

***FlightMax DC50-Series Datalink Coupler  
Instructions For Continued Airworthiness***

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## **1. Introduction**

### **1.1 Aircraft Description**

Aircraft listed on Approved Model List (AML) as documented in Avidyne document AVACP-020, Avidyne 700-00015-XXX-() DC50 Approved Model List.

Principle Design Aircraft Make: Cirrus Design Corporation

Principle Design Aircraft Model: SR20/SR22

### **1.2 Scope**

This document identifies the Instructions For Continued Airworthiness for the modification of the above aircraft by installation of a FlightMax 700-00015-XXX-() DC50-Series Datalink Coupler.

This ICA is written per the guidance of 14 CFR Part 23 Appendix G to satisfy the requirements of 14 CFR 23.1529.

### **1.3 Applicability**

Applies to AML aircraft, including Cirrus SR20/SR22, altered by the installation of FlightMax 700-00015-XXX-() DC50-Series Datalink Coupler.

### **1.4 Definitions and Abbreviations**

ICA – Instructions for Continued Airworthiness

STC – Supplemental Type Certificate

AML – Approved Model List

AEG – Aircraft Evaluation Group

### **1.5 Precautions**

This section is not applicable.

### **1.6 Units of Measure**

This section is not applicable.

## **1.7 Referenced Publications**

AVACP-020	Avidyne 700-00015-XXX-() DC50 Approved Model List
14 CFR Part 23	Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Airplanes
600-00082-000	DC50 Datalink Coupler Installation Manual

## **1.8 Distribution**

This Instructions For Continued Airworthiness is to be furnished with new production DC50-Series Datalink Couplers and is to become part of the permanent aircraft record.

A current revision of this ICA shall be available on the Avidyne website at [www.avidyne.com](http://www.avidyne.com) (Technical Publications).

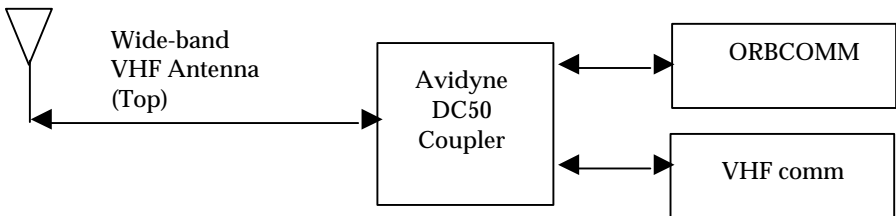
## **2. Description of Alteration**

The modification of the aircraft involves the installation of a FlightMax DC50 Datalink Coupler 700-00015-XXX-() and accompanying coaxial cable and wiring.

The DC50 Antenna Coupler (Coupler) is designed to allow two transceivers (a VHF comm and an ORBCOMM Satellite Communicator (SC)) that are similar in operating frequency to share the same antenna. The standard VHF comm radio operates over the frequency range from 118 to 137 MHz. The ORBCOMM SC transmits over the frequency range of 148 to 150 MHz and receives over the range of 137 to 138 MHz. The Coupler is connected to the antenna ports of both transceivers, and one of the VHF antennas mounted on the aircraft. The Coupler is also connected to aircraft power (28 VDC) and the VHF comm transmit key Push To Talk (PTT).

