TM 11-704

TO 16-30 VIA1

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

AUXILIARY INTERPHONE EQUIPMENT AN/VIA-1

DEPARTMENT OF THE ARMY • MARCH 1951

TECHNICAL MANUAL

AUXILIARY INTERPHONE EQUIPMENT AN/VIA–1

CHANGES
No. 1

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *26 April 1951*

TM 11–704, 30 March 1951, is changed as follows:

[AG 413.42 (24 Apr 51)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL:
EDWARD F. WITSELL
Major General, USA
The Adjutant General

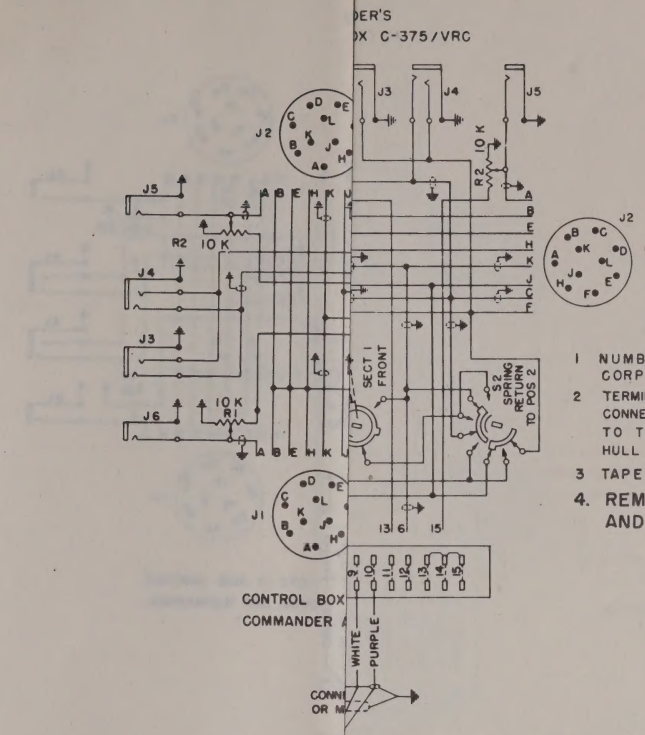
J. LAWTON COLLINS
Chief of Staff, United States Army

DISTRIBUTION:

Tech Svc (2) except 11 (65); Arm & Svc Bd (1); AFF Bd (ea Svc Test Sec) (1); AFF (5); AA Comd (2); OS Maj Comd (5); Base Comd (5); Log Comd (5); MDW (5); A (20); CHQ (2); FC (2); Sch (2) except 11 (25); Gen Dep (2); Dep 11 (20) except Sig Sec, Gen Dep (10); Tng Div (2); PE (10), OSD (2); PG (2); Ars (2); Lab 11 (5); 4th & 5th Ech Maint Shops 11 (3); T/O & E 2–22 (2); 2–25 (2); 2–26 (2); 2–27 (2); 2–28 (2); 4–66 (2); 4–157 (2); 4–260 (2); 5–215 (2); 5–216 (2); 5–217 (2); 5–218 (2); 5–412 (2); 5–415 (2); 5–416 (2); 5–500 AA, AB, AC, AD (2); 5–510 (2); 5–511 (2); 5–515 (2); 5–516 (2); 5–627 (2); 6–1 (2); 6–2 (25); 6–10 (2); 6–12 (2); 6–20 (2); 6–26 (2); 6–27 (2); 6–29 (2); 6–36 (2); 6–50 (2); 6–55 (2); 6–56 (2); 6–65 (2); 6–75 (2); 6–76 (2); 6–77 (2); 6–85 (2); 6–86 (2); 6–87 (2); 6–125 (2); 6–126 (2); 6–160 (2); 6–165 (2); 6–166 (2); 6–167 (2); 6–169 (2); 6–196 (2); 6–197 (2); 6–200 (2); 6–225 (2); 6–226 (2); 6–227 (2); 6–229 (2); 6–327 (2); 6–335 (2); 6–336 (2); 6–337 (2); 6–339 (2); 6–355 (2); 6–365 (2); 6–395 (2); 6–435 (2); 6–437 (2); 6–455 (2); 6–457 (2); 6–459 (2); 6–465 (2); 6–496 (2); 6–635 (2); 6–655 (2); 6–695 (2); 7 (2); 7–1 (2); 7–2 (25); 7–11 (2); 7–12 (2); 7–15 (2); 7–16 (2); 7–17 (2); 7–25 (2); 7–26 (2); 7–27 (2); 7–29 (2); 7–31 (2); 7–32 (2); 7–35 (2) 7–36 (2); 7–41 (2); 7–45 (2); 7–46 (2); 7–47 (2); 7–95 (2); 7–96 (2); 8–75 (2); 8–76 (2); 8–77 (2); 9–12 (2); 9–37 (2); 9–57 (2); 9–66 (2); 9–67 (2); 9–500 AA, AB, AC, AD (2); 10–45 (2); 10–46 (2); 10–47 (2); 10–48 (2); 11–2 (25); 11–7 (2); 11–15 (2); 11–16 (2); 11–57 (2); 11–107 (2); 11–127 (2); 11–500 CA, CB, CC, CD (2); 11–537 (2); 11–557 (2); 11–587 (2); 11–592 (2); 11–597 (2); 17 (2); 17–1 (2); 17–2 (25); 17–17 (2); 17–20 (2); 17–22 (2); 17–25 (2); 17–26 (2); 17–27 (2); 17–29 (2); 17–32 (2); 17–35 (2); 17–36 (2); 17–53 (2); 17–55 (2); 17–56 (2); 17–57 (2); 17–58 (2); 17–60 (2); 17–115 (2); 17–116 (2); 17–117 (2); 17–125 (2); 17–126 (2); 17–127 (2); 19–27 (2); 19–55 (2); 19–56 (2); 19–57 (2); 19–77 (2); 19–117 (2); 19–217 (2); 19–500 AA, AB, AC, AD (2); 20–100 (2); 20–200 (2); 20–207 (2); 20–211 (2); 20–214 (2); 20–215 (2); 20–216 (2); 20–217 (2); 20–219 (2); 44–1 (2); 44–2 (25); 44–15 (2); 44–16 (2); 44–75 (2); 44–76 (2); 44–77 (2); 44–115 (2); 44–116 (2); 55–36 (2); 55–37 (2); 71 (2); 71–2 (25); 100–2 (25); 200 (2); SPECIAL DISTRIBUTION.

For explanation of distribution formula, see SR 310–90–1.

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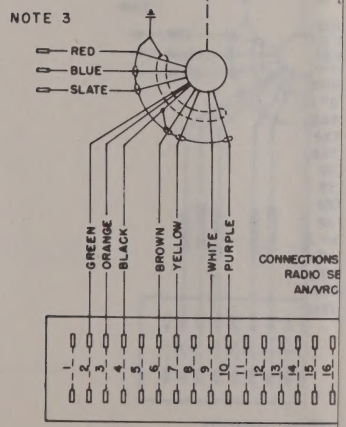
NOTES:

1 NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.

2 TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN HULL TERMINAL BOX.

3 TAPE ENDS OF UNUSED LEADS.

4. REMOVE JUMPERS 14 TO 15, 15 TO 16, AND 17 TO 18.

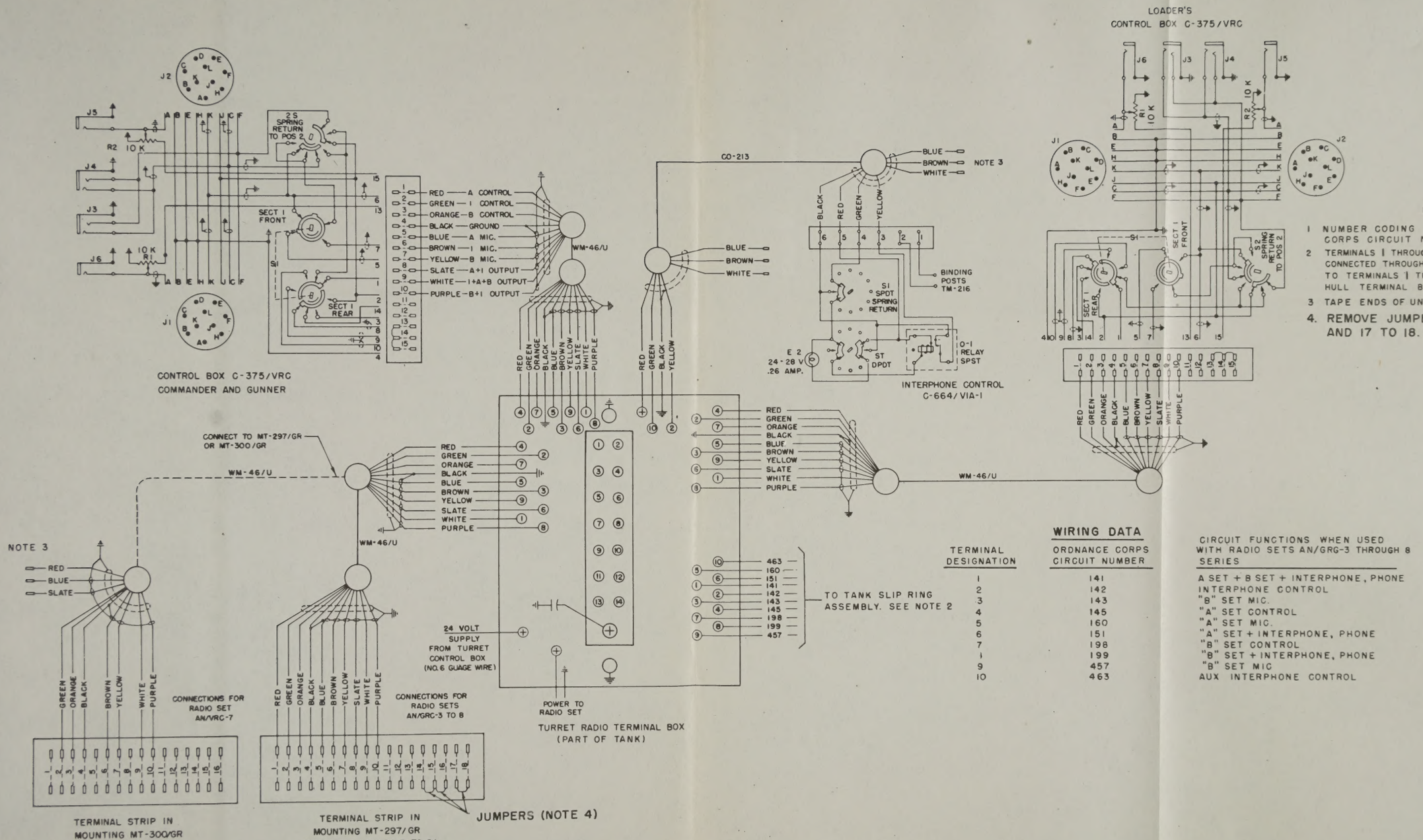


TERMINAL STRIP IN MOUNTING MT-300/GR (RADIO SET AN/VRC-7)

CIRCUIT FUNCTIONS WHEN USED WITH RADIO SETS AN/GRG-3 THROUGH 8 SERIES

A SET + B SET + INTERPHONE, PHONE
INTERPHONE CONTROL
"B" SET MIC.
"A" SET CONTROL
"A" SET MIC.
"A" SET + INTERPHONE, PHONE
"B" SET CONTROL
"B" SET + INTERPHONE, PHONE
"B" SET MIC
AUX INTERPHONE CONTROL

943350 O - 51 (Face blank page 2) No. 1



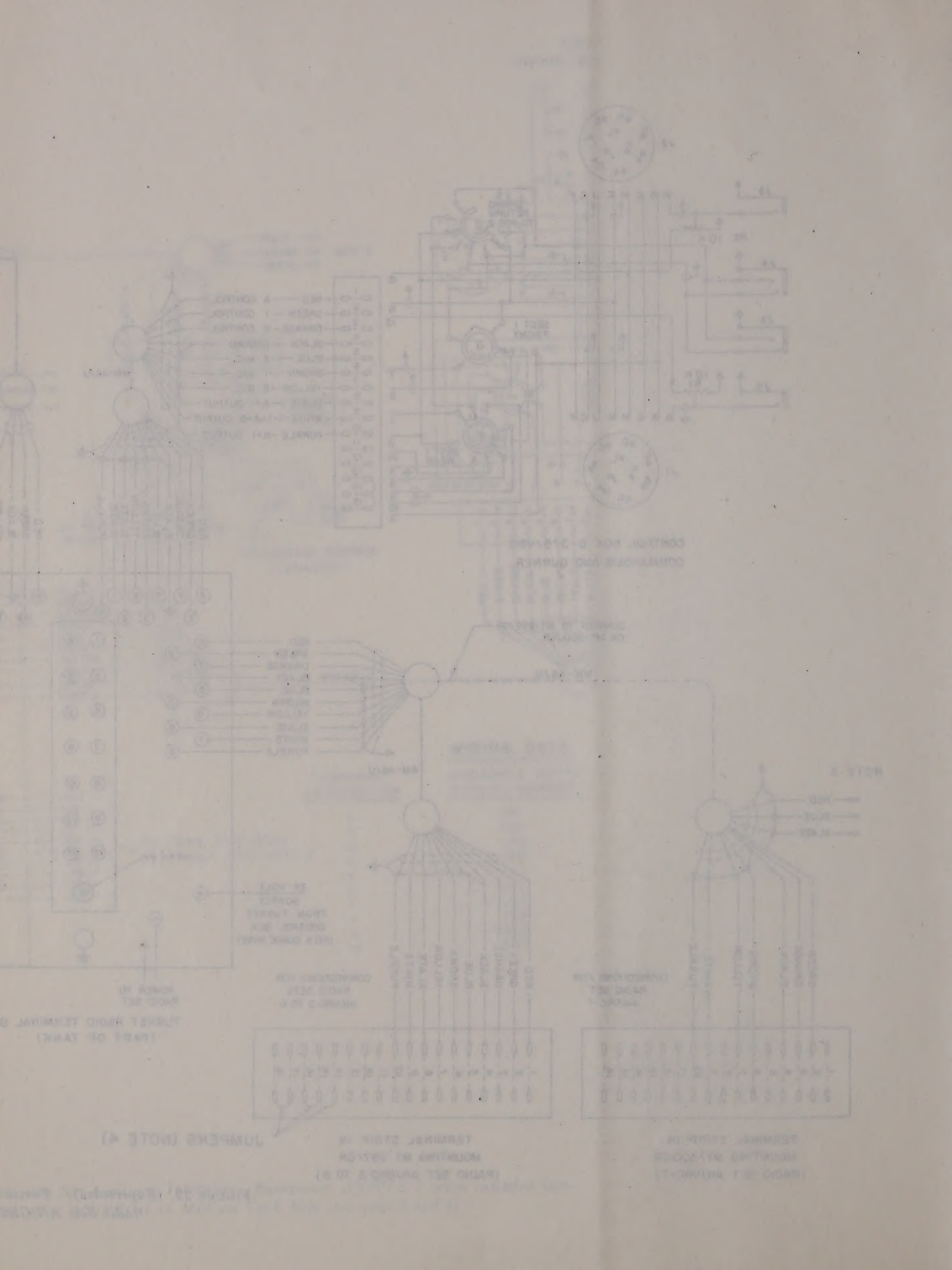
NOTES:

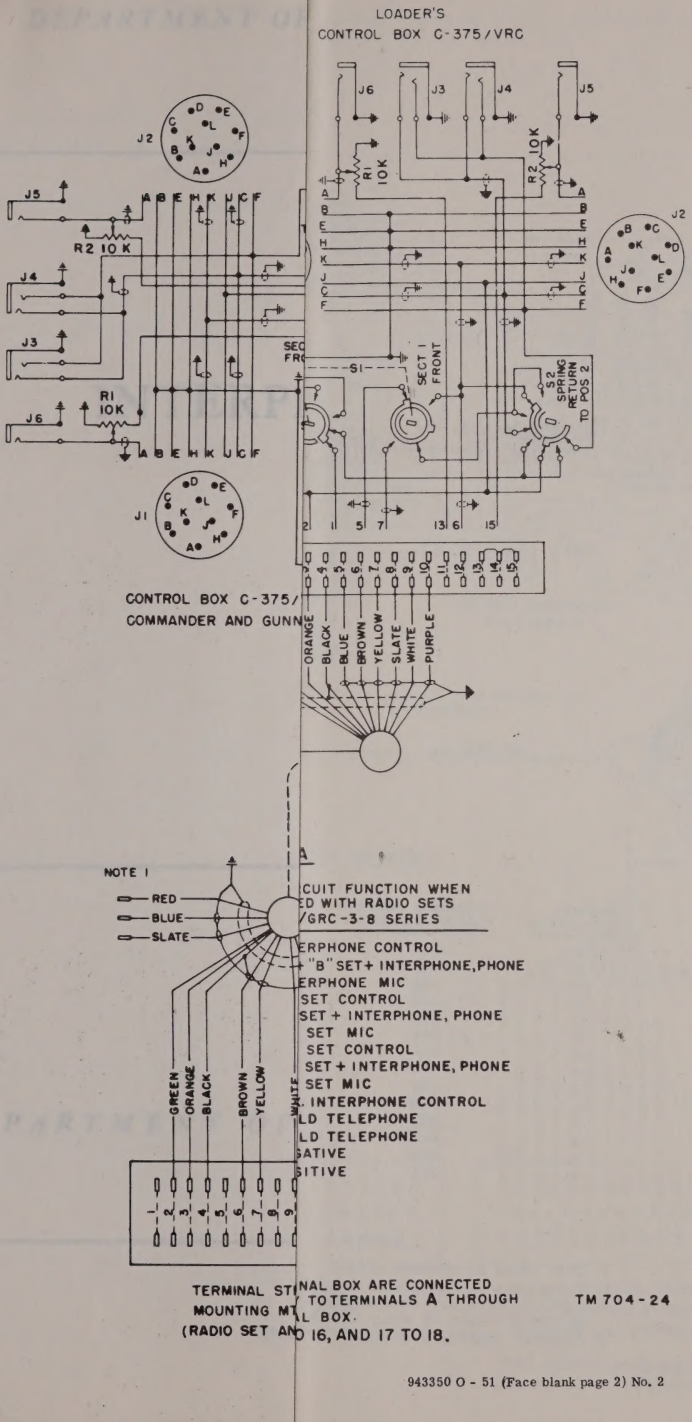
1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN HULL TERMINAL BOX.
3. TAPE ENDS OF UNUSED LEADS.
4. REMOVE JUMPERS 14 TO 15, 15 TO 16, AND 17 TO 18.

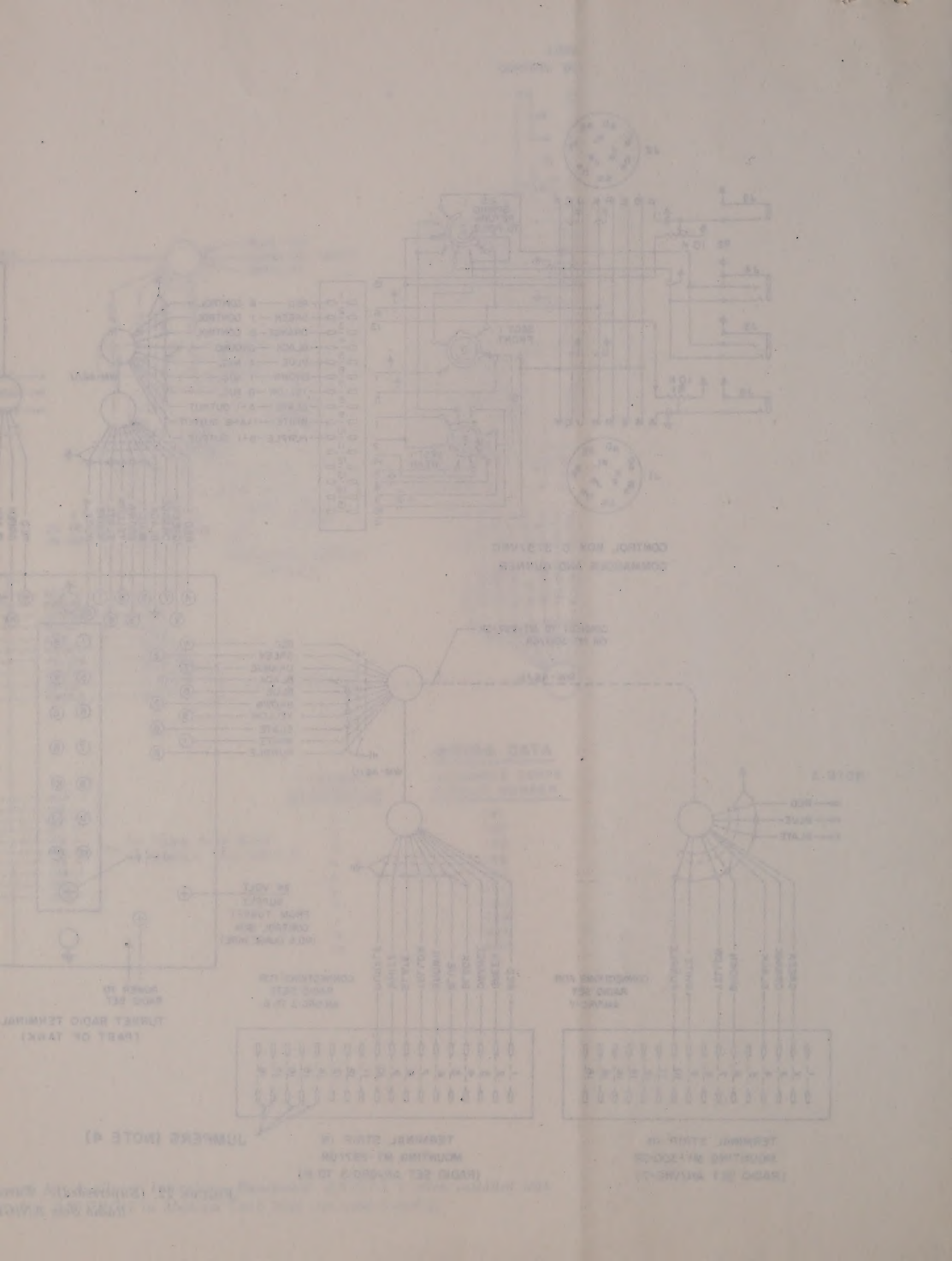
WIRING DATA

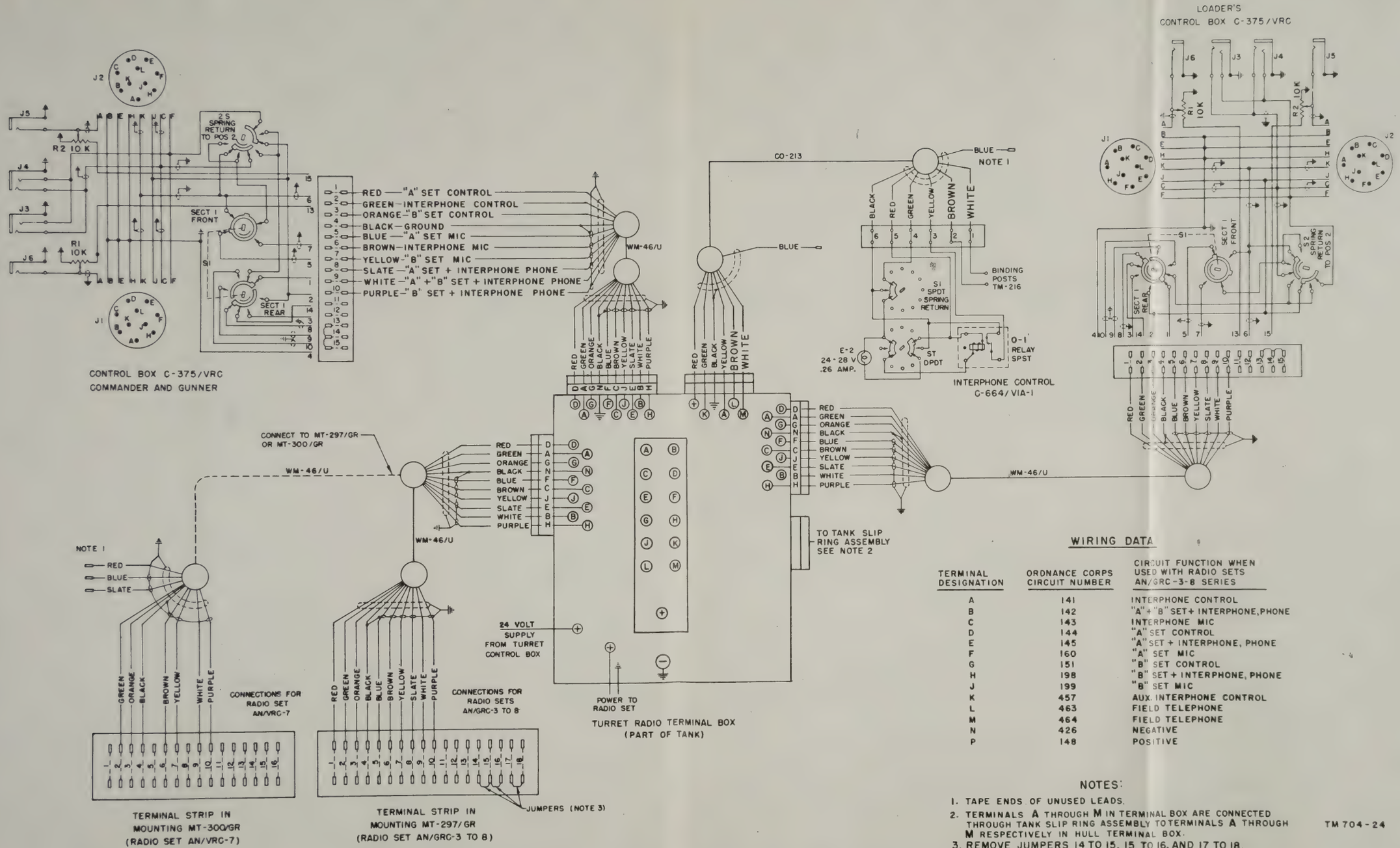
TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTIONS WHEN USED WITH RADIO SETS AN/GRG-3 THROUGH 8 SERIES
1	141	A SET + B SET + INTERPHONE, PHONE
2	142	INTERPHONE CONTROL
3	143	"B" SET MIC.
4	145	"A" SET CONTROL
5	160	"A" SET MIC.
6	151	"A" SET + INTERPHONE, PHONE
7	198	"B" SET CONTROL
1	199	"B" SET + INTERPHONE, PHONE
9	457	"B" SET MIC
10	463	AUX INTERPHONE CONTROL

FIGURE 22. *(Superseded). Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in Medium Tank M46 (see notes 3 and 4).*




LOADER'S
CONTROL BOX C-375/VRC
J1
J2
J3
J4
J5
J6
R1 10K
R2 10K
S1
S2
SECT 1 FRONT
SPRING RETURN TO POS 2
ORANGE
BLACK
BLUE
BROWN
YELLOW
SLATE
WHITE
PURPLE
CONTROL BOX C-375/
COMMANDER AND GUNN
NOTE 1
RED
BLUE
SLATE
CUIT FUNCTION WHEN
ED WITH RADIO SETS
/GRC-3-8 SERIES
ERPHONE CONTROL
"B" SET+ INTERPHONE, PHONE
ERPHONE MIC
SET CONTROL
SET + INTERPHONE, PHONE
SET MIC
SET CONTROL
SET + INTERPHONE, PHONE
SET MIC
INTERPHONE CONTROL
LD TELEPHONE
LD TELEPHONE
SATIVE
ITIVE
GREEN
ORANGE
BLACK
BROWN
YELLOW
WHITE
TERMINAL ST NAL BOX ARE CONNECTED
MOUNTING MT L BOX.
(RADIO SET AN 16, AND 17 TO 18.
TO TERMINALS A THROUGH
TM 704-24





WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS AN/GRC-3-8 SERIES
A	141	INTERPHONE CONTROL
B	142	"A" + "B" SET + INTERPHONE, PHONE
C	143	INTERPHONE MIC
D	144	"A" SET CONTROL
E	145	"A" SET + INTERPHONE, PHONE
F	160	"A" SET MIC
G	151	"B" SET CONTROL
H	198	"B" SET + INTERPHONE, PHONE
J	199	"B" SET MIC
K	457	AUX. INTERPHONE CONTROL
L	463	FIELD TELEPHONE
M	464	FIELD TELEPHONE
N	426	NEGATIVE
P	148	POSITIVE

NOTES:

1. TAPE ENDS OF UNUSED LEADS.
2. TERMINALS A THROUGH M IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS A THROUGH M RESPECTIVELY IN HULL TERMINAL BOX.
3. REMOVE JUMPERS 14 TO 15, 15 TO 16, AND 17 TO 18.

TM 704-24

FIGURE 26. *(Superseded). Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in tanks, other than M46 (see note 3).*



DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TM 11-704

AUXILIARY INTERPHONE EQUIPMENT AN/VIA-1



DEPARTMENT OF THE ARMY *MARCH 1951*

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Washington: 1951

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *30 March 1951*

TM 11–704, Auxiliary Interphone Equipment AN/VIA–1, is published for the information and guidance of all concerned.

