

### New 11/14GHz Earth Terminal for British Post Office

Marconi Communication Systems formally handed over the new Goonhilly 4 earth terminal to the Post Office last September.

Designed for use with the next generation of communications satellites operating in the 11/14GHz frequency bands the new terminal was built as a joint-venture project with the Department of Industry, the Post Office and Marconi Communication Systems.

Virtually all of the equipment is of Marconi design and manufacture. This includes a 19-metre diameter antenna with a four reflector beam for frequency re-use, 2kW power amplifiers, up and down converters and high speed (120Mbit/s) digital modems.

Goonhilly 4 has involved Marconi in a comprehensive development programme, the outcome of which is that the Company can now offer complete satellite communication terminal systems in the 11/14GHz band for Intelsat V and for ECS systems.

Goonhilly 4 will be initially used with Europe's Orbital Test Satellite, OTS2, (forerunner to the European Communications Satellite, ECS) which was launched on 11th May 1978 to prove the technology for digital satellite communications in the 11/14GHz frequency bands. The results of the OTS test programme will be particularly relevant to the 1980's when 11/14GHz operations will be used for the European and other regional satellite communication systems and for international services via Intelsat V.

Marconi Communication Systems is also supplying a series of small 3-metre diameter 11/14GHz stations for participation in the OTS orbital test programme.

amplifiers, are being supplied for dual diversity working. A 9-metre diameter antenna system will be used on shore, with six metre on the platform.

Line-of-sight equipment, working in the 1.7-1.9GHz frequency band, will be used for the 16km radio link between Fateh Main and Fateh S.W. All equipment is duplicated and 1.8 metre diameter antennas will be installed.

The troposcatter equipment is designed for 48-channel working but will be initially equipped for 12, and the line-of-sight is equipped for 6 channels with expansion provision for 24. Full multiplex speech equipment is being provided for the working channels. All installation materials, maintenance test equipment and spares are being supplied and the equipment was shipped at the end of last



Goonhilly - The highly efficient cassegrain antenna with 19 metre reflector

Agency's flux measurement and ranging terminal at Villafranca, and 2Mbits data terminals for inter-computer tests between the Rutherford High Energy Laboratory, CERN, ESRIN and ESTEC establishments.

Marconi Communication Systems has a long record of achievement in the technology and construction of communication satellite earth terminals. For the Post Office, the Company designed, equipped and commissioned the 30 and 32-metre 4/6GHz Intelsat stations, Goonhilly 2 and 3, and the new large Intelsat station in Madley described in this issue. For Cable and Wireless, it has built 30-metre stations in Bahrain, Hong Kong (2), Kenya, Jamaica, Trinidad, Barbados and the Apollo station on Ascension Island.

It remains the only British company to have supplied complete civil communica-

### £ Million Troposcatter link for the Gulf

Marconi Communication Systems is to supply troposcatter link and line-of-sight radio equipment to the Dubai National Gas Co. Ltd. The contract, valued at around £525,000 is for equipment that will be used to establish and maintain communications from the mainland to platforms in the Gulf.

The tropospheric scatter equipment is to be used to link the Jebel Ali gas plant to the Fateh Main compression platform—a distance of some 103km. Dual drive transmitters Type H3212 with dual 50W amplifiers, working in the 1.7-2.3GHz frequency band and H3412 receivers



The Friday Mosque in Manama, capital of Bahrain  
Photo-John Topham Picture Library

year. Marconi has had extensive experience in the design and installation of troposcatter equipment for the oil and gas industry. To date all the troposcatter communications equipment used in the North Sea complex has been supplied and installed by the Company. In the Gulf area Marconi links are already established between Abu Dhabi and Das Island, Bahrain and Doha.

## Major Mobile Radio Order

The largest ever single order placed in the UK for mobile radio equipment has been received from Air Call Limited by Marconi Mobile Radio, a Division of Marconi Communication Systems.

Valued at nearly £1.4 million, the contract is for the supply of the recently introduced RC680 a.m. mobile radio and for new control systems for the expansion of facilities at 21 Air Call control centres.

Delivery of the new equipment, over a 6-12 month period, is scheduled to start this year and is to meet the increasing demand for Air Call's 24-hour, nationwide car telephone service and its new 'Interconnect' service.

The RC680 is a simple-to-operate twelve channel a.m. 6-watt mobile which was featured in our last issue.

The new control centre equipment will

improve operator efficiency as well as increase handling capacity, and has been specially designed for both normal message handling and the new 'Interconnect' system, whereby mobiles can be 'patched' into the public telephone network.

