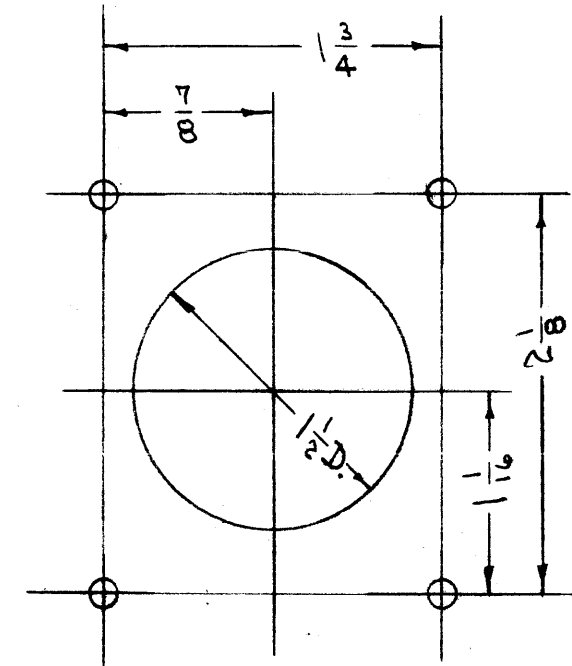
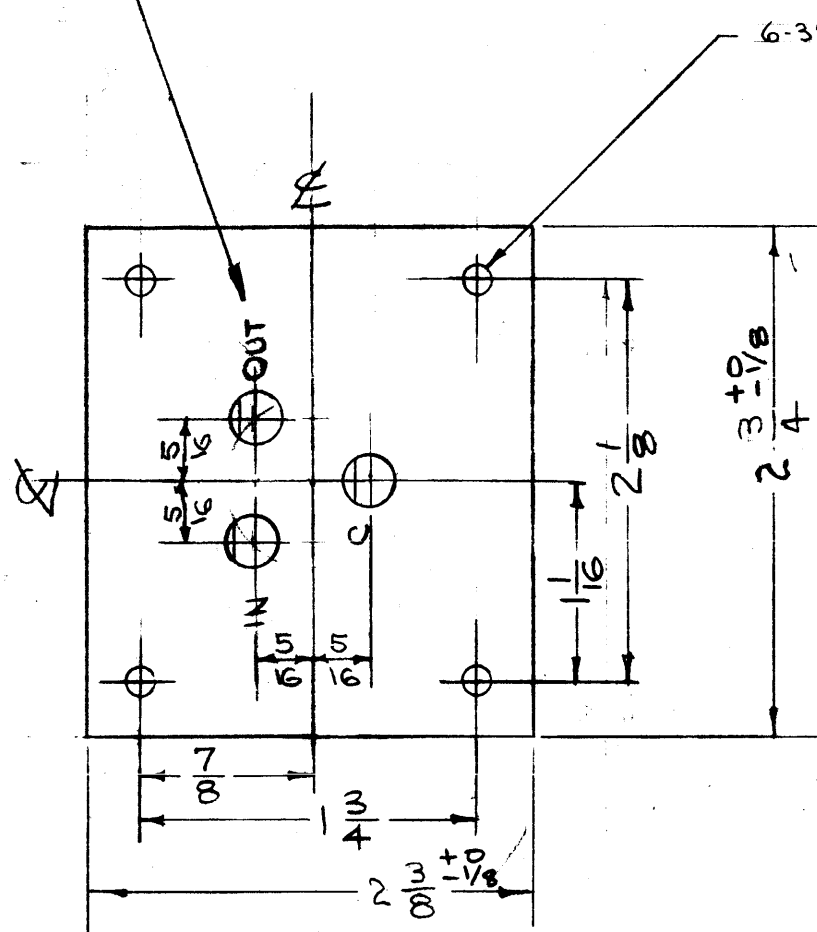
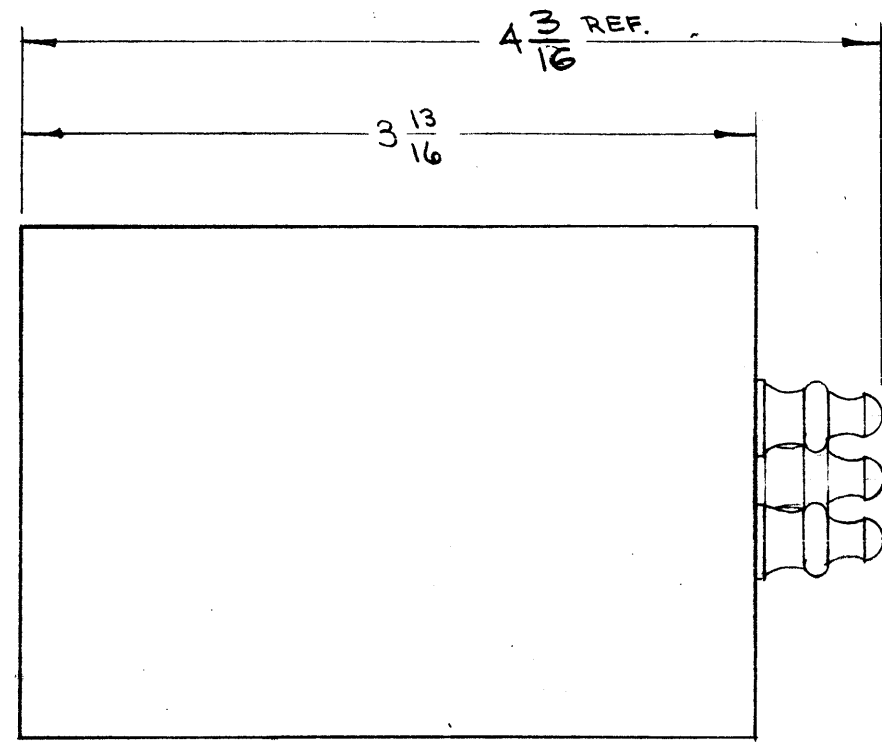


IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

E
EX-101

TERMINAL IDENTIFICATION TO BE MAINTAINED WITHIN 1/2 DIA. CIRCLE LETTERING TO BE 1/8 HIGH.

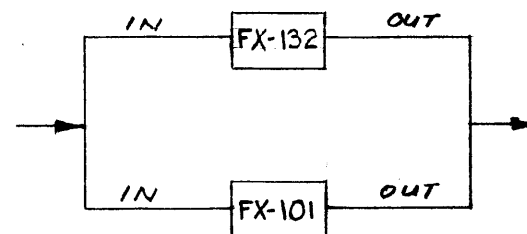


CHASSIS CUTOUT DETAIL

- Specification:** Filter, Band Pass, Centered on 2975 C.P.S. Flat within 3 D. B to + 125 C.P.S. down not less than 45 D.B. at ± 475 cps. Insertion loss 7 D.B., Input and output impedance 600 ohms.
- Terminals:** Shall be TEFLON body, tinned lugs, neoprene gland, hermetically sealed.
- Case:** Shall be made of cold rolled steel, electro tinned.
- Finish:** Shall be grey, TMC Specification S-115 the studs and terminals shall be free of paint.
- Lettering:** Shall be 1/8 inch high Gothic characters and shall be coated with clear fungicidal lacquer, except metal stamping.

6. Unit shall be hermetically sealed.

Shall Be Capable Of Operating As Follows:



With no deterioration of its characteristics.

ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFT	CHECKER	ENG. APP.
E	1	SPEC. #4 (FINISH) WAS S10B	8-17-64	12129		WJB	@ MM
D	1	NOTE 2, TEFLON WAS STEATITE (CTE-134 OF EQUAL) DELETED	11-10-60	3446		RU	WJB
C	4	CASE IS NOW IN ACC. WITH MIL-T-27A TYPE GA (BK100-9)					
	3	CASE WAS HOT TIN DIP, CAD. P. 25/8	7/6/58	3		WJB	WJB
	2	2 3/4 WAS 2 5/8					
	1	2 3/8 WAS 2 5/16					
B	7	3 ADDED TO 475 CPS	7/17/57	2		WJB	WJB
A	1	DIAG. NOTE ADDED	5-25/57	1		WJB	WJB

STOCK SIZE		THE TECHNICAL MATERIEL CORP.	
MATERIAL		MAMARONECK, NEW YORK	
TYPE & TEMPER		FILTER, BAND PASS 2975 CPS	
HEAT TREAT. SPEC.		RECEIVING	
FINISH & SPEC. NO.		C.D.D. 2-2-53	
		DRAWN	
		ELEC. DES. APP.	
		CHECKED	
		FINAL APPROVAL	
		2A-440	
		FX-101	
		E	

ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.
		SFP-2		121			
		SFP-1		121			
TOLERANCES		SCALE: #					
ALL OTHERS		DRILL, PUNCH, COMMERCIAL STOCK SIZES AND MANUFACTURERS TOLERANCES ARE NOT INCLUDED.					

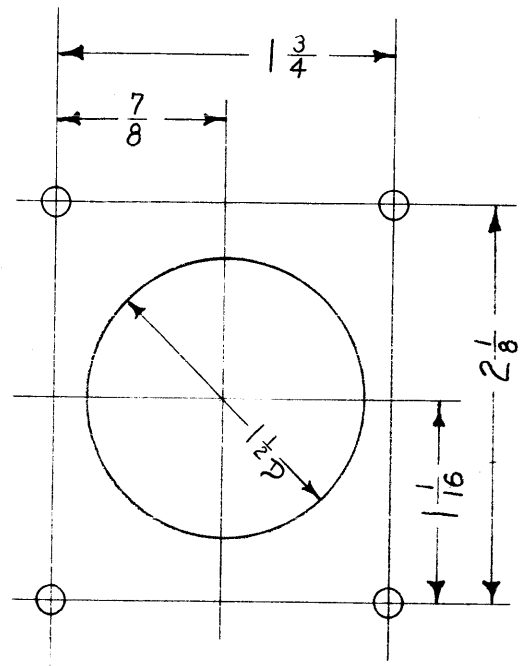
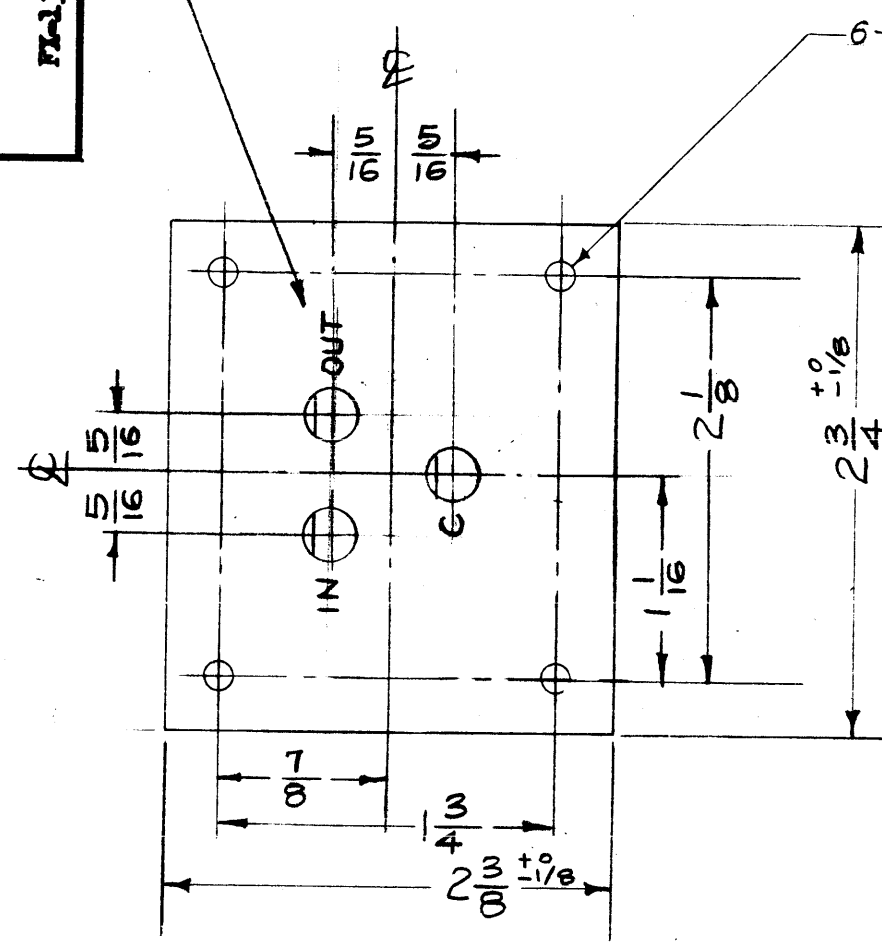
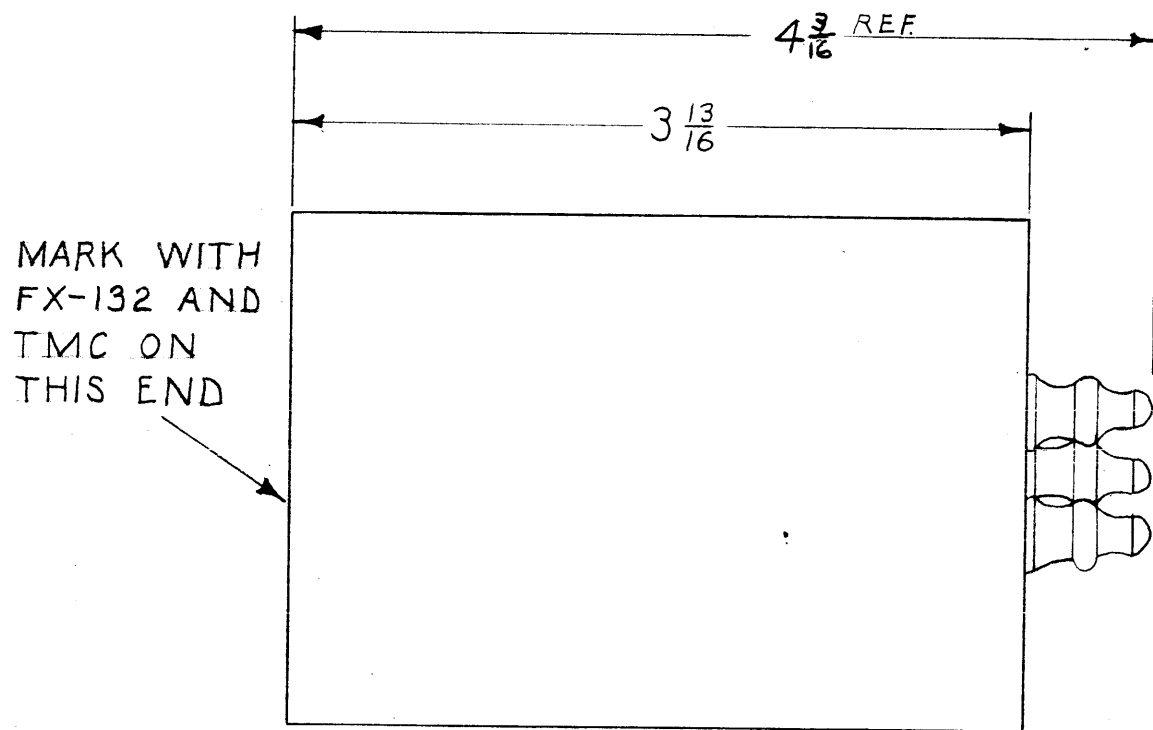
MODEL	PROJECT NO.	ASSY. NO.	DATE
SFP-2	121	A-448	4-16-53
SFP-1	121	A-445	2-2-53

IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

D
FX-132

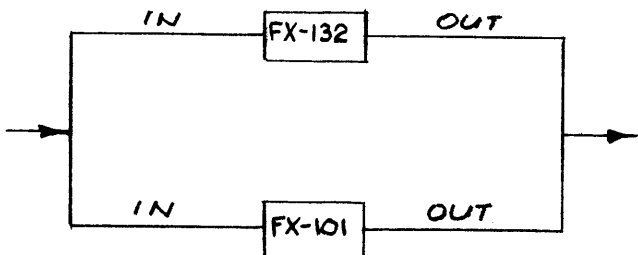
TERMINAL IDENTIFICATION TO BE MAINTAINED WITHIN 1-1/2 DIA. CIRCLE. LETTERINGS TO BE 1/8 HIGH.



CHASSIS CUTOUT DETAIL

1. Specifications: Filter, Band Pass, Centered on 2125 C.P.S. Flat within 3 D.B. to +100 C.P.S. down not less than 40 D.B. at 340 cps. Insertion Loss 6 D.B., Input and output impedance 600 ohms
2. Terminals: Shall be steatite body, tinned lugs, and neoprene gland hermetically sealed. TE-134 or equal
3. Cas: Shall be made of cold rolled steel, electro tinned.
4. Finish: Shall be grey, TMC Specification S-115 the studs and terminals shall be free of paint.
5. Lettering: Shall be 1/8 inch high Gothic characters and shall be coated with clear fungicidal lacquer, except metal stamping.
6. Unit shall be hermetically sealed.

Shall Be Capable Of Operating As Follows.



With no deterioration of its characteristics.

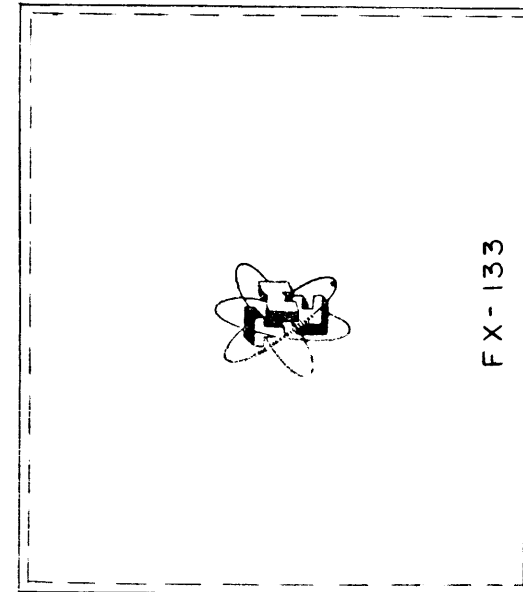
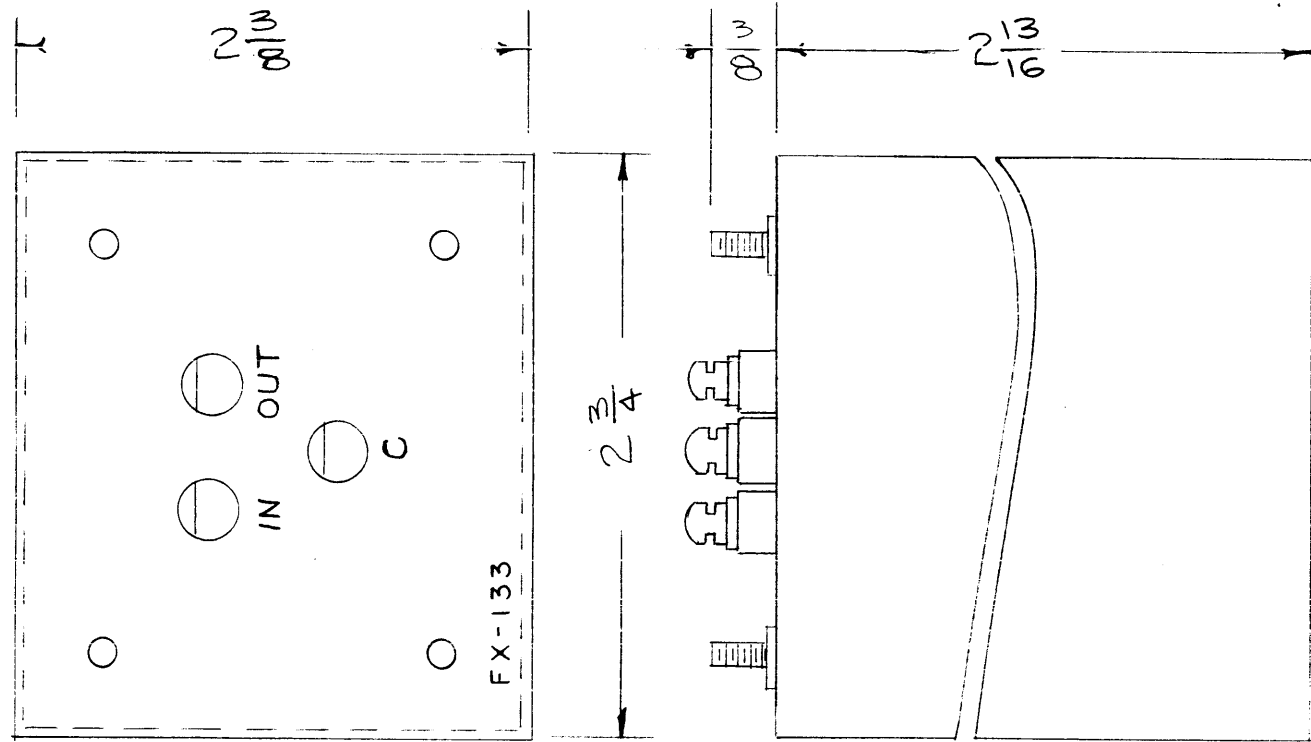
SAME ELECTRICALLY AS FOR FI-101

ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.
D	1	SPEC #4 (FINISH) WAS S-10B	8.17.64	12129	15B	(initials)	(initials)
C	2	Case Dim. chgd. from 2-5/16 x 2-5/8 to 2-3/8 x 2-3/4 IN ACC/W/MIL-T-27A TYPE GA. FINISH WAS HOT-TINNED OR PLATE	1/5/58	4	16	(initials)	(initials)
B	1	I Added To 340 CPS	7/19/57	3	(initials)	(initials)	(initials)
A	1	DIAG. & NOTES ADDED	5/6/57	2	(initials)	(initials)	(initials)
		REDRAWN-NO CHANGE	7/27/53	1	F.M.	(initials)	(initials)

SFP-2	121	A-448	4-16-53
MODEL	PROJECT NO.	ASS'Y. NO.	DATE
USED ON			

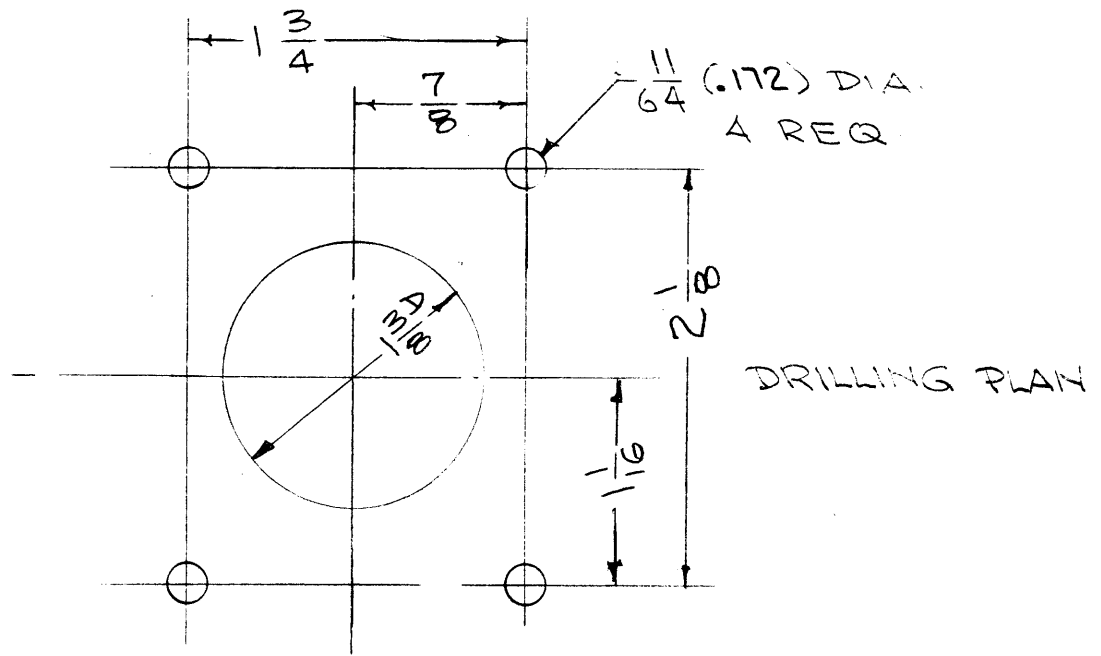
REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK. NEW YORK	
STOCK SIZE			FILTER; BAND PASS 2125 CPS	
MATERIAL			RECEIVING	
WEIGHT PER PC.			C.D.D 3-23-53	
TYPE & TEMPER			DRAWN (initials) ELEC. DES. APP. MECH. DES. APP.	
HEAT TREAT. SPEC.			M.H.S. CHECKED (initials) FINAL APPROVAL (initials)	
FINISH & SPEC. NO.			2-A-441	
			FX-132 D	

EX-133 C



MECHANICAL SPECIFICATIONS
CASE - STEEL (BX-125)
STUDS - 6-32 x 3/8
COLOR - GRAY
FILLER - COMPOUND

ELECTRICAL SPECIFICATIONS
FILTER UNIT HAS A BAND PASS ESSENTIALLY FLAT WITHIN ± 2db. FROM 0 TO 3200 CPS; AT 4500 CPS THE ATTENUATION MUST BE NO LESS THAN 40 db. AT NO POINT BETWEEN 4500 CPS AND 20 KC SHALL THE ATTENUATION FALL BELOW 40 db. INSERTION LOSS 5db. OR LESS



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Property of
THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK

ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
C	2	STUDS WERE 8-32 X 3/8	7-17-63	9614	1	J.H.	[Signature]
	1	4 HOLES WERE 13/64 DIA					
B	1	COMPLETE CHISE AS PER BX-125 (WAS BX-115)	1/6/58	2	16	[Signature]	[Signature]
A	2	TERMS CHANGED	10/9/58	1	1000	[Signature]	[Signature]
	1	DRILLING PLAN CHGD.					

TOLERANCES		SCALE:
DEC. DIM. ±		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES
FRAC. DIM. ±		
ANGULAR DIM. ±		

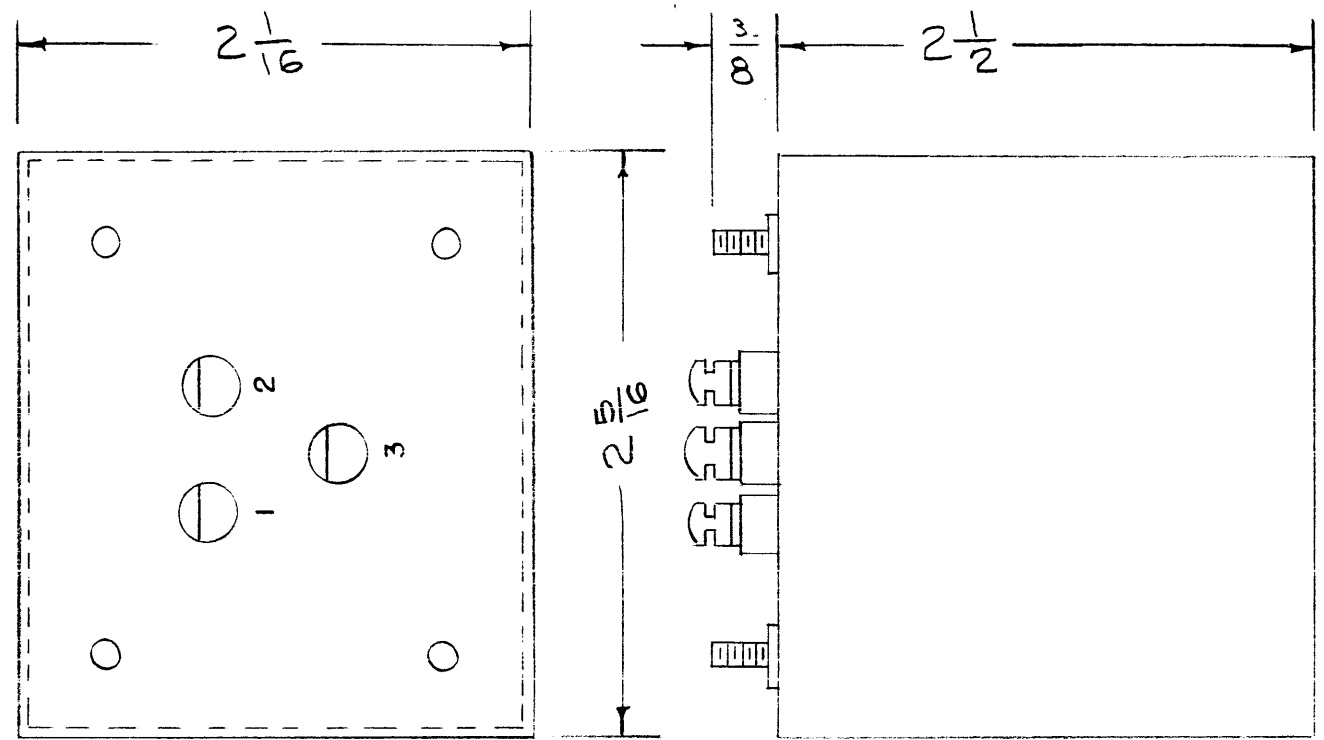
REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
		STOCK SIZE	
		FILTER, LOW PASS	
		FX-133	
		MATERIAL	
		TYPE & TEMPER	
		HEAT TREAT. SPEC.	
		DRAWN	
		CHECKED	
		FINAL APPROVAL	
		FINISH & SPEC. NO.	
		ELEC. DES. APP.	
		MECH. DES. APP.	

IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

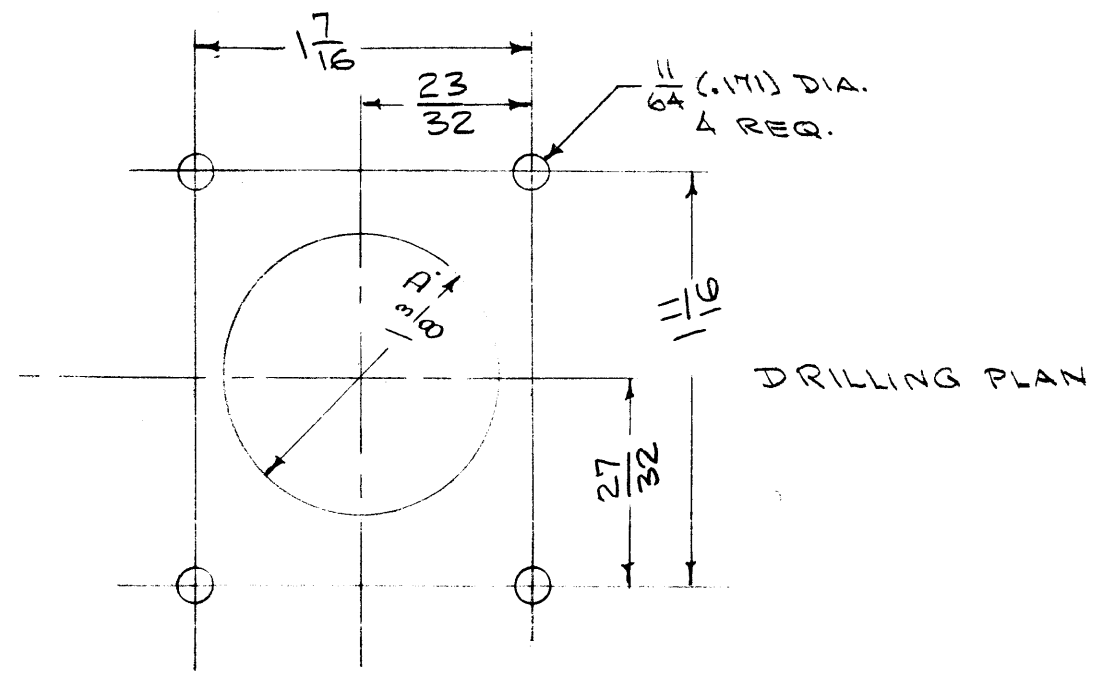
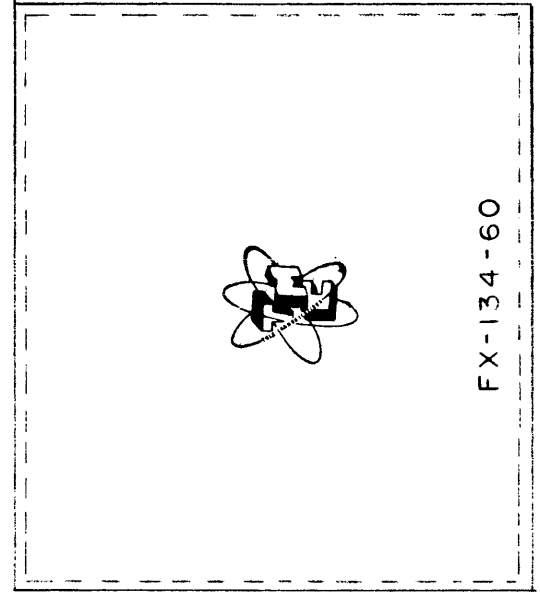
MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

EX-134



MECHANICAL SPECIFICATIONS
CASE - STEEL (BX-112)
STUDS - 6-32 X 3/8
COLOR - GRAY
FILLER - COMPOUND

ELECTRICAL SPECIFICATIONS
WITH AUDIO GENERATOR
OUTPUT OF 10 V RMS
APPLIED TO THE UNIT
THROUGH 47K OHMS, THE
VOLTAGE ACROSS TERMINALS
1 & 2 MUST BE 60 MV OR
LESS AT 60 CPS AND IN
THE RANGE OF 1.5-2.5 V
AT 600 C.P.S.



A	1	COMPLETE CHANGE AS PER BX-112	1/8/58	1	K	[Signature]	[Signature]	
ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.	
TOLERANCES			SCALE:					
ALL OTHERS	DEC. DIM. ±	DRILL, PUNCH, COMMERCIAL STOCK SIZES AND MANUFACTURERS TOLERANCES ARE NOT INCLUDED.					REQ. PER UNIT	MODEL
	FRAC. DIM. ±							PROJECT NO.
	ANGULAR DIM. ±							ASSY. NO.
USED ON								
DATE								

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
		#	THE TECHNICAL MATERIEL CORP.	
		STOCK SIZE	MAMARONECK. NEW YORK	
		#	FILTER, ABSORPTION	
		MATERIAL	FX-134-60	
		WEIGHT PER PC.		
		TYPE & TEMPER	C.P.D. - 10/15/58 2A-503	
			KZ	
		HEAT TREAT. SPEC.	DRAWN	ELEC. DES. APP.
			FAID	A.J.J.
			CHECKED	FINAL APPROVAL
		FINISH & SPEC. NO.		FX-134

IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

	SUFFIX	C.P.S.
FX-139	- 425	425
	- 595	595
	- 765	765
	- 935	935
	- 1105	1105
	- 1275	1275
	- 1445	1445
	- 1615	1615
	- 1785	1785
	- 1955	1955
	- 2125	2125
	- 2295	2295
	- 2465	2465
	- 2635	2635
	- 2805	2805
	- 2975	2975

ELECTRICAL SPECIFICATIONS-

Filter unit is centered on Freq denoted by suffix; Flat within 3 db. to + 50 cps; Down net less than 20 db at +160 cps; Insertion loss not exceeding 5 db. at center freq

The output terminals of the entire FX-139 family can be connected in parallel without deteriorating the performance of any one unit.

The output terminals of the type FX-140 may be connected to the input terminals of the type FX-139 of like center frequency. The input and output impedances are 600 ohms, unbalanced.

FINISH NOTE-

Degrease
S-114 - Zinc Chromate Primer
S-153 - Smooth Grey Enamel Air Drying.

THIS SECTION AS PER CHART

THE TECHNICAL MATERIEL CORP.
MAMARONECK, NEW YORK
PART NO. FX-139-XXX

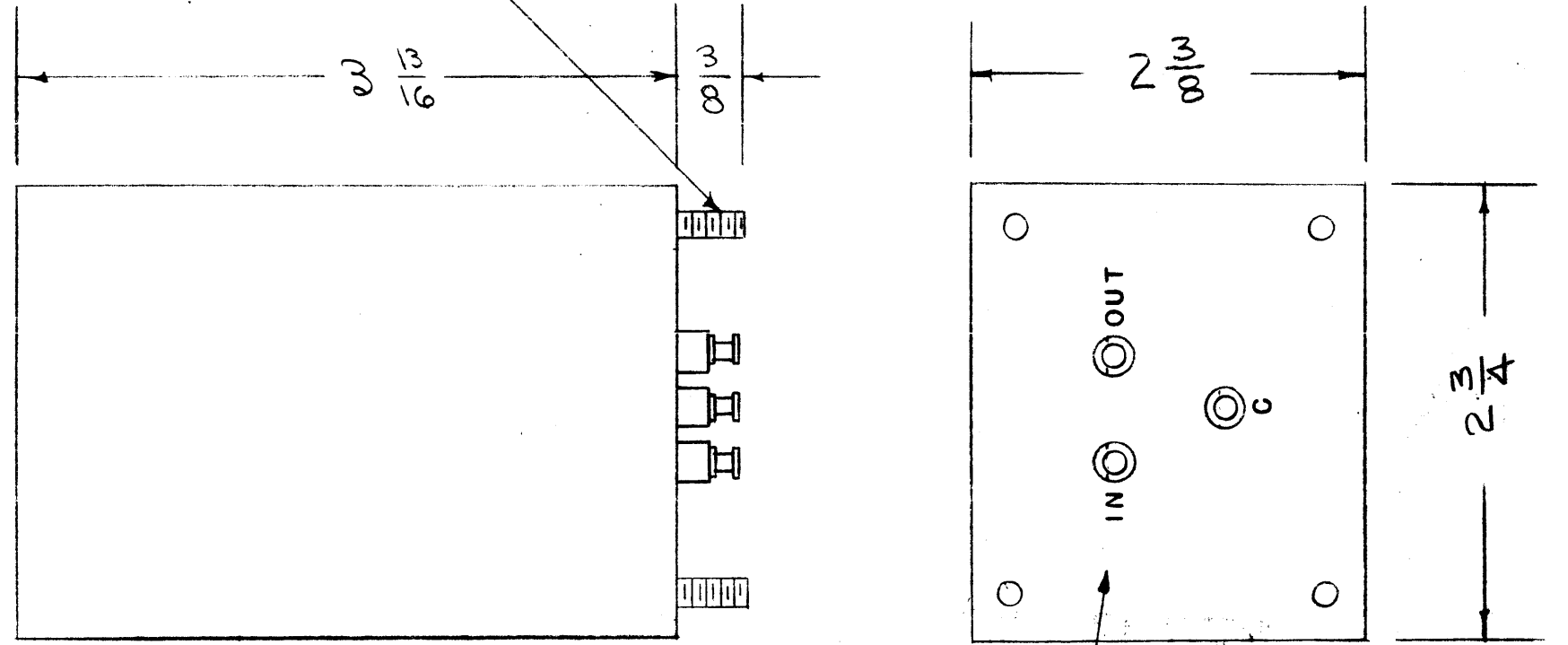
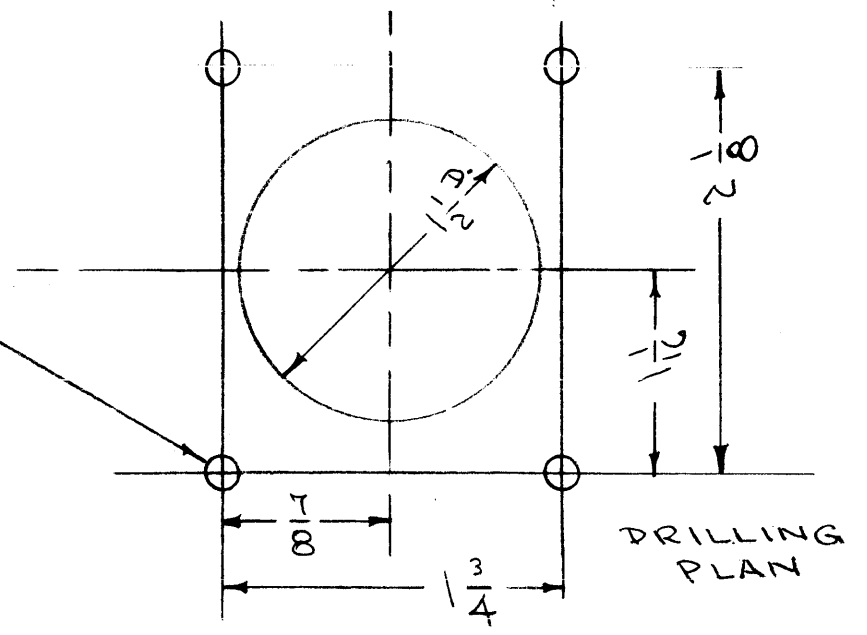
APPROX. 1/16 HIGH BLACK -
GOTHIC STAMP

D
FX-139

NOTE - SUFFIX DENOTES CENTER FREQ. IN C.P.S.

11/64 (.172) D.

6-32 STUD



ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.
D	1	TMC INSP. & APPROVAL STAMPS DELETED	10.30.64	12822	NB	@	AK
C	1	DIM. CHG'D. FROM 2.300 X 2.670 TO 2-3/8 X 2-3/4 AS PER BX-100-9	1/4/58	3	16	Handwritten	Handwritten
B	3	ELEC. SPEC. CLARIFIED					
B	2	STAMPING CHG'D.	1/24/57	2	16	Handwritten	A.T.J.
B	1	FX-139-2975 & FINISH ADDED					
A	1	ELEC. SPEC. REVISED	10-10-58	1	P3	Handwritten	A.T.J.

STANDARD DRAWING

TOLERANCES		SCALE:
ALL OTHERS	DEC. DIM. ± FRAC. DIM. ± AN ULAR DIM. ±	DRILL, PUNCH, COMMERCIAL STOCK SIZES AND MANUFACTURERS TOLERANCES ARE NOT INCLUDED.

TIS (TTF)	PROJECT NO.	ASS'Y. NO.	DATE
			1-22-57
MODEL	PROJECT NO.	ASS'Y. NO.	DATE

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
			STOCK SIZE	
			FILTER, BAND PASS	
			MATERIAL	
			WEIGHT PER PC.	
			FX-139	
			TYPE & TEMPER	
			HEAT TREAT. SPEC.	
			SEE NOTE	
			FINISH & SPEC. NO.	

IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

SUFFIX	C.P.S.
FX-140-425	425
- 595	595
- 765	765
- 935	935
- 1105	1105
- 1275	1275
- 1445	1445
- 1615	1615
- 1785	1785
- 1955	1955
- 2125	2125
- 2295	2295
- 2465	2465
- 2635	2635
- 2805	2805
- 2975	2975

ELECTRICAL SPECIFICATIONS-

Filter unit is centered on freq denoted by suffix; Flat within 3 db to + 50 cps; Down not less than 36 db at + 140 cps; Insertion loss not exceeding 6 5 db. at center frequency.

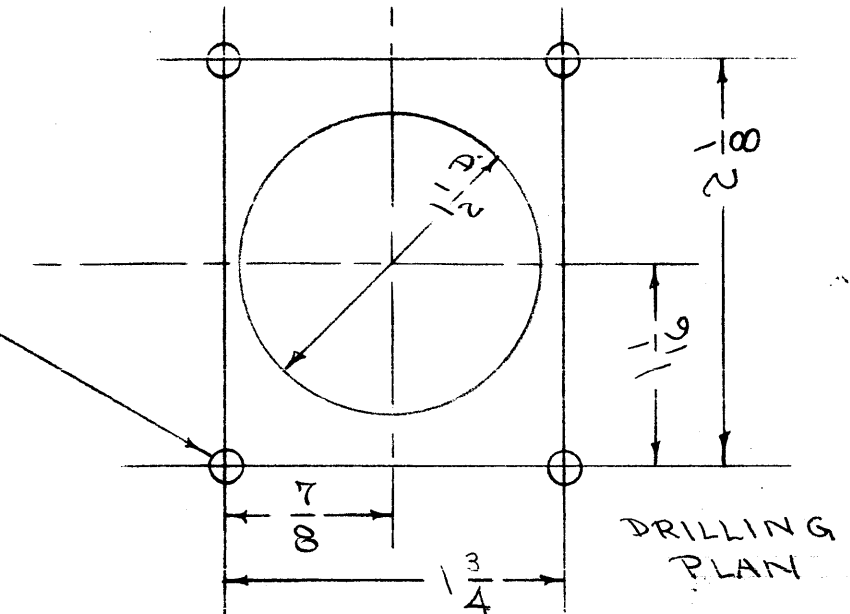
The input terminals of the entire FX-140 family can be connected in parallel without deteriorating the performance of any one unit.

The output terminals of the type FX-140 may be connected to the input terminals of the type FX-139 of like center frequency. The input and output impedances are 600 ohms, unbalanced.

