



SHF FM 120-channel Radio Link Equipment

Type MH 140A

THIS equipment is primarily designed for military use. It is used for short haul wide-band systems carrying up to 120 telephone channels.

A number of special features, such as internal silvering of microwave components and spring-mounting of sensitive parts have been included to make it suitable for continuous operation in difficult conditions and in widely differing climates.

It is simple in design and repeaters consist of terminal equipments connected back-to-back. Access to all channels is therefore available at all stations. Automatic change-over switching is available if stand-by channels are to be employed.

Features

Highly-reliable transmitter of simple design, consisting of a single Klystron, directly modulated.

Centralized metering facilities simplify day-to-day checking of operation.

A party-line service telephone links all stations.

Remote control facilities included.

Single aerial used for both transmission and reception.

EQUIPMENT

A complete terminal equipment is housed in a single 5 ft rack. All sections are removable from the front, enabling the rack to be installed against a wall if required. Connections to units are made via plug-in glands. This considerably facilitates servicing. Standard waveguide is used to feed the aerial. The various sections are protected against ingress of moisture by rubber seals. Alternatively, the feeder system can be pressurized.

CIRCUITS

Signals for transmission are applied to the Klystron reflector and superimposed on the reflector's basic bias voltage, thereby frequency-modulating the carrier. The output is taken via a directional coupler. A small fraction of power is separately extracted and applied to a wavemeter and crystal detector, to indicate power output.

The aerial is fed via a ferrite circulator which is a one-way device enabling the aerial to be used commonly for transmission and reception.

In the receiver a crystal mixer combines the received signal with the output of a klystron local oscillator, producing an intermediate frequency of 70 Mc/s. Automatic frequency control is included. The IF signal is amplified, limited and applied to a discriminator for conversion to video frequency.

Data Summary

Transmitter

Frequency range: 7849–8100 Mc/s.

Modulation: FM.

Channel deviation: 50 kc/s RMS.

Equipment capacity: 120 channels.

Output power: +29 dBm.

Input impedance: 75 Ω unbalanced.

Input level to modulator: –45 dBm (adjustable from –47 to –15 dBm).

Receiver

Noise factor: Less than 11 dB (excluding losses due to insertion of filter and rotator).

Intermediate frequency: 70 Mc/s.

Bandwidth at 3 dB points: ± 8 Mc/s.

Low-frequency selectivity: Greater than 60 dB at 29 Mc/s.

Threshold level: –82 dBm.

AGC efficiency: 1 dB output variation for input-level variations from –22 dB to +8 dB, relative to the normal input.

Demodulator output level: Normally –15 dBm (adjustable from –5 to –31 dBm). 75 Ω .

Power supplies: 220 V ($\pm 2\%$), single-phase 50 c/s AC.

Power consumption: 550 VA.

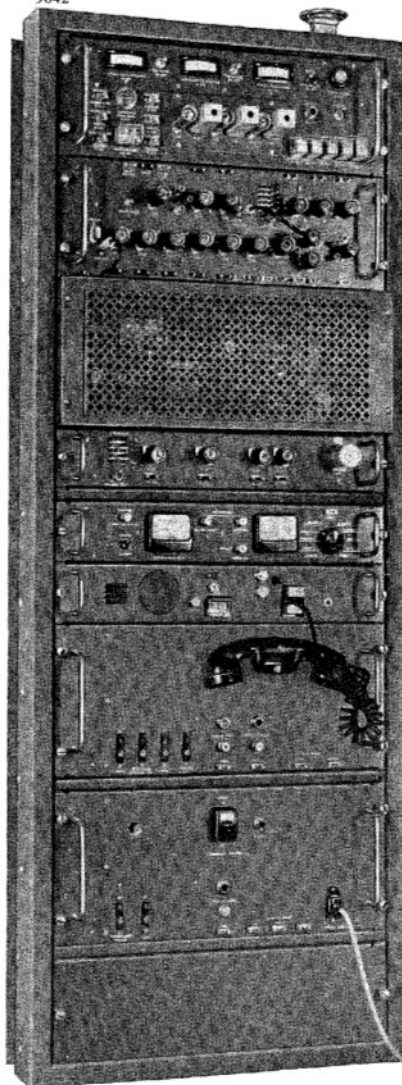
Dimensions:

