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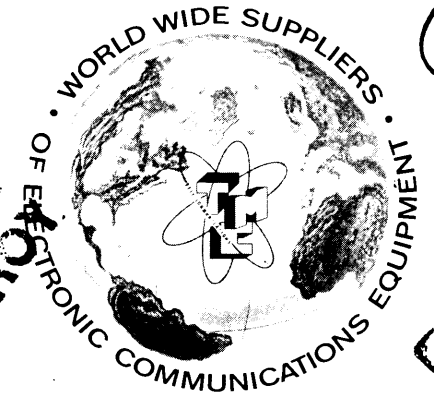

TECHNICAL MANUAL

FOR

REMOTE CONTROL RECEIVING SYSTEM

SYM-5211

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THE TECHNICAL MATERIEL CORPORATION

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NOTICE

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001				
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010				

NOTE: Please file Technical Newsletters at back of manual for permanent record.

SYSTEM CHECK-OFF SHEET

FOR SYM 5211 RACK A, RACK B AND RACK C

MECHANICAL INSPECTION RACK A, B, C

A. SLIDES IN PLACE AND OPERATIONAL . . . . . _____

B. CABLES CORRECTLY JUNCTIONED AND SECURE . . . . . _____

C. COVERS IN PLACE AND SECURE . . . . . _____

D. INTERFACE PANEL WIRING CORRECTLY ROUTED . . . . . _____

E. OVERALL HARDWARE SECURE . . . . . _____

ELECTRICAL TEST

REFER TO

STRIP RECEIVER STR-5,

ANTENNA MULTICOUPLER AMC-21C

INDIVIDUAL CHECK-OFF SHEETS

-continued-

-continute-

ELECTRICAL TEST CHECK-OFF REMOTE CONTROL RCSR-1 P/O SYM 5211

RCSR-1 T

A. PRIMARY VOLTAGE WIRING . . . . . _____
(+12V) . . . . . _____

B. MODE SWITCHING CH1 AND CH2 . . . . . _____

C. CLARIFIER CONTROL . . . . . _____
(10V TO 2V SWING)

D. NULL AUDIO TONE CH1 AND CH2 . . . . . _____

E. FUSE . . . . . _____

RCSR-1R

A. PRIMARY VOLTAGE WIRING . . . . . _____
(+12V) . . . . . _____

B. ADJUST (NULL) 600 - -
BALANCE . . . . . _____

C. RELAY OPERATIONAL . . . . . _____

D. .5VPP PIN 1 OF J102

TESTED AND INSPECTED BY _____

DATE _____

APPROVED _____

THE TECHNICAL MATERIEL CORPORATION
COMMUNICATIONS ENGINEERS
700 FENIMORE ROAD MAMARONECK, N. Y.

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes,* fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purposes for which the same is designed, for a period of one year from the date of delivery F.O.B. factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction.

2. That the defect is not the result of damage incurred in shipment from or to the factory.

3. That the equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise.

4. That any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

Electron tubes* furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

At TMC's option any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the Buyers sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

*Electron tubes also include semi-conductor devices.

PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

PROCEDURE FOR ORDERING REPLACEMENT PARTS

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

THE TECHNICAL MATERIEL CORPORATION
Engineering Services Department
700 Fenimore Road
Mamaroneck, New York

PREFACE

This technical manual discusses the information you will require to install, operate and maintain the SYM-5211 Remote Control Receiving System. This manual is intended for operators and technicians who will be responsible for the proper functioning of the equipment.

This text is compiled in four parts:

SYM-5211	Remote Control Receiving System	Part I
STR-5A/U	Strip Receiver	Appendix A
AMC-21C	Antenna Multicoupler	Appendix B
RCSR-1R/RCSR-1T	Receiver Remote Control System	Appendix C

You should read this manual in sequence, section by section, to become totally familar with the system. After completing this manual, you should be able to install, operate, and depending on your level of technical training, perform maintenance to the component level.

Changes are periodically made to this manual through publication of TECHNICAL NEWSLETTERS that are distributed to users of the equipment. The REGISTRATION CARD located at the front of this manual should be completed and sent to:

THE TECHNICAL MATERIEL CORPORATION
700 Fenimore Road
Mamaroneck, New York 10543
Attention: Technical Data Group

Your name and address will be entered on permanent TMC records and applicable publications automatically mailed to you. Requests for related publications should be made to your TMC representative, to a TMC field office in your area, or to TMC at the above address.

REQUEST FOR SPARE PARTS: Forms are available at the back of this manual.

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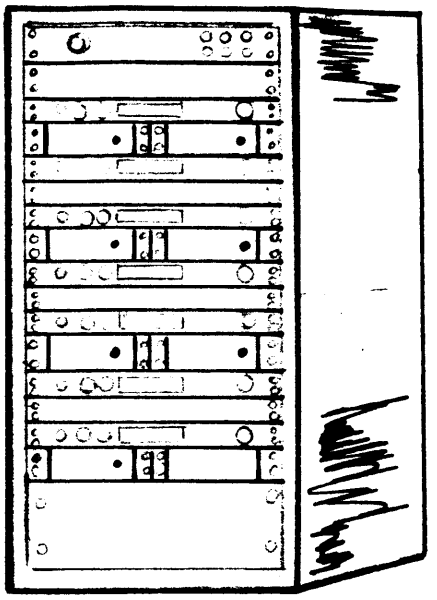
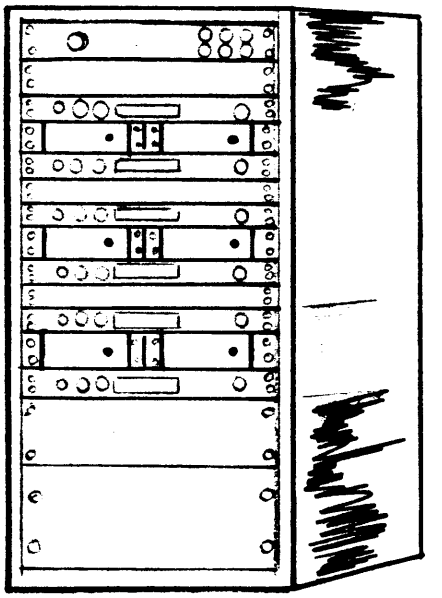
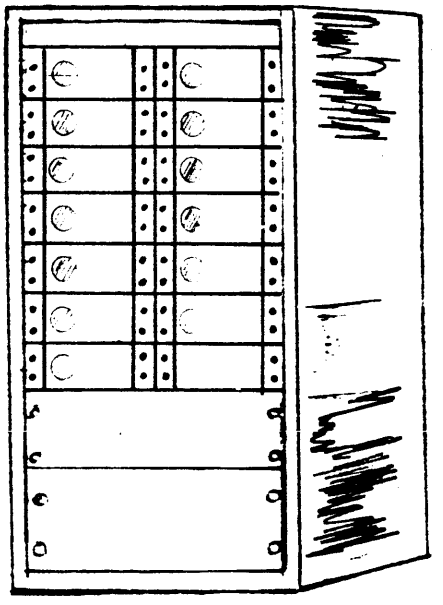


SYM-5211-A



SYM-5211-B



SYM-5211-C

Figure 1-1

Remote Control Receiving System

SYM-5211

SECTION I

GENERAL INFORMATION

1-1. GENERAL DESCRIPTION

The SYM-5211 Remote Controled Receiving System, is comprised of (13) STR-5 A/U receivers, (2) AMC-21C Antenna Multicouplers, (13) RCSR-1R Receiver Control Units and (13) RCSR-1T Remote Control Units. The SYM-5211 system is housed in (3) Racks, Table 1-1 illustrates the division of modular units.

RACK A	RACK B	RACK C
7 STR-5A/U 1 AMC-21C 7 RCSR-1R	6 STR-5A/U 1 AMC-21C 6 RCSR-1R	13 RCSR-1T
SYM-5211-A	SYM-5211-B	SYM-5211-C

TABLE 1-1

Division of Modular Units

1-2. FUNCTIONAL DESCRIPTION

The SYM-5211 System (figure 1-1), is a transistorized, multi-channel, fixed tuned, 2-16 MHz (extended range to 32.0 MHz available on special order) receiving system designed for use in communications systems where received-signal quality is of prime importance. The SYM-5211 is a multi Receiver (6 STR) single Channel per receiver type system.
Each channel is independently operated and comprised of a receiver (STR), each (STR) receiver is remotely controlled, using an RCSR-1R located adjacent to the (STR) and a RCSR-1T located

remotely via a 600 ohm balanced line. The RF input to each receiver is directed via an Antenna Multicoupler AMC-21C. The AMC-21C is a broadband distribution system interposed between a single antenna and the antenna terminals of the receivers (STR).

1-3. DESCRIPTION OF MODULAR UNITS

General - Paragraphs a through c below give a brief description of the modular units which comprise the SYM-5211. For more detailed information pertaining to any of these units, refer to appendix A, B and C as listed in Table 1-2.

APPENDIX A	STRIP RECEIVER	STR-5A/U
APPENDIX B	ANTENNA MULTICOUPLER	AMC-21C
APPENDIX C	RECEIVER REMOTE CONTROL SYSTEM	RCSR-1R RCSR-1T

TABLE 1-2

Appendix of Modular Units

a. Strip Receiver, Model STR-5A/U - Strip Receiver (STR) is a transistorized, double-conversion, superheterodyne communications receiver that utilizes a fixed-tuned, plug-in module (Model TTRR) for its rf section. A crystal filter, when supplied, is employed in the antenna input to the rf modules and provides a 6 KHz bandpass at the customer-selected frequency. A change in operating frequency must be accompanied by a corresponding change in the crystal filter. A RECEIVER CLARIFIER

control (located on front panel of TTRR) provides fine-tuning of the crystal controlled local oscillator. The STR produces two IF outputs and two separate audio outputs. The audio outputs are: one SSB and one AM/AME output each with up to +10 VU output at 600 ohms balanced or unbalanced. Additionally there are high impedance outputs (standard phone jacks) for monitoring the audio outputs. A front panel selector switch (MODE) selects the AGC to be used in the system. A squelch circuit is used with the SSB channel and to eliminate reception of noise or of signals below a specific level, thus preventing operator fatigue. The squelch circuit is available, but is not normally supplied with the basic receiver.

b. Antenna Multicoupler, Model AMC-21C - The Antenna Multicoupler, Model AMC-21C, is a broadband antenna-to-receiver coupling device which permits the use of a common antenna by a number of communications receivers. It consists of a broadband transistorized preamplifier, optional filters, and a variable number of output modules. Input and output impedance is substantially constant over the specified frequency range within the limits of the voltage standing wave ratio (VSWR). Construction of the equipment is such that flexibility in the number of output channels is easily achieved.

c. Receiver Remote Control System Model RCSR-1 ( ) - The RCSR-1 system consists of two separate units, the RCSR-1T at the remote site and the RCSR-1R at the local site. The RCSR-1R system provides control of the MODE of operation and CLARIFIER

control of a dual IF single frequency receiver. The RCSR-1T system provides remote control of the receiver model STR-5 strip receiver, over a 600 ohm balanced line.

SECTION 2

INSTALLATION

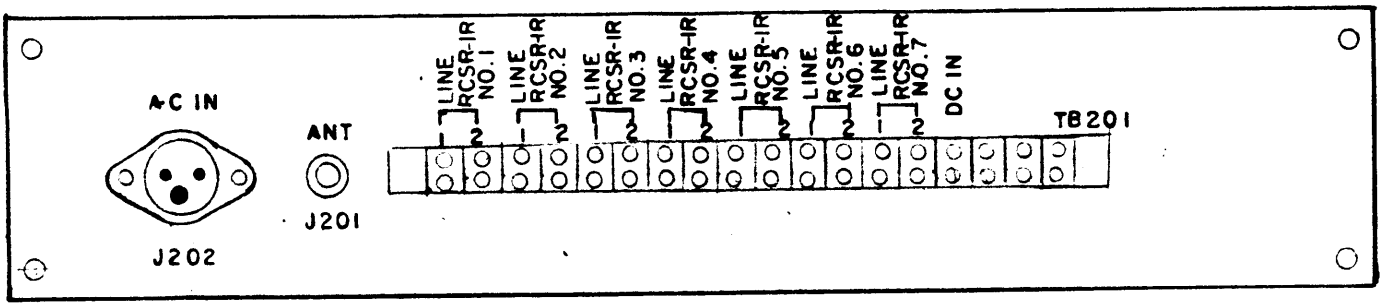
2-1. UNPACKING AND HANDLING

The SYM-5211 system has been calibrated and tested at the factory before shipment. When the equipment is received at the operating site, inspect the packing cases and their contents immediately for possible damage; unpack the equipment carefully. Inspect all packing material for parts which may have been shipped as "loose items" (Technical Manuals, connectors, mounting hardware, etc.). With respect to damage to the equipment for which the carrier is liable, the Technical Materiel Corporation will assist in describing methods of repair and the furnishing of replacement parts.

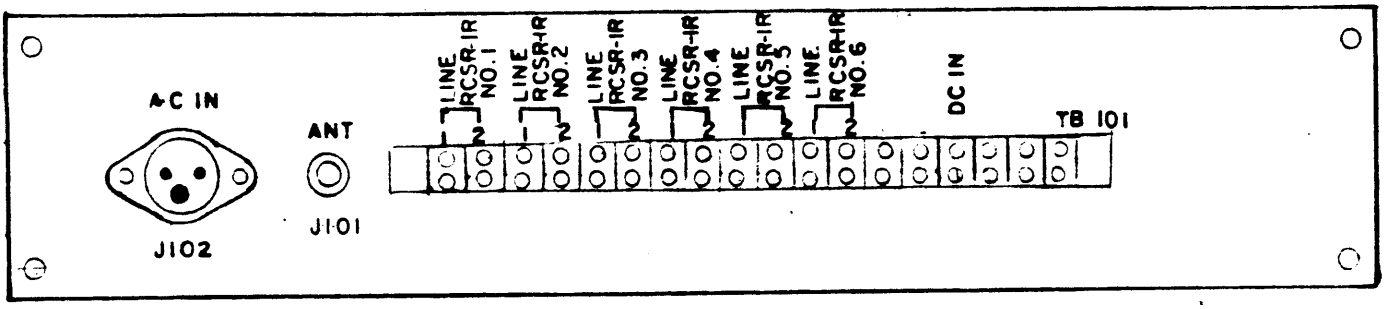
2-2. POWER REQUIREMENTS

The SYM-5211 is designed for 115 or 230 volt $\pm$ 10%, 50 to 60 Hz single phase AC power. On the rear of RACK A, B and C (see figure 2-1), AC input connectors are located on interface pannels. When AC power is connected to these inputs each unit assembled in the rack (see table 1-1) will have AC power potential. Individual front panel AC power switches must be activated for unit operation. The RCST-1R receives its power potential from the STR-5 receiver in the form of +12VDC. When the

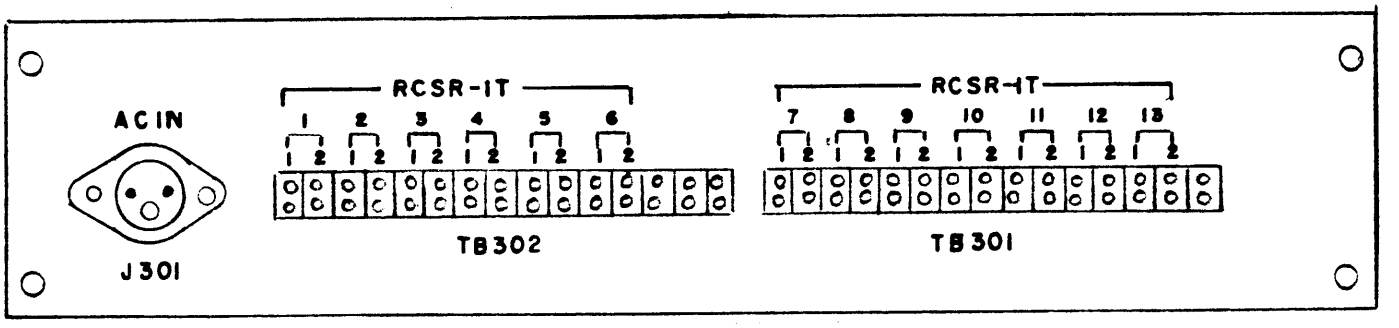
indicator marked POWER is illuminated on the RCST-1R front panel, +12VDC is present in the unit.



SYM-5211 (RACK-A)



SYM-5211 (RACK-B)



SYM-5211 (RACK-C)

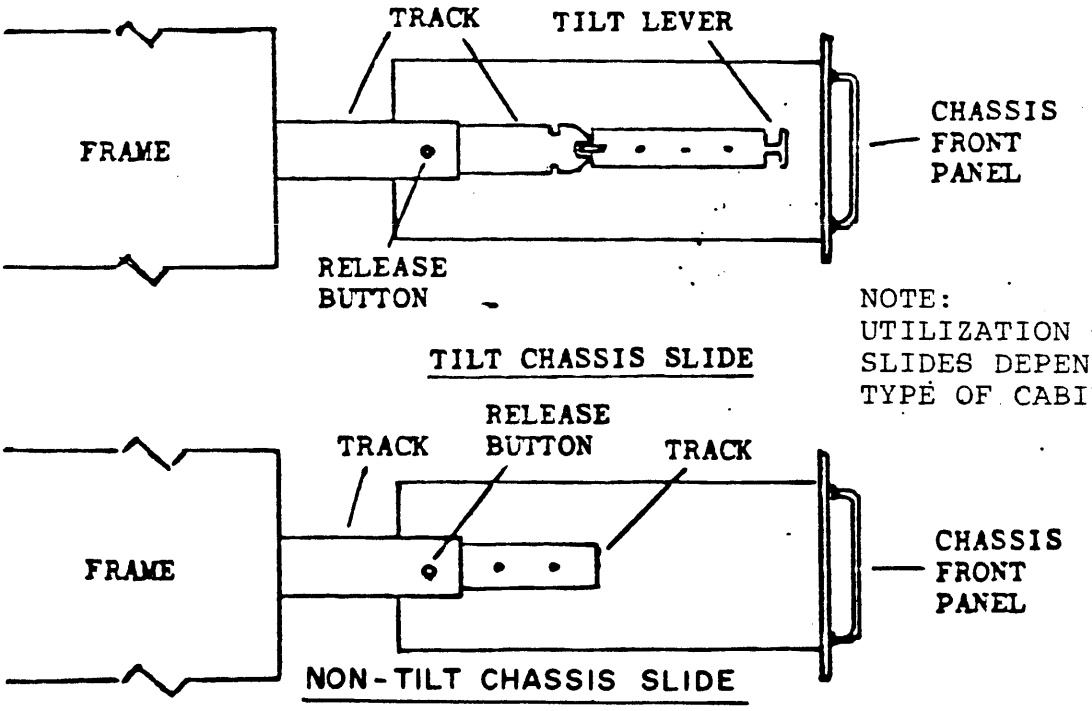
Figure 2-1

Interface Panels SYM-5211-A, B and C

2-3 INSTALLATION

The SYM-5211 is designed to house (13 STR-5A/U) Receivers, (2 AMC-21C) Multicouplers, (13 RCSR-1R) Receiver Controls, and (13 RCSR-1T) Remote Control Units.

