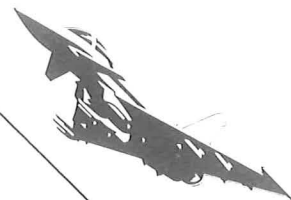


Flight Automation Research Laboratory

AIRSHIP OPTICALLY SIGNALLED FLIGHT CONTROL SYSTEM



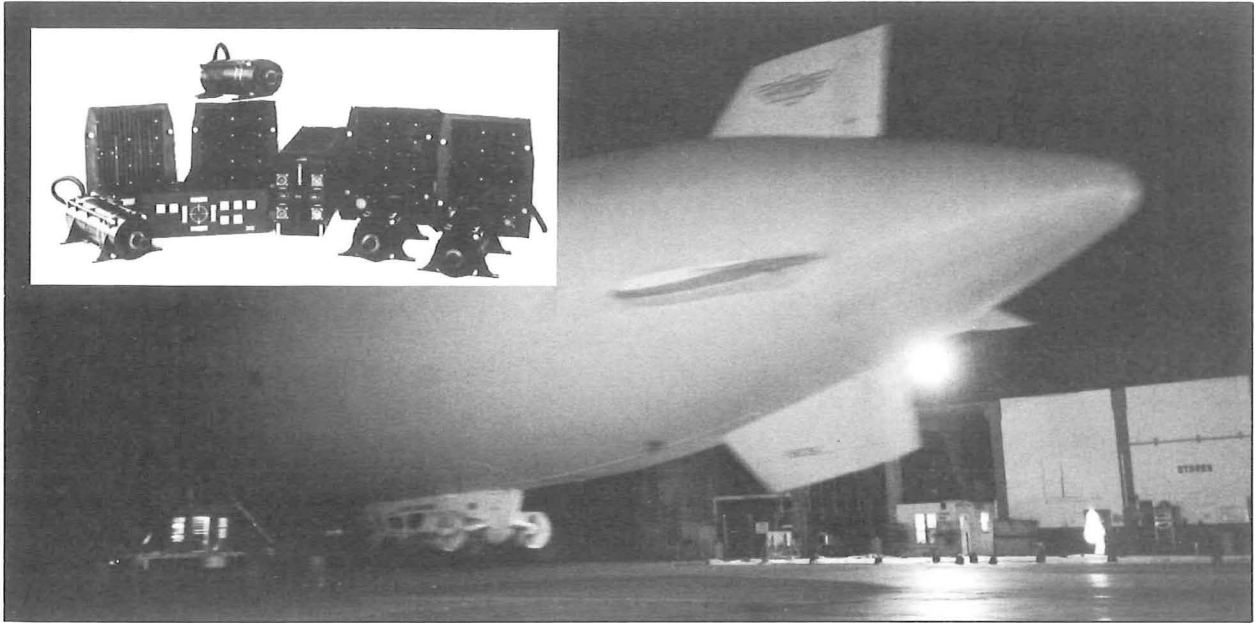
The world's first full authority optically signalled flight control system was successfully flown in October 1988. An Airship Industries Skyship 600 underwent a series of test flights with a refitted version of the equipment built some years ago at FARL but regrettably never flown. The equipment performed well, "transforming the airships' controllability" according to Roger Munk, Airship Industries Technical Director.

The first set of flights in October proved the reliability of the system and allowed pilot familiarisation with the original stick (fitted with a set of triplex pickoff potentiometers) before changing to a force stick (designed by AI) for flights later in 1988.

The equipment was refitted at FARL, under a contract for the Flight Controls Division whose QA department monitored the work. The installation and testing took place at Airship Industries base in North Carolina, USA and involved personnel from FARL, FCD and Airship Industries.

The project was initiated as a proof of concept demonstrator for an airship system incorporating an airborne surveillance radar. As fibre optic technology has progressed in the years since the original design it was appropriate that these elements of the system were updated to more fully represent the components which might be flown on production systems.

