

TECHNICAL MANUAL

DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL

**RADIO SET
AN/GRC-143
(NSN 5820-00-926-7355)**

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**DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL
RADIO SET ANIGRC-143
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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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Table of Contents

CHAPTER	1.	FUNCTIONING OF EQUIPMENT	Paragraph	Page
Section	I.	Introduction	1-1,-1-1.4	1-1
	II.	Overall radio set operation	1-2,-1-5	1-1
	III.	Function of transmitter	1-6,-1-81	1-3,-1-124
	IV.	Function of receiver	1-82,-1-112	1-124,-1-153
	V.	Function of power amplifier	1-113,-1-123	1-153,-1-172
	VI.	Function of antenna alignment indicator	1-124,-1-125	1-173
CHAPTER	2.	RADIO SET AN/GRC-143 DIRECT SUPPORT MAINTENANCE INSTRUCTIONS		
Section	I.	General	2-1,-2-4	2-1, 2-2
	II.	Interunit troubleshooting	2-5,2-6	2-3
CHAPTER	3.	TRANSMITTER DIRECT SUPPORT MAINTENANCE		
Section	I.	Transmitter troubleshooting	3-1,-3-9	3-1,-3-18
	II.	Transmitter repairs	3-10,-3-33	3-20,-3-54
	III.	Transmitter calibration and adjustment	3-34,-3-41	3-54,-3-62
CHAPTER	4.	RECEIVER DIRECT SUPPORT MAINTENANCE		
Section	I.	Receiver troubleshooting	4-1,-4-10	4-1,-4-20
	II.	Receiver repairs	4-11,-4-30	4-22,-4-45
	III.	Receiver calibration and adjustment	4-31,-4-36	4-46,-4-50
CHAPTER	5.	POWER AMPLIFIER DIRECT SUPPORT MAINTENANCE		
Section	I.	Power amplifier troubleshooting	5-1,- 5-4	5-1,- 5-18
	II.	Power amplifier repairs	5-5,- 5-15	5-18,- 5-39
	III.	Power amplifier calibration and adjustment	5-16,- 5-27	5-40,- 5-52

	Paragraph	Page
CHAPTER 6. DIRECT SUPPORT MAINTENANCE FOR ANCILLARY EQUIPMENT	6-1,-6-3	6-1
CHAPTER 7. DEPOT MAINTENANCE		
Section I. Repairs	7-1,7-16	7-1,-7-P
Section II. Testing	7-17,-7-19	7-
CHAPTER 8. FOLDOUT ILLUSTRATIONS	8-1,-8-6	8-1
APPENDIX....		A-1
INDEX		I-1