Prime considerations when installing the SYM-5211 are: adequate ventilation, sufficient space to withdraw the units for servicing. All of the units are designed for rack mounting. The STR-5A/U and AMC-21C are equipped with standard 19 inch front panels. The RCSR-1R and RCSR-1T when mounted Side by Side, using 2 mounting plates, adaptes readily to a standard rack. The STR-5A/U stands 1 3/4 inches high and 15 inches deep. The AMC-21C stands 3 1/2 inches high and 14 inches deep. The RCSR-1R and RCSR-1T stands 3 1/4 inches high and 12 inches deep. Figure 7-1, 7-2, and 7-3 describes all connections that exist in the system. The interface panels (figure 2-1) are positioned on the rear of the racks so as to receive all external interfacing that may be required when operating the SYM-5211.



NOTE:
UTILIZATION OF CHASSIS SLIDES DEPENDS UPON TYPE OF CABINET IN USE.

2-3 INSTALLATION

The SYM-5211 is designed to house (13 STR-5A/U) Receivers, (2 AMC-21C) Multicouplers, (13 RCSR-1R) Receiver Controls, and (13 RCSR-1T) Remote Control Units.

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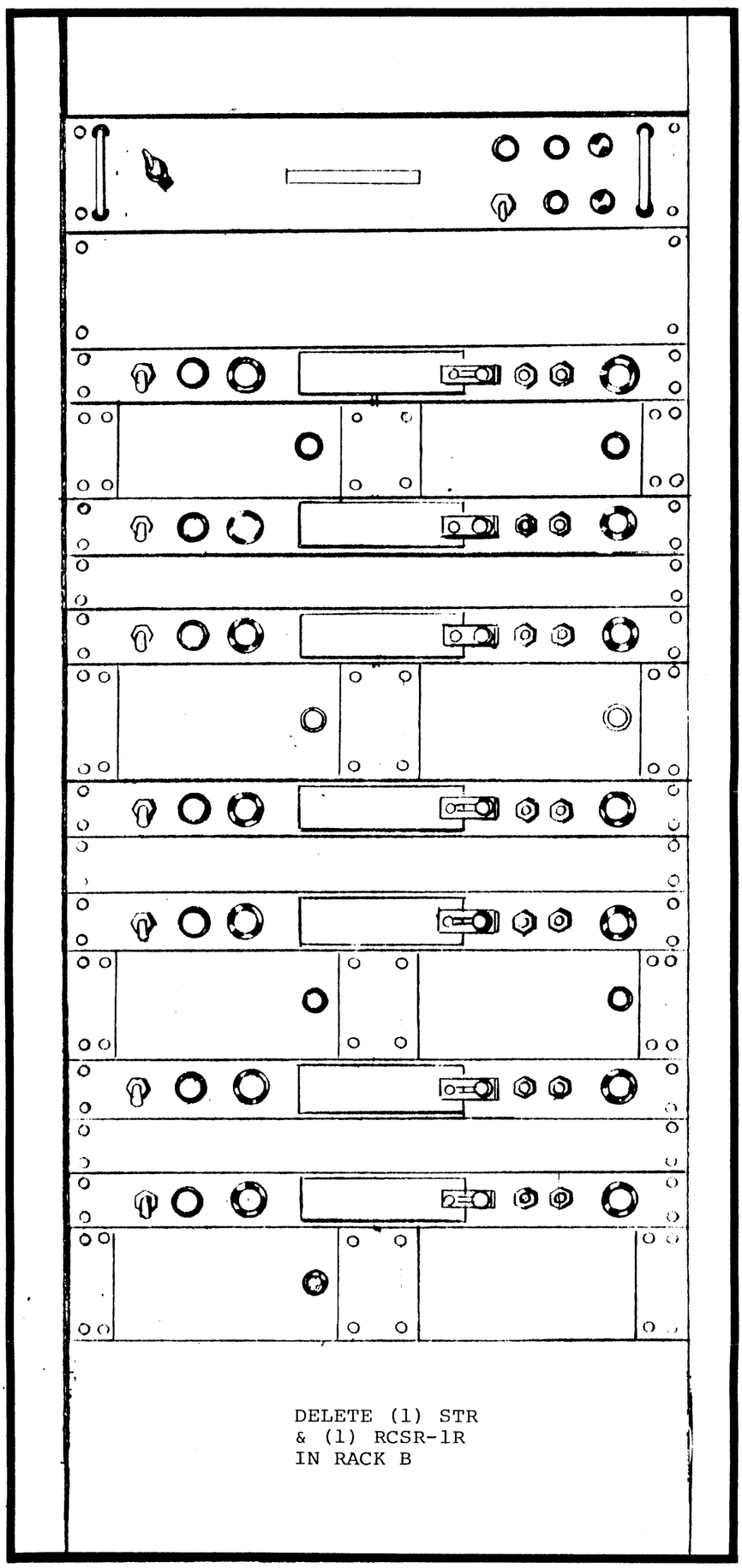
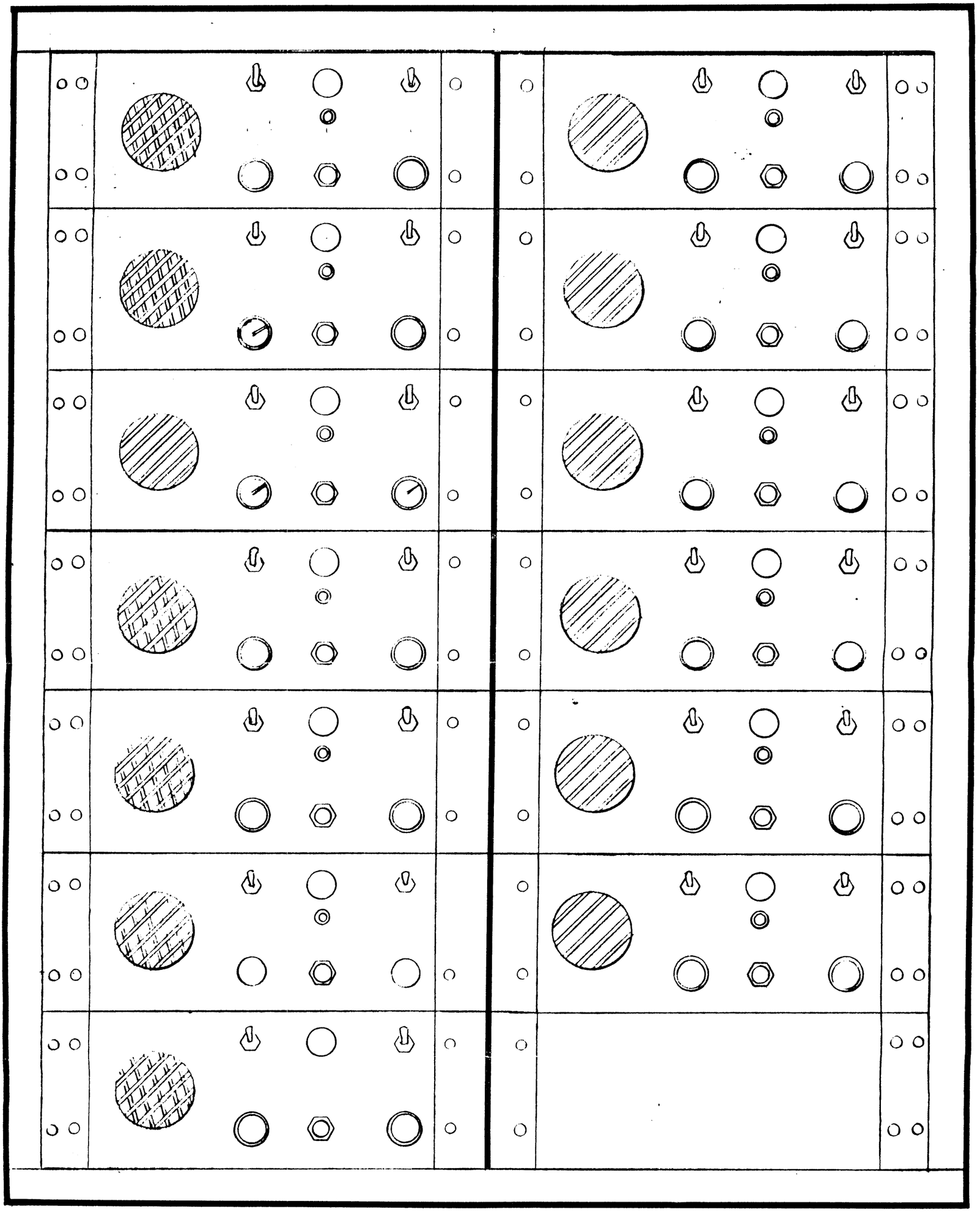


SYM-5211-RACK A and B

Figure 2-2a

NOTE:
CONFIGURATION MAY VARY SLIGHTLY DEPENDING UPON TYPE OF CABINETS USED



SYM-5211--RACK C

Figure 2-2b

NOTE:
CONFIGURATION MAY VARY SLIGHTLY DEPENDING UPON TYPE OF CABINET USED

SECTION 3

OPERATOR'S SECTION

3-1. Operating Controls

The operating controls and indicators for the SYM-5211 are listed in table 3-1 and are referenced to the callouts on figure 3-1.

NOTE

Because the controls and indicators of each channel are the same, only channel 1 callouts are described on Table 3-1.

Table 3-1. Operating Controls And Indicators (RACK A and B)

Item No. Figure 3-1		Panel Designation	Function
STR	1	POWER ON/OFF Switch	Applies power to STR when ON.
	2	POWER Indicator	When lit, indicates application of ac power
	3	CLARIFIER	Permits fine tuning of the TTRR module
	4	Receiver Converter	RF Section (see TTRR-( ) section

Table 3-1. Operating Controls and Indicators (continued)

(RACK A and B)

Item No. Figure 3-1		Panel Designation	Function
STR	5	Channel 1 and channel 2 phone jacks	Standard phone jacks for earphone connection. The line output is not affected.
	6	MODE Switch	Permits selection of channel 1, channel 2 or both channels.
RCSR-1R	7	POWER	When illuminated indicates the presents of +12VDC from the (STR).
AMC-21C	8	FILTER Switch	Selection of filter
	9	Power ON/OFF switch	Controls primary power to the AMC-21C
	10	Fuse Holders for F1 and F2	Failure of a fuse is indicated by illumination of the fuse holder.
	11	POWER lamp DS1	Lights when primary power is connected to the AMC-21C and switch S2 is on.
	12	Fuse Spares	Spare Fuse Storage

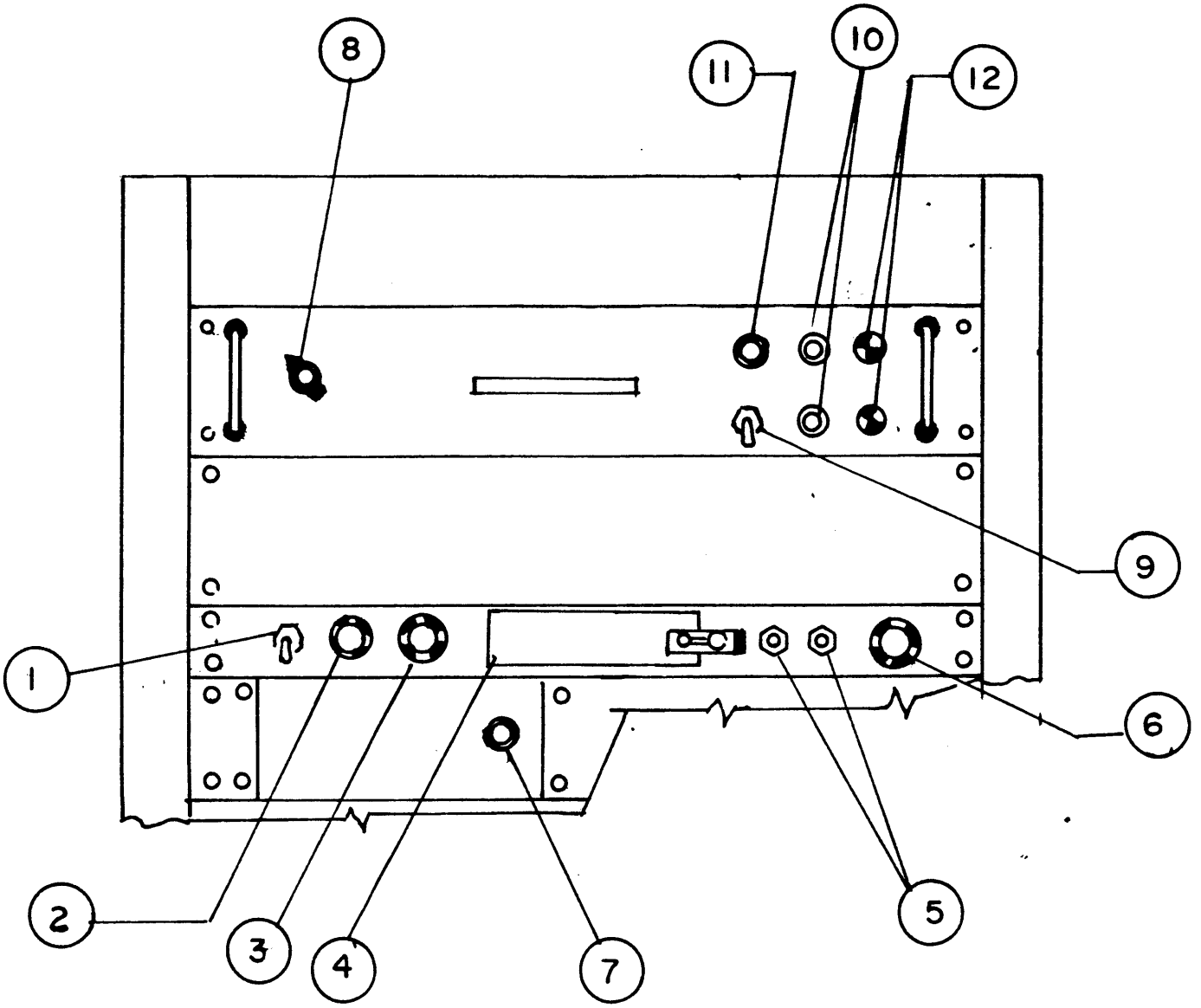


Figure 3-1

Typical Controls and Indicators

For SYM-5211-A, B RACKS

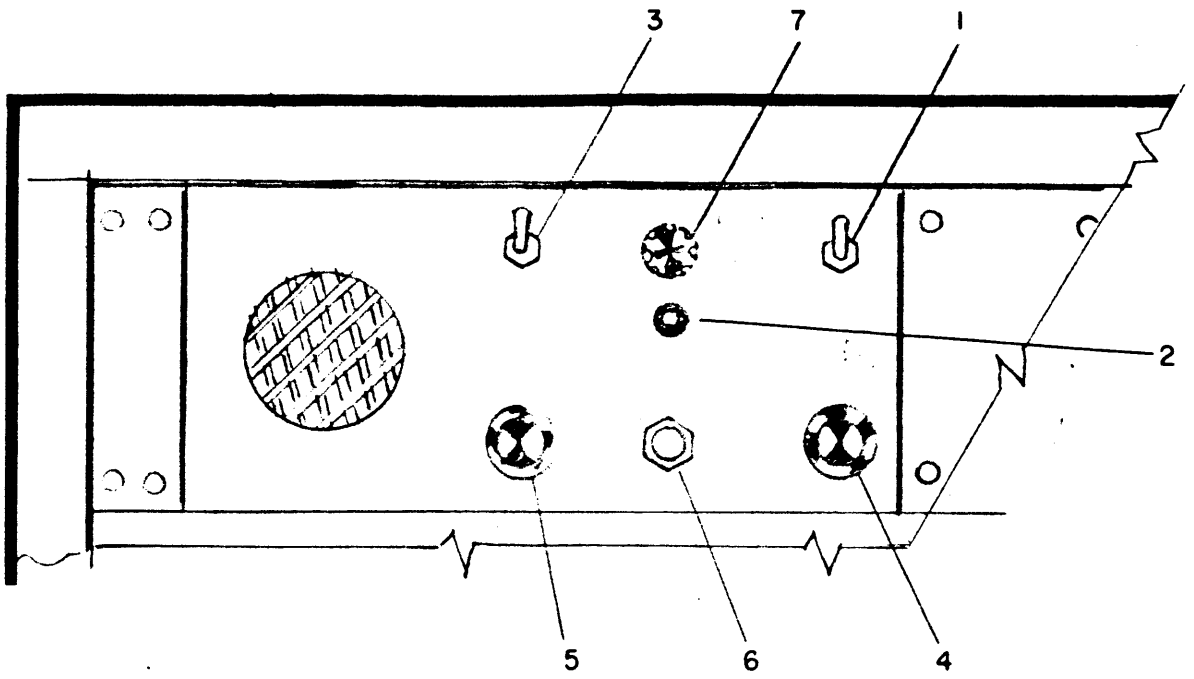


Figure 3-2

Typical Controls and Indicators for SYM-5211-C

Item No. Figure 3-2	Panel Designation	Function
RCSR-1T 1	Power ON/OFF	Controls Primary power RCSR-1T
2	POWER lamp	Indicates primary power connected to RCSR-1T is in the ON position
3	MODE	Selects mode of operation of receiver
4	VOLUME control	Controls monitor volume
5	CLARIFIER control	Provides fine tuning of receiver frequency
6	HEADSET	Provides Monitoring of audio
7	FUSE	Fuses AC line

Table 3-2. Operating Controls and Indicators

RACK C

SECTION 4

PRINCIPLES OF OPERATION

4-1. BLOCK DIAGRAM ANALYSIS

Refer to figure 4-1. The SYM-5211 system is a multi-channel (13) fixed tuned, 2-16 MHz (extended range to 32.0 MHz available) Radio Receiving System with remote controls. Since all of the channels are indentical in operation, only channel 1 will be discussed in the following paragraphs.

RF signals from the antenna are applied to the interface panels ANTENNA INPUT connector J201 in Rack A. (J101 in Rack B) (see figure 2-1) The signals are then transfered to the Antenna Multicoupler AMC-21C at J1 ANTENNA INPUT. The Antenna Multicoupler (see Apendix B) is a broadband antenna-to-receiver coupling device which permits the use of a common antenna by a number of communications receivers.

The RCSR-1T controls certain (STR) receiver functions such as CLARIFIER, AUDIO CHANNEL 1, 2, AGC OUT CHANNEL 1, 2 and BFO.

On the rear of the RCSR-1T at TB1 a shielded pair of wires are connected to the remote interface panel at TB301 or TB302. TB301 controls Rack A and TB302 controls Rack B. (Refer to figure 2-1) Control is accomplished via a 600 ohm balanced line to interface panel Rack A or Rack B at TB201 or TB101.

See section 7 for overall system wiring. Appendix A, B an C detail principles of operation of each component part of the system.

Figure 4-1, illustrates a typical receiver installation for Rack A and B. Rack C located at a remote site will have a full compliment of control units (13) RCST-1T.

