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# TECHNICAL MANUAL

FOR

AX806  
ANTENNA SWITCHING

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*Used on  
Suriname System*

PUBLICATION NUMBER

ISSUE DATE

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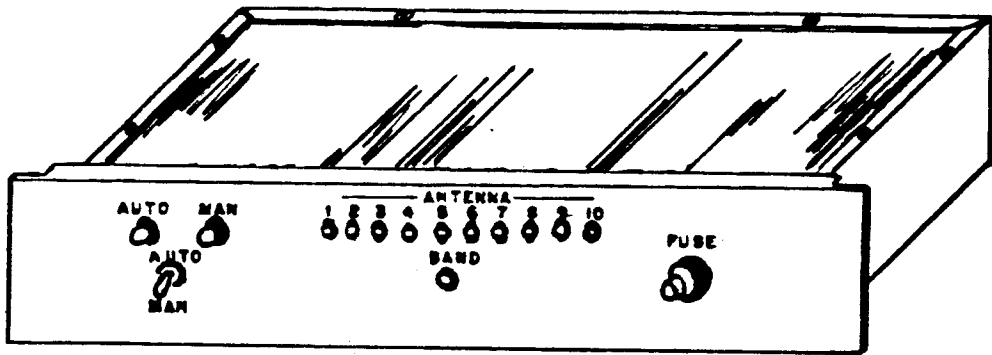
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ANTENNA SWITCHING  
MODEL AX806

SECTION 1  
GENERAL INFORMATION

1-1 INTRODUCTION

The TMC Model AX806 is an RF output antenna switching unit. It is capable of switching 1000 watts PEP and average into one (1) of ten (10) antennas.

1-2 PHYSICAL DESCRIPTION

The AX806 mounts in a standard 19 inch rack. The unit stands 5 1/4 inches high and is 5 1/2 inches deep.

1-3 POWER REQUIREMENTS

The AX806 requires +24 volts DC, it's input is located at the rear panel terminal barrier TB101 and is marked +24 V.

A two (2) amp +24 V protection fuse is located on the front panel. The fuse is placed in series with the +24 V DC line and is connected to the interrupter of the solinoid. (S101 Ledex)

2-1 FUNCTIONAL DESCRIPTION

The AX806 is a Ledex controlled 10 channel output switching unit. It distributes the RF output from the TLAA-1K linear amplifier and by means of ten (10) position switching allows ten (10) separate RF outputs to be used for a multi-antenna operation. In the HFTR-1KJ2B only eight (8) outputs are used.

TABLE 1-1

FIXED CHANNEL TO FREQUENCY TO ANTENNA RELATIONSHIP

FOR THE TRANSMITTER SYSTEM HFTR-1K/J2B

CHANNEL	FREQUENCY	ANTENNA OUTPUTS
1 . . . . .	02.9590 . . . . .	1
2 . . . . .	03.0160 . . . . .	2
3 . . . . .	05.2850 . . . . .	3
4 . . . . .	05.5500 . . . . .	4
5 . . . . .	05.6460 . . . . .	4
6 . . . . .	06.5770 . . . . .	5
7 . . . . .	08.8250 . . . . .	5
8 . . . . .	08.8550 . . . . .	6
9 . . . . .	08.8610 . . . . .	7
10 . . . . .	10.0960 . . . . .	8

The front panel has ten (10) antenna indicators. These indicators light, signifying which antenna is in operation. Control of the antenna switching can be manual or automatic, depending upon what position the AUTO/MAN switch is in. When the AUTO/MAN switch is in the (MAN) manual position, the (MAN) manual indicator will light. In the manual position the pushbutton located in the center of the AX806 front panel is the control for stepping or switching antennas. When the AUTO/MAN switch is in the automatic position the AUTO indicator will light and control is accomplished via ground or low signals to TB101 (marked "1 through 10 antennas"). These grounds or low signals are generated by the transmitter by way of the MMX-2B Exciter.

2-2 AUTOMATIC OPERATIONAL DESCRIPTION (Refer to figure 1-1)

A low or ground on any one of ten (10) antenna inputs at TB101 will place a low at Q1 base enabling Q1 collector to be high thus turning Q101 on, with Q101 on S101 solinoid is activated and begins stepping S101B notch homing waffer. When the S101B notch homing

waffer finds its notch, a high will be appear at the base of Q1 thus putting a low at the collector of Q1 which will turn Q101 off stopping the S101 solinoid.