The equipment is modular and will enable control rooms to be expanded with the minimum of disruption. Designed to be compatible with existing operational procedures, the new system includes facilities for storage and display of five-digit calling codes from the RC680 mobiles. This facility obviates the need for mobiles to call in using voice transmission—the 'call' button on the mobile initiates automatic transmission of the mobile identity to the control centre. The operators have visual indication of calls waiting and can establish contact with the mobile by selcall or voice. This improves the channel

occupancy by reducing the time required to establish contact.

All data processing and system control is achieved by using the latest microprocessor techniques and operating on a distributed control basis.

The equipment also has receiver voting which allows up to five base stations to be connected to a radio circuit, the equipment automatically selecting the station with best signal, resulting in improved area coverage—an important factor when mobiles are linked to the public telephone network.

Although designed to interface with specially designed control panels, it is possible for the complete radio control system to be linked to an overall computer control system (including message storage facilities and radio control via video display units) should further expansion of the Air Call network be required.



A compact installation, the RC680 in a vehicle

### More troposcatter equipment for the North Sea Oilfields

Marconi Communication Systems is to supply troposcatter and line-of-sight communications equipment to Shell UK Exploration and Production for a new platform to be built on the Fulmar field.

The contract valued at nearly £700,000 is for equipment that will provide communications from the new platform back to the British Post Office terminal at Mormond Hill, Scotland, via a 2GHz troposcatter link of some 282km, and emergency v.h.f. and u.h.f. radiotelephone links to the Ekofisk platform, a

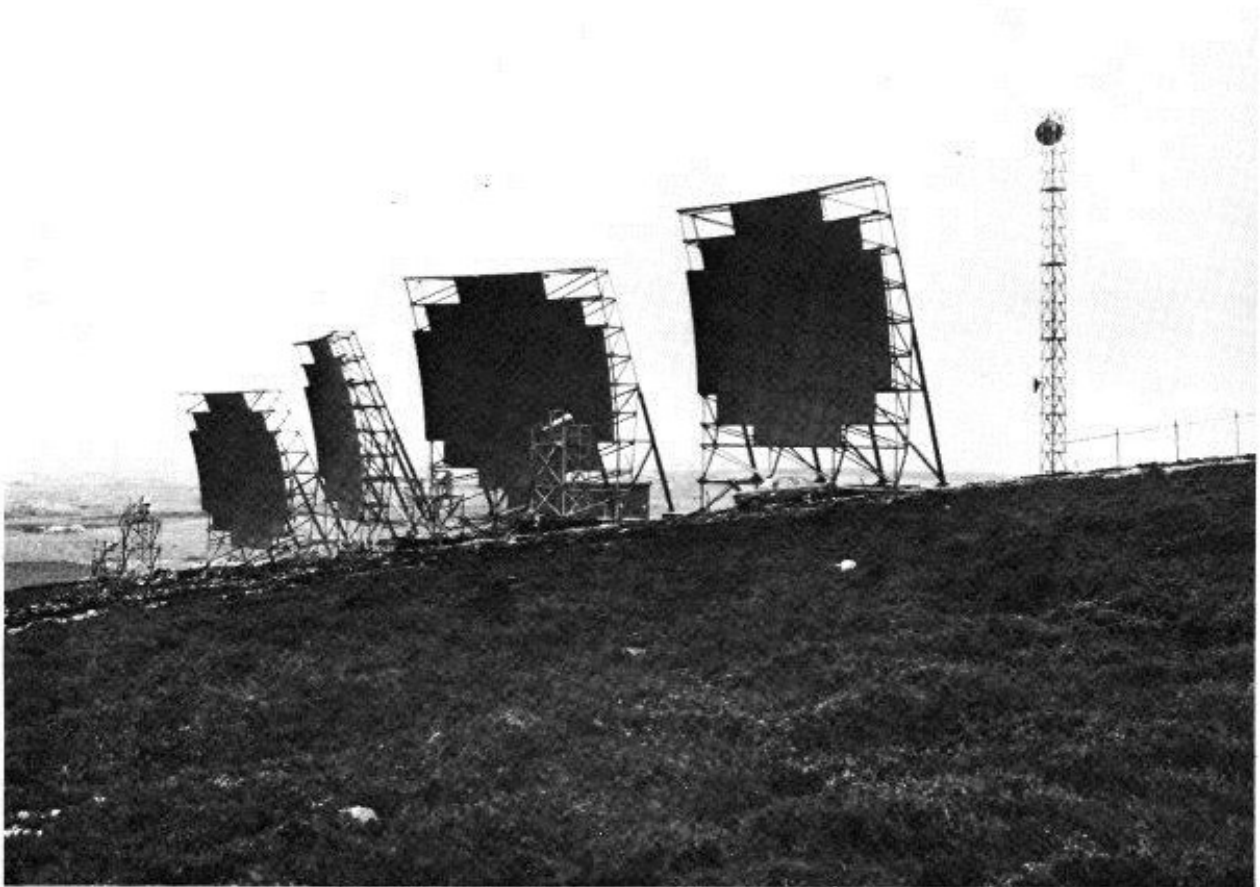
distance of 65km, and to a Single Anchor Leg Mooring (SALM) situated 2km from the platform.

