Supply Unit Vibratory No. 14

Country of origin: England

DATA SUMMARY

Organisation: HMGCC (GCHQ).
Year of introduction: Early 1950s.
Purpose: DC power supply unit for transmitter-receiver Mk.121 and Mk.122.
Power Supply: Input 6V (from a 85Ah accumulator), output 305V DC.
Consumption: Receive 5A, transmit key up 3.5; Key down 10A.
Size (cm): Height 8, length 22, width 23.
Weight: 3.6kg
Accessories: 6V power lead, connector to transmitter-receiver, spare fuses and vibrator.

Mk.121 transmitter-receiver.

Mk.122 transmitter-receiver.

Remarks

The Supply Unit Vibratory No. 14 (6V) (S.U.V. No. 14) served as a separate external unit to power a Mk.121 or Mk.122 transmitter-receiver from a 6V accumulator. The unit was constructed on a base-plate that fitted into a metal case. It utilized an non-sync shunt drive vibrator and a selenium-type bridge rectifier with ample filtering. Both units were interconnected by Connector 4-pt No. 110.

The Mk.121 and Mk.122 transmitter-receivers (below left) could be powered by their internal A/C mains pack, a 6V 85Ah accumulator and S.U.V No. 16, or a hand/pedal generator. The latter was initially a model providing HT and LT, later replaced by Generating sets, AC 45W, 110V, hand/pedal driven, No. 1 Mk.1, subsequently renamed Mk. 810A. This generator was connected via the AC Mains cable (Connector twin No. 312) with the main input selector set to 110V AC. The Mk.121 and Mk.122 were not only used by agents but also by special forces such as SAS and Royal Marines (SBS).

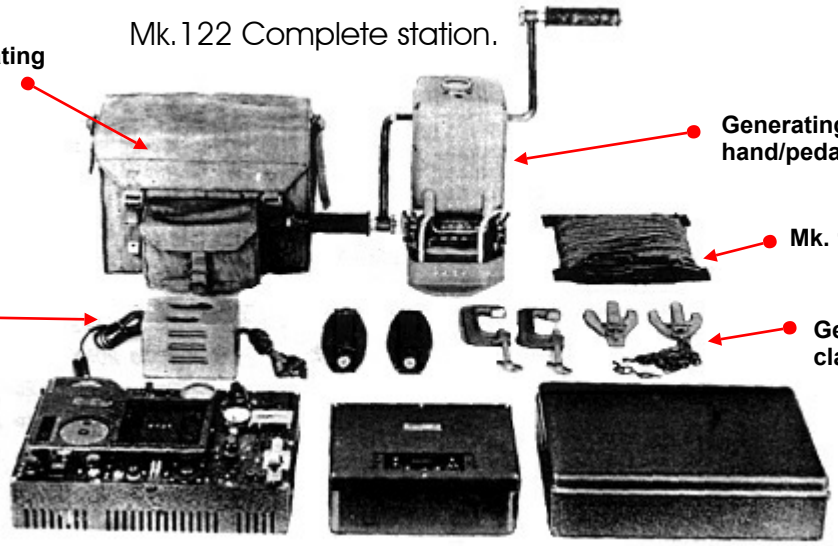
Bottom view of Supply Unit Vibratory No. 14 showing 4-pt output socket, 6V input and fuse holder.

References

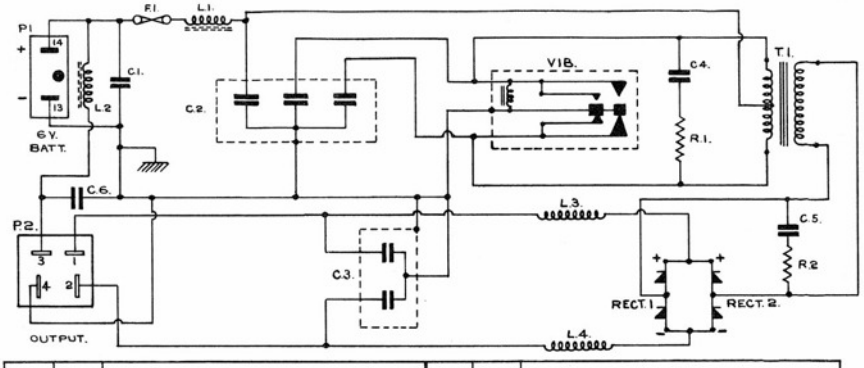
- Wireless for the Warrior, Volume 4, Clandestine Radio, Chapters: Mk.121, Mk.122, Mk.810A.
- Operating Instructions Mk.121 and Mk.122, n.d. *1)*
- Scale of stores for Wireless Stations No. 122, Signal Equipment Card No. 2499, WO Code No. 12105, 1975. *1)*
- Report on Mk.121 Service trials, 21 SAS Regiment, 1952.
- EMERs Telecommunications, Wireless Stations Mk.121 and Mk.122, F760, F762, 1960.
- Source information retrieved from the archives of the Royal Signals Museum, Blandford Forum, U.K.
  Many thanks to Reinhard in Cuxhaven for attending me to this unit from his collection, and for taking photographs.

