NAVSHIPS 0967-306-1010 (NON-REGISTERED)

TECHNICAL MANUAL FOR RADIO COMMUNICATIONS AND TELETYPE EQUIPMENT INSTALLATION BY FORCES AFLOAT

PREPARED BY
NORFOLK NAVAL SHIPYARD
FOR

DEPARTMENT OF THE NAVY
NAVAL SHIP SYSTEM COMMAND

LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT
TITLE PAGE	
ii TO XXXV	ORIGINAL
1-1 TO 1-28	ORIGINAL
2-1 TO 2-94	ORIGINAL
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4-1 TO 4-14	ORIGINAL
5-1 TO 5-8	ORIGINAL
6-1 TO 6-8	ORIGINAL
7-1 TO 7-54	ORIGINAL
8-1 TO 8-28	ORIGINAL

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RECORD OF CORRECTIONS MADE

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SECTION 1 - RADIO RECEIVERS

1.1 AN/SRR-19 - GENERAL DESCRIPTION.

The AN/SRR-19 and AN/SRR-19A are dual conversion superheterodyne receivers for the frequency range of 30 to 300 KC. They are intended for the reception of low frequency, single side band, multichannel naval fleet radio-teletypewriter broadcasts (USB only), and the reception of A1, A2, and A3 (and F1 with external equipment) broadcasts. An auxiliary LSB amplifier-detector module AM-4528/SRR-19 will replace either the AM amplifier-detector module AM-4529/SRR-19 or AM-4529A/SRR-19, or the USB amplifier-detector module AM-4527/SRR-19 for separate or simultaneous reception of both sidebands. Both receiving sets are similar except for the AM amplifier-detector module supplied with equipment. The AN/SRR-19, up to and including serial number 244, is supplied with AM amplifier-detector AM-4529/SRR-19. The AN/SRR-19A starting with serial number 245 and upward is supplied with AM amplifier-detector AM-4529A/SRR-19. Both AM amplifier-detector units are functionally identical and are physically interchangeable between AN/SRR-19 and AN/SRR-19A radio receiving sets.

1.2 REFERENCE DATA.

a. Table of Technical Publications - Table 1-1
b. Primary Power Requirements - Table 1-2
c. Heat Dissipation - Table 1-3
d. Unit Weight - Table 1-3.

1.3 INSTALLATION REQUIREMENTS.

a. Arrangement - The AN/SRR-19 radio receiver maybe installed in a standard 19 inch rack or on a radio operating desk (LOP table) or similar flat surface of adequate strength. See Figure 1-1 for rack mounting bracket details. See Figure 1-3 for typical foundation details.
b. Outline and Mounting Dimensions - Figure 1-2.
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 1-1 Item No. 4.

1.4 CABLE DIAGRAM AND CONNECTION DETAILS.

a. Elementary Connections - Figure 1-4.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 1-1 Item No. 9.
c. Security Requirements - To be in accordance with Table 1-1 Item No. 5.

1.5 FIELD CHANGE REQUIREMENTS - None.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-163-2010	Vol. I Technical Manual for Radio Receiving Set AN/SRR-19 and AN/SRR-19A(U)
2	0967-163-2020	Vol. II. Technical Manual for Radio Receiving Set AN/SRR-19 and AN/SRR-19A(U)
3	0967-163-2030	Operator's Instruction Chart
4	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
5	NAVSHIPSINSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
6	*RE-F2696139	Outline and Mounting Data
7	*RE-F2696486	Interconnecting Cabling Diagram
8	0981-052-8090	Data Pertaining to Electric Shipboard Cable
9	0967-000-0000	Electronics Installation and Maintenance Books

*These plans are not essential for installation, but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 1-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/SRR-19 AN/SRR-19A	105/115/125 VAC, 50-60 or 400 HZ, SINGLE PHASE	1.7 AMP NORMAL	175 WATTS NORMAL	

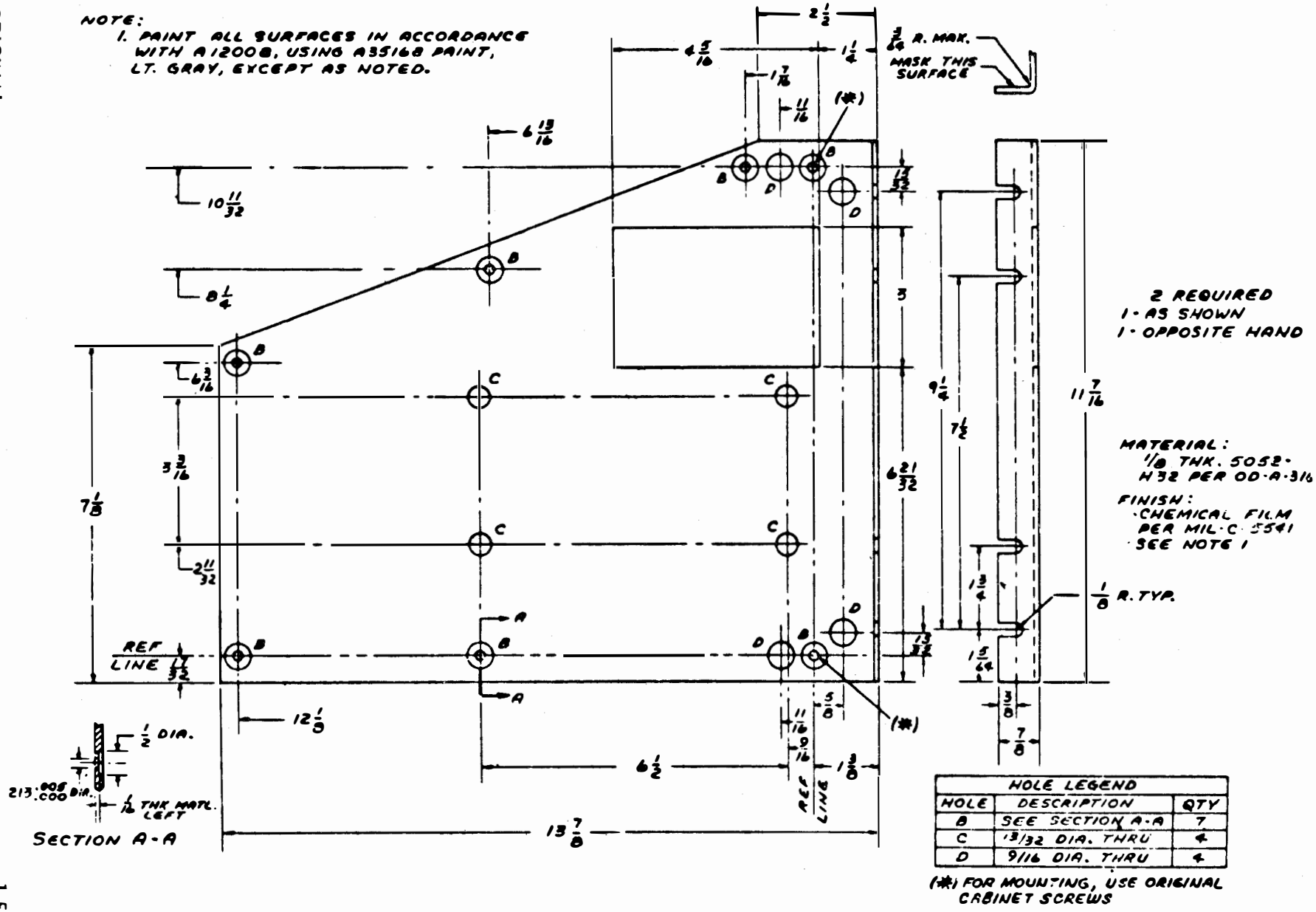
TABLE OF PRIMARY POWER REQUIREMENTS

TABLE 1-2

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/SRR-19A AN/SRR-19	150 WATTS (Approx.)	125 LBS.	

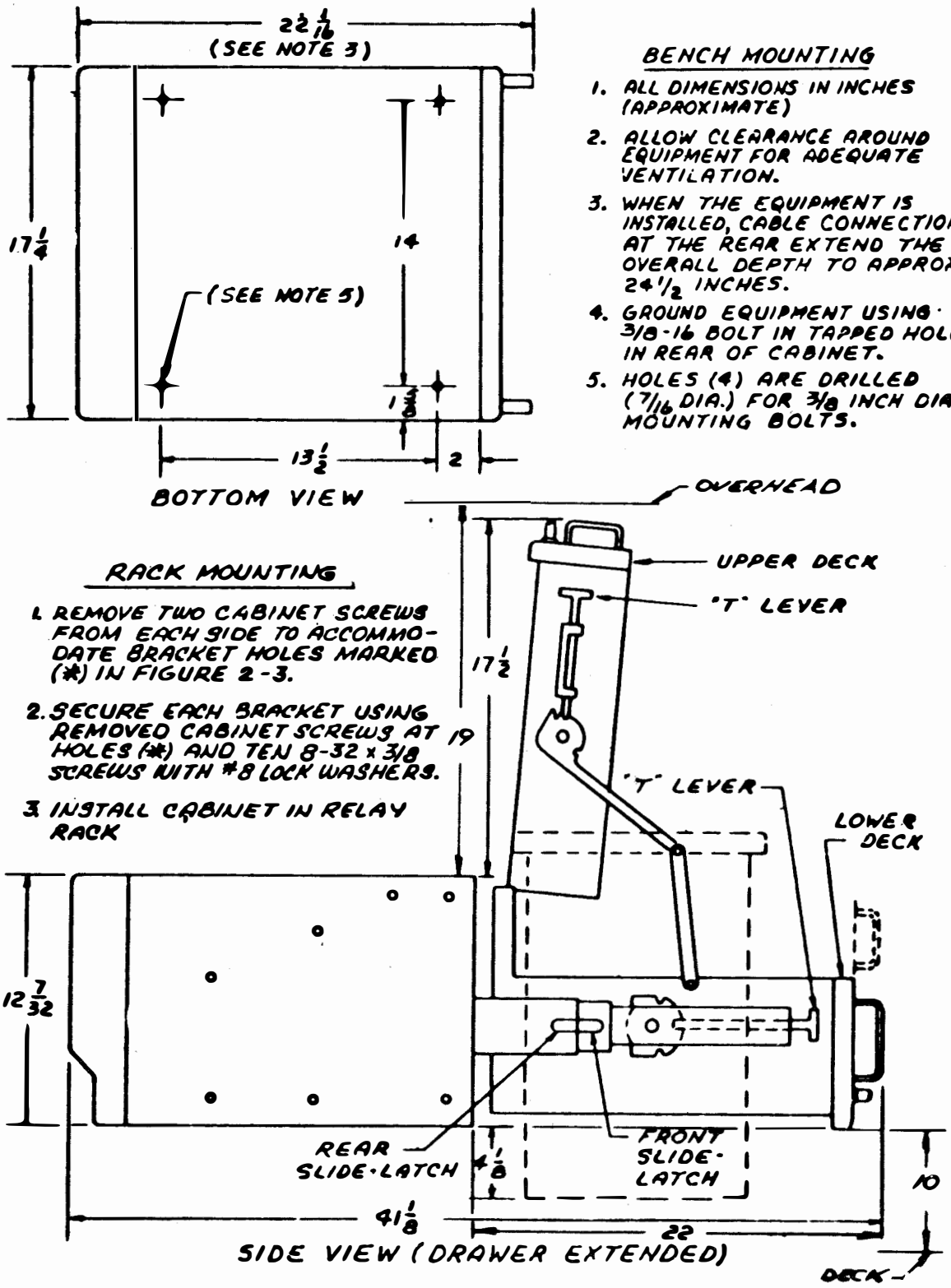
TABLE OF MISC. DATA

TABLE 1-3



AN/SRR-19 RADIO RECEIVER RACK MOUNTING BRACKET DETAILS

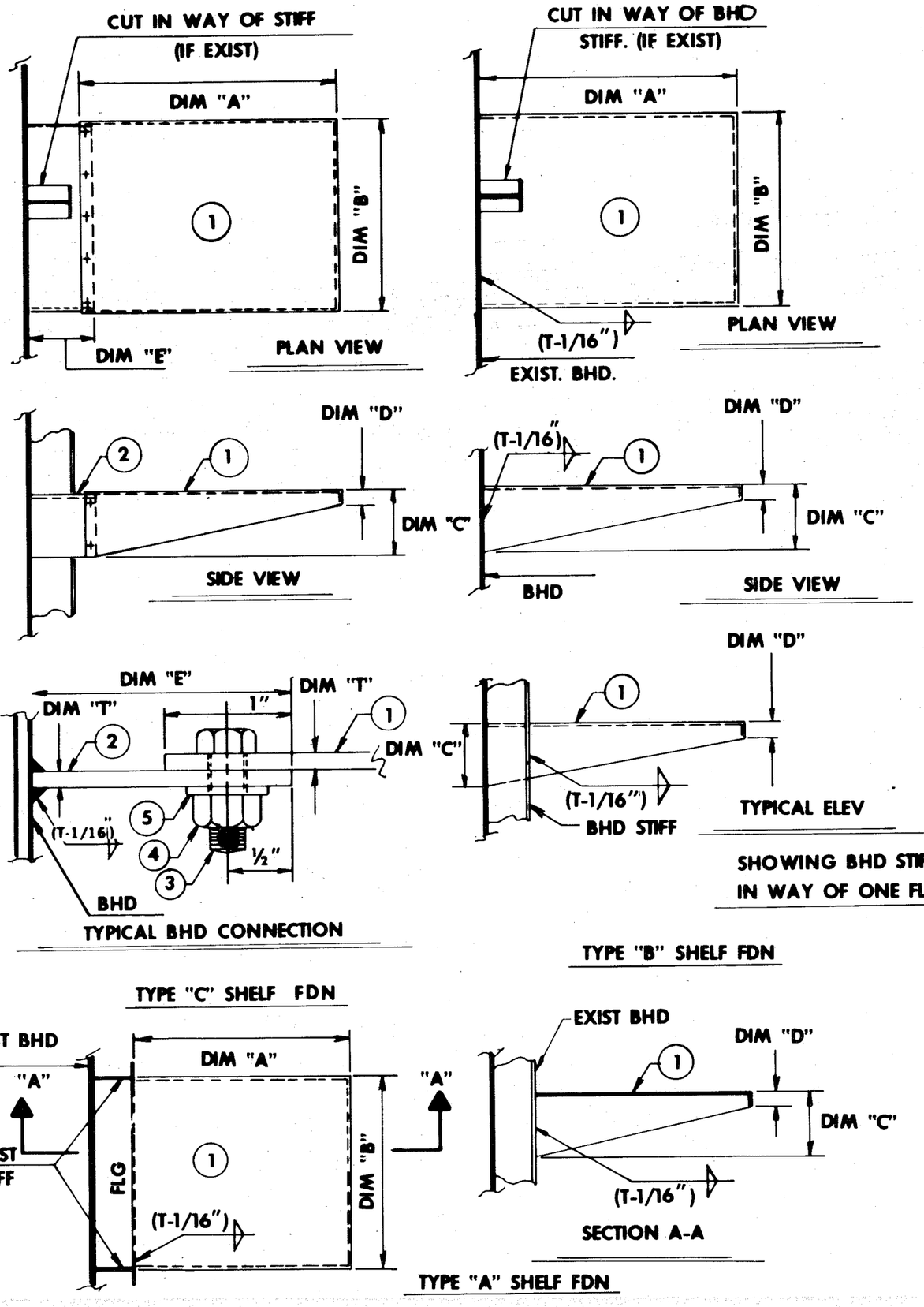
FIGURE 1-1



AN/SRR-19 RADIO RECEIVER

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 1-2



LIST OF MATERIAL QUANTITIES FOR ONE FDN

PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

NOTES:

1. Thickness (Dim. "T" of material to be furnished on location).

2. All Variable dimensions and type of foundation to be specified on location.

3. Foundation for AN/SRR-19 to be as follows:

   a. Plating (7.65 #Plt. steel), ¼" thick aluminum

   b. Type "B" shelf foundation

   c. For installation with stiffener in way of unit.
   Dimension "A" = 28" + depth of stiffener, dimension "B" = 17", dimension "C" 9", dimension "D" = 1½".

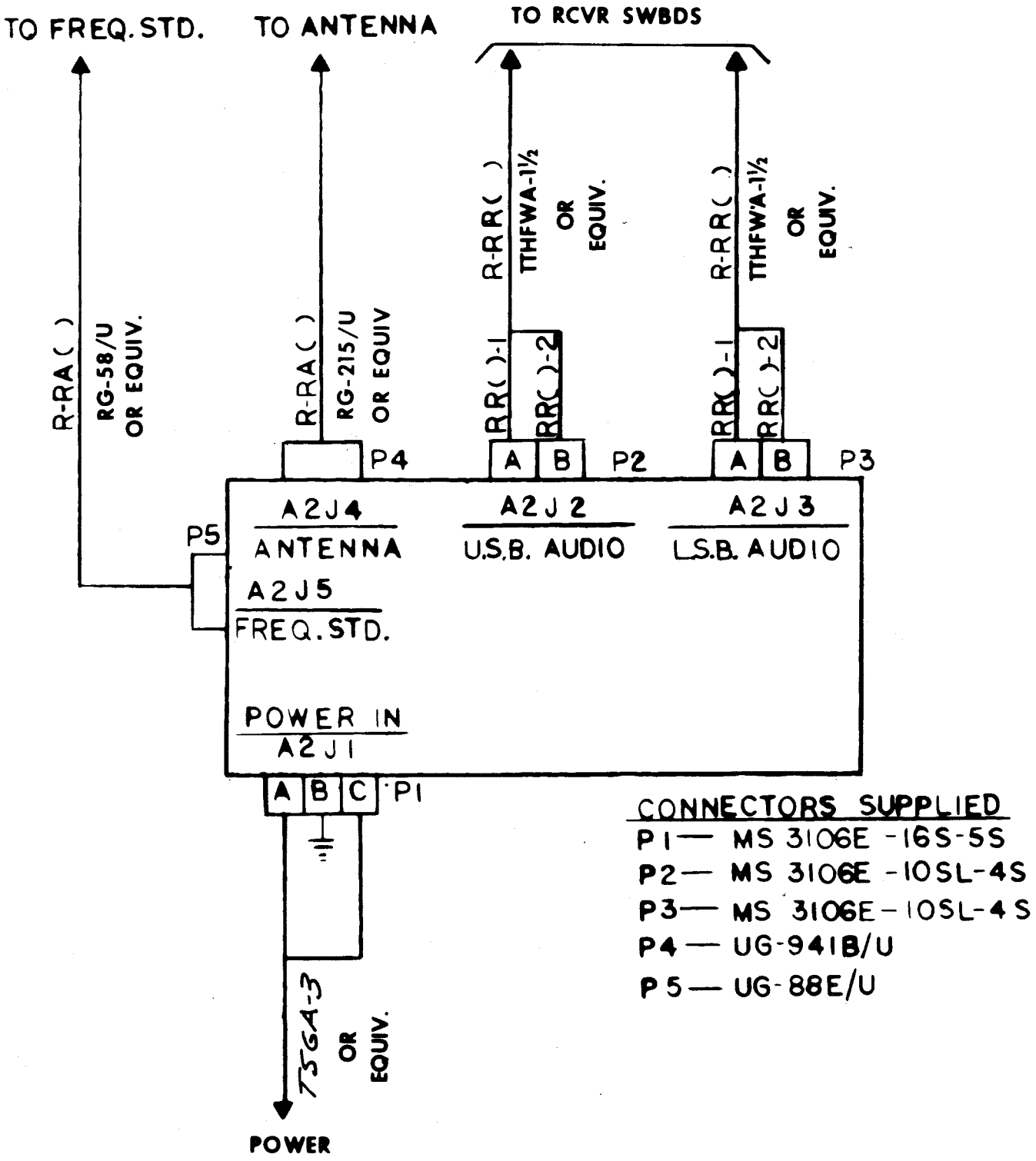
   d. For installation with no stiffener interference:

   Dimension "A" = 28", dimension "B" = 17", dimension "C"= 9", dimension "D" = 1½"

AN/SRR-19 RADIO RECEIVER

TYPICAL FOUNDATION DETAILS

FIGURE 1-3



AN/SRR-19 RADIO RECEIVER CABLE DIAGRAM

FIGURE 1-4

SECTION 1 - RADIO RECEIVERS

1.6 R-390/URR - GENERAL DESCRIPTION

This receiver is a high performance exceptionally stable equipment for general purpose use in fixed or mobile installation for continuous wave (CW), modulated continuous wave (MCW) and amplitude modulation (AM). It can be applied to a space diversity receiving system, either of two types of space diversity radio teletype receiving system. Frequency range is 0.5 to 32.0 megacycles (MC) in 32 steps (including single-sideband (SSB) signals over a continuous frequency range of 0.5 to 32 megacycles (MC)). The receiver is a superheterodyne type with multiple frequency conversion. Double conversion is used when the receiver operates from 8 to 32 megacycles and triple conversion from 0.5 to 8 megacycles.

1.7 REFERENCE DATA.

a. Table of Technical Publications - Table 1-4.
b. Primary Power Requirements - Table 1-5.
c. Heat Dissipation - Table 1-6.
d. Unit Weight - Table 1-6.

1.8 INSTALLATION REQUIREMENTS

a. Arrangement - R-390/URR may be installed in any standard 19 inch rack or CY-979/URR cabinet which may be mounted on a radio operating desk (LOP table) or flat foundation. See Figure 1-5 and 1-6 for typical foundation details.

b. Outline and Mounting Dimensions - Figure 1-7.

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 1-4 Item No. 2.

1.9 CABLE DIAGRAM AND CONNECTION DETAILS.

a. Elementary Connections - Figure 1-8

b. Electronics Installation and Maintenance Standards - To be in accordance with Table 1-4 Item No. 10.

c. Security Requirements - To be in accordance with Table 1-4 Item No. 11.

1.10 FIELD CHANGE REQUIREMENTS. Table 1-7.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-063-2010 0967-063-2020 0967-063-2030	Technical Manual for Radio Receiver R-390/URR (Three Volumes)
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-F2686342	Interconnecting Wiring Diagram
4	*RE-F2686233	Interconnecting Wiring Diagram
5	*RE-C2687910	Interconnecting Wiring Diagram
6	*RE-F2692586	Standard Plan Interconnecting Wiring Diagram
7	*RE-F2685958	Outline and Mounting Data
8	*RE-D-2686304	Outline and Mounting Data
9	RE-H-2692919	Primary Power Distribution Diagram
10	0967-000-0000	Electronics Installation and Maintenance Books
11	NAVSHIPSINST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation, but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 1-4 (Continued)

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
12	0981-052-8090	Data Pertaining to Electric Shipboard Cable

TABLE OF TECHNICAL PUBLICATIONS
TABLE 1-4

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
R-390/URR	115/230 VAC, 48-62 HZ SINGLE PHASE		250 WATTS	

TABLE OF PRIMARY POWER REQUIREMENTS

TABLE 1-5

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
R-390/URR		75 LBS.	
CY-979/URR CABINET		20 LBS.	

TABLE OF MISC. DATA

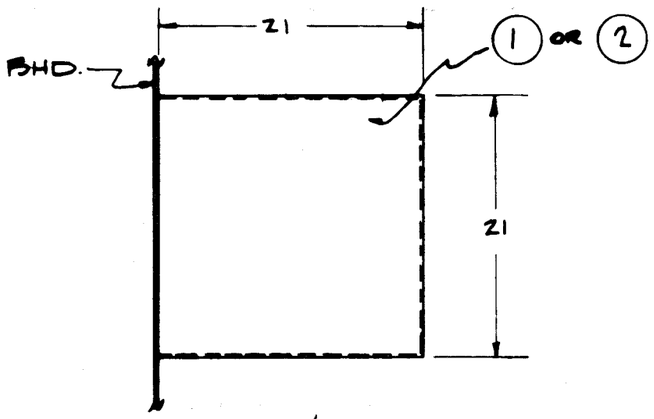
TABLE 1-6

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MAN HOURS	KIT FSN	IDENTITY
1-R390/URR-AND All R-390A/URR	0967-063-2060	Elim spurious radiation	FA-½	None	Soldered jumper lead connected between pins 2 and 7 of XV603.
2-R390 /URR As authorized	0285-075-1700	Special bandwidth requirements	FA-8	None	FC accomplishment is recorded on FC plate adjacent to receiver nameplate.
3-R390A/URR All	0967-063 2080	Changes electrical access from terminal strips to MS connectors	FA-2	2N5820-078-5074	Aluminum channel covers term TB102 - TB103 on back of receiver 3 MS type connectors used.
4-R390A/URR All	0967-063-2140	Install diode load test jack	FA-1	None	Presence of green test jack located on the front panel to the right of the phone jack. FC 4 required if FC 3 acc.
5-R390A/URR All	0967-063-2140	Modification to ant. connections	FA-1	None	Presence of shorting plug connected to J104 on rear panel of receiver
6-R390A/URR All	0967-063-	Internal heat reduction	FA-2	2N5820-937 0141	Two-rectifiter tubes 26Z5W removed new type heat dissipation tube shields installed on all tubes.
2-R-390A/URR All	0967-063 2070	Increase audio output level on line output terminals	FA-½	None	Presence of two soldered jumper leads on terminal board TB-101

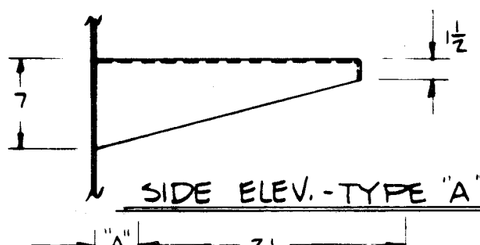
FIELD CHANGE REQUIREMENTS
TABLE 1-7
(Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MAN HOURS	KIT FSN	IDENTITY
7-R390A/URR Shipboard Special	0967-063-2120	Red. of int. interference (for SUPRAD spaces only)	FA-3	2Z5820-089-9648	Decal mod FC 7 affixed to VFO and RF amp chassis.
8-R390A/URR Selected ships only	0967-063-2130	Install running time meter	Special team	None	Presence of running time meter on front panel

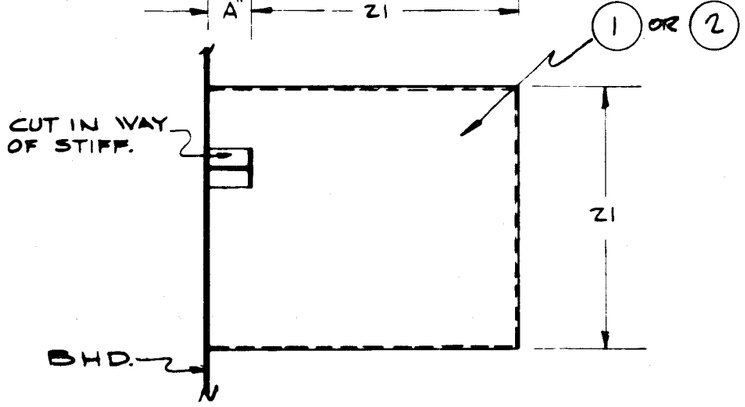
FIELD CHANGE REQUIREMENTS
TABLE 1-7



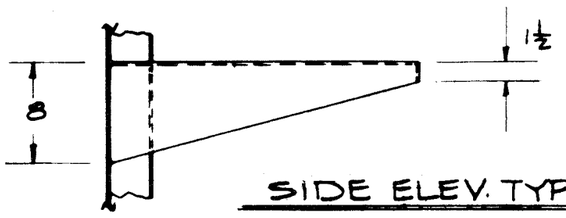
PLAN VIEW - TYPE "A"



SIDE ELEV. - TYPE "A"



PLAN VIEW - TYPE "B"



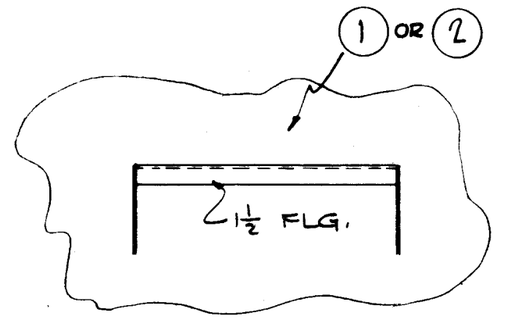
SIDE ELEV. TYPE "B"

SPECIAL NOTES

1. ALL WELDS TO BE 100%.
2. DIMENSION "A" TO BE SHOWN ON LOCATION PLAN.

LIST OF MATERIAL - QUANTITIES FOR ONE (1) FDN.

PIECE NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS	SHOP ROUTING
	STEEL FDN					
1	7.65# PLT.	1	MED. STL.	MIL-S-16113		11
	OR					
	ALUM. FDN					
2	¼" THK PLT.	1	AL. (61S)T6	QQ-A-327		11



TYPICAL FRONT ELEV.
TYPE "A" OR "B"

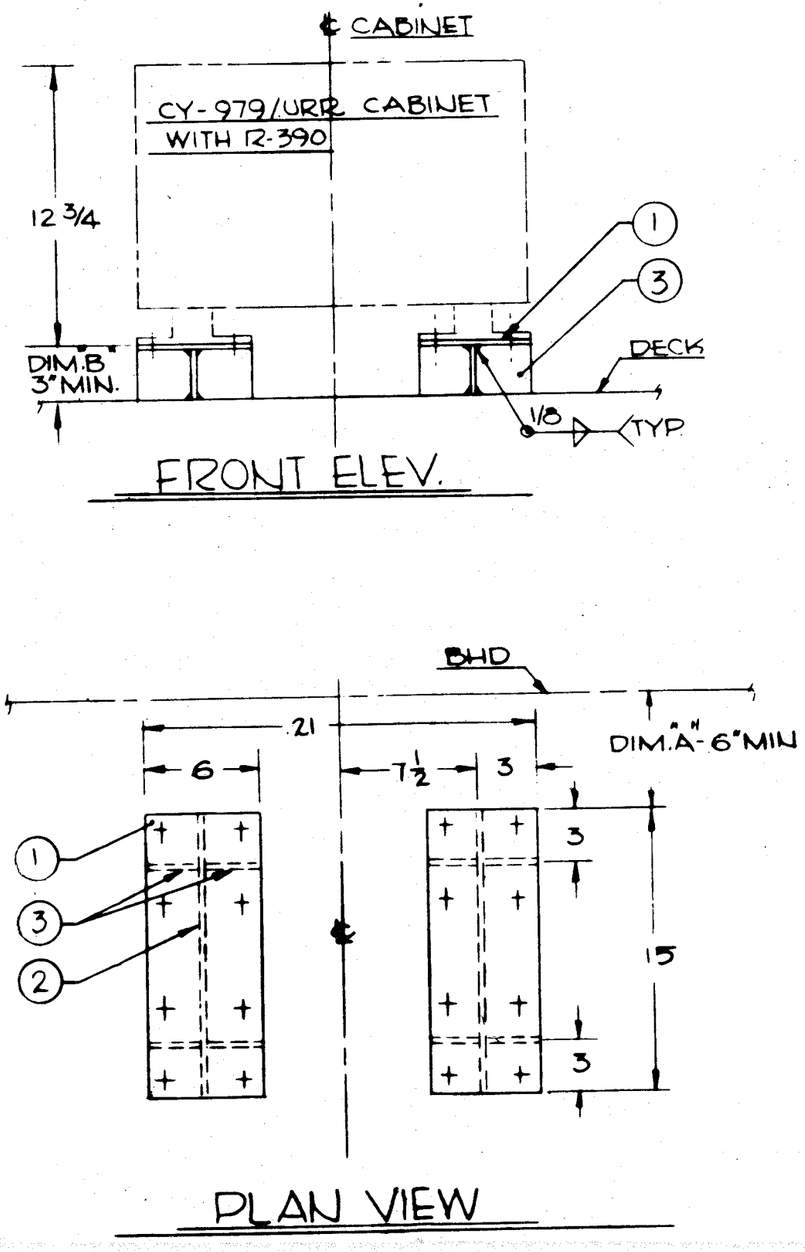
R-390/URR RADIO RECEIVER
MOUNTED IN CY-979/URR CABINET
TYPICAL FOUNDATION DETAILS (SHELF TYPE)
FIGURE 1-5

GENERAL NOTES

1. FOUNDATION TO BE DRILLED AT INSTALLATION TO SUIT EQUIP.
2. MATERIALS MAY BE SUBSITUTED TO SUIT INSTALL.

LIST OF MATERIAL—QUANTITIES FOR ONE FOUNDATION

PIECE NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS	SHOP ROUTING
1	7.65# RT	2	M.S. BLK	MIL-S-16113		11
2		2				11
3		8				11

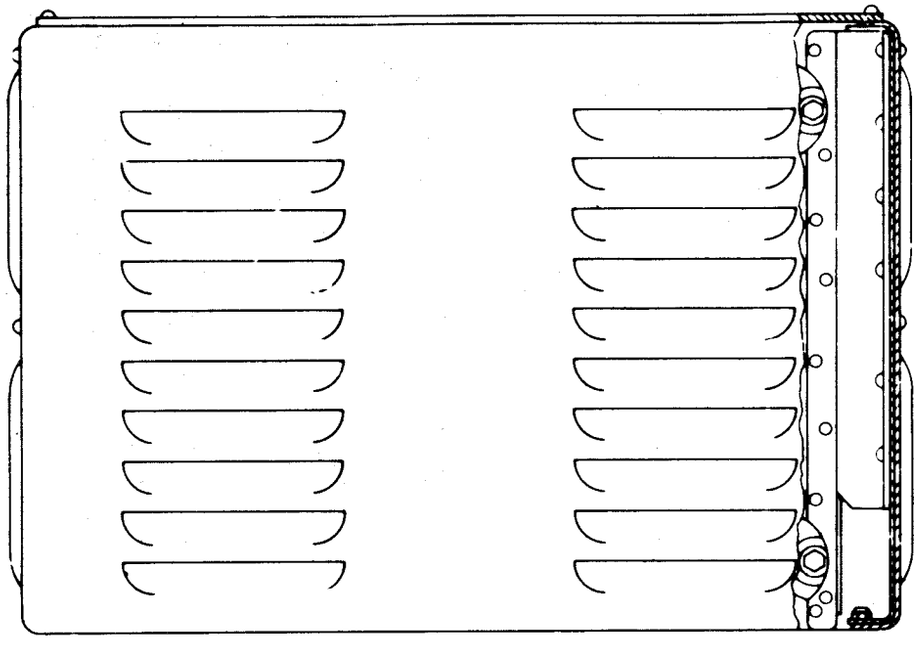


R-390/URR RADIO RECEIVER

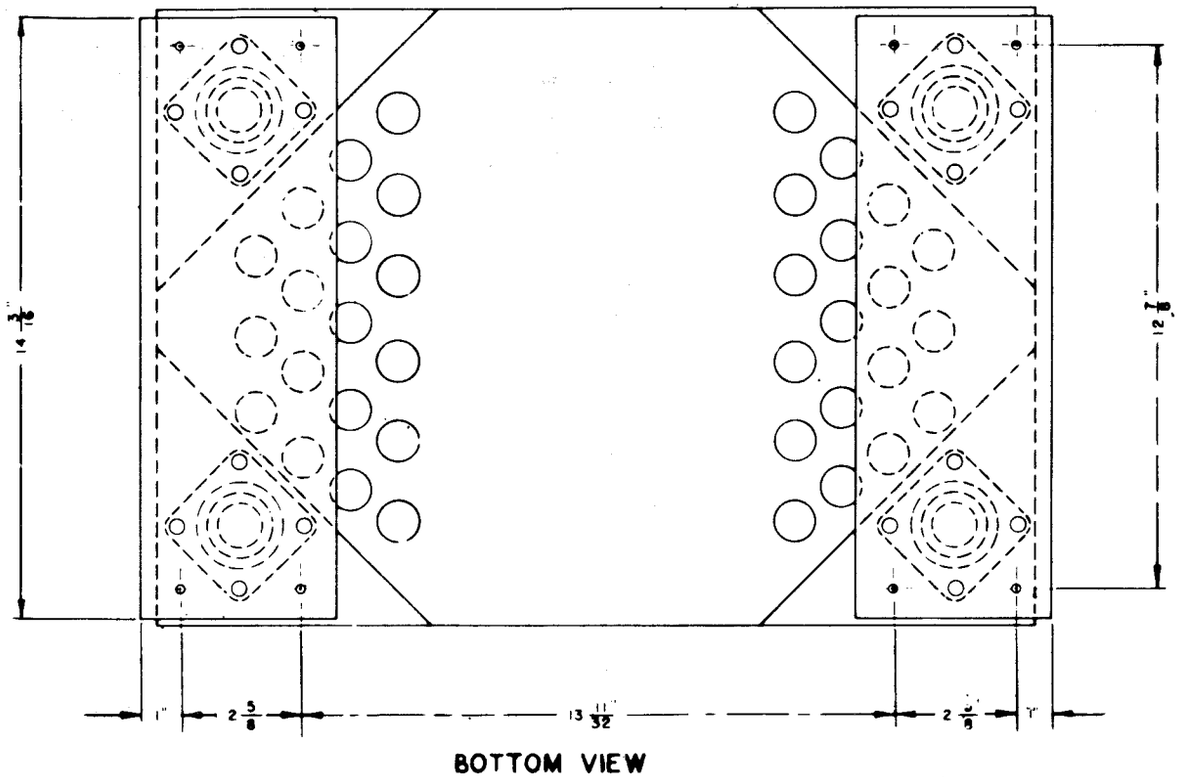
MOUNTED IN CY-979/URR CABINET

TYPICAL FOUNDATION DETAILS (DECK TYPE)

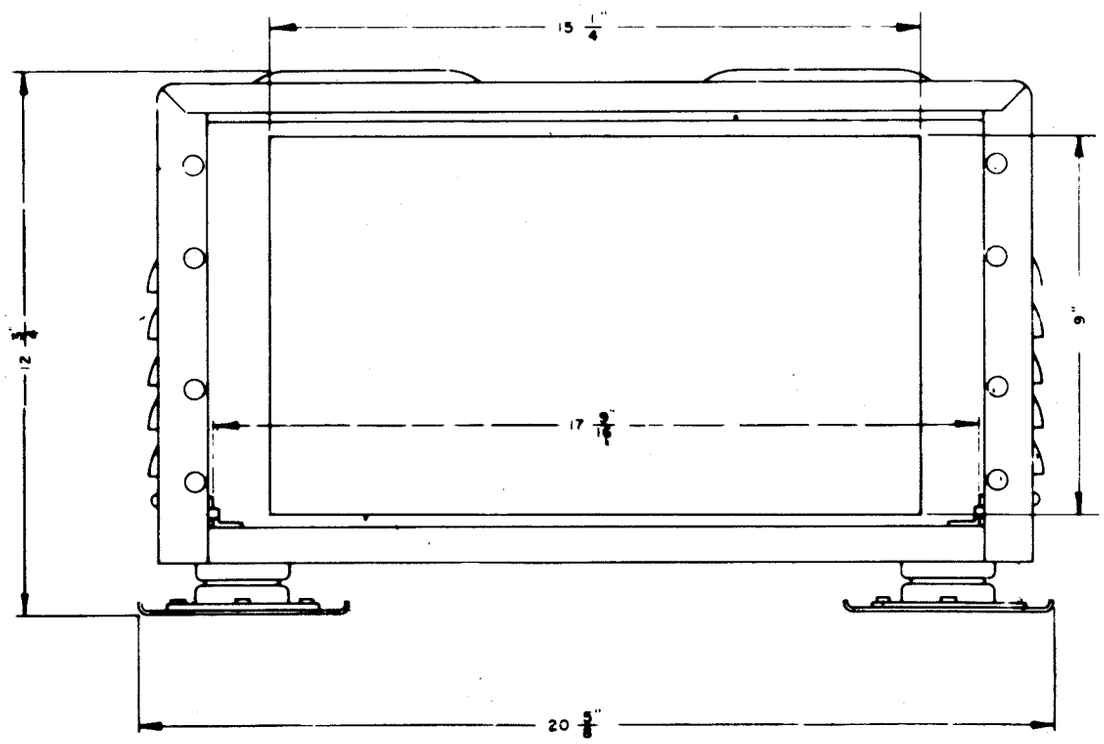
FIGURE 1-6



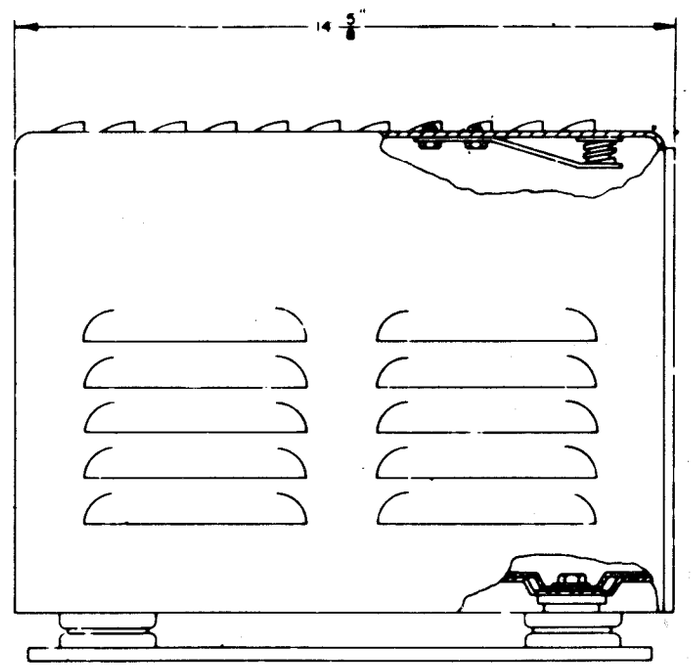
TOP VIEW



BOTTOM VIEW



FRONT VIEW

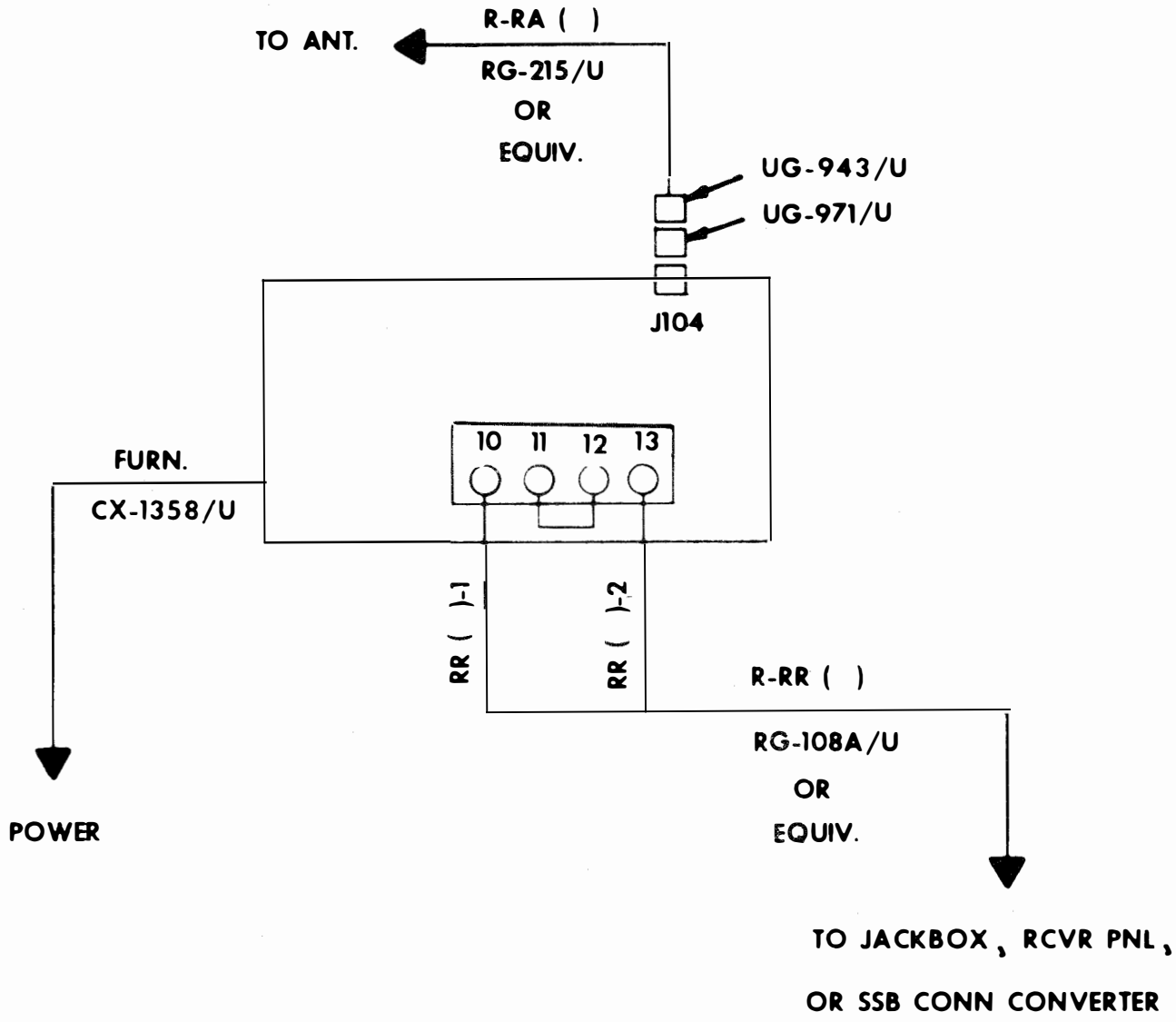


SIDE VIEW

CY-979/URR CABINET

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 1-7



R-390/URR RADIO RECEIVER CABLE DIAGRAM
FIGURE 1-8

SECTION 1 - RADIO RECEIVERS

1.11 R-1051/URR - GENERAL DESCRIPTION

The receiver is a digitally tuned superheterodyne receiver capable of receiving lower sideband (LSB) upper sideband (USB), independent sideband (ISB), frequency shift keyed (FSK), amplitude modulated (AM), and continuous wave (CW) transmissions in the 2.0 to 30.0 megacycle frequency range. The ISB mode of operation allows two different types of intelligency to be received simultaneously, one on the LSB channel and one on the USB channel. FSK reception is obtained by using suitable ancillary equipment such as teletype converter-comparator. The R-1051/URR may also receive tone-modulated continuous wave (MCW), compatible amplitude modulated (compatible AM), and facsimile transmissions. The receiver may be operated in conjunction with a transmitter as a transmitter-receiver in systems such as radio set AN/WRC-1. In this application either simplex or duplex operation is possible. The R-1051/URR may also be used as a separate self-contained receiver.

1.12 REFERENCE DATA

a. Table of Technical Publications - Table 1-8
b. Primary Power Requirements - Table 1-9
c. Heat Dissipation - Table 1-10
d. Unit Weight - Table 1-10.

1.13 INSTALLATION REQUIREMENTS

a. Arrangement - The R-1051/URR radio receiver may be installed in a standard 19 inch rack or on a radio operating desk (LOP table) or similar flat surface of adequate strength. See Figure 1-9 for rack mounting details. for typical foundation details.
b. Outline and Mounting Dimensions - Figure 1-11
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 1-8 Item No. 4.

1.14 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 1-12
b. Electronics Installation and Maintenance Standards - To be in accordance with Table - 1-8 Item No. 7
c. Security Requirements - To be in accordance with Table 1-8 Item No. 8.

1.15 FIELD CHANGE REQUIREMENTS - See Table 1-8 Item No. 7.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-970-9010 0967-970-9020	Technical Manual for Radio Receiver R-1051/URR
2	0967-970-9040	Maintenance Standards Book for Radio Receiver R-1051/URR
3	0967-970-9030	Performance Standards Sheet for Radio Receiver R-1051/URR
4	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
5	*RE-C2686398	Pictorial System Diagram
6	*RE-D2686359	Outline and Mounting Data
7	0967-000-0000	Electronics Installation and Maintenance Books
8	NAVSHIPSINST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
9	0981-052-8090	Data Pertaining to Electrical Shipboard Cable

*These plans are not essential for installation, but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

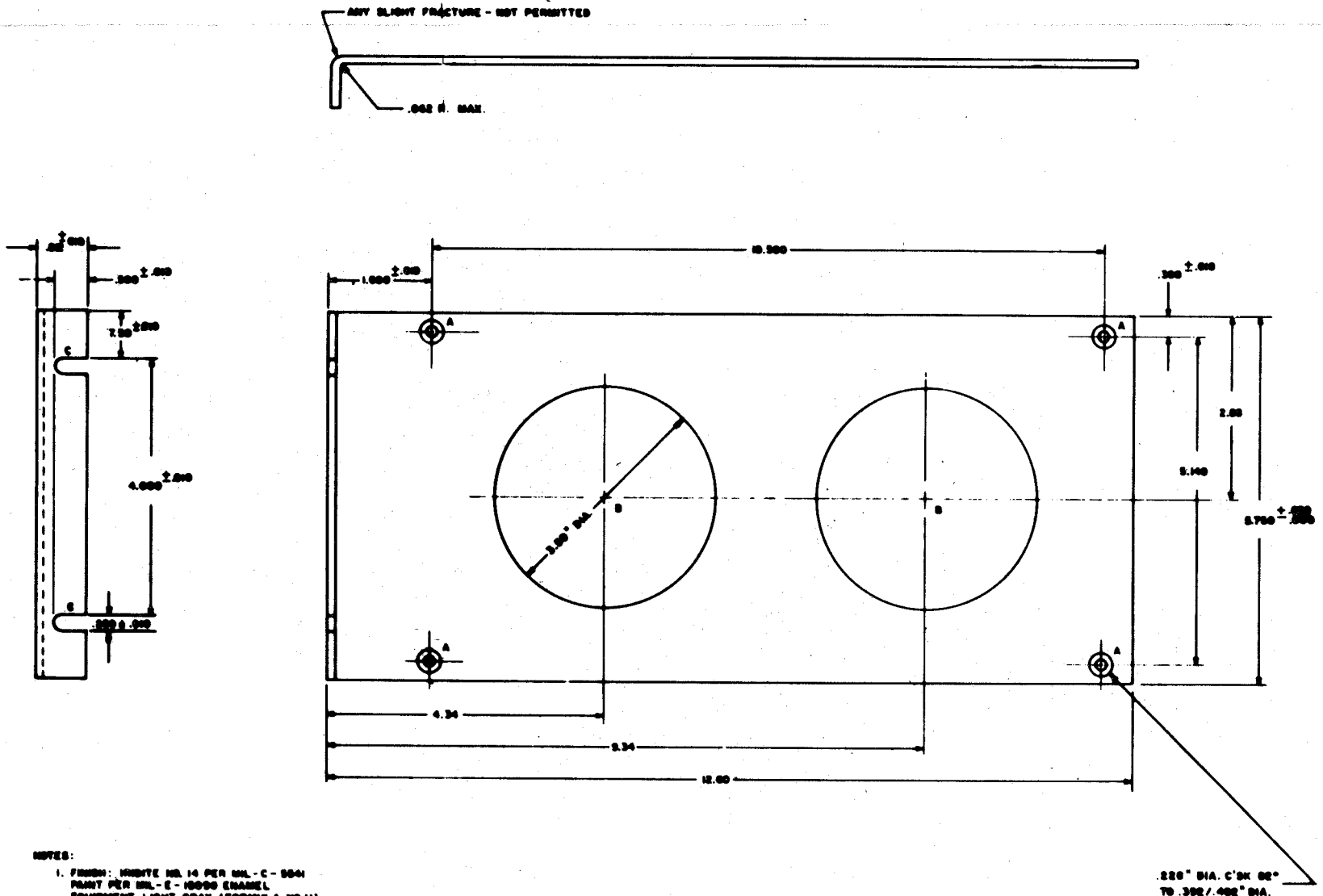
TABLE 1-8

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
R-1051/URR	115 VAC, 48-450 HZ, SINGLE PHASE		55 WATTS	

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 1-9

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
R-1051/URR	55 WATTS	70 LBS.	
MT-3114/UR SHOCK MOUNT		16 LBS.	

TABLE OF MISC. DATA
TABLE 1-10

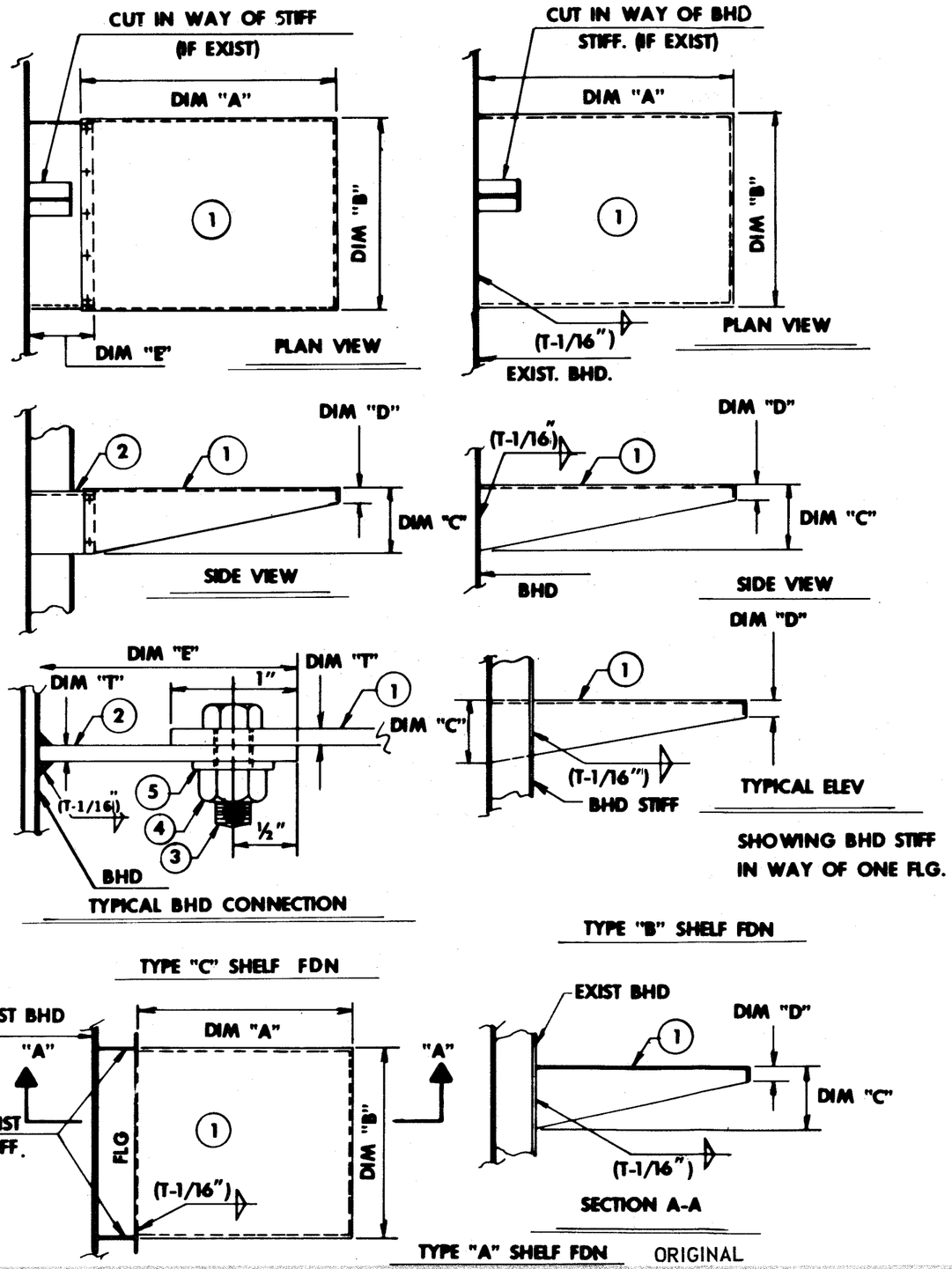


NOTES:

1. FINISH: KRYLON NO. 14 PER MIL-C-9084 PAINT PER MIL-E-10009 ENAMEL EQUIPMENT, LIGHT GRAY (FORMULA NO 11)
2. MATERIAL .125" THICK ALUMINUM ALLOY 5052-H32 PER QQ-A-318
3. NOT SUPPLIED. IF REQUIRED, INSTALLATION ACTIVITY MUST FABRICATE

R-1051/URR RACK MOUNTING BRACKET DETAILS

FIGURE 1-9



LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

NOTES:

1. Thickness (Dim. "T" of material to be furnished on location).

2. All variable dimensions and type of foundation to be specified on location.

3. Foundation for R-1051/URR to be as follows:

   a. Plating (7.65 #Plt. steel), ¼" thick aluminum

   b. Type "B" shelf foundation

   c. For installation with stiffener in way of unit. Dimension "A" = 25" + depth of stiffener, dimension "B" = 19-3/4", dimension "C" = 9", dimension "D" = 1½".

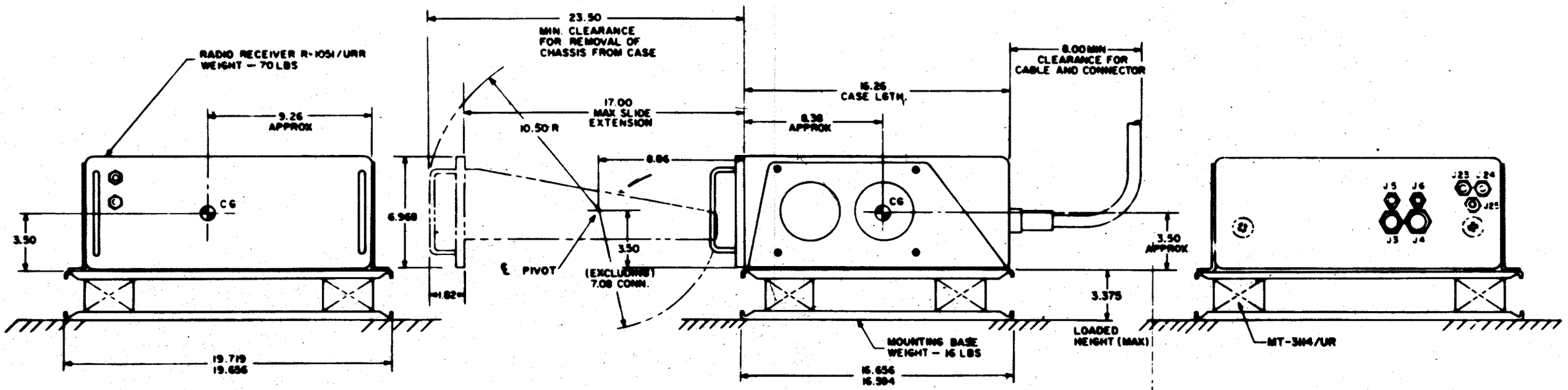
   d. For installation with no stiffener interference:

      Dimension "A" = 25", dimension "B" = 19-3/4", dimension "C" - 8", dimension "D" = 1½".

R-1051/URR RADIO RECEIVER

TYPICAL FOUNDATION DETAILS

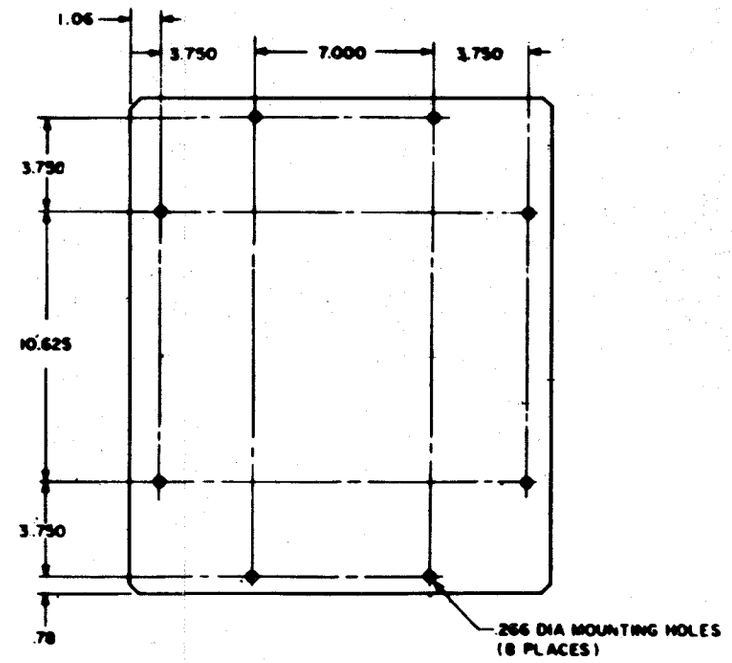
FIGURE 1-10



FRONT VIEW

REAR VIEW

NOTE:
SHOCK MOUNT MT-3114/UR IS
USED ONLY WHEN THE R-1051/URR
IS INSTALLED AS AN INDEPENDENT UNIT.

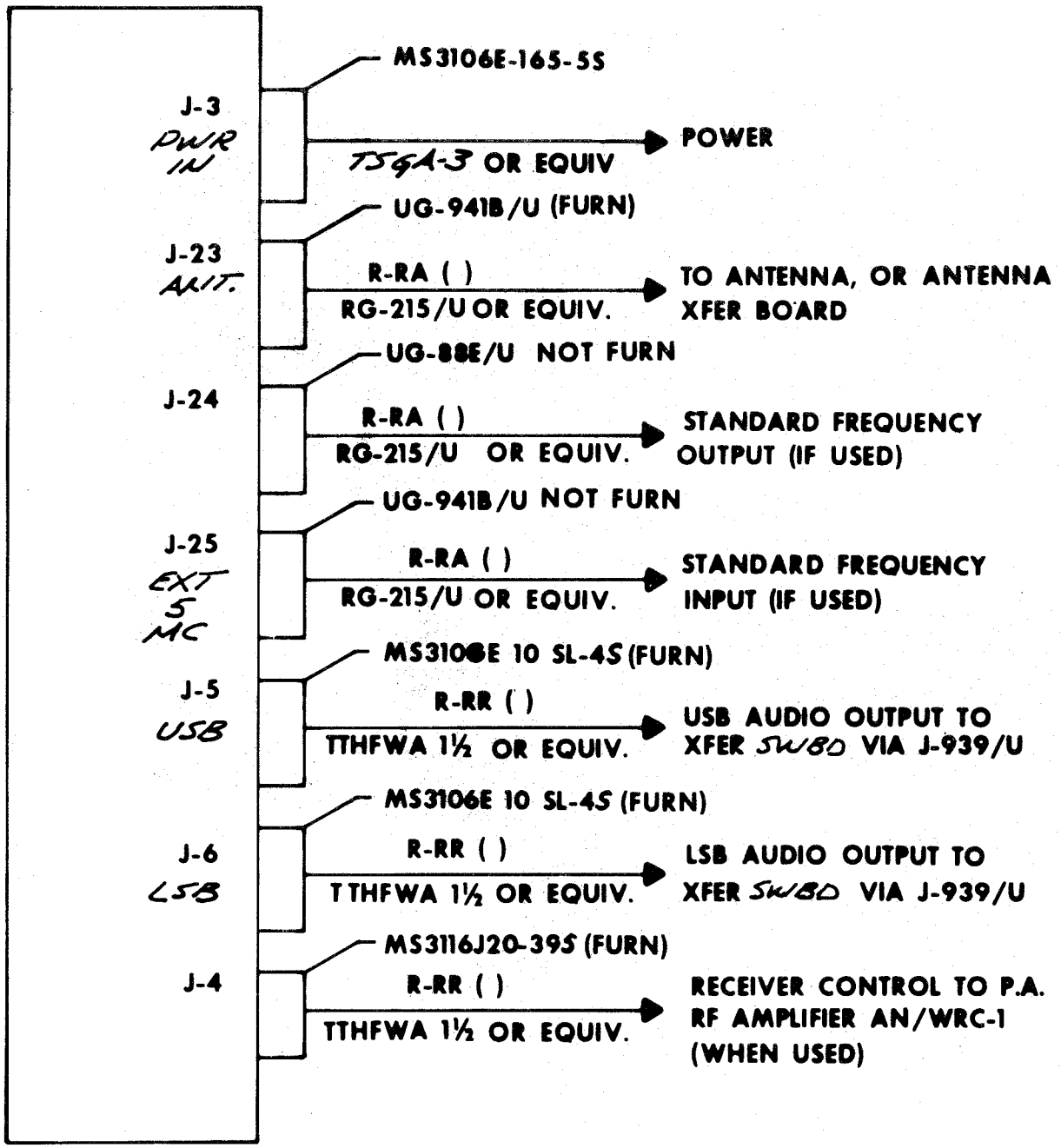


MOUNTING TEMPLATE

R-1051/URR RADIO RECEIVER
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 1-11

NOTE:

1. 620 OHM ½ Watt resistor to be connected across audio output pairs at receiver switchboard (EIB 652).



R-1051/URR RADIO RECEIVER CABLE DIAGRAM
FIGURE 1-12

SECTION 2 - RADIO TRANSCEIVERS

2.1 AN/SRC-20/21 GENERAL DESCRIPTION

The AN/SRC-20/21 provides UHF point-to-point and ground to air radio communications for shipboard and shore installation. When operated with the standard shipboard control circuits and remote control equipments the set is capable of remote channel selection, remote on-off power control, and remote push-to-talk transmission and reception on any of the 19 preset channels. Frequency range 225.0 to 399.9 megacycles, 1 band, steps of 100 KC.A3 emission. AN/SRC-20 100 watts minimum power output. AN/SRC-21 25 watts power output.

2.2 REFERENCE DATA

a. Table of Technical Publications - Table 2-1
b. Primary Power Requirements - Table 2-2
c. Heat Dissipation - Table 2-3
d. Unit Weight - Table 2-3

2.3 INSTALLATION REQUIREMENTS

a. Arrangement - Both the AN /SRC-20 and the AN/SRC-21 are usually installed on a flat surface mounted to the deck. See Figure 2-1 for typical foundation details.

b. Outline and Mounting Dimensions - AN/SRC-20 Figure 2-2, AN/SRC-21 Figure 2-3

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 2-1 Item No. 3.

2.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - AN/SRC-20 Figure 2-4, AN/SRC-21 Figure 2-5

b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-1 Item No. 14.

c. Security Requirements - None

2.5 FIELD CHANGE REQUIREMENTS TABLE 2-4

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-125-6010	Vol. I Technical Manual for Radio Sets AN/SRC-20 and AN/SRC-21
2	0967-125-6020	Vol. II Technical Manual for Radio Sets AN/SRC-20 and AN/SRC-21
3	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
4	*RE-E2685986	Interconnecting Wiring Diagram
5	*RE-D2685989	Cable Running Sheets
6	*RE-F2686017	Pictorial System Diagram
7	*RE-H1686018	Primary Power Distribution Diagram
8	*RE-E2685988	Interconnecting Wiring Diagram
9	*RE-D2686019	Pictorial System Diagram
10	*RE-D2686021	Summary List of Installation Material
11	*RE-D2683888	General Arrangement

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 2-1 (Continued)

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
12		
13	*RE-H2635987	Outline and Mounting Data
14	0967-000-0000	Electronics Installation and Maintenance Books
15	0981-052-8090	Data Pertaining to Electrical Shipboard Cable

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 2-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
*AN/SRC-20	115/230 VAC, 50/60 HZ, Single Phase		540 WATTS (Receive) 1550 WATTS (Transmit)	Power Factor 0.9
*AN/SRC-21	115/230 VAC, 50/60 HZ, Single Phase		290 WATTS (Receive) 455 WATTS (Transmit)	Power Factor (Receive) 0.92 Power Factor (Transmit) 0.95

*Both the AN/SRC-20 and the AN/SRC-21 are shipped ready for 115 volt operation to operate either of the sets on 230 Volts. It is necessary to change the primary power fuses and voltage selectors. See Table 2-1 Item No.1

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-2

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/SRC-20	1415 WATTS	529 LBS.	
AN/SRC-21	455 WATTS	295 LBS.	
MT-2299/UR (SRC-20)		84 LBS.	
MT-2300/UR (SRC-21)		72 LBS.	
C-3866/SRC		66 LBS.	
AN/URC-9		157 LBS.	
AM-1565/URC		222 LBS.	

TABLE OF MISCELLANEOUS DATA
TABLE 2-3

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1-AN/SRC-20/21 All	0967-032-5070	Modification to C-3866/SRC to make system compatible with C-1138 control unit	FA-2½	None	Two wires (white with red and blue tracers) connected to F-205.
2-AN/SRC-20/21 All used for Homing Beacon	0967-050 7040	Provide MCW keying for homing beacon installations	FA-11	None	Absence of wire on pin 5 of K-805 in modulator audio amplifier assembly.
3-AN/SRC-20/21 All	0967-032-5070	Modification of PP-2702/ URC-9 to provide improved operation	FA-1	None	Use of 1N561 in place of 1N560 for CR-1501 thru CR-1504.
4-AN/SRC-20/21 All	0967-032-5070	Modification of line fuses main F-204 and radio set F-206 to provide safety of operation	FA-2	None	Presence of Dymo-type tape writer labeling on the front of the C-3866/SRC.
5-AN/SRC-20 All	0967-032-5040	Change added to AN/SRC-20 adapts equipment to withstand shock and vibration	FA-3	2N5820-986-7729	Presence of clamps in RT-581/ URC-9 guide pins in C-3866 SRC and screw lock pin for P-401 of servo amplifier in AM-1565/URC
5-AN/SRC-21 All	0967-032-5050	Changes added to adapt equipments to withstand shock and vibration	FA-2	2N5820-986-7746	Presence of plug clamps in RT-581/URC-9 and guide pins in back panel to rear of C-3866/SRC.

TABLE 2-4

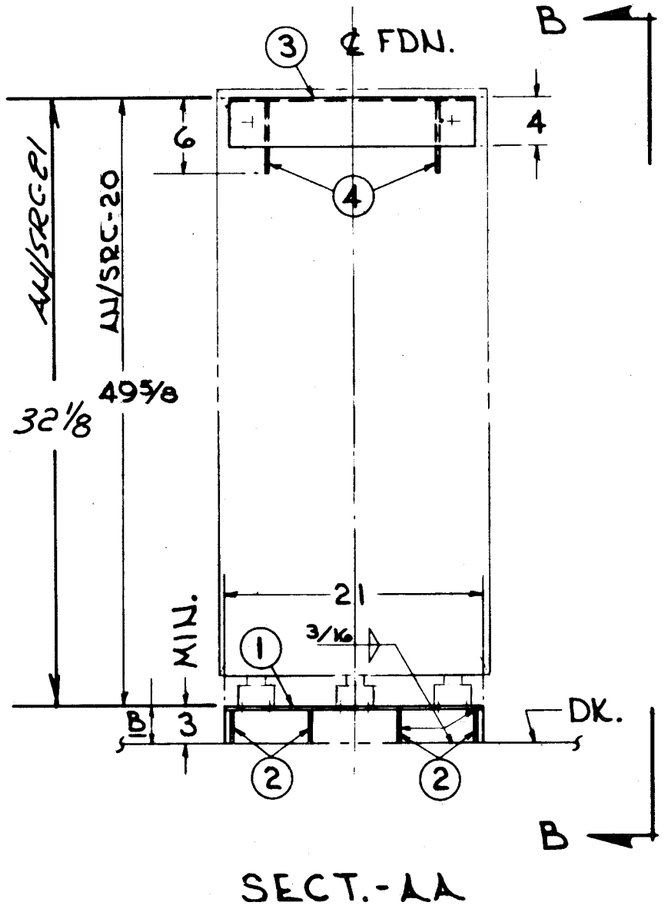
FIELD CHANGE REQUIREMENTS
TABLE 2-4 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
6-AN/SRC-20/21 All	0967-032-5060	Reduces failure of contacts in relay K-601	FA-1	2N5820-988-1152	Presence of 100 ohm resistor, 1 microfarad capacitor, and an insulated terminal stud installed vertically alongside the case of relay K-602 in the relay filter unit of RT-581/URC-9.
7-AN/SRC-20/21 Specified ships	(20)-0967-032-5080 (21)-0967-032-5090	Install running time meter	Special Team FA-8	20-2Z5820-056-1334 21-2Z5820-056-1366	Presence of running time meter on PP-2702/URC-9
8-AN/SRC-20/21 All	0967-125-6110	Reduce failure of lamps DS201 & 202	FA-1	2Z5820-928-5011	Presence of 15 ohm term. 6 of TB 201 and ground.
9-AN/SRC-20 Collins produced equips only	0967-125-6120	Ruggedized drawer slides	FA-1	2Z5820-019-2897	Reinforced blocks on tilt control.
10-AN/SRC-20 9-AN/SRC-21 All	0967-125-6130	Protect RF-PA from overheating	FA-~~1~~ 1½		Presence of thermal sensing device in center of PA anode.
11-AN/SRC-20 10-AN/SRC-21 All	0967-125-6140	Reduce contact failure in K801 & K802	FA-4		Presence of 15K resistor & .2 MFD capacitor near K801 socket.

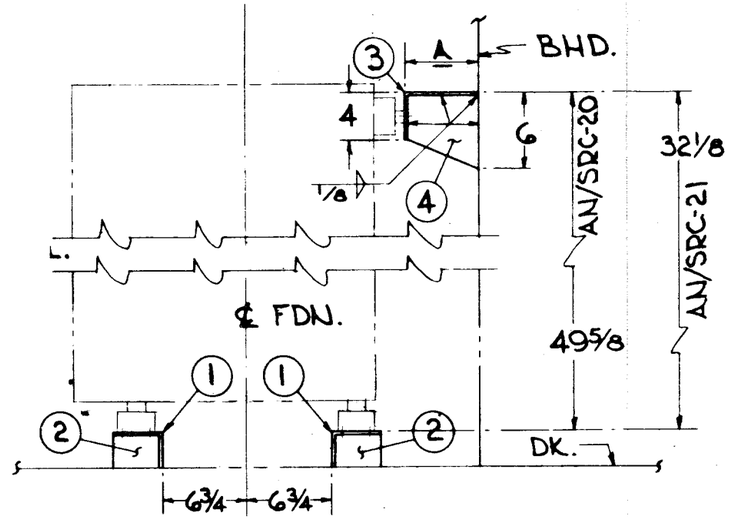
FIELD CHANGE REQUIREMENTS
TABLE 2-4

LIST OF MATERIAL—QUANTITIES FOR ONE FDN.

