

SR0468

PRM 4700A

VHF TRANSMITTER/RECEIVER

OPERATING INSTRUCTIONS

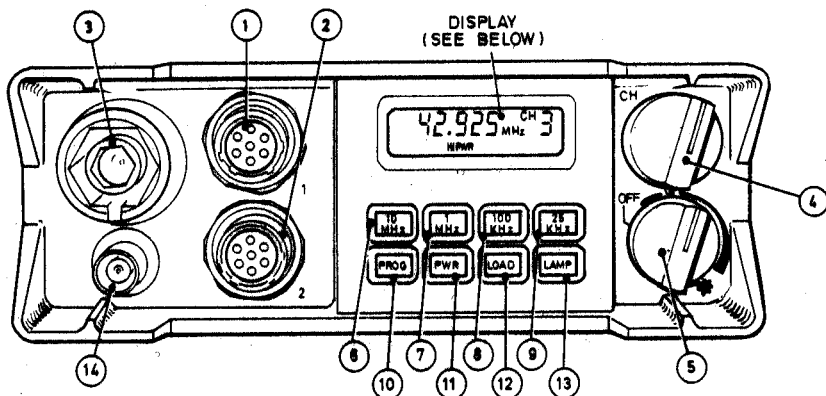
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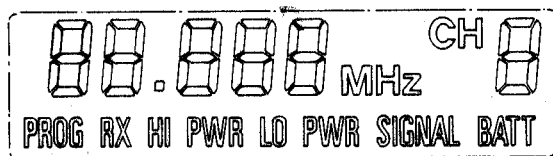
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PRM 4700A Front Panel



Display (Shown in Power-up Condition)

CONTROLS AND CONNECTORS

1. The function of the controls and connectors are as follows:-

- 1. Audio Connector 1) Used for connection of handset
- 2. Audio Connector 2) or headset. Also for battery charging and connection of ancillaries. (SKT 1 is used for Data, SKT 2 for Rebro, and Vehicle Interface Unit).
- 3. Whip Socket For connection of whip antenna.
- 4. Channel Selection Switch (CH) Set to CH 0 (fully Anti-clockwise) or channel 1-9.
- 5. Gain Control Switch Selects power off, audio volume, microphone normal or whisper (W), and Squelch Disable (*). Microphone sensitivity is increased by 4 times when whisper (W) is selected. The selected levels are:-

- Position 1 Power off.
- 2 Whisper with minimum audio volume
- 3 Whisper with increased audio volume
- 4-6 Normal microphone operation, increasing audio volume
- 7 Normal microphone operation, maximum audio volume
- 8 Squelch disabled with low audio volume
- 9 Squelch disabled with increased audio volume.

- 6. 10MHz selection switch) Increments digit(s) each
 - 7. 1MHz selection switch) time a key is pressed.
 - 8. 100kHz selection switch) Will cycle through digits
 - 9. 25kHz selection switch) if key is held pressed for more than one second.
- NOTE: 25kHz selection increments in 25kHz steps.

- 10. PROG Press once to initiate channel programming sequence for transmit and receive frequencies. Press again to initiate channel programming for receive only.
- 11. PWR Press to select HI PWR (high power) or LO PWR (low power).
- 12. LOAD Press to enter programmed frequency into store.
- 13. LAMP The display is illuminated when this key is pressed.
- 14. 50 ohm Connector For connection of wire dipole or inverted V Antennas.

NOTE: An audible indication is given in the handset or headset when any key (6) to (12) is pressed, in a valid mode.

DISPLAY

- 2. The display indicates the status of the transceiver as follows:

- XX.XXX MHz Normally displays the operating frequency. During programming, displays the frequency selected ready for entry into store.
- CH 0 to 9 Channel 0 is used for manual selection of frequency. Channels 1 to 9 are pre-programmed channels, which can be used for single or two frequency simplex (transmit and receive on differing frequencies).
- PROG Denotes that programming of Tx and Rx channels is selected.
- PROG RX Denotes that programming of Rx channel is selected.
- HI PWR Denotes that 3W RF output is selected.
- LO PWR Denotes that 10mW RF output is selected.
- SIGNAL Denotes that an incoming signal has been detected.
- BATT Illuminates when battery voltage is low.

PREPARATION FOR USE

- 3. (1) Place the transceiver in the pouch.
- (2) Clip the battery to the base of the unit.
- (3) Fit the antenna into the whip socket (3).

- (4) Connect the handset or the headset to an audio socket (1) or (2).
- (5) Close the lid of the pouch, securing the lid around the whip and handset cable.
- (6) Fit the pouch on the back, or sling the pouch from the shoulder.

NOTE: Two type of pouches are available, one for backpack use, one for hip use.

OPERATION

4. The transceiver can be operated in channel or manual mode.

OPERATING PROCEDURE - CHANNEL MODE

- 5.(1) Move switch (5) from the OFF position. Check that the complete display (as illustration) is displayed for approximately five seconds (part of BITE, see Para. 17-20). The display then presents the channel selected, reception frequency and power level selected.
- (2) Select the required channel using switch (4).
- (3) The transceiver is now in the receive condition. Adjust gain control (5) to give required listening level, with signal present.
- (4) If a signal is detected on the selected channel SIGNAL is indicated in the display.
- (5) Press PWR (11) to change power level ready for transmission. HI PWR or LO PWR is indicated. Low power should be used if practicable to extend battery life and reduce the risk of interception.
- (6) Press the PTT switch on the headset or handset and speak into the microphone to transmit.

