

Big Saudi Arabian order for Eddystone Radio

In the face of fierce international competition, Eddystone Radio Limited, has won an order to supply 300 of its high-grade general-purpose radio receivers for use in Saudi Arabia. Worth nearly £300,000 this is Eddystone Radio's largest ever single order for this receiver – the Type 1830/1 – and represents more than one receiver sold for every Eddystone employee.

Under the terms of a contract placed with Electronic Equipment Marketing Establishment, the 300 Eddystone receivers are to be supplied to the Saudi Arabian Posts, Telegraphs and Telecommunications Authority. These will be deployed throughout the country and used by the authority for general monitoring purposes.

Delivery of the first 50 equipments

started in May of this year and is continuing in batches of 50 over the following 12 months. A follow-up order for a further quantity of receivers is expected to be placed in the near future.

The Type 1830/1 receiver is part of Eddystone's range of medium-cost high-grade equipments for general-purpose applications in the 120kHz to 31MHz band. It is also approved by the Posts and Telecommunications Division of the United Kingdom Department of Industry as a reserve receiver providing c.w., m.c.w. and a.m. reception facilities for maritime installation. Standard features include ten-channel crystal facility, incremental tuning ($\pm 50\text{kHz}$) and provision for synthesized operation. Variants are available with special facilities for s.s.b.,

modified coverage and 50-channel crystal capability.



'The road from Jeddah to Riyadh in the Al Hoda Mountains'

Communications equipment for the South Pacific

Communications and Broadcasting - Spring 1976

The Government of Western Samoa has placed a contract with Marconi Communication Systems for the supply of two of the new type H5030 voice frequency telegraph (v.f.t) terminals. This follows recent orders for this type of equipment from Fiji and the British Solomon Islands. The new terminals will be used by the Western Samoan Post Office to augment their h.f. radio-telegraph service between Apia and Suva in Fiji, and their u.h.f. link between Apia and Pago Pago in American Samoa.

Voice frequency telegraph equipment plays an essential role in radio telecommunications, being the interface through which a radio terminal can be connected to a teleprinter or similar equipment. The Marconi type H5030 range, which was introduced last year to supersede the well-known and highly successful H5000 series, is a radically new equipment which uses digital integrated circuit techniques throughout, and is designed in accordance with CCIR recommendations.

Compact and completely modular in construction, the H5030 houses eight two-tone or 16 f.s.k. transmit and receive channels each in a 221mm high, 413mm wide rack-mounted shelf, including its integral power supply. Identical transmit and receive channel cards are plug-

ged into mother boards, channel frequency being determined by a coded plug on the latter. Thus, any channel card inserted in that position will automatically function on the selected frequency.

Attenuators are provided in the transmit equipment which maintains the correct modulation level automatically regardless of the number of channels in use.



A 'fajasi' (longboat) preparing for the Samoan Regatta. (Photo Bob Wright)

Marconi radio for NATO communications

New amplifier scores first hit

Marconi Communication Systems has received two important orders from the Ministry of Defence (Navy) for radio communications equipment for use in NATO communications in northern waters. The first of these is for supply of ten of the new type H1140 h.f amplifier which was featured in our last issue. This order, which is worth £400,000 and which has been funded by NATO, is the first to be received for this very advanced equipment.

The amplifiers will operate with Marconi drives in a five-pairs configuration. A logical development of the highly-successful Marconi Self-Tuning range, the H1140 is a fully automatic linear h.f amplifier, suitable for use by military or civil authorities. Its compact and rugged construction makes it equally suitable for fitting in standard transportable containers or for use in fixed stations.

A further order also funded by NATO and worth £200,000, calls for the supply of a range of low-frequency drive and amplifier equipments. These will be used by the Royal Navy to enhance NATO's long range communications capability in northern waters.

Both sets of equipments will be installed at the Crimond Naval Station, north of Aberdeen in Scotland.



North Sea tropo comes on line

A New Post Office radio network, using tropospheric scatter communications equipment supplied by Marconi Communication Systems was opened on 15 January. The new network will provide extremely reliable, high quality, world-wide telecommunications services for oil and gas production platforms in the North Sea.