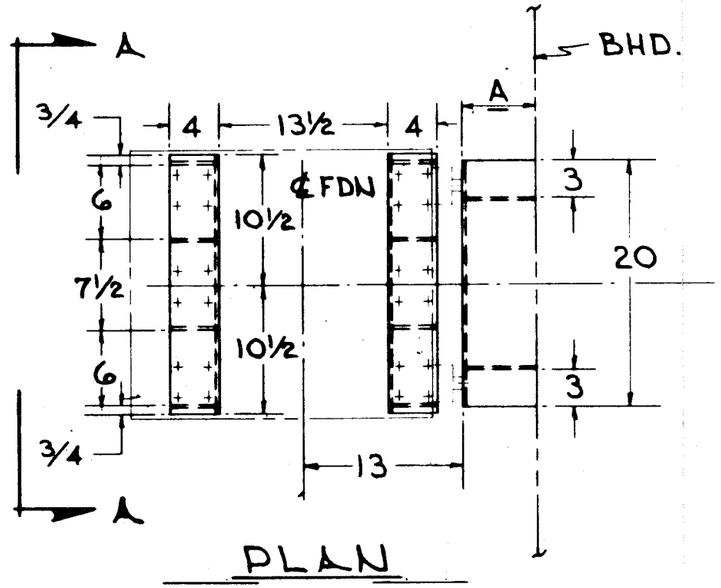
PIECE NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS	SHOP ROUTING
1	10.2# RT.	2	M. STL.	MIL-S-	20166	
2	" (CHKS.)	8	↓	↓	↓	
3	7.65# RT.	1				
4	" (CHKS.)	2				



SECT.- AA

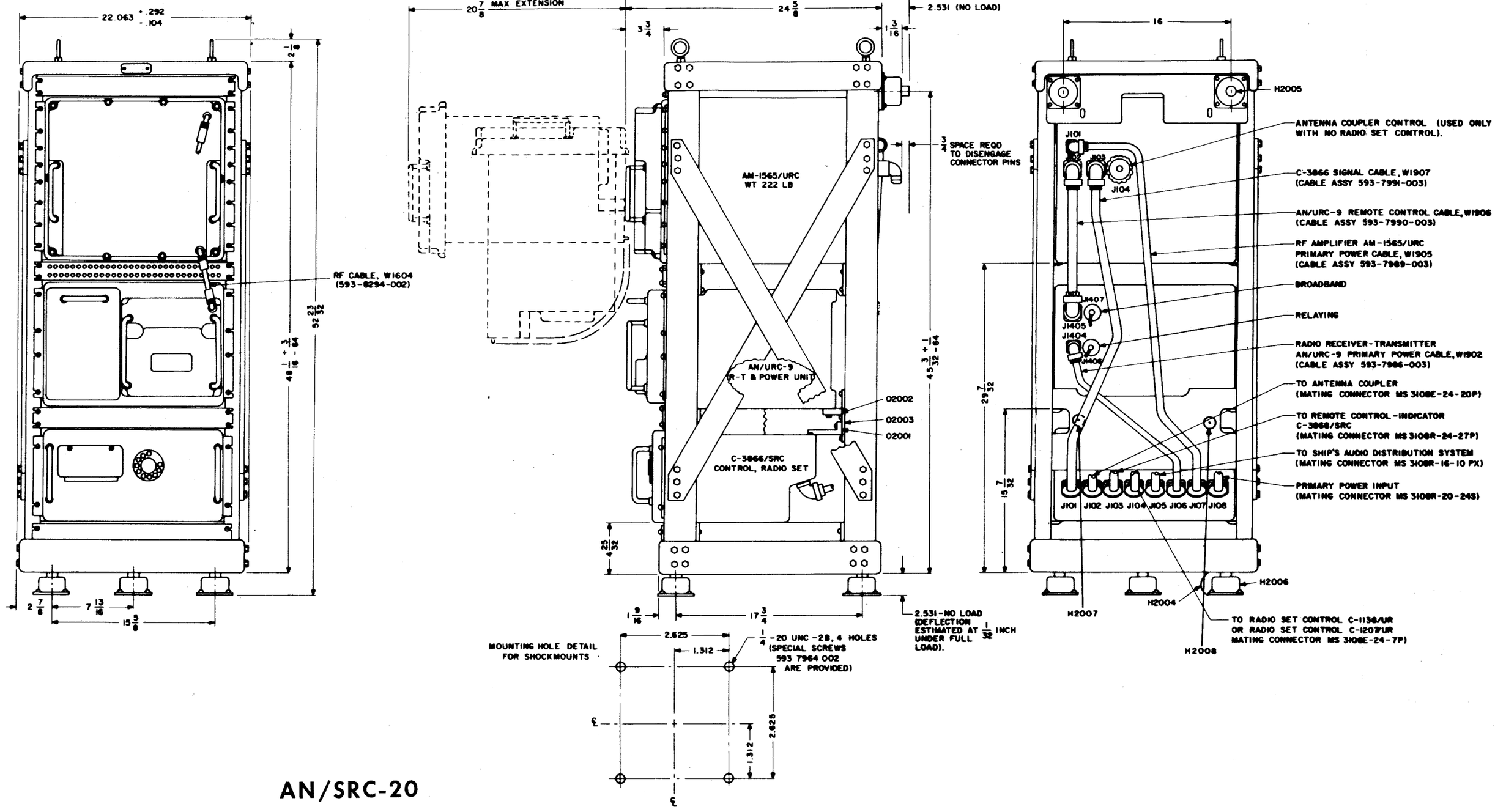


SECT.- BB



PLAN

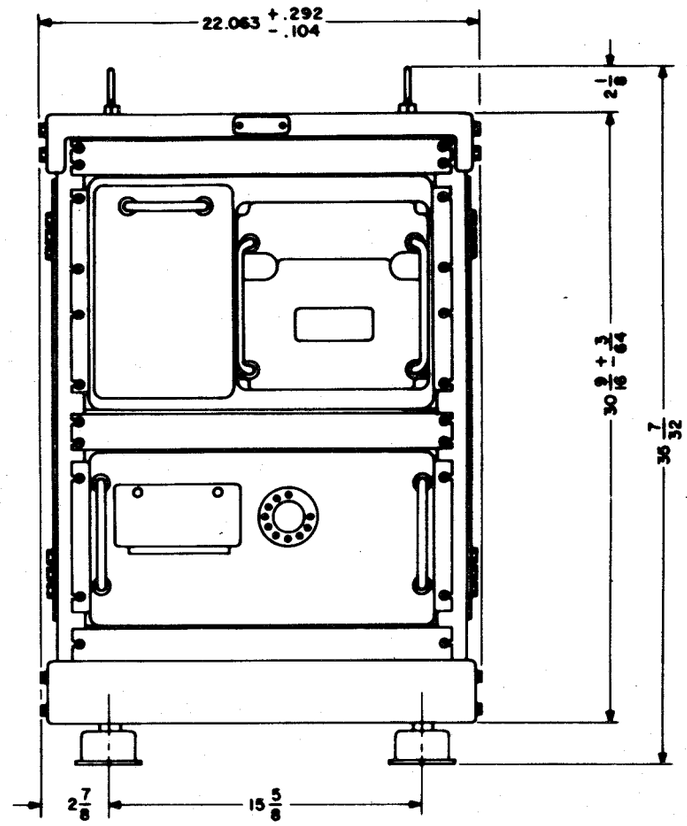
AN/SRC-20 AND AN/SRC-21 RADIO SET
TYPICAL FOUNDATION DETAILS
FIGURE 2-1

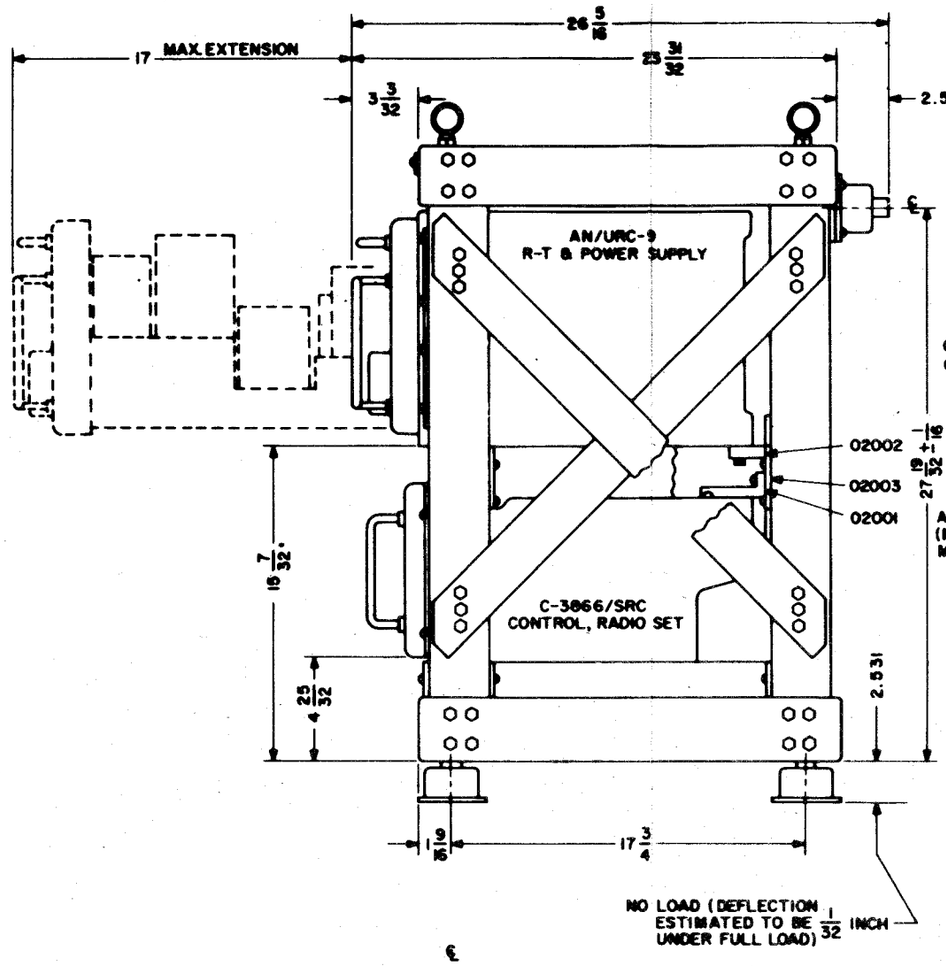


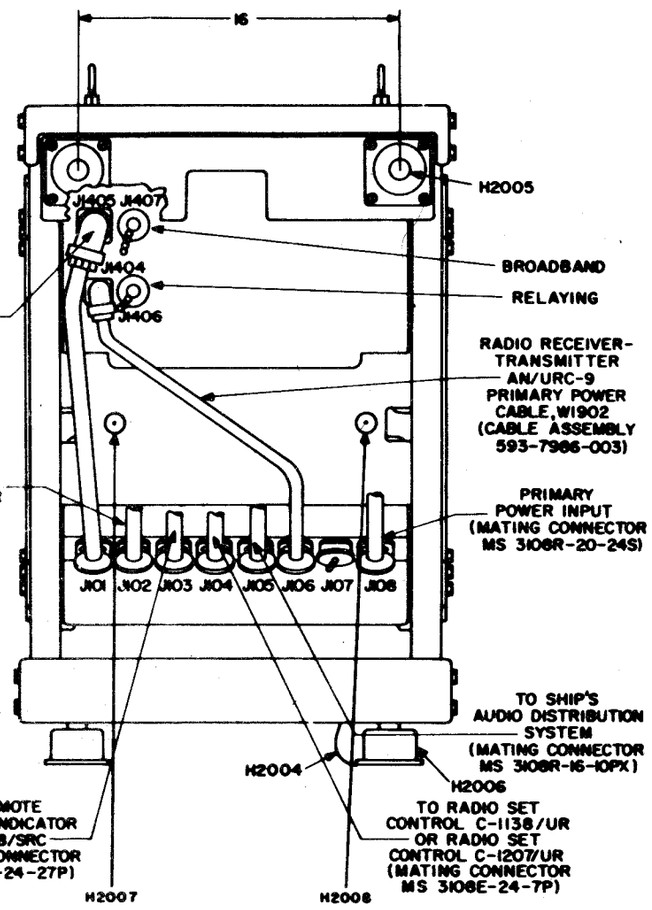
AN/SRC-20

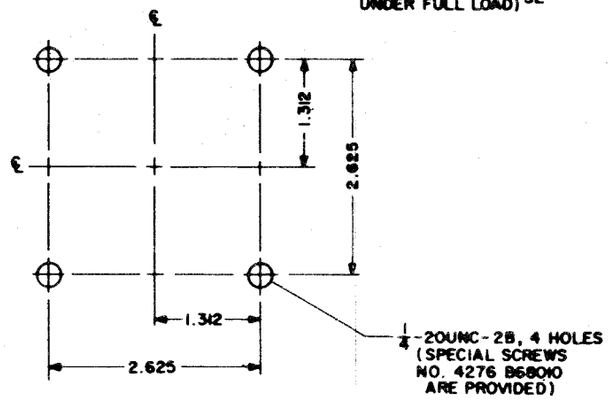
OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-2







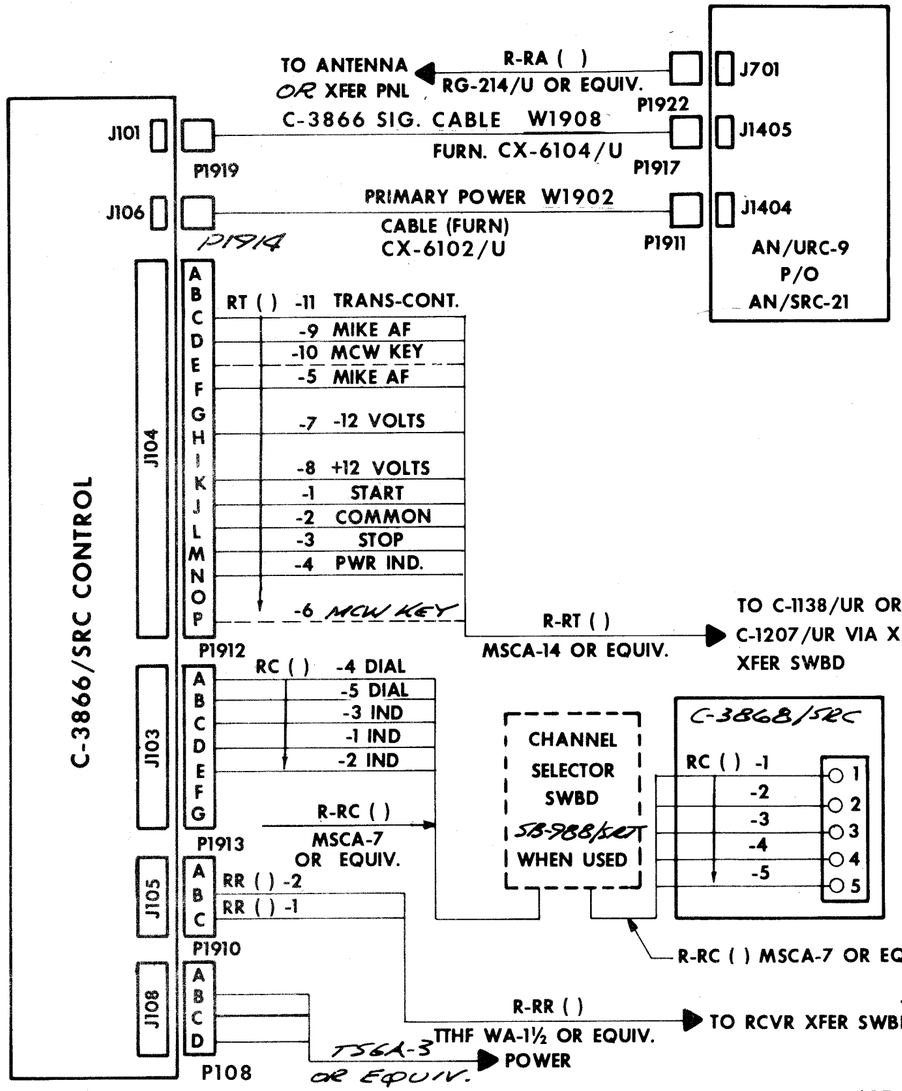


MOUNTING HOLE DETAIL FOR SHOCKMOUNTS

AN/SRC-21 RADIO SET

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-3



NOTE:

1. All connections represented by dotted lines to be added to equipments modified for remote MCW keying. See field change #2.

2. When AN/SRC-20/21 is to be used with an AN/SRA-33 the following jumpers are to be removed in radio set control C-3866/SRC.

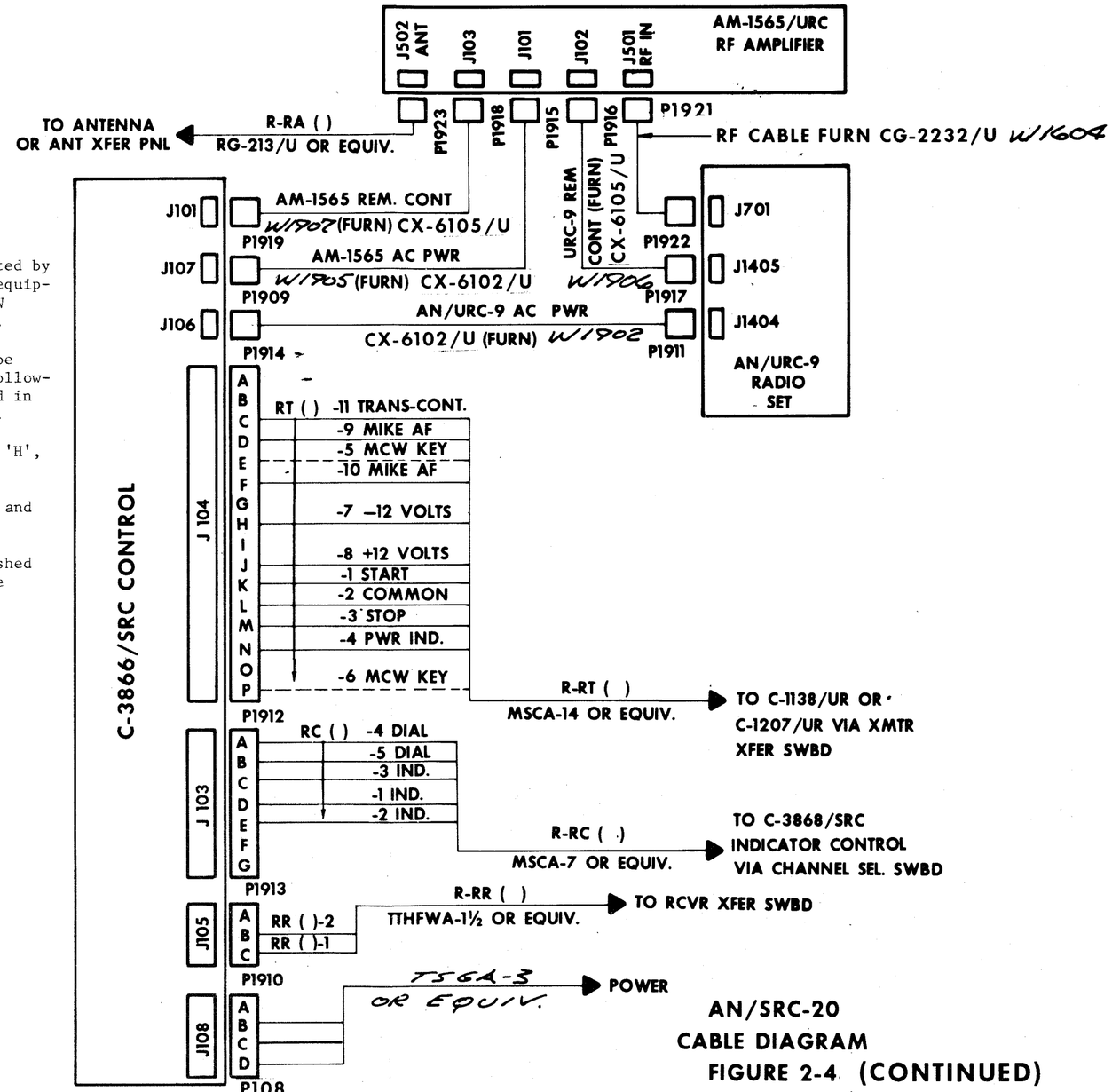
   a. Between pins 'G' and 'H', J102.

   b. Between K207, Pin 1, and S201, terminal 8.

3. All connectors are furnished with AN/SRC-20/21 units. See sheet 2-13/2-14.

ORIGINAL

AN/SRC-21
CABLE DIAGRAM
FIGURE 2-5
(CONTINUED)



AN/SRC-20
CABLE DIAGRAM
FIGURE 2-4 (CONTINUED)

C-3866/SRC	
P1919	MS3108R-24-7PY
P102	MS3108E-24-20P
P1913	MS3108R-24-27P
P1912	MS3108E-24-7P
P1910	MS3108R-16-10PX
P1914	MS3108R-16-10P
P1909	MS3108R-16-10P
P108	MS3108R-20-24S
AM-1565/URC	
P1915	MS3108R-16-10S
P1916	MS3108R-24-7PY
P1918	MS3108R-24-7P
P1921	UG-710A/U
P1923	UG-710A/U
AN/URC-9	
P1922	UG-710A/U
P1917	MS3108R-24-7P
P1911	MS3108R-16-10S

FIGURE 2-4/2-5 CONTINUED

SECTION 2 - RADIO TRANSCEIVERS

2.6 AN/VRC-46 GENERAL DESCRIPTION

The AN/VRC-46 radio receiver-transmitter is a rugged, compact FM receiver-transmitter is a water tight case. Manually tuned from the front panel to any frequency in the range of 30 to 75.95 megacycles in 50 KC increments. An integral loudspeaker is mounted on the front panel. Transmitter: F3 emission, 35 watts maximum power output, 30 to 75.75 megacycle frequency range, 2 bands, 920 channels; receiver: F3 emission, receiving; 30 to 75.95 megacycle frequency range, 2 bands, 920 channels.

2.7 REFERENCE DATA

a. Table of Technical Publications - Table 2-5
b. Primary Power Requirements - Table 2-6
c. Heat Dissipation - Table 2-7
d. Unit Weight - Table 2-7

2.8 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/VRC-46 ( ) radio receiver-transmitter, and PP-2953/U power supply are designed for mounting on a shelf type or flat type foundation. See Figure 2-6 for typical foundation details. The MX-1986/SRC control adapter may be mounted either on a shelf or flat type foundation. See Figure 2-7 for typical foundation. The AS-1729/VRC and AT-912/VRC antenna may be installed vertical on masts, or deckhouses. See Figure 2-8 and 2-9 for typical foundation details.

b. Outline and Mounting Dimensions

(1) AN/VRC-46 Figure 2-10
(2) PP-2953/U Figure 2-11
(3) MX-1986/SRC Figure 2-12
(4) AT-912/VRC Figure 2-13
(5) AS-1729/VRC Figure 2-14

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 2-5, Item No. 6.

2.9 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 2-15.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-5, Item No. 10.
c. Security Requirements - To be in accordance with Table 2-5, Item No. 11.

2.10 FIELD CHANGE REQUIREMENTS - See Table 2-5 Item No. 10.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	TM-11-5820-401-35	Field and Depot Maintenance Manual Radio Sets AN/VRC-12 and AN/VRC-43, 44, 45, 46, 47, 48, and 49.
2	TM-11-5820-399-35	Field and Depot Maintenance Manual
3	TM-11-5965-262-13	Organizational and DS Maintenance Manual
4	TM-11-5820-401-20	Organizational Maintenance Manual
5	TM-11-5820-401-10	Operatior's Manual
6	Mil. Std. 1310A(NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
7	0967-069-1010	Technical Manual for Control Adapter MX-1986A
8	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
9	*RE-B2696164	Data Sheet
10	0967-000-0000	Electronics Installation and Maintenance Books
11	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

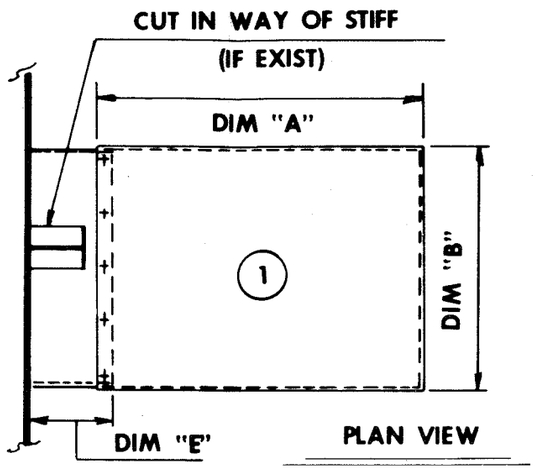
TABLE 2-5

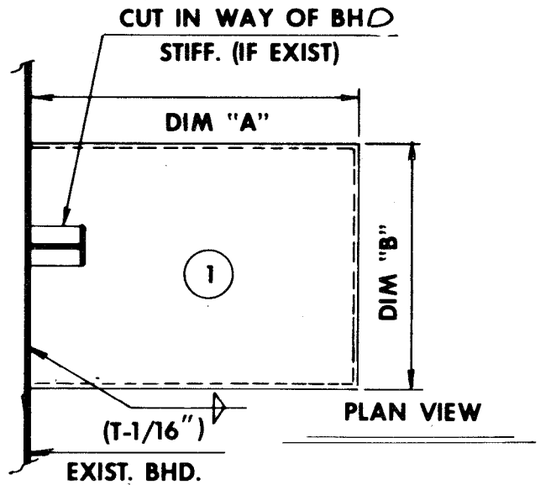
EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
MX-1986( )/SRC	115 VAC, 60 HZ, Single Phase		70 Watts	
PP-2953/U	115 VAC, 60 HZ, Single Phase	4 amps		

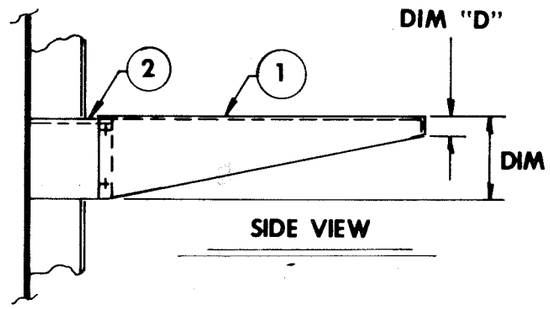
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-6

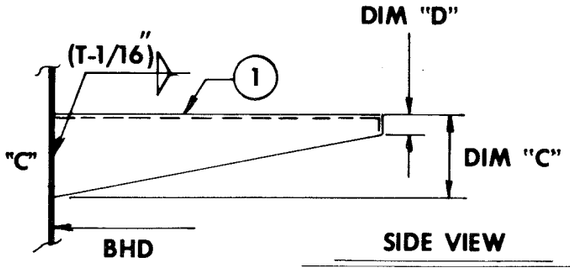
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/VRC-46		61 LBS.	
MT-1029/VRC		16-5/8 LBS.	
PP-2953/U		40 LBS.	
MX-1986/SRC	70 WATTS	30 LBS.	
AS-1729/VRC		9½ LBS.	
AT-912/VRC		18 LBS.	

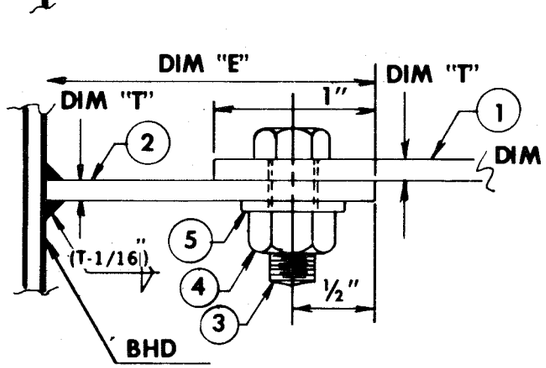
TABLE OF MISCELLANEOUS DATA
TABLE 2-7

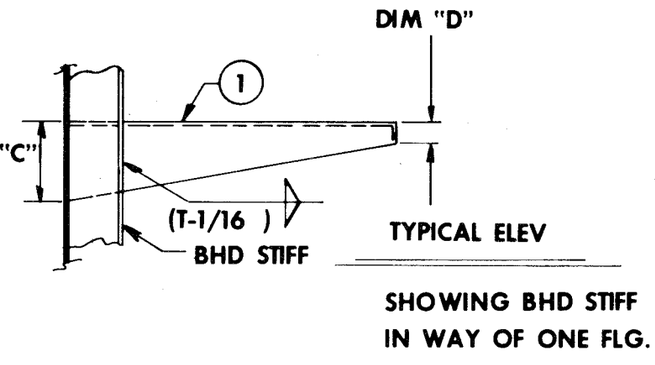






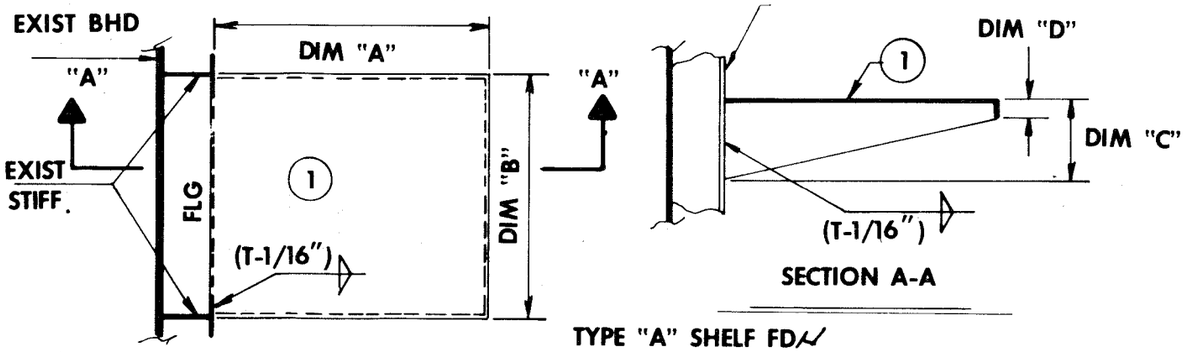






TYPE "B" SHELF FDN

TYPE "C" SHELF FDN



TYPE "A" SHELF FD

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO.	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

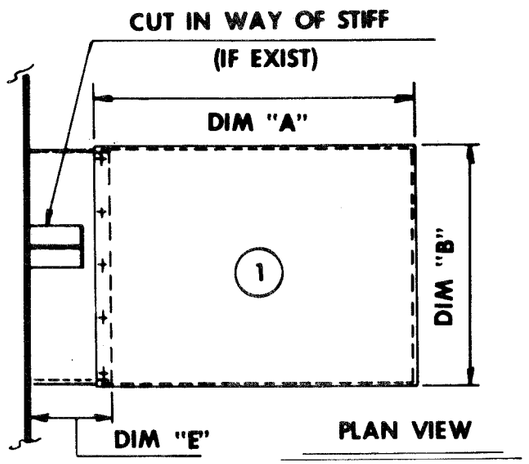
NOTES:

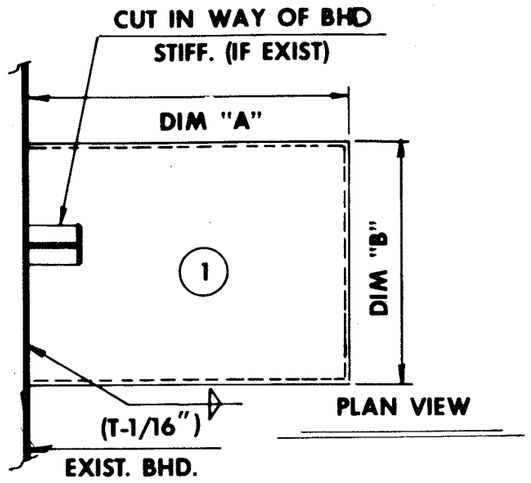
1. Thickness (Dim. "T" of material to be furnished on location).
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for AN/VRC-46 and PP-2953/U with 4" between units to be as follows:
   a. Plating (7.65 #Plt. steel), 1/4" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit: Dimension "A" = 22" + depth of stiffener, dimension "B" = 36", dimension "C" = 8", dimension "D" = 1 1/2".
   d. For installation with no stiffener interference: Dimension "A" = 22", dimension "B" = 36", dimension "C" = 8", dimension "D" = 1 1/2".
4. Size and location of mounting bolts for unit to be taken from equipment.

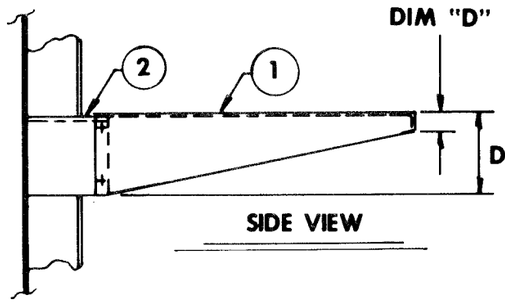
AN/VRC-46 AND PP-2953/U

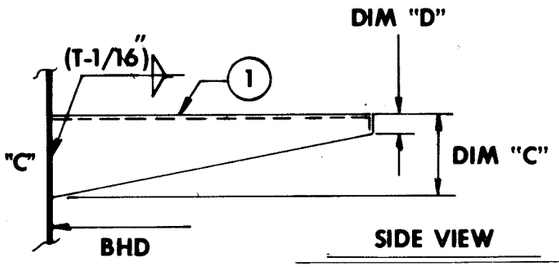
TYPICAL FOUNDATION DETAILS

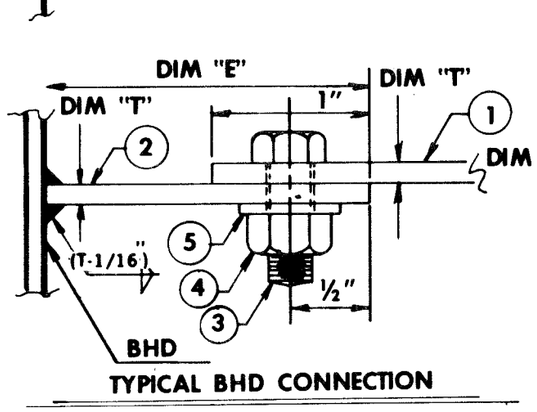
FIGURE 2-6



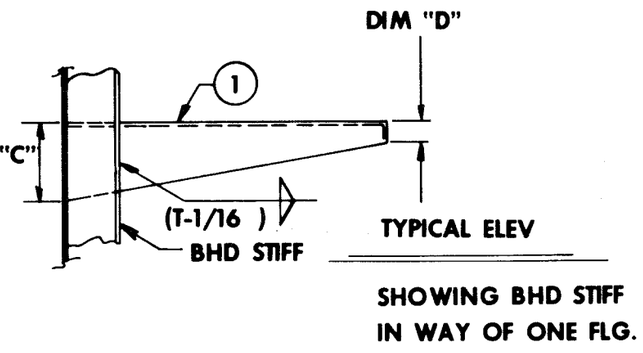




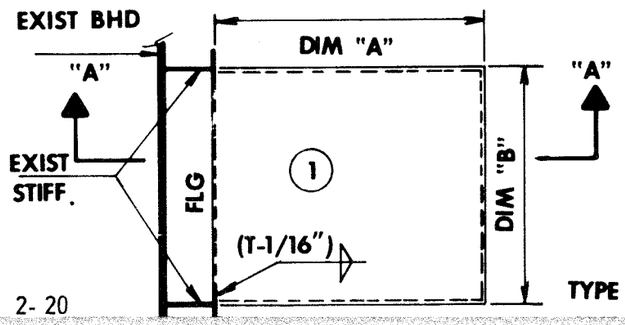


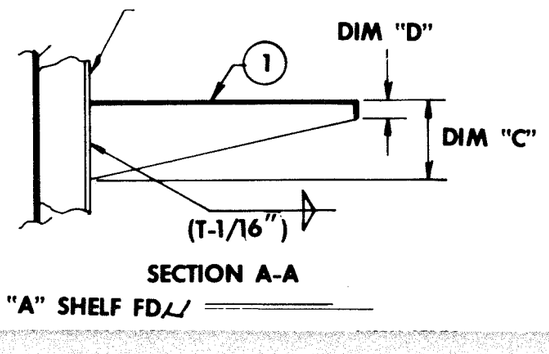


TYPE "C" SHELF FDN



TYPE "B" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO.	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

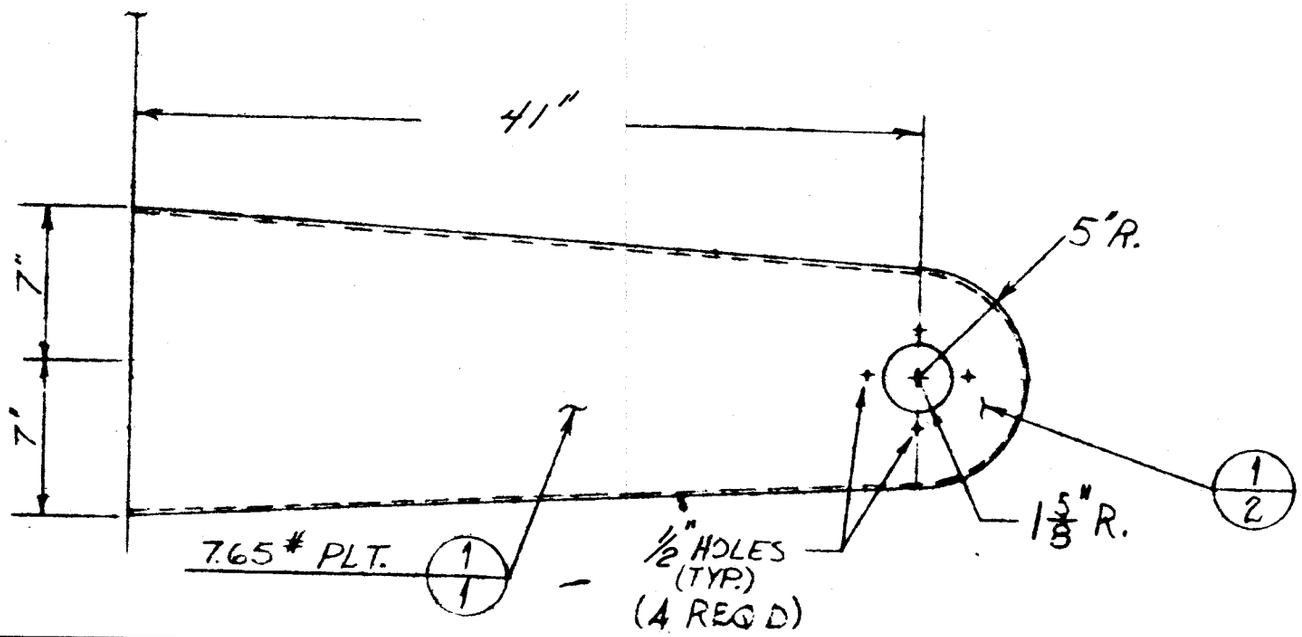
NOTES:

1. Thickness (Dim. "T" of material to be furnished on location).
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for MX-1986/SRC to be as follows:
   a. Plating (7.65 #Plt. steel), 1/4" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit. Dimension "A" = 11 1/2" + depth of stiffener, dimension "B" = 17", dimension "C" = 7", dimension "D" = 1 1/2".
   d. For installation with no stiffener interference: Dimension "A" = 11 1/2", dimension "B" = 17", dimension "C" = 7", dimension "D" = 1 1/2".
4. Size and location of mounting bolts to be taken from equipment.

MX-1986/SRC CONTROL ADAPTER

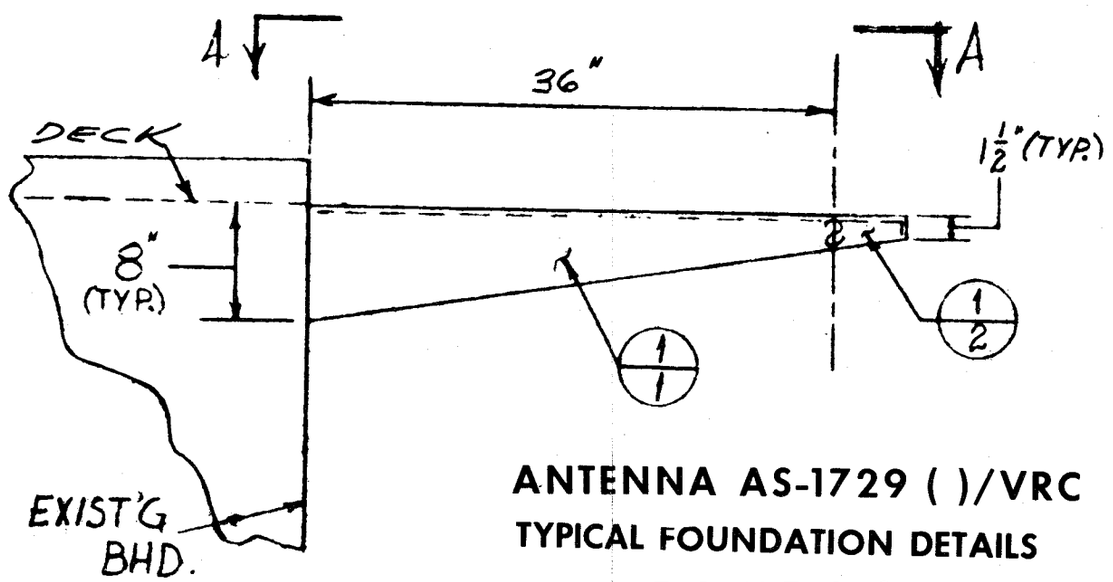
TYPICAL FOUNDATION DETAILS

FIGURE 2-7



LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION					
Pc. No.	NAME	No. Reqd.	MATERIAL	MATERIAL SPECIFICATION	FEDERAL STOCK No.
1	7.65 No. 2 Plt.	2	M.S.		9515-237-5333

NOTES: Template all work from ship.
All welds to be in accordance with NAVSHIPS Weld Specifications 0900-000-1000.
Template location of mounting bolts from equipment.
Foundations to be parallel to base line.

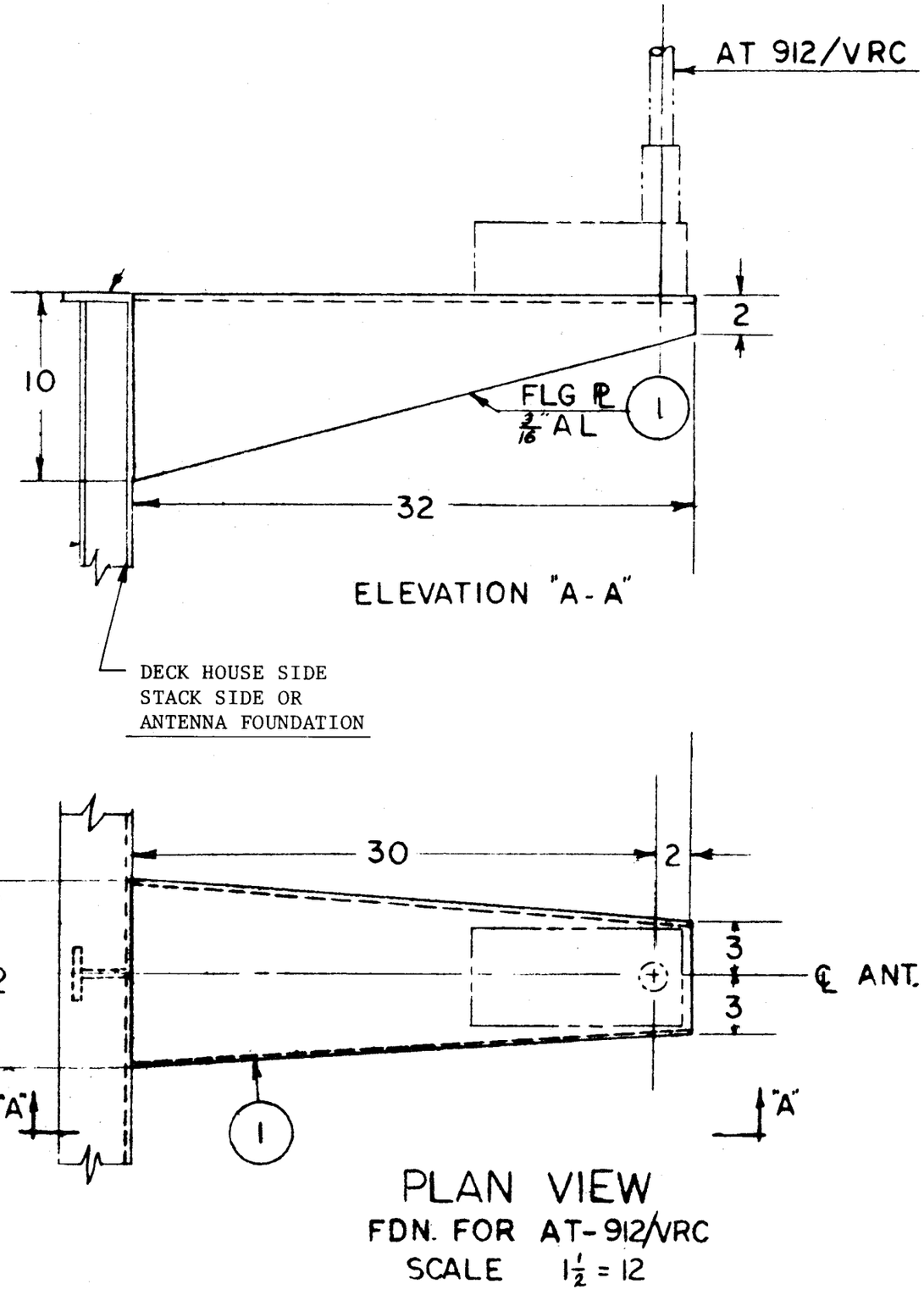


ANTENNA AS-1729 ( )/VRC
TYPICAL FOUNDATION DETAILS
FIGURE 2-8

LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION					
PC. No.	NAME	No. REQD.	MATERIAL	MATERIAL SPECIFICATION	FEDERAL STOCK No.
1	3/4" Aluminum Plate	1	5086H32	Mil-A-19020	9535-542-2639

GENERAL NOTES

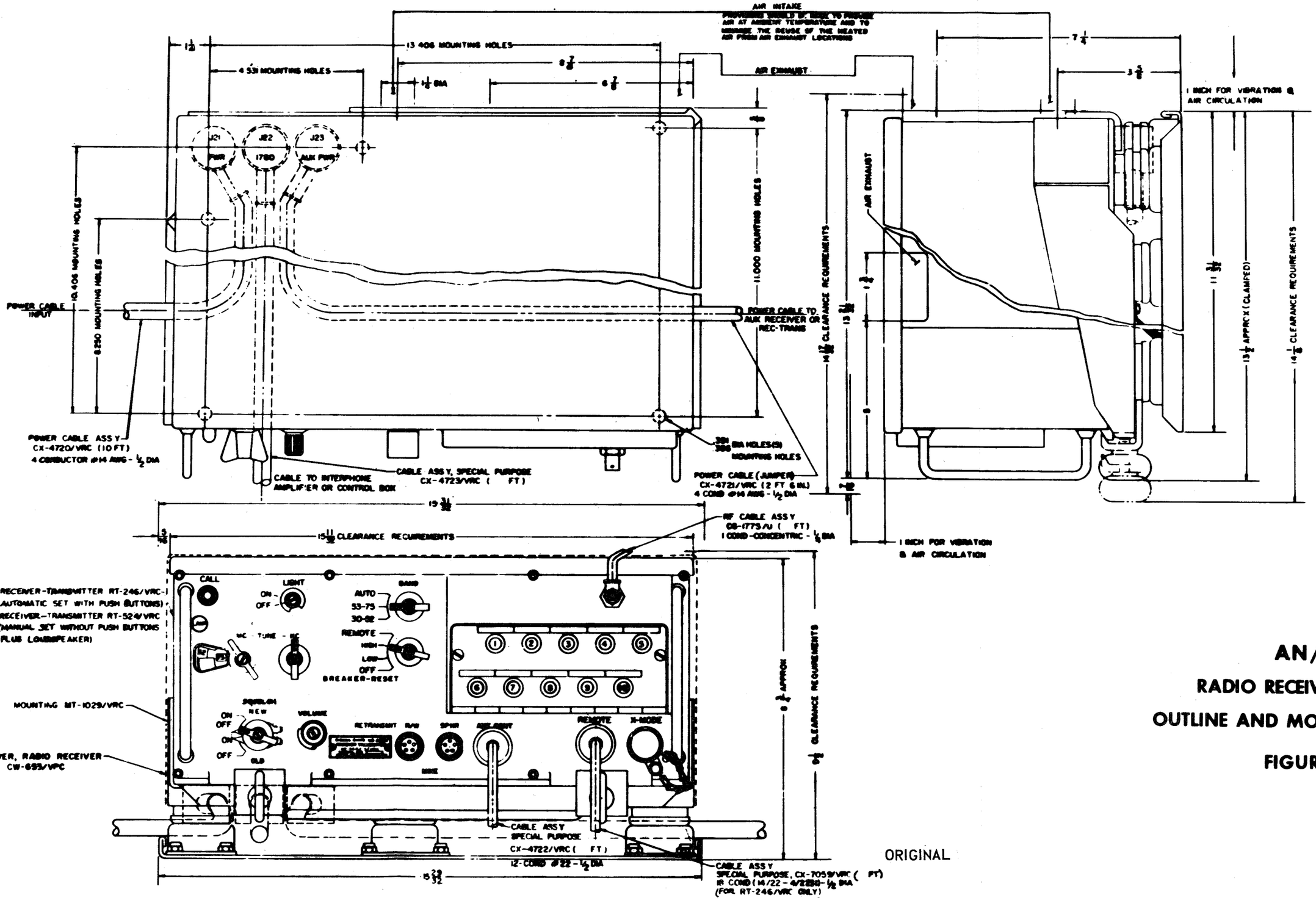
1. ALL FOUNDATIONS TO BE INSTALLED LEVEL
2. GRIND SMOOTH ALL ROUGH EDGES TO PREVENT INJURY TO PERSONNEL.
3. ALL WELDING TO BE IN ACCORDANCE WITH GEN. SPECS S9-1
4. MOUNTING HARDWARE PROVIDED WITH ANTENNA.



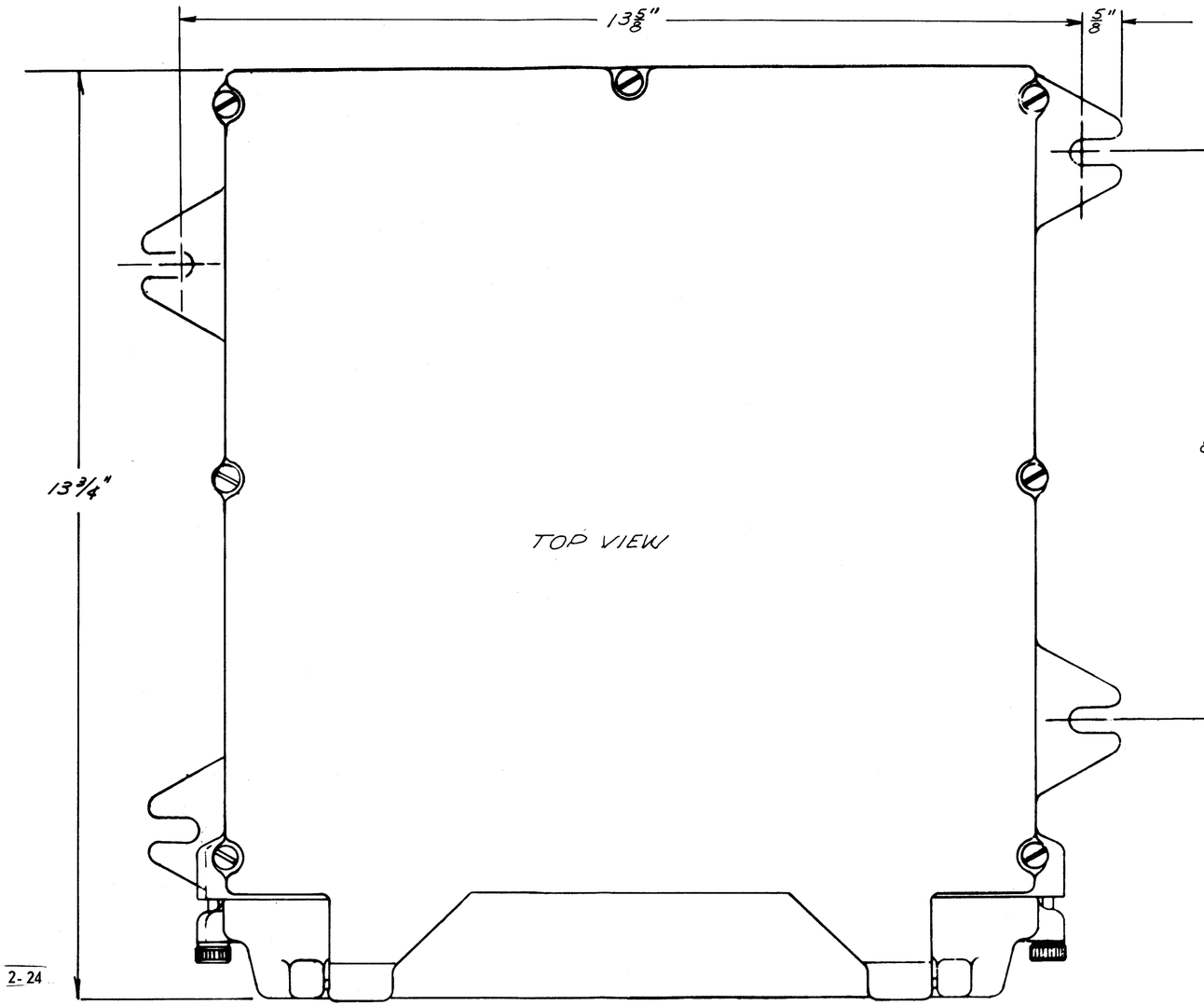
ELEVATION "A-A"

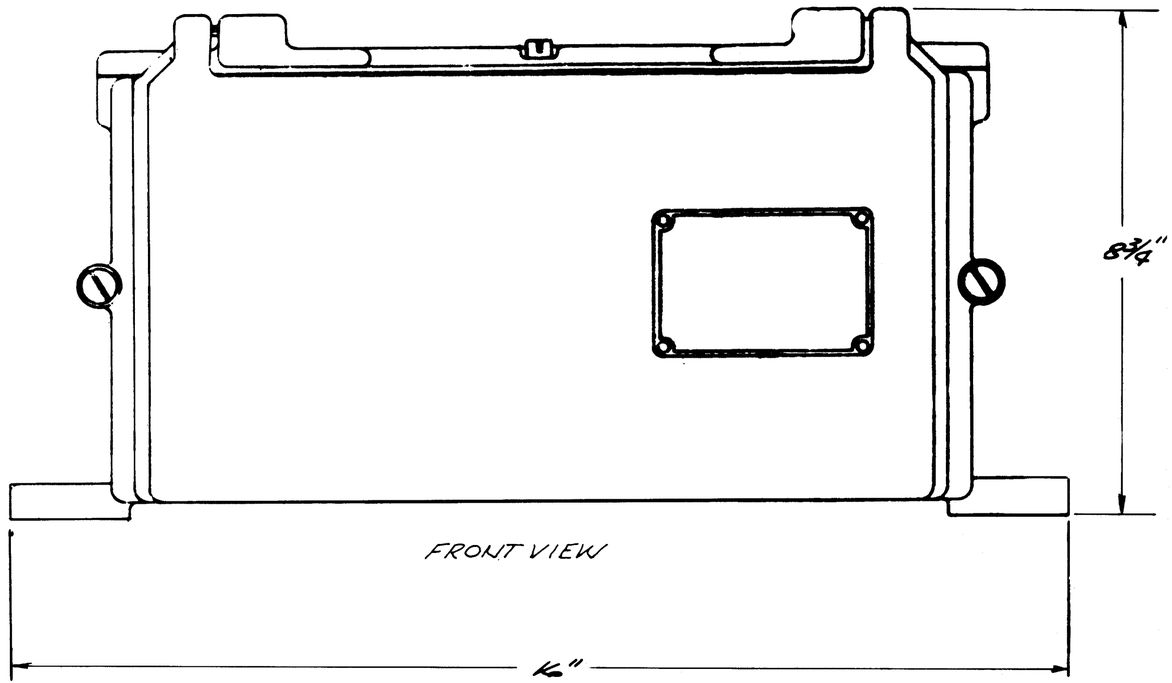
PLAN VIEW
FDN. FOR AT-912/VRC
SCALE 1½ = 12

AT-912/VRC
TYPICAL FOUNDATION DETAILS
FIGURE 2-9



AN/VRC-46
RADIO RECEIVER-TRANSMITTER
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-10

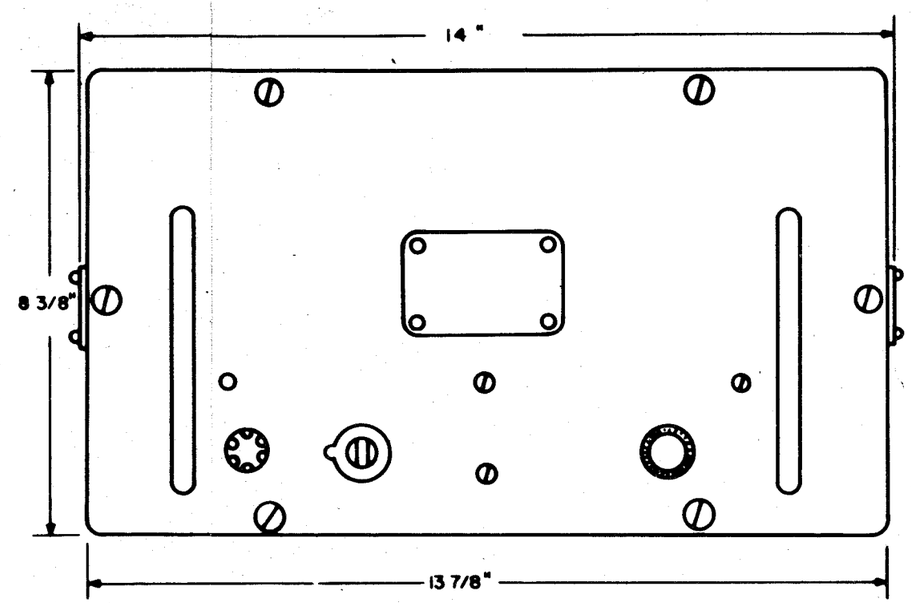




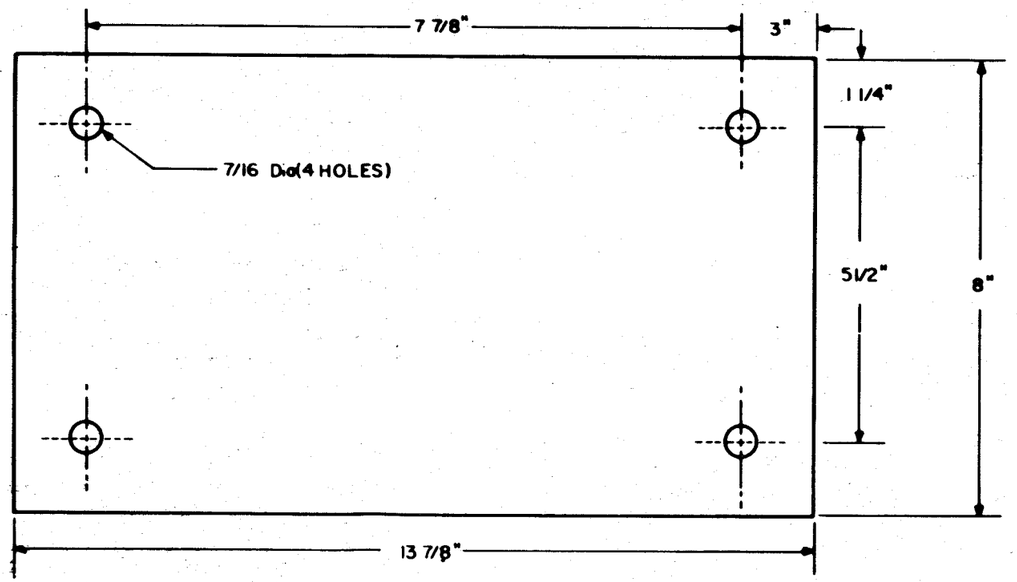
PP-2953/U POWER SUPPLY

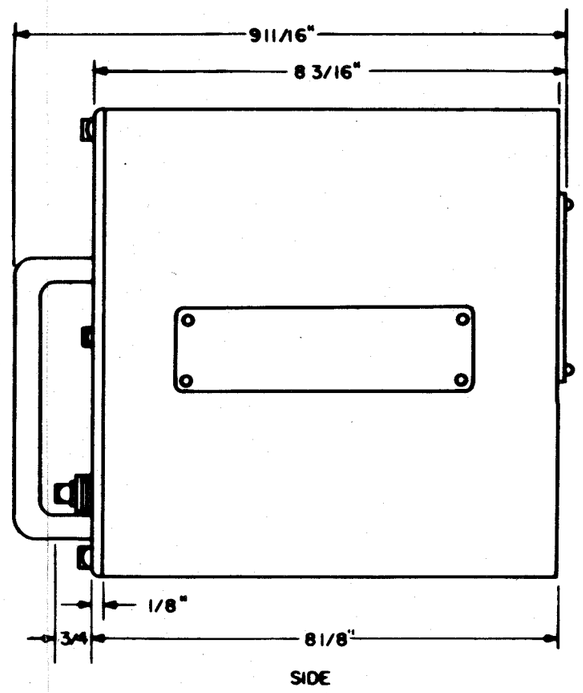
OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-11



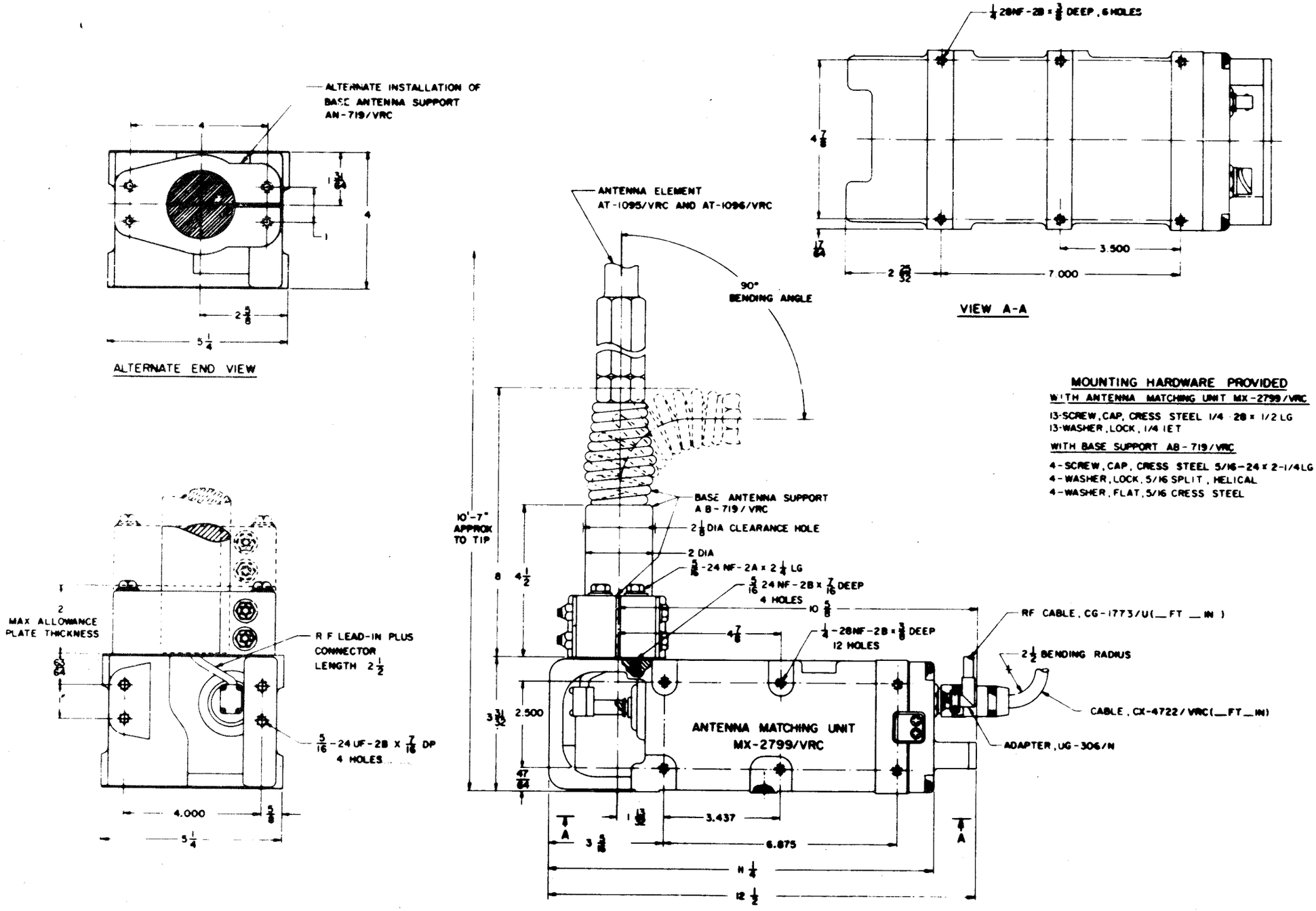
FRONT





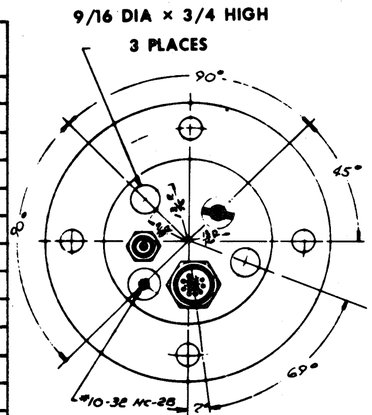
SIDE

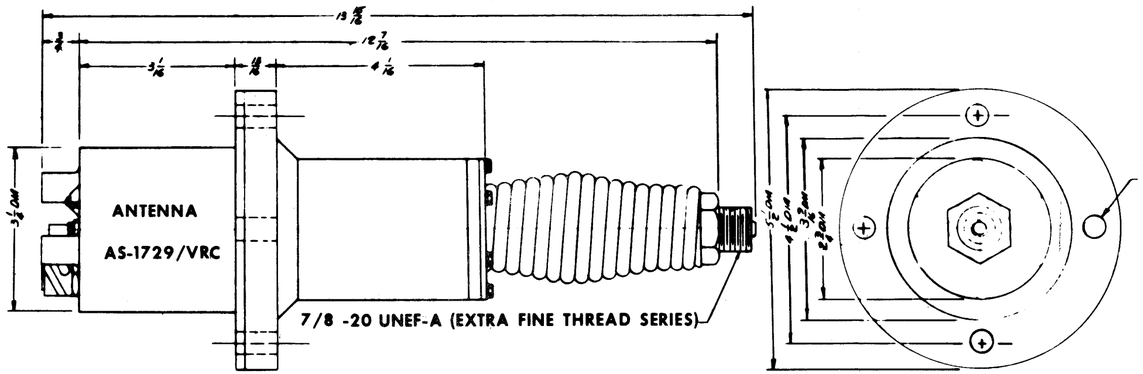
MX-1986A/SRC
CONTROL ADAPTER
OUTLINE AND MOUNTING
DIMENSIONS
FIGURE 2-12

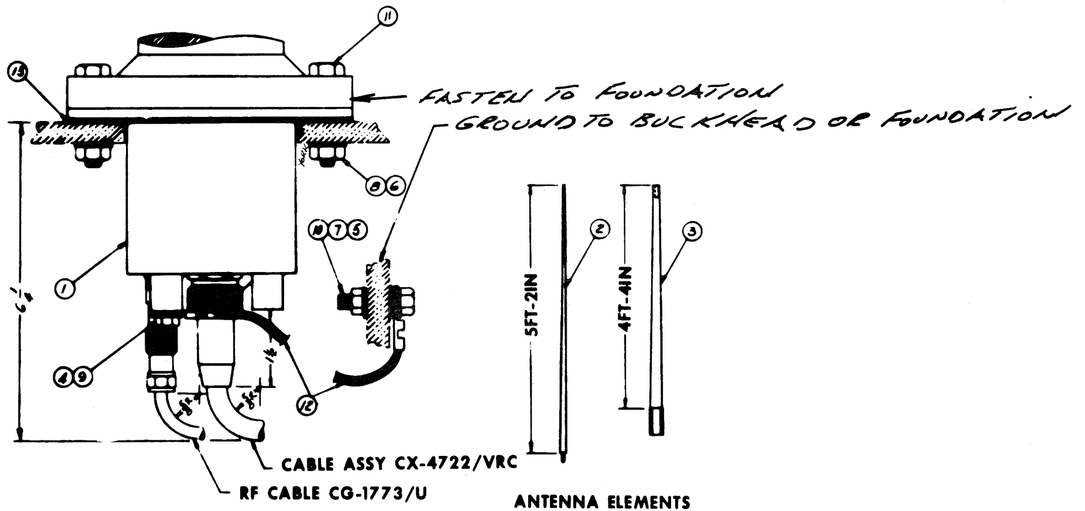


AT-912/VRC ANTENNA
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-13

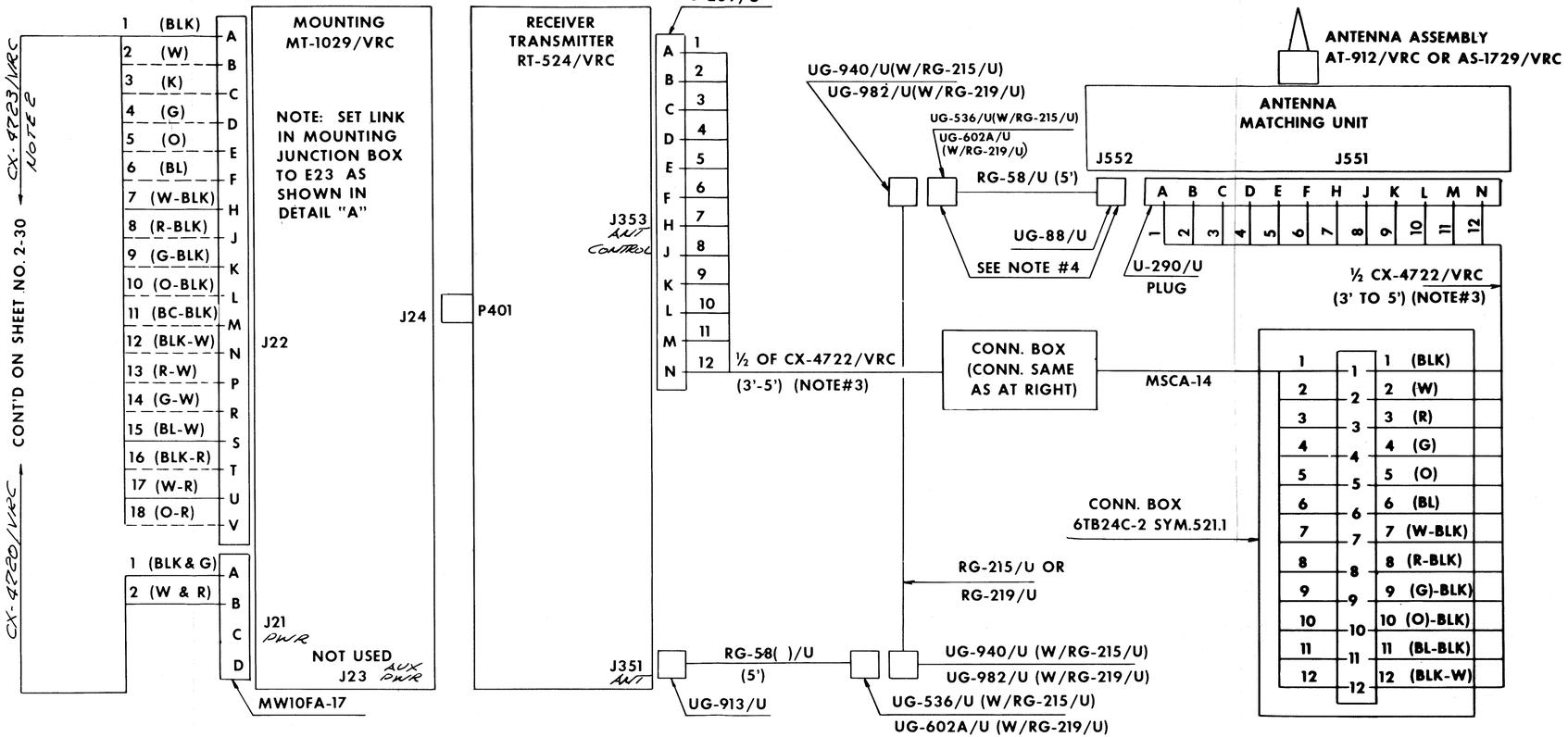
ITEM No.	NAME OF ITEMS (FURNISHED WITH ANTENNA AS-1729/VRC)	ATY. REQD.	REMARKS
1	ANTENNA AS-1729/VRC	1	
2	ANTENNA ELEMENT AT-1095/VRC (5Ft.-2In.)	1	
3	ANTENNA ELEMENT AS-1730/VRC (4Ft.-4In.)	1	
4	LOCKWASHER #10 1 ET	2	MS45904-60
5	LOCKWASHER 5/16 1ET	3	MS45904-72
6	WASHER, SPLIT 13/32 I.D. - 3/8 O.D.	4	MS35338-27
7	HEX NUT, PLAIN 5/16-24	1	MS51968-4
8	NEX NUT, PLAIN 3/8-16	4	MS51967-7
9	HEX HD CAP SCREW #10-32 X $\frac{1}{2}$ LG	1	MS9122-03
10	HEX HD CAP SCREW 5/16-24 X $1\frac{1}{2}$ LG	1	MS90726-38
11	HEX HD CAP SCREW 3/8-16 X 1-3/4 LG	4	MS90725-65
12	GROUND STRAP (6IN. LG)	1	SC-C-27813-GR-9
13	GASKET, RUBBER	1	SC-B-160382







ANTENNA AS-1729 ( )/VRC
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-14



NOTES:

1. This cable diagram drawn to show shipboard installation of AN/VRC-46 using A.C. power supply and adapter.
2. In CX-4723/VRC cable conductors indicated by dashed lines exist but are not used and shall be individually taped to prevent inadvertant shorts in adapter. If assembly (pc. #3) is used connector at MX-1986/SRC is removed.
3. Conductors Nos. 9, 10, and 11 in CX-4722/VRC cable are spares.
4. Wrap antenna connectors installed in the weather with linen and/or Neoprene tape and liquid Neoprene.
5. Provide suitable sheetmetal cover for openings at top end of matching unit using holes for alternate antenna position for attachment.
6. Where special cable assemblies (pcs. 1, 2, and 3) shown in table on sheet 2-30 are not available, they maybe fabricated using the connectors and cables (or appropriate substituted type) shown in table on sheet 2-30.

AN/VRC-46 RECEIVER-TRANSMITTER CABLE DIAGRAM
FIGURE 2-15
CONTINUED

ORIGINAL

LIST OF MATERIAL

SYM. OR PC. NO.	DESCRIPTION	No. REQD.	MATERIAL	REMARKS	FEDERAL STOCK NO.
1	Cable Assembly CX-4721/VRC	1	8'-0" Long	See Note #6	5995-823-2852
2	Cable Assembly CX-4722/VRC	1	6'-0" Long	See Note #6	5995-823-2821
3	Cable Assembly CX-4723/VRC	1	6'-0" Long	See Note #6	5995-823-2834
S101	Switch, Toggle, Single Pole, 3 Pcs., 2 MOM. Ctr. off	1		For Modification of MX-1986( )/SRC	N5930-655-1518
5	Nameplate	1	Photometal	SEE DETAIL B	

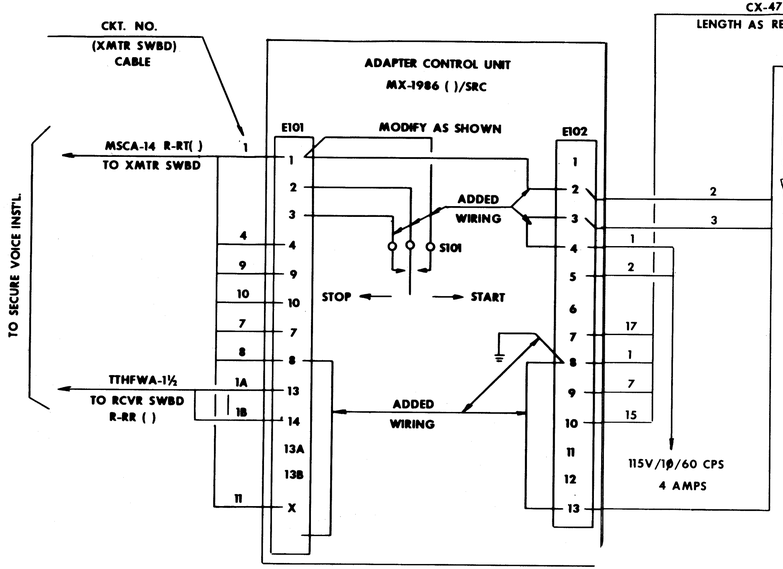
ASSY. NO.	CONNECTORS		CABLE	
	TYPE	FEDERAL STK. NO.	TYPE	FED. STK. NO.
4721	MW10MA-17 (Amphenol #164-203-4P (520)	9N5935-815-3216	CO-04 M of (4/14)0500	9Z6145-889-0612
	MW10FA (Amphenol #164-203-4S(520)	9N5935-815-3213		
4722	U 289/U (Amphenol #67-06J14-12P)	9N5935-982-8933	CO-12L of (12/22) 0325	9Z6145-889-0580
	U -290/U (Amphenol #67-06J14-12S)	9N5935-815-3219		
4723	Amphenol #164-203-8P(520)	9N5935-815-2325	CO-18L of (4/22-4/22S1) 0500	9Z6145-889-0581

AN/VRC-46

RADIO RECEIVER-TRANSMITTER

CABLE DIAGRAM

FIGURE 2-15



SECTION 2 - RADIO TRANSCEIVERS

2.11 AN/URC-32 - GENERAL DESCRIPTION

The AN/URC-32 is a group of manually operated transceivers for use in the 2 to 30 megacycle range with a peak envelope power output of 500 watts during transmit. The equipment is designed primarily for single sideband transmission with reception on upper, lower, or independent sidebands, each contains a separate audio and I-F channel for each of the sidebands during independent sideband operation. All of the transceivers include circuitry for AM (carrier reinsertion on transmit) CW, and 850 CPS shift FSK operation. The 2 to 30 megacycle range is covered in four bands: 2.0 to 3.7 MC, 3.7 to 7.7 MC, 7.7 to 15.7 MC and 15.7 to 30.0 MC. The operating frequency is set in 1 KC increments via a direct reading frequency counter in the AN/URC-32 and AN/URC-32A and 0.1 KC increment in the AN/URC-32B. Frequency accuracy and stability are controlled by a built-in frequency standard.

2.12 REFERENCE DATA

a. Table of Technical Publications - Table 2-8
b. Primary Power Requirements - Table 2-9
c. Heat Dissipation - Table 2-10
d. Unit Weight - Table 2-10

2.13 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/URC-32 radio set is designed for mounting in an upright position. The basic installation is one in which all units are mounted on one rack. See Figure 2-16 Type 1 and 2. See Figure 2-17 for typical foundation details. An alternate configuration is obtained when the high voltage power supply is removed from the rear of the rack and remotely installed. See Figure 2-16 Type 3 and 4. See Figure 2-17 for typical foundation details. In order to install the PP-2153/U remotely, the installing activity may order an electrical equipment installation kit MK-446A /URC-32 used to mount PP-2153/U power supply on bulkhead or fabricate foundation from information shown in Figure 2-19. Install C-2698/SRA-22 tuner control unit in space reserved on AN/URC-32. See Figure 2-21. When the CU-737/URC is required, install above AN/URC-32. See Figure 2-18 for typical foundation details. The antenna coupler CU-714/SRA-22 should be mounted adjacent to the base of the antenna to be used. A distance of 19 inches should be left for removing the antenna coupler from its case. See Figure 2-20 for typical foundation details.

b. Outline and Mounting Dimensions

(1)	AN/URC-32	Figure 2-21
(2)	CU-714/SRA-22	Figure 2-22
(3)	C-2698/SRA-22	Figure 2-23
(4)	CU-737/URC	Figure 2-24

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 2-8, Item No. 4.

2.14 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 2-25.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-8, Item No. 6.
c. Security Requirements - To be in accordance with Table 2-8, Item No. 16.

2.15 FIELD CHANGE REQUIREMENTS - Table 2-11.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-066-7010 0967-066-7020 0967-066-7030	Vol. I Technical Manual of Radio Set AN/URC-32 Vol.II Technical Manual of Radio Set AN/URC-32 Vol. III Technical Manual of Radio Set AN/URC-32
2	0967-066-7060	Maintenance Standards Book
3	0967-066-7040	Operator's Instruction Chart
4	Mil. Std. 1310A(NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
5	0981-052-8090	Data Pertaining to Electrical Shipboard Cable.
6	0967-000-0000	Electronics Installation and Maintenance Books
7	*RE-F2686015	Outline and Mounting Data
8	*RE-D2685865	Outline and Mounting Data
9	*RE-D2685883	Cable Running Sheets
10	*RE-H2685884	Interconnecting Cabling Diagram
11	*RE-H2685885	Interconnecting Wiring Diagram

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 2-8 (Continued)

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
12	*RE-C2685-888	Outline and Mounting Data
13	*RE-F2685981	Primary Power Distribution Diagram
14	*RE-D2685879	Pictorial System Diagram
15	*RE-D2695733	Pictorial System Diagram
16	NAVSHIPSINSTR 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 2-8

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/URC-32	115/230 VAC, 50-60 HZ SINGLE PHASE		Receive 1000 Watts Transmit 1500 Watts	Power Factor 90%

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-9

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/URC-32	1100 WATTS	390 Lbs.	

TABLE OF MISC. DATA
TABLE 2-10

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
	562 557	Interconnecting Box J-1007/U	Added receiver overload protective device.		FA-12
		Converter-Oscillator CV-731/URC	Dial lamp resistors changed to 470 ohms	0967-066-7080	
		Power Supply PP-2154/U	Wire is added from T1-7 to J2 pin 15.		
1-AN/URC-32 Serial No. 1 through 359		Amplifier-Converter Modulator AM-2064/URC	CR6 and CR7 (1N457) are added and connected so that r-f gain control also controls the gain of the i-f amplifiers		
		Radio Frequency Amplifier AM-2061/URT	Improved spring washer in Driver and P.A. Tuning Knobs		
		Amplifier-Control AM-2062/URC	Monitoring local audio with headphones does not disconnect the speaker amplifier.		
		Control-Power Supply C-2691/URC	Added isolation transformer T3.		
		Electrical Equipment Rack MT-2092/U	Added improved interlock bracket behind AM-2061/URT.		

TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
2-AN/URC-32 Serial No. 1 through 631	557	Power Supply PP-2153/U	F3 is changed to a 1½ inch, 1 amp, sand-packed fuse.	0967-066-7090	FA - ½
3-AN/URC-32 Serial No. 1 through 629	558	Interconnecting Box J-1007/U	Jumper wires are added; J4 to S11 and S4 to S12.	0967-066-7100	FA -
4-AN/URC-32 Serial No. 1 through 584	559 561	Power Supply PP-2154/U	A jumper wire is added; T1-4 to S1-3.	0967-207-1030	FA-½
5-AN/URC-32 Serial No. 1 through 662	561 565 570	Radio Frequency Amplifier AM-2061/URT	Screen voltage may be measured at screen grid of V3 or V4 when transmitter is keyed or unkeyed.	0285-035-0000	FA-3
6-AN/URC-32 Serial No. 1 through 359	568	Radio Frequency Amplifier AM-2061/URT	Two air holes will be seen at the rear of the AM-2061/URT.	0967-066-7130	FA - ½
7-AN/URC-32 Serial No. 1 through 690	580 589	Converter-Monitor CV-730/URC	A 1N198 diode (CR6) is added in the teletype input line between terminal 1 of J1 and R11.	0967-066-7140	FA - 2

TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
8-AN/URC-32 Serial No. 1 through 822 1-KWT-6(8) Serial No. 1 through 79	580 585 632 607	Radio Frequency Amplifier AM-2061/URT	A 270K ohm resistor (R39) and a type 1N198 diode (CR4) connected to relay K2	0967-066-7150	FA - 1
9-AN/URC-32 Serial No. 1 through 900 2-KWT-6(8) Serial No. 1 through 88	584	Power Supply PP-2153/U	A ten inch bonding wire bolted to the S1 sub-chassis and the other end is connected to the back plate of the Power Supply.	0967-066-7160	FA - ½
10-AN/URC-32 Serial No. 1 through 882	NOTE: NAVSECNORDIV has not released this field change pending stock number identification and field change corrections.		A 4K ohm 18 watt resistor is mounted in the enclosed compartment of the RF tuner with K2.	0967-066-7170	FA-2
11-AN/URC-32 All Serial Nos. When using AN/WRA-5(XN-1)	603	Radio Set AN/URC-32	The transmitter-transfer control C-4360 (XN-1)/URC-32 will be mounted on or near the AN/URC-32. Installed only in specific authorized applications.	0285-051 6000	FA-5

TABLE 2-11

TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
12-AN/URC-32 All Serials 1-AN/URC-32A Serial No. 1 through 20 3-KWT-6(8) Serial No. All	609 615	Radio Frequency Amplifier AM-2061/URT Power Amplifier 367A	R22 has been changed to a 68K ohm resistor.	0967-066-7190	FA
13-AN/URC-32 Serial No. 1 through 981 4-KWT-6(8) Serial No. 1 through 90	612	Control Power Supply C-2691/URC and Power Supply PP-2154/U Handset Adapter and Low Voltage Power Supply 429B-1	All 1N1084 diodes are replaced with 1N1095 diodes.	0967-066-7200	FA-3/4
14-AN/URC-32 Serial No. 1 through 664 5-KWT-6(8) Serial No. 1 through 90	612	Power Supply PP-2153/U High Voltage Power Supply 428B-1	All 1N1084 diodes are replaced with 1N1095 diodes.	0285-065-8000	FA-3/4

TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
15-AN/URC-32 Serial No. All when using CU-737/URC 6-KWT-6(8) Serial No. 1 through 90	612	Interconnecting Box J-1007/U Junction Box 153H-2	A jumper wire is connected between K15 and H6.	0967-066-7190	FA-$\frac{1}{4}$
16-AN/URC-32 All Serial Nos. 2-AN/URC-32A Serial No. All 7-KWT-6(8) Serial No. 1 through 90	610	Radio Frequency Amplifier AM-2061/URT Power Amplifier 367A-3	Bus wire connecting pin 2 to pin 9 on tube sockets XV1 and XV2 have been removed.	0967-066-7190	FA-$\frac{1}{2}$
17-AN/URC-32 All Serial Nos. 1 through 981 3-AN/URC-32A Serial No. 1 through 90 8-KWT-6(8) Serial No. 1 through 10	641	Radio Frequency Amplifier AM-2061/URT Power Amplifier 367A-3	Addition of ALC poteniometer R49, viewed from front panel.	0285-081 1300	FA -8

TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
18-AN/URC-32 All Serial Nos. 4-AN/URC-32A All Serial Nos. 9-KWT-6(8) All Serial Nos. 1-AN/URC-32B All Serial Nos.	620 628	Junction Box J-1007/U Junction Box 153H-2	Addition of 1800 ohm resistor between terminals G5 and G6.	0967-066-7190	FA-1
19-AN/URC-32 Serial No. 822 and above 5-AN/URC-32A All Serial Nos. 2-AN/URC-32B All Serial Nos. 10-KWT-6(8) Serial No. 80 and above	641	Junction Box J-1007/U Junction Box 153H-2	A jumper wire will be connected between J15 and H14	0967-066-7190	FA-1

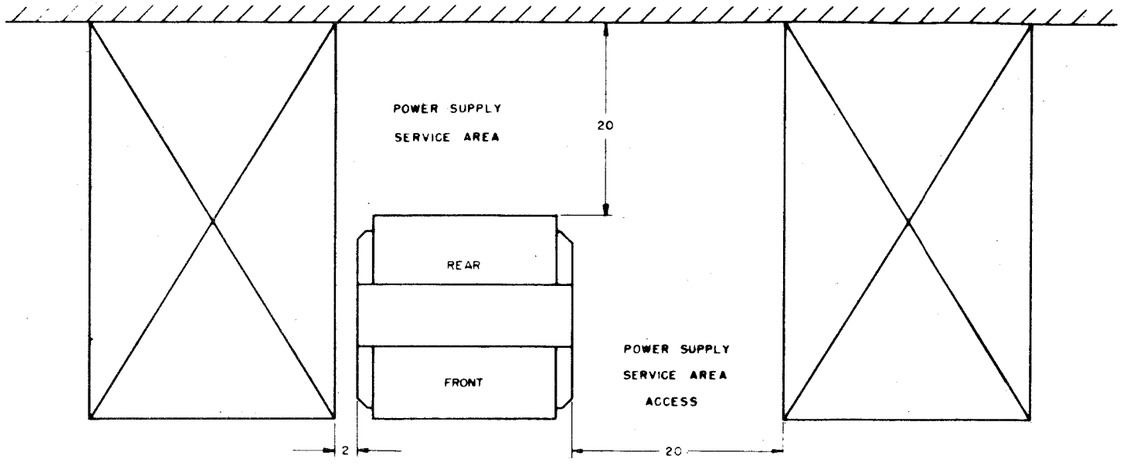
TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11(Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NUMBER	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
20-AN/URC-32 All Serial Nos. 6-AN/URC-32A All Serial Nos. 3-AN/URC-32B All Serial Nos.	641		The BNC connector connected to K1, will be shorted.	0967-066-7190	FA. 1
21-AN/URC-32 6-AN/URC-32A 4-AN/URC-32B	652	P.A. AM-2061	Change Jack J3 to TNC type	0967-066-7190	FA 1
22-AN/URC-32 7-AN/URC-32A Serial No. 1-90	662	PP-2154 Lups	Change CR6 and CR7 to type 1N3190 diode	0967-066-7190	FA 1
23-AN/URC-32(all) 9-AN/URC-32A (1-681)' 14-KWT-6(8)(all)		CV-731	J-8 installed on upper right side of CV-731/URC main chassis	0967-066-7300	FA-8
24-AN/URC-32(all) 10-AN/URC-32A(all) 7-AN/URC-32B(all) 15-KWT-6(8)(all)		AM-2061/URT	Trans 2T2 mounted inside right vertical main "A" frame of MT-2092/U	0967-066-7310	FA - 2

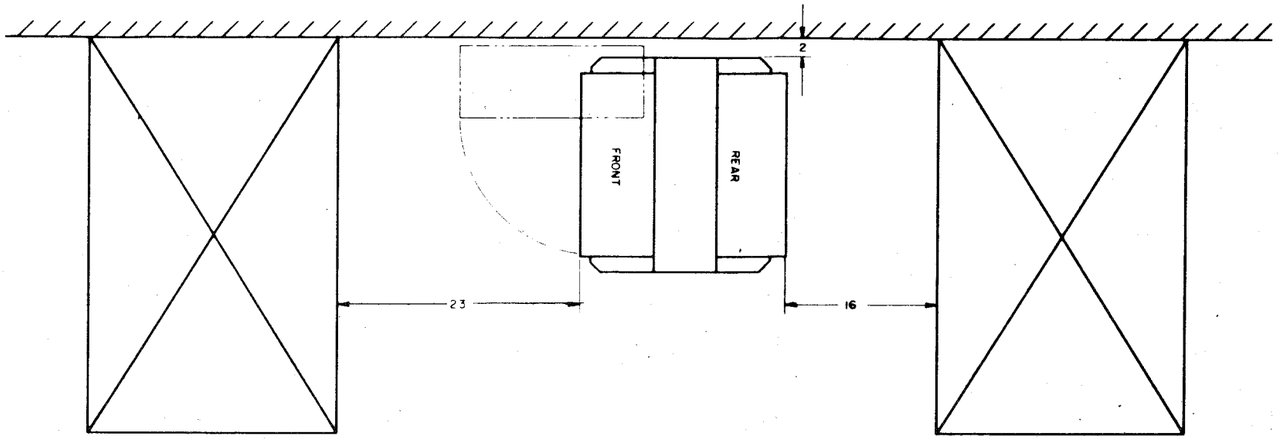
TABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11 (Continued)

FIELD CHANGE NUMBER AND SERIAL NUMBER EFFECTIVITY	EIB NO.	UNITS AFFECTED	BRIEF DESCRIPTION OF CHANGE	NAVSHIPS PUBLICATION	INSTALLING ACTIVITY & MANHOUR
25-AN/URC-32(selected ships) 11-AN/URC-32A " 8-AN/URC-32B " 16-KWT-6(8) "		Amplifier Control AM-2062/URC	Elapsed time meter on front of AM-2062/URC	0967-066-7330	FA-2
26-AN/URC-32(all) 12-AN/URC-32A(all) 9-AN/URC-32B(all) 17-KWT-6(8)(all)	713	AM-2061 R.F. Amplifier	Tube clamp clip located above 2C33		FA-2
-AN/URC-32(Ships with AN/SSQ-54) -AN/URC-32A " -AN/URC-32B " -KWT-6(8) "			Presence of two relays installed in J-1007/U J.B.		Yd RF

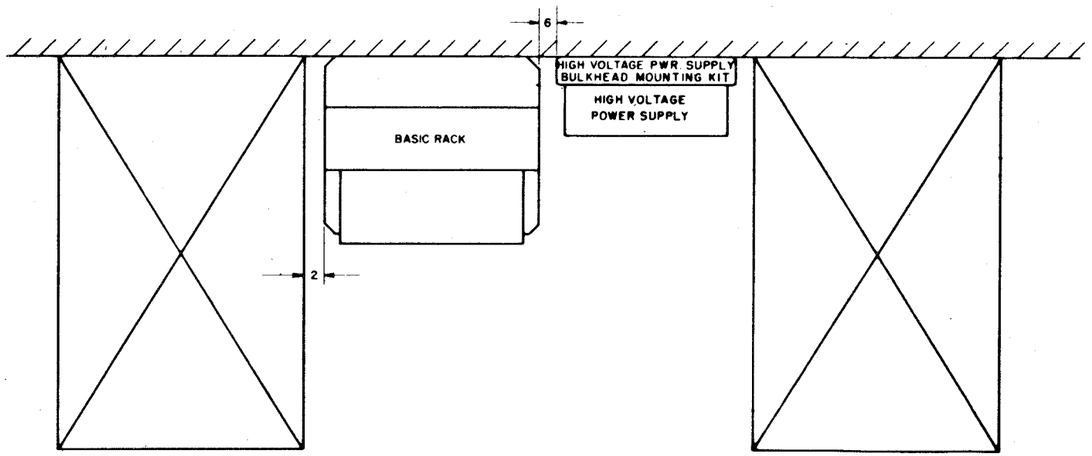
RABLE OF FIELD CHANGE REQUIREMENTS
TABLE 2-11



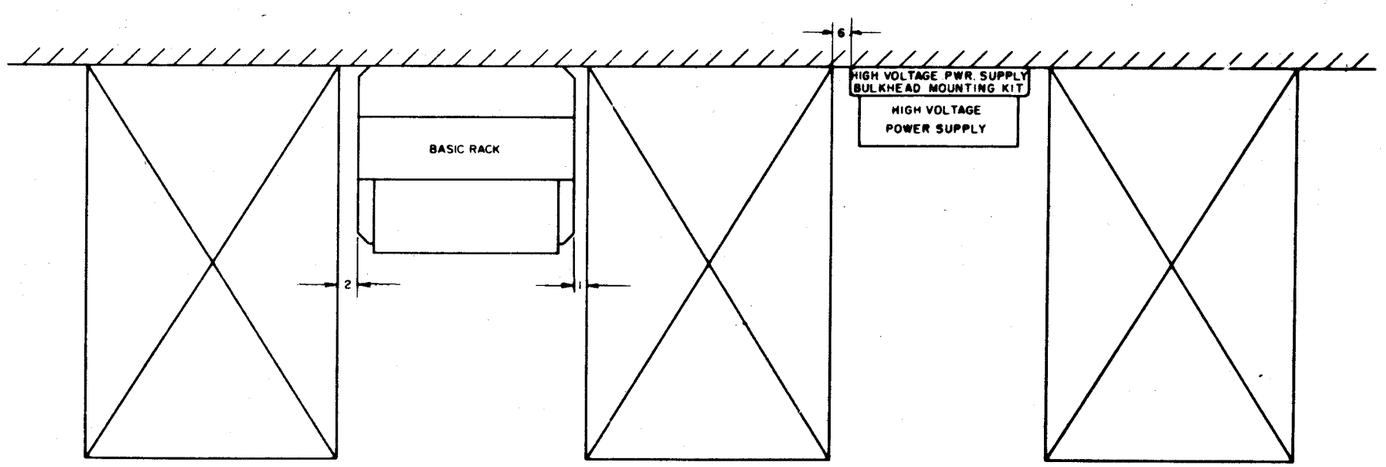
INSTALLATION TYPE 1



INSTALLATION TYPE 2

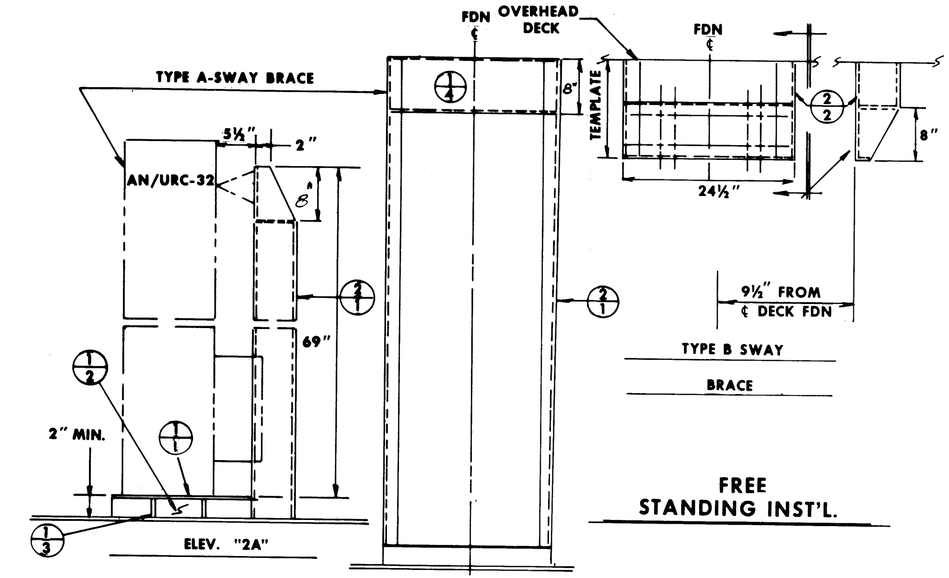


INSTALLATION TYPE 3
(USING HIGH VOLTAGE POWER SUPPLY BULKHEAD MOUNTING KIT)

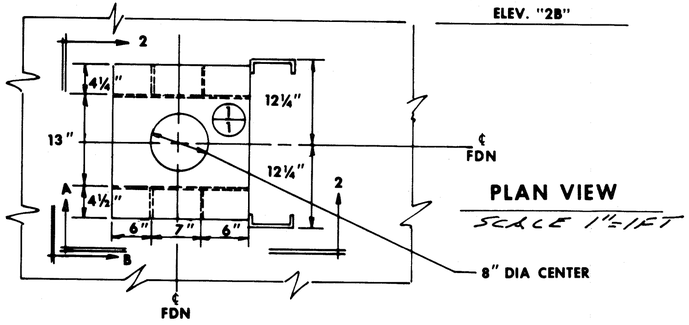


INSTALLATION TYPE 4
(USING HIGH VOLTAGE POWER SUPPLY BULKHEAD MOUNTING KIT)

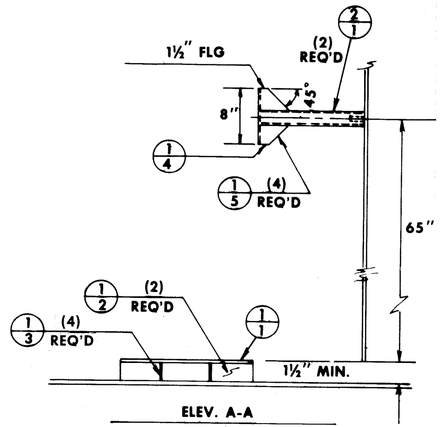
AN/URC-32
TYPICAL EQUIPMENT ARRANGEMENT
FIGURE 2-16



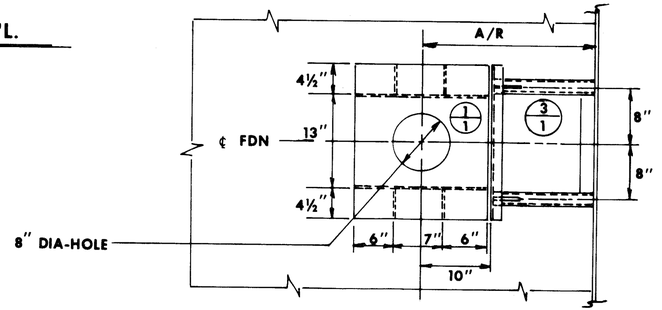
FREE STANDING INST'L.



PLAN VIEW
SCALE 1"=1FT



ELEV. A-A



PLAN VIEW
SCALE 1"=1FT

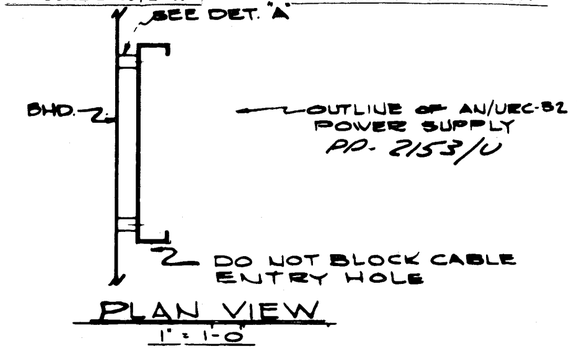
BULKHEAD INSTALLATION

LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION

PIECE NO.	NAME	NO. REQ'D.	MATERIAL	MT'L.SPEC.	REMARKS	
1	10.2 #Plt.	12	M.S.	Mil-S-16113		FREE STANDING FOUNDATION
2	1½" Pipe	2	STL.	WW-P-00404		
3	2"x¼" F.B.	1	M.S.	Mil-S-20166		
1	10.2" Plt.	8	M.S.	Mil-S-16113		BULKHEAD FOUNDATION STEEL
2	6X2X8.2# C	2	M.S.	Mil-S-20166		
1	10.2 # Plt.	8	AL. A	Mil-A-19842		BULKHEAD FOUNDATION ALUMINUM
2	6x2x8.2 #C	2	AL. A	Mil-A-21170		

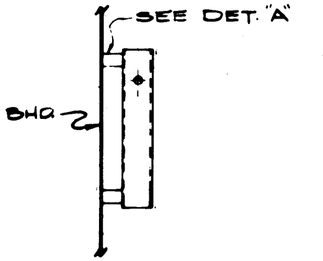
AN/URC-32
TYPICAL FOUNDATION DETAIL
FIGURE 2-17

ORIGINAL

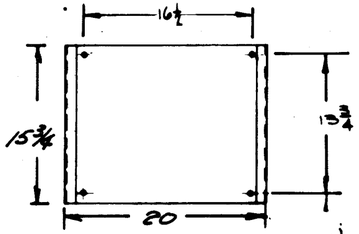


PLAN VIEW
1" = 1'-0"

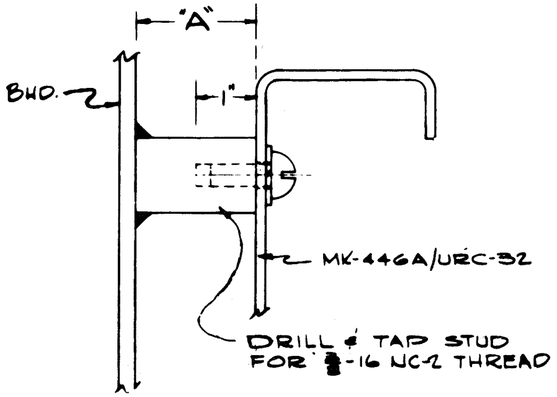
LIST OF MATERIAL - QUANTITIES FOR ONE (1) FDN.						
PIECE NO.	NAME	NO REQ'D	MATERIAL	MT'L SPEC.	REMARKS	SHOP ROUTING
1	STUD	4	MED. STL.	MIL-S-2016G	1¼ DIA. BAR	3/-11
2	R.H. MACH. SCREW	4	CRES	MIL-S-933	⅜-16 NC-2 LG 1"	
3	LOCKWASHER	4	CRES	FF-W-84	⅜	



SIDE ELEV.
1" = 1'-0"



FRONT ELEV.
1" = 1'-0"



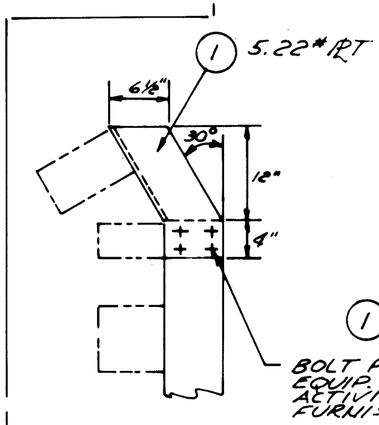
DETAIL "A"
6" = 1'-0"

PP-2153/U
TYPICAL FOUNDATION DETAILS
FIGURE 2-19

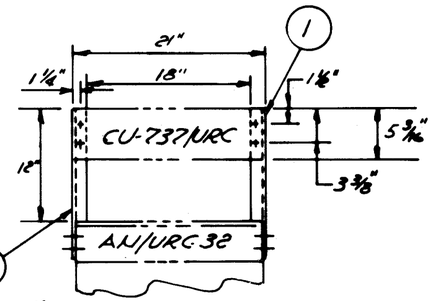
ORIGINAL

LIST OF MATERIAL - QUANTITIES FOR ONE FDN.					
PIECE NO.	NAME	NO. REQ'D.	MT'L SPEC.		SHOP ROUTING
1	5.22 # PLATE	4	M.S.	9515-237-5406	

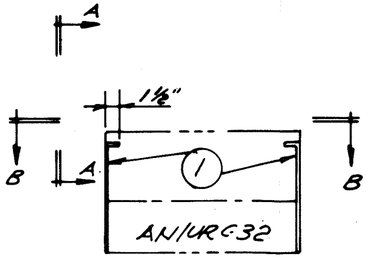
NOTES:
1. Template - All bolt holes from equipment.



SECTION A-A
SCALE: NONE

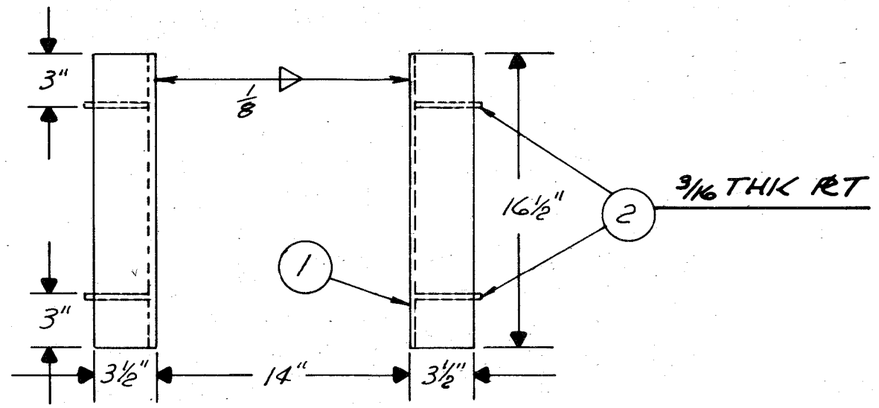


SECTION B-B
SCALE: NONE



PLAN VIEW

CU-737/URC
TYPICAL FOUNDATION DETAILS
FIGURE 2-18



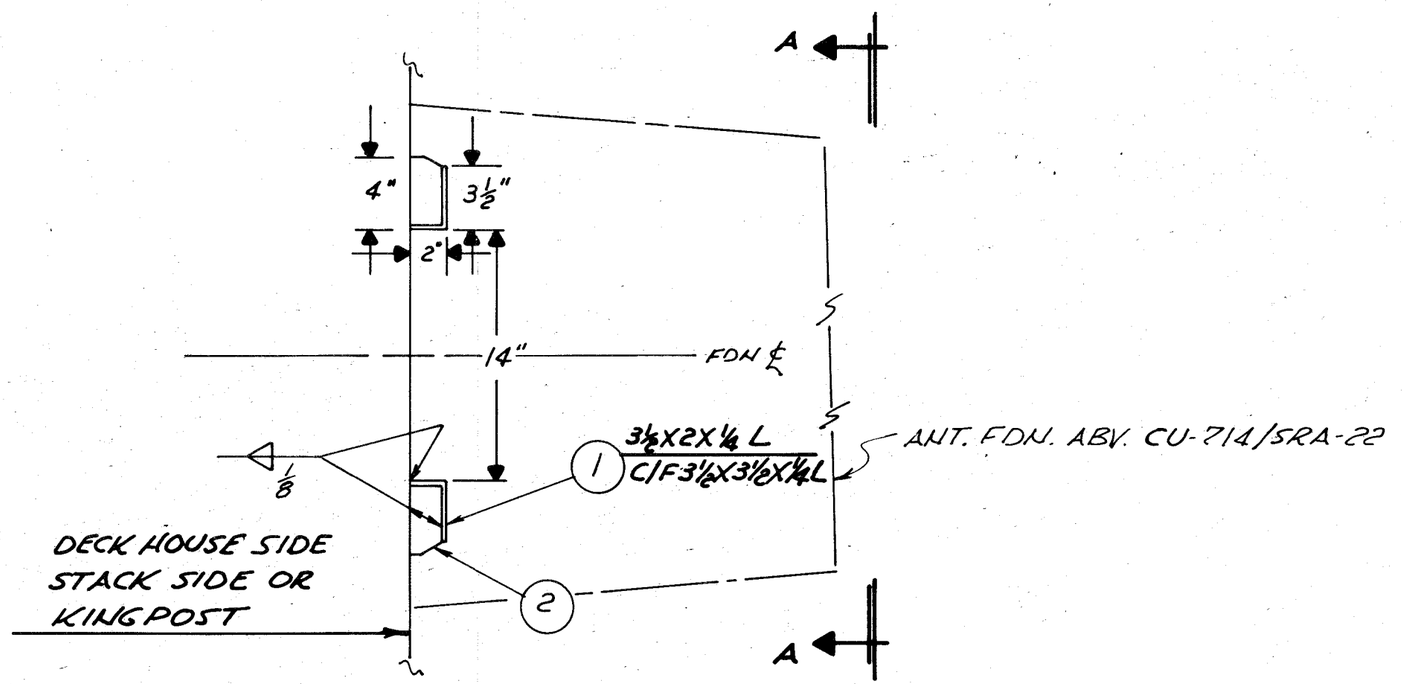
SECTION A-A

SCALE : 1½"= 1"-0"

NOTES:

1. All foundations to be installed level.
2. Grind smooth all rough edges to prevent injury to personnel.
3. All welding to be in accordance with General Specifications 59-1.
4. Size and location of mounting bolts for unit to be taken from equipment.

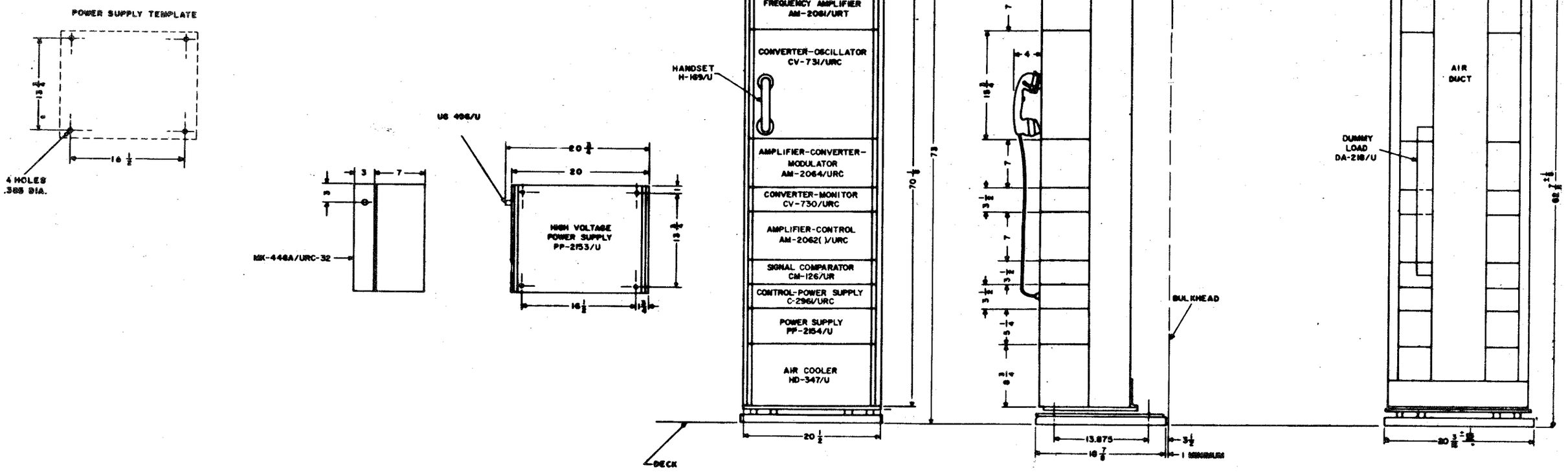
LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION				
PIECE NO.	NAME	NO. REQ'D	MATERIAL	FEDERAL STOCK NO.
1	3½ X 3½ X ¼ ∠	2	Al. Alloy	G9540-250-1059
2	.187 Thk. Plt.	4	Al. Alloy	G9535-824-9485



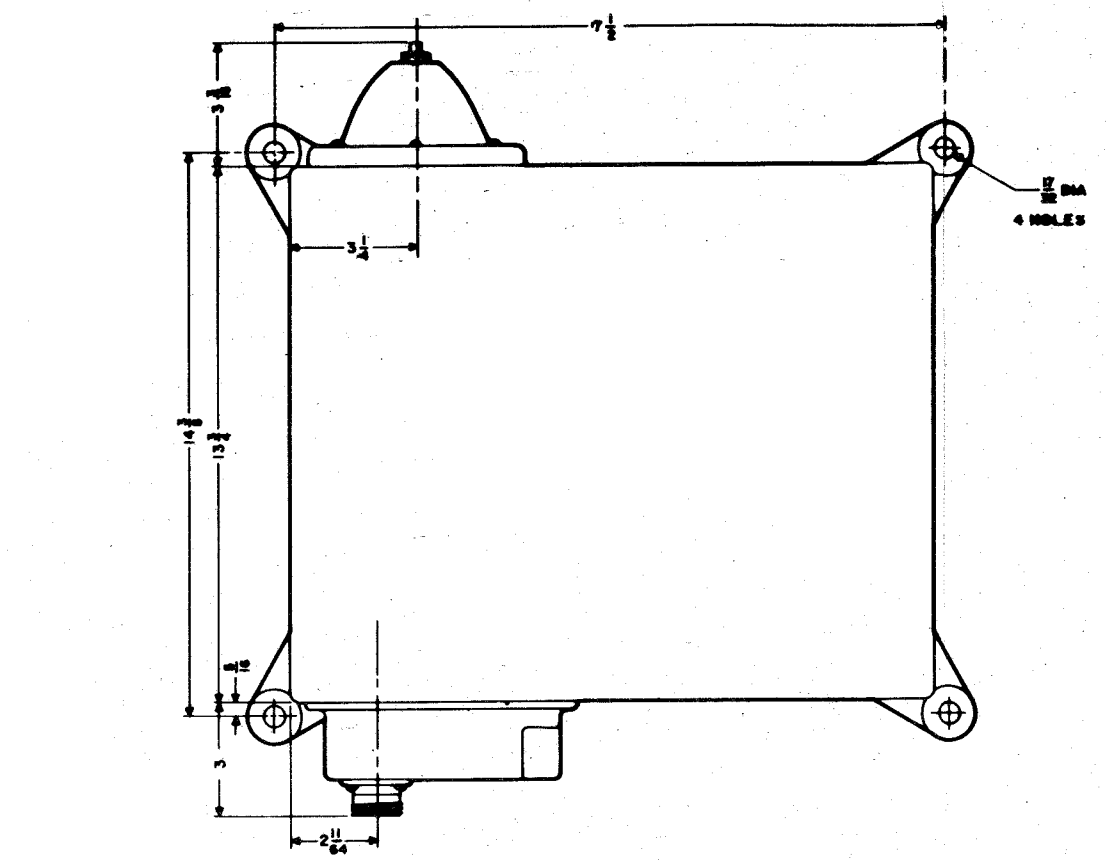
PLAN VIEW

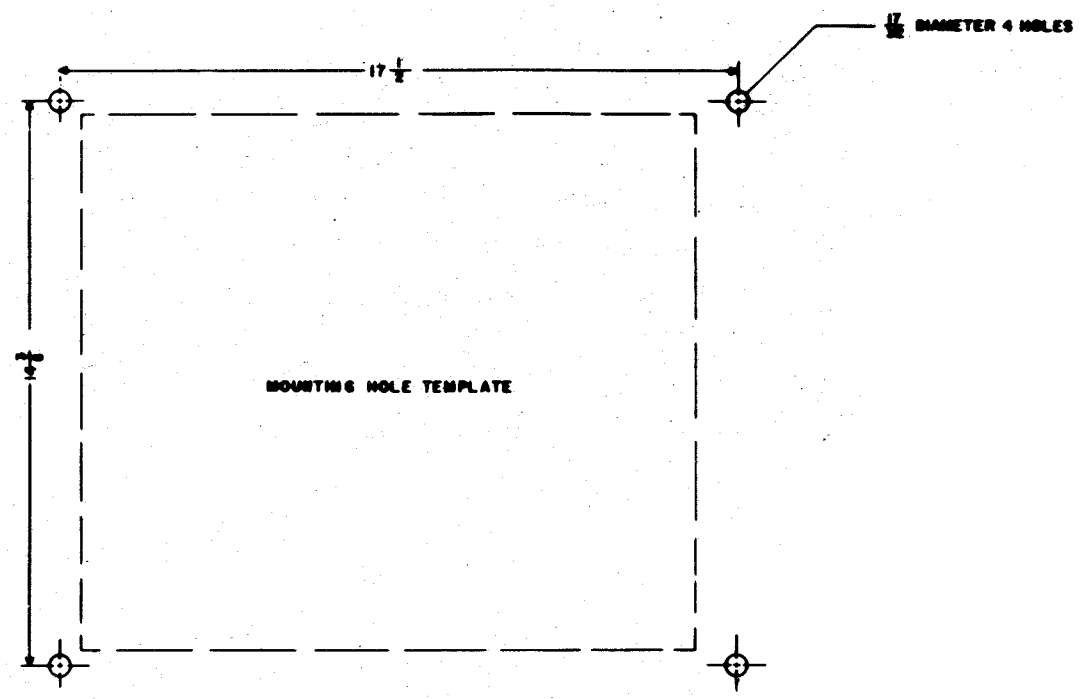
SCALE : 1½"= 1'-0"

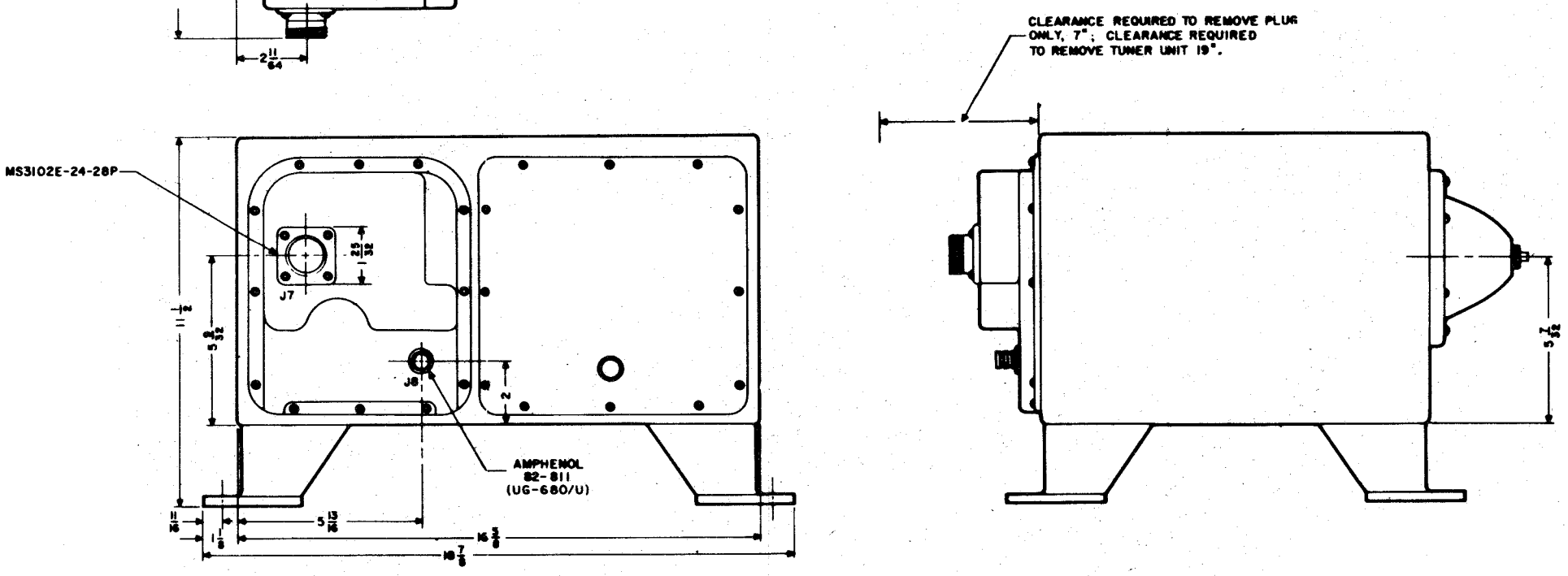
CU-714/SRA-22
TYPICAL FOUNDATION DETAILS
FIGURE 2-20



AN/URC-32
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-21





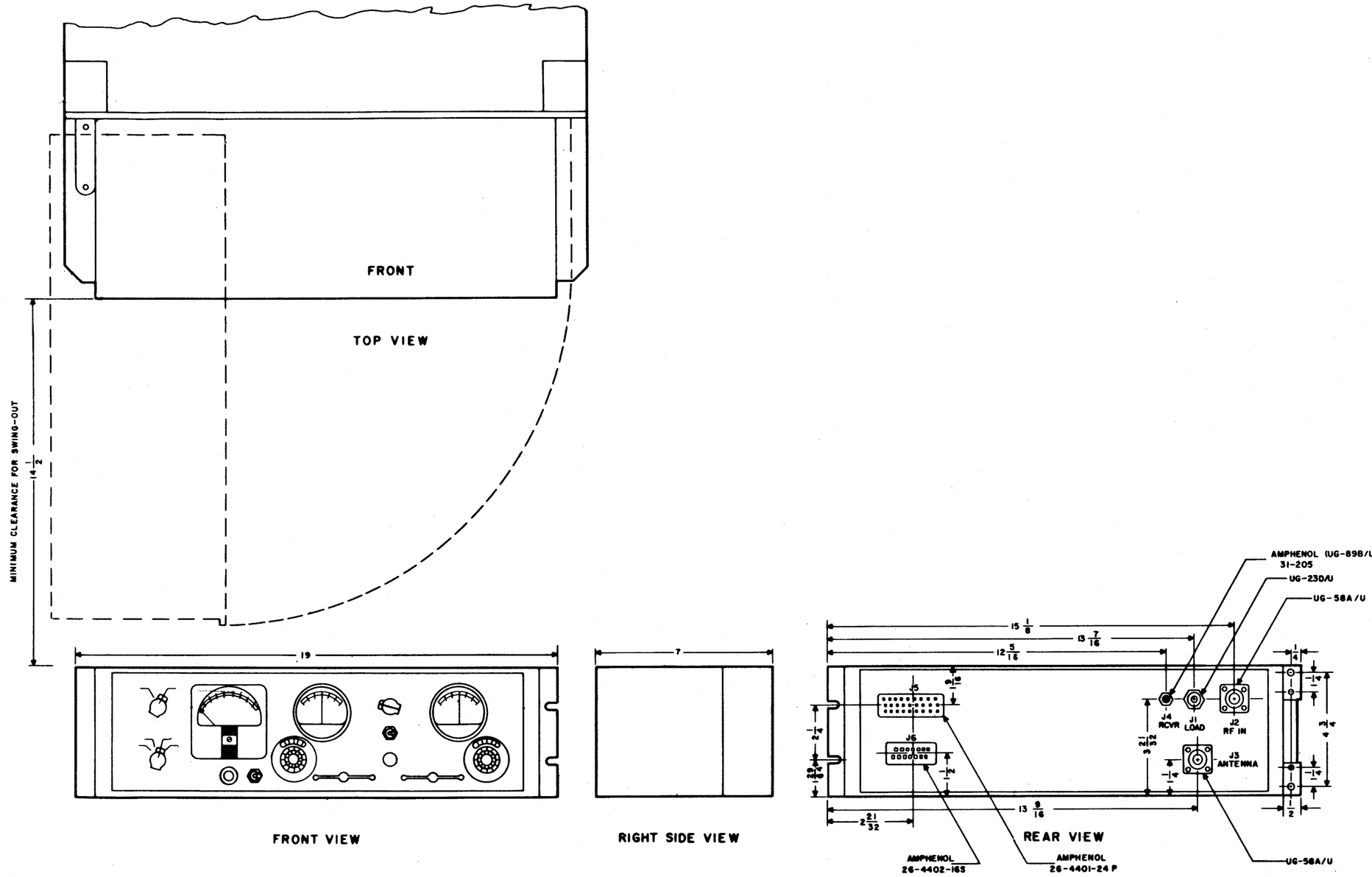


CU-714/SRA-22 ANTENNA COUPLER

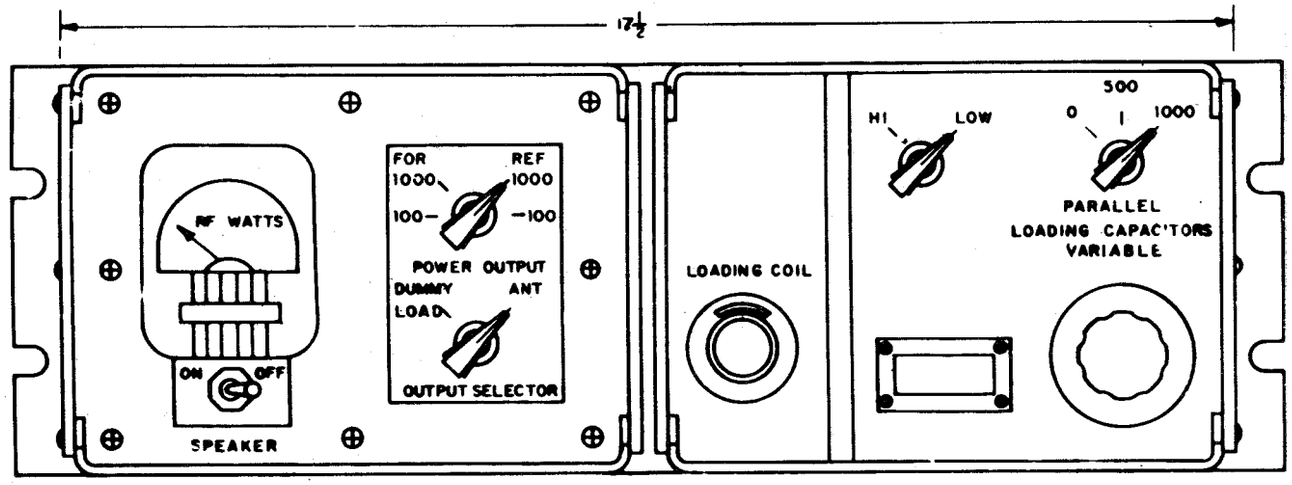
OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-22

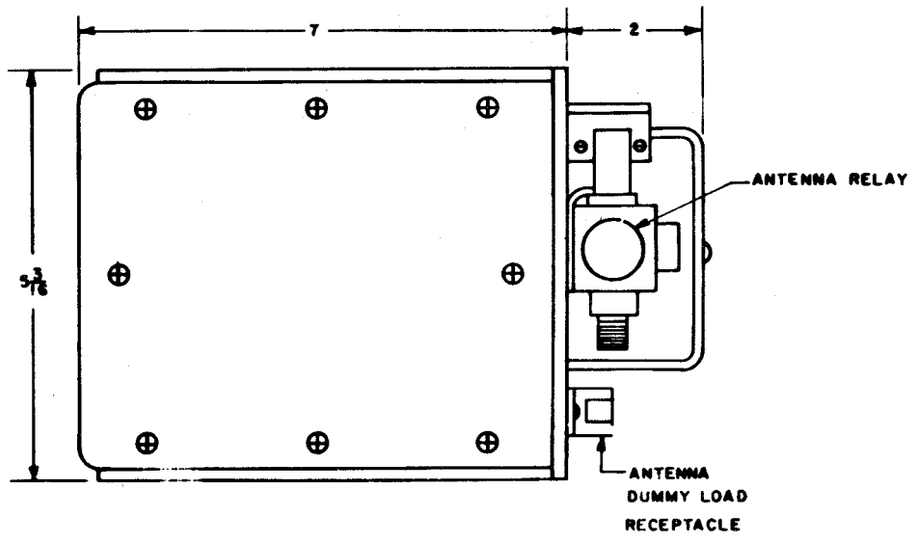
ORIGINAL



C-2698/SRA-22
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-23



FRONT VIEW



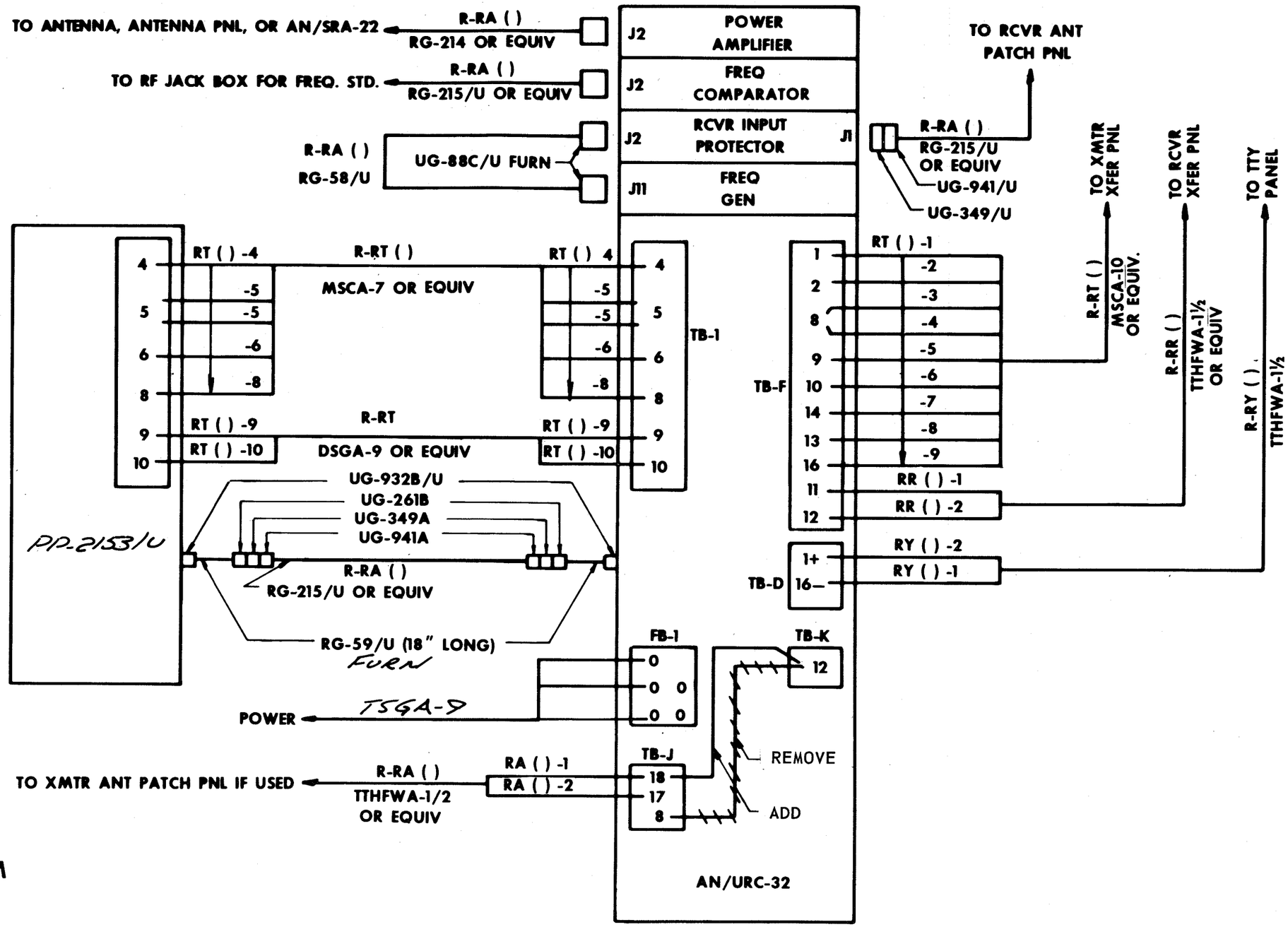
SIDE VIEW

CU-737/URC

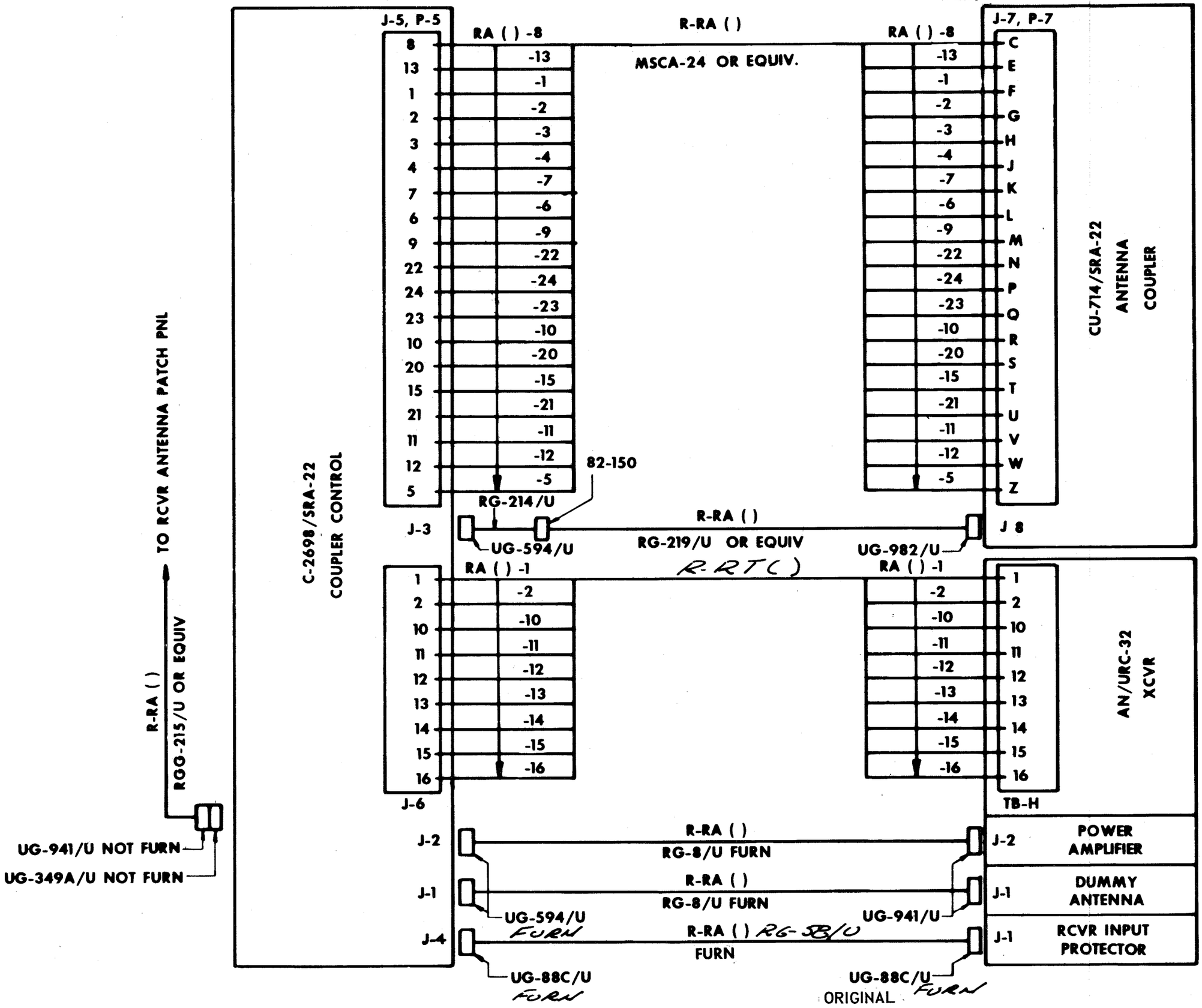
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-24

TB-F	1	2	8	8	9	10	14	13	16
SWBD.TB	1	4	6	11	9	10	7	8	5

SWBD. TO EQUIP CONV. TABLE



AN/URC-32 CABLE DIAGRAM FIGURE 2-25 CONTINUED



ORIGINAL

AN/URC-32 CABLE DIAGRAM FIGURE 2-25

SECTION 2 - RADIO TRANSCEIVERS

2.16 AN/URC-9 GENERAL DESCRIPTION

The AN/URC-9 is a 1750 channel triple-conversion superheterodyne transceiver operating in the 225 to 399.9 megacycles frequency range. The unit has a self contained power supply and a 19 channel preset selector for local or remote operation. Number of channels: 1750 channels spaced 0.1 megacycles apart. Preset channels: 19, plus one manually tuned channel.

2.17 REFERENCE DATA

a. Table of Technical Publications - Table 2-12
b. Primary Power Requirements - Table 2-13
c. Heat Dissipation - Table 2-14
d. Unit Weight - Table 2-14

2.18 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/URC-9 radio transceiver may be installed in a standard 19 inch rack or flat type surface of adequate strength. See Figure 2-26 for typical foundation details. When the AN/URC-9 is installed on a flat foundation, a shock mounting assembly may be installed. See Figure 2-27 for shock mounting details. The MX-1743( )/SRC may be mounted to the bulkhead or on a shelf type foundation. See Figure 2-28 for typical foundation details.

b. Outline and Mounting Dimensions

(1)	AN/URC-9	Figure 2-29
(2)	MX-1743( )/SRC	Figure 2-30

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 2-12, Item No. 2.

2.19 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 2-31.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-12, Item No. 4.
c. Security Requirements - To be in accordance with Table 2-12, Item No. 8.

2.20 FIELD CHANGE REQUIREMENTS - Table 2-15

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-032-5010 0967-032-5000	Vol. I Technical Manual for Radio Set AN/SRC-20 and AN/SRC-21
2	Mil. Std. 1310A(NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
4	0967-000-0000	Electronics Installation and Maintenance Books
5	*RE-D2695720	Pictorial System Diagram
6	*RE-F2686017	Pictorial System Diagram
7	*RE-D2694841	Outline and Mounting Data
8	NAVSHIPS INSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation, but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 2-12

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/URC-9	115 VAC, 60 Hz, Single Phase		464 Watts	

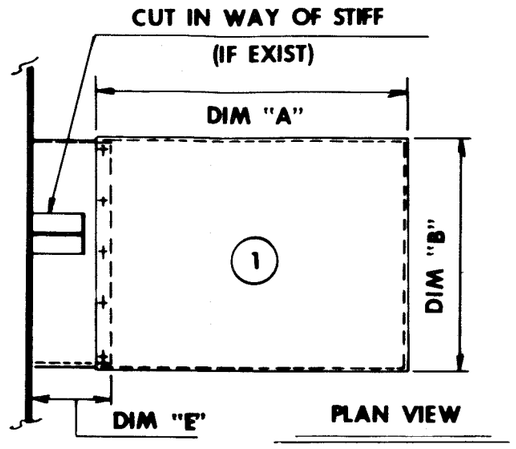
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-13

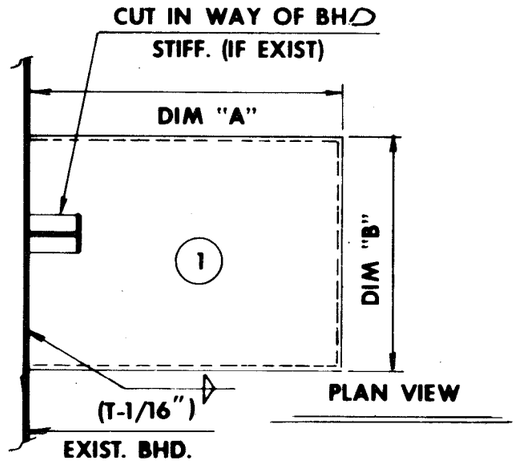
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/URC-9	415 Watts	157 LBS.	

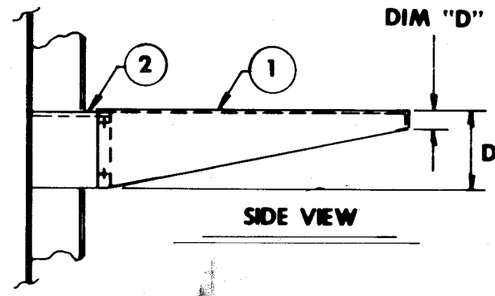
TABLE OF MISCELLANEOUS DATA
TABLE 2-14

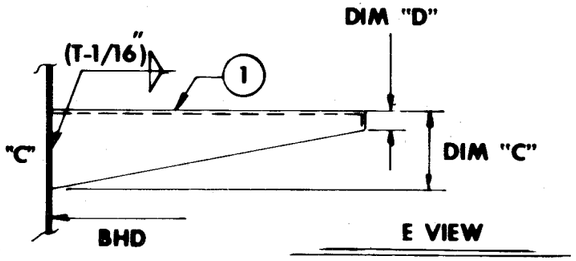
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MAN HOURS	KIT FSN	IDENTITY
1-AN/URC-9 All	0967-972-4020	Changes added to AN/URC-9 adapts equipment to withstand shock and vibration	FA-1	2N5820-986-7728	The presence of plug covers plate in radio transmitter RT-581/URC-9.
2-AN/URC-9 All	0967-032-5060	Reduces failure of contacts in relay K-601	FA-1		
3-AN/URC-9 Equips to be used for homing beacon	0967-972-4030	Provides for keying of tone for homing beacon (MCW)	FA-11		Same as 2 - AN/SRC-20
4-AN/URC-9	0967-125-6130	Protect RF-PA from over heating	FA-1½		Presence of thermal sensing device in center of PA Anode
5-AN/URC-9	0967-125-6140	Reduce contact failure in K-801 and K-802	FA-4		Presence of 15K resistor and .2 Microfarad capacitor near K-801 socket.

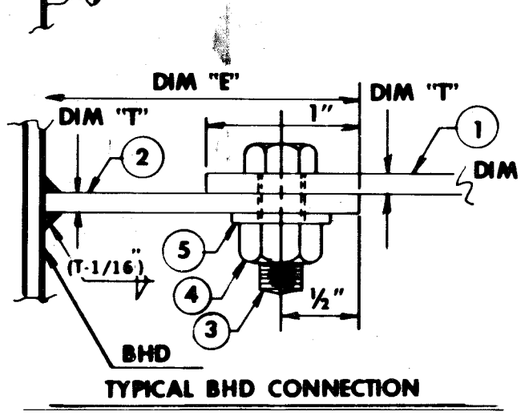
FIELD CHANGE REQUIREMENTS
TABLE 2-15



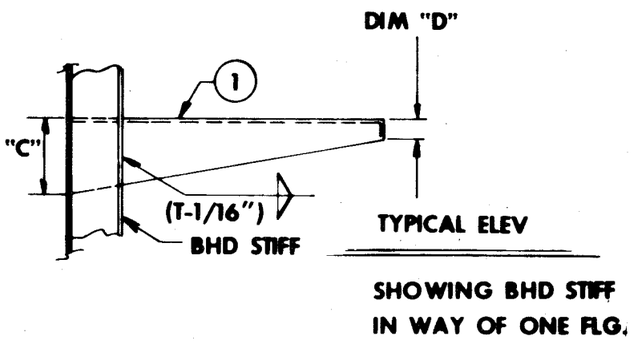




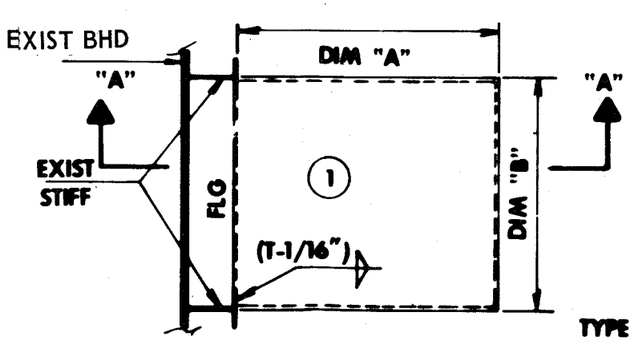


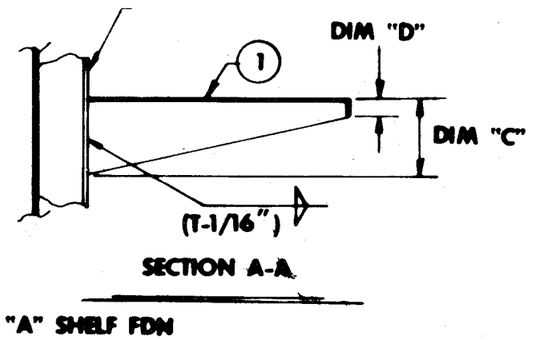


TYPE "C" SHELF FDN



TYPE "B" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL.	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

NOTES:

1. Thickness (Dim. "T" of material to be furnished on location).

2. All variable dimensions and type of foundation to be specified on location.

3. Foundation for AN/URC-9 to be as follows:

   a. Plating (7.65 #Plt. steel), ¼" thick aluminum

   b. Type "B" shelf foundation

   c. For installation with stiffener in way of unit. Dimension "A" = 18" + depth of stiffener, dimension "B" = 18", dimension "C" = 6", dimension "D" = 1½".

   d. For installation with no stiffener interference:

      Dimension "A" = 18", dimension "B" = 18", dimension "C" = 6", dimension "D" = 1½".

4. Size and location of mounting bolts for unit to be taken from equipment.

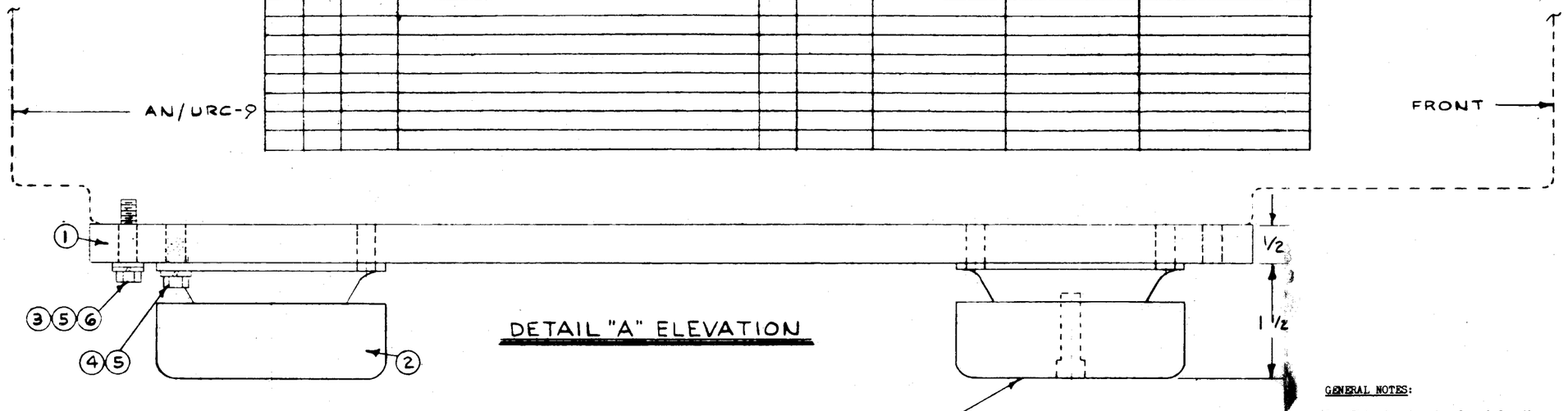
AN/URC-9 RADIO SET

TYPICAL FOUNDATION DETAILS

FIGURE 2-26

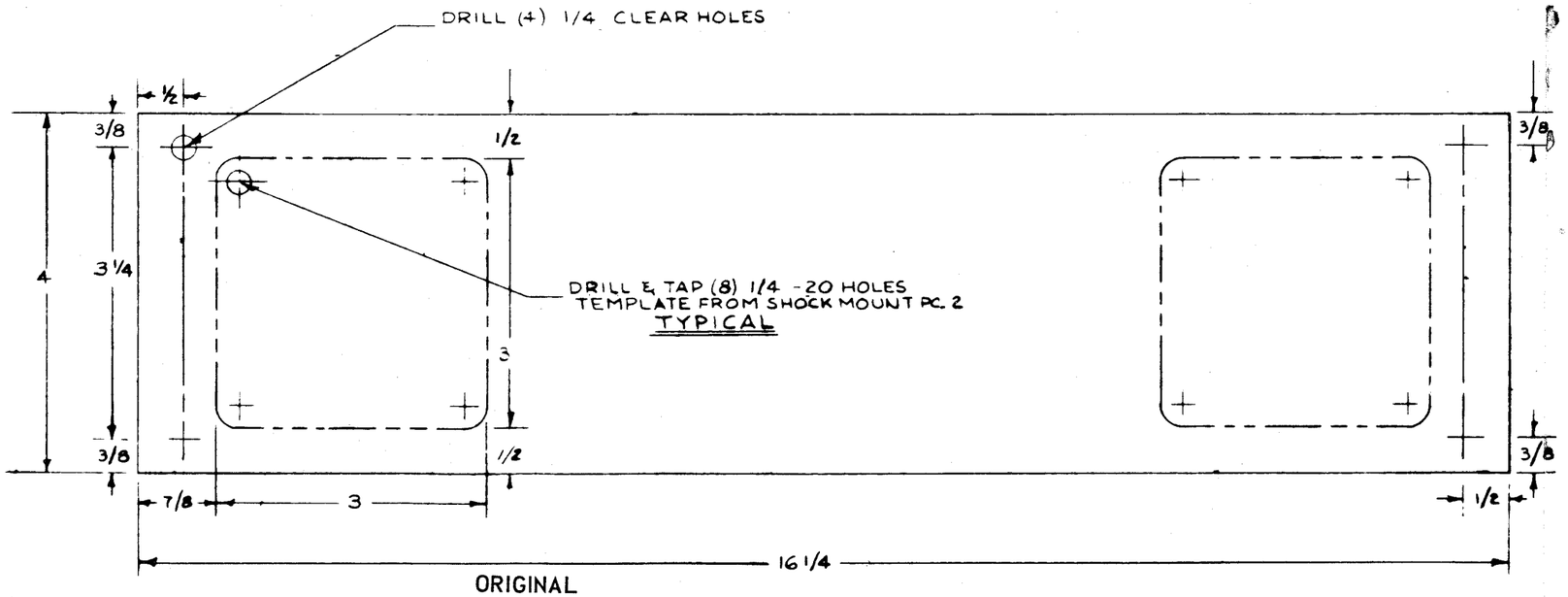
LIST OF MATERIAL (QUANTITIES FOR ONE (1) AN/URC-9)

PC. Nº	SYM Nº	Nº REQ'D.	DESCRIPTION	UNIT WT.	TYPE	NAVSHIPS DWG. Nº.	FED. STOCK Nº OR CLASS	REMARKS
1		2	ALUMINUM PLATE, 16 1/4 X 4 X 1/2	2				SHOP STORES
2		4	SHOCK MOUNT	1.2			KZ-5340-597-6190	
3		8	BOLT, 1/4 -20 X 1-1/8 (MONEL)					
4		16	BOLT, 1/4 -20 X 1/2					
5		24	LOCK WASHER					
6		8	FLAT WASHER					



DETAIL "A" ELEVATION

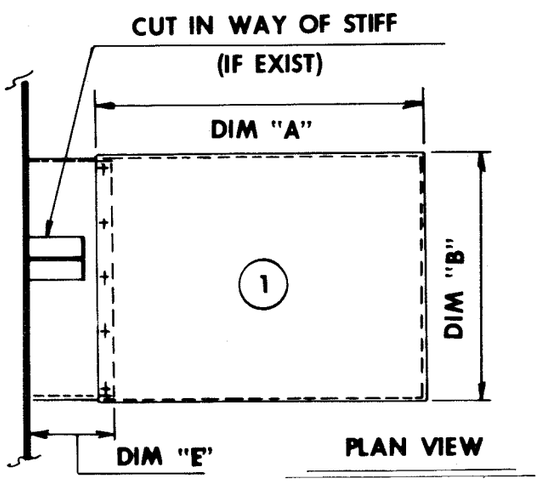
AN/URC-9
SHOCK MOUNTING DETAILS
FIGURE 2-27

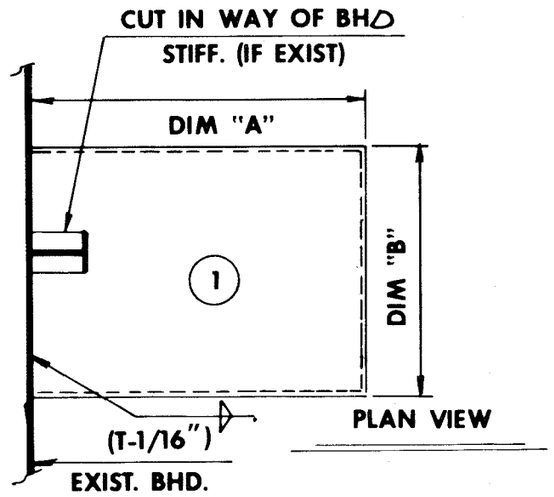


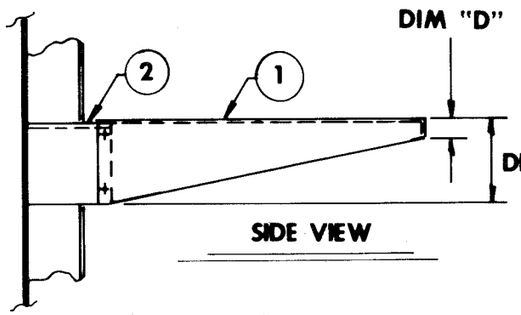
DETAIL "A" PLAN VIEW

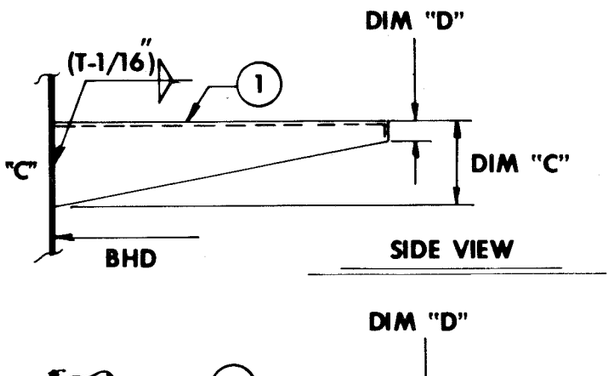
GENERAL NOTES:

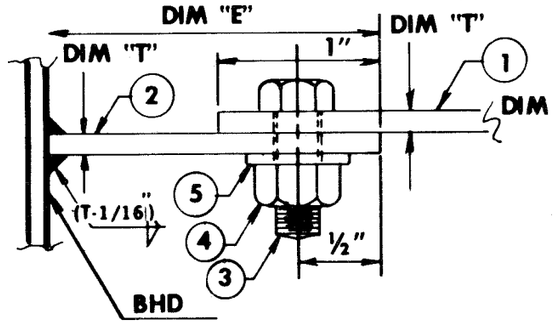
1. This drawing developed for the manufactur of shock mounting assembly for the AN/URC-9 transceiver when the transceiver is shelf mounted.
2. The AN/URC-9 transceiver requires two each of these mounting plates per transceiver.
3. Mounting plates to be bolted to bottom of transceiver using existing holes in transceiver. DO NOT drill any holes in the AN/URC-9 case.

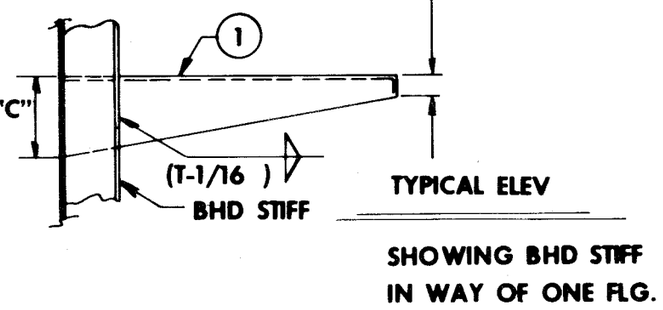






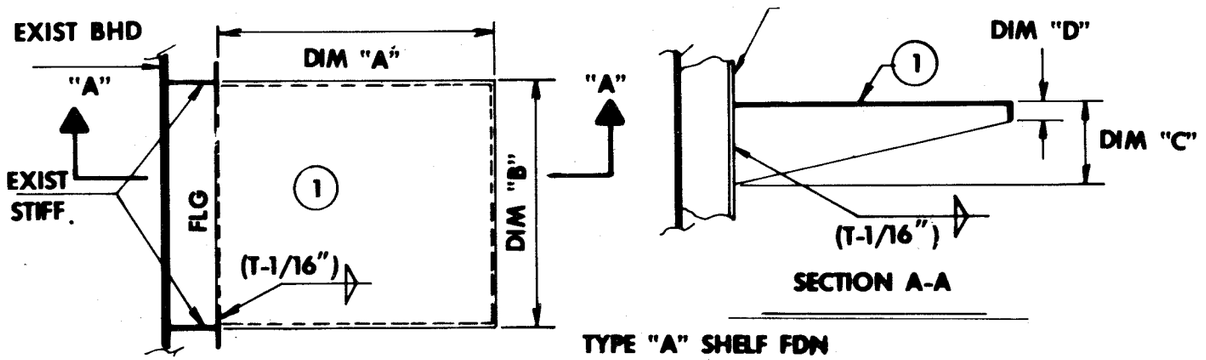






TYPE "C" SHELF FDN

TYPE "B" SHELF FDN



TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN

PC NO.	NAME	NO.	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	1/4" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	1/4" HEX NUT			MIL-B-857	
5	1/4" DIA-FLAT WASHER			MIL-S-854	

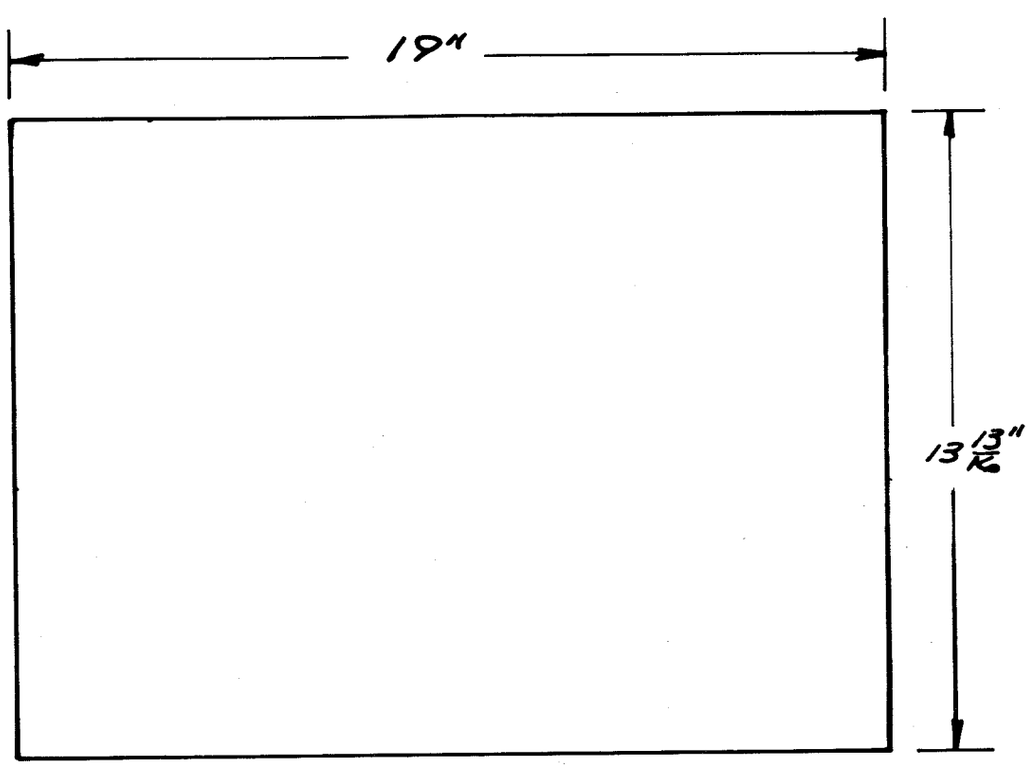
NOTES:

1. Thickness (Dim. "T") of material to be furnished on location.
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for MX-1743/SRC to be as follows:
   a. Plating (7.65# plt. steel), 1/4" thick aluminum
   b. Type "B" shelf foundation
   c. For installation with stiffener in way of unit: Dimension "A" = 13" + depth of stiffener, dimension "B" = 12 1/2", dimension "C" = 7", dimension "D" = 1 1/2".
   d. For installation with no stiffener interference: Dimension "A" = 13", dimension "B" = 12 1/2", dimension "C" = 7", dimension "D" = 1 1/2".
4. Size and location of mounting bolts to be taken from equipment.

