

**POWER UNIVERSAL AMPLIFIER, 193X274A_G01, G02**

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company

GENERAL  ELECTRIC

Instruction

Power Universal Amplifier, 193X274A_G01, G02

1.0 GENERAL

This instruction provides basic information relating to the subject card. Refer to the system elementary diagrams for information relating to the overall system operation.

2.0 DESCRIPTION

- 2.01 This card provides the function of an op amp with high output current capability.
- 2.02 Two card versions are available:
- G01: 125mA, +10V output
G02: 500mA, +10V output
- 2.03 Short circuit protection is provided by an output current limit function.
- 2.04 The amplifier has a differential input stage with a unity gain voltage follower output stage. The amplifier may be used in a closed loop mode with 10K feedback resistor from the output to the summing junction of the input stage by connecting tab 23 to tab 6. The loop may also be closed around the input stage by connecting tab 23 to tab 25 instead of tab 6.
- 2.05 The reference to the amplifier may be applied differentially with +10V max. between tabs 18 and 20 or +1V max. between tabs 19 and 22. The differential input arrangement also permits either inverting or noninverting operation.
- 2.06 The G01 (125mA) card version requires a regulated +20V power supply. The G02 (500mA) card version may be used with an unregulated +30V (+10%) power supply, or with a regulated +20V supply similar to the G01 version.
- 2.07 Test post voltages:
- a) "Ref." - the output of the first amplifier provides the reference to the unity gain noninverting output stage and should be within +10V. With tab 23 connected to tab 6 this voltage will reach the op amp saturation level when in current limit.
 - b) "OUT" - the output voltage should normally be within +10V.

3.0 ADJUSTMENTS

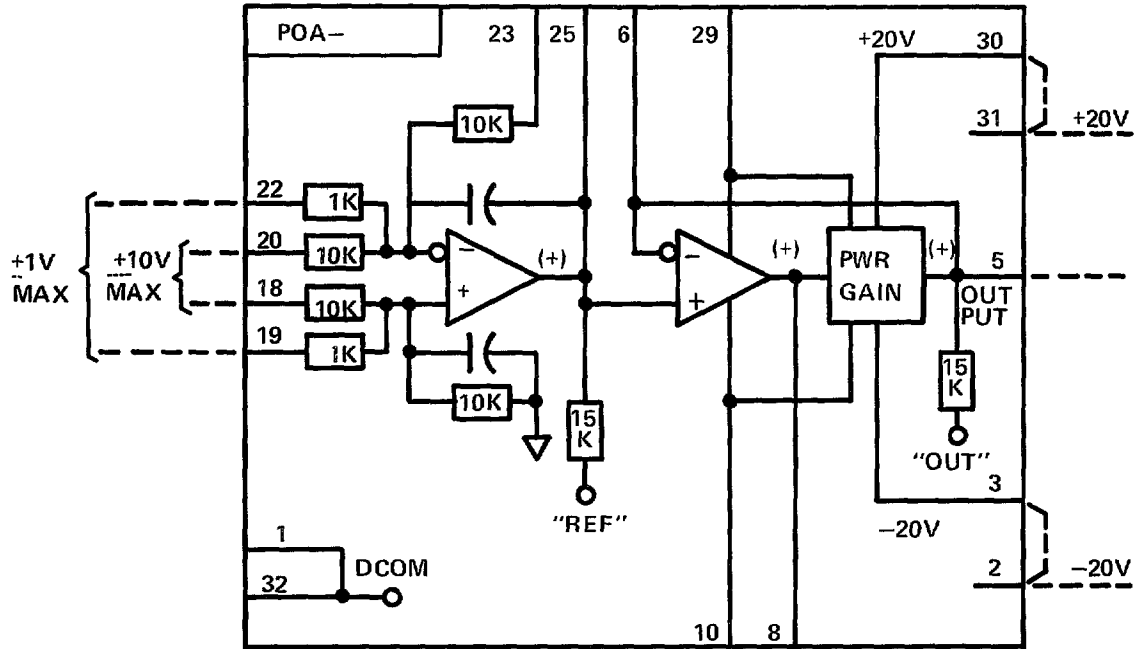
There is no adjustment on this card.

