

table of contents

	<i>Page</i>
<i>Section 1 Installation.....</i>	1-1
1.1 Unpacking.....	1-1
1.2 Mounting and Cabling.....	1-1
1.2.1 General.....	1-1
1.2.2 Fixed Station Installation.....	1-1
1.2.2.1 Equipment Interconnection.....	1-1
1.2.2.2 Phone Patch Installation.....	1-1
1.2.3 Mobile Installation.....	1-2
1.3 Initial Checks.....	1-5
<i>Section 2 Operation.....</i>	2-1
2.1 Starting Procedure.....	2-1
2.2 Selecting the KWM-2/2A Operating Frequency.....	2-1
2.3 Receiver Tuning.....	2-1
2.4 Transmitter Tuning.....	2-5
2.4.1 General.....	2-5
2.4.2 Single-Sideband Operation.....	2-5
2.4.3 CW Operation.....	2-6
2.4.4 FSK Operation.....	2-7
2.4.5 Mobile Operation.....	2-7
2.5 Operation Outside Amateur Bands.....	2-7
2.5.1 Selection of Crystals.....	2-7
2.5.2 Adjustment of Tuned Circuits.....	2-8
<i>Section 3 Principles of Operation.....</i>	3-1
3.1 Block Diagram.....	3-1
3.2 Transmitter Circuits.....	3-1
3.2.1 AF Circuits.....	3-1
3.2.2 Balanced Modulator and Low-Frequency IF Circuits.....	3-1
3.2.3 Balanced Mixers.....	3-1
3.2.4 RF and ALC Circuits.....	3-1
3.3 Receiver Circuits.....	3-2
3.3.1 RF Circuits.....	3-2
3.3.2 Receiver Mixers.....	3-2
3.3.3 IF Circuits.....	3-2
3.3.4 AF Circuits.....	3-2
3.4 Oscillators.....	3-2
3.4.1 Tone Oscillator.....	3-2
3.4.2 Beat-Frequency Oscillator.....	3-2
3.4.3 Variable-Frequency Oscillator.....	3-5
3.4.4 High-Frequency Crystal Oscillator.....	3-5

table of contents (cont)

	<i>Page</i>
3.4.5 Crystal Calibrator.....	3-5
3.5 Vox and Antivox Circuits.....	3-5
Section 4 Service Instructions.....	4-1
4.1 General.....	4-1
4.2 Transmitter Signal Tracing.....	4-1
4.3 Receiver Signal Tracing.....	4-2
4.4 Voltage and Resistance Measurements.....	4-3
4.5 Field Alignment Procedures.....	4-6
4.5.1 Field Alignment.....	4-6
4.5.2 Test Equipment Required.....	4-6
4.5.3 RF Circuits Peaking.....	4-6
4.5.4 VFO Sideband Frequency Shift Adjustment.....	4-7
4.5.5 Carrier Balance (Null) Adjustment.....	4-7
4.5.6 ALC Zero Adjustment.....	4-7
4.5.7 First Mixer Balance Adjustment.....	4-7
4.5.8 S-Meter Zero Adjustment.....	4-7
4.5.9 Crystal Calibrator Adjustment.....	4-7
4.5.10 VFO End-Point Adjustment.....	4-7
4.5.11 VFO Dial Centering.....	4-8
4.5.12 VFO Overtravel.....	4-8
4.6 Laboratory Alignment Procedures.....	4-8
4.6.1 Laboratory Alignment.....	4-8
4.6.2 Test Equipment Required.....	4-8
4.6.3 Transmitting 455-kHz IF Alignment.....	4-8
4.6.4 Bandpass IF Alignment.....	4-9
4.6.5 RF Circuits Alignment.....	4-9
4.6.6 Crystal Oscillator Alignment.....	4-10
4.6.7 VFO Sideband Frequency Shift Adjustment.....	4-10
4.6.8 Carrier Balance (Null) Adjustment.....	4-10
4.6.9 ALC Zero Adjustment.....	4-10
4.6.10 First Mixer Balance Adjustment.....	4-10
4.6.11 VFO Dial Calibration.....	4-10
4.6.12 PA Neutralizing.....	4-10
4.6.13 Driver Neutralizing.....	4-11
4.6.14 Feedback Neutralizing.....	4-11
4.6.15 PA Loading Trimmer Adjustment.....	4-11
4.6.16 Receiving 455-kHz IF Alignment.....	4-12
4.6.17 Receiver RF Gain and S-Meter Zero Adjustment.....	4-12
4.7 Test Select Components.....	4-12
4.7.1 Capacitor C10.....	4-12
4.7.2 Resistor R140.....	4-13
4.7.3 Resistor R162.....	4-13