LIST OF ILLUSTRATIONS

Number	Title	Page
1-1	Digital data modem 1A12, cable-to-radio functional block diagram	1-12
1-2	Cable digital regenerator 1A12A2, block diagram	1-13
1-3	Cable digital regenerator 1A12A2, timing diagram	1-14
1-4	Cable control comparator 1A12A3, block diagram	1-16
1-5	Cable digital processor 1A12A4, block diagram	1-19
1-6	Cable digital processor 1A12A4, timing diagram	1-20
1-7	AF Amplifier 1A12AS, block diagram	1-21
1-8	Amplifier-detector 1A12A7, block diagram	1-25
1-9	Radio digital regenerator 1A12A8, block diagram	1-27
1-10	Radio control comparator 1A12A9, block diagram	1-29
1-11	Control processors 1A1 2A10 and 1A12A12, block diagram	1-36
1-12	Control processors 1A12A10 and 1A12A12, timing diagram	1-37
1-13	Pulse decoder 1A12A11, block diagram	1-40
1-14	Pulse decoder 1A12A11, graph of integrator operation	1-41
1-15	Radio digital processor 1A12A13, timing diagram	1-43
1-16	Transmitter local oscillator and mixer circuits, block diagram .	1-50
1-17	Radio test set, block diagram	1-60
1-18	Transmitter, primary power distribution	1-65
1-19	Typical voltage regulator 1A1A1-1A1A 2, block diagram	1-66
1-20	5/6v regulator 1A1A1 through 1A1A4, schematic diagram	1-67
1-21	12v regulator 1A1A6 through 1A1A9 and 2A3A3, schematic diagram	1-69
1-22	15128v regulator 1A1A10 through 1A1A12, 2A3A1, A2, and A4, schematic diagram	1-70
1-23	12channel pem attenuator 1A3, schematic diagram	1-72
1-24	24-hannel pcm attenuator 1A18, schematic diagram	1-73
1-25	AF-RF amplifier 1A.4/2A9, schematic diagram	1-74
1-26(1)	Alarm monitor 1 A512A20, schematic diagram (part 1 of 3)	1-76
1-26(2)	Alarm monitor 1A5/2A20, schematic diagram (part 2 of 3)	1-77
1-26(3)	Alarm monitor 1A512A20, schematic diagram (part 3 of 3)	1-78
1-27	1.3-MHz low pass filter 1A6, schematic diagram	1-80
1-28	Frequency mixer 1A9, schematic diagram	1-87
1-29	Frequency multiplier group 1A10, schematic diagram	1-88
1-30(1)	Variable frequency divider No. 1, 1A14A4, timing diagram (part 1 of 2)	1-114
1-30(2)	Variable frequency divider No. 1, 1A14A4, timing diagram (part 2 of 2)	1-115
1-31	0.1-MHz thumbwheel switch. timing diagram	1-116
1-32	Variable frequency divider No. 2, 1A14A5 timing with jump count	1-119
1-33	Fixed frequency divider 1A14A6, timing diagram	1-121
1-34	Fixed frequency divider phase detector, timing diagram	1-122
1-35	Fixed frequency phase detector, timing diagram with phase loop unlocked	1-123
1-36	Receiver frequency mixing process, block diagram	1-127
1-37	Receiver, primary power distribution	1-136
1-38	Receiver, dc power distribution	1-137
1-39	Mixer preamplifier 2A4/2A11, schematic diagram	1-139
1-40	70-MHz IF filter 2A5/2A10, schematic diagram	1-140
1-41	Amplifier-multiplier 2A8, schematic diagram	1-143
1-42	260-kHz low pass filter 2A18 and 680-kHz low pass filter schematic diagram	1-151
1-43	Indicator control 3A2/3A3, schematic diagram	1-164
1-44	Beam gate dc overload control 3A6, schematic diagram	1-168
1-45	Power supply control 3A7, schematic diagram	1-170
1-46	Antenna alignment indicator 4A7, schematic diagram	1-173

