TM 11-5895-376-14-1

TECHNICAL MANUAL

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

ET-A MAINLINE SITE

HEADQUARTERS, DEPARTMENT OF THE ARMY

August 1976

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on the 115-volt ac line connections, or on the dc power supply circuits. Serious injury or death may result from contact with these points.

DON'T TAKE CHANCES!

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Technical Manual

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REPORTING OF ERRORS

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to the Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, New Jersey 07703.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont)

TABLE OF CONTENTS (cont)

LIST OF ILLUSTRATIONS

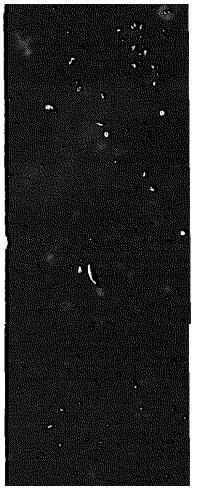
LIST OF ILLUSTRATIONS (cont)

LIST OF TABLES

PREFACE

This manual describes the function of the mainline sites in the ET-A communications system, from the system concept. It also provides a detailed description of a typical mainline site, and a general description of major equipment components used at the mainline sites.

The following is a list of publications pertaining to the ET-A communications system component equipments.



Manual Title	Manual Numb
Maintenance Control Group AN/GSA-99(V)1 through AN/GSA-99(V)l2 (NUS 6283)	ll-5820-570-1
Operator's Manual for Center, Communications Operations AN/MSQ-76(V)l through AN/MSQ-76(V)3 and AN/GSQ-106(V)1 through AN/GSQ-106(V)3 (Console Local Equipment)	11-5820-571-1
Radio Set AN/FRC-113(V)1 through AN/FRC-113(V)11 (NUS 6060)	l1-5820-572-1
Multiplexer Set AN/FCC-40 through AN/FCC-54	11-5820-573-1
Nodal Point Receiver (NUS 8021/8024)	11-5820-574-1
Console, Communication Control OA-8149/MRC-114(V) through OA-8154/MRC-114(V) (NUS 5972-5, -6)	11-5820-575-1
Console Training Facility (NUS 8423)	11-5820-576-1
Switching Set, Communications AN/MSQ-74(V)1 through AN/MSQ-74(V)10 and AN/MSQ-74(V)12 (Console Remote Equipment) (NUS 7640)	11-5820-577-1
Center, Communications Operations AN/MSQ-76(V)1 through AN/MSQ-76(V)3 and AN/GSQ-106(V)1 through AN/GSQ-106(V)3 (Console Local Equipment)	11-5820-578-2
Communication Group OA-8319/MSM (NUS 6052-23G1)	11-5820-578-1
Power Amplifier Group AN/MRA-15 (NUS 7561)	11-5820-579-1
Electronic Tube Cooler, ET-A Type 15-27-32.5	11-5820-579-1
Amplifier-Power Supply AM-4832/FRC-113(V) (NUS 6061-3)	11-5820-580-1
Transmitter (NUS 5951)	11-5820-581-1
Console, Communication Control OA-7695/GRC and OA-7696/GRC (NUS 5972-3, -7)	11-5820-582-1
Dual Receiver (NUS 5961)	11-5820-583-1
Maintenance Control Group AN/GSA-100 (NUS 6284)	11-5820-585-1
Tributary Terminal Set AN/FSC-34 (NUS 7957)	11-5820-587-1
Amplifier-Power Supply AM-4419/GRC (NUS 8013-2)	11-5820-603-1
ET-A Mainline Site Manual	11-5895-376-1
ET-A Tributary Site Manual	11-5895-376-1
ET-A Site Equipment, Towers and Antennas	11-5895-376-1
Test Facilities Kit MK-884/FRC-81( )	11-6625-647-1

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1. Scope

This manual provides a description of mainline sites in the ET-A communications network. Chapter 1 presents a discussion of mainline sites and their relationship to other sites in the system; definitions, terminology, and technical characteristics are also included. Chapter 2 presents a general description of major equipment components used at mainline sites. Basic mainline site configurations are described in chapter 3. In chapter 4 general site installation data applicable to all mainline sites is presented. Chapters 5 and 6 describe a specific station, site 8.1, as originally installed in shelters and vans. Chapter 5 presents the installation details, and chapter 6 describes the operation of the station.

2. Definitions and Terminology

Terms and abbreviations which are frequently used in this manual are listed in table I.

TABLE I. DEFINITIONS AND TERMINOLOGY

Term	Definition
Baseband	Frequency spectrum of a composite signal containing multiplexed voice, pilot tones, and data carried in channels, groups and supergroups.
Channel	Band of frequencies covering a nominal 300-cps to 3-kc spectrum associated with a given voice circuit.
Console System	A command and control automatic selection facility within the ET-A communication system used to establish conferences rapidly.
Diffraction mode of operation	A method of radio propagation in which the transmitted radio waves are bent around the edge of an obstacle intervening between the transmitting and receiving antennas.
ET-A	European Tropo-Army communication system.
FD/SD LOS	Frequency diversity or space diversity line-of-sight transmission.

TABLE I. DEFINITIONS AND TERMINOLOGY (cont)

Term	Definition
Four-fold (quadruple or quad) space diversity	A method of radio communication utilizing vertically- and horizontally-polarized radio waves in four different receive paths in order to overcome fading.
Frequency diversity	A method of radio communication utilizing one vertically-polarized and one horizontally-polarized radio wave of different frequencies in the same path in order to overcome fading.
FST	Frequency-shift tone.
Group	Multiplexed set of signals at the channel-frequency level used for modulating a higher-frequency carrier known as the group carrier.
Horizontal polarization	Transmission of radio waves in such a way that the plane of electrical polarization is horizontal (parallel to the surface of the earth).
Line-of-site (LOS) mode of operation	A method of radio propagation in which the receiving and transmitting antennas are aimed directly at each other.
NUS	Prefix to ITTFL's identification number.
Pilot tone	Unique frequency signal sent along with multiplexed audio for continuous monitoring of communication facility's reliability.
Shoot	Radio link with another site.
Supergroup	Multiplexed set of signals at the group-carrier frequency level used for modulating a higher-frequency carrier known as the supergroup carrier.
Tropospheric scatter (troposcatter) mode of operation	A method of radio propagation using the troposphere as the transmission medium.
Two-fold (dual) space diversity	A method of radio communication utilizing vertically- and horizontally-polarized radio waves in two different receive paths in order to overcome fading.
Vertical polarization	Transmission of radio waves in such a way that the plane of electrical polarization is initially vertical (perpendicular to the surface of the earth).

3. Related Publications

A detailed discussion of the characteristics of the equipment used at mainline sites is outside the scope of this manual. In the following sections, the appropriate ET-A equipment publications are referenced, where applicable.

4. ET-A Microwave Communication System

a. General. The ET-A microwave communication system provides a complete long-haul microwave communication network in the European area. The system consists of two basic types of site configurations, mainline sites and tributary sites.

(1) Mainline sites. These are sites along a primary broadband multichannel radio network.

(2) Tributary sites. These are remote stations requiring only single- or two-channel special purpose communications.

b. Mainline Sites. The mainline sites form important links in the primary radio network. Much of the radio equipment used at mainline sites contains cabling for future equipment additions. Since traffic loads and site functions differ along the mainline route of communication, the size and complexity of the sites vary considerably. Mainline sites may vary in size from an ordinary repeater station (which merely receives and amplifies the microwave signal for retransmission to the next station) to a fully implemented nodal point station (which services a number of tributary stations) or console site (d below).

c. Tributary Sites. Tributary sites are remote stations which are serviced by the mainline nodal point stations. The tributary sites are briefly disclosed in this manual insofar as their tie-in with the mainline is concerned. *For details regarding* the tributary sites refer to ET-A Tributary Site Manual POMM 11-5895-376-15-2.

d. ET-A Console System.

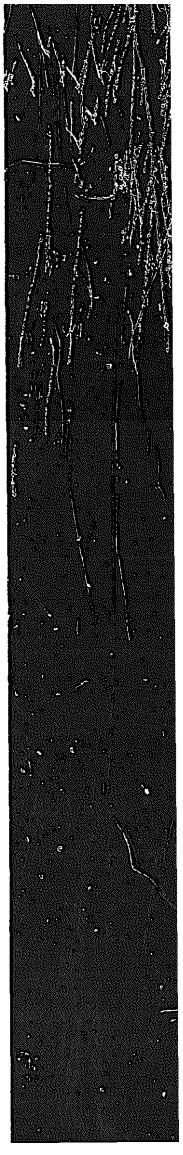
(1) The ET-A Console System is a command and control facility incorporated within the ET-A microwave communication system. It uses the radio and multiplex equipment of the ET-A microwave communication system to provide semiautomatic conference call capabilities between the local telephone sets (drop subsets) at various headquarters locations (Console Operations Centers) and a large number of military installations (tributary sites).

(2) Basically, the Console System consists of six Console Operations Center sites and a number of Console Remote Equipment (CRE) vans. A Console Operations Center is linked to a CRE van via the radio and multiplex equipment along the mainline. (Five mainline "command and control" channels are used for this purpose.) The CRE vans *are located at the* mainline nodal sites, each van being equipped to service a maximum of 24 tributary sites.

5. Technical Characteristics

Frequency range	4.4 to 5.0 gc
Multiplex channel capacities used	
Tributary access links	1 and 2 channels
Mainline traffic	24, 36, 60, and 120 channels
Modulation type	Frequency modulation
Modes of operation	Line of site (LOS)
	Forward propagation tropospheric scatter
	Obstacle-pass diffraction
Frequency stability	
Single channel	±0.0001 percent variation
Multichannel	±0.002 percent variation
Transmit output power	1 watt, 1 kilowatt, and 10 kilowatts, as required
Diversity	
LOS hops	Dual-space or frequency diversity
Tropo hops	Four-fold space diversity
Antenna system	
Diameter	4, 6, 15, or 30 feet, as required
Polarization	Dual (horizontal and vertical)
VSWR	Leas than 1,2
Decoupling	40 db
Power handling	1 watt (40foot); 1 watt OF 1 kw (6-foot); and 1 watt, 1 kw, or 10 kw (15-and 30-foot)
Radiation properties	
Minor lobes	-20 db with respect to main lobe
Planewave gain and half-power beamwidth at 4700 mc	

Antenna Diameter	Gain	Half-Power Beamwidth
30 feet	50 db min	0.56 degree, nominal
15 feet	44 db min	1.05 degrees, nominal
6 feet	36 db min	2.7 degrees, nominal
4 feet	32 db min	3.9 degrees, nominal



5. Technical Characteristics (cont)

Orderwire facilities	
Channel width	
Signaling frequency	
Radio pilot tone	
Carrier channel facilities (nodal point to tributary)	7 kc to 9.7 kc, second voice communication channel
Multiplex	General Electric type TCS-600 transistorized carrier, 120-channel configuraton; single sideband suppressed carrier and frequency division multiplex modulation; four-wire operation; east/west 3,825 cps out-of-band signaling and channel phase equalization
Central console and switching system	
Tributary accommodations	
System	240
CRE van	24 (three 8-site sectors)
Mainline trunks	
Conference	4
Supervisory data	1
Voice channels	
CRE to tributary	2
Tributary to CRE	1
Signaling channels, Console Operations Center to CRE	
Supervisory circuits (frequency-shift keying multiplexer	24
Automatic malfunction alarms	Transmitters, receivers, multiplex equipment, and ancillary equipment

6. General

7. Radio Equipment Shelter

The NUS 6060 radio equipment shelter houses the necessary transmitters, receivers, and associated equipment *for* either tropospheric scatter or line-of-site transmission on a single or multichannel basis. A typical radio equipment shelter is shown in figure 1.

b. The equipment is mounted in a modified military type S-141/G shelter. The dimensions, interface connector locations, and input requirements are presented in *figure 26.*

The shelter's equipment complement varies with the site requirements. However, the shelter is cabled for the maximum equipment complement so that it can be easily converted from one configuration to another. The basic shelter conflgurations are listed in table II. Figure 2 shows the location of the major components in the van.

TABLE II. NUS 6060 RADIO EQUIPMENT SHELTER CONFIGURATIONS

Group	Power	Mode of operation	Threshold extension	Parametric amplifiers	Channels
1	1 kw	Quad diversity tropo	Yes	Yes	Multi
4	1 w	Quad diversity tropo	No	Yes	Multi
5	1w	Quad diversity tropo	Yes	No	Multi
6	1w	FD/SD LOS	No		Multi
16	1 kw	Quad diversity tropo	Yes	Yes	Single
17	1 kw	Quad diversity tropo	Yes	No	Single
18	1 kw	Quad diversity tropo	No	Yes	Multi
19	1 kw	Quad diversity tropo	No	No	Multi
21	1w	Quad diversity tropo	Yes	Yes	Single
22	1W	FD/SD LOS	No		Single
23	1w	Quad diversity tropo	Yes	No	Single
29	-	10-kw driver	Yes	Yes	Multi

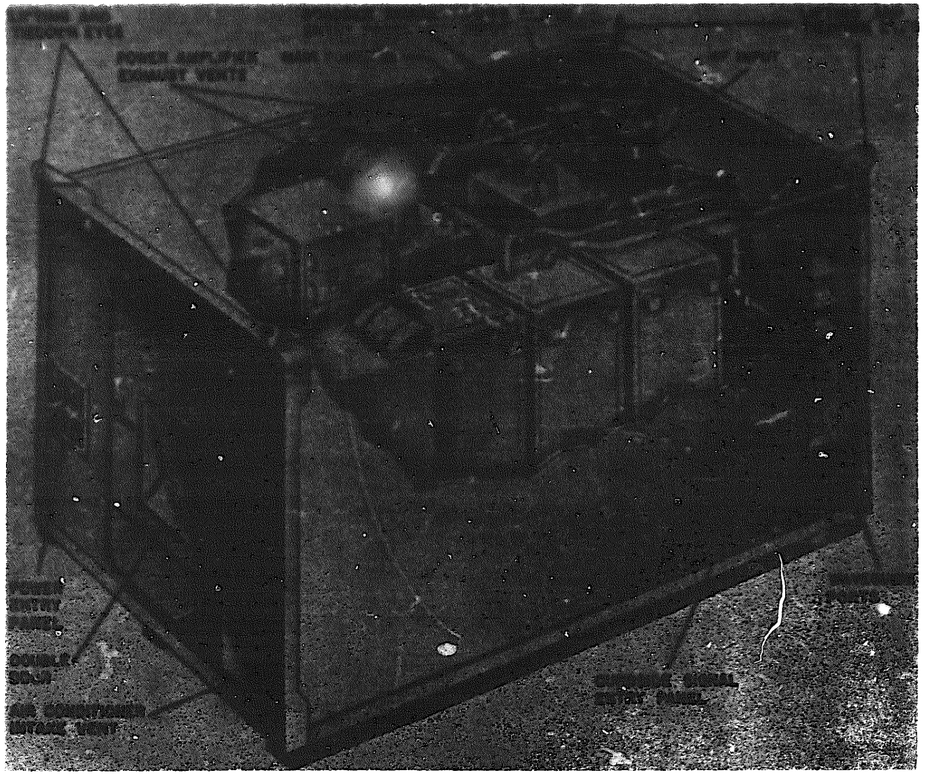
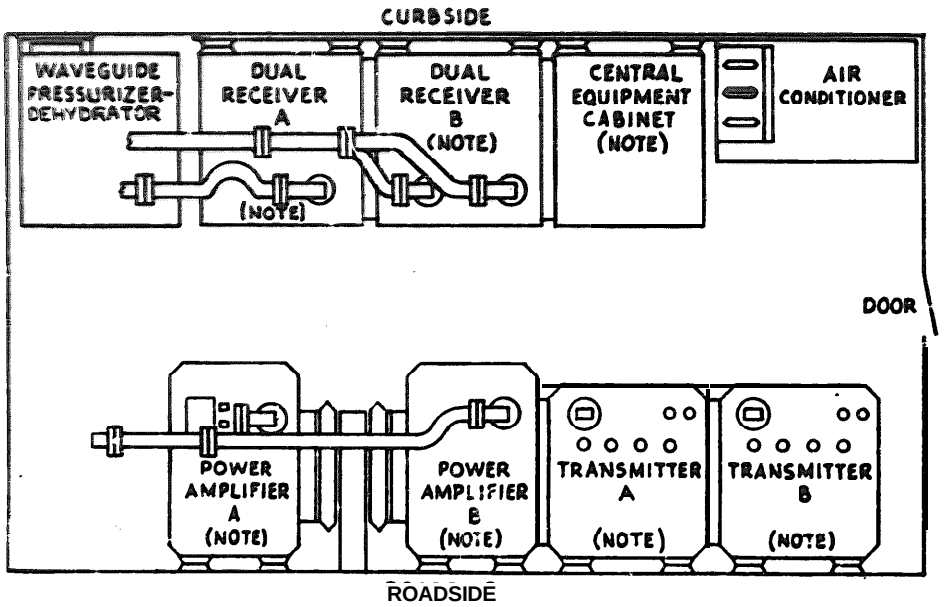


Figure 1. Typical radio equipment shelter.



NOTE :
THE COMPLEMENT AND TYPE OF RADIO COMPONENTS VARIES. REFER TO THE TABLE TO IDENTIFY THE COMPONENTS USED. FOR EACH SHELTER CONFIGURATION THE MOUNTING POSITIONS OF THE RADIO COMPONENTS REMAIN THE SAME.

RADIO COMPONENT	RADIO EQUIPMENT SHELTER NUS 6060											
	-1	-4	-5	-6	-16	-17	-18	-19	-21	-22	-23	-24
TRANSMITTER A (NUS 5951)	-11	-16	-16	-16	-3	-3	-11	-11	-21	-21	-21	-11
TRANSMITTER B (NUS 5951)	-12	-17	-17	-17	-7	-7	-12	-12	-25	-25	-25	-23
POWER AMPLIFIER A (NUS 6061-3* OR 8013-2)	USED	NOT USED	NOT USED	NOT USED	USED	USED	USED	USED	NOT USED	NOT USED	NOT USED	NOT USED
POWER AMPLIFIER B (NUS 6061-3* OR 8013-2)	USED	NOT USED	NOT USED	NOT USED	USED	USED	USED	USED	NOT USED	NOT USED	NOT USED	NOT USED
DUAL RECEIVER A (NUS 5961)	-15	-20	-16	-12	-9	-13	-20	-19	-9	-10	-13	-15
DUAL RECEIVER B (NUS 5961)	-15	-20	-16	NOT USED	-9	-13	-20	-19	-9	NOT USED	-13	-15
CENTRAL EQUIPMENT CABINET (NUS 5972)	-3	-3	-3	-3	-7	-7	-3	-3	-7	-7	-7	-3

* NUS 6061-3 IS SUPPLIED ONLY IN THE FOLLOWING RADIO EQUIPMENT SHELTERS:
NU5 6060 -I, SERIAL NUMBERS I AND 2
NU5 6060-16, SERIAL NUMBERS I THROUGH 3
NUS 6060-17, SERIAL NUMBERS I AND 2
NUS 6060-18, SERIAL NUMBERS 1 THROUGH 12
NUS 6060-19, SERIAL NUMBERS 1 THROUGH 8
NUS 8013-2 IS USED IN ALL OTHER RADIO EQUIPMENT SHELTERS.

Figure 2. Radio equipment shelter, location of major components.

d. In multichannel shelters, additional variations will be found in the transmitters and receivers. These variations also depend upon the particular site requirements and are discussed in paragraphs (1), (2), and (3) below.

(1) Transmitter pre-emphasis unit. The transmitter pre-emphasis unit is located in the modulator exciter drawer of the transmitter. It provides amplification for video-band frequencies, resulting in a more uniform signal-to-noise ratio. The pre-emphasis unit used depends on the channel requirements of a particular site, as shown in table III.

TABLE III. NUS 6060 RADIO SHELTER PRE-EMPHASIS, DE-EMPHASIS, AND I-F FILTER UNITS

Number of channels	*Transmitter*	Receiver	
	Pre-emphasis unit part no. (ITTFL)	De-emphasis unit part no. (ITTFL)	I-F filter part no. (ITTFL)
24/36	C2336632G1	C2336717G1	D2338037G1
48/60	C2336634G1	C2336719G1	D2338037G1
72/120	C2336635G1	C2336720G1	None
180/240	C1260277G1	C1260278G1	None

(2) Receiver de-emphasis. The de-emphasis unit is located in the i-f and baseband drawer of receivers used in quad tropo shelters, or in the ancillary equipment drawer of receivers used in LOS shelters. It provides a means of selecting the baseband frequency de-emphasis required to complement the pre-emphasis of the transmitter. The corresponding receiver de-emphasis unit for a particular transmitter pre-emphasis unit is shown in table III.

(3) Receiver i-f filter unit. The i-f filter unit is located in the preselector and mixer drawer; it limits the 70-m bandwidth. The unit is installed only in shelters having a channel capacity of 60 or less (table III).

In all radio equipment shelters the transmitter and receiver crystals used depend on the frequencies assigned to the site. Refer to the system frequency plan for crystal selection data for a particular site.

For further details regarding the radio equipment shelter refer to the manual entitled Radio Equipment Shelter ET-A Type NUS 6060 TM 11-5820-572-14. The manual covers equipment compliments for each group listed in table II, shelter wiring, shelter turn-on procedures, and operation of auxiliary equipment. For individual equipment contained in a radio equipment shelter, installation, operating instructions, theory of operation, and maintenance are covered in the following manuals.

Transmitter, ET-A Type NUS 5951	TM 11-5820-581-14
Communication Control Console OA-7695/GRC and OA-7696/GRC	TM 11-5820-582-14
Dual Receiver, ET-A Type NUS 5961	TM 11-5820-583-14
1-KW Power Amplifier, ET-A Type NUS 8013	TM 11-5820-603-14

8. Dual 10 KW Amplifier Van

a. The NUS 7561 dual 10 kw amplifier van houses the final transmitting stage for the 4.4- to 5.0-gc 10 kw transmitter. It employs two liquid-cooled klystron amplifiers which, when driven by 125-mw rf drive power from an NUS 6060-24 radio equipment shelter, produce 10-kw, 10-mc-bandwidth outputs. A pictorial view of the van is shown in figure 3.

b. The equipment is mounted in an XM 680 military electronics van. The dimensions, interface connector locations, and *input requirements* are presented in figure 27.

c. The van includes two identical sets of components, which are mounted on the curbside and roadside, respectively. Each set of components contains the equipment necessary to form a single 10-kw amplifier. The van layout is shown in figure 4.

d. As mentioned previously a above), the dual 10 kw amplifier van is used in conjunction with radio equipment s shelter NUS 6060-24. Figure 5 is a block diagram of the dual 10 kw amplifier van connected to the radio equipment shelter.

For details regarding the dual 10 kw amplifier van refer to the manual entitled Power Amplifier Group AN/MRA-15, POMM 11-5820-579-15, which covers equipment complement, description, installation, operation, theory of operation, and maintenance.

9. N odal Point Radio set

a. The NUS 6260 nodal point radio set houses the necessary transmitters, receivers, and associated equipment for simultaneous operation, on either a quadruple diversity or line-of-site basis, to a maximum of eight tributaries. A typical nodal point radio set is shown in figure 6.

b. The equipment is mounted in a semitrailer van, type M-348A2G. The dimensions, interface connector locations, and input requirements are presented in figure 28.

c. The nodal point radio set equipment complement *varies with specific site* requirements (number of tributary shoots). The basic configurations used are listed in table IV. Figure 7 shows the layout of the nodal point radio set.

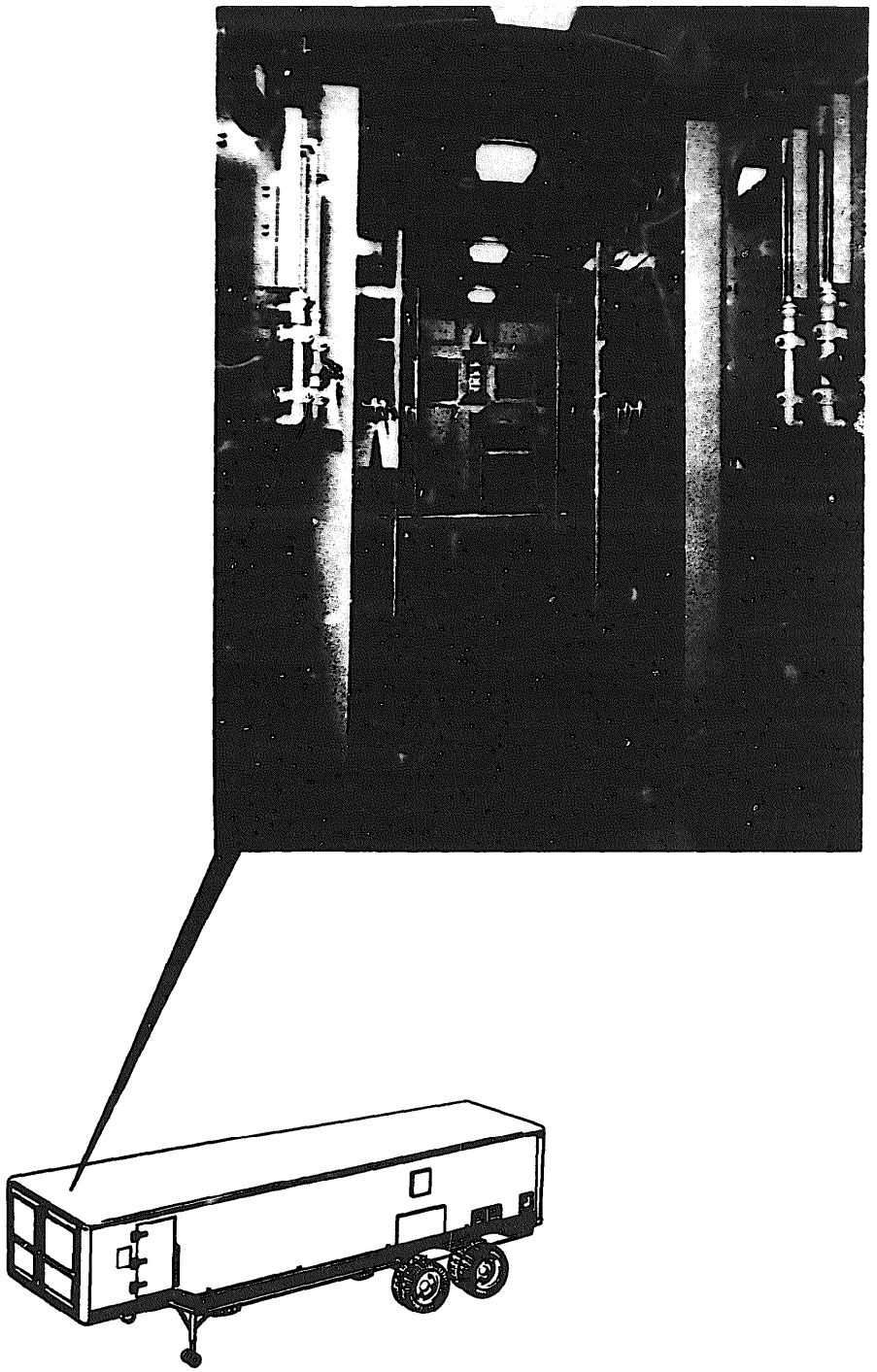


Figure 3. Dual 10 kw amplifier van NUS 7561.

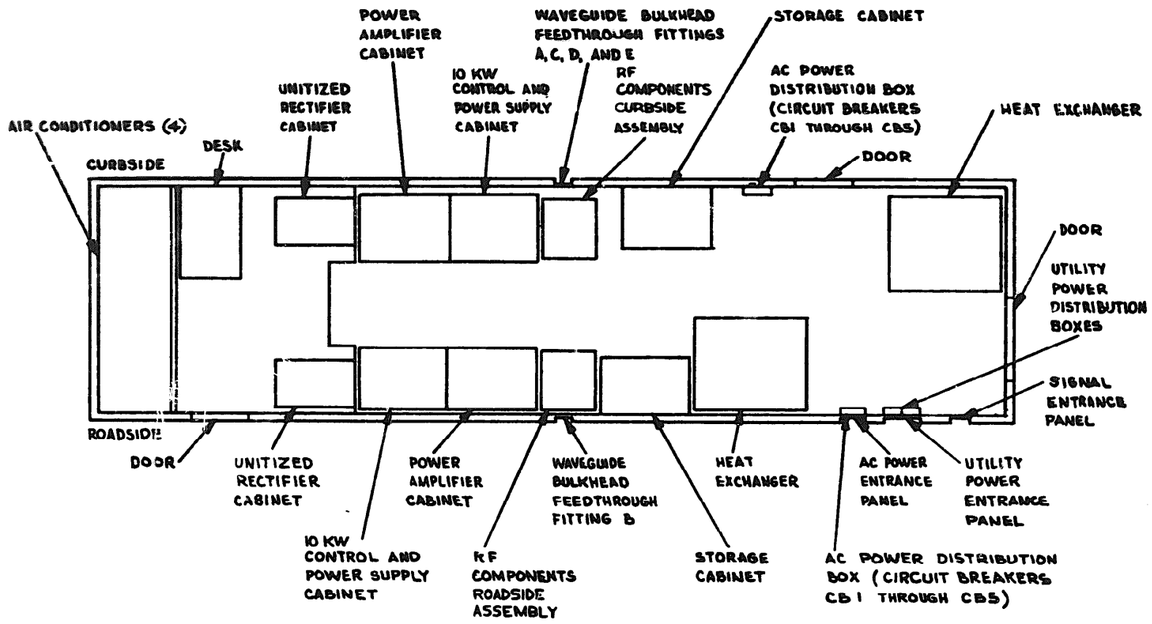


Figure 4. Dual 10 kw amplifier van NUS 7561 layout.

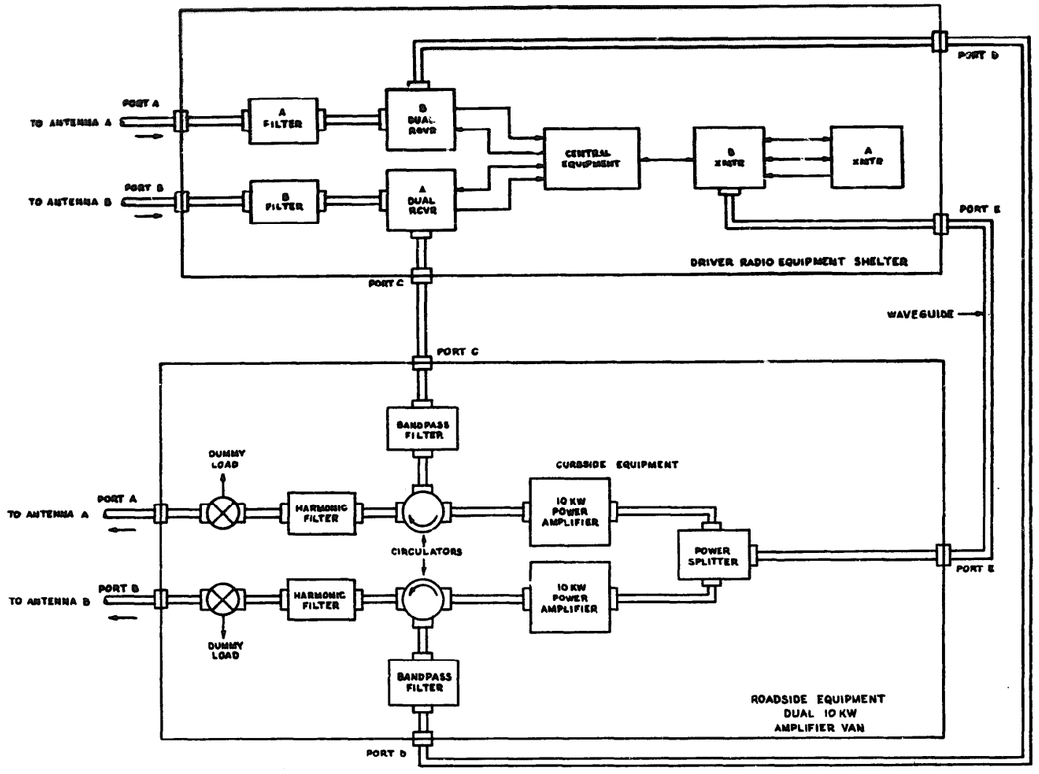
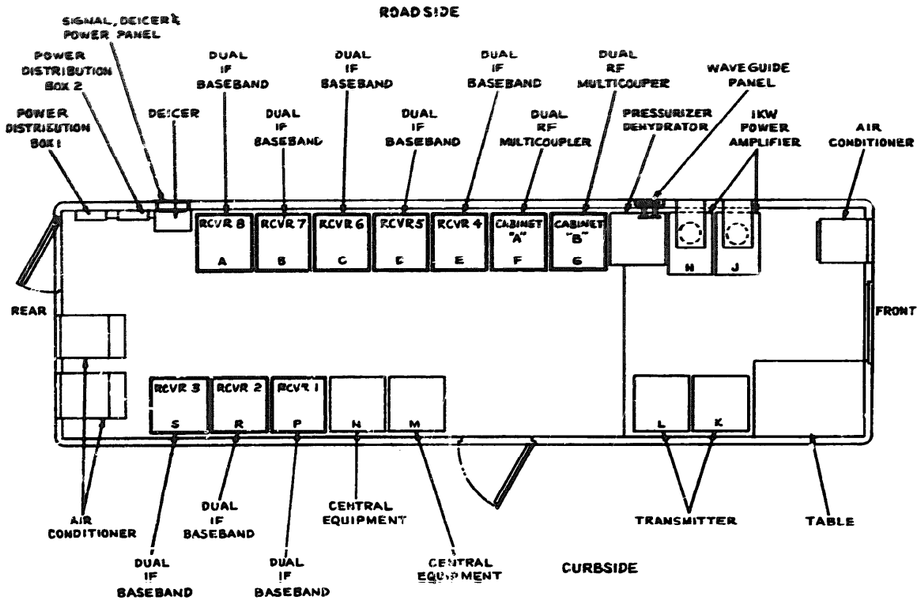


Figure 5. Dual 10 kw amplifier van with driver radio equipment shelter, block diagram.



EQUIPMENT COMPLEMENT

VAN NUS NO.	NO. CHAN.	EQUIPMENT POSITIONS USED
8260 61	8	A-S
626065	7	B-S
6260 613	5	D-S
6260,622	3	F-S
6260 624	3	F-G AND K-S
6260625	2	F-R

Figure 7. Nodal point radio set layout.

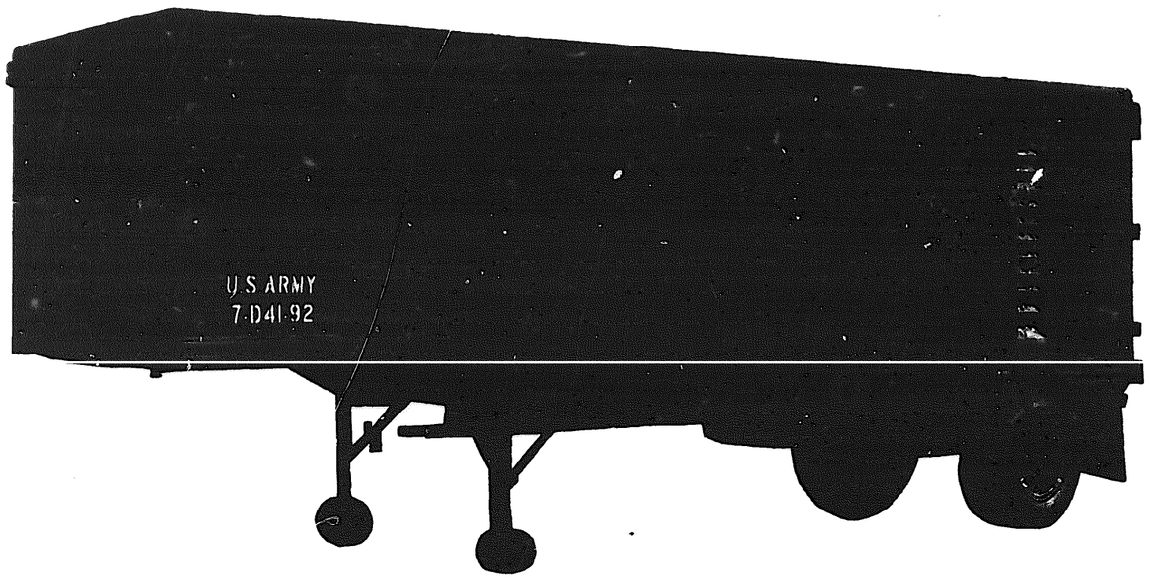


Figure 6. **Nodal point radio set.**

TABLE IV. NUS 6260 NODAL POINT RADIO SET CONFIGURATIONS

Group	No. of tributaries	Power	Parametric amplifiers
1	8	1 kw	Yes
5	7	1 kw	Yes
13	5	1 kw	Yes
22	3	1 kw	No
24	3	1 w	No
25	2	1 kw	Yes

d. Transmission from the nodal point to the tributary site is on a party line basis, whereas transmission from the tributary site to the nodal point is on a private line basis. Usually, the nodal point radio set is used in conjunction with the Console Remote Equipment van (para. 12). In some cases, however, the nodal point radio set receives signals directly from an NUS 6070 multiplexer set,

e. The transmitter and receiver crystals used depend on the frequencies assigned to the site. Refer to the system frequency plan for crystal selection data for a particular site.

10. Multiplexer Set

a. The NUS 6270 multiplexer set houses the multiplex equipment that provides, in combination with multichannel radio equipment shelters (para. 7), transmission facilities for a maximum of 120 full-duplex telephone voice channels in the 4.4- to 5-gc frequency band. A typical multiplexer set is shown in figure 8.

b. The equipment is mounted in a modified military type S-352 shelter. The dimensions, interface connector locations, and input requirements are presented in figure 29.

c. The multiplex equipment is a transistorized carrier system which uses frequency division to transmit and receive voice channels over a single transmission medium.

d. The basic shelter is cabled for an ultimate capacity of 120 channels. Jack fields and intermediate distributing frame points are provided for the ultimate capacity. Multiplex equipment racks having the same function are always located in the same position in the shelter. Special circuit requirements (including pad groups, 4-wire network groups, and extension of base groups) are provided as options added to the basic shelter. An integrated test facility is also provided. Depending on specific site considerations, the multiplex equipment rack complement varies from site to site. The configurations available are listed in table V. Figure 9 shows the location of the major components in the shelter.

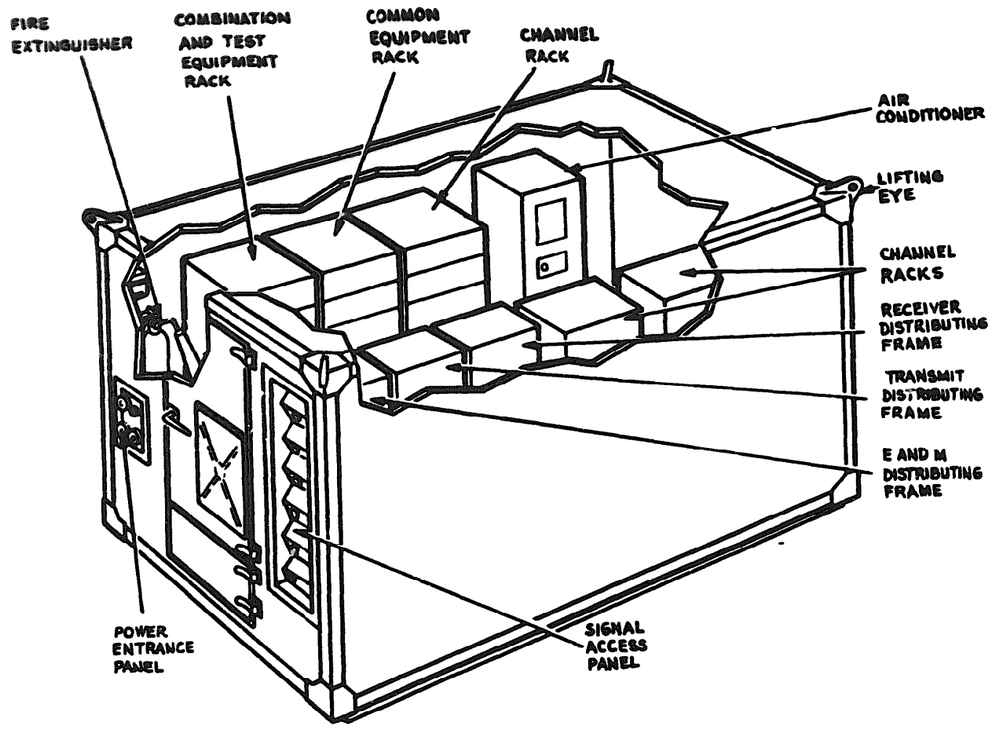


Figure 8. Typical multiplexer set.

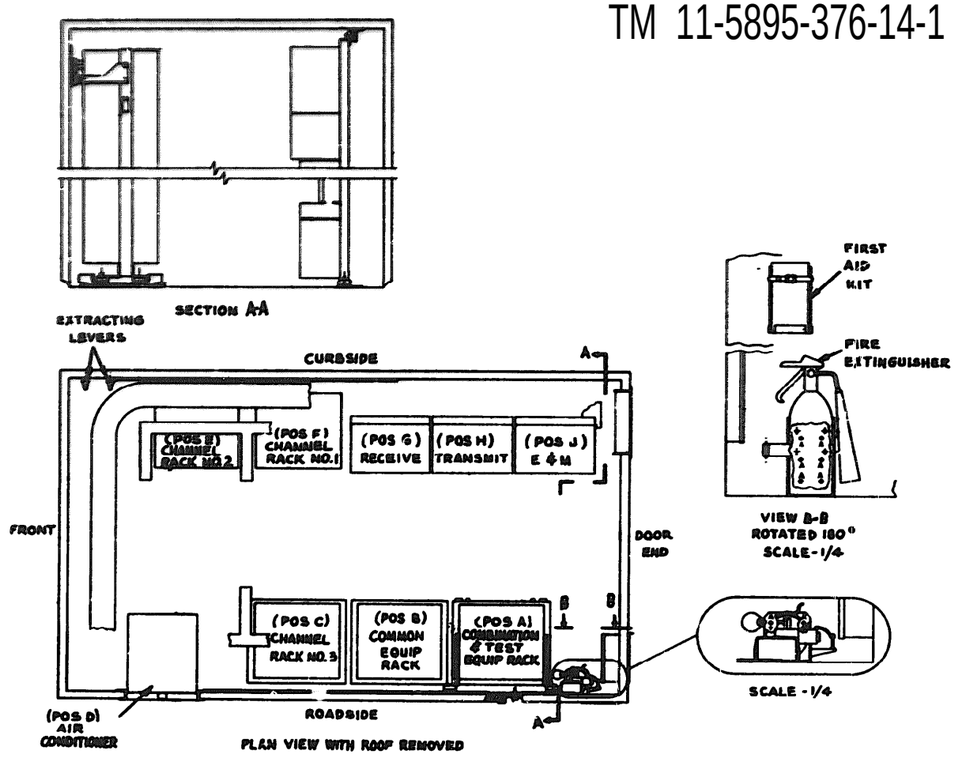


Figure 9. Typical multiplexer set layout.

e. For further details regarding the multiplexer set refer to the manual entitled Multiplexer Set AN/FCC-40 through AN/FCC-54, POMM 11-5820-573-15. The manual is divided into two parts. Part 1 covers general information; initial adjustments, alignments, and tests; operating instructions; theory; and maintenance. Part 2 covers shelter configurations for each group (per table V), cross-jumpering data, family trees, and multiplex equipment racks and module complement

TABLE V. NUS 6270 MULTIPLEXER SET CONFIGURATIONS

Group	Type	Through groups	Through supergroups	Special circuits[a]	Other features
1	120-channel terminal	-	-	-	
2	60 x 60 drop channel repeater	-	-	D1	2-group interconnect to foreign multiplex
3	60 x 38 drop channel repeater		-	B2, D2	
4	60 x 60 drop channe1 repeater	2		D2	
5	60 x 60 drop channel repeater	2		B1, D2	
6	60-channel terminal			C2	
7	60-channel terminal			D1	2-group interconnect to foreign multiplex
8	24 x 24 drop channel repeater	3		A, B1	
9	24 x 24 drop channel repeater	3		A, Cl	
10	24 x 12 drop channel repeater	1		A	
11	24-channel terminal				
12	12 x 12 drop channel repeater	4			
13	12 x 12 drop channel repeater	4		A, C1	
14	12 x 60 drop Channel repeater			A	
15	120-channel terminal	4	1		12 x 12 Channel drop
16	120 x 72 drop channel repeater	1	1		48-channel drop from north
18	120-channel terminal			D2	

TABLE V. NUS 6270 MULTIPLEXER SET CONFIGURATIONS (cont)

Group	Type	Through groups	Through supergroups	Special circuits[a]	Other features
19	120-channel terminal	10	-	A, B3, D2	Float spares
20	12 x 12 drop channel repeater	4	-	A, C3	
21	60-channel terminal	-	-	-	

[a] Special circuit allocations:

Group	NUS	Features
A	6282G1	12 23-db pad pairs
B1	6282G2	5 4-way junctions
B2	6282G3	5 4-way junctions and 5 dual amps
C	6282G4	Push-to-talk assembly
D1	6282G5	Inter-shelter through group facility (2 groups)
D2	6282G6	Inter-shelter through group facility (10 groups)

11. Console Operations Centers

The Console Operations Centers provide the necessary operators consolettes, wall displays, drop subsets, and Console Local Equipment vans to perform the command and control functions in the ET-A Console System. Six Console Operations Centers are provided in two configurations and are listed in table VI.