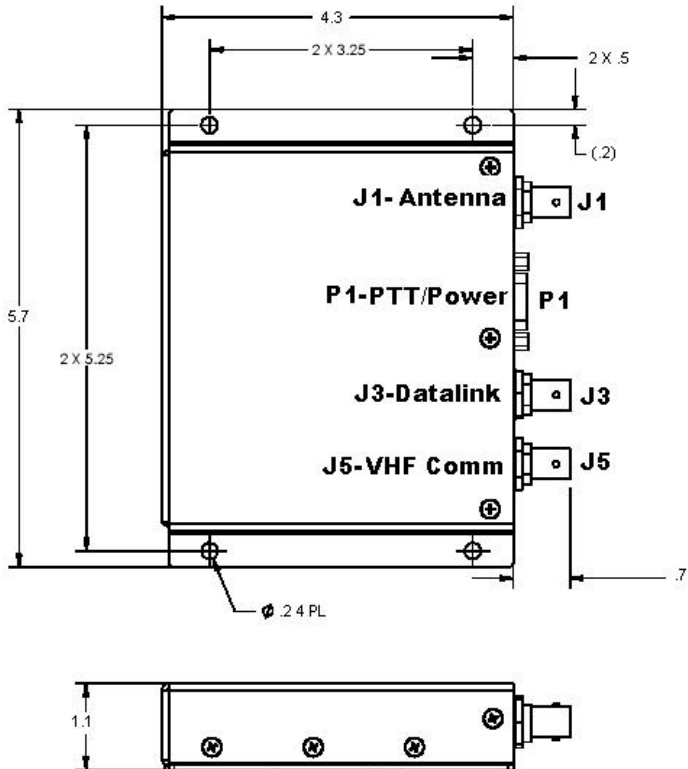
Figure 1 depicts a typical single VHF comm installation of the Coupler and its relationship to the antenna, VHF comm, and ORBCOMM SC. Since the ORBCOMM system is a satellite-based datalink communication system, the Coupler must be connected to a wide-band antenna located on top of the aircraft.

For aircraft equipped with two VHF comm radios, an independent VHF radio and antenna would be part of the architecture. It is recommended that the Coupler be interfaced with the secondary VHF comm radio.



**Figure 1 – DC50 Coupler Integration**

The Coupler is a remote-mounted unit with dimensions as shown in Figure 2. The unit weighs 0.65 lbs and has a maximum power consumption of 0.11 Amps at 28 VDC nominal.



**Figure 2 – Coupler Dimensions**

**Note: All dimensions are shown in inches.**

### **3. Control, operation information**

No operator action is required to turn on or operate the Datalink Coupler. Refer to Section 7.3 for setup and checkout information.

#### **4. Servicing information**

This section is not applicable.

#### **5. Maintenance Instructions**

This section is not applicable.

##### **5.1 Recommended Periodic Scheduled Servicing Tasks**

None required.

##### **5.2 Recommended Periodic Scheduled Preventive Maintenance Tasks**

None required.

##### **5.3 Recommended Periodic Scheduled Inspections**

None required.

##### **5.4 Recommended Periodic Structural Inspections**

None required.

#### **6. Troubleshooting Information**

Failure modes within the Coupler can result in system failures of the VHF comm or ORBCOMM systems. These include:

- VHF comm system loss of signal or partial signal strength,
- ORBCOMM system is not working properly,
- The VHF comm and ORBCOMM systems are not working.

A failure of either the VHF comm system or the ORBCOMM system is more likely to be a failure within that system's radio transceiver. Follow the radio's troubleshooting guide before attempting to troubleshoot the Coupler. If both the VHF comm and ORBCOMM systems are not working, it is likely a Coupler failure.

The only action available to address a Coupler failure is to remove and replace the Coupler unit. Follow the instructions in Section 7 to remove and replace the unit.



## **7. Removal and Replacement Information**

### **7.1 Removal**

Remove the Coupler using the following instructions:

1. Ensure power is removed from all applicable avionics. (Turn off avionics master.)
2. Disconnect the three RF connectors.
3. Remove the two jackscrews on the 9-pin D connector on the Coupler.
4. Remove the four screws mounting the Coupler to aircraft structure.

The Coupler, kick plate and wiring for the Cirrus aircraft installation are illustrated in Figure 3. Actual installation on other AML aircraft will vary.

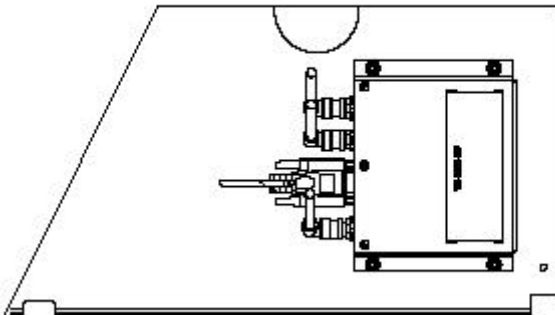


Figure 3 – Coupler Installation

### **7.2 Installation**

This installation procedure assumes that an ORBCOMM datalink ready device (ex. Avidyne EX5000 with datalink transceiver) has been installed. If the Coupler is replacing a previously installed Coupler, skip steps 2 through 5 and step 10. All installation and modifications accomplished should be compliant with AC 43.13 – 1B and –2A.