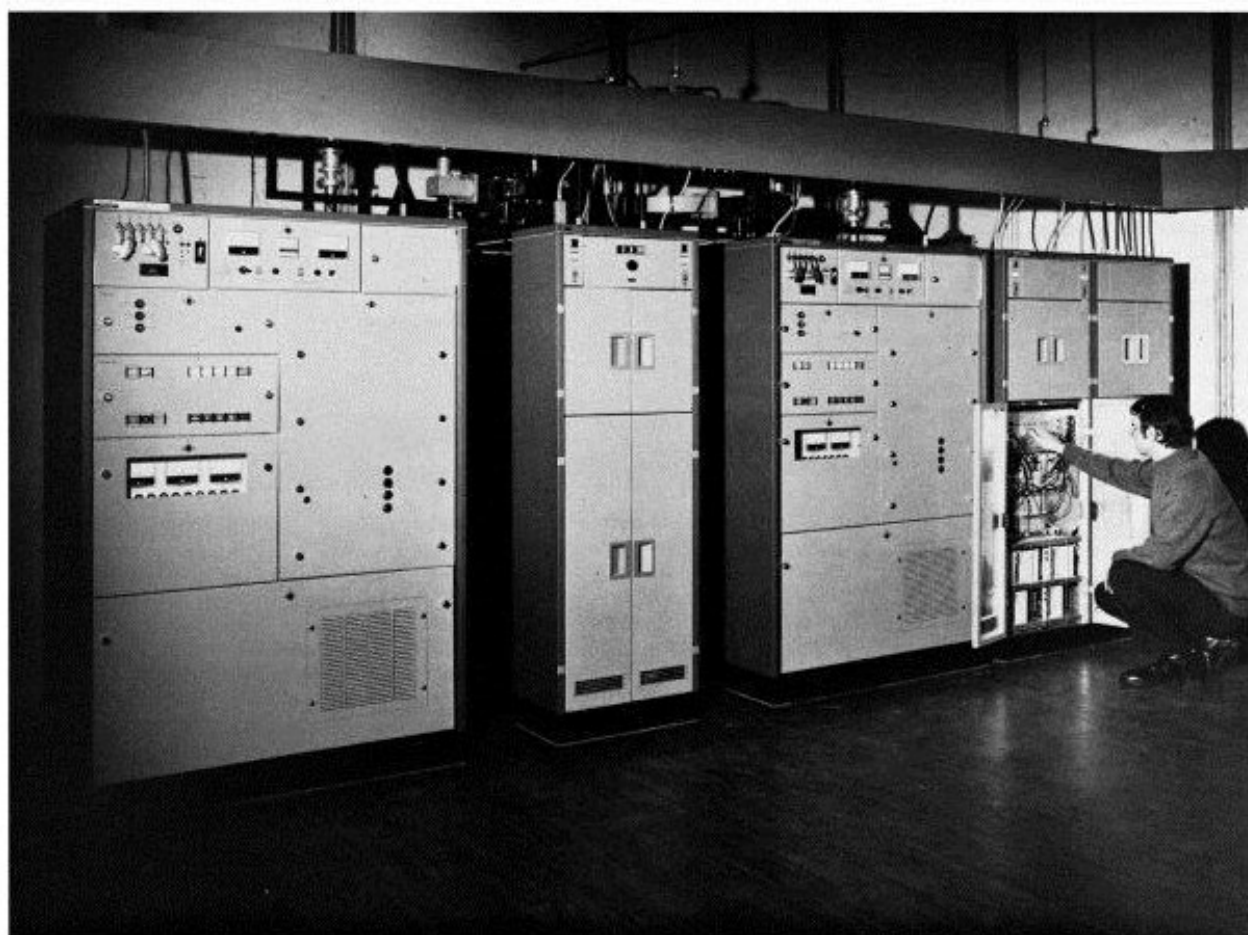
Sir Edward Fennessy, Deputy Post Office Chairman and Managing Director Telecommunications, inaugurated the service by making a three-way international conference call from the Post Office Tower in London. The call linked him with Mobil North Sea's Beryl platform, 100 miles east of the Shetlands – the first offshore installation to use the service – and Mobil's Headquarters in New York.

At the heart of the new network are two radio stations – one near Fraserburgh in North-East Scotland and the

other in South Shetland. These have been built and equipped from scratch in just over a year using Marconi tropospheric scatter antennas, transmitters, receivers and ancillary equipment. Mobil's Beryl platform which has also been equipped by Marconi, is linked to the radio station on South Shetland. From there the signals are relayed by a second tropo link to the Fraserburgh station, and thence into the national and international networks via a line-of-sight microwave-radio relay to Aberdeen.