TABLE VI. CONSOLE OPERATIONS CENTER CONFIGURATIONS

Configuration	NUS No.	Console Local Equipment van	Operations Center, fixed installation	Operations Center van
Console Operations Center	7964G1	7642G1	NUS 7965G1	
	7964G2	7642G2		
	7964G3	7642G3		
Alternate Console Operations Center	7862G1	7942G4	--	NUS 7641G1
	7862G2	7942G5		
	7962G3	7942G6		

a. **Console Local Equipment (CLE) Van.**

(1) The Console Local Equipment van contains all the logic, switching, frequency-shift keying, audio, and dc power equipment for the Console Operations Center. A typical CLE van is shown in figure 10.

(2) The equipment is installed in a modified M348-A2G semitrailer van. The dimensions, interface connector locations, and input requirements are presented in figure 30.

(3) Although all CLE vans are of the same basic design and contain the same complement of equipment cabinets, each van is capable of performing unique functions for its particular site. This is so because the van cabinets are equipped in accordance with the particular site requirements. Refer to table VI for CLE van configuration types. A plan view of the van is shown in figure 31.

b. Operations Center, Fixed Installation. The Operations Center, fixed installation is located in a building and consists of a wall display, two operators consolettes, a junction box, and one or more drop subsets. The consolettes are located adjacent to each other and in front of the wall display to allow easy communication between the two operators and a clear view of the wall display. The consolettes and wall display may be up to 100 feet from the junction box. The drop subsets are installed at subscriber locations.

(1) Wall display. The wall display contains lamp indicators which identify ET-A Console System subscribers and their status. Refer to figure 32 for dimensions and interface connector locations.

(2) Operators consolettes. The operators consolettes contain the controls and indicators required to perform command and control functions. Refer to figure 33 for dimensions and interface connector locations.

(3) Junction box. The junction box interconnects the wall display, operators consolettes, CLE van, and drop subsets. Refer to figure 34 for dimensions and interface connector locations.

(4) Drop subsets. Drop subsets are used for subscriber service. Refer to figure 35 for dimensions and connection requirements.

c. Operations Center Van.

(1) The Operations Center van performs the same function as the Operations Center, fixed installation described in b above and also contains a wall display and operators consolettes. The Operations Center van is shown in figure 11.

(2) The equipment is installed in a modified type M348-A2G semitrailer van. Overall dimensions, interface connector locations, and input requirements are presented in figure 36. The van layout is shown in figure 37.

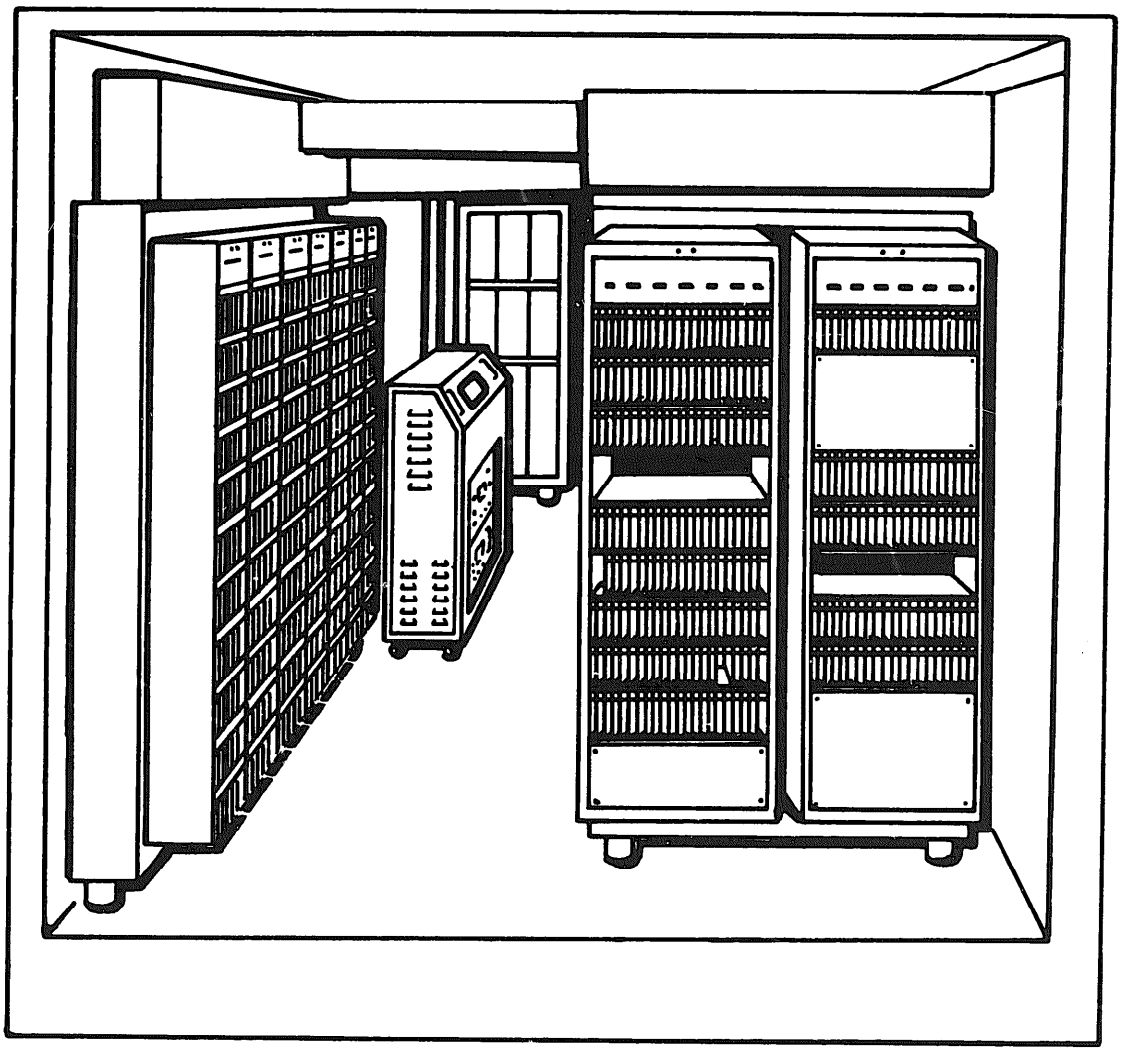


Figure 10. Typical Console Local Equipment van.

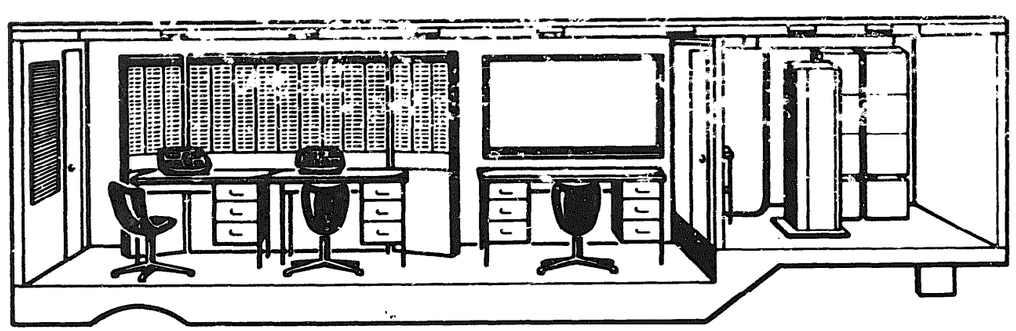


Figure 11. Operations Center Van.

d. Instruction Manuals. For details regarding the Console Operations Centers refer to the manual entitled Center, Communications Operations AN/MSQ-76(V)1 through AN/MSQ-76(V)3 and AN/GSQ-106(V)1 through AN/GSQ-106(V)3 (Console Local Equipment), TM 11-5820-578-14. The manual is divided into eight parts as follows:

PART ONE	Introduction and Description, Installation, Functioning of Equipment
PART TWO	Functioning of Equipment (cont), Maintenance
PARTS THREE, FOUR, and FIVE	Diagrams
PART SIX	Mnemonics, Test Procedure, Difference Data
PART SEVEN	Modules
PART EIGHT	DC Duplexed Power System6

12. Console Remote Equipment (CRE) Van

a. The Console Remote Equipment van is used at mainline nodal sites as a distribution link between the tributary sites and the Console Operations Center sites. The functions of the CRE van are automatic and are controlled by signals from the Console Operations Centers and signals from the tributaries assigned to the CRE van. The CRE van is shown in figure 12.

b. The CRE van can service three sectors of up to eight tributaries each. Each sector is assigned two audio channels so that the tributaries assigned to that sector may be connected to either of two conferences. The CRE van transmits its signals to a nodal point radio set (para. 9) for distribution to, the tributaries.

The equipment is installed in a modified type M348-A2G van. Overall dimensons, interface connector locations, and input requirements are presented in figure 38. The van layout is shown in figure 39.

d. For details regarding the CRE van refer to the manual entitled Switching Set, Communications AN/MSQ-74(V)1 through AN/MSQ-74(V)10 and AN/MSQ-74(V)12 (Console Remote Equipment), TM 11-5820-577-14. The manual is divided into five parts as follows:

PART ONE	Introduction and Description, Installation, Functioning of Equipment, Maintenance
PART TWO	Diagrams
PART THREE	Mnemonics, Test Procedure, Difference Data
PART FOUR	Modules
PART FIVE	DC Duplexed Power Systems

13.

a. Tributary terminal set NUS 7957 is located at tributary sites. It provides access to the ET-A communications system by means of the microwave link between the tributary site and the mainline nodal site.

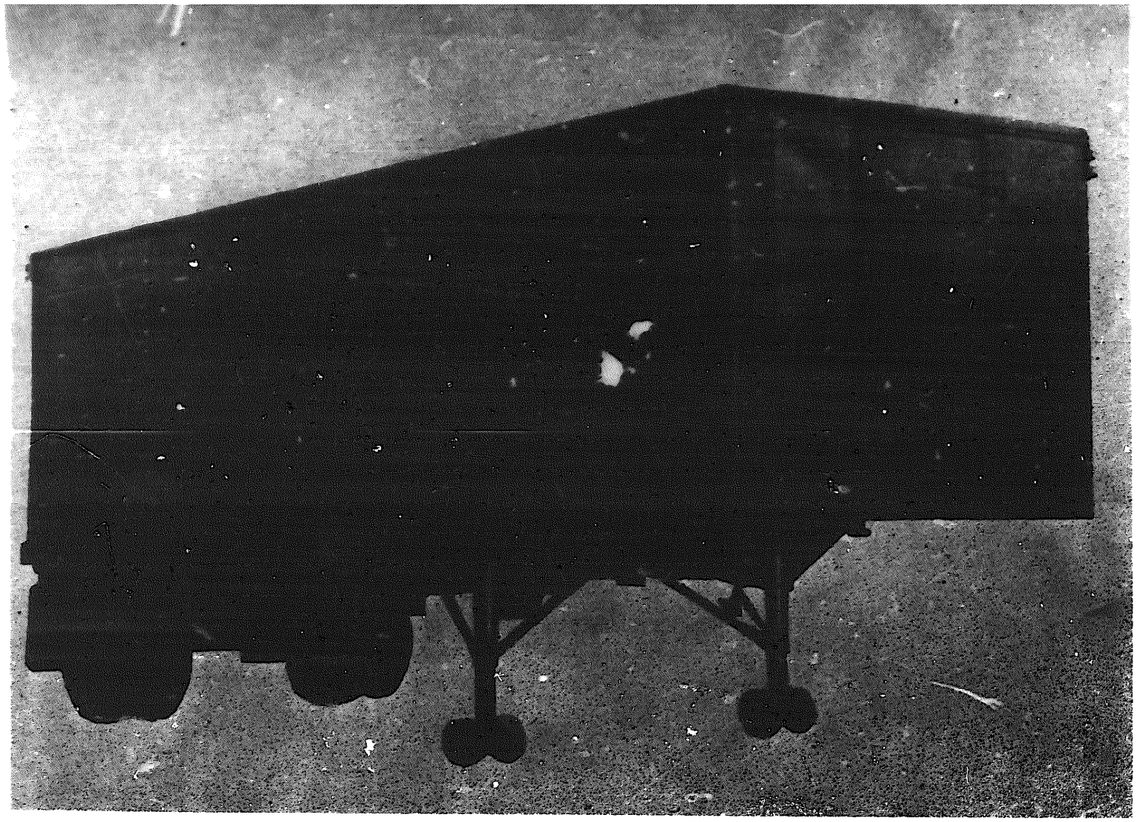


Figure 12. Console Remote Equipment van.

b. The tributary terminal set consists of a logic cabinet and a control unit. A pictorial view of a tributary terminal set is shown in figure 13. Overall dimensions, interface connector locations, and input requirements are presented in figure 40.

c. For details regarding the tributary terminal set refer to the following manuals:

Tributary Terminal Set, ET-A Type NUS 7957	TM 11-5820-587-15/1, -15/2
Tributary Site Manual	TM 11-5895-376-14-2

14. Maintenance Control Center (MCC)

a. Maintenance control center NUS 6283 provides facilities for communicating and signaling selectively between local shelters and vans at a mainline site. The facilities can be extended, via the regular orderwire circuits, to other mainline sites for connection to their shelters, vans, and maintenance control centers. The unit also provides for central alarm monitoring of the shelters and vans at each mainline site. The MCC is shown pictorially in figure 14. Dimensions, interface connector locations, and input requirements are presented in figure 41.

b. The maintenance control center is arranged in a configuration such that common modules can be inserted or removed to meet the requirements of a specific site; MCC wiring is for the maximum module complement. The basic configurations are listed in table VII.

TABLE VII. MAINTENANCE CONTROL CENTER CONFIGURATIONS

Group	Equipped to cover the following equipment					
	Radio shelter 6060	Power amplifier van	Multiplexer set 6270	Nodal point radio set 6260	Console Remote Equipment	Console Local Equipment
1	1		1			
2	2					
3	1		1			
5	2		1			
6	2	1	1			
8	3		2			
9	3	1	2			
13	1			1	1	
14	1	1	1	1		
16	2		1	1	1	
18	5		3	1		
20	2		1	2	1	

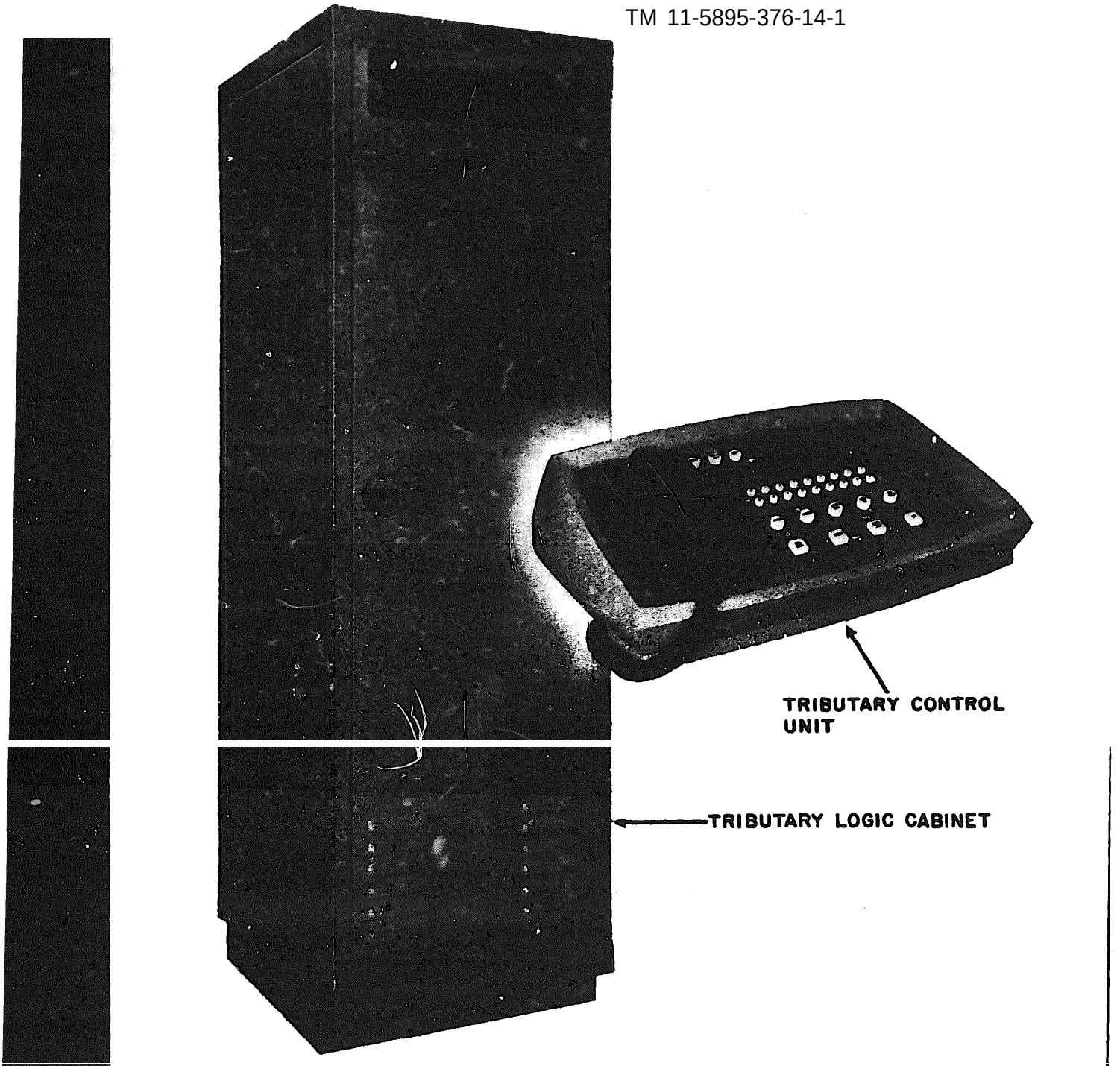


Figure 13. Tributary terminal set.

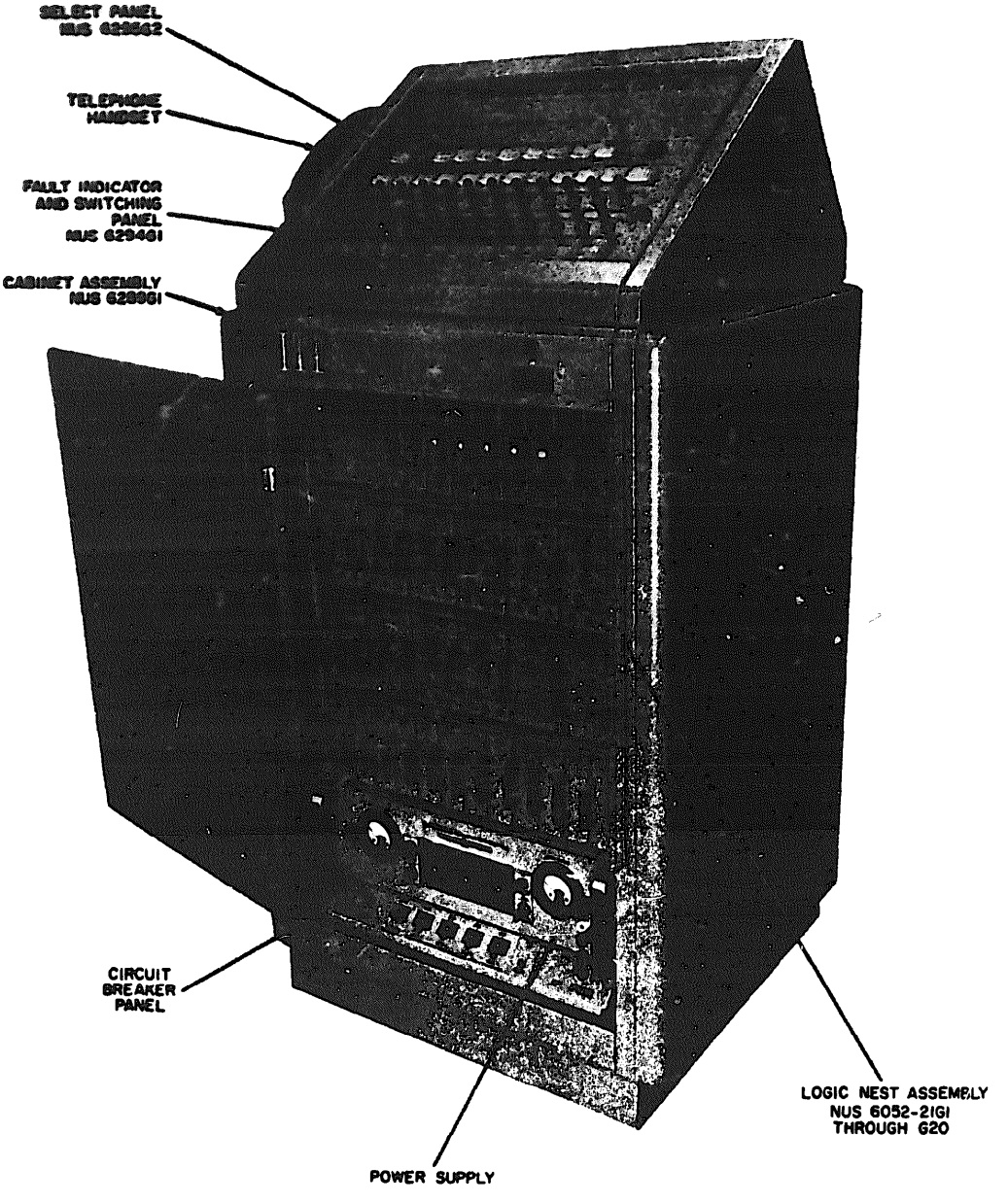


Figure 14. Maintenance control center NUS 6283.

c. For details regarding installation, operation, and maintenance of the maintenance control center refer to the manual entitled Maintenance Control Group AN/GSA-99(V)1 through AN/GSA-99(V)12, TM 11-5820-570-14.

15. Microwave Tower and Antenna Systems

Microwave towers mount the antenna(s) used in the site-to-site radio communication links of the ET-A communication system. Microwave towers and antennas are described in detail in the manual entitled ET-A Site Equipment, Towers and Antennas, TM 11-5895-376-14-3.

16. Technical Control Van

The technical control van is furnished by the Signal Corps and is used to interconnect the multiplexer sets at the channel and group levels. **Overall dimensions** and interface connector **locations are presented in figure 42.**

CHAPTER 3

MAINLINE SITE CONFIGURATIONS

17. General

a. The equipment complements at mainline sites vary and depend on the operational requirements of each specific mainline site. However, all mainline sites fully or partially fall into one of the following six basic configurations:

Through repeater site	Junction site
Drop repeater site	Nodal point site
Terminal site	Console site

The six configurations are described in paragraphs 19 through 24. Although mainline sites may vary slightly from the listed configurations, an understanding of these basic configurations makes the deviations understandable.

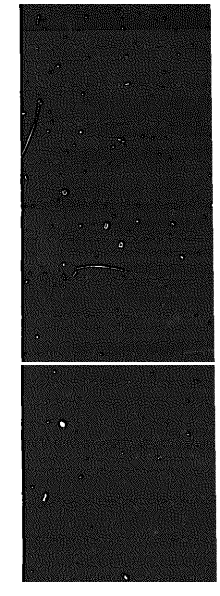
b. In addition to basic configuration variations, the radio equipment complement varies due to different microwave transmission modes. Mode variations are described in paragraph 18.

18. Diversity and Modes of Operation

The sites on the mainline broadband network of the ET-A system use the troposcatter, diffraction or line-of-site mode of microwave transmission; four-fold or two-fold space diversity configurations are utilized.

a. Troposcatter. In the troposcatter mode of operation the radio equipment required to meet system performance requirements consists of either 1-kw or 10-kw transmitters, receivers with or without parametric amplifiers and threshold extension, 15 or 30-foot antennas, and four-fold space diversity. The four-fold space diversity configuration uses two antennas, two transmitters, and four receivers (two dual receivers). At site W (fig. 15), vertically- and horizontally-polarized signals (f2) are received from site E by antennas A1 and A2 and fed to the combiner. Vertically-polarized signals received by antenna A1 are fed via the duplexer to receiver R1 and then to the combiner while vertically-polarized signals received by antenna A2 are fed directly to receiver R3 and then to the combiner. Horizontally-polarized signals received by antenna A1 are fed directly to receiver R2 and then to the combiner, while horizontally-polarized signals received by antenna A2 are fed via the duplexer to receiver R4 and then to the combiner. Transmitters T1 and T2 produce outputs (f1) which are fed via their duplexers to antennas A1 and A2, respectively, for transmission to site E; antenna A1 transmits a vertically-polarized signal, while antenna A2 transmits a horizontally-polarized signal. Site E reception and transmission is similar to that of site W.

b. Diffraction. In the diffraction mode of operation the radio equipment required to meet system performance requirements consists of 1-kw transmitters, receivers with parametric amplifiers and threshold extension, 30-foot antennas, and four-fold space diversity (a above). Only one mainline link (site 11.1 to site 46) operates in this mode.



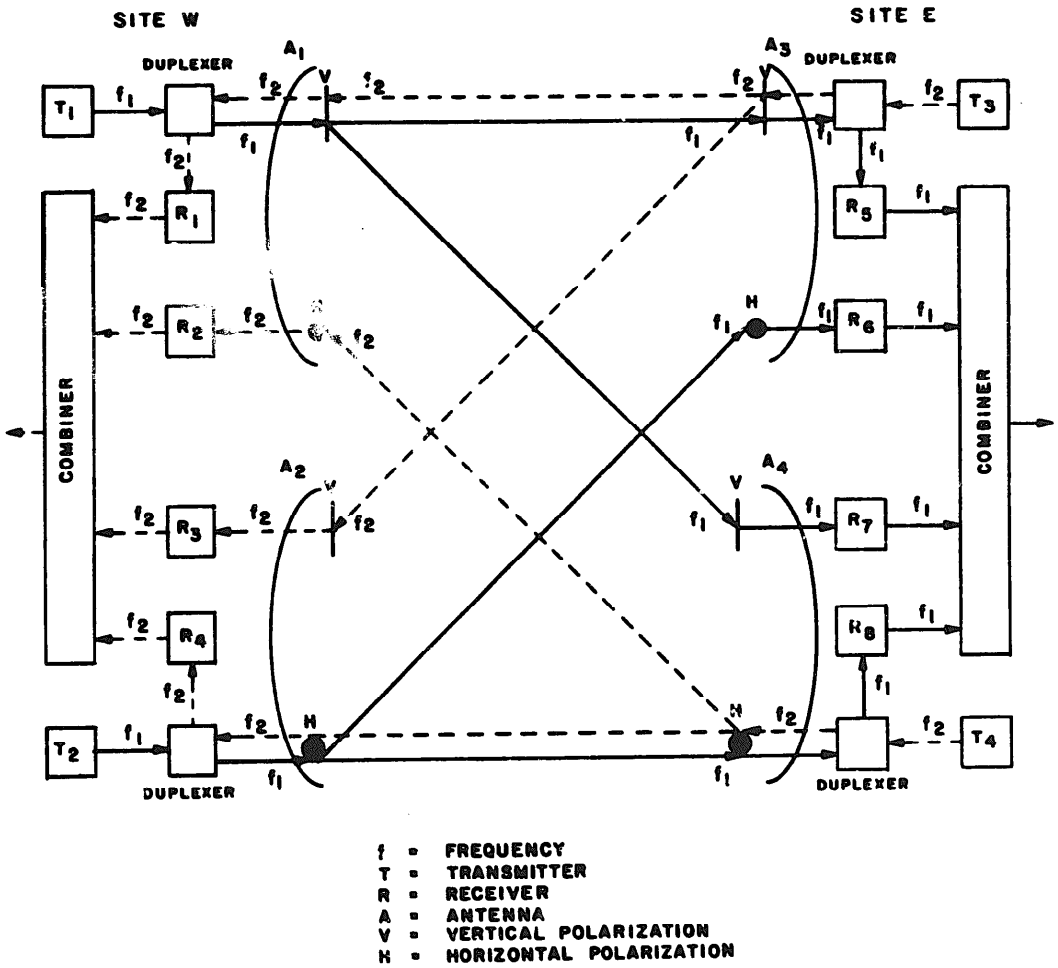


Figure 15. Four-fold space diversity configuration.

c. Line-of-Sight. In the line-of-sight mode of operation the radio equipment required to meet system performance requirements consists of 1-watt transmitters, receivers without parametric amplifiers and threshold extension, 4- or 6-foot antennas, and two-fold (or dual) space diversity. The two-fold space diversity configuration uses two antennas, two transmitters, and two receivers. At site W (fig. 16), vertically-polarized signals (f2) are received from site E by antenna A1 and fed via the duplexer to receiver R1 and then to the combiner. Horizontally-polarized signals (f2) are received from site E by antenna A2 and fed via the duplexer to receiver R2. Transmitters T1 and T2 produce outputs (f1) which are fed via their duplexers to antennas A1 and A2, respectively, for transmission to site E. Antenna A1 transmits a vertically-polarized signal, while antenna A2 transmits a horizontally-polarized signal. Site E reception and transmission is similar to that of site W.

19. Through Repeater Site

a. The through repeater site is usually located in a high-elevation area for the purpose of linking two mainline sites between which direct communication in the tropo-scatter mode is not feasible. The through repeater receives the microwave signal from one site, amplifies it, and transmits it to the next site. A block diagram of a through repeater site is shown in figure 17.

b. The through repeater site equipment complement consists of two radio shelters, each of which is connected to an antenna system and a maintenance control center console. The antenna systems are pointed toward the neighboring mainline site antenna system, while the radio shelters are connected back-to-back at the multiplex baseband level. The orderwire channel from each direction is dropped to voice frequency in its corresponding radio shelter and extended to the MCC. In each radio shelter, only the orderwire channel in the direction of the shelter's shoot may be utilized. At the MCC, however, the orderwire channels may be utilized in either direction, or may be connected as a through circuit in both directions for conference purposes. Summary fault alarm circuits are extended from both radio equipment shelters to the MCC, permitting monitoring of the equipment from one location and eliminating the requirement that personnel be in the radio equipment shelter continually.

20. Drop Repeater Site

a. The purpose of the drop repeater site is to divert a limited number of multiplex channels from the microwave signal for local use. Figure 18 is a block diagram of a drop repeater site.

b. The drop repeater site equipment complement consists of two radio equipment shelters, a multiplexer set, and a maintenance control center console. The radio equipment shelters are connected to antenna systems, each antenna system being pointed toward a neighboring mainline site antenna system. Each radio equipment shelter feeds its multiplex baseband output to the multiplexer set. The multiplexer set processes the baseband from one direction, dropping a limited number of channels to voice frequency level for local subscriber use. The remaining channels are passed to the other baseband, at either channel, group, or supergroup level, for transmission to the next site.

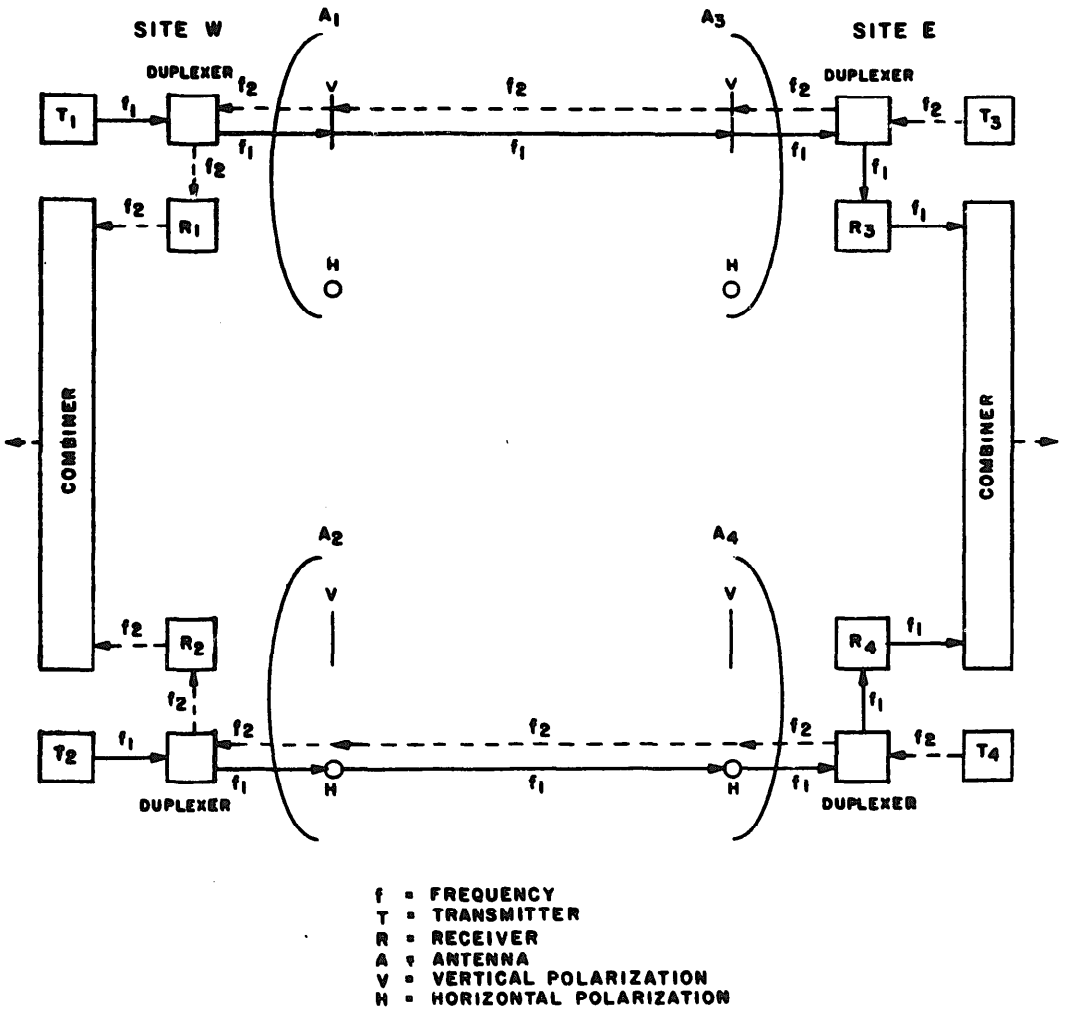


Figure 16. Two-fold space diversity configuration.

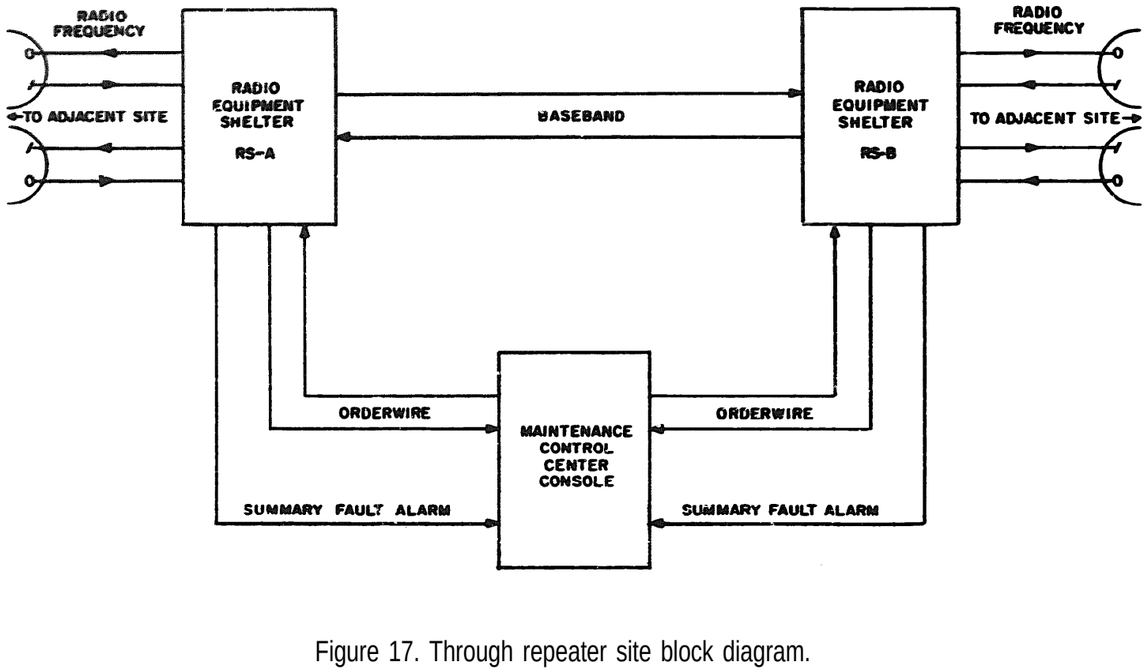


Figure 17. Through repeater site block diagram.

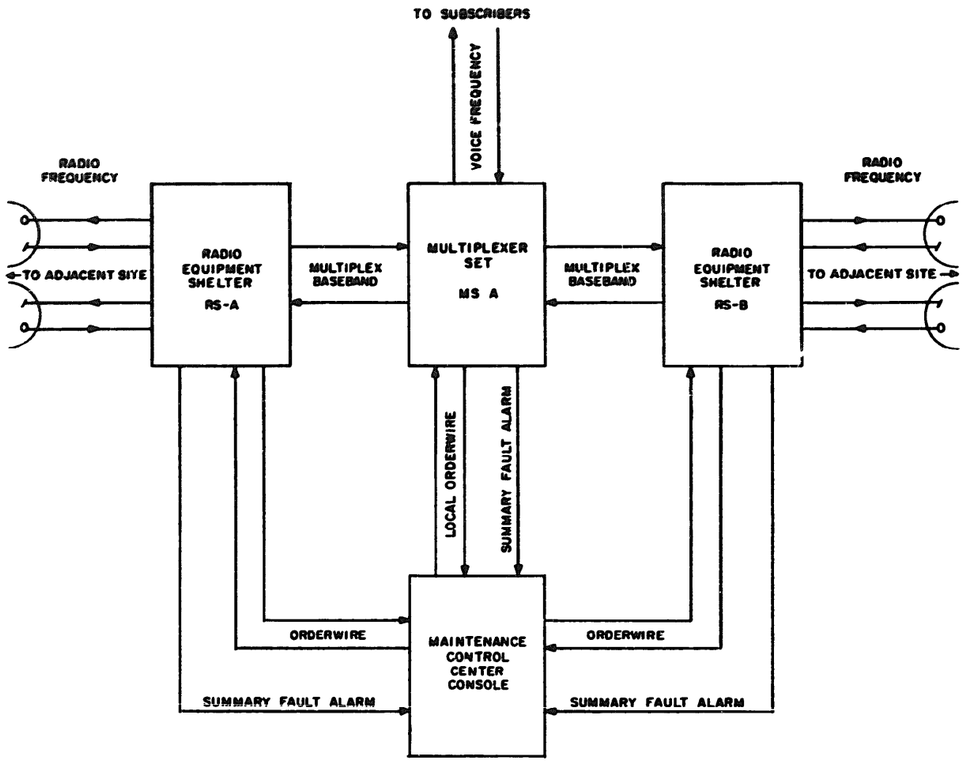


Figure 18. Drop repeater site block diagram.

c. Orderwire channels from each direction are dropped to the voice frequency level in the radio equipment shelters and extended to the MCC. Each radio equipment shelter may use the orderwire channel in the direction of the shelter's shoot only. However, at the MCC the orderwire channels may be used in either direction or may be connected as a through circuit in both directions for conference purposes. The MCC also extends a local orderwire circuit to the multiplexer set, which can also be connected into the conference circuit.

d. Summary fault alarm circuits are extended from the radio equipment shelters and the multiplexer set to the MCC, permitting monitoring of the site equipment at the MCC without requiring personnel to be in the radio equipment and multiplexer set shelters continually.

21. Terminal Site

a. Terminal sites are located at each end point of the ET-A mainline, where all multiplex channels are dropped for local subscriber we or interface with other systems. A block diagram of a terminal site is shown in figure 19.

b. The terminal site equipment complement consists of either one or two radio equipment shelters, a multiplexer set, and a maintenance control center console. The terminal site shown in figure 19 utilizes one radio equipment shelter. At a terminal site using two radio equipment shelters, the block diagram of figure 18 applies, but there are no through channels.

c. The radio equipment shelter (fig. 19) is connected to an antenna system which% pointed toward the antenna system at the next site on the m&line From the radio equipment shelter the baseband is fed to the multiplexer set, where all channels may be dropped to supergroup, group, or channel level for either local subscriber use or interface with other systems.

d. Orderwire channels and summary fault alarm circuits are utilized as described in paragraphs 20c and 20d, respectively.

22. Junction Site

a. A junction site serves as a junction for the mainline paths coverging on the junction from three or more directions (sites). A junction site block diagram is shown in figure 20.

b. The junction site equipment complement consists of a technical control van, two or more multiplexer sets, three or more radio equipment shelters, and a maintenance control center console.

c. The junction site shown in figure 20 utilizes two multiplexer sets and three radio equipment shelters. Each radio equipment shelter is connected to its antenna system, which is pointed toward another site; thus three paths are converging on the junction site. Radio equipment shelters RS A and RS B feed their baseband outputs to multiplexer set MS A, while radio equipment shelter RS C feeds its baseband to multiplexer set MS B. The multiplexer set, drop the three basebands down to the channel voice frequency level. All channels are then routed to the technical control van. The technical control van contains a main distributing frame for cross-connecting the voice-frequency channels, in any of the three radio-frequency directions, to other systems or to local subscribers. Jack fields are also provided for patching or monitoring all Channels.

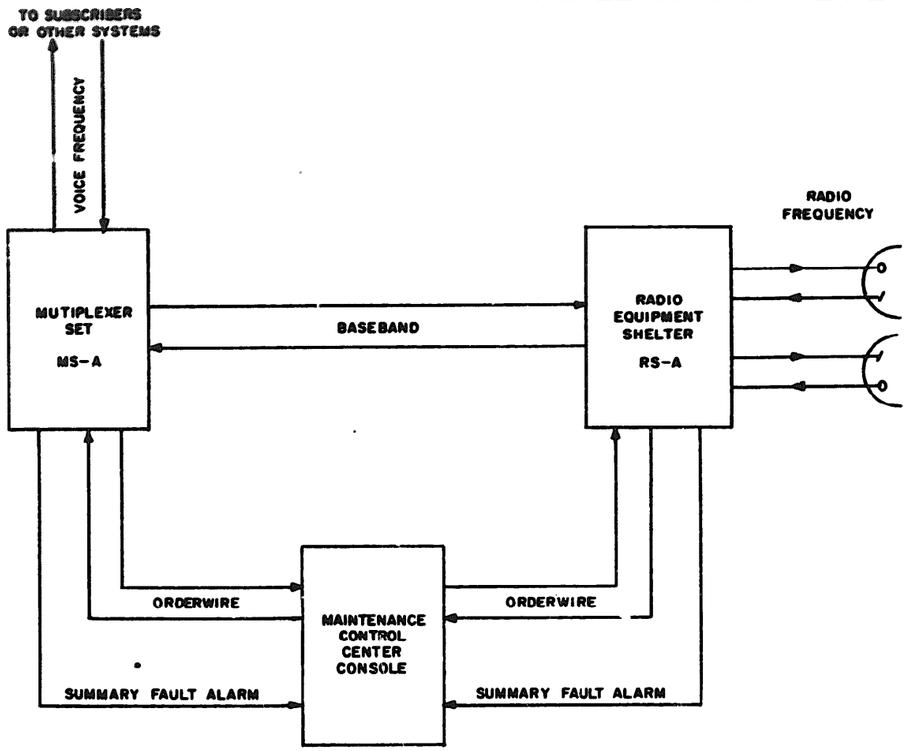


Figure 19. Terminal site block diagram.

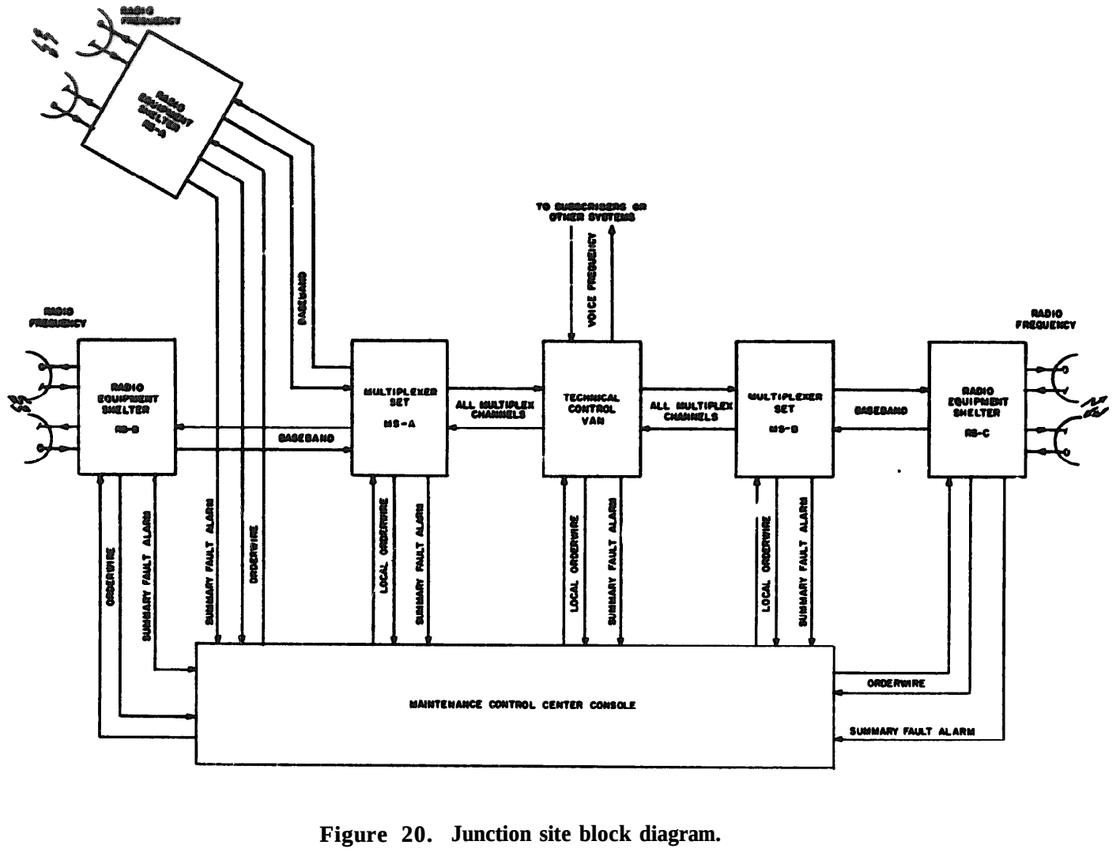


Figure 20. Junction site block diagram.

d. Orderwire channels and summary fault alarm circuits are utilized in manner similar to that described in paragraphs 20c and 20d, respectively.

