4/8/64

Antenna Signal Generator Performance

Low Band

High Band.

Output Current 1 ampere

Freq. MC	E_p volts	I_p ma
1.85	335	30
2.20	360	29
2.60	390	30

Freq MC	E_p volts	I_p ma
5.4	250	19
6.5	340	26
7.6	380	33

Tubes are rated 11.0 ma each = 22 ma total.

Coils with leads and plug.

MC	pf	Q	R
1.5	453	135	1.70
2.1	223	143	2.24
3.0	104	135	3.40

C_o = 12.3 pf
L_o = 24.3 μh
R = 152.5 MC/Q
121 turns 0.057" D wire
Plate tap at 61 turns from bottom.

MC	pf	Q	R
4.5	445	153	0.51
6.5	205	150	0.75
9.0	102	120	1.29

C_o = 12.3 pf.
L_o = 2.74 μh
R = 17.2 MC/Q
40 turns 0.080" D wire
Plate resistor 700 ohms.

	Capacity	
1.98 to 1 ?	Range	1.98 to 1 ?
302 pf	Maximum	296 pf.
153 pf	Minimum	149 pf.
149 pf.	Variation	147 pf.

Add 0.2 μh to both inductances for circuit wiring.

Average minimum	151 pf.
Voltage divider 128 pf, plus coil 12, plus variable 5 =	145 pf
Tube and wiring	6 pf

Small Antenna Generator

Mark VI (Mark V revised) 29/9/64

Changed voltage divider to

340, 490, 720, 720, 490, 340 pf. Each half 157 pf.

Frequency range now 1.79 to 2.40 mc.

Changed plate taps from 60 to 40 turns from top end.

Lengthened coil leads to use same as Mark IV

2/10/64

Changed Plate taps back to 60 turns from top end.

Plate Taps	40T	60T	B+ resistance Ohms.
MC	Coil	Amperes.	
1.8		1.25	1200
1.8	1.27	1.45	0
2.1	1.15	1.35	0
2.3		1.25	0
2.4	1.06	1.23	0

Apparently 1.25 amps is a suitable operating current. The B+ series resistance may be a 1500 ohm variable. Plate current about 35 ma probably.

12/7/64

Antenna Signal Generator Mark V

Low Band — High Band.

Antenna Coupler

1.95 to 2.35 mc — 6.20 to 6.80 mc

Generator Range

1.80 to 2.50 mc — 5.5 to 7.6 mc

Tuning Capacity Assumed

$(2.5/1.8)^2 = 1.93$, say 2.0 to 1

Choose variable condenser of about 150 pf per section.

Inductances computed

26.1 μh, 125 turns — 2.79 μh, 41 turns

Capacity voltage divider

280, 350, 720, 720, 350, 280 pf, each half. 128 pf.

