# CHAPTER 12
# RECORDING SYSTEM
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## CHAPTER 12 COMMUNICATIONS AND RECORDING

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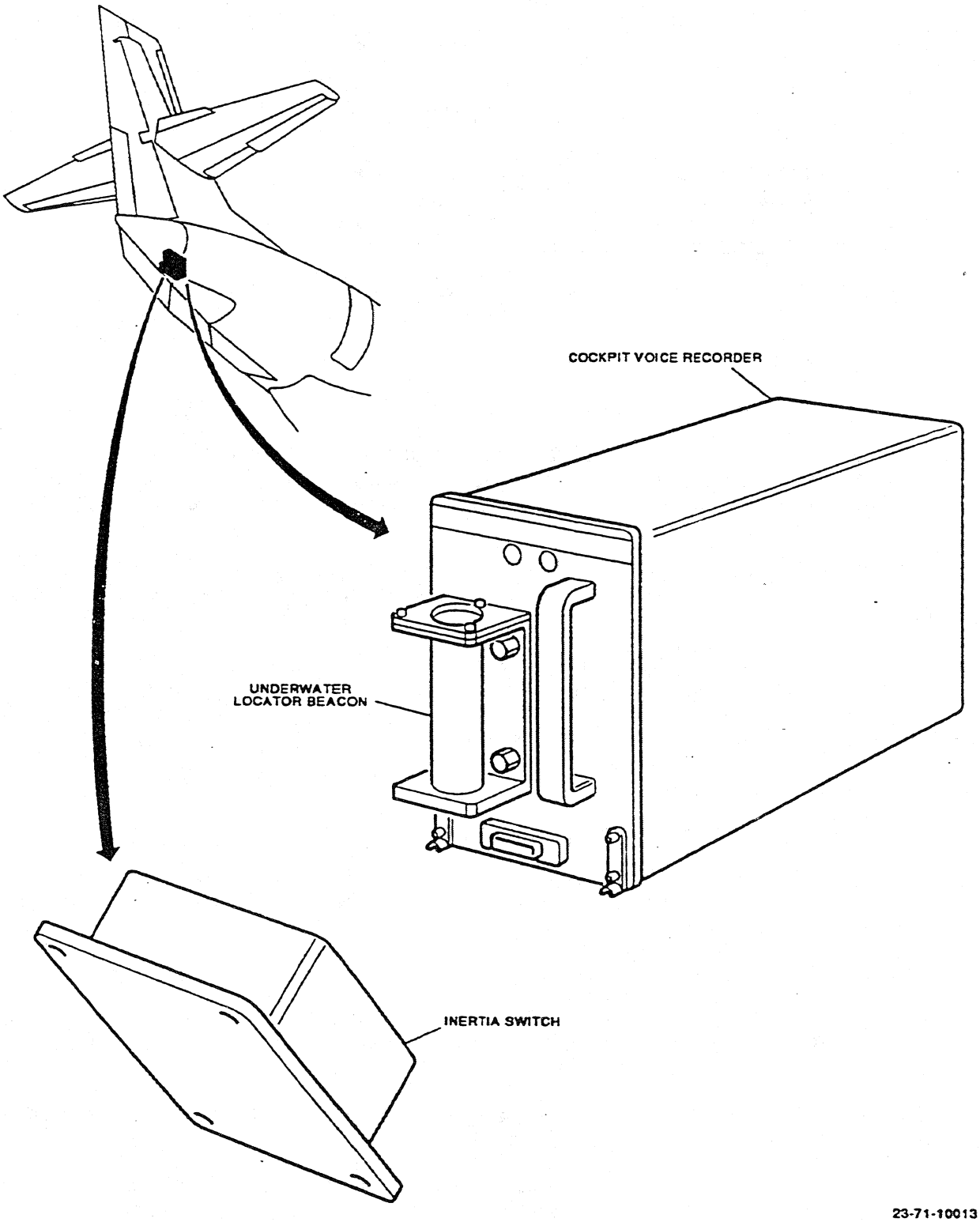


Cockpit Voice Recorder and Inertia Switch

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# CHAPTER 12

# RECORDING SYSTEMS

## General

The aircraft Is fitted with the following recording systems:

- A Cockpit Voice Recorder (CVR)
- A Flight Data Recorder (FDR).