1) See Chapter 335 of scans made of both documents.

Mk.122 Complete station.



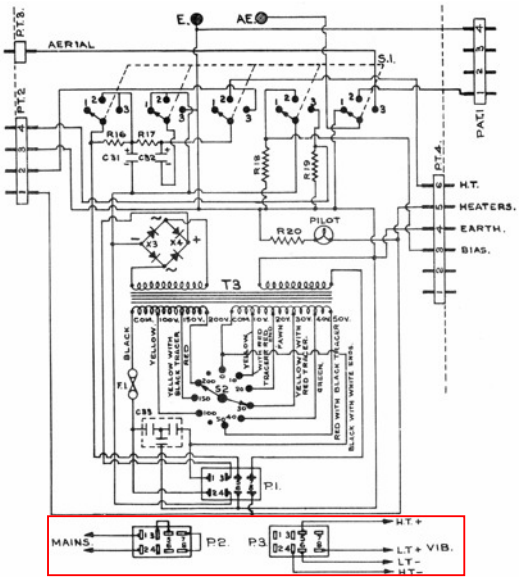
1) **Also known as Mk.810A.**
2) **Not a 'Case spare parts No. 48', as this had similar dimensions as the Mk.122. It might have been a separate amplitude modulator unit, as mentioned in EMERs. These units never materialised in large numbers.**
3) **This was a charging unit for 6V batteries; a later physically identical 12V version was known as Mk.812A.**



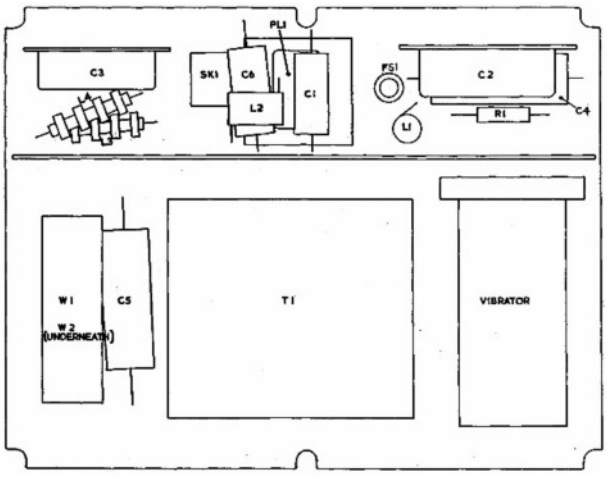
COMP.	LOCATION	DESCRIPTION	COMP.	LOCATION	DESCRIPTION
R1.	B8	RESISTOR 22Ω ± 20% ERIE TYPE 9	L3	C7	RF. CHOKE 350 μH.
R2.	C9	" 2200Ω ± 20% " " 16	L4	D7	" " 350 μH.
C1	B3	CONDENSER 0·5 μFD. ± 25%, 150 v. D.C. 97½°C DUBILIER TYPE 418	T1	B9	VIBRATOR TRANSFORMER, PARMEKO TO SPECIFICATION.
C2	B4	" 3×0·1 μFD ± 20% 300 v. D.C. 85°C. DUBILIER NITROGEL BOX N°2	VIB	B7	6V. VIBRATOR, WIMBLEDON TYPE S.P.C.6
C3	C5	" 2×0·1 μFD. ± 20%, 700 v. D.C. 85°C " " " N°2	RECT.1	D8	SELENIUM RECTIFIER D25-18-IRG.
C4	B8	" 2 μFD. ± 25%, 150 v. D.C. 97½°C DUBILIER TYPE 418	RECT.2	D9	" " D25-18-IRG.
C5	C9	" 0·1 μFD. ± 10%, 1200 v. A.C. DUBILIER TYPE 4704A/SP	P1.	A2	2 POINT PLUG TYPE JP-2-CB.
C6	C2	" 0·5 μFD. ± 25%, 150 v. D.C. 97½°C. DUBILIER TYPE 418.	P2.	C2	4 " SOCKET " 500.467
L1	A4	FILTER CHOKE (L.T.) 1·4 μH	F1.	A3	FUSE HOLDER TYPE L356 WITH 20A FUSE TYPE L1055
L2	B2	" " 1·4 μH			

Circuit diagram of Supply Unit Vibratory No. 14.

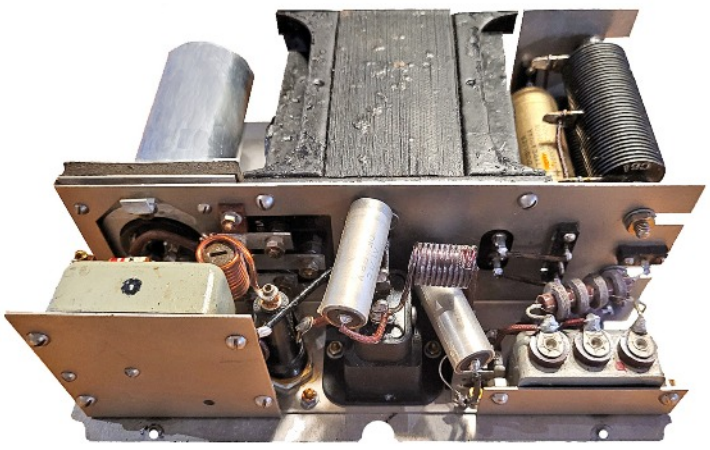
Scans of the '*Scale of Stores for Wireless Station No. 122*" card and '*Mk.121 Operating Instructions*' publication are published in the next WftW Supplement Chapter 335.