<i>Number</i>	<i>Title</i>	<i>Page</i>
3-1	Transmitter frequency accuracy test setup	3-17
3-2	Transmitter output power and meter test setup	3-18
3-3	Transmitter, front view with cabinet doors open, parts location .2.....	3-22
3-4	Transmitter, front view, locating modules, assemblies, coaxial cables and piece parts.....	3-24
3-5	Transmitter meter panel, rear view, parts location	3-27
3-6	Removing indicator lamp assemblies from transmitter meter panel, typical	3-28
3-7	Removing power supply 1A1 from transmitter cabinet 1A16	3-29
3-8	Transmitter power supply chassis 1A 1A13, rear bottom view, partially disassembled, parts location	3-31
3-9	Transmitter power supply chassis terminal board 1A1A13TB1, top view parts location	3-32
3-10	Transmitter power supply chassis terminal board 1A1A 13TB2, top view, parts location	3-32
3-11	Removing blower motor 1A16B 1 from transmitter cabinet 1A16, typical	3-33
3-12	Removing input filters 1A16FL1 and 1A16FL2 from transmitter cabinet 1A16, typical	3-35
3-13	Disassembly of parts on transmitter relay plate 1A16A12	3-37
3-14	Transmitter radio set, front view, partial cutaway view, showing U-clamp cut	3-39
3-15	Transmitter radio set, front view, with meter panel removed, parts location	3-40
3-16	Disassembling composite order wire frequency synthesizer assembly 1A131 1A14	3-45
3-17	Transmitter plate assembly 1A15, rear view, parts location	3-47
3-18	Transmitter cabinet 1A16, front view partially disassembled, parts location	3-49
3-19	Repair of coaxial contacts on multiple pin connectors	3-53
3-20	Transmitter meters 1A16M 1 and 1A15M2, calibration test setup	3-55
3-21	Transmitter RF power metering circuit, test setup	3-57
3-22	Signal generator AN/URM-52B, calibration test setup	3-59
3-23	Transmitter radio test set, calibration test setup	3-60
4-1	Receiver frequency accuracy setup	4-16
4-2	Receiver lock and capture test setup	4-18
4-3	Receiver local oscillator chain output power and metering test setup	4-20
4-4	Receiver, front view with cabinet doors open, parts location	4-23
4-5	Receiver meter panel. rear view, parts location	4-26
4-6	Receiver power supply chassis 2A3A5, top rear view, parts location	4-28
4-7	Receiver power supply chassis terminal board 2A3A5TB1, top view, parts location	4-29
4-8	Receiver cabinet 2A22, front view, partially disassembled, parts location	4-30
4-9	Receiver cabinet 2A22, top rear view, partially disassembled, parts location	4-32
4-10	Receiver front view showing upper portion of receiver cabinet 2A22 parts location	4-33
4-11	Removing low pass filter 2A22FL1, input filters 2A22FL2 or 2A2FL3 from receiver cabinet 2A22	4-35
4-12	Receiver front view, location of modules, assemblies and coaxial cables	4-37
4-13	Receiver frequency synthesizer 2A21, front view, parts location	4-40
4-14	Receiver plate assembly 2A24, rear view, parts location	4-42
4-15	Receiver meter 2A22M1 calibration test setup	4-48
4-16	Receiver local oscillator output power metering circuits calibration test setup	4-49
5-1	Power amplifier front view with cabinet doors open, parts location	5-20
5-2	Power amplifier meter panel (part of 3A9), rear view, parts location	5-21
5-3	Crimping, extraction, and insertion tools	5-22
5-4	Magnet support 3A9A7 with mounted components 3A9V1 and 3A9A6, cut- away, top view	5-24
5-5	Magnet support 3A9A7, top view, parts location	5-25
5-6	Module inclosures 3A9A12 and 3A9A13 mounted in power amplifier cabinet 3A9, top view	5-27
5-6.1	High voltage interlock test	5-
5-7	Plate assembly 3A9A33, top view, parts location	5-29
5-7.1	Plate assembly 3A9A33, top view, parts location, (part No. SM-D-653434B)	5-
5-8	Power supply 3A9A1, mounting bolts location.....	5-30
5-9	Input filter assembly 3A9A8, parts location	5-32
5-10	Blower assembly 3A9B 1, right side view, parts location	5-33
5-11	Fan assembly 3A9A26, viewed from filter side, parts location	5-34
5-12	Power amplifier cabinet 3A9, front view, partially disassembled, parts location	5-35