## 1. Cockpit Voice Recorder (CVR)

The CVR system comprises of the following components:

- A CVR
- A control unit
- A remote microphone
- An inertia switch.

The CVR is a thermally insulated, crash protected digital type voice recorder and is located in the rear equipment bay together with the related inertia switch. The control unit and the remote microphone are located on the flight deck.

The five channel CVR unit records each flight crews mic/tel communications from the audio control panels and ambient flight deck sounds (via the remote mic).

The control unit is located on the left side console. It has TEST and ERASE switches, PASS and FAIL indicators, signal level indicator and a headphone socket. The remote (area) microphone is mounted centrally below the coaming panel under the TAS temperature indicator.

### A. System Operation

(1) Electrical Power Supply

The CVR is supplied with 28V dc from the unswitched emergency avionics busbar. The CVR automatically starts when power is supplied to the aircraft.

(2) Record Mode

The last thirty minutes of all flight crew communications and flight compartment ambient sounds are recorded in a non-volatile memory.

The CVR has five channels but only four are used to record the audio output. These are:

- Channel 1, audio inputs from No.1 audio control panel
- Channel 2, audio inputs from No.2 audio control panel
- Channel 3, audio inputs from No.3 audio control panel
- Channel 4, audio inputs from the area microphone.

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(3) Erase Mode

The erase circuit only operates when:

- The parking brake is on
- The Aircraft On Ground relay (AOG) is energized by the Weight On Wheels (WOW) switch
- The ERASE switch is pushed and held for two seconds.

When the erase circuit operates, all the recorded data is erased. During the erase procedure the PASS and FAIL indicators flash.

(4) Self Test

The CVR self test starts when the TEST push switch on the control unit is pressed. During self test the PASS and FAIL indicators come on alternately.

If a headset is connected to the headphone socket, all flight compartment ambient sounds can be heard during self test. The SIGNAL LEVEL indicator shows the flight compartment sound levels.

The self test takes approximately forty seconds to complete. The PASS indicator will come on and then go off if the system is serviceable. The FAIL indicator will come on and remain on if the system is unserviceable.

(5) Inertia Switch

An inertia switch in the rear equipment bay operates at longitudinal accelerations of 3g and ensures that operation ceases in the event of a crash landing. Data recorded prior to its operation is retained in the CVR memory.

(6) Underwater Locator Beacon

An Underwater Locator Beacon (ULB) is attached to the CVR. The ULB has an internal battery which is activated by a water sensitive switch. This will cause the ULB to transmit a signal as soon as it is immersed in water.