23. Nodal Point Site

a. The nodal point site serves as a junction for connecting the tributary to the mainline communications network. A block diagram of the nodal point si shown in figure 21.

b. The nodal point site equipment complement consists of one to three n point radio sets, one Console Remote Equipment van, a multiplexer set, and on (terminal) or two (repeater) radio equipment shelters.

c. The nodal point site shown in figure 21 utilizes one nodal point radio two radio equipment shelters. The two radio equipment shelters and the multip set are set up as a through repeater site, as described in paragraph 19. The n plexer set drops five command and control multiplex channels (used throughout ET-A Console System) to voice-frequency level and feeds them to the CRE van,

d. The CRE van can service as many as three sectors of up to eight tril taries each, a nodal point radio set being required for each sector. Therefore many as three nodal point radio sets may be connected to the CRE van. Opera1 of the CRE van is automatic and is controlled by signals from either a Console Operations Center or a tributary site. The command and control channels (c a carry controlling signals and traffic from the console sites and other tributarie five channels from each direction of the mainline are bridged in the CRE van, t giving the switching circuits of the CRE van uninterrupted connection to the ma in both directions. From the CRE van one transmit orderwire channel, one tra carrier channel, and eight receive channels are fed to the nodal point radio set, feeds a pair of antennas pointing in the direction of a tributary site. Eight trib sites can be so connected by eight antenna pairs.

e. The CRE van, on receiving a command from a Console Operations C a tributary site on one of the command and control channels, connects that chan of the transmit channels to the nodal point radio set. The nodal point radio set transmits the data to all equipped tributaries. Traffic from a tributary is sent nodal point radio set and then to the CRE van on the tributary receive channel a to that tributary. The CRE van connects the traffic received from the tributary of the command and control channels for transmission, via the multiplexer set radio equipment shelter, to the other tributary or to the Console Operations Ce

f. Orderwire operation at the radio equipment shelters and multiplexer the same as described in paragraph 20c. Service is also extended from the MC the CRE van and the nodal point radio set. Select controls are provided at the and nodal point radio set for selecting the orderwire channel to any one of the e tributaries. The MCC can also connect the mainline orderwire with the tributa orderwire.

g. Summary fault alarm circuits are extended from all shelters and var the MCC, thus permitting monitoring of the equipment at the MCC without requ personnel to be at the shelters and vans continuously.

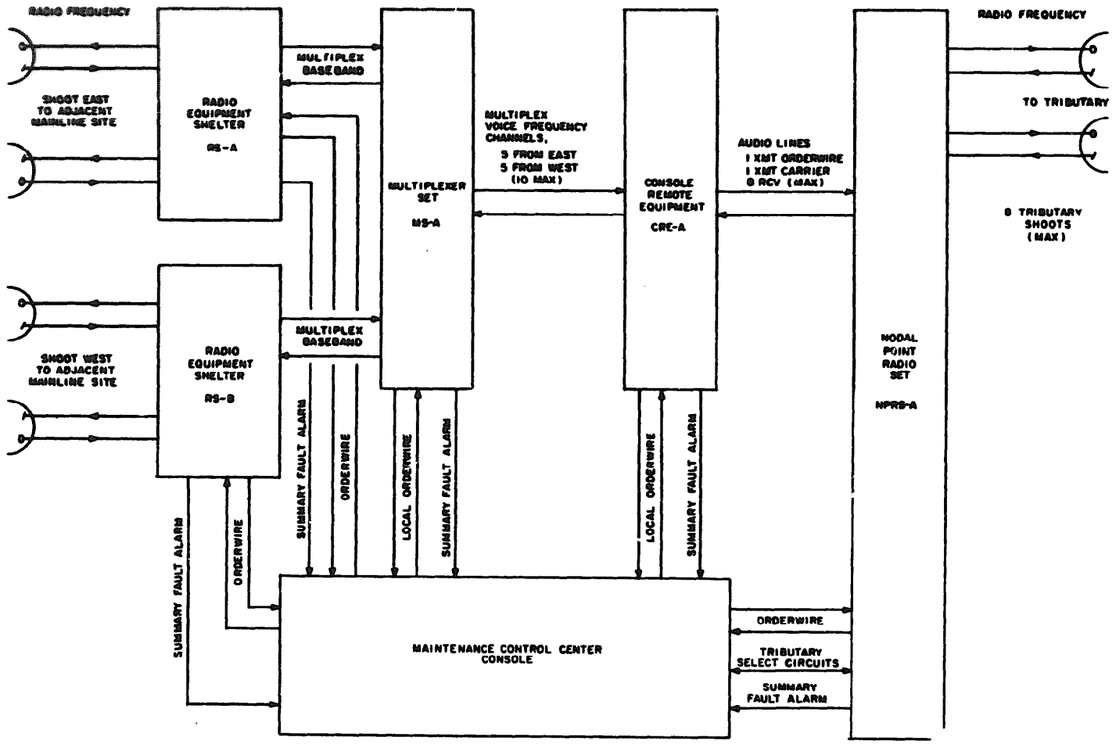


Figure 21. Nodal point site block diagram.

a. The console site provides central control capability within the command and control network of the ET-A system. A block diagram of a console site is shown in figure 22.

b. The console site equipment complement consists of a Console Local Equipment van, an Operations Center (in building or van), a multiplexer set, one or two radio equipment shelters, a maintenance control center, and telephone drop subsets.

The Console Operations Center equipment (which includes the Operations Center and CLE van) may be used with the drop repeater configuration (para. 20, fig. 18) or the terminal configuration (para 21, fig. 19). The block diagram shown in figure 22 utilizes the terminal configuration. From the multiplexer set the five multiplex voice-frequency channels, which are the assigned command and control channels in the ET-A Console System, are routed to the CLE van for processing.

d. The CLE van contains the logic and signaling circuitry that performs the following functions:

Receives status data from all tributaries and other console sites and converts the data into signals for the wall display. The wall display, therefore, provides a centralized display of the status of all system users.

(2) Responds to commands initiated by the in-control operators consolette to establish communication with any or all of the tributary sites and local drop subsets within the ET-A Console System.

e. The orderwire operation is the same as described in paragraph 21, with service also extended to the CLE van.

f. Summary fault alarm circuits are extended from all shelters and vans to the MCC, permitting monitoring of the console site equipment from one point.

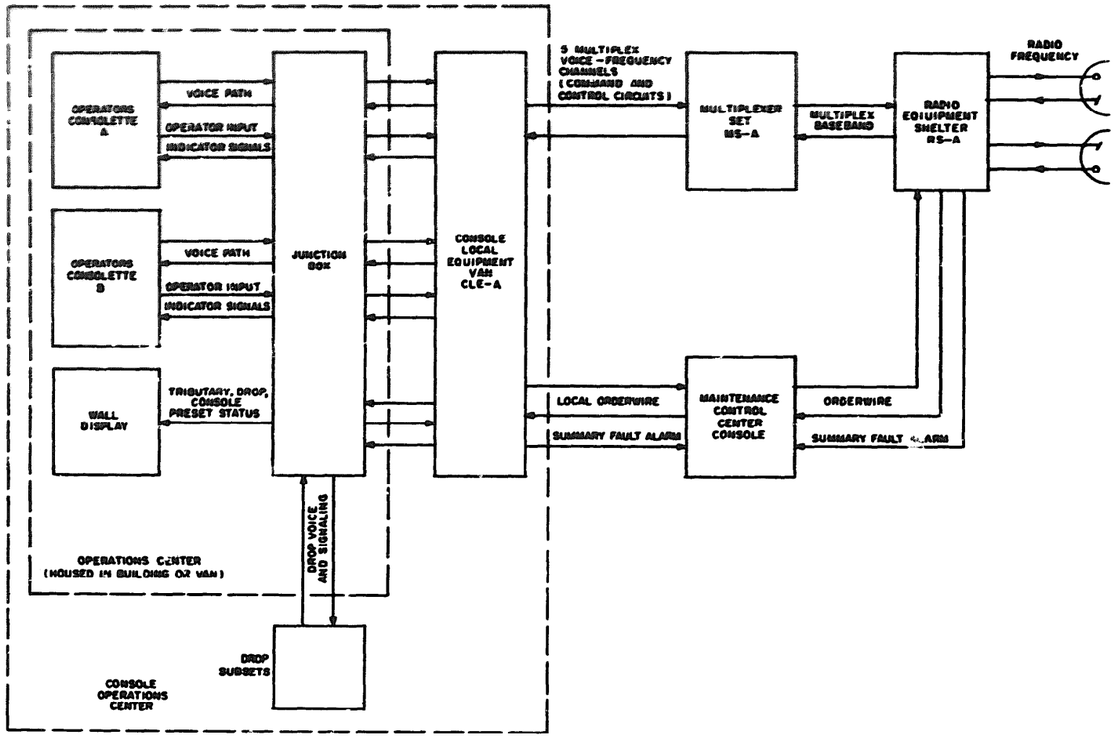


Figure 22. Console site block diagram.

GENERAL INSTALLATION DATA

25. General

a. The basic installation concepts for mainline sites are described in this chapter; in chapter 5 a specific site installation is described.

b. From the installation standpoint, the following is the site operational equipment complement: a microwave tower, radio equipment, a maintenance control center, and multiplex and terminal equipment (multiplex, CRE, CLE, and technical control equipment). Practically all mainline sites include the first three items, with the fourth item being the main variable.

c. Integration hardware at a mainline site falls into four categories: waveguide, rf and signal cabling, power system hardware, and station grounding hardware. These categories are described in paragraphs 26 through 29.

26. Waveguide

Waveguide is used between radio equipment and antennas. The microwave signal is fed by the radio transmitter to the antenna through the waveguide for transmission to the adjacent site. Similarly, the microwave signal received by the antenna is fed to the radio receiver via waveguide. Waveguide runs described in paragraphs a through c below are for mainline shoots; paragraph d below describes the waveguide runs for tributary shoots.

a. In the 1 kw troposcatter and the diffraction transmission modes two waveguide runs both receive and transmit, and two waveguide runs receive only (fig. 15).

b. In the 10-kw troposcatter mode, seven waveguide runs are used: two runs connect the radio equipment shelter to the antennas; two runs connect the dual 10 kw amplifier van to the antennas; and three runs connect the radio equipment shelter to the dual 10kw amplifier van (fig. 5).

In the line-of-site mode there are two waveguide runs, each of which receives and transmits (fig. 16).

d. When nodal point radio sets are used, power-splitting networks, mounted on the microwave tower, are utilized. The networks split and connect the four waveguide runs from the nodal point radio set to the many antenna feeds required when transmitting to tributary sites.

27. RF and Signal Cabling

a. RF and signal cabling is used between radio equipment, multiplex and terminal equipment, and the maintenance control center. The cable interconnecting link requirements are listed in figure 23. Figure 23 is a composite list of all functions and is applicable to all mainline and tributary sites to the extent shown on the individual site as-built drawings (para. 31).

LINK NO	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
1	TRIBUTARY	6060 RADIO SET 5973T TEL & SIG UNIT	AUDIO XMT & RCV LINES	1 MILE
2	TRIBUTARY	5973T TEL & SIG UNIT AC SOURCE	1Ø - 3 WIRE - 115 VAC SERVICE FOR TEL & SIG UNIT	NA
3	TRIBUTARY	6284 MAINT CONT CENTER 6060 RADIO SET	TRUNK ORDERWIRE INTERCOM, RADIO SET FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
4	TRIBUTARY	6284 MAINT CONT CENTER TOWER LTG CONT BOX	TOWER LIGHTING FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	1,000 FT
5	TRIBUTARY	6284 MAINT CONT CENTER AC SOURCE	1Ø- 3 WIRE - 115 VAC SERVICE FOR MAINT CONTROL CENTER	NA
6	TRIBUTARY	6060 RADIO SET 7895 TRIB CAB	AUDIO XMT (CARRIER) & AUDIO XMT & RCV (OW)TRIB REMOTE ALM SIG LEADS (FOR ROUTING TO MCC VIA LINK 3)	1 MILE
7	TRIBUTARY	7895 TRIB CAB 7658 TRIB CONTROL	HANDSET TRANSMIT AND RECEIVE AUDIO LINES	100 FT
8	TRIBUTARY	7895 TRIB CAB 7658 TRIB CONTROL	SPEAKER RECEIVE AUDIO LINES	100 FT
9	TRIBUTARY	7895 TRIB CAB 7658 TRIB CONTROL	TRIBUTARY CONTROL UNIT, SIGNAL LINES	100 FT
10	TRIBUTARY	7895 TRIB CAB AC SOURCE	AC POWER CABLE-1Ø/115 VAC/3 W	NA

Figure 23. Cable interconnecting links (part 1 of 8).

LINK NO	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
11	MAIN LINE (ALL)	6060 RADIO SET 6270 MUX SET	MULTIPLEX HF TRANSMIT, AND RECEIVE BASEBAND	100 FT
12	MAINLINE (ALL)	6283 MAINT CONT CENTER 6060 RADIO SET	TRUNK OW INTERCOM, RADIO SET FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
13	MAINLINE (ALL)	6283 MAINT CONT CENTER 6270 MUX SET	LOCAL OW INTERCOM, MUX SET FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
14	MAINLINE (NODAL)	6283 MAINT CONT CENTER 6260 NOD PT RADIO SET	LOCAL OW INTERCOM,NPRS FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
15	MAINLINE (NODAL)	6283 MAINT CONT CENTER 6260 NOD PT RADIO SET	SELECT CIRCUIT LEADS	500 FT
16	MAINLINE	6283 MAINT CONT CENTER 7561 DUAL PWR AMPLIFIER	LOCAL OW INTERCOM, DUAL POWER AMPL FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
17	MAINLINE NODAL WITH CRE	6283 MAINT CONT CENTER 7640 CRE VAN	LOCAL OW INTERCOM,CRE FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
18	MAINLINE WITH CLE	6283 MAINT CONT CENTER 7642 CLE VAN	LOCAL OW INTERCOM, CLE FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	500 FT
19	MAINLINE (ALL)	6283 MAINT CONT CENTER TOWER LTG CONTROL BOX	TOWER LIGHTING FAILURE ALARM LEADS REMOTED TO MCC FOR DISPLAY	1,000 FT
20	MAINLINE (ALL)	6283 MAINT CONT CENTER AC SOURCE	1Ø-3 WIRE-115 VAC SERVICE FOR MCC	NA

Figure 23. Cable interconnecting links (part 2 of 8).

LINK NO	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
21	MAINLINE WITH TECH CONTROL	6270 MUX SET TECH CONTROL VAN	MULTIPLEX TRANSMIT, RECEIVE AND SIGNAL CHANNELS	500 FT
22	MAINLINE WITH TECH CONTROL	6270 MUX SET TECH CONTROL VAN	MULTIPLEX BASE GROUP (60-108 KC), TRANSMIT, RECEIVE AND LINE PILOT ACCESS	100 FT
23	MAINLINE NODAL WITH PTT RADIO SETS	6270 MUX SET 6060N RADIO SET	PUSH TO TALK MULTIPLEX TRANSMIT & RECEIVE CHANNEL (ONE AUDIO CHANNEL 4 WIRE)	500 FT
24	MAINLINE NODAL WITH CRE	6270 MUX SET 7640 CRE VAN	MULTIPLEX TRANSMIT AND RECEIVE CHANNELS FOR COMMAND CONTROL NETWORKS	500 FT
25	MAINLINE NODAL WITH CRE	7640 CRE VAN 6260 NOD PT NODAL SET	AUDIO XMT (OW), AUDIO XMT (CARRIER) AND 8 AUDIO RCV LINES	500 FT
26	MAINLINE NODAL WITH CRE AND 6060 RADIO SET	7640 CRE VAN 6060 RADIO SET	AUDIO XMT (OW), AUDIO XMT (CARRIER) AND 1 AUDIO RCV LINES	500 FT
27	MAINLINE NODAL WITH TECH CONTROL	6260 NOD PT RADIO SET TECH CONTROL VAN	AUDIO XMT (OW), AUD XMT (CARRIER) AND 3 AUDIO RCVR LINES)	500 FT
28	MAINLINE WITH CLE	6220 MUX SET 7642 CLE VAN	MULTIPLEX TRANSMIT, RECEIVE AND SIGNAL RECEIVE (ONE CASE) CHANNEL FOR COMMAND CONTROL NETWORK	1,000 FT
29	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	DOOR SUBSET AUDIO LINES AND LOCAL INTERCOM CKT FOR CONSOLE WALL DISP.	1,500 FT
30	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	SIGNAL LINES FOR OPERATOR'S CONSOLE	1,500 FT

Figure 23. Cable interconnecting links (part 3 of 8).

LINK NO.	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
31	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	CONSOLETTE LOW CURRENT SIGNAL LINES (FILTERED)	1,500 FT.
32	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	AUDIO, HF/SSB AND LOCAL INTERCOM LINES FOR OPERATOR'S CONSOLETTE	1,500 FT.
33	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	CONSOLETTE HIGH CURRENT SIGNAL LINES	1,500 FT.
34	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	DC POWER LEADS FOR OPERATOR'S CONSOLETTE	1,500 FT.
35	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	DC POWER LEADS FOR WALL DISPLAY MODULES	1,500 FT.
36	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	TRIBUTARY SIGNAL LEADS FOR WALL DISPLAY TRIBUTARY MODULES	1,500 FT.
37	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	CONSOLE SITE SIGNAL LEADS FOR WALL DISPLAY CONSOLE MODULE	1,500 FT.
38	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	DROP SIGNAL LEADS FOR WALL DISPLAY LOCAL DROP MODULE	1,500 FT.
39	MAINLINE WITH CLE	7642 CLE VAN 7663 JCT BOX	PRESET CONFERENCE SIGNAL LEADS FOR WALL DISPLAY PRESET CONFERENCE MODULE	1,500 FT.

Figure 23. Cable interconnecting links (part 4 of 8).

LINK NO	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
40	MAINLINE WITH CLE	7662 CLE VAN NF	HF/SSB AUDIO LINES	1,000 FT
41	MAINLINE WITH CLE	7663 JCT BOX 7662 DROP SUBSET	DROP SUBSET AUDIO & SIGNAL LINES	500 FT
42	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	LOCAL CONSOLE INTERCOM LINE FOR THE WALL DISPLAY TERMINATION	100 FT
43	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #1	SIGNAL LINES FOR OPERATOR'S CONSOLETTE.	100 FT
44	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #1	CONSOLETTE LOW CURRENT SIGNAL LINES (FILTERED)	100 FT
45	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #1	AUDIO, HF/SSB & LOCAL INTERCOM LINE FOR OPERATOR'S CONSOLETTE	100 FT
46	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #1	CONSOLETTE HIGH CURRENT SIGNAL LINES	100 FT
47	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #1	DC POWER LEADS FOR OPERATOR'S CONSOLETTE	100 FT
48	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #2	SIGNAL LINES FOR OPERATOR'S CONSOLETTE	100 FT
49	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #2	CONSOLETTE LOW CURRENT SIGNAL LINES (FILTERED)	100 FT

Figure 23. Cable interconnecting links (part 5 of 8).

LINK NO.	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
50	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #2	AUDIO,HF SSB & LOCAL INTERCOM LINES FOR OPERATOR'S CONSOLETTE	100 FT
51	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #2	CONSOLETTE HIGH CURRENT SIGNAL LINES	100 FT
52	MAINLINE WITH CLE	7663 JCT BOX 7659 CONSOLETTE #2	DC POWER LEADS FOR OPERATOR'S CONSOLETTE	100 FT
53	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	DC POWER LEADS FOR WALL DISPLAY MODULES	100 FT
54	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	TRIBUTARY SIGNAL LEADS FOR WALL DISPLAY TRIBUTARY MODULES	100 FT
55	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	CONSOLETTE SITE SIGNAL LEADS FOR WALL DISPLAY CONSOLE MODULE	100 FT
56	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	DROP SIGNAL LEADS FOR WALL DISPLAY LOCAL DROP MODULE	100 FT
57	MAINLINE WITH CLE	7663 JCT BOX 7660 WALL DISPLAY	PRESET CONFERENCE SIGNAL LEADS FOR WALL DISPLAY PRESET CONFERENCE MODULE	100 FT
58	ALT CLE	7642 CLE VAN	MAIN LINE TRANSMIT, RECEIVE AND SIGNAL LINES TO MULTIPLEX EQUIPMENT	1,000 FT

Figure 23. Cable interconnecting links (part 6 of 8)

LINK NO.	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
59	ALT CLE	7642 CLE 7641 COC VAN	DROP SUBSET AUDIO LINES & LOCAL INTERCOM CKT FOR CONSOLE WALL DISPLAY	1,500 FT.
60	ALT CLE	7642 CLE VAN 7641 COC VAN	SIGNAL LINES FOR OPERATOR'S CONSOLETTE	1,500 FT.
61	ALT CLE	7642 CLE VAN 7641 COC VAN	CONSOLETTE LOW CURRENT SIGNAL LINES (FILTERED)	1,500 FT.
62	ALT CLE	7642 CLE VAN 7641 COC VAN	AUDIO, HF/SSB & LOCAL INTERCOM LINE FOR OPERATOR'S CONSOLETTE	1,500 FT.
63	ALT CLE	7642 CLE VAN 7641 COC VAN	CONSOLETTE HIGH CURRENT SIGNAL LINES	1,500 FT.
64	ALT CLE	7642 CLE VAN 7641 COC VAN	DC POWER LEADS FOR OPERATOR'S CONSOLETTE	1,500 FT.
65	ALT CLE	7642 CLE VAN 7641 COC VAN	DC POWER LEADS FOR WALL DISPLAY MODULES	1,500 FT.
66	ALT CLE	7642 CLE VAN 7641 COC VAN	TRIBUTARY SIGNAL LEADS FOR WALL DISPLAY TRIBUTARY MODULES	1,500 FT.
67	ALT CLE	7642 CLE VAN 7641 COC VAN	CONSOLE SITE SIGNAL LEADS FOR WALL DISPLAY CONSOLE MODULES	1,500 FT.
68	ALT CLE	7642 CLE VAN 7641 COC VAN	DROP SIGNAL LEADS FOR WALL DISPLAY LOCAL DROP MODULES	1,500 FT.

Figure 23. Cable interconnecting links (part 7 of 8).

LINK NO	SITE CONFIGURATIONS	TERMINATING UNITS	FUNCTION	MAX CABLE LGTH
69	ALT CLE	7642 CLE VAN 7641 COC VAN	PRESET CONFERENCE SIGNAL LEADS FOR WALL DISPLAY PRESET CONFERENCE MODULES	1,500 FT.
70	ALT CLE	7641 COC VAN	DROP SUBSET AUDIO & SIGNAL LINES	500 FT
71	INTERFACE	6270 MUX SET	MULTIPLEX TRANSMIT, RECEIVE AND SIGNAL CHANNELS TO USAF CARRIER	1,000 FT.
72	INTERFACE	6260 NOD PT RADIO SET	AUDIO XMT (OW), AUDIO XMT (CARRIER) AND 2 AUDIO RCV LINES TO MULTIPLEX EQUIPMENT SUPPLIED BY OTHERS	1,000 FT.
73	INTERFACE	7642 CLE VAN	MAINLINE TRANSMIT, RECEIVE & SIGNAL TO MULTIPLEX EQUIPMENT	1,000 FT.
74	INTERFACE	6260 MUX SET	MULTIPLE BASE GROUP (60-108 KC) TRANSMIT AND RECEIVE INTERCONNECT TO FOREIGN CARRIER	100 FT
75	INTERFACE	7640 CRE VAN	MAINLINE TRANSMIT, RECEIVE, & SIGNAL LINES TO MULTIPLEX EQUIPMENT	1,000 FT.
76	MAINLINE REPEATER	6060 RADIO SET 6060 RADIO SET	MULTIPLEX HF TRANSMIT AND RECEIVE BASEBAND "THRU" REPEATER SERVICES.	100 FT
77	MAIN LINE NODAL WITH CRE, TRIB SECTOR FEED THRU TO OTHER SITE	7640 CRE VAN 6270 MUX SET	AUDIO XMT (OW), AUDIO XMT (CARRIER) AND 4 AUDIO REC LINES	500 FT
78	INTERFACE	7640 CRE VAN	AUDIO XMT (OW), AUDIO XMT (CARRIER) AND 4 AUDIO REC LINES, TRIB SECTOR FEED-THRU VIA MUX EQUIP SUPPLIED BY OTHERS	500 FT

Figure 23. Cable interconnecting links (part 8 of 8).

b. The site cabling system is applicable to all site interconnection the ET-A system. The numbering of cables is divided into 10 groups as

W1	- W100	Main power
W101	- W200	De-icer and miscellaneous power
W201	- W300	RF
W301	- W400	Maintenance orderwire and remote alarm
W401	- W500	Audio and power at tributary sites
W501	- W600	Multiplex/Console Remote/nodal point radio
W601	- W700	Console Local Equipment, Operations Center
W701	- W800	Console Local Equipment, Operations Center
W801	- W900	Multiplex/technical control van (audio)
W901	- W999	Interface and miscellaneous

c. A composite list of cables applicable to ail site is presented in figure 43. Figure 43 gives the following information:

Cable no.	W1, W2, etc.
From	Terminating unit at one end of cable
To	Terminating unit at other end of cable
Function	Short description of circuit function carried in cable
Cable assembly	References ITTFL cable fabrication drawing
Used on link	Refers to appropriate link in figure 23
Funct diag fig	Refers to pictorial functional diagram at end of figure 43
Remarks	Gives such information as: selection lists to refer to; additional figures to refer to; other special application data

d. Interconnecting cables run underground between shelters and vans. Connections are made at signal entry or power entry panels on the shelters or vans. (Refer to chapter 2 for information regarding these panels.) Tags on the cable ends identify the cable.

28. Power System Hardware

Main electrical power serving the site may be supplied from on-site generators, local utilities, or a combination of both. Either load centers or power switches and distribution panels are used for distributing the electrical power to the equipment. Normally, service is provided on a 3-phase, 4-wire dual bus basis, providing a dual power source to the site equipment which decreases down time due to power failure. The amount of power required varies with the site equipment complement. Power cables are listed in figure 43.

29. Station Grounding

Station grounding, basically, is done with a single low-resistance ground connection to which all shelters, vans, and the microwave tower of a site are connected. The ground connection measures 10 ohms or less.

30. **Maintenance Control Center**

Orderwire and monitoring features of the maintenance control center are described in chapter 3. In addition to the monitoring features previously described, the MCC also monitors the microwave tower obstruction light for failure.

31. **Site As-Built Drawings**

Each mainline site is constructed and installed in accordance with drawings (as-built drawings) prepared for that site. A set of as-built drawings, therefore, is available at each site showing all details of the site. The as-built drawings are periodically updated to include modifications and changes which are made at the site.

a. The site as-built drawings fall into six categories: civil, structural, architectural, electrical, mechanical, and electronic. In addition, vendor fabrication drawings for the microwave tower are provided.

b. The electrical and electronic as-built drawings detail the specific waveguide, rf and signal cabling, power, and grounding requirements for the site. These requirements are described in general terms in this chapter.

CHAPTER 5

TYPICAL MAINLINE SITE 8.1-INSTALLATION

32. General

a. This chapter describes the installation of a specific station, nodal point site 8.1, as originally installed in shelters and vans. Chapter 6 describes the operation of this site.

b. The as-built drawings at the site describe the site installation in detail, and are periodically updated to include modifications and changes made at the site. For this discussion, which presents a general introduction to the site installation, and provides an understanding of typical as-built drawings, the as-built drawings for the original installation at site 8.1 are used. This will also provide the necessary background for the site operation description in chaper 6.

33. Site Layout

The site construction layout is shown in figure 44. Site equipment located under the microwave tower consists of two radio equipment shelters, a multiplexer set, a Console Remote Equipment van and two nodal point radio sets. A maintenance control center is located in the maintenance shelter. The power generators are located in the generator shelter. Fuel for the generators is stored in two tanks south of the generator shelter. The entire site is surrounded by a security fence, an access gate being located on the southwest portion of the site plot.

34. Site RF and Signal Cabling

Site cabling is shown in figure 45. The cable numbers (W201, W202, etc.) were selected from figure 43, previously discussed in paragraph 27c. Cables in the W100 series actually are power cables providing power to a small deicing heater in each antenna feedhorn. By correlating figure 45 with figure 23, all cable functions at site 8.1 can be determined.

35. Site Waveguide

Waveguide runs from the radio equipment shelters to mainline-oriented antennas are described in paragraph 26, as are waveguide runs from the nodal point radio sets to the tributary-oriented antennas. However, since the tributary-oriented antenna system is extremely complicated, figure 46 is presented showing a one line diagram of the tributary-oriented antenna system.

a. The array of power-splitting devices used at nodal point sites enables a single 1-kw nodal point radio set to service up to eight tributary sites. The network consists of 20-db and 3-db directional couplers cascaded to direct the required amount of power to each feedhorn. Site 8.1 services two groups of tributaries with two nodal point radio sets. Nodal point radio set A provides a transmitter output of 1,000 watts at ports B and D, which is divided into appropriate transmission powers for sites 97, 90, 30, 54, 106, and 39. Each 3-db coupler splits transmitted power by one-half, while each 20-db coupler divides transmitted power in a ratio of approximately 100:1. Tracing the waveguide run for a sample shoot, for example site 39, 1,000 watts at ports B and D is split four times to 500, 250, 125, and finally 62.5 watts, the transmission power level to site 39. In another example, the shoots to sites 97 and 90, 1,000 watts is split by the first 3-db coupler to 500 watts and then divided by the 20-db coupler such that 5

watts is fed to the feedhorn for the shoot to site 97, and 495 watts is fed to the feedhorn for the shoot to site 90. The feedhorn powers for all feedborn fed by nodal point radio sets A and B are shown in the figure.

b. The couplers also perform the function of combining the individual received signals from the tributary sites. Since the power-splitting network is a reciprocal device, receiver power is also divided in the receiving mode. The reciprocity of the power-splitting device poses a problem when using 20-db couplers. The system design margins are sufficient to encompass the loss in the 3-db couplers, but are insufficient for the 20-db couplers. A duplexing network is therefore used to shunt the received signal in the decoupler arm over to the main arm, without affecting the transmitter power division. This arrangement bypasses the 20-db couplers and instead introduces only a 3-db loss in the receiving mode. This configuration is necessary only in the power dividers carrying transmitter energy. In the lines handling received energy alone, the combination of the 20-db couplers and the duplexer is replaced by a 3-db coupler.

TYPICAL MAINLINE SITE 8.1 - OPERATION

36. General

In this chapter, the description of the operation of typical mainline site 8.1 is based on the original installation, which used shelters and vans to house the equipment. The relation of site 8.1 to other sites in the ET-A system is shown in figure 24. On the mainline, radio links are provided to site 51.1, 104 miles to the north, and to site 8, 35 miles to the south. The first operational requirement is, therefore, that of a drop repeater to continue the mainline to the north and south. Site 8.1 also serves 13 tributary sites. The second operational requirement, then, is that of a nodal point. Site 8.1, as a nodal point site, satisfies both requirements. The site signal flow is shown in figure 47.

37. Link to Site 51.1

The radio link between sites 8.1 and 51.1 is 1-kw troposcatter, four-fold space diversity (fig. 47). The fm carrier from site 51.1 is fed to radio equipment shelter RS-A via waveguide, where it is demodulated into a 60-channel baseband signal and fed to multiplexer set MS-A. Similarly, a 60-channel transmit baseband signal from multiplexer set MS-A is modulated in radio equipment shelter RS-A into an fm carrier for transmission to site 51.1.

38. Link to Site 8

The radio link between sites 8.1 and 8 is 1-watt line-of-sight, two-fold space diversity (fig. 47). The fm carrier from site 8 is fed to RS-B via waveguide, where it is demodulated into a 60-channel baseband signal and fed to multiplexer set MS-A. Similarly, a 60-channel transmit baseband signal from multiplexer set MS-A is modulated in radio equipment shelter RS-B into an fm carrier for transmission to site 8.

39. Site Multiplex

Figure 25 is a block diagram of the site multiplex equipment. Multiplexer set MS-A provides 60-channel capability. The 60 channels are carried on a single supergroup divided into SG-1N (to site 51.1) and SG-1S (to site 8). SG-1N and SG-1S each consist of 5 groups of 12 channels each. The channels are processed in multiplexer set MS-A as follows:

a. Group 1. Twelve channels from SG-1N and twelve channels from SG-1S are dropped to voice-frequency level. Five channels (command and control) from each direction are fed to the CRE van. The remaining seven channels from each direction are interconnected as through voice-frequency channels by means of pads.

b. Group 2. Through-group filters interconnect SG-1N to SG-1S.

c. Group 3. Twelve channels from SG-1N and twelve channels from SG-1S are dropped to voice-frequency level for local subscriber use.

d. Group 4. Through-group filters interconnect SG-1N to SG-1S.

e. Group 5. Through-group filters interconnect SG-1N to SG-1S.

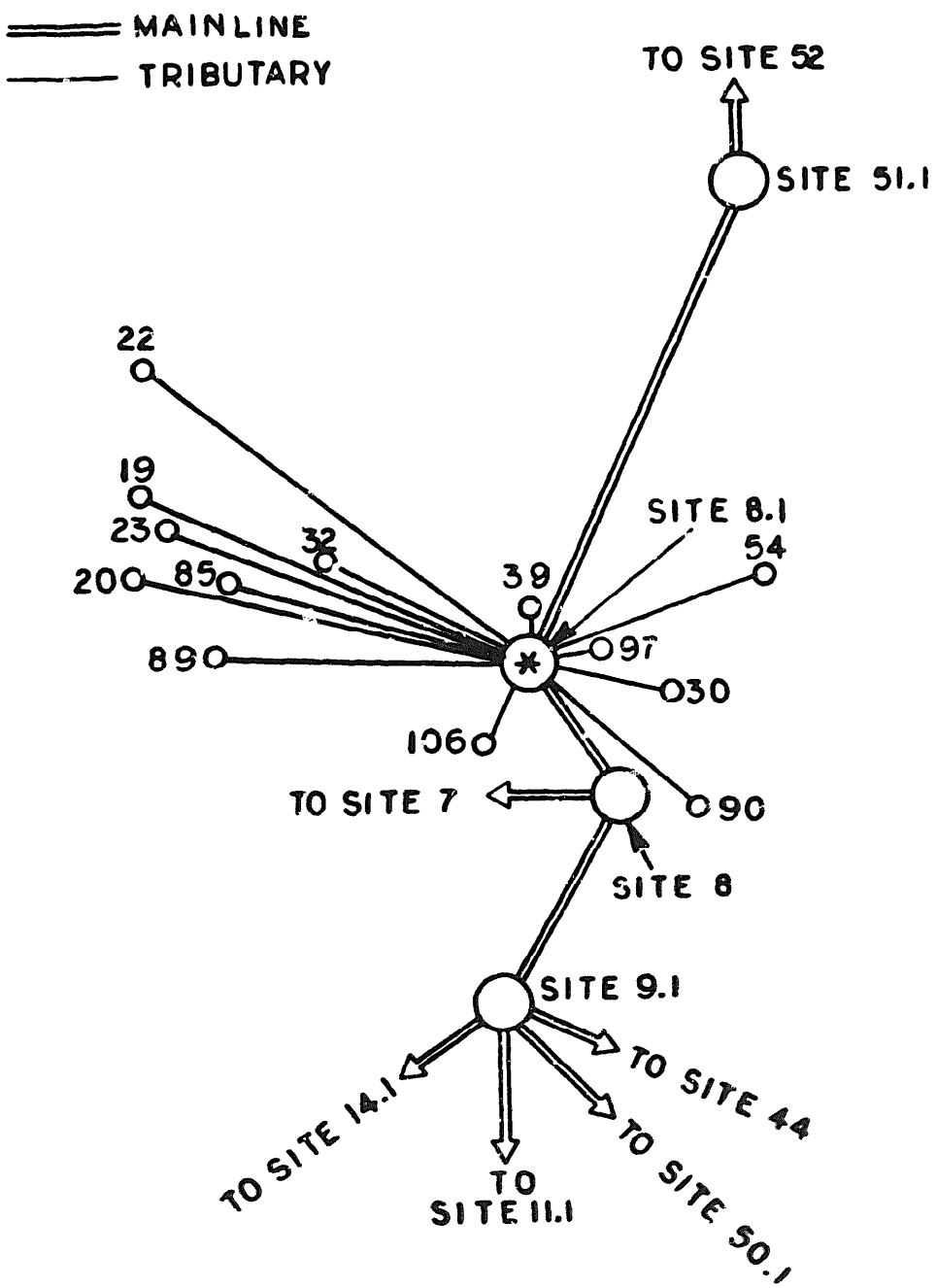


Figure 24 **Site 8.1 relation to other sites.**

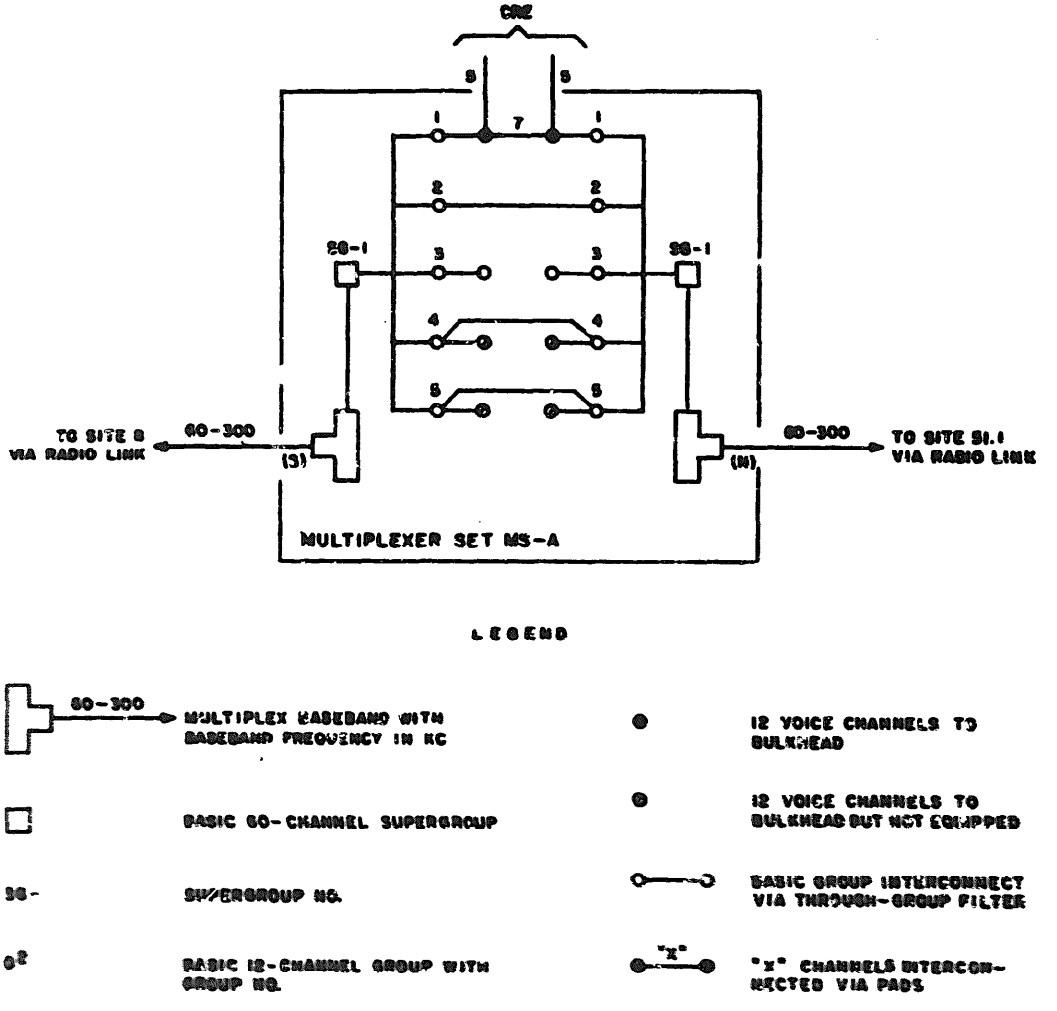


Figure 25. Site 8.1 multiplex block diagram

40. **Console Remote Equipment (CRE- A)**
(fig. 47)

The 10 command and control voice-frequency channels received by Console Remote Equipment van CRE-A from multiplexer set MS-A are bridged together by means of 4-way, d-wire junction networks, thus providing an uninterrupted flow of channels between north and south. The local transmit and receive legs of each of the bridged channels are then fed into the CRE trunk matrix via conference amplifiers which match locally interconnected tributary circuits to the mainline.

b. The trunk matrix is connected to three select matrices, which divide a maximum of 24 tributaries into 3 sectors of 8 tributaries each. Site 8.1 utilizes two nodal point radio sets, NPRS-A and NPRS-B. Sector one is assigned to NPRS-A; sector two, to NPRS-B. From each of the two utilized select matrices, two audio transmit (A1-carrier, A2-orderwire) and seven audio receive channels are extended to each NPRS.

c. Control of CRE operation is automatic and responds to commands initiated from a Console Operations Center to make a connection from one of the mainline command and control channels to a selected sector and tributary site for two-way communication. This includes selection of either an A1 or A2 transmit path and one of the seven receive channels. Multiconference connections and other details of CRE operation are described in TM 11-5820-577-34, Maintenance Manual for Switching Set, Communications AN/MSQ-74(V)1 through AN/MSQ-74(V)10 and AN/MSQ-74(V)12 (Console Remote Equipment).

41. **Tributary Links**
(fig. 48)

Nodal point radio sets NPRS-A and NPRS-B contain the radio equipment for transmission to the tributary sites. Since operation of both nodal point radio sets is identical, the operation of NPRS-A only is described below. Note that NPRS-A services six tributaries, while NPRS-B services seven tributaries.

a. The audio channels (transmit carrier, transmit orderwire, six receive channels) from the CRE are applied to the central equipment cabinet in NPRS-A. The two transmit paths pass through a filter, resulting in one transmit baseband path to the transmitters. The six receive channels each pass through a low-pass filter, resulting in six receive basebands, each connected to one of two radio receivers via a switching unit.

b. The radio transmitter transmits to all tributaries, on either the carrier (priority 1) or orderwire (priority 2) channel, on a discrete fm carrier frequency within the 4.4- to 5.0-gc band. Each tributary site transmits back to NPRS-A at a slightly different frequency, with adjacent frequency separation a minimum of 400 kc. The six receive frequencies also fall within the 4.4- to 5.0-gc band, but are below the transmit frequency.

c. An array of power-splitting devices enables the 7-kw NPRS-A radio transmitter to service up to eight tributary sites. Operation of the array is described in paragraph 35.

42. Station Alarm Facilities
(fig. 46)

The radio equipment shelters, the multiplexer set, the nodal point radio sets, the Console Remote Equipment, and the microwave tower obstruction lighting control box develop a summary fault alarm signal whenever a malfunction occurs in any of their constituent equipment. In the radio equipment shelters and nodal point radio sets, the summary fault alarm signal is produced by the central equipment cabinet, which monitors all associated radio and antenna deicer equipment. In the multiplexer set, the alarm is a summary of major and minor alarms in all multiplex racks. In the Console Remote Equipment van, the summary fault alarm signal is produced by the maintenance test fixed cabinet, which monitors all associated logic, switching matrix, and fst cabinets. The summary fault alarm signals are applied to the maintenance control center console, where they cause the appropriate fault pushbutton to flash red and actuate a bell. The maintenance control center console operator acknowledges each fault condition by pressing the flashing pushbutton. This action causes the pushbutton to light steady red and silences the bell. When the malfunction is corrected, the pushbutton flashes green and the bell rings. The operator responds to this condition by pressing the pushbuttor again. This action causes the pushbutton to light steady green, silences the bell, and restores the alarm circuit to the normal condition.

43. Orderwire Facilities
(fig. 48)

The orderwire facilities provide both local (on-site) and system-wide voice communication for maintenance purposes. The local and system orderwire signal paths are described in paragraphs a and b below, respectively.

a Local Orderwire Facility. The local orderwire facility provides voice communication between the radio equipment shelter, the multiplexer set, the nodal point radio sets, the Console Remote Equipment van, the maintenance control center console, and the tributary sites. This is accomplished through the use of switching equipment in the maintenance control center console.

(1) Communications originating at radio equipment shelter or nodal point

(a) If a maintenance, technician at a radio equipment shelter or a nodal point radio set wishes to communicate with another local shelter or van, he lifts the central equipment cabinet orderwire telephone handset from its cradle and presses the handset signaling pushbutton. This action results in the generation of a 1.6-kc signaling tone which is transmitted to the maintenance control center console. The pressing of the orderwire telephone handset signaling pushbutton in a radio equipment shelter also results in the transmission of the 1.6-kc tone to the mainline site at the other end of the associated radio link; the pressing of the orderwire telephone handset signaling pushbutton in the nodal point radio set also results in the transmission of the 1.6-kc tone to the associated tributary sites.

(b) At the maintenance control center console, the presence of the 1. 6-kc tone causes the applicable call pushbutton to flash white and momentarily actuates a bell, The maintenance control center console operator responds to this condition by pressing,. the flashing call pushbutton. This action causes the call pushbutton to light steady white, causes the operator's call pushbutton to flash white, and closes the orderwire speech circuit to the van or shelter. At this point, the maintenance control center console operator lifts his telephone handset from its cradle and speaks with the maintenance technician at the radio equipment shelter or nodal point radio set.