<i>Number</i>	<i>Title</i>	<i>Page</i>
5-13	Power amplifier cabinet 3A9, left oblique view, parts. location	5-36
5-14	Power amplifier cabinet 3A9, right oblique view, parts location	5-37
5-15	Power amplifier cabinet 3A9, left inside view, parts location	5-38
5-16	Rectifier assembly 3A9A21, front view, parts location	5-39
5-17	Bracket assembly 3A9A23, parts location	5-40
5-17.1	Power amplifier filament voltage meter 3A9M2 calibration test setup	5-44
5-18	Power amplifier input power metering calibration test setup	5-44
5-19	Power amplifier forward power metering circuit calibration test setup for power amplifier mounted in Shelter S- 336/TRC-112	5-45
5-20	Power amplifier forward power metering circuit calibration test setup for power amplifier mounted on curb side of Shelter S-338/TRC- 121	5-46
5-21	Power amplifier forward power metering circuit calibration test setup for power amplifier mounted on roadside of Shelter S-338/TRC-1 21	5-47
5-22	Power amplifier dc overload trip point adjustment and beam current metering circuit calibration test setup	5-48
5-23	Power amplifier antenna mismatch trip point adjustment and reflected power metering circuit calibration test setup	5-50
5-24	Determining power amplifier filament voltage	5-51
5-25	Power amplifier filament voltage adjustment and metering circuit calibration test setup	5-51
6-1	Antena alignment indicator 4A7, parts location	6-2
7-1	2d frequency multiplier 1A10A 1, varactor diode 1A10A1CR1 replacement	7-10
7-2	3d frequency multiplier 1A10A2, varactor diode 1A10A2CR1 replacement	7-11
7-3	Amplifier-frequency multiplier 1A11, varactor diode 1A11CR4/11A1 11CR5 replacement	7-12
7-4	2d frequency multiplier 2A7A1, varactor diode 2A7A1CR1 replacement	7-13
7-5	Frequency tuner 3A9A6, exploded view	7-14
7-6	Reflectometer test waveforms	7-15
7-7	5/6v regulator 1A1A1 through 1A1A4, bracket wiring diagram.....	7-16
7-8 (1)	5/6v regulator 1 A 1A 1 through 1 A 1A4, parts location and printed wiring diagram (part 1 of 2)	7-17
7-8 (2)	5/6v regulator 1A1A1 through 1A1A4, parts location and printed wiring diagram (part 2 of 2)	7-18
7-9	12v regulator 1A1A6 through 1A1A9 and 2A3A3, bracket wiring diagram	7-18.1
7-10 (1)	12v regulator 1A1 A6 through 1A1A9 and 2A3A3, parts location and printed wiring diagram (part 1 of 2)	7-19
7-10 (2)	12v regulator 1A1A6 through 1A1A9 and 2A3A3, parts location and printed wiring diagram (part 2 of 2)	7-20
7-11	15/28v regulator 1A1A10 through 1A1A12, 2A3A1, 2A3A2, and 2A3A4, bracket wiring diagram	7-20.1
7-12 (1)	15/28v regulator 1A1A10 through 1A1A12, 2A3A1, 2A3A2, and 2A3A4, parts location and printed wiring diagram (part 1 of 2)	7-21
7-12 (2)	15/28v regulator 1A1A10 through 1A1A12, 2A3A1, 2A3A2, and 2A3A4, parts location and printed wiring diagram (part 2 of 2)	7-22
7-13	Pcm attenuator (12 or 24 channel) 1A3, assembly wiring diagram	7-22.1
7-14 (1)	Pcm attenuator (12 or 24 channel) 1A3, parts location and printed wiring diagram (part 1 of 2)	7-23
7-14 (2)	Pcm attenuator (12 or 24 channel) 1A3, parts location and printed wiring diagram (part 2 of 2)	7-24
7-15	AF-RF amplifier 1A4/2A19, assembly wiring diagram	7-25
7-16(1)	AF-RF amplifier 1A4/2A19, parts location and printed wiring diagram (part 1 of 2)	7-26
7-16(2)	AF-RF amplifier 1A4/2A19, parts location and printed wiring diagram (part 2 of 2)	7-27
7-17	1.3-MHz low pass filter 1A6, assembly wiring diagram.	7-28
7-18	1.3-MHz low pass filter 1A6, parts location diagram	7-29
7-19	Frequency mixer 1A9, assembly wiring diagram	7-30
7-20	Digital data modem chassis 1A12A15, left oblique view, parts location	7-31
7-21	Digital data modem chassis 1A12A15, rear view, parts location	7-32
7-22	Digital data modem chassis 1A12A15, right oblique view, parts location	7-33
7-23	Printed wiring board assembly 1A12A15A2TB1, parts location and printed wiring diagram	7-34
7-24	Printed wiring board assembly 1A12A15A1TB2, parts location and printed wiring diagram	7-35
7-25	Order wire chassis 1A13A7, partially disassembled, parts location	7-36
7-26	Printed wiring board assembly 1A13A7TB1, parts location and printed wiring diagram	7-37
7-27	Frequency synthesizer 1A14/2A21 partially disassembled, front view, parts location	7-38
7-28	Frequency synthesizer 1A14/2A21 partially disassembled, rear view, parts location	7-39