table of contents (cont)

	<i>Page</i>
4.7.4 Resistor R158	4-13
4.7.5 Resistor R161	4-13
4.8 Dial Cord Replacement.....	4-13
4.8.1 Band-Switch Cord.....	4-13
4.8.2 Loading Capacitor Cord.....	4-14
4.9 Relay Maintenance.....	4-15
4.10 Dial Lamp Replacement	4-15
4.11 Meter Lamp Replacement	4-15
<i>Section 5 Specifications</i>	5-1
5.1 KWM-2 and KWM-2A Transceivers.....	5-1
5.2 Requirements for Operation.....	5-1
5.3 Specifications.....	5-1
5.4 Tube and Semiconductor Complement.....	5-3
5.5 Available Accessories.....	5-4
<i>Section 6 Parts List</i>	6-1
6.1 Introduction	6-1
6.1.1 General	6-1
6.1.2 Group Assembly Parts List	6-1
6.1.3 Numerical Index	6-1
6.1.4 Reference Designation Index	6-1
6.1.5 How To Use This Parts List	6-1
6.1.6 Manufacturer's Code, Name, and Address	6-2
6.1.7 Usable on Codes	6-5
6.1.8 Configuration Identifiers	6-6
6.1.9 General Coverage Crystals Available (Optional)	6-6
6.2 Group Assembly Parts List	6-10
6.3 Numerical Index	6-67
6.4 Reference Designation Index	6-79
<i>Section 7 Illustrations</i>	7-1

list of illustrations

<i>Figure</i>	<i>Page</i>
1-1 Fixed Station Interconnections.....	1-0
1-2 Traveling Station Interconnections with 30L-1.....	1-2
1-3 High-Power Station Interconnections.....	1-3
1-4 Mobile Station Interconnections.....	1-4
2-1 KWM-2 and KWM-2A Transceivers, Operating Controls.....	2-0
2-2 Logging Scale Calibration Curves.....	2-2
2-3 Crystal Socket Locations.....	2-8
3-1 KWM-2 and KWM-2A Transceivers, Block Diagram.....	3-3
4-1 Location of Adjustments.....	4-0
4-2 Ceramic Trimmer Capacitors.....	4-9
4-3 Receiver Gain Adjustment Setup.....	4-12
4-4 Dial Cord Stringing Diagram.....	4-14
4-5 Dial Lamp Replacement	4-16
4-6 Meter Lamp Replacement	4-16
6-1 KWM-2/2A Transceiver.....	6-10
6-2 Transceiver Subassembly.....	6-12
6-3 70K-2 RF Oscillator.....	6-42
7-1 KWM-2 and KWM-2A Transceivers, Schematic Diagram.....	7-3
7-2 KWM-2 and KWM-2A, Location of Chassis Mounted Components, Bottom View.....	7-23

list of tables

<i>Table</i>	<i>Page</i>
1-1 Equipment Furnished With KWM-2/2A.....	1-1
2-1 Crystals Supplied in the KWM-2/2A Transceiver.....	2-3
2-2 KWM-2/2A Operating Control Functions.....	2-4
2-3 Crystal Frequencies and Operating Bands.....	2-9
4-1 Transmitter Signal Levels.....	4-1
4-2 Receiver Signal Levels.....	4-2
4-3 KWM-2A Transceiver, Voltage and Resistance Measurements.....	4-3
5-1 Tubes and Semiconductors.....	5-3
5-2 Available Accessories.....	5-4