[AG 413.42 (22 Mar 51)]

BY ORDER OF THE SECRETARY OF THE ARMY:

J. LAWTON COLLINS
Chief of Staff, United States Army

OFFICIAL:

EDWARD F. WITSELL
Major General, USA
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DISTRIBUTION:

Tech Svc (2) except 11 (65); Arm & Svc Bd (1); AFF Bd (ea Svc Test Sec) (1); AFF (5); AA Comd (2); OS Maj Comd (5); Base Comd (5); Log Comd (5); MDW (5); A (20); CHQ (2); FC (2) Sch (2) except 11 (25); Gen Dep (2); Dep 11 (20) except Sig Sec, Gen Dep (10); Tng Div (2); PE (10); OSD (2); PG (2); Ars (2); Lab 11 (5); 4th & 5th Ech Maint Shops 11 (3); T/O & E 2–22 (2); 2–25 (2); 2–26 (2); 2–27 (2); 2–28 (2); 4–66 (2); 4–157 (2); 4–260 (2); 5–215 (2); 5–216 (2); 5–217 (2); 5–218 (2); 5–412 (2); 5–415 (2); 5–416 (2); 5–500 AA, AB, AC, AD (2); 5–510 (2); 5–511 (2); 5–515 (2); 5–516 (2); 5–627 (2); 6–1 (2); 6–2 (25); 6–10 (2); 6–12 (2); 6–20 (2); 6–26 (2); 6–27 (2); 6–29 (2); 6–36 (2); 6–50 (2); 6–55 (2); 6–56 (2); 6–65 (2); 6–75 (2); 6–76 (2); 6–77 (2); 6–85 (2); 6–86 (2); 6–87 (2); 6–125 (2); 6–126 (2); 6–160 (2); 6–165 (2); 6–166 (2); 6–167 (2); 6–169 (2); 6–196 (2); 6–197 (2); 6–200 (2); 6–225 (2); 6–226; (2); 6–227 (2); 6–229 (2); 6–327 (2); 6–335 (2); 6–336 (2); 6–337 (2); 6–339 (2); 6–355 (2); 6–365 (2); 6–395 (2); 6–435 (2); 6–437 (2); 6–455 (2); 6–457 (2); 6–459 (2); 6–465 (2); 6–496 (2); 6–635 (2); 6–655 (2); 6–695 (2); 7 (2); 7–1 (2); 7–2 (25); 7–11 (2); 7–12 (2); 7–15 (2); 7–16 (2); 7–17 (2); 7–25 (2); 7–26 (2); 7–27 (2); 7–29 (2); 7–31 (2); 7–32 (2); 7–35 (2); 7–36 (2); 7–41 (2); 7–45 (2); 7–46 (2); 7–47 (2); 7–95 (2); 7–96 (2); 8–75 (2); 8–76 (2); 8–77 (2); 9–12 (2); 9–37 (2); 9–57 (2); 9–66 (2); 9–67 (2); 9–500 AA, AB, AC, AD (2); 10–45 (2); 10–46 (2); 10–47 (2); 10–48 (2); 11–2 (25); 11–7 (2); 11–15 (2); 11–16 (2); 11–57 (2); 11–107 (2); 11–127 (2); 11–500 CA, CB, CC, CD (2); 11–537 (2); 11–557 (2); 11–587 (2); 11–592 (2) 11–597 (2); 17 (2); 17–1 (2); 17–2 (25); 17–17 (2); 17–20 (2); 17–22 (2); 17–25 (2); 17–26 (2); 17–27 (2); 17–29 (2); 17–32 (2); 17–35 (2); 17–36 (2); 17–53 (2); 17–55 (2); 17–56 (2); 17–57 (2); 17–58 (2); 17–60 (2); 17–115 (2); 17–116 (2); 1 7–117 (2); 17–125 (2); 17–126 (2); 17–127 (2); 19–27 (2); 19–55 (2); 19–56 (2); 19–57 (2); 19–77 (2); 19–117 (2); 19–217 (2); 19–500 AA, AB, AC, AD (2); 20–100 (2); 20–200 (2); 20–207 (2); 20–211 (2); 20–214 (2); 20–215 (2); 20–216 (2); 20–217 (2); 20–219 (2); 44–1 (2); 44–2 (25); 44–15 (2); 44–16 (2); 44–75 (2); 44–76 (2); 44–77 (2); 44–115 (2); 44–116 (2); 55–36 (2); 55–37 (2); 71 (2); 71–2 (25); 100–2 (25); 200 (2); SPECIAL DISTRIBUTION.

For explanation of distribution formula, see SR 310–90–1.

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Figure 1. Auxiliary Interphone AN/VIA–1 in use with Medium Tank M46.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the information and guidance of personnel to whom this equipment is issued. They contain information on the installation, operation, and organizational maintenance of Auxiliary Interphone Equipment AN/VIA–1 (fig. 1).

b. Two appendixes provide a list of references and an identification table of parts.

2. Forms and Records

warded as prescribed in SR 745–45–5 (Army), NAV DEPT SERIAL 85P00 (Navy), and AFR 71–4 (Air Force).

b. DA AGO Form 468, Unsatisfactory Equipment Report, will be filled out and forwarded to the Office of the Chief Signal Officer, as prescribed in SR 700–45–5.

c. AF Form 54, Unsatisfactory Report, will be filled out and forwarded to Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, as pre-

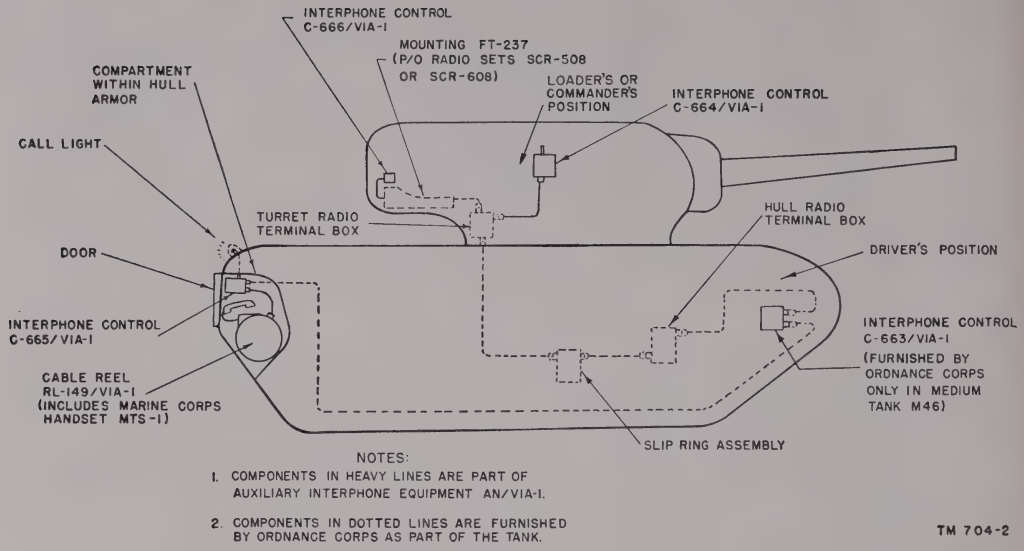


Figure 2. Installation of Auxiliary Interphone Equipment AN/VIA–1 in tank, simplified diagram.

4. Table of Components (fig. 3)

Component	Required No.	Length (in.)	Width (in.)	Height (in.)
Interphone Control C–663/VIA–1	1	6⅜	4 7/16	5 15/16
Interphone Control C–664/VIA–1	1	6⅜	6 9/16	2 17/32
Interphone Control C–665/VIA–1	1	8½	5⅝	3 13/16
Interphone Control C–666/VIA–1	1	4 7/16	4 3/32	1 11/16
Cable Reel RL–149/VIA–1: Reel Unit	1	10 3/16	9 13/16	5 13/16
Marine Corps Handset MTS-1	1	8⅞	2¾	3½
Hardware Kit	1			

Note. This list is for general information only. See appropriate supply publications for information pertaining to requisition of spare parts.

5. Description of Components

Auxiliary Interphone Equipment AN/VIA–1 consists of Interphone Control C–663/VIA–1, Interphone Control C–664/VIA–1, Interphone Control C–665/VIA–1, Interphone Control C–666/VIA–1, Cable Reel RL–149/VIA–1, and a hardware kit (fig. 3) for the installation of these components.

a. INTERPHONE CONTROL C–663/VIA–1. This unit (fig. 4) is essentially a waterproofed ¼-inch thick, cast-aluminum junction box provided with a gasketed cover and controls. The front cover contains an ON-OFF switch knob, fuse cap, and the red jewel of pilot light E3. Two binding posts (E1 and E2) are mounted on the bottom of the junction box to provide for the connection of a field telephone. Waterproofed male and female receptacles (J1 and J2, respectively) are located on the rear of the

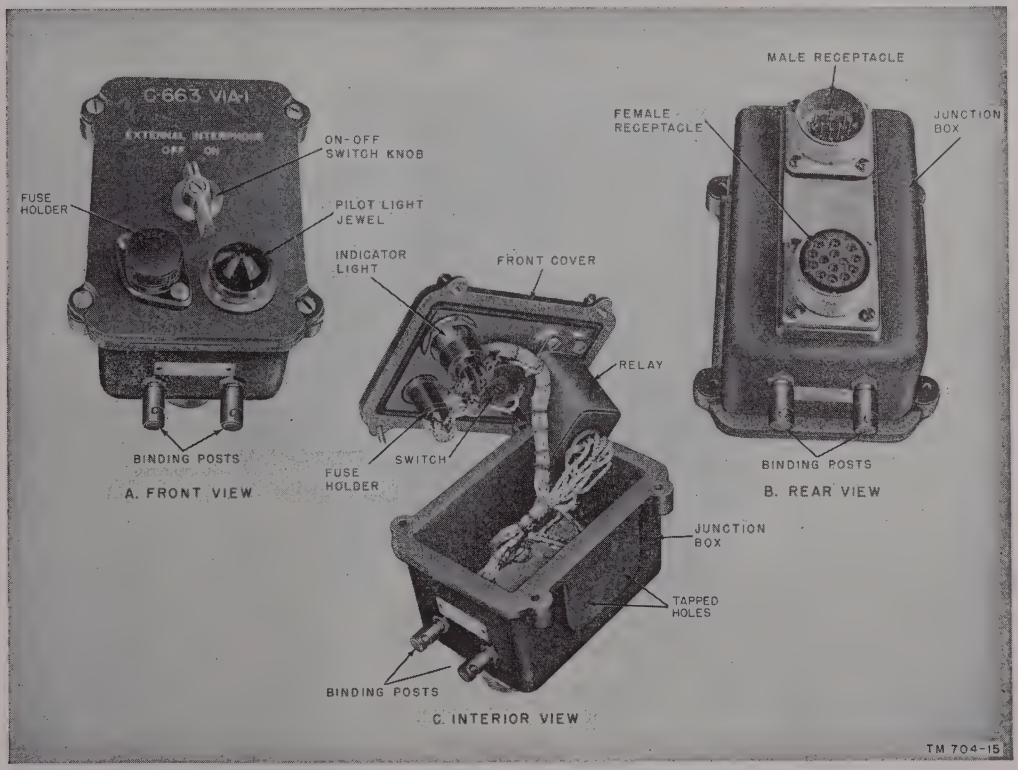


Figure 4. Interphone Control C–663/VIA–1.

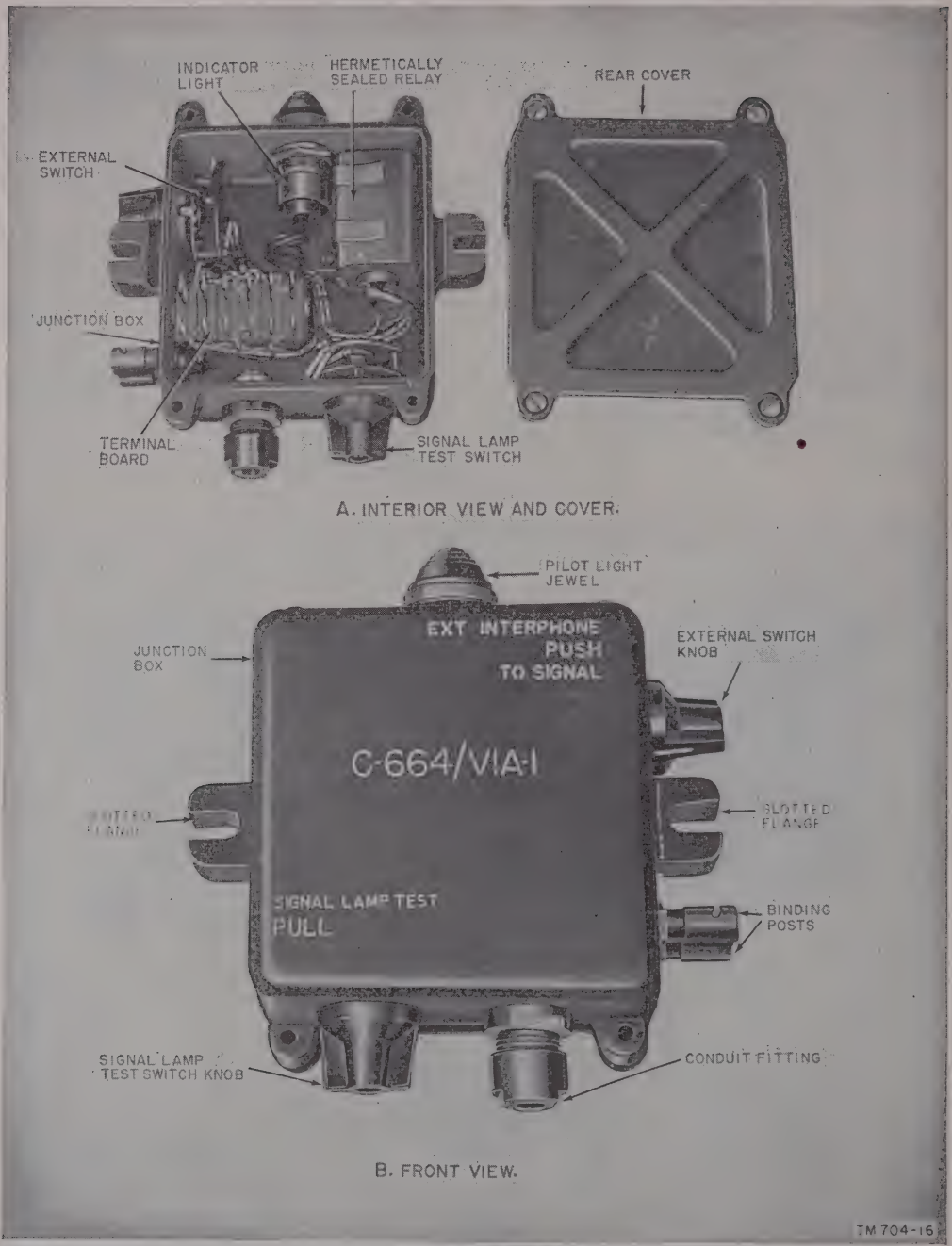


Figure 5. Interphone Control C–664/VIA–1.

junction box. The indicator light, fuse holder, switch, and waterproofed relay are contained within the junction box. A rubber gasket is seated between the cover and the junction box to keep the unit waterproof; the cover is fastened to the junction box by four captive screws. Two tapped holes are provided on three sides of the junction box for mounting the unit.

b. INTERPHONE CONTROL C–664/VIA–1. This unit (fig. 5) is essentially a waterproofed, ¼-inch thick, cast-aluminum junction box provided with a gasketed cover and controls. A pilot light jewel is located on the top of the box. At the bottom of the box are located the SIGNAL LAMP TEST switch knob and a conduit fitting. The EXT INTERPHONE PUSH TO SIGNAL switch knob and a pair of binding posts (for connecting a field telephone) are located on the right side of the junction box. Both switches, a hermetically sealed relay, an indicator light, and a terminal block are contained within the junction box. Two slotted flanges, one on each side of the box, provide means for mounting the unit.

c. INTERPHONE CONTROL C–665/VIA–1. This unit (fig. 6) is essentially a waterproofed, ⅛-inch thick cast-aluminum junction box with a gasketed cover and controls. Capped microphone and phone jacks, an audio receptacle, a volume control knob, and a pair of binding posts for field telephones are located on the top of the junction box. Three conduit fittings and a plug are mounted on the front of the box, and a series of four plugs are on the bottom of the box. (This arrangement permits alternate methods of connecting the unit to accommodate various vehicles.) The volume control, matching impedance transformer, hermetically sealed relay, screw driver controlled impedance switch, resistors, and terminal board are located inside the junction box. The cover of the box is held in place by four screws, and the entire assembly is sealed by gaskets for waterproofing. Two steel brackets screwed to the sides of the box provide means for mounting.

d. INTERPHONE CONTROL C–666–VIA/1. This unit (fig. 7) consists basically of a waterproofed, welded steel junction box. The box has a gasketed cover with an extension flange which provides means for mounting the unit, and the cover is secured to the box by four screws. The over-all dimensions of the unit are listed in paragraph 4. At the side of the box is a conduit fitting to which is attached 18 inches of Cordage CO–146. A hermetically sealed relay is contained inside the box.

e. CABLE REEL RL–149/VIA–1. Cable Reel RL–149/VIA–1 (fig. 8) consists of a reel unit and Marine Corps Handset MTS–1.

(1) *Reel unit.* This unit consists of a spring-loaded aluminum reel which pays out and retracts 40 feet of four-conductor flexible Cordage CO–146 terminating in Marine Corps Handset MTS–1. The over-all dimensions of the unit are listed in paragraph 4. The entire reel and cable are housed in a cast-aluminum cylindrical case approximately 9 inches in diameter and 5 inches high. Three flanges, equally spaced around the bottom of the housing, provide means for mounting the unit. Two sets of steel rollers, at right angles to each other, are mounted at the side of the housing. These rollers prevent the cable which passes between them from being scored when it is extended or returned to the reel. The end of the cable is fastened to the spool and terminated at four concentric slip rings set into a bakelite plate; contact is made to these rings by brushes. Approximately 40 inches of Cordage CO–146, terminated by four lugs, enter the reel housing through a raised opening on the cover plate; each wire of the cable is connected to two brushes to assure contact through the entire cable to the handset. Two springs, cable clamps, and ratchet stops permit the cable to pay out and retract in a manner very similar to that of the common house window shade.

(2) *Marine Corps Handset MTS–1.* This handset is rugged and waterproofed and has soft rubber caps protecting the receiver and transmitter. The body is of cast aluminum and contains a gasketed push-to-talk-and-listen control switch. The over-all dimensions are listed in paragraph 4.

f. HARDWARE KIT. A bag (fig. 3) containing the cordage and hardware (listed below) necessary for mounting the components is furnished with the equipment.

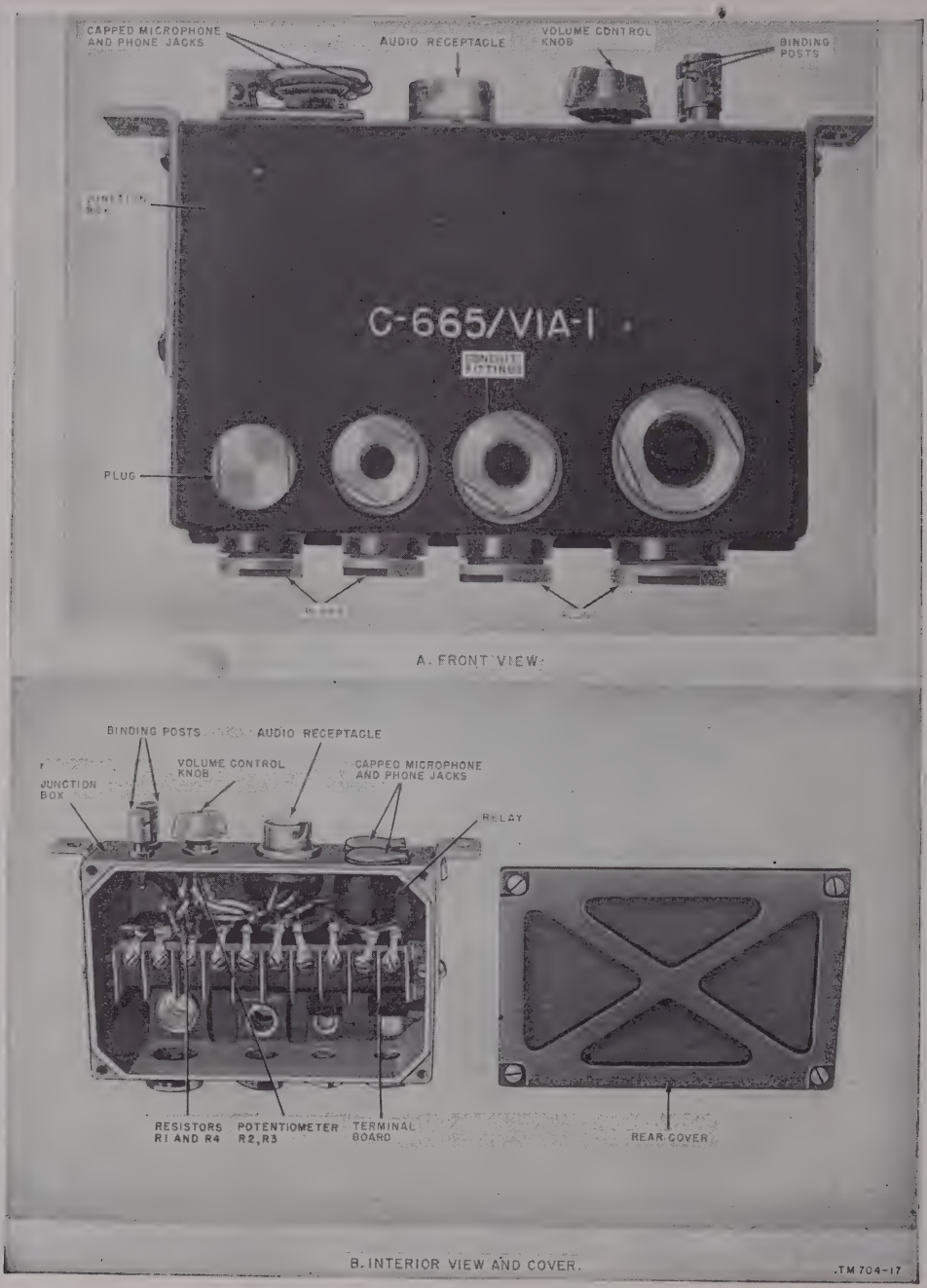


Figure 6. Interphone Control C–665/VIA–1.

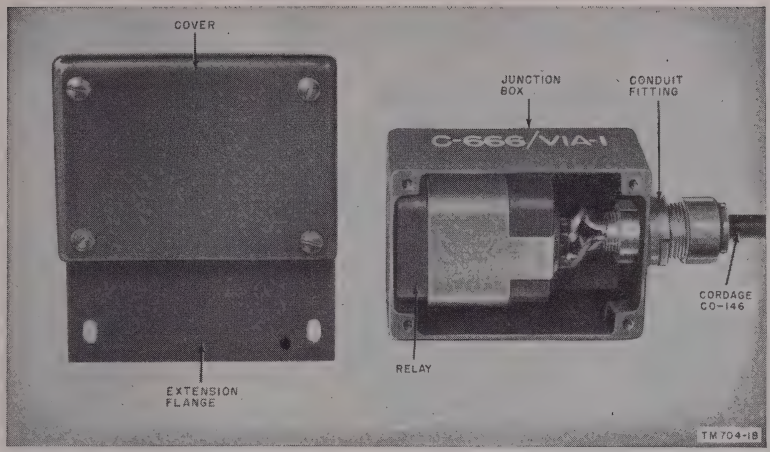


Figure 7.—Interphone Control C–666/VIA–1.

Quantity	Item	Dimensions (in.)
1	Cordage CO–213.	12 ft.
10	Clamp.	
8	Lockwasher, internal-external tooth type	¼
9	Lockwasher, internal-external tooth type.	5/16
6	Lockwasher, internal-external tooth type, Number 6.	
7	Nut, hex.	5/16–24
10	Screw, machine, hex. head.	¼–28, ½ lg
5	Screw, machine, hex. head.	¼–20, ½ lg
3	Screw, machine, hex. head.	¼–28, ¾ lg
4	Screw, machine, hex. head.	5/16–24, 1–¼ lg
3	Screw, machine, hex. head.	5/16–24, 1–½ lg
6	Screw, machine, round head.	6–32, ⅜ lg
3	Terminal for ¼ in. stud.	
7	Terminal for Number 8 and Number 10 Stud Patton McGuyer Co. 1054, or equal.	
12	Terminal strip.	

6. Packaging and Packing Data

a. PACKAGING.

(1) *Domestic shipment.* When packaged for domestic shipment, ordinary commercial packaging and preservation are used.

(2) *Oversea shipment. The components are* preserved and packaged in accordance with the procedures specified for the designated methods as described in Specification JAN–P–116 and further described in (*a*), (*b*), and (*c*) below. Unless explicitly referenced, packaging materials and containers specified comply with the requirements of the applicable specifications prescribed in Specification JAN–P–100.

(*a*) *Technical literature.* The technical literature is packaged individually, in accordance with procedures specified for method 1A–9. The literature is enclosed within a close-fitting, sealed, waterproof bag conforming to the requirements of Specification JAN–P–117.

(*b*) *Interphone controls.* The interphone controls are packaged individually, in accordance with procedures specified for method IIb, as follows: Each control is cushioned by being wrapped in two thicknesses of flexible corrugated paper, and the cushioning is secured with gummed Kraft tape. Each cushioned control, together with the required amount of desiccant, is placed with a close-fitting, suitably styled, corrugated fiberboard box having a minimum Mullen test strength of 200 pounds. The entire closure is sealed with gummed Kraft tape. All corners of the box are blunted. Each boxed control is placed within a type I, moisture-vaporproof barrier, qualified for class B application conforming to the requirements of Specification JAN–P–131. The closure is heat-sealed. Each moisture-vaporproof control is placed within a second close-fitting, suit-

ably styled, corrugated fiberboard box, having a minimum Mullen test strength of 200 pounds. The entire closure is sealed with suitable tape or adhesive.

(*c*) *Cable Reel RL–149/VIA–1.* Each cable reel is packaged, in accordance with procedures specified for method IIb, as follows: Each attached handset is cushioned by wrapping in 1-inch thick, neutral cellulose wadding, with the cushioning secured with pressure-sensitive tape. The cushioned handset is secured to the reel frame with cotton tape. The cushioned handset is secured, together with the required amount of desiccant as prescribed in table II, section E of Specification JAN–P–116, by inclosing it within a two-piece folder fabricated of corrugated fiberboard. The desiccant is secured to the reel frame with cotton tape. The entire closure is sealed with gummed Kraft tape. Each cushioned cable reel is placed within a close-fitting, suitably styled, corrugated fiberboard box, having a minimum Mullen test strength of 200 pounds. The entire closure is sealed with gummed Kraft tape. All corners of the box are blunted. The boxed cable reel is placed within a moisture-vaporproof barrier, type I, qualified for class B application, conforming to the requirements of Specification JAN–P–131. The closure is heat-sealed. The moisture-vaporproof cable reel is placed within a second, close-fitting, suitably styled corrugated fiberboard box, having a minimum Mullen test strength of 200 pounds. The entire closure is heat-sealed with suitable tape or adhesive.

b. PACKING.

(1) *Domestic shipment.* The components are packed in substantial commercial containers of the type, size, and kind commonly used for the purpose.

(2) *Oversea shipment.* One each of Interphone Control C–663/VIA–1, C–664/VIA–1, C–665/VIA–1, and C–666/VIA–1, packaged as specified in *a* (2) (*b*) above, and one each Cable Reel RL–149/VIA–1, packaged as specified in *a* (2) (*c*) above, are placed together in a wood-cleated plywood box or a nailed wooden box, conforming to the requirements of Specifications JAN–P–105 and JAN–P–106, respectively. The boxes are fabricated to fit the contents snugly. Each shipping container is lined with a waterproof bag conforming to the requirements of Specification JAN–P–125 for case liners. All voids are filled with cells and/or pads fabricated of corrugated fiberboard. The waterproof bag is sealed with adhesive, conforming to the requirements of Specification JAN–P–140, to provide water resistance equal to that of the barrier material. The packaged technical literature, described in *a* (2) (*a*) above, is positioned at the top side of the waterproof bag and secured with suitable tape. The shipping containers are closed and strapped as specified in the appendix of the applicable box specification.

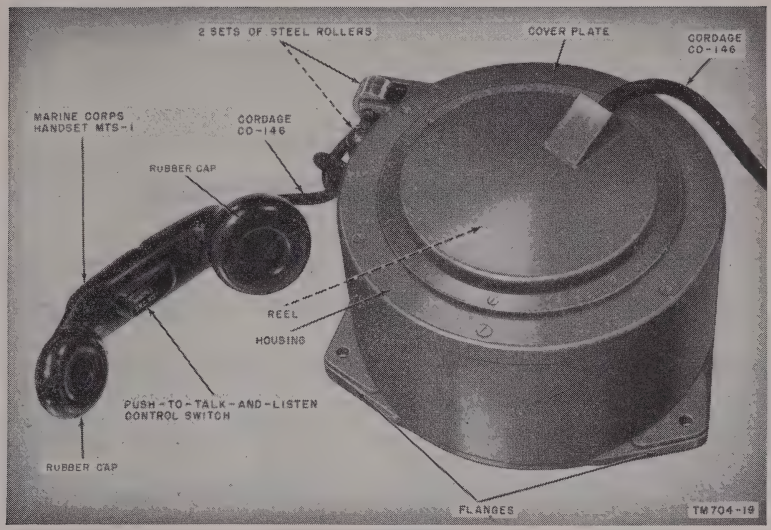


Figure 8. Cable Reel RL–149/VIA–1.

CHAPTER 2

OPERATING INSTRUCTIONS

Section 1. SERVICE UPON RECEIPT OF EQUIPMENT

7. Uncrating and Unpacking

a. NEW EQUIPMENT. Auxiliary Interphone Equipment AN/VIA–1 is shipped as described in paragraph 6. When uncrating and unpacking, be careful not to damage the equipment by thrusting tools into the interior. Do not damage the packing material more than is necessary. Store the inside packaging in the shipping container for future use. Unpack the equipment as follows:

(1) Remove the nails with a nail puller and lift off the top of the shipping container.
(2) Cut the tape and seals of the case liner so that the waterproof paper is damaged as little as possible.
(3) Lift out the fiberboard pads used for blocking and bracing the equipment.
(4) Lift out the packaged components. Carefully remove the waterproof wrap.
(5) Cut the tape which seals the flaps of the carton so that the carton is not damaged. Open the carton and remove the moisture-vaporproof package.
(6) Cut off the moisture-vaporproof barrier. Remove the inner carton.
(7) Open the inner box and remove the top cushioning cells and/or pads. Remove the desiccant and the packaged instruction books. Remove the components.
(8) Store the inner packaging material (except the desiccant) in the inner carton for repacking for storage or shipment.
(9) Inspect the equipment thoroughly for possible damage during shipment.
(10) Check the contents of the packing case against the master packing slip.

b. USED OR RECONDITIONED EQUIPMENT.

(1) Follow the instructions of *a* above.
(2) Check the used or reconditioned equipment for tags or other indications pertaining to changes in the wiring of the equipment. If any changes in wiring have been made, note the changes in this technical manual, preferably on the wiring diagrams.
(3) Check the switches for ease of rotation.

8. Installation

This description is of a general nature. For detailed installation instructions for a specific vehicle, refer to the installation instructions issued for that vehicle. Cables with plugs to connect to Interphone Controls C–663/VIA–1 and C–665/VIA–1, as well as the external call light and its cable, have been installed in the tank during manufacture. Refer to figures 2 and 9 for the location of the components of the AN/VIA–1.

a. INTERPHONE CONTROL C–663/VIA–1.

