

WIRELESS SET, NO 31, MK 2

TECHNICAL HANDBOOK - TECHNICAL DESCRIPTION

Tels F 382 Part 2 must be read in conjunction with this Part 1 which contains references to figures and tables in the Part 2.

Introduction

1. The Wireless set, No 31, Mk 2 is a portable low-power f.m. transceiver for short-range R/T communication. In all respects other than those mentioned in paragraph 2 below the operation of the set is the same as the Wireless set, No 31. (See Tels F 360-369).
2. The Mk 2 differs from the WS 31 in the following major respects:-
 - (a) Fifteen valves are used, thirteen on receive and five on send. The three valves comprising the squelch circuit have been removed.
 - (b) Changing from SEND to RECEIVE disconnects both h.t. and l.t. from the sender p.a. (V1) and the crystal oscillator mixer (V2). As in the WS 31 the remainder of the sender is used on receive as the first local oscillator and a.f.c.
 - (c) Only one aerial, a 5 ft 4 in. quarter-wave whip, is provided for use with the set. An additional plug has been provided on the front panel to allow this aerial to be used at the end of a 50 ft coaxial cable.
 - (d) The aerial output circuit has been changed to tune the p.a. to the quarter-wave aerial.
 - (e) A separate on/off switch has been provided, switching both h.t. and l.t.
 - (f) A send/receive relay, operated by the pressel switch, has been added to supply h.t. to V1 and V2 on SEND.
3. On a number of early production models of the Wireless set, No 31, Mk 2 the circuit reference mark stamped on the side of certain sub-assemblies and components is incorrect. However, no difficulty should be experienced in locating components providing Figs 2003 - 2005 are used. Table 2006 shows the incorrectly marked sub-assemblies and components and their correct circuit references.

Brief technical description

(See block diagram - Fig 2001 - 2002)

Receiver (Fig 2003)

4. The input lead from the aerial terminal is now tapped to the earthy end of L1 in order to match the 45Ω aerial, using the inherent inductance of capacitor C4 as an extension of L1.
5. The screen grid of V8, the first i.f. amplifier, is fed via a break contact (RLA1) on the send/receive relay (RLA) so that this valve is switched off during transmission. This arrangement was introduced to prevent loss of sidetone during transmission due to the receiver blocking.

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6. Apart from minor component changes the remainder of the receiver is the same as the WS 31 except for the omission of the squelch circuit.

Sender (Fig 2003)

7. Apart from the switching, this operates in the same way as the WS 31. When the set is switched to SEND by means of the pressel switch, RLA and the heaters of V1 and V2 are connected in series across the l.t. supply. RLA operates applying h.t. voltage to V1 and V2 via RLA1.

8. For calibration, a section of the push-button switch SWB (PRESS FOR DIAL LIGHT AND CALIB) applies h.t. to V1 and V2. The other section of SWB connects the dial lamp in series with the heater of V2 across the l.t. supply.

Power supplies

9. The battery eventually to be issued with this set is Battery, dry, HT/LT, 90+60/4.5V, No 2 (Y3/YC/01369). This battery has an estimated working life of 36 hours after six months storage. It will be issued when the present stock of Battery, dry, HT/LT, 90+60/4.5V No 1 (Y3/WB 4118) wastes out.

Construction

10. The Wireless set, No 31, Mk 2 is housed in a steel case and is very robust. The front panel has been reinforced and a carrying handle provided. The lid, covering the front panel controls, is also made of steel.

Controls (Fig 1001)

11. The controls mounted on the front panel consist of the following:-

VOLUME	Receiver volume control
ON/OFF switch	A double-pole switch breaking both h.t. and l.t. supplies.
TUNING	A five-ganged capacitor to which is geared a dial individually calibrated in channels from 0 to 40.
DIAL LOCK	A lock for the tuning knob.
PRESS FOR DIAL LIGHT AND CALIB	A button which, when pressed, causes the dial to be dimly illuminated and h.t. to be applied to V1 and V2 and l.t. to V2 (the sender crystal oscillator), to allow the set calibration to be checked.
CURSOR ADJUSTMENT	An adjustment for correction of initial dial calibration.