1. Ensure power is removed from all applicable avionics. (Turn off avionics master)

2. Remove the VHF radio that will be connected to the Coupler, and disconnect the antenna cable and the connector supplying power and Push-to-Talk.
3. Connect Pin 1 on connector P1 of the Coupler to the circuit breaker for the comm, or spliced into the comm power circuit connected to that breaker.
4. Connect Pin 8 on connector P1 of the Coupler to suitable aircraft ground.
5. Connect Pin 5 on Connector P1 of the Coupler to the PTT discrete of the interfacing comm, which should be connected through an audio panel. (This discrete must be grounded only when that comm is to transmit.)
6. Complete the connections to the 9-pin D shell connector that connects to P1, installing the backshell and the hardware to fasten the 9-pin D shell connector to the Coupler.
7. Connect the VHF comm antenna coax to the BNC connection on the Coupler labeled J5 VHF comm.
8. Connect the Datalink transceivers antenna coax to the BNC connector on the Coupler labeled J3 Datalink. If the datalink transceiver will be installed later, connect the 50-ohm termination to the BNC connector labeled J3 Datalink on the Coupler.
9. Connect the Antenna port of the Coupler labeled J1 Antenna to the coax from the top mounted VHF/Datalink antenna
10. Reinstall the VHF comm

Upon reinstallation, a functional check should be performed in accordance with the System Setup and Checkout procedures detailed in Section 7.3.

### ***7.3 Coupler System Checkout***

Any time the Coupler is removed and sent to the factory for service, or is replaced with another unit, these system setup procedures must be performed to assure that the unit is properly installed and connected with the aircraft wiring. If this procedure is being used for the initial installation, follow all steps.

Verify that no interference is noted through the use of VHF comm and the datalink on other systems in the aircraft. The operation of these systems,

with the Coupler installed, should not result in erroneous data displayed by navigation systems

1. Turn off power to VHF comm control head.
2. Power on the avionics master.
3. If applicable, turn power on to the audio control panel and make sure the comm is selected.
4. Check the Coupler pins P1-1 for +28V and P1-8 for airframe ground with voltmeter.
5. Check for correct operation of PTT, pin P1-5, with ohmmeter.
6. Power on the VHF comm.
7. Verify operation of the datalink, according to the datalink-host (ex. Avidyne EX5000 with datalink transceiver) installation manual.
8. Conduct a radio check by transmitting and receiving via the Comm.
9. Verify operation of the datalink, according to the datalink-host installation manual.

## **8. Diagrams**

Wiring installation guidance is provided in document 600-00082-000 DC50 Datalink Coupler Installation Manual.

## **9. Special Inspection Requirements**

This section is not applicable.

## **10. Application of Protective Treatments**

This section is not applicable.

## **11. Data**

This section is not applicable.

## **12. List of Special Tools**

This section is not applicable.

### **13. For Commuter Category Aircraft**

For Commuter Category Aircraft, electrical load data applicable for each system and aircraft weight and balance must be identified. The FlightMax DC50 Datalink Coupler has a current draw of 0.110 amps at 28V DC intermittently (during VHF transmit) and 0.055 amps at 28V DC continuously. The Coupler weighs 0.65 lbs.

### **14. Recommended Overhaul Periods**

This section is not applicable.

### **15. Airworthiness Limitation Section**

The Airworthiness Limitations section is FAA approved and specifies maintenance required under §43.16 and §91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no airworthiness limitations as a result of this modification.

### **16. Revision**

Revisions to this document shall be coordinated through the Boston Aircraft Certification Office, the Kansas City AEG, and the STC holder. Inquiries relating to this ICA should be made to Avidyne Corporation. If you would like to be notified of future revisions to this manual please visit the Avidyne website at [www.avidyne.com](http://www.avidyne.com) (Technical Publications) or [myavidyne.com](http://myavidyne.com)

### **17. Implementation and Record Keeping**

This ICA is to be made part of the applicable section 91.409 or 135.419 aircraft inspection program for this aircraft.