

TECHNICAL MANUAL

**GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)**

**TEST SETS, TELEGRAPH AN/GGM-15(V)1
AND
AN/GGM-15(V)2; ANALYZER, SIGNAL DISTORTION
TS-2862/GGM-15(V)**

This copy is a reprint which includes current pages
from Change 1.

**General Support and Depot Maintenance Manual
 (Including Repair Parts and Special Tools List)
 TEST SETS, TELEGRAPH AN/GGM-15(V)1 AND AN/GGM-15(V)2;
 ANALYZER, SIGNAL DISTORTION TS-2862/GGM-15(V)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ME-PS, Fort Monmouth, New Jersey 07703-5000. In either case a reply will be furnished direct to you.

	Paragraph	Page
CHAPTER 1. GENERAL,		
Scope	1-1	1-1
Consolidated Index of Army Publications and blank forms...	1-2	1-1
Maintenance forms, records and reports.....	1-3	1-1
Reporting equipment improvement recommendations (EIR)	1-3.1	1-1
Administrative storage.....	1-3.2	1-1
Destruction of Army electronics materiel.....	1-3.3	1-1
2. FUNCTIONING OF EQUIPMENT		
Section I. System operation		
General.....	2-1	2-1
Major components	2-2	2-1
II. Components functioning		
Block diagram analysis	2-3	2-1
Unit functioning.....	2-4	2-3
Power supplies.....	2-5	2-10
CHAPTER 3. TROUBLE SHOOTING		
Section I. General troubleshooting information		
General instructions	3-1	3-1
Organization of troubleshooting procedures.....	3-2	3-1
Test equipment required.....	3-3	3-2
II. Troubleshooting		
Operational pretest setup	3-4	3-5
Operational test	3-5	3-5
Continuity testing	3-6	3-13
Localizing troubles	3-7	3-13
Isolating trouble within an assembly.....	3-8	3-14
CHAPTER 4. REPAIRS AND ADJUSTMENT		
General parts replacement techniques.....	4-1	4-1
Adjustment requirements	4-2	4-1
Adjustment procedures	4-3	4-1
5. GENERAL SUPPORT TESTING PROCEDURES		
General.....	5-1	5-1
Test equipment, tools, and material required	5-2	5-1
Test facilities.....	5-3	5-1
Modification work orders	5-4	5-1
Physical tests and inspection	5-5	5-1

	Paragraph	Page
Power supply voltage test.....	5-6	5-2
Oscillator failure alarm test	5-7	5-2
Baud rate frequency tests.....	5-8	5-3
Input select test.....	5-9	5-3
Synchronous operation test	5-10	5-4
Code level 20-ma neutral test.....	5-11	5-5
Twenty-ma neutral and nixie display test	5-12	5-6
Thirty-ma polar, high-Z bridging test	5-13	5-6
Display mode test	5-14	5-7
Summary of performance standards	5-15	5-8
6. DEPOT OVERHAUL STANDARDS		
Applicability of depot overhaul standards	6-1	6-1
Applicable references	6-2	6-1
Test facilities required	6-3	6-1
Test setup for TS-2862/GGM-16(V).....	6-4	6-1
Final test procedures	6-5	6-2
APPENDIX A. REFERENCES.....		A-1
B. REPAIR PARTS AND SPECIAL TOOLS LIST		B-1

