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UNCLASSIFIED

TECHNICAL MANUAL

for

ALARM PANEL

MODEL AX633

MODEL AX646



THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y.

OTTAWA, ONTARIO

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NOTICE

THE CONTENTS AND INFORMATION CONTAINED IN THIS INSTRUCTION MANUAL IS PROPRIETARY TO THE TECHNICAL MATERIEL CORPORATION TO BE USED AS A GUIDE TO THE OPERATION AND MAINTENANCE OF THE EQUIPMENT FOR WHICH THE MANUAL IS ISSUED AND MAY NOT BE DUPLICATED EITHER IN WHOLE OR IN PART BY ANY MEANS WHATSOEVER WITHOUT THE WRITTEN CONSENT OF THE TECHNICAL MATERIEL CORPORATION.



SECTION 1

GENERAL INFORMATION

1-1. GENERAL.

Alarm Panel, AX633 and AX646 (figure 1-1) are transmitter system alarm and monitor panels.

Both the AX633 and AX646 are similar in design and function; the differences fully described in text where applicable.

1-2. FUNCTIONAL DESCRIPTION.

The AX633 is an alarm and monitor panel, providing an audible alarm to denote transmitter system power failure. Monitoring of the associated transmitter system is accomplished by means of a rotary selector switch connecting the selected system circuitry to be checked to a front panel connector. Other front panel monitor connectors provide, for connected test equipment, the system exciter and power amplifier output levels. A test connector, for injecting a two-tone test signal for testing the system exciter is also provided. An alarm on/off toggle switch and an associated protective indicating-type fuse are also provided.

The AX646 contains the same alarm and monitoring circuits as in the AX633. In addition to these circuits, the AX646 includes provisions for antenna switching.

Antenna switching is accomplished by pressing either of the two front panel mounted ANT-1 and ANT-2 pushbuttons, each pushbutton having an associated activation indicating lamp.

1-3. PHYSICAL DESCRIPTION

Both the AX633 and AX646 are equipped with a 19-inches wide front panel, suitable for mounting into any standard width equipment rack or cabinet.

The AX633 front panel displays an alarm element, with it's associated ALARM ON/OFF toggle switch, a six-position rotary selector SENSE switch, with it's associated SENSE output monitor connector, an indicating-type DC fuse, an EXCITER MONitor jack and a PA MONitor jack.

The AX646 front panel displays the same components as the AX633 with the addition of ANT-1 and ANT-2 pushbutton switches, each having an associated activation-indicating lamp. See figure 1-1.

SECTION 2 INSTALLATION

2-1. UNPACKING AND HANDLING

Each unit is tested at the factory and is carefully packaged to prevent damage during shipment. Upon receipt of the equipment, inspect the packing case and it's contents for damage that might have occurred in transit. Unpack the equipment carefully and inspect all packing material for parts that may have been shipped as loose items. 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. MECHANICAL INSTALLATION

Both the AX633 and AX646 are equipped with a standard 19-inches wide front panel, designed for installation in an equipment rack. Mount unit to rack frame by means of four screws and washers.

2-3. ELECTRICAL INSTALLATION

a. **POWER REQUIREMENTS** - Both the AX633 and AX646 operate from voltages supplied by the associated transmitter.

b. **INTERCONNECTIONS** - All necessary interconnections are made at the rear-chassis mounted terminal boards E9000, E9001, connectors J9001 and J9002. See figure 2-1 for typical interconnection details.

* Cabling used with AX633, AX646 only.