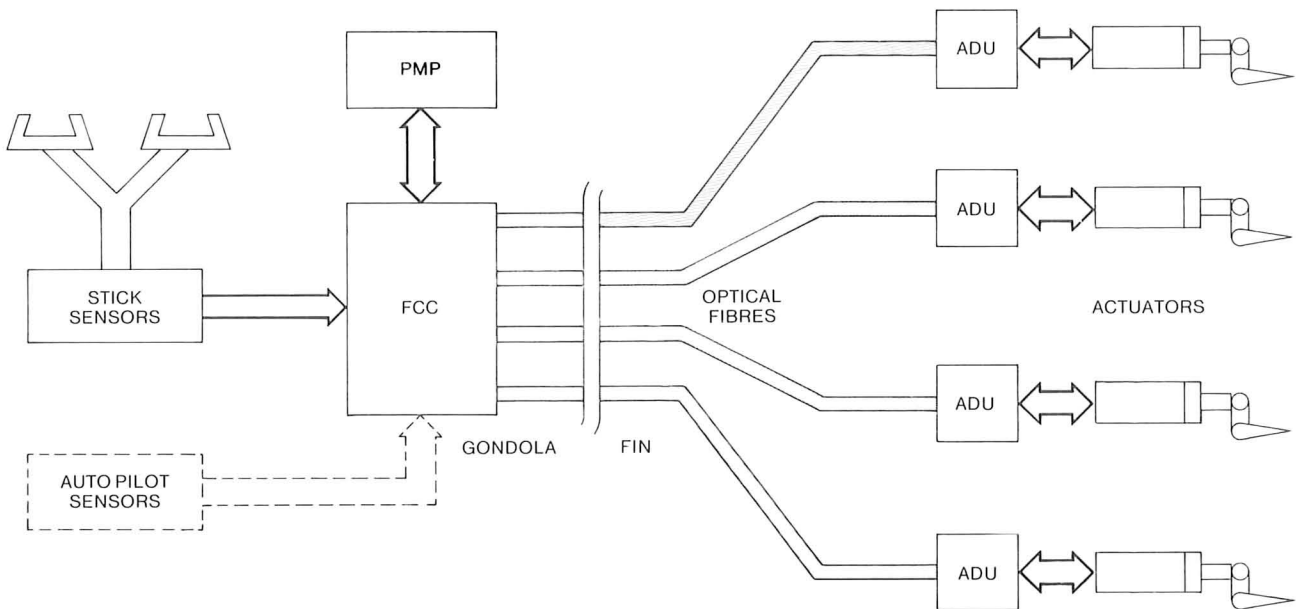
Both time and cost factors prevented a full refitting of optical components. As a compromise, the most vulnerable elements of the system were updated. These were the fibre optic cabling and the connectors. These were chosen to be as near to anticipated military standards as was possible. A 200 micron core all-silica fibre was used, packaged in a single protective jacket. This design was chosen to allow for easy replacement of cable runs. The connector was a type 38999 with size 16 pins and a backshell designed specifically for fibre optics. The connector change on the units also meant that the fibre optic pigtailed on the transmitter and receivers inside the units had to be changed.



It is interesting to note that the equipment is now over five years old and has been operated for many hours in laboratory and hangar environments as well as actual flight hours. During this time there has been no significant degradation in performance of the active optical components. Any problems

which have occurred within the optical system have been in the fibre optic connectors.

The figure above shows the roll out of the airship, and inset, the units that were fitted. The system is shown in the diagram below.



This document and any information contained therein are the confidential and copyright property of GEC Avionics Limited and without infringement neither the whole nor any extract may be disclosed, loaned, copied or used for manufacturing or other purposes whatsoever without their prior written consent, and no liability is accepted for loss or damage from any cause whatsoever from the use of this document.

This document gives only a general description of the products and shall not form part of any contract. From time to time changes may be made in the products or in the conditions of supply.

GEC AVIONICS

GEC Avionics Limited
Flight Automation Research Laboratory
 Airport Works Rochester Kent England
 Telephone: Medway (0634) 44433
 Telex: 965884
 Facsimile: (0634) 813652

