

WIRELESS SET NO. 19
MODIFICATION INSTRUCTIONS INDEX

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WIRELESS SET NO. 19

MODIFICATION INSTRUCTIONS INDEX

Mod No.	Issue No	Detail	Remarks
17	1	Flash-dipping of Rectifier, selenium, No. 2	

WIRELESS SET No. 19, MKS. I., II., AND III. MODIFICATION INSTRUCTION.

This instruction is a summary of War Office modification instructions issued during the period 29 Dec., 1941, to
11 Jan., 1944.

Publication reference	Date shown on publication	Model or mark affected	Subject
T.I. W 25	29 Dec. 41	Wireless set No. 19 (aerial variometer, Mk. I. ZA 3096)	Provision of direct earth connection between rectifier circuit and earth.
M.C. T/W 2	7 Mar. 42	Wireless set No. 19 (aerial variometer, Mk. II. ZA)	Provision of direct earth connection between rectifier circuit and earth.
M.C. T/W 6	6 Apr. 42	Wireless set No. 19, Mk. II (certain sets)	Replacement of resistor R. 69.
M.C. T/W 10	4 May 42	Wireless set No. 19, Mk. I	Modifications affecting all this Mk. of equipment being subjects of separate circulars.
M.C. T/W 13	8 July 42	Wireless set No. 19 (certain sets)	Replacement of P1A6 condensers.
M.C. T/W 14	18 July 42	Wireless set No. 19 (certain sets)	Replacement of iron dust core inductances L4 and L6.
M.C. T/W 21	31 July 42	Wireless set No. 19, Mk. I	Replacement of local oscillator coil and condenser C8B to reduce frequency drift.
M.C. T/W 28	14 Oct. 42	Wireless set No. 19 supply units No. 1, Mk. I* (certain serial numbers)	Re-wiring condenser C4CP.
M.C. T/W 28A	22 Jan. 43	Wireless set No. 19 supply units No. 1, Mk. I*	Amending serial numbers listed in M.C. T/W 28, dated 14 Oct. 42.
M.C. T/W 30	18 Oct. 42	Wireless set No. 19	Amending scale of spares and re-arranging accommodation to cases, spare parts, No. 5C (ZA 1904)
M.C. T/W 30A	31 July 43	Wireless set No. 19	Amending items to be carried in cases, spare parts, No. 5C (ZA 1904).
M.C. T/W 31	24 Jan. 43	Wireless set No. 19 (aerial variometer)	Fitting of waterproof cover.
M.C. T/W 31A	3 Feb. 43	Wireless set No. 19 (aerial variometer)	Cancelling T.W 31, dated 19 Oct. 1942, which was issued in error.
M.C. T W 31B	21 July 43	Wireless set No. 19 (aerial variometer)	Amending stores paragraph of M.C. T W 31, dated 24 Jan. 43.
M.C. T/W 40	4 Apr. 43	Wireless set No. 19	Replacement of condensers P1AG and P1U. Stages 1 and 2 only.
M.C. T W 40A	7 Apr. 43	Wireless set No. 19	Classification of condensers P1AG and P1E.
M.C. T/W 40B	18 May 43	Wireless set No. 19	Re-designation of condensers 0.1 μ F used in wireless set No. 19.
M.C. T W 40C	18 May 43	Wireless set No. 19	Tests and specifications to be applied to 0.1 μ F condensers.
M.C. T W 40D	22 June 43	Wireless set No. 19	Authorising stage 3 of M.C. T'W 40, dated 4 April 43 (mobilised and mobilising units).
M.C. T W 40E	14 Sep. 43	Wireless set No. 19	Sensitivity of set fitted with low I.R. 0.1 μ F condensers.
M.C. T W 40F	6 Sep. 43	Wireless set No. 19	Authorising stage 3 of M.C. T/W 40, dated 4 April 43 for remaining units.
● M.C. T W 40G	27 Nov. 43	Wireless set No. 19	Authorising use of condensers of American manufacture in carrying out M.C. T W 40.
● M.C. T W 40H	27 Nov. 43	Wireless set No. 19	Authorising stages IV and V of M.C. T W 40.
M.C. T W 48	3 Mar. 43	Wireless set No. 19, Mk II (certain sets)	Re-wiring of reverse microphone connections.
M.C. T W 51	23 Mar. 43	Wireless set No. 19	Fitting of brackets, protecting, to aerial base, No. 9.
M.C. T W 52	26 Mar. 43	Wireless set No. 19	Modification of microphone, hand, mouthpiece, No. 1 to No. 2.
M.C. T W 52A	17 Sep. 43	Wireless set No. 19	Amplifying M.C. T/W 52, dated 26 Mar. 43.
M.C. T/W 53	9 Apr. 43	Wireless set No. 19	Fitting of head bands, web, No. 2 and head bands, web, No. 3 plus 2 clips, spring, No. 1 web head band to microphones and receiver headgear assemblies Nos. 1 and 2.
M.C. T/W 58	21 July 43	Wireless set No. 19, Mks. II and III	Modification of condenser and drive No. 2 mounting to allow of R.F. gain control on wireless set No. 19, Mk. III.
M.C. T/W 61	22 July 43	Wireless set No. 19	Fitting of protecting shield to porcelain push button on junction, distribution, Nos. 1 and 3.

