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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT MAINTENANCE MANUAL

SIGNAL GENERATOR SG-336/U

HEADQUARTERS, DEPARTMENT OF THE ARMY
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SIGNAL GENERATOR SG-336/U

			Paragraph	Page
CHAPTER	1.	THEORY		
Section	I.	General		
		Scope	1	3
		Block diagram	2	3
	II.	Circuit theory		
		Sweep generator V1	3	5
		Shaping network	4	6
		Sawtooth amplifier V2	5	8
		Sweeping oscillator V4	6	9
		Compensating modulator V3	7	11
		Attenuator network	8	12
		Crystal marker and detector circuits	9	14
		Trigger amplifiers V5 and V6	10	14
		Pip generator V7	11	15
		Power supply circuits	12	16
CHAPTER	2.	TROUBLESHOOTING		
Section	I.	General troubleshooting techniques		
		General instructions	13	18
		Troubleshooting procedures	14	18
		Test equipment required	15	19
	II.	Troubleshooting Signal Generator SG-336/U		
		Checking filament and B+ circuits for shorts	16	19
		Test setup	17	20
		Localizing troubles	18	20
		Isolating troubles within a stage	19	23
		Dc resistance of transformers and coils	20	23
		Checking waveforms	21	23
		Tube-testing techniques	22	24
CHAPTER	3.	REPAIRS AND ALIGNMENT		
Section	I.	Repairs		
		General parts replacement techniques	23	33
		Removal and replacement of cabinet and power supply chassis	24	33
		Removal and replacement of power supply chassis parts	25	33
		Removal and replacement of front panel controls	26	34
		Removal and replacement of oscillator chassis parts	27	36
		Replacement of R45	28	37
		Replacement of R65	29	37
		Replacement of C50	30	37
		Replacement of C47	31	37
	II.	Alignment		
		Test equipment and materials required for alignment	32	37
		Fabrication of calibrated detector	33	38
		B+ voltage adjustment	34	39
		Sweep output voltage check	35	39
		Sweeping oscillator alignment	36	40
		Marker circuit adjustment	37	43
CHAPTER	4.	FOURTH ECHELON TESTING PROCEDURES AND FINAL TESTING		
Section	I.	Fourth echelon testing procedures		
		General	38	44
		Test equipment	39	44

		Paragraph	Page
	Physical tests and inspections.	40	45
	Power supply output voltage test	41	47
	Sweep output voltage test	42	49
	Center frequency and sweep test	43	51
	Output amplitude test.	44	55
	Amplitude linearity test	45	57
	Marker circuit test	46	59
	Test data summary	47	61
Section II.	Final testing		
	Purpose of final testing	48	61
	Final tests	49	61
APPENDIX	REFERENCES		73

CHAPTER 1
THEORY

Section I. GENERAL

1. Scope

a. This manual covers field and depot maintenance for Signal Generator SG366/U. It includes instructions appropriate to fourth. and fifth echelons for troubleshooting, testing, aligning, and repairing the equipment, replacing maintenance parts, and repairing specified maintenance parts. It also lists tools, materials, and test equipment for fourth and fifth echelon maintenance. Detailed functions of the equipment are covered in paragraphs 3 through 12.

Note: There are no maintenance functions assigned to third echelon.

b. The complete technical manual for this equipment includes TM 11-6625-40612.

c. Refer to DA Pamphlet 310-4 to determine what Changes to or revisions of this publication are current.

d. Forward comments concerning this manual direct to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: , SIGMS-PA2d, Fort Monmouth, N. J.

Note: For applicable forms and records, see paragraph 2, TM 11-6625-406-12.

2. Block Diagram

(fig. 1)

The signal generator incorporates a wide-band sweeping oscillator signal source with crystal-controlled, pulse-type frequency markers. It is used for testing, ,aligning, and repairing radar intermediate-frequency (if.) circuits. Signal paths and waveforms are shown in the block diagram (fig. 1) and are described in a through below. For complete circuit details, refer to the overall schematic diagram (fig. 30).

a. Sweep, Generator VI. Sweep generator V1 develops a square-wave output voltage from which a linear sawtooth sweep voltage is derived. The sweep generator is essentially a free-running multivibrator, normally synchronized to the line frequency. The repetition rate maybe varied slightly above or below the line frequency by means of .the front panel SWEEP RATE control. The square-wave output voltage of the sweep generator is applied to a shaping network and to the sweeping oscillator.

b. Shaping Network. The shaping network consists of a resistive-capacitive integrating circuit, which shapes the square-wave voltage applied from sweep generator V1 into a symmetrical, linear sawtooth voltage. The sawtooth output voltage is applied to the SWEEP OUTPUT terminals for connection to the horizontal deflection circuits of an external oscilloscope, and is also applied to sawtooth amplifier V2 and compensating modulator V3.

c. Sawtooth Amplifier V2. Sawtooth amplifier V2 is a single-stage power amplifier, which develops a linear sawtooth current in its plate circuit. The sawtooth current is applied to the control winding of a saturable reactor in the tuned circuit of sweeping oscillator V4, causing the reactance of the saturable reactor and the output frequency of the sweeping oscillator to vary at a linear rate.

d. Sweeping Oscillator V4. Sweeping oscillator V4 consists of a push-pull negative-resistance oscillator circuit that is used to generate a sweeping output in the 20- to 40-megacycle (mc) or the 50- to 70-mc range. The frequency of oscillation depends on the inductance of a saturable reactor in the oscillator tuned circuit. The inductance of the saturable reactor is varied at a linear rate by the sawtooth current applied from sawtooth amplifier V2, and the output frequency of the sweeping oscillator thus varies linearly at the