Detailed technical description

12. For a detailed technical description of the Wireless set, No 31 see Tels F 362.

Note: The next page is Page 1001

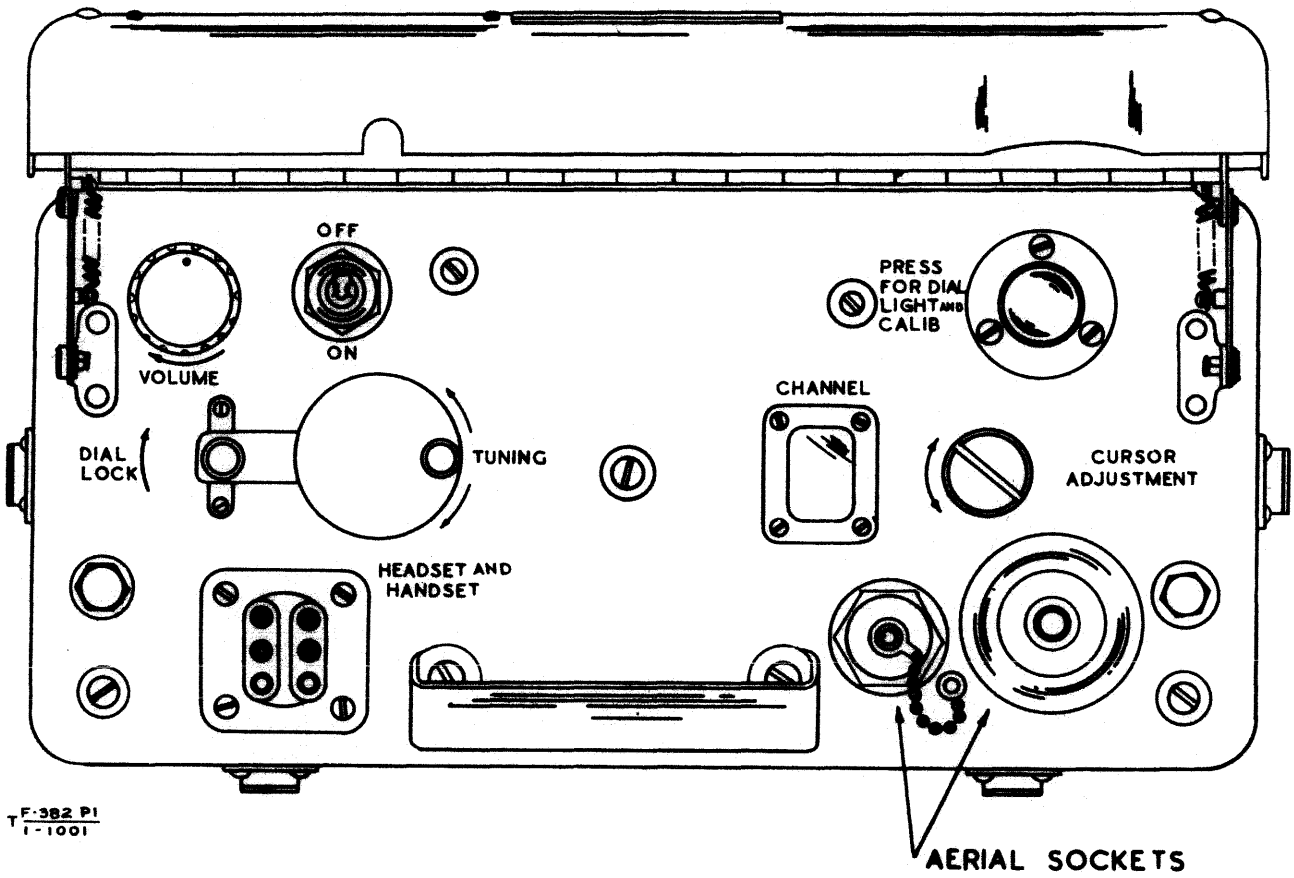


Fig 1001 - Front panel controls

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END of Part 1