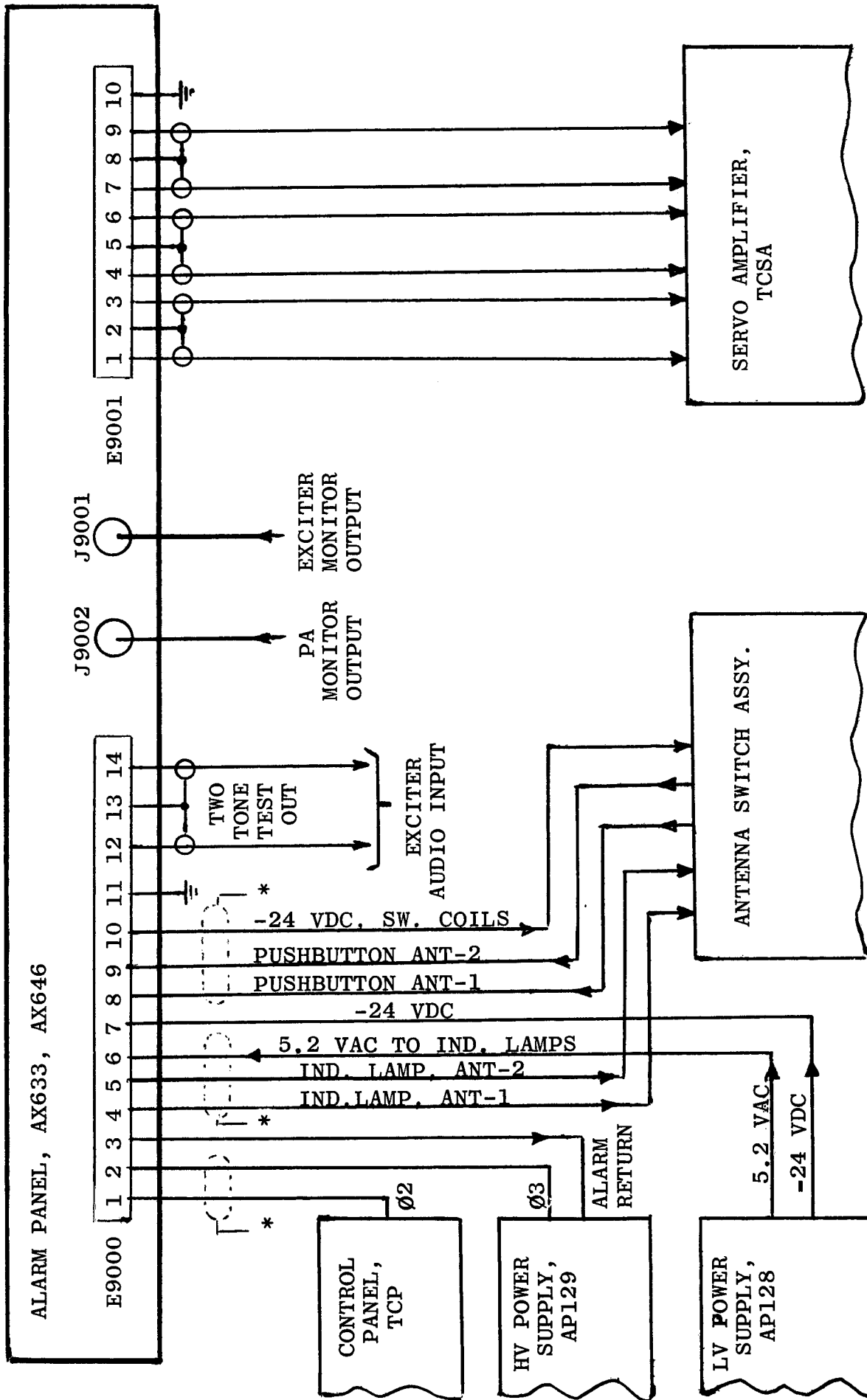


Figure 2-1. Typical Interconnection Diagram

SECTION 3

OPERATOR'S SECTION

3-1. GENERAL

The alarm panel provides an audible alarm to warn of associated system high voltage power supply failure or interruption. Front panel jacks provide a means of testing various system circuits, some of which are front panel selectable.

The AX646, in addition to the above mentioned functions, provides a means of electrically switching the associated system from one antenna to another.

Refer to table 3-1, used in conjunction with figure 3-2, for applicable unit control and indicator functions.

3-2. OPERATOR'S INSTRUCTIONS

The audible alarm circuit may be activated by setting the associated ALARM toggle switch at ON; setting it at OFF will disable the alarm circuit.

The SENSE rotary selector switch will connect the circuit of the corresponding switch setting to the associated SENSE jack for monitoring and test purposes. See figure 3-1.