(c) After determining the desired van or shelter, the maintenance control center console operator presses the call pushbutton associated with the desired van or shelter. This action causes the selected call pushbutton to light white, causes the operator's call pushbutton to flash white, and closes the orderwire speech circuit to the desired van or shelter. At this point, the maintenance control center console operator presses the signal pushbutton. This action generates a 1. 6-kc signaling tone, which is transmitted to the desired van or shelter.

(d) At the desired van or shelter, the 1. 6-kc tone is applied to the central equipment cabinet (radio equipment shelter or nodal point radio set) or telephone termination unit (multiplexer set or Console Remote Equipment van) to signal the maintenance technician. At the central equipment cabinet, the 1. 6-kc tone actuates a buzzer. At the telephone termination unit, the 1. 6-kc signal is amplified and applied to a speaker. After the maintenance technician lifts his orderwire telephone handset from its cradle, the maintenance control console operator interconnects the calling and desired vans or shelters.

(e) When the conversation is completed, each technician presses the handset pushbutton. This action causes the applicable maintenance control center console call pushbutton to flash blue, and the maintenance control center console operator presses the operator's call pushbutton to acknowledge the end of call condition. This action causes the operator's call pushbutton to light steady white. At this point, the maintenance control center console operator disconnects the connection between the vans or shelters.

(2) Communications originating at Console Remote Equipment van. If a maintenance technician at the Console Remote Equipment van wishes to communicate with another local van or shelter, he lifts the telephone termination unit orderwire telephone handset from its cradle and presses the signaling pushbutton. This action produces a signaling voltage which is applied to the maintenance control center console. At the maintenance control center console, the presence of the signaling voltage causes the applicable call indicator to flash white. At this point, all operations are identical to that described for communications originating at a radio equipment shelter or a nodal point radio set ((1) above).

(3) Communications originating at multiplexer set. If a maintenance technician at a multiplexer set wishes to communicate with another local shelter or van, he lifts the telephone termination unit orderwire telephone handset from its cradle and presses the signaling pushbutton. The resulting 1.6-kc signaling tone is applied to the maintenance control center console, where it causes the appropriate call indicator to flash white. At this point, all operations are identical to that described for communications originating at a radio equipment shelter or a nodal point radio set ((1) above). The pressing of the orderwire telephone handset signaling pushbutton in a multiplex shelter also results in the transmission of the 1.6-kc tone to the mainline sites served by the associated radio equipment shelters.

(4) Communications originating at tributary sites.

(a) If a maintenance technician in a tributary site radio equipment shelter or the operator at the tributary site maintenance control center console wishes to communicate with the associated nodal point radio set or the mainline site maintenance control center console, he lifts the orderwire telephone handset from its cradle and listens for the presence of Console System traffic. After establishing the absence of Console System traffic, the technician or console operator presses the orderwire telephone handset signaling pushbutton. This action results in the generation of a 1.6-kc signaling tone, which is transmitted to the nodal equipment van central equipment cabinet and the mainline site maintenance control center console.

(b) At the central equipment cabinet, the presence of the 1.6-kc tone causes the applicable call indicator to light white and momentarily actuates a buzzer. At the maintenance control center, the presence of the 1.6-kc tone causes the call pushbutton associated with the tributary site and the operator% call pushbutton to light white, causes the pushbutton associated. with the nodal equipment van to flash white, and actuates a bell. Under normal operating conditions, the maintenance control center console operator presses the lighted call and nodal equipment van pushbuttons to respond to the call from the tributary site. This action causes the nodal equipment van pushbutton to light white, the call and IN USE indicators to light blue, and the operator's call indicator to flash white. This action also causes the IN USE indicator on the central equipment cabinet to light amber. At this point, the maintenance control center operator speaks with the tributary site to determine its requirements and makes the required connections. If a maintenance technician at the nodal equipment van responds to the call from the tributary site, he presses the applicable call indicator on the central equipment cabinet. This action causes the applicable call and IN USE indicators on the central equipment cabinet to light blue and the IN USE indicator on the maintenance control center console to light. At this point, the maintenance technician speaks with the tributary site to determine its requirements. It should be noted that the tributary receive orderwire speech circuit is shared by all tributary sites on a party-line basis.

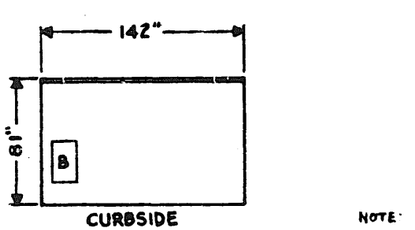
(5) Communications originating at maintenance control center console.

(a) If the maintenance control center console operator wishes to communicate with a local van or shelter, he presses the applicable call pushbutton. This action causes the applicable cali pushbutton to light white, causes the operator's call pushbutton to light flashing white, and closes the orderwire speech circuit to the local van or shelter. At this point, the operator presses the SIGNAL pushbutton, generating a 1.6-kc signaling tone which is transmitted to the van or shelter, The 1.6-k: tone alerts the maintenance technician at the van or shelter of the cali. The maintenance technician responds to the call by lifting the orderwire telephone handset from its cradle and speaking with the maintenance control canter operator.

(b) If the maintenance control center console operator wishes to communicate with a tributary site, he presses the call pushbutton associated with the nodal point radio set. This action causes the call pushbutton to light steady white, causes the operator's call pushbutton to flash white, and closes the orderwire circuit to the nodal point radio set central equipment cabinet. Following this, the operator presses the select pushbutton associated with the desired tributary site. This action causes the select pushbutton and the IN USE indicator to light blue and completes the orderwire circuit to the tributary site central equipment cabinet (in the radio equipment shelter) and maintenance control center console. At this point. the mainline maintenance control center console operator presses the SIGNAL pushbutton, generating a 1.6-kc signaling tone. The 1.6-kc tone is transmitted to both the tributary site central equipment cabinet and the maintenance control center console. The presence of the 1.6-kc tone at the central equipment cabinet and maintenance control center console alerts the maintenance technician and the console operator of the call. The maintenance technician or tributary maintenance control center console operator responds to the call by lifting the telephone handset from its cradle and speaking with the mainline maintenance control console operator.

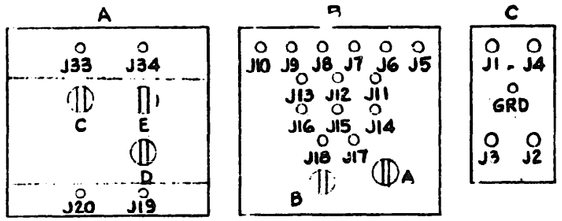
b. System Orderwire Facility. The system orderwire facility provides voice communication between the local vans and shelters and all other ET-A sites. If the maintenance technician at a local radio equipment shelter or multiplexer set wishes to communicate with an equipment at the other end of the associated radio link, he lifts the orderwire telephone handset from its cradle in the central equipment cabinet (radio equipment shelter) or telephone termination unit (multiplexer set) and presses the signaling pushbutton. This action results in the transmission of a 1. 6-kc signaling tone to the distant site equipment. Orderwire communication is initiated when the maintenance technician at the distant site equipment lifts his orderwire telephone handset from its cradle and answers the call. Pressing the orderwire telephone handset signaling pushbutton also lights the applicable call indicator on the maintenance control center console. This is used to establish orderwire communication between a local van or shelter and an equipment at the other end of an unassociated radio link

(a link served by another radio equipment shelter). In this case, the maintenance control center console operator calls and establishes the connection to the distant site equipment. With the exception of the call pushbuttons used, the operations performed in establishing and terminating orderwire communication with the distant site equipment is identical to that described in paragraph a(1)(a) through a(1)(e) above.



RADIO SET AN/GRC 60 (V) 6

	1 WATT		1 KW
	QUAD	LOS	QUAD
LOADED WEIGHT	9200 LB	3850 LB	5100 LB
AC POWER INPUT	11.6 KW		21.6 KW

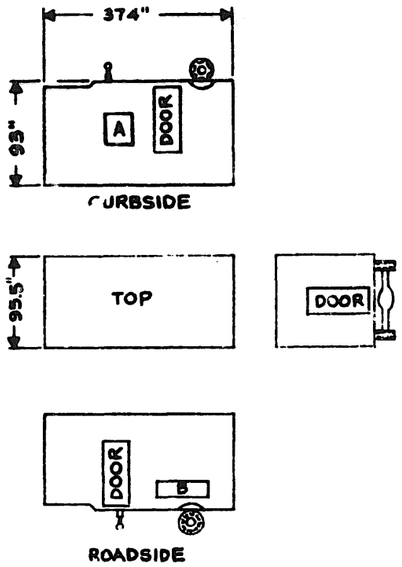


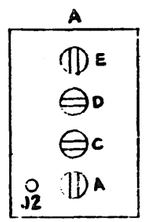
NOTE: ◫ - VERTICALLY POLARIZED WAVEGUIDE

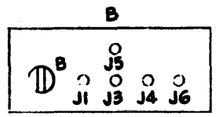
J NO.	CONNECTOR		PURPOSE
	ITTFL	DESCRIPTION	
1	C2331894	PYLE-NATIONAL #10 AWG SOLDER TYPE	3φ - SW. EQUIP φ 1
2	C2331894	PYLE-NATIONAL #10 AWG SOLDER TYPE	3φ - SW. EQUIP φ 2
3	C2331894	PYLE-NATIONAL #10 AWG SOLDER TYPE	3φ - SW. UTILITY
4	C2336764	ZAF1736	1φ - SW. UTILITY RECEPTACLE
5	82330733	MODIFIED TRIAXIAL	XMT MUX BASEBAND
6	82330733	MODIFIED TRIAXIAL	REC MUX BASEBAND
7	———	———	SPARE
8	———	———	SPARE
9	82330733B1	MODIFIED TRIAXIAL	TEST EQUIPT.
10	82330733B1	MODIFIED TRIAXIAL	TEST EQUIPT.
11	82383071	36 PIN #20 AWG CRIMP TYPE	OW, REMOTE ALM
12	82383072	36 PIN # 20 AWG CRIMP TYPE	O.W REMOTE ALARM
13	82383071	36 PIN # 20 AWG CRIMP TYPE	SPARE
14	82383072	36 PIN # 20 AWG CRIMP TYPE	SPARE
15	———	———	SPARE
16	———	———	SPARE
17	82331886	PYLE-NATIONAL # 12 AWG SOLDER	DEICER "B"
18	82331886	PYLE-NATIONAL # 12 AWG SOLDER	TOWER LTS "B"
19	82331886	PYLE-NATIONAL # 12 AWG SOLDER	DEICER "A"
20	82331886	PYLE-NATIONAL # 12 AWG SOLDER	TOWER LTS "A"
33	82330733B1	MODIFIED TRIAXIAL	TEST EQUIP
34	82330733B1	MODIFIED TRIAXIAL	TEST EQUIP
A	D2289647 (UG-148C/U)	DUAL WAVEGUIDE BULKHEAD ASSEMBLY	WAVE GUIDE ENTRY RCVR "B" FROM ANTENNA
B			WAVE GUIDE ENTRY RCVR "A" FROM ANTENNA
C*	D2289648 (UG-148C/U)	DUAL WAVEGUIDE BULKHEAD ASSEMBLY	WAVE GUIDE ENTRY RCVR"A"FROM ANTENNA[OR 10KW VAR FOR G24]
D*			WAVE GUIDE ENTRY RCVR "A"FROM ANTENNA [OR 10KW VAR FOR G24]
E*	D2382903	TRI WAVEGUIDE BULKHEAD ASSBY	WAVE GUIDE ENTRY 10ATR "B" TO 10 KW VAR

* WAVE GUIDE ENTRY E ONLY USED ON MUB 6060-24. D2382903 CONTAINS C,D AND E WAVEGUIDE ENTRIES.

Figure 26. Radio equipment shelter, dimensions, interface connector locations, and input requirements.







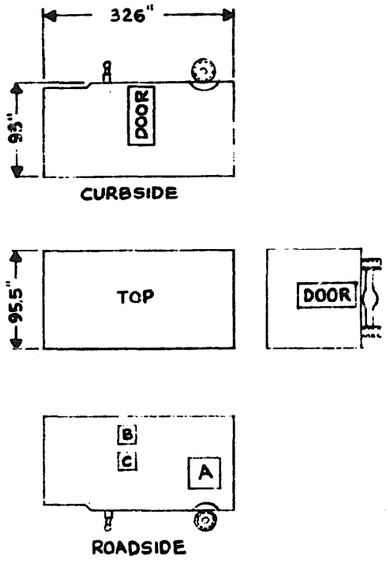
NOTE: VERTICALLY POLARIZED WAVEGUIDE

HORIZONTALLY POLARIZED WAVEGUIDE

MAX. LOADED WEIGHT 28,670 LB
AC POWER INPUT 140 KW

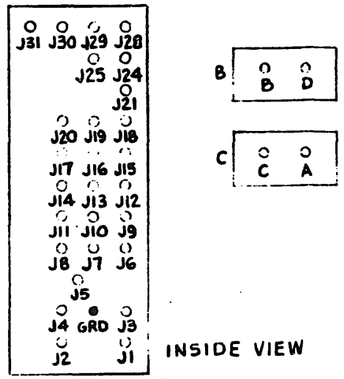
J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	D238049981	5#4/0 AWG 3# 300 MCM 2#4/0 AWG	TECHNICAL POWER INPUT 3φ - 5W - 208 VAC
2	D238049981	5#4/0 AWG 3# 300 MCM 2#4/0 AWG	TECHNICAL POWER INPUT 3φ - 5W - 208 VAC
3	C2331894	PLYLE-NATIONAL #1/0 AWG SOLDER TYPE	UTILITY DISTRIBUTION PANEL 3φ - 5W - 208 VAC
4	C2331894	PLYLE-NATIONAL#1/0 AWG SOLDER TYP	UTILITY DISTRIBUTION PANEL 3φ - 5W - 208 VAC
5	A2335764	2AF173G	UTILITY OUTPUT
6	92383776	OUTDOOR 36 PIN #20 AWG CRIMP TYPE	ORDER WIRE, REMOTE ALARM
A	C2382443	BULKHEAD ASSBY UG 149 C/U	WAVE GUIDE ENTRY XMT TO ANTENNA
B	C2382443	BULKHEAD ASSBY UG 149 C/U	WAVE GUIDE ENTRY XMT TO ANTENNA
C	C2382443	BULKHEAD ASSBY UG 149 C/U	WAVE GUIDE ENTRY REC TO 10 KW DRIVER
D	C2382443	BULKHEAD ASSBY UG 149 C/U	WAVE GUIDE ENTRY FROM 10 KW DRIVER REC A
E	C2382443	BULKHEAD ASSBY UG 149 C/U	WAVE GUIDE ENTRY FROM 10 KW DRIVER REC B

Figure 27. Dual 10 kw amplifier van, dimensions, interface connector locations, and input requirements.



MAX LOADED WEIGHT 6 TON (DOESN'T INCLUDE WT. OF VAN)

AC POWER INPUT 40 KW

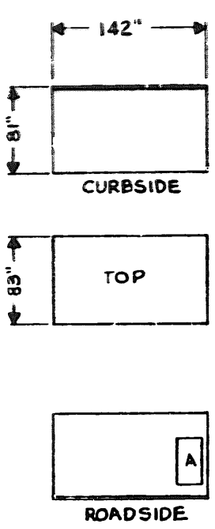


J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	C2331894	PYLE-NATIONAL # 1/0 AWG SOLDER TYPE	POWER IN EQUIPT. 1 3φ - 5W - 208 VAC
2	C2331894	PYLE-NATIONAL # 1/0 AWG SOLDER TYPE	POWER IN EQUIPT. 2 3φ - 5W - 208 VAC
3	C2331894	PYLE-NATIONAL # 1/0 AWG SOLDER TYPE	POWER IN UTILITY 1 3φ - 5W - 208 VAC
4	C2331894	PYLE-NATIONAL # 1/0 AWG SOLDER TYPE	POWER IN UTILITY 2 3φ - 5W - 208 VAC
5	A2335764	ZAF 173G	115 VAC UTALITY 1φ - 3W RECEPTACLE
6	C2331896	JAM NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
7	C2331896	JAM NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
8	C2331896	JAM NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
9	C2331896	JAM NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
10	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
11	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
12	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
13	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
14	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
15	C2331896	JAN NUT # 12 AWG SOLDERV	DEICER POWER 1φ - 3W - 115 VAC
16	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
17	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
18	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
19	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
20	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
21	C2331896	JAN NUT # 12 AWG SOLDER	DEICER POWER 1φ - 3W - 115 VAC
24	B2383071	# 20 AWG CRIMP 36 PINS	O.W. REMOTE
25	B2130179	55 PINS # 20 AWG CRIMP	REMOTE SELECT PANEL
28	B2383072	36 PIN # 20 AWG CRIMP	CONSOLE REMOTE EQUIP. INTERCONN #1
29	B2383072	36 PIN # 20 AWG CRIMP	CONSOLE REMOTE EQUIP. INTERCONN #2

Figure 28. Nodal point radio set, dimensions, interface connector locations, and input requirements (part 1 of 2).

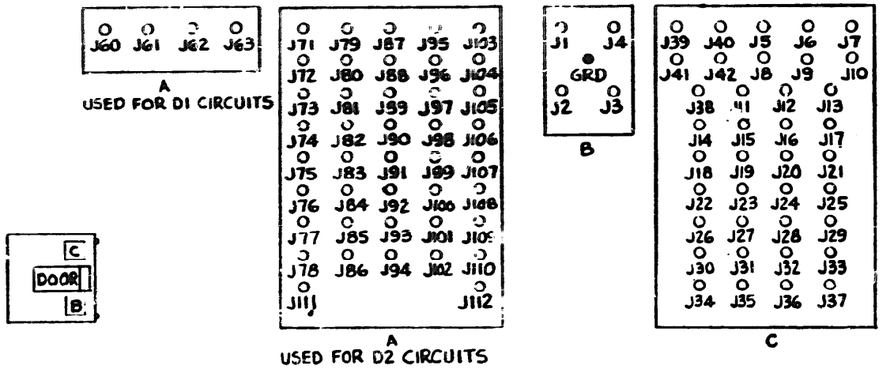
J NO.	CONNECTOR ITTFL.	CONNECTOR DESCRIPTION	PURPOSE
30	B2390732G1	MODIFIED TRIAXIAL	TEST TRUNK #1
31	B2390732G1	MODIFIED TRIAXIAL	TEST TRUNK #2
A	F2382054	WAVEGUIDE, BULKHEAD U6-148 C/U	WAVEGUIDE ENTRY R.F. IN
B	F2382054	WAVEGUIDE, BULKHEAD U6-148 C/U	WAVEGUIDE ENTRY R.F. IN-OUT
C	F2382054	WAVEGUIDE, BULKHEAD U6-148 C/U	WAVEGUIDE ENTRY R.F. IN
D	F2382054	WAVEGUIDE, BULKHEAD U6-148 C/U	WAVEGUIDE ENTRY R.F. IN-OUT

Figure 28. Nodal point radio set, dimensions, interface connector locations, and input requirements (part 2 of 2).



NOTE: BULKHEAD CONNECTORS FOR D1 CIRCUITS ARE USED AT SITES 13 (6270-82) AND 130 (6270-87).

THE D2 CIRCUITS ARE USED AT SITES 9.1 (B), 9.1 (B2), 9.1 (B3), 5.3 (C1) AND 5.3 (C2).



J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	C2331894	PYLE-NATIONAL #1/0! AWG SOLDER TYPE	3φ - 5W, POWER IN EQUIP #1
2	C2331894	PYLE-NATIONAL #1/0! AWG SOLDER TYPE	3φ - 5W, POWER IN EQUIP #2
3	C2331894	PYLE-NATIONAL #1/0!	3φ - 5W, POWER IN UTILITY
4	A2935764	ZAF 1738	1φ - 115 VAC UTILITY RECEPTANCE
5	82130179	55 PIN #20 AWG CRIMP TYPE	SG1 GP3 XMIT
6	82130179	55 PIN #20 AWG CRIMP TYPE	SG2 GP1 XMIT
7			SG2 GP4 XMIT
8			SG1 GP3 REC
9	82130179	55 PIN #20 AWG CRIMP TYPE	SG2 GP1 REC

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
10	82130179	55 PIN #20 AWG CRIMP TYPE	SG2 GP4 REC
11			SG1 GP3 SIGNALLING
12			SG2 GP1 SIGNALLING
13			SG2 GP4 SIGNALLING
14	82130179	55 PIN #20 AWG CRIMP TYPE	SG1 GP1 XMIT
15			SG1 GP4 XMIT
16			SG2 GP2 XMIT
17			SG2 GP5 XMIT
18	82130179	55 PIN #20 AWG CRIMP TYPE	SG1 GP1 REC
19			SG1 GP4 REC
20			SG2 GP2 REC
21			SG2 GP5 REC
22			SG1 GP1 SIGNALLING
23			SG1 GP4 SIGNALLING
24			SG2 GP2 SIGNALLING
25	82130179	55 PIN #20 AWG CRIMP TYPE	SG2 GP5 SIGNALLING

Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 1 of 3).

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
26	82130179	55 PIN 9 20 AWG CRIMP TYPE	SGI GP2 XMIT
27			SGI GP5 XMIT
28			SG2 GP3 XMIT
29			SPARE XMIT
30			SGI GP2 REC
31			SGI GP5 REC
32			SG2 GP3 REC
33			SPARE REC
34			SGI GP2 SIGNALLING
35			SGI GP5 SIGNALLING
36			SG2 GP3 SIGNALLING
37			SPARE SIGNALLING
38	82130179	55 PIN 9 20 AWG CRIMP TYPE	ORDER WIRE
39	82330733	TRIAXIAL TO PASS RG59 SHIELD	BASEBAND EAST RECEIVE
40			BASEBAND EAST TRANSMIT
41			BASEBAND WEST RECEIVE
42	82330733	TRIAXIAL TO PASS RG59 SHIELD	BASEBAND WEST TRANSMIT
60	UG-423 B/U	TWINAX FOR RG 22	GROUP 4 REC
61			GROUP 4 SEND
62			GROUP 5 REC
63	UG-423 B/U	TWINAX FOR RG 22	GROUP 5 SEND
71	UG-423 B/U	TWINAX FOR RG 22	CHANNEL HYBRID SEND
72			CHANNEL HYBRID REC
73			GROUP SEND

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
79	UG 423 B/U	TWINAX FOR RG22	CHANNEL HYBRID SEND
80			CHANNEL HYBRID REC
81			GROUP SEND
82			GROUP REC
83			CHANNEL HYBRID SEND
84			CHANNEL HYBRID REC
85			GROUP SEND
86			GROUP REC
87			CHANNEL HYBRID SEND
88			CHANNEL HYBRID REC
89			GROUP SEND
90			GROUP REC
91			CHANNEL HYBRID SEND
92			CHANNEL HYBRID REC
93			GROUP SEND
94			GROUP REC
95			CHANNEL HYBRID SEND
96			CHANNEL HYBRID REC
97			GROUP SEND
98			GROUP REC
99			CHANNEL HYBRID SEND
100			CHANNEL HYBRID REC
101			GROUP SEND
102			GROUP REC
103			CHANNEL HYBRID SEND
104			CHANNEL HYBRID REC

			REC
32			982 GP3 REC
33			SPARE REC
34			981 GP2 SIGNALLING
35			981 GP5 SIGNALLING
36			982 GP3 SIGNALLING
37			SPARE SIGNALLING
38	82130179	55 PIN & 20 AWG CRIMP TYPE	ORDER WIRE
39	82330739	TRIAXIAL TO PASS RG59 SHIELD	BASEBAND EAST RECEIVE
40			BASEBAND EAST TRANSMIT
41			BASEBAND WEST RECEIVE
42	82330739	TRIAXIAL TO PASS RG59 SHIELD	BASEBAND WEST TRANSMIT
60	UG-423 B/U	TWINAX FOR RG 22	GROUP 4 REC
61			GROUP 4 SEND
62			GROUP 5 REC
63	UG-423 B/U	TWINAX FOR RG 22	GROUP 5 SEND
71	UG-423 B/U	TWINAX FOR RG 22	CHANNEL HYBRID SEND
72			CHANNEL HYBRID REC
73			GROUP SEND
74			GROUP REC
75			CHANNEL HYBRID REC
76			CHANNEL HYBRID REC
77			GROUP SEND
78	UG-423 B/U	TWINAX FOR RG 22	GROUP REC

84			HYBRID REC
85			GROUP SEND
86			GROUP REC
87			CHANNEL HYBRID SEND
88			CHANNEL HYBRID REC
89			GROUP SEND
90			GROUP REC
91			CHANNEL HYBRID SEND
92			CHANNEL HYBRID REC
93			GROUP SEND
94			GROUP REC
95			CHANNEL HYBRID SEND
96			CHANNEL HYBRID REC
97			GROUP SEND
98			GROUP REC
99			CHANNEL HYBRID SEND
100			CHANNEL HYBRID REC
101			GROUP SEND
102			GROUP REC
103			CHANNEL HYBRID SEND
104			CHANNEL HYBRID REC
105			GROUP SEND
106			GROUP SEND
107			CHANNEL HYBRID SEND
108			CHANNEL HYBRID REC
109	UG-423 B/U	TWINAX FOR RG 22	GROUP SEND

Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 2 of 3).

Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 2 of 3).

J NO.	CONNECTOR ITTEL	DESCRIPTION	PURPOSE
110	UG-[illegible] B/U	TWINAX FOR RG 22	GROUP REC
111	↓	↓	PILOT SEND
112	UG-423 B/U	TWINAX FOR RG 22	PILOT REC

Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 3 of 3).

Figure 29. Multiplexer set, dimen
interface connector locations, an
input requirements (part 3 of 3)

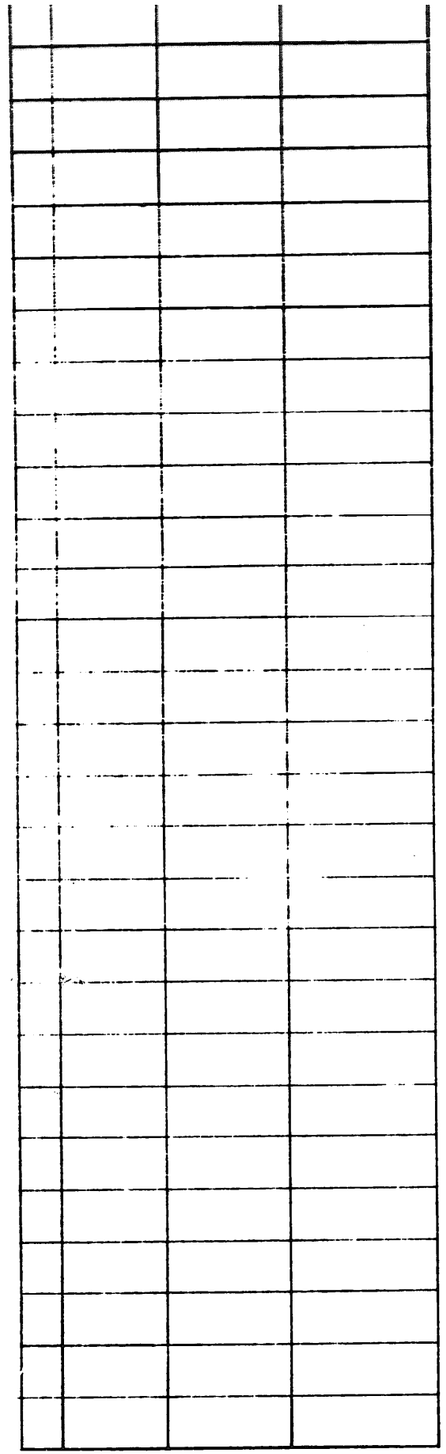
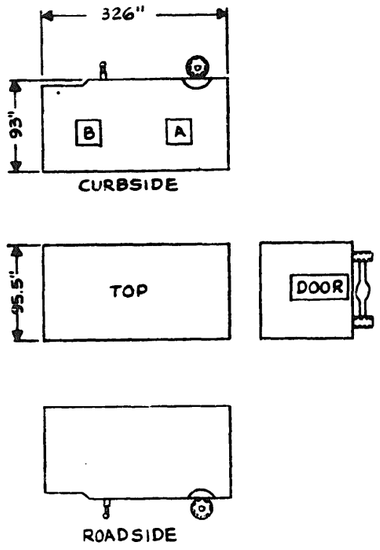
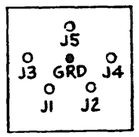


Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 3 of 3).

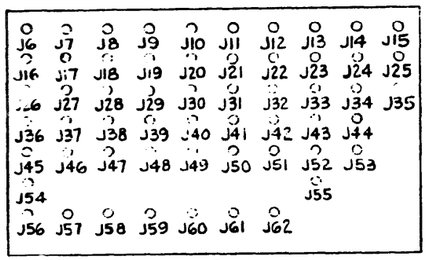
Figure 29. Multiplexer set, dimensions, interface connector locations, and input requirements (part 3 of 3).



LOADED WEIGHT 6 TONS (EXCLUDES WT. OF VAN)
AC POWER INPUT 43.2 KW.



A



B

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN EQUIPMENT 2
2	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN EQUIPMENT 2
3	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN UTILITY 1
4	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN UTILITY 2
5	A2335764	ZAF 173G	AC OUTLET
6	B2130166	61 PIN # 20 AWG CRIMP	TRIB SIGNAL (DISP MOD 2)
7	B2130166		TRIB SIGNAL (DISP MOD 2)
8	B2130166		TRIB SIGNAL (DISP MOD 3)
9	B2130166		TRIB SIGNAL (DISP MOD 3)
10	B2130166		TRIB SIGNAL (DISP MOD 4)
11	B2130166		TRIB SIGNAL (DISP MOD 4)
12	B2130166	61 PIN # 20 AWG CRIMP	SIGNAL (CONSOLETTE 1)
13	B2130166	61 PIN # 20 AWG CRIMP	SIGNAL (CONSOLETTE 1)
14	B2352164B1	61 PIN # 20 AWG CRIMP	MUX CHANNEL SEND
15	B2352164B1	61 PIN # 20 AWG CRIMP	MUX CHANNEL SEND
16	B2130166	61 PIN # 20 AWG CRIMP	TRIB SIGNAL (DISP MOD 2)
17	B2130166		TRIB SIGNAL (DISP MOD 2)
18	B2130166		TRIB SIGNAL (DISP MOD 3)
19	B2130166		TRIB SIGNAL (DISP MOD 3)
20	B2130166		TRIB SIGNAL (DISP MOD 4)
21	B2130166		TRIB SIGNAL (DISP MOD 4)
22	B2130166		SIGNAL (FILTERED) CONSOLETTE 1
23	B2130166		AUDIO CONSOLETTE 1
24	B2352164		MUX CHANNEL REC
25	B2352164		MUX CHANNEL REC
26	B2130166		TRIB SIGNAL (DISP MOD 5)
27	B2130166		TRIB SIGNAL (DISP MOD 5)

Figure 3C. Console Local Equipment Van, dimensions, interface connector locations, and input requirements (part 1 of 2).

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
28	82130166	61 PIN #20 AWG CRIMP	TRIB SIGNAL (DISP MOD 5)
29	82130166		TRIB SIGNAL (DISP MOD 6)
30	82130166		TRIB SIGNAL (DISP.MOD 7)
31	82130166		TRIB SIGNAL (DISP MOD 7)
32	82130166		SIGNAL (CONSOLETTE 2)
33	82130166		SIGNAL (CONSOLETTE 2)
34	82130166		MUX CHANNEL E & M
35	82130166		MUX CHANNEL E & M
36	82130166		TRIB SIGNAL (DISP MOD 5)
37	82130166		TRIB SIGNAL (DISP MOD 5)
38	82130166		TRIB SIGNAL (DISP MOD 6)
39	82130166		TRIB SIGNAL (DISP MOD 6)
40	82130166		TRIB SIGNAL (DISP MOD 7)
41	82130166		TRIB SIGNAL (DISP MOD 7)
42	82130166		SIGNAL(FILTERED) (CONSOLETTE 2)
43	82130166	61 PIN #20 AWG CRIMP	AUDIO (CONSOLETTE 21)
44	82352283	15 PIN SF I/O 10#12 AWG SOLD.	RF SIGNAL
45	82130166	61 PIN #20 AWG CRIMP	DROP SIGNAL (DISP MOD 9)
46	82130166		DROP SIGNAL (DISP MOD 9)
47	82130166		CONSOLETTE SIG. (DISP MOD 8)
48	82130166		CONSOLETTE SIG. (DISP MOD 8)
49	82130166		PRESET SIGNAL (DISP MOD 1)
50	82130166		PRESET SIGNAL (DISP MOD 1)
51	82130166		DROP AUDIO (CONSOLETTE 1)
52	82130166	61 PIN #20 AWG CRIMP	DROP AUDIO (CONSOLETTE 1)
53	8285297202	36 PIN CRIMP TYPE	INTERFACE TO MAINTENANCE SHELTER
54	82130166	61 PIN #20 AWG CRIMP	DROP SIGNAL (FUTURE)

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
58	82352283	15 PIN SF I/O 10#12 AWG SOLDER	+80 VOLTS DISP
59	82352283		HI I SIG (CONSOLETTE 1)
60	82352283		POWER (CONSOLETTE 1)
61	82352283		HI I SIG (CONSOLETTE 2)
62	82352283	15 PIN SF I/O 10# 12 AWG SOLDER	POWER (CONSOLETTE 2)

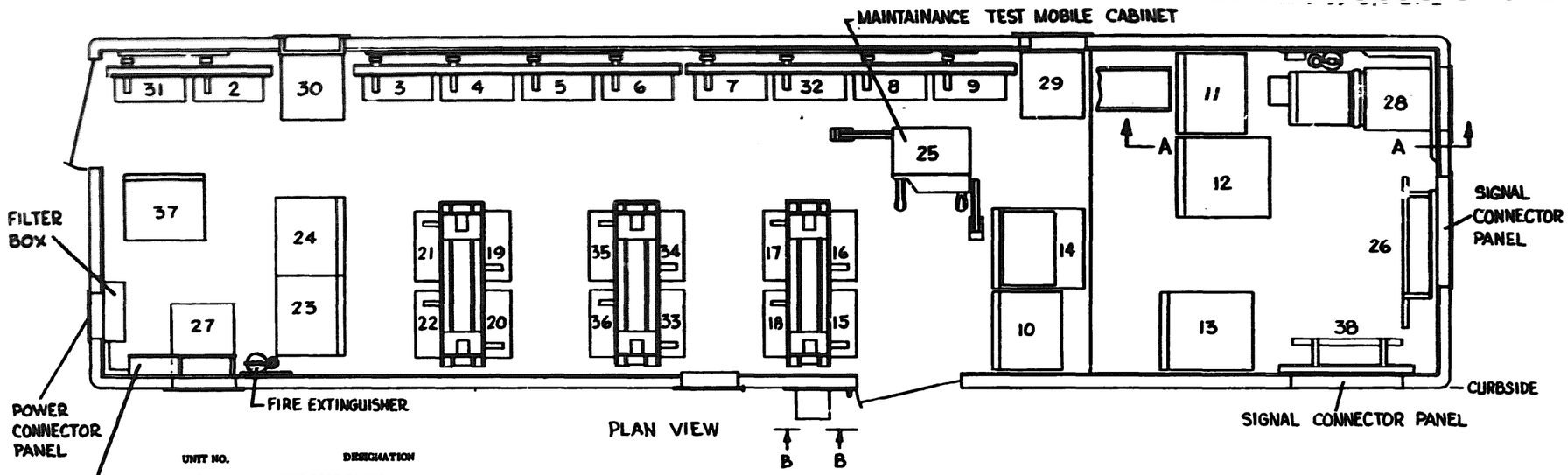
Figure 30. Console Local Equipment vs dimensions, interface connector location and input requirements (part 2 of 2).

32	82130166			SIGNAL (CONSOLETTE 2)
33	82130166			SIGNAL (CONSOLETTE 2)
34	82130166			MUX CHANNEL E & M
35	82130166			MUX CHANNEL E & M
36	82130166			TRIB SIGNAL (DISP MOD 5)
37	82130166			TRIB SIGNAL (DISP MOD 5)
38	82130166			TRIB SIGNAL (DISP MOD 6)
39	82130166			TRIB SIGNAL (DISP MOD 6)
40	82130166			TRIB SIGNAL (DISP MOD 7)
41	82130166			TRIB SIGNAL (DISP MOD 7)
42	82130166			SIGNAL (FILTERED) (CONSOLETTE 2)
43	82130166	61 PIN #20 AWG CRIMP		AUDIO (CONSOLETTE 21)
44	82352283	15 PIN SF I/O 10#12 AWG SOLD.		RF SIGNAL
45	82130166	61 PIN #20 AWG CRIMP		DROP SIGNAL (DISP MOD 9)
46	82130166			DROP SIGNAL (DISP MOD 9)
47	82130166			CONSOLETTE SIG. (DISP MOD 8)
48	82130166			CONSOLETTE SIG. (DISP MOD 8)
49	82130166			PRESET SIGNAL (DISP MOD 1)
50	82130166			PRESET SIGNAL (DISP MOD 1)
51	82130166			DROP AUDIO (CONSOLETTE 1)
52	82130166	61 PIN #20 AWG CRIMP		DROP AUDIO (CONSOLETTE 1)
53	8285297262	36 PIN CRIMP TYPE		INTERFACE TO MAINTENANCE SHELTER
54	82130166	61 PIN #20 AWG CRIMP		DROP SIGNAL (FUTURE)
55	82130166	61 PIN #20 AWG CRIMP		DROP SIGNAL (FUTURE)
56	82352283	15 PIN SF I/O 10#12 AWG SOLD.		+30 VOLTS DISP.
57	82352283	15 PIN SF I/O 10#12 AWG SOLD.		+20 VOLTS
62	82352283	15 PIN SF I/O 10# 12 AWG SOLDER		POWER (CONSOLETTE 2)

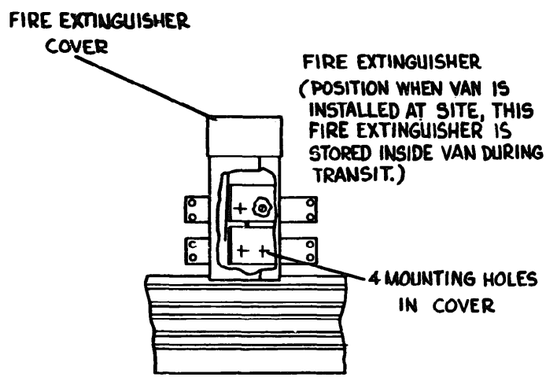
Figure 30. Console Local Equipment van, dimensions, interface connector locations, and input requirements (part 2 of 2).

TM 11-5895-376-14-1

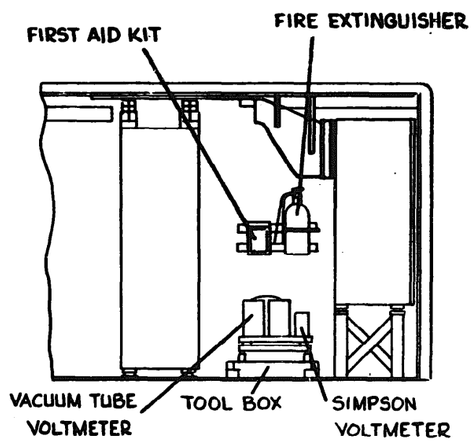
Figure 30. Console Local Equipment Van dimensions, interface connector locations and input requirements (part 2 of 2).



UNIT NO.	DESIGNATION
2	LOCAL DROP STATUS
3	LOCAL COMMAND RECEIVE
4	LOCAL STATUS RECEIVE
5	LOCAL STATUS RECEIVE AND TRANSMIT
6	COMMAND MESSAGE GENERATION AND CONTROL
7	ADDRESS RECOGNITION
8	TRUNK MATRIX CONTROL
9	SELECT MATRIX CONTROL
10	MAINTENANCE, TEST FIXED
11	AUDIO CABINET
12	FST MODEM CABINET
13	MATRIX CABINET
14	TAPE RECORDER CABINET
15	TRIBUTARY WALL DISPLAY CONTROL
16	TRIBUTARY WALL DISPLAY CONTROL
17	TRIBUTARY WALL DISPLAY CONTROL
18	TRIBUTARY WALL DISPLAY CONTROL
19	TRIBUTARY WALL DISPLAY PATCH
20	TRIBUTARY STATUS RECEIVE
21	TRIBUTARY STATUS RECEIVE
22	TRIBUTARY STATUS RECEIVE
23	DUPLEXED DC POWER SYSTEM
24	DUPLEXED DC POWER SYSTEM
25	MAINTENANCE, TEST MOBILE CABINET
26	DISTRIBUTION, FRAME
27	AIR CONDITIONER
28	AIR CONDITIONER
29	AIR CONDITIONER
30	AIR CONDITIONER
31	LOCAL DROP STATUS
32	ADDRESS RECOGNITION
33	TRIBUTARY WALL DISPLAY CONTROL
34	TRIBUTARY WALL DISPLAY CONTROL
35	TRIBUTARY WALL DISPLAY CONTROL
36	TRIBUTARY WALL DISPLAY CONTROL
37	DUPLEXED DC POWER SYSTEM
38	DISTRIBUTION FRAME

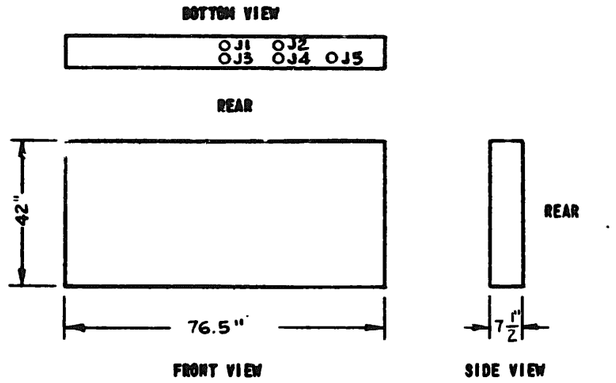


VIEW B-B



VIEW A-A

Figure 31. Console Local Equipment van layout.

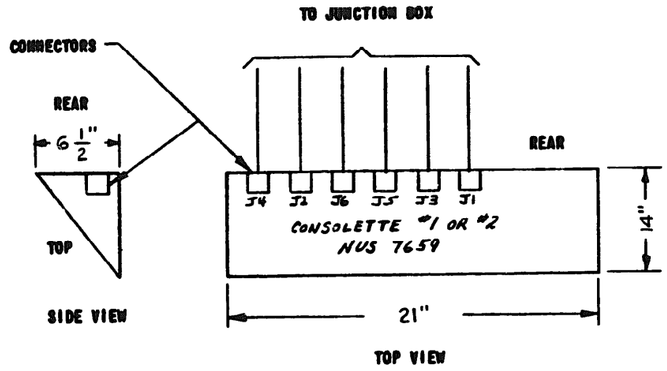


J NO.	CONNECTOR		PURPOSE
	ITTFL NO.	DESCRIPTION	
1	82130166	61 PIN # 20 AWG CRIMP	SIGNAL
2	82130166	↕	SIGNAL
3	82130166	↕	SIGNAL
4	82130166	61 PIN # 20 AWG CRIMP	SIGNAL
5	(752811) MS3102A-28-12P	26 PIN # 16 AWG SOLDER	+ 30 VOLTS

NOTE:

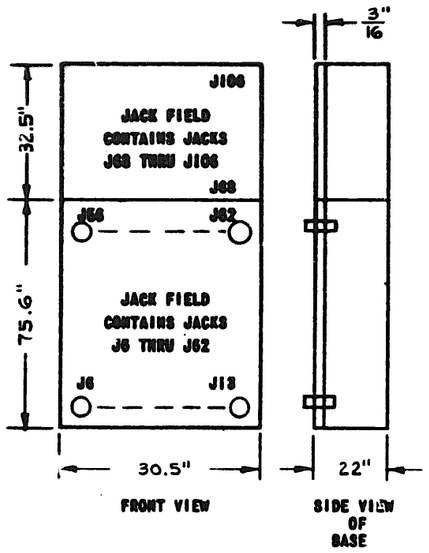
1. WALL DISPLAY IS MOUNTED ON A BASE IN BUILDINGS.
2. WALL DISPLAY IS MOUNTED ON WALL IN VANS.

Figure 32.



J NO.	CONNECTOF		PURPOSE
	ITTFL NO.	DESCRIPTION	
1	82130166	61 PINS # 20 AWG CRIMP	SIGNAL
2	A2130278G1	54 PIN # 16 AWG SOLDER	POWER
3	82130166G8	61 PINS # 20 AWG CRIMP	SIGNAL. (FILTERED)
4	A2130278G1	54 PIN # 16 AWG SOLDER	HI I SIGNAL
5	82130166	61 PINS # 20 AWG CRIMP	SIGNAL
6	82130166G10	61 PINS # 20 AWG CRIMP	AUDIO

Figure 33. Operators consolette, dimensions and interface connector locations.



J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
6	82352170	61 PIN #20 AWG CRIMP	TRIB (DISP) SIGNAL (MOD 2)
7			MOD 2
8			MOD 3
9			MOD 3
10			MOD 4
11	82352170		TRIB (DISP) SIGNAL (MOD 4)
12	82352170		SIGNAL (CONSOLETTE 1)
13	82352170		SIGNAL (CONSOLETTE 1)
16	82352170		TRIB (DISP) SIGNAL MOD 2
17			MOD 2
18			MOD 3
19			MOD 3
20			MOD 4
21			TRIB (DISP) SIGNAL (MOD 4)
22	82352170	61 PIN #20 AWG CRIMP	SIGNAL (FILTERED) (CONSOLETTE 1)
23	8213016663	61 PIN #20 AWG CRIMP	AUDIO (CONSOLETTE 1)

J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
26	82352170	61 PIN #20 AWG CRIMP	TRIB (DISP) SIGNAL (MOD 5)
27			MOD 5
28			MOD 6
29			MOD 6
30			MOD 7
31			TRIB (DISP) SIGNAL (MOD 7)
32			SIGNAL (CONSOLETTE 2)
33			SIGNAL (CONSOLETTE 2)
36			TRIB (DISP) SIGNAL (MOD 5)
37			MOD 5
38			MOD 6
39			MOD 6
40			MOD 7
41	82352170	61 PIN #20 AWG CRIMP	TRIB (DISP) SIGNAL(MOD 7)
42	8213016663	61 PIN #20 AWG CRIMP	SIGNAL (FILTERED) (CONSOLETTE 2)
43	8213217065	61 PIN #20 AWG CRIMP	AUDIO (CONSOLETTE 2)

Figure 34. Junction box, dimensions and interface connector locations (part 1 of 2).

