TM 11-6625-435-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

GENERATOR, PULSE SG-366/U

This copy is a reprint which includes current pages from Changes 1 through 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1962

WARNING

Be careful when working on the 117-volt ac line connections. Serious injury or death may result from contact with these terminals.

DON'T TAKE CHANCES!

Changes in force: C1, C2, and C3

TM 11-6625-435-12
C 3

CHANGE
No. 3

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 29 *January 1974*

OPERATOR AND ORGANIZATIONAL

MAINTENANCE MANUAL

GENERATOR, PULSE SG-366/U

TM 11-6625-435-12, 18 April 1962, is changed as follows:

Page 3, paragraph 1.1. Delete paragraph 1.1 and substitute:

1.1 Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO'S) pertaining to the equipment.

Paragraph 2. Delete paragraph 2 and substitute:

2. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/NAVSUP PUB 378 (Navy)/AFR 71-4 (Air Force) /and MCS P4030.29 (Marine Corps), and DSAR 4145.8.

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 (Army)/NAVSUPINST 4610.33/AFM 75-18/MCO P4610.19A (Marine Corps) and DSAR 4500.15.

2.1. Reporting of Errors

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-C, Fort Monmouth, NJ 07703.

Page 4. After paragraph 5, add:

5.1. Items Comprising an Operable Generator, Pulse SG-366/U

Generator, Pulse SG-366/U (FSN 6625-892-3594) comprises the operable end item.

Page 29, appendix III. Delete appendix III.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army,
Chief of Staff.

Official:

VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

DISTRIBUTION:

Active Army:

USASA (2)
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USAARENBD (1
USAMB (10)
AMC (1)
TRADOC (2
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMDS (3)
MICOM (2)
TECOM (2)
USACC (4)
MDW (1)
Armies (2)
Corps (2)
HISA (ECOM) (18)
Svc Colleges (1)
USAES (2)
USASESS (20)
USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAINTS (3)
USASCS (10)
Harry Diamond Labs (2)
WRAMC (1)
USACDCEC (10)
ATS (1)
Instl (2) except
Fort Gordon (10)
Fort Huachuca (10)
WSMR (1)
Fort Carson (5)
Ft Richardson (ECOM Ofc) (2)
Army Dep (2) except
LBAD (14)
SAAD (30)
TOAD (14)
ATAD (10)
USA Dep (2)
Sig Sec USA Dep (2)
Sig Dep (2)
Sig FLDMS (1)
USAERDAA (1)
USAERDAW (1)
MAAG (1)
USARMIS (1)
Units org under fol TOE:
(1 copy each unit)

11-97	29-134
11-98	29-136
11-117	29-437
11-158	29-500
11-500 (AA-AC)	55-405
29-41	55-406
29-56	55-458

NG: None

USAR: None

For explanation of abbreviations used, see AR 310-50.

SECTION II MAINTENANCE ALLOCATION CHART

(1) PART OR COMPONENT	(2) MAINTENANCE FUNCTION	(3) 1ST ECH	(4) 2ND ECH	(5) 3RD ECH	(6) 4TH ECH	(7) 5TH ECH	(8) TOOLS REQUIRED	(9) REMARKS
GENERATOR, PULSE SG-366/U	service		X				9	
	inspect	X						
	repair				X		1 thru 5,7,8	
	calibrate				X		1 thru 5,7,8	
	rebuild					X	1 thru 5,6,8	
POWER SUPPLY SUBASSEMBLY	service		X				9	
	inspect	X						
	repair				X		1 thru 5,7,8	
	rebuild					X	1 thru 5,6,8	

SECTION III ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

(1) TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	(2) 1ST ECH	(3) 2ND ECH	(4) 3RD ECH	(5) 4TH ECH	(6) 5TH ECH	(7) TOOL CODE	(8) REMARKS
SG-366/U (continued)							
FREQUENCY METER AN/URM-80				†	†	1	
FREQUENCY METER AN/TSM-16				†	†	2	
GENERATOR, SIGNAL AN/USM-44				†	†	3	
MULTIMETER TS-352/U				†	†	4	
OSCILLOSCOPE AN/USM-50				†	†	5	
TEST SET, ELECTRON TUBE TV-2/U					†	6	
TEST SET, ELECTRON TUBE TV-7/U				†		7	
TOOL KIT TK-87/U				†	†	8	
TOOL AND TEST EQUIPMENT NORMALLY AVAILABLE TO THE REPAIRMAN USER BECAUSE OF HIS ASSIGNED MISSION		†				9	

APPENDIX III

BASIC ISSUE ITEMS
(Added)

Section I. INTRODUCTION

1. Scope

This appendix lists items supplied for initial operation and for running spares. The list includes tools, accessories, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

2. Columns

a. Source, Maintenance and Recoverability Code. Not used.

b. Federal Stock Number. This column lists the 11-digit Federal stock number.

c. Designation by Model. Not used.

d. Description. Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

e. Unit of Issue. The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

f. Expendability. Nonexpendable items are indicated by NX. Expendable items are not annotated.

g. Quantity Authorized. Under "Items Comprising an Operable Equipment," the quantity of items supplied for the initial operation of the equipment is listed. Under "Running Spares and Accessory Items," the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

h. Illustration. The "Item No." column lists the reference symbols used for identification of the items in the illustration or text of the manual.

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS FIGURE NO	(9) ILLUSTRATIONS ITEM NO
	6625-892-3594		GENERATOR, PULSE SG-366/U: 12 mc to 80 mc, 5 bands, 100 to 1000 per sec repetition rate; 110 v ac, 60 cyc, single ph; Kay Electric type 570A		XX			
			ITEMS COMPRISING XX OPERABLE EQUIPMENT					
	Ord thru AGC		TECHNICAL MANUAL TM 11 6625 435 12			2		
	5960-503-4880		ELECTRON TUBE: MIL type 0A2			2		V101 V106
	5960-166-7648		ELECTRON TUBE: MIL type 0B2			1		V105
	5960-108-0261		ELECTRON TUBE: MIL type 2D21			2		V3, V5
	5960-615-0245		ELECTRON TUBE: MIL type 5V4			1		V101
	5960-166-7667		ELECTRON TUBE: MIL type 6AH6			1		V7
	5960-262-1357		ELECTRON TUBE: MIL type 6AK5			3		V2, V8, V9
	5960-188-3544		ELECTRON TUBE: MIL type 6AL5			1		V4
	5960-166-7673		ELECTRON TUBE: MIL type 6AQ5			1		V6
	5960-188-3602		ELECTRON TUBE: MIL type 6BH6			2		V10, V11
	5960-166-7661		ELECTRON TUBE: MIL type 6X4			2		V102 V103
	5960-166-7663		ELECTRON TUBE: MIL type 12AU7			1		V1

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS FIGURE NO	(9) ILLUSTRATIONS ITEM NO
			SG-366/U (continued)					
	5920-280-9345		FUSE, CARTRIDGE: Bussmann No. AGC3			1		F1
	6240-057-2887		LAMP, INCANDESCENT: GE No. 44			1		
			RUNNING SPARES AND ACCESSORY ITEMS					
	5960-503-4880		ELECTRON TUBE: MIL type 0A2			1		V104 V106
	5960-166-7648		ELECTRON TUBE: MIL type 0B2			1		V105
	5960-108-0261		ELECTRON TUBE: MIL type 2D21			1		V3, V5
	5960-615-0245		ELECTRON TUBE: MIL type 5V4			1		V101
	5960-166-7667		ELECTRON TUBE: MIL type 6AH6			1		V7
	5960-262-1357		ELECTRON TUBE: MIL type 6AK5			1		V2, V8, V9
	5960-188-3544		ELECTRON TUBE: MIL type 6AL5			1		V4
	5960-166-7673		ELECTRON TUBE: MIL type 6AQ5			1		V6
	5960-188-3602		ELECTRON TUBE: MIL type 6BH6			1		V10, V11
	5960-166-7661		ELECTRON TUBE: MIL type 6X4			1		V102 V103
	4960-166-7663		ELECTRON TUBE: MIL type 12AU7			1		V1
	5920-280-9345		FUSE, CARTRIDGE: Bussmann No. AGC3			5		F1
	6240-057-2887		LAMP, INCANDESCENT: GE No. 44			1		

BY ORDER OF THE SECRETARY OF THE ARMY:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

DASA (6)
USASA (2)
CNGB (1)
Tech Stf, DA (1) except
CSigO (14)
Tech Stf Bd (1)
USCONARC (5)
USAARTYBD (1)
USAARMBD (2)
USAIB (1)
USARADBD (2)
USAAVNBD (1)
USA Abn Elct & SPWAR Bd (1)
USAATBD (1)
ARADCOM (2)
ARADCOM, Rgn (2)
OS Maj Comd (3)
OS Base Comd (2)
LOGCOMD (2)
MDW (1)
Armies (2)
Corps (2)
Instl (2) except
Ft Monmouth (63)
USATC AD (2)
USATC Engr (2)
USATC Inf (2)
USATC FA (2)
USATC Armor (2)
USAOMC (2)
Svc Colleges (2)
Br Svc Sch (2)
GENDEP (2) except
Atlanta GENDEP (none)
Sig Sec, GENDEP (5)
Sig Dep (12) except
Sacremento Sig Dep (12)
WRAMC (1)
USA Trans Tml Cored (1)
Army Tml (1)
POE (1)
(OSA (1)
USAEPG (2)
AFIP (1)
AMS (1)
Army Pictorial Cen (2)
EMC (1)
Yuma Test Sta (2)
USA Strat Comm Cored (4)
USASSA (25)
USASSAMRO (1)
USARCARIB Sig Agcy (1)
USA Sig Msl Spt Agcy (13)
Sig Fld Maint Shops (3)
Def Log Svc Cen (1)
USA Corps (3)
JBUSMC (2)
Units org under fol TOE:
11–7 (2)
11-16 (2)
11-57 (2)
11-98 (2)
11-117 (2)
11-155 (2)
11-157 (2)
11-500 (AA-AE) (4)
11-557 (2)
11-587 (2)
11-592 (2)
11-597 (2)

NG: State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 320-50.

Changes in force: C 1 and C 2

TM 11-6625-435-12
C 2

Operator and Organizational Maintenance Manual,

GENERATOR, PULSE SG366/U

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *24 October, 1963*

TM 11-6625-435-12, 18 April 1962, is changed as follows:

Page 3. Add paragraph 1.1.

1.1. Index of Publications

Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders which are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes to and revisions of each equipment publication.

