TM 11-5895-453-14-2

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL

TERMINAL SETS, RADIO AN/TRC-145(V)1, AN/TRC-145(V)2, AN/TRC-145(V)3, AN/TRC-145A(V)1, AN/TRC-145A(V)2, AND AN/TRC-145A(V)3 (NSN 5820-00-791-3365)

This copy is a reprint which includes current pages from Changes 1 through 6.

HEADQUARTER'S, DEPARTMENT OF THE ARMY

JUNE 1979

WARNING

HIGH VOLTAGE is used in the equipment. DEATH ON CONTACT MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED. Maintenance adjustments of this equipment are made with power applied. Be careful when working near the interior of the equipment, near the ac power distribution wiring, or near the VIDEO AND ANTENNA ENTRANCE BOX.

WARNING

VENTILATION IS ESSENTIAL

To prevent asphyxiation, ventilate the AN/TRC-145 at all times when it is occupied.

DON'T TAKE CHANCES!

Operator and maintenance personnel should be familiar with the requirements of TB SIG 291 before attempting installation or operation of the equipment covered in this manual. Failure to follow requirements of TB SIG 291 could result in injury or DEATH.

Change
No. 8

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 May 1992

Operator's, Organizational, Direct Support, and General Support Maintenance Manual

RADIO TERMINAL SETS AN/TRC-145(V)1 (Less Power Unit) (NSN 5820-00-451-5523) (EIC: HBG), AN/TRC-145(V)2 (Less Power Unit) (NSN 5820-00-451-5590) (EIC: HBH), AN/TRC-145(V)3 (Less Power Unit) (NSN 5820-00-451-5618) (EIC: HBJ), AN/TRC-145A(V)1 (Less Power Unit) (NSN 5820-00-451-5523) (EIC: HBG), AN/TRC-145A(V)2 (Less Power Unit) (NSN 5820-00-451-5590) (EIC: HBH), AN/TRC-145A(V)3 (Less Power Unit) (NSN 5820-00-451-5618) (EIC: HBJ), AN/TRC-145B(V)1 (NSN 5820-01-104-4748) (EIC: HCP), and AN/TRC-145B(V)3 (NSN 5820-01-099-3577) (EIC: HCM)

TM 11–5895-453-14-2, dated 15 June 1979, is changed as follows:

1. Title of manual is changed as shown above.

2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	*Insert pages*
4-3 and 4-4	4–3 and 4-4
4-9 and 4-10	4–9 and 4–10
4-15/(4-16 blank)	4–15/(4–16 blank)

3. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
00964

Distribution:

To be distributed in accordance with DA Form 12–51–E, block 6647, Operator, Unit, and Direct Support/ General Support Maintenance requirements for TM 11-5895-453-14-2.

Change

No. 7

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 April 1990

Operator's, Organizational, Direct Support and General Support Maintenance Manual

Radio Terminal Set AN/TRC-145(V)1 (NSN 5820-00-451-5523), AN/TRC-145(V)2 (NSN 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618), AN/TRC-145A(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 5820-00-451-5590), AN/TRC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

TM 11-5895-453-14-2, 15 June 1979, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	Insert pages
4-3 and 4-4	4-3 and 4-4
4-13 and 4-14	4-13 and 4-14

2. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-51 operator, unit, and DS/GS requirements for AN/TRC-145,A,B(V)1-3.

Change
No. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 July 1989

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual

Terminal Sets, Radio
AN/TRC-145(V)1 (NSN 5820-00-451-5523), AN/TRC-145(V)2 (NSN 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618), AN/TRC-145A(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 5820-00-451-5590), AN/TRC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)2)2 (NSN 5820-01-099-3578) and AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

TM 11-5895-453-14-2, 15 June 1979, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	Insert pages
v/vi (blank)	v/vi (blank)
4-1 through 4-10	4-1 through 4-15/(4-16 blank)

2. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J, MEEHAN II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-51 operator, unit, and DS/GS requirements for AN/TRC-145A, B (V)1-3.

Change No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 26 July 1984

Operator's, Organizational, Direct Support,
and General Support Maintenance Manual

TERMINAL SETS, RADIO AN/TRC-145(V)1 (NSN 5820-00-451 -5523), AN/TRC-145(V)2 (NSN 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618), AN/TRC-145A(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 5820-00-451-5590), AN/TRC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)2 (NSN 5820-01-099-3578), AND AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

TM 11-5895-453-14-2, 15 June 1979, is changed as follows:

1. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations arc indicated by a vertical bar in front of the figure caption. Remove and insert pages as indicated below:

Remove	*Insert*
None	e/(f blank)
iii and iv	iii and iv
1-1 through 1-4	1-1 through 1-4
1-9 through 1-12	1-9 through 1-12
1-14.1 through 1-14.3	1-14.1 through 1-14.3 /(1-14.4 blank)
2-23 and 2-24	2-23 and 2-24
2-53 and 2-54	2-53 and 2-54
5-27 through 5-29	5-27 through 5-29/(5-30 blank)
A-1 and A-2	A-1 and A-2
B-3 and B-4	B-3 and B-4
B-17 through B-20	B-3 through B-20
B-29 and B-30	B-29 and B-30
B-47 and B-48	B-47 and B-48
E-1 and E-2	E-1 and E-2
FO-5	FO-5

2. File this change sheet in the front of the publication.

By Order of the Secretary of the Army:

JOHN A. WICKHAM JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-51A-1 requirements for AN/TRC-145.

CHANGE
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *18 May 1983*

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL TERMINAL SETS, RADIO AN/TRC-145(V)145(V)1 (NSN 5820-00-451–5523), AN/TRC-145(V)2 (NSN 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618) AN/TRC-145A(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 8520-00-451-5590), AN/TRC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)2 (NSN 5820-01-099-3578), AND AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

TM 11-5895-453-14-2, 15 June 1979, is changed as follows:

1. New or changed material is indicated by a vertical bar in the margin.
2. A new or changed illustration is indicated by a vertical bar next to the figure number.
3. Remove old pages and insert new pages as indicated below.

Remove pages	*Insert pages*
i through iv	i through v
1-1 and 1-2	1-1 and 1-2
None	1-2.1/(1-2.2 Blank)
1-26 and 1-26	1-25 and 1-26
2-1 through 2-4	2-1 through 2-4
2-7 through 2-12	2-7 through 2-11/(2-12 Blank)
2-12.1 through 2-12.3	2-12.1 through 2-12.5/(2-12.6 Blank)
2-37 and 2-38	2-37 and 2-38
None	2-38.1/(2-38.2 Blank)
2-39 through 2-40.1	2-39 through 2-40.2
2-43 and 2-44	2-43 and 2-44
2-50.1 and 2-50.2	2-50.1 and 2-50.2
2-57 and 2-58	2-57 and 2-58
None	2-58.1/(2-58.2 Blank)
4-3 through 4-8	4-3 through 4-8
None	443.1 /(44.2 Blank)
5-1 and 5-2	5-1 and 5-2
None	5-2.1/(5-22 Blank)
5-15 and 5-16	5-15 and 5-16
None	5-16.1/(5-16.2 Blank)
5-17 through 5-18.1 5-19 through 5-24	5-17 through 5-24
None	5-24.1 and 5-24.2
6-25 through 5-26.1	5-25 through 5-26.1/ (5-26.2 Blank)
6-1 through 6-4	6-1 through 6-4
None	6-4.1/(6-4.2 Blank)
7-5 and 7-6	7-5 and 7-6
A-1 through A-4	A-1 through A-4
B-31 through B-34	B-31 through B-34
B-39 and B-40	B-39 and B-40
D-3 through D-5	D-3 through D-5
None	FO-8

4. File this change sheet in front of the publication for reference purposes.

CHANGE
NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *17 May 1982*

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL TERMINAL SETS, RADIO AN/TRC-145(V)1 (NSN 5820-00-451-5523), AN/TRC-145(V)2 *(NSN* 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618) AN/TRC-145A(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 5820-00-451-5590), AN/T RC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)2 (NSN 5820-01-099-3578), AND AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

TM 11-5895-453-14-2, 15 June 1979, is changed as follows:
1. Title of manual is changed as shown above.
2. New or changed material is indicated by a vertical bar in the margin.
3. A new or changed illustration is indicated by a vertical bar next to the figure number.
4. Remove old pages and insert new pages as indicated below.

Remove Pages	*Insert Pages*
c and d	c and d
i through iv	i through v
1-1 and 1-2	1-1 and 1-2
1-9 through 1-14	1-9 through 1-14.3
1-25 and 1-26	1-25 and 1-26
2-12.1 through 2-14	2-12.1 through 2-14
2-61 and 2-62	2-61 and 2-62
3-1 and 3-2	3-1 and 3-2
4-1 through 4-2.1	4-1 through 4-2.1
4-7 and 4-8	4-7 and 4-8
5-23 through 5-26	5-23 through 5-26.1
6-1 through 6-4	6-1 through 6-4
7-3 and 7-4	7-3 and 7-4
A-l through A-3	A-1 through A-4
B-l and B-2	B-1 and B-2
B-51 and B-52,	B-51 and B-52
D-3, D-4, and D-5	D-3, D-4, and D-5
None	Figure FO 6.1

5. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Amy
Chief of staff

Official
ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-51, Operator Maintenance Requirements for AN/TRC-145.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUORO-ETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided, When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

To avoid injury to personnel or damage to equipment, only personnel engaged in the actual loading operation should be permitted near the truck, lifting device, and assemblage. To eliminate confusion, all instructions must come from the loading crew supervisor.

All personnel must remain clear of the truck while the assemblage is being lowered onto the truck. Be extremely careful when erecting the antenna system in winds stronger than 25 miles per hour. If the wind is strong, station at least one person to hold the windward upper guy to maintain adequate tension to keep the mast vertical while it is being raised. Never place hands or feet between the lowest mast section and the azimuth plate.

The grounding connection specified in paragraph 2-7 must be completed before power is connected to the AN/TRC-145(*).

WARNING

A MINIMUM OF 2 PERSONS OR MORE WILL BE UTILIZED IN HANDLING OR LIFTING ANY ITEM IN EXCESS OF 40 LBS. EXTREME CARE WILL BE USED IN HANDLING TO PREVENT INJURY TO INDIVIDUALS OR DAMAGE TO EQUIPMENT.

WARNING

Filter, Power (NSN 5915-00-909-7762) contains Polychlorinated Biphenyl (PCB), a highly toxic liquid. While replacing the filter wear nonporous rubber gloves, apron, boots, and goggles or face shield. An organic vapor respirator should be worn when working in an enclosed area. Use a sorbent such as sawdust or rags to clean up any leaked PCB. Protective clothing made of rubber can be decontaminated by wiping with kerosene. All waste generated by cleaning and decontamination procedures must be placed along with the leaking capacitor into a steel drum meeting the requirements of MIL-D-6054. Add extra sorbent to the storage drum. Contact the local Safety Officer for further information and disposal instructions.

WARNING

Do NOT pull subassemblies all the way out of the racks unless you are certain that all cabling located on the rear has been disconnected. Serious injury to personnel or damage to equipment or cabling could occur if care is not exercised in removal of equipment from the racks as the individual items are NOT supported upon removal, and NO slide stops are provided on the equipment mounting racks.

Turn off or disconnect the central power before making any connections.

To prevent a TEMPEST hazard, disconnect Telephone Set TA-312/PT and Intercommunications Station LS-147C/FI.

If the wind is strong, station at least one person to hold the windward upper guy to maintain adequate tension to keep the mast vertical while it is being lowered.

Compressed air is dangerous and can cause serious bodily harm. Compressed air shall not be used for cleaning purposes except when reduced to less than 29 psi; and then only with protective equipment to prevent chips or particles from entering the eyes or breaking the skip of the operator or other personnel.

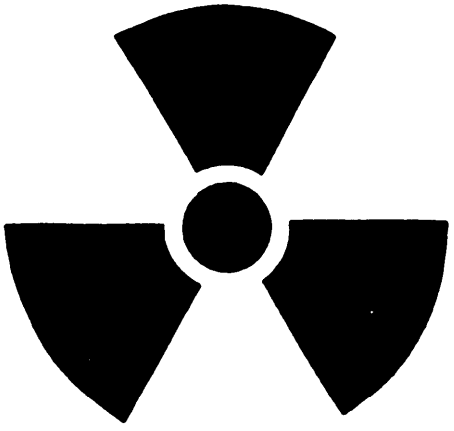
Make sure cable current is shut off at both local and distant TD-204/U's or TD-754/G's before disconnecting cable link.

Do not operate the CABLE POWER switch of the TD-204/U or the CABLE CURRENT switch of the TD-754/G to ON at either end of the cable link unless requested by the lineperson. If the CABLE POWER or CABLE CURRENT switch is operated to ON, voltages as high as 1,000 volts may be present in the transmission cable.

Before performing any POWER DISTRIBUTION PANEL repairs, disconnect the power cable from the POWER 115V AC IN receptacle in the POWER ENTRANCE Box.

WARNING

RADIATION HAZARD



STD RW—2

Arrestor, Electrical Surge F-1483/G may contain twenty-four type T61-C350 gas-filled surge voltage protectors which make use of promethium Fluoride (PM-147) having a total radiation level of approximately 120 microcuries. Use extreme care when installing the arrestor to prevent damage to the surge voltage protectors.

WARNING
RFI filters

This equipment contains Radio Frequency lnterference (RFl) filters, NSN 5915-00-922-9144, which may contain a dielectric fluid with Polychlorinated Biphenyls (PCB's).

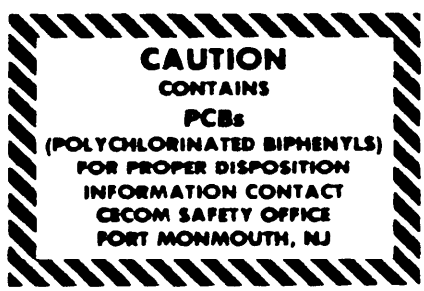
PCB's are toxic and may pose serious health and environmental hazards if misused or mishandled. Health hazards involve ingestion and prolonged or frequent skin contact. Environmental hazards involve con-lamination of soil and water. However, when contained in intact, non-leaking RFl filters, PCB's do not pose a health or environmental hazard.

Use rubber gloves, rubber apron and eye protection when handling PCB fluid. In the event of eye contact, immediately flush the eyes with clean water and continue to flush for 10 minutes. Seek medical attention. Skin contact requires washing with soap and water.

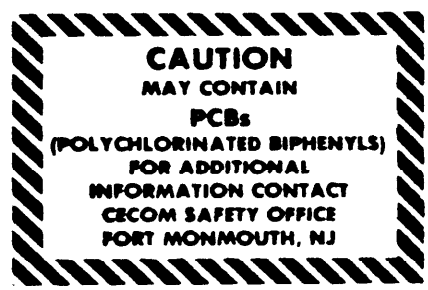
RFI falter part number FSRN-50B3, manufactured before 1 July 1979 (date code 7927) by Filtron Manufacturing Co., Inc., contains PCB dielectric fluid.

RF] fibers which have been painted over or otherwise have had identifying marks obliterated must be assumed to contain PCB dielectric fluid.

RFI filters known to contain or suspected of containing PCB's, and the panels behind which they are located, must be labeled IAW environmental protection regulations contained in Title 40, Code of Federal Regulations, Parts 761 (40 CFR 761). Warning Label 'A', below, identifies an RFI filter known to contain PCB's. Label 'B' identifies an RFI filter suspected of containing PCB's.



LABEL 'A'



LABEL 'B'

Leaking RFI filters known to contain or suspected of containing PCB's must be removed from service IAW 40 CFR 761, disposed through the Defense Property Disposal Office (DPDO) and replaced with non-PCB RFI filters.

Contact you unit's environmental, safety, industrial hygiene or preventive medicine personnel if you observe a leaking RFI filter or if you need additional local assistance in this matter.

TECHNICAL MANUAL
NO. 11-5895-453-14-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *15 June 1979*

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL

TERMINAL SETS, RADIO
AN\ TRC-145(V)1 (NSN 5820-00-451-5523), AN/TRC-145(V)2 (NSN 5820-00-451-5590), AN/TRC-145(V)3 (NSN 5820-00-451-5618), AN/TRC-145(V)1 (NSN 5820-00-451-5523), AN/TRC-145A(V)2 (NSN 5820-00-451-5590), AN/TRC-145A(V)3 (NSN 5820-00-451-5618), AN/TRC-145B(V)1 (NSN 5820-01-104-4748), AN/TRC-145B(V)2 (NSN 5820-01-099-3578), AN/TRC-145B(V)3 (NSN 5820-01-099-3577)

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, DA Form 2028 (Recommended Changes to publications and Blank Forms)) or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703.

In either case, a reply will be furnished direct to you.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS—Continued

" A fold-in page, located in the back of the manual

LIST OF ILLUSTRATIONS—Continued

* A fold-in page, located in the back of the manual.

LIST OF TABLES

LIST OF ILLUSTRATIONS-Continued

*A fold-in page, located in the back of the manual.

LIST OF TABLES

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Radio Terminal Sets AN/TRC-145(V)1, AN/TRC-145(V)2, AN/TRC-145(V)3, AN/TRC-145A(V)1, AN/TRC-145A(V)2, AN/TRC-145A(V)3, AN/TRC-145B(V)1 , AN/TRC-145B(V)2 and AN/TRC-145B(V)3, and covers installation, operation and operator's organizational, direct support and general support maintenance.

b. Throughout this manual, Radio Terminal Set AN/TRC-145(*) represents Radio Terminal Sets AN/TRC-145(V)1, AN/TRC-145(V)2, AN/TRC-145(V)3, AN/TRC-145A(V)1 , AN/TRC-145A(V)2, AN/TRC-145A(V)3 , AN/TRC-145B(V)1 , AN/TRC-145B(V)2 and AN/TRC-145B(V)3, except where model differences dictate the use of a specific designation.

c. Throughout this manual, Converter, Telephone Signal CV-1548(*)/G represents both the CV-1548/G and the CV-1548A/G and Multiplexer TD-660(*)/G represents the TD-660/G TD-660A/G and TD-660B/G, unless otherwise specified.

d. Throughout this manual, where appropriate, references are made to other publications which cover the installation, operation, and maintenance of the equipment installed in the AN/TRC-145(*). A complete listing of applicable reference publications is provided in appendix A.

e. The maintenance allocation chart, current as of November 1982, appears in appendix D.

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

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

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

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-54/MCO 4430.3F.

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 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-4. Destruction of Army Electronics Materiel

Demolition and destruction of Army electronics materiel equipment to prevent enemy use shall be in accordance with TM 750-244-2.

NOTE

COMSEC equipment and keying information has first priority in destruction procedures. Refer to KAO-133/TSEC for additional information on the TSEC/KG-27.

1-5. 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 are covered in paragraphs 3-12 and 3-13.

1-6. Reporting Equipment Improvement Recommendations (EIR)

If your AN/TRC-145(*) 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. Put it on a SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703-5007. We'll send you a reply.

1-7. Hand Receipts

This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt), TM 11-5895-453-14-2-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e. COEI, BII, and AAL) you must account for, As an aid to property accountability, additional -HR manuals may be requisitioned from The US Army Adjutant General Publications Center, Baltimore, MD, in accordance with the procedures in chapter 3, AR 310-2, and DA Pam 310-10-2.

Section II. DESCRIPTION AND DATA

1-8. Description

a. General. Radio Terminal Set AN/TRC-145(*)(fig's 1-1 through 1-4 and 1-6 through 1-15) is an air or vehicular transportable assemblage used in forward area pulse code modulation (pcm) communications systems for cable or radio terminal or repeater applications. The use of the AN/TRC-145(*) is governed by the tactical situation and the requirements established by the system planners. The AN/TRC-145(*) can be configured to provide a radio or cable, nonsecure or secure (incorporating TSEC/KG-27 equipment) communications facility.

b. Shelter Facility. All operating components of the AN/TRC-145(*) are housed in Shelter, Electrical Equipment S-390/TRC-145, a modified S-250 shelter, which is fully insulated and weather-proofed. On assemblages bearing serial numbers 1 through 46, the power cable and the AN/GRC-103(V) antenna components are stowed on the PU-625/G trailer (fig. 1-5). On assemblages bearing serial numbers 47 and above, the power cable and reel are stowed in the assemblage (fig. FO-2). Equipment racks are secured to the walls and floor of the S-390/TRC-145, with storage areas and mounting fixtures provided for spares and accessory items. Some assemblages with serial numbers 47 and above have been modified to accept two each High Speed Serial Data Buffers TB-10650/G and two each Time Division Digital Multiplexer TD- 1069/G. The modified assemblages have no cable capability. The purpose of the modification is to increase the capability of the AN/TRC-145(*) by the addition of equipment which provides for high speed data transmission and wide band secure voice facilities compatible with TRI-TAC systems. The modified version is nomenclature AN/TRC-145B(V) (fig. FO-2.1).

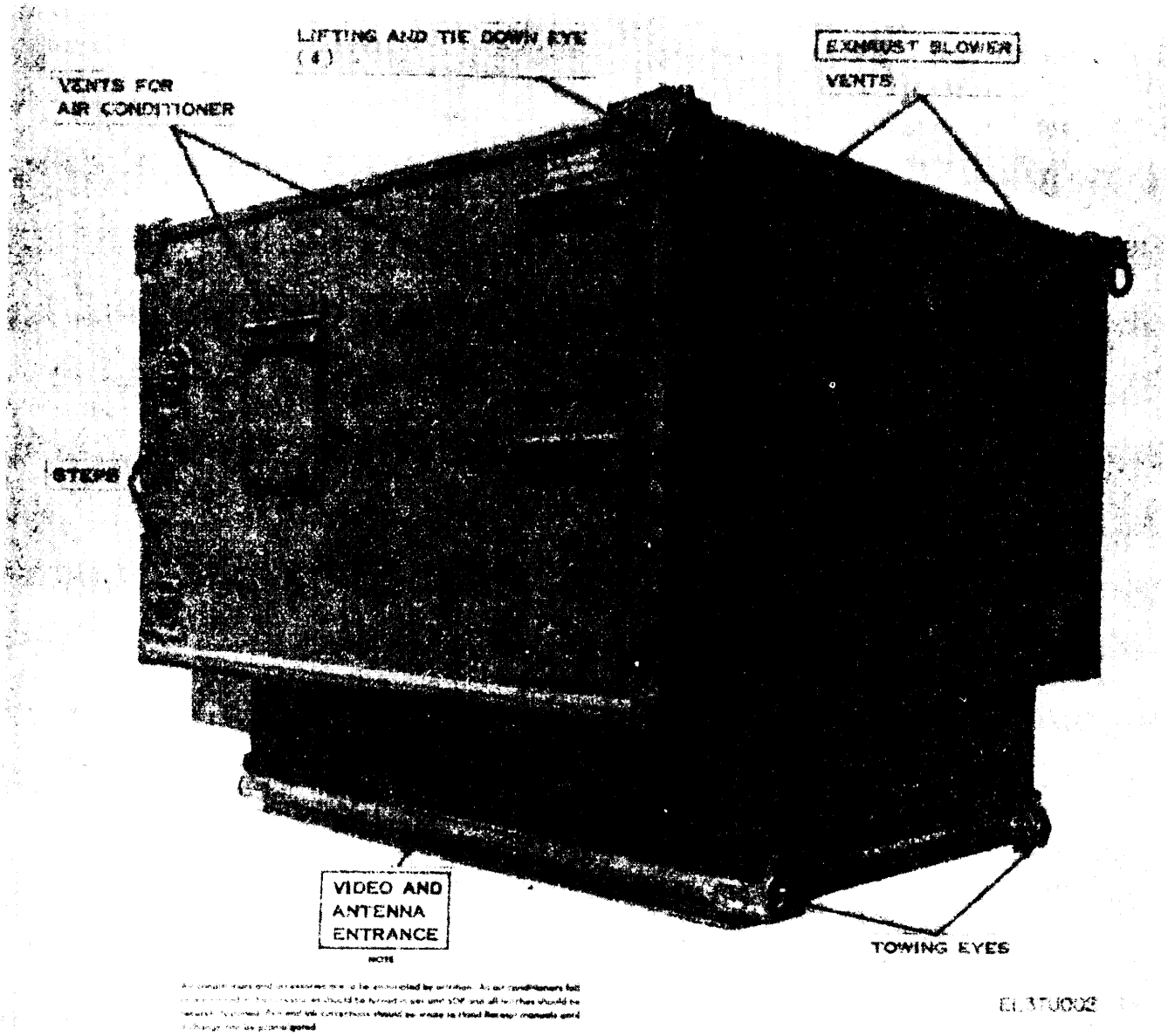


Figure 1-2. Radio Terminal Set AN/TRC-145 (serial No. 47 and above), front curbside veiw.

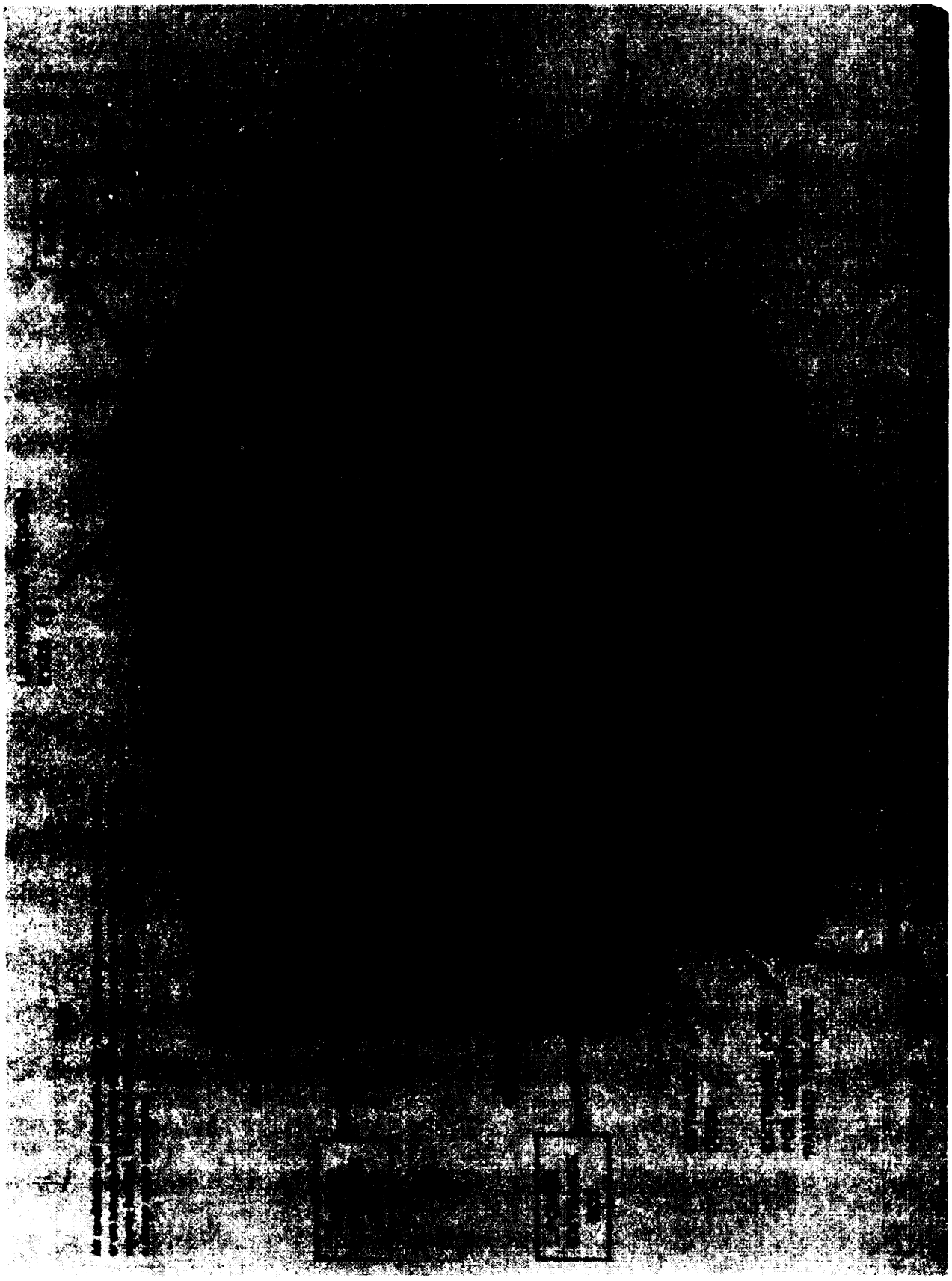


Figure 1-3. Radio Terminal Set AN/TRC-145 (serial No. 1 through 46), rear curbside view.

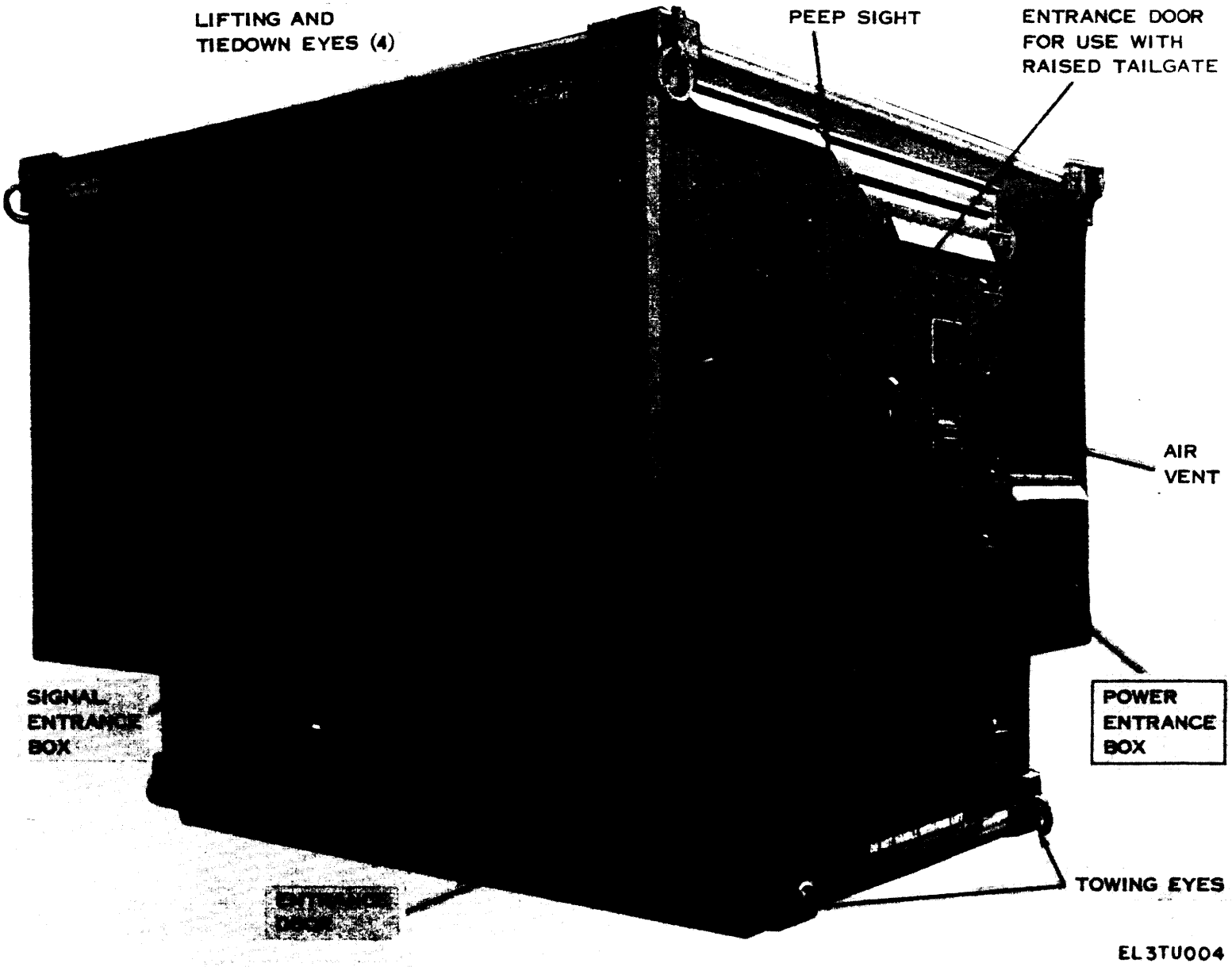


Figure 1-4. Radio Terminal Set AN/TRC-145 (serial No. 47 and above), rear roadside view.

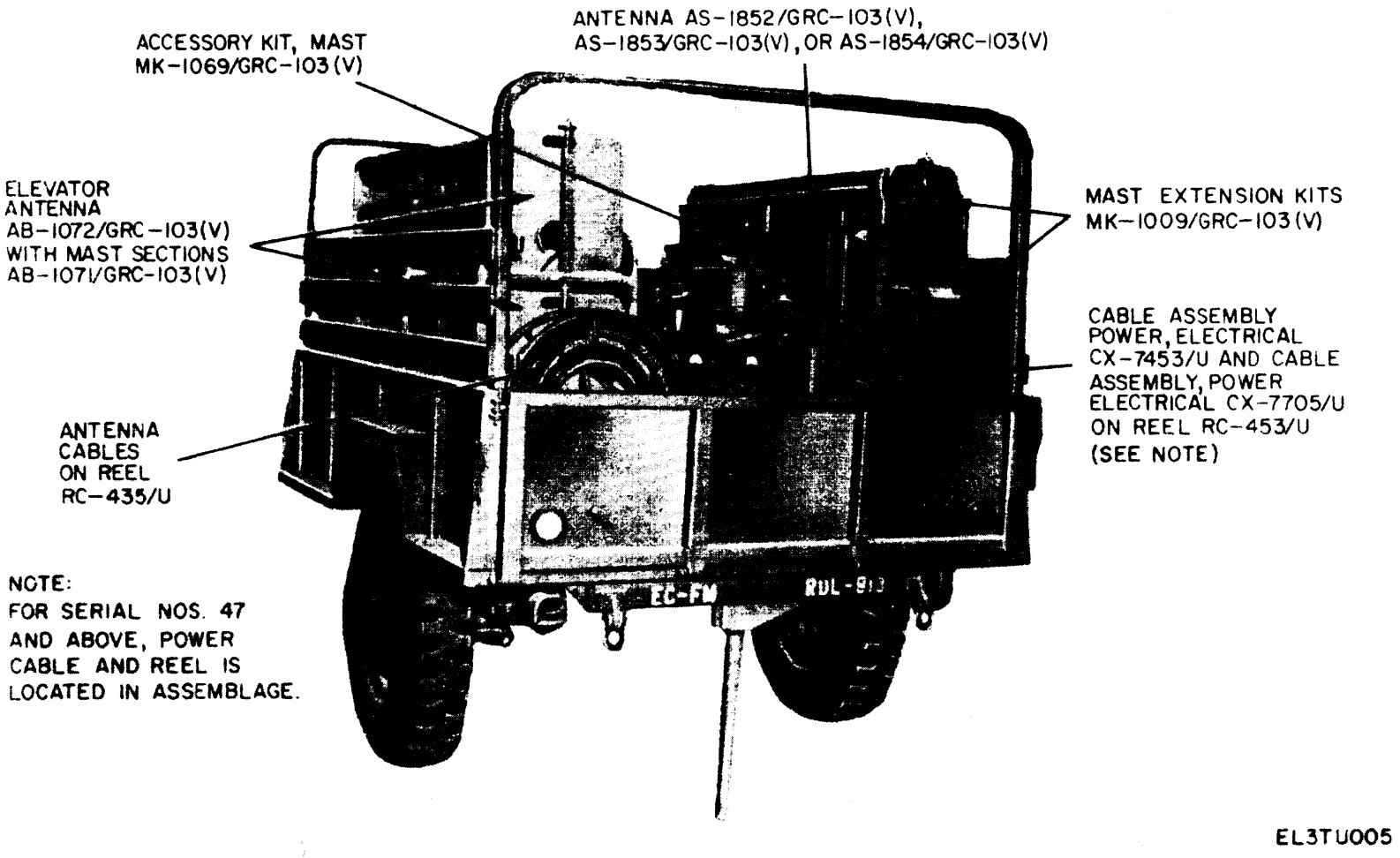


Figure 1-5. Gasoline Engine Generator Set PU-625/G, rear roadside view.

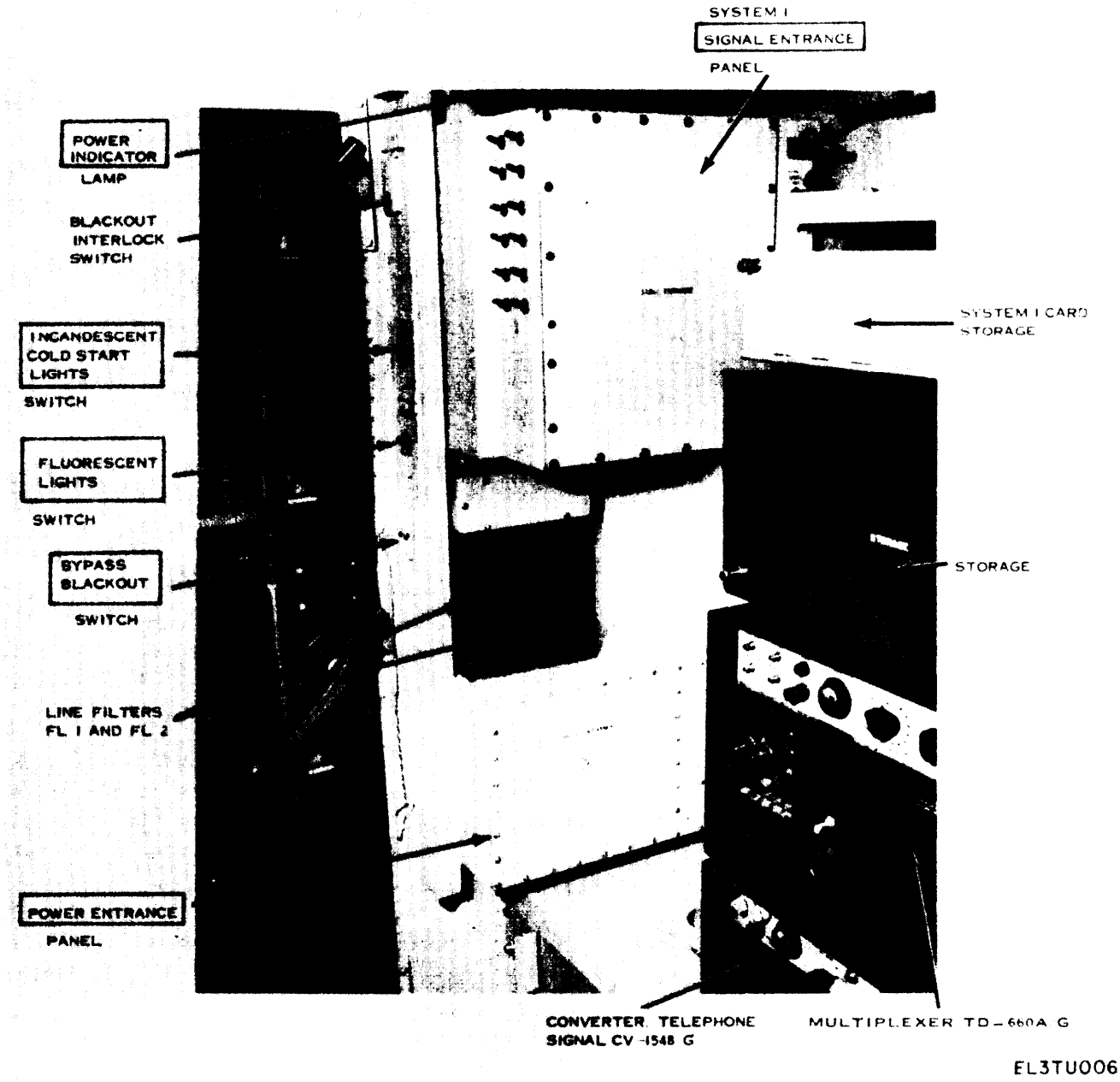


Figure 1-6. Radio Terminal Set AN/TRC-145 (serial No. 1 through 46), interior rear roadside view.

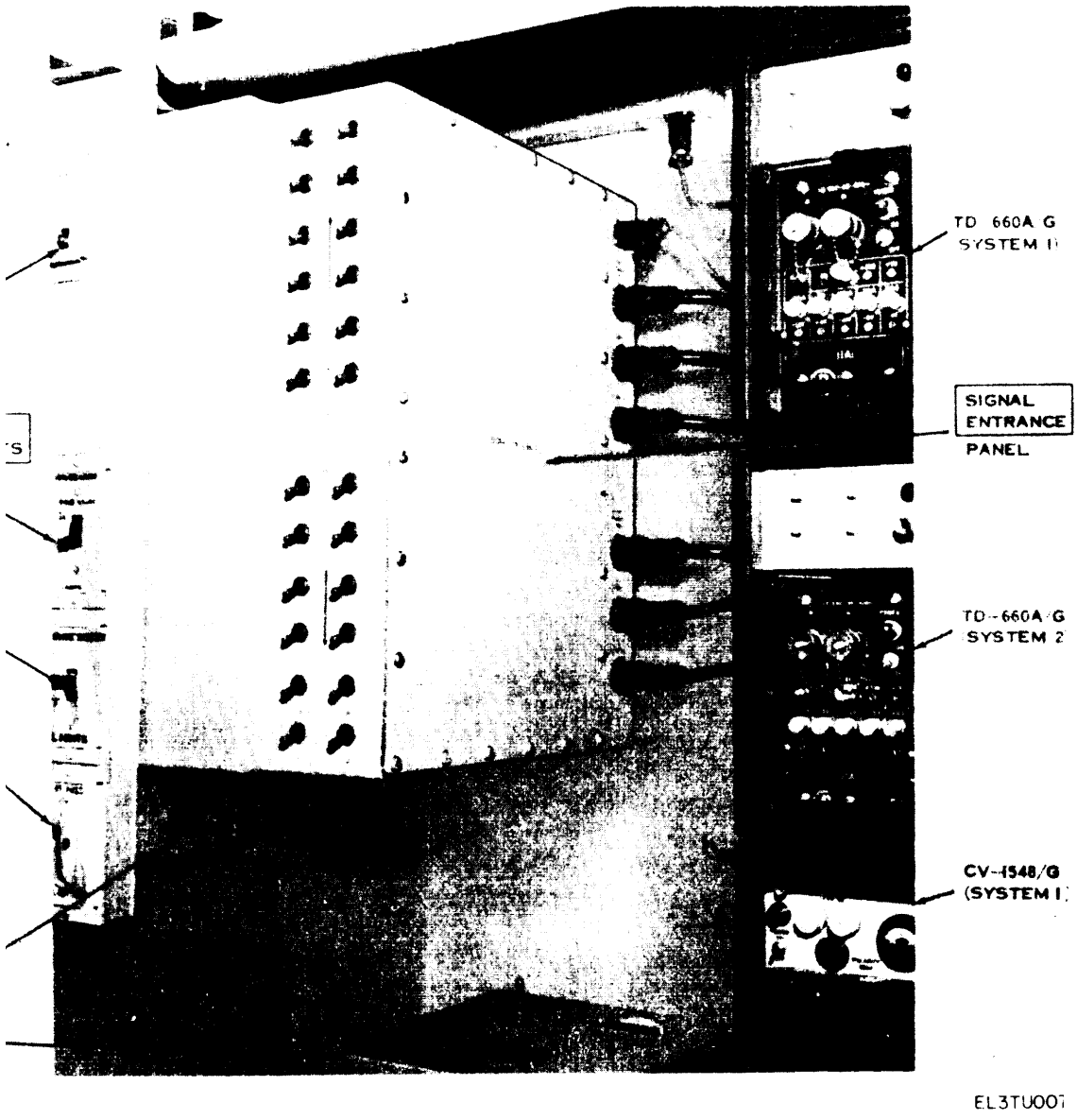


Figure 1-7. Radio Terminal Set AN/TRC-145 (serial No. 47 and above), interior rear roadside veiw.

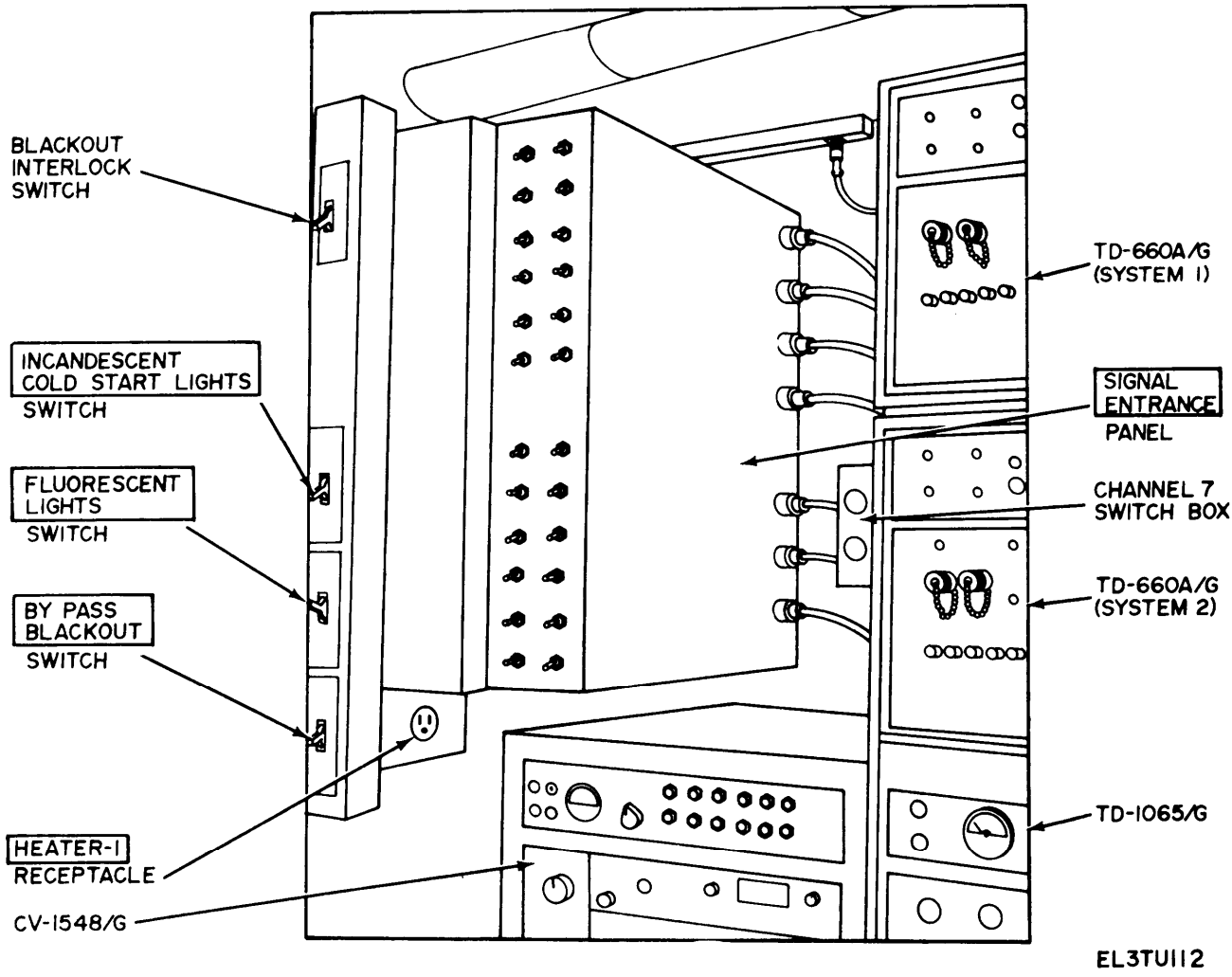


Figure 1-7.1. Radio Terminal Set AN/TRC-145B (Serial No. 47 and above), interior rear roadside view.

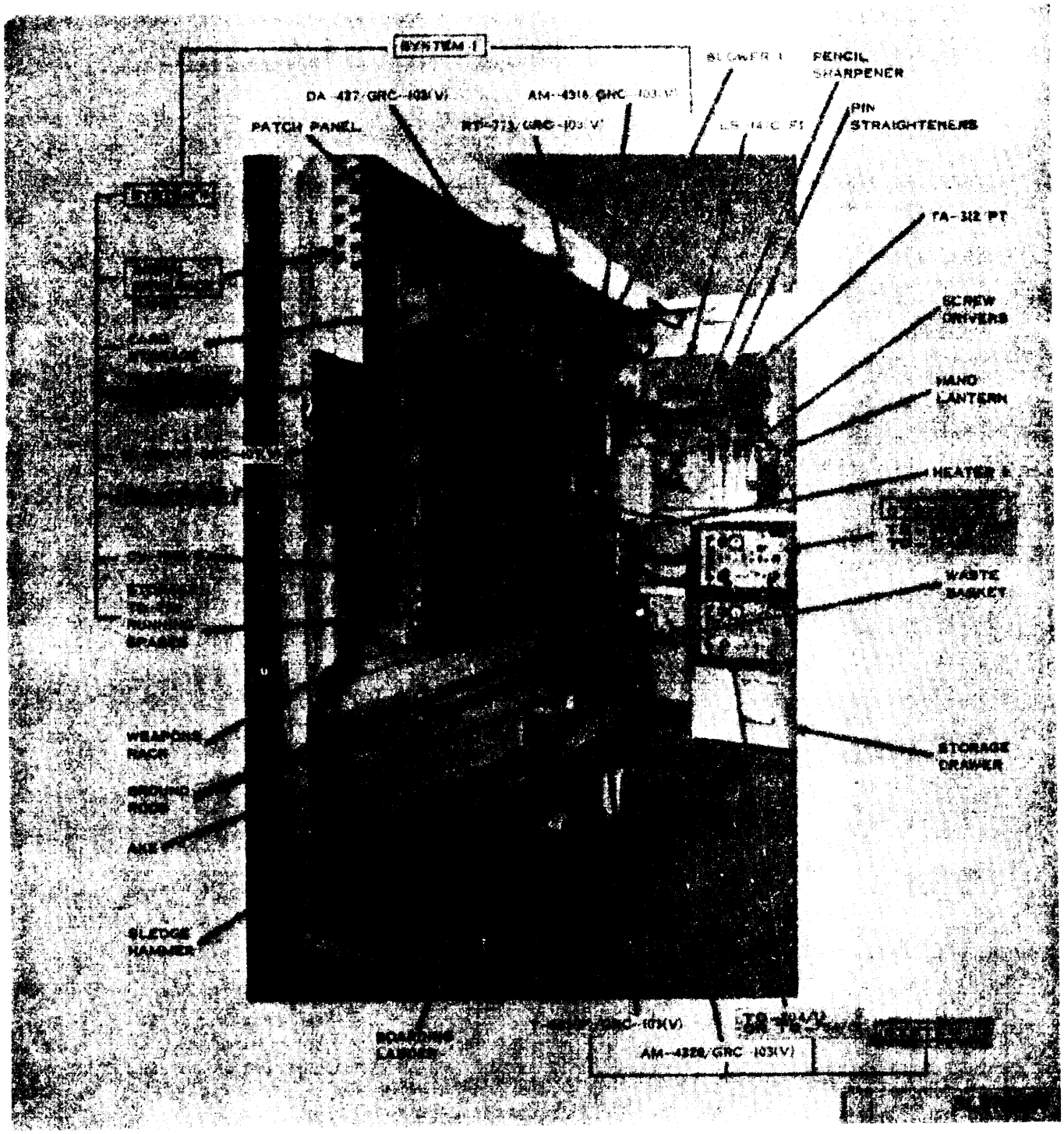


Figure 1-8. Radio Terminal Set AN/TRC-145 (serial No. 1 through 46), interior front roadside view

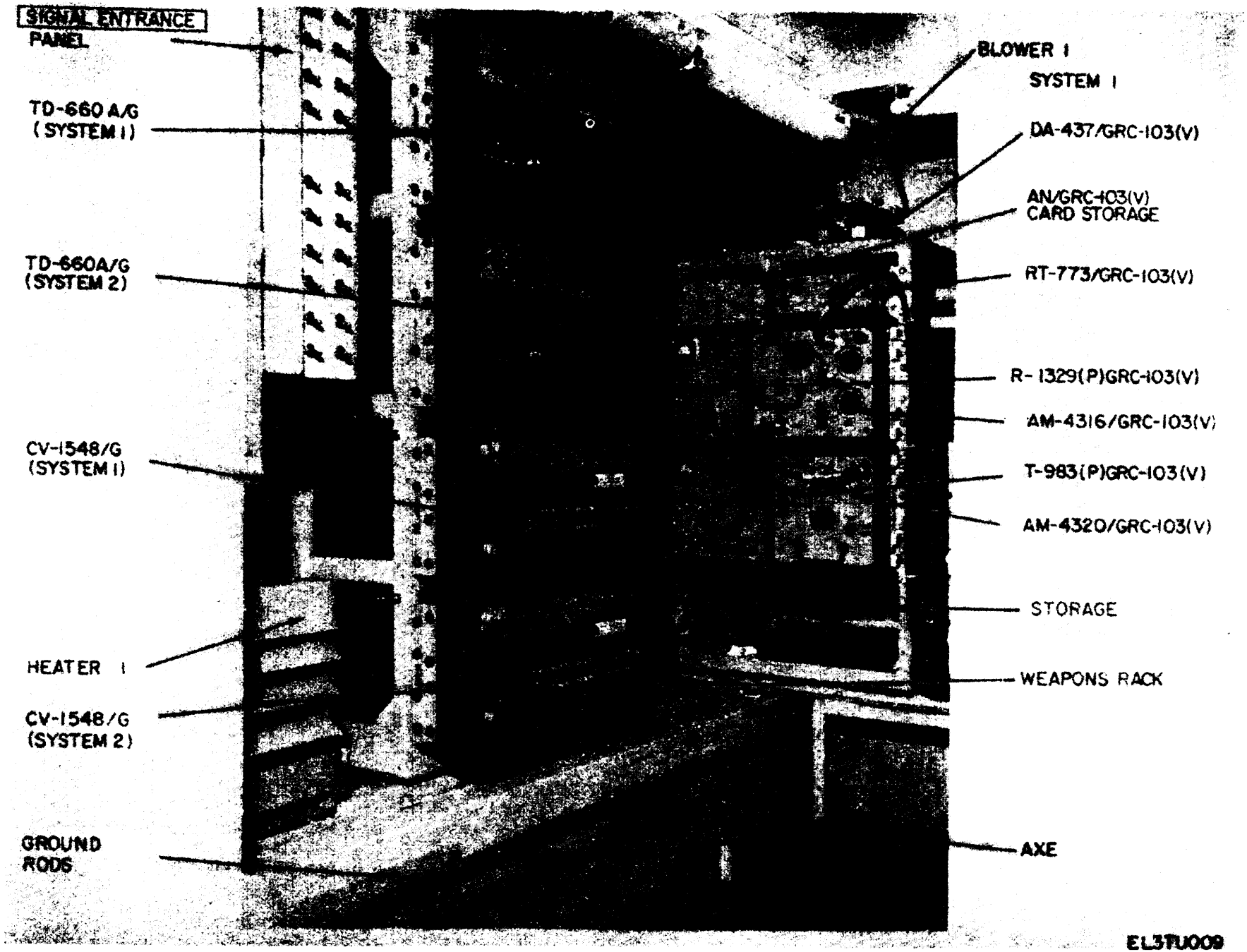


Figure 1-9. Radio Terminal Set AN/TRC-145 (s- ' No. 47 and above), interior front roadside view.

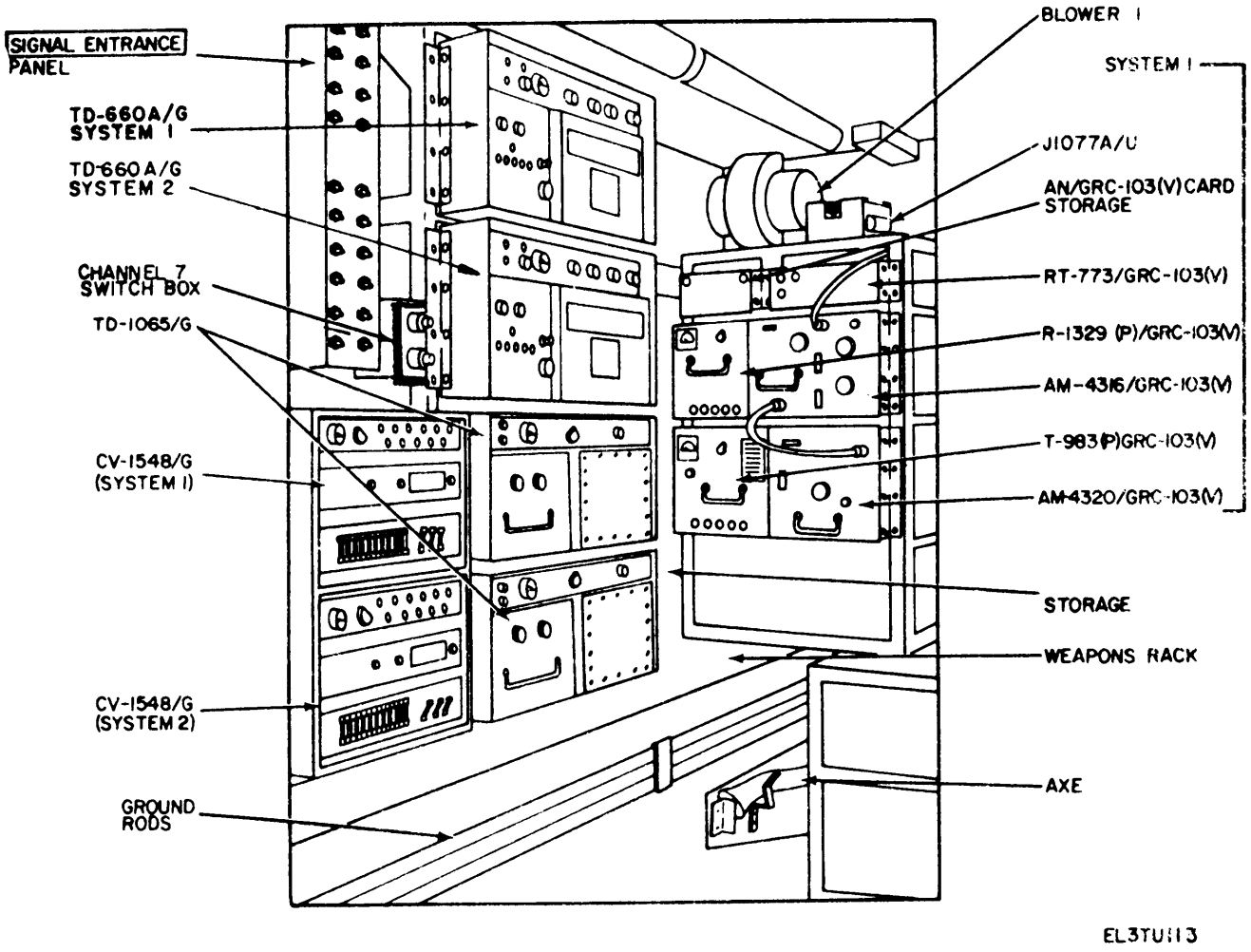


Figure 1-9.1. Radio Terminal Set AN/TRC-145B (serial No. 47 and above), interior front roadside view.

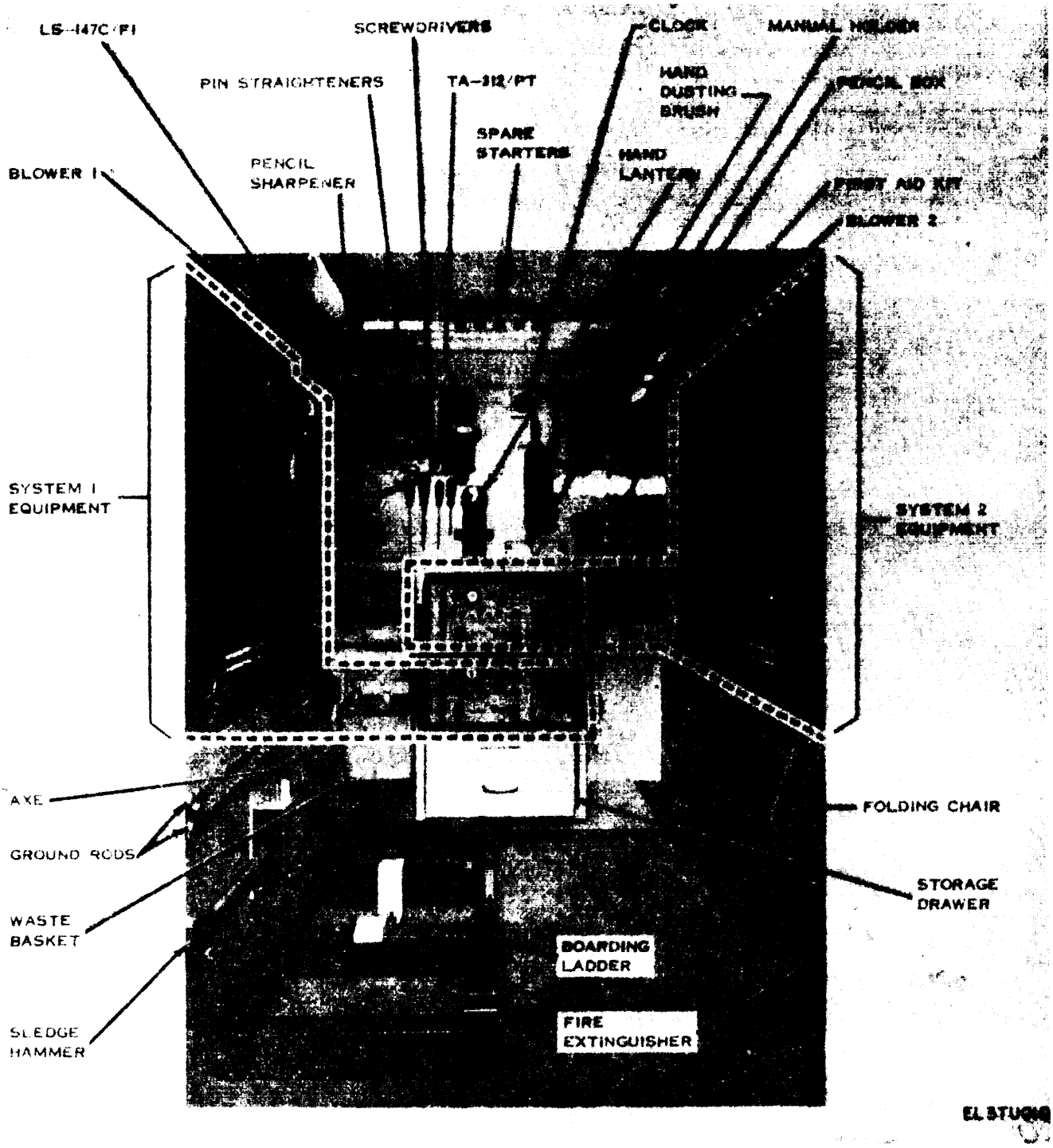


Figure 1-10. Radio Terminal Set AN/TRC-145 (serial no. 1 through 46), interior front view.

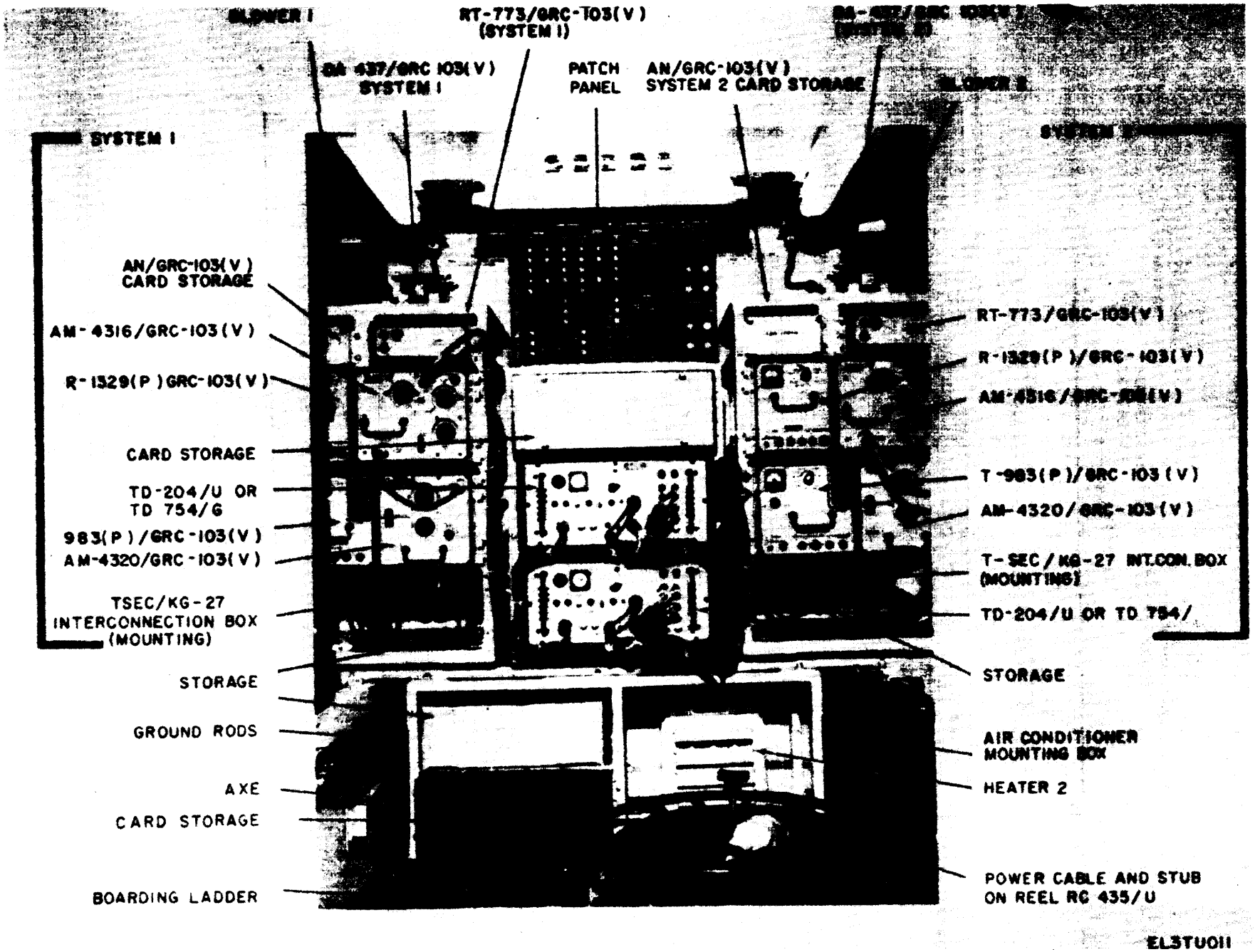


Figure 1-11. Radio Terminal Set AN/TRC-145 (serial No. 47 and above), interior front view.

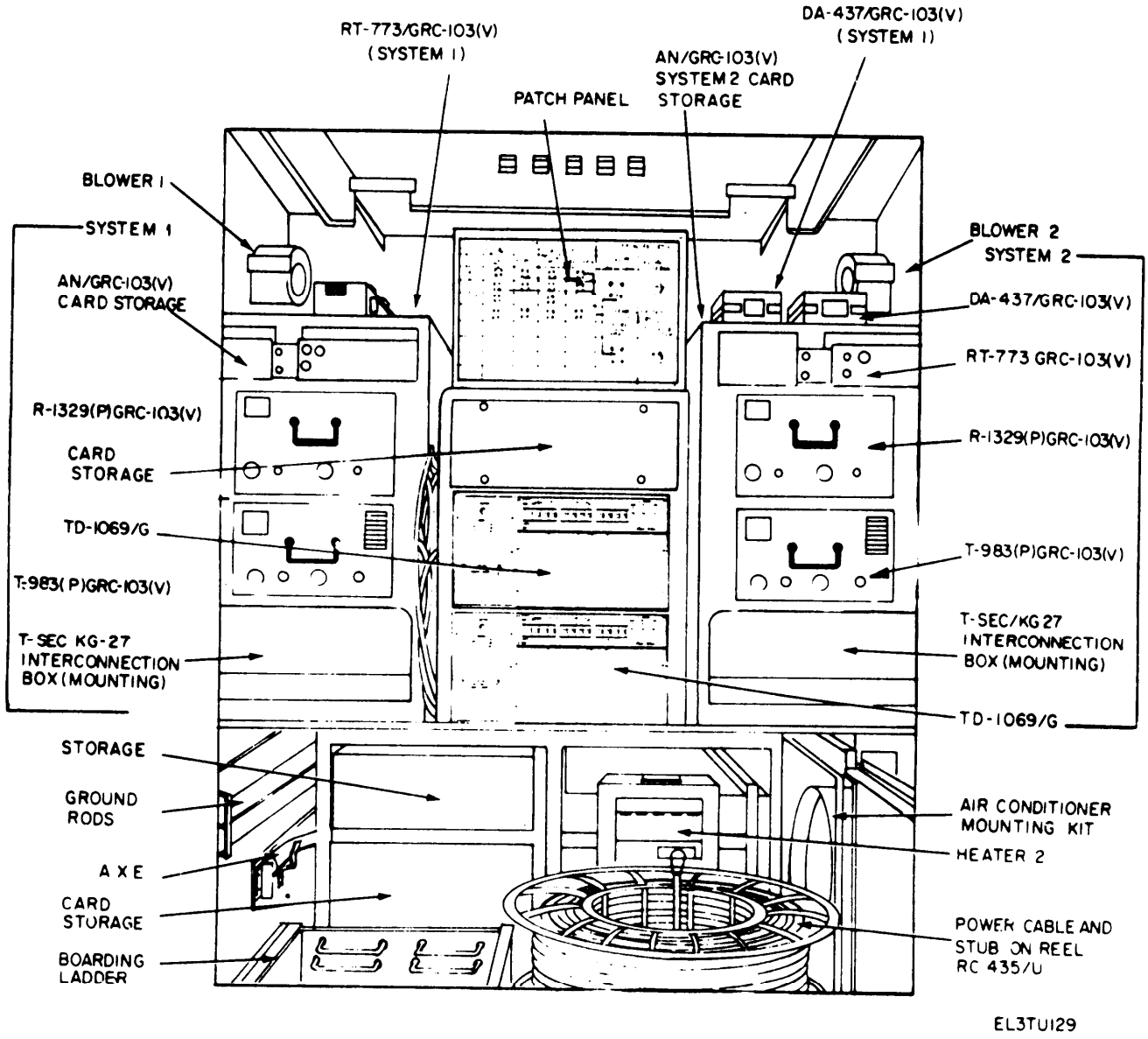


Figure 1-11.1. Radio Terminal Set AN/TRC-145B (serial No. 47 and above), interior front view.

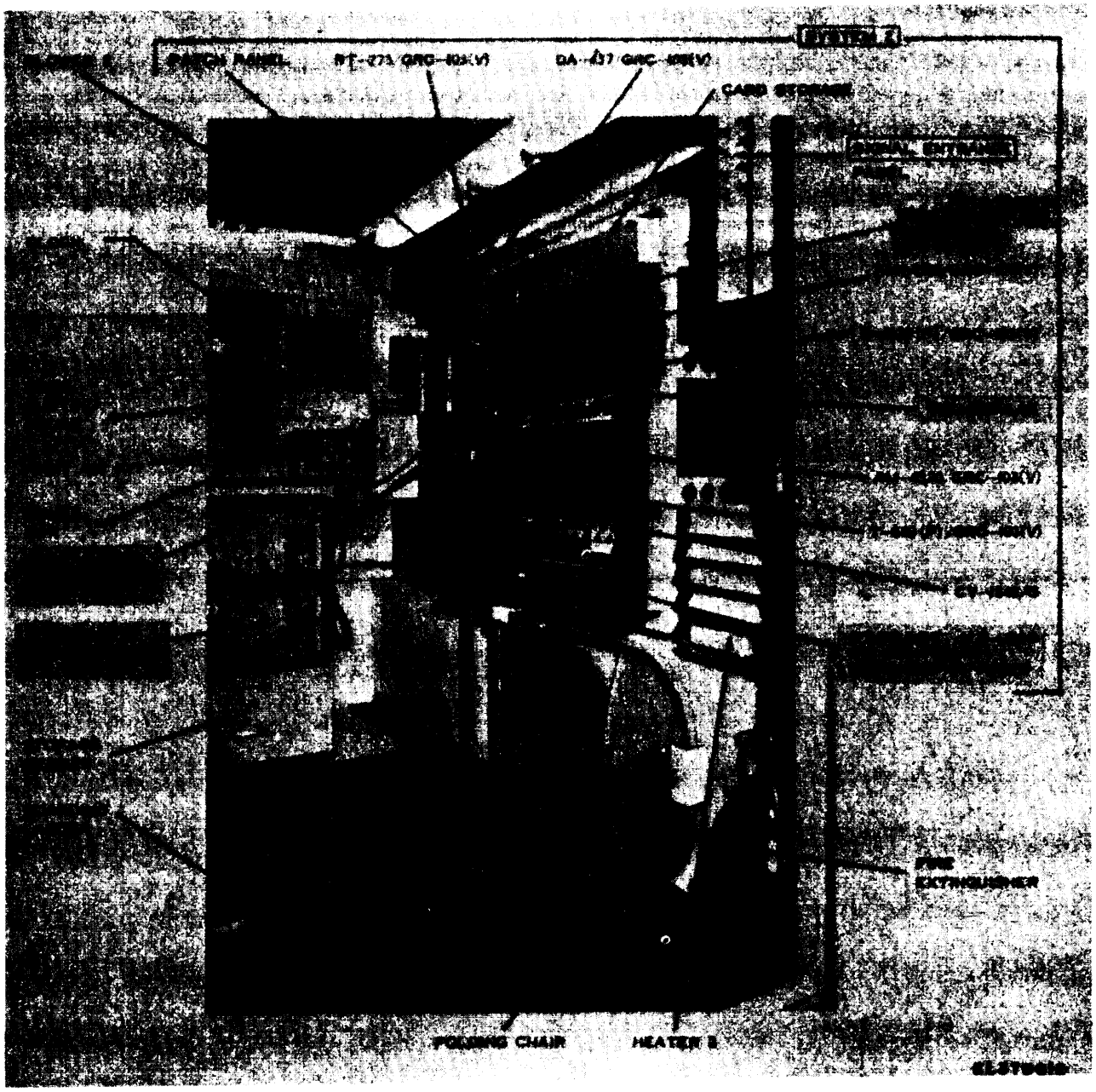


Figure 1-12. Radio Terminal Set AN/TRC-145 (serial No. 1 through 46), ***interior front curbside view.***

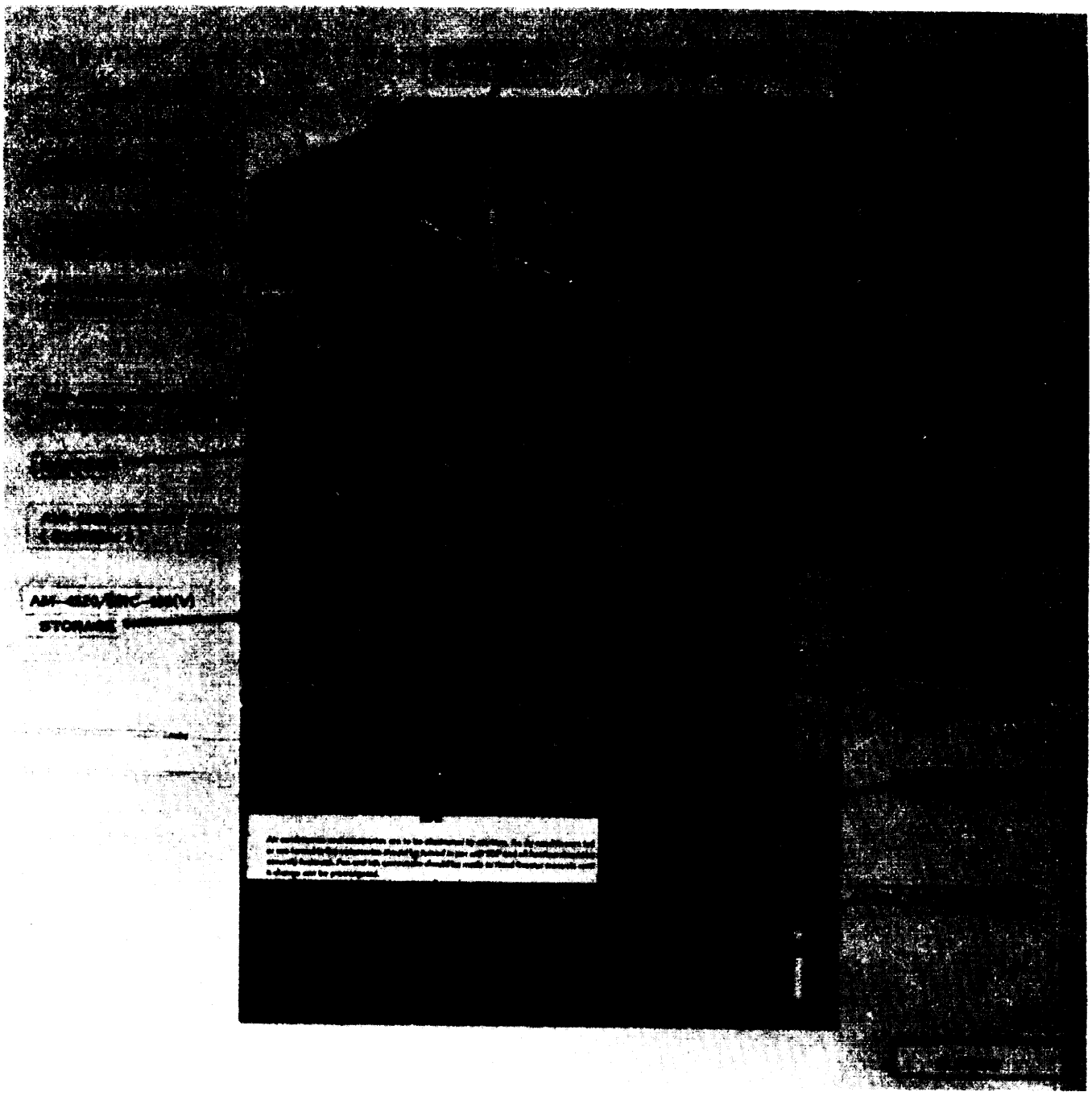


Figure 1-13. Radio Terminal Set AN/TRC-145 (serial No. 47 and above), interior front curbside view.

NOTE

Air conditioners and accessories are to be eliminated by attrition. As air conditioners fail or are turned in the accessories should be turned in per unit SOP and all hatches should be securely fastened. Pen and ink corrections should be made to Hand Receipt manuals until a change can be promulgated.

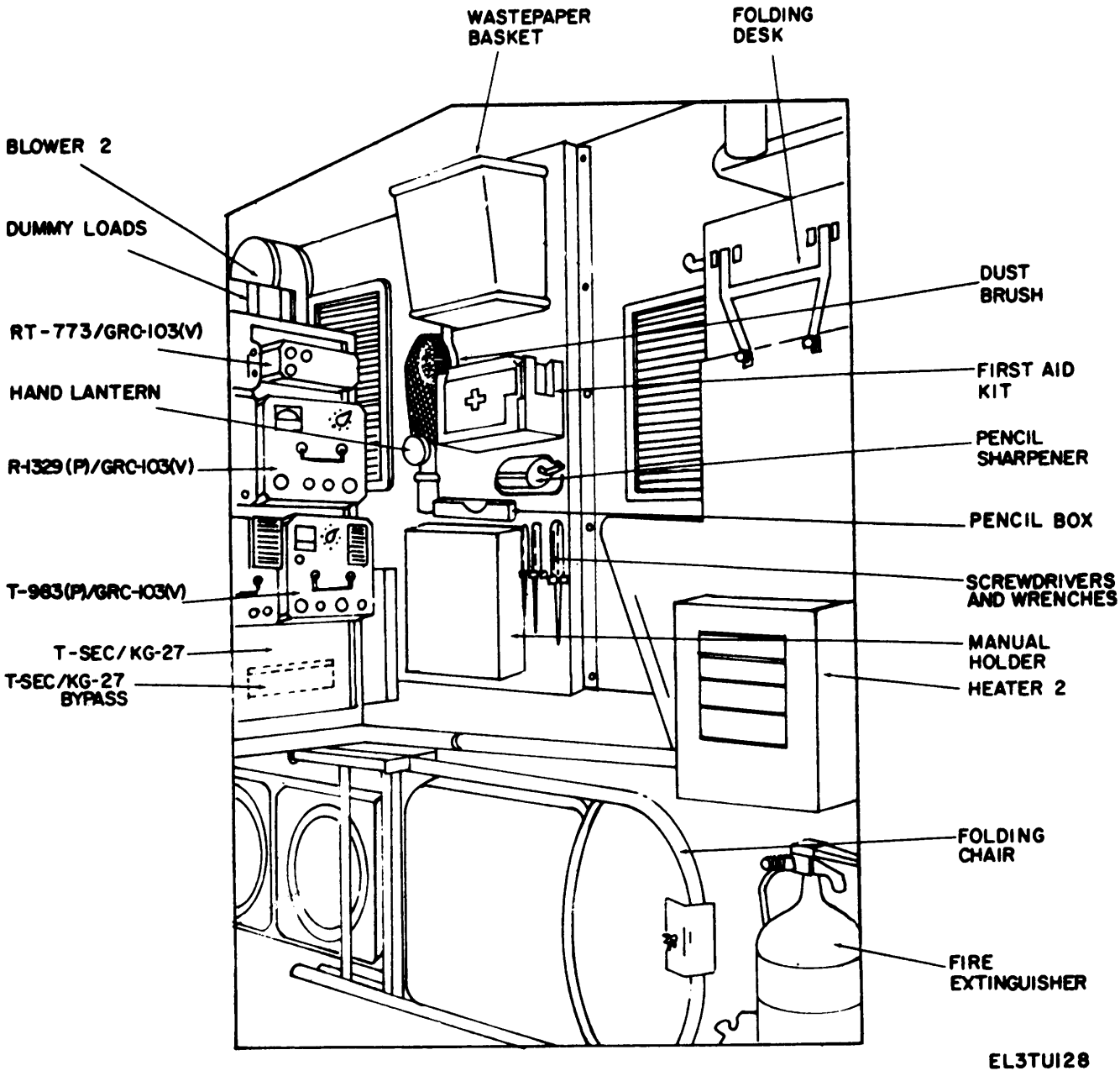


Figure 1-13.1. Radio Terminal Set AN/TRC-145B (serial No. 47 and above). interior front curbside view.

Note

Air conditioners and accessories are to be eliminated by attrition. As air conditioners fail or are turned in the accessories should be turned in per unit SOP and all hatches should be securely fastened. Pen and ink corrections should be made to Hand Receipt manuals until a change can be promulgated.

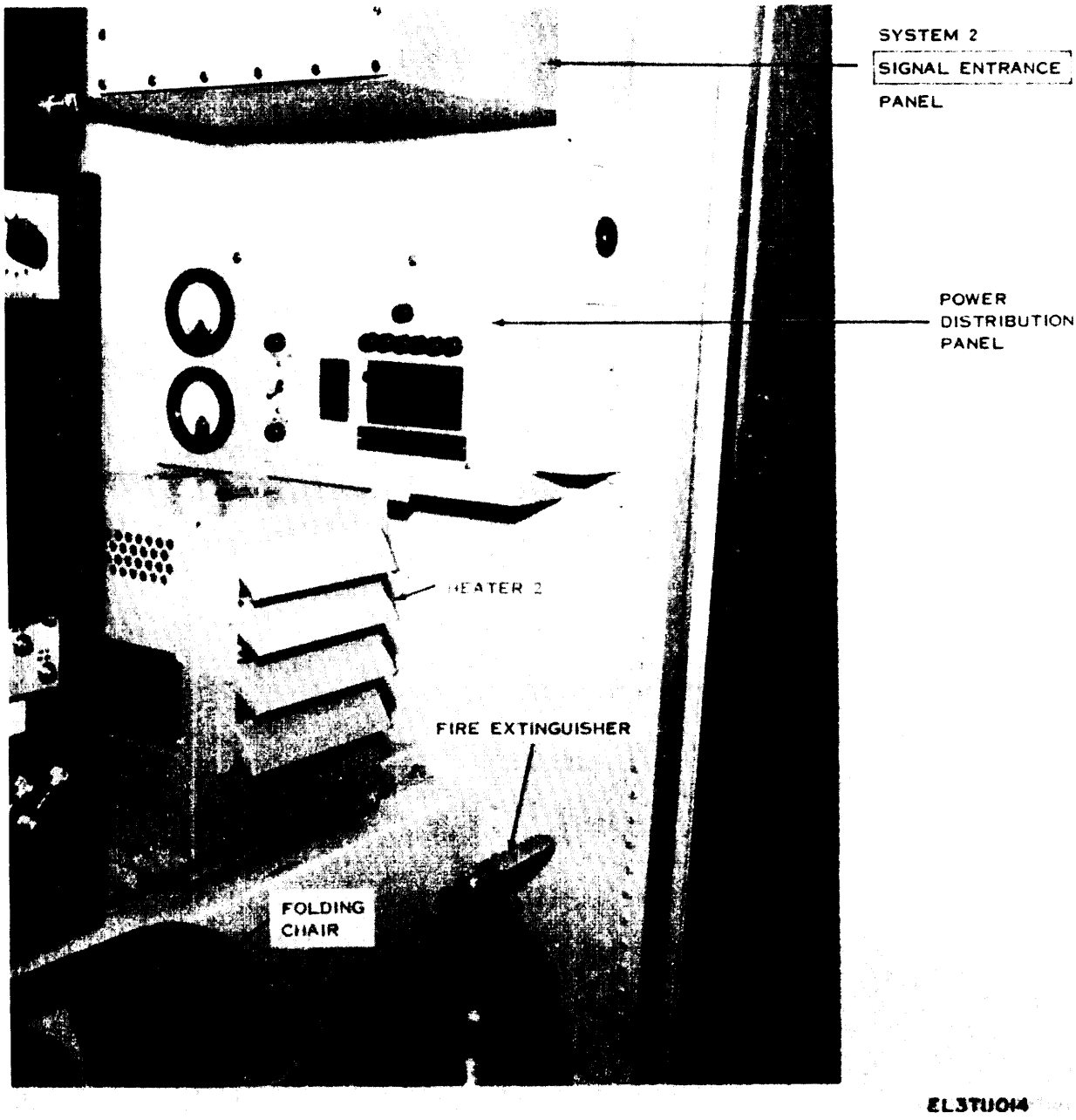


Figure 1-14. Radio Terminal Set AN/TRC-145 (Serial No. 1 through 46), interior rear curbside view.

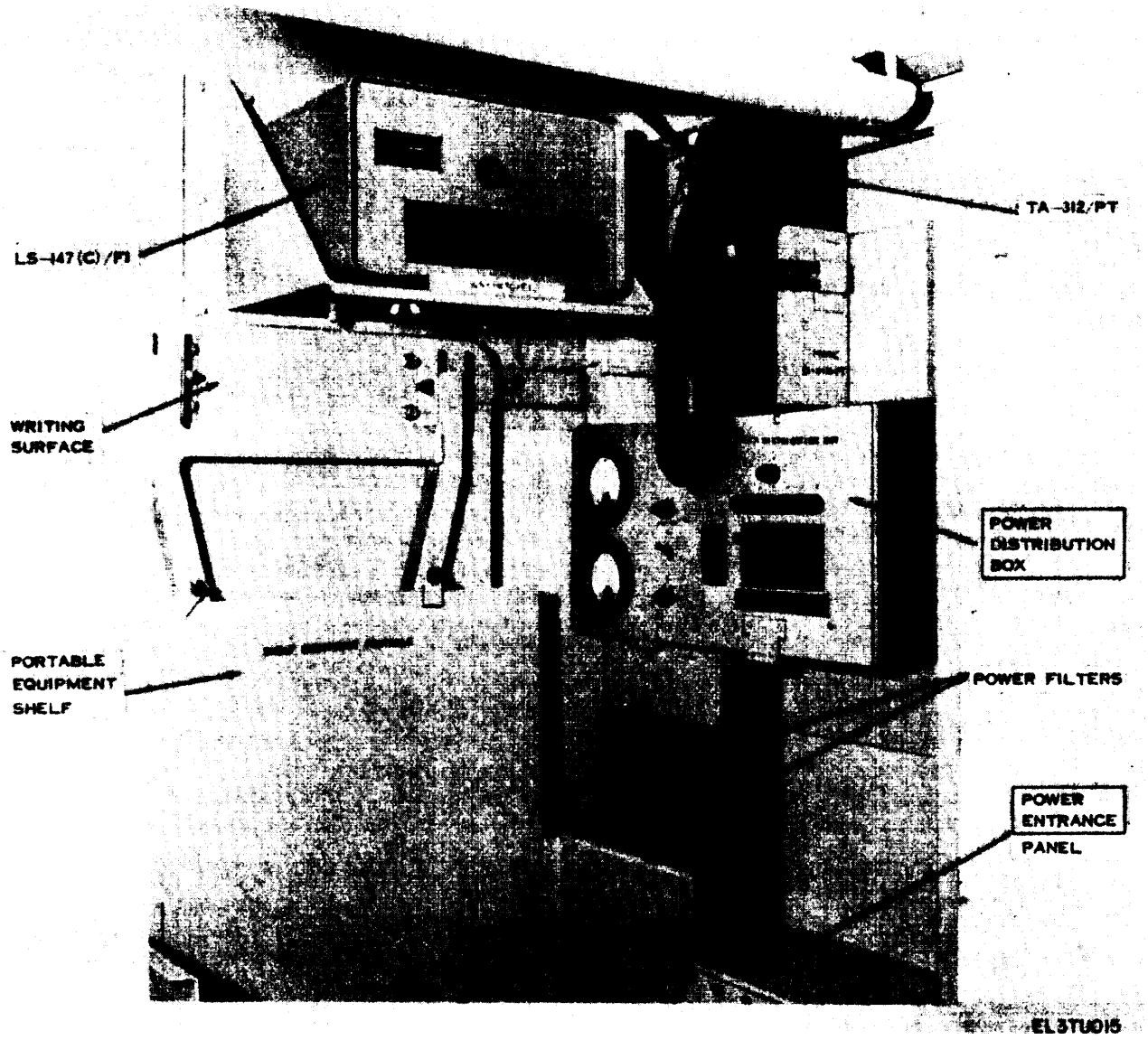


Figure 1-15. Radio Terminal Set AN/TRC-145 (Serial No. 47 and above), interior rear curbside view.

(1) *Lighting.* Five fluorescent light fixtures are mounted on the ceiling of the assemblage to provide primary lighting. Four incandescent lights provide lighting when the temperature is too low for the fluorescent lights to operate. The lighting may be controlled by a door interlock for blackout operations. The interlock may be bypassed if blackout conditions are not required.

(2) *Power connections.* Watertight receptacles are provided in the POWER ENTRANCE BOX (fig. 1-16) on the rear wall of the assemblage for connection to an external power source. The ac power is routed through the POWER DISTRIBUTION PANEL (fig. 1-14) and the wall ducts to the ac receptacles and the ceiling lights. Ac power may be supplied by an engine generator set, such as the PU-625/G, or from a central power source.

(3) *Signal connections* (figs. 1-17 through 1-22). On AN/TRC-145 and AN/TRC-145A, pcm cable or antenna connections are made to the shelter through receptacles in the VIDEO AND ANTENNA ENTRANCE BOXes (figs. 1-1, 1-2, and 1-3) of the assemblage. Telephone line connections are made to the binding posts or the 26-pair receptacles in the SIGNAL ENTRANCE BOXes on the external rear wall of the assemblage. Connections to the local telephone facility (TA-312/FT) and the intercommunications (intercom) lines (LS-147C/FI) are made through binding posts provided in the POWER ENTRANCE BOX. On AN/TRC-145B, a DATA ENTRANCE BOX (fig. 1-23), located on the curbside wall, is used for connecting antenna and signal cabling.

(4) SIGNAL ENTRANCE panels. The SIGNAL ENTRANCE panels (fig. 1-19 and 1-20) contain BINDING POST switches used to switch the input connectors (26-pair cable connectors or binding posts) located in the SIGNAL ENTRANCE box to the SIGNAL ENTRANCE panel output connectors. Surge arrestors (fig. 7-2.1) are located inside the SIGNAL ENTRANCE panel in series with the signal entrance lines.

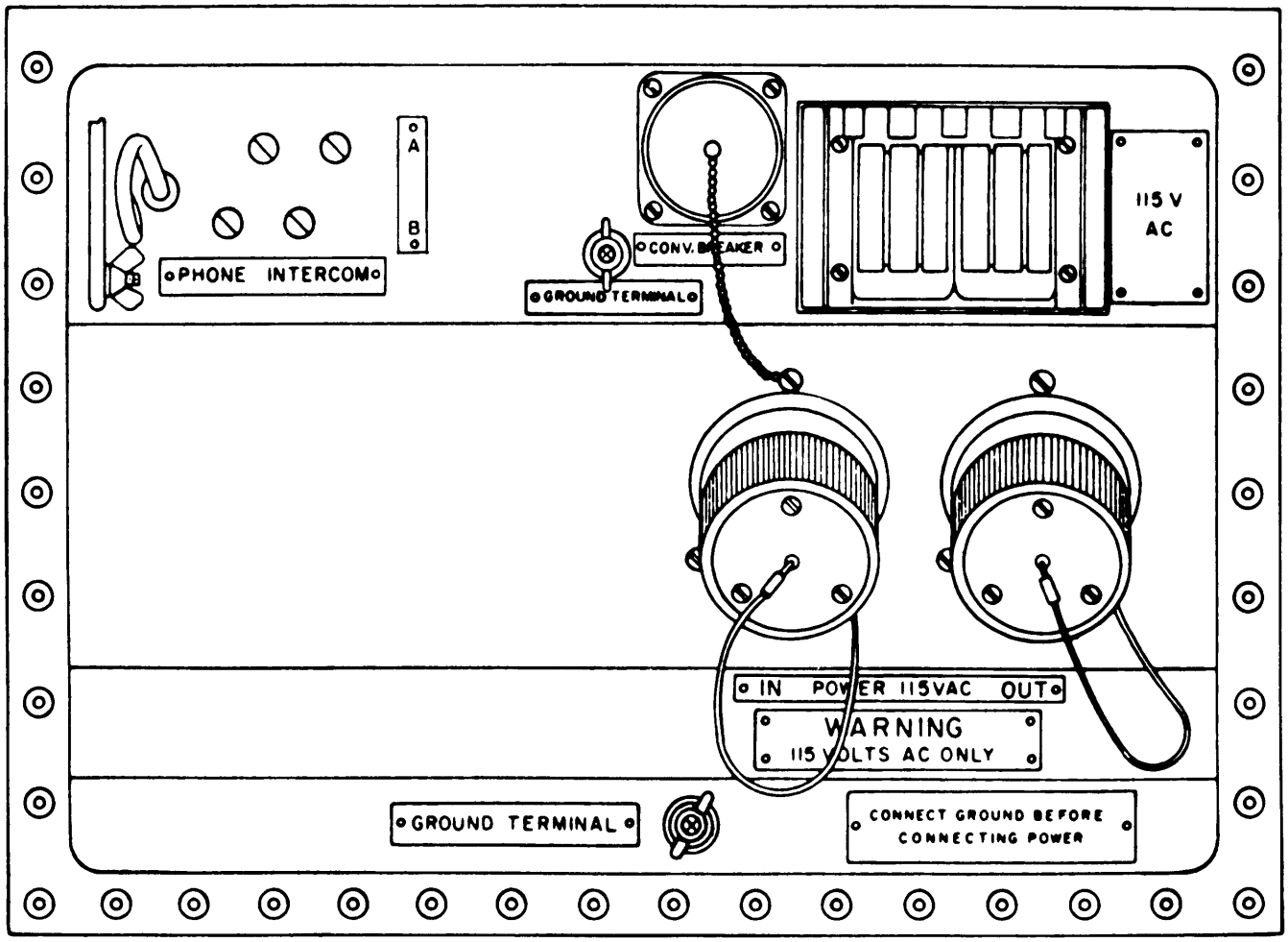


Figure 1-16. POWER ENTRANCE BOX, exterior view, less cover.

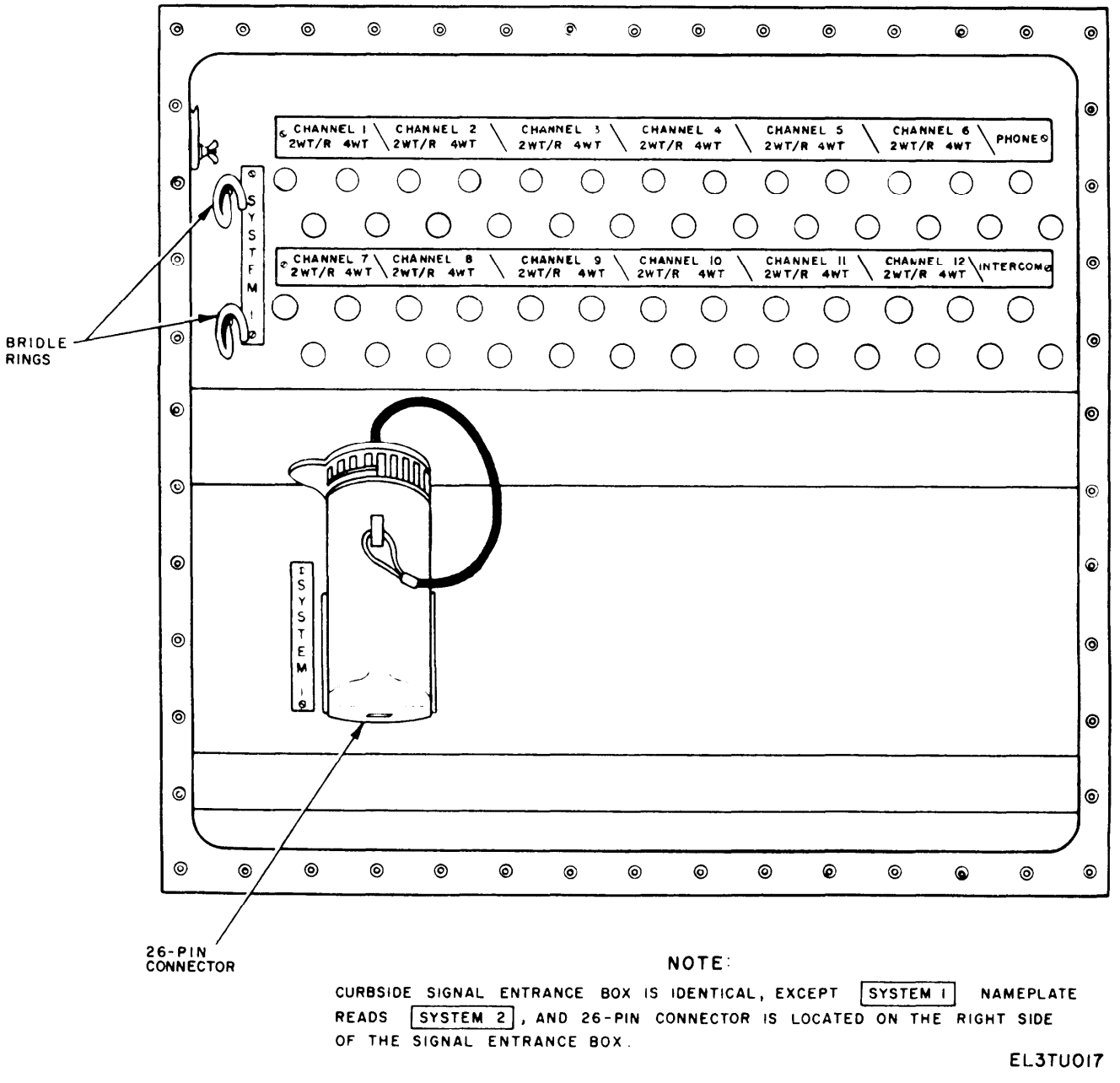


Figure 1-17. SIGNAL ENTRANCE BOX, roadside exterior view, less cover (serial No. 1 through 46).