NOTE: If required the PTT switch can be pressed at switch-on, overriding the BITE function and allowing immediate transmission.

OPERATING PROCEDURE - MANUAL MODE

- 6.(1) Carry out the procedure given in para 5(1).
- (2) Set switch (4) fully anticlockwise to display CH 0. The transceiver is now in the receive condition at the frequency last used in manual mode. To change frequency press keys (6) to (9) as required.
- (3) Carry out the procedures given in Paras. 5(3) to 5(6).

SITING FOR OPERATION

7. The PRM4700A operates at low power and high frequencies; consequently the location of equipment greatly affects its operating range. Line-of-sight communication normally can be expected, therefore location on a hill top or a tall building will increase the operating range.

Valleys, densely wooded areas and sites near sources of electrical interference should be avoided.

EFFECTIVE RANGE

8. The effective range between manpacks in high power mode using 1.4 m whips is approximately as follows:-

Over open-rolling terrain	8km	2.5m whip,
In wooded country	5km	approximately 40%
In built-up areas	3km	increase. Battle
Over open water	30km	Whip, considerably less range than 1.4m whip, with best range around 50MHz.

AFTER USE

9. After use proceed as follows:
 - (1) Turn switch (5) to OFF.
 - (2) Unplug antenna and dismantle from the top by withdrawing and folding over each section in turn.
 - (3) Remove handset or headset.

BATTERY

10. The MA 4705A is a re-chargeable battery using ni-cad cells.
11. Batteries are protected by an internal thermistor. Protection is automatic, and no external fuse is evident.

MA4705A BATTERY CHARGING

12. The MA945S is a two way charger capable of charging one or two nickel-cadmium batteries detached from the manpack or via audio sockets, with the batteries attached to the radios. Proceed as follows:-

NOTE: The charging rate switch on the MA945S must be set to Rate 1.

- (1) Set the MA945S SUPPLY switch to OFF, and the SUPPLY VOLTAGE switch to suit the voltage supply, using a screwdriver.
- (2) Connect the MA945S SUPPLY plug to the supply.
- (3) If in-situ charging is required, set the PRM4700A switch (5) to OFF.
- (4) Plug one of the two flying leads on the MA 945S into
 - (a) The contacts of the battery, using adaptor lead ST719115, when the battery is removed from the radio, ensuring correct polarity,

OR

- (b) Plug one of the MA945S flying leads into an audio socket (1) or (2).
- (5) Switch on the MA945S and check that the associated charging indicator lamp lights.

NOTE: A fully discharged battery will be completely recharged in approximately fourteen hours.

CHANNEL FREQUENCY PROGRAMMING

13. Channel frequency programming can be carried out from the front panel (as follows) or by using an MA4073B Programmer or MA4083B Fill Gun (refer to appropriate handbooks).

CHANNEL FREQUENCY PROGRAMMING FROM FRONT PANEL

14. Channel frequency programming, using the front panel controls, is carried out as follows:-
- (1) Select channel to be programmed at switch (4), observing channel number indicated on display.
 - (2) Press PROG (10) and check that PROG is indicated on the display.
 - (3) Enter required frequency using keys (6) to (9).
 - (4) Press LOAD (12) and check that PROG is extinguished. This indicates that the frequency is loaded into the channel for both transmit and receive functions.
 - (5) If a different frequency is to be programmed for reception carry out the procedure given in (1) to (4), but press PROG (10) twice and check that PROG RX is indicated on the display. This denotes that the frequency, when loaded, will be used for reception only.

FUNCTIONAL CHECKS

15. Functional checks can be carried out as follows:
- (1) Select either * position at switch (5). Noise is heard when the receiver is operational, with no signal present.
 - (2) Sidetone is heard in the handset or headset during transmission. This denotes that the transmitter is operational.
 - (3) If BATT is indicated on the display at any time (other than for five seconds after switch-on) it denotes that the battery voltage is low. The battery should be charged or changed as soon as possible.
 - (4) An interrupted (warbling) tone is heard in the handset or headset if a frequency outside the range of the equipment (88.025 MHz to 89.975MHz) is selected, or an internal synthesizer fault occurs.

BUILT-IN TEST EQUIPMENT (BITE)

16. When switch (5) is moved from the OFF position, BITE is activated. This gives a complete display presentation for five seconds as described in para 5(1).
17. If the BITE detects a fault an indication E1 to E4 is flashed in the display for about five seconds and an interrupted tone is heard in the handset or headset. The transceiver then returns to normal operation (if possible).
18. The indicated fault are:
- | | |
|-------------------------------------|---------------------------------------------------------|
| E1 ROM (Read Only Memory) Fault | } No operator
rectification
action is
possible |
| E2 RAM (Random Access Memory) Fault | |
- E3 Denotes that stored frequency information is degraded. The channel frequencies can be re-loaded, or the transceiver can be operated in manual mode (channel 0).
- E4 Receiver Fault. No operator rectification action is possible.
19. If a non-rectifiable fault is denoted further testing can be carried out using the Field Repair Test Set and associated handbook.