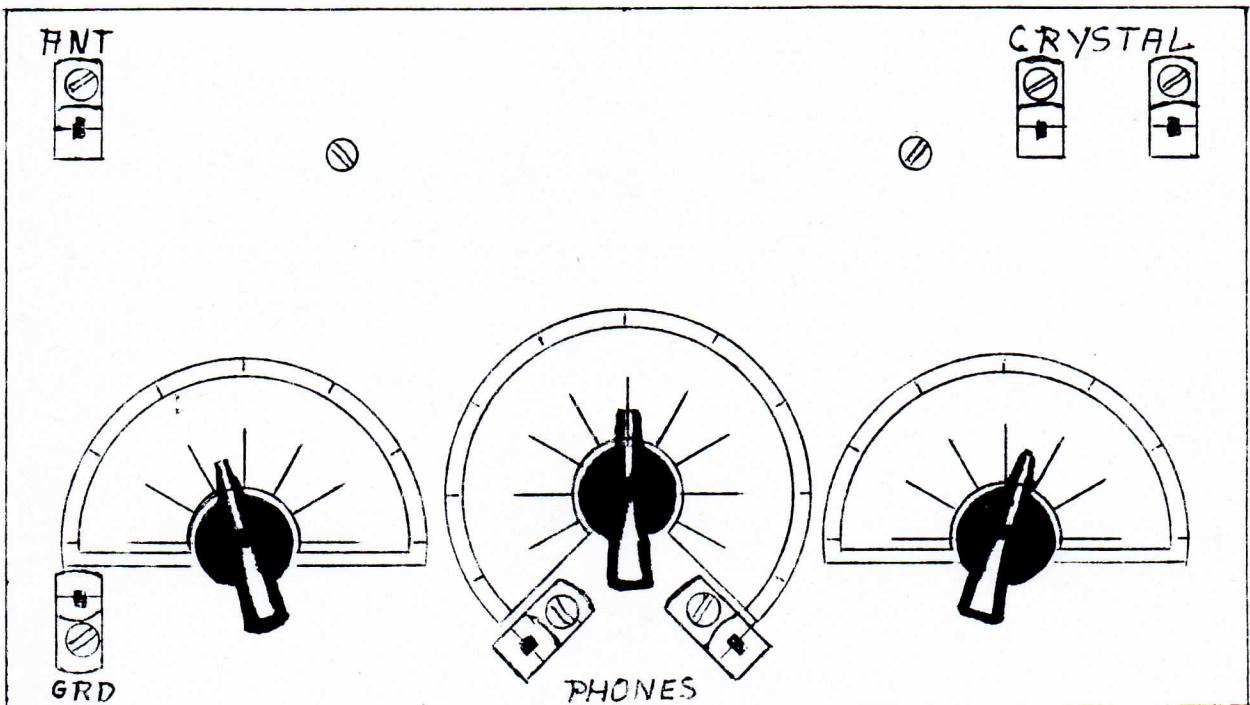


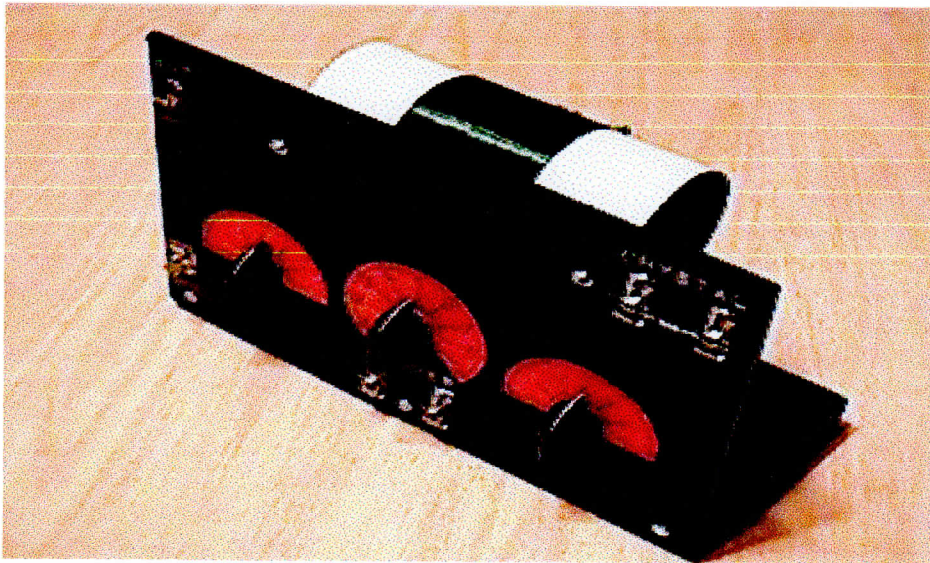
# Construction Manual



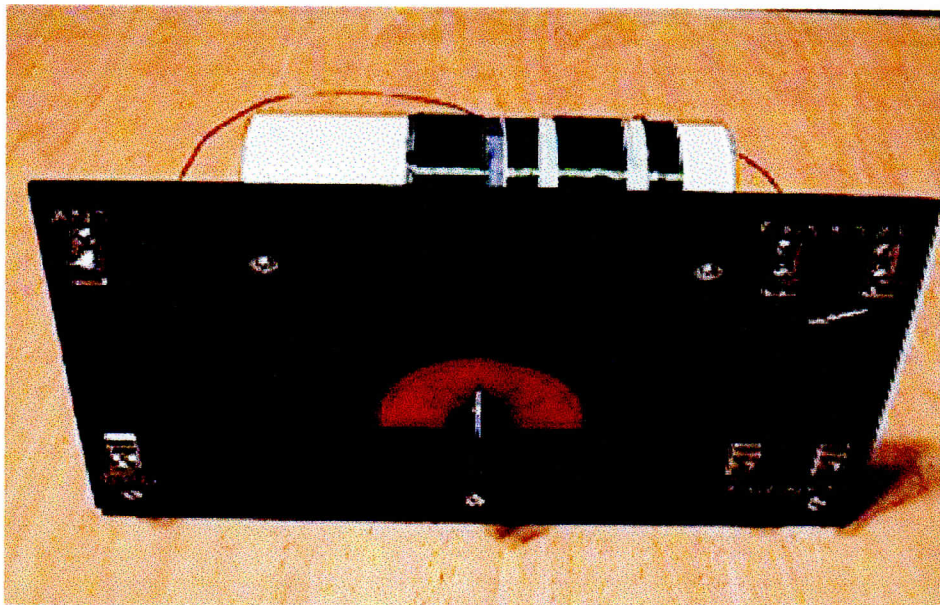
CRYSTAL RADIO SET KIT.  
model no.1

CARL & GRACE ENT.  
5636 Romeyn  
Detroit, MI 48209

**CRYSTAL RADIO SET KIT**  
**MODEL NO. 1**



**CRYSTAL RADIO SET KIT**  
**MODEL NO. 2**



**CARL & GRACE ENT.**  
**5636 ROMEYN**  
**DETROIT, MI 48209**  
( E-Mail [CarlDB@aol.com](mailto:CarlDB@aol.com) )

ATTENTION

Due to past complaints of the difficulty in the process of winding their coils, I am now including an already wound coil in my crystal radio kits.

You can now skip over the (STEP THREE:WINDING THE COIL) section in your construction manual.

NOTICE

NOTICE

NOTICE

NOTICE

Even though the coil has been wound for you, the process of scraping the enamel off the small loops must still be done. Patience & care and a sharp knife will do just fine. You cannot solder the hookup wire to the loops unless you have the enamel off.

NOTICE

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NOTICE



**CRYSTAL RADIO SET KIT.**  
**model no.1**

**INTRODUCTION**

Welcome to the hobby of building crystal radio sets. The crystal set is still the simplest type of radio receiver. A catwhisker touching a sensitive spot on a piece of galena or silicon mineral crystal and a tuning coil, form the basic parts of this radio. Radio signals from a nearby station are picked up via antenna and ground connections to the crystal set. The galena or silicon crystal detects the signals and the resultant audio is heard with headphones. No battery or electrical power is required.