(1) Install Interphone Control C–663/VIA–1 on the bracket in the vicinity of the driver's position (fig. 10) with the necessary screws provided in the hardware kit. Plug in the two cables available at this position to the male and female receptacles on the junction box. Refer to figures 23 and 25 for the wiring diagrams of this unit and for its interconnection to radio equipments in tanks other than Medium Tank M46.
(2) In Medium Tank M46, this particular control is installed by the Ordnance Corps at the time of manufacture of the vehicle, and it is designated Box Assembly Auxiliary Interphone Switch Ordnance No. C 7730830. This box assembly does not have the protective fuse, and the male and female receptacles are of a different size than

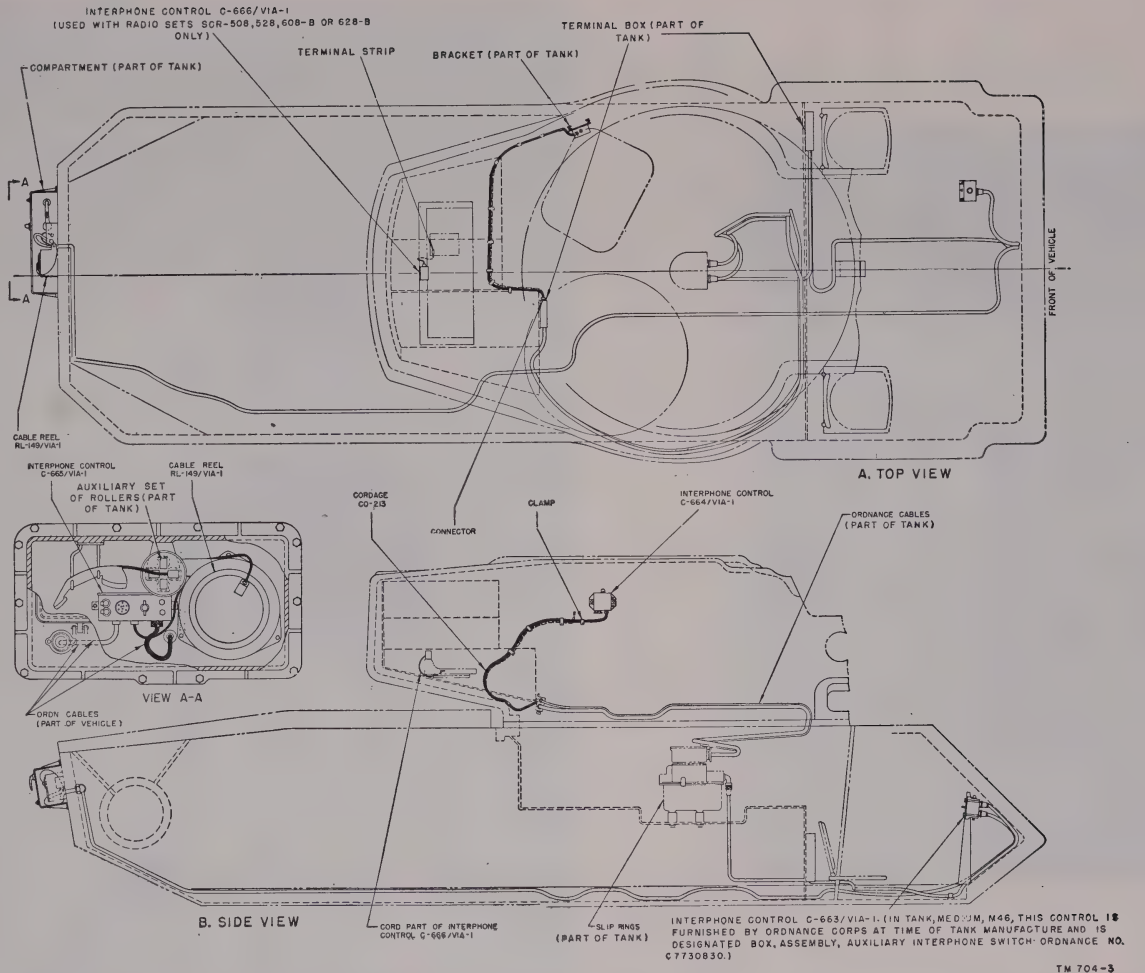


Figure 9. Installation of Auxiliary Interphone Equipment AN/VIA-1 in Medium Tank M46.

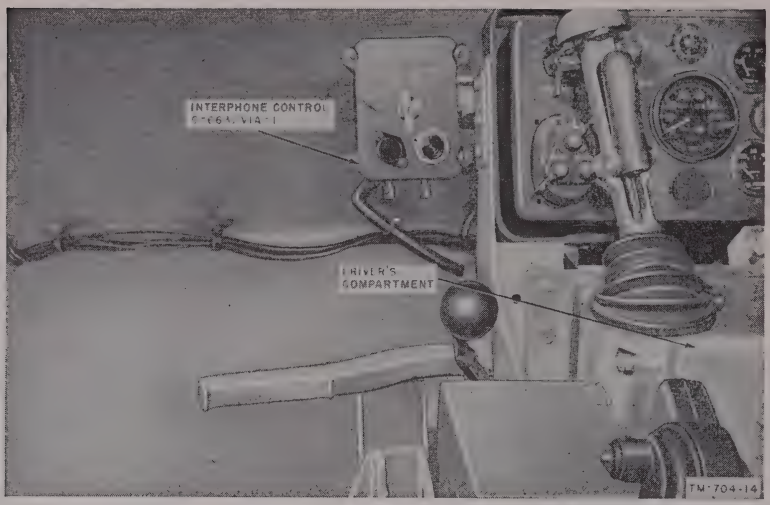


Figure 10. Interphone Control C–663/VIA–1 installed in driver's compartment of Medium Tank M46.

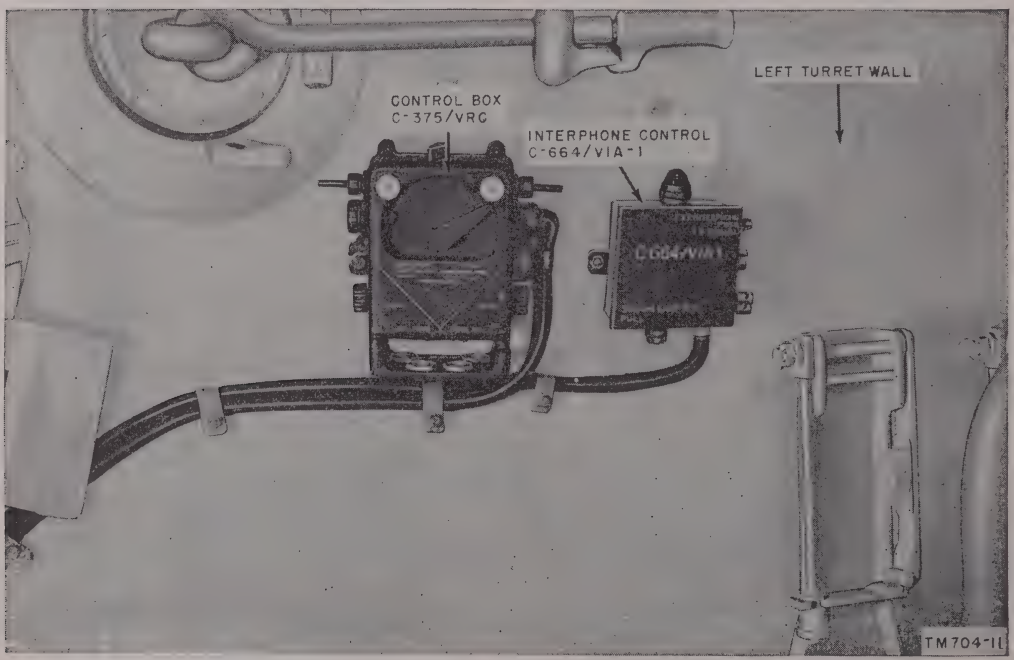


Figure 11. Interphone Control C–664/VIA–1 installed on left turret wall of Medium Tank M46.

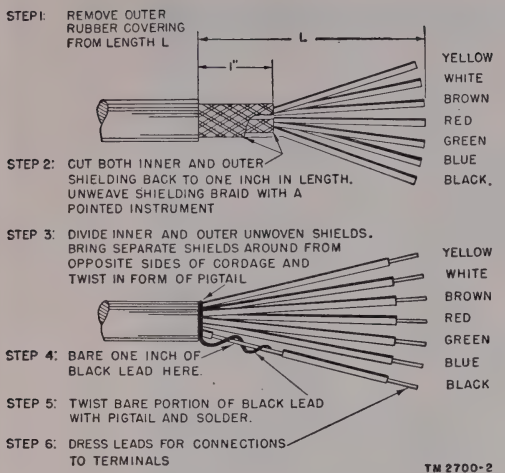


Figure 12. Preparation of Cordage CO–213.

those on Interphone Control C–663/VIA–1. Wire connections to these receptacles are not the same as those to Interphone Control C–663/VIA–1; therefore, replacement of the Ordnance Corps box assembly will be made by the Ordnance Corps. In these cases, return Interphone Control C–663/VIA–1, when available as part of the AN/VIA–1, to stock.

b. Interphone Control C–664/VIA–1. Install Interphone Control C–664/VIA–1 on the bracket provided in the vehicle turret (fig. 11) in the vicinity of the loader's position; use the screws provided in the hardware kit. Connect Cordage CO–213 from this control to the turret radio terminal box. Prepare the ends of the cable for connection as shown in figures 12 and 13. Secure the cable with clamps to the tapped blocks on the turret wall and to the control and terminal box with the conduit fittings. Refer to figures 19, 20, 22, 24, and 26 for the wiring diagrams of this unit and its interconnection to radio equipments in Medium Tank M46 and other tanks.

c. Interphone Control C–665/VIA–1 and Cable Reel RL–149/VIA–1. Install Interphone Control C–665/VIA–1 and Cable Reel RL–149/VIA–1 in the compartment provided at the rear of the vehicle (fig. 14) with the necessary brackets and screws. The brackets on Interphone Control C–665/VIA–1 may be rotated 180° around the sides to facilitate various installations. Connecting cables from Interphone Control C–663/VIA–1, Cable Reel RL–149–VIA/1, and the external call light may be installed through convenient openings in this control and secured with conduit fittings provided. Turn the high-low impedance switch, located below the terminal board (fig. 6), to the proper setting for the audio-output impedance of the radio set or interphone amplifier used. Radio Sets SCR–508, SCR–528, SCR–608–B, and SCR–628–B, AN/VRC–3, and Interphone Equipment RC–99 have high audio-output impedance; Radio Sets AN/GRC–3 through –8 and AN/VRC–7 have low audio output. Refer to figures 18, 21, 23, and 25 for the wiring diagrams of these units, and make electrical connections, as shown, by soldering and securing the wire terminals as necessary. Replace the cover and secure it to make Interphone Control C–665/VIA–1 waterproof.

d. Interphone Control C–666/VIA–1. In terphone Control C–666/VIA–1 is used only with Radio Sets SCR–508, SCR–528, SCR–608–B, and SCR–628–B, and it is installed on Mounting FT–237 (fig. 15). Install and connect the unit as shown in figure 16.

Section II. OPERATION

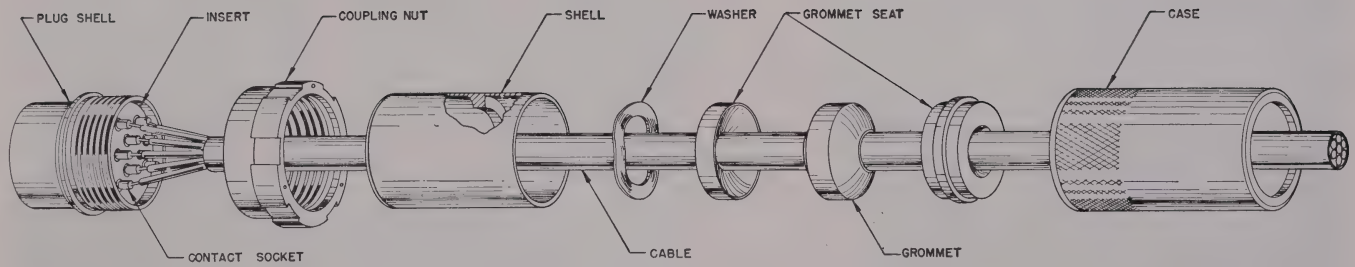
9. Preoperation Check

See that the equipment is installed properly, before operating, as follows:

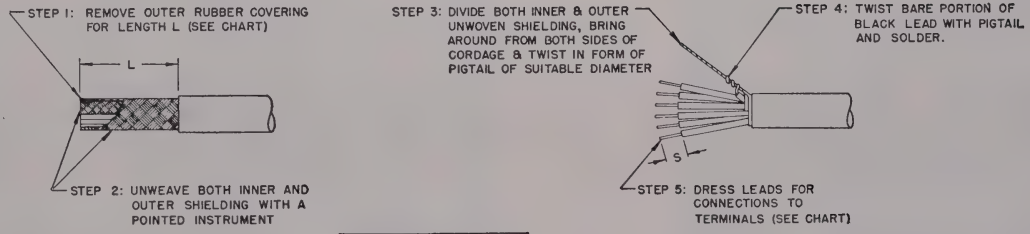
a. Connect the necessary headsets and microphones (parts of the radio equipment installed in the tank) to the vehicle interphone system and turn on the system.

b. See that the EXTERNAL INTERPHONE switch on Interphone Control C–663/VIA–1 is turned to the ON position. (This switch should always be turned to the ON position. It is to be turned to the OFF position only in case of damage to the external equipment.) Communication between all crew members in the vehicle should be possible.

c. Push the SIGNAL LAMP TEST switch in Interphone Control C–664/VIA–1 to the non-



EXPLODED VIEW OF PLUG ASSEMBLY
WITH CABLE



SHELL SIZE	CONTACT SIZE	L	S
22	20	1 1/4	1/4

TM 704-5

Figure 13. Preparation of cable and assembly of waterproof vehicle terminal box plugs.

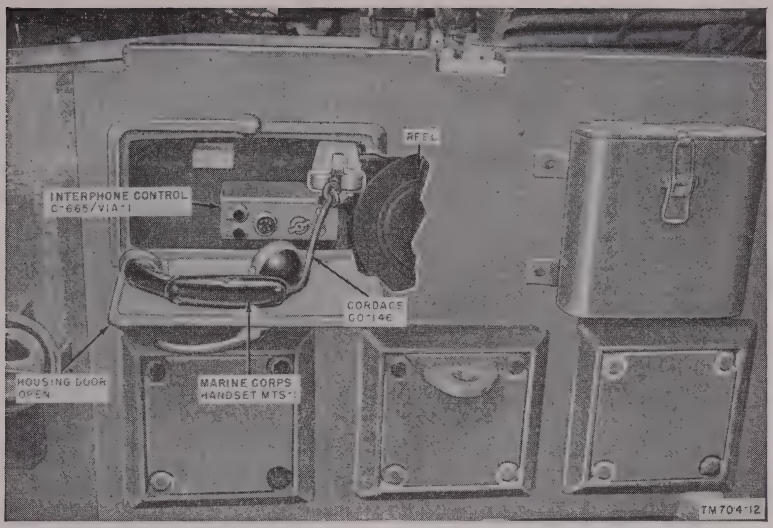


Figure 14. Interphone Control C–665/VIA–1 and Cable Reel RL–149/VIA–1 installed on rear of hull of Medium Tank M46.

test position; then pull this switch. The pilot light on this unit and the external call light should both be illuminated at half brilliancy. Return the switch to the normal position.

d. Push the EXT INTERPHONE PUSH TO SIGNAL switch on Interphone Control C–664/VIA–1. The external call light should be illuminated.

e. Remove Marine Corps Handset MTS–1 (attached to Cable Reel RL–149/VIA–1) from the compartment at the rear of the vehicle and press the switch on the handset. The signal light on Interphone Control C–664/VIA–1 should light, and communication between the internal and external stations should be established. The switches on handsets and micro-

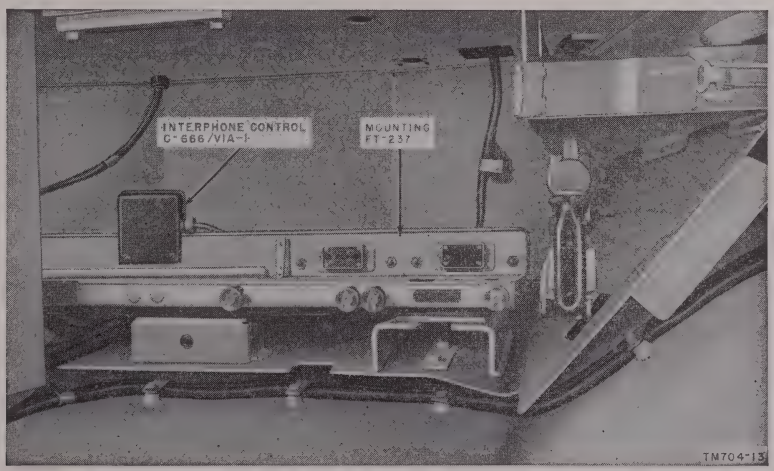


Figure 15. Interphone Control C–666/VIA–1 installed in turret bulge of Medium Tank M46.

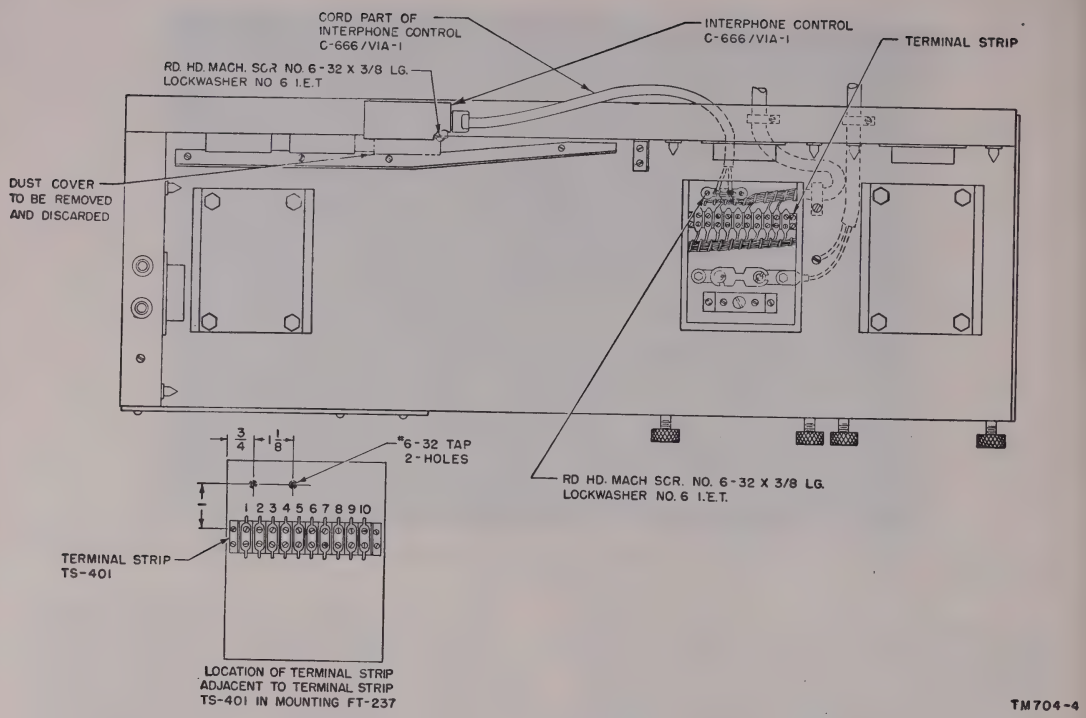


Figure 16. Installation and wiring of Interphone Control C–666/VIA–1 on Mounting FT–237.

phones which are connected to the external station, Interphone Control C–665/VIA–1, must be pressed to talk and listen.

f. Connect a handset or a microphone and headset to the jacks or audio receptacle on Interphone Control C–665/VIA–1. Test as stated in *a* above.

g. Check the operation of this equipment when used with various radio sets as follows:

(1) When this equipment is used with Radio Set SCR–508, SCR–528, SCR–608–B, SCR–628–B, or AN/VRC–3 or with Interphone Equipment RC–99, press the radio interphone switch on the tank commander control box and the microphone switch for radio transmission. At the same time, press the switch on the handset connected to Interphone Control C–665/VIA–1. The signal lamp on Interphone Control C–663/VIA–1 should light, but no communication should be established between the external station and Interphone Control C–664/VIA–1.

(2) When this equipment is used with Radio Sets AN/GRC–3 through –8 or AN/VRC–7, radio transmission cannot be interrupted from Interphone Control C–665/VIA–1. Therefore, when the switch on the handset or microphone connected to Interphone Control C–665/VIA–1 is pressed, the signal light on Interphone Control C–663/VIA–1 will not light, because the relay in this unit which operates this light is not connected in the circuit.

h. Connect field telephones, such as Telephone EE–8, with suitable wire to the binding posts on each of Interphone Controls C–663/VIA–1, C–664/VIA–1, and C–665/VIA–1; loop the wire around the binding posts and pull the wire tightly. Communication should be possible between these points independent of the interphone system.

10. Operating Procedure

By use of Auxiliary Interphone Equipment AN/VIA–1, in the manner described below, communication can be made between personnel within the vehicle and personnel outside the vehicle.

a. When it is desired to contact personnel from the loader's position inside the vehicle to personnel at the external station, operate the EXT INTERPHONE PUSH TO SIGNAL switch on Interphone Control C–664/VIA–1, thereby illuminating the external call light. This external call light can be blinked by momentary operation of this switch.

b. When, at the external station, it is desired—

(1) To answer this call, turn the latch handle to open the rear compartment door (fig. 14), lift Handset MTS–1 from its hook, press the push-to-talk-and-listen control switch, and speak as with any ordinary cradle telephone. Adjust the volume to a satisfactory level by turning the volume control on Interphone Control C–665/VIA–1.

(2) To initiate a call to personnel within the vehicle, remove the handset from its hook and press the control switch. The signal light on Interphone Control C–664/VIA–1 will light, and communication will be established.

c. Internal-external communication is possible only when the EXTERNAL INTERPHONE switch on Interphone Control C–663/VIA–1 is at the ON position. Therefore, *this switch must remain at the ON position at all times, except when Cable Reel RL–149/VIA–1 or Interphone Control C–665/VIA–1 is damaged.* When the latter condition exists, turn this switch to the OFF position; in the OFF position, signaling and communication to the external station are impossible, but communication among all positions inside the vehicle will not be affected.

d. When this equipment is used with Radio Set SCR–508, SCR–528, SCR–608–B, or SCR–628–B, radio communication from the vehicle can be interrupted when the radio operator is listening and does not have his microphone button pushed in, and when the control switch on Handset MTS–1 is pressed. (Listening will be possible, but radio transmission will be interrupted.) To eliminate persistent interruptions, pull the SIGNAL LAMP TEST switch on Interphone Control C–664/VIA–1. However, this switch is not spring-loaded, and it is not to be used under normal operating conditions.

e. Two or more stationary tanks may be connected together for communication when radio silence is necessary or for battery fire control. Connect a suitable length of field wire, such as Wire W–110–B, to the binding posts of Interphone Control C–665/VIA–1. Secure this field wire to the tank towing hook, or another convenient tie point, to eliminate any possible strain on the binding posts or accidental wire removal. String the wire out to the desired position, and connect the ends to terminal L1 and L2 of field telephone (EE–8). Field telephones (EE–8 or equivalent) can be connected to the binding posts of Interphone Controls C–663/VIA–1 and C–664/VIA–1 to make communication possible between these points independent of the interphone system. Refer to TM 11–333 for a description of the operational use of the field telephone.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE SERVICES

11. Organizational Tools and Equipment

The tools and materials listed below are required for maintaining Auxiliary Interphone Equipment AN/VIA–1.

Signal Corps stock No. (unless otherwise specified)	Name and description
6Z7500	Abrasive, sheet: sandpaper; grit size 4/0; 9″ x 10″.
6G184.1	Carbon tetrachloride: 8-oz metal container.
6N1624	Cloth; textile: 9⅝″ squares; cleaning.
	Common hand tools.
6G1516	Polish: paste; 2-oz container.
51–S–4385–1 (QMC)	Solvent, dry-cleaning (SD).

Note. Gasoline must not be used as a cleaning fluid for any purpose.

12. Preventive Maintenance

a. DEFINITION AND IMPORTANCE. Preventive maintenance is a systematic series of operations performed at regular intervals on equipment to minimize major breakdowns and unwanted interruptions in service and to maintain equipment at top operating efficiency. Through these systematic inspections, personnel charged with the care of the equipment should be able to detect abnormal conditions and possible sources of trouble and correct them before major troubles or breakdowns occur.

b. CHECKLIST. The checklist below is a summary of preventive maintenance services that must be performed on Auxiliary Interphone Equipment AN/VIA–1. The list indicates what to check, when to check, how to check, and what precautions to take before, during, and after checking the equipment.

Item No.	What to check	When to check *	How to check	Precautions
1	Exterior of components and mountings, especially C–665/VIA–1 and RL–149/VIA–1.	D	Inspect for damage, chipped paint, dirt, dust, rust, corrosion, and loose or missing screws. Wipe with a clean cloth slightly moistened with solvent (SD) to remove oil, grease, or foreign matter; then wipe with a dry cloth.	Tighten screws, bolts, and nuts snugly. Never force them.
2	Check operation of signal lamps.	D	Press EXT INTERPHONE PUSH TO SIGNAL switch on C–664/VIA–1 for operation of external call light. Pull SIGNAL LAMP TEST switch on C–664/VIA–1 for operation of signal light at C–664/VIA–1 and external call light, both at half brilliancy. Turn EXTERNAL INTERPHONE switch on C–663/VIA–1 to OFF position and press control switch on Handset MTS–1 for operation of signal light on C–663/VIA–1. Turn EXTERNAL INTERPHONE switch back to normal ON position and press control switch on Handset MTS–1 for operation of signal light on C–664/VIA–1.	Be sure that EXTERNAL INTERPHONE switch on C–663/VIA–1 is returned to ON position.

Item No.	What to check	When to check *	How to check	Precautions
3	Switches.	D	Inspect for freedom of action. See that only a normal amount of pressure is required to operate the switches. Be certain knobs are not loose.	Do not overtighten the screws which hold the knobs.
4	Handset MTS–1 control switch.	D	Press and release switch. See that only a normal amount of pressure is necessary to operate switch and that it springs back to its normal position when released.	
5	Fuses and fuse holders.	W	Inspect for corrosion, cracks, and sufficient tension to insure good contact.	
6	Connector receptacles.	W	Inspect for dirt, dust, and other foreign matter. Clean with solvent (SD) and a clean, dry cloth. Be sure that receptacles are fastened tightly.	Do not tighten receptacles more than necessary. Never force them.
7	Volume control knob on C–665/VIA–1.	W	Check for faulty carbon by turning knob and listening for crackling noise.	
8	Cordage.	W	Check for frayed or faulty insulation.	
9	Terminal boards.	W	Check for cracks, dirt, corrosion, and loose connections. Clean with sandpaper and solvent (SD).	
10	Switch contacts.	M	After a prolonged period of inactivity, the switch contacts may become corroded. Clean them with sandpaper.	
11	Contact slip rings and brushes in Cable Reel RL–149/VIA–1.	S	Clean the contact slip rings with sandpaper and wipe with solvent (SD). Check the brushes for contact or breakage.	
12	Pawls on Cable Reel RL–149/VIA–1.	S	Remove the cover of the cable reel housing and inspect the pawls for breakage. The cable and handset will not remain extended at a given desired length if the pawls are broken.	Do not remove the spool assembly cover which retains the springs; the springs may fly out suddenly and cause serious injury.

* D—Daily; W—Weekly; M—Monthly; S—Semiannually.

Section II. PRESERVATION

3. Weatherproofing

a. GENERAL. Signal Corps equipment, when operated under severe climatic conditions such as prevail in tropical, arctic, and desert regions, requires special treatment and maintenance. Fungus growth, insects, dust, corrosion, salt spray, excessive moisture, and extreme temperatures are harmful to most materials.

b. TROPICAL MAINTENANCE. A special moistureproofing and fungiproofing treatment has been devised, which, if properly applied, provides a reasonable degree of protection. This treatment is explained fully in TB SIG 13 and TB SIG 72.

c. WINTER MAINTENANCE. Special precautions necessary to prevent poor performance or total operational failure of equipment in extremely low temperatures are explained fully in TB SIG 66.

d. DESERT MAINTENANCE. Special precautions necessary to prevent equipment failure in

areas subject to extremely high temperatures, low humidity, and excessive sand and dust are explained fully in TB SIG 75.

e. LUBRICATION. The cable reel has been lubricated during manufacture for lifetime use and requires no additional lubrication.

14. Rustproofing and Painting

a. When the finish on the exterior of the units has been scarred or damaged badly, rust and corrosion can be prevented by touching up bared surfaces. Use No. 00 or No. 000 sandpaper to clean the surface down to the bare metal; obtain a bright smooth finish.

Caution: Do not use steel wool. Minute particles frequently enter the case and cause harmful internal shorting or grounding of circuits.

b. When a touch-up job is necessary, apply paint with a small brush. Remove rust from the case by cleaning corroded metal with solvent (SD). In severe cases, it may be necessary to use solvent (SD) to soften the rust and sandpaper to complete the preparation for painting. Paint used will be authorized and consistent with existing regulations (see TM 9–2851).

Section III. TROUBLE SHOOTING

15. Theory of Operation

Auxiliary Interphone Equipment AN/VIA–1 is connected to and operates as an auxiliary to the radio and electrical equipment installed in a vehicle; the AN/VIA–1 also is powered by this equipment (24 volts dc). The components of the auxiliary interphone equipment function in the manner described below. Refer to figures 18 through 26 for the schematics of these components and their wiring to related equipment.

a. INTERPHONE CONTROL C–663/VIA–1. The function of the component parts are as follows:

(1) An EXTERNAL INTERPHONE OFF-ON, 4-pole, single-throw switch disconnects Interphone Control C–665/VIA–1 and its connected parts in the event of a short circuit or damage to the control to prevent possible disabling of the internal interphone system.

(2) A 24- to 28-volt, double-contact, bayonet-base signal lamp (indicator light) indicates that an external person desires communication when the external station is shut off, such as during a radio transmission with Radio Set SCR–508, SCR–528, SCR–608–B, or SCR–628–B, or with Interphone Equipment RC–99.

(3) A 3-ampere cartridge fuse in a waterproofed holder protects the vehicular electrical system in the event of damage to the external components or interphone circuit. (This fuse and holder are not included in the Ordnance No. C7730830 version of this unit.)

(4) Two binding posts provide connection for a field telephone.

(5) A 14-pin waterproofed male receptacle and a 14-pin waterproofed female receptacle provide connection for cable plugs.

(6) The hermetically sealed, 24-volt d-c, 300-ohm relay has two sets of single-pole, single-throw contacts. This relay, when the equipment is used with Radio Set SCR–508, SCR–528, SCR–608–B, SCR–628–B, or AN/VRC–3 or with Interphone Equipment RC–99, operates when the tank commander is transmitting on radio and prevents the external operator from interrupting or listening to a radio transmission.

b. INTERPHONE CONTROL C–664/VIA–1. The functions of the component parts are as follows:

(1) A single-pole, double-throw EXT INTERPHONE PUSH TO SIGNAL switch operates the signal call light at the external station.