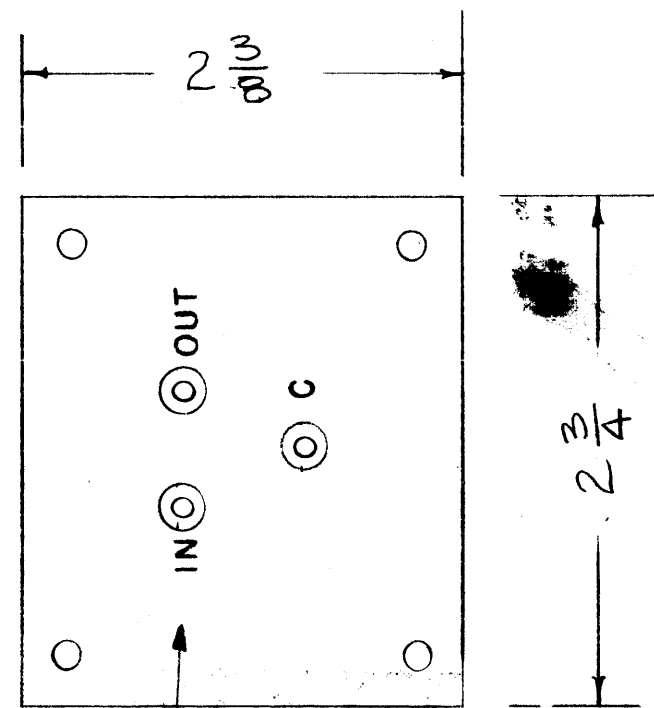
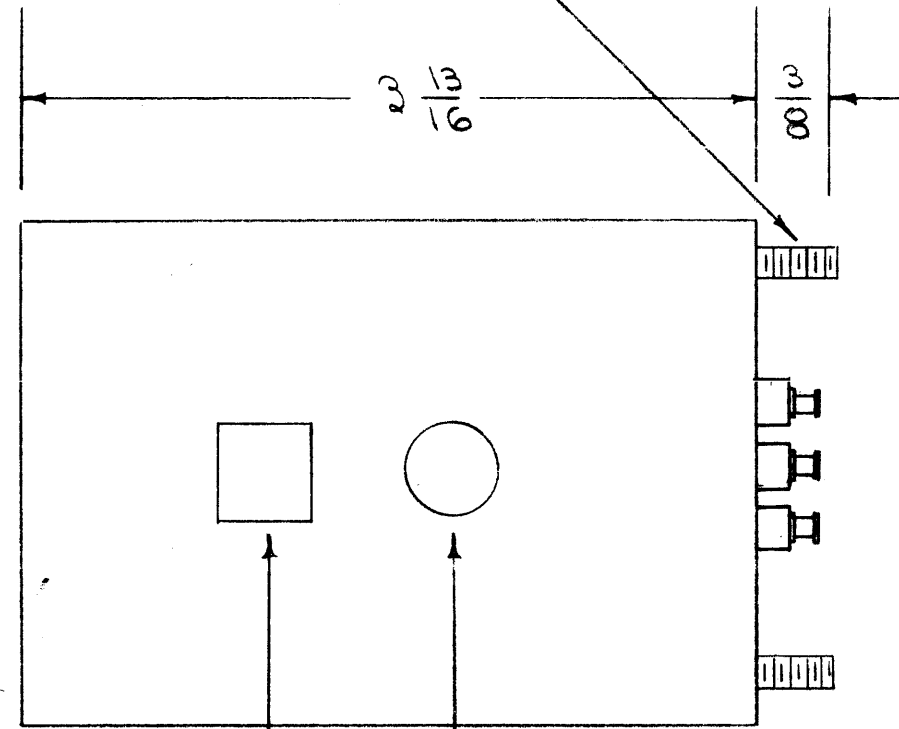
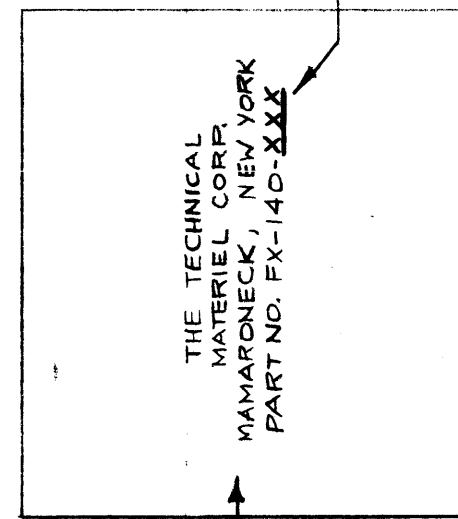
FINISH NOTE-

- Degrease
- S-114 - Zinc Chromate Primer
- S-153 - Smooth Grey enamel Air Drying

FX-140 C



THIS SECTION AS PER CHART



NOTE: SUFFIX DENOTES CENTER FREQ. IN C.P.S.

THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK PART NO. FX-140-XXX

APPROX. 1/16 HIGH BLACK GOTHIC STAMP

TMC INSPECTION STAMP

TMC APPROVAL STAMP

1/8 METAL STAMP (Before Painting)

REF: COMMUNICATIONS ACCESSORIES

ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.
C	1	DIM. CHG'D. FROM 2.300 X 2.670 to 2-3/8 X 2-3/4 AS PER BX-100-9	1/6/58	3	16	Handwritten	Handwritten
B	3	ELEC. SPEC. CLARIFIED					
B	2	STAMPING CHG'D.	1/22/57	2	16	Handwritten	A.J.J.
B	1	FX-140-2975 FINISH ADDED					
A	1	ELEC. SPEC. REVISED	11/11/55	1	13	K2	A.J.J.

TOLERANCES		SCALE:
ALL OTHERS	DEC. DIM. ± FRAC. DIM. ± ANGULAR DIM. ±	DRILL, PUNCH, COMMERCIAL STOCK SIZES AND MANUFACTURERS TOLERANCES ARE NOT INCLUDED.

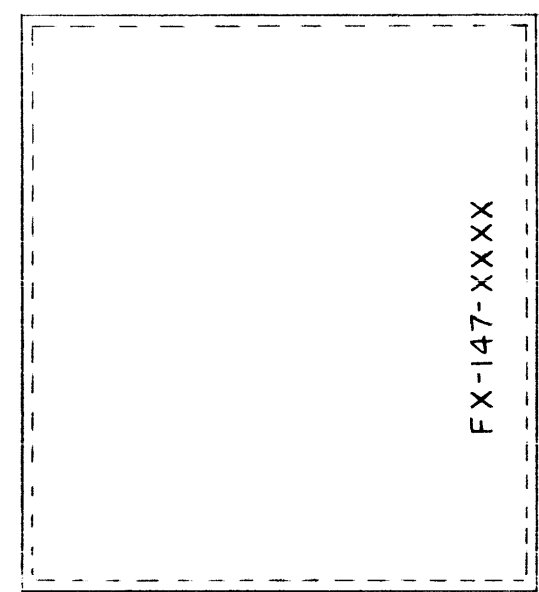
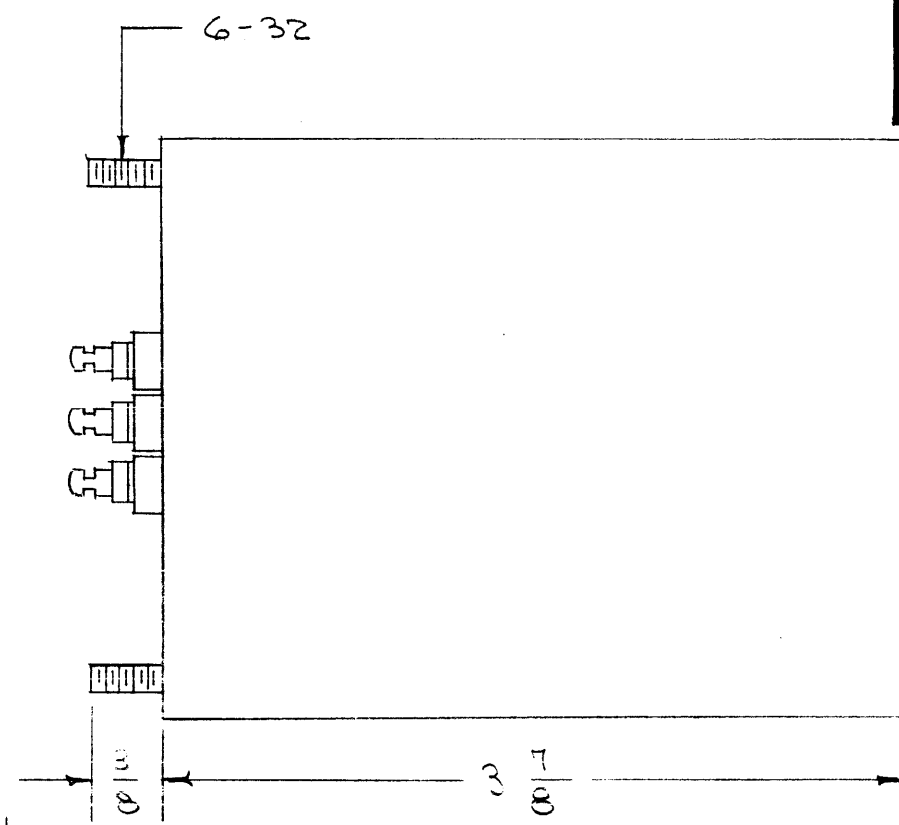
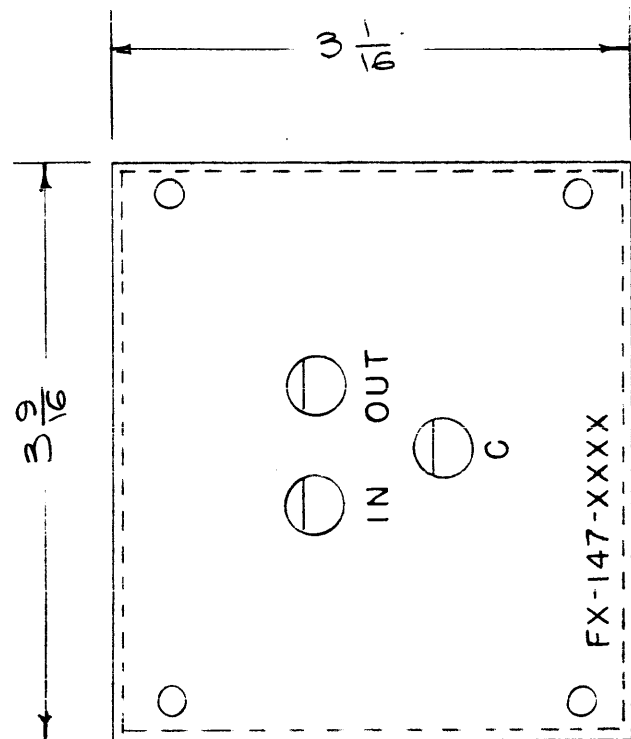
TIS (TRF)	CK-258	1-22-57
RCR		
MODEL	PROJECT NO.	ASS'Y. NO.
		DATE
USED ON		

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
			FILTER, BAND PASS	
			FX-140	
			C.D.D. 6-10-54	K2
			DRAWN	ELEC. DES. APP. MECH. DES. APP.
			CHECKED	FINAL APPROVAL
			4-A-781 OBS.	FX-140
			FINISH & SPEC. NO.	

IF IT IS FOUND DESIRABLE TO CHANGE ANY TOLERANCE OR OTHER DETAIL SPECIFIED ON THIS DRAWING NOTIFY THE PURCHASER PROMPTLY.

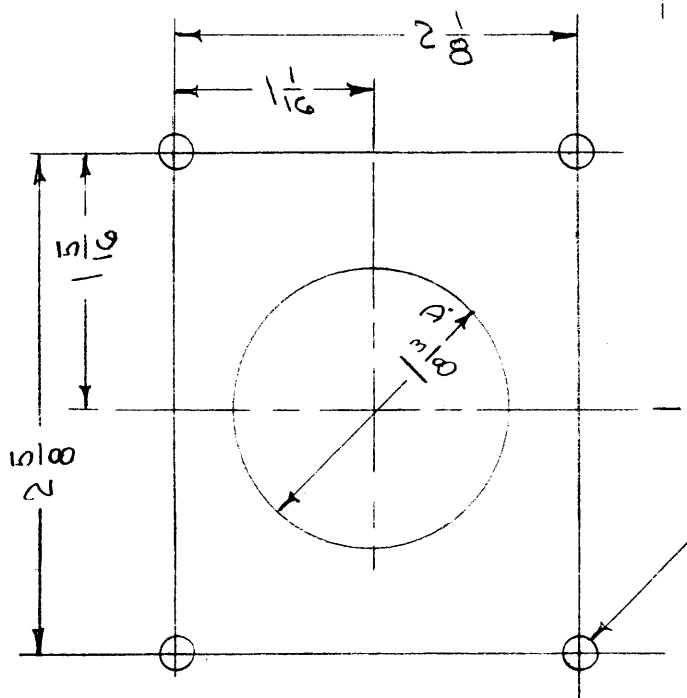
MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

EX-147 A



MECHANICAL SPECIFICATIONS
CASE - STEEL
STUDS - 6-32 x 3/8
FILLER - COMPOUND
COLOR - GRAY

ELECTRICAL SPECIFICATIONS
FILTER IS CENTERED ON
FREQUENCY DENOTED BY
SUFFIX; FLAT WITHIN 5db
TO ±900 cps; DOWN NOT
LESS THAN 36 db AT
±1100 cps; INSERTION
LOSS ≤ 2 db.



11/64 (C-170) DIA.
4 REQ.

FX-147-2600	2600
MODEL	SUFFIX
C.P.S	

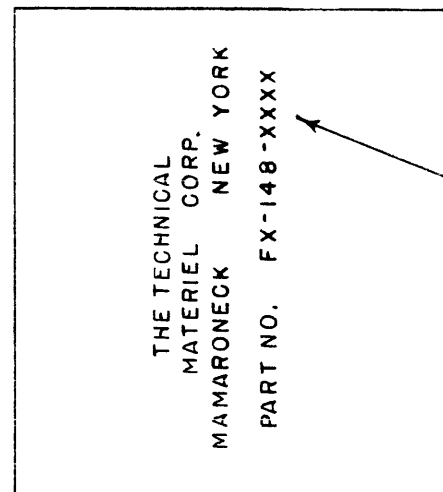
REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
	#		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
		STOCK SIZE		
	#	#	FILTER	
		MATERIAL	BAND PASS	
		WEIGHT PER PC.		
		TYPE & TEMPER	C.D.D. 11-18-54	M.H.S.
		HEAT TREAT. SPEC.	DRAWN	ELEC. DES. APP.
			MECH. DES. APP.	
			FINAL APPROVAL	
		FINISH & SPEC. NO.	A-888	FX-147 A

A	1	DIM. CHG'D. FROM 2.987 x 3.512 to 3-1/16 x 3-9/16 ACC. TO BX-121	1/9/58	1	16	FAJ	CAF
ISSUE	ITEM	CHANGED FROM	DATE	CN. NO.	DRAFTS	CHECKER	ENG. APP.

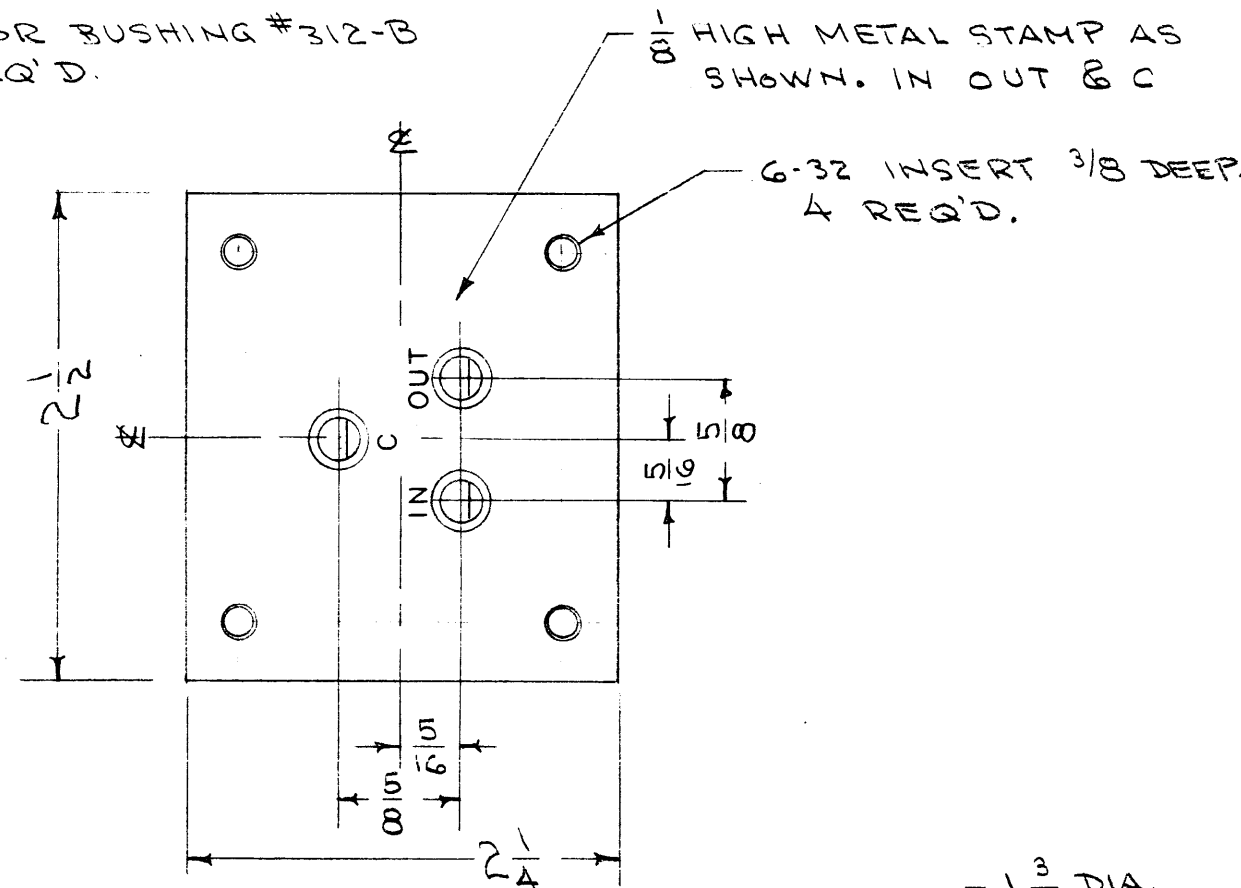
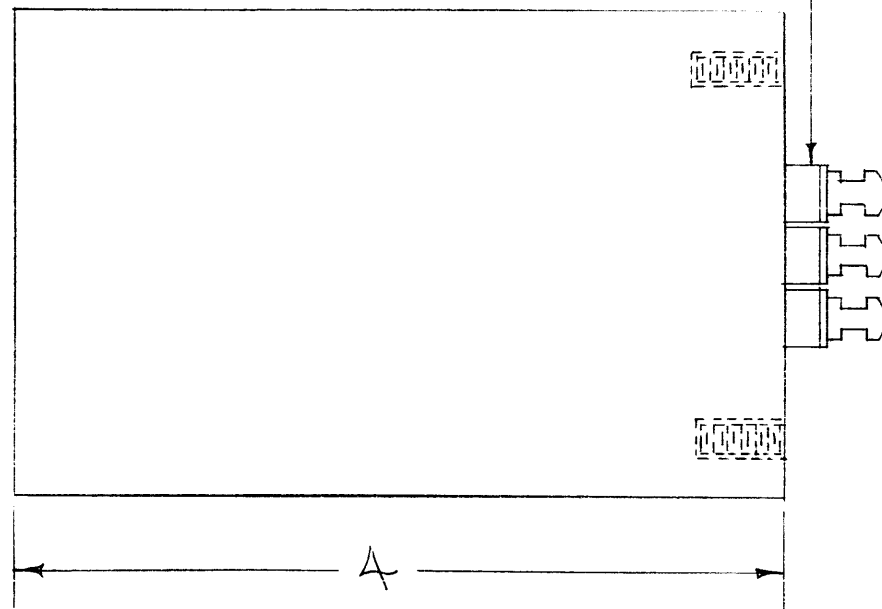
TOLERANCES		SCALE:
ALL OTHERS	DEC. DIM. ± FRAC. DIM. ± ANGULAR DIM. ±	DRILL, PUNCH, COMMERCIAL STOCK SIZES AND MANUFACTURERS TOLERANCES ARE NOT INCLUDED.
RE . PER UNIT	MODEL	PROJECT NO.
		ASSY. NO.
		DATE
		USED ON

EX-148

BLACK STAMPING AS BELOW



CENTER FREQUENCY

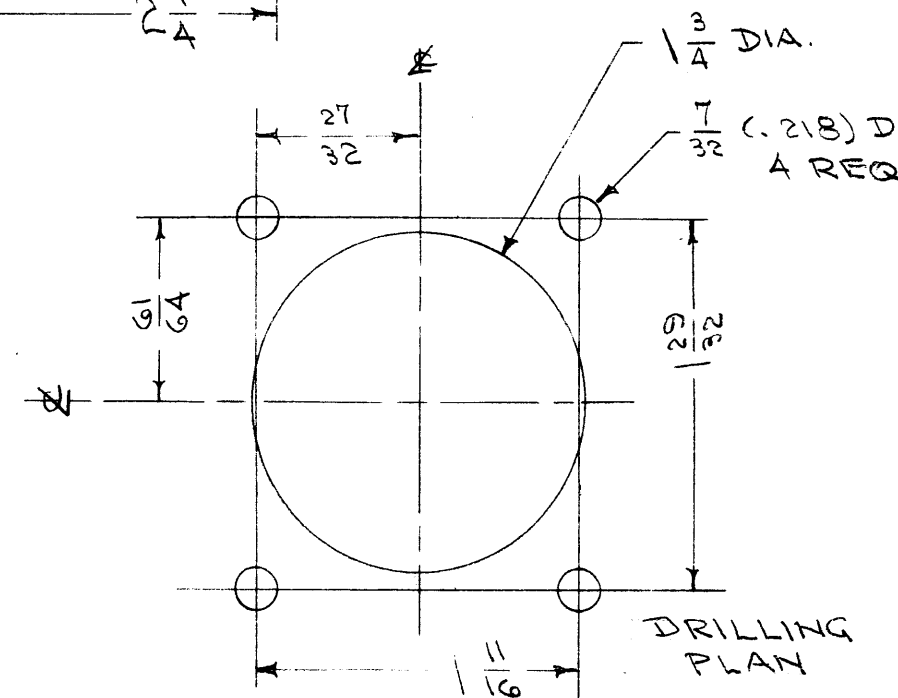


ELECTRICAL CHARACTERISTICS:

- BAND PASS: OUTPUT MUST BE FLAT WITHIN 3db. WITHIN THE REGION OF ± 255 CPS OF CENTER FREQUENCY.
- BAND REJECTION: THE OUTPUT MUST BE DOWN AT LEAST 25 db. AT ± 680 CPS OF CENTER FREQ. AND SHALL NEVER BE LESS THAN THIS FIGURE IN THE FREQ. RANGE OF 0 TO $(f_c - 680$ CPS) AND FROM $(f_c + 680$ CPS) TO 20 KCS.
- INSERTION LOSS: LESS THAN 3db.
- INPUT & OUTPUT IMPEDANCES: BOTH 600 OHMS, UNBALANCED.
- CONNECTIONS: DESIGN TO BE SUCH THAT ANY NUMBER OF MEMBERS OF THIS FAMILY OF FILTERS MAY BE OPERATED WITH THEIR OUTPUTS CONNECTED IN PARALLEL.

MECHANICAL SPECIFICATIONS

- CASE: STEEL 2 1/4 X 2 1/2 X 4
- INSERTS: 6-32 X 3/8 DEEP.
- FINISH: S-115 TMC SMOOTH GRAY ENAMEL
- STAMPING: AS SHOWN ABOVE



TYPE DESIGNATION

FX-148-XXXX

STYLE NUMBER CENTER FREQ.

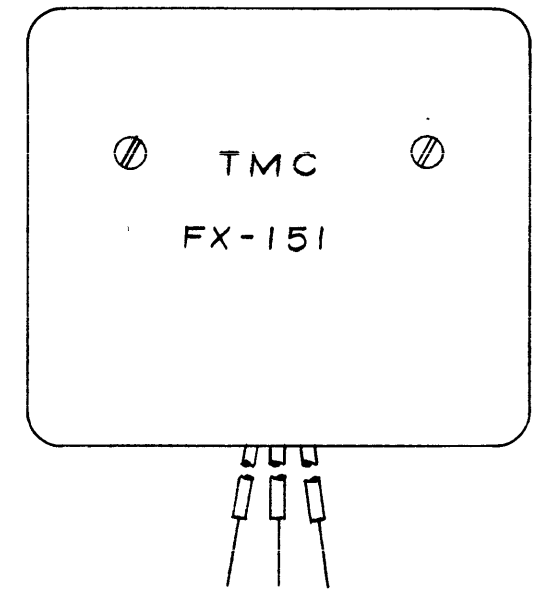
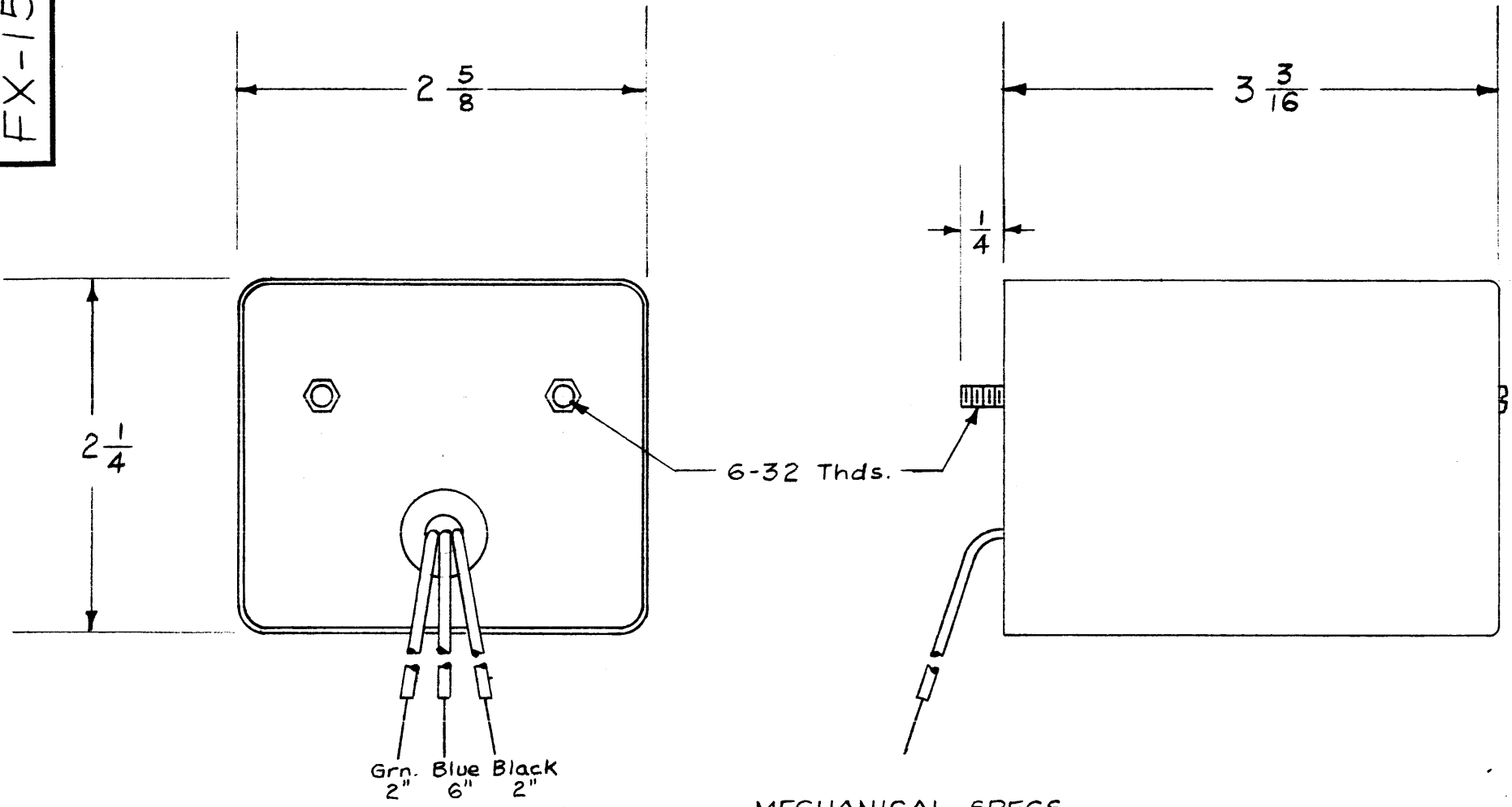
REF. BURNELL & CO.

ISSUE ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
TOLERANCES		SCALE:				
DEC. DIM. \pm	MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.					
FRAC. DIM. \pm	REMOVE ALL BURRS AND SHARP EDGES					
ANGULAR DIM. \pm						

REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
		THE TECHNICAL MATERIEL CORP. MAMARONECK. NEW YORK	
STOCK SIZE		FILTER, BAND PASS	
MATERIAL			
TYPE & TEMPER		HEAT TREAT. SPEC.	
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.

FX-151 C



MECHANICAL SPECS.

Case - Aluminum, ZINK CHROMATE PRIMER S114
& GRAY ENAMEL S115

ELECTRICAL SPECS.

BAND PASS - Output must be flat within 6db. in the region of 17.50 Kc. to 19.70 Kc.
BAND REJECTION - Output must be down at least 40.0 db. at 16.80 Kc. and 20.4 Kc.
INSERTION LOSS - Less than 3db. measured at the point of minimum loss within pass-band.
INPUT-OUTPUT NOMINAL IMPEDANCES - 20,000 Ω, Unbalanced

THE TECHNICAL MATERIEL CORP.
MAMARONECK, N.Y.
NEW YORK

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y.

DRILLING PLAN

ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
C	1	ON MECH. SPECS. CASE WAS "CAUSTIC DIPPED & LACQUERED"	7.13.64	11720	ASB	<i>PLK</i>	<i>AW</i>
B	1	20.41 Kc was 20.30 Kc	6/4/59	1089	J.C.B.	<i>PLK</i>	<i>AW</i>
A	1	BAND PASS SPEC OUTPUT WAS 17.30 TO 19.80 Kc	6/18/57	1	<i>AW</i>	<i>AW</i>	<i>AW</i>

TOLERANCES: DEC. DIM. ± 1/64, FRAC. DIM. ± 1/64, ANGULAR DIM. ±

SCALE: FULL (4A-1388)

MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE
1	GSB-1			3-25-57

USED ON

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
//		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
//		FILTER, BANDPASS	
//		FX-151	
//		163-25-57	<i>AW</i>
//		DRAWN	<i>AW</i>
//		CHECKED	<i>AW</i>
//		FINAL APPROVAL	<i>A.J.J.</i>
		ELEC. DES. APP.	<i>PLK</i>
		MECH. DES. APP.	
			FX-151 C

FX 152 G

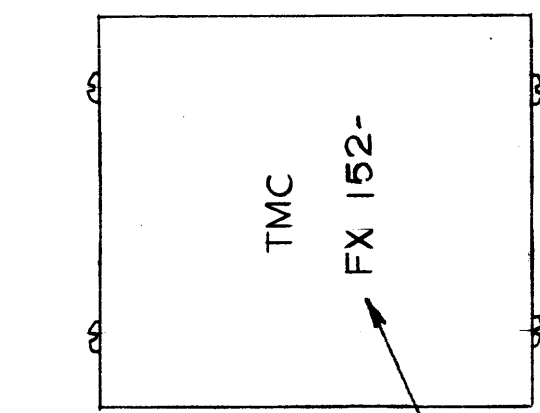
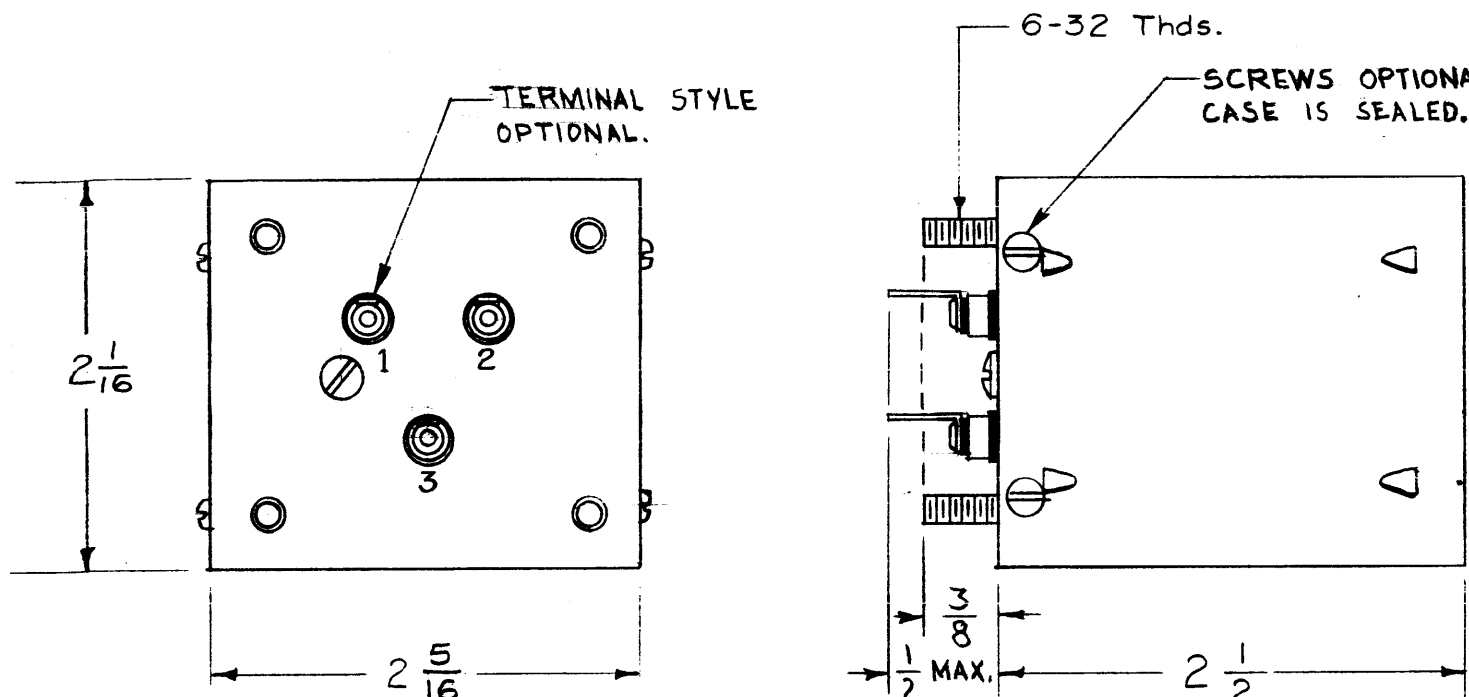
ELECTRICAL SPECIFICATIONS

1. TYPE: LOW PASS.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. -3db POINT: 15000 CPS ±500 CPS.
4. ATTENUATION: EQUAL TO OR MORE THAN -50 db AT 17000 CPS. ALL RETURN LOBES TO BE BELOW MINUS 35 db
5. MAXIMUM PASSBAND RIPPLE: ±0.5 db BETWEEN 300 CPS AND 3500 CPS.
6. INSERTION LOSS: EQUAL TO OR LESS THAN 1.0 db AT 2000 CPS.
7. INPUT IMPEDANCE: 10K OHMS (NOMINAL).
8. OUTPUT IMPEDANCE: 10K OHMS.

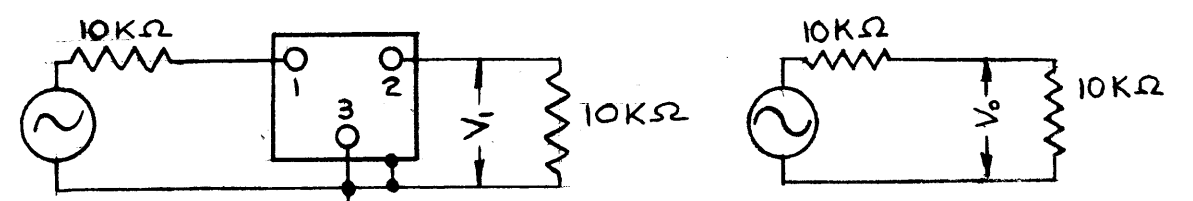
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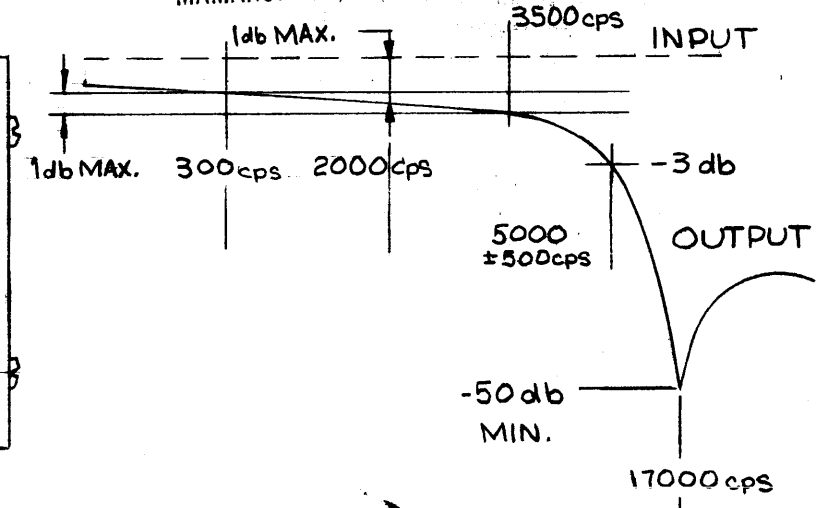
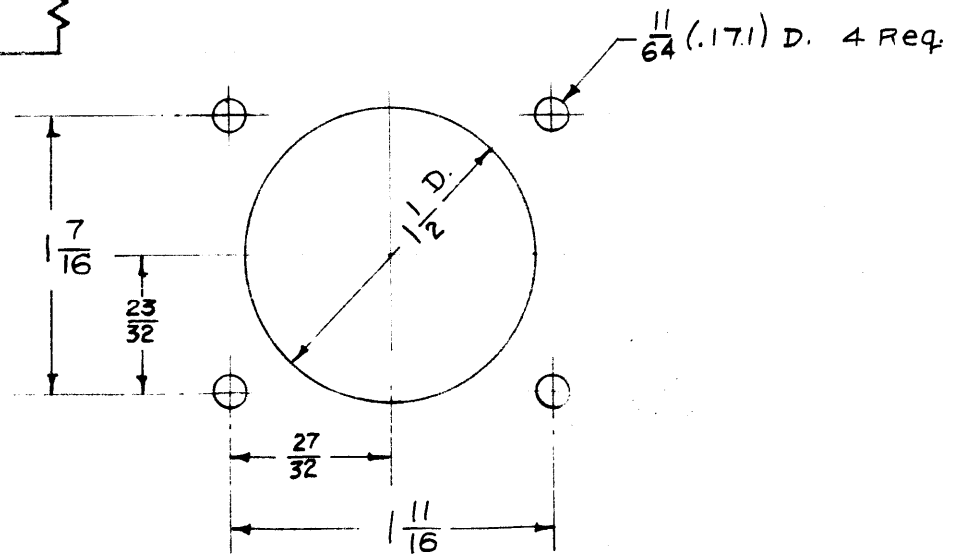


STAMP AS SHOWN
1/8" HIGH BLACK GOTHIC
W/LATEST REV. LETTER.



INSERTION LOSS = $(V_o - V_i)$ in db,
GENERATOR TERMINAL
VOLTAGE HELD CONSTANT.

NOTE: PIN 3 TO BE GROUNDED TO CASE FOR TEST



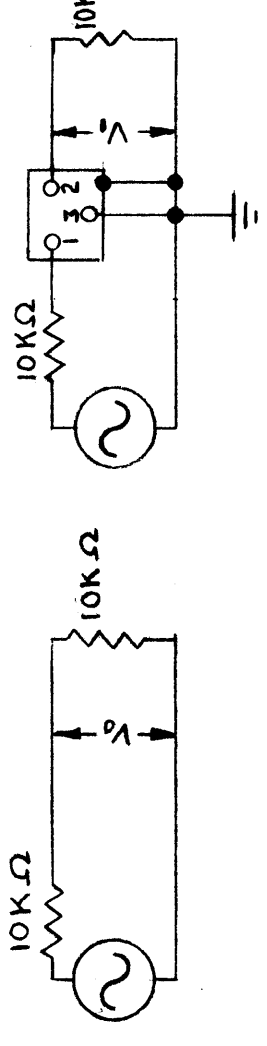
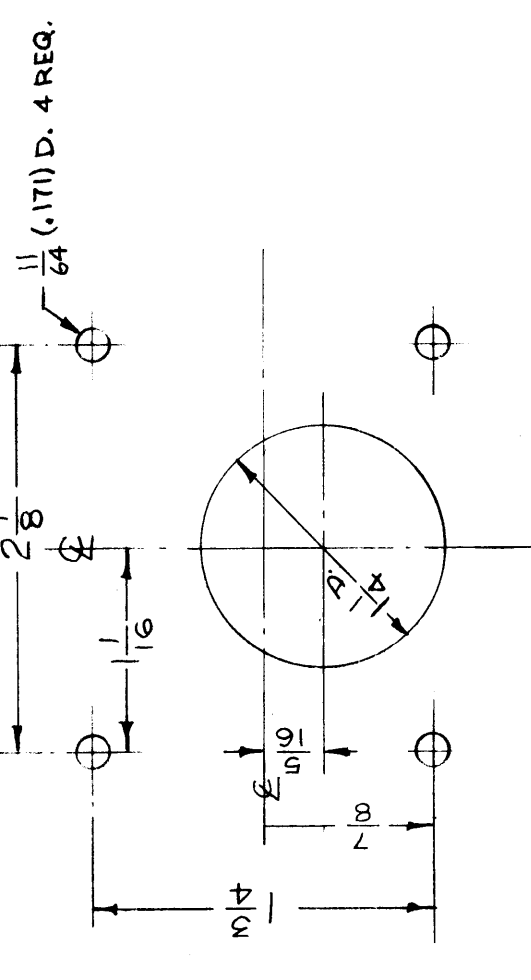
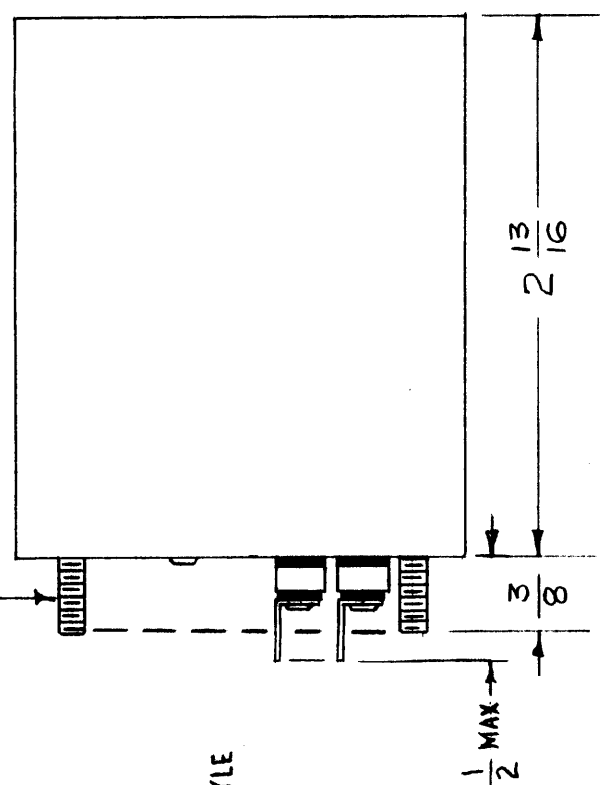
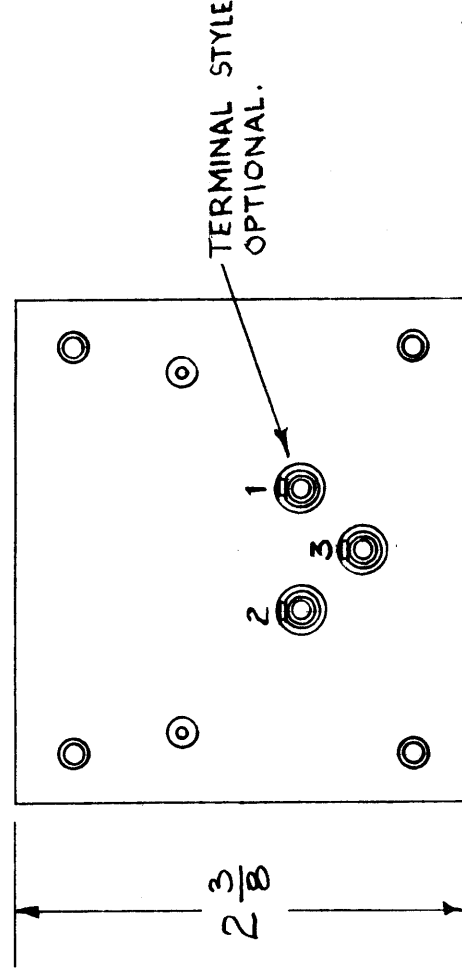
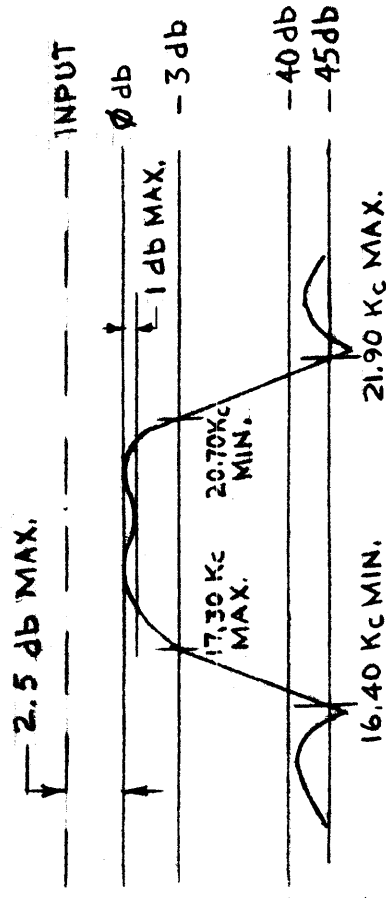
G	STEP 4 DELE. MAXIMUM ADD WORDING.	11/4/66	17116	RME	CPB	PC	
T	ON SCHEM: V, DELE; V _o WAS CHANGED TO V _i ; NOTE REVISED; SCHEM. SHOWING V _o ADDED; SINE MOUNTED SCREWS DELE (2PCS); MAX. DIM. ADD IC ADD. TO TITLE; "TERM. STYLE" SCREWS OPT. CALLOUTS ADD.	11B-65	13314	R.F.	@		
ISSUE	ITEM	CHAN. ED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
TOLERANCES		SCALE: 2A 1380					
DEC. DIM. ±		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.					
FRAC. DIM. ±		REMOVE ALL BURRS AND SHARP EDGES					
ANGULAR DIM. ±							

1	MSR	Z-2	2-26-57
REQ. PER UNIT	MODEL	PROJECT NO.	SYMBOL. NO.
USED ON			

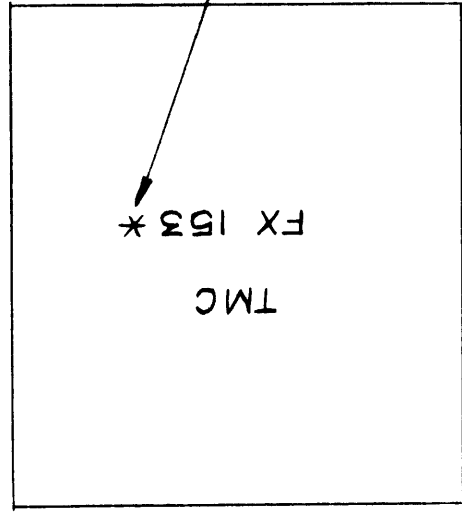
REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
#	#	THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
STOCK SIZE		FILTER, LOW-PASS	
MATERIAL		LC	
HOT TIN DIP	#	4 2-26-57	A. J. J.
TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN	CHECKED
S115 TMC SMOOTH GREY ENAMEL			
FINISH & SPEC. NO.	ELEC. DES. APP.	MECH. DES. APP.	FINAL APPROVAL
			FX 152 G

ELECTRICAL SPECIFICATIONS

1. TYPE: BAND PASS
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO THE MAX. SIGNAL RESPONSE IN THE PASSBAND.
3. -3db POINTS: 17.30Kc MAX. AND 20.70Kc MIN.
4. -45 db POINTS: 16.40Kc MIN. AND 21.90Kc MAX.
5. RETURN LOBES: AT LEAST -40db
6. PASSBAND RIPPLE: 1 db MAX.
7. INSERTION LOSS: 2.5db MAX.
8. INPUT IMPEDANCE: 10,000Ω
9. OUTPUT IMPEDANCE: 10,000Ω



NOTE: PIN 3 TO BE GROUNDED TO CASE.