Delete paragraph 2 and substitute:

2. Forms and Records

a. Reports of *Maintenance and Unsatisfactory Equipment.* Use equipment forms and records in accordance with instructions in TM 38–750.

b. Report of Damaged or Improper shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. Reporting ***of*** *Equipment Manual Improvements.* The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA technical manual parts lists or supply manual 7, 8 or 9) will be used for reporting these improvements. This form will be completed 'in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to—Commanding Officer, U. S. Army Electronics Materiel Support Agency, ATTN: SELMS-MP, Fort Monmouth, N. J. 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc.

Page 12, paragraph 16. Make the following changes:

Subparagraph *a(l),* line 4. Change line 4 to read:

R1 = $\checkmark (Z1 - Z2)$

Subparagraph a(2), line 2. Change line 2 to read:

R1 = $\checkmark Z1\ (Z1 - Z2 = \checkmark 50\ (50 - 30) =$ **31.6** ohms (Use 32 ohms).

Subparagraph b(2), line 4. Change line 4 to read:

R 1 = $\checkmark Z1 - Z2 \checkmark 80\ (80-50) =$ 49 ohms

Page 17. Delete paragraphs 21 and 22, and substitute:

21. Scope of Maintenance

The maintenance duties assigned to the operator and organizational repairman of the equipment are listed below together with a reference to the paragraphs covering the specific maintenance functions.

a. Daily preventive maintenance checks and services (par. 22.2).

b. Weekly preventive maintenance checks and services (par. 22.3).

c. Monthly preventive maintenance checks and services (par. 22.4).

d. Quarterly preventive maintenance checks and services (par. 22.5).

e. Cleaning (par. 22.6).

f. Touchup painting (par. 22.7).

g. Visual inspection (par, 24).

h Equipment Performance Check (par. 25).

i. Tube Replacement (par. 26).

j. Repairs.

(1) Replacement of fuse (par. 27a).

(2) Replacement of pilot lamp (par. 27b).

(3) Electrical power cable repair (par. 27c).

22. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, nd inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 22.2 through 22.7 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (pars. 22.2-22.5) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat-serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators and organizational repairmen in maintaining combat serviceability, the charts indicate what to check, how to check, and what the normal conditions are; the *References* column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective actions listed, higher echelon maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

Add paragraphs 22.1 through 22.7.

22.1. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the equipment are required daily, weekly, monthly, and quarterly.

a. Paragraph 22.2 specifies the checks and services that must be accomplished daily (or at least once each week if the equipment is maintained in standby condition).

b. Paragraphs 22.3, 22.4, and 22.5 specify *additional* checks and services that must be performed on a weekly, monthly, and quarterly basis, respectively.

22.2. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Completeness	See that the equipment is complete (app. III)	
2	Exterior surfaces	Clean the exterior surfaces, including the panel and meter glass (par. 22.6). Check meter glass for cracks.	
3	Connectors	Check the tightness of all connectors.	
4	Controls and indicators	While making the operating checks (item 5), observe that the mechanical action of each knob, dial, and switch is smooth and free of external or internal binding, and that there is no excessive looseness. Also, check the meter for sticking or bent pointer.	
5	Operation	Operate the equipment according to paragraph 25	Par. 25.

22.3. Weekly Preventive Maintenance checks and Services Chart

Sequence No.	Item	Procedure	References
1	Power cord	Inspect power cord for chafed, cracked, or frayed insulation. Replace connectors that are broken, arched, stripped, or worn excessively.	None.
2	Handles	Inspect handles for looseness. Replace or tighten as necessary.	None.
3	Metal surfaces	Inspect exposed metal surfaces for rust and corrosion. Clean and touchup paint as required (par. 22.7).	None.

22.4. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Pluckout items	Inspect seating of pluckout items. Make certain that tube clamps grip tube bases tightly.	None.
2	Transformer terminals	Inspect the terminals on the power transformer. There should be no evidence of dirt or corrosion.	None.
3	Terminals blocks	Inspect terminal blocks for loose connections and cracked or broken insulation.	None.
4	Resistors and capacitors	Inspect the resistors and capacitors for cracks, blistering, or other detrimental defects.	None.
5	Gasket and insulators	Inspect gaskets, insulators, bushings, and sleeves for cracks, chipping and excessive wear.	None.
6	Variable capacitors	Inspect variable capacitors for dirt, corrosion, and deformed plates.	None.
7	Interior	Clean interior of chassis and cabinet	None.

22.5. Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item	Procedure	References
1	Publications	See that all publications are complete, serviceable, and current.	DA Pam 310–4.
3	Modifications	Check DA Pam 310–4 to determine if new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38-750 and DA Pam 310–4.
3	Spare parts	Check all spare parts (operator and organizational) for general condition and method of storage. There should be no evidence of overstock, and all shortages must be on valid requisitions.	App. III and TM 11-6625–435–20P.

22.6. Cleaning

Inspect the exterior of the equipment. The exterior surfaces should be clean and free of dust, dirt grease, and fungus.

a. Remove dust and loose dirt with a clean soft cloth.

Warning: Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. **Do not use near a flame.**

b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with cleaning compound.

c. Remove dust or dirt from connectors with a brush.

Caution: **Do not press on the meter face (glass) when cleaning; the meter may become damaged.**

d. Clean the front panel, meter, and control knobs; use a soft clean cloth. If necessary, dampen the cloth with water and mild soap.

22.7. Touchup Painting Instructions

Remove rust and corrosion from metal surface by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TM 9-213.

Page 18. Delete figure 8.

Page 19. Delete figure 9.

Page 25. Add the following to appendix I.

TM 9-213 Painting Instructions for Field use.

TM 38-750 The Army Equipment Record System and Procedures.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United *States Army,*
The Adjutant General.

Distribution

Active Army;

USASA (2)
CNCB (1)
CofEngrs (1)
TSG (1)
CSigO (7)
CofT (1)
CofSptS (1)
USA CD Agcy (1)
USCONARC (5)
USAMC (5)
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Comd (3)
OS Base Comd (2)
LOGCOMD (2)
USAECOM (5)
USAMICOM (4)
USASCC (4)
MDW (1)
Armies (2)
Corps (2)
USA Corps (3)
USATC AD (2)
USATC Engr (2)
USATC Inf (2)
USATC Armor (2)
USASTC (5)
Instl (2) except
Ft Monmouth (65)
Svc Colleges (2)
Br Svc Sch (2) except
GENDEP (OS) (2)
Sig Dep (OS) (12)
Sig Sec, GENDEP (5)
Army Dep (2) except
Ft Worth (8)
Lexington (12)
Sacramento (28)
Tobyhanna (12)
USA Trans Tml Comd (1)
Army Tml (1)
USAOSA (1)
POE (1)
WRAMC (1)
AMS (1)
AFIP (1)
Army Pic Cen (2)
USA Mbl Spt Cen (1
USA Elet Mat Agcy (12)
Chicago Proc Dis (1)
USA Elct RD Acty, White Sands (13)
USA Elct RD Acty, Ft Huachuca (2)
USARSOUTHCOM Sig Agcy ()
Sig Fld Maint Shop (3)
Units org under fol TOE:
Two copies each unit UNOINDC:
11-7
11-16
11-57
11-97
11-98
11-117
11-155
11-157
11-500 (AA-AE) (4)
11-557
11-587
11–592
11-597

NG; State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 320-50

TECHNICAL MANUAL

Operator and Organizational Maintenance Manual

GENERATOR, PULSE SG-366/U

TM 11-6625-435-12
CHANGES No. 1

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 13 ***August*** 1962

TM 11–6625435-12, 18 April 1962, is changed as follows:

APPENDIX II

MAINTENANCE ALLOCATION
(Superseded)

Section 1. INTRODUCTION

1. General

a. This section assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance echelon.

b. Columns in the maintenance allocation chart are as follows:

(1) *Component.* This column shows only the nomenclature or standard item name. Additional descriptive data is included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and the subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) are listed in disassembly order or alphabetical order.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the echelons.

(a) *Service.* To clean, to preserve, and to replenish lubricants.

(b) *Adjust.* To regulate periodically to prevent malfunction.

(c) Inspect. To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceabiliy and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(e) Replace. To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(i) Overhaul. To restore an item to *completely serviceable* condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) 1st, 2d, 3d, 4th, and 5th echelon. The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding column.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *1st, 2d, 3d, 4th, and 5th echelon.* The dagger (†) symbol in these columns indicates the echelons normally allocated the facility.

(3) *Tool* ***code.*** This column lists the tool code assigned.

2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization operating this equipment.

TECHNICAL MANUAL
No. 11-6625-435-12

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., 18 *April* 1962

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL

GENERATOR, PULSE SG-366/U

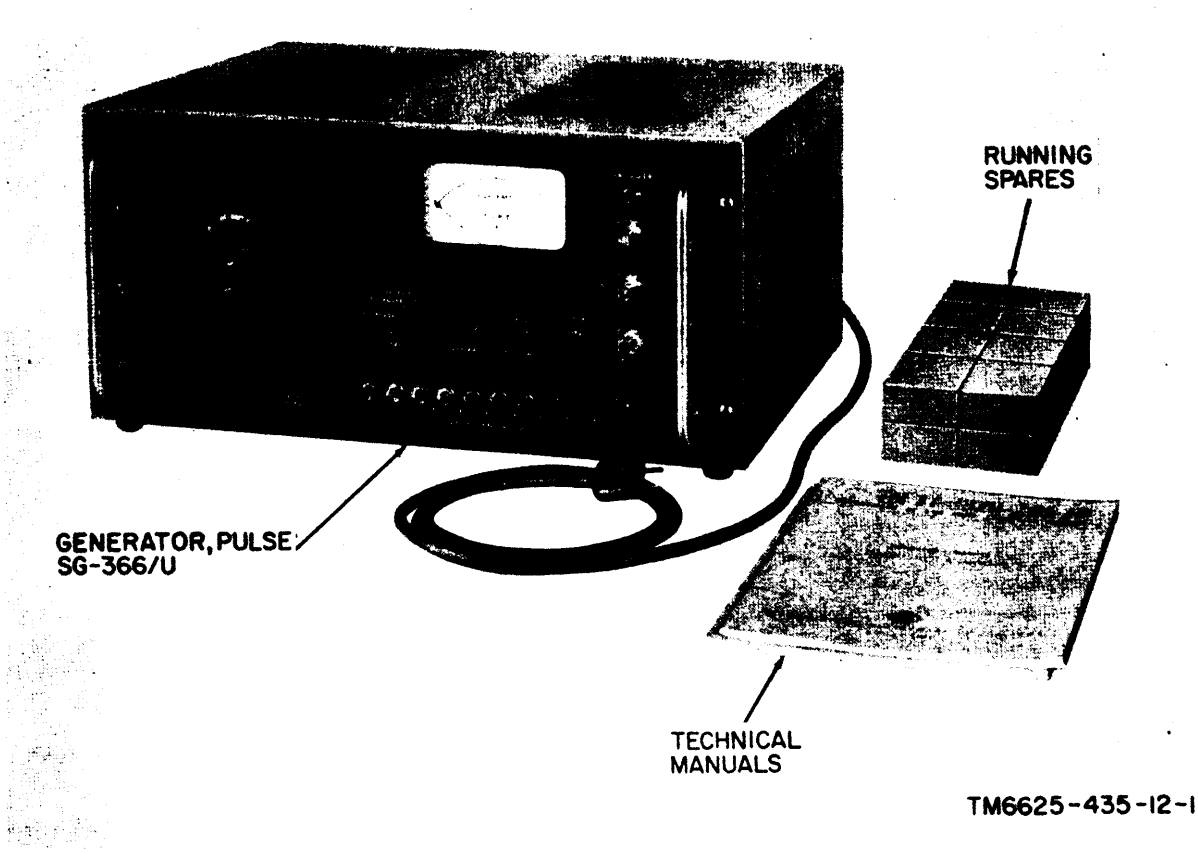

Figure 1. Generator, Pulse SG-366/U.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual describes Generator, Pulse SG-366/U (fig. 1) and covers its installation, operation, operator's maintenance, and organizational maintenance. It includes operation under usual and unusual conditions, cleaning and inspection of the equipment, and replacement of parts available to first and second echelon maintenance.