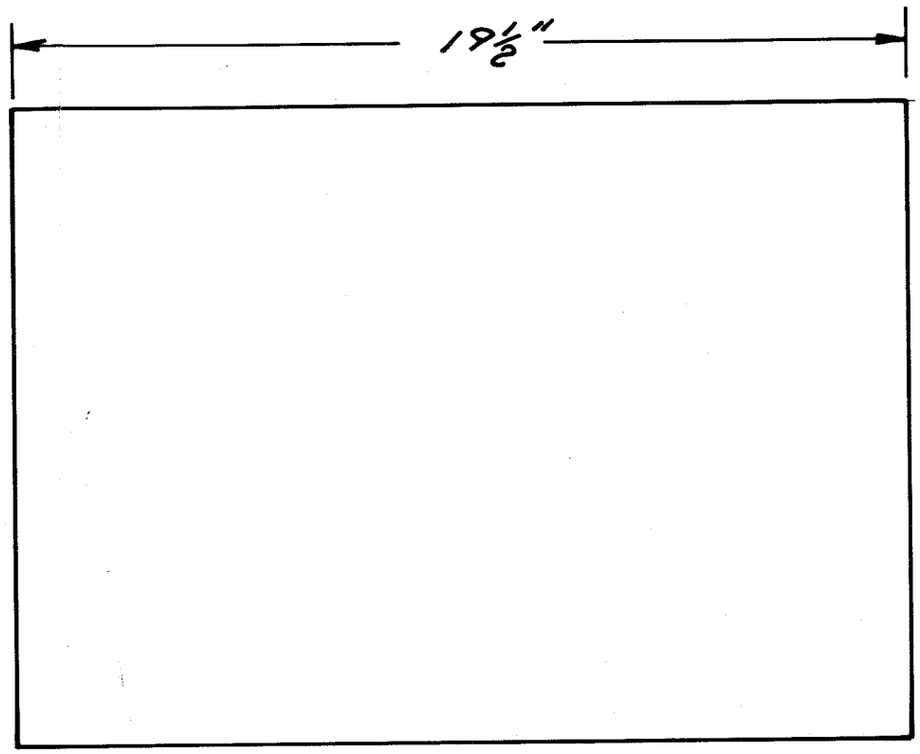
MX-1743/SRC

TYPICAL FOUNDATION DETAILS

FIGURE 2-28

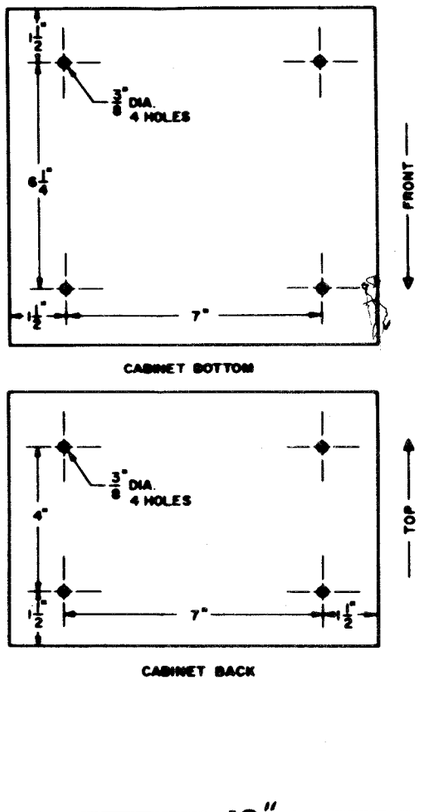


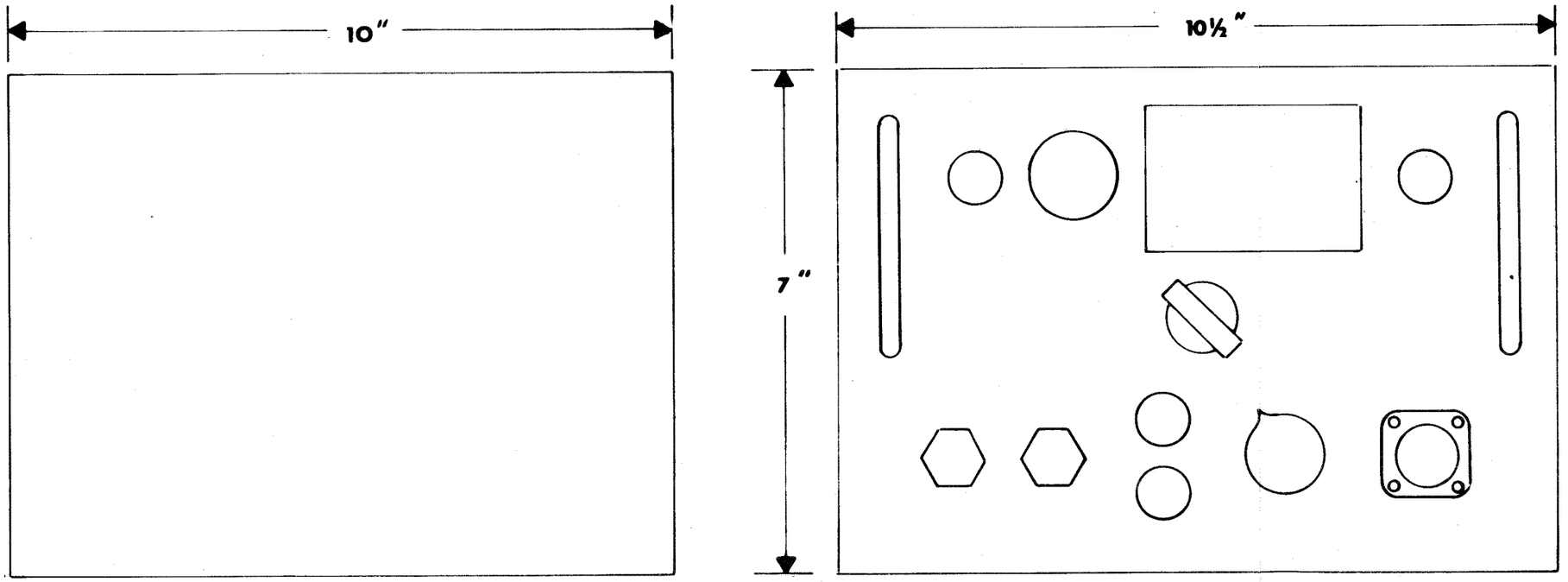
FRONT VIEW



SIDE VIEW

AN/URC-9
OUTLINE & MOUNTING DIMENSIONS
FIGURE 2-29

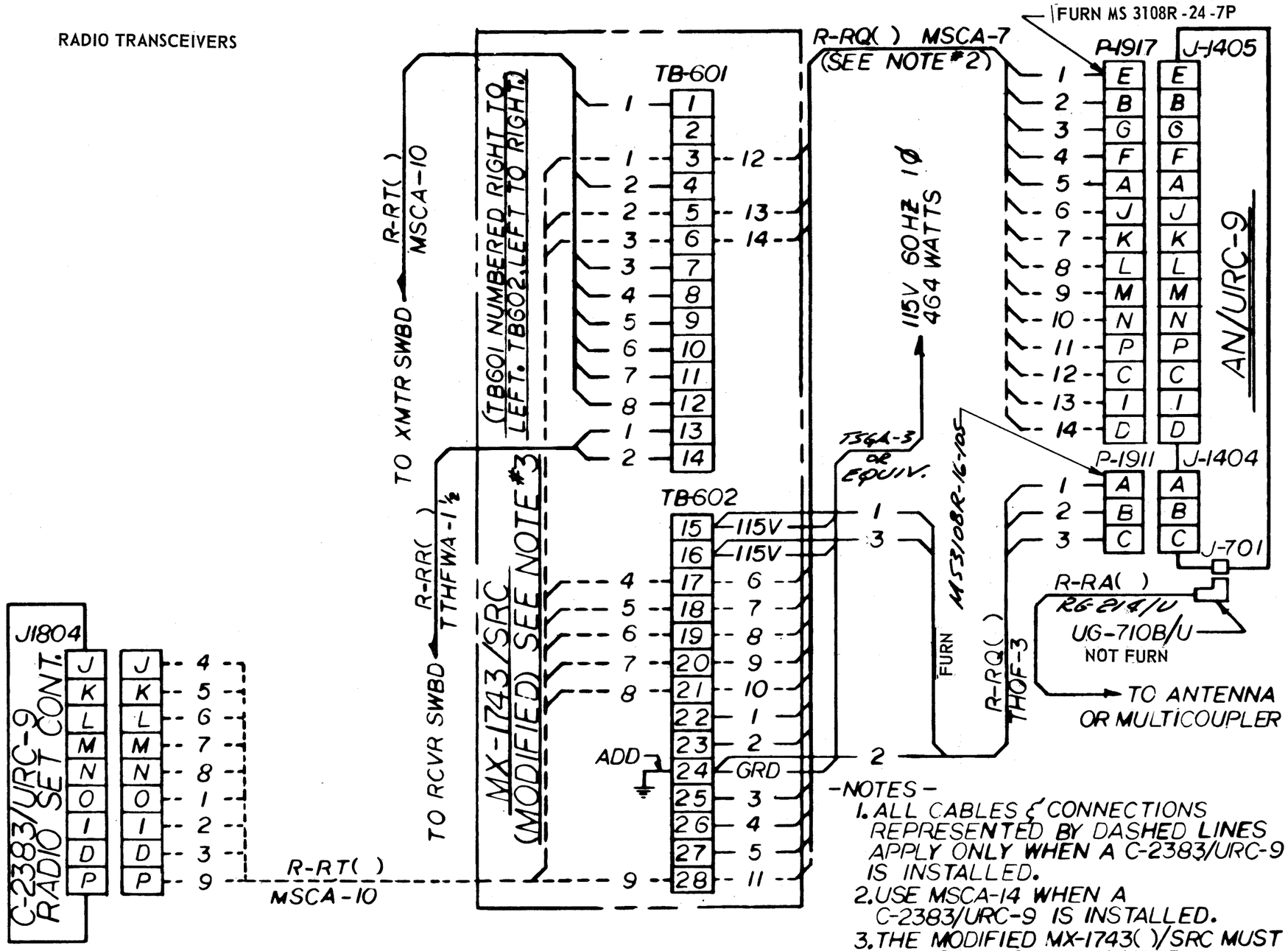




MX-1743/SRC CONTROL ADAPTER

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-30



AN/URC-9 RADIO SET CABLE DIAGRAM FIGURE 2-31

SECTION 2 - RADIO TRANSCEIVERS

2.21 AN/WRC-1 GENERAL DESCRIPTION

The AN/WRC-1 is a single sideband radio set capable of transmitting on any one of 56,000 channels, spaced in 0.5 kilocycle increments, in the 2.0 to 29.9995 megacycle frequency range. Vernier (continuous) tuning enables reception on any frequency in the 2.0 to 30.0 megacycle frequency range. Five modes of operation are provided: Upper sideband (USB), lower sideband (LSB), independent sideband (ISB), continuous wave (CW), and amplitude modulation (AM). FSK operation may be obtained by using suitable auxiliary equipment. Transmitter: 4A3a (selectable), 4A3b, 4A9 (upper sideband and carrier), and A1, A9c, and F1 type of emission. Receiver: 4A2, 4A3a, 4A3b, 4A9, (upper sideband with carrier) and A1, A9c, and F1 type of emission received.

2.22 REFERENCE DATA

a. Table of Technical Publications - Table 2-16
b. Primary Power Requirements - Table 2-17
c. Heat Dissipation - Table 2-18
d. Unit Weight - Table 2-18

2.23 INSTALLATION REQUIREMENTS

a. Arrangement

(1) The AN/WRC-1 are stacked and secured together in the order shown in Figure 2-35. Mounting brackets and hardware are supplied with each unit to secure equipment together. The AN/WRC-1 is designed for installing in a standard 19 inch rack (mounting bracket not supplied) or in an upright position on a radio operating desk (lop table) or similar flat surface foundation. See Figure 2-32 for typical foundation details. See Figure 2-33 for rack mounting bracket details.

(2) The J-1265/U may be mounted to bulkhead using the mounting plate provided. The mounting plate must be drilled as required. The installing activity may weld the mounting bolts or studs to the bulkhead to secure J-1265/U. See Figure 2-37 for mounting information.

(3) To install the CU-937/UR drill mounting holes approximately 10 inches from the antenna base and bolt the CU-937/UR to the mounting surface. See Figure 2-34 for typical foundation details.

b. Outline and Mounting Dimensions

(1) AN/WRC-1 Figure 2-35
(2) CU-937/UR Figure 2-36
(3) J-1265/U Figure 2-37

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 2-16, Item No. 2.

2.24 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 2-38.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-16, Item No. 6.
c. Security Requirements - To be in accordance with Table 2-16, Item No. 8.

2.25 FIELD CHANGE REQUIREMENTS - Table 2-19

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-971-0010 0967-971-0020	Vol. I Technical Manual for Radio Set AN/WRC-1 and Antenna Coupler CU-937/UR
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-D2686324	Outline and Mounting Data
4	*RE-D2686325	Interconnecting Cabling Diagram
5	*RE-D2686389	Cabling Running Sheets
6	0967-000-0000	Electronics Installation and Maintenance Books
7	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
8	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 2-16

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/WRC-1 (J-1265/U)	115 VAC, 48-450 HZ, Single Phase		375 Watts	

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-17

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
R-1051/URR	55 WATTS	70 LBS.
T-827/URT		70 LBS.
AM-3007/URT		78 LBS.
J-1265/U		19 LBS.
MT-3115/WRC-1		16 LBS.
CU-937/UR		26 LBS.
AN/WRC-1 (Total)		279 LBS.

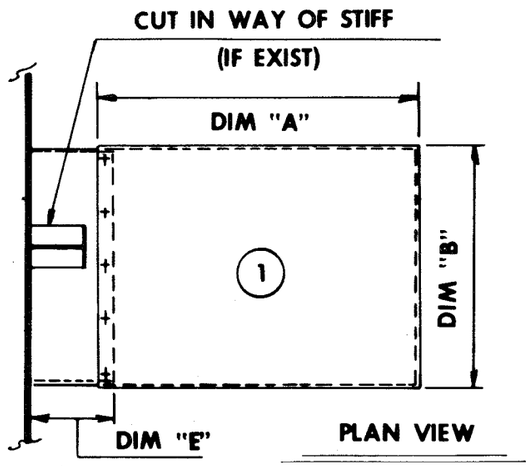
TABLE OF MISCELLANEOUS DATA
TABLE 2-18

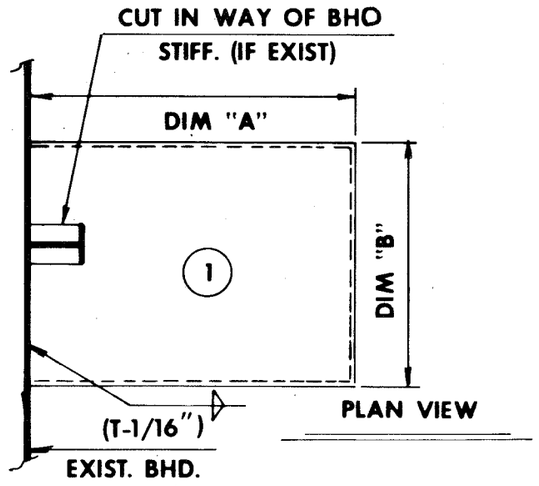
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. AN/WRC-1 All equipment procured under NObSR87614	0967-971-0050	Production wiring change	FA-4		Proper recording of the F.C. number on F.C. Record Plate
2. AN/WRC-1		Superseded by F.C. No. 2A AN/WRC-1			
2A. AN/WRC-1 All equipment under NObSR89368 and NObSR89368	0967-034-2010	Fiberglass shield for H. voltage protection	FA-1	F5820-999-8869	All AM-3007/URT R.F. amplifiers modified per this F.C. May be identified by the presence of the epoxy impregnated fiberglass plate immediately back of the amplifier front panel and over the heat sink casting into which both amplifier vacuum tubes are mounted.
3. AN/WRC-1 Ser. No. A & B Series Serial No. produced under NObSR87614 & 89368	0967-034-0050	Reliability increase of AF amplifier output circuit.	FA-1		R37 has been changed to 100 ohms and R29 is shunted by a .1 Microfarad capacitor on the A2 boards of the lower and upper sideband IF/AF amplifier electronic assemblies (1A2A2).

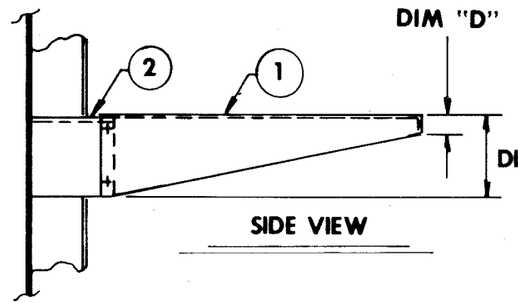
FIELD CHANGE REQUIREMENTS
TABLE 2-19

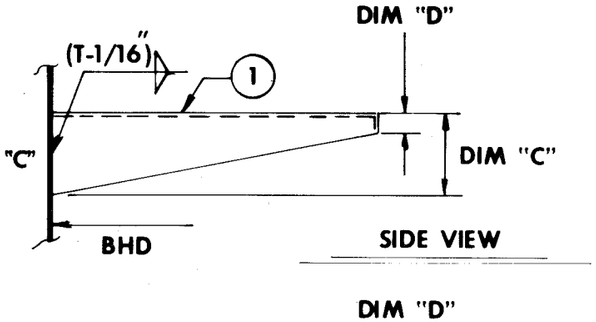
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
4. AN/WRC-1 All Serial Nos. of the A, B, and C Series produced under NObSR87614, 89368, and 93015		Reduction of panel lamp failures	FA-2		Observing that R2 has been changed to 120 OHMs on the A8 power supply board located on the bottom left rear side of the receiver main frame.
5. AN/WRC-1 for ships DD706,708,709, 729,790,840, 848,876;DL-5, DLG-18, 33; MSO 426,432, 435, 455,460, 468,470,491, 519;SS-425,522; SSN-596,613	0967-971-0080	Installation of elapsed time indicator	FA-2 Special Team		Presence of an elapsed time indicator just in front panel of the R.F. amplifier assembly on T-827/URT chassis and the R-1051/URR chassis

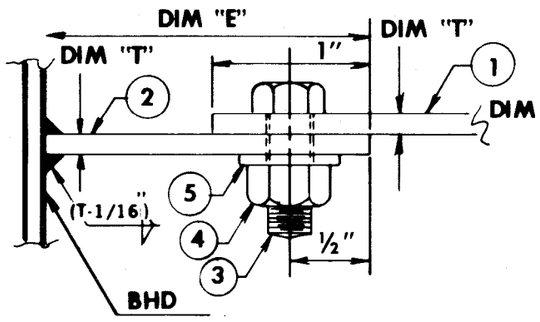
FIELD CHANGE REQUIREMENTS
TABLE 2-19





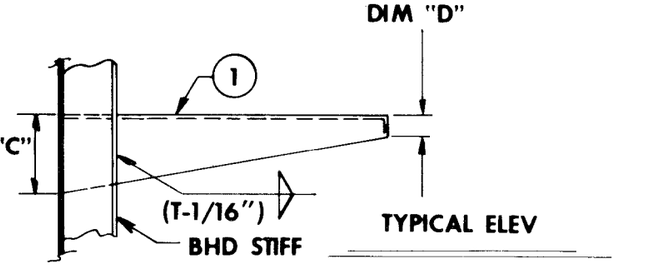






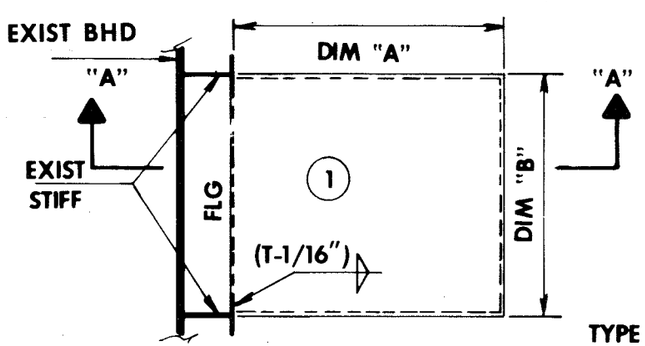
TYPICAL BHD CONNECTION

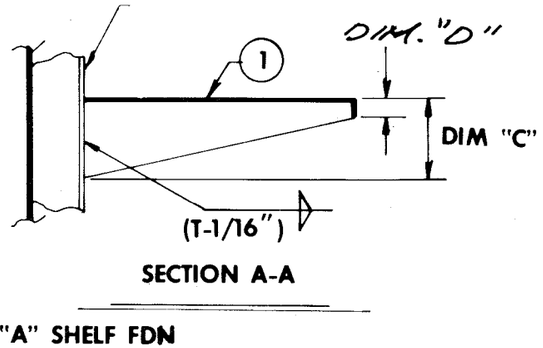
TYPE "C" SHELF FDN



SHOWING BHD STIFF
IN WAY OF ONE FLG.

TYPE "B" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT	↓	↓	MIL-B-857	
5	¼" DIA-FLAT WASHER	↓	↓	MIL-S-854	

NOTES:

1. Thickness (Dim. "T" of material to be furnished on location).

2. All variable dimensions and type of foundation to be specified on location.

3. Foundation for AN/WRC-1 to be as follows:

   a. Plating (7.65 #Plt. steel), ¼" thick aluminum

   b. Type "B" shelf foundation

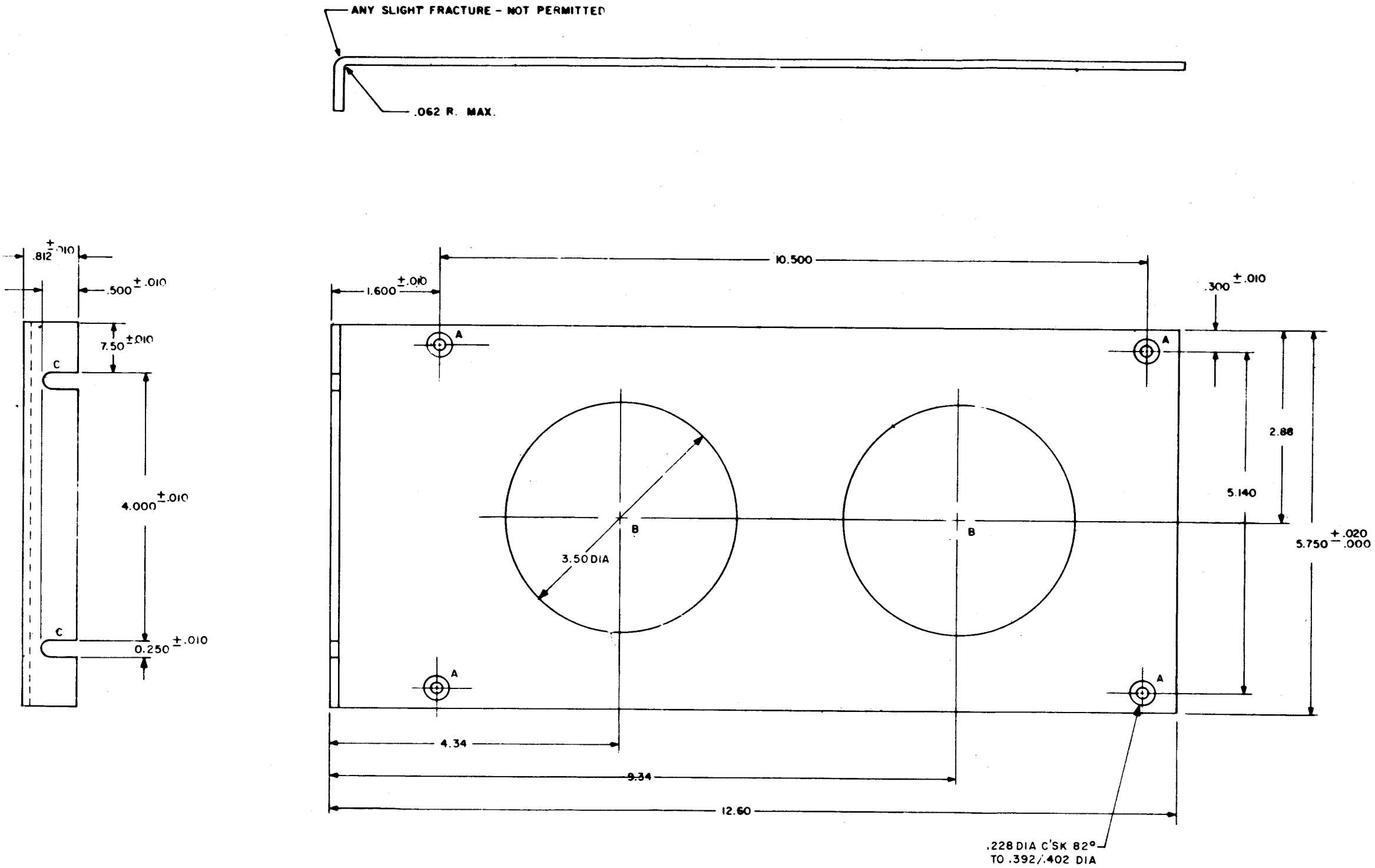
   c. For installation with stiffener in way of unit. Dimension "A" = 25" ± depth of stiffener, dimension "B" = 22", dimension "C" = 8", dimension "D" = 1½".

   d. For installation with no stiffener interference:

      Dimension "A" = 25", dimension "B" - 22", dimension "C" = 8", dimension "D" = 1½".

4. Size and location of mounting bolts for unit to be taken from equipment.

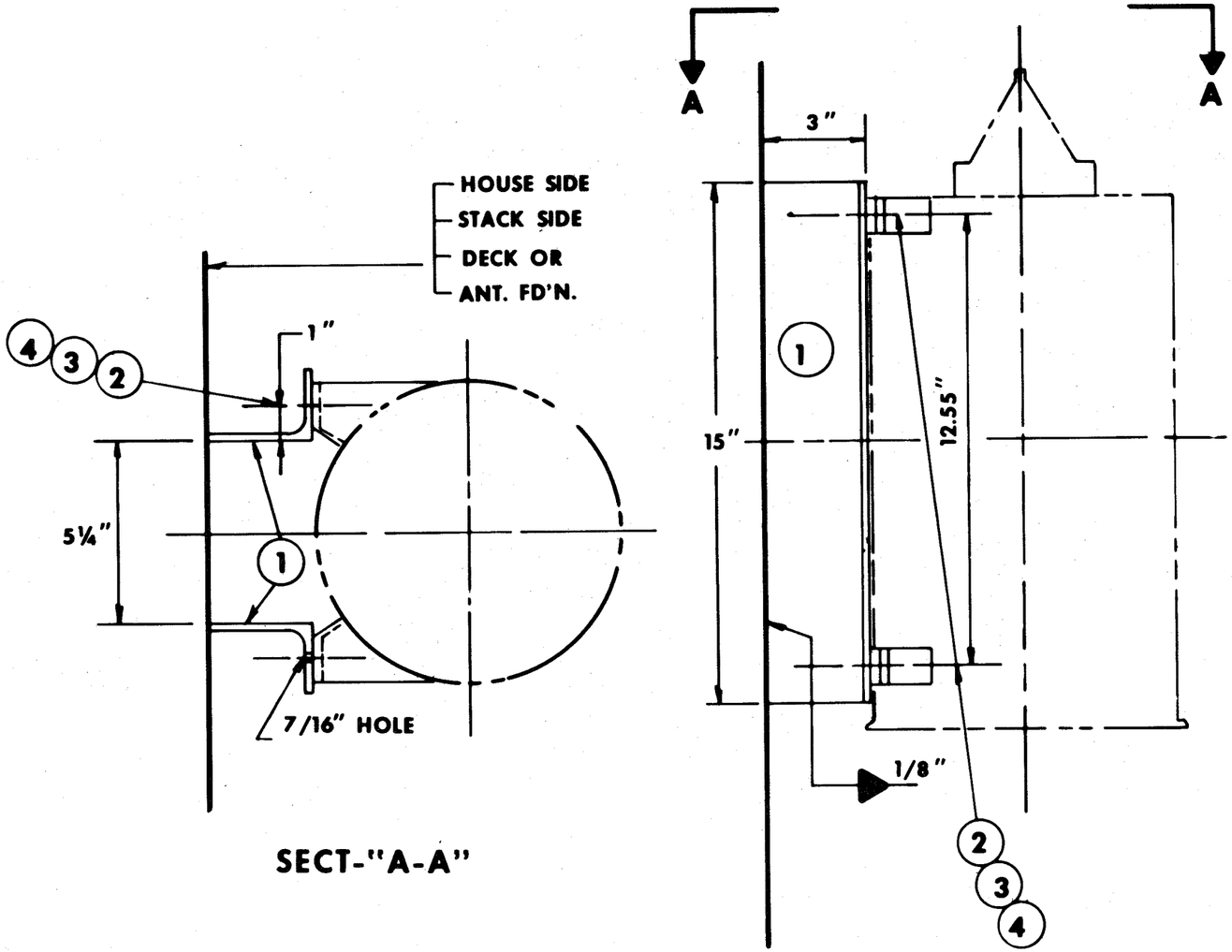
AN/WRC-1 RADIO SET
TYPICAL FOUNDATION DETAILS
FIGURE 2-32



NOTES:

1. FINISH: IRIDITE NO. 14 PER MIL-C-5541 PAINT PER MIL-E-15090 ENAMEL EQUIPMENT, LIGHT GRAY (FORMULA NO 11)
2. MATERIAL .125" THICK ALUMINUM ALLOY 5052-H32, PER QQ-A-318
3. NOT SUPPLIED. IF REQUIRED, INSTALLATION ACTIVITY MUST FABRICATE

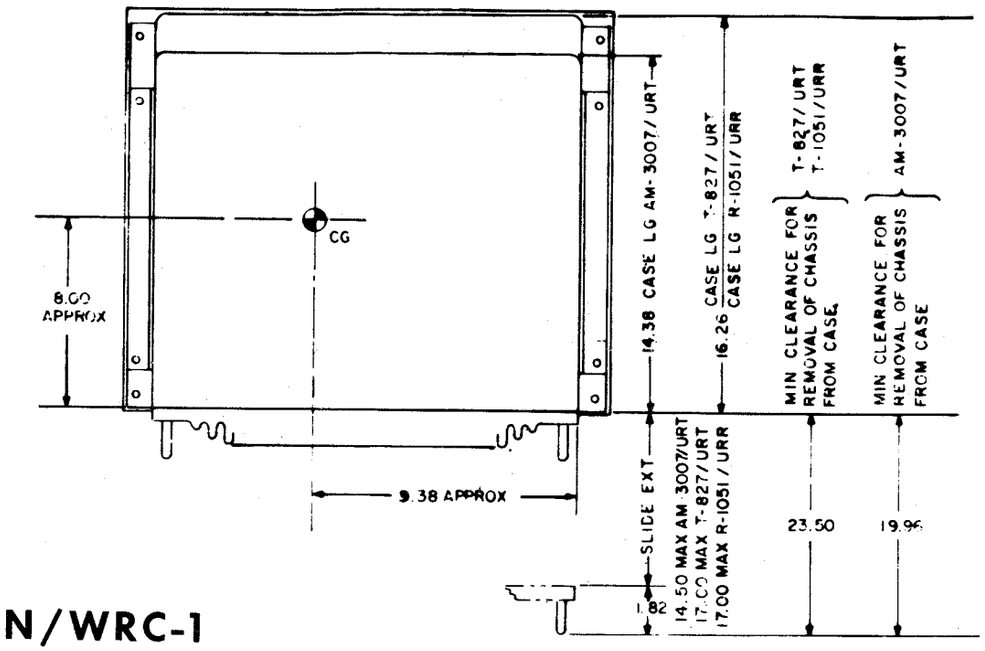
AN/WRC-1 RACK-MOUNTING BRACKET DETAILS
FIGURE 2-33

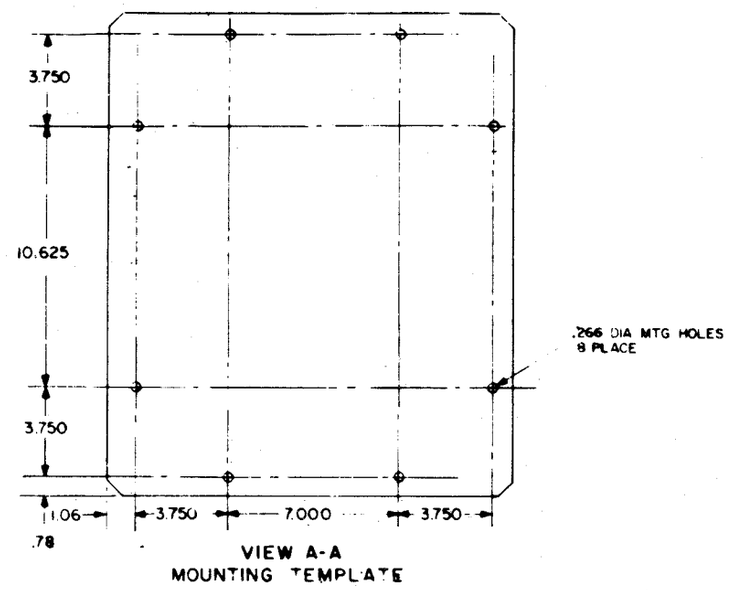


SECT-"A-A"

LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION				
PIECE NO.	NAME	NO. REQ'D.	MATERIAL	FEDERAL STOCK NO.
1	3"x2"x3/16" Angle	2	MS	9520 277 4939
2	3/8" HH Bolt 1" lg.	4	CRES	5306 299 2455
3	3/8" Hex Nut	4	CRES	5310 543 5627
4	3/8" Lock Washer	4	CRES	5310 584 5446
1	3"x2"x3/16" Angle	2	Alum.	9540 542 2717

CU-937/UR
TYPICAL FOUNDATION DETAIL
FIGURE 2-34

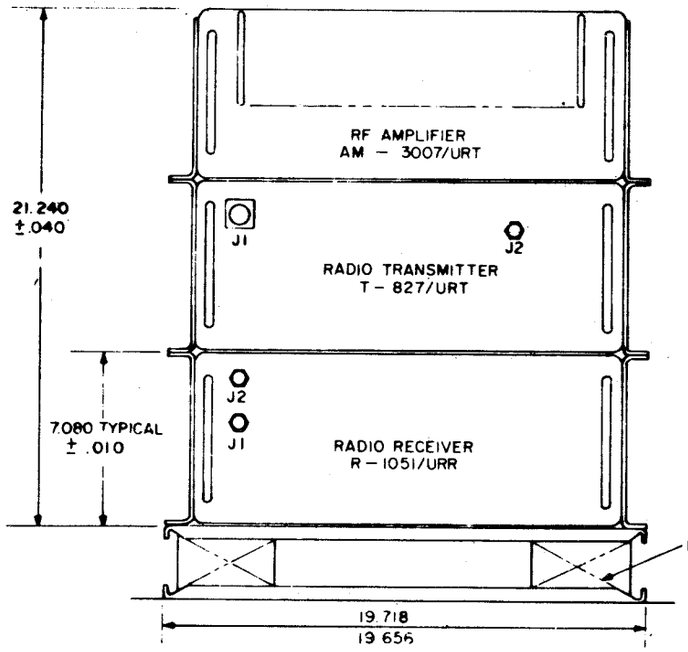


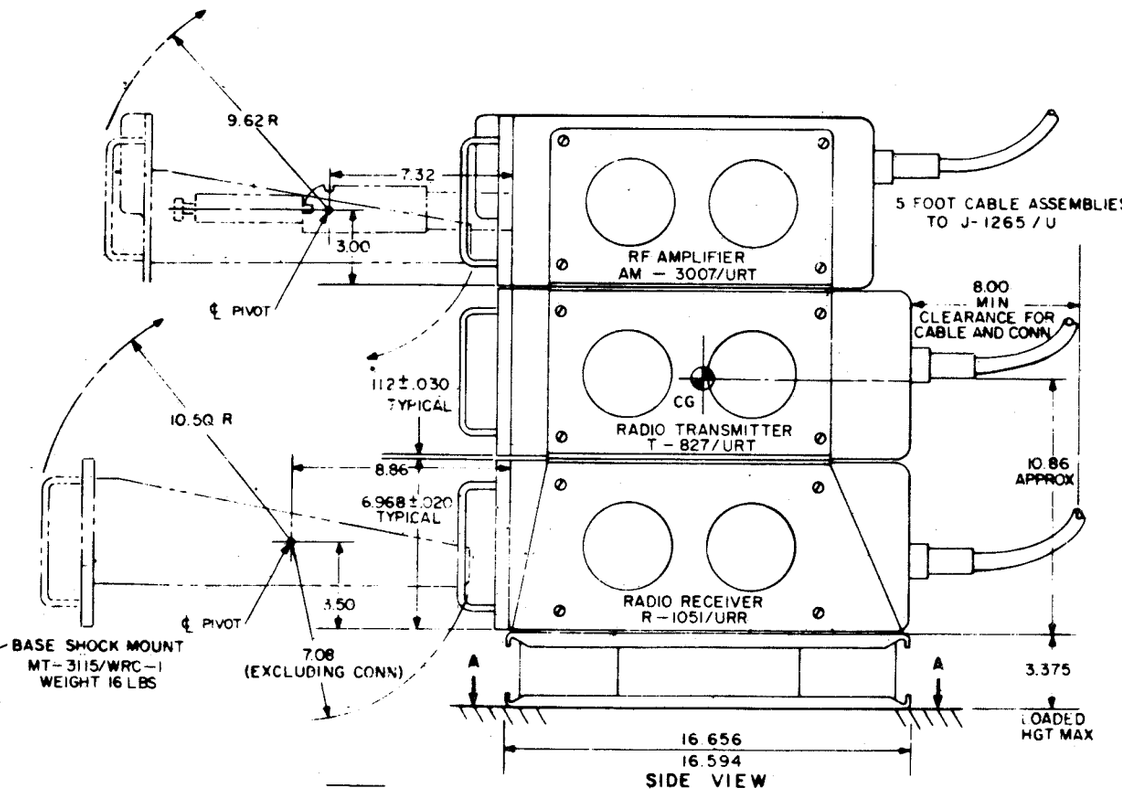


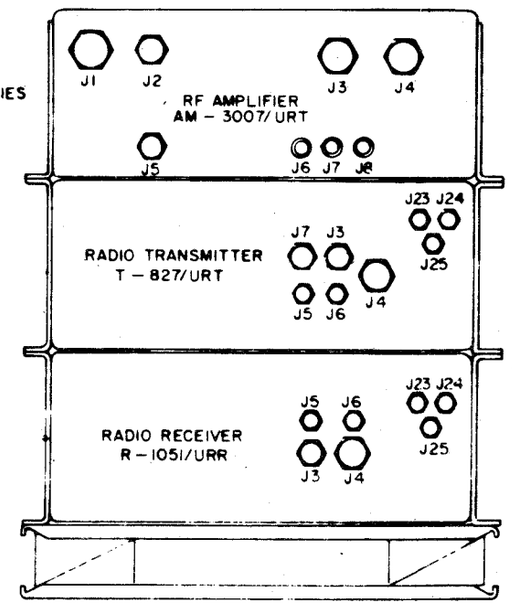
AN/WRC-1

OUTLINE AND MOUNTING DIMENSIONS

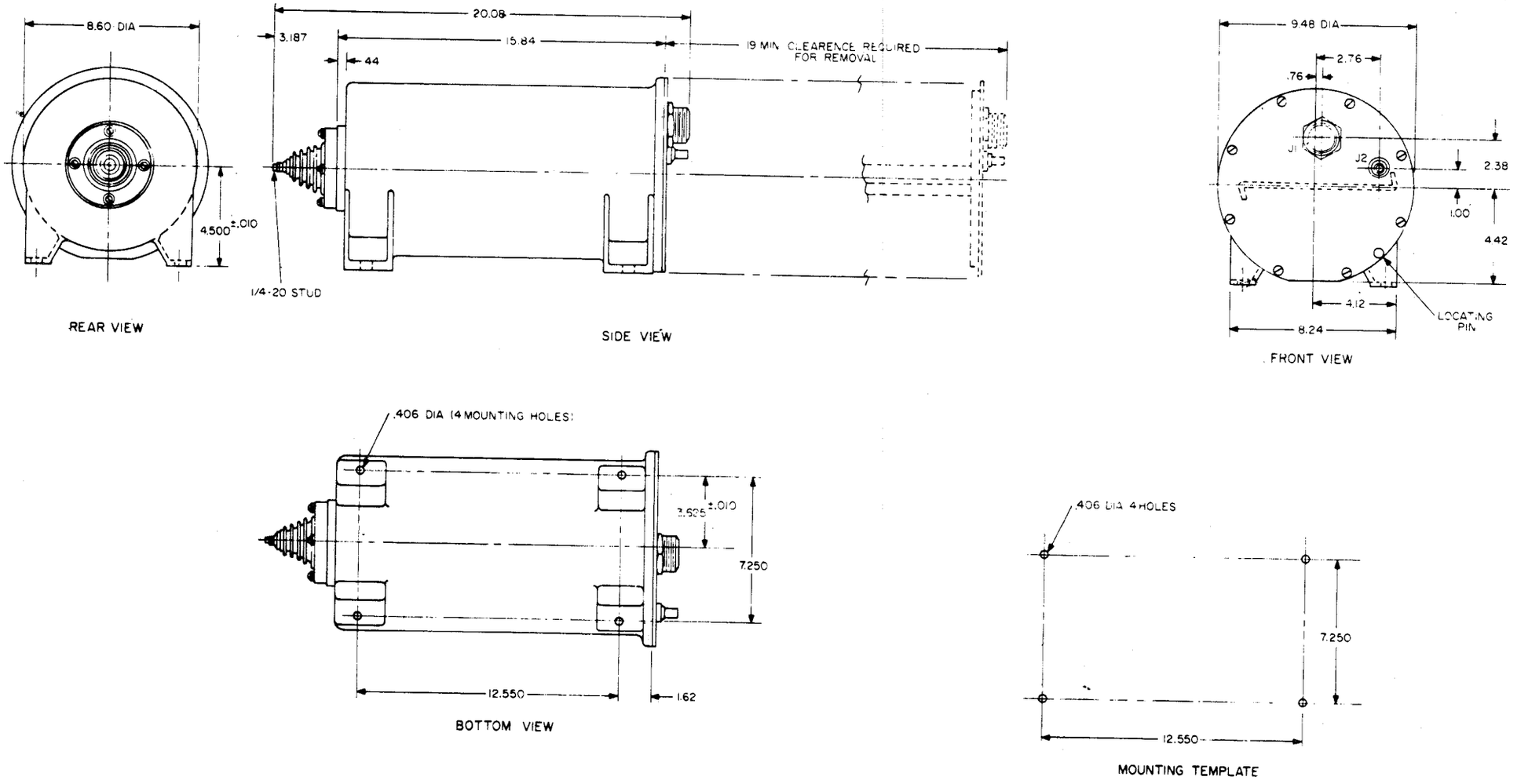
FIGURE 2-35



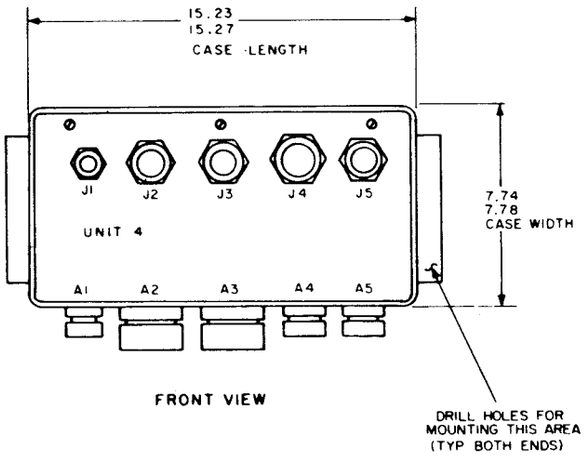


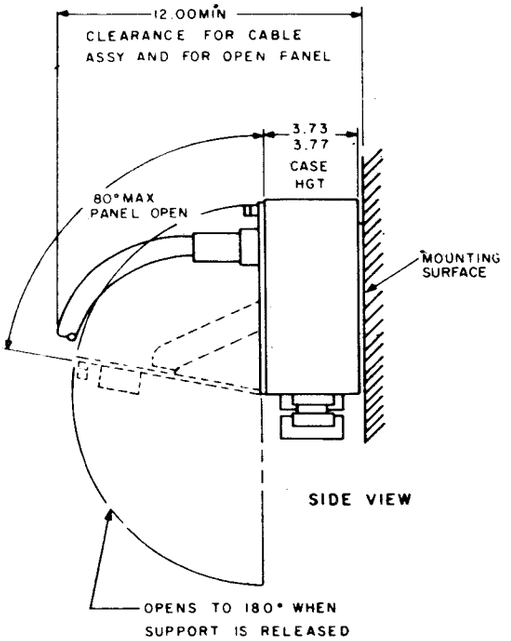


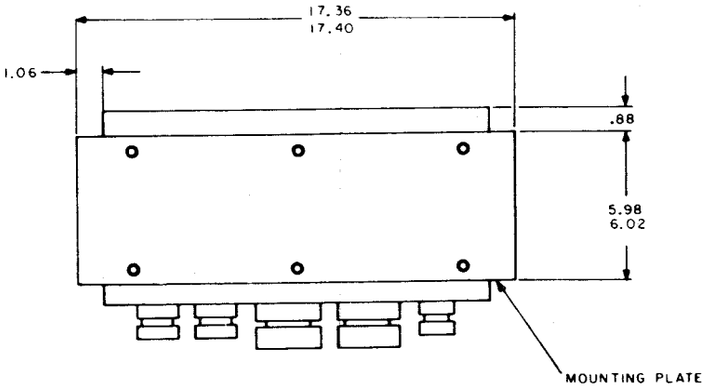
ORIGINAL

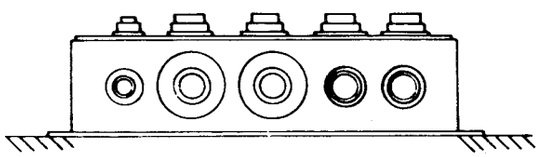


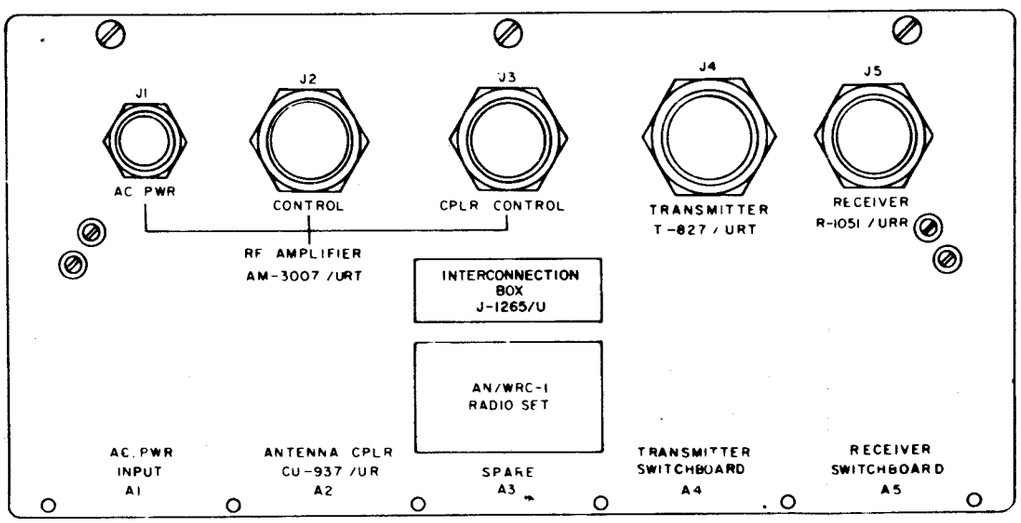
CU-937/UR ANTENNA COUPLER
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-36









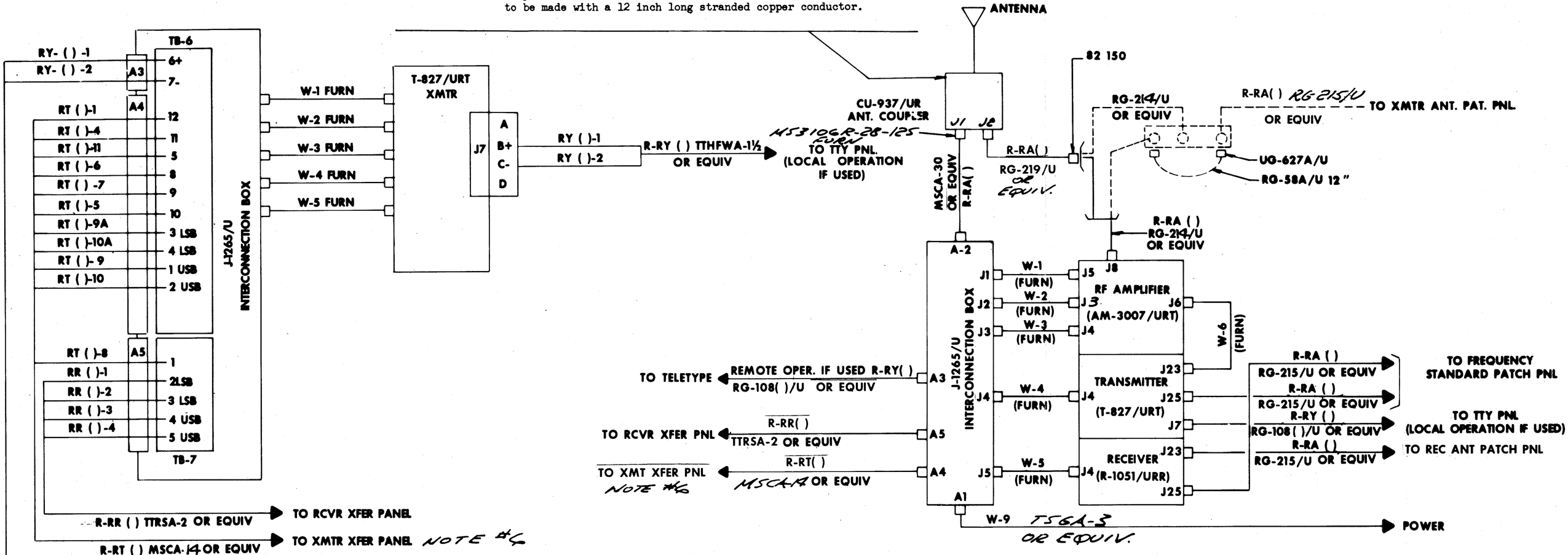


J-1265/U INTERCONNECTION BOX

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 2-37

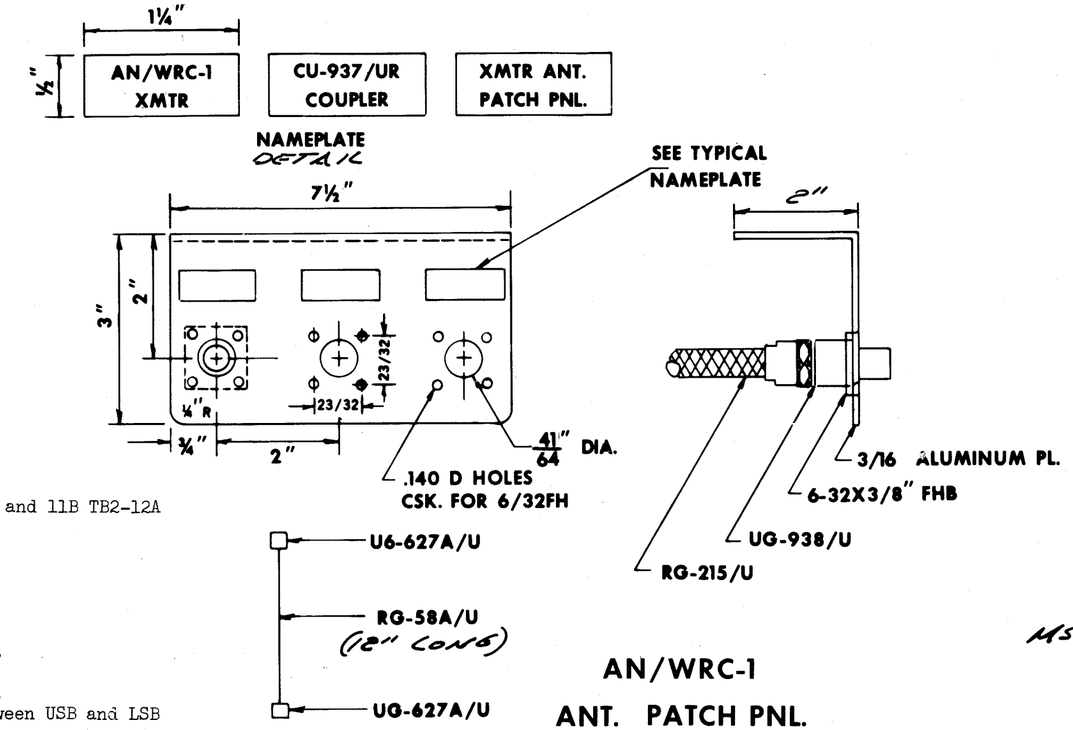
SPECIAL NOTE: The CU-937/UR must be placed close to the base of the antenna to permit the connection between the antenna and the CU-937/UR to be made with a 12 inch long stranded copper conductor.



AN/WRC-1 RADIO TRANSCEIVER CABLE DIAGRAM

FIGURE 2-38

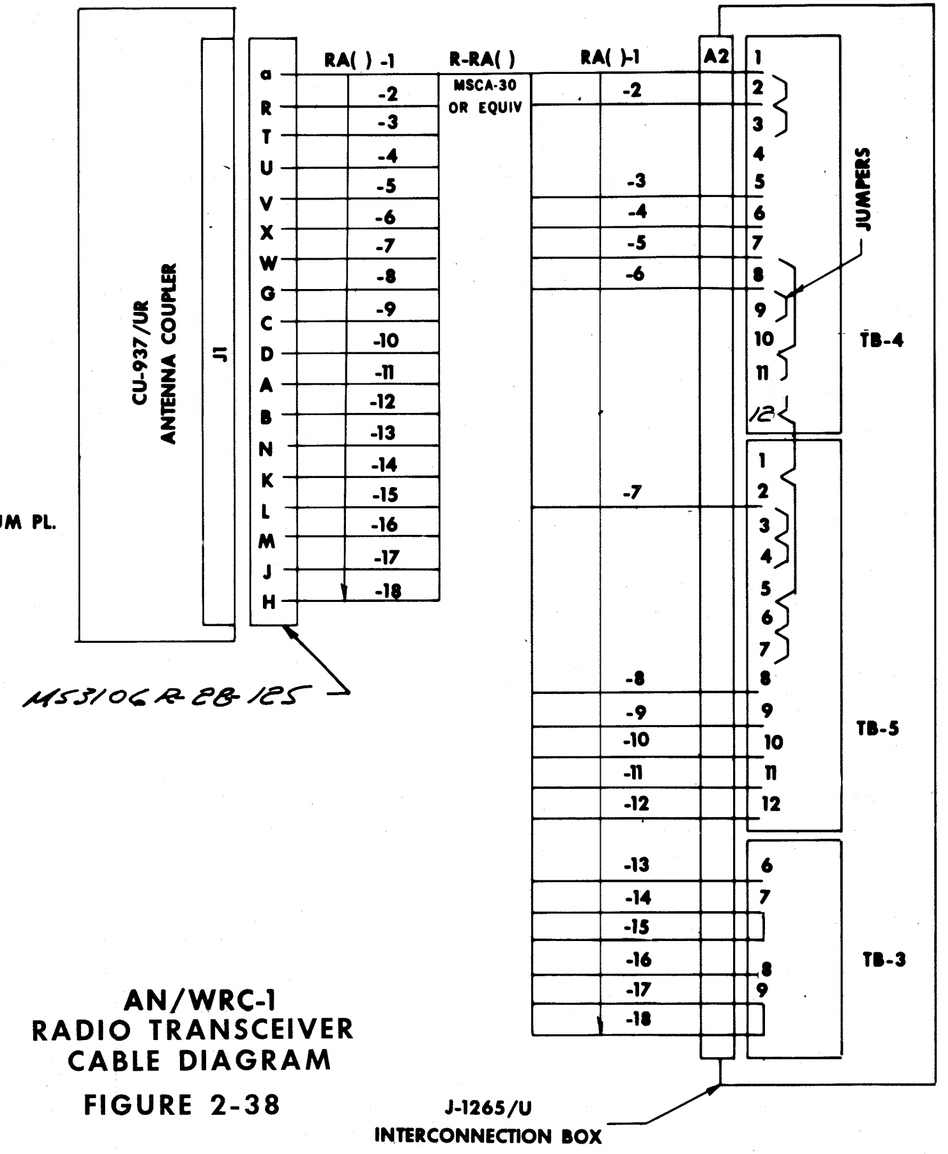
(CONTINUED)



AN/WRC-1
ANT. PATCH PNL.

NOTES:

1. For duplex operation stud connectors between TB2-11A and 11B TB2-12A and 12B must be removed.
2. For transmit mode LSB/1SB attach wire to TB6-3B.
   For transmit mode USB/AM/1SB attach wire to TB6-1B.
3. For transmit mode LSB/1SB attach wire to TB6-4B.
   For transmit mode USB/AM/1SB attach wire to TB6-2B.
4. For receive mode LSB/1SB attach wire to TB7-2B.
   For receive mode USB/AM/CW/1SB attach wire to TB7-4B.
5. For receive mode LSB/1SB attach wire to TB7-3B.
   For receive mode USB/AM/CW/1SB attach wire to TB7-5B.
6. Parallel terminals Nos. 1, 4, 5, 6, 7, 8, and 11 between USB and LSB in transmitter transfer panel.



AN/WRC-1
RADIO TRANSCEIVER
CABLE DIAGRAM

FIGURE 2-38

SECTION 2 - RADIO TRANSCEIVERS

2.26 AN/URC-35 GENERAL DESCRIPTION

The AN/URC-35 is a single sideband HF radio set designed for shipboard installation with capabilities for general purpose use. The set provides transmission and reception on 280,000 channels, spaced 100 CPS apart in the 2 to 30 MC range. The receiving section includes vernier control for continuous tuning between tuning increments to permit compatibility with less stable transmitters now in use. Transmission and reception can be performed in upper side band (USB), lower sideband (LSB) continuous wave (CW) and compatible amplitude modulation (AM).

The radio set employs circuits for automatic digital tuning.

The coupler (CU-937/UR) enables matching to a 15, 25, or 35 foot whip antenna. The coupler can be located up to 300 feet from the RF amplifier.

2.27 REFERENCE DATA

a. Table of Technical Publication - Table 2-20
b. Primary Power Requirement - Table 2-21
c. Heat Dissipation - Table 2-22
d. Unit Weight - Table 2-22
e. Connection Cables from CU-937/UR to Connecting Box Terminal Board Connections - Table 2-23
f. Connection Box, Terminal Board Antenna Programming - Table 2-24.

2.28 INSTALLATION REQUIREMENTS

a. Arrangement

(1) The units that comprise the AN/URC-35 are stacked and secured together in the order shown in Figure 2-41. Mounting brackets and hardware are supplied with each unit to secure equipment together. The AN/URC-35 is designed to be mounted in an upright position on a radio operating desk (LOP table) or similar flat surface foundation. See Figure 2-39 for typical foundation details. See Figure 2-40 for rack mounting bracket details.

(2) To install the CU-973/UR drill mounting holes approximately 10 inches from the antenna base and bolt the CU-937/UR to the mounting surface. See Figure 2-34 for typical foundation details.

(3) To install the C-3697/URC drill mounting holes in mounting plate as shown in Figure 2-39 and Figure 2-42.

(4) The PP-4679/URC-35 is to be installed on a shelf type foundation. See Figure 2-39 for typical foundation details.

2.28 INSTALLATION REQUIREMENTS (Continued)

b. Outline and Mounting Dimensions

(1) AN/URC-35 Figure 2-41
(2) C-3697/URC Figure 2-42
(3) PP-4629/URC-35 Figure 2-43
(4) CU-937/UR Figure 2-36

c. Grounding Specification - All bonding and grounding to be in accordance with Table 2-20 Item No. 6.

2.29 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 2-44
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 2-20 Item No. 7.
c. Security Requirement - To be in accordance with Table 2-20 Item No. 8.

2.30 FIELD CHANGE REQUIREMENT - None

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-289-5010	Technical Manual for Radio Transceiver AN/URC-35
2	*RE-D-2696364(A)	AN/URC-35 Interconnecting and Cabling Diagram
3	*RE-D-2696368(A)	AN/URC-35 Outline and Mounting Dimensions
4	*RE-D-2696369(A)	C-3697/URC Outline and Mounting Dimensions
5	*RE-D-2696370	PP-4679/URC-35 Outline and Mounting Dimension
6	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
7	0967-000-0000	Electronic Installation and Maintenance Books
8	NAVSHIPSINST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing System
9	0981-052-8090	Data Pertaining to Electrical Shipboard Cable

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 2-20

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/URC-35	115 VAC, 60, Hz Single Phase Or 27.5 VDC	2.3 Amps. Normal	375 Watts	
C-3697/URC	28 V D C		10 Watts	Gets power from RT-618/URC
PP-4679/URC-35	115 VAC, 60 Hz, Single Phase		450 Watts	

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 2-21

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/URC-35 (Total)	300 Watts	186 Lbs.	
C-3697/URC	8 Watts	5-3/4Lbs.	
PP-4679/URC-35	400 Watts	32 Lbs.	

TABLE OF MISCELLANEOUS DATA
TABLE 2-22

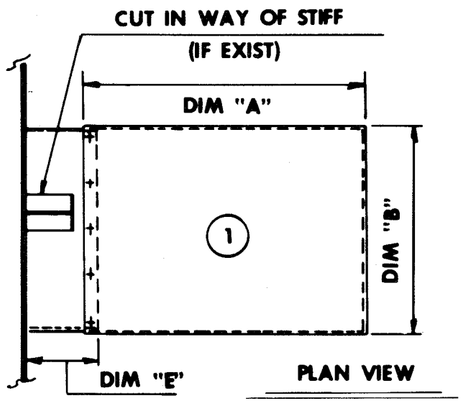
J1 ANT. COUPLER CU-937/UR	15 FOOT WHIP ANTENNA	25 FOOT WHIP ANTENNA	35 FOOT WHIP ANTENNA
J1-Z	No Connections	No Connection	No Connection
J1-Y	No Connection	TB2-6B	No Connection
J1-S	No Connection	No Connection	No Connection
J1-P	TB1-1A	No Connection	No Connection
J1-a	TB1-2A	TB1-1A	TB1-1A
J1-R	TB1-3A	TB1-2A	TB1-2A
J1-T	TB1-7A	TB1-6A	TB1-5A
J1-U	TB1-10A	No Connection	TB1-6A
J1-V	TB1-11A	TB2-1B	TB1-7A
J1-X	No Connection	TB1-9A	TB1-8A
J1-W	TB1-12A	TB2-7B	TB2-2A
J1-M	TB3-3A	TB3-3A	TB3-3A
J1-J	TB3-4A	TB3-4A	TB3-4A
J1-G	TB2-8A	TB2-8A	TB2-8A
J1-K	TB3-2A	TB3-2A	TB3-2A
J1-L	TB3-2A	TB3-2A	TB3-2A
J1-C	TB2-9A	TB2-9A	TB2-9A
J1-N	TB3-1A	TB3-1A	TB3-1A
J1-B	TB2-12A	TB2-12A	TB2-12A
J1-A	TB2-11A	TB2-11A	TB2-11A
J1-D	TB2-10A	TB2-10A	TB2-10A
J1-H	TB3-4A	TB3-4A	TB3-4A

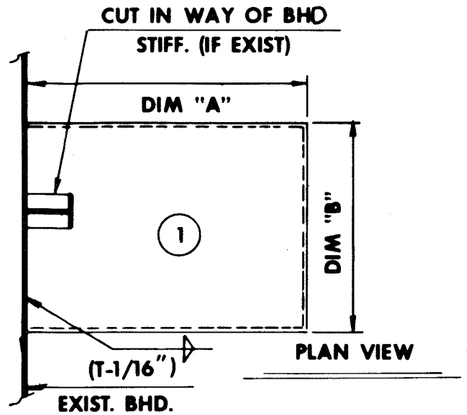
CONNECTING CABLE FROM CU-937/UR TO CONNECTING BOX TERMINAL BOARD CONNECTIONS
TABLE 2-23

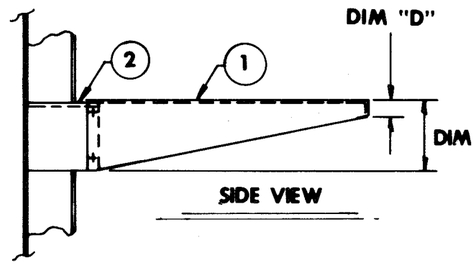
15 FOOT WHIP ANTENNA		25 FOOT WHIP ANTENNA		35 FOOT WHIP ANTENNA	
FROM	TO	FROM	TO	FROM	TO
TB1-3B	TB1-4B	TB1-2B	TB1-3B	TB1-2A	TB1-3A
TB1-4B	TB1-5B	TB1-3B	TB1-4B	TB1-3A	TB1-4A
TB1-5B	TB1-6B	TB1-4B	TB1-5B	TB1-7A	TB1-10A
TB1-7B	TB1-8B	TB1-6B	TB1-7B	TB1-8A	TB1-9A
TB1-8B	TB1-9B	TB1-8B	TB2-1A	TB1-10A	TB1-11A
TB1-11B	TB2-3A	TB2-1A	TB2-2A	TB1-11A	TB1-12A
TB2-3A	TB2-5A	TB2-2A	TB2-3A	TB1-12A	TB2-1A
TB2-5A	TB2-6A	TB2-3A	TB2-4A	TB2-1A	TB2-5A
TB2-6A	TB2-7A	TB2-4A	TB2-5A	TB2-2A	TB2-3A
TB1-12A	TB2-1A	TB1-9B	TB1-10B	TB2-3A	TB2-4A
TB2-1A	TB2-2A	TB1-10B	TB1-11B	TB2-5A	TB2-6A
TB2-2A	TB2-4A	TB1-11B	TB1-12B	TB2-6A	TB2-7A

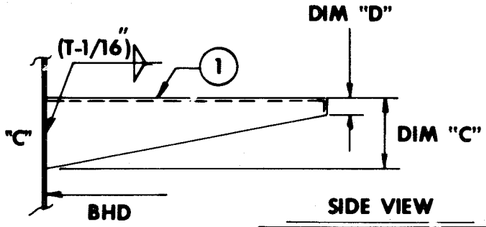
CONNECTION BOX TERMINAL BOARDS ANTENNA PROGRAMMING

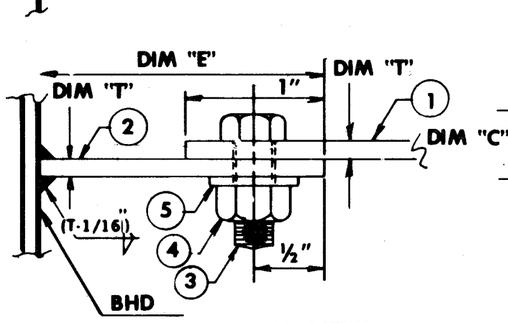
TABLE 2-24

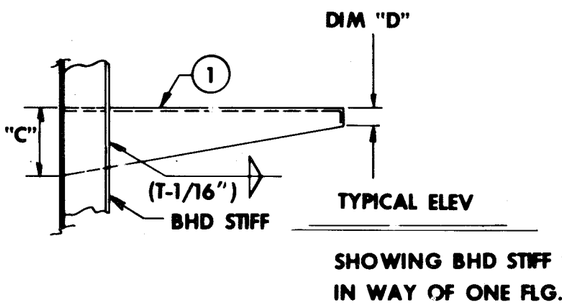






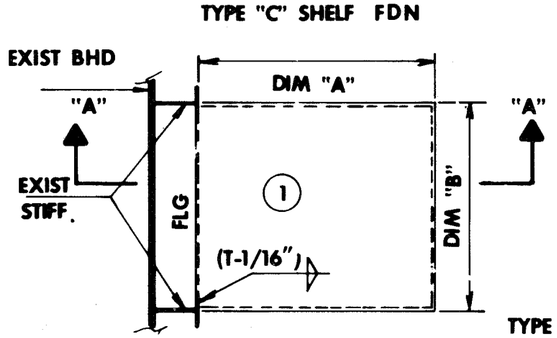


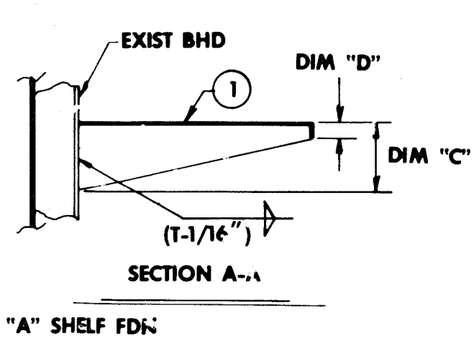




TYPE "C" SHELF FDN

TYPE "B" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

NOTES:

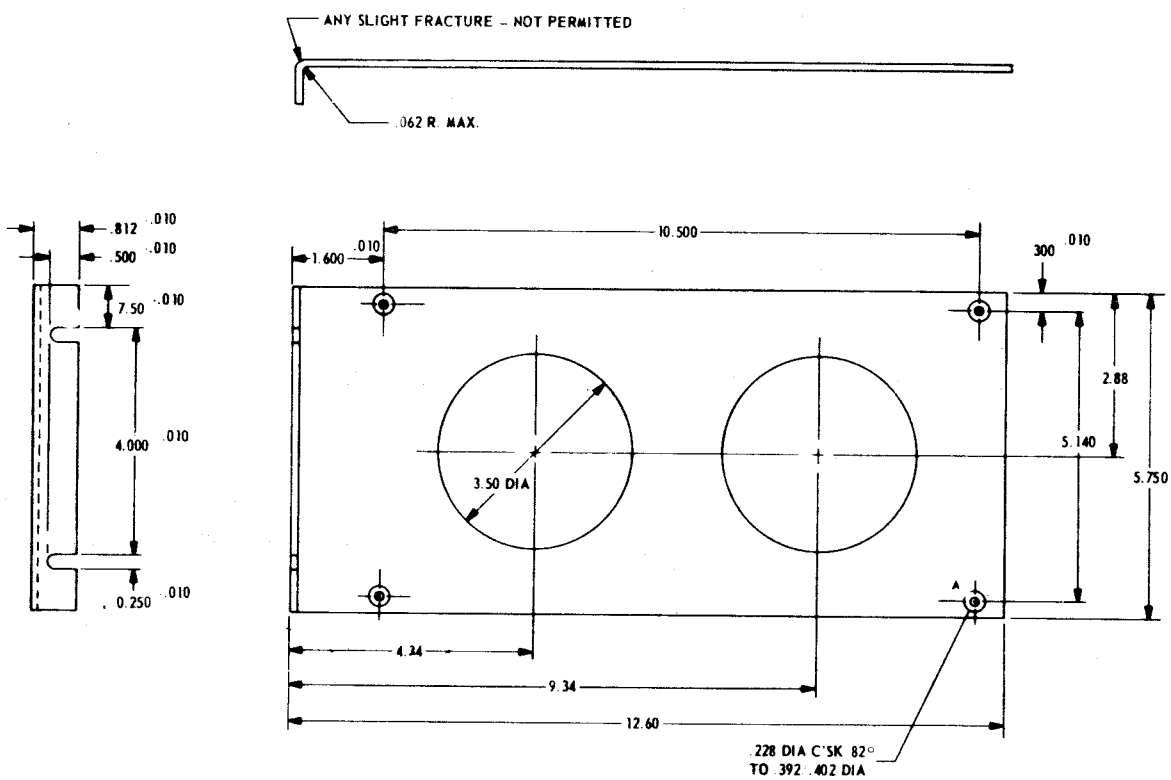
1. Thickness (Dim. "T" of material to be furnished on location).
2. All variable dimensions and types of foundation to be specified on location.
3. Foundation for AN/URC-35 to be as follows:
   a. Plating (7.65 #Plt. steel), ¼" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit. Dimension "A" = 26" + depth of stiffener, dimension "B" = 20", dimension "C" = 9", dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 26", dimension "B" = 20", dimension "C" = 9", dimension "D" = 1½".
4. Foundation for C-3697-URC-35 to be as follows:
   a. Plating (7.65 #Plat. steel), ¼" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit: Dimension "A" = 26" + depth of stiffener, dimension "B" = 20", dimension "C" = 9", dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 26", dimension "B" = 20", dimension "C" = 9", dimension "D" = 1½".
5. Foundation for PP-4679/URC to be as follows:
   a. Plating (7.65 #Plt. Steel), ¼" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit: Dimension "A" = 12" + depth of stiffener, dimension "B" = 15", dimension "C" = 4", dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 12", dimension "B" = 15", dimension "C" = 4", dimension "D" = 1½".
6. Size and location of mounting bolts to be taken from equipment.

