

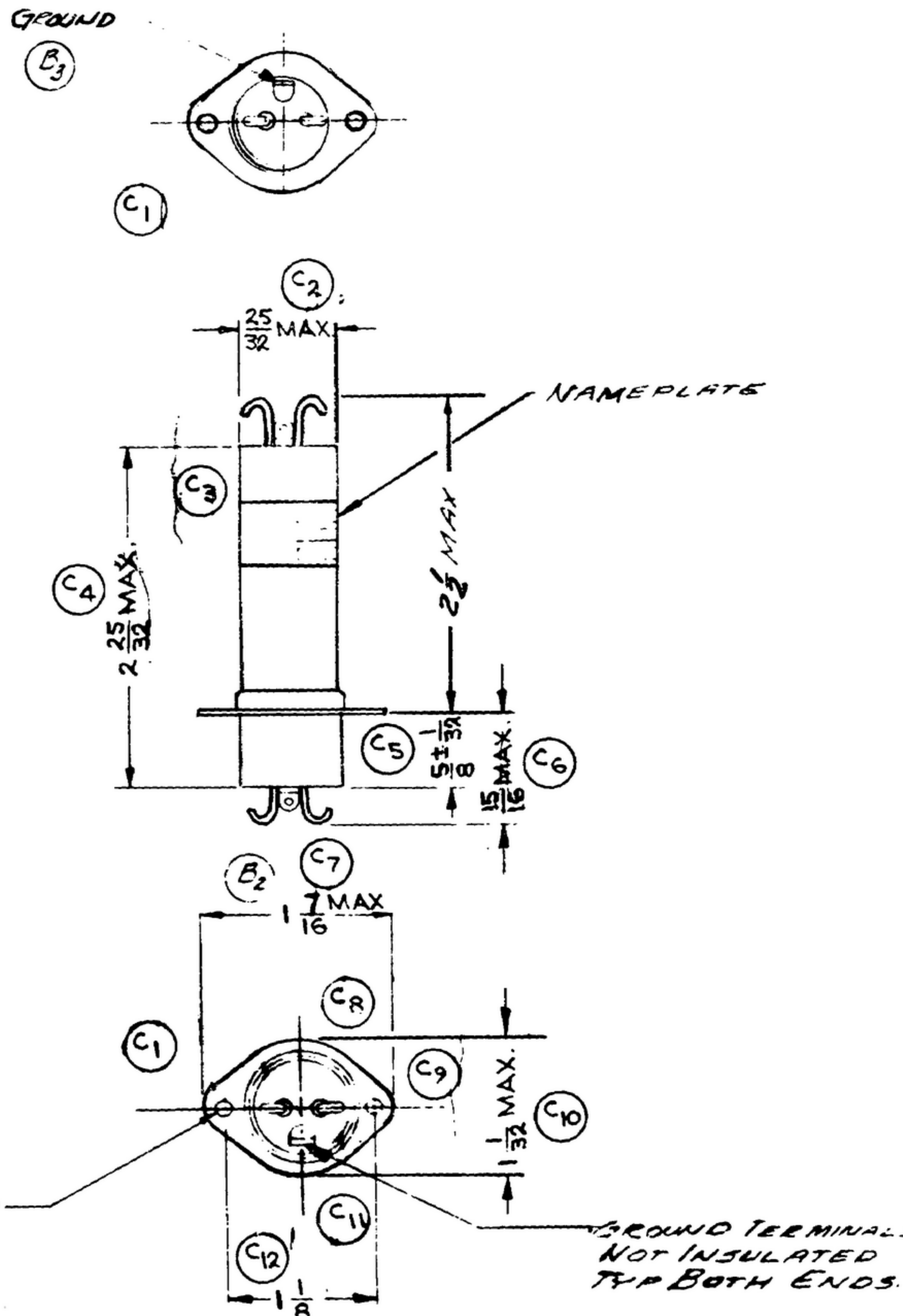
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\*FOR INFORMATION ONLY. CONTRACTOR MAY AT HIS OPTION DEVIATE FROM THESE PROCESS DETAILS.

C<sub>9</sub>-1/2 DIM. DELETED.  
 C<sub>10</sub>-1 1/32 MAX. WAS 1.  
 C<sub>11</sub>-5/32 DIM. DELETED.  
 C<sub>12</sub>-1/8 WAS 1.125.  
 C<sub>13</sub>-1/28 WAS .125.  
 C<sub>14</sub>-TERMINAL LOCATION NOTE DELETED.  
 C<sub>15</sub>-REF. REQUIREMENT MIL-M-13231 DELETED.

