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*LSP*

TECHNICAL MANUAL

for

LOUDSPEAKER PANEL

MODEL HSS-3

(LS-520/FRR-72)

and

MODEL LSP-4A



**THE TECHNICAL MATERIEL CORPORATION**

MAMARONECK, N. Y.

OTTAWA, CANADA

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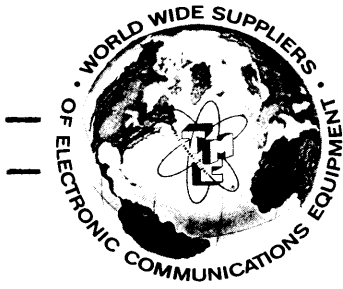
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# THE TECHNICAL MATERIEL CORPORATION

C O M M U N I C A T I O N S   E N G I N E E R S

700 FENIMORE ROAD

MAMARONECK, N. Y.

## W a r r a n t y

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



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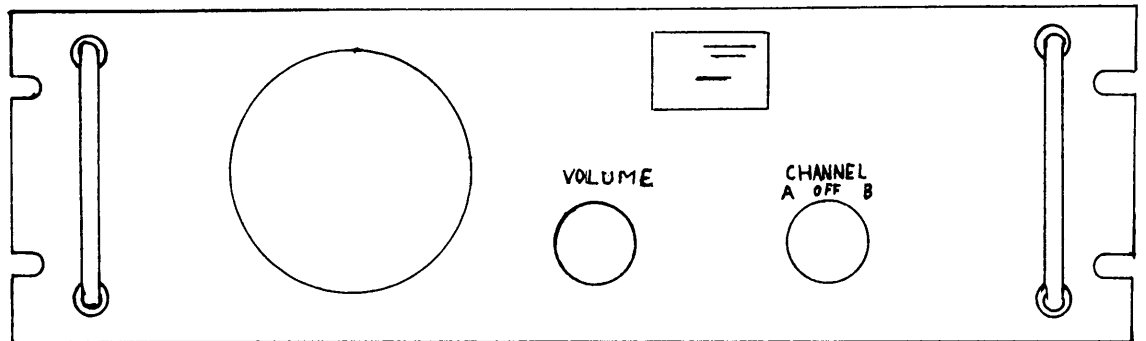


Figure 1-1. Loudspeaker Panel, Model HSS-3

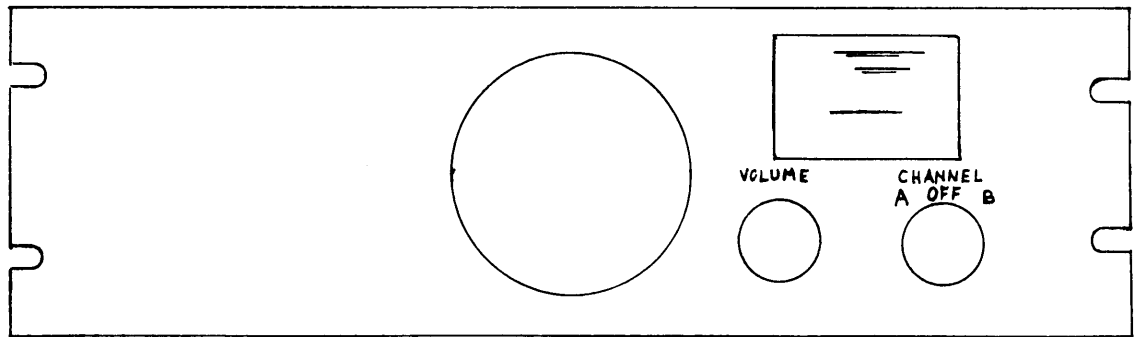


Figure 1-2. Loudspeaker Panel, Model LSP-4A.

## SECTION 1

### GENERAL INFORMATION

#### 1-1. GENERAL.

Loudspeaker Panel, Model HSS-3 (Figure 1-1) and Loudspeaker Panel, Model LSP-4A (Figure 1-2) are electrically identical, and have only minor mechanical differences. References to Loudspeaker Panel in this manual apply to either of the units.

#### 1-2. FUNCTIONAL DESCRIPTION.

The Loudspeaker Panel is a passive single speaker unit for monitoring a receiver dual-channel audio output. It includes a 4.5 watt speaker, a channel selector switch, and a volume control. When either or both channels are switched out, a dummy load is presented to the receiver.

#### 1-3 PHYSICAL DESCRIPTION.

The Loudspeaker Panel is a 19-inch rack modular unit. It is composed of a 3/16-inch thick x 5-1/4 inches high x 19 inches wide panel, finished in gray enamel, with components mounted directly on it. Components extend to a maximum 2-1/4 inches behind the panel.

#### 1-4. TECHNICAL SPECIFICATIONS.

SPEAKER:	Permanent magnet, 4-inch diameter.
POWER INPUT:	4 watts maximum
INPUT IMPEDANCE:	4 ohms, nominal



SECTION 2  
INSTALLATION

2-1. GENERAL.

