TECHNICAL MANUAL

for

LOW-PASS FILTER

MODEL LPF-750-3

THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, ONTARIO

Printed in U.S.A.

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MAMARONECK, N.Y. **OTTAWA, CANADA**

IN-8017

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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

RECORD OF CORRECTIONS MADE

Change No.	Date of Change	Date Entered	Entered By

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LIST OF ILLUSTRATIONS

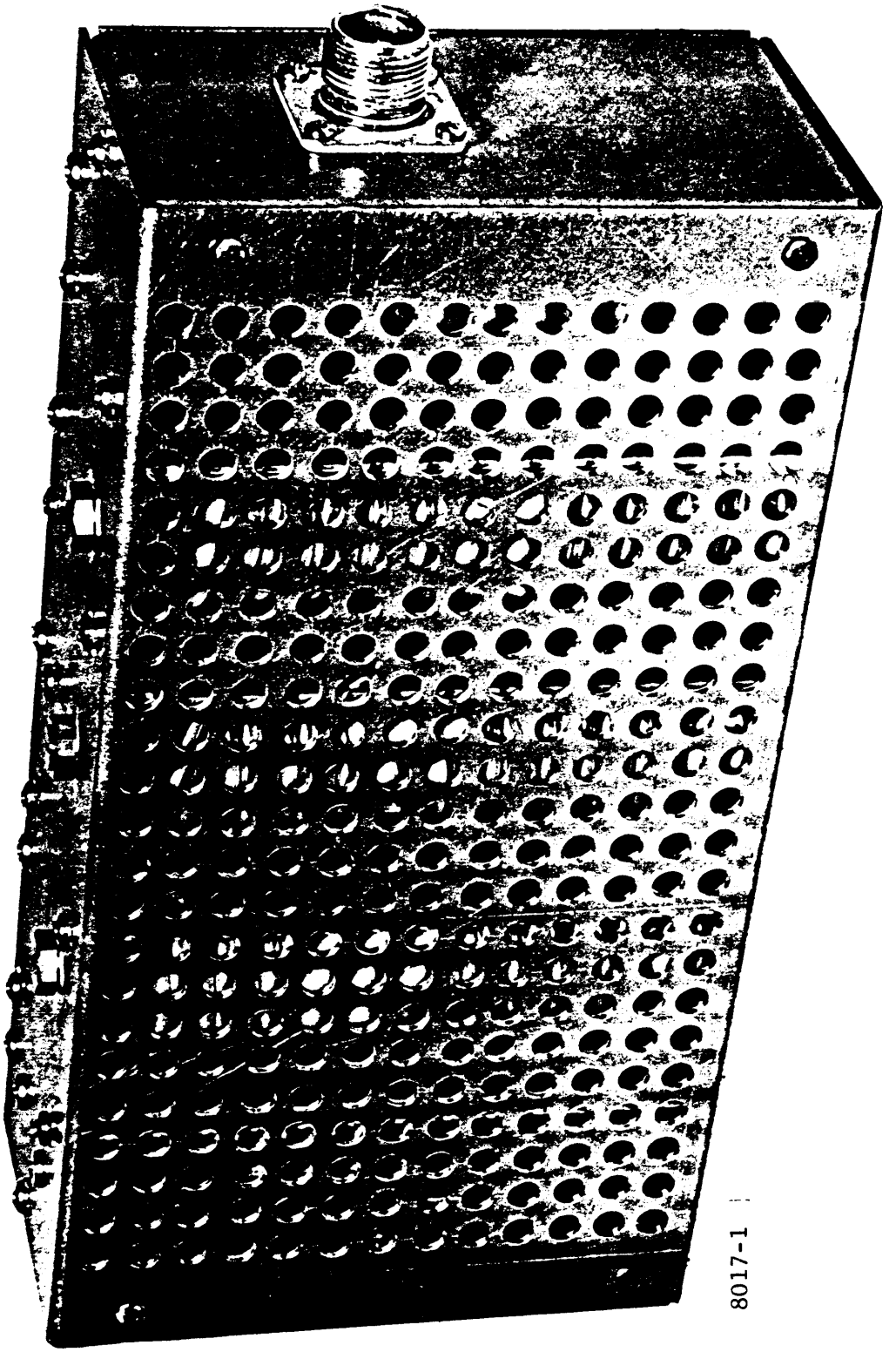

Figure 1-1. Low-Pass Filter LPF-750-3

SECTION 1

GENERAL INFORMATION

1-1. GENERAL.

