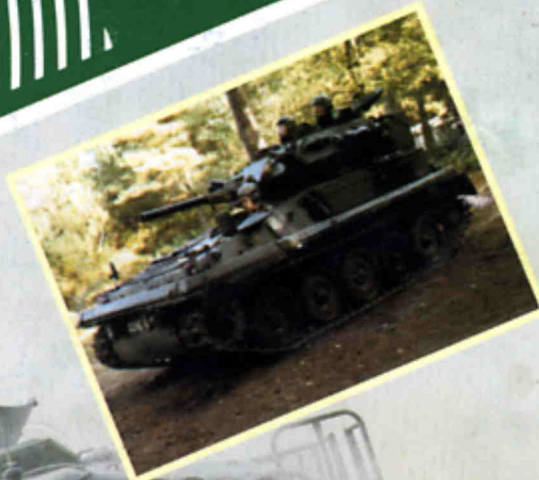


Communications
Division



CALLPAC VRC-2000
-dependable communications from a high
performance HF vehicle radio system
Simple to install; easy to operate

CALLPAC RT-2000

-the compact, cost-effective solution to tactical HF communications

Good communications are essential for the gathering and co-ordination of battlefield intelligence and the control of own forces in fast moving situations.

MEL's CALLPAC RT-2000 provides those essential communications reliably, cost-effectively.

From its inception, CALLPAC was designed to fulfil a variety of roles in fighting vehicles, as a manpack set and as a fixed or mobile base station.

Its minimal space requirement, dependable performance, inter-operability and price make CALLPAC the overall cost-effective solution to military and para-military HF communications.

Soft-skinned vehicle installation is simple and quick and even installation in armoured

vehicles is also a relatively easy operation with configurations tailored to match customer requirements. Where required MEL engineers will design and install systems to specific customer requirements.

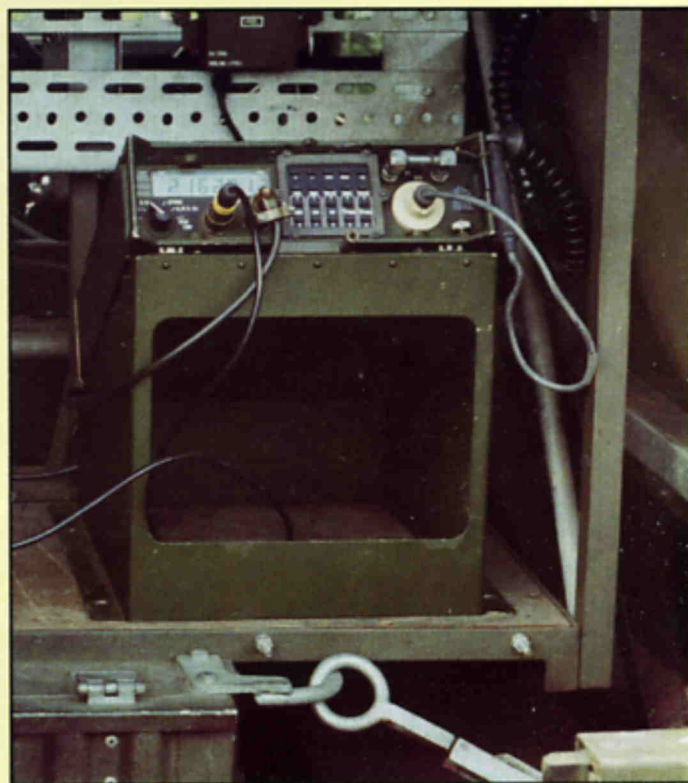
A wide range of ancillary equipment increases CALLPAC's performance and flexibility in use.

CALLPAC is now being delivered to countries in Africa and the Middle East where its dependable performance, inter-operability, simplicity of operation and maintenance are conveying significant savings in training requirements and cost-of-ownership as well as meeting operational requirements.



1 CALLPAC covers the HF band from 1.6 MHz to 30 MHz with 284,000 frequencies available at 100 Hz spacing.

There are 5 operating modes; the two speech modes (USB, LSB) include speech processing, resulting in greater 'talk power' (high average output power).



2 CALLPAC was the first HF vehicle radio of its type to incorporate easy-to-use keypad controls, microprocessor control and automatic tuning.