This instruction includes additional items marked ● and replaces Issue 1, dated 11th January, 1944.

END

RESTRICTED

WIRELESS SET NO. 19, MKS. I, II AND III, AND ACCESSORIES

Note. This replaces and cancels Tels. F 257/4, Issue 1.

Information

1. Tels. F 257/4, Issue 1 covered the preparation and precautions necessary for sub-zero operation.

Action

2. Tels. F 257/4, Issue 1 is hereby cancelled.

3. Equipments already modified will not be restored to their previous condition, but no other equipments will be modified.

4. If stores have already been received they will be returned to the nearest Ordnance depot which holds similar stores and used for maintenance purposes.

5. For all accounting purposes this modification will be known as - T/W 83.

D.M.E. Encl. No. 67 to 57/Maint./481

END

Issue 2, 20 Jun. 1945

Distribution - Class 870. Code No. 3

Page 1

WIRELESS SET NO. 19, MKS. I, II AND III

Note. This replaces and cancels Tels. F 257/5, Issue 1.

Information

1. Tels. F 257/5, Issue 1 covered the servicing and maintenance of Sockets, 5-point, No. 5.

Action

2. Tels. F 257/5, Issue 1 is hereby cancelled.

3. Equipments already modified will not be restored to their previous condition, but no other equipments will be modified.

4. For all accounting purposes this modification will be known as - T/W 139.

D.M.E. Encl. No. 11 to 57/Maint./719

END

Issue 2, 20 Jun. 1945

Distribution - Class 870. Code No. 3

Page 1

WIRELESS SET NO. 19

MODIFICATION INSTRUCTION
(Wireless set, No. 19, Mks. 1 and 2)

Note: These pages, 1 and 2, supersede page 1 of Issue 1.

SUMMARY

1. This instruction covers the cancellation of a previous modification instruction affecting these equipments.

DETAIL

2. As a result of a review of modification instructions covering these equipments the following E.M.E.R. is hereby cancelled and all copies will be destroyed:-

E.M.E.R. designation	Issue No.	Date	Subject
Tels. F 257/6	1	10 Mar. 1944	Return to salvage of condensers P.1.U. (ZA1588) of Ferranti manufacture

3. Equipments already modified are not affected by this instruction.
Issue 2, 30 Jun. 1946

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4. For all accounting purposes this modification will be known as: D.M.E.
Encl. No. 18 to 57/Maint./481.

END

WIRELESS SET NO. 19

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Reduction in output level of 'B' set using Control unit No. 10

Note: This issue, Pages 1 and 2, supersedes Pages 1 and 2 of Issue 2, dated 18 Aug. 1950. Paras. marked ● and figure caption have been amended.

SUMMARY

- 1. On certain installations of the Wireless set No. 19, using Control unit No. 10, a high pitched whistle is experienced, notably when sending with a Control unit No. 2 switched to R - A and B. This is caused by the high level of side-tone on the Wireless set No. 19, 'B' set. It can be prevented by reducing the output level of the 'B' set by connecting a 47Ω resistor in series with the 'B' set output and another 47Ω resistor in parallel with the lead to the phones.

Time required to complete modification - $\frac{1}{2}$ man-hour.

- 2. Item affected:-

Control unit No. 10 - ZA 10454

- 3. Action required by R.E.M.E. personnel concerned at the request of units holding the equipment.
- 4. Priority: Group 'B' (A.C.I. 878/49 refers).
- 5. Stores required:-

Cat. No.	Designation	No. off per Eqpt.
ZA 11319	Resistor, No. 3A, $\frac{1}{2}$ W, 47Ω Red paint	2 As required

Authority for demand (to be quoted on all indents) - T/W/153

DETAIL

- 6. (a) Open the Control unit No. 10 and refer to Fig. 1
- (b) Disconnect the wire from pin No. 5 of the 12-point plug on the side of the unit (Plug U) and reconnect to pin No. 12.
- (c) Connect a 47Ω resistor pin No. 5 and pin No. 12.
- (d) Connect a 47Ω resistor between pin No. 12 and the solder tag (T) already fitted beneath one of the securing screws of the 12-point plug.
- (e) Paint a $\frac{1}{2}$ in. square with red paint on the top of the Control unit No. 10.
- (f) Check the operation of the control unit.
- (g) Particular attention should be paid when performing this modification to ensure that the resistors are connected to the correct socket.