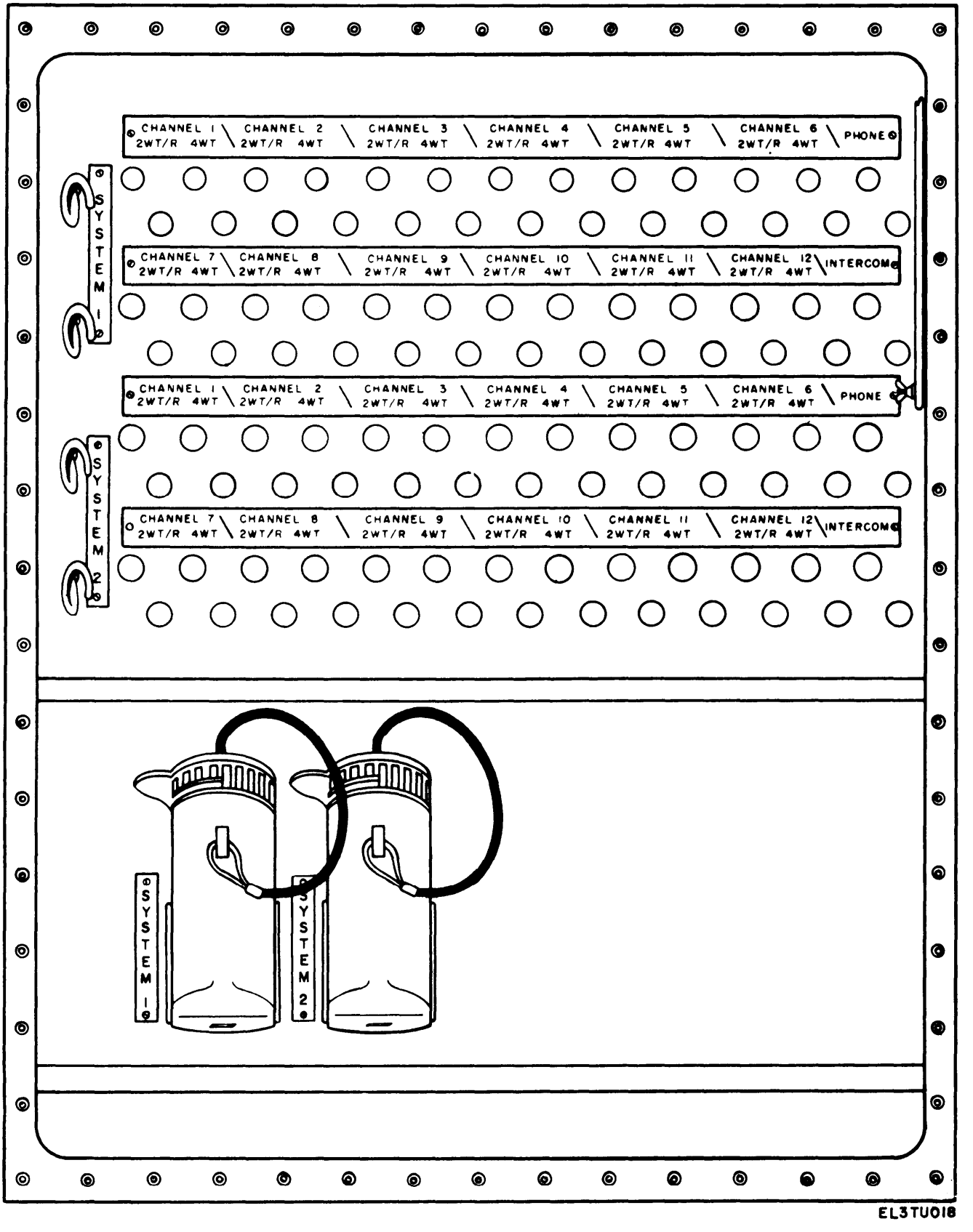
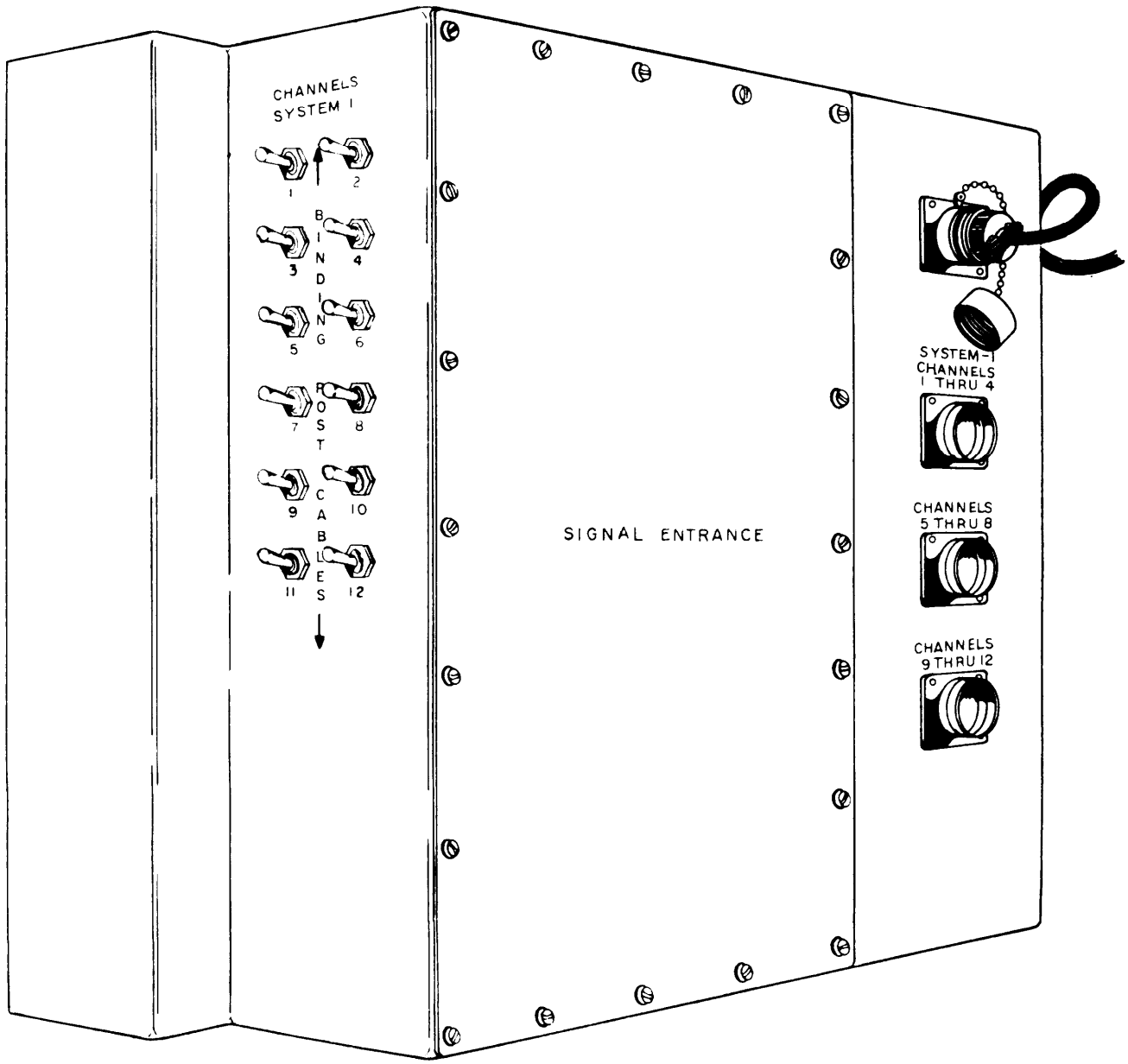


Figure 1-18. SIGNAL ENTRANCE BOX, less cover (serial No. 47 and above).



NOTES:

1 CURBSIDE SIGNAL ENTRANCE PANEL SUBSTITUTE [SYSTEM 2] FOR [SYSTEM 1].

2 CURBSIDE SIGNAL ENTRANCE PANEL IS MIRROR IMAGE OF SIGNAL ENTRANCE PANEL SHOWN.

EL3TU019

Figure 1-19. SIGNAL ENTRANCE panel (serial No. 1 through 46).

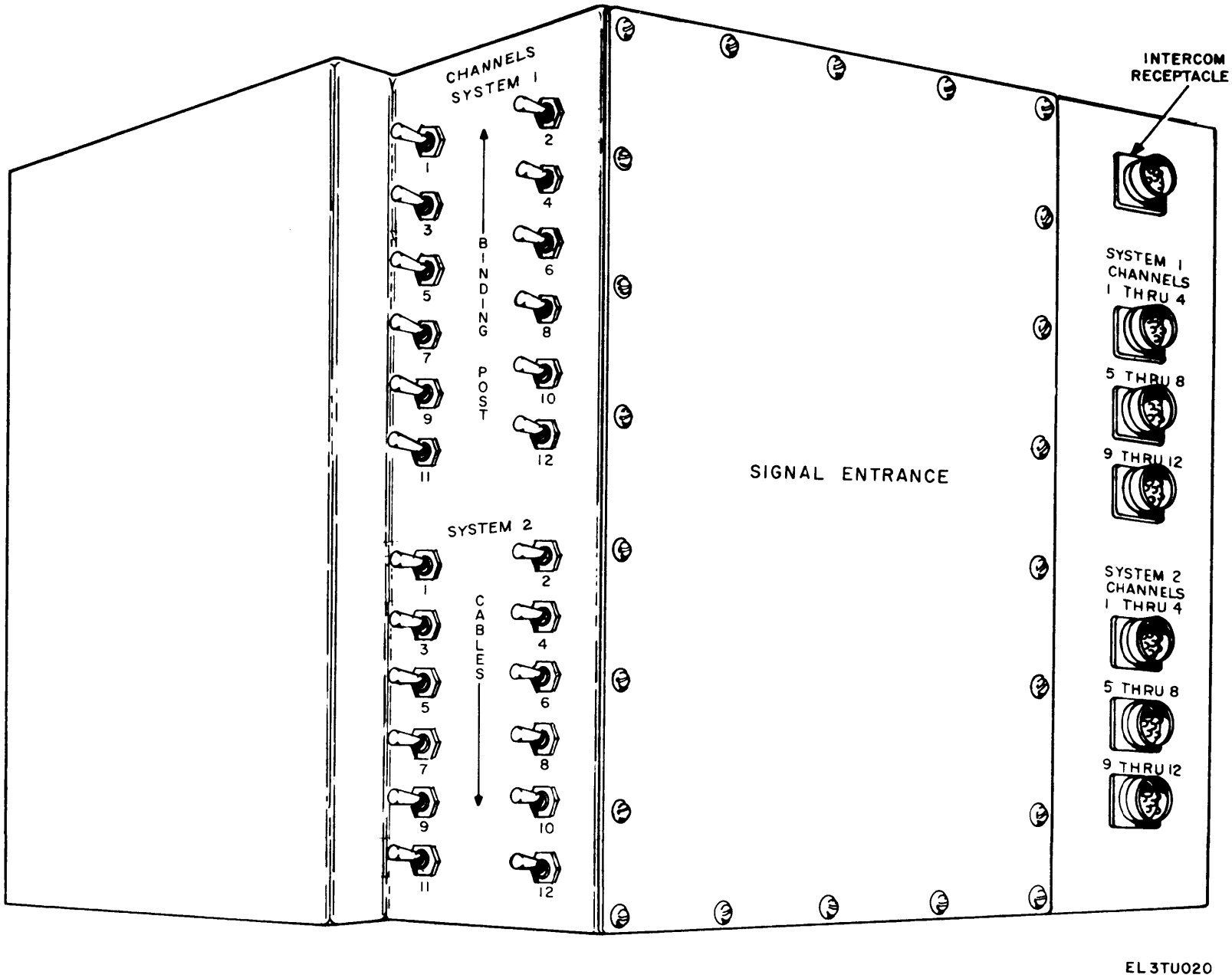


Figure 1-20. SIGNAL ENTRANCE panel (serial No. 47 and above).

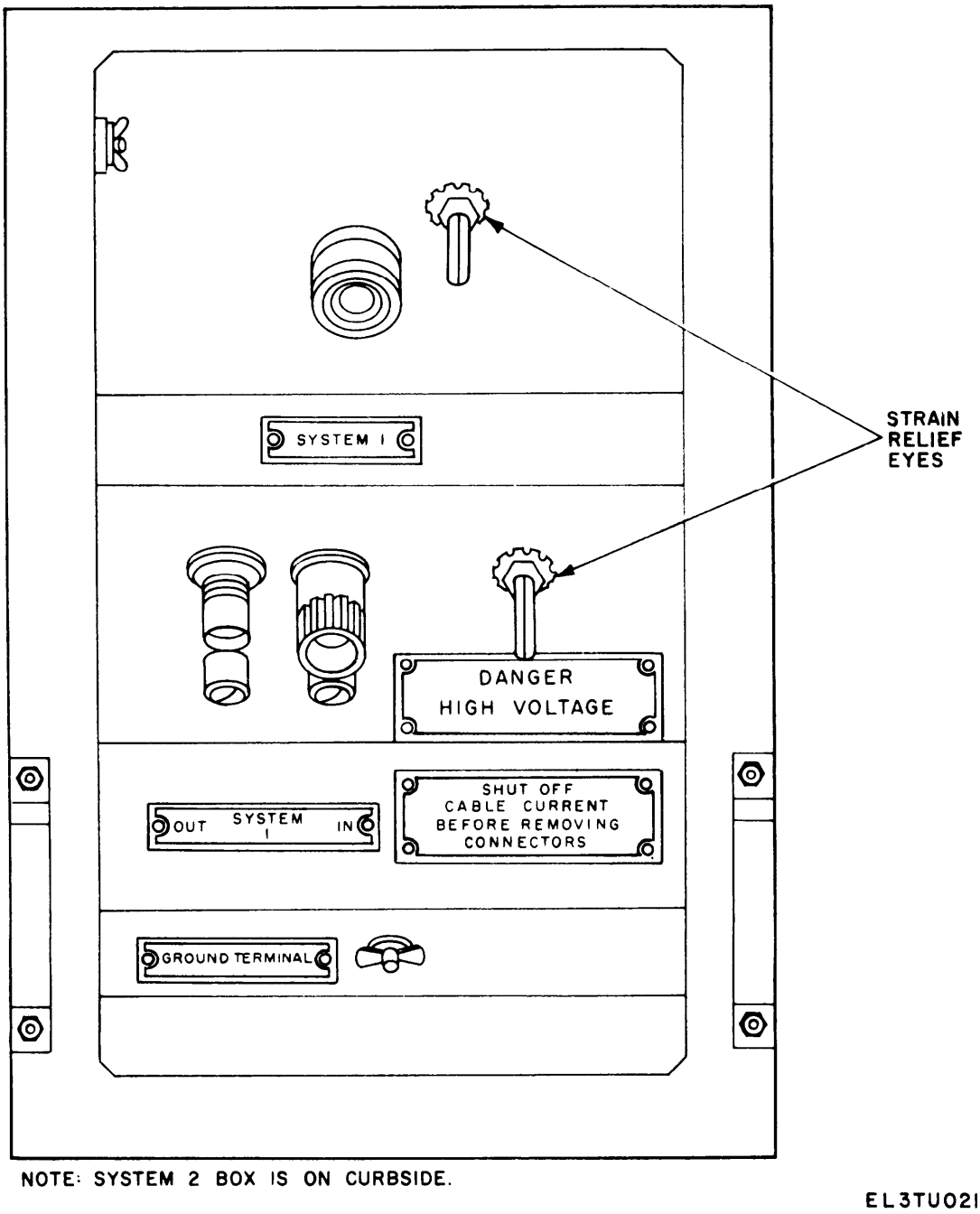


Figure 1-21. VIDEO AND ANTENNA ENTRANCE BOX, roadside exterior view, less cover (serial No. 1 through 46).

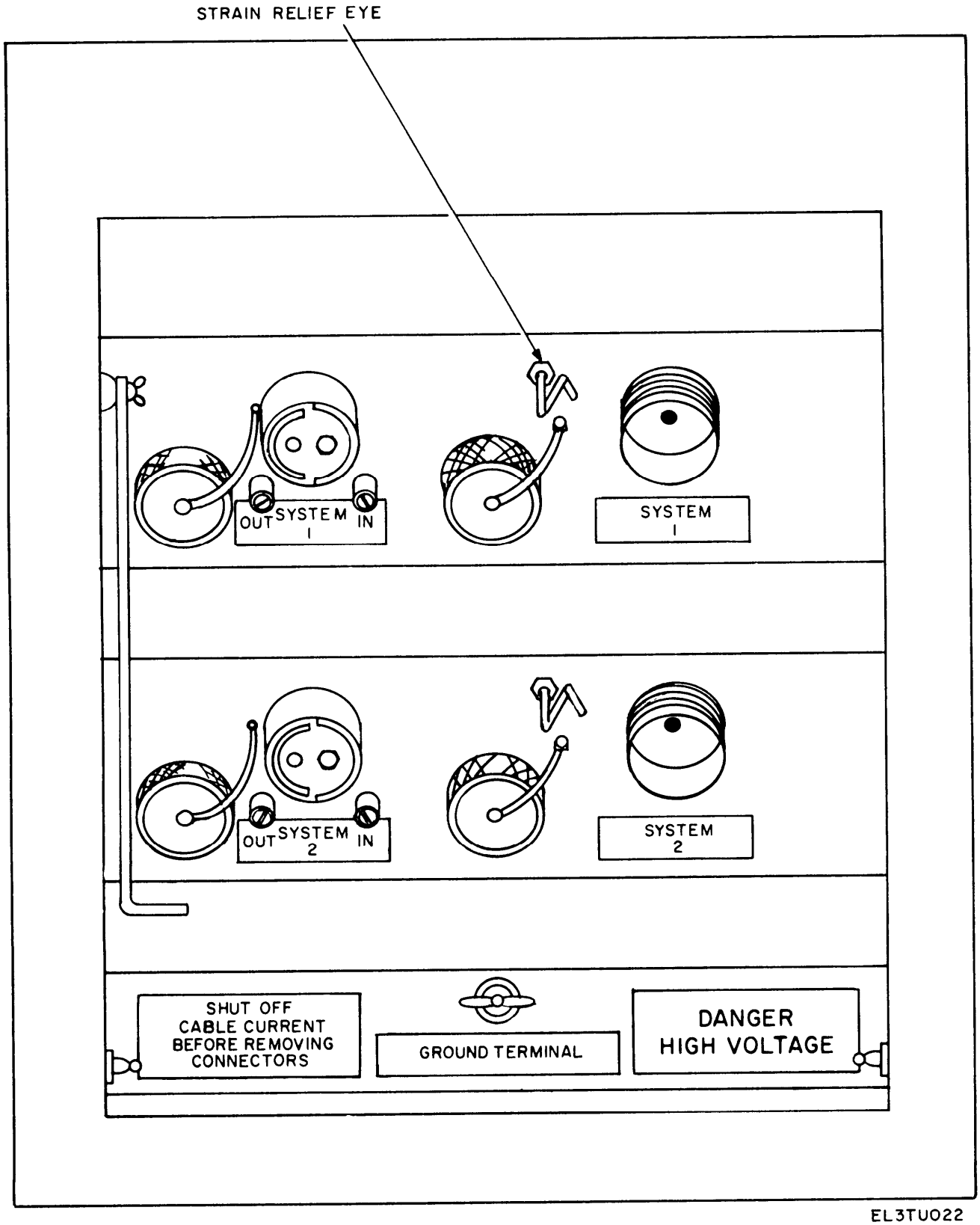


Figure 1-22. VIDEO AND ANTENNA ENTRANCE BOX less cover (Serial No. 47 and above) AN/TRC-145 and AN/TRC-145A.

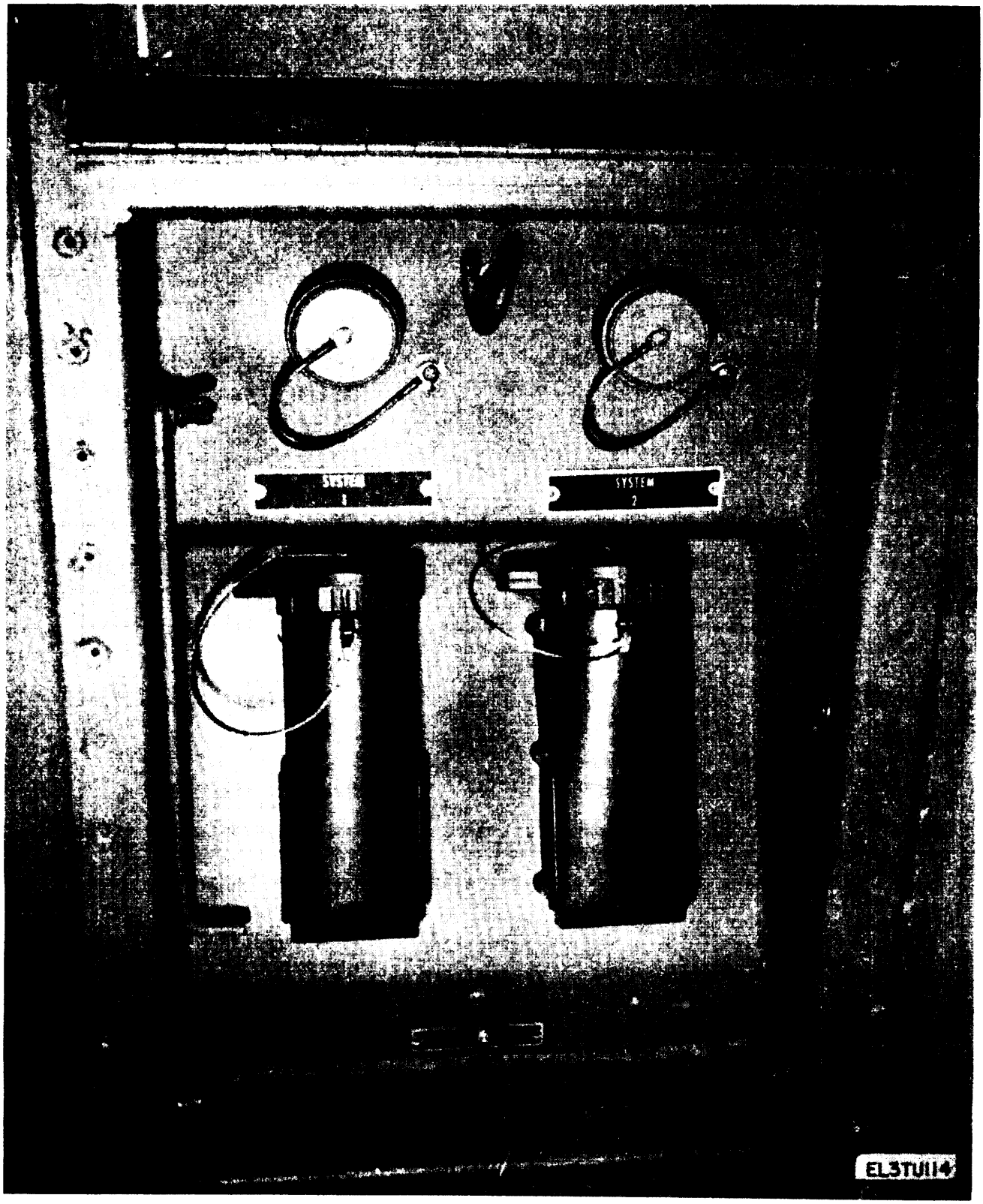


Figure 1-23. DATA AND ANTENNA ENTRANCE BOX less cover (Serial No. 47 and above) AN/TRC-145B.

1–9. Tabulated Data

a. Power Requirements

Input voltage	115 volts ac, ±6V, 50 to 60 Hz, single phase.
Consumption:	
Incandescent lights (4)	100 watts.
Power distribution panel	4 watts.
Exhaust blowers (2)	440 watts.
Fluorescent lights (5)	120 watts.
Electric heater (2)	3,000 watts (only one in use when equipment is used).
AN/GRG103(V)(2)	740 watts.
TD-204/U(2)	124 watts.
or	
TD-754/G(2)	70 watts.
TD-660A/G(2)	90 watts.
or	
TD-660B/G(2)	160 watts.
CV-1548/G(2)	34 watts (idle), 120 watts (all channels ringing).
TSEC/KG-27(2)	80 watts.
LS-147C/FI	40 watts.
TD-1065/G(2)	60 watts (Serial No. 47 and above).
TD-1069/G(2)	250 watts (Serial No. 47 and above).
Maximum total requirement:	
AN/TRG145 and AN/TRC-145A (less heater)	2260 watts.
AN/TRC-145B (less heater)	2475 watts.

b. Telephone Signal Inputs and Outputs.

Number of channels (per system)	12.
Operating modes (selected independently in each channel).	20-Hz signaling, 2-wire. Plug supervision signaling (one way from originator to terminator). No signaling, 2-wire (hybrid only in use). No signaling, 4-wire (channel patched straight through; hybrid not used).
20-Hz signaling, 2-wire:	
From subscriber	20-Hz ringing voltage at 16 volts minimum.
To subscriber	20-Hz ringing at 75 volts minimum (across four lines simultaneously).
Plug supervision signaling, 2-wire: Open or closed tip (t) or ring (r) lead circuit.	Two-way plug supervision with use of 18A4 panel.
Channel characteristics, 2-wire:	
Insertion loss	4.5 dB maximum (250 to 3,500 Hz).
Input and output impedance.	600 ohms (balanced to ground).

[a] TSEC/KG-27 required for secure operations, but not supplied with the assemblage.

c. Pcm Cable Characteristics.

Pulse type	Binary dipulse.
Pulse amplitude:	
To cable	2 volts peak.
From cable	30 mv nominal.
Input and output impedance	62 ohms.
Pulse rate and interval:	
6-channel	288 kHz; 3.472 µsec.
12-channel	576 kHz, 1.736 µsec.
24-channel	1,152 kHz, 862 nsec.
48-channel	2,304 kHz, 434 nsec.
Cable type	CX-4245/G or equivalent
Order wire:	
Facility	Baseband channel independent of pcm traffic.
Frequency response	300 to 1,700 Hz.
Signaling frequency	1,600 Hz.
Transmit level	9 volts rms minimum at 880 ohms.
Receive level	Adjustable 150 mv to 16 volts rms across 880 ohms.

d. TD-1065/G.

Input data rates	16 or 32 Kilobits per second (Kbs).
Frame length	1152 bits.

e. TD-1069/G.

Input/output data rates	Data at 600, 1200, 2400, 4800, or 9600 bits per second (bps) ±50 ppm.
Multiplex rate	32 Kbx ±30 ppm.
TD-1065/G Input Data Rates	16 or 32 Kilobits per second (Kbs).

f. Radio Characteristics.

NOTE

The operating frequency of the radio equipment is determined by the receiver and transmitter radiofrequency (rf) heads and antenna elements supplied with the assemblage (band I, II, or III). The rf heads and antenna elements are normally shipped with the assemblage in accordance with operating frequency assignment for specific localities. The rf heads and antenna elements may be requisitioned and turned in through normal supply channels consistent with required frequency assignments.

Modulation	Frequency modulation (fm).
Operating bands:	
Band 1:	
Frequency range	220.0 to 404.5 MHz.
Channels	40 through 409.
Band II:	
Frequency range	394.5 to 705.0 MHz.
Channels	389 through 1,010.
Band II:	
Frequency range	695.0 to 1,000 MHz.
Channels	990 through 1,600.

Channel separation ..... 0.5 MHz.
Transmitting power:
Band I ..... 25 watts minimum.
Band II ..... 15 watts minimum.
Band III ..... 15 watts minimum.
Receiver sensitivity ..... 94 dBm.
Minimum transmitter-to-receiver frequency separation required.
16.5 MHz (33 channels).
Maximum receiver input ..... 10 dBm.
Receiver noise figure ..... 9 dB nominal (11 dB maximum).
Pcm pulse rate and interval:
6-channel ..... 288 kHz 3.472 µsec.
12-channel ..... 576 kHz, 1.736 µsec.
Order wire:
Output impedance ..... 600 ohms unbalanced.
Output level ..... -10 dBm (2 outputs).
Input impedance ..... 600 ohms unbalanced.
Input level ..... -10 dBm (2 inputs).
Handset receive level .... -18 dBm.
Sidetone level ..... -24 dBm.
Ringing frequency ..... 1,600±8 Hz.
Ringing level ..... -10 dBm ±1.

g. Antenna Characteristics.

Impedance ..... 50 ohms unbalanced.
Voltage standing wave ratio:
Band I ..... 1.75 maximum.
Band II ..... 1.5 maximum.
Band III ..... 1.75 maximum,
Gain:
Band I:
220 MHz ..... 6.5 dB.
400 MHz ..... 8.0 dB.
Band H:
400 MHz ..... 8.0 dB.
700 MHz..... 8.5 dB.
Band III:
700 MHz ..... 8.5 dB.
1,000 MHz ..... 9.5 dB.

h. Local Communications Facilities.

Intercom ..... LS-147C/FI. tw
Telephone Set ..... TA-312/PT.

i. Mechanical Characteristics.

Dimensions:
Length ..... 85 inches.
Width ..... 79 inches,
Height ..... 70 inches.
Volume ..... 272 cu ft.
Gross weight ..... 2636 lb[a], 2670 lb[b]
Load per skid ..... 5.37 lb per sq in.[a], 5.44 lb per sq in.[b]

[a] Plain and A Mod.
[b] B Model.

1-10. Differences in Models

The different models of the AN/TRC-145(*) are so designated because of the different equipment installed in the shelter facility (S-390/TRC-145). The different models and the major equipment that comprise these models are designated in table 1-1.

NOTE

Some later versions (serial number 47 and above) of the S-390/TRC145 shelters may be constructed without air-conditioner ports, ducts, or mounting kits.

AN/TRC-145(*)

Table 1-1. Differences in Models

Equipment	AN/TRC-145			AN/TRC-145A			AN/TRC-145B		
	(V)1	(V)2	(V)3	(V)1	(V)2	(V)3	(V)1	(V)2	(V)3
Radio Set AN/GRC-103(V)1	2			2			2		
Radio Set AN/GRC-103(V)2		2			2			2	
Radio Set An/GRC-103(V)3			2			2			2
Multiplexer TD-204/U	2	2	2						
Multiplexer TD-754/G				2	2	2	2	2	2
**High Speed Serial Data Buffer TD-1065( )/G							**2	**2	**2
*Time Division Digital Multiplexer TD-1069/G							*2	*2	*2
Signal Converter CV-1548/G	2	2	2	2	2	2	2	2	2
Multiplexer TD-660/G	2	2	2	2	2	2	2	2	2
*TSEC/KG-27	*2	*2	*2	*2	*2	*2	*2	*2	*2

* Optional
** Optional - installed in place of CV-1548/G

CHAPTER 2
SERVICE UPON RECEIPT AND INSTALLATION

Section I. SYSTEMS PLANNING AND SITE AND SHELTER REQUIREMENTS

2-1. Systems Planning

The two equipment sets of the AN/TRC-145(*) may be arranged to provide communications as a terminal *(a* below), a repeater *(b* below), or a cable-to-radio conversion facility *(c* below), or the AN/TRC-145B *(d* below).

These applications of the AN/TRC-145(*) are shown in figure 2-1.

a. Terminal arrangements for the AN/TRC-145(*) may be as follows:

(1) Each equipment set may individually provide a 6- or 12-channel nonsecure radio terminal facility (fig. 2-2), or a 6- or 12-channel secure radio terminal facility (fig. 2-3).

(2) Each equipment set may individually provide a 6- or 12-channel nonsecure cable terminal facility (fig. 2-4), or a 6- or 12-channel secure cable terminal facility (fig. 2-5).

(3) Both equipment sets may together provide a 24-channel nonsecure cable terminal facility (fig. 2-6), or a 24-channel secure cable terminal facility (fig. 2-7).

b. Repeater arrangements for the AN/TRC-145(*) may be as follows:

(1) Both equipment sets may together provide a 6-, 12-, 24-, or 48-channel cable repeater facility (fig. 2-6).

(2) Both equipment sets may together provide a 24-channel cable repeater with a 12-channel nonsecure drop and insert facility (fig. 2–9, or a 24-channel cable repeater with a 12-channel secure facility (fig. 2-10).

(3) Both the equipment sets may together provide a radio repeater facility (fig. 2-11).

c. Each equipment set may individually provide a 12-channel cable-to-radio conversion facility (fig. 2-12).

d. AN/TRC-145B consists of two equipment sets capable of the following:

(1) Both the equipment sets may provide a nonsecure 12-channel radio repeater facility (fig. 2-11).

(2) Both equipment sets may together provide a secure 12-channel radio repeater facility (fig. 2-12.1).

(3) Each equipment set may individually protide a 12-channel secure radio terminal facility (fig. 2-12.2).

(4) Each equipment set may individually provide a nonsecure 12-channel radio terminal facility (fig. 2-12.3).

(5) Each equipment set may individually provide a secure 23-channel radio terminal facility (fig. 2-12.4).

(6) Each equipment set may individually provide a nonsecure 23-channel radio terminal facility (fig. 2-12.5).

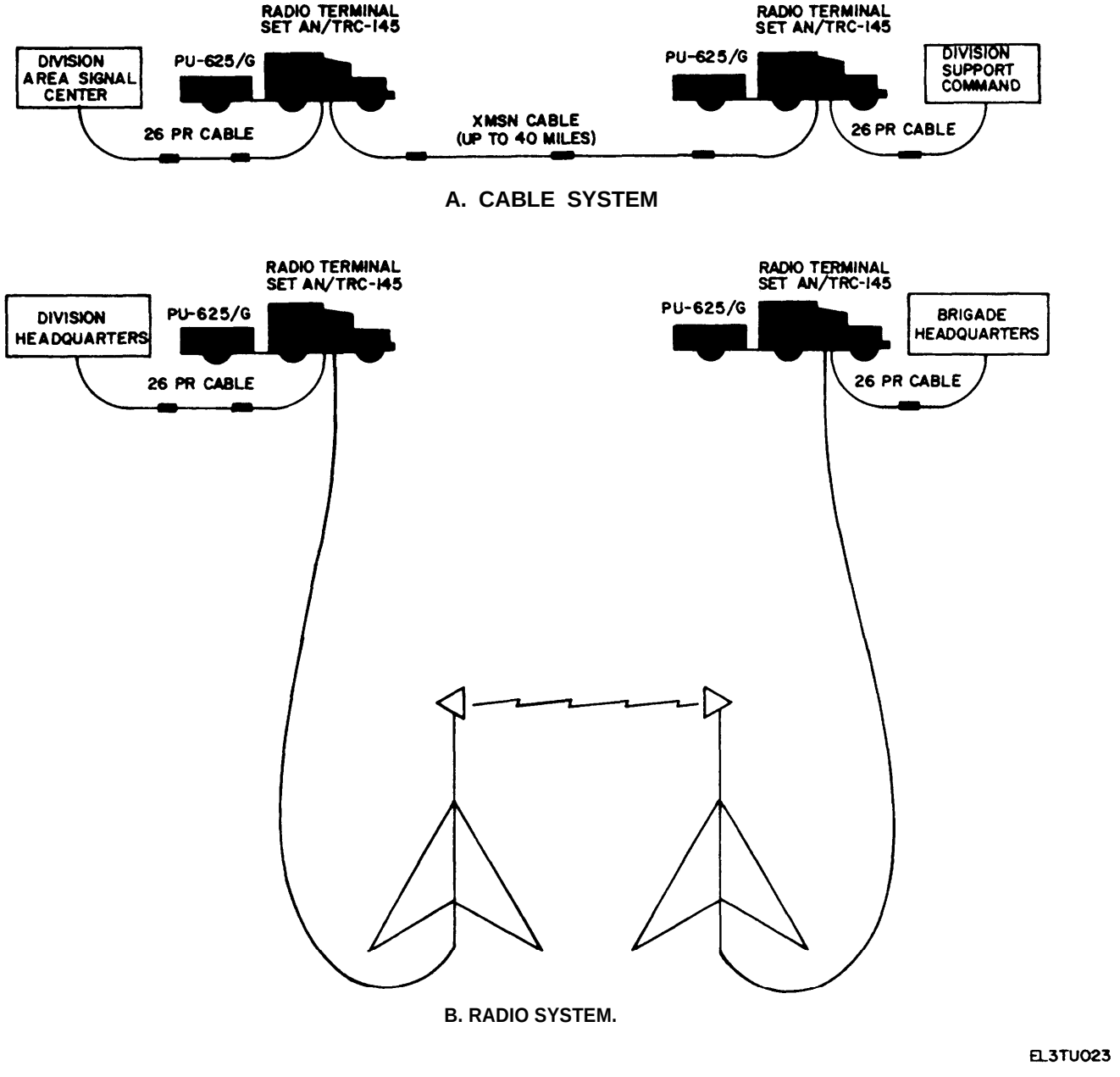


Figure 2–1. Typical systemapplication.

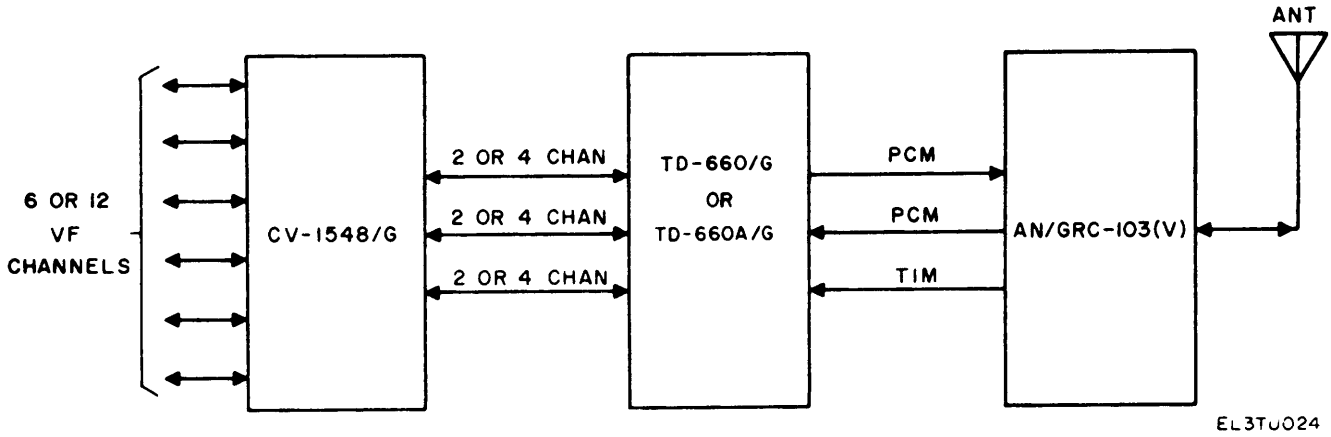


Figure 2-2. 6- or 12-channel nonsecure radio terminal application, block diagram.

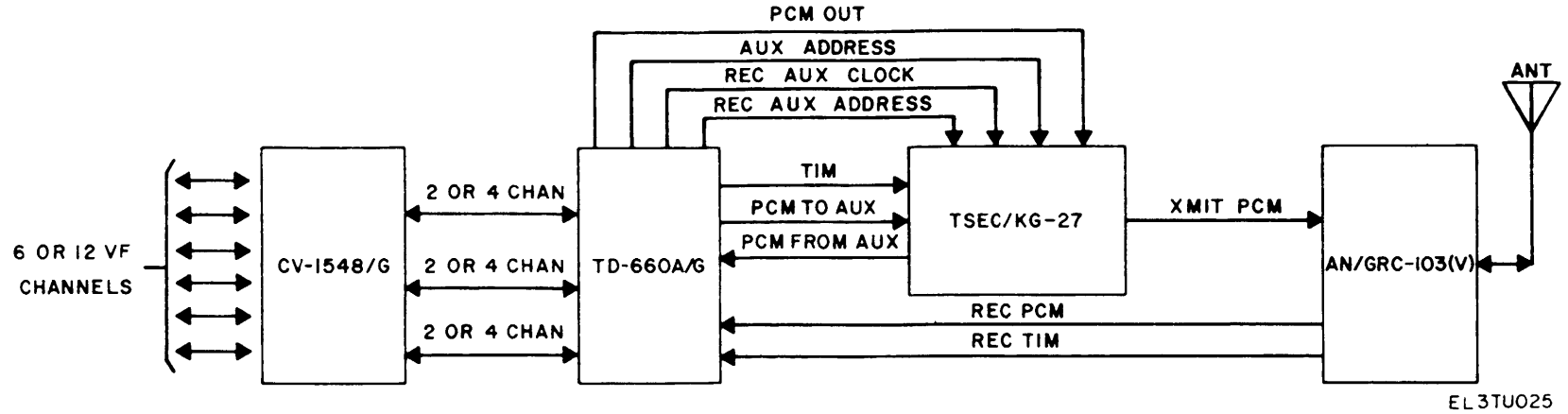


Figure 2–3. 6- or 12-channel secure radio terminal application, block diagram.

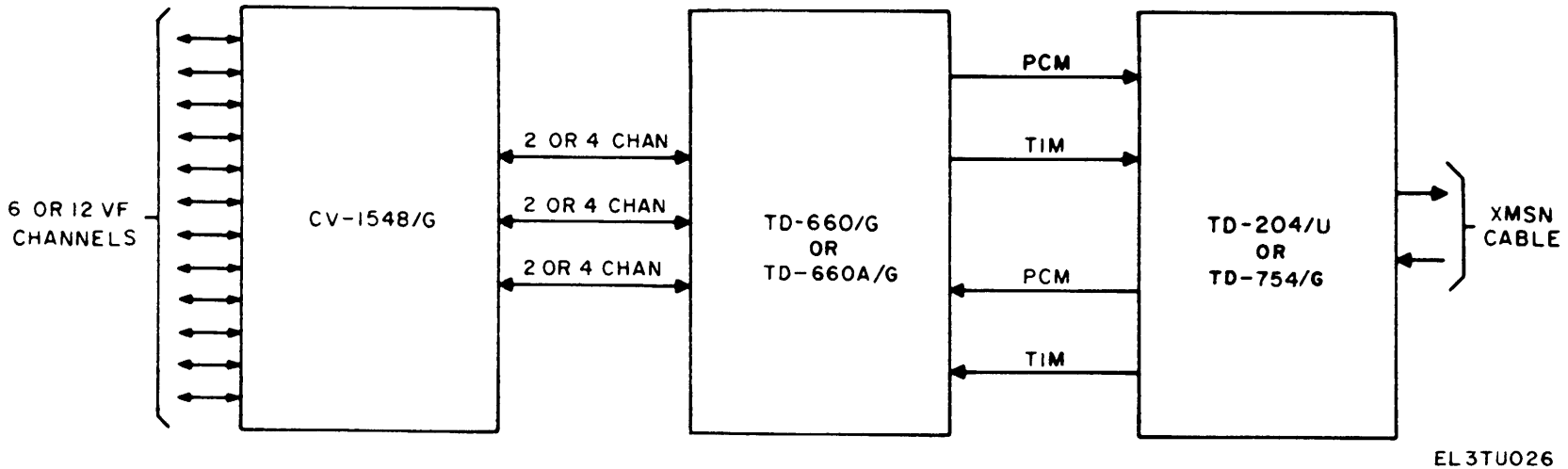


Figure 2–4. 6- or 12-channel nonsecure cable terminal application, block diagram.

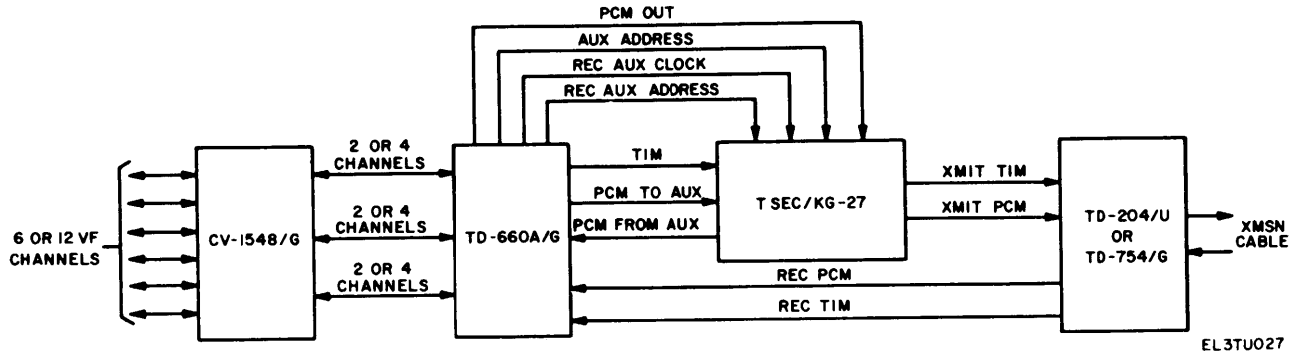


Figure 2-5. 6- or 12-channel secure cable terminal application, block diagram.

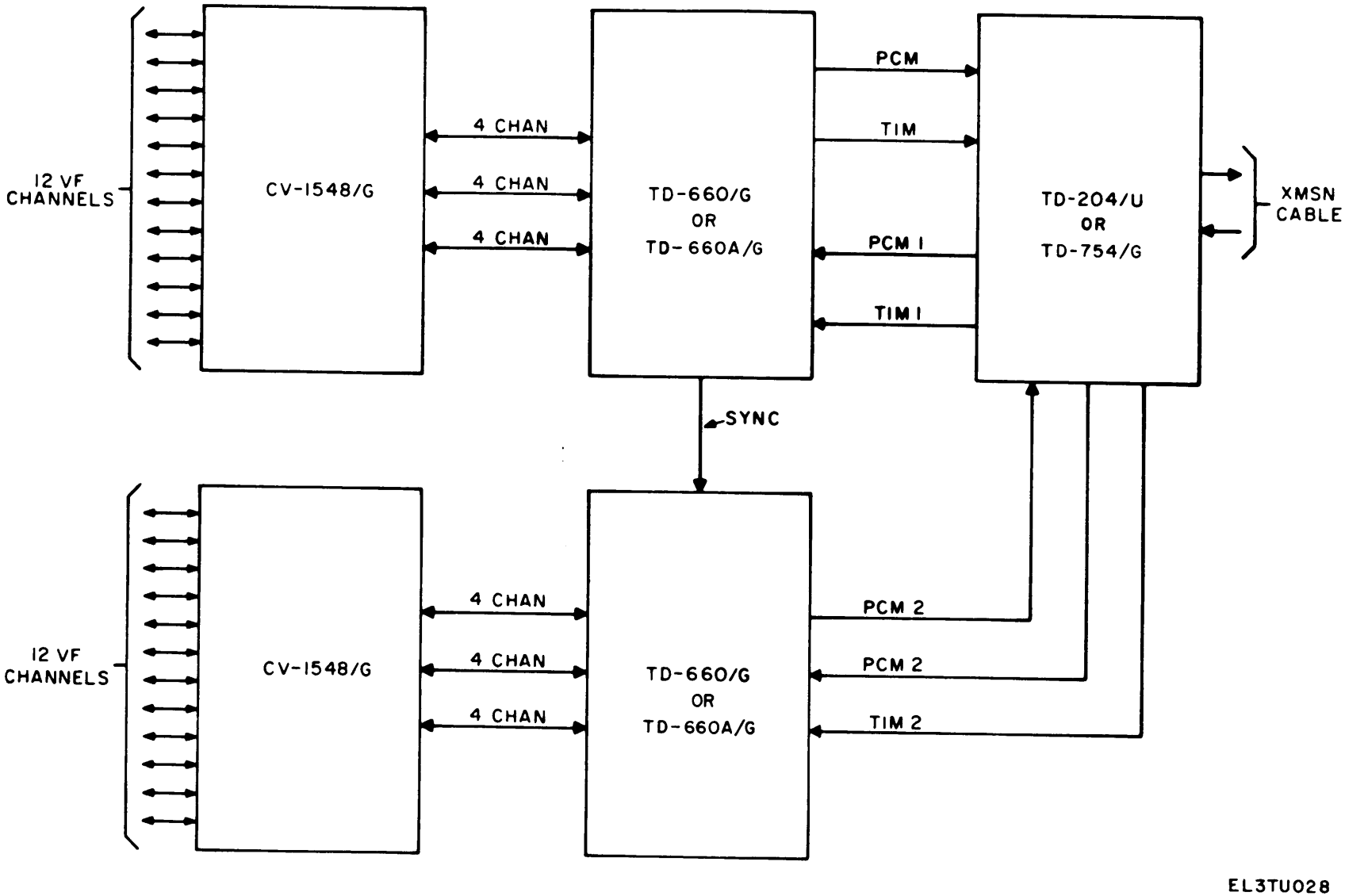


Figure 2-6. 24-channel nonsecure cable terminal application, block diagram.

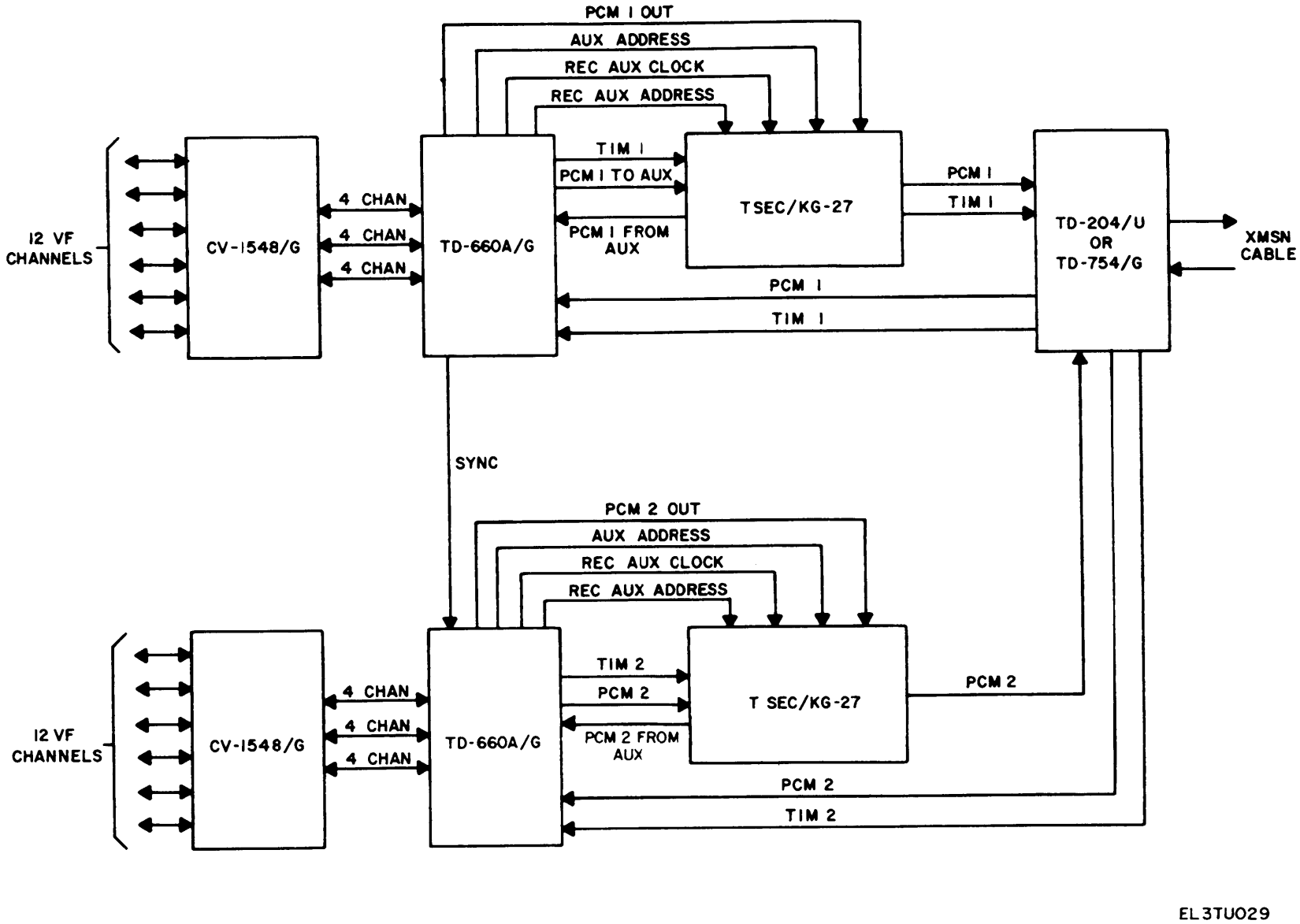


Figure 2-7. 24-channel secure cable terminal application, block diagram.

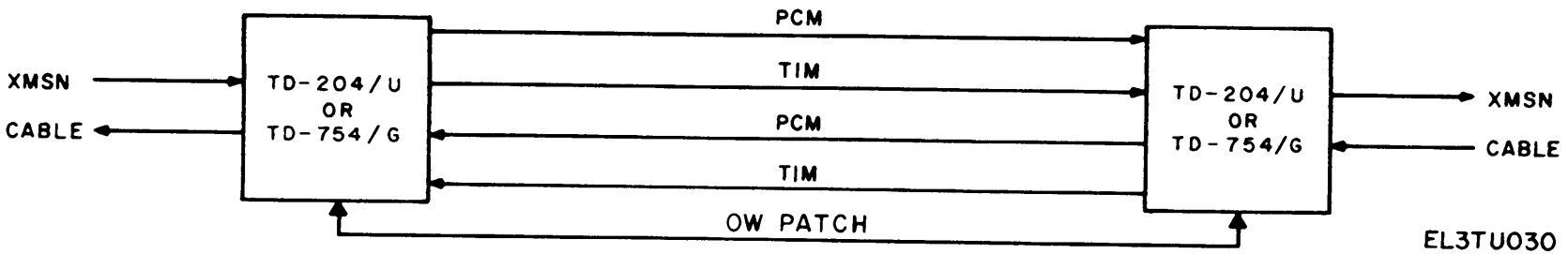


Figure 2-8. 6-, 12-, 24-, or 48-channel cable repeater application, block diagram.

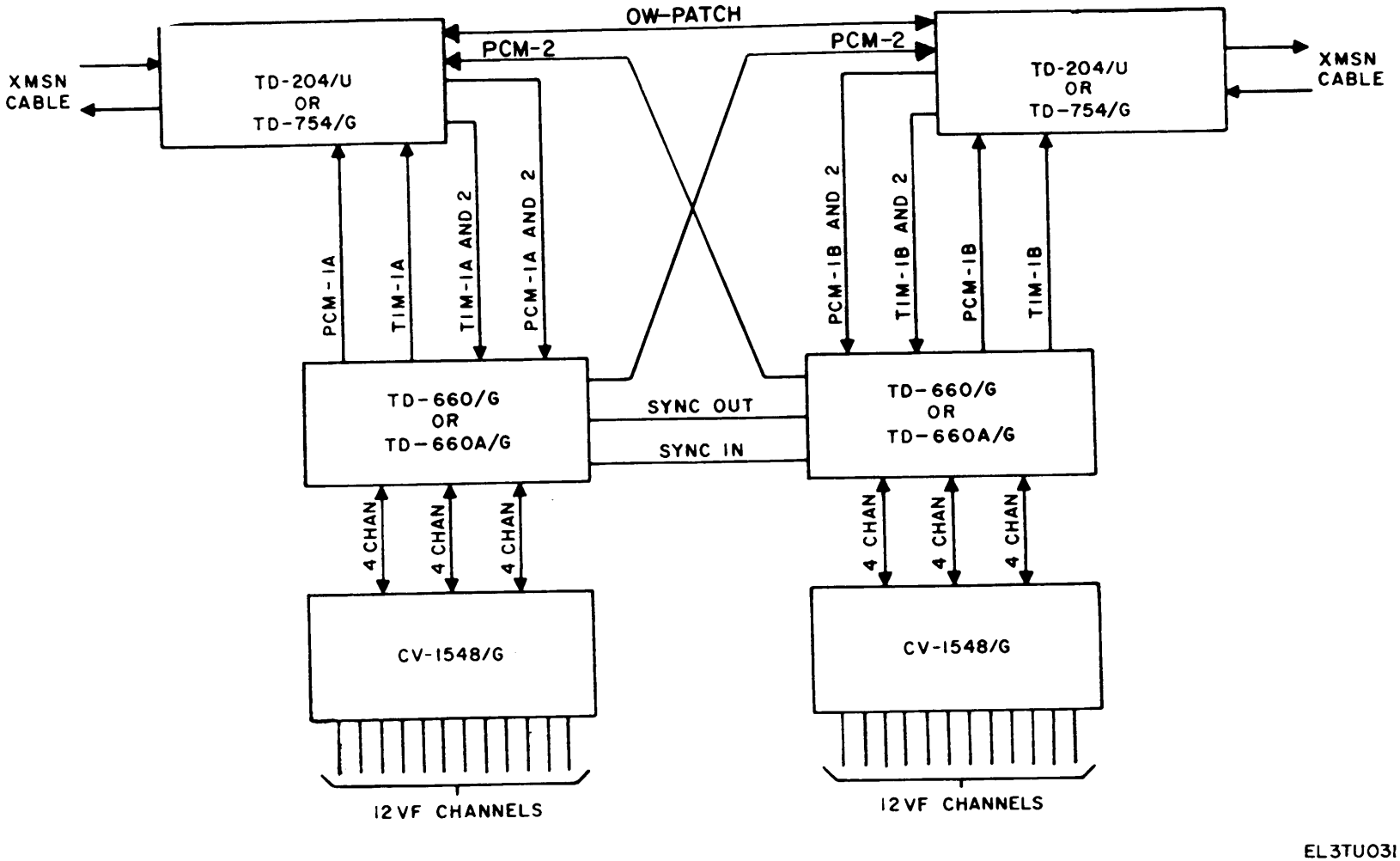


Figure 2-9. 24-channel cable repeater with 12-channel drop and insert nonsecure, block diagram.

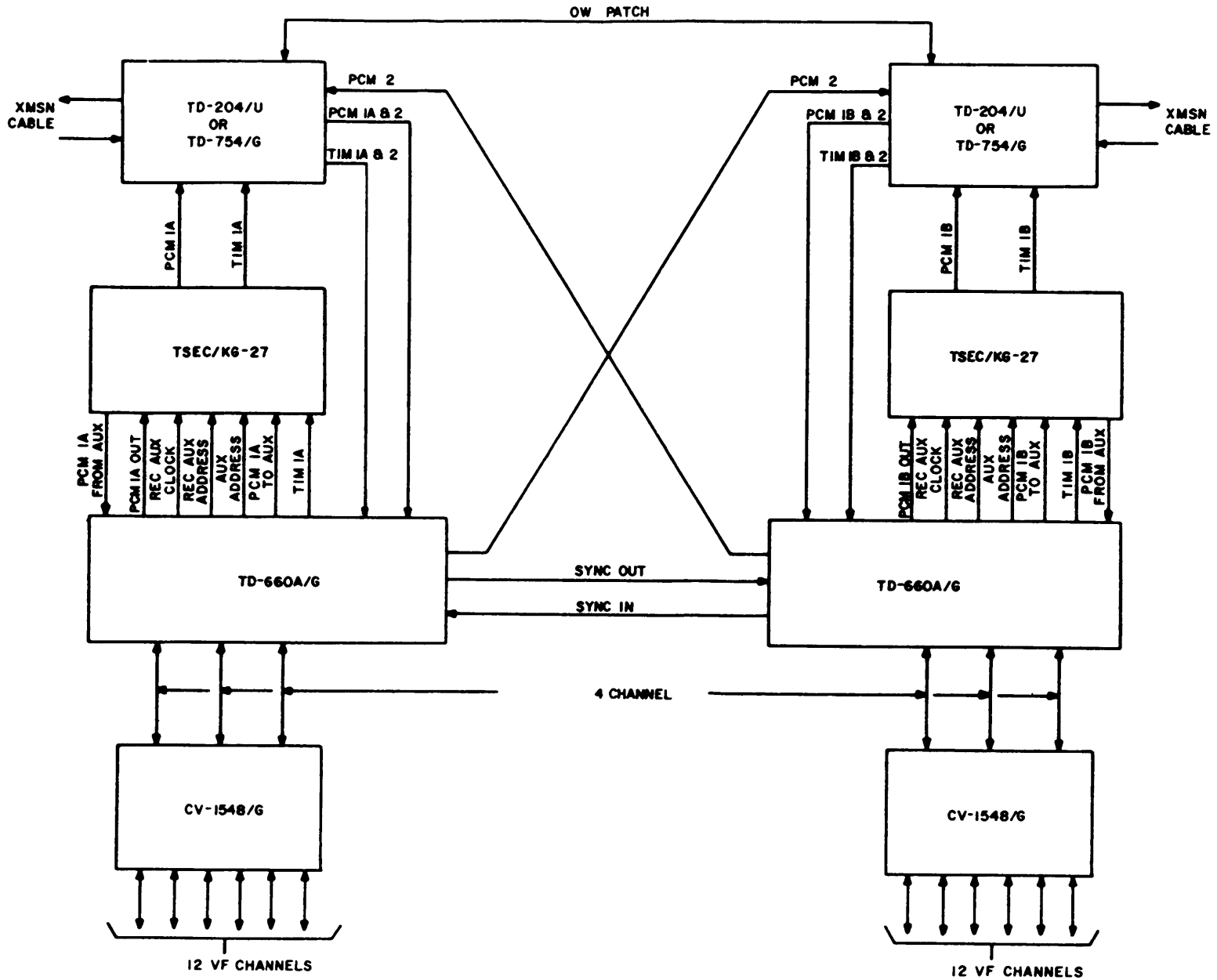


Figure 2-10. 24-channel cable repeater with 12-channel drop and insert secure, block diagram.

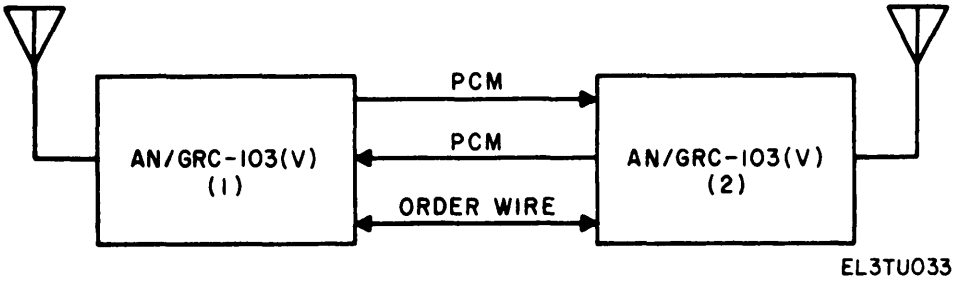


Figure 2-11. Radio Repeater application, block diagram.

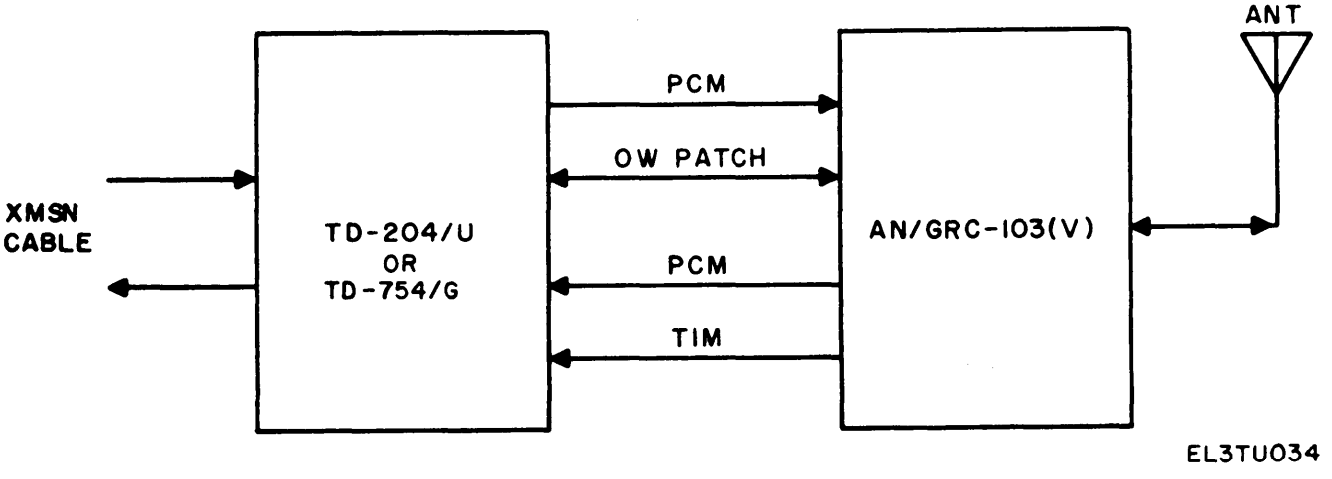


Figure 2-12. 12-channel cable-to-radio conversion application, block diagram.

All data on page 2-12 including figure 2-12.1 deleted

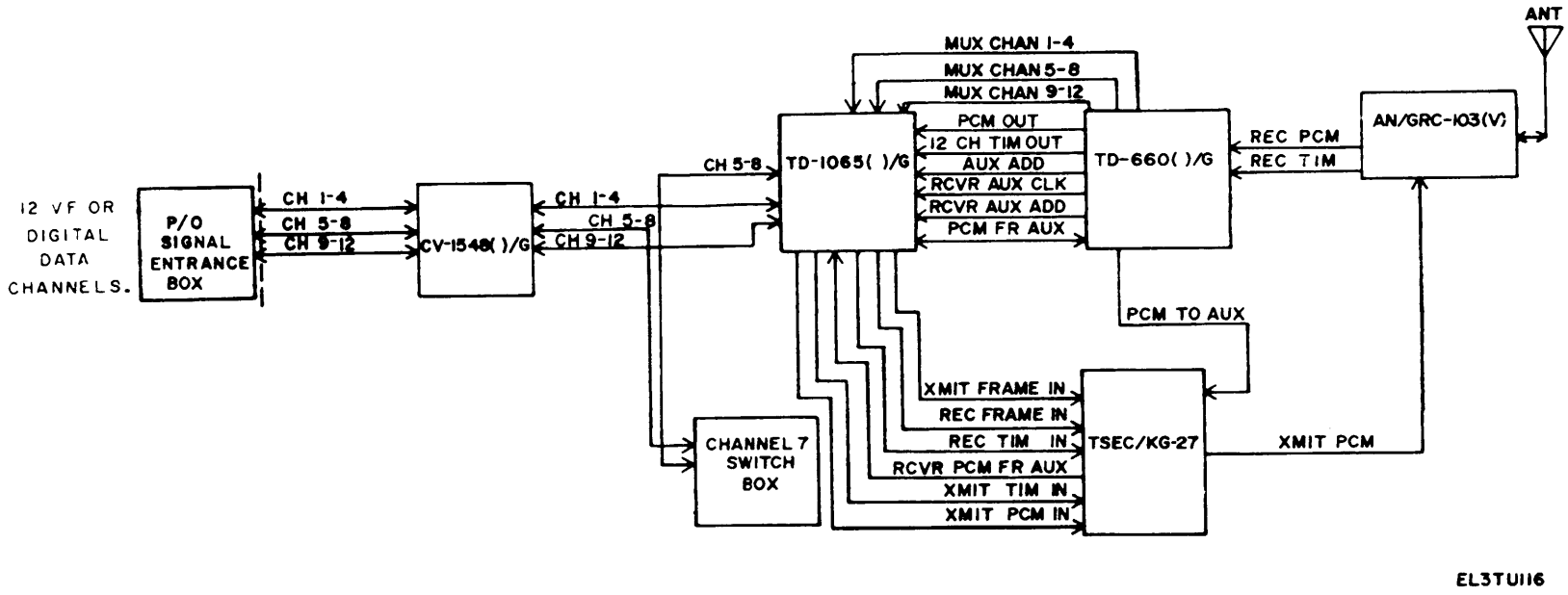


Figure 2-12.2. Secure 12-channel radio terminal application, block diagram (serial No. 47 and above) AN/TRC-145B.

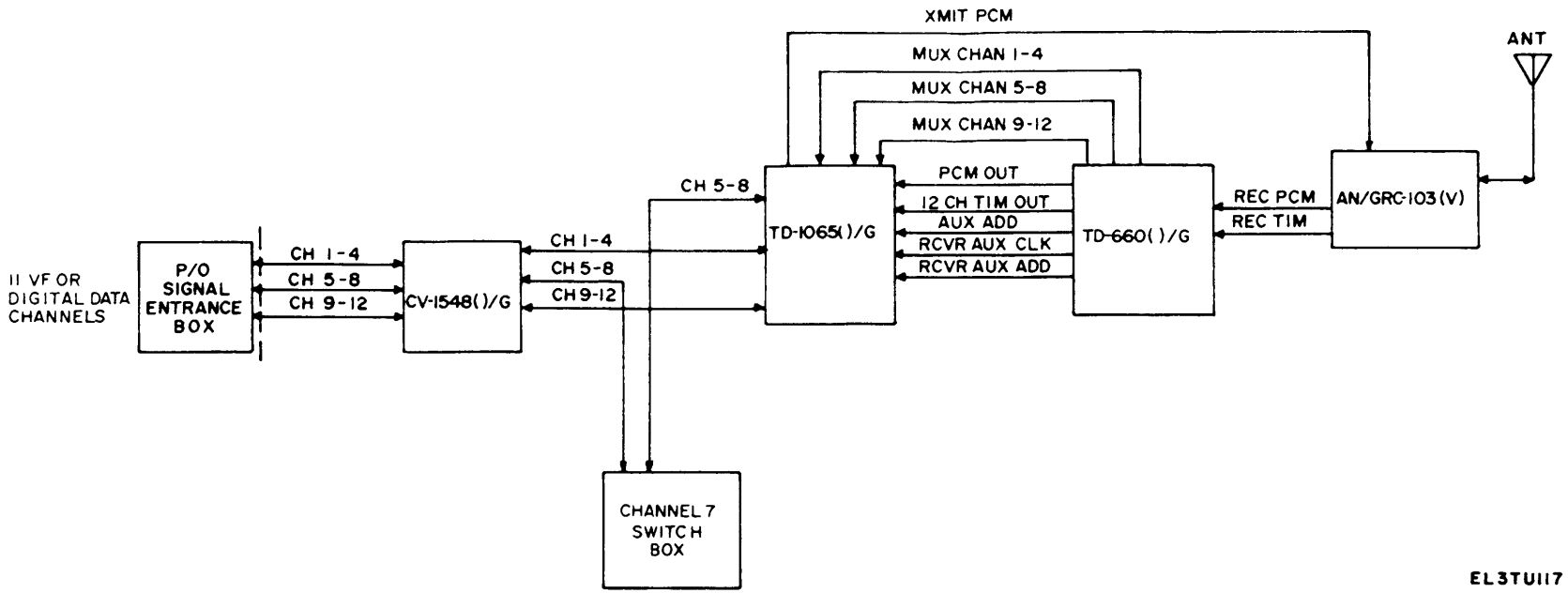


Figure 2-12.3. Nonsecure 12-channel radio terminal application, block diagram (serial No. 47 and above) AN/TRC-145B.

2–2. Siting

The best operating site for the AN/TRG145(*) is determined by the tactical situation and other local conditions. The assemblage may be placed on the ground or may be installed on the back of a 1¼ ton cargo truck. If the radio equipment is to be used, sufficient open area must be provided close to the assemblage for the erection of the antenna mast assemblies. The area around the antennas should be free of powerlines, towers, poles, and other obstructions. If a PU-625/G or other generator set is used to provide ac power to the AN/TRC-145(*), it should be located approximately 75 feet away from the assemblage to minimize the fire hazard and generator noise interference. In connecting the assemblage, do not run powerlines parallel to signal cables.

Section II. SERVICE UPON RECEIPT OF MATERIEL

2–3. Unpacking.

a. Packaging Data. The AN/TRC145(*) is packed in a reusable wooden crate. The S-390/TRC145, which houses the equipment, is anchored to eyebolts in the skid base of the crate and is blocked at the sides and ends with lumber. The skid base has entries for handling with a forklift. The crated dimensions are 91 by 87 by 76 inches. The volume is 350 cubic feet, and the weight of the crated AN/TRC-145(*) is approximately 1,675 pounds (serial No. 1 through 46) or 2,000 pounds (serial No. 47 and above).

b. Removal From Crate.

(1) Unfasten the lag screws with wrenches and remove the top, end, and side panels from the crate base.

(2) Loosen the turnbuckles and detach the sling assemblies from the eyebolts in the crate base.

(3) Remove the wood blocking from the ends and sides of the AN/TRC145.

CAUTIBON

Be careful when handling tools, because the aluminum skin of the S-390/TRC-145 can be easily damaged.

(4) Remove the S-390/TRC-145 from the crate base. Use overhead lifting equipment whenever possible. If overhead lifting equipment is not available, remove the headers from the crate base, and drag the S-390/TRC-145 from the crate base by the towing eyes. A forklift may be used to lift the S-390/TRC-145 from either end of the crate base, if the prongs of the forklift are carefully inserted between the S-390/TRC-145 and the crate base. If a forklift is used, be extremely careful, because the skin of the S-390/TRC-145 may be easily damaged by the prongs of the forklift.

(5) Forward the crate (reassembled, or with the sections tied together) to a local storage area, if practicable. The crate may be reused for shipment of similar items.

NOTE

The power cable (serial No. 1 through 46 only) and the AN/GRC-103(V) antenna components are stowed on the PU-625/G trailer. The power cable (serial No. 47 and above) is stored in the assemblage (fig. 1-11).

2–4. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364 (para 1-3).

b. Check the equipment against the component listing in the operator's manual and the packing slip to see if the shipment is complete. Report all discrepancies in accordance with paragraph 1-3. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWO's have been applied. (Current MWO's applicable to the equipment are listed in (INSCOM) USASA Pam 310-6 DA Pam 310-1 as applicable.)

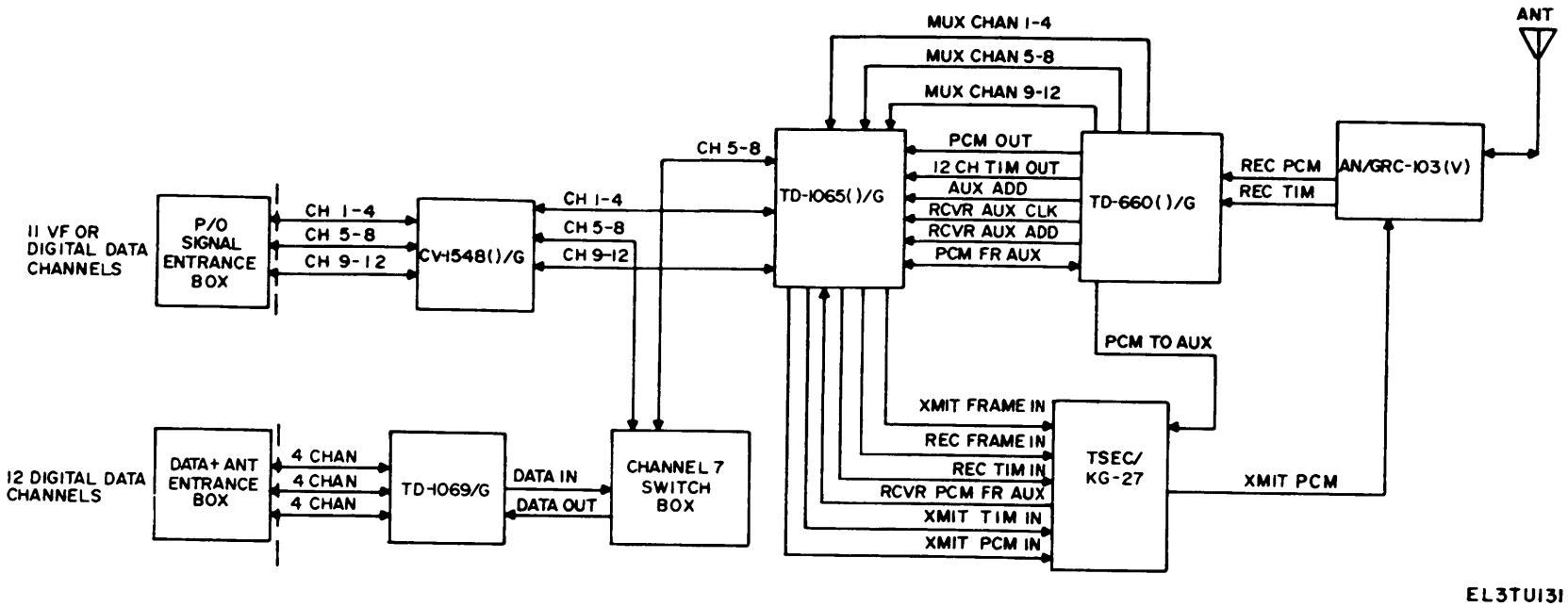


Figure 2-12.4. Secure 23-Channel Radio Terminal Application, Block Diagram (Serial No. 47 and above) AN/TRC-145B.

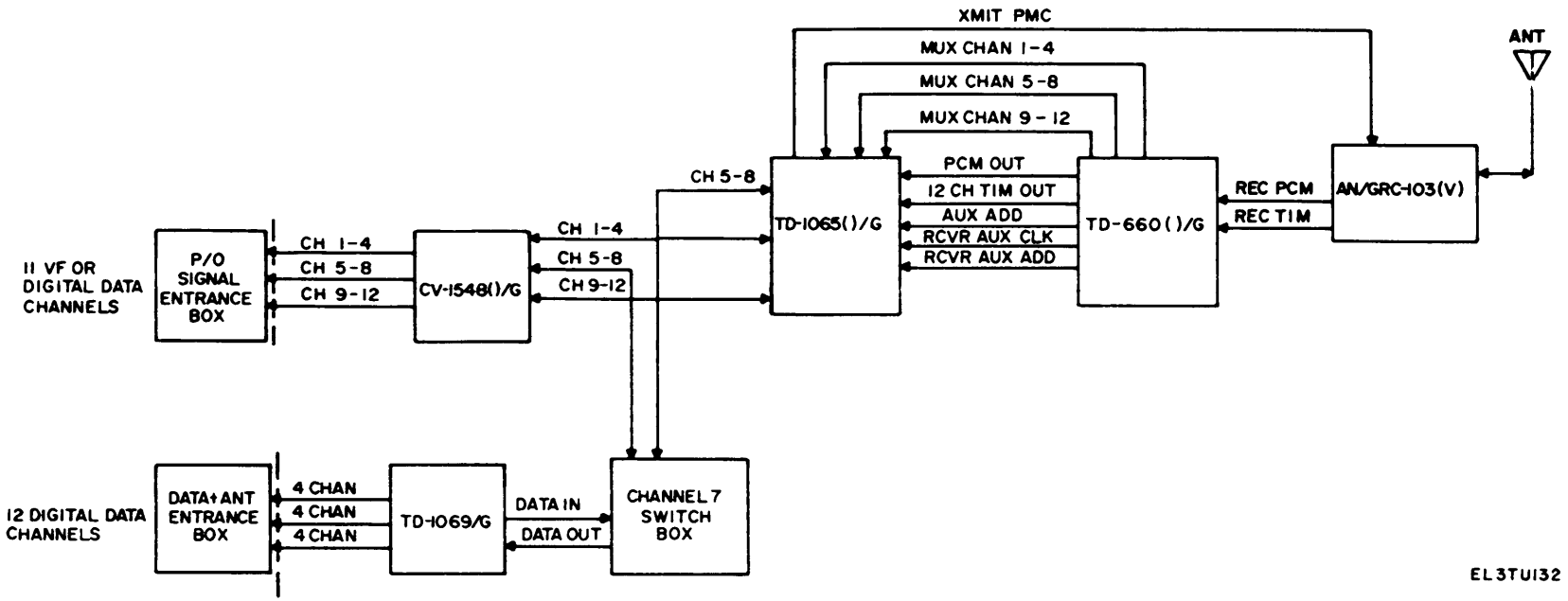


Figure 2-12.5. Nonsecure 23-Channel Radio Terminal Application, Block Diagram (Serial No. 47 and Above) AN/TR-145B.

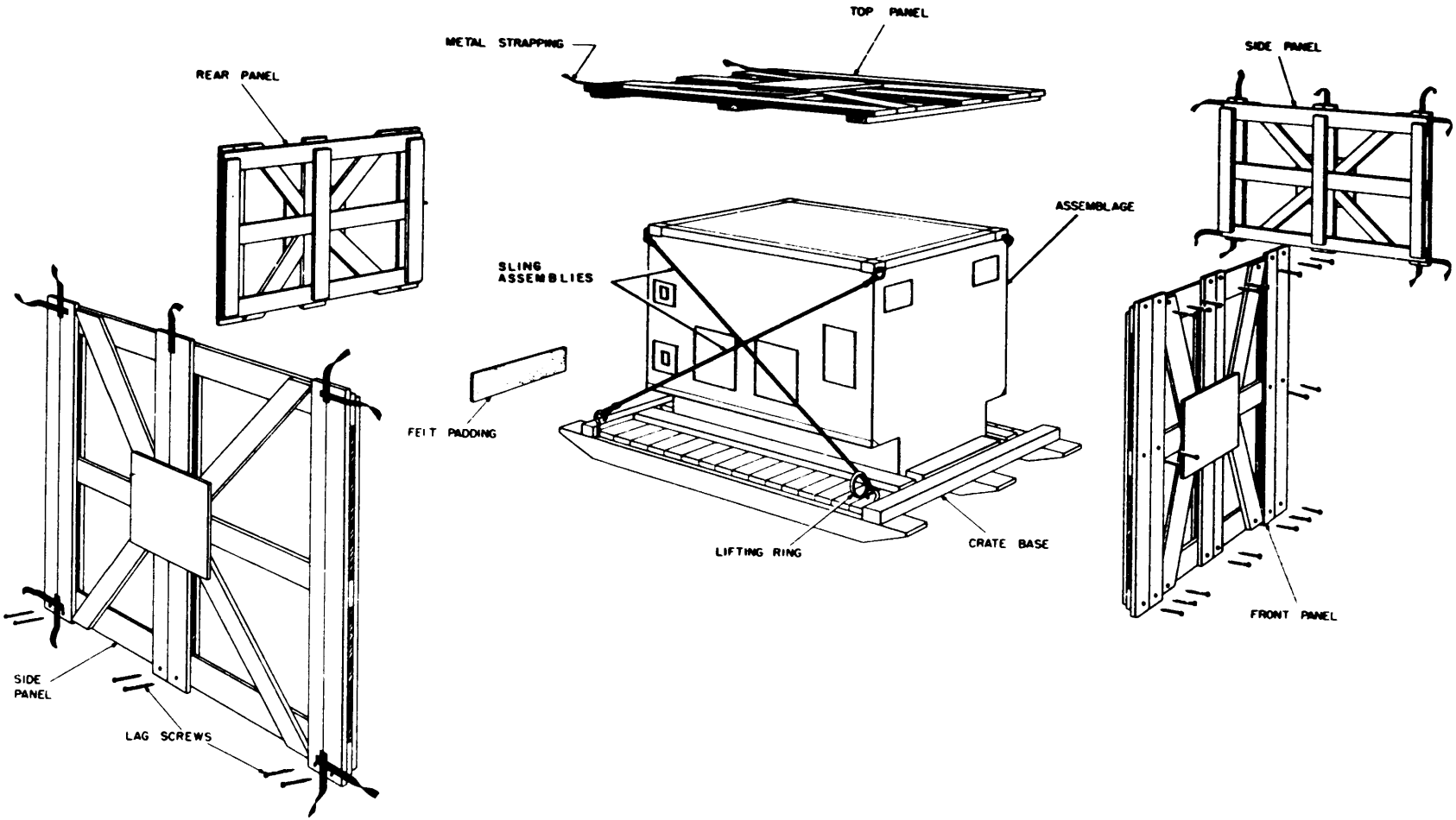


Figure 2-13. Typical packaging diagram.

Section III. INSTALLATION INSTRUCTIONS

2-5. Assemblage Installation

NOTE

To install the AN/TRC-145(*) on the ground or on a truck, four people and a device capable of lifting 1900 pounds are required (2000 pounds serial No. 47 and above).

a. Ground Installation. When installed on the ground, the AN/TRC-145(*) should be placed on a firm, dry surface with good drainage. The site should be prepared and leveled. If possible, the assemblage should be placed on concrete blocks or wooden beams, and positioned so as to facilitate connection of power and signal cables.

b. Truck Installation.

(1) Use the sling hooks (nearest turnbuckles) to connect the sling assemblies to the lifting and tiedown eyes of the assemblage (fig. 2-14). Connect the sling hooks at the opposite ends of the cables to the lifting ring, and place the lifting ring over the lifting hook of the lifting device.

WARNING

To avoid injury to personnel or damage to equipment, only personnel engaged in the actual loading operation should be permitted near the truck, lifting device, and assemblage. To eliminate confusion, all instructions must come from the loading crew supervisor.

(2) Tie a ½-inch rope (at least 15 feet long) at each rear towing eye.

(3) Lower the tailgate of the truck; make sure that all tools and equipment have been removed from the body of the truck, Slowly lift the assemblage high enough to clear the body of the truck.

NOTE

The entrance door of the assemblage must be at the rear of the truck, and the front end of the assemblage must be flush against the front of the truck body.

(4) Position a person at the free end of each of the ½-inch ropes to guide the assemblage. Back the truck slowly into position under the assemblage and slowly lower the assemblage into the truck.

WARNING

All personnel must remain clear of the truck while the assemblage is being lowered onto the truck.

(5) Remove the lifting ring from the lifting hook and disassemble the lifting ring and the sling hooks. Remove the ½-inch ropes from the rear towing eyes. Raise and secure the truck tailgate.

(6) Use two sling assemblies at each side of the assembly to secure the assemblage to the truck as shown in figure 2-15.

CAUTION

Do not overtighten turnbuckles. Overtightening turnbuckles will damage the assemblage.

(7) Tighten all turnbuckles evenly by hand, and then turn each turnbuckle an additional one-half turn with a bar or rod inserted into the slot of the turnbuckle.

(8) After the truck is driven to the operating site, lower the tailgate to the horizontal position; then remove the boarding ladder from the assemblage and secure it to the left side of the tailgate,

c. Unloading Assemblage. To unload the assemblage from the truck, reverse the procedures given in *b* above.

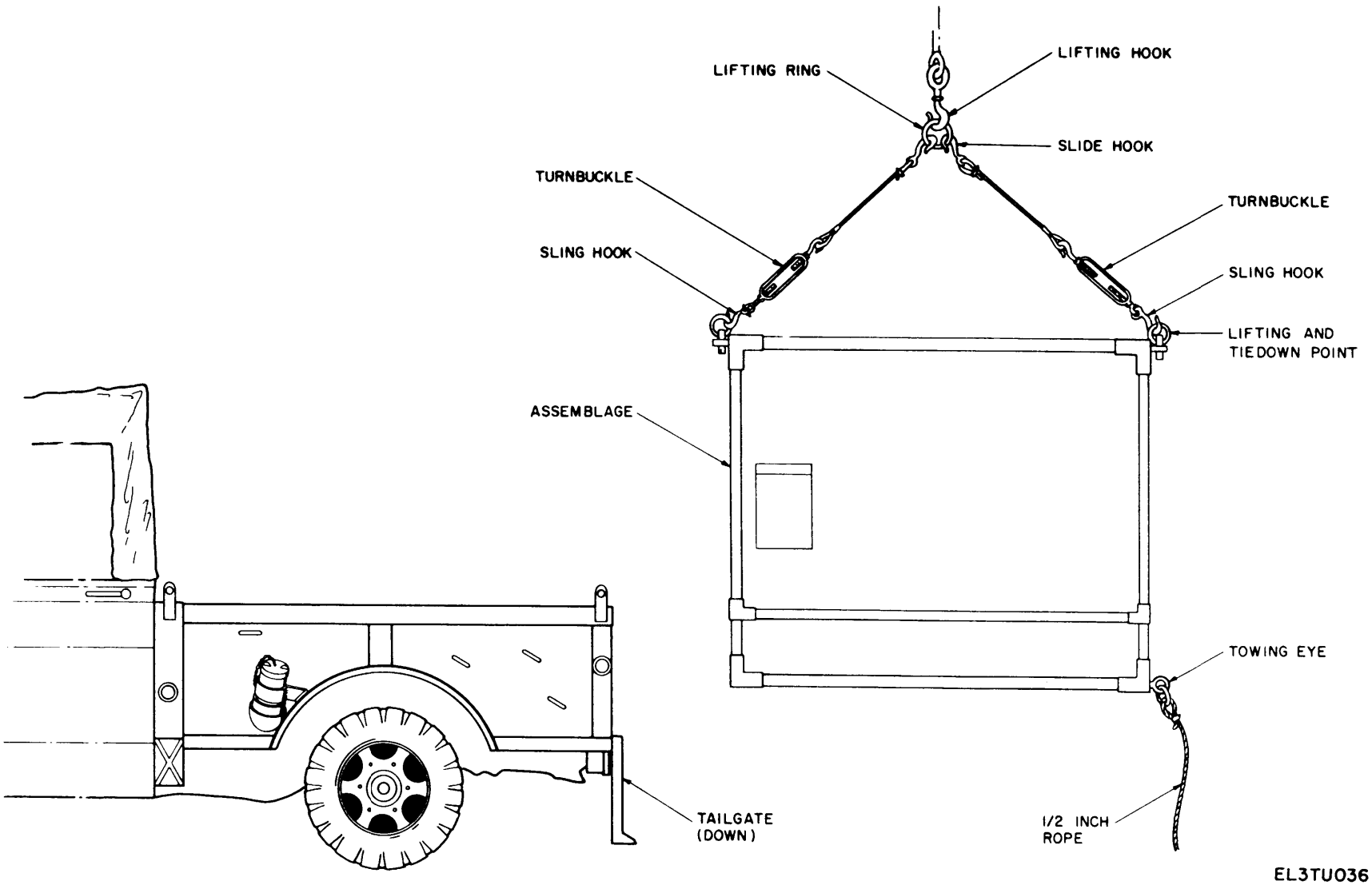


Figure 2-14. Lifting and loading AN/TRC-145(*) onto truck.

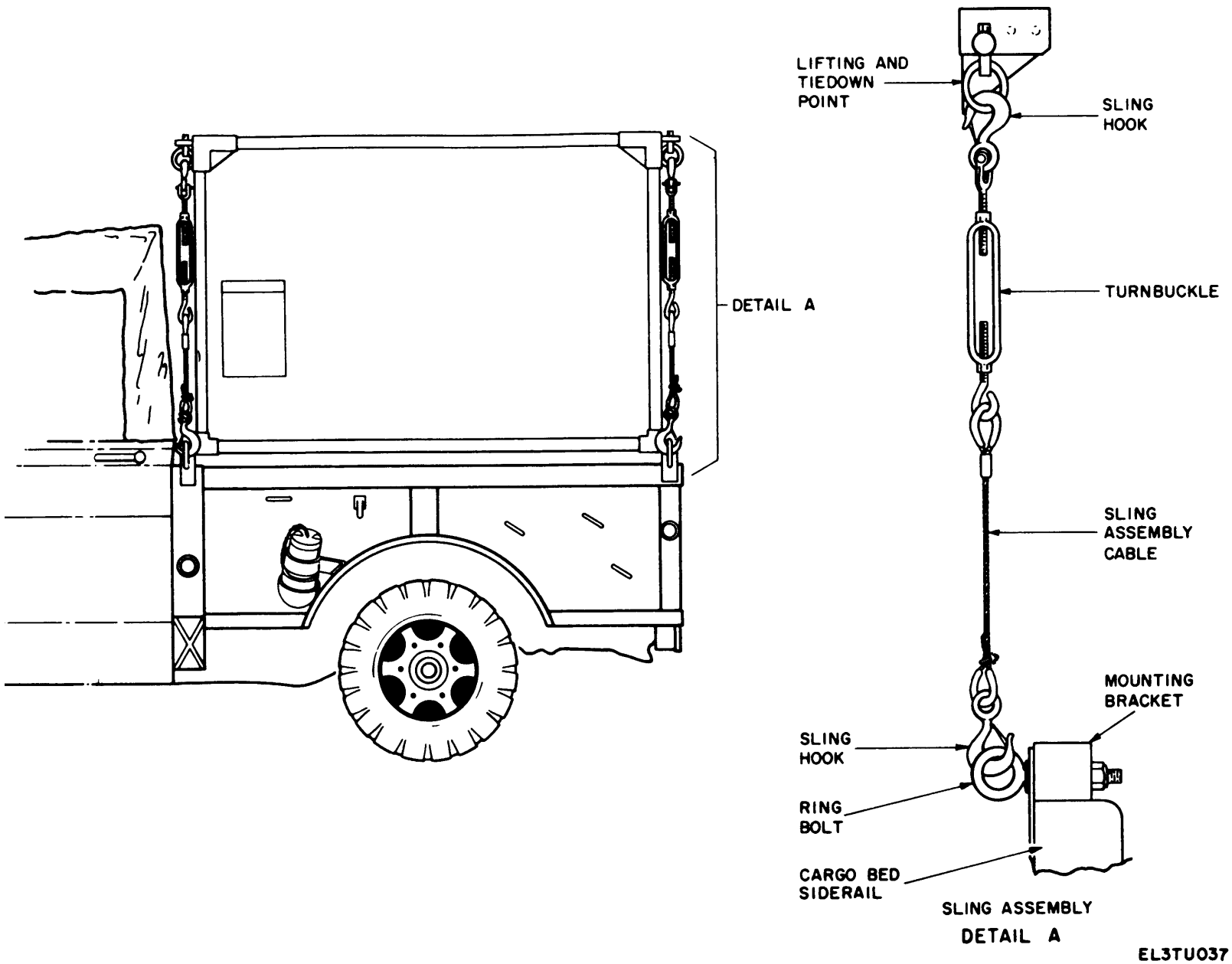
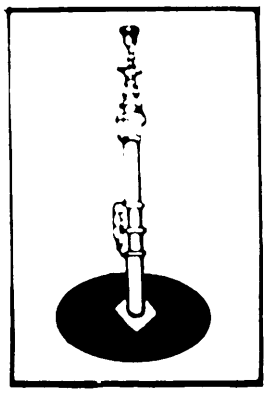


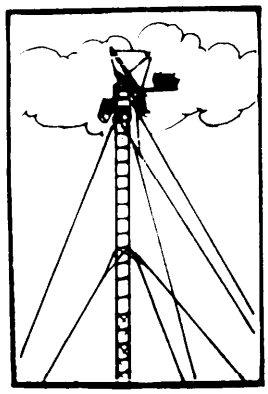
Figure 2-15. Securing AN/TRC-145(*) onto truck.

FIXED OPERATION WITH LONG RANGE ANTENNAS

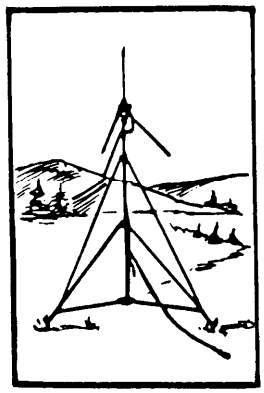
WARNING



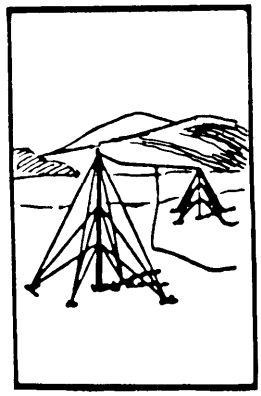
TELESCOPING ANTENNA MAST



TYPICAL TOWER



EXTENDED RANGE ANTENNA



DOUBLET ANTENNA

NEVER ERECT THESE LONG RANGE ANTENNAS DIRECTLY UNDER POWER LINES.

IF YOU MUST ERECT THESE LONG RANGE ANTENNAS NEAR POWER LINES, POWERLINE POLES OR TOWERS, OR BUILDINGS WITH OVERHEAD POWERLINE CONNECTIONS, NEVER PUT THE ANTENNA CLOSER THAN TWO TIMES THE ANTENNA HEIGHT FROM THE BASE OF THE POWERLINE, POLE, TOWER OR BUILDINGS.

NEVER ATTEMPT TO ERECT ANY LONG RANGE ANTENNA WITHOUT A FULL TEAM.

BEFORE ERECTING ANY LONG RANGE ANTENNA, INSPECT ALL THE PARTS MAKING UP THE ANTENNA KIT. DO NOT ERECT THE ANTENNA IF ANY PARTS ARE MISSING OR DAMAGED.

DO AS MUCH OF THE ASSEMBLY WORK AS POSSIBLE ON THE GROUND.

WHEN ERECTING THE ANTENNA, ALLOW ONLY TEAM PERSONNEL IN THE ERECTION AREA.

MAKE SURE THAT THE AREA FOR THE ANCHORS IS FIRM. IF THE GROUND IS MARSHY OR SANDY, GET SPECIFIC INSTRUCTIONS FROM YOUR CREW CHIEF OR SUPERVISOR ON HOW TO REINFORCE THE ANCHORS.

WHEN SELECTING LOCATIONS FOR ANCHORS, AVOID TRAVELED AREAS AND ROADS. IF YOU CANNOT AVOID THESE AREAS, GET SPECIFIC INSTRUCTIONS FROM YOUR SUPERVISOR AS TO WHAT CLEARANCE YOUR GUY WIRES AND ROPES MUST HAVE OVER THE TRAVELED AREAS AND ROAD.

CLEARLY MARK ALL GUY WIRES AND ROPES WITH THE WARNING FLAGS OR SIGNS SUPPLIED BY YOUR UNIT, IN AN EMERGENCY, USE STRIPS OF WHITE CLOTH AS WARNING STREAMERS.

IF YOU SUSPECT THAT POWERLINES HAVE MADE ACCIDENTAL CONTACT WITH YOUR ANTENNA, STOP OPERATING, ROPE OFF THE ANTENNA AREA, AND NOTIFY YOUR SUPERIORS.

IF THE WEATHER IN YOUR AREA CAN CAUSE ICE TO FORM ON YOUR LONG RANGE ANTENNA AND ITS GUY WIRES AND ROPES, ADD EXTRA GUYS TO SUPPORT THE SYSTEM. ROPE OFF THE AREA AND POST IT WITH WARNING SIGNS LIKE " BEWARE OF FALLING ICE.

DO NOT TRY TO ERECT ANY ANTENNA DURING AN ELECTRICAL STORM.

KEEP A SHARP EYE ON YOUR ANCHORS AND GUYS. CHECK THEM DAILY AND IMMEDIATELY BEFORE AND AFTER BAD WEATHER,

EL3TUII0

2-6. Installation of Antennas

Antennas AS-1852/GRC-103(V) (band I), AS-1853/GRC-103(V) (band II), and AS-1854/-GRC-103(V) (band III) have a common, variable-corner reflector which is used with the band I, II, or III plug-in dipole element. Figure 2-16 shows the reflector and band I dipole. Band II dipole (AS-2194/GRC-103(V)) and band III dipole (AS-2195/GRC-103(V)) are shown in figure 2-17. Antenna AS-1852/GRC-103(V) consists of the reflector (AS-2150/GRC(V)) and band I element AS-2151/GRC-103(V). Antenna AS-1853/-GRC-103(V) consists of the reflector (AS-2150/-GRC-103(V)) and band II element AS-2194/-GRC-103(V). Antenna AS-1854/GRC-103(V) consists of the reflector (AS-2150/GRC-103(V)) and band III element AS-2195/GRC-103(V). Each antenna assembly consists of either a band I, II, or III antenna, Mast AB--952/GRC-103(V) (fig. 2-18), Mast Extension Kit MK--1009/GRC-103(V) (fig. 2-19), the coaxial antenna cable (fig. 2-20), and the mast extension kit coaxial antenna cables (fig. 2-21) . Mast AB-952/GRC-103(V) includes Elevator, Antenna AB-1072/GRC-103(V), seven Mast Sections AB-1071/GRC-103(V), and Accessory Kit, Mast MK-1069/GRC-103(V), and provides the necessary hardware for an erected antenna 35 feet high. Mast Extension Kit MK-1009/GRC-103(V) provides the additional hardware needed for an erected antenna 50 feet high.

a. General. Depending upon the application, the AN/TRC-145(*) may require up to two antennas. The following instructions provide the procedure to be followed for each antenna required.

(1) The guy anchoring methods to be used depend on the prevailing conditions found at the site. The standard method, to be used in normal soil conditions, is shown in A, figure 2-22, for the 35-foot antenna, and in figure 2-23 for the 50-foot antenna extension. Where necessary, use a rope (at least ½-inch thick), a cable or a piece of heavy wire, and wrap it around a solidly implanted object such as a tree stump, a tree (B, fig. 2-22), or a rock. In soft earth, when fixed objects are not available, use a dead-man anchor (C). Use stakes (A) for a 50-foot mast erected in shale, sandstone, soft rock, hardpan, ice, or permafrost.

(2) The site selected for erecting the antenna must be reasonably flat, with a central clear area of approximately 10 square feet. The separation between the mast assembly location and the shelter should not exceed 25 feet. There must be clear aerial paths to the guy stake locations at three points equally spaced on a 30-foot circle which is centered on the central clear area. The slope of the antenna central clear area should not form an angle of more than 15° to the horizontal.

b. Location and Installation of Guy Stakes. Unload the antenna system in the central clear area, and open the accessories kit. Determine the prevailing wind direction, and proceed to install the guy stakes.

(1) Place the mast assembly upright at the center of the area selected as the mast location (point M, fig. 2-24).

(2) Pick up the universal tool (8, fig. 2-18) and one guy stake. Walk 12 paces (30 feet) directly to windward (point A, fig. 2-24). Hammer the guy stake into the ground at a 60-degree angle slanted away from the mast (A, fig. 2-22). If a screw anchor is to be used (50-foot antenna), screw it into the ground at a 45-degree angle slanted toward the mast (fig. 2-23), inserting the universal tool through the anchor eye for leverage.

(3) Pick up two stakes, and continue past the mast location in a straight line for another 6 paces (15 feet) to point D. Drop one guy stake.

(4) Turn right and walk 10 paces (25 feet) to point B. Drive in the second guy stake, and retrace 10 paces to point D.

(5) Pick up the guy stake which was dropped at point D, and continue in a straight line for 10 paces to point C. Drive in the third guy stake.