<i>Number</i>	<i>Title</i>	<i>Page</i>
7-29(1)	RF oscillator 1A14A1/2A21A1, parts location and printed wiring diagram (part 1 of 4)	7-40
7-29(2)	RF oscillator 1A14A1/2A21A1, parts location and printed wiring diagram (part 2 of 4)	7-41
7-29(3)	RF oscillator 1A14A1/2A21A1, parts location and printed wiring diagram (part 3 of 4)	7-41
7-29(4)	RF oscillator 1A14A1/2A21A1, parts location and printed wiring diagram (part 4 of 4)	7-42
7-30	RF oscillator 1A14A1/2A21A1, assembly wiring diagram	7-43
7-31(1)	Electronic frequency converter 1A14A2/2A21A2, parts location and printed wiring diagram (part 1 of 2)	7-44
7-31(2)	Electronic frequency converter 1A14A2/2A21A2, parts location and printed diagram (part 2 of 2)	7-45
7-32	Electronic frequency converter 1A14A2/2A21A2, assembly wiring diagram	7-46
7-33(1)	AF phase error detector 1A14A3/2A21A3, parts location and printed wiring diagram (part 1 of 2)	7-47
7-33 (2)	AF phase error detector 1A14A3/2A21A3, parts location and printed wiring diagram (part 2 of 2)	7-48
7-34	AF phase error detector 1A14A3/2A21A3, assembly wiring diagram	7-49
7-35 (1)	Variable frequency divider No. 1, 1A14A4/2A21A4, parts location and printed wiring diagram (part 1 of 3)	7-50
7-35(2)	Variable frequency divider No. 1, 1A14A4/2A21A4, parts location and printed wiring diagram (part 2 of 3)	7-51
7-35 (3)	Variable frequency divider No. 1, 1A14A4/2A21A4, parts location and printed diagram (part 3 of 3)	7-52
7-36	Variable frequency divider No. 1, 1A14A4/2A21A4, assembly wiring diagram	7-53
7-37	Variable frequency divider No. 2, 1A14A5/2A21A5, parts location and printed wiring diagram (part 1 of 2)	7-54
7-37	(Variable frequency divider No. 2, 1A14A5/2A21A5, parts location and printed wiring diagram (part 2 of 2)	7-54
7-38	Variable frequency divider No. 2, 1A14A5/2A21A5, assembly wiring diagram	7-55
7-39(1)	Fixed frequency divider 1A14A6/2A21A6, parts location and printed wiring diagram (part 1 of 3)	7-56
7-39(2)	Fixed frequency divider 1A14A6/2A21A6, parts location and printed wiring diagram (part 2 of 3)	7-57
7-39(3)	Fixed frequency divider 1A14A6/2A21A6, parts location and printed wiring diagram (part 3 of 3)	7-58
7-40	Fixed frequency divider 1A14A6/2A21A6, assembly wiring diagram	7-59
7-41(1)	Mixer preamplifier 2A4/2A11, parts location and printed wiring diagram (part 1 of 2)	7-60
7-41(1)	Mixer preamplifier 2A4/2A11, parts location and printed wiring diagram (part 2 of 2)	7-61
7-42	70-MHz IF filter 2A5/2A10 and 2A25/2A26, parts location diagram	7-62
7-43	Frequency mixer 2A6/2A9, parts location diagram	7-63
7-44	220-MHz bandpass filter 2A6FL1/2A9FL1, wiring diagram	7-64
7-45	220-MHz vco 2A13/2A14, assembly wiring diagram	7-65
7-46	Demodulator 2A17, assembly wiring diagram	7-66
7-47	Low pass filters 2A18/2A27, wiring diagram	7-67
7-48	Low pass filters 2A18/2A27, parts location diagram	7-68
7-49	Inverter regulator control 3A1, assembly wiring diagram	7-69
7-50	Indicator control 3A2/3A3, assembly wiring diagram	7-70
7-51	Low RF-mismatch, alarm and control 3A4, assembly wiring diagram	7-70
7-52	Time delay control 3A5, assembly wiring diagram	7-71
7-53	Beam gate-dc overload control 3A6, assembly wiring diagram	7-71
7-54	Inverter 3A8, rear oblique view, parts location	7-72
7-55	Inverter 3A8, front oblique view, parts location	7-73
7-56	Component board assembly 3A9A33A1, parts location and printed wiring diagram	7-74
7-57	Rectifier assembly 3A9A21, parts location and printed wiring diagram	7-75
7-58	Hv power supply 3A9A1, top view, parts location	7-76
7-59	Subassembly 3A9A1A4, top view, parts location	7-77
7-60	Antenna alignment indicator 4A7, assembly wiring diagram	7-78