4.0 TROUBLESHOOTING

- 4.01 Check for proper input, power supply, output and jumper connections at the card receptacle.
- 4.02 If rated output voltage (+10V) cannot be obtained the amplifier may be in current limit. Check the load resistance.
- 4.03 G02: Check the op amp power supply. With a voltage of +20V to +35V at tab 30 the voltage at tab 29 should measure from +17.5V to 19.5V. With a voltage of -20V to -35V at tab 3 the voltage at tab 10 should measure from -17.5V to -19.5V.

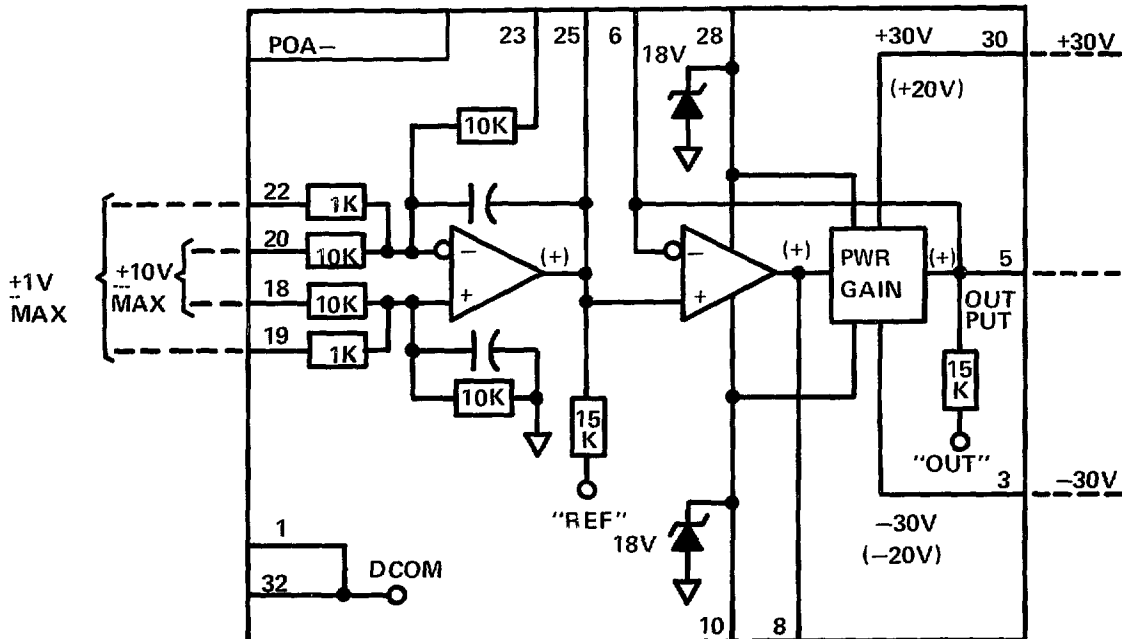
FUNCTIONAL BLOCK DIAGRAM

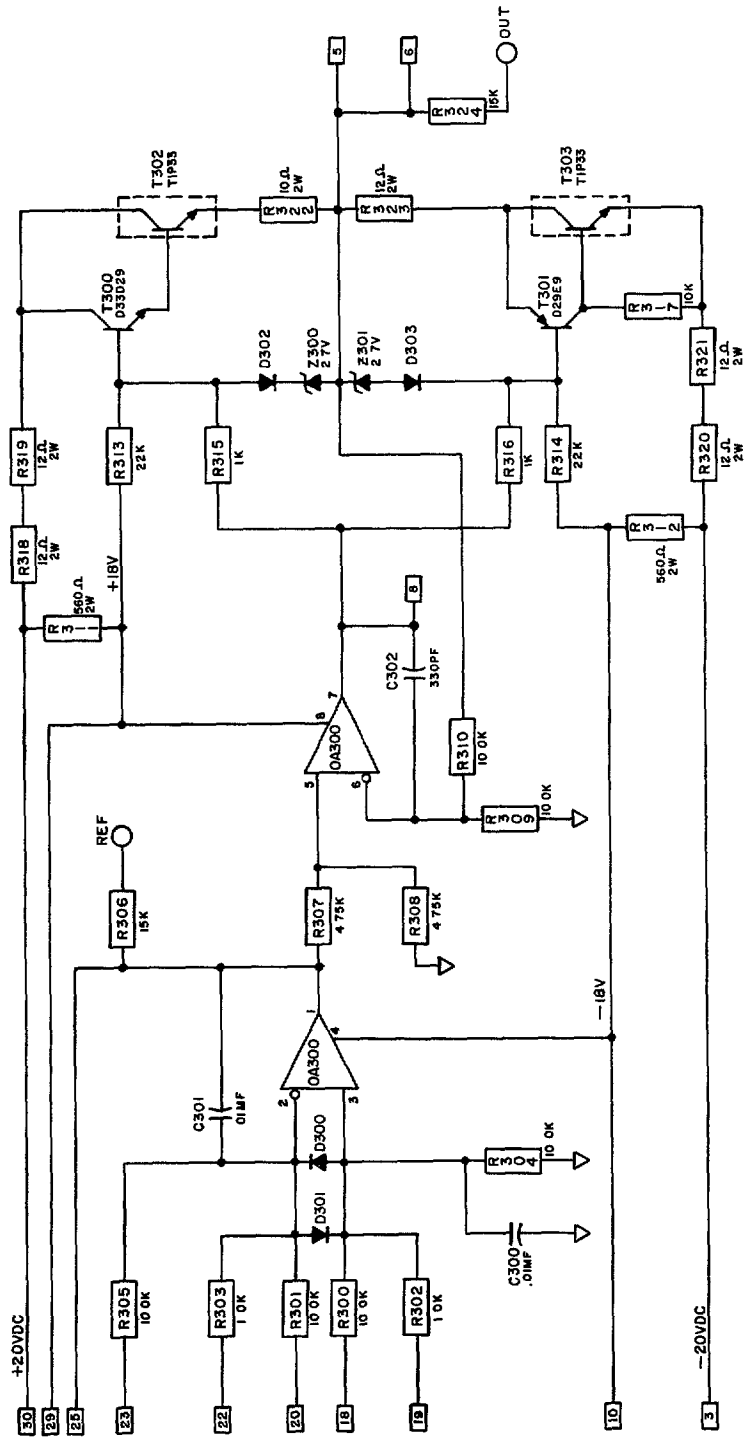
POWER UNIVERSAL AMPLIFIER
GO1, 125MA



FUNCTIONAL BLOCK DIAGRAM

POWER UNIVERSAL AMPLIFIER
GO2, 500MA

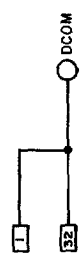




NOTES :