2. Forms and Records

a. Reports of Unsatisfactory Equipment. Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) as prescribed in AR 700-38.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700–58.

c. Preventive Maintenance Forms. Prepare DA Form 11–266 (Maintenance Checklist for Signal Equipment (Test Equipment)) (figs. 8 and 9) in accordance with instructions on the form.

d. Comments on Manual. Forward all other comments on this publication direct to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N.J.

e. Index of Equipment Publications Refer to DA Pam 310-4 to determine what changes to or revisions of this publication are current.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

a. Generator, Pulse SG-366/U is a portable signal source which provides continuous wave (cw), pulsed radiofrequency (rf), or video pulse output signals. It is used in conjunction with an oscilloscope to obtain a graphic representation of the steady state and transient response of rf, intermediate frequency (if.), and video amplifiers in radar, television, and other equipment.

b. The cw and pulsed rf outputs cover a frequency range of 10 to 80 megacycles in five bands. The pulse repetition rate (prr) is variable over the range of 400 to 4,000 pulses per second (pps), and the pulse width is variable from 0.20 to 20.0 microseconds (μsec) in two ranges. Either an external trigger pulse or an internally generated trigger pulse can be selected to trigger Generator, Pulse SG–366/U. Provisions are included to supply a portion of the internally generated trigger pulse for synchronizing the oscilloscope or other external circuits.

4. Technical Characteristics

Frequency range	10 to 15 mc. 15 to 22 mc. 22 to 34 mc. 34 to 53 mc. 53 to 80 mc.
Frequency calibration accuracy	±0.5%
Output impedance	50 ohms.
Types of output:	
Cw	200 millivolts rms ±5%, across 50-ohm load.
Pulsed rf	200 millivolts rms ±5%, across 50-ohm load.
Video pulse	500 millivolts peak (nominal) maximum across 50-ohm load.
	5.0 volts peak (nominal) maximum across 500-ohm load.

Trigger pulse.....Negative pulse, −65v (nominal), delayed approximately 0.25 microsecond.

Pulse characteristics

Width .....Variable from 0.20 to 20.0 microseconds over two ranges.

Repitition rate.....Variable over range of 400 to 4,000 pps.

Rise and decay time.....0.03 microsecond.

Output meter calibration accuracy .....±5% at 0.2 volt setting.

Output level control.....Additive; switchable attenuators of 0.5 db, 1.0 db, 2 db, 3 db, 5 db, 10 db, and 20 db. Steps to 101.5 db maximum attenuation.

Trigger input required.....30 volts negative pulse.

Line voltage input.....105 to 125 volts, 60 cycles.

Power consumption.....110 watts.

Number of tubes.....17.

Weight .....30 pounds.

5. Components of Generator, Pulse SG-366/U

a. Components (fig. 1).

Quantity	Item	Height (in.)	Depth (in.)	Width (in.)	Unit weight (lb)
1	Generator, Pulse SG–366/U	8¾	13	19½	30
2	TM 11–6625–435–12				
1 set	Running spares (b below)				

b. Running Spares (fig. 2).

Quantity	Item	Identification
1	Electron tube 12AU7	V1
2	Electron tube 5654/6AK5W	V2, V8, V9
1	Electron tube 5727/2D21W	V3, V5
1	Electron tube 5726/6AL5W	V4
1	Electron tube 6005/6AQ5W	V6
1	Electron tube 6AH6	V7
1	Electron tube 6BH6	V10, V11
1	Electron tube 5U4GB	V101
1	Electron tube 6X4W	V102, V103
1	Electron tube 6626/0A2WA	V104, V106
1	Electron tube 0B2	V105
6	Fuse, 3-ampere	F1
1	Pilot lamp, 0.25-ampere, 6.3-volt	I–1

6. Common Name

Throughout this manual, Generator, Pulse SG-366/U is referred to as the pulse generator.

7. Description of Pulse Generator

(fig. 1)

The pulse generator consists of two chassis, a power supply chassis, and an rf generator and pulse-forming chassis, inclosed in a metal cabinet. Attached to the front panel are two metal handles to aid in removal of the slide-out chassis from the cabinet. The line fuseholder, mounted at the rear of the power supply chassis, permits fuse replacement without removal of the chassis from the cabinet. The alternating-current (ac) power cable is permanently attached to the rear of the power supply chassis and terminates in a two-power prong. A coaxial cable of the Cord CG-409/U type will be used for all coaxial connections made to the pulse generator. The tubes of the rf generator and pulse-forming chassis receive operating power from the internal, voltage-regulated, power supply chassis. The rf generator and the pulse-forming circuits are shielded from each other and from the power supply circuits by complete inner shields. All operating controls are on the front panel of the pulse generator.

8. Additional Equipment Required

The following equipment is not supplied as part of the pulse generator, but is needed for use with it:

a. Oscilloscope. An oscilloscope is required to provide a display of the response characteristics of the circuits under test.

b. Detector. A detector circuit (fig. 6) may also be required, depending on the bandpass of the oscilloscope.

c. *Impedance-Matching Network.* If the input impedance of the equipment under test differs substantially from the output impedance of the pulse generator, a suitable impedance-matching network may be required (par. 14c).

d. Miscellaneous Parts. Three Cords CG-

409/U and interconnecting leads are also required to interconnect all equipment for test purposes. Cord CG-409/U can be fabricated from Radio Frequency Cable RG-58/U and Radio Frequency Plug UG-88/U if the CG–409/U is not available. The type of additional interconnection leads will depend on the equip ment to be used and tested, and whether or not an impedance match and detector are needed to perform the tests.

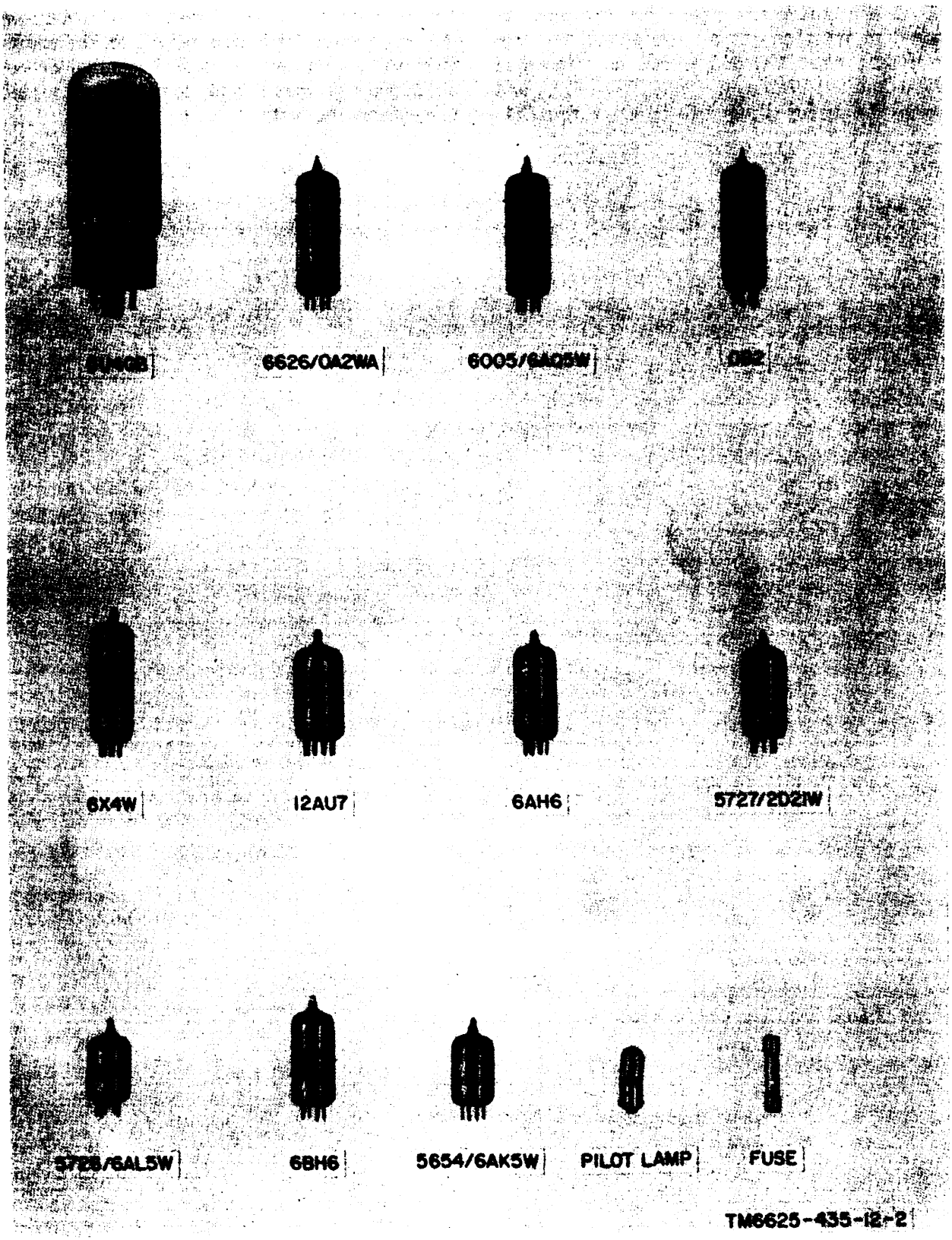

Figure 2. Running spares.