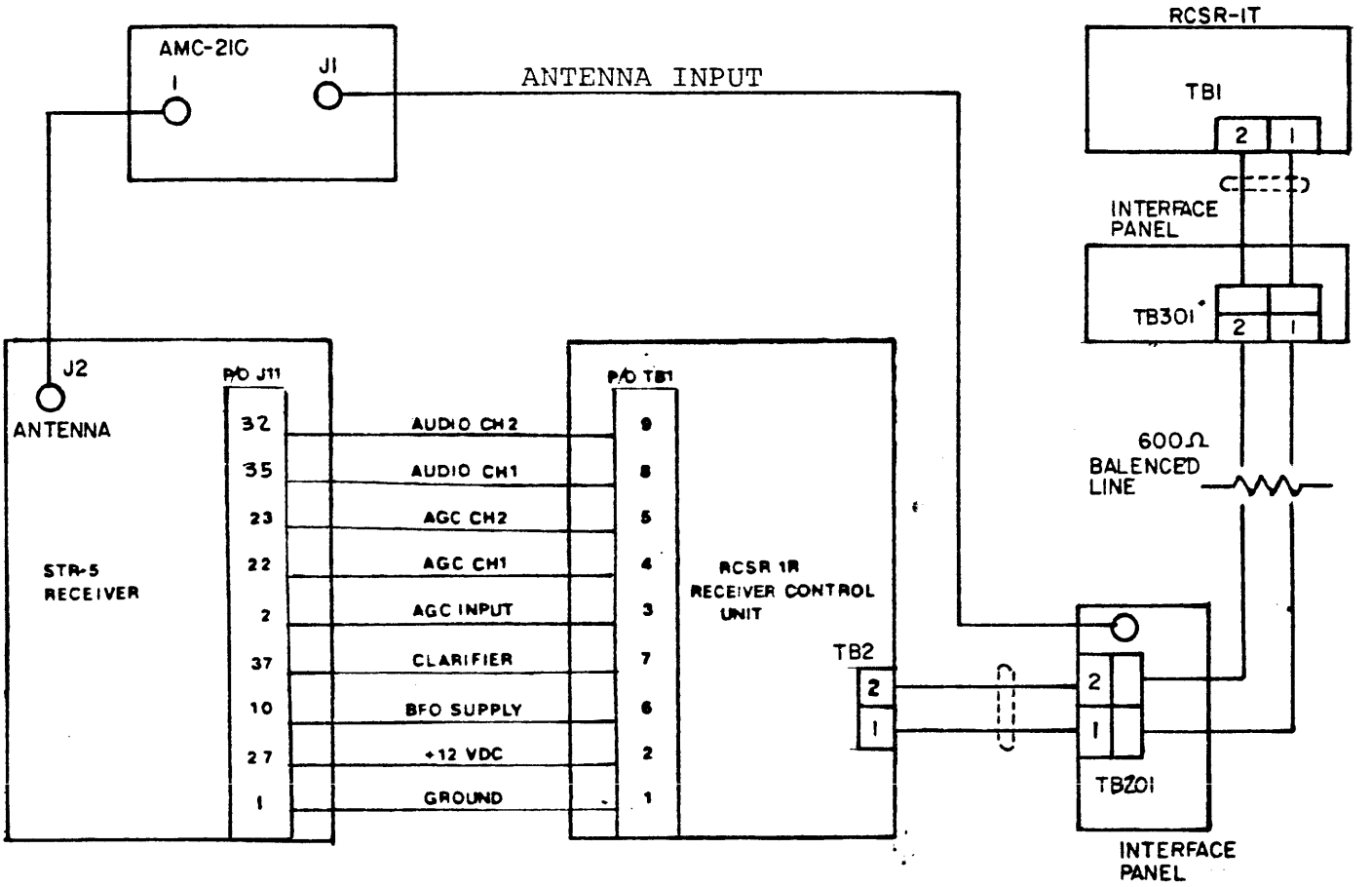


Figure 4-1

Simplified wiring typical diagram

RACK A OR B

NOTE (AMC-21C)

The position of the output modules is important when fewer than the full completement of 8 modules (16 channels) is being used. In order to minimize intermodulation distortion, and to balance the RF feedline from the preamplifier to the output modules, the arrangement must be kept symmetrical. Refer to (Appendix B).

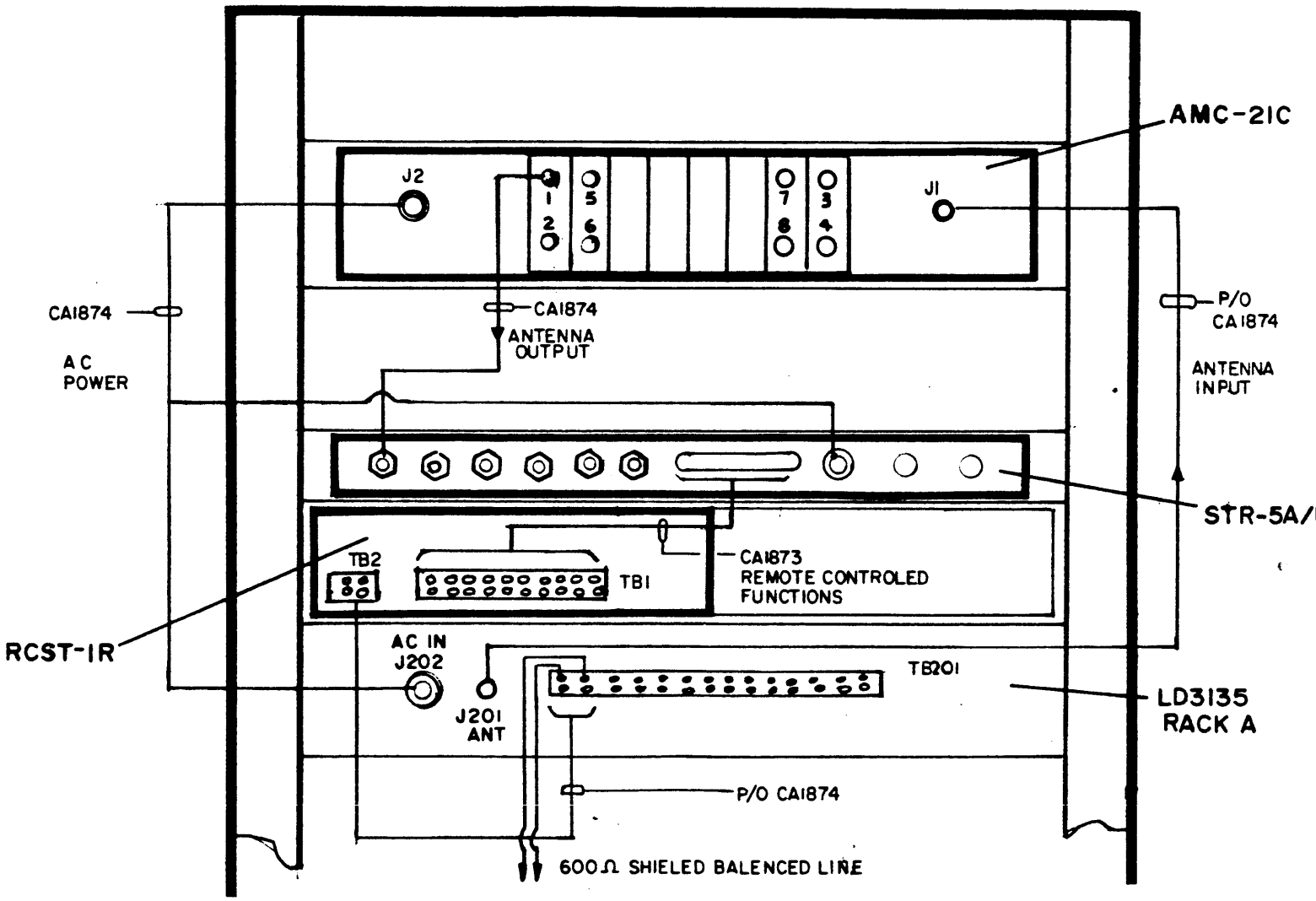


Figure 4-2

Rear View RACK A or B

Typical Connections

SECTION 5

MAINTENANCE AND TROUBLESHOOTING

5-1. PREVENTIVE MAINTENANCE

a. General - The SYM-5211 has been designed to provide long term, trouble free operation under continuous duty conditions. However, in order to prevent failure of the equipment due to corrosion, dust, or other destructive elements, it is suggested that a schedule of preventive maintenance be set up and adhered to.

At periodic intervals, the equipment should be removed from its mounting for cleaning and inspection. All accessible covers should be removed and the wiring and all components inspected for dirt, corrosion, charring, discoloring or grease. Remove dust with a soft brush or vacuum cleaner. Remove dirt or grease from other parts with any suitable cleaning solvent. Use of carbon tetrachloride should be avoided due to its highly toxic effects.

WARNING

WHEN USING TOXIC SOLVENTS, MAKE CERTAIN THAT ADEQUATE VENTILATION EXISTS. AVOID PROLONGED OR REPEATED BREATHING OF THE VAPOR. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. FLAMMABLE SOLVENTS SHALL NOT BE USED ON ENERGIZED EQUIPMENT OR NEAR ANY EQUIPMENT FROM WHICH A SPARK MAY BE RECEIVED. SMOKING, "HOT WORK", ETC. IS PROHIBITED IN THE IMMEDIATE AREA.

CAUTION

WHEN USING TRICHLORETHYLENE, AVOID CONTACT WITH PAINTED SURFACES DUE TO ITS PAINT REMOVING EFFECTS.

b. Modular Unit Maintenance - The individual modules; STR-5A/U, AMC-21C, RCST-1R and RCST-1T should be removed and tested in accordance with their technical manuals and then the system tested.

c. Test Equipment Required - Test equipment required to test and align the system is listed below:

(1) One Signal Generator, HP-606B or equivalent.

(2) One VTVM, Ballantine Model 314 or equivalent.

(3) One VOM, Simpson 260 or equivalent.

(4) One RF generator

MODULAR UNIT	FUSE	RATING	FUNCTION
STR	F1	.25A/115V	(AC Input) Protection
	F1	.125A/230V	
	F2		Protects +12V Distribution
AMC-21C	F1	.75A-115VAC	(AC Input) Protection
	F1	.4A-230VAC	
	F2	.75A-115VAC	use for AMC-21C-12-16
	F2	.4A-230V	
	F1	.5A-115VAC	(AC Input Protection) use for AMC-21C-4-8
	F1	.25A-230VAC	
	F2	.5A-115VAC	
	F2	.25A-230VAC	
RCSR-1T	F1	.5A-115VAC	AC Input Protection
	F1	.25-230VAC	

TABLE 5-1. Fuse Replacement Information

SECTION 6

PARTS LIST

6-1. INTRODUCTION

Reference designations have been assigned to identify electrical parts of the System exclusive of the modular units making up the system. The parts lists for the modular units will be found in the modular unit technical manual, Appendix A, B and C.

The system parts designations will be found on the system interconnect wiring diagram. The following is a listing of the parts and their corresponding description. The TMC part number is the number to be used when ordering the part from The Technical Materiel Corporation, 700 fenimore road, Mamaroneck, New York, 10543.

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
	(RACK A)	
J202	Connector, AC Power	JJ175
J201	Connector, Antenna	UG/625
TB201	Terminal Board	TM100-18
	(RACK B)	
J102	Connector, AC Power	JJ175
J101	Connector, Antenna	UG/625
TB101	Terminal Board	TM100-18

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
	(RACK C)	
J301	Connector, AC Power	JJ175
TB301	Terminal Board	TM100-15
TB302	Terminal Board	TM100-15
	CABLE, (STR) to RCSR-1R (7 Reg. RACK A)(6 Reg. RACK B)	CA1873
	CABLE, INTERFACING (1 Reg. RACK A)(1 Reg. RACK B)	CA1874
	CABLE, INTERFACING (1 Reg. RACK C)	CA1876

SECTION 7

SCHEMATIC DIAGRAM

8 7 6

D C B

AMC-21C

AC INPUT J2

CH1 CH2 CH3 CH4 CH5 CH6 CH7

J1 ANTENNA IN

TO STR-5 NO1 J1
TO STR-5 NO2 J1
TO STR-5 N3 J1
TO STR-5 N4 J1
TO STR-5 N5 J1
TO STR-5 N6 J1
TO STR-5 N7 J1

ANTENNA J201

LINE RCSR-IR NO.1
LINE RCSR-IR NO.2
LINE RCSR-IR NO.3

1 2 3 4 5 6

STR-5 A/U No.1

ANTENNA

EXT BFO 9
TO TB 1 PIN6 10
11
AUDIO OUT CH 2 — LINE 16, GRN 17, LINE 18
TO TB1-9
GND 19
MUTE XMTG REC 20 21
TO TB1 PIN 4
AGC OUT CH1 22
TO TB1 PIN5
AGC OUT CH2 23
AUDIO OUT CH1 — LINE 24, GND 25, LINE 26
TO TB1-8
TO TB1 PIN2
+12VDC OUT 27
RMTE MODE IN — INPUT 28, CH1 29, CH2 30, CH1 & CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
34
35
TO TB1-7
36 37
TO TB1-3

A B C D POWER INPUT GND 1 2

J11

STR-5 A/U No.2

ANTENNA

EXT BFO 9
TO TB-1-6 10
11
AUDIO OUT CH2 — LINE 16, GND 17, LINE 18
TO TB1-9
GND 19
MUTE XMTR/REC 20 21
TO TB1-4
AGC OUT CH1 22
TO TB1-5
AGC OUT CH2 23
AUDIO OUT CH1 — LINE 24, GND 25, LINE 26
TO TB1-8
TO TB1-2
+12VDC OUT 27
RMTE MODE IND — INPUT 28, CH1 29, CH2 30, CH1 & CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
SQUELCH CH1 34
AUDIO OUT CH1 35
TO TB1-7
RMTE CLAR. 36 37
TO TB1-3

