2. OPERATING INSTRUCTIONS

2.1. Tuning to 500 kHz and 2182 kHz

1. Set BAND-switch to 500 kHz or 2182 kHz
2. Turn SENSITIVITY fully clockwise
3. Adjust VOLUME for a convenient volume.

NOTE: When the BAND-switch is set to 500 kHz or 2182 kHz the mode A3, A2-AGC ON is automatically selected, and the MODE-switch can therefore be set to any position.

2.2. Tuning to an A1, F1 or SSB Station in the Preselector Range

1. Set BAND-switch to the desired band
2. Set MODE-switch to A1, F1 or A3J/A3A and switch the AGC on
3. Set BANDWIDTH switch to the desired bandwidth
4. Turn SENSITIVITY fully clockwise
5. Adjust VOLUME for a convenient volume
6. Select the desired frequency with the keyboard
7. Push and turn PRESELECTOR for maximum deflection on the built-in meter.
8. Adjust CLARIFIER/BFO for natural-sounding speech, when the desired station is modulated.

NOTE: Under certain circumstances it can be advantageous to use manual gain control of the receiver either in addition to the automatic gain control or with the automatic gain control switched off. This is done by turning the SENSITIVITY control anticlockwise until best reception is obtained and has the effect of reducing background noise coming up in speech pauses.

2.3. Tuning to an F1 or SSB Station in the Duplex Ranges

1. Set BAND-switch to the desired HF-band
2. Set MODE-switch to F1 or A3J/A3A and switch the AGC ON.
3. Set BANDWIDTH-switch to the desired bandwidth
4. Turn SENSITIVITY fully clockwise
5. Adjust VOLUME for a convenient volume
6. Select the desired frequency with the keyboard
7. Adjust CLARIFIER for natural-sounding speech when the desired station is modulated.

Note: Under certain circumstances it can be advantageous to use manual gain control of the receiver either in addition to the automatic gain control or with the automatic gain control switched off. This is done by turning the SENSITIVITY control anticlockwise until best reception is obtained and has the effect of reducing background noise coming up in speech pauses.

2.4. Tuning to an AM Station

1. Set BAND-switch to the desired band (use the LP-filter 0.1-1.6 MHz or one of the Preselector Bands)
2. Set MODE-switch to A3.A2 and switch the AGC ON
3. Turn SENSITIVITY fully clockwise
4. Adjust VOLUME for a convenient volume
5. If the exact frequency of the station is known, select this with the keyboard. Otherwise select a nearby frequency with the keyboard and use the TUNING control to find the desired station
6. Adjust PRESELECTOR for maximum level if one of the Preselector Bands is used.

2.5. Operating Controls and their functions

SENSITIVITY	Manual adjustment of receiver RF gain
VOLUME	Manual adjustment of receiver AF gain. This control also functions as main switch. The 24 Volts supply indicator indicates only that the AC supply is missing and the receiver is powered from the battery.

The MODE-switch as four positions:

A3.A2	Reception of double and single-sideband modulation with full carrier.
A3J.A3A	Reception of single-sideband modulation with suppressed or reduced carrier.
F1	Reception of telex signals.
A1	Reception of unmodulated signals. The BFO is automatically switch on.

The BANDWIDTH switch has six positions:

WIDE

INTERMEDIATE

NARROW

V. NARROW

SSB

F1

DIMMER	Varies the illumination of the meter and the brightness of the display between full intensity and light extinguished.
ON/OFF	Disconnects the local speaker.
PHONES	Connection for headphones. Disconnects the local speaker.

The BAND-switch has 16 positions:

500 kHz	Fixed tuned bandpass filter.
2182 kHz	Fixed tuned bandpass filter.
.01-1.6 MHz	Low pass filter.
.06-.18,.18-53, .53-1.6, 1.6-4, 4-12, 12-30 MHz	Tunable bandpass filters.
4, 6, 8, 12, 16, 22, 25 MHz	Fixed tuned bandpass filters, covering the maritime HF duplex and telex frequencies.
PRESELECTOR TUNING	Tuning control for the tunable bandpass filters.
CLARIFIER BFO	For accurate tuning to frequency in SSB reception and for producing an audio frequency note when receiving signals of class A1 emissions. In the OFF position the clarifier/BFO is disabled and the receiver is in a high stability mode. OFF position is not to be used in A1 mode.
TUNING	For continuous tuning of the receiving frequency in 100 Hz steps.
KEYBOARD	For selection of the wanted receiving frequency. The C key clears the display, while the LOCK key disables the TUNING knob.

3. INSTALLATION

Correct installation of the equipment is important for good results. Antenna and earth connections must be installed with the greatest care, especially where duplex telephony is desired.

3.1. Disassembling the Receiver

To open the receiver, remove the four front panel screws. Pull the chassis out of the cabinet and remove the connectors. The power pack is mounted behind the receiver.

3.2. Connection to the Permanent Installation

Check that the power pack is set for the correct mains voltage. Cable connections for installation of the R 5001 appear on the drawings on page 8-85.

3.3. Earth Connection

The receiver earth terminals are located beside the antenna connector and should be connected to earth using a length of 2.5 sqmm wire. This wire should be connected to a separate earth screw, which must not be shared by any other equipment. The earth lead should be run as far from the transmitter earth lead as is practicable.

Other cables should be run as far away from the receiver earth leads as possible and under no circumstances parallel with it, closer than 0.2m.

