENT (continued)

B. REPLACEMENT

7) FLIR Hand Controller Unit (Refer to Figure 4)
   a) Secure FLIR hand controller cable to connector on cabin floor.
   b) Position hand controller (1) into bracket (4) and secure using webbing (2).
8) Close all areas opened for service in the PRELIMINARIES paragraph of this section.
9) Remove safety devices from applicable circuit breakers and reset.
10) Apply external power unit and battery. Refer to EC 120 B Maintenance Manual, Chapter 24.00.00.301.
11) Perform operational check of all systems that were serviced in accordance with the EC 120 B Maintenance Manual procedures and the systems installation/operation manual.

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9. WEIGHT AND BALANCE DATA

A. Removed Items

DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lbs	m	in	kg m	lb in
- Not applicable	0.00	0.0	0.00	0.0	0.00	0.0
Total	0.00	0.0	0.00	0.0	0.00	0.0

B. Added Items

DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lbs	m	in	kg m	lb in
Gimbal Assembly MOD	13.15	29.0	1.73	68.1	22.75	1974.9
Electronic Control Unit (ECU)	7.18	15.8	4.98	196.1	35.76	3098.4
FLIR Monitor Installation	2.34	5.1	1.68	66.1	3.90	337.1
FLIR Hand Controller	0.77	1.7	2.70	106.3	2.08	180.7
Rear Avionic Shelf Reinforcement	0.30	0.7	4.91	193.4	1.47	135.4
Total	23.72	52.3	2.78	109.4	65.96	5726.5

