


REV	<b>B</b>	<b>APPLICATION</b>			<b>REVISIONS</b>		
		PRODUCT LINE	REV	DESCRIPTION	DATE	APPROVED	APPROVED
SH	<b>1</b>	IDU-III	A	Initial Release per DCN W4039	11/04/04	R. DuRall	V. Wallace
			B	Added AIU Rev B, Mod 2 per DCN W4216	01/25/05	R. DuRall	V. Wallace
DWG. NO.	<b>150-045026</b>						

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<b>APPROVALS</b>	<b>DATE</b>			<b>TITLE:</b>		
DRAWN	R. DuRall	11/04/04	<b>SERVICE BULLETIN WSB IDU-III-14</b> <b>(AIU-1 REPLACEMENT)</b>			
CHECKED	D. Boston	11/04/04				
PRODUCT MANAGER	---	---				
ENGINEER	R. DuRall	11/04/04	SIZE	CAGE CODE	DWG NO.	REV
ISSUED	V. Wallace	11/04/04	<b>A</b>	<b>1B7G3</b>	<b>150-045026</b>	<b>B</b>
<b>Typed signatures indicate approval. Handwritten signature approval of this document is on file at Wulfsberg Electronics, Prescott, Arizona.</b>			SCALE: NONE		DO NOT SCALE DRAWING	



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## **SERVICE BULLETIN**

**EQUIPMENT:** IDU-III

**DATE:** 01/25/2005

**BULLETIN NUMBER:** WSB IDU-III-14 Revision B

### **EFFECTIVITY**

This service bulletin applies to the following:  
Analog Interface Unit (AIU-1) P/N 453-7000, Rev B, no Mod or earlier.

### **REASON**

#### **Problem Resolutions:**

1. Composite VOR filter circuit improvements that extend the range of valid VOR detection to match standard analog VOR displays.
2. Improvements to the AC Heading and Course Datum transformer circuits that allow better current transfer to the Heading and Course Datum inputs of an autopilot.

### **DESCRIPTION**

This document allows the replacement of the AIU-1 P/N 453-7000, Rev B or earlier with AIU-1 P/N 453-7000, Rev C (New) or Rev B, Mod 2 (Modified).

### **COMPLIANCE**

Recommended when using Composite VOR/LOC inputs where a valid VOR display on the EFIS is detected at a distance less than  $\frac{3}{4}$  of other VOR displays on the aircraft; or AC Heading and Course Datum drive from the AIU transformer circuits is not sufficient to match the drive outputs of the replaced HSI at 30° Heading Datum or 55° Course Datum.

### **WARRANTY INFORMATION**

Inquiries should be directed to "Customer Support" at the address listed below:

Chelton Flight Systems  
1109 Main Street, Suite 560  
Boise, ID 83702  
Phone: (208) 389-9959  
Fax: (208) 389-9961

## **APPROVAL**

This Service Bulletin has been reviewed and approved by the FAA.

This modification does not affect the original approval.

## **MANPOWER**

2.0 Man-hours per aircraft.

## **REFERENCES**

System Installation Instructions, 150-045264, and AIU Installation Manual, 570-7000.

## **MATERIAL INFORMATION**

The parts required to replace the AIU-1 in accordance with this Service Bulletin may be obtained by contacting Chelton Flight Systems at (208) 389-9959.

## **PARTS REQUIRED**

<b><u>ITEM</u></b>	<b><u>QTY</u></b>	<b><u>U/M</u></b>	<b><u>PART NUMBER</u></b>	<b><u>DESCRIPTION</u></b>
1	1	Ea	453-7000	Analog Interface Unit (AIU-1), Rev C (New) or Rev B, Mod 2 (Modified)

## **TEST EQUIPMENT REQUIRED**

Laptop Computer with AIU Maintenance program

9-pin serial cable (locally produced)

IFR NAV-401L or equivalent Nav Flight Line Test Set

**NOTE:** *The AIU Maintenance program can be downloaded from the Chelton Flight Systems Dealer web page at [www.cheltondealer.com/dlr\\_login.php](http://www.cheltondealer.com/dlr_login.php).*

## **MODIFICATION PROCEDURE**

1. Apply external power to the aircraft.
2. Apply power to the EFIS system and allow the EFIS to operate normally.
3. Activate the AIU Maintenance program on the Laptop computer.
4. Connect the 9-pin serial cable between the Laptop computer and the AIU Maintenance port on the aircraft.

**NOTE:** *This port is normally located in the flight compartment.*

5. Select the appropriate Com port and press the “Read Parameters” button on the AIU Maintenance program window and note all of the readings on the last page of this Service Bulletin (see Figure 2).
6. Remove power from the EFIS system.
7. Secure power on the aircraft.
8. Remove all necessary access panels to gain access to the AIU.
9. Remove all connectors from the AIU.
10. Remove all mounting hardware from the AIU.
11. Remove the AIU.
12. Remove the access cover on the front of the AIU and note the position of switches S1 and S2 (see Table 1).
13. Replace the access cover and return the unit back to Chelton Flight Systems.
14. Remove the access cover on the new AIU (Item 1) and set switches S1 and S2 as noted in Step 12.
15. Replace the access cover.
16. Install the AIU (Item 1) on the original AIU mounting location with the hardware removed in Step 10 and tighten as required.
17. Attach the connectors removed in Step 9.

### **ALIGNMENT PROCEDURE**

1. Apply external power to the aircraft.
2. Apply power to the EFIS system and allow the EFIS to operate normally.
3. Activate the AIU Maintenance program on the Laptop computer.
4. Connect the 9-pin serial cable between the Laptop computer and the AIU Maintenance port on the aircraft.
5. Program the AIU with the data noted in Step 5 of the Modification Procedures section except for the VOR and Localizer alignments.