3.4. Antenna

Length: 7-30 metres. The receiving antenna should be brought in by a length of coaxial cable, which should be as short as possible, especially in the case of short antennas.

In order to minimize duplex noise, the transmitting and receiving antennas should be kept as far away from each other as possible. Stays, wires, steel masts etc. should either be earthed effectively or isulated.

Likewise in order to minimize duplex noise, every other electrical installation such as cable braidings (screens) and instruments should be earthed effectively, and the instruments in question should be fitted with noise-interference suppression devices.

The Antennas should be suspended well in the clear, away from objects whose influence on the antennas may vary, such as derricks etc. Insulators should be of the best type having low leakage even when wet.

3.5. Changing the Input Impedance

The input impedance of the four bands in the PRESELECTOR RANGES 0.06-0.18 MHz, 0.18-0.53 MHz, 0.53-1.6 MHz and 1.6-4 MHz can be altered, if so desired from a high level to a low level (50 ohm).

BAND	HIGH IMPEDANCE	LOW IMPEDANCE (50 ohm)
0.06-0.18 MHz	Terminals 216-25 and 216-24 connected	Terminals 216-25 and 216-23 connected
0.18-0.53 MHz	Terminals 216-16, 216-17 and 216-18 connected	Terminals 216-16 and 216-15 connected
0.53-1.6 MHz	Terminals 216-11, 216-12, 216-13 and 216-14 connected	Terminals 216-12 and 216-10 connected
1.6-4 MHz	Terminals 216-21, 216-19 and 216-20 connected	Terminals 216-21 216-19 and 216-22 connected

3.6. Speakers

An audio power of 4 watts is available in a 4 ohms load connected to terminal 5 and 6 in the multiwire socket on the back of the power pack. This power can be shared between several loudspeakers if so desired. When connecting speakers the minimum value of the total impedance should be more than 4 ohms in order to obtain maximum power output.

3.7. Muting

When terminals 13 and 14 in the multiwire socket on the back of the power pack are connected together the receiver is muted.

3.8. External Master Oscillator (R 5001 Version S-1 only)

By removing resistor 220R1 and connecting the coaxcable as shown on diagram M 220 page 8-65, it is possible to connect an external master oscillator to the 213 SK2 socket.
The master oscillator must deliver 11.2 MHz 140 mV rms in 50 ohms sinus, no DC-path.

4. TECHNICAL DATA

Receiver R 5001, version S-1 and S-2

Frequency Range:

Synthesized operation from 10 kHz to 29.9999 MHz

Frequency Presentation:

Fully digital read-out.

Modes of Operation:

A1, A2, A2H, A3, A3H, A3J and F1. Simplex, semiduplex and duplex with built-in duplex filters.

Selectivity:

Wide:	6 dB at +/- 4 kHz, 60 dB at +/- 17.5 kHz
Intermediate:	6 dB at +/- 1.2 kHz, 60 dB at +/- 1.9 kHz
Narrow:	6 dB at +/- 0.5 kHz, 60 dB at +/- 3.5 kHz
Very narrow:	6 dB at +/- 0.1 kHz, 60 dB at +/- 2 kHz
SSB:	6 dB at 350 and 2700 Hz
SSB:	60 dB at -400 and +3400 Hz
F1:	6 dB at +/- 400 Hz, 60 dB at +/- 850 Hz

Sensitivity:

Connection made for high input impedance

		Max. input for 10 dB SINAD
0.1-1.6 MHz	A1	4 uV
	A2, A2H, A3	18 uV
1.6-4 MHz	A1, A3A, A3J, F1	1 uV
	A2, A2H, A3, A3H	4 uV

Connection made for low input impedance (50 ohm)

0.1-1.6 MHz	A1	2 uV
	A2, A2H, A3	9 uV
1.6-4 MHz	A1, A3A, A3J, F1	0.5 uV
	A2, A2H, A3, A3H	2.5 uV
4-30 MHz	A1, A3A, A3J, F1	0.5 uV
	A2, A2H, A3, A3H	2.5 uV

Audio-Output:

10 mW to phones (400 ohms)
4 W to loudspeaker(s) (4 ohms)
10 dBm to line (600 ohms)

External Master: (R 5001 Version S-1 only)

11.2 MHz sinus
140 mV RMS in 50 ohms (no DC-path)

Supply Voltage:

24V battery and/or 110/115/120 or 220/230/240 single - or two phase AC 50-60 Hz with P 5012 Power Pack.

Supply Voltage Variations:

DC: -10 to +30 %
AC: +/- 10%

Consumption:

24V battery:	approx. 2A
AC mains:	approx. 45 VA

The duplex filters bandwidth:

"4 MHz"	-1 dB at 4355 kHz and 4445 kHz
"6 MHz"	-1 dB at 6500 kHz and 6596 kHz
"8 MHz"	-1 dB at 8710 kHz and 8840 kHz
"12 MHz"	-1 dB at 13100 kHz and 13350 kHz
"16 MHz"	-1 dB at 17230 kHz and 17830 kHz
"22 MHz"	-1 dB at 22570 kHz and 23430 kHz
"25 MHz"	-1 dB at 25300 kHz and 26300 kHz

Dimensions:

Rack-mounted:	Height	132.5 mm	
	Width	482 mm	
	Depth into rack	390 mm	(connectors excl.)
	Weight	15.2 kg	