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10. PLACARDS AND MARKINGS

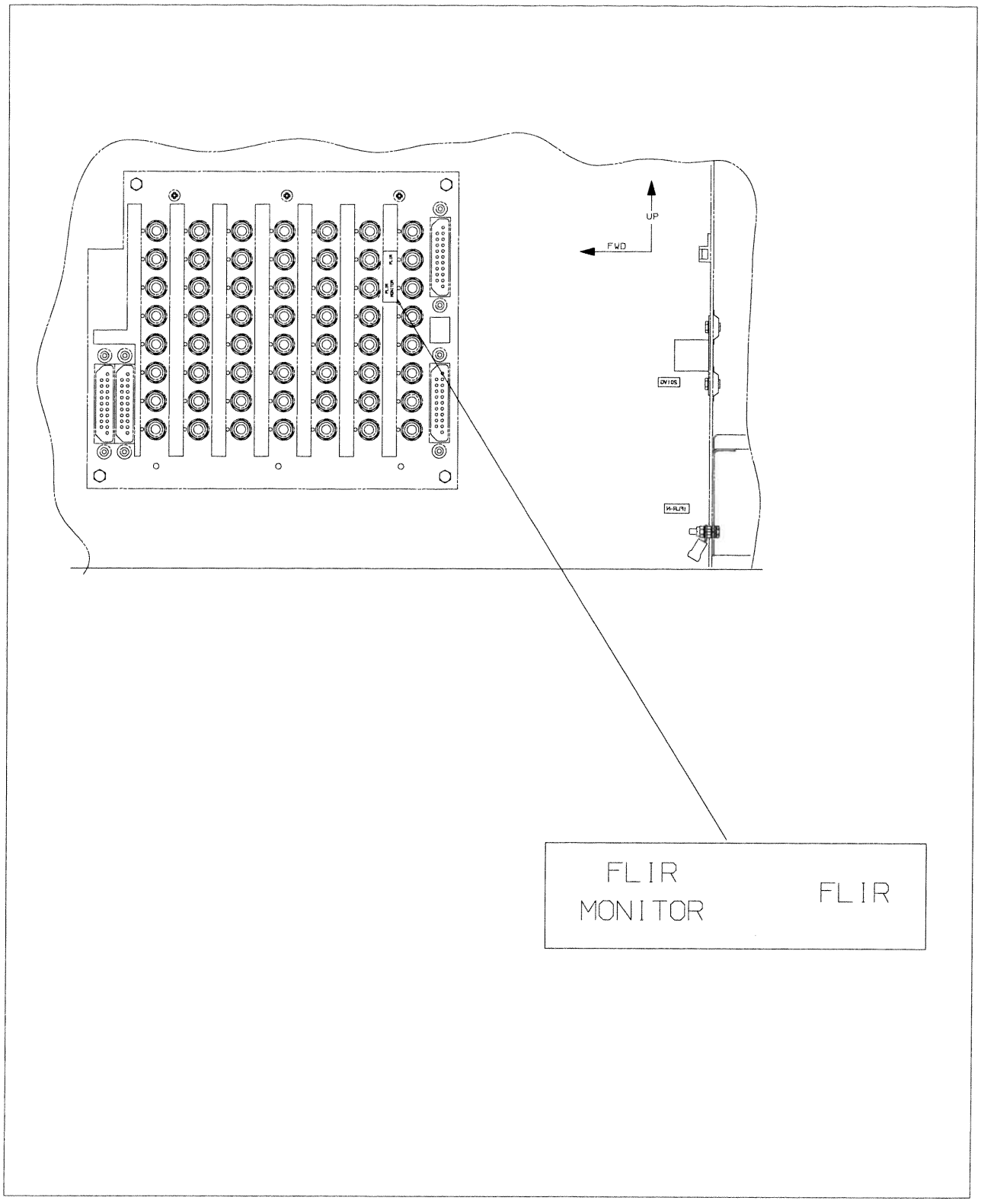

Figure 8 View of placard locations on the Circuit Breaker Panel in the LH Cargo Compartment

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10. PLACARDS AND MARKINGS (continued)

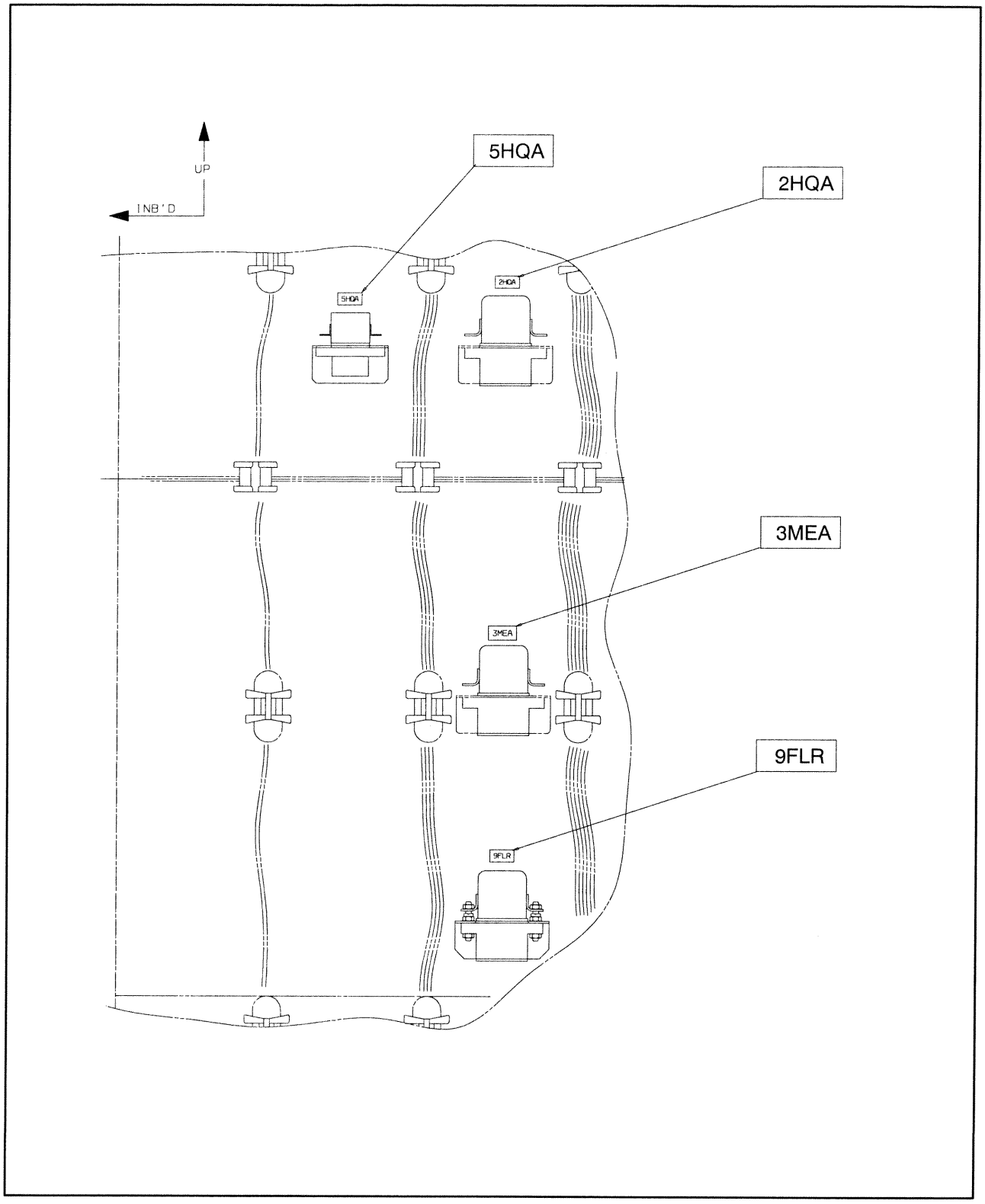

Figure 9 View of placard location on RHS cabin backwall for relays

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10. PLACARDS AND MARKINGS (continued)