All of the following illustrations are located at the back of manual

8-1/8-2	Color code marking for MIL-STD resistors, inductors, and capacitors
8-3	Radio set AN/GRC-143 block diagram
8-4	Transmitter block diagram
8-5	Digital data modem 1A12, radio-to-cable functional block diagram
8-6	Alarm monitor 1A12A6, block diagram
8-7	Radio digital processor 1A12A13, block diagram
8-8	Order wire assembly 1A13 signal distribution block diagram
8-9	Order wire assembly 1A13 fault detection, block diagram
8-10	Transmitter modulator circuits, block diagram
8-11	Frequency synthesizer 1A14/2A21, block diagram
8-12	Frequency synthesizer 1A1412A21, module, block diagram
8-13	Alarm monitor 1A5, block diagram
8-14(1)	Transmitter (unit 1) interconnecting diagram (part 1 of 3)
8-14(2)	Transmitter (unit 1) interconnecting diagram (part 2 of 3)
8-14(3)	Transmitter (unit 1), interconnecting diagram (part 3 of 3)
8-15	Transmitter dc power distribution
8-16	Power supply 1A1, interconnecting diagram
8-17	100-MHz RF oscillator 1A2, schematic diagram
8-18(1)	Integrated circuit schematic-diagrams (part 1 of 4)
8-18(2)	Integrated circuit schematic diagrams (part 2 of 4)
8-18(3)	Integrated circuit schematic diagram (part 3 of 4)
8-18(4)	Integrated circuit schematic diagrams (part 4 of 4)
8-19	Electronic frequency control 1A7, schematic diagram
8-20	Modulator 1A8, schematic diagram
8-21	Amplifier-frequency multiplier 1A11, schematic diagram
8-22	Digital data modem 1A12, interconnecting diagram
8-23	Transmitter cable dc current path, simplified schematic diagram
8-24	Cable digital regenerator 1A12A2, schematic diagram
8-25	Cable control comparator 1A12A3, schematic diagram
8-26	Cable digital processor 1A12A4, schematic diagram
8-27	AF amplifier 1A12A5, schematic diagram
8-28	Alarm monitor 1A12A6, schematic diagram
8-29	Amplifier-detector 1A12A7, schematic diagram
8-30	Radio digital regenerator 1A12A8, schematic diagram
8-31	Radio control comparator 1A12A9, schematic diagram
8-32	Control processor No.1, 1A12-A10, and No. 2, 1A12A12, schematic diagram
8-33	-Pulse decoder 1A12A11, schematic diagram
8-34	Radio digital processor 1A12A13, schematic diagram
8-35	Order wire assembly 1A13, interconnecting diagram
8-36	Board No. 1,1A13A1, schematic diagram
8-37	Board No. 2,1A13A2, schematic diagram
8-38	Board No. 3,1A13A3, schematic diagram
8-39	Board No. 4,1A13A4, schematic diagram
8-40	Board No. 5,1A13A5, schematic diagram -
8-41(1)	Frequency synthesizer 1A14/2A21 interconnecting diagram (part 1 of 3)
8-41(2)	Frequency synthesizer 1A14/2A21 interconnecting diagram (part 2 of 3)
8-41(3)	Frequency synthesizer 1A14/2A21 interconnecting diagram (part 3 of 3)
8-42	RF oscillator 1A14A1, schematic diagram
8-43	Electronic frequency converter board 1A14A2A1, schematic diagram
8-44	Electronic frequency converter board 1A 14A2A2, schematic diagram
8-45	AF phase error detector 1A14A3, schematic diagram
8-46	Variable frequency divider No. 1, A14A4, schematic diagram
8-47	Variable frequency divider No. 2, 1A14A5, schematic diagram-i-
8-48	Variable frequency divider No. 2, 1A14A5 timing without jump count
8-49	Fixed frequency divider 1A14A6, schematic diagram
8-50	Receiver block diagram
8-51	Receiver RF input and mixer circuits block diagram
8-52	Receiver local oscillator circuits, block diagram
8-53	IF amplifiers 2A12 and 2A15, block diagram
8-54	Combiner 2A16, block diagram
8-55	Receiver demodulator and amplifier circuits, block diagram
8-56	Receiver age function, block diagram