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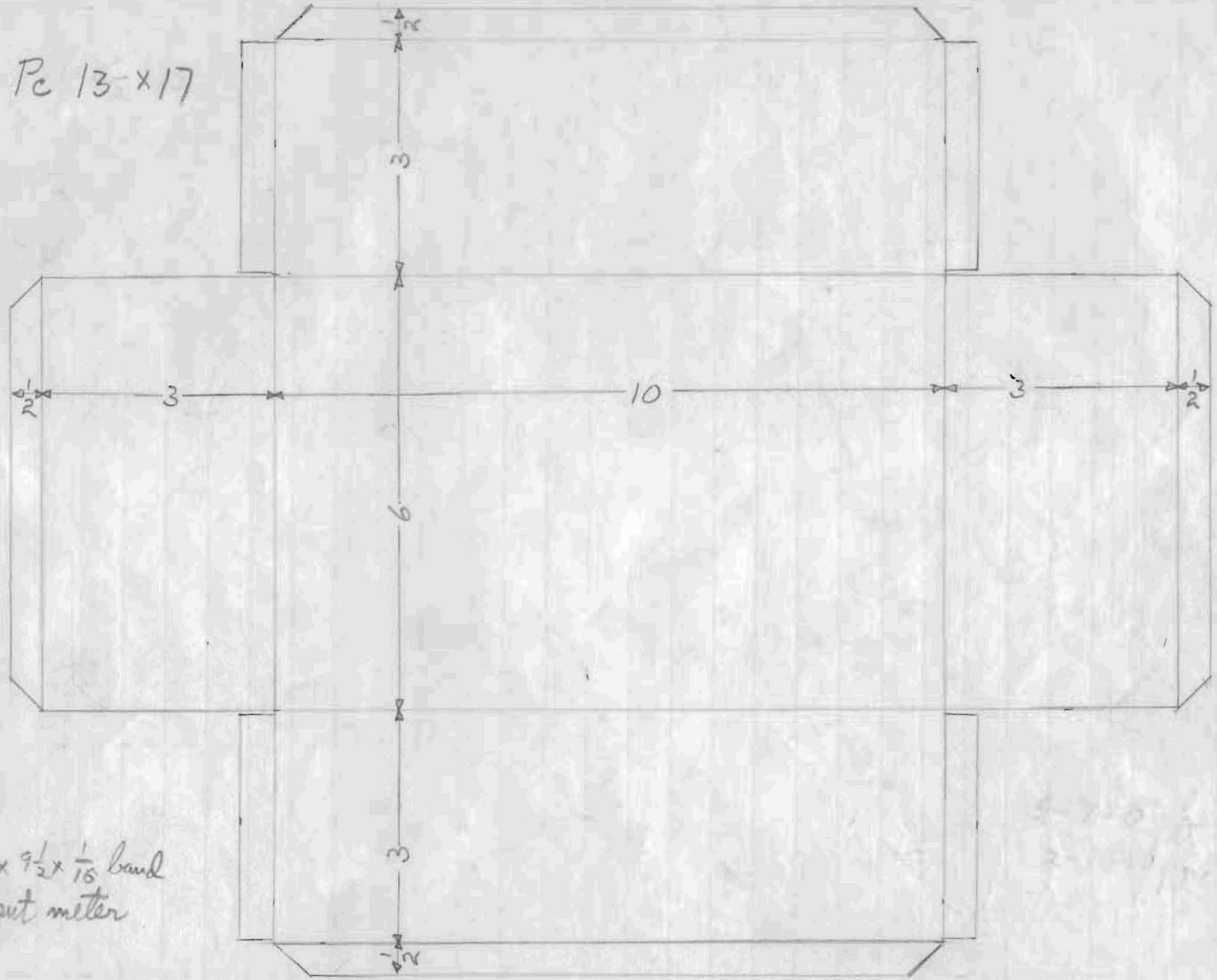
The oscillator was found to relax at high frequency end of low band. This was noted as a brightening of neon bulb and drop of coil current as plate voltage increased near maximum. This trouble is caused by too large inductance of coil, too large grid capacitor, too large grid resistor. Only the last is readily changeable. It was reduced as follows.

Grid Resistor	27K		18K		12K	
Frequency MC	1.88	2.61	1.88	2.61	1.88	2.61
Coil Current Amp	1.22	0.91	1.30	1.01	1.35	1.05

Left in last condition.