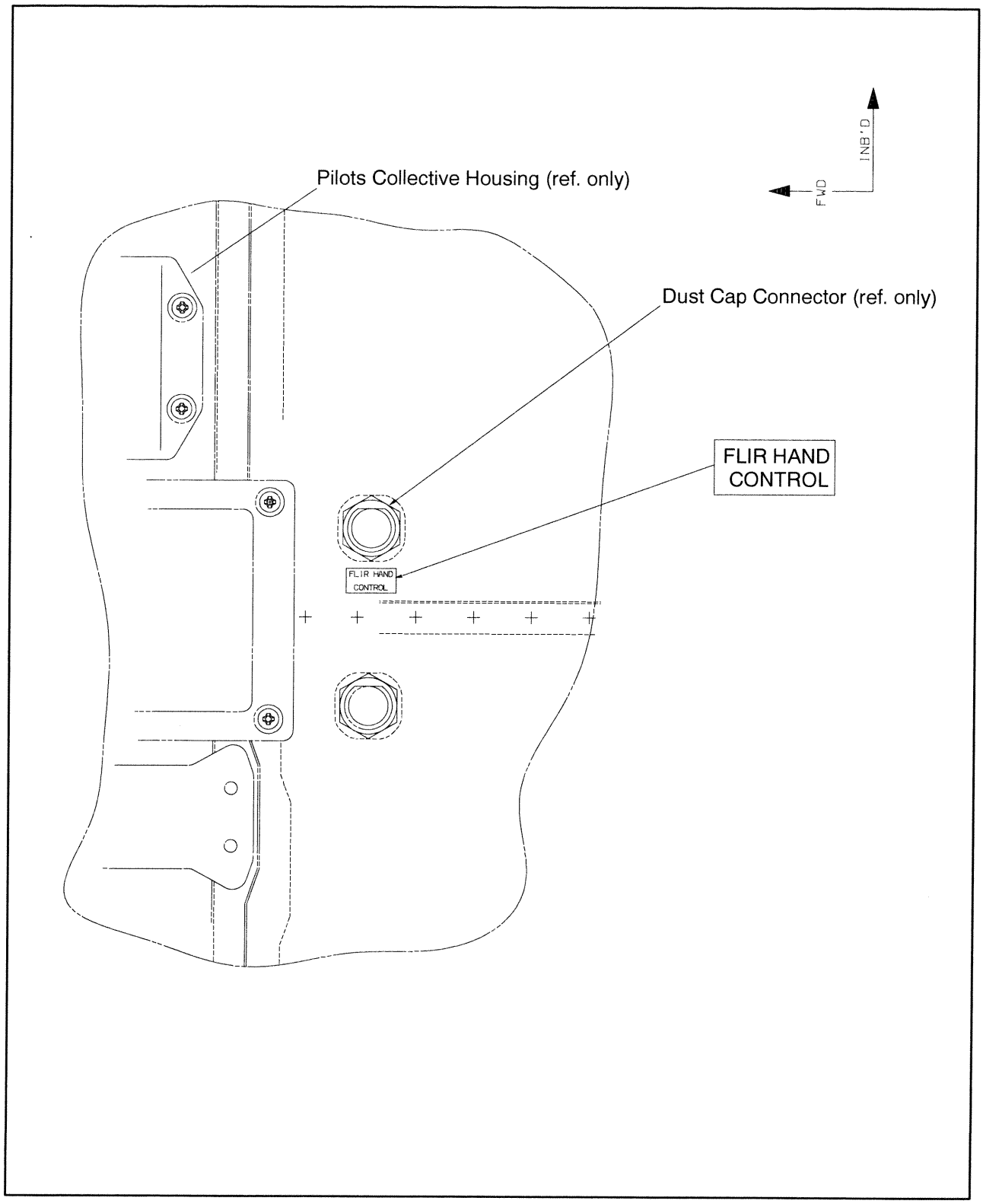

Figure 10 View of placard location on Cabin Floor

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10. PLACARDS AND MARKINGS (continued)