NOTE: If two (2) grounds or lows are present at TB101 1 through 10, the S101B notch homing switch can never find it's notch and the above operation will continue resulting in damaging the switch solinoid, opening the fuse,(F101) or distroying Q1 or Q101 or both.

### 2-3 RF OUTPUT SWITCHING

The RF output from the transmitter is connected to J101 RF in at the rear panel of AX806.

When S101B notch homing waffer searches for its notch, S101A (RF WAFER) mechanicly ganged to S101B, will also search for a position.

When S101B is satisfied, S101A will transfer it's RF to one of ten antennas.

### 2-4 ANTENNA INDICATORS

Also ganged to S101B (notch homing waffer) is S101C indicator waffer, likewise S101C will search for a position with S101B and S101A. On completion of S101B notch, a voltage will be placed on any one of ten (10) terminals E1 through E10 of A5799. Thus lighting one of the front panel LED'S. This will indicate what position S101A has stopped at.

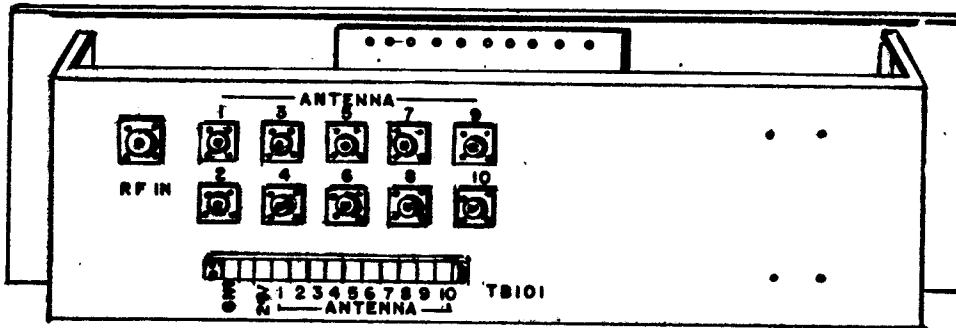


FIGURE 2-1  
 REAR VIEW ANTENNA SWITCHING  
 MODEL AX806

<u>REFERENCE DESIGNATION</u>	<u>DESCRIPTION</u>	<u>TMC PART NO.</u>
C102	CAP. CERAMIC (.1)	CC131-39
C101	CAP. ELECTROLTIC	CE105-100-50
F101	FUSE	FU100-2
R101	RESISTOR FIXED	RC20GF102J
S102	SWITCH (BAND)	SW296-1
S103	SWITCH, AUTO/MAN	ST22N
S101-A	WAFER, OUTPUT (RF)	WA106-1
S101 B and C	SWITCH ROTARY Solenoid	SW555
TB101	TERMINAL, BARRIER	TM100-15
J102	CONNECTOR, ANTENNA	SO239A
Through		
J111		
J101	CONNECTOR RF IN	UG496/U
Q101	TRANSISTOR	2N1776
CR101	DIODE	1N547

MAIN CHASSIS  
 FRONT AND REAR PANELS  
 PARTS LIST



REFERENCE  
DESIGNATION

DESCRIPTION

TMC PART NO.

SD1

LIGHT EMIT, DIODE

BI 132

Through

DS10

C1

CAP CERAMIC (.1)

CC131-49

Through

C10

A5799

ASSEMBLY

REFERENCE  
DESIGNATION

DESCRIPTION

TMC PART NO.