AN/URC-35, C-3697/URC-35, AND PP-4679/URC-35

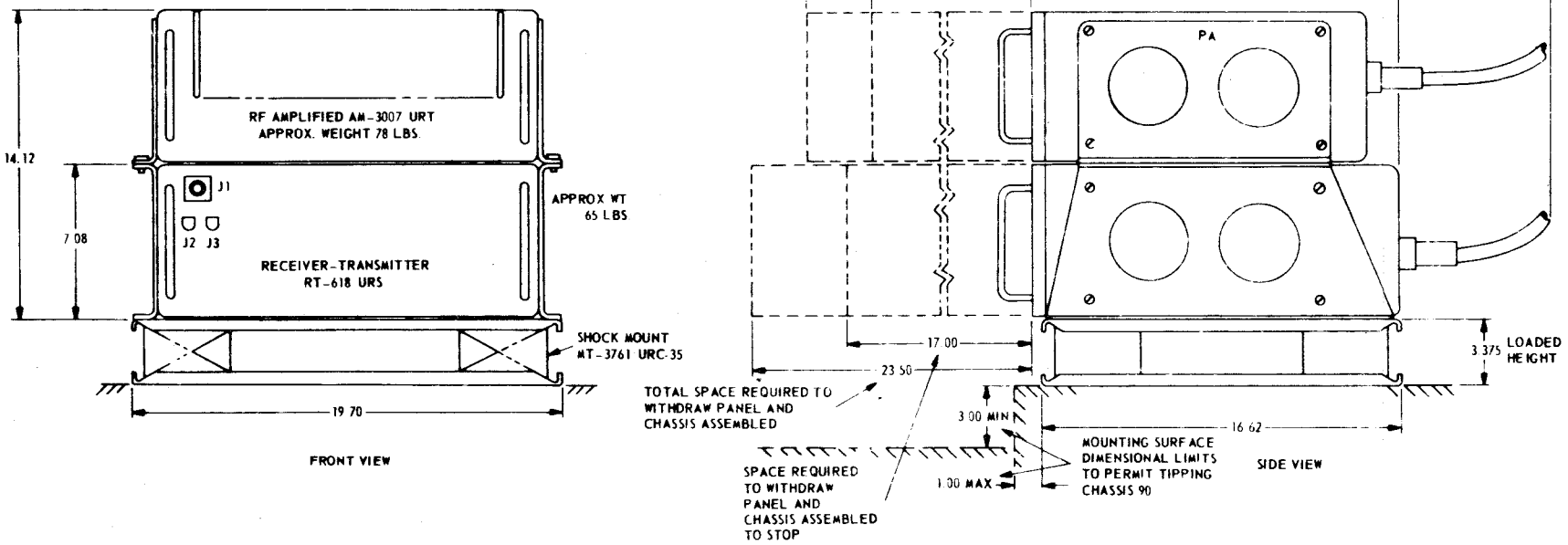
TYPICAL FOUNDATION DETAILS

FIGURE 2-39

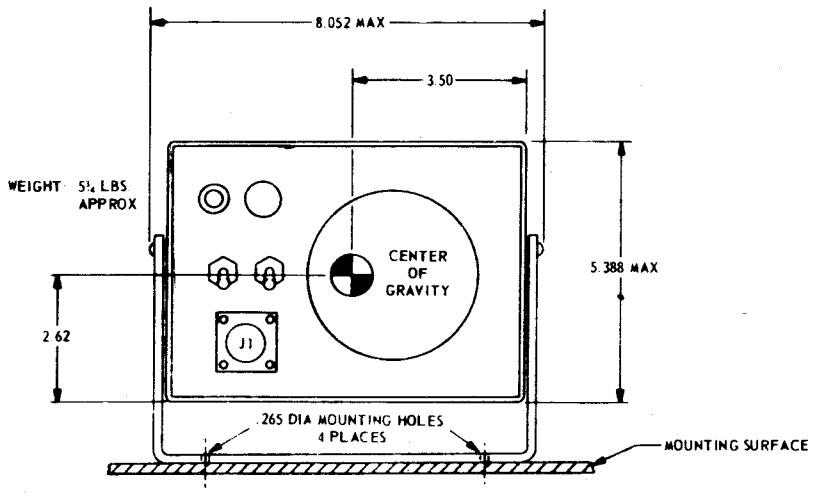
ORIGINAL

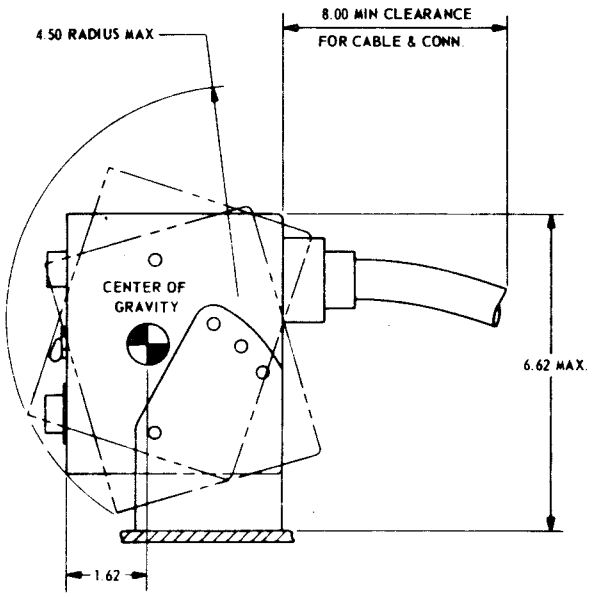


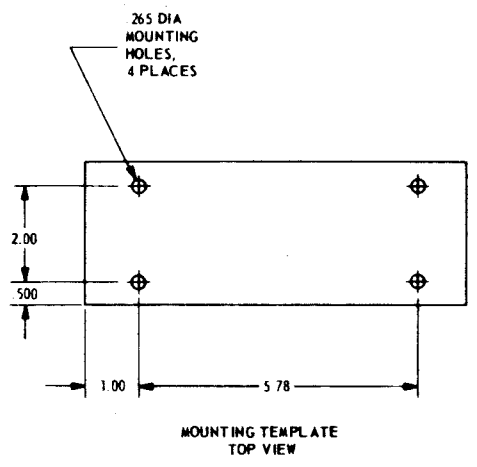
AN/URC-35
RACK MOUNTING BRACKET DETAILS
FIGURE 2-40



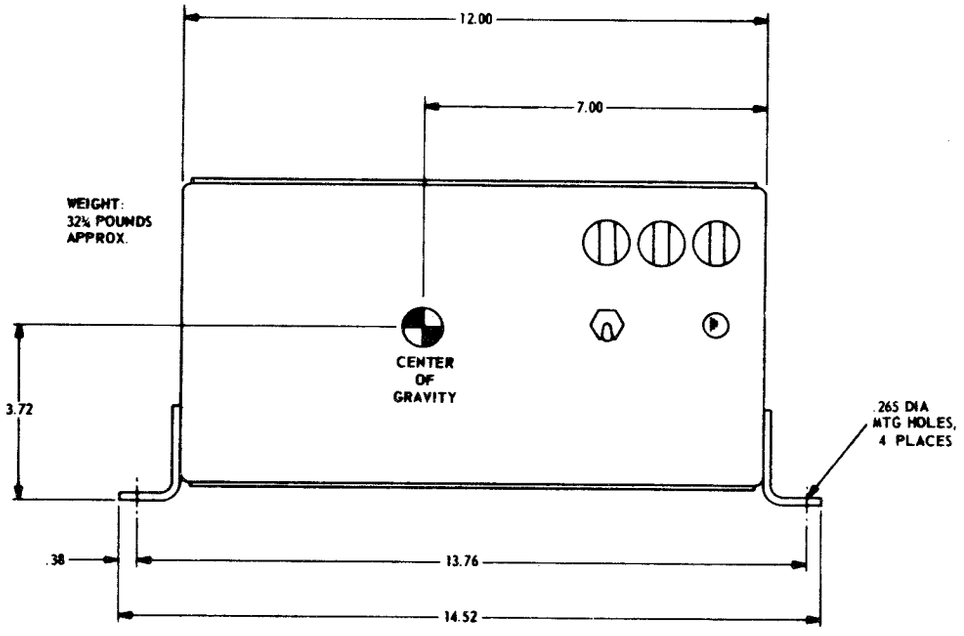
AN/URC-35
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-41

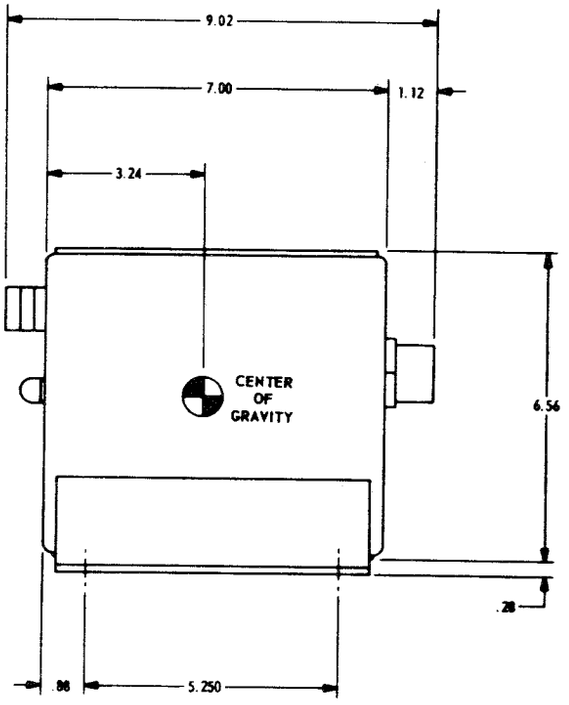




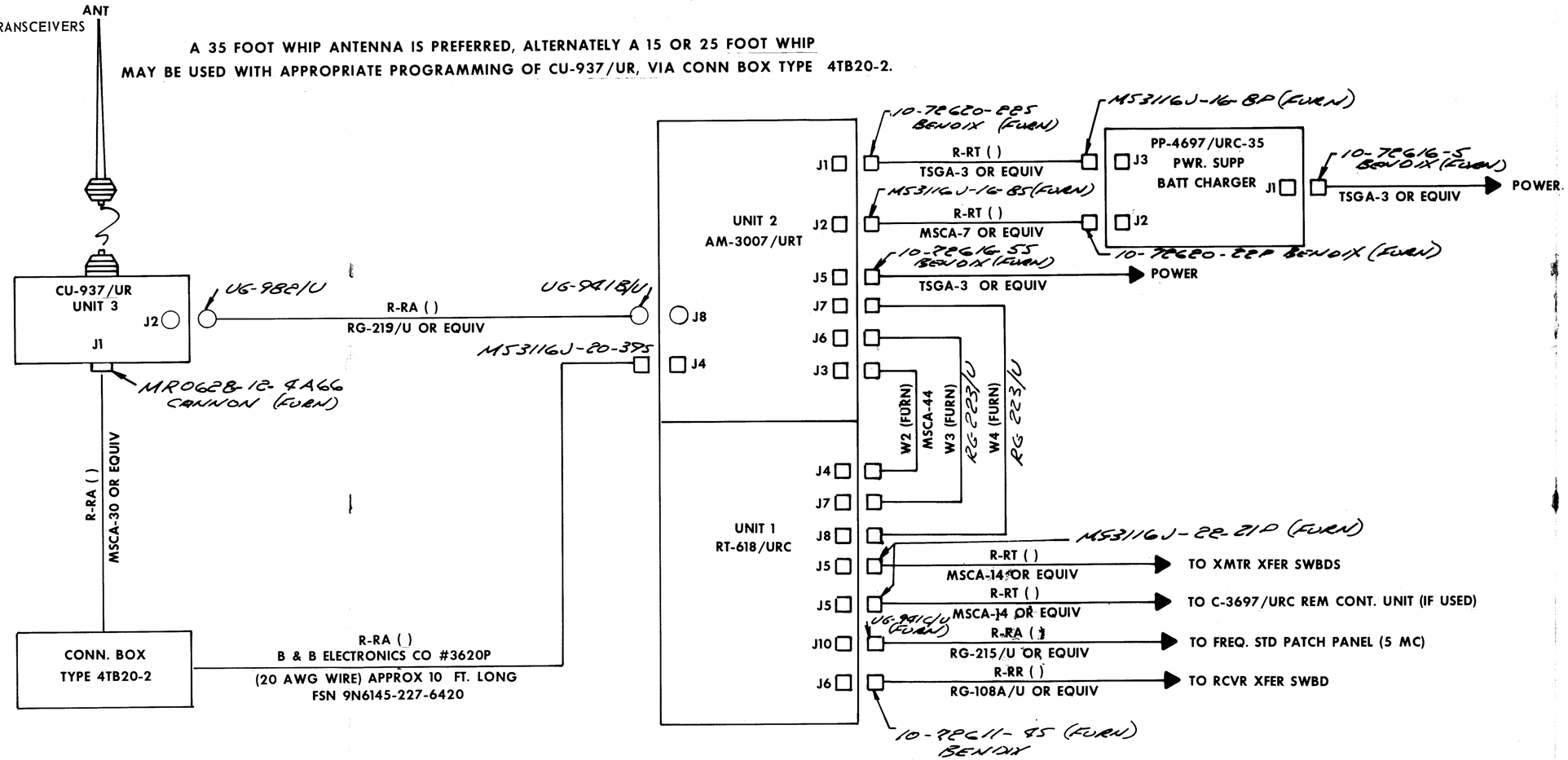


C-3697/URC-35
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-42

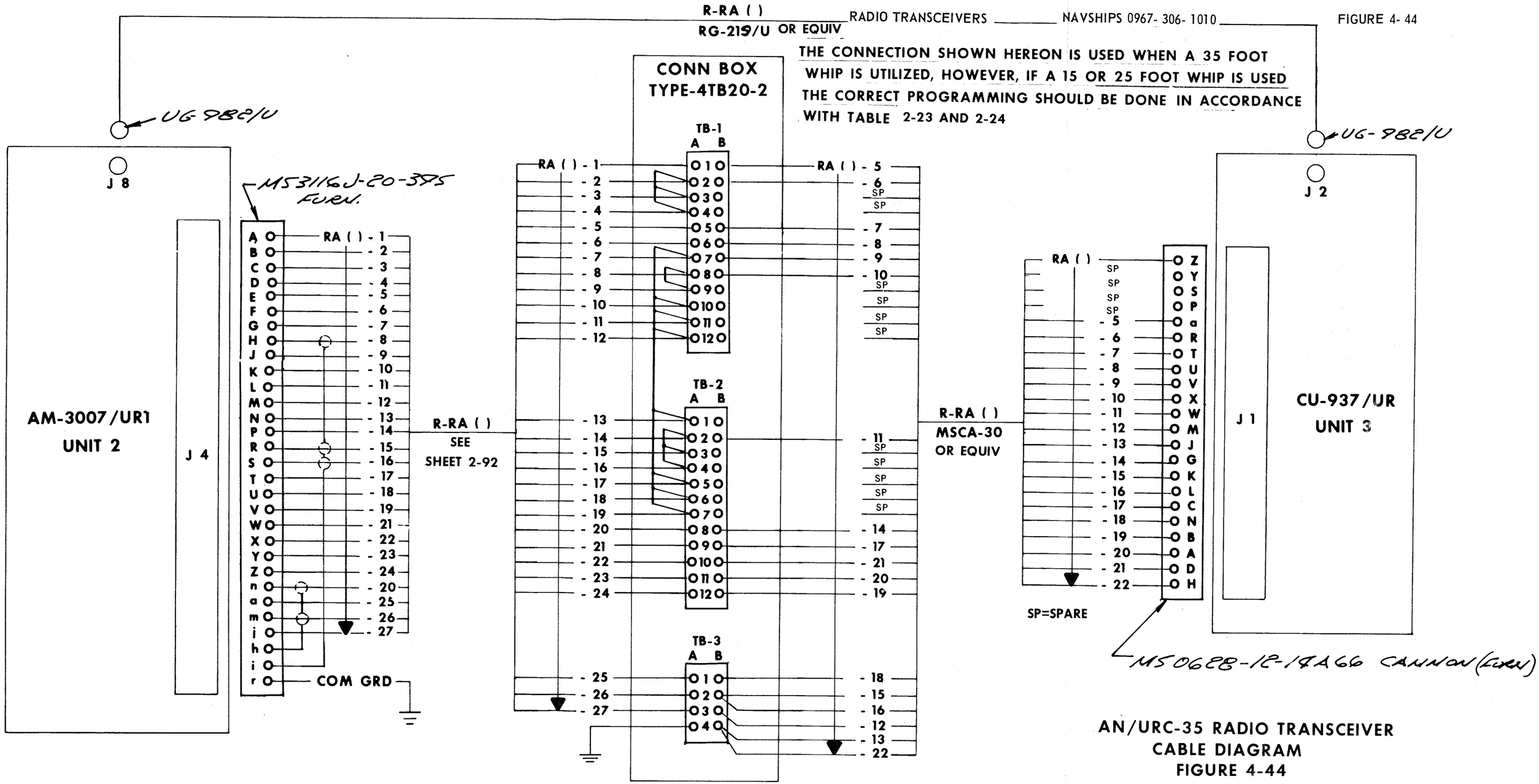




PP-4679/URC-35
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 2-43

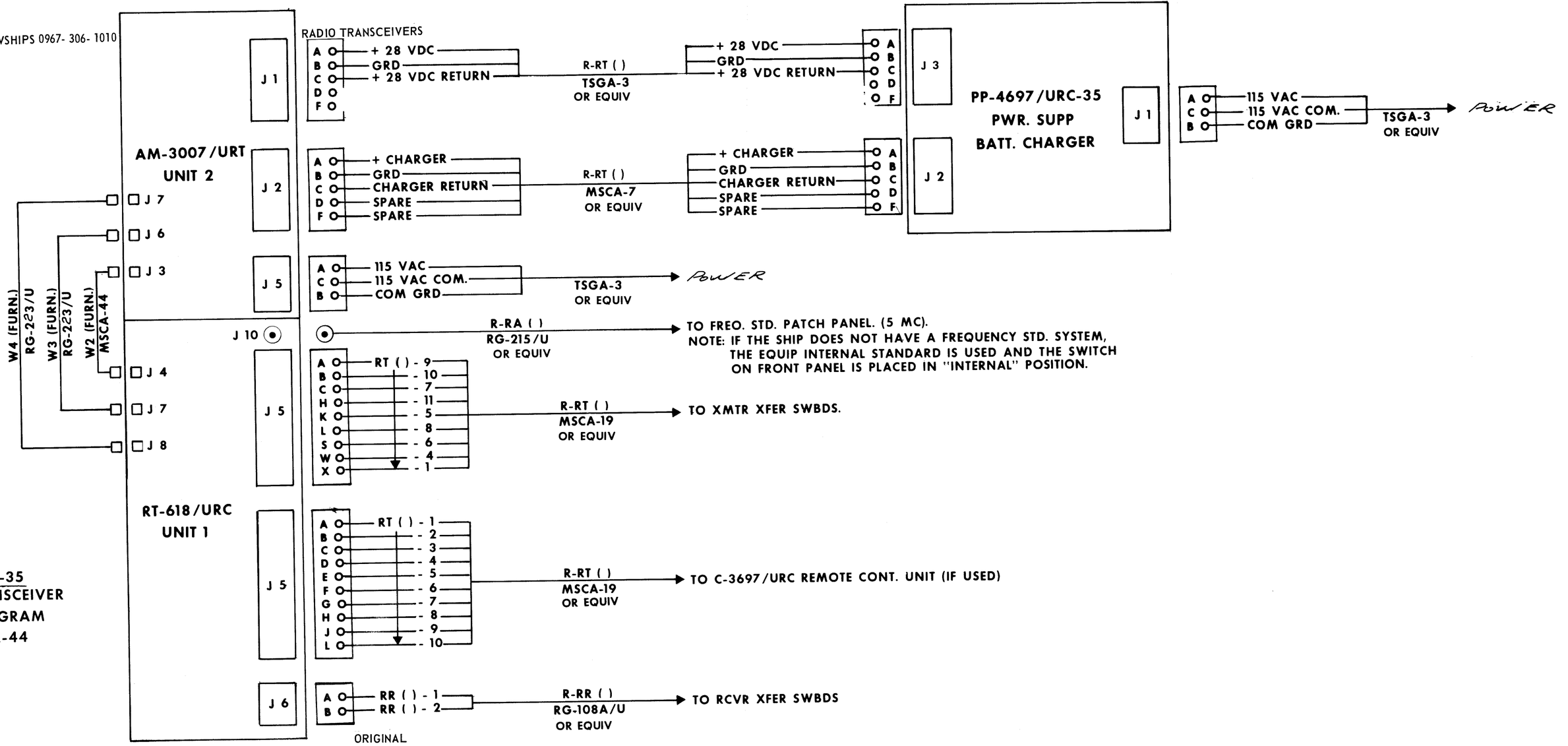


AN/URC-35 RADIO TRANSCEIVER CABLE DIAGRAM FIGURE 2-44 (CONTINUED)



AN/URC-35 RADIO TRANSCEIVER
CABLE DIAGRAM
FIGURE 4-44
(CONTINUED)

FIGURE 2- 44 NAVSHIPS 0967- 306- 1010



AN/URC-35
RADIO TRANSCEIVER
CABLE DIAGRAM
FIGURE 2-44

ORIGINAL

SECTION 3 - RADIO TRANSMITTERS

3.1 AN/WRT-2 GENERAL DESCRIPTION

The AN/WRT-2 provides complete frequency coverage in one KC steps over the frequency range of 2.0 to 30.0 megacycles. The equipment is capable of delivering a nominal average power output of 500 watts and a peak envelope power (PEP) of 1000 watts in a 50 ohm, non-reactive load, with a voltage standing wave ratio (VSWR) lower than 4 to 1. The transmitter is capable of continuous full load operation under ambient temperature conditions. The AN/WRT-2 provides continuous wave (CW) independent sideband (ISB), single sideband (SSB), amplitude modulation (AM) phone, and frequency shift keyali emission.

3.2 REFERENCE DATA

a. Table of Technical Publications - Table 3-1
b. Primary Power Requirements - Table 3-2
c. Heat Dissipation - Table 3-3
d. Unit Weight - Table 3-3

3.3 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/WRT-2 radio set is designed for mounting in an upright position. See Figure 3-1 for typical foundation details. The TN-342/WRT-2 turner can be mounted in either vertical or horizontal position close as possible to the antenna. See Figure 3-2 for typical foundation details.

b. Outline and Mounting Dimensions

(1) AN/WRT-2 Figure 3-3
(2) TN-342/WRT-2 Figure 3-4

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 3-1, Item No. 2.

3.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 3-5.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 3-1, Item No. 17.
c. Security Requirements - To be in accordance with Table 3-1, Item No. 10.

3.5 FIELD CHANGE REQUIREMENTS - Table 3-4

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-073-3010	Technical Manual for Radio Transmitter Set AN/WRT-2
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
4	*RE-F2688014	Outline and Mounting Data
5	*RE-F2688312	Outline and Mounting Data
6	*RE-H2688328	Outline and Mounting Data
7	*RE-D2688398	Summary List of Installation Material
8	*RE-D2695731	Interconnecting Cabling Diagram
9	*RE-D2688278	Interconnecting Wiring Diagram
10	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
11	*RE-H2688384	Production Drawing Assembly

*These plans are not essential for installation but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 3-1 (Continued)

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
12	*RE-F2688313	Interconnecting Wiring Diagram
13	*RE-H2688315	Primary Power Distribution Diagram
14	*RE-D2688316	Pictorial System Diagram
15	*RE-D2688329	Pictorial System Diagram
16	*RE-H2688330	Primary Power Distribution Diagram
17	0967-000-0000	Electronics Installation and Maintenance Books

*These plans are not essential for installation but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 3-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/WRT-2	115/220/440 VAC, 60 HZ Single Phase		2.7 KVA	85% Power Factor

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 3-2

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
AN/WRT-2	1500 WATTS	930 LBS.
MT-2170A/WRT		100 LBS.
TN-342/WRT-2		135 LBS.

TABLE OF MISCELLANEOUS DATA

TABLE 3-3

TABLE 3-4

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1-AN/WRT-2 Serial 1 through 234	0967-073-3060	Mod. of printed circuit boards E-1301 and E-1303	FA-3		
2-AN/WRT-2 Serial 1 through 355	0967-073-3070	Removal of diodes CR-1342 and CR-1343	FA-½		
3-AN/WRT-2 Serial 1 through 289		Cancelled			
4-AN/WRT-2 Serial 1 through 417		Oven insulation and bandswitch replacement	FA-40	RFO Insulation: F5820 856-3451 RFO Bandswitch: F5820-856-3450 EFC Insulation: F5820-856-3449 EFC Bandswitch: F5820-856-3448	Any neoprene coated fiberglass insulation material replaced with clean uncoated fiberglass. This uncoated fiberglass can be detected by the uniform canary yellow color of both sides of the fiberglass as opposed to neoprene coated fiberglass which has one surface of light tan, burnt brownish or black color. The neoprene coating also feels sticky to the touch.

FIELD CHANGE REQUIREMENTS
TABLE 3-4 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
5-AN/WRT-2 Serial: Equipments authorized to use AN/WRA-3 (XN-1) as the exciting unit	981514	Control and drive of of AN/WRT-2 from Transmitter Group (AN/WRA-3 (XN-1)	FA-16		Transmitter-Transfer Control C-4359 (XN-1)/WRT-2 mounted near AN/WRT-2
6-AN/WRT-2	0967-067-3080	Information relative to this change is secret	FA-21	2N5820-884-2120	
7-AN/WRT-2 Serial: All WRT-2's installed in Nuclear Submarines	0967-073-3110	Replacement of thermostatic switches S-305 and S-602	FA-4	F5820-056-7148	New Thermostatic Switches are contained in 4 sided Aluminum capsules mounted in same general area as initially installed switches.
8-AN/WRT-2		Cancelled			
9-AN/WRT-2 RF Tuners TN-342/WRT-2, Serials C1-C4, C6-C13, C15, C16-C20, C22, C26	0967-073-3120	Replace defective Ledex switch actuator B-3303	FA-6	F5820-788-8421	A letter "R" stamped on the exterior of the drive and casting adjacent to pressure gauge M3301.

FIELD CHANGE REQUIREMENTS
TABLE 3-4 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
10-AN/WRT-2 All Serials	0967-050-5080	Relocation of phase splitter capacitor for tuner blower motor	FA-4	None	Blower motor capacitor removed from RF Amp. chassis.
11-AN/WRT-2 Serials 1 through 702, B1 through B151, C1 through C20.	0967-073-3100	Replaces RG-58/U cable with RG-141A/U cable in RF Amplifier AM-2121/WRT-2.	FA-1	F5820-909-3901	Presence of RG-141A/U between C and C882 in RF Amplifier AM-2121
12-AN/WRT-2 Serials 1 through 60	0967-073-3150	Replacement of 90° Phase Shift Network FL-603	FA-2		FL-603 marked with Westing-Dwg. No.3376A439H01
13-AN/WRT-2 Serials 1 through 263	0967-073-3160	AM-2121/WRT-2 Power Amplifier Cathode Current Equilization	FA-4		Four cathode adjust potentiometers located on left side of AN-2121/WRT-2
14-AN/WRT-2 Serials 1 through 154	0967-073-3170	Replacement of Printed Circuit Board E1404 with new Board E1412	FA-1		E1412 the new printed circuit board does not have L1401 and Q1411 mounted on the front right corner.
15-AN/WRT-2 Serials 1 through 263, A1 through A178 D1 through D327	0967-073-3200	Eliminates constant key in the FSK mode	FA-½		Tune transmitter using normal tuning procedure and place Emission Selector switch to FSK position, if transmitter becomes keyed the change has not been accomplished.

FIELD CHANGE REQUIREMENTS
TABLE 3-4 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN#	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
16-AN/WRT-2 Serials All TN/342/WRT-2 Tuners	0967-073-3190	Prevents carbonization damage to tuner coil form caused by melted nylon from unvented guide shoes	FA-½		A 1/32" hole drilled in the guide shoe on the TN/342/WRT-2.
17-AN/WRT-2 All Serial Numbers	0967-073-3180	Coil form improvement	FA-4	2N5820-879 7671	Installation of improved coil form L3302 Alt A.
18-AN/WRT-2 Serials 1 through 122	0967-073-3190	FSK modification	FA-4	2N5820-054-3465	Two potentiometers marked space and mark in AM-2122/WRT-2
19-AN/WRT-2 Serials 1 through 702	0967-073-3210	Replaces transistor Q502 and Resistor R505	FA-1	2N5820-226-3108	Addition of Q502 (2N657) and R505 (39,000) on board E507 in AM-2122/WRT-2
20-AN/WRT-2 Serials 1 through 702, B1 through B151, C1 through C129	0967-073-3220	Frequency Comparator mixer diode replacement on Circuit Board E601	FA-3	2N5820-226-3109	Diodes CR601 through CR604 on Circuit Board E601 are type 1N914.
21-AN/WRT-2 Serials 1 through 444	0967-073-3230	Addition of capacitors C1363 and C1364 on Circuit Board E1301	FA-3	2N5820-226-3112	Added capacitors: C1363 (.01UF) and C1364 (470UUF) on Circuit Board E1301 Electrical Freq. Control C-2764/WRT-2

FIELD CHANGE REQUIREMENTS
TABLE 3-4 (Continued)

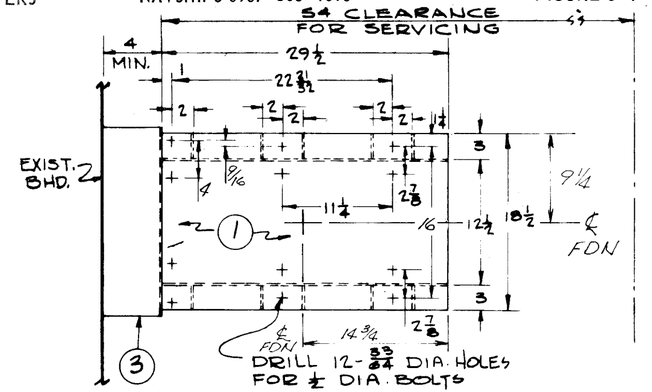
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
22-AN/WRT-2	0967-073-3240	Provides stainless steel mounting clamp assemblies for TN-342/WRT-2 RF Tuners	FA-1		Retainer straps of the clamp assembly are secured with slotted hex head cap screws instead of Allen (hex) head cap screws.
23-AN/WRT-2 All	0967-073-3250	Modification of PA grid bias and screen voltage circuits. Addition of button hole plug.	FA-24		Three zener diodes, 1N3007B and 500 ohm resistor in AM-2122/WRT-2. Four PA bias controls and installation of a button hole plug of AM-2121/WRT-2
1-TN-342/WRT-2 All	EIB 626	Eliminate slipping of shaft on tuner drive assy.	FA-½	FSN for pin KZ5315-221-1207	Presence of tapered pin on output coupling of MP-3301

TABLE 3-4

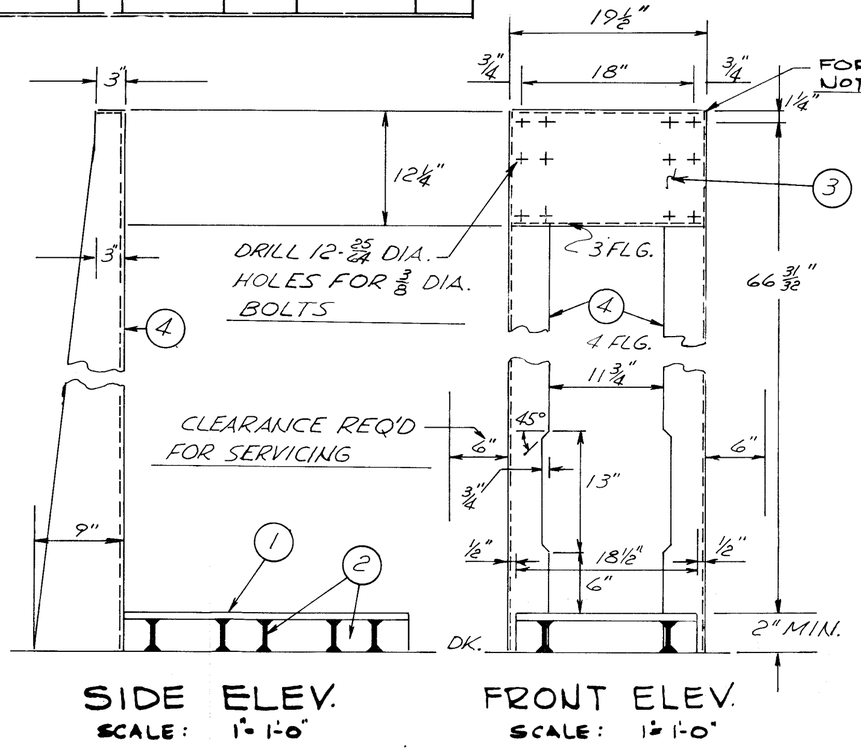
FIELD CHANGE REQUIREMENTS
TABLE 3-4

LIST OF MATERIAL - QUANTITIES FOR *ONE FDN*

PIECE NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS	SHOP ROUTING
1	BED PLATE	1	MED. STL.	MIL-S-16113	20.4* PLT.	
2	CHOCKS	12	MED. STL.	MIL-S-16113	10.2* PLT.	
3	HEAD PLATE	1	MED. STL.	MIL-S-16113	10.2* PLT.	
4	UPRIGHT	2	MED. STL.	MIL-S-16113	10.2* PLT.	
1	BED PLATE	1	AL A	MIL-A-19842, ½ THK		
2	CHOCKS	12	↓	↓	¼" THK	
3	HEAD PLATE	1			¼" THK	
4	UPRIGHT	2			¼" THK	

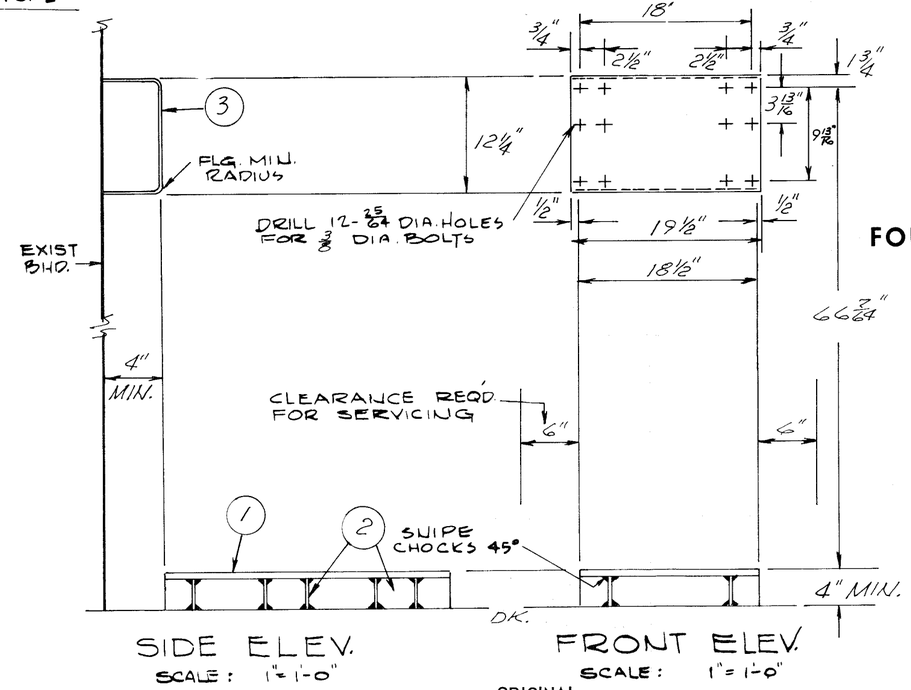


PLAN VIEW: DRILLING PATTERN FOR AN/WRT-2
SCALE 1"=1'-0"

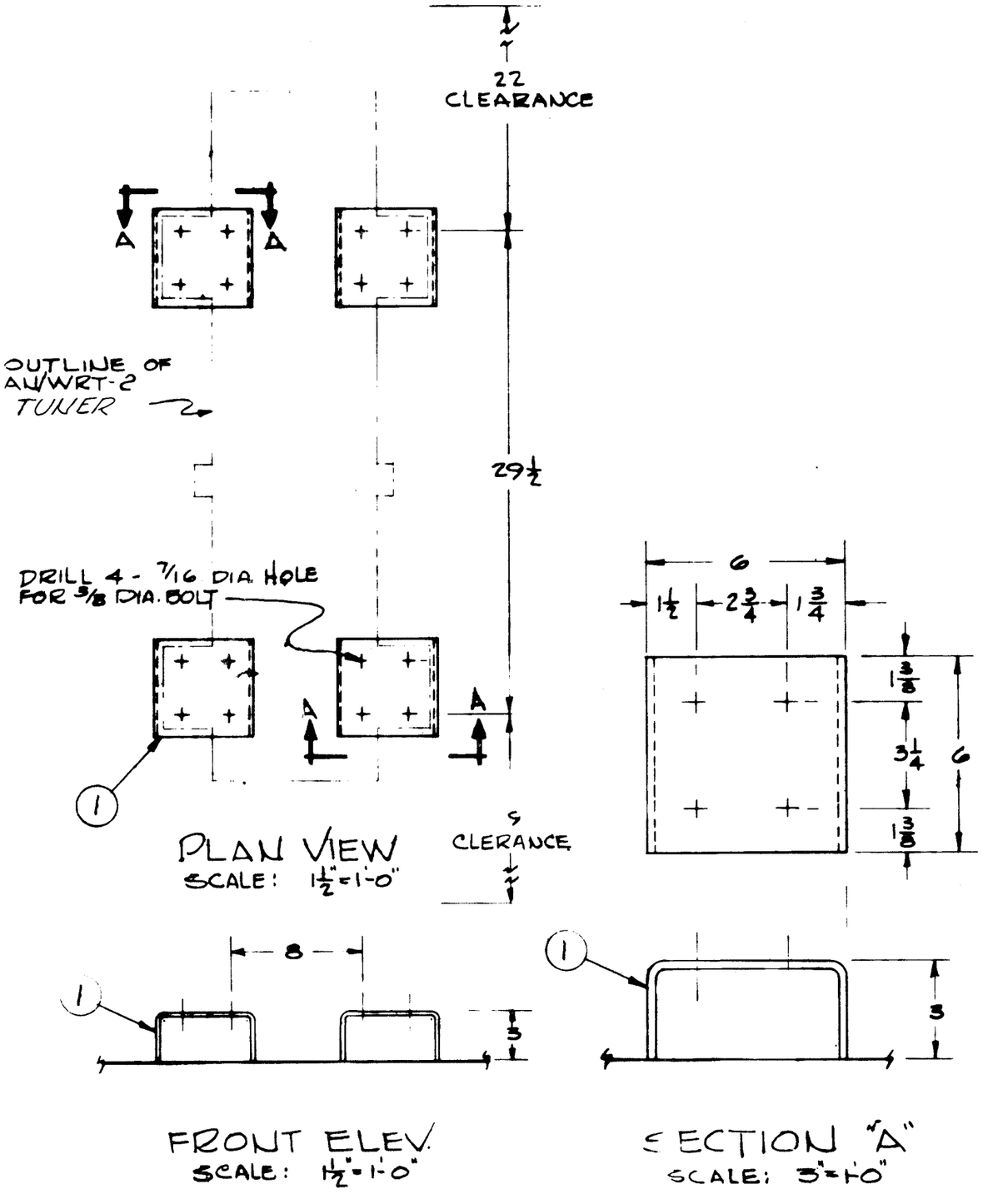


AN/WRT-2 FREE STANDING INSTALLATION

AN/WRT-2 BULKHEAD INSTALLATION



AN/WRT-2 TYPICAL FOUNDATION DETAILS FIGURE 3-1



LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION					
PIECE NO.	NAME	NO. REQ'D.	MATERIAL	MT'L SPEC.	REMARKS
1	PAD	4	STEEL	Mil-S-16113	10.2 #Plt.

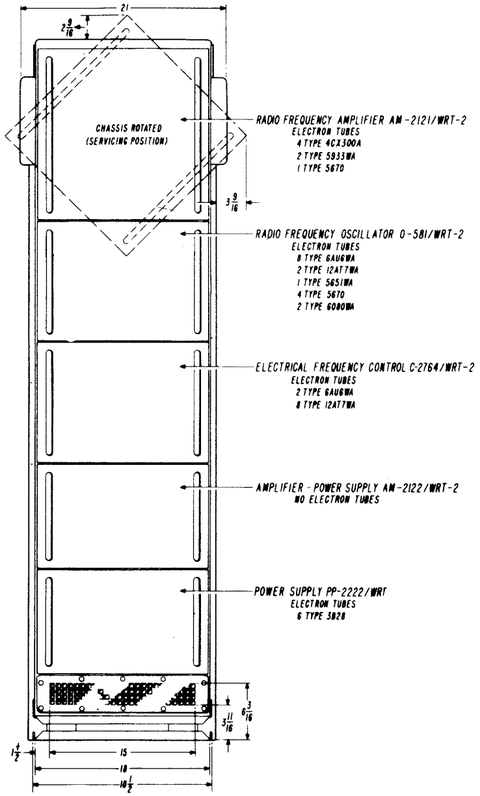
SPECIAL NOTES

1. ALL WELDS TO BE 100%
2. UNITS MAY BE MOUNTED EITHER VERTICALLY OR HORIZONTALLY

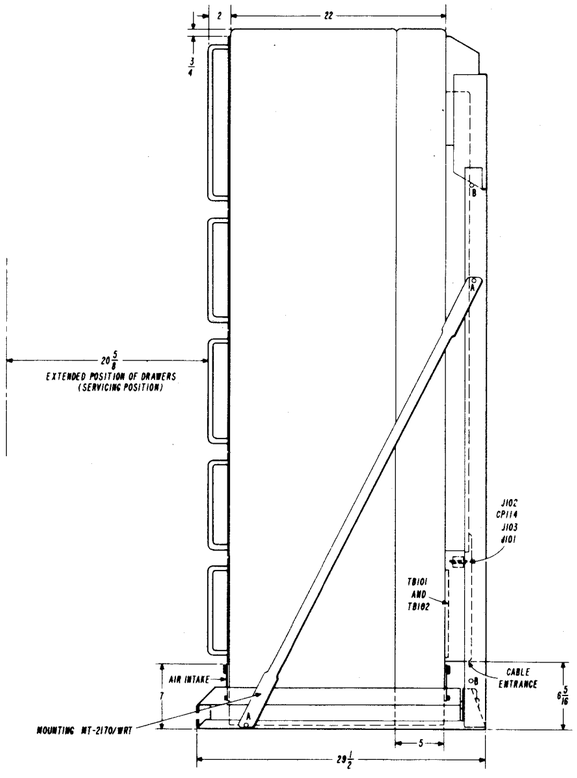
TN-342/WRT-2 RADIO FREQUENCY TUNER

TYPICAL FOUNDATION DETAILS

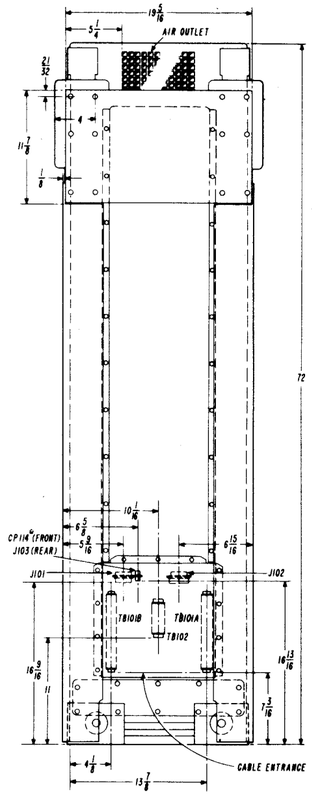
FIGURE 3-2



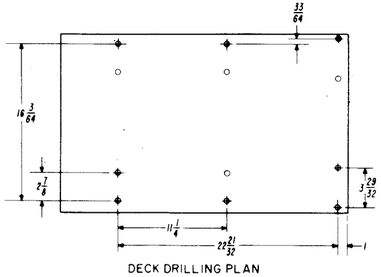
FRONT VIEW



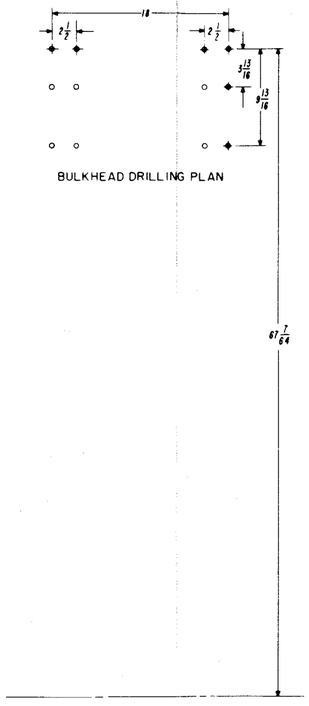
RIGHT SIDE VIEW



REAR VIEW



DECK DRILLING PLAN

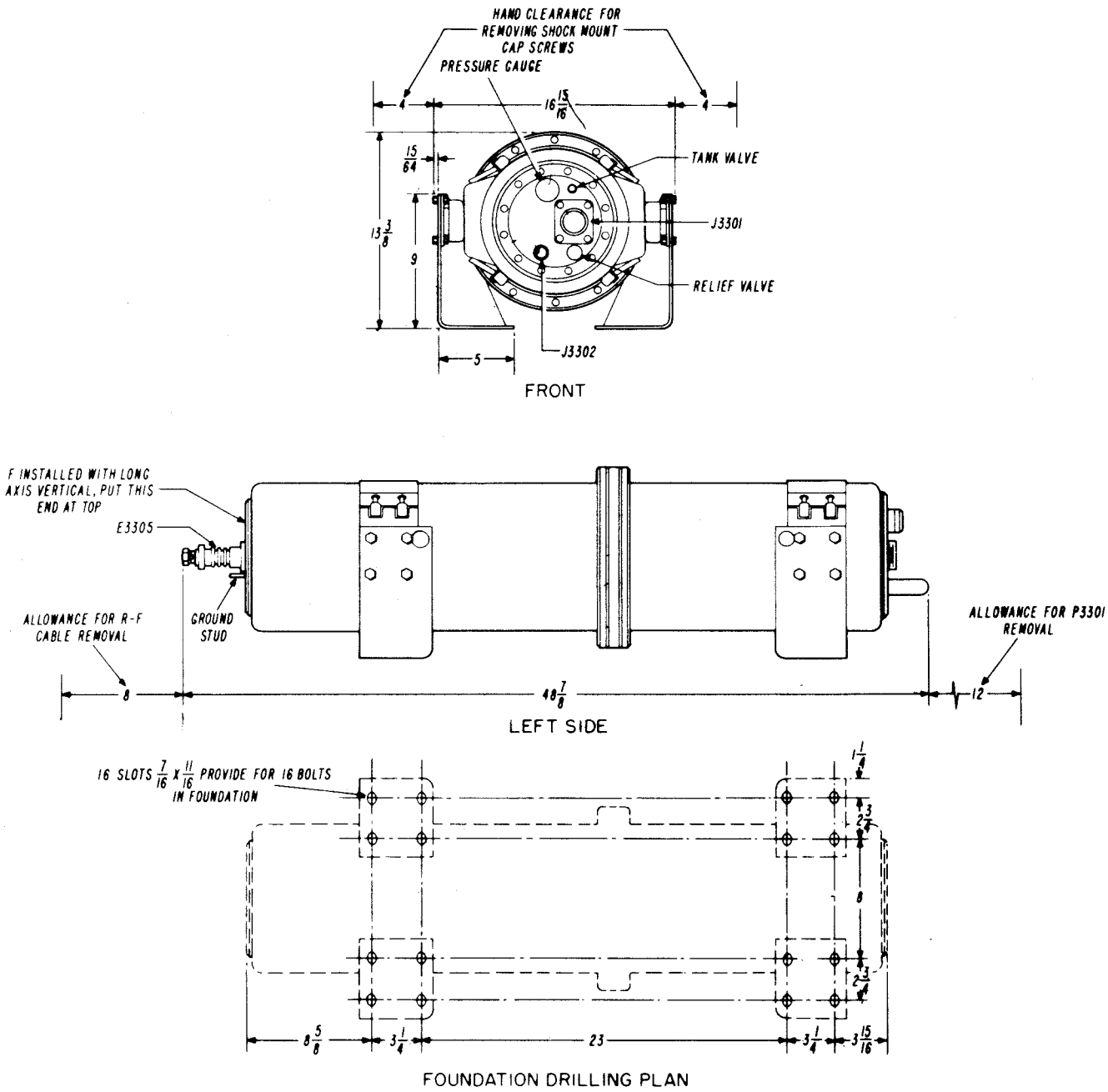


BULKHEAD DRILLING PLAN

AN/WRT-2 RADIO TRANSMITTER

OUTLINE AND MOUNTING DIMENSIONS

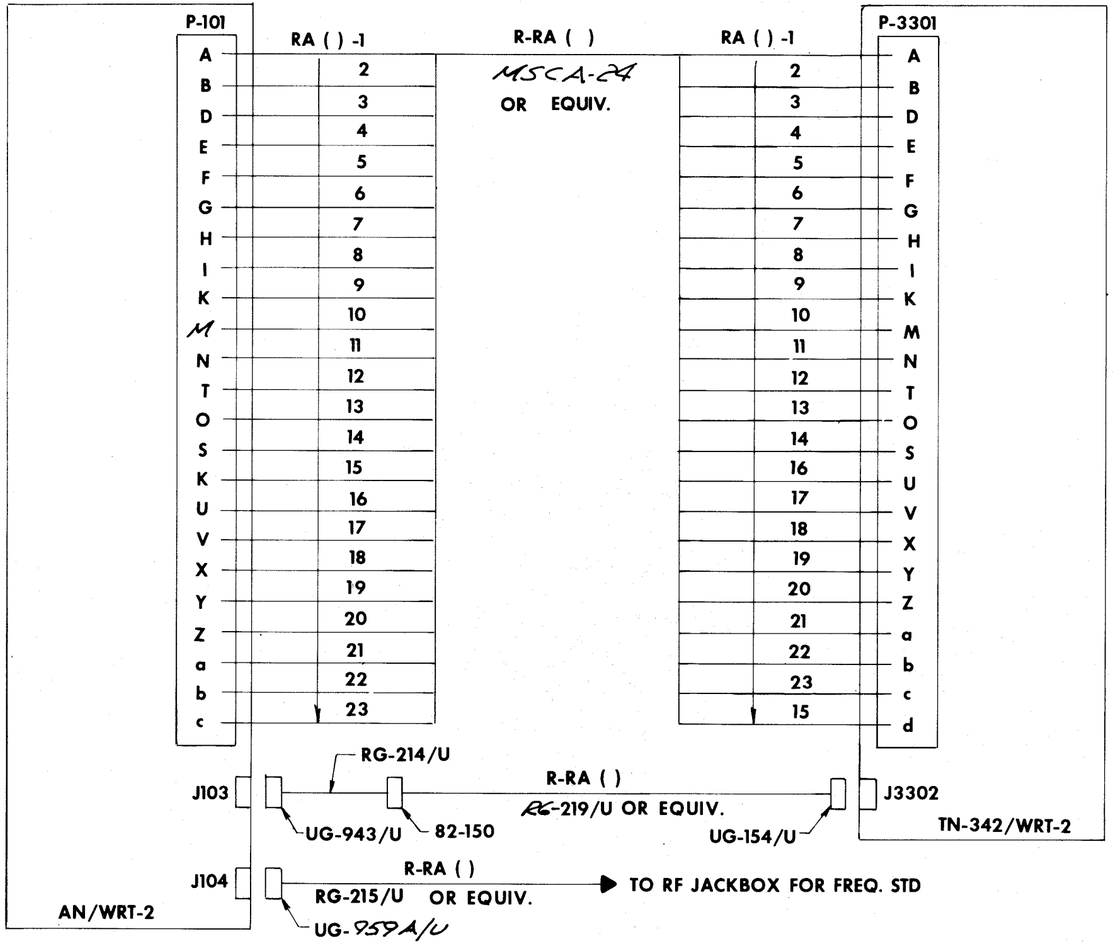
FIGURE 3-3



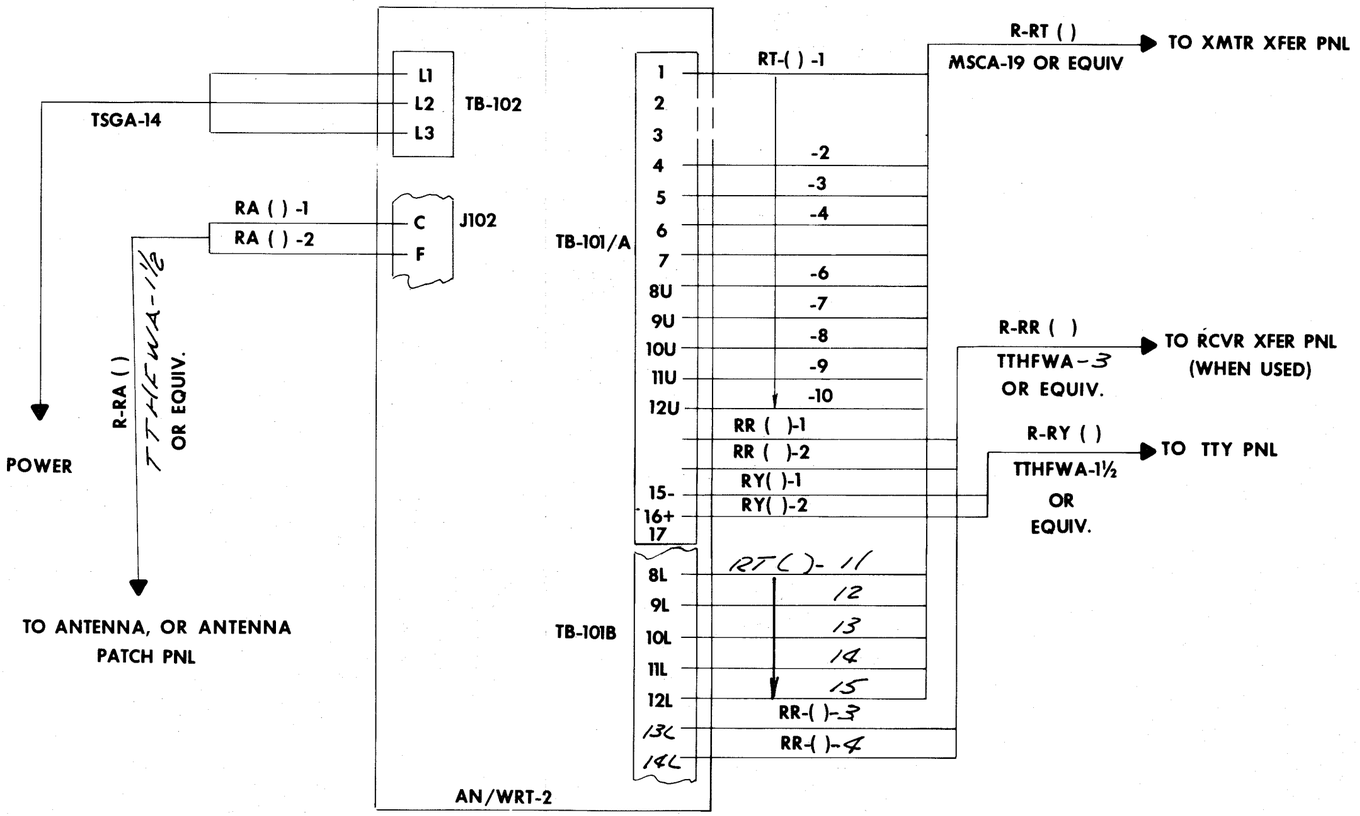
TN-342/WRT-2 RADIO FREQUENCY TUNER

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 3-4



AN/WRT-2 XMTR ANT. CONN.



AN/WRT-2 TRANSMITTER
CABLE DIAGRAM
FIGURE 3-5

SECTION 4 - ANTENNA COUPLERS

4.1 AN/SRA-13, 14, & 15 GENERAL DESCRIPTION

a. The AN/SRA-13, 13A, and 13B antenna coupler group is capable of coupling four transmitters with output power up to 500 watts each into a single broadband antenna. Each transmitter operating with a coupler group must be set to operate at channels spaced at least 10 percent from any other frequency in the group. Each coupler operates over a frequency range of 2 to 6 megacycles. The AN/SRA-13A group is electrically and mechanically interchangeable with antenna coupler group AN/SRA-13; internal components parts differ. The AN/SRA-13B is electrically and physically interchangeable with AN/SRA-13 and AN/SRA-13A except that the components comprising the redesigned area of the AN/SRA-13B are not interchangeable with corresponding components of the AN/SRA-13 and AN/SRA-13A.

b. The AN/SRA-14, 14A, and 14B antenna coupler group is capable of coupling four transmitters with output power up to 500 watts each into a single broadband antenna. Each transmitter operating with a coupler group must be set to operate at channels spaced at least 10 percent from any other frequency in the group. Each coupler operates over a frequency range of 4 to 12 megacycles. The AN/SRA-14A group is electrically and mechanically interchangeable with antenna coupler group AN/SRA-14; internal components parts differ. The AN/SRA-14B is electrically and physically interchangeable with AN/SRA-14 and AN/SRA-14A except that for component parts compressing the redesigned area. The AN/SRA-14B has been redesigned so that meters and toggle switches provide incident power information as well as reflected power data.

c. The AN/SRA-15, 15A, and 15B antenna coupler group is capable of coupling four transmitters with output power up to 500 watts each into a single broadband antenna. Each transmitter operating with a coupler group must be set to operate at channels spaces at least 10 percent from any other frequency in the group. Each coupler operates over a frequency range of 6 to 18 megacycles. The AN/SRA-15A group is electrically and mechanically interchangeable with antenna coupler group AN/SRA-15; internal components parts differ. The AN/SRA-15B is electrically and physically interchangeable with AN/SRA-15 and AN/SRA-15A except that for component parts compressing the redesigned area. The AN/SRA-15B has been redesigned so that meters and toggle switches provide incident power information as well as reflected power data.

4.2 REFERENCE DATA

a. Table of Technical Publications - Table 4-1
b. Primary Power Requirements - Table 4-2
c. Heat Dissipation - Table 4-3
d. Unit Weight - Table 4-3

4.3 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/SRA-13, 14, and 15 are designed for mounting in an upright position on the deck. See Figure 4-1 for typical foundation details. Make certain that the cabinet is level to ensure smooth working control shafts. Clearance of 24 inches is required at front of multicoupler for removal of drawer assemblies, 15 inches is required at right side for connection of matching network, and 3 inches is required at left side for ventilation.

b. Outline and Mounting Dimensions - Figure 4-2.

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 4-1, Item No. 2.

4.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 4-3.

b. Electronics Installation and Maintenance Standards - To be in accordance with Table 4-1, Item No. 7.

c. Security Requirements - To be in accordance with Table 4-1, Item No. 9

4.5 FIELD CHANGE REQUIREMENTS - See Table 4-1 Item No. 7.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0280-381-6006	Technical Manual for Antenna Coupler Groups AN/SRA-13, 13A, 13B, 13C, AN/SRA-14, 14A, 14B, 14C, and AN/SRA-15, 15A, 15B, and 15C.
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	0967-177-3030	Shipboard Antenna Systems Volume 3 Multicoupler Systems
4	*RE-F2687921	Outline and Mounting Data
5	*RE-F2687922	Pictorial System Diagram
6	*RE-C2687931	Primary Power Distribution Diagram
7	0967-000-0000	Electronics Installation and Maintenance Books
8	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
9	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing System.

*These plans are not essential for installation, but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

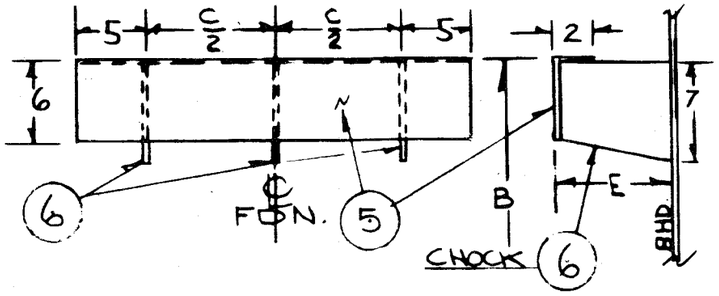
TABLE 4-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/SRA-13 AN/SRA-14 AN/SRA-15	115 VAC, 60 HZ, Single Phase		345 Watts	Power - Maximum on Standby

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 4-2

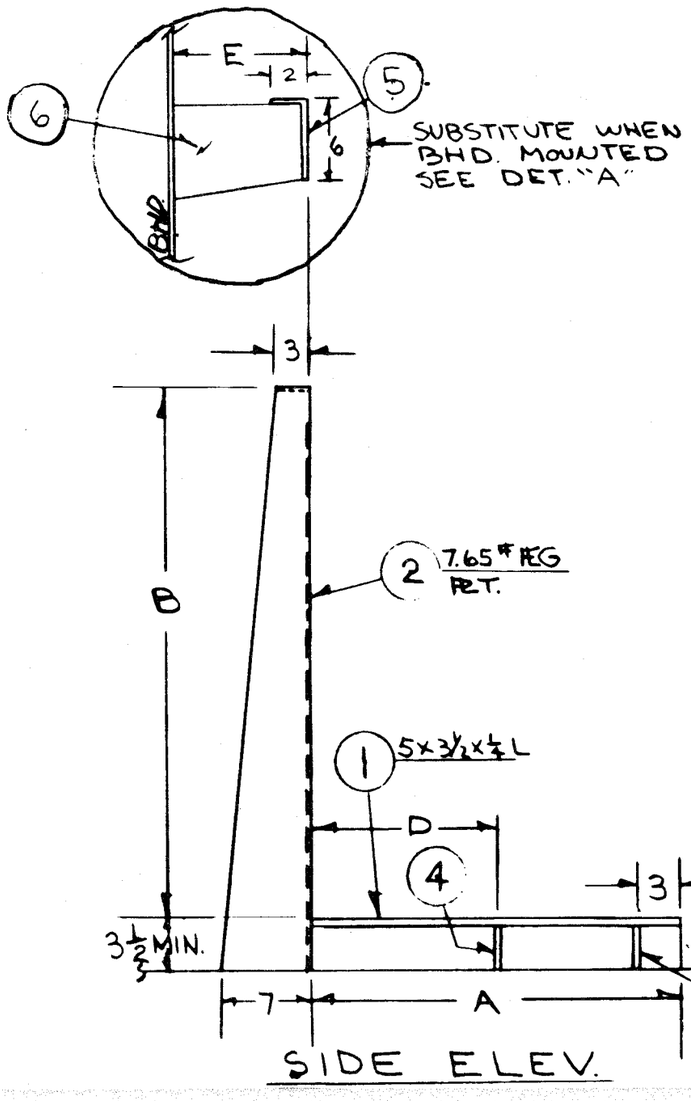
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
AN/SRA-13	310 WATTS	306 LBS.
AN/SRA-14	310 WATTS	280 LBS.
AN/SRA-15	310 WATTS	276 LBS.

TABLE OF MISCELLANEOUS DATA
TABLE 4-3



DETAIL "A"

ONLY FOR BHD. MOUNT.
USE IN LIEU OF PCS.* 2 & *3
WITH PCS.* 1 & *4



LIST OF MATERIAL-QUANTITIES FOR ONE SHIP

Piece No.	NAME	No. Req'D	MATERIAL	Mt'l Spec.	Remarks
1	5X3½X¼ Angle	2	M. Stl.	Mil-S-20166	
2	7.65# Plt.	2	M. Stl.	Mil-S-16113	
3	7.65# Plt.	1	M. Stl.	Mil-S-16113	
4	7.65# Plt.	4	M. Stl.	Mil-S16113	
5	7.65# Plt.	1	M. Stl.	Mil-S-16113	Bhd. Mtg. Only
6	7.65# Plt.	3	M. Stl.	Mil-S-16113	Bhd. Mtg. Only

NOTES:

1. All variable dimensions and type of foundation to be specified on location.

2. Foundation for AN/SRA-16 to be as follows:

   a. Dimension "A" = 26"
   b. Dimension "B" = 39½"
   c. Dimension "C" = 17½"
   d. Dimension "D" = 13¼"
   e. Dimension "E" = A/R

3. Foundation for AN/SRA-13, 14, and 15 to be as follows:

   a. Dimension "A" - 20"
   b. Dimension "B" = 46½"
   c. Dimension "C" = 14½"
   d. Dimension "D" = 10"
   e. Dimension "E" = A/R

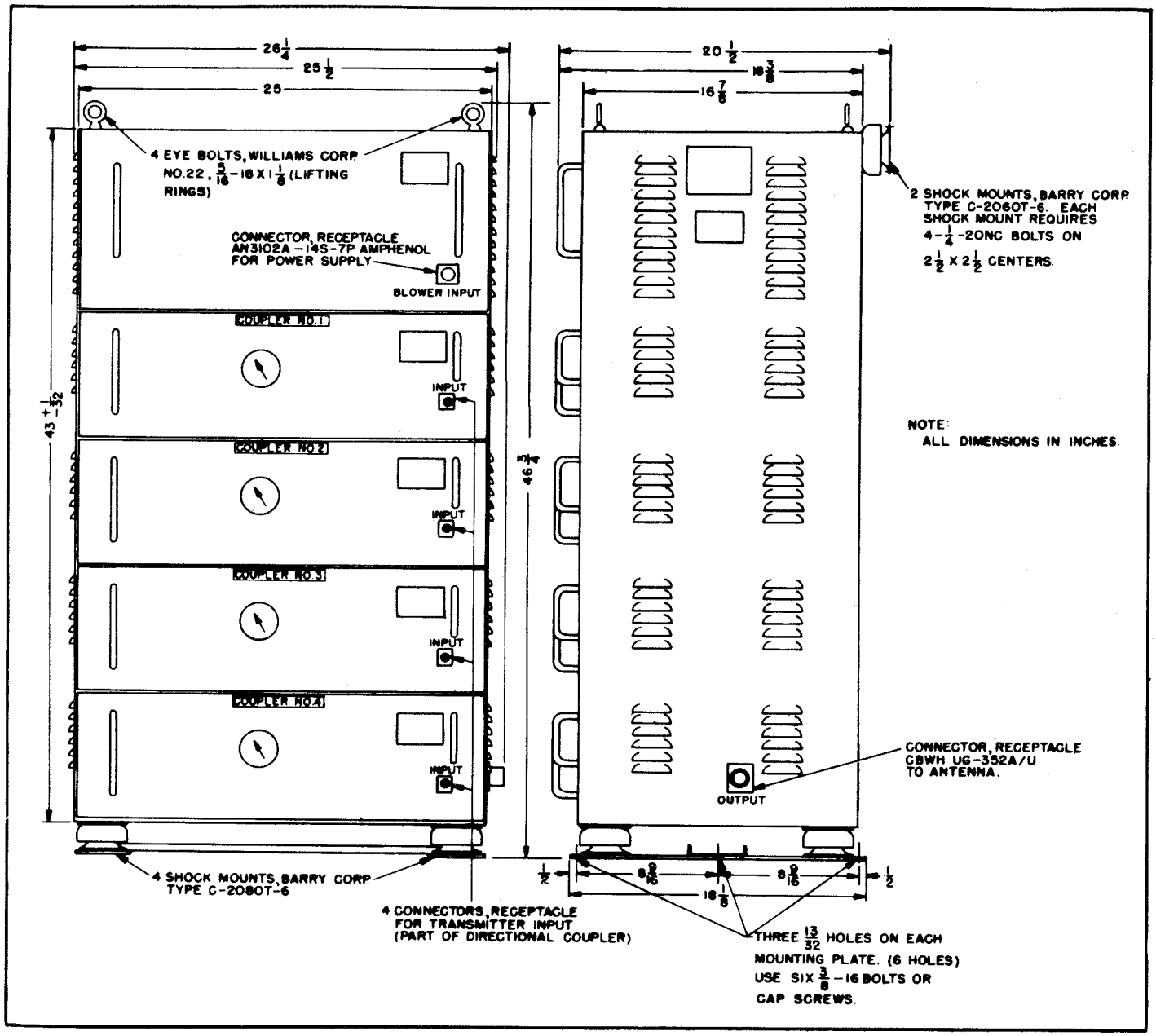
4. Size and location of mounting bolts for unit to be taken from equipment.

AN/SRA-13, 14, 15, & 16

ANTENNA COUPLER GROUP

TYPICAL FOUNDATION DETAILS

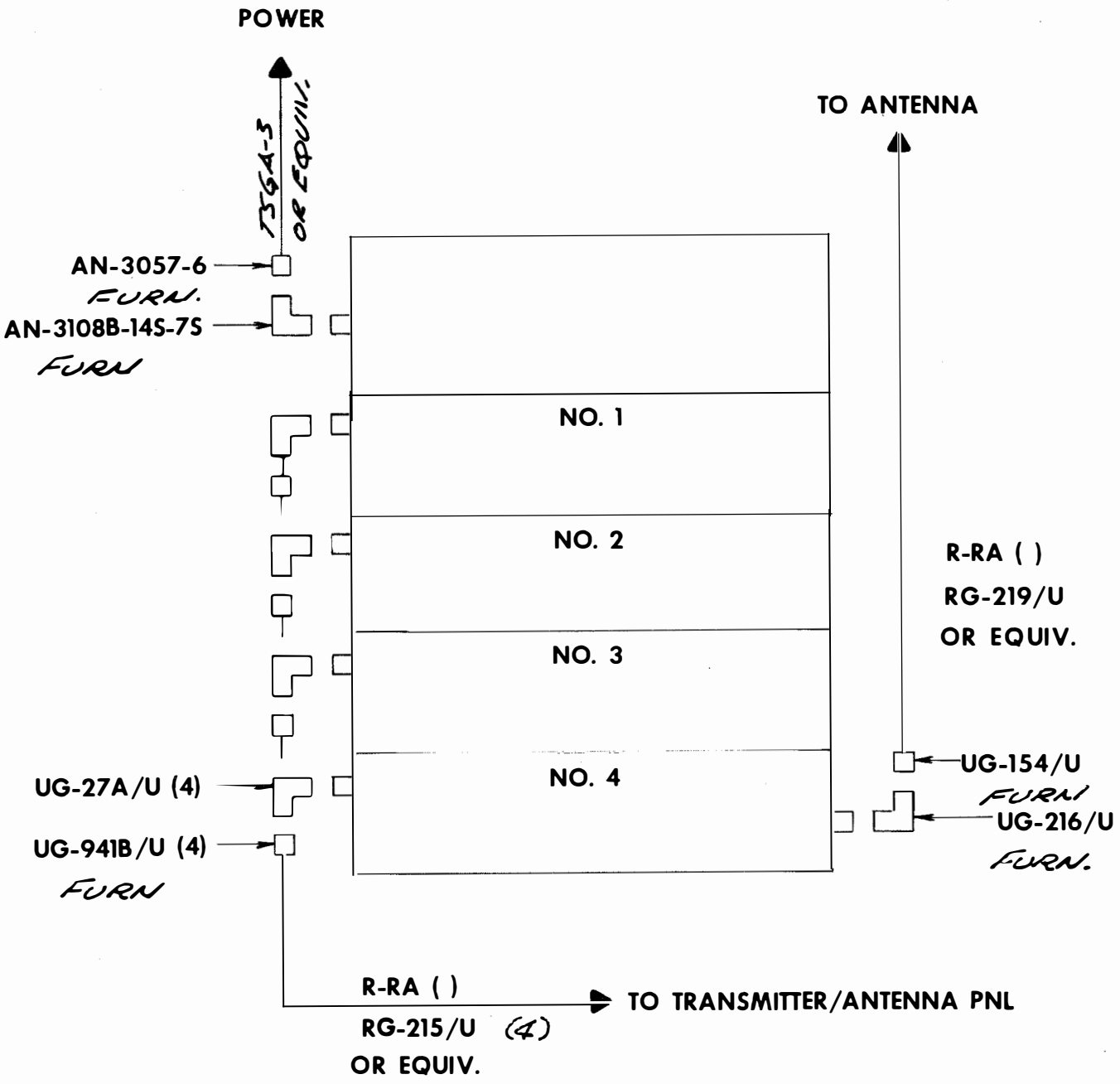
FIGURE 4-1



AN/SRA-13, 14, AND 15

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 4-2



AN/SRA-13, 14, AND 15 ANTENNA COUPLERS CABLE DIAGRAM

FIGURE 4-3

SECTION 4 - ANTENNA COUPLERS

4.6 AN/SRA-16 GENERAL DESCRIPTION

The AN/SRA-16, 16A, 16B antenna coupler group is capable of coupling four transmitters into a single broadband antenna. The principal function of this equipment is to provide an efficient means for operating several transmitters having an output power up to 500 watts into a single broadband antenna. Each transmitter operating with a coupler group must be set to operate at channels spaced at least 10 percent from any other frequency in the group. Each coupler operates over a frequency range of from 9 - 26 megacycles, in three steps, under control of a band switch which selects either the 9 - 12 megacycles range, the 12 - 18 megacycles range or the 18 - 26 megacycles range. The AN/SRA-16A group is electrically and mechanically interchangeable with antenna coupler group AN/SRA-16; internal components parts differ. The AN/SRA-16B group is electrically and physically interchangeable with AN/SRA-16 and AN/SRA-16A except for component parts of redesigned area. The AN/SRA-16B has been redesigned so that meters and toggle switches provide incident power information as well as reflected power data.

4.7 REFERENCE DATA

a. Table of Technical Publications - Table 4-4
b. Primary Power Requirements - Table 4-5
c. Heat Dissipation - Table 4-6
d. Unit Weight - Table 4-6

4.8 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/SRA-16 is designed for mounting in an upright position on the deck. See Figure 4-1 for typical foundation details. Make certain that the cabinet is in a level position to insure smooth working control shafts. Clearance of 30 inches is required at front of multicoupler for removal of drawer assemblies, 15 inches is required at right side for connection of transmission line and 3 inches is required at left side for ventilation.

b. Outline and Mounting Dimensions - Figure 4-4.
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 4-4, Item No. 2.

4.9 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 4-5.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 4-4, Item No. 5.
c. Security Requirements - To be in accordance with Table 4-4, Item No. 7.

4.10 FIELD CHANGE REQUIREMENTS - See Table 4-4 Item No. 5.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0280-401-6003	Technical Manual for Antenna Coupler Groups AN/SRA-16 and AN/SRA-16A
2	Mil. Std. 1310 (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-F2687920	Pictorial System Diagram
4	*RE-F2697919	Outline and Mounting Data
5	0967-000-0000	Electronics Installation and Maintenance Books
6	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
7	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing System

*These plans are not essential for installation, but if available, use as reference.

TABLE OF TECHNICAL PUBLICATIONS

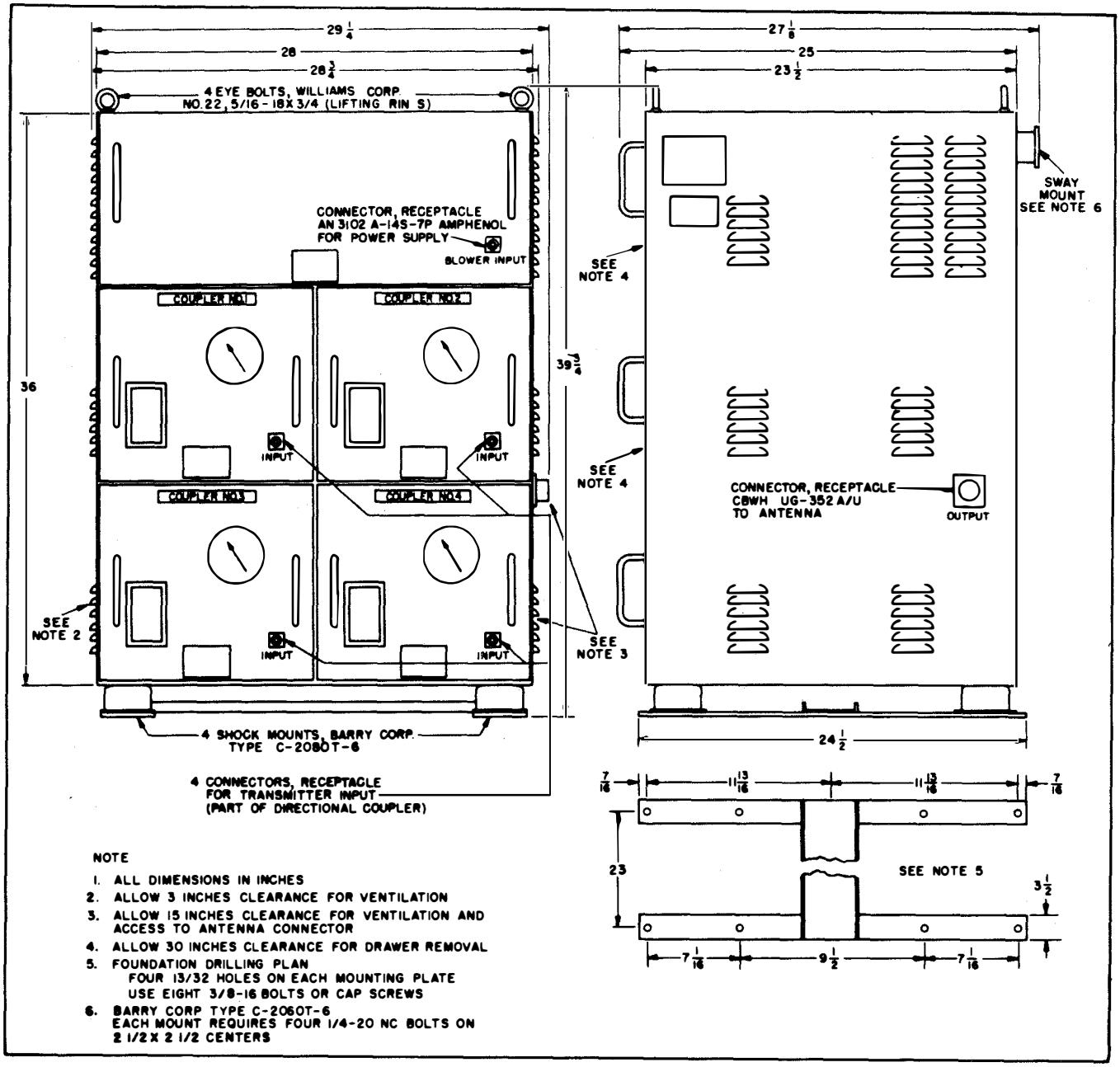
TABLE 4-4

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/SRA-16 and AN/SRA-16A	115 VAC, 60 Hz, Single Phase		345 Watts	Maximum power on standby

TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 4-5

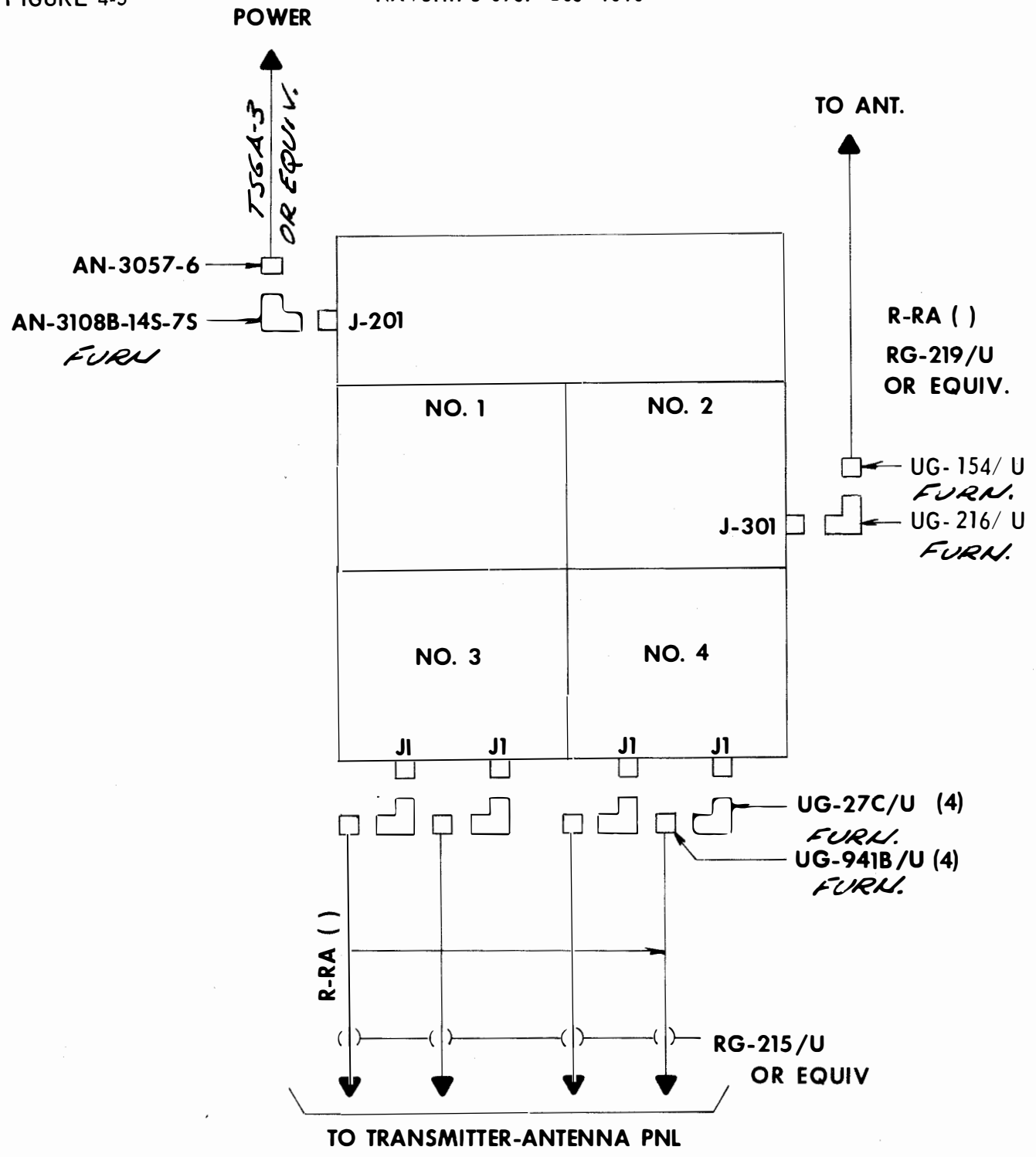
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/SRA-16 and AN/SRA-16A	310 Watts	320 Lbs.	

TABLE OF MISCELLANEOUS DATA
TABLE 4-6



AN/SRA-16 OUTLINE AND MOUNTING DIMENSIONS

FIGURE 4-4



AN/SRA-16 ANTENNA COUPLER
CABLE DIAGRAM
FIGURE 4-5

SECTION 5 - FACSIMILE

5.1 AN/UXH-2 GENERAL DESCRIPTION

The AN/UXH-2 is a continuous page facsimile recorder designed to make a succession of direct recordings of weather maps, tactical graphic information, sketches, typewritten, printed, or handwritten data, transmitted over land lines or radio. When receiving from a transmitter which sends the proper control signals, the AN/UXH-2 will operate automatically. The unit will automatically phase, start recording at the beginning of a transmission, stop when the transmission is complete, and compensate for changes in signal level during the recording, thus permitting long periods of unattended operation. The unit can be operated manually when receiving from any transmitter having characteristics compatible with the recorder.

5.2 REFERENCE DATA

a. Table of Technical Publications - Table 5-1
b. Primary Power Requirements - Table 5-2
c. Heat Dissipation - Table 5-3
d. Unit Weight - Table 5-3

5.3 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/UXH-2 recorder is designed for installation on a shelf type foundation. See Figure 5-1 for typical foundation details. Be sure that there are sufficient clearances for ease of operation and maintenance, and that there is at least 12 inches between the rear of the cabinet and the bulkhead or other equipments to ensure adequate ventilation and to permit the recorded paper to fall freely behind the unit. If the 10 foot long (hose 3" or 3 1/2" dia.) exhaust hose will be used instead of the activated carbon exhaust filter, the equipment should be near an opening in the bulkhead through which the hose can be passed. When the equipment is shipped from the factory, a canister containing activated carbon is mounted on the rear wall of the cabinet to filter the air as it is evacuated from the recording area by the blower unit. If preferred, an extension hose (supplied) may be used instead of the carbon to emit the evacuated air.

b. Outline and Mounting Dimensions - Figure 5-2.

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 5-1, Item No. 2.

5.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 5-3.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 5-1, Item No. 4.
c. Security Requirements - To be in accordance with Table 5-1, Item No. 6.

5.5 FIELD CHANGE REQUIREMENTS - See Table 5-1 Item No. 4.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-098-7010 0967-098-7013	Technical Manual for Facsimile Recorder Set AN/UXH-2
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	* RE-D2692394	Outline and Mounting
4	0967-000-0000	Electronics Installation and Maintenance Books
5	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
6	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 5-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
AN/UXH-2	115/230 VAC, 45-65 HZ Single Phase		275 WATTS	

TABLE OF PRIMARY POWER REQUIREMENTS

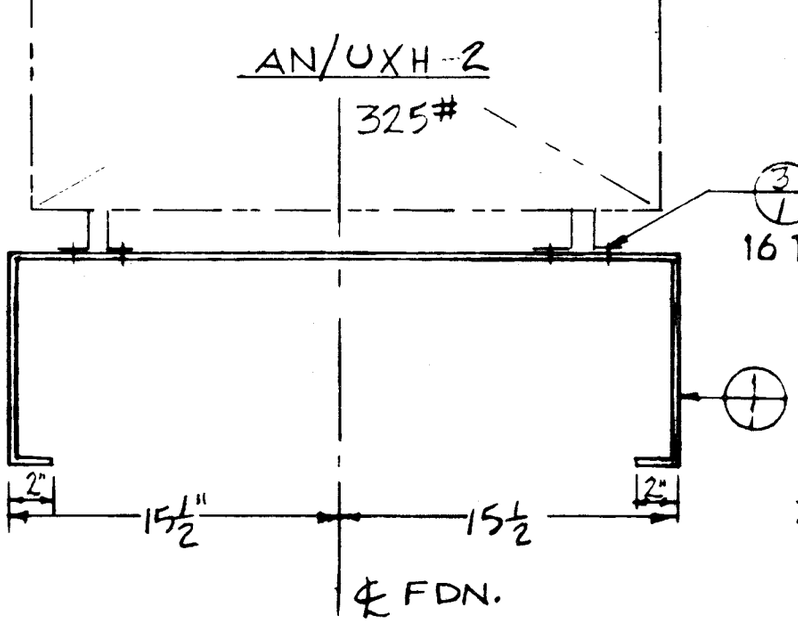
TABLE 5-2

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/UXH-2	275 WATTS	214 LBS.	