As the production phase of the oil industry gathers pace, more and more platforms will be linked into the network. Indeed, studies by the Post Office into the likely requirements for tropospheric scatter links to oil and gas production platforms in the northern sector of the North Sea and to the north of Scotland envisage that up to 20 links

could be required in the area. To avoid the proliferation of individual systems for each offshore platform, the Post Office selected the two shore terminal sites from which it will be possible to serve almost the entire British sector of the North Sea in this area. Thus, the station on South Shetland will serve as the terminal for links planned for the Thistle, Cormorant, Ninian, Heather and Frigg Fields, as well as the Beryl Field, while that near Fraserburgh will be the shore end of links to the Frigg pipeline intermediate platforms and the Piper Field. This latter will soon be linked directly to its own first 'customer' – Occidental's Piper platform, also equipped by Marconi, 110 miles north-east of Aberdeen. Similarly Total's Marconi-equipped Frigg gas field platform and mid-pipeline pumping platform are also expected to be connected to the system this year.



Two important orders for mobile radio

The GEC Mobile Radio Division of Marconi Communication Systems has recently received two important orders for mobile radio systems both of which demonstrate the versatility of the Division's range of equipment.

In the first, London Transport is to equip 150 of its buses with GEC Mobile Radios highly successful RC625 'Messenger' f.m. radiotelephone, as part of the first phase of London Transport's plan to equip its entire fleet with radio.

London Transport, who already have a number of GEC Mobile radiotelephones in service in cars and lorries, will use the RC625 in the first place as a deterrent to violence and vandalism on its buses. Later, however, it expects to use the equipment for the transmission and reception of automatic 1200-baud data for computer assisted control of its bus fleet.

The 'Messenger' mobile is particularly suitable for use with passenger transport vehicles in heavily built-up areas, as its audio quality and mute operation allow the best possible communications in rapid-fade signal conditions.

The second order is for the supply of a substantial quantity of GEC Mobile Radio's new RC666 a.m. mobile radiotelephone to the Automobile Association, whose road patrols cover the country. The order was won on the strength of the overall suitability of the equipment and the excellent delivery time offered against an urgent requirement by the AA, who had already established from earlier trials that the Division's equipment fully met their particular requirements. The equipments will be used in vehicles belonging to its patrol force fleet.



More Marconi PCM for Abu Dhabi

Because of its dramatically expanding telephone traffic load, the Abu Dhabi Telegraph and Telephone Company has placed further orders with Marconi Communication Systems for the supply of pulse code modulation (PCM) equipment.

The new systems will be used to increase the circuit capacity of the existing telephone junction cable between Abu Dhabi's Central and South Exchanges. They will form the first extension of the Marconi PCM systems installed in that city in 1974.

The Abu Dhabi Telegraph and Tele-

phone Company, which is an associate of International Aeradio Limited, provides internal and external public telephone and telegraph services in the Emirate. The headquarters and main telephone exchange building are in Abu Dhabi town, with three other town exchanges and one in Al Ain. With other various minor exchanges, the company's total capacity is 10,000 lines, almost all of which are provided by electronic exchanges.

Marconi Communication Systems is the largest manufacturer of PCM systems in Europe, having sold some £18m

worth of equipment. It is the largest supplier to the British Post Office, but has also sold many systems both to overseas telephone authorities as well as other organizations with large communications systems, such as oil companies for pipeline operations, electric generation, railways, etc.

The Company offers both 24-channel and 30-channel systems, and backs its production with a wealth of long-term experience and one of the most modern manufacturing processes, ensuring an exceptionally cost-effective reliable and high-quality product.



Stage 2 of police communications study

The British Home Office Directorate of Telecommunications has awarded the Marconi Research Laboratories a £½m contract as part of Stage 2 of the Mobile Automatic Data Experiment (MADE).

The experiment became necessary because of the ever-increasing demands placed on police communications. Digital data transmission represents a more efficient means of sending information than speech and would allow the existing channels to carry about 40 times as much information as they do at present.

During MADE Stage 1, Marconi successfully developed and demonstrated experimental equipment for use in police-cars in co-operation with a study group consisting of representatives from West Mercia, West Midlands, Staffordshire and Warwickshire police forces and the Home Office. Stage 2 of the project will equip 56 vehicles of West Mercia and West Midlands police and the two control rooms, and will allow transmission of numeric codes, alpha-numeric messages and will permit semi-automatic vehicle location.