**GETTING STARTED**

You will need a screwdriver, an awl for starting screws in wood, a pair of long-nosed pliers, a wire cutters, some rosin core solder and a soldering iron. You will also need a small piece of coat hanger about 6 inches long. File the ends round and smooth. This will be a tool for making loops, on your coil. (Figure no.1)

**STEP ONE**

Unpack the kit carefully and check the contents against the parts list:

- 2 365pf variable capacitors
- 6 Fahnestock clips
- 6 #6 soldering lugs
- 5 #6+1/2 pan head screws
- 6 6/32 x 3/8 machine screws
- 6 6/32 nuts
- 6 #6 washers

- 2 #4/40 x 3/4 machine screws
- 2 #4/40 nuts
- 4 #4 washers
- 2 nylon spacers
- 4 bumpers
- 3 knobs
- 1 rotary switch
- 1 washer for switch
- 1 ear phone
- 1 IN34A crystal
- 1 phone tag
- 1 ant tag
- 1 Grd tag
- 1 crystal tag
- 2 4ft lengths of hookup wire
- 1 coil tube
- 1 pre-drilled face panel
- 1 base board
- 3 red paper dials
- 1 length of 24ga magnet wire

**STEP TWO PANEL & BASE**

Assemble pre-drilled face panel and base board with three #6 x 1/2 pan head screws. After assembled you can paint it the color of your choice. (I painted mine wrinkle black) After painting put aside to dry and go to step three.

**STEP THREE: WINDING THE COIL**

Begin by unwinding the full length of 24ga magnet wire and tying one end to a door knob or something secure. With the other end we will begin to wind the coil. Take this end of the wire and feed it through the two small holes on the right side of the coil form for about seven inches and tuck it inside the tube. Now begin to wind your coil. Hold the end of the coil tube loosely in one hand, with your thumb over the coil wire so it winds smooth and flat on the coil tube.



**CRYSTAL RADIO SET KIT**  
**model no.1**

The wire should be one layer thick, with the wires lying side by side touching but never crossing or overlapping. Keep winding until you get to the 10th turn, at this point we will make the first loop. We will be using the 6in length of coat hanger at this point. This will be a tool for making loops, use this tool at every turn to be tapped, by wrapping the wire over this tool and giving the tool one full turn around. After removing this tool you can then finish by squeezing the loop flat. Continue to the 20, 30, 40, 50, 60, 70, 80, after the 8th loop, wrap the wire another ten turns. Holding the coil with one hand feed the wire you have left through the two holes in the coil. (If you have more than 12in, left, cut it off, you won't need it). Make sure the coil is secure and tight, we don't want to have to rewind it. Next you must scrape the enamel off the loops. A sharp knife will do just fine. You cannot solder the hookup wires to the loops unless you have the enamel off.

**STEP FOUR: ASSEMBLING**

We will now begin to assemble all the parts to the panel and base. First mount the two 365pf variable capacitors, using the two #6 x 3/8 pan head screws as in fig no.2

Next mount the rotary switch, with the spare washer for the front of the panel. (care should be taken that the switch is mounted correctly) The guide pin should fit in the little hole next to the shaft hole. Next mount the fahnstock clips and soldering lugs for the antenna, ground, phones & crystal as in fig no.2. We will next mount our coil with the no.1 turn closest to the antenna fahnstock clip, as in fig. no.2&3.

**STEP FIVE: WIRING**

We will now wire our set. Two lengths of different colored wire have been supplied. Chose one for your coil to your rotary switch points and the other color for the rest of the wiring. Take the wire you have chosen for your coil to rotary switch connections and cut 8 pieces 5in long. You will use this wire for your no.1 thru no.8 switch points and their respective loops, as in fig no.3. The rest of the wiring is straight forward. See figure no.3 for back view of the wired set. make sure each connection is soldered.

If you have not had any experience with soldering before, some rules should be of help.

It should be a good electrical and solid mechanical connection.

The surface of the wires or contacts to be soldered must be clean and free from dirt, grease and insulation.

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After making a good mechanical connection, apply the soldering iron until all the parts of the joint are hot enough to melt the solder; then follow with the solder. After the solder melts and flows, remove the iron. Don't wiggle it until set. A correctly soldered joint will be bright and shiny. A poorly soldered joint will be dull or frosty.

**STEP SIX: FINAL ASSEMBLE**

We will finish our assembly by lightly glueing the red dials to the face panel. Next we will mount the knobs, ant & grd & phones & crystal decals. Also don't forget the bumpers.