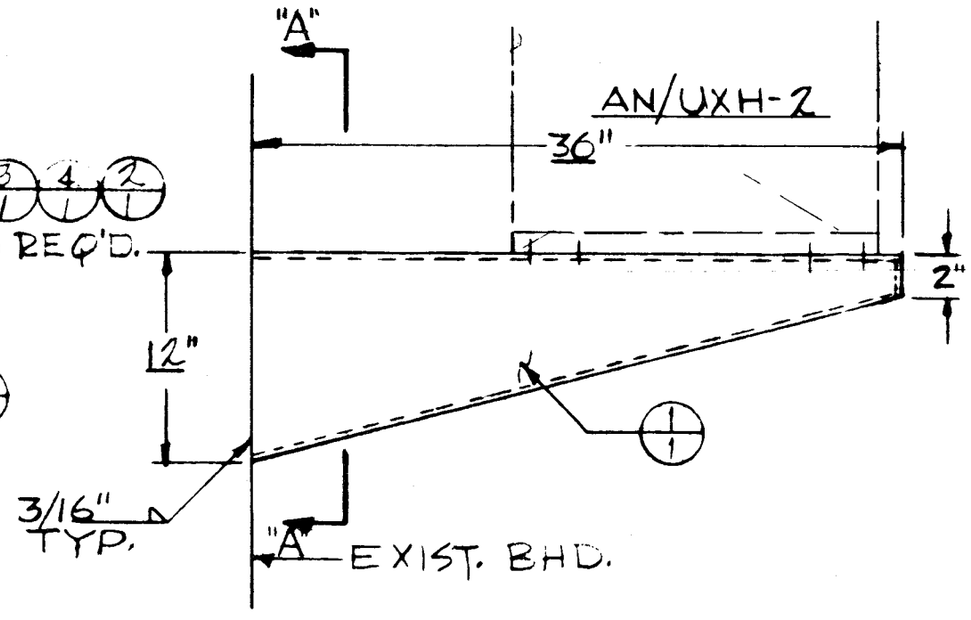
TABLE OF MISC. DATA

TABLE 5-3

LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION				
PIECE NO.	NAME	NO. REQ'D	MATERIAL	FEDERAL STOCK NO.
1	7.65 #Plt.	1	M.S.	9515-237-5333
2	Bolt	16	M.S.	
3	NUT	16	M.S.	
4.	Washer	16	M.S.	
1	¼" Plt.	1	ALUM.	9535-542-2643



FRONT ELEV.-"A-A"
SCALE-1½"=1'-0"

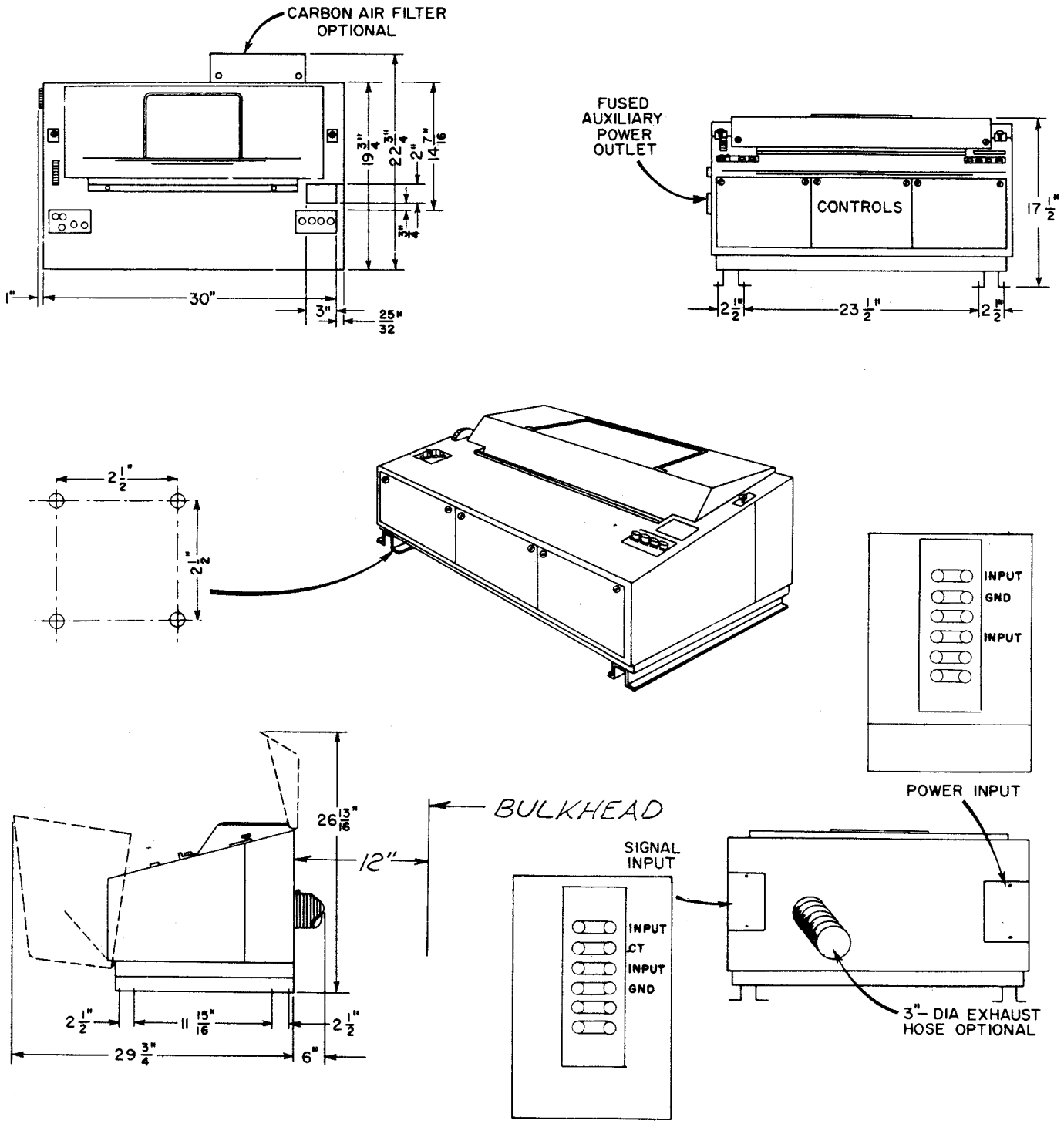


SIDE ELEVATION
SCALE-1½"=1'-0"

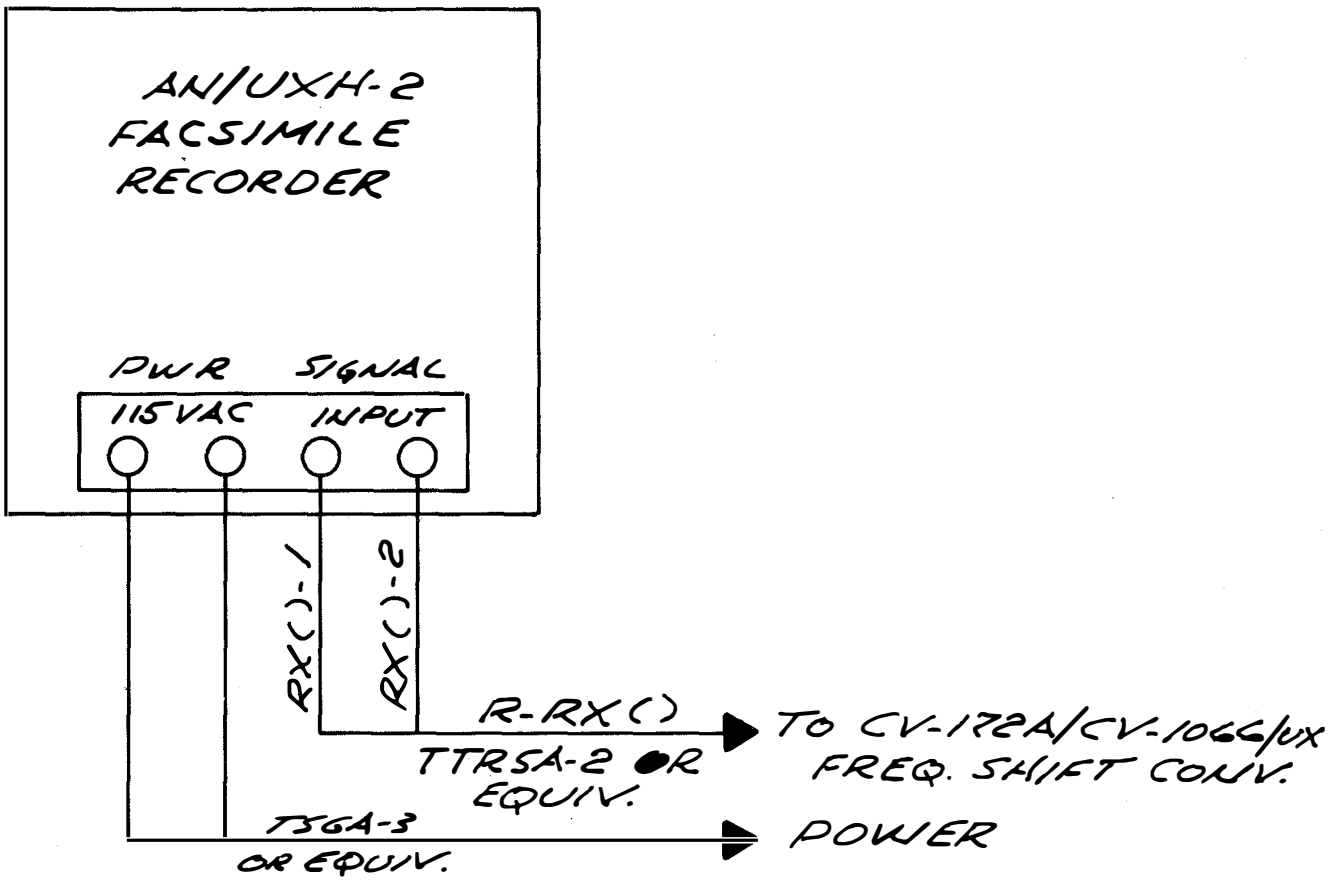
AN/UXH-2

TYPICAL FOUNDATION DETAILS

FIGURE 5-1



AN/UXH-2
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 5-2



AN/UXH-2

FACSIMILE RECORDER

CABLE DIAGRAM

FIGURE 5-3

SECTION 6 - SECURITY EQUIPMENT

6.1 TSEC/KW-7 GENERAL DESCRIPTION

The TSEC/KW-7 is an on-line, half duplex, teletypewriter security equipment for point-to-point or netted single channel HF, VHF, UHF, and wire circuits.

6.2 REFERENCE DATA

a. Table of Technical Publications - Table 6-1.
b. Primary Power Requirements - Table 6-2
c. Heat Dissipation - Table 6-3
d. Unit Weight - Table 6-3

6.3 INSTALLATION REQUIREMENTS

a. Arrangements - The TSEC/KW-7 may be installed in a standard 19 inch rack or on a shelf type foundation or similar flat surface of adequate strength. See Figure 6-1 for typical foundation details. Mounting brackets are supplied with TSEC/KW-7 for installing in a standard 19 inch rack. The KWL-4/TSEC loop adapter should be installed as close as possible to TSEC/KW-7 because the interconnecting cables W-21 W-22 are furnished. These cables are 8 foot long and are not to be cut to a shorter length. The KWX-8/TSEC remote unit, if used, should be installed adjacent to the associated teletype position.

b. Outline and Mounting Dimensions on Figure 6-2.

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 6-1, item No. 1.

6.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 6-3

b. Electronics Installation and Maintenance Standards - To be in accordance with Table 6-1 Item No. 6.

c. Security Requirements - To be in accordance with Table 6-1 Item No. 5.

6.5 FIELD CHANGE REQUIREMENTS - None.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
2	*RE-F-2692637	Outline and Mounting Data
3	*RE-F-2692641	External Connections
4	RE-F-2692660	Outline and Mounting Data
5	NAVSHIPS INST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
6	0967-000-0000	Electronics Installation and Maintenance Books

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 6-1

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
TSEC/KW-7	115/230 VAC, 50, 60, or 400 HZ, or 24VDC, Single Phase		300 Watts Starting 75 Watts Running	

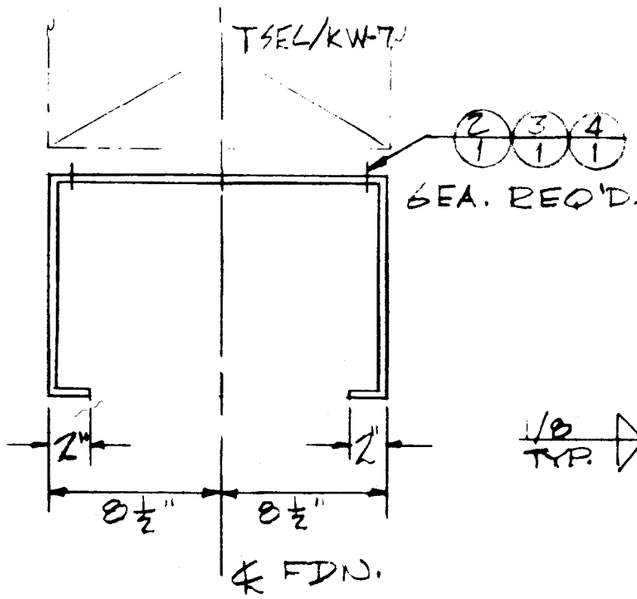
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 6-2

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
TSEC/KW-7	75 Watts	75 LBS.
KWF-1/TSEC		8 LBS.
KWL-4/TSEC		3 LBS.
KWX-8/TSEC		3 LBS.

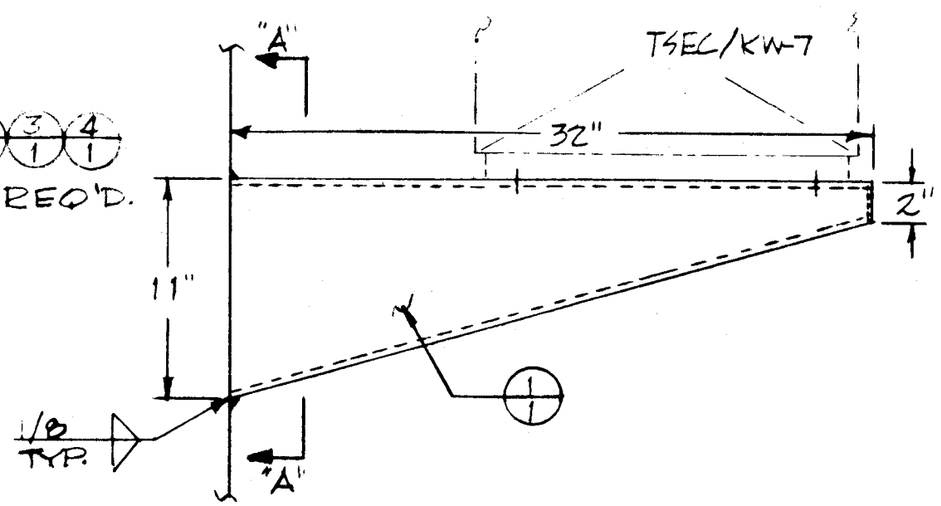
TABLE OF MISCELLANEOUS DATA
TABLE 6-3

LIST OF MATERIAL—QUANTITIES FOR ONE FDN

PIECE NO.	NAME	NO. REQ'D	MATERIAL	MTL SPEC.	REMARKS	SHOP ROUTING
				FED.	STOCK NO.	
1	7.65# FLT.	1	M.S.	9515	237-5333	
2	3/8" HEX. HD. BOLT	6	STEEL	5306	270-9424	
3	3/8" HX. HD. NUT	6	"	5310	637-2054	
4	3/8" LK. WASH.	6	"	5310	011-0730	
1	1/4" PLT.	1	ALUM.	9535	542-2643	

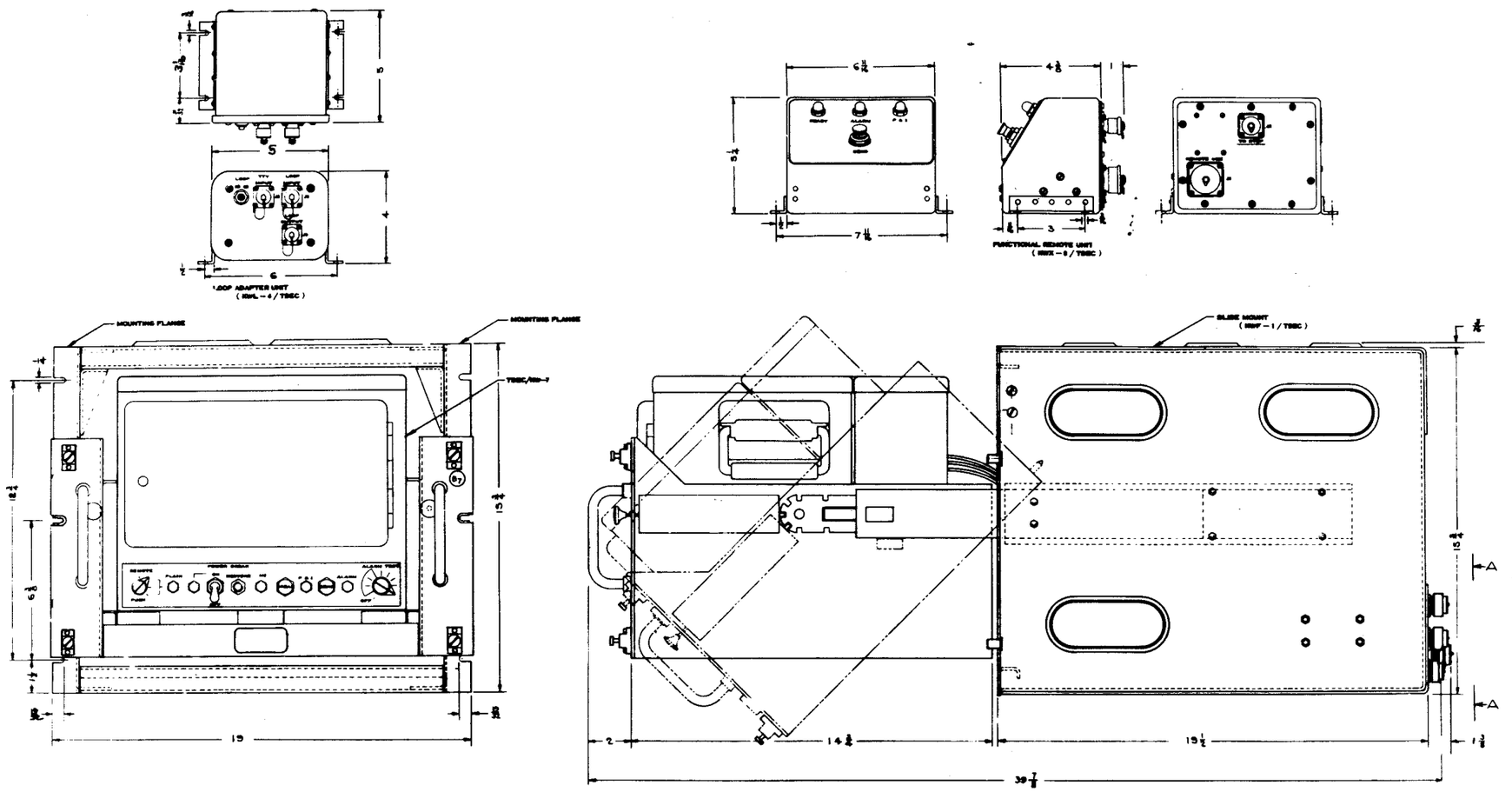


FRONT ELEV. - "A-A"

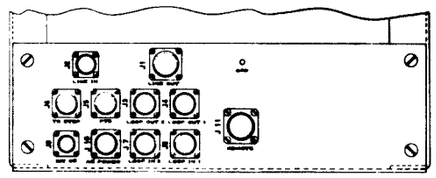


SIDE ELEVATION

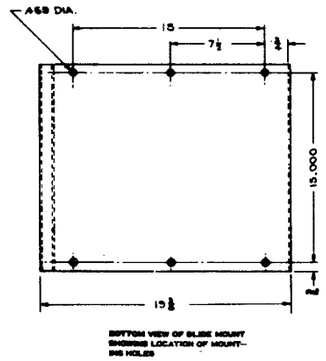
TSEC/KW-7
TYPICAL FOUNDATION DETAILS
FIGURE 6-1



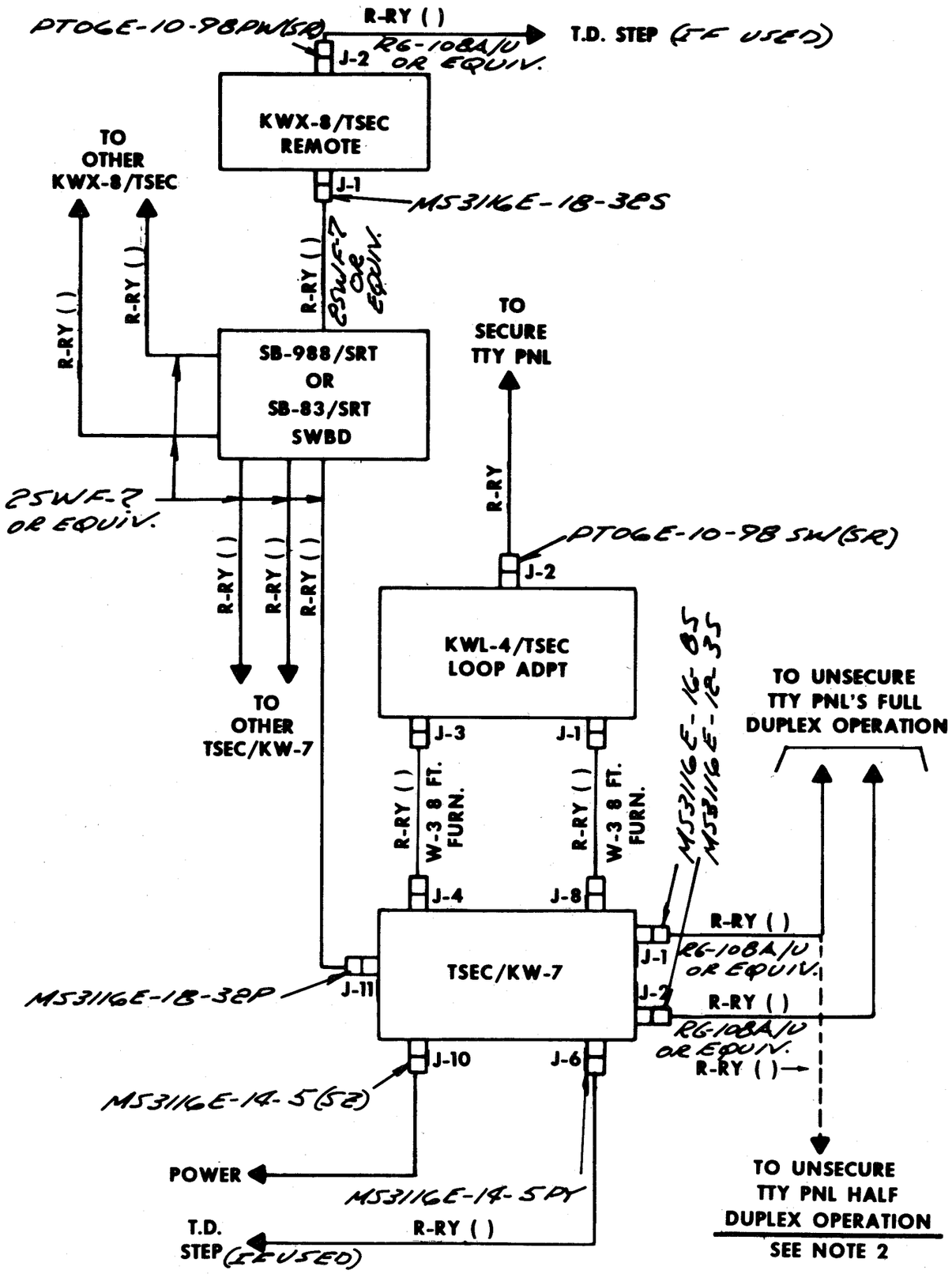
TSEC/KW-7
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 6-2



VIEW A-A



BOTTOM VIEW OF SLIDE MOUNT
SHOWING LOCATION OF MOUNT-
ING HOLES



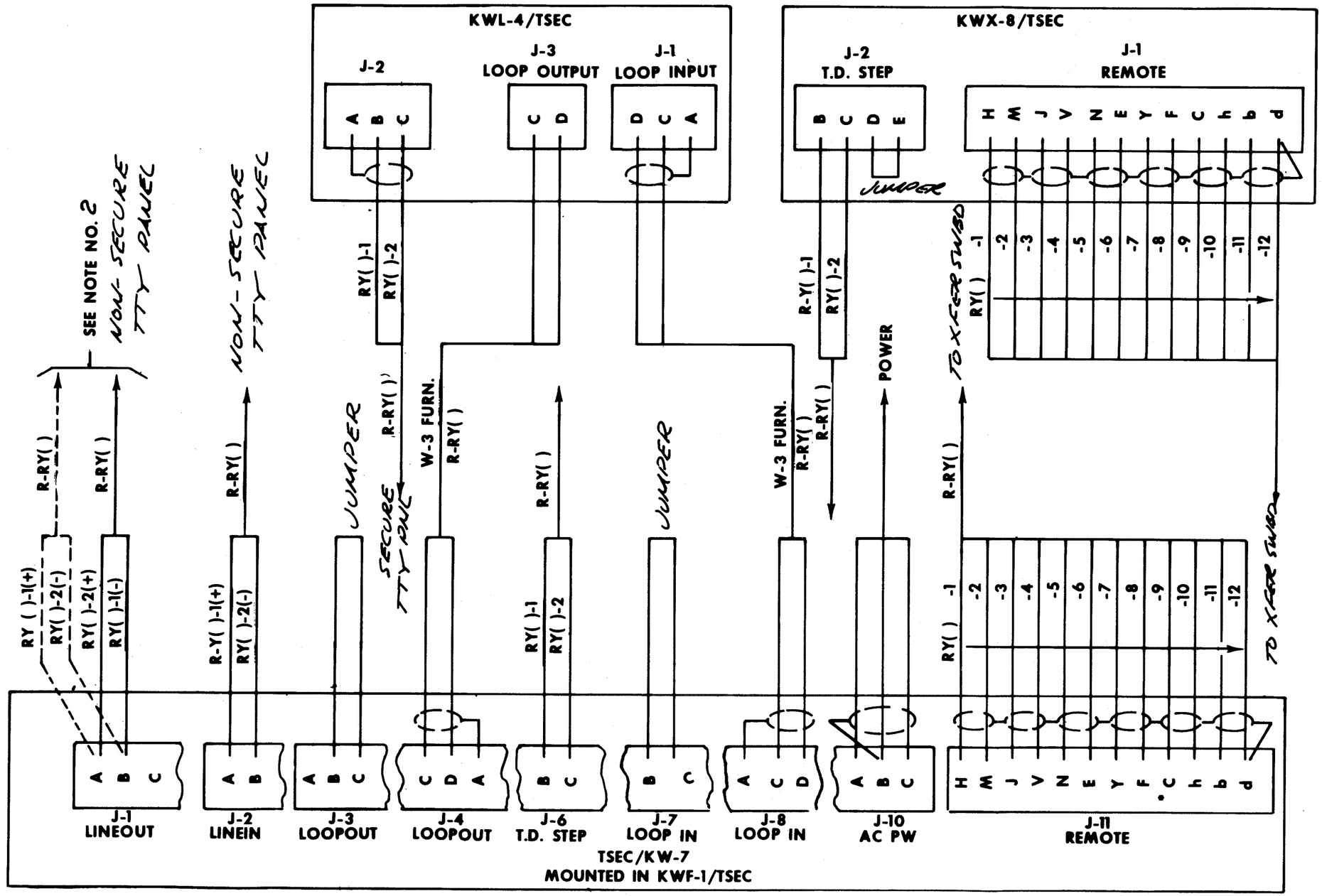
NOTES:

1. All plugs furnished with equipment.
2. For two wire neutral operation proceed as follows:

   a. Cable W-8 and J2 of KWF-1/TSEC are not used.
   b. Strap terminals E2 and E4 on the TSEC/KW-7.
   c. Transmitter/Receiver line current is then applied to terminals E1 and E5 on the TSEC/KW-7 by connecting pin A of J1 on KWF-1/TSEC to E1 on the TSEC/KW-7 and pin B of J1 on KWF-1/TSEC to E5 on the TSEC/KW-7.
   d. Positive line battery must be connected to E1 on the TSEC/KW-7.

3. For four wire neutral operation receiver line is applied to terminals E1 & E2 on the TSEC/KW-7 and transmitter line current is applied to terminals E4 and E5 on the TSEC/KW-7. Terminal E5 must be connected to negative line battery.
4. *C = Small c in J-11 and J-1.
5. Jumper Terminal V and W in J-11 and J-1.
6. Jumper Terminal D and Z in J-11 and J-1.
7. Ground all shields.

TSEC/KW-7 CABLE DIAGRAM FIGURE 6-3 (CONTINUED)



TSEC/KW-7
CABLE DIAGRAM
FIGURE 6-3

SECTION 7 - TELETYPE

7.1 AN/UGC-20/25 GENERAL DESCRIPTION

The AN/UGC-20 teletypewriter set is a portable or fixed station equipment used to exchange typewritten page messages between ship or shore stations connected to a radio or wire telegraph channel. It is a compact unit with a three-speed gear shift (45.5, 50, or 74.1 baud). Keyboard: standard communication. Characters: english, 72 per line, sending and receiving. Motor: synchronous. Unit Code: 7.42. The AN/UGC-25 teletypewriter set is similar to AN/UGC-20 except that the AN/UGC-25 is used to receive only and is not equipped with a keyboard.

7.2 REFERENCE DATA

a. Table of Technical Publications - Table 7-1
b. Primary Power Requirements - Table 7-2
c. Heat Dissipation - Table 7-3
d. Unit Weight - Table 7-3

7.3 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/UGC-20 and AN/UGC-25 are designed for installing on a shelf type foundation or similar flat surface of adequate strength. See Figure 7-1 for typical foundation details.
b. Outline and Mounting Dimensions:

(1) AN/UGC-20 Figure 7-2
(2) AN/UGC-25 Figure 7-3

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 7-1 Item No. 1.

7.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 7-4
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 7-1 Item No. 7.
c. Security Requirements - To be in accordance with Table 7-1 Item No. 6.

7.5 FIELD CHANGE REQUIREMENTS - See Table 7-1 Item No. 7.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility.
2	*RE-B2695939	Data List
3	*RE-B2695940	Pictorial System Diagram
4	*RE-B2695941	Primary Power Distribution Diagram
5	*RE-B2695942	Outline and Mounting Data
6	NAVSHIPSINSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical information Processing Systems
7	0967-000-0000	Electronics Installation and Maintenance Books
8	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
9	*PRE-B2695944	Data List
10	*RE-B2695943	Outline and Mounting Data
11	0967-059-9010	Technical Manual - Teletypewriter Sets AN/UGC-20, AN/UGC-20X, AN/UGC-25, and AN/UGC-25X

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

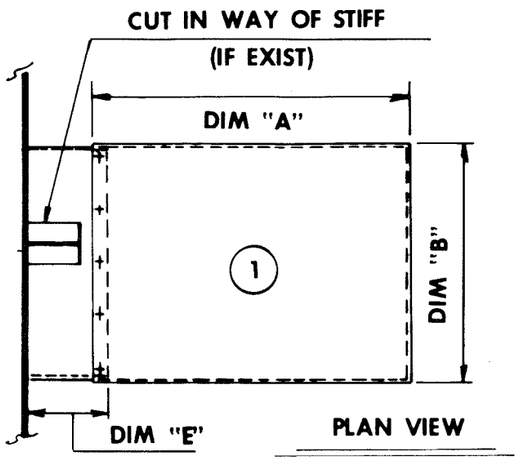
TABLE 7-1

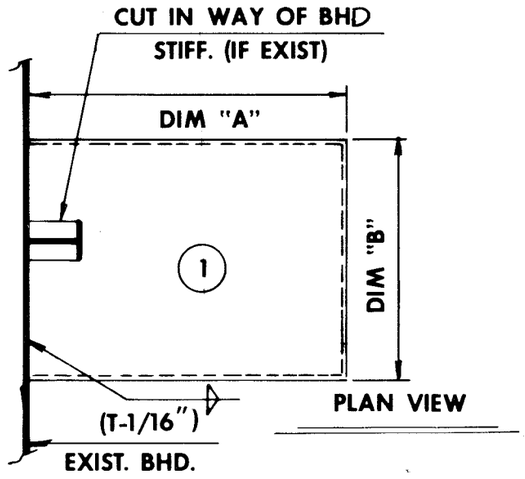
EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
50 Cycle Synchronous Motor	115 VAC, 50 Hz, Single Phase	Starting 9 Amp Running 2.4 Amp	107 WATTS	AN/UGC-20X AN/UGC-25X
60 Cycle Synchronous Motor	115 VAC, 60 Hz, Single Phase	Starting 9 Amp. Running 1.9 Amp	65 WATTS	

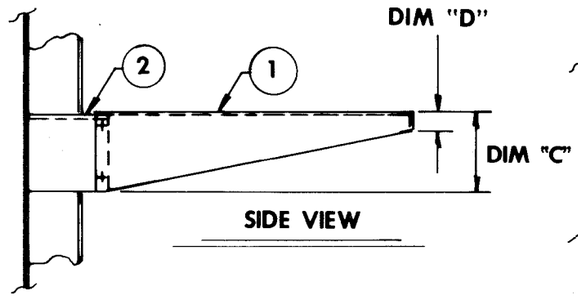
TABLE OF PRIMARY REQUIREMENTS
TABLE 7-2

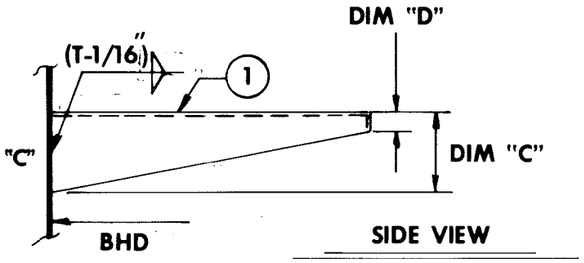
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
50 Cycle Synchronous Motor	70 Watts	
60 Cycle Synchronous Motor	50 Watts	
AN/UGC-20	50 Watts	59 Lbs.
AN/UGC-25	50 Watts	50 Lbs.

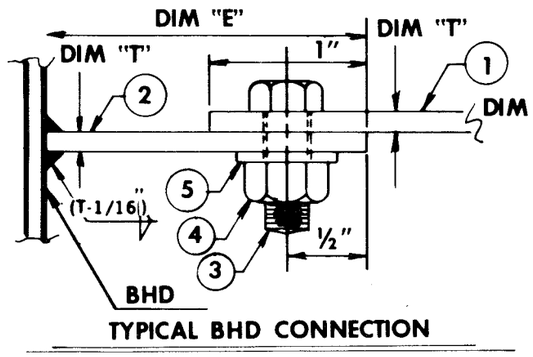
TABLE OF MISCELLANEOUS DATA
TABLE 7-3





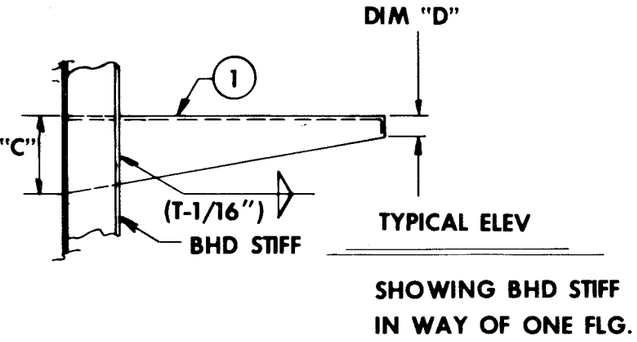






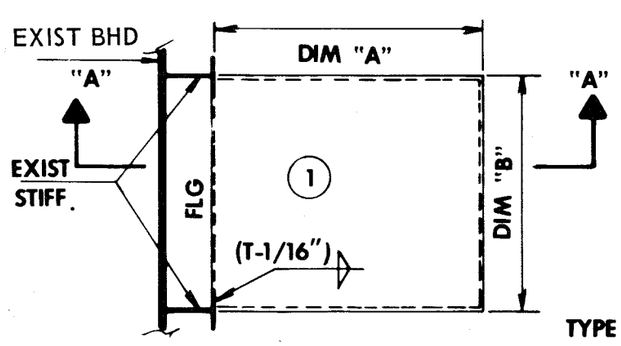
TYPICAL BHD CONNECTION

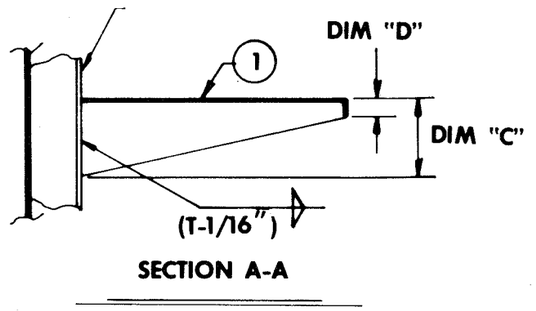
TYPE "C" SHELF FDN



SHOWING BHD STIFF
IN WAY OF ONE FLG.

TYPE "B" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO. REQ'D	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT	↓	↓	MIL-B-857	
5	¼" DIA-FLAT WASHER	↓	↓	MIL-S-854	

NOTES:

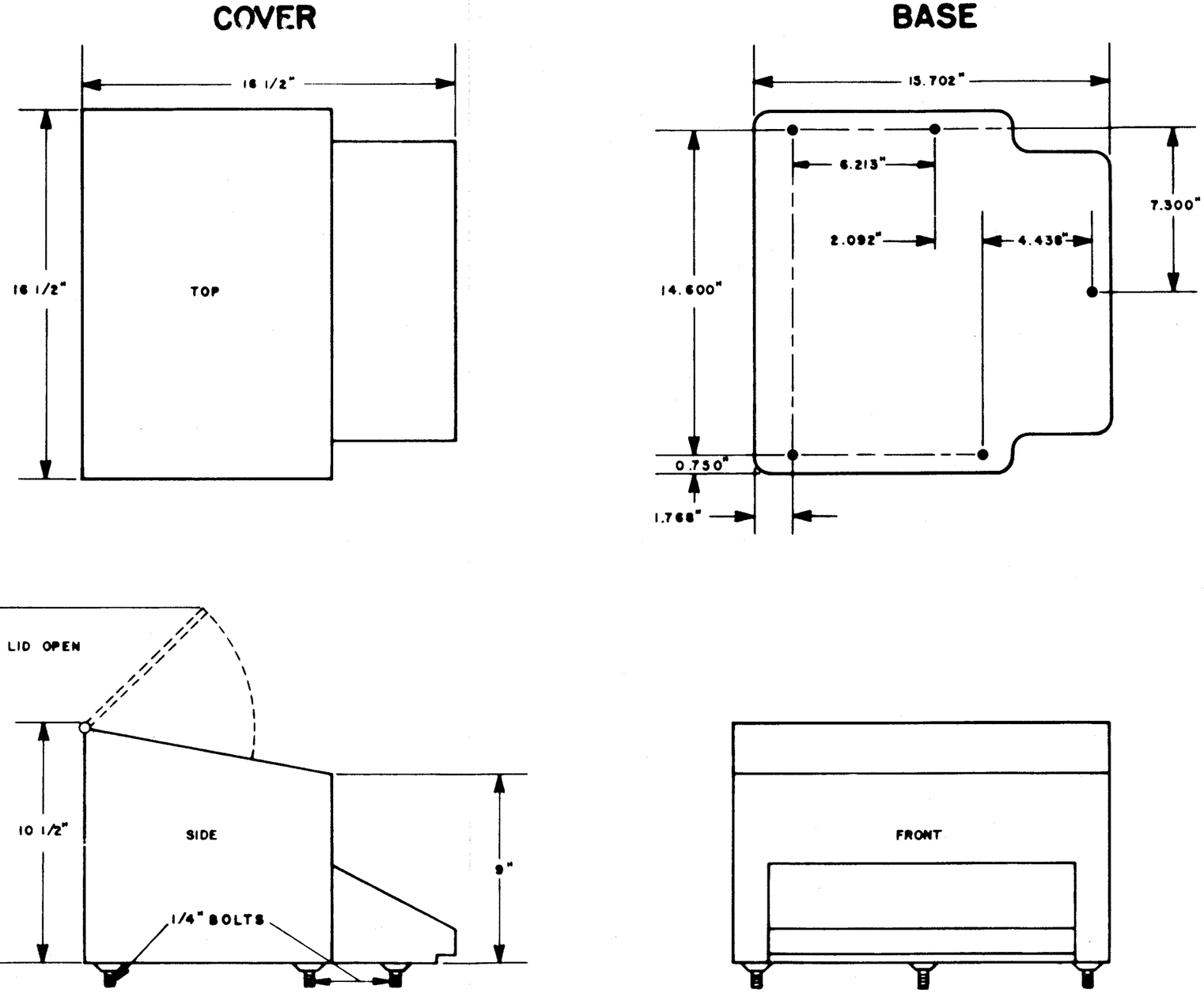
1. Thickness (Dim. "T" of material to be furnished on location).
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for AN/UGC-20 to be as follows:
   a. Plating (7.65 #Plt. steel), ¼" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit: Dimension "A" =24" + depth of stiffener, dimension "B" = 18½", dimension "C" = 8", dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 24", dimension "B" - 18½", dimension "C" = 8", dimension "D" = 1½".
4. Foundation for AN/UGC-25 to be as follows:
   a. Plating (7.65 #Plt. steel), ¼" thick aluminum.
   b. Type "B" shelf foundation.
   c. For installation with stiffener in way of unit: Dimension "A" = 20" + depth of stiffener, dimension "B" = 18½", dimension "C" = 7", d dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 20", dimension "B" = 18½", dimension "C" = 7", dimension "D" = 1½".
5. Size and location of mounting bolts for unit to be taken from equipment.

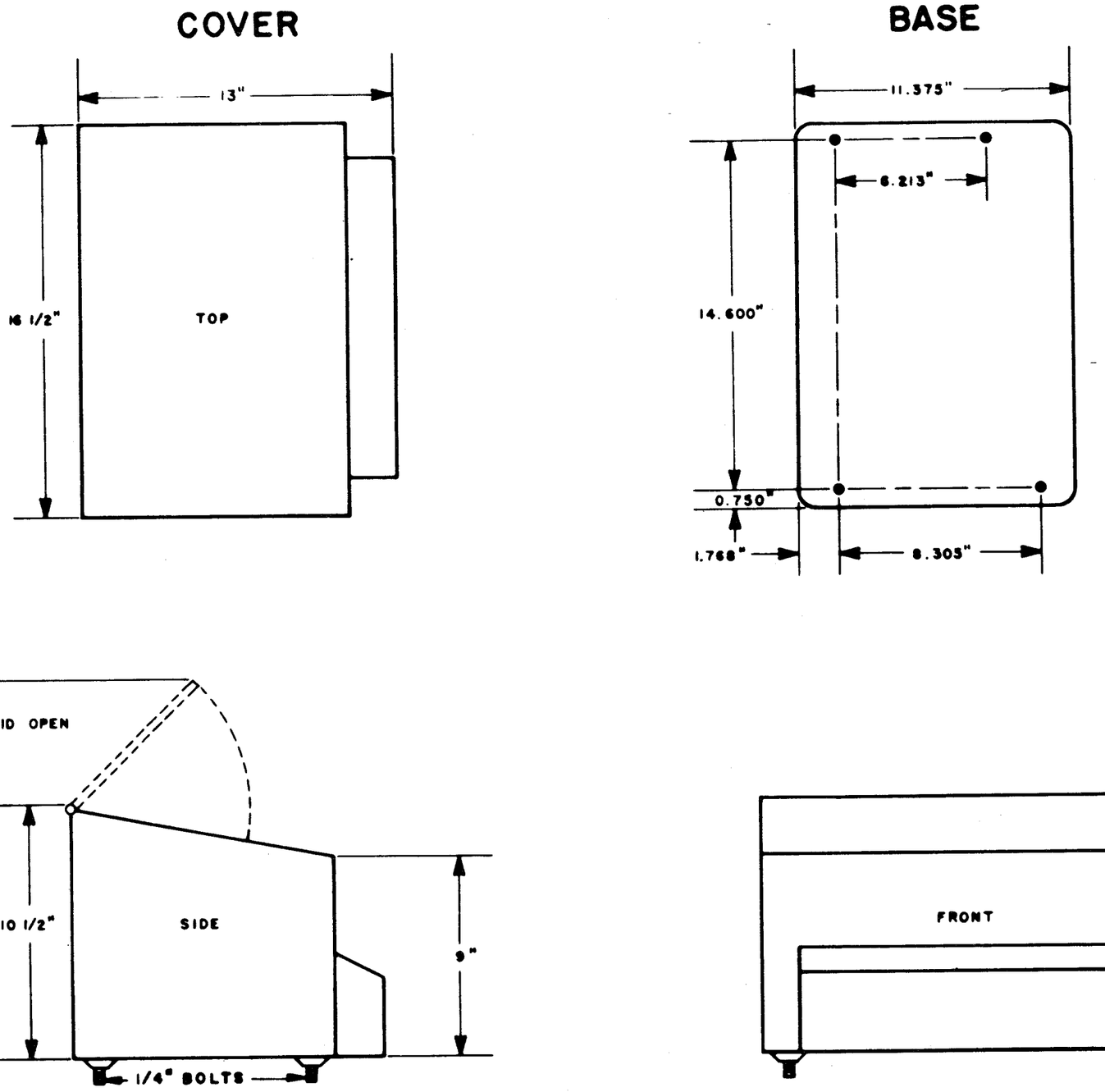
AN/UGG-20/25 TELETYPEWRITER

TYPICAL FOUNDATION DETAILS

FIGURE 7-1

AN/UGC-20
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 7-2

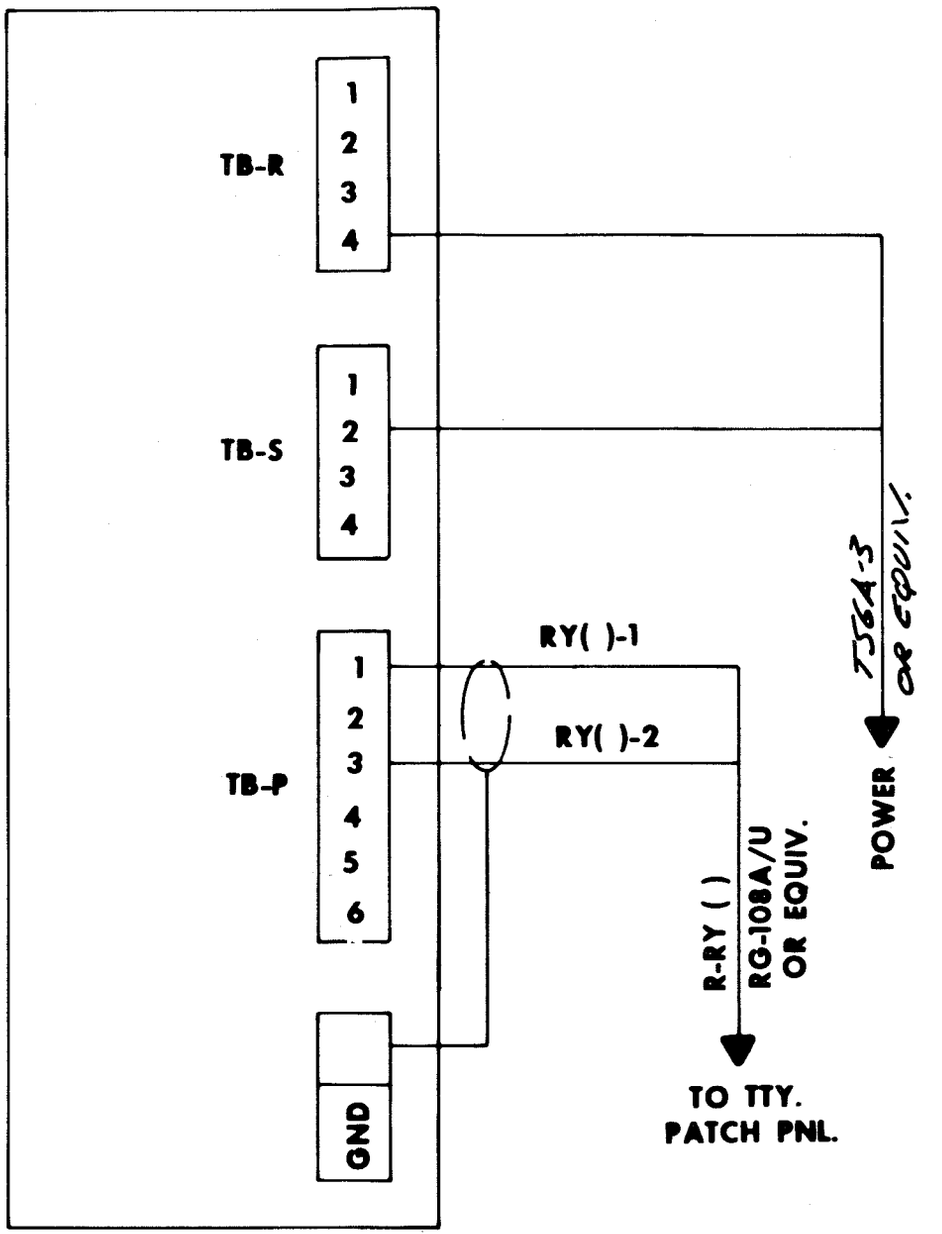




AN/UGC-25

OUTLINE AND MOUNTING DIMENSIONS

FIGURE 7-3



AN/UGC-20/25
CABLE DIAGRAM
FIGURE 7-4

SECTION 7 - TELETYPE

7.6 AN/UGC-6 GENERAL DESCRIPTION

The AN/UGC-6 teletypewriter series is a fixed station equipment, send-receive, message station with send receive page printer, tape punch, and tape reader units. It is equipped with a standard, english character keyboard. It is capable of 60 75, and 100 WPM operation. The AN/UGC-6 teletypewriter series has a synchronous motor, a 7.42 unit code, and it prints 72 characters per line.

7.7 REFERENCE DATA

a. Table of Technical Publications - Table 7-4
b. Primary Power Requirements - Table 7-5
c. Heat Dissipation - Table 7-6
d. Unit Weight - Table 7-6

7.8 INSTALLATION REQUIREMENTS

a. Arrangement - The AN/UGC-6 is designed to be mounted to the deck. See Figure 7-5 for typical foundation details.
b. Outline and Mounting Dimensions - Figure 7-6
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 7-4 Item No. 2.

7.9 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 7-7
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 7-4 Item No. 14.
c. Security Requirements - To be in accordance with Table 7-4 Item No. 16.

7.10 FIELD CHANGE REQUIREMENTS Figure 7-7

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-173-6010 0967-173-6020	Vol.I & II Technical Manual for AN/UGC-6, AN/UGC-6A, AN/UGC-6X and AN/UGC-6AX
2	Mil. Std. 1310A(NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility.
3	*RE-D-2690771	Primary Power Distribution Diagram
4	*RE-H-2690978	Outline and Mounting Data
5	*RE-H-2692477	Primary Power Distribution Diagram
6	*RE-F-2692478	Pictorial System Diagram
7	*RE-B-2692555	Outline and Mounting Data
8	*RE-B-2692556	Primary Power Distribution Diagram
9	*RE-B-2692557	Pictorial System Diagram
10	*RE-B-2692560	Pictorial System Diagram
11	*RE-B-2692563	Pictorial System Diagram

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 7-4 (Continued)

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
12	*RE-F-2692478	Pictorial System Diagram
13	*RE-H-2692477	Primary Power Distribution Diagram
14	0967-000-0000	Electronics Installation and Maintenance Books
15	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
16	NAVSHIPSINSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 7-4

EQUIPMENT	VOLTAGE	CURRENT	REMARKS
AN/UGC-6 TTY Series	115 VAC, 60 HZ Single Phase	209 Watts	

TABLE OF PRIMARY POWER POWER REQUIREMENTS
TABLE 7-5

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
AN/UGC-6 TTY Series	123 Watts	267 LBS.	

TABLE OF MISCELLANEOUS DATA
TABLE 7-6

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. AN/UGC-6 All	0285-052-9000	Provides for full duplex operation of equipments and eliminates line relays	FA-6		Four signal lines will be coming into the equipment.
2. AN/UGC-6	0285-058-8100	Installation of 194028 Mod. kit (converts equipment from 7.42 unit code to 7.00 unit code)	FA-3	F5815-981-3249	
3. AN/UGC-6 Ser. No. LP6 and UP	0285-073-8900	Installation of D193936 (MK-764/UG) modification kit	FA	F5815-066-4354	
4. AN/UGC-6 All	0285-075-0400	Incorporate a separable connector in the wiring to the back space - magnet L3400	FA-1		Inspection of the wiring between the perforator back-space magnet, L3400 and TB3102 will disclose that a separable plug and receptacle have been installed in the wiring to the back-space magnet L3400.

FIELD CHANGE REQUIREMENTS
TABLE 7-7 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
5. AN/UGC-6 Serial No. 1 to 20	0967-972-8040	Modified teletypewriter set with adapter incorporation of factory Field service orders	FA		Change number stamped on Field Change accomplished plate.
6. AN/UGC-6		Cancelled			
7. AN/UGC-6 units with front panel control panel for the auxilary reperforator	0967-062-6050	Elimination of personnel hazard	FA-$\frac{1}{2}$		Presence of an orange lead on terminal 4 and a blue lead on terminal 5 of switch 155023.
8. AN/UGC-6 All	0967-062-6050	Teletypewriter adapter clear reduction function code	FA-1		Checking electrical continuity between card jacks J12-7 and J-40B-10
9. AN/UGC-6 All equipments modified with adapter		Teletypewriter sets modified with adapter for AN/USQ-20(v) bypass thermal relay	FA-2		Presence of a 250770 printed circuit card in card jack J13C
10. AN/UGC-6	0967-062-6060	Modified with AN/USQ-20 adapter retention of filter assembly	FA-$\frac{1}{2}$		Two screws have been inserted into the filter holder frame thereby securing the frame to the filter housing.

FIELD CHANGE REQUIREMENTS
TABLE 7-7 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. AN/UGC-6A		Same as FC #2AN/UGC-6			
2. AN/UGC-6A		Same as FC #3 AN/UGC-6			
3. AN/UGC-6A		Same as FC #4 AN/UGC-6			
4. AN/UGC-6A		Cancelled			
5. AN/UGC-6A 6. AN/UGC-6A		Same as FC #7 AN/UGC-6 Same as FC #11 AN/UGC-6			
1. AN/UGC-6AX		Same as FC #2 AN/UGC-6			
2. AN/UGC-6AX		Same as FC #3 AN/UGC-6			
3. AN/UGC-6AX		Same as FC #4 AN/UGC-6			
4. AN/UGC-6AX		Cancelled			
6. AN/UGC-6AX 5. AN/UGC-6AX		Same as FC #11 AN/UGC-6 Same as FC #7 AN/UGC-6			

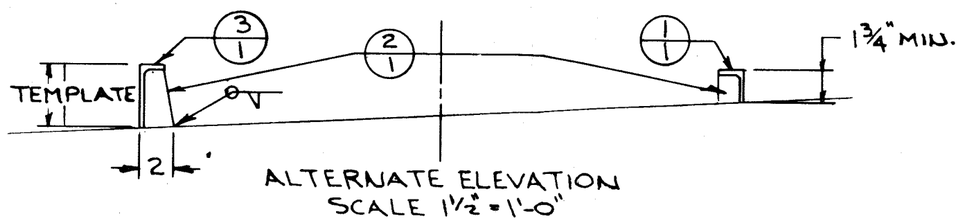
FIELD CHANGE REQUIREMENTS
TABLE 7-7 (Continued)

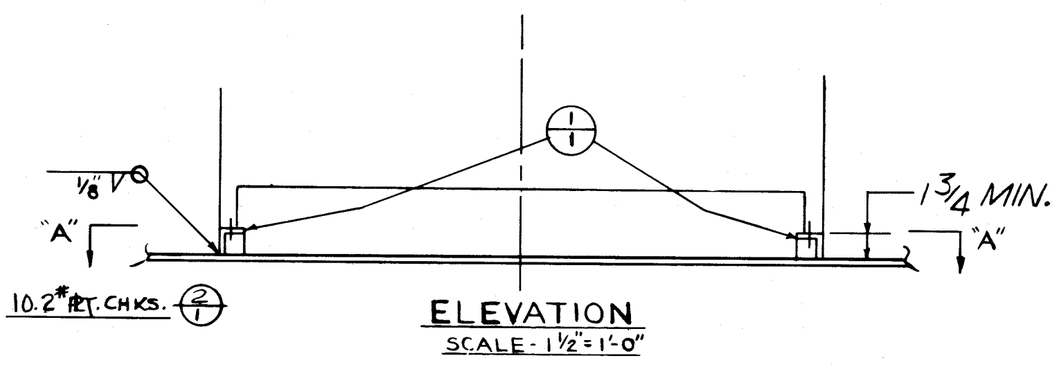
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. AN/UGC-6B		Same as FC #2 AN/UGC-6			
2. AN/UGC-6B		Same as FC #3 AN/UGC-6			
3. AN/UGC-6B		Same as FC #4 AN/UGC-6			
4. AN/UGC-6B		Cancelled			
5. AN/UGC-6B		Same as FC #7 AN/UGC-6			
6. AN/UGC-6B		Same as FC #11 AN/UGC-6			
1. AN/UGC-6C		Same as FC #2 AN/UGC-6			
2. AN/UGC-6C		Same as FC #3 AN/UGC-6			
3. AN/UGC-6C		Same as FC #4 AN/UGC-6			
4. AN/UGC-6C		Cancelled			
6. AN/UGC-6C		Same as FC #11 AN/UGC-6			
5. AN/UGC-6C		Same as FC #7 AN/UGC-6			

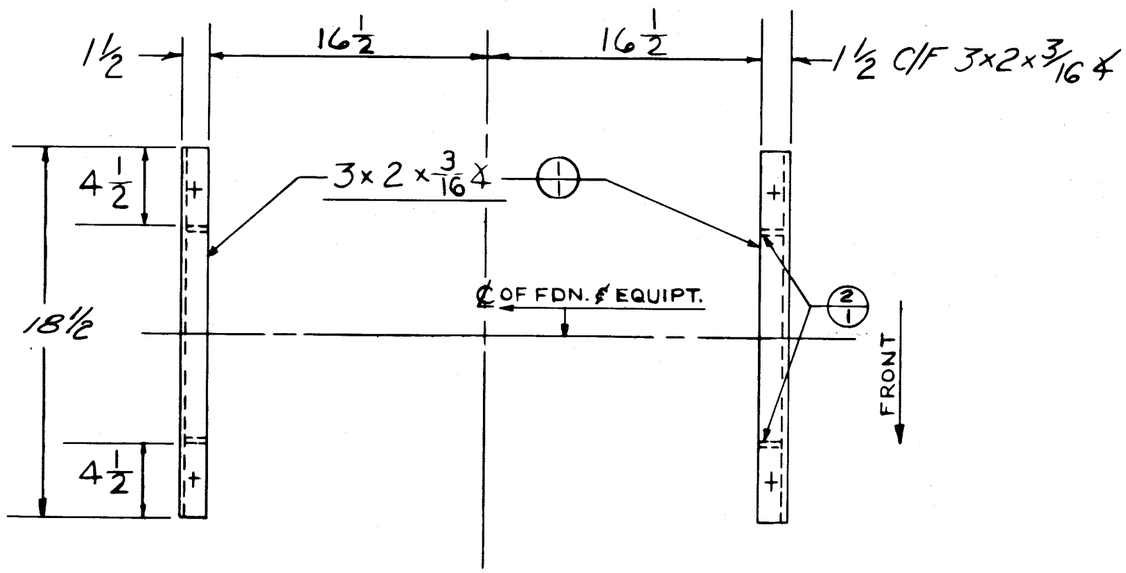
FIELD CHANGE REQUIREMENTS
TABLE 7-7 (Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. AN/UGC-6X		Same as FC #2 AN/UGC-6			
2. AN/UGC-6X		Same as FC #3 AN/UGC-6			
3. AN/UGC-6X		Same as FC #4 AN/UGC-6			
4. AN/UGC-6X		Cancelled			
5. AN/UGC-6X		Same as FC #7 AN/UGC-6			
6. AN/UGC-6X		Same as FC #11 AN/UGC-6			
1. AN/UGC-6K		Same as FC#11 AN/UGC-6			

FIELD CHANGE REQUIREMENTS
TABLE 7-7







LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION

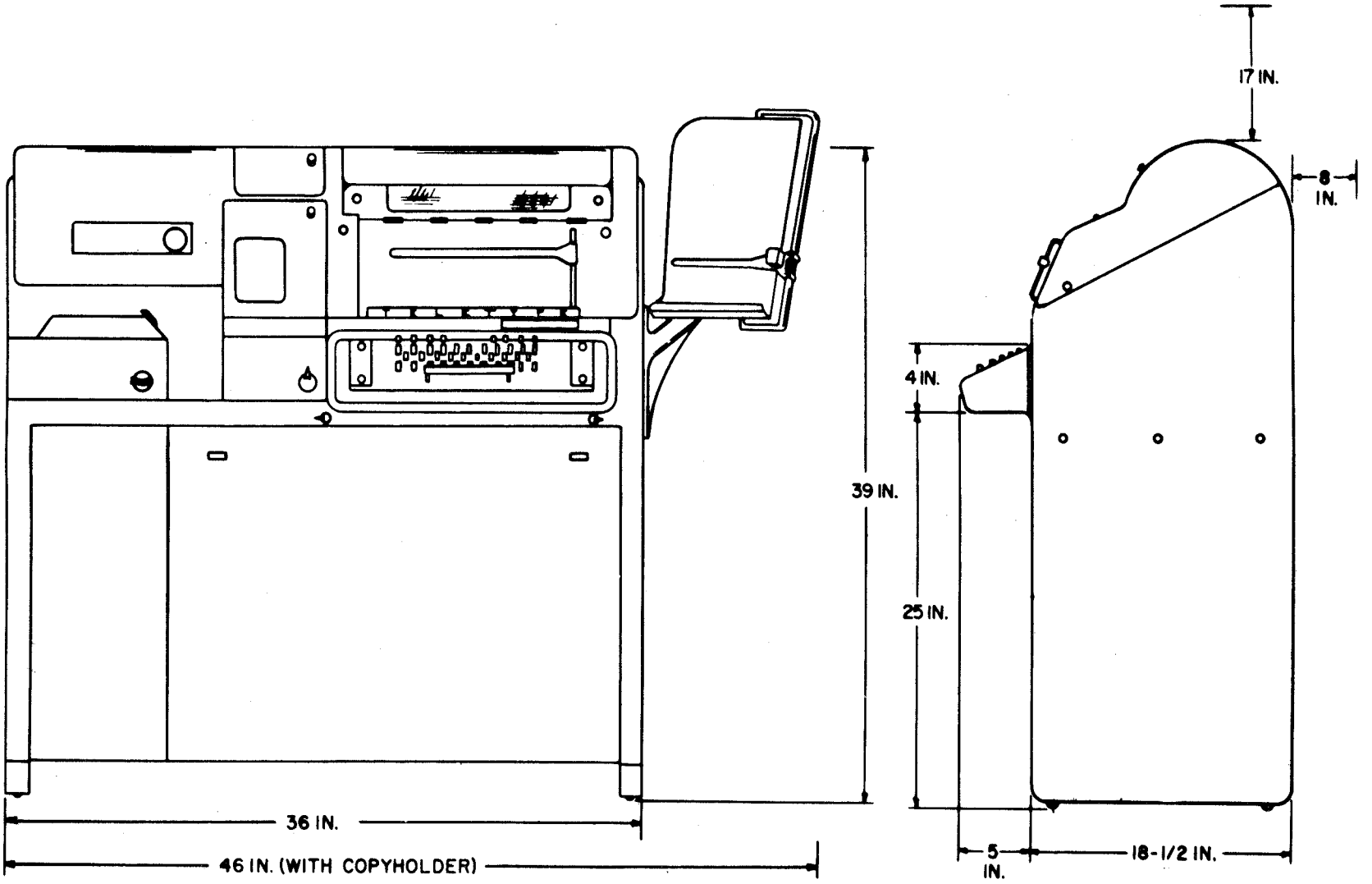
PIECE NO.	NAME	NO. REQ'D.	MATERIAL	MT'L. SPEC.	REMARKS
	TYPE "ST"				
1	3X2X3/16 Angle	2	M. STL.	Mil-S-20166	C/F
2	10.2 # Plt. Chk.	4	M. STL.	Mil-S-16113	
3	6X2X8.20 # Channel	1	M. STL.	Mil-S-20166	C/F
	TYPE "AL"				
1	3X2X3/16 Angle	2	AL	QQ-A-270	C/F
2	¼ Plt. Chk.	4	AL	QQ-A-327	
3	6X1.9X3.09 Channel		AL.	5086-H112	

NOTES

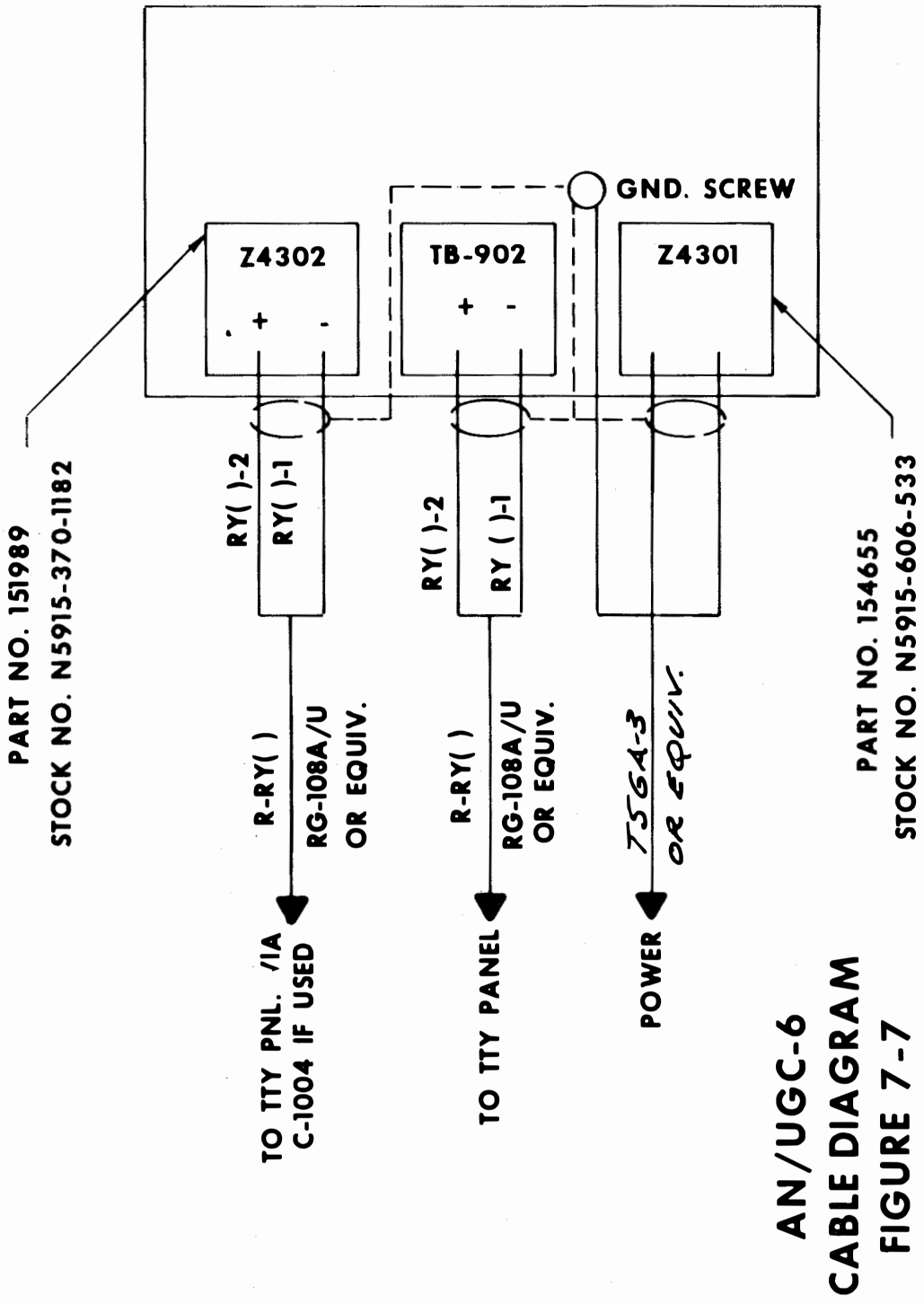
1. Mounting holes to be drilled at installation to suit equipment.
2. This plan is applicable for installations on steel decks only.
3. Foundation to be made level with base line of ship.
4. All welds to be in accordance with General Specification #S9-1.
6. Indicate steel for type "ST" and aluminum for type "A".

ORIGINAL

AN/UGC-6 TELETYPEWRITER
TYPICAL FOUNDATION DETAILS
FIGURE 7-5



AN/UGC-6
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 7-6



AN/UGC-6
CABLE DIAGRAM
FIGURE 7-7

SECTION 7 - TELETYPE

7.11 TT-187/UG-TT-187A/UG - GENERAL DESCRIPTION

The TT-187/UG and TT-187A/UG teletypewriter distributor-transmitter set translates code combinations that have been perforated in a paper tape into electrical impulses and transmits those impulses in the form of a five unit, start-stop permutation code to one or more receiving stations. The TT-187/UG and TT-187A/UG are capable of 60, 75, 100 WPM transmitting speed. The TT-187/UG and TT-187A/UG units are equipped with a synchronous motor.

The TT-187A/UG is similar to the TT-187/UG except it has a series governed motor.

7.11 REFERENCE DATA

a. Table of Technical Publications - Table 7-8
b. Primary Power Requirements - Table 7-9
c. Heat Dissipation - Table 7-10
d. Unit Weight - Table 7-10.

7.13 INSTALLATION REQUIREMENTS

a. Arrangement - The TT-187/UG and TT-187A/UG are designed for installation on a shelf type foundation or similar flat surface of adequate strength. See Figure 7-8 for typical foundation details.
b. Outline and Mounting Dimensions - Figure 7-9
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 7-8 Item No. 2.

7.14 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 7-10
b. Electronics Installation and Maintenance Standards - To be in accordance with Table - 7-8 Item No. 6.
c. Security Requirements - To be in accordance with Table 7-8 Item No. 7.

7.15 FIELD CHANGE REQUIREMENTS - Figure 7-11

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-061-0000	Technical Manual for Teletypewriter Distributor-Transmitters TT-187/UG and TT-187A/UG
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-D-2692453	Outlines and Mounting Data
4	*RE-D-2692454	Interconnecting Wiring Diagram
5	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
6	0967-000-0000	Electronics Installation and Maintenance Books
7	NAVSHIPSINST. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 7-8

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
TT-187/UG A.C. Motor (PD-17A/U)	115 VAC, 60 Hz , Single Phase	Starting 9 Amps. Running 1.85 Amps.	65 Watts	No Load 23.7% PF Full Load 38.5% PF
TT-187A/UG Miniaturized A.C. Motor (LMU-19)	115 VAC, 60 Hz, Single Phase	Starting 5 Amps. Running (No Load) 1.05 Amps. Full Load 1.25 Amps.		

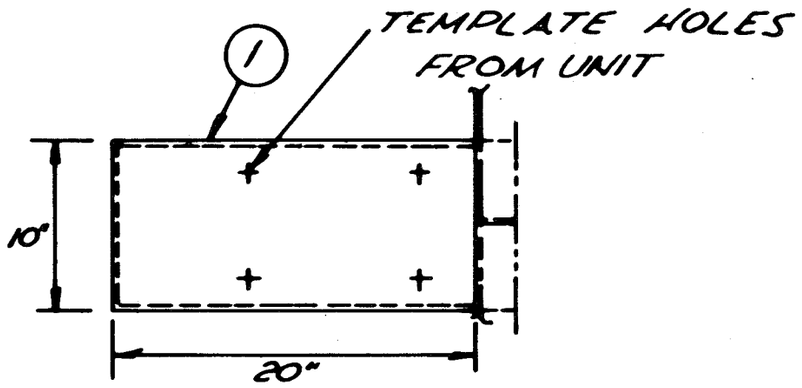
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 7-9

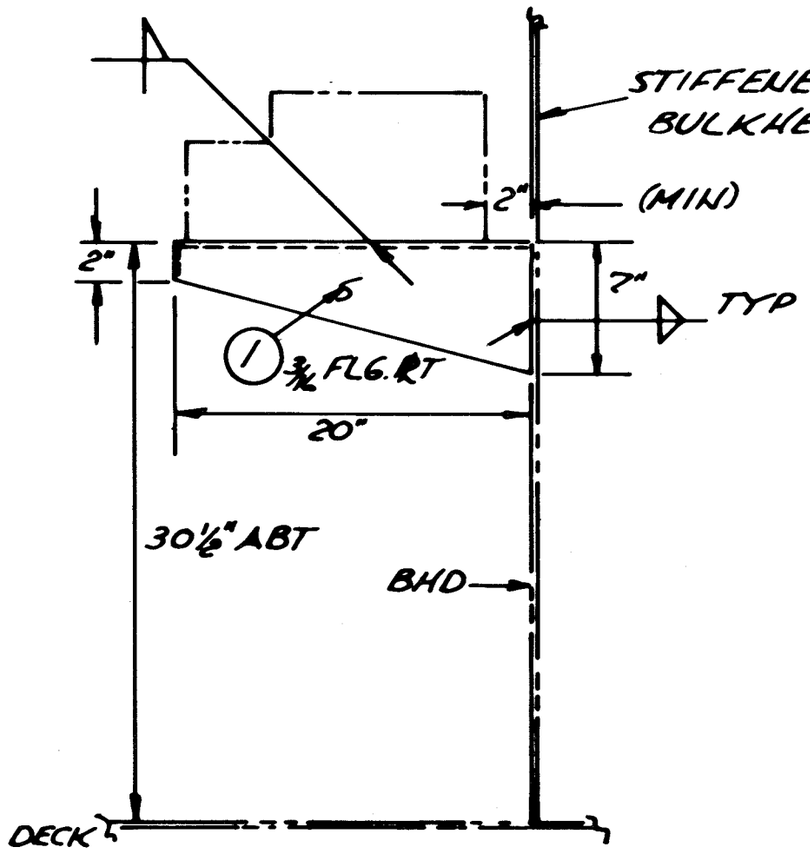
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
TT-187/UG	50 Watts	36 Lbs.	
TT-187A/UG	50 Watts	24 Lbs.	

TABLE OF MISCELLANEOUS DATA
TABLE 7-10

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. TT-187/UG All	0285-058-8100	Installation of 194031 Mod. kit (converts equipment from 7.42 unit code to 7.00 unit code.	FA	F5815-008-3250	
2. TT-187/UG All	0285-075-2800	Installation of 195442 (MK-811/UG) and modification kits to provide 3 speed gearshift for model 28 bases (LXD).	FA	F 5815-051-3823	
1. TT-187A/UG All		Same as FC#1 TT-187/UG			
1. TT-187B/UG		Installation of 199913 Mod. Kit (converts e equipment from 7.00 unit code to 7.42 unit code.	FA	F5815-981-3252	
2. TT-187A/UG 2. TT-187B/UG	0967-173-8050	Normal input Keying Kit Same as FC #2 TT-187A/UG	FA-6		Installation of decal on front panel.