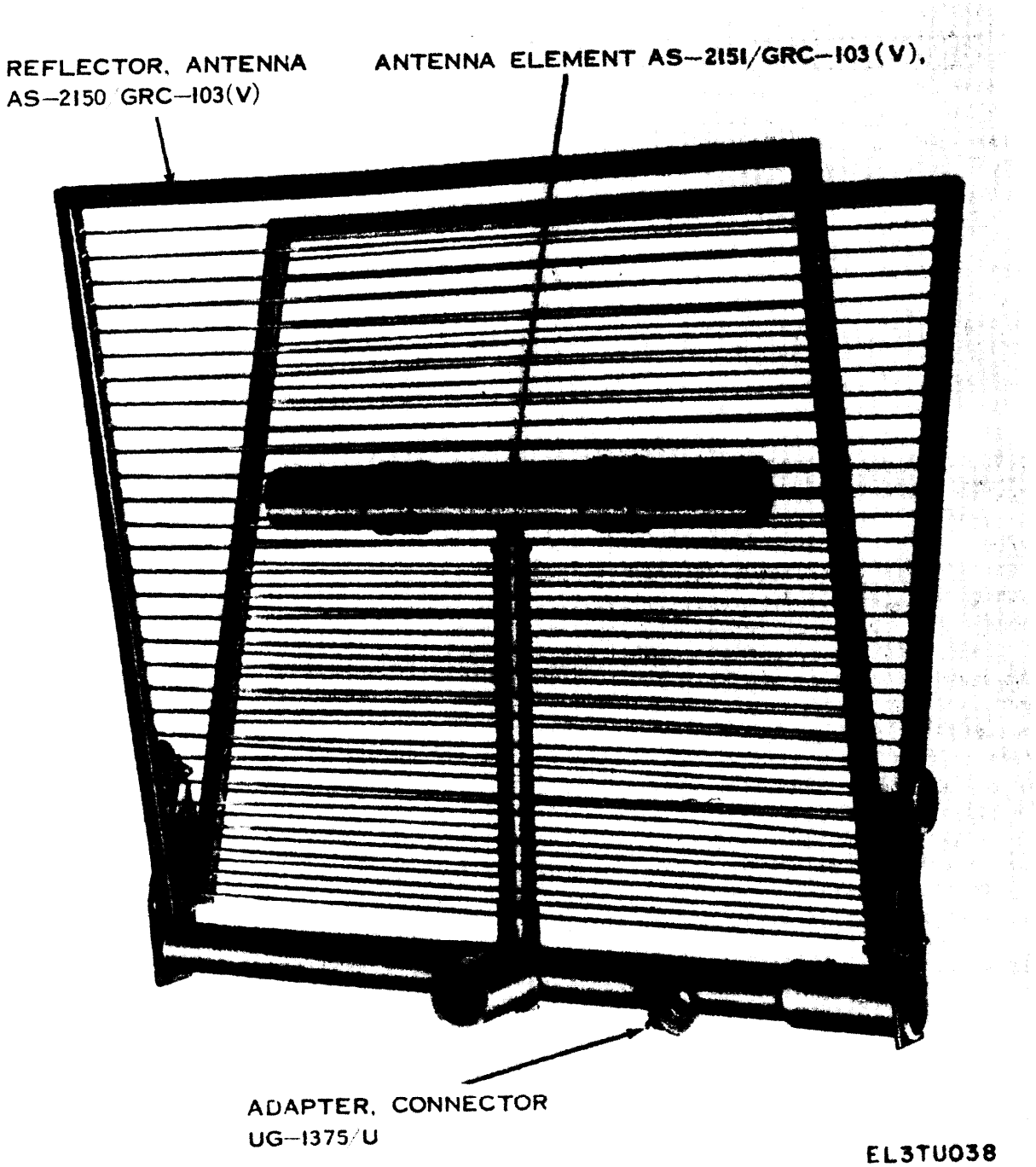


Figure 2-16. Antenna AS-1852/GRC-103(V).

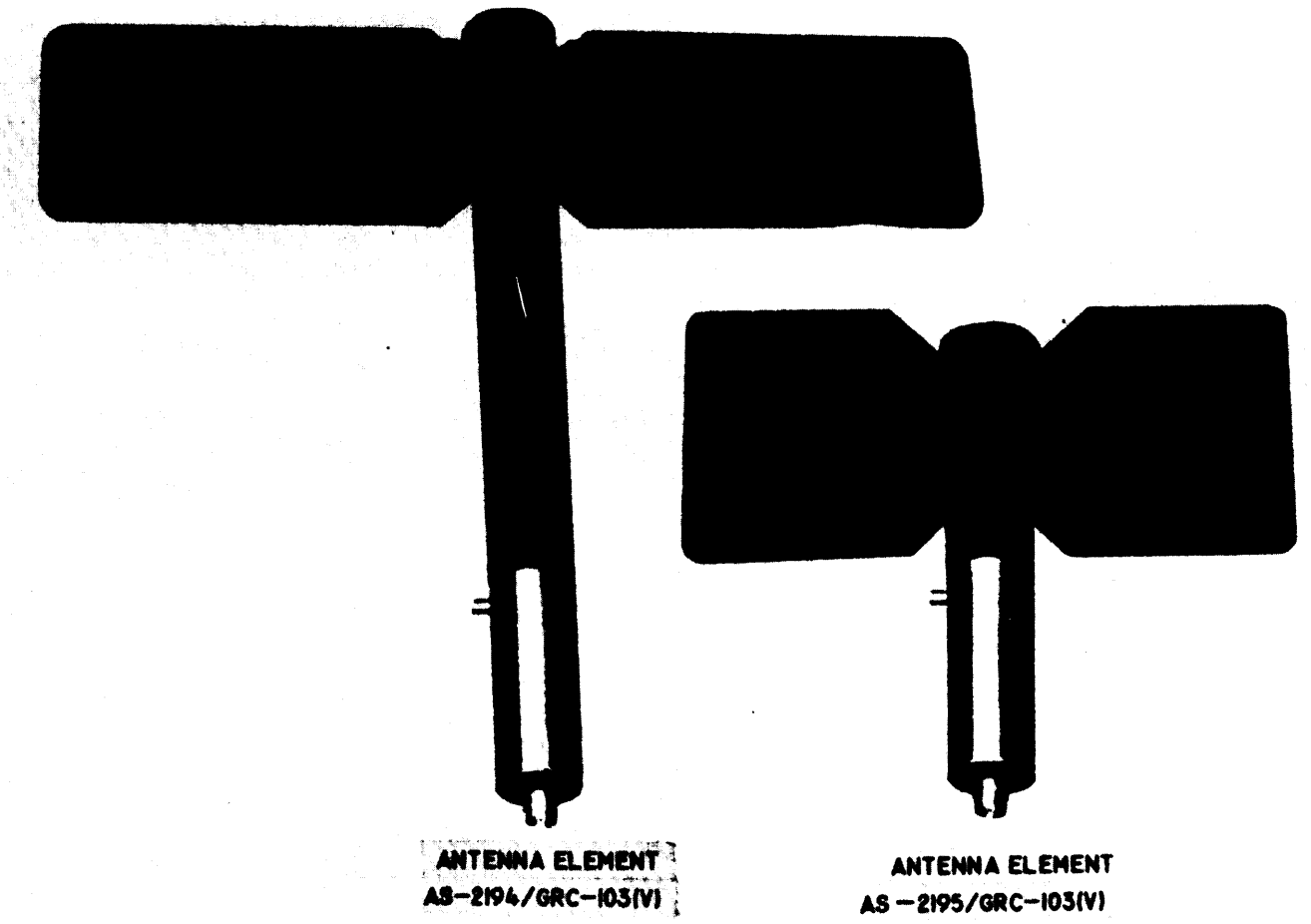
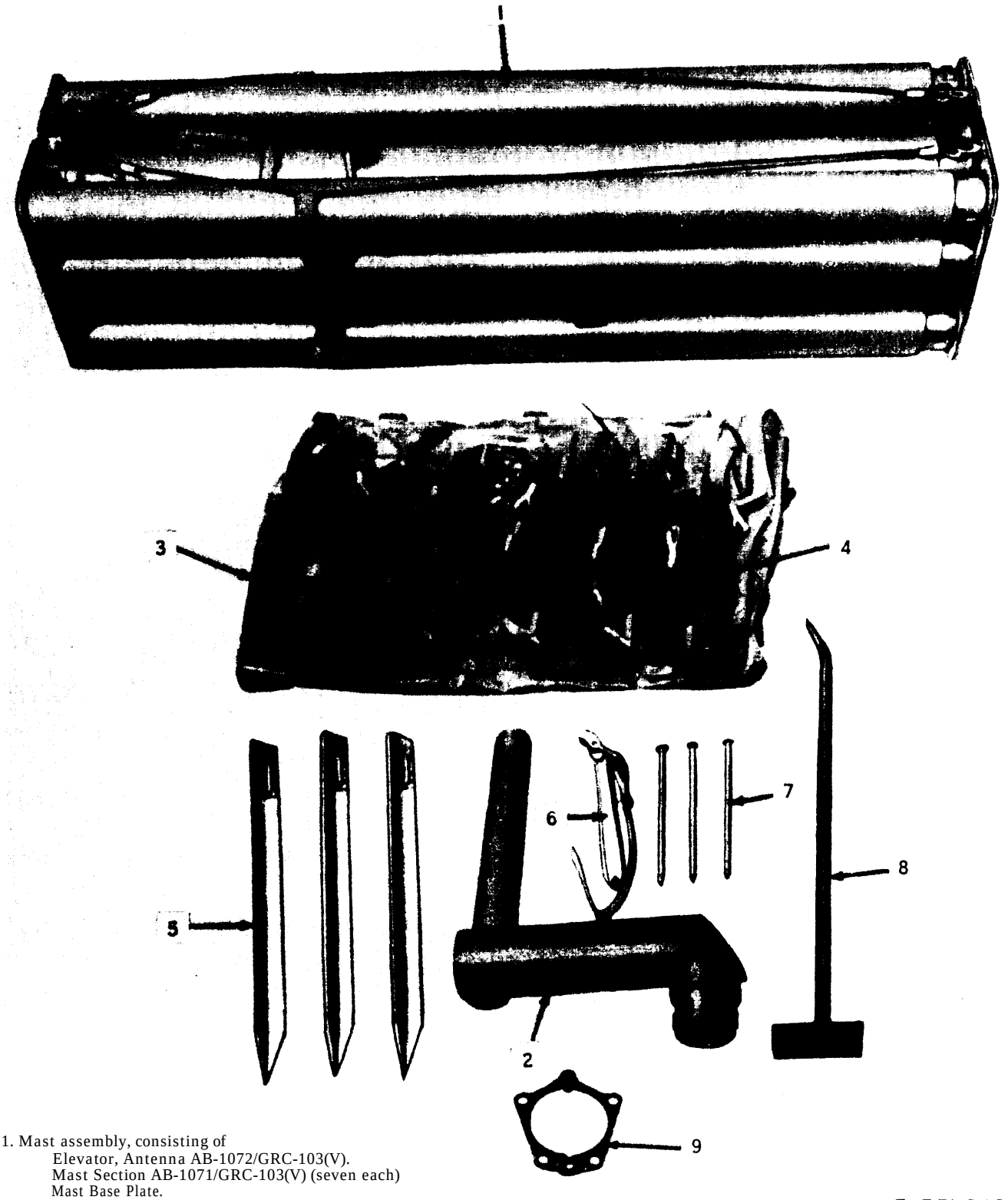
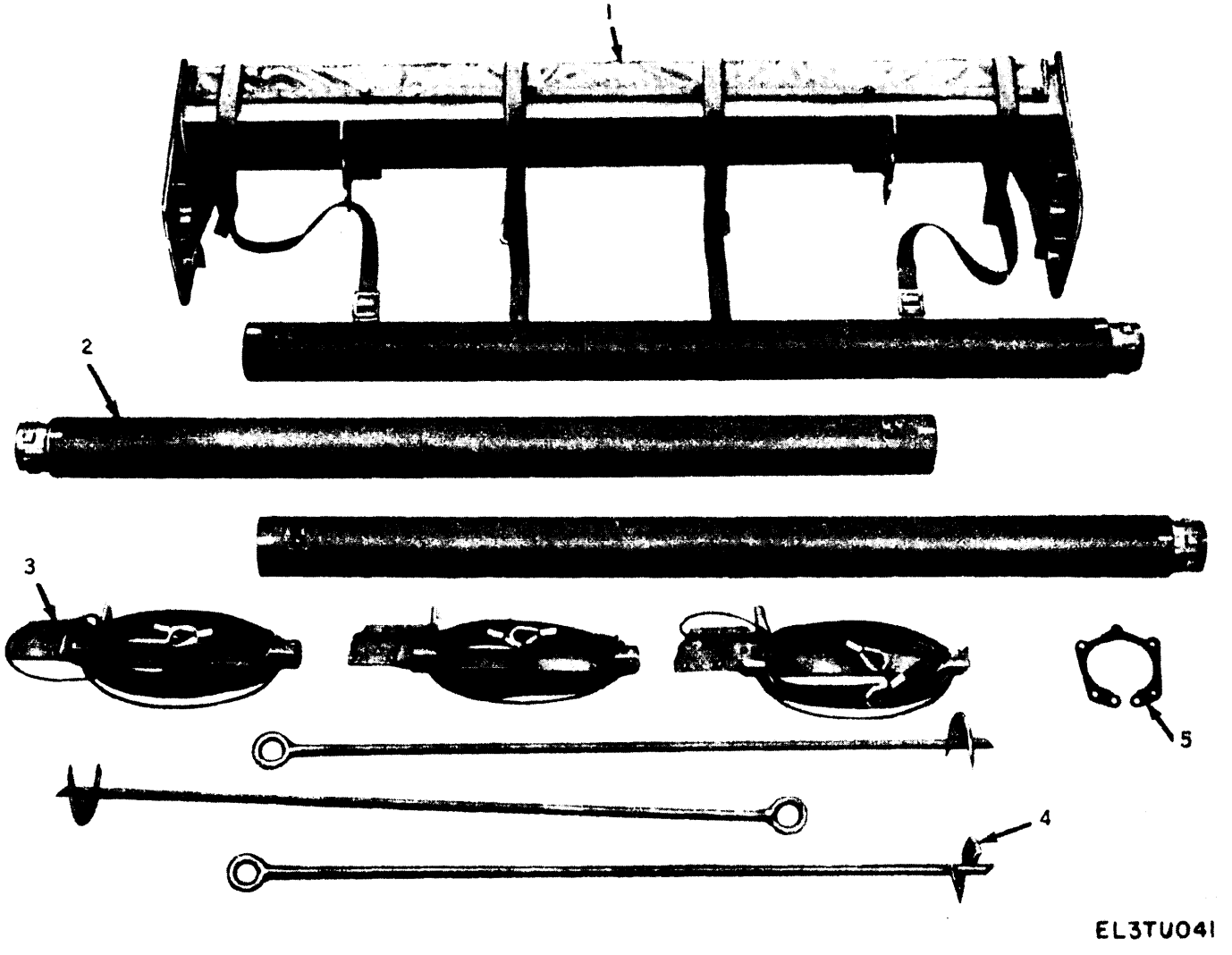


Figure 2-17. Antenna Elements AS-2194/GRC-103(V) and AS-2195/GRC-103(V).



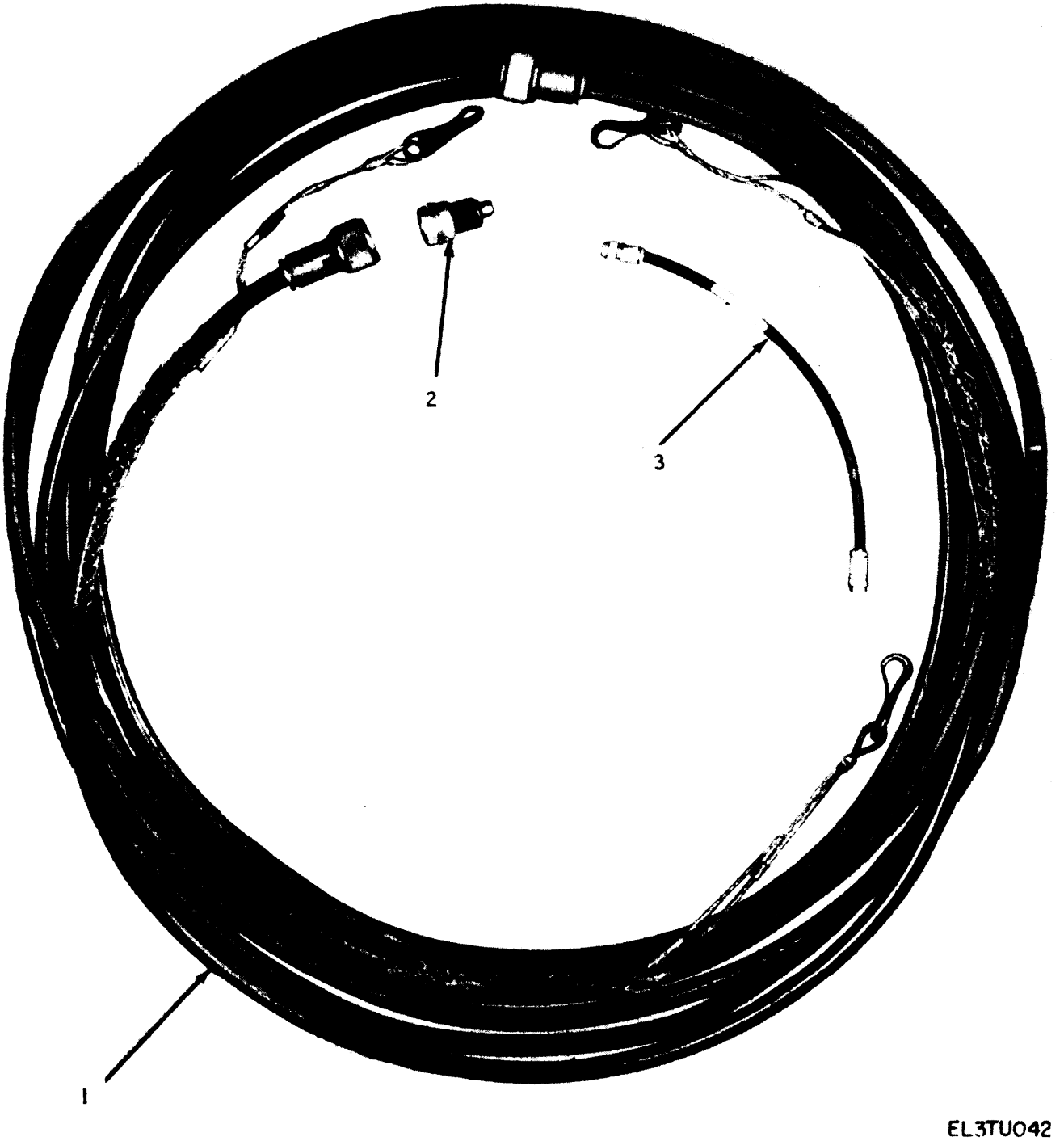
1. Mast assembly, consisting of
   Elevator, Antenna AB-1072/GRC-103(V).
   Mast Section AB-1071/GRC-103(V) (seven each)
   Mast Base Plate.
2. Reflector attachment assembly.
3. Accessories waterproof bag
4. Guy wires (three red-coded, three white-coded)
5. Guy stakes, 24-inch (three each)
6. Strap wrench
7. Spikes (three each).
8. Universal tool.
9. Guy attachment ring.

Figure 2-18. Mast AB-952/GRC-103(V), components.



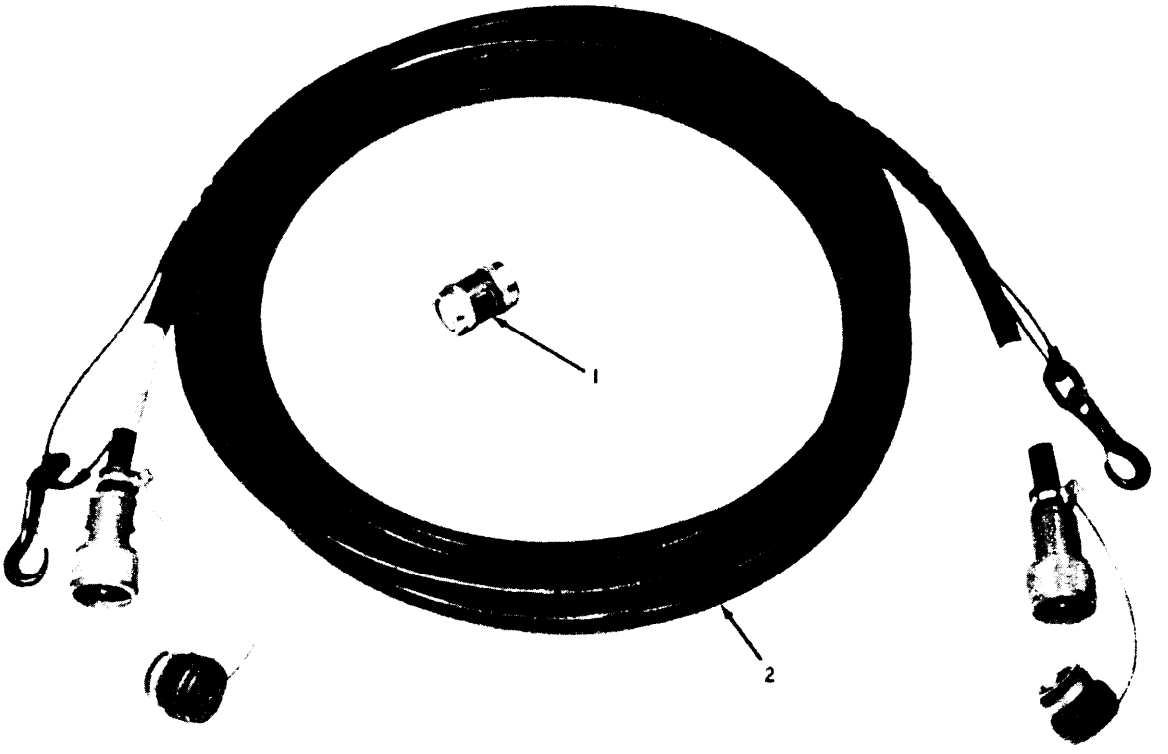
1. Case, Mast Extension Kit CY-6148/GRC-103(V).
2. Mast Section AB-1071/GRC-103(V) (three each).
3. Guy wires (three blue-coded)
4. Guy anchor (three each)
5. Guy attachment ring

Figure 2-19. Mast Extension Kit MK-1009/GRC-103(V), components.



1. Cable Assembly RF CG-3443/U (50 ft)
2. Adapter, Connector UG-1375/U
3. Cable Assembly, RF CG-3444/U (1 ft. 6 in.)

Figure 2-20. Coaxial antenna cables.



1. Adapter, Connector UG-1373/U
2. Cable Assembly, RF CG-3443/U (25 ft)

Figure 2-21. Mast extension kit coaxial antenna cables.

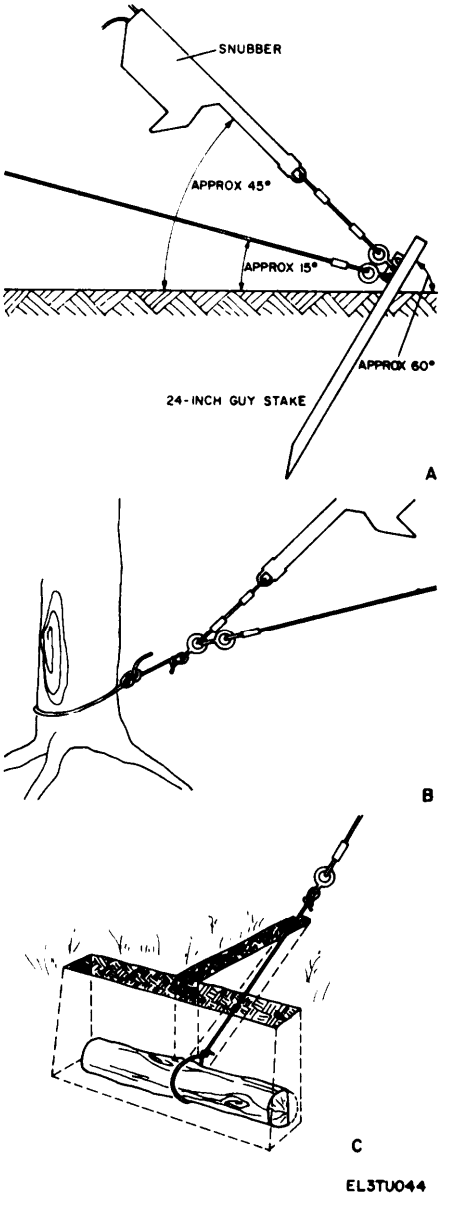


Figure 2-22. Guy anchoring methods.

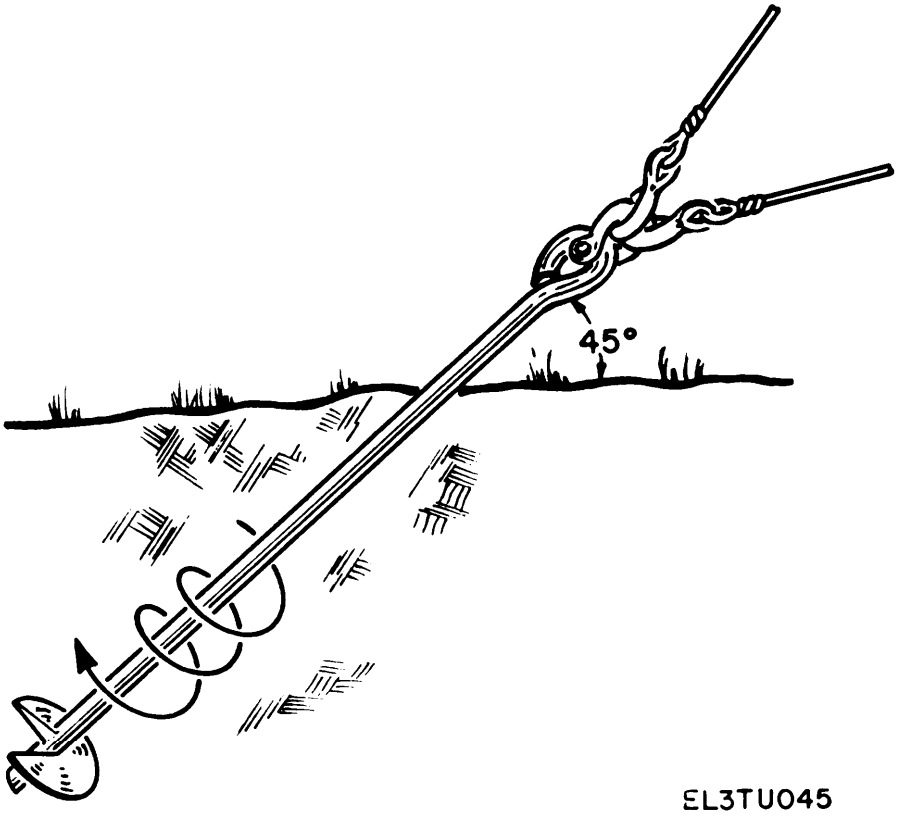


Figure 2-23. Installation of screw-type guy anchors.

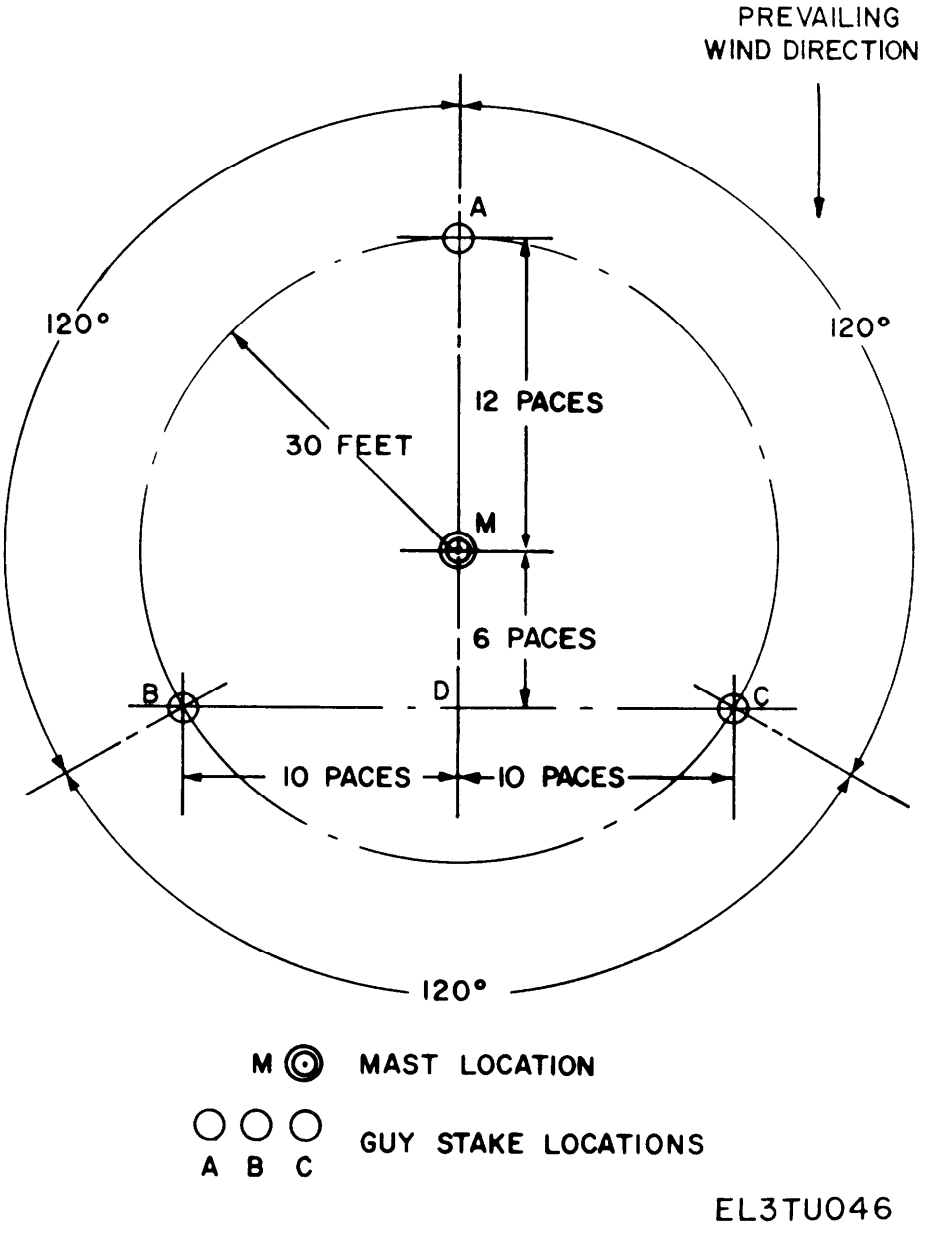


Figure 2-24. Layout of antenna site.

c. Assembly of Launcher and Antenna.

(1) Position the mast assembly so that its front faces into the wind. The front edge of the base plate is indicated in figure 2-25.

(2) Loosen the canvas straps that tension the binding wires, and unsnap the binding wires from the top of the mast assembly.

(3) Raise the top section of the launcher approximately three-fourths inch, allowing the loading catch on the base plate to secure it in this higher position. Remove the six mast sections stored around the launcher by raising them one by one and lifting the lower end clear of its cap on the base plate (A, fig. 2-25). The center mast section remains stored in the erection mechanism.

(4) Swing aside the stored mast section retaining clip on the top of the launcher (B).

(5) Set the two brake control levers (C) so that the arrows point upward. If either of the brake rings in the erection mechanism binds, release it by hand.

(6) Push the center mast section upward until it protrudes approximately 18 inches above the top plate of the launcher (D, fig. 2-26).

(7) Tilt the launcher enough to permit convenient insertion of the reflector attachment assembly into the top of the center mast section. Rotate the reflector attachment assembly until the stripes on the mast section and on the reflector attachment assembly line up and the catch locks in place (E).

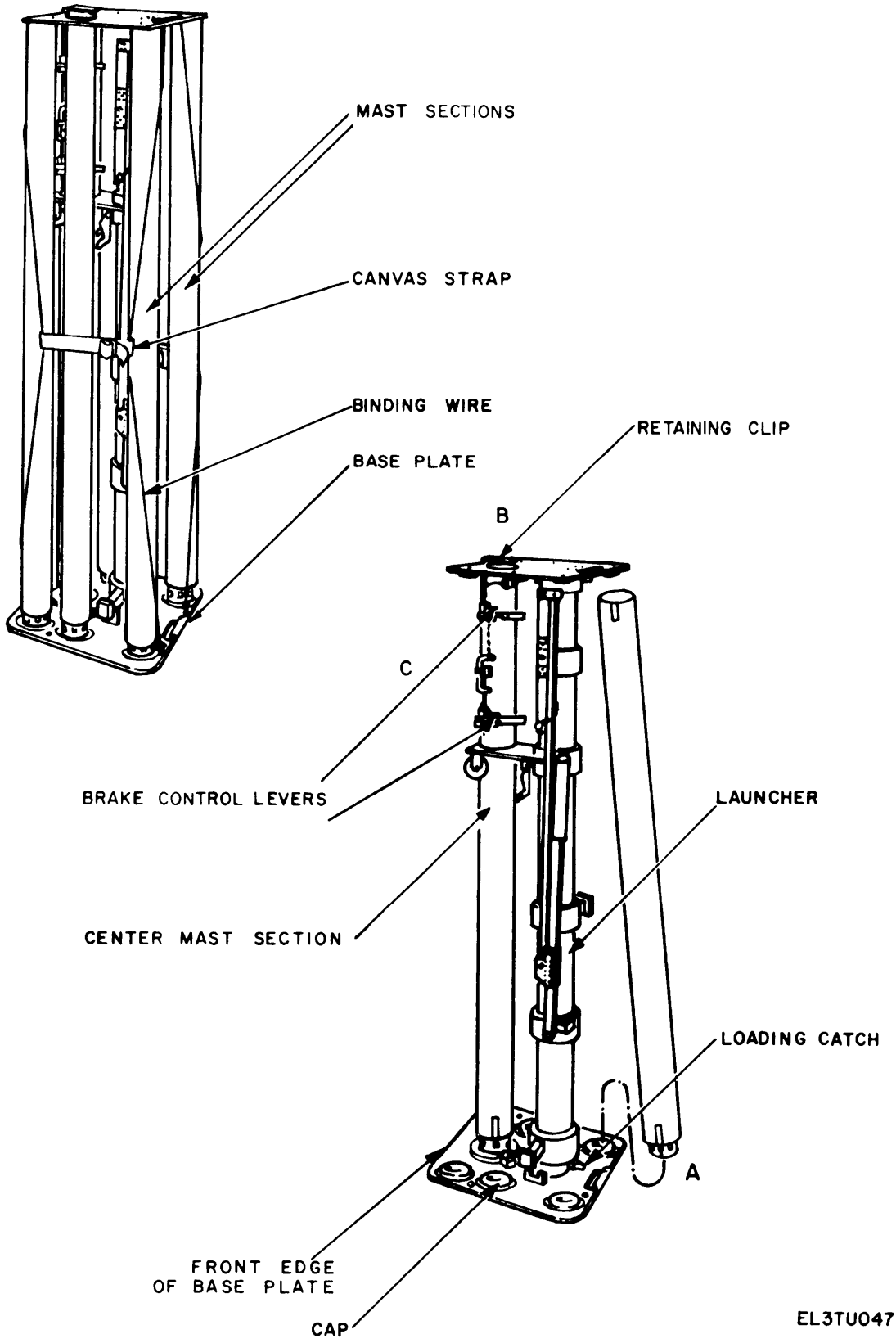


Figure 2-25. Removal of mast sections from launcher.

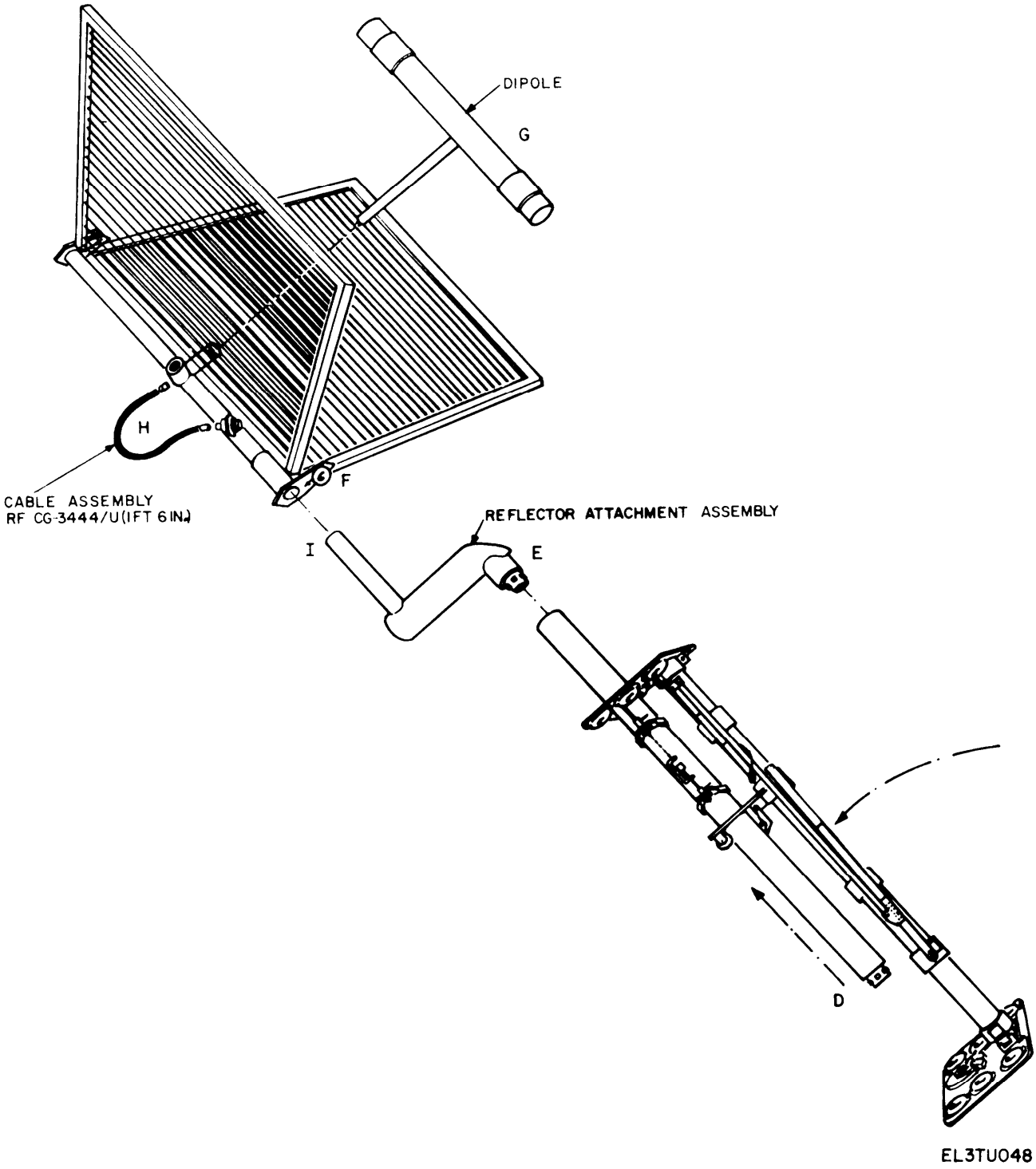


Figure 2-26. Mounting antenna on mast.

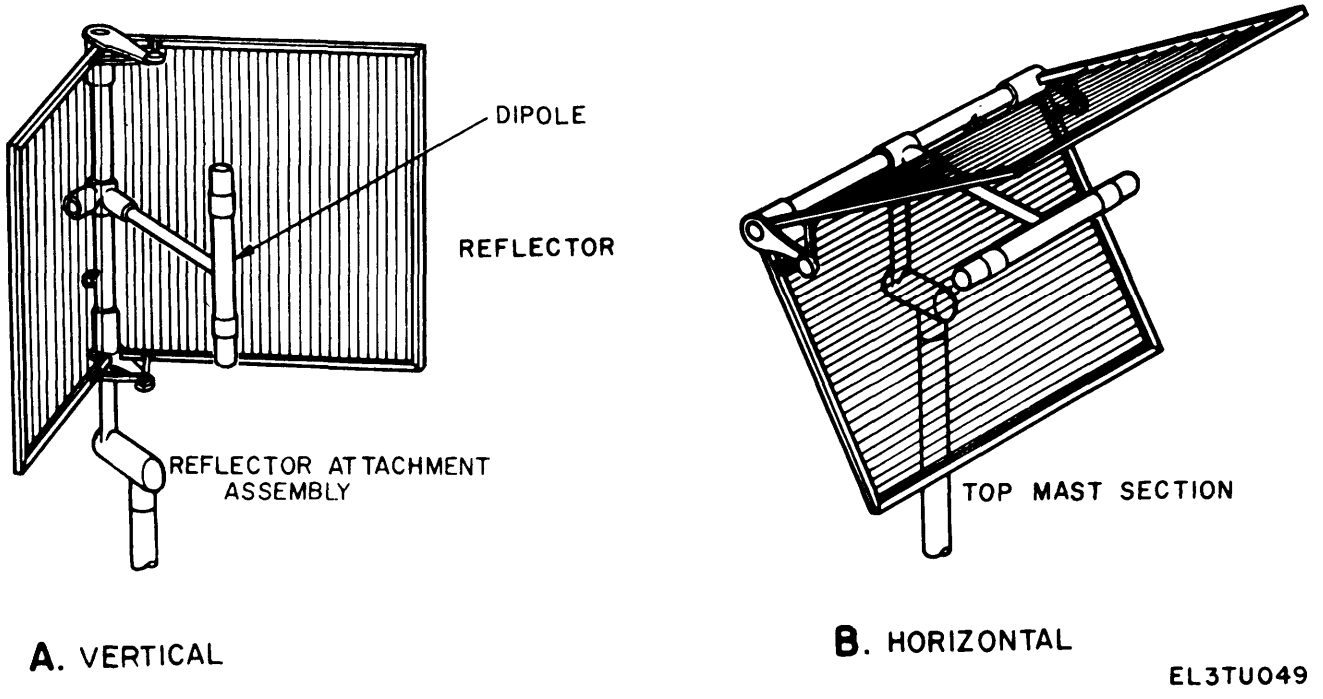


Figure 2-27. Antenna polarization.

NOTE

The dipole (G, fig. 2-26) is for BAND I. The BAND II and BAND III dipoles are shown in figure 2-17. Dipole installation instructions in this chapter apply equally to all three dipoles.

(8) The dipole normally is stored in operating position in the reflector. If the dipole is to be installed, open the reflector and insert the dipole stem into the mounting stub on the reflector. Push it in against the spring, and lock it in position by rotating it one-twelfth of a turn clockwise until the yellow stripes on the dipole stem and the mounting stub line up and the catch locks in place. Close the reflector.

(9) Connect Cable Assembly, RF CG-3444/U (3, fig. 2-20) to the connector at the rear of the dipole and to Adapter, Connector UG-1375/U on the reflector spine (H, fig. 2-26). Connector Cable Assembly, RF GG-3443/U (1, fig. 2-20) to the other end of the UG-1375/U (fig. 2-28).

(10) Open the reflector to the required position (for BAND I, II, or III) as indicated by the numerals adjacent to the screw fasteners at each end of the hinge. Make sure that both screw fasteners are seated correctly in their detents.

(11) Tilt the launcher, and fit the assembled antenna on the reflector attachment assembly (I, fig. 2-26) in the appropriate polarization as shown in figure 2-27. The yellow stripe on the antenna must line up with the yellow stripe on the reflector attachment assembly so. that the dipole is directly over the mast section.

(12) Stand the launcher upright, and secure the launcher base plate to the ground by driving the three spikes, with the universal tool supplied, through the holes identified by yellow bands near the edge of the base plate (J, fig. 2-28) .

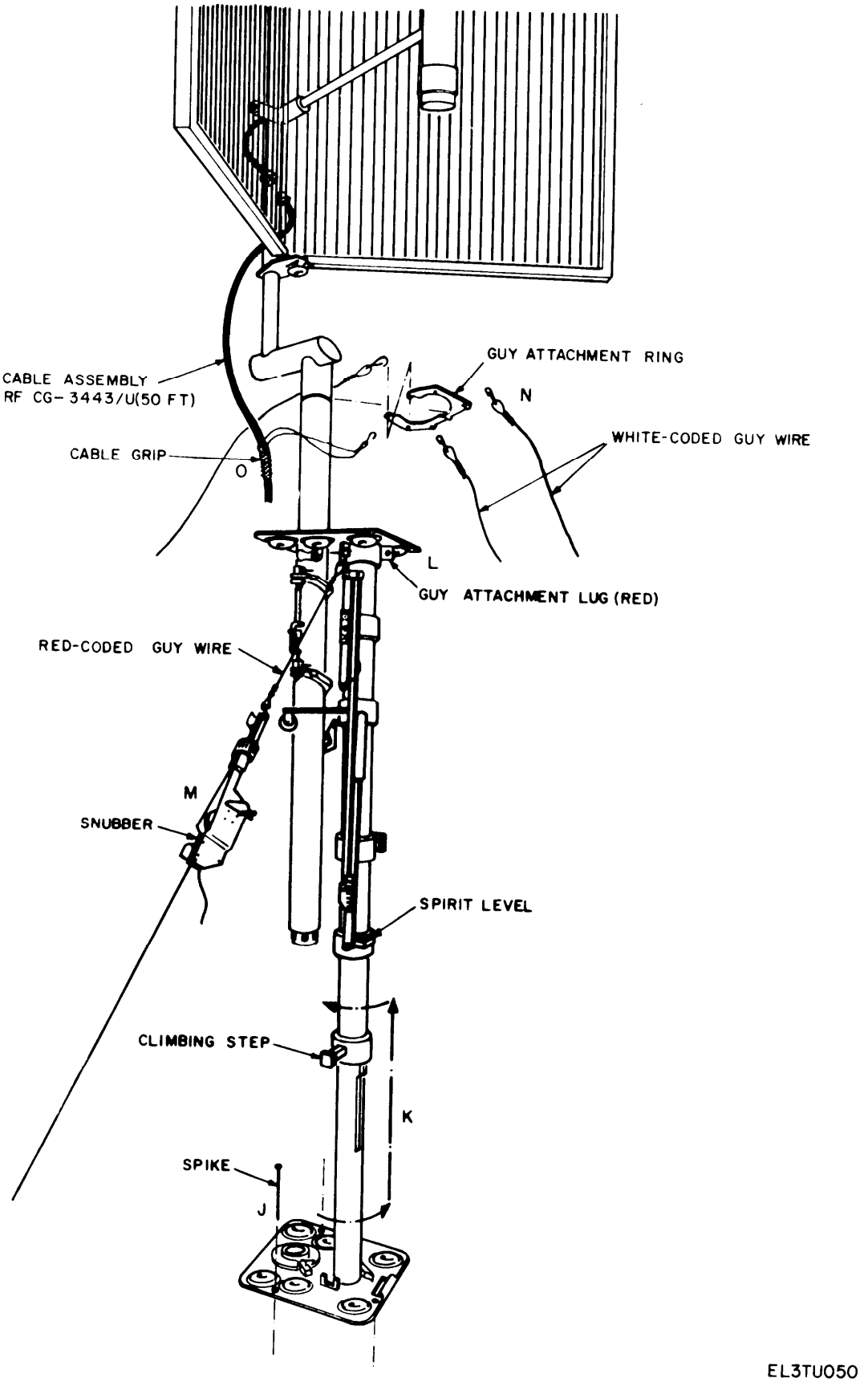


Figure 2-28. Extending launcher and attaching guy wires.

(13) Grasp the launcher climbing steps, and raise the launcher a few inches. Rotate it through 90° to the right or left (K). Raise the launcher an additional 2 feet until the entire yellow stripe on the lower part of the telescoping leg is exposed. Rotate the launcher back through 90° until the yellow stripes on the upper and lower parts of the leg are in line. Lower the launcher until a definite stop is felt, and try to rotate the launcher to be sure that it is locked in position.

(14) Snap the free ends of the red-coded guy wires to the bottom holes in the guy stakes. Snap the snubber ends of the red-coded guy wires to the guy attachment lugs (painted red) on the bottom of the launcher top plate (L).

NOTE

The snubbers (M) of the red-coded guy wires are marked with an arrow and the legend TO MAST. Ignore this arrow.

(15) Tension the red-coded guy wires by pulling the wires through the snubbers so that the launcher is vertical. Lock the snubbers. Check to see that the bubble is in the center of the spirit level on the launcher leg. Fine adjustments can be made with the turnbuckles on the snubbers. There should be no appreciable free movement of the upper part of the launcher.

(16) Climb up the launcher steps, and fit the guy attachment ring into the gap in the joint between the reflector attachment assembly and the mast section (N). When the antenna height is to be 35 feet, snap the white coded guy wires to the holes in the attachment ring. When the antenna height is to be 50 feet, snap the blue-coded guy wires into the holes in the guy attachment ring. One of the guy wire snaps is used to hold the two sections of the guy attachment ring together.

(17) Pay out the complete length of each of the guy wires and attach them to the guy anchors. Attach the white-coded guy wires to the middle holes of the guy stakes and the blue-coded wires to the upper holes. Do not *tension the wires.*

(18) Attach the cable grip (0) on Cable Assembly, RF CG-3443/U (50 ft) (1, fig. 2-20) to one of the remaining free holes in the guy attachment ring.

(19) Unpin the jacking lever from its stored position, and pin it to the clevis on the operating rod of the lower brake ring (P, fig. 2-29).

d. Raising Mast.

WARNING

Be extremely careful when erecting the antenna system in winds stronger than 25 miles per hour. If the wind is strong, station at least one person to hold the windward upper guy to maintain adequate tension to keep the mast vertical while it is being raised. *Never place hands or feet between the lowest mast section and the azimuth plate.*

(1) Raise the mast section in the launcher by pumping the jacking lever until an approximately 4-inch long portion of the mast section remains below the lower roller guides (Q, fig. 2-29). Continue raising the mast section slowly until the automatic stop operates and prevents further motion.

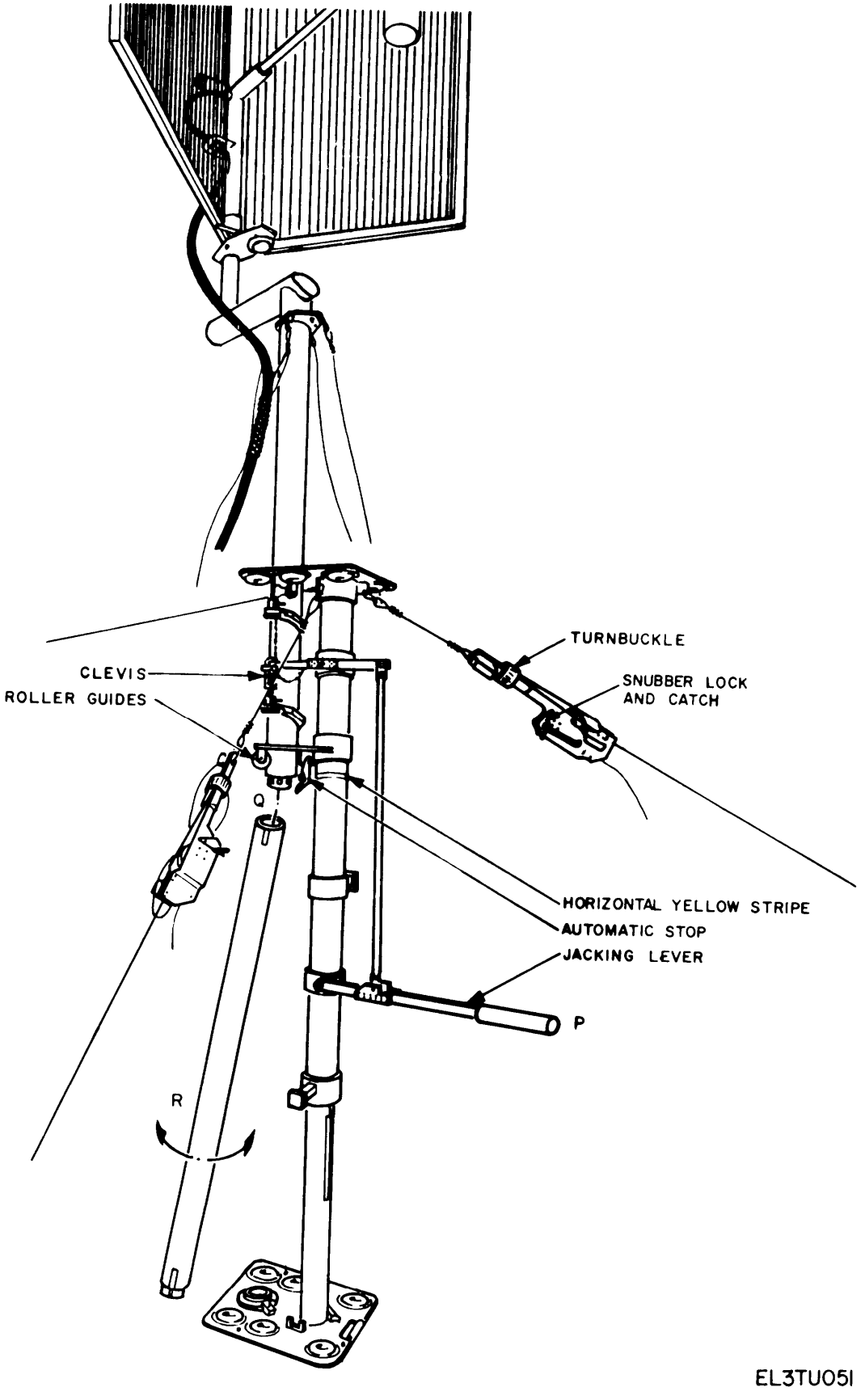


Figure 2-29. Inserting and raising mast sections in launcher.

(2) Place another mast section under the one just raised (R). Push the automatic stop clear. Align the keyways in the female end of the second mast section with the keys on the male end of the first section. Pushup the second mast section and twist it until the yellow stripes on the two mast sections are in line and the catch locks in place. Check to see that the mast sections are locked, and then repeat the procedure in (1) above.

(3) When the antenna height is to be 35 feet, repeat procedure (2) above until the last mast section is locked in position, but do not jack the section up. Make sure that the yellow stripe at 0° on the azimuth plate is in line with the yellow stripe on the last mast section. Set the two brake control levers so that the arrows point downward. Using the jacking lever, lower the mast until the slot in the last section engages with the peg in the azimuth plate (S, fig. 2-30).

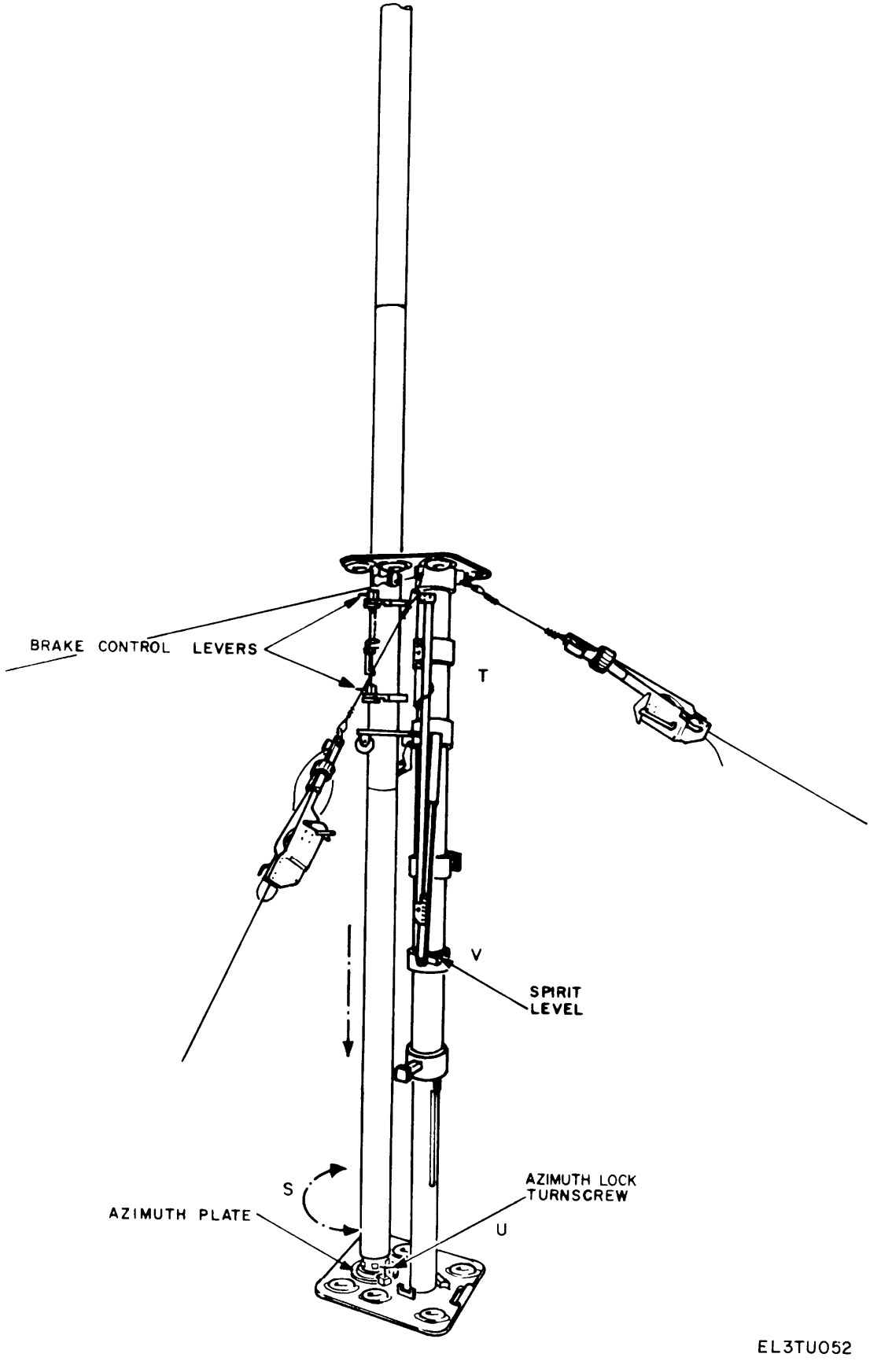


Figure 2-30. Inserting final mast section and stowing jacking lever.

(4) When the antenna height is to be 50 feet, repeat the procedure in (2) above until the sixth mast section is locked in position. Jack the mast up until the joint between the fifth and sixth mast sections is just clear of the launcher top plate. Climb up the launcher steps, and fit a guy attachment ring into the gap in the joint between the fifth and sixth mast sections. Snap the white-coded guy wires into the holes in the guy attachment ring. One of the guy wire snaps is used to hold the two sections of the guy attachment ring in place. Connect the middle cable grip of Cable Assembly, RF CG-3443/U (50 feet) to one of the remaining free holes in the guy attachment ring. Repeat the procedures in (1) and (2) above until the last section is locked in position, but do not jack it up. Make sure that the yellow stripe at 0° on the azimuth plate is in line with the yellow stripe on the last mast section. Set the two brake control levers so that the arrows point downward. Using the jacking lever, lower the mast until the slot in the last mast section engages with the peg in the azimuth plate (S).

(5) Tension the guy wires by feeding the wires through the snubbers so that the mast is straight and vertical, and the guy wires are just tight. Lock the snubbers. Compare the mast with a known vertical object, or with a plumb line, from the front and one side. Check for overall straightness by comparison with the guy wires.

(6) Remove the pin from the clevis on the operating rod of the lower brake ring, and move the jacking lever to its stored (vertical) position. Wrap the chain around the operating arm hinged to the top of the jacking lever, and insert the pin to lock the lever in the stored position (T).

(7) Use the supplied strap wrench to orient the mast by rotating the lowest mast section. Aim the open side of the antenna in assigned direction. The open side of the antenna should be in line with the yellow stripe on the mast section and the O“ reference on the azimuth plate. Note the indication on the azimuth plate opposite the mark on the launcher base plate for reference during more precise orientation of the antenna. A more precise orientation should be made later by maximizing the received signal strength on the radio receiver. Lock the mast in position by means of the azimuth lock turnscrew at the side of the azimuth plate (U).

(8) Check the spirit level (V) to see that the launcher is still level. Adjust the red-coded guy wires, if necessary. Use the snubber turnbuckles for fine adjustments.

2–7. Grounding

The AN/TRC-145(*) must be properly grounded *before* input power is connected. Select a grounding site (within 6 feet of the POWER ENTRANCE BOX) that is low and damp and that will not interfere with the entrance door, field wires, power, or signal cables.

a. Loosen and lift the cover of the POWER ENTRANCE BOX (fig. 1-3 or 1-4).

b. Use the cover support to secure the cover in the open position.

c. Remove a ground rod and the sledge hammer (fig. FO-1 or FO-2) from the mountings in the assemblage.

d. Remove any dirt or grease from the ground rod.

e. Scoop out a small hole, about 6 inches deep, at the selected grounding site.

f. Drive the ground rod into the hole until the top of the ground rod is approximately 3 inches above the bottom of the hole.

g. Remove a lo-foot ground strap from the storage compartment of the assemblage.

h. Connect one end of the ground strap to the ground rod, and the other end of the lower GROUND TERMINAL in the POWER ENTRANCE BOX (fig. 1-16).

i. Saturate the ground around the rod with water to keep it moist.

j. If a generator set is used to supply ac power, ground it the same way as the assemblage.

2–8. Power Connections

WARNING

The grounding connection specified in paragraph 2-7 must be completed *before* power is connected to the AN/TRC-145(*).

AC power for the assemblage maybe obtained from Generator Set PU-625/G *(b* below) or from a central source of power *(c* below).

CAUTION

Be sure output selector switch is put to 120 V single phase 1 ph on both generator sets.

a. Preliminary Procedures.

(1) Make sure that all circuit breakers and equipment power switches in the assemblage are in the *off* position.

(2) Remove the power cable assembly and cable

reel from the generator set (serial numbers 1 through 46), or from the assemblage (serial numbers 47 and above).

CAUTION

When the POWER 115V AC OUT connector in the AN/TRC-145(*) POWER ENTRANCE BOX is used to supply power to another assemblage/equipment, do not allow the sum of the current drawn by the load connected to the POWER 115V AC OUT connector and current drawn by the AN/TRC-145(*) to exceed 50 amperes (the current rating of the MAIN circuit breaker on the POWER DISTRIBUTION PANEL).

b. Connection to PU-625/G.

(1) Remove the covers from one end of the power cable assembly and from the POWER 115V AC IN receptacle in the POWER ENTRANCE BOX (fig. 1-16), and connect the power cable assembly to the receptacle.

WARNING

The generator set should be turned OFF before making any connections.

NOTE

As an expedient, the POWER 115V AC OUT receptacle may be used to make the connection if the POWER 115V AC IN receptacle is broken.

(2) If the generator set includes an output connector that is compatible with the connector on the power cable assembly, connect the power cable assembly to the generator set; otherwise, refer to the generator set manual (app A) and connect the power cable stub GND (red or green) lead and the neutral (white) lead to the neutral terminal (Ll), and the hot (black) lead to the hot terminal (L2). Add a jumper of #6, A.W.G. or larger between the neutral terminal (Ll) and the trailer GND STUD. Remove this jumper when the power cable is disconnected.

(3) Remove the covers from the power cable assembly and the power cable stub, and connect stub.

c. Connection to Central Power Source.

WARNING

Turn off or disconnect the central power before making any connections.

(1) If the power source is a 120-volt, 50- to 60-Hertz (Hz), single-phase, two-wire source, connect the power cable stub red or green lead and white lead to the neutral terminal, and the black lead to the hot (phase) terminal.

(2) If the power source is a 110- to 220-volt, 50- to 60-Hz, single-phase or two-phase, three-wire distribution system, connect the power cable stub red or green lead and the white lead to the neutral terminal, and the black lead to either of the two hot (phase) terminals.

(3) If the power source is a 110- to 220-volt, 50- to 60-Hz, three phase, four-wire distribution system, connect the power cable stub red or green lead and the white lead to the neutral bus bar, and the black lead to either of the three hot (phase) bus bars.

(4) Remove the covers from the power cable stub and from the power cable assembly, and connect the power cable assembly to the power cable stub. Connect the other end of the power cable assembly to the POWER 115V AC IN receptacle in the POWER ENTRANCE BOX (fig. 1-16).

2–9. Telephone Circuit Line Connections

NOTE

Unless otherwise specified, the following procedures are applicable to all AN/TRC-145(*) assemblages.

a. AN/TRC–145 and AN/TRC–145A. Circuit lines are made at the SIGNAL ENTRANCE BOXes (fig. 1-3 and 1-4. These connections may be made through the 26-pair cable receptacles or binding posts (fig. 1-17 or 1-18).

b. AN/TRC–145B. Circuit line connections are made at the SIGNAL ENTRANCE BOX (fig. 1–18) and/or DATA AND ANTENNA ENTRANCE BOX (fig. 1-23). These connections may be made through the 26-pair cable receptacles or binding posts by using distribution box J–1077A/U.

c. Twenty-Six Pair Cable Connections Procedure.

(1) Unlock and remove the covers from the connector on the 26-pair cable assembly and receptacle on the SIGNAL ENTRANCE BOX or DATA AND ANTENNA ENTRANCE BOX.

(2) Insert the connector into the receptacle and secure it by closing the locking collar.

(3) Operate the associated BINDING POST-CABLES switches of the SIGNAL ENTRANCE panel (fig. 1-19 or 1-20) to CABLE.

(4) If the required cable distance exceeds 250 feet, couple two 26-pair cable assemblies together.

NOTE

To avoid poor quality signals, do not connect more than six 26-pair cables together.

d. Field Wire Connection Procedure at SIGNAL ENTRANCE BOX.

(1) Connect the two wire pairs, or receive pairs (black and green) of a four wire circuit, to the 2WT/R binding posts associated with the assigned channel on the SIGNAL ENTRANCE BOX.

NOTE

Channel 1 has pairs 1 and 2, Channel 2 pairs 3 and 4 through Channel 12 pairs 23 and 24, pairs 25 and 26 are reserved for local communications.

(7) Unlock and remove the covers from the connector on the 26-pair receptacle on both the DATA AND ANTENNA ENTRANCE BOX and the J-1077A/U.

(8) Connect the cable stub between the 26-pair cable receptacle on the data entrance box and the 26-pair receptacle on the J-1077A/U using the mating connectors provided at each end of the cable stub. REASON: Clarity and Accuracy - Circuits connected to AN/TRC-145 and AN/TRC-145A are not just telephone, they are telephone, teletype or facsimile. The AN/TRC-145B in addition to the above also has the capability to pass data through the SIGNAL ENTRANCE BOX as well as data through the DATA ENTRANCE BOX. Telephone circuit connection only describes a part of the AN/TRC-145(*) capability.

2–10. Video, Data, and Antenna Cable Connections

Video and antenna cable connections assemblages bearing serial no. 1 through 46 are provided with two VIDEO AND ANTENNA ENTRANCE BOXes (fig. 1-21), system one on the roadside (fig. l-l) and system two on the curbside (fig. 1–2 and 1-3). AN/TRC-145 and AN/TRC-145A serial no. 47 and above are provided with one VIDEO AND ANTENNA ENTRANCE BOX for both systems (fig. 1-22). AN/TRC-145B has a DATA AND ANTENNA ENTRANCE BOX for both systems (fig. 1-23).

(2) Connect the send pairs (white and gray) of a four-wire circuit to the 4WT binding post associated with the assigned channel.

(3) Operate the associated BINDING POST-CABLES switch on the SIGNAL ENTRANCE panel to BINDING POSTS.

e. Field Wire Connection Procedure Using Distribution Box J-1077A/U at DATA AND ANTENNA ENTRANCE BOX.

(1) Detach the J-1077A/U from the interior of the shelter by loosening two thumbscrews from bracket holding J-1077A/U to front wall.

(2) Remove the J-1077A/U and the two thumbscrews at the top of the mounting bracket (fig. 2-20.1).

CAUTION

Do not allow the J-1077A/U to drop. Damage will result.

(3) Mount the J-1077A/U to the exterior front wall using two straps (fig. 2–30.2).

(4) Open the J-1077A/U cover.

(5) Connect the two wire pairs of a two-wire circuit or receive pairs of a four-wire circuit, to the odd numbered (i.e. 1, 3, 5, etc.) pair of binding posts associated with the assigned channel on the distribution box.

(6) Connect the send pairs of a four-wire circuit to the even numbered (i.e. 2, 4, 6, etc.) pair of binding posts associated with the assigned channel on the distribution box.

a. Connecting Pcm Video Cable. Connect Cable, Special Purpose, Electrical CX-4245/G, or equivalent, to the paired video receptacles in the VIDEO AND ANTENNA ENTRANCE BOX as follows:

(1) Attach the male and female connectors to the appropriate VIDEO AND ANTENNA ENTRANCE BOX receptacles.

(2) Slip a cable grip (supplied with CX-4245/G) through the strain relief eye in the VIDEO AND ANTENNA ENTRANCE BOX.

(3) Position the cable grip on the cable so as to permit a loose loop to be formed when cable connector and

VIDEO AND ANTENNA ENTRANCE BOX receptacle are mated.

NOTE

For assemblages bearing serial No. 1 through 46, if a CX-11230/G cable is used instead of a CX-10734/G is required for connection between the CX-11230/G cable and the system connections on the VIDEO and ANTENNA ENTRANCE BOXES. For assemblages bearing serial No. 47 and above, the CX-11230/G may be connected directly to the SYSTEM connectors. If a CX-4245/G cable is used instead of a CX-11230/G cable, Adapter, Cable Assembly CX-10734/G is required for connecting between the CX-4245/G cable and the SYSTEM connectors.

b. Connecting Antenna Cable AN/TRC-145/AN/TRC-145A.

(1) Connect the antenna cable connector to the antenna receptacle in the VIDEO AND ANTENNA ENTRANCE BOX.

(2) Clip the cable grip of Cable Assembly, RF CG-3443/U (80 ft) through the strain relief eye for the antenna connector in the VIDEO AND ANTENNA ENTRANCE BOX.

(3) Position the cable grip on the cable so as to permit a loose loop to be formed when the cable connector and the VIDEO AND ANTENNA ENTRANCE BOX antenna receptacle are mated.

c. Connecting Antenna Cable AN/TRC–145B.

(1) Connect each antenna cable connector to the antenna receptacles in the DATA AND ANTENNA ENTRANCE BOX.

(2) Clip the cable grip of Cable Assembly, RF CG–3443/U (80 ft) through the strain relief eye for the antenna connector in the DATA AND ANTENNA ENTRANCE BOX.

(3) Position the cable grip on the cable so as to permit a loose loop to be formed when the cable connector and the DATA AND ANTENNA ENTRANCE BOX antenna receptacle are mated.

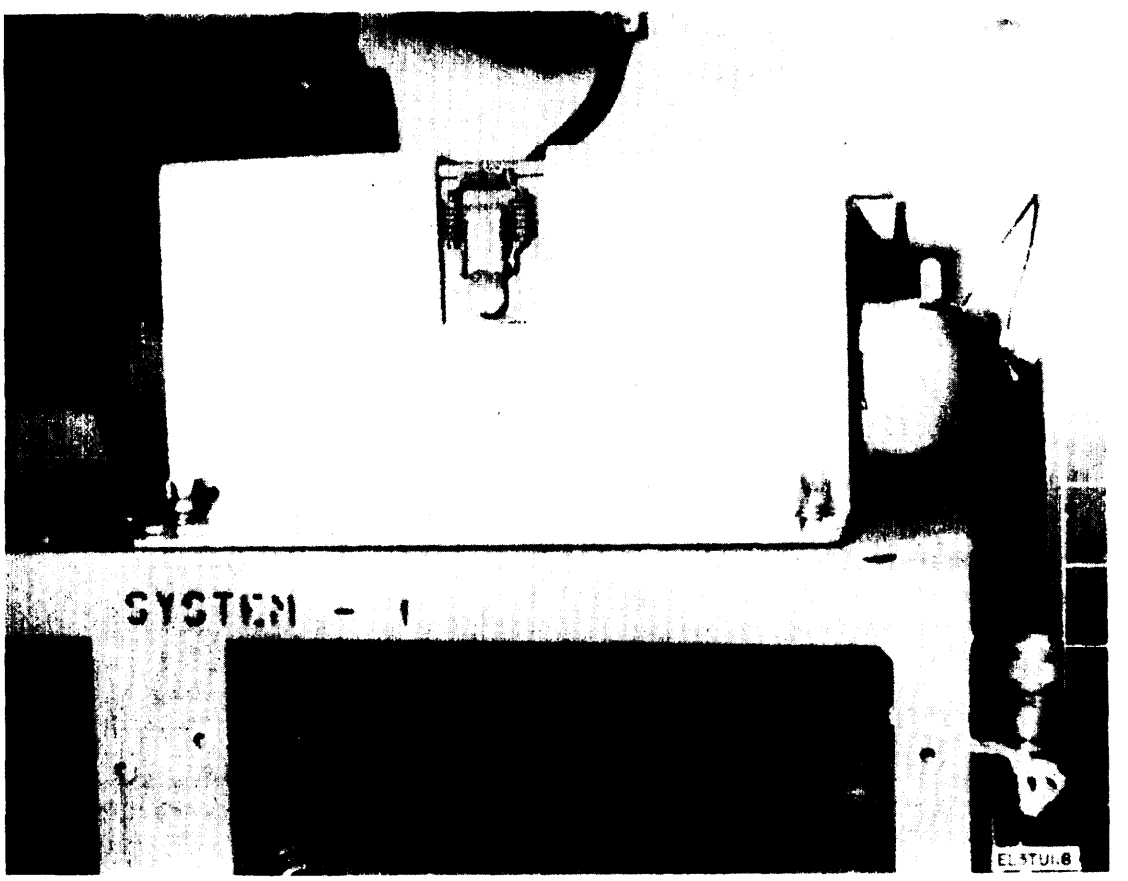


Figure 2-30.1. Distribution Box J-1077A/U stored inside front wall.

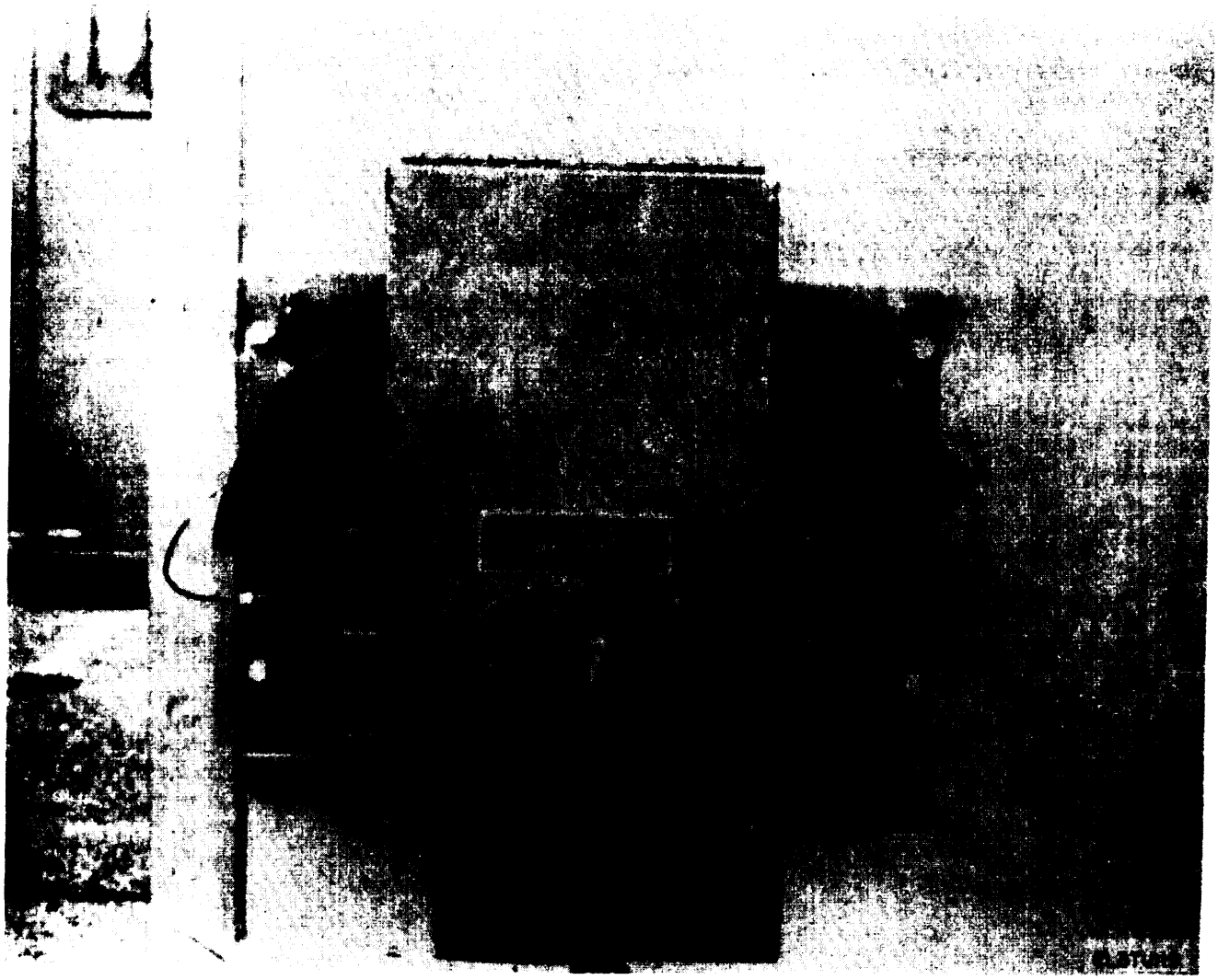


Figure 2-30.2 Distribution Box J-1077A/U Stropped in Position on Outside Front Wall.

d. Distribution Box J-1077A/U Installation and Field Wire Connection Procedure at VIDEO/DATA ENTRANCE BOX.

(1) Detach the J-1077A/U from the interior of the shelter by loosening two thumbscrews from bracket holding J-1077A/U to front wall.

(2) Remove the J-1077A/U and the two thumbscrews at the top of the mounting bracket (fig. 2-30.1).

CAUTION

Do not allow the J-1077A/U to drop. Damage will result.

(3) Mount the J-1077A/U to the exterior front wall using two straps (fig. 2-30.2).

(4) Open the J-1077A/U cover.

(5) Connect the 2-wire telephone pairs to the binding posts associated with channels 5 through 8 on the switch box.

NOTE

Channel 7 is used to carry data associated with the TD-1069/G. Individual telephone lines may be connected to channels 5 through 8.

(6) Unlock and remove the covers from the connector on the 26-pair receptacle on both the VIDEO/DATA ENTRANCE BOX and the J-1077A/U.

2-12. Interunit Cable Connections

The AN/TRC-145 and AN/TRC-145A may be arranged to provide cable terminal, radio terminal, repeater, or cable-to-radio conversion facilities (para 2-l). The AN/TRC-145B may be arranged to provide radio terminal or radio repeater facilities (para 2-l). Determine the application requirements for the AN/TRC-145(*) configuration being used, and make the appropriate direct and patch panel connections as indicated in the interunit connection figure for the applicable requirement. Refer to table 2-1.

Table 2-1. Patch Panel and Direct Connections

Equipment configuration	Figure No.		
		Serial No. 47 and above	
	Serial No. 1-46	145/145A	145B
Radio terminal, 12-channel	2-31	2-38	2-38.1
Cable terminal, 12-channel	2-32	2-39	N/A
Cable terminal, 24-channel	2-33	2-40	N/A
Cable-to-radio conversion, 12-channel	2-34	2-41	N/A
Cable repeater, 12- or 24-channel	2-35	2-42	N/A
Cable repeater, 24-channel with 12-channel drop and insert	2-36	2-42	N/A
Radio repeater, 12-channel	2-37	2-44	2-44.1

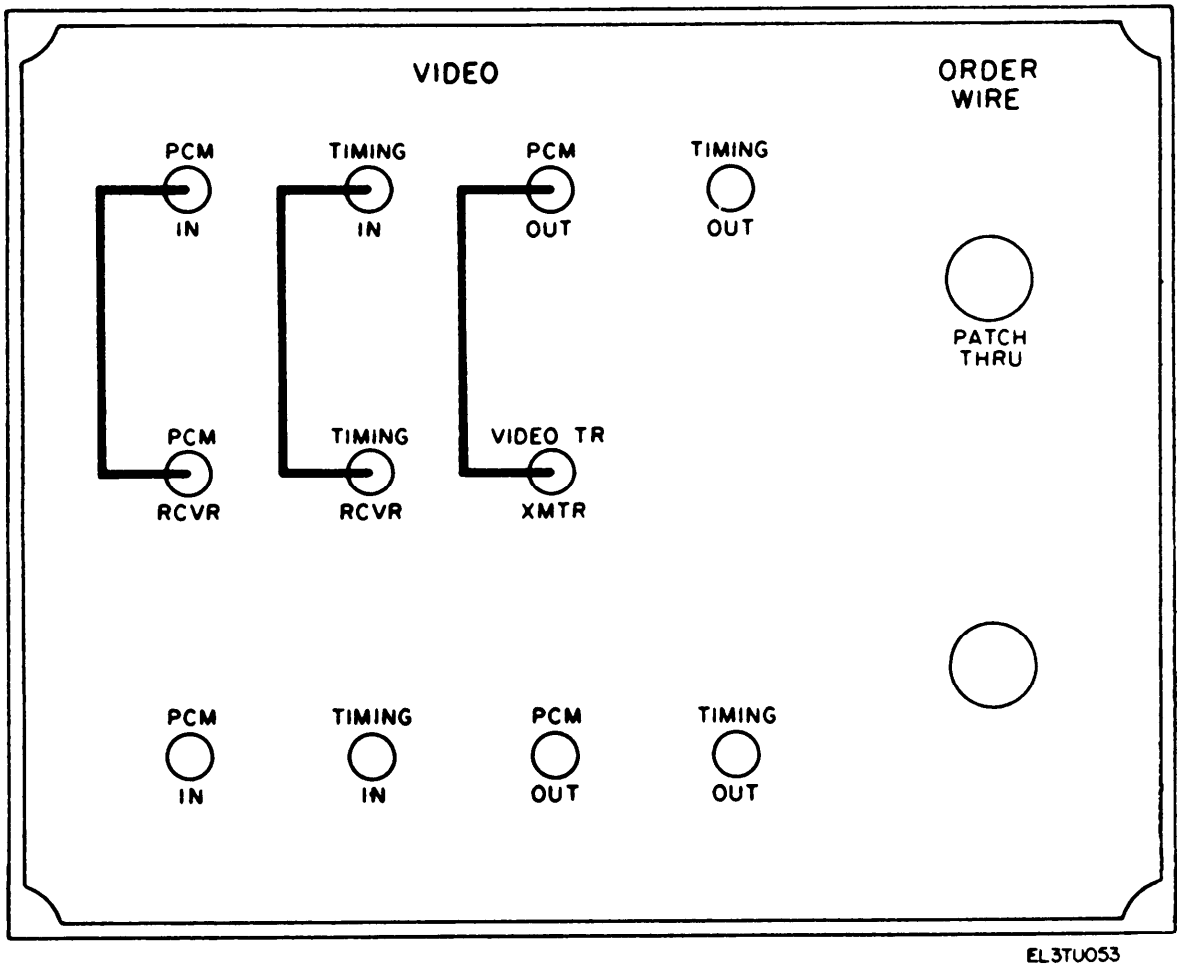


Figure 2-31. Patch panel connections for 12-channel radio terminal (Serial No. 1 through 46).

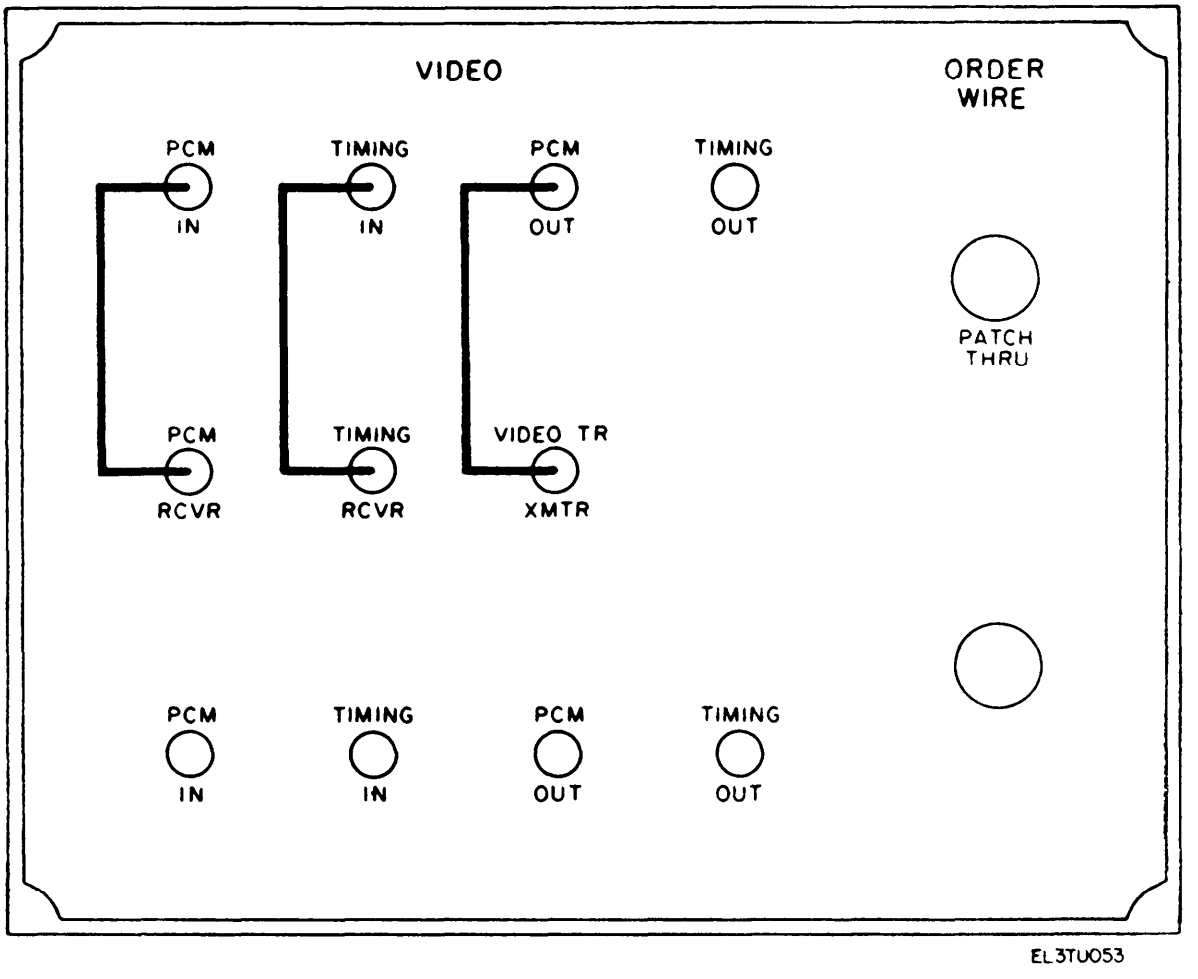


Figure 2-31. Patch panel connections for 12-channel radio terminal (Serial No. 1 through 46).

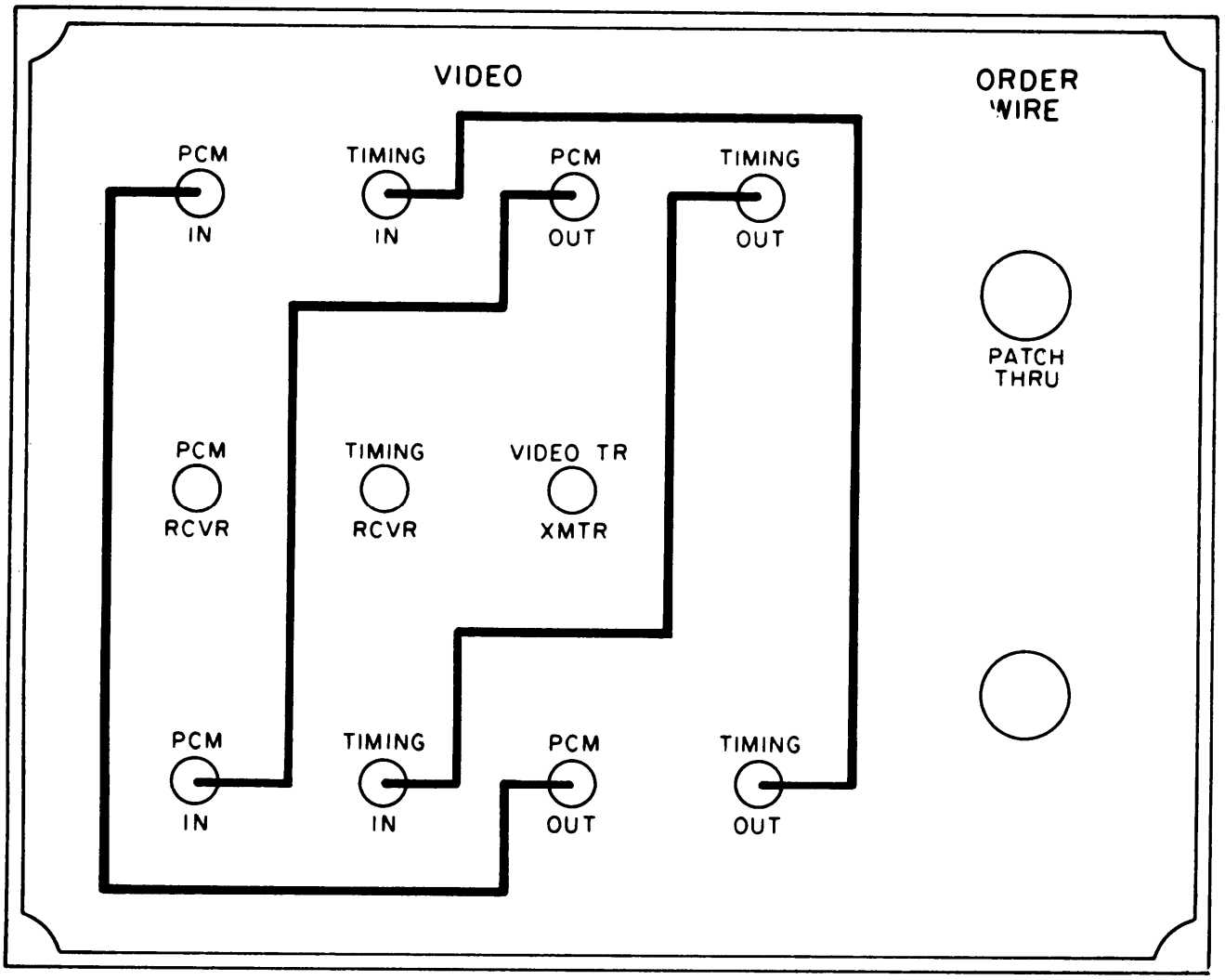


Figure 2-32. Patch panel connections for 12-channel cable terminal (serial No. 1 through 46).

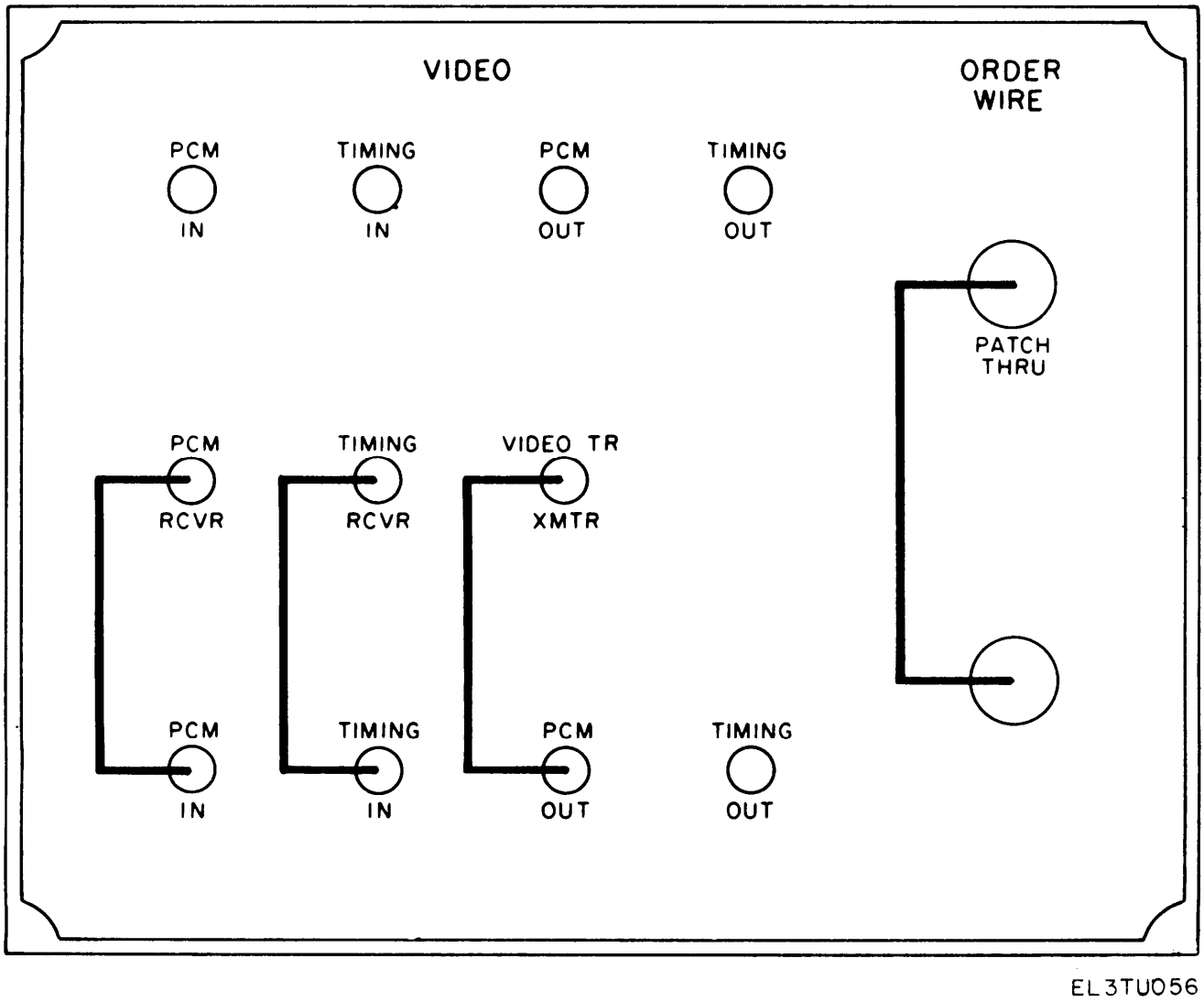


Figure 2-34. Patch panel connections for 12-channel cable-to-radio conversion (serial No. 1 through 46).

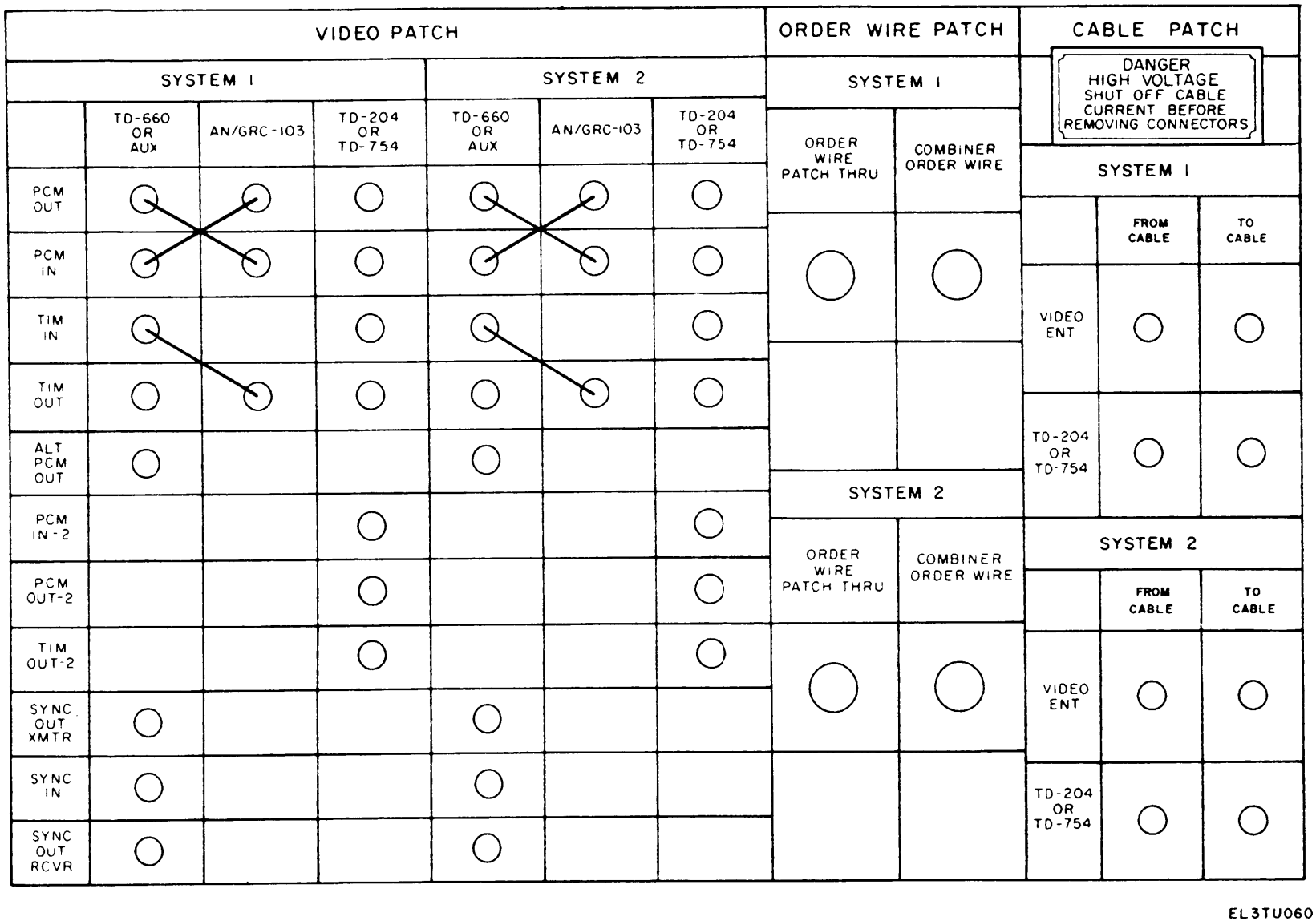


Figure 2–38. Patch panel for 12-channel radio terminal (Serial No. 47 and above) (AN/TRC–145 and AN/TRC–145A).