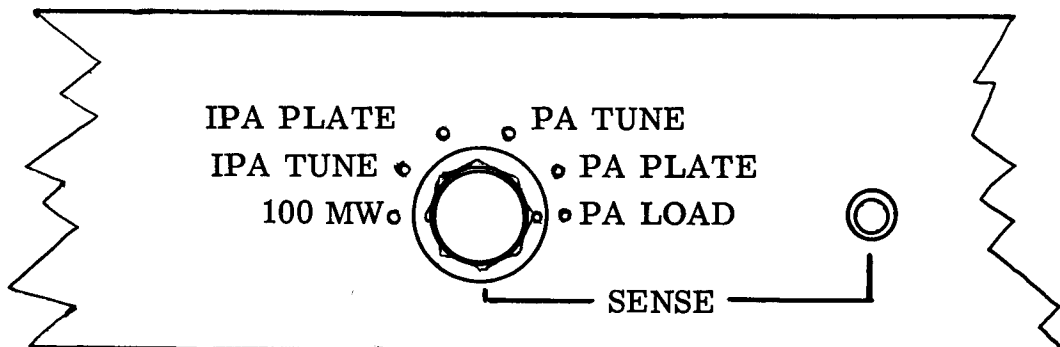


Figure 3-1. Sense Control Settings.

The EXCiter MONitor jack provides a means of monitoring the associated system's exciter output, by use of an external monitoring device connected to the EXC MON jack.

The PA MONitor jack provides a means of monitoring the associated system's PA section output, by use of an external monitoring device connected to the PA MON jack.

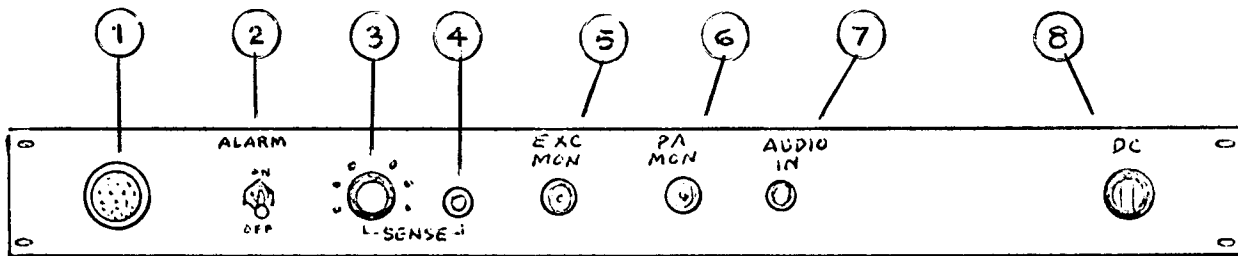
The AUDIO INput jack provides a means of injecting an audio test signal into the associated system's exciter channel 1 input for test purposes. This is accomplished by connecting an external audio generating device to the AUDIO IN jack.

The ANTenna -1 and ANTenna -2 pushbutton switches, located on the AX646 only, provide a means of electrically switching the associated system from one antenna to another. Both ANTenna pushbutton switches have associated indicator lamps which light when their corresponding pushbutton is depressed.

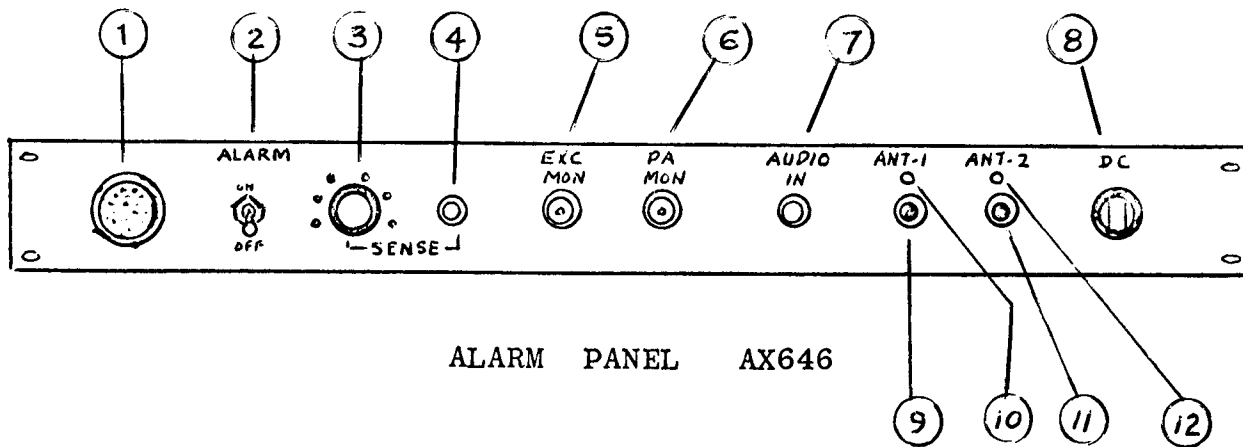
The ANTenna pushbutton switches will operate only when the associated system's high voltage switch is set at OFF, and if the operating frequency is not programmed to operate from one particular antenna.