over

Pc 13 x 17



also $\frac{1}{2} \times 9\frac{1}{2} \times \frac{1}{16}$ band
for output meter

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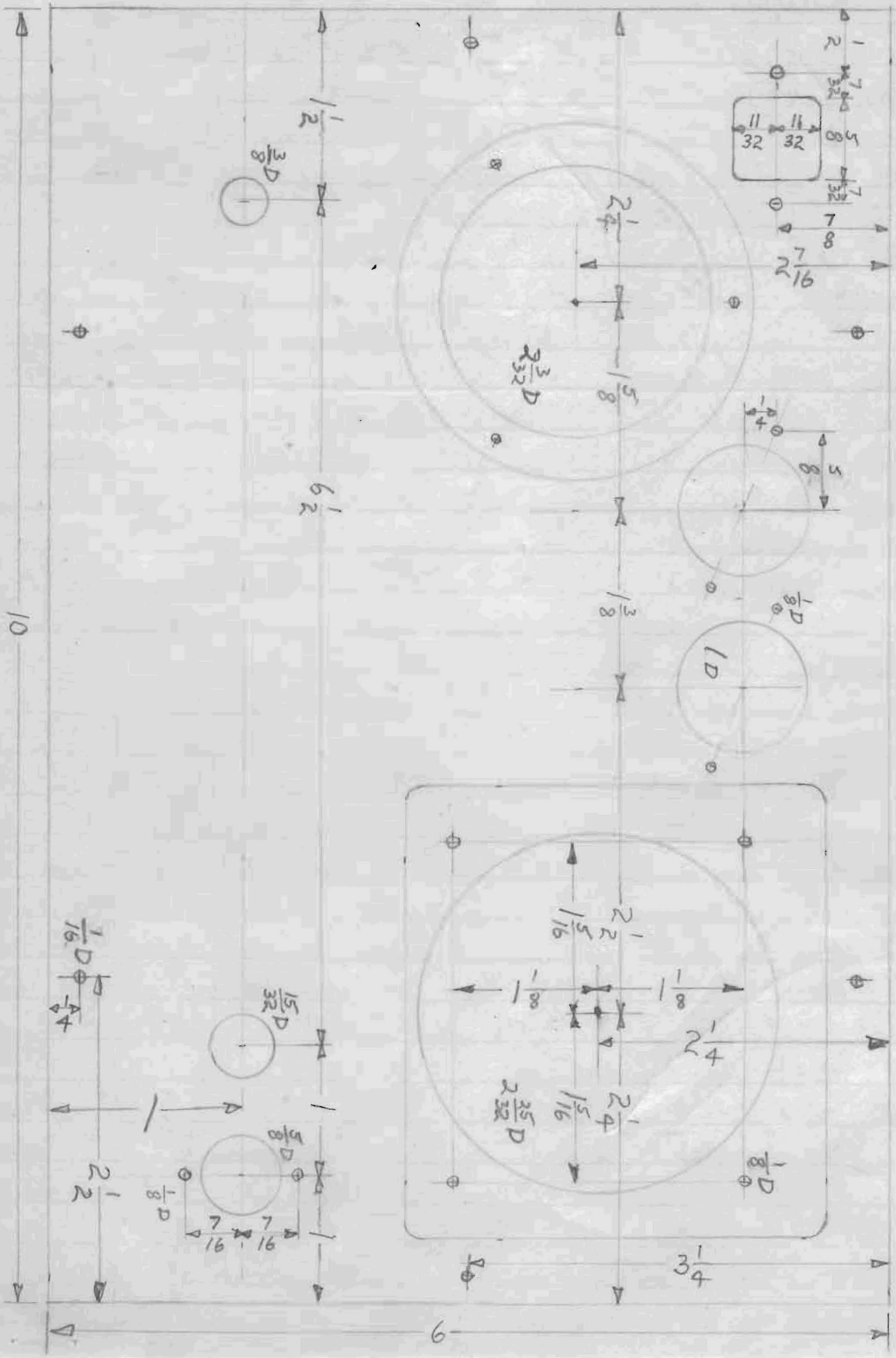
10
6
$3\frac{1}{4}$
$2\frac{1}{4}$
$2\frac{7}{16}$
$\frac{7}{8}$
$\frac{11}{32}$
$\frac{11}{32}$
$\frac{7}{32}$
$\frac{5}{8}$
$\frac{1}{4}$
$1\frac{1}{2}$
$6\frac{1}{2}$
$2\frac{1}{2}$
$1\frac{5}{8}$
$1\frac{3}{8}$
$1\frac{1}{8}$
$1\frac{5}{16}$