I. NUMBERS INSIDE SMALL RECTANGLES INDICATE TAB NUMBERS WHICH CORRESPOND TO MATCHING RECEPTACLE NUMBERS.

II ○ TEST POST



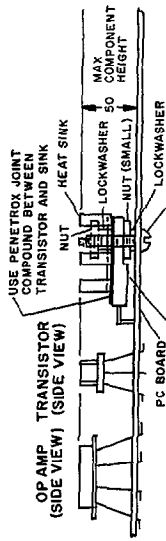
HOLE TABULATION

ALL HOLES .040 DIA. EXCEPT THE HOLES TABULATED BELOW

LOC.	DIA.	QUAN
A	.187	4
B	.032	16
C	.062	16
D	.081	3

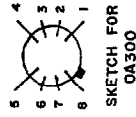
NOTES

1. INDICATED TAB NUMBERS CORRESPOND TO MATCHING RECEPTACLE NUMBERS
2. CROSS HATCHED TABS INDICATES TABS USED.
3. CARD SIZE, 5 500⁺000 X 5 130⁺002
4. ALL TRANSISTORS AND OP AMPS SHALL BE MOUNTED TO A .50 INCH MAXIMUM ABOVE THE CARD SURFACE AS SHOWN BELOW.



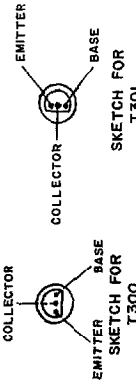
SKETCH FOR MOUNTING T302, T303 AND COMPONENT MAX. HEIGHT FOR ALL TRANSISTORS AND OP AMPS.

OP AMP LEAD SKETCH (TOP VIEW)