6-00189  
 REV'D.  
 13JAN 1967  
 EC2  
 PNB

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A <sub>1</sub>	(1) TERM. LOCATION REV. TO AGREE WITH LATEST MFR MOD.	2 APR 62	REF. J.M. E.L.B.
B <sub>3</sub>	(1) NOTE 1, TYPE NO. REV. TO M 1345 1/8 (3) GRD TERM. REV.	22 SEP 65	REF. J.M. E.L.B.
C <sub>15</sub>	C <sub>1</sub> -45° DIM. DELETED. C <sub>2</sub> -25/32 MAX. WAS .775 MAX. C <sub>3</sub> -7/16 ± 1/8 DIM. DELETED. C <sub>4</sub> -2 25/32 MAX. WAS 2 3/4 REF. C <sub>5</sub> -5/8 ± 1/32 WAS 5/8 REF. C <sub>6</sub> -15/16 MAX. WAS 7/8 MAX. C <sub>7</sub> -1 7/16 MAX. WAS 1 13/32. C <sub>8</sub> -23/32 DIM. DELETED.	13JAN 1967	REF. J.M. E.L.B. EC2 PNB



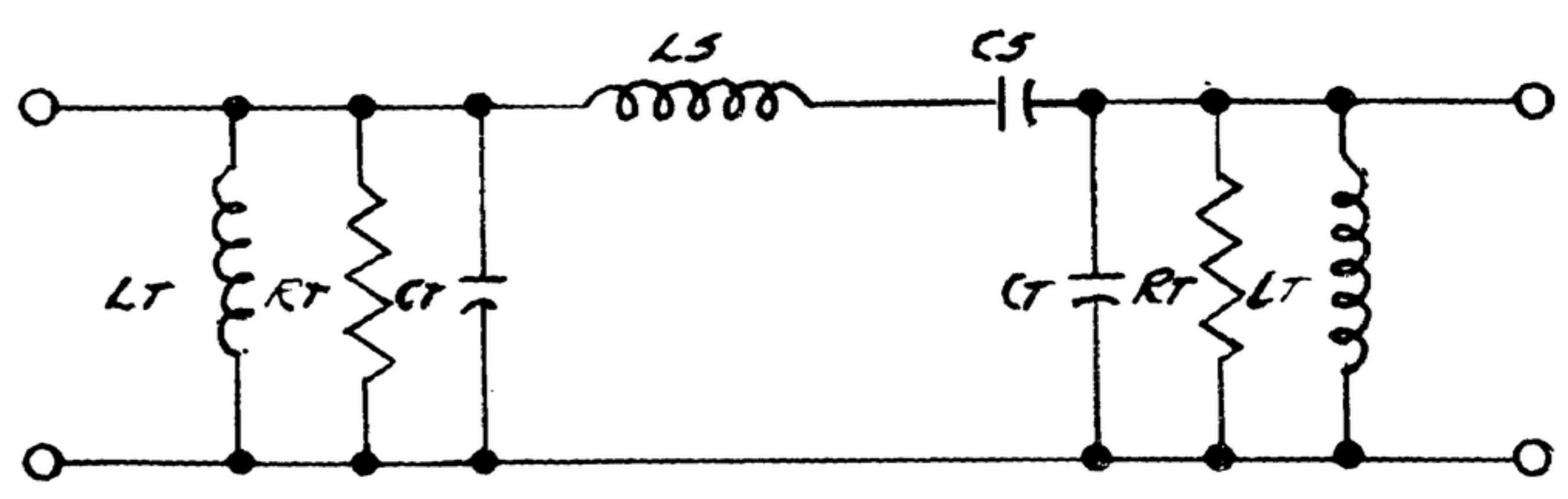
NOTES:  
 1. PART MAY BE TYPE NO. F455N-20 (\*526 9163 009) AS SUPPLIED BY COLLINS RADIO CO., CEDAR RAPIDS, IOWA, OR EQUAL, PROVIDING IT MEETS THE FOLLOWING REQUIREMENTS AND DIMENSIONS SHOWN.

ELECTRICAL REQUIREMENTS (AT +25°C)

ELECTRICAL CHARACTERISTICS		NOM.	TOL. †	ADDITIONAL SELECTIVITY AND ATTENUATION DATA		
A	CENTER FREQ. KC	455	----			
B	FREQUENCY RESPONSE KC			FREQ. KC	DB	TOL.
	BANDWIDTH, 6 DB ATTENUATION	2.1	± 20	454.1	6	MAX.
	BANDWIDTH, 60 DB ATTENUATION	5.3	MAX.	455.9	6	MAX.
C	PASSBAND PER CENT					
D	PASSBAND RESPONSE VARIATION DB	2	MAX.			
E	TERMINAL IMPEDANCE, K OHMS	17	----			
F	TRANSFER IMPEDANCE, K OHMS	6.75	± 30%			
G	RESONATING CAPACITY UUF	130	----			
H	TRANSMISSION LOSS DB	8	----			
J	SPURIOUS RESPONSE DB	-60	MAX.			