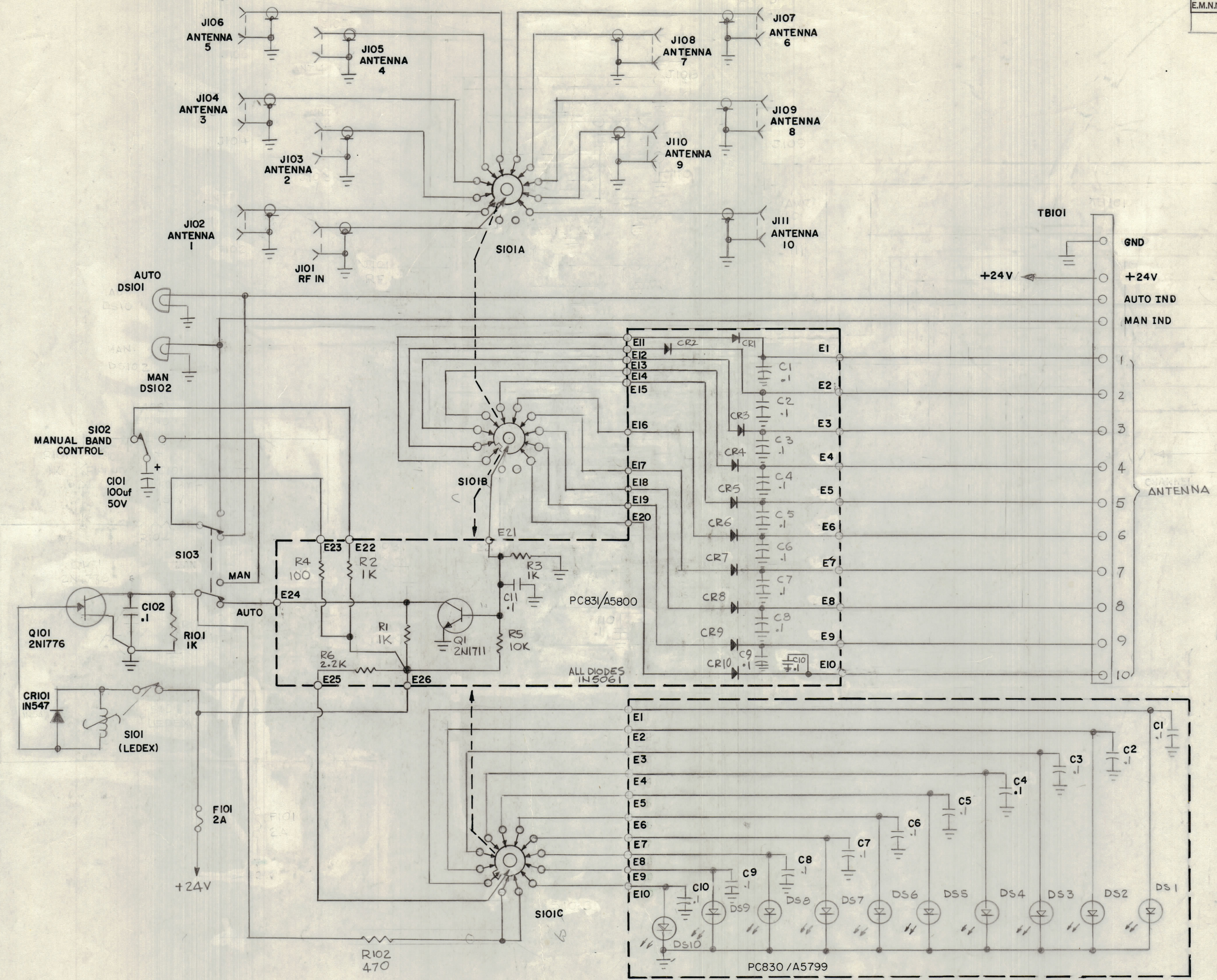
C1	CAP FIX CERAMIC	CC131-49
Through		
C11		
R2, R3, R4	RES FIX COMP	RC07GF102J
R6, R1	RES FIX COMP	RC07GF222J
R5	RES FIX COMP	RC07GF103J
Q1	TRANSISTOR	2N1711
CR1	DIODE	1N5061
Through		
CR10		

A5800 ASSEMBLY

Figure 1-1: Schematic CK-2244

Figure 1-2: Dipole Antenna Installation ID-455

REVISIONS					DATE	APPROVED
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	
					ORIGINAL RELEASE	2-16-83



QTY. REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL	
LIST OF MATERIAL					
FINAL APPROVAL		DATE	<b>THE TECHNICAL MATERIEL CORP.</b> MAMARONECK, NEW YORK  <b>SCHEMATIC DIAGRAM</b> <b>RF OUTPUT SWITCHING</b>		
MECH. DES.		DATE			
ELECT. DES.		DATE			
CHECKED		DATE			
DRAWN	G.D.L.	DATE			
MATERIAL			SIZE	CODE IDENT NO. DWG NO.	ISSUE
FINISH			D	82679 CK2244	
			SCALE	SHEET	OF