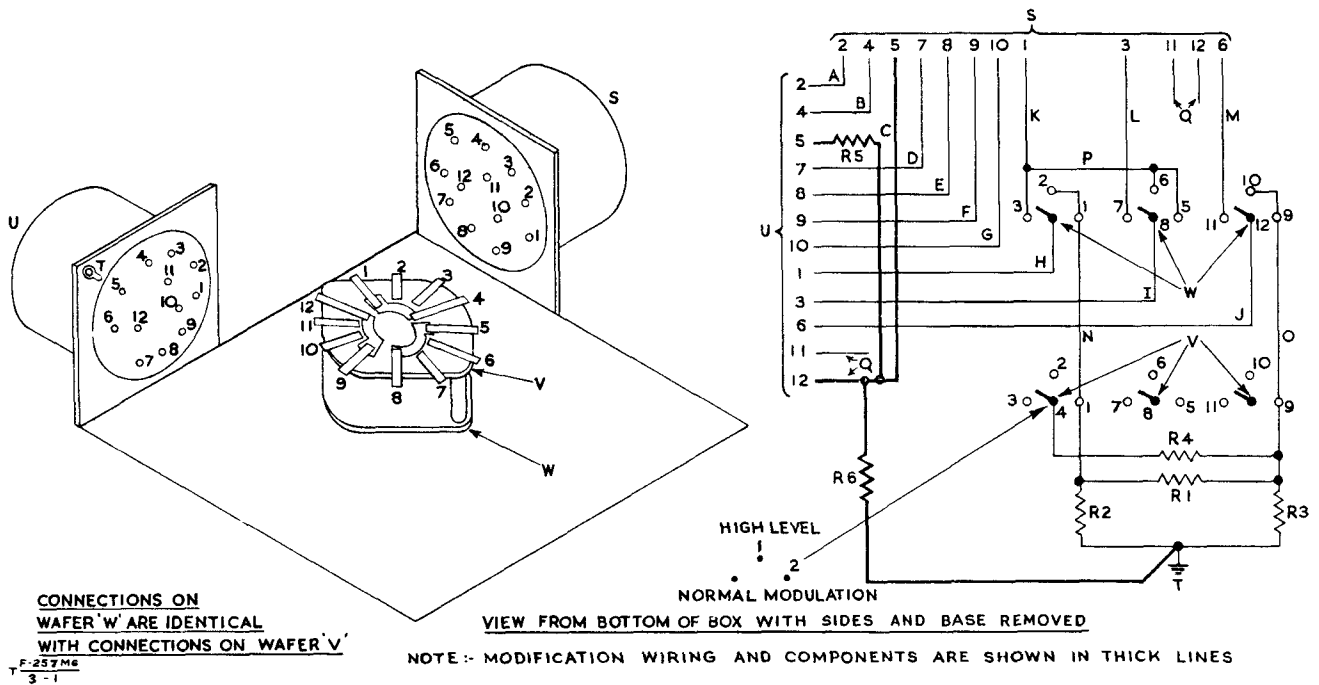


Fig. 1 - Modification to Control unit No. 10, when
used with Wireless set No. 19

Connector ref.	Connections	Colour	Length	Connector ref.	Connections	Colour	Length
A	U2 - S2	B	5 in.	L	W7 - S3	C	5 in.
B	U4 - S4	A	5 in.	M	W11 - S6	C	5 in.
C	U5 - S5	B	5 in.	N	W2 - W1 - V1	B	3 in.
C (after Modification)	U12 - S5	B	5 in.		W10 - W9 - V9	B	3 in.
D	U7 - S7	A	5 in.	P	W3 - W5 - W6	B	3 in.
E	U8 - S8	B	5 in.	Q (before modification)	No connections		
F	U9 - S9	C	5 in.	R1	V1 - V9, 4,700Ω	1W resistor	
G	U10 - S10	A	5 in.	R2	V1 - T, 100Ω		
H	U1 - W4	A	5 in.	R3	V1 - T, 100Ω		
I	U3 - W8	C	5 in.	R4	V4 - V9, 10,000Ω		
J	U6 - W12	C	4 in.	R5 (after modification)	U5 - U12, -47Ω		
K	W3 - S1	A	4 in.	R6 (after modification)	U12 - T, 47Ω		

Table 1 - Details of connections

RESTRICTED

WIRELESS SET NO. 19

Note. This replaces and cancels previous issues of
Tels. F 257/11.