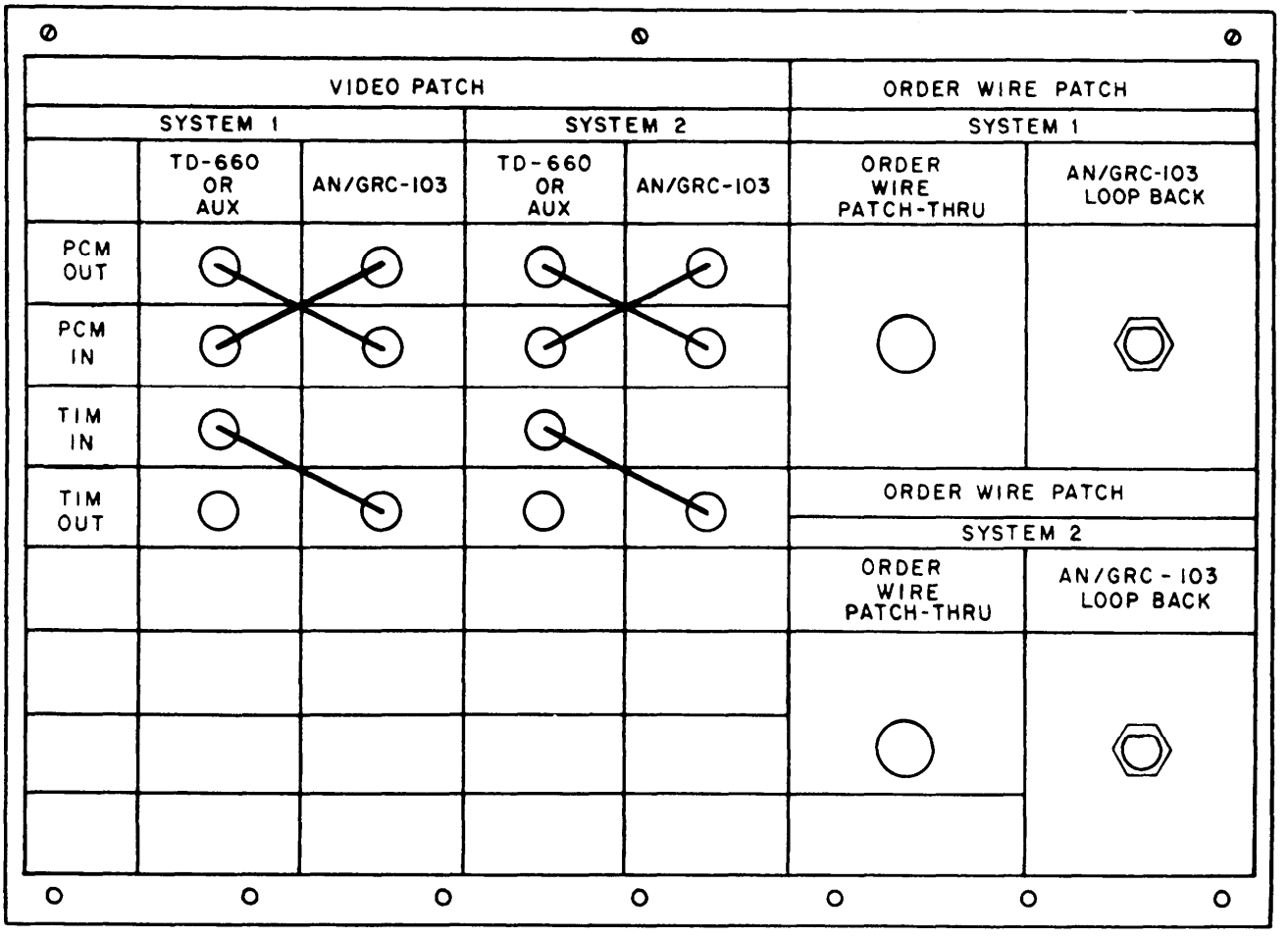


Figure 2-38.1. Patch panel connection for 12-channel radio terminal (Serial No. 47 and above) (AN/TRC-145B).

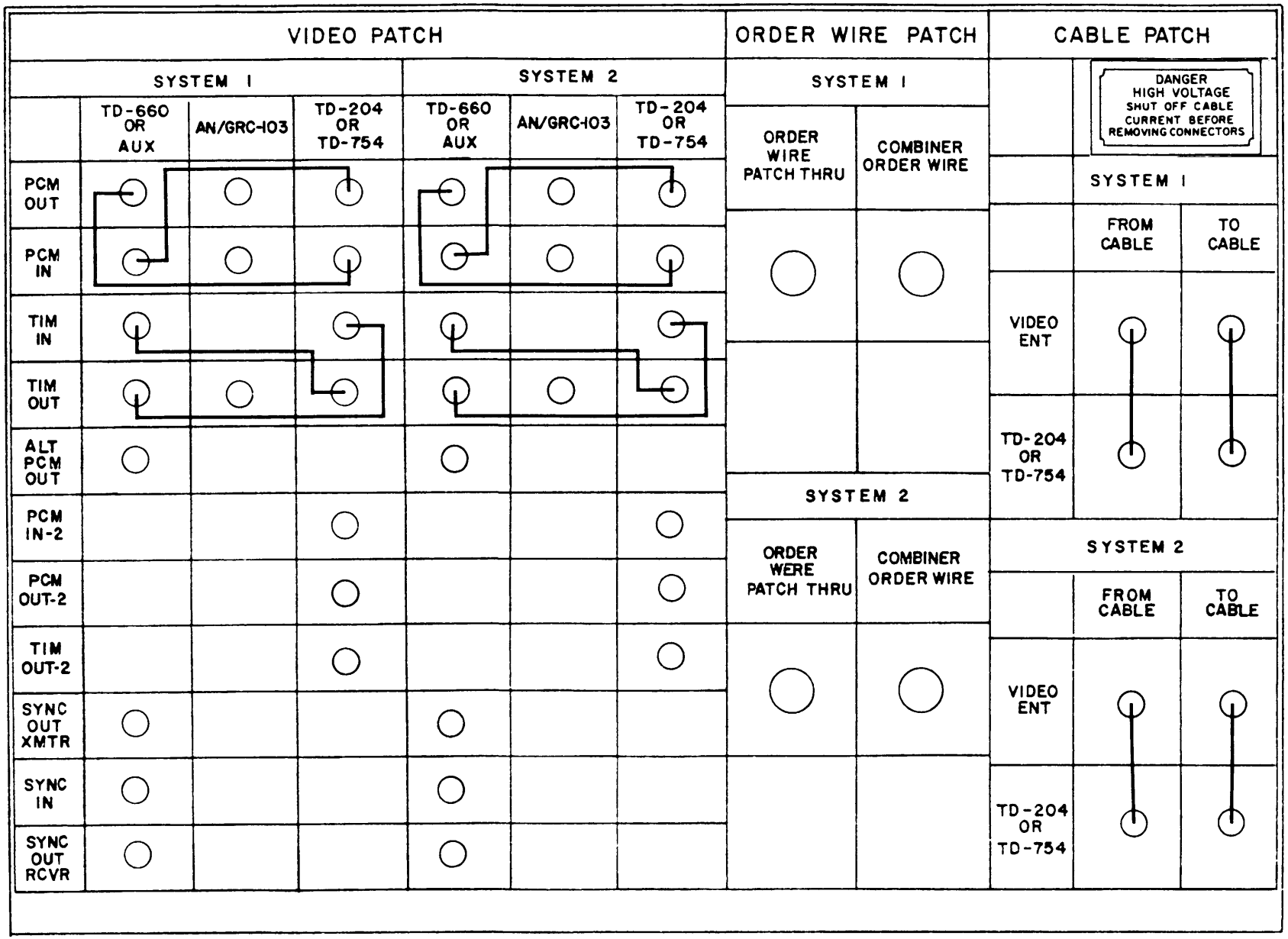
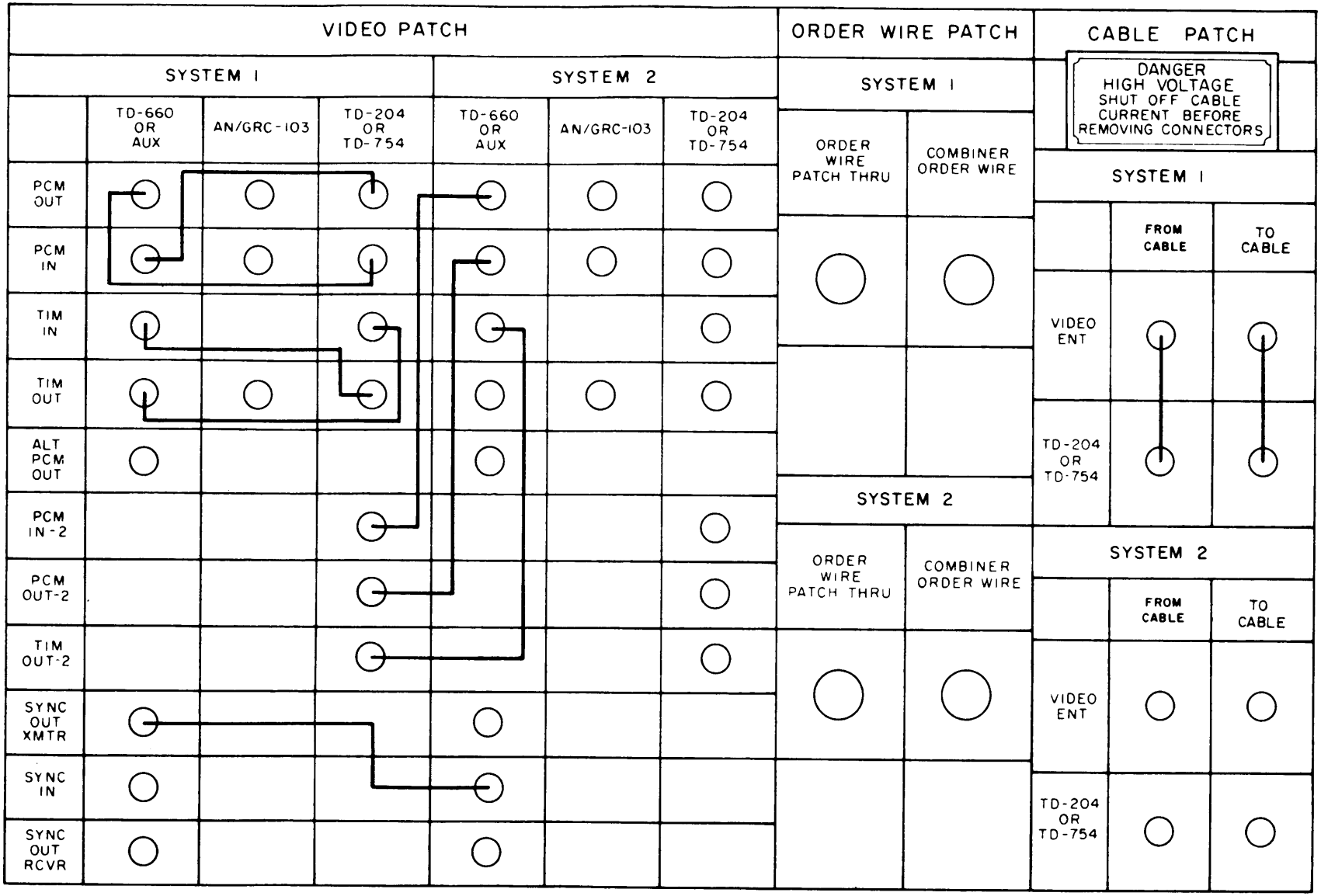


Figure 2-39. Patch panel connections for 12-channel cable terminal (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).

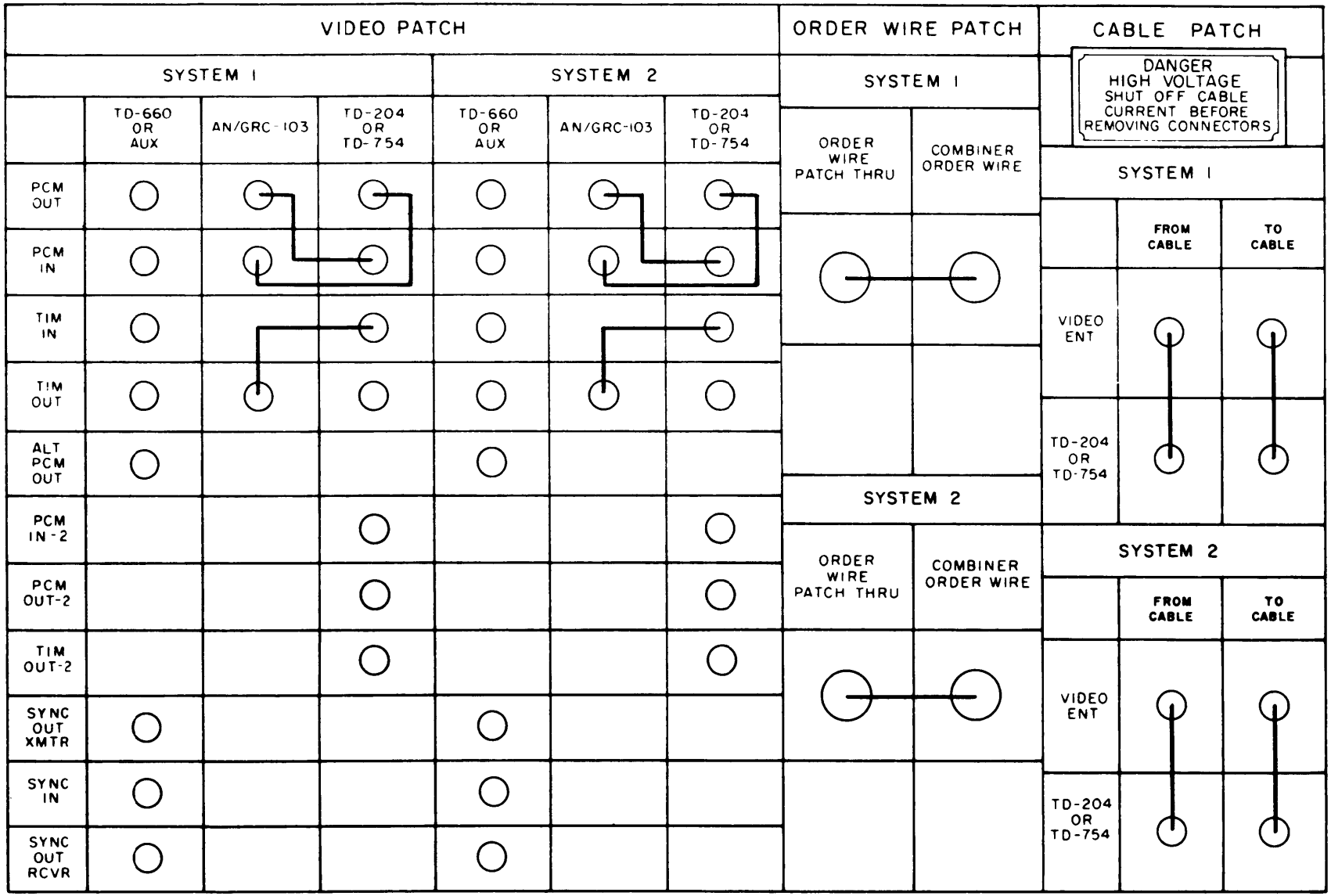


NOTES:

1. SYSTEM 1 TD-660A/G IS MASTER; SYSTEM 2 TD-660A/G IS SLAVE.
2. CABLE MUST BE CONNECTED TO SYSTEM 1 IN VIDEO AND ANTENNA ENTRANCE

EL3TU062

Figure 2-40. Patch panel connections for 24-channel cable terminal (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).



NOTE:
12-CHANNEL CABLE - RADIO CONVERSION CONFIGURATION SHOWN FOR BOTH SYSTEMS.

EL3TU063

Figure 2-41. Patch panel connections for 12-channel cable-to-radio connections (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).

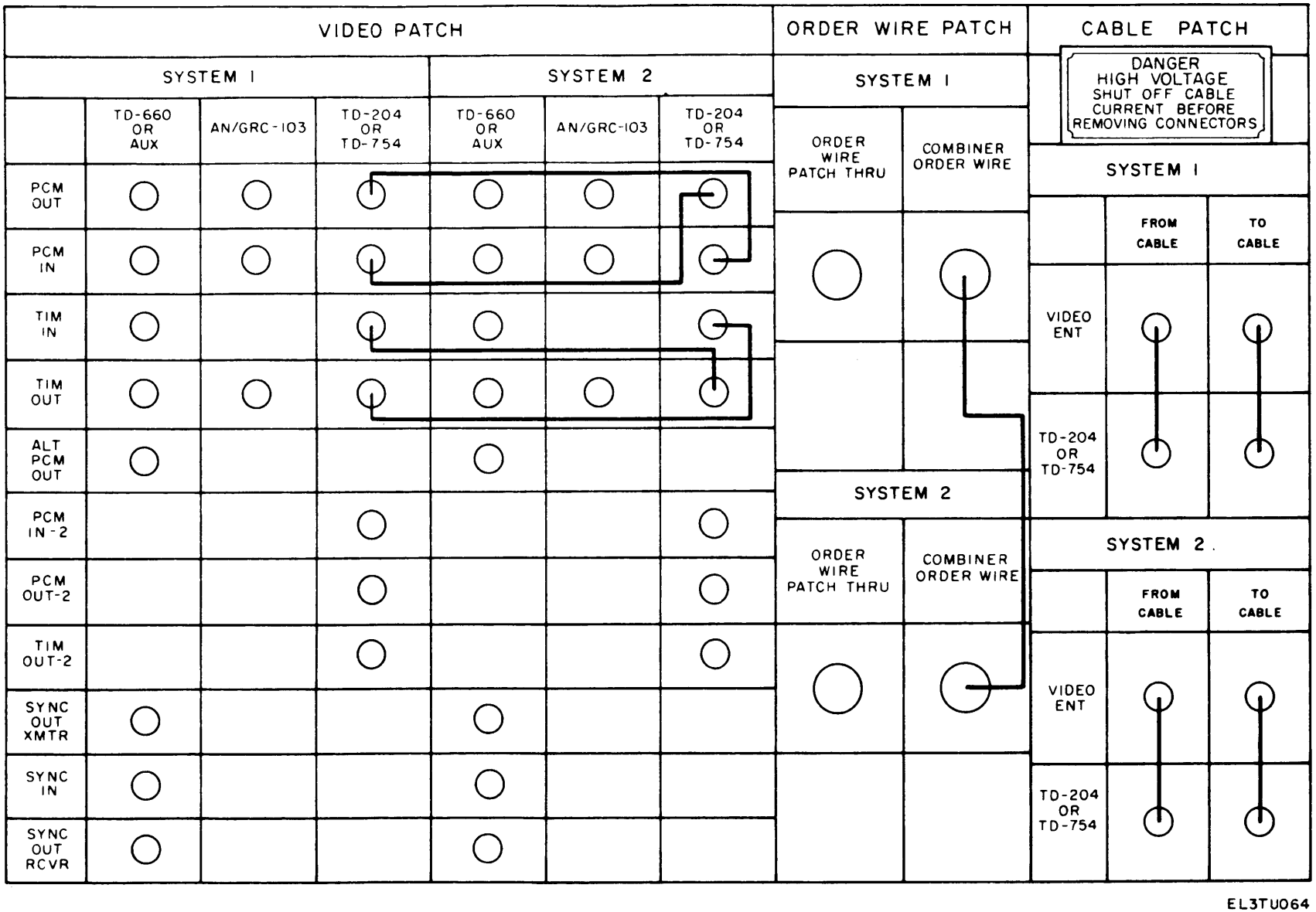
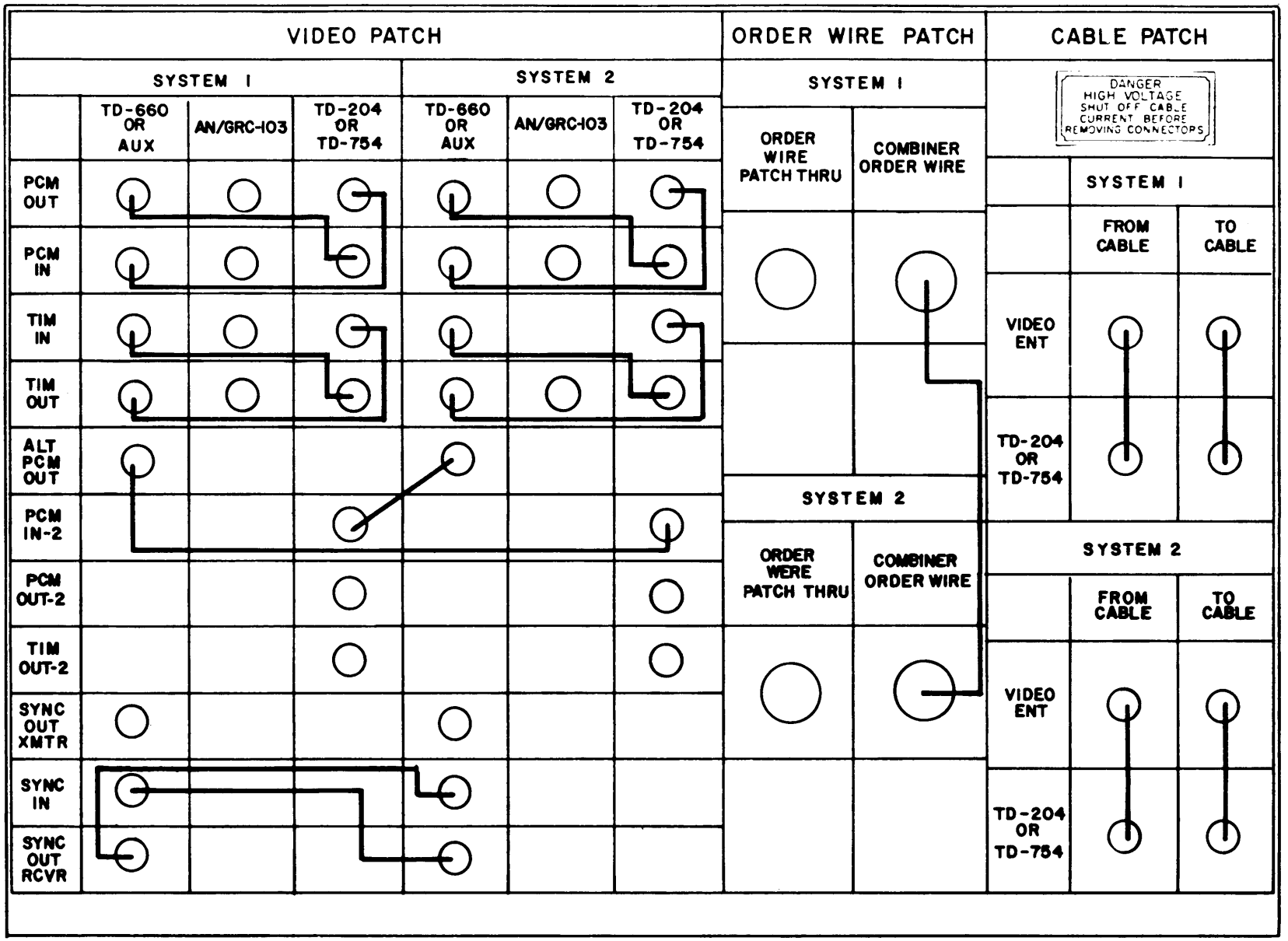


Figure 2-42. Patch panel connections for 12- or 24-channel cable repeater (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).



EL3TU065

Figure 2-43. Patch panel connections for 24-channel cable repeater with 12-channel drop and insert (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).

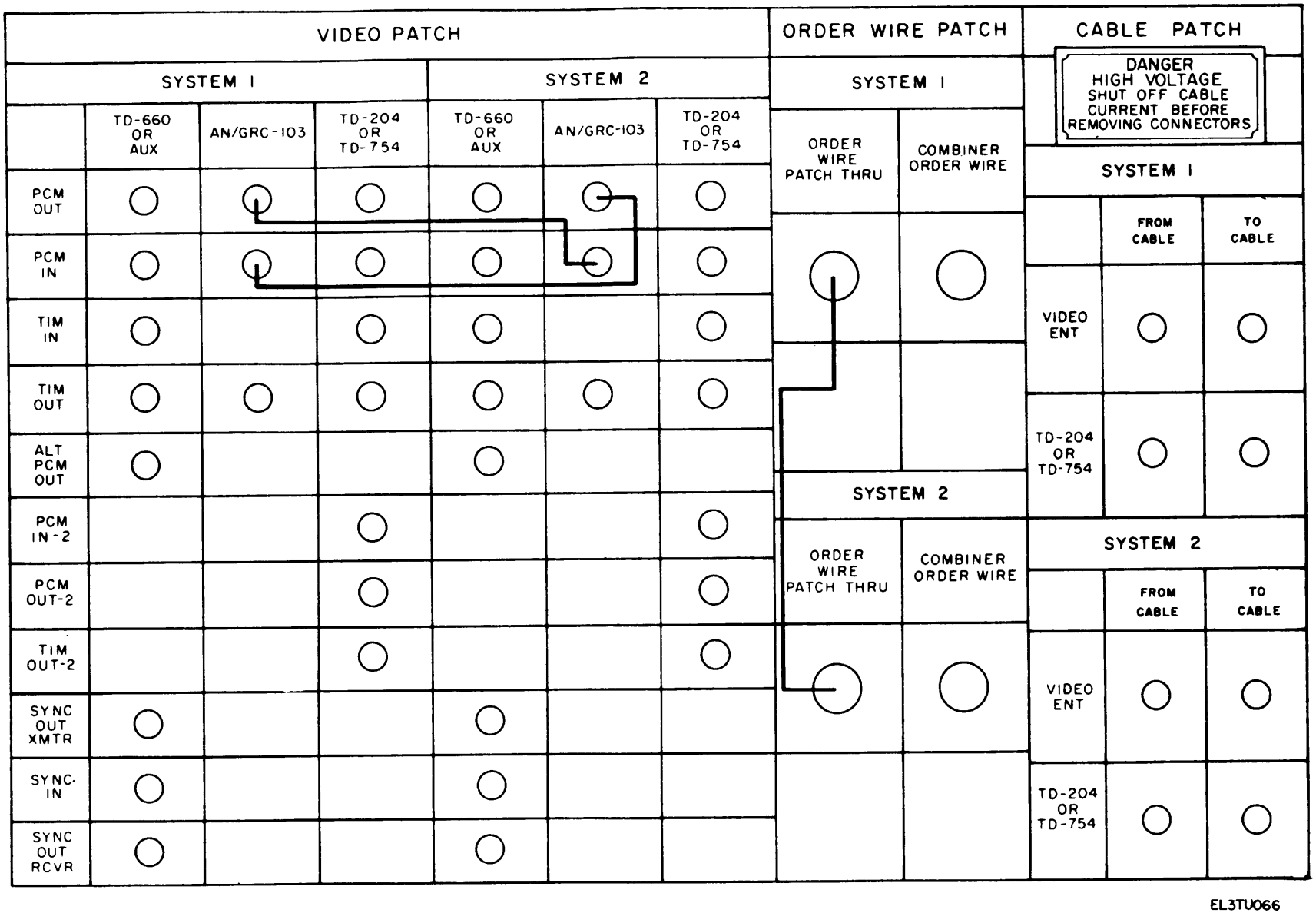


Figure 2-44. Patch panel connections for 12-channel radio repeater (Serial No. 47 and above) (AN/TRC-145 and AN/TRC-145A).

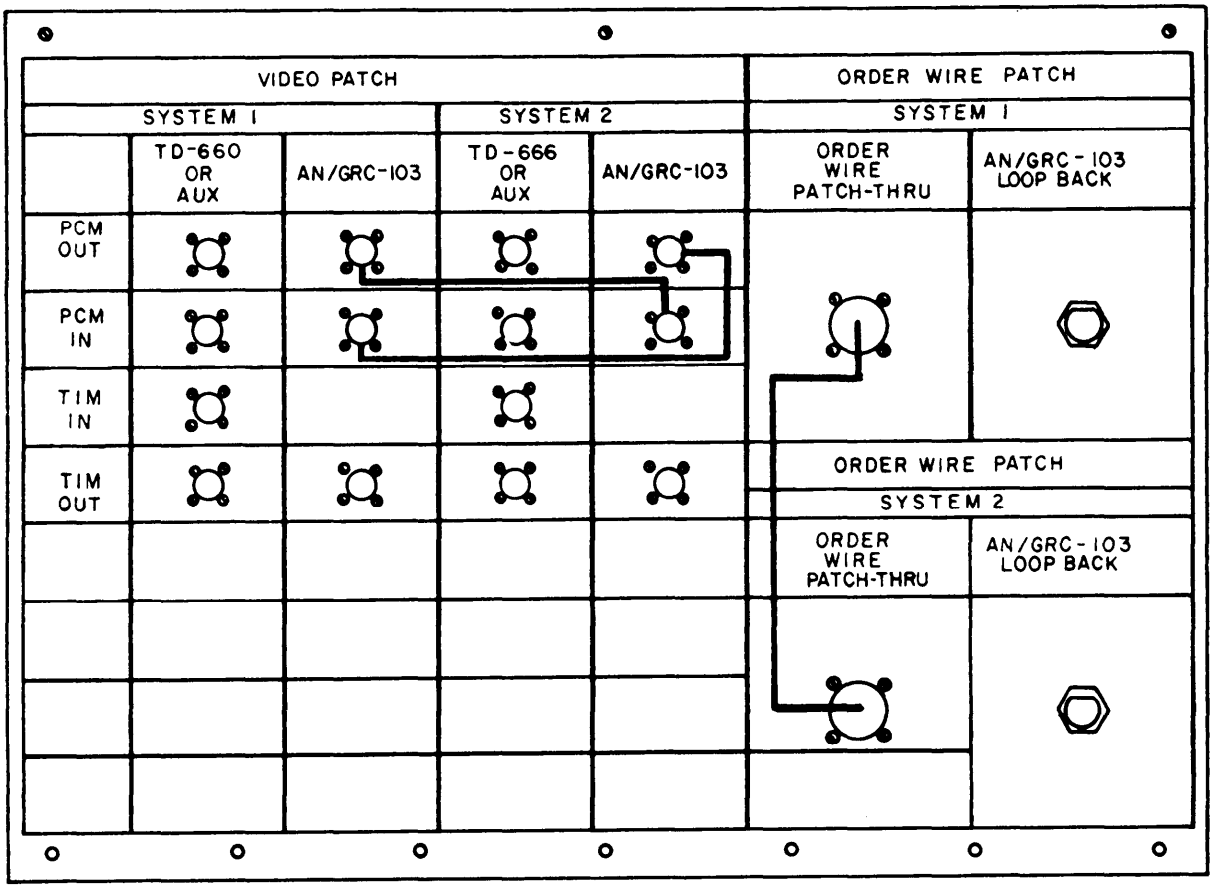


Figure 2-44.1. Patch panel connections for 12-channel radio repeater (Serial No. 47 and above) AN/TRC-145B).

2-13. Installing and Connecting TSEC/KG-27 (Security Equipment)

a. General. The TSEC/KG-27 is required for secure operations but is not supplied with the assemblage. The AN/TRC145(*) can provide secure link communications when TSEC/KG-27 equipment is interconnected into the system. Determine which system or systems require introduction of secure equipment and interconnect the TSEC/KG-27 as outlined. Unkeyed equipment maybe left unattended provided it is protected to a degree which, in the judgment of the commander, is sufficient to preclude any reasonable chance of theft, sabotage, tampering or access by unauthorized person. See paragraphs 7–3(c), TB 380-41.

NOTE

Only the TD-660A/G and the TD-660B/G can be connected to secure equipment. Wherever the manual refers to TD-660A/G it also refers to the TD-660B/G.

b. TSEC/KG-27 Preinstallation Procedure.

(1) Open the right side permuter door (receiver) on the front panel by unscrewing the latch knob located on the front of the door.

(2) Pull the tray lock level out until the permuter tray is released and remove the tray from the holder.

(3) Hold tray with the handle to the left so that the letters run from left to right.

(4) Program the permuter using the stylus. Move each slider to the numerical position specified for the crypto period.

(5) Insert the tray into the permuter assembly. Swing the lock lever up until it just touches the zeroizing plunger near the top of the assembly.

(6) Close and secure the permuter access door.

(7) Repeat (1) through (6) above, for the transmit permuter.

(8) For additional information pertaining to the TSEC/KG-27 preliminary checkout and turn-on procedures, refer to KAM 258( )/TSEC. For additional information on the permuter, refer to KAO-133( )/TSEC.

NOTE

For secure operation with the TSEC/KG-27, the TD-660A/G AUX IN-OUT switch must be in the IN position.

c. Installation and Checkout Procedures (fig. 2-45). If secure circuits are to be used, the security equipment must be installed and connected as described below prior to making the patch panel connections for the system requirements.

WARNING

To prevent a TEMPEST hazard, disconnect Telephone Set TA-312/PT and Intercommunications Station LS-147C/FI.

(1) If the TD-660A/G is connected for nonsecure operation, turn the POWER switch to OFF and disconnect cables.

(2) Remove the cables (five signal and one power), from the TSEC/KG-27 installation kit. (Refer to appendix C for system 1 and system 2 cable assembly sets.) The cable assemblies are each 12 feet long for system 1 and 16 feet long for system 2.

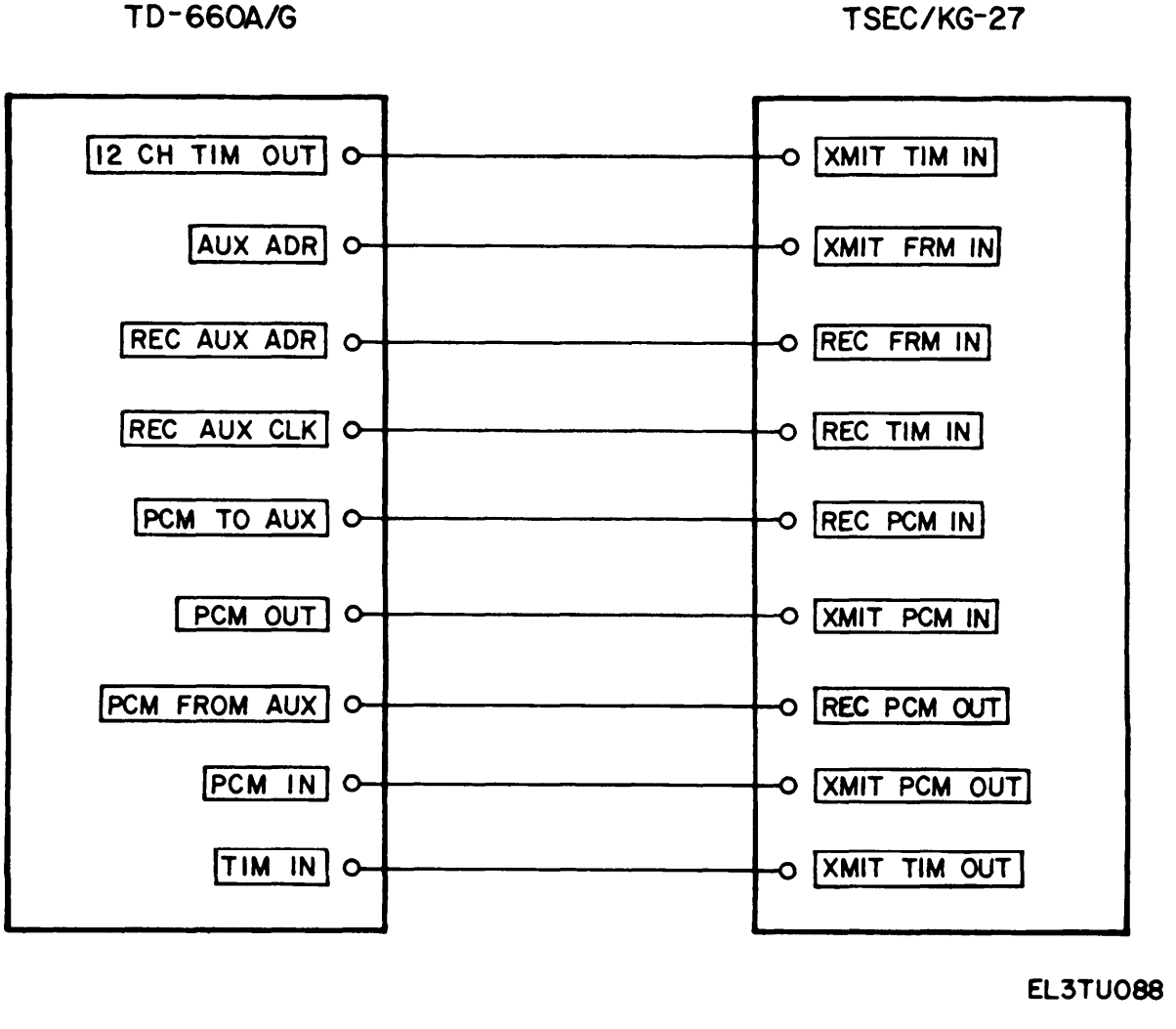


Figure 2-45. TSEC/KG-27 Loopback connections.

(3) Remove storage compartment from front rack location and remove brackets from storage compartment to secure TSEC/KG-27 at completion of installation.

(4) Install each set of rf cable assemblies into the existing raceway between Multiplexer TD-660A/G and TSEC/KG-27. Be sure to identify the system number on the set of rf cables for each system.

(5) Connect cables between the TD-660A/G and TSEC/KG-27 (fig. 2-45).

(6) Connect shielded power cable assembly between the TSEC/KG-27 and the AC power receptacle.

(7) Place the power switches of the TD-660A/G and TSEC/KG-27 to the ON position.

(8) Rotate the TSEC/KG-27 monitor select switch to all positions; the monitor lamp lights and no alarm condition exists. The TD-660A/G frames and no visible or audible alarm condition exists. If performance is satisfactory place the power switches of the TD-660A/G and TSEC/KG-27 to the OFF position, disconnect the cabling hookup and continue with the installation procedure.

(9) Disconnect the cables from the interconnecting box at the rear of equipment rack, check the labeling on the cables, and connect them to the appropriate connectors on the TSEC/KG-27 being installed (fig. 2-46).

(10) Slide the TSEC/KG-27 into the equipment rack and secure with storage compartment mounting brackets.

NOTE

If TSEC/KG-27 was received with mounting brackets, remove and store for future use.

(11) Make the appropriate patch panel connections for the system requirement (figs. 2-31 through 2-44).

d. Installation and Checkout Procedures (AN/TRC-145B) (fig. 2-46). If secure circuits are to be used, the security equipment must be installed and connected as described below prior to making the patch panel connections for the system requirements.

WARNING

To prevent a tempest hazard, disconnect Telephone Set TA-312/PT and Intercommunications Station LS-147C/FI.

(1) If the TD-660(*)/G and TD-1065/G are connected for nonsecure operations, set the POWER switch on each unit to OFF and slide the units forward in the racks. Disconnect the interconnecting cables.

(2) Disconnect the TSEC/KG-27 cables from the bypass terminations located behind the racks where the TSEC/KG-27's are to be installed.

(3) Connect TSEC/KG-27 cables to the units in accordance with cable markings corresponding to TSEC/KG-27 connectors.

(4) Disconnect the TD-1065 cables from the bypass terminations located behind the TD-1065/G's.

(5) Connect cables between the TD-660(*)/G and TD-1065/G for each system in use. Then connect TSEC/KG-27 to TD-660(*)/G and TD-1065/G for each system in use. Refer to figure 2-46, the interconnection diagram for secure operation.

(6) Connect shielded power cable assembly between TSEC/KG-27 and the AC power receptacle.

(7) Set the power switches of the TD-660(*)/G, TD-1065/G and TSEC/KG-27 to ON.

(8) Rotate the TSEC/KG-27 monitor select switch to all positions; the monitor lamp lights and no alarm condition exists. The TD-660(*)/G and TD-1065/G do not indicate alarm condition.

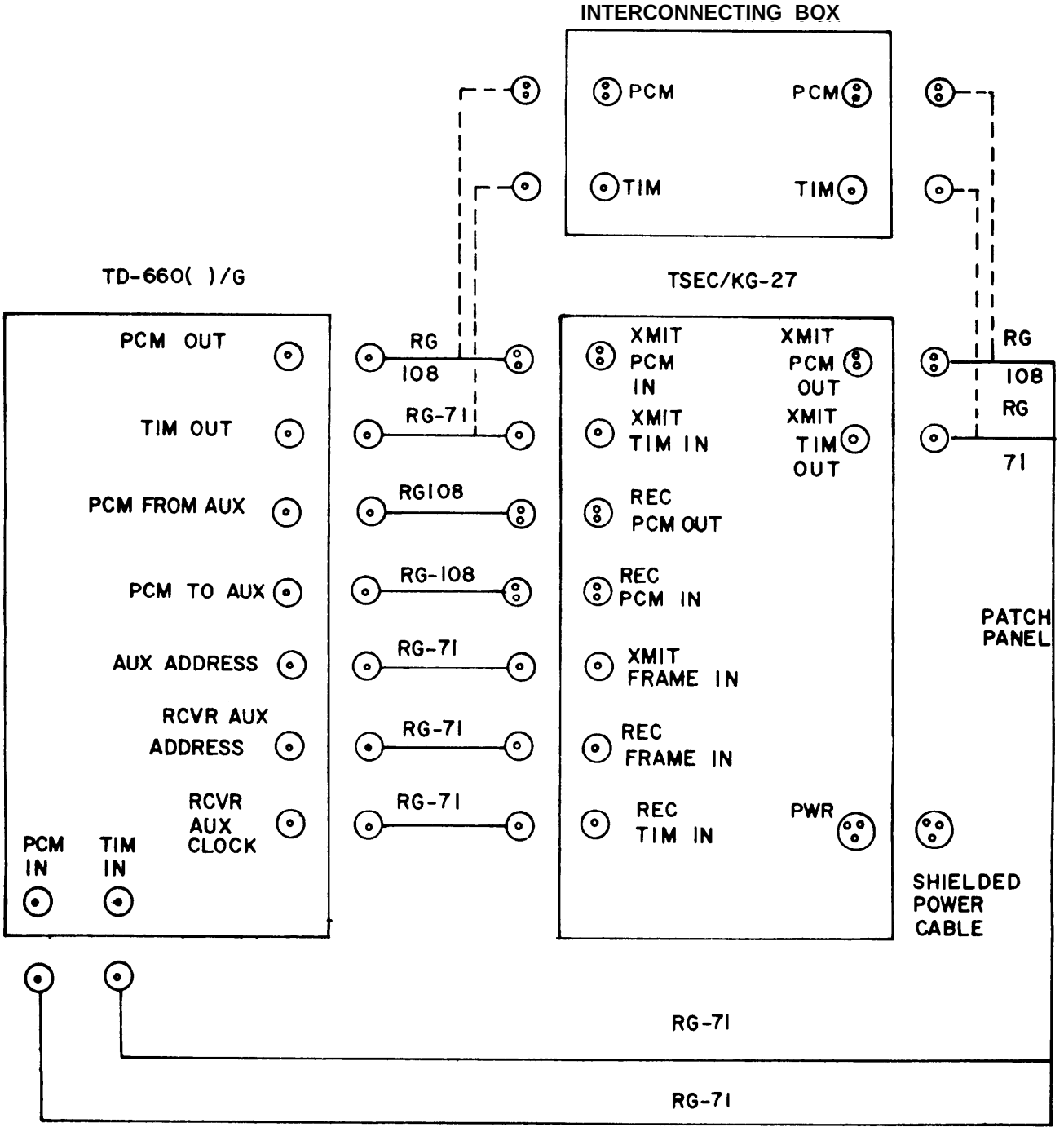
NOTE

If TSEC/KG-27 monitor lamp fails to light in any position, or TD-660(*)/G or TD-1065/G visible and/or audible alarm is generated, recheck cable connections for all equipment to be sure they have been made correctly.

(9) Slide the TSEC/KG-27 into the equipment rack and secure with storage compartment mounting brackets

NOTE

If TSEC/KG-27 was received with mounting brackets, remove and store for future use.



NOTES

1. RG-71 PER DWG SC-D-595511.
2. RG-108 PER DWG SC-D-693658.
3. POWER CABLE SHIELDED PER DWG SC-D-681112.

EL3TU087

Figure 2-46. Cabling connections for secure equipment installation.

2-14. Air Conditioner Connections

Two air conditioner ducts are provided on the curbside wall of the assemblage (fig. 1-2 or 1-3) for connection to an external air conditioner. Connect an external air conditioner to the assemblage as follows:

a. Loosen the mounting latches and remove the cover plates from the air conditioner ducts.

b. Install an air conditioner hardware kit in each air

conditioner duct (fig. 2-47).

c. Connect the air conditioner hose (fig. 2-48) to the air conditioner hardware kit and tighten the hose clamp.

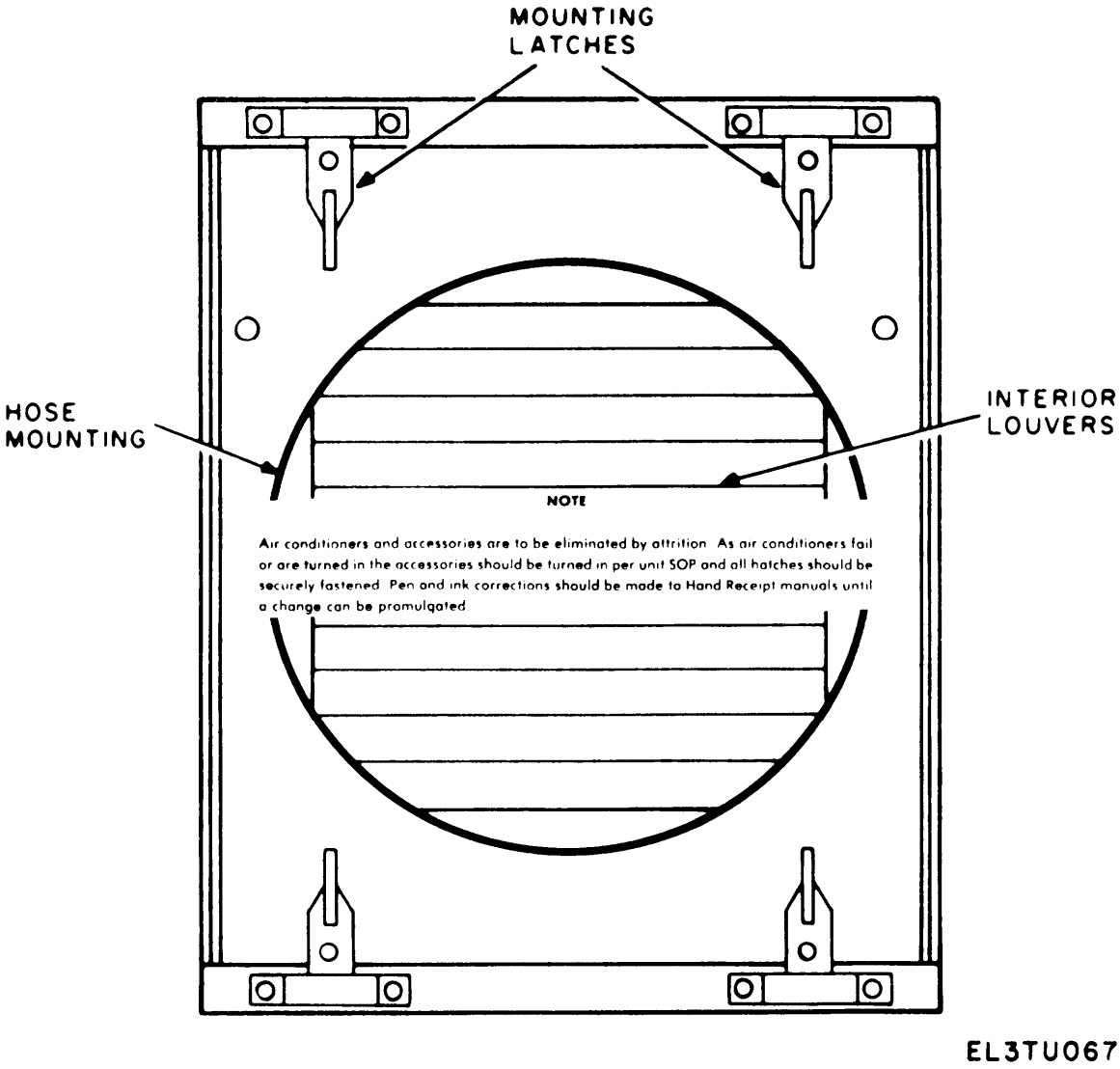


Figure 2-47. Air conditioner hardware kit mounted in air conditioner duct.

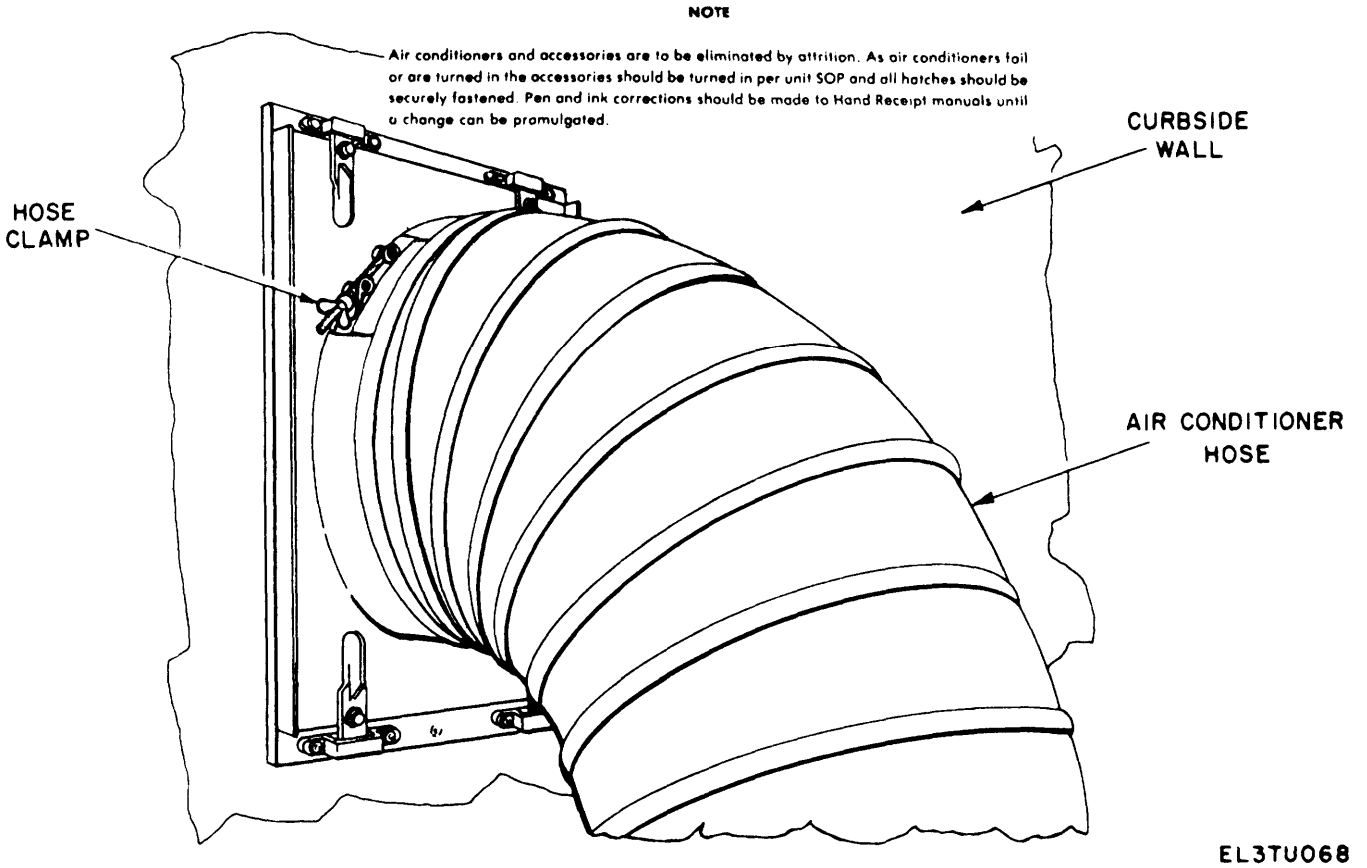


Figure 2-48. Air conditioner hose secure to air conditioner hardware kit.

Section IV. PRELIMINARY ADJUSTMENT OF EQUIPMENT

2-15. Preliminary Checks and Adjustments

a. Assemblage Power and Lighting.

(1) If a generator set is used to supply power, start the generator; if a central power source is used, turn on the power. The POWER INDICATOR at the rear roadside entrance wall (fig. 1-6) will light, and the AC VOLTS meter on the POWER DISTRIBUTION PANEL (fig. 2-49 or 2-50) should indicate 115 volts ±6.

(2) Operate the MAIN circuit breaker on the POWER DISTRIBUTION PANEL to ON.

(3) Operate the LIGHTS circuit breaker on the POWER DISTRIBUTION PANEL to ON.

(4) OPERATE THE FLUORESCENT LIGHTS switch on the rear roadside entrance wall to ON to operate the fluorescent ceiling lights. The AMPERES AC meter on the POWER DISTRIBUTION PANEL should have a small indication.

NOTE

If the temperature in the assemblage is too low for the fluorescent ceiling lights to operate, operate the INCANDESCENT COLD-START LIGHTS switch to ON to operate the incandescent ceiling lights. When the assemblage is heated sufficiently for the fluorescent lights to operate, operate the INCANDESCENT COLD-START switch to OFF.

(5) If blackout conditions are required, operate the BYPASS-BLACKOUT switch to BLACKOUT; otherwise, operate it to BYPASS.

(6) Check to see that the AMPERES AC meter on the POWER DISTRIBUTION PANEL indicates less than 2 amperes.

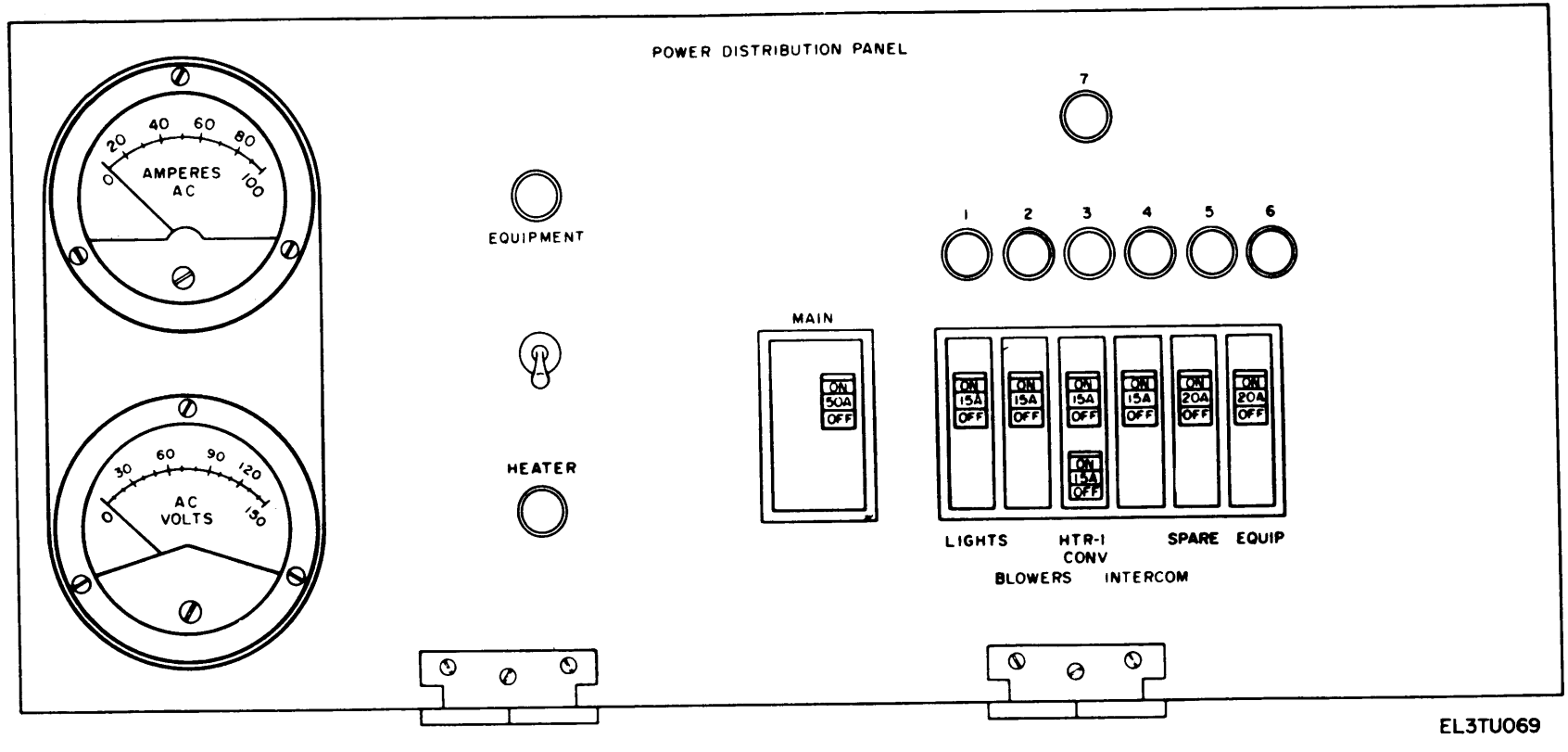


Figure 2-49. POWER DISTRIBUTION PANEL (serial No. 1 through 46).

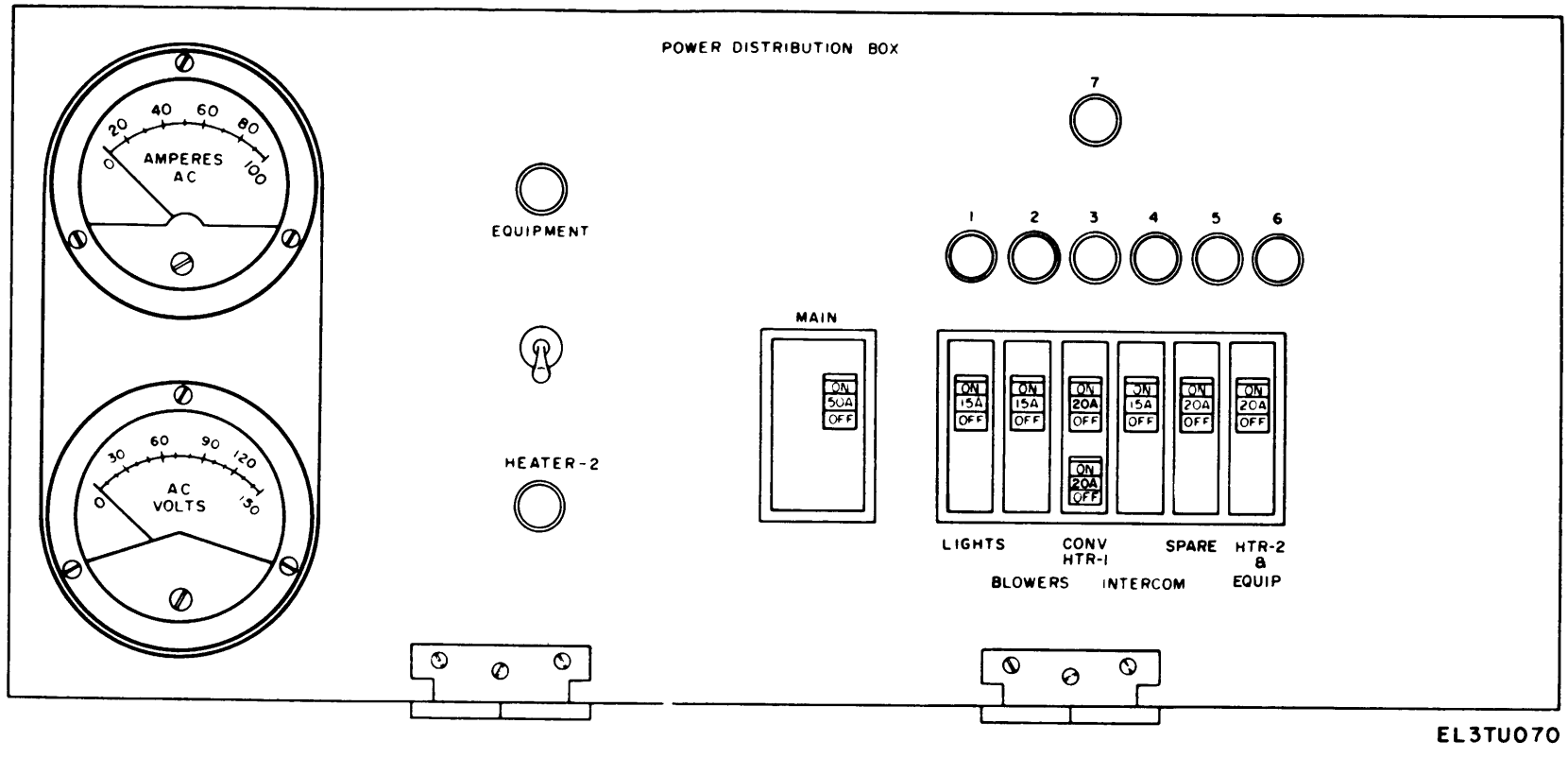


Figure 2-50. POWER DISTRIBUTION BOX (serial No. 47 and above).

b. TA-312/PT.

(1) Install two Batteries BA-30 in the battery case of the TA-312/PT, one facing up and one facing down.

(2) Operate the CB-LB-CBS switch to LB.

(3) Check to see that the wire pair adjacent to the TA-312/PT are connected to binding posts on the TA-312/PT.

c. LS-147C/FI.

(1) Check to see that the wire pair adjacent to the LS-147C/FI are connected to the terminals at the rear of the unit.

(2) Connect the ac power cord of the LS-147C/FI to the INTERCOM receptacle.

d. Equipment or Heater Power.

(1) Operate the EQUIP circuit breaker of the POWER DISTRIBUTION PANEL (fig. 2-48 or 2-49) to ON.

(2) If the interior of the assemblage is extremely cold and two heaters are required for initial heating, operate the EQUIPMENT-HEATER switch on the POWER DISTRIBUTION PANEL to HEATER; then operate both heaters (para 3-3) to establish the required heat.

(3) When the desired interior temperature is obtained and two heaters are no longer required, or if the equipment is to be operated, operate the EQUIPMENT-HEATER switch on the POWER DISTRIBUTION PANEL to EQUIPMENT.

e. TD-204/U. Perform the following procedures on each TD-204/U connected in an operating system. If a TD-204/U is not connected in a system, perform the procedures given in (1) through (6), (8), (12), (13), and (14) below.

(1) Operate the AC POWER, CABLE POWER, and TALK-OFF-SIG switches to OFF.

(2) Press the PUSH TO RELEASE CHASSIS button, and slide the TD-204/U out of its case far enough to expose the service facility panel and panel 6A4.

(3) Operate the TRAFFIC SEL switch to the position corresponding to the traffic capacity of the system as shown in table 2-2.

(4) Operate the NORM OPR-ZERO SET-READ switch to NORM OPR.

(5) Operate both MILES switches to ¼

(6) Operate the TONE-OFF switch on panel 6A2 to OFF.

(7) Operate the MILE switches on panels 6A4 and 6A5 to the positions corresponding to the distance to the first TD-206/G in the transmission cable.

NOTE

Both MILE switches (on panel 6A4 and panel 6A5) in a TD-204/U must be at the same position at any given time when one or more TD-206/G's are used in the cable link. If two TD-204/U's (or a TD-204/U and a TD-754/G) are connected with 1 mile or less of transmission cable, operate the panel 6A4 MILES switch to the position corresponding to the transmission cable length (¼, ½, ¾, or 1) and the panel 6A5 MILE switch to 1.

(8) Operate the AC POWER switch to ON. Check to see that the AC POWER and ALARMS NO CABLE CURRENT indicators light and the buzzer sounds. Silence the buzzer with the ALARMS BUZZER OFF switch.

NOTE

If the buzzer sounds during the procedures given in (9) through (14) below, press the ALARMS BUZZER OFF switch to silence it.

(9) Operate the CABLE POWER switch to ON. Check to see that the ALARMS NO CABLE CURRENT indicator is extinguished.

(10) Operate the METER SELECT switch to the following positions and check the indications on the TEST ALIGN meter:

Position	Indication
Timing in	Green
PCM in -1	Green
PCM in -2	Green
Cable I	Yellow
Cable V	Yellow

(11) With the METER SELECT switch in CABLE V, check to see that the TEST ALIGN meter indicates 10.8 times the number of TD-206/G's in the cable link, plus 13.

(12) Operate the METER SELECT switch to SERV FAC.

(13) Operate the SERV SEL switch through -10, + 10, SUM ±3, and BAL, and check for a yellow area indication on the TEST ALIGN meter for each position.

(14) Operate the SERV SEL switch to RCC, and

check for a green area indication on the TEST ALIGN meter.

Table 2-2. System Traffic Capacity (AN/TRC-145 and AN/TRC-145A)

System Configuration	TD-204/U TRAFFIC SEL, or TD-754/6 MODE switch position		TD-660A MASTER-SLAVE switch position	
	System 1	System 2	System 1	System 2
12-channel cable terminal	12	12	MASTER	MASTER
24-channel cable terminal	24	—	MASTER	SLAVE
12/24/48-channel cable repeater	48AR	48AR	—	—
24-channel cable repeater with 12-channel drop and insert.	48AR	48AR	SLAVE	SLAVE
12-channel cable-to-radio conversion	12	12	MASTER	MASTER

f. TD-754/G. Perform the following procedures on each TD-754/G connected in an operating system. If a TD-754/G is not connected in a system, perform the procedures given in (1) through (7), (13), and (14) below.

(1) Operate the PWR, CABLE CURRENT, and TALK-OFF-SIG switches to OFF.

(2) Operate the MODE switch to 6/12 for 6- or 12-channel cable-to-radio applications, or the 24 or 48 AR for 24- or 48-channel cable repeater application (table 2–2).

(3) Operate the READ-ZERO SET-NORM OPR switch to NORM OPR.

(4) Operate the METER SEL SWITCH to SERV FAC.

(5) Operate the SERV SEL switch to REF.

(6) Operate both FAULT LOC MILES switches to 0.

(7) Operate the TONE switch (screwdriver adjustment access through front panel) to OFF.

(8) Operate the CABLE MILES switches on panels 12A4 and 12A5 (access through front panel) to the position corresponding to the distance to the first TD-206/G in the transmission cable.

NOTE

Both CABLE MILES switches on panels 12A4 and 12A5 must be at the same position at any given time when one or more TD-206/G's are used in the cable link. If two TD-754/G's (or a TD-204/U and a TD-754/G) are connected with 1 mile or less of transmission cable, operate the panel 12A4 CABLE MILES switch to the position corresponding to the transmission cable length (1/4, 1/2, 3/4, or 1) and the panel 12A5 CABLE MILES switch to 1.

(9) Operate the PWR switch to ON. Check to see that the associated power indicator and CABLE CUR indicators light and the buzzer sounds. Silence the buzzer with BUZZER OFF switch.

(10) Check to see that the TEST ALIGN meters shows a yellow band indication.

(11) Operate the CABLE CURRENT switch to ON and see that the CABLE CUR indicator extinguishes.

(12) Operate the METER SEL switch to the following positions and check indications on the TEST ALIGN meter:

Position	Indication
Tim. In	Green
PCM in -1	Green
PCM in -2	Green
Cable Cur	Green

(13) Operate the METER SEL switch to SERVFAC and the SERV SEL switch to REF. See that the TEST ALIGN meter shows a yellow band indication.

(14) Operate the SERV SEL switch through +28, + 12, +5, and -6 and check for a hairline area indication in green band on the TEST ALIGN meter for each position.

(15) Operate the SERV SEL switch to RCC and check for green area indication on the TEST ALIGN meter.

g. TD-660A/G.

(1) Operate the POWER switch to OFF.

(2) Operate the MODE switch to 12 CH.

(3) Operate the BUZZER-OFF and selector switches I through IV to OFF.

(4) Operate the AUX switch to OUT.

(5) Operate the MASTER-SLAVE switch to the required position indication in table 2-2.

(6) Operate the POWER switch to ON; the power indicator will light.

(7) Operate selector switch I to each of the following positions, and check for the correct indication on the TEST ALIGN meter.

Switch Position	*Indication*
+7	Yellow
+12	Hairline
+4	Green
-12	Green
-6	Green
-4	Green
NOISE GEN	Yellow

(8) If the correct indications are not obtained in (7) above, perform the +12 volt adjustment below.

(a) Operate selector switch I to +12.

(b) Loosen the locknut on the + 12V control.

(c) Adjust the + 12V control for a hairline reading on the TEST ALIGN meter. Check CCL indication.

(d) Tighten the + 12V control locknut.

(9) Operate selector switch I to the SW III position.

(10) Operate selector switch SW III to OSC and check the TEST ALIGN meter for a green area indication.

h. Converter, Telephone Signal CV-1548(*)/G.

(1) Check to see that the POWER switch is operated to OFF.

(2) Operate the CH-2W-4W and signaling mode switches for each channel as indicated below:

	Switch position	
Vf channel connection	*CH-2W-4W*	*Signaling mode*
2-wire magneto line from SB-86/P, AN/TTC-7, TA-43/PT or TA-312/PT (20-Hz signaling).	2W	AC
2-wire vf line (no signaling)	2W	OFF
4-wire line (no signaling)	4W	OFF

(3) Loosen the captive screws, and remove the perforated inner front cover.

(4) Operate the POWER switch to ON.

(5) Check to see that the 20~indicator on panel 18A2 is glowing.

NOTE

Subparagraphs (6) and (7) below do not apply to the CV-1548A/G.

(6) Operate the meter selector switch through -, +, 20~DRIVE, and 20-, and check for a yellow indication on the TEST ALIGN meter.

(7) Operate the meter selector switch to 1600-, and check for a green area indication on the TEST ALIGN meter. If necessary, adjust the ADJ 1600 control on panel 18A2 for a center indication in the green area.

i. Line Polarity Checks Between CV–1548(*)/G and AN/TTC-7.

(1) Local battery (LB) line. In each panel 18A3 of the CV-1548(*)/G connected to an LB line, press the TEST switch; if an incoming call does not register at the switchboard for the associated line, interchange the tip and ring wires.

(2) *Common battery (CB) line (terminate (TE) only).* For each panel 18A3 of the CV-1548(*)/G connected to a terminate CB line, disconnect the CX-7873/-TCC cables between the CV-1548(*)/G and the TD-660A/G. An incoming call will register on the switchboard for each channel. If the call indication does not disappear when the TEST switch is pressed, interchange the tip and ring wires. Shut off TD-660A/G.

NOTE

Tip and ring wire polarity is not significant between the AN/TTC-7 originate (OR) trunks and the CV-1548(*)/G.

j. Line Polarity Checks Between CV-1548/G and Manual Telephone Switchboard SB-86/P.

(1) On each panel 18A3 of the CV-1548(*)/G connected to an SB-86/P circuit, operate the signaling mode switch to OR. Operate the line selector switch to T in each line of the SB-86/P connected to the CV-1548(*), and pull down all cords on the SB-86/P.

(2) Interchange the tip and ring wires on each line that shows a white line indicator on the SB-86/P.

(3) Operate the signaling mode switch on each panel 18A3 of the CV-1548(*), and the switches of SB-86/P, as indicated below.

Type of 2-wire line connection from SB-86/P	*CV-1548/G signaling mode switch*	*SB-86/P*	
		Line selector	*CIV TRKS*
Civilian trunk	OR	M	ON
Trunk	TE	C	OFF
Magneto	AC	M	OFF

(4) Replace the perforated inner front cover of the CV-1548(*)/G, and secure it in place with the screws.

k. AN/GRC-103(V).

(1) Operate the AC POWER switches on the T-983(P)/GRC-103(V) and R-1321(P)/GRC-103(V) to OFF.

(2) Operate the RCVR CHANNEL and RCVR SIG controls of the receiver head to the assigned receiver charnel and the XMTR DUPL control to the assigned transmitter channel.

(3) Operate the XMTR CHANNEL and XMTR TUNE controls on the transmitter head to the assigned transmitter channel.

(4) Operate the meter selector switch on the R-1329(P)/GRC-103(V) to OW and the meter selector switch on the T-983(P)/GRC-103(V) to OSC.

l. TSEC/KG-27.

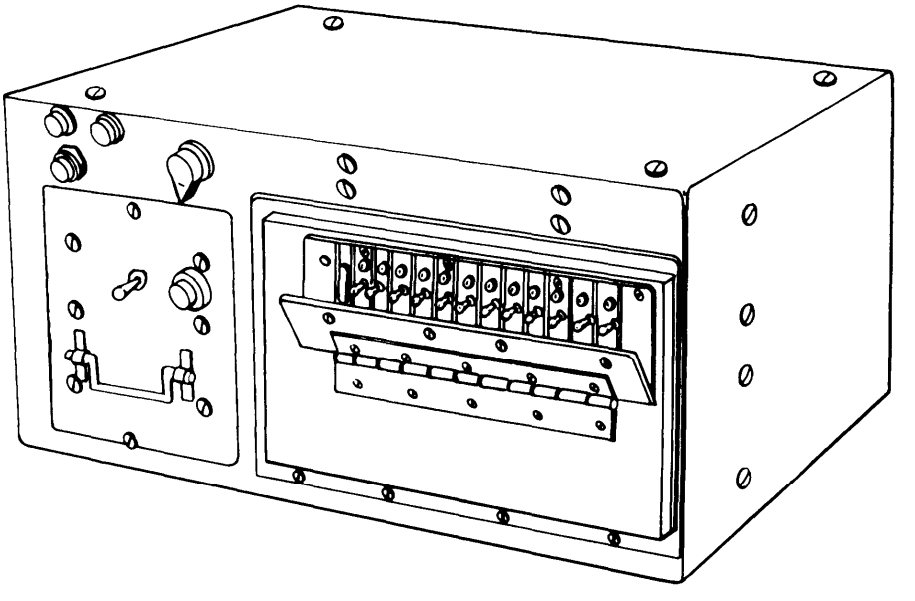
(1) Perfom the preinstallation procedures in paragraph 2-13b on each TSEC/KG-27.

(2) Turn on the TSEC/KG-27. The power lamp should light.

(3) For additional information pertaining to the TSEC/KG-27, preliminary checkout and turn-on procedures, refer to KAM 258( )/TSEC. For additional information on the permuter, refer to KAO-133( )/-TSEC.

NOTE

For secure operation with the TSEC/KG-27, the TD-660(A)/G AUX IN-OUT switch must be in the IN position.



EL3TU124

Figure 2-51. DataBuffer TD-1065/G.

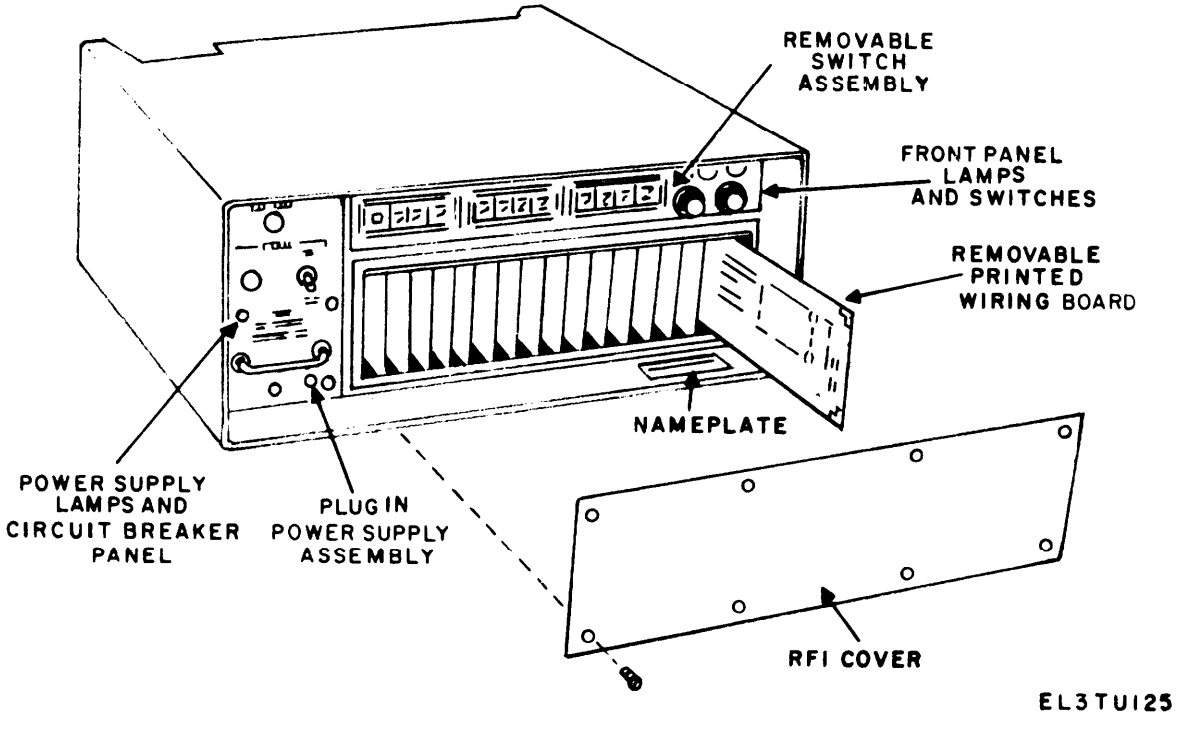


Figure 2-52. Time Division Digital Multiplexer TD-1069( )/G.

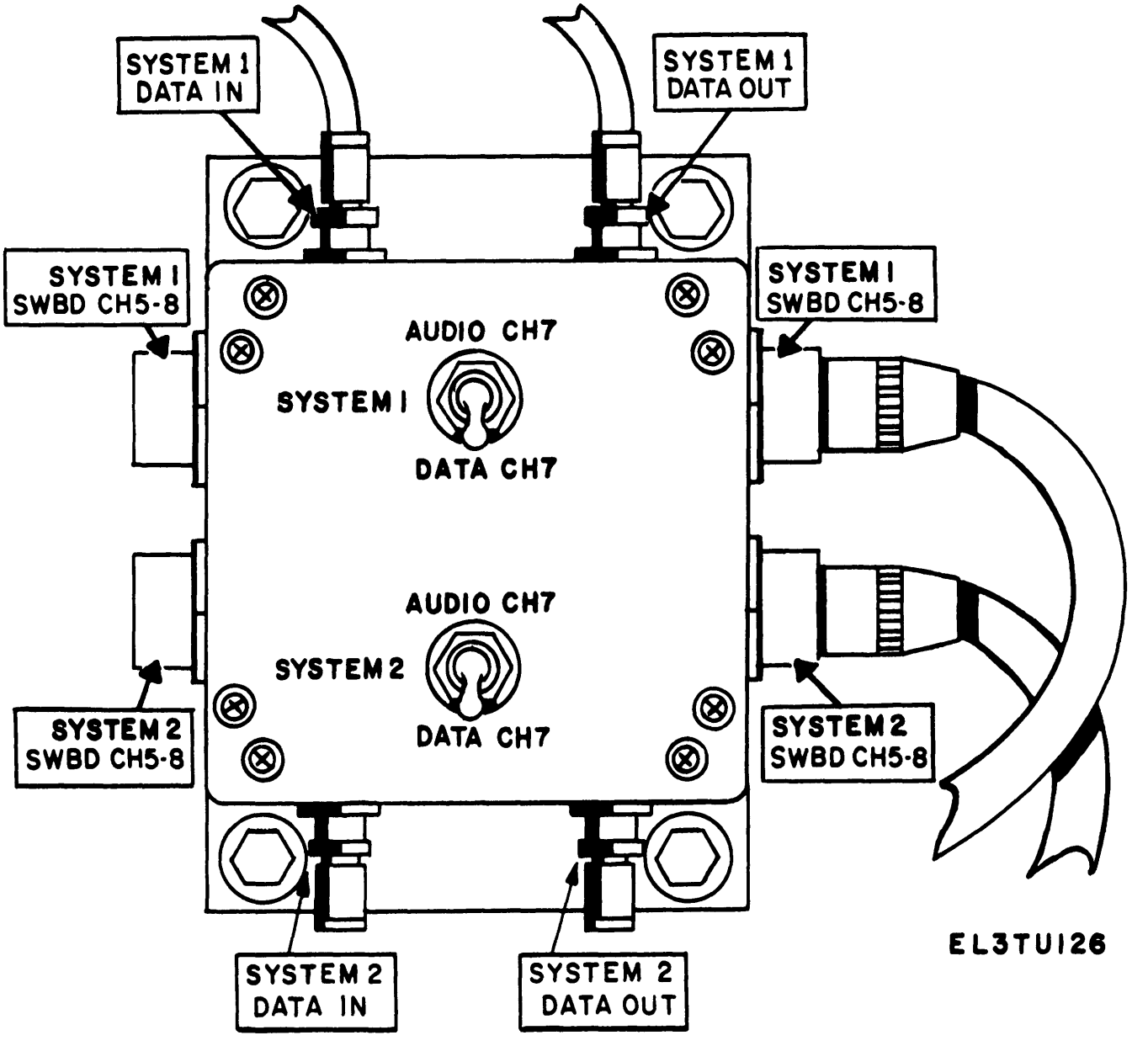


Figure 2-53. Channel 7 switch box.

m. TD-1065/G (Serial No. 47 and above) (AN/TRC-145B) (fig. 2-51). Steps (1), (2) and (3) below must be performed by organizational maintenance personnel.

NOTE

Prior to energizing the data buffer, a determination must be made as to the line input requirements of the data buffer.

(1) Loosen 4 captive screws and open front cover door on data buffer.

(2) Set 12 2W/4W switches on channel cards to required position.

(3) Close front cover door and tighten 4 captive screws.

(4) Place POWER ON/OFF circuit breaker in the ON position and note that POWER indicator light is illuminated.

(5) Starting with front panel rotary switch in the OFF Position rotate rotary switch clockwise through all positions. TEST indicator light should remain illuminated indicating normal operation for each switch position.

n. TD-1069/G (Serial No. 47 and above) (AN/TRC-l45B)(fig. 2-52)

CAUTION

Be sure that all interconnection cables are connected and properly routed before applying pri-

mary ac power to the TD-1069/G, DO NOT connect nor disconnect the ac power cable, control cables, or power supply module (A1) while the AC POWER switch on the front of the TD-1069/G is set to the ON position.

NOTE

Charnel 7 Switch Box SYS l/SYS 2 switch (Fig. 2-53) must be set to the position of the system in use. The AUDIO CH 7/DATA CH 7 switch must be set to the DATA CH 7 position.

The preliminary adjustments given below must be performed by organizational (or higher) maintenance personnel after initial installation in a system, or whenever system needs change.

(1) Loosen the 8 screws that secure the front rfi cover to the TDDM and then temporarily stow the front rfi cover in a safe place.

(2) Set the PHONE switch to the ON position.

(3) Set the 188C/TTL switch to the required position.

(4) Set the toggle switch on plug-in module A2 to the required position as follows: Up position for high level multiplexed output, and down position for low level multiplexed output.

(5) Allow a 5 minute warmup period, then set the PHONE switch to OFF position.

NOTE

Any time a XMT or RCV PORT rate switch setting is changed, 188C/TTL switch setting is changed, or any plug-in module is replaced while ac power is applied to the TD-1069/G, the momentary action switch on plug-in module A 18 must be operated to reset the logic circuits and return it to an operational state.

(6) Check that the FUNCTIONAL ALARMS indicator is extinguished. If not, press the AUD ALM RESET/ALM-LAMP TEST pushbutton and the FUNCTIONAL ALARMS indicator should extinguish.

(7) Check that the RATE OVERLOAD indicator on the front of the TDDM is extinguished. If not, a rate overload is indicated. Check that the total bit rate for all XMT ports (allowing 1200 bits per second for TTY modes) is 30 kilobits per second, or less; then check that the total bit rate for all RCV ports is 30 kilobits per second, or less.

(8) Position the front rfi cover over the front of the TDDM and secure it in place using the 8 captive screws.

(9) Determine data rates of subscriber equipment and set XMT and RCV PORT rate switches to the required positions. Remember that the TTY position equals 1200 bits per second. For unused ports, set the XMT and RCV PORT rates switches to the OFF position.

(10) Use the orderwire telephone to check your data rate selections with the installer at the other end of the communications link. Ports used, and transmission (data) rates selected, must match at both ends of the communications link.

NOTE

Disregard any lighted TRAFFIC or FUNCTIONAL ALARMS lamps unless specifically indicated in the procedure.

(11) Set the AC POWER switch to the ON position The audible alarm may sound. If so, press the AUD ALM RESET/ALM-LAMP TEST pushbutton to silence the audible alarm.

NOTE

During turn-on, and every time equipment changes are made, the audible alarm will sound. Silence the audible alarm each time by pressing the AUD ALM/ALM-LAMP TEST pushbutton.

2-16. Circuit Alignment

NOTE

The lineup procedures for the AN/TRC-145(*) consist of order wire alignment in the TD-204/-U or TD-754/G *(a* or *b* below), order wire alignment and antenna directional adjustment for the AN/GRC-103(V) (c below), and channel gain adjustment in the TD-660(*)/G *(d* below).

a. TD-204/U Order Wire Alignment.

(1) Connect Headset-Microphone H-91/U to the HEADSET receptacle.

(2) Operate the AC POWER switch of the TD-204/-U to ON and check to see that the AC POWER indicator lights. The ALARMS NO CABLE CURRENT indicator should light, and the buzzer should sound. Operate the CABLE POWER switch to ON, and silence the buzzer with the BUZZER OFF switch.

(3) Momentarily operate the TD-204/U TALK-OFF-SIG switch to SIG, and then to TALK.

(4) After communication is established through the link, operate the METER SELECT switch to SERV FAC and the SERV SEL switch to Q.

(5) Operate the TONE-OFF switch on panel 6A2 to TONE.

(6) Instruct the distant operator to adjust the CRL control on panel 6A2 of the distant TD-204/U for a center hairline indication on the TEST ALIGN meter.

(7) Operate the TONE-OFF switch to OFF, and request the distant operator to send the tone (distant TD-204/U TONE-OFF switch to TONE).

(8) Adjust the CRL control on panel 6A2 for a center hairline indication on the TEST ALIGN meter.

(9) Instruct the distant operator to stop the test tone. Check communications with the distant operator for proper volume.

b. TD-754/G Order Wire Alignment.

(1) Connect Headset-Microphone H-91/U or Handset H-156/U to the HEADSET receptacle.

(2) Operate the PWR switch to ON and check to see that the associated power indicator lights. The CABLE CUR indicator should light and the buzzer should sound.

Operate the CABLE CURRENT switch to ON and silence the buzzer with the BUZZER OFF switch.

(3) Operate the METER SEL switch to SERV FAC and the SERV SEL switch to 0.

(4) Momentarily operate the TALK-OFF-SIG switch to SIG and then to TALK.

(5) After communication is established through the link, request the distant operator to operate the panel 12A2 TONE switch to ON.

(6) When the tone is received, adjust the panel 12A2 CRL control for a green band indication on the TEST ALIGN meter.

(7) Request the distant operator to operate the panel 12A2 TONE switch to OFF, operate the local panel 12A2 TONE switch to ON, and instruct the distant operator to adjust the CRL control for a green band indication on the TEST ALIGN meter.

(8) When the adjustment is complete, operate the panel 12A2 TONE switch to OFF and check communications with the distant operator for proper volume.

NOTE

The patch receive level adjustment is only used when the TD-754/G is used in an attended repeater station.

(9) On adjacent TD-754/G, operate TONE switch on panel 12A2 to ON.

(10) On TD-754/G that is being aligned, operate METER SEL switch to SERV FAC and SERV SEL switch to 0.

(11) On TD-754/G that is being aligned, adjust PRL potentiometer on panel 12A2 for green band indication on TEST ALIGN meter.

(12) On adjacent TD-754/G, place TONE switch on panel 12A2 to OFF.

c. AN/GRC-103(V) Order Wire Alignment and Antenna Directional Adjustment.

(1) Turn on and tune the AN/GRC-l03(V) (para 3-4).

(2) Open the front of the RT-773/GRC-103(V) and take out Handset H-60/PT.

(3) Press the RING switch on the RT-773/-GRC-103(V) for about 2 seconds and attempt to establish order wire communications with the distant operator.

(4) Operate the hand switch of the H-60/PT to talk with the distant operator.

(5) Request an order wire ring from the distant operator to check the order wire signaling.

(6) Operate the meter selector switch of the R-1329/GRC-103(V) to RCVR SIG.

(7) Release the azimuth lock turnscrew on the antenna base plate.

(8) Use the strap wrench (6, fig. 2-18) and rotate the mast to obtain a maximum indication on the receiver meter.

(9) Tighten the azimuth lock on the antenna base plate,

d. TD-660(*)/G Channel Gain Adjustment. Each 11A5 panel in the TD-660A/G contains three channels.

NOTE

The channel numbers are stenciled on the perforated front cover.

(1) Operate selector switch III to MEAS at both terminals.

(2) Operate selector switch IV to channel 1 using the outside ring of charnel numbers for 6-channel operation, or the inner ring for 12-channel operation.

(3) Determine whether a 2-wire line is connected to charnel 1 and operate the 2 WIRE-4 WIRE switch to the corresponding position.

(4) Open the adjust cover (on the front panel).

(5) Adjust the AG control for channel 1 on the 11A5 panel for a center hairline indication on the TEST ALIGN meter.

(6) Repeat the procedures in (2) through (5) above for each channel, and close the adjustment cover.

e. TSEC/KG-27 Checks and Adjustments.

(1) Set the MONITOR switch to each of the voltage check positions and observe that the MONITOR lamp lights in each position.

(2) Set the MONITOR switch to each of the XMIT positions and observe that the MONITOR lamp lights in each position. (The TD-660(*)/G and TD-1065/G must be on.

(3) Set the MONITOR switch to each of the REC positions and observe the MONITOR lamp lights in each position. (The MONITOR lamp will not light if the distant terminal is not activated.)

NOTE

The TSEC/KG-27 will not synchronize with the distant terminal until the multiplexer have achieved synchronization. Frame alarms on the local MUX will be ON if the distant terminal is not transmitting.

(4) If the TSEC/KG-27 goes into the alarm condition, operate the ON-OFF/RESET switch to OFF/RESET, pause and return to ON to initiate a restart. If the alarm condition persists, refer to the system troubleshooting in paragraph 5-3.

(5) For additional information pertaining to TSEC/-KG-27 normal starting procedures, refer to KAM 258( )/TSEC.

CHAPTER 3
OPERATING INSTRUCTIONS

Section I. OPERATION UNDER USUAL CONDITIONS

3-1. Operator/Crew Controls

NOTE

Except for the controls and indicators listed in tables 3-1 and 3-2, all controls and indicators for the components of the AN/TRC-145(*) are covered in the appropriate technical manual (app A). The controls shown below in parenthesis apply to serial No. 47 and above only.

3-2. Energizing AC Circuits

Follow the procedures in paragraph 2-15a to energize ac circuits in the AN/TRC-145(*).

3-3. Operating Heaters, Blowers, LS-147C/FI, and TA-312/PT

a. Electric Heater No. 1.

(1) Insert the heater power connector into the HEATER 1 receptacle.

(2) Operate the HTR-1 circuit breaker on the POWER DISTRIBUTION PANEL to ON; the associated neon indicator will light.

(3) Operate the heater switch to ON, and adjust the TEMPERATURE control on the heater for the desired temperature.

b. Electric Heater No. 2.

(1) Insert the heater power connector in the HEATER 2 receptacle.

(2) Operate the EQUIP (or HTR-2 & EQUIP) circuit breaker on the POWER DISTRIBUTION PANEL to ON; the associated neon indicator will light.

Table 3-1. POWER DISTRIBUTION PANEL or POWER DISTRIBUTION BOX Controls and Indicators (fig. 2-49 and 2-50)

Control	Description	Function
MAIN circuit breaker	50 amperes	Provides overload protection, and control of ac power to tributary circuit breakers.
Circuit breakers:		Control following circuits:
LIGHTS	15 amperes	Ceiling lights (fluorescent and incandescent).
BLOWERS	15 amperes	BLOWER 1 and BLOWER 2 receptacles.
HTR-1 CONV (CONV HTR-1)	Dual 15 amperes	HEATER 1 and CONVENIENCE receptacles.
INTERCOM	15 amperes	INTERCOM receptacles.
SPARE	20 amperes	SPARE.
EQUIP (HTR-2 & EQUIP)	20 amperes	Controls ac peer to EQUIPMENT-HEATER switch.
AC VOLTS meter	0-150 volts ac	indicates input voltage.
AMPERES AC	0-100 amperes	Indicates total current drain in assemblage.
Indicators No. 1 through 7	NE-51G	Glow when associated circuit breaker is operated to ON.
EQUIPMENT-HEATER switch (EQUIPMENT-HEATER-2).	Two-position	EQUIPMENT position-applies ac power to equipment racks.
		HEATER position-applies ac power to HEATER-2 receptacle
EQUIPMENT and HEATER indicators.	NE-45	Glows when EQUIPMENT-HEATER switch is in associated position.

Table 3-2. Miscellaneous Controls and Indicators (fig. FO-1 and FO-2)

Control	Description	Function
POWER INDICATOR	NE-34	Glows when ac power is applied to POWER ENTRANCE BOX.
FLUORESCENT LIGHT switch	Two-position	Controls fluorescent ceiling lights.
INCANDESCENT COLD-START LIGHTS switch.	Two-position	Controls incandescent ceiling lights.
BYPASS BLACKOUT switch	Two-position	Controls lights in assemblage as follows: BYPASS position-permits assemblage light circuts to be controlled by individual switches only. BLACKOUT position-permits assemblage light circuits to controlled by interlock switch.
BLOWER 1 switch	Two-position	Controls ac power to BLOWER 1 receptacle.
BLOWER 2 switch	Two-position	Controls ac power to BLOWER 2 receptacle.
Interlock switch	Microswitch	Extinguishes assemblage lights when assemblage door is open and BYPASS BLACKOUT switch is in the BLACKOUT position.
BINDING POST-CABLES switches on SIGNAL ENTRANCE panel (fig. 1-19 or 1-20).	Two-position	BINDING POSTS position-connects fieldwire input CV-1548(*)/G. CABLES position-connects 26-pair cable input to CV-1548(*)/G
CONV BREAKER circuit breaker in POWER ENTRANCE BOX (fig. 1-16).	10 ampere	Controls ac power to 115V AC receptacles in POWER ENTRANCE BOX.

(3) Operate the EQUIPMENT-HEATER switch on the POWER DISTRIBUTION PANEL to HEATER.

(4) Operate the heater switch to ON, and adjst the TEMPERATURE control on the heater for the desired temperature.

c. Exhaust Blowers.

(1) Open the EXHAUST BLOWER covers on the outside of the front wall of the assemblage.

(2) Open the air falter vent cover on the outside of the entrance door.

(3) Operate the BLOWERS circuit breaker on the POWER DISTRIBUTION PANEL to ON; the associated neon indicator will light.

(4) Operate the BLOWERS 1 and BLOWER 2 switches on the ceiling power ducts (fig. FO-1 or FO-2) to ON; the blowers should operate.

d. Intercommunication Station LS-147C/FI.

(1) Operate the LS-147C/FI OFF-SEND switch to 5 (about midpoint); the glowlamp will light.

(2) Operate the PRESS-TO-TALK switch and speak into the speaker-microphone on the front panel. Release the PRESS-TO-TALK switch to listen.

NOTE

The OFF-SEND switch does not have to be turned on to receive a call.

(3) Adjust the RECEIVE control to regulate the volume of incoming calls.

e. Telephone Set TA-312/PT.

(1) Initiating a call. Lift the handset from the cradle and turn the handcrank. Press the PRESS-TO-TALK switch to talk, and release it to receive. Replace the handset in the cradle after the call is completed.

(2) Answering a call. When the TA-312/PT rings, lift the handset from the cradle and listen to the receiver. Press the PRESS-TO-TALK switch to talk. Replace the handset in the cradle after the call is completed.

3-4. Operating Rack Equipment

NOTE

Turn on only those equipment components that are being used in the assigned application.

a. POWER DISTRIBUTION PANEL. If heater No. 2 was in use for heating the interior of the assemblage, turn off the heater and operate the EQUIPMENT-HEATER switch to EQUIPMENT. If heater No. 2 was not used, operate the EQUIP circuit breaker to ON and the EQUIPMENT-HEATER switch to EQUIPMENT.

b. CV-1548(*)/G. Operate the POWER switch on each CV-1548(*)/G to ON, and check to see that the power indicator lights.

c. TD-660A/G. Operate the POWER switch on each TD-660A/G to ON and check to see that the power indicator lights.

d. TSEC/KG-27. If installed, operate the TSEC/KG-27 equipment power switch to ON and check tome that the power indicator lights.

e. TD-204/U. Operate the AC POWER switch of the TD-204/U to ON, and check to see that the AC POWER indicator lights. The ALARMS NO CABLE CURRENT indicator should light, and the buzzer should sound. Operate the CABLE POWER switch to ON, and silence the buzzer with the BUZZER OFF switch.

f. TD-754/G. Operate the PWR switch of the TD-754/G to ON and check to see that the associated power indicator lights. The CABLE CUR indicator should light and the buzzer should sound. Operate the CABLE CURRENT switch to ON and silence the buzzer with the BUZZER OFF switch.

g. AN/GRC-103(V).

(1) See that the receiver head RCVR CHANNEL, RCVR SIG, and XMTR DUPL controls are set for the proper channel numbers on both RCVR CHANNEL indicators and the XMTR CHANNEL indicator.

(2) See that the transmitter head XMTR CHANNEL and XMTR TUNE controls are set for the proper transmitter frequency.

(3) Operate the T-938(P)/GRC-103(V) AC POWER switch to ON/RESET. The AC POWER, ALARMS LOW POWER, and ALARMS SYNC indicator light (light may not illuminate), buzzer sounds, and the blower operates.

(4) Operate the R-1329(P)/GRC-103(V) AC POWER switch to ON. The AC POWER indicator, ALARMS LOW SIGNAL, and ALARMS SYNC indicators light and the buzzer sounds. Press the BUZZER OFF switch to silence the buzzer. The POWER indicator on the RT-773/GRC-103(V) will also light, and a loud rushing noise will be heard in the H-60/PT of the RT-773/GRC-103(V).

(5) Operate the T-983(P)/GRC-103(V) meter selector switch to 12 VDC, 28 VDC, and 600 VDC sequentially. The meter should indicate in the green band.

(6) Operate the T-983(P)/GRC-103(V) meter selector switch to OSC, DOUBLER, and MULT sequentially. The meter should indicate between 25 and 90 percent of full scale.

(7) Operate the T-983(P)/GRC-103(V) meter selector switch to DRIVER, (no adjstment for band II or III), push in the PWR OUT PEAK knob, and tune for a maximum indication on the meter. The indication should be between 25 and 90 percent of full scale.

(8) Operate the T-983(P)/GRC-103(V) meter selector switch to PWR OUT (no adjustment for band III), pull the PWR OUT PEAK knob, and tune for a maximum indication on the meter. The meter should indicate between 25 and 90 percent of full scale. If the buzzer sounds when the LOW POWER lamp extinguishes, press the BUZZER OFF pushbutton to silence the buzzer.

(9) Operate the T-983(P)/GRC-103(V) meter selector switch to REFL PWR, and tune the R-1329(P)/GRC-103(V) XMTR DUPL control for a minimum indication on the T-983(P)/GRC-103(V)

meter. The XMTR CHANNEL indicator should be within 10 channels of the assigned channel number, and the meter should indicate less than 20 percent of full scale.

(10) Operate the R-1329(P)/GRC-103(V) meter selector switch to XMTR DUPL. The meter should indicate between 25 and 90 percent of full scale.

(11) Operate the R-1329(P)/GRC-103(V) meter selector switch to REFL PWR. The meter should indicate less than 20 percent of full scale.

(12) Operate the T-983(P)/GRC-103(V) meter selector switch to 12 CH PCM, and adjust the transmitter INPUT control until the meter indicates in the green band.

(13) Operate the R-1329(P)/GRC-103(V) meter selector switch to +12 VDC and – 12 VDC sequentially. The meter should indicate in the green band,

NOTE

The ALARMS-SYNC indicator may light momentarily or not at all. If it lights, wait until it extinguishes before proceeding.

(14) Operate the R-1329(P)/GRC-103(V) meter selector switch to OSC and DOUBLER sequentially. The meter should indicate between 25 and 90 percent of full scale.

(15) Operate the R-1329(P)/GRC-103(V) meter selector switch to MULT, adjust MULT PEAK control for a maximum indication on the meter. The meter should indicate between 25 and 90 percent of full scale and the ALARMS LOW SIGNAL indicator will normally extinguish if a signal is being received. It maybe necessary to adjust the RCVR SIGNAL control. If the buzzer sounds, press the BUZZER OFF pushbutton to silence the buzzer.

(16) Wait until the ALARMS LOW SIGNAL indicator extinguish. The loud rushing noise will cease in the H-60/PT.

(17) Operate the R- 1329(P)/GRC-103(V) meter selector switch to RCVR SIG. The meter should indicate between 25 and 90 percent of full scale.

h. TD-1069/G (AN/TRC-145B).

(1) Set PHONE switch to the OFF position.

(2) Set AC POWER switch to the ON position.

NOTE

The audible alarm will sound for at least 5 seconds after power is applied. If the audible alarm continues after this time, press the AUD ALM RESET/ALM-LAMP TEST pushbutton to silence the alarm.

NOTE

Before the power supply can be reenergize&r turnoff, or in case of power supply overload, set AC POWER switch to OFF position, wait at least 10 seconds, then set AC POWER switch to ON.

i. TD-1065/G (AN/TRC-145B).

(1) Place POWER ON/OFF circuit breaker in the ON position and note that POWER indicator light is illuminated.

(2) Starting with front panel rotary switch in the OFF position, rotate rotary switch clockwise through all positions to determine that TEST indicator remains illuminated, indicating normal operation.

NOTE

In the event that one or more channel cards become inoperative, the TD-1065/G may still be operated utilizing the remaining channels. Press BUZZER OFF switch to silence audible alarm.

3-5. TSEC/KG-27 Operation

a. Preoperational Procedure. Upon completion of the installation of the TSEC/KG-27 equipment in the shelter (para 2-13), all preoperational procedures will be performed in accordance with the procedures provided in the equipment KAO.

b. *Operation.*

(1) Assure that the permuters are to the prescribed settings, that the permuter trays are properly inserted in their respective housing and that the permuter doors are CLOSED and SECURELY fastened. It is assumed that the transmission equipment has been turned on and is operational.

NOTE

The permuter must be reprogrammed if the permuter access door, once having been closed, is opened. Opening the door of a closed permuter causes the zeroize feature to clear any program entered on the permuter tray.