**STEP SEVEN: ANT. & GRD.**

A crystal radio works well only if you have a good antenna to trap the radio waves. And the farther you live from a radio station, the better the antenna must be.

Run a 100-foot or longer wire (14 to 18ga) around the room or down the hallway. The best antenna is one that is long, high up, and outside.

The ground can be any piece of metal that eventually leads to the earth. a water pipe or radiator will make a good ground.

**STEP EIGHT: OPERATING RADIO**

After hooking up your ant. & grd, the next thing is to

hook up your semiconductor diode. Attach the two leads of the diode, to the two fahnestock clips.

A crystal detector of radio waves can be either a traditional catwhisker and natural mineral crystal, or a modern semiconductor diode, like the one we have supplied.

next hook up the 2000 ohms ear-phones.

You can get even better listening pleasure, by picking up a pair of headphones. The 2000 ohms headphones can be obtained from me, or at some electronic parts, mail order houses.

Remember that a crystal radio will not be as loud or get as many stations as a regular radio.

That's it, the assembly is complete and you are ready to make the radio work. Choose a good location and try to identify the different stations you can pick up. Crystal radios are peculiar devices, sometimes you may pick up very distant stations or even broadcasts in a foreign language from overseas.

**GOOD LUCK!**

Figure no.1



## REPLACEMENT PARTS LIST

Description	Price	Description	Price
365pf variable capacitors	<del>\$2.00</del>	24ga magnet wire wrapped coils for crystal radio kit no.1	\$10.00
24ga. magnet wire(200ft)	\$6.00	24ga magnet wire wrapped coils for crystal radio kit no.2	\$12.00
IN34 crystal diode	.50	Sheet of red broadcast band dials(24)	\$5.00
Fahnestock clips	.25	Sheet of red(9pos)rotary switch dials(12)	\$5.00
Crystal earphones	\$2.50	Old-style antenna lead-in wire to fit under closed window.Has fahnestock clip on each end.	\$2.00
High quality 2000 ohm. db1. headphones	\$20.00	Old style insulator for antenna installations. Molded plastic	\$1.00
Rotary switch(1pole 9pos)	\$3.00	(25)6/32X3/8 Mach.screws RH.	.50
Pointer plastic knobs	.75	(25)6/32X1/4 Mach.screws FH.	.50
#6 soldering lugs	.15	(25)6/32 hex nuts	.25
Bumpers(4)	\$1.00	(25)#6 washers	.30
2 inch diameter coil tubes	in/.25	(25)4/40X3/4 Mach screws RH.	.50
20ga hook-up wire	ft/.30	(25)4/40 hex nuts	.25
Pre-drilled face panel for crystal radio kit no.1	\$5.00	(25)#4 washers	.50
Pre-drilled face panel for crystal radio kit no.2	\$5.00	(25) nylon round spacers	\$1.25
Un-drilled face panel(5 3/4X9)	\$2.00	Crystal Radio set kit no.1	\$29.00
Base board (1X3X9)	\$2.00	Crystal Radio set kit no.2	\$19.50
Old-time crystal detector stand, comes complete with cat whisker, sliding rod and ball assembly, holder for galena crystal, plastic base and fahnestock clips.(Galena crystals not included)	\$10.00		
Galena crystal for crystal detector stand.	\$3.00		
Cat whiskers	\$1.00		