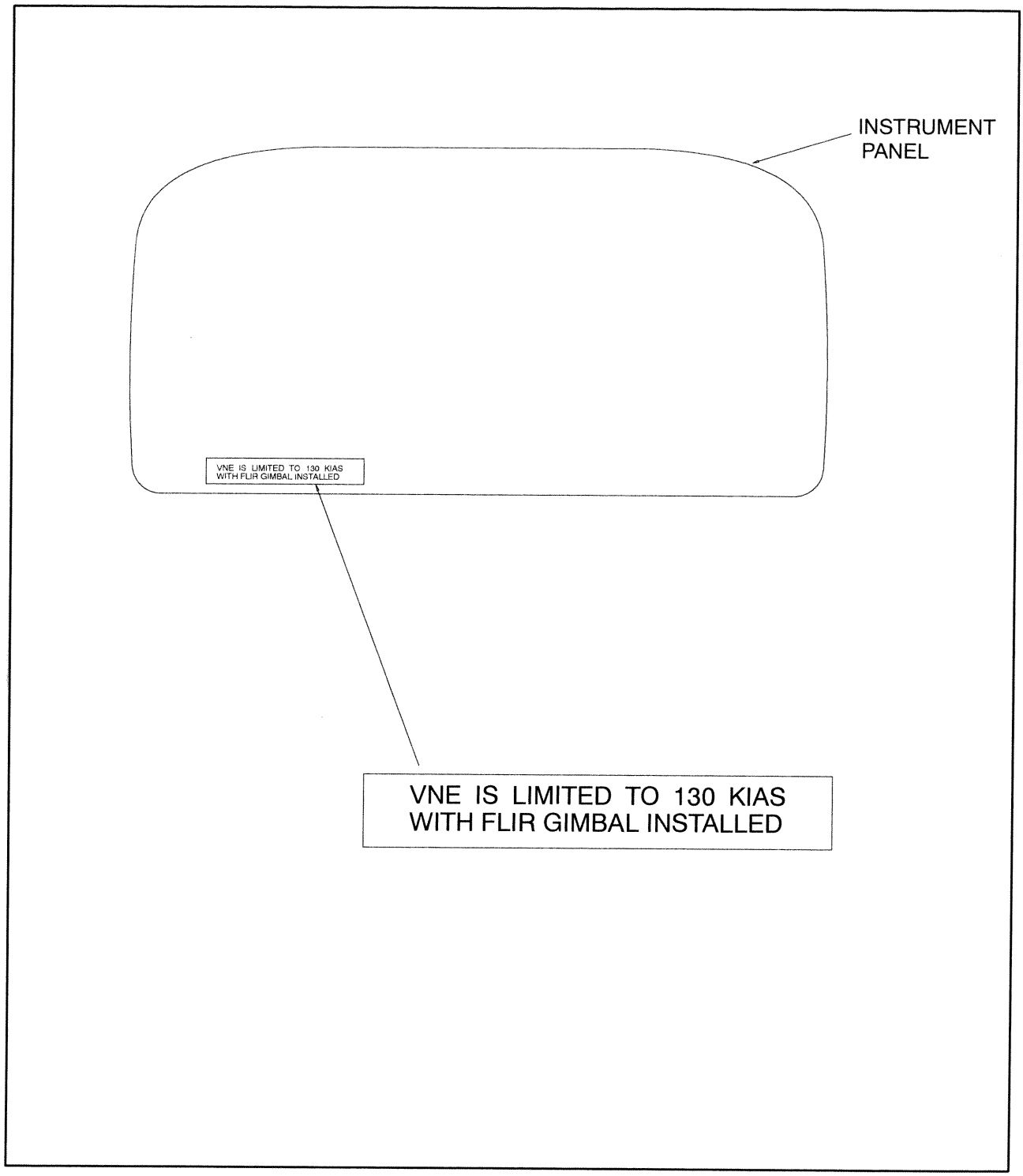

Figure 11 View showing typical placard location on Instrument Panel

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

FOR
MEEKER AVIATION

MA100 SERIES ISOLATION COLLAR
REV --
JAN 1, 2004

1) INTRODUCTION:

The Meeker Aviation MA-100 series isolation collar is a mechanical vibration isolation system. The isolation collar is designed to be used with the Inframetrics / Flir Systems International MK II, MK III, 7000 and 8000 series, SeaFLIR and MicroStar camera turrets. When used with the Flir Systems International SeaFlir, operator will need the optional SeaFlir lid. The isolation collar can be used on both fixed wing aircraft and rotorcraft.

Precautions:
- All precautions will be in **bold face**

Referenced publications
- (AC) 43.13-2 and (AC)43.13-1B

Distribution:
- ICA shall accompany the maintenance manuals of aircraft on which the isolation collar is installed.