(2) Turn on the TD-660(*)/G and wait several seconds, until the TD-660(*)/G frames. (FRAME ALARM lamp goes out.)

(3) Turn on the TSEC/KG-27. The ALARM lamp should be out and the system should now be in operation.

(4) For additional information pertaining to the TSEC/KG-27 operation, refer to KAO-133( )/TSEC.

3-6. Order Wire Communication (Non-secure)

Order wire communication facilities are available in both the TD-204/U or TD-754/G and the AN/GRC-103(V). Use the procedures in ***a*** or ***b*** below as applicable. If both TD-204/U or TD-754/G and the AN/GRC-103(V) are used at the installation (as in a cable-to-radio conversion installation), use the procedures i *a* below for communication over the cable link and in *b* below over the **radio link.**

a. TD-204/U or TD-754/G.

(1) *Initiating a call.*

(a) Operate the TD-204/U or TD-754/G TALK-OFF-SIG switch to TALK.

(b) Listen to the H-91/U or H-156/U receiver to determine whether the order wire circuit is in use.

(c) If the circuit is not in use, operate the TALK-

OFF-SIG switch to SIG for about 2 seconds.

NOTE

If identification codes are assigned to the terminal or repeater being called, operate the TALK-OFF-SIG switch between OFF and SIG corresponding to the identification code.

(d) Operate the TALK-OFF-SIG switch to talk to the distant station.

(e) When the call is completed operate the TALK-OFF-SIG switch to OFF, and replace the H-91/U or H-156/U in its mounting bracket.

(2) Answering a call.

(a) When the TD-204/U or TD-754/G CALL indicator lights and the buzzer sounds, operate the TALK-OFF-SIG switch to TALK, and answer the call.

NOTE

If identification codes have been assigned, answer only those calls corresponding to your assigned identification code.

(b) When a call is completed operate the TALK-OFF-SIG switch to OFF, and replace the H-91/U or H-156/U in its mounting bracket.

b. AN/GRC-103(V).

(1) *Initiating a call.*

(a) Listen to the H-60/PT receiver to determine whether the order wire circuit is in use.

(b) If the circuit is not in use, press the RT-773/-GRC-103(V) RING pushbutton for about 2 seconds.

NOTE

If identification codes are assigned to the terminal or repeater being called, press the RING pushbutton corresponding to the identification code.

(c) Press the handswitch of the H-60/PT to talk with the distant operator.

(d) When the call is completed, replace the H-60/PT in the RT-773/GRC-103(V).

(2) *Answering a call.*

(a) When the RT-773/GRC-103(V) CALL indicator lights and the buzzer sounds, press the handswitch of the H-60/PT to answer the call.

NOTE

If identification codes have been assigned, answer only the calls corresponding to your assigned identification code.

(b) When the call is completed, replace the H-60/PT in the RT-773/GRC-103(V).

3-7. Order Wire Communications (Secure)

Perform secure communications in accordance with procedures provided in the TSEC/KG-27 KAM.

3-8. Monitoring Channels

NOTE

When operating in the secure mode, perform procedures outlined in the TSEC/KG-27 KAM.

a. Connect the H-91/U or H-156/U to the TALK MONITOR receptacle on the appropriate TD-660A/G.

b. Operate selector switch I of the TD-660A/G to SW III.

c. Operate selector switch III of the TD-660A/G to TALK.

d. Operate selector switch IV of the TD-660A/G to the channel number to be monitored and monitor the channel.

e. When monitoring is complete, operate selector switches III and IV to OFF. Disconnect the H-91/U or H-156/U from the TALK MONITOR receptacle.

3-9. Stopping Procedures

a. Operate the TD-204/U CABLE POWER (CABLE CURRENT on TD-754/G) switch to OFF. Observe that the ALARMS NO CABLE CURRENT (CABLE CUR on TD-754/G) indicator lights and the buzzer sounds.

b. Operate power switches of all rack mounted equipment to OFF.

Section II. OPERATION UNDER UNUSUAL CONDITIONS

3-10. Extreme Weather Conditions

The AN/TRC-145(*) is fully insulated and weatherproofed for operation in hot, cold, or moderate climates. The shelter facility provides complete protection from the elements for personnel and equipment; however, under extreme conditions the following precautions are necessary.

a. Cold Climates. Extreme cold causes cables and wires to become hard, brittle, and difficult to handle. Be careful when handling the cables and connecting them to the assemblage so that kinks and unnecessary loops will not result in permanent damage. Make sure that the binding posts and the connectors in the entrance boxes are free of frost, snow, and ice. Replace the covers on the receptacles, and close the entrance box covers when they are not in use. Open the hood shields and lower the covers when the entrance boxes are open. Replace the connector cover as soon as a cable is disconnected. Never drag or place an open connector in the snow.

b. Hot Climates. In hot, dry climates, connector, receptacles, and binding posts are subject to damage from dust and dirt. Replace the covers on the connectors and the receptacles and close the covers on entrance boxes when the entrance boxes are open. Never place an open connector on the ground.

c. *Warm, Damp Climates.* In warm, damp climates, the equipment is subject to damage from moisture and fungi. Wipe all moisture and fungi from the equipment with a lint-free cloth.

3-11. Emergency Conditions

a. Emergency Order Wire Operation. If the pcm signal is maintained during an order wire failure, emergency

order wire communications may be established as follows when the AN/TRC-145(*) is used as a terminal or as a repeater with drop and insert facilities.

(1) Contact the local switchboard operator by the local communication facility.

(2) Request the local switchboard operator to contact the distant switchboard operator over a vacant pcm channel, and notify the distant terminal operator of the call and the charnel number.

(3) Follow the channel monitoring procedure (para 3-8) and talk with the distant terminal operator over the vacant pcm channel.

CAUTION

If the equipment is turned off by using the emergency stopping procedure, operate all circuit breakers and equipment power switches to OFF before attempting to restart it to avoid excessive initial current drain on the power source or damage to equipment.

b. Emergency Stopping Procedure. To turn the equipment off in an emergency, operate the MAIN circuit breaker on the POWER DISTRIBUTION PANEL to OFF.

Section III. PREPARATION FOR MOVEMENT

3-12. Disassembly of Equipment

NOTE

When assemblage includes cryptographic material or information, refer to (0) AR 380-40 for handling instructions.

Perform the following procedures when the AN/-TRC- 145 (*) is moved to a different location or is placed in storage.

a. Preparing Assemblage.

(1) Turn off all equipment power switches and circuit breakers, except the FLUORESCENT LIGHTS switch and the LIGHTS and MAIN circuit breakers.

(2) Secure all components in their cases, racks, mounting, or holders.

(3) Place all miscellaneous items in storage compartments for transit.

(4) Remove batteries from the TA-312/PT and the flashlight for prolonged storage or for long distance shipment.

(5) Disconnect the pcm cables and rf cables from the VIDEO AND ANTENNA BOXES or from the DATA AND ANTENNA ENTRANCE BOX, as applicable. Close and secure the covers.

(6) Disconnect the field wires from the SIGNAL ENTRANCE BOX and the POWER ENTRANCE BOX.

(7) Disconnect the 26-pair cables from the SIGNAL ENTRANCE BOXes. Replace the covers on all connectors and receptacles. Close and secure the covers on the SIGNAL ENTRANCE BOXes.

(8) If power was obtained from a generator set, proceed as follows:

(a) Stop the generator set.

(b) Disconnect the power cable from the POWER 115V IN receptacle on the POWER ENTRANCE BOX. Replace both connector rovers.

(c) Disconnect the power cable from the generator set. If the power cable stub was used, disconnect it from the power cable, replace the covers, wind the cable on the cable reel, and then wind the cable stub on the cable reel.

(9) If power was obtained from a commercial power source, proceed as follows:

(a) Turn off or disconnect the power.

(b) Disconnect the power cable from the POWER 115V AC IN receptacle on the POWER ENTRANCE Box.

(c) Disconnect the power cable stub from the power source and from the power cable. Replace the covers, and wind the power cable on the cable reel and then wind the cable stub on the cable reel.

(10) Disconnect the ground strap from the GROUND TERMINAL in the POWER ENTRANCE BOX. Close and secure the cover on the POWER ENTRANCE BOX.

(11) Disconnect the ground strap from the generator set (if used) and from the ground rods. Store the ground straps in the storage compartments.

(12) Close and secure the covers on the EXHAUST BLOWER vents and the air falter on the door.

(13) If an air conditioner was installed, disconnect the air conditioner hoses, remove the air conditioner hardware and secure the covers on the air conditioner ducts.

(14) Remove the ground rod and secure it (fig. FO-1 or FO-2).

(15) Recheck the area for loose items. If a generator set was used to supply power, prepare it for shipment or limited storage as described in the appropriate technical manual (app A).

(16) Secure the power cable reel in the generator set trailer (fig. 1-5) or shelter (fig. FO-1).

(17) Secure the boarding ladder in place on the floor (fig. FO-1 or FO-2).

(18) Make sure that the drain plug is tightly closed.

NOTE

If the assemblage is to be transported by aircraft, loosen the drain plug to insure equalization of pressure during transportation.

(19) Close and lock the door.

(20) If the AN/TRC-145(*) is truck-mounted, secure the tailgate in the upright position.

b. Lowering Mast.

(1) Unlock the azimuth plate, and use the strap wrench to rotate the mast so that the yellow stripe on the

mast and the O degree mark on the azimuth plate are in the front of the launcher.

(2) Slacken the upper guy wires by unlocking the snubber and releasing approximately 6 inches of wire to permit some free vertical movement of the mast.

WARNING

If the wind is strong, station at least one person to hold the windward upper guy to maintain adequate tension to keep the mast vertical while it is being lowered.

(3) Unpin the jacking lever from its stored position, and pin it in the clevis on the operating rod of the lower brake ring.

(4) Set the brake control levers so that the arrows point upward. Using short strokes of the jacking lever, sise the mast until the joint between the lowest and next lowest mast section is in line with the horizontal yellow tripe on the launcher leg.

(5) Press the catch in the upper end of the lowest mast section, and rotate the mast section through one-twelfth of a turn, left or right. Disengage the lowest mast section from the next lowest, and withdraw it from the launcher.

(6) Set the brake control levers so that the arrows point downward, Using full strokes of the jacking lever, lower the mast until the joint between the next pair of mast sections is in line with the horizontal stripe on the launcher. Repeat the procedure in (5) above.

(7) Repeat the procedure in (6) above until the guy attachment ring is approximately 18 inches above the top plate of the launcher. Disconnect Cable Assembly, RF CG-3443/U (50 ft) from Adapter, Connector UG-1375/U, and unsnap the cable grip. Unsnap the white-coded guy wires, and remove the guy attachment ring.

c. *Disassembly of Launcher and Antenna.*

(1) Set the brake control levers so that the arrows point upward.

(2) Loosen the red-coded guy wires, and unsnap them from the top plate of the launcher.

(3) Remove the pin from the clevis on the operating rod of the lower brake ring, and move the jacking lever to the stored (vertical) position. Wrap the chain around the operating arm hinged to the top of the jacking lever, and insert the pin to lock the lever in the stored position.

(4) Grasp the launcher climbing steps, and raise the launcher a few inches; then rotate it through 90 degrees so that the lower climbing step rests in its catch on the base plate. Check to see that the outer telescoping tube of the launcher has been stopped by the loading catch on the base plate.

(5) Rock the launcher to loosen the spikes holding the base plate to the ground. Remove the spikes.

(6) Tilt the launcher sufficiently to permit removal of the antenna. Remove the antenna.

(7) Disconnect Cable Assembly, RF CG-3444/U (1 ft. 6 in.) from the dipole connector and Adapter, Cormector UG-1375/U.

(8) Release the catch in the upper end of the mast section that remains in the launcher, rotate the reflector attachment assembly, and lift it out of the mast section.

d. Packing Antenna Reflector. To protect the reflector during movement, place two 33¾-inch square pieces of plywood over each side of the folded reflector and secure with straps or 2-inch wide rubber bands cut from the circumference of a discarded, small sized inner tube. Mount on storage pedestal in the generator trailer.

e. Packing Mast Assembly.

(1) Set the female end of a mast section over the cap on the underside of the top plate of the launcher, and drop its male end over the corresponding cap on the base plate. Repeat this procedure with the other five mast sections until there is a total of seven mast sections in the launcher (one in the erection mechanism and six around it).

(2) Release the loading catch on the base plate of the launcher, which will telescope an additional 3/4 inch, and lock the stored mast sections in position. Lower the mast section remaining in the erection seats in the azimuth plate, rotate the azimuth plate if necessary.

(3) Swing the retaining clip on the top of the mast assembly over the top of the mast section stored in the erection mechanism.

(4) Snap the binding wires to their lugs at the top of the mast assembly, and tighten each of the canvas straps around a pair of binding wires.

(5) Secure the mast assembly in the generator set trailer (fig. 1-5).

f. Packing Accessories Kit.

(1) Gather up all the guy wires, the guy attachment ring and the guy stakes, spikes and tools. The accessories kit should contain items 2 through 9, figure 2-18. Secure the guy attachment ring by snapping the snap hook of one guy wire through it, wind all guy wires on the snubber brackets and stow all accessories in the waterproof bag.

(2) Fasten the bag and secure it in the generator set trailer (fig. 1-5).

3-13. Repackaging for Shipment or Limited Storage

NOTE

TSEC/KG-27 permuters must be zeroized before shipment or storage. Opening the permuter access door automatically zeroizes the permuters. COMSEC equipment must be removed before shipment or storage and turned in to the COMSEC custodian.

Repackaging the AN/TRC-145(*) for shipment or limited storage normally will be performed at a packaging facility or by a packaging team. If emergency packaging is required, select materials from those listed in SB-100. Package the AN/TRC-145(*) in accordance with the original packaging so far as possible with available materials.

CHAPTER 4

OPERATOR/CREW MAINTENANCE INSTRUCTIONS

4-1. GENERAL .

a. Maintenance Forms and Records. The forms and records you fill out have several uses, including: (1) a permanent record of the services, repairs, and modifications made on your equipment; (2) reports to the next level of maintenance and to your commander; and (3) a checklist for you when you want to know the status of the equipment after its last use, and whether faults, if any, have been fixed. For information on forms and records, see DA PAM 738-750 (if USMC, see TM-4700-15/1d).

b. Routine Checks. Routine checks, such as cleaning, dusting, washing, stowing items not in use, covering unused receptacles, and checking for damage, are not listed as PMCS checks. They are things you should do any time you see they must be done. Ensure that all discrepancies are noted and corrected.

c. PMCS. Operator's PMCS are the required periodic inspections and actions necessary to keep your equipment in good operating condition.

d. System Readiness Criteria. System Readiness Criteria are those standard, specific requirements your system must meet for it to be mission-capable.

4-2. PMCS table (table 4-1). The PMCS table lists all the scheduled maintenance tasks required for your system.

a. Explanation of Columns.

(1) Item No. This column contains a number for each procedure to be performed. When reporting malfunctions or failures on DA Form 2404, Equipment Inspection and Maintenance Worksheet, place this number in the "TM Item No." column.

(2) Interval. These columns tell you when to do a procedure. Each column that applies will contain an asterisk (*). Some procedures will have asterisks in more than one column.

(3) Item to be inspected/procedure. This column contains the name of the item to be inspected and tells how to perform the required checks and services on it. Carefully follow these instructions and perform them in the order listed.

(4) Equipment is not ready/available if: This column tells you the conditions which will cause the equipment to be classified as not ready (red) for readiness reporting.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

b. Instructions.

(1) Do your before (B) preventive maintenance just before you operate your equipment. Pay attention to CAUTIONS and WARNINGS.

(2) Do your during (D) preventive maintenance while the equipment and/or its components systems are in operation.

(3) Do your after (A) preventive maintenance right after operating the equipment. Pay attention to the CAUTIONS and WARNINGS.

(4) Do your weekly (W) preventive maintenance once a week.

(5) Do your monthly (M) preventive maintenance once a month.

(6) If something doesn't work, troubleshoot it with the instructions in this manual and notify your supervisor.

(7) Always do your preventive maintenance in the same order.

(8) If anything goes wrong and you can't fix it, write it on your DA Form 2404, or applicable form. If you find something seriously wrong, report it to the next level of maintenance IMMEDIATELY .

WARNINGS

Never operate the generator or shelter until it has been properly grounded. Electrical defects in the load lines or equipment can cause DEATH by electrocution when contact is made with an ungrounded system.

WARNING

USE OF CLEANING SOLVENT

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Avoid prolonged breathing of vapor. The solvent should not be used near heat or flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, avoid prolonged contact with skin. The use of chemical gloves (solvent resistant), chemical splash goggles and full faceshield are required when using TRICHLOROTRIFLUOROETHANE. **DO NOT** use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. TRICHLOROTRIFLUOROETHANE is an ozone-depleting substance.

WARNING

Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 pounds per square inch gauge (30 psig) and then only with effective chip guarding and personnel protective equipment (industrial safety glasses and full faceshield). **DO NOT** use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used.

WARNING

DO NOT pull subassemblies all the way out of the racks unless you are certain that all cabling located on the rear has been disconnected. Serious injury to personnel or damage to equipment or cabling could occur if care is not exercised in removal of equipment from the racks as the individual items **ARE NOT SUPPORTED** upon removal, and **NO SLIDE STOPS** are provided on the equipment mounting racks.

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services

Item No.	Interval B	D	A	w	M	Item to be inspected Procedure	Equipment is not ready/available if:
1						Truck (1) 1 1/4 Ton M-561	
						Follow PMCS procedures in TM 9-2320-242-10.	Truck is inoperative and no substitute is available.
2						Generator Set PU-625 (2 generators in set)	
						Follow PMCS procedures in TM 5-6115-365-15.	Both generators are inoperative and no substitutes are available.
3						Grounding Rod MX-148/G	
	*			*		Check grounding system to see that it is properly installed. Tighten if necessary.	Unable to ground properly.
4						Antennas AS-1852/53/54	
	*			*		Check each guy for proper tension. Tighten if necessary.	
5						Shelter Door Air Filter	
	*					Clean or replace as necessary.	
6						Shelter Blowers	
	*	*				Check for proper air flow.	Blowers fail to operate.
7						Heater, Electric	
	*	*				Check for proper heat output .	

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

Item No.	Interval B	D	A	w	M	Item to be inspected Procedure	Equipment is not ready/available if:
8						Telephone Set TA-312/PT	
					*	Batteries - Inspect for foreign matter and corrosion -Clean as necessary.	
9						Intercommunication Station LS-147C/FI	
	*					Check to see that power cord is connected to equipment ground.	
10						Multiplexer TD-204	
						METER SELECT switch	
		*				Operate switch to the following positions and check for proper indications on TEST ALIGN meter.	

Position	Indication	
TIMING IN	Green band	Improper reading.
PCM IN-1	Green band	Improper reading.
PCM IN-2	Green band	Improper reading.
CABLE I	Yellow band	Improper reading.
CABLE V	10.8 times number of TD-206/G's plus 13.	Improper reading.

NOTE

If CABLE V position is checked with loss of timing in signal, use 14.8 times number of TD-206/G's plus 13.

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

<table>
<tr><th rowspan="2">Item No.</th><th colspan="5">Interval</th><th rowspan="2">Item to be inspected
Procedure</th><th rowspan="2">Equipment is not ready/available if:</th></tr>
<tr><th>B</th><th>D</th><th>A</th><th>W</th><th>M</th></tr>
<tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td>Multiplexer TD-754

Power Circuit Checks

With the METER SEL switch set to SERV FAC, operate the SERV SEL switch to the following positions and check for proper indications on the TEST ALIGN meter.

<table><tr><th>Position</th><th>Indication</th></tr><tr><td>REF</td><td>Yellow band</td></tr><tr><td>+28V</td><td>Green band</td></tr><tr><td>+12V</td><td>Green band</td></tr><tr><td>+5V</td><td>Green band</td></tr><tr><td>-6V</td><td>Green band</td></tr></table></td><td>

Improper reading.
Improper reading.
Improper reading.
Improper reading.
Improper reading.</td></tr>
<tr><td>13</td><td></td><td>*</td><td></td><td></td><td></td><td>Multiplexer TD-660/G

Selector Switch I

Operate switch while observing TEST ALIGN meter for the following indications:

<table><tr><th>Position</th><th>Indication</th></tr><tr><td>+7</td><td>Yellow band</td></tr><tr><td>+12</td><td>Adjust to hairline</td></tr><tr><td>+4</td><td>Green band</td></tr><tr><td>-12</td><td>Green band</td></tr><tr><td>-6</td><td>Green band</td></tr><tr><td>-4</td><td>Green band</td></tr><tr><td>PCM from AUX</td><td>Green band</td></tr><tr><td>Noise</td><td>Yellow band</td></tr></table></td><td>

Improper reading.
Improper reading.
Improper reading.
Improper reading.
Improper reading.
Improper reading.
Improper reading.</td></tr>
</table>

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

<table>
<tr><th rowspan="2">Item No.</th><th colspan="5">Interval</th><th rowspan="2">Item to be inspected
Procedure</th><th rowspan="2">Equipment is not ready/available if:</th></tr>
<tr><th>B</th><th>D</th><th>A</th><th>W</th><th>M</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>Selector Switch II</td><td></td></tr>
<tr><td></td><td></td><td>*</td><td></td><td></td><td></td><td>Operate switch while observing TEST ALIGN meter for the following indications:
<table><tr><th>Position</th><th>Indication</th></tr><tr><td>A</td><td>Green band</td></tr><tr><td>B</td><td>Green band</td></tr><tr><td>c</td><td>Green band</td></tr><tr><td>D</td><td>Green band</td></tr><tr><td>E & L</td><td>Yellow unless 1 or more output channels are modulated.</td></tr><tr><td>F</td><td>Green band</td></tr><tr><td>G</td><td>Green band</td></tr><tr><td>H</td><td>Green band</td></tr><tr><td>J & K</td><td>Yellow band</td></tr></table></td><td>Improper reading.
Improper reading.
Improper reading.
Improper reading.
Improper reading.

Improper reading.
Improper reading.
Improper reading.
Improper reading.</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>Selector Switch III</td><td></td></tr>
<tr><td></td><td></td><td>*</td><td></td><td></td><td></td><td>Operate switch while observing TEST ALIGN meter for the following indications:
<table><tr><th>Position</th><th>Indication</th></tr><tr><td>OSC</td><td>Green band</td></tr><tr><td>CCL</td><td>Hairline</td></tr></table></td><td>Improper reading.
Improper reading.</td></tr>
<tr><td>14</td><td></td><td></td><td></td><td></td><td></td><td>Converter, Telephone Signal CV-1548/G</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>Meter Selector Switch</td><td></td></tr>
<tr><td></td><td></td><td>*</td><td></td><td></td><td></td><td>Operate switch while observing TEST ALIGN meter for the following indications:</td><td></td></tr>
</table>

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

Item No.	Interval B	D	A	W	M	Item to be inspected Procedure	Equipment is not ready/available if:
14						Meter Selector Switch (cont'd)	
						Position: − / Indication: Yellow band	Improper reading.
						Position: + / Indication: Yellow band	Improper reading.
						Position: 20-DRIVE / Indication: Yellow band	Improper reading.
						Position: 20- / Indication: Yellow band	Improper reading.
						Position: 1600- / Indication: Green band	Improper reading.
15						Radio Set AN/GRC-103	
						Air Filter	
	*					Check air filter to see that it is clean. Clean as necessary.	
						Transmitter Selector Switch	
		*				Operate switch while observing meter for the following indications:	
						Position: 12 VDC / Indication: Green band	Improper reading.
						Position: 28 VDC / Indication: Green band	Improper reading.
						Position: 600 VDC / Indication: Green band	Improper reading.
						Position: OSC / Indication: 25-90% of full scale	Improper reading.
						Position: DOUBLER / Indication: 25-90% of full scale	Improper reading.
						Position: MULT / Indication: 25-90% of full scale	Improper reading.
						Position: DRIVER; push PWR OUT PEAK-tune for maximum indication on meter / Indication: 25-90% of full scale	Improper reading.

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

<table>
<tr><th rowspan="2">Item No.</th><th colspan="5">Interval</th><th rowspan="2">Item to be inspected
Procedure</th><th rowspan="2">Equipment is not ready/available if:</th></tr>
<tr><th>B</th><th>D</th><th>A</th><th>W</th><th>M</th></tr>
<tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td>Transmitter Selector Switch (cont'd)
<table><tr><th>Position</th><th>Indication</th></tr><tr><td>PWR OUT; pull out PWR OUT PEAK-tune for maximum indication on meter.</td><td>25-90% of full scale</td></tr><tr><td>REFL PWR-tune receiver XMTR DUPL for minimum indication on transmitter meter.</td><td>Less than 20% of full scale</td></tr><tr><td>12 CH PCM; adjust input control.</td><td>Green band</td></tr></table>
Receiver Selector Switch
Operate switch to the following positions and observe proper indication on meter.
<table><tr><th>Position</th><th>Indication</th></tr><tr><td>XMTR DUPL</td><td>25-90% of full scale</td></tr><tr><td>REFL PWR</td><td>Less than 20% of full scale</td></tr><tr><td>+12 VDC</td><td>Green band</td></tr><tr><td>-12 VDC</td><td>Green band</td></tr><tr><td>OSC</td><td>25-90% of full scale</td></tr><tr><td>DOUBLER</td><td>25-90% of full scale</td></tr></table></td><td>Improper reading.

Improper reading.

Improper reading.

Improper reading.
Improper reading.
Improper reading.

Improper reading.</td></tr>
<tr><td></td><td></td><td>*</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services (cont'd)

<table>
<tr><th rowspan="2">Item No.</th><th colspan="5">Interval</th><th rowspan="2">Item to be inspected
Procedure</th><th rowspan="2">Equipment is not ready/available if:</th></tr>
<tr><th>B</th><th>D</th><th>A</th><th>W</th><th>M</th></tr>
<tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td>Receiver Selector Switch (cont'd)
<table><tr><th>Position</th><th>Indication</th></tr><tr><td>MULT; adjust MULT PEAK control for maximum indication on meter.</td><td>25-90% of full scale</td></tr><tr><td>RCVR SIG</td><td>25-90% of full scale</td></tr></table></td><td>Improper reading.</td></tr>
<tr><td>16</td><td></td><td></td><td></td><td></td><td></td><td>Air Conditioner (authorized separate in the tropics)
Follow PMCS procedures in TM 5-4120-333-12.</td><td>Air conditioner is inoperative and no substitute is available.</td></tr>
</table>

4-3. System Readiness Criteria table (table 4-2). The System Readiness Criteria table is your “checklist” for determining the mission readiness of your system.

a. Explanation of Columns.

(1) Item No. This column contains a number for each readiness-reportable item. When reporting, on DA Form 2404, Equipment Inspection and Maintenance Worksheet, malfunctions or failures that cannot be repaired "on-the-spot" place this number in the "TM Item No." column.

(2) Subsystems and Components. This column lists all system equipments which are required for readiness reporting.

(3) Equip Model ID #. This column contains the equipment model identification number (type-classification) of each equipment.

(4) Qty. This column tells you the quantity of equipment/items furnished as part of, or with, your system.

(5) Remarks. This column contains other information/special instructions and will alert you to any exceptions to the requirements, designed to give you maximum mission flexibility.

b. Instructions. Perform the following steps to determine system readiness:

(1) BEFORE starting your mission, ensure that listed equipments/items are on hand and operational. If necessary, perform operational checks in applicable TM’s to determine the condition of your equipment.

(2) Take note of REMARKS column. This column contains exceptions and special instructions to help you tailor your requirements to your mission.

(3) If any required equipment/item is not on hand and operational, your entire system is deadlined (unless otherwise noted in the REMARKS column).

(4) Correct any discrepancies, then re-check all equipments/items on list. When all required equipment/items are on hand and operational, your system is mission-ready.

(5) AFTER completing your mission, and before moving to a new location, ensure that all listed equipments/items are on hand.

Table 4-2. SYSTEM READINESS CRITERIA

System ratings: Fully Mission Capable (FMC)
Not Mission Capable (NMC)

Item No.	AN/TRC-145(*) (V)1-3 Subsystems and Components	Equip Model ID #	Qty	REMARKS
1R	Shelter, Electrical Equipment Wired (with) following components):	S-250	1	System may be rated FMC with component(s) rated NMC if that/those component(s) are not required to support the mission.
2R	Alternating Current Motor		2	System may be rated FMC if one motor is rated NMC.
3R	Blower Assembly		2	
4R	Communication Security Equipment	TSEC/KG-27	2	
5R	Electrical Dummy Load		2	System may be rated FMC if one dummy load is rated NMC.
6R	Electronic Frequency Counter	CV-2500	1	
7R	Handset	H-156	1	
8R	Headset, Microphone	H-91	1	
9R	Heater, Electric		2	
10R	Intercommunication Station	LS-147F/CI	1	System may be rated FMC if LS-147F/CI is rated NMC.
11R	Multiplexer	TD-204 OR TD-754	2	
12R	Multiplexer	TD-660	2	
13R	Power Supply	PP-6917	1	
14R	Radio Set	AN/GRC-103	2	

Table 4-2. SYSTEM READINESS CRITERIA (cont'd)

System ratings: Fully Mission Capable (FMC)
Not Mission Capable (NMC)

Item No.	AN/TRC-145(*) (V)1-3 Subsystems and Components	Equip Model ID #	Qty	REMARKS
15R	Telephone Set	TA-312/PT	1	System may be rated FMC if TA-312/PT is rated NMC.
16R	Telephone Signal Converter	CV-1548	2	
17R	Antenna System		2	
	NOTE The following components are required for EACH antenna system.			
18R	Antenna	AS-1852 AS-1853 OR AS-1854	2 2 2	
	NOTE The following components are required for EACH antenna.			
19R	Adapter, Connector	UG-1375/U	1	
20R	Antenna Element	AS-2151 AS-2194 AS-2195	1 1 1	Used with Antenna AS-1852. Used with Antenna AS-1853. Used with Antenna AS-1854.
21R	Antenna Reflector	AS-2150	1	
22R	Adapter Connector	UG-1375/U	1	
23R	Cable Assembly, RF (80 FT)	CG-3443/U	1	

Table 4-2. SYSTEM READINESS CRITERIA (cont'd)

System ratings: Fully Mission Capable (FMC)
Not Mission Capable (NMC)

Item No.	AN/TRC-145(*) (V)1-3 Subsystems and Components	Equip Model ID #	Qty	REMARKS
24R	Cable Assembly, RF (1 FT, 6 IN)	CG-3444 /U	1	
25R	Cable Assembly, Power (100 FT)	CX-7453 A/U	1	
26R	Cable Assembly, Power (15 FT)	CX-7705 ()/U	1	
27R	Cable Reel	RC-435/ U	2	
28R	Generator Set (2 generators in set)	PU-625	1	
29R	Ground Rod	MX-148	2	
30R	Mast	AB-952	2	
	NOTE The following components are required for EACH mast.			
31R	Mast Assembly (consisting of):		1	
32R	Elevator, Antenna	AB-1072	1	
33R	Mast Section	AB-1071	7	
34R	Mast Base Plate		1	
35R	Accessories Waterproof Bag		1	
36R	Guy Wires		6	
37R	Guy Stakes (24 inch)		3	

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Table 4-2. SYSTEM READINESS CRITERIA (cont'd)

System ratings: Fully Mission Capable (FMC)
Not Mission Capable (NMC)

Item No.	AN/TRC-145(*) (V)1-3 Subsystems and Components	Equip Model ID #	Qty	REMARKS
38R	Strap Wrench		1	
39R	Spikes		3	
40R	Universal Tool		1	
41R	Guy Attachment Ring		1	
42R	Mast Extension Kit	MK-1009	2	
	NOTE The following components are required for EACH Mast Extension Kit.			
43R	Adapter, Connector	UG-1373/U	1	
44R	Cable Assembly, RF (25 FT)	CG-3443/U	1	
45R	Case, Mast Extension Kit	CY-6148	1	
46R	Mast Section	AB-1071	3	
47R	Guy Wires (blue-coded)		3	
48R	Guy Anchor		3	
49R	Guy Attachment Ring		1	
50R	Truck, 1 1/4 Ton	M-561	1	System may be rated FMC if appropriate substitute is available.
51R	Air Conditioner (authorized separate in the tropics)	18KBTU	1	System may be rated FMC if appropriate substitute is available.

CHAPTER 5
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

5-1. General

a. Organizational maintenance of Radio Terminal Set AN/TRC-145(*) includes the procedures outlined in this chapter as well as those authorized to be performed by the operator/crew in chapter 4.

b. Table 5-1 lists the required preventive maintenance checks and services (PMCS) for the organizational category. Troubleshooting procedures are provided in paragraph 5-3.

5-2. Touchup Painting

CAUTION

Before doing any touchup painting on the exterior, check for a caution notice on the entrance door. If solar reflecting paint has been used, refer to TB 43-0124 for the proper procedures to be used in repainting or touchup painting. DO NOT use any other paint on shelter facilities painted with solar reflecting paint.

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB 43-0118. Touchup painting will not be performed *on* COMSEC equipment (TB 750-10).

Table 5-1. Organizational Preventive Maintenance Checks and Services

NOTE

The checks in the "interval" column are to be performed in the order listed.
M—Monthly Q-Quarterly

Item No.	Interval M	Interval Q	Item to be inspected	Procedures Check for and have repaired or adjusted as necessary
			OUTSIDE	
1	•		Entrance door.	*a.* Lubricate door locks and latches with Grease, Molybdenum Disulfide (GMD); lubricate hinges with Lubricating Oil, General Purpose (FED VV-L-800), or Lubricating Oil, Engine (MIL-L-2104). *b.* Put gasket cement on loose gaskets.
2	•		Entrance boxes.	Lubricate piano-type hinges of covers with oil (FED VV-L-800 or MIL-L-2104).
			INSIDE	
3	•		Exhaust fans.	Lubricate all points with oil (FED VV-L-800 or MIL-L-2104).
4	•		Fire extinguisher.	a. Refill if weight of contents is less than prescribed. b. Replace if valve assembly is damaged.
5	•		First aid kit.	Replace if case is broken or damaged. Replace parts that have been used.
6			System alinement.	System alinement shall be checked every quarter at the DS maintenance facility.

Section II. TROUBLESHOOTING

NOTE

As a result of MOD-1 to the TSEC/KG-27, the TSEC/KG-27 will not go into alarm if receive transmission is interrupted. The only indication will be a rushing noise on all channels. If interruption is before the receive multiplexer, a check of the TSEC/KG-27 monitor lights will indicate receive TIM and PCM will be out. The multiplexer equipment should show Frame ALARM. If interruption is after multiplexer, only receive PCM light will be out and multiplexer will not show Frame ALARM.

5–3. System Troubleshooting.

a. General. System troubleshooting is based on symptoms that may occur at the AN/TRC-145(*) when it is connected as a cable terminal, a cable

repeater, a radio terminal, a radio repeater, or a cable-to-radio converter. The trouble symptoms may be discovered through the built-in alarms in the equipment components, incorrect indications in preventive maintenance checks and services (tables 4-1 and 5-1), or from other terminals or repeaters in the system. When a trouble symptom occurs, refer to the list below to locate the appropriate troubleshooting table for the configuration and the operating mode in use.

Operating mode	Table
Cable terminal	5-2
Cable repeater	5-3
Radio terminal	5-4
Radio repeater	5-5
Cable-to-radio conversion	5-6
Secure operation	5-7, 5-8, or 5-9
Assemblage	5-11

NOTE

The following tables apply to serial No. 1 through 46 equipments. For serial No. 47 and above, the user must adjust the wording of "Probable cause" and Corrective action entries for differences in patch panel nameplates and in interconnecting cables (fig. FO-1 and FO-2).

Table 5-2. Cable Terminal Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
1	FRAME ALARM indicator of TD-660A/G lights, buzzer sounds, and TEST ALIGN meter indicates in green area with selector switch at PCM IN or TIM IN.	*a.* Defective TD-660A/G. *b.* Distant TD-204/U or TD-754/G generating dummy PCM train due to missing PCM signal input.	*a.* Troubleshoot TD-660A/G (para 5-5) *b.* Request distant terminal or repeater troubleshooting.
2	FRAME ALARM indicator of TD-660A/G lights, buzzer sounds, and TEST ALIGN meter does not indicate in green area with selector switch I at PCM IN or TIM IN. TD-204/U or TD-754/G operates normally. Order wire normal.	*a.* Defective cable between TD-660A/G and patch panel. *b.* Defective VIDEO patch panel cable. *c.* Defective TD-204/U or TD-754/G.	*a.* Check and replace if necessary. *b.* Check and replace if necessary . *c.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
3	FRAME ALARM indicator of TD-660A/G lights, buzzer sounds, ALARMS TRAFFIC indicator of TD-204/U or TRAFFIC indicator of TD-754/G lights, buzzer sounds and order wire normal.	*a.* Defective PCM component at distant terminal or repeater. *b.* Defective TD-206/G in cable link, *c.* Defective transmission cable in cable link.	*a.* Request distant terminal or repeater troubleshooting. *b.* Troubleshoot cable link (para 5-4). *c.* Troubleshoot cable link (para 5-4).
4	No order wire, but all other indication on TD-660A/G and TD-204/U or TD-754/G are normal.	*a.* Defective TD-204/U or TD-754/G. *b.* Defective TD-204/U or TD-754/G at distant terminal or repeater.	*a.* Troubleshoot TD-204/U or TD-754/G. *b.* Keep TD-204/U or TD-754/G operating. Periodically try order wire and await response. Send person to distant terminal or repeater,
6	FRAME ALARM indicator of TD-660A/G and ALARMS TRAFFIC indicator of TD-204/U or TRAFFIC indicator of TD-754/G light, buzzer sounds, and no order wire.	*a.* Defective TD-206/G in cable link. *b.* Defective transmission cable in cable link. *c.* Defective TD-204/U or TD-754/G. *d.* Defective TD-204/U or TD-754/G at distant terminal or repeater.	*a.* Troubleshoot cable link (para 5-4). *b.* Troubleshoot cable link (para 5-4). *c.* Troubleshoot TD-204/U or TD-754/G (para 5-5). *d.* Keep TD-204/U or TD-754/G operating. Periodically try order wire response Send person to distant terminal or repester.
6	FRAME ALARM indicator of TD-660A/G, ALARMS TRAFFIC indicator and ALARMS NO CABLE CURRENT indicator of TD-204/U or TRAFFIC and CABLE CUR indicator of TD-754/G light, buzzer sounds, and no order wire available.	Open transmission cable (both directions) in cable link.	Troubleshoot cable link (para 5-4).
7	ALARMS NO CABLE CURRENT indicator on TD-204/U or CABLE CUR indicator on TD-754/G lights and buzzer sounds. Order wire normal.	*a.* Momentary overcurrent or undercurrent in cable link. *b.* Defective TD-204/U or TD-754/G.	*a.* Operate CABLE POWER switch of TD-204/U or CABLE CURRENT switch of TD-754/G to OFF and then to ON. *b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
8	ALARMS NO CABLE CURRENT indicator of TD-204/U or CABLE CUR indicator of TD-754/G lights. No order wire transmission.	Open transmission cable (send side) in cable link.	Troubleshoot cable link (para 5-4).
9	Distant terminal indicates loss of PCM. All local indication are normal.	Defective TD-206/G in cable link.	Troubleshoot cable link (para 5-4).

Table 5-2. Cable Terminal Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
10	Switchboard operator indicates loss of a specific channel or only one way communication on a specific channel. All local indication are normal.	*a.* Defective TD-660A/G. *b.* Defective CV-1548(*)/G. *c.* Defective field wire line if BINDING POSTS-CABLE switch of SIGNAL ENTRANCE panel is at BINDING POSTS. *d.* Defective TD-660A/G or CV-1548(*)/G at the distant terminal.	*a.* Troubleshoot TD-660A/G (para 5-5). *b.* Troubleshoot CV-1548(*)/G (para 5-5). *c.* Check and repair if required. *d.* Request distant terminal troubleshooting.
11	Switchboard operator indicates loss of one group of four channels. All local indication are normal.	*a.* Defective CX-7870/TOC cable between TD-660A/G and CV-1548(*)/G. *b.* Defective interconnecting cable between CV-1548(*)/G and SIGNAL ENTRANCE panel. *c.* Defective associated cable at distant terminal.	*a.* Check and replace if required. *b.* Check and replace if required. *c.* Request distant terminal troubleshooting.
12	Switchboard operator reports high noise	*a.* Defective TD-660A/G.	*a.* Troubleshoot TD-660A/G (para 5-5).

Table 5-2. Cable Terminal Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
	level, distortion or hum on all channels, but all local indications are normal.	*b.* Defective TD-660A/G at distant terminal.	*b.* Request distant terminal troubleshooting.
13	Order wire garbled and noisy, but all other indications are normal.	Defective TD-204/U or TD-754/G.	Troubleshoot TD-204/U or TD-754/G (para 5-5).
14	No indication on TEST ALIGN meter of slave TD-660A/G with selector switch I at SYNC IN (24-channel operation).	*a.* Defective cable between master TD-660A/G and slave TD-660A/G.	*a.* Check and replace if required.
		b. Defective master TD-660A/G.	*b.* Troubleshoot master TD-660A/G (para 5-5).
15	Switchboard operator reports that no signaling is available on any 2-wire or 4-wire channel.	Defective CV-1548(*)/G.	Troubleshoot CV-1548(*)/G (para 5-5).
16	High noise on all channels, but all other indications are normal.	*a.* Defective TD-204/U or TD-754/G.	*a.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		b. Defective TD-206/G in link.	*b.* Troubleshoot cable link (para 5-4).
		c. Defective TD-204/U or TD-754/G at distant terminal or repeater.	c. Request distant terminal or repeater troubleshooting
17	Intermittent FRAME ALARM indicator on slave TD-660A/G (24-channel operation).	*a.* Defective cable from master or slave TD-660A/G at distant terminal or repeater.	*a.* Check and replace if required.
		b. Defective master or slave TD-660A/G at distant terminal or repeater.	*b.* Request distant terminal or repeater troubleshooting.
18	Incorrect indication on TEST ALIGN meter of TD-204/U or TD-754/G with METER SELECT switch at SERV FAC and SERV SEL switch at RCC.	Cable current adjustment required at distant terminal or repeater.	Request cable current adjustment at distant terminal or repealer.
19	Distant terminal or repeater requests cable current adjustment. TEST ALIGN meter of local TD-204/U does not indicate in yellow area with METER SELECT switch at CABLE 1 (CABLE CUR and green area on TD-754/G).	Cable current adjustment required.	Adjust CABLE CURRENT ADJ control for center hairline indication in yellow area of TEST ALIGN meter on TD-204/U or green area on TD-754/G.
20	TEST ALIGN meter of TD-204/U does not give correct indication with METER SELECT switch at CABLE V (CABLE VOLTS on TD-754/G).	Shorted transmission cable in cable link.	Troubleshoot cable link (para 5-4).

Table 5-3. Cable Repeater Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
	ALARMS TRAFFIC indicator on TD-204/U or TRAFFIC indicator on TD-754/G lights, buzzer sounds and order wire is normal.	*a.* Defective TD-206/G in cable link.	*a.* Troubleshoot cable link (para 5-4).
		b. Defective TD-204/U or TD-754/G.	*b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		c. Defective PCM component at distant terminal or repeater.	*c.* Request distant terminal or repeater troubleshooting.
	Distant terminal or repeater indicates loss of pcm. No indication of TEST ALIGN meter of local TD-204/U or TD-754/G with METER SELECT switch at TIMING IN. Other TD-204/U or TD-754/G has no alarms.	*a.* Defective cable between TD-204/U's or TD-754/G's and patch panel.	*a.* Check and replace if required.
		b. Defective VIDEO patch cable.	*b.* Check and replace if required.
		c. Other TD-204/U or TD-754/G defective (no timing out).	*c.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
	Distant terminal indicates out of frame Wm. No indication on TEST ALIGN meter of local TD-204/U or TD-754/G with METER SELECT switch at PCM IN- 1. Other TD-204/U or TD-754/G has no alarms.	*a.* Defective cable between TD-204/U's or TD-754/G's and patch cable.	*a.* Check and replace if required.
		b. Defective VIDEO patch panel cable.	*b.* Check and replace if required.
		c. Other TD-204/U or TD-754/G defective (no timing out).	*c.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
	ALARMS TRAFFIC indicator of TD-204/U or TRAFFIC indictor of TD-754/G lights, buzzer sounds, and no order wire available.	*a.* Defective TD-206/G in cable link.	*a.* Troubleshoot cable link (para 5-4).
		b. Defective transmission cable in cable link.	*b.* Troubleshoot cable link (para 5-4).
		c. Defective TD-204/U or TD-754/G.	*c.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		d. Defective TD-204/U or TD-754/G at distant terminal or repeater.	*d.* Keep TD-204/U or TD-754/G operating. Periodically try order wire and await

Table 5-3. Cable Repeater Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
			response. Send person to distant terminal or repeater.
5	ALARMS TRAFFIC indicator and ALARMS NO CABLE CURRENT indicator of TD-204/U or TRAFFIC and CABLE CUR indicator of TD-754/G light and buzzer sounds. No order wire available.	Open transmission cable (both directions) in cable link.	Troubleshoot cable link (para 5-4).
6	ALARMS NO CABLE CURRENT indicator on TD-204/U or CABLE CUR indicator of TD-754/G lights and buzzer sounds, Order wire is normal.	*a.* Momentary overcurrent or undercurrent in cable link. *b.* Defective TD-204/U or TD-754/G.	*a.* Operate CABLE POWER switch of TD-204/U or cable CURRENT switch of TD-754/G to OFF and then to ON. *b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
7	ALARM NO CABLE CURRENT indicator on TD-204/U or CABLE CUR indicator on TD-754/G lights. No order wire transmission.	*a.* Defective CG-2437/TCC cable between TD-204/U or TD-754/G TO CABLE connector in VIDEO AND ANTENNA ENTRANCE BOX. *b.* Open transmission cable (send side) in cable link. *c.* Defective video cable on cable patch panel.	*a.* Check and replace if required. *b.* Troubleshoot cable link (para 5-4). *c.* Check and replace if required.
8	Distant terminal or repeater indicates loss of pcm. All local indications are normal.	Defective TD-206/G in cable link.	Troubleshoot cable link (para 5-4).
9	Switchboard operator at distant terminal reports high noise level, but all local indications arc normal.	Defective TD-204/U or TD-754/G.	Troubleshoot TD-204/U or TD-754/G (para 5-5).
10	Order wire garbled and noisy, but all other indications are normal.	Defective TD-204/U or TD-754/G.	Troubleshoot TD-204/U or TD-754/G (para 5-5).
11	Through order wire communications not available, but all other indications are normal.	*a.* Defective cable between TD-204/U or TD-754/G PATCH THRU and ORDER WIRE connector on patch panel. *b.* Defective patch cable between ORDER WIRE PATCH THRU connectors on patch panel.	*a.* Check and replace if required. *b.* Check and replace if required.
12	Order wire not available. but all other indications are normal.	*a.* Defective associated TD-204/U or TD-754/G. *b.* Defective distant TD-204/U or TD-754/G.	*a.* Troubleshoot TD-204/U or TD-754/G (para 5-5). *b.* Request distant terminal or repeater troubleshooting.
13	Distant terminal indicates out of frame PCM and all local indications are normal.	*a.* Defective TD-206/U in cable link. *b.* Defective TD-204/U or TD-754/G.	*a.* Troubleshoot cable link (para 5-4). *b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
14	Incorrect indication on TEST ALIGN meter of TD-204/U or TD-754/G with METER SELECT switch at SERV FAC and SERV SEL switch at RCC.	Cable current adjustment required at distant terminal or repeater.	Request cable current adjustment at distant terminal or repeater.
15	Distant terminal or repeater requests cable current adjustments TEST ALIGN meter of local TD-204/U does not indicate in the yellow area with METER SELECT switch at CABLE 1 (CABLE CUR and green area on TD-754/G).	Cable current adjustment required.	Adjust CABLE CURRENT ADJ control for center hairline indication in yellow area of TEST ALIGN meter on TD-204/U or green area on TD-754/G.
16	TEST ALIGN meter of TD-204/U does not give correct indication with METER SELECT switch at CABLE V (CABLE VOLTS on TD-754/G).	Shorted transmission cable in cable link.	Troubleshoot cable link (para 5-4).

Table 5-4. Radio Terminal Troubleshooting Chart

Item No.	Malfunction	Probable cause	Corrective action
1	FRAME ALARM indicator of TD-660A/G lights, buzzer sounds and TEST ALIGN meter indicates in green	Defective TD-660A/G.	Troubleshoot TD-660A/G (para 5-5).

Table 5-4. Radio Terminal Troubleshooting Chart-Continued

Item No.	Malfunction	Probable cause	Corrective action
	area with selector switch 1 at PCM IN or TIM IN.		
2	FRAME ALARM indicator of TD-660AG lights, buzzer sounds, and TEST ALIGN meter does not indicate in green area with selector switch 1 at PCM IN or TIM IN. AN/GRC-103(V) operates normally. Order wire normal.	*a.* Defective cable between VIDEO patch panel PCM IN connector and TD-660A/G PCM IN connector, or between VIDEO patch panel PCM RCVR connector and R-1329(P)/GRC-103(V) PCM connector.	*a.* Check and replace if necessary.
		b. Defective VIDEO patch panel cable between PCM IN and PCM RCVR connectors.	*b.* Check and replace if necessary.
3	FRAME ALARM indicator on TD-660A/G lights, buzzer sounds, R-1329(P)/GRC-103(V) ALARMS LOW SIGNAL indicator lights.	*a.* Defective antenna cable or defective cable between VIDEO AND ANTENNA ENTRANCE BOX and ANT connector on R1329(P)/GRC-103(V).	*a.* Check and replace if necessary.
		b. Defective or disoriented antenna.	*b.* Check and replace or reorient if necessary.
		c. Defective R-1329(P)/GRC-103(V).	*c.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		d. Defective T-983(P)/GRC-103(V) at distant terminal or repeater.	*d.* Keep R-1329(P)GRC-103(V) operating on assigned frequency. Periodically try order wire and await response, Send person to distant terminal or repeater.
4	FRAME ALARM indicator of TD-660A/G lights and buzzer sounds. No indication on R-1329(P)/GRC-103(V) meter with selector switch at 12 CH PCM. Order wire is normal.	Defective pcm component at distant terminal.	Request distant terminal troubleshooting.
5	Order wire very noisy or no reception, but all other indications on TD-660A/G and AN/GRC-103(V) are normal.	*a.* Defective order wire cable between RT-773/GRC-103(V) and R-1329(P)/-GRC-103(V).	*a.* Check and replace if necessary.
		b. Defective RT-773/GRC-103(V).	*b.* Troubleshoot RT-773/GRC-103 (V) (para 5-5).
		c. Defective power supply in R-1329(P)/GRC-103(V).	*c.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
6	Switchboard operator reports high noise level or hum on all channels. All local indications are normal.	*a.* Defective AN/GRC-103(V).	*a.* Troubleshoot AN/GRC-103(V) (para 5-5).
		b. Defective TD-660A/G.	*b.* Troubleshoot TD-660A/G (para 5-5).
7	Switchboard operator reports loss of a specific channel or only one way communication on a specific channel. All local indications are normal.	*a.* Defective TD-660A/G.	*a.* Troubleshoot TD-660A/G (para 5-5).
		b. Defective CV-1548(*)/G.	*b.* Troubleshoot CV-1548(*)/G (para 5-5).
		c. Defective CX-7870/TCC between CV-1548(*)/G and TD-660A/G.	*c.* Check and replace if necessary.
		d. Defective field wire or 26-pair cable.	*d.* Check and repair if required.
		e. Defective TD-660A/G or CV-1548(*)/G at distant terminal.	*e.* Request distant terminal troubleshooting.
8	Switchboard operator reports that no signaling is available on any 2-wire channel.	Defective CV-1548(*)/G.	Troubleshoot CV-1548(*)/G (para 5-5).
9	Switchboard operator reports loss of one group of four channels. All local indications are normal.	*a.* Defective CX-7870/TCC cable between TD-660A/G and CV- 1548(*)/G.	*a.* Check and replace if necessary.
		b. Defective interconnecting cable between CV-1548(*)/G and SIGNAL ENTRANCE panel.	*b.* Check and replace if necessary.
		c. Defective associated cable at distant terminal.	*c.* Request distant terminal troubleshooting.

Table 5-5. *Radio Repeater Troubleshooting*

Item No.	Malfunction	Probable cause	Corrective action
1	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch at RCVR SIG, 12 CH PCM, or OW. High indication on T-983 (P)/GRC-103 (V) meter with meter selector switch at REFL PWR.	*a.* Defective cable between R-1329(P)/-GRC-103(V) ANT connector and associated SYSTEM connector on VIDEO AND ANTENNA ENTRANCE BOX.	*a.* Check and replace if necessary.
		b. Defective antenna cable or antenna.	*b.* Check and replace if necessary.
		c. Defective R-1329(P)/GRC-103(V).	*c.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).

Table 5-5. Radio Repeater Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
2	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch at 12 CH PCM. Associated T-983(P)/-GRC-103(V) has no indication on meter with meter selector switch at 12 CH PCM. All other indications are normal.	*a.* Defective R-1329(P)/GRC-103(V).	*a.* Troubleshoot R-1329(P)/GRC-103(V)
		b. Defective T-983(P)/GRC-103(V) at distant terminal or repeater.	*b.* Request distant terminal or repeater troubleshooting.
		c. Defective PCM component at distant terminal.	*c.* Request distant terminal troubleshooting.
3	No indication on T-983(P)/GRC-103(V) meter with meter selector switch at 12 CH PCM. All other indications are normal.	*a.* Defective cable between R-1329(P)/-GRC-103(V) PCM connector and PCM RCVR connector of VIDEO patch panel.	*a.* Check and replace if necessary.
		b. Defective cable between T-983(P)/-GRC-103(V) VIDEO connector and VIDEO TR XMTR connector of VIDEO patch panel.	*b.* Check and replace if necessary.
		c. Defective patch cable between PCM RCVR connector on one VIDEO patch panel and VIDEO TR XMTR connector on other VIDEO patch panel.	*c.* Check and replace if necessary.
		d. Defective T-983(P)/GRC-103(V).	*d.* Troubleshoot T-983(P)/GRC-103(V) (para 5-5).
		e. Defective R-1329(P)/GRC-103(V).	*e.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
4	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch at OW. All other indications are normal except that no order wire signal is available.	*a.* Defective associated CX-10673/-GRC-103(V) cable.	*a.* Check and replace if necessary.
		b. Defective associated RT-773/-GRC-103(V).	*b.* Troubleshoot RT-773/GRC-130(V).
5	Distant terminal or repeater reports all indications are normal except for order wire reception.	*a.* Defective associated CX-10673/-GRC-103(V) cable.	*a.* Check and replace if necessary.
		b. Defective T-983(P)/GRC-103(V).	*b.* Troubleshoot T-983(P)/GRC-103(V) (para 5-5).
6	All indications normal except for order wire reception.	*a.* Defective CX-10763/GRC-103(V).	*a.* Check and replace if necessary.
		b. Defective R-1329(P)/GRC-103(V).	*b.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		c. Defective T-983(P)/GRC-103V at distant terminal or repeater.	*c.* Request distant terminal or repeater troubleshooting.
7	Order wire communications normal through each radio link from associated RT-773/GRC-103(V), but no order wire communications between local RT-773/GRC-103(V)'s.	*a.* Defective cable between RT-773/GRC-103(V) PATCH THRU connector and ORDER WIRE PATCH THRU connector on patch panel.	*a.* Check and replace if necessary.
		b. Defective patch cable between ORDER WIRE PATCH THRU connectors on patch panels.	*b.* Check and replace if necessary.
8	No indication on T-983(T)/GRC-103(V) or R-1329(P)/GRC-103(V) meters with meter selector switch at REFL PWR. Distant terminal loss of reception.	*a.* Defective CG-3444/U cable between PWR OUT connector of T-983(P)/-GRC-103(V) and FROM XMTR connector of R-1329(P)/GRC-103(V).	*a.* Check and replace if necessary.
		b. Defective T-893(P)/GRC-103(V).	*b.* Troubleshoot T-983(P)/GRC-103(V) (para 5-5).
		c. Defective R-1329(P)/GRC-103(V).	*c.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).

Table 5-6. Cable- To-Radio Conversion Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
1	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch at RCVR SIG, 12 CH PCM, or OW. High indication on T-983(P)/GRC-103(V) meter with meter selector switch at REFL PWR.	*a.* Defective cable between R-1329(P)/-GRC-103(V) ANT connector and associated SYSTEM connector on VIDEO AND ANTENNA ENTRANCE BOX,	*a.* Check and replace if necessary.
		b. Defective antenna cable or antenna.	*b.* Check and replace if necessary.
		c. Defective R-1329(P)/GRC-103(V).	*c.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		d. Defective antenna, antenna cable, or T-983(P)/GRC-103(V) at distant terminal or repeater.	*d.* Keep AN/GRC-103(V) operating, periodically try order wire. Send person to distant terminal or repeater.

Table 5-6. Cable- To-Radio Conversion Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
2	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch at 12 CH PCM. Associated TD-204/U or TD-754/G has no indication on TEST ALIGN meter with METER SELECT switch PCM IN-1.	*a.* Defective R-1329(P)/GRC-103(V).	*a.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		b. Defective T-983(P)/GRC-103(V) at distant terminal or repeater.	*b.* Request distant terminal or repeater troubleshooting.
		c. Defective PCM component at distant terminal.	*c.* Request distant terminal troubleshooting.
3	No indication of T-983(P)/GRC-103(V) meter with meter selector switch at 12 CH PCM. All other indications are normal.	*a.* Defective cable between T-983-(P)/GRC-103(V) VIDEO TR XMTR connector on VIDEO patch panel.	*a.* Check and replace if necessary.
		b. Defective cable between TD-204/U or TD-754/G PCM OUT-1 connector and PCM OUT connector of VIDEO patch panel.	*b.* Check and replace if necessary.
		c. Defective patch cable between PCM OUT and VIDEO TR XMTR connectors on VIDEO patch panel.	*c.* Check and replace if necessary.
		d. Defective T-983(P)/GRC-103(V).	*d.* Troubleshoot T-983(P)/GRC-103(V) (para 5-5).
		e. Defective TD-204/U or TD-754/G.	*e.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
4	No indication on R-1329(P)/GRC-103(V) meter with meter selector switch on OW. All other indications are normal except that no order wire communications is available through radio link.	*a.* Defective CX-10763/GRC-103(V) cable.	*a* Check and replace if necessary.
		b. Defective RT-773/GRC-103(V).	*b.* Troubleshoot RT-773/GRC-103(V) (para 5-5).
5	Distant terminal or repeater (radio link side) reports all indications normal except for order wire reception.	Defective CX-10673/GRC-103(V) cable.	*a.* Check and replace if necessary.
		b. Defective T-983(P)/GRC-103(V).	*b.* Troubleshoot T-983(P)/GRC-103(V) (para 5-5).
6	All indications normal except for order wire reception.	*a.* Defective CX-10763/GRC-103(V) cable.	*a.* Check and replace if necessary.
		b. Defective R-1329(P)/GRC-103(V).	*b.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		c. Defective T-983(P)/GRC-103(V) at distant terminal or repeater.	*c.* Request distant terminal or repeater troubleshooting.
7	Order wire communications normal through radio link side with RT-773/-GRC-103(V) and through cable link side with TD-204/U or TD-754/G but no order wire communications through radio link side from TD-204/U or TD-754/G or cable link side from RT-773/GRC-103(V).	*a.* Defective cable between RT-773/-GRC-103(V) PATCH THRU connector and ORDER WIRE PATCH THRU connector on patch panel.	*a.* Check and replace if necessary.
		b. Defective cable between TD-204/U or TD-754/G PATCH THRU connector on ORDER WIRE patch panel.	*b.* Check and replace if necessary.
		c. Defective patch cable between ORDER WIRE PATCH THUR connectors on ORDER WIRE patch panel.	*c.* Check and replace if necessary.
8	No indication on TD-204/U or TD-754/G TEST ALIGN meter with METER SELECT switch at PCM IN-1. Distant terminal or repeater indicates loss of PCM. All other indications are normal.	*a.* Defective cable between PCM connector of R-1329(P)/GRC-103(V) and PCM RCVR connector of VIDEO patch panel.	*a.* Check and replace if necessary.
		b. Defective cable between TD-204/U or TD-754/G PCM IN-1 connector of VIDEO patch panel.	*b.* Check and replace if necessary.
		c. Defective patch cable between PCM IN and PCM RCVR connectors of VIDEO patch panel.	*c.* Check and replace if necessary.
		d. Defective R-1329(P)/GRC-103(V).	*d.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		e. Defective TD-204/U or TD-754/G.	*e.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
9	No indication on TD-204/U or TD-754/G TEST ALIGN meter with METER SELECT switch at TIMING IN. Distant terminal reports out of frame pcm. All other indications are normal.	*a.* Defective cable between R-1329(P)/-GRC-103(V) TMG connector and TIMING RCVR connector of VIDEO patch panel.	*a.* Check and replace if necessary.
		b. Defective cable between TD-204/U or TD-754/G TIM IN connector and TIMING IN connector of VIDEO patch panel.	*b.* Check and replace if necessary.

Table 5-6. Cable- To-Radio Conversion Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
		c. Defective patch cable between TIMING IN and TIMING RCVR connectors of VIDEO patch panel.	*c.* Check and replace if necessary.
		d. Defective R-1329(P)/GRC-103(V).	*d.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
		e. Defective TD-204/U or TD-754/G.	*e.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
10	ALARMS TRAFFIC indicator on TD-204/U or TRAFFIC indicator on TD-754/G lights, buzzer sounds, and order wire is normal.	*a.* Defective TD-206/G in cable link.	*a.* Troubleshoot cable link (para 5-4).
		b. Defective TD-204/U or TD-754/G.	*b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		c. Defective PCM component at distant terminal or repeater.	*c.* Request distant terminal or repeater troubleshooting.
11	ALARMS TRAFFIC indicator on TD-204/U or TRAFFIC indicator on TD-754/G lights, buzzer sounds, and no order wire available.	*a.* Defective TD-026/G in cable link.	*a.* Troubleshoot cable link (para 5-4).
		b. Defective transmission cable in cable link.	*b.* Troubleshoot cable link (para 5-4).
		c. Defective TD-204/U or TD-754/G.	*d.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		d. Defective TD-204/U or TD-754/G at distant terminal or repeater.	*d.* Keep TD-024/U or TD-754/G operating. Periodically try order wire and await response, Send person to distant terminal or repeater.
		e. Defective CG-2438/TCC cable between TD-204/U and TD-754/G FROM CABLE connector and IN cable connector in VIDEO AND ANTENNA ENTRANCE Box.	*e.* Check and replace if required.
12	ALARMS TRAFFIC and ALARMS NO CABLE CURRENT indicators on TD-204/U or TRAFFIC and CABLE CUR indicator on TD-754/G light and buzzer sounds. No order wire available.	Open transmission cable (both directions) in cable link.	Troubleshoot cable link (para 5-4).
13	ALARMS NO CABLE CURRENT indicator on TD-204/U or CABLE CUR indicator on TD-754/G lights and buzzer sounds. Order wire is normal.	*a.* Momentary overcurrent or undercurrent in cable link.	*a.* Operate CABLE POWER switch to OFF and then to ON.
		b. Defective TD-204/U or TD-754/G.	*b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
14	ALARMS NO CABLE CURRENT indicator on TD-204/U or CABLE CUR indicator on TD-854/G lights. No order wire transmission (cable link side).	*a.* Defective CG-2437/TCC cable between TD-204/U or TD-754/G TO CABLE connector and OUT connector in VIDEO AND ANTENNA ENTRANCE BOX.	*a.* Check and replace if required.
		b. Open transmission cable (send side) in cable link.	*b.* Troubleshoot cable link (para 5-4).
15	Distant terminal (cable link side) indicates loss of Wm. All local indications are normal.	Defective TD-206/G in cable link.	Troubleshoot cable link (para 5-4).
16	Switchboard operator at distant terminal reports high noise level, but all local indications are normal.	*a.* Defective TD-204/U or TD-754/G.	*a.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		b. Defective R-1329(P)/GRC-103(V).	*b.* Troubleshoot R-1329(P)/GRC-103(V) (para 5-5).
17	Order wire garbled and noisy, but all other indications are normal.	*a.* Defective TD-204/U or TD-754/G.	*a.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		b. Defective RT-773/GRC-103(V).	*b.* Troubleshoot RT-773/GRC-103(V) (para 5-5).
18	No order wire available (cable link side), but all other indications are normal.	*a.* Defective associated TD-204/U or TD-754/G.	*a.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
		b. Defective distant TD-204/U or TD-754/G.	*b.* Send person to distant terminal or repeater to request troubleshooting at distant terminal or repeater.
19	Distant terminal (cable link side) indicates out of frame pcm and all local indications are normal.	*a.* Defective TD-206/G in cable link.	*a.* Troubleshoot cable link (para 5-4).
		b. Defective TD-204/U or TD-754/G.	*b.* Troubleshoot TD-204/U or TD-754/G (para 5-5).
20	Incorrect indication on TEST ALIGN meter of TD-204/U or TD-754/G with METER SELECT switch at SERV FAC and SERV SEL switch at RCC.	Cable current adjustment required at distant terminal or repeater.	Request cable current adjustment at distant terminal or repeater.
21	Distant terminal or repeater requests cable	Cable current adjustment required.	Adjust CABLE CURRENT ADJ control for

Table 5-6. Cable- To-Radio Conversion Troubleshooting-Continued

Item No.	Malfunction	Probable cause	Corrective action
	current adjustment. TEST ALIGN meter of local TD-204/U does not indicate in yellow area with METER SELECT switch at CABLE I (CABLE CUR and green area on TD-754/G).		center hairline indication in yellow area of TEST ALIGN meter of TD-204/U or green area on TD-754/G.
22	TD-204/U TEST ALIGN meter does not give voltage indication with METER SELECT switch at CABLE V (CABLE VOLTS on TD-754/G).	Shorted transmission cable in cable link.	Troubleshoot cable link (para 5-4).

Table 5-7. TSEC/KG-27 Troubleshooting (TSEC/KG-27 in Alarm, Multiplexer Not in Alarm)

Step	Action	Normal result	Fault symptom	Suggested remedy
1	Attempt restart. *a.* Set TSEC/KG-27 ON-OFF/RESET switch to OFF/RESET pause then to ON. *b.* Verify successful alarm check by operating MONITOR SELECT switch to ALARM position. MONITOR lamp should light if alarm check successful.	TD-660A/G and TSEC/KG-27 not in alarm; system operational. Proceed to step 7.	MONITOR lamp out, TSEC/KG-27 still in alarm.	Proceed to step 2.
2	Perform detailed check of permuter tray KOK- 1/TSEC; this is frequent cause of alarm. *a.* Check permuter tray KOK-1/TSEC to ensure it has not been zeriozed and permuter tray is properly inserted. *b.* Check permuter tray settings.	TD-660A/G and TSEC/-KG-27 not in alarm; system operational. Proceed to step 7.	MONITOR lamp out, TSEC/KG-27 still in alarm.	Proceed to step 3
3	Substitute a permuter tray and perform another restart as described in step 1.	Restart is successful. Proceed to step 7.	Restart is unsuccessful.	Proceed to step 4.
4	Replace both permuter trays. After carefully checking permuter settings, perform another restart as described in step 1.	Restart is successful. Proceed to step 7.	Restart is unsuccessful.	Proceed to step 5.
5	Before replacing the TSEC/KG-27, systematically substitute all cables between TSEC/KG-27 and TD-660A/G except power cable. (With the TSEC/KG-27 in alarm it is assumed power is present.) Attempt another restart as described in step 1. **NOTE** The TSEC/KG-27 must be removed from the rack in order to remove cables from rear connectors.	Restart is successful. Proceed to step 7.	Restart is unsuccessful.	Proceed to step 6.
6	Perform loopback operation between TSEC/KG-27 and TD-660A/G (see table 5-10). *a.* Set MODE switch on TD-660A/G to 12-channel operation. *b.* Set both permuter trays KOK-l/TSEC to the same non-zero setting. (See KAM 258( )/TSEC	Restart is successful. Proceed to step 7.	Restart is not successful.	Replace the cable as described in step 5 and attempt another loopback operation: If the TSEC/KG-27 is still in alarm, replace TSEC/-KG-27. Send defective unit to a higher category of maintenance for repair.

Table 5-7. TSEC/KG-27 Troubleshooting (TSEC/KG-27 in Alarm, Multiplexer Not in Alarm)-Continued

Step	Action	Normal result	Fault symptom	Suggested remedy
	for maintenance settings.) *c.* Set TD-660A/G AUX IN-OUT switch to IN and power switch to ON. *d.* Attempt restart as described in step 1.			
7	Alert operator at remote terminal. Restore TSEC/KG-27 to normal operating configuration; the TSEC/KG-27 is now operational.	NA	NA	NA

Table 5-8. TSEC/KG-27 Troubleshooting (TSEC/KG-27 Not in Alarm, Multiplexer in Alarm)

Step	Action	Normal result	Fault symptom	Suggested remedy
1	Contact opposite station (remote terminal). Inquire if opposite TSEC/KG-27 is in alarm.	Opposite TSEC/KG-27 not in alarm. Proceed to step 2.	Opposite TSEC/KG-27 in alarm.	Perform loopback operation as described in step 6, table 5-7, in conjunction with step 3.
2	Contact personnel maintaining adjacent equipment. Fault is probably in adjacent equipment at this, the local station.	NA	NA	NA
3	Observe if TD-660A/G or TSEC/KG-27 is in alarm.	TD-660A/G and TSEC/-KG-27 not in alarm. Proceed to step 4.	TD-660A/G and TSEC/-KG-27 in alarm.	Systematically substitute all cables and attempt loopback operation. If TD-660A/G is still in alarm, replace TSEC/-KG-27. Send defective unit to a higher category of maintenance for repair.
4	Alert opposite station operator. Restore TSEC/KG-27 to normal operating configuration; TSEC/KG-27 is now operational.			

Table 5-9. TSEC/KG-27 Troubleshooting (TSEC/KG-27 Not in Alarm, Multiplexer Not in Alarm)

Step	Action	Normal result	Fault symptom	Suggested remedy
1	Local switchboard operator reports all local receive audio channels are dead or have only noise, or opposite statin operator reports opposite multiplexer is in alarm. (If TSEC/KG-27 power problems are suspected, perform power monitoring procedure in step 8 before continuing.)	NA	NA	If fault indication is from local switchboard operator, proceed to step 2. If fault indication is from opposite station operator, proceed to step 8.
2	Contact opposite station; request test tone on each of 12 channels. Record results. Clicks, buzzing or a rushing sound on all channels may be indications of a defective TSEC/KG-27. Other tone quality deficiencies such as excessive hum on all channels or tone quality deficiencies on some but not all channels indicate a defective TD-660A/G.	NA	Tone quality deficiencies suggest malfunctioning TSEC/KG-27.	Proceed to step 3.
3	Observe the following TSEC/KG-27 receive conditions: *a.* REC TIM. *b.* REC PCM. *c.* REC FRAME.	MONITOR lamp lights in all selector switch positions. Proceed to step 4.	MONITOR lamp out in one or all selector switch positions.	Replace cable carrying particular signal. Each time cable is replaced verify that MONITOR lamp lights for the MONITOR select switch position. If the MONITOR lamp remains out, replace TSEC/KG-27. Send defective unit to a higher category of maintenance for repair.

Table 5-9. TSEC/KG-27 Troubleshooting (TEC/KG-27 Not in Alarm, Multiplexer Not in Alarm—Continued

Step	Action	Normal result	Fault symptom	Suggested remedy
4	Monitor TD-660A/G PCM FROM AUX signal at TD-660A/G (REC PCM OUT from TSEC/KG-27).	PCM FROM AUX signal present and trouble corrected. Proceed to step 7.	PCM FROM AUX signal not present.	Proceed to step 5.
5	Recable TSEC/KG-27 for Ioopback operation as shown in table 5-10. Attempt a restart.	Restart successful. Proceed to step 6.	Restart not successful.	Try a replacement TSEC/KG-27. If a successful restart is still not possible, contact personnel maintaining adjacent equipment; there may be a malfunction in the adjacent equipment operating with the TSEC/KG-27 and TD-660A/G.
6	Monitor all 12 audio channels with a test tone.	Test tone is satisfactory on all channels. Proceed to step 7.	Test tone not satisfactory.	Contact personnel maintaining adjacent equipment; there may be a malfunction in the adjacent equip ment operating with the TSEC/KG-27 and TD-660A/G.
7	Alert opposite station operator. Restore TSEC/KG-27 to normal configuration; TSEC/KG-27 is now operational.	System operational.	System not operational.	Proceed to step 8.
8	The previous seven steps have attempted to isolate a malfunction in the receive portion of the TSEC/KG-27 based on local operator complaints. At this point, check TSEC/KG-27 power and transmit functions because of remote operator complaints. Observe the following power monitoring conditions: *a.* 4 VB. *b.* 12V. *c.* –6V. *d.* 4 VR. *e.* –10V.	MONITOR lamp lights in all selector switch positions. Proceed to step 9.	MONITOR lamp out in all positions.	Replace power cable. Observe that POWER indicator lamp lights. Observe power monitoring conditions again. If the MONITOR lamp lights for switch positions, proceed to step 9. If monitor lamp is still out in all positions, replace front panel fuses and MONITOR lamp. At this point, replace TSEC/-KG-27 if there is still no response to power monitoring. When MONITOR LAMP lights in some positions, and not others, also replace TSEC/KG-27.
9	Observe the TSEC/KG-27 XMIT signal monitoring conditions: *a.* XMIT TIM *b.* XMIT PCM *c.* XMIT FRAME	MONITOR lamp lights for all positions. Proceed to step 10.	MONITOR lamp out in one or more positions.	Replace appropriate cable carrying the signal. Observe MONITOR lamp lights. If MONITOR lamp does not light, replace MONITOR lamp. If there is still no repsonse replace TSEC/KG-27.
10	Obtain assistance from personnel maintaining adjacent equipment so as to evaluate TSEC/KG-27 inputs to adjacent equip ments operating with the TSEC/KG-27 and TD-660A/G (radio combiner, etc).	Correct indications on adjacent equipment. Proceed to step 11.	Incorrect TSEC/KG-27 inputs to adjacent equip ments.	Replace TSEC/KG-27. Send defective unit to higher category of maintenance for repair.
11	Recable TSEC/KG-27 for loopback operation as shown in table 5-10 and attempt a restart.	Restart successful. Proceed to step 12.	Restart not successful.	Replace TSEC/KG-27, Send defective unit to higher category maintenance for repair.
12	Alert opposite station operator. Restore TSEC/KG-27 to normal operational configuration. TSEC/KG-27 is operational			

NOTE

If, after completing the troubleshooting procedures, TSEC/KG-27 is still not operating satisfactorily, contact higher category maintenance personnel for assistance.

b. Loopback Checks.

(1) *General.* Output circuits of the pcm components (TD-204/U or TD-754/G), the TSEC/KG-27 and the AN/GRC-103(V) may be looped back to the input circuits to verify isolation of trouble within a system. The loopback checks must be coordinated with the distant terminal or repeater whenever possible. Determine which side of the component to check, perform the special conditions, and connect the cables as required.

(2) *PCM components.* Check the pcm components by making the connections in table 5-10 and operating the METER SELECT switch (TD-204/U or TD-754/G) through the positions indicated in table 4-1 and observing the meter indications.

(3) *TSEC/KG-27.* Perform loopback checks in accordance with the instructions for TSEC/KG-27 installation (para 2-13).

WARNING

Make sure cable current is shut off at both local and distant TD-204/U's or TD-754/G's before connecting cable link.

(4) *AN/GRC-103(V)* (fig, 5-1).

(a) Connect the AN/GRC-103 (V), Loop Test Set CV-2500/G, and Power Supply PP-6917/GRC (NSN 6130-00-014-5878) as shown in figure 5-1.

(b) Connect the dummy load to the loop test set.

(c) Connect Cable Assembly, RF CG-3444/U (3 ft. 6 in.) between the ANT connector and the loop test set.

(d) Connect the filter/connector box on the loop test set to the PP-6917/GRC (plugged into the 120 vac convenience outlet).

NOTE

Set the dial on the PP-6917/GRC to midrange. Normally, this setting will be sufficient; however, if after receiver alignment, the low signal alarm fails to silence, turn the dial clockwise until the alarm is silent and RCV SIG comes up. (If the alarm fails to quiet and REC SIG remains low, a problem exists in the radio set.)

(e) Make sure the multiplex equipment is connected in accordance with the assigned mode of operation.

(f) Set the transmitter XMTR CHANNEL and XMTR TUNE, and the receiver XMTR DUPL controls to channel 65 for BAND I, charnel 465 for BAND II, or channel 1,065 for BAND III.

(g) Set the RCVR CHANNEL and RCVR SIG controls to channel 115 for BAND I, channel 515 for BAND II, or channel 1,115 for BAND III.

NOTE

If the channels specified in *(f)* or *(g)* above are not available, set the transmitter and receiver to some other channels 25 MHz (50 channels) apart. In addition, do not select channel 50, or any channel that is a whole-number multiple of 50, (for example: 50x11 = 550), because they are multiples of 25 MHz. Spurious harmonics of 25 MHz are generated within the loop test set; these harmonics will cause interference within the receiver.

(h) Set the transmitter AC POWER switch to ON/RESET, and check for the following:

1. The centrifugal fan starts and the OVERHEAT lamp lights. (The lamp should go out within 10 seconds.)

2. The AC POWER and LOW POWER lamps light.

3. The SYNC lamp may light momentarily. (The lamp should go out within 10 seconds.)

4. The buzzer may sound; push the BUZZER OFF button to silence the buzzer.

(i) Sequentially, set the transmitter meter switch to 12 VDC, 28 VDC, and 600 VDC. The meter should indicate in the green band in each position.

(j) Sequentially, set the transmitter meter switch to OSC, DOUBLER, and MULT. The meter should indicate between 20 and 90 percent of full scale in each position.

(k) Set the transmitter meter switch to DRIVER.

(l) Push in the PWR OUT PEAK control and tune for a maximum meter indication.

(m) For any band, the meter should indicate between 25 and 90 percent of full scale.

(n) Set the transmitter meter switch to PWR OUT.

(o) Pull out the PWR OUT PEAK control and tune for a maximum meter indication.

(p) For any band, the meter indicates between 25 and 90 percent of full scale. The LOW POWER lamp goes out and the buzzer may sound. Push the BUZZER OFF button to silence the buzzer.

(q) Set the transmitter meter switch to REFL PWR. Tune the receiver XMTR DUPL control for a minimum transmitter meter indication. The meter should indicate less than 20 percent of full scale. Check to see that the receiver XMTR CHANNEL indicator is within 10 channels of the assigned charnel number.

(r) Set the receiver meter switch to XMTR DUPL. The meter should indicate between 25 and 90 percent of full scale.

(s) Set the receiver meter switch to REFL PWR. The meter indicates less than 20 percent of full scale.

(t) Set the receiver AC POWER switch to ON.

1. The AC POWER and LOW SIGNAL lamps light.

2. The order wire unit POWER lamp lights.

3. The SYNC lamp may light momentarily, and then go out within 10 seconds.

4. The buzzer may sound. Push the BUZZER OFF button to silence the buzzer.

(u) Set the receiver meter switch to +12 VDC and then to – 12 VDC. The meter should indicate in the green band in each position.

(v) Wait until the SYNC lamp goes out.

(w) Set the receiver meter switch to OSC and then to DOUBLER. The meter should indicate between 25 and 90 percent of full scale.

(x) Set the receiver meter switch to MULT. Adjust the MULT PEAK control for a maximum meter indication, The meter should indicate between 25 and 90 percent of full scale. The LOW SIGNAL lamp goes out. The buzzer may sound. Push the BUZZER OFF button to silence the buzzer.

(y) Set the receiver meter switch to RCVR SIG. The meter should indicate between 25 and 90 percent of full scale.

(z) Monitor the order wire circuit for quiet operation.

(aa) Set the receiver meter switch to OW. Push the RING button on the order wire unit. The meter should indicate in the green band. The CALL lamp will not light.

(ab) Set the transmitter meter switch to 12 CH PCM or 24 CH PCM, according to the mode of operation. Adjust the input control until the meter indicates in the green band.

(ac) Set the receiver meter switch to 12 CH or 24 CH PCM, according to the mode of operation. The meter should indicate in the green band.

(ad) Perform the preliminary check on the multiplex equipment according to multiplex instructions.

(ae) Turn the equipment OFF.

(af) Disconnect the loop test set and power supply.

(ag) Reconnect the antenna.

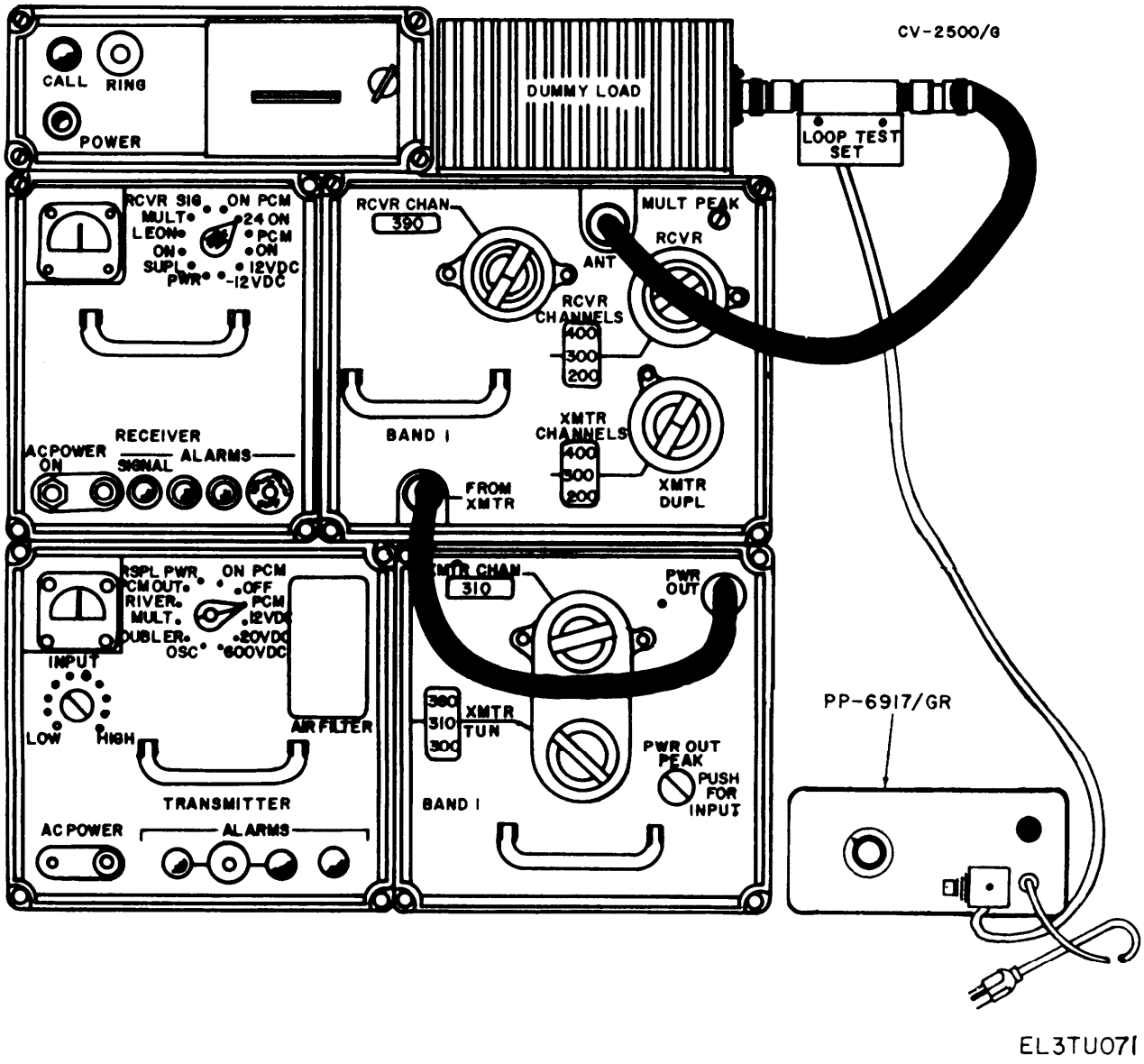


Figure 5-1. AN/GRC-103(V) connected for loopbach checks.

Table 5-10. Loopback Checks

Component	System side	Special conditions	Patch panel connection	
			From—	To—
TD-204/U or TD-754/G	PCM	None	PCM OUT [a] TIM OUT [a]	PCM IN [a] TIM IN [a]
	Cable	MILES switches at ½; CABLE POWER or CABLE CUR switch at OFF.	SYSTEM (1 or 2) [b] OUT	SYSTEM (1 or 2) [b] IN
	PCM	None	AN/GRC-103 PCM OUT [a]	AN/G RC-103 PCM IN [a]
AN/GRC-103(V)	Radio	Loop Test Set CV-2500/GRC between R-1329(P)/GRC-103(V) ANT connector and Dummy Load, Electrical DA-437/GRC-103(V). Loop test set power obtained from Power Supply PP-6917/GRC. R-1329(P)/GRC-103(V) and T-983(P)/GRC-103(V) tuned 25 MHz (50 channels) apart.	None	None

Table 5-10. Loopback Checks-Continued

Component	System side	Special conditions	Patch panel connection	
			From-	To-
TD-660A/G	PCM	None	PCM OUT [a] TIM OUT [a]	PCM IN [a] TIM IN [a]

[a] VIDEO PATCH panel.
[b] VIDEO AND ANTENNA ENTRANCE BOX.
[c] Operate power supply control to MIN when connecting and disconnecting.

5-4. Cable Link Troubleshooting

WARNING

Do NOT operate the CABLE CURRENT switch to the ON position unless there is 1 mile or more of cable connected to the TD-754/U, as damage to the power supply could result.

NOTE

Before troubleshooting, convert assemblage to nonsecure mode. If trouble persists, continue with a, b, or c below. If trouble clears, replace TSEC/KG-27 and/or interconnecting cables and continue normal operations.

a. Order Wire Available with no PCM or Shorted Transmission Cable.

(1) Disconnect the cable from the PCM IN-1 connector of the TD-204/U or TD-754/G.

(2) Operate the METER SELECT switch of the TD-204/U or TD-754/G to SERV FAC.

(3) Loosen the front panel screws on the TD-204/U, press the PUSH TO RELEASE CHASSIS button, and pull the front panel forward.

(4) Operate the SERV SEL switch of the TD-204/U to R (FL on TD-754/G).

(5) Operate the NORM OPR-ZERO SET-READ switch of the TD-204/U or TD-754/G to ZERO SET.

(6) Adjust the ZERO SET control for a center hairline indication on the TEST ALIGN meter.

(7) Operate the NORM OPR-ZERO SET-READ switch of the TD-204/U or TD-754/G to READ.

(8) Operate the SYSTEM FAULT LOCATOR MILES switches of the TD-204/U or TD-754/G for a center hairline indication of the TEST ALIGN meter (as close as possible).

(9) From the positions of the SYSTEM FAULT LOCATOR MILES switches, determine the number of good TD-206/G's between the TD-204/U or TD-754/G and the defective cable section or TD-206/G.

(10) Operate the SYSTEM FAULT LOCATOR MILES switches of the TD-204/U or TD-754/G to O and the NORM OPR-ZERO SET-READ switch to NORM OPR.

(11) Slide the front panel of the TD-204/U back until it locks into place and tighten the front panel screws.

(12) Operate the CABLE POWER switch of the TD-204/U or CABLE CUR switch of the TD-754/G at each end of the cable link to OFF.

(13) Send a lineperson out to troubleshoot with the AN/PTM-7.

WARNING

Do not operate the CABLE POWER switch of the TD-204/U or the CABLE CURRENT switch of the TD-754/G to ON at either end of the cable link unless requested by the lineperson. If the CABLE POWER or CABLE CURRENT switch is operated to ON, voltages as high as 1,000 volts may be present in the transmission cable.

(14) Coordinate with the lineperson to troubleshoot and make the necessary replacements (cable section or TD-206/G).

b. Order Wire Available with PCM Out of Frame or Noise on all Channels.

(1) Operate the CABLE POWER switch of the TD-204/U or CABLE CURRENT switch of the TD-754/G at each end of the cable link to OFF.

(2) Send a lineperson out to the TD-206/G at the midpoint in the cable link with the AN/PTM-7, with instructions to connect into the cable link.

(3) When order wire is established with the lineperson, give instructions to perform the loopback check with the AN/PTM-7.

WARNING

Do not operate the CABLE POWER switch of the TD-204/U or the CABLE CURRENT switch of the TD-754/G to ON at either end of the cable link unless requested by the lineperson. If the CABLE POWER or CABLE switch is operated to ON, voltages as high as 1,000 volts may be present in the transmission cable.

(4) Operate the CABLE POWER or CABLE CURRENT switch to ON at both ends of the cable link, and check to see which end of the cable link has a FRAME ALARM indicator lighted on the TD-660A/G for the associated terminal or noise on all channels.

(5) When the indications are obtained, operate the CABLE POWER switch on the TD-204/U or CABLE CURRENT switch of the TD-754/G at each end of the link to OFF.

(6) Instruct the lineperson to substitute another TD-206/G in the cable link. When the substitution is complete, operate the CABLE POWER or CABLE CURRENT switch to ON and check to see if the trouble still exists.

(7) If the trouble is not corrected, instruct the lineperson to replace the original TD-206/G in the cable link and proceed to a TD-206/G halfway between his position and the end of the cable link that reported a frame alarm or noise on all channels during the first loopback check ((4) above).

(8) Perform the procedures given in (3) through (6) above at the next TD-206/G. If the trouble is not corrected, instruct the lineperson to replace the original TD-206/G and continue the troubleshooting procedure until the defective TD-206/G is located.

c. No Order Wire or PCM Available.

NOTE

If the ALARMS NO CABLE CURRENT indicator of the TD-204/U or CABLE CUR indicator of the TD-754/G remains extinguished after the CABLE POWER or CABLE CURRENT switch is operated to OFF and then to ON, the transmission cable is shorted. Perform the procedures given in a above to locate the shorted cable section. When the ALARMS NO CABLE CURRENT indicator of the TD-204/U or CABLE CUR indicator of the TD-754/G immediately lights after the CABLE POWER or CABLE CURRENT switch is operated to OFF and then to ON, the transmission cable is open. Perform the procedures given in (1) through (5) below to locate the defective cable section.

(1) Operate the CABLE POWER switch of the TD-204/U or CABLE CURRENT switch of the TD-754/G to OFF.

(2) Disconnect the cable from the TO CABLE connector of the TD-204/U or TD-754/G and connect it to Test Set TS-27B/TSM.

(3) Measure the capacitance of the cable with the TD-27B/TSM, and translate the indication into the distance to the fault (fig. 5-2).

(4) If the indicated distance exceeds 10 miles, send a lineperson out to the 10-mile point to repeat the measurement.

(5) Instruct the lineperson to use the AN/PTM-7 at the cable connection nearest the fault to locate the distance to the field.

NOTE

When the fault is located in a section of the cable link where the two cable sections join, use the

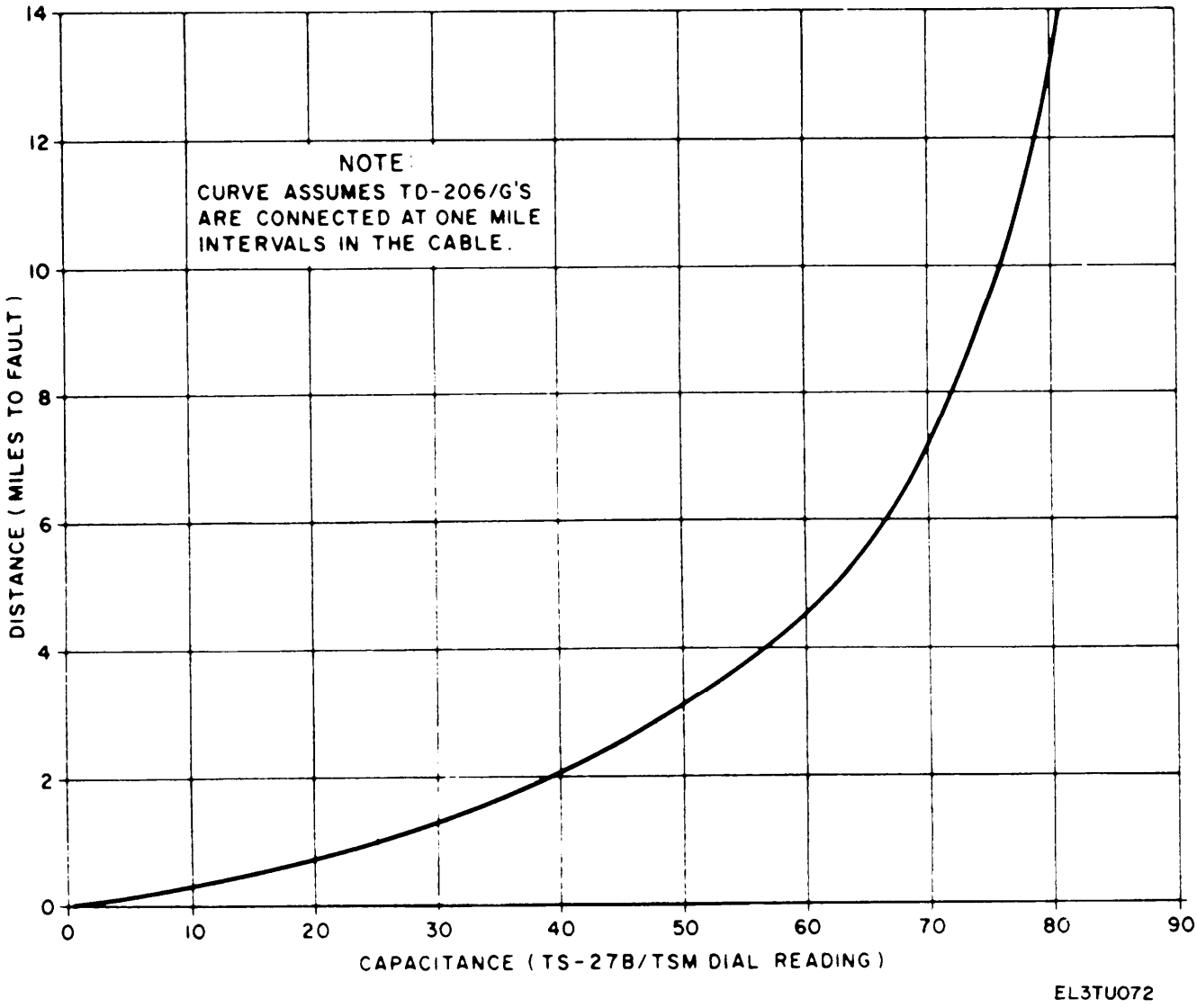


Figure 5-2. CX-4245/G or CX-11230/G transmission cable capacitance-distance curve, for use with Test Set TS-27B/TSM.

AN/PTM-7 order wire facility to determine which cable section is at fault.

(6) When the fault is located, replace the cable section.

5-5. Assemblage Troubleshooting

The assemblage troubleshooting table (5-11) is based on symptoms that would be obtained while performing the operator's daily preventive maintenance checks and services (table 4-1) and organizational monthly preventive maintenance checks and services (table 5-1). When an abnormal symptom occurs, locate the symptom in the troubleshooting chart and perform the corrective measures as authorized in the maintenance allocation chart (MAC).

NOTE

Parenthetical reference designations of panel markings within the table apply to equipments bearing serial No. 47 and above.

