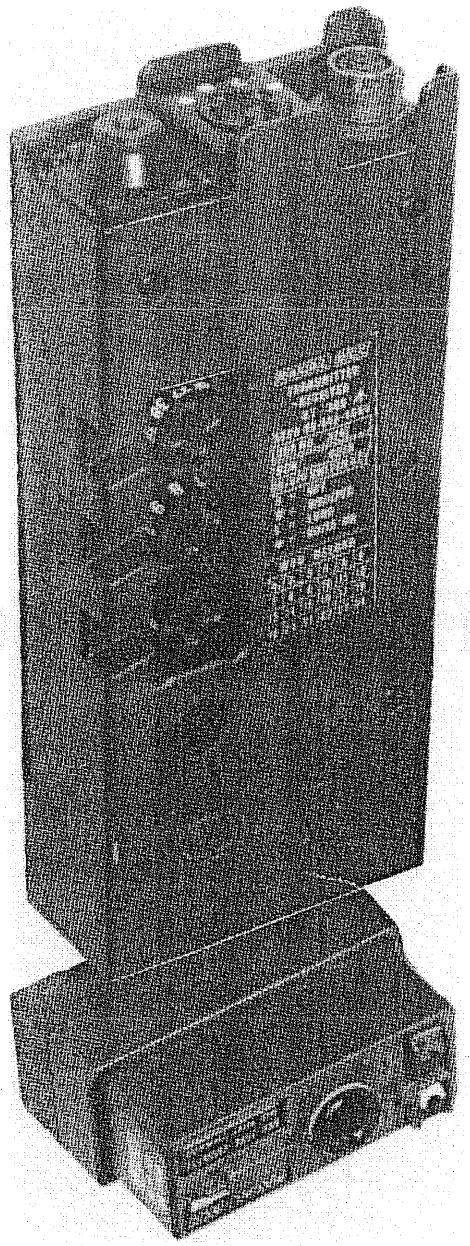


TRANSMITTER RECEIVER RADIO UK/RT 349
NSN: 5820-99-643-4564
Drawing No. 49210-100-09
Figure 3-1-1

Transmitter Receiver Radio UK/RT 349

Introduction

The UK/PRC 349, as shown at Figure 3-1-1, is a compact VHF/FM radio set capable of communications up to 2 km with an 0.6m Whip antenna and 2.8km with a 1m Whip antenna, depending on terrain.

Designed for use by infantry at section/platoon level, the radio set may be slung from the shoulder or may be mounted on the chest/back in a light weight terylene holster with cutouts for frequency selectors. Alternatively, it may be carried in the pocket of a combat jacket.

Issued in CES Kit No. 43832, (5820-99-965-4485) with Ni Cad Battery (6140-99-661-4865) and a battery cassette, (6130-99-657-5246) for 10 off battery (6135-99-195-6708), the kit also contains an 0.6m whip antenna, a headset with throat microphone, a carrying holster and a user handbook, Army Code No. 61646.

The radio set can be used in conditions of heavy rain, salt spray, high wind and driving dust, sand and snow. It will withstand the shocks and rough treatment usually encountered in battlefield conditions.

Operational Concept

The UK/PRC 349 has an operating frequency range from 37 to 46.975 MHz, providing 400 speech channels at 25 kHz spacing. It cannot be used as part of a rebroadcast station, however, it will initiate rebroadcast via the UK/PRC 351/2 or a UK/VRC 353. The equipment will operate without mutual interference, at a minimum of 2 metres from an HF radio station.

A whisper mode is available for 'silent conditions'. This gives a 12dB increase in microphone sensitivity and an 18dB decrease in audio output. Under `silent conditions` a 1kHz signal tone will alert a listening operator of incoming transmissions.

Three frequency selector switches are inset and flush with the casing of the radio set. They are designed for finger-tip selection. Numbers on the switches appear in cut-outs in the casing, marked MHz, 100kHz and 25 kHz giving any of the 400 channels available. In darkness, channel selection is carried out by counting the number of clicks from an end stop.

