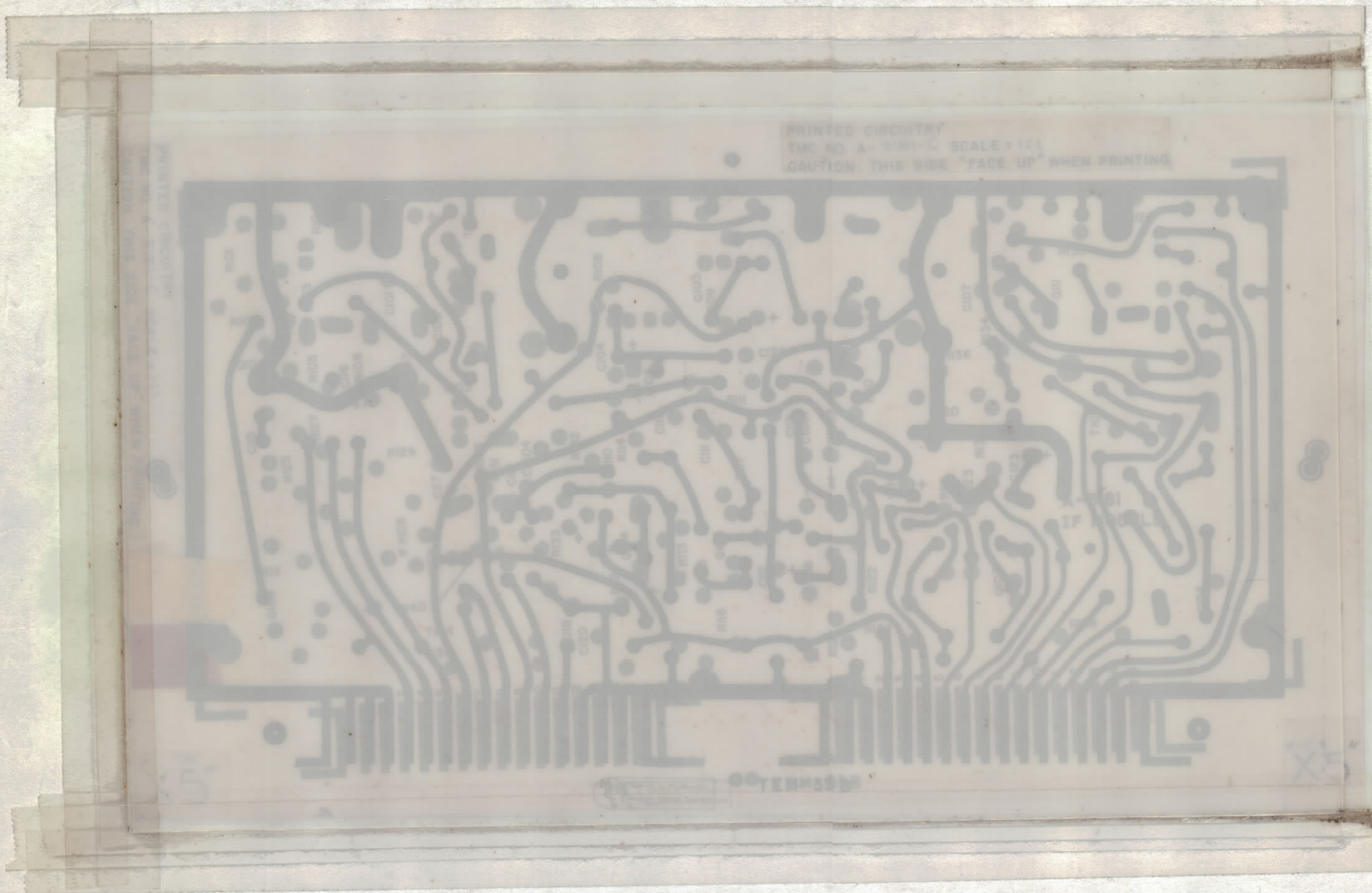


# ETCHING, PRINTED CIRCUIT (A-3181-1)

REVISIONS						
ZONE	SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD
-	X1	SEE SHEET 2 OF 2 REVISION "X1"	9-11-63	1	af	
-	X2	SEE SHEET 2 OF 2 REVISION "X2"	11-18-63	2	af	
-	X3	SEE SHEET 2 OF 2 REVISION "X3"	11-22-63	3	af	
F2	X4	HOLE & PAD SPECS COMPLETELY CHANGED	12-5-63	4	af	
-	X5	SEE SHEET 2, A-3181-1 NEGATIVE UPDATED	3/14/64	5	af	
-	O	ORIGINAL RELEASE FOR PRODUCTION	6/1/64	0	A.M.	
BA	A	ON PC BOARD 1/16R ON 4 CORNERS ADDED	7-22-64	11871		
-	B	SEE SHEET 2 OF 2 REV. "B"	8-26-64	12096	WB	
-	C	SEE SHEET 2 OF 2 REV. "C"	11-9-64	12858	af	