TABLE 3-1. CONTROLS and INDICATORS

REFERENCE DESIGNATION (Figure 3-1)	PANEL DESIGNATION	FUNCTION
1	Alarm device, no panel designation	Audible alarm sounds when primary power to high voltage power supply of associated system is interrupted.
2	ALARM ON/OFF toggle switch	When set at ON, activates alarm device circuit.
3	SENSE, switch	Provides for selection of circuits to be monitored (as marked) for test and tuning purposes via associated SENSE jack (4).
4	SENSE, jack	Provides monitoring outlet for sense positions of SENSE switch (3).
5	EXC MON, jack	Provides monitoring outlet for monitoring system exciter.
6	PA MON, jack	Provides monitoring outlet for monitoring system PA section.
7	AUDIO IN, jack	Provides for injection of external audio test signal to associated system for test purposes.
8	DC, fuse	Protective fuse for alarm circuit.
9	ANT-1, pushbutton switch	When depressed, associated system is connected to associated antenna #1.
10	ANT-1, indicator lamp.	Lights when associated ANT-1 pushbutton (9) is depressed, signifying antenna #1 in use.
11	ANT-2, pushbutton switch	When depressed, associated system is connected to associated antenna #2.
12	ANT-2, indicator lamp	Lights when associated ANT-2 pushbutton (11) is depressed, signifying antenna #2 in use.



ALARM PANEL , AX633



ALARM PANEL AX646

Figure 3-1. Operating Controls

SECTION 6

PARTS LIST

6-1. INTRODUCTION

The parts list presented in this section is a cross-reference list of parts identified by a reference designation and TMC part number. In most cases, parts appearing on schematic diagrams are assigned reference designations in accordance with MIL-STD-16. Wherever practicable, the reference designation is marked on the equipment, close to the part it identifies. In most cases, mechanical and electro-mechanical parts have TMC part numbers stamped on them.

To expedite delivery when ordering any part, specify the following:

- a. Reference symbol.
- b. Description as indicated in parts list.
- c. TMC part number.
- d. Model and serial numbers of the equipment containing the part being replaced; this can be obtained from the equipment nameplate.

For replacement parts not covered by warranty (refer to warranty sheet in front of manual), address all purchase orders to:

The Technical Materiel Corporation
Attention: Sales Department
700 Fenimore Road
Mamaroneck, New York

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Alarm Panel, Model AX646 & AX646/50	6-4

PARTS LIST
for
ALARM PANEL, MODEL AX633

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C9000	CAPACITOR, FIXED, ELECTROLYTIC: 25 uf, -10% +150% at 120 cps (Hz) at 25°C; 50 WVDC; polarized.	CE105-25-50
CP9000	ADAPTER, CONNECTOR, ELECTRICAL: series BNC	UG492D/U
CP9001	Same as CP9000.	
CR9000	SEMICONDUCTOR DEVICE, DIODE	1N2484
DS9000	Non-replaceable item. Part of XF9000.	
DS9001	BUZZER: audible signal; operating voltage 6 to 28 VDC; current rating 3 to 14 ma; 1-5/8" long x 1-11/16" dia. o/a.	BZ101-1
E9000	TERMINAL BOARD, BARRIER: fourteen 6-32 thd. x 1/4" long binding head machine screws; black phenolic body.	TM100-14
E9001	TERMINAL BOARD, BARRIER: ten 6-32 thd. x 1/4" long binding head machine screws; black phenolic body.	TM100-10
F9000	FUSE, CARTRIDGE: 1 amp; 1-1/4" long x 1/4" dia.; quick acting.	FU100-1
J9000	JACK, TELEPHONE: silver alloy contacts.	JJ116-10
J9001	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact, straight type; series BNC to BNC.	JJ172
J9002	Same as J9001.	
J9003	CONNECTOR, RECEPTACLE, ELECTRICAL: series BNC	UG1094A/U
P9000	CONNECTOR, PLUG, ELECTRICAL: 1 male contact; voltage rating 500 V peak; polarized.	PL244-1
P9001	Same as P9000.	
R9000	Non-replaceable item. Part of XF9000.	
R9001	RESISTOR, FIXED, COMPOSITION: 330 ohms, $\pm 5\%$; 1 watt.	RC32GF331J
S9000	SWITCH, TOGGLE: SPST; nominal current rating 3 amps at 250 VAC/DC or 6 amps at 125 VAC/DC.	ST103-1-62