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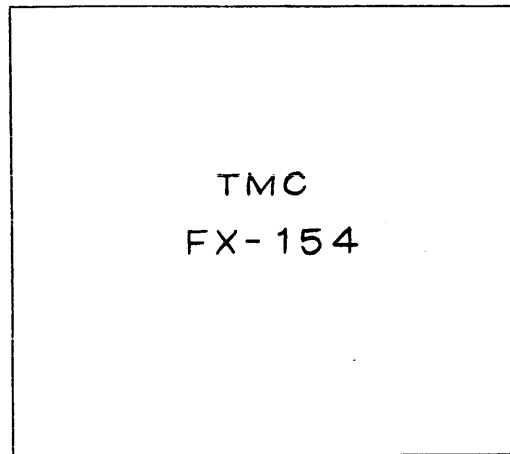
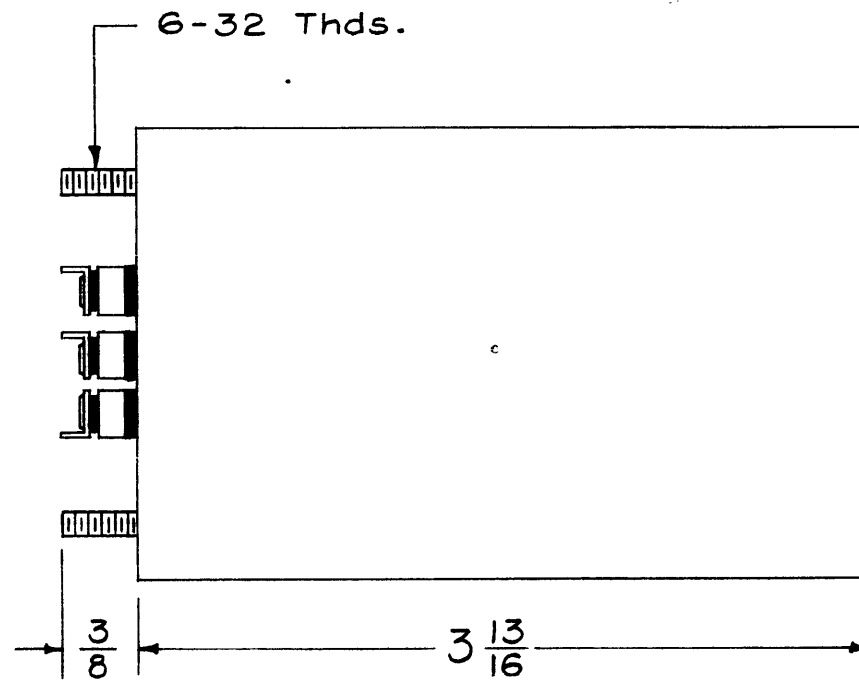
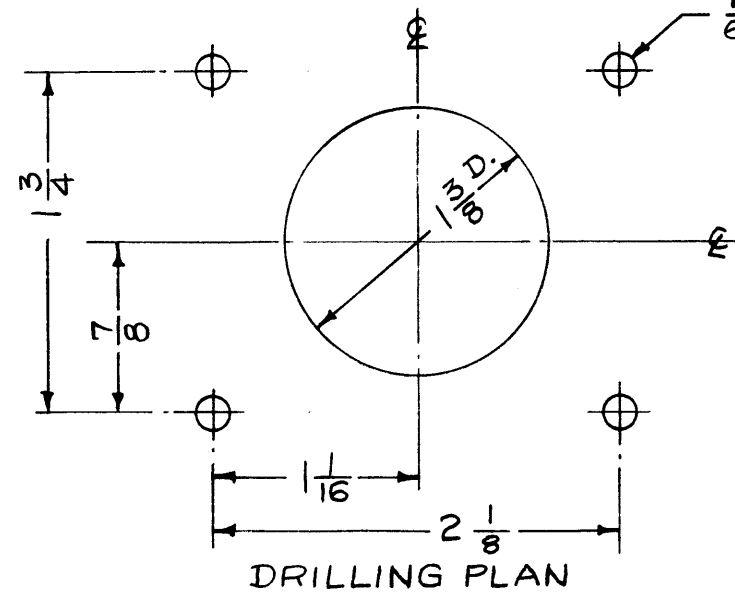
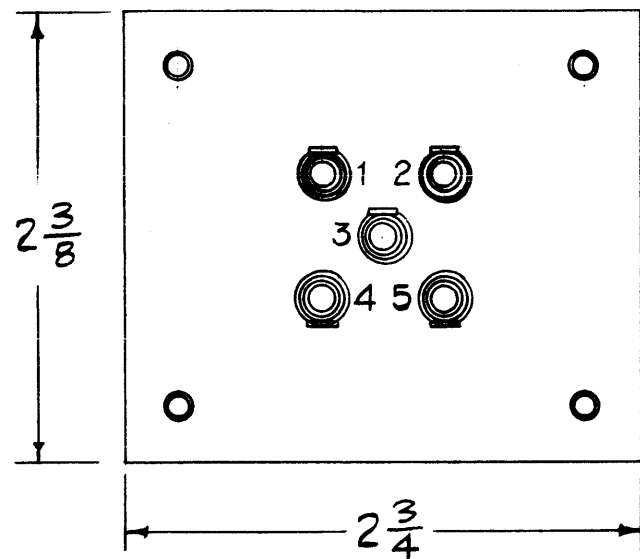
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3	SCHEMATICS & NOTE ADD. PERFORMANCE GRAPH ADD.	11-5-65	13314	P.L.	CA
2	ELECT. SPECS REVISED; MECH. SPECS RELOC. TO TITLE BLK				
B	SEE EMN #10883	2/10/64	10883A.M.	T.R.	
A	CHANGED FROM	1/8/58	1	KG	YND

TOLERANCES
SCALE: 4A 1408
MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
	//	THE TECHNICAL MATERIAL CORP. MAMARONECK, NEW YORK	
	STEEL	FILTER, BANDPASS	
	MATERIAL	LC	
HOT TIN DIP	//		
TYPE & TEMPER	HEAT TREAT. SPEC	DRAWN	CHECKED
S115 ENAMEL FINISH & SPEC. NO.	TMC SMOOTH GREY ENAMEL FINISH & SPEC. NO.	16-3-57	A.J.J.
		16-3-57	A.J.J.
			FINAL APPROVAL
			FX 1531C

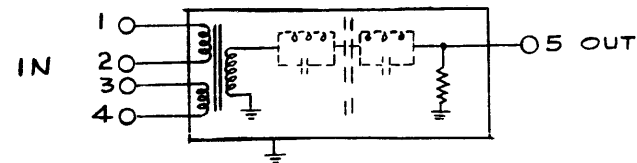
1	MSR-1	21	4-3-57
REQ. PER UNIT	MODEL	PROJECT NO.	DATE
		USED ON	



SPECIFICATIONS

MECHANICAL
CASE—Steel, Hot tinned.
FINISH—Smooth Grey Enamel.

ELECTRICAL
BANDPASS—Output must be flat within 3 db. in the region of 13.70 Kcs. to 16.65 Kcs.
BAND REJECTION - Output must be down at least 50.0db at 12.40 Kcs. and 17.50 Kcs.
INSERTION LOSS - Less than 4db. at the point of minimum loss within bandpass.
INPUT IMPEDANCE - 1000 Ω bal./unbal. (Split Primary)
OUTPUT IMPEDANCE - 10,000 Ω unbal. (internally terminated)



PROPERTY OF THE TECHNICAL MATERIEL CORPORATION

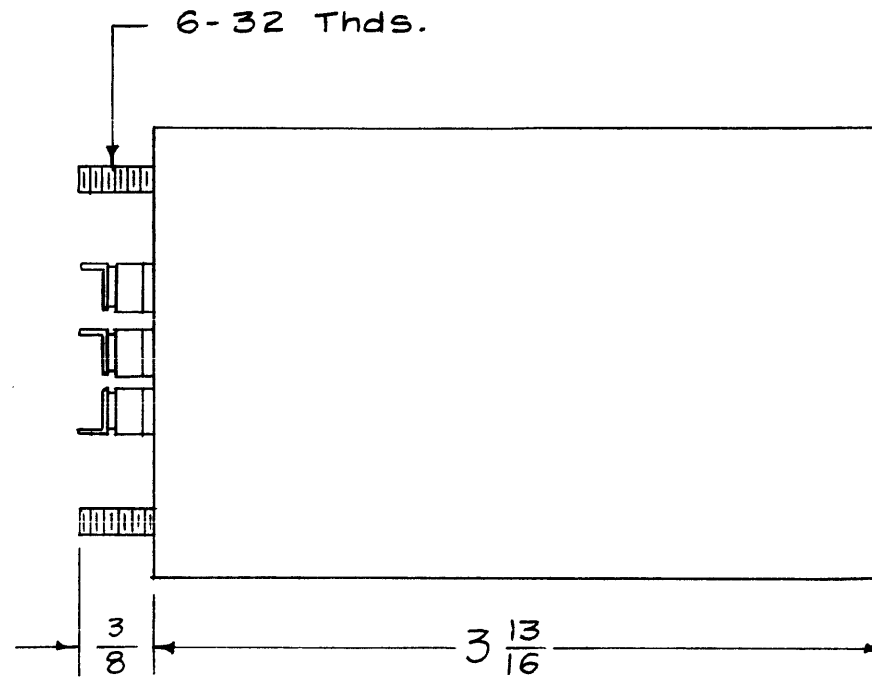
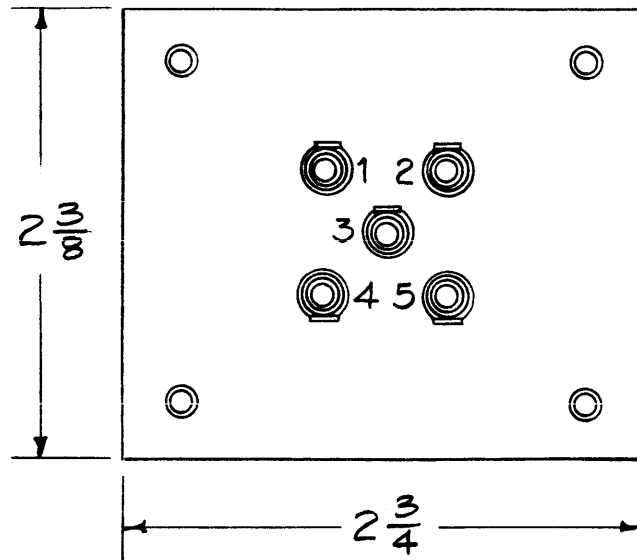
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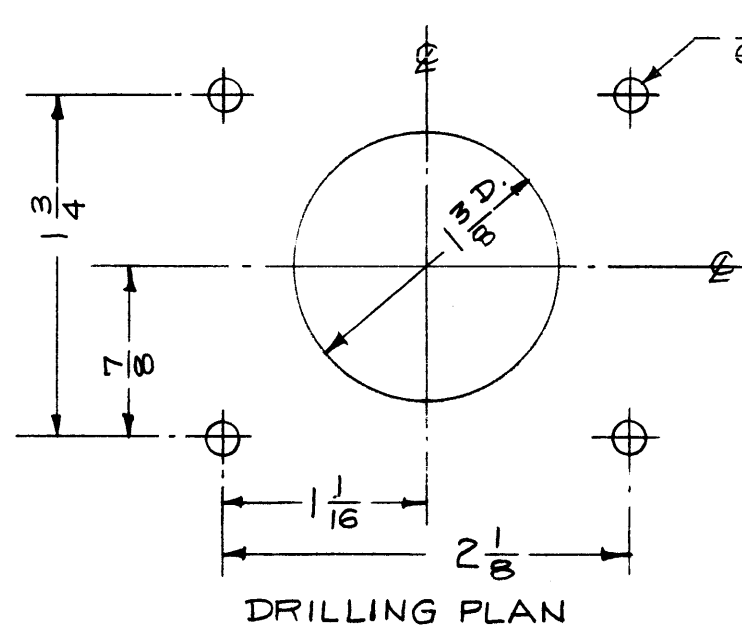
ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	APP.
A	1	DIM. CHG'D. FROM 2-19/64 X2-22/64 TO 2-3/8 X 2-3/4 AS PER BK-111	1/8/58	1	16	JAW	JW
TOLERANCES			4A-1424				
DEC. DIM. \pm			MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
FRAC. DIM. \pm 1/64			REMOVE ALL BURRS AND SHARP EDGES				
ANGULAR DIM. \pm							

1	SBE-1+2	LS-B	Z101	6-21-57
REQ. PER UNIT	MODEL	USE	SYMBOL	DATE
USED ON				

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
	//	THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
	//	FILTER, BANDPASS (FX-154)	
	//	16 6-21-57	JAW
	//	TYPE & TEMPER	CHECKED
	//	HEAT TREAT. SPEC.	FINAL APPROVAL
	//	FINISH & SPEC. NO.	ELEC. DES. APP. MECH. DES. APP.
		MVP	FX-154 A



TMC
FX-155



SPECIFICATIONS

MECHANICAL
CASE — Steel, Hot tinned.
FINISH — Smooth Grey Enamel.

ELECTRICAL
BANDPASS - Output must be flat within 3 db in the region of 17.35 Kcs to 20.30 Kcs
BAND REJECTION - Output must be down at least 50.0db at 16.60 Kcs. and at 22.70 Kcs.
INSERTION LOSS - Less than 4 db at the point of minimum loss within bandpass.
INPUT IMPEDANCE - 1000Ω bal/unbal. (Split Primary)
OUTPUT IMPEDANCE - 10,000Ω unbal. (internally terminated)

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ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
A	1	DIM. CHG'D. FROM 2-19/64 X 2-43/64 to 2-3/8 X 2-3/4 AS PER BX-111.	1/8/58	1	16	JALDE	[Signature]
TOLERANCES			4A-1427				
DEC. DIM. ±			MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
FRAC. DIM. ± 1/64			REMOVE ALL BURRS AND SHARP EDGES				
ANGULAR DIM. ±							

1	SBE-1+2	USB	Z102	6-21-57
REQ. PER UNIT	MODEL	USE	SYMBOL	DATE
USED ON				

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
	//	THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
	STOCK SIZE		
	//	FILTER, BANDPASS (FX-155)	
	MATERIAL		
	//	166-21-57	[Signature]
	TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN
	//		CHECKED
	FINISH & SPEC. NO.	ELEC. DES. APP.	MECH. DES. APP.
			FX-155
			A

ELECTRICAL SPECIFICATIONS

TYPE: LOWER SIDEBAND

CARRIER FREQUENCY: 250 KC
CARRIER SUPPRESSION: -20 db OR GREATER
-2 db POINTS: NOT LESS THAN 249.750 KC, 241.500 KC +500 CPS
TRAILING SLOPE: -40 db OR MORE AT 234 KC.

UNWANTED SIDEBAND ATTENUATION: GREATER THAN -60db FOR FREQUENCIES HIGHER THAN 250.400 KC INCLUDING ALL RETURN LOBES AND SPURIOUS
MAXIMUM PASSBAND RIPPLE: 2 db

INSERTION LOSS: -7db +2db (SEE SCHEMATIC BELOW FOR MEASURING FILTER LOSS)

INPUT IMPEDANCE: 10,000 OHMS UNBALANCED

OUTPUT IMPEDANCE: 10,000 OHMS UNBALANCED

TEMPERATURE RANGE: - 0° TO +70° C.

MECHANICAL SPECIFICATION:

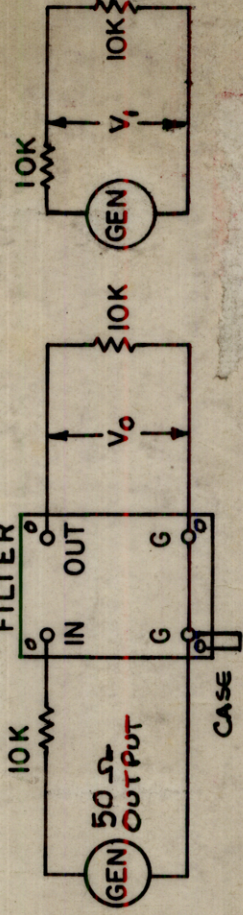
CASE: Steel
FINISH: TMC Gray (S-115) Or Brushed Nickel
NOTE: Terminal End Unpainted

MOUNTING: 6-32 Studs (4Req.)

TERMINAL: Double End Pin Type, Brass, Silver Plated, GLASS OR Teflon Insulated.

ALL TEST LEADS TO BE AS SHORT AS POSSIBLE

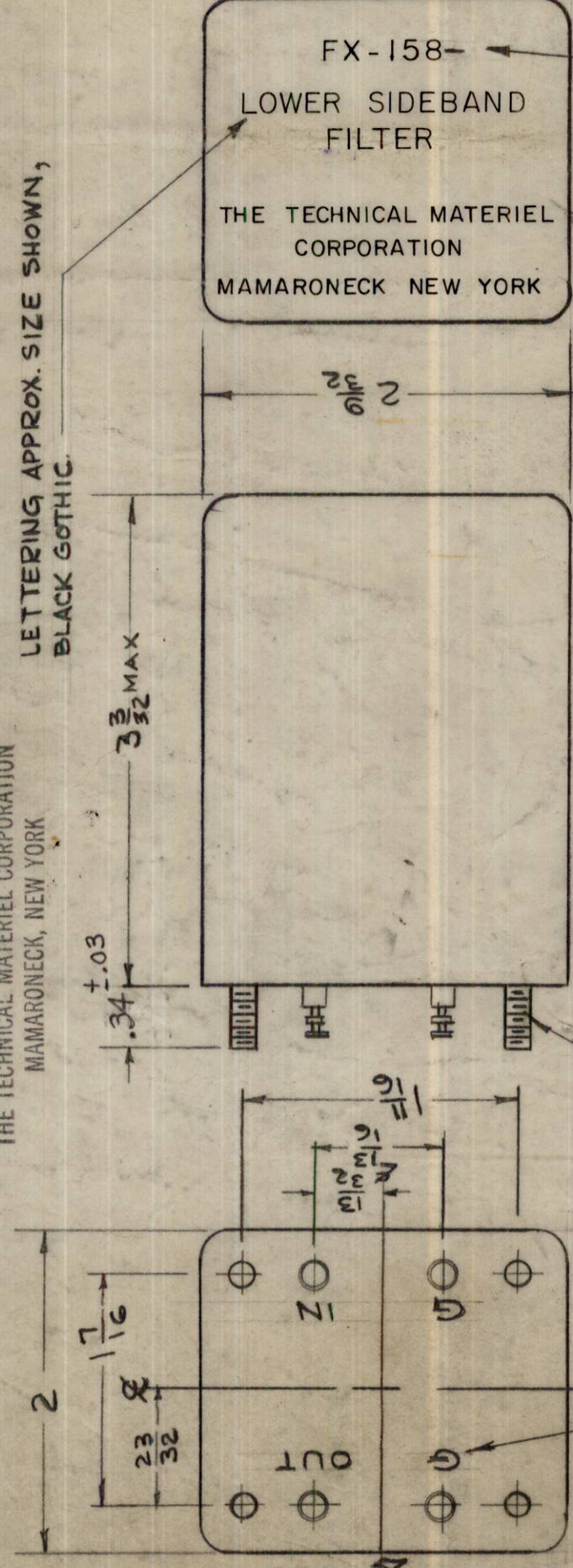
INSERTION (LOSS OR GAIN) = $+(V_1 - V_0)$ IN DB



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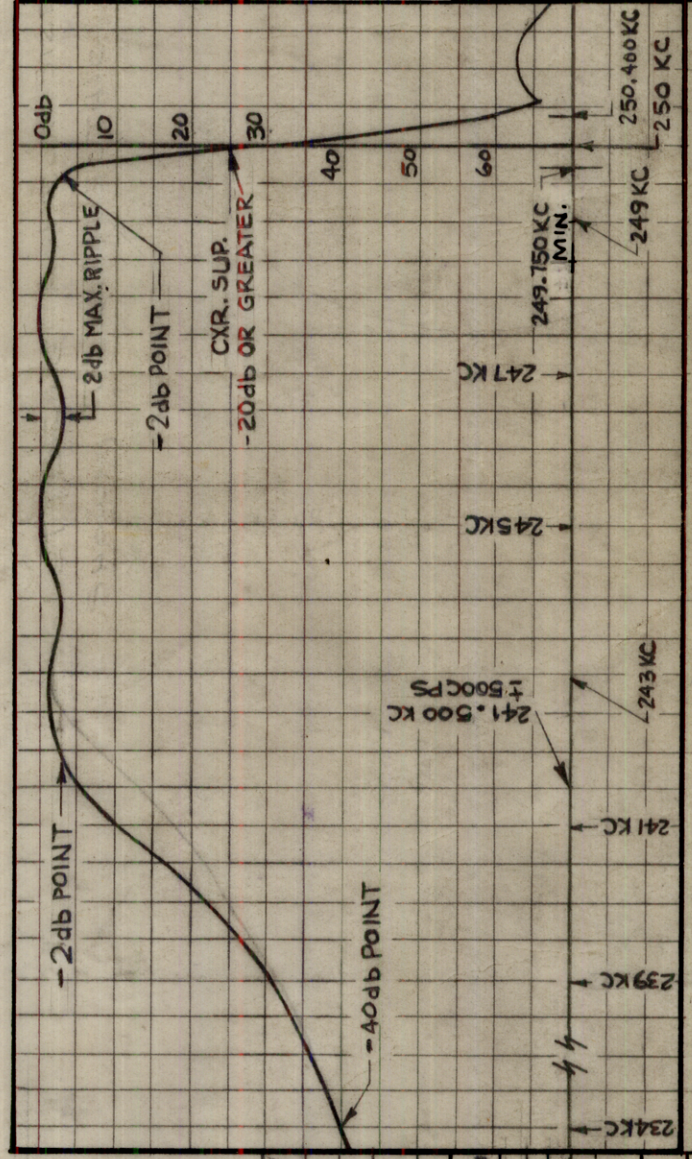
LETTERING APPROX. SIZE SHOWN,
 BLACK GOTHIC



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 MAMARONECK NEW YORK

MARK TMC P/N WITH LATEST REVISION LETTER

6-32 STUDS
 4 REQ.



ISSUE ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
K	Qty of Studs was 3/8	7.3.67	18343	100	ML	R.H.M.
J	GLASS OR " ADD. TO TERM NOTE	9/13/64	16923	100	ML	ML
H	ON PER. CURVE MAX. RIPPLE WAS 3db	6-9-66	16365	25	ML	ML
G	ELEC. MECH. SCHEMATIC SPECS. REVISED	2-1-66	15602	HLA	ML	ML
F	CLERICAL CHANGE	12/31/65	CC	200	ML	ML
E	CLERICAL CHANGE	11.9.64	-	100	ML	ML
D	TEST SCHEM. & SPECS. REVISED	8-6-63	9346	100	ML	ML
C	3-3/32 DIM WAS 3-1/16	2-4-63	9171	100	ML	ML
B	CHART & SPECS. CLARIFIED	4-23-63	8847	100	ML	ML
A	SCHEMATIC ADDED	2-26-63	8353	100	ML	ML
A	ELEC. SPECS. CLARIFIED	2-26-63	8353	100	ML	ML
A	PERFORMANCE CHART ADDED	2-26-63	8353	100	ML	ML

REG. PER UNIT	MODEL	PROJECT NO.	ASSY. NO.	DATE
1	SBE-3.9	AX-205	7-10-59	

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
		LOWER SIDEBAND FILTER BANDPASS	
		HLA	ARB
		DRWN	FX-158 K
		CHECKED	
		FINAL APPROVAL	

FINISH & SPEC. NO.	ELEC. DES. APP.	MECH. DES. APP.
	RWB	RWB

ELECTRICAL SPECIFICATIONS
TYPE: UPPER SIDEBAND

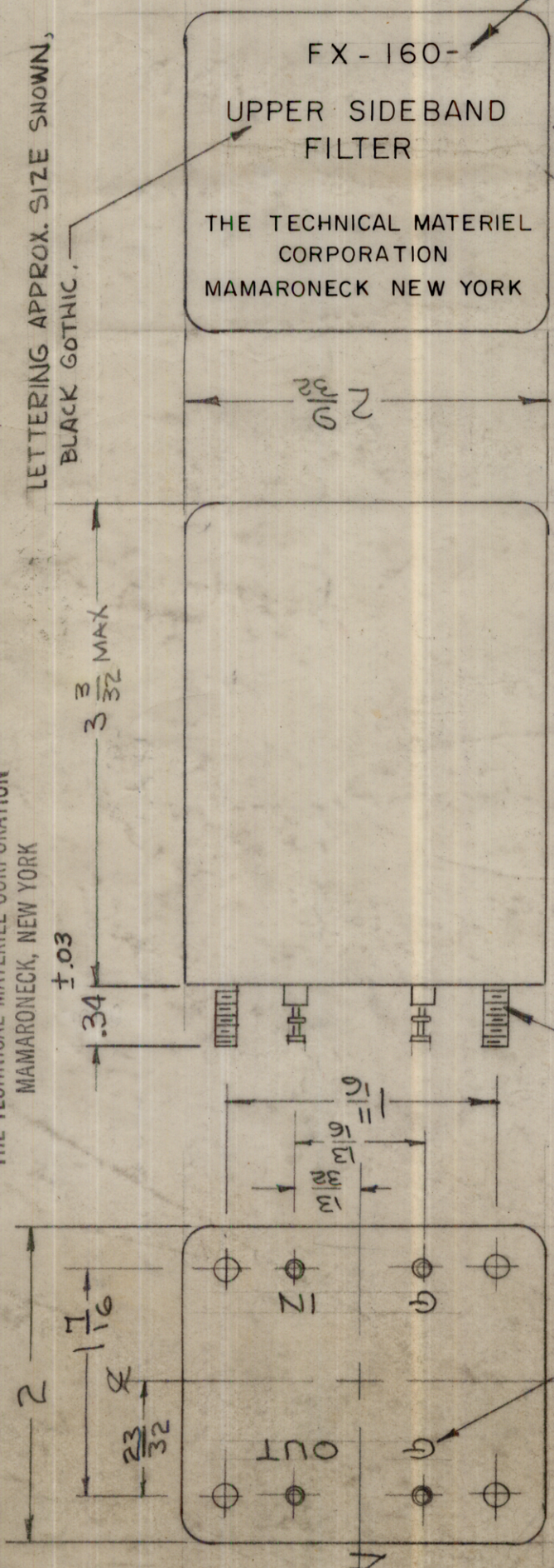
CARRIER FREQUENCY: 250 KC
CARRIER SUPPRESSION: -20 db or greater
-2db POINTS: NOT MORE THAN 250.250 KC, 258.500 KC +500 CPS
TRAILING SLOPE: -40 db or more at 266 KC.
UNWANTED SIDEBAND ATTENUATION: GREATER THAN -60db FOR FREQUENCIES LESS THAN 249.600 KC INCLUDING ALL RETURN LOBES AND SPURIOUS
MAXIMUM PASSBAND RIPPLE: 2 db

INSERTION LOSS: $-7db \pm 2db$ (SEE SCHEMATIC BELOW FOR MEASURING FILTER LOSS)
INPUT IMPEDANCE: 10,000 OHMS UNBALANCED
OUTPUT IMPEDANCE: 10,000 OHMS UNBALANCED
TEMPERATURE RANGE: -0° TO $+70^{\circ}$ C.

MECHANICAL SPECIFICATION:

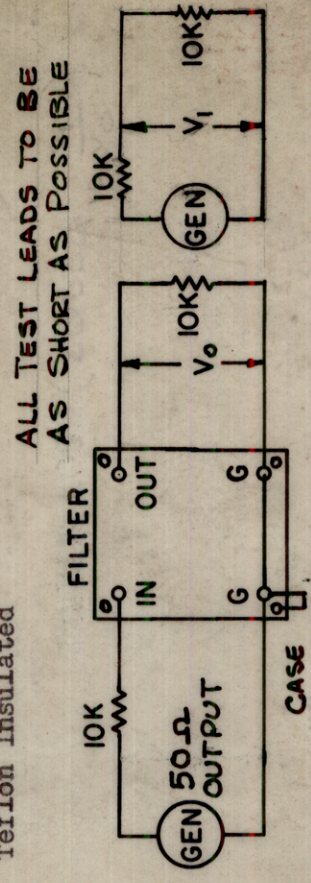
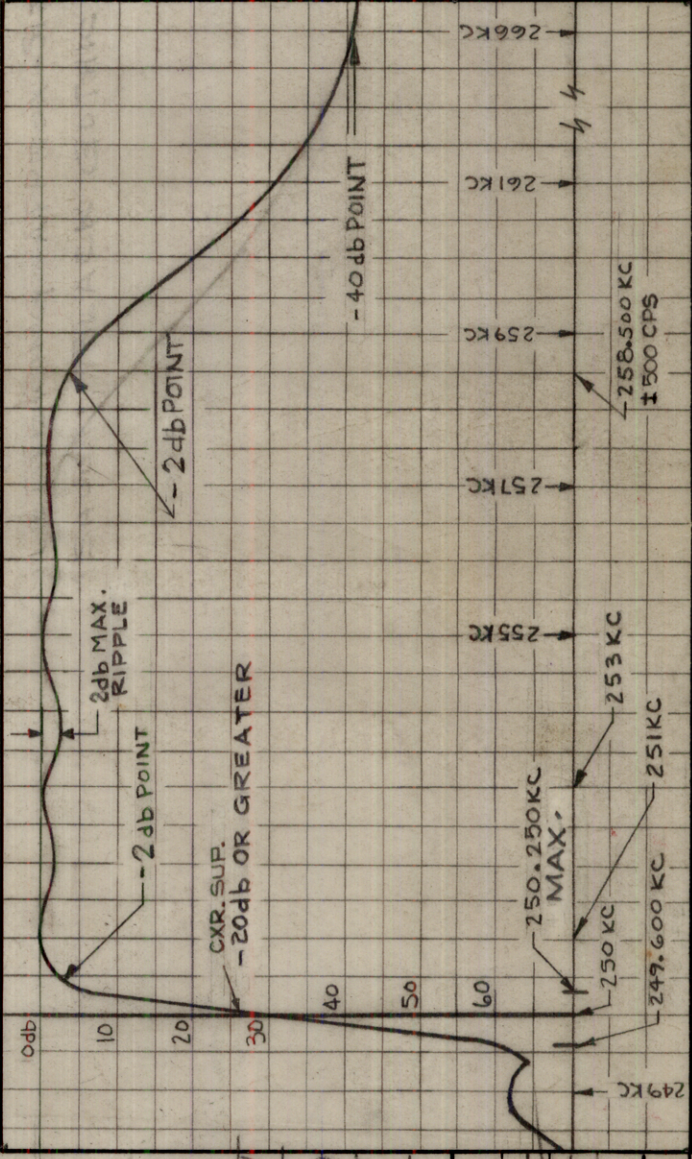
CASE: STEEL
FINISH: TMC Gray (S-115) Or Brushed Nickel
NOTE: Terminal End Unpainted
MOUNTING: 6-32 Studs (4 req.)
TERMINAL: Double End Pin Type, Brass, Silver Plated, Glass Or Teflon Insulated

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LETTERING APPROX. SIZE SHOWN, BLACK GOTHIC.
 MARK TMC PIN WITH LATEST REV. LETTER

4 REQ
 G-32 STUDS



INSERTION (LOSS OR GAIN) = $+(V_1 - V_0)$ IN DB

ISSUE ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
K	LENTH OF STUDS WAS 3/8	7-3-67	18343	AK	AK	AK
J	"GLASS OR" ADD. MECH SP	9-30-66	16423	AK	AK	AK
H	ION PERF. CURVE MAX. RIPPLE WAS 3db	6-9-66	16365	AK	AK	AK
G	ELEC. MECH SPECS & SCHEMATIC REVISED	2-1-66	15602	ALA	ALA	ALA
F	CLERICAL CHANGE	1-3-66	CC	RYV	RYV	RYV
E	IN ELEC. SPECS. INSERTION LOSS WAS $-7db \pm 2db$	8-14-63	9746	AK	AK	AK
D	TEST SCHEMATIC SPECS REVISED	8-20-63	9346	AK	AK	AK
C	3-3/32 DIM WAS 3/16	8-4-63	8168	AK	AK	AK
B	CHARTE SPECS CLARIFIED	4-23-63	8848	AK	AK	AK
A	SCHEMATIC ADDED	2-26-63	8353	AK	AK	AK
	PERFORMANCE CHART ADDED					
	ELEC. SPECS. CLARIFIED					

TOLERANCES
 MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION: REMOVE ALL BURRS AND SHARP EDGES

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
1	AX-205	UPPER SIDEBAND FILTER	AX-205

TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN	CHECKED	FINAL APPROVAL
		RWB	RWB	AK

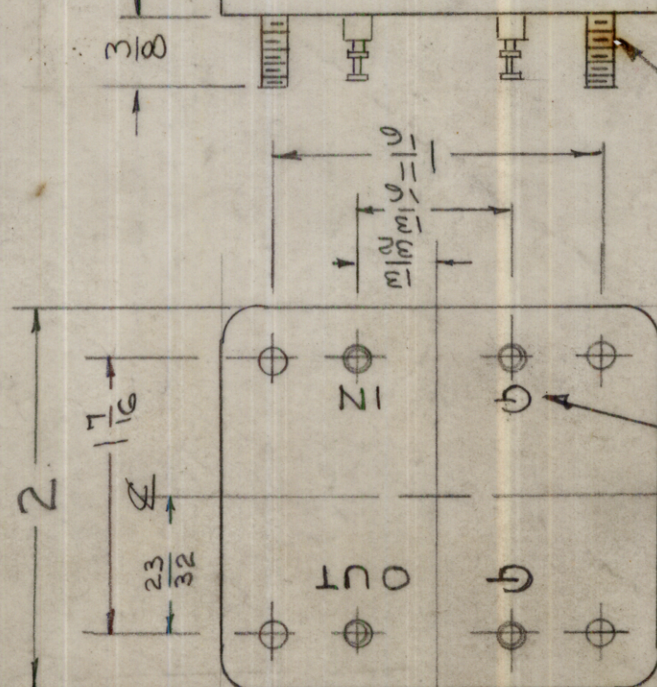
FINISH & SPEC. NO.
 THE TECHNICAL MATERIEL CORP.
 MAMARONECK, NEW YORK

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THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK



LETTERING APPROX. SIZE SHOWN, BLACK GOTHIC.

FX-159 -
CARRIER SUPPRESSION FILTER
THE TECHNICAL MATERIEL CORPORATION
MAMARONECK NEW YORK

MARK TMC PIN WITH LATEST REV. LETTER

G-32 X 3/8 STUDS
4 REQ

ELECTRICAL SPECIFICATIONS:

Carrier Suppression

CARRIER FREQUENCY: 250 KC.

NOTCH: -30 db Minimum for Frequencies between 249.985 to 250.015 KC.

PASSBAND RIPPLE: 1db maximum for Frequencies between 241 KC. to 249.800 KC or greater, and 250.200 KC (or less) to 259 KC.

INSERTION LOSS: -2 db +1 db (See schematic below for measuring Filter Loss).

INPUT IMPEDANCE: 12,000 ohms Unbalanced

OUTPUT IMPEDANCE: 12,000 ohms Unbalanced

TEMPERATURE RANGE: - 0° to +70°C.

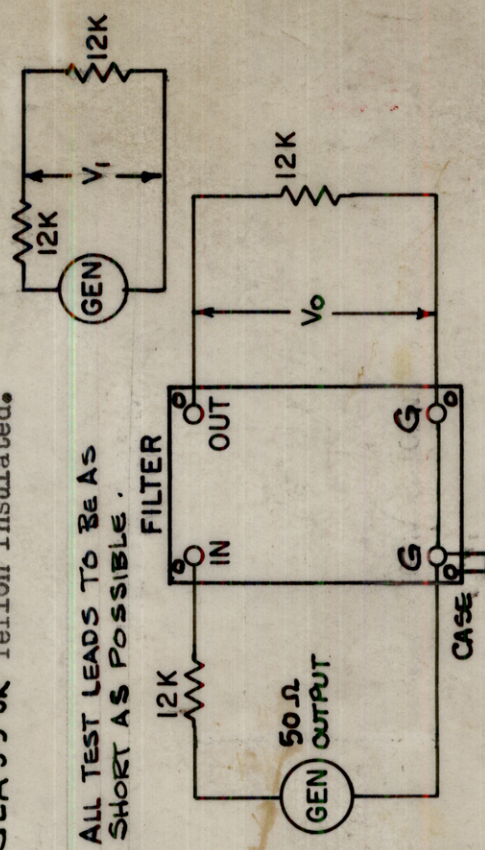
MECHANICAL SPECIFICATION:

CASE: Steel

FINISH: TMC Gray (S-115) OR BRUSHED NICKEL
NOTE: Terminal End Unpainted

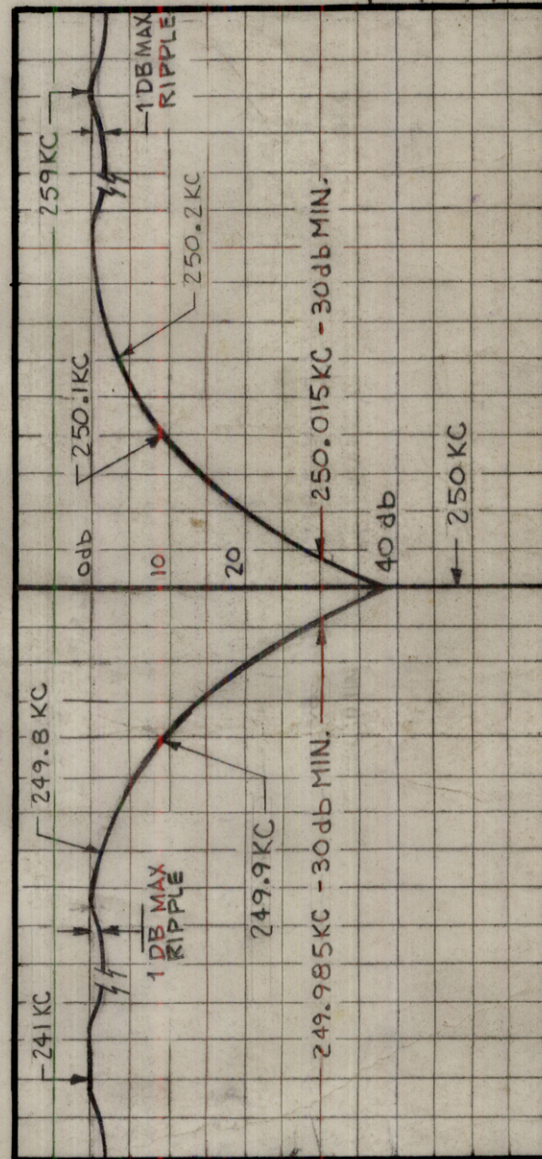
MOUNTING: 6-32 X 3/8 studs (4 req.)

TERMINAL: Double End Pin Type, Brass, Silver Plated
GLASS OR Teflon Insulated.