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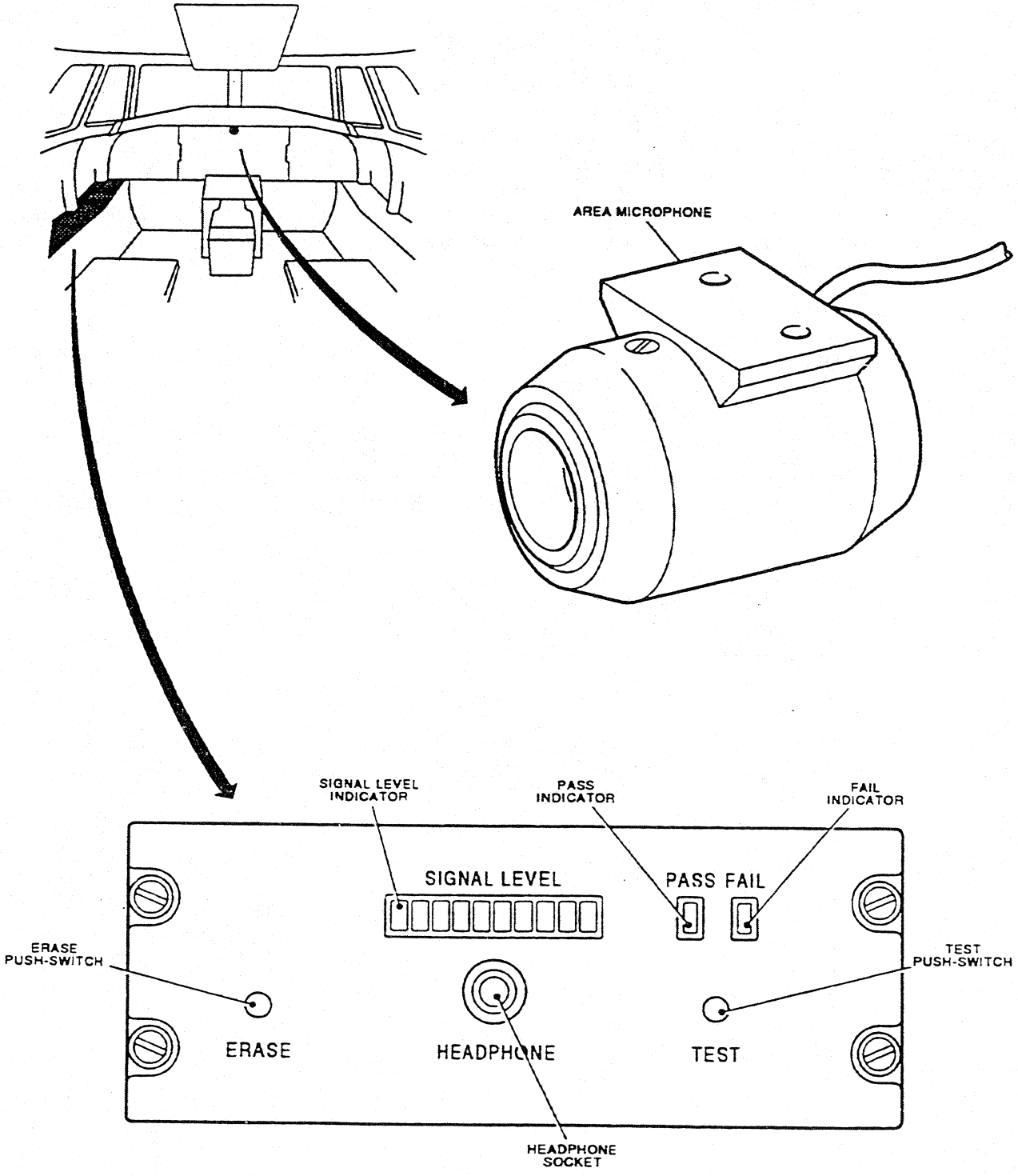
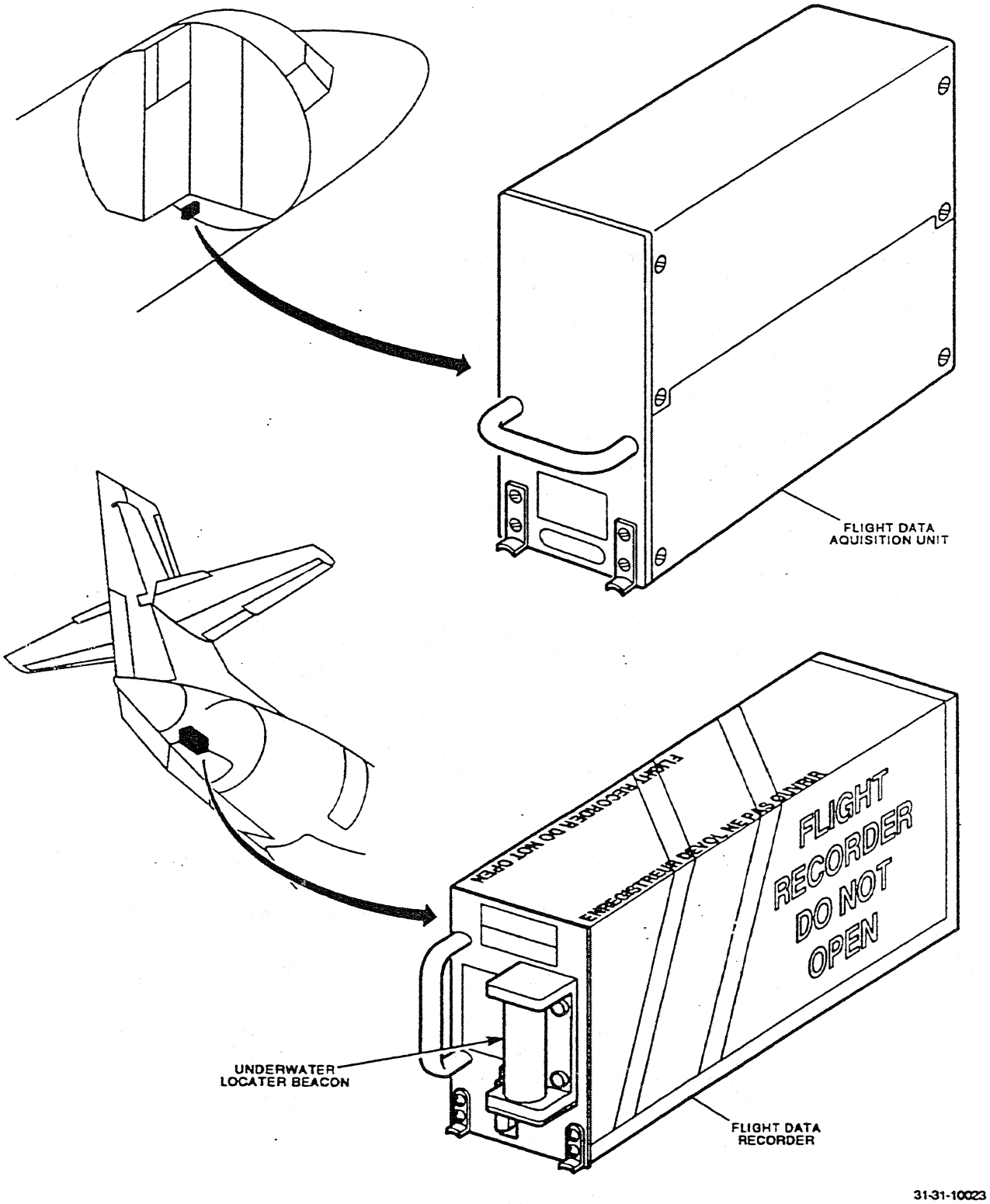