PARTS LIST (CONT)
ALARM PANEL, MODEL AX633

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
S9001	SWITCH, ROTARY	SW147
XF9000	FUSEHOLDER: lamp indicating; accomodates cartridge fuse 1-1/4" long x 1/4" dia.; 22 to 33 V, 20 amps; incandescent lamp type with a 330 ohm lamp resistor; transparent amber flat sided knob; brown body; consists of DS9000, R9000.	FH104-11

PARTS LIST
for
ALARM PANEL, MODEL AX646 & AX646/50

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C9000	CAPACITOR, FIXED, ELECTROLYTIC: 20 uf, -10% +150% at 120 cps (Hz) at 25°C; 50 WVDC; polarized.	CE105-20-50
CP9000	ADAPTER, CONNECTOR, ELECTRICAL; series BNC	UG492D/U
CP9001	Same as CP9000.	
CR9000	SEMICONDUCTOR DEVICE, DIODE: silicon	1N2484
DS9000	NOT USED	
DS9001	BUZZER; audible signal; operating voltage 6 to 28 VDC; current rating 3 to 14 ma; 1-5/8" long x 1-11/16" dia. o/a.	BZ101-1
DS9002	LAMP, INDICATING: w/white lens; 5 V at 0.06 amps for 60,000 hrs or 6.3 V at 0.07 amps for 6,000 hrs.	BI116-1-5
DS9003	Same as DS9002.	
E9000	TERMINAL BOARD, BARRIER: fourteen 6-32 thd. x 1/4" long binding head machine screws; black phenolic body.	TM100-14
E9001	TERMINAL BOARD, BARRIER: ten 6-32 thd. x 1/4" long binding head machine screws; black phenolic body.	TM100-10
F9000	FUSE, CARTRIDGE: 1 amp; 1-1/4" long x 1/4" dia; quick acting.	FU100-1
J9000	JACK, TELEPHONE: silver alloy contacts.	JJ116-10
J9001	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact, straight type; series BNC to BNC.	JJ172
J9002	Same as J9001.	
J9003	CONNECTOR, RECEPTACLE, ELECTRICAL: series BNC.	UG1094D/U
* K9000	RELAY, ARMATURE: DPDT; contacts rated for 10 amps resistive at 115 VAC or 5 amps inductive at 26 VDC; coil voltage 220 VAC, 5,000 ohms; clear plastic case. (for Model AX646 only)	RL168-2C10-220AC
* K9000	RELAY, ARMATURE: DPDT; contacts rated for 10 amps resistive at 115 VAC or 5 amps inductive at 26 VDC; coil voltage 220 VAC, 5,000 ohms; clear plastic case. (for Model AX646/50 only.)	RL168-2C10-220AC-50