Number	Title
8-57	Receiver apc function, block diagram
8-58	Alarm Monitor 2A20, block diagram
8-59(1)	(Receiver (unit 2), interconnecting diagram (part 1 of 3)
8-59(2)	Receiver (unit 2) interconnecting diagram (part 2 of 3)
8-59(3)	Receiver (unit 2), interconnecting diagram (part 3 of 3)
8-60	Power supply 2A3, interconnecting diagram
8-61	Frequency mixer 2A6/2A9, schematic diagram
8-62	Frequency multiplier group 2A7, schematic diagram
8-63	IF amplifier 2A12/2A15, schematic diagram
8-64	220 MHz vco 2A13/2A14, schematic diagram
8-65(1)	Combiner 2A16, schematic diagram (part 1 of 2)
8-65(2)	Combiner 2A16, schematic diagram (part 2 of 2)
8-66	Demodulator 2A17, schematic diagram
8-67	Power amplifier block diagram
8-68	Power amplifier module block diagram
8-69(1)	Power amplifier (unit 3), interconnecting diagram (part 1 of 2)
8-69(2)	Power amplifier (unit 3), interconnecting diagram (part 2 of 2)
8-70	Inverter regulator control 3A1, schematic diagram
8-71	Low RF-mismatch, alarm and control 3A4, schematic diagram
8-72	Time-delay control 3A5, schematic diagram
8-73	High voltage power supply 3A9A1, schematic diagram
8-74	100-MHz oscillator 1A2, wiring diagram
8-75	100-MHz RF oscillator 1A2, parts location diagram
8-76	Alarm monitor 1A5/2A20, assembly wiring diagram
8-77(1)	Alarm monitor 1A5/2A20, parts location and printed wiring diagram (part 1 of 2)
8-77(2)	Alarm monitor 1A5/2A20, parts location and printed wiring diagram (part 2 of 2)
8-78	Electronic frequency control 1A7, assembly wiring diagram
8-79 (1)	Electronic frequency control 1A7, parts location and printed wiring diagram (part 1 of 2)
8-79 (2)	Electronic frequency control 1A7, parts location and printed wiring diagram (part 2 of 2)
8-80	Modulator 1A8, wiring diagram
8-81	Modulator 1A8, parts location diagram
8-82	Frequency mixer 1A9, parts location diagram
8-83	Frequency multiplier group 1A10, parts location diagram
8-84	Amplifier-frequency multiplier 1A11, wiring diagram
8-85	Amplifier-frequency multiplier 1A11, parts location diagram
8-86	Cable digital regenerator 1A12A2, parts location and printed wiring diagram
8-87	Cable control comparator 1A 12A3, parts location and printed wiring diagram
8-88	Cable digital processor 1A 12A4, parts location and printed wiring diagram
8-89	Af amplifier 1A12A5, parts location and printed wiring diagram
8-90	Alarm monitor 1A12A6, parts location and printed wiring diagram
8-91	Amplifier-detector 1A 12A7, parts location and printed wiring diagram
8-92	Radio digital regenerator 1A12A8, parts location and printed wiring diagram
8-93	Radio control comparator 1A12A9, parts location and printed wiring diagram
8-94	Control processor No. 1, 1A12A10, and No. 2, 1A12A12, parts location and printed wiring diagram
8-95	Pulse decoder 1A 12A 11, parts location and printed wiring diagram
8-96	Radio digital processor 1A12A13, parts location and printed wiring diagram
8-97	Board No. 1, 1A 13A 1, parts location and printed wiring diagram
8-98	Board No. 1, 1A13A1, wiring diagram
8-99	Board No. 2, 1A1 3A2, parts location and printed wiring diagram
8-100	Board No. 3, 1A13A3, parts location and printed wiring diagram
8-101	Board No. 4, 1A13A4, parts location and printed wiring diagram
8-102	Board No. 5, 1A13A5, parts location and printed wiring diagram
8-103	Mixer preamplifier 2A4/2A11, wiring diagram
8-104	70-MHz IF filter 2A5/2A10, wiring diagram
8-105	Frequency mixer 2A6/2A9, assembly wiring diagram
8-106	Frequency multiplier group 2A7, parts location diagram
8-107	Amplifier-multiplier 2A8, wiring diagram
8-108	Amplifier-multiplier 2A8, parts location diagram
8-109(1)	IF amplifier 2A12/2A15, parts location and printed wiring diagram (part 1 of 2)