CVR Control Unit and Remote Microphone




Flight Data Recorder and Flight Data Acquisition Unit

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2. Flight Data Recorder (FDR)

The FDR system consists of the following components:

- A flight data recorder
- A flight data acquisition unit.

The FDR is a thermally insulated, crash protected digital recorder. It is located in the rear equipment bay.

The Flight Data Aquisition Unit (FDAU) receives analog and digital data from the aircraft systems and processes the data for transmission to the FDR. The FDAU is located under the flight deck center floor panel.

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A. System Operation

(1) Electrical Power Supply

The FDR is normally supplied by the right 115V ac busbar. If a failure of the right 115V ac busbar occurs the FDR is automatically supplied from the left 115V ac busbar.

The FDAU is supplied by the 28V dc left essential busbar.

(2) Record Mode

The FDR system operates when an engine generator is on line and ac power from an inverter is available. The total length of the digital memory in the FDR is twenty five hours.

An internal failure of the FDAU or FDR will cause a CAP FDR amber caption to come on. The caption also comes on when there is no power to the FDR system.

(3) Tri-axial Accelerometer

A tri-axial accelerometer located in the foward ventral fairing, mounted on a bracket attached to the front spar. The accelerometer provides normal, longitudinal and lateral acceleration inputs to the FDAU.