CHAPTER 2

INSTALLATION AND OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

9. Unpacking

a. Packing Data. The pulse generator and the spare parts are packed in a corrugated carton for shipment as shown in figure 3. The dimensions and contents of the shipping carton are as follows:

Size (in.)			Volume (cu ft)	Weight (lb)	Qty	Contents
23	18½	14	3.45	50	1	Pulse generator
					2	TM 11–6625–435–12
					1 set	Running spares

b. Removing Contents.

(1) Cut the tape on the outer carton, open the carton, and remove the inner carton that is wrapped in a moisture-vaporproof barrier.

(2) Open the moisture-vaporproof barrier and the inner corrugated carton.

(3) Remove the humidity indicator card. This card contains three desiccant spots which are normally colored blue. At 77° F., the blue spots turn pink at the following relative humidity:

Spot	Relative humidity (%)	Comment
Top	65	Dry equipment thoroughly before operating.
Middle	40	Check for condensation.
Bottom	30	Check equipment for mildew.

(4) Remove the technical manuals.

(5) Remove the pulse generator and the running spares from the inner box.

10. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, refer to paragraph 2.

b. Check the equipment against the packing list. When no packing list accompanies the equipment, use the table of components (par. 5) or the packaging date (par. 9) as a general check.

c. Remove the pulse generator from the *cabinet* (par. 11). Make sure that all tubes are unbroken, and that tubes of the proper type are firmly seated in the proper sockets (fig. 4).

d. Check to be sure that a fuse of the correct rating (3 amperes) is installed in the fuseholder at the rear of the power supply chassis.

11. Placement of Equipment

There are no set installation procedures; all that is required is that the pulse generator be placed so as to provide access to 120-volt, 60-cycle-per-second (cps) power by means of the power cord, and that the pulse generator be situated so as to allow connection to the equipment under test and to other test equipment by means of whatever cables are available.

12. Installation of Tubes and Fuse (fig. 1)

a. General. The pulse generator is shipped by the manufacturer with all tubes and the fuse installed, and with the power cable attached. If the pulse generator has been reshipped with the tubes or the fuse removed, proceed to *b* or c below.

b. Installation of Tubes. Remove the tubes from their cartons and install them in the pulse generator as follows:

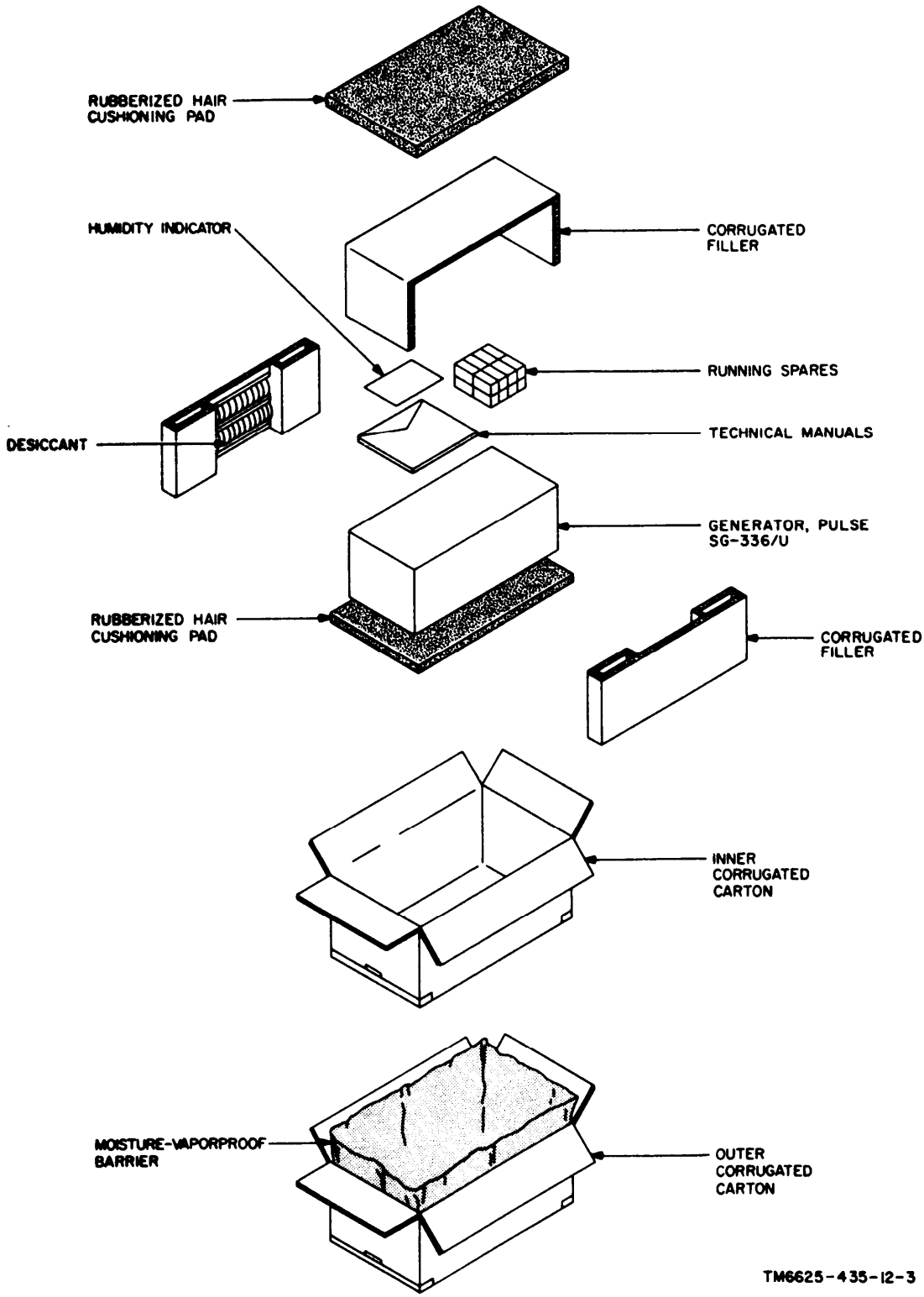

Figure 3. Typical packaging.

(1) Remove the four screws that fasten the front panel to the cabinet.
(2) Remove the three screws that fasten the rear chassis to the cabinet.
(3) Grasp the two handles and slide the panel-chassis assembly out of the cabinet. Be careful to prevent strain on the power cable. Make sure that the power cable is not tangled, and that it is free to pass through the opening at the rear of the cabinet.
(4) Replace the tubes in the chassis (fig. 4).
(5) Replace the panel-chassis assembly in the cabinet. Align the mounting slots in the front panel with the four threaded mounting holes in the cabinet, and fasten the panel to the cabinet with the four screws. Fasten the rear chassis to the cabinet with the three screws.

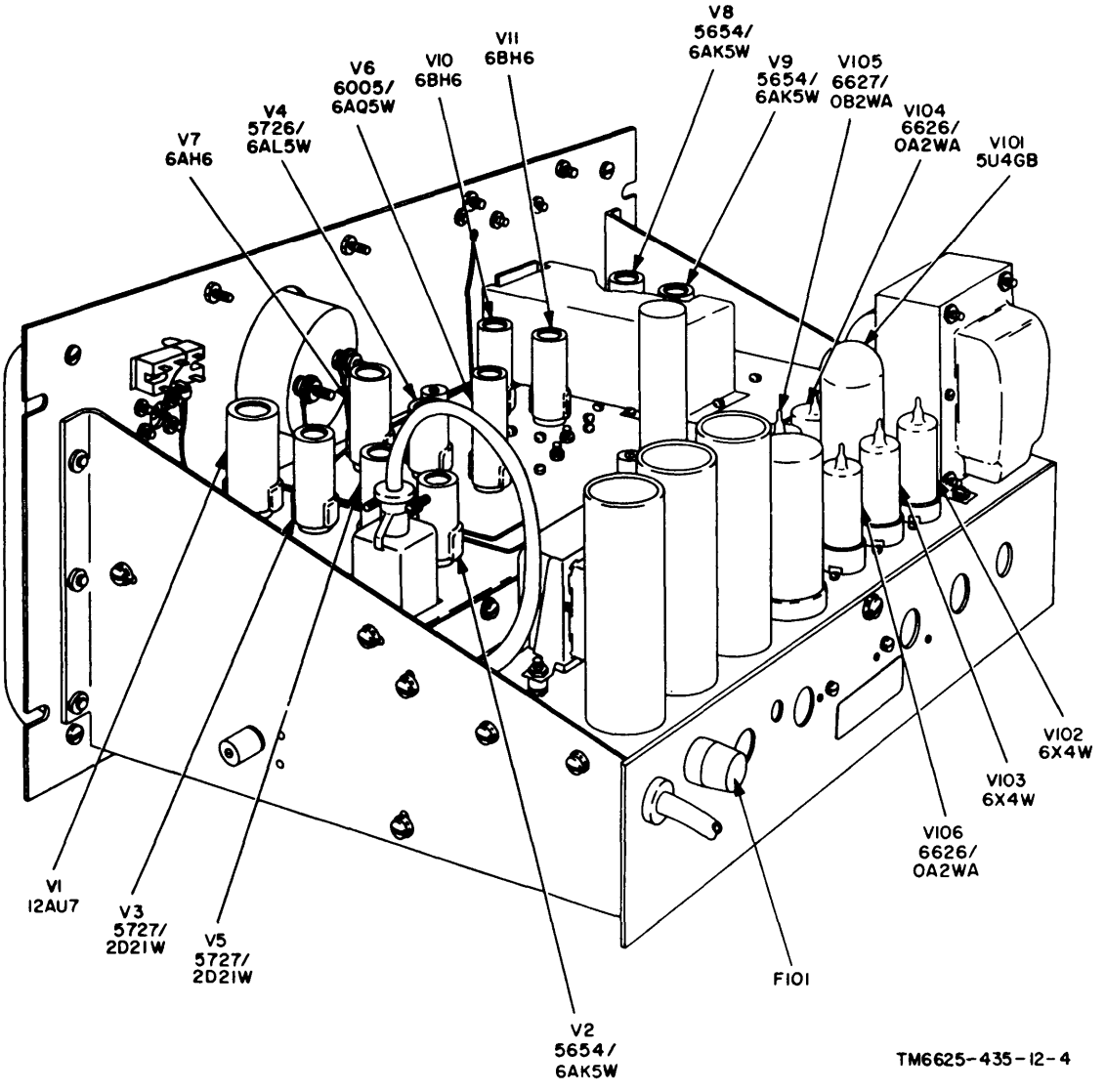

Figure 4. Pulse generator, tube location.

c. *Installation of Fuse.* Check for the presence of fuse F101 (fig. 4) and install fuse F101 (if the fuse has been removed) as follows:

(1) Turn the cap on the fuseholder, located at the rear of the pulse generator, counterclockwise and pull it out. Check to see if the fuse (3-ampere) has been installed. If the fuse has been removed, proceed to (2) below.