INSERTION (LOSS OR GAIN) = $+(V_1 - V_0)$ IN DB

FILTER CHARACTERISTIC CURVE



ISSUE ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
J		9/30/66	16923	440	QCB	MA
H		1/31/66	15602	HLA	QCB	MA
G		1/31/66	CC	ZVV	QCB	MA
F		1/31/66	EB46	EB	QCB	MA
E		6-4-63	969	EB	YMY	MA
D		1-30-63	80	EB	YMY	MA
C		5/9/60	80	EB	YMY	MA
B		4/15/60	2157	EB	YMY	MA
A		11/9/59	1527	EB	YMY	MA

SCALE:

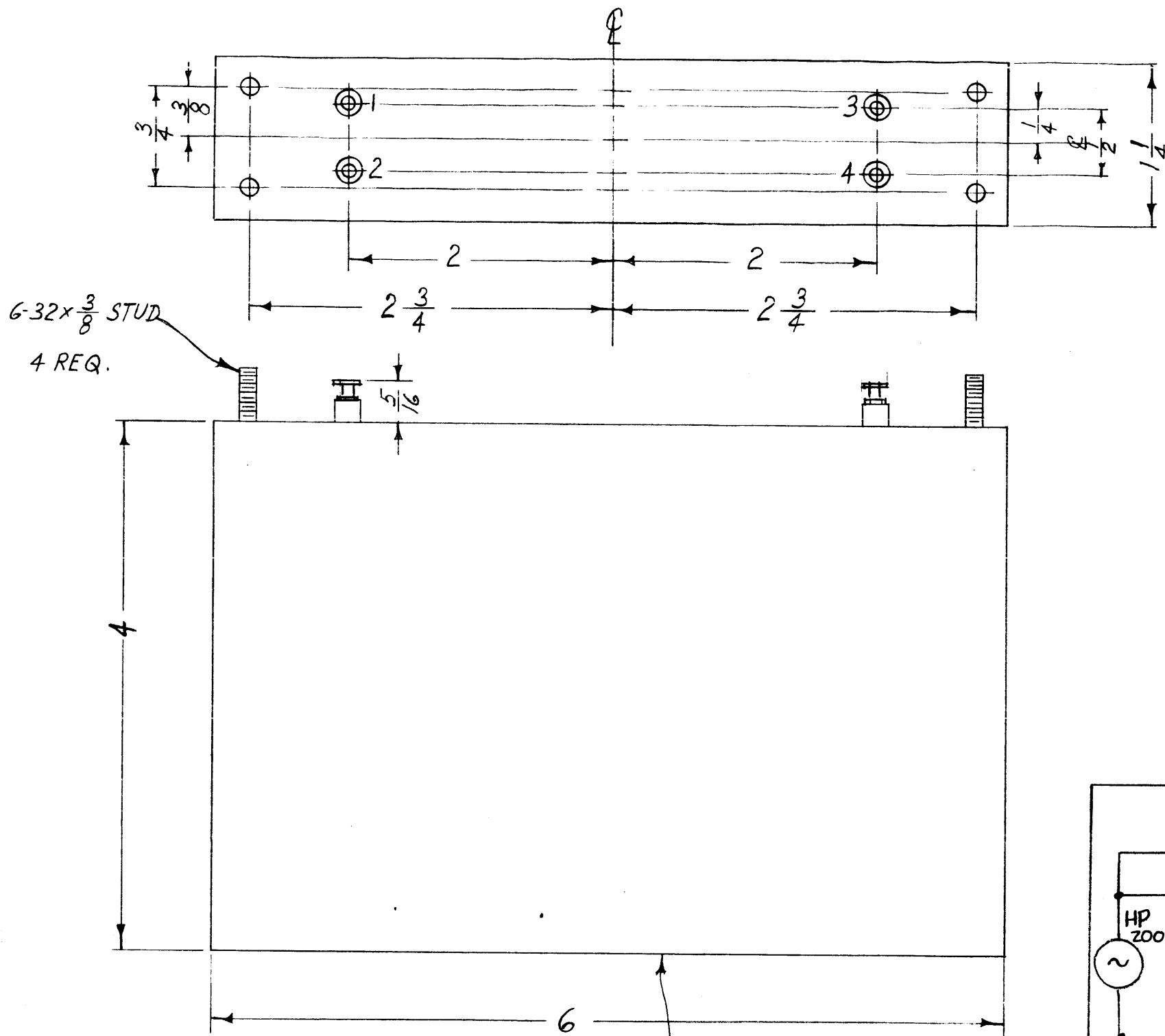
MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

TOLERANCES

DEC. DIM. ±
FRAC. DIM. ±
ANGULAR DIM. ±

REQ. PER UNIT	MODEL	PROJECT NO.	ASSY. NO.	DATE
	SEE-8,9,10	AX-205	AX-205	7-9-59

FX-163



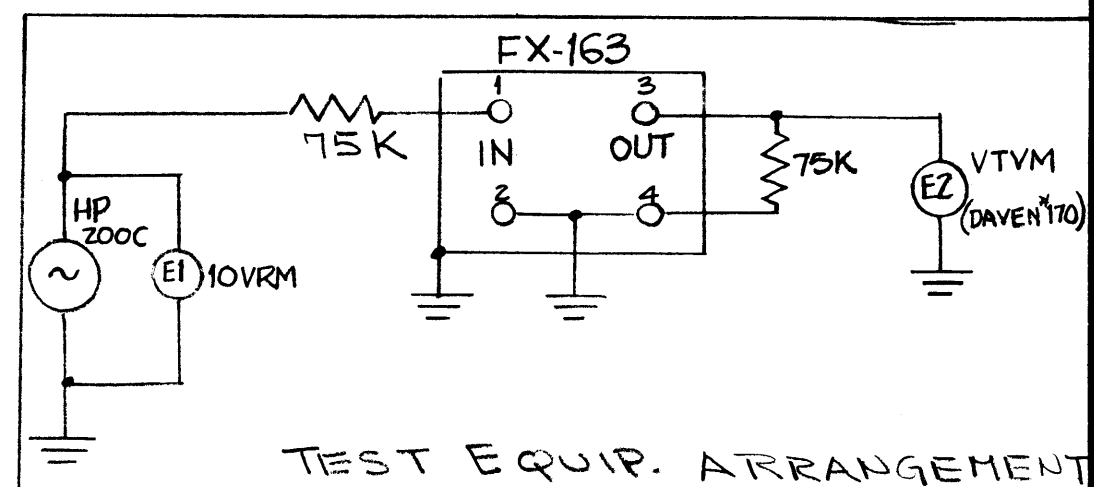
MECHANICAL SPECIFICATIONS:
CASE: RECTANGULAR, STEEL, HERMETICALLY SEALED.
STUDS: 6-32 x 3/8".
FINISH: S115 TMC SMOOTH GREY ENAMEL, EXCEPT STUD END.
SIZE: 1/4 x 6" x 4" HIGH, EXCLUSIVE OF TERM.
TERMINALS: SOLDER LUGS AND TEFLON BUSHINGS.
TERMINALS SHALL BE LETTERED 1 TO 4 AS SHOWN.

ELECTRICAL SPECIFICATIONS:
CENTER FREQUENCY: 17 Kcs ± 3 CPS
BAND PASS: 3DB - 25 CPS ± 3 CPS
60DB - 160 CPS MAXIMUM.
INSERTION LOSS: LESS THAN 6 DB MEASURED AT THE POINT OF MINIMUM LOSS WITHIN THE PASS BAND.
INPUT - OUTPUT IMPEDANCE: 75K

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MAMARONECK, NEW YORK

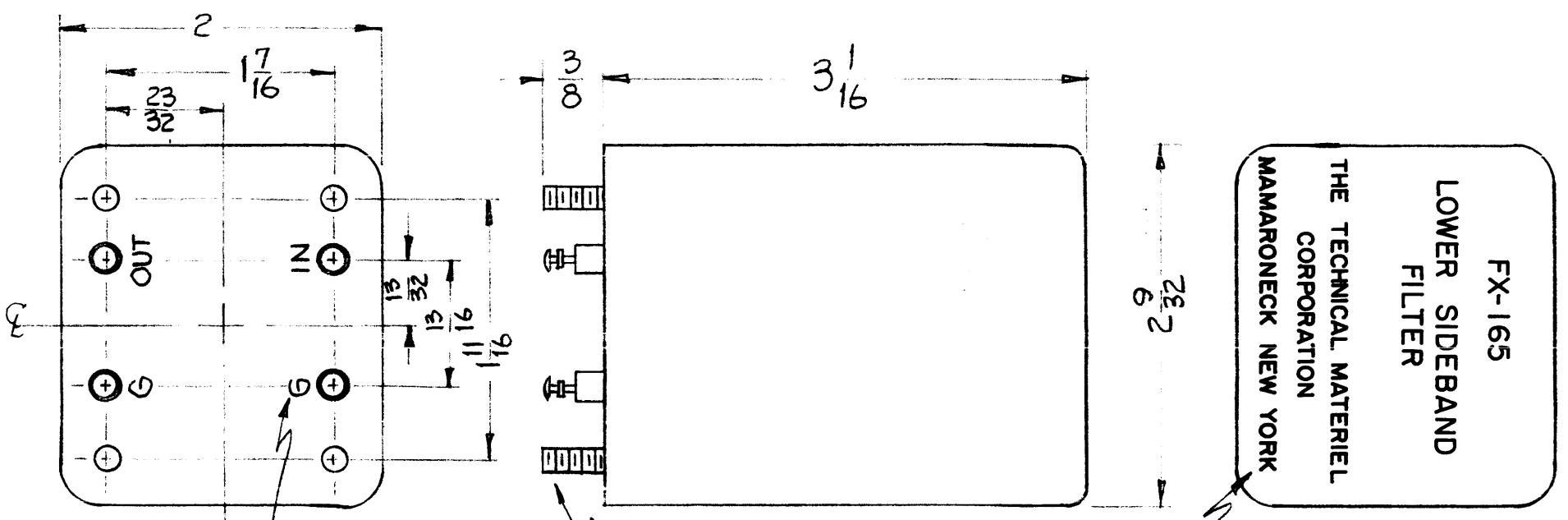
STAMP TMC PART NO. FX-163 ON TOP



ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
TOLERANCES			SCALE: S 401-95 (S-73252)				
DEC. DIM. ±			MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES				
FRAC. DIM. ± 1/64							
ANGULAR DIM. ±							

1	AFC	E-1064P		8-25-60
REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE
USED ON				

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK			
STOCK SIZE			
FILTER, BANDPASS 17Kcs			
MATERIAL			
CRYSTAL			
		DRAWN	CHECKED
			FINAL APPROVAL
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.
			FX-163



METAL STAMP AS SHOWN 1/8 HIGH GOTHIC.

6-32 X 3/8 STUDS (4 REQ'D)

ELECTRICAL SPECIFICATION:

Carrier Frequency - fc	250 Kc
Maximum Passband Ripple	2 db
Insertion Loss	< 20 db
Input Impedance	10K ohm unbalanced
Output Impedance	10K ohm unbalanced
Temperature Range	-20° to + 70° C.
Type	Lower Sideband
-2 db Points	249.750 or more, 246.500 ⁺⁰ / ₋₅₀₀
Unwanted Sideband Attenuation	> 60 db when f > fc + 250

MECHANICAL SPECIFICATION:

CASE:	Steel
FINISH:	TMC Gray (S-115) OR BRUSHED NICKEL NOTE: Terminal End Unpainted
MOUNTING:	6-32 X 3/8 studs (4 req.)
TERMINAL:	Double End Pin Type, Brass, Silver Plated, Teflon Insulated.

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ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
C		ON ELEC. SPECS. -2db WAS "FC-250, FC-3500"	6-27-66	16454	HLA	CPB	J
B		REV. ELEC. SPECS. ADD "BRUSHED NICKEL"	1-31-66	15638	HLA	CPB	MMK
A	1	CLERICAL CHANGE	12/31/65	CC	F.I.	CPB	

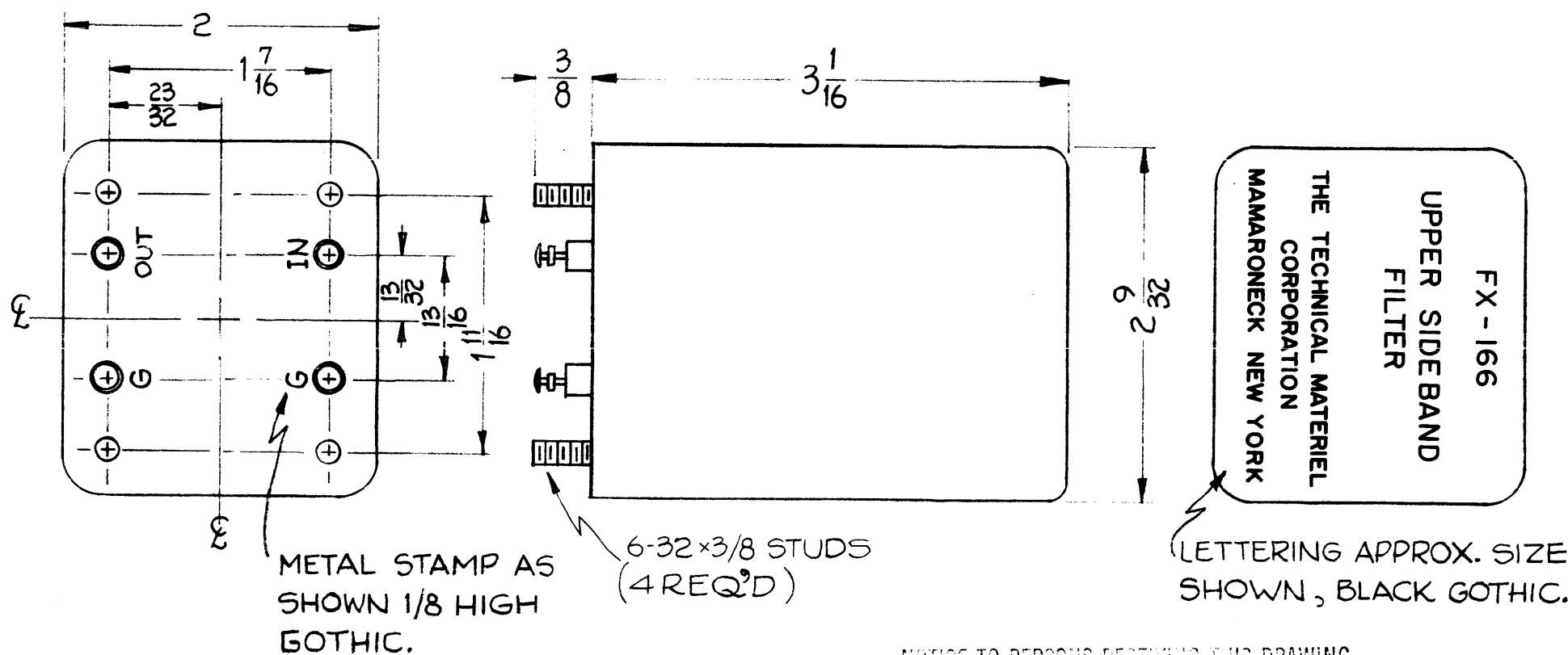
TOLERANCES: DEC. DIM. ±, FRAC. DIM. ±, ANGULAR DIM. ±

SCALE: MAXI DEF W

LOW-RIE TOLERANCES HAVE ND ANY DEVIATIONS EJECTION. ND SHARP EDGES

1	SBE-8			12-31-65
1	CBE-2			6-23-60
REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE
USED ON				

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL
THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK			
STOCK SIZE			
LOWER SIDEBAND			
MATERIAL			
FILTER BANDPASS 3.5KC			
		DRAWN	CHECKED
		FINAL APPROVAL	
		FX-165	
		ELEC. DES. APP.	MECH. DES. APP.



ELECTRICAL SPECIFICATION:

Carrier Frequency - fc	250 Kc
Maximum Passband Ripples	2 db
Insertion Loss	< 20 db
Input Impedance	10K ohm unbalanced
Output Impedance	10K ohm unbalanced
Temperature Range	-20° to + 70° C
Type	Upper Sideband
-2 db Points	250.250 or less, 253.500 ⁺⁵⁰⁰ - 0
Unwanted Sideband Attenuation	> 60 db when f < fc - 250

MECHANICAL SPECIFICATION:

CASE:	STEEL
FINISH:	TMC Gray (S-115) OR BRUSHED NICKEL NOTE: Terminal End Unpainted
MOUNTING:	6-32 X 3/8 Studs (4 req.)
TERMINAL:	Double End Pin Type, Brass, Silver Plated, Teflon Insulated.

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ISSUE	ITEM	CHANGED FROM	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
C		ON ELEC. SPECS. - 2db WAS "FC1250, FC13500"	12/21/64	16454	HLA	JCB	D
B		REV. ELEC. SPECS; ADD "BRUSHED NICKEL"	1/31/66	15638	HLA	JCB	MMK
A	1	CLERICAL CHANGE	12/16/65	CC	JV	JCB	

TOLERANCES: DEC. DIM. ±, FRAC. DIM. ±, ANGULAR DIM. ±

SCALE: MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

1	SBE-8			12-31-65
	CBE-2			6-23-60
REQ. PER UNIT	MODEL	PROJECT NO.	ASS'Y. NO.	DATE
USED ON				

REQ. ITEM	PART NO.	DESCRIPTION	SYMBOL						
		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK							
	STOCK SIZE	UPPER SIDE BAND, FILTER BANDPASS							
	MATERIAL	3.5KC							
		<table border="0"> <tr> <td>DRAWN</td> <td>CHECKED</td> <td>FINAL APPROVAL</td> </tr> <tr> <td></td> <td></td> <td>FX-166</td> </tr> </table>	DRAWN	CHECKED	FINAL APPROVAL			FX-166	C
DRAWN	CHECKED	FINAL APPROVAL							
		FX-166							
	FINISH & SPEC. NO.	ELEC. DES. APP. MECH. DES. APP.							

COIL DATA

SPECIFICATIONS

	L1	L2
CAM	.250	.250
CAM GEAR	105	105
CAM DRIVER	69	69
IND (uh)	(90-100)	(90-100)
Q	75 or better	75 or better
COIL RES. Ω	3.5 Ω Approx.	3.5 Ω Approx.
TEST FREQ. (KC)	790	790

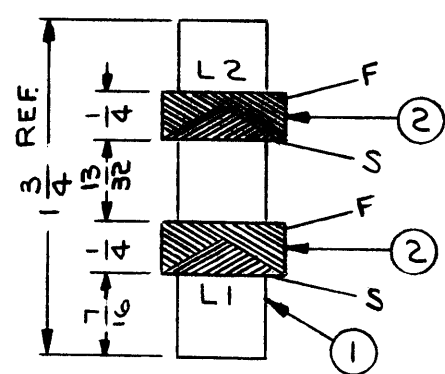
WINDING DATA

URNS WIRE	L1	L2
	100	100
	5/41 Q.S. LITZ	5/41 Q.S. LITZ

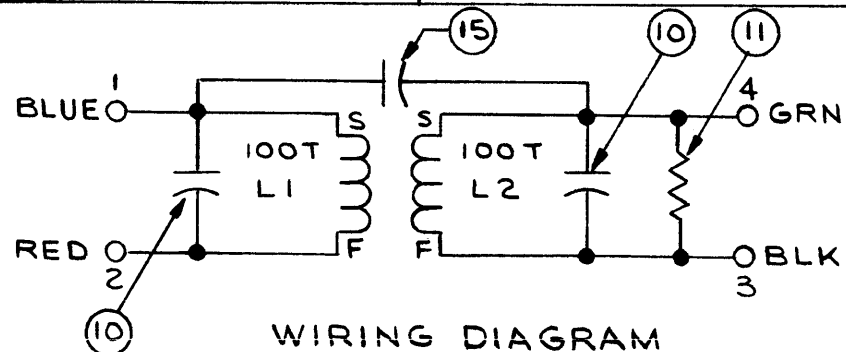
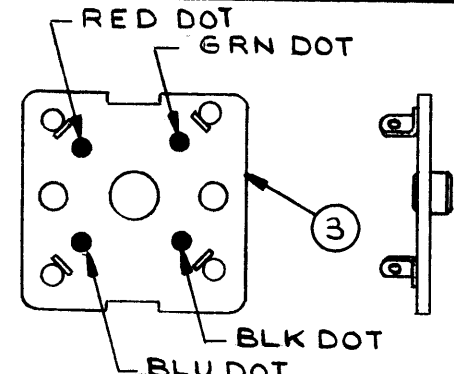
WINDING INSTRUCTIONS

1. Wind L1 First 100 Turns 7/16 from end of form. Stake Leads with GL-103 (Item 12)
2. Wind L2 7/16 from end of L1, 100 turns. Stake Leads with GL-103 (Item 12)
3. All Leads Approximately 3" long, Measure Q, Ind, and Resistor w/o core.
4. Bake Dry for 1/2 Hour at 215°F.
5. Coat coils with Q-Max (GL-102) Item 14 and Bake Dry for 1/2 Hour at 215°F.
6. Color coded base as shown.
7. Assemble as per Assembly drawing, place in can.

WINDING ASSEMBLY



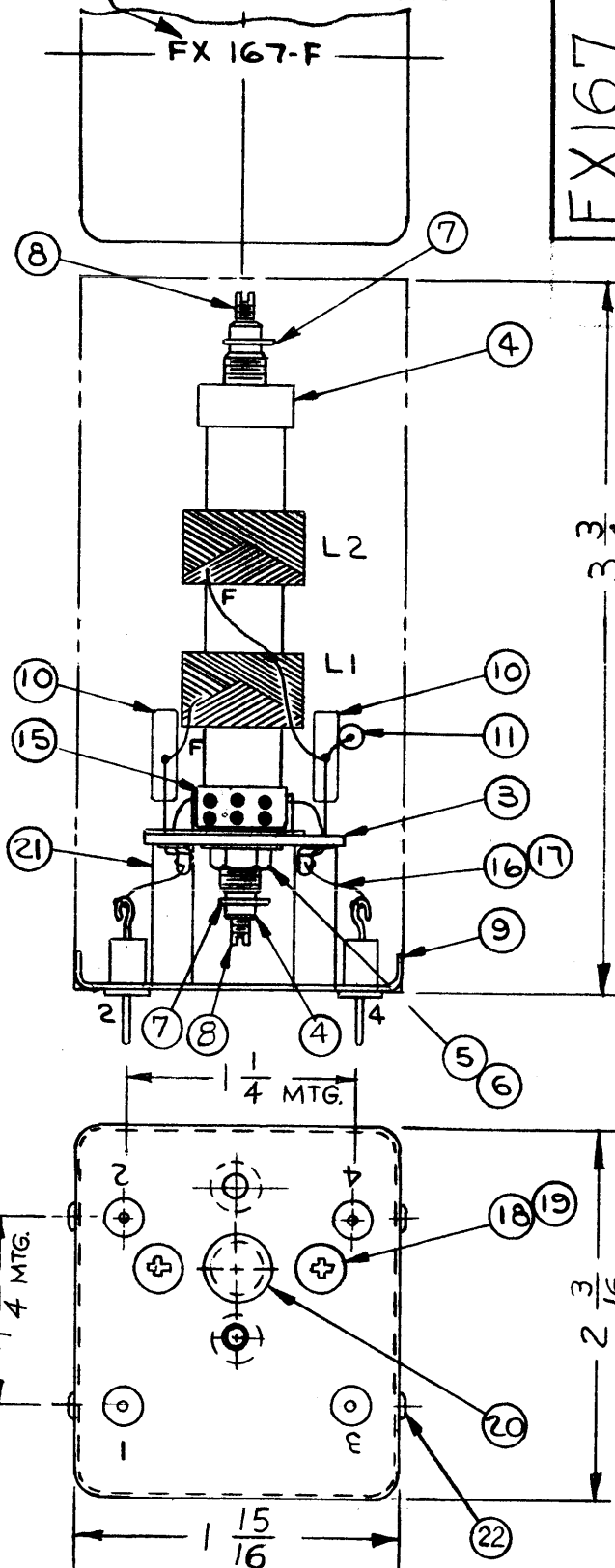
MARKING - COLOR CODE



WIRING DIAGRAM

NOTES

STAMP TMC PART NO. 1/8 HIGH BLK GOTHIC W/LATEST REV. LETTER



FX167

REVISIONS

SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
O	ORIGINAL RELEASE	5/12/64		JL		
D	REDRAWN & REVISED	6/26/64	11482	A.M.		
E	ON PICT. ONE HOLE ADDED TO COVER ON TMC P/N STAMP REV. LETTER CHNG. TO "E"	11.5.64	12870	hb		
F	ITEM (3) WAS A1004	3-4-64	13647	G.O.L.		

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
4	22	SFB0256SN3	SCREW, THREAD CUTTING	
2	21	TE-117-4	SPACER	
1	20	GL-101-9	PLUG BUTTON	
2	19	SCBPO632BN4	SCREW MACHINE	
2	18	LW200MRN	WASHER, LOCK, EXTERNAL	
1	17	PK-104-1-.034	SLEEVING, SIZE #20	
1	16	WI-100-7	WIRE, BUSS, SIZE #22	
1	15	CM15C050J	CAPACITOR, FIXED, MICA	
X	14	GL-102	Q-MAX	
X	13	BS-100	SOLDER, SOFT	
X	12	GL-103	DUCO CEMENT	
1	11	RC20GF683J	RESISTOR, FIXED	
2	10	CM20D102G	CAPACITOR, FIXED	
1	9	BX-213	COVER, SUB-ASSEMBLY	
2	8	CI-109-11	CORE	
2	7	SP-102	SPRING, WASHER	
1	6	NT-102	NUT, HEX	
1	5	LW125LRN	LOCK WASHER	
2	4	SM-110	BUSHING	
1	3	A 977	TERMINAL BD. SUB-ASSY.	
X	2	WI-104-541 SCQS	WIRE, LITZ	
1	1	CF-100	COIL FORM	

LIST OF MATERIAL

MATERIAL		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK			
FINISH		TITLE TRANSFORMER, IF, ADJ.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRAWN J. LESHINSKI	DATE 5/12/64	FINAL APPROVAL <i>[Signature]</i>	DATE 5/13/64
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005		CHECKED <i>[Signature]</i>	DATE 5/12/64	SHEET FX167	
FRACTIONS ± 1/64 ANGLES ± 0° 30'		ELECT. DES. <i>[Signature]</i>	DATE	REV. LTR. F	
TOLERANCES		MCH. DES. <i>[Signature]</i>	DATE	SHEET	

1	GPR-92	
Q'TY./UNIT	MODEL USED ON	ASS'Y. NO.
SCALE NONE	CODE A	
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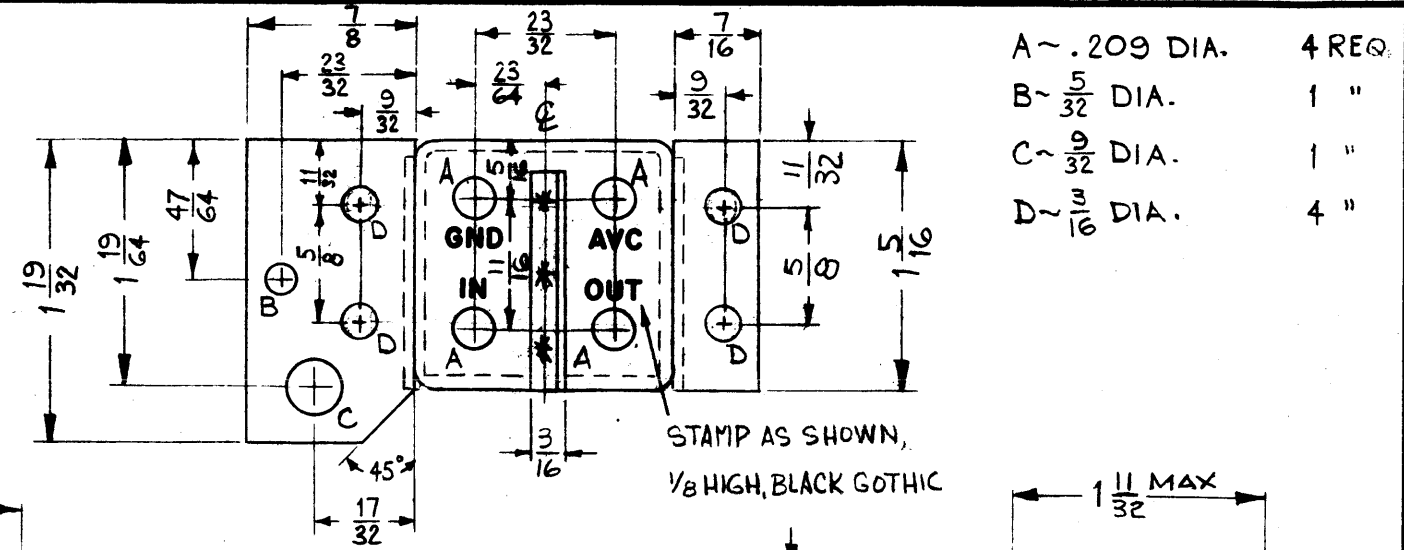
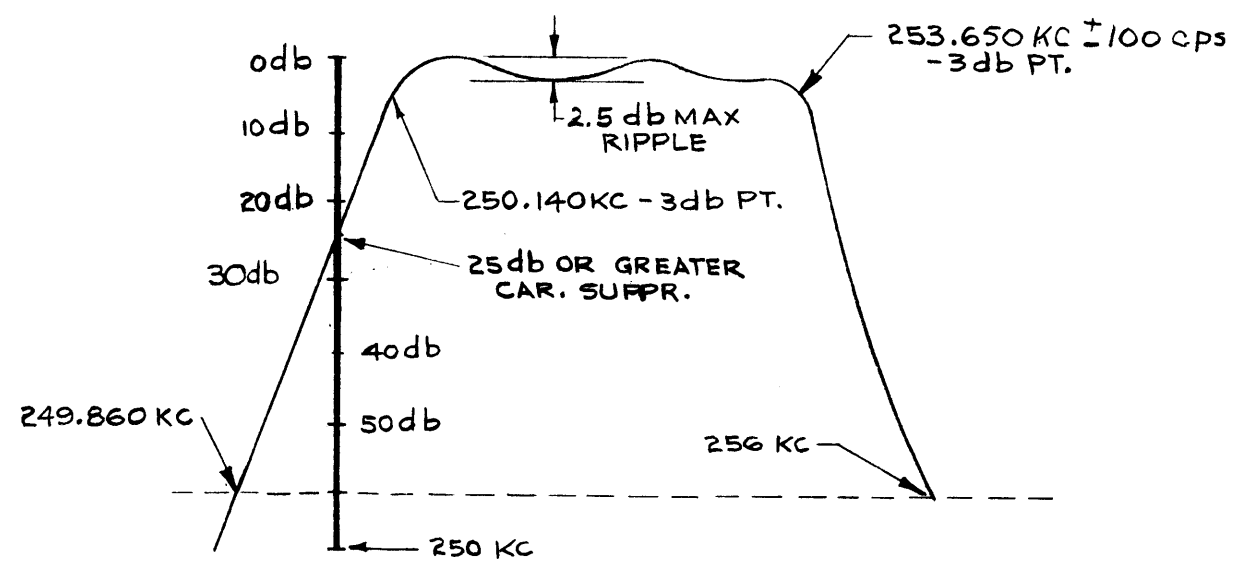
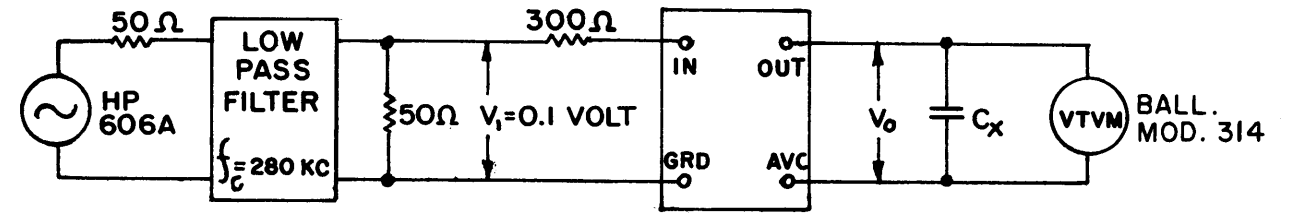
EX-168

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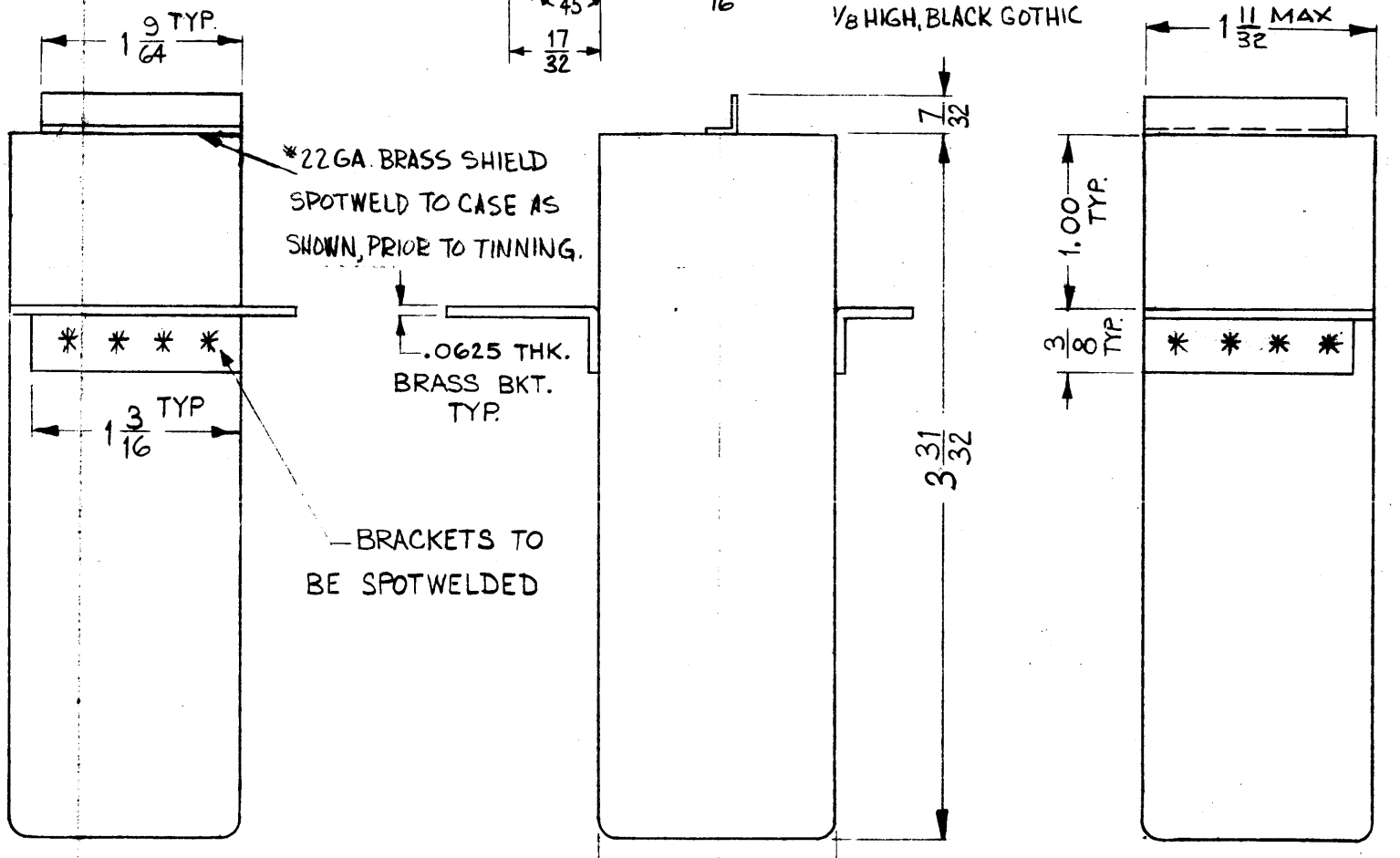
ELECTRICAL SPECIFICATIONS

1. TYPE - ~~UPPER~~ **UPPER** SIDEBAND
2. db MEASUREMENTS - ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY - 250 KC.
4. CARRIER SUPPRESSION - -25db OR GREATER.
5. -3db POINTS - 250.140 KC OR LESS; 253.650KC±100CPS.
6. -60db POINTS - 249.860 KC OR GREATER; 256.0 KC OR LESS. ALL RETURN LOBES AND SPURIOUS SHALL BE -60db OR GREATER, OVER THE RANGE OF ±50 KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE: 2.5 db
8. INSERTION (LOSS OR GAIN): +3db ±1db.
9. INPUT IMPEDANCE - 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE - NOT TO EXCEED 50 K OHMS (INTERNALLY TERMINATED)
11. D.C. RESISTANCE ACROSS OUTPUT - NOT TO EXCEED 5 K OHMS.
12. TEMPERATURE RANGE - 0° TO 70° C.

SEE TEST PROCEDURE A-764. INSERTION (LOSS OR GAIN) = $\pm(V_0 - V_1)$ IN DB.



- A - .209 DIA. 4 REQ.
- B - 5/32 DIA. 1 "
- C - 9/32 DIA. 1 "
- D - 1/16 DIA. 4 "



STAMP AS SHOWN 1/8 HIGH BLACK GOTHIC. W/LATEST REV. LETTER

H	253.650 KC ± 100 CPS WAS 253.6 KC ± 50 CPS	2.15.68	18769	W.B.		E.F.M.
G	MAX. PASSBAND RIPPLE WAS 2 db	6-21-67	18286	L.A.K.		R.H.
F	ADD. OR BRUSHED NICKEL TO FINISH	8/24/68	16772	CED		
E	DIMS 1 11/32 MAX. WAS 1 9/16 REF D HOLES WERE 1/8 X 3/16 SLOT SPECS. TEST SCHEMATIC PICTORIAL REVISED	6-28-63	9345			
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: DO NOT SCALE (S401-95)				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES				

1	HFI-1			9-6-61
1	SBS-1			9-6-61
REQ. PER UNIT	MODEL	SECTION	ASSY. NO.	DATE
USED ON				

REQ. ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
STOCK SIZE		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
BRASS		FILTER, ASYMMETRICAL CRYSTAL		
MATERIAL		3.5 KC UPPER SIDEBAND		
HOT TIN DIP		M.A.F.	AB	
TYPE & TEMPER		DRAWN	CHECKER	FINAL APPROVAL
S115TMC SMOOTH GRAY ENAMEL OR BRUSHED NICKEL		R.P.B.	R.P.A.	
FINISH & SPEC. NO.		ELEC. DES. APP. MECH. DES. APP.		FX-168

STANDARD DRAWING

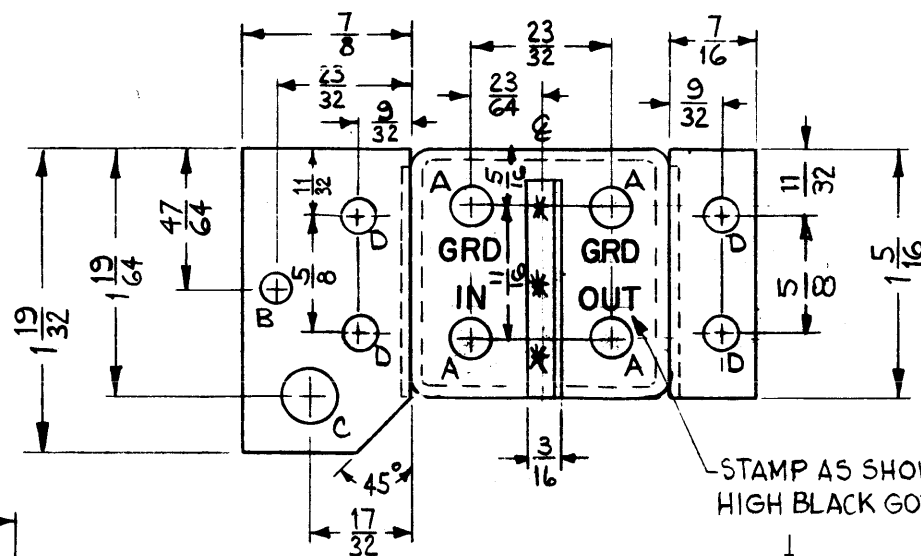
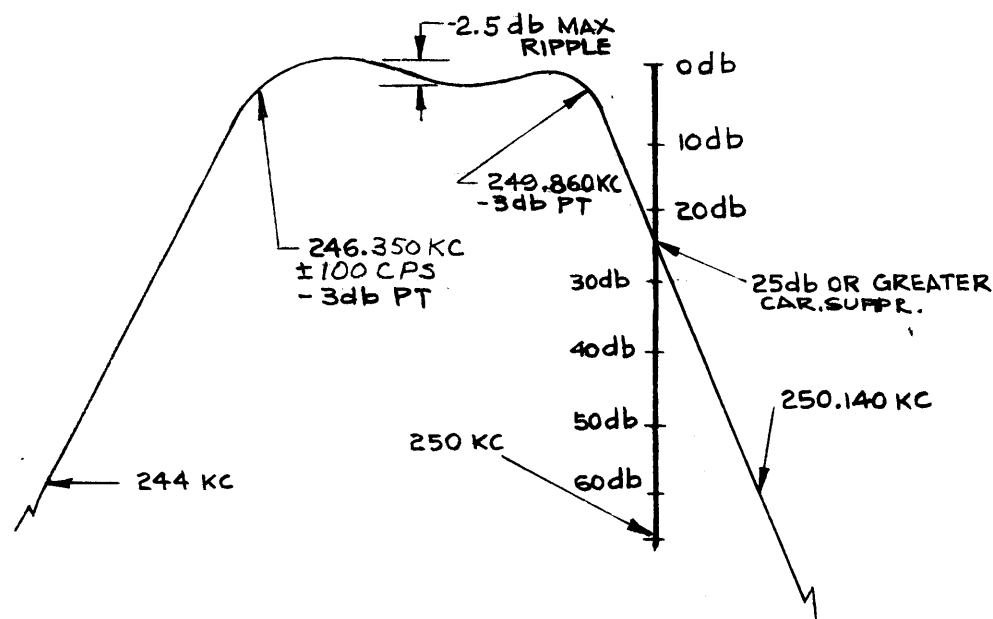
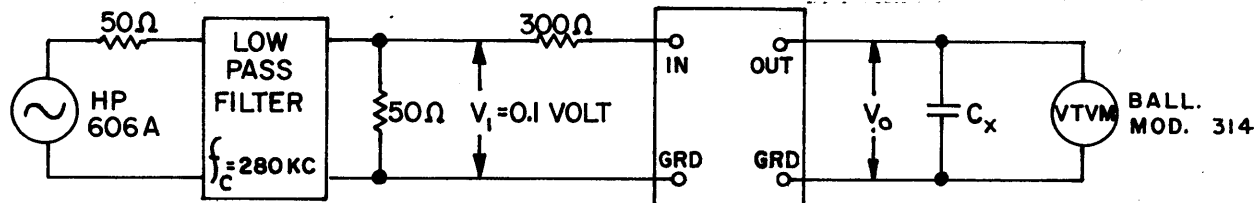
FX-169

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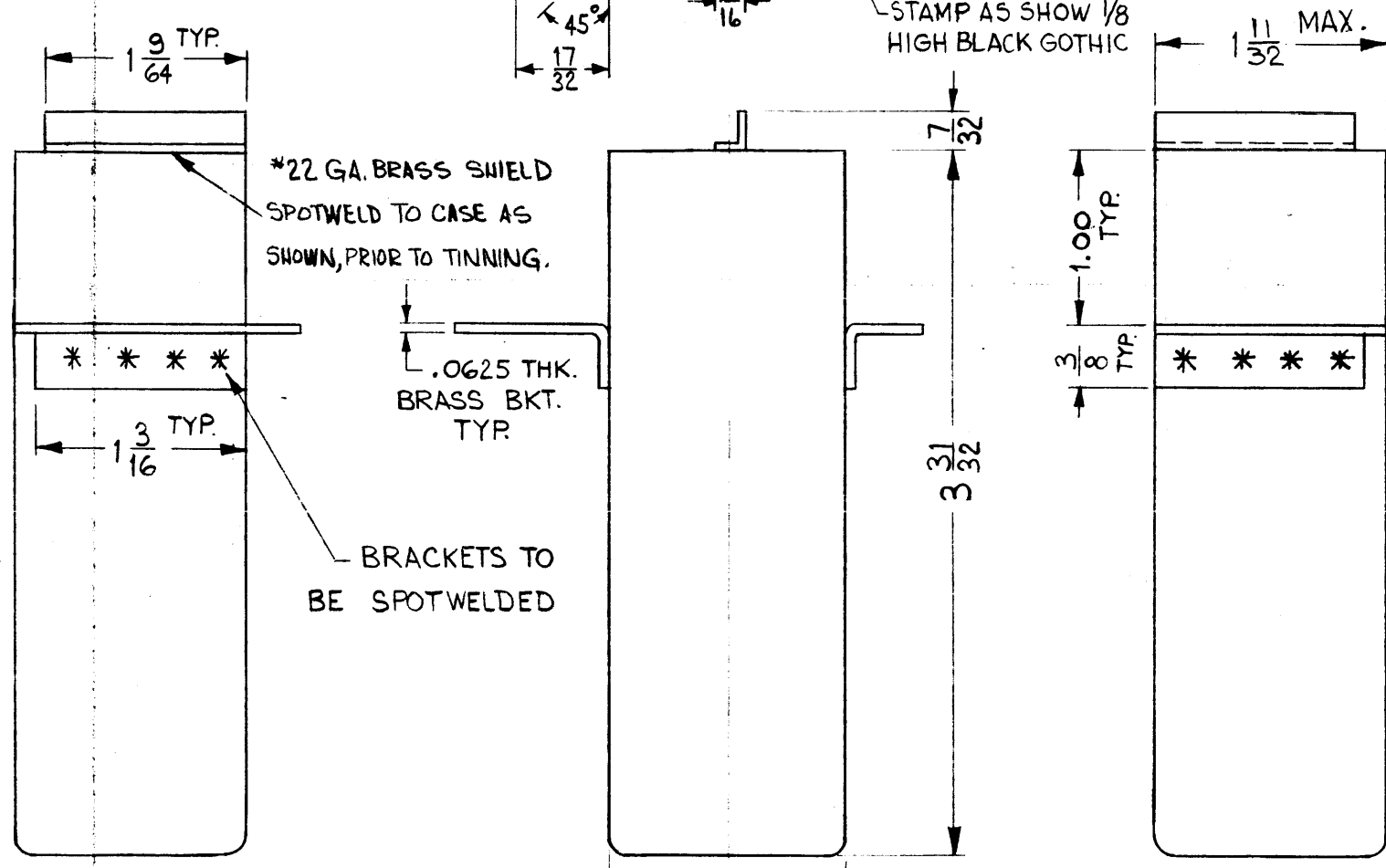
ELECTRICAL SPECIFICATIONS

1. TYPE: LOWER SIDEBAND.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: -25 db OR GREATER.
5. -3 db POINTS: 249.860 KC OR GREATER, 246.350KC±100 CPS.
6. -60 db POINTS: 244.0 KC OR GREATER, 250.140 OR LESS
ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE OF +50 KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE: 2.5 db
8. INSERTION (LOSS OR GAIN): +3 db +1 db
9. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 50K OHMS (INTERNALLY TERMINATED).
11. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = ±(V₀-V₁) IN db.



- A - .209 DIA. 4 REQ
- B - 5/32 DIA. 1 "
- C - 9/32 DIA. 1 "
- D - 3/16 DIA. 4 "



STAMP AS SHOWN 1/8 HIGH BLACK GOTHIC. W/LATEST REV. LETTER.