The manufacture and supply of equipment is to be carried out jointly by the Marconi Research Laboratories and GEC Mobile Radio Division of Marconi Communication Systems the latter providing wide and detailed expertise in mobile radio communication.

Each of the vehicles will be equipped with mobile radio and a special modem controller together with peripheral



MADE equipment experimentally fitted in a police vehicle

devices including alpha-numeric printer, alpha-numeric keyboard and display, a numeric code display and keyboard unit, and touch map unit. The force control rooms will be equipped with video data terminals with their asso-

ciated keyboards and a receive-only high-speed printer for presenting hard copy output of the message traffic. The whole system operation will be controlled by a small communications processor system.

£3m order for Marconi modems

Marconi Communication Systems has won an order worth more than £3m to supply 3000 Datel Modems No.7B to the British Post Office. This, one of the largest orders for modems No.7B ever placed in the United Kingdom, is the third major order received by Marconi and brings the total quantity to be supplied by the company to the Post Office to 6200.

Special manufacturing arrangements are being made to meet the Post Office's early delivery requirements which will start in the second quarter of 1976.

The Datel Modem No.7B, which complies with the respective CCITT recommendations, is used to provide the Post Office Datel 2400 service to a wide range of customers such as banks, insurance companies, industry, commercial enterprises, government departments and computer bureaux.

The Post Office Datel 2400 service enables users of computers and business machines to transmit data at 2400 bit/s between remote terminals and a central computer, or between data processors over leased telephone lines. Typical data includes accounting information, inventory control, payroll, seat reservations and any application requiring the fast transfer of large amounts of information between distant locations.

The Datel Modem No.7B works over private four-wire lines providing a synchronous transmission at 2400 bit/s in each direction simultaneously. As a



Datel Modem 7B

standard option the equipment incorporates a standby facility enabling data to be transmitted at rates of 600 or 1200 bit/s synchronously over the two-wire public switched telephone network in one direction at a time.

In operation the modems will accept serial binary digital data from terminal

equipment and convert this data to signals suitable for transmission over telephone speech band circuits. At the receiving end the analogue data transmission signals are converted by the modem into serial binary digital signals which are extended to the customer's data terminal equipment.

£1.5m sales of Marconi underwater communications systems for the Royal Navy

Under the terms of contracts worth a total of £1½m, Marconi Communication Systems is to provide revolutionary underwater telephone and telegraph systems for the submarines and ships of the Royal Navy. When these systems enter service the RN will boast, in terms of range and performance, a vastly improved communications capability in this difficult but vital environment. Moreover, when used in conjunction with the latest integrated radio communications system (ICS3), a complete communications facility from satellite to sonar is provided.

The new contracts, which were placed with the company by the Ministry of Defence Procurement Ex-

ecutive, cover the supply of underwater telephone systems and underwater telegraph systems, and the provision of maintenance and back-up services in both cases. This follows extensive sea trials and severe environmental testing of prototypes of the two equipments.

The underwater telephone was developed as part of a sponsored development programme by the Company in co-operation with the Admiralty Underwater Weapons Establishment. It provides much-improved performance and range of acoustic speech transmission between surface ship and submarine. It also offers a considerable degree of flexibility of installation, consisting as it does of a number of units which

can be arranged to form a variety of systems.

The underwater telegraph was developed at the same time as the underwater telephone and was similarly sponsored by the Admiralty Underwater Weapons Establishment.

This equipment provides an optional facility for use with the underwater telephone. It offers low error rate telegraph transmission under poor propagation conditions and under dynamic operational conditions where doppler shift presents real problems in data transmission. The equipment employs telegraph error detecting and correcting techniques adapted for sonar propagation conditions.



A submarine of the Royal Navy

£4.5 million communication system for Oman

Marconi Communication Systems has received an order from the British Aircraft Corporation, worth some £4½m for the supply of equipment, as part of BAC's multi-million pound order from the Sultanate of Oman, for a massive air defence network for the country.