The angled mounting bracket holds CALLPAC at a height and angle that maximises work rate by making it easier for a signaller to read the display and operate the controls. A shock-mounted tray for gun-firing vehicles is also available.

3 The RT-2000 is eminently suitable for long range vehicle patrols in bush country or in desert terrain.

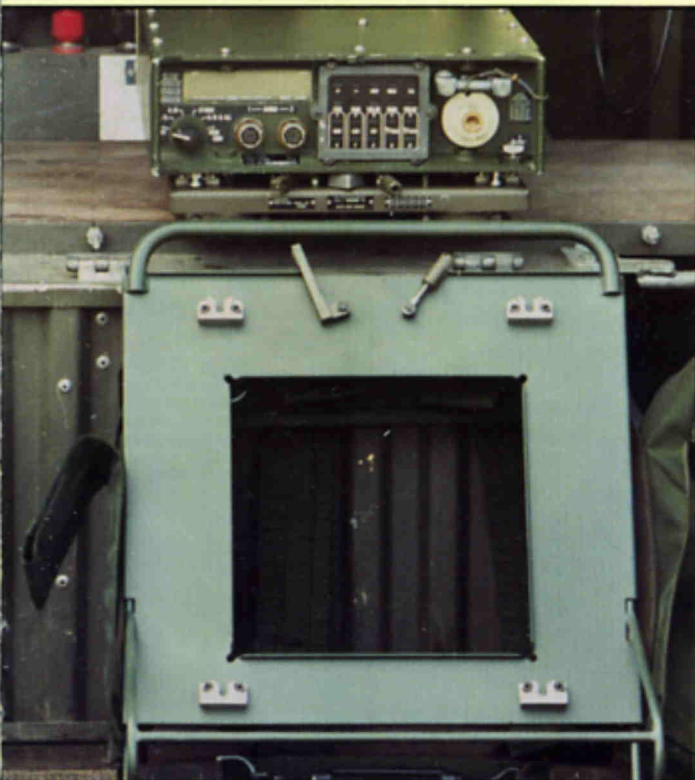
A range of ancillary equipment which includes amplifiers, antennas, encryption units and burst data devices ensure good, secure skywave performance over long distances.

The incorporation of an MEL 100 W Amplifier/Automatic Tuning Unit conveys significant operational benefits by increasing

the signal-to-noise ratio which decreases error rate on any decoding equipment employed.

Facilities incorporated in CALLPAC allow for single or dual operator working, with intercommunication between two operators even under radio silence.

Operators can control on/off, volume and selection of any 10 pre-set channels using the front panel keypad, the handset, the headset control box, or the remote control unit.



4 CALLPAC is a true multirole radio. It can be installed as a 'clip-in' vehicle fit providing all the facilities of a true vehicle radio. However by unfastening a single screw it can rapidly convert to a 'snatch-and-run' manpack set.

In the vehicle's clip-in fit CALLPAC's Ni Cad battery is float charged from the vehicle's DC supply.



5 CALLPAC can be installed as an HF radio in an armoured fighting vehicle. It can also form part of a fully integrated HF/VHF vehicle station including High and Low pass filters to facilitate co-site operation.

CALLPAC is compatible with all modern military communication systems such as the British Army Clansman series.

CALLPAC

“The CALLPAC PRC 2000 HF Tactical Radio proved to be durable, reliable, easy to teach, easy to use and of excellent quality. Should the minor points/suggestions made in this report be carried out, the set would be a communicator’s dream”

Falkland Island Campaign Tactical Report on CALLPAC by 205 Signals Squadron.

All the modifications suggested by 205 Signals Squadron have now been actioned. CALLPAC is now ‘a communicator’s dream’.

Simple to operate

Using the simple key-pad push-button controls located on the front panel of the set, CALLPAC can be programmed with 10 pre-selected, stored channels. Once completed, change of frequency and mode together with antenna tuning are all carried out automatically and swiftly. Channel change is effected via the key-pad or the small rotary switch on the handset. A volume and ON/OFF control is also provided on the handset, giving truly one man operation.