J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
45	82130166	61 PIN #20 AWG CRIMP	DROP (DISP) SIG (MOD 9)
46			DROP (DISP) SIG (MOD 4)
47			CONSOLE (DISP) SIG (MOD 8)
48			CONSOLE (DISP) SIG (MOD 8)
49	B213016661		PRESET (DISP) SIG (MOD 1)
50	B213016661		PRESET (DISP) SIG (MOD 1)
51	B213016661		DROP (CONSOLETTE 1) AUDIO
52			DROP (CONSOLETTE 1) AUDIO
54			DROP (FUTURE) SIG
55	B235228362	61 PIN #20 AWG CRIMP	DROP (FUTURE) SIG
56	B235228362	15 PIN 5# I/O & 10# 12 AWG SOLDER	+30 VOLTS-DISP
57			+30 VOLTS-DISP
58	B235228362	15 PIN 5# I/O & 10# 12 AWG SOLDER	+30 VOLTS-DISP
59	B235228363	58 PIN #12 AWG SOLDER	HI I SIG CONSOLETTE 1
60	B235228364	58 PIN #12 AWG SOLDER	POWER (CONSOLETTE 1)
61	B235228363		HI I SIG (CONSOLETTE 2)
62	B235228364	58 PIN #12 AWG SOLDER	POWER (CONSOLETTE 2)
63	B2130166	61 PIN #20 AWG CRIMP	DROP SIG
64	B2130166		DROP SIG
65	B2130166		PRESET SIGNAL
66	B2130166		PRESET SIGNAL
67			SIGNAL (FILTERED)
68			SIGNAL (FILTERED)
69			DROP SIGNAL
70			DROP SIGNAL
71			PRESET SIG
[illegible]	[illegible]	61 PIN #20	PRESET SIG

J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
77	8235216061	15 PIN #20 AWG CRIMP	DROP VOICE CHANNEL
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94	8235216061	15 PIN #20 AWG CRIMP	DROP VOICE CHANNEL
95	8235216091	15 PIN #20 AWG CRIMP	CONSOLETTE COMM.
96	821302761	54 PIN #16 AWG SOLDER	HI I SIGNAL
97	821302861	54 PIN #16 AWG SOLDER	POWER
98	MS 3102A-32-2010-10P	54 PIN #16 AWG SOLDER	HI I SIGNAL
99	MS 3102A-32-2010-10S	54 PIN #16 AWG SOLDER	POWER
100	MS 3102A-28-12S	26 PIN #16 AWG SOLDER	+30 VOLTS
101			+30 VOLTS
102			+30 VOLTS
103			+30 VOLTS

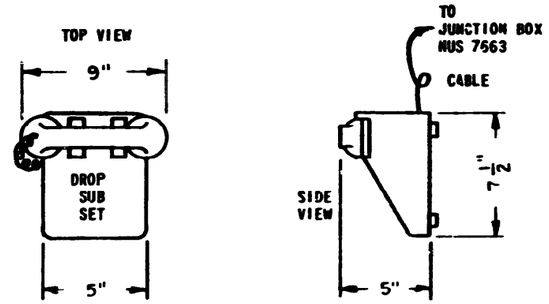
Figure 34. Junction box, dimensions and interface connector locations (part 2 of

TM 11-5895-376-14-1

48	↓		CONSOLE (DISP) SIG (MOD 6)
49	B213016681		PRESET (DISP) SIG (MOD 1)
50	B213016681		PRESET (DISP) SIG (MOD 1)
51	B213016681		DROP (CONSOLETTE 1) AUDIO
52	↑		DROP (CONSOLETTE 1) AUDIO
54	↕	↓	DROP (FUTURE) SIG
55	B235228382	61 PIN #20 AWG CRIMP	DROP (FUTURE) SIG
56	B235228382	15 PIN 56 I/O & 106 12 AWG SOLDER	+30 VOLTS-DISP
57	↕		+30 VOLTS-DISP
58	B235228382	15 PIN 56 I/O & 106 12 AWG SOLDER	+30 VOLTS-DISP
59	B235228383	58 PIN #12 AWG SOLDER	HI SIG CONSOLETTE 1
60	B235228384	58 PIN #12 AWG SOLDER	POWER (CONSOLETTE 1)
61	B235228383	↕	HI I SIG (CONSOLETTE 2)
62	B235228384	58 PIN #12 AWG SOLDER	POWER (CONSOLETTE 2)
63	B2130166	61 PIN #20 AWG CRIMP	DROP SIG
64	B2130166	↑	DROP SIG
65	B2130166		PRESET SIGNAL
66	B2130166		PRESET SIGNAL
67	↕		SIGNAL (FILTERED)
68			SIGNAL (FILTERED)
69			DROP SIGNAL
70			DROP SIGNAL
71	↓	↓	PRESET SIG
72	B2130166	61 PIN #20 AWG CRIMP	PRESET SIG
75	MS3102A-28-12S	26 PIN #16 AWG SOLDER	+30 VOLTS
76	MS3102A-28-12S	26 PIN #16 AWG SOLDER	+30 VOLTS

80			
81			
82			
83			
84			
[illegible]			
86			
87			
88			
89			
90			
91			
92			
93	↓	↓	↓
94	B235216061	15 PIN #20 AWG CRIMP	DROP VOICE CHANNEL
95	B235216061	15 PIN #20 AWG CRIMP	CONSOLETTE COMM.
96	B213027681	54 PIN #16 AWG SOLDER	HI I SIGNAL
97	B213027861	54 PIN #16 AWG SOLDER	POWER
98	MS 3102A-32-2010-10P	54 PIN #16 AWG SOLDER	HI I SIGNAL
99	MS 3102A-32-2010-10S	54 PIN #16 AWG SOLDER	POWER
100	MS 3102A-28-12S	26 PIN #16 AWG SOLDER	+30 VOLTS
101	↑	↑	+30 VOLTS
102			+30 VOLTS
103			+30 VOLTS
104			+30 VOLTS
105			+30 VOLTS
106	MS 3102A-28-12S	26 PIN #16 AWG SOLDER	+30 VOLTS

Figure 34. Junction box, dimensions and interface connector locations (part 2 of 2).

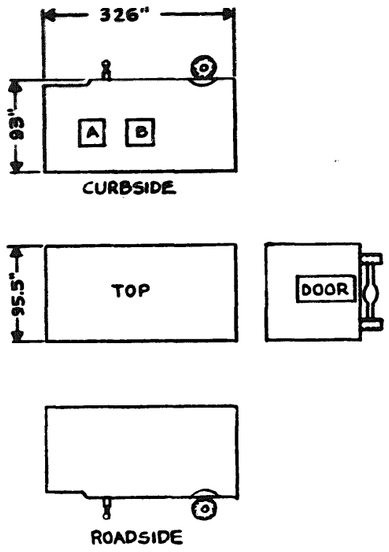


CABLE IS A2380489
CONNECTOR ON DROP SET IS C2383798
WHICH IS A WALL TERMINAL BLOCK

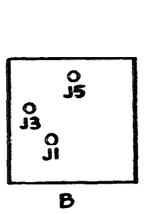
NOTE: DROP SUB-SET NUS 7662
IS SIMILAR TO STANDARD TYPE
500 SUB-SET WITHOUT A DIAL.

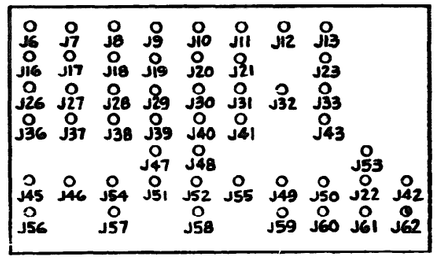
Figure 35. Drop subset, dimensions and connection requirements.

Changed February 1976



LOADED WEIGHT 6 TONS (EXCLUDES WT.OF VAN)
AC POWER INPUT 18 KW.





J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN EQUIPMENT 1
2	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN UTILITY IN
5	A2335764	ZAF 1736	AC OUTLET 115 VAC
6	82352170	61 PIN # 20 AWG CRIMP TYPE	TRIB SIGNAL (DISP MOD 2)
7	82352170		TRIB SIGNAL (DISP MOD 2)
8	82352170		TRIB SIGNAL (DISP MOD 3)
9	82352170		TRIB SIGNAL (DISP MOD 3)
10	82352170		TRIB SIGNAL (DISP MOD 4)
11	82352170		TRIB SIGNAL (DISP MOD 4)
12	82352170	61 PIN # 20 AWG CRIMP TYPE	SIGNAL (CONSOLETTE 1)

J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
13	82352170	61 PIN # 20 AWG CRIMP TYPE	SIGNAL (CONSOLETTE 1)
16	82352170		TRIB SIGNAL (DISP MOD 2)
17	82352170		TRIB SIGNAL (DISP MOD 2)
18	82352170		TRIB SIGNAL (DISP MOD 3)
19	82352170		TRIB SIGNAL (DISP MOD 3)
20	82352170		TRIB SIGNAL (DISP MOD 4)
21	82352170	61 PIN # 20 AWG CRIMP TYPE	TRIB SIGNAL (DISP MOD 4)
22	8213016663	61 PIN # 20 AWG CRIMP TYPE	SIGNAL (FILTERED) (CONSOLETTE 1)
23	8235217063	61 PIN # 20 AWG CRIMP TYPE	AUDIO (CONSOLETTE 1)
26	82352170	61 PIN # 20 AWG CRIMP TYPE	TRIB SIGNAL (DISP MOD 5)
27	82352170		TRIB SIGNAL (DISP MOD 5)
28	82352170		TRIB SIGNAL (DISP MOD 6)
29	82352170		TRIB SIGNAL (DISP MOD 6)
30	82352170		TRIB SIGNAL (DISP MOD 7)
31	82352170		TRIB SIGNAL (DISP MOD 7)
32	82352170		SIGNAL (CONSOLETTE 2)
33	82352170	61 PIN # 20 AWG CRIMP TYPE	SIGNAL (CONSOLETTE 2)

Figure 36. Operations Center Van, dimensions, interface connector locations, and input requirements (part 1 of 2).

J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
36	82352170	61 PIN #20 AWG CRIMP TYPE	TRIB SIGNAL (DISP MOD6)
37			TRIB SIGNAL (DISP MOD 5)
38			TRIB SIGNAL (DISP MOD 6)
39			TRIB SIGNAL (DISP MOD 6)
40			TRIB SIGNAL (DISP MOD 7)
41	82352170	61 PIN #20 AWG CRIMP TYPE	TRIB SIGNAL (DISP MOD 7)
42	8213016663	61 PIN #20 AWG CRIMP TYPE	SIGNAL (FILTERED) (CONSOLETTE 2)
43	8235217065	61 PIN #20 AWG CRIMP TYPE	AUDIO (CONSOLETTE 2)
45	8213016661	61 PIN #20 AWG CRIMP TYPE	DROP SIG (DISP MOD 9)
46	8213016663	61 PIN #20 AWG CRIMP TYPE	DROP SIG. (DISP MOD 9)
47	82352170	61 PIN #20 AWG CRIMP TYPE	CONSOLE SIG. (DISP MOD 8)
48	82352170	61 PIN #20 AWG CRIMP TYPE	CONSOLE SIG. (DISP MOD 8)
49	8213016661	61 PIN #20 AWG CRIMP TYPE	PRESET SIG. (DISP MOD 9)
50	8213016661		PRESET SIG. (DISP MOD 1)
51	8213016661		DROP AUDIO (CONSOLETTE 1)
52	8213016661	61 PIN #20 AWG CRIMP TYPE	DROP AUDIO (CONSOLETTE 1)
53	8235297262	36 PIN CRIMP TYPE	INTERFACE TO MAINTENANCE SHELTER
54	8213016661	61 PIN # 20 CRIMP TYPE	DROP SIG (FUTURE)
55	8213016661	61 PIN # 20 AWG CRIMP TYPE	DROP AUDIO (FUTURE)
56	8235228362	15 PIN 5# I/O 10 & 12 AWG SOLDER TYPE	+30 VOLTS DISP
57	82352283625	15 PIN 5# I/O & 10 #12 AWG SOLDER TYPE	+30 VOLTS DISP
58	8235228362	15 PIN 5# I/O & 10 #12 AWG SOLDER TYPE	+30 VOLTS DISP
59	8235228363	58 PIN #12 AWG SOLDER TYPE	HI I SIG. (CONSOLETTE 1)
60	8235228364	58 PIN #12 AWG SOLDER TYPE	POWER (CONSOLETTE 1)
61	8235228363	58 PIN #12 AWG SOLDER TYPE	HI I SIG. (CONSOLETTE 2)
62	8235228364	58 PIN #12 AWG SOLDER TYPE	POWER (CONSOLETTE 2)

Figure 38. Operations Center Van, dimensions, interface connector locations, and input requirements (Part 2 of 2).

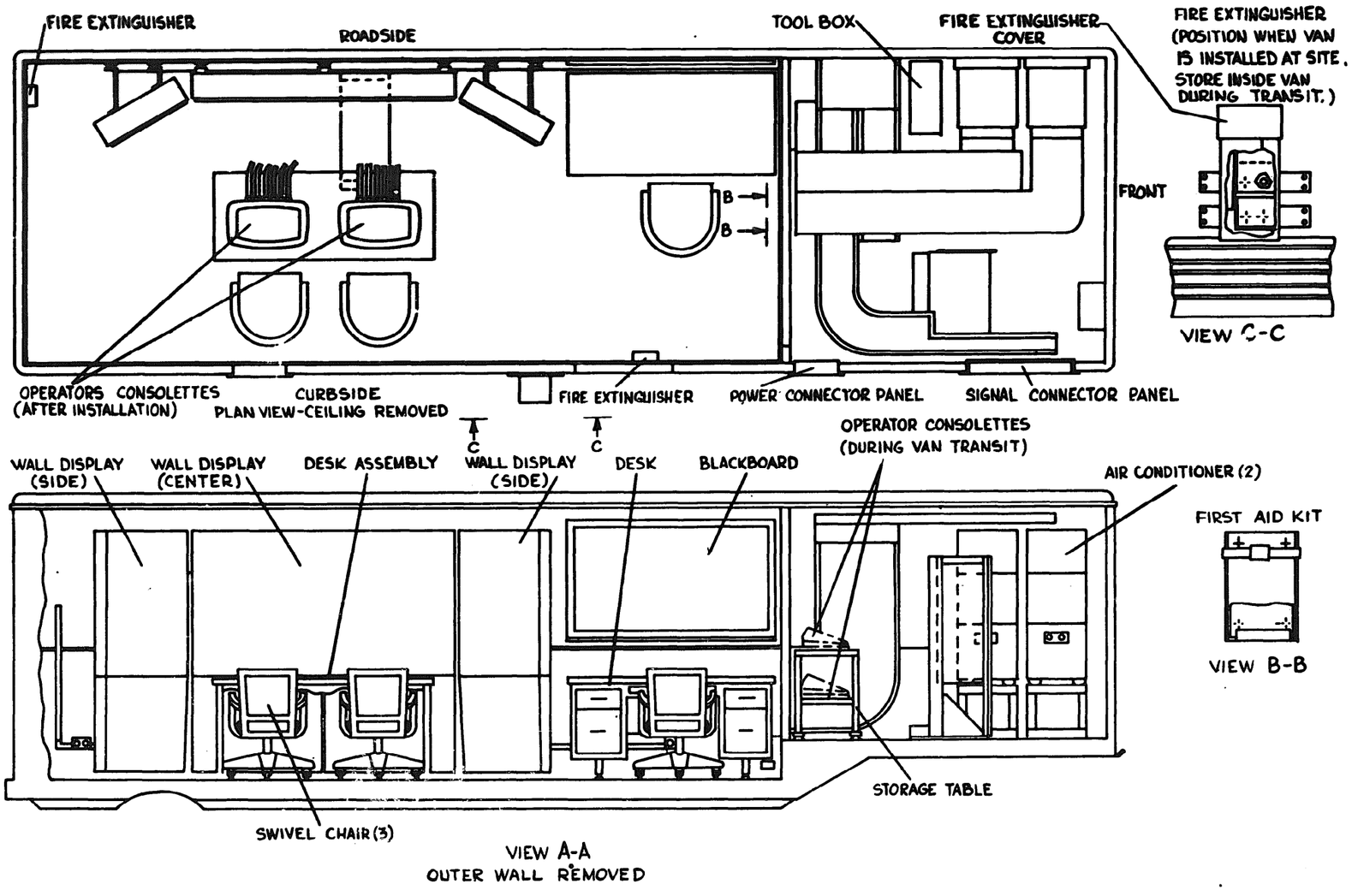
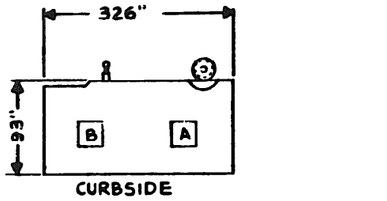
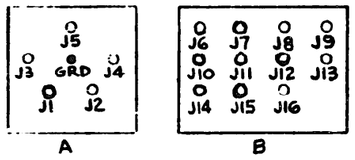


Figure 37. Operations Center van layout.



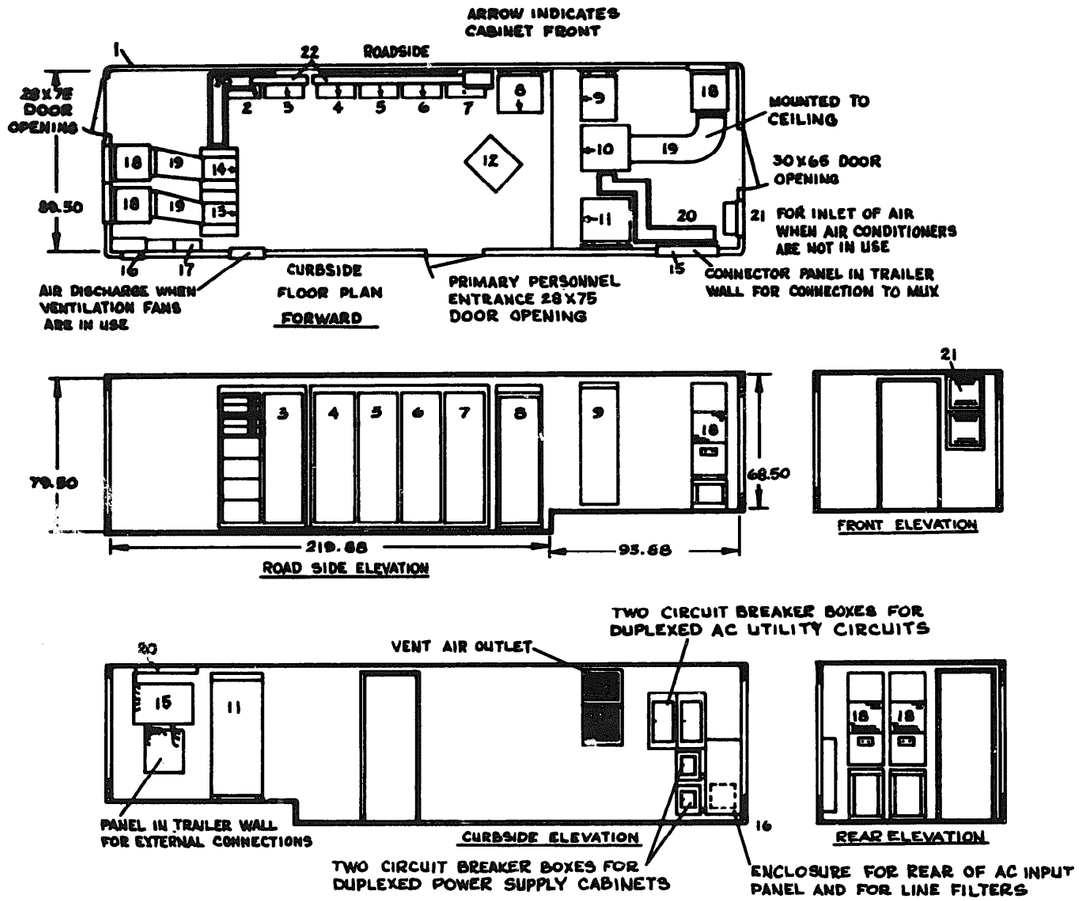
LOADED WEIGH 6 TONS (DOESN'T INCLUDE WT. OF VAN)
AC POWER INPUT 30.9 KW



J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
1	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN EQUIPMENT 1
2	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN EQUIPMENT 2
3	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN UTILITY 3
4	C2331894	PYLE-NATIONAL #1/0 AWG SOLDER TYPE	POWER IN UTILITY 2
5	12[illegible]5764	2AF 1736	AC OUTLET
6	8235216481	55 PIN CRIMP TYPE #20 AWG	MUX CHANNEL SEND
7	8235216481	55 PIN CRIMP TYPE #20 AWG	MUX CHANNEL REC
8	8235216481	55 PIN CRIMP TYPE #20 AWG	MUX CHANNEL SEND
9	8235216481	55 PIN CRIMP TYPE #20 AWG	MUX CHANNEL REC
10	8235297202	36 PIN CRIMP TYPE #20 AWG	AUDIO CHANNEL 2 SEND, 4 REC
11	8235297202	36 PIN CRIMP TYPE #20 AWG	AUDIO CHANNEL 4 REC
12	8235297202	36 PIN CRIMP TYPE #20 AWG	AUDIO CHANNEL 2 SEND, 4 REC

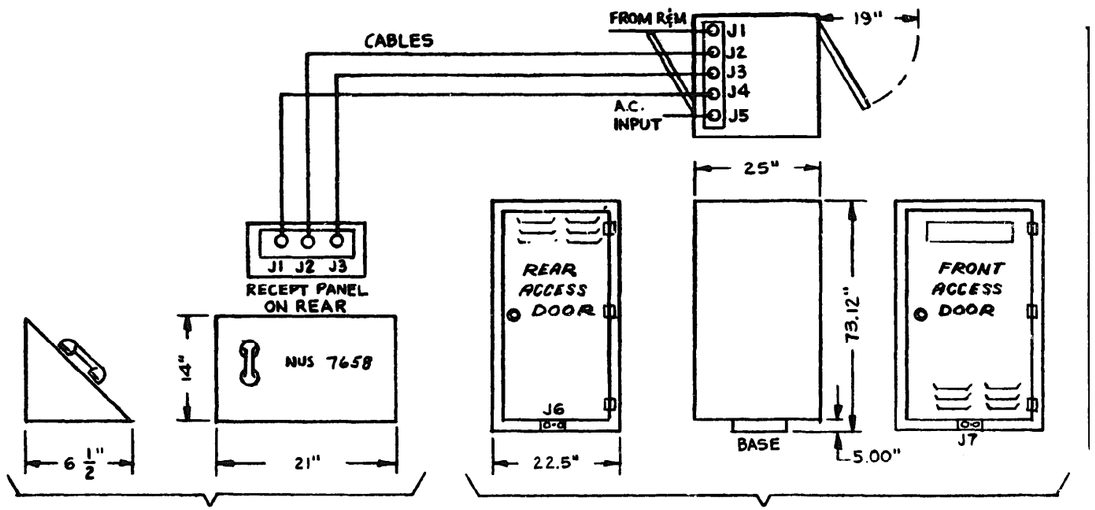
J NO.	CONNECTOR ITTFL	CONNECTOR DESCRIPTION	PURPOSE
13	8235297202	36 PIN CRIMP TYPE # 20 AWG	AUDIO CHANNEL 4 REC
14	8235297202	36 PIN CRIMP TYPE # 20 AWG	AUDIO CHANNEL 2 SEND 4 REC
15	8235297202	36 PIN CRIMP TYPE # 20 AWG	AUDIO CHANNEL 2 SEND 4 REC
16	8235297201	36 PIN CRIMP TYPE # 20 AWG	TO MAINTENANCE VAN (CW/ALM)

Figure 38. Console Remote Equipment van, dimensions, interface connector locations, and input requirements.



ITEM	DESCRIPTION
1	UNIT 1, CONSOLE REMOTE EQUIPMENT VAN
2	UNIT 4, REMOTE COMMAND RECEIVER
3	UNIT 5 TRIBUTARY CONTROL
4	UNIT 6, TRIBUTARY CONTROL
5	UNIT 7, TRIBUTARY CONTROL
6	UNIT 8, TRUNK MATRIX CONTROL
7	UNIT 9, SELECT MATRIX CONTROL
8	UNIT 10, MAINTENANCE TEST FIXED CABINET
9	UNIT 11, AUDIO CABINET
10	UNIT 12, FST MODEM CABINET
11	UNIT 13, MATRIX CABINET
12	UNIT 25, MAINTENANCE TEST MOBILE CABINET
13	UNIT 23, DC DUPLEXED POWER SYSTEM
14	UNIT 24, DC DUPLEXED POWER SYSTEM
15	SIGNAL DISTRIBUTION FRAME
16	AC POWER INPUT PANEL
17	FILTER AND CIRCUIT BREAKER BOX
18	UNITS 28, 29, 30, AIR CONDITIONERS
19	AIR DUCT
20	OVERHEAD CABLE TRAY
21	DUAL FAN HOUSING
22	FRAME

Figure 39. Console Remote Equipment van layout.



TRIB CONTROL UNIT
EST WEIGHT - 35 LBS

TRIB CONTROL UNIT

J	CONNECTOR		PURPOSE
	ITTFL NO.	DESCRIPTION	
1	B213016061	61 PIN #20 AWG CRIMP	SIGNAL
2	B235216062	15 PIN #20 AWG CRIMP	AUDIO
3	B235216063	15 PIN #20 AWG CRIMP	AUDIO

NOTE; TRIB CONTROL UNIT AND TRIBUTARY CABINET COMPRISE THE TRIBUTARY TERMINAL SET NUS 7957.

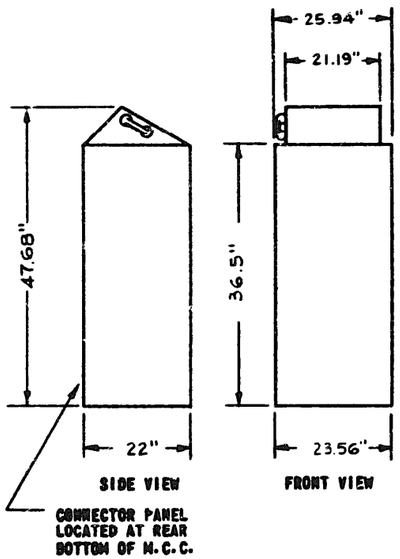
TRIBUTARY CABINET NUS 7895

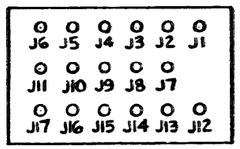
EST. WEIGHT - 350 LBS
CABINET MOUNTING - NONE REQUIRED
PRIMARY POWER - 120V. SINGLE PHASE, 0.95 POWER FACTOR
DC POWER SUPPLY PLUS BLOWER - APPROX 400 WATTS
AC OUTLETS - 15 AMPERE SERVICE.

CABLES

CABLE TO J1 - 10 PR. TW. SH. CABLE FROM R & M
CABLE TO J2 - 3 PR. TW. SH. CABLE 100 FT FROM T.C.U. (J2)
CABLE TO J3 - 3 PR. TW. SH. CABLE 100 FT FROM T.C.U. (J3)
CABLE TO J6 - 60 WIRE SH. CABLE 100 FT FROM T.C.V. (J1)

Figure 40. Tributary terminal set, dimensions, interface connector locations, and input requirements.





CONNECTOR PANEL

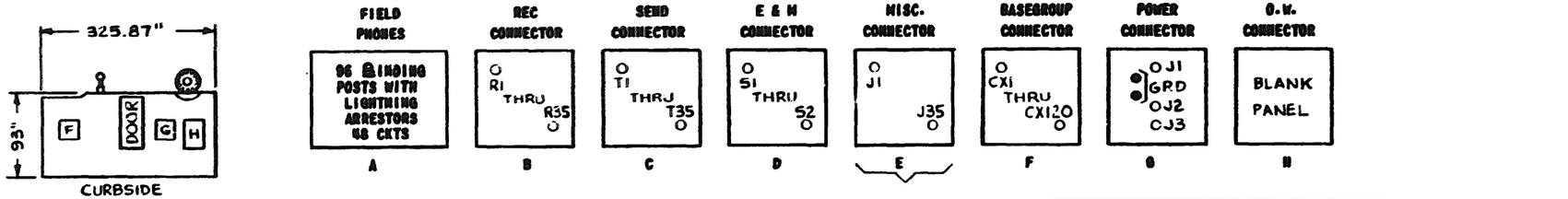
J NO.	CONNECTOR		PURPOSE
	ITTFL NO.	DESCRIPTION	
1	82383072	36 PIN #20 AWG CRIMP	TRUNK OW/ REMOTE ALM
2			
3			
4			
5			
6			
7			
8			
9			
10			
11	82383072	36 PIN #20 AWG CRIMP	TRUNK OW/ REMOTE ALM
12	82383781	55 PIN #20 AWG CRIMP	SELECT CIRCUITS

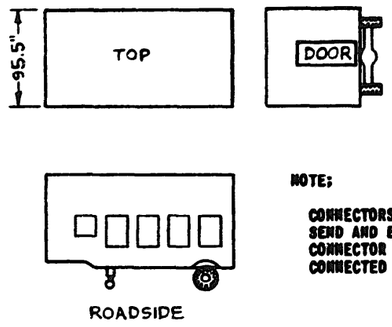
J NO.	CONNECTOR		PURPOSE
	ITTFL NO.	DESCRIPTION	
13	82383781	55 PIN #20 AWG CRIMP	SELECT CIRCUITS
14	82383781	55 PIN #20 AWG CRIMP	SELECT CIRCUITS
15	82383781	55 PIN #20 AWG CRIMP	EXPRESS OW (FUTURE)
16	82383783	10 PIN #20 AWG CRIMP	TOWER LIGHTS ALARM
17	82383785	3 PIN #16 AWG SOLDER	AC SOURCE 1 ϕ - RY- 115 VAC

NOTE; THE FOLLOWING TABLE SHOWS EQUIPMENT TO BE CONNECTED TO THE MCC.

ASSIGN ALL GOOD RADIO SETS TO MCC POSITION J1 THRU J5, "TRUNK 0W/REMOTE ALM". ASSIGN ALL OTHER SHELTERS AND VANS TO MCC POSITION J6 THRU J11, "LOCAL OW/REMOTE ALM". IN THE EVENT ALL "TRUNK" POSITIONS ARE NOT USED UP BY 6080 RADIO SETS, THEN "LOCAL" UNITS MAY BE ASSIGNED TO TRUNK POSITIONS

Figure 41. Maintenance control center, dimensions, interface connector locations, and input reauirements.





NOTE;

CONNECTORS S1-S5 ON THE REC, SEND AND E & M BULKHEAD CONNECTOR PANEL ARE NOT CONNECTED TO ITT EQUIPMENT.

J NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPCION	PURPOSE
1	ZZM - WFB-1720-12P	4 WIRE PYLE-NATIONAL	MAIN AC POWER INPUT
2	ZZM-WFB-1720-12P	4 WIRE PYLE-NATIONAL	MAIN AC POWER INPUT
3	ZZM-WF8	4 WIRE PYLE-NATIONAL	POWER FEED FOR SECONDARY VAN
CX1 THRU CX120	U6429 B/U	TWINEX FOR RG 22 CABLE	BASEGROUP CONNECTOR

CONNECTOR NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
T1	MS-3124E-22-55S	55 PIN #20 AWG CRIMP STYLE	SEND MUX CHANNEL GP1/SG1
T2			GP2/SG1
T3			GP3/SG1
T4			GP4/SG1
T5			GP5/SG1
T6			GP1/SG2
T7			GP2/SG2
T8			GP3/SG2
T9			GP4/SG2
T10			SEND, MUX GP5/SG2 CHANNEL
R1			REC MUX GP1/SG1 CHANNEL
R2			GP2/SG1
R3	MS-3124-22 55S	55 PIN #20 AWG CRIMP TYPE	REC MUX GP3/SG1 CHANNEL

CONNECTOR NO.	CONNECTOR ITTFL NO.	CONNECTOR DESCRIPTION	PURPOSE
R4	MS-3124E-22-55S	55 PIN #20 AWG CRIMP TYPE	REC MUX GP4/SG1 CHANNEL
R5			GP5/SG1
R6			GP1/SG2
R7			GP2/SG2
R8			GP3/SG2
R9			GP4/SG2
R10			REC MUX GP5/SG2 CHANNEL
S1			E & M GP1/SG1 MUX CHANNEL
S2			GP2/SG1
S3			GP3/SG1
S4			GP4/SG1
S5			GP5/SG1
S6			GP1/SG2
S7			GP2/SG2
S8			GP3/SG2
S9	MS-3124E 22-55S	55 PIN #20 AWG CRIMP TYPE	E & M GP4/SG2 MUX CHANNEL

Figure 42. Technical control van (GFE), dimensions and interface connector locations (part 1 of 2).

CONNECTOR			PURPOSE
NO.	ITTFL NO.	DESCRIPTION	
S10	MS-3124E 56S	55 PIN # 20 AWG CRIMP TYPE	E & M GP5/SG2 MUX CHNL
T11			SEND MUX GP1/SG1 CHANNEL
T12			GP2/SG1
T13			GP3/SG1
T14			GP4/SG1
T15			GP5/SG1
T16			GP1/SG2
T17			GP2/SG2
T18			GP3/SG2
T19			GP4/SG2
T20			SEND MUX GP5/SG2 CHANNEL
R11			REC MUX GP1/SG1 CHNL
R12			GP2/SG1
R13			GP3/SG1
R14			GP4/SG1
R15			GP5/SG1
R16			GP1/SG2
R17			GP2/SG2
R18			GP3/SG2
R19			GP4/SG2
R20			REC MUX GP5/SG2 CHNL
S11			E & M GP1/SG1 MUX CHNL
S12			GP2/SG1
S13			GP3/SG1
S14			GP4/SG1
S15			GP5/SG1

CONNECTOR			PURPOSE
NO.	ITTFL NO.	DESCRIPTION	
T21	MS-3124E 56S	55 PIN # 20 AWG CRIMP TYPE	SEND MUX GP1/SG1 CHNL
T22			GP2/SG1
T23			GP3/SG1
T24			GP4/SG1
T25			GP5/SG1
T26			GP1/SG2
T27			GP2/SG2
T28			GP3/SG2
T29			GP4/SG2
T30			SEND MUX GP5/SG2 CHNL
R21			REC MUX GP1/SG1 CHNL
R22			
R23			
R24			
R25			
R26			
R27			
R28			
R29			
R30			REC MUX GP5/SG2 CHNL
S21			E & M GP1/SG1 MUX, CHNL
S22			GP2/SG1
S23			GP3/SG1
S24			GP4/SG1
S25			GP5/SG1
S26			GP1/SG2

Figure 43. Technical control van dimensions and interface connectors locations (part 2 of 2)

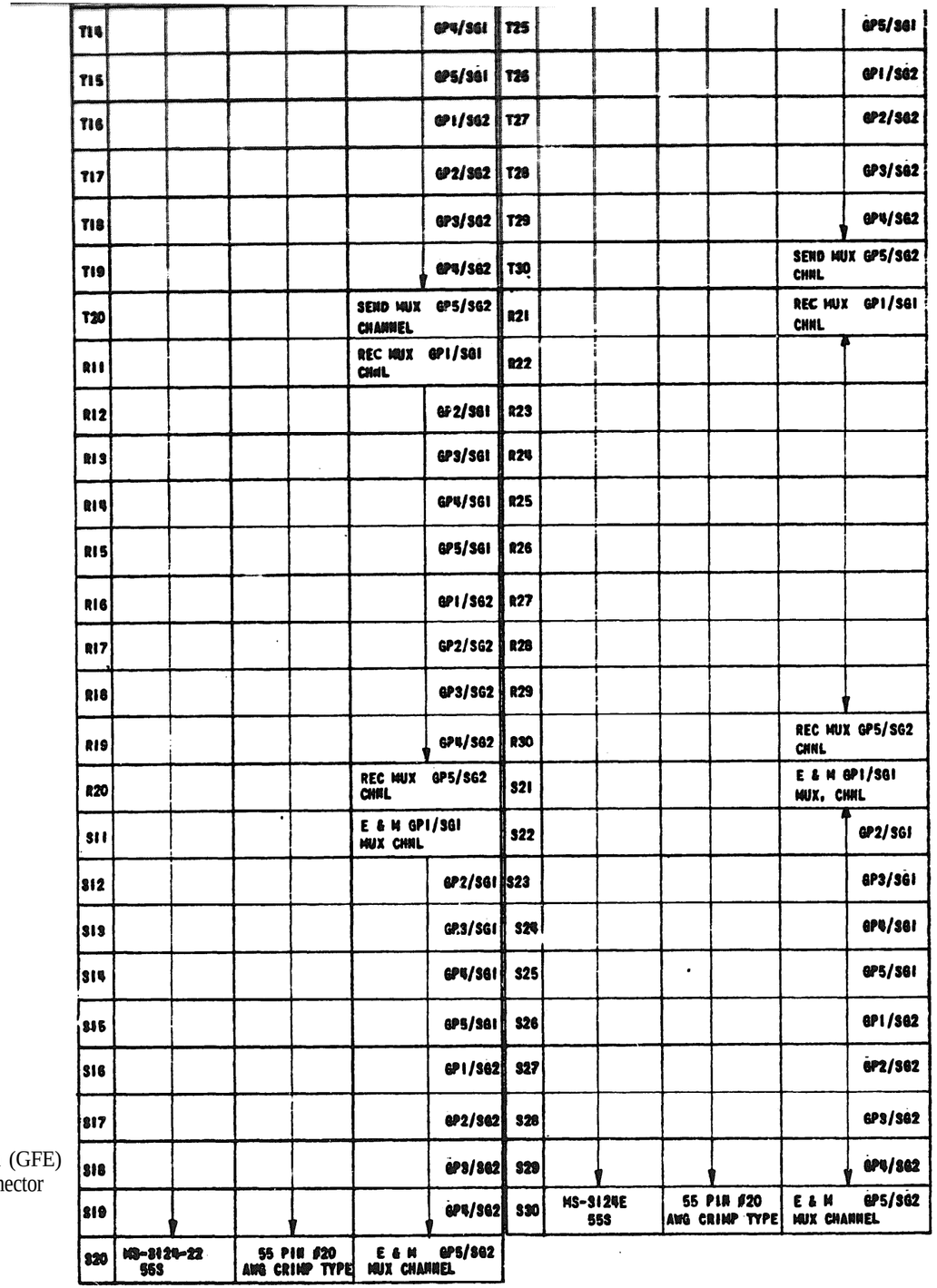


Figure 42. Technical control van (GFE) dimensions and interface connector locations (part 2 of 2)

CABLE NO.	FROM		TO		FUNCTION		CABLE MARKER BANDS		REMARKS
	UNIT	CONN	UNIT	CONN			#1	#2	
W1	GENERATOR #1		PWR SWITCH PS #		30-SW-208 VAC				SEE SELECTION LIST, TABLE 2
W1A	1								
W1B	1								
W2	2								
W2A	2								
W2B	2								
W3	3								
W3A	3								
W3B	3								
W4	4								
W4A	4								
W4B	4								
W5	5								
W5A	5								
W5B	5								
W6	6								
W6A	6								
W6B	6								
W7	7								
W7A	7								
W7B	GENERATOR #7		PWR SWITCH PS #		30-SW-208 VAC				SEE SELECTION LIST, TABLE 2

NOTE: ALL TABLES AND FIGURES REFERENCED IN THIS FIGURE ARE IN THIS FIGURE.

Figure 43. Site cabling composite list (part 1 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W11							B2330963G11			SEE REQUIREMENTS ON SHEET 43
W12							G12			
W13							G13			
W14							G14			
W15							G15			
W16							G16			
W17							G17			
W18							G18			
W19							G19			
W20							G20			
W21							G21			
W22							G22			
W23							G23			
W24							G24			
W25							G25			
W26							G26			
W27							G27			
W28							G28			
W29							G29			
W30							B2330963G30			SEE REQUIREMENTS ON SHEET 43

Figure 43. Site cabling composite list (part 2 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W31	TECH # C P #		6060 RADIO SET RSA	J1	30-5W-208 VAC	A2331163G4	B2330963G31			
W32	TECH #		A	J2			G32			
W33	UTIL #		A	J3			G33			
W34	TECH #		B	J1			G34			
W35	TECH #		B	J2			G35			
W36	UTIL #		B	J3			G36			
W37	TECH #		C	J1			G37			
W38	TECH #		C	J2			G38			
W39	UTIL #		C	J3			G39			
W40	TECH #		D	J1			G40			
W41	TECH #		D	J2			G41			
W42	UTIL #		D	J3			G42			
W43	TECH #		E	J1			G43			
W44	TECH #		E	J2			G44			
W45	UTIL #		6060 RADIO SET RSE	J3		A2331163G4	G45			
W46	TECH #		7561 PWR AMPLIFIER	J1		G6	G46			
W47	TECH #			J2		G6	G47			
W48	UTIL #			J3		G4	G48			
W49	UTIL # C B #		7561 PWR AMPLIFIER	J4	30-5W-208 VAC	A2331163G4	B2330963G49			
W50										

Figure 43. Site cabling composite list (part 3 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W51	TECH # C B.#		6270 MUX SET MS A	J1	3 Ø - 5W - 208VAC	A2331163G4	B2330963G51			
W52	TECH #		A	J2			G52			
W53	UTIL #		A	J3			G53			
W54	TECH #		B	J1			G54			
W55	TECH #		B	J2			G55			
W56	UTIL #		B	J3			G56			
W57	TECH #		C	J1			G57			
W58	TECH #		C	J2			G58			
W59	UTIL # C B.#		6270 MUX SET MS C	J3		A2331163G4	B2330963G59			
W60										
W61	TECH # C B #		6260 RAD SET NPRSA	J1		A2331163G4	B2330963G61			
W62	TECH #		A	J2			G62			
W63	UTIL #		A	J3			G63			
W64	UTIL #		A	J4			G64			
W65	TECH #		B	J1			G65			
W66	TECH #		B	J2			G66			
W67	UTIL #		B	J3			G67			
W68	UTIL #		B	J4			G68			
W69	TECH #		C	J1			G69			
W70	TECH #		C	J2			G70			
W71	UTIL #		C	J3			G71			
W72	UTIL # C B.#		6260 RAD SET NPRSC	J4	3Ø - 5W - 208VAC	A2331163G4	B2330963G72			
W73										
W74										
W75										

Figure 43. Site cabling composite list (part 4 of 58).