(2) A double-pole, double-throw SIGNAL LAMP TEST switch performs two functions:

(*a*) It connects the signal lamps in Interphone Control C–664/VIA–1 and at the external station in series and causes them to light at half brilliancy to indicate to the operator that both lamps are in operating condition.

(*b*) It acts as a cut-off to eliminate any interruption in radio transmission when the auxiliary interphone equipment is used with Radio Set SCR–508, SCR–528, SCR–

608–B, or SCR–628–B; it prevents operation of the relay in Interphone Control C–664/VIA–1 in case an external person persists in trying to establish communication during radio transmission. This interruption can occur only when the radio operator does not have his microphone button pushed in, such as when listening. This switch is not spring-loaded and must not be used under normal operating conditions.

(3) A hermetically sealed, 24-volt d-c, 300-ohm relay (with one set of single-pole, single-throw contacts normally open) prevents false operation of the signal lamp in this unit when the interphone is used within the vehicle.

(4) A 24- to 28-volt, double-contact, bayonet-base signal lamp (indicator light) indicates that an external person desires communication.

(5) A 6-point terminal strip provides means for making electrical connections to Cordage CO–213.

(6) Two binding posts provide connections for a field telephone.

c. Interphone Control C–665/VIA–1. The functions of the component parts are as follows:

(1) A hermetically sealed, 24-volt d-c, 300-ohm relay (with two sets of contacts: one single-pole, single-throw normally open and one single-pole, double-throw) is actuated when an external person operates his handset switch and performs the following functions:

(*a*) Prevents an external person from lighting the external call light.

(*b*) Grounds the control circuit which connects to the signal lamp and relay in Interphone Control C–664/VIA–1.

(*c*) Breaks the external phone circuit; it thus prevents anyone from listening in without being detected inside the vehicle.

(2) An hermetically sealed transformer matches either high- or low-impedance outputs of the radio equipment to the handset or headsets connected to Interphone Control C–665/VIA–1.

(3) A single-pole, double-throw switch is provided with a screwdriver slot which is turned to adjust the impedance matching transformer to the impedance outputs of the radio or interphone equipment.

(4) A 10-point terminal board provides means of making electrical connections.

(5) Two binding posts provide connection for field telephone or wire.

(6) A dual potentiometer (with ratings of 50,000 ohms and 2,000 ohms) regulates the volume of either high- or low-impedance phones.

(7) Two resistors (2,000 ohms and 47 ohms) limit the low level output.

(8) A microphone jack and a phone jack provide direct connection of either a handset or a microphone and headset in case of damage to Cable Reel RL–149/VIA–1 or Handset MTS–1.

(9) A 10-pin audio receptacle provides connection of Handset H–33/PT in case of damage to Cable Reel RL–149/VIA–1 or Handset MTS–1.

d. Interphone Control C–666/VIA–1. This unit contains an hermetically sealed, 24-volt d-c, 300-ohm relay (with one set of single-pole, single-throw contacts normally open); connection is made to the relay by Cordage CO–146 through a gland-type conduit fitting. This relay prevents false operation of the relay in Interphone Control C–663/VIA–1 when the microphone button at any crew member's box is pressed. Such false operation would result from a sneak circuit in the radio transmitter. Interphone Control C–666/VIA–1 is used only with the installation of Radio Sets SCR–508, SCR–528, SCR–608–B, and SCR–628–B.

16. Trouble-Shooting Procedure

a. General Procedure.

(1) Check the trouble report to determine the probable cause of trouble. When checking the report, refer to the over-all wiring diagrams (figs. 18 through 26); localize the fault to a particular component and then to a particular part.

(2) Inspect the equipment for damaged or broken wiring, loose screws, burned resistors, and charred wiring. If the fault cannot be located by this method, trace the circuit by making continuity measurements.

(3) When locating the fault by elimination, start at a point where the circuit is known

to have continuity; proceed step by step until the fault is located.

(4) Refer to paragraphs 9, 10, and 12 and attempt to operate the equipment.

b. GENERAL PRECAUTIONS. Whenever the equipment is serviced, observe the precautions listed below very carefully because careless replacement of parts often causes new faults.

(1) Before a part is unsoldered, note the position of the leads. If the part, such as a transformer, has a number of connections, tag each of them.

(2) Be careful not to damage other leads by pulling or pushing them out of the way.

(3) Do not allow drops of solder to fall into the equipment because they may cause short circuits. A carelessly soldered connection may create a new fault; it is very important to make well-soldered joints.

c. PRELIMINARY PROCEDURE. When trouble occurs in the equipment, proceed as follows:

(1) Provide for favorable working conditions.

(2) Read this instruction book and study the wiring diagrams (figs. 18 through 26).

(3) Make simple, direct, preliminary tests.

(*a*) Check power sources and fuses.

(*b*) Check the method of operation and performance.

(*c*) Proceed according to the chart in *d* below.

d. TROUBLE-SHOOTING CHART. This chart lists the symptoms which the repairman may observe, either visually or audibly, while making a few simple tests.

Symptom	Probable trouble	Corrective action
1. Person at external station can receive on Handset MTS–1 when its control switch is depressed, but cannot transmit.	EXTERNAL INTERPHONE switch on C–663/VIA–1 at OFF position.	Turn EXTERNAL INTERPHONE switch on C–663/VIA–1 to ON position.
	Defective handset.	Connect another handset to jacks on C–665/VIA–1.
	Defective handset switch.	Clean handset switch contacts.
	Defective handset transmitter.	Shake or rap transmitter case sharply; carbon granules may be frozen. Try talking again; if it is still inoperative, replace handset transmitter.
	Faulty EXTERNAL INTERPHONE switch contacts in C–663/VIA–1.	Replace switch. Check continuity from handset transmitter to terminal No. 2 in C–665/VIA–1.
	Faulty relay in C–663/VIA–1 or C–665/VIA–1.	Replace relay.
	Open fuse in C–663/VIA–1.	Replace fuse.
2. Person at external station can transmit on Handset MTS–1 when its control switch is depressed, but cannot receive.	EXTERNAL INTERPHONE switch on C–663/VIA–1 at OFF position.	Turn EXTERNAL INTERPHONE switch on C–663/VIA–1 to ON position.
	Defective handset.	Connect another handset to jacks on C–665/VIA–1. If the condition remains the same, check the volume control on C–665/VIA–1.
	Faulty receiver; loose earpiece connection.	Replace receiver unit.
	Open receiver wiring.	Check wiring.

Symptom	Probable trouble	Corrective action
	Faulty wiring in Cordage CO–146 from handset to C–665/VIA–1; faulty slip rings and contacts in Cable Reel RL–149/VIA–1.	Check continuity from handset through Cordage CO–146, through Cable Reel RL–149/VIA–1, to C–665/VIA–1.
	Volume control on C–665/VIA–1:	
	Poor slider arm contact.	Replace control.
	Open winding.	Replace control.
	Open resistor in C–665/VIA–1.	Replace resistor.
	Defective relay in C–663/VIA–1 or in C–665/VIA–1.	Replace relay.
	Defective transformer in C–665/VIA–1.	Replace transformer.
3. Signal lamps do not light, but other circuits work.	Open lamp filament	Replace lamps.
	Faulty EXTERNAL INTERPHONE OFF-ON switch on C–663/VIA–1.	Check continuity through switch. Replace switch.
4. Control circuits do not function for signaling or operation.	Faulty slip rings and contacts in Cable Reel RL–149/VIA–1.	Check continuity through cordage and reel. Replace contact brushes.
	Defective relay or switch in C–663/VIA–1.	Replace relay or switch.
	Faulty slip rings and contacts in tank hull connections to turret slip-ring assembly.	Check continuity from hull terminal box to turret terminal box. Request Ordnance Corps repairman to eliminate trouble.
5. Signal lamp in C–664/VIA–1 lights when tank interphone microphone control switch is pressed at interphone station inside of tank.	Faulty relay in C–664/VIA–1 or C–666/VIA–1.	Replace relay.

17. Replacement of Parts

Most of the parts in Auxiliary Interphone Equipment AN/VIA–1 are readily accessible and are replaced easily if found to be faulty. When replacing parts to which wires have been soldered, examine the leads and make note of the original connections before unsoldering. If the replacement of parts requires the removal of rubber, cork, or other fibrous gaskets, see that the gaskets are removed intact whenever possible, so that the waterproofing qualities are not impaired.

a. INTERPHONE CONTROL C–663/VIA–1.

(1) *Signal lamp.* Remove the signal lamp in the following manner: Turn the indicator lens housing or shell counterclockwise and remove it. The signal lamp has a bayonet-type base; remove it by pressing the lamp into the base of the indicator light and by exerting a counterclockwise twist.

(2) *Fuse.* Unscrew the fuse holder cap by a counterclockwise motion and remove defective fuse.

(3) *Relay.* Remove the relay by taking out the screws and lockwashers which hold the relay to the cover. Remove leads.

(4) *Switch.* To remove the switch, first remove

the handle from the switch shaft and then remove the waterproofing gland nut with a wrench. Remove leads.

(5) *Binding posts.* Remove the binding posts by unsoldering the leads and then taking off the nut on the inside of the control with long-nosed pliers or a small wrench.

b. Interphone Control C–664/VIA–1.

(1) *Switches.* Remove the switches by following the procedure described in *a* (4) above.

(2) *Signal lamp.* Remove the signal lamp by following the procedure described in *a* (1) above.

(3) *Relay.* Remove the relay by taking out the screws and bracket. Remove leads.

(4) *Binding posts.* Proceed as instructed in *a* (5) above.

c. Interphone Control C–665/VIA–1. For removal of most parts of this control, the terminal board first must be removed by taking out the screws which secure the board. Disconnect and tag the leads, as required.

(1) *Relay and transformer.* Remove the brackets which secure the relay and transformer in place. Tag and disconnect all leads.

(2) *Volume control.* Remove the volume control by first removing the knob from the shaft and then by removing the waterproofing gland nut with a wrench. Tag and disconnect the leads as necessary.

(3) *Switch.* Remove the impedance matching switch by taking off the mounting nut and by disconnecting the leads.

(4) *Jacks.* The jacks are held to the control by large hexagonal nuts. Remove the nuts and disconnect the leads.

(5) *Binding posts.* Proceed as instructed in *a* (5) above.

d. Interphone Control C–666/VIA–1. Remove the relay by removing the four screws which hold the mounting bracket in place and by disconnecting the relay leads.

e. Cable Reel RL–149/VIA–1.

(1) *Brushes.* Replace the brushes by removing the brush cover plate from the end of the reel and by removing the brush holder caps.

(2) *Cordage.* Remove Cordage CO–146 connected to the brush holders by removing the gland nut in the cover plate.

(3) *Cordage.* Replace Cordage CO–146, which connects Handset MTS–1 to the reel drum, as follows:

(*a*) Remove the large end plate of the reel.

(*b*) Open the back of Handset MTS–1 and disconnect the cordage.

(*c*) Remove the knot from the cordage.

(d) Release the preloading on the springs by letting the cordage pass through the roller.

(*e*) Remove the three screws from the bottom of the reel which hold the shaft and drum assembly in place.

(*f*) Secure the stop pawls out of the way against the reel housing.

(*g*) Lift out the drum assembly.

(*h*) Unwind the cordage from the drum.

(*i*) Remove the end of the drum and the slip rings by taking out the six screws.

(*j*) Remove the gland nut in the drum hub and the knot inside on the cordage.

(*k*) Pull out the cordage.

(*l*) A new length of Cordage CO–146 may be installed by reversing the above procedure. Be careful that the wire ends of the cordage connecting to the slip rings are positioned and protected in such a manner that they do not rub on the shaft. Replace the end plate of the drum on the spool in such a position that when the cable is entirely payed out the drum will retract approximately ½ turn before the cam engages a pawl.

(*m*) The new cordage should be wound around the reel drum counterclockwise, the end passed out through the rollers and connected to the handset, and a stop knot tied approximately 6 inches from the handset.

(*n*) Install the reel drum with cordage into the reel housing and replace cover.

(*o*) Insert a screw driver in the spring adjusting hole in the bottom of the casting and preload the spring as necessary in a counterclockwise direction (looking at the bottom) to have the cord retract to the stop knot. Aline the three screw holes around the spring adjusting hole and replace the screws.

CHAPTER 4

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

18. Removal from Service

a. Remove the components from their mounting positions by reversing the installation procedure specified in paragraph 8.

b. Fasten the covers in place.

19. Repacking Equipment

a. The exact procedure to be used in repacking equipment for shipment or limited storage depends on the material available and the conditions under which the equipment is to be shipped or stored. Refer to paragraph 7 and follow the instructions in reverse order.

b. Whenever practicable, place a dehydrating agent such as silica gel inside the equipment. Protect the equipment with a waterproof paper barrier. Seal the seams of the paper barrier with a waterproof sealing compound or tape. Pack the equipment in a padded fiberboard box.

c. Store all packaged equipment in a dry location.

Section II. DEMOLITION TO PREVENT ENEMY USE

20. General

The demolition procedures outlined in paragraphs 21 and 22 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished *only* upon order of the commander.

21. Methods of Demolition

a. Smash. Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.

b. Cut. Use axes, handaxes, machetes.

c. Burn. Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

d. Explosives. Use firearms, grenades, TNT.

e. Other. Use anything immediately available for destruction of this equipment.

f. Disposal. Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

22. Destruction of Components

a. Smash the controls, relays, switches, transformers, and handsets.

b. Cut cords and wiring.

c. Burn cords, resistors, wiring, and instruction books.

d. Bend the junction boxes and covers.

e. Bury or scatter all remaining parts of the equipment.

f. Destroy everything.

APPENDIX I

REFERENCES

Note. For availability of items listed, check SR 310–20–3 for field manuals and JANAP'S. Check SR 310–20–4 for technical manuals, technical bulletins, and supply bulletins.

1. Army Regulation

AR 380–5, Safeguarding Military Information.

2. Supply Publications

SB 11–47, Preparation and Submission of Requisitions for Signal Corps Supplies.
SB 11–76, Signal Corps Kit and Materials for Moisture- and Fungi-Resistant Treatment.

3. Technical Manuals on Auxiliary Equipment

TM 11–284, Radio Sets AN/GRC–3, –4, –5, –6, –7, and –8.
TM 11–285, Radio Set AN/VRC–7.
TM 11–333, Telephones EE–8, EE–8–A, EE–8–B.
TM 11–462, Signal Corps Tactical Communication Reference Data.
TM 11–600, Radio Sets SCR–508–A, C, D, AM, CM, IM; SCR–528–A, C, D, AM, CM, DM; and AN/VRC–5.
TM 11–620, Radio Sets SCR–608–A, –B, and SCR–628–A.
TM 11–637, Radio Set AN/VRC–3.
TM 11–702, Interphone Equipment RC–99.

4. Painting, Preserving, and Lubrication

TB SIG 13, Moistureproofing and Fungiproofing Signal Corps Equipment.
TB SIG 66, Winter Maintenance of Signal Equipment.
TB SIG 72, Tropical Maintenance of Ground Signal Equipment.
TB SIG 75, Desert Maintenance of Ground Signal Equipment.
TM 9–2851, Painting Instructions for Field Use.

5. Decontamination

TM 3–220, Decontamination.

6. Demolition

FM 5–25, Explosives and Demolitions.

7. Packaging and Packing Instructions

a. Joint Army-Navy Packaging Specifications.
JAN–D–169, Desiccants, Activated.
JAN–P–100, General Specification.
JAN–P–105A, Boxes; Wood, Cleated, Plywood.
JAN–P–106A, Boxes; Wood, Nailed.
JAN–P–116, Preservation, Methods of.
JAN–P–117, Bags, Interior Packaging.
JAN–P–125, Barrier-Materials, Waterproof, Flexible.
JAN–P–131, Barrier-Material; Moisture-Waterproof, Flexible.
JAN–P–140, Adhesives, Water-Resistant, Case-Liner.

b. U. S. Army Specifications.
100–2E, Marking Shipments by contractors (and Signal Corps Supplement thereto).
100–14A, Army-Navy General Specification for Packaging and Packing for Oversea Shipment.

c. SIGNAL CORPS INSTRUCTIONS.
720–7, Standard Pack.
726–15, Interior Marking.

8. Other Publications

SR 310–20–3, Index of Army Training Publications (Field Manuals, Training Circulars, Firing Tables and Charts, Army Training Programs, Mobilization Training Programs, Graphic Training Aids, Joint Army-Navy-Air Force Publications, and Combined Communications Board Publications).

SR 310–20–4, Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, Modification Work Orders, Tables of Organization and Equipment, Reduction Tables, Tables of Allowances, Tables of Organization, and Tables of Equipment.

SR 700–45–5, Unsatisfactory Equipment Report (Reports Control Symbol CSGLD–247).

SR 745–45–5, Report of Damaged or Improper Shipment (Reports Control Symbols CSGLD–66 (Army)).

Stock No. 6D14205–V102–1, Instructions for Installation of Radio and Interphone Equipment in Tank, Medium, M46.

TB SIG 123, Preventive Maintenance Practices for Ground Signal Equipment.

TB SIG 178, Preventive Maintenance Guide for Radio Communication Equipment.

TM 9–718, Medium Tank M 46 (T40).

TM 11–453, Shop Work.

TM 11–455, Radio Fundamentals.

TM 11–4000, Trouble Shooting and Repair of Radio Equipment.

AR 750–5, Maintenance Responsibilities and Shop Operations.

APPENDIX II

IDENTIFICATION TABLE OF PARTS

Note. The fact that a part is listed in this table is not sufficient basis for requisitioning the item. Requisitions must cite an authorized basis, such as T/O & E, T/E, T/A, T/BA, SIG 6, SIG 7 & 8, SIG 7–8–10, SIG 10, list of allowances of expendable material, or another authorized supply basis. The Department of the Army Supply Catalog applicable to the equipment covered in this manual is SIG 7 & 8–AN/VIA–1. For an index of available supply catalogs in the Signal portion of the Department of the Army Supply Catalog, see the latest issue of SIG 1, Introduction and Index.

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
Fig. 3	INTERPHONE SET: Army-Navy Interphone Equipment, AN/VIA–1; three stations; headset output; 24-v battery; wire transmission; waterproofed; c/o: 1 ea Interphone Control, C–663/VIA–1. 1 ea Interphone Control, C–664/VIA–1. 1 ea Interphone Control, C–665/VIA–1. 1 ea Interphone Control, C–666/VIA–1. 1 ea Cable Reel, RL–149/VIA–1. 1 ea Hardware Kit for mounting.	Makes possible communication between crew of a tank and external personnel, and also telephone communication between various tank crews.	2C2100–1
	INTERPHONE CONTROL C–663/VIA–1		
Fig. 4	CONTROL, interphone: Sig C No. C–663/VIA–1; rectangular box; waterproofed; six ¼–20 NC–2 tapped holes for mounting on three faces; 6⅜″ lg x 4 7/16″ wd x 5 15/16″ d.	Interphone control unit.	6C10–663
Fig. 4	CONNECTOR, receptacle: 14 round, female, polarized contacts.	Receptacle for 14-contact male plug.	2Z3075–27
	CONNECTOR, receptacle: 14 round, male, polarized contacts.	Receptacle for 14-contact female plug.	2Z3034–29
Fig. 4	COVER: aluminum alloy casting, anodized; od finish; flat rectangular shape; slot for waterproofing gasket around perimeter; 5½″ lg x 4½″ wd x ¼″ d.	Interphone control junction box cover.	2Z3352.233
	GASKET: synthetic rubber; waterproof; square; 5 holes; 1⅝″ lg x 1⅝″ wd x .020 thk.	Waterproof shielding gasket between receptacle and box.	2Z4868.824
	GASKET: synthetic rubber; waterproof; one hole; 3 7/16″ x 5 1/16″ rectangular 5/16″ x ⅛″ cross section.	Waterproof shielding gasket between cover and box.	2Z4868.829
Fig. 4	HOLDER, fuse; molded black bakelite with copper clips; extractor post type; two solder lug terminals; holder marked fuse with arrow in counterclockwise direction; single 13/32″ x 1½″ cartridge fuse; 15 amp at 250 v; 5/16″ mounting holes on 1 5/16″ centers; 1″ dia x 2¼″ lg.	Holds fuse which protects vehicular electrical system in event of damage to the external components or interphone circuit.	3Z2878–1.8

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
Fig. 4	JUNCTION BOX: aluminum alloy casting, anodized; od finish; separate cover; two receptacles, male and female mounted on box; two 1 5/16" drilled holes, two .312" drilled holes; rectangular; six ¼–20 NC–2 tapped holes for mounting on three faces; 5½" lg x 4½" wd x 3½" d.	Interphone control unit housing.	2Z5687–38
Fig. 4	KNOB: aluminum alloy; od finish; bar; push-on type, single No. 6–32 screw through shaft; groove markers on ea side, luminous paint in marking grooves; for ¼" dia double flatted shaft; 1 7/16" lg x ⅞" wd x 15/32" d.	Switch knob.	2Z5821–160
	LABEL: white book paper, enamel finish; black print on white background; coated with colorless lacquer; 2¾" lg x 4½" wd.	Circuit diagram label.	6D16818–39
	LAMP, incandescent: tungsten filament; double contact bayonet base; bulb G–6 clear, ¾" dia; 25–28 v, .26 amp; 1⅜" lg.	Indicates that an external person desires communication when shut off, as during radio transmission.	2Z5877–27
Fig. 4	LIGHT, indicator: with 1" dia red frosted lens, bull's-eye type; bayonet base G–6 bulb; chrome plate inclosed steel shell; threaded type jewel two binding screw terminals located on opposite sides of socket base; 1" mounting hole, ¼" max panel thickness; 3" lg x 1½" dia.	Lamp assembly.	2Z5991–207
Fig. 4	POST, binding: brass, silver plate; compression grip between jaws of post.	Provides connection to field telephone.	3Z737–59
Fig. 4	RELAY, armature: two single-pole normally closed, one SPDT; silver contacts; single insulated coil, 24 v dc, 300 ohms, polarized; hermetically sealed can.	Prevents external person from interrupting or listening to a radio transmission.	2Z7592–106
Fig. 4	SWITCH, rotary: four pole, two position; one sect; silver plated brass not inclosed in case, phenolic body; nonshorting type contacts; locking action, normally open; solder lug terminals; antifungus lacquered; 1 9/16" dia x 1¾"d over-all.	EXTERNAL INTERPHONE switch which disconnects Interphone Control C–665/VIA–1 and its connected parts in event of short circuit or damage thereto.	3Z9825–39.5
	INTERPHONE CONTROL C–664/VIA–1		
Fig. 5	CONTROL UNIT, interphone: Sig No. C–664/VIA–1; rectangular box; waterproofed; two U-shaped slots, 1 1/32" wd for mounting 5⅜" c to c; 6 3/16" lg x 6 9/16" wd x 2 17/32" d approx over-all.	Interphone control unit.	6C10–664
Fig. 5	BOARD, terminal: two copper, silver plated solder lug terminals; molded phenolic; 1 5/16" lg x 2 9/32" wd x 5/16" thk over-all.	Provides insulated connecting terminals for Cordage CO–213.	3Z770–2.49
Fig. 5	BRACKET: hot-rolled steel, od finish; curved top to hold relay down; two mounting holes, .189" dia, 1" c to c; 1⅜" lg x 1⅜" wd x 1 7/16" d.	Supports relay.	2Z1244–120
	BUSHING: bakelite; female; ⅜" OD x ⅜" lg, No. 6 clearance hole ID.	Provides mounting for terminal board.	2Z1409–198
Fig. 5	COVER: aluminum alloy casting, anodized od finish; flat rectangular shape; slot for rubber insulating strip on entire perimeter; 4 11/16" lg x 5½" wd x ¼" d.	Interphone control box cover.	2Z3352.234

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	INTERPHONE CONTROL C–664/VIA–1 (Continued)		
Fig. 5--	FITTING, conduit: straight type; waterproofed; aluminum alloy cylindrical; 1⅛" dia x 1⅜" lg.	Receptacle for interconnection cable.	6Z3858–32
	GASKET: synthetic rubber; one hole; 3¾" x 3¾" square, 3/16" x ⅛" cross section.	Waterproof gasket between cover and box.	2Z4868.830
Fig. 5--	JUNCTION BOX: aluminum alloy casting, anodized; od finish; separate cover; conduit fitting for CO–146 cable; 6¼" lg x 5½" wd x 2½" d.	Interphone control unit housing.	2Z5687–39
Fig. 5--	KNOB: aluminum alloy, od finish; bar; for ¼" dia double flatted shaft push-on type; luminous paint in groove markers on ea side; single No. 6–32 screw through shaft; 1 5/16" lg x ⅞" wd x 1 5/32" d.	Knob for switch.	2Z5821–148
	LABEL: white book paper, black print, enamel finish; 3½" x 3½".	Circuit diagram label.	6D16818–41
	LAMP, incandescent: tungsten filament; double contact bayonet base; bulb G–6 clear, ¾" dia; 24–28 v, .26 amp; 1⅜" lg.	Indicates that an external person desires communication.	2Z5877–27
Fig. 5--	LIGHT, indicator: bayonet base, G–6 bulb; chrome plate inclosed steel shell; 1" dia red frosted lens, bull's-eye type; threaded type jewel; 3" lg x 1½" dia over-all.	Holder for incandescent lamp.	2Z5991–207
Fig. 5--	POST, binding: brass, silver plate; compression grip between jaws of post.	Provides connection to field telephone.	3Z737–59
Fig. 5--	RELAY, armature: contact arrangement form, 1A SPST; single coil; 24v dc; 300 ohms polarized; fast action; hermetically sealed in steel case; 1½" lg x 1 5/16" wd x 2½" d.	Prevents false operation of the signal lamp in this unit when the interphone is used from within the tank.	2Z7599A–272
Fig. 5--	SWITCH, rotary: silver plated brass; SPDT; phenolic body; one sect; momentary action, one circuit normally closed; antifungus lacquered; 1½" lg x 1⅜" wd x 1" d.	EXTERNAL INTERPHONE switch which operates external call light.	3Z9825–39.7
Fig. 5--	SWITCH, rotary: silver plated brass; DPDT; phenolic body; one sect; locking action, one circuit normally closed; antifungus lacquered; 1½" lg x 1⅜" wd x 1" d.	SIGNAL LAMP TEST switch which lights external call light and signal lamp on C–664/VIA–1 at half-brilliancy to indicate that they are operating, and stops operation of relay in C–664/VIA–1.	3Z9825–39.8
	INTERPHONE CONTROL C–665/VIA–1		
Fig. 6--	CONTROL, interphone: Sig C No. C–665/VIA–1; rectangular box; waterproofed; two mounting brackets, with mounting holes; 8½" x 5⅝" wd x 3 13/16" d.	Interphone control unit.	6C10–665
Fig. 6--	BOARD, terminal: plastic; ten terminals, solder lugs; barrier type; 6⅜" lg x .687" wd x ⅝" h over-all.	Provides insulated connecting terminals for all leads.	3Z770–2.91
Fig. 6--	BOOT: synthetic rubber; cylindrical; 1" dia x 1¾" lg over-all.	Protection cover for phone and microphone jacks.	2Z760–17
	BRACKET: aluminum alloy, anodized; ⅞" lg x ⅞" wd x 1 5/32" d.	Supports switch.	2Z1244–122
Fig. 6--	BRACKET: L-shaped; cold-rolled steel, od finish; ⅞" lg x 1 3/16" wd x 2⅞" d.	Mounting bracket for interphone control box.	2Z1244–124
	BRACKET: hot-rolled steel, od finish; 1 25/32" lg x ½" wd x 1 1/16" d.	Supports transformer.	2Z1244–121

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
Fig. 6__	CONNECTOR, receptacle: Sig CU–79/U; round polarized button contacts; waterproofed.	Provides connection of Handset H–33/PT in case of danger to Cable Reel RL–149/VIA–1 or Handset MTS–1.	2Z7250–79
Fig. 6__	COVER: aluminum alloy casting, anodized; od finish; flat rectangular; slot for rubber insulating strip on entire perimeter; 6¾″ lg x 4⅜″ wd x ¼″ thk over-all.	Cover for interphone control box.	2Z3352.236
Fig. 6__	COVER, JACK ASSEMBLY: hinged on base; rubber sealing cap; Galvin No. 1X35328.	Provides protection for phone and microphone jacks.	2Z5649
Fig. 6__	FITTING, conduit: straight type; waterproofed; aluminum alloy; cylindrical; 1″ dia x 1⅜″ lg.	Receptacle for interconnection cable.	6Z3858–31
Fig. 6__	FITTING, conduit: straight type; waterproofed; aluminum alloy; cylindrical; 1⅛″ dia x 1⅜″ lg.	Receptacle for interconnection cable.	6Z3858–32
Fig. 6__	FITTING, conduit: straight type; waterproofed; aluminum alloy; cylindrical; 1⅜″ dia x 1⅜″ lg.	Receptacle for interconnection cable.	6Z3858–33
	GASKET: synthetic rubber; one hole; waterproof, 6¾″ x 4⅜″ rectangular with 45° angle corners, 3/16″ x ⅛″ cross section.	Gasket between cover and box.	2Z4868.831
	GASKET: synthetic rubber; one hole; waterproof; toridol shape, .549″ ID, 070″ dia of cross section.	Gasket for plug.	2Z4868.825
	GASKET: synthetic rubber; one hole; waterproof; toroidol shape, .675″ ID, .070″ dia of cross section.	Gasket for plug.	2Z4868.827
	GASKET: synthetic rubber; one hole; waterproof; toroidol shape, 921″ ID, .070″ dia of cross section.	Gasket for plug.	2Z4868.826
	INSULATOR, feed-through: cylindrical; synthetic rubber; waterproofed; .495″ dia x 1⅛″ lg.	Provides cable with a waterproofed entrance into unit.	3G290–29
Fig. 6__	JACK, telephone: J1 contact arrangement; .386″ dia mounting hole; ¾″ dia x 1¼″ lg over-all.	Provides direct connection of a handset in case of damage to Cable Reel RL–149/VIA–1 or Handset MTS–1.	2Z5534C
Fig. 6__	JACK, telephone: J2 contact arrangement; .386″ dia mounting hole; ¾″ dia x 1¼″ lg over-all.	Provides direct connection of a microphone and headset in case of damage to Cable Reel RL–149/VIA–1 or Handset MTS–1.	2Z5533C
Fig. 6__	JUNCTION BOX: aluminum alloy casting; od finish; separate cover; rectangular; 6⅝″ lg x 4¼″ wd x 2 13/32″ d over-all.	Interphone control unit housing.	2Z5687–37
Fig. 6__	KNOB: aluminum alloy; od finish; bar; push-on type; single No. 6–32 screw through shaft; luminous paint in groove markers on ea side; 1 3/16″ lg x ⅞″ wd x 15/32″ d.	Switch knob.	2Z5821–147
	LABEL: white book paper, black print, enamel finish; 5″ lg x 3″ wd.	Circuit diagram label.	6D16818–43
Fig. 6__	PLUG, machine thread: aluminum alloy; od finish; round; ⅞″ dia x 9/16″ lg.	Closes unused cable entrance holes.	6Z7598–3
Fig. 6__	PLUG, machine thread: aluminum alloy; od finish; round; 1″ dia x 9/16″ lg.	Closes unused cable entrance holes.	6Z7598–5
Fig. 6__	PLUG, machine thread: aluminum alloy; od finish; round; 1¼″ dia x 9/16″ lg.	Closes unused cable entrance holes.	6Z7598–4