At the top of the set are the antenna and audio connections and between them the Facility Switch. Similar in design to the frequency selector switches it has 4 positions:

a. O - Radio set off.

b. W - The whisper mode.

c. L - The LOUD mode. Reduced microphone sensitivity with maximum audio output in noisy conditions.

d. * - NOISE-ON. In this mode the squelch circuits are inhibited and noise in the earphone indicates receiver serviceability. A fault condition causes the synthesizer to unlock which prevents the transmitter from switching on and the receiver audio output is muted. A continual hiss in the earphones confirms serviceability. No hiss could indicate signals not being received or jamming taking place.

Battery power-saving circuits provide continuous ON/OFF switching during `no signal` conditions, reducing the average `receive` current to 50%. This contributes to a battery life of 20 hours use in a 1:1:9 (Tx/Rx/Standby) cycle. Fitted to the base of the set the 12V battery secured with a single quick-release screw, is easily replaced.

A `Battery Low` warning is in the form of an intermittent hiss in the earphones when FACILITY switch is set to W or L. Satisfactory reception is still available, however, transmission range will be reduced. Transmissions will cease as the battery is further discharged.

The outer case is a lightweight metal casting, resistant to most corrosive elements. The low profile design of the radio set lends itself to `ease-of-use` for the combat soldier.

Technical Details

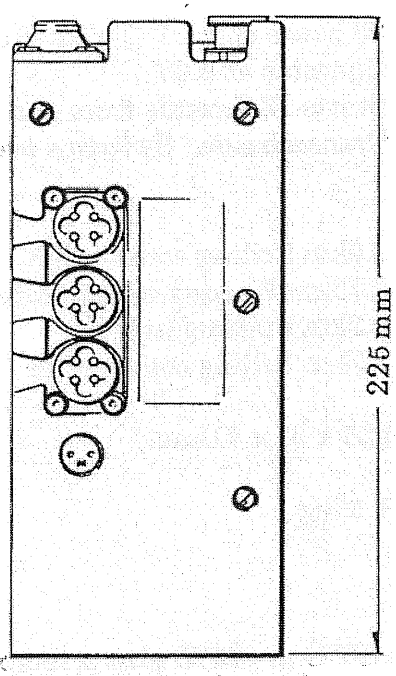
1. GENERAL STAFF REQUIREMENT (GSR). The GSR No. 3208 for a lightweight, VHF/FM radio, (UK/PRC 349) was issued under cover of MOD(PE) reference K1813/219 dated September 1971.

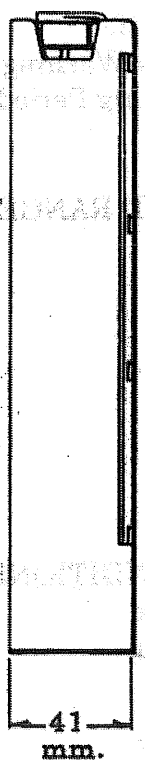
2. OPERATIONAL CONCEPT. The equipment is required to provide command communications at section/platoon level for dismounted troops.

3. DESIGN AUTHORITY AND CONTRACTOR. The design authority and development contractor is Racal Radio Bracknell, Berks.

4. FREQUENCY	
a. Range	37 to 46.975MHz at 25kHz channel spacing (400 channels).
b. Intermediate	21.4MHz.
5. MODE OF OPERATION	F3 Narrow-band FM simplex (voice).
6. POWER SUPPLY	12V 0.55Ah Secondary Battery Battery cassette (10 off Primary Cells)
7. CURRENT CONSUMPTION (12V input)	
a. Transmit	120-188 mA
b. Receive	54-84mA
c. Standby	4-10mA