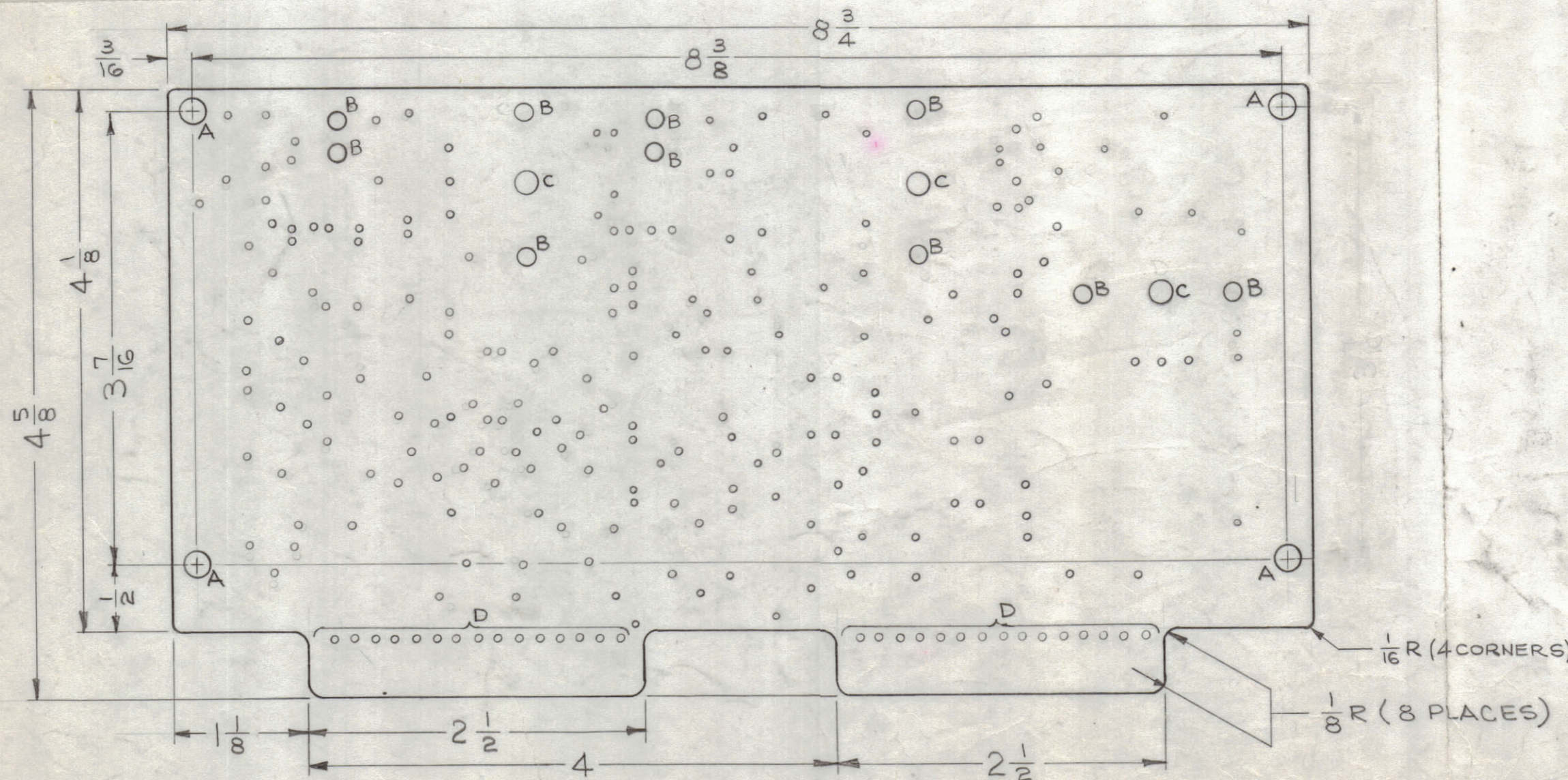


ORIGINAL ARTWORK TO BE REMOVED FROM PROTECTIVE POCKETS WHEN PHOTOGRAPHING.  
NOTE: DOUBLE POCKETS

HOLE & PAD SPECIFICATIONS			
HOLE	DIA.	PAD DIA.	REQ.
UNMARKED	.050	.130	200
A	.189	.250	4
B	.120	.218	10
C	.189	NONE	3
D	.040	CONTACT FINGERS	30

NOTES: TO BE MANUFACTURED IN ACCORDANCE WITH TMC SPEC. S-735 UNLESS OTHERWISE SPECIFIED.

- MATERIAL - G-10 EPOXY GLASS LAMINATE 3/32 THICK, 2 OUNCE COPPER CLAD BOTH SIDES.
- ALL BOARDS WILL BE DOUBLE-SIDED. WHENEVER A PAD APPEARS ON THE PRINTED CIRCUIT SIDE, A SIMILAR AND SHAPE SHALL APPEAR ON THE COMPONENT SIDE IN EXACT REGISTER. (EXCEPT WHERE AN EXCEPTION IS NOTED)
- FINGER CONTACTS SHALL ALSO APPEAR ON THE COMPONENT SIDE OF BOARD AND SHALL BE CONNECTED WITH A .040 DIA. PLATED-THRU HOLE LOCATED IN THE CENTER OF EACH FINGER CONTACT .050" AWAY FROM THE MAIN BODY OF BOARD.
- (A) ALL HOLES EXCEPT "A" MTG. HOLES ARE TO BE PLATED-THRU WITH MINIMUM COPPER PLATING THICKNESS OF .001.  
(B) PLATE .0003 TO .0005 NICKEL & 25 MILLIONTHS MINIMUM OF GOLD ALL ETCHED SURFACES AND PLATED-THRU HOLES.



THE ORIGINAL ARTWORK TO BE SUPPLIED BY TMC FOR PHOTOGRAPHING. (SCALE 1:1)