Also located on the front panel is a single, 6 position, rotary function switch which permits selection of the following:

- OFF = Power off
- H/S = Handset control
- K/B = Key-pad control
- STORE = Memory programming
- K/B & ILL = Key-pad and illumination
- REM CON = Full remote control

Remote Control

The remote control position enables troops to operate at distances of up to 3 km from the transceiver — again a distinct advantage under some battle conditions. Control and audio signals pass, via D10 field telephone cable, between the handset and a small connector box linked to the transceiver.

ON/OFF and volume control

LCD
Picture shows readout of frequency, mode and channel. The LCD also displays:
• forward/reverse power (in transmit)
• 20W or 4W (when selecting high or low power)
• Signal strength readout 1-9 (when silent tuning)

FUNCTION SWITCH

OFF Power off
H/S Handset control
K/B Key-pad control
STORE Enables frequency and mode to be stored in the channel memory store
K/B & ILL Key-pad control, with LCD illumination
REM CON Remote control



HANDBET

9 channel selector
(1 to 9) I/C Intercom
CLANSMAN Compatible
(this is used if the handset is connected to ordinary radios which do not have a 'handset channel-select' capability).

AUDIO CONNECTORS
7 pin audio connectors, for connection of handsets, headsets, morse key or data message terminal



Outstanding Performance

- 1.6 MHz to 30 MHz
- 284,000 frequencies at 100 Hz spacing
- 4 and 20 watt transmit power
- Groundwave in excess of 30 km; with amplifier in excess of 50 km
- 5 operating modes; voice modes with speech processing (USB, LSB)
- 10 pre-set channels — easily programmable for frequency and mode
- Remote control and intercom facilities
- Meets relevant sections of MIL — STD 810 C and DEF STAN 07-55
- Fault detection via key-pad with results shown on LCD
- TS 2010 test set typically achieves a mean time to fault trace and repair (MTTFR) down to module level of less than 30 minutes under field workshop conditions

VOLUME

+ = increase
- = decrease
(the +/- buttons carry out other functions when used in conjunction with the 'power' and 'tune' control buttons)

CALL

Transmits a two-tone call

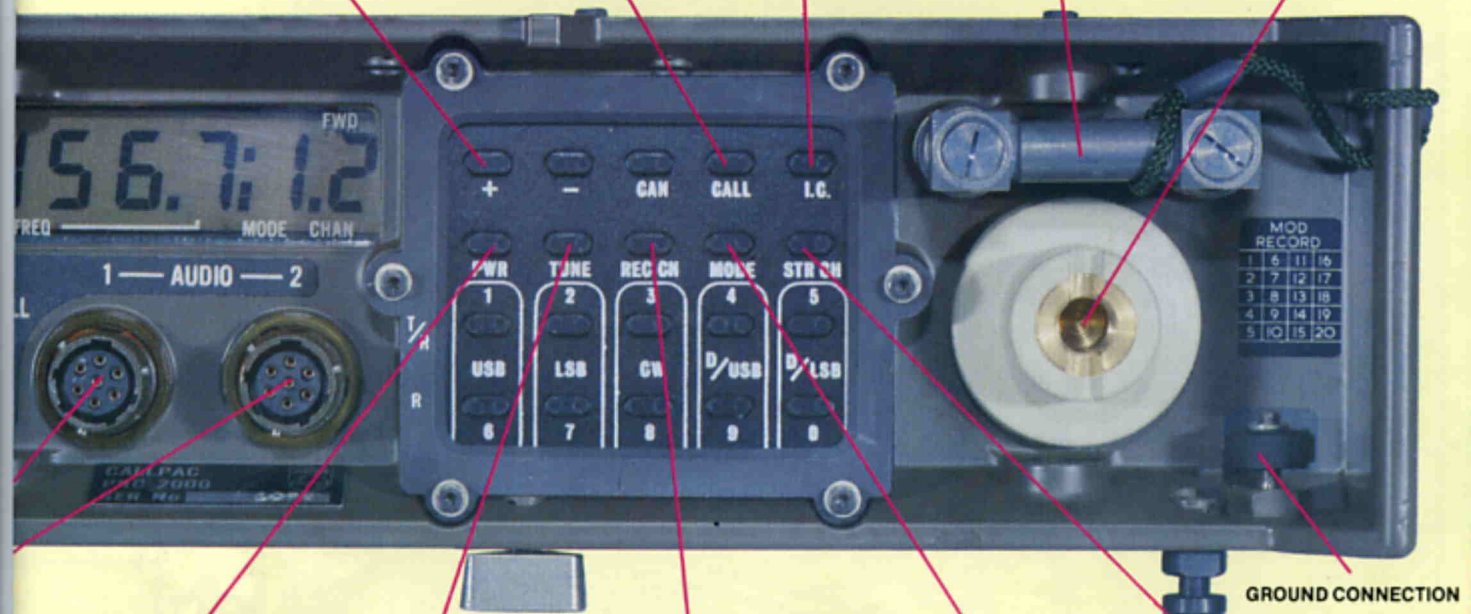
IC.