A B C D POWER INPUT GND 1 2

J11

STR-

ANTE

A
A
S
S
A
RM
MO
IN
A
S
POW
INPU

TO GND J11
TO J11 PIN27
TO J11 PIN2
TO J11 PIN22
TO J11 PIN23
TO J11 PIN10
TO J11 PIN37
TO J11 PIN35
TO J11 PIN32

TB1 1 2 3 4 5 6 7 8 9

GND
+ 12VDC
AGC IN
AUDIO OUT CH1
AUDIO OUT CH2
+12VDC BFO
SQUELCH
AUDIO CH1
AUDIO CH2

TO INTER TB201-1
TO INTER TB201-2

TB 2 LINE 1 2

TO J11-1
TO J11-27
TO J11-2
TO J11-22
TO J11-23
TO J11-10
TO J11-37
TO J11-35

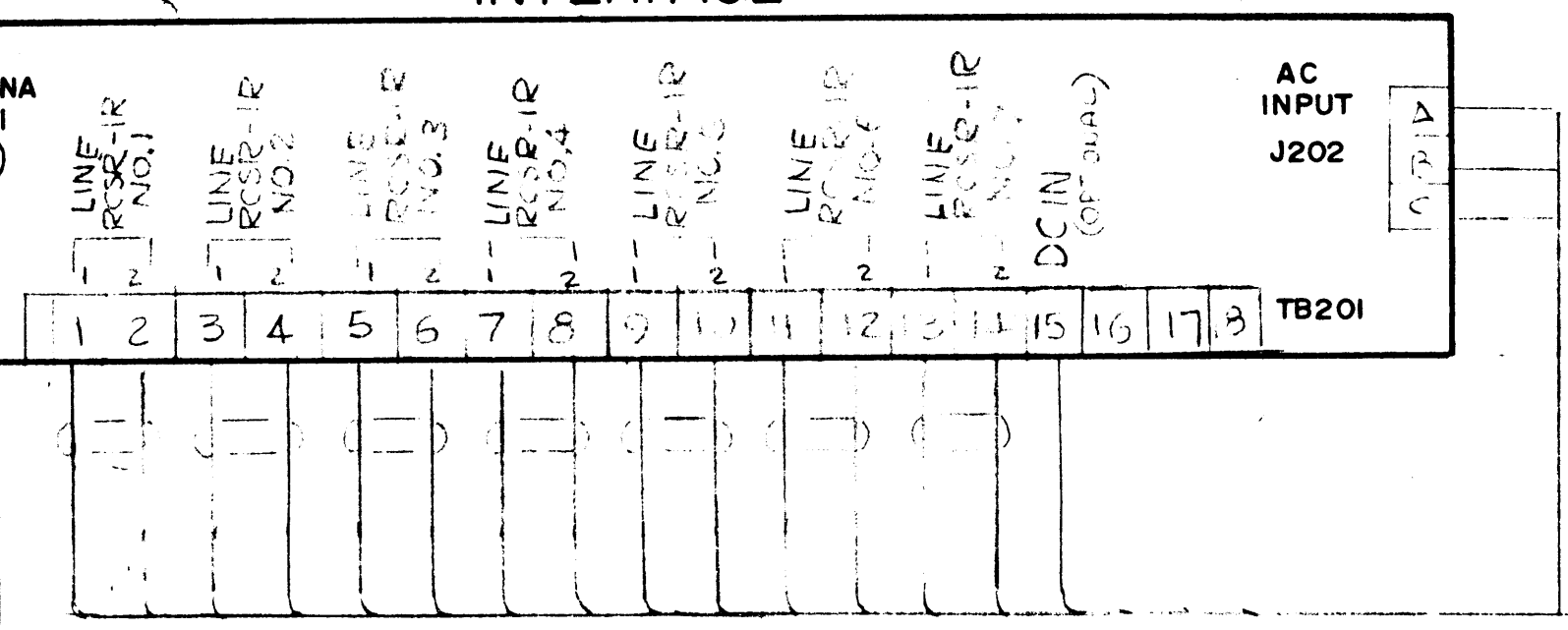
TB1 1 2 3 4 5 6 7 8

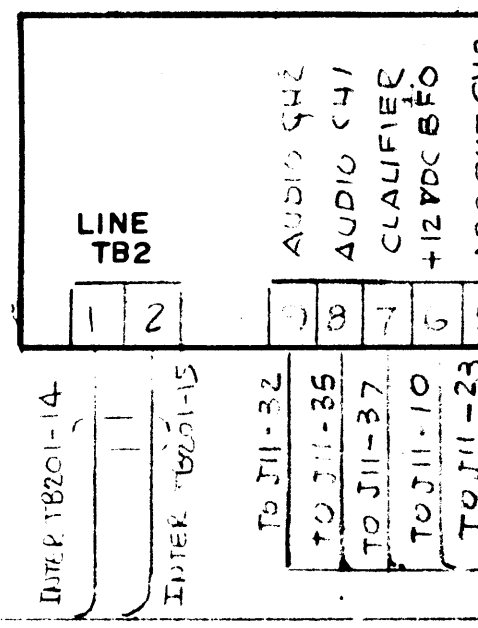
GND
+12VDC
AGC IN
AUDIO OUT CH1
AUDIO OUT CH2
+12VDC BFO
SQUELCH
AUDIO CH1

6 | 5 | 4

INTERFACE

RCSR-IR





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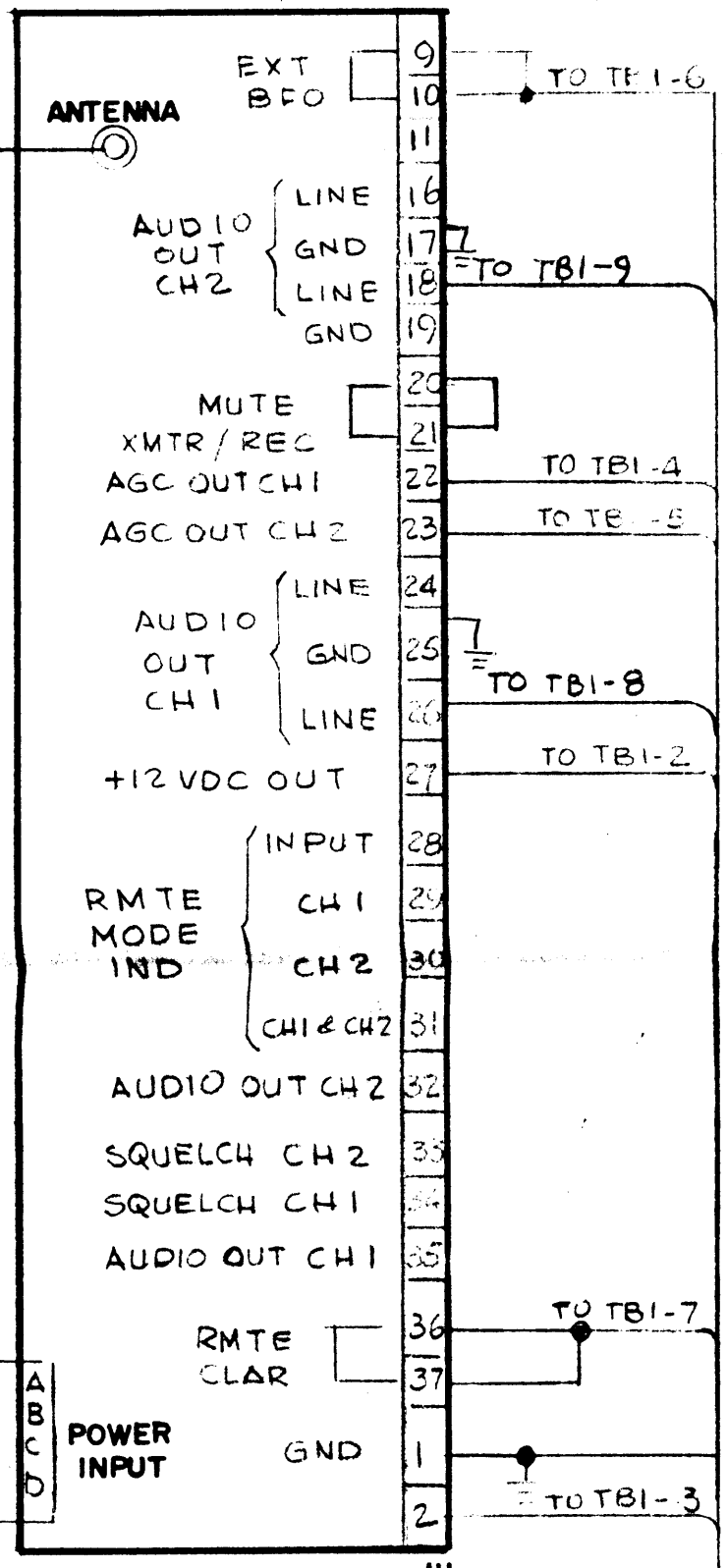

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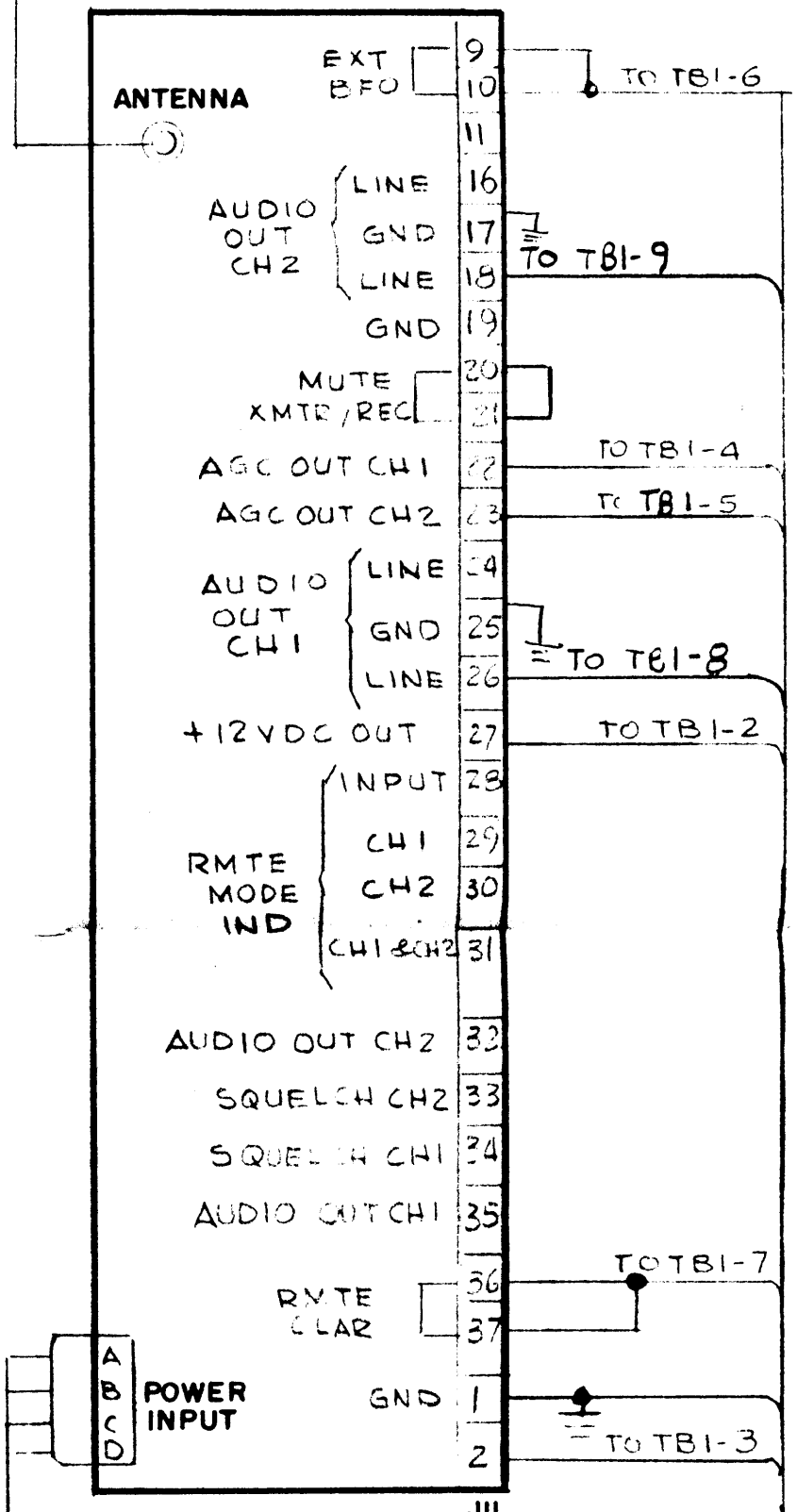
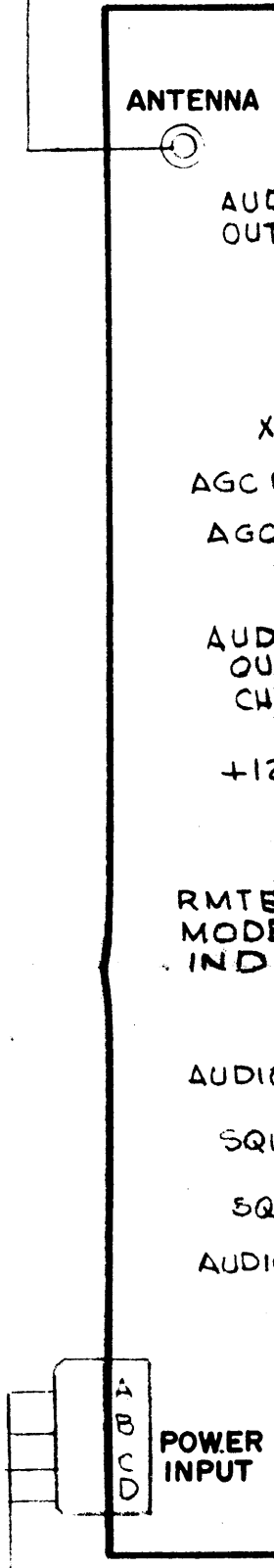
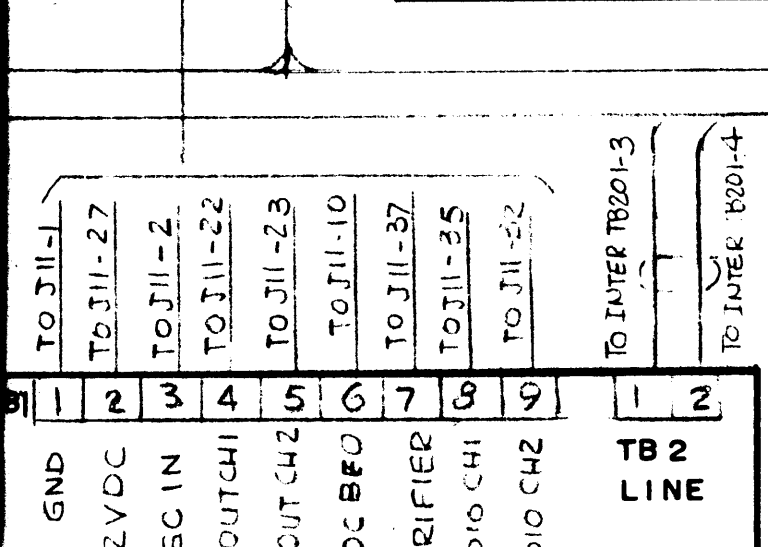
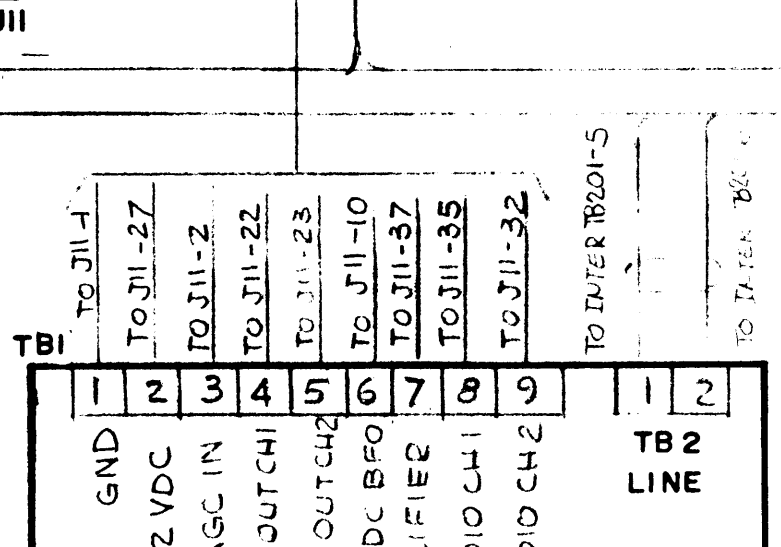
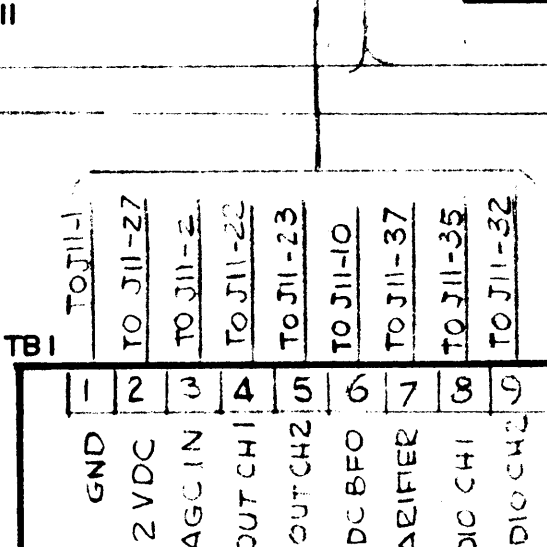


STR-5









4 | 3 | 2

RCSR-IR No. 7

REVISIONS					
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION
				X1	AC STRIP DELETED ... LOG ADD AC INPUT
				X2	Conn SYM CLARIFIED, GNDS CLARIFIE
				X3	LINE TB2 NOMINCLATURE MODIFIED
				X4	Audio Out CH1 was TB1-35, CH2 wa

LINE TB2: 1, 2

TBI: 9 AUDIO CH2 → TO J11-32; 8 AUDIO CH1 → TO J11-35; 7 CLARIFIER +12 VDC BFO → TO J11-37; 6 → TO J11-10; 5 AGC OUT CH2 → TO J11-23; 4 AGC OUT CH1 → TO J11-22; 3 AGC IN → TO J11-2; 2 +12 VDC → TO J11-27; 1 GND → TO J11-1

1 → TO INTER TB201-14

2 → TO INTER TB201-15

STR-5A/U No. 5

ANTENNA		
EXT BFO	9	TO TBI-6
	10	
	11	
AUDIO OUT CH2 LINE	16	
AUDIO OUT CH2 GND	17	TO TBI-9
AUDIO OUT CH2 LINE	18	
GND	19	
MUTE XMTR/REC	20	
	21	
AGC OUT CH1	22	TO TBI-4
AGC OUT CH2	23	TO TBI-5
AUDIO OUT CH1 LINE	24	
AUDIO OUT CH1 GND	25	TO TBI-8
AUDIO OUT CH1 LINE	26	
+12VDC OUT	27	TO TBI-2
RMTE MODE IND INPUT	28	
RMTE MODE IND CH1	29	
RMTE MODE IND CH2	30	
RMTE MODE IND CH1&CH2	31	
AUDIO OUT CH2	32	
SQUELCH CH2	33	
SQUELCH CH1	34	
AUDIO OUT CH1	35	
RMTE CLAR	36	TO TBI-7
	37	
POWER INPUT A		
POWER INPUT B		
POWER INPUT C		
POWER INPUT D		
GND	1	TO TBI-3
	2	

J11

STR-5A/U No. 6

ANTENNA		
EXT BFO	9	TO TBI-6
	10	
	11	
AUDIO OUT CH2 LINE	16	
AUDIO OUT CH2 GND	17	TO TBI-9
AUDIO OUT CH2 LINE	18	
GND	19	
MUTE XMTR/REC	20	
	21	
AGC OUT CH1	22	TO TBI-4
AGC OUT CH2	23	TO TBI-5
AUDIO OUT CH1 LINE	24	
AUDIO OUT CH1 GND	25	TO TBI-8
AUDIO OUT CH1 LINE	26	
+12VDC OUT	27	TO TBI-2
RMTE MODE IND INPUT	28	
RMTE MODE IND CH1	29	
RMTE MODE IND CH2	30	
RMTE MODE IND CH1&CH2	31	
AUDIO OUT CH2	32	
SQUELCH CH2	33	
SQUELCH CH1	34	
AUDIO OUT CH1	35	
RMTE CLAR	36	TO TBI-7
	37	
POWER INPUT A		
POWER INPUT B		
POWER INPUT C		
POWER INPUT D		
GND	1	TO TBI-3
	2	

J11

STR-5A/U

EXT BFO, ANTENNA, MUTE XMTR/REC, RMTE CLAR, POWER INPUT A B C D

TO TBI-6, TO TBI-9, TO TBI-4, TO TBI-5, TO TBI-8, TO TBI-2, TO TBI-7, TO TBI-3

J11

TBI: 1 GND → TO J11-1; 2 +12VDC → TO J11-27; 3 AGC IN → TO J11-2; 4 AGC OUT CH1 → TO J11-22; 5 AGC OUT CH2 → TO J11-23; 6 +12VDC BFO → TO J11-10; 7 CLARIFIER → TO J11-37; 8 AUDIO CH1 → TO J11-35; 9 AUDIO CH2 → TO J11-32

TB2 LINE: 1 → TO INTER TB201-9; 2 → TO INTER TB201-10

TBI: 1 GND → TO J11-1; 2 +12VDC → TO J11-27; 3 AGC IN → TO J11-2; 4 AGC OUT CH1 → TO J11-22; 5 AGC OUT CH2 → TO J11-23; 6 +12VDC BFO → TO J11-10; 7 CLARIFIER → TO J11-37; 8 AUDIO CH1 → TO J11-35; 9 AUDIO CH2 → TO J11-32

TB2 LINE: 1 → TO INTER TB201-7; 2 → TO INTER TB201-8

3 2 1

REVISIONS							
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	DATE	APPROVED
				X1	AC STRIP [illegible] LOG TO INTF ADD ΔE INPUT		
				X2	Conn SYM CLARIFIED, GNDS CLARIFIED	5-1-82	
				X3	LINE TB2 NOMENCLATURE MODIFIED	6-2-82	
				X4	Audio Out" CH1 was TB1-35, CH2 was TB1-32	7-20-	

D

C

B

STR-5A/U No.6

EXT BFO 9
ANTENNA 10
11
AUDIO OUT CH2 — LINE 16, GND 17, LINE 18, GND 19
MUTE XMTR/REC 20, 21
AGC OUT CH1 22
AGC OUT CH2 23
AUDIO OUT CH1 — LINE 24, GND 25, LINE 26
+12VDC OUT 27
RMTE MODE IND — IN PUT 28, CH1 29, CH2 30, CH1&CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
SQUELCH CH1 34
AUDIO OUT CH1 35
RMTE CLAR 36, 37
GND 1, 2
POWER INPUT A B C D
J11