Insert a 3-ampere fuse (provided with the pulse generator) into the fuseholder.

Push the cap of the fuseholder in, and twist it clockwise to lock it.

Section II. OPERATION UNDER USUAL CONDITIONS

13. Operator's Controls and Indicators

(fig. 5)

Control or indicator	Function
Function selector switch	Turns pulse generator off or turns it on to a selected mode of operation. *Sw pos* — *Action* OFF — Turns off pulse generator. CW — Turns on pulse generator and provides continuous-wave rf output. VIDEO PULSE 50 ohm — Provides video pulse output across 50-ohm load. VIDEO PULSE 500 ohm — Provides video pulse output across 500-ohm load. PULSED RF — Provides pulsed rf output.
Dial pilot lamp	Lights when pulse generator is turned on, which illuminates frequency indicating dial.
Frequency control	Outer portion selects on of five frequency ranges, and inner portion adjusts frequency within selected range. Ranges are 10 to 15 mc, 15 to 22 mc, 22 to 34 mc, 34 to 53 mc, and 53 to 80 mc.
Frequency indicating dial	Indicates output frequency selected by frequency control.
REP. RATE KC control	Adjusts repetition rate of video pulse and pulsed rf over range of 400 to 4,000 pps.
X10-μ SEC switch	Selects one of two pulse width ranges. *Sw pos* — *Action* μ SEC — Provides pulse width range of 0.20 to 2.0 microseconds. x10 — Provides pulse width range of 2.0 to 20 microseconds.
PULSE WIDTH control	Adjusts pulse width within selected range.
TRIGGER switch	Selects internal or external trigger pulse. *sw pos* — *Action* INT. — Permits pulse-forming circuits to be excited by internally generated trigger pulse. EXT. — Permits pulse-forming circuits to be excited by external trigger pulse.
RF ATTENUATOR 50 ohm switches.	Ten switches; when placed in the up position, attenuate pulse generator output voltage over range of 0 to 101.5 db.
SET RF OUTPUT control	Adjusts output voltage in cw mode.
OUTPUT meter	Monitors output voltage in cw mode.

Caution: **If the pulse generator is connected to a high direct current (dc) voltage circuit, add a blocking capacitor between the output connector of the pulse generator and the equipment under test to protect the pulse generator.**

14. Preliminary Starting Procedure (fig. 6)

Perform the preliminary operations listed below before starting the equipment as described in paragraph 15.

a. Set the function selector switch to the pulse generator to OFF.

b. Use Cord CG-409/U and connect the NEG OUT connector of the pulse generator to the external sync connector of the oscilloscope. If a detector is to be used, construct one as shown in figure 6 and put it in series with the line from the oscilloscope to the equipment under test.

c. Connect the PULSE connector (for video pulses) or RF (for cw or pulsed rf) connector of the pulse generator to the input connector of the equipment under test; use Cord CG-409/U. If the input impedance of the equipment under test differs substantially from 50 ohms when cw or pulsed rf output is used, or from 50 to 500 ohms when video pulse output is used, a suitable impedance-matching network may be required. Figure 7 shows typical impedance-matching networks, and paragraph 16 contains instructions for calculating matching impedance and for constructing impedance-matching devices.

d. If a detector is not used, connect the output of the equipment under test to the vertical input of the oscilloscope.

e. If an externally supplied voltage is used to trigger the pulse-forming circuits in the pulse generator, connect the output of the external generator to the IN connector of the pulse generator. Make certain that the TRIGGER switch is set to EXT.

f. Connect the power cable of the pulse generator and the power cables of the associated test equipment to a 117-volt ac source.

g. Turn on the power switches of the associated test equipment. Apply power to the equipment under test.

15. Operating procedure

Make certain that the preliminary operations listed in paragraph 14 have been completed before performing the following operating procedure:

a. Cw Output.

(1) Set the function selector switch to CW and wait 5 to 10 minutes for the tubes to warm up and all equipment to stabilize.

(2) Set the outer portion of the frequency control to the correct frequency range.

(3) Set the inner portion of the frequency control to the exact frequency desired.

(4) Adjust the SET RF OUTPUT control until the OUTPUT meter indicates 0.2 volt.

(5) Use the RF ATTENUATOR switches to obtain the desired degree of attenuation of the pulse generator output voltage. Note that these attenuators are additive and may be used in any desired combination.

b. Pulsed Rf Output.

(1) Perform the procedures given in *a* (1) through (4) above.

(2) If internal triggering is desired, set the TRIGGER switch to INT. Where an externally supplied triggering voltage is to be used, set the TRIGGER switch to EXT.

(3) Set the REP. RATE KC control to the desired pulse repetition rate.

(4) For a pulse width between 0.20 and 2.0 microseconds, set the x10-μSEC switch to μSEC. For a pulse width between 2.0 and 20.0 microseconds, set the x10-μSEC range switch to x10.

(5) Set the PULSE WIDTH control to the exact pulse width desired.

(6) Use the RF ATTENUATOR switches to obtain the desired degree of attenuation.

c. Video Pulse Output.

(1) Set the function selector switch to either VIDEO PULSE 500 ohm or VIDEO PULSE 50 ohm, according to the input impedance of the circuit under test. Wait 5 to 10 minutes for the tubes to warm up and all equipment to stabilize.

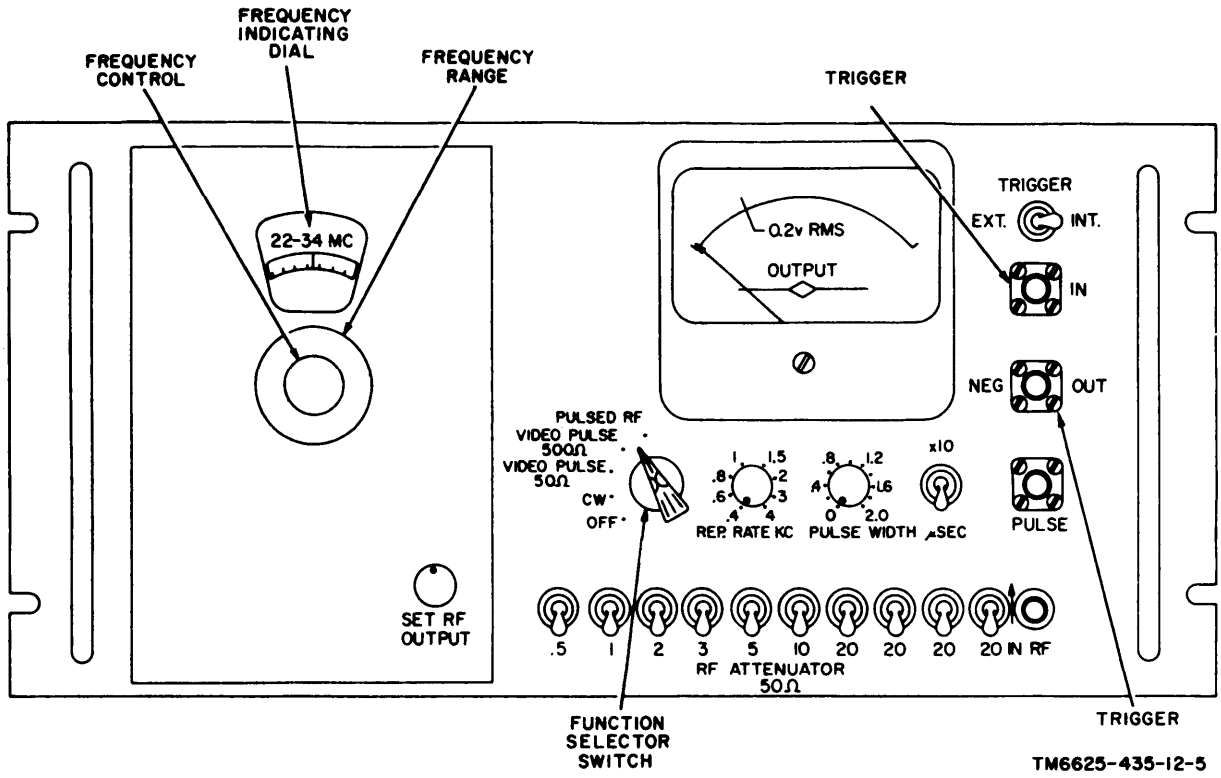

Figure 5. Pulae generator; operating controls, indicators, and connector.

(2) If internal triggering is desired, set the TRIGGER switch to INT. Where an externally supplied triggering voltage is to be used, set the TRIGGER switch to EXT.

(3) Set the REP. RATE KC control to the desired pulse repetition rate.

(4) For a pulse width between 0.20 and 2.0 microseconds, set the x10-μSEC switch to μSEC. For a pulse width between 2.0 and 20.0 microseconds, set the switch to x10.

(5) Use the PULSE WIDTH control to obtain the exact pulse width desired.

16. Impedance Matching and Calculating Load Voltage

In the CW mode of operation, the output meter indicates the voltage applied to a 50-ohm load. In the pulsed RF mode of operation, the calibrated output voltage (same as in the CW mode) is also based on a 50-ohm load impedante. When the signal generator is used with a load other than 50 ohms, the meter indication no longer represents the output voltage applied to the load. Also, since the signal generator and the load are not matched, undesirable standing waves may be present. When it is desired to minimize standing waves and to determine the actual voltage applied to a mismatched load, use an L-pad impedance-matching network between the signal generator and the load, as given below.

a. Signal Generator Impedance Greater Than Load Impedance.