1 D
$2\frac{3}{32}$ D
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$\frac{3}{8}$ D
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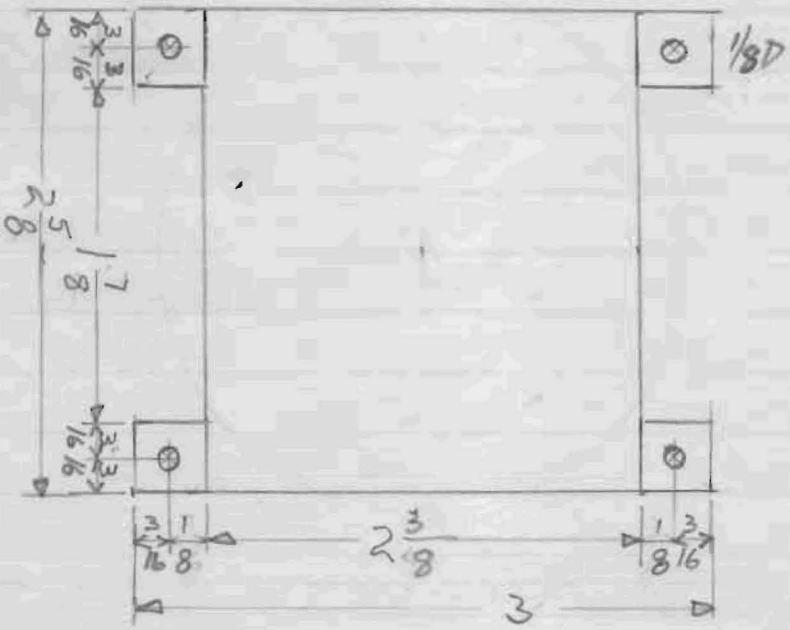
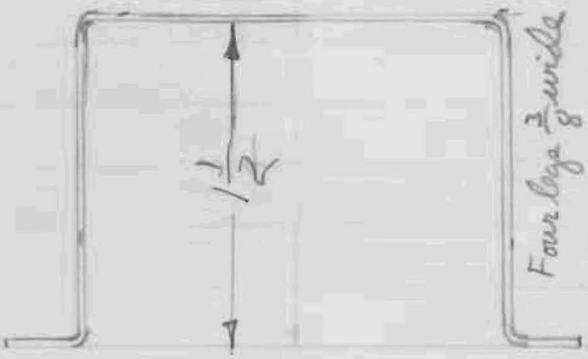
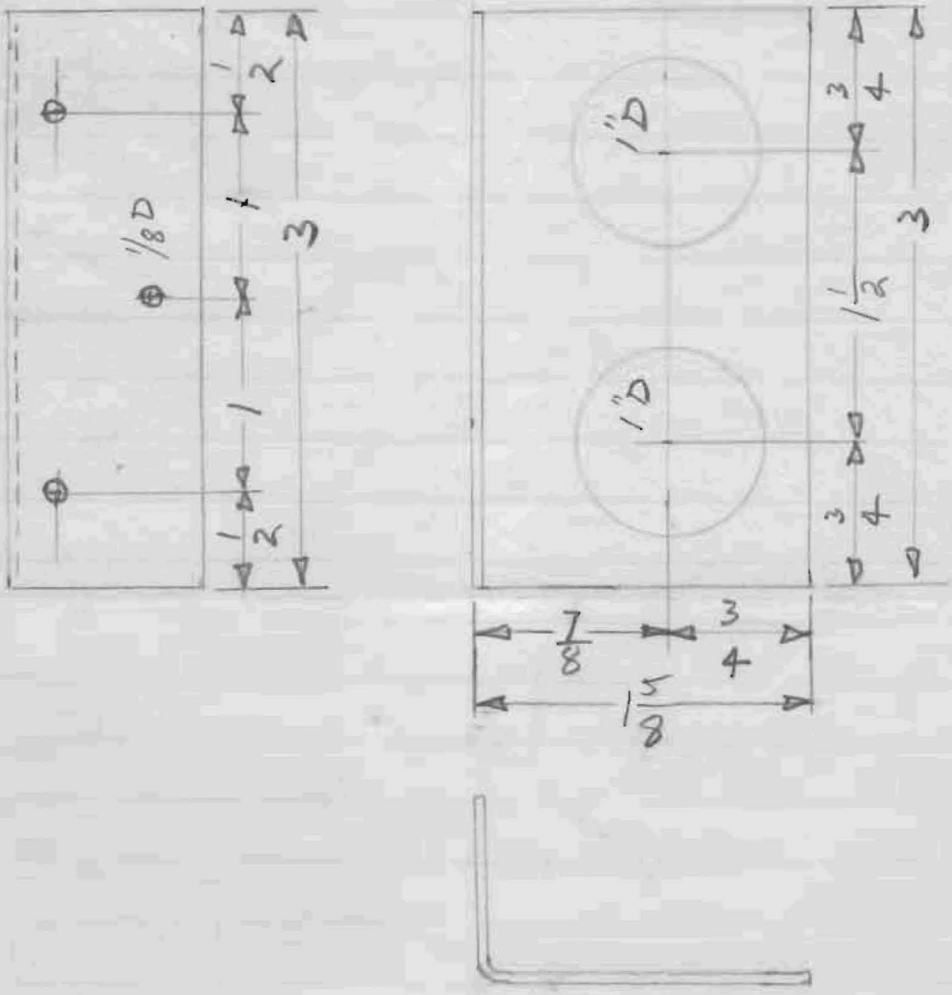
$\frac{1}{16}$ D
$\frac{7}{16}$
1


1/8D
2 5/8
1 7/8
3/16
3/16
3/16
3/16
3/16
3/16
1/8
1/8
2 3/8
3


1/2
Four legs 3/8 wide


1/8D
1
2
1
1
2
3
1"D
1"D
3
4
1/2
3
3
4
7/8
3
4
1 5/8