(4) Underwater Locator Beacon

An Underwater Locator Beacon (ULB) is attached to the FDR. The ULB has an internal battery which is activated by a water sensitive switch. This will cause the ULB to transmit a signal as soon as it is immersed in water.

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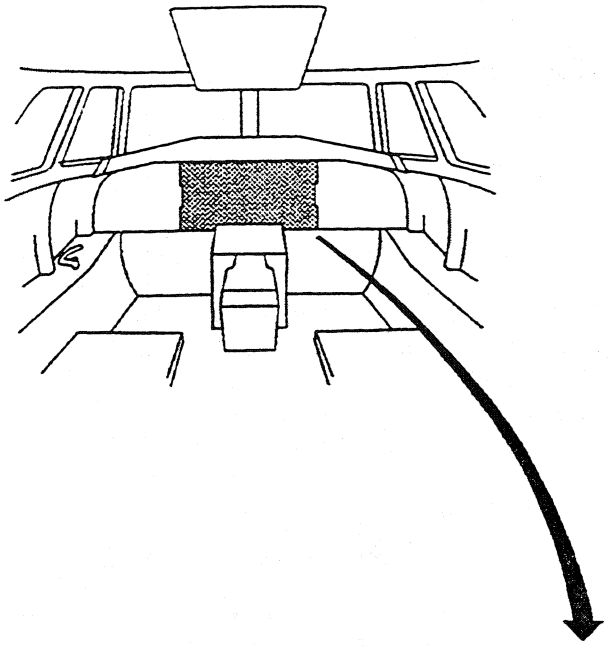

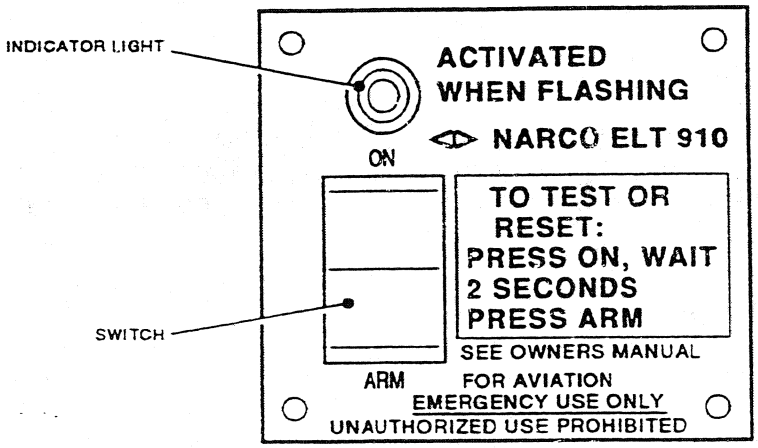


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ELT Switch Panel



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3. Emergency Locator Transmitter (ELT)

The ELT system consists of the following items:

- An ELT
- An ELT antenna
- A remote switch panel.

The ELT is an automatically activated emergency location device that transmits a sweeping audio tone signal on the VHF and UHF emergency frequencies. The ELT will operate for approximately 50 hours. The ELT is located in the top of the rear equipment bay and the antenna is mounted in the top surface of the bay, to the left of the fin. The remote switch panel is mounted on the main instrument panel. The ELT must not be used except for emergencies.

A. System Operation

(1) Electrical Power Supply

The ELT has an internal battery pack (sealed non-rechargeable type) that can be replaced when the ELT is removed from the aircraft. 28V dc from the right essential busbar is used to provide manual control of the ELT from the remote switch panel.

(2) Automatic Operation

The ELT will automatically switch on and transmit when it is subjected to a 2 g force. The ELT can be manually reset from the switch on the front or from the remote switch panel.

(3) Manual operation from the ELT

The ELT has a 3 position switch annotated ON, OFF and ARM. The ON position starts the ELT transmitting and can be used for testing or emergency purposes. The OFF position turns the ELT off and resets an automatic switch on. The ARM position sets the ELT ready to automatically come on in the event of a crash. The switch should normally be left in the ARM position.

