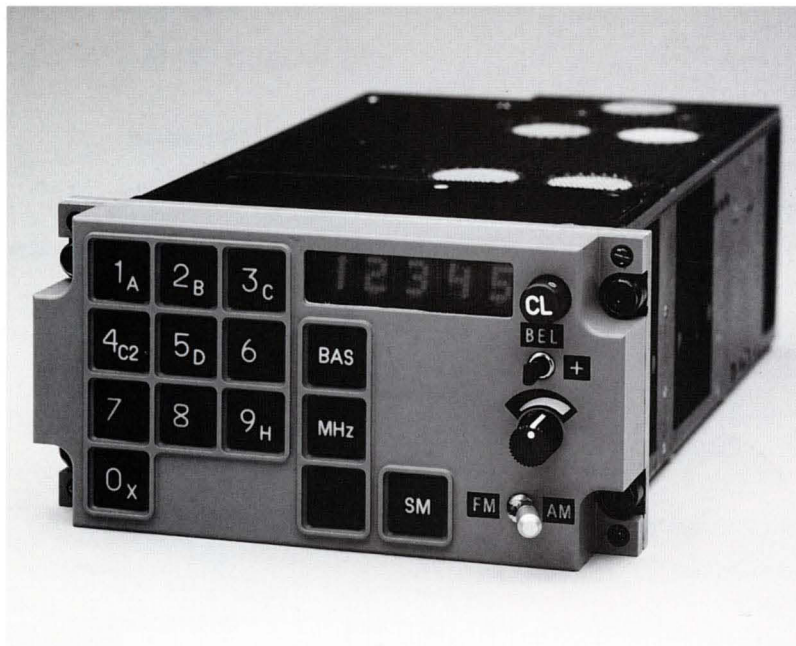


*ESD4600*

- *Frequency range:*  
104-161.975 MHz  
223-407.975 MHz

- *AM and FM on all frequencies*

- *500 preset channels*

- *Speech and data communications*

- *Small size and low weight*

- *Single or dual control operation*

**The ESD4600 is a lightweight combined VHF/UHF military airborne transmitter receiver designed to provide high reliability air-to-air and air-to-ground communications under severe electrical and environmental conditions. It is suitable for use in all types of helicopter and fixed-wing aircraft and may also be used in small ships and ground vehicles.**

The frequency range of the ESD4600 has been extended in the VHF band to cover the civil marine radio-telephone band of 156 to 161.975MHz and in the UHF band from 223 to 224.975MHz and from 400 to 407.975 MHz. This extension of the UHF band gives complete coverage of the mobile aeronautical radio navigation and radio location services, and the meteorological and space services which include the SARSAT distress frequency of 406MHz.

The standard version of the radio is designed to be panel mounted in the cockpit using DZUS fasteners. For installations where severe mechanical stress may be experienced, a support can be used to steady the rear of the radio. No forced air cooling is required, provided the duty cycle is not exceeded, however the installation should be such that air ventilation is supplied. Alternatively the radio installation can be configured into a separate control unit, housed in the cockpit, and a remote transmitter receiver controlled via a serial data link. For installations such as tandem seating trainer aircraft dual command facilities for the transmitter-receiver are available.

The ESD4600 contains a non-volatile store which provides a facility for storing 500 preset channels in the memory. A microprocessor controls the push-button front panel switch operation and the display indication.

Organisation of the preset channels can be changed by re-programming the microprocessor programme memory. The preset channels may be organised according to the customer's requirement, and are re-programmed by means of a fill gun which is attached to a connector located under the front panel.

A comprehensive built-in test facility is incorporated in the radio and is activated by pressing the Ox button whilst in the preset mode. The facility will check the functional performance of the transmitter, receiver, synthesiser, audio memory circuits, internal data links, power supply voltages, and control panel functions.

## General

### Frequency range

104.000 to 161.975 MHz  
223.000 to 407.975 MHz

### Channel separation

25KHz

### No of channels

2320 on VHF                      7400 on UHF

### Power supply

+27.5V d.c.

### M.T.B.F

1500 hours (estimated)

### Size

146 mm wide x 76 mm high x 230 mm depth  
(excluding panel, knobs and switches)

### Weight

3.5Kg

### Transmit/receive switch time

<10 ms

### Channel change time

<1.5 ms

### Operating temperature

-40°C to + 70°C

## Transmitter

### Power output

10W A.M.                      15W F.M.

### Frequency accuracy

Better than  $\pm 5$ p.p.m. including one year  
ageing within temperature range.

### Distortion

Less than 10% at 80% mod A.M.,  
 $\pm 8$ kHz deviation F.M.

# GEC-Marconi

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## Antenna spurious emission

Attenuated                      more than 70dB  
Harmonics                      more than 60dB

## Duty cycle

1 min Tx                      5 min Rx

## Receiver

### Sensitivity

3 $\mu$ V for 16dB S+ N/N                      3 $\mu$ V for 10dB S+N/N  
 $\pm 3$ kHz FM                      30% AM.

### Selectivity

#### Speech

-6dB >  $\pm 8$ kHz                      -60dB <  $\pm 25$ kHz

#### Data

-6dB >  $\pm 15$ kHz                      -60dB <  $\pm 35$ kHz

### IF rejection

Better than 100dB

### Spurious rejection

#### Inband

Better than 70dB

#### Outband

Better than 90dB

### AGC response

Input change of + 110dB from 3 $\mu$ V does  
not change audio output more than  $\pm 4$ dB.

### Audio output

8V across 600W.

### Audio response

-3dB relative to 1 kHz

### Speech

300-3500 Hz

### Data

AM - 300-6500 Hz                      FM - 35-6500 Hz

## ESD4600

## Airborne VHF/UHF Radio

ESD Publication No. ESD/061.08.96

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