Information

1. Tels. F 257/11, Issue 2, covered the replacement of wrong type retaining spring on Aerial bases No. 9 or No. 9A.

Action

2. Previous issues of Tels. F 257/11 are hereby cancelled.

3. Equipments already modified will not be restored to their previous condition, but no other equipments will be modified.

4. If stores have already been received they will be returned to the nearest Ordnance depot and used for maintenance purposes.

5. For all accounting purposes this modification will be known as - T/W 154.

D.M.E. Encl. No.90 to 57/Maint./481

END

Issue 3, 10 Sep. 1945

Distribution - Class 870. Code No. 3

Page 1

WIRELESS SET NO. 19

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

(Wireless sets Nos. 19 installed in A.F.Vs. and Armoured cars held by mobilised Field units)

Note: This Issue Pages 1 to 3, supersedes Pages 1 and 2 of Issue 2, dated 7 Sep. 1944 and Page 3 of Issue 1, dated 8 May 1944.

SUMMARY

1. This instruction covers the local manufacture of a remote control system to be used as described regarding the issue of Junctions, remote control, Nos 1 and 2.

2. Items affected:

Microphone and receiver headgear assembly No. 10 - (ZA 2151+)

3. Action required:-

R. Signals and P.W.M.F. personnel concerned.

4. Priority: Group 'B' (A.C.I. 878/49 refers).

5. Stores required:-

	Cat. No.	Designation	Qty. per eqpt.
Para. 6	(1) ZA 21514	Microphone and receiver headgear assembly No. 10	1
	(2) ZA 1253	Plugs, 5-pt., No. 5	1
	(3) WB 3478	Cable, electric, quad, Mk. 2	100 yd.
Para. 7	(4) WB 0101	Cable, electric, D.3, Mk. 6 OR	100 yd.
	(5) WB 2253	Cable, electric, D.3, P.V.C.	100 yd.

Note: The spare Microphone and receiver headgear No. 10 in the Signals satchel will be used for this modification (Items (1) and (2) above). Items (3) and (4) or (5) will be obtained locally.

Stores will be demanded through the normal Ordnance channels. Authority for demand (to be quoted on all indents) - T/W 155.

DETAIL

6. On completion of operations detailed in this para. 6, a howl may still exist in the headphones on 'A' or 'B' or 'I.C.' or re-broadcast or combinations of these services due to feedback between the microphone and receiver circuits causing instability. If instability is encountered on only one or two of the minor services (e.g. 'B' set), the commander will have to decide whether the remaining services satisfy his requirements. If not, the modification as outlined in para. 7 should be carried out.

(a) Remove the 5-point plug from the Microphone and headgear assembly No. 10.
Issue 3, 28 Jan. 1952

Reference should be made to Tels. F 257 Mod. Inst. No. 4.

- (b) Connect Microphone and receiver headgear assembly No. 10 to the quad cable as shown in Fig. 1., leaving the connections bare.
- (c) Connect the 5-point plug No. 5 to the other end of cable, as shown in Fig. 1 and Table 1, and test with an Avometer or buzzer to ensure correct assembly.
- (d) Insert 5-point plug No. 5 into the Commander's drop lead socket and test efficiency of system. If a howl is experienced in the headphones on any of the services ('A', 'B', 'I.C'., or re-broadcast), disconnect 5-point plug from quad cable and reduce length of cable to 60 yd. Reconnect 5-point plug and re-test.
- (e) If the system is satisfactory either with 100 or 60 yd. of quad cable, bind individual leads and final joint at microphone and receiver headgear end with insulating tape and apply shellac, Bostik 'C' or bakelite varnish to ensure waterproof joint.

Assemble the 5-point plug as outlined in Tels. F 257 Mod. Inst. No. 4.

Microphone and receiver headgear No. 10 (colour of leads)	5-point plug No. 5, locking into plug (see arrow in Fig. 1)
Blue	Pin 1
Red	Pin 2
White } Bonded	Pin 3 } Bonded
Green } Bonded	Pin 5 } Bonded
Black	Pin 4

Table 1 - Cable connections

7. If instability still exists on either of the set services, which is not acceptable to the commander, proceed as follows:-

- (a) Remove the bonding between the white and green leads at the microphone and receiver end, and between pins 3 and 5 at the 5-point plug end.
- (b) Connect a single strand of D.3 cable to pin 5 of the 5-point plug No.5, and bind this cable to the quad with twine at intervals of 2 yd.
- (c) Connect the other end of the D.3 cable to the green lead at the microphone and receiver headgear end. The connections should be as shown in Table 2.