Low-Pass Filter LPF-750-3 (figure 1-1) is a capacitive inductive device that is designed to attenuate harmonics and spurious emissions above 4000 kHz. LPF-750-3 will pass fundamental frequencies between 2000 kHz and 3500 kHz without appreciable loss provided the transmission line is properly terminated. At the same time LPF-750-3 will greatly attenuate all frequencies above the 4000 kHz cut-off frequency.

1-2. TECHNICAL SPECIFICATIONS.

PASS BAND:	2000 kHz to 3500 kHz.
FREQUENCY CUT-OFF:	4000 kHz.
REJECTION:	Greater than 56 dB at 4000 kHz (See figure 1-2).
INPUT AND OUTPUT IMPEDANCE:	50 ohms nominal (HN).
POWER CAPABILITY:	1-kw average.
SIZE:	2-3/4" h x 5" w x 14" l.
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.

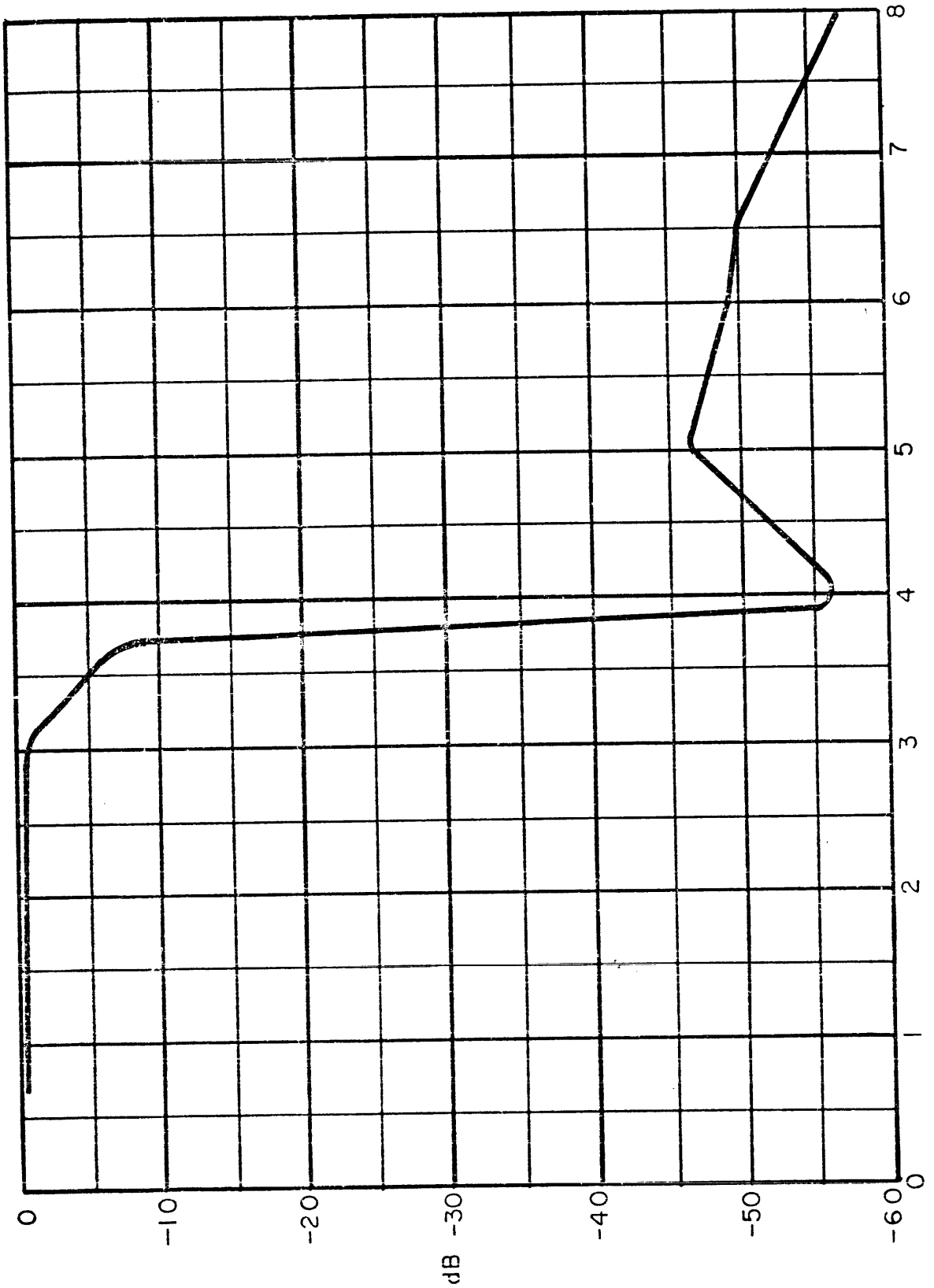

FIG.I-2 TYPICAL FREQUENCY RESPONSE

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SECTION 2

INSTALLATION

2-1. INITIAL INSPECTION.