FX-169-3.5KC LSB

REQ.	ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
				THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
				BRASS	
				FILTER, ASYMMETRICAL CRYSTAL	
				3.5 KC LOWER SIDEBAND	
				HOT TIN DIP	
				TYPE & TEMPER	
				HEAT TREAT. SPEC.	
				FINISH & SPEC. NO.	
				ST15 TMC SMOOTH GRAY ENAMEL OR BRUSHED NICKEL	
				W.A.F. AB	
				DRAWN	
				CHECKER	
				FINAL APPROVAL	
				R.O.P. R.P.	
				ELEC. DES. APP. MECH. DES. APP.	
				FX-169	

SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
J	246.350 KC ± 100 CPS WAS 246.4 KC ± 50 CPS	2.15.68	18769	H.S.	M.V.	EFM
UNLESS OTHERWISE SPECIFIED:						
DIMENSIONS ARE IN INCHES						
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/20						
SCALE: DO NOT SCALE (S40:95)						
MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES						
REQ. PER UNIT	MODEL	SECTION	ASSY. NO.	DATE	USED ON	
1	HFI-1			9-7-61		
1	SBS-1			9-7-61		

STANDARD DRAWING

EX-171

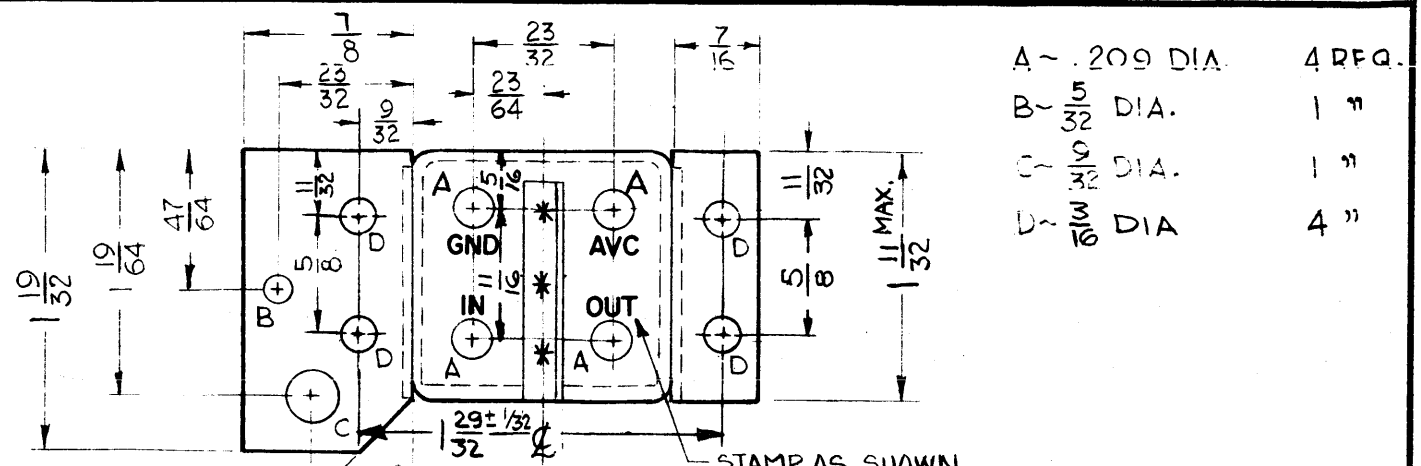
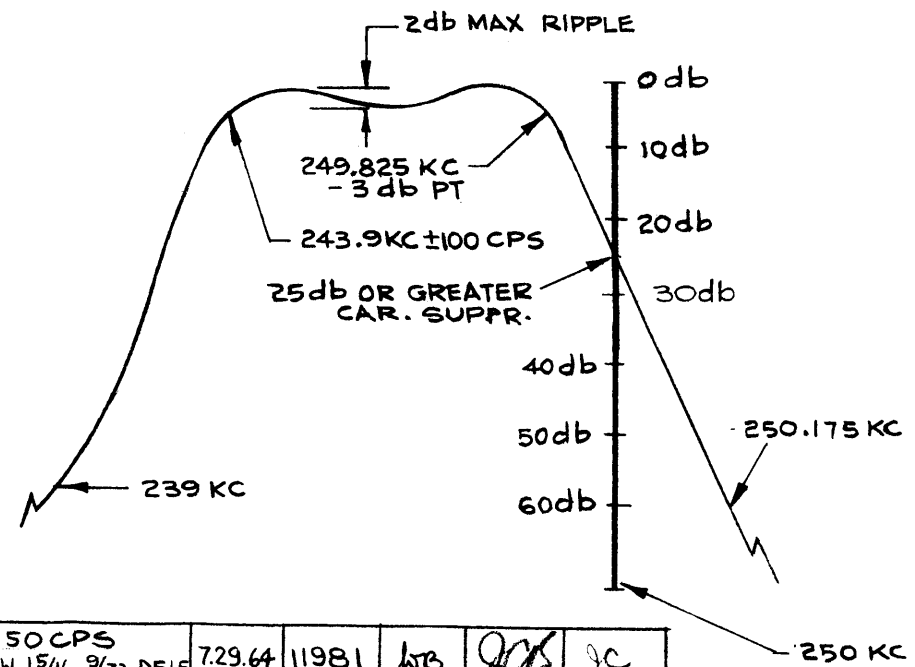
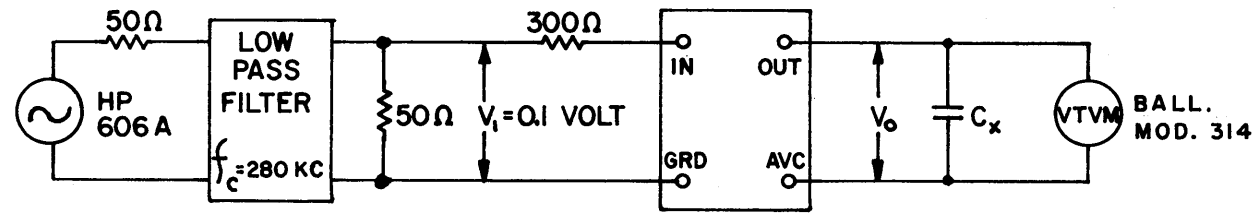
THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.

STANDARD DWG.

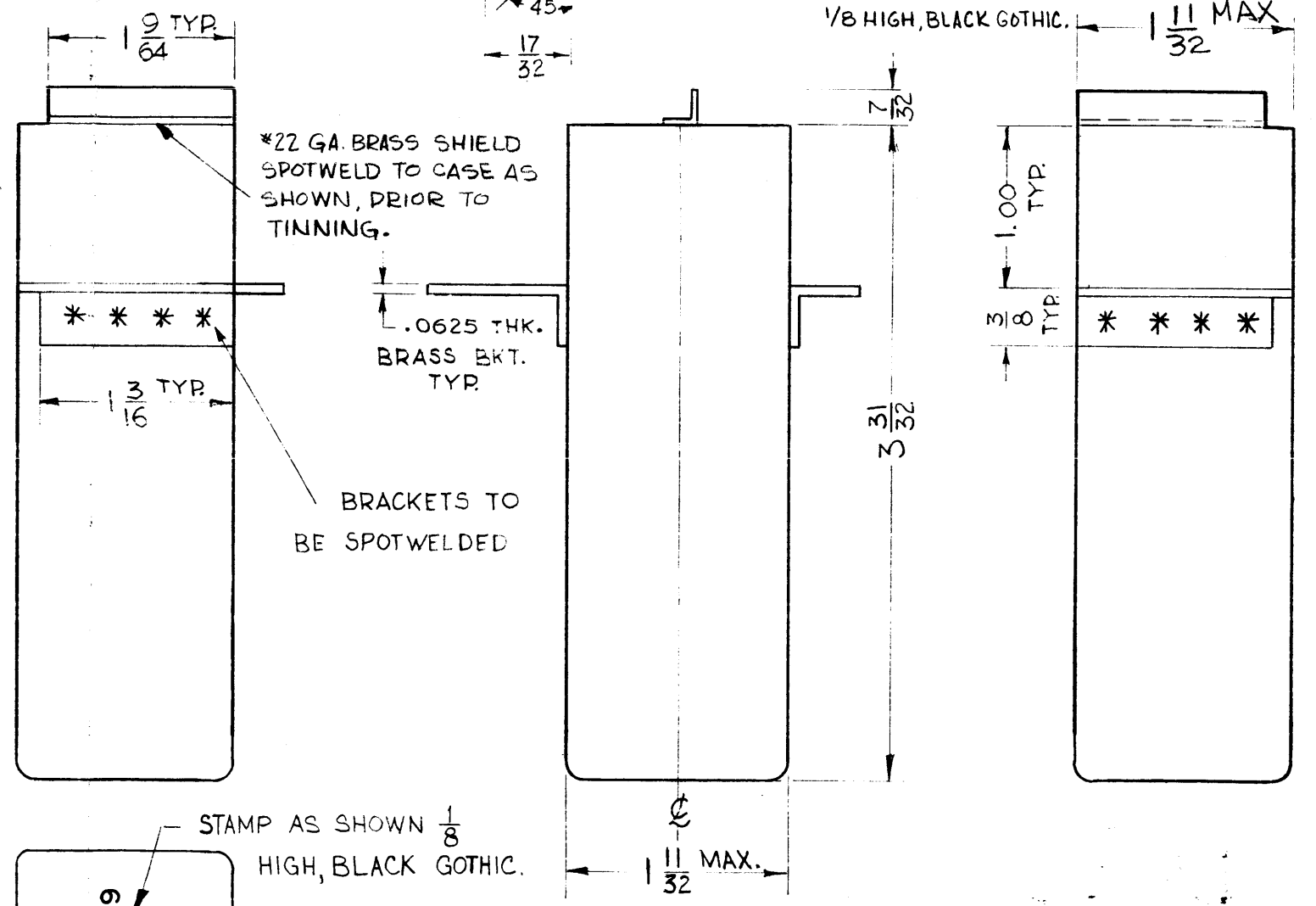
ELECTRICAL SPECIFICATIONS

1. TYPE: LOWER SIDEBAND.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: -25 db OR GREATER.
5. -3 db POINTS: 249.825 KC OR GREATER, 243.9 KC +100CPS.
6. -60 db POINTS: 239 KC OR GREATER, 250.175 OR LESS. ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE +50 KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE: 2 db.
8. INSERTION (LOSS OR GAIN): +14 db +2 db.
9. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 50K OHMS (INTERNALLY TERMINATED).
11. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = $\pm(V_0 - V_1)$ IN db.



- A - .209 DIA. 4 REQ.
- B - 3/16 DIA. 1 "
- C - 3/16 DIA. 1 "
- D - 5/16 DIA. 4 "



F	ON ELEC. SPEC. #4 WAS ± 50 CPS ON PICT. 1 29/32 ± ADD, 1 1/32 MAX W. 15/16, 9/32 DELE	7.29.64	11981	WJB	JCB	JC
E	DIM 1 1/32 MAX WAS 1 5/16 REF D' HOLES WERE 1/8 x 3/16 SLOTS SPECS, TEST SCHEMATIC, PICTORIAL REVISED	6-28-63	9345	WJB	WJB	WJB
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: DO NOT SCALE (S401-95)				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS $\pm 1/64$ DECIMALS $\pm .005$ ANGLES $\pm 1/20$		REMOVE ALL BURRS AND SHARP EDGES				

1	HFI-1				9-9-61
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE	
USED ON					

REQ. ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
STOCK SIZE		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
BRASS		FILTER, ASYMMETRICAL CRYSTAL		
HOT TIN DIP		6 KC LOWER SIDEBAND		
TYPE & TEMPER		HEAT TREAT. SPEC.	DRAWN	CHECKER
S115 TMC SMOOTH GREY ENAMEL			R.P.S.	R.P.S.
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.	
				FX-171
				F

FX-170

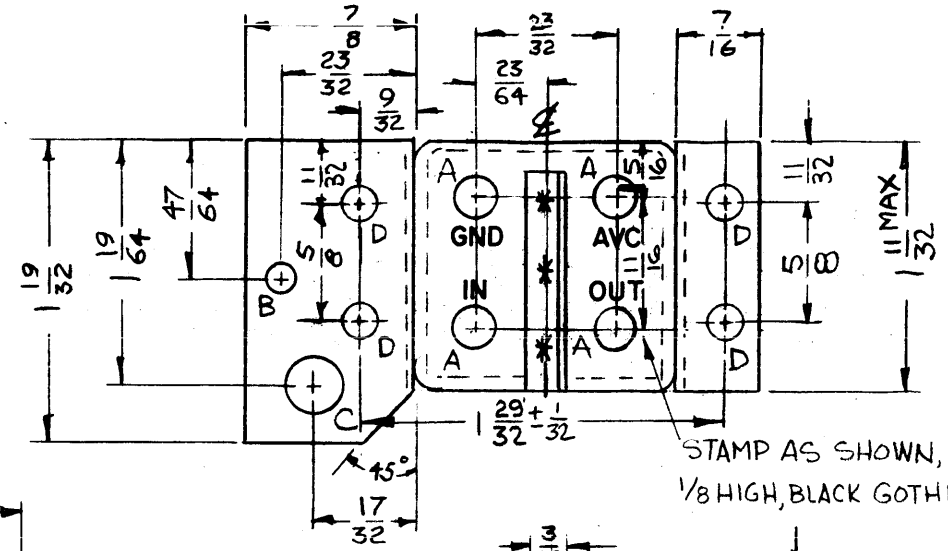
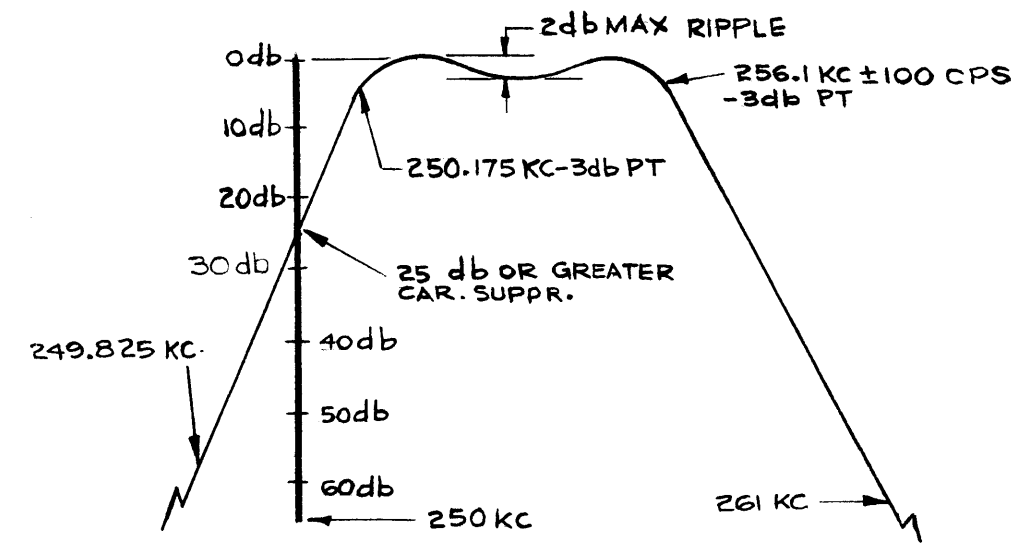
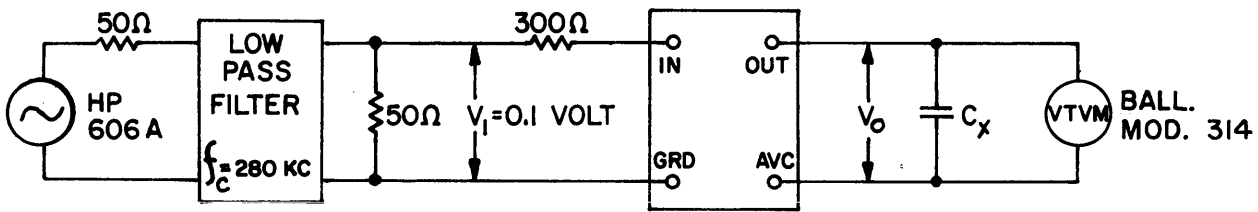
THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.

STANDARD DWG.

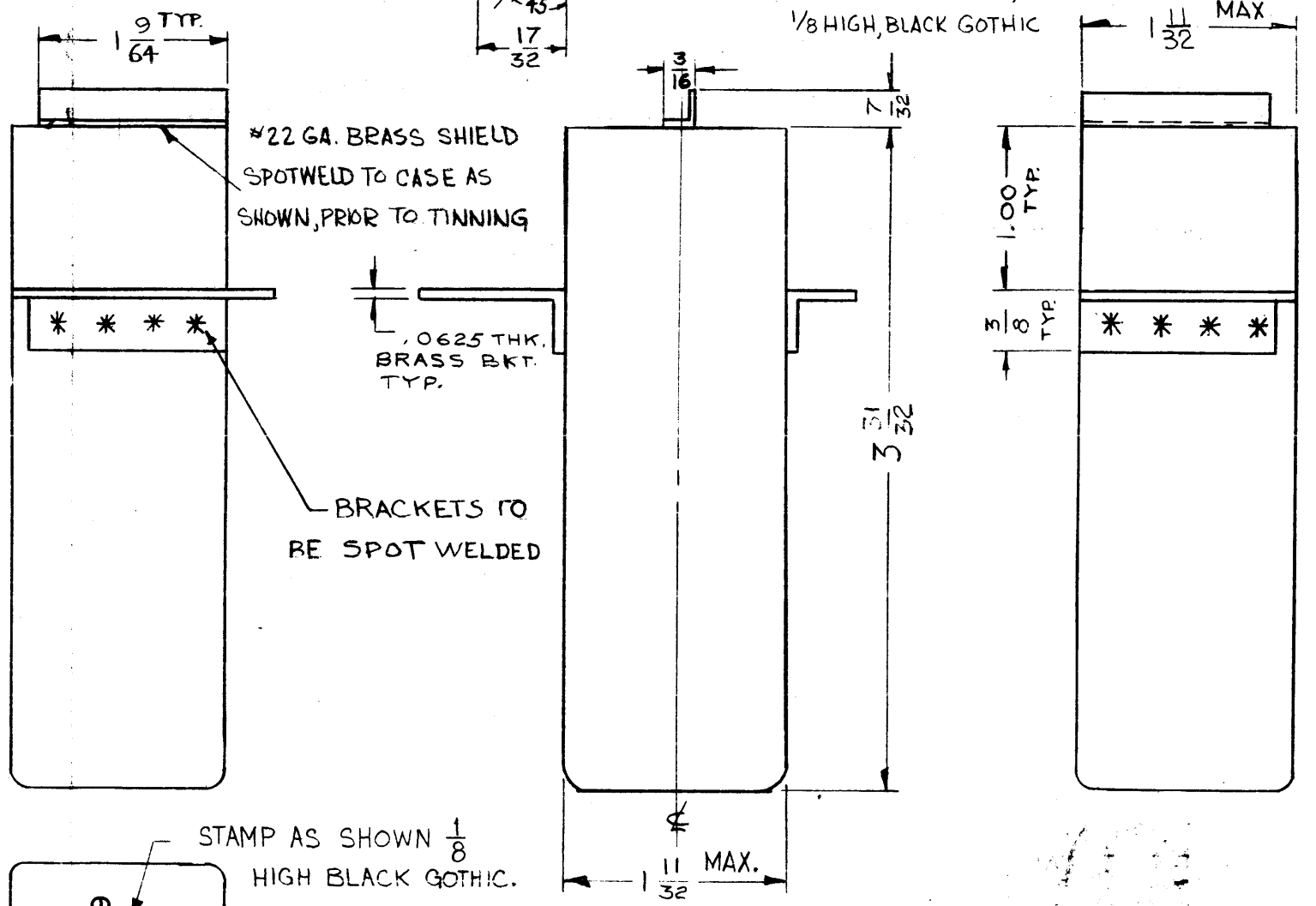
ELECTRICAL SPECIFICATIONS

1. TYPE: UPPER SIDEBAND
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: -25 db OR GREATER.
5. -3 db POINTS: 250.175 KC OR LESS, 256.1 KC +100CPS.
6. -60 db POINTS: 249.825 KC OR GREATER, 261.0 KC OR LESS; ALL RETURN LOBES AND SPURIOUS SHALL BE -60 DB OR GREATER, OVER THE RANGE OF +50KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE: 2 DB
8. INSERTION (LOSS OR GAIN): +14 db +2 db
9. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 50K OHMS (INTERNALLY TERMINATED).
11. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = $-20 \log(V_0/V_1)$ IN DB.



- A - .209 DIA. 4 REQ
- B - 5/32 DIA. 1 "
- C - 9/32 DIA. 1 "
- D - 11/16 DIA. 4 "



FX-170-E
6.0KC USB

F	ONELEC. SPEC. #4 WAS ±50 CPS ON PICT. 129/32 DIM ADD, 11/32 WAS 15/16, 9/32 DEL	7.29.64	11981	WB	JCB	JC
E	DIM 11/32 MAX. WAS 17/16 REF. HOLES WERE 1/8 X 3/16 SLOTS. SPECS, TEST SCHEMATIC, PICTORIAL REVISES	C-28-63	9345	Ⓢ	JCB	JCB
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: DO NOT SCALE (S401-05)				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .05 ANGLES ± 1/20		REMOVE ALL BURRS AND SHARP EDGES				
1	HFI-1					
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE		
				9-10-61		
USED ON						

REQ. ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
	STOCK SIZE			
	BRASS		FILTER, ASYMMETRICAL CRYSTAL	
	MATERIAL		6 KC UPPER SIDEBAND	
HOT TIN DIP		R. LODGE 9-9-61	AB	
TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN	CHECKER	FINAL APPROVAL
S115 TMC SMOOTH GREY ENAMEL		R.P.L.	K.P.E.	FX-170
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.	F

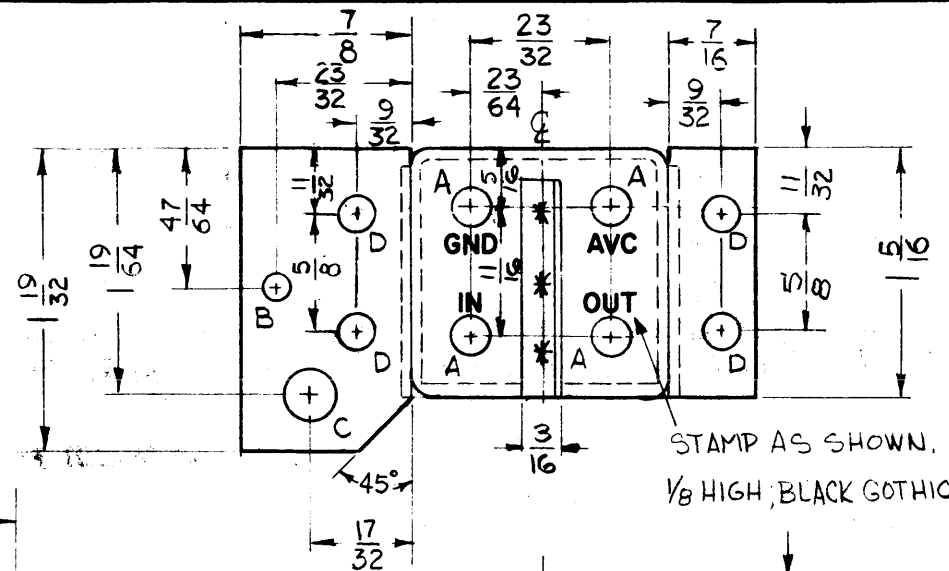
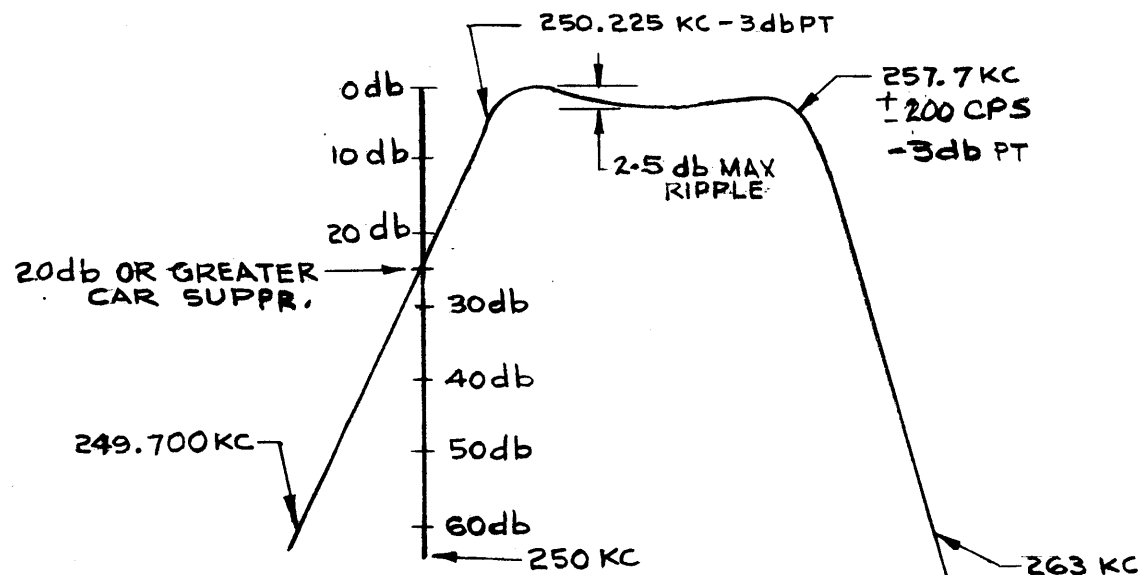
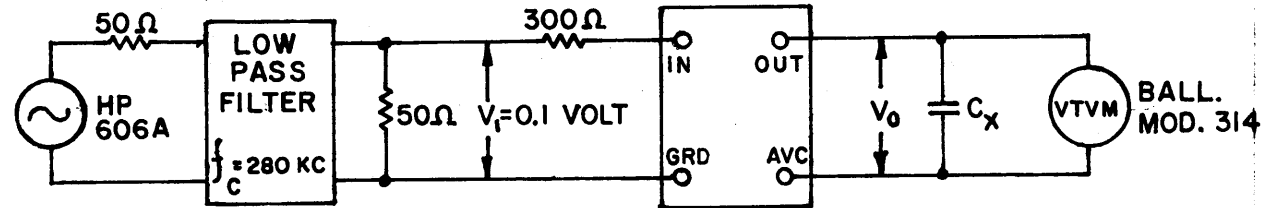
FX-172 L

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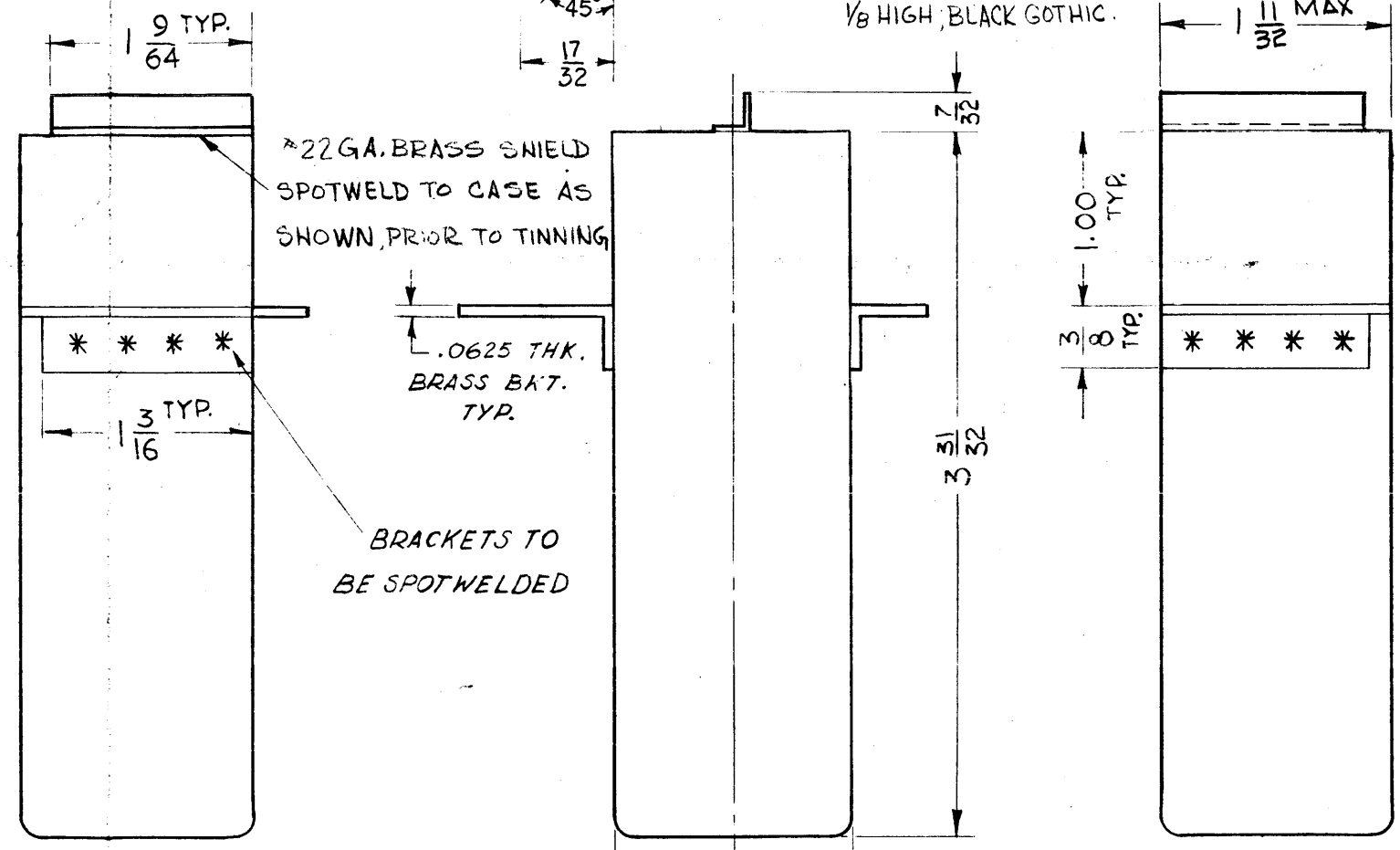
ELECTRICAL SPECIFICATIONS

1. TYPE: UPPER SIDEBAND.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: -20 db OR GREATER.
5. -3db POINTS: 250.225 KC OR LESS, 257.7 KC OR GREATER.
6. -60db POINTS: 249.700 KC OR GREATER, 263.0 KC OR LESS
ALL RETURN LOSSES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE ± 50 KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE 2.5 db
8. INSERTION (LOSS OR GAIN): +8 db +2db.
9. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 300 OHMS (INTERNALLY TERMINATED).
11. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = $20 \log(V_0/V_1)$ IN db.



- A ~ .209 DIA. 4 Req.
- B ~ 5/32 DIA. 1 "
- C ~ 9/32 DIA. 1 "
- D ~ 3/16 DIA. 4 "



FX-172-7.5KC USB

L	257.7 KC \pm 200 CPS WAS 257.6 KC \pm 100 CPS	2-16-68	18769	HG	EFM	
K	ON ELEC. SPECS #5 WAS \pm 100 CPS	10-26-67	18570	HCA	OP	
J	ADD. "OR BRUSHED NICKEL" TO FINISH	8/24/66	16772	CEP		
H	SEE EMN #10975 FOR CHG.	22764	10975	A.M.		
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES ON FRACTIONS $\pm 1/64$ DECIMALS $\pm .005$ ANGLES $\pm 1/20^\circ$

SCALE: DO NOT SCALE (5401-95)
 MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.
 REMOVE ALL BURRS AND SHARP EDGES

REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
1	HFI-1			9-9-61
1	SBS-1			9-9-61
USED ON				

REQ. ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
STOCK SIZE		BRASS		
MATERIAL		FILTER, ASYMMETRICAL CRYSTAL		
		7.5 KC UPPER SIDEBAND		
HOT TIN DIP		SE LUIS	AL	
TYPE & TEMPER		HEAT TREAT. SPEC.	DRAWN	CHECKER
SILS TMC SMOOTH GRAY ENAMEL OR BRUSHED NICKEL			R.P.B.	R.P.B.
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.	FX-172

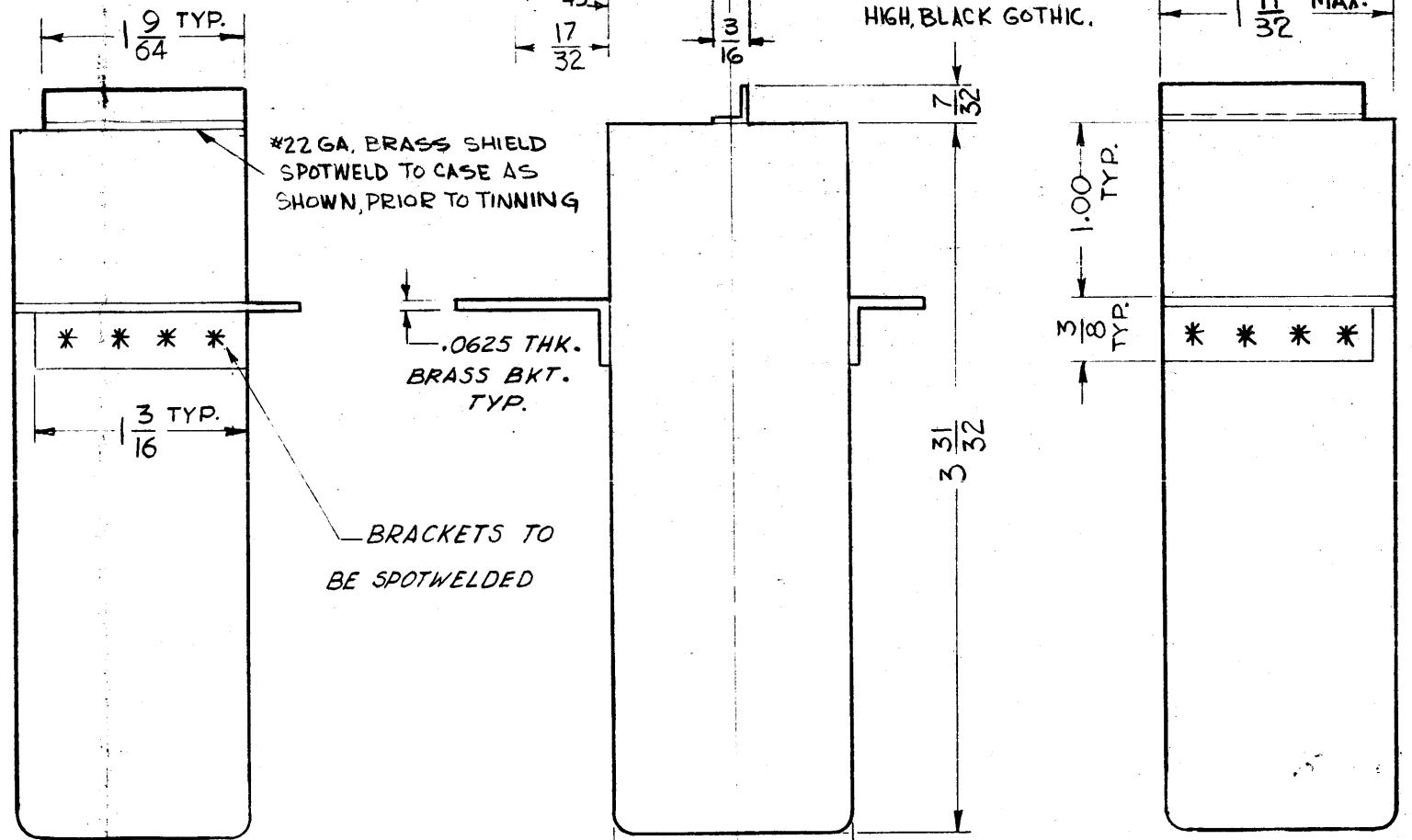
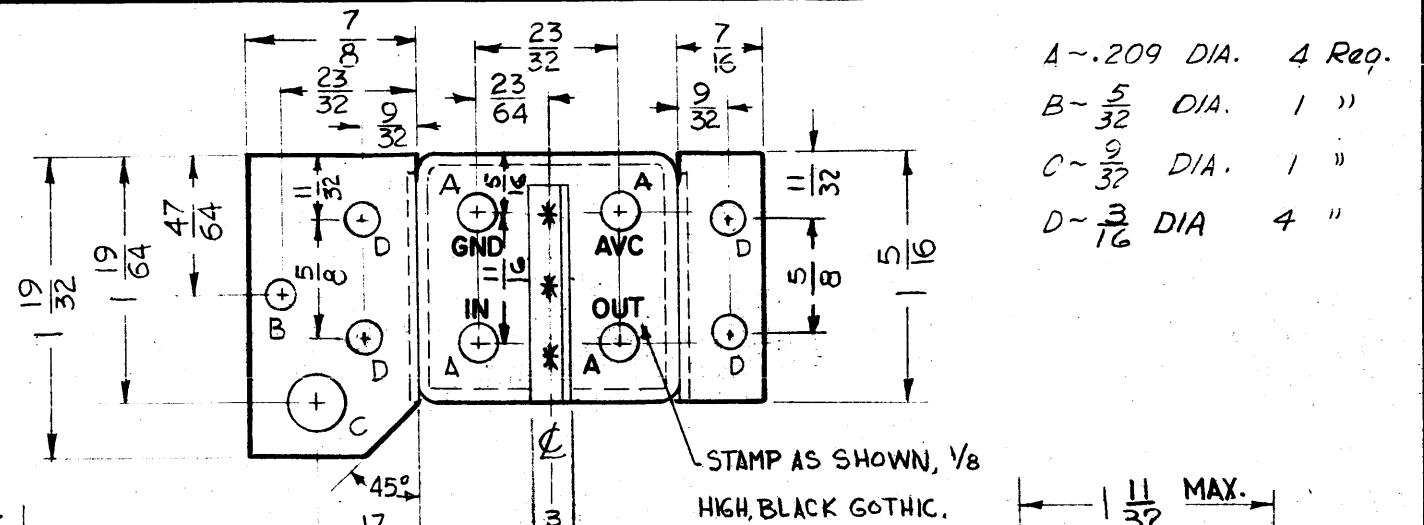
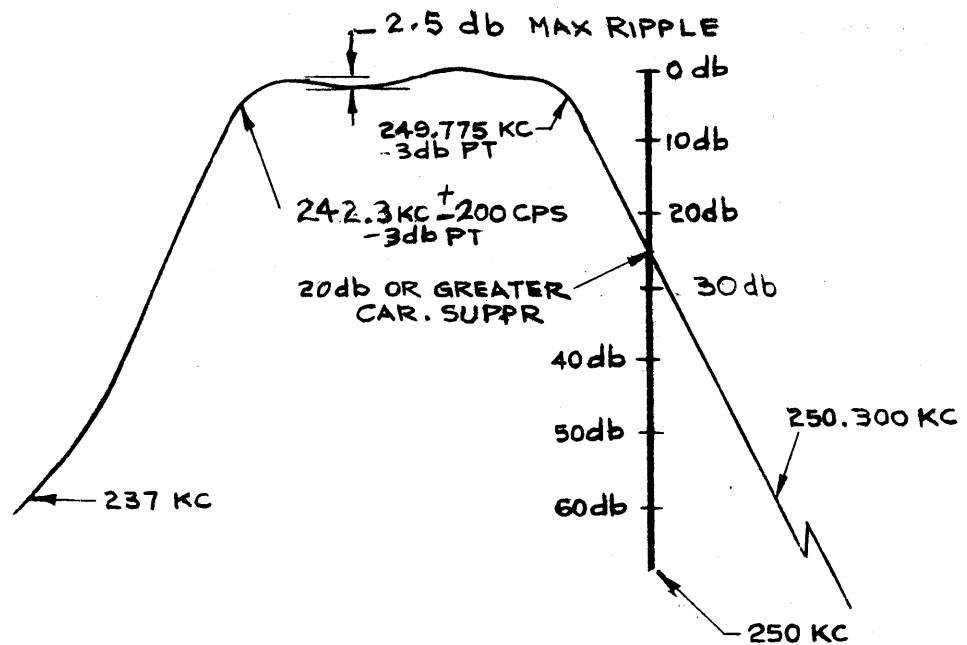
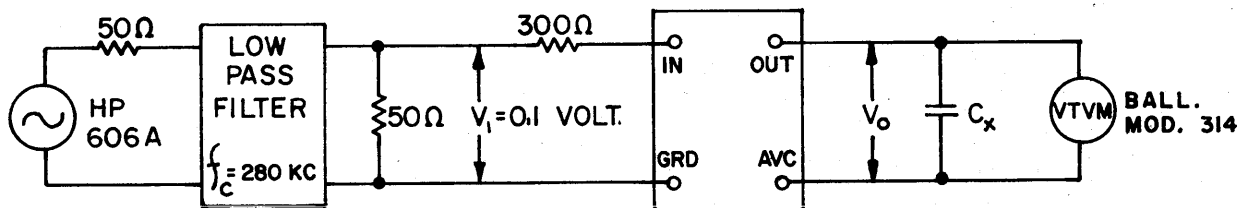
FX-173

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ELECTRICAL SPECIFICATIONS

1. TYPE: LOWER SIDEBAND.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: -20 db OR GREATER.
5. -3db POINTS: 249.775 KC OR GREATER, 242.3 KC ±200 CPS.
6. -60 db POINTS: 237 KC OR GREATER, 250.300 KC OR LESS. ALL RETURN LOSSES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE OF ±50 KC FROM CARRIER FREQUENCY.
7. MAXIMUM PASSBAND RIPPLE: 2.5 db.
8. INSERTION (LOSS OR GAIN): ±2 db.
9. INPUT IMPEDANCE: 300 OHMS (NO LOAD).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 12.5K Ω (INTERNALLY TERMINATED).
11. D.C RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = ±(V₀ - V₁) IN DB.



FX-173-7.5KC LSB

STAMP AS SHOWN 1/8 HIGH BLACK GOTHIC. W/LATEST REV. LETTER.

- A ~ .209 DIA. 4 Req.
- B ~ 5/32 DIA. 1 "
- C ~ 9/32 DIA. 1 "
- D ~ 3/16 DIA. 4 "

L	242.3KC ± 200CPS WAS 242.4KC ± 100CPS	21568	18769	Hg.	EFM	De
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: DO NOT SCALE (S 401-95)				
DIMENSION ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES				
1	HFI-1	9-9-61				
1	SBS-1	9-9-61				
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE	USED ON	

REQ.	ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
STOCK SIZE			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
BRASS			FILTER, ASYMMETRICAL CRYSTAL		
MATERIAL			7.5 KC LOWER SIDEBAND		
HOT TIN DIP			De Luis	OB	
TYPE & TEMPER			DRAWN	CHECKER	FINAL APPROVAL
S115 TMC SMOOTH GRAY ENAMEL OR BRUSHED NICKEL			R.P.A. R.P.L.		
FINISH & SPEC. NO.			ELEC. DES. APP.	MECH. DES. APP.	
					FX-173 L

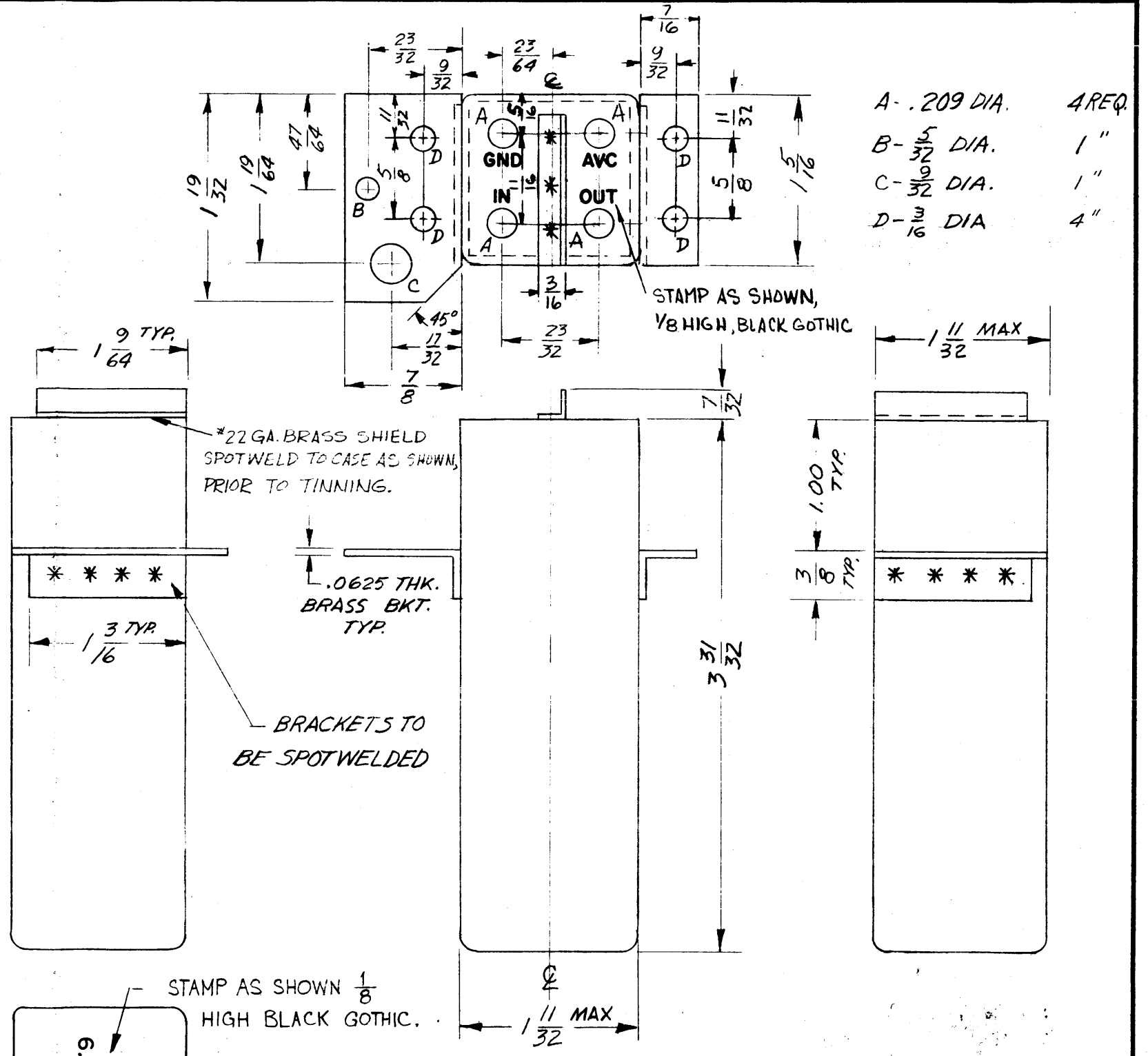
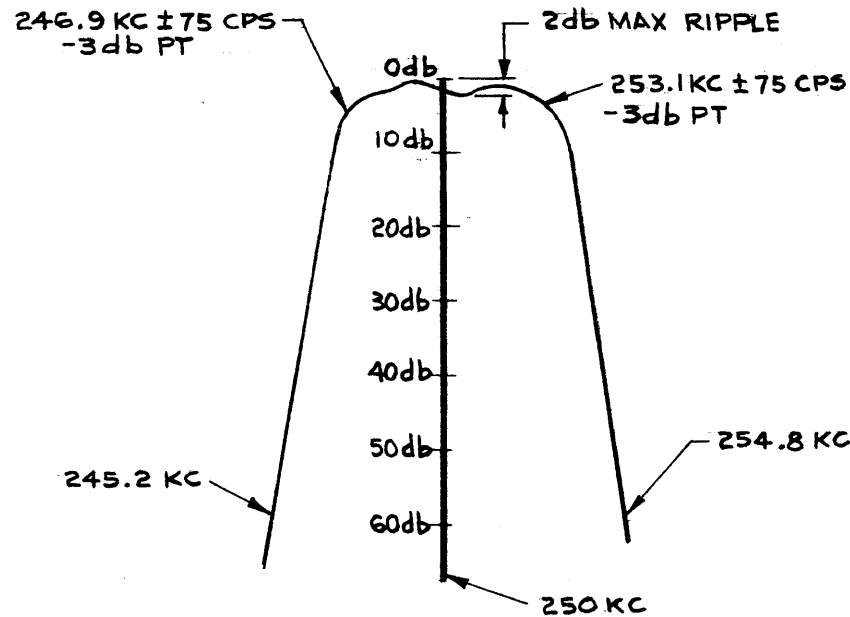
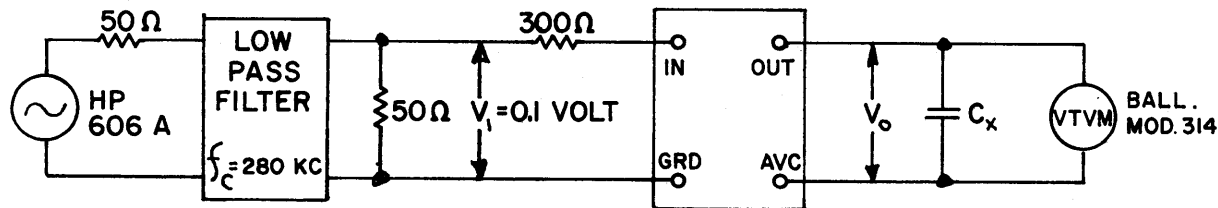
EX-174

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ELECTRICAL SPECIFICATIONS

1. TYPE SYMMETRICAL.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO THE MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. -3 db POINTS: 246.9 KC +75 CPS, 253.1 KC +75 CPS.
5. -60 db POINTS: 245.2 OR GREATER, 254.8 OR LESS. ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE +50 KC FROM CARRIER FREQUENCY.
6. MAXIMUM PASSBAND RIPPLE: 2 db
7. INSERTION (LOSS OR GAIN): +14 db +2 db.
8. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
9. OUTPUT IMPEDANCE: NOT TO EXCEED 50K OHMS (INTERNALLY TERMINATED).
10. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
11. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = $\pm(V_0 - V_1)$ IN db.



