

SUMMARY OF DATA

PURPOSE

HF transmitter for voice and W/T

BRIEF DESCRIPTION

A variable-frequency oscillator VFO 1 in the Transmitter, Radio Sub-assembly generates a signal in the range 40.5 to 69.5 MHz. This signal is mixed with harmonics derived from a 1 MHz crystal-controlled oscillator to give an output that can be passed by a 37.5 MHz filter with a pass-band of ± 150 kHz.

A 1.6 kHz carrier signal, derived from the 1 MHz crystal-controlled oscillator, is keyed or audio-modulated and is mixed with a signal in the range 3.6 to 4.6 MHz produced by the Synthesizer. Electrical Frequency. The resultant signal between 2 and 3 MHz is mixed with the 37.5 MHz filter output to produce a signal in the range 39.5 to 40.5 MHz. The output from VFO 1 is mixed with this signal to produce the final carrier signal in the range 1.5 to 25 MHz.

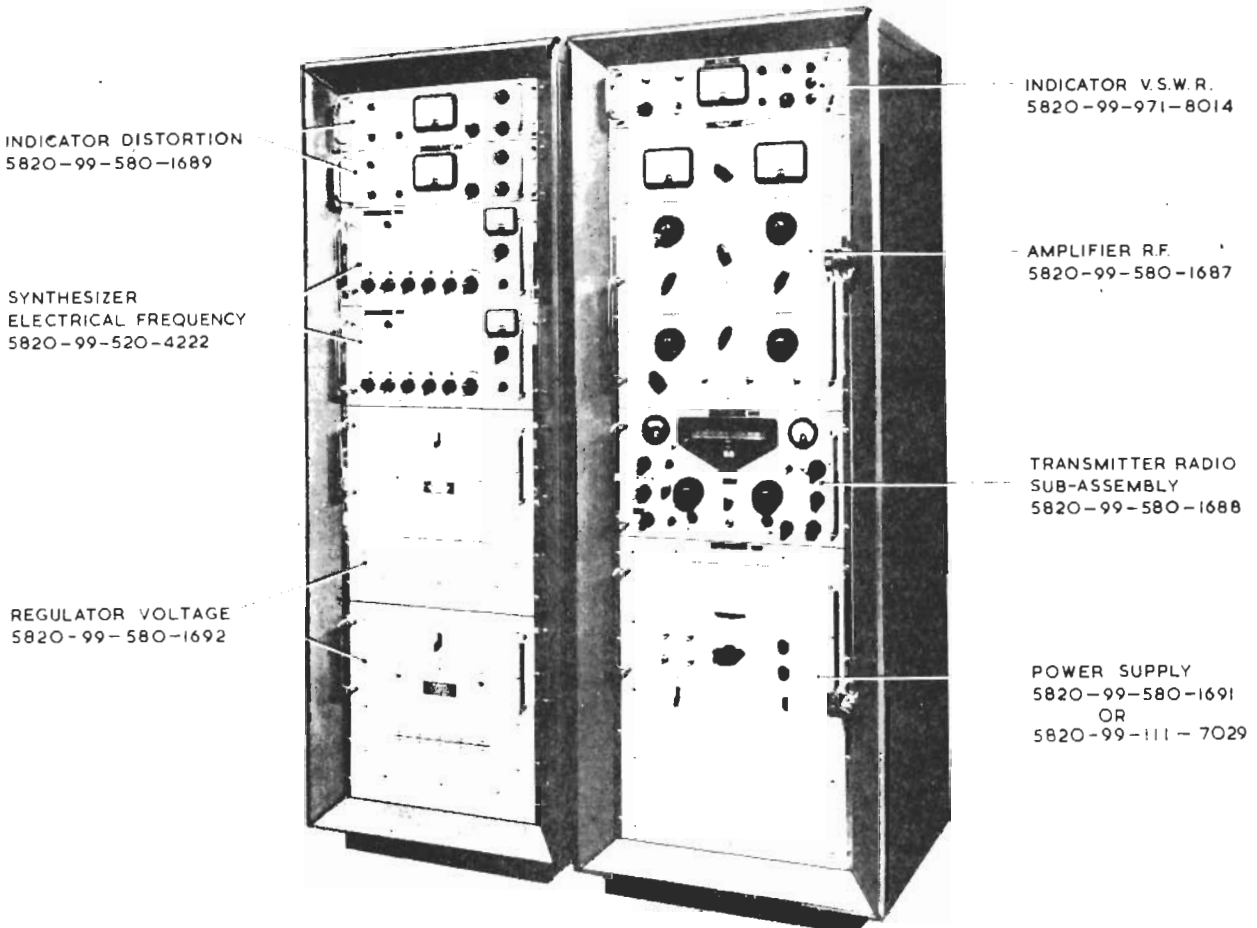
The low level output from the Transmitter, Radio, Sub-assembly is fed to the Amplifier, RF which produces a power output of 1 kW PEP (Peak Envelope Power) or 750 W cw. The output from the Amplifier RF is fed via the indicator VSWR to the antenna.