† TOLERANCE IN SAME UNITS AS NOMINAL VALUE UNLESS OTHERWISE INDICATED.  
 CENTER FREQUENCY, BY DEFINITION, IS 455 KC. SEE TABLE 1A.  
 PASSBAND, BY DEFINITION, IS THE FREQUENCY BAND BETWEEN 454.3 KC AND 455.7 KC, SEE TABLE 1C.  
 TERMINAL IMPEDANCE: THE MECHANICAL FILTER MAY BE DRIVEN AND LOADED IN ANY COMBINATION OF PARALLEL OR SERIES RESONANCE; THE IMPEDANCE LISTED IN TABLE 1E IS THE INPUT AND OUTPUT VALUE MEASURED AT 455 KC UNDER PARALLEL RESONANT CONDITIONS UNLESS OTHERWISE SPECIFIED.  
 TRANSFER IMPEDANCE IS DEFINED AS THE RATIO OF THE SIGNAL VOLTAGE ACROSS THE OUTPUT TERMINALS TERMINATED ONLY WITH RESONATING CAPACITY, TO THE INPUT SIGNAL CURRENT, MEASURED AT 455 KC. THE MECHANICAL FILTER IS VIRTUALLY SYMMETRICAL WITH RESPECT TO TERMINAL CHARACTERISTICS PERMITTING ARBITRARY DESIGNATION OF INPUT AND OUTPUT TERMINALS. SEE TABLE 1F.  
 RESONATING CAPACITANCE IS THE TOTAL EXTERNAL CAPACITANCE INCLUDING TUBE, STRAY, AND WIRING CAPACITANCE REQUIRED TO RESONATE THE INPUT AND OUTPUT TRANSDUCER COILS FOR PROPER OPERATION. DEVIATIONS FROM THE PROPER CAPACITANCE WILL ALTER THE ELECTRICAL CHARACTERISTICS OF TABLE 1. THE VALUE SPECIFIED IS NOMINAL; FILTERS MUST BE RESONATED AT 455 KC FOR OPTIMUM PERFORMANCE. FILTERS WILL RESONATE IN THE RANGE 110 TO 150 UUF. SEE TABLE 1G.  
 TRANSMISSION LOSS IS DEFINED AS 20 LOG<sub>10</sub>(E<sub>IN</sub>/E<sub>OUT</sub>); MEASUREMENT MADE AT 455 KC; DRIVEN FROM A CONSTANT CURRENT SOURCE AND WITH THE MECHANICAL FILTER OUTPUT TERMINATED IN THE PROPER RESONATING CAPACITY ONLY. SEE TABLE 1H.  
 DIELECTRIC STRENGTH: UNIT SHALL WITHSTAND A POTENTIAL OF 500 VOLTS RMS FROM TRANSDUCER COILS TO FRAME FOR A PERIOD OF NOT LESS THAN FIVE SECONDS AND NOT MORE THAN ONE MINUTE. DIELECTRIC TESTS SUBSEQUENT TO PRIME CONTRACTOR'S COMPONENT PRODUCTION INSPECTION TEST SHALL BE PERFORMED AT 90 PER CENT OF THE SPECIFIED VALUE.  
 RECOMMENDED OPERATING PARAMETERS:  
 SIGNAL INPUT VOLTAGE: 0 TO 7 VOLTS RMS.  
 DIRECT CURRENT: SHUNT FEED IS NECESSARY TO ELIMINATE DC CURRENT IN TRANSDUCER COILS. DC CURRENT IN TRANSDUCER COILS WILL ALTER THE ELECTRICAL CHARACTERISTICS OF TABLE 1.  
 DC VOLTAGE: 300 VDC MAXIMUM POTENTIAL ON TRANSDUCER COILS.  
 SIGNAL SOURCE & LOAD IMPEDANCE: MECHANICAL FILTERS ARE NORMALLY USED INTERSTAGE, PLATE TO GRID. IT IS DESIRABLE TO DRIVE THE FILTER FROM A CONSTANT CURRENT SOURCE AND WORK IT INTO A HIGH LOAD IMPEDANCE SUCH AS A GRID INPUT, UNDER PARALLEL RESONANT CONDITIONS.  
 ENVIRONMENTAL REQUIREMENTS:  
 OPERATING TEMPERATURE RANGE: -40°C TO +85°C. ELECTRICAL CHARACTERISTICS DEVIATIONS FROM SPECIFIED +25°C LIMITS OF ELECTRICAL REQUIREMENTS ARE AS FOLLOWS:  
 CENTER FREQUENCY ± 10 PPM/°C  
 BANDWIDTH ± 2 PER CENT  
 PASSBAND RESPONSE VARIATION ± 1 DB INCREASE  
 TRANSFER IMPEDANCE ± 10 PER CENT  
 TEMPERATURE RANGE, NON-OPERATING: -65°C TO +105°C.  
 ALTITUDE: UP TO 50,000 FEET.  
 VIBRATION: UNIT SHALL MEET THE ELECTRICAL REQUIREMENTS SUBSEQUENT TO VIBRATION TEST IN ACCORDANCE WITH SPEC MIL-STD-202, METHOD 201, TEST CONDITION B. MOTION SHALL BE APPLIED IN EACH OF THE THREE MUTUALLY PERPENDICULAR PLANES.  
 SHOCK: UNIT SHALL BE CAPABLE OF WITHSTANDING A TOTAL OF 18 IMPACT SHOCKS OF 15 G'S IN ACCORDANCE WITH SPEC MIL-STD-202, METHOD 202. THE IMPACT SHOCKS SHALL BE APPLIED ALONG THE PRINCIPAL AXES, THREE SHOCKS IN EACH DIRECTION ALONG EACH AXIS. UNITS SHALL THEN MEET THE ELECTRICAL REQUIREMENTS.  
 MOISTURE RESISTANCE: UNIT SHALL MEET THE ELECTRICAL REQUIREMENTS AND THERE SHALL BE NO SIGNS OF EXTERNAL PHYSICAL DETERIORATION SUBSEQUENT TO TEN DAY HUMIDITY TEST IN ACCORDANCE WITH MIL-STD-202, METHOD 106.  
 CORROSION RESISTANCE: UNIT SHALL WITHSTAND SALT SPRAY IN ACCORDANCE WITH MIL-STD-202, METHOD 101, TEST CONDITION B. AT THE COMPLETION OF TEST AND SUBSEQUENT TO GENTLE RINSING IN TAP WATER (37.8°C MAX TEMP) AND A LIGHT BRUSHING IF NECESSARY, THE EXTERIOR SURFACES SHALL SHOW NO SIGNS OF EXCESSIVE CORROSION AND ALL MARKINGS SHALL REMAIN LEGIBLE.  
 MECHANICAL REQUIREMENTS:  
 CONSTRUCTION: HERMETICALLY SEALED.  
 CASE: CARTRIDGE BRASS; SEE DRAWING FOR DIMENSIONAL DETAILS.  
 FINISH: M352 PER SPEC MIL-F-14072.