Definitions / Abbreviations:
- FLIR: forward looking infrared
- VNE: velocity never exceed

Standards of measurement:
- all measurements in 100ths of an inch
- all weights in US pounds
- all torques in inch pounds

2) DESCRIPTION

- Complete installed weight standard collar: 9lbs
- Complete installed weight with SeaFLIR lid: 12 lbs
- Height (standard collar): 5.87"
- Height (with SeaFLIR lid): 7.50"
- Isolation collar provides a mounting interface and adjustable vibration isolation system for the FLIR camera.
- FLIR camera is bolted onto the floating ring of the isolation collar
- Collar can be attached to the aircraft either directly or with various adaptors including but not limited to dovetail mounts and 8" quick disconnect mounts.
- Isolation collar can also be tuned for maximum vibration damping by adjusting the number or type of wire rope isolators.
- Isolation collar wire rope isolator settings are determined by aircraft type, see: ISOLATOR GUIDE

3) CONTROL, OPERATIONAL INFORMATION

Special procedures / precautions:

- **isolation collar to be installed on aircraft with VNE of 300kts or less**
- **minimum of 6 evenly spaced wire rope isolators must be installed for flight**
- **window of isolation collar will always be positioned towards the tail of the aircraft**
- **lid , floating ring and outer collar are aligned by machined mark "AFT", found on all three surfaces. This mark shall be centered on the outer collar window.**

4) SERVICING INFORMATION

- see maintenance instructions

5) MAINTENANCE INSTRUCTIONS

Maintenance shall be conducted IAW manufacturers instructions and (AC) 43.13-2 , (AC) 43.13-1B

A) Daily:
- inspect for loose or missing hardware
- inspect for frayed wire rope isolators

B) Every 100 flight hours
- inspect for loose or missing hardware
- inspect for frayed wire rope isolators
- lubricate wire rope isolators with corrosion protection spray

C) Every 1000 flight hours
- remove isolation collar from aircraft
- inspect for loose or missing hardware
- inspect for frayed hardware
- lubricate wire rope isolators with corrosion protection spray
- protect exposed hardware with corrosion protection spray

D) Tolerances
- no loose or missing hardware allowed
- replace any wire rope isolators with any signs of fraying

- replace any components with visible corrosion
- replace any component with scratches, nicks or wear in excess of .025in in depth
- replace any components with visible cracks

TROUBLE SHOOTING INSTRUCTIONS

- see removal and replacement information
- to ease installation of hardware, Teflon type protective coating may be applied

6) REMOVAL AND REPLACEMENT INFORMATION

ISOLATION COLLAR INSTALLATION

A) Installation of camera system
- place the collar assembly upside down on a work surface
- remove the five ¼20 bolts and their washers
- Position the camera so the cannon plug receptacles align with the keyway slot of the floating ring
- lower camera until it rests on the floating ring
- rotate camera until the cannon plug receptacles align with the window
- install 5 ea ¼20 cap screws with one AN960C-10L washers per screw through camera into the floating ring

B) Installation of collar to aircraft:
- the isolation collar lid has hole patterns designed to accept various mounting adaptors
- adaptors types include but not limited to standard dovetail mounting plates and 8" quick detach plate
- these adaptors are to be installed IAW (AC) 43.13-2 and (AC)43.13-1B

C) Isolation collar tuning
- the collar comes from the factory with a standard wire isolator setting for each individual airframe, if no specific airframe is requested, the isolation collar is shipped with a default setting of wire isolators
- see attached isolation collar wire rope installation page, this page is to be used as guideline for standard wire rope installations based on actual flight conditions

D) Wire rope isolator removal

Note: It is not necessary to remove the lid of the isolation collar in order to remove, rearrange or replace the wire rope isolators.

- remove isolation collar from aircraft if installed
- remove flir camera if installed (reverse of step 6A)
- with collar upside down use a 9/64 T hex handle (allen style) wrench to remove the 8/32 cap screw that secures the isolators to the collar (see attached drawing)
- push the wire rope isolator to one side and insert the hex wrench into the 8/32 cap screw that holds the isolator to the floating ring (see attached drawing)
- remove and retain wire rope isolator and hardware
- **isolation collar must have a minimum of 6 evenly spaced wire rope isolators installed for flight.**