Each Low-Pass Filter LPF-750-3 is tested and inspected at the factory prior to shipment. Upon receipt of the unit, inspect it for possible damage and the packing materials for parts which may have been shipped as loose items.

With respect to damage of 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. INSTALLATION.

Each LPF-750-3 is designed for bulkhead mounting. The unit is secured to the mounting surface by means of the mounting hardware provided.

2-3. POWER REQUIREMENTS.

LPF-750-3 is designed to operate with radio transmitters whose output does not exceed 1-kw average.

2-4. ELECTRICAL CONNECTIONS.

Electrical connection is accomplished by cutting the r-f transmission line and installing the two UG-59/U plugs which are supplied as loose items. These UG-59/U connectors are then attached to the HN recepticals on LPF-750-3.

NOTE

Input and output connections of LPF-750-3 are non-directional and can be connected as desired.

SECTION 3

OPERATOR'S SECTION

3-1. OPERATION.

Operation of LPF-750-3 is obvious upon inspection, therefore operating procedures are not given.

SECTION 4

PRINCIPLES OF OPERATION

4-1. CIRCUIT DESCRIPTION.

Refer to figure 7-1 schematic diagram. LPF-750-3 is a standard three-section filter comprising two m derived end sections and one constant k π section.

The two m derived end sections determine the ratio of cut-off frequency to frequency of high attenuation and the constant k π section determines the frequency passband and input output impedance of the filter.

SECTION 5

MAINTENANCE

5-1. PREVENTIVE MAINTENANCE.

a. Low-Pass Filter LPF-750-3 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.

b. 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. (See figure 5-1 for location of major components). 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. Trichlorethylene or methyle chloroform may be used, providing the necessary precautions are observed.

NOTE

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.