E	DIM 1 1/32 MAX. WAS 1 5/16 REF		G-28-3	9345	Ⓟ	JWA	[Signature]
	D HOLES WERE 1/8 x 3/16 SLOTS						
SPEC. TEST SCHEMATIC PICTORIAL REVISED							
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.	
UNLESS OTHERWISE SPECIFIED:		SCALE: DO NOT SCALE (S401-95)					
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.					
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .05 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES					
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE	USED ON		
1	HFI-1			9-11-61			

REQ. ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
STOCK SIZE		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
BRASS		FILTER, SYMMETRICAL CRYSTAL		
MATERIAL		6 KC		
HOT TIN DIP		WAH	OB	[Signature]
TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN	CHECKER	FINAL APPROVAL
S115 TMC SMOOTH GREY ENAMEL		R.P.S.	R.P.S.	FX-174
FINISH & SPEC. NO.		ELEC. DES. APP.	MECH. DES. APP.	E

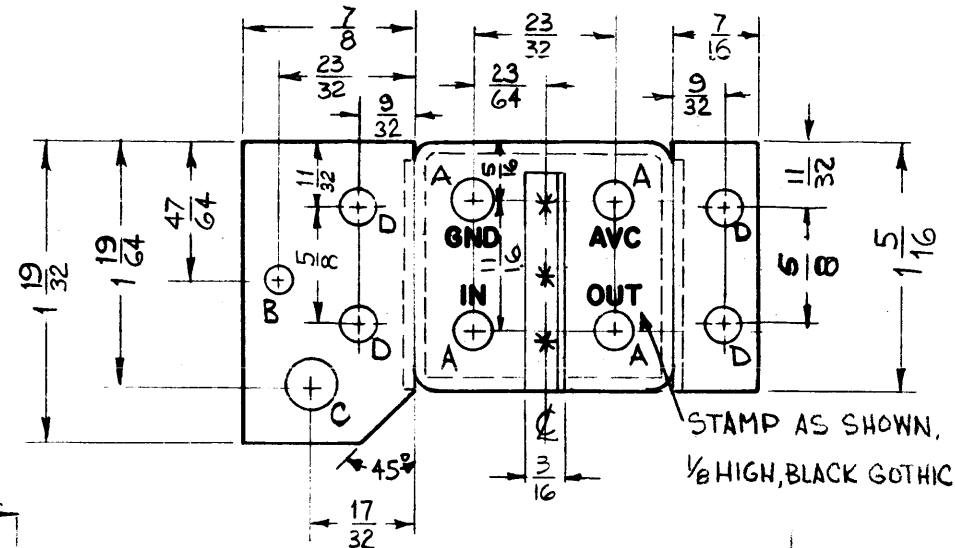
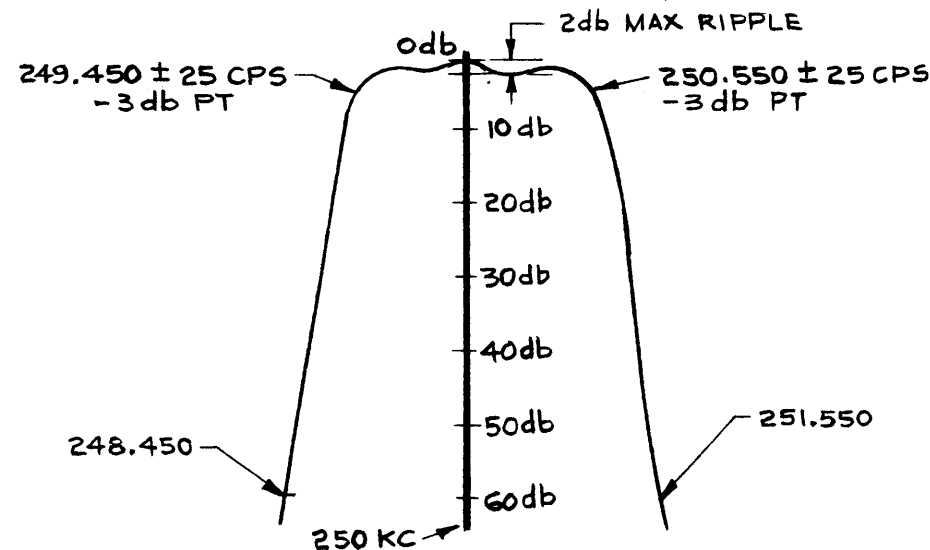
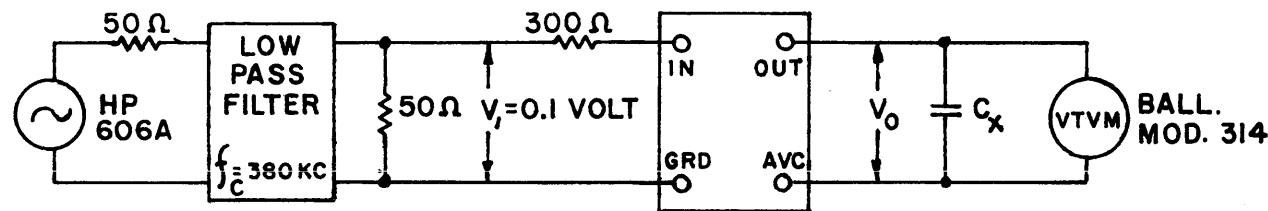
EX-175

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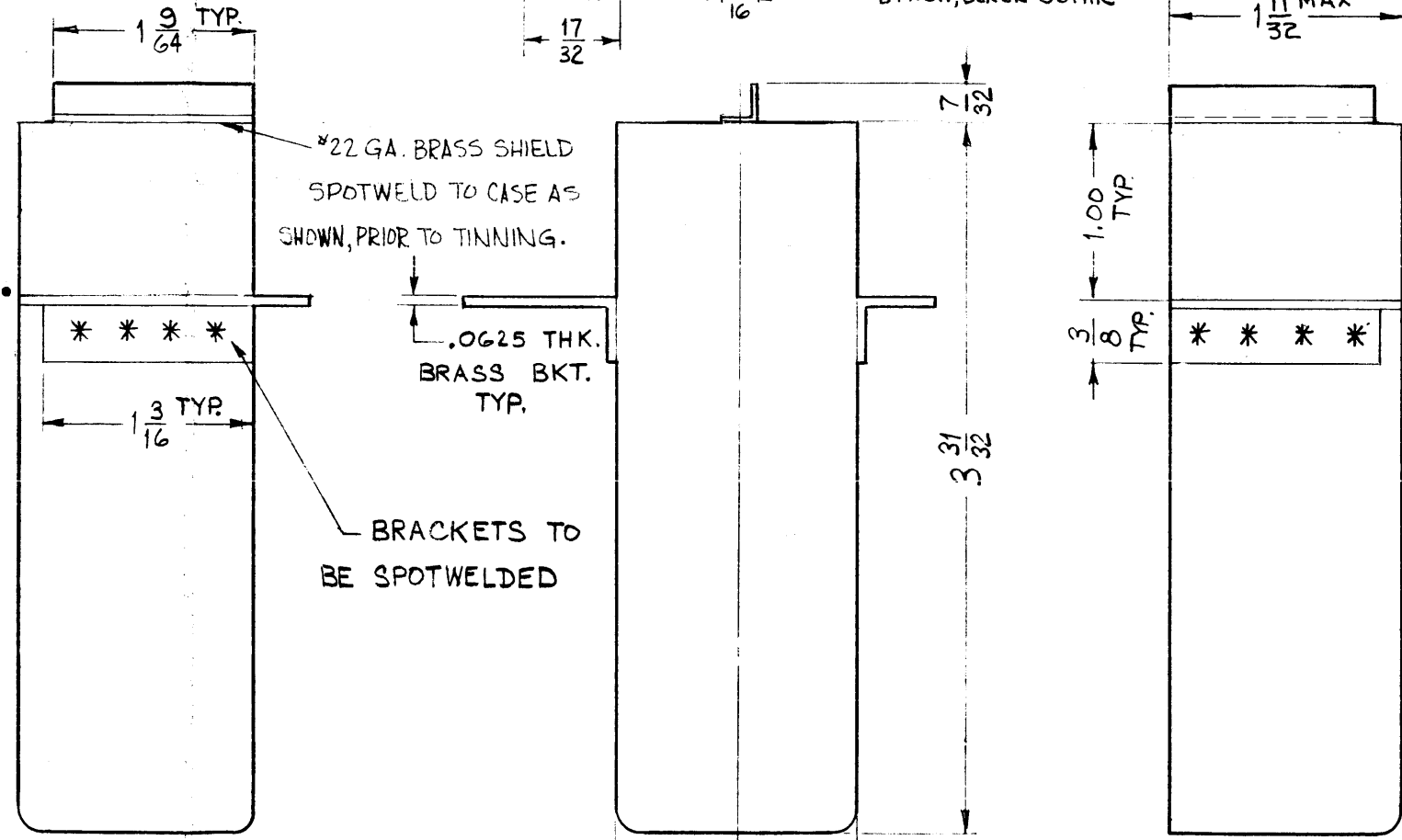
ELECTRICAL SPECIFICATIONS

1. TYPE: SYMMETRICAL.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO THE MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. -3 db POINTS: 249.450 KC +25 CPS, 250.550 KC +25 CPS.
5. -60 db POINTS: 248.450 KC OR GREATER, 251.550 KC OR LESS. ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE +50 KC FROM CARRIER FREQUENCY.
6. MAXIMUM PASSBAND RIPPLE: 2 db.
7. INSERTION (LOSS OR GAIN): +14 db +2 db.
8. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
9. OUTPUT IMPEDANCE: NOT TO EXCEED 50K OHMS (INTERNALLY TERMINATED).
10. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
11. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = $\pm(V_0 - V_1)$ IN db.



- A - .209 DIA. 4 REQ.
- B - 5/32 DIA 1 "
- C - 9/32 DIA 1 "
- D - 3/16 DIA 4 "

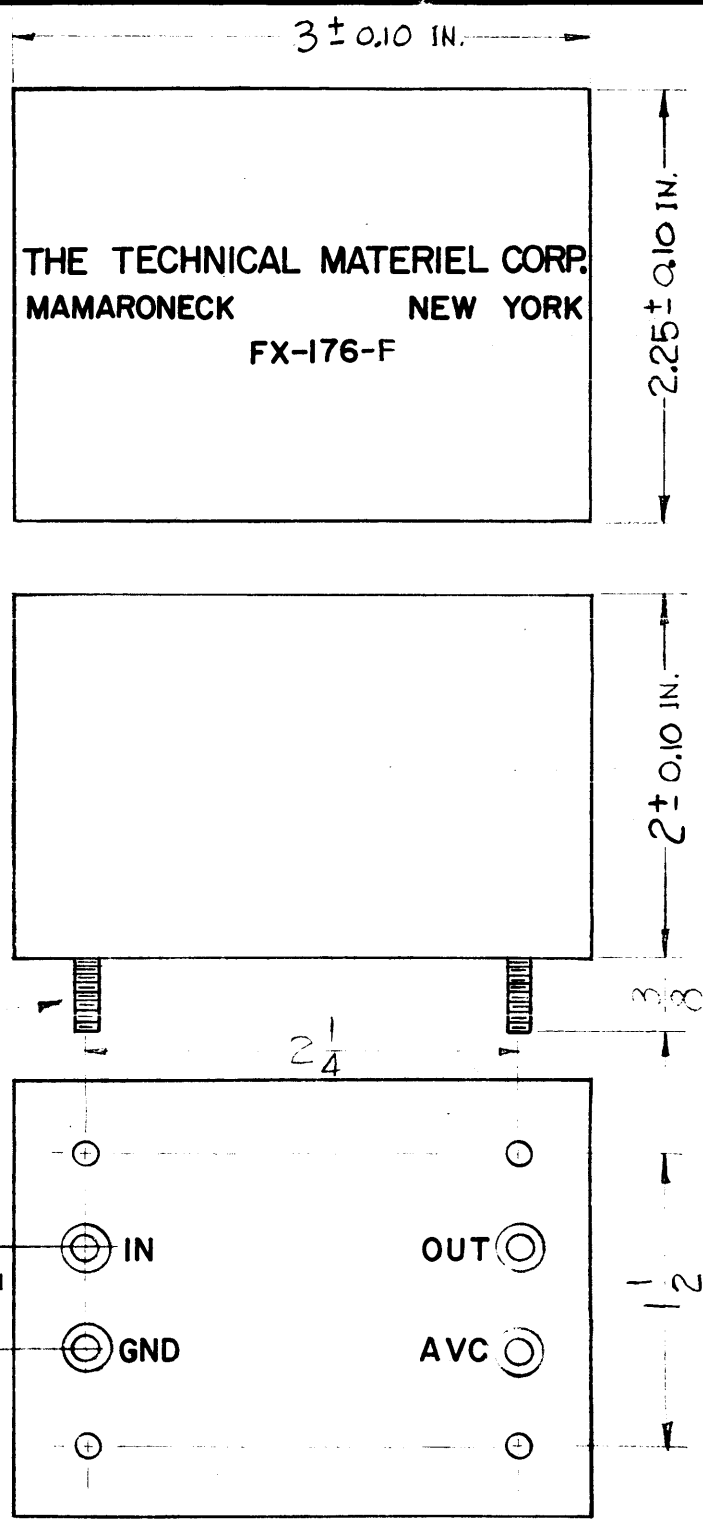


STAMP AS SHOWN 1/8 HIGH BLACK GOTHIC.
 FX-175E
 1.0KC SYM

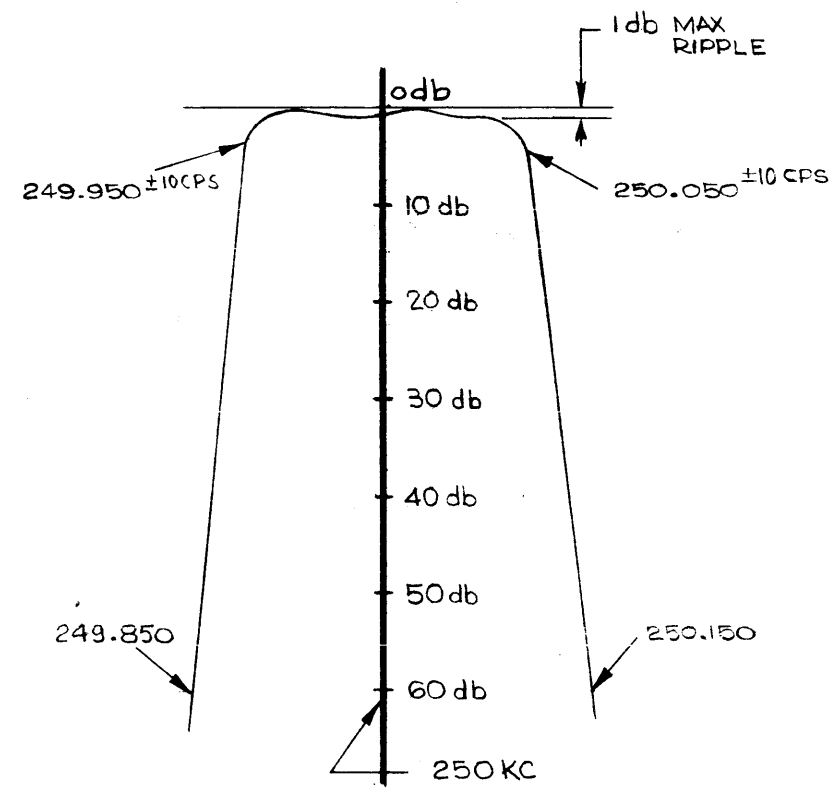
REQ.	ITEM	PART NO.	M. GELLMAN	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
		BRASS	FILTER, SYMMETRICAL CRYSTAL		
			1 KC		
		HOT TIN DIP	M.F.	Q.E.	W.P.
		TYPE & TEMPER	DRAWN	CHECKER	FINAL APPROVAL
		SI15 TMC SMOOTH GREY ENAMEL	R.P.L.	R.P.L.	FX-175
		FINISH & SPEC. NO.	ELEC. DES. APP.	MECH. DES. APP.	E

SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°	6-28-63	9345			
	SCALE: DO NOT SCALE (S40+95)					
	MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES					
		1	HFI-1			
		REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
						9-12-61
			USED ON			

FX-176 F.



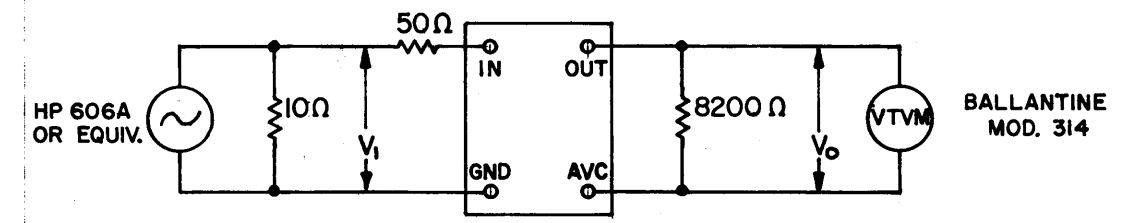
THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK
FX-176-F



ELECTRICAL SPECIFICATIONS

1. TYPE: SYMMETRICAL.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. FREQUENCY: 250 KC.
4. -3 db POINTS: 250.050 KC +10 CPS, 249.950 +10 CPS
5. -60 db POINTS: 250.150 OR LESS, 249.850 OR GREATER.
6. ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER.
7. MAXIMUM PASSBAND RIPPLE: 1 db.
8. INSERTION (LOSS OR GAIN): +11db MINIMUM.
9. INPUT IMPEDANCE: 50 OHMS.
10. OUTPUT IMPEDANCE: 8.2 K OHMS.
11. TEMPERATURE RANGE: 0° TO 70° C.

INSERTION (LOSS OR GAIN) = ±(V_O-V_I) IN db.



PERSONS RECEIVING THIS DRAWING

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Property of:
THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK
STANDARD DRAWING

F	ELEC. SPECS. #4 & GRAPH ±10 CPS, MAX ±5 CPS, 2 PL.	10-27-64	12760	9.2		
E	SPECS. #8 WAS 15 db MIN. 249.850 WAS 250.850	8-6-63	9725	AC		
D	SPECS. REVISED, TEST SCHEM & GRAPH ADDED	7-1-63	9272			
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: 3/4" = 1"				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .05 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES				

REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
	AFC-2			8-15-61
USED ON				

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
		STOCK SIZE		
		STEEL CASE	FILTER, CRYSTAL, BANDPASS	
		MATERIAL	100 CPS	
		TYPE & TEMPER	5115 TMC GREY	
		HEAT TREAT. SPEC.		
		DRAWN	CHECKER	FINAL APPROVAL
				TFH 7.3.63
		FINISH & SPEC. NO.	ELEC. DES. APP. MECH. DES. APP.	
			FX-176	F

EX-177

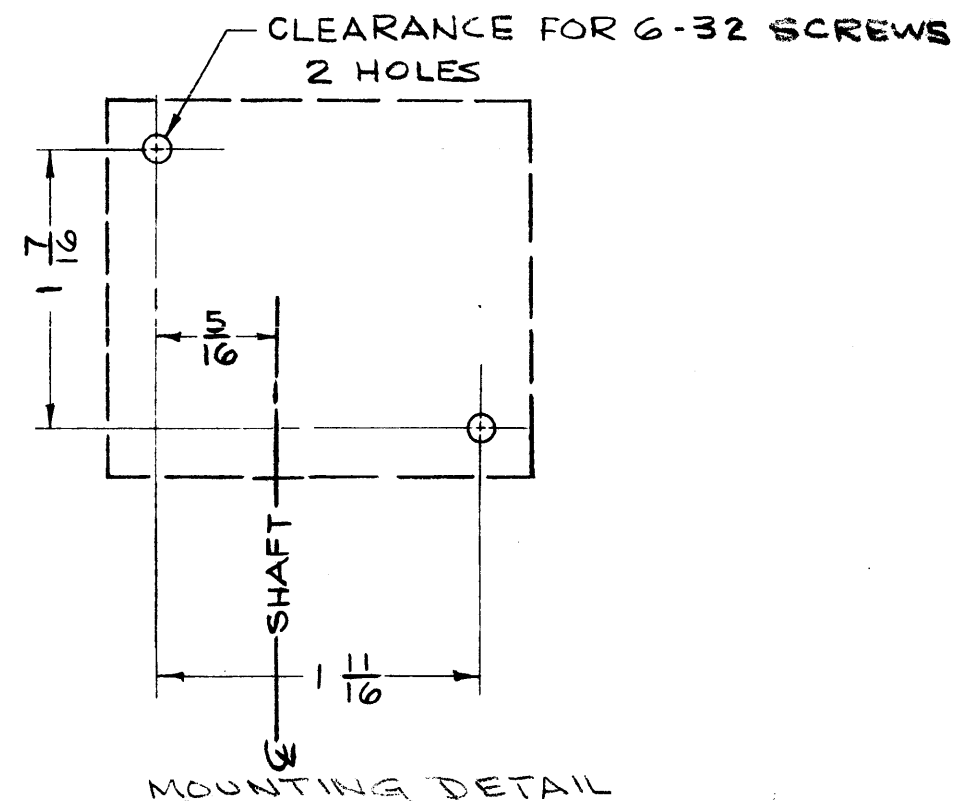
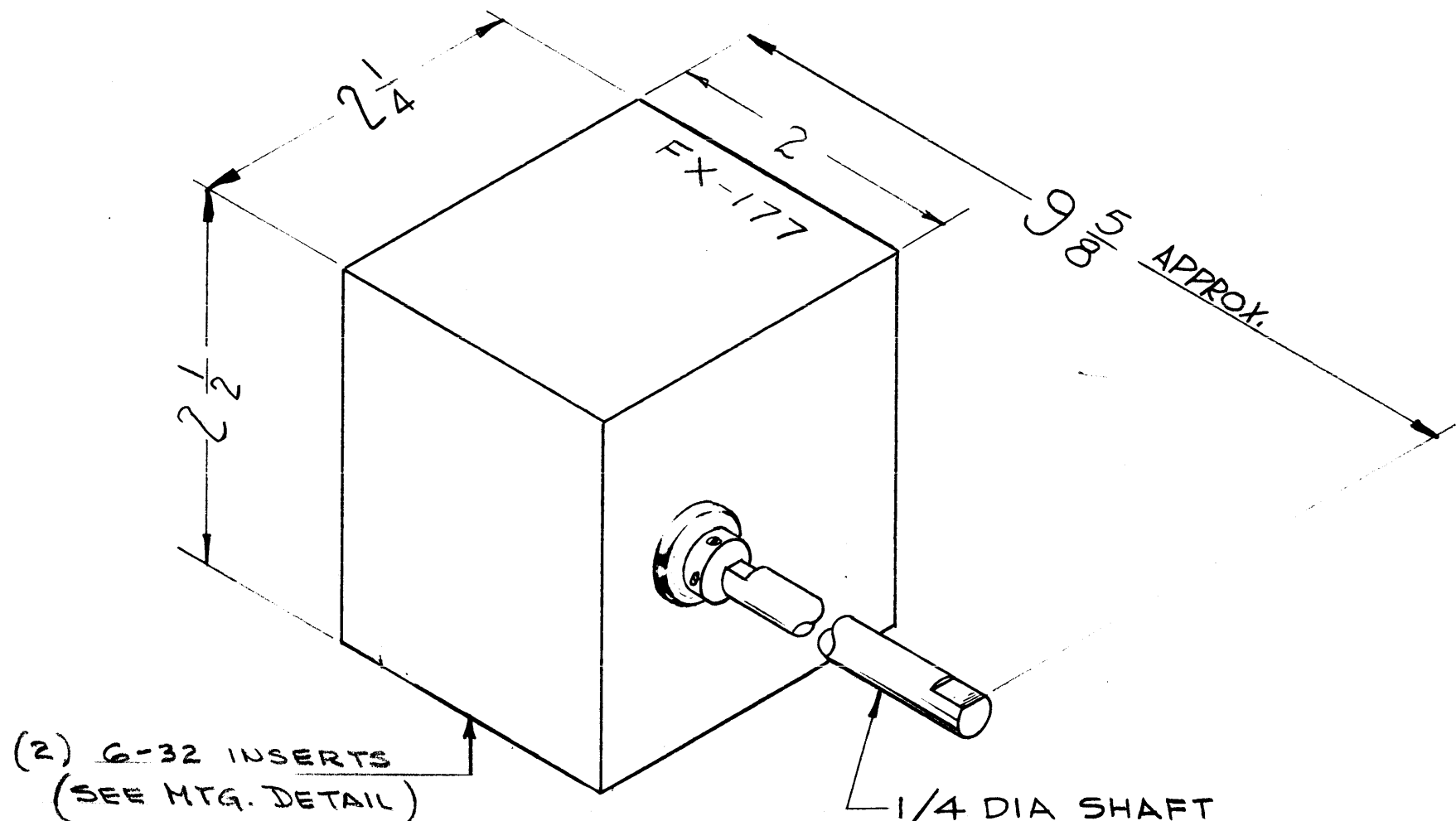
DIM FOR REF ONLY

ELECTRICAL SPECIFICATIONS

PERFORMANCE CHARACTERISTICS:
BANDPASS FILTER
FREQUENCY:
 455 KC

MECHANICAL SPECIFICATIONS

CASE MATERIAL:
 STEEL
CASE FINISH:
 SMOOTH GRAY ENAMEL
 (T M C S-115)
CASE MOUNTING:
 (2) 6-32 INSERTS
 (See Mounting Detail)



(2) 6-32 INSERTS
 (SEE MTG. DETAIL)

NOTE TO PERSONS RECEIVING THIS DRAWING

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 THE TECHNICAL MATERIEL CORPORATION
 MAMARONECK, NEW YORK

SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS $\pm 1/64$ DECIMALS $\pm .05$ ANGLES $\pm 1/20^\circ$					
	SCALE: 4A-2120 MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES					

REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
	GPR-92	I.F.	A2120	9-20-61
	USED ON			

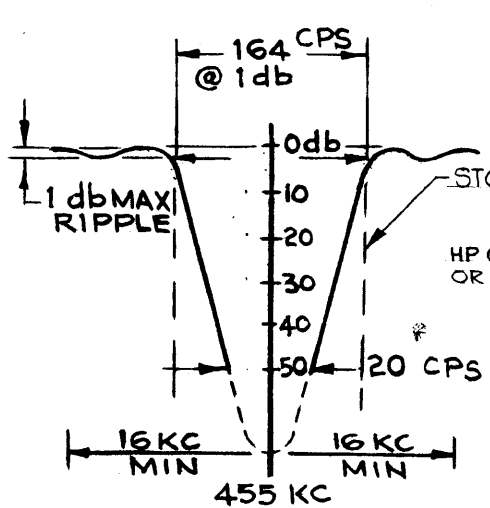
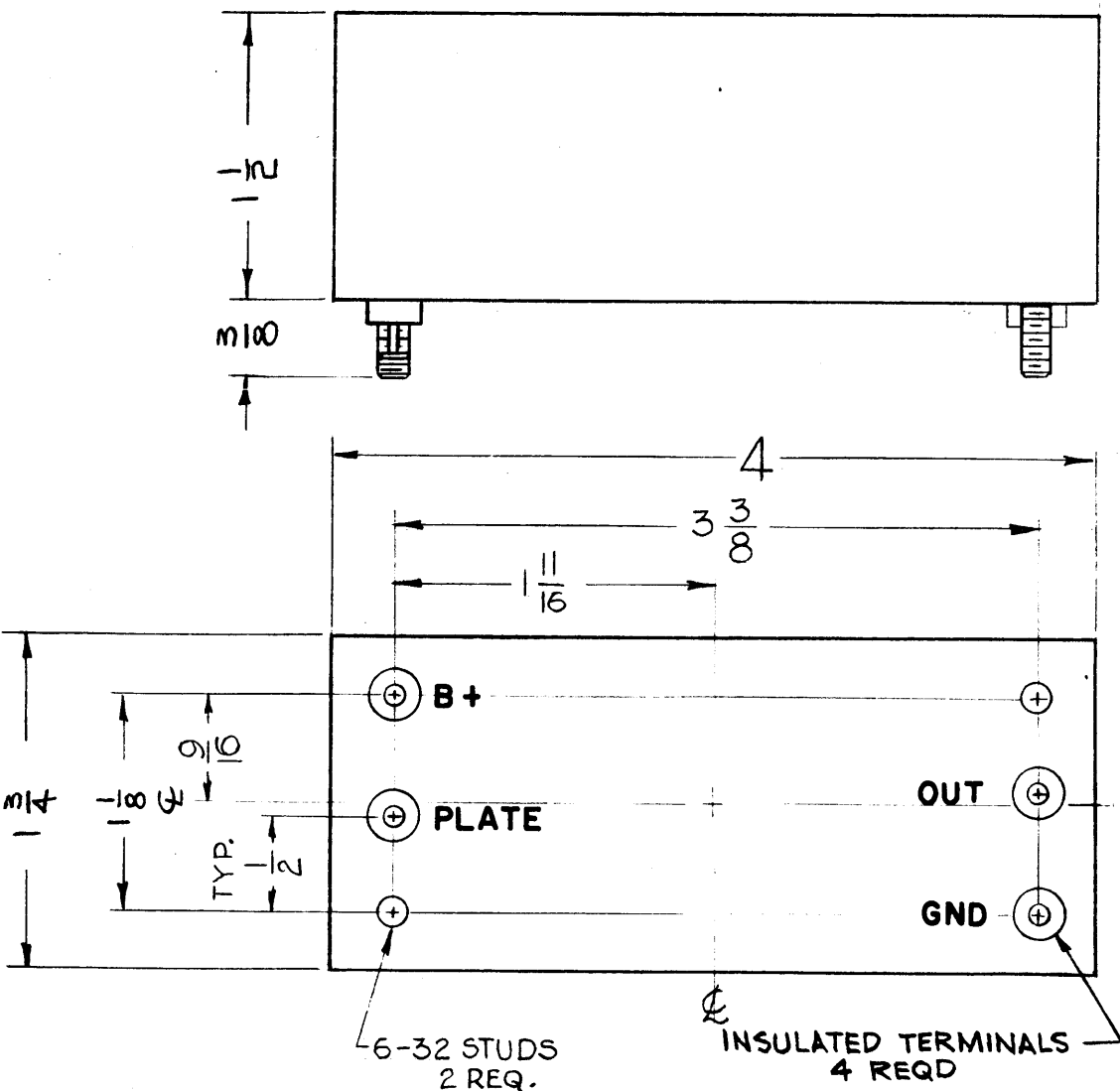
REQ. ITEM	PART NO.	STRUMER DESCRIPTION	SYMBOL
		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
		FILTER, VARIABLE	
		R LUTZ	
		DRAWN	CHECKER
			FINAL APPROVAL
			FX-177
		ELEC. DES. APP.	MECH. DES. APP.

FX-178-C
FILTER, BAND SUPPRESSION
455KC

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

C
FX-178

REVISIONS					
SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD
A	SPECS REVISED, TEST SCHEMATIC & GRAPH ADDED	7-1-63	9273	E	W
B	STOP BAND ADDED, 20 CPS WAS ±10CPS IN NOTE 5	8/1/63	10060	E	W
C	GENERAL UPDATING & CLARIFICATION	11/21/63	10440	E	W

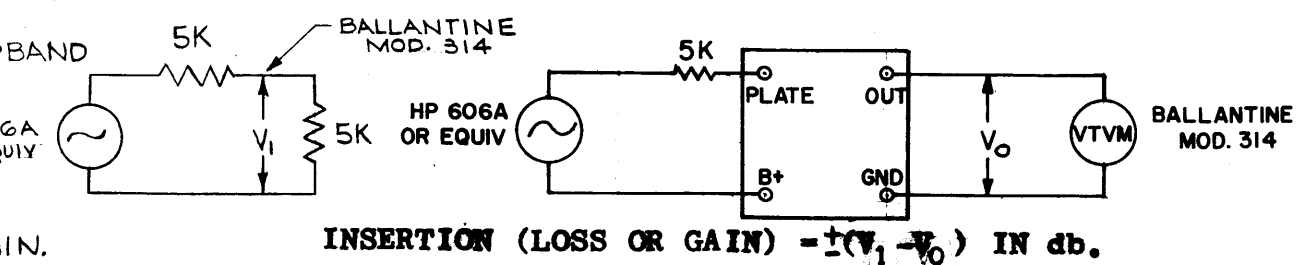


ELECTRICAL SPECIFICATIONS

1. TYPE: BAND SUPPRESSION.
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. FREQUENCY: 455 KC.
4. BANDWIDTH AT -1 db: ±82 CPS MAXIMUM.
5. BANDWIDTH AT -50 db: 20 CPS MINIMUM. WITHIN THE STOPBAND.
6. PASSBAND, BANDWIDTH: ±16 KC MINIMUM ABOUT 455 KC.
7. MAXIMUM PASSBAND RIPPLE: 1 db.
8. INSERTION (LOSS OR GAIN): -3 db MAXIMUM.
9. INPUT IMPEDANCE: 5K OHMS NOT TERMINATED.
10. OUTPUT IMPEDANCE: 5K OHMS TERMINATED.
11. TEMPERATURE RANGE: 0° TO 70° C.
12. TEST IN ACCORDANCE WITH S764

MECHANICAL SPECIFICATIONS

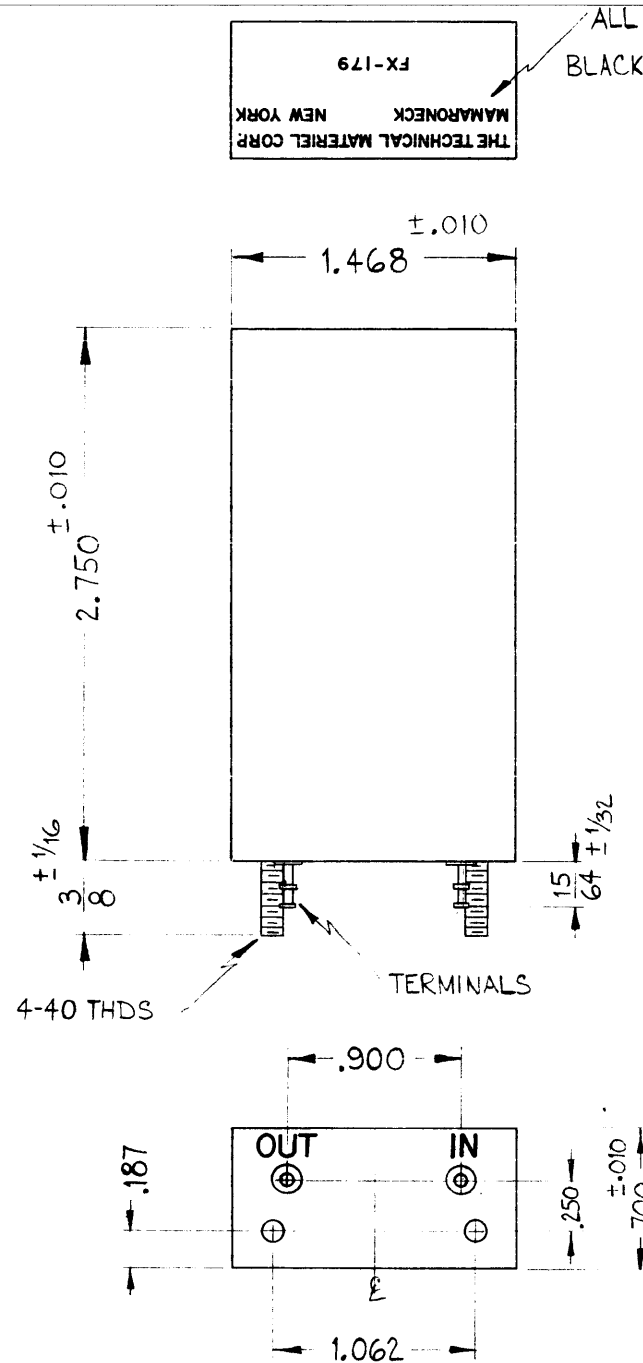
CASE: RECTANGULAR, BRASS, HERMETICALLY SEALED
FINISH: S-115 TMC SMOOTH GRAY ENAMEL, EXCEPT STUD AND TERMINAL END
STUDS: STEEL, NICKEL PLATED 6-32 X 3/8
SIZE: 4 X 1-3/4 X 1-1/2, EXCLUSIVE OF TERMINALS
TERMINALS: SOLDER TYPE, INSULATED (APPROXIMATELY .200 DIAMETER X 3/8 HIGH)
LETTERING: 1/8 HIGH BLACK GOTHIC AS SHOWN (TOP AND BOTTOM)



REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
M. Gellman LIST OF MATERIAL				
MATERIAL			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
FINISH			TITLE FILTER, BAND SUPPRESSION 455 KC	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DRAWN G.D.L.	DATE 7-26-62
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005			CHECKED H.D.	DATE 7-26-62
FRACTIONS ± 1/64 ANGLES ± 0° 30'			ELECT. DES. J.M.E.	DATE 7-26-62
TOLERANCES			MECH. DES.	DATE
THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.			FINAL APPROVAL R.P. TFH DATE 7-3-63	
NOTES			FX-178	
			SHEET	
			REV. LTR.	

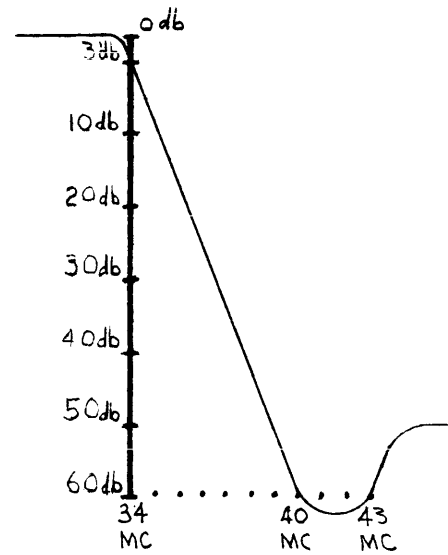
B
FX-179

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ALL LETTERING TO BE BLACK GOTHIC AS SHOWN.

FX-179
MAMARONECK
NEW YORK
THE TECHNICAL MATERIEL CORP.

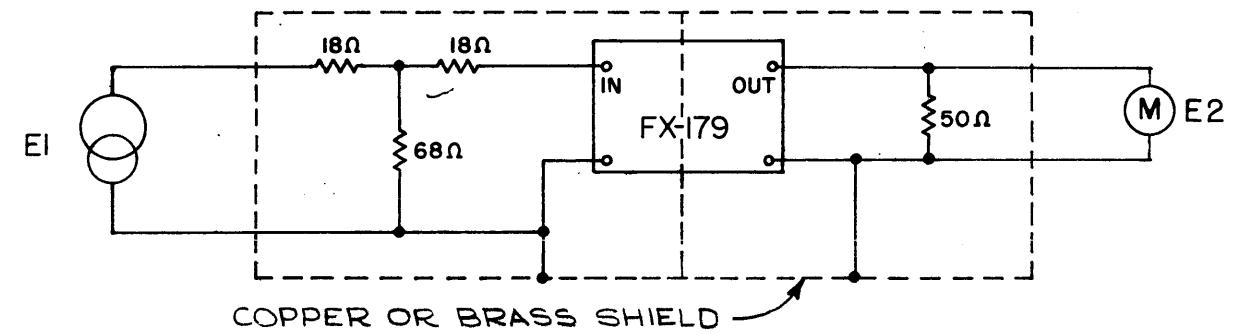


ELECTRICAL SPECIFICATIONS-

- INPUT & OUTPUT IMPEDANCE ~ 50 OHMS.
- INSERTION LOSS ~ EQUAL TO OR LESS THAN 1DB.
- RIPPLE IN PASS BAND ~ EQUAL TO OR LESS THAN .2DB.
- ATTENUATION ~ EQUAL TO OR LESS THAN 3DB @ 34.0MC.
- EQUAL TO OR MORE THAN 60DB @ 40.0MC.
- EQUAL TO OR MORE THAN -50DB @ 43.0MC. AND ABOVE
- ALL RESISTORS ± 1% NON-INDUCTIVE CARBON.

TO BE MEASURED WITH THE FOLLOWING EQUIPMENT:

- 1-BOONTON 91C VOLT METER.
- 2-OSCILLATOR - GENERAL RADIO MODEL 1211B
- 3-"E1" INPUT IS KEPT CONSTANT OVER FREQUENCY RANGE.