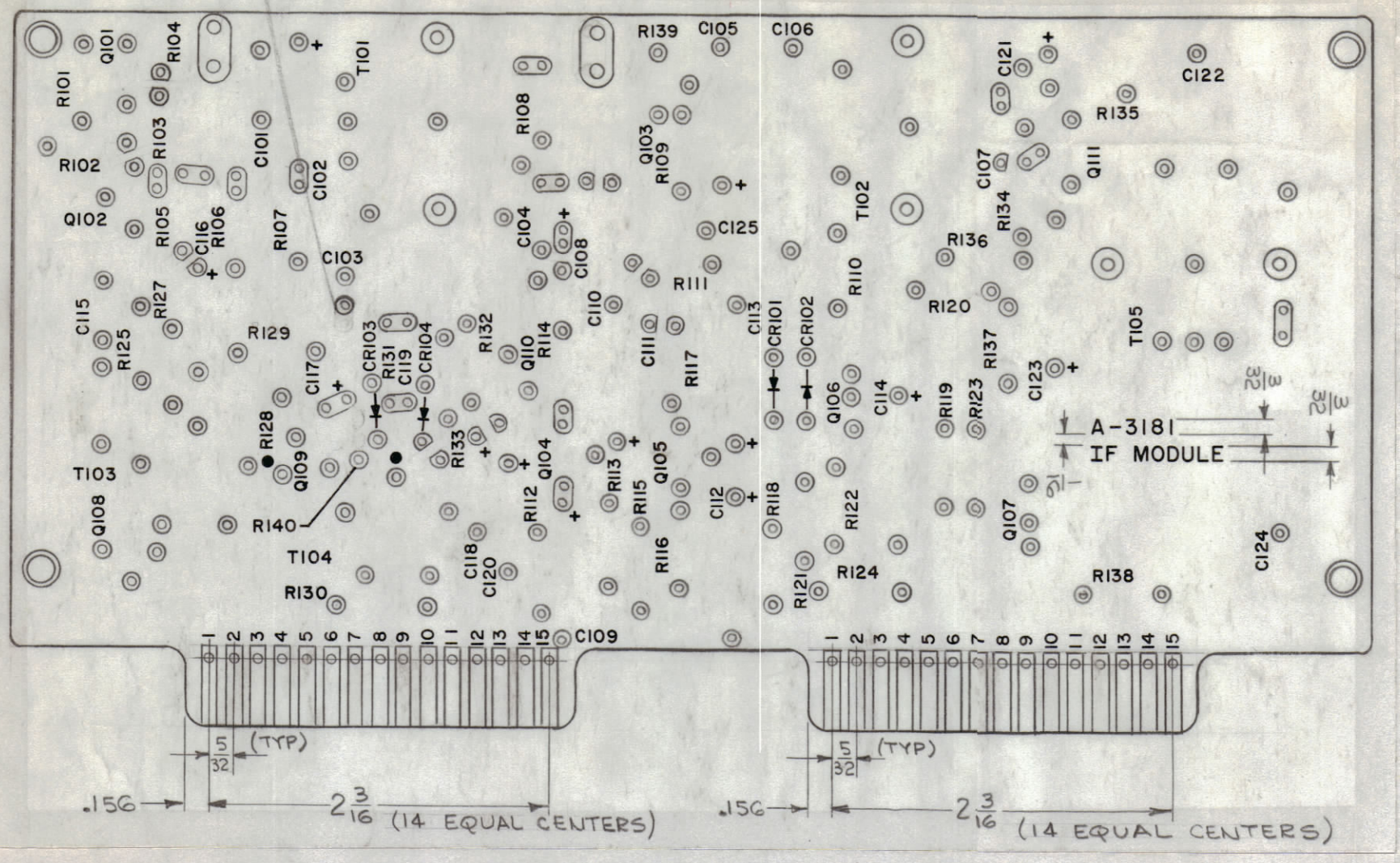
REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
M, GELLMAN LIST OF MATERIAL				
MATERIAL		THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK		
SEE NOTE #1		TITLE PRINTED CIRCUIT BOARD, ASSEMBLY (IF MODULE)		
FINISH		DRAWN [Signature] DATE 7-13-63		
SEE NOTE #1		CHECKED [Signature] DATE 6-1-64		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		ELECT. DES. [Signature] DATE 6-1-64		
DECIMALS .X ± .05 TOLERANCES ± 1/64 ANGLES ± 0° 30'		MECH. DES. [Signature] DATE [Signature]		
SCALE 1:1		FINAL APPROVAL [Signature] DATE [Signature]		
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.		SHEET 1 OF 2 REV. LTR. C		