At the SALM, a storage tanker will be permanently moored and crude oil will be transferred from this storage tanker to export tankers, which will shuttle to and from the mainland. To cater for changes in the wind and tidal conditions the storage tanker will be free to rotate through 360°, thus making a normal line-of-sight link impossible. The equipment being supplied will consist of a 1.5GHz transmitter/receiver together with a Yagi antenna on the platform and an omnidirectional antenna on the tanker with radio equipment mounted in the wheelhouse.

The equipment for the quadruple diversity troposcatter link which is due for delivery by the end of this year will consist of two H3712 Transmitters, four H3412 Receivers and two H3212 Drives working through 30ft dishes.

All the tropospheric scatter equipment so far installed in the North Sea Oilfields has been supplied by Marconi Communication Systems Limited.

In addition, the Company have received a £750,000 order from the British Post Office for increasing the facilities at the shore end of the link at Mormond Hill. This will enable the Fulmar platform to dial direct to 400 million telephones in 85 countries and to some 800,000 telex users throughout the world.



*The Post Office tropo terminal at Mormond Hill*

## Marconi introduces new Radiophone

New from Marconi Mobile Radio is the only Post Office approved radiophone which doubles as a portable. Marconi Mobile Radio is now an approved supplier of equipment to the Post Office Radiophone Service and the new 'go-anywhere' telephone, the SV 1320A, opens up new uses for the service.

New equipment is designed to fit in the corner of a car boot with the control unit and handset installed easy-to-hand for the driver or passenger when the vehicle is on the move. By removing the control unit and the radio unit from the vehicle—a very simple operation taking less than a minute—the equipment becomes completely portable and is ready for use by the swimming pool, on the golf course, in the garden or on the beach.

With a battery or charger unit, a hitherto completely impossible use for a telephone is now available. The equipment can be used as a temporary telephone on a major construction site until lines are installed; carried across fields to a temporary remote site. Any person required to be in immediate touch with the office can have the telephone with him or her wherever they may be, and the system is completely secure.

The equipment works on 12 volts and is fitted with rechargeable batteries for use away from the vehicle. In normal operat-



*A 55-channel Marconi SV 1320A radiophone*

ing conditions the batteries will last all day without recharging and, for use away from a vehicle for a long period of time, a desk-top charger is available. The SV 1320A is especially designed and manufactured for Marconi by OY Nokia

AB Electronics, Finland, and is marketed exclusively in the UK by Marconi Mobile Radio.

It is available in a nine channel or 55 channel version, to meet the operating conditions of the area.



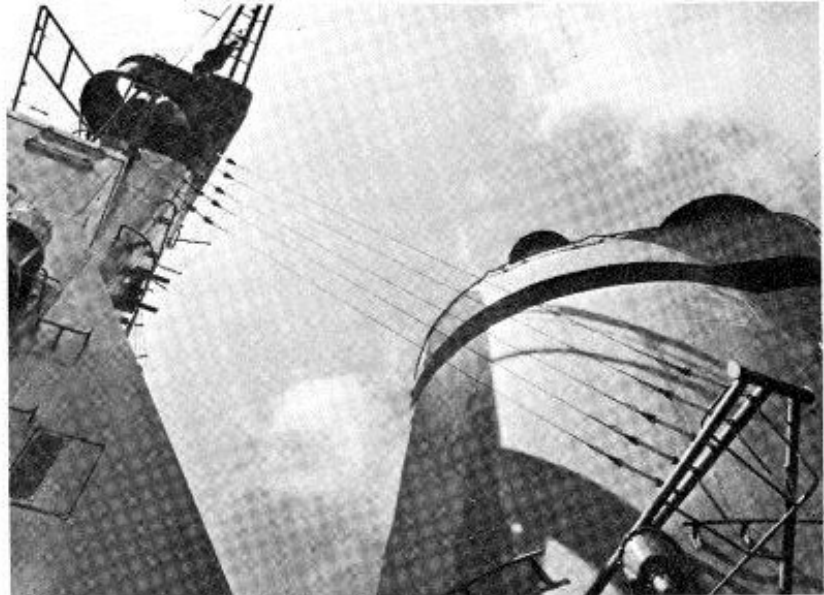
## A further naval contract for Marconi

The Royal Navy has placed a further order for communications equipment with Marconi Communication Systems for the Integrated Communications System Stage 3 (ICS3).

The order is for the provision of transmitting and receiving equipment for a further 20 ships of the Royal Navy, and brings up to some £40 million the Royal Navy's investment so far with GEC-Marconi Electronics in ICS3.