E) Wire rope isolator installation

- remove isolation collar from aircraft if installed
- remove flir camera if installed (reverse of step 6A)
- with collar upside down use a 9/64 T hex handle (allen style) wrench to remove *all* 8/32 cap screws that hold the isolators to the collar(see attached drawing), when *all* screws are removed from wire rope isolators carefully lower the floating ring and the attached isolators onto the flared section of the collar
- position each wire rope isolator under a corresponding hole in the outer collar such that the 9/64 T handle can be guided through a hole in the collar (see attached drawing), push a wire rope isolator to one side and insert the T wrench in the cap screw holding the isolator to the floating ring, remove 8/32 cap screw from floating ring
- install wire rope isolators by first installing 8/32 cap screw into non-tapped wire isolator hole
- guide 9/64 T handle through outer collar hole, then pressing the wire rope isolator to one side insert T handle into screw
- align screw with tapped hole in the floating ring and tighten screw
- always turn wire rope isolator pig tail towards floating wall of the outside collar. Do not turn inboard, as scratching of camera surface can occur on installation and removal of camera.
- install remaining wire rope isolators as per desired setting if less than 12 isolators are to be used the evenly space them around the floating ring
- once all wire rope isolators are installed onto floating ring, carefully lift floating ring up such that the wire rope isolators are directly below holes in outer collar

(cont)

- for proper alignment of the floating ring to the window, locate machined mark "AFT" on floating ring, this mark will always face the center of the window
- install remaining 8/32 cap screws through outer collar into tapped holes of wire rope isolators.

8) DIAGRAMS

- see ICA PICTORIAL, attached

9) SPECIAL INSPECTIONS

- non required

10) APPLICATION OF PROTECTIVE TREATMENTS

- see maintenance instructions

11) DATA

- fastener torques

Isolator to Floating ring (8-32 screws)	25 inch lbs
Isolator to collar (8-32 screws)	25 inch lbs
Lid to collar (10-32 screws)	50-55inch lbs
Camera to floating ring	30-35inch lbs