Table 5-11. Assemblage Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
1	POWER INDICATOR neon light fails to glow and no indication on AC VOLTS meter when power is applied to assemblage.	*a.* Defective power cable. *b.* Defective POWER 115V AC IN receptacle J1. *c.* Defective filters FL1 and FL2. **NOTE** If immediate operation is required, and POWER 115V AC OUT receptacle J2 is not used to power another assemblage, use POWER 115V AC OUT receptacle J2 for input power.	*a.* Check and repair or replace as required. *b.* Repair assigned to higher category of maintenance. *c.* Replacement assigned to higher category of maintenance.
2	POWER INDICATOR neon light fails to glow when power is applied to assemblage. AC VOLTS meter indicates normal.	*a.* Defective lamp DS8. *b.* Defective lamp socket XDS8 or defective wiring to lamp socket.	*a.* Replace lamp. *b.* Repair assigned to higher category of maintenance.
3	AC VOLTS meter does not indicate when power is applied to assemblage. POWER INDICATOR neon light normal.	Defective AC VOLTS meter M2.	Replace meter.
4	No ac power available inside assemblage but POWER INDICATOR neon light and AC VOLTS meter are normal.	Defective MAIN circuit breaker CB8.	Replace circuit breaker.
5	Glowlamp fails to glow when associated circuit breaker is operated to ON.	*a* Defective associated glowlamp (DS1-DS7). *b.* Defective circuit breaker (CB1-CB7).	*a.* Replace glowlamp. *b.* Replace circuit breaker.
6	No ac power available at 115V AC receptacle in POWER ENTRANCE BOX. AC power available inside assemblage.	*a.* Defective CONV BREAKER circuit breaker CB9. *b.* Defective receptacle J3. *c.* Defective ac wiring.	*a.* Replace circuit breaker. *b.* Replace receptacle. *c.* Repair assigned to higher category of maintenance.
7	Neither fluorescent nor incandescent ceiling lights light when FLUORESCENT LIGHTS and INCANDESCENT COLD START LIGHTS switches are operated to ON. BLACKOUT BYPASS switch is at BLACKOUT.	*a.* Defective LIGHTS circuit breaker CB1. *b.* Defective interlock switch S1. *c.* Defective ac wiring.	*a.* Replace circuit breaker. *b.* Replace interlock switch. *c.* Repair assigned to higher category of maintenance.
8	Ceiling lights do not extinguish when door is opened and BYPASS BLACKOUT switch is at BLACKOUT.	Defective interlock switch S1.	Replace interlock switch.
9	Fluorescent ceiling lights do not light when FLUORESCENT LIGHTS switch is operated to ON. Incandescent lights normal.	*a.* Defective FLUORESCENT LIGHTS switch S2. *b.* Defective lamp, ballast transformer or ac wiring.	*a.* Replace switch. *b.* Replace lamp only. Other repair assigned to higher category of maintenance.
10	Incandescent ceiling lights do not light when INCANDESCENT COLD START LIGHTS switch is operated to ON. Fluorescent lights normal.	*a.* Defective INCANDESCENT COLD START LIGHTS switch S4 or lamp. *b.* Defective ac wiring. *c.* Defective lamp.	*a.* Replace switch or lamp. *b.* Repair assigned to higher category of maintenance. *c.* Replace lamp.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
11	Exhaust blower fails to operate when BLOWER switch is operated to ON.	*a.* Defective exhaust blower. *b.* Defective associated BLOWER switch (S6 or S7). *c.* Defective associated BLOWER receptacle (J7 or J8).	*a.* Check and repair or replace as required. *b.* Replace switch. *c.* Replace receptacle.
12	Both exhaust blowers fail to operate when BLOWER switches are operated to ON.	*a.* Defective BLOWERS circuit breaker CB2. *b.* Defective associated wiring.	*a.* Replace switch. *b.* Repair assigned to higher category of maintenance.
13	Heater No. 1 fails to operate.	*a.* Defective HTR-1 circuit breaker CB3. *b.* Defective HEATER 1 receptacle J9. *c.* Defective heater.	*a.* Replace circuit breaker. *b.* Replace receptacle. *c.* Check and repair or replace as required.
14	Heater No. 2 fails to operate.	*a.* Defective EQUIPMENT HEATER (-2) switch S5. *b.* Defective HEATER 2 receptacle J4. *c.* Defective heater.	*a.* Replace switch. *b.* Replace receptacle. *c.* Check and repair or replace as required.
15	All rack equipment fails to operate.	*a.* Defective EQUIPMENT-HEATER (-2) switch S5. *b.* Defective ac wiring to racks.	*a.* Replace switch. *b.* Repair assigned to higher category of maintenance.
16	Heater No. 2 fails to operate with EQUIPMENT-HEATER switch at HEATER, and all rack equipment fails to operate with EQUIPMENT-HEATER switch at EQUIPMENT.	*a.* Defective (HTR-2 &) EQUIP circuit breaker CB6. *b.* Defective EQUIPMENT-HEATER (-2) switch S5. *c.* Defective ac wiring.	*a.* Replace circuit breaker. *b.* Replace switch. *c.* Repair assigned to higher category of maintenance.
17	No ac power available at any CONVENIENCE receptacles.	Defective CONV circuit breaker CB7.	Replace circuit breaker.
18	No ac power available at a specific CONVENIENCE receptacle.	Defective CONVENIENCE receptacle J5 (J17).	Replace receptacle.
19	LS-147C/FI does not operate.	*a.* Defective INTERCOM circuit breaker CB4. *b.* Defective INTERCOM receptacle. *c.* Defective LS-147C/FI.	*a.* Replace circuit breaker. *b.* Replace receptacle. *c.* Check and replace as required.
20	Local communications not available with TA-312/PT.	*a.* Defective TA-312/PT. *b.* Defective wiring.	*a.* Replace TA-312/PT. *b.* Check and repair as required.
		NOTE Item numbers 21 through 28 below apply only to AN/TRC-145 and AN/TRC-145A.	
21	TD-204/U AC POWER indicator does not light and blower is not heard when AC POWER switch is operated to ON.	*a.* Defective power cable to TD-204/U. *b.* Defective 1A fuse. *c.* Defective power supply assembly 6A1.	*a.* Check and replace if necessary. *b.* Replace 1A fuse. *c.* Replace power supply assembly.
22	Incorrect indication on TD-204/U TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at: *a.* -10. *b.* +10. *c.* SUM ±3. *d.* BAL.	Adjustment of following VOLTAGE ADJ control required: *a.* -10V. *b.* +10V. *c.* ±3V. *d.* ±3V BAL.	Adjust following VOLTAGE ADJ control for hairline indication in yellow area of TEST ALGIN meter: *a.* -10V. *b.* +10V. *c.* ±3V. *d.* ±3V BAL.
23	No indication on TD-204/U TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at: *a.* -10. *b.* +10. *c.* SUM ±3.	Defective fuse as indicated below: *a.* ¼A -10V. *b.* ¼A +10V. *c.* 1A + 3V -3V.	Replace with SPARES fuse indicated below: *a.* ¼A. *b.* ¼A. *c.* 1A.
24	No order wire communications through capable link using TD-204/U. All other indications normal.	Defective TD-204/U panel 6A2.	Replace panel 6A2.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
25	Incorrect or no indication on TD-204/U TEST ALIGN meter with METER SE LECT switch at SERV FAC and SERV SEL switch at -10, +10, SUM ±3, or BAL adjustment or fuse replacement does not correct trouble.	Defective power supply assembly 6A1.	Replace power supply assembly 6A1.
26	TD-204/U ALARMS CHANGE AIR FIL-TER indicator lighted.	*a.* Dirty or clogged air filter. *b.* Power supply assembly 6A1 overheating.	*a.* Clean or replace. *b.* Replace power supply asembly 6A1.
27	TD-204/U ALARMS NO CABLE CURRENT indicator lights and buzzer sounds with CABLE POWER switch at ON. Resetting does not clear trouble.	*a.* Defective 2A CABLE 1 fuse. *b.* Defective TO CABLE LIGHTNING ARRESTER. *c.* Overcurrent adjustment. *d.* Defective power supply assemblage 6A1.	*a.* Replace with SPARES 2A fuse. *b.* Replace lightning arrester. *c.* Adjust overcurrent (app A). *d.* Replace power supply assemblage 6A1.
28	Incorrect indication on TD-204/U TEST ALIGN meter METER SELECT switch at SERV FAC and SERV SEL switch at following positions:	Following panel defective:	Replace following panel:
	a. A	*a.* 6A4	*a.* 6A4
	b. B	*b.* 6A4	*b.* 6A4
	c. C	**c. 6A7**	**c. 6A7**
	d. D	**d. 6A7**	**d. 6A7**
	e. E	*e.* 6A7	*e.* 6A7
	f. F	*f.* 6A7	*f.* 6A7
	g. G	**g. 6A7**	**g. 6A7**
	h. H	**h. 6A5**	**h. 6A5**
	i. J	*i.* 6A5	*i.* 6A5
	j. K	**j. 6A6**	*j.* 6A6
	k. L	**k. 6A6**	**k. 6A6**
	l. M	*l.* 6A6	*l.* 6A6
	m. N	*m.* 6A6	*m.* 6A6
	n. O	*n.* 6A3	*n.* 6A3
	o. P	*o.* 6A3	**o. 6A3**
	p. Q	*p.* 6A2	**p. 6A2**
	q. S	*q.* 6A7	*q.* 6A7
29	T-983(P)/GRC-103(V) AC POWER and LOW POWER indicators do not light, buzzer is silent, and blower does not operate when AC POWER switch is operated to ON/RESET.	*a.* Defective power cable to T-983(P)/GRC-103(V). *b.* Defective power supply 5TR1PS1.	*a.* Check and replace if necessary. *b.* Replace T-983(P)/GRC-103(V).
30	T-963(P)/GRC-103(V) AC POWER and LOW POWER indicator light, buzzer sounds, but blower does not operate when AC POWER switch is operated to ON/RESET.	*a.* Defective centrifugal fan 5A2B1. *b.* Defective power supply 5TR1PS1.	*a.* Check and replace if necessary (app **A**). ***b.* Replace T-983(P)/GRC-103(V).**
31	T-983(P)/GRC-103(V) LOW POWER indicator lights, buzzer sounds, and blower operateS but AC POWER indicator doeS not light when AC POWER switch is operated to ON/RESET.	Defective AC POWER lamp.	Replace AC POWER lamp.
32	T-963(P)/GRC-103(V) AC POWER indicator lights, buzzer sounds, and blower operates but LOW POWER indicator doeS not light when AC POWER switch is operated to ON/RESET.	Defective LOW POWER lamp.	Replace LOW POWER lamp.
33	T-963(P)/GRC-103(V) AC POWER and LOW POWER indicators light and blower operates, but buzzer does not sound when AC POWER switch is operated to ON/RESET.	*a.* BUZ OFF/ALM NOR switch at incorrect setting. *b.* Defective BUZ OFF switch or defective buzzer.	*a.* Check switch (inside of case at right-hand side, front upper comer of transmitter head) and reset if necessary. ***b.* Replace T-983(P)/GRC-103(V).**
34	T-963(P) /GRC-103(V) OVERHEAT indicator lights when AC POWER switch is operated to ON/RESET.	Defective switch assembly 6AR1A1A1.	Replace T-963(P)/GRC-103(V).

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
35	T-983(P)/GRC-103(V) SYNC indicator does not extinguish within 10 seconds after AC POWER switch is operated to ON/RESET.	Defective power supply 5TR1PS1 or electrical frequency synthesizer 5TR1A2.	Replace T-983(P)/GRC-103(V).
36	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at 12 VDC or 28 VDC.	Defective power supply 5TR1PS1 or other module in radio transmitter 5TR1.	Replace T-983(P)/GRC-103(V).
37	T-983(P)/GRC-103(V) LOW POWER indicator does not extinguish within 60 seconds after AC POWER switch is operated to ON/RESET and meter indication is below normal with meter selector switch at 600 VDC.	Defective power supply assembly 5TR1PS1 or switch assembly 6AR1A1A1.	Replace T-983(P)/GRC-103(V).
38	T-983(P)/GRC-103(V) LOW POWER indicator does not extinguish within 60 seconds after AC POWER switch is operated to ON/RESET and meter indicates normal with meter selector switch at 600 VDC.	*a.* Incorrect setting of XMTR TUNE control. *b.* Incorrect tuning of PWR OUT PEAK control. *c.* Defective driver tube or final tube. *d.* Defective control alarm 5TR1A3. *e.* Defective power monitor 6AR1A3 or power supply 5TR1PS1.	*a.* Reset control. *b.* Retune control. *c.* Replace tube (app A). *d.* Replace control alarm (app A). *e.* Replace T-983(P)/GRC-103(V).
39	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at OSC.	*a.* Defective control indicator 6A3. *b.* Defective electrical frequency synthesizer 5TR1A2.	*a.* Replace control (app A). *b.* Replace T-983(P)/GRC-103(V).
40	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at DOUBLE. Normal indication in OSC position.	Defective amplifier-frequency multiplier 5TR1A4.	Replace T-983(P)/GRC-103(V).
41	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at MULT. Normal indication m DOUBLER position.	*a.* Incorrect setting of XMTR TUNE control. *b.* Incorrect tuning of PWR OUT PEAK control. *c.* Defective electronic switch 66A1. *d.* Defective frequency multiplier assembly 6A2.	*a.* Reset control. *b.* Retune control. *c.* Replace electronic switch (app A). *d.* Replace T-983(P)/GRC-103(V).
42	T-983(P)/GRC-103(V) meter indicates below normal meter selector switch at DRIVER. Normal indication in MULT position (no adjustment for band I or II).	*a.* Incorrect setting of XMTR TUNE control. *b.* Incorrect tuning of PWR OUT PEAK control. *c.* Defective driver tube.	*a.* Reset control. *b.* Retune control. *c.* Replace tube (app A).
43	T-983/GRC-103(V) meter indicates below normal with meter selector switch at PWR OUT (no adjustment for band III). Normal indication in DRIVER position, but R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch XMTR DUPL.	*a.* Incorrect setting of XMTR TUNE control. *b.* Incorrect tuning of PWR OUT PEAK control. *c.* Defective final tube.	*a.* Reset control. *b.* Retune control. *c.* Replace tube (app A).
44	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at PWR OUT (no adjustment for band III). Normal indication in DRIVER position, and R-132(P)/GRC-103(V) meter indicates normal with meter selector switch at XMTR DUPL.	*a.* Incorrect setting of XMTR control. *b.* Incorrect tuning of PWR OUT PEAK control. Defective final tube. *d.* Defective power monitor 6AR1A3.	*a.* Reset control. *b.* Retune control. *c.* Replace tube (app A). *d.* Replace T-983(P)/GRC-103(V).
45	T-983(P)/GRC-103(V) LOW POWER indicator does not extinguish, but meter indication is normal with meter selector switch at PWR OUT.	*a.* Defective control alram 5TR1A3. *b.* Defective power supply 5TR1PS1.	*a.* Replace control alarm (app A). *b.* Replace T-983(P)/GRC-103(V).
46	T-983(P)/GRC-103(V) meter indicates above normal with meter selector switch at REFL PWR. R-1392(P)/GRC-103(V) meter indicates above normal with meter selector switch at REFL PWR.	*a.* Defective CG-3444/U cable. *b.* Defective duplexer 2A1A1 or power monitor 2A1A5.	*a.* Replace cable. *b.* Replace T-983(P)/GRC-103/GRC-103(V).

Table 6-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
47	T-983(P)/GRC-103(V) meter indicates above normal with meter selector switch at REFL PWR. R-1329(P)/GRC-103(V) meter indicates above normal with meter selector switch at REFL PWR.	Poor line connections or damaged transmission line or antenna.	Check by substitution of dummy load sequentially moving from ANT connector to antenna.
48	T-983(P)/GRC-103(V) meter indicates below normal with meter selector switch at 12-CH PCM. INPUT control at maximum.	*a.* Defective amplifier-monitor 5TR1A5. *b.* Defective INPUT control.	*a.* Defective amplifier-monitor (app A). *b.* Replace T-983(P)/GRC-103(V).
49	T-983(P)/GRC-103(V) OVERHEAT indicator lights and all other indications are normal.	*a.* Clogged air filter. *b.* Defective centrifugal fan 5A2B1.	*a.* Check filter, ducts, and radiators. Clean any airflow obstructions. *b.* Replace T-983(P)/GRC-103(V).
50	T-983(P)/GRC-103(V) meter has no indication for any position of meter selector switch. All other indications are normal.	Defective meter 5TRA1M1 or meter switch 5TRA1S1.	Replace T-983(P)/GRC-103(V)
51	R-1329(P)/GRC-103(V) AC POWER and LOW SIGNAL indicators do not light, and buzzer is silent when AC POWER switch is operated to ON.	*a.* Defective power cable to R-1329(P)/GRC-(103)(V). *b.* Defective power supply (app A). *c.* Defective switch 1RE1A1CB1.	*a.* Repair assigned to higher category of maintenance. *b.* Replace power supply (app A). *c.* Replace R-1329(P)/GRC-103(V).
52	R-1329(P)/GRC-103(V) LOW SIGNAL indicator lights and buzzer sounds but AC power indicator does not light when AC POWER switch is operated to ON.	Defective AC POWER lamp.	Replace AC POWER lamp.
53	R-1329(P)/GRC-103(V) AC POWER indicator lights and buzzer sounds but LOW SIGNAL indicator does not light when AC POWER switch is operated to ON.	Defective LOW SIGNAL lamp.	Replace LOW SIGNAL lamp.
54	R-1329(P)/GRC(V) AC POWER and LOW SIGNAL indicators light but buzzer does not sound when AC POWER switch is operated to ON.	*a.* BUZ OFF/ALM NOR switch at incorrect setting. *b.* Defective BUZZER OFF switch or defective buzzer.	*a.* Check switch (inside of case at left-hand side, front upper corner of receiver head) and reset it if necessary. *b.* Replace R-1329(P)/GRC-103(V).
55	R-1329(P)/GRC-103(V) SYNC indicator does not extinguish within 10 seconds after AC POWER switch is operated to ON.	*a.* Defective power supply 1RE1A2. *b.* Defective electrical frequency synthesizer 1RE1A2.	*a.* Replace power supply (app A). *b.* Replace R-1329(P)/GRC-103(V).
56	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at +12 VDC.	*a.* Defective CX-10763/GRC-103(V) cable. *b.* Defective receiver head. *c.* Defective RT-773/GRC-103(V). *d.* Defective power supply 1RE1PS1.	*a.* Check and replace if necessary. *b.* Replace receiver head. *c.* Replace RT-773/GRC-103(V). *d.* Replace power supply (app A). *e.* Replace R-1329(P)/GRC-103(V).
57	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at -12 VDC.	*a.* Defective power supply 1RE1PS1. *b.* Defective module in R-1329(P)/GRC-103(V). *c.* Defective receiver head.	*a.* Replace power supply (app A). *b.* Replace R-1329(P)/GRC-103(V). *c.* Replace receiver head.
58	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at XMTR DUPL. Meter indication normal with T-983(P)/GRC-103(V) meter selector switch at PWR OUT.	*a.* Incorrect XMTR DUPL control setting. *b.* Defective CG-3444/U cable. *c.* Defective duplexer 2A1A1 or power monitor 2A1A5.	*a.* Reset control. *b.* Check and replace if necessary. *c.* Replace R-1329(P)/GRC-103(V).
59	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at OSC.	*a.* Defective control-indicator 2A2. *b.* Defective electrical frequency synthesizer 1RE1A2.	*a.* Replace control-indicator (app A). *b.* Replace R-1329(P)/GRC-103(V).
60	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at DOUBLER. Normal indication in OSC position.	Defective amplifier-frequency multiplier 1RE1A5.	Replace amplifier-frequency multiplier (app **A).**

Table 6-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
61	R-1329(P)/GRC-103(V) meter indicates below normal with selector switch at MULT. Normal indication in DOUBLER position.	*a.* Incorrect setting of RCVR SIG control. *b.* Incorrect tuning of MULT PEAK control. *c.* Defective control-indicator 2A2. *d.* Defective frequency multiplier 2A1A2A1 or electrical frequency synthesizer 1RE1A2.	*a.* Reset control. *b.* Retune control. *c.* Replace control-indicator (app A). *d.* Replace R-1329(P)/GRC-103(V).
62	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at RCVR SIG. Normal indication in MULT position but LOW SIGNAL indicator does not extinguish.	*a.* RCVR SIG or RCVR CHANNEL control incorrectly adjusted. *b.* Antenna facing wrong direction. *c.* Defective frequency mixer stage 2A1A2, radio frequency amplifier 2A1AR1 or low pass filter 2A1A1FL1. *d.* Defective T-983(PVGRC-103(V) at distant terminal or repeater.	*a.* Adjust control. *b.* Check azimuth. *c.* Replace R-1329(P)/GRC-103(V). *d.* Request distant terminal or repeater troubleshooting.
63	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at RCVR SIG, LOW SIGNAL indicator does not light, no order wire noise, and no reception.	*a.* Defective intermediate frequency amplifier 1RE1AR2. *b.* Defective bandpass filter 1RE1FL1. *c.* Defective intermediate frequency amplifier 2A1A2AR1. *d.* Defective receiver head or radio receiver 1RE1.	*a.* Replace intermediate frequency amplifier (app A). *b.* Replace bandpass filter (app A). *c.* Replace intermediate frequency amplifier (app A). *d.* Replace receiver head or radio receiver 1RE1.
64	R-1329(P)/GRC-103(V) meter indicates normal with meter selector switch at RCVR SIG and LOW SIGNAL indicator is extinguished but there is no reception or order wire noise.	*a.* Defective video amplifier 1RE1AR1. *b.* Defective electrical frequency limiter-discriminator 1RE1A4.	*a.* Replace video amplifier (app A). *b.* Replace electrical frequency limiter-discriminator 1RE1A4.
65	R-1329(P)/GRC-103(V) meter indicates above normal with selector switch at REFL PWR. T-983(P)/GRC-103(V) meter indicates normal with meter selector at REFL PWR.	Defective power monitor 6AR1A3 or duplexer 2A1A1.	Replace radio receiver 1RE1.
66	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at 12-CH PCM. All other indications are normal.	*a.* Defective pulse form restorer 1RE1A3. *b.* Defective video amplifier 1RE1AR1. *c.* Defective component at distant terminal or repeater.	*a.* Replace pulse form restorer (app A). *b.* Replace video amplifier (app A). *c.* Request distant terminal or repeater troubleshooting.
67	R-1329(P)/GRC-103(V) meter indicates below normal with meter selector switch at OW. No order wire signaling or communication reception available. All other indications are normal.	*a.* Defective pulse form restorer 1RE1A3. *b.* Defective T-983(P)/GRC-103(V) at distant terminal or repeater.	*a.* Replace pulse form restorer (app A.) *b.* Request distant terminal or repeater troubleshooting.
68	R-1329(P)/GRC-103(V) HIGH SIGNAL indicator lights, buzzer sounds, and no reception available from distant terminal or repeater.	Defective electronic switch 2A4.	Replace electronic switch (app A).
69	R-1329(P)/GRC-103(V) HIGH SIGNAL indicator lights. All other indications are normal.	Defective power supply 2PS1	Replace power supply (app A).
70	R-1329(P)/GRC-103(V) meter has no indication for any position of meter selector switch. All other indications are normal.	Defective meter 1RE1A1M1 or meter selector switch 1RE1A1S1.	Replace radio receiver 1RE1.
71	RT-773/GRC-103(V) POWER indicator does not light when R-1329(P)/GRC-103(V) AC POWER switch is operated to ON and there is no order wire communications.	*a.* Defective CX-10763/GRC-103(V) cable. *b.* Defective power supply 1RE1PS1.	*a.* Replace cable. *b.* Replace power supply (app A).
72	RT-773/GRC-193(V) POWER indicator does not light when R-1329(P)/GRC-103(V) AC POWER switch is operated to ON. All other indications are normal.	Defective POWER indicator lamp.	Replace lamp.
73	RT-773/GRC-103(V) CALL indicator does not light when order wire signal is received, but buzzer sounds.	Defective CALL indicator lamp.	Replace lamp.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
74	RT-773/GRC-103(V) CALL indicator lights, but buzzer does not sound when order wire signal is received.	*a.* BUZ OFF-ALM NOR switch at incorrect setting. *b.* Defective buzzer.	*a.* Check switch (rear of front panel) and rest if necessary. *b.* Replace RT-773/GRC-103(V).
75	1,600-Hz tone is not heard in H-60/PT when RT-773/GRC-103(V) RING button is pressed and no wire communications.	*a.* Defective telephone signal converter 9A3. *b.* Defective amplifier assembly 9A4. *c.* Defective CX-10763/GRC-103(V) cable. *d.* Defective H-60/PT.	*a.* Replace telephone signal converter (app A). *b.* Replace amplifier assembly 9A4 (app A). *c.* Replace cable. *d.* Replace RT-773/GRC-103(V).
76	1,600-Hz tone is not heard in H-60/PT when RT-773/GRC-103(V) RING button pressed but order wire communication is normal.	*a.* Defective telephone signal converter 9A3. *b.* Defective amplifier assembly 9A4. *c.* Defective CX-10763/GRC-103(V) cable.	*a.* Replace telephone signal converter (app A). *b.* Replace amplifier assembly 9A4 (app A). *c.* Replace cable.
77	RT-773/GRC-103(V) CALL indicator does not light and buzzer does not sound when distant terminal or repeater sends ring signal. Order wire communication is normal.	Defective RT-773/GRC-103(V).	Replace RT-773/GRC-103(V).
78	TD-660(*)/G indicator lamp does not light when POWER switch is operated on ON.	*a.* Defective power cable to TD-660A/G. *b.* Defective 1A fuse on front panel. *c.* Defective POWER indicator lamp.	*a.* Check and replace if necessary. *b.* Check and replace 1A fuse. *c.* Check and replace POWER indicator lamp.
79	Incorrect indication on TD-660(*)/G TEST ALIGN meter with selector switch I at: *a.* +12. *b.* +4. *c.* -12. *d.* -6. *e.* -4.	Defective fuse as indicated below: *a.* 1½A +12V. *b.* 3A +4V. *c.* 1½A -12V. *d.* ½A -6V. *e.* ¾A -4V.	Replace with fuse indicated below: *a.* 1½A (250-volt). *b.* 3A (250-volt). *c.* 1½A (250-volt). *d.* ½A (250-volt). *e.* ¾A (250-volt).
80	Excessive hum on all channels of TD-660(*)/G, but all other indications are normal.	Defective power supply subassembly 11A1.	Replace power supply subassembly 11A1.
81	TEST ALIGN meter fails to indicate yellow when selector switch I is at +7 on TD-660(*)/G.	*a.* 1½A + 12V fuse defective. *b.* Defective power supply subassembly 11A1. *c.* +12 volt adjustment required.	*a.* Replace 1½A (250-volt) fuse. *b.* Replace power supply subassembly 11A1. *c.* Operate selector switch I to +12 and adjust +12V control for a hairline indication on TEST ALIGN meter (para 2-13g).
82	TEST ALIGN meter of TD-660(*)/G fails to indicate hairline for +12 or green for +4, -12, -6, and -4 positions of selector switch I.	Defective power supply subassembly 11A1.	Replace power supply subassembly 11A1.
83	TEST ALIGN meter fails to indicate yellow when selector switch I of TD-660A/G is at NOISE GEN.	Defective panel 11A4 or 11A25.	Replace panel 11A4 or 11A25. **NOTE** When panel 11A4 or 11A25 is replaced, operate selector switches I and III SW III and CCL respectively and adjust panel 11A4 or 11A25 CCL control for hairline indication on TEST ALIGN meter.
84	Switchboard operator reports leas of a specific channel and TD-660(*)/G monitoring procedures indicate loss of same channel.	Defective associated panel 11A5 or 11A26.	Replace panel 11A5 or 11A26.
85	Switchboard operator reports loss of all 12 channels and TD-660(*) monitoring procedures confirm loss of all 12 channels.	Defective panel 11A6 or 11A27.	Replace panel 11A6 or 11A27.
86	TEST ALIGN meter of TD-660(*)/G fails to indicate green with selector switch I at SW II and selector switch II at:	Defective panel indicated below:	Replace panel indicated below:

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
	a. A	*a.* 11A2 or 11A23; or 11A3 or 11A24.	*a.* 11A2 or 11A23; or 11A3 or 11A24.
	b. B	*b.* 11A3 or 11A24.	*b.* 11A3 or 11A24.
	c. C	*c.* 11A2 or 11A23.	*c.* 11A2 or 11A23.
	d. D	*d.* 11A3 or 11A24.	*d.* 11A3 or 11A24.
	e. E (only if channels are externally modulated).	*e.* 11A5 or 11A26.	*e.* 11A5 or 11A26.
	f. F	*f.* 11A4 or 11A25.	*f.* 11A4 or 11A25.
	g. G	*g.* 11A2 or 11A23.	*g.* 11A2 or 11A23.
	h. H	*h.* 11A7 or 11A28; or 11A8 or 11A29.	*h.* 11A7 or 11A28; or 11A8 or 11A29.
	i. J (only if unit is out of frame and searching).	*i.* 11A6 or 11A27.	*i.* 11A6 or 11A27.
	j. K (only if unit is out of frame and searching).	*j.* 11A7 or 11A28.	*j.* 11A7 or 11A28.
	k. L (only if channel is externally modulated).	*k.* 11A6 or 11A27.	*k.* 11A6 or 11A27.
87	FRAME ALARM indicator of TD-660(*)/G does not light when unit is out of frame.	*a.* Defective indicator lamp. *b.* Defective panel 11A8 or 11A29. *c.* Defective ½A +24 V fuse.	*a.* Replace indicator lamp. *b.* Replace panel 11A8 or 11A29. *c.* Replace fuse (½A 250 volt).
88	Audible alarm of TD-660(*)/G does not indicate.	Defective panel 11A8 or 11A29.	Replace panel 11A8 or 11A29.
89	TEST ALIGN meter of TD-660(*)/G does not indicate in green area with selector switch 111 at OSC.	Defective panel 11A8 or 11A29.	Replace panel 11A8 or 11A29.
90	CV-1548(*)/G POWER indicator does not light when POWER switch is operated to ON.	*a.* Defective power cable. *b.* Defective ½A SB fuse.	*a.* Check and replace if necessary. *b.* Replace ½A SB fuse.
91	No channel of CV-1548(*)/G provides proper signaling.	*a.* Defective power supply subassembly 18A1. *b.* Defective panel 18A2.	*a.* Replace power supply assembly 18A1. *b.* Replace panel 18A2.
92	No communications through a specific channel of CV-1548(*)/G.	*a.* Defective line connections. *b.* Defective associated panel 18A3 or 18A4. *c.* Defective Surge arrestor.	*a.* Check and replace if necessary. *b.* Replace associated panel 18A3 or 18A4. *c.* Repair assigned to higher category of maintenance.
93	Specific channel of CV-1548(*)/G does not indicate incoming call signal.	Defective associated panel 18A3 or 18A4.	Replace associated panel 18A3 and 18A4.
94	Distant terminal indicates that a specific channel of CV-1548(*)/G does not indicate incoming call signal.	Defective associated panel 18A3 or 18A4.	Replace associated panel 18A3 or 18A4.
		NOTE Steps 95 through 100 do not apply to the CV-1548A/G. Refer to applicable TM.	
95	Incorrect or no indication on CV-1548/G TEST ALIGN meter with meter selector switch at -.	*a.* Defective ½A SB fuse. *b.* Defective power supply assembly 18A1.	*a.* Replace ½A SB fuse. *b.* Replace power supply assembly 18A1.
96	Incorrect or no indication on CV-1548/G TEST ALIGN meter with meter select switch at +.	*a.* Defective ½A fuse. *b.* Defective power supply subassembly 18A1.	*a.* Replace 1½A fuse. *b.* Replace power supply assembly 18A1.
97	Incorrect or no indication on CV-1548/G TEST ALIGN meter with meter selector switch at 20~ DRIVE.	Defective panel 18A2.	Replace panel 18A2.
98	Incorrect or no indication on CV-1548/G TEST ALIGN meter with meter selector switch at 20¯.	Defective panel 18A2.	Replace panel 18A2.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
99	Incorrect or no indication on CV-1548/G TEST ALIGN meter with meter selector switch at 1600.	*a.* 1,600-Hz adjustment required. *b.* Defective panel 18A2. **NOTE** Item numbers 100 through 109 below apply only to AN/TRC-145B.	*a.* Adjust ADJ 1600 control on panel 18A2 for center hairline indication on TEST ALIGN meter. *b.* Replace panel 18A2.
100	TD-1065/G POWER indicator lamp on power supply assembly does not illuminate when POWER switch is set to on.	*a* Defective power cable to TD-1065/G. *b.* Defective indicator lamp. *c.* Defective power supply assembly.	*a.* Check and replace as required. *b.* Replace indicator lamp. *c.* Replace defective power supply assembly (appendix A).
101	TD-1065/G ALARM indicator does not illuminate when audible alarm sounds.	Defective indicator lamp.	Press alarm indicator. If indicator remains extinguished, replace defective indicator lamp (appendix A). If indicator illuminates, higher maintenance category repair is required.
102	TD-1065/G does not operate or indicate a malfunction.	*a.* Defective power supply.	*a.* Rotate rotary switch to -10V and +10V position. IF TEST indicator light is extinguished in either position, replace power supply assembly (appendix A).
		b. Defective high speed filter assembly.	*b.* Rotate rotary switch to XMT FRAME, SMT TIME, XMT PCM, RCV PCM, RCV TIME, AND RCV FRAME positions. If TEST indicator light is extinguished in any of these positions, replace high speed filter assembly (appendix A).
		c. Defective transmit common or receive card assembly.	*c.* Rotate rotary switch to COM position. If TEST indicator light is extinguished, check for circuit card having an illuminated LED. Replace circuit card (appendix A).
		d. Defective channel circuit card assembly.	*d.* Rotate rotary switch to CHAN position. If TEST indicator light is extinguished, check for circuit card having an illuminated LED. Replace circuit card (appendix A).
		e. Defective audio filter assembly.	*e.* Replace audio filter assembly (appendix A).
		f. Defective fault locator circuit card assembly.	*f.* If data buffer appears to be operating normally, even though one or more rotary switch positions show an extinguished TEST indicator light, replace fault locator circuit card assembly (appendix A).
		g. Defective circuit card assembly at distant end.	*g.* Notify distant end to replace transmit common circuit card assembly.
		h. Defective TD-1065G.	*h.* Replace defective TD-1065/G (appendix A).
103	TD-1069/G amber AC POWER indicator lamp not lighted.	*a.* AC POWER switch set to OFF position. *b.* Lose of primary ac power. *c.* Defective indicator lamp.	*a.* Start the equipment as indicated. *b.* Check that the ac power cord, at the rear of TD-1069/G, is connected to live 115V ac power source. *c.* Replace indicator lamp.
104	TD-1069/G green DC OUTPUT indicator lamp not lighted; amber AC POWER indicator lamp is lighted.	Defective power supply.	Replace power supply Al.
105	TRFC ALARMS indicator lighted.	Received traffic failure.	Notify distant operator of traffic failure.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
106	FCTN, TRFC, or Rate ALARMS indicator does not light when ALARM ACK/ TEST pushbutton is pressed.	Defective indicator lamp.	Replace indicator lamp.
107	FCTN ALARMS indicator lighted.	Momentary data failure or defective plug-in module,	Press ALARM ACK/TEST pushbutton. If FCTN ALARMS indicator lights again, replace defective plug-in module (TM 11-5805-638-12).
108	RATE ALARM indicator is lighted.	a Channel rate switches are improperly set. b. ASSIGN pushbutton was not pushed after making rate change,	*a.* Check that combined total of all Channel rate switches do not exceed 30 kilobits per second. Remember that TTY position equals a data rate of 1200 bits per second. *b.* Push ASSIGN pushbutton.
109	RATE ALARM indicator is lighted, channel rate switches are proper, and ASSIGN pushbutton has been pushed.	Incorrect plug-in module is in place.	Replace with proper type plug-in module.
110	TD-754/G power indicator does not light when PWR switch is operated to ON.	a. Defective power cable to TD-754/G.0 b. Defective 115 VAC fuse. c. Defective power supply 12A1.	*a.* Check and replace, if necessary. *b.* Replace 1A (250-volt) fuse. *c.* Replace power supply 12A1.
111	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at:	Adjustment of following front panel potentiometers required:	Adjust following front panel potentiometers as indicated below:
	a. +12.	a. + 12V.	*a.* + 12V.
	b. +5.	b. +5V.	*b.* +5V.
	c. -6.	c. -6V.	*c.* -6V.
112	No indication on TD-754/G TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at:	Defective fuse as indicated below:	REplace with spare fuse as indicated below:
	a. +12.	a ½A + 12V.	*a.* ¼A.
	b. +5.	b. ½A +5V.	*b.* ½ A
	c. -6.	c. 1A -6V.	*c.* 1A.
113	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at +26.	a Defective 2A + 28V fuse. b. Defective assembly 12A1.	*a.* Replace with 2A spare fuse. *b.* Replace assembly 12A1.
114	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at REF.	a Defective assembly 12A1. b. Defective monitor circuit.	*a.* Replace assembly 12A1. *b.* Higher category maintenance required.
115	Incorrect or no indication on TD-754/G TEST ALIGN meter with METER SELECT switch at +26, +5, or -6; adjustment of fuse replacement does not correct trouble.	Defective power supply 12A1.	Replace power supply assembly 12A1.
116	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at TIM IN, PCM IN-1, or PCM IN-2 (24-channel).	Panel 12A4 defective.	Replace panel 12A4.
117	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at CABLE CUR. CABLE CUR indicator lighted and buzzer sounds.	a Cable current supply turned off to temporary overload. b. Cable current adjustment required. c. Defective assembly 12A1.	*a.* Operate CABLE CURRENT switch to OFF and then to ON. *b.* Adjust CABLE CURRENT ADJ control for hairline indication. *c.* Replace assembly 12A1.
118	Incorrect indication on TD-754/G TEST ALIGN meter with METER SELECT switch at SERV FAC and SERV SEL switch at:	Following panel defective:	Replace following panel:
	a. RCC	*a.* 112A2 or 12A5.	*a.* 12W2 or 12A5.
	b. A	*b.* 12A4.	*b.* 12A4.
	c. B	*c.* 12A4.	*c.* 12A4.
	d. C	*d.* 12A4.	*d.* 12A4.
	e. D	*e.* 12A4.	*e.* 12A4.
	f. E	*f.* 12A5.	*f.* 12A5.
	g. F	*g.* 12A5 or 12A6.	*g.* 12A5 or 12A6.

Table 5-11. Assemblage Troubleshooting - Continued

Item No.	Malfunction	Probable cause	Corrective action
	h. G	*h.* 12A6.	*h.* 12A6.
	i. H	*i.* 12A6.	*i.* 12A6.
	j. J	*j.* 12A6.	*j.* 12A6.
	k. K	*k.* 12A6.	*k.* 12A6.
	1. L	*l.* 12A6.	*l.* 12A6.
	m. M (TONE switch on panel 12A2 to ON).	*m.* 12A2 or 12A3.	*m.* 12A2 or 12A3.
	n. N (TONE switch ON in attended repeater only).	*n.* 12A2.	*n.* 12A2.
	0. O (A call signal or test tone from TD-754/G on opposite end of cable link must be applied while observing TEST ALIGN meter).	*0.* 12A2.	*0.* 12A2.
119	No order wire communications through cable link using TD-754/G. All other indication normal.	Defective panel 12A2.	Replace panel 12A2.
120	No audible alarm on TD-754/G with TRAFFIC, CABLE CUR, or CALL indicator lighted.	Defective panel 12A1 or 12A3.	Replace panel 12A1 or 12A3.

Section III. ORGANIZATIONAL REPAIR PROCEDURES

5-6. Component Removal and Replacement

Serial No. 47 and above equipments come with a portable equipment shelf (fig. 1-27) to facilitate component removal and replacement. Attach the shelf to the rack below the component which is to be removed (fig. 5-3). The shelf will then support the component during removal and replacement.

a. Removal.

(1) Operate the component AC POWER switch to OFF.

(2) Disconnect the component power cord from the associated power receptacle.

(3) Note and disconnect all cables, cords, and leads from the component.

(4) Loosen and remove the screws that secure the component to the equipment rack.

(5) Slide the component forward out of the rack.

(6) If the component is to be replaced by another component, remove the screws that secure the mounting brackets to the side of the component and remove the brackets.

(7) If the component is to be shipped or taken to another location, replace the cover and case associated with it.

b. Replacement.

(1) Mount the brackets removed from the original component (a(6) above) to the replacement component.

(2) If the replaced component lacks stacking pins, transfer the stacking pins from the replacement to the removed component.

(3) lf the CV-1548(*)/G is being replaced, transfer the handles from the replacement to the removed CV-1548(*)/G.

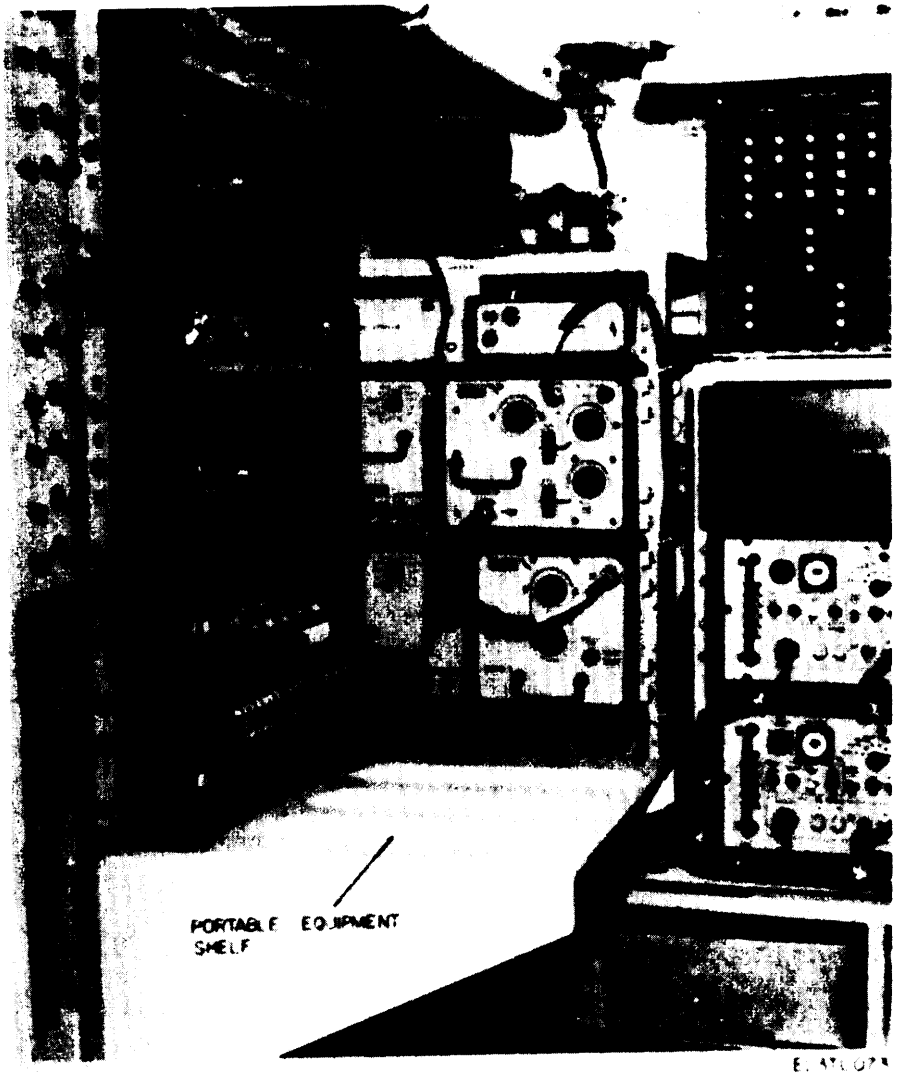


Figure 5-3. Using Portable Equipment Shelf (Serial No. 47 and Above).

(4) Slide the replacement component into position in the rack.

CAUTION

Use only screws of 5/8 inch in length to mount the RT-773/GRC-103(V) order wire module to its brackets. Screws longer than this will short against circuit boards inside the RT-773/GRC-103(V).

(5) Fasten the mounting brackets on the component to the equipment rack with the screws removed in a(4) above.

(6) If the replacement component is supplied with a cover, remove it.

(7) Connect the cables, cords, and leads removed from the original component to the replacement component.

(8) Turn on the component in accordance with the applicable procedures in chapter 3 and perform the applicable preventive maintenance procedures in table 4-1 and the component technical manual (app A).

5-7. Exhaust Blower Repairs

(fig. 5-4)

Organizational repair of blowers is restricted to the replacement of ac power cords and the blower motor and impeller.

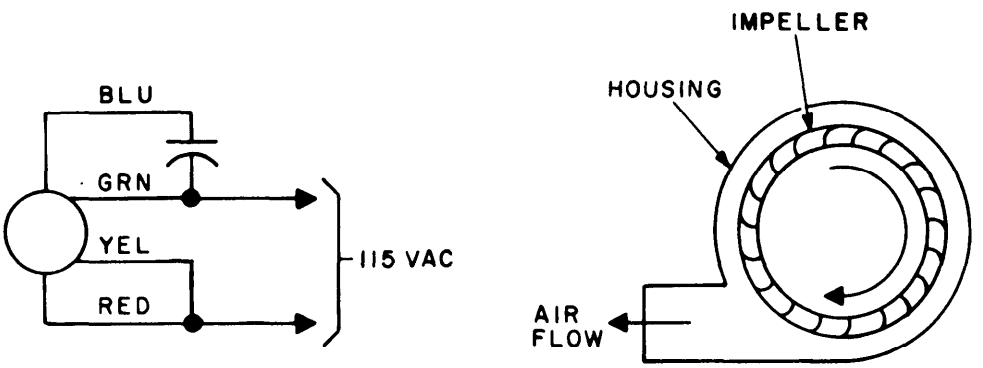
a. Operate the appropriate BLOWER switch to OFF.

b. Remove the defective power cord, blower motor, or impeller.

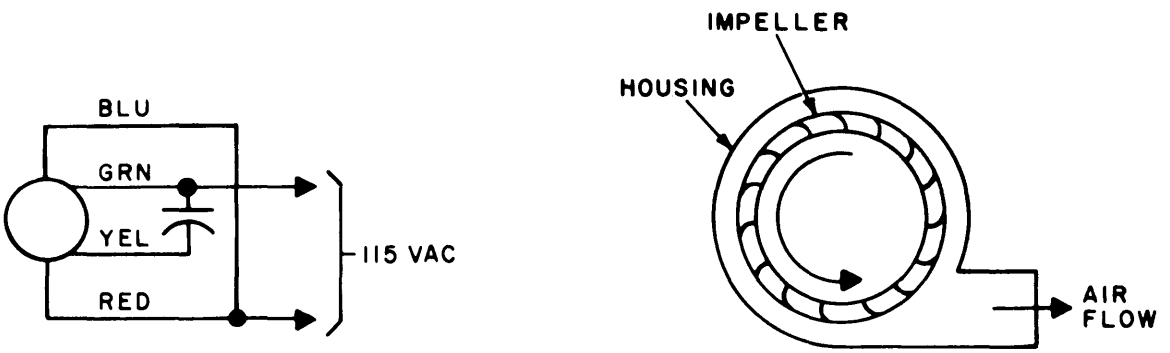
c. Refer to figure 5-4 to determine the correct connections for the required motor rotation and the required positioning of the impeller. Be sure that the concave portion of the impeller faces the air flow hole as indicated.

NOTE

If the replacement motor is provided with two mounting sides, install the motor so the capacitor side is facing the front wall.



A. CURBSIDE (CLOCKWISE)



B. ROADSIDE (COUNTERCLOCKWISE).

NOTE

DIRECTION OF ROTATION IS VIEWED FROM MOTOR END OPPOSITE SHAFT.

EL3TU074

Figure 5-4. Blower motor connection and impeller installation diagram.

5-8. POWER DISTRIBUTION PANEL Repairs

(fig. 5-5)

WARNING

Before performing any POWER DISTRIBUTION PANEL repairs, disconnect the power cable from the POWER 115V AC IN receptacle in the POWER ENTRANCE BOX.

a. Preliminary Procedures. Loosen the screws on the hinged cover of the POWER DISTRIBUTION PANEL and open the cover.

b. Removal and Replacement of Circuit Breaker.

(1) Grasp the defective circuit breaker and pull it straight out from the panel.

(2) Disconnect the wires connected to the circuit breaker.

(3) Connect the wires to the appropriate terminals of the replacement circuit breaker.

(4) Position the circuit breaker in the POWER DISTRIBUTION PANEL and furrily press it in place.

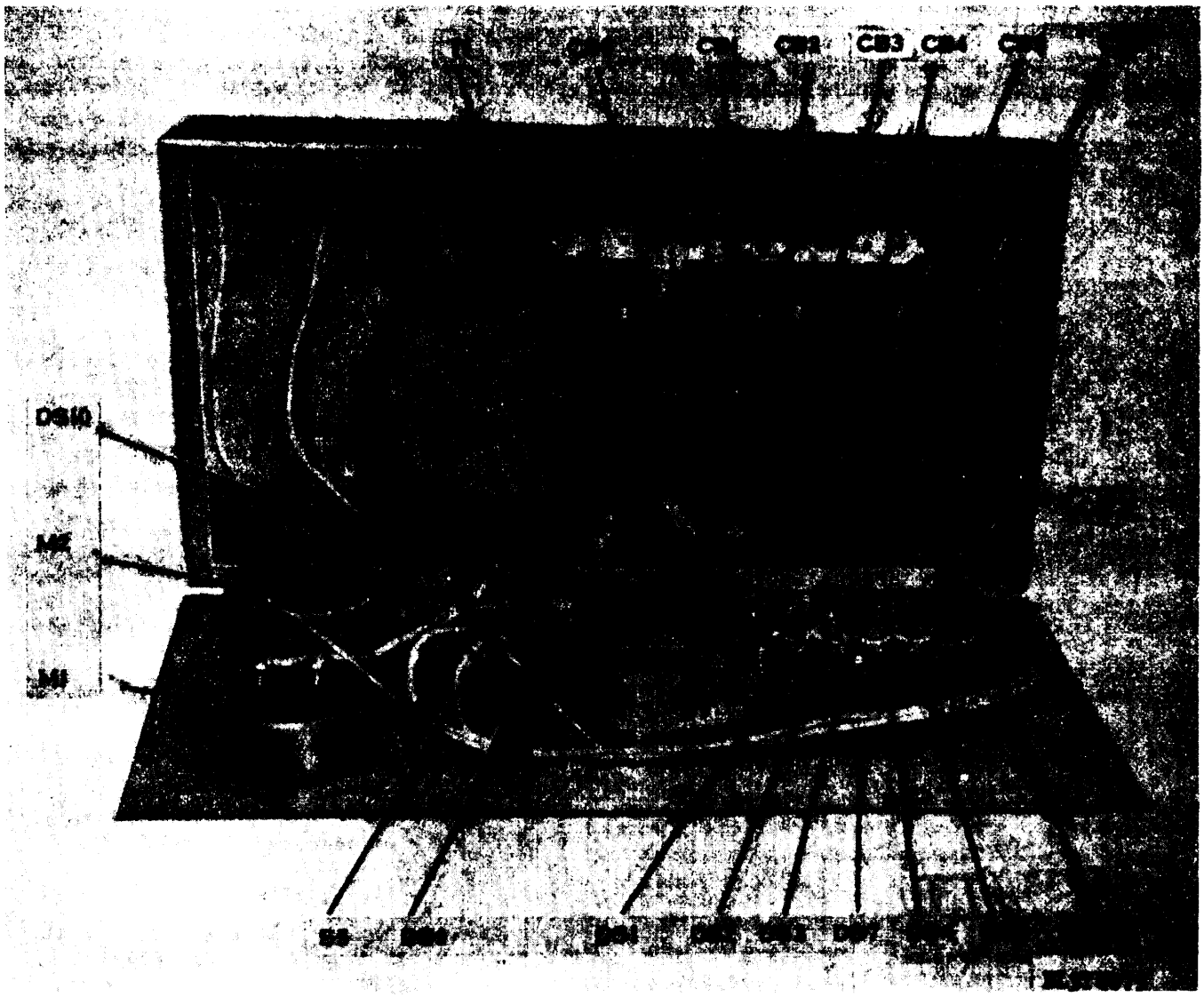


Figure 5-5. POWER DISTRIBUTION PANEL (serial No. 1 through 46), interior details.

c. Removal and Replacement of Current Transformer

(1) Note and disconnect the black and white leads from the transformer terminals.

(2) Remove the nuts and washers that secure the current transformer inside the panel, and remove the current transformer.

NOTE

Count the number of turns of heavy black wire through the center hole of the current transformer before proceeding to the next step.

(3) Disconnect the black wire that is wound around the current transformer from the MAIN circuit breaker and carefully unwind the wire.

CAUTION

Be sure that the number of turns around the replacement current transformer is the same as those on the original transformer.

(4) Wind the black wire around the replacement current transformer.

(5) Reconnect the black wire to the MAIN circuit breaker.

(6) Position the current transformer inside the panel and secure it with the original nuts and washers.

(7) Connect the black and white ammeter leads to the appropriate terminals of the transformer.

d. Removal and Replacement of Meters.

(1) Note the color and polarity of connections and remove the leads from the meter terminals.

(2) Remove the bolts that secure the meter to the panel and lift the meter out.

(3) Position the replacement meter in the panel and secure it with the original bolts.

(4) Connect the leads to the appropriate terminaIs of the replacement meter.

5-9. Heater Repairs

a. Remove the heater from its mounting base.

b. Remove the cover plate-s to reach the interior.

c. Refer to the heater instruction plates for circuit details and identification of heater parts and replace defective parts as authorized.

5-10. Switch Replacement

a. Ensure proper circuit breaker is operated to OFF.

b. Remove the access plate from power duct and withdraw switch. Be sure to save mounting screws.

c. Remove wires from switch terminals, remembering the color of the wire at each terminal.

d. Install new switch by connecting appropriate wires and tightening all screws securely.

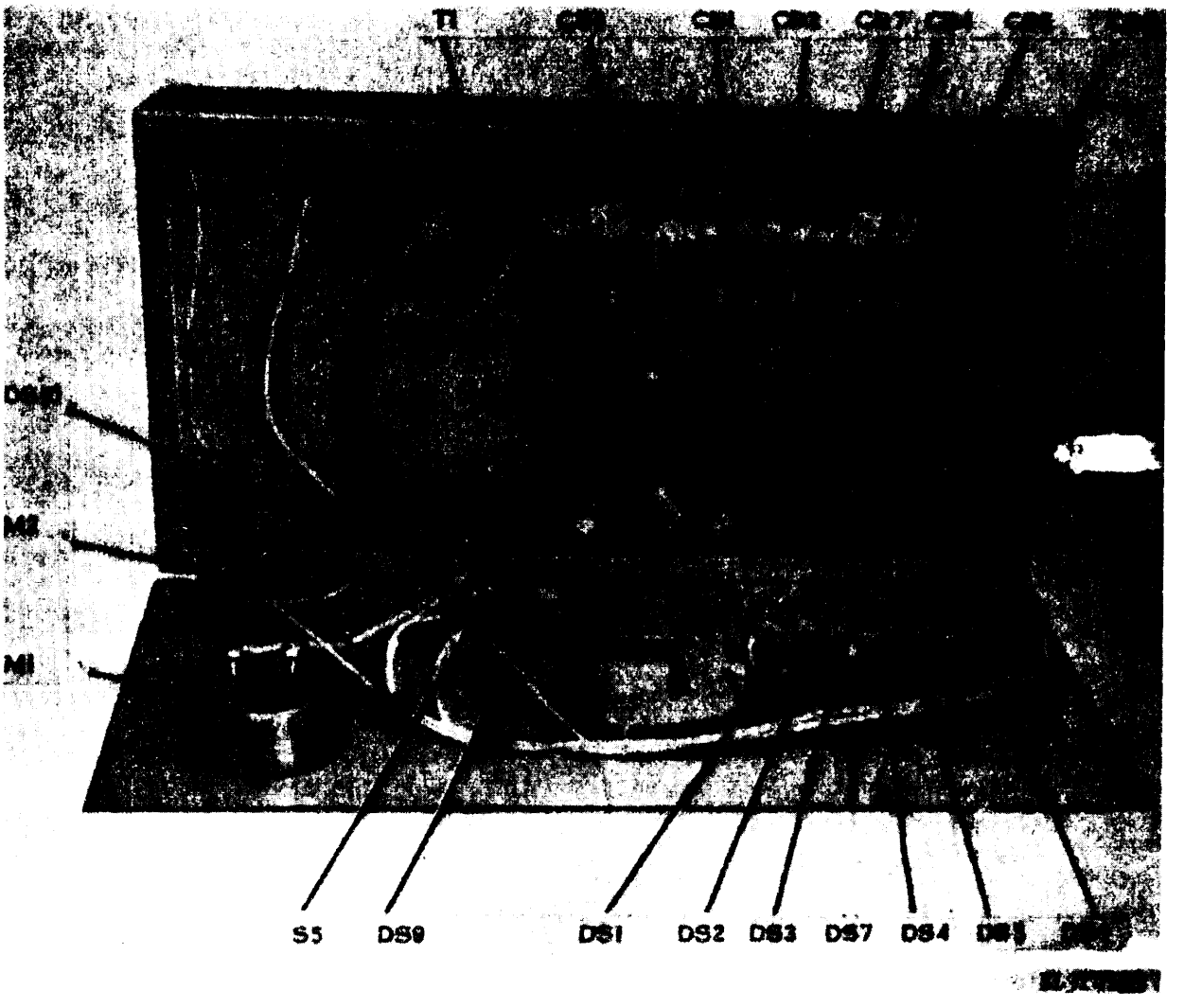


Figure 5-6. POWER DISTRIBUTION PANEL (Serial No. 47 and Above), interior details.

CHAPTER 6
FUNCTIONING OF EQUIPMENT

6-1. General

The AN/TRC-145(*) is an air or vehicular transportable assemblage used in forward area pulse code modulation communications systems. The AN/TRC-145(*) configuration and uses vary according to version.

a. The AN/TRC-145 and the AN/TRC-145A can be configured for use as follows:

(1) When the AN/TRC-145(*) is used as a terminal, each equipment set may provide 6- or 12-channel, secure or nonsecure, radio or cable facility or both equipment sets may together provide a 24-channel facility.

(2) As a repeater the AN/TRC-145(*) may be arranged to provide a 6-, 12-, 24- or 48-channel cable repeater facility using both sets or to provide a 24-channel cable repeater with 12-channel drop and insert, secure or nonsecure.

(3) The AN/TRC-145(*) may also be operated as a radio repeater facility by using both equipment sets together or each equipment set may individually provide a 12-channel cable-to-radio conversion facility.

b. The AN/TRC-145B has been modified to provide high speed digital transmission capability and can be configured for use as follows:

(1) Both equipment sets together may provide a 6- or 12-channel radio repeater facility.

(2) Each equipment set (without the TD-1065 or TD-1069) may individually provide a 6- or 12-channel nonsecure radio terminal facility or a 6- or 12-channel secure radio terminal facility.

(3) Each equipment set (with TD-1065) may individually provide a 6- or 12-channel nonsecure radio terminal facility (for digital data or vf circuits) or a 6- or 12-channel secure radio terminal facility (for digital data or vf circuits.

(4) Each equipment set (with TD-1065 and TD-1069) may individually provide a 6- or 12-channel nonsecure radio terminal with an additional 12 channels of teletype and/or digital data traffic over one TD-1065/TD-660(*)/G channel; or a 6- or 12-channel secure radio terminal with an additional 12 channels of teletype and/or digital data traffic over one TD-1065/TD-660(*)/G channel. This configuration provides 23 channels of traffic for each equipment set.

6-2. Principles of Multiplexing (TDM)

a. Multiplexing is a technique used to simultaneously transmit several channels of voice or data over a radio or cable link. The frequency division multiplexer (fdm) equipment uses a subcarrier of frequency for each voice or data channel. In time division multiplexer equipment, each voice or data channel shares the transmission time and is intermittently transmitted.

b. In time division multiplexing, each channel is assigned a time interval in sequence with all other channels being multiplexed. These intervals are short and repeated at a high frequency. The samples taken from each channel are then converted to a form suitable for transmission in the selected medium. At the receiving terminal, the samples are demodulated and separated into their proper channels by a timing signal from the transmitting terminal.

6-3. Pulse Code Modulation (PCM)

a. Pulse code modulation is a communication technique in which voice, data, or facsimile signals are converted into a series of digital pulse codes. Each pulse code represents signal amplitude at a particular instant and a series of pulse codes represents a complete waveform. Since the transmitted signal is in digital form, it is less susceptible to noise and distortion buildup over long distance lines, and may be regenerated at repeaters along the route without introducing additional distortion.

b. In the pcm process, standard amplitude levels are assigned and are represented by digital codes. The incoming waveform is sampled at a high rate, and each sample is converted to a pulse at the closest standard amplitude modulated (pare) waveform. The standard amplitude pulses developed are then measured and converted to a binary pulse code for transmission. The pulse codes are decoded at the receiving station and reconverted to a pam waveform, which is then demodulated to produce approximately the original waveform. As the sampling frequency is increased, the waveform generated at the receiver more accurately resembles the original waveform.

6-4. General Propagation Characteristics

a. The range from 30 to 300 MHz is called the very high frequency (vhf) range. The range from 300 MHz to 3,000 MHz is called the ultra high frequency (uhf) range. Since the properties and phenomena associated with radio waves in the upper part of the vhf band the lower part of the uhf band are similar, the term uhf will be used to refer to the total range of frequencies of the AN/GRC-103(V)(*) (220 to 1,000 MHz).

b. Unless exceptionally good antenna sites on high hills are available at both ends of the transmission path, the useful operating distance between radio sets using the uhf band generally is limited to between 30 and 40 miles. However, meteorological conditions, such as the temperature and humidity of the troposphere, sometimes cause what is termed guided propagation. This phenomenon may greatly extend the distance over which usable signals are received.

6-5. Propagation of Radio Waves in UHF Band

a. Smooth Earth or Water. Under ideal conditions of smooth earth, the intensity of the transmitted signal, beyond approximately the first mile, diminishes in a regular and uninterrupted manner as the distance from the transmitter is increased, Similar propagation characteristics are found over water, because the surface is smooth enough to approach the ideal.

b. Irregular Terrain. Propagation characteristics over irregular terrain are in marked contrast with those for smooth earth or sea water. Here, the variation of the loss with distance in addition to the free space loss depends largely on the profile of the terrain between transmitting and receiving antennas. An increase in distance may result in either decreased or increased loss, depending on the particular topography involved. Substantial changes in loss may result from relocating stations, even without any change in the distance between them.

c. Very High Obstacles.

(1) The diffraction of electromagnetic radiation around obstacles has made possible communication over seemingly impossible routes by use of an obstacle gain technique. The signal strengths resulting from obstructed paths are in some cases many times greater than would be expected if the obstacles were not present. However, most paths that include obstacles have losses greater than the space loss and should be avoided if possible.

(2) If an effective knife edged obstacle, such as a mountain, is situated between the receiving and transmitting antennas and the terrain between the obstacles and antenna is only moderately irregular, the radiated field from the transmitting antenna will be diffracted as it passes over the mountain. In addition, the reflected field in the vicinity of the transmitting antenna will be diffracted in a like manner. If the mountain is high enough and the direct and reflected waves arrive at the receiving antenna in the correct phase relationship (determined by the locations and heights of the two antennas for any given case), the strength of the received signal will be approximately the same as the free space field intensity would be if a line-of-sight transmission path existed between the antennas.

(3) In general, the contour of the terrain is the deciding factor as to whether the system will operate satisfactorily. Tests should be made with the actual equipment to determine whether this method can be used at a given location.

6-6. Description of Equipment

a. Radio Set AN/GRC-103(V)(*).

(1) The radio set is an fm transmitter-receiver operating in the frequency range of 220 to 1,000 MHz. Three basic functions are provided: Transmission of baseband information developed from multichannel telephone equipment; reception and demodulation of baseband signals and their regeneration; and order wire and signaling facilities for use by operators of the communications system.

(2) The frequency range is divided into three bands, each of which is covered by plug-in receiver and transmitter rf heads. The antenna dipole and the angle of the corner reflector are changed for each band.

(3) The major units are of similar construction. They have light, cast alloy front and rear panels that are connected by sheet aluminum cases. The units are weatherproof.

(4) All interunit connections, except for those for rf, are made at the rear. Rf connections are made at the front panel.

b. Converter, Telephone Signal CV-1548/G. The CV-1548/G provides telephone signal conversion and hybrid facilities for 12 multiplex channels. Each channel contains one-way plug supervision and ringdown signaling conversion facilities, a hybrid for converting between 2-wire and 4-wire cir-

cuits, 4-wire straight through patching and switching for selecting combinations of these functions.

c. Multiplexer TD-660(*)/G. The TD-660(*)/G converts 6 or 12 four-wire voice frequency (vf) channels to a time division multiplex pulse code modulated (tdm-pcm) signal in its transmit section, and vice versa in its receive section. The pcm signal from the TD-660(*)/G, representing multichannel audio information, is transmitted over a single vhf radio channel, one transmission cable or over both simultaneously. Two TD-660(*)/G's are required at terminals in 24-channel operation.

d. Multiplexer TD-204/U. The TD-204/U is a 12-, 24-, or 48-channel pcm cable transmission interface unit. Its transmit section accepts tdm-pcm output signals from a TD-660(*)/G and processes these signals for cable transmission. The receive section accepts a pcm signal from the transmission cable, processes and retirees it. In addition, the TD-204/U provides power for up to 39 TD-206/G's in the transmission cable, and contains an order wire facility.

e. Multiplexer TD-754/G. In lieu of the TD-204/U, the TD-754/G can provide capability for transmission of pulse-code modulation (pcm) pulses through cable transmission systems. In the TD-754/G, the pcm pulses are encoded into another pcm format and transmitted at a 2304 kHz rate through a cable link to another TD-745/G. The TD-754/G at the opposite end of the cable link decodes the pcm pulses into their original format and applies them to a TD-660(*)/G or similar equipment. The TD-754/G also provides cable current to power Pulse Form Restorer TD-206/G installed in the cable link. Order wire facilities that operate over the cable link are also contained to provide a telephone link between terminals.

f. TSEC/KG-27. Information pertaining to Electronic Key Generator TSEC/KG-27 can be found in KAO-133B/TSEC and KAM-258A/TSEC.

g. Data Buffer TD-1065/G. High Speed Serial Data Buffer TD-1065/G is an up to 12-channel device that will provide access of wideband secure voice and digital data traffic to the AIM division multichannel systems. The TD-1065/G will accept voice analog signals, wideband secure voice digital signals, or digital data. Digital signals will be accepted at 16,000 or 32,000 bps. The TD-1065/G will sense analog/digital signals and switch analog signals to Multiplexer TD-660(*)/G. Digital signals will be processed and inserted/removed from the 576 kbps pulse train of Multiplexer TD-660(*)/G in the proper timeframe of the channel being occupied by digital traffic.

h. Time Division Digital Multiplexer TD-1069/G. The TD-1069/G will multiplex up to 12 channels of teletypewriter and/or digital data traffic. Each channel will accept teletypewriter traffic at 45.5, 50.0, 75.0, or 150.0 bps, or digital at 600, 1200, 2400, 4800, or 9600 bps. The channel inputs will be multiplexed into a single 32 kbps bit stream to be applied to one channel of the TD-1065/G data buffer.

6-7. System Application

a. General. Radio Set AN/GRC-103(V)(*) may be applied in a variety of different configurations within an overall communications system. Depending upon system requirements, the location of associated equipment, and the tactical situation, the AN/GRC-103(V)(*), may function in radio terminal, radio repeater, or radio-to-cable conversion, applications, providing transmit-receive facilities up to 24 pcm telephone channels and an order wire channel.

b. Pulse-Code Modulation Applications. The capability of the AN/GRC-103(V)(*) to process pcm signals makes the radio set particularly suitable for radio relay application. For long range communication, radio repeaters are required to perform functions similar to those of repeaters in telephone relay stations; that is, the reception, amplification reconditioning, and retransmission of the original signal. In 12-channel operation, the pcm signal is regenerated in the AN/GRC-103(V)(*) receiver; in 24-channel operation, this function is performed by the associated multiplex equipment, Since the information is conveyed throughout the communication system in the form of pulses which are regenerated at each terminal or repeater site, a noise-free signal is available at any location for decoding or retransmission. Multiplex equipment is required to produce a pcm signal from the individual channels and to decode the pcm signal into its original form at its destination. The pcm signals are transmitted and received by the AN/GRC-103(V)(*) in the form of frequency modulation of the rf carrier. Some specific applications of pulse-code modulation are as follows:

(1) *PCM terminal, 12 channels.* In 12-channel pcm terminal applications, the radio set transmits and receives up to 12 channels and one order wire signal simultaneously on a common fm carrier. The receiver feeds regenerated pcm pulses and a timing signal to the associated multiplex equipment, which

converts the pcm to its original 12 separate channels. The multiplex equipment also combines up to 12 input channels to a pcm signal for application to the radio transmitter when an order wire signal is received and supplied to the order wire unit. Order wire signals originating at the terminal are fed from the order wire unit to the transmitter. The receiver and transmitter operate simultaneously on separate frequencies.

(2) *PCM repeater, 12 channels.* In the 12-channel radio repeater, two radio sets are used, without any additional multiplex equipment, for bidirectional reception and retransmission of pcm signals. All order wire call signals relayed through the repeater activate the local order wire call buzzer. The local handset is connected in a party line relationship with all order wire units throughout the relay system. Only one order wire unit is required for two radio sets at a repeater site.

(3) *PCM terminal, 12-channel radio-to-cable conversion.* It is possible to transmit and receive pcm signals between an AN/GRC-103(V)(*) terminal and a distant location with the two locations linked by a transmission cable. A multiplex combiner unit is required to convert the AN/GRC-103(V)(*) output signals for use with the transmission cable. The incoming pcm radio signal is regenerated in the radio receiver and fed, along with timing pulses, to a multiplex combiner for application to the transmission cable. Signals from the transmission cable are reconditioned in the multiplexer to the radio transmitter. Incoming order wire signals are recovered in the receiver and fed to the order wire unit; order wire signals may also be originated and received at the multiplex combiner or at the distant terminal. These signals are fed to and from the AN/GRC-103(V)(*) through the order wire patch through connection.

(4) *PCM terminal, 24 channels.* In a 24-channel pcm radio terminal, a radio set, a multiplex combiner, and two pcm multiplex terminal units are required. PCM signals from the radio receiver are fed to the multiplex combiner, where they are regenerated. The multiplex combiner feeds the regenerated pcm signal and its own timing pulses to the two 12-channel multiplex terminal units for distribution to the 24 output channels. The two groups of 12-channel pcm signals originating at the terminal are fed from the multiplex terminal units to the combiner, where they are added to form a 24-channel pcm signal for application to the transmitter. The multiplex combiner unit also recovers any order wire information from the received signals and feeds it back into the radio receiver. From the receiver, the recovered order wire signal is supplied through an interconnecting cable to the order wire unit. Local order wire signals are applied directly from the order wire unit to the transmitter.

(5) *PCM repeater, 24 channels.* Two radio sets and two multiplex combiners are used in a 24-channel pcm repeater. Signals received on antenna 1 are converted to video pcm receiver 1 and fed to combiner 1, where they are regenerated and fed to combiner 2. Combiner 2 supplies the regenerated 24-channel pcm signal to transmitter 2 for retransmission at antenna 2 through receiver 2. Reverse the procedure for retransmission in the opposite direction.

(6) *PCM terminal, 24-channel radio-to-cable conversion.* The addition of a second multiplex combiner to the equipment given in (3) above permits radio-to-cable conversion of 24-channel pcm signals. The additional multiplex combiner functions similar to the multiplexer combiner in a 24-channel pcm terminal regenerating the pcm signals and providing order wire recovery. As with the 12-channel radio-to-cable conversion terminals, order wire signals may be originated or received at the order wire unit, at the multiplex equipment, or at the distant telephone terminal.

6-8. Arrestor, Electrical Surge F-1483/G.

Arrestor, Electrical Surge F-1483/G (surge arrestor) is used to provide electrical surge protection for equipments contained in the AN/TRC-145 and AN/TRC-145A. One surge arrestor is mounted inside the SIGNAL ENTRANCE panel in series with the signal lines (fig. 6-1) for each twelve-channel system.

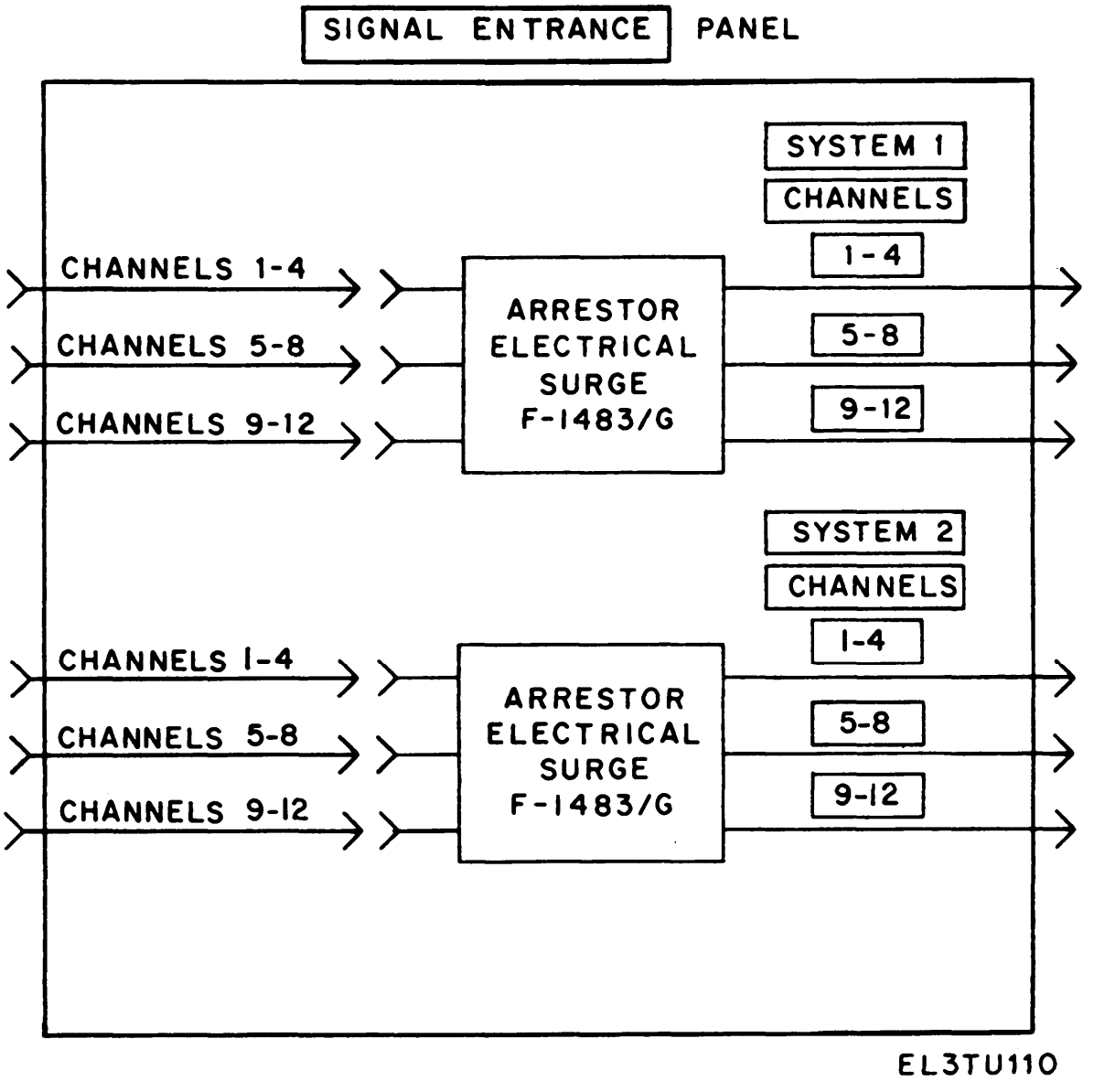


Figure 6-1. SIGNAL ENTRANCE panel block diagram (roadside installation, 24-channel).

CHAPTER 7
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

7-1. Scope of Direct Support and General Support Maintenance

a. General. Direct and general support maintenance consist entirely of corrective maintenance procedures as indicated in the maintenance allocation chart (app D).

b. Tools and Test Equipment Required. The tools and test equipment required for direct support and general support maintenance of the AN/TRC-145(*) are listed in section III of the maintenance allocation chart.

7-2. Direct Support Repairs Procedures

a. Communications Equipment Repair. Refer to the applicable technical manual (app A) for instructions in performing direct support maintenance of the AN/GRC-103(V), CV-1548(*)/G, LS-147C/FI, TA-312/PT, TD-204/U, TD-754/G, TD-660(*)/G, TD-1065/G, TD-1069/G and TSEC/KG-27.

b. Shelter, Electrical Equipment S-390/TRC-145, S-390A/TRC-145 and S-390B/TRC-145 Repairs. Direct support repair of the shelters housing the AN/TRC- 145 (*) includes the following:

(1) Emergency repairs of holes and minor structural damage to the shelter facility.

(2) Removal and replacement of the door handle and latchbolt assemblies, entrance door filter, and cover assemblies and gaskets for the blower vents and the entrance box.

c. Power Receptacle Replacement.

(1) Disconnect the ac power cable from the POWER 115V AC IN receptacle in the POWER ENTRANCE Box.

(2) Remove the cover of the POWER ENTRANCE panel.

(3) Disconnect the wires from the defective receptacle and remove the receptacle.

(4) Install the replacement receptacle, connect the wires, and replace the cover of the POWER ENTRANCE panel.

d. Power Connector Replacement. Refer to figures 7-1 and 7-2 for details of removal and replacement.

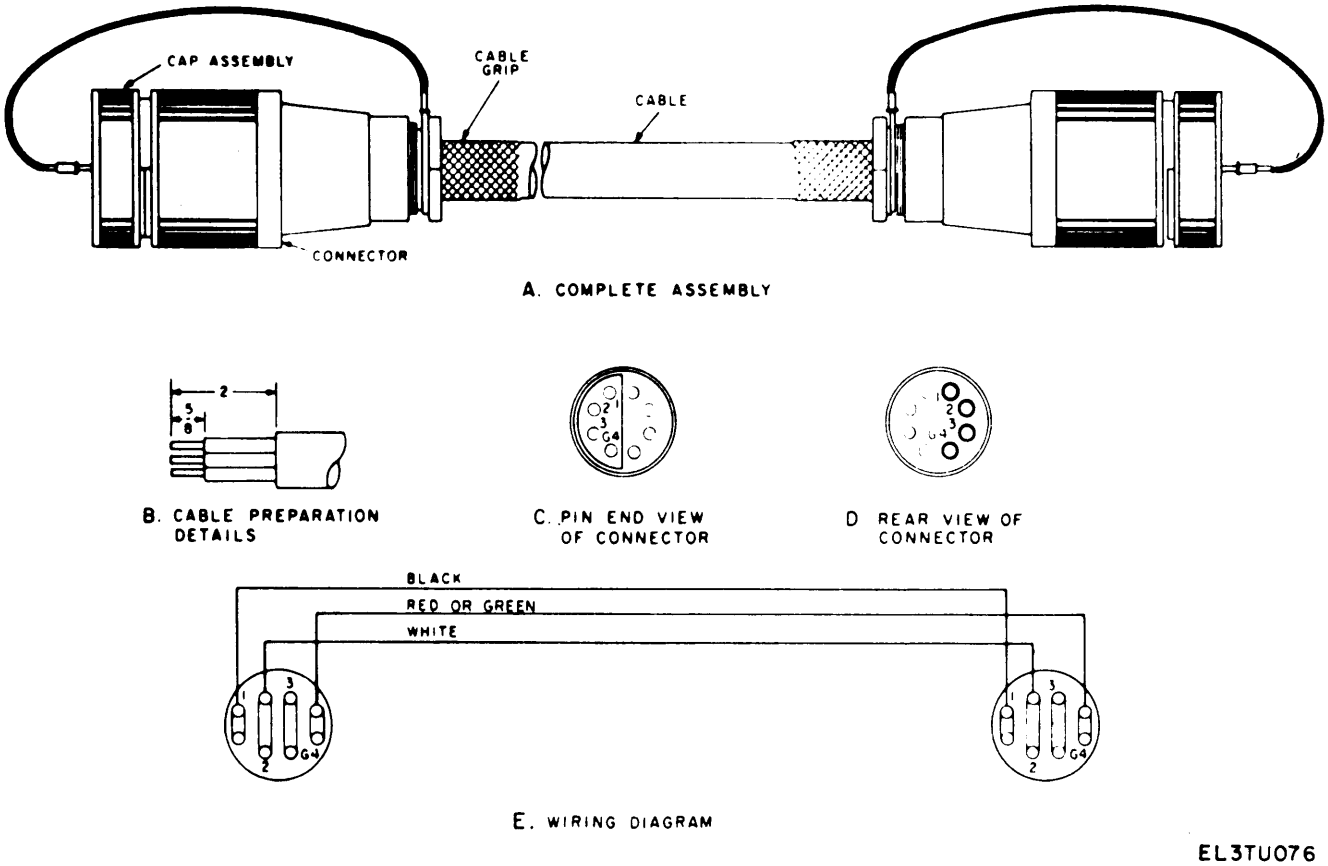


Figure 7-1. Power cable repair details.

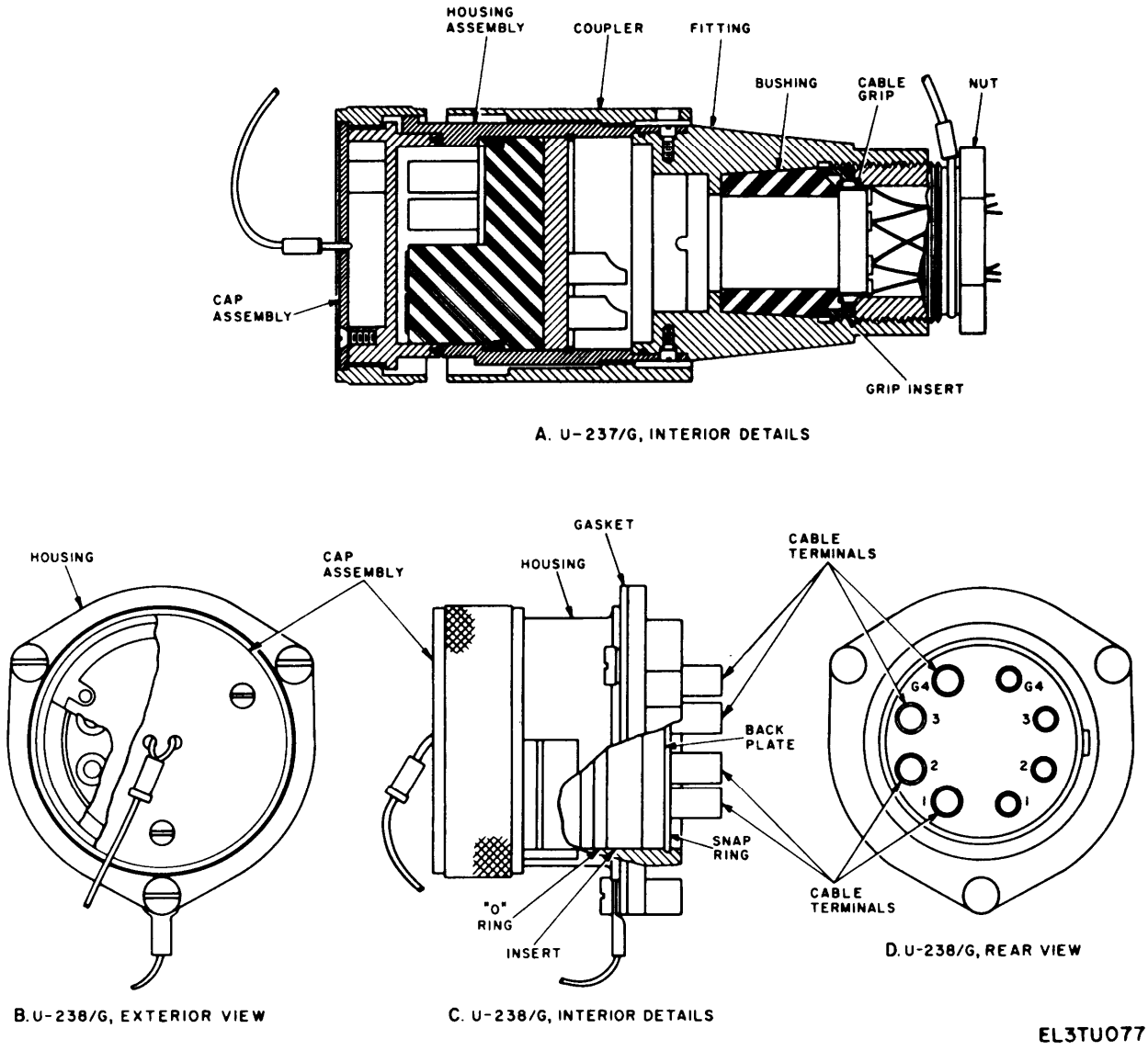


Figure 7-2. Power cable connector and power receptacle assembly details.

e. Twinax Rf Cable Repair. Refer to figure FO-7 for assembly details of Twinax Cable, a part of the TSEC/KG-27 installation kit.

(1) *UG-260D connector assembly.*

(a) Slide nut assembly onto cable. Cut jacket ½ inch from end of cable.

(b) Comb braid back to cut fillers and strip the clear conductor insulation ½ inch from each of cable.

(c) Comb stripped conductor and braid together.

(d) Cut off inner insulation and wire under braid 3/8 inch from end of jacket.

(e) Taper braid. Slide washer, gasket, and sleeve over tapered braid. Fit inner shoulder of sleeve squarely against end of cable jacket.

(f) With sleeve in place, comb cut braid, fold back smooth and trim to 3/32 inch from end. Cut inner dielectric 1/8 inch from braid, being careful not to nick inner connector, and cut off inner conductor 1/8 inch from end of dielectric.

(g) Tin inside hole of contact, tin center conductor of cable, slip contact in place and solder. Remove excess solder. Be sure cable dielectric is not heated excessively and swollen so as to prevent dielectric entering body.

(h) Push assembly into body as far as it will go, then slide nut into body and screw into place with wrench until it is moderately tight. Hold cable and shell rigidly and rotate nut.

(2) *PL-75 connector assembly.*

(a) Slip back clamping nut over cable. Strip outer jacket and shield 5/8 inch from end of cable.

(b) Strip 1/4 inch dielectric from one of two wires, then strip dielectric 3/8 inch from end of second conductor and tin leaving 1/4 inch of dielectric from end of outer jacket.

(c) Slip cone assembly over two conductors and insert under outer braid and jacket until outer jacket is up to shoulder on cone. Place nylon washer on cable and against cone assembly. Place teflon insulation sleeve over inner insulation allowing longer stripped wire to extend from slot provided. Place nylon washer on center conductor then pin on center conductor and solder.

(d) Place forward insulator over center pin. Place ring finger over assembly until flush with cone assembly, then the lead formed in (3) above is brought out through the slot of the ring finger, trimmed to length and neatly soldered.

(e) Place outer teflon insulator over assembly flush with cone. Place connector body over entire assembly. Slide nut back up and tighten unit by rotating body only. Keep nut fixed to one position.

WARNING

Arrestor, Electrical Surge F-1483/G, located in the SIGNAL ENTRANCE panel may contain twenty-four type T61-G350 gas-filled surge voltage protectors which make use of Promethium Fluoride (Pm-47) having a total radition level of approximately 120 Microcuries. Use extreme care when handling the arrestor to prevent damage to the surge voltage protectors.

f. Removal of Surge Arrestor (fig. 7-2.1).

(1) Turn off the power to all communications equipment located inside the shelter.

(2) Disconnect the SIGNAL ENTRANCE panel output cables associated with the surge arrestor to be removed and tag the cables if required.

(3) Remove the SIGNAL ENTRANCE panel inner cover by removing the retaining screws.

(4) Remove the three inner channel connectors from the surge arrestor and tag if required.

(5) Remove the three surge arrestor connector retaining nuts.

(6) Remove the surge arrestor.

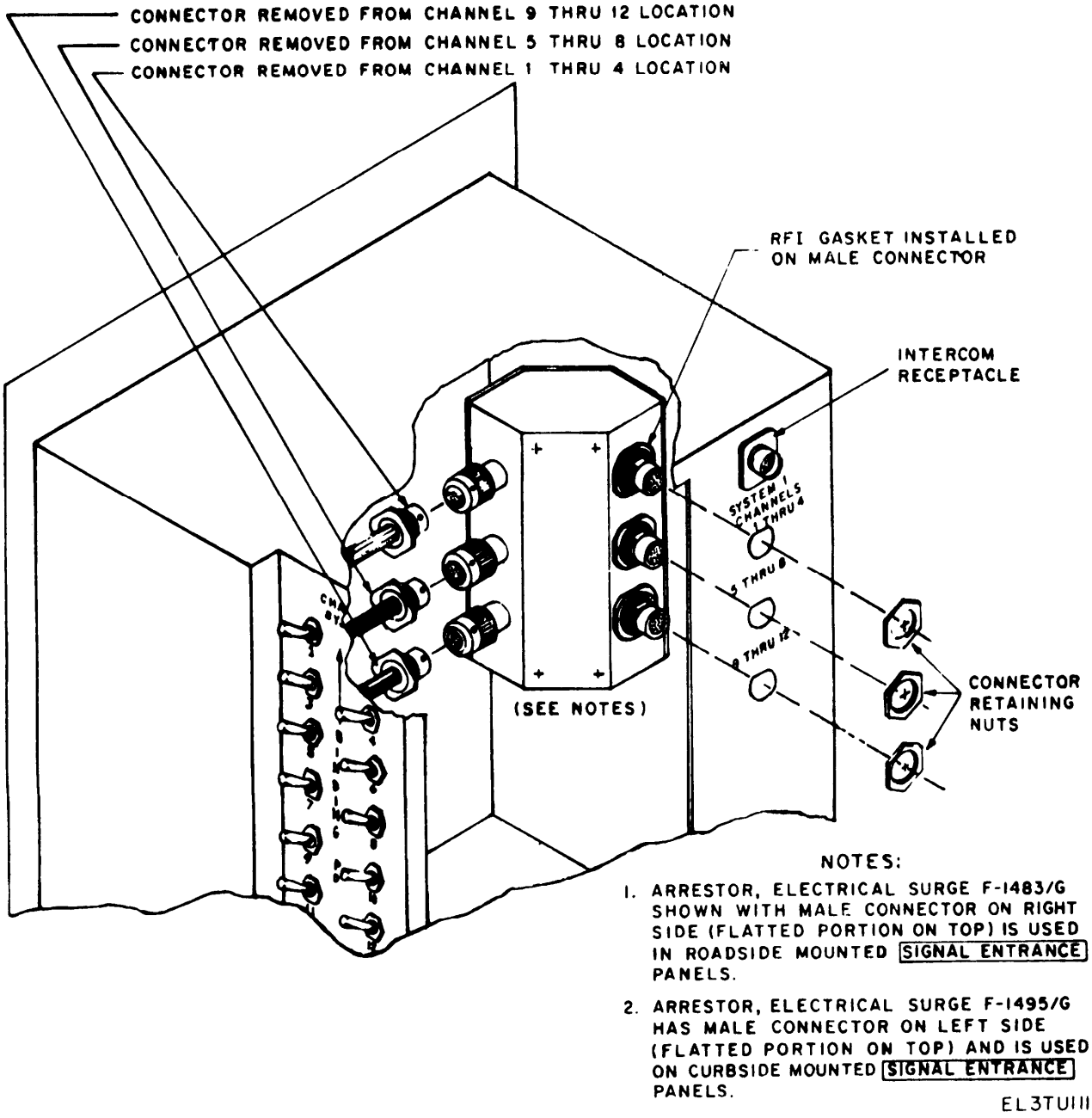


Figure 7-2.1. Surge arrestor location in SIGNAL ENTRANCE panel.

g. Replacement of Surge Arrestor.

(1) Place the surge arrestor in the SIGNAL ENTTANCE panel and insert the three connectors (recessed male) into the holes. The flat portion of each connector must be aligned with the flat portion of the connector hole. Check that the RFI gaskets are around each connector and that the surge arrestor is solidly seated.

(2) Lock the surge arrestor in place using the connector retaining nuts removed in f(5) above.

(3) Reconnect the three inner channel connectors removed in f(4) above.

(4) Reconnect the SIGNAL ENTRANCE panel output cables.

(5) Replace the SIGNAL ENTRANCE panel inner cover using the retaining screws.

h. Heater Repairs.

WARNING

Disconnect heater from power source before performing maintenance.

(1) ***Heater Element.***

(a) Remove heater from its mounting base.

(b) Remove bottom cover.

(c) Disconnect wiring.

(d) Remove four mounting screws and remove element. Mounting screws are accessible through the front panel behind the heat deflecting louvers.

(e) Reverse procedures for reinstallation.

(f) Refer to wire diagram (fig. 7-2.2) for wiring hookup and parts location.

(2) *Heater Motor and Fan.*

(a) Follow procedure in (1)(a) above.

(b) Follow procedure in (1)(b) above.

(c) Follow procedure in (1)(c) above.

(d) Remove three motor mounting screws and remove motor assembly.

(e) Reverse procedures for reinstallation.

NOTE

Fan blades should be tightened without removal of motor. Access to the fan blade securing nut can be obtained through the heating element in the front panel of the heater.

(3) *Thermostat and Control Switch.*

(a) Follow procedure in (1)(a) above.

(b) Follow procedure in (1)(b) above.

(c) Remove the thermostat and/or control switch by removing the screws and nuts, accessible from the top of the heater body and inside chamber.

(d) Disconnect wiring.

(e) Reverse procedures for reinstallation.

(4) *Overheat Cut-Off Switch.*

(a) Follow procedure in (1)(a) above.

(b) Follow procedure in (1)(b) above.

(c) Follow procedure in (1)(c) above.

(d) Remove mounting screws. These screws are accessible through the front panel and inside chamber.

(e) Reverse procedures for reinstallation.

i. Orderwire and Repeater Cable Repair/Replacement (fig. FO-8).

NOTE

If any of the broken cables are routed through the raceways it may be necessary to remove the equipment located in the racks in front of the raceway, unbolt and remove the racks, unfasten the raceway cover; and remove the cable prior to repair (or replacement of the entire cable, if repeated repair has caused the cable to become too short to reach the connector on the equipment).

(1) Remove cable or connector from the equipment.

(2) Unscrew the screws holding the connector on the cable.

(3) If any of the connector pins are still attached to the cable strands unsolder and remove them.

(4) Trim the cable ends off so that there is a clean cut (an optimum cable length of 1 foot 6 inches is recommended).

(5) Trim outer cable insulation as recommended in figure FO–8.

(6) Trim inner cable insulation as recommended in figure FO–8.

(7) Tin and solder cable strands to connector pins per figure FO-8.

(8) Reattach the screws that mechanically hold the connector onto the cable.

(9) The cable is now ready to be reattached to the equipment.

NOTE

As a field expedient, and if no replacement cable is available, cable lengths of less than 1 foot 6 inches may be used so long as the cable will reach from one connector to the other on the equipment which it connects, and it does not cause a loss of signal strength.

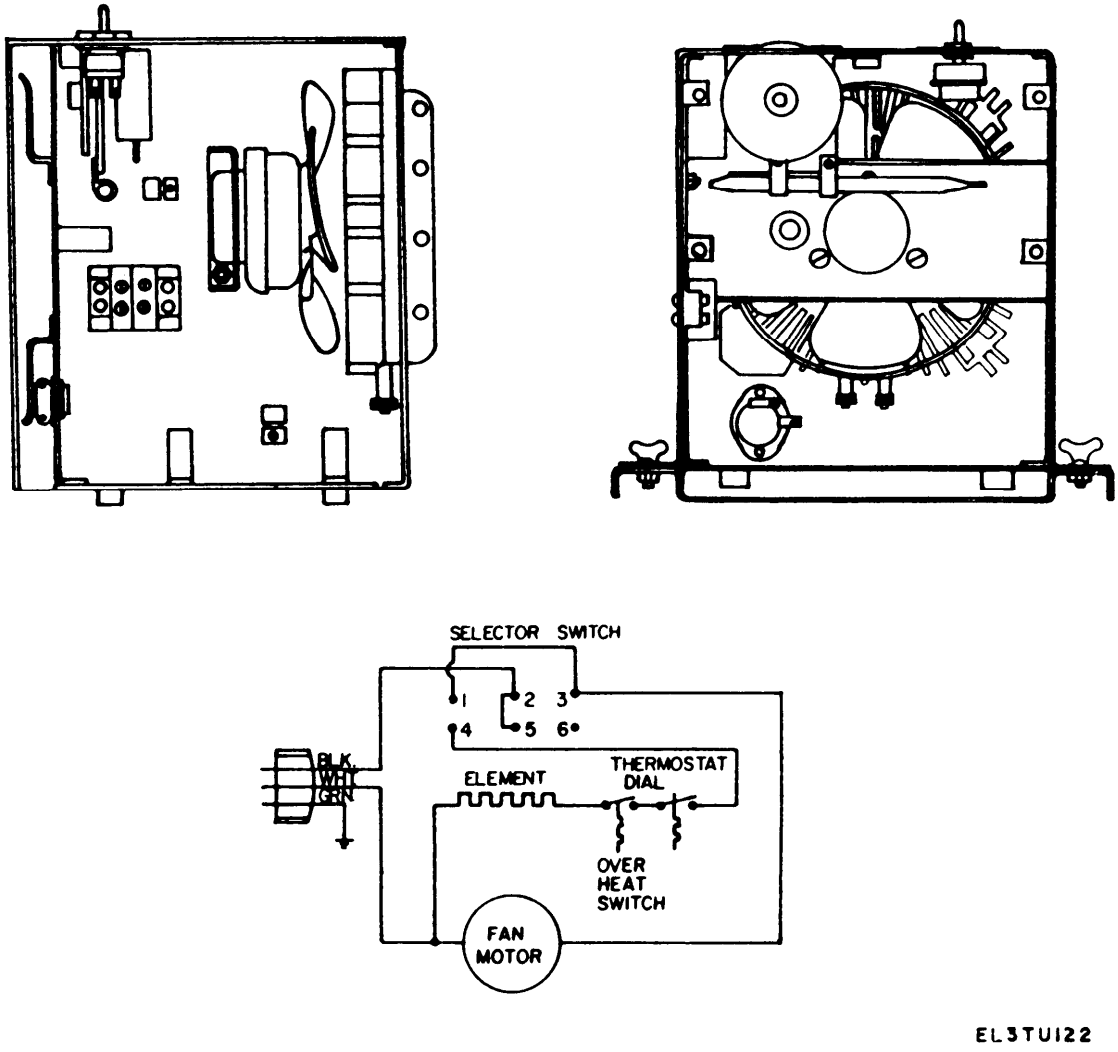


Figure 7-2.2. Heater, Interior Details.

7–3. General Support Repair Procedures

a. Communications Equipment Repair. Refer to the applicable technical manual for instructions on performing general support maintenance on the communications equipment in the assemblage.

b. Shelter, Electrical Equipment S-390/TRC-145. Repair of the S-390/TRC-145 includes replacement of doors and skids, permanent repair of holes and major structural damage to the shelter facility. Refer to TB 43-0124 for further information on general support maintenance of shelter facility.

c. Removal of 26-Pair Receptacles (fig. 7–3).

(1) Remove the screws that secure the cover to the SIGNAL ENTRANCE panel.

(2) Remove the cover from the defective 26-pair receptacle.

(3) Remove the mounting screws that secure the insert clip to the housing.

(4) Unfasten the cable clip that secures the cable form.

CAUTION

Be extremely careful when connecting and and soldering wires to the receptacle insert. Excessive heat or pressure will damage the receptacle insert.

(5) Lift the receptacle insert out of the housing; tag and unsolder the wires.

(6) Remove the mounting screws and remove the housing.

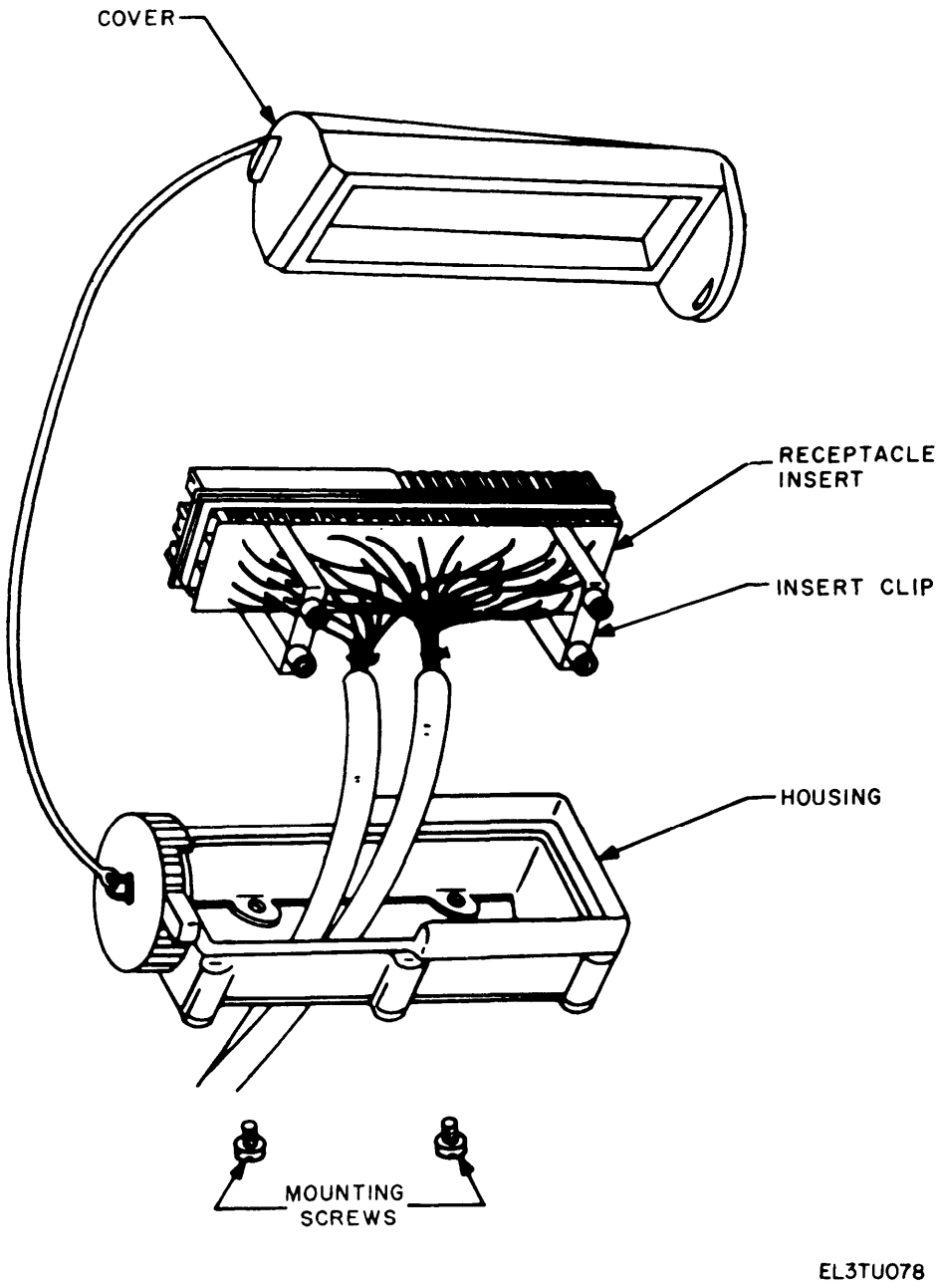


Figure 7-3. SIGNAL ENTRANCE BOX 26-pair receptacle, exploded view.

d. Replacement of 26-Pair Receptacle (fig. 7-3).

(1) Position the housing and secure it to the SIGNAL ENTRANCE BOX.

CAUTION

Be extremely careful when connecting and soldering wires to the receptacle insert. Excessive heat or pressure will damage the receptacle insert.

(2) Slide the end of the cable form out through the housing and connect the wires to the receptacle insert.

CAUTION

Be careful not to damage the wires when replacing the receptacle insert mounting screws.

(3) Position the receptacle insert and insert the clips in the housing, secure the insert clips with the mounting screws.

(4) Secure the cable form by fastening the cable clip.

(5) Install the cover on the housing.

(6) Position and secure the cover on the SIGNAL ENTRANCE panel.

e. Removal of 26-Pair Cable Connectors (fig. 7-4).

(1) Loosen the setscrews and slide the locking ring back on the cable.

(2) Remove the clamping bolts and clamps nuts from the cable clamp.

(3) Remove the retaining bolts and both sections of the cable clamp.

(4) Slide the enforcement and nylon insulator back on the cable.

(5) Remove the contact assembly retaining screws.

(6) Work the cable into the housing and lift the contact assembly out of the housing.

(7) Slide the separator away from the contact assembly.

(8) Tag and disconnect the leads.

(9) Remove the separator and slide the housing off the cable.

(10) Slide the nylon insulator, enforcement, locking ring, and cover off the cable.