MACHINING (A-3181-2)  
DO NOT SCALE DRAWING, WORK TO DIMENSIONS

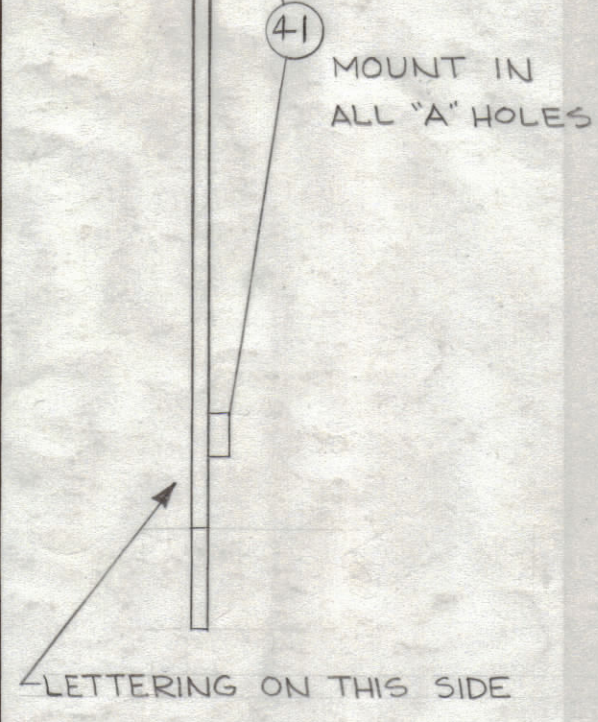
### NOTES

REF: CK-678

REVISIONS							
ZONE	SYM	DESCRIPTION	DATE	E.M.N. NO.	DRAFT	CHKD	APPD
-	C	IT(1) SYM. R130 DELE; IT.(48) RC20GF182K (R130) ADDED. IT.(18) SYM. R129 DELE; IT. (2) SYM. R129 ADDED.	11-9-64	128 58			

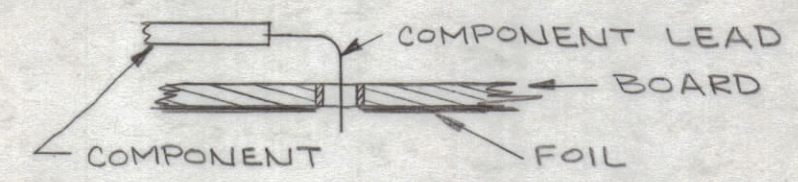


- ~UNLESS OTHERWISE SPECIFIED~
- 1- MARKING PROCESS; PER TMC SPEC. S-727.
  - 2- LETTERING TO BE 5/64 HIGH, BLACK GOTHIC, .010 STROKE.
  - 3- ALL DOTS TO BE 1/16 DIA.
  - 4- MARK TMC PART NO. WITH THE LATEST REVISION LETTER
- MARKING (A-3181-3)