NOTE Above 17.5 MHz the achievable output is less than the figures quoted.

The Indicator, Distortion provides a meter indication of non-linearity in the transmitter down to 40 dB below the required output. The unit generates a 1.6 kHz test signal which is modulated at 250 Hz: this signal is used to modulate the transmitter carrier. A sample of the resultant output from the Amplifier RF is applied to the Indicator, Distortion and the distortion components are measured.

The Synthesizer provides an improved frequency setting accuracy and a high degree of frequency stability for voice transmissions. This is achieved by providing:

- (a) The 3.6 to 4.6 MHz range of signals mentioned above in place of the VFO 1 in the Transmitter, Radio, Sub-assembly.
- (b) The crystal-controlled 1 MHz source mentioned above.
- (c) A 200 kHz signal to a Mixer Stage Frequency contained in Transmitter, Radio, Sub-assembly; the Mixer Stage Frequency functions for voice transmissions only.



INDICATOR DISTORTION
5820-99-580-1689

SYNTHESIZER
ELECTRICAL FREQUENCY
5820-99-520-4222

REGULATOR VOLTAGE
5820-99-580-1692

INDICATOR V.S.W.R.
5820-99-971-8014

AMPLIFIER R.F.
5820-99-580-1687

TRANSMITTER RADIO
SUB-ASSEMBLY
5820-99-580-1688

POWER SUPPLY
5820-99-580-1691
OR
5820-99-111-7029

TYPES OF TRANSMISSION

Single Sideband, upper or lower; suppressed or re-inserted carrier
Double sideband
Frequency shift keyed telegraphy
Continuous wave keyed telegraphy

FREQUENCY RANGE

1.5 to 25 MHz

MAJOR UNITS

5820-99-580-1690 Cabinet, Electrical Equipment, containing:
111-7029 Power Supply (solid state version) or
580-1691 Power Supply
580-1687 Amplifier RF (TA99)
580-1688 Transmitter, Radio, Sub-assembly (MA79)
971-8014 Indicator, VSWR (MA152)

5820-99-972-3884 Cabinet, Electrical, Equipment, containing:
580-1689 Indicator, Distortion (MA141)
580-1689 Indicator, Distortion or blank panel
520-4222 Synthesizer, Electrical Frequency (MA350E)
520-4222 Synthesizer, Electrical Frequency or blank panel
580-1692 Regulator, Voltage
580-1692 Regulator, Voltage or blank panel

PHYSICAL DATA

	Height	Width	Depth	Weight
Transmitter Cabinet	180.3 cm (71 in.)	62.2 cm (24.5 in.)	67.3 cm (26.5 in.)	332 Kg (731 lb)
Synthesizer Cabinet	180.3 cm (71 in.)	62.2 cm (24.5 in.)	67.3 cm (26.5 in.)	303 Kg (667 lb)
Synthesizer Cabinet (with blank panels fitted)	180.3 cm (71 in.)	62.2 cm (24.5 in.)	67.3 cm (26.5 in.)	214 Kg (472 lb)

AERIAL

Nominal output impedance: 50 ohms (up to 2:1 VSWR)

ELECTRICAL CHARACTERISTICS

GENERAL

Audio Input Impedance : 600 ohms balanced
Audio Input Level : +10 to -20 dBm (referred to 1 mW in 600 ohms)
Overall AF Response : 300 to 3500 Hz \pm 2 dB
FSK or CW Keying Input Levels dc : Polar 20-0-20 V minimum
: Neutral -20 V minimum
Contact closure, maximum resistance 1500 ohm
CW Keying Input Levels : -15 to +7 referred to 1mW in 600 ohm (1 KHz tone)
Power Output, PEP and CW : 1 kW, 900 W above 17.5 MHz
CW : 750 W; 700 W above 17.5 MHz
Maximum Keying speed : 200 bauds
Carrier Shift FSK : Adjustable from 100 to 1000 Hz
Transmitter Tuning : Synthesizer, 3.6 to 4.6 MHz six crystal-controlled channels.
(kHz Selection) : Continuous tuning (VFO) calibrated at intervals of 1 kHz
with 500-0-500 Hz vernier adjustment.

POWER REQUIREMENTS

200 to 250 V 45 to 60 Hz. Consumption 3.5 kW.

ANTENNA

Outfit AFF (1) or (2), AFG(1) or (2).

ESTABLISHMENT LIST

E 1345

HANDBOOK

BR 2343(1) and (2)

MAINTENANCE SCHEDULE

No. 4018

INSTALLATION SPECIFICATION

B 924

COMMERCIAL EQUIVALENT

Racal