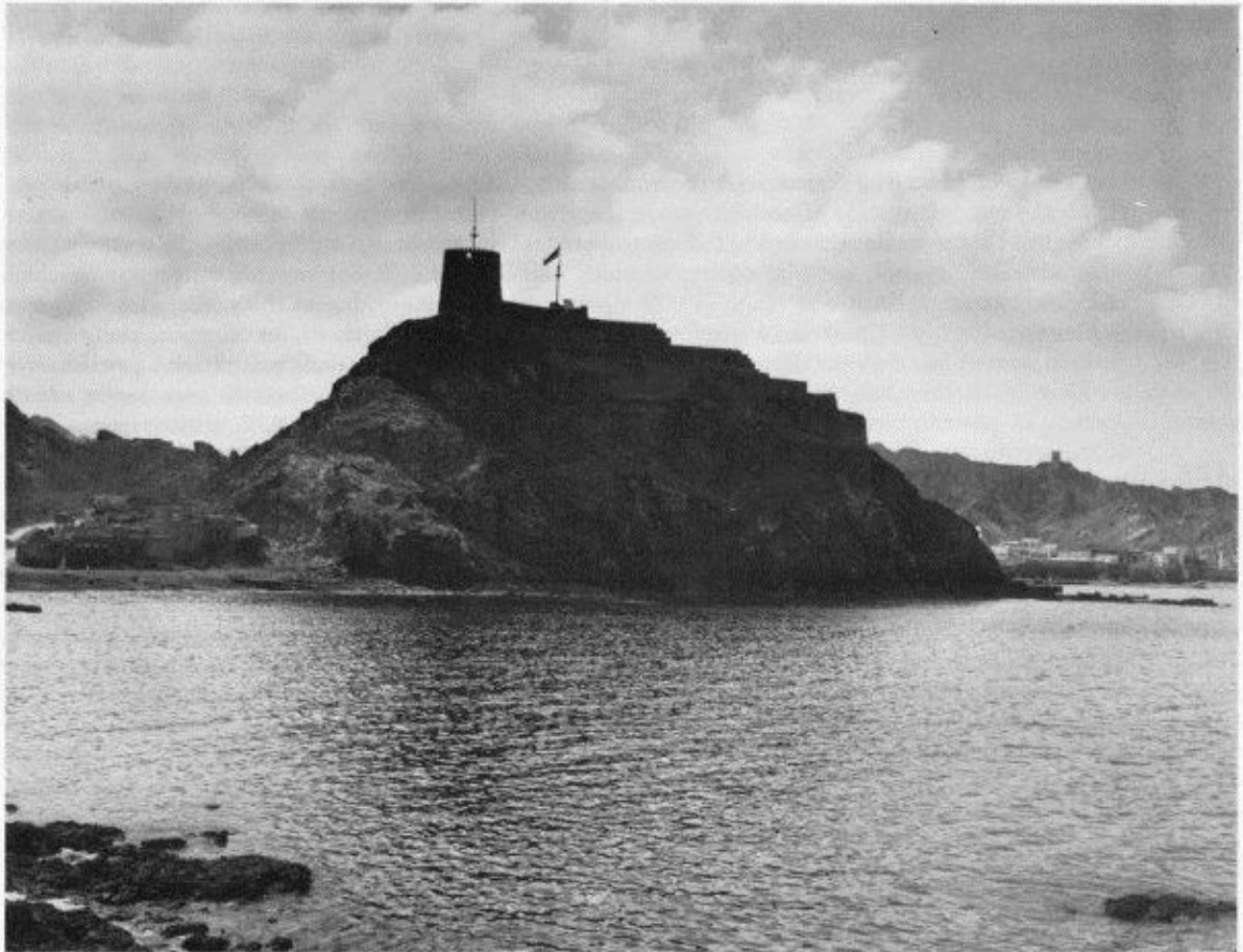
The Company's part in the contract involves the supply of communications network consisting of a 'backbone' tropospheric scatter link running the whole length of the country, with short-haul line-of-sight u.h.f links at the

northern and southern ends. The network, which will interface with Oman's existing air defence communication systems, will provide high-grade communications facilities throughout the country. It will be used to pass processed data from radar sites and section operations centre.

The Sultanate of Oman extends in a narrowing strip of some 1000km along the north-eastern corner of the Arabian Peninsula. Though there are fertile areas in the north and south, large

tracks of desert occupy the middle of the country. Reliable communications, therefore, are of paramount importance in its defence system. Tropospheric scatter provides the ideal means of conveying vital strategic and tactical information in this difficult terrain.

The tropospheric scatter system to be supplied is from Marconi's standard range, which is in use in exacting environments in many parts of the world in both civil and military roles.