Off-air intercom facility between audio 1 and audio 2 socket

'U' LINK.

BNC to BNC connector, linking the output of the 20W power amplifier to the input of the ATU (the dipole aerial is connected to the output of the power amplifier in place of the 'U' link)

Receptacle for 'gooseneck' or '3' position swivel and whip antenna



PWR.

High/low power selection when used in conjunction with '+ and -'.
+ = 20W
- = 4W

TUNE.

Permits 'silent tuning'; it is used in conjunction with the 'S' points (signal strength) readout on the LCD and the '+ and -' buttons to manually increment the ATU setting

REC CH.

Allows channel selection from the key-pad, when the function switch (2) is in the K/B (key-pad) position

MODE.

1 USB	} Transmit and Receive	6 USB	} Receive only
2 LSB		7 LSB	
3 CW		8 CW	
4 Data USB		9 Data USB	
5 Data LSB		0 Data LSB	

STR CH.

Store Channel button, allows a frequency and mode to be entered into the channel memory

100 W Vehicular Installation

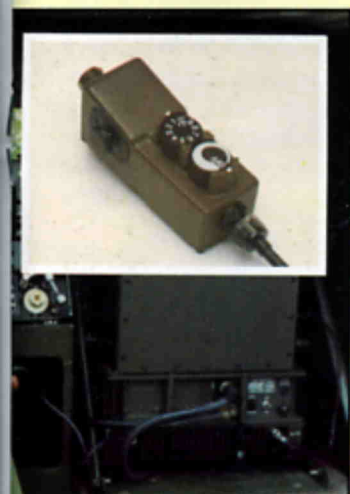
On the front panel, next to the key-pad, are two audio output sockets connected to headsets via MEL BA 1199 switch boxes. The switch box controls enable an operator to select channels, control on/off/volume and push-to-talk functions.

The audio output sockets may also be used as a local intercom. A vehicle commander can therefore talk to a forward look-out post or to

an infantry commander, without interrupting reception.

CALLPAC is superior to other competitive HF manpack radios in one important respect — it has a built-in intercom which permits operators to still hear all incoming calls, even when using the intercom.

Volume level of the radio is reduced by half (3dB) to enable intercom calls to be heard.



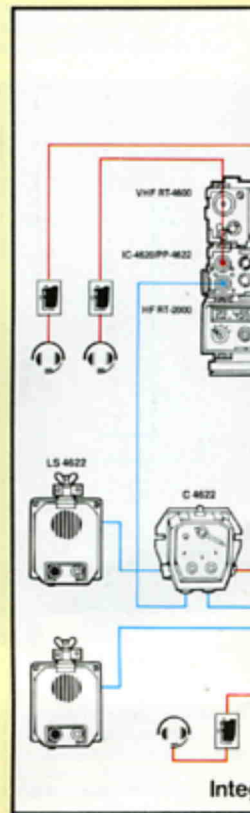
CALLPAC RT-2000 -a complete HF System

The basic transceiver is a complete and self-contained radio station which is complemented by a range of ancillaries to enhance CALLPAC's operational capability when used in a variety of roles.

A comprehensive number of carefully designed ancillaries are available, including speech encryption and secure burst data devices, audio equipment, a remotable ATU and battery chargers for field and base applications.

A typical integrated HF (20W) and VHF (2 or 30W) vehicular installation is shown in the schematic diagram.

In this comprehensive installation a wide range of equipment can be employed including power supply units, HF and VHF antennas, intercom facility, loudspeaker units, head-sets and helmets, amplifiers and a BA 4620. This unit is used to connect CALLPAC into the VHF RT-4600 harness system.



