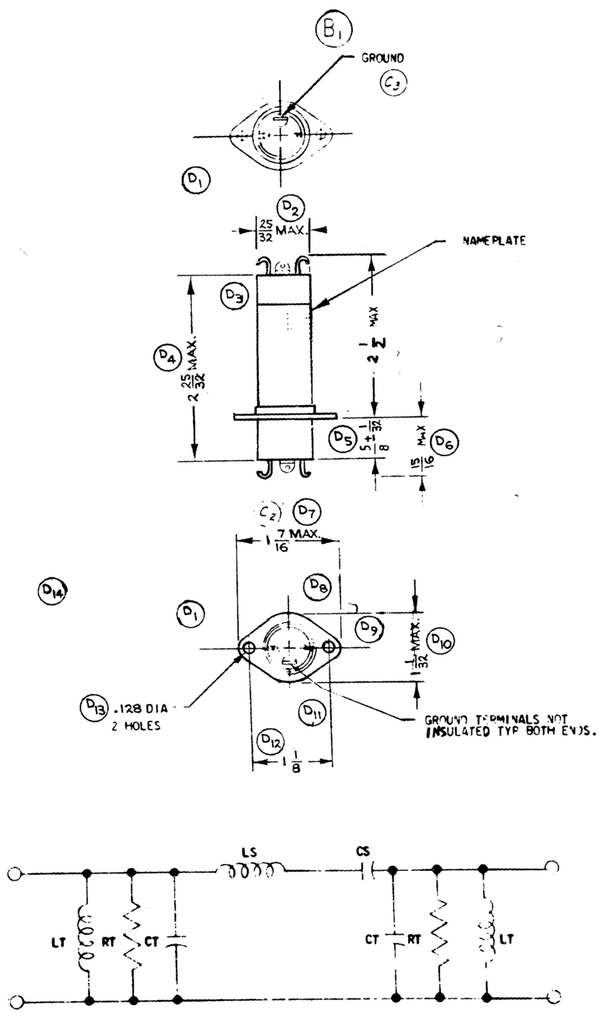
NOTE:
DATA MARKED BY AN ASTERISK(*) ARE FOR INFORMATION ONLY. CONTRACTOR MAY, AT HIS OPTION, DEVIATE FROM THESE DETAILS

D_{15}	D_7 - 1 7/16 MAX. WAS 1 13/32 . D_8 - 23/32 DIM. DELETED. D_9 - 1/2 DIM. DELETED. D_{10} - 1/32 MAX. WAS 1 . D_{11} - .563 DIM. DELETED. D_{12} - 1 1/8 WAS 1.125 . D_{13} - .128 WAS .125 . D_{14} - TERMINAL LOCATION NOTE DELETED. D_{15} - REF. REQUIREMENT MIL-M-13231 DELETED	13 JAN 1967	6-00189 REV'D. EC-2 AMB

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
A_1	ADDED APPL SM-D-343620	19 OCT 59	42428-PC-59-A1-51
	RETRACED, NO CHANGE	12 AUG 62	21582-PG61
B	CHANGED LOCATION OF GROUND LUG AND PICTURE TO AGREE WITH PART	6 APR 63	21582-PG61 REJD PMS
C_3	(1) NOTE 1, TYPE NO REI (2) DIM. WAS 17.6 .3 GRD TERM. REF.	23 SEP 65	PN 4H GLF EDB
D_{15}	D_1 - 45° DIM. DELETED. D_2 - 25/32 MAX. WAS .775 . D_3 - 7/16 ± 1/8 DIM. DELETED. D_4 - 2 25/32 MAX. WAS 2 3/4 REF. D_5 - 5/8 ± 1/32 WAS 5/8 REF. D_6 - 15/16 MAX. WAS 7/8 MAX.	13 JAN 1967	6-00189 REV'D. EC-2 AMB



(C) NOTES:

1. PART MAY BE TYPE NO F455N-80 (526 9161 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)

TABLE 1

	ELECTRICAL CHARACTERISTICS	NOM	TOL#
A	CENTER FREQ. KC	455	
B	FREQUENCY RESPONSE KC		
	BANDWIDTH, 3 DB ATTENUATION	7.8	MIN
	BANDWIDTH, 60 DB ATTENUATION	18.5	MAX
C	PASSBAND PERCENT		
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	-50	MAX

B1

ADDITIONAL SELECTIVITY AND ATTENUATION DATA		
FREQ. KC	DB	TOL
451.35	3	MAX
458.65	3	MAX
	BW (KC)	
B2 ATTEN		TOL
6 DB	11.0	MAX
20 DB	12.0	MAX
40 DB	15.0	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 451.7 KC AND 458.3 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 $_{10}(E_{IN}/E_{OUT})$: 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 CONTRACTORS COMPONENT PRODUCTION INSPECTION TEST SHALL BE PERFORMED AT 90% OF THE SPECIFIED VALUE.

AUDIO FREQUENCY RESPONSE: THE AUDIO FREQUENCY RESPONSE LEVEL AT 3600 CYCLES FROM 455.0 KC SHALL NOT BE GREATER THAN 3 DB DOWN FROM THE LEVEL AT 1000 CYCLES FROM 455.0 KC.

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 THE ELECTRICAL REQUIREMENTS ARE AS FOLLOWS:

CENTER FREQUENCY	± 10 PPM/° C
BANDWIDTH	± 5 PER CENT
PASSBAND RESPONSE VARIATION	1 DB INCREASE
TRANSFER IMPEDANCE	± 10 PERCENT

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 MIL-STD-202, METHOD 201, 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 MIL-STD-202, METHOD 202. THE IMPACT SHOCKS SHALL BE APPLIED ALONG THE PRINCIPAL AXES, THREE SHOCKS IN EACH DIRECTION ALONG EACH AXIS. UNIT SHALL THEN MEET THE ELECTRICAL REQUIREMENTS.

MOISTURE RESISTANCE: UNIT SHALL MEET THE ELECTRICAL REQUIREMENTS AND THERE SHALL BE NO SIGNS OF EXTERNAL 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 TESTS.
- 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 THE ELECTRICAL REQUIREMENTS TO EVALUATE THE QUALITY OF THE COMPONENT:
  - A - OPERATING TEMPERATURE RANGE
  - B - VIBRATION
  - C - SHOCK
  - D - MOISTURE RESISTANCE
  - E - CORROSION RESISTANCE

~~EAC No. 1500 0170~~

LIST OF MATERIAL

REQD	PART NO	DESCRIPTION	MATL	MATL SPEC

SM-D-343620	SCDL 248775		
SM-D-248818	SCDL 248775		
NEXT ASSY	USED ON		
APPLICATION			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ±1/64 DECIMALS ±.005 ANGLES ±1°

DRAWN BY
DATE
CHECKED BY
APPROVED BY

COLLINS RADIO CO CEDAR RAPIDS, IOWA
SIGNAL CORPS
REVIEWED PME
APPROVED HLY PME
DATE 18 MAR 58

FILTER-MECHANICAL

SCALE 1/1

DEPARTMENT OF THE ARMY
U. S. ARMY SIGNAL MATERIEL SUPPORT AGENCY
FORT MONMOUTH NEW JERSEY
SM-D-248861
CODE 80063

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE SYMBOL, IF ANY, AND DATE.