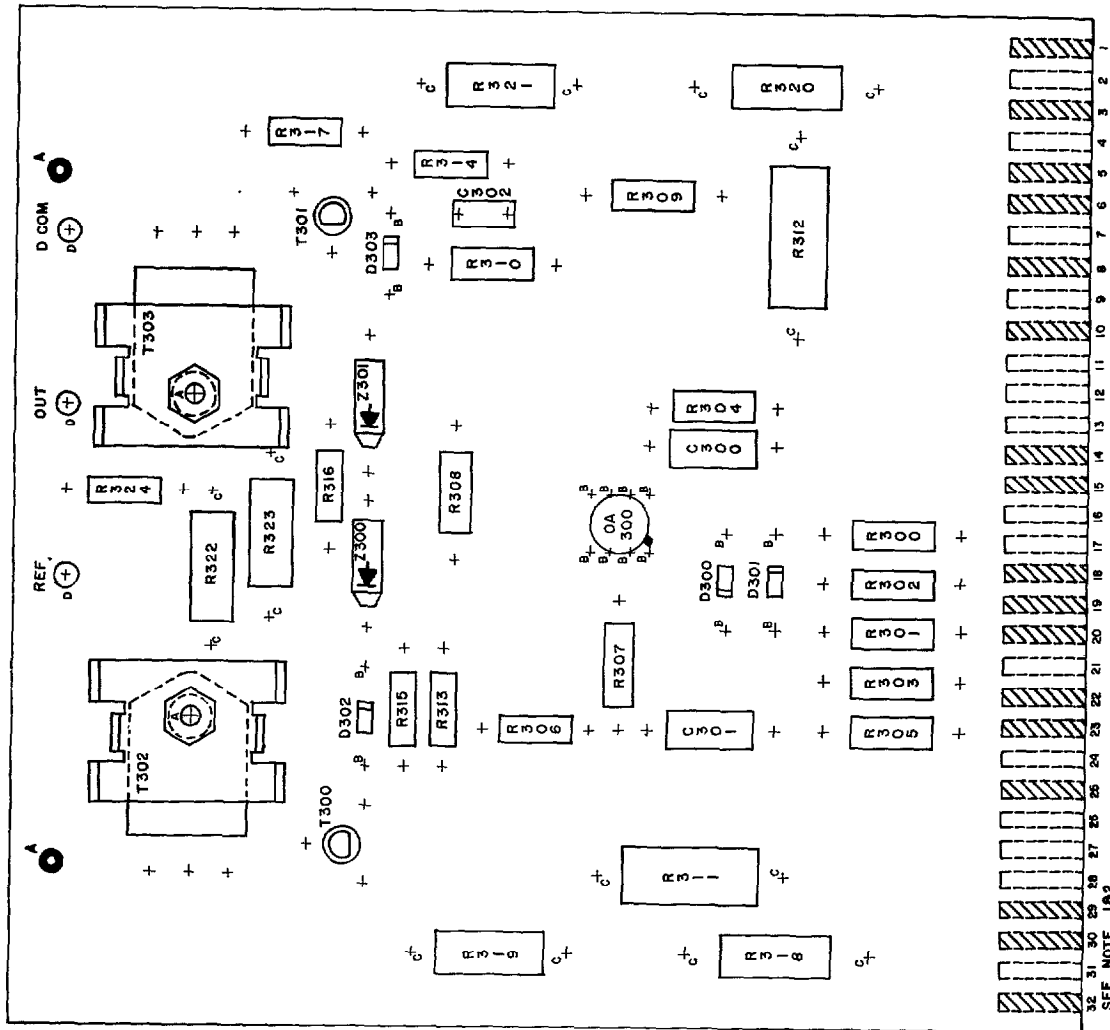


SKETCH FOR OA300

TRANSISTOR LEAD SKETCH (TOP VIEW)