Power Sources and Battery Chargers

In vehicles, CALLPAC may be powered from a variety of sources. These range from the simple BA 1205 for the clip-in role, to the BA 1201 which fits in the battery compartment of CALLPAC, forming a permanent vehicle installation.

Antennas

The standard antenna of vehicular installation is a 3.6 metre whip antenna fitted into a vehicle antenna base designated BA 1278. An adaptor (BA 1279) allows two vehicle whip antennas to be mounted in a 'V' shape to achieve improved radiation efficiency at lower HF frequencies.

For mobile-static operations when increased performance is required the whip antenna(s) can be replaced by a wire dipole or end-fed antenna to achieve short to medium range skywave communications.

A range of sectionalised transportable masts and dipole and broadband antennas are available.

MEL Amplifiers

Although HF communications can span the world using only a few Watts of transmitter power and a little help from the ionosphere, it is the shorter ranges up to 150 Km which can benefit from higher power transmitters to give a better signal-to-noise ratio at the receiver.

Two transmitter amplifiers are available, a 100 Watt and a 400 Watt, both of which operate automatically, under the control of an RT-2000.

Comprehensive Product Support Worldwide

MEL provides in-depth support of CALLPAC including comprehensive documentation, setting to work, operator/maintainer training, installation, post-design services and spares stocking. The level of spares to be held by customers is agreed at an early stage with MEL providing an initial inventory.

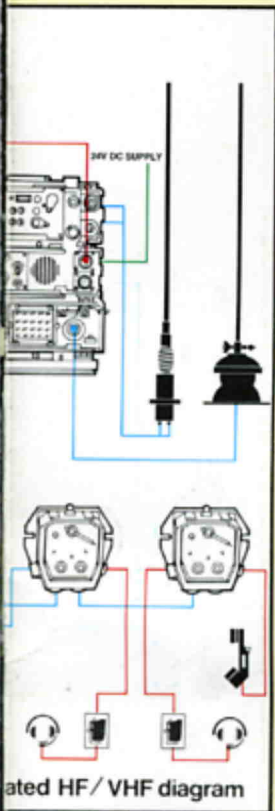
Thereafter, as a matter of policy, spares are available for a minimum of 10 years and extended beyond that time as required.

MEL Field Support Engineers give sound advice and render practical assistance to customers. Their main activities are proving trials, operational work-up, commissioning of customer repair workshops and longer term technical support to reduce through-life

costs. They also act as the liaison link between customers and MEL's Base Repair and Refurbishment workshops.

At the MEL Training School, skilled instructors are dedicated to producing customer personnel proficient in getting the best out of MEL equipment. Training is tailored to meet the needs of each CALLPAC customer with courses structured around specific job requirements.

Courses are also provided at customers' training schools or workshops and 'training transfer' packages are also offered. These include training manuals, lesson plans and a full range of training aids.



100 Watt



400 Watt



Manpack Accessories

BA 1383 HF 100 Watt Amplifier and Automatic ATU

This amplifier is designed for vehicle or ground station use and is also suitable for amphibious and small naval craft.

Power output is 100 Watts pep/average and will operate into a 4m whip or dipole antenna. The amplifier is powered from a nominal 24 volts DC, an optional AC psu is available.

The automatic ATU and amplifier may be installed as an integral unit as illustrated, or may be split into separate units for convenience of installation.

BA 1358 HF 400 Watt Amplifier

Intended for operation from an AC mains supply, the amplifier provides an output power of 400 Watts pep into a dipole or broadband antenna system. The BA 1358 provides a cost effective solution for base station applications.

Manpack Role

It should not be forgotten that 'CALLPAC' in the form of the PRC-2000 is eminently suitable for the manpack role. Handset control of ON/OFF, volume and channel change make CALLPAC a true one man operated radio.

A full range of manpack accessories is available.

The information given in this publication does not supersede any specification or manual published for the equipment. MEL reserves the right to change designs and or specifications without prior notice. No part of the publication may be reproduced without written authority from the proprietor.



A division of Philips Electronic and Associated Industries Limited

MEL, Manor Royal, Crawley,
West Sussex England RH10 2PZ.
Telephone 0293 28787. Telex 87267.