NAMEPLATE: A SUITABLE METAL FOIL OR DECALCOMANIA NAMEPLATE SHALL BE ATTACHED TO THE FILTER AND SHALL INCLUDE THE FOLLOWING DATA:  
 CONTRACTORS TYPE  
 SERIAL NUMBER OR DATE CODE STAMP  
 CONTRACTORS PART NUMBER  
 SILK SCREENING OR RUBBER STAMPED IDENTIFICATION DATA MAY BE USED IN LIEU OF A NAMEPLATE. THE NAMEPLATE SHALL REMAIN FIRMLY ATTACHED AND LEGIBLE AFTER SUBJECTION TO THE ENVIRONMENTAL REQUIREMENTS.  
 \*PRODUCTION TEST REQUIREMENTS BY THE PRIME CONTRACTOR SHALL CONSIST OF THE FOLLOWING PRODUCTION INSPECTION AND TYPE TEST:  
 \*PRODUCTION INSPECTION TESTS: ALL UNITS SHALL BE TESTED FOR THE FOLLOWING:  
 A-VISUAL INSPECTION FOR MECHANICAL REQUIREMENTS AND WORKMANSHIP.  
 B-ELECTRICAL REQUIREMENTS  
 \*PRODUCTION TYPE TESTS: A SMALL PERCENTAGE OF UNITS TO BE DETERMINED BY QUALITY CONTROL DEPARTMENT OF THE PRIME CONTRACTOR MAY BE SUBJECTED TO THE FOLLOWING TESTS IN ADDITION TO THOSE OF THE ELECTRICAL REQUIREMENTS TO EVALUATE THE QUALITY OF THE COMPONENTS:  
 A-OPERATING TEMPERATURE RANGE.  
 B-VIBRATION  
 C-SHOCK  
 D-MOISTURE RESISTANCE.  
 E-CORROSION RESISTANCE



EAC No. 1500-0172

\*WHEN PART NUMBER APPEARS AS 526 9163 009, MILITARY SOURCE INSPECTION IS REQUIRED.

DRAWN		CHECKED	APPROVED	DATE	SCALE
G. J. ...		E. J. ...		14214-PR-1795	1/1
LIST OF MATERIAL					
SIGNAL CORPS					
REVIEWED PME					
APPROVED HLY					
PME					
DATE: 19 MAR 58					

APPLICATION	DATE	SCALE

FILTER-MECHANICAL

DEPARTMENT OF THE ARMY  
 SIGNAL CORPS ENGINEERING LABORATORIES  
 FORT MONMOUTH NEW JERSEY  
 5M-D 245863