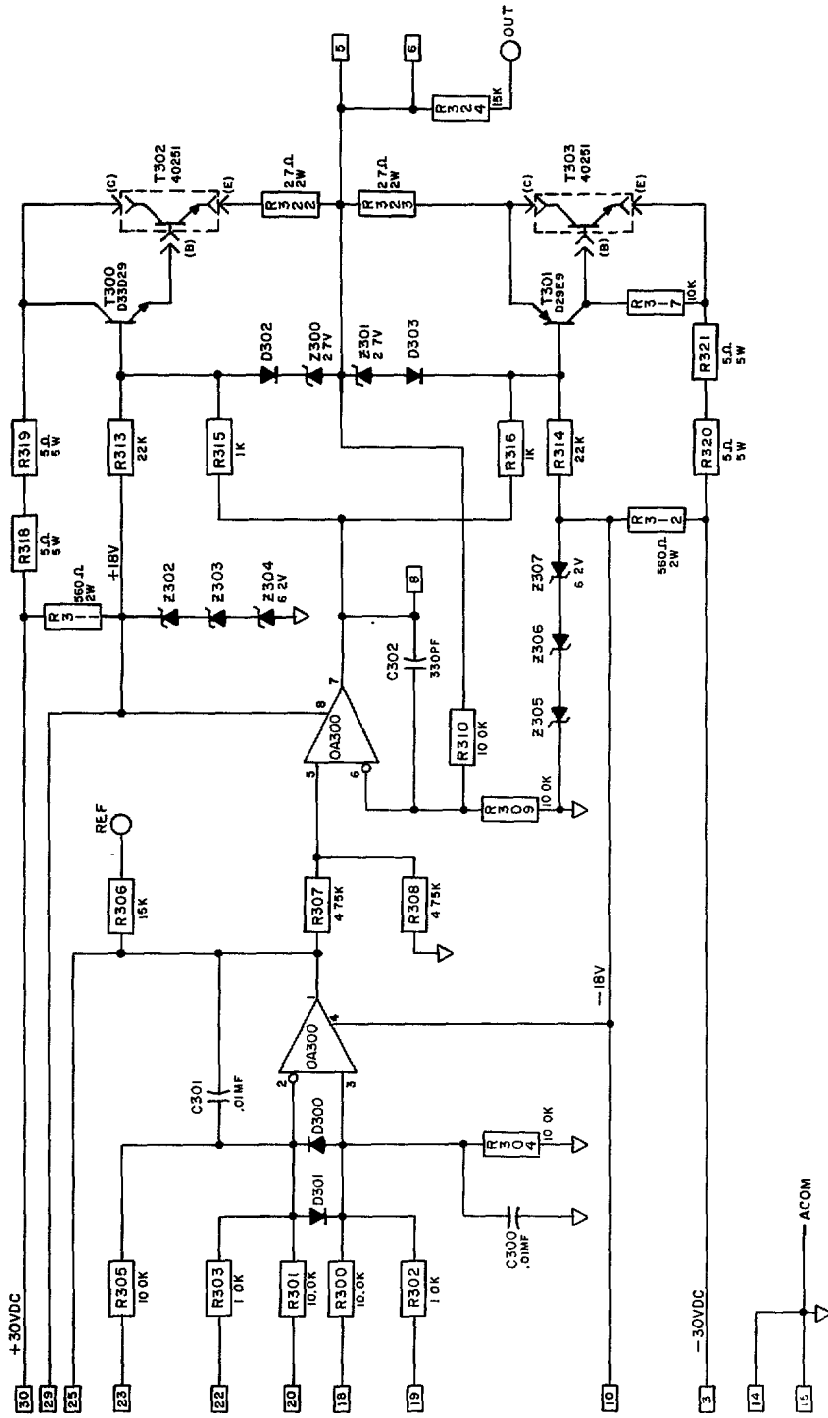


SKETCH FOR T301



SEE NOTE 182

GROUP	KEY LOCATIONS
601	12-13 22-23 30-31



NOTES :