**MINIMUM ORDER \$10.00**

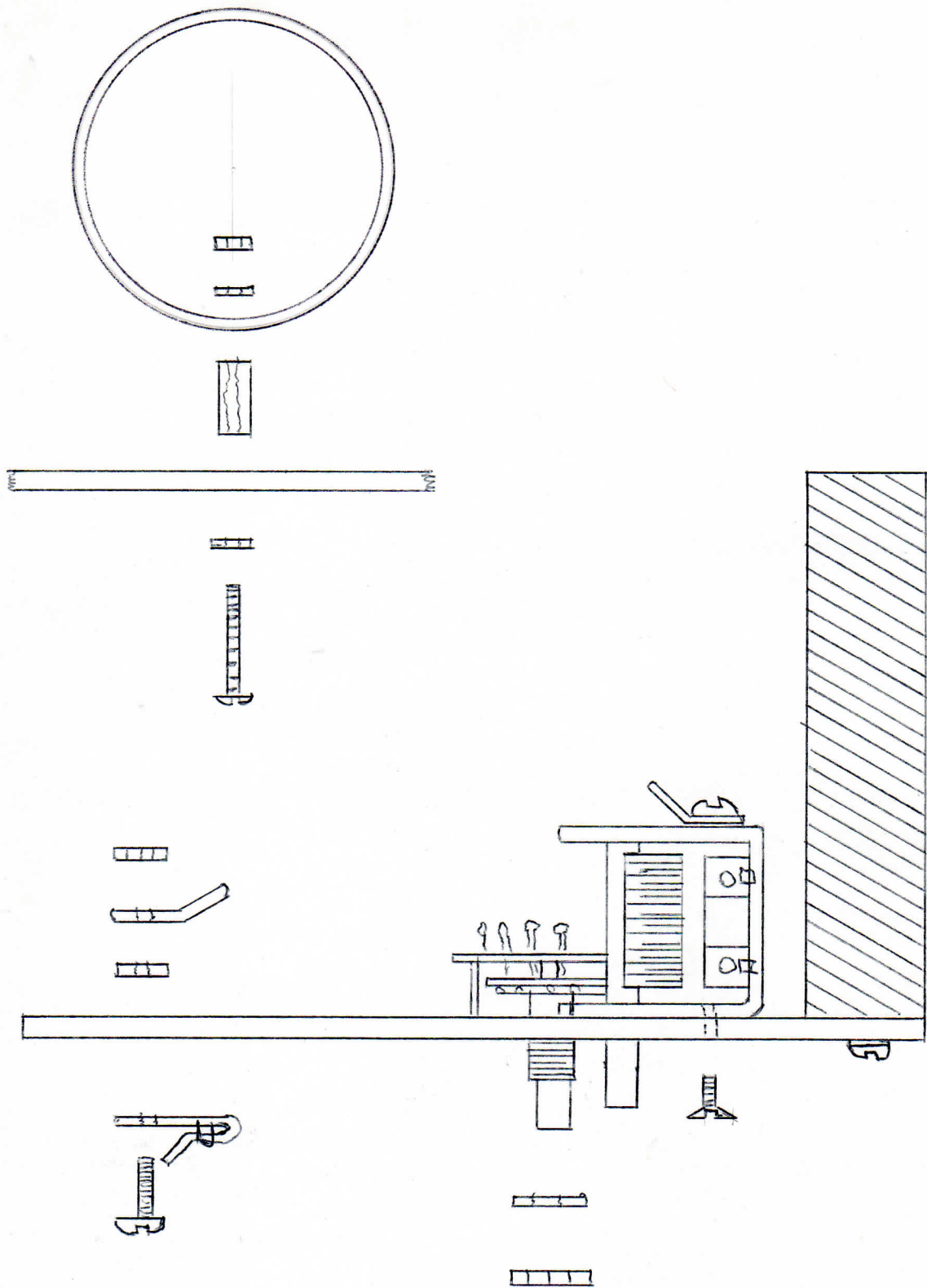


FIGURE NO. 2



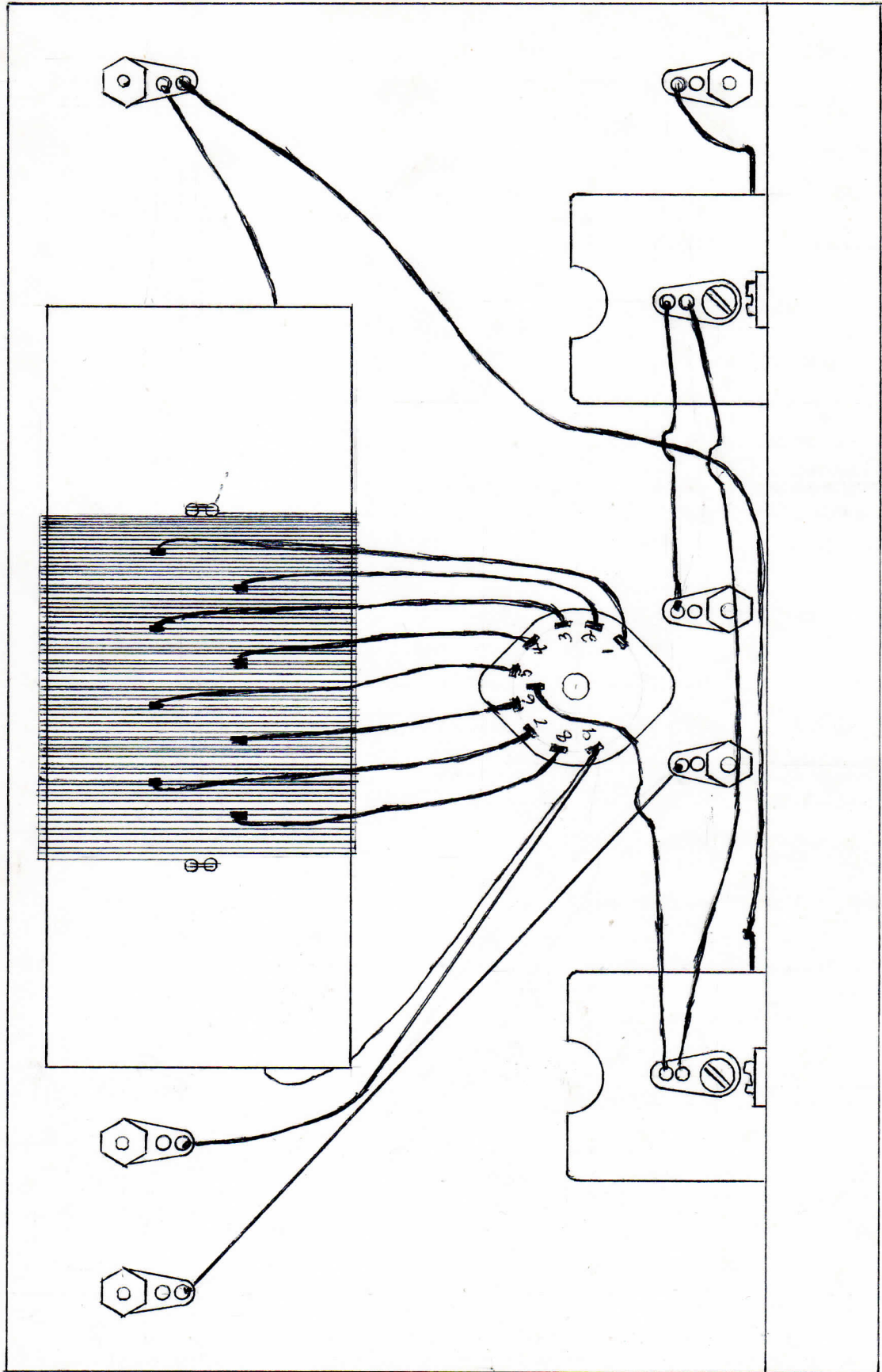


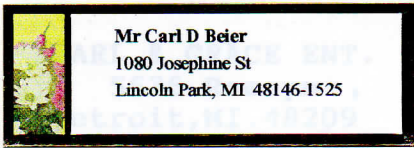
FIGURE No. 3

REPLACEMENT PARTS LIST

DESCRIPTION	NO.	PRICE	DESCRIPTION	NO.	PRICE
Variable capacitors ( 365pf )	1	\$10.00	Magnet wire ( 24ga ) wrapped coils for crystal radio kit no.1	1	\$12.00
Magnet wire ( 24ga. )	200ft	\$6.00			
Crystal diode ( IN34A )	1	\$0.50	Magnet wire ( 34ga ) wrapped coils for crystal radio kit no.1	1	\$12.00
Fahnestock clips	1	\$0.25	Sheet of red ( 9pos ) rotary switch dials ( 12 )	1	\$5.00
High quality 2000 ohm. dbl headphones	1	\$20.00	Sheet of red broadcast band dials ( 24 )	1	\$5.00