CABLE NO.	FROM UNIT	FROM CONN	TO UNIT	TO PIN	FUNCTION	CABLE ASSEMBLY INSTPUCTIONS	CABLE MARKER BAND	USED ON LINK	FUNCT DIAG FIG	REMARKS
W76	TECH # C B #		7640 CRE VAN CRE A	J1	3Ø-5W-208 VAC	A2331163G4	B2330963G76			
W77	TECH # C B #			J2			G77			
W78	UTIL # C B #			J3			G78			
W79	UTIL # C B #		7640 CRE VAN CRE A	J4		A2331163G4	B2330963G79			
W80										
W81	TECH # C B #		7642 CLE VAN CLE A	J1		A2331163G4	B2330963G81			
W82	TECH # C B #			J2			G82			
W83	UTIL # C B #			J3			G83			
W84	UTIL # C B #		7642 CLE VAN CLE A	J4			G84			
W85	TECH # C B #		7641 COC VAN COC A	J1			G85			
W86	TECH # C B #			J2			G86			
W87	UTIL # C B #			J3			G87			
W88	UTIL # C B #		7641 COC VAN COC A	J4		A2331163G4	B2330963G88			
W89										
W90										
W91	TECH # C B #		TECH CONTROL VAN	J1			B2330963G91			CABLE ASS'Y FURNISHED WITH VAN. CUT MARKER BAND TO FIT
W92	TECH # C B #		TECH CONTROL VAN	J2	3Ø-5W-208 VAC		B2330963G92			
W93										
W94										
W95										
W96										
W97										
W98										
W99										
W100										

Figure 43. Site cabling composite list (part 5 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W101	RAD SET RSA	J17	DEICER ASSY-ANT	A1	10-3W-115 VAC	A2330966G2	P2330963G101			
W102	RSA	J19		A2			G102			
W103	RSB	J17		B1			G103			
W104	RSB	J19		B2			G104			
W105	RSC	J17		C1			G105			
W106	RSC	J19		C2			G106			
W107	RSD	J17		D1			G107			
W108	RSD	J19		D2			G108			
W109	RSE	J17		E1			G109			
W110	RAD SET RSE	J19		E2			G110			
W111	RAD SET NPRS A	J6		F1			G111			
W112		J7		G1			G112			
W113		J8		F2			G113			
W114		J9		G2			G114			
W115		J10		H1			G115			
W116		J11		J1			G116			
W117		J12		H2			G117			
W118		J13		J2			G118			
W119		J14		K1			G119			
W120		J15		K2			G120			
W121		J16		L1			G121			
W122		J17		L2			G122			
W123		J18		M1			G123			
W124		J19		N1			G124			
W125	RAD SET NPRS A	20	DEICER ASSY-ANT	M2	10 3W 115 VAC	A2330966G2	B2330963G125			

Figure 43. Site cabling composite list (part 6 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W126	RAD SET NPRSA	J21	DEICER ASSY-ANT	N2	10-3W-115 VAC	A2330966G2	B2330963G126			
W127	NPRSB	J6		P1			G127			
W128		J7		R1			G128			
W129		J8		P2			G129			
W130		J9		R2			G130			
W131		J10		S1			G131			
W132		J11		T1			G132			
W133		J12		S2			G133			
W134		J13		T2			G134			
W135		J14		U1			G135			
W136		J15		V1			G136			
W137		J16		U2			G137			
W138		J17		V2			G138			
W139		J18		W1			G139			
W140		J19		X1			G140			
W141		J20		W2			G141			
W142	NPRSB	J21		X2			G142			
W143	NPRSC	J6		Y1			G143			
W144		J7		Z1			G144			
W145		J8		Y2			G145			
W146		J9		Z2			G146			
W147		J10		AA1			G147			
W148		J11		BB1			G148			
W149		J12		AA2			G149			
W150	RAD SET NPRSC	J13	DEICER ASSY-ANT	BB2	10-3W-115 VAC	A2330966G2	B2330963G150			

Figure 43. Site cabling composite list (part 7 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W151	RAD SET MPRS C	J14	DEICER ASSY-ANT	CC1	1Φ-3W-115 VAC	A2330966G2	B23309630151			
W152	↑	J15	↑	DD1	↑	↑	↑ G152			
W153	↑	J16	↑	CC2	↑	↑	G153			
W154	↑	J17	↑	DD2	↑	↑	G154			
W155	↑	J18	↑	EE1	↑	↑	G155			
W156	↑	J19	↑	FF1	↑	↑	G156			
W157	↓	J20	↓	EE2	↓	↓	↓ G157			
W158	RAD SET MPRS C	J21	DEICER ASSY-ANT	FF2	1Φ-3W-115 VAC	A2330966G2	B23309630158			
W159										
W160										
W161										
W162										
W163										
W164										
W165										
W166										
W167										
W168										
W169										
W170										
W171										
W172										
W173										
W174										
W175										

Figure 43. Site cabling composite list (part 8 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W176										
W177										
W178										
W179										
W180										
W181										
W182										
W183										
W184										
W185										
W186										
W187										
W188										
W189										
W190										
W191	8883 DISP FRAME (L)	J1	120VAC, 1Ø 3W 600W		COOLING FANS 120VAC	A2384066G3				LEFT SECTION
W192	7660 DISP FRAME (C)	J1	↓		↓	↓				CENTER SECTION
W193	8883 DISP FRAME (R)	J1	↓		↓	↓				RIGHT SECTION
W194										
W195										
W196										
W197										
W198										
W199										
W200	RADIO SET RSA	J14	TOWER LT CONT ASSY		1Ø-3W 115 VAC	A233096603	B2330963G200			

Figure 43. Site cabling composite list (part 9 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W201	6060 RAD SET RS A	J5	6270 MUX SET MS A	40	MUX BASEBAND SEND	A2330828G1	B2330963G201	11		
W202	A	J6	A	39	REC		G202			
W203	B	J5	A	42	SEND		G203			
W204	B	J6	A	41	REC		G204			
W205	C	J5	B	40	SEND		G205			
W206	C	J6	B	39	REC		G206			
W207	D	J5	B	42	SEND		G207			
W208	D	J6	B	41	REC		G208			
W209	E	J5	C	40	SEND		G209			
W210	6060 RAD SET RS E	J6	6270 MUX SET MS C	39	MUX BASEBAND REC	A2330828G1	B2330963G210	11		
W211										
W212										
W213										
W214										
W215										
W216										
W217										
W218										
W219										
W220										
W221	6060 RADIO SET RSA	J5	6060 RAD SET RSB	J6	MUX BB RPTR R1S S/R	A2330828G1	B2330963G221	76		TRANSMIT TO RECEIVE
W 222	6060 RADIO SET RSA	J6	6060 RAD SET RSB	J5	MUX BB RPTR R/S	A2330828G1	B2330963G222	76		RECEIVE TO TRANSMIT
W223										
W224										
W225										

Figure 43. Site cabling composite list (part 10 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W251A	6270 MUX SET MS A	J71	TECH CONTROL VAN		BG1/SG1 CHAN SEND	A2384065G2	B2330963G230	22		
W251B		J72			CHAN REC		G 231			
W251C		J73			GRP SEND		G 232			
W251D		J74			BG1/SG1 GRP REC		G 233			
W252A		J75			BG1/SG2 CHAN SEND		G 234			
W252B		J76			CHAN REC		G 235			
W252C		J77			GRP SEND		G 236			
W252D		J78			BG1/SG2 GRP REC		G 237			
W253A		J79			BG2/SG1 CHAN SEND		G 238			
W253B		J80			CHAN REC		G 239			
W253C		J81			GRP SEND		G 240			
W253D		J82			BG2/SG1 GRP REC		G 241			
W254A		J83			BG2/SG2 CHAN SEND		G 242			
W254B		J84			CHAN REC		G 243			
W254C		J85			GRP SEND		G 244			
W254D		J86			BG2/SG2 GRP REC		G 245			
W255A		J87			BG3/SG1 CHAN SEND		G 246			
W255B		J88			CHAN REC		G 247			
W255C		J89			GRP SEND		G 248			
W255D		J90			BG3/SG1 GRP REC		G 249			
W256A		J91			BG3/SG2 CHAN SEND		G 250			
W256B		J92			CHAN REC		G 251			
W256C		J93			GRP SEND		G 252			
W256D		J94			BG3/SG2 CHAN REC		G 253			
W257A	6270 MUX SET MS A	J95	TECH CONTROL VAN		BG4/SG1 CHAN SEND	A2384065G2	B2330963G254	22		

Figure 43. Site cabling composite list (part 11 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W257B	6270 MUX SET MS A	J96	TECH CONTROL VAN		BG4/SG1 CHAN REC	A238406502	B23309630255	22		
W257C		J97			GRP SEND		G256			
W257D		J98			BG4/SG1 GRP REC		G257			
W258A		J99			BG4/SG2 CHAN SEND		G258			
W258B		J100			CHAN REC		G259			
W258C		J101			GRP SEND		G260			
W258D		J102			BG4/SG2 GPR REC		G261			
W259A		J103			BG6/SG1 CHAN SEND		G262			
W259B		J104			CHAN REC		G263			
W259C		J105			GRP SEND		G264			
W259D		J106			BG5/SG1 GRP REC		G265			
W260A		J107			BG5/SG2 CHAN SEND		G266			
W260B		J108			CHAN REC		G267			
W260C		J109			GRP SEND		G268			
W260D		J110			BG5/SG2 GRP REC		G269			
W261A		J111			PILOT SEND		G270			
W261B	6270 MUX SET MS A	J112			PILOT REC		G271			
W262A	6270 MUX SET MS B	J71			BG1/SG1 CHAN SEND		G272			
W262B		J72			CHAN REC		G273			
W262C		J73			GRP SEND		G274			
W262D		J74			BG1/SG1 GRP REC		G275			
W263A		J75			BG1/SG2 CHAN SEND		G276			
W263B		J76			CHAN REC		G277			
W263C		J77			GRP SEND		G278			
W263D	6270 MUX SET MS B	J78	TECH CONTROL VAN		BG1/SG2 GRP REC	A238406502	B23309630279	22		

Figure 43. Site cabling composite list (part 12 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W270B	6270 MUX SET MS B	J104	TECH CONTROL VAN		BG5/SG1 CHAN REC	A2384065G2	B2330963G305	22		
W270C		J105			BG5/SG1 CHAN SEND		G306			
W270D		J106			BG5/SG1 GRP REC		G307			
W271A		J107			BG5/SG2 CHAN SEND		G308			
W271B		J108			CHAN REC		G309			
W271C		J109			GRP SEND		G310			
W271D		J110			BG5/SG2 GRP REC		G311			
W272A		J111			PILOT SEND		G312			
W272B	6270 MUX SET MS B	J112			PILOT REC		G313			
W273A	6270 MUX SET MS C	J71			BG1/SG1 CHAN SEND		G314			
W273B		J72			CHAN REC		G315			
W273C		J73			GRP SEND		G316			
W273D		J74			BG1/SG1 GRP REC		G317			
W274A		J75			BG1/SG2 CHAN SEND		G318			
W274B		J76			CHAN REC		G319			
W274C		J77			GRP SEND		G320			
W274D		J78			BG1/SG2 GRP REC		G321			
W275A		J79			BG2/SG1 CHAN SEND		G322			
W275B		J80			CHAN REC		G323			
W275C		J81			GRP SEND		G324			
W275D		J82			BG2/SG1 GRP REC		G325			
W276A		J83			BG2/SG2 CHAN SEND		G326			
W276B		J84			CHAN REC		G327			
W276C		J85			GRP SEND		G328			
W276D	6270 MUX SET MS C	J86	TECH CONTROL VAN		BG2/SG2 GRP REC	A2384065G2	B2330963G329	22		

Figure 43. Site cabling composite list
(part 13 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W264A	6270 MUX SET MS B	J79	TECH CONTROL VAN		BG2/SG1 CHAN SEND	A2384065G2	B2330963G280	22		
W264B		J80			CHAN REC		G281			
W264C		J81			GRP SEND		G282			
W264D		J82			BG2/SG1 GRP REC		G283			
W265A		J83			BG2/SG2 CHAN SEND		G284			
W265B		J84			CHAN REC		G285			
W265C		J85			GRP SEND		G286			
W265D		J86			BG2/SG2 GRP REC		G287			
W266A		J87			BG3/SG1 CHAN SEND		G288			
W266B		J88			CHAN REC		G289			
W266C		J89			GRP SEND		G290			
W266D		J90			BG3/SG1 GRP REC		G291			
W267A		J91			BG3/SG2 CHAN SEND		G292			
W267B		J92			CHAN REC		G293			
W267C		J93			GRP SEND		G294			
W267D		J94			BG3/SG2 GRP REC		G295			
W268A		J95			BG4/SG1 CHAN SEND		G296			
W268B		J96			CHAN REC		G297			
W268C		J97			GRP SEND		G298			
W268D		J98			BG4/SG1 GRP REC		G299			
W269A		J99			BG4/SG2 CHAN SEND		G300			
W269B		J100			CHAN REC		G301			
W269C		J101			GRP SEND		G302			
W269D		J102			BG4/SG2 GRP REC		G303			
W270A	6270 MUX SET MS B	J103	TECH CONTROL VAN		BG5/SG1 CHAN SEND	A2384065G2	B2330963G304	22		

Figure 43. Site cabling composite list (part 14 of 58).

BLE).	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
77A	6270 MUX SET MS C	J87	TECH CONTROL VAN		BG3/SG1- CHAN SEND	A2384065G2	B2330963G330	22		
77B		J88			CHAN REC		G331			
77C		J89			GRP SEND		G332			
77D		J90			BG3/SG1- GRP REC		G333			
78A		J91			BG3/SG2- CHAN SEND		G334			
78B		J92			CHAN REC		G335			
78C		J93			GRP SEND		G336			
78D		J94			BG3/SG2- GRP REC		G337			
79A		J95			BG4/SG1- CHAN SEND		G338			
79B		J96			CHAN REC		G339			
79C		J97			GRP SEND		G340			
79D		J98			BG4/SG1- GRP REC		G341			
80A		J99			BG4/SG2- CHAN SEND		G342			
80B		J100			CHAN REC		G343			
80C		J101			GRP SEND		G344			
80D		J102			BG4/SG2- GRP REC		G345			
81A		J103			BG5/SG1- CHAN SEND		G346			
81B		J104			CHAN REC		G347			
81C		J105			GRP SEND		G348			
81D		J106			BG5/SG1- GRP REC		G349			
82A		J107			BG5/SG2- CHAN SEND		G350			
82B		J108			CHAN REC		G351			
82C		J109			GRP SEND		G352			
82D		J110			BG5/SG2- GRP REC		G353			
83A		J111			PILOT SEND		G354			
83B	6270 MUX SET MS C	J112	TECH CONTROL VAN		PILOT REC	A2384065G2	B2330963G355	22		

Figure 43. Site cabling composite list
(part 15 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W301	6283 MAINT CONT CTR	J1	6060 RAD SET RSA	J12	TRK OW/REMOTE ALM	A2384050G1	B2330963G365	12	5	
W302	↑	J2								SELECTION LIST, TABLE 3
W303		J3								↕
W304		J4								
W305		J5								
W306		J6								
W307		J7								
W308		J8								SELECTION LIST, TABLE 3
W309		J9	6260 RAD.SET NPRS C	J24	LOCAL OW/REMOTE ALM	A2384050G1	B2330963G366	14	8	
W310		J10	B	J24	LOCAL OW/REMOTE ALM	A2384050G1	↕ G367	14	8	
W311		J11	A	J24	LOCAL OW/REMOTE ALM	A2384050G1	G368	14	8	
W312		J12	C	J25	SELECT CIRCUITS	A2384054G1	G369	15	9	
W313		J13	↓ B	J25	SELECT CIRCUITS	A2384054G1	G370	15	9	
W314		J14	6260 RAD.SET NPRS A	J25	SELECT CIRCUITS	A2384054G1	G371	15	9	
W315		J15								FUTURE
W316	↓	J16	TOWER LTG CONT BOX		REMOTE ALARM	A2384052G1	↓ G373	19	12	
W317	6283 MAINT CONT CTR	J17	AC SOURCE		10-3W-115 V AC	A2384066G1	B2330963G374	20		

Figure 43. Site cabling composite list
(part 16 of 58)

FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
INT CONT CKT	J1	AC SOURCE		10-3W-115 VAC	A2384066G1	B2330963G392	5		
	J2	6060 RADIO SET RSA	J11	TRK OW/REMOTE ALM	A2384050G1	B2330963G393	3	13	
	J3	TWR LTG CONT BOX		TWR LIGHT ALM	A2384052G2	B2330963G394	4	12	
INT CONT CKT	J4			(SPARE)					

Figure 43. Site cabling composite list (part 17 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W401	6060 RAD SET RSA	J12	7895 TRIB TERM SET	J1	AUD LINE/REMOTE ALM	A2384051G3	B2330963G401	6	4	SEE FIGURES 2 AND 3
W402	6060 RAD SET RSA	J12	5973 TEL & SIG UNIT	J2	AUD LINE/REMOTE ALM	A2384051G6	B2330963G402	1		
W403	5973 TEL & SIG UNIT	J1	AC SOURCE		1Ø-3W-115 VAC	A2384066G2	B2330963G403	2		
W404										
W405										
W406										
W407										
W408										
W409										
W410										
W411	6060 RAD SET RSA	J12	CABLE JUNCTION A	–	AUD LINE/REMOTE ALM	A2384067G1	B2330963G411	6	4	SEE FIGURES 2 AND 3
W412	CABLE JUNCTION A		7895 TRIB CAB	J1	AUD LINE/REMOTE ALM	A2384067G2	B2330963G412	6	4	SEE FIGURES 2 AND 3
W413										
W414	~~7895 TRIB TERM SET~~									
W415										
W416										
W417										
W418										
W419										
W420										
W421	6060 RAD SET RS A	''2	CABLE JUNCTION A	–	AUD LINE/REM ALM	A2384067G1	B2330963G421	6	4	SEE FIGURES 2 AND 3
W422	CABLE JUNCTION A		CABLE JUNCTION B	–	AUD LINE/REM ALM	A2384067G3	B2330963G422	6	4	SEE FIGURES 2 AND 3
W423	CABLE JUNCTION B	–	7895 TRIB CAB	J1	AUD LINE/REM ALM	A2384067G2	B2330963G423	6	4	SEE FIGURES 2 AND 3
W424										
W425										

Figure 43. Site cabling composite list (part 18 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W426										
W427										
W428										
W429										
W430										
W431	6060 RAD SET RS A		CABLE JUNCTION A	–	AUD LINE/REM ALM	A2384067G1	B2330963G431	6	4	ALSO REFER TO FIGS. 2 & 3
W432	CABLE JUNCTION A	–	CABLE JUNCTION B	–	↕	↕ G3	↕ G432	6	↕	↕
W433	CABLE JUNCTION B	–	CABLE JUNCTION C	–	↕	↕ G3	↕ G433	6	↕	↕
W434	CABLE JUNCTION C	–	7895 TRIB CAB		AUD LINE/REM ALM	A2384067G2	B2330963G434	6	4	ALSO REFER TO FIGS. 2 & 3
W435										
W436										
W437										
W438										
W439										
W440										
W441										
W442										
W443										
W444										
W445										
W446										
W447										
W448										
W449										
W450										

Figure 43. Site cabling composite list (part 19 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W451	7895 TRIB CAB	J2	7658 TRIB CONT UNIT	J2	AUDIO	A2384059G3	B2330963G451	7		
W452	↑	J3	7658 TRIB CONT UNIT	J3	AUDIO	A2384059G4	↑ G452	8		
W453	↓	J4	7658 TRIB CONT UNIT	J1	SIGNAL	B2384064G1	↓ G453	9		
W454	7895 TRIB CAB	J5	AC SOURCE		10-3W-115 VAC	A2384066G3	B2330963G454	10		
W455										
W456										
W457										
W458										
W459										
W460										
W461										
W462										
W463										
W464										
W465										
W466										
W467										
W468										
W469										
W470										
W471										
W472										
W473										
W474										
W475										

Figure 43. Site cabling composite list
(part 20 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W501	7640 CRE VAN CRE-A	J6	6270 MUX SET MSA	J6	MUX SEND GRP1/SG2	A2384053G2	B2330963G501	24	14	
W502		J7		J9	MUX-REC GRP1/SG2		G502			
W503		J8		J14	MUX-SEND GRP1/SG1		G503			
W504		J9		J18	MUX-REC GRP1/SG1		G504			
W505		J6		J7	MUX-SEND GRP1/SG2		G505			
W506		J7		J10	MUX-REC GRP4/SG2		G506			
W507		J8		J15	MUX-SEND GRP4/SG1		G507			
W508	7640 CRE VAN CRE-A	J9	6270 MUX SET MSA	J19	MUX-REC GRP4/SG1	A2384053G2	B2330963G508	24	14	
W509										
W510										
W511	7640 CRE VAN CRE-A	J10	6260 RAD SET NPRSA	J28	AUD CHAN-SEND & REC	A2384051G2	B2330963G511	25	15	
W512		J11	6260 RAD SET NPRSA	J29	AUD CHAN-REC		G512	25	16	
W513		J12	6260 RAD SET NPRSB	J28	AUD CHAN-SEND & REC		G513	25	15	
W514	7640 CRE VAN CRE-A	J13	6260 RAD SET NPRSB	J29	AUD CHAN-REC	A2384051G2	B2330963G514	25	16	
W515										
W516										
W517										
W518										
W519										
W520	7640 CRE VAN CRE-A	J12	6270 MUX SET MSA	J29	AUDIO CHANNEL	A2384051G7	B2330963G520	77	24	SITE 501 ONLY
W521	7640 CRE VAN CRE-A	J12	6060 RAD SET RSA	J12	AUDIO CHANNEL	A2384051G4	B2330963G521	26	17	SITE 7 ONLY. ALSO SEE FIG 18
W522										
W523										
W524										
W525										

Figure 43. Site cabling composite list (part 21 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W526										
W527										
W528										
W529										
W530										
W531	GFE TECH CONTROL VAN		6260 RAD SET NPRSA	J28		A2384051G5	B2330963G531	14	20	SITE 9.1 ONLY. SEE FIG.21
W532										
W533										
W534										
W535										
W536										
W537										
W538										
W539										
W540										
W541	6060N RADIO SET	J12	6270 MUX SET MSA	J33		A2384053G4	B2330963G541	23	22	8.1 & 11.1, INTERIM ONLY
W542										
W543										
W544										
W545										
W546										
W547										
W548										
W549										
W550										

Figure 43. Site cabling composite list (part 22 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W601	6270 MUX SET MSA	J14	7642 CLE VAN CLE A	J15	MUX CHAN - SEND	A2384053G2	B2330963G601	28		
W602	↑	J18	↑	J25	↑ REC	↑	↑ G602	28		
W603	↑	J22	↑	J35	↑ E&M	↑	↑ G603	28		
W604	↑	J26	↑	J14	↑ SEND	↑	↑ G604	28		
W605	↓	J30	↓	J24	↓ REC	↓	↓ G605	28		
W606	6270 MUX SET MSA	J34	7642 CLE VAN CLEA	J34	MUX CHAN - E&M	A2384053G2	B2330963G606	28		
W607										
W608										
W609										
W610										
W611	7642 CLE VAN CLE A	J6	7663 JCT BOX JBA	J6	TRIB SIG(DISP MOD 2)	A2384056G7	B2330963G11	36,66		
W612	↑	J7	OR	J7	↑ (2)	↑ G8	↑ G12	↑		
W613	↑	J8	7641 COC VAN	J8	↑ (3)	↑ G7	↑ G13			
W614	↑	J9	↑	J9	↑ (3)	↑ G8	↑ G14			
W615	↑	J10	↑	J10	↓ (4)	↑ G7	↑ G15	↓		
W616	↑	J11	↑	J11	TRIP SIG(DISP.MOD 4)	↑ G8	↑ G16	36,66		
W617	↑	J12	↑	J12	SIG(CONSOLETTE #1)	↑ G2	↑ G17	30,60		
W618	↑	J13	↑	J13	SIG.(CONSOLETTE #1)	↑ G4	↑ G18	30,60		
W619	↑	J16	↑	J16	TRIB SIG(DISP MOD 2)	↑ G9	↑ G19	36,66		
W620	↑	J17	↑	J17	↑ (2)	↑ G10	↑ G20	↑		
W621	↑	J18	↑	J18	↑ (3)	↑ G9	↑ G21			
W622	↑	J19	↓	J19	↑ (3)	↑ G10	↑ G22			
W623	↑	J20	7691 COC VAN	J20	↓ (4)	↑ G9	↑ G23	↓		
W624	↓	J21	OR	J21	TRIB SIG(DISP.MOD 4)	↓ G10	↓ G24	36,66		
W625	7642 CLE VAN CLE A	J22	7663 JCT BOX JBA	J22	SIG(FILT)-CONS. #1	A2384056G3	B2330963G25	31,61		

Figure 43. Site cabling composite list (part 23 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W626	7642 CLE VAN CLE A	J23	7663 JCT BOX JBA	J23	AUDIO(CONSOLETTE 1)	A2384055G5	B2330963G626	32,62		
W627		J26	OR	J26	TRIB SIG(DISP MOD 5)	A2384056G7	G627	36,66		
W628		J27	7641 COC VAN	J27	(5)	G8	G628			
W629		J28		J28	(6)	G7	G629			
W630		J29		J29	(6)	G8	G630			
W631		J30		J30	(7)	G7	G631			
W632		J31		J31	TRIB SIG(DISP MOD 7)	G8	G632	36,66		
W633		J32		J32	SIG (CONSOLETTE 2)	G2	G633	30,60		
W634		J33		J33	SIG (CONSOLETTE 2)	G4	G634	30,60		
W635		J36		J36	TRIB SIG(DISP MOD 5)	G9	G635	36,66		
W636		J37		J37	(5)	G10	G636			
W637		J38		J38	(6)	G9	G637			
W638		J39		J39	(6)	G10	G638			
W639		J40		J40	(7)	G9	G639			
W640		J41		J41	TRIB SIG(DISP MOD 7)	G10	G640	36,66		
W641		J42		J42	SIG(FILT)-CONS # 2	A2384056G3	G641	31,61		
W642		J43		J43	AUDIO(CONSOLETTE 2)	A2384055G5	G642	32,62		
W643		J45		J45	DROP SIG(DISP MOD 15)	A2384056G6	G643	38,68		
W644		J46		J46	DROP SIG(15)	G6	G644	38,68		
W645		J47		J47	CONSOLE SIG(14)	G7	G645	37,67		
W646		J48		J48	CONSOLE SIG(14)	G8	G646	37,67		
W647		J49		J49	PRESET SIG (1)	G6	G647	39,69		
W648		J50	7641 COC VAN	J50	PRESET(DISP MOD 1)	A2384056G6	G648	39,69		
W649		J51	OR	J51	DROP AUDIO	A2384055G1	G649	29		MAIN LINE CLE ONLY
W650	7642 CLE VAN CLE A	J52	7663 JCT BOX JBA	J52	DROP AUDIO	A2384055G1	B2330963G650	29,59		

Figure 43. Site cabling composite list (part 24 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W651	7642 CLE VAN CLE A	J54	7663 JCT BOX JB A	J54	DROP SIG (DISP MOD 8)	A2384056G6	B2330963G651	38,63		
W652	↑	J55	OR	J55	DROP AUDIO	A2384055G1	B2330963G652	29,59		
W653	↑	J56	7641 COC VAN	J56	+30 VOLTS-DISP	A2384058G1	B2330963G653	35,65		
W654	↑	J57	↑	J57	+30 VOLTS-DISP	A2384058G1	G654	35,65		
W655	↑	J58	↑	J58	+30 VOLTS-DISP	A2384058G1	G655	35,65		
W656	↑	J59	↑	J59	HI I SIG (CONS.1)	A2384057G1	G656	33,63		
W657	↑	J60	7641 COC VAN	J60	POWER (CONS.1)	A2384057G1	G657	34,64		
W658	↑	J61	OR	J61	HI I SIG(CONS.2)	A2384057G1	G658	33,63		
W659	↓	J62	7663 JCT BOX JB A	J62	POWER (CONS. 2)	A2384057G1	G659	34,64		
W660	7642 CLE VAN CLE A	J44			HF SIGNAL	A2384053G2	G660	40		MAIN LINE CLE ONLY
W661	7641 COC VAN COC A	J51			DROP AUDIO	A2384055G1	G661	70		ALT CONSOLE SITES ONLY
W662	7642 CLE VAN CLE A	J195	7663 JCT BOX JBA	J195	DROP AUDIO	A2384055G1	G662	29,59		
W663	↑	J196	OR	J196	+30 VOLTS-DISP	A2384058G1	G663	35,65		
W664	↑	J197	7641 COC VAN	J197	+30 VOLTS-DISP	A2384058G1	G664	35,65		
W665	↑	J175	↑	J175	TRIB SIG(DISP MOD 8)	A2384056G7	G665	36,66		
W666	↑	J181	↑	J181	↑	↑ G8	G666	↑		
W667	↑	J174	↑	J174	↑	↑ G9	G667	↑		
W668	↑	J180	↑	J180	TRIB SIG(DISP MOD 8)	↑ G10	G668	↑		
W669	↑	J187	↑	J187	TRIB SIG(DISP MOD 9)	↑ G7	G669	↑		
W670	↑	J193	↑	J193	↑	↑ G8	G670	↑		
W671	↑	J186	↑	J186	↑	↑ G9	G671	↑		
W672	↑	J192	↑	J192	TRIB SIG(DISP MOD 9)	↑ G10	G672	↑		
W673	↑	J173	7663 JCT BOX JBA	J173	TRIB SIG(DISP MOD 10)	↑ G7	G673	↑		
W674	↓	J179	OR	J179	↓	↓ G8	G674	↓		
W675	7642 CLE VAN CLE A	J172	7641 COC VAN	J172	TRIB SIG(DISP MOD 10)	A2384056 G9	B2330963 G675	36,66		

Figure 43. Site cabling composite list (part 25 of 58).

LE	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
6	7642 CLE VAN CLE A	J178	7663 JCT BOX J B A	J178	TRIB SIG (DISP. MOD 10)	A2384056 G10	A2330963 G676	36,66		
7	↑	J185	OR	J185	(DISP. MOD 11)	↑ G7	↑ G671	↑		
8	↑	J191	7641 COC VAN	J191	↓	G8	G678			
9	↑	J184	↑	J184	↓	G9	G679			
10	↑	J190	↑	J190	(DISP. MOD 11)	G10	G680			
11	↑	J171	↑	J171	(DISP. MOD 12)	G7	G681			
12	↑	J177	↑	J177	↑	G8	G682			
13	↑	J170	↑	J170	↓	G9	G683			
14	↑	J176	↑	J176	(DISP MOD 12)	G10	G684			
15	↑	J183	↑	J183	(DISP MOD 13)	G7	G685			
16	↑	J189	↓	J189	↑	G8	G686			
17	↑	J182	7663 JCT BOX J8A	J182	↓	G9	G687	↓		
18	↓	J188	OR	J188	TRIB SIG (DISP MOD 13)	A2384056 G10	↓ G688	36,66		
19	7642 CLE VAN CLE A	J194	7641 COC VAN	J194	DROP SIG (DISP MOD 14)	A2384056 G6	A2330963 G689	36,68		
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Figure 43. Site cabling composite list (part 26 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W701	7663 JCT BOX JBA	J6	WALL DISP MODULE 2	J1	TRIBUTARY SIGNAL	A2384060G7	B2330963G701	54		LEFT SECTION, 8883 DISP
W702		J7		J2	TRIBUTARY SIGNAL	G8	G702	54		
W703		J16		J3	TRIBUTARY SIGNAL	G9	G703	54		
W704		J17		J4	TRIBUTARY SIGNAL	A2384060G10	G704	54		
W705		J76	MODULE 2	J5	+30 VOLTS	A2384063G1	G705	53		
W706		J8	MODULE 3	J1	TRIBUTARY SIGNAL	A2384060G7	G706	54		
W707		J9		J2		G8	G707	54		
W708		J18		J3		G9	G708	54		
W709		J19		J4	TRIBUTARY SIGNAL	A2384060G10	G709	54		
W710		J100	MODULE 3	J5	+30 VOLTS	A2384063G1	G710	53		LEFT SECTION, 8883 DISP
W711		J10	MODULE 4	J1	TRIBUTARY SIGNAL	A2384060G7	G711	54		CENTER SECTION, 7660 DISP
W712		J11		J2		G8	G712	54		
W713		J20		J3		G9	G713	54		
W714		J21		J4	TRIBUTARY SIGNAL	A2384060G10	G714	54		
W715		J101	MODULE 4	J5	+30 VOLTS	A2384063G1	G715	53		
W716		J26	MODULE 5	J1	TRIBUTARY SIGNAL	A2384060G7	G716	54		
W717		J27		J2		G8	G717	54		
W718		J36		J3		G9	G718	54		
W719		J37		J4	TRIBUTARY SIGNAL	A2384060G10	G719	54		
W720		J102	MODULE 5	J5	+30 VOLTS	A2384063G1	G720	53		
W721		J28	MODULE 6	J1	TRIBUTARY SIGNAL	A2384060G7	G721	54		
W722		J29		J2		G8	G722	54		
W723		J38		J3		G9	G723	54		
W724		J39		J4	TRIBUTARY SIGNAL	A2384060G10	G724	54		
W725	7663 JCT BOX JBA	J103	WALL DISP MOD 6	J5	+30 VOLTS	A2384063G1	B2330963G725	53		CENTER SECTION, 7660 DISP

Figure 43. Site cabling composite list (part 27 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W726	7663 JCT BOX JB A	J30	WALL DISP MODULE 7	J1	TRIBUTARY SIGNAL	A2384060G7	B2330963G726	54		CENTER SECTION, 7660 DISP
W727		J31		J2		G8	G727	54		
W728		J40		J3		G9	G728	54		
W729		J41		J4	TRIBUTARY SIGNAL	A2384060G10	G729	54		
W730		J104	MODULE 7	J5	+30 VOLTS	A2384063G1	G730	53		CENTER SECTION, 7660 DISP
W731		J47	MODULE 14	J1	CONSOLE SIG	A2384060G7	G731	55		RIGHT SECTION, 8883 DISP
W732		J48	14	J2	CONSOLE SIG	A2384060G8	G732	55		
W733		J105	MODULE 14	J5	+30 VOLTS	A2384063G1	G733	53		
W734		J63	MODULE 15	J1	DROP SIG	A2384060G17	G734	56		
W735		J64	15	J2		G18	G735	56		
W736		J69	15	J3		G19	G736	56		
W737		J70	15	J4	DROP SIG	A2384060G20	G737	56		
W738		J106	MODULE 15	J5	+30 VOLTS	A2384063G1	G738	53		RIGHT SECTION, 8883 DISP
W739		J65	MODULE 1	J1	PRESET SIG	A2384060G17	G739	57		LEFT SECTION, 8883 DISP
W740		J66		J2		A2384060G18	G740	57		
W741		J71		J3		A2384060G19	G741	57		
W742		J72		J4	PRESET SIG	A2384060G20	G742	57		
W743		J75	WALL DISP MODULE 1	J5	+30 VOLTS	A2384063G1	G743	53		LEFT SECTION, 8883 DISP
W744	7663 JCT BOX JBA	J95	7660 DISP FRAME	J3	CONSOLETTE COMM	A2384059G2	B2330963G744	42		
W745A		J175	WALL DISP MODULE 8	J1	TRIBUTARY SIGNAL	A2384060G7	A2330963G745	54		CENTER SECTION, 7660 DISP
W745B		J181	8	J2		G8	G981	54		
W746A		J174	8	J3		G9	G746	54		
W746B		J180	8	J4	TRIBUTARY SIGNAL	A2384060G10	G982	54		
W747		J275	8	J5	+30 VOLTS	A2384063G1	G747	53		
W748A	7663 JCT BOX JBA	J187	WALL DISP MODULE 9	J1	TRIBUTARY SIGNAL	A2384060G7	A2330963G748	54		CENTER SECTION, 7660 DISP

Figure 43. Site cabling composite list (part 28 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W748B	7663 JCT BOX JBA	J193	WALL DISP MODULE 9	J2	TRIBUTARY SIGNAL	A2384060 G8	A2330963 G983	54		CENTER SECTION, 7660 DISP
W749A	↕	J186	↕ 9	J3	↕	↕ G9	↕ G749	54		↕
W749B	↕	J192	↕ 9	J4	TRIBUTARY SIGNAL	A2384060 G10	↕ G984	54		↕
W750	7663 JCT BOX JBA	J276	WALL DISP MODULE 9	J5	+ 30 VOLTS	A2384063 G1	A2330963 G750	53		CENTER SECTION, 7660 DISP

Figure 43. Site cabling composite list (part 29 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W751	7663 JCT BOX JB A	J12	7659 CONSOLETTE 1	J1	SIGNAL	A2384060G2	B2330963G751	43		
W752	↓	J13	↑	J5	SIGNAL	A2384060G4	B2330963G752	43		
W753	↓	J23	↑	J6	AUDIO	A2384061G1	↑ G753	45		
W754	↓	J67	↑	J3	SIGNAL FILTERED	A2384060G13	↑ G754	44		
W755	↓	J96	↑	J4	HI I SIG	A2384062G1	↑ G755	46		
W756	7663 JCT BOX JB A	J97	7659 CONSOLETTE 1	J2	POWER	A2384062G1	B2330963G756	47		
W757A	↑	J173	WALL DISP MOD 10	J1	TRIBUTARY SIGNAL	A2384060G7	A2330963G757	54		CENTER SECTION, 7660 DISP
W757B		J179	↑ 10	J2	↓	↑ G8	↑ G985	54		↕
W758A		J172	↓ 10	J3		↓ G9	↑ G758	54		↕
W758B		J178	↓ 10	J4	TRIBUTARY SIGNAL	A2384060G10	↑ G986	54		↕
W759		J300	WALL DISP MOD 10	J5	+30VOLTS	A2384063G1	A2330963G759	53		CENTER SECTION, 7660 DIST
W760										
W761		J32	7659 CONSOLETTE 2	J1	SIGNAL	A2384060G2	B2330963G761	48		
W762		J33	↑	J5	SIGNAL	A2384060G4	↑ G762	48		
W763		J43	↑	J6	AUDIO	A2384061G1	↑ G763	50		
W764		J68	↑	J3	SIGNAL FILTERED	A2384060G13	↑ G764	49		
W765	↓	J98	↑	J4	HI I SIG	A2384062G1	↑ G765	51		
W766	7663 JCT BOX JB A	J99	7659 CONSOLETTE 2	J2	POWER	A2384062G1	b2330963G766	52		
W767A	↑	J277	7662 DROP SET DSU	TJB19	DROP VOICE CHANNEL	A2384059G1	↑ G767	41		
W767B		J278	7662 DROP SET DSV	TJB20	DROP VOICE CHANNEL	A2384059G1	↑ G987	41		
W768A		J279	7662 DROP SET DSW	TJB21	DROP VOICE CHANNEL	A2384059G1	↑ G768	41		
W768B		J280	7662 DROP SET DSX	TJB22	DROP VOICE CHANNEL	A2384059G1	↑ G988	41		
W769A		J281	7662 DROP SET DSY	TJB23	DROP VOICE CHANNEL	A2384059G1	↑ G769	41		
W769B	↓	J282	7662 DROP SET DSZ	TJB24	DROP VOICE CHANNEL	A2384059G1	↑ G989	41		
W770A	7663 JCT BOX JB A	J269	WALL DISP MOD 14	J3	DROP SIG	A2384060G19	B2330963G770	56		RIGHT SECTION, 8883 DISP

Figure 43. Site cabling composite list (part 30 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W770B	7663 JCT BOX JB A	J270	WALL DISP MOD 14	J4	DROP SIG	A2384060G20	A2330963G990	56		RIGHT SECTION, 8883 DISP
W771	↓	J77	7662 DROP SET DSA	TJB1	DROP VOICE CHANNEL	A2384059G1	B2330963G771	41	23	
W772		J78	7662 DROP SET DSB	TJB2	DROP VOICE CHANNEL	A2384059G1	↓ G772	41	23	
W773		J79	7662 DROP SET DSC	TJB3	DROP VOICE CHANNEL	A2384059G1	G773	41	23	
W774	↓	J80	7662 DROP SET DSD	JB4	DROP VOICE CHANNEL	A2384059G1	G774	41	23	
W775	7663 JCT BOX JB A	J81	7662 DROP SET DSE	TJB5	DROP VOICE CHANNEL	A2384059G1	B2330963G775	41	23	

Figure 43. Site cabling composite list (part 31 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W776	7663 JCT BOX JB A	J82	7662 DROP SET DSF	TJB6	DROP VOICE CHANNEL	A2384059G1	A2330963G776	41	23	
W777		J83	DSG	TJB7			G777			
W778		J84	DSH	TJB8			G778			
W779		J85	DSJ	TJB9			G779			
W780		J86	DSK	TJB10			G780			
W781		J87	DSL	TJB11			G781			
W782		J88	DSM	TJB12			G782			
W783		J89	DSN	TJB13			G783			
W784		J90	DSP	TJB14			G784			
W785		J91	DSQ	TJB15			G785			
W786		J92	DSR	TJB16			G786			
W787		J93	DSS	TJB17			G787			
W788	7663 JCT BOX JB A	J94	7662 DROP SET DST	TJB18	DROP VOICE CHANNEL	A2384059G1	A2330963G788	41	23	
W789A	7663 JCT BOX JB A	J185	WALL DISP MODULE 11	J1	TRIBUTARY SIGNAL	A2384060G7	A2330963G789	54		CENTER SECTION, 7660 DISP
W789B		J191	11	J2		G8	G991	54		
W790A		J184	11	J3		G9	G790	54		
W790B		J190	11	J4	TRIBUTARY SIGNAL	A2384060G10	G992	54		
W791		J301	11	J5	+30 VOLTS	A2384063G1	G791	53		
W792A		J171	12	J1	TRIBUTARY SIGNAL	A2384060G7	G792	54		
W792B		J177	12	J2		G8	G992	54		
W793A		J170	12	J3		G9	G793	54		
W793B		J176	12	J4	TRIBUTARY SIGNAL	A2384060G10	G994	54		
W794		J302	12	J5	+30 VOLTS	A2384063G1	G794	53		CENTER SECTION, 7660 DISP
W795A		J183	13	J1	TRIBUTARY SIGNAL	A2384060G7	G795	54		RIGHT SECTION, 8663 DISP
W795B	7663 JCT BOX JB A	J189	WALL DISP MODULE 13	J2	TRIBUTARY SIGNAL	A2384060G8	A2330963G995	54		RIGHT SECTION, 8663 DISP

Figure 43. Site cabling composite list (part 32 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W796A	7663 JCT BOX JBA	J182	WALL DISP MODULE 13	J3	TRIBUTARY SIGNAL	A2384060 G9	A2330963G796	54		RIGHT SECTION, 8883 DISP
W796B	↕	J188	↕ 13	J4	TRIBUTARY SIGNAL	A2384060 G10	A2330963G996	54		↕
W797	7663 JCT BOX JBA	J303	WALL DISP MODULE 13	J5	+30 VOLTS	A2384063 G1	A2330963G797	53		RIGHT SECTION, 8883 DISP

Figure 43. Site cabling composite list (part 33 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W801	TECH CONTROL VAN	JT1	6270 MUX SET MS A	J14	GP1/SG1 CHAN SEND	A2384053G3	B2330963G801	21	19	
W802		JT2		J26	GP2/SG1		G802			
W803		JT3		J5	GP3/SG1		G803			
W804		JT4		J15	GP4/SG1		G804			
W805		JT5		J27	GP5/SG1		G805			
W806		JT6		J6	GP1/SG2		G806			
W807		JT7		J16	GP2/SG2		G807			
W808		JT8		J28	GP3/SG2		G808			
W809		JT9		J7	GP4/SG2		G809			
W810		JT10		J17	GP5/SG2 CHAN SEND		G810			
W811		JR1		J18	GP1/SG1 CHAN REC		G811			
W812		JR2		J30	GP2/SG1		G812			
W813		JR3		J8	GP3/SG1		G813			
W814		JR4		J19	GP4/SG1		G814			
W815		JR5		J31	GP5/SG1		G815			
W816		JR6		J9	GP1/SG2		G816			
W817		JR7		J20	GP2/SG2		G817			
W818		JR8		J32	GP3/SG2		G818			
W819		JR9		J10	GP4/SG2		G819			
W820		JR10		J21	GP5/SG2 CHAN REC		G820			
W821		JS1		J22	GP1/SG1 CHAN E&M		G821			
W822		JS2		J34	GP2/SG1		G822			
W823		JS3		J11	GP3/SG1		G823			
W824		JS4		J23	GP4/SG1		G824			
W825	TECH CONTROL VAN	JS5	6270 MUX SET MS A	J35	GP5/SG1 CHAN E&M	A2384053G3	B2330963G825	21	19	

Figure 43. Site cabling composite list
(part 34 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W826	TECH. CONTROL VAN	JS6	6270 MUX SET MS A	J12	GP1/SG2 CHAN E & M	A2384053G3	B2330963G826	21	19	
W827		JS7		J24	GP2/SG2		G827			
W828		JS8		J36	GP3/SG2		G828			
W829		JS9		J13	GP4/SG2		G829			
W830		JS10	MS A	J25	GP5/SG2 CHAN E & M		G830			
W831		JT11	MS B	J14	GP1/SG1 CHAN SEND		G831			
W832		JT12		J26	GP2/SG1		G832			
W833		JT13		J5	GP3/SG1		G833			
W834		JT14		J15	GP4/SG1		G834			
W835		JT15		J27	GP5/SG1		G835			
W836		JT16		J6	GP1/SG2		G836			
W837		JT17		J16	GP2/SG2		G837			
W838		JT18		J28	GP3/SG2		G838			
W839		JT19		J7	GP4/SG2		G839			
W840		JT20		J17	GP5/SG2 CHAN SEND		G840			
W841		JR11		J18	GP1/SG1 CHAN REC		G841			
W842		JR12		J30	GP2/SG1		G842			
W843		JR13		J8	GP3/SG1		G843			
W844		JR14		J19	GP4/SG1		G844			
W845		JR15		J31	GP5/SG1		G845			
W846		JR16		J9	GP1/SG2		G846			
W847		JR17		J20	GP2/SG2		G847			
W848		JR18		J32	GP3/SB2		G848			
W849		JR19		J10	GP4/SG2		G849			
W850	TECH. CONTROL VAN	JR20	6270 MUX SET MS B	J21	GP5/SG2 CHAN REC	A2384053G3	B2330963G850	21	19	

Figure 43. Site cabling composite list (part 35 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W851	JECN CONTROL VAN	JS11	6270 MUX SET MS B	J22	GP1/SG1 CHAN E & M	A2384053G3	B2330963G851	21	19	
W852		JS12		J34	GP2/SG1		G852			
W853		JS13		J11	GP3/SG1		G853			
W854		JS14		J23	GP4/SG1		G854			
W855		JS15		J35	GP5/SG1		G855			
W856		JS16		J12	GP1/SG2		G856			
W857		JS17		J24	GP2/SG2		G857			
W858		JS18		J36	GP3/SG2		G858			
W859		JS19		J13	GP4/SG2		G859			
W860		JS20	MSB	J25	GP5/SG2 CHAN E & M		G860			
W861		JT21	MSC	J14	GP1/SG1 CHAN SEND		G861			
W862		JT22		J26	GP2/SG1		G862			
W863		JT23		J 5	GP3/SG1		G863			
W864		JT24		J15	GP4/SG1		G864			
W865		JT25		J27	GP5/SG1		G865			
W866		JT26		J 6	GP1/SG2		G866			
W867		JT27		J16	GP2/SG2		G867			
W868		JT28		J28	GP3/SG2		G868			
W869		JT29		J 7	GP4/SG2		G869			
W870		JT30		J17	GP5/SG2 CHAN SEND		G870			
W871		JR21		J18	GP1/SG1 CHAN REC		G871			
W872		JR22		J30	GP2/SG1		G872			
W873		JR23		J 8	GP3/SG1		G873			
W874		JR24		J19	GP4/SG1		G874			
W875	TSCH CONTROL VAN	JR25	6270 MUX SET MS C	J31	GP5/SG1 CHAN REC	A2384053G3	B 2330963G875	21	19	

Figure 43. Site cabling composite list (part 36 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W876	TECH CONTROL VAN	JR26	6270 MUX SET MS C	J 9	GP1/SG2 CHAN REC	A2384053G3	B2330963G876	21	19	
W877		JR27		J20	GP2/SG2		G 877			
W878		JR28		J32	GP3/SG2		G 878			
W879		JR29		J10	GP4/SG2		G 879			
W880		JR30		J21	GP5/SG2 CHAN REC		G 880			
W881		JS21		J 22	GP1/SG1 CHAN E & M		G 881			
W882		JS22		J 34	GP2/SG1		G 882			
W883		JS23		J 11	GP3/SG1		G 883			
W884		JS24		J 23	GP4/SG1		G 884			
W885		JS25		J 35	GP5/SG1		G 885			
W886		JS26		J 12	GP1/SG2		G 886			
W887		JS27		J 24	GP2/SG2		G 887			
W888		JS28		J 35	GP3/SG2		G 888			
W889		JS29		J 13	GP4/SG2		G 889			
W890	TECH CONTROL VAN	JS30	6270 MUX SET MS C	J 25	GP5/SG2 CHAN E & M	A2384053G3	B2330963G890	21	19	
W891										
W892										
W893										
W894										
W895										
W896										
W897										
W898										
W899										
W900										

Figure 43. Site cabling composite list (part 37 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W901	MULTIPLEXER SET MSA	J14			SEND MUX CHAN GP1/SG1	A2384053G1	B2330963G901	71		SITE 6 & 130 ONLY
W902	↑	J18			REC MUX CHAN GP1/SG1	↑	G902	↑		↑
W903		J22			E&M MUX CHAN GP1/SG1		G903			
W904		J26			SEND MUX CHAN GP2/SG1		G904			
W905		J30			REC MUX CHAN GP2/SG1		G905			
W906		J34			E&M MUX CHAN GP2/SG1		G906			
W907		J5			SEND MUX CHAN GP3/SG1		G907			
W908		J8			REC MUX CHAN GP3/SG1		G908			
W909		J11			E&M MUX CHAN GP3/SG1		G909			
W910		J15			SEND MUX CHAN GP4/SG1		G910			
W911		J19			REC MUX CHAN GP4/SG1		G911			
W912		J23			E&M MUX CHAN GP4/SG1		G912			
W913		J27			SEND MUX CHAN GP5/SG1		G913			
W914	↓	J31			REC MUX CHAN GP5/SG1		G914			
W915	MULTIPLEXER SET MSA	J35			E&M MUX CHAN GP5/SG1	A2384053G1	G915	71		↓
W916	6260 NOD PT RAD NPCA	J28			AUDIO CHAN XMT & REC	A2384051G1	B2330963G916	72		SITE 6 & 130 ONLY
W917										
W918										
W919										
W920										
W921	MULTIPLEXER SET MSA	J60			MUX BASE GROUP	A2384065G1	B2330963G921	74		AT SITES 13 & 130
W922	↕	J61			↕	↕	G922	↕		↕
W923		J62					G923			
W924	MULTIPLEXER SET MSA	J63			MUX BASE GROUP	A2384065G1	B2330963G924	74		AT SITES 13 & 130
W925										

Figure 43. Site cabling composite list (part 38 of 58).