(1) Use the L-pad shown in A, figure 7. Determine the values of R1 and R2 as follows :

$$R1 = \sqrt{Z1\,(Z1 = Z2)}$$

$$R2 = \frac{Z1 \times Z2}{R1}$$

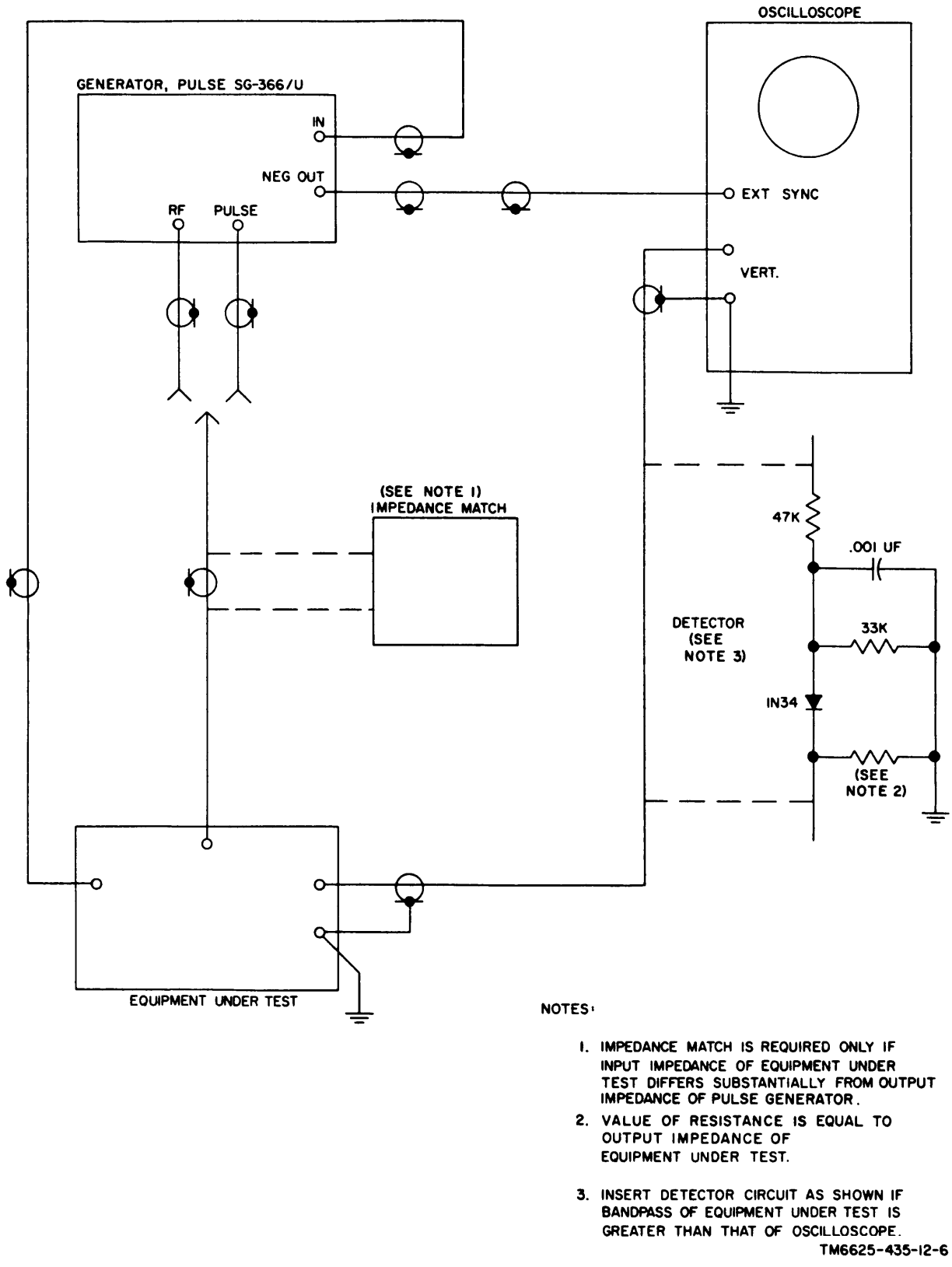

Figure 6. Typical test setup.

(2) *For example,* if the load is 30 ohms, find the values of R1 and R2 as follows:

$$R1 = \sqrt{Z1\ (Z1 = Z2)} = \sqrt{50\ (50 = 30)} = 31.6 \text{ ohms}$$
(Use 32 ohms)

$$R2 = \frac{Z1 \times Z2}{R1} = \frac{50 \times 30}{31.6} = 47.5 \text{ ohms (Use 48 ohms)}$$

(3) For the example in (2) above, if the signal generator meter indication is 0.2 volt and all RF ATTENUATOR switches are down (no attenuation), the actual voltage applied to the load is calculated as follows:

$$R_{net} = \frac{Z2 \times R2}{Z2 + R2} = \frac{30 \times 48}{30 + 48} = \frac{1{,}440}{78} = 18.5 \text{ ohms}$$

$$E_{load} = \frac{E_{sg} \times R_{net}}{(R_{net} + R1} = \frac{0.2 \times 18.5}{18.5 + 32} = \frac{3.70}{50.5} = 0.073 \text{ volt}$$

b. Signal Generator Impedance Less Than Load Impedance.

(1) Use the L-pad shown in B, figure 7. The same formula as given in *a* above is used to determine the values of R1 and R2 except that the signal generator is now designated Z2 and the load is designated Z1.

(2) *For example,* if the load is 80 ohms, find the values of R1 and R2 as follows:

$$R1 = \sqrt{Z1\ (Z1 = Z2)} = \sqrt{80\ (80 = 50)} = 49 \text{ ohms}$$

$$R2 = \frac{Z1 \times Z2}{R1} = \frac{80 \times 50}{49} = 81.6 \text{ ohms (Use 82 ohms)}$$

(3) For the example in (2) above, if the signal generator meter indication is 0.2 volt and all RF ATTENUATOR switches are down (no attenuation), the actual voltage applied to the load is calculated as follows:

$$E_{load} = \frac{E_{sg} \times Z1}{R1 + Z1} = \frac{0.2 \times 80}{49 + 80} = \frac{16}{129} = 0.124 \text{ volt}$$

c. Calculating Load Voltage (Attenuation Inserted). If attenuation is inserted (RF ATTENUATOR switches up), the voltage applied to the load is calculated as follows:

(1) Calculate the voltage available at the output of the attenuator (RF jack) as follows: The attenuation is:

$$db = 20 \log \frac{E_{meter}}{E_{output}}$$

db = total attenuation in db inserted by RF ATTENUATOR switches

E_{meter} = meter reading

E_{output} = voltage available at RF jack

For example, if the meter reading is 0.2 volt and 6 decibels (db) is inserted by the RF ATTENUATOR switches, the voltage available at the RF jack is:

$$6 = 20 \log \frac{0.2}{E_{output}}$$

$$\log \frac{0.2}{E_{output}} = \frac{6}{20} = 0.3$$

$$\text{antilog } 0.3 = 1.995$$

$$\frac{0.2}{E_{output}} = 1.995$$

$$E_{output} = 0.101 \text{ volt}$$

(2) If the load is 50 ohms, the E_{output} obtained in (1) above, is the actual voltage applied to the load.

(3) If the load is not 50 ohms and an impedance-matching network is used, calculate the voltage available at the RF jack ((1) above) ; use this value for E_{sg} in the formulas given in *a(3)* or *b(3)* above. *For example,* if the meter reading is 0.2 volt, 6 db is inserted by the RF ATTENUATOR switches, and the impedance-matching L-pad in *b* above is used to match the signal generator to an 80-ohm load; the voltage applied to the load is calculated as follows:

$$(a)\ db = 20 \log \frac{E_{meter}}{E_{output}}$$

$$6 = 20 \log \frac{0.2}{E_{output}}$$

$$E_{output} = 0.101 \text{ volts} = E_{sg}$$

$$(b)\ E_{load} = \frac{E_{sg} \times Z1}{R1 + Z1} = \frac{0.101 \times 80}{49 + 80} = \frac{8.08}{129} = 0.062 \text{ volts}$$

d. Video Pulse Application. When the pulse generator is used in the video pulse mode of operation and the input impedance of the equipment under test is not 50 or 500 ohms, the impedance-matching networks discussed in *a (1)* and (2) and b (1) and (2) above, may be used. The formulas given in *a (3)* and *b (3)* above, for calculating actual voltage applied to the load can also be used for the video pulse mode of operation. However, in this mode of operation, the voltage dealt with and the purpose of operation are not usually critical enough to warrant impedance matching and voltage calculations.

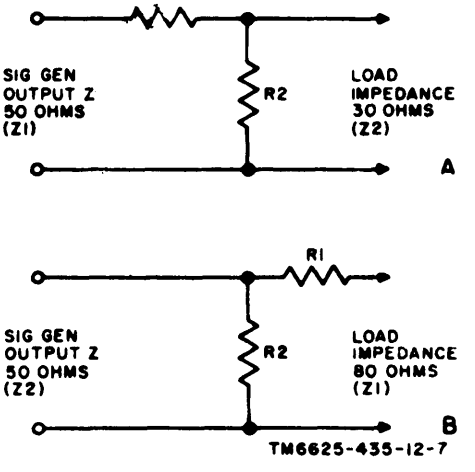

Figure 7. Impedance-matching circuits.

17. Stopping Procedure

To shut down the equipment completely, set the function selector switch to OFF, set the power switches on the associated test equipment to their off positions, and disconnect the equipment from the power source.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

18. Operation at Low Temperatures

Extreme variations in temperatures may affeet the frequency stability of the pulse generator. If possible, operate the equipment in a heated area.

19. Operation Under Tropical Conditions

In tropical climates, it is possible that the equipment will be operated in swampy areas where extreme moisture conditions exist. The high relative humidity causes condensation of moisture on the equipment whenever the temperature of the equipment becomes lower than that of the surrounding air. Try to keep the pulse generator dry.

20. Operation in Desert Climates

When operated in desert climates, large amounts of foreign matter may enter the pulse generator. Foreign matter can adversely affect the operatioo of the pulse generator by forming conducting paths that may cause arcing and voltage breakdown across normally nonconducting surfaces. Keep the equipment as clean as possible.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE

21. Materials Required

The materials required for the operator's and organizational maintenance of the pulse generator are listed below.

a. Cleaning Compound (Federal stock No. 7930-395-9542) .

b. Lint-free cloth.

c. Sandpaper, No. 000.

22. Preventive Maintenance Form (figs. 8 and 9)

a. DA Form 11–266. DA Form 11–266 is a preventive maintenance checklist to be used by the operator and organizational maintenance personnel. Items 1 through 4 are checked daily, and items 5 through 11 are checked weekly by the operator. Items 12 and 16 are checked at least once a month by organizational maintenance personnel. Items not applicable to the pulse generator are lined out in the figures. References in the ITEM block in the figures are to paragraphs that contain additional maintenance information about the particular item. Instructions for use of the form appear on the form.

Warning: **Disconnect all power before performing preventive maintenance. After power is disconnected, some capacitors still may retain dangerous voltages. Before touching exposed electrical parts, short-circuit the parts to ground. Use test prod, Stock No. 3F3705–12019, as a shorting bar. When maintenance has been completed, replace the equipment in its cabinet, reconnect the power, and check for satisfactory operation.**

b. First Echelon Items (fig. 9). The information shown in this subparagraph supplements DA Form 11–266. The item numbers correspond to the item numbers on the form.

Warning: **Cleaning compound is flammable and its fumes are toxic. Do not use it near a flame; provide adequate ventilation.**

Item	Maintenance procedures
1	Use a clean cloth to remove dust, dirt, moisture, and grease from the cabinet and the front panel. If necessary, wet the cloth with cleaning compound, and then wipe all parts with a dry lint-free, clean cloth.
3	All control knobs should work smoothly, be tight on the shafts, and should not bind. Tighten all loose knobs and be sure that the knobs do not rub against the panel.
5	Repair any cuts in the power cable insulation by covering them with rubber tape and then with friction tape.
10	Inspect the cabinet, the front panel, and the front panel connectors for corrosion. Use cleaning compound for removing dirt. Dry with a clean lint-free cloth.

c. Second Echelon Items (fig. 9). The information shown in this subparagraph supplements DA Form 11–266. The item numbers correspond to the item numbers on the form.