8. TRANSMITTER	
a. Power Output (50 ohms load)	575mW (at 16V) 100-500mV (at 12V) 85mW (at 9.5V)
b. Modulation Sensitivity	
(1) Loud	0.18mVpd to 1.5mVpd input for ± 3kHz deviation.
(2) Whisper	0.2mVpd input for ± 3.5kHz deviation.
9. RECEIVER SENSITIVITY	Not less than 10dB S/N Ratio for 2mVrf input.
10. BATTERY	
a. Operating Life	20 hours at 1:1:9 (Tx/Rx/Standby)
b. Low Battery Warning	Operates at 9.6V
c. Battery Saving Period/	Starts 13 seconds from end of last Delay Transmission. Switches every 1.6 seconds.
11. ANTENNA AND RANGE	
a. 0.6m Whip	2.0km Rolling countryside. 0.75km Wooded countryside. 0.2km Built up area.
b. 1.0m Whip	2.8km Rolling countryside.
12. DIMENSIONS	225 x 91 x 41mm.
13. WEIGHT	1.13kg
14. CLIMATIC CONDITIONS	
a. Temperature	
(1) Operation	-20°C to +55°C plus a temperature rise at the upper limit due to solar radiation falling directly onto the equipment for 6 hours equivalent to 1kW per square metre of projected area. The radio may be used at temperatures between -20°C and -35°C if the radio is protected within the operators clothing.
(2) Storage	-40°C to +55°C.
b. Humidity	95-100% relative humidity with temperatures not normally exceeding +30°C during operation and storage.
c. Altitude	
(1) Operation and Storage	Up to 2440m.
(2) Transportation	Up to 7620m.
d. Immersion	May be immersed to a depth of up to 1.5m in fresh or salt water for two hours without damage.