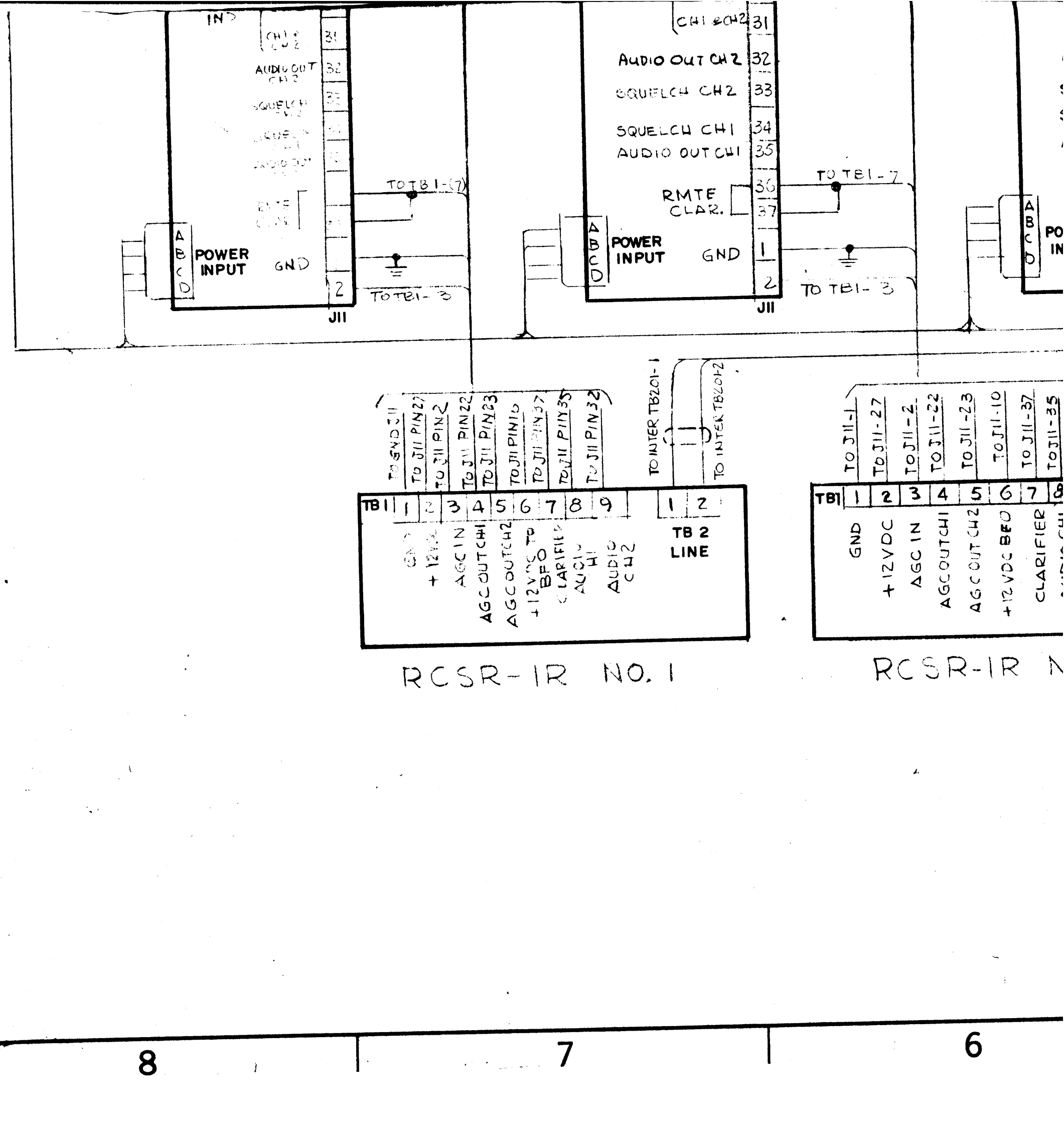
TO TB1-6 · TO TB1-9 · TO TB1-4 · TO TB1-5 · TO TB1-8 · TO TB1-2 · TO TB1-7 · TO TB1-3 · TO TB1-6 · TO TB1-9 · TO TB1-4 · TO TB1-5 · TO TB1-8 · TO TB1-2 · TO TB1-7 · TO TB1-3

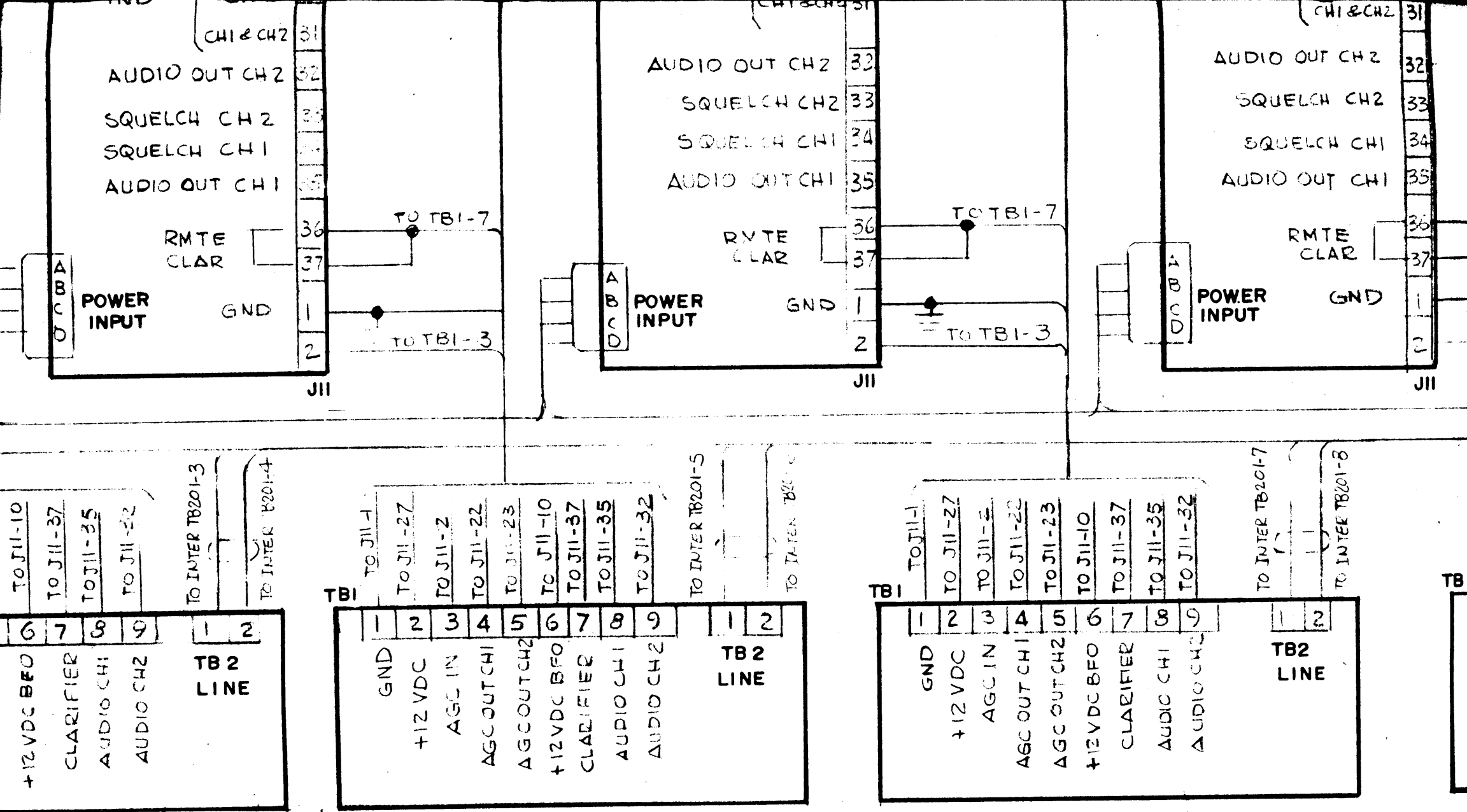
STR-5A/U No.7

EXT BFO 9
ANTENNA 10
11
AUDIO OUT CH2 — LINE 16, GND 17, LINE 18, GND 19
MUTE XMTR/REC 20, 21
AGC OUT CH1 22
AGC OUT CH2 23
AUDIO OUT CH1 — LINE 24, GND 25, LINE 26
+12VDC OUT 27
RMTE MODE IND — IN PUT 28, CH1 29, CH2 30, CH1&CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
SQUELCH CH1 34
AUDIO OUT CH1 35
RMTE CLAR 36, 37
GND 1, 2
POWER INPUT A B C D
J11

TO TB1-6 · TO TB1-9 · TO TB1-4 · TO TB1-5 · TO TB1-8 · TO TB1-2 · TO TB1-7 · TO TB1-3

TB1: 1 GND · 2 +12VDC · 3 AGC IN · 4 AUDIO OUT CH1 · 5 AUDIO OUT CH2 · 6 +12VDC BFO · 7 SQUELCH CLARIFIER · 8 AUDIO CH1 · 9 AUDIO CH2
TO J11-1 · TO J11-27 · TO J11-2 · TO J11-22 · TO J11-23 · TO J11-10 · TO J11-37 · TO J11-35 · TO J11-32
TO INTER TB2-9 · TO INTER TB2-10
TB2 LINE: 1 · 2
TO INTER TRANS 11 · TO INTER TB2-11-2


IND
CH1 & CH2
AUDIO OUT CH2
SQUELCH CH2
SQUELCH CH1
AUDIO OUT CH1
RMTE CLAR.
POWER INPUT
GND
A
B
C
D
31
32
33
34
35
36
37
1
2
TO TB1-7
TO TB1-3
JII
TO GND JII
TO JII PIN 27
TO JII PIN 2
TO JII PIN 22
TO JII PIN 23
TO JII PIN 10
TO JII PIN 37
TO JII PIN 35
TO JII PIN 32
TO INTER TB201-1
TO INTER TB201-2
TB1
TB 2
LINE
GND
+ 12VDC
AGC IN
AGC OUT CH1
AGC OUT CH2
+12VDC TO BFO
CLARIFIER
AUDIO CH1
AUDIO CH2
TO JII-1
TO JII-27
TO JII-2
TO JII-22
TO JII-23
TO JII-10
TO JII-37
TO JII-35
RCSR-1R NO. 1
RCSR-1R N
8
7
6



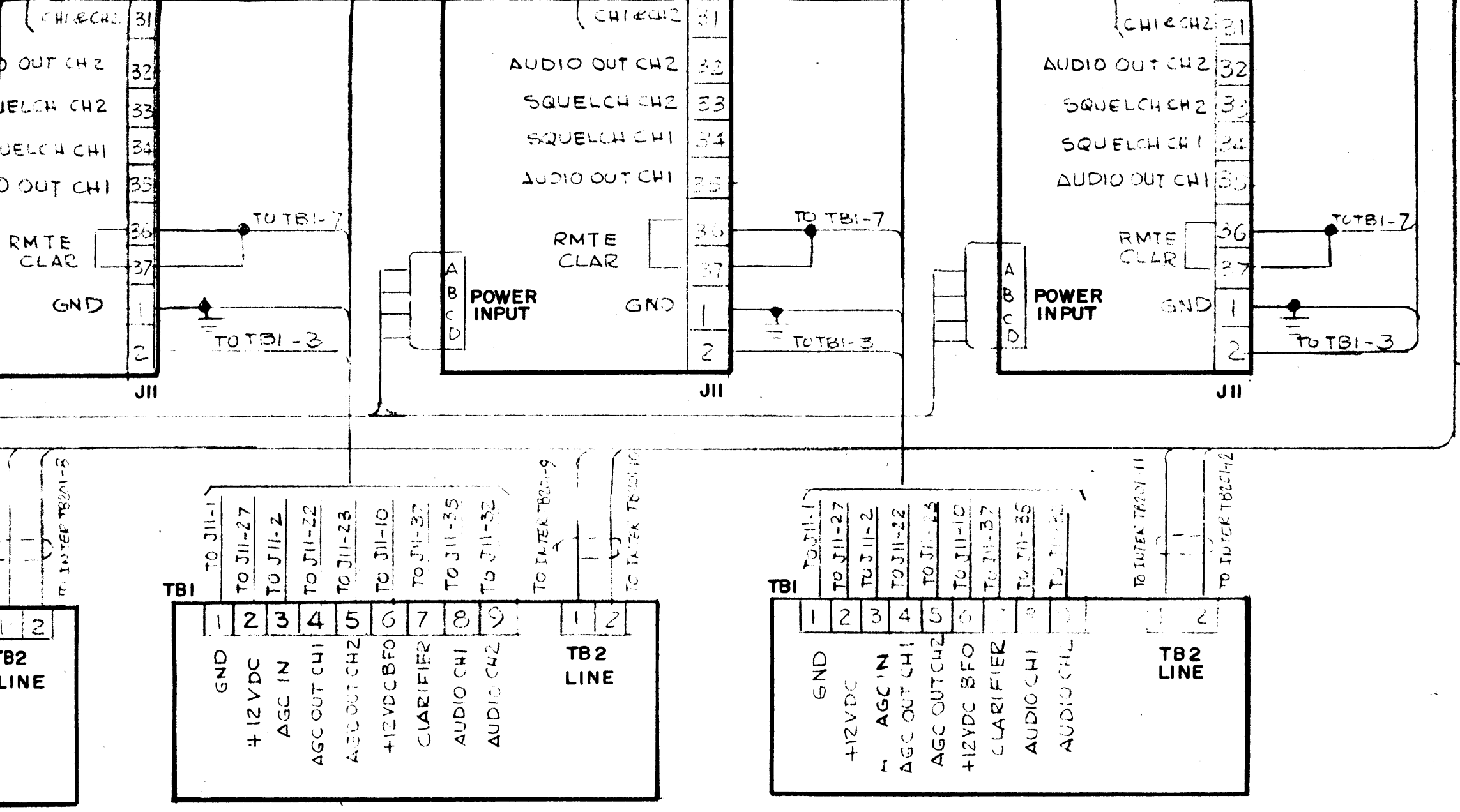
IR NO-2

RCSR-IR NO.3

RCSR IR NO.4.

1	SYM 5211-A	
QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
	CODE	

5 4



RCSR-1R NO. 5

RCSR-1R NO. 6

QTY. REQ.	ITEM	PART NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES ON

DECIMALS	FRACTIONS
.X ± .05	± 1/64
.XX ± .01	ANGLES
.XXX ± .005	± 0° -30'

MATERIAL

FINISH

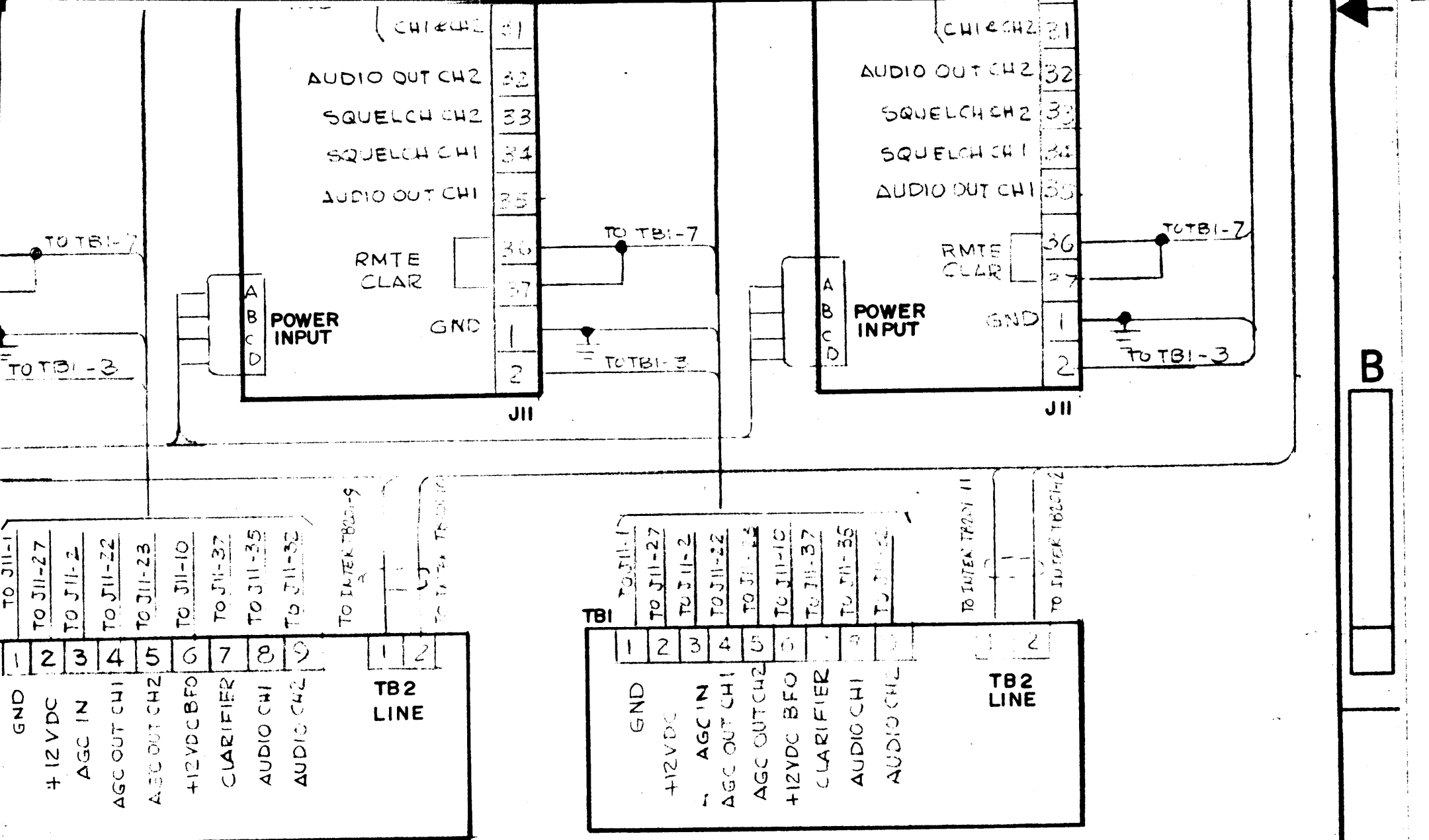
FINAL APPROVAL		DATE
MECH. DES.		DATE
ELECT. DES.		DATE
CHECKED		DATE
DRAWN	G D L	DATE 3-2

ASS'Y NO.