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	INTERPHONE CONTROL C–665/VIA–1 (Continued)		
Fig. 6__	POST, binding: brass, silver plate; compression grip between jaws of post.	Provides connection to field telephone.	3Z737–59
Fig. 6__	RELAY, armature: one single-pole normally open, SPDT; silver contacts; single wound insulated coil, 24 v dc, 300 ohms; polarized; fast acting; hermetically sealed case; 1½″ lg x 1$\frac{5}{16}$″ wd x 2½″ d.	Prevents external person from lighting external call light; grounds control circuit which lights the signal light and operates the relay in C–664/VIA–1; breaks external phone circuit and prevents anyone from listening in without being detected.	2Z7589–180
Fig. 6__	RESISTOR, fixed: composition; 2000 ohms.	Limits low level output.	3RC20BE202J
Fig. 6__	RESISTOR, fixed: composition; 47 ohms.	Limits low level output.	3RC20BE470J
Fig. 6__	RESISTOR, variable: composition; tandem arrangement, sect. one 50,000 ohms ±20%; sect. two 2000 ohms ±20%, both sects. ¼ w.	Regulates volume of either high or low-impedance phone.	3Z7450–148
Fig. 6__	SWITCH, rotary: SPDT; one sect.; phenolic body; shorting type contacts; locking action; 1″ lg x ⅞″ wd x 1⅜″ d.	Connects impedance matching transformer to the impedance outputs of the radio or interphone equipment.	3Z9825–39.6
Fig. 6__	TRANSFORMER, AF: line type; primary impedance 2000 ohms, secondary impedance 250 ohms; .05 w operating level; turns ratio of primary to secondary 2.83:1; 200-4000 cy, ±2 db of that at 1000 cy; 1″ square base x 1⅜″ h.	Matches either high- or low-impedance output of the radio equipment to the handsets or headsets connected to Interphone Control C–665/VIA–1.	2Z9637/123
	INTERPHONE CONTROL C–666/VIA–1		
Fig. 7_	CONTROL, interphone Sig C No. C–666/VIA–1; rectangular box; waterproofed; two oval-shaped holes for mounting, $\frac{5}{16}$″ lg x .158″ wd, 2⅞″ c to c; 4$\frac{7}{16}$″ lg x 4$\frac{3}{32}$″ wd x 1$\frac{11}{16}$″ d.	Interphone control unit.	6C10–666
Fig. 7__	BRACKET: aluminum alloy, anodized; 2–¼″ lg x 1⅝″ wd x 1$\frac{3}{16}$″ d.	Supports relay.	2Z1244–119
Fig. 7	CABLE ASSEMBLY, special purpose: Sig C Cordage CO–146; lg leads stripped ½″ and tinned; 18″ excluding terminations.	Interconnection cable	3E2146
Fig. 7	COVER: steel, od finish; rectangular; 3½″ lg x 4$\frac{3}{32}$″ wd x ¼″ d.	Cover for interphone control housing.	2Z3352.235
Fig. 7__	FITTING, conduit: straight type; waterproofed; aluminum alloy; cylindrical; 1″ dia x 1⅜″ lg.	Receptacle for interconnection cable	6Z3858–31
	GASKET: synthetic rubber; five holes; waterproof; rectangular; 3$\frac{15}{32}$″ lg x 2$\frac{17}{32}$″ wd x 1$\frac{1}{16}$″ thk.	Gasket between cover and box	2Z4868.828
Fig. 7__	JUNCTION BOX: steel, od finish; separate cover; 3⅜″ lg x 2$\frac{7}{16}$″ wd x 1½″ d.	Interphone control unit housing	2Z5687–36
	LABEL: white book paper, black print, enamel finish; 2¼″ lg x 1¾″ wd.	Circuit diagram label	6D16818–42
Fig. 7__	RELAY, armature: contact arrangement form. 1A SPST; silver contacts; single insulated coil, 24 v dc, 300 ohms, polarized; fast acting; hermetically sealed steel case; 1½″ lg x 1$\frac{5}{16}$″ wd x 2½″ h.	Prevents false operation of the relay in C–663/VIA–1 when the microphone button at any crew member's box is pressed.	2Z7599A–273

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	CABLE REEL RL–149/VIA–1		
Fig. 8—	HANDSET: U. S. Marine Corps MTS–1; receiver impedance 300 ohms, transmitter impedance 28 ohms; aluminum, black anodized; 8⅞″ lg x 3½″ wd x 2¾″ h; push-to-talk-and-listen switch.	Provides means of communicating from exterior of tank to three positions within tank.	2B612–4
	BRACKET: 1 3/16″ lg x ⅜″ wd x 5/16″ d; mounts by two .156″ dia holes, ⅜″ c to c.	Switch contact lever	2Z1244–130
Fig. 8—	BUTTON, push: laminated plastic, XXP; 1 15/16″ lg x 23/32″ wd x 7/16″ d; two 6–32 NC–2 tapped holes, ⅜″ on centers.	Push-to-talk-and-listen button on handset.	2B155–4
	CONTACT ASSEMBLY, coil, c/o mounting plate and set of contact springs; circular shape; 1 9/16″ dia x 1/16″ thk (less contacts).	Transmitter contact spring assembly.	2Z3197A–62
Fig. 8—	COVER: transmitter cover sleeve; aluminum, black anodized, cup shape; 2⅝″ dia x ¾″ d.	Transmitter unit cover	2Z3351–242
	COVER: neoprene; cylindrical shape; 2 23/32″ dia x 1″ d; waterproof.	Handset transmitter protective cover.	2Z3351–243
	COVER: neophene; cylindrical shape; 2 7/32″ dia x 2 3/32″d; waterproof.	Handset receiver protective cover	2Z3351–245
Fig. 8—	COVER: aluminum, black anodized; oval shape; 5 11/16″ lg x 1⅝″ wd x 1 7/32″ d.	Handset housing cover	2Z3351–246
Fig. 8—	COVER: receiver cover sleeve; aluminum black anodized; cup shape; 2″ dia x 1 7/32″ d.	Receiver unit cover	2Z3351–247
	GASKET: low-temp Buna S; 3 holes; rectangular shape, 4″ lg x 1″ wd x .020″ thk.	Handset plate waterproof gasket	2Z4868.847
	GASKET: synthetic rubber; 1 hole; circular shape; 1 5/32″ ID x 1⅜″ OD x 1/16″ thk.	Receiver cover gasket	2Z4868.848
	GASKET: synthetic rubber; 1 hole, circular shape; 1 13/16″ ID x 2 5/16″OD x 1/16″ thk.	Transmitter cover gasket	2Z4868.849
	GASKET: synthetic rubber; 7 holes; oval shape, 5 11/16″ lg x 1⅝″ wd x 1/64″ thk.	Sealing gasket between cover and handset.	2Z4868.850
Fig. 8—	HOLDER, handset: aluminum, black anodized; ordinary telephone shape; 9″ lg x 2⅜″ wd x 2⅝″d; connected to cable reel by a cable only.	Housing and handle for handset	2B1098–1
	PLATE, mounting: plastic, XXP; flat, rectangular shape; 4″ lg x .995″ wd x .125″ thk.	Switch mounting plate and terminal board.	2Z7091–387
	PLATE, retainer: plastic, XXP, flat shape; 2 7/32″ lg x ¾″ wd x ⅛″ thk.	Gasket retaining plate	2Z7091–388
	PLATE, retainer: plastic, XXP; flat, rectangular shape; 4 3/32″ lg x .995″ wd by .125″ thk.	Spring retainer plate	2Z7091–389
	RECEIVER ELEMENT, telephone: phenolic; impedance, 300 ohms; cylindrical shape; 1⅛″ dia x 9/16″ d; locked into position by threaded sleeve cover.	Handset receiver element	2B619–3
	SPRING: loop type; .032″ dia music wire; 3″ lg x. .843″ wd flat; fits into spring retainer plate.	Handset gasket retaining spring	2Z877.449
Fig. 8—	SWITCH, push; form IF, make-make, 3 contacts; one sect; current rating 1amp; phenolic body; ¾″ lg x ⅜″ wd x ¼″ d; momentary locking, normally open; solder terminals.	Handset push - to - talk - and - listen switch.	3Z9824–2.2
	TRANSMITTER ELEMENT, telephone: brass, nickel plate; impedance, 28 ohms; 2⅛″ dia x ⅝″ d; locked into position by threaded sleeve cover.	Handset transmitter element	4B9860–2

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	INTERPHONE CONTROL C–666/VIA–1 (Continued)		
Fig. 8	REEL, cable: Sig C #RL–149/VIA–1; approx cylindrical; waterproofed; three ⅜″ dia holes, 120° apart on a 4⅞″ radius circle for mounting; 9½″ dia x 6″ d.	Reel for telephone cable	6H6349
	BEARING, sleeve; bronze oilite	Bearing for brush holding plate	2Z581–29
	BEARING, sleeve: bronze, oilite; .377″ OD x .252″ ID x 9/16″ lg.	Bearing for cable rollers	2Z581–31
	BEARING, sleeve: bronze, oilite; .377″ OD x .252″ ID x 9/16″ lg.	Bearing for cable rollers	2Z581–30
	BEARING, sleeve: bronze, oilite; .381″ OD x .250″ ID x 13/16″ lg; shoulder, 1¼″ dia x .062″ thk.	Spool rotating bearing for shaft	2Z581–32
	BRUSH, electrical contact; metal graphite rectangular prism; ⅜″ lg x .127″ wd x .187″ thk; shunt type Q, 9/16″ lg.	Provides electrical connection to the rotating cable wires.	3H525T
Fig. 8	CABLE ASSEMBLY, special purpose: Sig C Cordage CO–146; 36″ excluding terminations.	Interconnection cable	3E7350–1.36.5
	CAM: steel, zinc coated; notched rectangular piece; 2 3/32″ lg x 1 5/32″ wd x ¼″ thk.	Catches on panel and prevents rotation.	2Z1600–109
	CAP: black bakelite cap, brass insert; cylindrical; knurled; ½″ dia x ¼″ lg.	Brush holder cap	2Z1619–81
Fig. 8	CASE: aluminum alloy; cylindrical interior; hole in case for handset cord; 10¾″ dia x 4″ d.	Exterior case for cable reel	6H575–1
	COLLAR, shaft: steel; cylindrical; set screw for locking spring; 1¼″ dia x 7/16″ h.	Mounts into retainer and holds spring in place.	2Z2935–100
	COLLAR, shaft: steel; cylindrical; 1¼″ dia x 9/16″ h.	Mounts on case and holds spring in place.	2Z2935–101
Fig. 8	CORD, handset: Sig C Cordage CO–146; 40′ 8½″.	Cable between handset and cable reel.	3E7382–488
Fig. 8	COVER: aluminum alloy; circular; 8⅞″ dia x 9/16″ thk.	Cover for cable reel case	6H870–1
Fig. 8	COVER: aluminum alloy; circular; taped hole for cable insert; 7″ dia x 1″ thk.	Lid assembly cover	6H870–3
	COVER: aluminum alloy, anodized; circular; 7½″ dia x .062″ thk.	Spool assembly cover	6H870–2
	GASKET: synthetic rubber; six holes; waterproof; round; 7″ dia x 1/32″ thk.	Gasket between cover and case	2Z4868.823
	GROMMET: synthetic rubber; fits 9/16″ hole; .515″ dia x 1 1/16″ wd.	Strain relief grommet in lid cover and spool.	6Z4849F
	HOLDER, brush: brass, nickel coated; cylindrical; 1 5/32″ dia x ⅝″ h.	Provides mounting and positioning for brushes.	3H2507–148
	HOUSING: round; 4″ dia x ⅝″ d	Slip ring assembly housing	2Z5091–90
	LABEL: white book paper, black print enamel finish; 4″ lg x 3″ wd.	Circuit diagram label	6D16818–40
	NUT, hexagon: brass, nickel coated; 9/16″ across flats; 1/16″ thk.	Brush holder mounting nut	6L3506–32–9.1A
	PACKING: felt; cylindrical; ¾″ OD, ⅜″ ID x 5/16″ lg.	Reduces friction of rotating shaft	6Z7464–4
	PACKING: grease impregnated; felt; ring shape; 4¾″ OD, 4¼″ ID x 3/16″ thk.	Prevents dirt and foreign matter from entering slip ring compartment.	6Z7464–3
	PAWL: cold-rolled steel, zinc coated; no dimen greater than 1″.	Provides stop for rotating spool	6H1930
	PIN, roller: steel; cylindrical; mounts into case held by cotter pin; ⅝″ dia x 1 9/32″ lg.	Stationary axle for rollers	6L3952–20

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	PLATE, brush: c/o plate, brushes, and cap; round; 5¼″ dia x ¾″ d.	Mounting plate for brush assembly	2Z7091–369
	PLATE, cover: aluminum alloy, anodized; circular; 7¾″ dia x 1 1/32″ thk.	Spool cover plate	6H1950.4
	PLATE, mounting: black plastic; circular; grooves for slip rings; 4″ dia x 7/16″ thk.	Housing for slip rings	2Z7091–370
	PLATE, mounting: black plastic; circular; 5 7/32″ dia x ½″ thk.	Brush holders mounting plate	2Z7091–368
	RETAINER, spring: aluminum alloy, anodized; circular; 7″ dia x ⅜″ thk.	Retainer for unwind and rewind spring.	2Z7780–123
	ROLLER, cable spinner: steel; cylindrical; 1 1/16″ dia x 1 1/16″ thk.	Guides cable in and out of reel	6H6550
	ROLLER, cable spinner: steel; cylindrical; 1⅛″ dia x ½″ thk.	Guides cable in and out of reel	6H6550–1
	SCREW, hollow: steel; slot drive; no head; 9/16–18 NF2–thread; ¼″ lg.	Holds strain relief grommet in place in lid and spool.	6L5070–5
	SHAFT: steel; flatted for 1 3/32″ lg; cylindrical; ⅜″ dia x 3 1/32″ lg.	Shaft for rotating spool	2Z8203–518
	SPOOL, cable: aluminum alloy, anodized; cylindrical; 7¾″ dia x 3 5/16″ wd.	Provides a rotating holder for telephone cable.	6H7075–3
	SPRING: steel, ⅜″ wd x .042″ thk; approx 33 turns; flat type; 47′ lg.	Spool rewinding spring	2Z8877.426
	SPRING: steel, ⅜″ wd x .042″ thk; approx 33 turns; flat type; 47′ lg.	Spool unwinding spring	2Z8877.427
	SPRING: .18″ dia steel wire, tin coated; torsion; right hand; 1 3/64″ dia coil.	Provides locking tension to pawl	2Z8877.425
	SPRING ASSEMBLY: c/o retainer, collar and two springs; round; 7″ dia x ⅞″ d.	Winding spring housing	2Z8879A–8
	STUD: brass; #6–32 NC2–thread, 7/16″ lg; 9/16″ lg, for ⅛″ lg portion dia is cut to .095″.	Slip ring mounting stud	6L31109–1
	STUD: steel; #6–32 NC2–thread, one end threaded 3/16″ lg; slotted end; 1 9/32″ lg.	Mounting screw for lid assembly to case.	6L31109–1S
	HARDWARE KIT		
Fig. 3	KIT, hardware: bag which contains the items listed in paragraph 5f.	A bag of hardware for the installation of Auxiliary Interphone Equipment AN–VIA/1.	6L80158
	GENERAL PURPOSE		
	CABLE, telephone: Sig C Cordage CO–146; cotton core, rubber jacket; textile insulation, color-coded; four single #20 AWG wire; fungus treated; round; .345″ dia.	Bulk cable for replacement purposes	3E2146
	GASKET: neoprene: one hole; round; 1″ ID, 1¼″ OD x 1/16″ thk.	Gasket for pilot light	2Z4868.822
	INSULATION, flexible sleeve: black plastic; .133″ ID x ¼″ lg.	Insulator for solder joint on cable termination lug.	3G2208–1.2
	INSULATOR, bushing: neoprene; round; 15/32″ OD, .136″ ID x 3/32 lg.	Binding post insulator	3G100–169
	INSULATOR, bushing: neoprene; round; 15/32″ OD, 136″ ID x 3/16″ lg.	Binding post insulator	3G100–168
	NUT, hexagon: steel, nickel plated; # 3/8–32 ⅝″ wd across flats; 3/16″ thk.	Retains screw	6L3506–32–10N1
	TERMINAL lug: tinned copper; ring type; 1 3/32″ lg x 3/16″ wd x 3/32″ d, .128 stud hole.	Cable termination lug	3Z12073–47.9
	TERMINAL, lug: silver plated brass; turret type; 3/16″ dia x ½″ lg.	Terminal board lug	3Z12073–61

Fig. ref.	Name of part and description	Function of part	Signal Corps stock No.
	GENERAL PURPOSE (Continued)		
	TERMINAL, lug: tinned phosphorous bronze; ring type, 45° angle with base; 41/64″ lg x 5/16″ wd x 15/64″ d, .146 dia stud hole.	Wire terminating lug	3Z12059–7
	TERMINAL lug: tinned phosphorus bronze; ring type, 45° angle with base; 41/64″ lg x 5/16″ wd x 15/64″ d, .172″ dia stud hole.	Wire terminating lug	3Z12059–4.1
	TERMINAL, lug: tinned copper; spade 3/4″ lg x 3/8″ wd x 5/32″ d.	Cable termination lug	3Z120730–47.7
	TERMINAL, lug: phosphorus bronze; ring type; 7/8″ lg x 5/16″ wd x .018″ thk, #8 stud hole.	Wire terminating lug providing connection to terminal board.	3Z12073–41.6
	TERMINAL, lug: tinned copper; ring type; 7/8″ lg x 9/16″ wd x .016″ thk; two holes .442″ and .073″ dia, respectively.	Cable termination lug	3Z12073–47.10
	WIRE, electrical: JAN # WL–1 (7) 20C–9	General wiring for intercoms and replacement use.	1B1320.9

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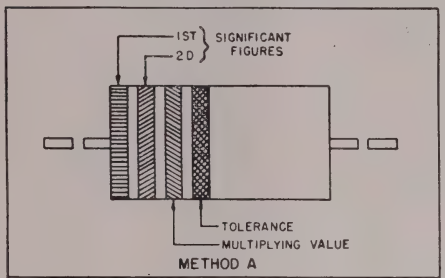
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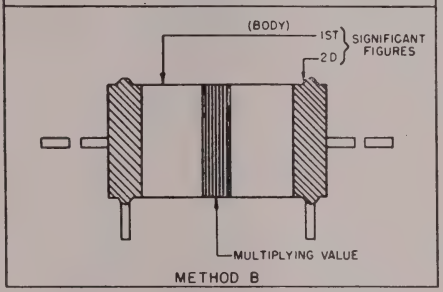
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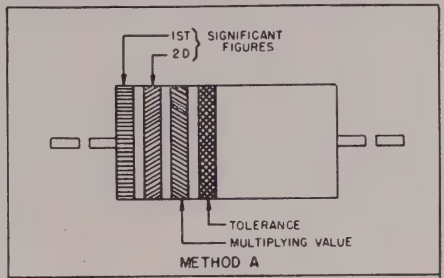
RMA COLOR CODE FOR FIXED COMPOSITION RESISTORS*

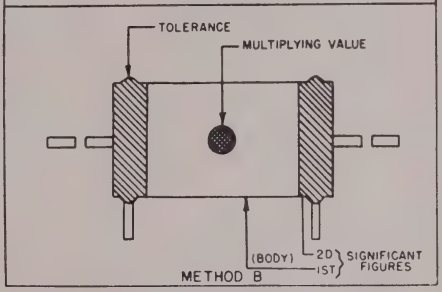




A

JAN COLOR CODE FOR FIXED COMPOSITION RESISTORS/





B

COLOR	SIGNIFICANT FIGURE	MULTIPLYING VALUE	TOLERANCE (%)
BLACK	0	1	± –
BROWN	1	10	± 1
RED	2	100	± 2
ORANGE	3	1,000	± 3
YELLOW	4	10,000	± 4
GREEN	5	100,000	± 5
BLUE	6	1,000,000	± 6
VIOLET	7	10,000,000	± 7
GRAY	8	100,000,000	± 8
WHITE	9	1,000,000,000	± 9
GOLD	–	0.1	± 5
SILVER	–	0.01	± 10
NO COLOR	–	–	± 20

NOTES

* INSULATED FIXED COMPOSITION RESISTORS WITH AXIAL LEADS ARE DESIGNATED BY A NATURAL TAN BACKGROUND COLOR NON-INSULATED FIXED COMPOSITION RESISTORS WITH AXIAL LEADS ARE DESIGNATED BY A BLACK BACKGROUND

/ RESISTORS WITH AXIAL LEADS ARE INSULATED. RESISTORS WITH RADIAL LEADS ARE NON-INSULATED.

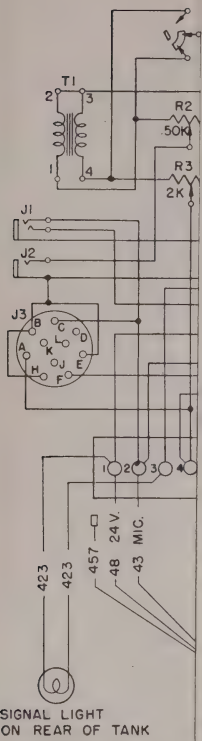
RMA RADIO MANUFACTURERS ASSOCIATION

JAN. JOINT ARMY-NAVY

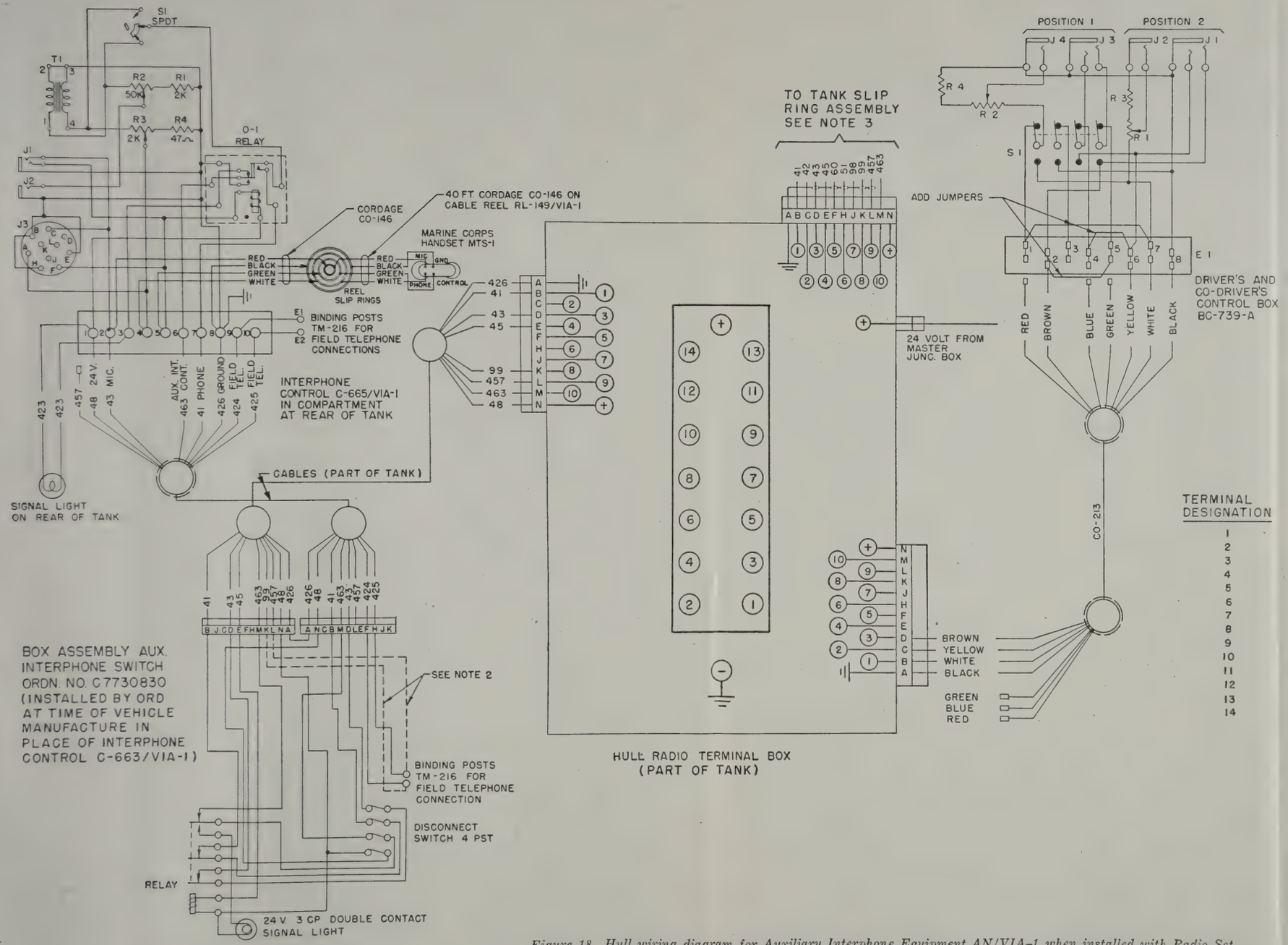
THESE COLOR CODES GIVE ALL RESISTANCE VALUES IN OHMS

TL32454S

Figure 17. Resistor color codes.



BOX ASSEMBLY AU
INTERPHONE SWITC
ORDN. NO. C77308
(INSTALLED BY OR
AT TIME OF VEHIC
MANUFACTURE IN
PLACE OF INTERP
CONTROL C-663/



NOTES:

1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. IF FIELD TELEPHONE FACILITIES ARE DESIRED AT AUX. INTER. CONTROL C-664/VIA-1 (LOCATED IN TURRET) CONNECT WIRES NO. 99 AND 457 TO BINDING POSTS TM-216 IN BOX ASSEMBLY AUX. INTER. SWITCH, ORDNANCE NO. C 7730830. (SEE NOTE 2 ON TURRET WIRING DIAGRAM.)
3. TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN TURRET TERMINAL BOX.