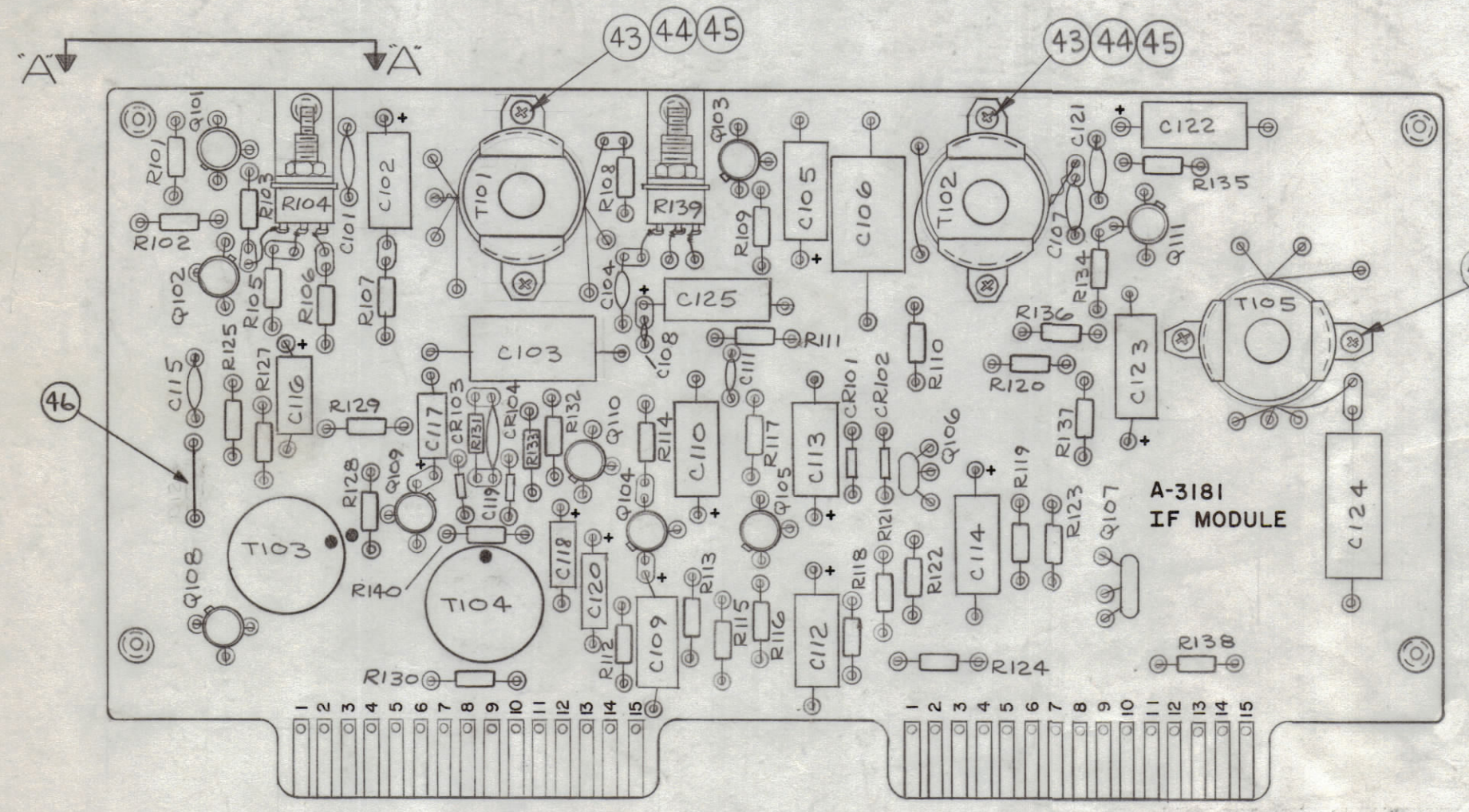


SUB-ASSY (A-3181-4)

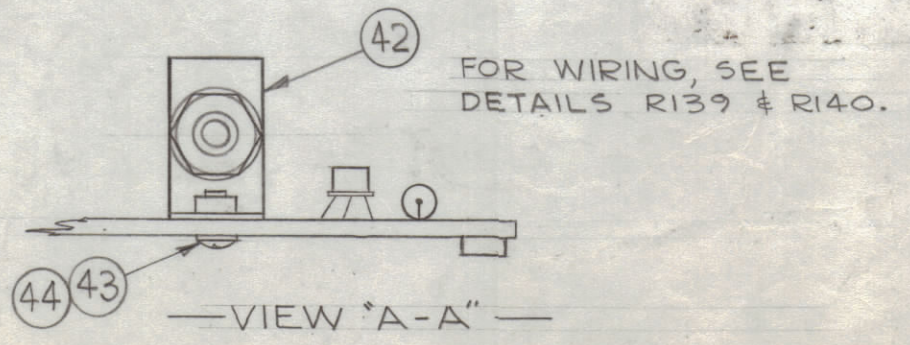
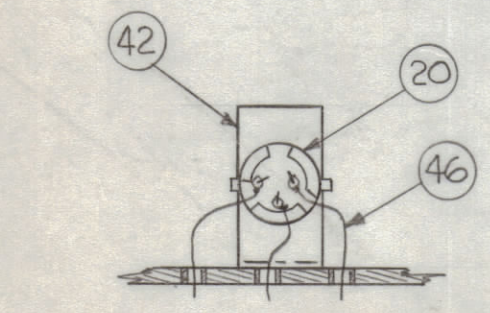
- ~ASSEMBLY NOTICE~
- 1- TO MOUNT COMPONENTS, INSERT LEAD THROUGH PLATED-THRU HOLES & BEND ABOUT 1/16 OF LEAD OVER COPPER FOIL AS SHOWN.
  - 2- APPLY HEAT & SOLDER TO LEAD & FOIL - CAUTION - TOO MUCH HEAT WILL CAUSE THE FOIL TO SEPARATE FROM THE BOARD.
  - 3- CLEAN & INSPECT PER SPEC S-676.
  - 4- FUNGUS PROOFING PER TMC SPECIFICATION S113