Muttrah Fort, Oman

Two big tropo orders

Two new big orders for tropospheric scatter systems exemplify the special advantages of this form of communications.

In the first Marconi Communication Systems has won a contract to provide tropo equipment worth £2m to the Libyan state oil corporation, the Arabian Gulf Exploration Company (AGECO).

The equipment, which is the first of its kind to be supplied by Marconi for an overland oil operation, will be used to expand an existing Marconi h.f radio network which links the coastal cities of Benghazi and Tobruk with the important Sarir oil field located in the Libyan Desert. Benghazi is the site of AGECO's headquarters and Sarir is the

source of a pipeline which runs north to Tobruk.

The new tropo system will span a distance of 520km between Sarir and a hill-top station outside Benghazi. From this station a line-of-sight radio relay will cover the remaining 30km to the Benghazi headquarters. In this way AGECO will boast a comprehensive and extremely reliable communications link between its headquarters and oil field, while the existing Marconi h.f system will continue to provide communication facilities along the Sarir-Tobruk pipeline.

A team of specialized survey and systems engineers have already, as part of the contract, visited the new radio

station sites to establish planning data required for the urgent progress of the project.

Delivery of all new equipment will be complete by mid-1977.

Another contract has been awarded to the Company which is worth £300,000. This was placed by Chevron Petroleum (UK) Limited. It calls for equipment to establish a tropo link between a production platform in the Ninian field and the Marconi-supplied Post Office terminal at Scousburgh on South Shetland, a distance of some 115 miles. Installation is scheduled for completion by the end of 1976 and the link will be in operation shortly thereafter.



Benghazi, Libya

A new high for Marconi radio

A radio station in one of the world's highest capital cities - Kabul in Afghanistan - is to be extended and modernized with nearly £350,000 worth of Marconi equipment.

Under the terms of a contract placed by the Afghanistan Ministry of Communications, Marconi Communication Systems is to supply and install a full complement of radio equipment for the station. The equipment, which includes three transmitters, four receivers, antenna exchange and Lincompex equipment and a range of associated ancillaries, will be used to expand and update Afghanistan's external telecommunications service. Delivery of the new equipment is scheduled for completion before the end of this year.

Radio equipment operating in Kabul, which stands some 5895ft above sea level and has a climate characterized by extremes of temperature, must needs provide high performance under adverse conditions. The new installation will be centred around Marconi h.f transmitters (which are based on the Type H1133 amplifier and Type H1602 synthesized drive) and Marconi



'The summer Palace, Kabul'

Hydrus h.f receivers. Lincompex equipment and a range of associated ancillaries will be used to expand and up-date Afghanistan's external telecommunications service. Delivery of the new equipment is scheduled for completion before the end of this year.

Lincompex equipment has been included to preserve maximum clarity of speech under poor signal-to-noise conditions, and the antenna exchange equipment enables particular transmitters to be connected to particular antennas.

Largest naval communications export contract

The United Kingdom's largest single export order for naval communications equipment - worth more than £8m - has been won by Marconi Communication Systems.

Under the terms of the contract, Marconi is to play the leading role in meeting the communications requirements of the next generation of Dutch warships. The selection of Marconi follows a careful study by the Royal Netherlands Navy of the equipment and systems offered by a number of companies.

Under the contract Marconi is to supply sophisticated and comprehensive transmitting, receiving and tele-type sub-systems, including control and supervisory facilities, for the first eight of the Royal Netherlands Navy's new 'S' class frigates. In addition, Marconi will have responsibilities in relation to the integration of the frigates' external communications systems with Philips Video and Audio Systems' internal communications system.

Marconi's system responsibility includes the provision of installation drawings, diagnostic maintenance documentation and training. The Company



'A model of the Royal Netherlands Navy's 'S' Class frigate'

will also assist the RNLN with installation, setting to work, tests and trials.

The 'S' class frigates, the first of which is scheduled for sea trials during 1978, will eventually replace the existing 'Friesland' and 'Holland' class destroyers.

The equipment to be supplied by Marconi uses techniques and much of the hardware evolved in the development of the Royal Navy's latest communication system, ICS3 which was

described in an article by R. L. J. Awcock in Vol.2, No.2. The overall system configuration in the present case has been changed in a number of ways to meet the specific requirements of the RNLN. The principal change is in the design of the transmitter sub-system which uses individual transmitters with automatically-tuned antennas rather than the 'power bank' amplifier and wideband antenna system used in ICS3.

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