Figure 7-1

Interconnect Wiring Diagram

SYM-5211. RACK A



RCSR-1R NO. 5

RCSR-1R NO. 6

QTY. REQ.	ITEM	PART NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES ND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	FINAL APPROVAL	DATE
	MECH. DES.	DATE
TOLERANCES ON	ELECT. DES.	DATE
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005 FRACTIONS ± 1/64 ANGLES ± 0° -30'	CHECKED	DATE
	DRAWN GDL	DATE 3-2
ATERIAL		
NISH		

Figure 7-1

Interconnect Wiring Diagram

SYM-5211. RACK A

N39990

8 7 6

D C B

INTERFA

AMC-21C

CH. 1 CH. 3 CH. 5

CH 2 CH 4 CH 6

PWR IN J2

J1 ANT IN

ANTENNA IN

J101

LINE RCSR-IR NO. 1

LINE RCSR-IR NO. 2

LINE RCSR-IR NO. 3

LINE RCSR-IR

TB101 1 2 3 4 5 6 7

STR-5A/U No. 1

ANT J1

EXT BFO 9 10 TO TB1-6

AUDIO OUT CH 2 LINE 16, GND 17, LINE 18 TO TB1-9

GND 19

MUTE XMTR REC 20 21

AGC OUT CH1 22 TO TB1-4

AGC OUT CH2 23 TO TB1-5

AUDIO OUT CH 1 LINE 24, GND 25 TO TB1-8, LINE 26

+12VDC OUT 27 TO TB1-2

RMTE MODE IND INPUT 28, CH1 29, CH2 30, CH1 & CH2 31

AUDIO OUT CH2 32

SQUELCH CH 2 33

SQUELCH CH 1 34

AUDIO OUT CH 1 35

RMTE CLAR 36 37 TO TB1-7

GND 1 TO TB1-1

PWR IN 2 TO TB1-3

J4 A B C D

DC

J11

STR-5A/U No. 2

ANT J1

EXT BFO 9 10 TO TB1-6

AUDIO OUT CH 2 LINE 16, GND 17, LINE 18 TO TB1-9, GND 19

MUTE XMTR REC 20 21 TO TB1-4

AGC OUT CH 1 22

AGC OUT CH2 23 TO TB1-5

AUDIO OUT CH 2 LINE 24, GND 25 TO TB1-8, LINE 26

+12VDC OUT 27 TO TB1-2

RMTE MODE IND INPUT 28, CH 1 29, CH2 30, CH1 & CH2 31

AUDIO OUT CH 2 32

SQUELCH CH 2 33

SQUELCH CH 1 34

AUDIO OUT CH 1 35

RMTE CLA2 36 37 TO TB1-7

PWR IN GND 1 TO TB1-1

2 TO TB1-3

J4 A B C

DC

J11

STR-

ANT J1

AU O C

AG AG

AUD OU CI

+12V

RMT MOD

AU SQ S AU

PWR IN J4 A B C

DC

TB1 1 2 3 4 5 6 7 8 9

TO J11-1 TO J11-27 TO J11-2 TO J11-22 TO J11-23 TO J11-10 TO J11-37 TO J11-35 TO J11-32

GND +12 VDC AGC IN AUDIO OUT CH1 AUDIO OUT CH2 PTT DC TO BFO DISCRIMINATOR AUDIO CH1 AUDIO CH2

To Inter TB101-1 To Inter TB101-2

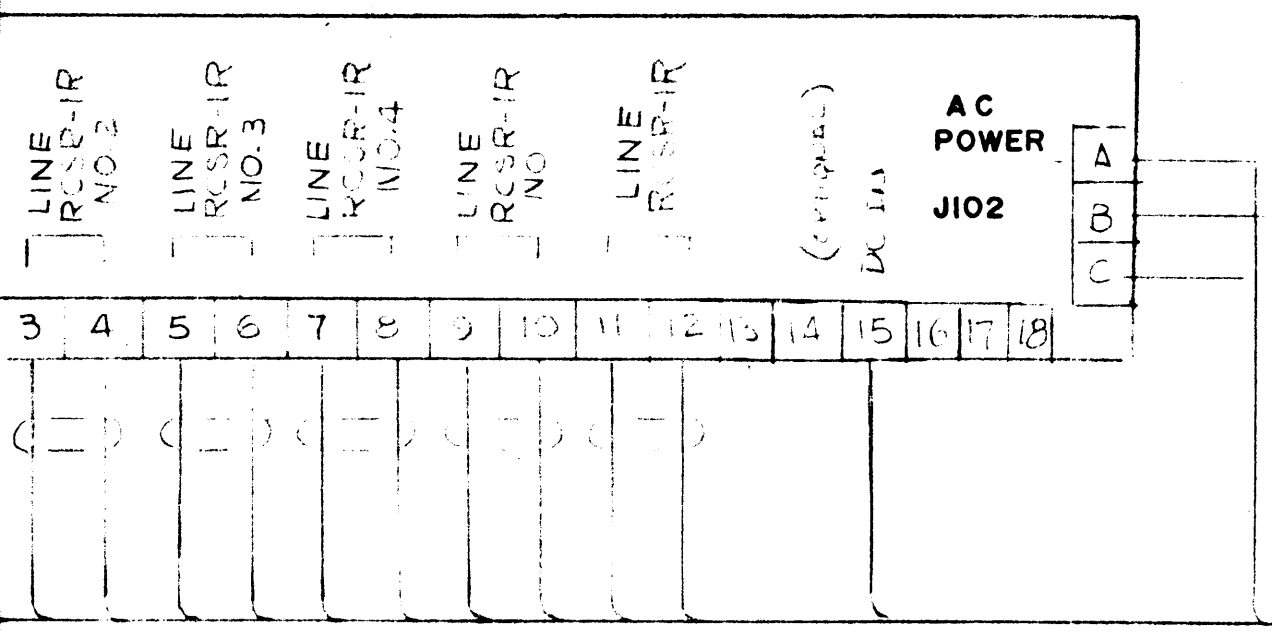
TB1 1 2

TO J11-1 TO J11-27 TO J11-2 TO J11-22 TO J11-23 TO J11-10 TO J11-37 TO J11-35 TO J11-32

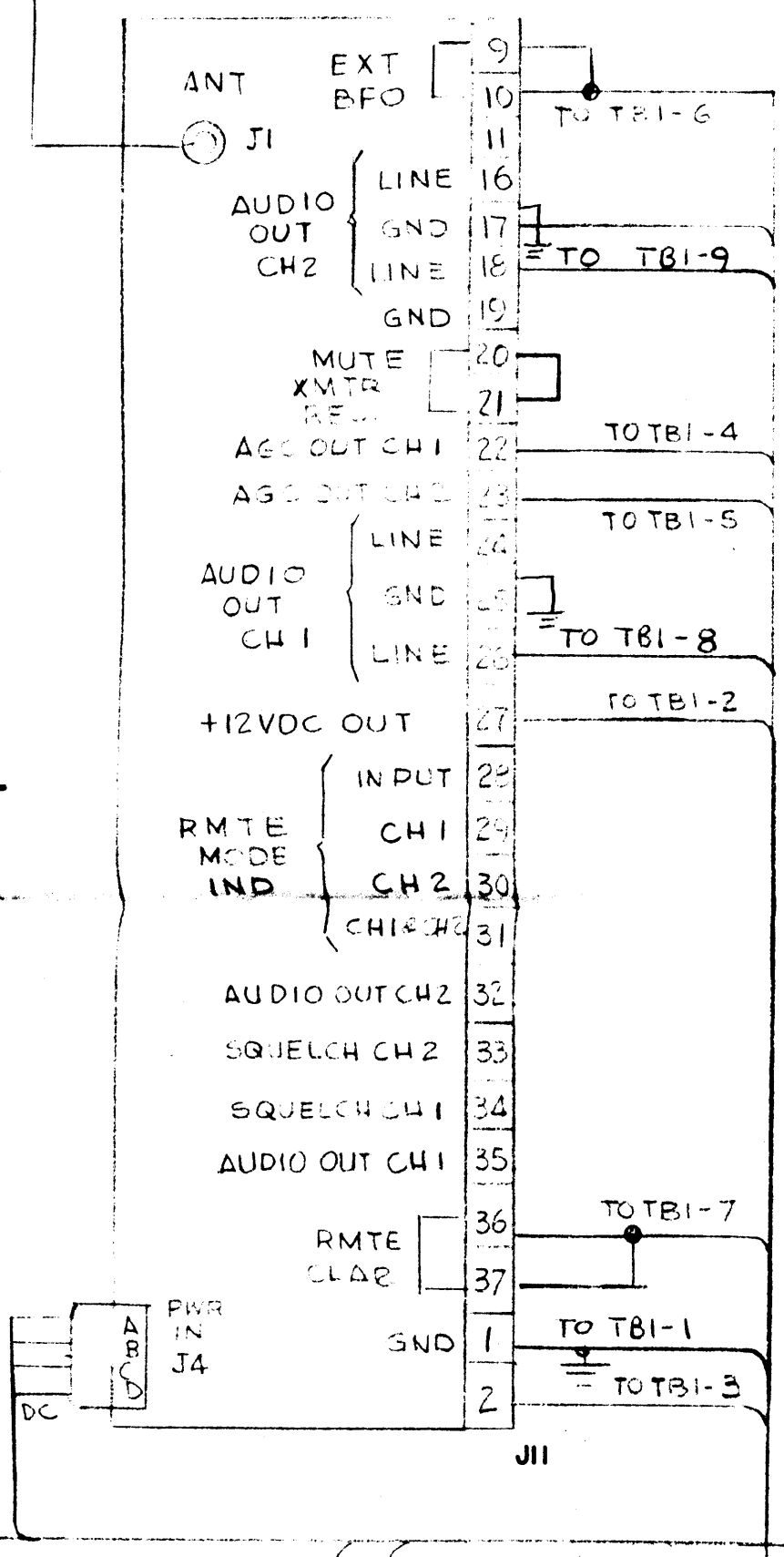
GND +12 VDC AGC IN AUDIO OUT CH1 AUDIO OUT CH2 PTT DC TO BFO DISCRIMINATOR AUDIO CH1 AUDIO CH2

6 5 4

INTERFACE



STR-5A/U Nº3



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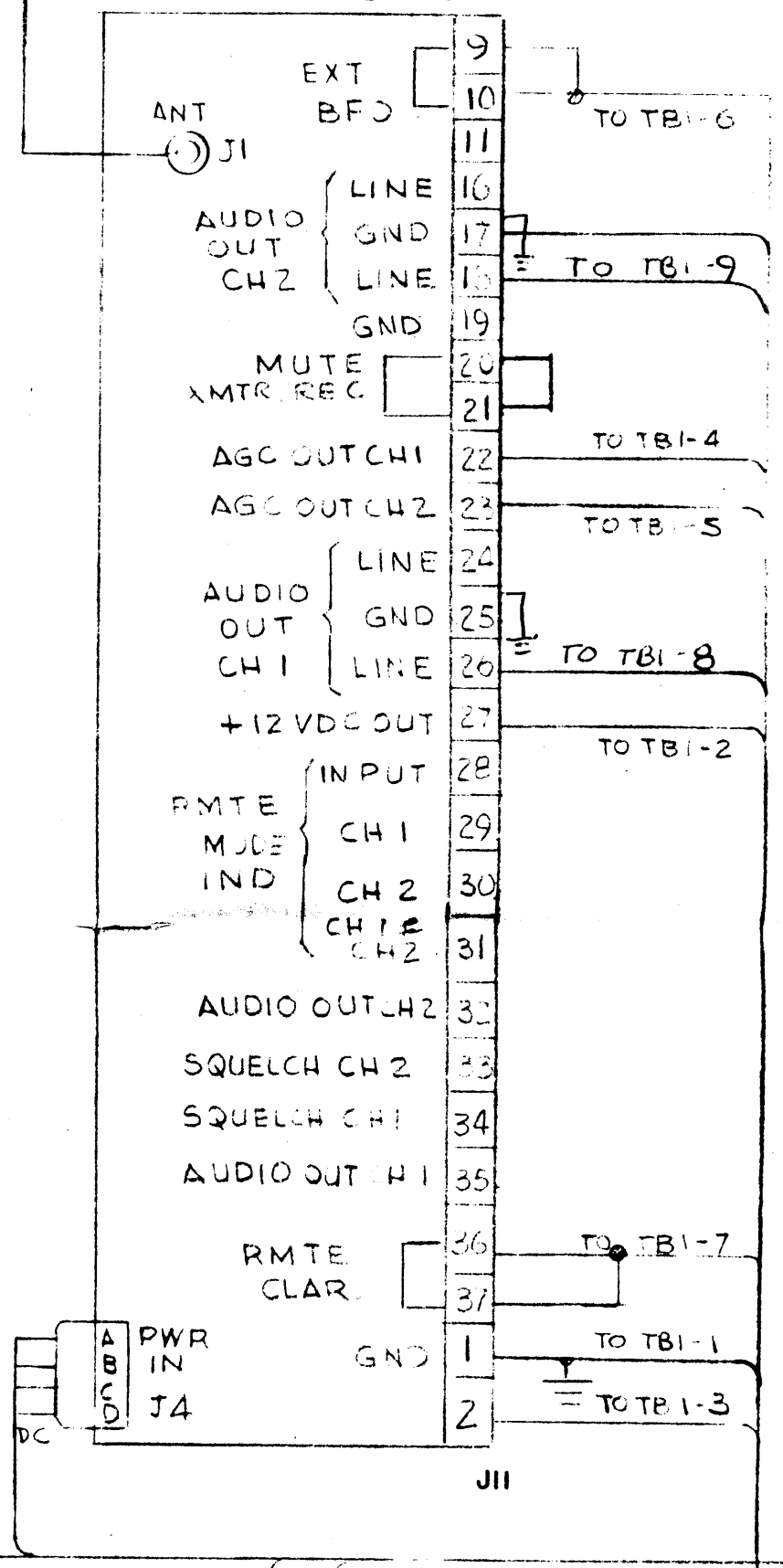
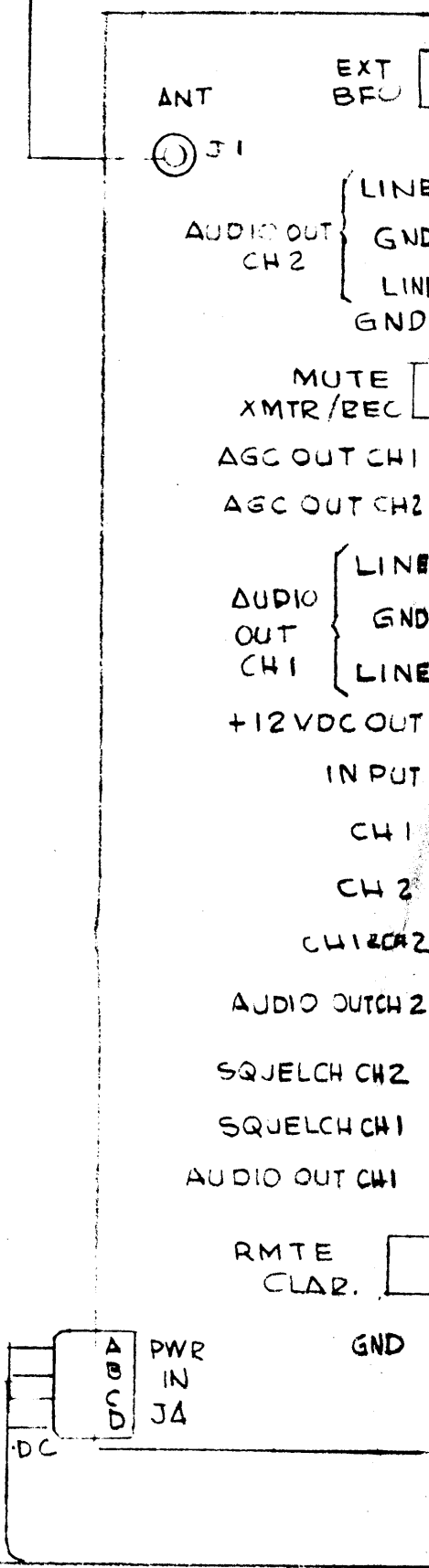
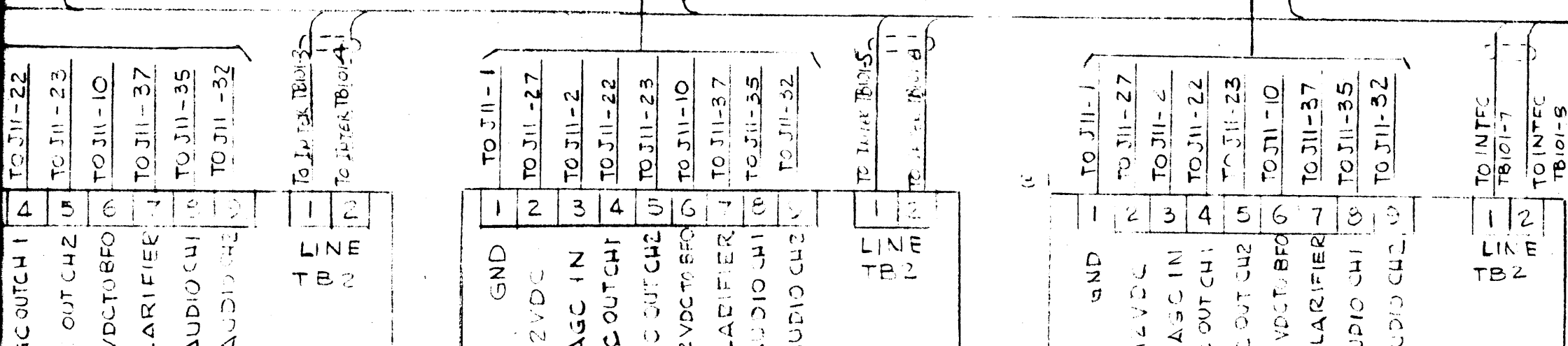


STR-5A/U





REVISIONS						
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	DA
				X1	AC STRIP DELETED AC INPUT [illegible] ADD TO INTERFACE	4 2
				X2	SYMBOLS and GNDS CLARIFIED	5-1-
				X3	LINE TB101 NOMENCLATURE MODIFIED	6 2
				X4	AUDIO OUT CH1 WAS TB1-35 CH2 WAS TB1-32	7-2

STR-5A/U No.5

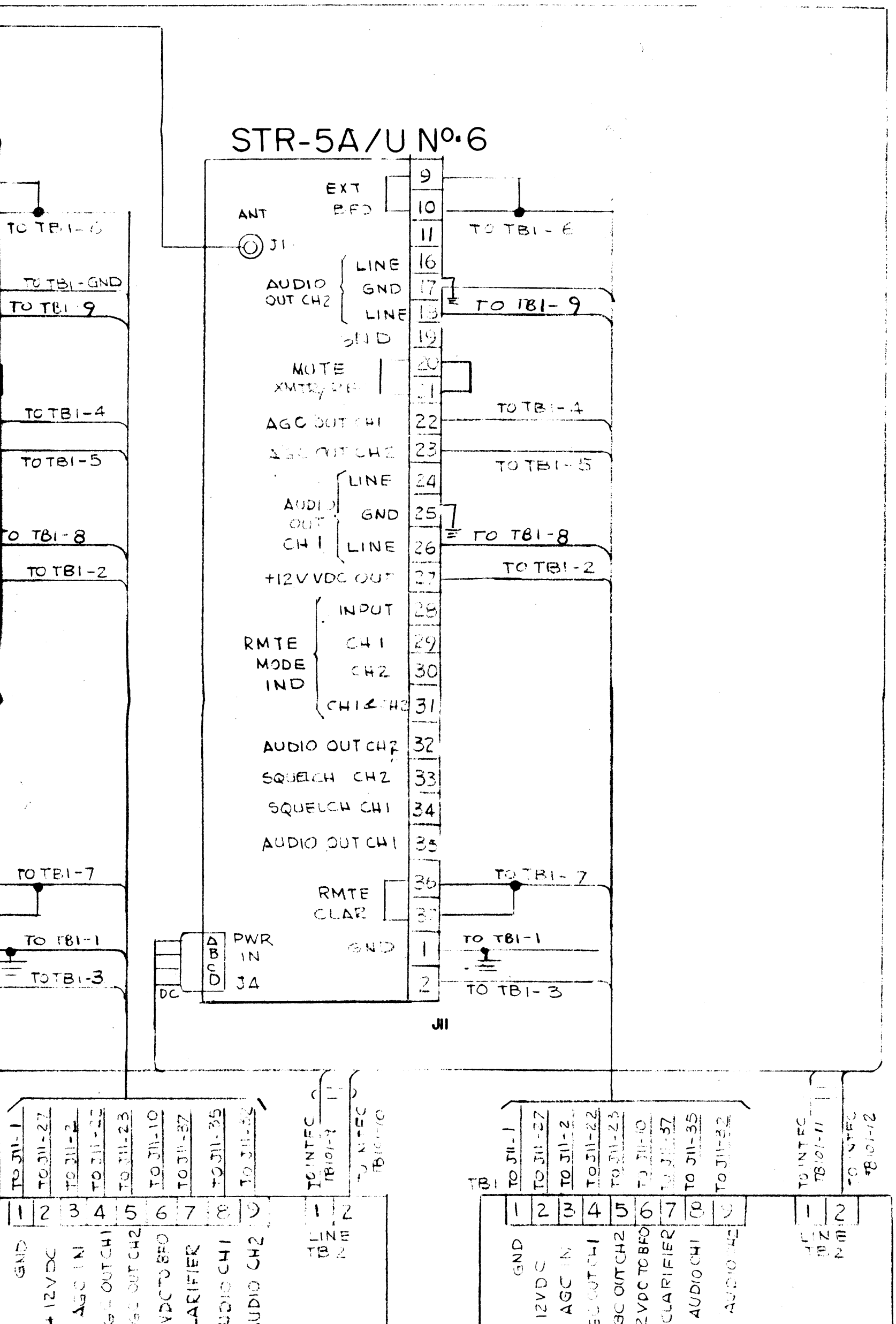
ANT
J1
EXT BFO
9
10
11
TO TB1-6
AUDIO OUT CH2: LINE 16, GND 17, LINE 18, GND 19
TO TB1-GND
TO TB1-9
MUTE XMTR/REC 20 21
AGC OUT CH1 22 — TO TB1-4
AGC OUT CH2 23 — TO TB1-5
AUDIO OUT CH1: LINE 24, GND 25, LINE 26
TO TB1-8
+12VDC OUT 27 — TO TB1-2
INPUT 28
CH1 29
CH2 30
CH1&CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
SQUELCH CH1 34
AUDIO OUT CH1 35
RMTE CLAR. 36 37 — TO TB1-7
PWR IN J4: A, B, C, D
GND 1 — TO TB1-1
2 — TO TB1-3
J11