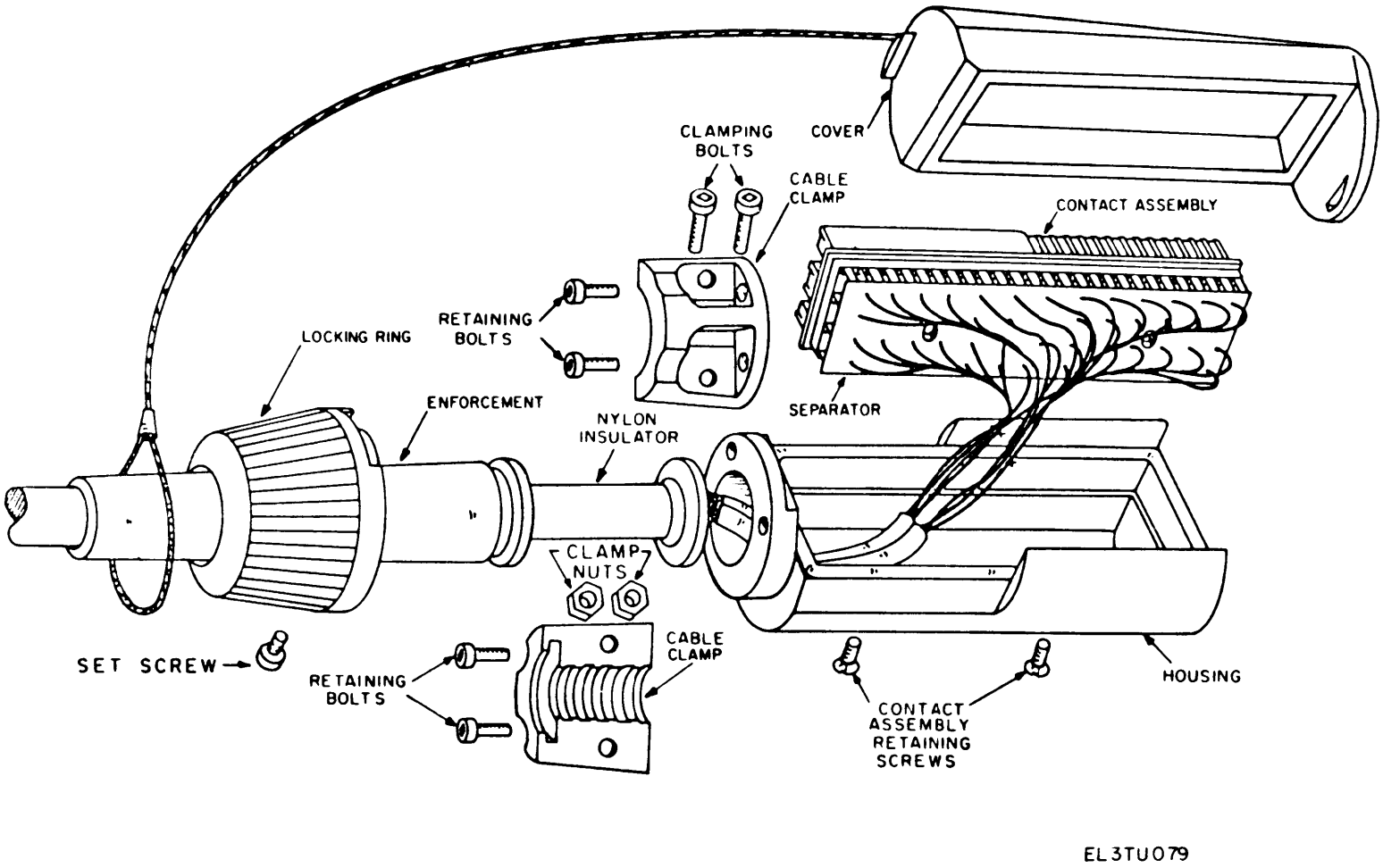


Figure 7-4. Twenty-six pair cable connectors, exploded view.

APPENDIX A
REFERENCES

AR 55-38	Report of Transportation Discrepancies in Shipments.
AR 310-2	Identification and Distribution of DA Publications and Issue of Agency and Command Administrative Publications.
DA Pam 310-1	Consolidated Index of Army Publications and Blank Forms.
(C) DA Pam 310-9	Index of Communications Security (COMSEC) Publications (U).
DA Pam 738-750	The Army Maintenance Management System (TAMMS).
SB 11-6	FSC Class 6135; Dry Battery Supply Data.
SB 11-30	FSC Class 6135; Dry Battery Management Data.
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army.
SB 708-41/42	Federal Supply Code for Manufacturers; United States and Canada-Name to Code and Code to Name.
(C) TB 11-5810-232-14-2	General Maintenance Information for Communications Security Equipment TSEC/KY-27 (U).
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment, Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TB 43-0124	Maintenance and Repair Procedures for Shelters, Electrical Equipment S-141/G and S-141B/G (NSN 5410-00-752-9698); S-144/G, S-144A/G, S-144B/G, S-144C/G and S-144D/G (5410-00-542-2532); S-250/G (5410-00-999-4935); S-250/G (Shielded) (5410-00-489-6076); S-280/G (5410-00-999-5269); S-280A/G (5410-00-999-6022); S-280B/G (5410-00-117-2868); S-280B/G (Shielded) (5410-00-001-4093); S-318/G (5410-00-763-2339) and S-318A/G (5410-00-116-7086).
(C) TB 380-41-1	Military Security: US Army Equipment Asset Reporting System (CEARS).
TB 750-10	Painting, Replating, and Preserving Instructions for Communications Security Equipment.
(C) TB 750-38	Alteration of Communications Security Equipment (to be published).
TB SIG 291	Safety Measures to be Observed When Installing and Using Whip Antennas, Field Type Masts, Towers and Antennas and Metal Poles that are used with Communications, Radar and Direction Finder Equipment.
TM 5-6115-271-14	Operator/Crew, Organizational, Intermediate (Field), (Direct and General Support) and Depot Maintenance Manual: Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 3KW, 3 Phase, AC 120/208 and 120/240V, 28V DC (Less Engine), DOD Model MEP-016A, 60 Hertz, NSN 6115-00-017-8237) (DOD Model MEP-021A) 400 HZ (6115-00-017-8238) and (DOD Model MEP-026A), DC HZ (6115-00-017-8239).
TM 5-6115-365-15	operator's Organizational, Direct Support, General Support and Depot Maintenance Manual (Including Repair Parts and Special Tools Lists): Generator Sets, Gasoline and Diesel Engine Driven, Trailer Mounted, PU-236A/G, PU-236/G, (NSN 6115-00-393-1709), PU-236B/G (6115-00-738-6334), PU-253A/U, PU-253/U (6115-00-697-2402), PU-304C/MPQ-4 (6115-00-056-8421), PU-332/G (6115-00-577-8471), PU-332A/G (6115-00-738-8336), PU-375A/G, PU-375/G (6115-00-753-2231), PU-375B/G (6115-00-931-6789), PU-401/M (6115-00-823-2217), PU-402/M (6115-00-722-3760), PU-406/M (6115-00-738-6342), PU-409/M (6115-00-702-3343), PU-409A/M (6615-00-733-6338), PU-495/G (6115-00-823-2218), PU-551/G (6115-00-889-1307), PU-564A/G (6115-00-728-6341), PU-564B/G (6115-00-179-2789), PU-617/M (6115-00-738-6335), PU-618/M

	(6115-00-738-6337), PU-619/M (6115-00-738-6339), PU-620/M (6115-00-738-6340), PU-625/G (6115-00-873-3915), PU-628/G (6115-00-087-0873), PU-629/G (6115-00-937-5555), PU-631/G (6115-00-059-5172), PU-656/G (6115-00-939-3296), PU-650B/G (6115-00-258-1662).
TM 11-2057A	Test Set TS-27B/TSM.
TM 11-5410-214-12P	Operator's and Organizational Maintenance Repair Parts and Special Tools Lists for Shelter, Electrical Equipment S-250/G (NSN 5410-00-999-4935).
TM 11-5410-214-34P	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists for Shelters, Electrical Equipment S-250/G (NSN 5410-00-999-4935).
TM 11-5805-201-12	Operator and Organizational Maintenance Manual: Telephone Set TA 312/PT (NSN 5805-00-543-0012).
TM 11-5805-201-35	Direct Support, General Support, and Depot Maintenance Manual (Including Repair Parts and Special Tools List): Telephone Set TA-312/PT (NSN 5805-00-543-0012).
TM 11-5805-367-12	Operator's and Organizational Maintenance Manual: Multiplexers, TD-202/U (NSN 5805-00-884-2176), TD-203/U (5805-00-884-2177), TD-204/U (5805-00-900-8200), TD-352/U (5805-00-900-8199) and TD-353/U (5805-00-985-9153); Restorers, Pulse Form, TD-206/G (5805-00-868-8078) and TD-206B/G (5805-01-020-2251) and Converters, Telephone Signal, CV-1548/G (5805-00-069-8795) and CV-1548A/G (5805-00-069-8795).
TM 11-5805-367-20P-2	Organizational Maintenance Repair Parts and Special Tools Lists for Multiplexer TD-204/U (NSN 5805-00-900-8200).
TM 11-5805-367-20P-5	Organizational Maintenance Repair Parts and Special Tools for Converter, Telephone Signal CV-1548/G and CV-1548A/G (NSN 5805-00-069-8795).
TM 11-5805-367-34-5	Direct Support and General Support Maintenance Manual: Converters, Telephone Signal, CV-1548/G and CV-1548A/G.
TM 11-5805-367-34P-2	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Multiplexer TD-204/U (NSN 5805-00-900-8200).
TM 11-5805-382-12	Operator's and Organizational Maintenance Manual: Multiplexer, TD-660/G (NSN 5805-00-930-8079), TD-660A/G and TD-660B/G (5820-00-928-3382).
TM 11-5805-382-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Multiplexer TD-660/G (NSN 5805-00-930-8079) and TD-660A/G (NSN 5820-00-928-3382).
TM 11-5805-382-34P	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Multiplexer TD-660/G (NSN 5805-00-930-8079) and TD-660A/G (5820-00-928-3382).
TM 11-5805-382-34P-1	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Multiplexer TD-660B/G (NSN 5820-00-928-3382).
TM 11-5805-382-35	Direct Support, General Support, and Depot Maintenance Manual: Multiplexers, TD-660/G (NSN 5805-00-930-8079), TD-660A/G and TD-660B/G (5820-00-928-3382).
TM 11-5805-383-12	Operator's and Organizational Maintenance Manual: Multiplexer, TD-754/G (NSN 5820-00-930-8078).
TM 11-5805-383-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Multiplexer TD-754/G (NSN 5805-00-930-8078).
TM 11-5805-383-34P	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Multiplexer TD-754/G (NSN 5820-00-930-8078).

TM 11-5805-383-35	Direct Support, General Support and Depot Maintenance Manual for Multiplexer, TD-754/G (NSN 5820-00-930-8078).
TM 11-5805-637-12	Operator's and Organizational Maintenance Manual: Buffer, Data, TD-1065/G (NSN 5805-01-028-8364).
TM 11-5805-637-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Data Buffer, TD-1065/G (NSN 5805-01-028-8364).
TM 11-5805-637-34	Direct Support and General Support Maintenance Manual for Buffer, Data, TD-1065/G (NSN 5805-01428-8364).
TM 11-5805-637-34P	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Data Buffer, TD-1065/G (NSN 5805-01428-8364).
TM 11-5820-540-12	Operator's and Organizational Maintenance Manual: Radio Set, AN/GRC-103(V)1 (NSN 5820-00-935-4931) AN/ GRC-103(V)2 (5820-00-116-6029), AN/GRC-103(V)3 (5820-00-116-6030), AN/GRC-103(V)4 and Extension Kit, Mast, MK-1009/GRC-103(V) (5985-00-179-7767).
TM 11-5820-540-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Radio Sets, AN/GRC-103(V)1 (NSN 5820-00-935-4931), AN/GRC-103(V)2 (5820-00-116-6029), AN/GRC-103(V)3 (5820-00-116-6030), and 'A' Models; and Extension Kit, Mast, MK-1009/GRC-103(V).
TM 11-5820-540-34P-1	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Radio Set AN/GRC-103(V)1 (NSN 5820-00-935-4931); Mast Extension Kit and Direct Support Cable Kit.
TM 11-5820-540-34P-l-l	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Radio Set, AN/GRC-103(V)1 A Model (NSN 5820-00-935--4931), Mast Extension Kit and Direct Support Cable Kit.
TM 11-5820-540-34P-2	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Radio Set AN/GRC-103(V)2 (NSN 5820-00-116-6029).
TM 11-5820-540-34P-2-1	Direct Support and General Support Maintenance Repair Parts and Special Tools for Radio Set AN/GRC-103(V)2, A Model (NSN 5820-00-116-6029); Mast Extension Kit and Direct Support Cable Kit.
TM 11-5820-540-34P-3	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Radio Set AN/GRC-103(V)3 (NSN 5820-00-116-6030).
TM 11-5820-540-34P-3-1	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Radio Set, AN/GRC-103(V)3, A Model (NSN 5820-00-116-6030) Mast Extension Kit and Direct Support Cable Kit.
TM 11-5820-540-35	Direct Support, General Support, and Depot Maintenance Manual: Radio Sets AN/GRC-103(V)1 (NSN 5820-00-935-4931), AN/GRC-103(V)2 (5820-00-1 16-8029), AN/GRC-103(V)3 (5820-00-116-6030) and AN/GRC-103(V)4 and Extension Kit Mast, MK-1009/GRC-103(V) (5985-00-179-7767).
TM 11-5830-221-12	Operator's and Organizational Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI and LS-147D/FI (NSN 5830-00-752-5357).
TM 11-5830-221-24P	Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists for Intercommunication Station LS-147C/FI (NSN 5830-00-752-5357).
TM 11-5830-221-35	Field and Depot Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI and LS-147D/FI.

TM 11-5920-252-24	Organizational, Direct Support, and General Support Maintenance for Electrical Surge Arresters F-1483/G (NSN 5920-01-093-6969), and F-1495/G (NSN 5920-01-093-6970).
TM 11-5935-205-14P	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Connectors, Receptacle, Electrical U-187/G and U-187S/G (FSN 5935-682-0381).
TM 11-6110-201-12P	Operator's and Organizational Maintenance Repair Parts and Special Tools Lists for Distribution Boxes J-1077/U and J-1077A/U (NSN 6110-00-985-7574).
TM 11-6110-201-34P	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Distribution Boxes J-1077/U and J-1077A/U (NSN 6110-00-985-7574).
TM 11-6110-201-50	Depot Maintenance Manual: Distribution Boxes J-1077/U and J-1077A/U.
TM 11-6110-245-15	Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Voltage Regulator, CN-514/GRC.
TM l1-6625-684-12	Operator's and Organizational Maintenance Manual: Test Set, Telephone, AN/PTM-7 (NSN 6625-00-902-7574).
TM 11-6625-648-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Test Set, Telephone, AN/PTM-7 (FSN 5805-069-8854)
TM 11-6625-648-45	General Support and Depot Maintenance Manual: Test Set, Telephone AN/PTM-7 (NSN 6625-00-902-7574).
TM 38-750	The Army Maintenance Management Systems (TAMMS).
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

APPENDIX B

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the AN/TRC-145(*) to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. Sections II and IV. Integral Components of the End Item. These items, when assembled, comprise the AN/TRC-145(*) and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Sections III and V. Basic Issue Items. These are the minimum essential items required to place the AN/TRC-145(*) in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the AN/TRC-145(*) during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* The number used to identify item called out in the illustration.

b. *National Stock Number.* Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. The part number indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving onto an adjacent area.

e. Usable on Code. "USABLE ON" codes are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

Code	*Used on*
V1-2TL V2-2TM V3-2TN	AN/TRC-145
V1-5A2 V2-5A3 V3-5A4	AN/TRC-145A
V1-ELQ V2-ELR V3- (NO Code)	AN/TRC-145B

f. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Revd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item.

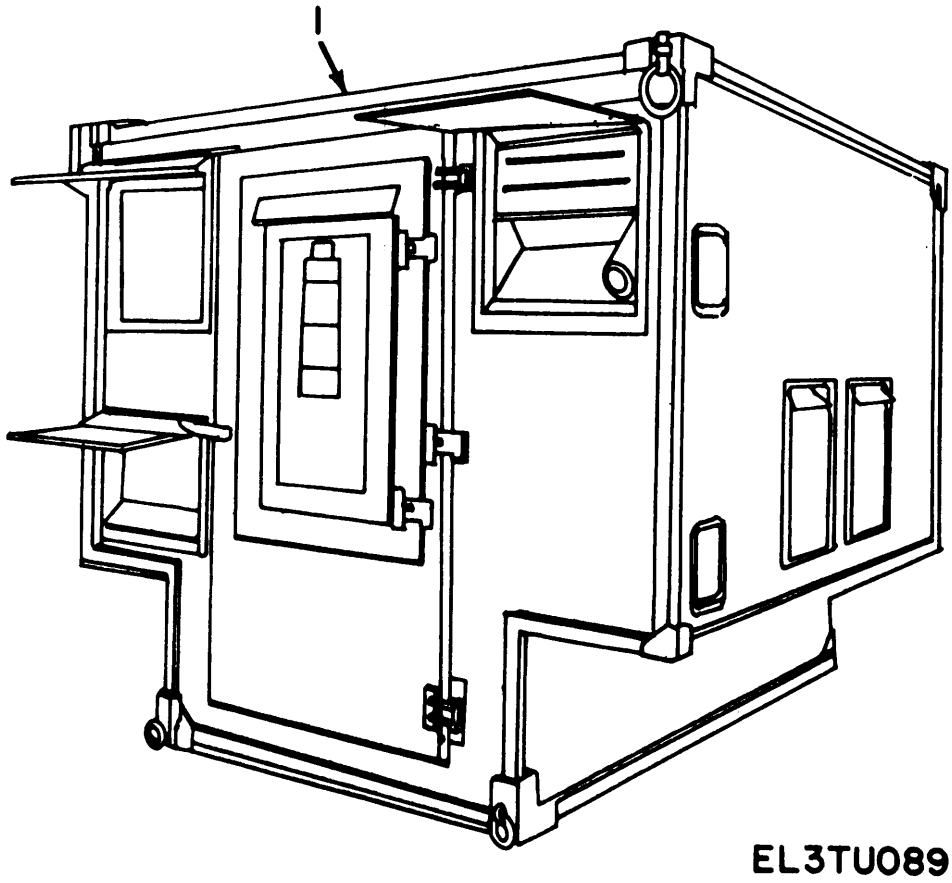


Figure B-1. Shelter facility S-390/TRC-145 (seial 1-46).

SECTION I. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-1	1	5411 00-130-5806	SHELTER FACILITY S-390/TRC-145 (80058)			1		

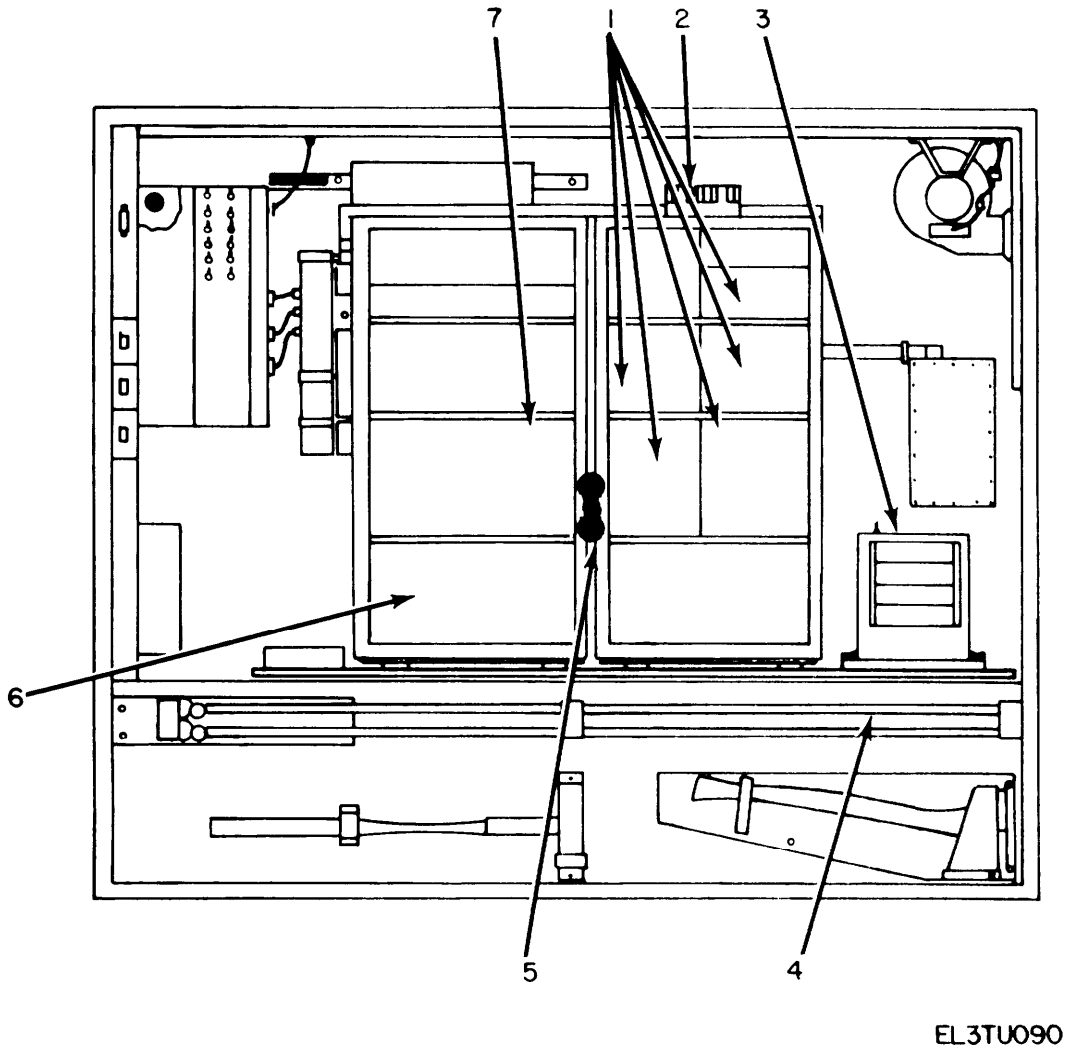


Figure B-2. Integral components, roadsIde wall, interior, S-390/TRC-145 (serial 1-46).

SECTION II. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-2	1	5820-00-935-4931	RADIO SET AN/GRC-103( ) V	(80058)	ROADSIDE WALL	1			
B-2	2	5895-00-089-8990	DUMMY LOAD, ELECTRICAL DA-437/GRC-103(V)	(80058)	ROADSIDE WALL	1			
B-2	3	4520-00-177-6198	HEATER	(17032)	ROADSIDE WALL	1			
B-2	4	5975-00-224-5260	ROD, GROUND MX-148( )/G SC-D-14158	(80063)	ROADSIDE WALL	2			
B-2	5	5975-00-892-3850	HANDSET H-156( )/U	(80058)	ROADSIDE WALL	1			
B-2	6	5805-00-069-8795	CONVERTER, TELEPHONE SIGNAL CV-1548G	(80058)	ROADSIDE WALL	1			
B-2	7	5805-00-930-8079	MULTIPLEXER TD-660/G	(80058)	ROADSIDE WALL	1			
			OR						
B-2	7	5820-00-928-3382	MULTIPLEXER TD-660A/G	(80058)	ROADSIDE WALL	1			
			OR						
B-2	7	5820-00-928-3382	MULTIPLEXER TD-660B/G	(80058)	ROADSIDE WALL	1			

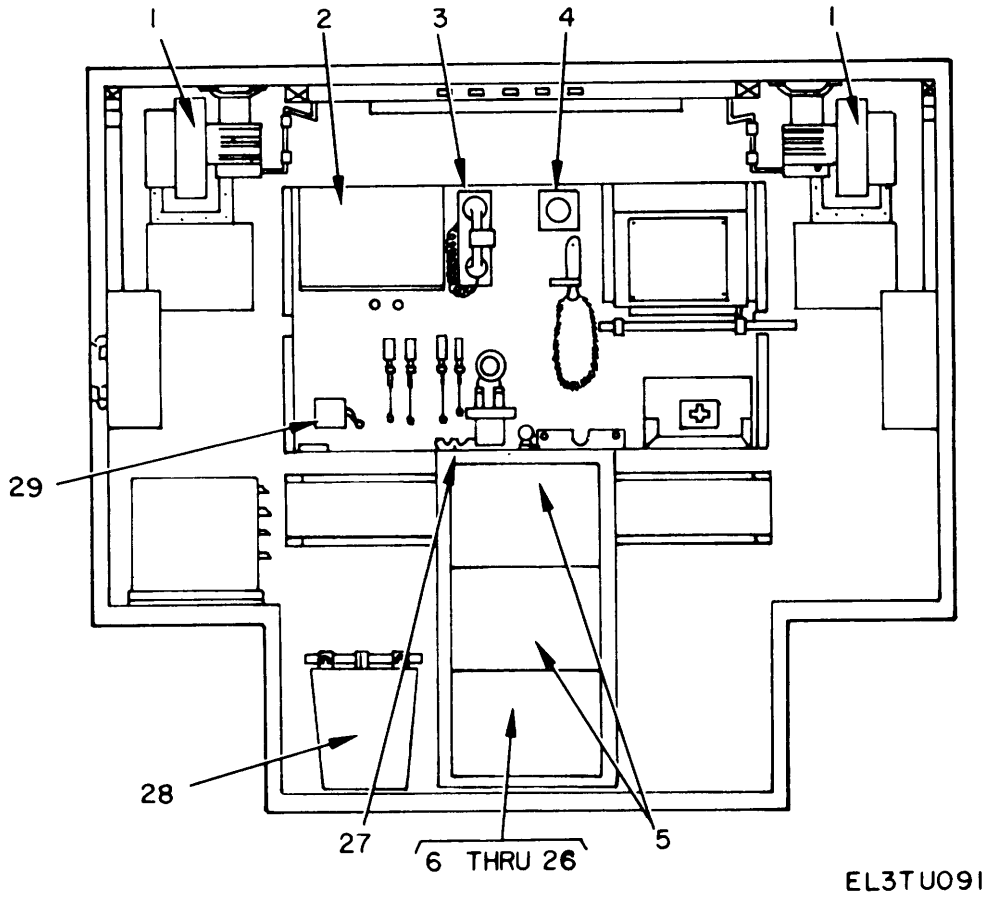


Figure B-3. Integral components, front wall, interior S-390/TRC-145 (serial 1-46).

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-3	1	6105-00-234-3504	MOTOR, ALTERNATING CURRENT SC-D-539825	(80063)	FRONT WALL		2		
B-3	2	5830-00-752-5357	INTERCOMMUNICATION STATION LS147CFI	(80058)	FRONT WALL		1		
B-3	3	5805-00-543-0012	TELEPHONE SET TA312PT	(80058)	FRONT WALL		1		
B-3	4	6645-00-410-2395	CLOCK (3 INCH) SC-C-539475 OR SC-C-681411	(80063)	FRONT WALL		1		
B-3	5	5805-00-900-8200	MULTIPLEXER TD-204/U	(80058)	FRONT WALL	2TL,2TM, 2TN	2		
			OR						
B-3	5	5820-00-930-8078	MULTIPLEXER TD-754/G	(80058)	FRONT WALL	5A2,5A3, 5A4	2		
B-3	6	5410-00-752-2525	STRAP, GROUND SC-B-539492	(80063)	FRONT STORAGE DRAWER		2		
B-3	7	6625-00-179-5217	CONVERTER, FREQUENCY ELECTRONIC CV-2500( )/GRC	(80058)	FRONT STORAGE DRAWER		1		
B-3	8	6130-00-014-5878	POWER SUPPLY PP6917/GRC	(80058)	FRONT STORAGE DRAWER		1		
B-9	9	5995-00-629-6535	CABLE ASSEMBLY AUDIO (1 1/2 FT) SC-C-343394 (GR1)	(80063)	FRONT STORAGE DRAWER		1		
B-3	10	5995-00-495-0768	CABLE ASSEMBLY, ORDER WIRE PATCH (CABLE REPEATER PATCH THRU) (1 1/2 FT) SC-D-627092 (GR1)	(80063)	FRONT STORAGE DRAWER		1		
B-3	11	5995-00-629-6542	CABLE ASSEMBLY, ORDER WIRE PATCH (RADIO TO CABLE PATCH THRU) (1 1/2 FT) SC-D-627148 (GR1)	(80063)	FRONT STORAGE DRAWER		2		
B-3	12	5995-00-344-6845	CABLE ASSEMBLY, ORDER WIRE PATCH (RADIO REPEATER PATCH THRU) (1 1/2 FT) SC-D-627083 (GR1)	(80063)	FRONT STORAGE DRAWER		1		
B-3	13	5995-00-341-5204	CABLE ASSEMBLY, POWER (RADIO RECEIVER) (4 FT) SC-D-627094(GR1)	(80063)	FRONT STORAGE DRAWER		2		
B-3	14	5995-00-353-5204	CABLE ASSEMBLY, POWER (RADIO TRANSMITTER) (4 FT) SC-D-627094 (GR2)	(80063)	FRONT STORAGE DRAWER		2		
B-3	15	5995-00-177-4554	CABLE ASSEMBLY, POWER SHIELDED (CV1548/G) (4 FT) SC-D-681112 (GR4)	(80063)	FRONT STORAGE DRAWER		2		
B-3	16	5995-00-177-4555	CABLE ASSEMBLY, POWER SHIELDED (TD-204 OR TD-754) (7 FT) SC-D-681112(GR3)	(80063)	FRONT STORAGE DRAWER		2		
B-3	17	5995-00-177-4665	CABLE ASSEMBLY, POWER SHIELDED (TD-660) (5 FT) SC-D-681112 (GR1)	(80063)	FRONT STORAGE DRAWER		2		
B-3	18	5995-00-192-9603	CABLE ASSEMBLY, RF, PATCH CORD (1 FT) SC-D-627081	(80063)	FRONT STORAGE DRAWER		4		
B-3	19	5905-00-192-9606	CABLE ASSEMBLY, RF, VIDEO PATCH CORD (1 1/2 FT) SC-D-595511 (GR12)	(80063)	FRONT STORAGE DRAWER		14		
B-3	20	5995-00-144-0282	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX10879/GRC103V	(80063)	FRONT STORAGE DRAWER		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-3	21	5995-00-192-9612	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS 1, CH 1-4) (4 FT) SC-D-681007 (GR1)	(80063)	FRONT STORAGE DRAWER		1		
B-3	22	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS 1, CH 5-8) (4 FT) SC-D-681007 (GR4)	(80063)	FRONT STORAGE DRAWER		1		
B-3	23	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS, CH 9-12) (4 FT)	(80063)	FRONT STORAGE DRAWER		1		
B-3	24	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS 2, CH 1-4) (4 FT) SC-D-681007 (GR4)	(80063)	FRONT STORAGE DRAWER		1		
B-3	25	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS 2, CH 5-8) (4 FT) SC-D-681007 (GR5)	(80063)	FRONT STORAGE DRAWER		1		
B-3	26	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (CV1548 TO TD-660 SYS 2, CH 9-12) (4 FT) SC-D-681007 (GR6)	(80063)	FRONT STORAGE DRAWER		1		
B-3	27	6605-00-264-3994	COMPASS, MAGNETIC 800090	(33363)	FRONT WALL		1		
B-3	28	7520-00-159-4863	BASKET, WASTEPAPER SC-D-539454	(80063)	FRONT WALL		1		
B-3	29	7520-00-162-6178	SHARPENER, PENCIL SC-C-539503	(80063)	FRONT WALL		1		

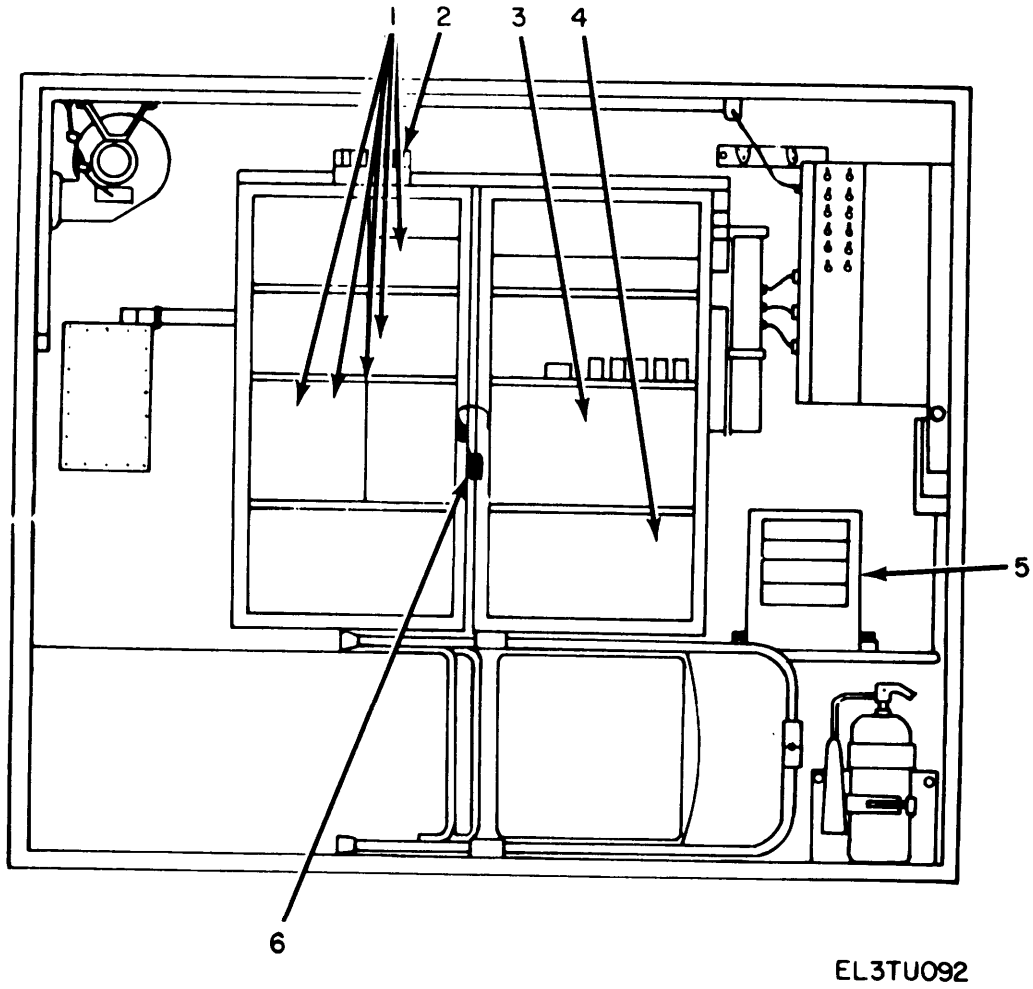


Figure B-4. Integral components, curbside wall interior S-390/TRC-145 (serial 1-46).

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-4	1	5820-00-868-8137	RADIO SET AN/GRC-103( )V	(80058)	CURBSIDE WALL		1		
B-4	2	5895-00-089-8990	DUMMY LOAD, ELECTRICAL DA-437/GRC-103	(80058)	CURBSIDE WALL		1		
B-4	3	5805-00-930-8079	MULTIPLEXER TD-660/G	(80058)	CURBSIDE WALL		1		
			OR						
B-4	3	5820-00-928-3382	MULTIPLEXER TD-660A/G	(80058)	CURBSIDE WALL		1		
			OR						
B-4	3	5820-00-928-3382	MULTIPLEXER TD-660B/G	(80058)	CURBSIDE WALL		1		
B-4	4	5805-00-069-8795	CONVERTER, TELEPHONE SIGNAL CV1548G	(80058)	CURBSIDE WALL		1		
B-4	5	4520-00-177-6198	HEATER	(17032)	CURBSIDE WALL		1		
B-4	6	5865-00-669-6871	HEADSET, MICROPHONE H-91/U	(80058)	CURBSIDE EQUIP RACK		1		

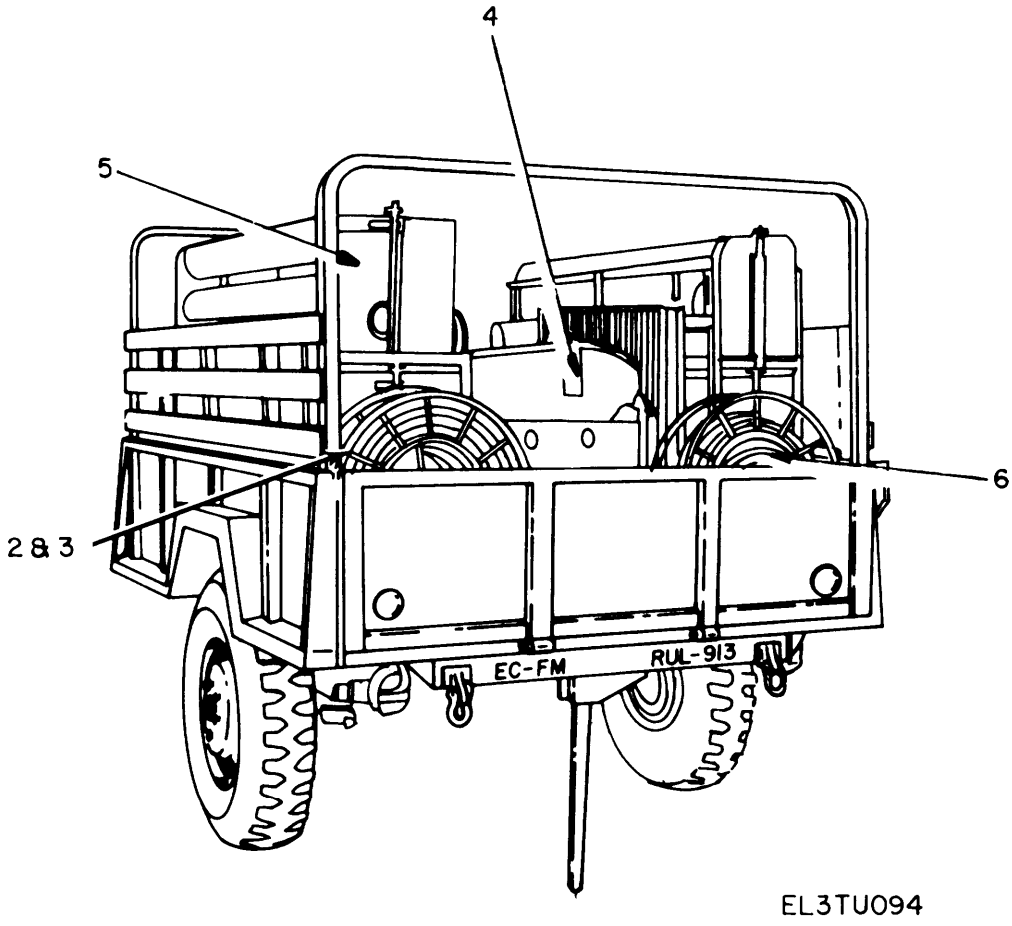


Figure B-6. Integral components, generator trailer for radio terminal set AN/TRC-145 (serial 1-46).

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-6	1	5985-00-179-7767	MAST, EXTENSION KIT MK1009/GRC103	(80058)	GENERATOR TRAILER		2		
B-6	2	5995-00-134-7159	CABLE ASSEMBLY, POWER (100 FT) CX-7453A/U MOUNTED ON RC-435/U	(80058)	GENERATOR TRAILER		1		
B-6	3	5995-00-935-2686	CABLE ASSEMBLY, POWER (15 FT) CX-7705( )/U	(80058)	GENERATOR TRAILER		1		
			ANTENNA SYSTEM CONSISTING OF:						
B-6	4	5985-00-089-1989	ANTENNA AS-1852/GRC-103(V)1	(80058)	GENERATOR TRAILER		2		
			OR						
B-6	4	5820-00-011-8860	ANTENNA AS-1853/GRC-103(V)2	(80058)	GENERATOR TRAILER		2		
			OR						
B-6	4	5820-00-011-8951	ANTENNA AS-1854/GRC-103(V)3	(80058)	GENERATOR TRAILER		2		
B-6	5	5985-00-089-8933	MAST AB-952/GRC-103(V)	(80058)	GENERATOR TRAILER		2		
B-6	6	5995-00-144-0228	ANTENNA CABLE CG-3443/U (80 FT) MOUNTED ON RC-435/U	(80058)	GENERATOR TRAILER		2		

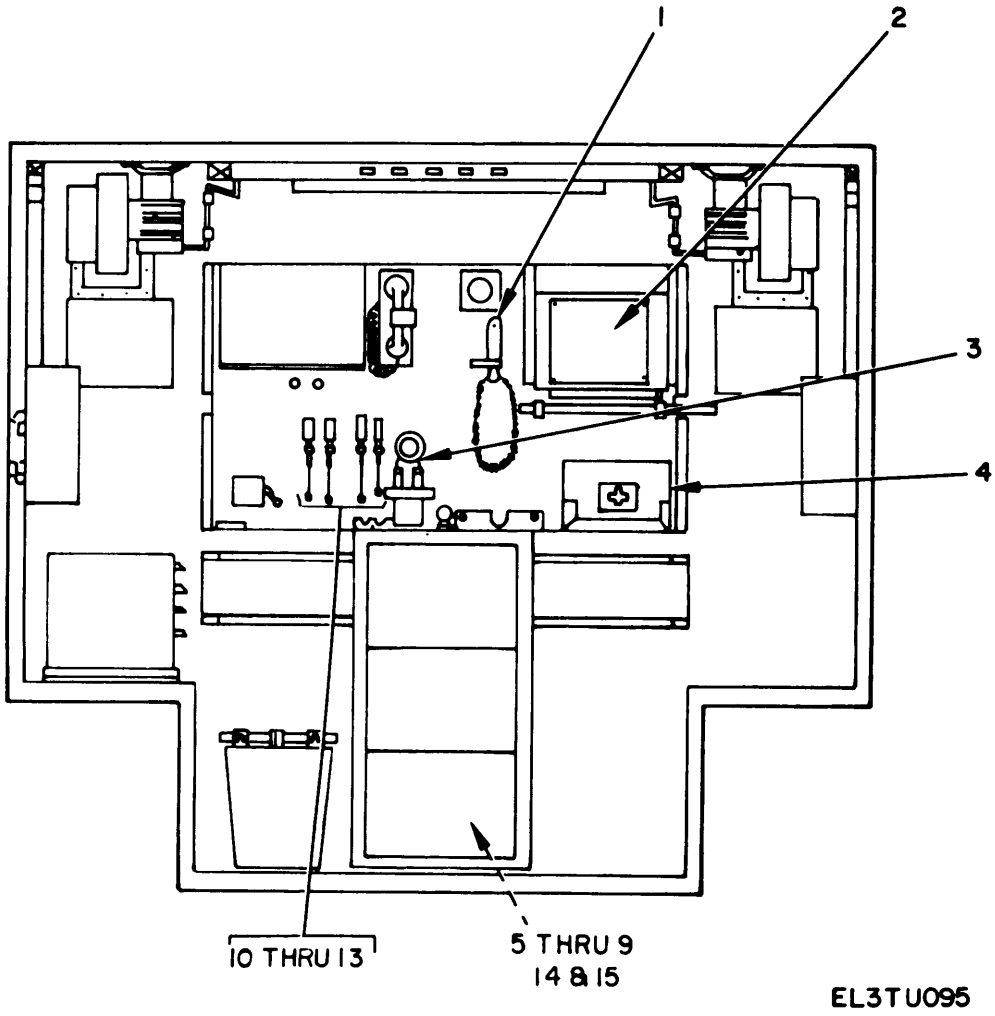


Figure B-7. Basic issue items, front wall interior, S-390/TRC-145 (serial 1-46).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-7	1	7920-00-178-8315	BRUSH, DUSTING BENCH SC-C-539469	(80063)	FRONT WALL		1		
B-7	2		TECHNICAL MANUAL		FRONT WALL		1 SET		
B-7	3	6230-00-729-9614	LANTERN SC-C-539491	(80063)	FRONT WALL		1		
B-7	4	6545-00-922-1200	KIT, FIRST AID SC-D-532483	(80063)	FRONT WALL		1		
B-7	5	5120-00-946-5114	GRIP, CABLE (POWER CABLE) (15 IN) SC-B-539593	(80063)	FRONT STORAGE DRAWER		3		
B-7	6	5120-00-946-5148	GRIP, CABLE (SIGNAL CABLE) (17 IN) SC-B-539592	(80063)	FRONT STORAGE DRAWER		2		
B-7	7	5210-00-221-1882	TAPE, MEASURING GGG-T-1066, TYPE II CLASS B	(81349)	FRONT STORAGE DRAWER		1		
B-7	8	5410-01-061-8970	TIEDOWN ADAPTER SC-C-539958	(80058)	FRONT STORAGE DRAWER		4		
B-7	9	5120-00-449-8083	WRENCH, OPEN END ADJUSTABLE (10 IN) GGG-W-631, TYPE I CLASS 1	(80063)	FRONT STORAGE DRAWER		1		
B-7	10	5120-00-555-2063	SCREWDRIVER (FLAT BLADE) (1/4 X 8 IN) SC-C-539502-4	(80063)	FRONT WALL		1		
B-7	11	5120-00-234-8912	SCREWDRIVER, PHILLIPS (4 IN BLADE, POINT SIZE 2) SC-C-539894-3	(80063)	FRONT WALL		1		
B-7	12	5120-00-222-8852	SCREWDRIVER (THIN BLADE) (4 IN) (FOR CV-1548) GGG-S-121, TYPE I CLASS 11, DESIGN	(80063)	FRONT WALL		1		
B-7	13	5120-00-224-2596	WRENCH, SOCKET, SPIN TYPE (5/16 IN) SC-C-681041	(80063)	FRONT WALL		1		
B-7	14	9920-00-682-6757	TRAY, ASH AA-A-710, TYPE III STYLE A	(81349)	FRONT STORAGE DRAWER		1		
B-7	15	6230-00-239-3518	LIGHT, EXTENSION (25 FT) SC-C-539496	(80063)	FRONT STORAGE DRAWER		1		

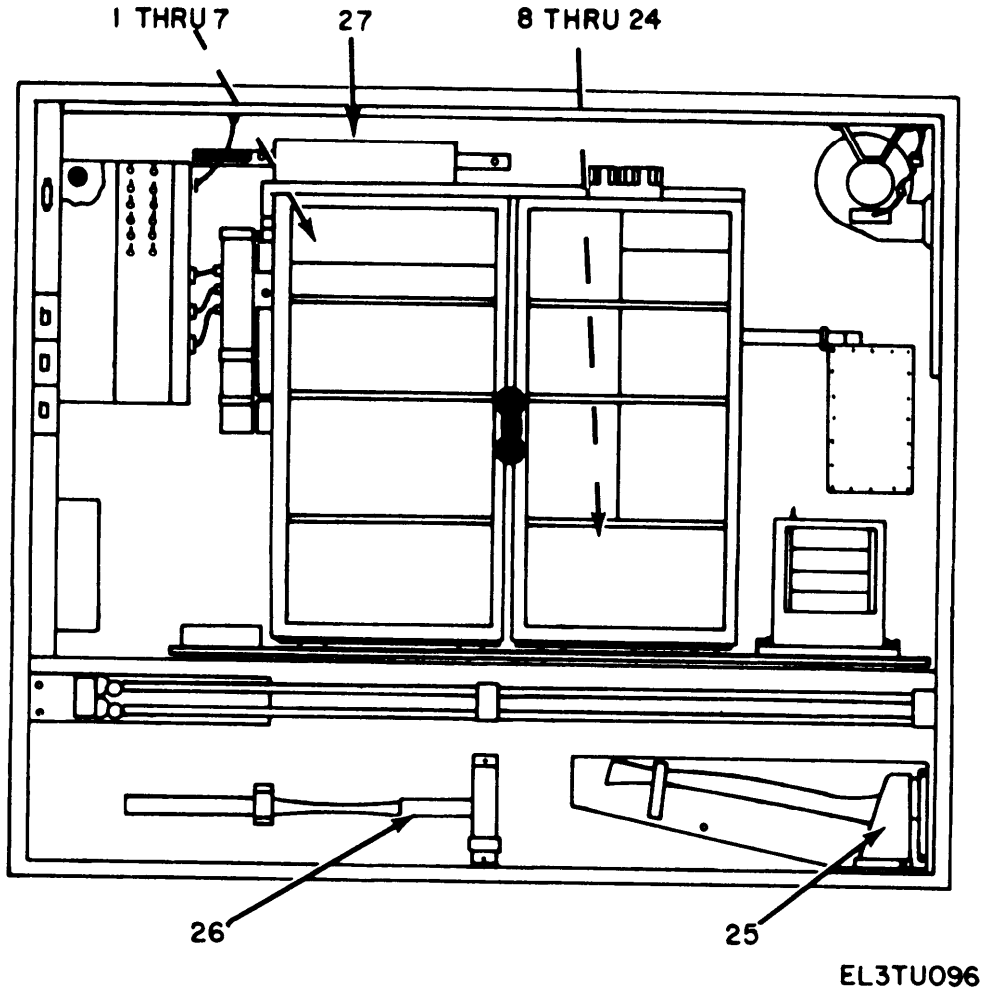


Figure B-8. Basic issue items, roadside wall, interior, S-390/TRC-145 (serial 1-46).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-8	1	5805-00-459-8577	PANEL 11A2, TRANSMIT TIMING (TD-660) SM-E-524624	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	1	5820-00-459-8577	PANEL 11A23, TRANSMIT TIMING (TD-660) SM-E-525234	(80063)	ROADSIDE CARD STORAGE		1		
B-8	2	5805-00-459-8578	PANEL 11A3, MODEM TIMING (TD-660) SM-E-524627	(80063)	ROADSIDE CARD STOPAGE		1		
			OR						
B-8	2	5820-00-459-8578	PANEL 11A24, MODEM TIMING (TD-660) SM-E-525239	(80063)	ROADSIDE CARD STORAGE		1		
B-8	3	5805-00-459-8580	PANEL 11A4, PAM RESHAPER (TD-660) SM-E-524630	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	3	5820-00-459-8580	PANEL 11A25, PAM RESHAPER (TD-660) SM-E-525244	(80063)	ROADSIDE CARD STORAGE		1		
B-8	4	5805-00-459-8581	PANEL 11A5, TRIPLE MODEM (TD-660) SM-E-524633	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	4	5820-00-459-8581	PANEL 11A26, TRIPLE MODEM (TD-660) SM-E-525249	(80063)	ROADSIDE CARD STORAGE		1		
B-8	5	5805-00-459-8582	PANEL 11A6, DECODER RECEIVE (TD-660) SM-E-524636	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	5	5820-00-459-8582	PANEL 11A27, DECODER RECEIVE (TD-660) SM-E-525254	(80063)	ROADSIDE CARD STORAGE		1		
B-8	6	5805-00-459-8584	PANEL 11A7, RECEIVER TIMING (TD-660) SM-E-524639	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	6	5820-00-459-8584	PANEL 11A28, RECEIVER TIMING (TD-660) SM-E-525259	(80063)	ROADSIDE CARD STORAGE		1		
B-8	7	5805-00-459-8585	PANEL 11A8, ALARM CIRCUIT (TD-660) SM-E-524642	(80063)	ROADSIDE CARD STORAGE		1		
			OR						
B-8	7	5820-00-459-8585	PANEL 11A29, ALARM CIRCUIT (TD-660) SM-T-525264	(80063)	ROADSIDE CARD STORAGE		1		
B-8	8	6250-00-194-4794	STARTER, FLUORESCENT LAMP SC-B-539504	(80063)	ROADSIDE RUNNING SPARE		2		
B-8	9	5920-00-199-9498	FUSE, CARTRIDGE (CV1548) FO2B250V1/2A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	10	5920-00-050-4953	FUSE, CARTRIDGE (CV1548) FO2A250V1-1/2A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	11	5920-00-284-9220	FUSE, CARTRIDGE (TD-660) FO2B250V1A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	12	5920-00-905-1831	FUSE, INSTRUMENT TYPE (TD-660) FM02A125V3/4A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	13	5920-00-936-3946	FUSE, INSTRUMENT TYPE (TD-660) FM02A125V5/10A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	14	5920-00-926-7445	FUSE, INSTRUMENT TYPE (TD-660) FM02A125V3A	(81349)	ROADSIDE RUNNING SPARE		5		

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-8	15	5920-00-929-7899	FUSE, INSTRUMENT TYPE (TD-660) FM02A125V1-1/2A	(81349)	ROADSIDE RUNNING SPARE		5		
B-8	16	6240-00-270-4284	LAMP, GLOW R2A (FORMERLY NE-34) M15098/3-002	(81349)	ROADSIDE RUNNING SPARE		1		
B-8	17	6240-00-682-3411	LAMP, GLOW B1A (FORMERLY NE-51) M15098/10-001	(81349)	ROADSIDE RUNNING SPARE		9		
B-8	18	6240-00-892-4420	LAMP, GLOW C7A (FORMERLY NE-2D) M15098/11-001	(81349)	ROADSIDE RUNNING SPARE		1		
B-8	19	6240-00-155-8653	LAMP, INCANDESCENT GE#25T8DC, 25W	(81349)	ROADSIDE RUNNING SPARE		4		
B-8	20	6240-00-143-3070	LAMP, INCANDESCENT GE#50W/RS	(81349)	ROADSIDE RUNNING SPARE		1		
B-8	21	6240-00-951-0608	LAMP, INCANDESCENT CLEAR .04A, 28V (TD-660) MS25237-327	(81349)	ROADSIDE RUNNING SPARE		1		
B-8	22	3940-00-115-6380	MULTIPLE LEG SLING SM-D-649952	(80063)	ROADSIDE RUNNING SPARE		1		
B-8	23	5410-01-061-8970	TIE-DOWN ADAPTER SC-C-681153	(80063)	ROADSIDE RUNNING SPARE		4		
B-8	24	6240-00-155-8002	LAMP, INCANDESCENT, TELEPHONE SLIDE BASE GE#35A OR EQUAL SM-B-528673	(80063)	ROADSIDE RUNNING SPARE		3		
B-8	25	5110-00-115-5049	AXE, SINGLE BIT SC-C-539451	(80063)	ROADSIDE WALL		1		
B-8	26	5120-00-900-6096	HAMMER, HAND SLEDGE SC-C-539505	(80063)	ROADSIDE WALL		1		
B-8	27	6240-00-152-2996	LAMP, FLUORESCENT 20W SC-C-539495	(80063)	ROADSIDE RUNNING SPARE		2		

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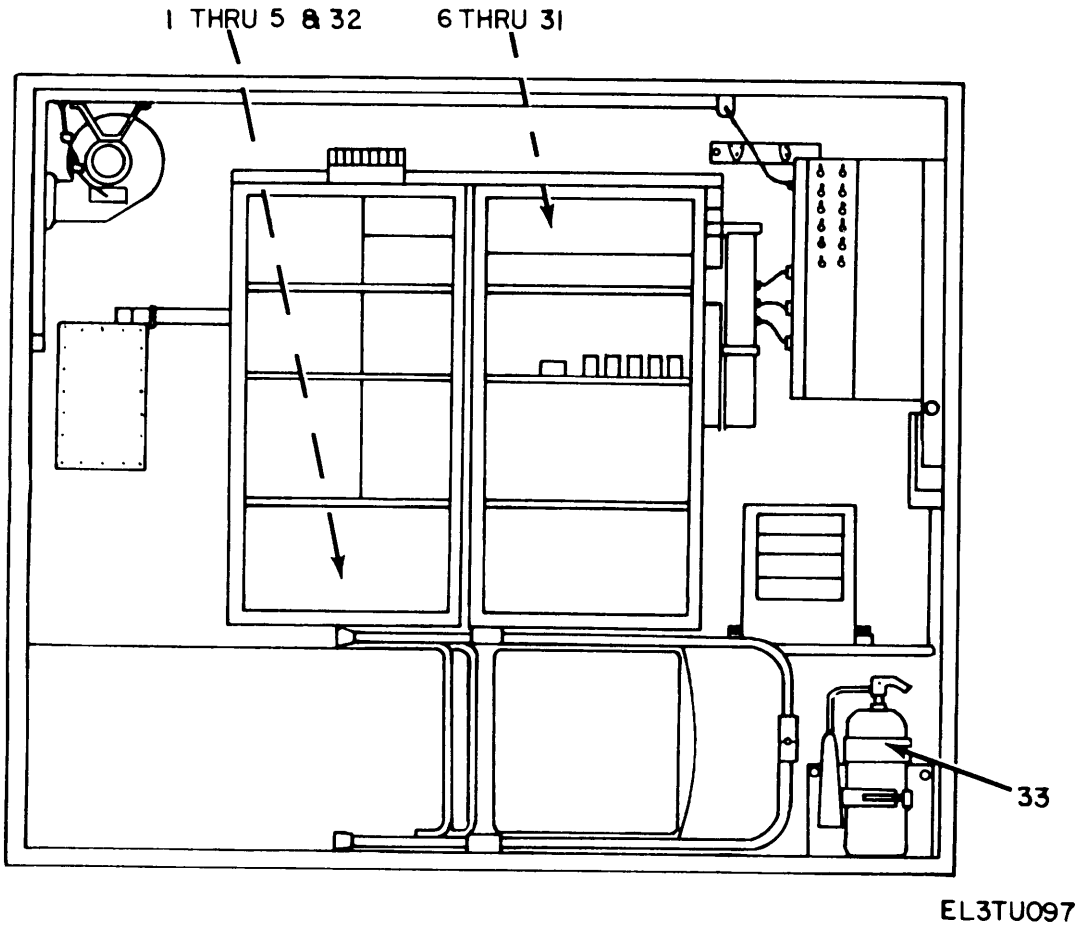

Figure B-9. Basic issue items, curbside wall, interior, S-390/TRC-145 (serial 1-46).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-9	1	5920-00-284-9220	FUSE, CARTRIDGE (TD-754) F02B250V1A	(81349)	CURBSIDE RUNNING SPARE	5A2,5A3, 5A4	5		
B-9	2	5920-00-280-8342	FUSE, CARTRIDGE (TD-754) F02A250V1A	(81349)	CURBSIDE RUNNING SPARE	5A2,5A3, 5A4	5		
B-9	3	5920-00-280-8344	FUSE, CARTRIDGE (TD-754) F02A250V1/2A	(81349)	CURBSIDE RUNNING SPARE	5A2,5A3, 5A4	5		
B-9	4	5920-00-043-2641	FUSE, CARTRIDGE (TD-754) F02A250V1/4A	(81349)	CURBSIDE RUNNING SPARE	5A2,5A3, 5A4	5		
B-9	5	5920-00-280-4960	FUSE, CARTRIDGE (TD-754) F02A250V2A	(81349)	CURBSIDE RUNNING SPARE	5A2,5A3, 5A4	5		
B-9	6	5805-00-944-8142	PANEL 6A2, ORDER WIRE I (TD-204) SC-DL-527627	(80058)	CURBSIDE SPARE CARDS	2TL,2TM, 2TN	1		
B-9	7	5805-00-944-8932	PANEL 6A3, ORDER WIRE II (TD-204) SC-DL-527628	(80058)	CURBSIDE SPARE CARDS	2TL,2TM, 2TN	1		
B-9	8	5805-00-926-0264	PANEL 6A4, CABLE INPUT SC-DL-527624	(80058)	CURBSIDE SPARE CARDS		1		
B-9	9	5805-00-944-8159	PANEL 6A5, TRANSMIT I (TD-204) SC-DL-527623	(80058)	CURBSIDE SPARE CARDS	2TL,2TM 2TN	1		
B-9	10	5805-00-944-8153	PANEL 6A6, TRANSMIT II SC-DL-527625	(80058)	CURBSIDE SPARE CARDS		1		
B-9	11	5805-00-944-8401	PANEL 6A7, RECEIVE SECTION SC-DL-527626	(80058)	CURBSIDE SPARE CARDS		1		
B-9	12	5805-00-503-5647	PANEL 12A2, ORDER WIRE (TD-754) SM-E-525422	(80063)	CURBSIDE SPARE CARDS	5A2,5A3, 5A4	1		
B-9	13	5805-00-137-2330	PANEL 12A3, O.W. ALARMS (TD-754) SM-E-525425	(80063)	CURBSIDE SPARE CARDS	5A2,5A3 5A4	1		
B-9	14	5805-00-137-2331	PANEL 12A4, TRANSMIT CIRCUIT (TD-754) SM-E-525428	(80063)	CURBSIDE SPARE CARDS	5A2,5A3, 5A4	1		
B-9	15	5820-00-137-2329	PANEL 12A5, CABLE INPUT CIRCUIT SM-E-525431	(80063)	CURBSIDE SPARE CARDS	5A2,5A3, 5A4	1		
B-9	16	5820-00-137-2333	PANEL 12A6, RECEIVE CIRCUIT (TD-754) SM-E-525434	(80063)	CURBSIDE SPARE CARDS	5A2,5A3, 5A4	1		
B-9	17	5805-00-930-4838	PANEL 18A2, 20 AND 1600 HZ (CV1548) GENERATORS SM-D-528511	(80063)	CURBSIDE SPARE CARDS		1		
B-9	18	5805-00-926-3251	PANEL 18A3B, CHANNEL CARD	(80063)	CURBSIDE SPARE CARDS		1		
B-9	19	5805-00-929-3587	PANEL ASSEMBLY, SPARE FUSE & LAMP (TD-204) SC-DL-529190 SC-DL-529190	(80063)	CURBSIDE SPARE CARDS	2TL,2TM, 2TN	1		
			WHICH INCLUDES:						
B-9	20	5920-00-043-2641	FUSE, CARTRIDGE 1/4 AMP F02A250V1/4A	(81349)	CURBSIDE SPARE CARDS		3		
B-9	21	5920-00-280-8344	FUSE, CARTRIDGE 1/2 AMP F02A250V1/2A	(81349)	CURBSIDE SPARE CARDS		1		
B-9	22	5920-00-280-8342	FUSE, CARTRIDGE 1 AMP F02A250V1A	(81349)	CURBSIDE SPARE CARDS		2		
B-9	23	5920-00-280-4960	FUSE, CARTRIDGE 2 AMP F02A250V2A	(81349)	CURBSIDE SPARE CARDS		4		
B-9	24	5920-00-284-6787	FUSE, CARTRIDGE 5 AMP F02A250V5A	(81349)	CURBSIDE SPARE CARDS		1		

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-9	25	5920-00-010-6652	FUSE, CARTRIDGE 3 AMP F02A250V3A	(81349)	CURBSIDE SPARE CARDS		4		
B-9	26	5920-00-296-0446	FUSE, CARTRIDGE 3/4 AMP F02A250V3/4A	(81349)	CURBSIDE SPARE CARDS		3		
B-9	27	6240-00-155-7836	LAMP INCANDESCENT, CLEAR 28V 0.04 AMP MS-25237-327	(81349)	CURBSIDE SPARE CARDS		5		
B-9	28	6240-00-155-7857	LAMP INCANDESCENT, CLEAR 6V 0.200 AMP MS-25237-328	(81349)	CURBSIDE SPARE CARDS		1		
B-9	29	6240-00-892-4420	LAMP GLOW C7A (FORMERLY NE-2D) M15098/11-001	(81349)	CURBSIDE SPARE CARDS		2		
B-9	30	5120-00-198-5401	KEY SOCKET HEADSCREW 0.050 IN HEX ALLEN TYPE SM-B-529134-1	(80063)	CURBSIDE SPARE CARDS		1		
B-9	31	5120-00-224-2504	KEY SOCKET HEADSCREW 5/64 IN HEX ALLEN TYPE SM-B-529134-2	(80063)	CURBSIDE SPARE CARDS		1		
B-9	32	5920-00-681-0918	FUSE, CARTRIDGE 3 AMP 125V F02B125V3A	(81349)			2		
B-9	33	4210-00-270-4512	EXTINGUISHER, FIRE SC-D-539482	(80063)	CURBSIDE WALL		1		

DRSEL-MA Form 6010, (1 Mar 77) (Edition of 1 Jun 76 is obsolete) HISA-FM 545-77

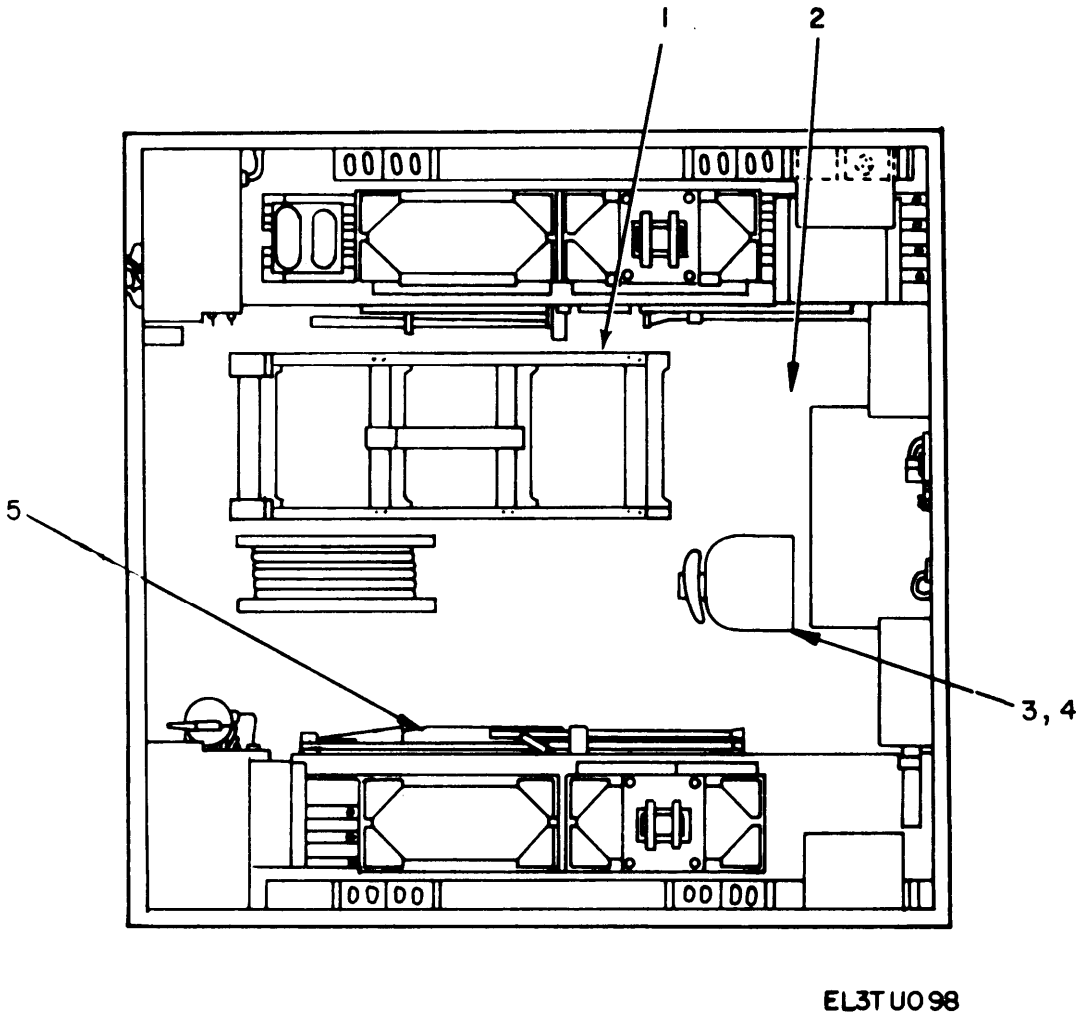

Figure B-10. Basic issue items, floor plan, interior, S-390/TRC-145 (serial 1-46).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-10	1	2540-00-846-8483	LADDER, VEHICLE BOARDING MX-3543( )/G DL-SC-A147188	(80063)	FLOOR		1		
B-10	2	7220-00-753-2982	MAT, FLOOR SC-C-539500-2	(80063)	FLOOR		1		
B-10	3	7110-00-273-8791	CHAIR, ROTARY SC-D-539552	(80063)	FRONT FLOOR		1		
B-10	4	7210-00-753-3043	CUSHION CHAIR SC-C-539526	(80063)	FRONT FLOOR		1		
B-10	5	7105-00-269-8463	CHAIR, FOLDING SC-D-539471	(80063)	CURBSIDE WALL		1		

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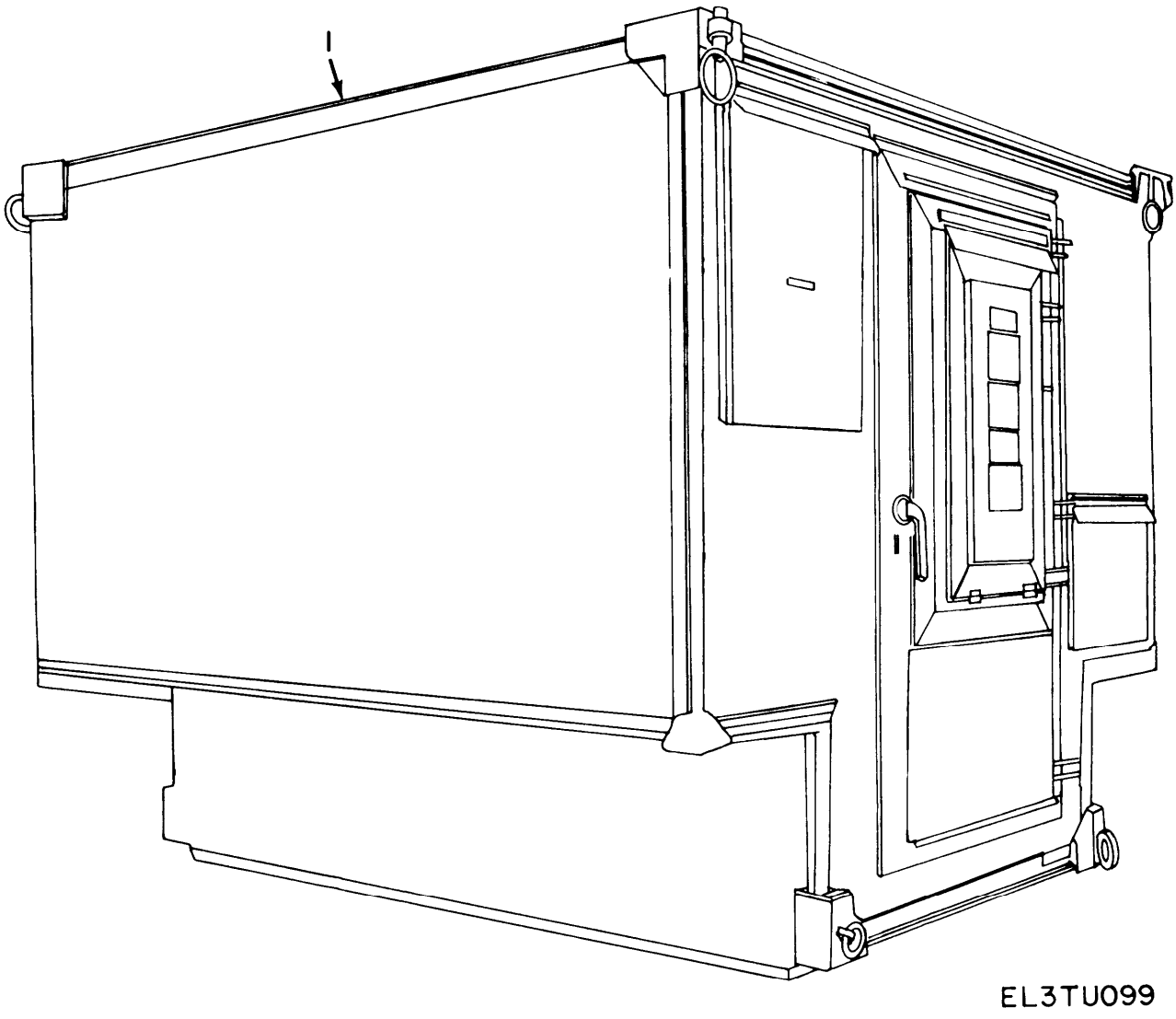

Figure B-11. Shelter facility S-390/TRC-145 (serial 47 and above).

SECTION IV INTEGRAL COMPONENTS OF END ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-11	1	5411-00-130-5806	SHELTER, MODIFIED S-390/TRC145 SC-D-693905 (80058)			1		

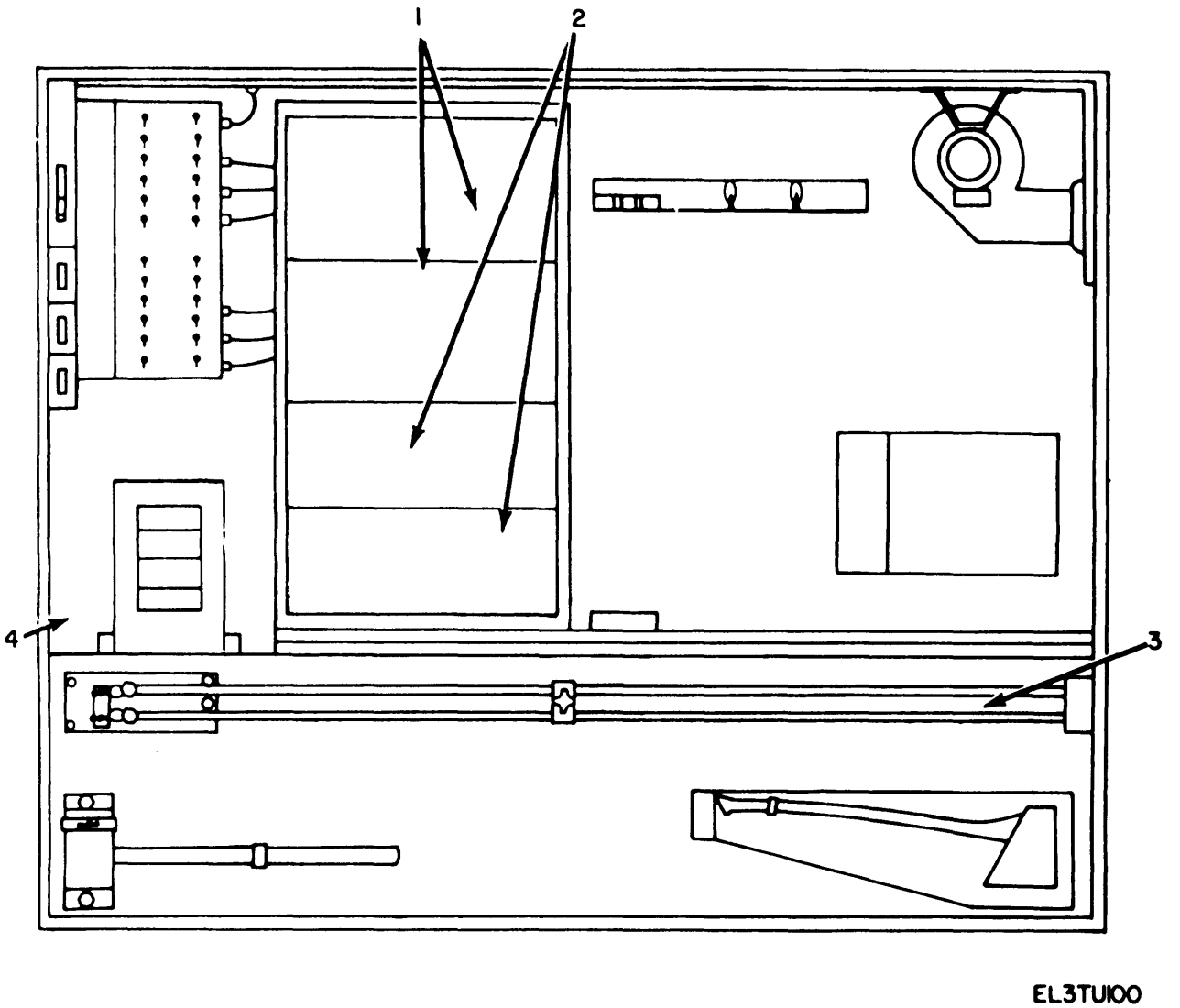

Figure B-12. Integral components, raadside wall, interior, S-390/TRC-145 (serial 47 and above).

SECTION IV. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-12	1	5820-00-930-8079	MULTIPLEXER TD-660/G (80058)	ROADSIDE WALL		2		
			OR					
B-12	1	5820-00-928-3382	MULTIPLEXER TD-660A/G (80058)	ROADSIDE WALL		2		
			OR					
B-12	1	5820-00-928-3382	MULTIPLEXER TD-660B/G (80058)	ROADSIDE WALL		1		
B-12	2	5805-00-069-8795	CONVERTER, TELEPHONE SIGNAL CV1548G (80058)	ROADSIDE WALL		2		
B-12	3	5975-00-224-5260	ROD, GROUND MX-148/G SC-D-14158 (80058)	ROADSIDE WALL		2		
B-12	4	4520-00-177-6198	HEATER (80063)	ROADSIDE WALL		1		

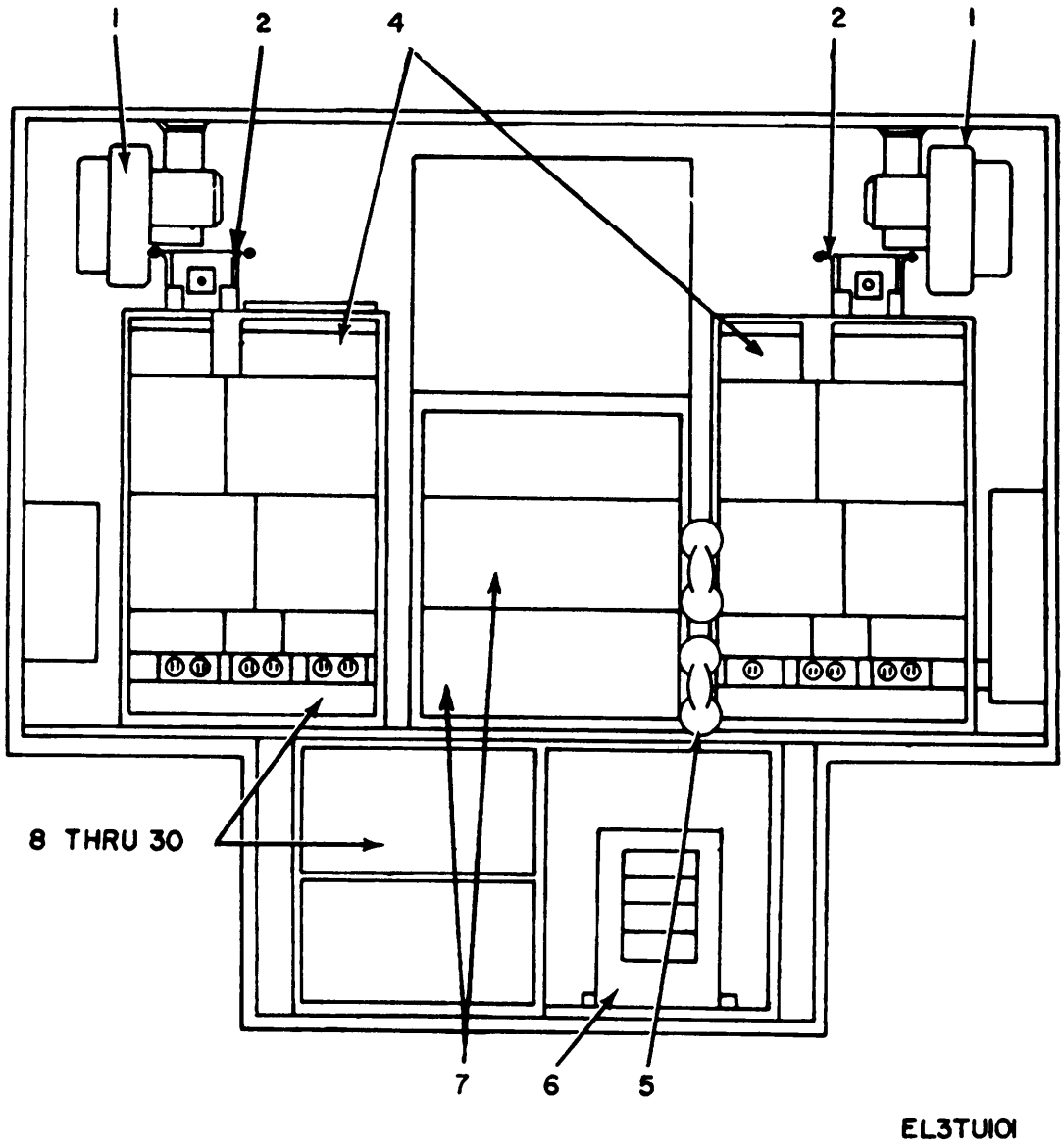

Figure *B-13. Integral components, front wall, S-390/TRC-145 (serial 47 and above).*

SECTION IV. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-13	1	6105-00-234-3504	MOTOR, ALTERNATING CURRENT SC-D-539825 (80063)	FRONT WALL		2		
B-13	2	5985-00-089-8990	DUMMY LOAD, ELECTRICAL DA-437/GRC103V (80058)	TOP FRONT EQUIP RACK		2		
B-13	4	5820-00-868-8137	RADIO SET AN/GRC103V (80058)	FRONT EQUIP RACK		2		
B-13	5	5965-00-892-3850	HANDSET H-156( )/U (80058)	FRONT EQUIP RACK		1		
B-13	6	4520-00-177-6198	HEATER (80063)	FRONT FLOOR		1		
B-13	7	5805-00-900-8200	MULTIPLEXER TD-204U (80058)	FRONT EQUIP RACK	2TL,2TM, 2TN	2		
			OR					
B-13	7	5820-00-930-8078	MULTIPLEXER TD-754G (80058)	FRONT EQUIP RACK	5A2,5A3, 5A4	2		
B-13	8	6625-00-179-5217	CONVERTER, FREQUENCY ELECTRONIC CV2500( )/GRC (80058)	FRONT STORAGE DRAWER		1		
B-13	9	6675-00-264-3994	COMPASS, MAGNETIC UNMOUNTED 800090 (33363)	FRONT STORAGE DRAWER		1		
B-13	10	5965-00-309-4814	HEADSET, MICROPHONE H-91( )/U (80058)	FRONT STORAGE DRAWER		1		
B-13	11	6130-00-014-5878	POWER SUPPLY PP691/GRC (80058)	FRONT STORAGE DRAWER		1		
B-13	12	5410-00-752-2525	STRAP, GROUND SC-B-539492 (80063)	FRONT STORAGE DRAWER		2		
B-13	13	5905-00-629-6535	CABLE ASSEMBLY AUDIO (1 1/2 FT) SC-C-343394(GR1) (80063)	FRONT STORAGE DRAWER		1		
B-13	14	5995-00-495-0768	CABLE ASSEMBLY ORDER WIRE PATCH (CABLE REPEATER PATCH THRU) (1 1/2 FT) SC-D-627092(GR1) (80063)	FRONT STORAGE DRAWER		1		
B-13	15	5995-00-432-7509	CABLE ASSEMBLY ORDER WIRE PATCH (RADIO TO CABLE PATCH THRU) (1 1/2 FT) SC-D-627148(GR1) (80063)	FRONT STORAGE DRAWER		2		
B-13	16	5995-00-629-6543	CABLE ASSEMBLY PATCH (RADIO REPEATER PATCH THRU) (1 1/2 FT) SC-D-627083(GR1) (80063)	FRONT STORAGE		1		
B-13	17	5995-00-165-3806	CABLE ASSEMBLY POWER (RADIO RECEIVER) (4 FT) SC-D-627094(GR1) (80063)	FRONT STORAGE		2		
B-13	18	5995-00-165-3806	CABLE ASSEMBLY POWER (RADIO TRANS-MITTER) (4 FT) SC-D-627094(GR2) (80063)	FRONT STORAGE		2		
B-13	19	5995-00-177-4556	CABLE ASSEMBLY POWER SHIELDED (CV-1548( )/G) (4 FT) SC-D-681112 (GR4) (80063)	FRONT STORAGE		2		
B-13	20	5995-00-177-4556	CABLE ASSEMBLY POWER SHIELDED (TD-204( )/U OR TD-754( )/G) (7 FT) SC-D-681112(GR3) (80063)	FRONT STORAGE		2		
B-13	21	5995-00-177-4556	CABLE ASSEMBLY POWER SHIELDED (TD-660( )/U) (5 FT) SC-D-681112(GR1) (80063)	FRONT STORAGE		2		
B-13	22	5995-00-192-9603	CABLE ASSEMBLY, RF, CABLE PATCH CORD (1 1/2 FT) SC-D-627081(GR7) (80063)	FRONT STORAGE		4		
B-13	23	5995-00-192-9607	CABLE ASSEMBLY, RF, VIDEO PATCH CORD (1 1/2 FT) SC-D-585511(GR2) (80063)	FRONT STORAGE		14		

SECION IV. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION		(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY	
(A) FIG NO.	(B) ITEM NO.						RCVD	DATE
B-13	24	5995-00-144-0282	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) ELECTRICAL CX10879/GRC103(V) CMPC/N456-762	FRONT STORAGE		1		
B-13	25	5995-00-192-9612	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 1 CH 1-4) (4 FT) SC-D-681007(GR1)	FRONT STORAGE		1		
B-13	26	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 1 CH 5-8) (4 FT) SC-D-681007(GR2)	FRONT STORAGE		1		
B-13	27	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 1 CH 9-12) (4 FT) SC-D-681007(GR3)	FRONT STORAGE		1		
B-13	28	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 2 CH 1-4) (4 FT) SC-D-681007(GR4)	FRONT STORAGE		1		
B-13	29	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 2 CH 5-8) (4 FT) SC-D-681007(GR5)	FRONT STORAGE		1		
B-13	30	5995-00-192-9610	CABLE ASSEMBLY, SPECIAL PURPOSE (80063) (CV1548 TO TD-660) (SYS 2 CH 9-12) (4FT) SC-D-681007(GR6)	FRONT STORAGE		1		

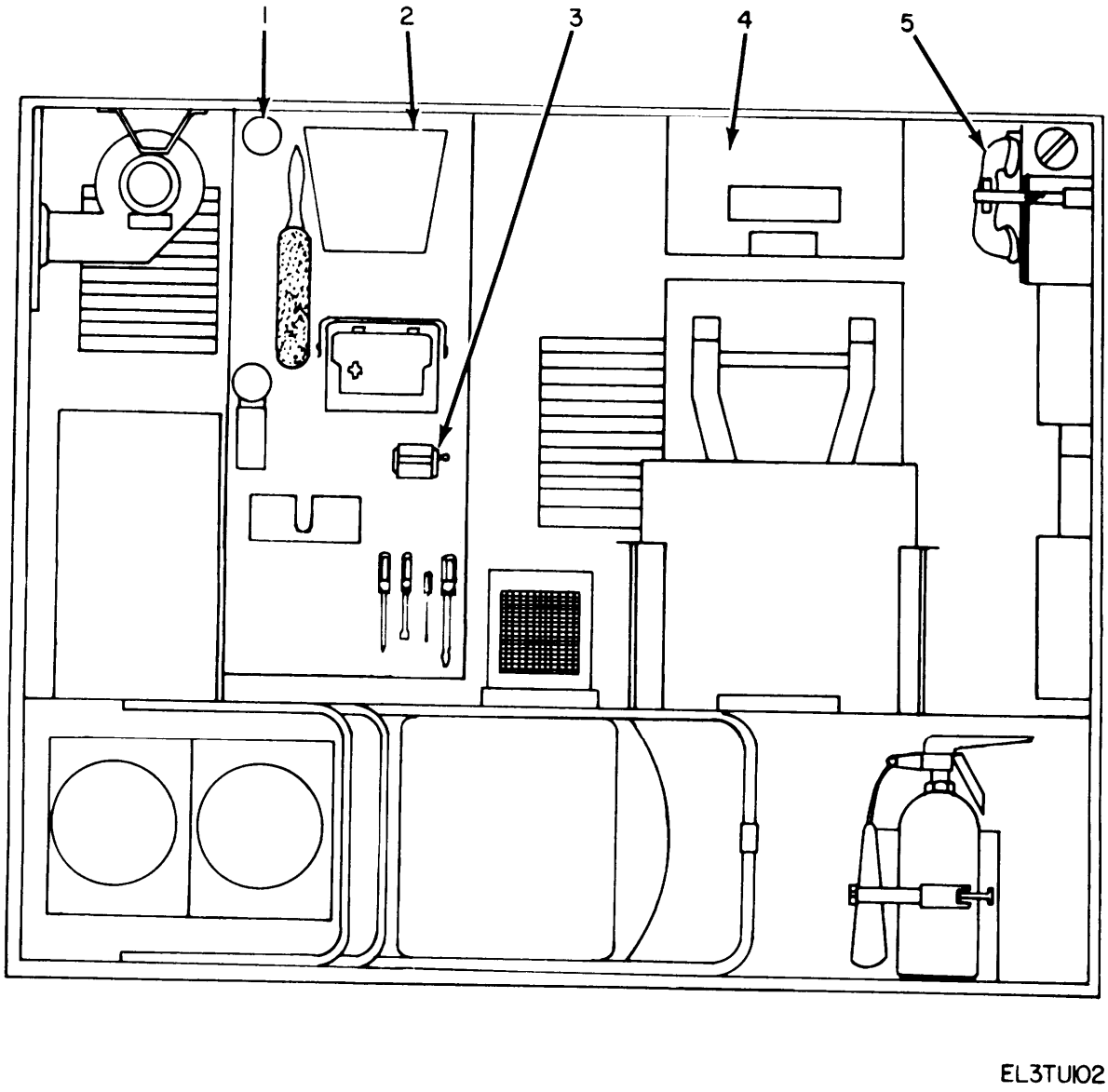

Figure B-14. Integral components, curbside wall, interior, S-390/TRC-145 (serial 47 and above).

SECTION IV INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-14	1	6645-00-410-2395	CLOCK, WALL (3 INCH) SC-D-539475 OR 681411	(80063)	CURBSIDE WALL		1		
B-14	2	7520-00-159-4863	BASKET, WASTEPAPER SC-D-539503	(80063)	CURBSIDE WALL		1		
B-14	3	7520-00-162-6178	SHARPENER, PENCIL SC-C-539503	(80063)	CURBSIDE WALL		1		
B-14	4	5830-00-752-5357	INTERCOMMUNICATION STATION LS-147C/FI	(80058)	CURBSIDE WALL		1		
B-14	5	5805-00-543-0012	TELEPHONE SET TA-312PT	(80058)	CURBSIDE WALL		1		

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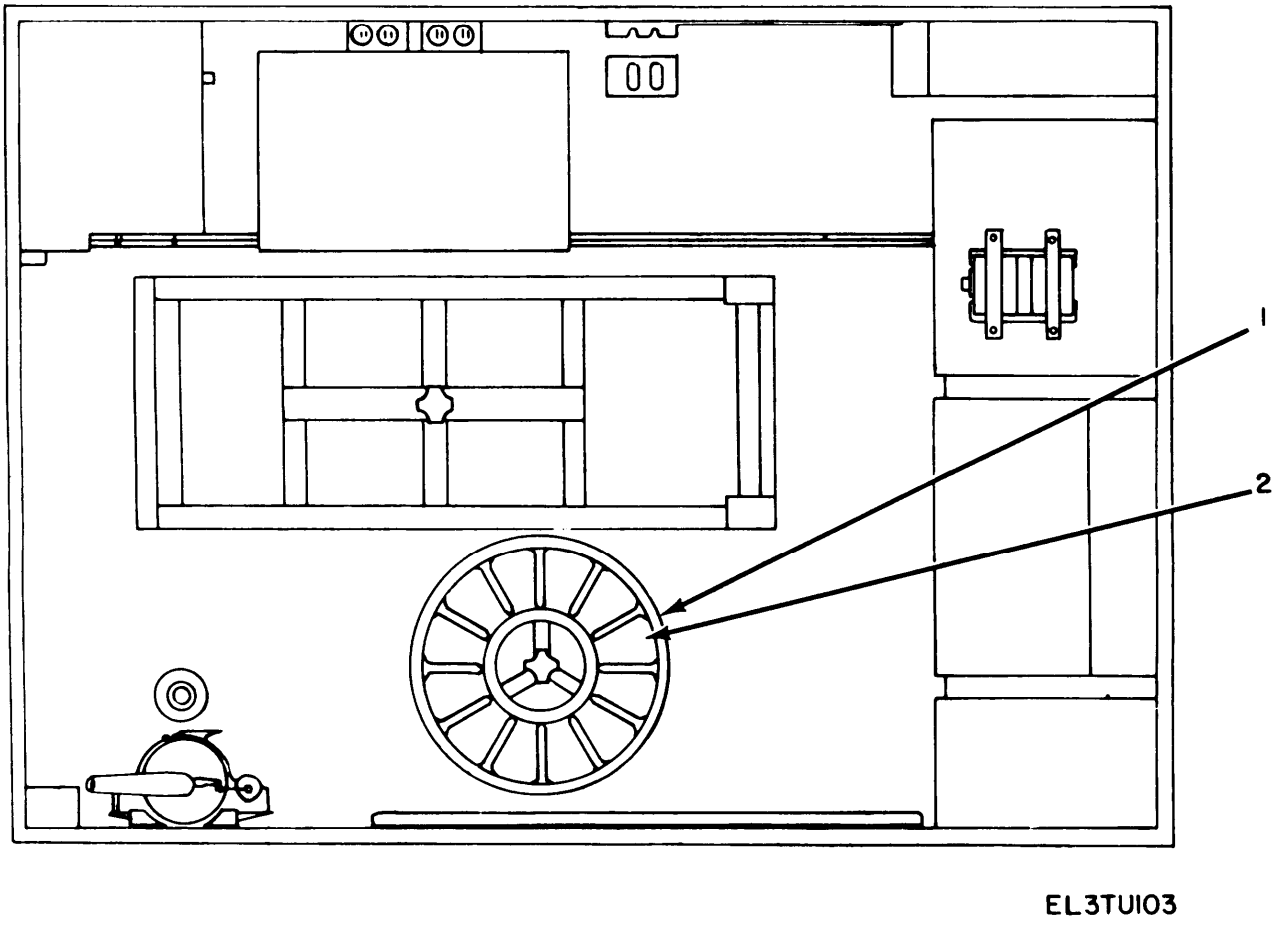

Figure B-15. Integral components, floor plan, inferior, S-390/TRC-145 (serial 47 and above).