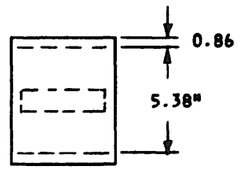
CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED ON LINK	FUNCT DIAG FIG	REMARKS
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND			
W926										
W927										
W928										
W929										
W930										
W931	7640 CRE VAN	J6			SEND MUX CHAN	A2384053G1	B2330963G931	75		SITE 7 ONLY
W932	7640 CRE VAN	J7			REC MUX CHAN	A2384053G1	B2330963G932	75		SITE 7 ONLY
W933										
W934										
W935	7640 CRE VAN	J14			AUD CHAN-SEND & REC	A2384051G1	B2330963G935	78		SITE 7 ONLY
W936										
W937										
W938										
W939										
W940										
W941	7642 CLE VAN	J15			SEND MUX CHAN	A2384053G1	B2330963G941	73		SITE 149 ONLY
W942	7642 CLE VAN	J25			REC MUX CHAN	A2384053G1	B2330963G942	73		SITE 149 ONLY
W943										
W944										
W945										
W946										
W947										
W948										
W949										
W950										

Figure 43. Site cabling composite list (part 39 of 58).

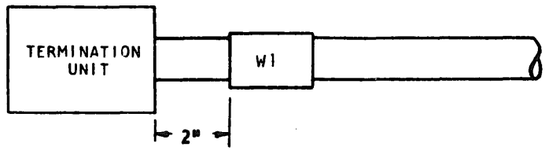
CABLE NO.	CABLE MARKER BANDS			
	CABLE A2288928		CABLE A2380481	
W1	B2330963G1	———	B2330963G1	———
W1A	B2330963G1	B2330963G998	G1	B2330963G998
W1B	G1	B2330963G999	G1	B2330963G999
W2	G2	———	G2	———
W2A	G2	B2330963G998	G2	B2330963G998
W2B	G2	B2330963G999	G2	B2330963G999
W3	G3	———	G3	———
W3A	G3	B2330963G998	G3	B2330963G998
W3B	G3	B2330963G999	G3	B2330963G999
W4	G4	———	G4	———
W4A	G4	B2330963G998	G4	B2330963G998
W4B	G4	B2330963G999	G4	B2330963G999
W5	G5	———	G5	———
W5A	G5	B2330963G998	G5	B2330963G998
W5B	G5	B2330963G999	G5	B2330963G999
W6	G6	---	G6	———
W6A	G6	B2330963G998	G6	B2330963G998
W6B	G6	B2330963G999	G6	B2330963G999
W7	G7	—	G7	—
W7A	G7	B2330963G998	G7	B2330963G998
W7B	B2330963G7	B2330963G999	B2330963G7	B2330963G999

NOTES:

1. CABLE MARKER BANDS ARE SIZED FOR THE LARGER CABLE, A2380481. WHEN CABLE A2288928 IS USED, CUT MARKER BAND TO DIMENSIONS SHOWN BELOW.



2. SINCE THE CABLE RUNS BETWEEN GENERATOR AND POWER SWITCHES ARE NOT ASSEMBLED CABLES (WITH CONNECTORS) THERE IS NO CABLE ASSEMBLY PART NUMBER AND THE MARKER BAND CONTAINS JUST THE "W" NUMBER. MARKER BANDS ARE INSTALLED AS SHOWN ON ITTFL DWG B2289113, AND SHOULD BE INSTALLED AS SHOWN BELOW.



3. IN CASES WHERE TWO CABLES ARE EXTENDED IN PARALLEL, EACH HAS AN ADDITIONAL MARKER BAND DESIGNATING IT AS A OR B, AS SHOWN BELOW

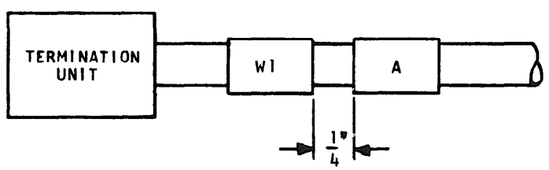


Figure 43. Site cabling composite list (part 40 of 58).

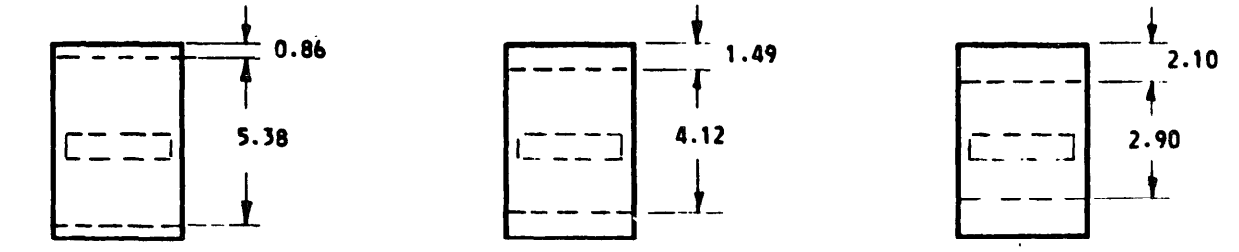
CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED LINK	FUNCT DIA FIG
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BANDS		
W302	6283 MAINT, CONTROL CENTER	J 2	6060 RADIO SET RS	J12	TRUNK OW/REMOTE ALM	A2384050G1	B2330963G375	12	5
			6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	G3	G376	13	6
			7561 DUAL PWR AMP RS	J6	LOCAL OW/REMOTE ALM	t Cl	G375	16	7
			7640 CRE VAN CRE A	J16	LOCAL OW/REMOTE ALM	A2384050G1	B2330963G375	17	10
w303	6283 MAINT, CONTROL CENTER	J3	6060 RADIO SET RS - -	J12	TRUNK OW/REMOTE ALM	A2384050G1	B2330963G377	12	5
			6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	G3	G379	13	6
			7561 DUAL PWR AMP RS	J6		Gl	G377	16	7
			7640 CRE VAN CRE A	J16		G1	G377	17	10
			7642 CLE VAN CLE A	J53	LOCAL OW/REMOTE ALM	A238405OG2	B2330963G378	18	11
W304	6283 MAINT.CONTROL CENTER	J4	6060 RADIO SET RS	J12	TRUNK OW/REMOTE ALM	A2384050G1	B2330963G380	12	5
			6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	G3	G381	13	6
			7561 DUAL PWR AMP RS	J6	I	Cl	G380	16	7
			7640 CRE VAN CRE A	J16	LOCAL OW/REMOTE ALM	A2384050G1	B2330963G380	17	10
W305	6283 MAINTENANCE CONTROL CENTER	J5	6060 RADIO SET RS	J12	TRUNK OW/REMOTE ALM	A2384050G1	B2330963G382	12	5
			6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	A238405OG3	B2330963G383	13	6
			7640 CRE VAN CRE A	J16	LOCAL OW/REMOTE ALM	A2384050G1	B2330963G382	17	10
W306	6283 MAINTENANCE CONTROL CENTER	J6	6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	A2384050G3	B2330963G384	13	6

NOTE :
SELECT ONE CABLE RUN FOR EACH MAINT CONTROL CENTER POSITION.

Figure 43. Site cabling composite list (part 41 of 58).

CABLE NO.	FROM		TO		FUNCTION	CABLE ASSEMBLY		USED LINK	FUNCT FIG
	UNIT	CONN	UNIT	CONN		ASSEMBLY INSTRUCTIONS	CABLE MARKER BAND		
W307	6283 MAINT CONTROL CENTER	J7	6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	A2384050G3	B2330963G385	13	6
W308	6283 MAINT CONTROL CENTER	J8	6270 MUX SET MS	J38	LOCAL OW/REMOTE ALM	A2384050G3	B2330963G386	13	6

Figure 43. Site cabling composite list
(part 42 of 58).

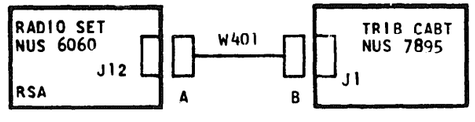


FOR CABLE A2288928 FOR CABLE A2289700 FOR CABLE A2288929

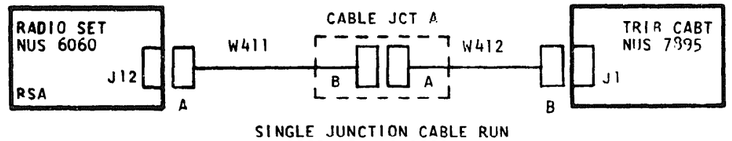
NOTES:

1. MARKER BANDS ARE SIZED FOR CABLE A2380481. WHEN USED ON OTHER TYPE OF CABLES, MARKER BANDS SHOULD BE CUT AS SHOWN ABOVE.

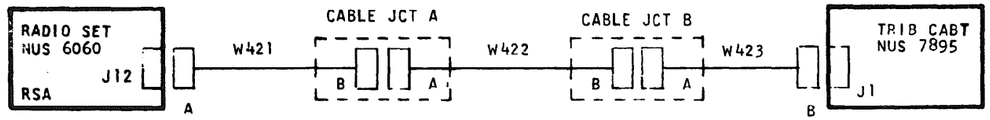
Figure 43. Site cabling composite list (part 43 of 58).



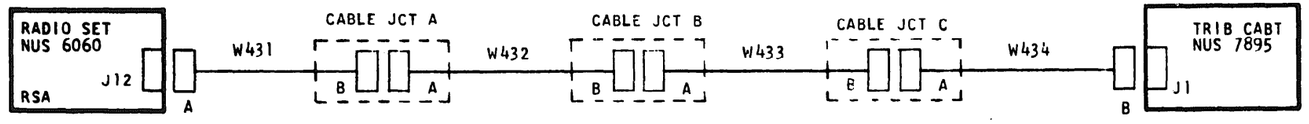
CABLE RUNS-NO JUNCTION
UP TO 2,500 FT



SINGLE JUNCTION CABLE RUN
2000 FT. TO 5000 FT.



DOUBLE JUNCTION CABLE RUN
4000 FT TO 7500 FT.

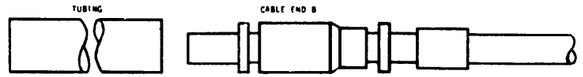


TRIPLE JUNCTION CABLE RUN
6000 FT TO 10,000 FT

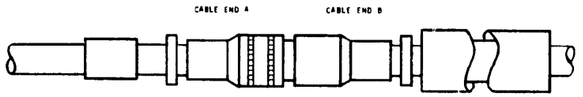
NOTES:

1. CABLE COMES IN LENGTHS OF 2,000 FT, +500 FT-0 FT. CABLE ASSEMBLY LENGTHS ARE ESTIMATED TAKING BOTH MAXIMUM AND MINIMUM LENGTHS INTO CONSIDERATION.
2. FOR DETAILS OF JUNCTION, SEE FIGURE 3, ON SHEET 45

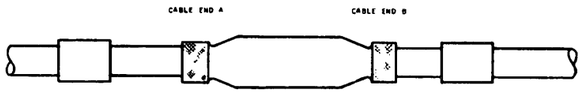
Figure 43. Site cabling composite list (part 44 of 58).



1. CUT THE TUBING, TO A LENGTH OF 12" AND SLIDE OVER CABLE END B.

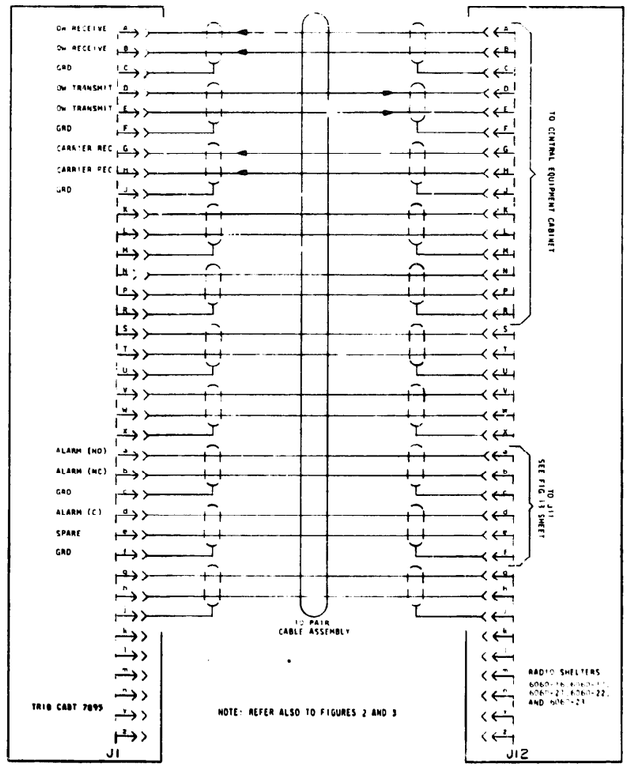


2. ENGAGE CABLE ENDS A & B



3. SLIDE TUBING OVER MATED CONNECTORS, DRESS ENDS DOWN ONTO CABLE AND SECURELY TAPE.

NOTES
1. WHERE JUNCTIONS ARE REQUIRED IN THE CABLE RUN AS SHOWN IN FIGURE 2, ON SHEET PROCEED AS SHOWN ABOVE.
2. MATERIAL REQUIRED PER JUNCTION- TUBING, FLEXITE HT 105C STANDARD EXTRUDED VINYL TUBING, 2-INCH DIA-BLACK, L.FRANK HARKEL & SONS, MORRISTOWN, PA.
TAPE, ELECTRICAL, 1TTFL PART NO. 946006A016



NOTE: REFER ALSO TO FIGURES 2 AND 3

Figure 43. Site cabling composite list
(part 45 of 58).

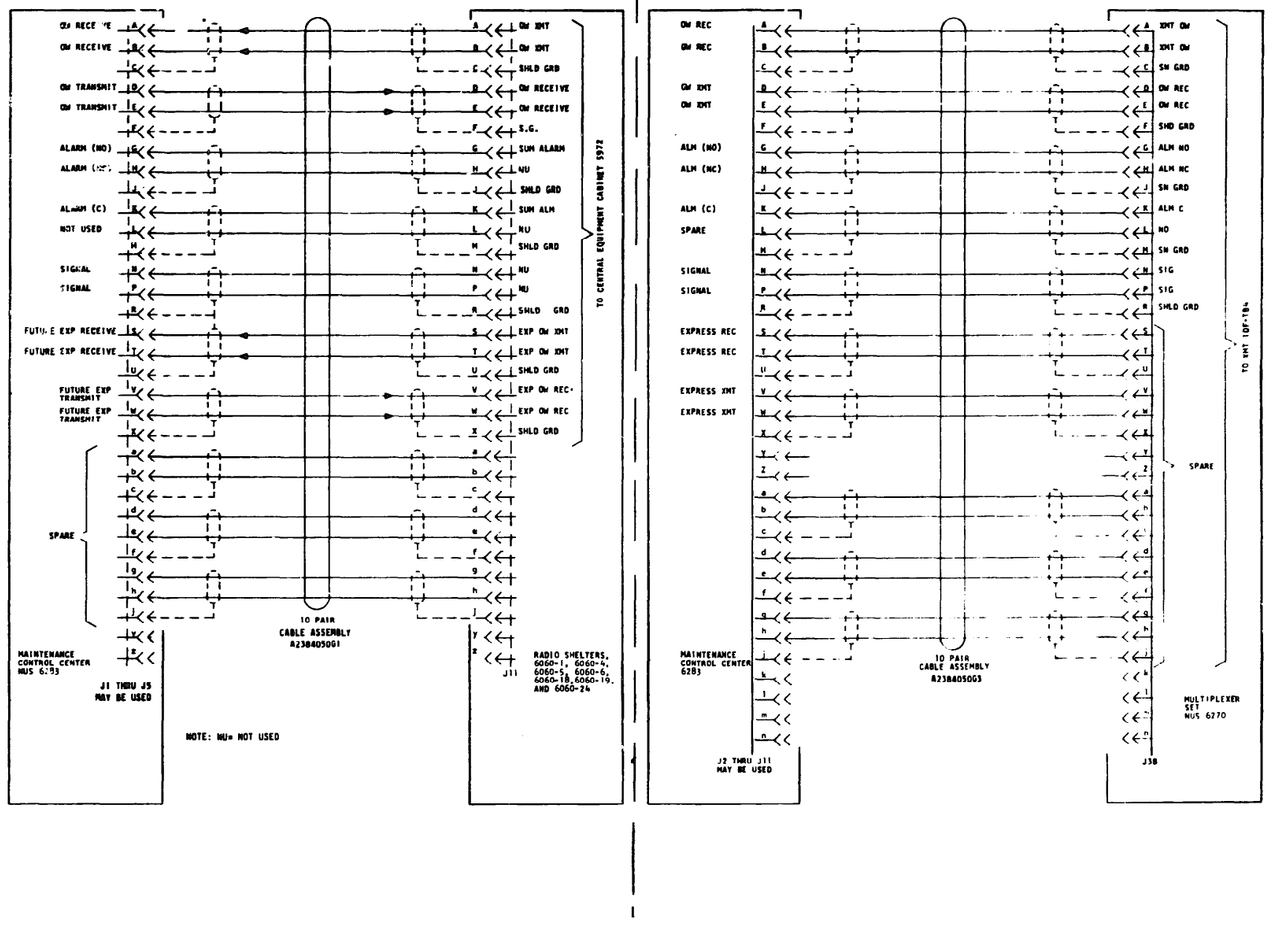
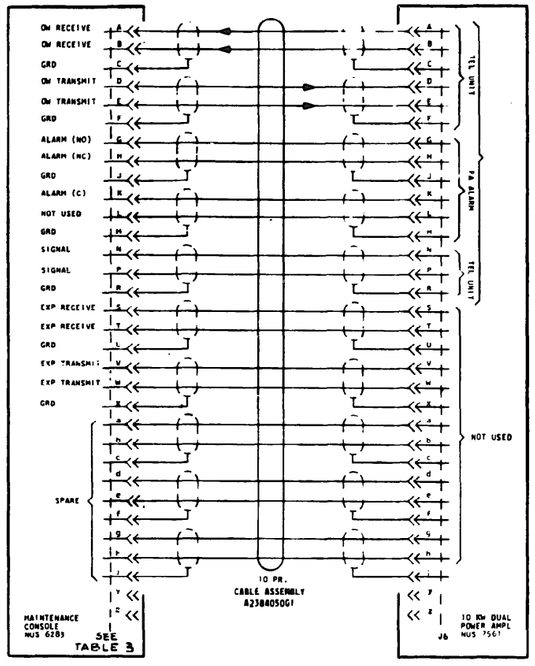


Figure 43. Site cabling composite list (part 46 of 58).



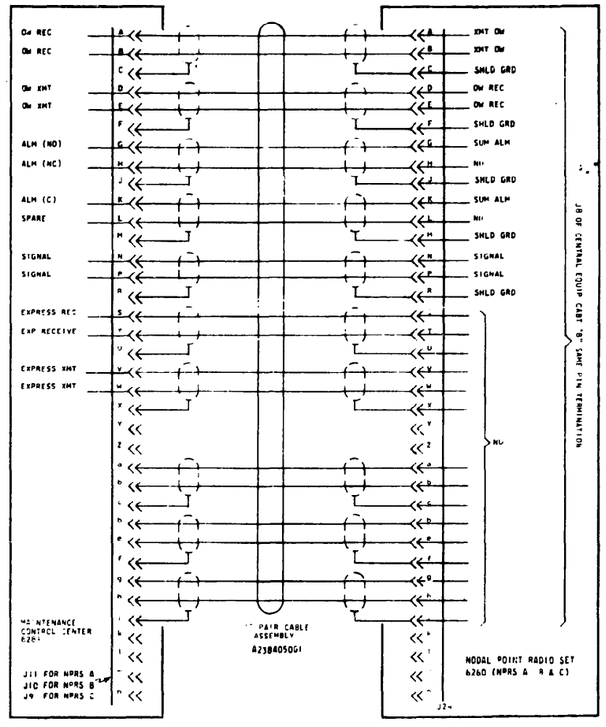


Figure 43. Site cabling composite list
(part 47 of 58).

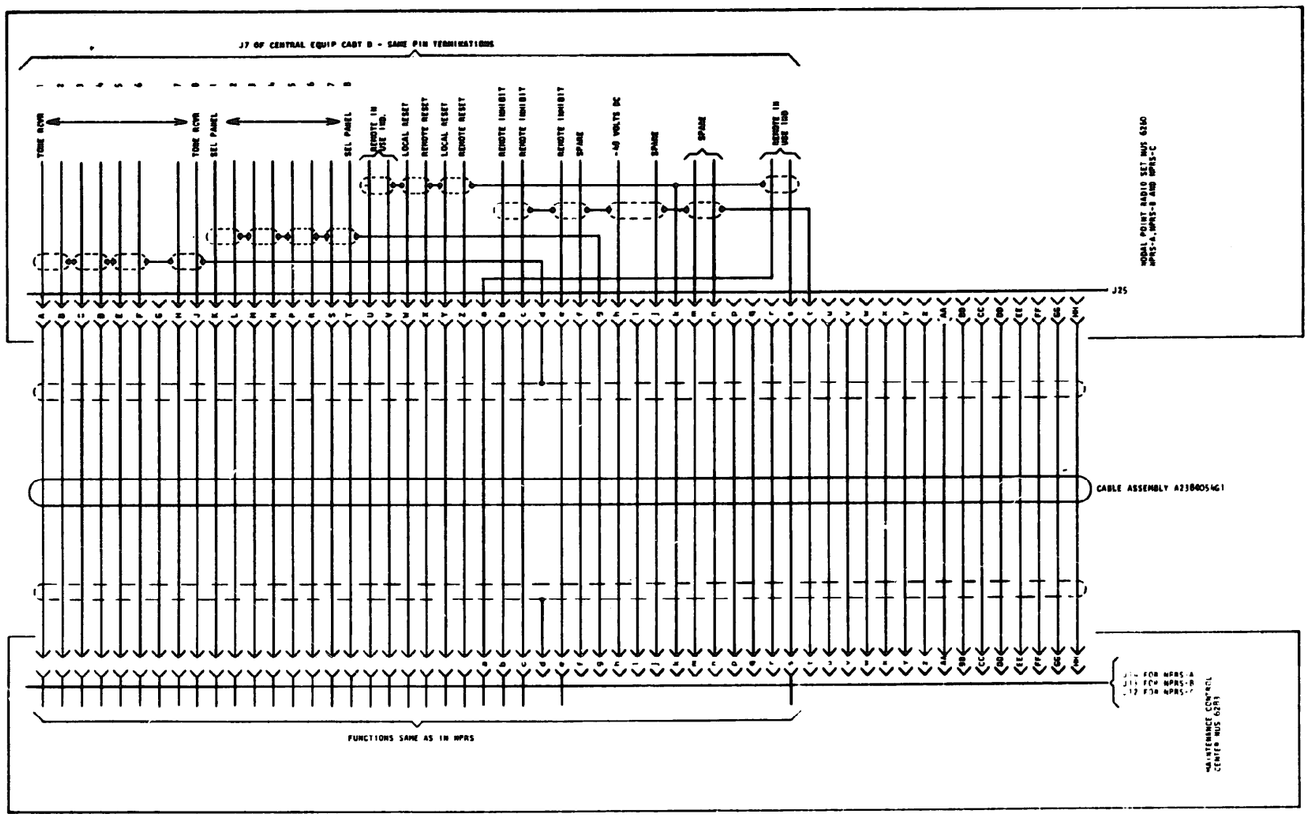
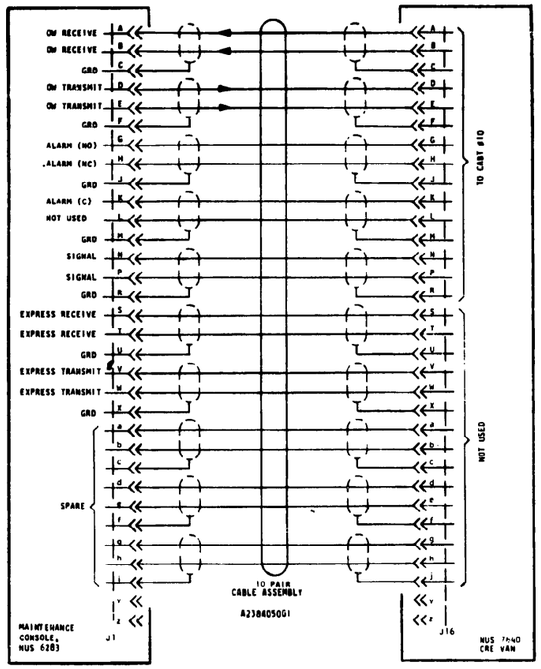


Figure 43. Site cabling composite list (part 48 of 58).



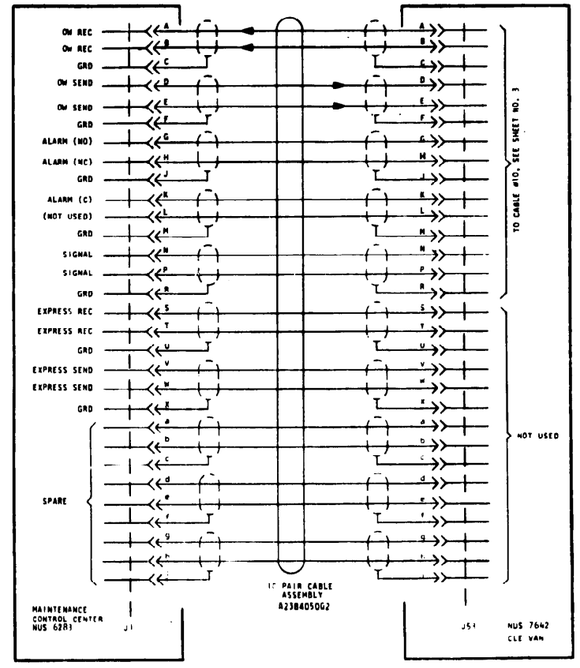


Figure 43. Site cabling composite list (part 49 of 58).

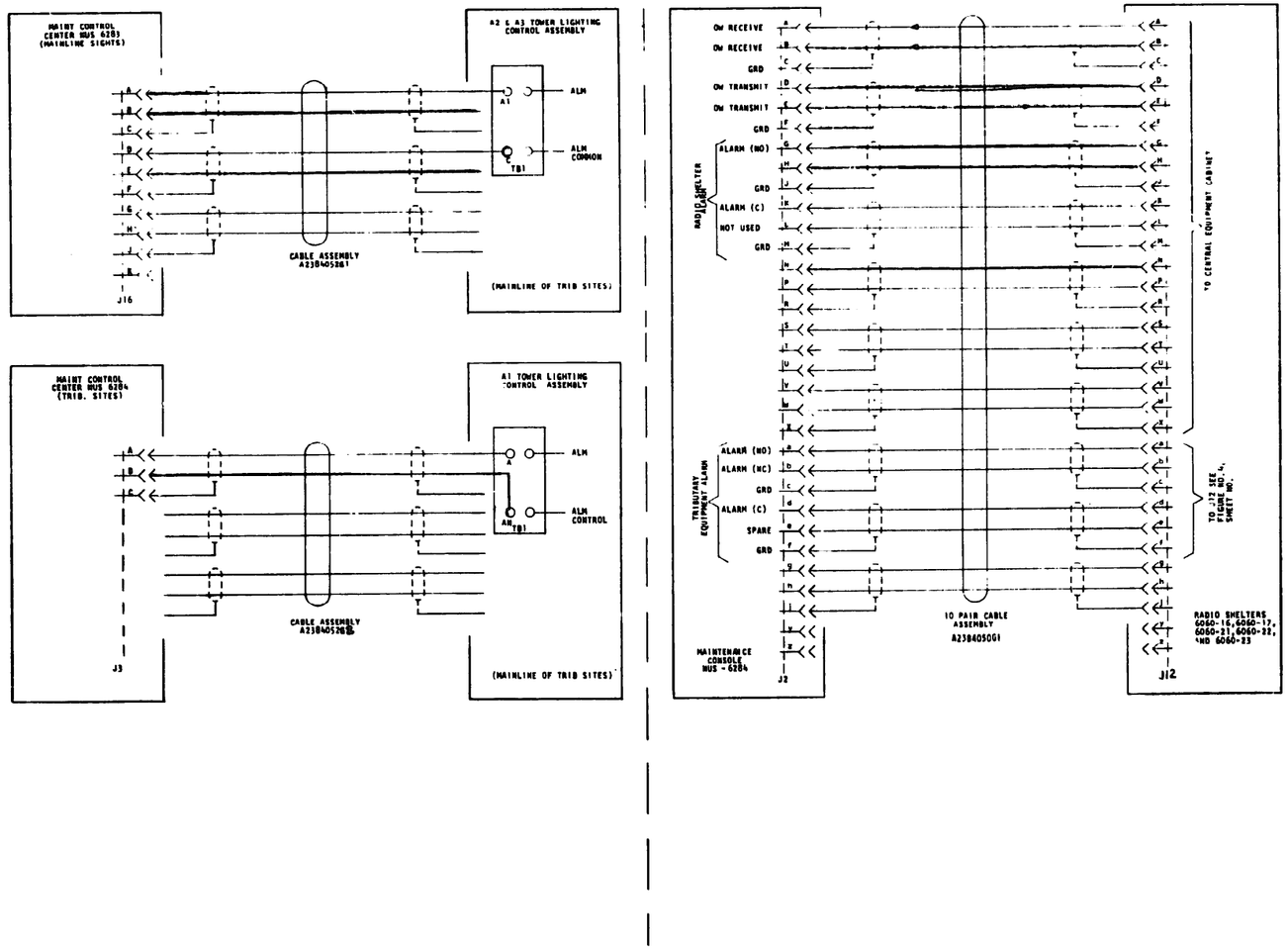


Figure 43. Site cabling composite list (part 50 of 58).

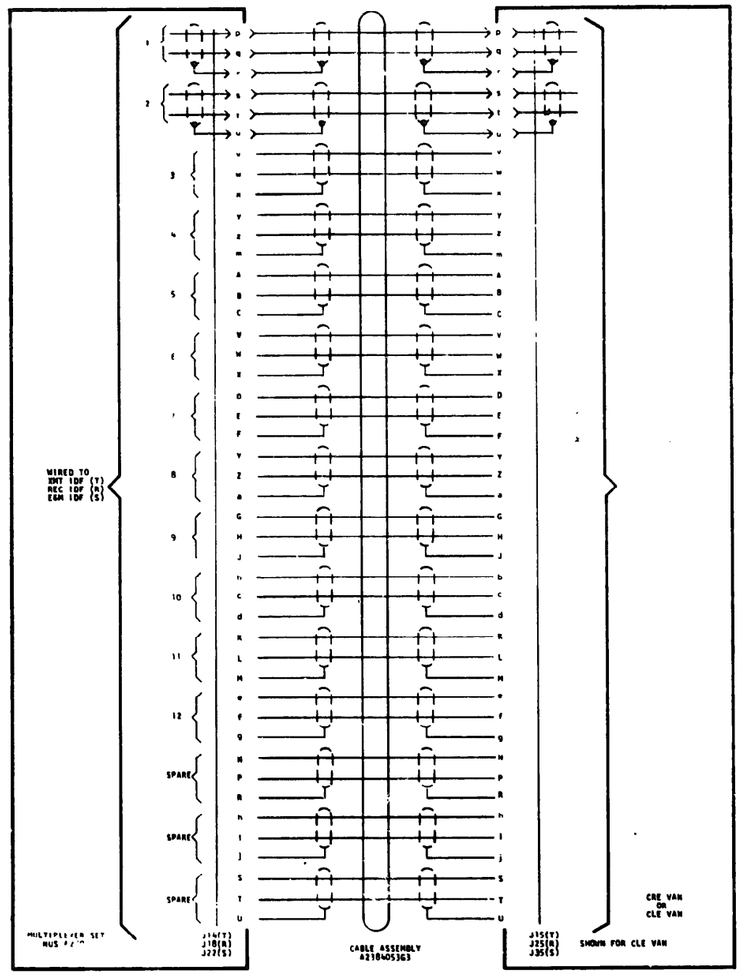


Figure 43. Site cabling composite list (part 51 of 58).

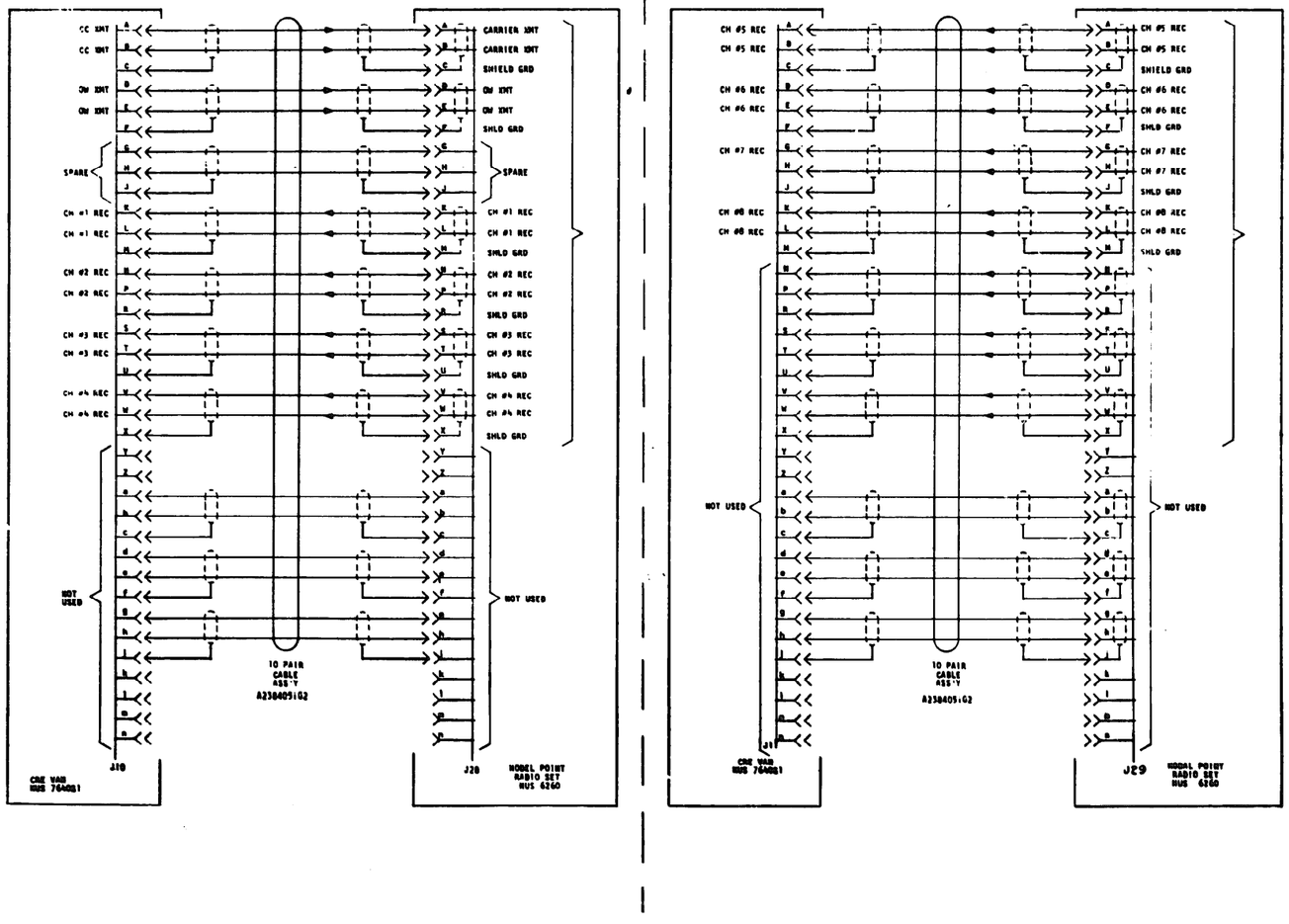


Figure 43. Site cabling composite list (part 52 of 58).

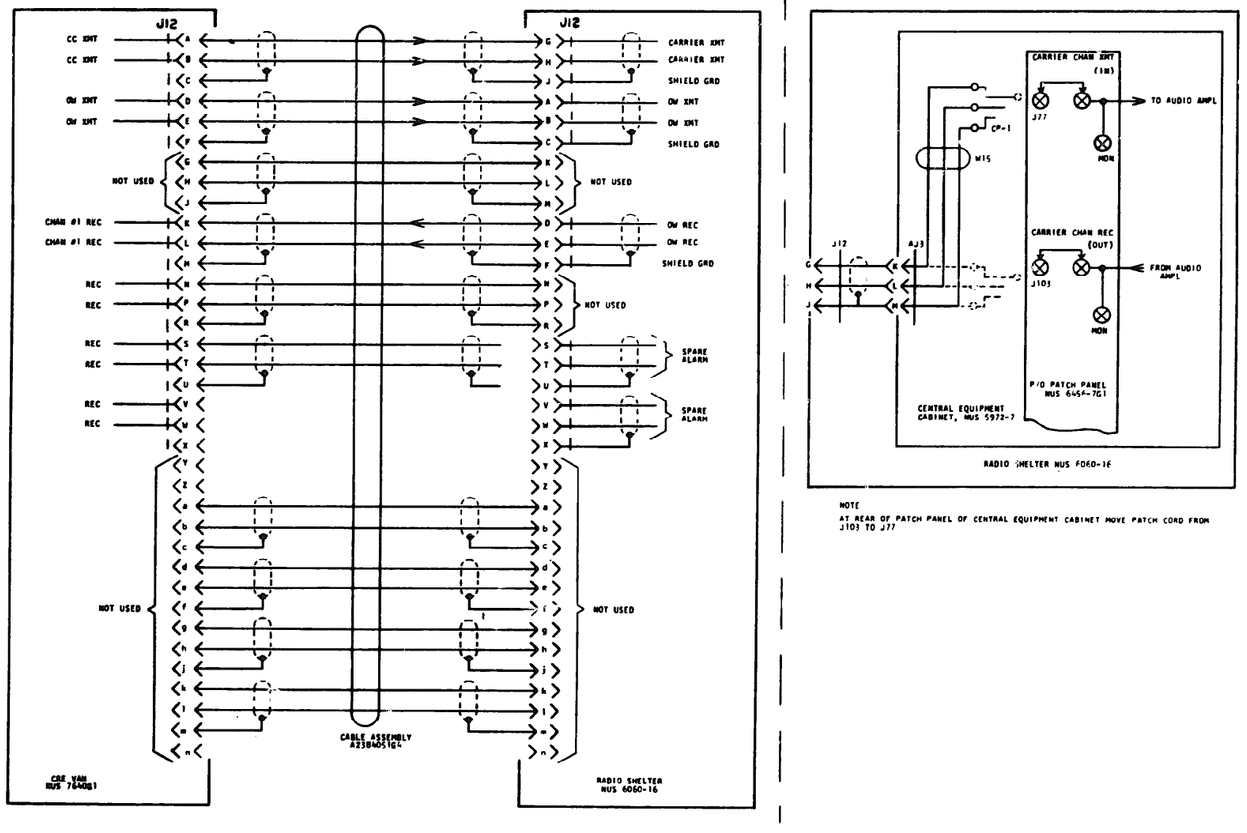


Figure 43. Site Cabling composite list (part 53 of 58).

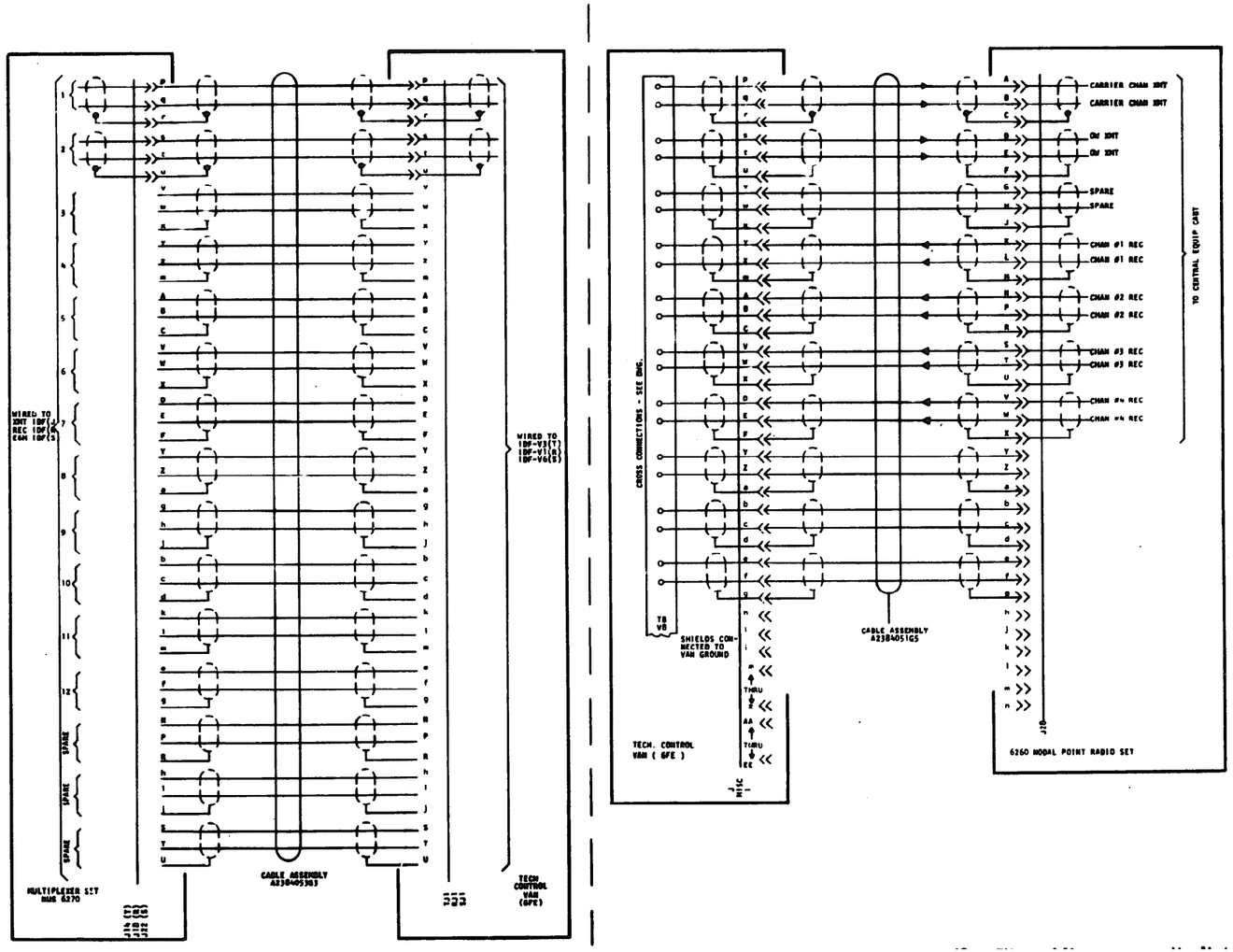
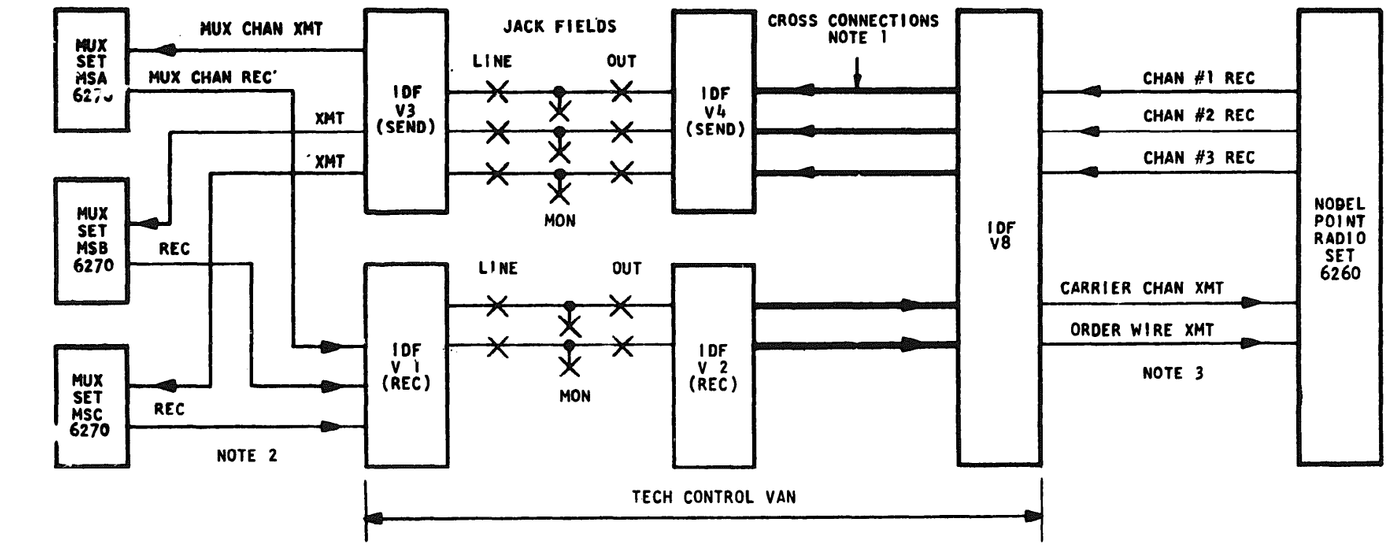


Figure 43. Site cabling composite list
(part 54 of 58).



