

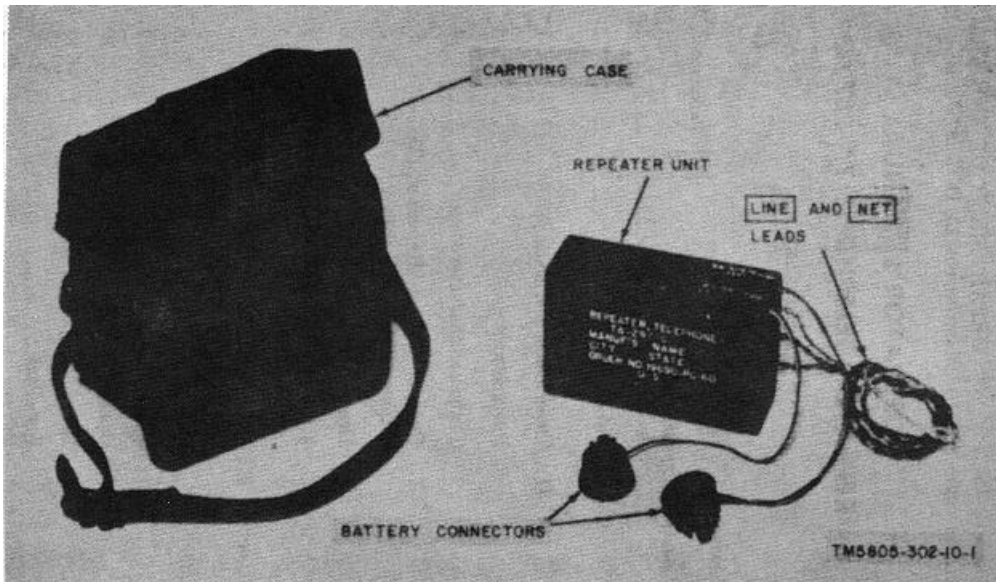
DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL
REPEATER
TELEPHONE TA-287/G

*HEADQUARTERS, DEPARTMENT OF THE ARMY
JANUARY 1961*

**OPERATOR'S MANUAL
REPEATER, TELEPHONE TA-287/G**

Chapter 1	INTRODUCTION		
		Paragraph	Page
Section I	General		
	Scope	1	3
	Forms and records.....	2	3
II.	Description and data		
	Purpose and use	3	4
	Technical characteristics	4	4
	Components of Repeater, Tele- phone TA-287/G	5	4
	Description.....	6	5
	Additional equipment required.....	7	5
Chapter 2	INSTALLATION AND OPERATION.		
	Unpacking	8	6
	Battery installation	9	8
	Operational test	10	8
	Locating repeaters	11	8
	Installation	12	9
	Locating defective repeater	13	13
	Replacement of repeater unit leads.....	14	14



AGO 4137C

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

This manual describes Repeater, Telephone TA-287/G and covers its application, installation, operation, and preinstallation testing. No second echelon, field, or depot maintenance is required for this equipment.

2. Forms and Records

a. Unsatisfactory Equipment Reports. Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS-ML, Fort Monmouth, N. J., as prescribed in AR 70038.

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

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

6. Description

Repeater, Telephone TA-287/G includes the repeater unit and carrying case (fig. 1). The repeater unit is a sealed non-repairable unit except for the leads extending from it. Three pairs of leads are provided for connection to the field wire line, two sets of leads are terminated in battery connectors. The carrying case is large enough to hold the repeater unit and the batteries (BA406/ U and BA421/U) required for operation. A tab with an eyelet on the back of the case (not shown) is provided to aid in securing the repeater to a mounting such as a pole or tree.

7. Additional Equipment Required

One Battery BA-406/U (22 1/2 volts) and one Battery BA-21/U (3 volts) are required for operation but are not provided as a part of the TA287/G. For requisitioning information, see Department of the Army Supply Bulletin SB 11-6, Dry Battery Supply Data.