FIELD CHANGE REQUIREMENTS
TABLE 7-11



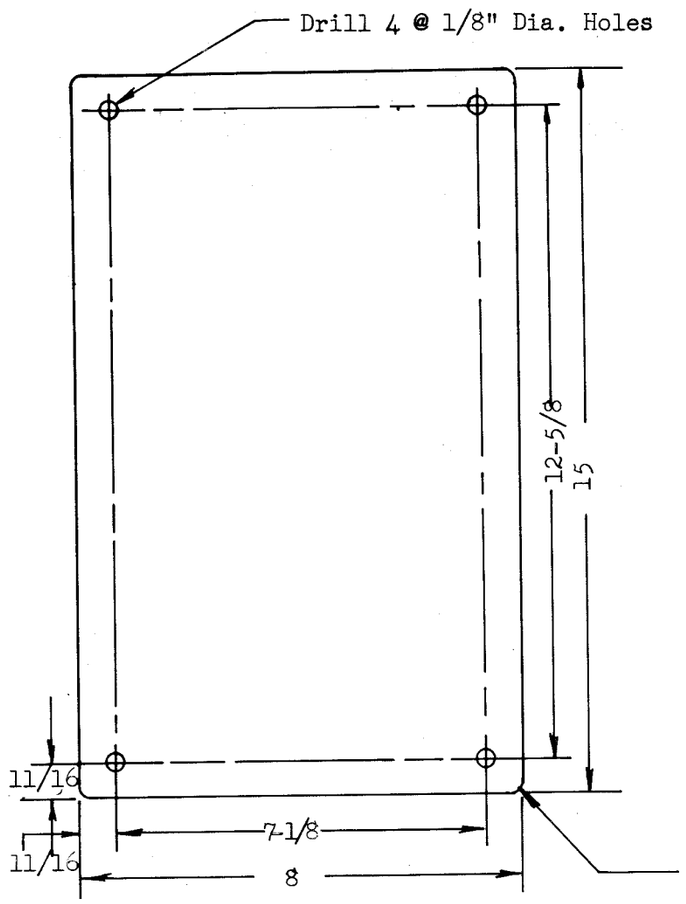


LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION					
Pc. No.	NAME	No. Req'd.	Material	Mt'l. Spec.	Remarks
1	7.65 # Plt.	1	M. Steel	Mil.S 16113	

NOTES:

1. Material may be substituted to suit installation on aluminum bulkheads.
2. All welds to be 100%.

TT-187/UG AND TT-187A/UG
TYPICAL FOUNDATION DETAILS
FIGURE 7-8

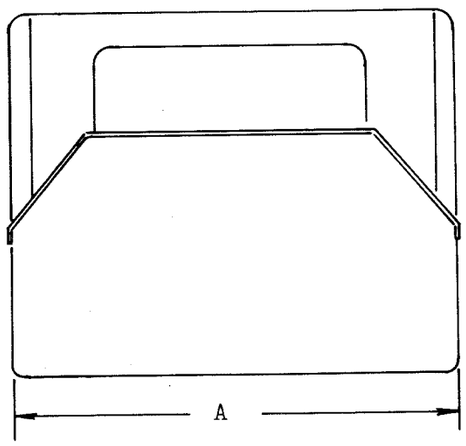


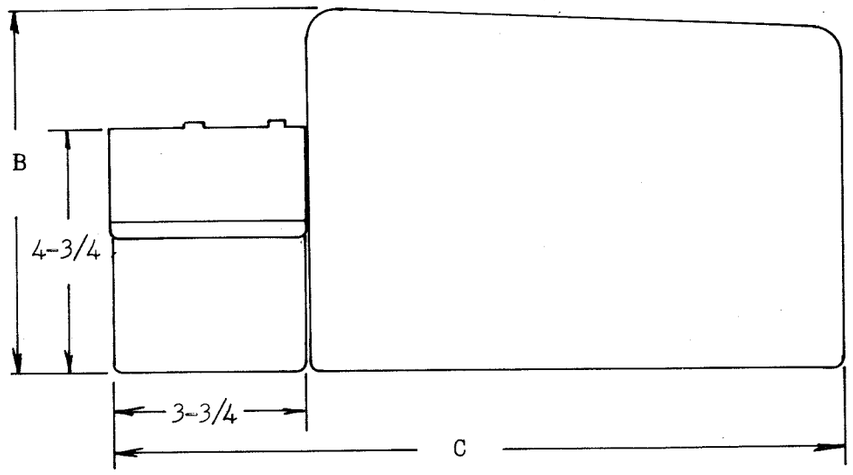
Mounting Plate for TT-187/UG (only)

OUTLINE AND MOUNTING DIMENSIONS

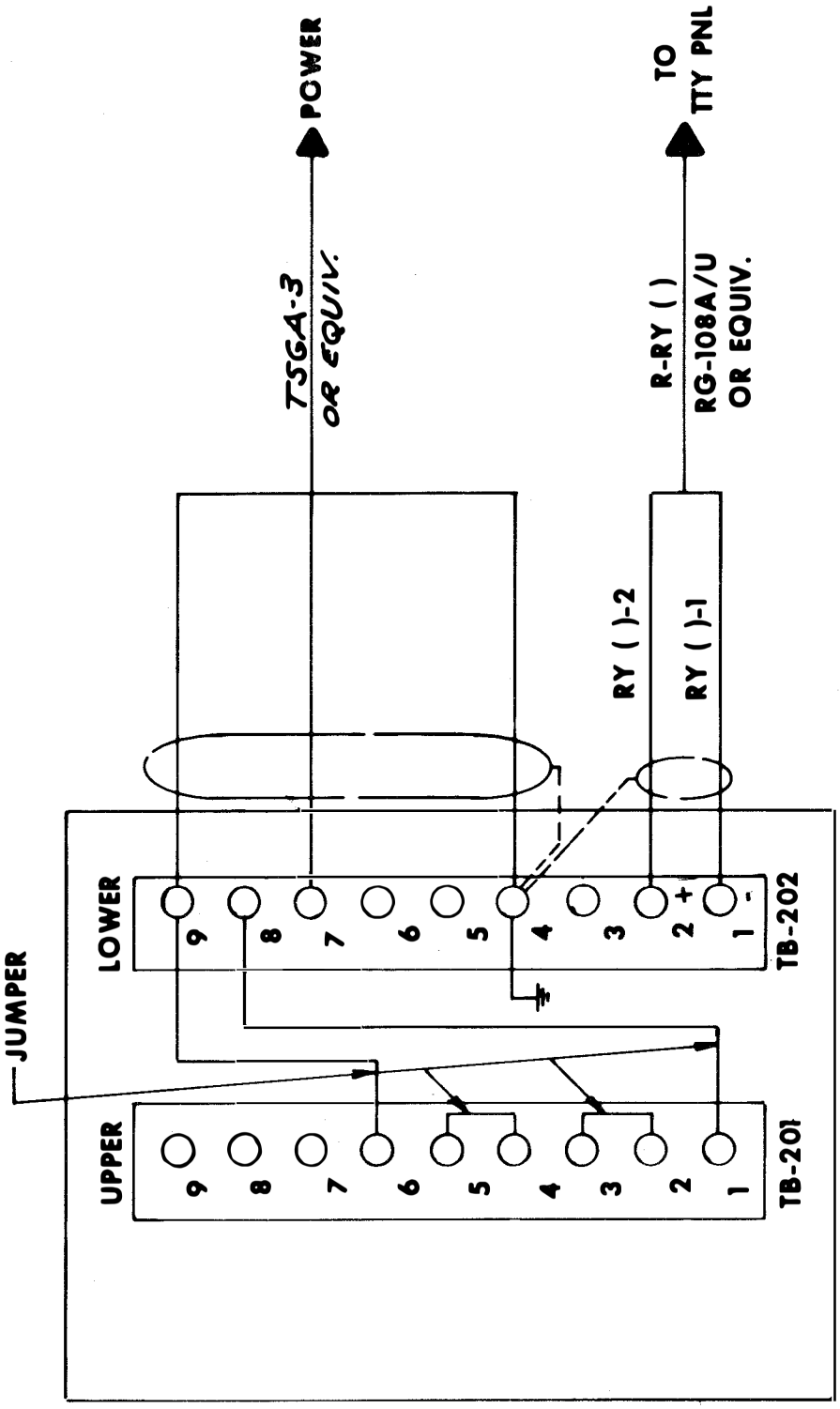
DIMENSIONS	TT-187/UG	TT-187A/UG
A	8 in.	7-½ in.
B	9 in.	6-¼ in.
C	15 in.	9-½ in.

NOTE: 1. Template mounting plate and holes from TT-187A/UG.





TT-187/UG AND TT-187A/UG OUTLINE AND MOUNTING DIMENSIONS FIGURE 7-9



TT-187/UG
CABLE DIAGRAM
FIGURE 7-10

SECTION 7 - TELETYPE

7.16 TT-192/UG and TT-192A/UG GENERAL DESCRIPTION

The TT-192/UG teletypewriter reperforator is a receiving unit only used to receive messages transmitted over wire or radio circuits and to record the message both in code perforations and typed characters on the same tape. It is used for relaying purposes in teletypewriter receiving and distributing center.

The TT-192A/UG teletypewriter reperforator is a miniaturized version of the receiving only equipment. It is designed for installation where minimum overall space and weight requirements must be met. Its function is identical to that of typing reperforator set TT-192/UG.

7.17 REFERENCE DATA

a. Table of Technical Publications - Table 7-12
b. Primary Power Requirements - Table 7-13
c. Heat Dissipation - Table 7-14
d. Unit Weight - Table 7-14

7.18 INSTALLATION REQUIREMENTS

a. Arrangement - The TT-192/UG and TT-192A/UG are normally installed on a shelf type foundation. See Figure 7-11 for typical foundation details.

b. Outline and Mounting Dimensions

(1) TT-192/UG Figure 7-12
(2) TT-192A/UG Figure 7-13

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 7-12 Item No. 2.

7.19 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 7-14
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 7-12 Item No. 8
c. Security Requirements - To be in accordance with Table 7-12 Item No. 6.

7.20 FIELD CHANGE REQUIREMENTS - Table 2-15.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0967-968-3010	Technical Manual for Teletypewriter Typing Reperforator Sets TT-192/UG, TT-192A/UG, TT-253/UG, TT-253A/UG, TT-274/UG and TT-292/UG
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-D-2692456	Outline and Mounting Data
4	*RE-D-2692455	Interconnecting Wiring Diagram
5	*RE-F-2692331	Interconnecting Wiring Diagram
6	NAVSHIPINSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
7	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
8	0967-000-0000	Electronics Installation and Maintenance Books

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS

TABLE 7-12

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
TT-192/UG (LMU3 AC) Synchronous Motor	115 VAC, 60 Hz, Single Phase	Starting 9 Amps. Running 1.85 Amps.	65 Watts	No Load 23.7 % PF Full Load 38.5 % PF
TT-192A/UG (LMU24) Miniaturized A.C. Synchronous Motor	115 VAC, 60 Hz, Single Phase	Starting 5 Amps Running (No Load) 1.05 Amps Full Load 1.25 Amps		

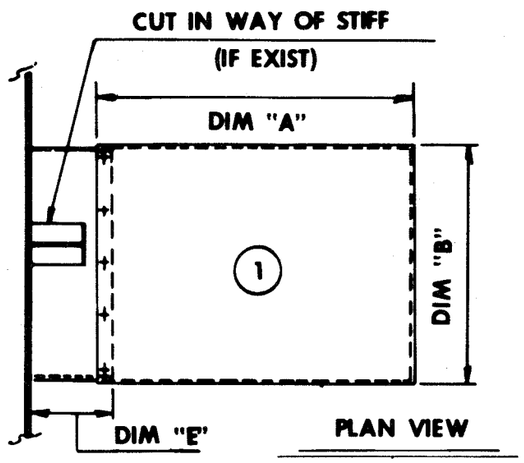
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 7-13

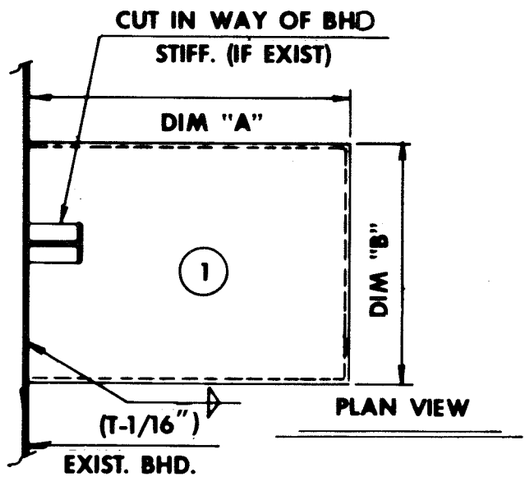
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT
TT-192/UG	50 Watts	40 Lbs.
TT-192A/UG	50 Watts	33.75 Lbs.

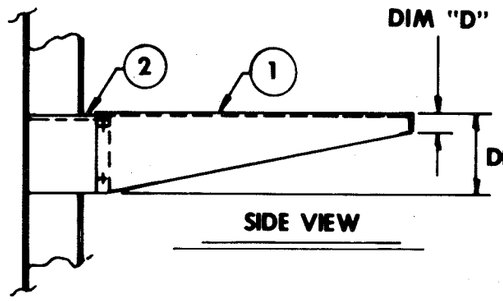
TABLE OF MISCELLANEOUS DATA
TABLE 7-14

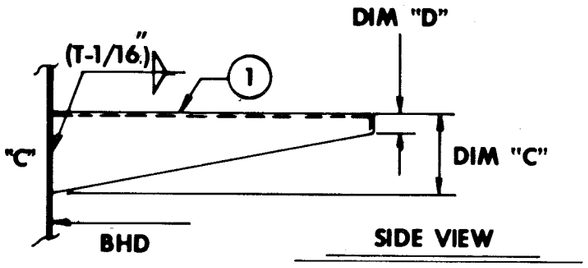
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. TT-192/UG All	0285-058-8100	Installation of 194032 Mod. Kit (converts equipment from 7.42 unit code to 7.00 unit code).	FA	F 5815-981-3252	
2. TT-192/UG equipments prior to Serial No. 12,000 and 2,800	0285-072-6000	Installation of improved main shaft and function clutch bearings	FA		Field Change accomplisment TAB installed adjacent to modified unit name plate.
1. TT-192A/UG	0967-105-7020	Same as FC #1 TT-192/UG			
2. TT-192A/UG		Cancelled			

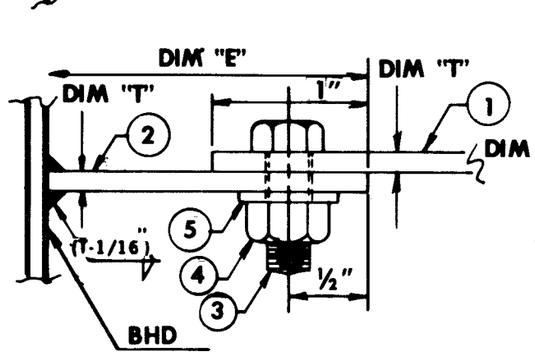
FIELD CHANGE REQUIREMENTS
TABLE 7-15



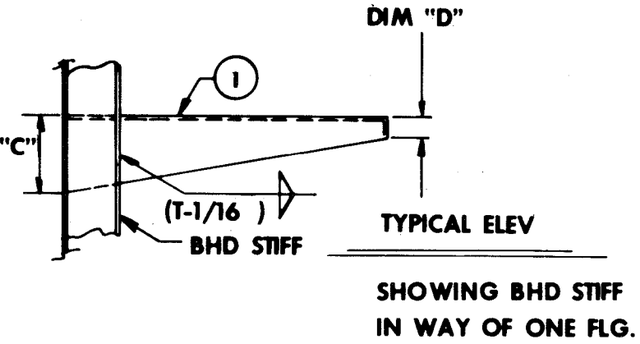








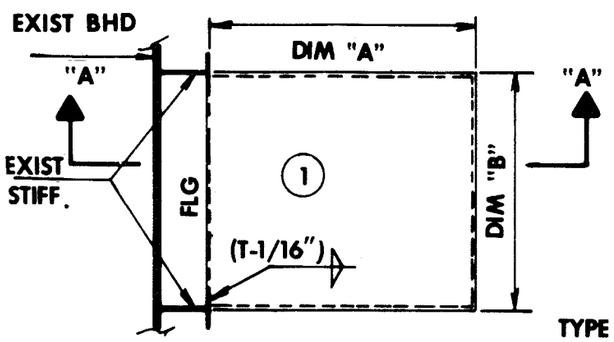
TYPICAL BHD CONNECTION

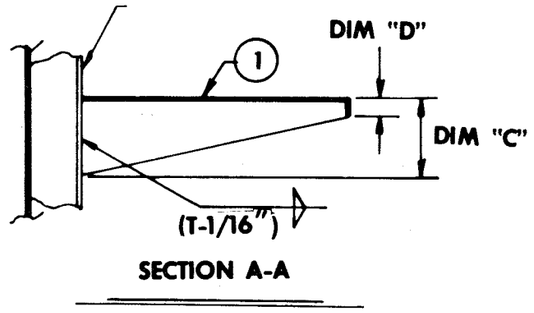


SHOWING BHD STIFF
IN WAY OF ONE FLG.

TYPE "B" SHELF FDN

TYPE "C" SHELF FDN





TYPE "A" SHELF FDN

LIST OF MATERIAL QUANTITIES FOR ONE FDN

PC NO.	NAME	NO.	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT			MIL-B-857	
5	¼" DIA-FLAT WASHER			MIL-S-854	

NOTES:

1. Thickness (Dim. "T" of material to be furnished on location.
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for TT-192A/UG to be as follows:

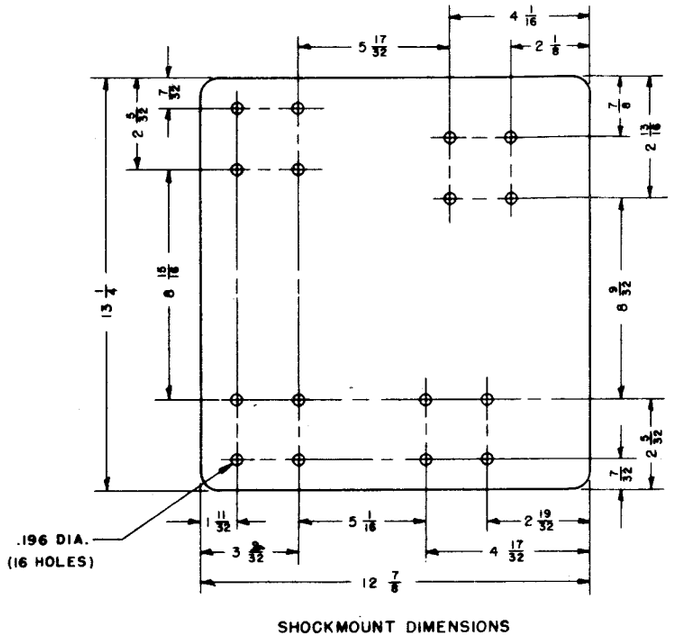
   a. Plating 7.65 #Plt. steel), ¼" thick aluminum
   b. Type "B" shelf foundation
   c. For installation with stiffener in way of unit. Dimension "A" = 18" + depth of stiffener, dimension "B" = 12", dimension "C" = 6, dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 18", dimension "B" = 12", dimension "C" = 6", dimension "D" = 1½".

4. Foundation for TT-192/UG to be as follows:

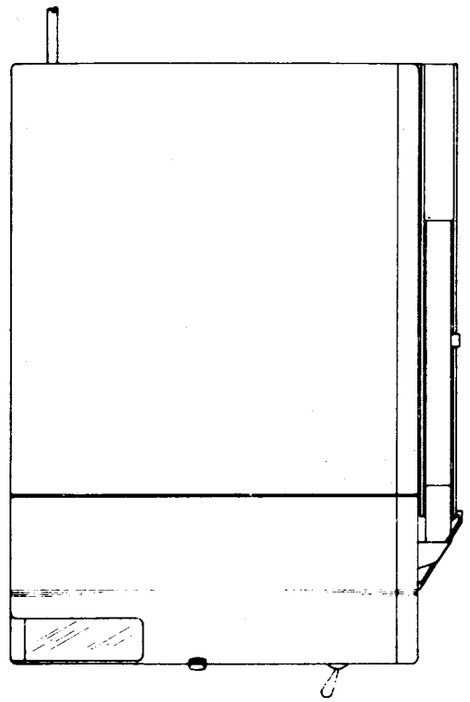
   a. Plating (7.65 #Plt. steel), ¼" thick aluminum.
   b. Type "B" shelf foundation
   c. For installation with stiffener in way of unit. Dimension "A" = 20" + depth of stiffener, dimension dimension "B" = 15", dimension "C" = 6", dimension "D" = 1½".
   d. For installation with no stiffener interference: Dimension "A" = 20", dimension "B" = 15", dimension "C" = 6", dimension "D" = 1½".

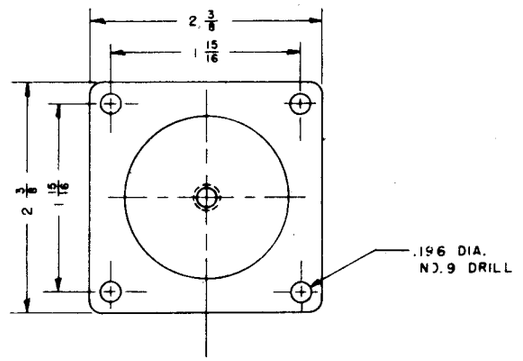
5. Size and location of mounting bolts for unit to be taken from equipment.

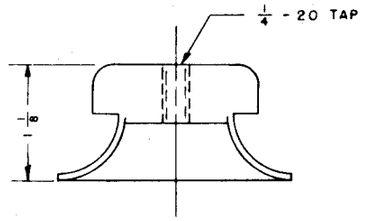
TT-192/UG AND TT-192A/UG
TYPICAL FOUNDATION DETAILS



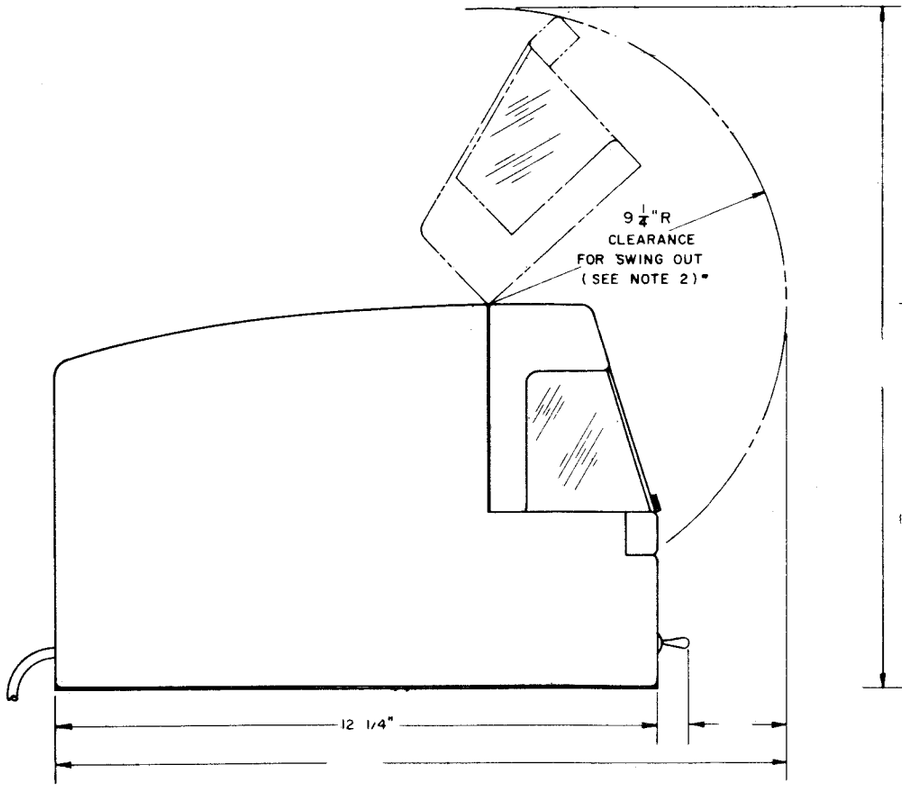
SHOCKMOUNT DIMENSIONS

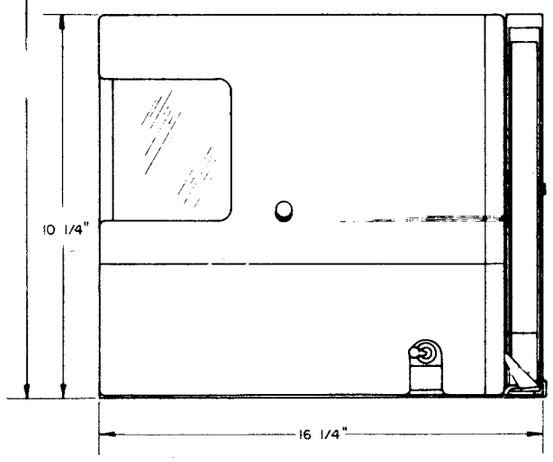


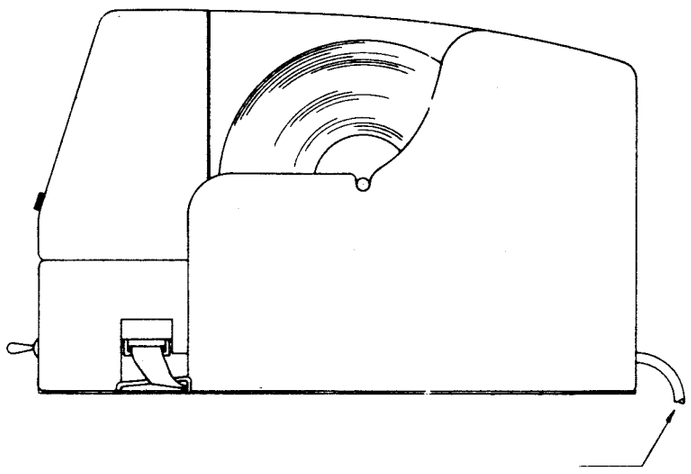




BARRYMOUNT
TYPE C-1010-T-4



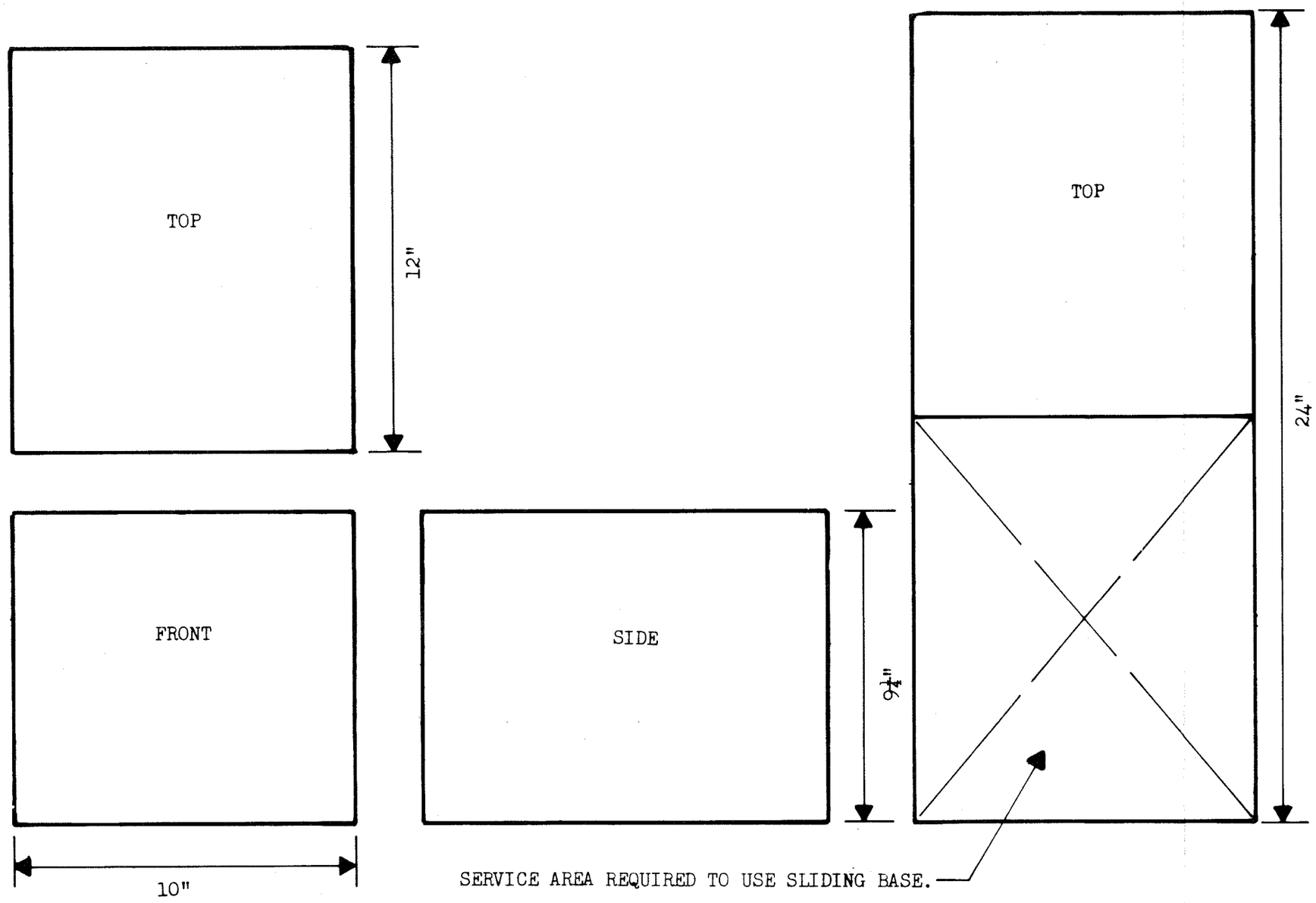




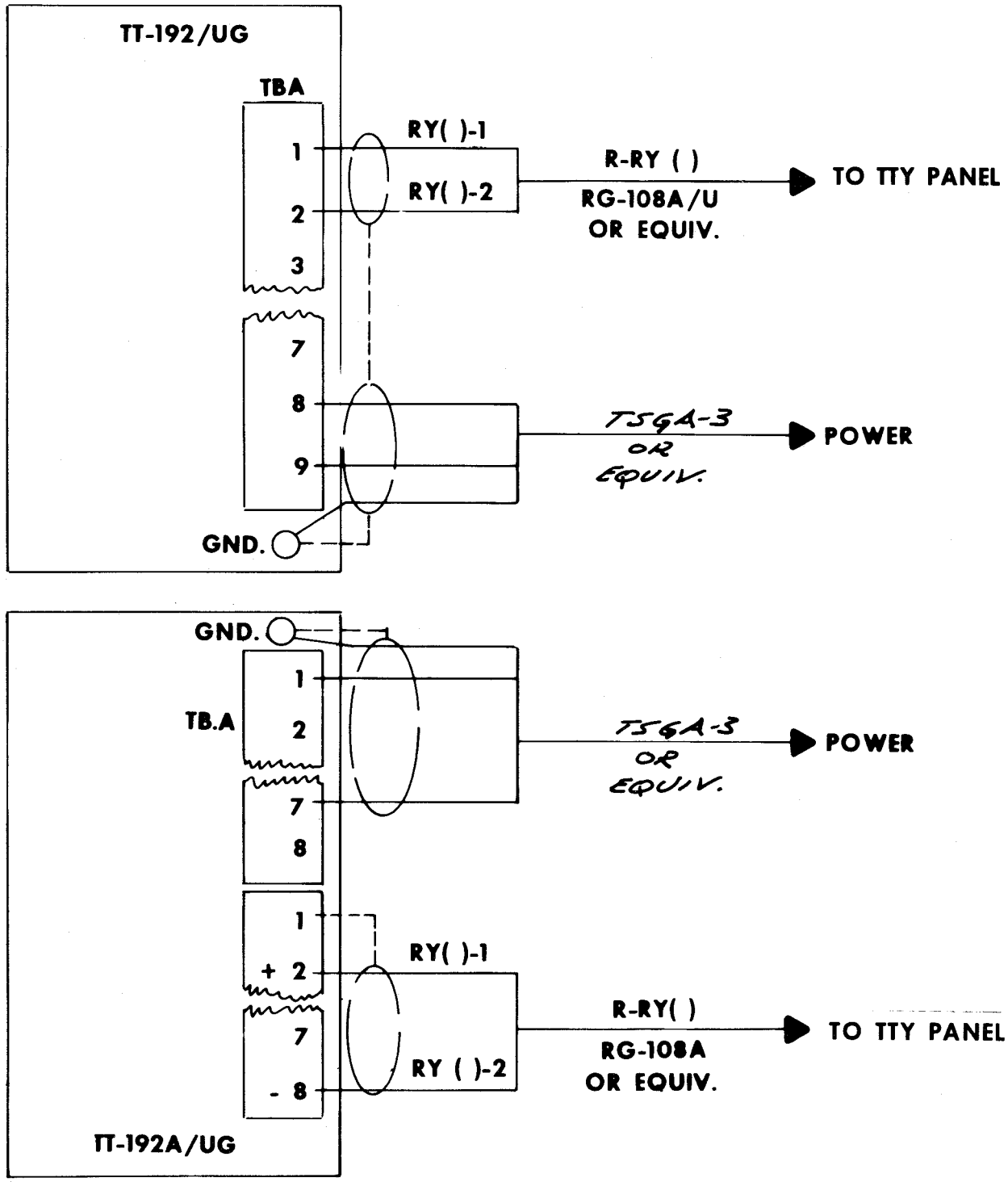
TT-192/UG OUTLINE AND MOUNTING DIMENSIONS

FIGURE 7-12

ORIGINAL



TT-192A/UG
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 7-13



TT-192/UG AND TT-192A/UG CABLE DIAGRAM FIGURE 7-14

SECTION 7 - TELETYPE

7.21 TT-176/UG GENERAL DESCRIPTION

The TT-176/UG teletypewriter is used to exchange typewritten messages between two or more ships or stations connected by a radio or wire telegraph channel. Characteristics: 72 english characters per line, friction feed; 368, 460, and 600 operations per minute by gear changes; five unit code, 7.42 unit transmission pattern, synchronous motor.

7.22 REFERENCE DATA

a. Table of Technical Publications - Table 7-16
b. Primary Power Requirements - Table 7-17
c. Heat Dissipation - Table 7-18
d. Unit Weight - Table 7-18

7.23 INSTALLATION REQUIREMENTS

a. Arrangement - The TT-176/UG teletypewriter maybe installed on a shelf type foundation or similar flat surface of adequate strength. See Figure 7-15 for typical foundation details.
b. Outline and Mounting Dimensions - Figure7-16.
c. Grounding Specifications - All bonding and grounding to be in accordance with Table 7-16 Item No. 2.

7.24 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 7-17.
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 7-16 Item No. 7
c. Security Requirements - To be in accordance with Table 7-16 Item No. 5.

7.25 FIELD CHANGE REQUIREMENTS - Table 7-19

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	0280-496-2012	Instruction Book for Teletypewriter TT-176/UG
2	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
3	*RE-C-2692365	Outline and Mounting Data
4	*RE-D-2692566	Interconnecting Wiring Diagram
5	NAVSHIPSINSTR. 05510.33B	Installation Criteria for Shipboard Secure Electrical Information Processing Systems
6	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
7	0967-000-0000	Electronics Installation and Maintenance Books.

*These plans are not essential for installation but if available use as reference.

TABLE OF TECHNICAL PUBLICATIONS
TABLE 7-16

EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
TT-176/UG	115 VAC, 60 Hz, Single Phase	Starting 9 Amps. Running 1.85 Amps.	65 Watts	Power Factor 0.30

TABLE OF PRIMARY POWER REQUIREMENTS

TABLE 7-17

EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
TT-176/UG	50 Watts	67 Lbs.	

TABLE OF MISC. DATA

TABLE 7-18

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
1. TT-176/UG shipboard all used for aerological weather service	0967-109-4040	Modification kit MK-599/UG to provide for aerological weather service	FA-3	F5815-893-2490	An additional nameplate is attached to the unit when this change is accomplished.
2. TT-176/UG All	0285-058-8100	Installation of MK-698/UG mod. kit (converts equipment from 7.42 unit code to 7.00 unit code).		F5815-088-6025	
3. TT-176/UG All	0967-116-9020	Installation of oscillating rail slide plate	FA-$\frac{1}{4}$		Presence of a plate between the oscillating rail slide clamp.
4. TT-176/UG All	981770	Provide manual letlers shift by installation of MK-821/UG Mod. Kit.	FA-2		
5. TT-176/UG All	0967-116-9020	Installation of lubrication assembly	FA-$\frac{1}{2}$	1N5815-795-9335	Presence of lubricator assembly

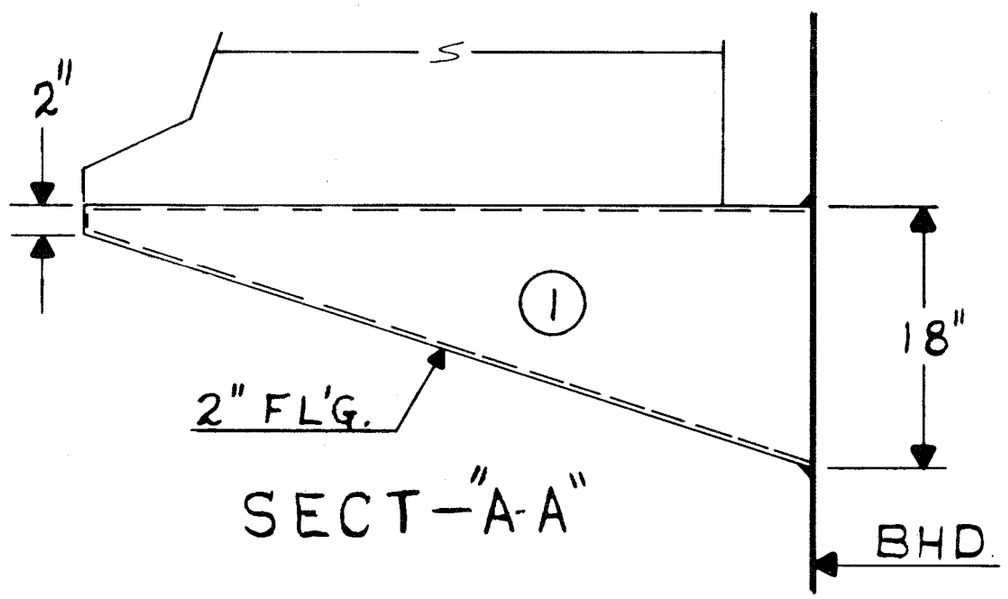
FIELD CHANGE REQUIREMENTS
TABLE 7-19(Continued)

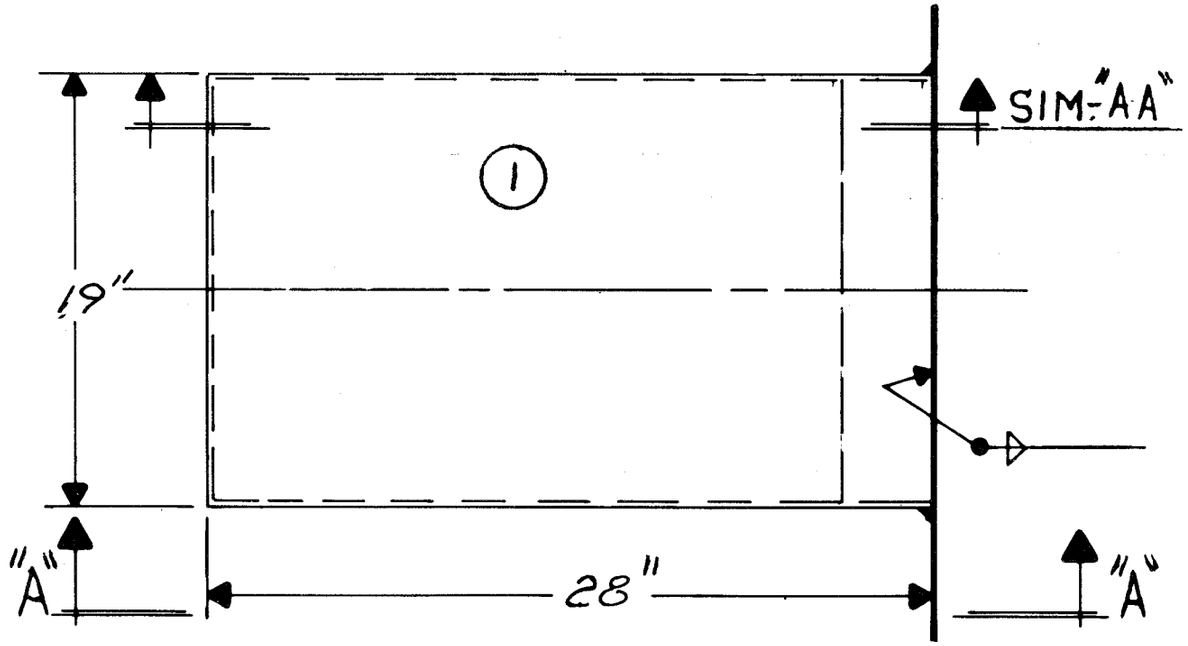
FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
6. TT-176/UG Serial # below 61550 (Typing Units)	0285-077-9500	Installation of one piece non-adjustable code bar shift lever guide bracket	FA-3	1N5815-823-1457	Code bar positioning mechanism.
7. TT-176/UG Serial # through 16799 (Typing Units)	0285-077-9600	Installation of adjustable type box carriage adjustment	FA-2	1N5815-370-1718	Type box mechanism
8. TT-176/UG All	0285-077-9700	Replacement of range finder plate	FA-1½		New type range finder knob
9. TT-176/UG	0967-173-7010	Normal input Keying Kit	FA-7		Installation of decal
1. TT-176A/UG	0967-116-9020	Same as FC #1 TT-176/UG			
2. TT-176A/UG		Same as FC#2 TT-176/UG			
3. TT-176A/UG All		Modification for proper break key operation	FA-½		When white/green lead on pin 2 of the electrical service unit keyboard connector plug has been relocated to pin 1.

FIELD CHANGE REQUIREMENTS
TABLE 7-19(Continued)

FIELD CHANGE NUMBER AND SERIAL NO. EFFECTIVITY	NAVSHIPS BULLETIN #	BRIEF DESCRIPTION OF CHANGE	INSTALLING ACTIVITY & MANHOURS	KIT FSN	IDENTITY
4. TT-176A/UG Serial # LP6 and UP	0285-073-8900	Installation of 193936 (MK-764/UG) modification kit	FA	F5815-066-4354	
1. TT-176B/UG		Cancelled			
2. TT-176B/UG	0967-105-7020	Same as FC#4 TT-176A/UG			
5. TT-176A/UG	0967-116-9020	Same as FC #9 TT-176/UG			
3. TT-176B/UG		Same as FC #9 TT-176/UG			
1. TT-176C/UG		Same as FC #9 TT-176/UG			

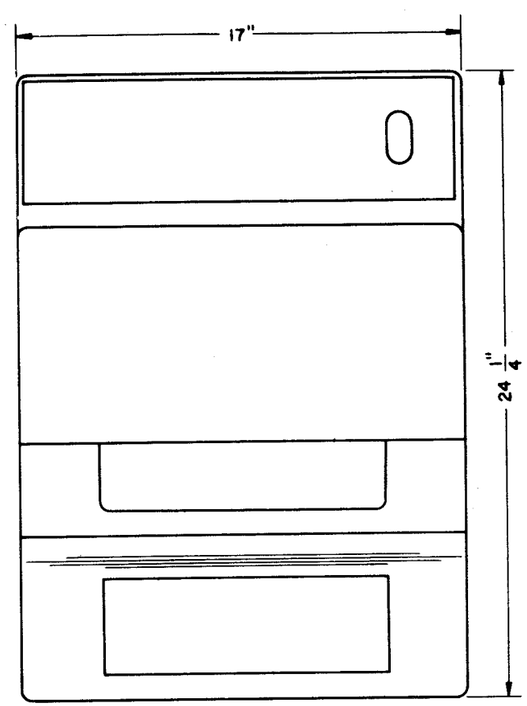
FIELD CHANGE REQUIREMENTS
TABLE 7-19



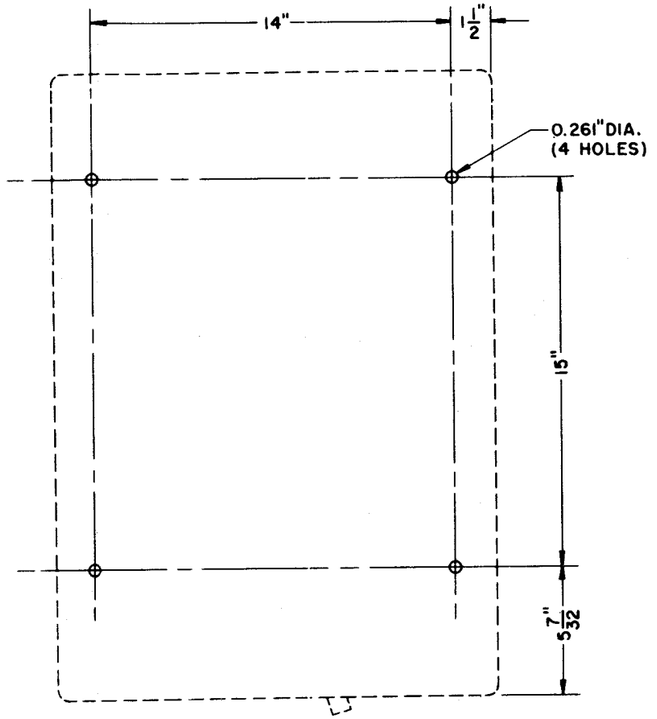


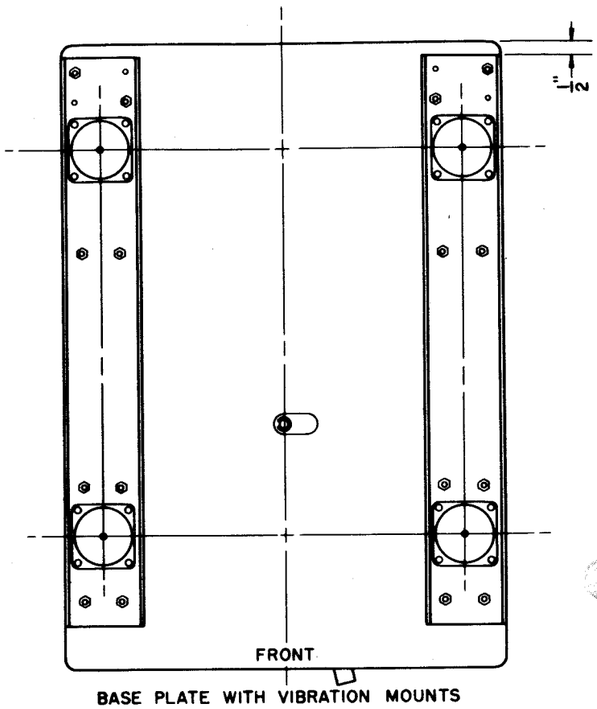
LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION				
PIECE NO.	NAME	NO. REQ'D.	MATERIAL	FEDERAL STOCK NO.
1	7.65 Plt.	/	M.S.	9515-237-5333
1	$\frac{1}{4}$" Thick Plt.	/	Aluminum	9535-542-2643

TT-176/UG TELETYPEWRITER
TYPICAL FOUNDATION DETAILS
FIGURE 7-15



TOP VIEW



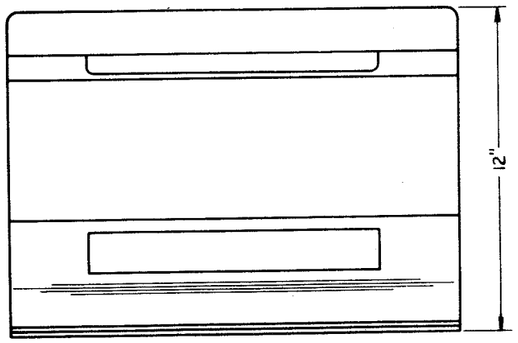


BASE PLATE WITH VIBRATION MOUNTS

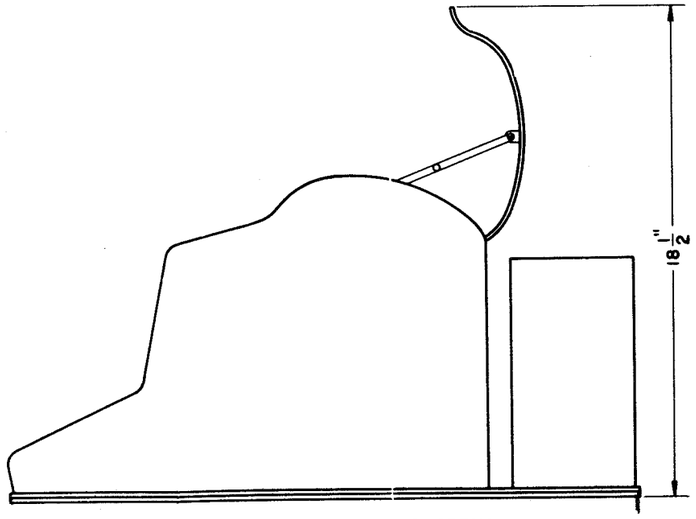
TT-176/UG

OUTLINE AND MOUNTING DIMENSIONS

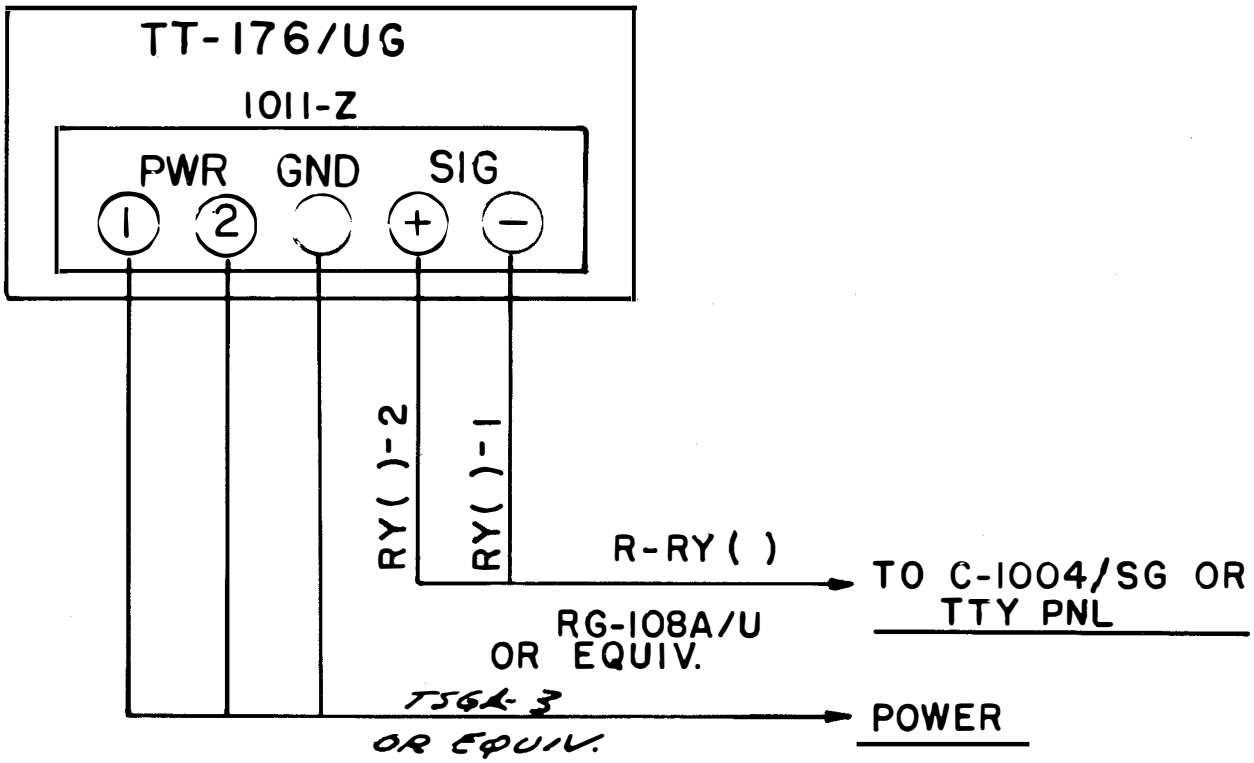
FIGURE 7-16



FRONT VIEW



SIDE VIEW (REAR LID OPEN)



TT-176/UG
CABLE DIAGRAM
FIGURE 7-17

SECTION 8 - MISCELLANEOUS

8.1 TSEC/KY-8 SPEECH SECURITY SYSTEM - GENERAL DESCRIPTION

The TSEC/KY-8 interim broadband speech security system is a half duplex broadband UHF/VHF speech security system. It provides a secure communication capability to accompany and parallel existing uncovered voice communication.

8.2 REFERENCE DATA

a. Table of Technical Publications - Table 8-1
b. Primary Power Requirements - Table 8-2
c. Heat Dissipation - Table 8-3
d. Unit Weight - Table 8-3

8.3 INSTALLATION REQUIREMENTS

a. Arrangement

(1) KYB-6/TSEC and HYP-2/TSEC may be installed on a radio operating desk (Lop Table) or similar flat surface of adequate strength. See Figure 8-1 for typical foundation details.

(2) The J-2698/UR (Black interconnecting box) and J-2697/UR (Red interconnecting box) maybe installed on the bulkhead by welding bolts or studs to the bulkhead to secure units or maybe mounted on same foundation with KYB-6/TSEC and HYP-2/TSEC. The J-2698/UR (Black) and J-2697/UR (Red) must be mounted as close as possible to KYB-6/TSEC and HYP-2/TSEC units. See Figure 8-11 for furnished cable data.

(3) The C-1138/UR maybe installed on a bulkhead by welding bolts or studs to the bulkhead. This unit may also be mounted on a shelf or placed on a fiddle board. See Figure 8-2 for typical foundation details.

(4) The LS-474/U speaker and AM-3729/SR amplifier should be installed in the same general area as the C-1138/UR on the bulkhead, overhead, shelf foundation or fiddle board. See Figure 8-2 for typical foundation details.

(5) The SA-1499/UR transceiver switching unit should be mounted as close as possible to the transceiver. See Figure 8-11 for furnished cable data.

SECTION 8 - MISCELLANEOUS (Continued)

8.3 INSTALLATION REQUIREMENTS

b. Outline and Mounting Dimension:

(1) TSEC/KY-8 Figure 8-3
(2) J-2698/UR Figure 8-4
(3) J-2697/UR Figure 8-5
(4) SA-1499/UR Figure 8-6
(5) AM-3729/SR Figure 8-7
(6) C-1138/UR Figure 8-8
(7) LS-474/U Figure 8-9
(8) AN/VRC-46 See Section 2
(9) AN/SRC-20/21 See Section 2

c. Grounding Specifications - All bonding and grounding to be in accordance with Table 8-1 Item No. 5.

8.4 CABLE DIAGRAM AND CONNECTION DETAILS

a. Elementary Connections - Figure 8-10
b. Electronics Installation and Maintenance Standards - To be in accordance with Table 8-1 Item No. 8.
c. Security Requirements - Consult Type Commander.

8.5 FIELD CHANGE REQUIREMENTS - See Table 8-1 Item No. 8.

ITEM NO.	NAVSHIPS NO. DRAWING NO. MIL. STD. NO.	TITLE
1	NAVSHIPS 0967-190-3020	Interim Systems Manual for TSEC/KY-8
2	NAVSHIPS 0967-105-8010	Technical Manual for Audio Frequency Amplifier AM-3729/SR
3	0967-191-5010	Technical Manual for Radio Set Control C-1138A/UR
4	0280-538-2000	Instruction Sheet for NT-51007A
5	Mil. Std. 1310A (NAVY)	Shipboard Bonding and Grounding Methods for Electromagnetic Compatibility
6	*FSC 02227-10D-1421	Interim KY-8 Installation Plan (NSEF)
7	0981-052-8090	Data Pertaining to Electrical Shipboard Cable
8	0967-000-0000	Electronics Installation and Maintenance Books.

*These plans are not essential for installation but if available use as reference.

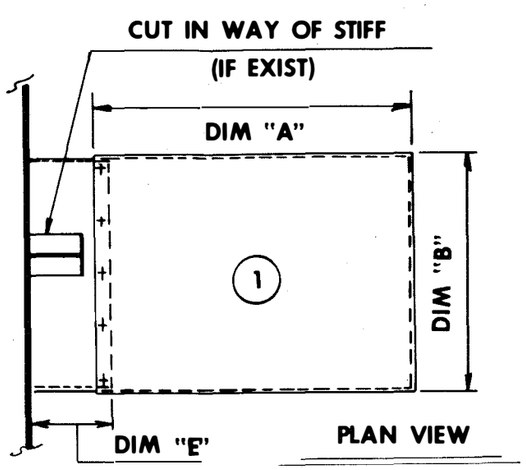
TABLE OF TECHNICAL PUBLICATIONS
TABLE 8-1

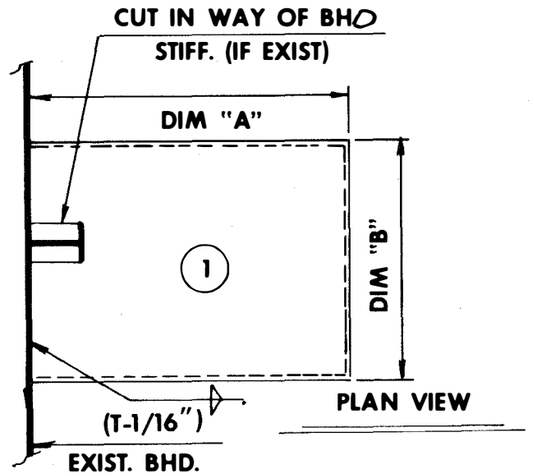
EQUIPMENT	VOLTAGE	CURRENT	POWER	REMARKS
HYP-2/TSEC	115 VAC (RED) 60 Hz, Single Phase	1.11 AMPS	130 Watts	
AM-3729/SR	115 VAC (RED) 60 Hz, Single Phase		30 Watts	

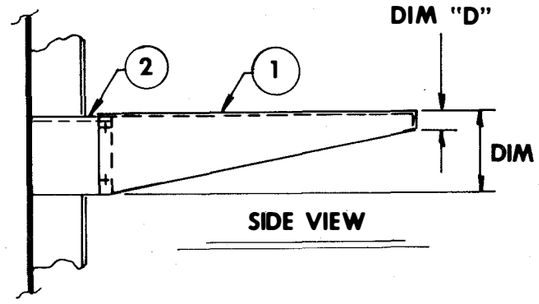
TABLE OF PRIMARY POWER REQUIREMENTS
TABLE 8-2

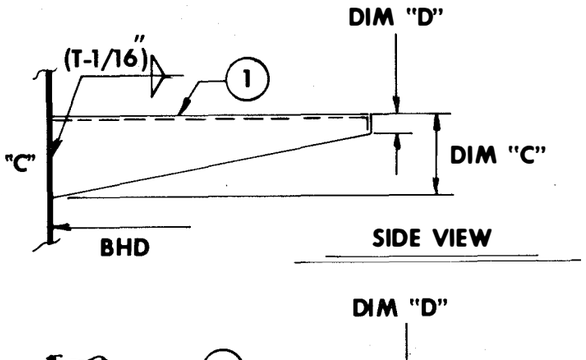
EQUIPMENT	HEAT DISSIPATION	UNIT WEIGHT	REMARKS
KYB-6/TSEC	80.8 Watts	36 Lbs.	
HYP-2/TSEC	130 Watts	24.75 Lbs.	
KYB-13/TSEC		18 Lbs.	
AM-3729/SR Audio Amplifier	30 Watts	11¼ Lbs.	
C-1138/UR Radio Set Control		13 Lbs.	
LS-474/U Speaker		Approx. 5 Lbs.	
J-2698/UR Interconnecting Box (Black)		Approx. 2 Lbs.	
J-2697/UR Interconnecting Box (Red)		Approx. 2 Lbs.	
SA-1499/UR Transceiver Switching Unit		Approx. 2 Lbs.	
NT-51007A Handset			

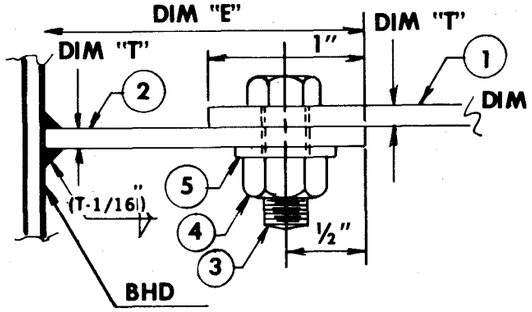
TABLE OF MISCELLANEOUS DATA
TABLE 8-3



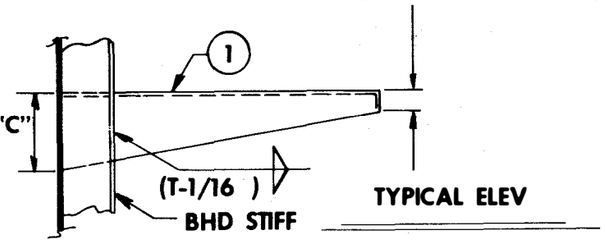








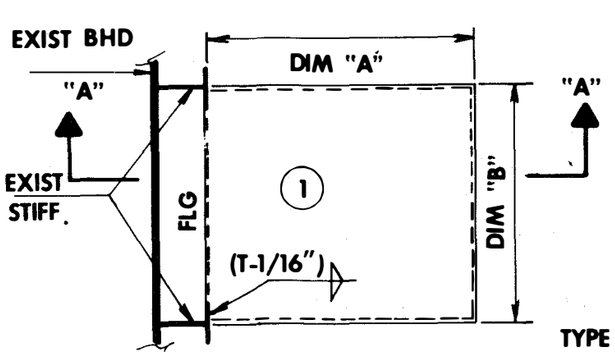
TYPICAL BHD CONNECTION

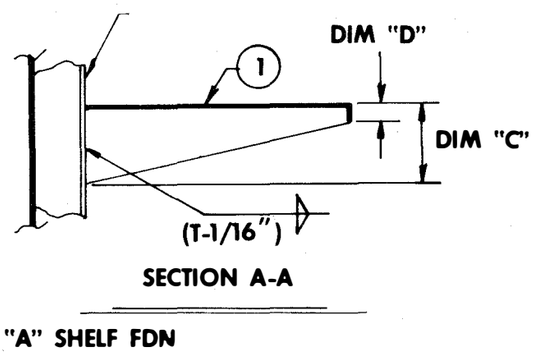


SHOWING BHD STIFF
IN WAY OF ONE FLG.

TYPE "B" SHELF FDN

TYPE "C" SHELF FDN





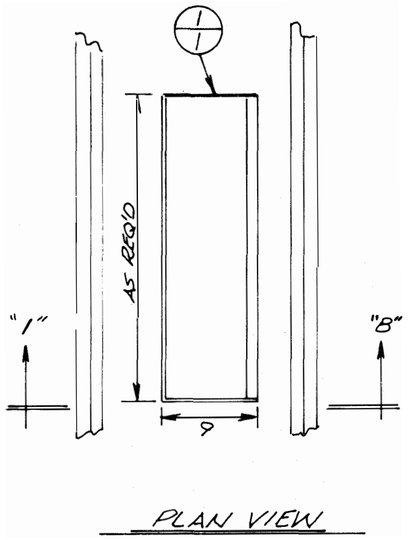
TYPE "A" SHELF FDN

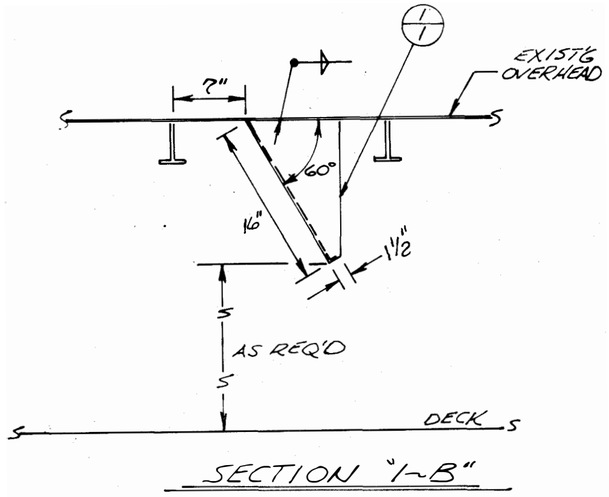
LIST OF MATERIAL QUANTITIES FOR ONE FDN					
PC NO.	NAME	NO.	MATERIAL	MT'L SPEC.	REMARKS
1	PLT (SEE NOTE #2)	1	MED. STL.	MIL-S-16113	TYPE "A"
1	PLT (SEE NOTE #2)	1	MED. STL	MIL-S-16113	TYPE "B"
1	PLT (SEE NOTE #2)	1	AL-61S-T6	QQ-A-327	
2	PLT (SEE NOTE #2)	1	MED STL	MIL-S-16113	
3	¼" HEX H.D. BOLT	AS REQ'D	C.R.S.	MIL-B-857	TYPE "C"
4	¼" HEX NUT	↓	↓	MIL-B-857	
5	¼" DIA-FLAT WASHER	↓	↓	MIL-S-854	

NOTES:

1. Thickness (Dim. "T") of material to be furnished on location.
2. All variable dimensions and type of foundation to be specified on location.
3. Foundation for KYB-6/TSEC and HYP-2/TSEC to be as follows:
   a. Plating (7.65 #Plt. steel), $\frac{1}{4}$" thick aluminum
   b. Type "B" shelf foundation
   c. For installation with stiffener in way of unit: Dimension "A" = 20" + depth of stiffener, dimension "B" = 26", dimension "C" = 9", dimension "D" = 2"
   d. For installation with no stiffener interference: dimension "A" = 20", dimension "B" = 26", dimension "C" = 9", dimension "D" = 2".
4. Size and location of mounting bolts to be taken from equipment.

KYB-6/TSEC AND HYP-2/TSEC
TYPICAL FOUNDATION DETAILS
FIGURE 8-1



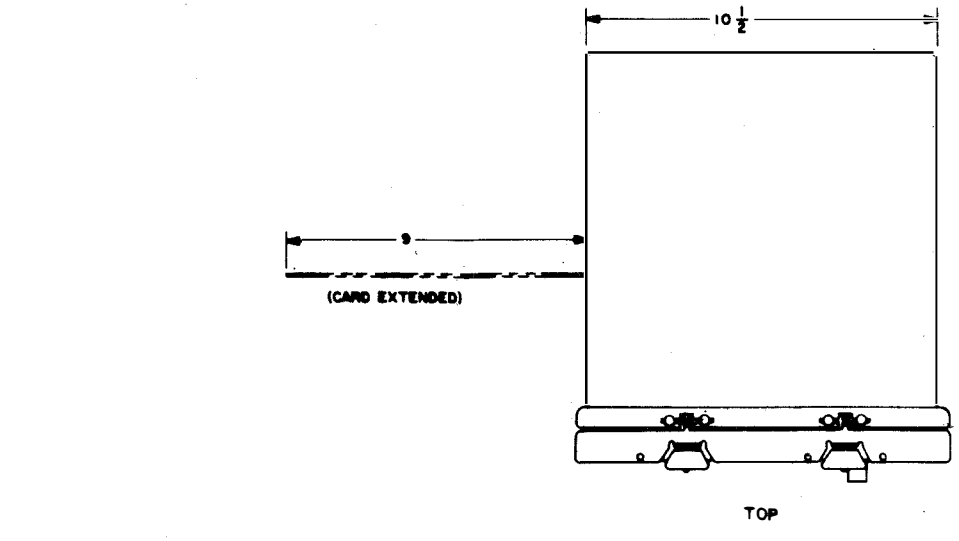


LIST OF MATERIAL - QUANTITIES FOR ONE FOUNDATION						
Pc. No.	Name	No. Reqd.	Material	Mt'l. Spec.	Federal Stk. No.	Remarks
1	7.65 #Plt.	1	M. Stl.		9515-237-5333	

NOTES:

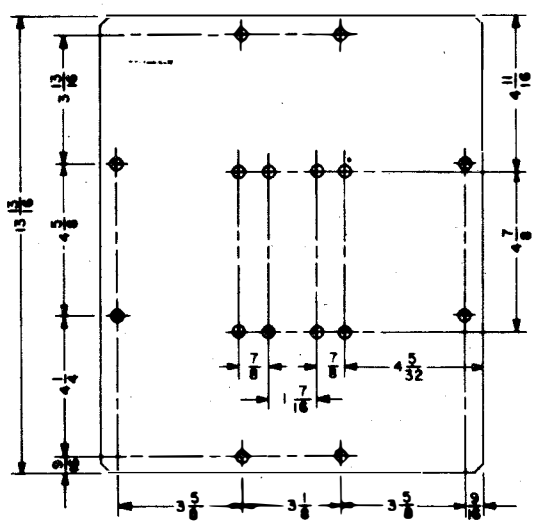
1. Template all work from ship as required.
2. Material may be substituted to suit installation.
3. Size and location of mounting bolts to be taken from equipment.