QTY	SYM	PART NUMBER	DESCRIPTION	SYMBOL
1	48	RC20GF182K	RESISTOR, FIXED, COMPOSITION	R130
X	47	BS-100	SOLDER, SOFT	
X	46	WL-100-6	WIRE, BUSS BAR, TINNED #20	
6	45	NTH0440BN8	NUT, HEX.	
10	44	LW104MRN	LOCKWASHER, INTERNAL	
10	43	SCBP0440BN4	SCREW, MACHINE	
2	42	MS-3392	BRACKET, MOUNTING	
4	41	TE-104-7	STANDOFF, RIVET TYPE	
9	40	2N396A (TX101-I)	TRANSISTOR	
2	39	2N214A	TRANSISTOR	Q106,107
1	38	1N100	SEMI COND. DEVICE, DIODE	CR102
3	37	1N34A	SEMI COND. DEVICE, DIODE	CR101,3,4
1	36	TR-183	TRANSFORMER, RF	T104
1	35	TR-182	TRANSFORMER, R.F.	T103
1	34	TT-198	TRANSFORMER, R.F., TUNED	T105
1	33	TT-197	TRANSFORMER, R.F., TUNED	T102
1	32	TT-199	TRANSFORMER, R.F., TUNED	T101
3	31	CX-104-58	POLYSTYRENE CAPACITOR	
2	30	CC-100-35	CAPACITOR, FIXED, CERAMIC DISC.	C108,111
2	29	CC-100-34	CAPACITOR, FIXED, CERAMIC DISC.	C101,115
1	28	CC-100-33	CAPACITOR, FIXED, CERAMIC DISC.	C107
2	27	CC-100-27	CAPACITOR, FIXED, CERAMIC DISC.	C104,121
1	26	CC-100-16	CAPACITOR, FIXED, CERAMIC DISC.	C119
1	25	CE-105-75-15	MINIATURE, ELECTROLYTIC CAP.	C114
10	24	CE-105-25-15	MINIATURE, ELECTROLYTIC CAP.	
1	23	CE-105-6-15	MINIATURE, ELECTROLYTIC CAP.	C118
1	22	CE-105-2-15	MINIATURE, ELECTROLYTIC CAP.	C117
1	21	CE-105-1-15	MINIATURE, ELECTROLYTIC CAP.	C120
2	20	RV106UX9B102A	RESISTOR, VARIABLE COMPOSITION	R104,139
1	19	RC20GF822K	RESISTOR, FIXED, COMPOSITION	R120
2	18	RC20GF682K	RESISTOR, FIXED, COMPOSITION	
1	17	RC20GF681K	RESISTOR, FIXED, COMPOSITION	R135
4	16	RC20GF562K	RESISTOR, FIXED, COMPOSITION	
1	15	RC20GF473K	RESISTOR, FIXED, COMPOSITION	R132
3	14	RC20GF471K	RESISTOR, FIXED, COMPOSITION	
1	13	RC20GF393K	RESISTOR, FIXED, COMPOSITION	R131
3	12	RC20GF392K	RESISTOR, FIXED, COMPOSITION	
1	11	RC20GF333K	RESISTOR, FIXED, COMPOSITION	R119
2	10	RC20GF332K	RESISTOR, FIXED, COMPOSITION	R112,115
1	9	RC20GF273K	RESISTOR, FIXED, COMPOSITION	R118
1	8	RC20GF272K	RESISTOR, FIXED, COMPOSITION	R140
1	7	RC20GF223K	RESISTOR, FIXED, COMPOSITION	R106
1	6	RC20GF222K	RESISTOR, FIXED, COMPOSITION	R138
1	5	RC20GF221K	RESISTOR, FIXED, COMPOSITION	R123
-	4	-	-	-
2	3	RC20GF123K	RESISTOR, FIXED, COMPOSITION	R121,125
6	2	RC20GF103K	RESISTOR, FIXED, COMPOSITION	
4	1	RC20GF102K	RESISTOR, FIXED, COMPOSITION	



ELECTRICAL ASSY (A-3181-5)



REF: CK-678

Q'TY/UNIT	MODEL USED ON	ASS'Y. NO.
1	VLR-1	AX-425
SCALE	CODE	
1:1		

M. GELLMAN LIST OF MATERIAL				
REQ'D.	ITEM	PART NUMBER	DESCRIPTION	SYMBOL
MATERIAL				
FINISH				
THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK				
TITLE PRINTED CIRCUIT BOARD, ASSY. (IF MODULE)				
DRAWN	DATE	FINAL APPROVAL	DATE	
CHECKED	DATE			
ELECT. DES.	DATE	A-3181		C
MECH. DES.	DATE	SHEET 2 OF 2		REV. LTR.

NOTES

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DECIMALS: .X ± .08, .XX ± .01, .XXX ± .005  
 FRACTIONS: ± 1/64 ANGLES: ± 0° 30'