CHAPTER 2

INSTALLATION AND OPERATION

8. Unpacking

a. *Packaging Data.* Each telephone repeater is packed in an individual corrugated carton, and 75 packaged telephone repeaters are packed in a corrugated packing case. An exploded view of the packaged components is shown in figure 2

No. of Equipments	Outside dimensions (in.)	Volume. (cu ft)	Weight (lb)
1	7 x 4 3/8 x 4 5/8	0.081	2.5
75	22 x 24 x 21	6.4	190

b. *Removing Contents.*

- (1) Cut and remove the metal straps from the corrugated packing case.
- (2) Carefully cut the paper tape on the corrugated packing case and open the top.
- (3) Remove the inner corrugated cartons from the corrugated packing case.
- (4) Carefully cut the paper tape on the top of the inner corrugated carton and open the top. Be careful not to damage the repeater unit or the carrying case.
- (5) Remove the repeater unit and the carrying case from the inner corrugated carton.

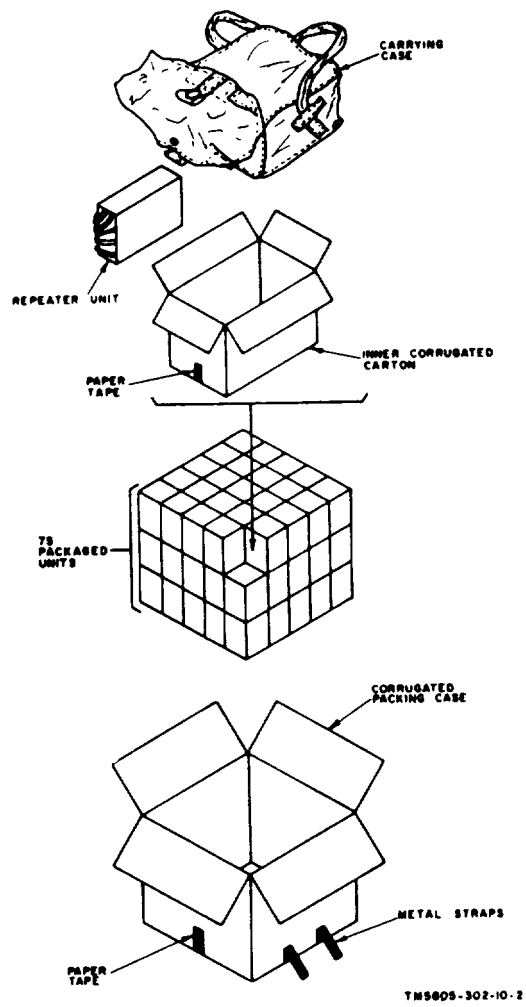


Figure 2. Repeater, Telephone TA-287/G, packaging diagram .

9. Battery Installation

(fig. 3)

Remove the repeater unit from the carrying case and secure the two batteries to the repeater unit as shown. Insert the appropriate battery connector into each battery. Perform the operational test (par. 10). Place the repeater unit and the batteries in the carrying case.