SECTION IV INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION		(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY	
(A) FIG NO.	(B) ITEM NO.						RCVD	DATE
B-15	1	5995-00-134-7159	CABLE ASSEMBLY, POWER (100 FT) (80058) CX-7453 A/U (MOUNTED ON REEL) RC-435/U	FLOOR		1		
B-15	2	5995-00-935-2686	CABLE ASSEMBLY, POWER (15 FT) (80058) CX-7705( )/U	FLOOR		1		

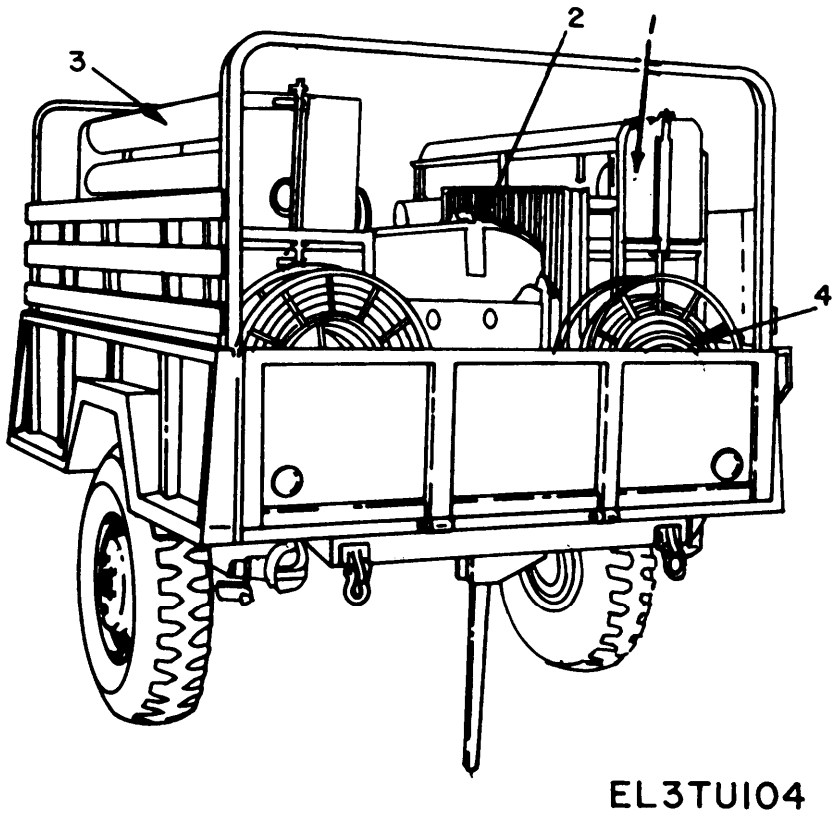

Figure *B-16. Integral components, generator trailer for radio terminal set AN/TRC-145 (serial 47 and above).*

SECTION IV INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-16	1	5985-00-179-7767	MAST, EXTENSION KIT MK1009/GRC103(V)	(80058)	GENERATOR TRAILER		2		
			ANTENNA SYSTEM CONSISTING OF:	(80058)	GENERATOR TRAILER		2		
B-16	2	5985-00-089-1989	ANTENNA AS-1852/GRC-103(V)1	(80058)	GENERATOR TRAILER		2		
			OR						
B-16	2	5820-00-011-8860	ANTENNA AS-1853/GRC-103(V)2	(80058)	GENERATOR TRAILER		2		
			OR						
B-16	2	5820-00-011-8951	ANTENNA AS-1854/GRC-103(V)3	(80058)	GENERATOR TRAILER		2		
B-16	3	5985-00-089-8933	MAST AB-952/GRC-103(V)	(80058)	GENERATOR TRAILER		2		
B-16	4	5995-00-144-0228	ANTENNA CABLE CG-3443/U (80 FT) (MOUNTED ON RC-435/U)	(80058)	GENERATOR TRAILER		2		

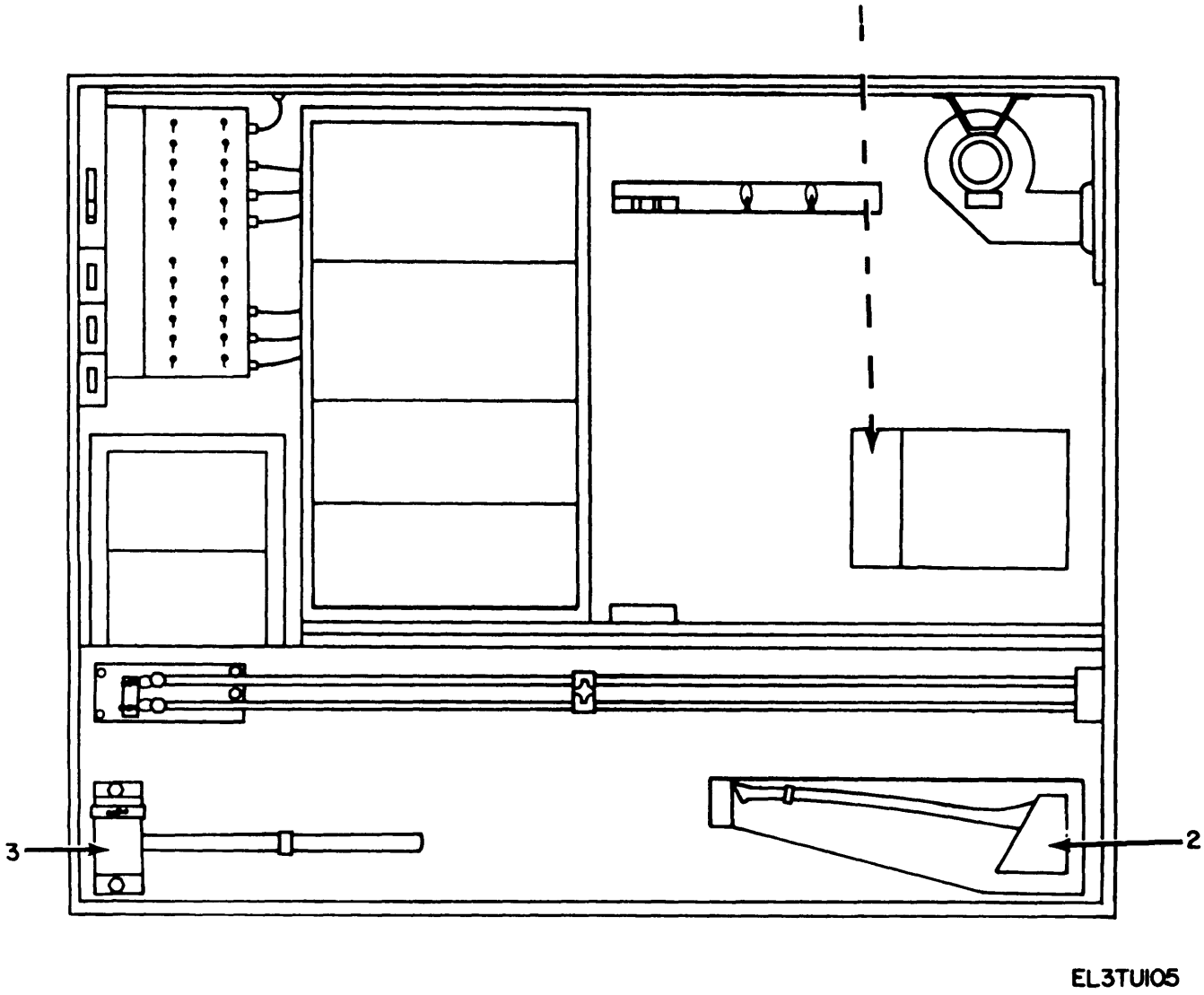

Figure B-17. Basic issue items, roadside wall, interior, **S-390/TRC-145 (serial 47** *and above).*

SECTION V. BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-17	1	7910-00-900-1678	CLEANER, VACUUM 2800 (29335)	ROADSIDE WALL		1		
B-17	2	5110-00-115-5049	AXE, SINGLE BIT SC-C-539451 (80063)	ROADSIDE WALL		1		
B-17	3	5120-00-900-6096	HAMMER, HAND SLEDGE SC-C-539505 (80063)	ROADSIDE WALL		1		

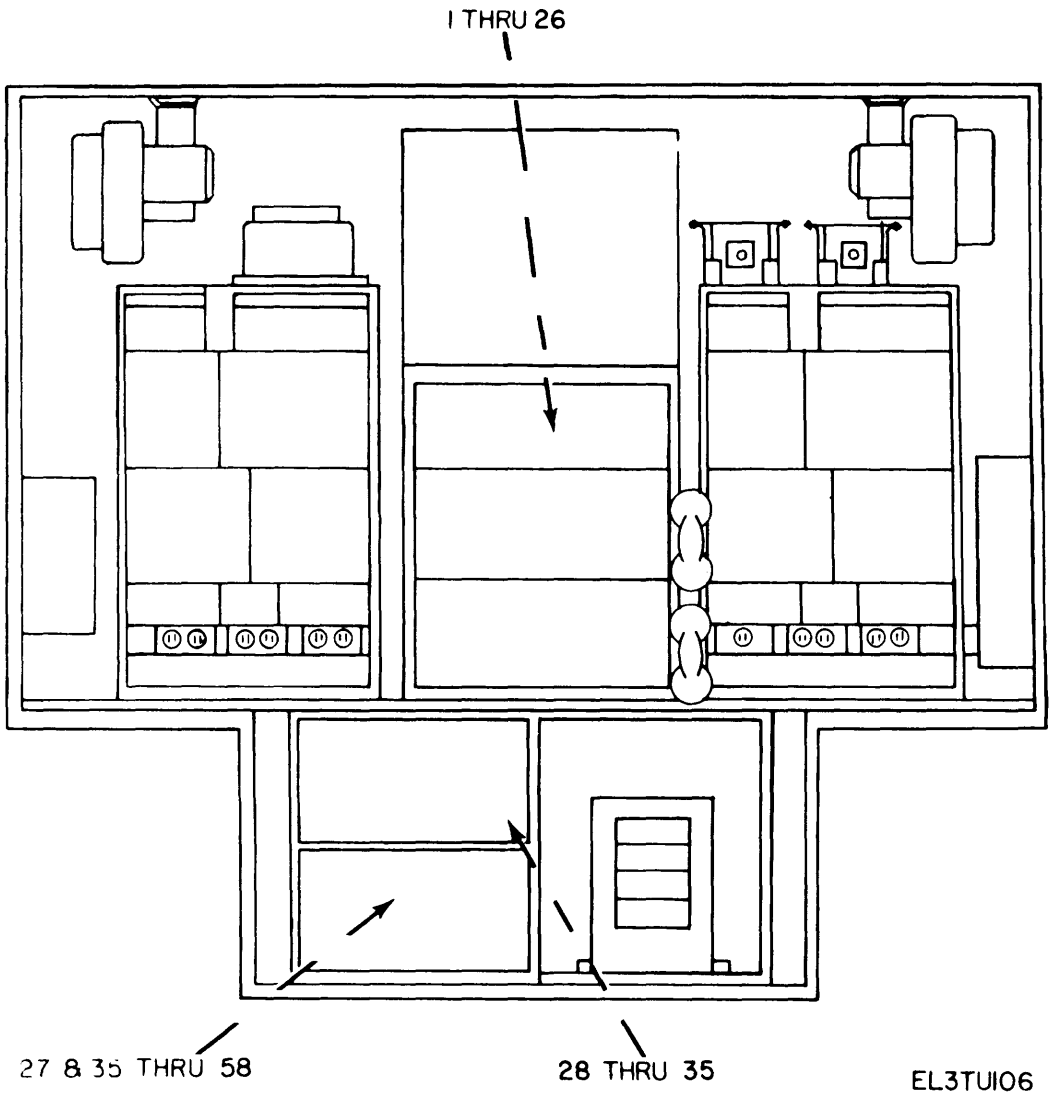

Figure B-18. Basic issue items, front wall, interior, S-390/TRC-145 (serial 47 and above).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-18	1	5805-00-944-8142	PANEL 6A2, ORDER WIRE I (TD-204) SC-DL-527627	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
B-18	2	5805-00-944-8932	PANEL, 6A3, ORDER WIRE II (TD-204) SC-DL-527628	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
B-18	3	5805-00-926-0264	PANEL 6A4, CABLE INPUT (TD-204) SC-DL-527624	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
B-18	4	5805-00-944-8159	PANEL 6A5, TRANSMIT I (TD-204) SC-DL-527623	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
B-18	5	5805-00-944-8153	PANEL 6A6, TRANSMIT II (TD-204) SC-DL-527625	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
B-18	6	5805-00-944-8401	PANEL 6A7, RECEIVE SECTION SC-DL-527626	(80058)	FRONT, CENTER CARD STORAGE		1		
B-18	7	5805-00-503-5647	PANEL ASSEMBLY 12A2, ORDER WIRE (TD-754) SM-E-525422	(80063)	FRONT, CENTER CARD STORAGE	5A2,5A3, 5A4	1		
B-18	8	5820-00-137-2330	PANEL ASSEMBLY 12A3, O.W. ALARMS SM-E-525425	(80063)	FRONT, CENTER CARD STORAGE		1		
B-18	9	5820-00-137-2331	PANEL ASSEMBLY 12A4, TRANSMIT CIRCUIT SM-E-525428	(80063)	FRONT, CENTER CARD STORAGE		1		
B-18	10	5820-00-137-2329	PANEL ASSEMBLY 12A5, CABLE INPUT CKT SM-E-525431	(80063)	FRONT, CENTER CARD STORAGE		1		
B-18	11	5820-00-137-2333	PANEL ASSEMBLY 12A6, RECEIVE CIRCUIT SM-E-565434	(80063)	FRONT, CENTER CARD STORAGE		1		
B-18	12	6805-00-930-4838	PANEL 18A2, 20 HZ AND 1600 HZ GENERATORS SM-D-528511	(80058)	FRONT, CENTER CARD STORAGE		1		
B-18	13	5805-00-926-3251	PANEL 18A3B CHANNEL CARD	(80058)	FRONT, CENTER CARD STORAGE		1		
B-18	14	5805-00-929-3587	PANEL ASSEMBLY, SPARE FUSE AND LAMP (TD-204) SC-DL-529190	(80058)	FRONT, CENTER CARD STORAGE	2TL,2TM, 2TN	1		
			WHICH INCLUDES:						
B-18	15	5920-00-043-2641	FUSE, CARTRIDGE 1/4 AMP FO2A250V1/4A	(81349)	FRONT, CENTER CARD STORAGE		3		
B-18	16	5920-00-280-8344	FUSE, CARTRIDGE 1/2 AMP FO2A250V1/2A	(81349)	FRONT, CENTER CARD STORAGE		1		
B-18	17	5920-00-280-8342	FUSE, CARTRIDGE 1 AMP FO2A250V1A	(81349)	FRONT, CENTER CARD STORAGE		2		
B-18	18	5920-00-280-4960	FUSE, CARTRIDGE 2 AMP FO2A250V2A	(81349)	FRONT, CENTER CARD STORAGE		4		
B-18	19	5920-00-284-6787	FUSE, CARTRIDGE 5 AMP FO2A250V5A	(81349)	FRONT, CENTER CARD STORAGE		1		
B-18	20	5920-00-010-6652	FUSE, CARTRIDGE 3 AMP FO2A250V3A	(81349)	FRONT, CENTER CARD STORAGE		4		
B-18	21	5920-00-296-0446	FUSE, CARTRIDGE 3/4 AMP FO2A250V3/4A	(81349)	FRONT, CENTER CARD STORAGE		3		
B-18	22	6240-00-155-7836	LAMP INCANDESCENT, CLEAR 28V 0.04 AMP MS-25237-327	(81349)	FRONT, CENTER CARD STORAGE		5		
B-18	23	6240-00-155-7857	LAMP INCANDESCENT, CLEAR 6V 0.200 AMP MS-25237-328	(81349)	FRONT, CENTER CARD STORAGE		1		

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-18	24	6240-00-892-4420	LAMP GLOW C7A (FORMERLY NE-2D) M15098/11-001	(81349)	FRONT CENTER		2		
B-18	25	5120-00-198-5401	KEY SOCKET HEADSCREW 0.050 IN HEX ALLEN TYPE SM-B-529134-1	(80063)	CARD STORAGE		1		
B-18	26	5120-00-224-2504	KEY SOCKET HEADSCREW 5/64 IN HEX ALLEN TYPE SM-B-529134-2	(80063)	LOWER FRONT STORAGE DRAWER		1		
B-18	27	5920-00-681-0918	FUSE, CARTRIDGE 3 AMP 125V F02B125V3A	(81349)			2		
B-18	28	5805-00-459-8577	PANEL ASSEMBLY 11A2, TRANSMIT TIMING (TD-660) SM-E-524624	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	28	5820-00-459-8577	PANEL 11A23, TRANSMIT TIMING (TD-660) SM-E-525234	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	29	5805-00-459-8578	PANEL 11A3, MODEM TIMING (TD-660) SM-E-524627	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	29	5820-00-459-8578	PANEL 11A24, MODEM TIMING (TD-660) SM-E-525239	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	30	5805-00-459-8579	PANEL 11A4, PAM RESHAPER (TD-660) SM-E-524630	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	30	5805-00-459-8579	PANEL 11A25, PAM RESHAPER (TD-660) SM-E-525244	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	31	5805-00-459-8581	PANEL 11A5, TRIPLE MODEM (TD-660) SM-E-524633	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	31	5820-00-459-8581	PANEL 11A26, TRIPLE MODEM (TD-660) SM-E-525249	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	32	5805-00-459-8582	PANEL 11A6, DECODER RECEIVE (TD-660) SM-E-524636	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	32	5820-00-459-8582	PANEL 11A27, DECODER RECEIVE (TD-660) SM-E-525254	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	33	5805-00-459-8584	PANEL 11A7, RECEIVER TIMING (TD-660) SM-E-524639	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	33	5820-00-459-8584	PANEL 11A28, RECEIVER TIMING (TD-660) SM-E-525259	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	34	5805-00-459-8585	PANEL 11A8, ALARM CIRCUITS SM-E-524642	(80063)	LOWER FRONT CARD STORAGE		1		
			OR						
B-18	34	5820-00-459-8585	PANEL 11A29, ALARM CIRCUITS SM-E-525264	(80063)	LOWER FRONT CARD STORAGE		1		
B-18	35	5920-00-199-9498	FUSE, CARTRIDGE (CV-1548) F02B250V1/2A	(81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	36	5920-00-050-4953	FUSE, CARTRIDGE (CV-1548) F02A250V1 1/2A	(81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	37	5920-00-284-9220	FUSE, CARTRIDGE (TD-660) F02B250V1A	(81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	38	5920-00-905-1831	FUSE, INSTRUMENT TYPE 3/4A, 125V (TD-660) FM02A125V3/4A	(81349)	LOWER FRONT STORAGE DRAWER		5		

SECTION V. BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-18	39	5920-00-936-3946	FUSE, INSTRUMENT TYPE, 1/2A, 125V (TD-660) FM02A125V1/2A (81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	40	5920-00-926-7445	FUSE, INSTRUMENT TYPE, 3A, 125V (TD-660) FM02A125V3A (81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	41	5920-00-929-7899	FUSE, INSTRUMENT TYPE, 1 1/2A, 125V (TD-660) FM02A125V1 1/2A (81349)	LOWER FRONT STORAGE DRAWER		5		
B-18	42	5920-00-284-9220	FUSE, CARTRIDGE (TD-754) FO2B250V1A (81349)	LOWER FRONT STORAGE DRAWER	5A2,5A3, 5A4	5		
B-18	43	5920-00-280-8342	FUSE, CARTRIDGE (TD-754) FO2A250V1A (81349)	LOWER FRONT STORAGE DRAWER	5A2,5A3, 5A4	5		
B-18	44	5920-00-280-8344	FUSE, CARTRIDGE (TD-754) FO2A250V1/2A (81349)	LOWER FRONT STORAGE DRAWER	5A2,5A3, 5A4	5		
B-18	45	5920-00-043-2641	FUSE, CARTRIDGE (TD-754) FO2A250V1/4A (81349)	LOWER FRONT STORAGE DRAWER	5A2,5A3, 5A4	5		
B-18	46	5920-00-280-4960	FUSE, CARTRIDGE (TD-754) FO2A250V2A (81349)	LOWER FRONT STORAGE DRAWER	5A2,5A3, 5A4	5		
B-18	47	5120-00-946-5114	GRIP, CABLE (POWER CABLE) 15 IN SC-B-539593 (80063)	LOWER FRONT STORAGE DRAWER		3		
B-18	48	5120-00-946-5148	GRIP, CABLE (SIGNAL CABLE) 17 IN SC-B-539592 (80063)	LOWER FRONT STORAGE DRAWER		2		
B-18	49	6240-00-270-4284	LAMP, GLOW R2A (FORMERLY NE-34) M15098/3-002 (81349)	LOWER FRONT STORAGE DRAWER		2		
B-18	50	6240-00-682-3411	LAMP, GLOW B1A (FORMERLY NE-51) M15098/10-001 (81349)	LOWER FRONT STORAGE DRAWER		11		
B-18	51	6240-00-892-4420	LAMP, GLOW C7A M15098/11-001 (81349)	LOWER FRONT STORAGE DRAWER		2		
B-18	52	6240-00-155-8653	LAMP, INCANDESCENT 25W GE25T8DC (81349)	LOWER FRONT STORAGE DRAWER		6		
B-18	53	6240-00-143-3070	LAMP, INCANDESCENT 50W GE50W/RS (81349)	LOWER FRONT STORAGE DRAWER		3		
B-18	54	6240-00-155-7836	LAMP, INCANDESCENT CLEAR (TD-660) 0.04A, 28V MS25237-327 (81349)	LOWER FRONT STORAGE DRAWER		1		
B-18	55	6240-00-155-8002	LAMP, INCANDESCENT, TELEPHONE SLIDE BASE GE#35 A OR EQUAL (81349)	LOWER FRONT STORAGE DRAWER		3		
B-18	56	5210-00-221-1882	TAPE, MEASURING, TYPE II, CLASS B GGG-T-1066 (81349)	LOWER FRONT STORAGE DRAWER		1		
B-18	57	5410-01-061-8970	TIEDOWN ADAPTER ASSEMBLY SC-C-539958 (80063)	LOWER FRONT STORAGE DRAWER		4		
B-18	58	3940-00-115-6380	MULTIPLE LEG SLING SC-C-681153 (80063)	LOWER FRONT STORAGE DRAWER		1		

DRSEL-NA Form 6010. (1 Mar 77) (Edition of 1 Jun 76 is obsolete) HISA-FM 545-77

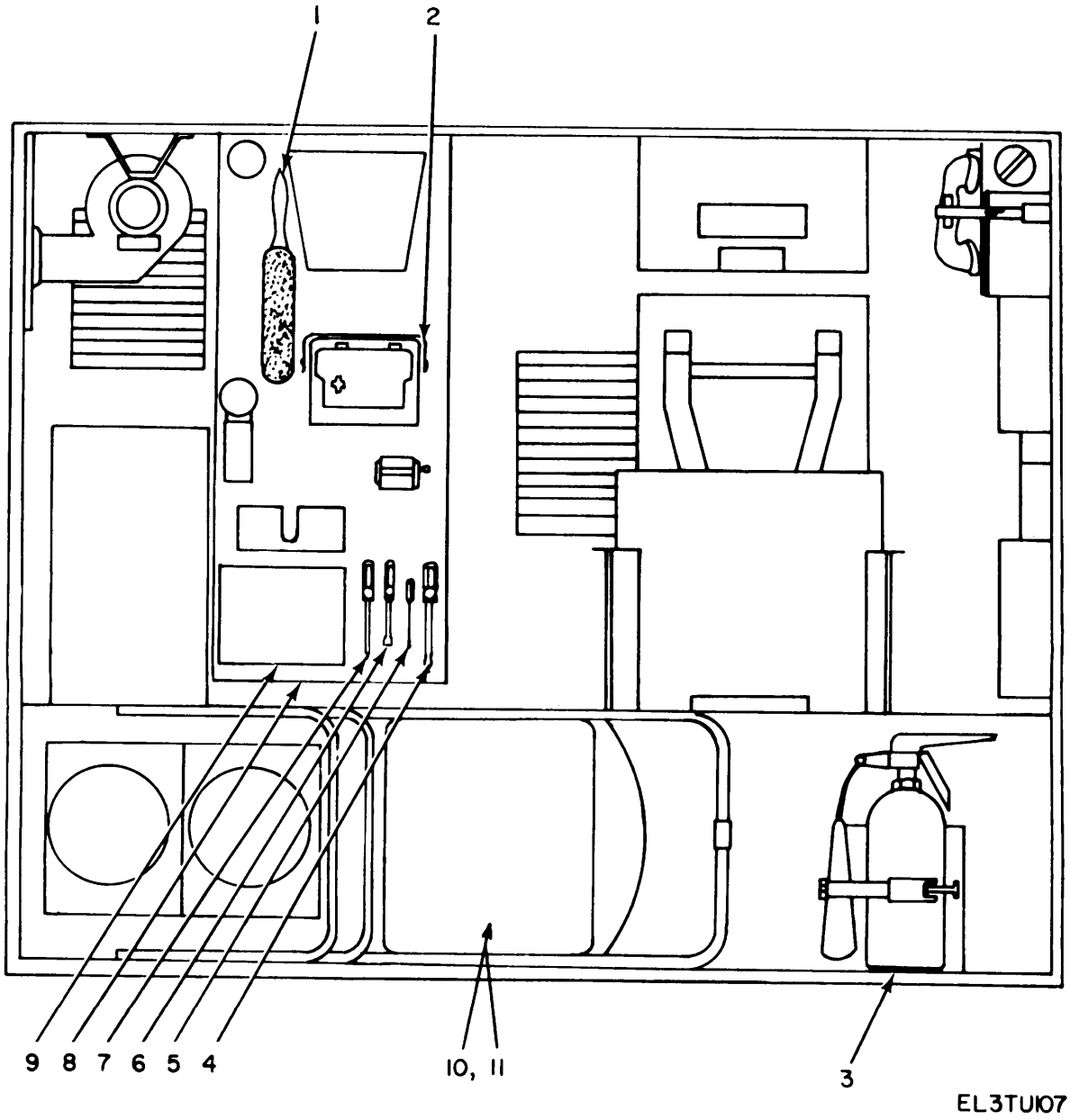

Figure B-19. Basic issue items, curbside wall interior, S-390/TRC-145 (serial 47 and above).

SECTION V.BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-19	1	7920-00-178-8315	BRUSH, DUSTING BENCH (80063) SC-C-539469	CURBSIDE WALL		1		
B-19	2	6545-00-922-1200	KIT, FIRST AID (80063) SC-D-539483	CURBSIDE WALL		1		
B-19	3	4210-00-223-9912	EXTINGUISHER, FIRE (80063) SC-B-539482	CURBSIDE WALL		1		
B-19	4	5120-00-555-2063	SCREWDRIVER (GENERAL USE) (FLAT BLADE) (80063) 1/4 X 8 IN SC-C-539502-4	CURBSIDE WALL		1		
B-19	5	5120-00-555-2063	SCREWDRIVER (THIN BLADE) 4 IN (80063) (CV-1548), TYPE I, CLASS 5, DESIGN A, STYLE 1 GGG-S-121	CURBSIDE WALL		1		
B-19	6	5120-00-224-2596	WRENCH, SOCKET SPIN TYPE, 5/16 IN (80063) TYPE I, CLASS 1 GGG-W-647	CURBSIDE WALL		1		
B-19	7	5120-00-234-8912	SCREWDRIVER, CROSS TIP, 4 IN BLADE, (80063) POINT SIZE 2 SC-C-539894-3	CURBSIDE WALL		1		
B-19	8	5120-00-449-8083	WRENCH, OPEN-END ADJUSTABLE, 10 IN (80063) TYPE I, CLASS 1 GGG-W-631	CURBSIDE WALL		1		
B-19	9		TECHNICAL MANUALS	CURBSIDE WALL		1 SET		
B-19	10	7105-00-269-8463	CHAIR, FOLDING (80063) SC-D-539471	CURBSIDE WALL		1		
B-19	11	7210-00-753-3043	CUSHION, CHAIR (80063) SC-C-539526	CURBSIDE WALL		1		

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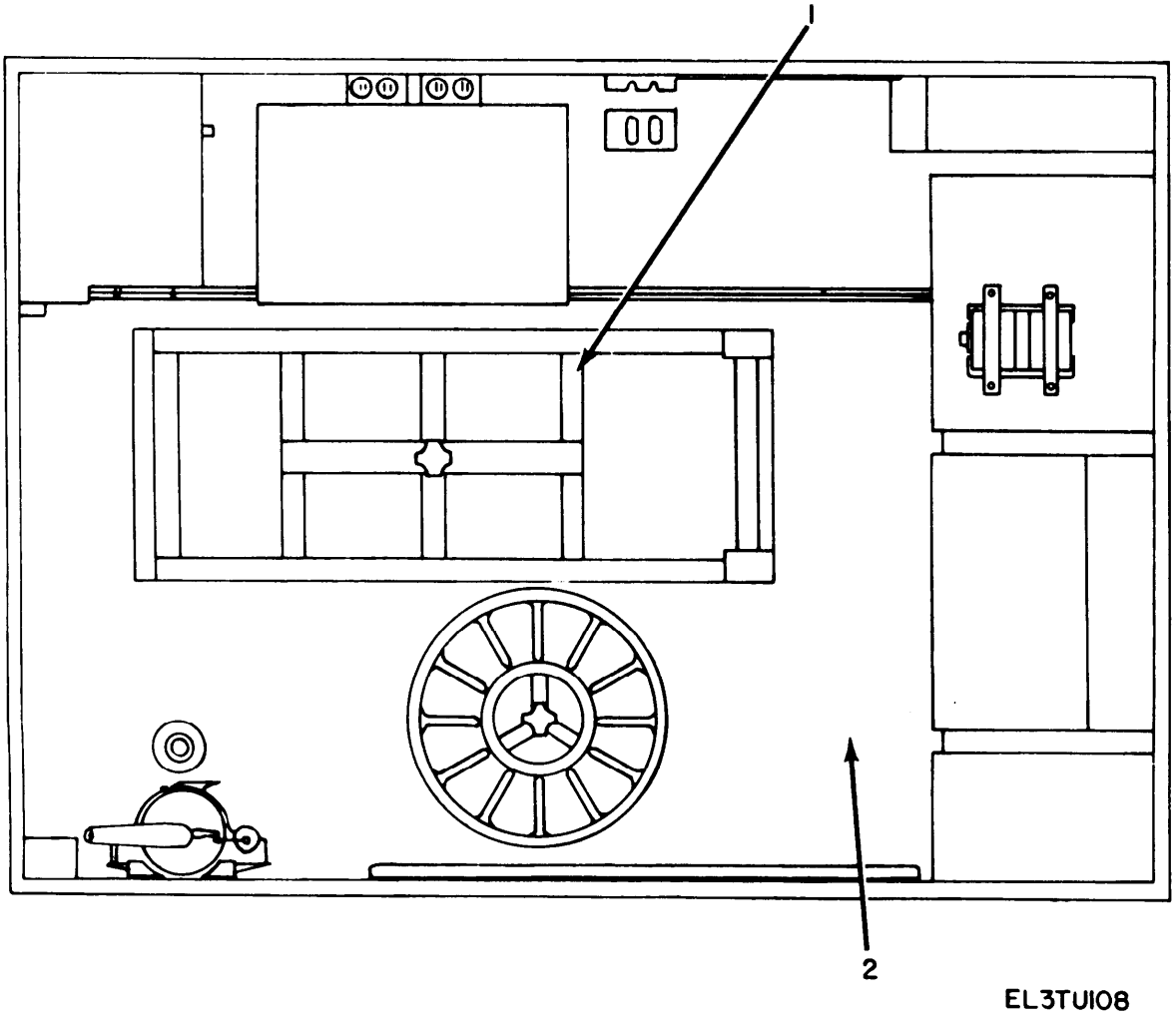

Figure B-20. Basic issue items, floor plan, interior, S-390/TRC-145 (serial 47 anti above).

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-20	1	2540-00-846-8483	LADDER, VEHICLE, BOARDING MX-3543( )/U SC-D-147189 (80063)	FLOOR		1		
B-20	2	7220-00-753-2982	MAT, FLOOR SC-C-539500-2 (80063)	FLOOR		1		

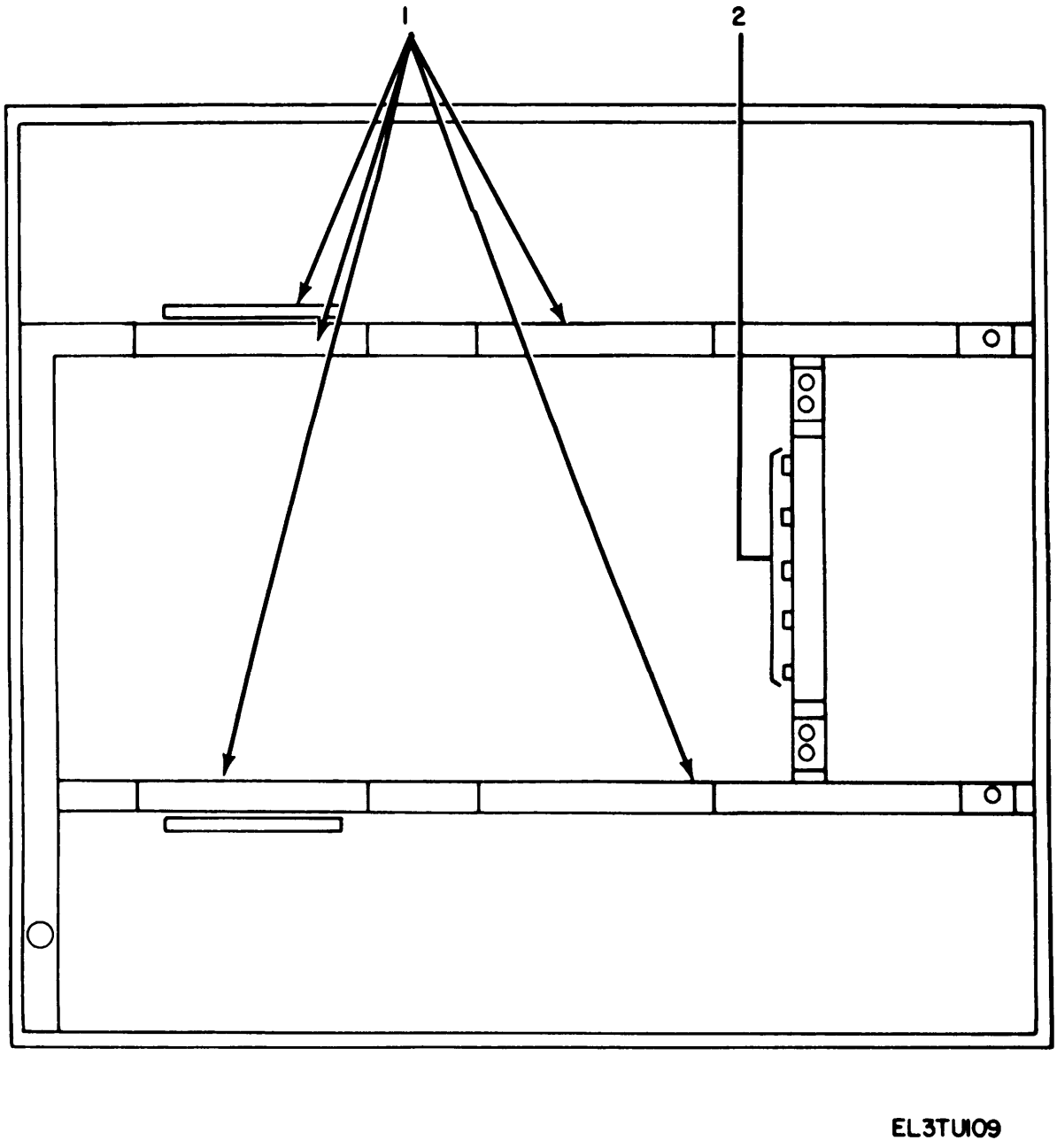

Figure B-21. Basic issue items, ceiling plan, interior, S-390/TRC-145 (serial 47 *and above*).

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-21	1	6240-00-152-2996	LAMP, FLUORESCENT SC-C-539495	(80063)	CEILING		7		
B-21	2	6250-00-194-4794	STARTER, FLUORESCENT LAMP SC-B-539504	(80063)	CEILING		7		

APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. Scope

This appendix lists additional items you are authorized for **the support** of the AN/TRC-145(*).

C-2. General

This list identifies items that do not have to accompany the AN/TRC-145(*) and that do not have to be turned in with it. These items are all authorized to you by **CTA, MTOE, TDA, and JTA.**

C-3. Explanation of Listing

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment.

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
6115-00-873-3915	GENERATOR SET, GASOLINE, TRAILER-MOUNTED PU-625( )/G	EA	1
5995-00-407-0774	CABLE ASSEMBLIES, ELECTRICAL, SYSTEM 1, KG-27	SET	1
5995-00-177-4644	CABLE ASSEMBLIES, ELECTRICAL, SYSTEM 2, KG-27	SET	1
5810-00-054-9110	COMMUNICATIONS SECURITY EQUIPMENT TSEC/KG-27	EA	2
6625-00-902-7574	TEST SET AN/PTM-7	EA	1
6625-00-188-3232	TEST SET TS-27B/TSM	EA	1
6135-00-850-3177	BATTERY 9V BA-90 (FOR CLOCK)	EA	1
	OR		
6135-00-935-2587	BATTERY BA-3058/U 1.5V "AA" SIZE (FOR CLOCK)	EA	1
6135-00-120-1020	BATTERY BA-30 1.5V "D" SIZE FOR LANTERN AND BUZZER	EA	6
5340-00-285-6523	LOCK, CHANGEABLE COMBINATION (USED WITH TSEC/KG-27)	EA	1
5805-01-028-8364	BUFFER, DATA, HIGH SPEED SERIAL TD-1065( )/G	EA	2
5805-01-028-8425	MULTIPLEXER, DIGITAL, TIME DIVISION TD-1069/G	EA	2

APPENDIX D
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

D-1. General

This appendix provides a summary of the maintenance operations for AN/TRC-145(*). It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equip ment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

D-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air sup plies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. ***Align.*** To adjust specified variable elements of an item to bring about optimum or desired performance.

f. ***Calibrate.*** To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. ***Ins/all. The*** act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equip ment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. ***Overhaul.*** That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipment/components.

D-3. Column Entries

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. ***Column 3, Maintenance Functions.*** Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a'' work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C—Operator/Crew
O—Organizational

F—Direct Support
H-General Support
D-Depot

e. ***Column 5, Tools and Equipment.*** Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

D-4. Tool and Test Equipment Requirements (Sec III)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. ***Nomenclature. This*** column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. ***Tool Number. This*** column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

D-5. Remarks (Sec IV)

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

SECTION II MAINTENANCE ALLOCATION CHART
FOR

RADIO TERMINAL SETS AN/TRC-145(V), AN/TRC-145A(V), AND AN/TRC-145B(V)

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	RADIO TERMINAL SETS AN/TRC-145(V), AN/TRC-145A(V), AND AN/TRC-145B(V)	Inspect		0.4					
		Test		0.4				1	A
		Test			1.0			3,8	B
		Test				2.0		3,5	
		Service		0.4				2	
		Adjust			0.3			4,8	
		Repair		1.0				1,2	C
		Repair			3.0			3,4,5	C
01	SHELTER, ELECTRICAL EQUIPMENT S-390/TRC-145, S-390A/TRC-145A, AND S-390B/TRC-145B	Repair		0.5				1,2	E
		Repair			6.0			3,4,5	F
		Repair				8.0		1 thru 7	G
		Overhaul					400.00	1 thru 9	D
0101	ELECTRICAL SURGE ARRESTOR F-1483/G	Test		0.5				3	H
		Replace			0.5			3,4,5	I,V
0102	REPAIR INTERNAL CABLE ASSEMBLIES	Test	0.5					3	W
		Repair			1.0			1 thru 5	W
		Replace			8.0			8	W
02	CONVERTER, TELEPHONE SIGNAL CV-1548/G	Replace		0.5				2	J
03	INTERCOMMUNICATION STATION LS-147C/FI	Replace		0.5				2	K
04	KEY GENERATOR, ELECTRONIC TSEC/KG-27	Replace		0.5				2	L
0401	INSTALLATION KIT TSEC/KG-27	Test		0.5				1	
		Repair		1.0				1,2	M
0402	LOOP-BACK KIT TSEC/KG-27	Test		0.5				1	
		Repair		1.0				1,2	M
05	MULTIPLEXER TD-204/U OR	Replace		0.5				2	N
	MULTIPLEXER TD-754/G	Replace		0.5				2	O
06	MULTIPLEXER TD-660(*)/G	Replace		0.5				2	P
07	TELEPHONE SET TA-312/PT	Replace		0.5				2	Q
08	HIGH SPEED SERIAL DATA BUFFER TD-1065/G	Replace		0.5				2	R,T
09	TIME DIVISION DIGITAL MULTIPLEXER TD-1069/G	Replace		0.5				2	S,T
10	RADIO SET AN/GRC-103(V)	Replace		0.5				2	U

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS FOR

RADIO TERMINAL SETS AN/TRC-145(V), AN/TRC-145A(V), AND AN/TRC-145B(B)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O,F,H,D	MULTIMETER AN/USM-223	6625-00-999-7465	
2	O,F,H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
3	F,H,D	MULTIMETER TS-352B/U	6625-00-553-0142	
4	F,H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
5	F,H,D	TOOL KIT, AUTOMOTIVE MECHANICS	5180-00-754-0641	
6	H,D	OHMMETER ZM-21(*)	6625-00-643-1030	
7	H,D	TOOL KIT, SHELTER REPAIR TK-144/G	5180-00-973-4369	
8	O,F,H,D	TOOLS AND TEST EQUIPMENT ASSOCIATED WITH COMPONENTS OF THIS END ITEM.		
9	D	TOOLS AND TEST EQUIPMENT REQUIRED FOR DEPOT TO TEST, OVERHAUL, OR REBUILD THIS EQUIPMENT.		

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	EQUIPMENT OPERATION TEST.
B	TEST WILL BE PART OF REPAIR AS INDICATED IN END-ITEM BREAKDOWN.
C	AS INDICATED IN END-ITEM BREAKDOWN.
D	EQUIPMENT AND SHELTER FACILITY.
E	REPLACEMENT OF ELECTRIC HEATER, BLOWER PARTS, CIRCUIT BREAKERS, CURRENT TRANSFORMERS, AND METERS.
F	EMERGENCY REPAIR OF HOLES AND MINOR STRUCTURAL DAMAGE IN ACCORDANCE WITH TB 750-240. REPLACEMENT OF DOOR HANDLES, LATCH BOLT ASSEMBLIES AND GASKETS.
G	REPAIR OF DOORS, SKIDS, AND PERMANENT REPAIR OF HOLES AND STRUCTURAL DAMAGE IN ACCORDANCE WITH TB 750-240. REPAIR OF WIRING AND 26 PAIR RECEPTACLES.
H	CONTINUITY/DIODE RESISTANCE CHECKS.
I	RETURN TO SACRAMENTO ARMY DEPOT FOR REPAIR.
J	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-367-12.
K	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5830-221-12.
L	FOR MAINTENANCE ALLOCATION, REFER TO KAM-258( )/TSEC(FOUO) AND TM 11-5810-232-12P.
M	REPAIR BY REPLACEMENT OF INDIVIDUAL COMPONENTS.
N	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-367-12.
O	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-383-12.
P	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-382-12.
Q	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-201-12.
R	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-637-12.
S	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5805-638-12.
T	P/O AN/TRC-145B ONLY.
U	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5820-540-12.
V	FOR MAINTENANCE ALLOCATION, REFER TO TM 11-5920-252-24.
W	REPLACEMENT OF CABLE CONNECTORS UNTIL CABLE BECOMES TOO SHORT, THEN REPLACE CABLE.
	NOTE RADIO TERMINAL SET AN/TRC-145(V) INCLUDES THE AN/TRC-145(V)1, AN/TRC-145(V)2, AND AN/TRC-145(V)3; RADIO TERMINAL SET AN/TRC- 145A(V) INCLUDES THE AN/TRC-145A(V)1, AN/TRC-145A(V)2, AND AN/TRC-145A(V)3; AND, RADIO TERMINAL SET AN/TRC-145B(V) INCLUDES THE AN/TRC-145B(V)1, AN/TRC-145B(V)2, AND TRC-145B(V)3.

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the AN/TRC-145(*). These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

E-2. Explanation of Columns

a. Column 1—Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, app D").

b. Column 2—Level. This column identifies the lowest level of maintenance that required the listed item.

C-Operator/Crew
O—Organizational Maintenance
F—Direct Support Maintenance
H—General Support Maintenance

c. Column 3—National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4—Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5—Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS
1	O	8020-00-721-9657	BRUSH, PAINT 2 IN (MB-451) (81348)	EA
2	C	8305-00-222-2423	CLOTH, CHEESECLOTH (CCCC660) (81348)	YARD
3	C	9150-00-985-7247	GREASE, GRAPHITE, AIRCRAFT (MIL-6-23827) (81349)	CAN
4	C	9150-00-068-9474	OIL, LUBRICATING, ENGINE (OE-10) (81349)	QT
5	C	9150-00-027-8533	OIL, LUBRICATING, (PL-SPECIAL) (FEDVVL820) (81349)	QT
6	O	8010-00-111-7937	PAINT, FOREST GREEN, ALKYD ENAMEL (TB-43-0118) (MIL-E-52798A) (81349)	GAL
7	C	7510-00-281-5234	PENCIL, NO. 2 (SS-P-116) (81348)	DOZ
8	O	5350-00-260-3485	SANDPAPER, FINE (PP-105) (81348)	PKG
9	O	8010-00-160-5791	THINNER, PAINT (T-354-L) (81348)	PINT
10	C	6850-00-105-3084	TRICHLOROTRIFLUOROETHANE CLEANING COMPOUND, FREON PCA, TYPE T	PINT
11	C	5970-00-188-5477	TAPE, INSULATION (MIL-17798) (81349)	ROLL
12	C	4020-00-241-8886	TWINE, FIBROUS LINEN 'T-T-891) (81348)	BALL
13			Deleted	
14	C	6240-00-155-7786	LAMP, INCANDESCENT, MINIATURE PR-2 (FOR LANTERN) (80063)	EA
15	O	5975-00-482-3954	STRAP, TIEDOWN, ELECTRICAL (MS3368-5-9E)(96906) (Cable Marking)	EA

INDEX

* A fold-in page, located in the back of the manual.

*A fold-in page, located in the back of the manual.

*A fold-in page, located in the back of the manual.

*A fold-in page, located in the back of the manual.

* A fold-in page, located in the back of the manual.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:
J. C. PENNINGTON
Major General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-51, Operator maintenance requirements for AN/TRC-145.

☆ U.S.GOVERNMENT PRINTING OFFICE : 1990 - 261-872 (21513)

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER	DATE	TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/MPQ-76

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		F03	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 20 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE: SSG I. M. DeSpiritof

DA FORM 1 AUG 74 2028-2

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND," MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

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DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-5895-453-14-2	15 Jun 79	Terminal Sets, Radio AN/TRC-145(V)1, AN/TRC-145(V)2 AN/TRC-145(V)3, AN/TRC-145A(V)1

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US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

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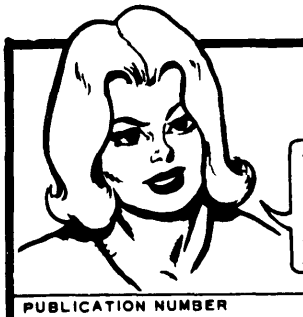
RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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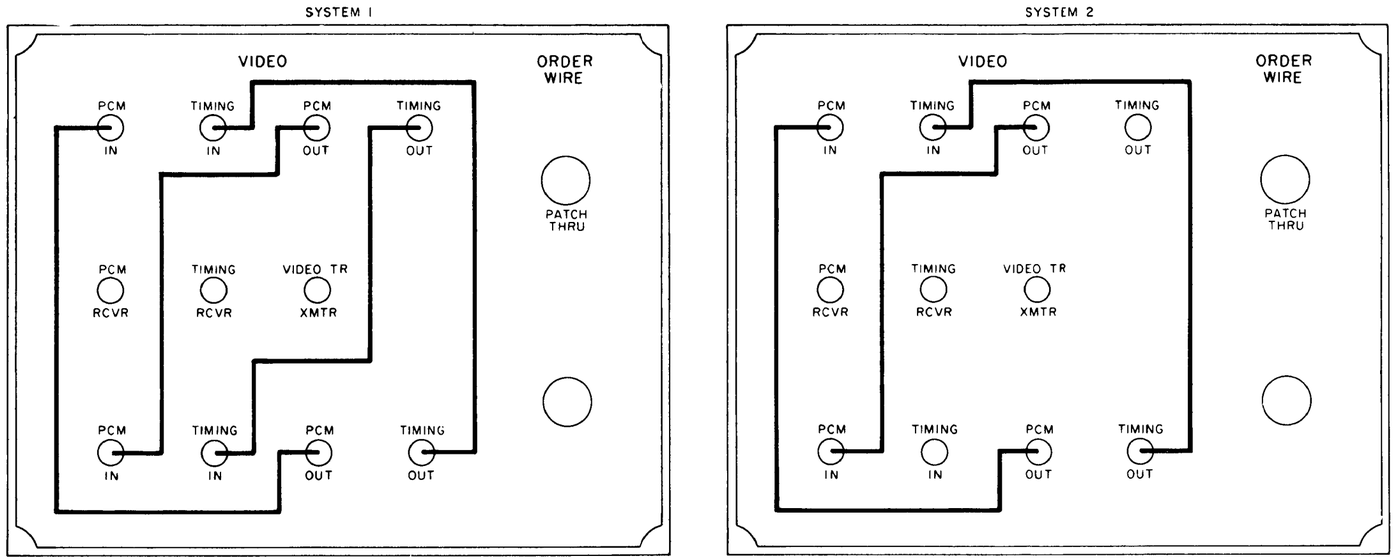
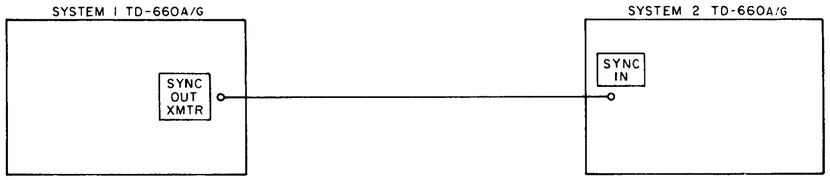


A. PATCH CONNECTIONS.



B. DIRECT CONNECTION.

NOTES:

1 TRANSFER CABLE CONNECTIONS FROM SYSTEM 2 TD-204/U TO SYSTEM 1 TD-204/U ACCORDING TO THE FOLLOWING CHART:

REMOVE FROM SYSTEM 2 TD-204/U	CONNECT TO SYSTEM 1 TD-204/U
PCM OUT-1	PCM OUT-2
TIM OUT-1	TIM OUT-2
PCM IN-1	PCM IN-2

2. SYSTEM 1 TD-660/G IS MASTER, SYSTEM 2 TD-660/G IS SLAVE
3 CABLE CONNECTIONS ARE MADE TO SYSTEM 1 VIDEO AND ANTENNA ENTRANCE BOX

EL3TU055

Figure 2-33. Patch panel and direct connections for 24-channel cable terminal (serial No. 1 through 46).

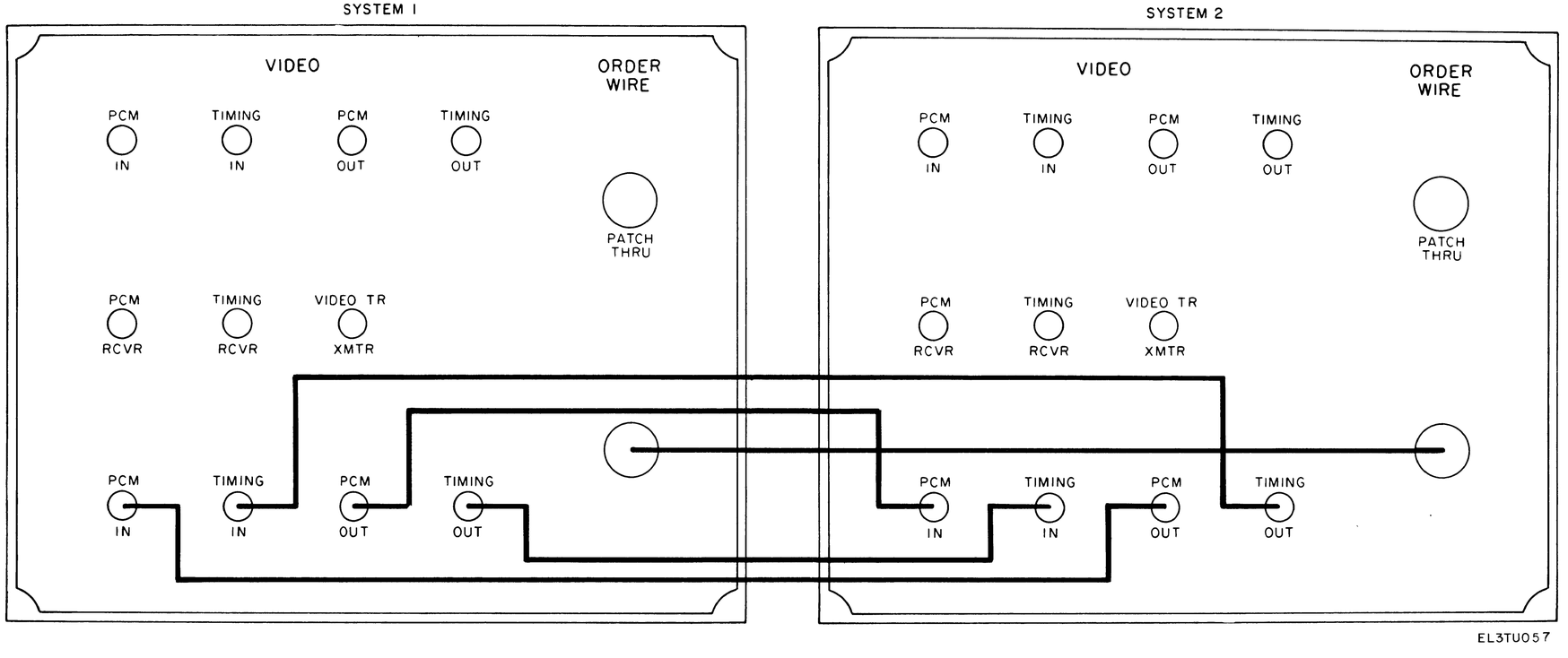
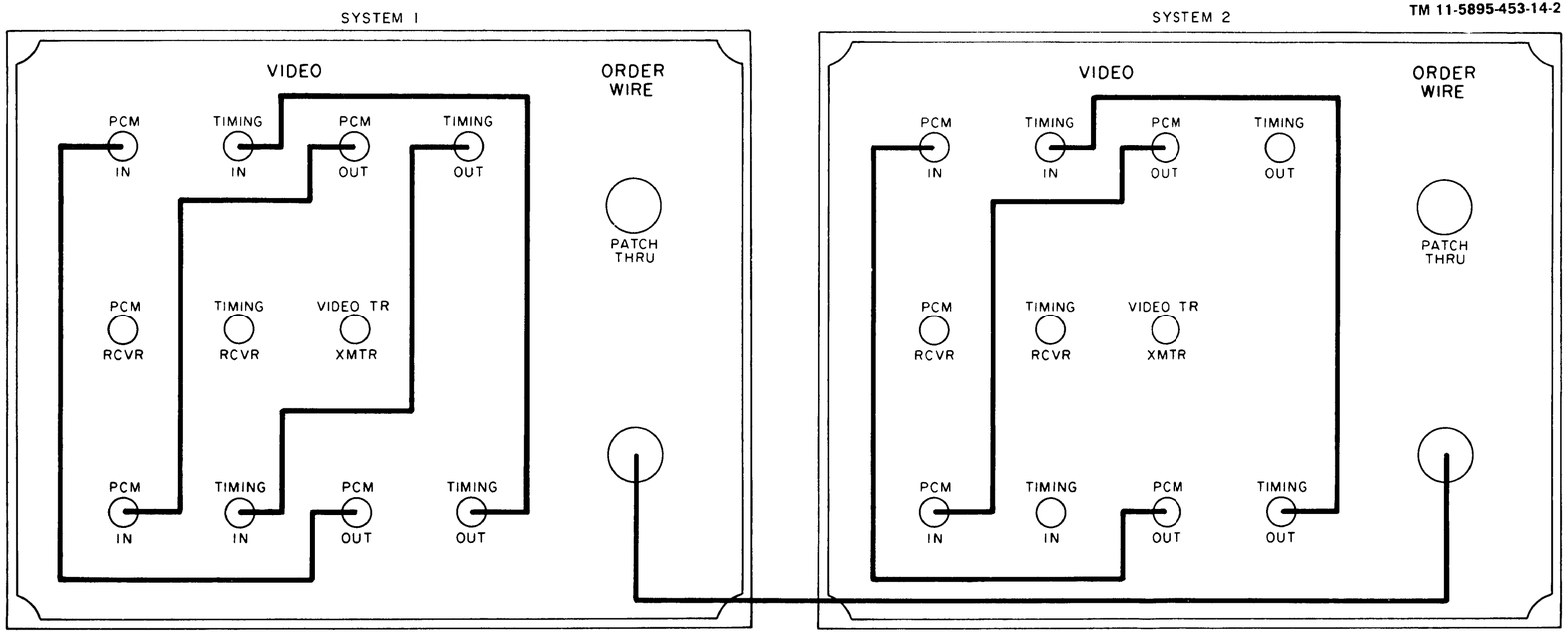


Figure 2-35. Patch panel connections for 12- or 24-channel cable repeater (serial No. 1 through 46).



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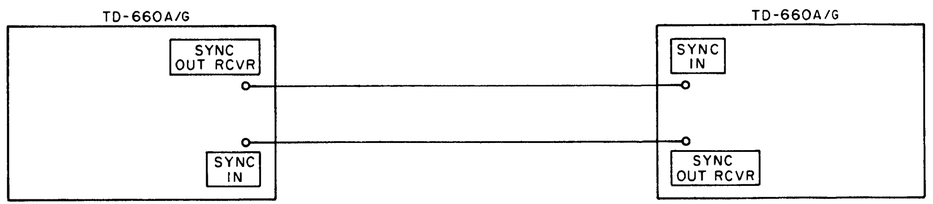


B. DIRECT CONNECTIONS.

EL3TU058

Figure 2-36. Patch panel and direct connections for 24-channel cable repeater with 12-channel drop and insert (serial No. 1 through 46).

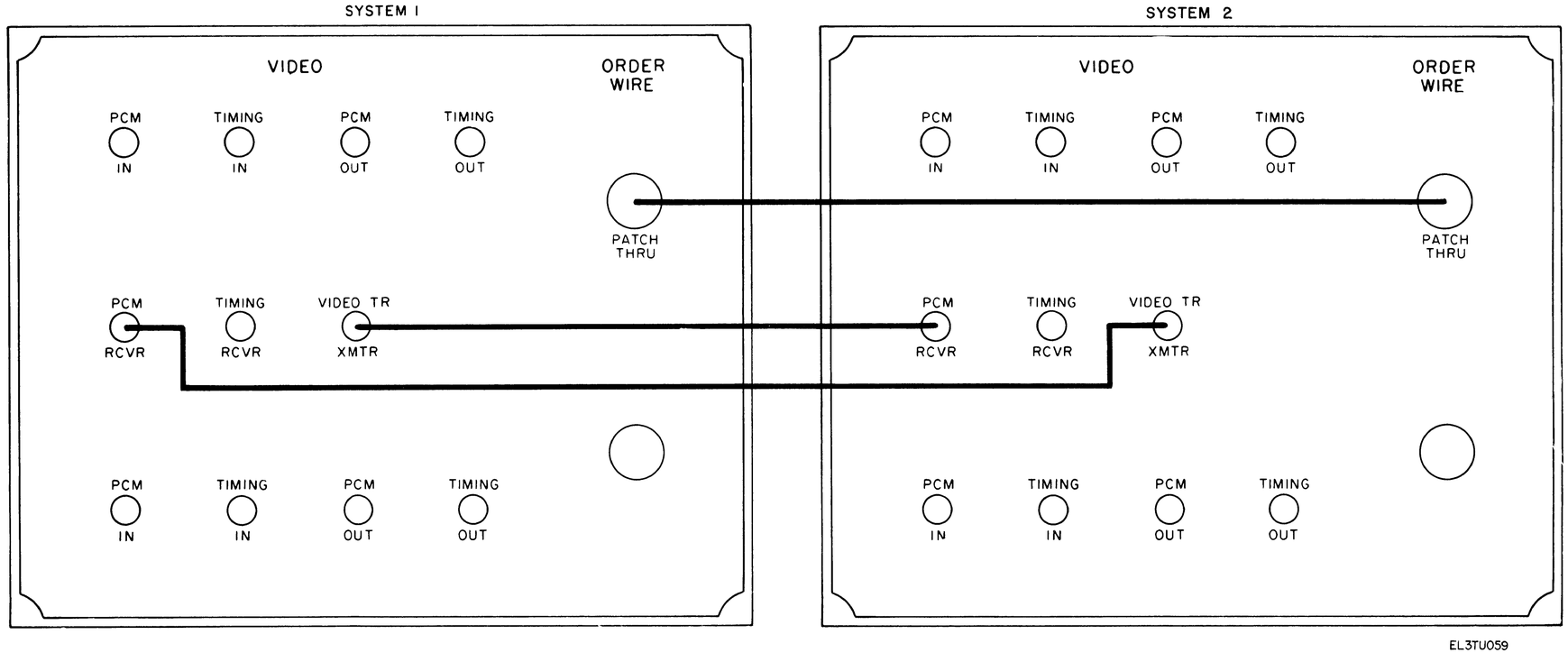
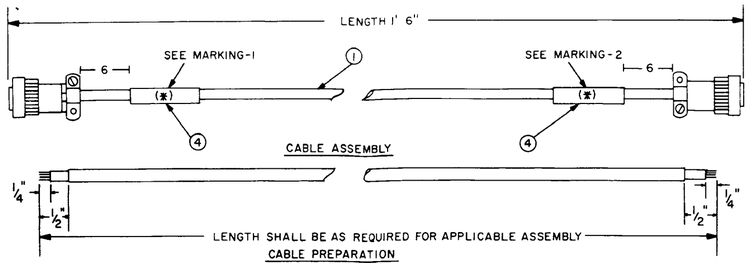


Figure 2-37. Patch panel connections for 12-channel radio repeater (serial No. 1 through 46).



ORDER WIRE CABLE ASSEMBLY
(1 FT 6 IN)

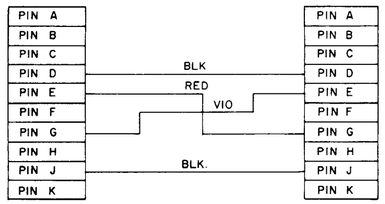
1 SOLDER SHALL BE COMP SN60 TYPE "S" OR RMA PER SPEC QQ-S-571 WHEN TYPE "S" IS USED ROSIN FLUX PER SPEC MIL-F-14256 SHALL BE EMPLOYED SOLDERING PROCESS SHALL CONFORM TO REQUIREMENT (5) PER SPEC MIL-STD-454

2 250 INSIDE DIAMETER X 025 NOMINAL WALL THICKNESS

3 INTENTIONALLY BLANK

4 INTENTIONALLY BLANK

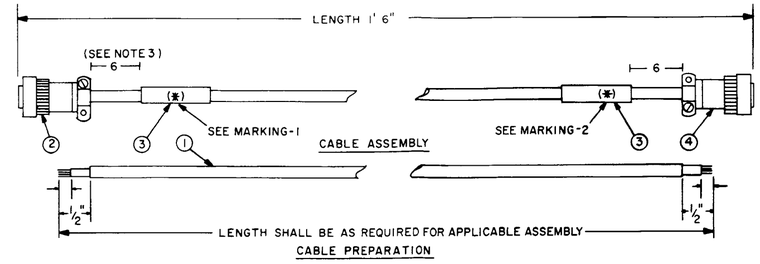
5 CABLE ASSEMBLY UNDER 2 FEET SHALL HAVE ONE IDENTIFICATION BAND AND CABLE ASSEMBLY 2 FEET AND OVER SHALL HAVE TWO BANDS. WHEN A CABLE ASSEMBLY IS UNDER TWO FEET IDENTIFICATION BAND SHALL CENTRALLY LOCATED.



SCHEMATIC

GROUP NO.	MARKING-1	MARKING-2	
I	RADIO REPEATER		
II	↓ ↓	RADIO REPEATER	

A/R				
A/R	SC-C-681321-6	BAND IDENTIFICATION		2
2	MS3116F12-10P	CONNECTOR PLUG	MIL-C-26482	
1	SM B 529129	CABLE POWER ELECTRICAL		



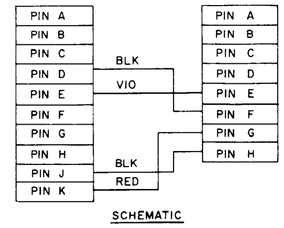
ORDER WIRE ASSEMBLY
(1 FT 6 IN)

1 SOLDER SHALL BE COMP SN60 TYPE "S" RMA PER SPEC QQ-S-571 WHEN TYPE "S" IS ROSEN FLUX PER SPEC MIL-F-14256 SHALL BE EMPLOYED SOLDERING PROCESS SHALL CONFORM TO REQUIREMENT 5 PER SPEC MIL-STD-454.

2 250 INSIDE DIA X 025 NOMINAL WALL THICKNESS.

3 INTENTIONALLY BLANK

4 IDENTIFICATION BAND, CABLE ASSEMBLY OVER TWO FEET SHALL HAVE TWO BANDS AND CABLE ASSEMBLY TWO FEET OR UNDER SHALL HAVE ONE IDENTIFICATION BAND WHEN CABLE ASSEMBLY IS UNDER TWO FEET IDENTIFICATION BAND SHALL BE CENTRALLY LOCATED

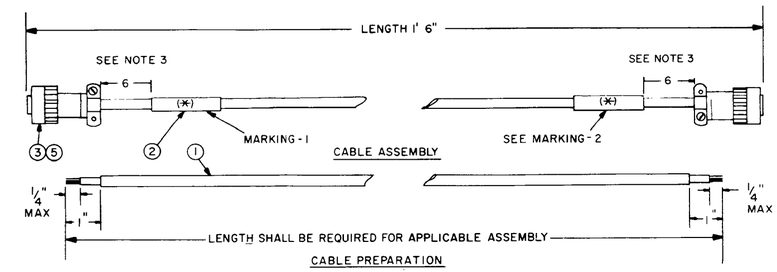


SCHEMATIC

GROUP NO	MARKING-1	MARKING-2
I	RADIO TO CABLE REPEATER	RADIO TO CABLE REPEATER

4	1	MS 3116F12-8P	CONNECTOR, PLUG	MIL-C-26482	
3	A/R	SC-C-681321	BAND, IDENTIFICATION		2
2	1	MS-3116F12-10P	CONNECTOR, PLUG	MIL C 26482	
1	1	SM-B-529159	CABLE, POWER ELECTRICAL		

THE COMPLETED CABLE ASSEMBLIES SHALL MEET THE FOLLOWING TEST REQUIREMENTS PER MIL-C-3885 AS SPECIFIED BELOW:
A PULL OUT LOAD TEST OF 25 POUNDS.
B END TO END CONTINUITY
C. DIELECTRIC STRENGTH OF 500 VDC FOR NOT LESS THAN 5 SECONDS.
D INSULATION RESISTANCE OF NOT LESS THAN 100 MEGOHMS



REPEATER CABLE ASSY
(1 FT 6 IN)

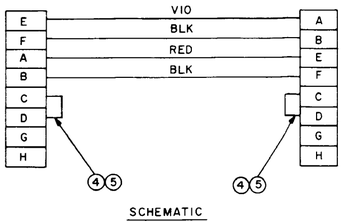
NOTES:

1 WHEN TYPE "B" IS USED ROSIN FLUX PER SPEC MIL-F-14256 SHALL BE EMPLOYED, SOLDERING PROCESS SHALL CONFORM TO REQUIREMENT 5 PER SPEC MIL-STD-454

2. INTENTIONALY BLANK

3 IDENTIFICATION BAND, CABLE ASSEMBLY OVER TWO FEET SHALL HAVE TWO BANDS AND CABLE ASSEMBLY TWO FEET OR UNDER SHALL HAVE ONE IDENTIFICATION BAND. WHEN CABLE ASSEMBLY IS UNDER TWO FEET IDENTIFICATION BAND SHALL BE CENTRALLY LOCATED.

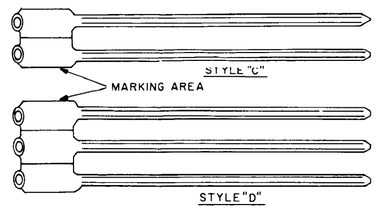
4 FINISHED CABLE ASSEMBLY SHALL BE TESTED AND MEET REQUIREMENTS OF MIL-C-3885.



SCHEMATIC

GROUP NO	MARKING-1	MARKING-2
I	CABLE REPEATER	CABLE REPEATER
II	PATCH THRU	PATCH THRU

6	A/R	SN60	SOLDER (TYPE SCR RMA)	QQ-S-571	1
5	A/R	SC-C-681323-1	TUBING, SHRINKABLE 1/2 LG		
4	2	MW-C22(T)40	WIRE, 22 AWG SOLID 3/4 LG		
3	2	MS3116F12-8P	CONNECTOR, PLUG	MIL-C-26482	
2	A/R	SC-C-681320-6	BAND, IDENTIFICATION		
1	A/R	SM-B-529159	CABLE, POWER, ELECTRICAL		2



SIDE VIEW

STRAP, TIE DOWN, ELECTRICAL COMPONENTS, IDENTIFICATION, ADJUSTABLE, SELF-CLINCHING PLASTIC

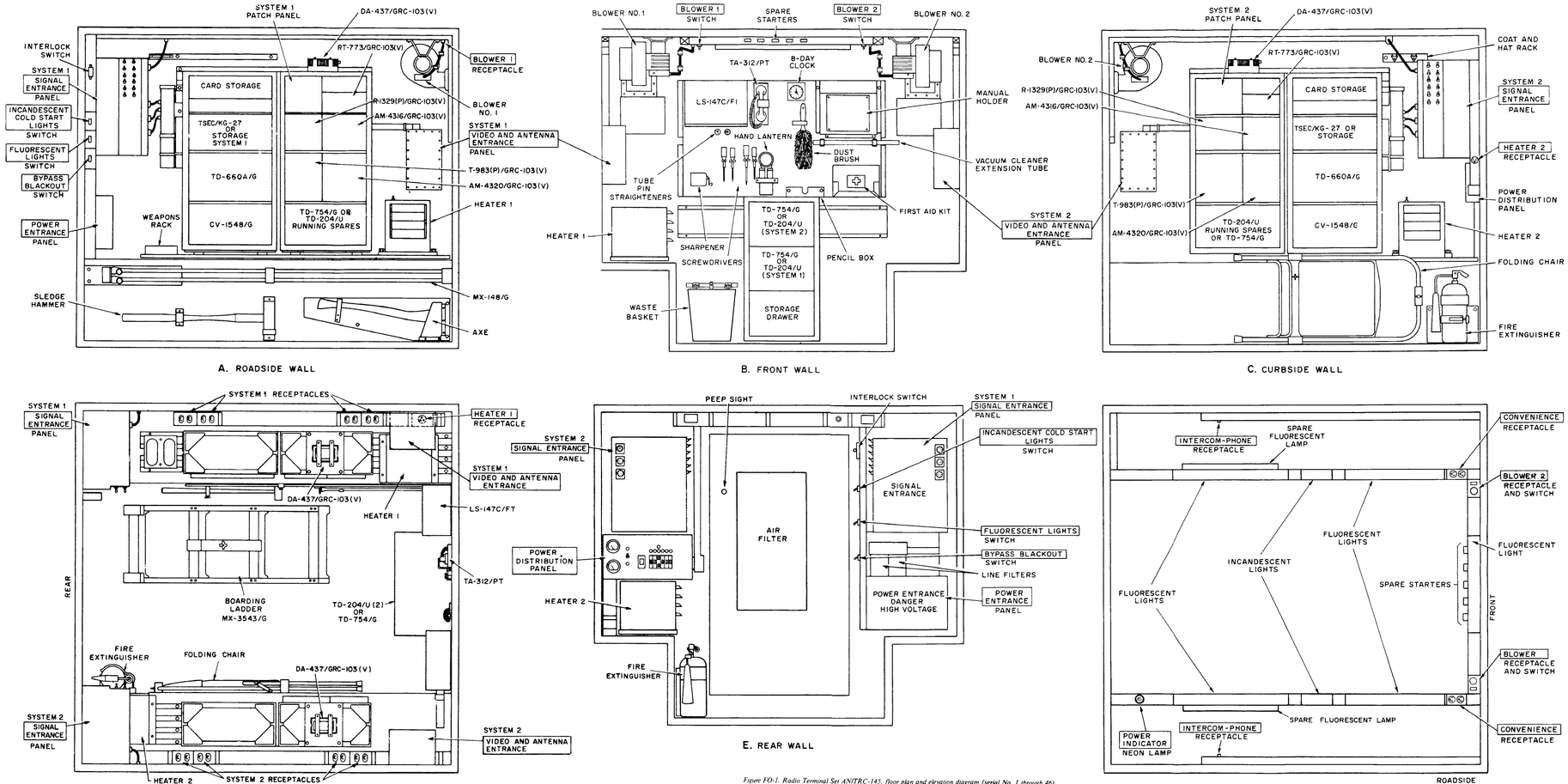


Figure FO-1. Radio Terminal Set AN/TRC-145, floor plan and elevation diagram (serial No. 1 through 46).

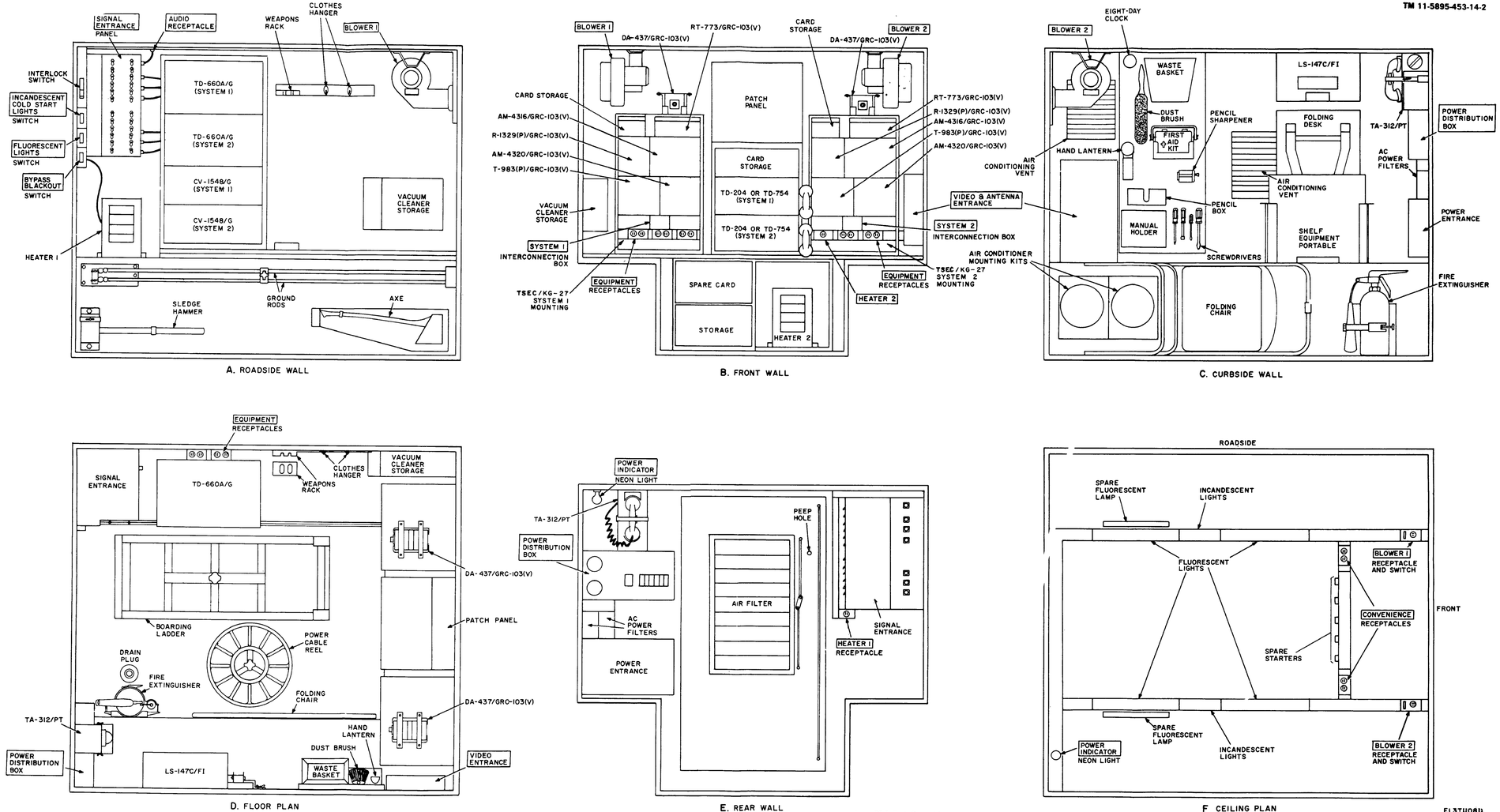
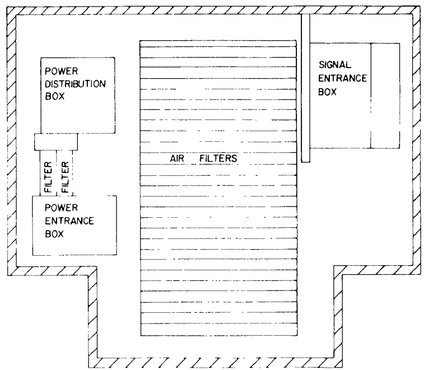
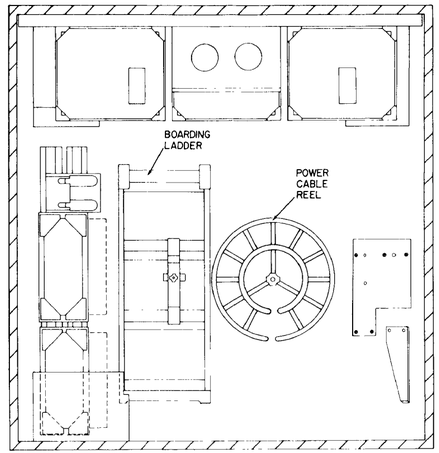


Figure FO-2. Radio Terminal Set ANITRC-145, floor plan and elevation diagram (serial No. 47 and above).

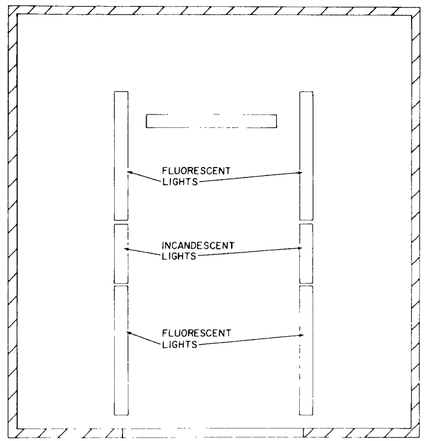
EL3TU08L



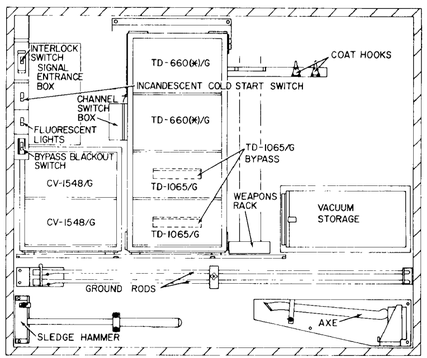
REAR VIEW



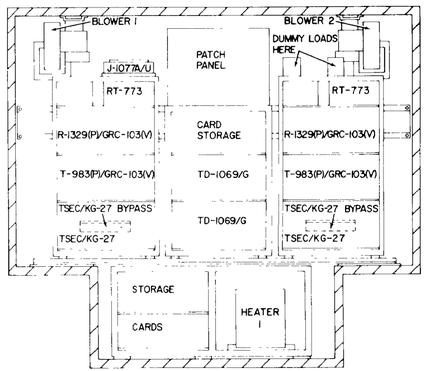
FLOOR PLAN



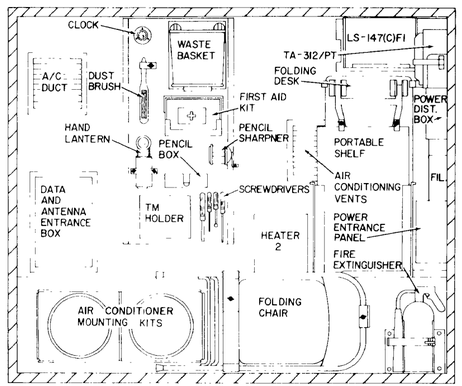
CEILING VIEW



ROADSIDE VIEW



FRONT VIEW



CURBSIDE VIEW

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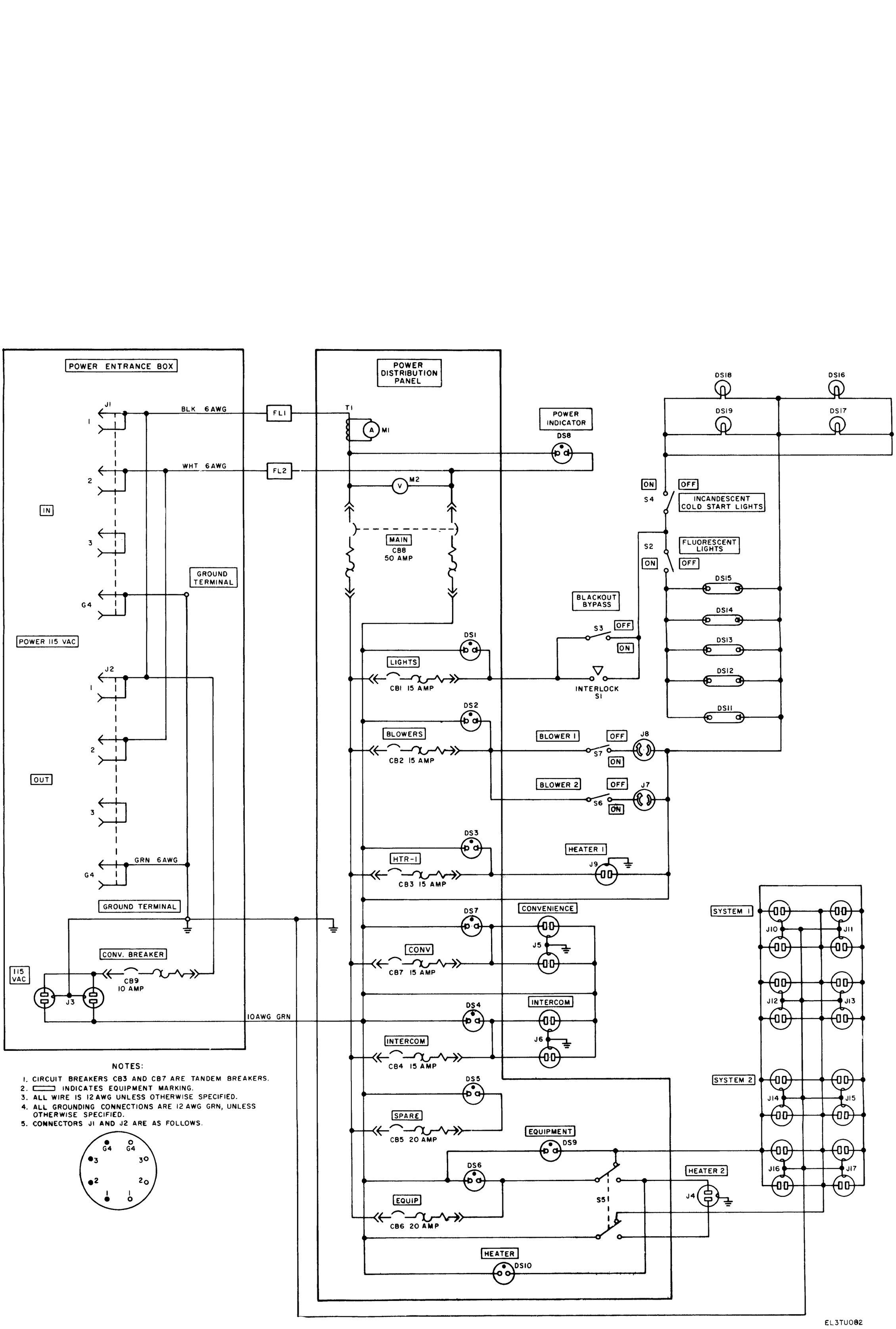
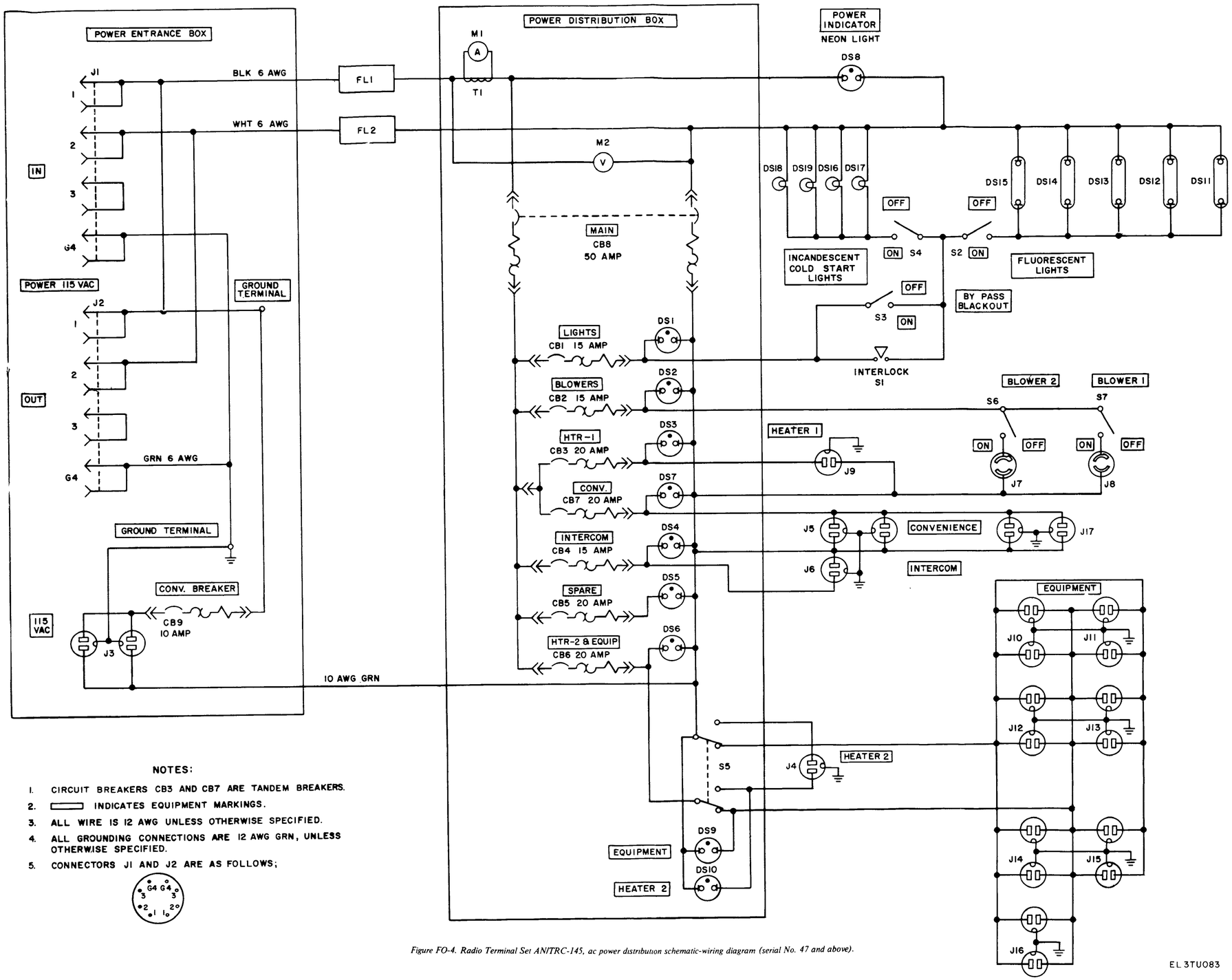
FO-2.1. Radio Terminal Set AN/TRC-145, Floor Plan and Elevation Diagram (Serial No. 47 and above).



NOTES:

1. CIRCUIT BREAKERS CB3 AND CB7 ARE TANDEM BREAKERS.
2. ▭ INDICATES EQUIPMENT MARKING.
3. ALL WIRE IS 12 AWG UNLESS OTHERWISE SPECIFIED.
4. ALL GROUNDING CONNECTORS ARE 12 AWG GRN, UNLESS OTHERWISE SPECIFIED.
5. CONNECTORS J1 AND J2 ARE AS FOLLOWS.

Figure FO-3. Radio Terminal AN/TRC-145, ac power distribution schematic-wiring diagram (serial No. 1 through 46).



NOTES:

1. CIRCUIT BREAKERS CB3 AND CB7 ARE TANDEM BREAKERS.
2. ▭ INDICATES EQUIPMENT MARKINGS.
3. ALL WIRE IS 12 AWG UNLESS OTHERWISE SPECIFIED.
4. ALL GROUNDING CONNECTIONS ARE 12 AWG GRN, UNLESS OTHERWISE SPECIFIED.
5. CONNECTORS J1 AND J2 ARE AS FOLLOWS;

Figure FO-4. Radio Terminal Set AN/TRC-145, ac power distribution schematic-wiring diagram (serial No. 47 and above).

EL 3TU083

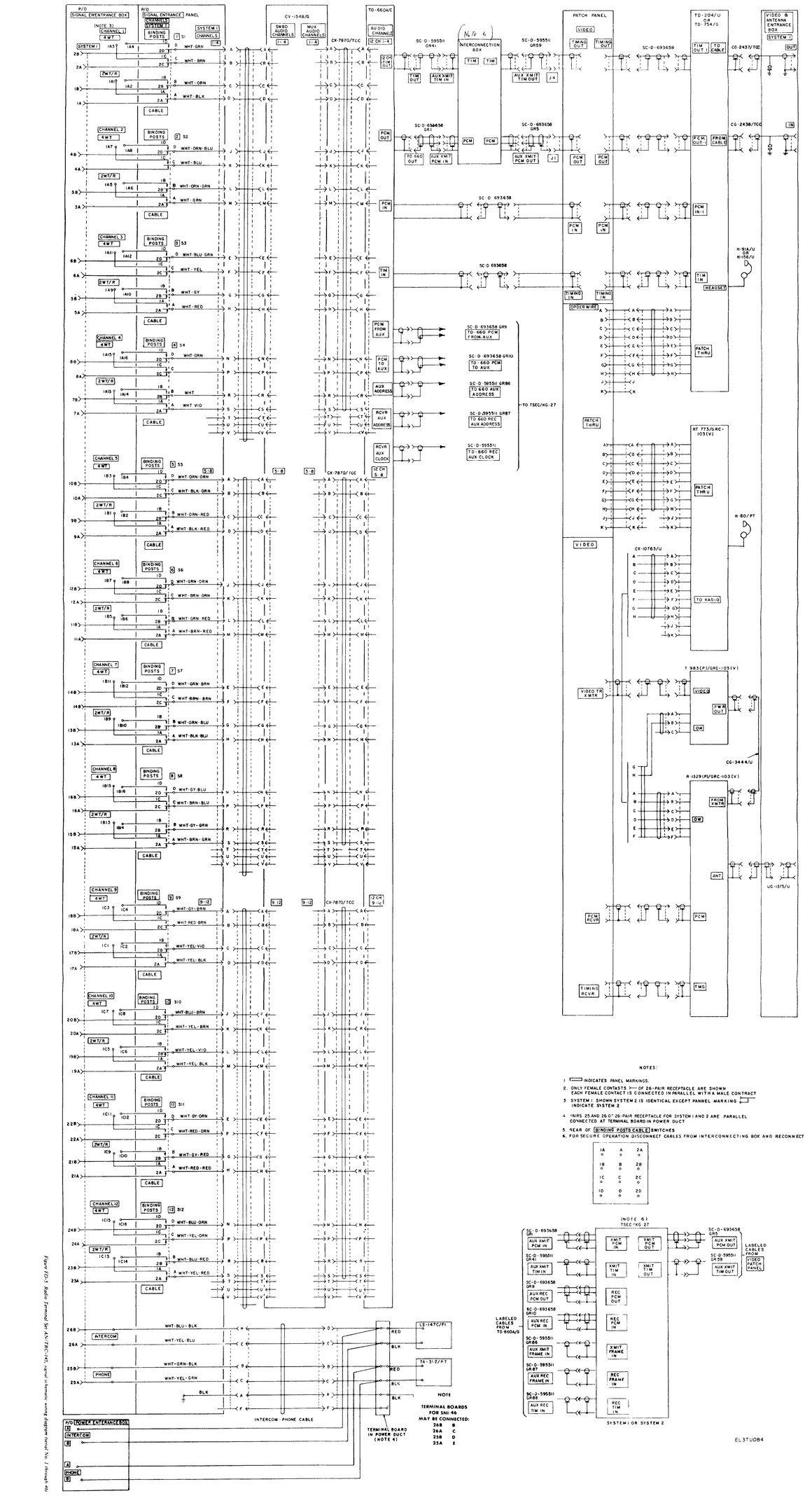
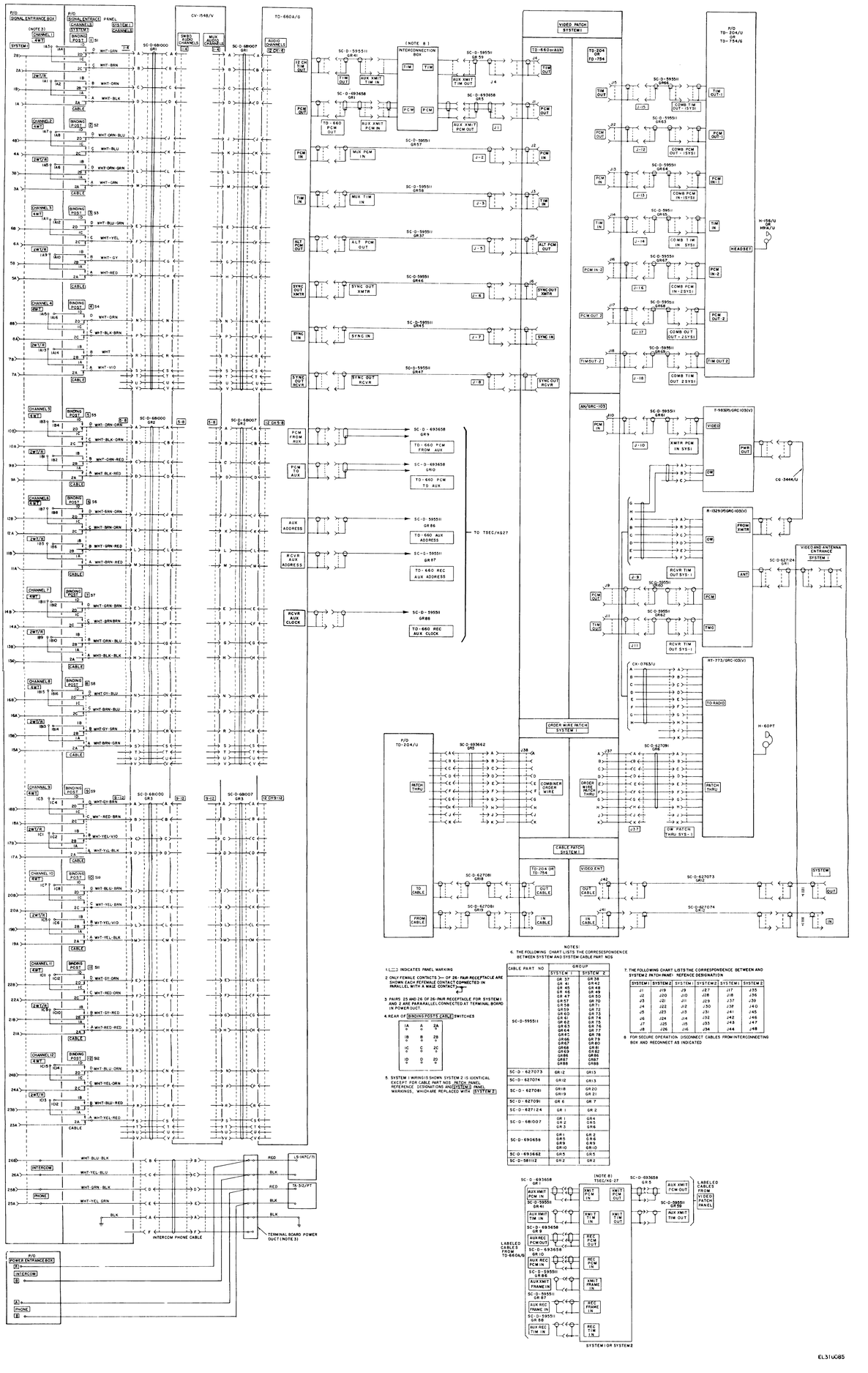


Figure FD-5 Radio Terminal Set AN/TRC-145, signal schematic wiring diagram (serial Nos. 1 through 46)

EL3TU084



NOTES:

1. ( ) INDICATES PANEL MARKING
2. ONLY FEMALE CONTACTS ▷— OF 26- PAIR RECEPTACLE ARE SHOWN. EACH REPEATABLE CONTACT CONNECTED IN PARALLEL WITH A MALE CONTACT ◁—
3. PAIRS 25 AND 26 OF 26-PAIR RECEPTACLE FOR SYSTEM I AND 2 ARE PARALLEL CONNECTED AT TERMINAL BOARD IN POWER DUCT.
4. REAR OF BINDING POSTS CABLE SWITCHES

5. SYSTEM I WIRING IS SHOWN. SYSTEM 2 IS IDENTICAL EXCEPT FOR CABLE PART NOS., PATCH PANEL REFERENCE DESIGNATIONS AND SYSTEM 2 PANEL MARKINGS, WHICH ARE REPLACED WITH SYSTEM 2.

6. THE FOLLOWING CHART LISTS THE CORRESPONDENCE BETWEEN SYSTEM AND SYSTEM CABLE PART NOS

CABLE PART NO	GROUP SYSTEM 1	GROUP SYSTEM 2
SC-D-5955II	GR 37 GR 41 GR 45 GR 49 GR 47 GR 51 GR 53 GR 55 GR 63 GR 61 GR 65 GR 69 GR 67 GR 71 GR 73 GR 75 GR 77 GR 79 GR 81 GR 83 GR 85 GR 87 GR 89	GR 38 GR 42 GR 46 GR 50 GR 54 GR 58 GR 62 GR 66 GR 64 GR 68 GR 72 GR 76 GR 74 GR 78 GR 82 GR 86 GR 84 GR 88 GR 90
SC-D-627073	GR 12	GR 13
SC-D-627074	GR 12	GR 13
SC-D-627081	GR 18 GR 19	GR 20 GR 21
SC-D-627091	GR 6	GR 7
SC-D-627124	GR 1	GR 2
SC-D-681007	GR 1 GR 2 GR 3	GR 4 GR 5 GR 6
SC-D-690658	GR 1 GR 5 GR 9 GR 10	GR 2 GR 6 GR 9 GR 10
SC-D-693662	GR 5	GR 5
SC-D-581112	GR 2	GR 2

7. THE FOLLOWING CHART LISTS THE CORRESPONDENCE BETWEEN AND SYSTEM 2 PATCH PANEL REFENCE DESIGNATION

SYSTEM 1	SYSTEM 2	SYSTEM 1	SYSTEM 2	SYSTEM 1	SYSTEM 2
J1	J19	J9	J27	J17	J35
J2	J20	J10	J28	J18	J36
J3	J21	J11	J29	J37	J39
J4	J22	J12	J30	J38	J40
J5	J23	J13	J31	J41	J45
J6	J24	J14	J32	J42	J46
J7	J25	J15	J33	J43	J47
J8	J26	J16	J34	J44	J48

8. FOR SECURE OPERATION, DISCONNECT CABLES FROM INTERCONNECTING BOX AND RECONNECT AS INDICATED

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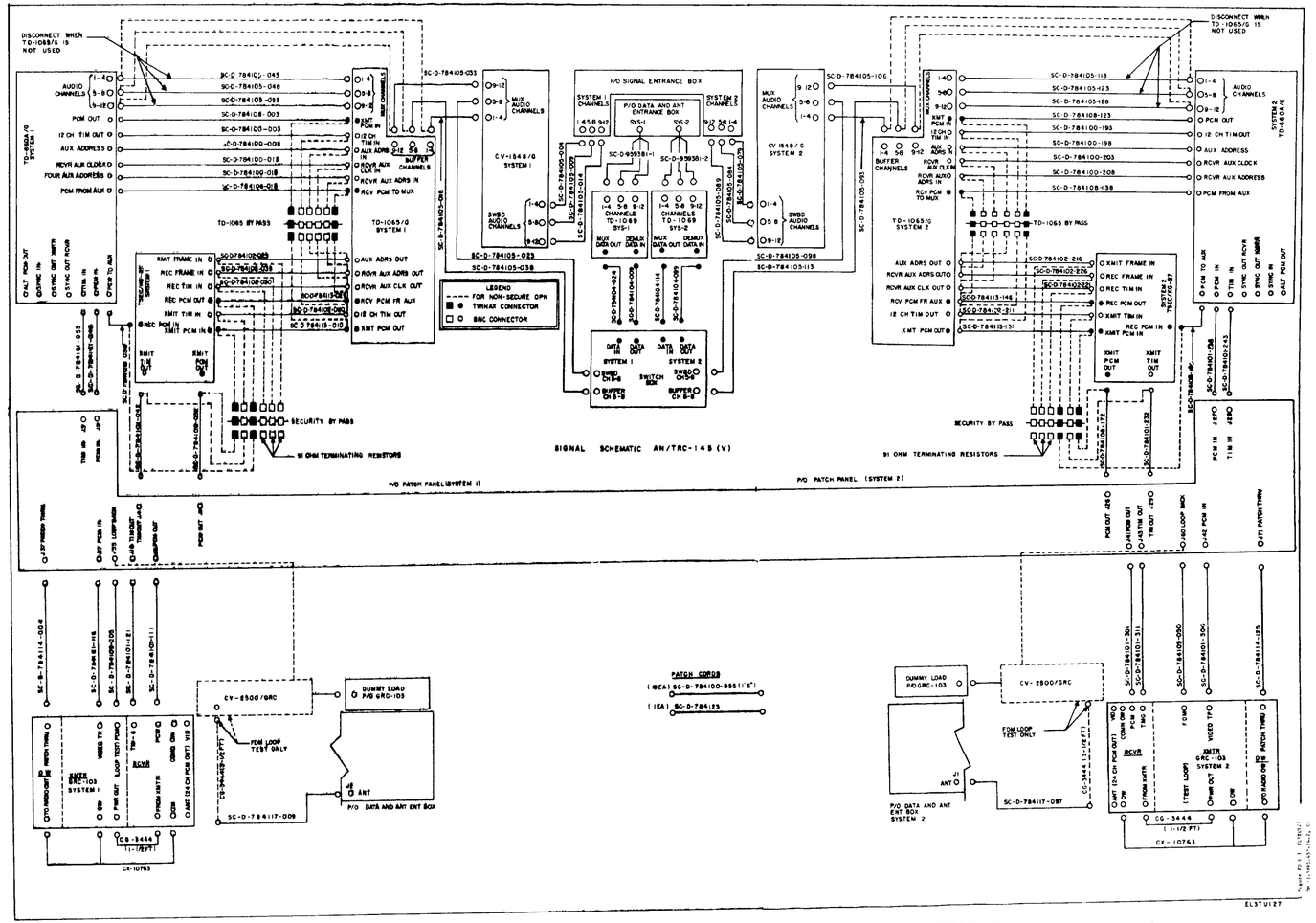
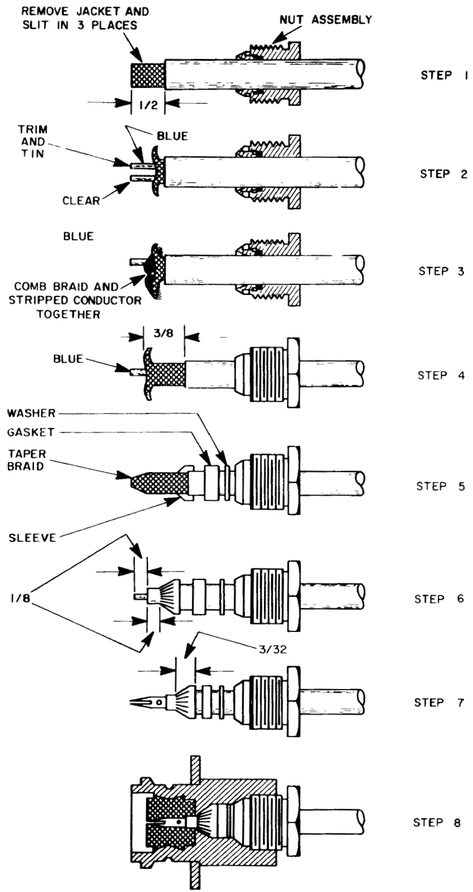
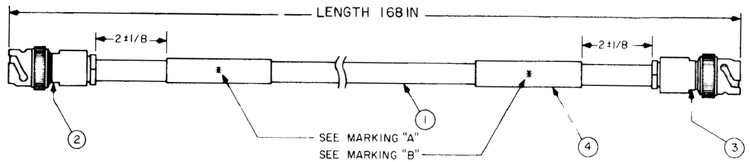
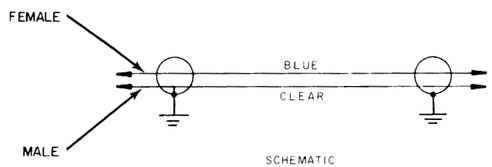


Figure FO 6.1. Radio Terminal Set AN/TRC-145B, Signal Schematic-Wiring Diagram.





ITEM NO	DESCRIPTION
1	CABLE TWINAX, TWC 78-2
2	CONNECTOR UG-260D
3	CONNECTOR PL-75
4	BAND IDENTIFICATION



SCHEMATIC

NOTES:

1. CABLE DRAWING DESIGNATION SC-D-693658 FOLLOWED BY GR1, GR5, GR9, OR GR10 AS FOLLOWS.
2. SOME CABLES MAY CONTAIN A CG-3473/U MARKING BAND INSTEAD OF SC-D NUMBER.
3. SOLDER SHALL BE COMPOSITION SN60 TYPE S OR RMA PER QQ-S-571 WHEN TYPE "S" IS USED, FLUX PER SPEC MIL-F-14256 SHALL BE EMPLOYED.
4. SUGGESTED SOURCE TROMPETER ELECTRONICS INC. CHATSWORTH, CALIFORNIA OR EQUAL.

GROUP	MARKING "A"	MARKING "B"
9	TD-660 PCM FROM AUX	AUX REC PCM OUT
10	TD-660 PCM TO AUX	AUX REC PCM IN
1	TD-660 PCM OUT	AUX XMIT PCM IN
5	J1	AUX XMIT PCM OUT

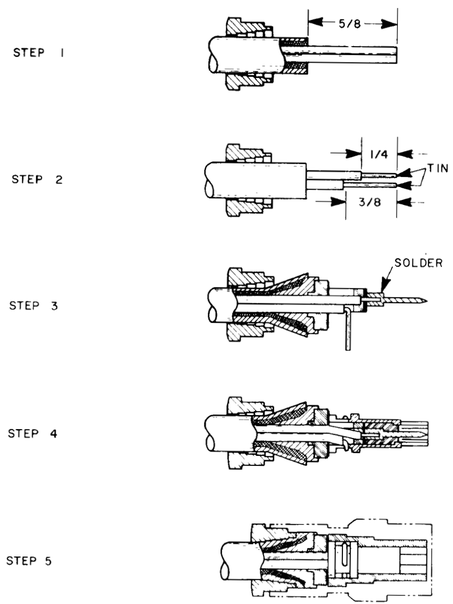


Figure FO-7. RF cable assembly details.

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