Item	Maintenance procedures
12	Remove the chassis from the cabinet (par. 11) and inspect all tubes (fig. 4), without removing them, for poor seating; inspect the tube shields for firm mounting.
16	Inspect the connections between the power supply chassis and the rf generator and pulse-forming chassis (fig. 4) for good contacts.

MAINTENANCE CHECK LIST FOR SIGNAL EQUIPMENT
TEST EQUIPMENT
(AR 750-625)

EQUIPMENT NOMENCLATURE: GENERATOR, PULSE SG-366/U

EQUIPMENT SERIAL NUMBER: 470

INSTRUCTIONS

This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue

1. For detailed Preventive Maintenance instructions see:
   a. The Technical Manual *(in TM 11 series)* for the equipment. *(See DA Pamphlet Number 310-4)*
   b. The Supply Bulletin *(SB 11-100 series)* for the equipment. *(See DA Pamphlet Number 310-4)*
   c. The Department of the Army Lubrication Order. *(See DA Pamphlet Number 310-4)*

2. The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelom
   a. Enter Equipment Nomenclature and Serial Number.
   b. Strike out items that do not apply to the equipment.

3. Operator/Inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.

4. After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.

FOLD

TYPE OF INSPECTION

OPERATOR	2/3 ECHELON	DATE	SIGNATURE
✓		7 MAR 1962	John Day

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4

DA FORM 1 MAY 57 11-266

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Figure 8. DA Form 11-266, pages 1 and 4.

LEGEND for marking conditions:
Satisfactory, ✓.
Adjustment, Repair or Replacement required, X.
Defect corrected, (X)

DAILY CONDITION FOR MONTH OF

NO.	DAILY ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	2D 3D ECHELON
		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
1	CLEAN DIRT AND MOISTURE FROM EXPOSED SURFACES OF ~~HOUSINGS~~, CASES, ~~CABINETS~~, CONTROL PANELS, INTERCONNECTING PLUGS, CABLES, ~~HEADSETS~~, METER WINDOWS, ETC. PARA 20	✓	✓	✓	✓	✓	✓	✓										✓
2	INSPECT FOR LOOSENESS OF EXTERIOR ITEMS SUCH AS SWITCHES, KNOBS, JACKS, CONNECTORS, AND PILOT LIGHTS.	✓	✓	✓	✓	✓	✓	✓										
3	INSPECT CONTROLS FOR BINDING, SCRAPING. TAP CONTROLS LIGHTLY FOR CUT-OUT DUE TO LOOSE CONTACTS. PARA 20	✓	✓	✓	✓	✓	✓	✓										
4	DURING OPERATION BE ALERT FOR ANY UNUSUAL PERFORMANCE OR CONDITION.	✓	✓	✓	✓	✓	✓	✓										✓

WEEKLY	CONDITION EACH WEEK 1ST	2D	3D	4TH	5TH	2D 3D ECH
5. INSPECT ~~CORDS~~ CABLES, ~~WIRE AND SHOCK MOUNTS~~ FOR BREAKS, CUTS, KINKS, DETERIORATION, STRAIN AND FRAYING.	X					✓
6. ~~INSPECT CANVAS AND LEATHER ITEMS FOR FUNGUS, FRAYING, TEARS, BROKEN ZIPPERS AND SNAP FASTENERS.~~						
7. ~~HAND CHECK FOR LOOSENESS OF EXTERIOR ITEMS SUCH AS HANDLES, LATCHES, HINGES.~~						
8. ~~INSPECT FOR LUBRICATION IN ACCORDANCE WITH APPLICABLE DA LUBRICATION ORDER.~~						
9. ~~INSPECT DRY BATTERIES FOR DIRT, LOOSE TERMINALS AND LEAKAGE.~~						
10. INSPECT EXPOSED METAL SURFACES FOR RUST AND CORROSION. PARA 20	✓					✓
11. ~~INSPECT METERS FOR DAMAGED GLASS AND CASES.~~						

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
12. INSPECT SEATING OF READILY ACCESSIBLE ITEMS OF A PLUCK-OUT NATURE: ~~CRYSTALS, FUSES~~, CONNECTORS, ~~PLUG-IN COILS, LAMPS~~, ETC. DO NOT REMOVE, ROCK OR TWIST TO INSPECT. USE ONLY A DIRECT PRESSURE TO INSURE THE ITEM IS FULLY SEATED.	✓
13. ~~INSPECT FOR CLEANLINESS AND TIGHTNESS OF SUCH ITEMS AS SHOCK MOUNTS, ANTENNA, ANTENNA MOUNTS AND WAVE GUIDES.~~	
14. ~~INSPECT RELAY AND CIRCUIT BREAKER ASSEMBLIES FOR DIRT, CORROSION, WORN OR BURNED CONTACTS.~~	

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
15. ~~INSPECT RESISTORS, BUSHINGS, INSULATORS FOR CRACKS, CHIPPING, DISCOLORING, DISCOLORATION AND MOISTURE.~~	
16. INSPECT JACKS AND CONNECTORS FOR SNUG FIT AND GOOD CONTACTS. PARA 20	✓
17. ~~INSPECT VARIABLE CAPACITORS FOR DIRT AND MOISTURE.~~	
18. ~~INSPECT AIR FILTERS FOR CLEANLINESS.~~	
19. ~~INSPECT SCREWTYPE TERMINALS OF TRANSFORMERS, FIXED CAPACITORS, RESISTORS, CHOKES, POTENTIOMETERS AND RHEOSTATS FOR CORROSION, DIRT AND LOOSE CONTACTS.~~	
20. ~~CLEAN AND TIGHTEN SWITCHES, BLOWERS, RELAY CASES. CLEAN INTERIOR OF CHASSIS AND CABINETS.~~	
21. ~~INSPECT GENERATORS, MOTORS AND DYNAMOTORS FOR BRUSH WEAR, SPRING TENSION, ARCING AND COMMUTATOR WEAR.~~	
22. ~~INSPECT TERMINAL BLOCKS FOR LOOSE CONNECTIONS, CRACKS AND BREAKS.~~	
23. ~~INSPECT GASKETS AND BUSHINGS FOR WEAR AND DAMAGE.~~	
24. ~~INSPECT CATHODE RAY TUBES FOR BURNED SCREEN SPOTS.~~	
25. ~~BEFORE STORING OR SHIPPING REMOVE ALL BATTERIES.~~	

IF DEFICIENCIES NOTED ARE NOT CORRECTED DURING THE INSPECTION, INDICATE ACTION TAKEN FOR CORRECTION. *(Continue on page 4, if more space is needed)*

ITEM 5. CABLE BROKEN. REPORTED TO 2D ECHELON MAINTENANCE FOR REPAIR.

2 3

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Figure 9. DA Form 11-266, pages 2 and 3.

Section II. TROUBLESHOOTING

23. Extent of Instructions

a. Troubleshooting practices at organizational level are listed for replacing plug-in items, such as the tubes, the fuse, and the pilot lamp. Organiaztional maintenance personnel can, in addition, replace rubber bumpers, knobs, power cable, and tube shields.

b. The troubleshooting techniques are presented in four general procedures: visual inspection, use of the equipment performance checklist, tube replacement, and repairs.

Note. No lubrication is required.

24. Visual Inspection

a. Failure of the pulse generator to perform properly may be caused by an easily overlooked mechanical or electrical fault. When it fails to perform properly, turn off the power and check for the possible defects listed below.

(1) Wrong setting of switches and controls (par. 13).

(2) Burned-out fuse (usually indicates some other fault) (par. 25).

(3) Poor or improper connection between pulse generator and equipment under test (par. 13).

(4) Worn and corroded switch contacts.

(5) Incorrect line voltage.

b. If the above visual inspections do not locate the trouble, proceed to the equipment performance checklist (par. 25).

25. Equipment Performance Checklist

a. General. The equipment performance checklist provides a procedure for systematically checking the equipment performance. The corrective measures that the operator or organizational maintenance man can perform are given in the *corrective measures* column. When using the checklist, start at step 1 of c below, and follow each step in order. If the corrective measures indicated do not repair the equipment, troubleshooting is required by higher echelon. Note on the repair tag how the equipment performed, and the corrective measures that were taken.

b. Observing Test Set Output. The pulse generator cannot be checked for proper operation without the use of other equipment because there is no way to determine if there is a signal output. An oscilloscope is required to observe the output wave shape of the equipment under test (such as the rf amplifier or the video amplifiers).

c. *Checklist.*

	Step	Action	Normal indication	Corrective measures
PREPARATORY	1	Connect power cable of pulse generator to ac power source.		
	2	Connect RF jack to detector (fig. 6).		
	3	Connect output of detector to vertical input of oscilloscope.		
	4	Connect NEG OUT connector to external synchronization of oscilloscope.		
	5	Connect line cord of oscilloscope to ac power source. Turn on power switch of oscilloscope.		

	Step	Action	Normal indication	Corrective measures
EQUIPMENT PERFORMANCE	6	Set function selector switch to CW.	Dial pilot lamp lights. Output meter indicates 0.2 volt.	If dial pilot lamp does not light, check fuse, pilot lamp, and power cable to ac power source. If output meter indication is abnormal, adjust SET RF OUTPUT control and check tubes V8 through V11 and replace as necessary. If trouble is not corrected, higher echelon maintenance is required.
	7	Set function selector switch to PULSED RF.	Rectangular pulses of rf appear on oscilloscope.	If pulse does not appear on oscilloscope, check tubes V1 through V6. If tube replacement does not correct trouble, higher echelon maintenance is required.
	8	Disconnect detector from oscilloscope. Connect PULSE connector to vertical input of oscilloscope. Set function selector switch to VIDEO PULSE 50 ohm. Connect 50-ohm, ½-watt carbon resistor across vertical input of oscilloscope.	Rectangular pulse with height corresponding to 500 millivolts appears on oscilloscope.	If pulse does not appear or pulse height is incorrect, check tube V7. If tube replacement does not correct trouble, higher echelon maintenance is required.
	9	Set x10-μSEC switch to μSEC. Rotate PULSE WIDTH control to maximum counterclockwise position.	Approximately rectangular pulse with pulse width of 0.2 microsecond appears on oscilloscope.	Check tube V5. If tube replacement does not correct trouble, higher echelon maintenance is required.
	10	Rotate PULSE WIDTH control to maximum clockwise position.	Rectangular pulse with pulse width of 2.0 microseconds appears on oscilloscope.	Higher echelon maintenance is required.