NOTES:

1. CROSS CONNECTIONS ARE TO BE ADDED ON SITE WHEN THE MUX CHANNELS ASSIGNED TO FEED THE NODAL POINTS ARE KNOWN.
2. FOR CABLE FUNCTIONAL BLOCK DIAGRAM, SEE FIGURE 19.
3. FOR CABLE FUNCTIONAL BLOCK DIAGRAM SEE FIGURE 20.

Figure 43. Site cabling composite list (part 55 of 58).

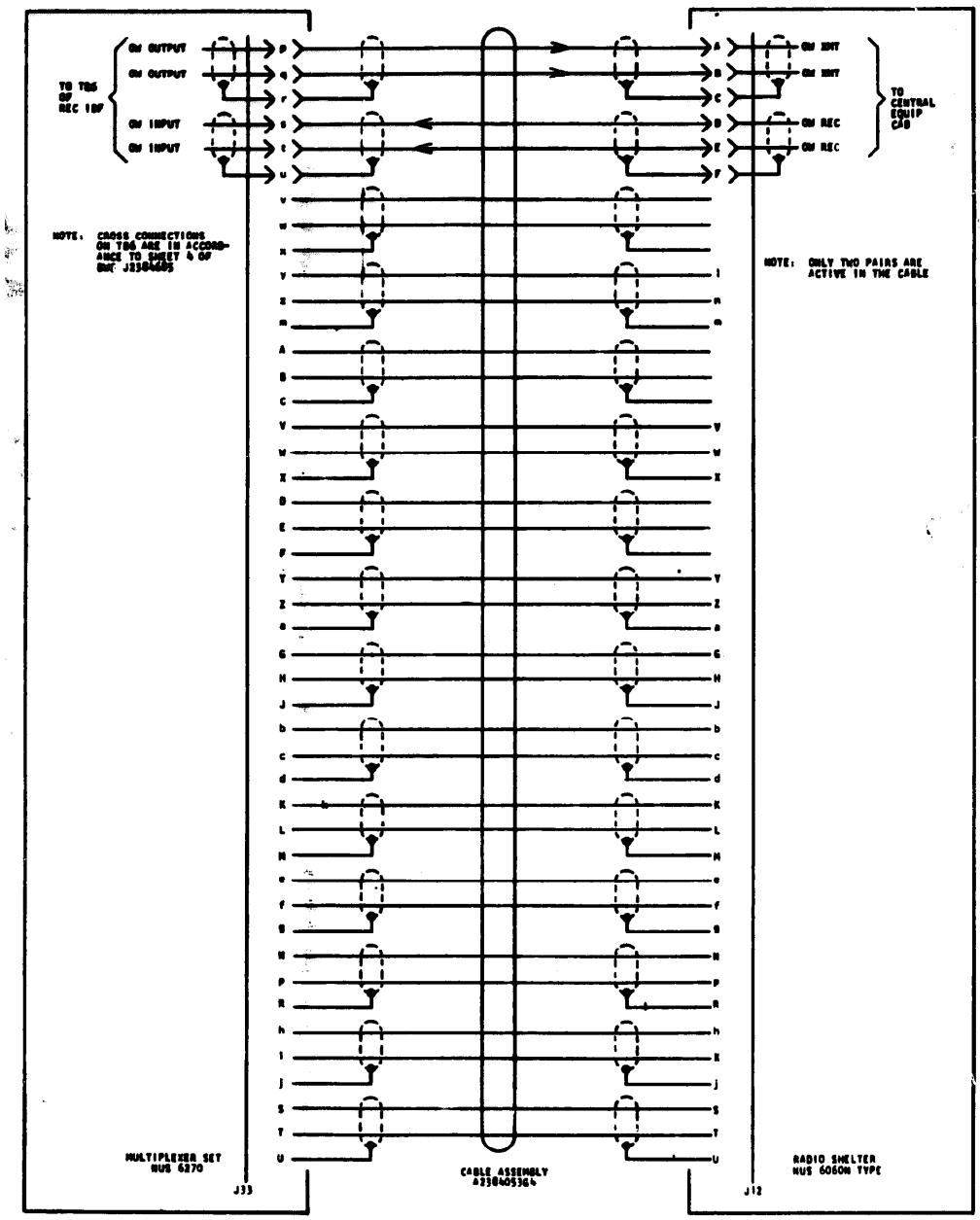


Figure 43. Site cabling composite list (part 56 of 58).

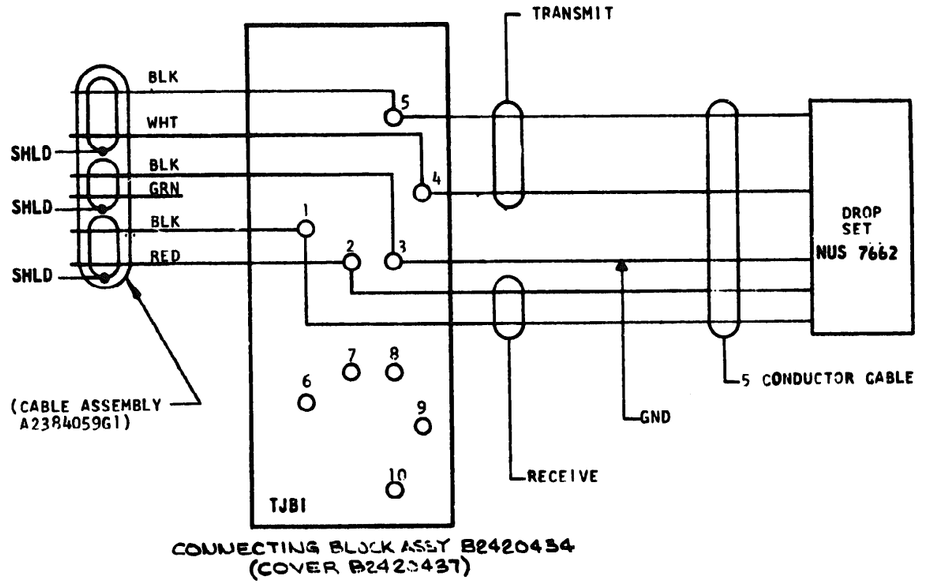
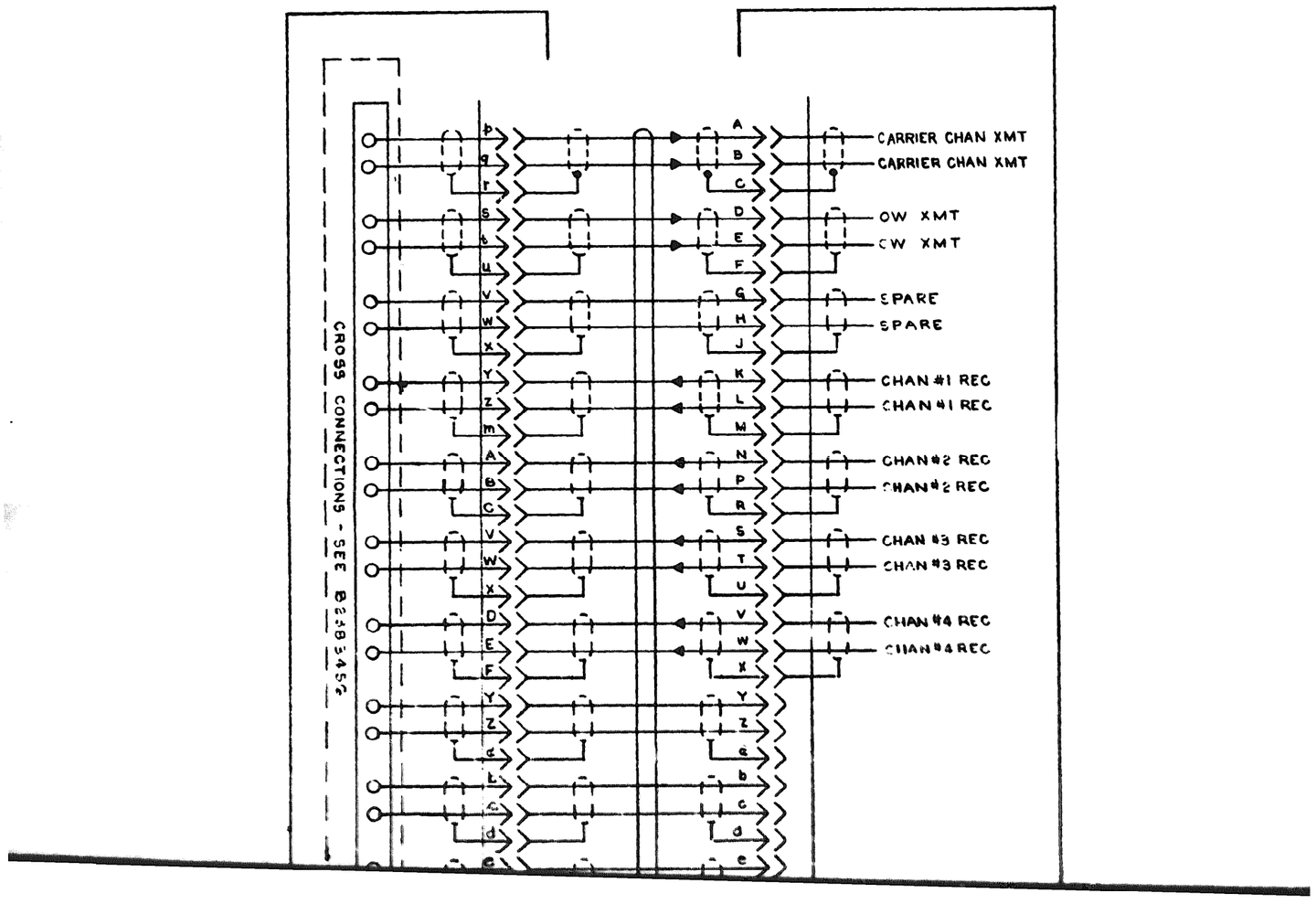


Figure 43. Site cabling composite list (part 57 of 58).


CROSS CONNECTIONS - SEE B22B345G
CARRIER CHAN XMT
CARRIER CHAN XMT
OW XMT
CW XMT
SPARE
SPARE
CHAN #1 REC
CHAN #1 REC
CHAN #2 REC
CHAN #2 REC
CHAN #3 REC
CHAN #3 REC
CHAN #4 REC
CHAN #4 REC

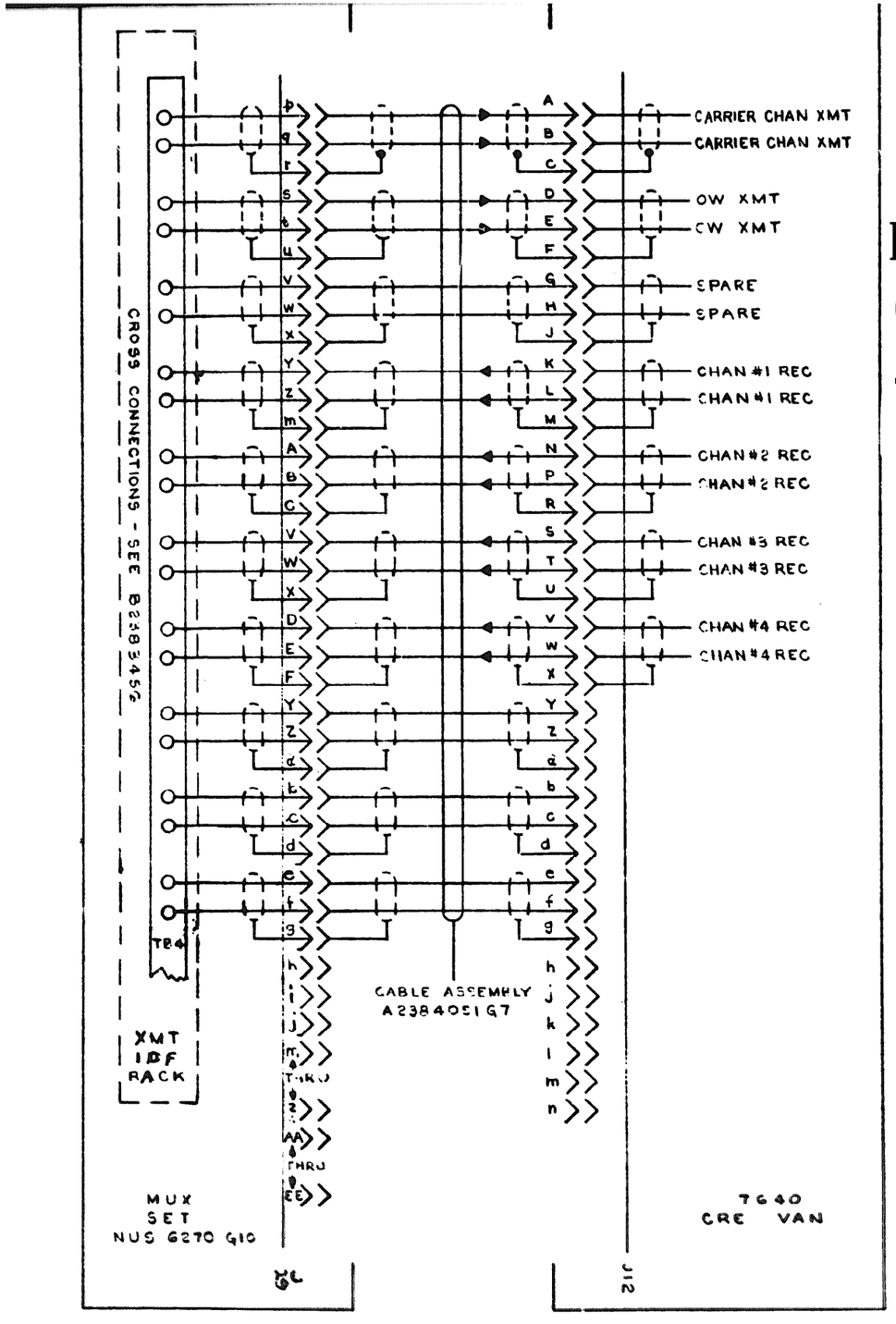
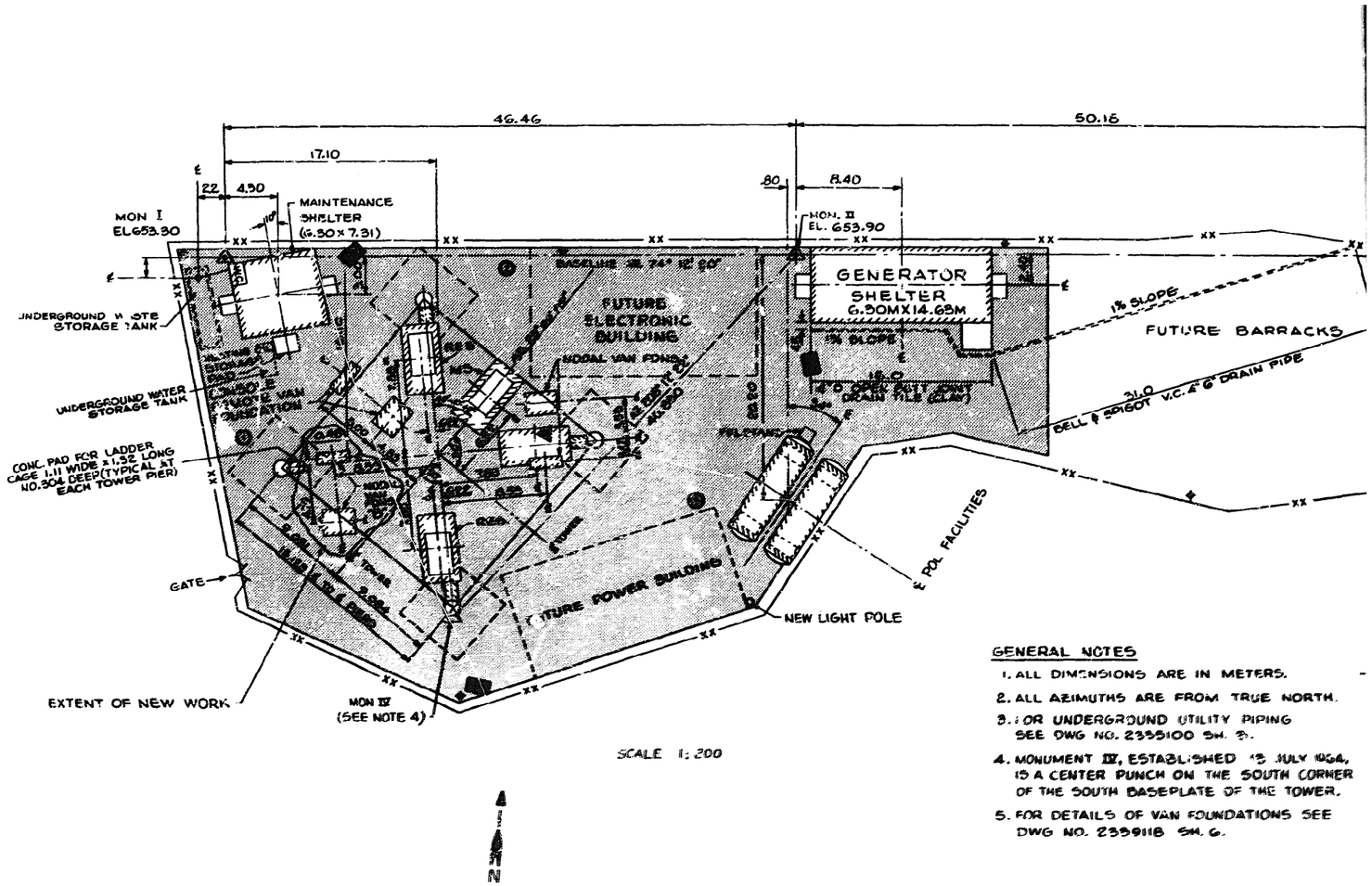


Figure 43. Site cabling composite list (part 58 of 58).

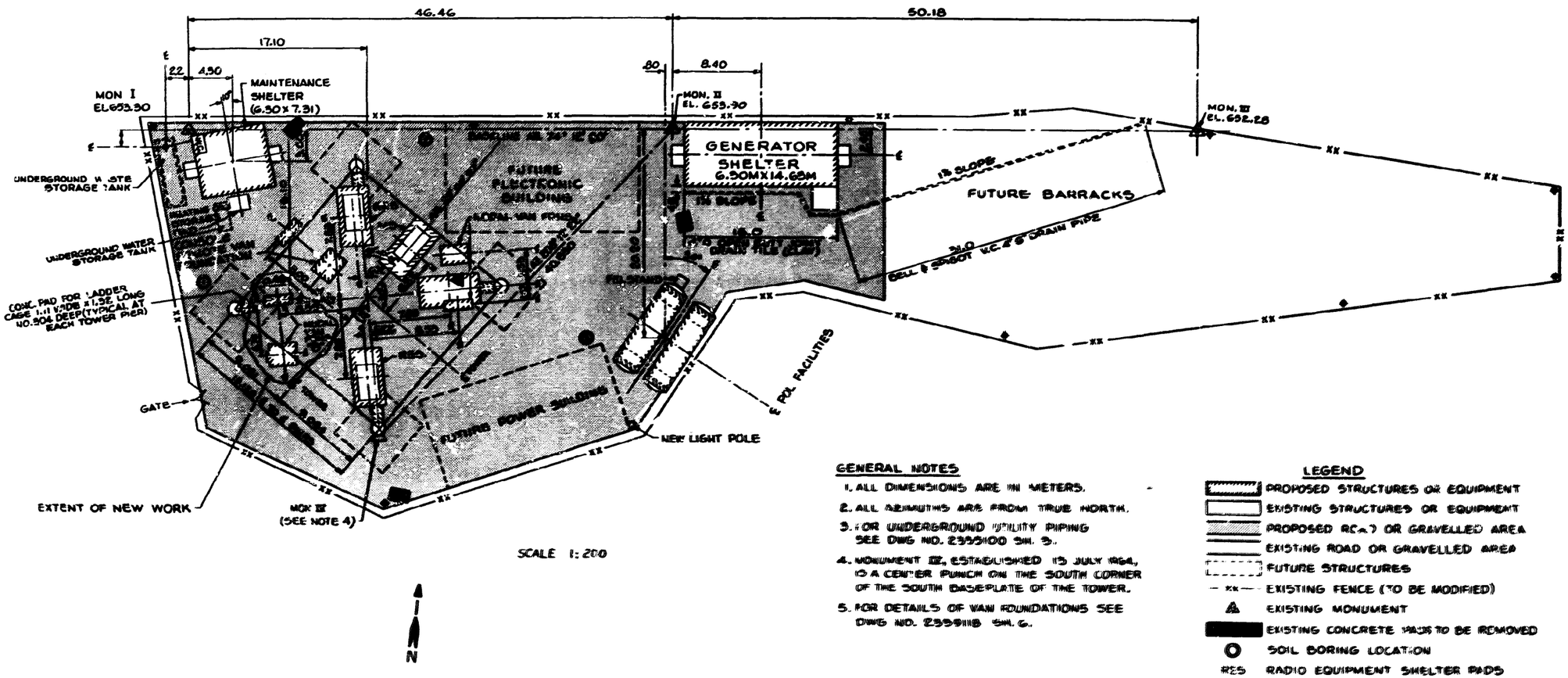
-231-/-232-

TM 11-5895-376-14-1



GENERAL NOTES

1. ALL DIMENSIONS ARE IN METERS.
2. ALL AZIMUTHS ARE FROM TRUE NORTH.
3. FOR UNDERGROUND UTILITY PIPING SEE DWG NO. 2335100 SH. 3.
4. MONUMENT IV, ESTABLISHED 13 JULY 1954, IS A CENTER PUNCH ON THE SOUTH CORNER OF THE SOUTH BASEPLATE OF THE TOWER.
5. FOR DETAILS OF VAN FOUNDATIONS SEE DWG NO. 2339118 SH. 6.



GENERAL NOTES

1. ALL DIMENSIONS ARE IN METERS.
2. ALL AZIMUTHS ARE FROM TRUE NORTH.
3. FOR UNDERGROUND UTILITY PIPING SEE DWG NO. 239100 SH. 3.
4. MONUMENT III, ESTABLISHED 13 JULY 1964, IS A CENTER PUNCH ON THE SOUTH CORNER OF THE SOUTH BASEPLATE OF THE TOWER.
5. FOR DETAILS OF WALL FOUNDATIONS SEE DWG NO. 239118 SH. 6.

LEGEND

- PROPOSED STRUCTURES OR EQUIPMENT
- EXISTING STRUCTURES OR EQUIPMENT
- PROPOSED RC(A.) OR GRAVELLED AREA
- EXISTING ROAD OR GRAVELLED AREA
- FUTURE STRUCTURES
- EXISTING FENCE (TO BE MODIFIED)
- EXISTING MONUMENT
- EXISTING CONCRETE PADS TO BE REMOVED
- SOIL BORING LOCATION
- RES RADIO EQUIPMENT SHELTER PADS
- MS MUX SHELTER PADS
- EXISTING LIGHT POLE

Figure 44. Site 8.1 construction layout.

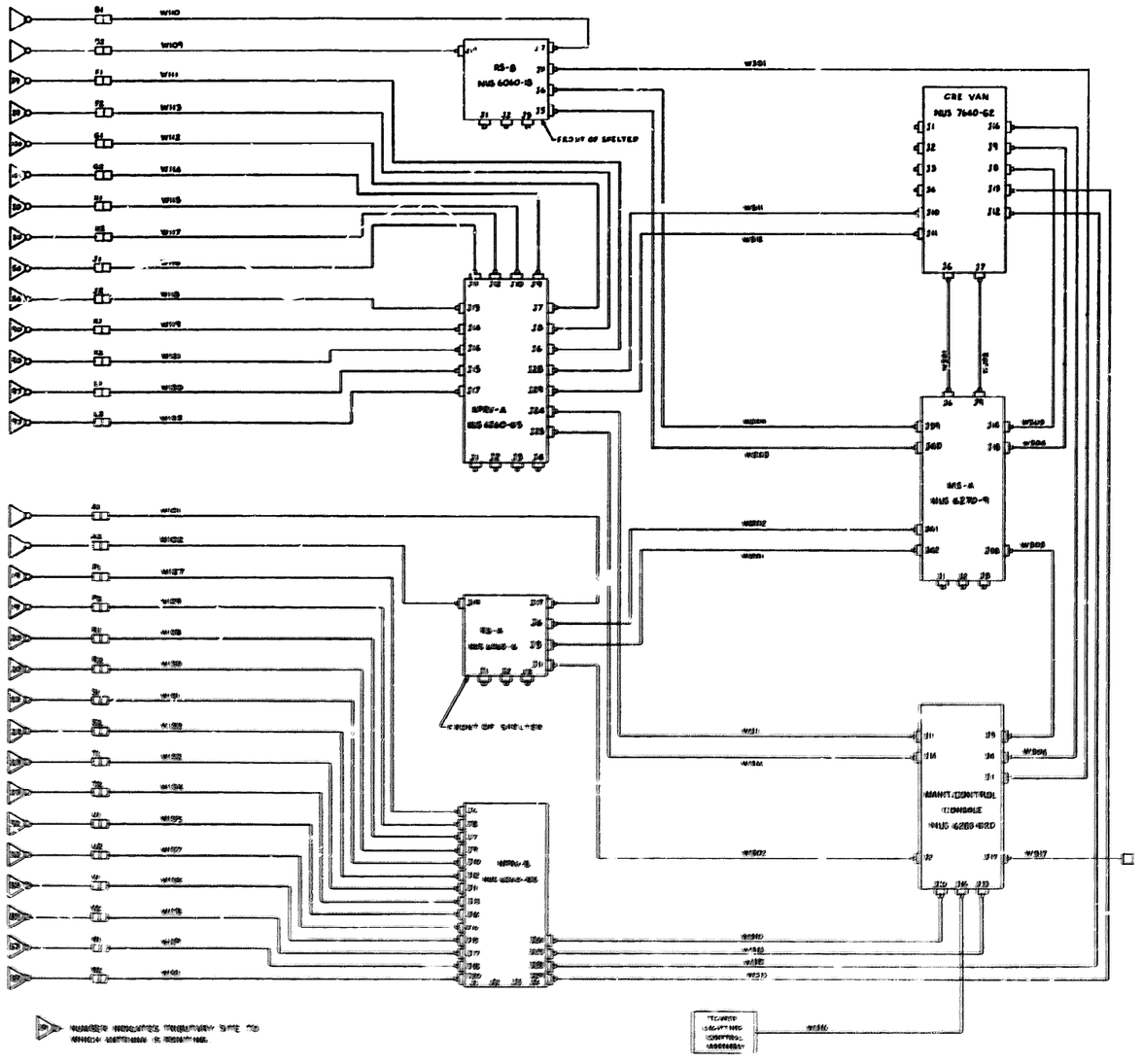


Figure 45. Site 8.1 cabling.

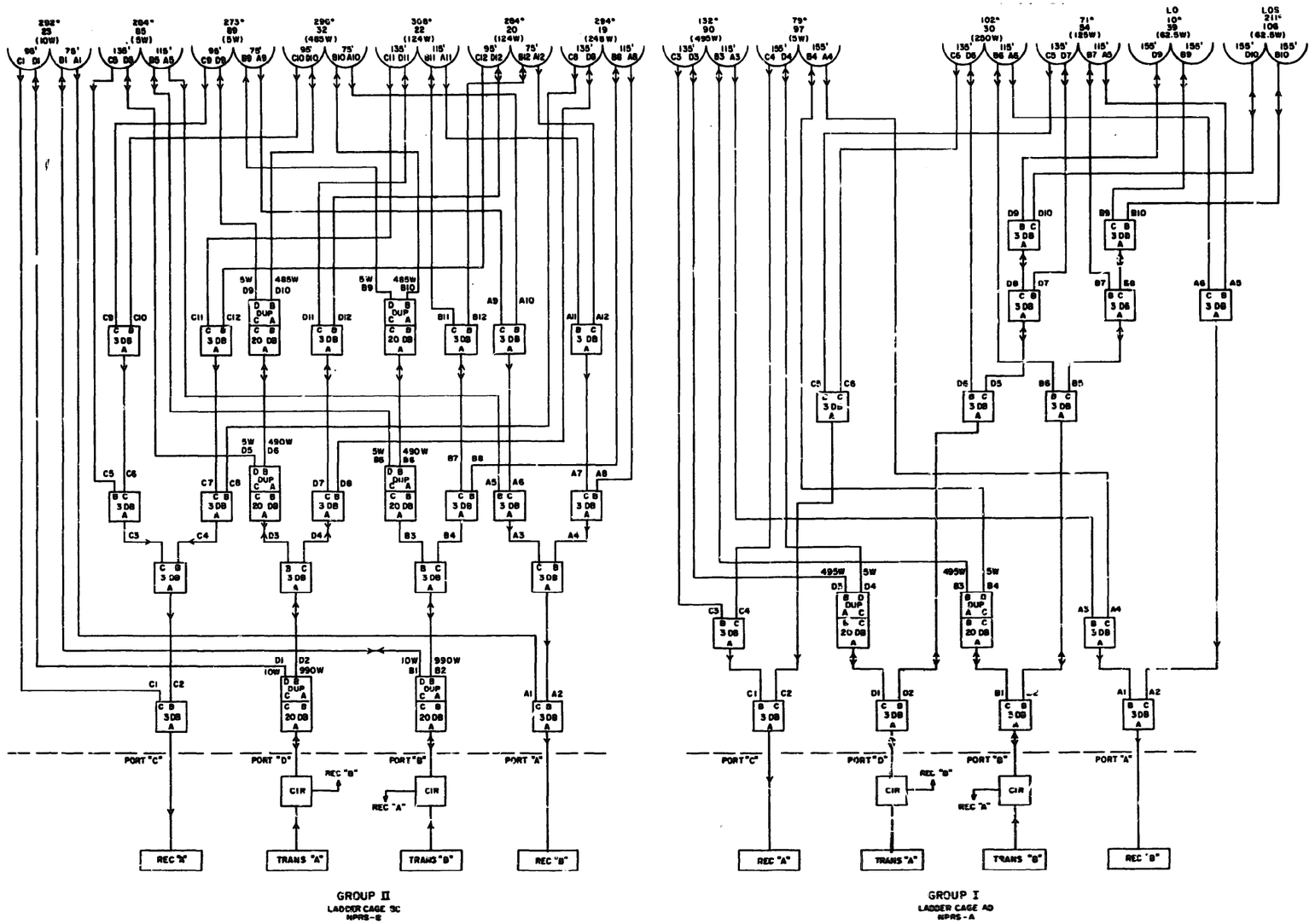
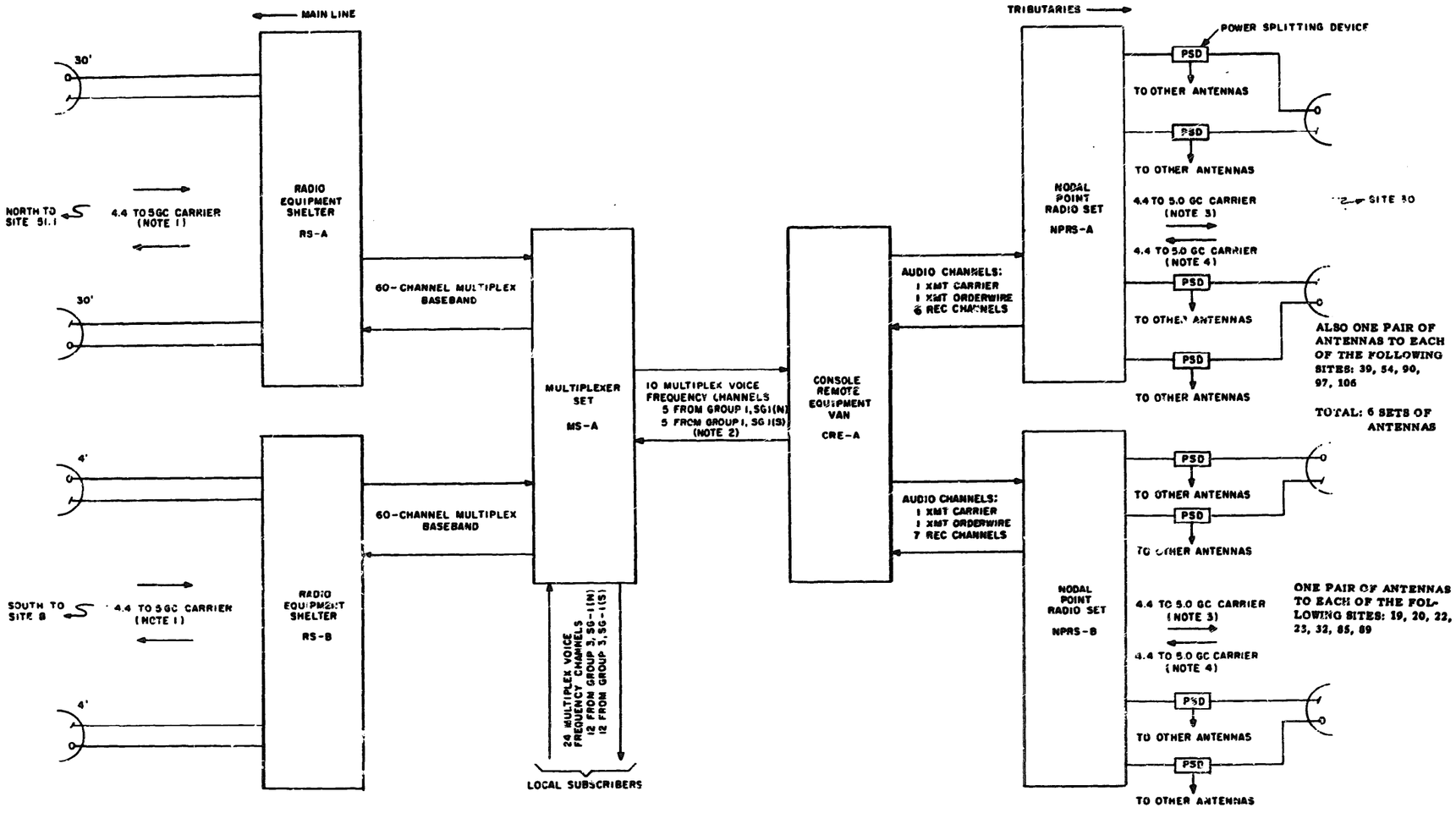


Figure 46. Site 8.1 tributary-oriented waveguide system.



NOTES

1. THE FM CARRIER FREQUENCY IS A DISCRETE FREQUENCY WITHIN 4.4 TO 5.0 GC. TRANSMITTER-RECEIVER SEPARATIONS ARE 100 MC FOR 1-WATT AND 1 KW TRANSMITTERS, WITH THE TRANSMITTER AT THE HIGHER FREQUENCY.
2. THESE CHANNELS ARE THE FIVE COMMAND AND CONTROL CHANNELS USED THROUGHOUT THE CONSOLE SUBSYSTEM.
3. ORDERWIRE TRANSMISSION IS TO ALL TRIBUTARIES AT ONE TIME ON EITHER THE CARRIER CHANNEL (PRIORITY 1) OR ORDERWIRE CHANNEL (PRIORITY 2).
4. EACH TRIBUTARY TRANSMITS BACK TO THE NODAL ON A SLIGHTLY DIFFERENT FREQUENCY, ADJACENT TRIBUTARY SEPARATION BEING AT LEAST 400 KHZ.

Figure 47. Site 8.1 signal flow block diagram.

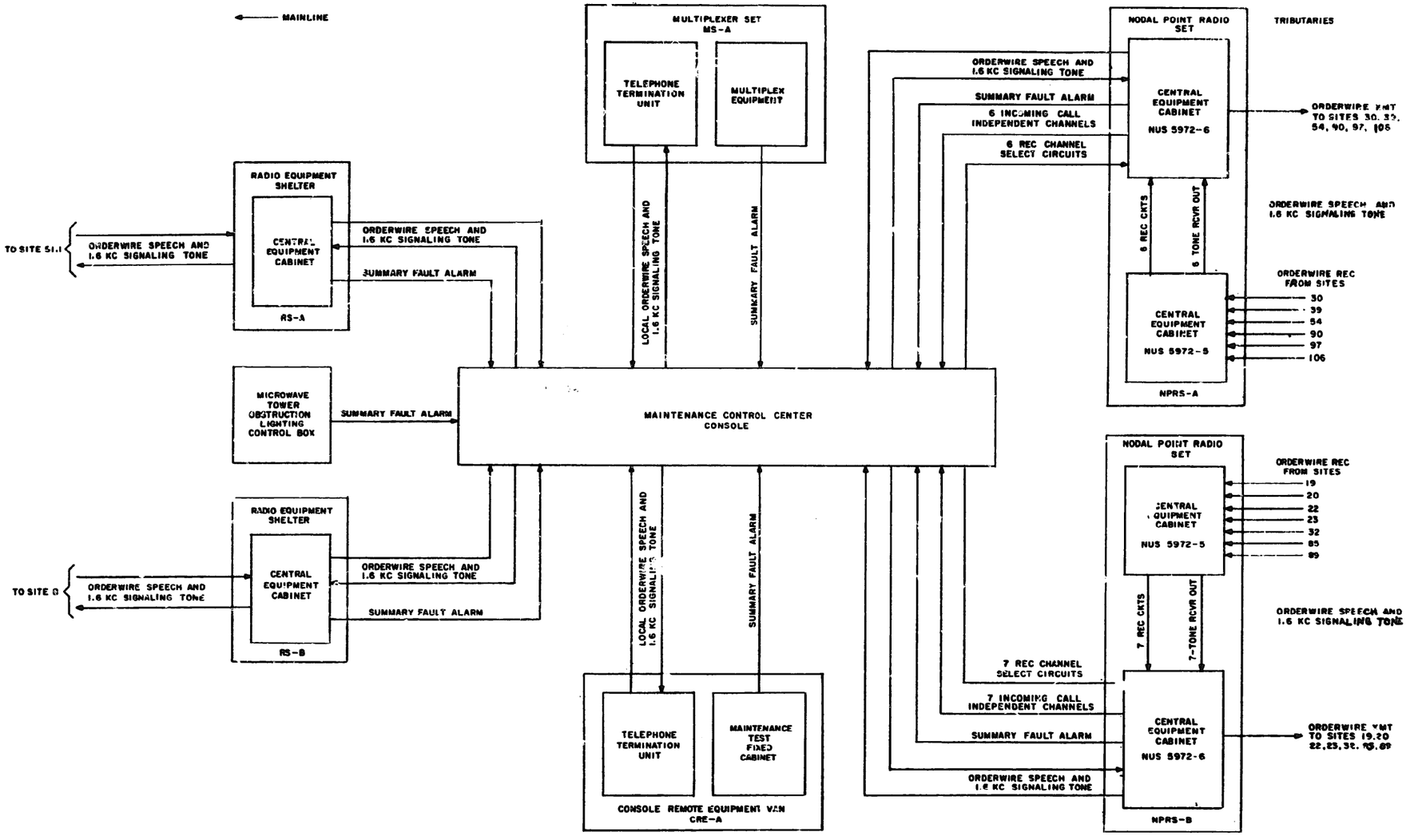


Figure 48. Site 8.1 orderwire and remote summary alarm facilities block diagram.

rder of the Secretary of the Army:

FRED C. WEYAND
General, United States Army
Chief of Staff

ial:
.UL T. SMITH
jor General, United States Army
e Adjutant General

ıution:
ve Army:
SASA (2)
)E(2)
G (1)
SAARENBD (1)
ARCOM (1)
ADOC (1)
Maj Comd s (4)
)GCOMDS (3)
COM (2)
COM (2)
)W (1)
ACC (4)
mies (2)
rps (2)
SA (Ft Monmouth) (33)
Colleges (1)
ASESS (5)
AADS (2)
AFAS (2)
AARMS (2)
AIS (2)
AES (2)
AICS (3)
AG (1)
ARMIS (1)
tl (2) except
'ort Gillem (10)
'ort Gordon (10)
'ord Huachuca (10)
'ort Carson (5)
't Richardson (ECOM) (2)
BAD (14)
AAD (30)
OAD (14)
HAD (3)
FLDMS (1)
AERDAA (1)
AERDAW (1)
lone
: None
planation of abbreviations used, see AR 310–50.

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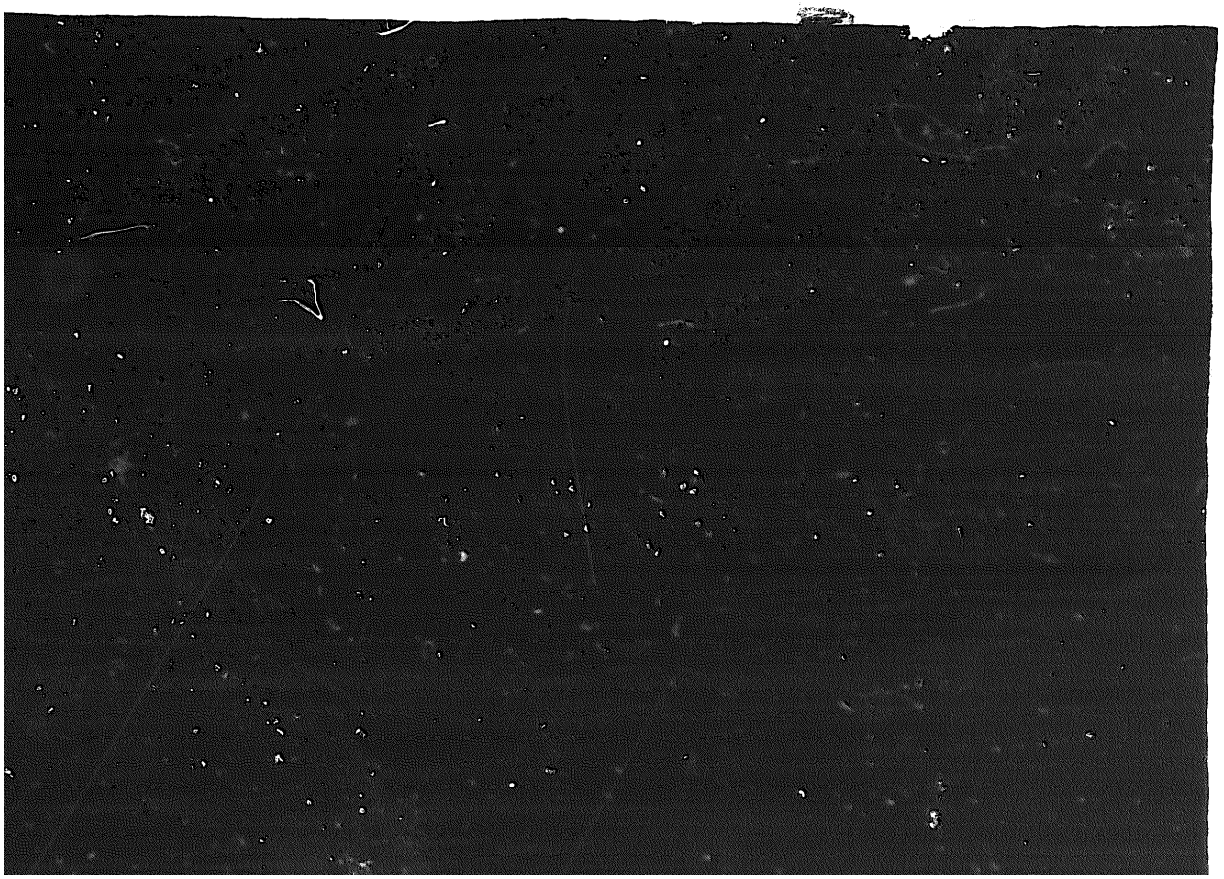

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