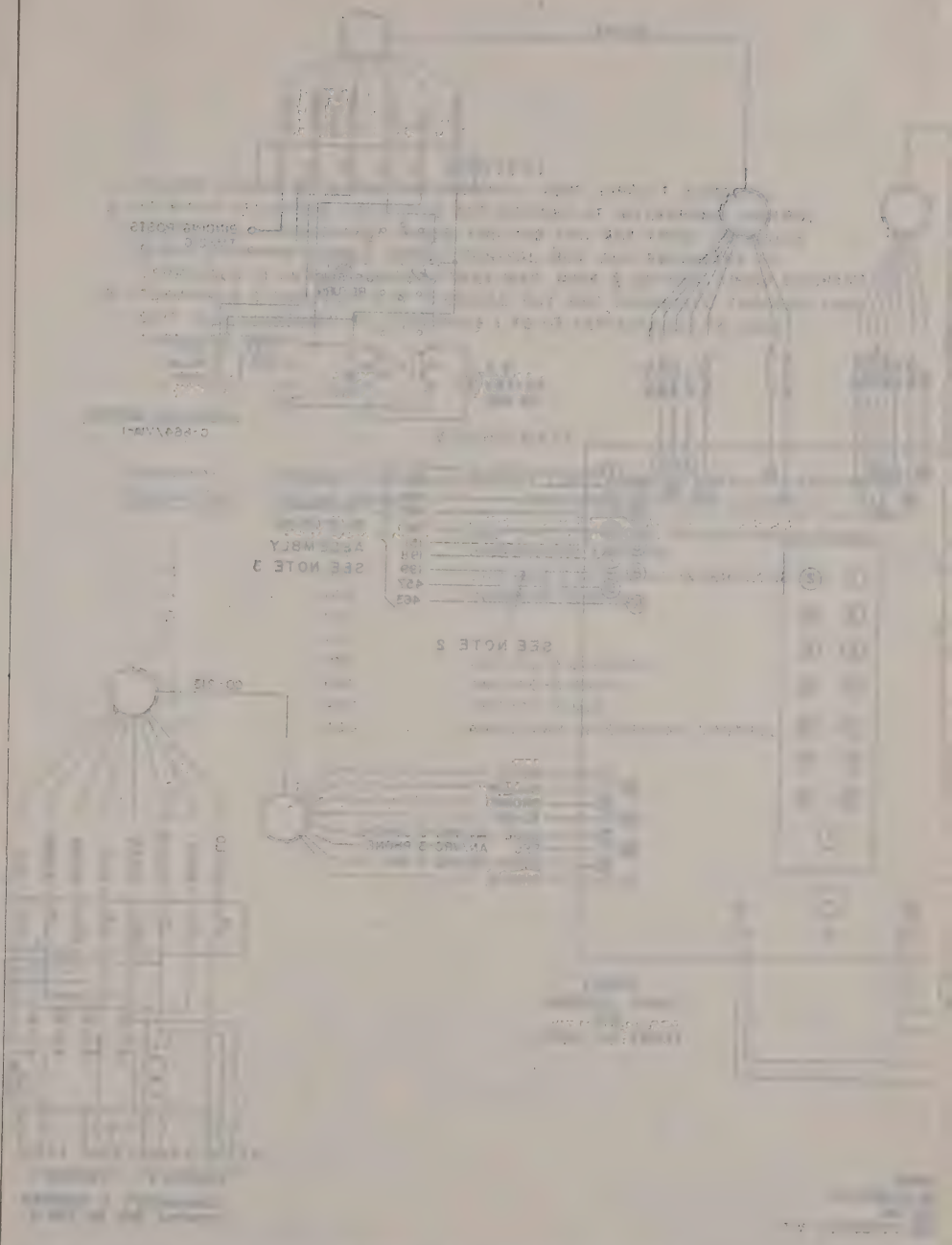
TERMINAL DESIGNATION
1
2
3
4
5
6
7
8
9
10
11
12
13
14

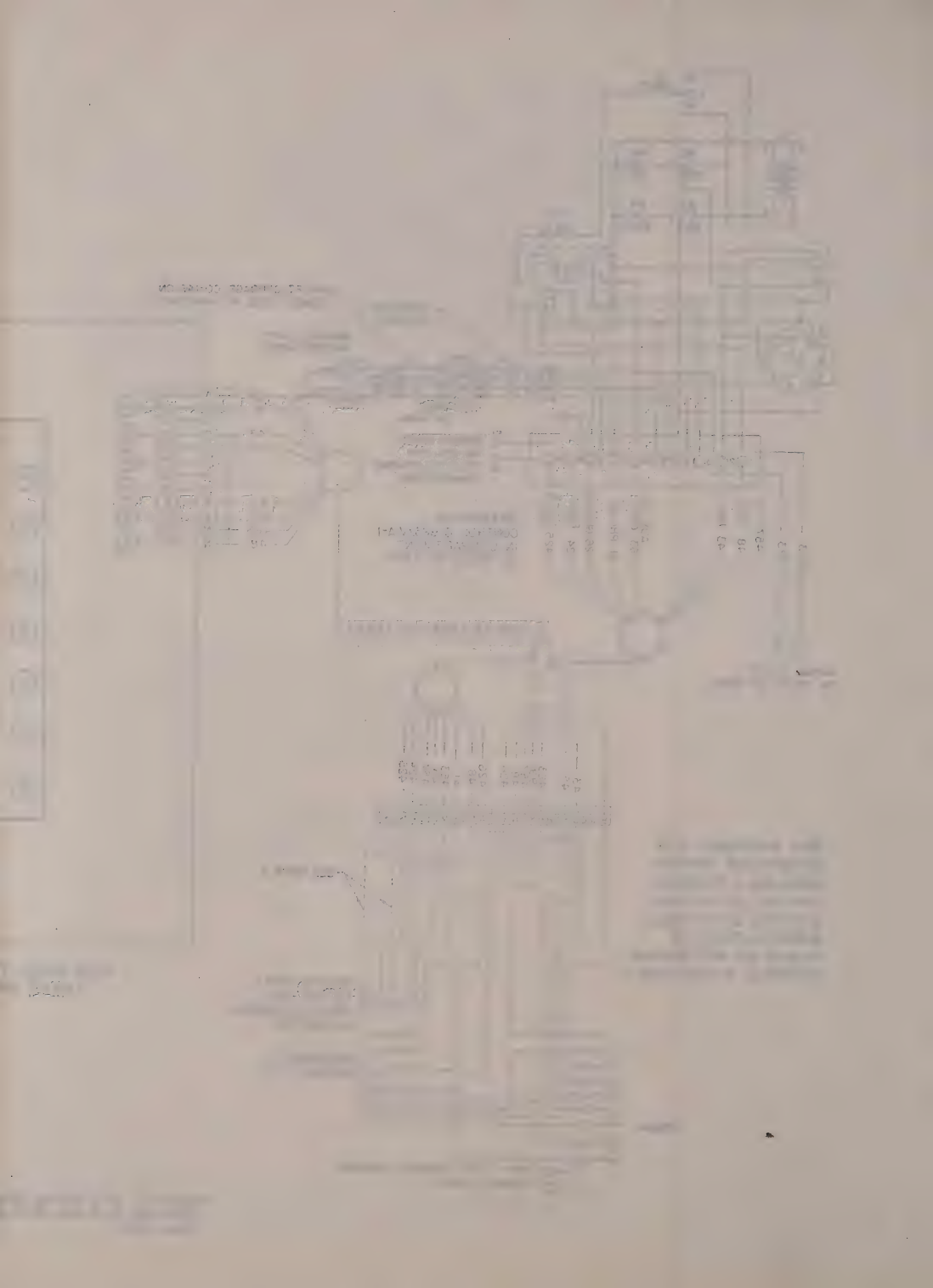
WIRING DATA

ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS SCR-508 SERIES AND AN/VRC-3
41	SCR-508 ETC PHONE OR INTERPHONE PHONE
42	INTERPHONE CONTROL
43	SCR-508 ETC MIC OR INTERPHONE MIC
45	COMMAND CONTROL
60	
51	
98	AN/VRC-3 CONTROL
99	AN/VRC-3 PHONE
457	AN/VRC-3 MIC
463	AUXILIARY INTERPHONE CONTROL

Figure 18. Hull wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Set SCR-508, SCR-528, SCR-608-B, SCR-628-B, or AN/VRC-3 and with Interphone Equipment RC-99 in Medium Tank M46.







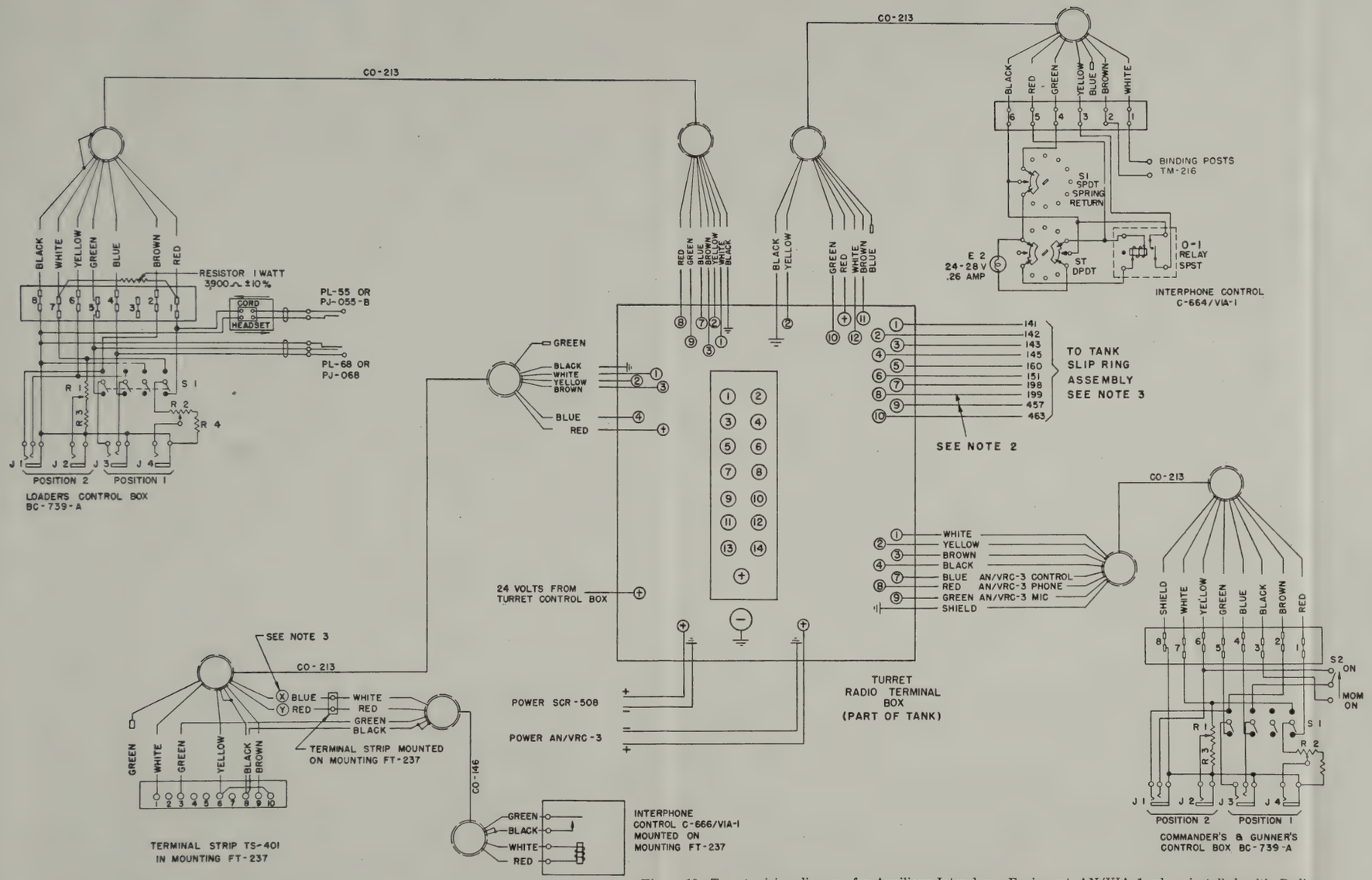


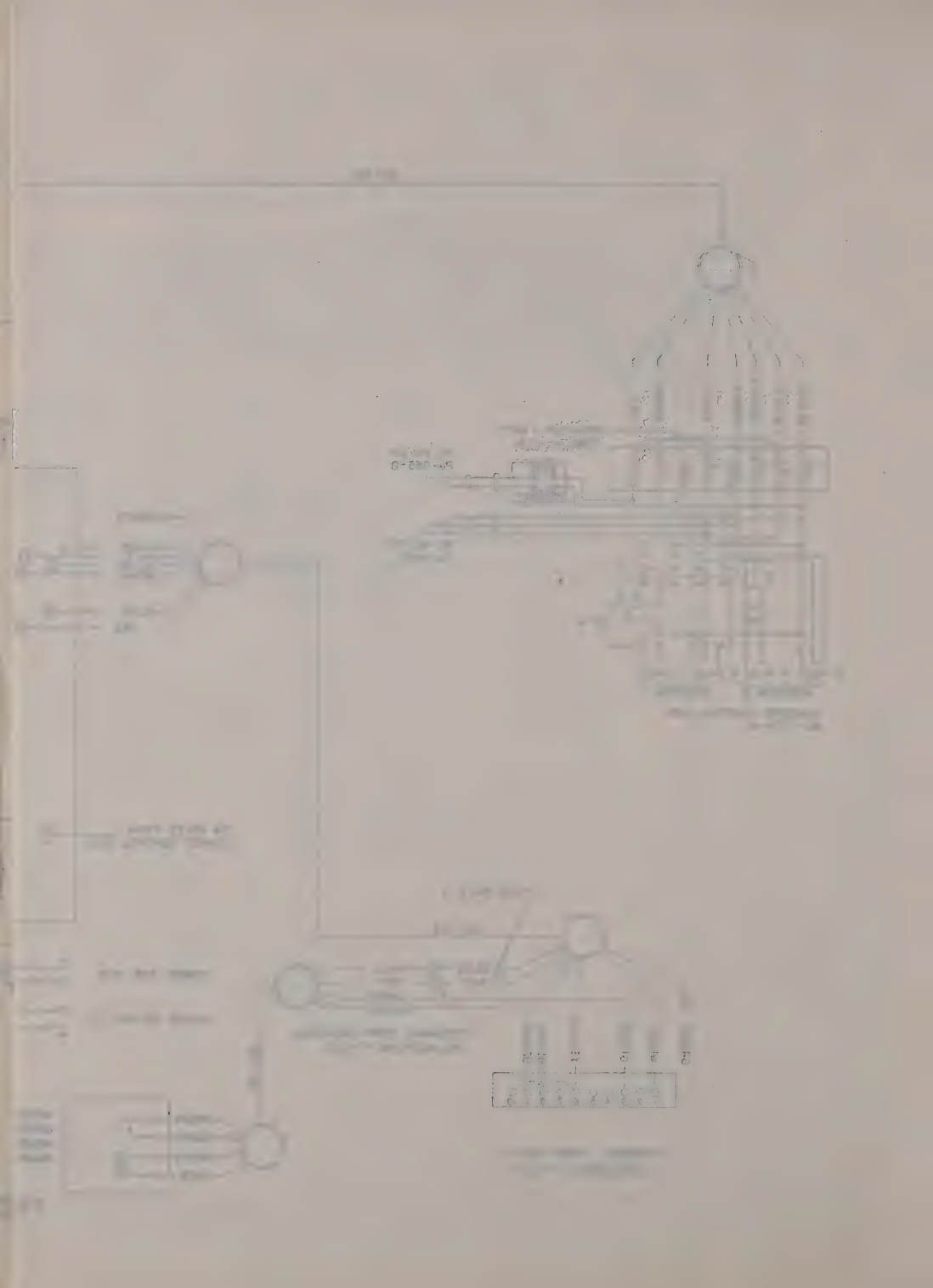
Figure 19. Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA–1 when installed with Radio *Sets AN/VRC–3 and SCR–508, SCR–528, SCR–608–B, or SCR–628–B in Medium Tank M46.*

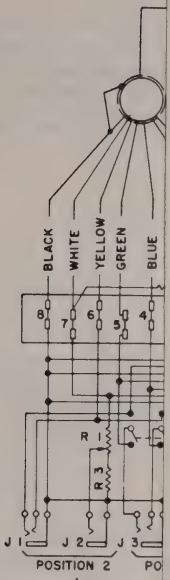
NOTES:

1 — NUMBER CODING ON WIRES ARE ORDNANCE DEPT. CIRCUIT NUMBERS.
2 — IF FIELD TELEPHONE FACILITIES ARE DESIRED AT INTERPHONE CONTROL C-664/VIA-1, DISCONNECT WIRES NOS. 199 AND 457 FROM TERMINALS 8 AND 9 AT THE TURRET RADIO TERMINAL BOX AND RECONNECT TO TERMINALS 11 AND 12 RESPECTIVELY. (SEE NOTE 2 ON HULL WIRING DIAGRAM)
3 — TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 TO 10 RESPECTIVELY IN HULL TERMINAL BOX.

WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS SCR-508 SERIES AND AN/VRC-3
1	141	SCR-508 ETC PHONE OR INTERPHONE PHONE
2	142	INTERPHONE CONTROL
3	143	SCR-508 ETC MIC OR INTERPHONE MIC
4	145	COMMAND CONTROL
5	160	
6	151	
7	198	AN/VRC-3 CONTROL
8	199	AN/VRC-3 PHONE
9	457	AN/VRC-3 MIC
10	463	AUXILIARY INTERPHONE CONTROL
11		
12		
13		
14		





LOADER'S CONTROL
BC-739-A



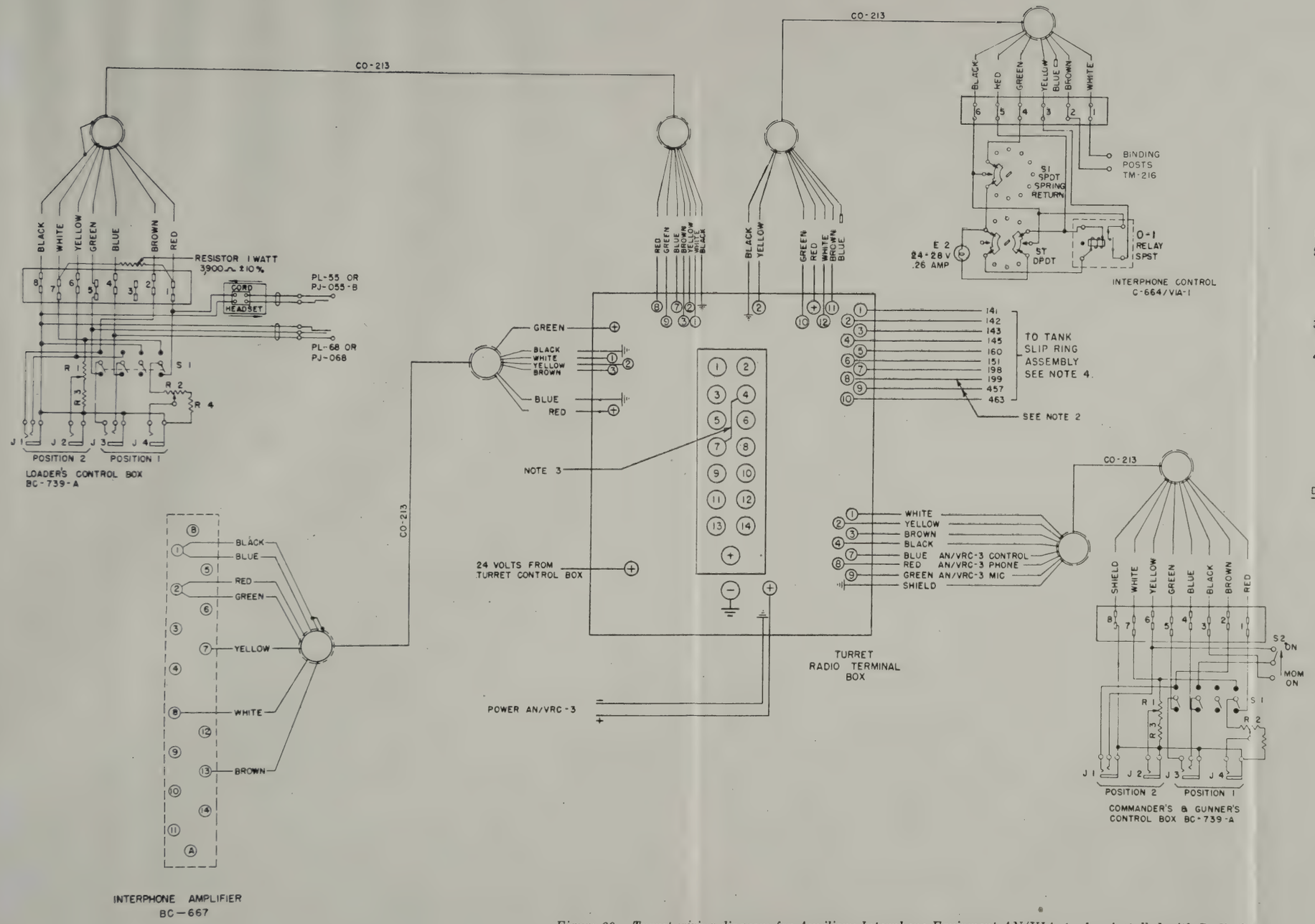


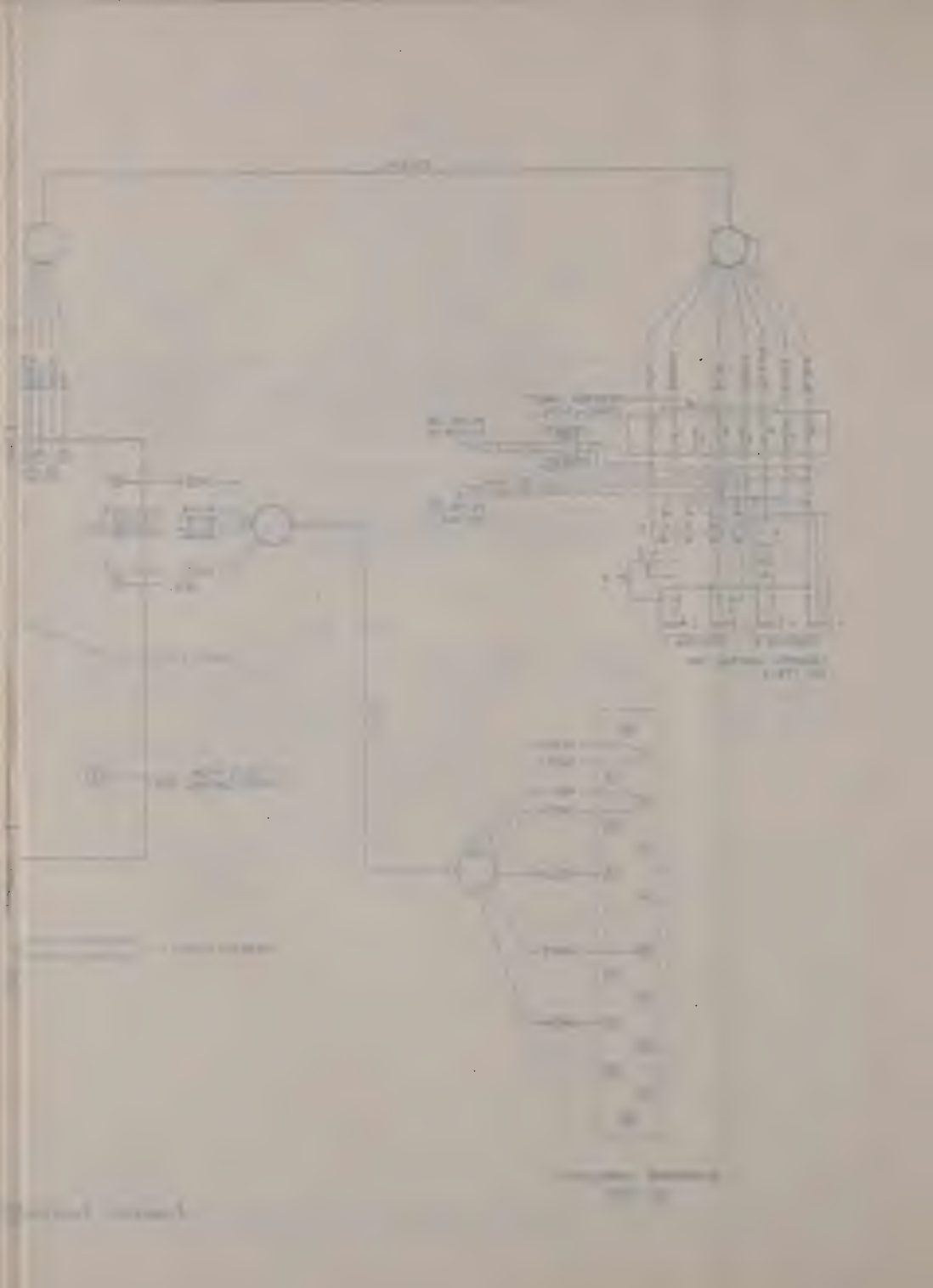
Figure 20. Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA–1 when installed with Radio Set AN/VRC–3 and Interphone Equipment RC–99 in Medium Tank M46.

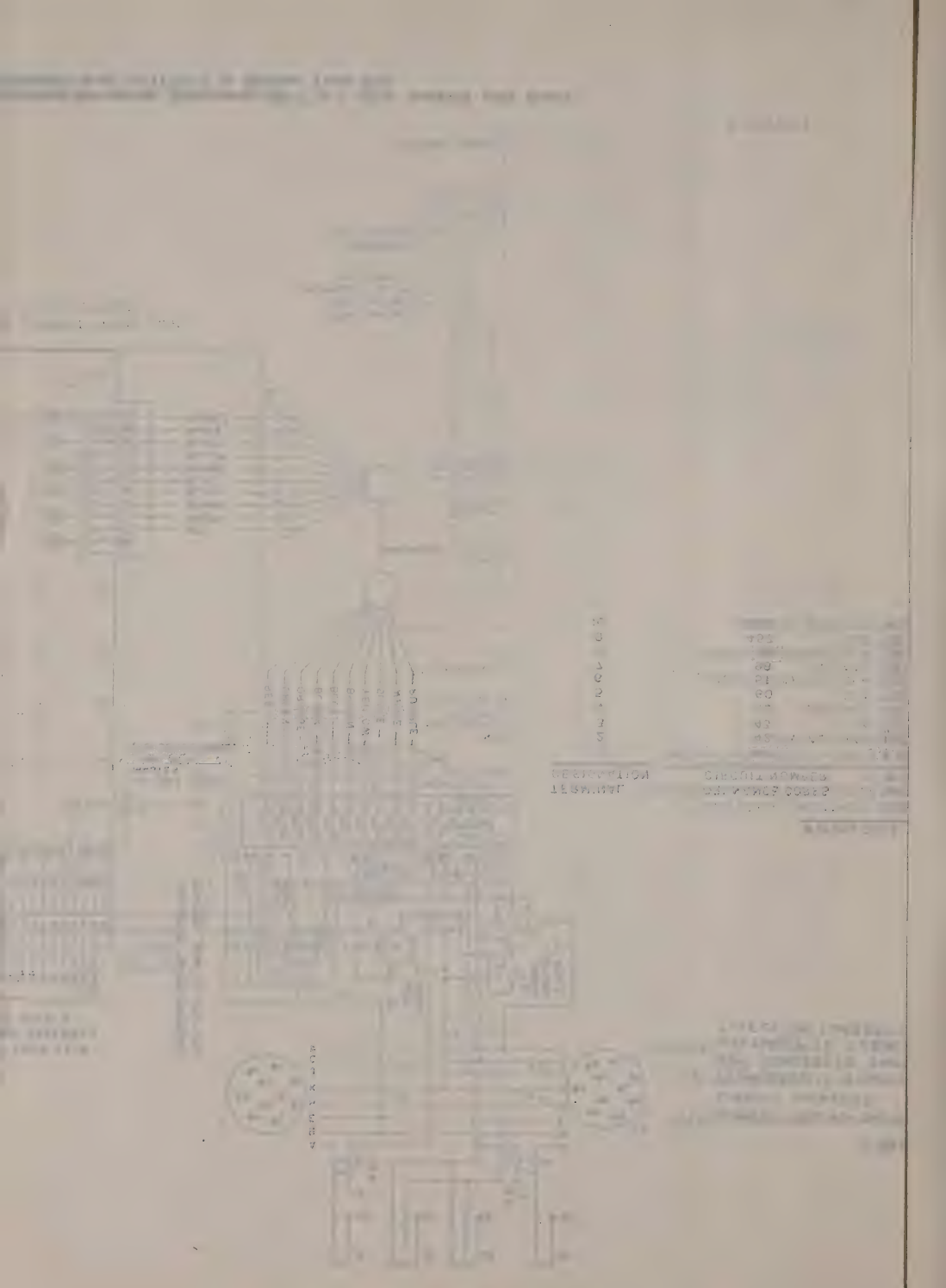
NOTES:

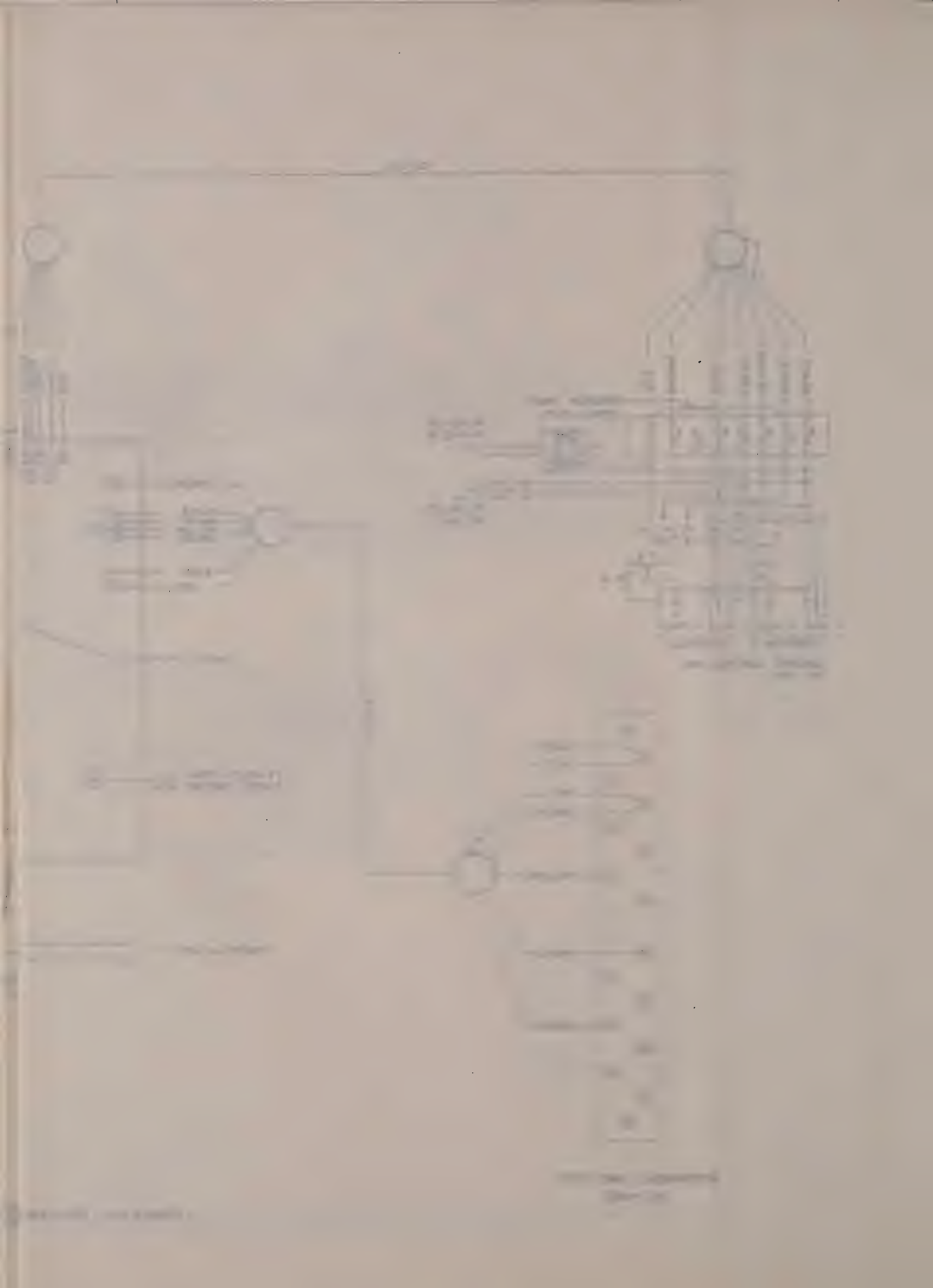
1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. IF FIELD TELEPHONE FACILITIES ARE DESIRED AT INTERPHONE CONTROL C-664/VIA-1, DISCONNECT WIRES 199 AND 457 FROM TERMINALS 8 AND 9 AT THE TURRET RADIO TERMINAL BOX AND RECONNECT TO TERMINALS 11 AND 12 RESPECTIVELY. (SEE NOTE 2 ON HULL WIRING DIAGRAM)
3. USE JUMPER BETWEEN TERMINAL POSTS 4 AND 7 IN TURRET RADIO TERMINAL BOX.
4. TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN HULL TERMINAL BOX.