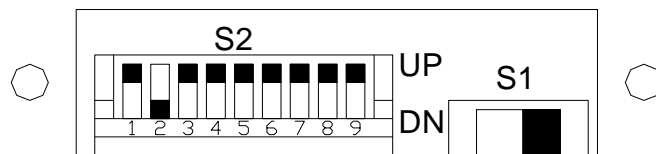
***NOTE:*** This provides initial settings to be verified or updated per the following steps.

6. Align the VOR A and Localizer A as required per the AIU Installation Manual, Chapter 5, Ground Maintenance, “Nav 1 Test”.

7. Align the VOR B and Localizer B as required per the AIU Installation Manual, Chapter 5, Ground Maintenance, "Nav 2 Test".
8. Align the Heading and Course Datums outputs as required per the AIU Installation Manual, Chapter 5, Ground Maintenance, "Heading Datum Test", "Course Datum Test", "Navigation Test", "Flight Director Horizontal Test", and "Flight Director Vertical Test".
9. Remove power from the EFIS system.
10. Secure power on the aircraft.
11. Install all access panels that were removed for maintenance in Step 8 of the Modification Procedures section.

**NOTE:** The next step is required if significant changes to the scaling or null values of the Autopilot or Flight Director sections of the AIU Maintenance program were required to pass ground tests; or a Gain setting change to the Course or Heading Datum was performed.

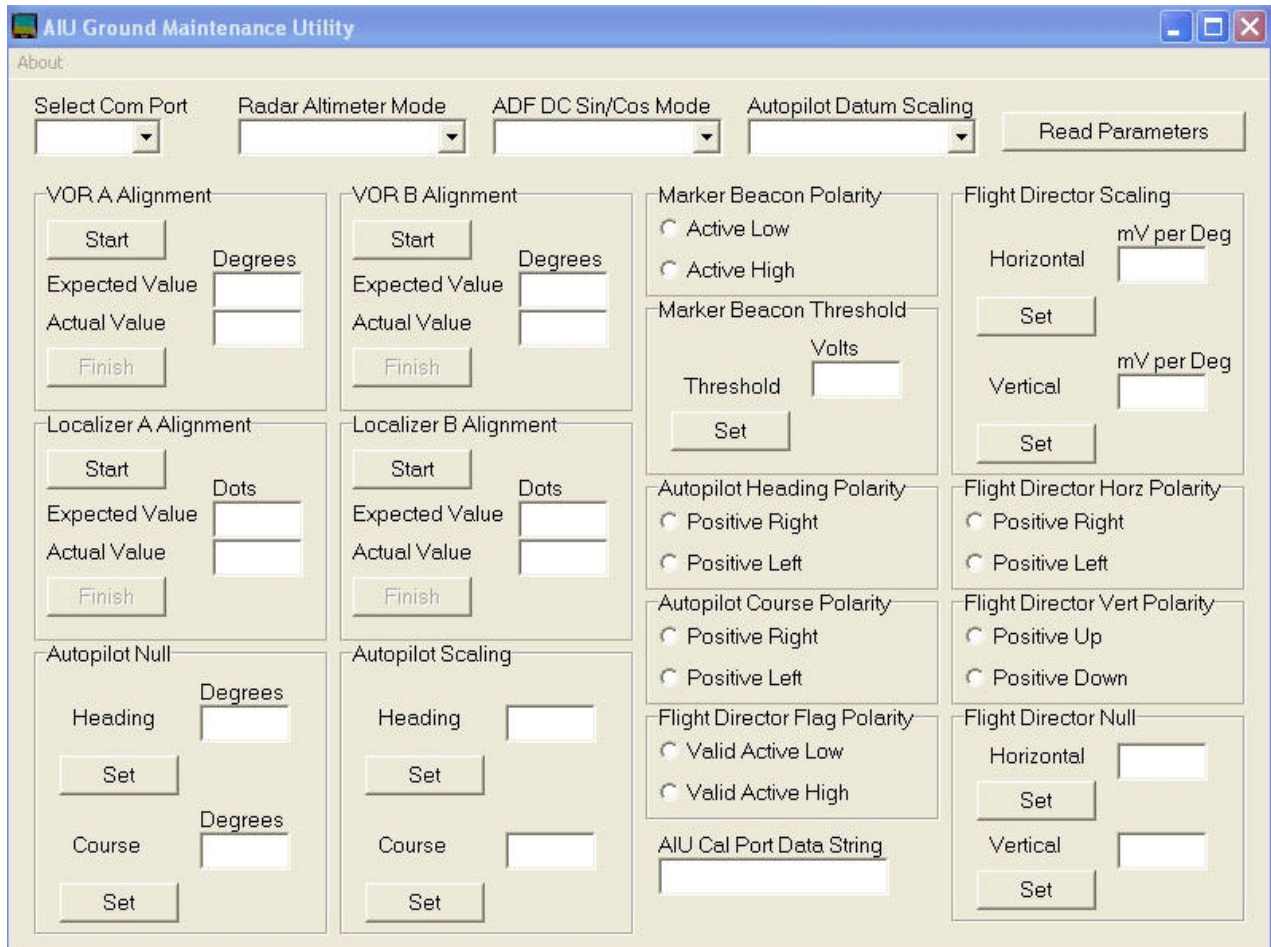
12. Perform a flight test as outlined in the AIU Installation Manual, Chapter 6, Flight Functional Test.



**Figure 1. AIU Switch Access (switch position shown are for reference only)**

SWITCH	SETTING
S1	
S2-1	
S2-2	
S2-3	
S2-4	
S2-5	
S2-6	
S2-7	
S2-8	
S2-9	UP

**Table 1. AIU Switch Settings**



**Figure 2. AIU Maintenance Program Window**