Connections of mains lead and vibrator output lead to mains power unit of Mk.121 and Mk. 122.



Layout of components S.U.V. No. 14 (6V).



Components view of Supply Unit Vibratory No. 14.

REPORT ON Mk.121 SERVICE TRIALS *(Dated 5-8-1952)*

Eleven Mk.121 sets, nine handgenerators and six vibrator power supplies were lent to 21 S.A.S. Regt. for use during their annual training from 12 - 26 July 1952. For security reasons the sets were referred to as type Mk.12/1. Eight of the sets were issued to wireless operators who were to jump with Squadrons. Each station consisted of the following equipment:

1 - Wireless Set Mk.121.
1 - Handgenerator with locally made board 8" x 12" to which were screwed the generator clamps.
1 - Signal Satchel containing power leads and plugs, fuses, headphones and message pads.

The spares boxes were not issued and the vibrators were held for supply drops later in the exercise.
It was planned to drop the operators and sets on the evening of July 14th when they would remain in the field, being supplied with food and P.O.L. until the evening of the 23rd. Owing to adverse weather conditions no parachuting was possible on the 14th and all but two of the operators and sets were transported to the DZ's by jeeps. The remaining two sets were dropped in legbags on the 15th and 16th. Two vibrators were sent in on an air supply drop later in the first week.
The sets were used by TA and Z personnel. None had any previous knowledge of the set and two men had never used a set of this type before. Owing to time taken up by documentation, pay, etc. it was only possible to give each operator thirty minutes instruction on the set.
Over a period of ten days the sets were operated in all weather conditions and received quite severe mechanical shocks when being transported in Jeeps across moorland and mountainous country. One set was damaged by an accumulator falling on it but continued to function satisfactorily.
The strength of signals received at Base from these sets was higher than from the A Mk.III used in the same area and it was noticed that variations in handgenerator speeds produced little or no change in signal strength and no variation in transmitter frequency. The performance is definitely superior to the Army 76 set (used by all airborne formations), which is of a similar electrical construction but physically much larger. This set has a chirpy note due to poor power supply stabilisation.
At the conclusion of the exercise each operator using a Mk.121 completed a questionnaire on the set. Extracts from this are contained in Appendix A. Appendix B details the losses and damage to the sets. Appendix C shows the methods of packing the set and handgenerator in a standard legbag.

CONCLUSIONS

During these trials this set has been subjected to rough treatment, greater than that for which it was designed.
Minor modifications would increase its resistance to mechanical damage. Electrically the set is quite satisfactory and is a marked improvement on the A Mk.III and B Mk.II. The modifications suggested are:
(1) P.V.C. cover. This cover is removed from and replaced on the set several times a day and is liable to be ripped by projections on the floor of Jeeps and other vehicles. The zipper clasp is easily broken and the zipper itself is difficult to open and close in cold weather. Suggested that for Army use this should be replaced by a canvas bag.
(2) 121 transmitter receiver.
(a) Suggested that the case should fit inside a semi-waterproof metal box, partially Sorbo rubber lined, similar to that of the A Mk.III. A canvas cover would not be required to protect this outer case.
(b) Earphone socket. This is rather fragile and a simple banana plug and socket arrangement would be more satisfactory.
(c) Aerial and earth sockets. These are similar to the crystal holder. Press terminals as fitted to the Mk.119 are to be preferred.
(d) Receiver tuning. Suggested that a felt pad and clamp be fitted to the logging scale knob to prevent movement.
(e) Marking of controls. The reason for not marking the controls is appreciated but these markings could be applied by means of decals.
(f) The transmitter key. This is not satisfactory for fast sending, and an external key, for which provision is made, would be of considerable value.
(3) Handgenerator. This is disliked intensely. It is difficult to secure this to the clamps as the rubber strips on the latter are too thick. Some damage has occurred to handles and these will be examined on return from 21 S.A.S.
Appreciable effort is required to operate the set for a long period and it was found necessary to detail four men to turn the handgenerator in five minute spells. A foot pedal generator would be easier to operate but would have the disadvantage of increased weight and bulk. Tactically, the solution is to drop the set and handgenerator with the operator, and to parachute into the area a vibrator supply and batteries as soon as conditions permit it.

ACCESSORIES

The earphones with a spring clip which secure these to the ears are not entirely satisfactory and it is considered that the stethoscope pattern are more suitable. Items 1, 2a, 2e and 2f could be supplied from or made by Army resources as the quantity (30) of those sets per regiment would hardly justify special production by the manufacturers of the set.

Note: This photocopied and retyped report was missing: Appendix A to C, and a list of items.