Microphone and receiver headgear No. 10 (colour of leads)	5-point plug No. 5, locking into plug (see arrow in Fig. 1)
Blue	Pin 1
Red	Pin 2
White	Pin 3
Black	Pin 4
Green	Pin 5

Table 2 - Cable connections

- (d) Test the efficiency of the system, bind individual leads and final joint at microphone and receiver headgear end with insulating tape and apply shellac, Bostik 'C' or bakelite varnish to ensure waterproof joint.

Assemble the 5-point plug as outlined in Tels. F 257 Mod. Inst. No. 4

8. The stowage of this remote control cable is left to the discretion of individual units.

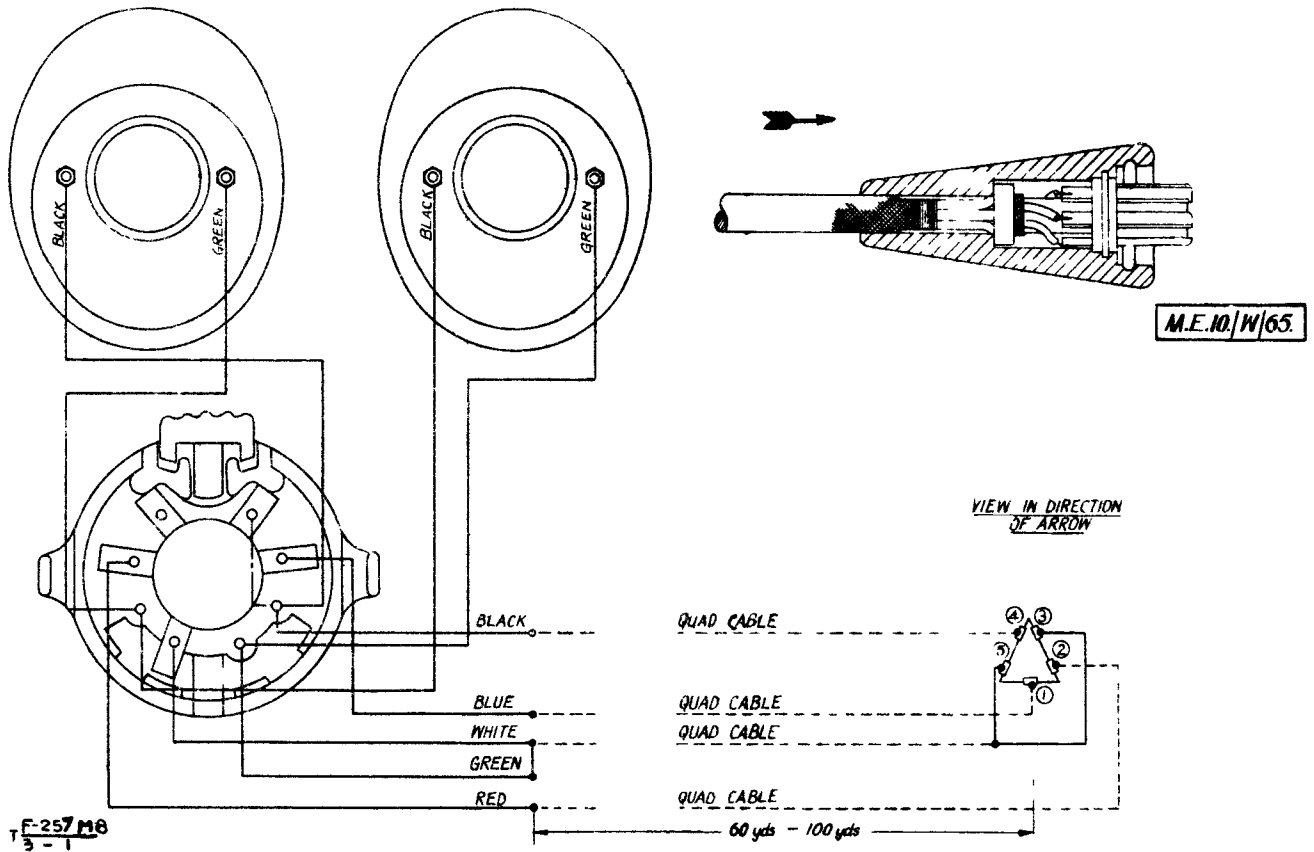


Fig. 1 - wiring diagram

57/Maint./3203

Encl. to 57/Maint./1003

END

WIRELESS SET NO.19
(Remote control unit E as used with Wireless set No. 19)

Note. This replaces and cancels Tels. F 257/14, Issue 1.

Information

1. Tels. F 257/14, Issue 1 covered the increase in clearance between the W.T. No.4 relay bias adjustment screw and the relay metal cover, to prevent shorting of relay to case.