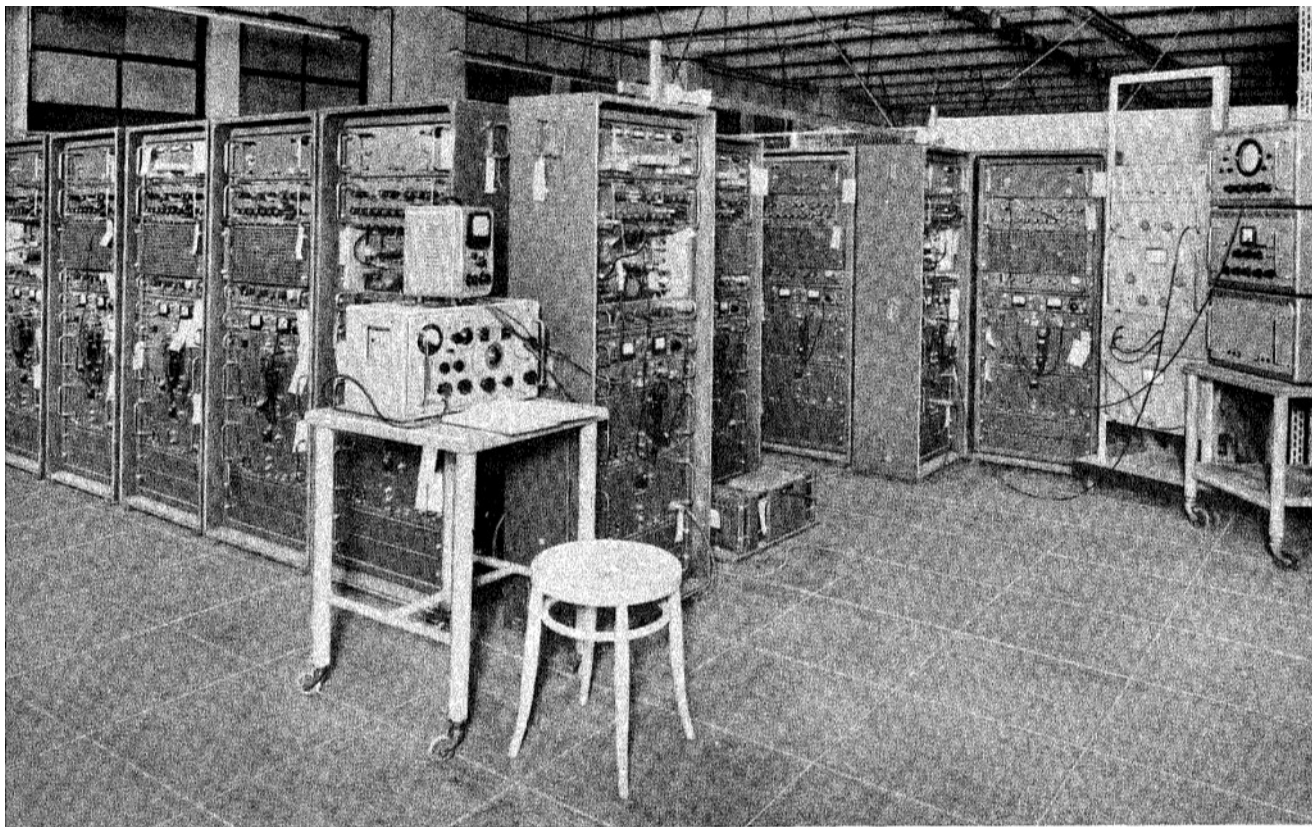
Height	Width	Depth	Weight
5 ft 1 in.	2 ft 6 in.	1 ft 2 in.	265 lb
(155 cm)	(62 cm)	(35 cm)	(120 kg)

Marconi

Marconi's Wireless Telegraph Company Limited
Marconi House, Chelmsford, Essex
Telephone: Chelmsford 3221 · Telex: 1953
Telegrams: Expanse Chelmsford Telex

9042

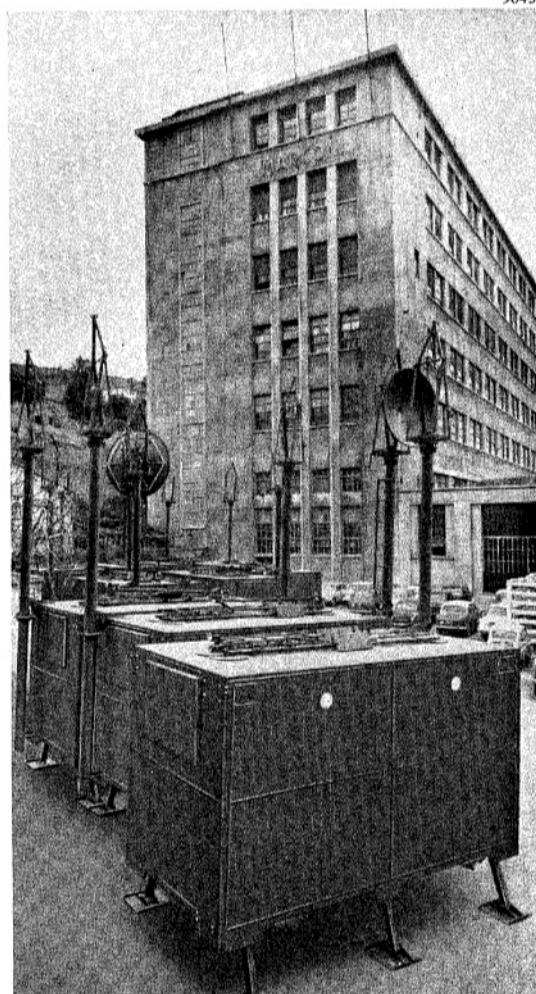




9044

MH 140A equipment being tested in the factory of Marconi Italiana S.p.A., Genoa, Italy.

9043



Mobile units containing MH 140A equipment, assembled on the premises of Marconi Italiana S.p.A., Genoa, Italy.