26. Tube Replacement

When trouble occurs, check the power cable connection, the control settings, and the wiring before removing any tubes. If tube failure is suspected, use the applicable procedure below to check the tube. Refer to paragraph 11 for chassis removal from the cabinet to replace a tube.

Caution: **Do not rock or rotate a tube when removing it from a socket; pull it straight out with a tube puller.**

a. Tube Substitution Method. Replace the suspected tubes (*b* below), one at a time, with new tubes. If the equipment is still inoperative, remove the new tube and put back the original tube. Repeat this procedure with each suspected tube until the defective tube is located. If the pulse generator is still inoperative, other checks (par. 23) are required.

b. Replacing Tubes. Replace the tubes in the test set as follows:

(1) Remove the chassis from the cabinet (par. 11).
(2) Remove the tube from the socket.
(3) Replace the tube with one of the same type from the running spares.
(4) Replace the chassis in the cabinet (par. 11).

27. Repairs

a. Replacement of Fuse.

(1) Turn the cap on the fuseholder, located at the rear of the pulse generator, counterclockwise and pull it out to expose the defective fuse.

(2) Pull the defective fuse out and replace it with a new one. Push the cap of the fuseholder in, and twist it clockwise to lock it.

Caution: **If the replacement fuse also blows, higher echelon repair is required.**

b. Replacement of Pilot Lamp.

(1) Remove the frequency control and SET RF OUTPUT controls; use an appropriate allen wrench.

(2) Remove the four nuts and washers from the studs that attach the frequency dial cover to the left-hand side of the f rent panel.

(3) Remove the cover.

(4) Press in on the pilot lamp and turn it counterclockwise to unlock it.

(5) Pull the defective lamp out and replace it with a new one. Push the lamp in and twist it clockwise to lock it.

(6) Fasten the frequency dial cover to the front panel with the four washers and nuts, and install the knobs.

c. Electrical Power Cable Repair. Repair any cuts in the electrical power cable insulation by covering them with rubber tape and then with friction tape. Replace the electrical power cable if the conductors or the plugs are defective.

CHAPTER 4

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

28. Disassembly of Equipment

No disassembly of the pulse generator is required for shipment or storage. The equipment normally is packed with the tubes and the fuse mounted in place.

29. Repacking for Shipment or Limited Storage

The exact procedure for repacking depends on material available and the conditions under which the equipment is to be shipped or stored. Adapt the procedures outlined below whenever circumstances permit. The information concerning the original packaging (par. 9) will also be helpful.

a. Material Requirements. The following materials are required for packaging the pulse generator. For stock numbers of materials, consult SB 38-100.

Material	Quantity
Corrugated fiberboard	60 sq ft
Waterproof-vaporproof barrier material.	24 sq ft
Filler material, 1 inch thick	5 sq ft
Tape, waterproof, pressure-sensitive.	20 ft
Desiccant	Three 1-lb bags
Humidity indicator	1

b. Packaging.

(1) *Technical manuals.* Package the technical manuals within a close-fitting bag fabricated of waterproof wrapping paper. Seal the seams with pressure-sensitive tape.

(2) *Running spares.* Wrap the running spares within a layer of flexible corrugated fiberboard. Seal the seams with pressure-sensitive tape. Overwrap the flexible corrugated fiberboard with waterproof wrapping paper. Seal the seams with pressure-sensitive tape.

(3) *Pulse generator.*

(a) Place a pad of filler material in the bottom of a corrugated cardboard carton.

(b) Place the pulse generator on the filler material.

(c) Place a pad of filler material on the top of the pulse generator.

(d) Cushion the pulse generator with cells of corrugated fiberboard on all sides.

(e) Place the required amount of desiccant between the front panel of the pulse generator and the corrugated fiberboard.

(f) Place the technical manuals and spare parts on top of the pulse generator.

(g) Seal the carton with waterproof pressure-sensitive tape.

(h) Place the sealed carton within a fabricated waterproof-vaporproof barrier material.

(i) Place a humidity indicator card on top of the sealed interior carton, and fasten it with tape.

(j) Heat-seal the water-vaporproof fabricated bag; leave a small opening to exhaust air.

(k) Evacuate the excess air from the water-vaporproof fabricated bag, and complete the heat seal.

(l) Place the moisture-vaporproofed pulse generator, technical manuals, and the spare parts within a close-fitting corrugated cardboard carton.

(m) Seal the carton with waterproof pressure-sensitive tape.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

30. Authority for Demolition

The demolition procedures given in paragraph 31 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commander.

31. Methods of Destruction

Any or all of the methods of destruction given below may be used. The time available will be the major determining factor for the methods to be used in most instances when destruction of equipment is undertaken. The tactical situation also will determine in what manner the destruction order will be carried out. In most cases, it is preferable to demolish completely some portions of the equipment rather than to partially destroy all the equipment.

a. Smash. Smash the pulse generator; use sledges, axes, hammers, crowbars, or any other heavy tools available.

(1) Use the heaviest tool on hand to smash the front panel knobs and controls.

(2) Remove the pulse *generator* from its cabinet. Remove the shields from the attenuator and rf generator circuits. With a heavy hammer or bar, smash as many as possible of the exposed parts of the two chassis. Be sure to smash all transformers.

b. Cut. Cut the cabling and wiring; use axes, handaxes, machetes, and similar tools. Use a heavy axe or machete to cut the power cable in a number of places. If time permits, remove the unit from its cabinet, remove the internal shield, and slash the internal cabling and wiring.

c. Burn. Bum as much of the equipment as is flammable; use gasoline, oil, flamethrowers, and similar tools. Burn the technical manuals first. Pour gasoline on the cut cables and internal wiring, and ignite it. Use a flamethrower to burn the spare parts, or pour gasoline on the spares and ignite them. Use incendiary grenades to complete the destruction of the interior of the pulse generator.

Warning:

1. Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.

2. The use of small-arms fire to destroy the equipment should be avoided. Such fire exposes personnel to danger of ricochets.

3. Explosives should be used only on direct order of the officer in charge, under the supervision of personnel thoroughly trained to handle them.

d. Dispose. Bury or scatter the destroyed parts or throw them into nearby waterways. This is particularly important if a number of parts have not been completely destroyed.

APPENDIX I

REFERENCES

Following is a list of applicable references to the operator and unit repairman of Generator, Pulse SG-366/U:

DA Pamphlet 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
SB 33-100	Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army.

APPENDIX II

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

a. This section assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance echelon.

b. Columns are as follows:

(1) *Part or components.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies that are part of a component are listed immediately below that component, and the subassemblies that are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the echelons.

(a) Service. To clean, to preserve, and to replenish lubricants.

(b) Adjust. To regulate periodically to prevent malfunction.

(c) Inspect. To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(e) Replace. To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(i) Overhaul. To restore an item to *completely serviceable* condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserv-

iceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) *1st, 2d, 3d, 4th, and 5th echelon.* The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *1st, 2d, 3d, 4th, and 5th echelon.* The dagger (†) in these columns indicates the echelons normally allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization operating this equipment.

Section II. MAINTENANCE ALLOCATION CHART

(1) Part or component	(2) Maintenance function	(3) 1st ech	(4) 2d ech	(5) 3d ech	(6) 4th ech	(7) 5th ech	(8) Tools required	(9) Remarks
Generator, Pulse SG–366/U	service				x		10	
	adjust				x		1, 2, 3, 4, 5, 6, 7	
	inspect							
	test				x		1, 2, 3, 4, 5, 6, 7	
	replace		x				10	
	repair				x		7, 10	
	align				x		1, 2, 3, 4, 5, 6	
	calibrate				x		1, 2, 3, 4, 5, 6	
	rebuild					x	7	Depot Facilities
	overhaul					x	1, 2, 3, 4, 5, 6, 7, 8	
Cable Assembly	repair				x		10	
	rebuild					x	7	
Power Supply and Oscillator Subassembly	service				x		10	
	adjust				x		1, 2, 3, 4, 5, 6, 7	
	test				x		1, 2, 3, 4, 5, 6, 7	
	replace		x				10	
	repair				x		7, 10	
	rebuild					x	7	Depot Facilities
	overhaul					x	1, 2, 3, 4, 5, 6, 7, 8	
Attenuator	replace				x		7, 10	
	repair					x	1, 2, 3, 4, 5, 6, 7, 8, 9	
	rebuild					x		
	overhaul					x		
Meter	replace				x		7, 10	

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Section III ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

(1) Tools required for maintenance functions	(2) 1st ech	(3) 2d ech	(4) 3d ech	(5) 4th ech	(6) 5th ech	(7) Tool code
Decibel Meter ME-22/PCM				x	x	4
Frequency Meter AN/URM-80				x	x	1
Frequency Meter AN/TSM-16				x	x	2
Multimeter TS-352/U				x	x	3
Oscilloscope AN/USM-50				x	x	5
Generator, Pulse AN/PPM-1				x	x	6
Test Set, Electron Tube TV-2/U					x	8
Test Set, Electron Tube TV-7/U				x		9
Tool Equipment TK-87/U				x	x	7
Tools and Test Equipment available to the repairman user because of his assigned mission		x				10

BY ORDER OF THE SECRETARY OF THE ARMY:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
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USAARTYBD (1)
USAARMED (2)
USAIB (1)
USARADBD (2)
USAAVNBD (1)
USAABELCTBD (1)
USAATBD (1)
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Cored (3)
OS Base Cored (2)
LOGCOMD (2)
MDW (1)
Armies (2)
Corps (2)
Instl (2)
Ft Monmouth (63)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
USATC FA (2)
USAOMC (3)
Svc College (2)
Br Svc Sch (2)
GENDEP (2) except
Atlanta GENDEP (None)
Sig Sec, GENDEP (5)
Sig Dep (12)
WRAMC (J)
USA Trans Tml Comd (1)
Army Tml (1)
POE (1)
OSA (1)
USAEPG (2)
AFIP (1)
AMS (1)
Army Pictorial Cen (2)
EMC (1)
Test Sta (2)
USASSA (20)
USASSAMWO (1)
USA Strat Comm Cored (4)
USARCARIB Sig Agcy (1)
USA Sig Msl Spt Agcy (13)
Sig Fld Maint Shops (3)
USA Corps (3)
Def Log Svc Cen (1)
JBUSMC (2)
Units org under fol TOE:
11-7 (2)
11-16 (2)
11-57 (2)
11-97 (2)
11-98 (2)
11–117 (2)
11-155 (2)
11–157 (2)
11-500 (AA-AE) (4)
11-557 (2)
11-587 (2)
11-592 (2)
11-597 (2)

NG: State AG (3).
USAR: None.
For explanation of abbreviations used, see AR 320-50.

PIN: 023283-000