I. NUMBERS INSIDE SMALL RECTANGLES INDICATE TAB NUMBERS WHICH CORRESPOND TO MATCHING RECEPTACLE NUMBERS.

II ○ — TEST POST

ACOM

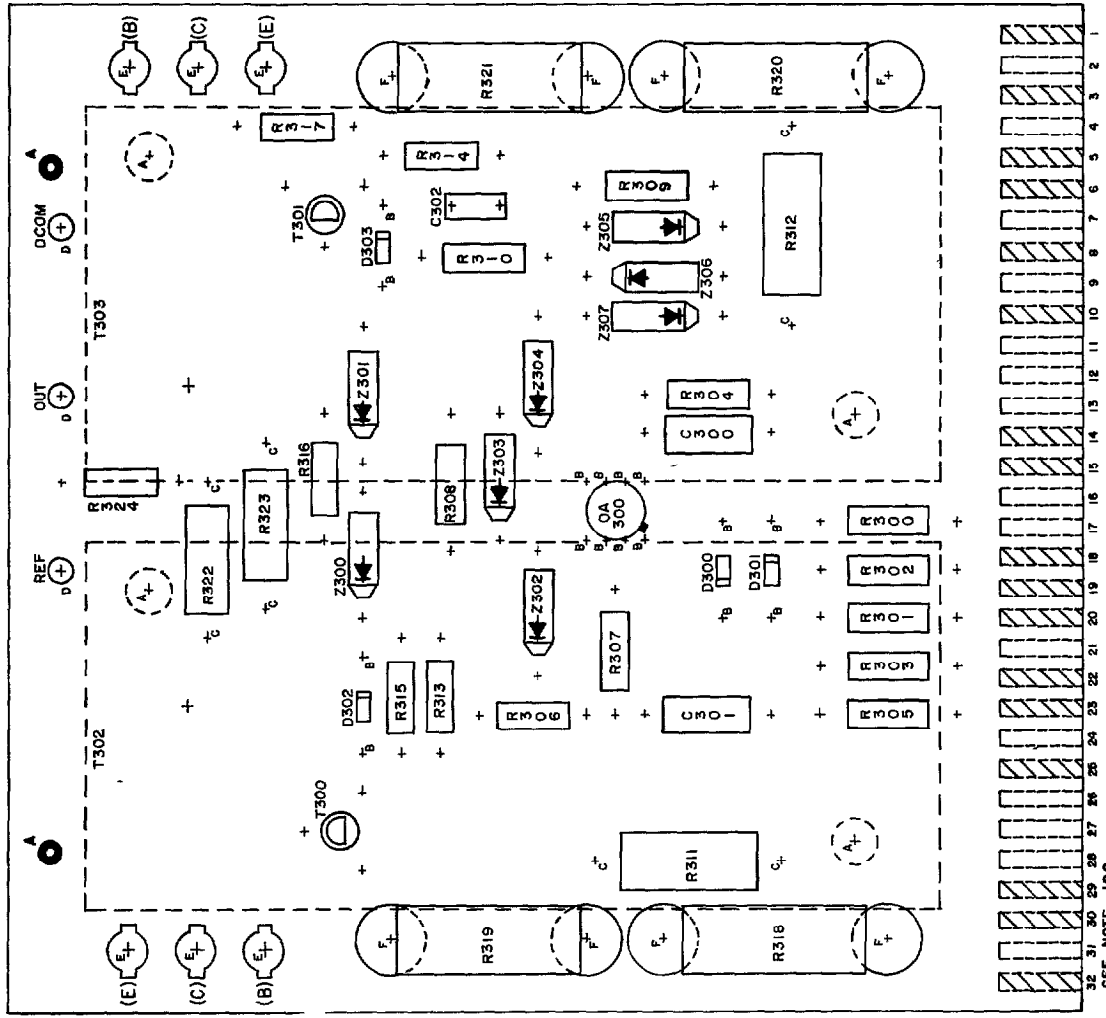
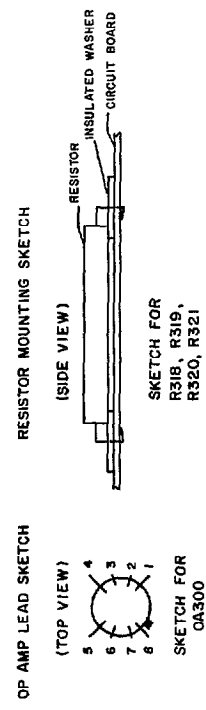
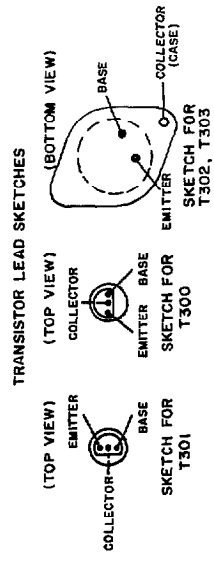
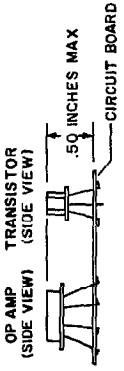
PCOM

HOLE TABULATION

ALL HOLES 040 DIA. EXCEPT THE HOLES TABULATED BELOW

LOC.	DIA.	QUAN.
A	.157	6
B	.032	16
C	.062	8
D	.081	3
E	.101	6
F	.052	8

- NOTES
- INDICATED TAB NUMBERS CORRESPOND TO MATCHING RECEPTACLE NUMBERS
 - CROSS HATCHED TABS INDICATES TABS USED.
 - CARD SIZE, 5.500^{+0.000} X 5.130^{+0.002}
 - ALL TRANSISTORS AND OP AMPS SHALL BE MOUNTED TO A .50 INCH MAXIMUM ABOVE THE CARD SURFACE AS SHOWN BELOW.



GROUP	KEY LOCATIONS
G02	12-13 22-23 28-29

SEE NOTE 162

GENERAL ELECTRIC COMPANY — DIRECT CURRENT MOTOR & GENERATOR PRODUCTS DEPARTMENT
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