① INSERTION LOSS @ 15MC = $[20 \text{ Log } \frac{E1}{E2}] - 6 \text{ db}$

B	CHG'D ELEC. SPECS ON ATEN. TO 34.0MC, 40.0MC, & 43.0. ADDED ATEN. CURVE TO PICT.	B-8-66	16729	RME	JCF	MR
A	TEST SCHEMATIC & NOTE ① ADDED	B-23-63	9064	C	NY	WSE
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: 3401-151				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES				

1	HFS-1				
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE	USED ON
				E-17-62	

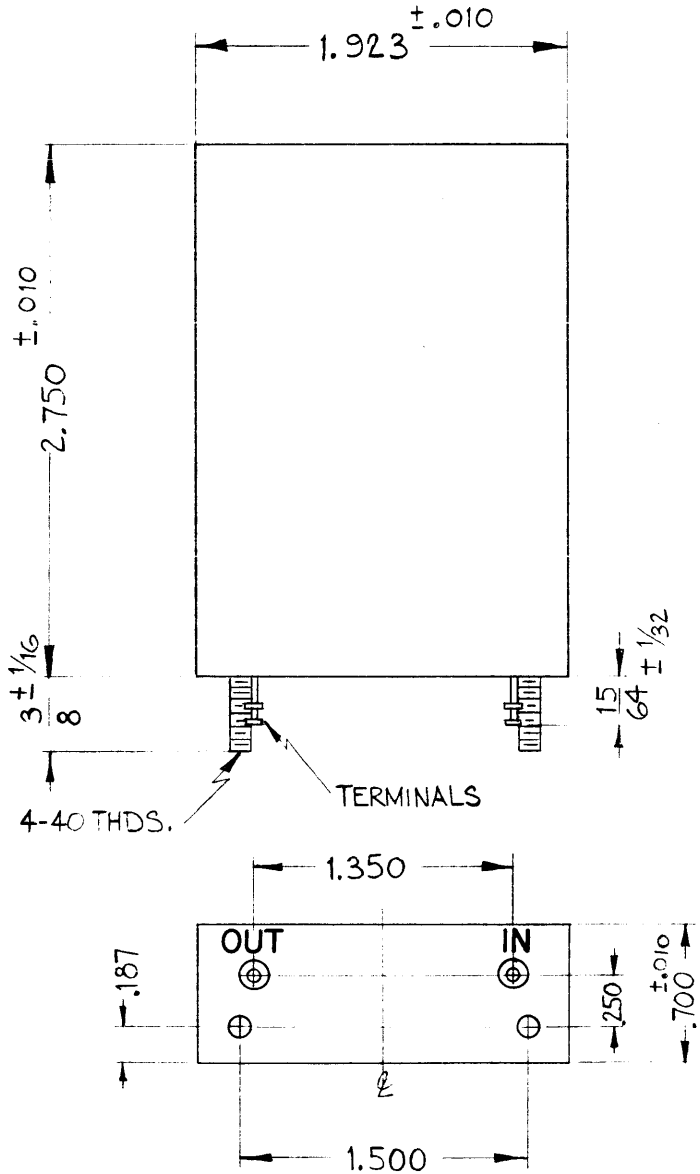
REQ.	ITEM	PART NO.	J. STRUMER	DESCRIPTION	SYMBOL
	# 26 GA			THE TECHNICAL MATERIEL CORP.	
	STEEL			MAMARONECK, NEW YORK	
				FILTER, LOW PASS 34 MC	
	SOFT C.R.		M.A.F.	J.W.D.	B.P.
			DRAWN	CHECKED	FINAL APPROVAL
	S115 SMOOTH GREY ENAMEL		J.M.A.	J.M.A.	FX-179
			ELEC. DES. APP.	MECH. DES. APP.	B

FX-180

THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.

ALL LETTERING TO BE BLACK GOTHIC AS SHOWN.

081-X-180
MAMARONECK
THE TECHNICAL MATERIEL CORP.
NEW YORK

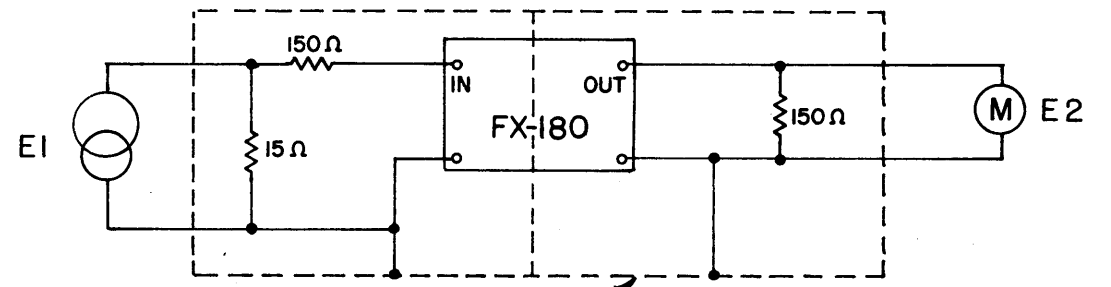


ELECTRICAL SPECIFICATIONS-

INPUT & OUTPUT IMPEDANCE ~ 150 OHMS
 INSERTION LOSS ~ EQUAL TO OR LESS THAN 1DB.
 RIPPLE IN PASS BAND ~ EQUAL TO OR LESS THAN .2DB.
 ATTENUATION ~ EQUAL TO OR LESS THAN 4DB AT 37.00 MC
 EQUAL TO OR MORE THAN 50DB AT 40MC AND ABOVE.
 ALL RESISTORS ± 1% NON-INDUCTIVE CARBON.

TO BE MEASURED WITH THE FOLLOWING EQUIPMENT :

- 1-BOONTON 91C VOLT METER.
- 2-OSCILLATOR-GENERAL RADIO MODEL 1211B
- 3-"E1" INPUT IS KEPT CONSTANT OVER FREQUENCY RANGE.



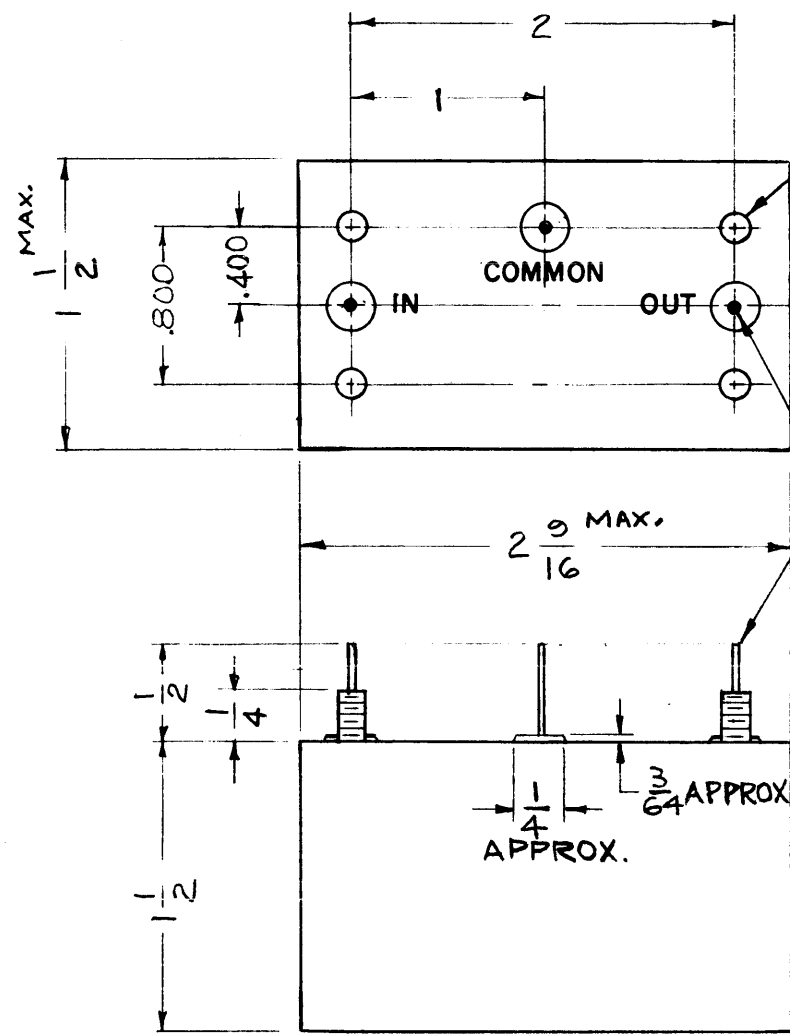
COPPER OR BRASS SHIELD

$$\text{INSERTION LOSS @ 15 MC} = \left[20 \log \frac{E1}{E2} \right] - 6 \text{ db}$$

A	ATTENUATION WAS "EQUAL TO OR LESS THAN 50db---" TEST SCHEMATIC & NOTE ADDED	5-23-63	9065			
SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.
UNLESS OTHERWISE SPECIFIED:		SCALE: 3401-151				
DIMENSIONS ARE IN INCHES		MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION.				
TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°		REMOVE ALL BURRS AND SHARP EDGES				

1	HFS-1			8-17-62
REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
USED ON				

REQ. ITEM	PART NO.	J. STRUMER	DESCRIPTION	SYMBOL
	#26 GA		THE TECHNICAL MATERIEL CORP.	
	STOCK SIZE		MAMARONECK, NEW YORK	
	STEEL		FILTER, LOW PASS 37 MC	
	MATERIAL			
	SOFT C.R.	M.A.F.	J. De	RP
	TYPE & TEMPER	HEAT TREAT. SPEC.	DRAWN	CHECKED
	S115 SMOOTH GREY ENAMEL			
	FINISH & SPEC. NO.	FIN. DES. APP.	MECH. DES. APP.	FX-180
				A



6-32 STUDS
4 REQ

3 MINIATURE SINGLE
TERMINALS, GLASS INSULATED
WITH #20 AWG WIRE LEADS
1/2 LONG, TINNED.

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK
FX-181

1/8 BLACK GOTHIC LETTERING
AS SHOWN.

A
FX-181

REVISIONS

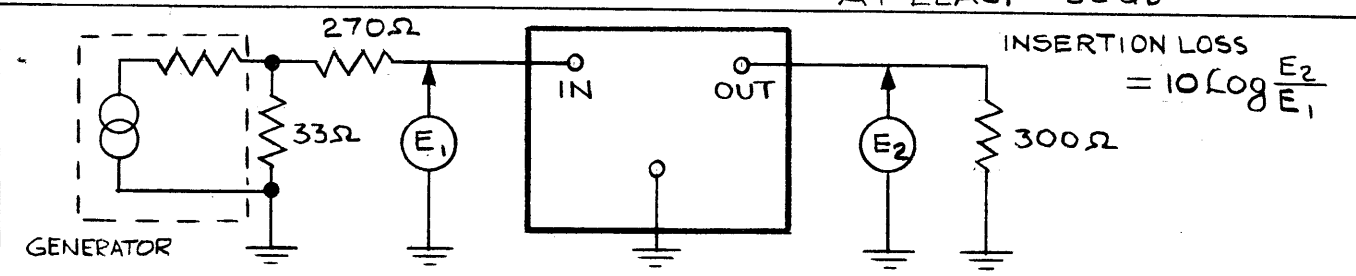
SYM	DESCRIPTION	DATE	F.M.N. NO.	DRAFT	CHKD	APPD
A	TEST SCHEMATIC WITH INSERTION LOSS NOTE ADD. ON ELEC. SPECS: ON INPUT & OUTPUT IMP. ±10% ADDED.	5.14.64	11396	WTS	@	[Signature]

MECHANICAL SPECIFICATIONS

CASE ~ HERMETICALLY SEALED, STEEL.
FINISH ~ S115 TMC SMOOTH GREY ENAMEL,
EXCEPT TERMINAL END.

ELECTRICAL SPECIFICATIONS

FREQUENCY RESPONSE: WITHIN 3db TO 3 KC
ATTENUATION: 30db PER OCTAVE
INPUT IMPEDANCE: 300Ω ±10%
OUTPUT IMPEDANCE: 300Ω ±10%
INSERTION LOSS: 0db @ 1KC ±1db
ATTENUATION: 6KC TO 100KC
AT LEAST -30db



TEST SCHEMATIC

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
STRUMMER LIST OF MATERIAL				
MATERIAL			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
FINISH			TITLE FILTER, AUDIO, LOW PASS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DRAWN W.S. CHECKED [Signature] ELECTD [Signature] MECH [Signature]	DATE 10/15/62 DATE 11-27-62 DATE 11-27-62
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005			FRACTIONS ± 1/64 ANGLES ± 0° 30'	TOLERANCES [Symbol]
THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.			FINAL APPROVAL [Signature] [Signature] DATE FX-181 SHEET	DATE A REV. LT

NOTES

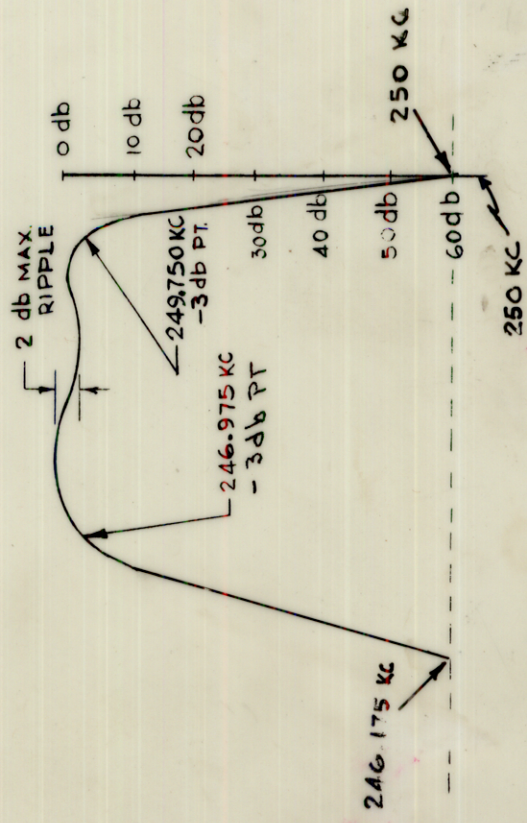
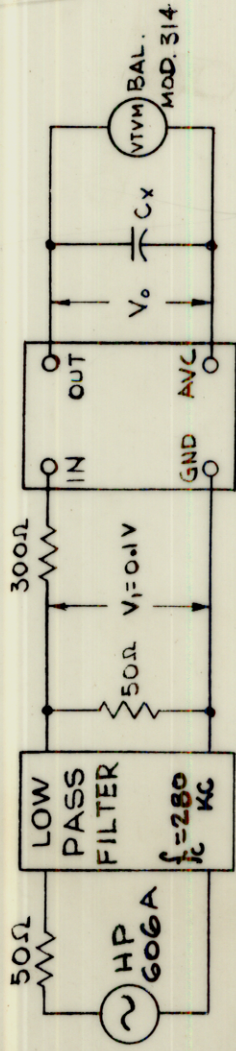
1	SPU-2	
Q'TY./UNIT	MODEL USED ON	ASS'Y. NO.
SCALE	CODE	S401-129

ELECTRICAL SPECIFICATIONS

1. TYPE: INNER LOWER SIDEBAND
2. db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
3. CARRIER FREQUENCY: 250 KC.
4. CARRIER SUPPRESSION: GREATER THAN 60 db
5. -3 db POINTS: 249.750 KC OR GREATER, 246.975 KC OR LESS
6. -60 db POINTS: 246.175 KC OR GREATER, 250.0 KC OR LESS ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE OF ±50 KC FROM CARRIER FREQ.
7. MAXIMUM PASSBAND RIPPLE: 2 db
8. INSERTION (LOSS OR GAIN): +3 db ±1 db
9. INPUT IMPEDANCE: 300 OHMS (NOMINAL).
10. OUTPUT IMPEDANCE: NOT TO EXCEED 50 K OHMS (INTERNALLY TERMINATED).
11. D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5K OHMS.
12. TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764

INSERTION (LOSS OR GAIN) = ±(V_o-V_i) IN db



FINISH: MOUNTING BRACKETS DO NOT PAINT EDGES, TOP AND BOTTOM SURFACES OF MOUNTING BRACKETS.

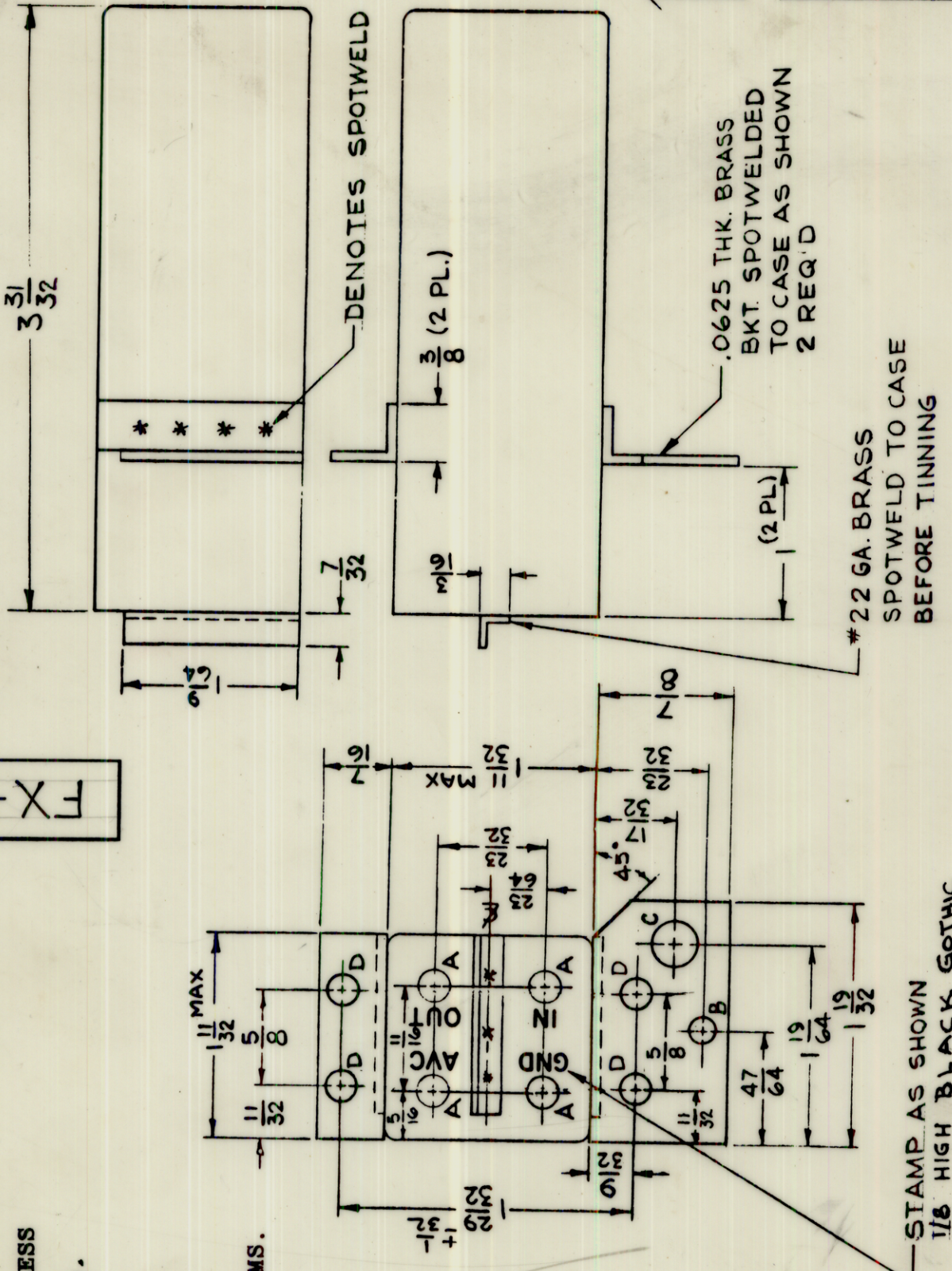
NOTES

THE CONTENTS OF THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF THE TECHNICAL MATERIEL CORP. ITS UNAUTHORIZED USE OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY FORBIDDEN.

FX-184

REVISIONS

SYN	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
0	ORIGINAL RELEASE FOR PRODUCTION	4-17-64	0	A.M.		
A	ON DIMS. 1/29/32, ±1/32 ADD., ON 11/32, MAX ADD (2 PL)	7.30.64	11982	JMS		



SYM	HOLE DIA.	REQ
A	.209 D	4
B	5/32 D	1
C	9/32 D	1
D	3/16 D	1

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
	T. K. AALTONEN		LIST OF MATERIAL	
	BRASS		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
	HOT TIN DIP			
	S115 TMC SMOOTH GREY ENAMEL			
	SEE MOUNTING BRACKET NOTE			
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			
	DECIMALS .X ± .05 .XX ± .01 .XXX ± .005			
	FRACTIONS ± 1/64 ANGLES ± 0° 30'			
	TOLERANCES			

QTY./UNIT	MODEL USED ON	ASSY. NO.
1	MSA-1	
SCALE 1:1	CODE C	5401-129

TITLE
 FILTER, CRYSTAL, ASYMMETRICAL
 2.775 KC INNER LOWER SIDEBAND

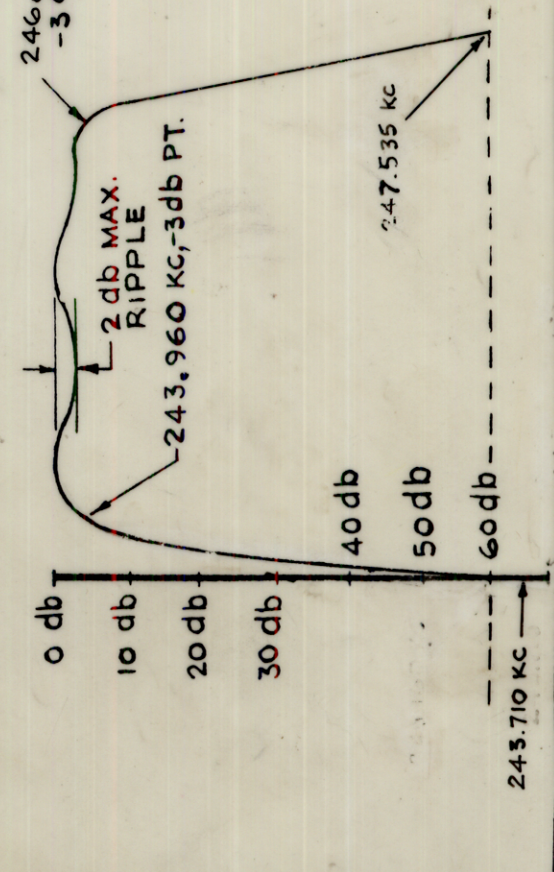
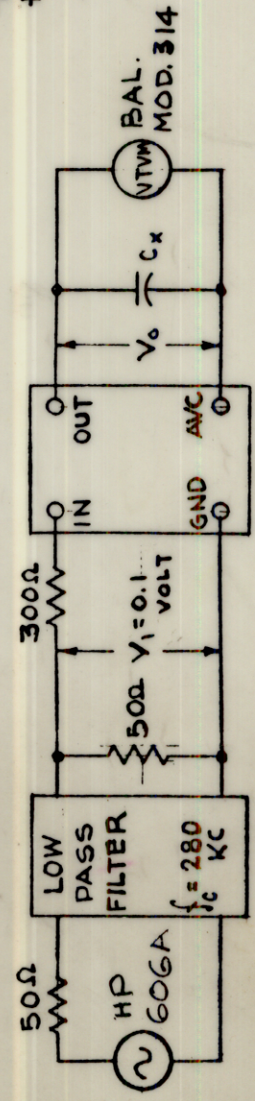
DATE	FINAL APPROVAL	DATE	DATE
2/27/64	T. RAMIREZ	2/27/64	
8-12-64			

FX-184
 SHEET A

ELECTRICAL SPECIFICATIONS

- TYPE: OUTER LOWER SIDEBAND
- db MEASUREMENTS: ALL db MEASUREMENTS ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASSBAND.
- CARRIER FREQUENCY: 243.710 KC
- CARRIER SUPPRESSION: GREATER THAN 60 db
- 3 db POINTS: 243.960 KC OR LESS, 246.735 KC OR GREATER
- 60 db POINTS: 243.710 KC OR GREATER; 247.535 OR LESS. ALL RETURN LOBES AND SPURIOUS SHALL BE -60 db OR GREATER, OVER THE RANGE OF ±50 KC FROM CARRIER FREQUENCY.
- MAXIMUM PASSBAND RIPPLE: 2 db.
- INSERTION (LOSS OR GAIN): +3db ±1db.
- INPUT IMPEDANCE: 300 OHMS (NOMINAL).
- OUTPUT IMPEDANCE: NOT TO EXCEED 50 K OHMS (INTERNALLY TERMINATED)
- D.C. RESISTANCE ACROSS OUTPUT: NOT TO EXCEED 5 K OHMS.
- TEMPERATURE RANGE: 0° TO 70° C.

SEE TEST PROCEDURE S-764. INSERTION (LOSS OR GAIN) = ±(V_o - V_i) IN db

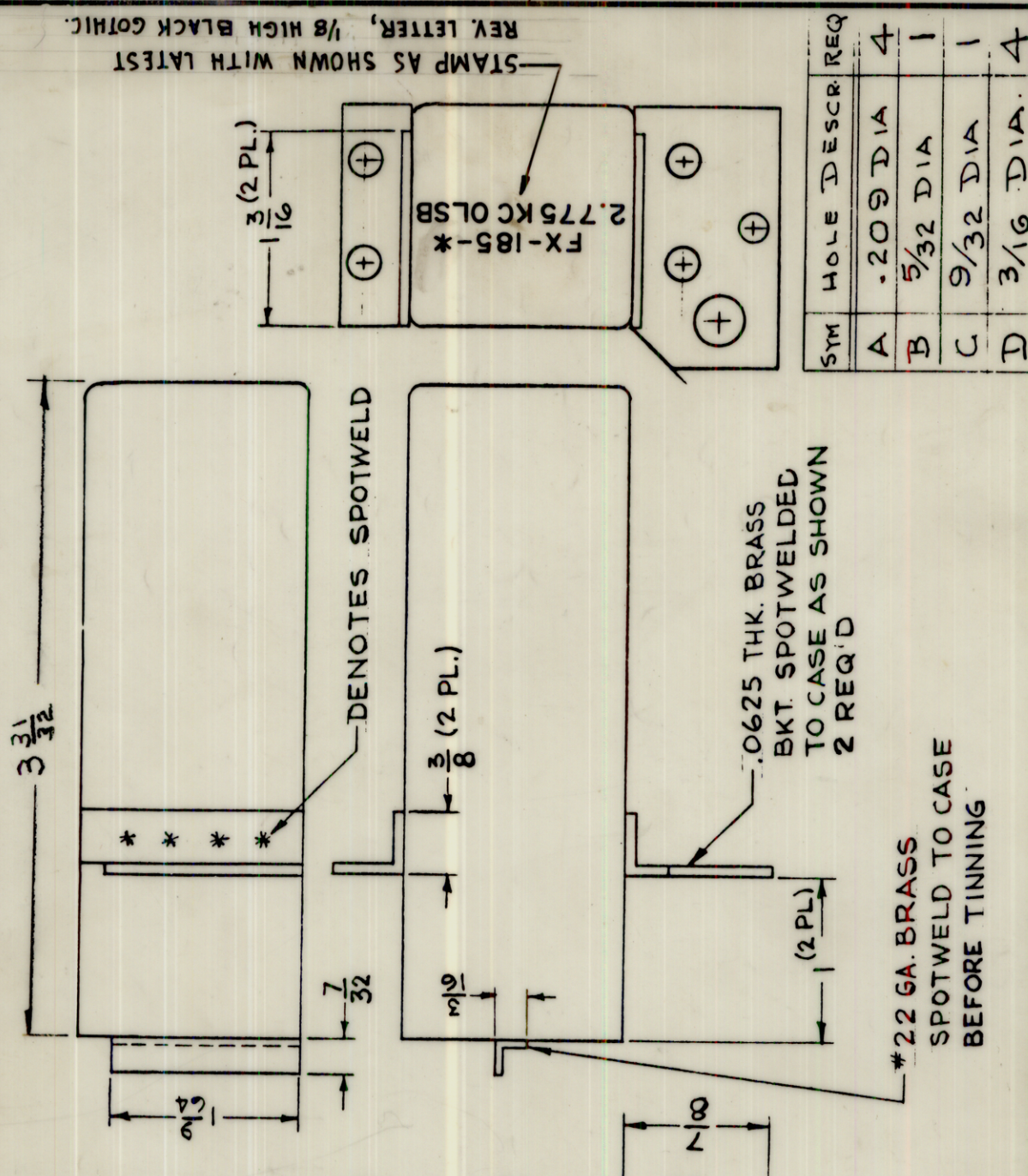


FINISH: MOUNTING BRACKETS DO NOT PAINT EDGES, TOP AND BOTTOM SURFACES OF MOUNTING BRACKETS.

FX-185

REVISIONS

SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
X1	#4 - L_{60} db WAS L_{30} db.	3/10/64		T.R.		
O	ORIGINAL RELEASE FOR PRODUCTION	4-17-64	O	A.M.		
A	ON DIMS. $1 \frac{29}{32}$, $\pm 1/32$ ADD., ON $1 \frac{11}{32}$, MAX. ADD. (2 PL.)	7-30-64	11982	JWB		
B	R.VIEW: (FX-185-*) WAS (FX-185-0); STAMP NOTE: "WITH LATEST REVISION LETTER" ADDED.	12-29-64	13161	J.F.		



SYM	HOLE	DESCR	REQ
A	.209	DIA	4
B	5/32	DIA	1
C	9/32	DIA	1
D	3/16	DIA.	4

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
	T.K. AALTONEN		LIST OF MATERIAL	
	BRASS		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
	HOT TIN DIP			
	S115 TMC SMOOTH GREY ENAMEL			
	SEE MOUNTING BRACKET NOTE			
	UNLESS OTHERWISE SPECIFIED			
	DIMENSIONS ARE IN INCHES AND INCLUDE			
	CHEMICALLY APPLIED OR PLATED FINISHES			
	DECIMALS			
	.X ± .05			
	.XX ± .01			
	.XXX ± .005			
	FRACTIONS			
	± 1/64			
	ANGLES			
	± 0° 30'			
	TOLERANCES			

QTY./UNIT	MODEL USED ON	ASSY. NO.
1	MSA-1	
SCALE	CODE	
1:1	C	S401-129

TITLE	DATE	FINAL APPROVAL	DATE
2.775 KC OUTER LOWER SIDEBAND	2/26/64		
	3-12-64		
	3-12-64		
	3-12-64		

REV. LTR.	SHEET
B	1

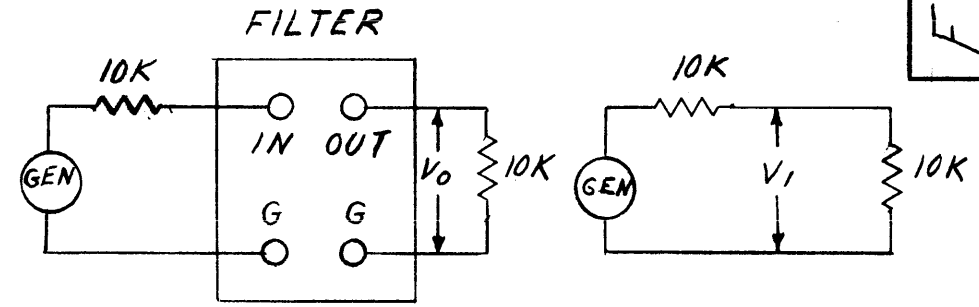
REVISIONS

SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
0	ORIGINAL RELEASE FOR PRODUCTION	4/1/64				
A	CLERICAL CHANGE	12/31/65	EC	IVV		
B	-2db was -3db; Add. "OR BRUSHED NICKEL"	1/3/66	15638	HCA		

FX-190 B

FX-190
UPPER SIDEBAND FILTER
THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK

LETTERING APPROX SIZE SHOWN, BLACK GOTHIC

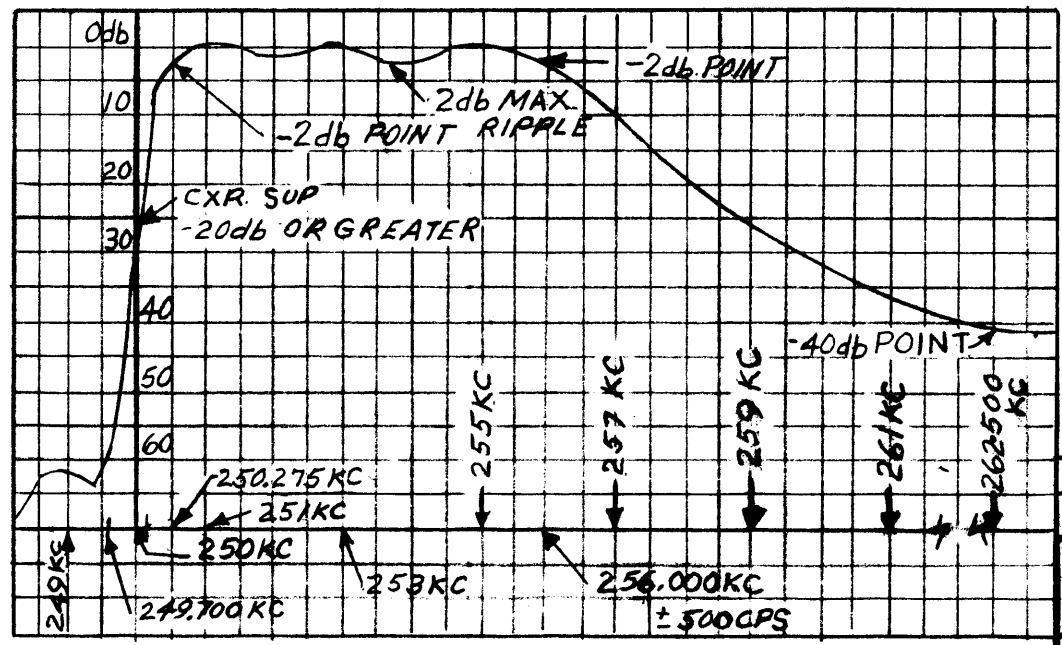
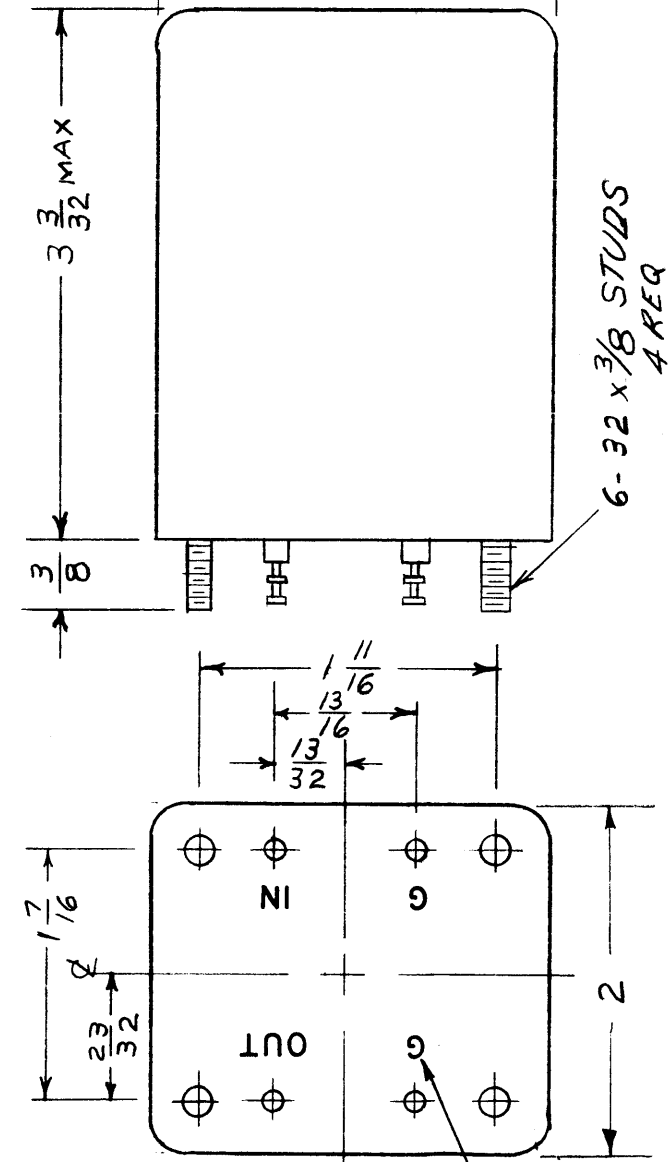


ELECTRICAL SPECIFICATIONS
TYPE: UPPER SIDEBAND

CARRIER FREQUENCY: 250 KC
CARRIER SUPPRESSION: -20 db OR GREATER
-2db POINT: 250.275 KC MAX: 256.000 KC \pm 500 CPS
TRAILING SLOPE: 262.5 40db or more
UNWANTED SIDEBAND ATTENUATION: GREATER THAN 60 db FOR FREQUENCIES LESS THAN 249.700 KC INCLUDING ALL RETURN LOBES AND SPURIOUS.
MAXIMUM PASSBAND RIPPLE: 2 db
INSERTION LOSS: 11.5 \pm 1 db
INPUT IMPEDANCE: 10K UNBALANCED
OUTPUT IMPEDANCE: 10K UNBALANCED
TEMPERATURE RANGE: 0° TO 70°C

MECHANICAL SPECIFICATION:

CASE: STEEL, HERMETICALLY SEALED
FINISH: TMC GRAY (S-115) or Brushed Nickel
NOTE: Terminal End Unpainted
MOUNTING: 6-32 X 3/8 Studs (4 req.)
TERMINAL: Double End Pin Type, Brass, Silver Plated, Bead Insulated



INSERTION (LOSS OR GAIN) = $\pm(V_1 - V_0)$ IN DB

NOTES

METAL STAMP 1/8 HIGH GOTHIC AS SHOWN

1	SBE-4, SBE10	AX-465
QTY./UNIT	MODEL USED ON	SECTION
NONE	C	
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REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
PRITCHARD LIST OF MATERIAL				
MATERIAL SEE MECH. SPEC.			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
FINISH SEE MECH SPEC.			TITLE UPPER SIDEBAND FILTER BANDPASS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRAWN A. MARINO	DATE 2-25-64	FINAL APPROVAL RA
DECIMALS .X \pm .05 .XX \pm .01 .XXX \pm .005		CHECKED @	DATE 3-24-64	DATE 4-2-64
FRACTIONS \pm 1/64 ANGLES \pm 0° 30'		ELECT. DES. K	DATE 3-31-64	DATE
TOLERANCES		MECH. DES.	DATE	DATE
			SHEET	REV. LTR.

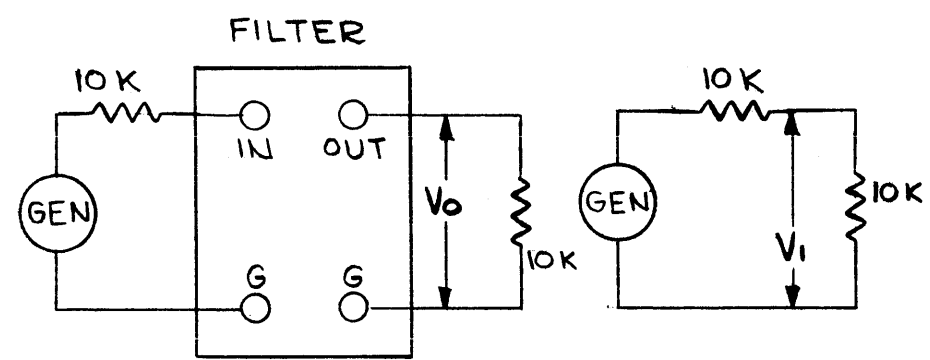
B
FX-191

REVISIONS

SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
0	ORIGINAL RELEASE FOR PRODUCTION	4/1/64				
A	CLERICAL CHANGE	4/3/65	CC	X.V.	JB	
B	-2db WAS -3db; ADD. "OR BRUSHED NICKEL"	11/31/65	15638	H.L.A.	JB	MMMA

FX-191
LOWER SIDEBAND
FILTER
THE TECHNICAL MATERIEL
CORPORATION
MAMARONECK, NEW YORK

LETTERING APPROX. SIZE
SHOWN, BLACK GOTHIC.



ELECTRICAL SPECIFICATIONS
TYPE: LOWER SIDEBAND

CARRIER FREQUENCY: 250 KC
 CARRIER SUPPRESSION: -20 db OR GREATER
 -2db POINTS: 249.725KC, MIN, 244.000 KC ±500 CPS
 TRAILING SLOPE: 237.5 40 db OR MORE
 UNWANTED SIDEBAND ATTENUATION: GREATER THAN -60 db FOR FREQUENCIES
 HIGHER THAN 250.300 KC, INCLUDING ALL RETURN LOBES AND
 SPURIOUS μ
 MAXIMUM PASSBAND RIPPLE: 2 db
 INSERTION LOSS: 11.5 ± 1 db
 INPUT IMPEDANCE: 10 K UNBALANCED
 OUTPUT IMPEDANCE: 10 K UNBALANCED
 TEMPERATURE RANGE: 0° TO 70°C

MECHANICAL SPECIFICATION:

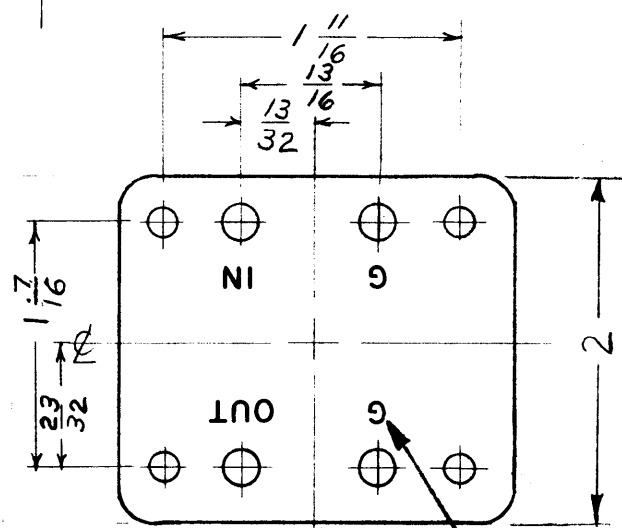
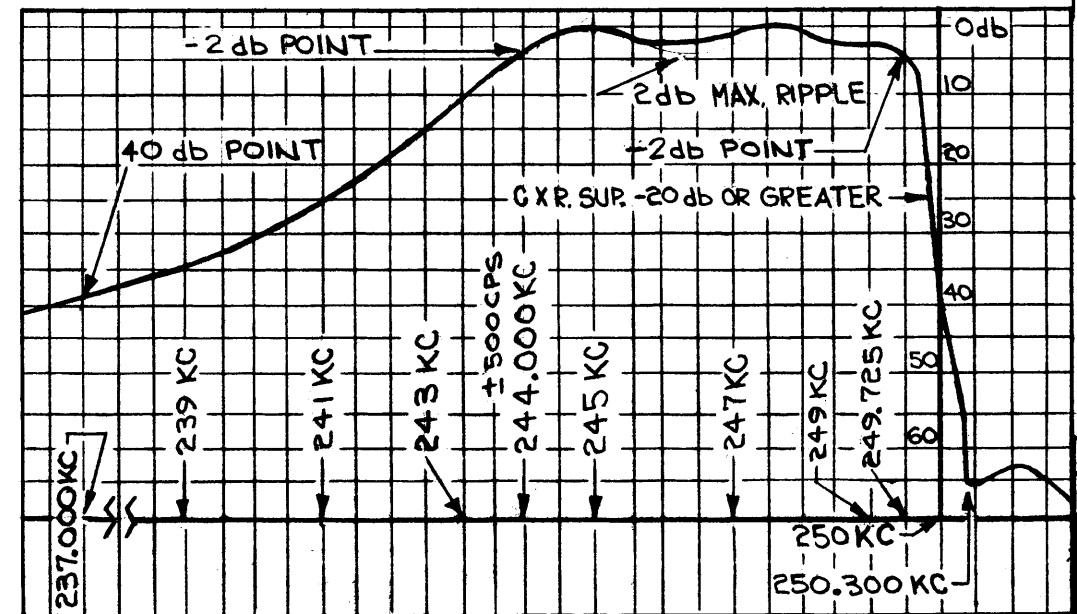
CASE: Steel, Hermetically Sealed
 FINISH: TMC Gray (S-115) or Brushed Nickel
 NOTE: Terminal End Unpainted
 MOUNTING: 6-32 X 3/8 studs (4 reg.)
 TERMINAL: Double End Pin Type, Brass, Silver Plat d,
 Bead Insulation

2 9/32

3 3/32 MAX

3/16

6-32 x 3/8 STUDS (4 REQ)



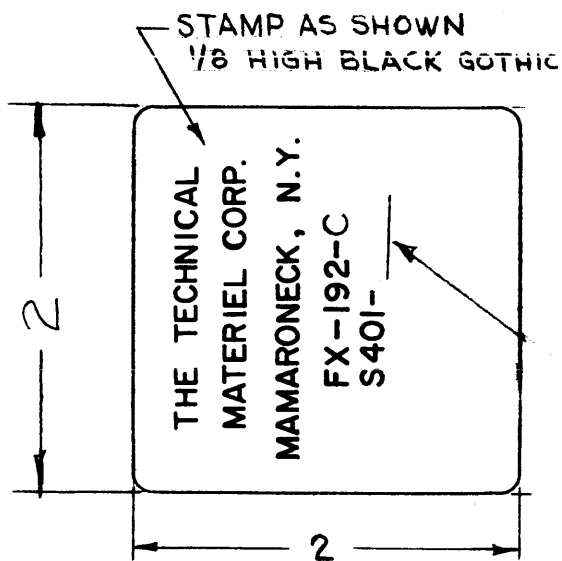
METAL STAMP 1/8 HIGH
GOTHIC AS SHOWN.