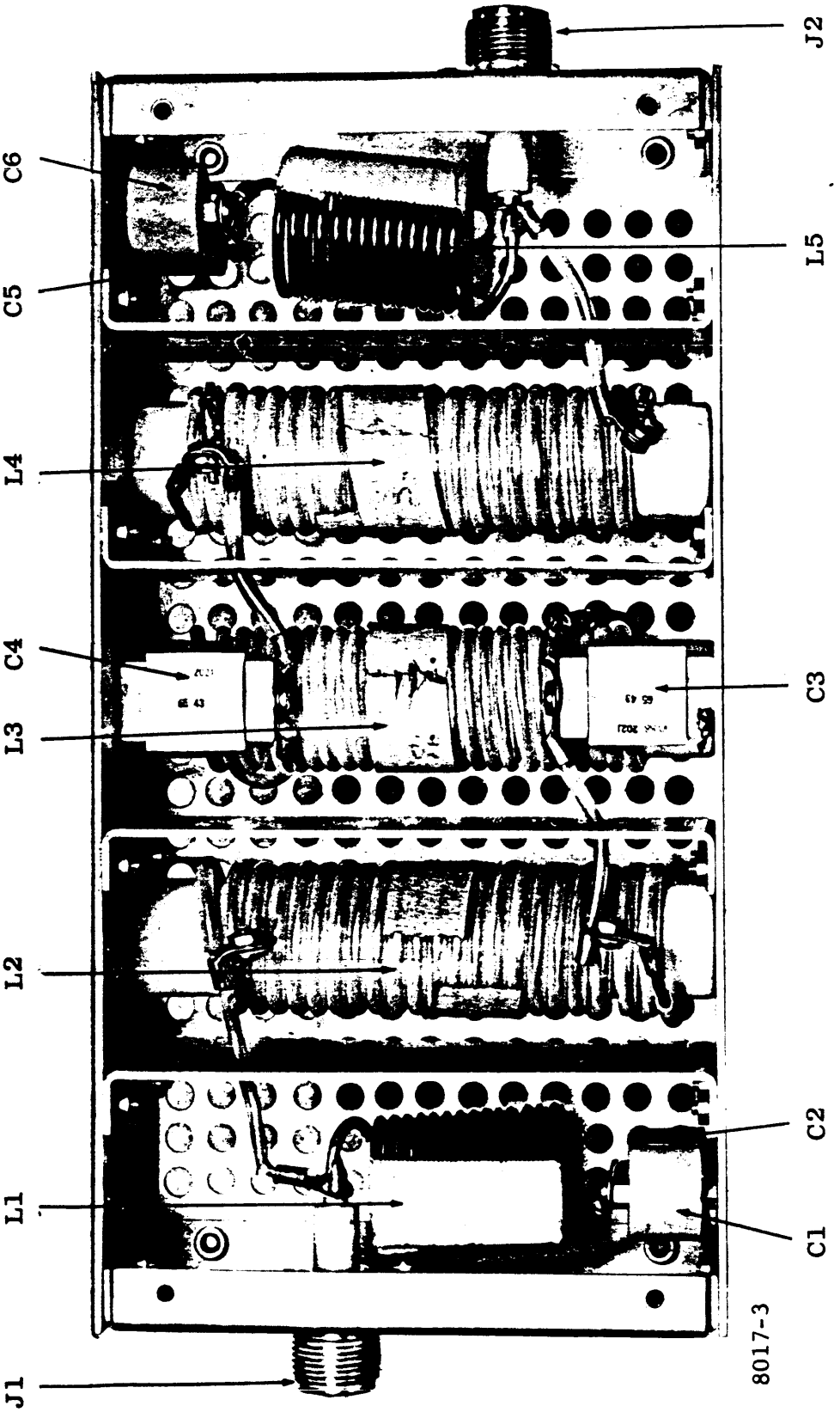

Figure 5-1. Location of Major Components, LPF-750-3

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

PARTS LIST
for
LOW-PASS FILTER, MODEL LPF-750-3

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 uuf, ±20%; 5,000 WVDC.	CC109-36
C2	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf, ±10%; 5,000 WVDC.	CC109-28
C3	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2,000 uuf, ±5%; 500 WVDC.	CC113-2-202J
C4	Same as C3.	
C5	Same as C2.	
C6	Same as C1.	
J1	CONNECTOR, RECEPTACLE, ELECTRICAL: HN type.	UG560*/U
J2	Same as J1.	
L1	COIL, RADIO FREQUENCY: fixed; 2.63 uh.	CL391
L2	COIL, RADIO FREQUENCY: fixed; 3.68 uh.	CL389
L3	COIL, RADIO FREQUENCY: fixed; 4.96 uh.	CL390
L4	Same as L2.	
L5	Same as L1.	
W1	LEAD ELECTRICAL	CA1229
W2 thru W4	Same as W1.	

SECTION 7

SCHEMATIC DIAGRAMS

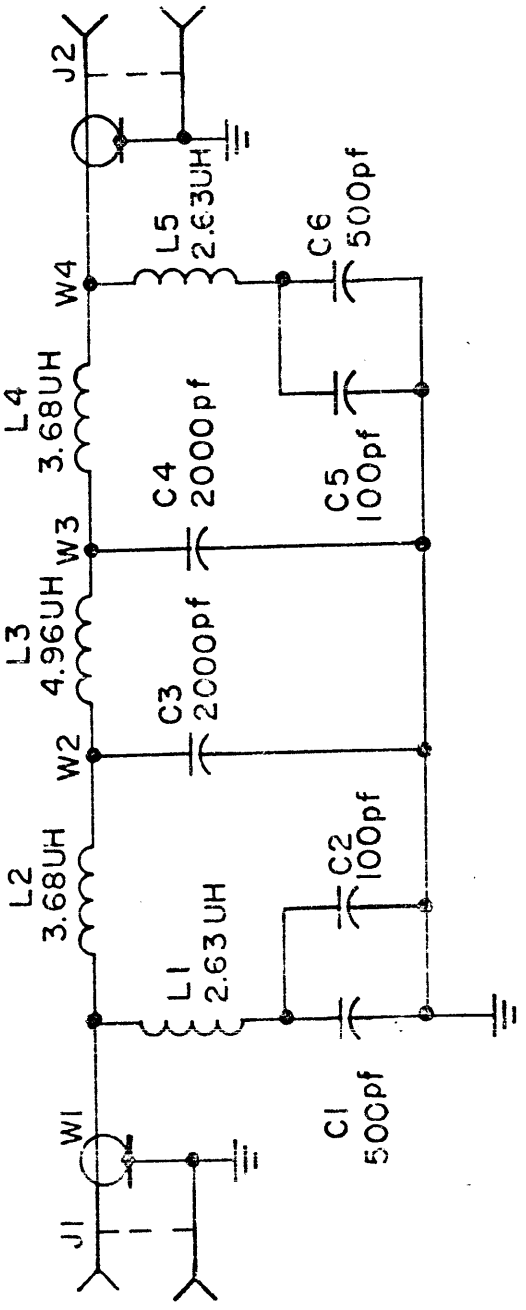

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Figure 7-1. Schematic Diagram, LPF-750-3