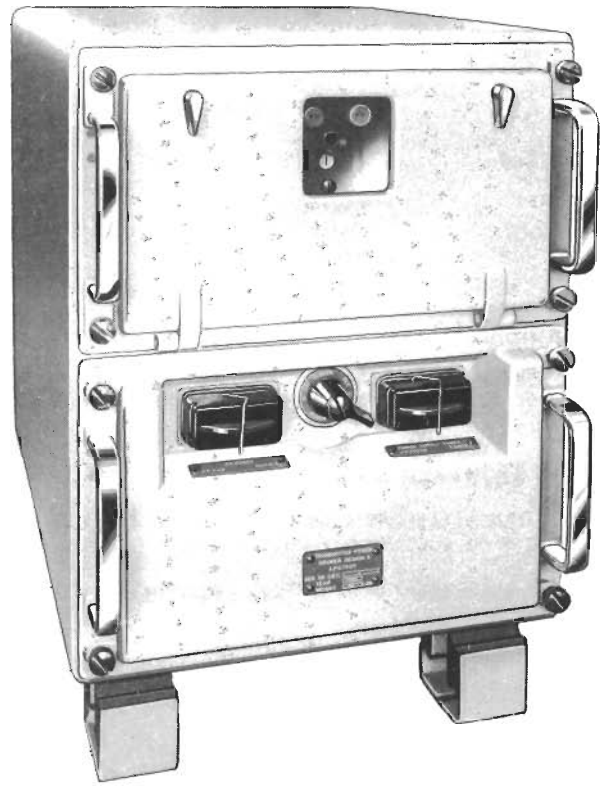
SUMMARY OF DATA

PURPOSE

A low power (10 watts) UHF transmitting and receiving equipment used for ship/ship and ship/shore communication. The equipment, which provides either amplitude or frequency modulation, supersedes Type TBS and Type 682.



TRANSMITTER 75A

TYPE OF TRANSMISSION

F.M. or A.M. Voice and mcw. For mcw a 1000 Hz tone modulation is used, tone and carrier being keyed simultaneously with a limiting keying speed of 75 bauds.

FREQUENCY RANGE

10 switches crystal controlled frequencies in the range 277–283 MHz with facilities for replacing 6 of these by an alternative 5 by changing crystals.

BRIEF TECHNICAL DESCRIPTION

The r.f. section of the transmitter consists of a crystal oscillator followed by 8 further stages. There are, in order, a buffer amplifier, a phase modulated stage, an amplifier, two trebler stages, a further amplifier, a third trebler, and a power amplifier, giving a total frequency multiplication of 27 times. On A.M., the power amplifier is anode modulated, the phase modulated stage acting as an amplifier with less than unity gain.

The a.f. section of the transmitter consists of a push–pull amplifier stage feeding the modulator valve. A secondary winding of the modulation transformer feeds a double diode which provides delayed a.c. bias for the push–pull stage thus avoiding over modulation. To allow the use of mcw a 1000 Hz tone oscillator and tone amplifier are included in the circuit. In the F.M. position the modulation applied to the phase modulated stage first passes through a network whose response varies inversely as the frequency thus giving true frequency modulation. Metering facilities are incorporated in the transmitter.

The frequency band 225–400 MHz allocated to military services overlaps the internationally recognised VHF bands. By common consent between the Joint Services, this band will be known as the UHF band.

MAJOR UNITS

Transmitter 75A (Pattern No. 66925) is the main component of Types 691/EF and consists of units Pattern Nos. 67905 and 67909 fitted in a framework. Its total weight is 140 lb.

Transmitter/Receiver 74A (Pattern No. 66927) is the main component of Types 691E/ET and consists of units Pattern Nos. 67905 and 67907 fitted in a framework. Its total weight is 108 lb. The associated Receiver is Receiver Outfit CUH. For information on the receiver, power supplies and Aerial Outfits used, reference should be made to the relevant Data Sheets.

Patt. No.	Description	Physical Data				Associated with
		Height	Width	Depth	Weight	
67905	Transmitter Drawer 69A	7⅝ in.	13⅛ in.	19¼ in.	38 lb	Types 691/E/EF/ET
67909	Power Supply Drawer, Design 2	8⅛ in.	13⅛ in.	19⅝ in.	60 lb	Types 691/EF
67907	Receiver Drawer 62E	7⅝ in.	13⅛ in.	16⅝ in.	27 lb	Types 691/E/EF/ET
67910	Power Supply Drawer, Design 3	6⅞ in.	13⅛ in.	17¼ in.	32 lb	Types 691/EF
66938	Power Unit D.C.	14½ in.	18 in.	15 in.	120 lb	Types 691E/ET

ELECTRICAL CHARACTERISTICS

Carrier:	R.F. Power Output	10 watts
	R.F. Load Impedance	75 ohms
	Output Frequency	Crystal Frequency X27
	Frequency Stability	< 15 parts in 10^6
	Fundamental Crystal Frequencies	10.28889–10.99815 MHz
	Basic Channel Spacing	100 kHz
	Minimum Channel Spacing	500 kHz
A.M.	Frequency response	Flat to within 4 dB from 300 to 10 000 Hz
	Audio Input for full modulation (threshold of A.G.C.)	0.25 V r.m.s.
	Normal Input	0.8 V ± 10 dB (0.25 V r.m.s.)
F.M.	Frequency response	Flat to ± 3 dB 600 Hz–10 000 Hz Flat to ± 300 Hz–10 000 Hz
	Maximum Deviation	12 kHz ± 3 kHz
	Audio Input for Maximum Deviation	0.25 V r.m.s.
	Normal Input	0.8 V ± 10 dB

CONTROL CIRCUITS

The equipment can be operated locally or remotely using any of Wireless and Voice Control Outfits KH Series or Fighter Direction Control Outfits KFF/G or the interim Remote Control Outfit KH(Y).

POWER REQUIREMENTS

Transmitter 75 A requires 115 or 230 V 50 or 60 Hz single phase at 300 W. For Type 691EF this may be obtained from A.C. Supply Outfit DWH.

Transmitter/Receiver 74A requires 24 V d.c. at 720 W. This is obtained from Power Unit D.C. Pattern No. 66938.

Permissible tolerances are Voltage ± 5%, Frequency ± 7½%.

HEAT DISSIPATION

Transmitter 75A	300 W approximately
Transmitter/Receiver 74A Power Unit D.C.	720 W approximately

AERIAL SYSTEM

Aerial Outfit AJE(5).

Common Aerial Working can be employed using Common Aerial Outfit EAK. One EAK will combine three transmitters on one aerial. A second EAK will increase the number to five transmitters.

HANDBOOKS

BR 2062(1)(2)

ESTABLISHMENT LISTS

E1033 (Types 691/E/EF/ET and Receiver Outfit CUH)

PRODUCTION SPECIFICATION

12321

INSTALLATION SPECIFICATIONS

B756/R1	(Types 691/EF Receiver Outfit CUH and Common Aerial Outfit EAK) with Wireless Control Outfits KHA–Z (not KH(Y)) and KFF/G
B770	(Control Outfit KH(Y) to Type 691/EF and Receiver Outfit CUH with Aerial Outfit EAK)
B759	(Aerial Outfit AJE)
B704	(Battery Outfit BBY)
B694	(Wireless Control Outfits KHA–Z (not KH(Y))