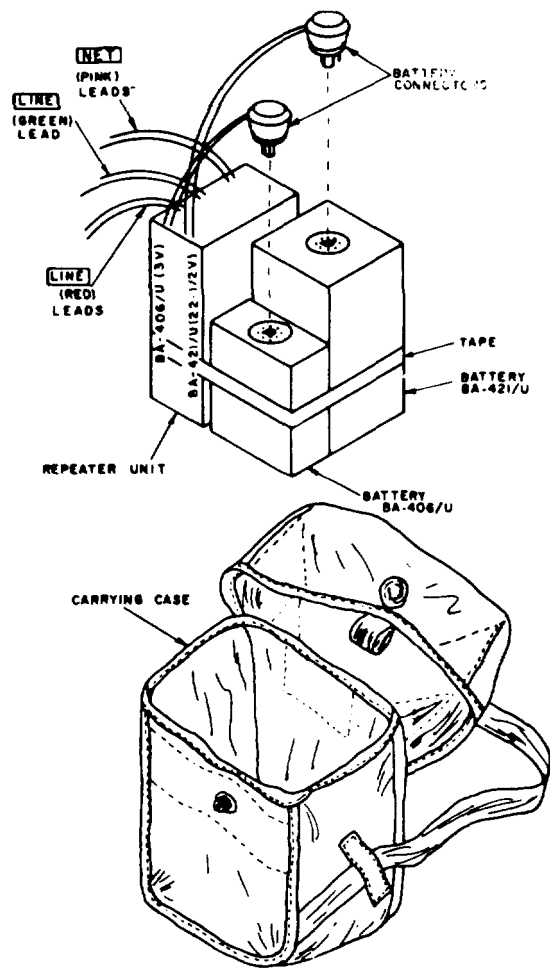
10. Operational Test

- a. Check to see that the NET (pink) leads are not shorted.
- b. Connect the LINE (red or green) leads to a field telephone; short the other LINE leads.
- c. Listen for tone in the receiver of the telephone handset.

d. If tone is *not* heard, check the battery voltage under load with a voltmeter (part of wire team equipment). The BA-406/U should not be less than 20 volts; the BA421/U should not be less than 2.7 volts. Replace the batteries if necessary. If tone is not heard when good batteries are used, replace the repeater unit.

11. Locating Repeaters

a. *Length of Field Wire Lines.* The number of telephone repeaters required in a field wire line is determined by the length of the field wire line. The length of the field wire line, in wire miles, may be determined by personnel performing a map or route reconnaissance of the area or by calculation at the time of installation. If it is necessary for the installation



TM5805-302-10-3

Figure 3. Repeater, Telephone TA-e87/G, battery installation.

personnel to determine the length of the field wire line, the chart below may be used as a guide.

Reel type	Quantity of WD-1/TT (miles)
Reel DR-5.....	2 1/2
Wire Reel RL 159/U.....	1
Spool DR-8-A	1/4
Wire Dispenser MK-306A/G.....	2/2

b. Locating Telephone Repeaters. The number of telephone repeaters required in a field wire line is determined after the length of the field wire line, in wire-miles, is known. A terminal repeater may be located between 1 and 3 wire-miles from the terminal when the NET (pink) leads are used, or 6 miles (± 2 miles) from the terminal when one of the LINE (red or green) leads is used. Intermediate telephone repeaters should be located about 6 wire-miles apart; however, this distance is not critical and the intermediate telephone repeaters may be spaced between 4 and 8 wire miles apart. Use only the LINE (red and green) leads to terminate intermediate repeaters. The telephone repeaters should be equally spaced along the field wire line. If the NET (pink) leads are used to terminate one side of a terminal telephone repeater, the LINE (red) leads *must* be used to terminate the other side of the same telephone repeater in the field wire line.

12. Installation

a. *Mounting* (fig. 4). Mount the telephone repeater on a suitable support (tree, post, or pole)

high enough to clear any surface water or snow and to protect the telephone repeater from damage by moving vehicles. Follow the procedure given below to mount the telephone repeater.

- (1) Drive a nail into the support.
- (2) Hang the carrying case on the nail. Use the flap and eyelet located on the back of the carrying case.
- (3) Wrap the carrying strap around the support and fasten it with the buckle to secure the telephone repeater to the support.

b. Terminating Field Wire. Tie the field wire to the support either above or below the telephone repeater with a standard field wire tie. Leave the wire slack enough to permit a drip loop in the field wire after the telephone repeater is connected.

c. Connections (fig. 4). Check to see whether the telephone repeater is to be a terminal or an intermediate telephone repeater.