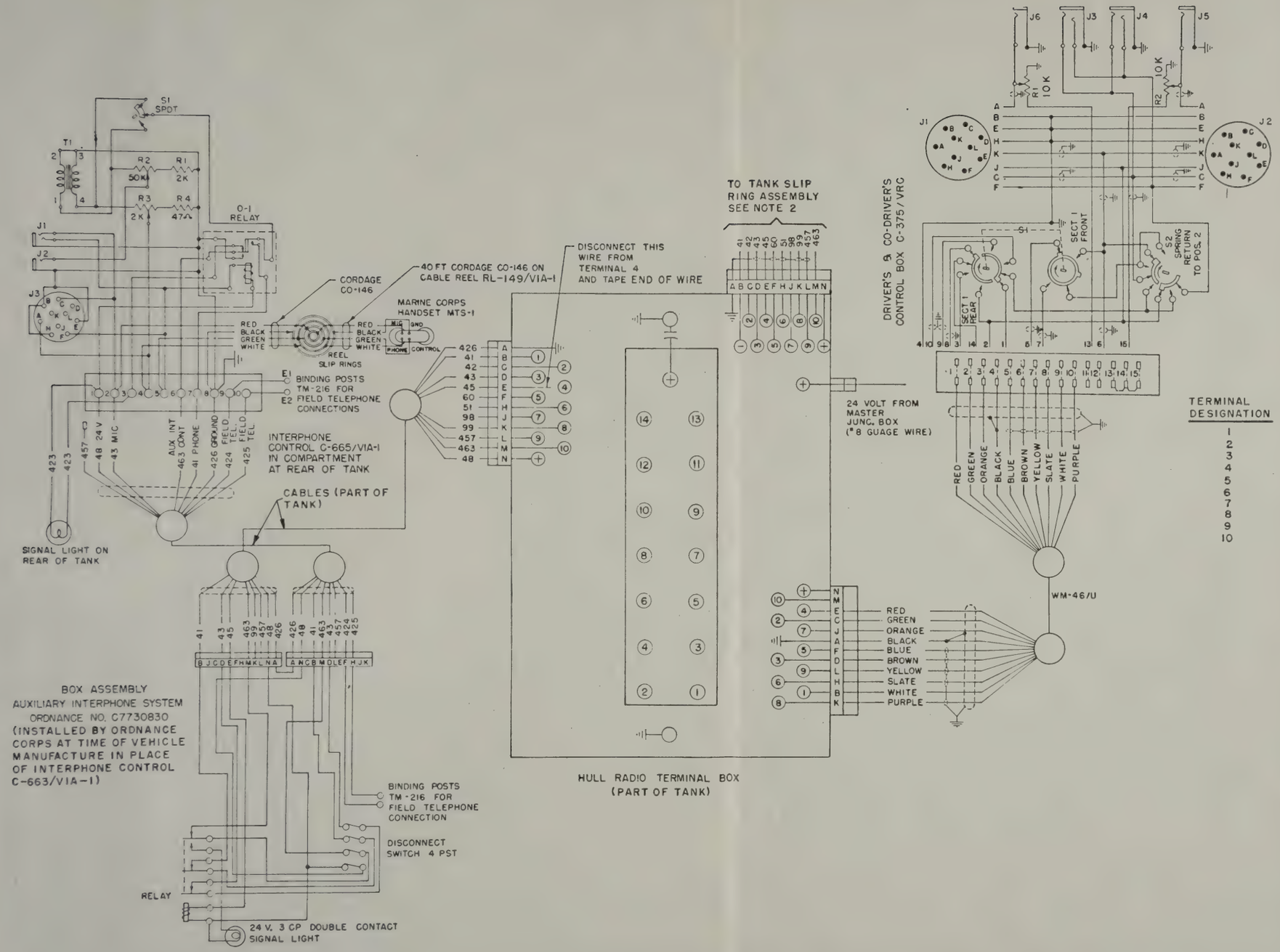
WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHERE USED WITH RADIO SET AN/VRC-3 AND INTERPHONE EQUIPMENT RC-99
1	141	INTERPHONE PHONE
2	142	INTERPHONE CONTROL
3	143	INTERPHONE MIC.
4	145	AUXILIARY INTERPHONE DISCONNECT RELAY CONTROL
5	160	
6	151	
7	198	AN/VRC-3 CONTROL
8	199	AN/VRC-3 PHONE
9	457	AN/VRC-3 MIC.
10	463	AUXILIARY INTERPHONE CONTROL
11		
12		
13		
14		









NOTES:

1 NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.

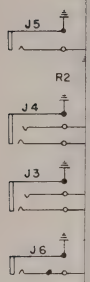
2 TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN TURRET TERMINAL BOX.

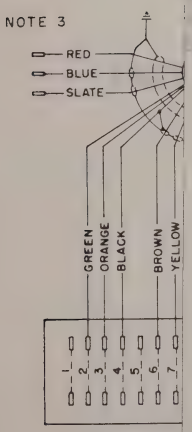
WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTIONS WHEN USED WITH RADIO SETS AN/GRG-3 THROUGH 8 SERIES
1	41	A SET + B SET + INTERPHONE, PHONE
2	42	INTERPHONE CONTROL
3	43	"B" SET MIC.
4	45	"A" SET CONTROL
5	60	"A" SET MIC
6	51	"A" SET + INTERPHONE, PHONE
7	98	"B" SET CONTROL
8	99	"B" SET + INTERPHONE, PHONE
9	457	"B" SET MIC
10	463	AUX INTERPHONE CONTROL

Figure 21. Hull wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in Medium Tank M46.

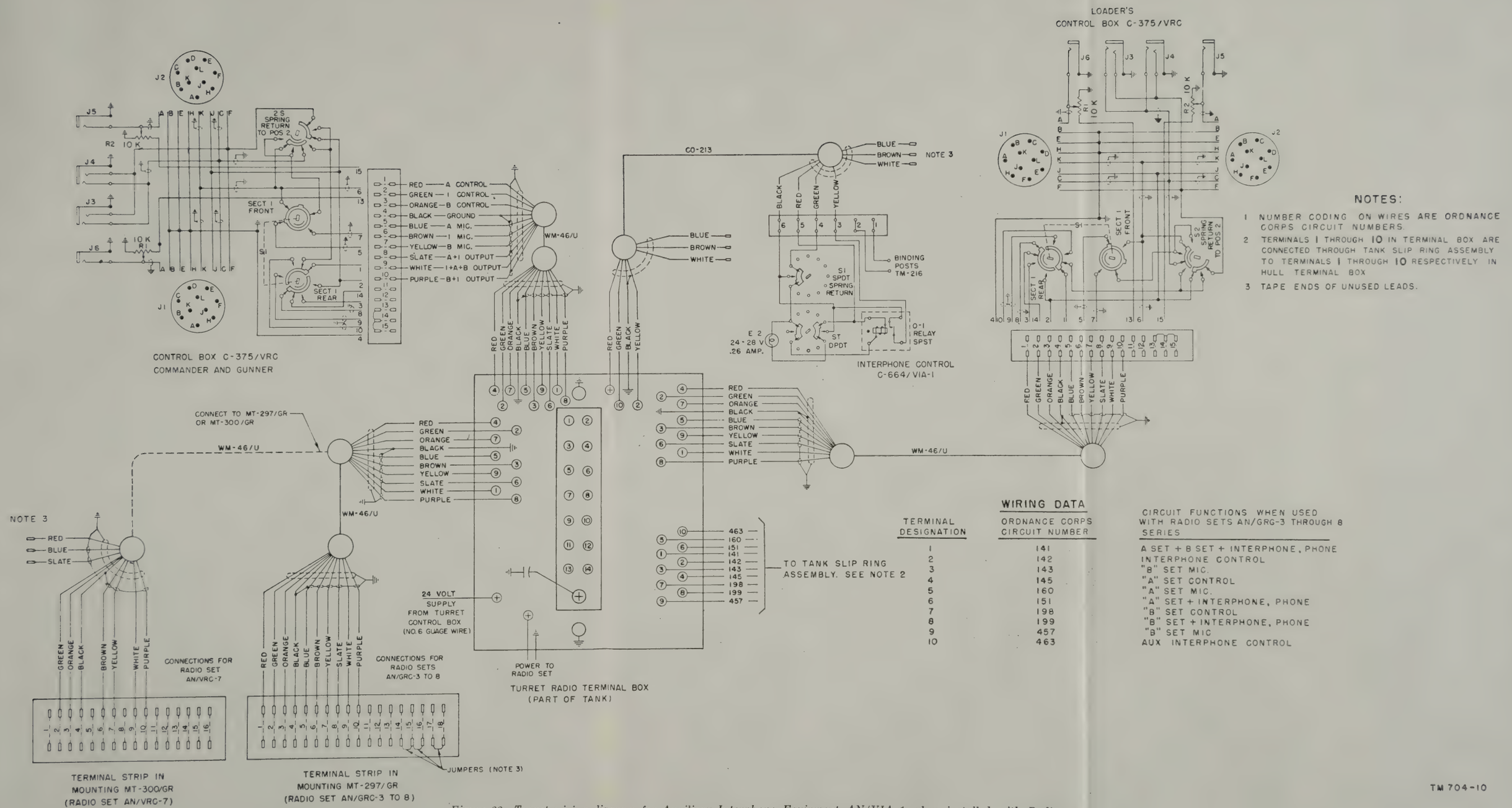






TERMINAL
MOUNTING
(RADIO SET





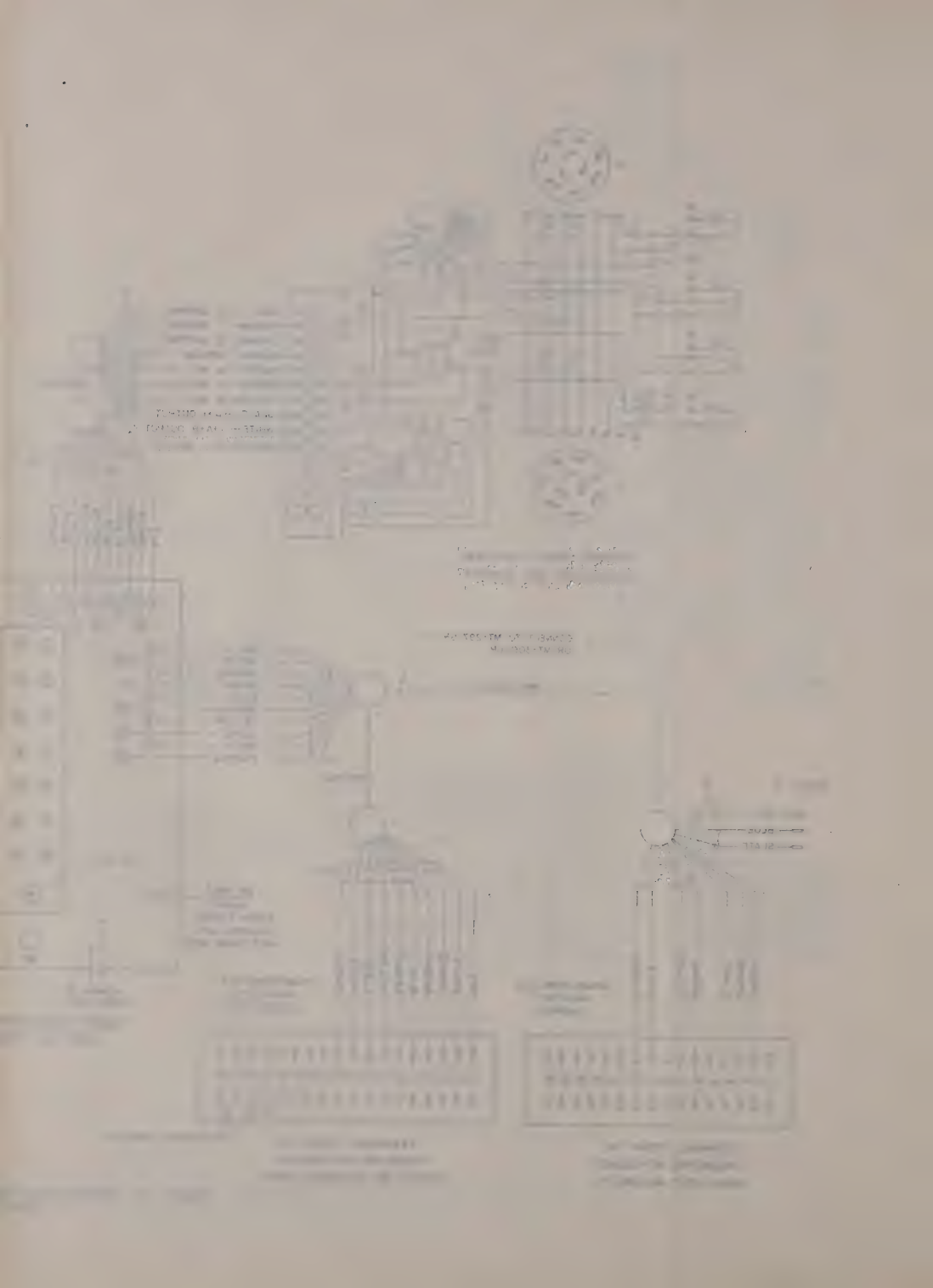
NOTES:

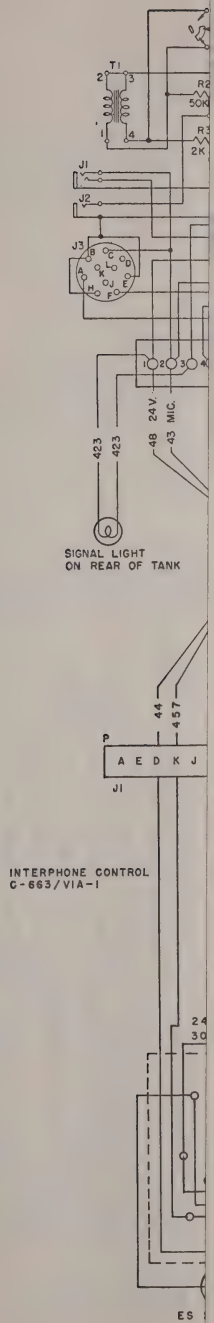
1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. TERMINALS 1 THROUGH 10 IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS 1 THROUGH 10 RESPECTIVELY IN HULL TERMINAL BOX
3. TAPE ENDS OF UNUSED LEADS.

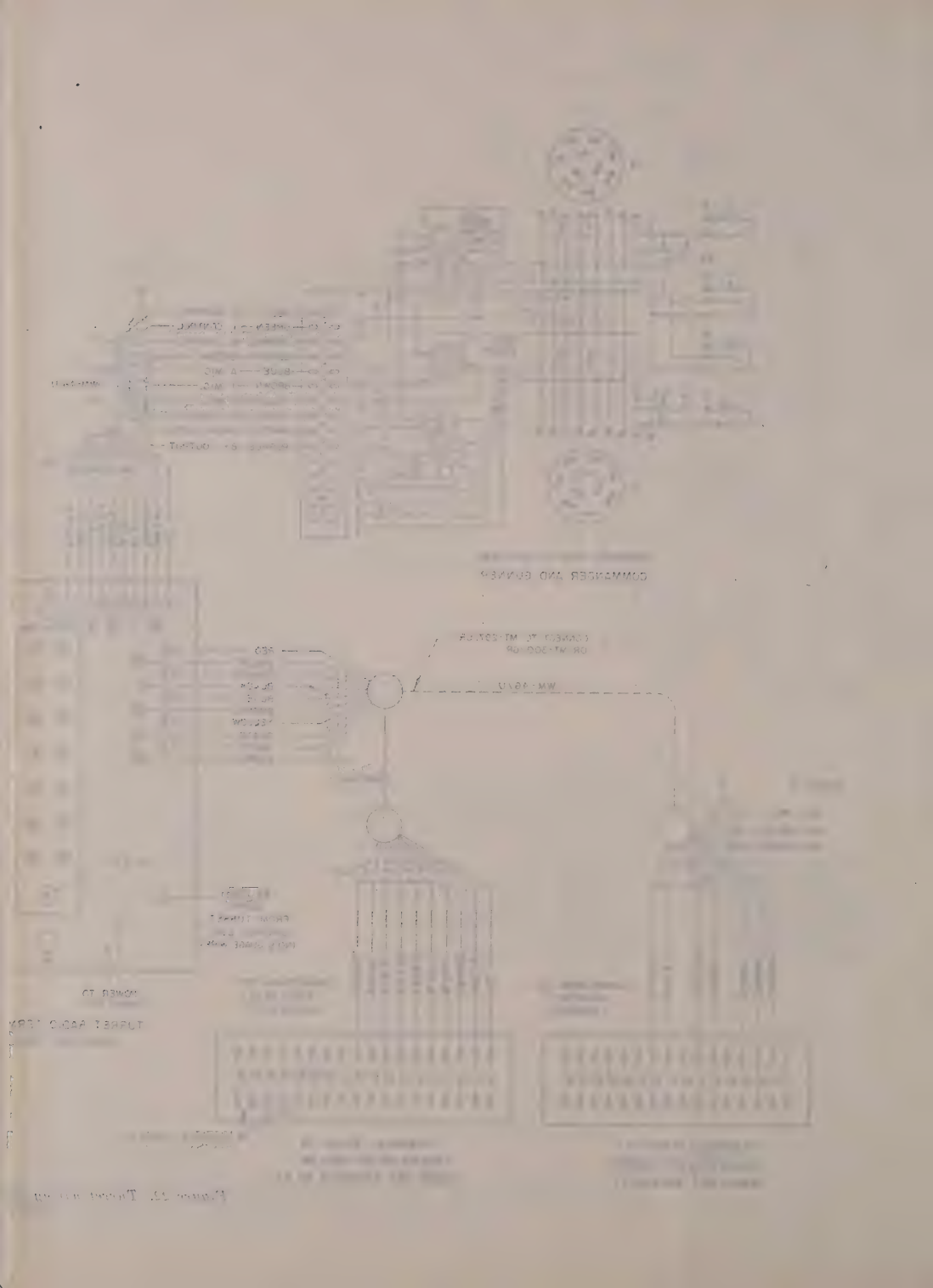
WIRING DATA

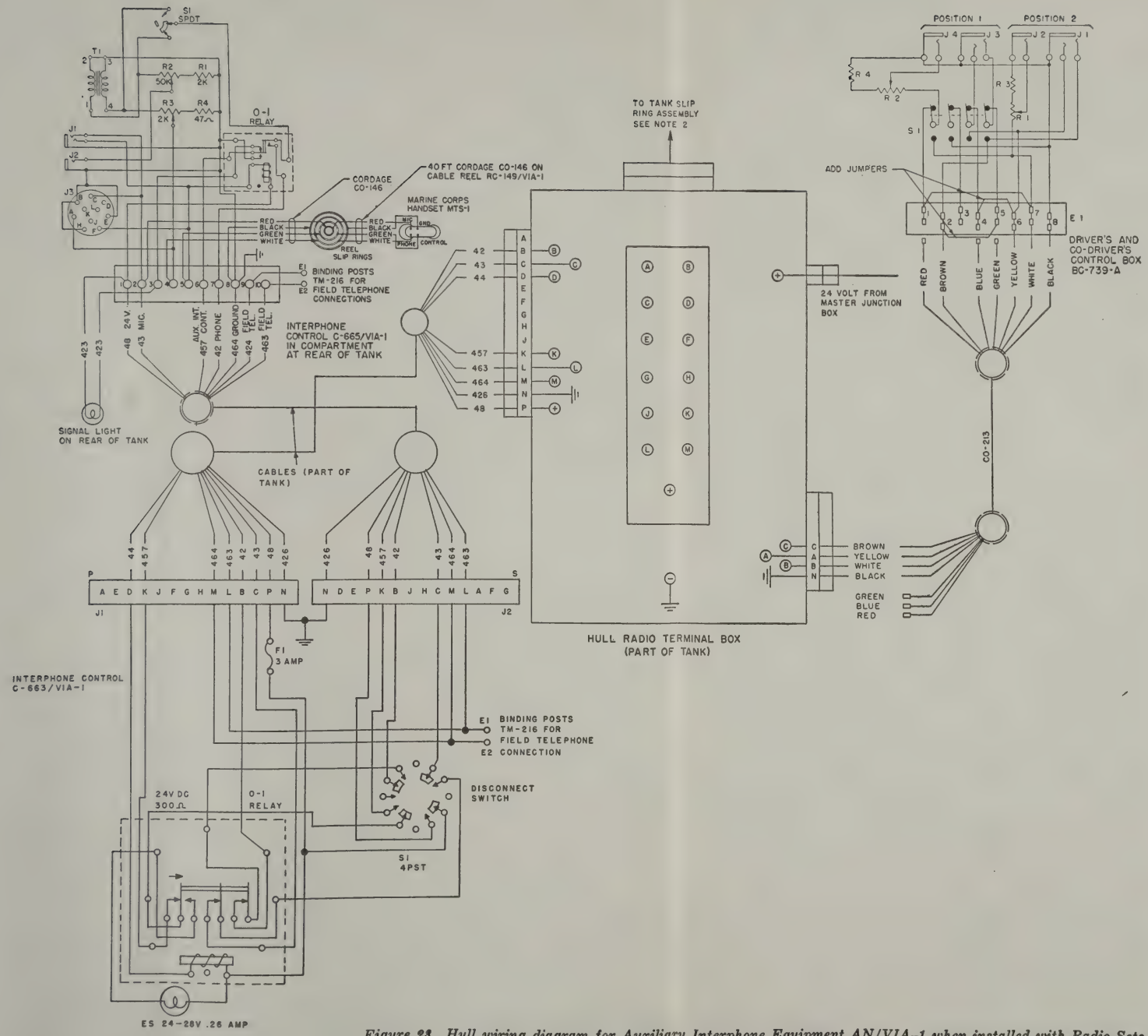
TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTIONS WHEN USED WITH RADIO SETS AN/GRG-3 THROUGH 8 SERIES
1	141	A SET + B SET + INTERPHONE, PHONE
2	142	INTERPHONE CONTROL
3	143	"B" SET MIC.
4	145	"A" SET CONTROL
5	160	"A" SET MIC.
6	151	"A" SET + INTERPHONE, PHONE
7	198	"B" SET CONTROL
8	199	"B" SET + INTERPHONE, PHONE
9	457	"B" SET MIC
10	463	AUX INTERPHONE CONTROL

Figure 22. Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in Medium Tank M46.




T1
R2
50K
R3
2K
J1
J2
J3
1
2
3
4
24 V.
MIC.
48
43
423
423
SIGNAL LIGHT
ON REAR OF TANK
44
457
P
A E D K J
J1
INTERPHONE CONTROL
C-663/VIA-1





NOTES:

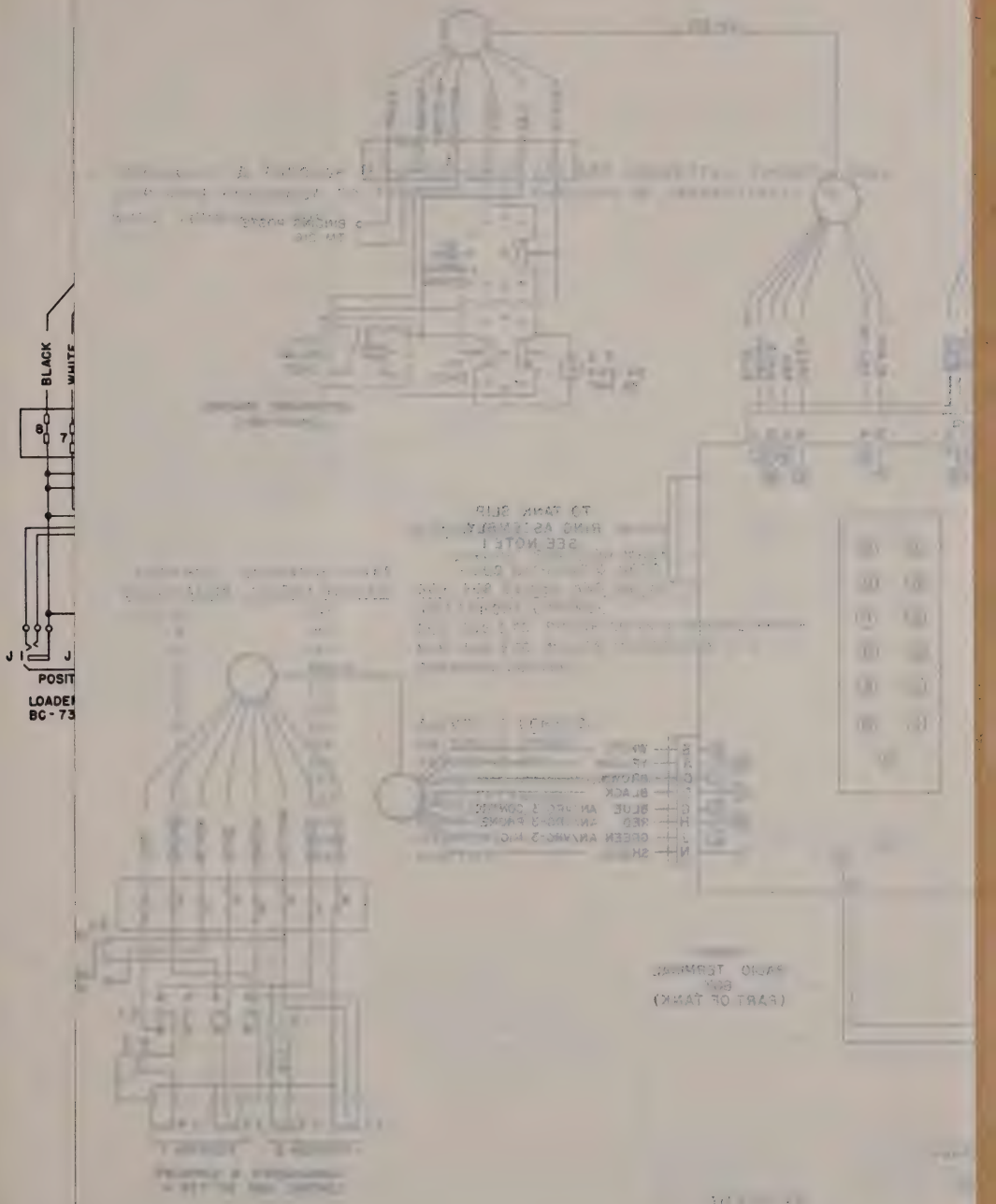
1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. TERMINALS A THROUGH M IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS A THROUGH M RESPECTIVELY IN TURRET TERMINAL BOX.

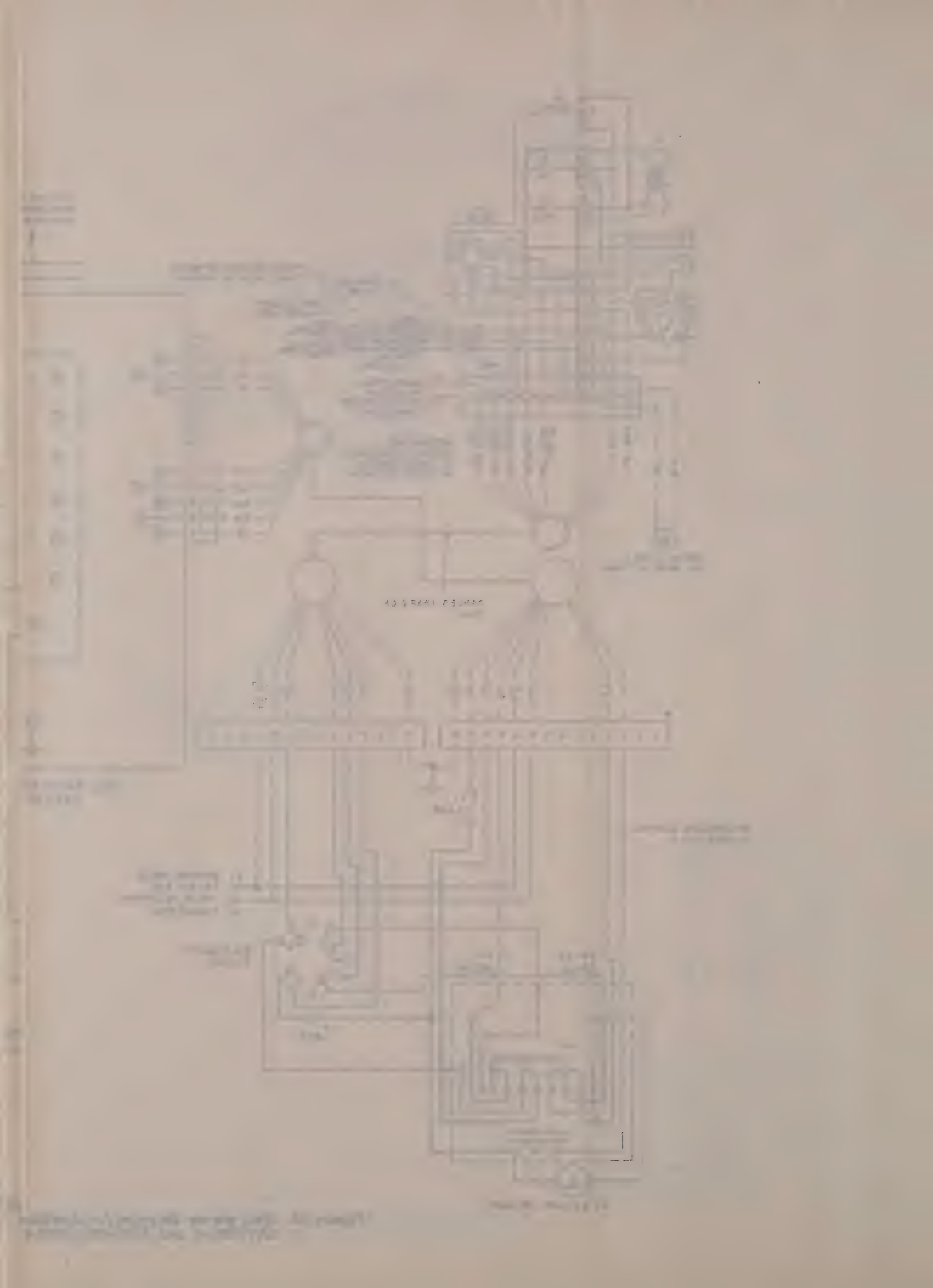
WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUITS FUNCTION WHEN USED WITH RADIO SETS SCR-508 SERIES & AN/VRC-3
A	41	INTERPHONE CONTROL
B	42	SCR-508 ETC. PHONE OR INTERPHONE PHONE.
C	43	SCR-508 ETC. MIC. OR INTERPHONE MIC.
D	44	COMMAND CONTROL.
E	45	
F	60	
G	51	AN/VRC-3 CONTROL
H	98	AN/VRC-3 PHONE
J	99	AN/VRC-3 MIC.
K	457	AUXILIARY INTERPHONE CONTROL
L	463	FIELD TELEPHONE
M	464	FIELD TELEPHONE
N	426	NEGATIVE
P	48	POSITIVE

Figure 23. Hull wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/VRC-3 and SCR-508, SCR-528, SCR-608-B, or SCR-628-B in tanks (other than M46).