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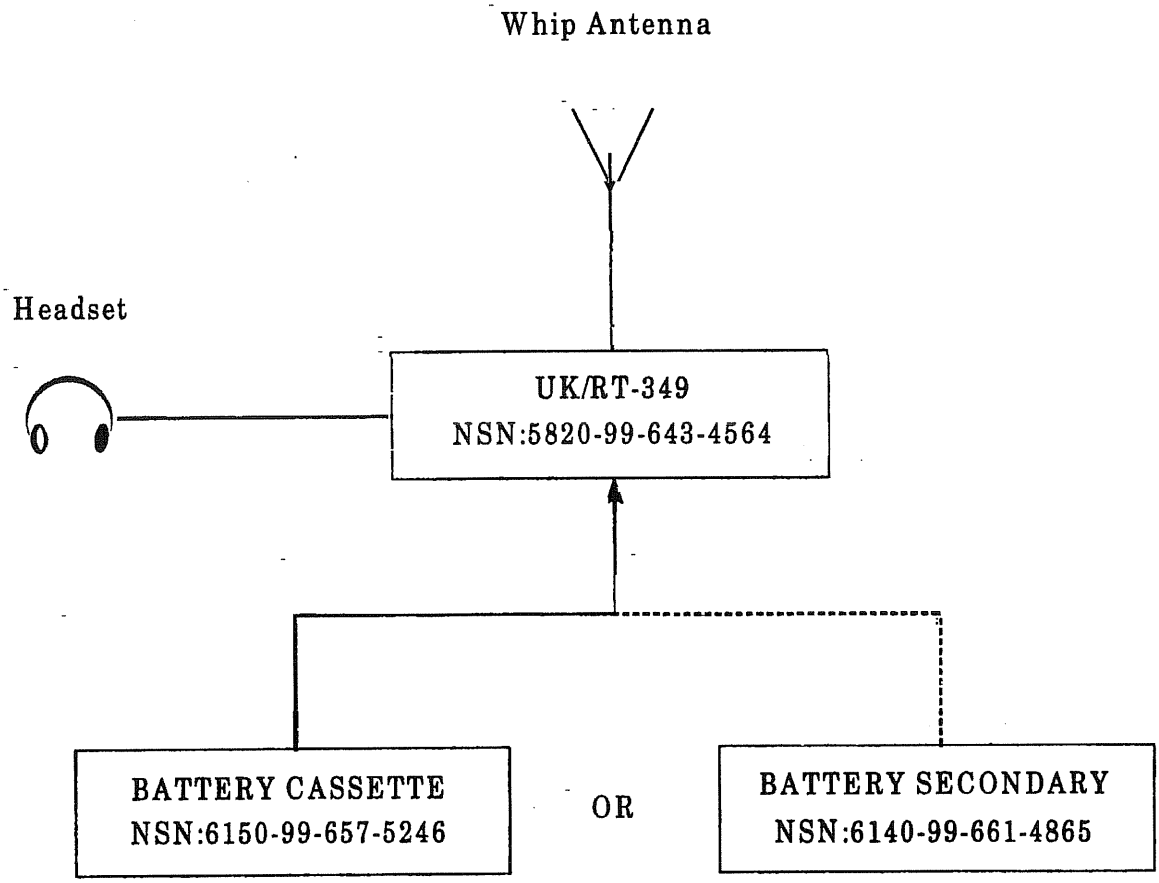
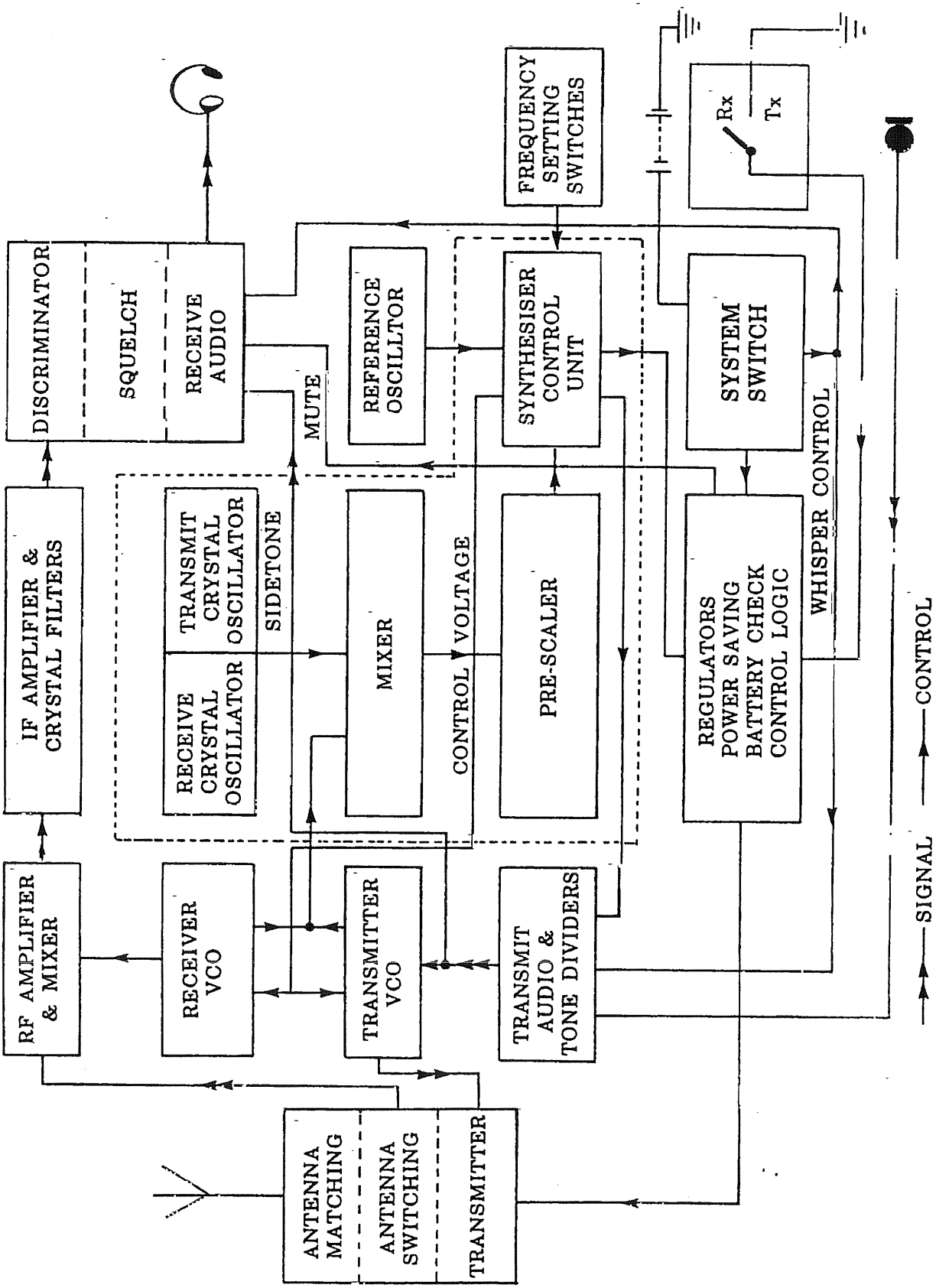


SCHEMATIC DIAGRAM OF RADIO STATION UK/PRC 349
Figure 3-1-3



BLOCK DIAGRAM OF TRANSMITTER RECEIVER UK/RT 349
Figure 3-1-4