(4) Manual operation from the remote switch panel

The remote switch panel has a two position rocker switch, annotated ARM and ON, and an indicator light. When the switch is set to ON the ELT is turned on. When set to ARM the ELT will operate automatically in the event of a crash. The switch should be left in the ARM position. When the ELT is transmitting the indicator light will flash (providing the wiring is not damaged in a crash).

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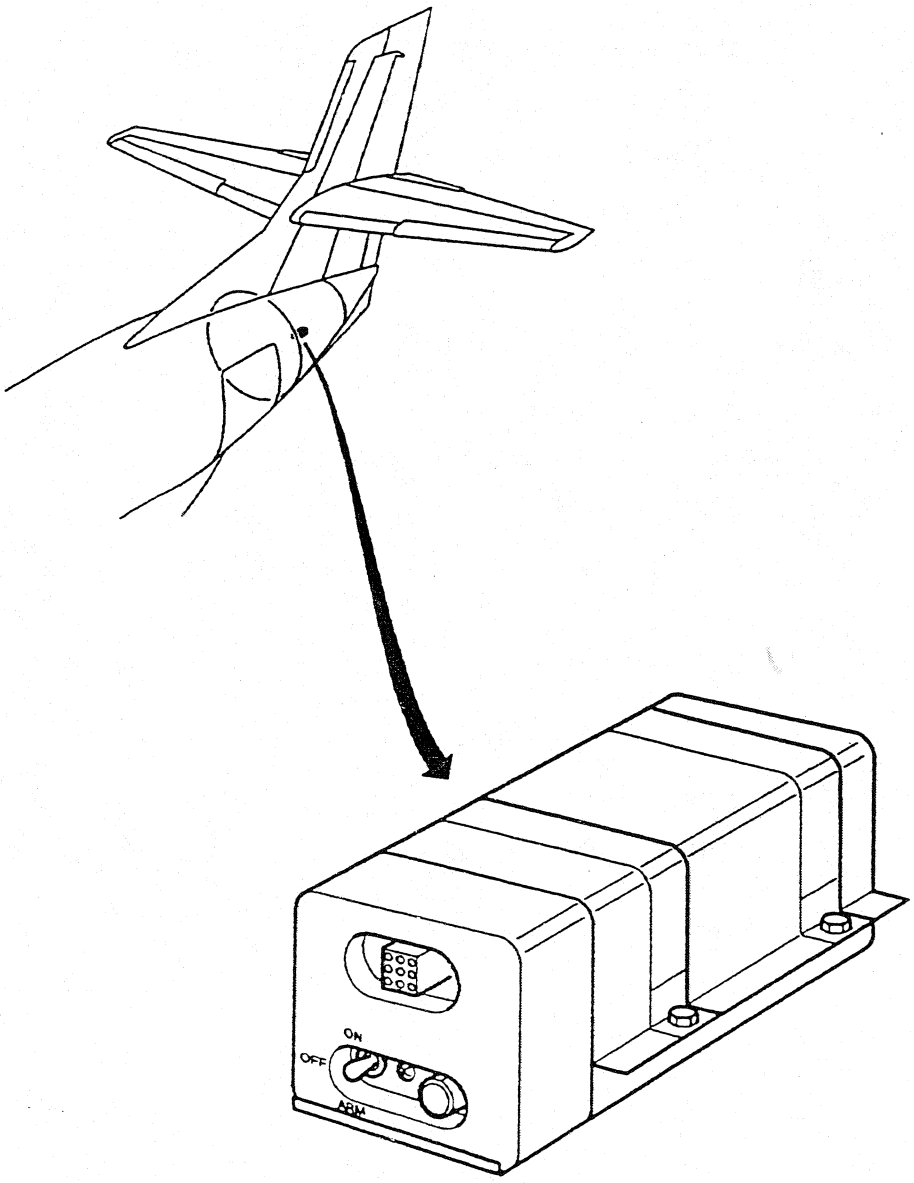


EMERGENCY LOCATOR TRANSMITTER

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