BLACK
WHITE
8
7
J
J
POSIT
LOADE
BC-73



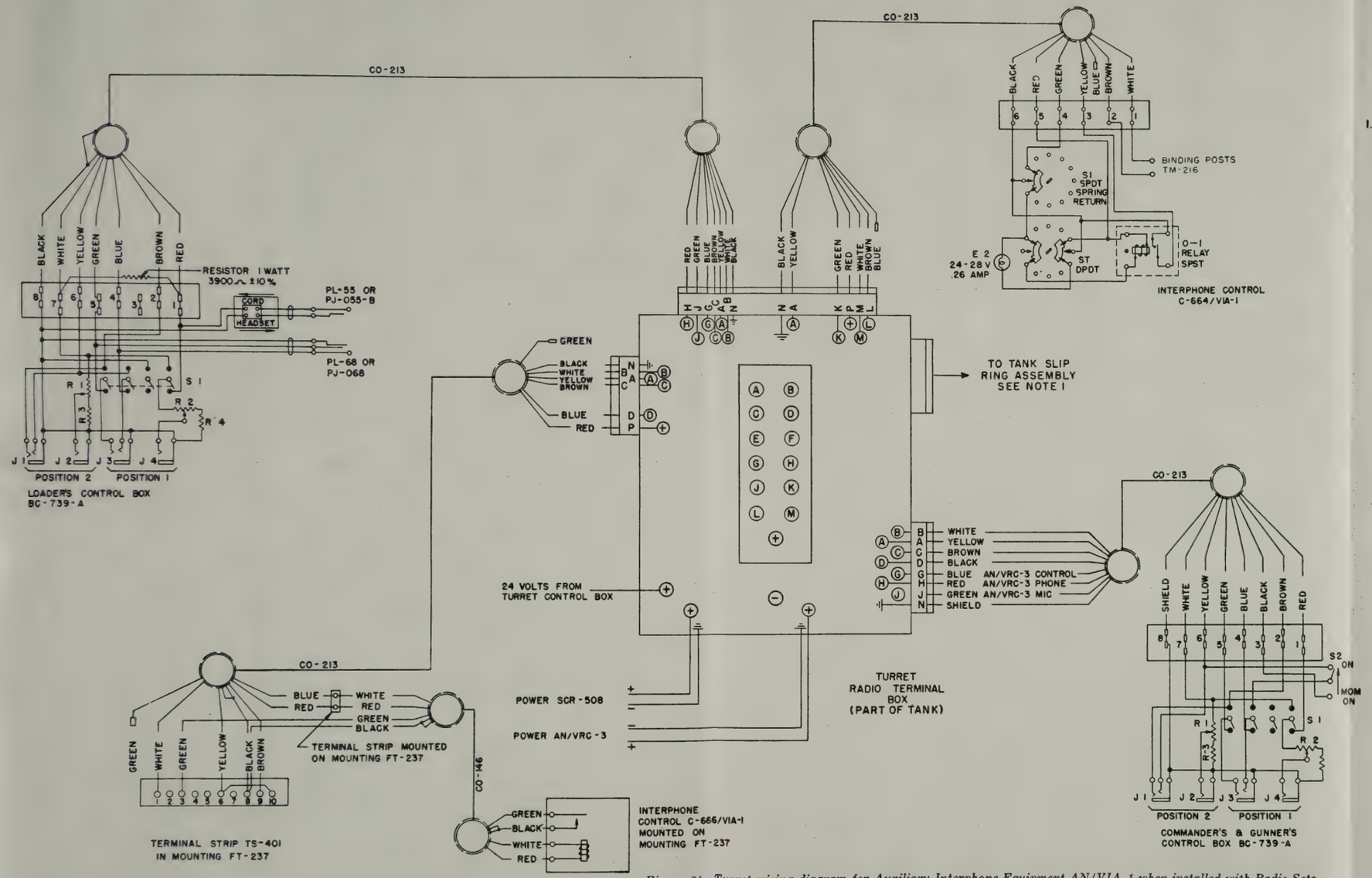


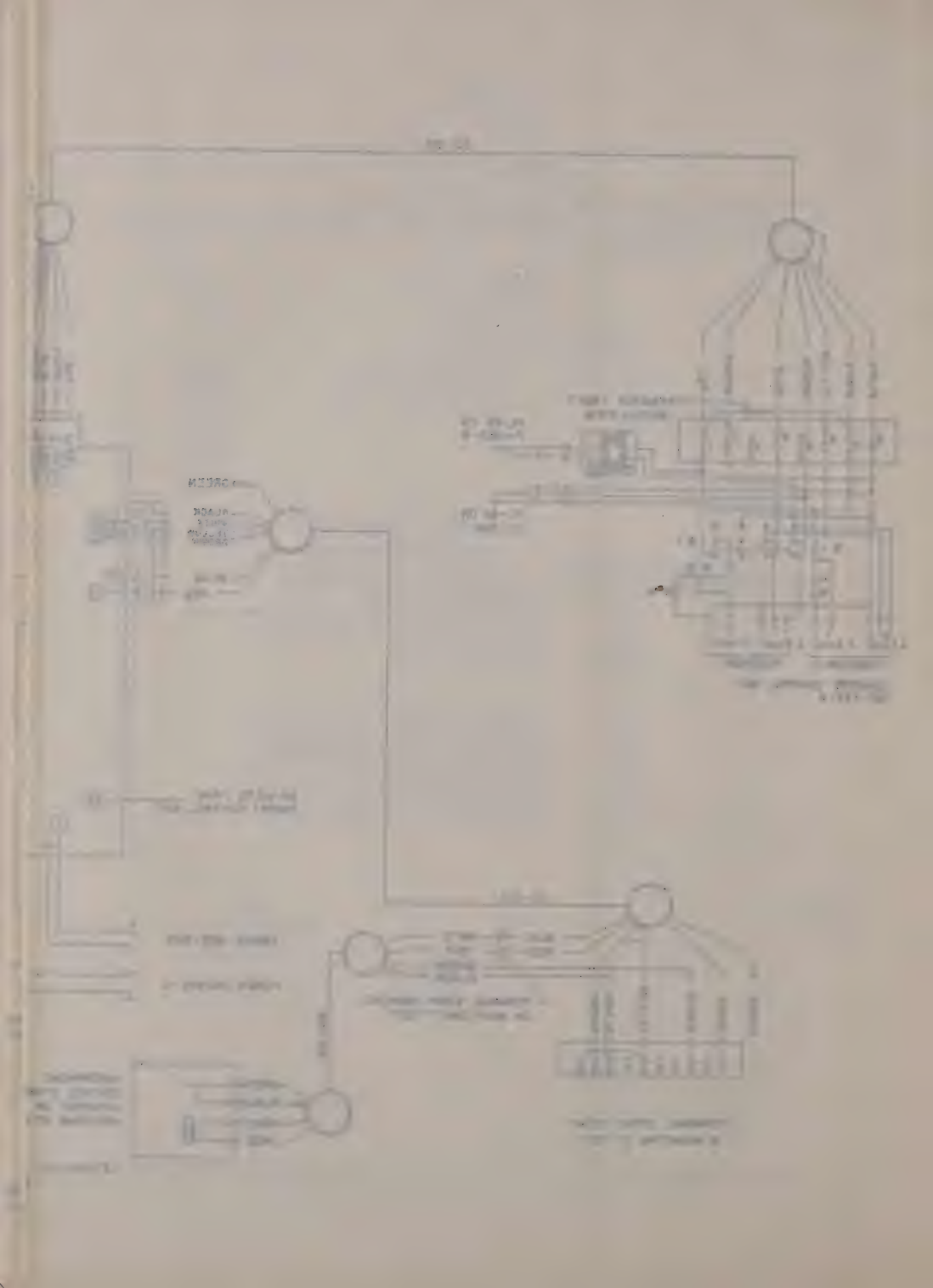
Figure 24. Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/VRC-3 and SCR-508, SCR-528, SCR-608-B, or SCR-628-B in tanks (other than M46).

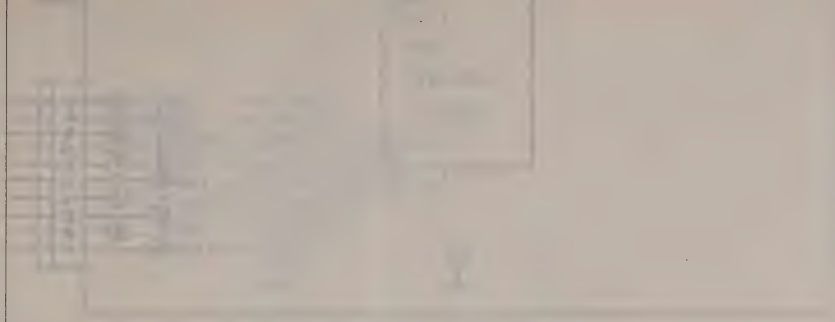
NOTE:

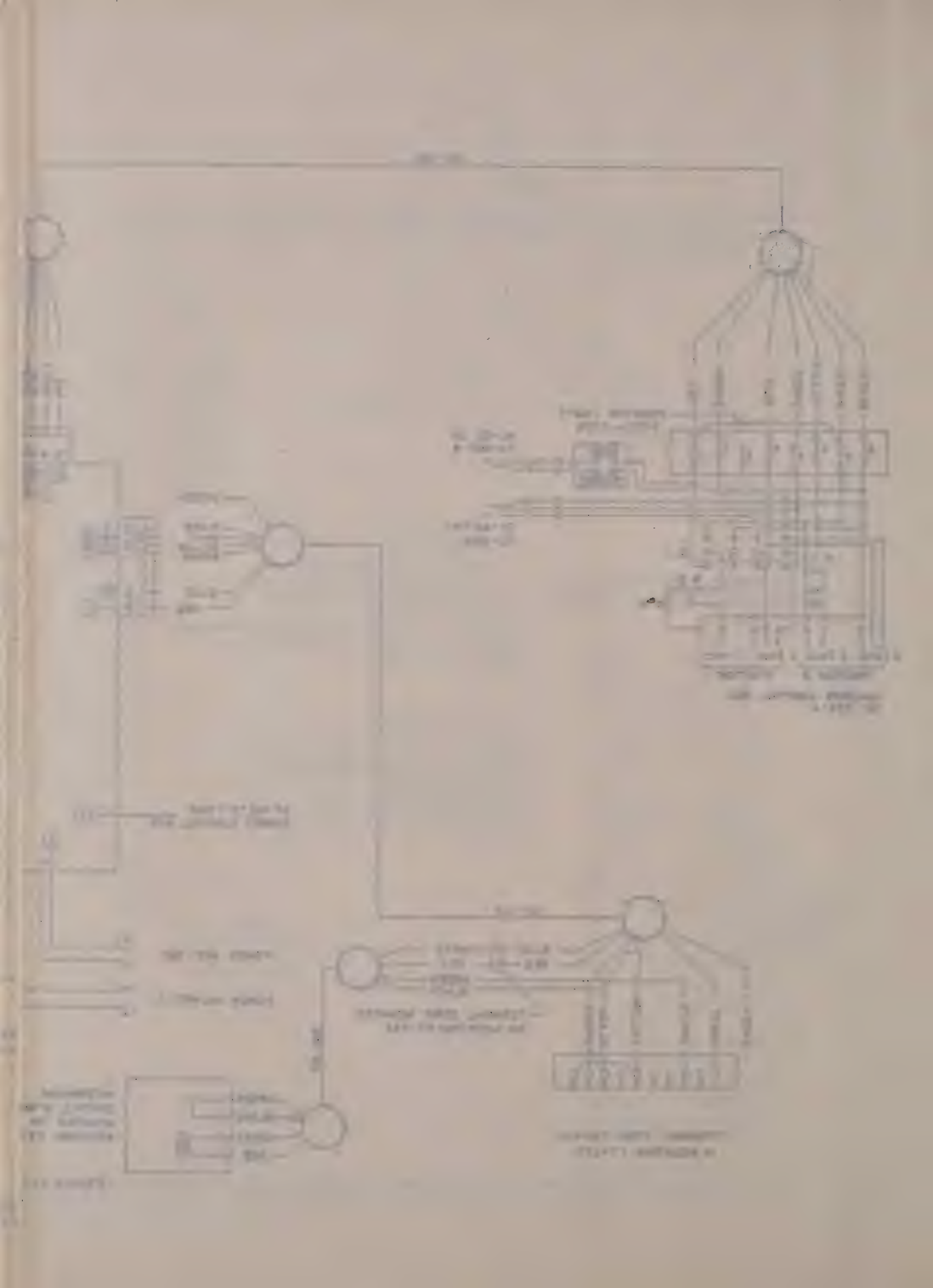
1. TERMINALS A THROUGH M IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS A THROUGH M RESPECTIVELY IN HULL TERMINAL BOX.

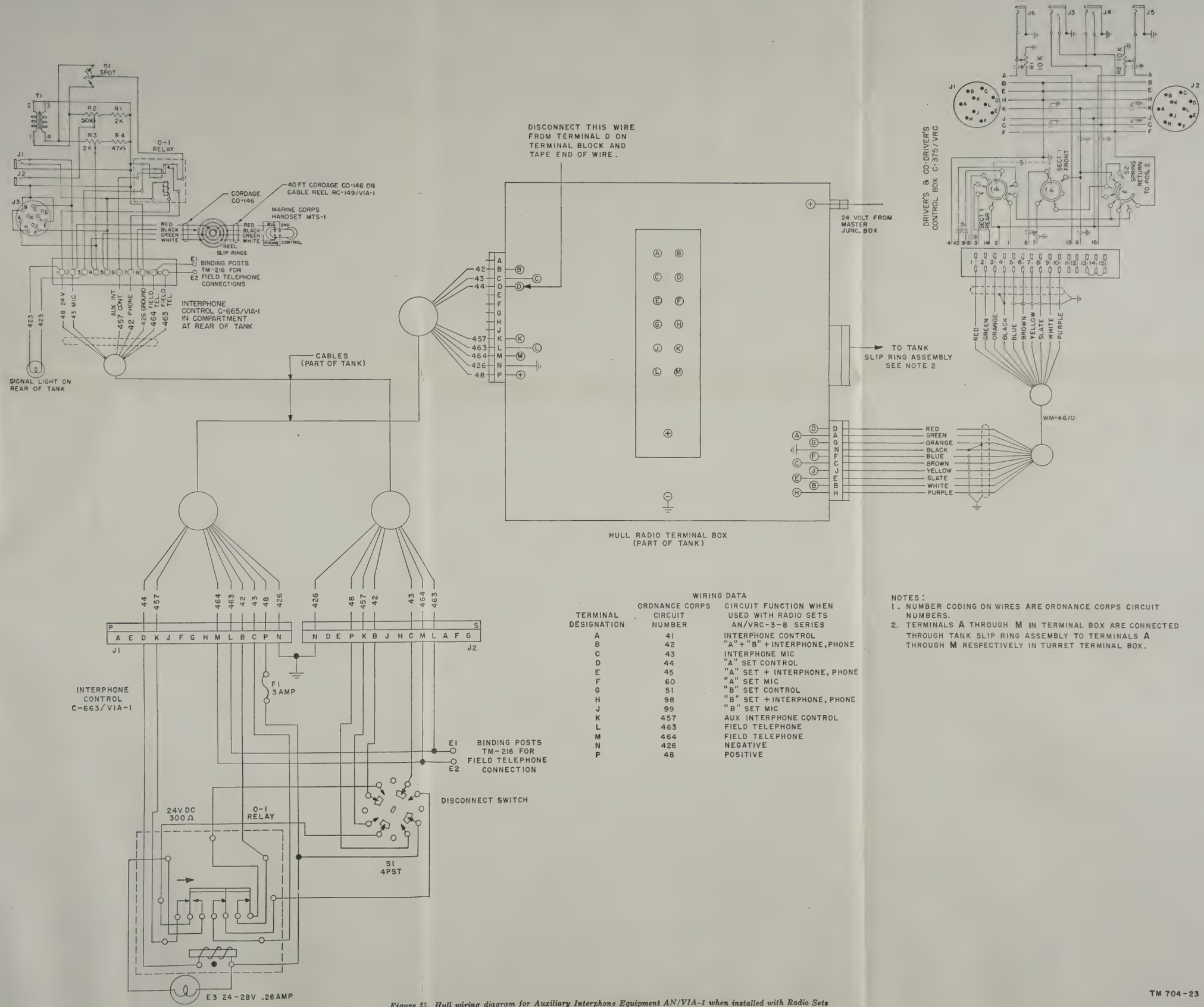
WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS SCR-508 SERIES AND AN/VRC-3
A	141	INTERPHONE CONTROL
B	142	SCR-508 ETC. PHONE OR INTERPHONE PHONE
C	143	SCR-508 ETC. MIC,OR INTERPHONE MIC
D	144	COMMAND CONTROL
E	145	
F	160	
G	151	AN/VRC-3 CONTROL
H	198	AN/VRC-3 PHONE
J	199	AN/VRC-3 MIC
K	457	AUXILIARY INTERPHONE CONTROL
L	463	FIELD TELEPHONE
M	464	FIELD TELEPHONE
N	426	NEGATIVE
P	148	POSITIVE







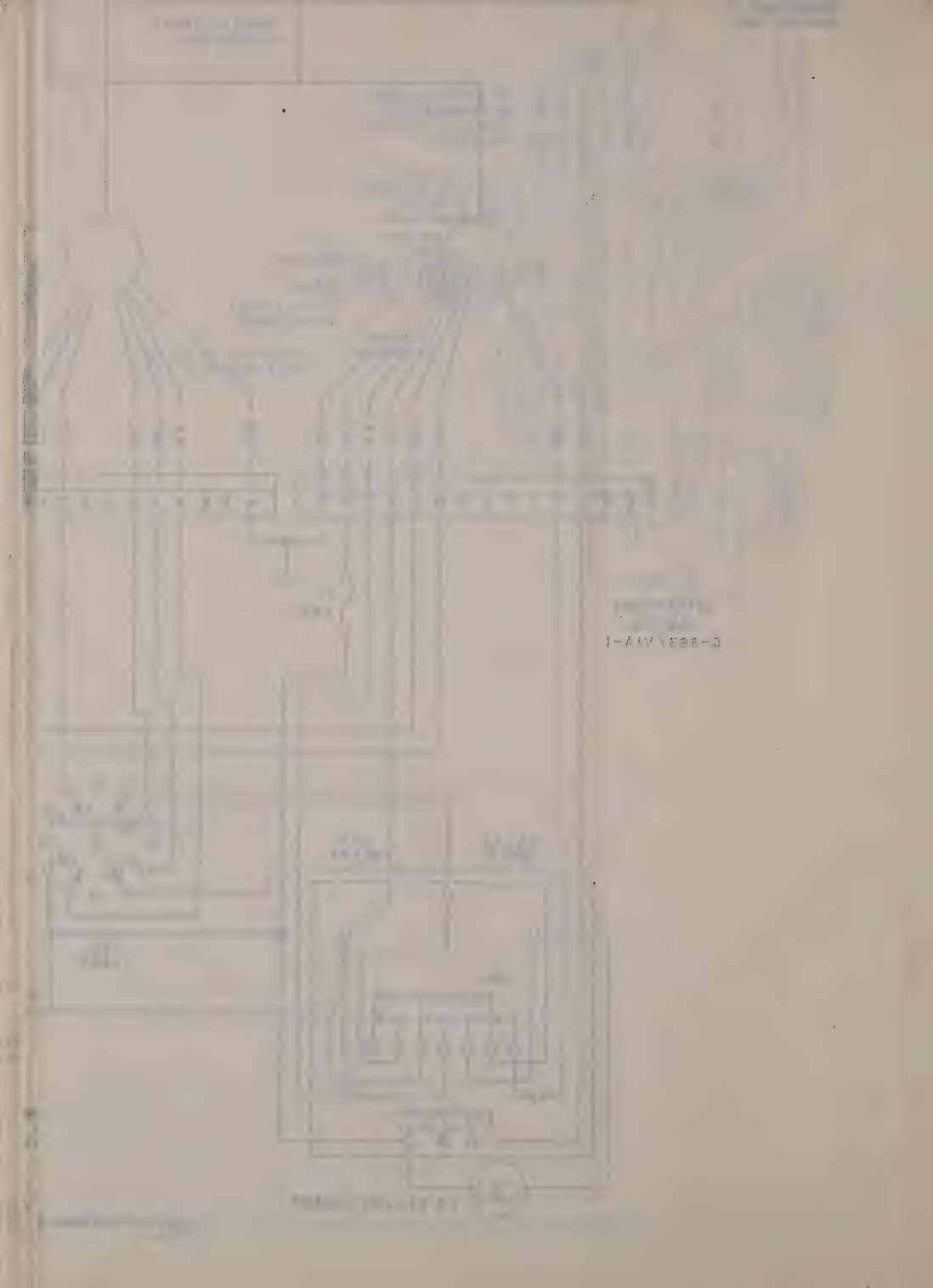


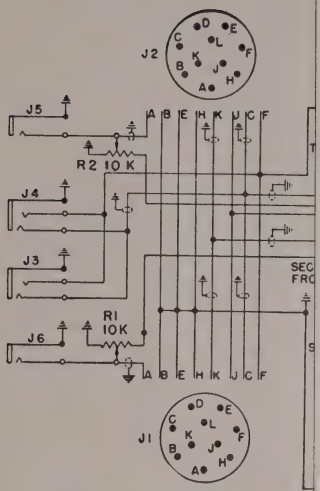
WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS AN/VRC-3-8 SERIES
A	41	INTERPHONE CONTROL
B	42	"A"+"B"+INTERPHONE, PHONE
C	43	INTERPHONE MIC
D	44	"A" SET CONTROL
E	45	"A" SET + INTERPHONE, PHONE
F	60	"A" SET MIC
G	51	"B" SET CONTROL
H	98	"B" SET +INTERPHONE, PHONE
J	99	"B" SET MIC
K	457	AUX INTERPHONE CONTROL
L	463	FIELD TELEPHONE
M	464	FIELD TELEPHONE
N	426	NEGATIVE
P	48	POSITIVE

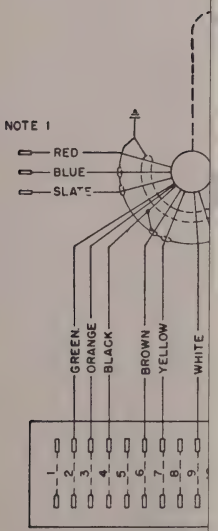
NOTES:
1. NUMBER CODING ON WIRES ARE ORDNANCE CORPS CIRCUIT NUMBERS.
2. TERMINALS A THROUGH M IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS A THROUGH M RESPECTIVELY IN TURRET TERMINAL BOX.

Figure 25. Hull wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in tanks (other than M48).

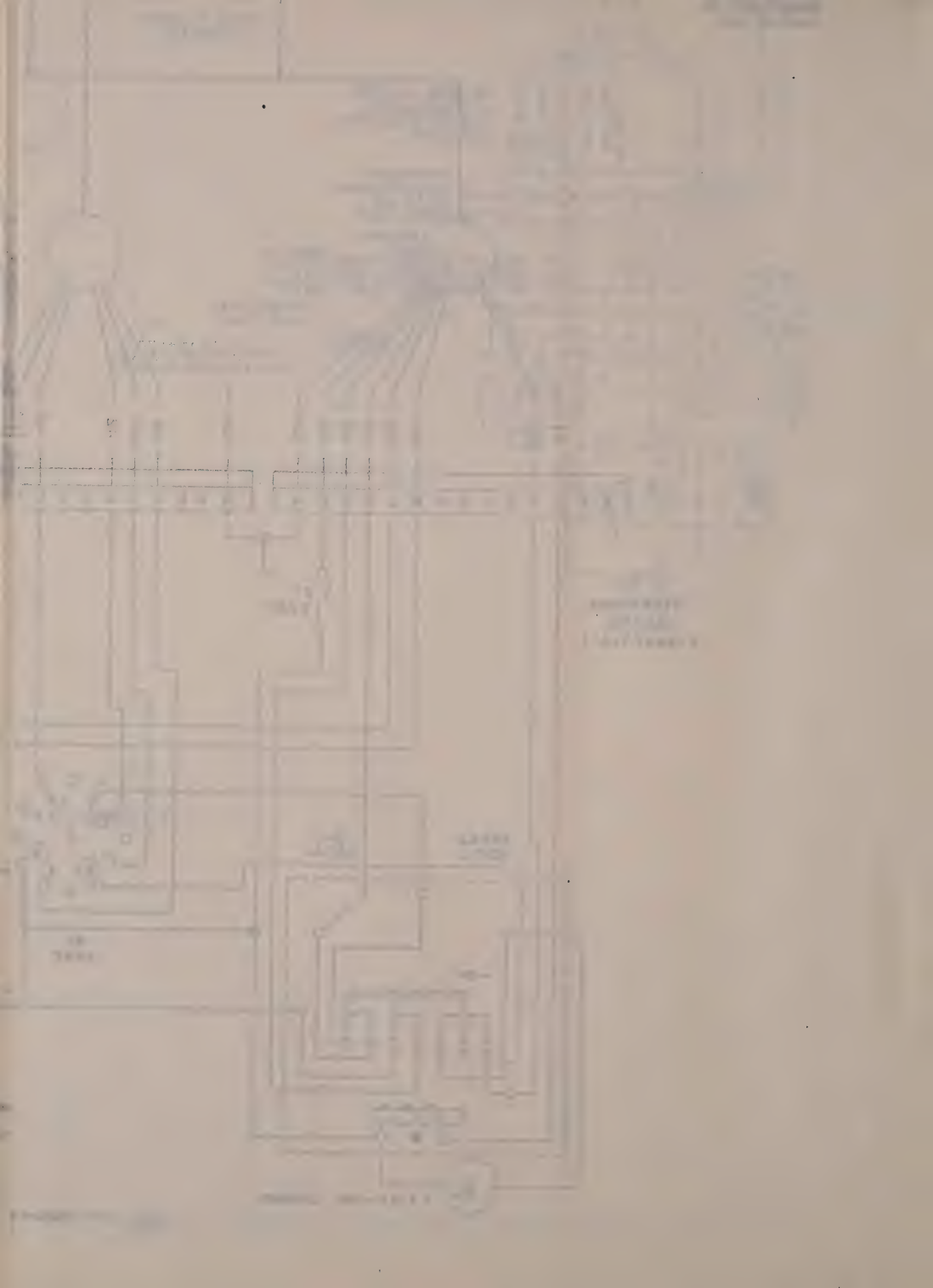


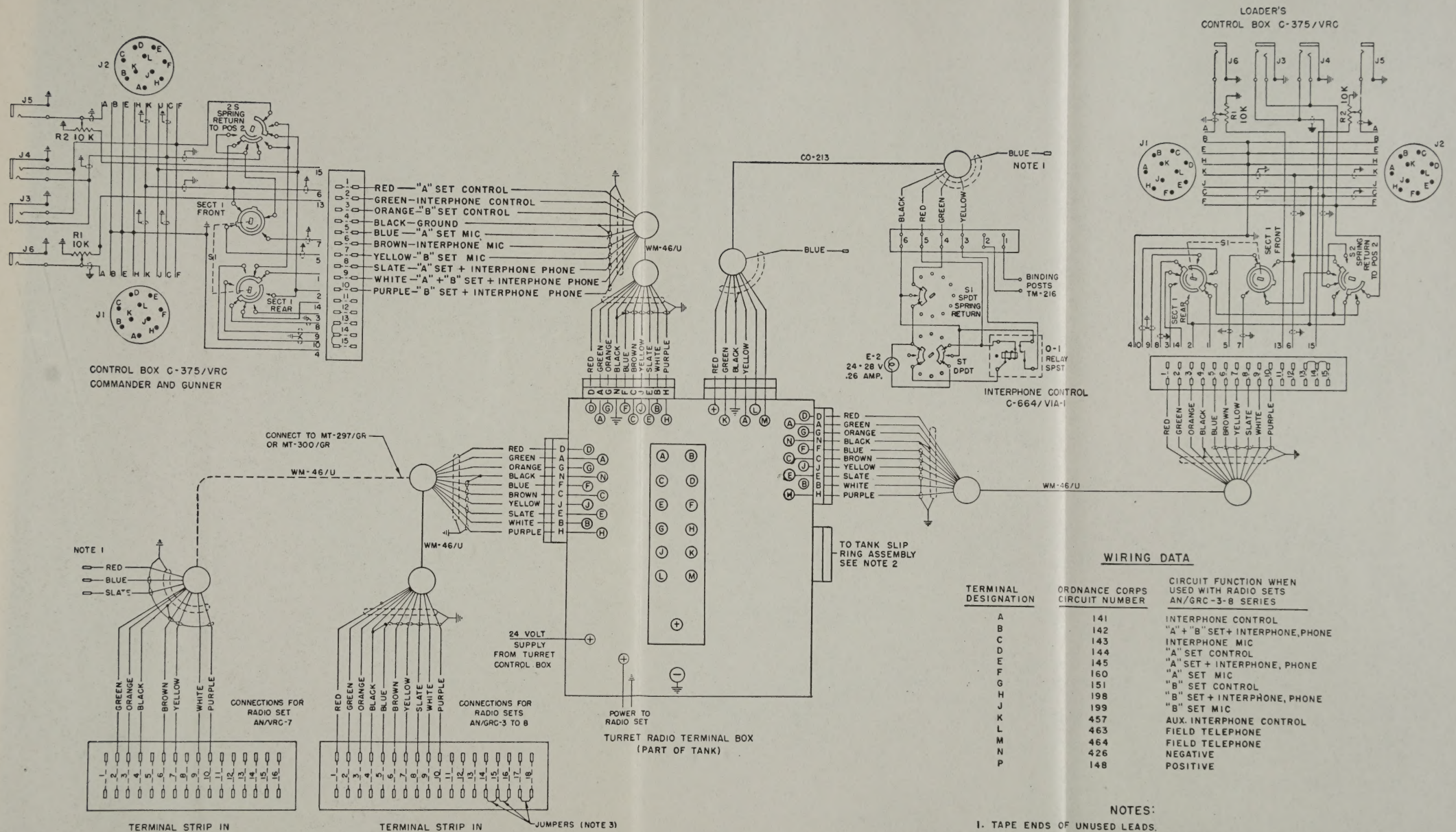


CONTROL BOX C-375/V
COMMANDER AND GUNN



TERMINAL STR
MOUNTING MT-
(RADIO SET AN/





WIRING DATA

TERMINAL DESIGNATION	ORDNANCE CORPS CIRCUIT NUMBER	CIRCUIT FUNCTION WHEN USED WITH RADIO SETS AN/GRC-3-8 SERIES
A	141	INTERPHONE CONTROL
B	142	"A" + "B" SET + INTERPHONE, PHONE
C	143	INTERPHONE MIC
D	144	"A" SET CONTROL
E	145	"A" SET + INTERPHONE, PHONE
F	160	"A" SET MIC
G	151	"B" SET CONTROL
H	198	"B" SET + INTERPHONE, PHONE
J	199	"B" SET MIC
K	457	AUX. INTERPHONE CONTROL
L	463	FIELD TELEPHONE
M	464	FIELD TELEPHONE
N	426	NEGATIVE
P	148	POSITIVE

NOTES:

1. TAPE ENDS OF UNUSED LEADS.
2. TERMINALS A THROUGH M IN TERMINAL BOX ARE CONNECTED THROUGH TANK SLIP RING ASSEMBLY TO TERMINALS A THROUGH M RESPECTIVELY IN HULL TERMINAL BOX.

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Figure 26. Turret wiring diagram for Auxiliary Interphone Equipment AN/VIA-1 when installed with Radio Sets AN/GRC-3 through -8 or AN/VRC-7 in tanks (other than M46).