PARTS LIST (CONT)
ALARM PANEL, MODEL AX646 & AX646/50

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
P9000	CONNECTOR, PLUG, ELECTRICAL: 1 male contact, rated for 500 V peak; polarized; series BNC.	PL244-1
P9001	Same as P9000.	
R9000	NOT USED	
R9001	RESISTOR, FIXED, COMPOSITION: 330 ohms, $\pm 5\%$; 1/2 watt.	RC20GF331J
S9000	SWITCH, TOGGLE: SPST; bat type handle.	ST103-1-62
S9001	SWITCH, ROTARY: 1 section, 6 positions; 30° angle of throw; shorting type contacts, silver plated brass; bakelite wafer insulation.	SW147
S9002	SWITCH, PUSHBUTTON: w/red lens; current rating 250 ma non-inductive, AC; 30 watts.	SW296-1
XF9000	FUSEHOLDER: lamp indicating; accomodates cartridge fuse 1-1/4" long x 1/4" dia.; 22 to 33 V, 20 amps; incandescent lamp type with a 330 ohm lamp resistor; transparent amber flat sided knob; brown body.	FH104-11
XK9000	SOCKET, ELECTRON TUBE: 9 pin contact.	TS101P01



SECTION 7
SCHEMATIC DIAGRAMS

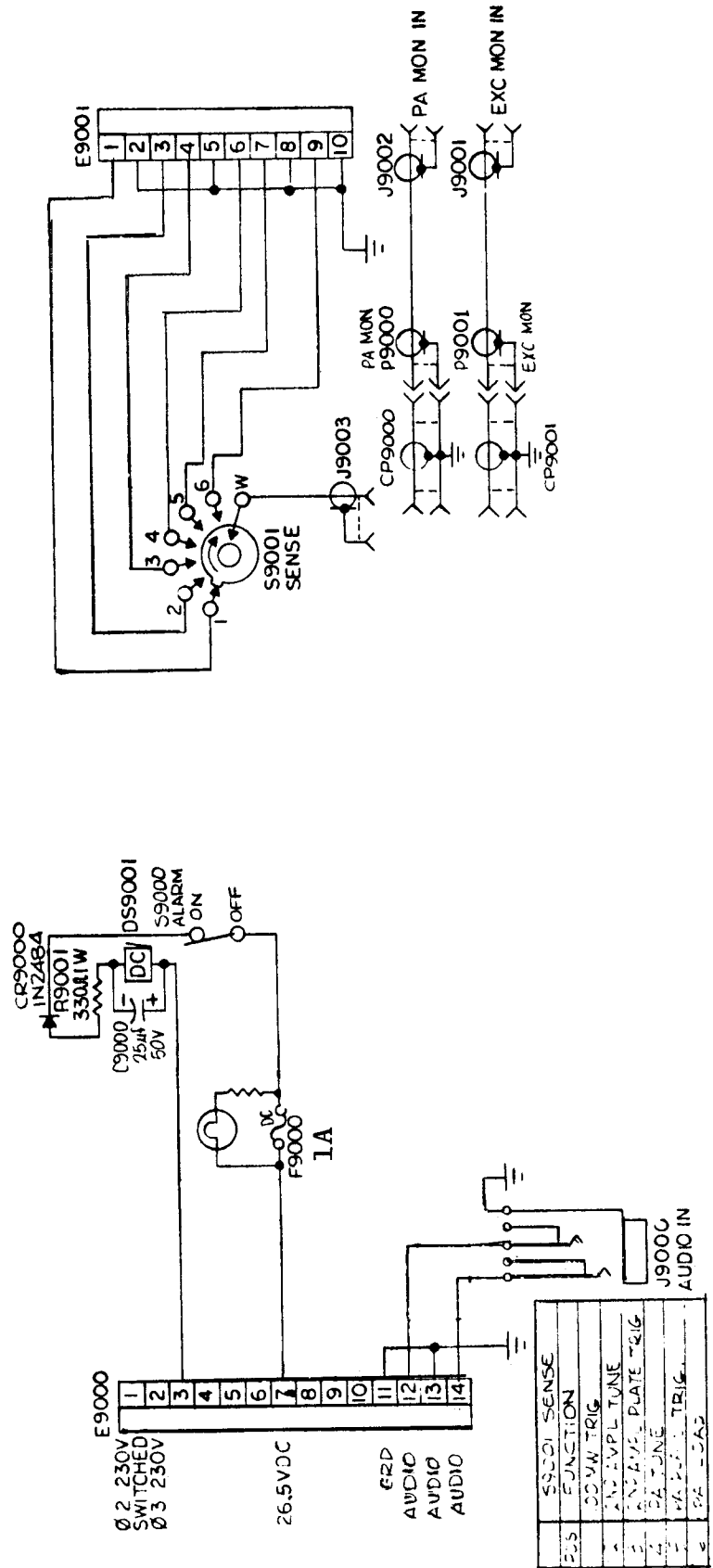


Figure 7-1. Schematic Diagram, Ax633

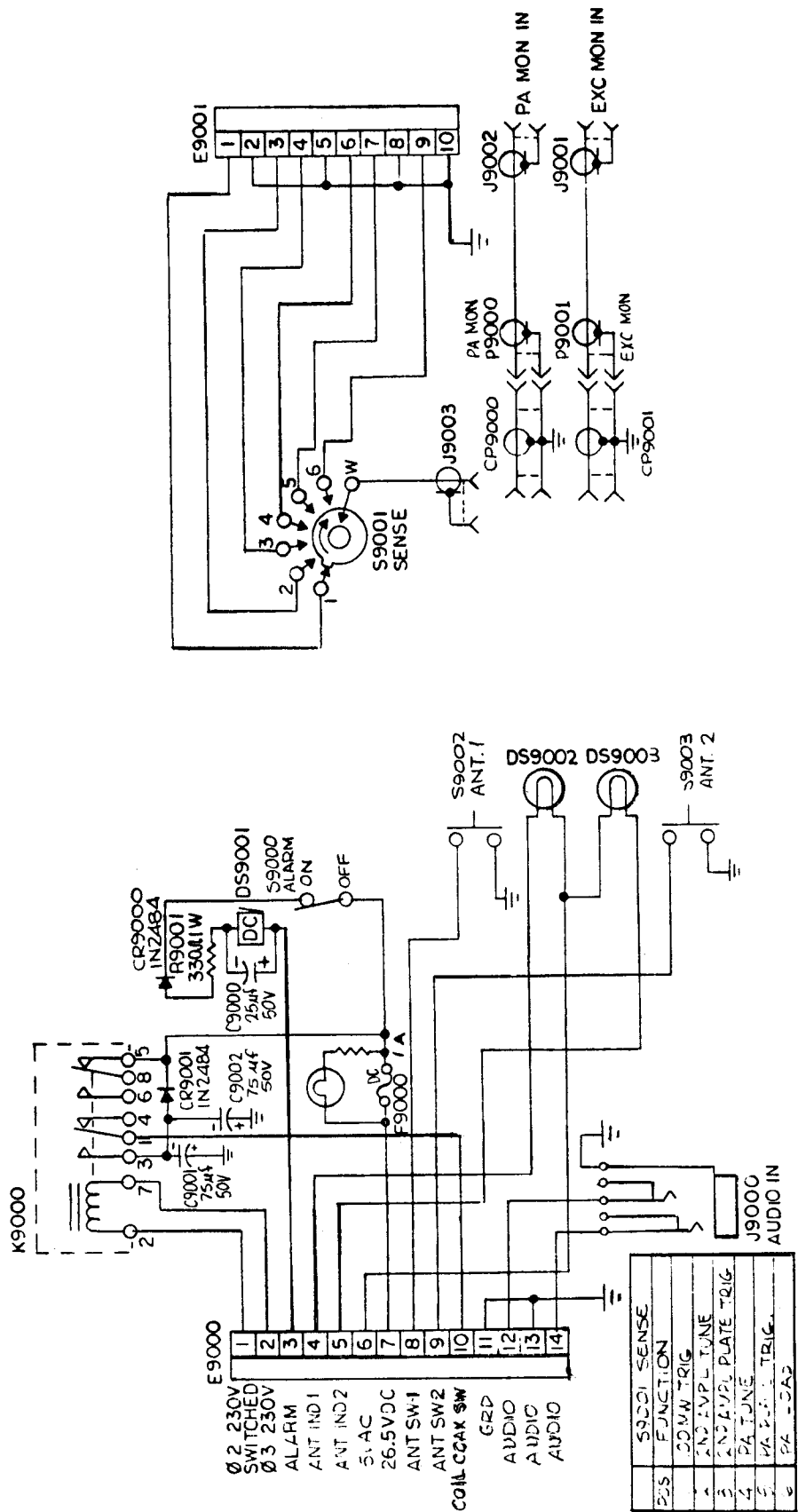


Figure 7-2. Schematic Diagram, AX646