NOTES

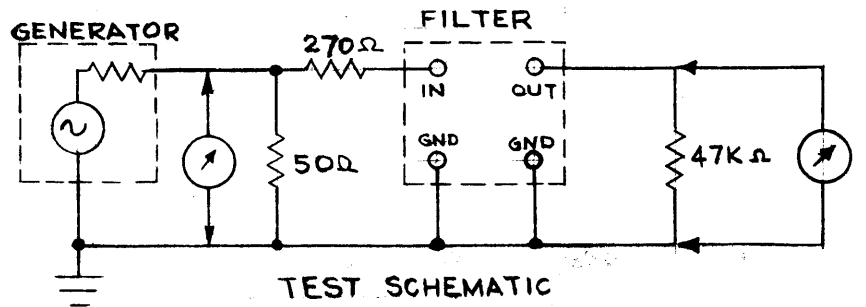
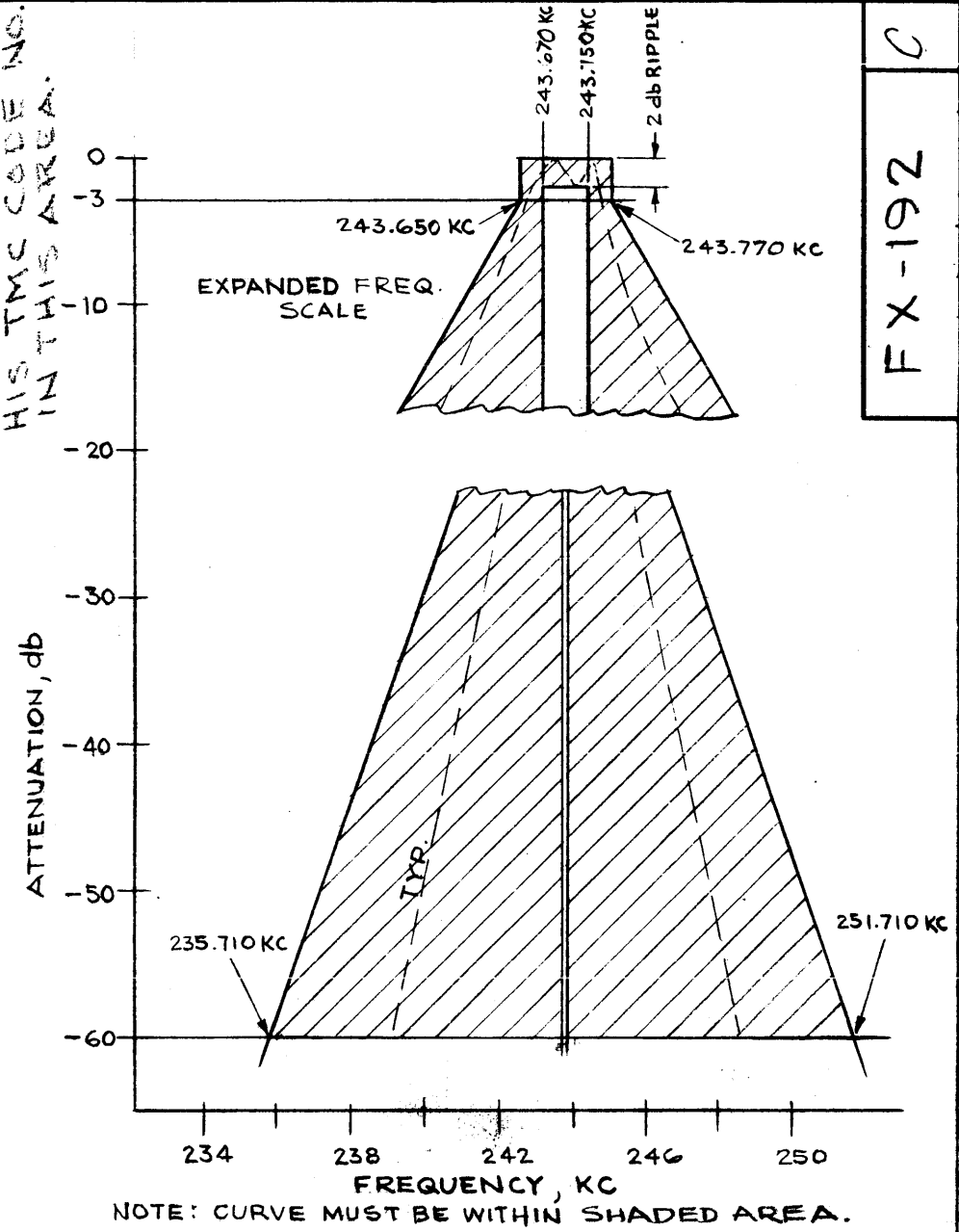
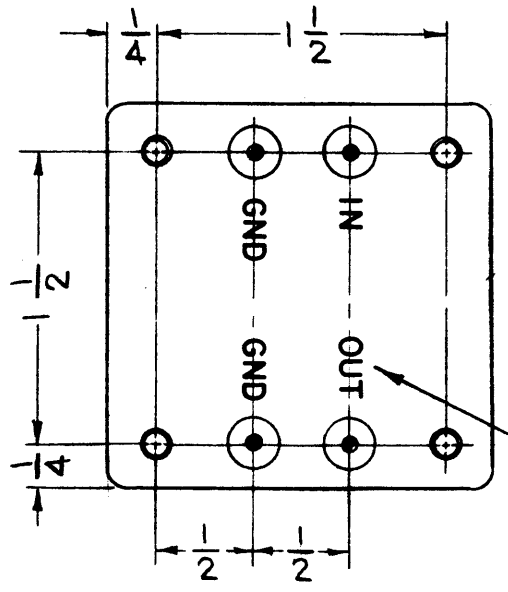
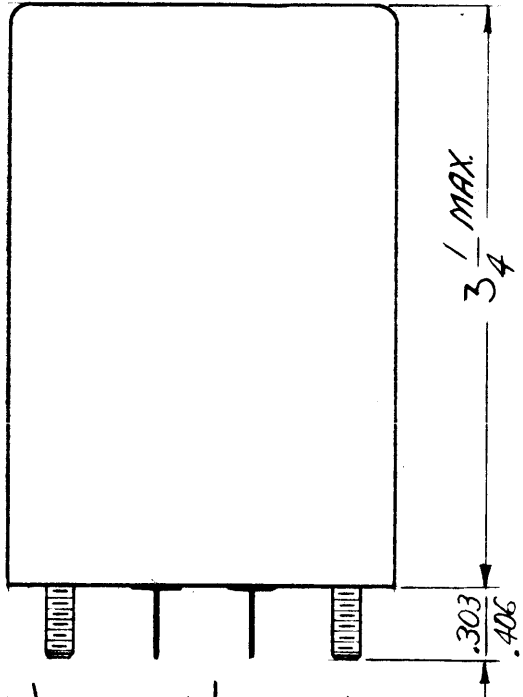
1	SBE-4, SBE-10	AX-464
QTY./UNIT	MODEL USED ON	5257104
SCALE	CODE	
H	C	
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INSERTION (LOSS OR GAIN) = ±(V1-V0) IN DB

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
PRITCHARD LIST OF MATERIAL				
MATERIAL			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
SEE MECH. SPEC			TITLE LOWER SIDEBAND FILTER BANDPASS	
FINISH			DRAWN	
SEE MECH SPEC.			A. MARINO	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DATE	2-25-64
			CHECKED	@
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005			DATE	3-25-64
			DATE	3-31-64
TOLERANCES			ELECT. DES.	
			MECH. DES.	
FRACTIONS ± 1/64 ANGLES ± 0° 30'			DATE	
			DATE	
SHEET			REV. LTR.	



MEGR TO INSERT HIS TMC CODE NO. IN THIS AREA.



STANDARD DRAWING

1	MCG-1	
QTY./UNIT	MODEL USED ON	ASSY. NO.
SCALE 1:1	CODE C	S401-210

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C
FX-192

REVISIONS					
SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD
X1	CHANGED AS PER REQUEST OF S401-95	1/20/64		TR	
X2	REVISED FREQUENCY RESP NSE CURVE & ELECT. SPEC. ADDED TEST SCHEMATIC	1/27/64		T.R	
O	ORIGINAL RELEASE FOR PRODUCTION	2/28/64		A.M.	
A	REVERSED POS. OF 243.765 KC & 243.755 KC AT -3DB	3-11-64	11034	A.M.	
B	ELEC. SPECS #5, ±10 CPS. WAS ±5 CPS. 2 PL. ON GRAPH, 243.650 WAS...655 243.670 WAS...665 243.750 WAS...755 243.770 WAS...765.	10-27-64	12768	J.P.	
C	.303 WAS 3/8 LONG. FINISH, ADDED POWDER BLASTED NICKEL. 3/4 WAS 3.	3-20-67	18004	L.A.K.	

ELECTRICAL SPECIFICATIONS

- NOTE: ALL MEASUREMENTS TAKEN RELATIVE TO MAXIMUM OUTPUT IN PASSBAND
- TYPE: BANDPASS, 100 CYCLE 3 db POINTS
 - CENTER FREQUENCY: 243.710 KC
 - TRAILING SLOPE: -30db @ 250KC OR LESS, -60db @ 251.710 KC OR LESS
 - LEADING SLOPE: -60 db @ 235.710 KC OR MORE
 - 3 db POINTS: 243.760 KC ±10 CPS, 243.660 KC ±10 CPS
 - MAX. PASSBAND VARIATIONS: 2 db
 - RETURN LOBES: ATTENUATED GREATER THAN 60db
 - FILTER INSERTION GAIN: 13 db ±1db
 - INPUT IMPEDANCE: 300 Ω
 - OUTPUT IMPEDANCE: 47,000 Ω
 - TEMPERATURE RANGE: 0°C. TO 70°C.

MECHANICAL SPECIFICATIONS

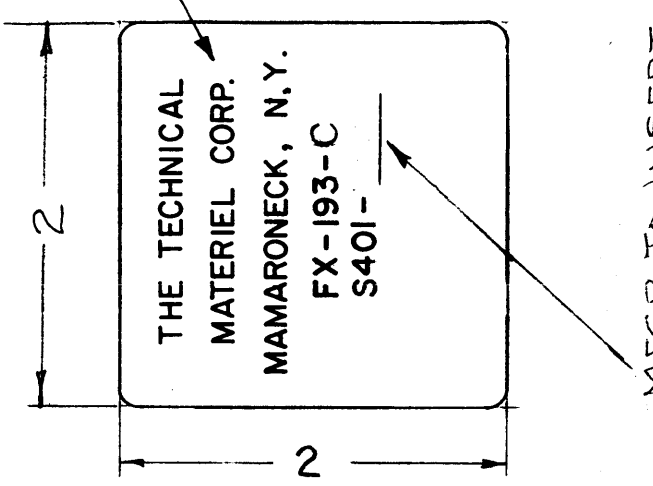
- CASE: STEEL, HERMETICALLY SEALED.
- TERMINAL DATA: (4) MINIATURE SINGLE TERMINALS, GLASS INSULATED WITH .032-.040 DIA. WIRE LEADS, 3/8 LONG
- MOUNTING DATA: (4) 6-32 THD. STUDS, .303/406 LONG
- FINISH DATA: S115 TMC GREY ENAMEL, OR POWDER BLASTED NICKEL.

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
AALTONEN				
MATERIAL			LIST OF MATERIAL	
SEE MECH. SPEC.			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
FINISH			TITLE	
SEE MECH. SPEC.			FILTER, BANDPASS, CRYSTAL	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES				
DRAWN		DATE		FINAL APPROVAL
T. RAMIREZ		12/19/63		RAC
CHECKED		DATE		DATE
A. Turan		2-17-64		3/2/64
ELECT. DES.		DATE		SHEET
T. Ramirez		12/19/63		FX-192
MECH. DES.		DATE		REV. LTR.
T. Ramirez		2-17-64		C

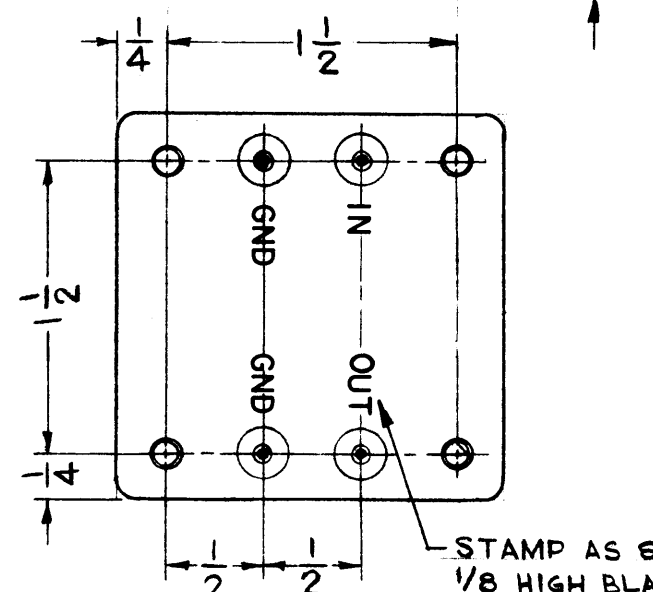
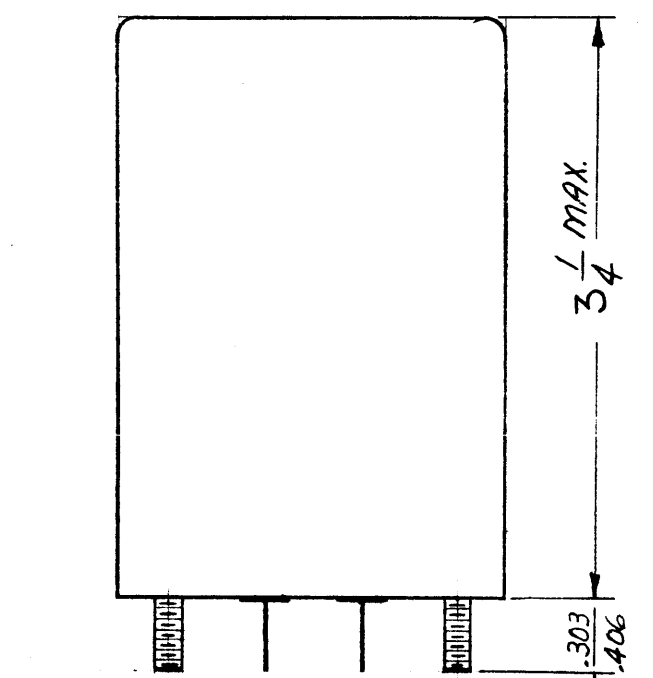
NOTES

STAMP AS SHOWN, 1/8 HIGH BLACK GOTHIC

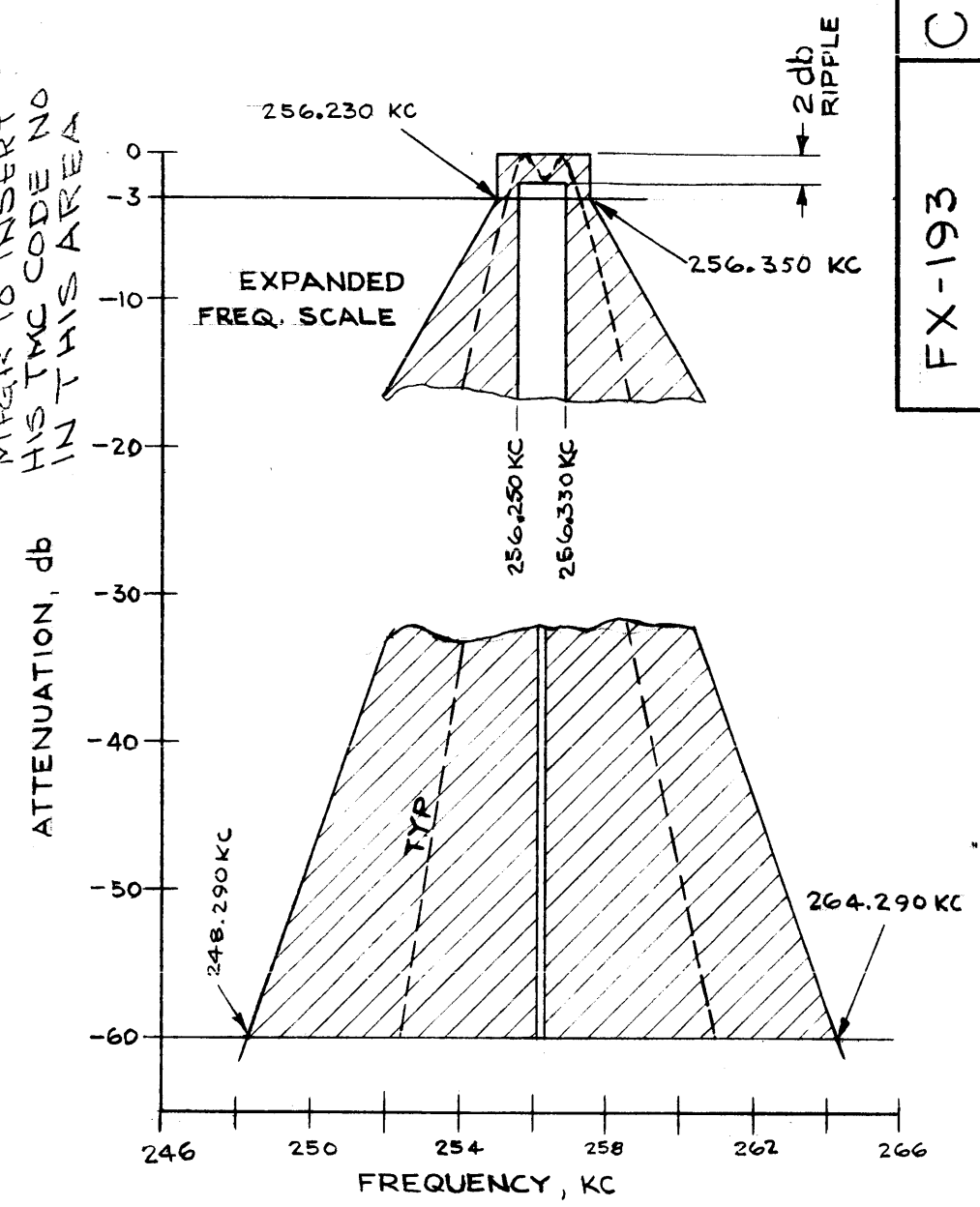
STAMP AS SHOWN
1/8 HIGH BLACK GOTHIC



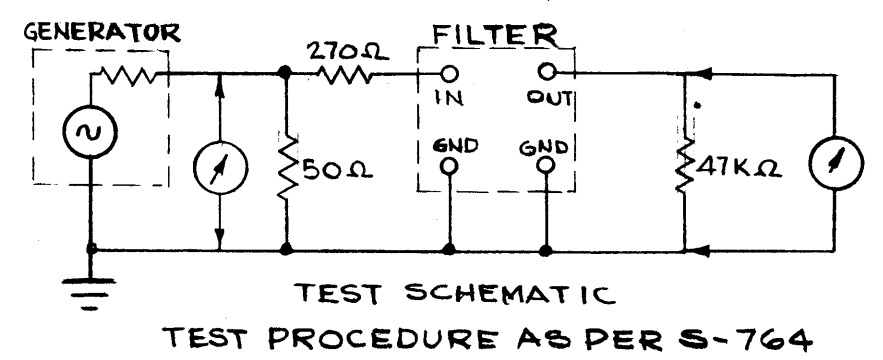
REFER TO INSERT
HIS TMC CODE NO
IN THIS AREA



NOTES



NOTE: CURVE MUST BE WITHIN SHADED AREA.



1	MCG-1	
QTY./UNIT	MODEL USED ON	ASSY. NO.
SCALE	CODE	S401-210
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C
FX-193

REVISIONS						
BYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
X1	CHANGED AS PER REQUEST OF S401-95	12/20/63		T.R.		JAW
X2	REVISED CURVE & ELECTRICAL SPEC. ADDED TEST - SCHEMATIC	1/29/64		TR		JRC
O	ORIGINAL RELEASE FOR PRODUCTION	2/28/64		A.M.		
A	ELEC. SPECS. #5, ±10 CPS. WAS ±5 CPS. 2 PL. ON GRAPH, 256.230 WAS...235. 245.250 WAS...245. 256.330 WAS...335. 256.350 WAS...345.	10-27-64	12768	9.F.		
B	Mech. Spec. (Add OR Nickel Finish (Brushed))	7/15/66	16565	C.V.		
C	303 WAS 3/8, 3/4 WAS 3. FINISH, ADDED POWDER BLASTED NICKEL. REMOVED BRUSHED NICKEL.	3-20-67	18004	L.A.K.		

ELECTRICAL SPECIFICATIONS

- NOTE: ALL MEASUREMENTS TAKEN RELATIVE TO MAXIMUM OUTPUT IN PASSBAND
- TYPE: BANDPASS, 100 CYCLE
 - CENTER FREQUENCY: 256.290 KC
 - TRAILING SLOPE: -60 db @ 264.290 KC OR LESS
 - LEADING SLOPE: -30 db @ 250 KC OR MORE, -60 db @ 248.290 KC OR MORE
 - 3 db POINTS: 256.340 KC ±10 CPS, 256.240 KC ±10 CPS
 - MAXIMUM PASSBAND VARIATION: 2 db
 - RETURN LOBES: ATTENUATED GREATER THAN 60 db
 - FILTER INSERTION GAIN: 13 db ± 1db
 - INPUT IMPEDANCE: 300 Ω
 - OUTPUT IMPEDANCE: 47,000 Ω
 - TEMPERATURE RANGE: 0°C. TO 70°C

MECHANICAL SPECIFICATIONS

- CASE: STEEL, HERMETICALLY SEALED
- TERMINAL DATA: (4) MINIATURE SINGLE TERMINALS, GLASS INSULATED WITH .032-.040 DIA. WIRE LEADS, 3/8 LONG
- MOUNTING DATA: (4) 6-32 THD. STUDS, .303 LONG
- FINISH DATA: S115 TMC GREY ENAMEL OR POWDER BLASTED NICKEL.

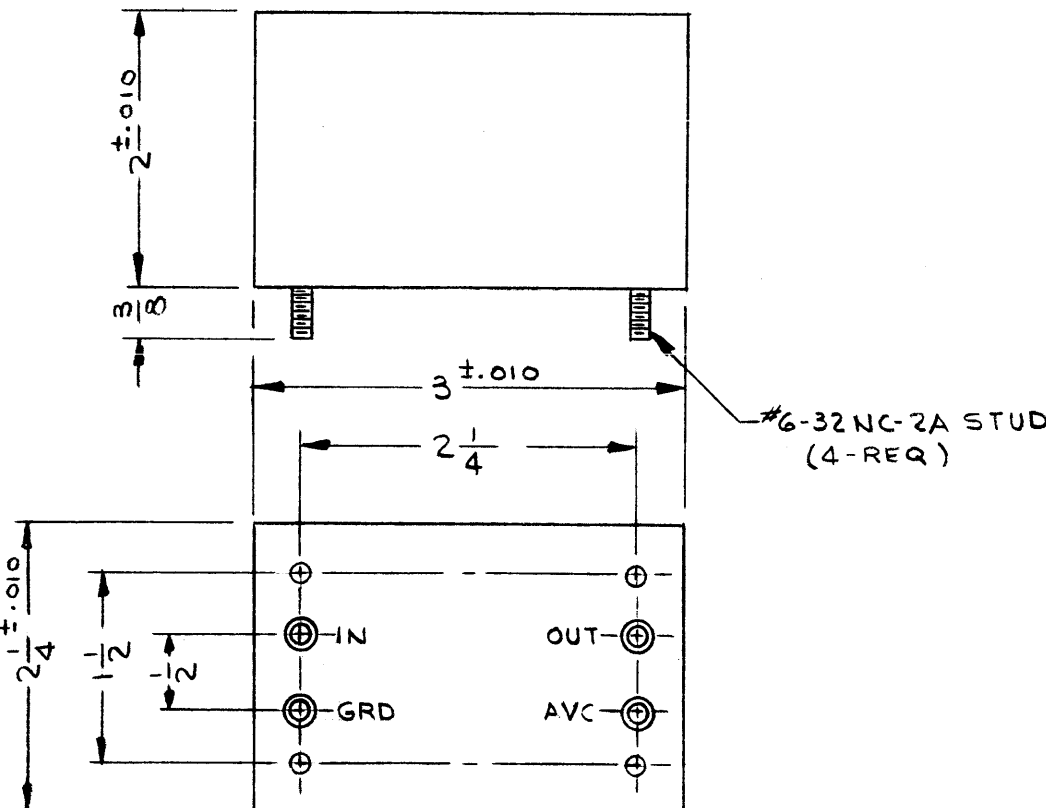
STANDARD DRAWING

REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
AALTONEN LIST OF MATERIAL				
MATERIAL		SEE MECH. SPEC.	THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK	
FINISH		SEE MECH. SPEC.	TITLE FILTER, BANDPASS, CRYSTAL	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DRAWN T. RAMIREZ DATE 12/18/63 CHECKED A. Torres DATE 2-17-64 ELECT. DES. J.H. Galtman DATE 12/18/63 MECH. DES. T. Green DATE	FINAL APPROVAL RAC DATE 2/7/64 FX-193 C SHEET REV. LTR.

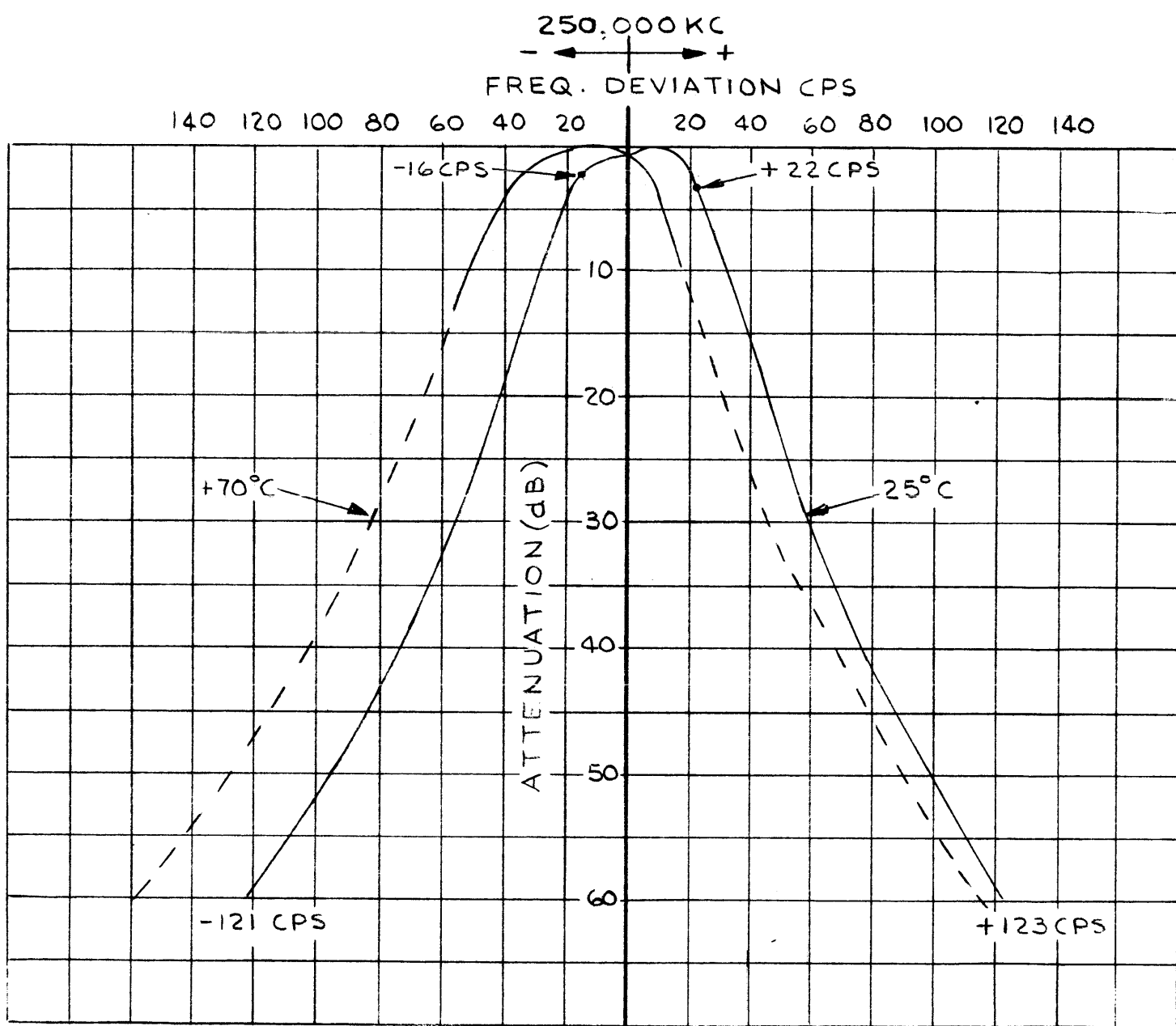
STANDARD DRAWING

REVISIONS						
ZONE	LTR	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD
	Ø	ORIG RELEASE FOR PRODD	4/3/69		JCB	JCB

THE TECHNICAL MATERIEL CORP
MAMARONECK NEW YORK
FX197-



REQ'D	ITEM	PART NUMBER	DESCRIPTION	SYM.
O. POSE LIST OF MATERIAL				
THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK				
FILTER, CRYSTAL, BANDPASS (40 CPS)				
SIZE	CODE IDENT. NO.	DWG NO.	ISSUE	
B	82679	FX197	Ø	
SCALE	SHEET		OF	



QTY / UNIT	AFC-4	ASS'Y NO.
APPLICATION		
CODE		

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

DECIMALS .X ± .05
.XX ± .01
.XXX ± .005

FRACTIONS 1/64
ANGLES 0° -30'

MATERIAL

FINISH

FINAL APPROVAL [Signature]
MECH. DES. [Signature]
ELECT. DES. [Signature]
CHECKED [Signature]
DRAWN JCB

DATE 4-3-69
DATE 3/12/64
DATE 3/12/64

D

C

B

A

D

C

B

A

STANDARD DRAWING

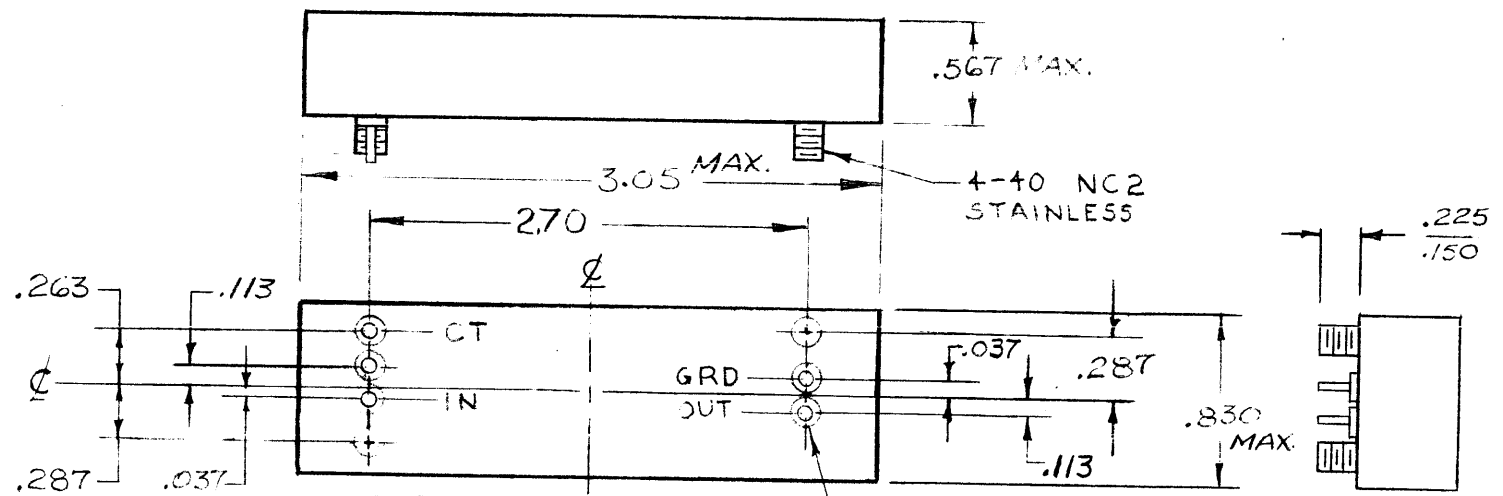
A
FX198

REVISIONS

SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
Ø	ORIGINAL RELEASE FOR PRODUCTION	10-16-64		9c		
A	COMPLETELY REVISED DIMENSIONS	11-30-64	18044	ENJ		EFM

TMC FX-198
6.4 MC SYM FILTER
8KC 3db BW

TOP VIEW MARKING

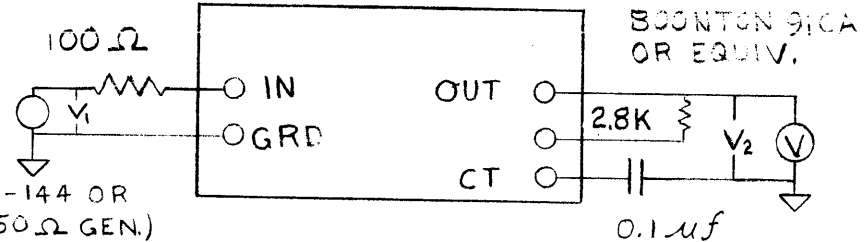


BOTTOM VIEW MARKING

ST. WIRE TERMINALS
.030 DIA. .188 LONG

FIGURE II
SEE SPEC. NO. 3

MARCONI TF-144 OR
EQUIVALENT (50 Ω GEN.)



TEST CIRCUIT
SEE SPEC. NO. 4

SPECIFICATIONS

- ELECTRICAL REQUIREMENTS: UNITS SHALL MEET THE FOLLOWING ELECTRICAL REQUIREMENTS OVER THE OPERATING TEMPERATURE RANGE.
 - SOURCE IMPEDANCE: 2.8K + 5% RESISTIVE (SEE TEST CIRCUIT).
 - LOAD IMPEDANCE: 150 + 5% RESISTIVE.
 - INSERTION LOSS: 3 db MAXIMUM (SEE TEST CIRCUIT).
 - PEAK TO VALLEY RATIO: ± 1 db MAXIMUM.
- ENVIRONMENTAL REQUIREMENTS:
 - OPERATING TEMPERATURE RANGE: 0 TO 70 C
- MECHANICAL REQUIREMENTS:
 - UNIT TO BE HERMETICALLY SEALED.
 - MARKING BLACK 1/8" HIGH GOTHIC.
- TEST CIRCUIT:
 - FOR PURPOSE OF TEST, FILTER SOURCE AND LOAD ARE REVERSED.
 - INSERTION LOSS: INSERTION LOSS IS DETERMINED AT POINT OF MINIMUM ATTENUATION AND IS DEFINED BY:

$$I.L. = 20 \log_{10} \frac{V_2}{V_1} = 3 \text{ db MAXIMUM}$$

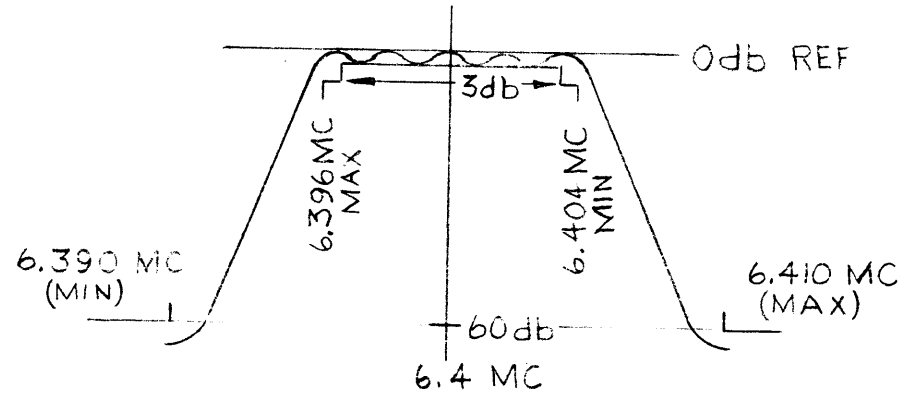


FIGURE I
ATTENUATION: SEE SPEC. NO. 1

STANDARD DRAWING

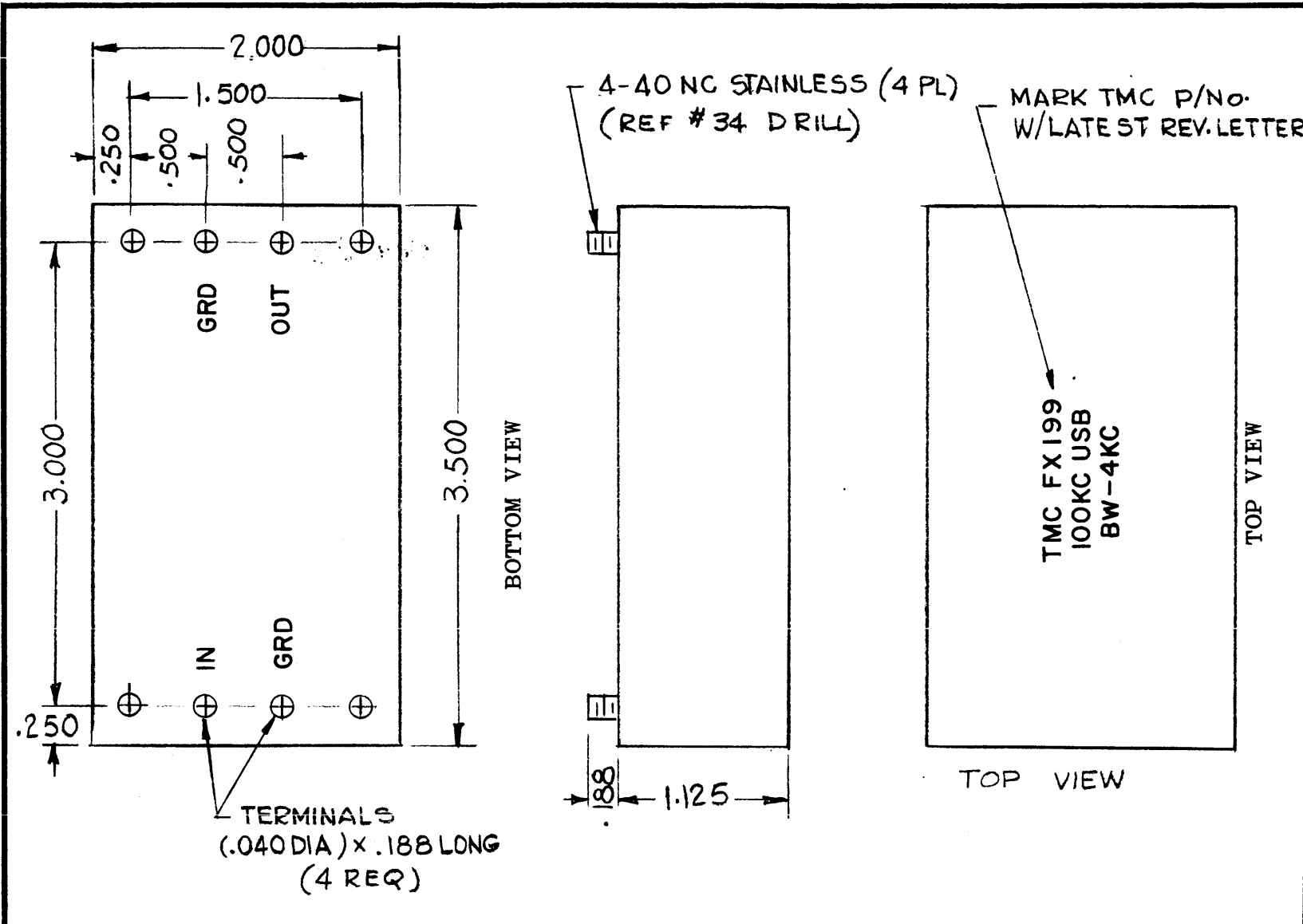
Q'TY./UNIT	MODEL USED ON	ASS'Y. NO.
	VLRB-1	
SCALE	CODE	S401-308
	C	

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REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
LIST OF MATERIAL				
MATERIAL		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
FINISH		TITLE FILTER, CRYSTAL, BAND PASS 8KC B.W. 6.4 MC SYMETRICAL		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRAWN <i>J. J. J.</i>	DATE 9-10-64	FINAL APPROVAL <i>R. J.</i>
TOLERANCES		CHECKED <i>@</i>	DATE	DATE
DECIMALS .X ± .05 .XX ± .01 .XXX ± .005		ELECT. DES. <i>9c</i>		DATE 10/19/64
FRACTIONS ± 1/64 ANGLES ± 0° 30'		MECH. DES. <i>9c</i>		DATE 10/19/64
SHEET				FX198
REV. LTR.				A

NOTES

STANDARD DRAWING



REVISIONS						
SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
X	EXPER. RELEASE	12-23-64		G.D.L		
Ø	ORIGINAL RELEASE FOR PRODUCTION	12.31.64	Ø	JTB		

ELECTRICAL SPECIFICATIONS

1. TYPE: BAND PASS, CRYSTAL
2. db MEASUREMENT ARE RELATIVE TO MAXIMUM SIGNAL RESPONSE IN PASS BAND
3. CARRIER FREQUENCY: 100.000Kc
4. CARRIER SUPPRESSION: 20db MIN.
5. 3 db POINTS: 100.250 Kc MAX, 104.000 KC MINIMUM
6. 60 db POINTS; 99.750Kc MAX, 107,000 Kc MAX.
ALL RETURN LOBES AND SPURIOUS SHALL BE -60db OR GREATER OVER THE RANGE OF ± 50Kc FROM CARRIER.
7. MAXIMUM PASS BAND RIPPLE: 2.5db MAX.
8. VOLTAGE LOSS OR GAIN: 0db ± 2db
9. INPUT IMPEDANCE: 10K Ω ± 5% RESISTIVE
10. OUTPUT IMPEDANCE: 1000Ω ± 5% RESISTIVE

ENVIRONMENTAL SPECIFICATIONS

1. TEMPERATURE RANGE: 0° - 70°C

MECHANICAL SPECIFICATIONS

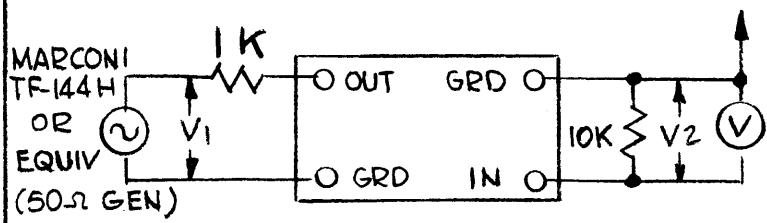
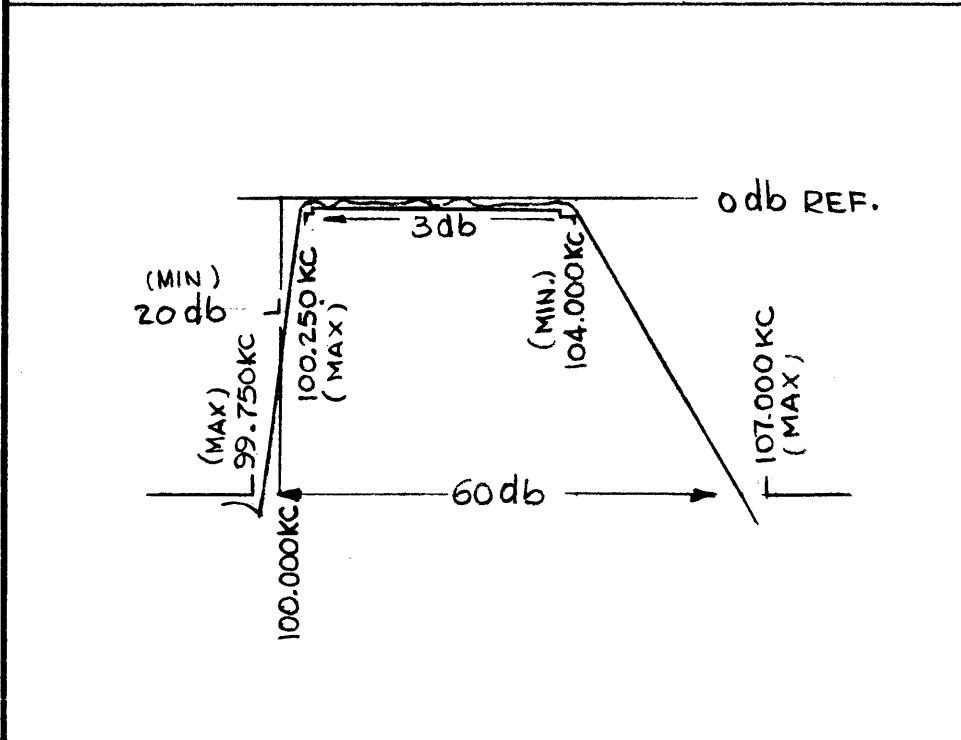
1. HERMETICALLY SEALED
2. MARKING: 1/8" HIGH GOTHIC, BLACK
3. TERMINALS: PIN TYPE

TEST CIRCUIT

1. TO MEASURE 60 db, FILTER SOURCE AND LOAD IS REVERSED
2. VOLTAGE LOSS DEFINED AS:

HP 400LR OR EQUIV. $I.L. = 20 \log_{10} \frac{V_1}{V_2} = 0db \pm 2db$

AT POINT OF MINIMUM LOSS IN FILTER PASS BAND.
NOTE: CAPACITY OF VTVM AND CONNECTING CABLES MUST BE TURNED OUT SEE S-764 FOR REFERENCE ONLY.



TEST CIRCUIT

STANDARD DRAWING

Q'TY./UNIT	MODEL USED ON	ASS'Y. NO.
SCALE	CODE	
1:1		

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REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
			LIST OF MATERIAL	
			BRASS	
			THE TECHNICAL MATERIEL CORP.	
			MAMARONECK, NEW YORK	
			FINISH BRUSH, BRIGHT NICKEL PLATE	
			TITLE FILTER BANDPASS 4KC BW 100 KC LSB	
			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	
			DECIMALS	
			FRACTIONS	
			TOLERANCES	
			ANGLES	
			± 0° 30'	

NOTES