Action

2. Tels. F 257/14, Issue 1 is hereby cancelled.

3. Equipments already modified will not be restored to their previous condition, but no other equipments will be modified.

4. For all accounting purposes this modification will be known as - T/W/BL/16

D.M.E. Encl. No. 7 to 57/Maint./1003

END

Issue 2, 20 Jun. 1945

Page 1

Distribution - Class 870. Code No.3

RESTRICTED
WIRELESS SET NO. 19, MKS. II AND III

Note. This replaces and cancels Tels. F 257/16, Issue 1.

Information

1. Tels. F 257/16, Issue 1 covered the modification of the calibration cursor to allow increased adjustment.

Action

2. Tels. F 257/16, Issue 1 is hereby cancelled.
3. Equipments already modified will not be restored to their previous condition, but no other equipments will be modified.
4. For all accounting purposes this modification will be known as - T/W/AK/69.

D.M.E. Encl. No. 6 to 57/Maint./1635

END

Issue 2, 20 Jun. 1945

Distribution - Class 870. Code No. 3

Page 1

WIRELESS SET NO. 19

(Rectifier, selenium, No. 2)

SUMMARY

1. This instruction authorizes the flash-dipping of Rectifier, selenium, No. 2 in wax, to make it less susceptible to heat and humidity.
2. Item affected: Rectifier, selenium, No. 2 (ZA 4920).
3. Action required by R.E.M.E. personnel concerned (fourth line workshops).
Priority 'B'.
4. Stores required:

<u>Cat. No.</u>	<u>Description</u>	<u>Quantity</u>
ZA 27330	Wax, sealing, special, No. 4	$\frac{1}{2}$ lb. per 100 rectifiers

Units in U.K. will demand these stores from the Commandant, C.O.D., Donnington.
Overseas theatres and Dominions will cipher their demands to War Office (W.S.13).

Authority for demand (to be quoted on all indents) - T/W/BL/15.

Issue 1, 15 Aug. 1945

Distribution - Class 870. Code No. 3

Page 1

DETAIL

5. All Rectifiers, selenium, No. 2 will be flash-dipped in Wax, sealing, special, No. 4 as follows:-

- (a) Ensure the surface of the rectifier is clean and the rectifier is free from damp.
- (b) Heat the wax until it just melts. The temperature must not exceed 98°C.
- (c) Flash-dip the rectifier, and allow to cool in a dust-free atmosphere.
- (d) Repeat operation detailed in sub-para. 5(c).
- (e) Apply the following D.C. tests: Using a variable source of voltage, measure the forward resistance of the rectifier. This must not exceed 2.75 ohms with a maximum forward current of 0.46A (corresponding to a voltage drop of 1.26V). After an application of a maximum reverse voltage of 15V for 5 sec. the reverse resistance must not be less than 110 ohms (corresponding to a reverse current of 0.136A).

D.M.E. Encl. No. 11 to 57/Mtce./480.

END

WIRELESS SET NO. 19

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Replacement of cardboard cased capacitors

Note: This is not a new instruction; it summarizes T/W 13 issued in 1942 and M.C. T/W 40 and M.C. T/W 40A-H issued at various times in 1943
It is based on the Capacitor Replacement List (ES 2661 L., ES 1316 P.L.) issued Sep. 1949, to which reference should be made.

SUMMARY

1. The cardboard cased capacitors used in the Wireless set No. 19 deteriorate with age and in certain cases have an insufficiently high voltage rating. These capacitors will be replaced by tubular metal cased types.

Time required to complete modification: 5 to 6 man-hours.

2. Items affected:-

Wireless sets No. 19 (Mks. 2 and 3).

3. Action required by:-

R.E.M.E. field and base workshop units.

Whenever sets are in workshops for overhaul or inspection the capacitors will be replaced.

4. Stores required:-

Schematic reference	V.A.O.S. Section	Designation	Quantity			
			Mk. 2		Mk. 3	
			Set	P.S.U.	Set	P.S.U.
* C4	ZA 20614 or Z/Z 115107 or Z/Z 115286	Condensers, P.1, B.T. (not suitable for Mk. 3)	21	3	-	
		Capacitors, pap., met., tub., 0.1 μ F., \pm 20%, 350V D.C. wkg., No. 12	21	3	8	
		Capacitors, pap., met., tub., 0.1 μ F., \pm 20%, 350V D.C. wkg., No. 8	-	-	-	3
C16	Z/Z 145280	Capacitors, elect., met. tub., 12 μ F., + 100 - 20%, 50V D.C. wkg., No. 1	2		3	

* C4B to be insulated with a suitable length of polythene sheeting
0.01 in. W2/WB 3610 on Mk. 2 set.