The new order is for equipment to be installed in the third 'Invincible' Class Anti-Submarine Cruiser, Type 22 and 42 frigates and other Fleet units, over the period 1981-84. ICS3 is currently being fitted in the first two 'Invincible' Class Cruisers, Type 22 and modernized 'Leander' Class frigates.

Similar equipment is also being installed in 12 'Kortenaer' Class frigates of the Royal Netherlands Navy, two of which are already in service. When completed, it will mean that two NATO navies will have similar communications systems, allowing for standardization of operational and logistic support.



A further naval contract for Marconi  
The ICS3 system features an advanced antenna system partially shown here

ICS3, which has also been bought by other navies, provides voice, telegraphy and data-communications capabilities covering ship-to-ship, ship-to-shore and

ship-to-air services and interfaces with v.h.f., u.h.f. and SATCOMS circuits as well as the internal communication systems.

## Marconi Export Orders for Television Cameras

Three television cameras from the Mark IX family have been ordered for use in South Korea.

The order, received through Kim Oh and Company of Seoul, is for three studio cameras for use at the Busan Munwha T.V. Broadcasting Corporation and is the first order ever received by Marconi for television cameras for use in Korea.

Programmes at the present time are in black and white but it is expected that colour will be introduced early next year and a Government announcement is expected shortly, and MBC, an independent commercial contractor with a number of regional stations, is preparing for the new programmes. There is a small amount of colour production and this is taped for use for expatriots and for general information for use by television contractors in other countries.

Australia Television station Ten-10 is again ordering cameras from Marconi Communication Systems. This time the order is for five cameras from the Mark IX family.

This commercial television station has been using equipment designed and produced by Marconi ever since its inception in 1965 when United Telecasters were granted a licence to operate in Sydney the call sign Ten-10. The original station was planned by Amalgamated Wireless (Australasia) Ltd and Marconi in close collaboration with Ten-10, and the centre was equipped with Mark IV monochrome cameras. Ten years later, when the Australian Government authorized the transmission of colour on March 1st 1975, the station was

ready to go 'on-the-air', this time with Marconi Mark VIII colour cameras. At the same time a Marconi four-camera outside broadcast vehicle was purchased to cater for the increase in this type of programme.

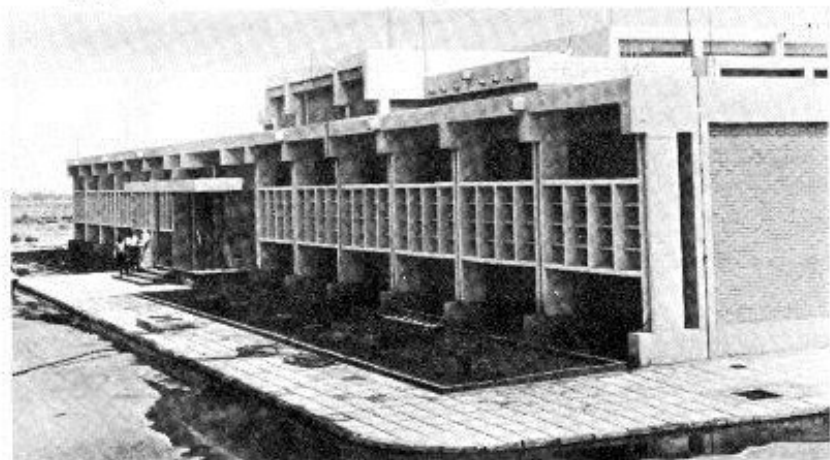
The present order for Mark IX cameras will continue this long association with Ten-10 where Marconi equipment has been used so successfully for many years.

## Kuwait orders yet another Marconi transmitter

Under a contract valued at nearly £2 million, Marconi Communications Systems is to supply and install a 750kW broadcast transmitter to the Kuwait Broadcasting and Television Service at the Sulabaiya centre. The new transmitter will form part of a powerful and highly sophisticated network and

will make Sulabaiya one of the largest m.f. broadcast stations in the world. The contract, which was negotiated with the Kuwait Ministry of Information through Messrs. Sabah Trading and Contracting Company Limited, also provides for any necessary up-dating of the three Marconi 750kW transmitters currently in use.

The B6062 transmitter to be supplied will be operating on a frequency of 1134kHz and will be paralleled with a currently operational Marconi transmitter on the same frequency to give a total output of 1.5MW. The Sulabaiya station also operates a second paired-transmitter broadcast system on 540kHz which provides a similar 1.5MW output power. As well as ensuring that the Kuwait broadcast system is one of the most powerful in the world, this latest order strengthens Marconi's dominant position in this field in the Gulf area.



The transmitter building in Kuwait