<i>Number</i>	<i>Title</i>	<i>Page</i>
8-109(2)	IF amplifier 2A12/2A15, parts location and printed wiring diagram (part 2 of 2)	
8-110	IF amplifier 2A 12/2A15, assembly wiring diagram	
8-111	220-MHz vco 2A13/2A14, parts location diagram	
8-112	Frequency multiplier 2A13A1/2A14A1, assembly wiring diagram	
8-113	Combiner 2A16, assembly wiring diagram	
8-114	Combiner 2A16, parts location diagram	
8-115(1)	Demodulator 2A17, parts location and printed wiring diagram (part 1 of 2)	
8-115(2)	Demodulator 2A17, parts location and printed wiring diagram (part 2 of 2)	
8-116	Inverter regulator control 3A1, parts location and printed wiring diagram	
8-117	Indicator control 3A2/3A3, parts location and printed wiring diagram	
8-118	Low RF-mismatch, alarm and control 3A4, parts location and printed wiring diagram	
8-119	Time-delay control 3A5, parts location and printed wiring diagram	
8-120	Beam gate dc overload 3A6, parts location and printed wiring diagram	
8-121	Power supply control 3A7, wiring diagram	
8-122	Power supply control 3A7, parts location diagram	
8-123	Inverter 3A8, wiring diagram	
8-124	Hv power supply 3A9A1, wiring diagram	

CHAPTER 1

FUNCTIONING OF EQUIPMENT

Section I. INTRODUCTION

1-1. Scope

a. This manual contains instructions covering direct support (chap. 2 through chap. 6) and depot (chap. 7) maintenance for Radio Set AN/GRC-143. It includes instructions for periodic checks and calibration, troubleshooting, testing, aligning, and repairing the equipment. It also lists tools, materials, and test equipment to perform the maintenance of the equipment. Operation and organizational maintenance are covered in TM 11-5820-59512.

b. Appendix A contains, a list of publications applicable to this manual. Appendix B lists the expendable supplies and materials applicable to the equipment.

1-1.1. Maintenance Forms, Records, and Reports.

a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

b. *Report of Packaging and Handling Deficiencies.* Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/DSAR4140.55; NAVSUPINST 4440.127E; AFR 400-54; MC04430.3E.

c. *Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in 'Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/ NAVSUPINST 4610.33B/AFR 75-18/MCO P4610.19C and DLAR 4500.15.

1-1.2. Destruction of Army Electronics Materiel

Demolition and destruction of electronic equipment will be under the direction of the commander and in accordance with TM 750-244-2.

1-1.3. Administrative Storage

Administrative storage instructions are provided in TM 740-90-1.

1-1.4. Reporting Equipment Improvement Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. We'll send you a reply.

Section II. OVERALL RADIO SET OPERATION

1-2. General

This section describes major functions of the radio set at the block diagram level. Functional signal paths through the radio set are described as they are implemented by the various units of the radio set. Functional relationships of the transmitter, receiver, and power amplifier are also described. Detailed descriptions and circuit analysis of the transmitter, receiver, power amplifier, and ancillary equipment are covered in sections III, IV, and V respectively. The antenna alignment indicator is covered in section VI.

1-3. Radio Set Block Diagram Description

The signal paths through the radio set and the functional relationships between the transmitter and power amplifier and between the transmitter and receiver are shown in figure 8-3. The major signal flow paths are indicated by bold lines on the diagram. Paragraph 1-4

describes the transmitting signal path and paragraph 1-5 describes the receiving signal path.

1-4. Transmitting Signal Path (fig. 8-3)

a. A combined pcm and order wire signal is applied to the *from* cable input of the transmitter. This combined signal is applied to the digital data modem 1A12 where the order wire signal is extracted from the pcm signal and applied to order wire assembly 1A13. The pcm signal is reshaped and retimed in the digital data modem for application to modulator 1A8 via pcm attenuator AF-RF amplifier 1A4, and 1.3-MHz low pass filter 1A6.

b. Order wire assembly 1A13 distributes the through order wire (*from* cable) voice signal to the receive circuits