Schematic reference	V.A.O.S. Section	Designation	Quantity			
			Mk. 2		Mk. 3	
			Set	P.S.U.	Set	P.S.U.
C17	Z/Z 115280	Capacitors, pap., met. tub., 0.002 μ F, \pm 20%, 750V D.C. wkg., No. 1	4		3	
C22	Z/Z 115040 or Z/Z 115283	Capacitors, pap., met. tub., 0.02 μ F, \pm 20% 200V D.C. wkg. No. 1 (not to be used on Mk. 2) Capacitors, pap., met. tub., 0.02 μ F, \pm 20%, 600V D.C. wkg. No. 1	- 1		2 -	1
C23	Z/Z 115281	Capacitors, pap., met. tub., 0.005 μ F, \pm 20%, 750V D.C. wkg., No. 1	1		1	
C29	Z/Z 115282 or Z1/ZA 32527	Capacitors, pap., met. tub., 0.0 μ F, \pm 20%, 750V D.C. wkg., No. 1 Capacitors, pap., met. tub., 0.01 μ F, \pm 25%, 1,000V D.C. wkg., No. 1 (not to be used on Mk. 2)	3 -		5 5	
C31	Z/Z 145010 or Z1/ZA 20952	Capacitors, elect., met. tub., 2 μ F, + 50 - 20%, 350V D.C. wkg., No. 3 Condensers 2 A.P.	3		3	
C33	Z/Z 115287	Capacitors, pap., met. tub., 0.1 μ F, \pm 20%, 600V D.C. wkg., No. 1	1	1	1	
C38	Z1/ZA 36692 or Z1/ZA 32525 or Z/Z 115287	Capacitors, pap., met. tub., 0.1 μ F, + 20%, 600V D.C. wkg., No. 2 (to be insulated with a suitable length of W2/WB 3610 Polythene sheet 0.010 in. on Mk. 3) Capacitors, pap., met. tub., 0.1 μ F, \pm 15%, 600V D.C. wkg., No. 1 (not to be used on Mk. 2) Capacitors, pap., met. tub., 0.1 μ F, \pm 20% 600V D.C. wkg. No. 1	1 - -	- -	1 1	1

Schematic reference	V.A.O.S. Section	Designation	Quantity			
			Mk. 2		Mk. 3	
			Set	P.S.U.	Set	P.S.U.
C42	Z/Z 115284 or Z1/ZA 32528	Capacitors, pap., met. tub., 0.05 μ F, \pm 20%, 350V D.C. wkg., No. 3 Capacitors, pap., met. tub., 0.05 μ F, \pm 20%, 350V D.C. wkg., No. 2	-		1	
C45	Z/Z 115277 or Z1/ZA 32528 or Z1/ZA 38513	Capacitors, pap., met. tub., 0.05 μ F, \pm 20%, 350V D.C. wkg., No. 4 Capacitors, pap., met. tub., 0.05 μ F, \pm 20%, 350V D.C. wkg., No. 2 Capacitors, pap., met., tub., 0.05 μ F, \pm 20% 350V D.C. wkg., No. 5	-		15	

These capacitors will be demanded as replacements and as required in the normal way.

DETAIL

5. (a) Examine the Wireless set No. 19 and identify the following components:-
C4, C16, C17, C22, C23, C29, C31, C33, C38, C42 and C45
- (b) Any of these capacitors which are cardboard cased should be removed and replaced by the corresponding metallic cased type given in para. 4.
- (c) The figures given in para. 4 for the Mks. 2 and 3 sets will vary with individual sets. Some sets will have entirely metal cased capacitors, others (especially those of early manufacture) will have none and others may have varying numbers. The figures given represent the maximum numbers to be found in any set.
- (d) It is essential to check and if necessary re-align the set after replacement of capacitors in accordance with the instructions contained in Tels. F 254, 254/2 and 254/3.

Enc. 5 to 57/Maint/3964

END

WIRELESS SET NO. 19

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Erratum

Note: This Page 0 will be filed immediately in front of Page 1

1. The following amendment will be made to this regulation:-

Page 1, para 2, under 'Wireless set No. 19', line 7

For 'Transformers, I.F., No.88 (ZA 28647)'
Read 'Transformers, I.F., No.88 (ZA 28649)'

WIRELESS SET NO. 19

TECHNICAL HANDBOOK - MODIFICATION INSTRUCTION

Impregnation of I.F. transformers

SUMMARY

1. The I.F. transformers used in the Wireless sets No. 18 Mk. 3, 19, 22 and 68T, and Reception sets P.C.R. Nos. 1, 2 and 3, absorb moisture from the atmosphere. As a consequence the 'Q' value of the coil falls and the receiver sensitivity is reduced. Spare assemblies and sets in store are particularly liable to be affected.