When the Loudspeaker Panel is supplied as part of a receiver system, it is usually mounted in the cabinet and connected to the system cabling prior to shipment. If this is the case, no mechanical or electrical installation procedure is necessary.

2-2. INITIAL INSPECTION.

Each Loudspeaker Panel has been thoroughly checked and tested at the factory before shipment. Upon arrival at the operating site, inspect the case and its contents immediately for possible damage. Inspect all packing material for parts which 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.

2-3. MECHANICAL INSTALLATION.

Mount the Loudspeaker Panel into a 19-inch equipment rack by its 4 slotted mounting holes. Refer to paragraph 1-3 for overall dimensions.

2-4. ELECTRICAL INSTALLATION.

Connect the receiver 2-channel audio output to terminal block TB1501 as shown in figure 4-1. The input impedance for each channel is 4 ohms, with a dummy load resistor connected to the unused channel. When both channels are switched out, both dummy loads are switched in.

## SECTION 3

### OPERATOR'S SECTION

#### 3-1. CONTROL FUNCTIONS.

Refer to figure 1-1 or figure 1-2. To monitor Channel A audio output of receiver, set CHANNEL switch at A; to monitor channel B audio output, set CHANNEL switch at B. To disconnect speaker from both channels, set CHANNEL switch at OFF. The VOLUME control adjusts the level of the channel selected.

SECTION 4

PRINCIPLES OF OPERATION

4-1. SCHEMATIC WIRING ANALYSIS.

Figure 4-1 is the schematic wiring diagram of the Loudspeaker Panel. When switch S1501 is in position A, the receiver channel A output is connected to the speaker, and dummy load R1503 is connected to the receiver channel-B output. When S1501 is in position B, the receiver channel-B output is connected to the speaker and dummy load R1502 is connected to the receiver channel-A output. In the OFF position, both receiver channels are terminated in their individual dummy loads.

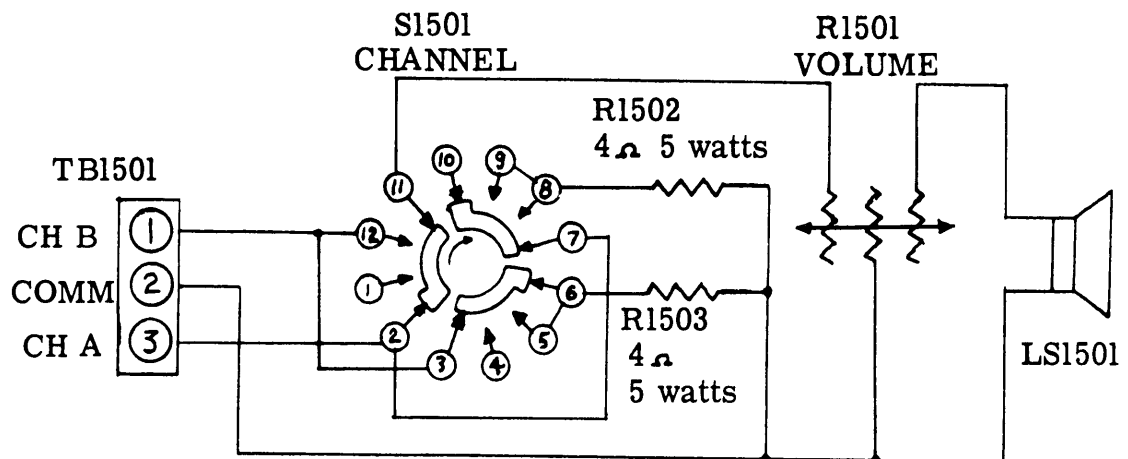


Figure 4-1. Loudspeaker Panel Schematic Wiring Diagram.

## SECTION 5

## PARTS LIST

INTRODUCTION. Reference designations have been assigned to identify all maintenance parts of the equipment. These designations appear on wiring schematics and are marked on the equipment adjacent to the part. The following is a listing of all maintenance parts and their corresponding designations. The TMC part number is the number by which the part may be ordered.

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
LS1501	LOUDSPEAKER, PERMANENT MAGNET: impedance 3.2 ohms; input wattage, 4.5 watts; overall dimensions 4-3/16" sq. x 2-1/4" deep.	LS101
R1501	ATTENUATOR, VARIABLE: resistive type; input impedance, 4 ohms; output impedance, 4 ohms; 4 watts max. continuous rating; peak audio rating 15 watts; max. attenuation 20 db; continuously variable.	RV107T4
R1502	RESISTOR, FIXED, WIREWOUND: 4 ohms, +5%; current rating 1,117 ma; 5 watts.	RW107-5
R1503	Same as R1502.	
S1501	SWITCH, ROTARY: 1 section, 3 positions, 30 angle of throw; non-shorting type contacts; 1 amp, 28 volts DC or 5 amps, 110 volts AC.	SW148
TB1501	TERMINAL BOARD, BARRIER: three double screw terminals, 6-32 thd.; phenolic body.	TM102-3