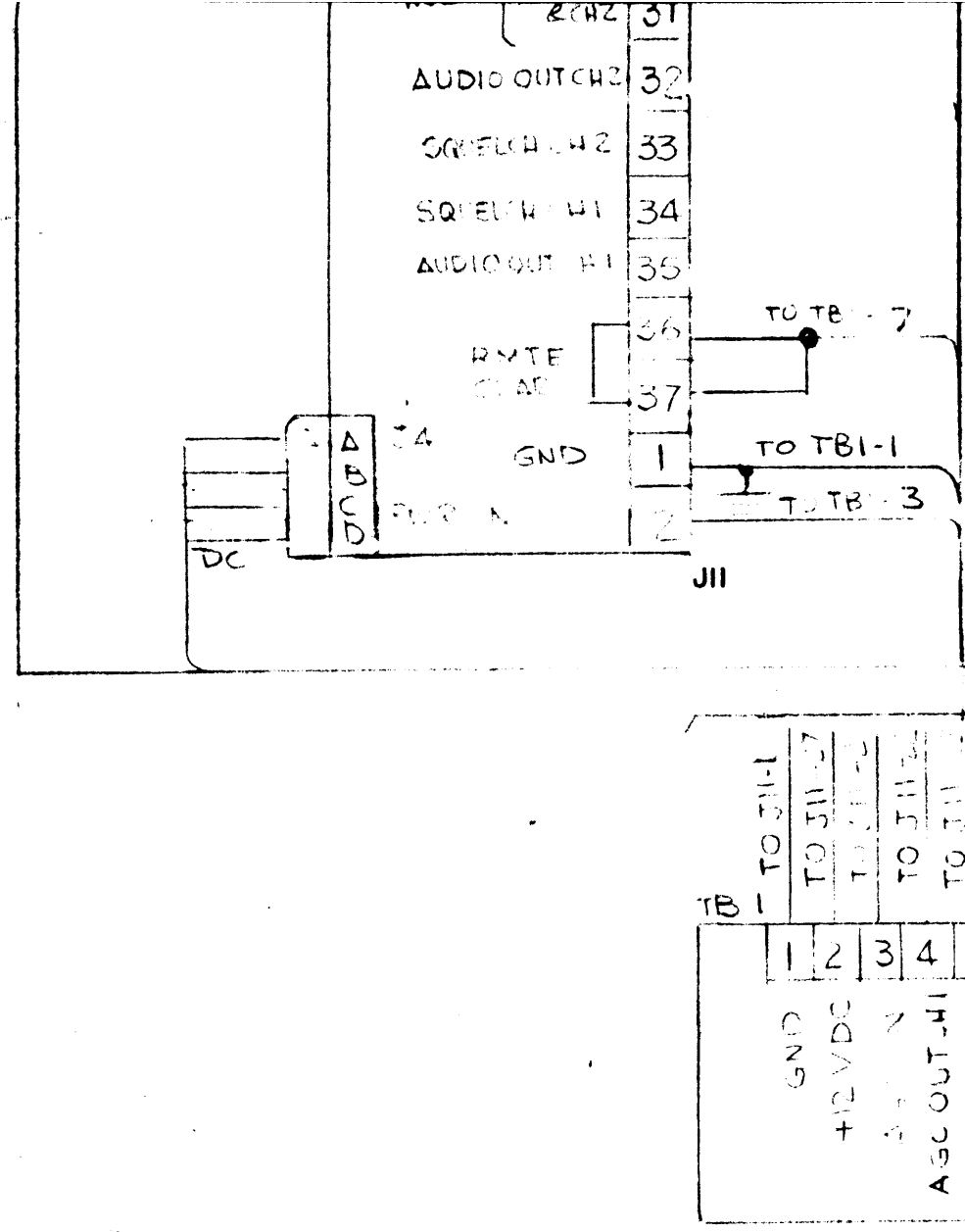
STR-5A/U No.6

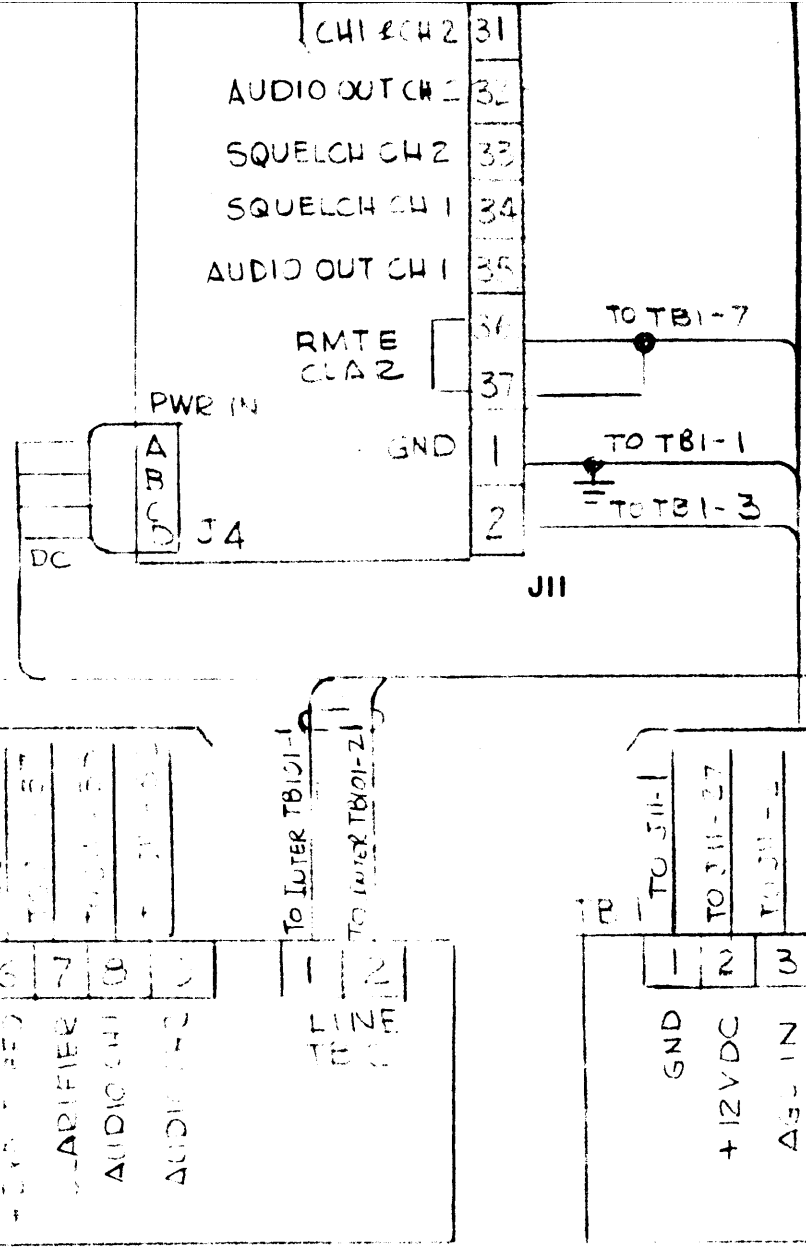
ANT
J1
EXT BFO
9
10
11
TO TB1-6
AUDIO OUT CH2: LINE 16, GND 17, LINE 18
TO TB1-9
GND 19
MUTE XMTR/REC 20 21
TO TB1-4
AGC OUT CH1 22
AGC OUT CH2 23
TO TB1-5
AUDIO OUT CH1: LINE 24, GND 25, LINE 26
TO TB1-8
+12V VDC OUT 27
TO TB1-2
RMTE MODE IND: INPUT 29, CH1 29, CH2 30, CH1&CH2 31
AUDIO OUT CH2 32
SQUELCH CH2 33
SQUELCH CH1 34
AUDIO OUT CH1 35
RMTE CLAR 36 37 — TO TB1-7
PWR IN J4: A, B, C, D
GND 1 — TO TB1-1
2 — TO TB1-3
J11

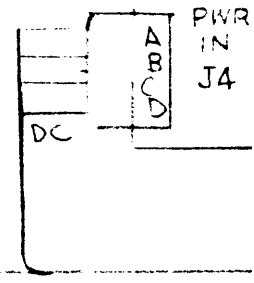
TB1: TO J11-37, TO J11-35, TO J11-32, TO INTFC TB101-7, TO INTFC TB101-5, TO J11-1, TO J11-27, TO J11-2, TO J11-22, TO J11-23, TO J11-10, TO J11-37, TO J11-35, TO J11-32, TO INTFC TB101-9, TO INTFC TB101-10, TO INTFC TB101-11, TO INTFC TB101-12
TB2: LINE

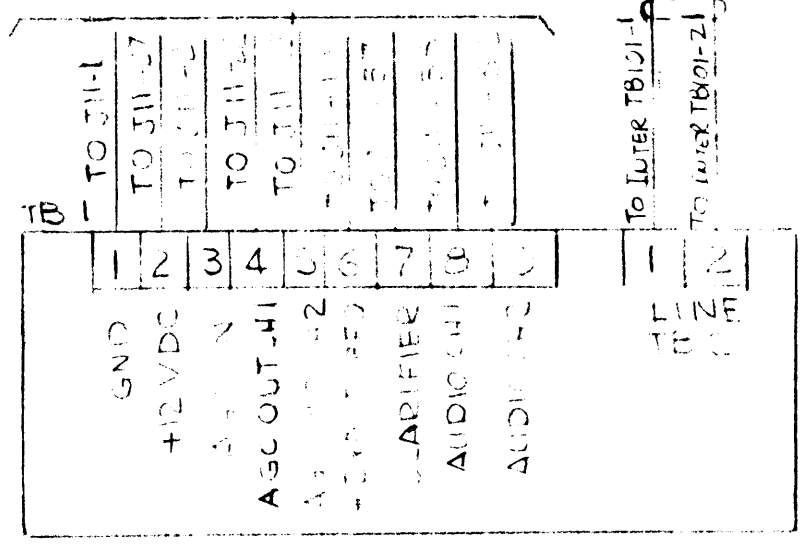
REVISIONS							
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION	DATE	APPROVED
				X1	AC STRIP DELETED AC INPUT [illegible] ADDED TO INTERFACE	4 26 82	
				X2	SYMBOLS and GNDS CLARIFIED	5-1-82	
				X3	LINE TB101 NOMENCLATURE MODIFIED	6 2 82	
				X4	AUDIO OUT CH1 WAS TB1-35 CH2 WAS TB1-32	7-20-82	



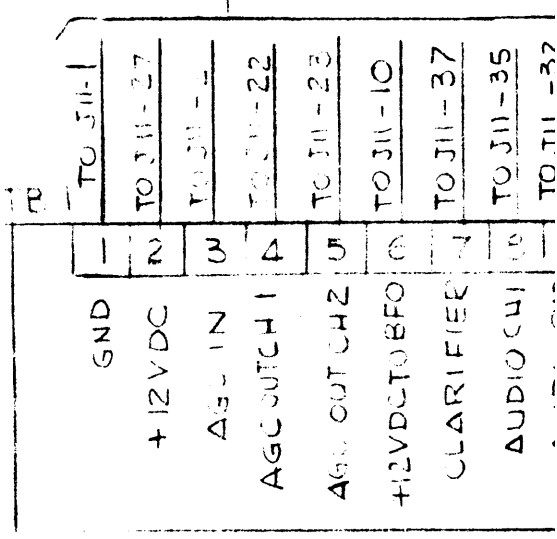








RCSR-1R NO.1

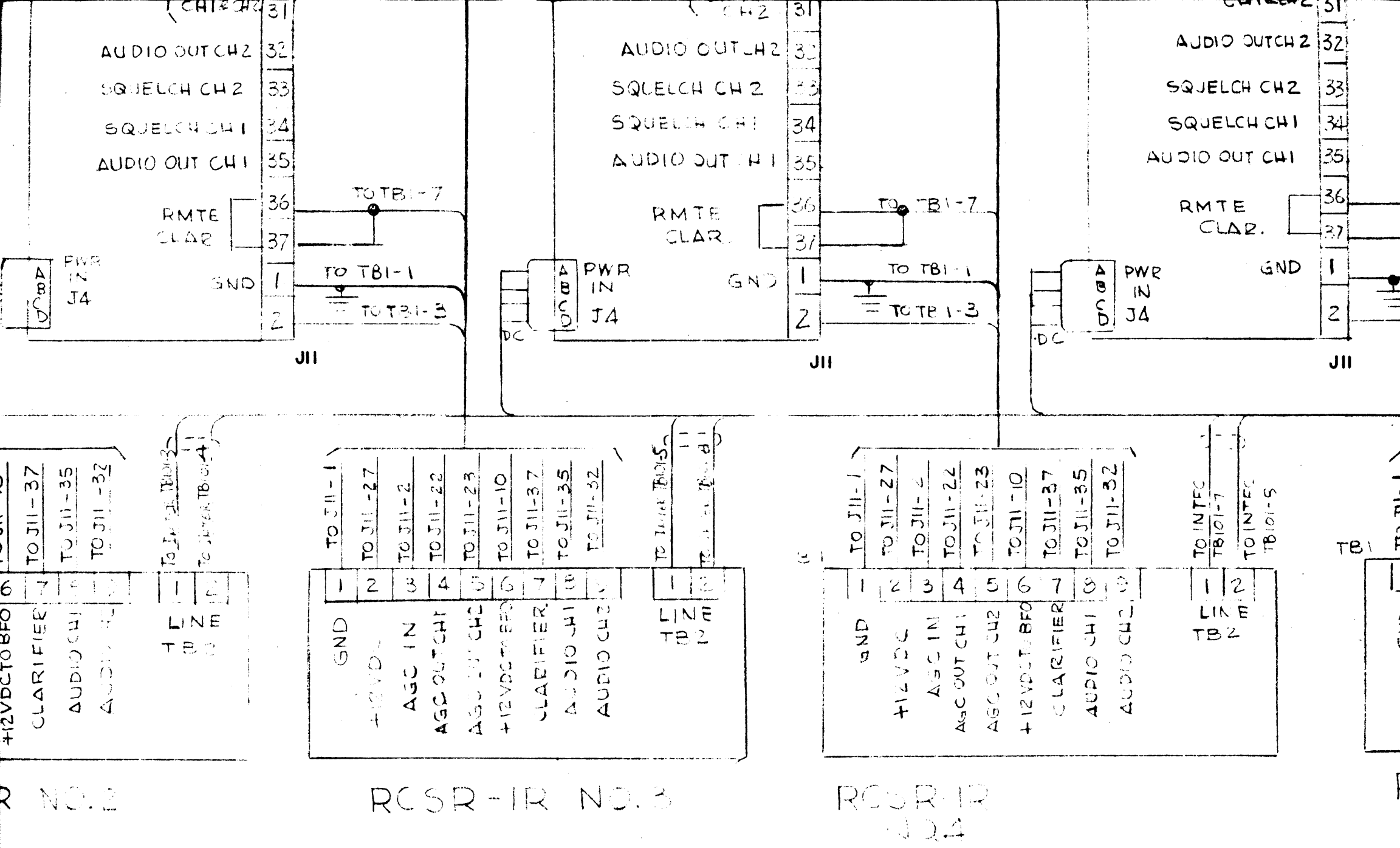


RCSR-1R NO.

B

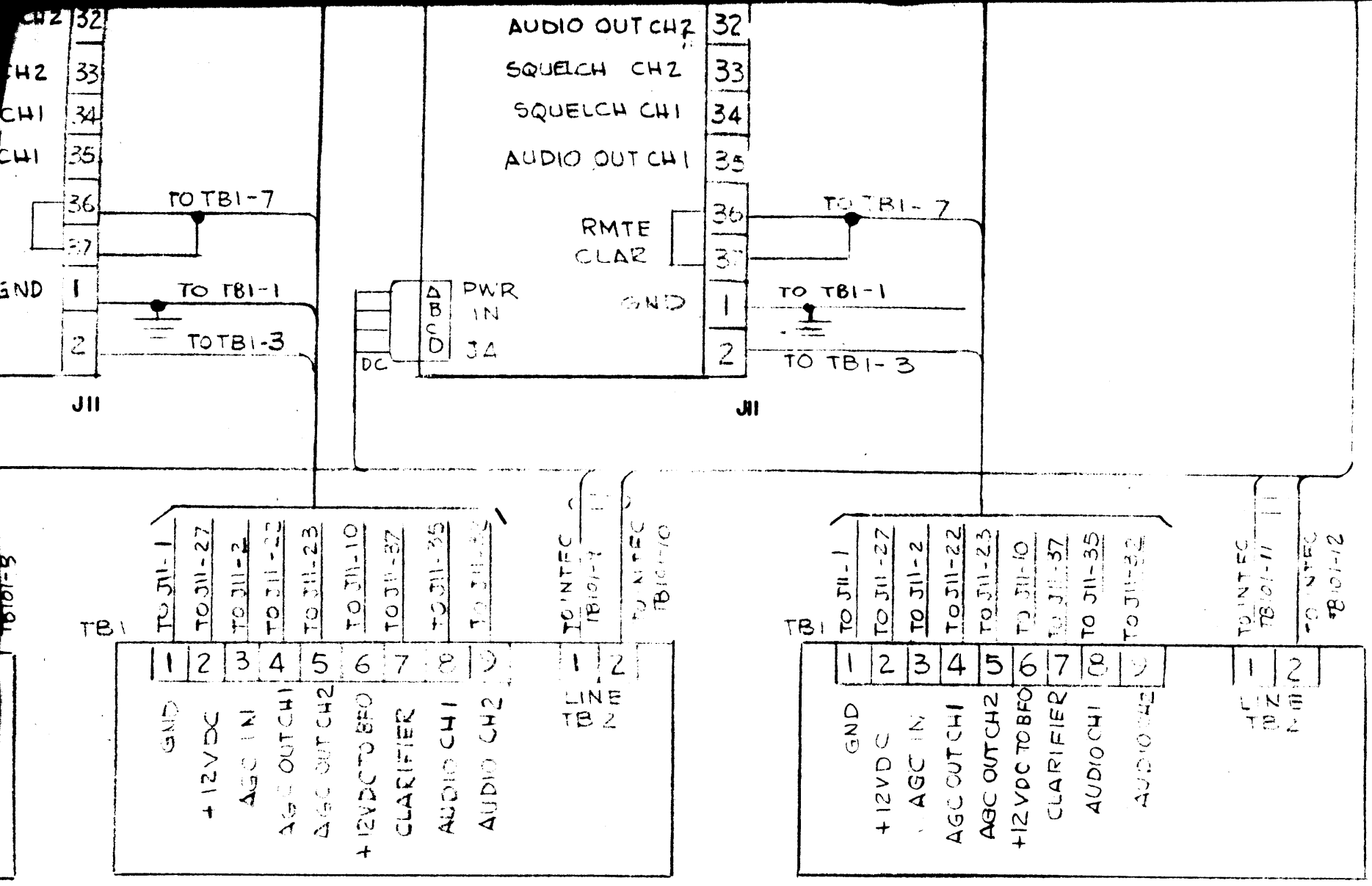
A

8 7 6



	SYM 5211-B	
QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
	CODE	

5 4



RCSR-IR NO.5

RCSR-IR NO. 6

QTY. REQ.	ITEM	PART NO

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	FINAL APPROVAL	DATE
	MECH. DES.	DATE
TOLERANCES ON DECIMALS .X ± .05, .XX ± .01, .XXX ± .005 FRACTIONS ± 1/64 ANGLES ± 0° -30'	ELECT. DES.	DATE
	CHECKED	DATE
	DRAWN JDL	DATE
MATERIAL		
FINISH		

'Y NO.

sed hereon. ced or used RPORATION

Figure 7-2

Interconnect Wiring Diagram

SYM-5211 RACK B.