- fastener types, see ICA PICTORIAL

12) LIST OF SPECIAL TOOLS

- non required

13 FOR COMMUTER AIRCRAFT

- non applicable

14) RECOMMENDED OVERHAUL PERIODS

- no additional overhaul time limitations

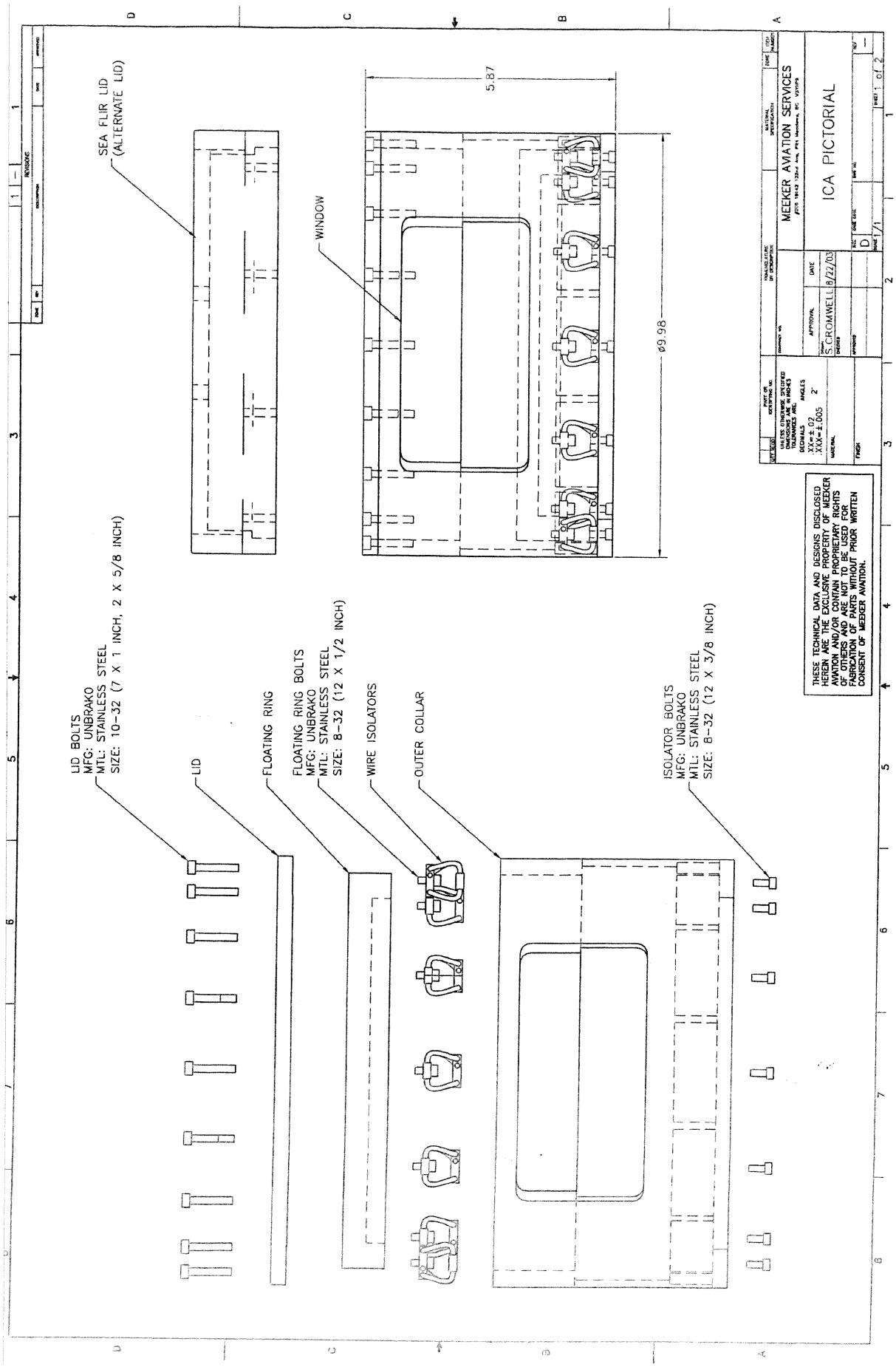
15) AIRWORTHINESS LIMITATIONS

- **isolation collar to be installed on aircraft with VNE of 300kts or less**
- **minimum of 6 evenly spaced wire rope isolators must be installed for flight**
- **window of isolation collar will always be positioned towards the tail of the aircraft**

16) REVISIONS

- manufacturer will inform all known recipients of this ICA to any and all revisions
- manufacturer will provide copy of revised ICA to all known recipients
- operator must submit a copy of the revised FAA Form 337 and revised ICA to local FSDO
- upon receipt of accepted revision, a maintenance record entry will be made, identifying the revision, its location and date of the Form 337.

END


SEA FLIR LID
(ALTERNATE LID)
WINDOW
5.87
ø9.98
LID BOLTS
MFG: UNBRAKO
MTL: STAINLESS STEEL
SIZE: 10-32 (7 X 1 INCH, 2 X 5/8 INCH)
LID
FLOATING RING
FLOATING RING BOLTS
MFG: UNBRAKO
MTL: STAINLESS STEEL
SIZE: 8-32 (12 X 1/2 INCH)
WIRE ISOLATORS
OUTER COLLAR
ISOLATOR BOLTS
MFG: UNBRAKO
MTL: STAINLESS STEEL
SIZE: 8-32 (12 X 3/8 INCH)
MEEKER AVIATION SERVICES
ICA PICTORIAL
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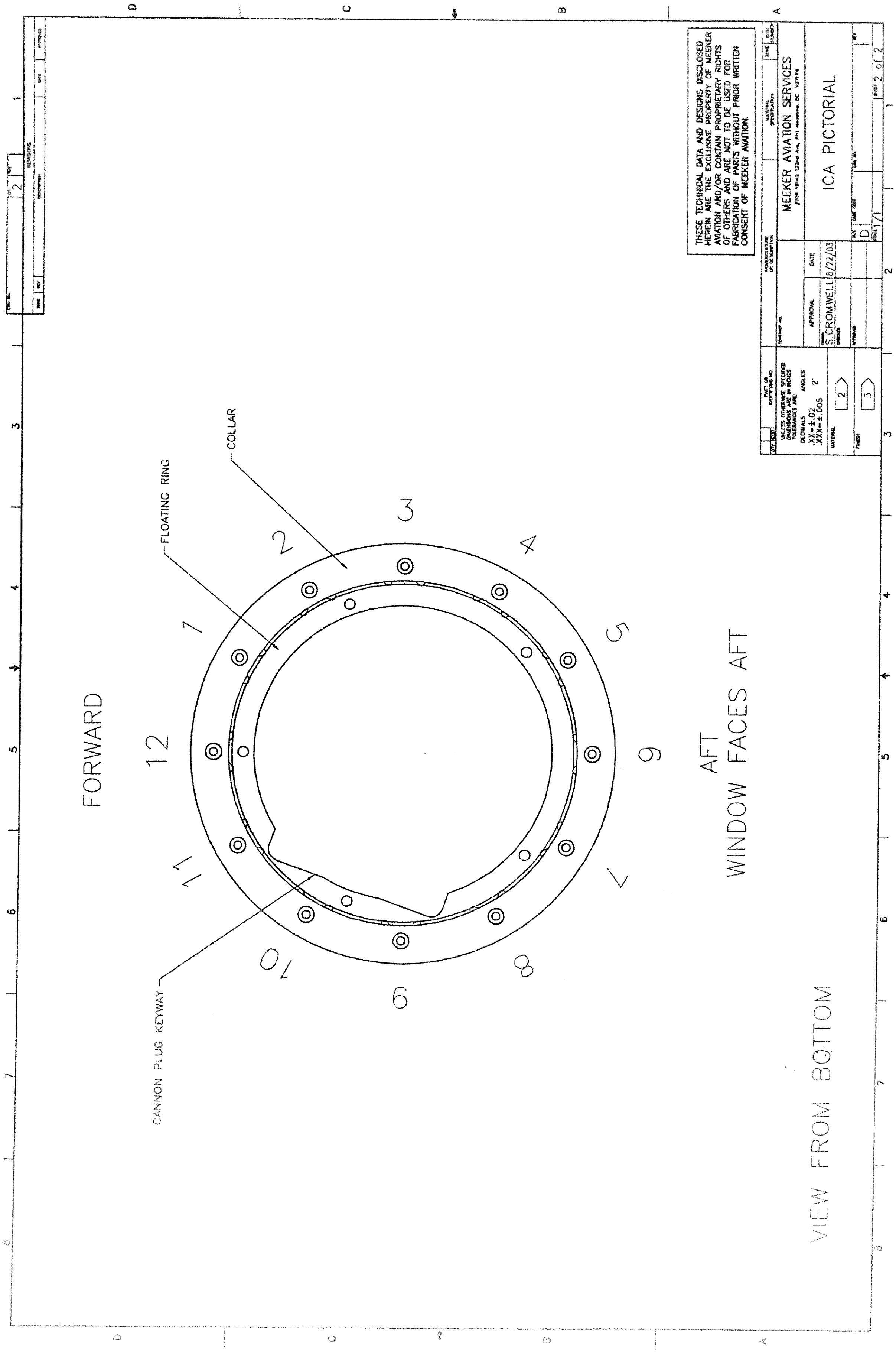
FORWARD
AFT
WINDOW FACES AFT
VIEW FROM BOTTOM
COLLAR
FLOATING RING
CANNON PLUG KEYWAY
1
2
3
4
5
6
7
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SHEET 2 of 2