2. Items affected:-

Wireless set No. 18 Mk. 3 and Wireless set No. 68T

Transformers 1st I.F., 465kc/s No. 1, Mk. 1/1 (ZA 30829)
Transformers 2nd I.F., 465kc/s No. 2, Mk. 1/1 (ZA 30830)

Wireless set No. 19

Transformers I.F., No. 24 (ZA 14533) (now superseded by No. 24A)
Transformers I.F., No. 24A (ZA 20103)
Transformers I.F., No. 25 (ZA 14534) (now superseded by No. 88)
Transformers I.F., No. 25A (ZA 20104)
Transformers I.F., No. 38 (ZA 16879)
Transformers I.F., No. 39 (ZA 16880)
Transformers I.F., No. 88 (ZA 28649)

Wireless set No. 22

Transformers I.F., No. 24B (ZA 20745) (now superseded by No. 87)
Transformers I.F., No. 25 (ZA 14534) (now superseded by No. 88)
Transformers I.F., No. 87 (ZA 28648)
Transformers I.F., No. 88 (ZA 28649)

Reception sets P.C.R. Nos. 1, 2 and 3

Transformers I.F., No. 93 (ZA 30688) (now superseded by No. 95)
Transformers I.F., No. 94 (ZA 30689) (now superseded by No. 96)
Transformers I.F., No. 95 (ZA 32100)
Transformers I.F., No. 96 (ZA 32101)

3. Action required by:-

(a) R.E.M.E. base workshop units only

- (i) On overhaul of main equipments.
- (ii) On Ordnance stocks of spare components.

4. Priority: Group 'B' (A.C.I 878/49 refers).

5. Stores required:-

Wax LFRM 3 (Claud Campbell)
This will be obtained by local purchase.

DETAIL

- 6. (a) Remove the transformer assembly from the I.F. can.
- (b) Remove the iron-dust cores from each coil. Do not disconnect the capacitor.

Note: The iron-dust cores tend to seize up in the coil formers.

- (c) Set up a Q meter (Meter, circuit magnification, No. 1) to a frequency of 300kc/s and the variable capacitor to 250pF.
- (d) Connect each half of the transformer in turn across the inductor terminals of the Q meter. Insert the core in the coil under test and trim for maximum 'Q'. Do not insert the core in the coil not under test.
- (e) Record the 'Q' value.

Note: I.F. transformers with a top grid lead should have this lead connected to the appropriate capacitor termination.

- 7. (a) Place the transformer assembly with iron-dust cores removed in a drying oven (preferably one fitted with a desiccator), and heat at a temperature of 70°C. for twelve hours. Great care must be taken not to disturb the coils, which tend to slip down the former and alter the band-width and coupling.
- (b) Maintain the transformer assembly at this temperature until a check on the 'Q' at room temperature indicates that the 'Q' value has ceased to rise.

Note: The 'Q' value under the conditions stated in sub-para. 6 (c) should not be less than 60 although the best coils should be about 70.

- 8. (a) Plug the holes in the formers normally occupied by the iron-dust cores to prevent wax entering the screw threads.
 - (b) Return the assembly to the drying oven and maintain at a temperature of 70°C. for a further twelve hours.
9. Prepare a wax dipping bath (see Fig. 1) using LPRM 3 wax, in which the coil assemblies may be completely immersed. The temperature of the bath should be thermostatically controlled to 90_± 2°C. It is important to avoid overheating the wax.
- 10. (a) Remove the heated coil assemblies from the drying oven and while still hot dip in the wax bath. The duration of dip should be about one second and the coil assemblies should be agitated freely to ensure penetration by the wax.
 - (b) Cool the assembly in a light fan draught and search the coil winding surface for holes into which the wax has not penetrated. Holes will be filled by running in wax with an under-run clean soldering iron.
 - (c) When cool but not cold give the assembly a second flash dip, and when cool again, a third. After each dip, check and fill any pin holes.
 - (d) Remove the plugs and clean off any surplus wax from the assembly (using an under-run soldering iron).
 - (e) Put a dab of red paint on the top of the coil former to signify that this modification has been performed.
 - (f) Clear the holes with the special tap (Fig. 2) and reinsert the iron-dust cores and damping resistors.
 - (g) Reassemble the unit in its can.
 - (h) Tune the unit and check that the 'Q' is satisfactory.

11. The following practical points should be noted:

- (a) Assemblies should be treated in as large batches as possible to ensure the utmost economy in time and labour.
- (b) The temperature of the drying oven should not exceed 70°C., as the Troli-tul formers on which some transformers are wound begin to soften.