3 2 1

B A

8 7 6

D

C

B

RCSR-IT

TB2 1 2 3

J6

HEADSET

TB1

600Ω LINE 1 2

NO. 7

RCSR-IT

TB2 1 2 3

J6

HEDSET

TB1 1 2

NO. 8

RCSR-

J6

HEADSET

NO.

RCST-IT

TB1

600Ω LINE 1 2

J6

TB2 1 2 3

NO. 1

RCST-IT

TB1

600Ω LINE 1 2

J6

TB2 1 2 3

NO. 2

RCST

J6

NO.

5 4

RCSR-1T

TB2 1 2 3

J6

HEADSET

TB1 1 2

NO.9

RCSR-1T

TB2 1 2 3

J6

HEADSET

TB1 1 2

NO.10

RCSR-1T

TB2

J6

HEADSET

TB1 1 2

NO.11

RCST-1T

TB1 1 2

J6

TB2 1 2 3

NO. 3

RCST-1T

1 2

J6

TB2 1 2 3

NO. 4

RCST-1T

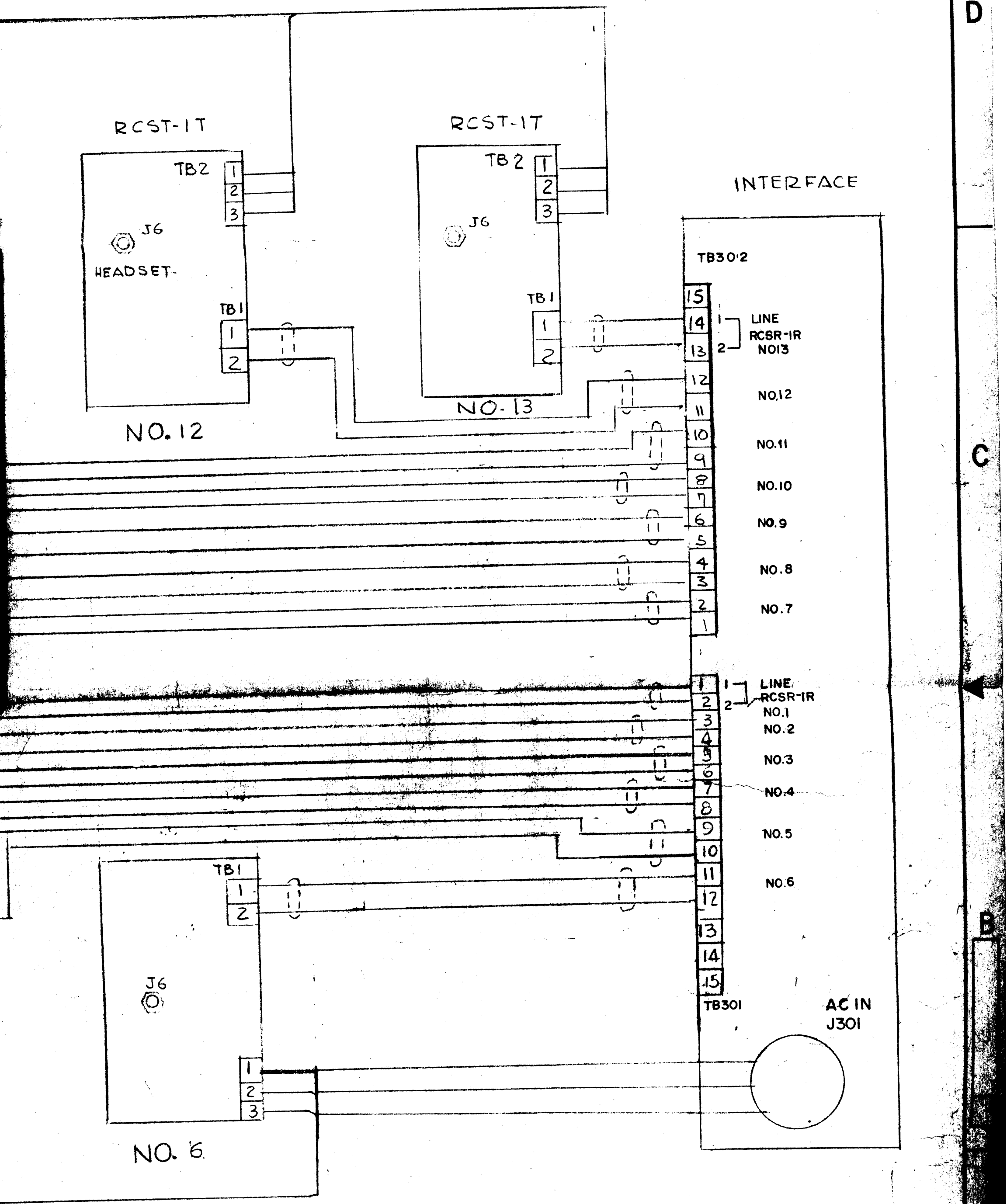
TB1 1 2

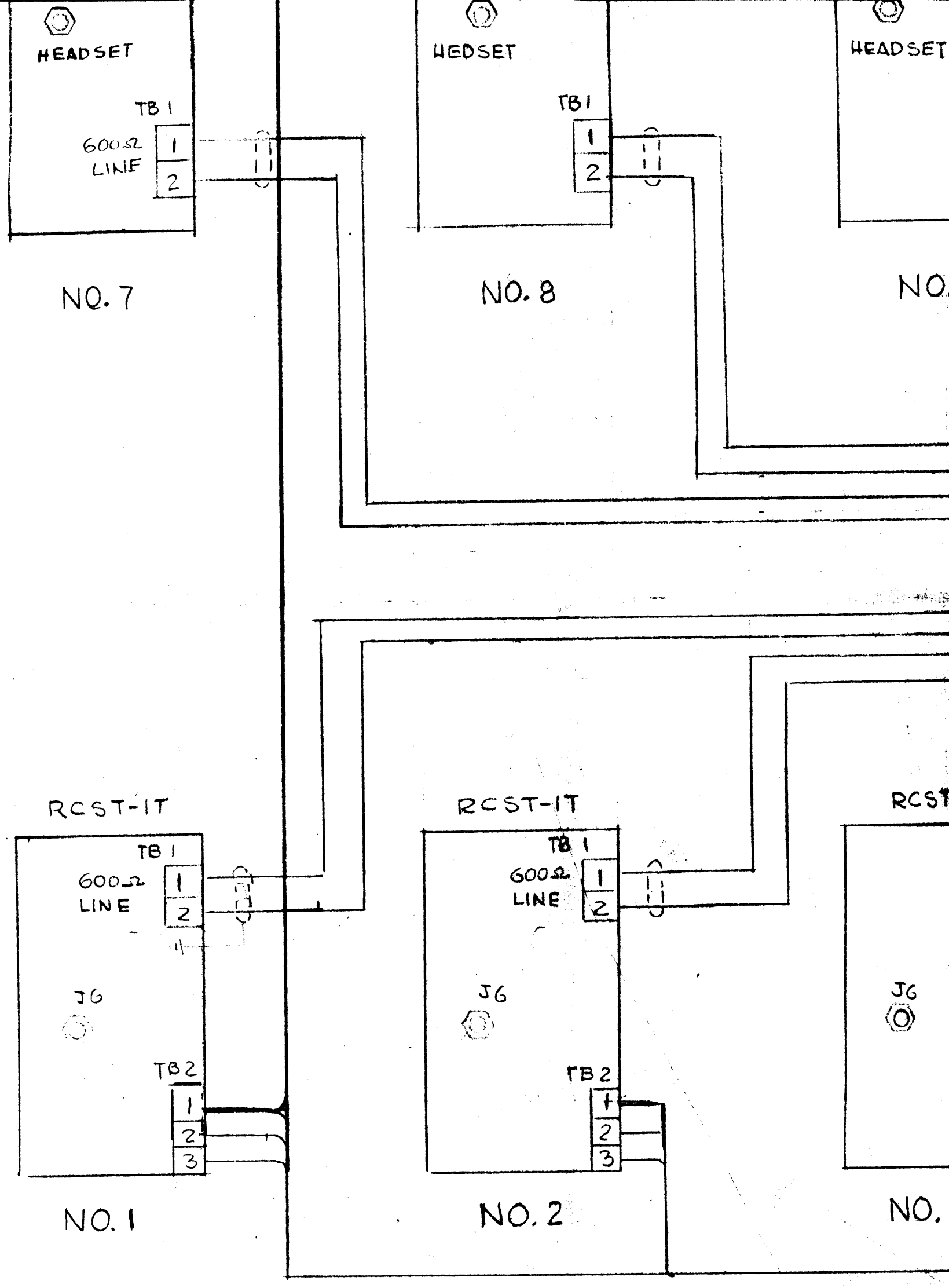
J6

TB2 1 2 3

NO. 5

REVISIONS							
E.M.N.NO	DRAFT	CHKD	ZONE	LTR	DESCRIPTION-	DATE	APPROVED
	4.24.82			X	AC STRIPS DELETED TO INTF. ADD AC INPUT		
				X2	SYMBOLS Clarified	5-1-82	
				X3	ALL REF (NO.) OF UNIT MODIFIED, ON INTFC. FOR TB301 & TB302 DESIG. TERM. UPDATED	5-27-82	




HEADSET
TB 1
600Ω LINE
1
2
NO. 7
HEDSET
TB 1
1
2
NO. 8
HEADSET
NO.
RCST-IT
TB 1
600Ω LINE
1
2
J6
TB2
1
2
3
NO. 1
RCST-IT
TB 1
600Ω LINE
1
2
J6
TB2
1
2
3
NO. 2
RCST
J6
NO.

C

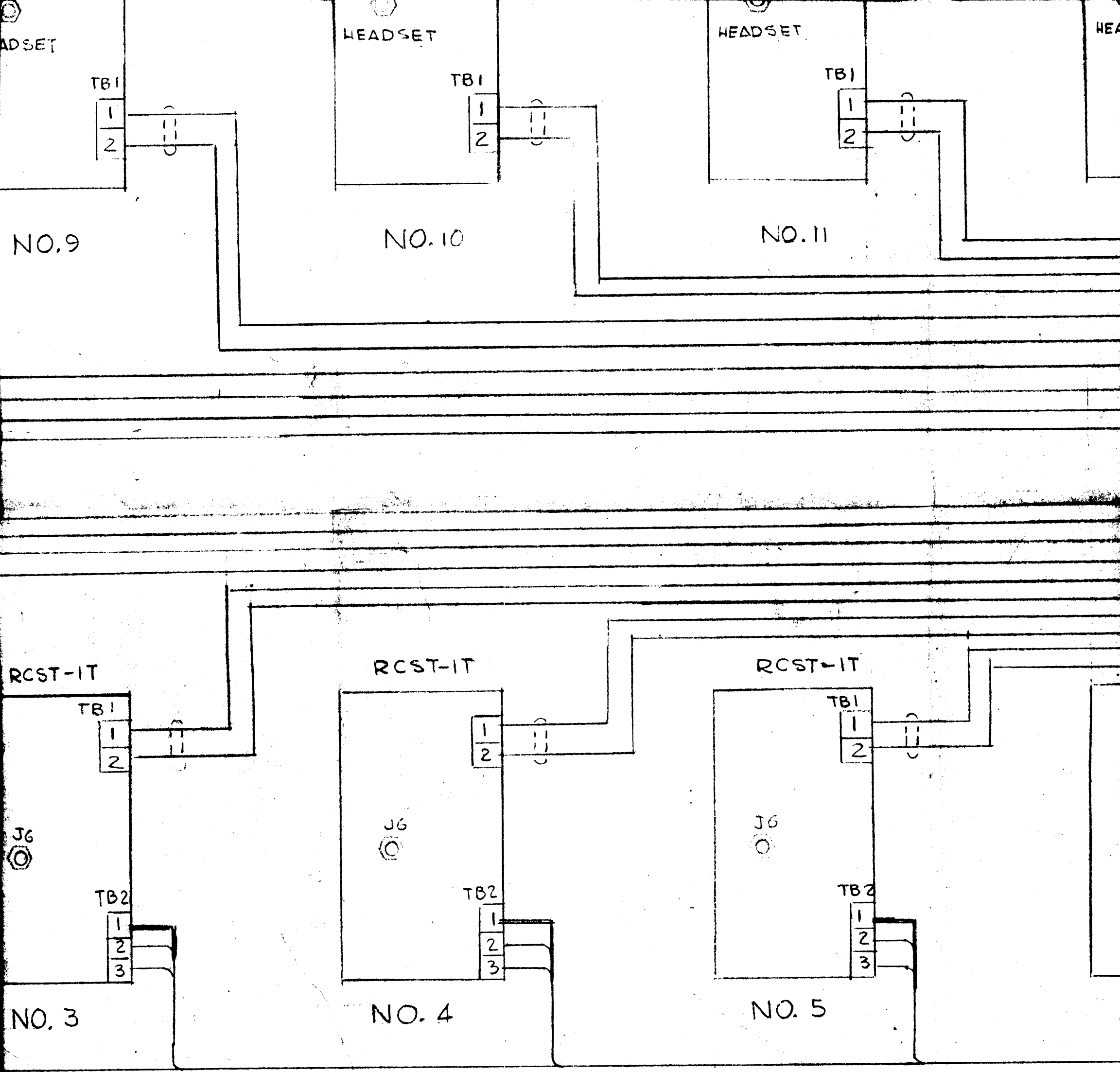
B

A

8

7

6



1	SYM 5211-C	/
QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
	CODE	

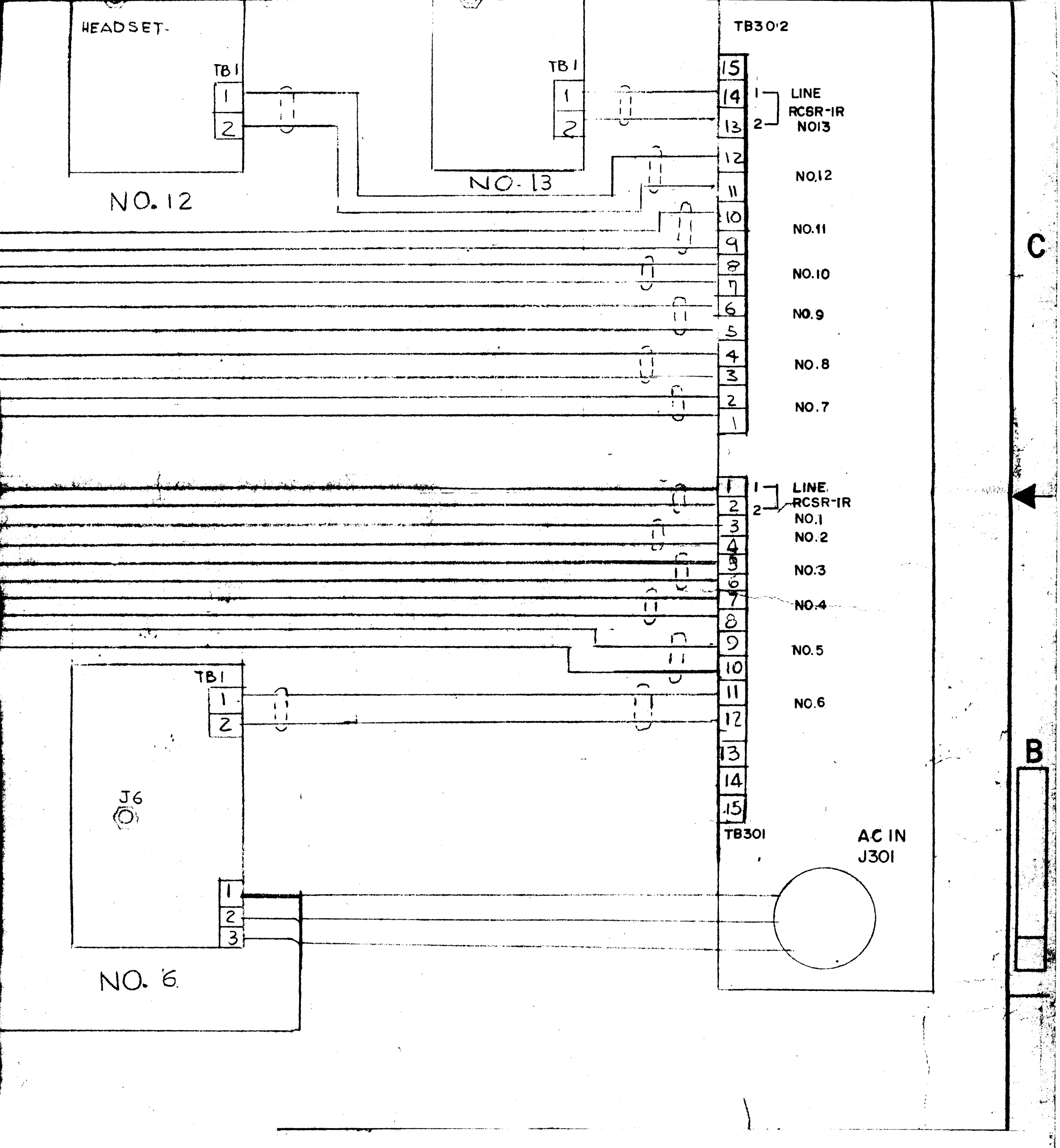
UNLESS
DIMEN
AND INCL
OT

DECIMA
.X ±
.XX ±
.XXX ±

MATERIA

FINISH

5 4 3



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES ON

DECIMALS	FRACTIONS
.X ± .05	± 1/64
.XX ± .01	ANGLES
.XXX ± .005	± 0° -30'

MATERIAL

FINISH

3

Figure 7-3

Interconnect Wiring Diagram

SYM-5211 RACK C