- (1) If the telephone repeater is located between 1 1/2 and 3 miles from the end of the line, splice the NET (pink) leads to the terminal end field wire pair. Splice the LINE (red) leads to the line side field wire pair. Be sure to tape the ends of the green lead to prevent shorting.
- (2) If the telephone repeater is located approximately 6 miles from the end of the line or is used as an intermediate repeater, splice the LINE (red) leads to one of the field wire pairs and the LINE

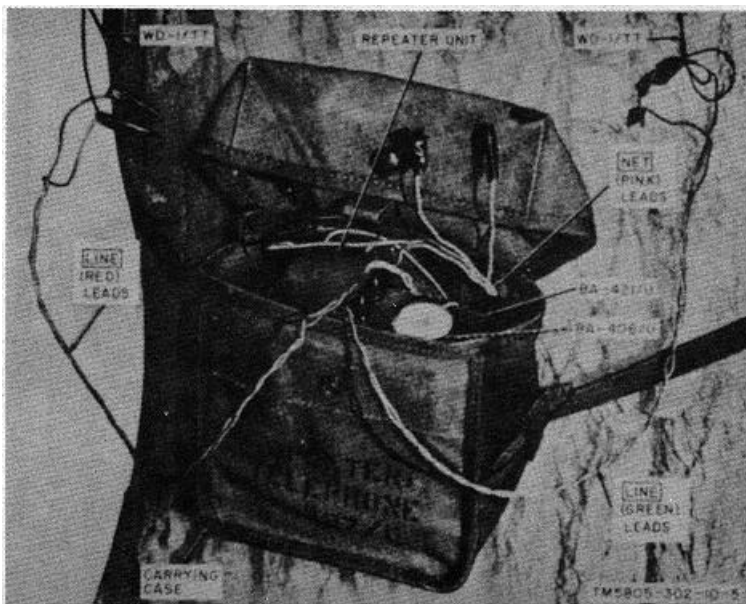


Figure 4. Repeater, Telephone TA-287/U, typical mounting.

(green) leads to the other field wire pair.

Note. The splice may be made with sleeves and Splicing Tool TL-582/U or 5 standard field wire splice

- (3) Tape the ends of the unused leads to prevent them from becoming shorted.
- (4) Close the cover of the carrying case and check to be sure that the drip loop hangs properly to prevent water from entering the carrying case.

13. Locating Defective Repeaters

The repeater unit cannot be repaired; however, defective batteries may be replaced, and a defective repeater unit must be located so that it can be replaced. The following information is provided to assist personnel in locating a defective repeater unit.

a. Defective Batteries. Defective batteries will not cause complete loss of transmission; however, there will be a noticeable decrease in the transmission level. Check the batteries (par. 10d) at each telephone repeater to determine which batteries are defective. Replace both batteries in a telephone repeater when one of the batteries is defective.

b. Lightning Strikes. Lightning strikes or other high voltage on the field wire line may cause the repeater unit to be shorted across the field wire line. Use standard methods of troubleshooting to determine the location of the defective repeater unit.

14. Replacement of Repeater Unit Leads

If the repeater unit is serviceable, but the NET or LINE leads are too short to permit easy splicing to a field wire line, follow the procedure given below.

a. Obtain stranded wire with insulation as near the same color as the repeater unit leads (pink, red, and green). Identify each pair with a field wire tag, if necessary.

b. Splice approximately 2 feet of wire to each of the repeater unit leads. Be sure to match the colors.

BY ORDER OF THE SECRETARY OF THE ARMY:

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

Official:

R. V. LEE,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

To be distributed in accordance with DA Form 12 7 requirements for TM 11 Series (unclas) plus the following formula:

USASA (2)	11-7 (2)
Def Atomic Spt	11-16 (2)
Agcy (5)	11-57 (2)
CNGB (1)	11-97 (2)
Tech Stf, DA (1)	11-117 (2)
except CSigO (18)	11-155 (2)
US ARADCOM (2)	11-500
US ARADCOM	(AA-AE) (4)
Rgn (2)	11-557 (2)
MDW (1)	11-587 (2)
Seventh USA (2)	11-592 (2)
EUSA (2)	11-597 (2)
USASCS (503)	32-57 (2)
Units org under fol TOE:	

NG: State AG (3); units same as Active Army except allowance is one copy to each unit.

USAR: None.

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

AGO 4137C

15

☆GPO: 1994 O - 300-421 (82765)