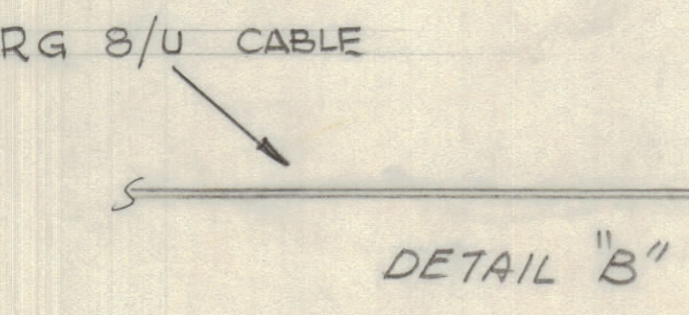
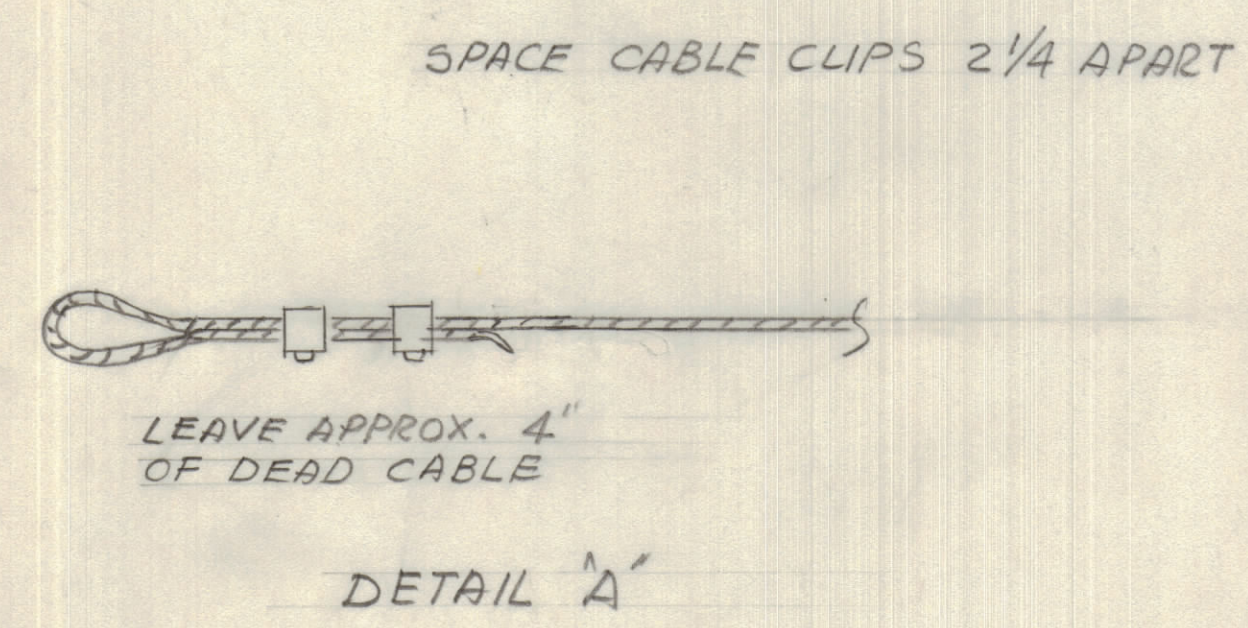
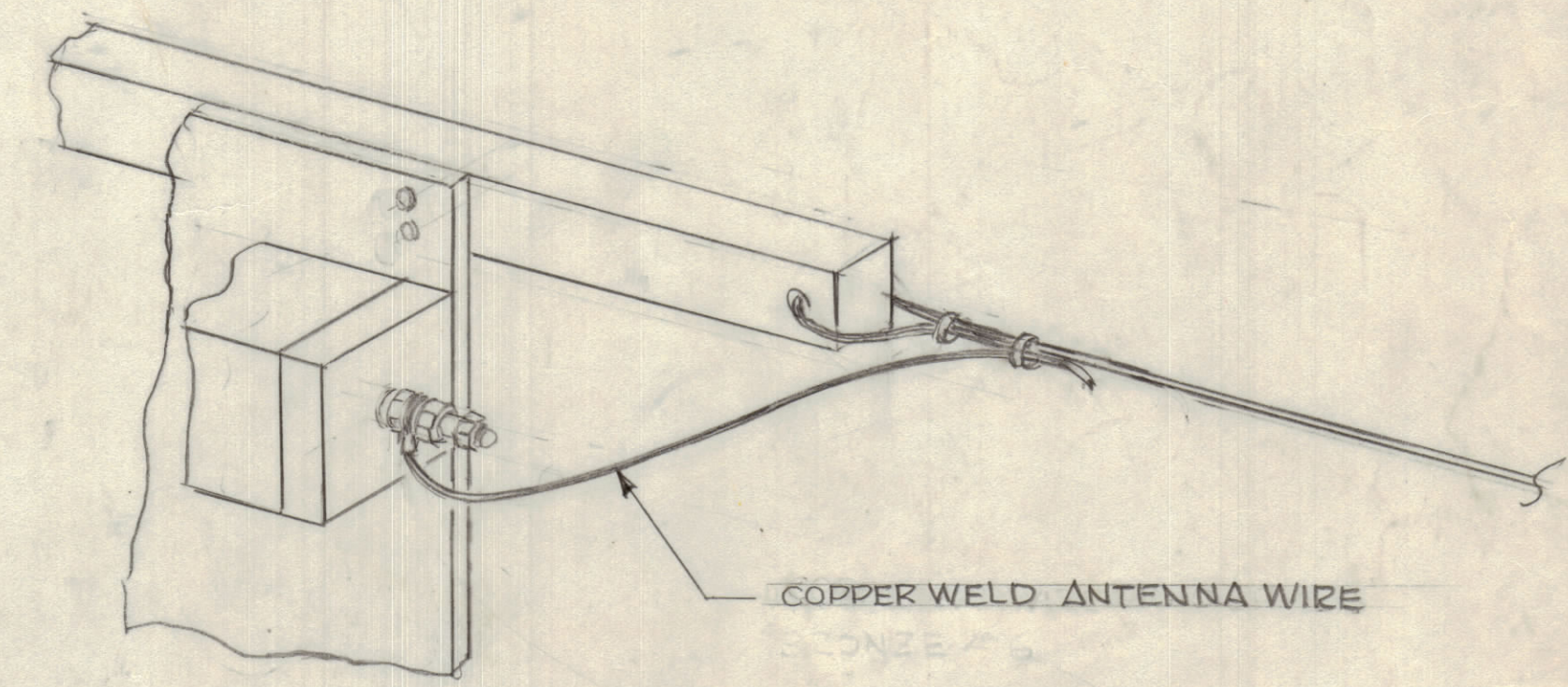
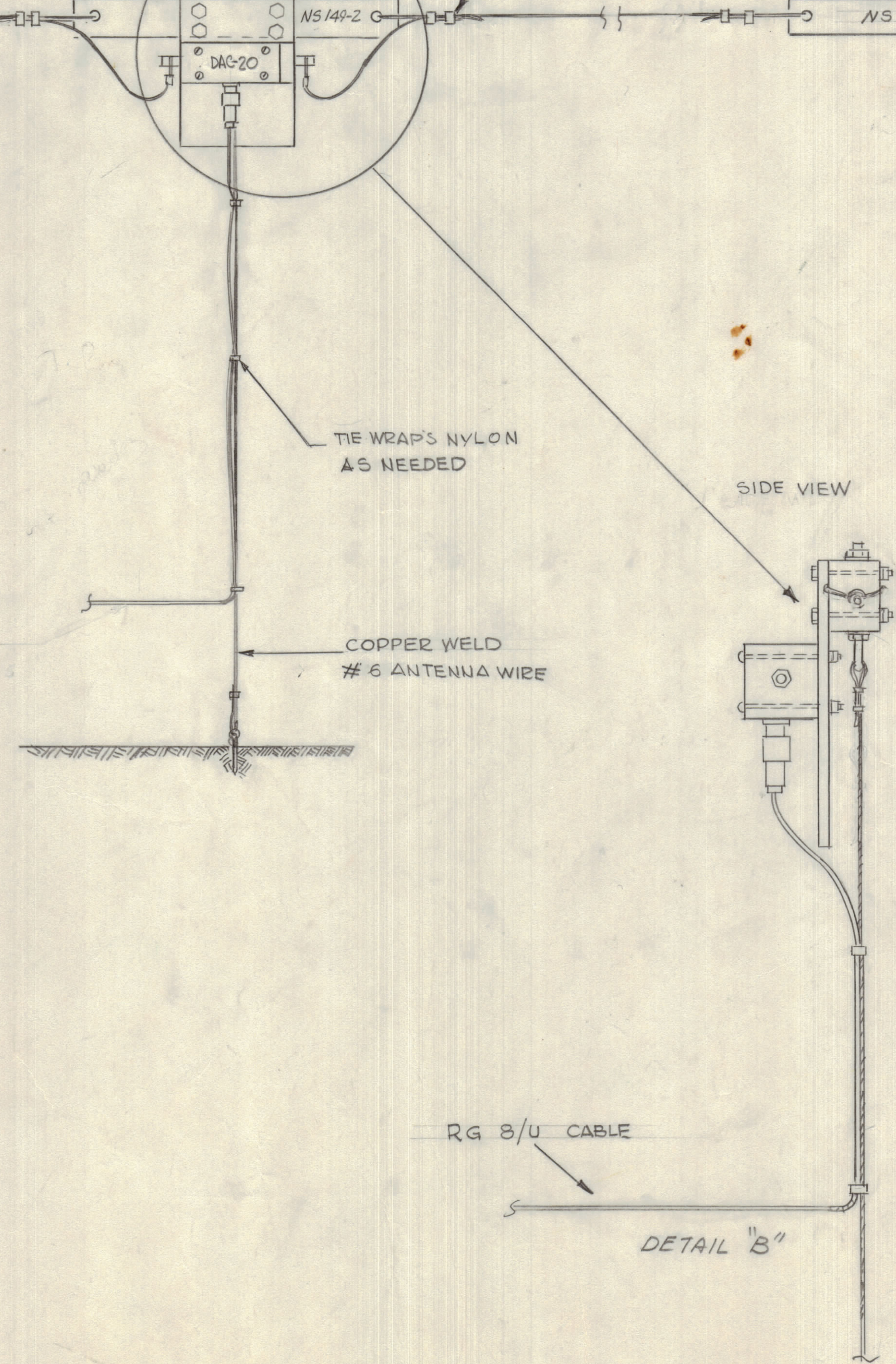
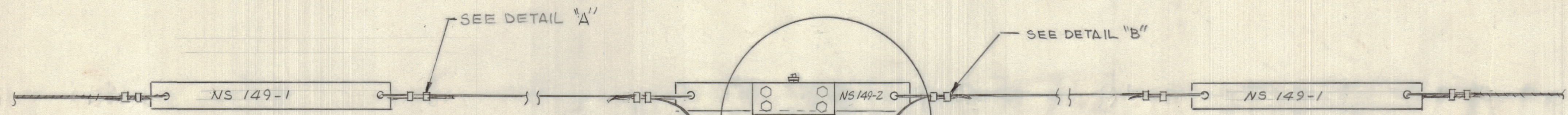
I HFTR-1K/J2B(SURINAME) AX806		
QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
CODE		
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TOLERANCES ON  
 DECIMALS .X ± .05  
 .XX ± .01  
 .XXX ± .005

FRACTIONS ± 1/64  
 ANGLES ± 0° -30'

REVISIONS							
E.M.N.	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	DATE	APPROVED
	1				ORIGINAL RELEASE FOR PRODUCTION	5/2/83	



QTY / UNIT	MODEL USED ON	ASS'Y NO.
	APPLICATION	
	CODE	

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	FINAL APPROVAL	DATE	<b>THE TECHNICAL MATERIEL CORP.</b> MAMARONECK, NEW YORK	
	MECH. DES.	DATE		
	ELECT. DES.	DATE		
TOLERANCES ON DECIMALS .X ± .05 FRACTIONS XX ± .01 ANGLES .XXX ± .005 ± 1/64 ANGLES ± 0°-30'			<b>DIPOLE ANTENNA INSTALLATION</b> <b>DPA-2 USING DAC-20</b>	
	CHECKED	DATE		
	DRAWN	DATE	SIZE CODE IDENT NO. DWG NO. ISSUE <b>D 82679 ID 455</b>	
MATERIAL			SCALE	
FINISH			SHEET OF	