ILLUSTRATIONS

Figure No.	Title	Page
2-1	Analyzer, Signal Distortion TS-2862/GCM-15(V), simplified block diagram	2-2
2-2	Analyzer, Signal Distortion TS-2862/GGM-15(V), detailed block diagram	2-4
2-3	Synchronizer timing chart	2-6
2-4	Transfer timing chart.....	2-8
3-1	Counter and power supply 2A2A1, timing diagram	3-2
3-2	Error code generator 2A2A2 timing diagram	3-3
3-3	Transfer control and bit counter 2A2A3 timing diagram	3-3
3-4	Peak detector 2A2A4 timing diagram	3-4
3-5	Units/tens decade counters 2A2A5, timing diagram	3-4
3-6	Input circuits 2A2A6, timing diagram	3-5
3-7	Oscillator and time base 2A2A7, timing diagram	3-5
3-8	Input select test setup	3-6
3-9	Baud rate check test setup.....	3-7
3-10	Code level, 20-ma neutral, test setup	3-8
3-11	30-ma polar signal, high-impedance bridging test setup.....	3-10
3-12	Display mode test setup	3-11
3-13	Power supply voltage check test setup	3-12
3-14	Hex. inverter, integrated circuit	3-16
3-15	Quad. two-input gates, integrated circuit	3-17
3-16	Dual J-K flip-flops, integrated circuits	3-18
3-17	Buffer-storage element, integrated circuit	3-19
3-18	Operational amplifier, integrated circuit	3-20
3-19	Decimal decoder/driver, integrated circuit	3-21
3-20	Decade counter, integrated circuit	3-22
6-1 ①	Component designations (sheet 1 of 2)	6-7
6-1 ②	Component designations (sheet 2 of 2)	6-8
6-2	Nixie display 2A1A1, parts locations.....	6-8
6-3	Error counter and oscillator alarm circuits 2A2A1, parts locations	6-9
6-4	Error code generator 2A2A2, parts locations	6-10
6-5	Transfer control and bit counter 2A2A3, parts locations.....	6-11
6-6	Peak detector 2A2A4, parts locations	6-12
6-7	Units/tens decades 2A2A5, parts locations	6-13
6-8	Input circuits 2A2A6, parts locations.....	6-14
6-9	Oscillator and time base 2A2A7, parts locations	6-15
6-10	Nixie display 2A1A1, schematic diagram.....	6-16
6-11	Not used	6-16
6-12	Resistor, inductor, and capacitor color codes	
6-13	Error counter and oscillator alarm circuits 2A2A1, schematic diagram	
6-14	Error code generator 2A2A2, schematic diagram	
6-15	Transfer control and bit counter 2A2A3, schematic diagram.....	
6-16	Peak detector 2A2A4, schematic diagram.....	
6-17	Units/tens decades 2A2A5, schematic diagram	
6-18	Input circuits 2A2A6, schematic diagram.....	

Figure No.	Title	Page
6-19	Oscillator and time base 2A2A7, schematic diagram.....	
6-20 ①	TS-2862/GGM-15(V), overall schematic diagram (sheet 1 of 3)	
6-20 ②	TS-2862/GGM-15(V), overall schematic diagram (sheet 2 of 3)	
6-20 ③	TS-2862/GGM-15(V), overall schematic diagram (sheet 3 of 3)	
6-21 ①	TS-2862/GGM-15(V), overall wiring diagram (sheet 1 of 6).....	
6-21 ②	TS-2862/GGM-15(V), overall wiring diagram (sheet 2 of 6).....	
6-21 ③	TS-2862/GGM-15(V), overall wiring diagram (sheet 3 of 6).....	
6-21 ④	TS-2862/GGM-15(V), overall wiring diagram (sheet 4 of 6).....	
6-21 ⑤	TS-2862/GGM-15(V), overall wiring diagram (sheet 5 of 6)	
6-21 ⑥	TS-2862/GGM-15(V), overall wiring diagram (sheet 6 of 6)	

CHAPTER 1**GENERAL**

1-1. Scope

a. This manual covers general support (GS) and depot maintenance for Analyzer, Signal Distortion TS-2862/GGM-15(V), a component of Test Set, Telegraph AN/GGM-15(V). It includes instructions for troubleshooting, testing, adjusting, and repairing the equipment, replacing maintenance parts, and repairing specified maintenance parts. Detailed functioning of the equipment is covered in chapter 2.

b. The complete technical manual for this equipment includes TM 11-6625-1668-12.

NOTE

For applicable forms and records, refer to TM 11-6625-1668-12.

1-2. Consolidated Index of Army Publications and Blank Forms

Refer to the latest of DA Pam 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update.

b. *Reporting of Item and Packaging Discrepancies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

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

1-3.1. 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 the design. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to Commander, US Army Communications Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

1-3.2. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage is covered in paragraph 5-2.

1-3.3. Destruction of Army Electronics Materiel

Destruction of Army Electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.