C-1138/UR, LS-474/U AND AM-3729/SR
TYPICAL FOUNDATION DETAILS
FIGURE 8-2

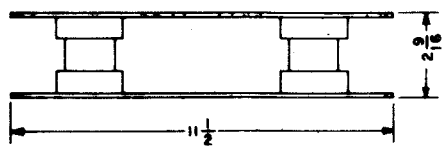


KYB-6/TSEC

HYP-2/TSEC
ANCILLARY POWER SUPPLY



SHOCK MOUNTING BASE KYB-13/TSEC



ORIGINAL

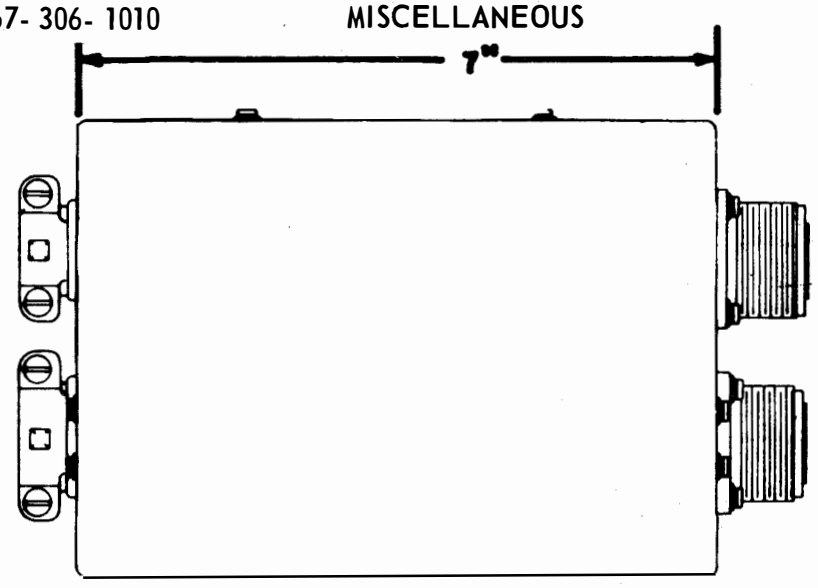
TSEC/KY-8

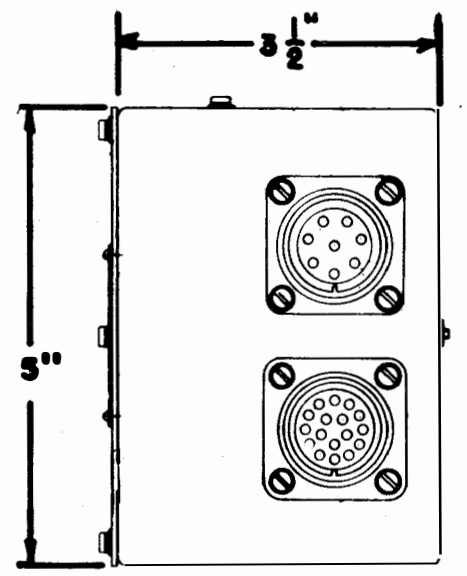
OUTLINE AND MOUNTING DIMENSIONS

FIGURE 8-3

SA-1499/UR TRANSCEIVER SWITCHING UNIT OUTLINE AND MOUNTING DIMENSIONS

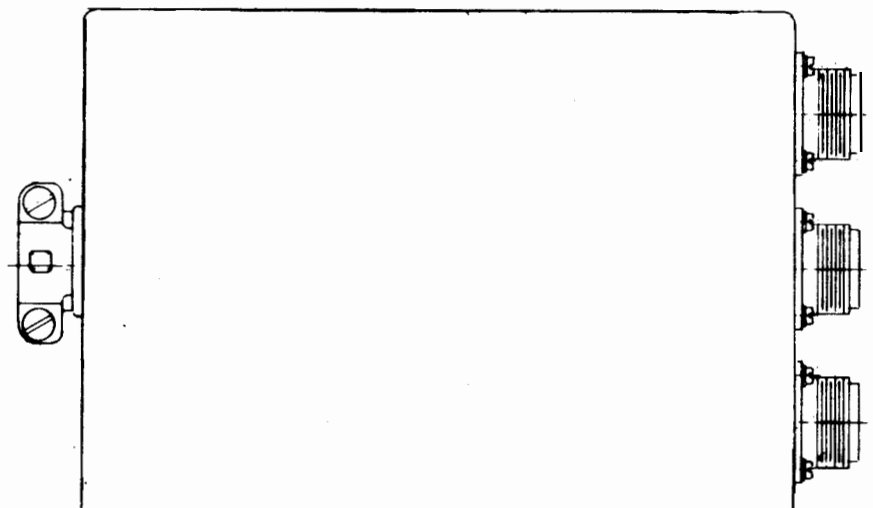
FIGURE 8-6

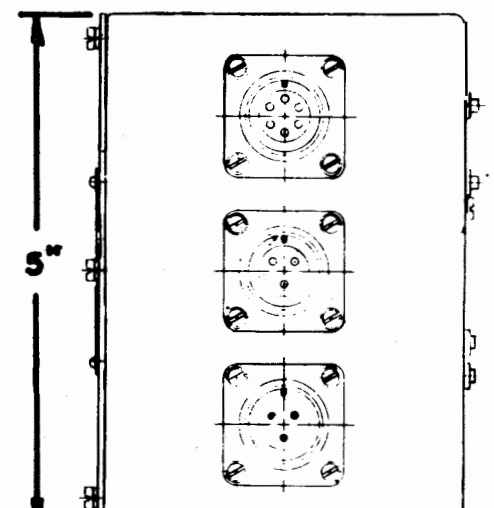




J-2697/UR INTERCONNECTING BOX (RED) OUTLINE AND MOUNTING DIMENSIONS

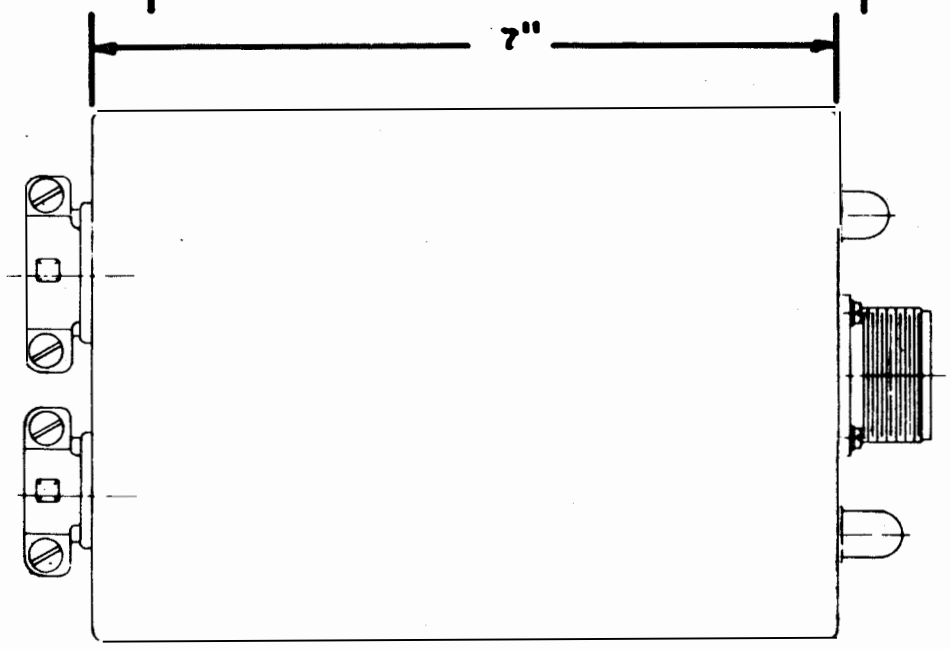
FIGURE 8-5

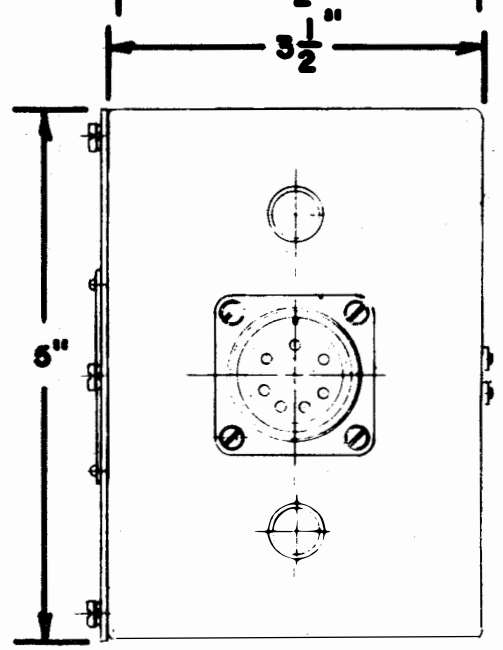


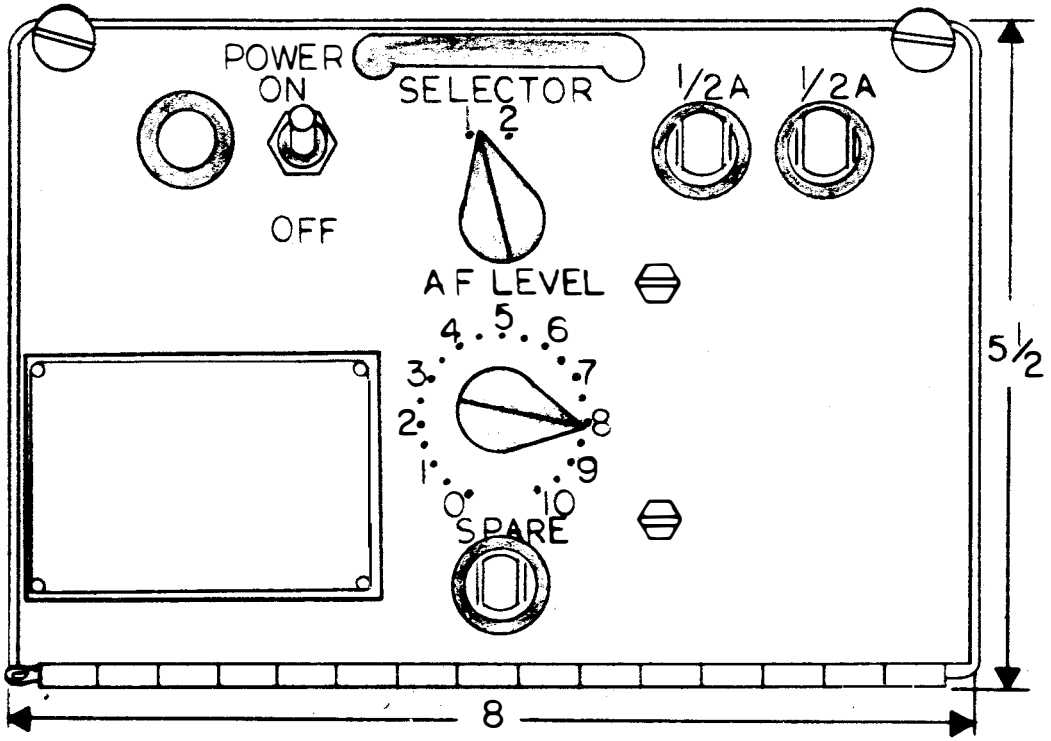


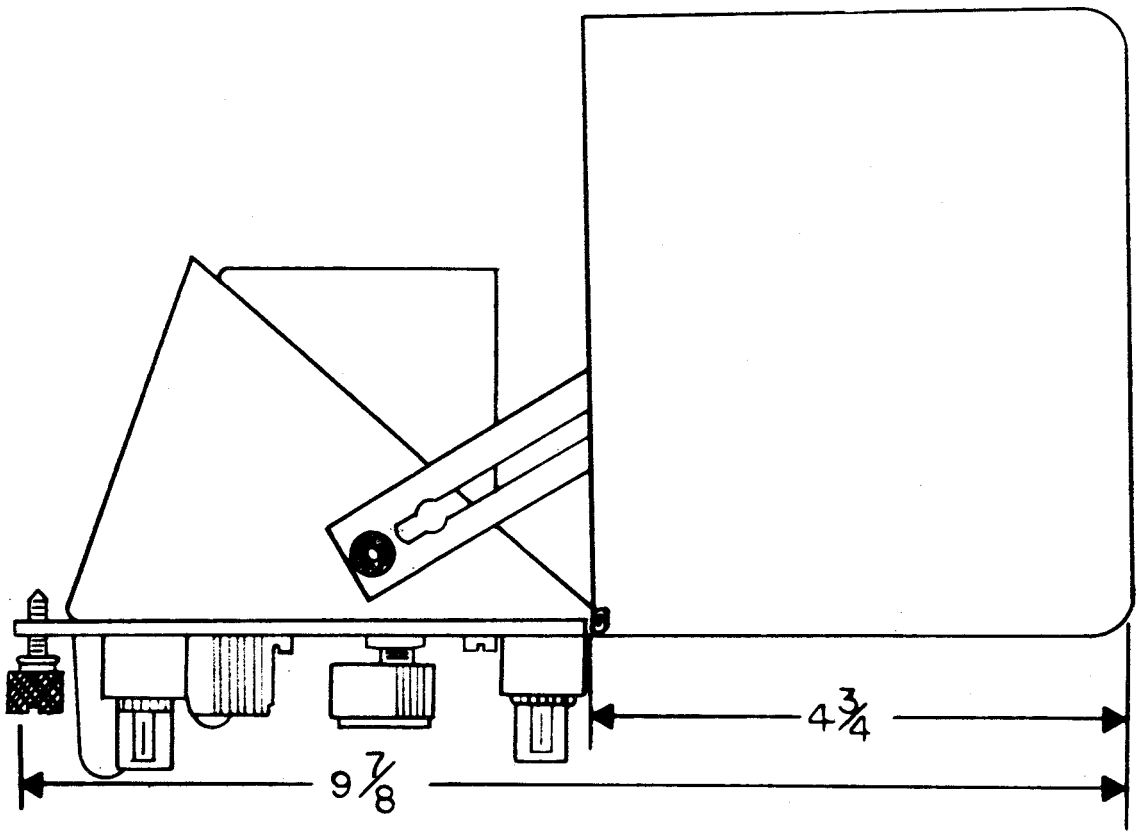
J-2698/UR INTERCONNECTING BOX (BLACK) OUTLINE AND MOUNTING DIMENSIONS

FIGURE 8-4





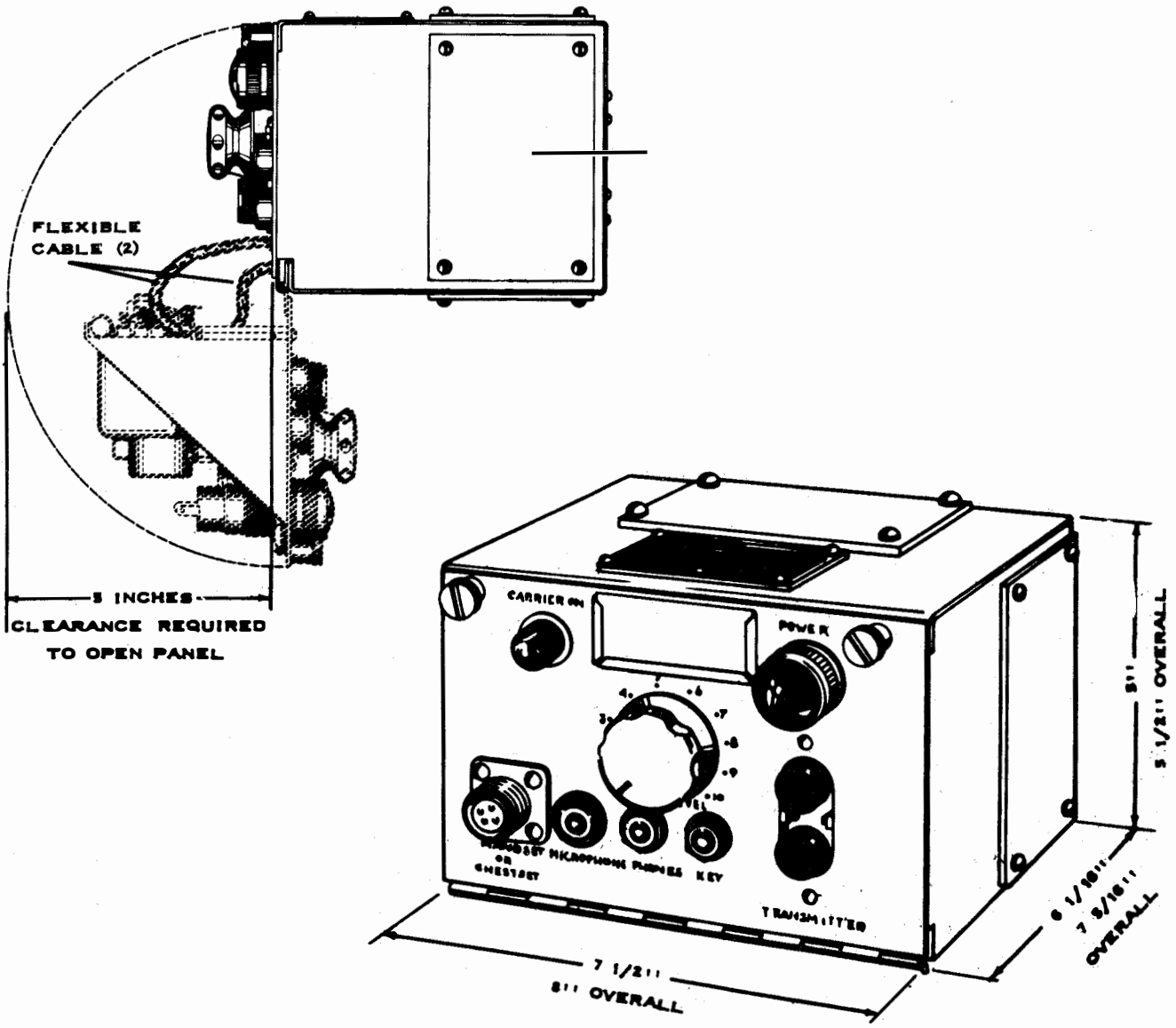




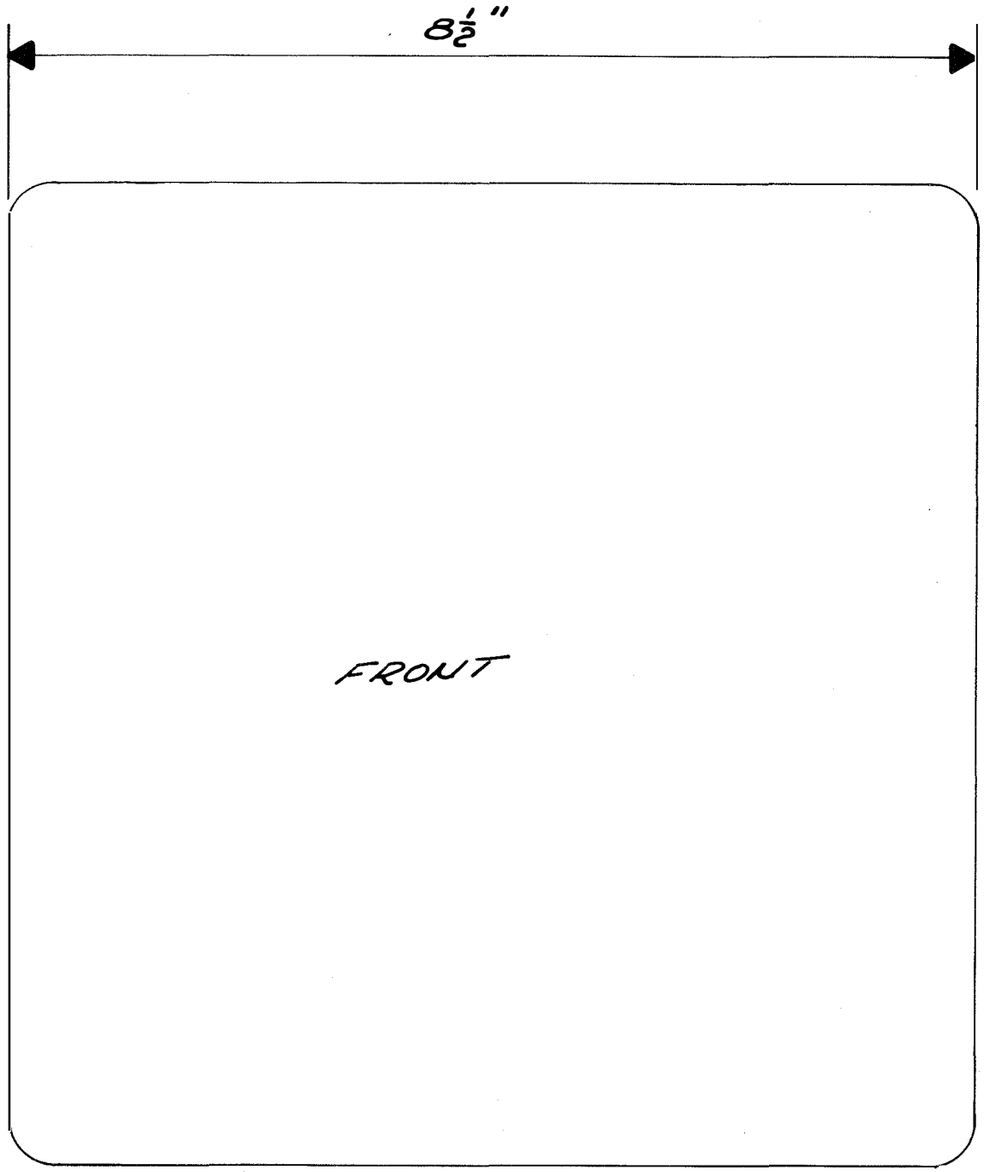
AM-3729/SR

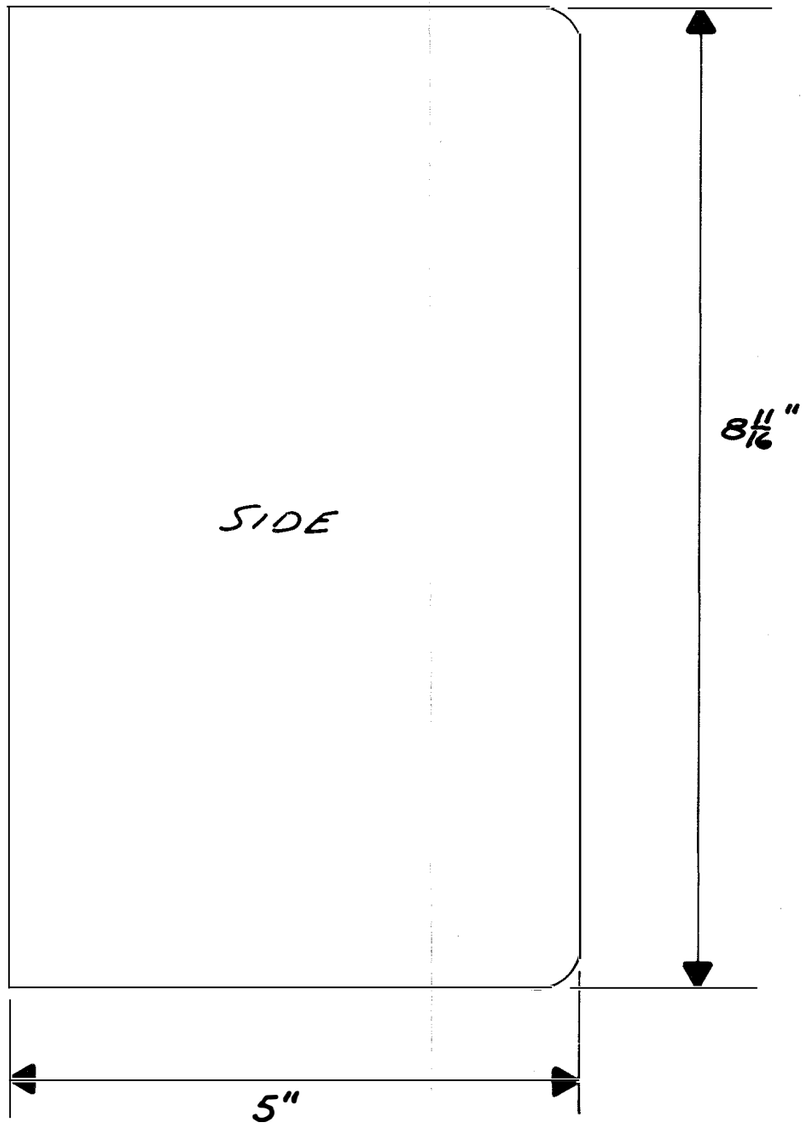
OUTLINE AND MOUNTING DIMENSIONS

FIGURE 8-7



C-1138/UR
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 8-8





LS-474/U SPEAKER
OUTLINE AND MOUNTING DIMENSIONS
FIGURE 8-9

CAUTION NOTE:

Particular attention must be directed to audio lines with one side at ground. Make sure the ground side follows through and is not connected as a short circuit line.

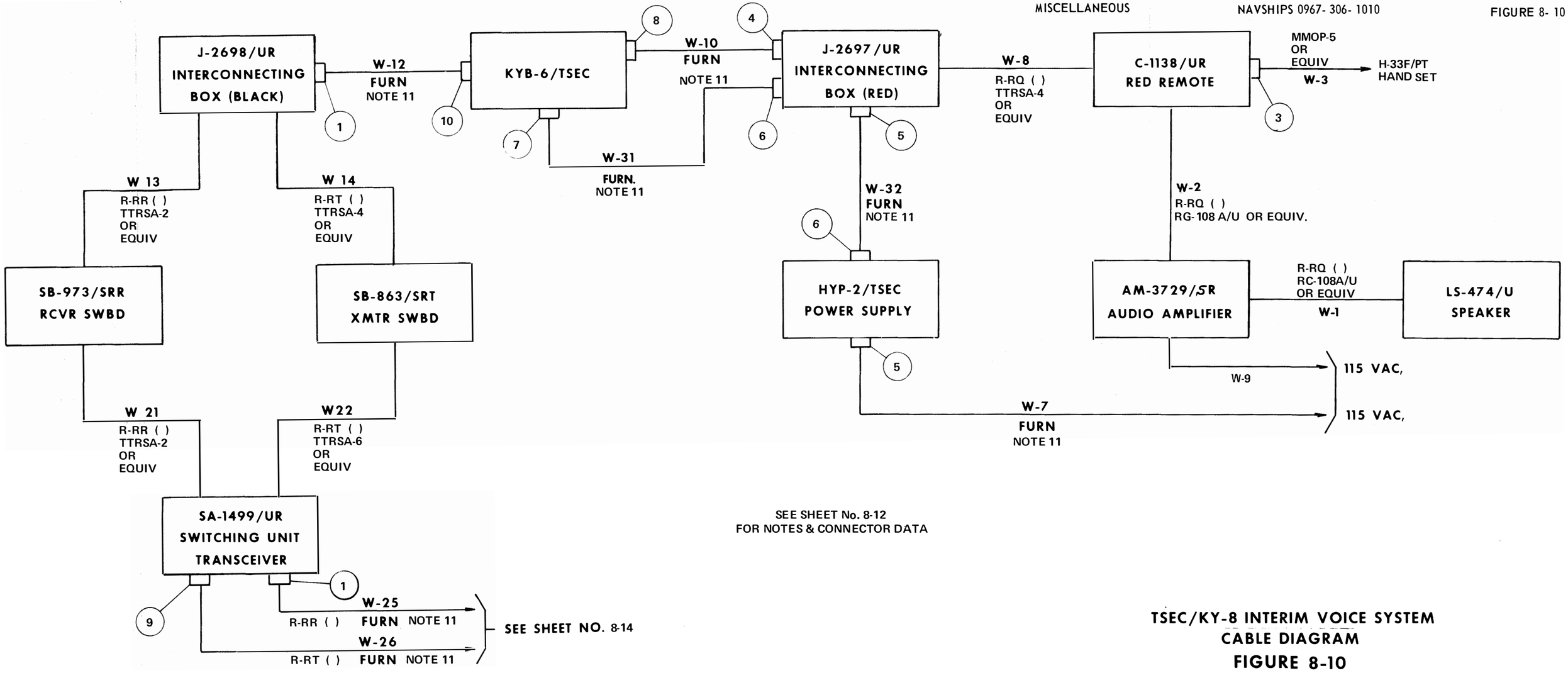
NOTES:

1. MCW Lines disconnected with respect to transceiver equipment being used with KY-8.
2. Spare switchboard may be added to expand service capability or if no spare switch is available.
3. All wires not indicated are taped back stored.
4. Cables W-25, W-26, W-27, and W-28 are terminated with terminal lugs.
5. Cables W-25 and W-26 terminated in connector.
6. Place broadband switch S-1401 in broadband position.
7. Cable W-25 is terminated in connector.
8. Cable W-26 is terminated with terminal lugs.
9. Includes transceiver mounting rack MT-1029/VRC (includes junction box).
10. Place X-mode switch S-4001 in X-mode position.
11. Normally these cables are furnished, but if not, installing activity will furnish and fabricate cables and connectors as shown in Figure 8-11.

NOTES AND CONNECTOR DATA FOR FIGURE 8-10

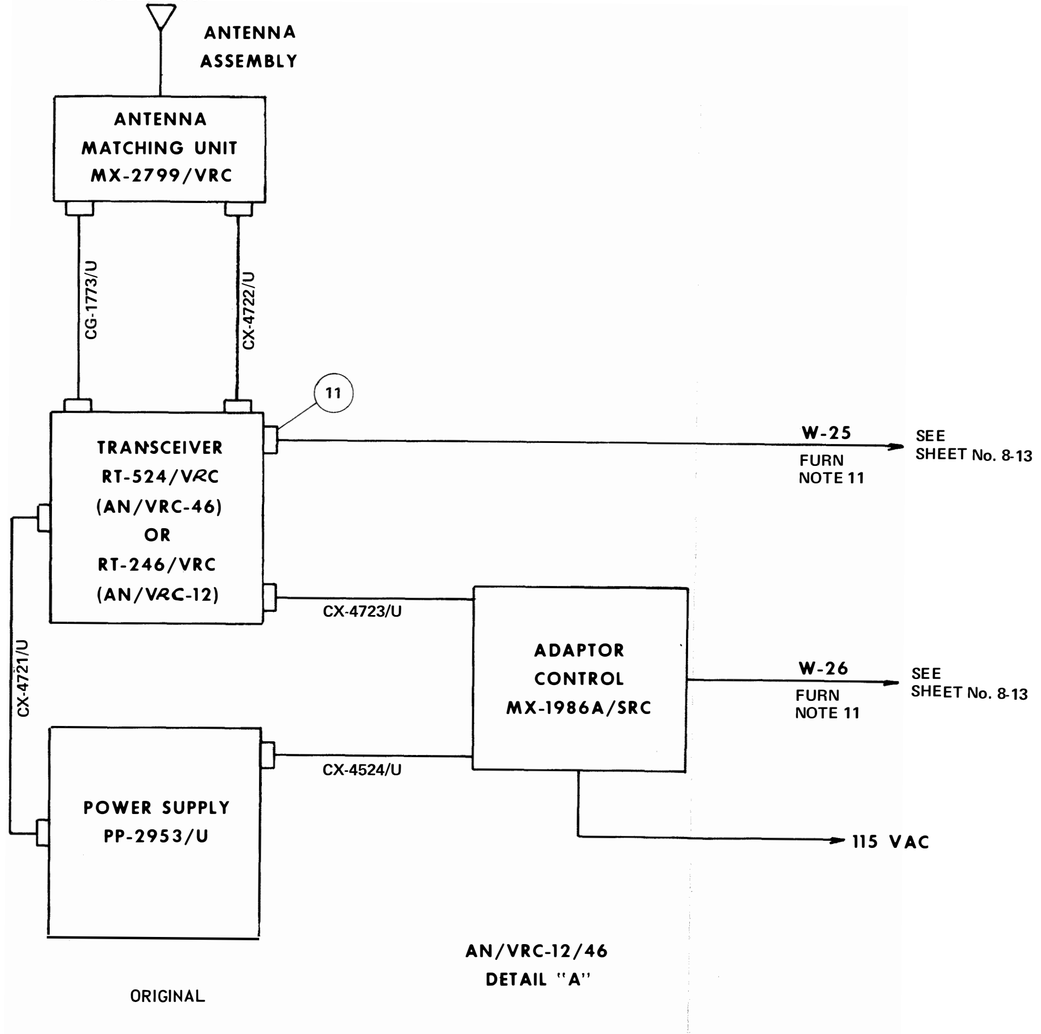
CONNECTOR DATA

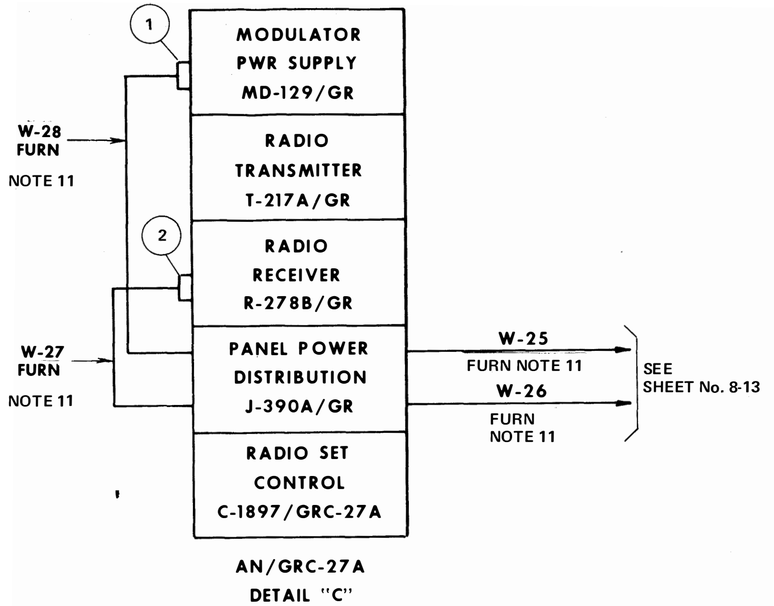
ASSY. NO.	RECEPTACLE	PLUG	CLAMP
1	MS3102A-20-7S	MS3106A-20-7P	AN-3057-12A
2	MS3102A-18-1S	MS3106A-18-1P	AN-3057-10A
3	MS102R-14S-5S	MS3106R-14S-5P	AN-3057-6A
4	MS3102A-14S-6S	MS3106A-14S-6P	AN-3057-6A
5	MS3102R-14S-7S	MS3106R-14S-7P	AN-3057-6A
6	MS3102R-14S-7SC	MS3106R-14S-7PC	AN-3057-6A
7	164-101-1P(AMPH) (CS-2020-(1)(P)	164-201-1S(13)(AMPH) (CS-1320-(1)(S)	
8	164-7J(U-79/U)(AMPH)	164-28(U-77/U)(AMPH)	
9	MS-3102R-20-29S	MS-3106R-20-29P	AN-3057-12A
10	MS-3112F-14-19S	MS-3116F-14-19P (PT06A-14-19P)BENDIX	
11	MS3112E-12-10S	MS3116E(SR)-12-10P	
12	MS3102R-24-7SY(C)	MS3108E-24-7PY	AN-3057-16A

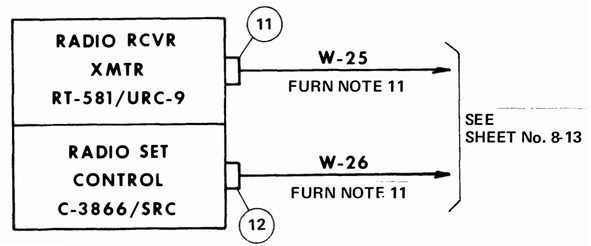


SEE SHEET No. 8-12
FOR NOTES & CONNECTOR DATA

TSEC/KY-8 INTERIM VOICE SYSTEM
CABLE DIAGRAM
FIGURE 8-10
CONTINUED





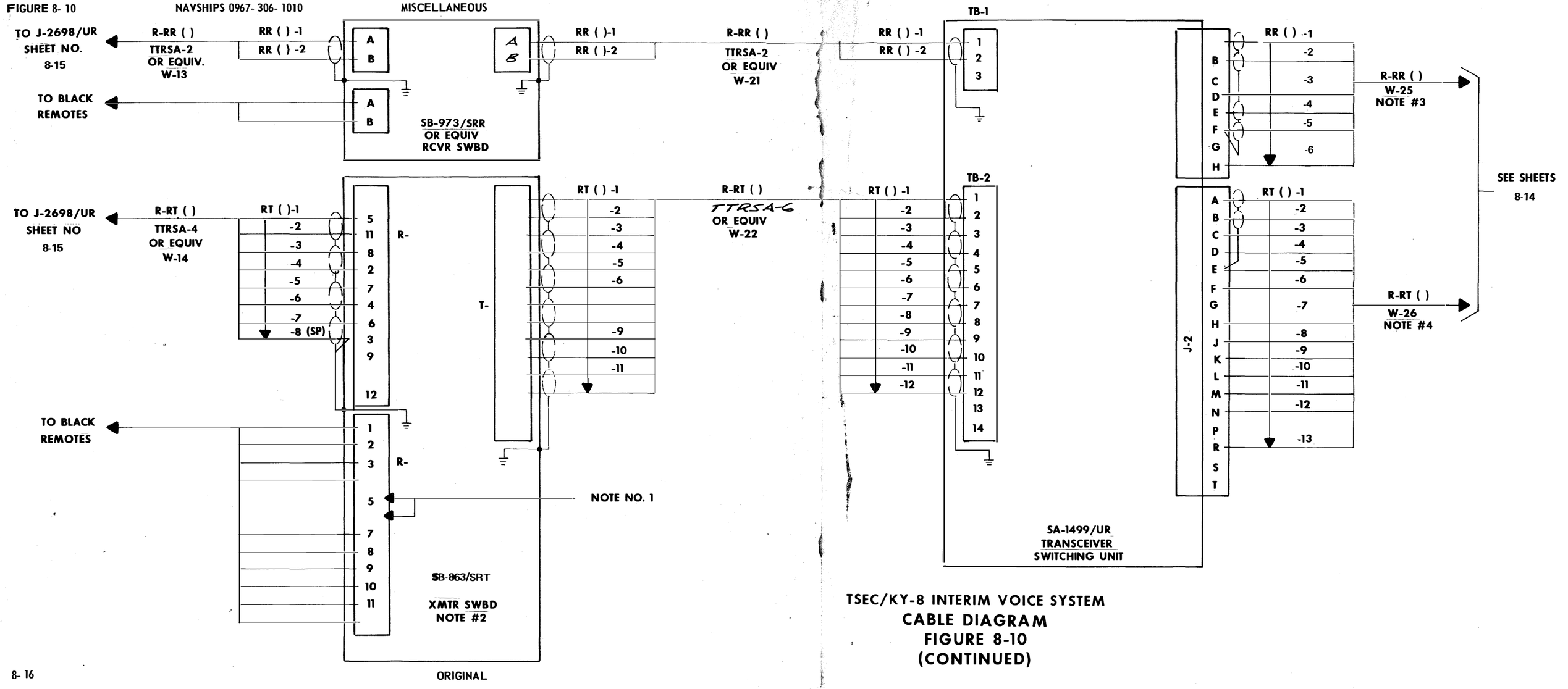


TSEC/KY-8 INTERIM VOICE SYSTEM

CABLE DIAGRAM

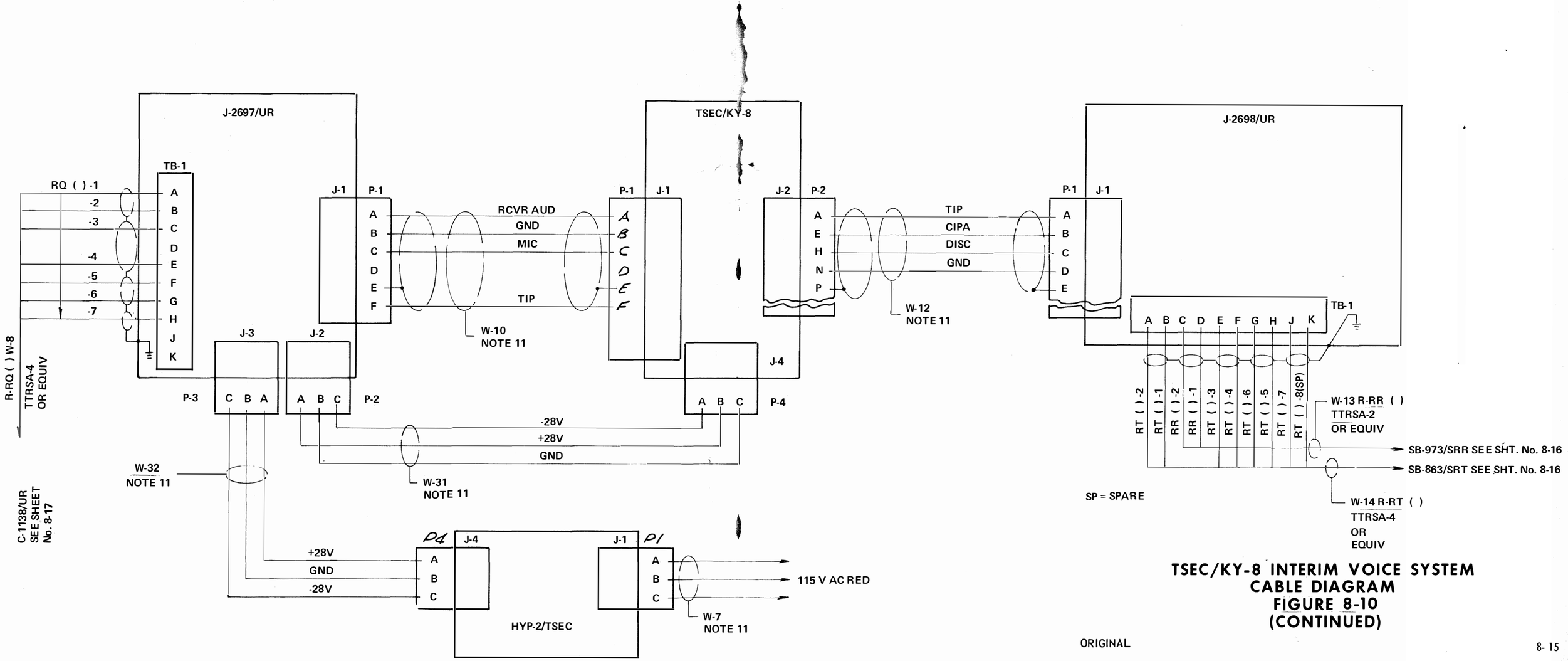
FIGURE 8-10

CONTINUED



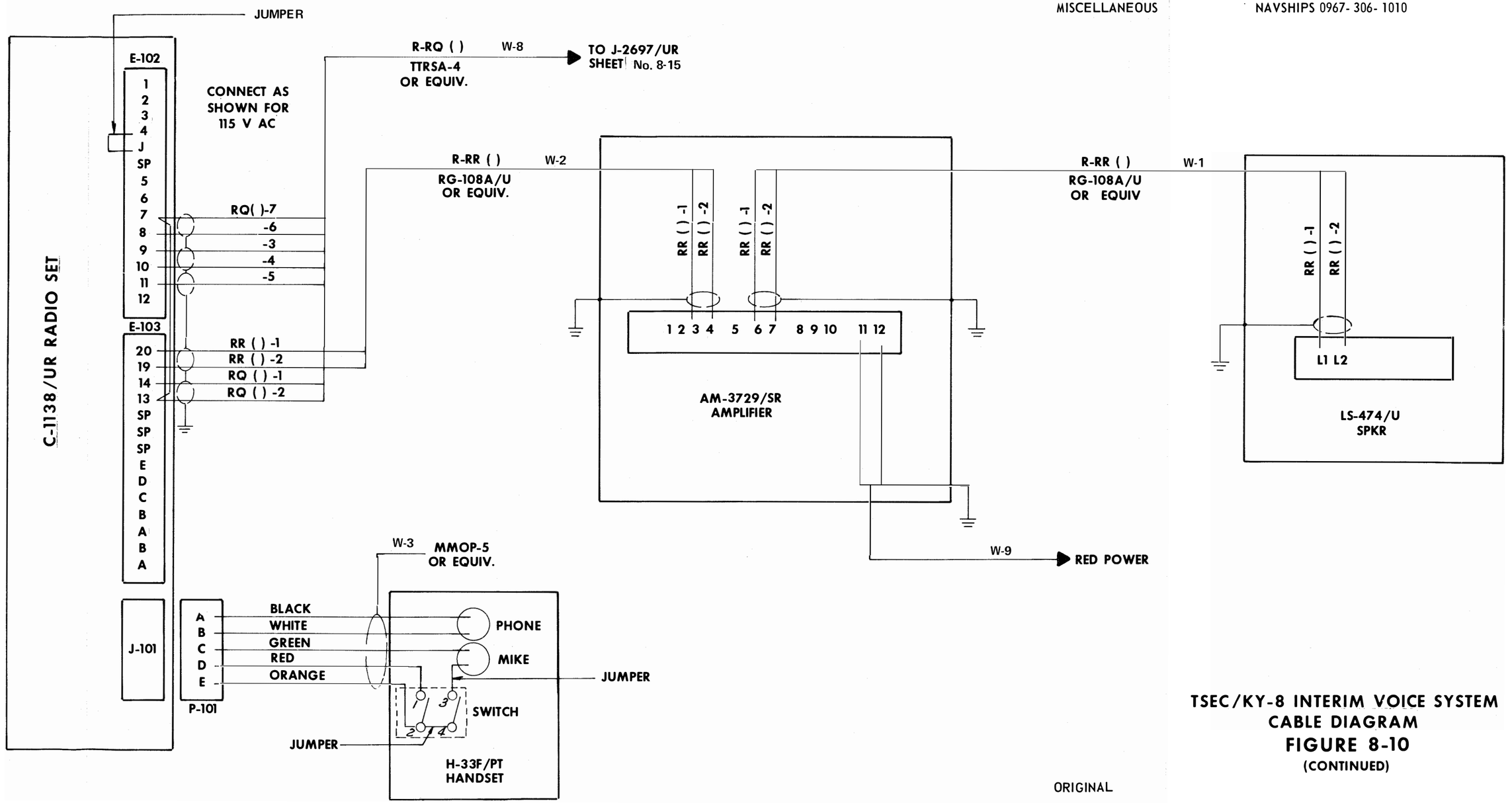
ORIGINAL

TSEC/KY-8 INTERIM VOICE SYSTEM
CABLE DIAGRAM
FIGURE 8-10
(CONTINUED)



TSEC/KY-8 INTERIM VOICE SYSTEM CABLE DIAGRAM FIGURE 8-10 (CONTINUED)

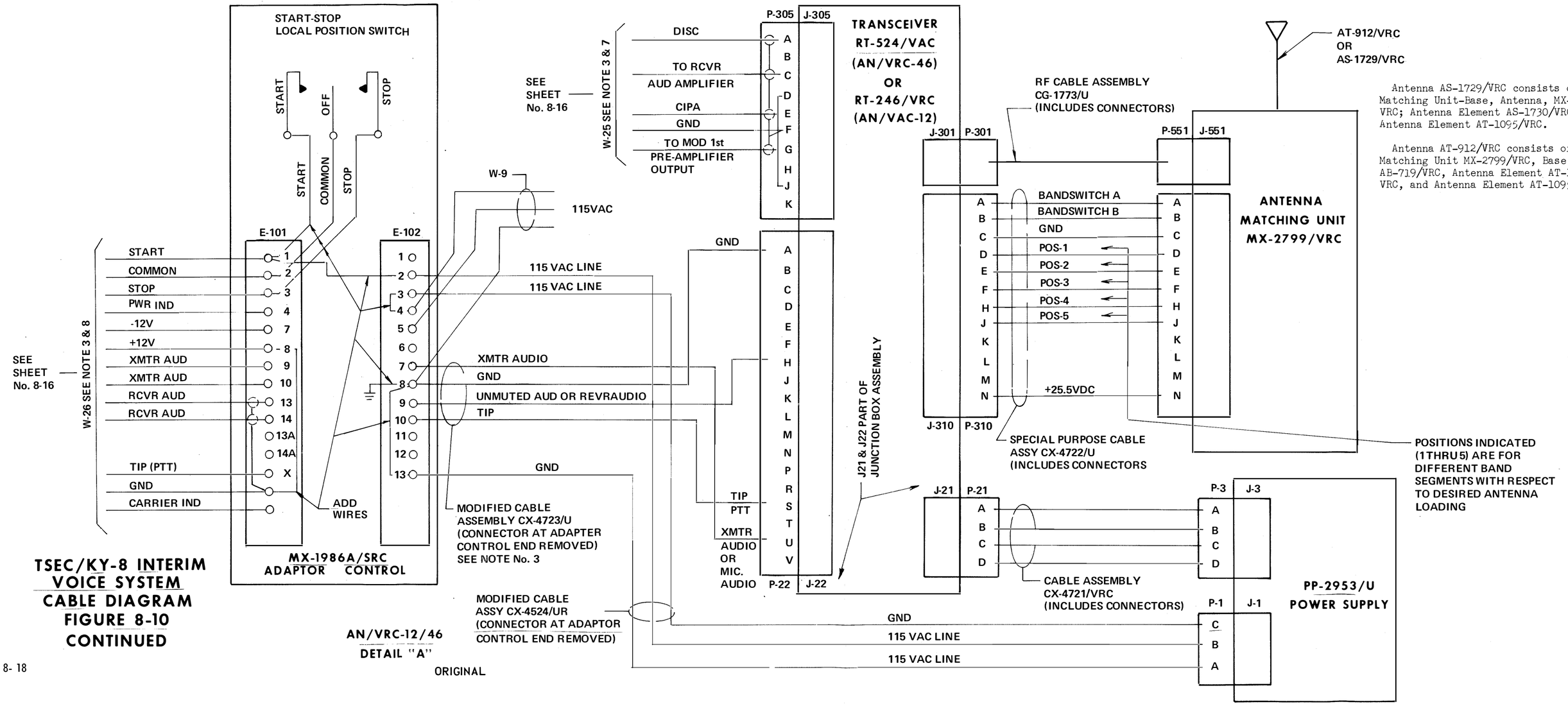
ORIGINAL



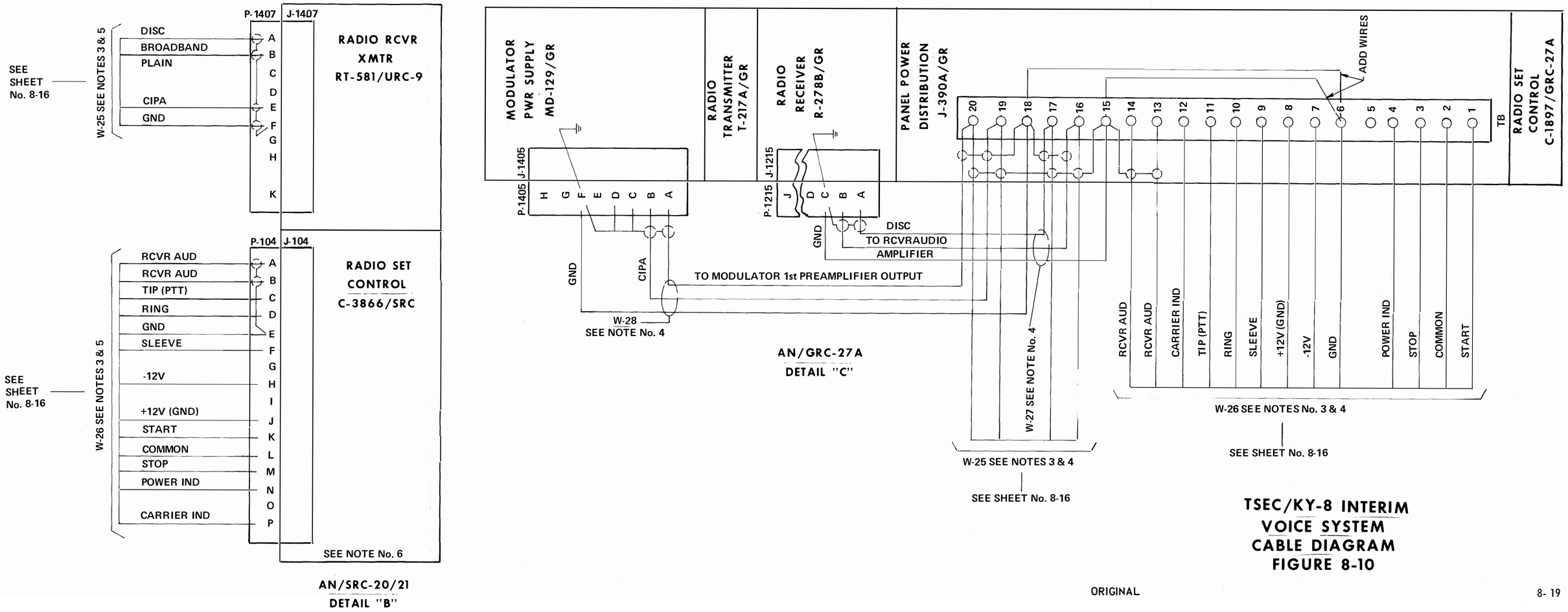
TSEC/KY-8 INTERIM VOICE SYSTEM CABLE DIAGRAM

FIGURE 8-10

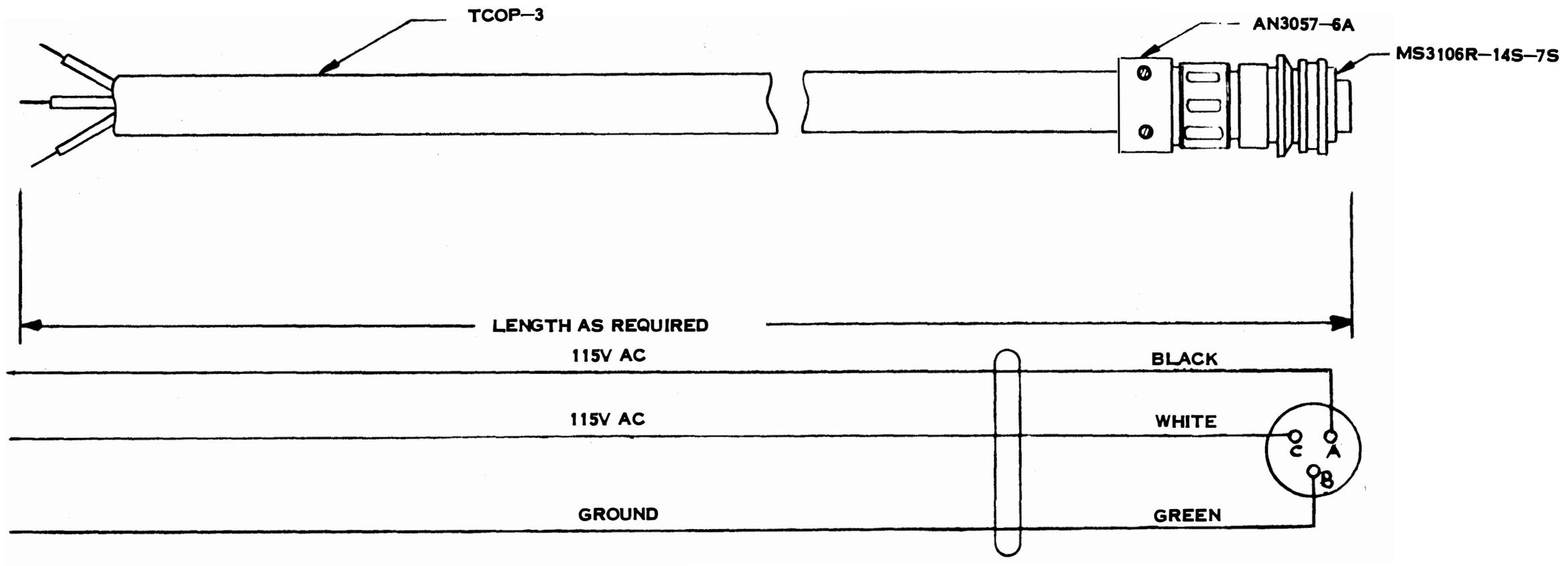
(CONTINUED)



TSEC/KY-8 INTERIM VOICE SYSTEM CABLE DIAGRAM FIGURE 8-10 CONTINUED

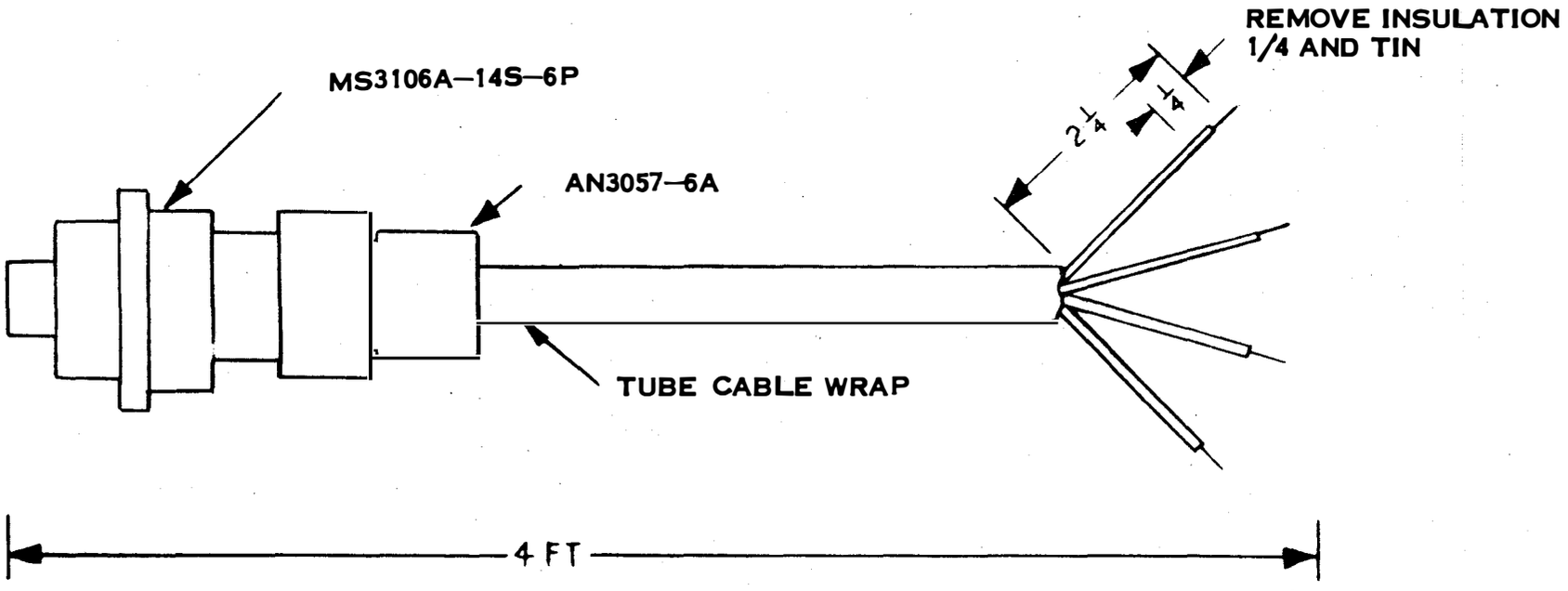


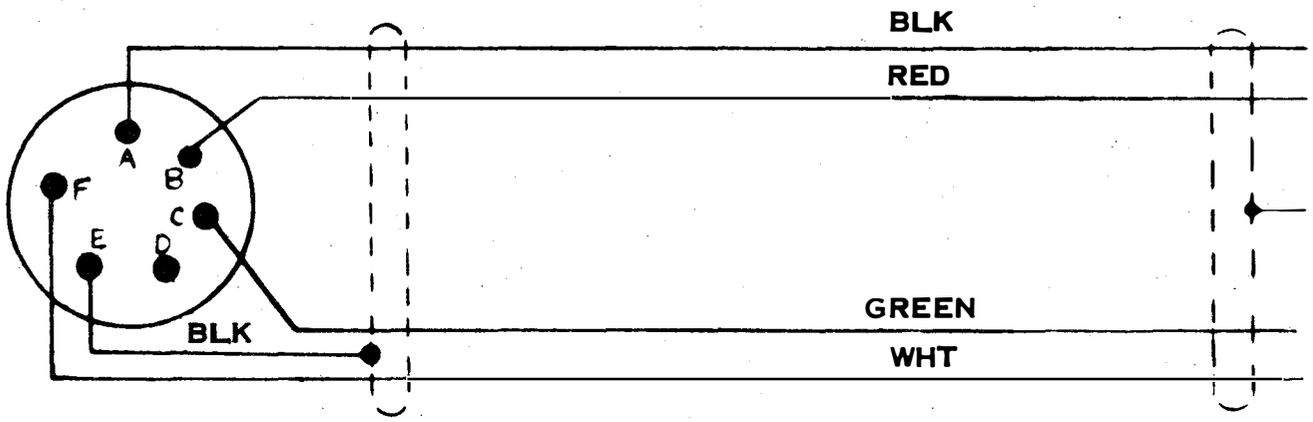
TSEC/KY-8 INTERIM VOICE SYSTEM CABLE DIAGRAM FIGURE 8-10



CABLE W–7

TSEC/KY-8
W-7
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)





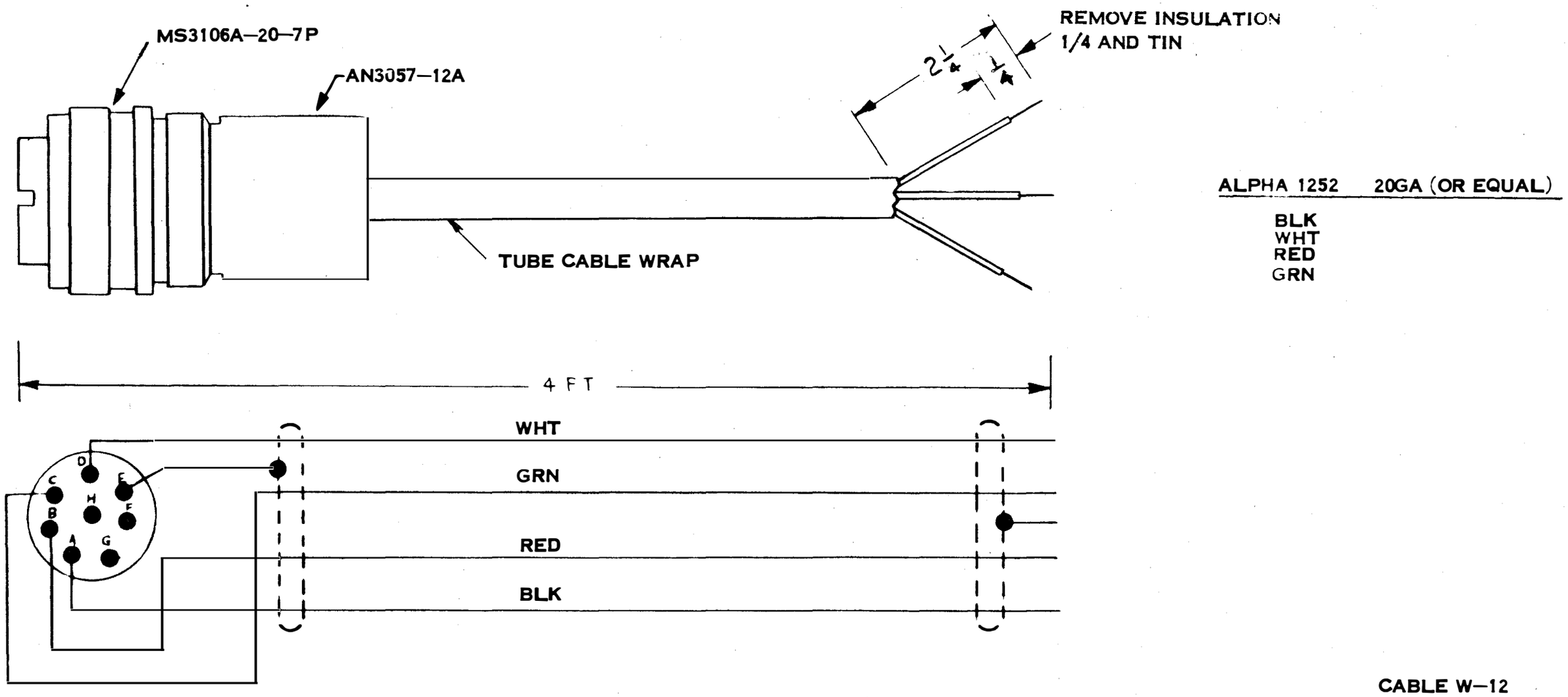
ALPHA 1252 (OR EQUAL)

4 CON. 20GA

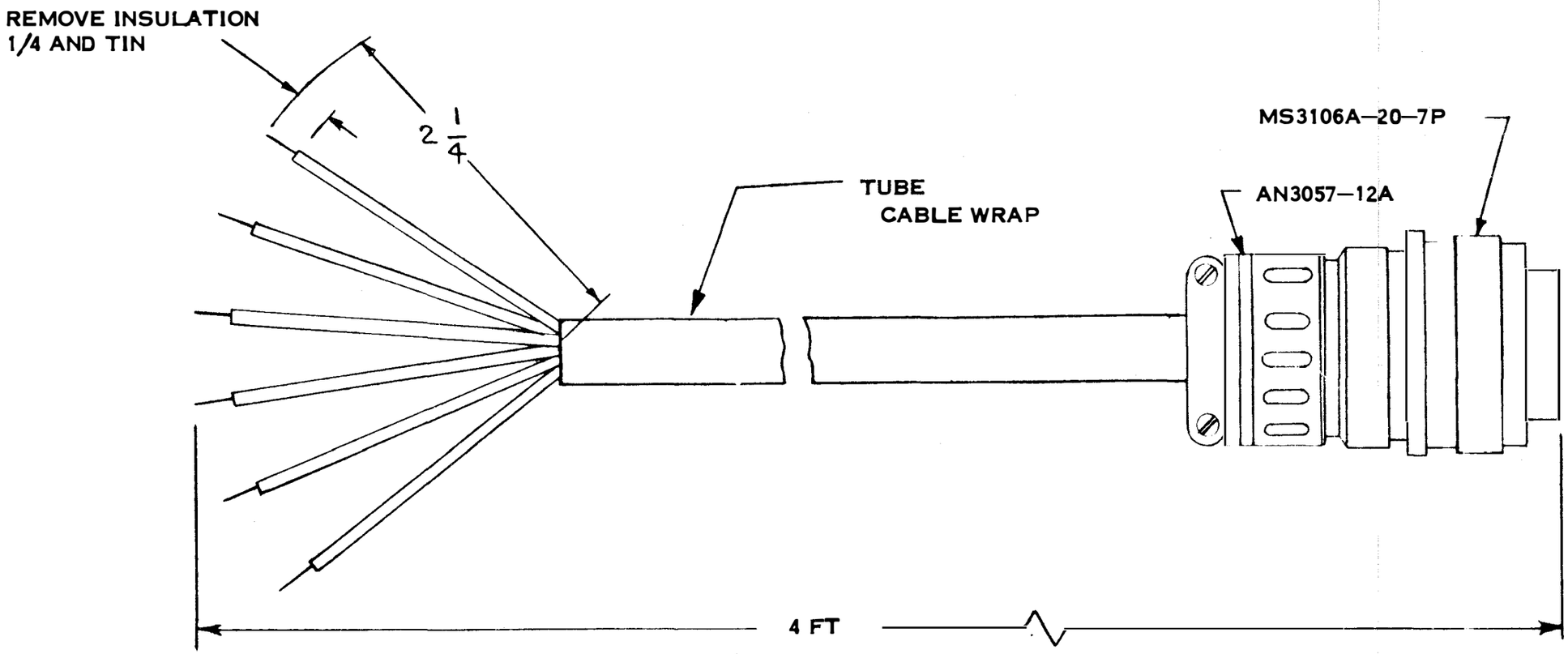
BLK
WHT
RED
GRN

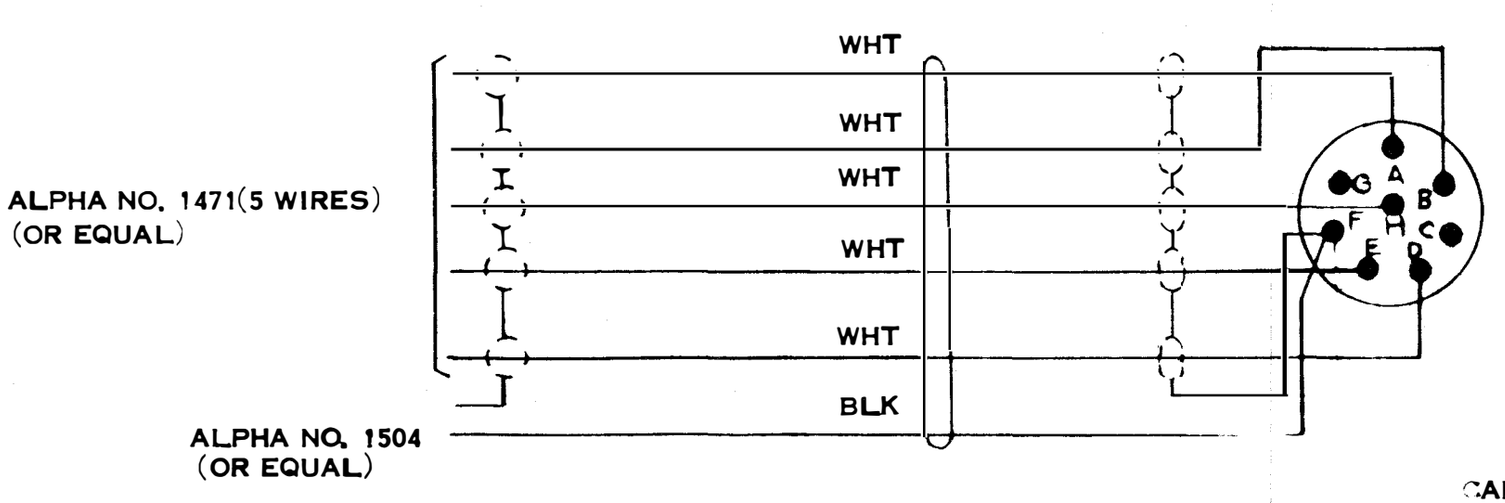
CABLE W–10

TSEC/KY-8
W-10
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)



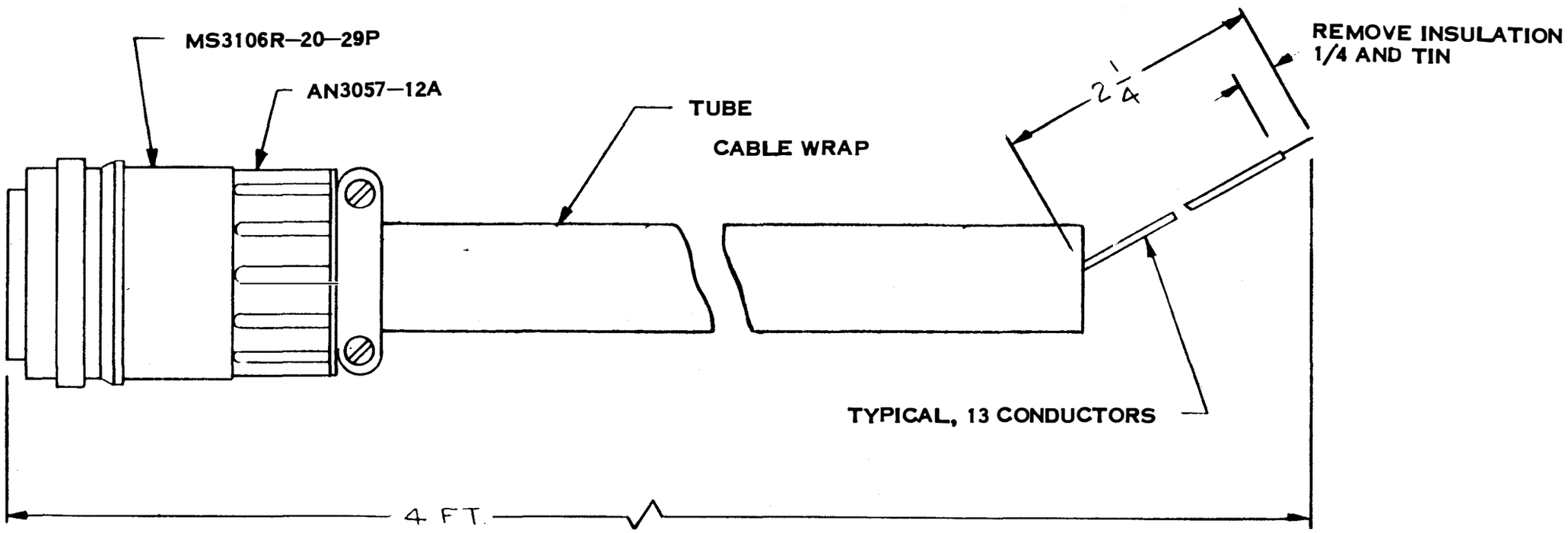
TSEC/KY-8
W-12
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)

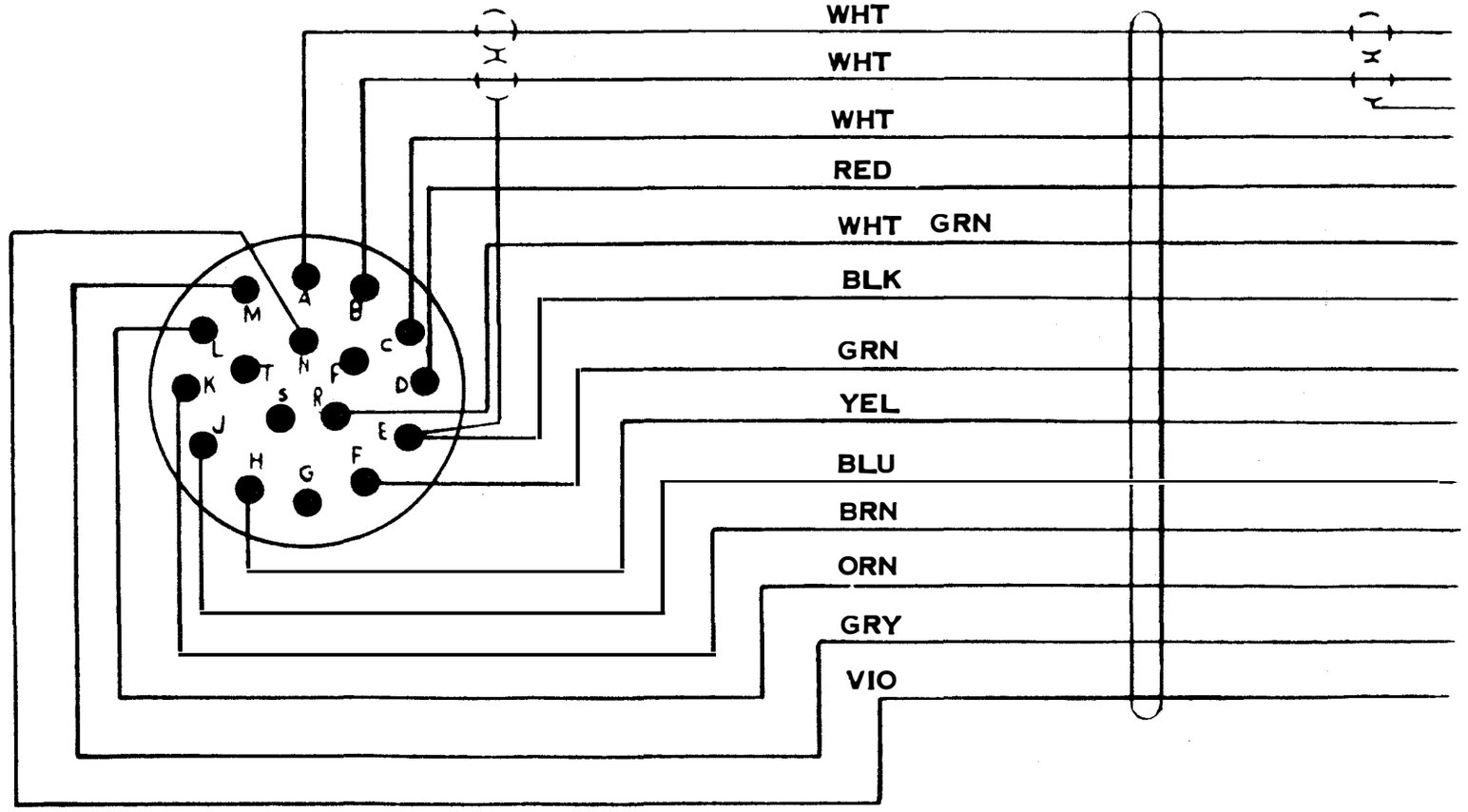




CABLE W—25

TSEC/KY-8
W-25
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)



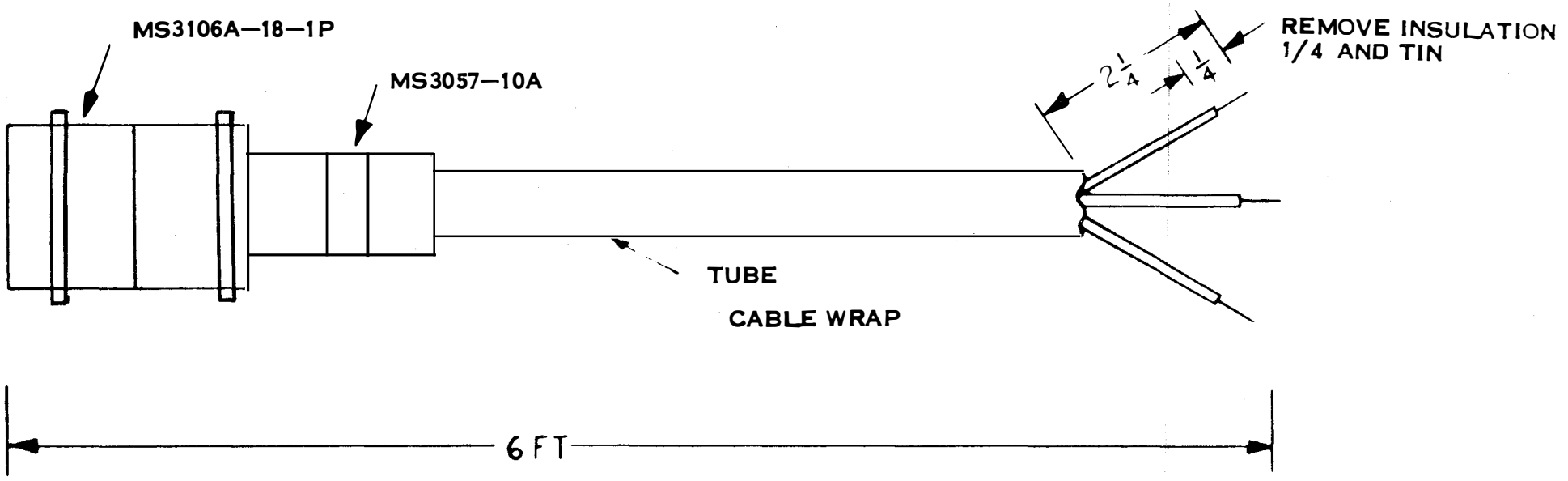


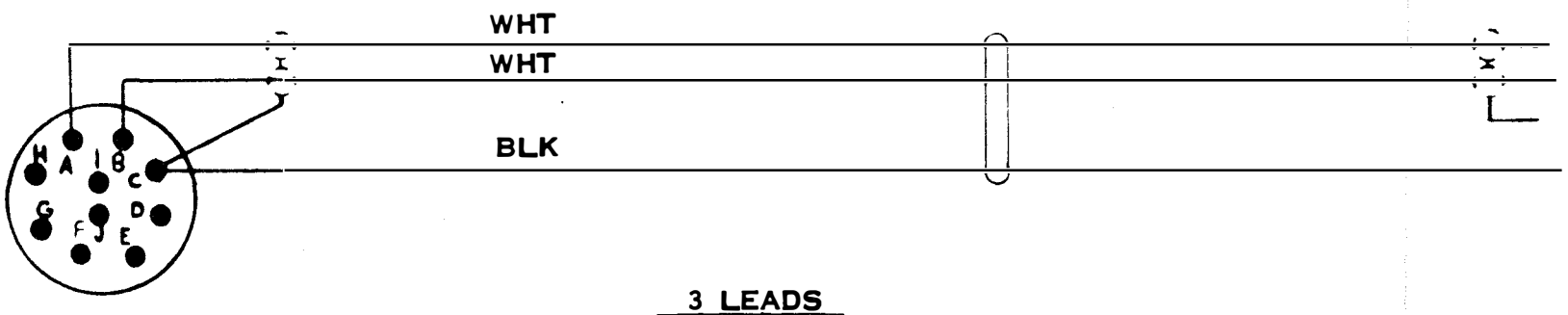
ALPHA NO. 1471 (2 WIRES) OR EQUAL

ALPHA 1504 (11 WIRES) OR EQUAL

CABLE W–26

TSEC/KY-8
W-26
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)



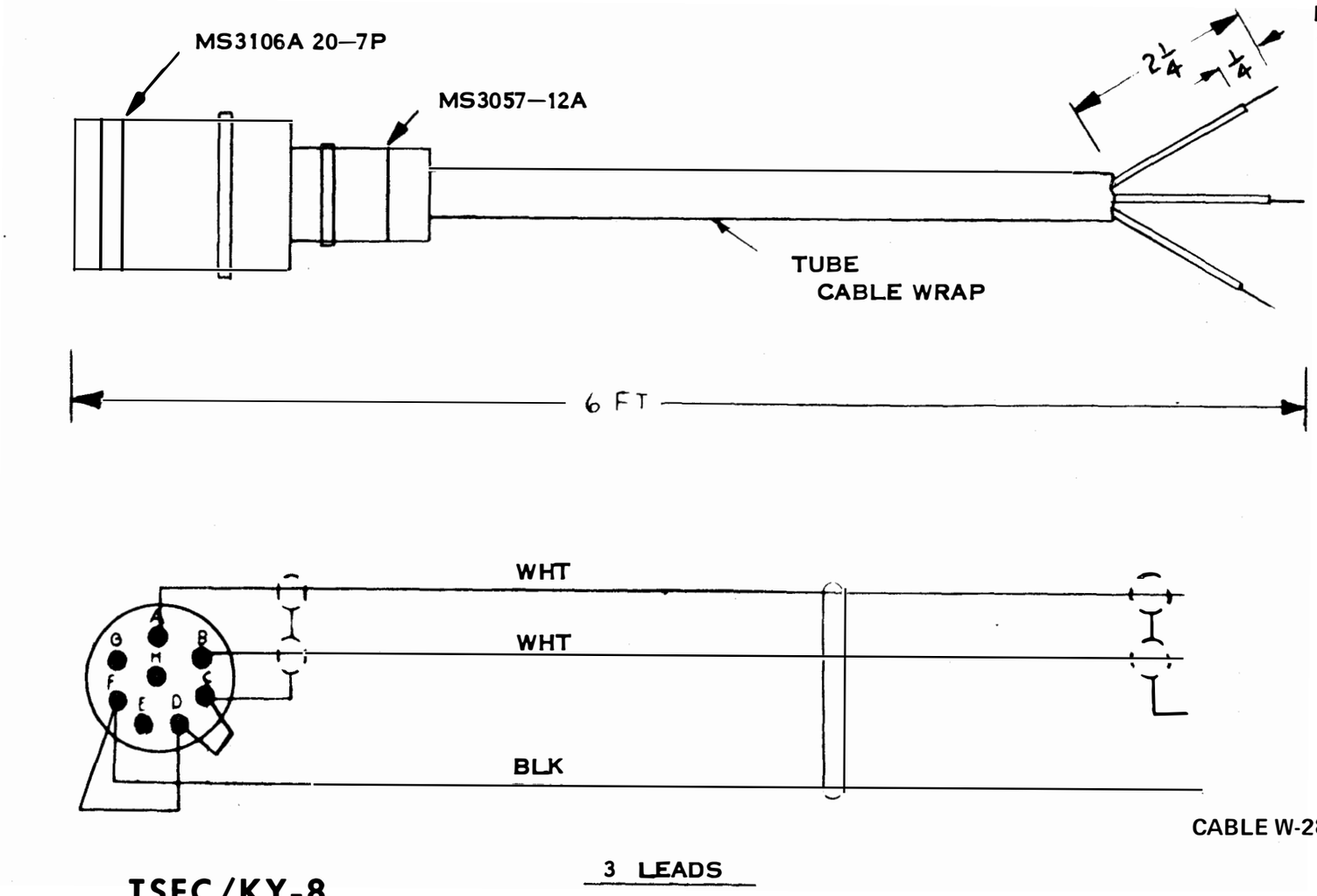


3 LEADS

ALPHA—2 SHIELDED 1471 WHT (OR EQUAL)
ALPHA—1 BLK 1504

CABLE W—27

TSEC/KY-8
W-27
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)

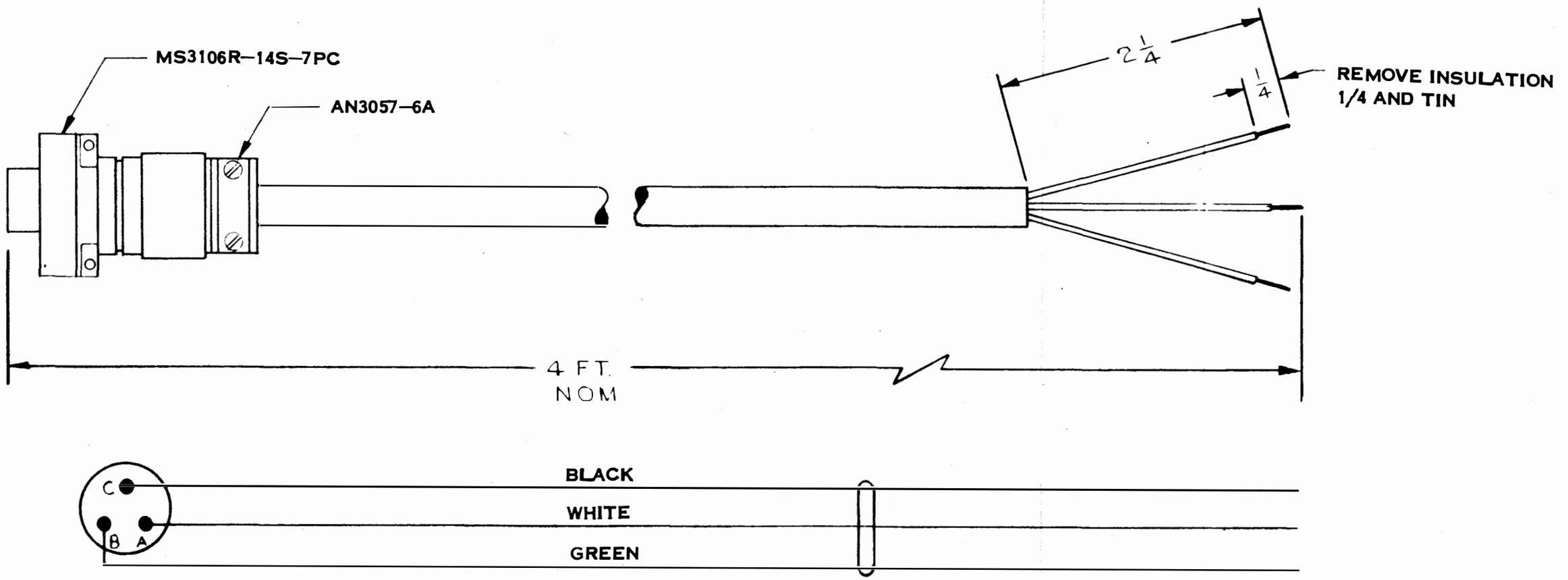


3 LEADS

ALPHA—2—SHIELDED 1471 WHT
ALPHA—1—BLK 1504

(OR EQUAL)

TSEC/KY-8
W-28
CABLE FABRICATION DETAILS
FIGURE 8-11
(CONTINUED)

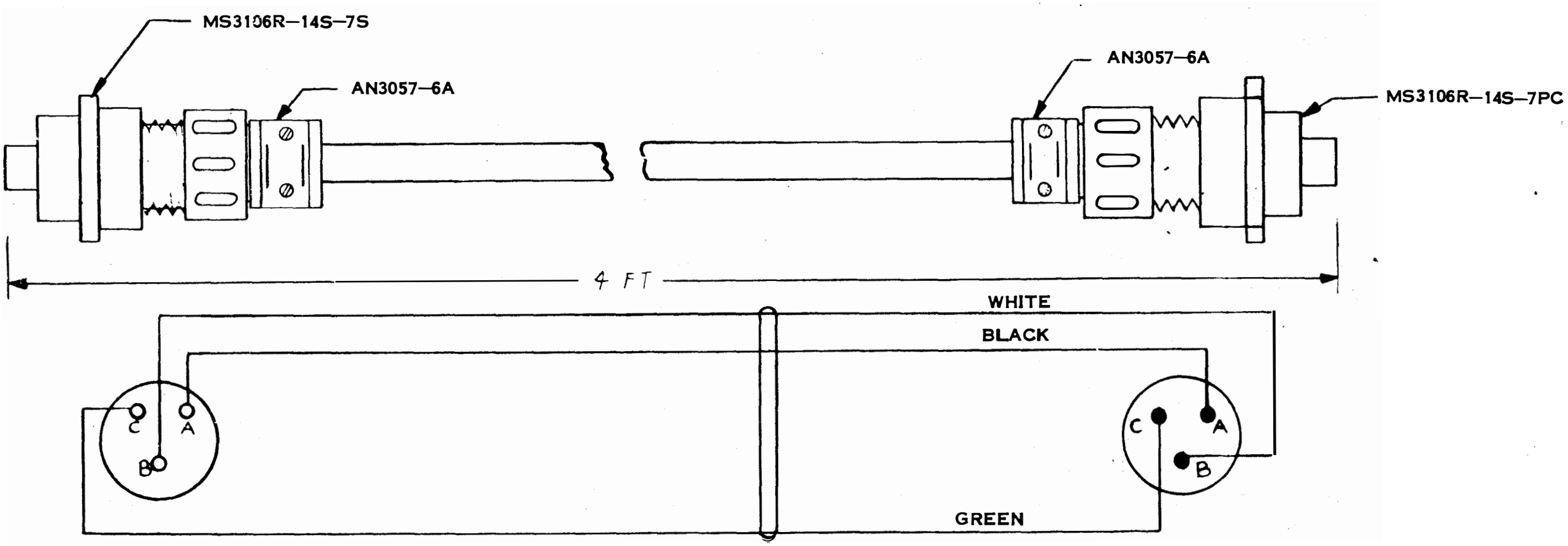


BELDEN CABLE 8453
18 AWG
(OR EQUAL)

TSEC/KY-8
W-31

CABLE W—31

CABLE FABRICATION DETAILS
FIGURE 8-11
CONTINUED



BELDEN CABLE 8453
18 AWG
(OR EQUAL)

CABLE W-32

TSEC/KY-8
W-32
CABLE FABRICATION DETAILS
FIGURE 8-11