ISOLATOR GUIDE: MEEKER AVIATION ISOLATION COLLAR P/N MA100 SERIES

NOTE 1: CLOCKING OF ISOLATORS: 6 O'CLOCK POSITION IS MIDDLE OF ISOLATION COLLAR WINDOW. WINDOW TO BE POINTED TO AFT OF AIRFRAME

NOTE 2 : APPLICABLE CAMERA TYPES: INFRAMETRICS MK II / III, FSI ULTRA 7000 AND 8000 SERIES, SEAFLIR, MICROSTAR

MFG	MODEL	MOUNT TYPE	ISOLATOR CLOCKING PATTERN	ISOLATOR TYPE
Agusta	A-119 Koala	Side nose mount	12	CR3-100
Agusta-Westland	Super Lynx	Nose Mount	6	CR3-200
Eurocopter	EC120B	AEC Nose Mount	12	CR3-200
Eurocopter	AS-350 SERIES	AEC Side Nose Mount	12	CR3-100
Eurocopter	DAUPHIN	AEC FWD Nose Mount	10 with 3-9 removed	CR3-100
Eurocopter	SUPER PUMA	L/H Side mount	12	CR3-100
Bell	206/OH-58	Nose Mount	12	CR3-100
Bell	206/OH-58	Mid belly mount	12	CR3-100
Bell	407	Mid belly mount	10 with 3-9 removed	CR3-100
Bell	407	Nose Mount	10 with 3-9 removed	CR3-100
Bell	427	Nose Mount	10 with 3-9 removed	CR3-100
Bell	UH-1/212/412	Nose Mount	12	CR3-100
Cessna	210	Side mount – Baggage Compartment	8 with 12 / 3 / 6 / 9 removed	CR3-200
Cessna	172	Side mount – Baggage Compartment	8 with 12 / 3 / 6 / 9 removed	CR3-200
Cessna	337	Wing mounted	12	CR3-100
MD	500 / 520	Side lolly-pop mount	8 with 12 / 3 / 6 / 9 removed	CR3-200
Schweizer	330/333	Mid belly mount	6 with 2-3-4 & 8-9-10 removed	CR3-100
		UNCONTROLLED DOCUMENT		