Crystal earphones	1	\$2.00	Old-style antenna lead-in wire to fit under closed window. Has fahnestock clips on ends	1	\$2.00
Rotary switch ( 1pole 9pos. )	1	\$3.00	Mach. screws ( 6/32x3/8 RH )	25	\$1.00
Pointer plastic knobs	1	\$0.75	Mach. screws ( 6/32x1/4 FH )	25	\$1.00
Soldering lugs ( # 6 )	1	\$0.15	Washers ( # 6 )	25	\$0.50
Bumpers	4	\$1.00	Hex nuts ( 6/32 )	25	\$0.50
2 inch diameter coil tubes	IN.	\$0.25	Mach. screws ( 4/40x3/4 RH )	25	\$0.50
Hook-up wire ( 20ga )	FT.	ft/.30	Washers ( # 4 )	25	\$0.40
Un-drilled face panel ( 5 3/4 X 9in. )	1	\$2.00	Hex nuts ( 4/40 )	25	\$0.50
Pre-drilled face panel for crystal radio kit no. 1	1	\$5.00	Pan head screws ( 6x1/2 )	25	\$0.50
Pre-drilled face panel for crystal radio kit no. 2	1	\$5.00	Nylon round spacers	4	\$1.25
Base board ( 1 X 3 X 9 )	1	\$2.00	Crystal radio set kit no. 1	1	\$29.00
Old-time crystal detector stand, comes complete with cat whisker, sliding rod and ball assembly, holder for galena crystal, plastic base and fahnestock clips. ( Galena crystals not included.	1	\$14.00	Crystal radio set kit no. 2	1	\$19.00
Galena crystal for crystal detector stand.	1	\$3.00			
Cat Whiskers	1	\$1.00			

MINIMUM ORDER \$ 10.00





Mr Carl D Beier  
1080 Josephine St  
Lincoln Park, MI 48146-1525

DATE \_\_\_\_\_

YOUR ORDER NO. \_\_\_\_\_

SOLD TO

SHIP TO

NAME \_\_\_\_\_

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

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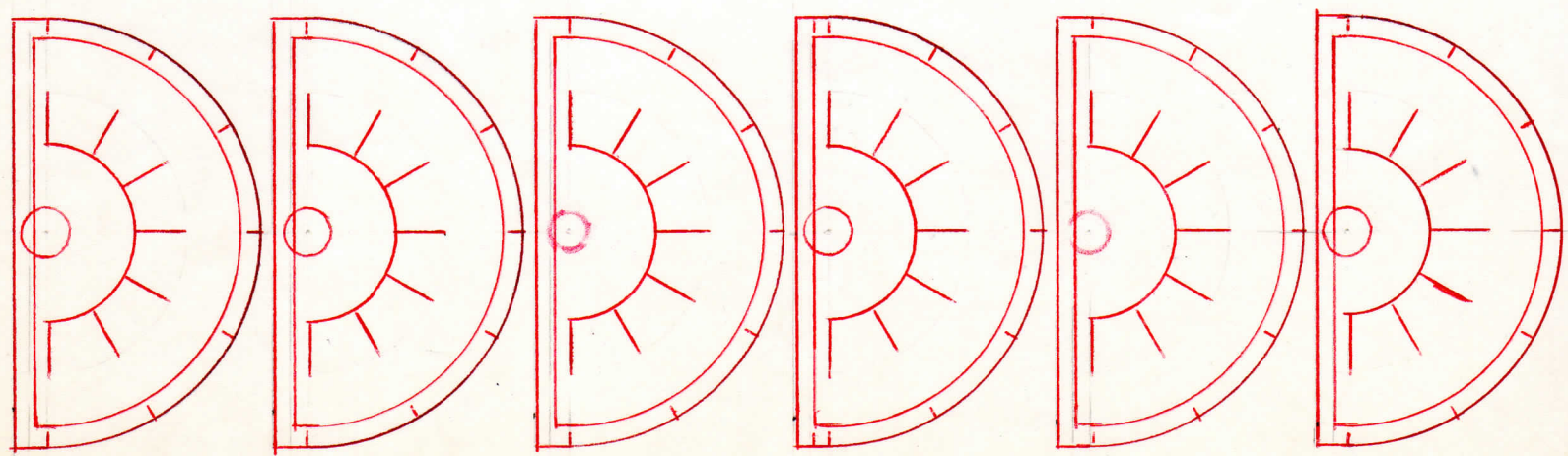
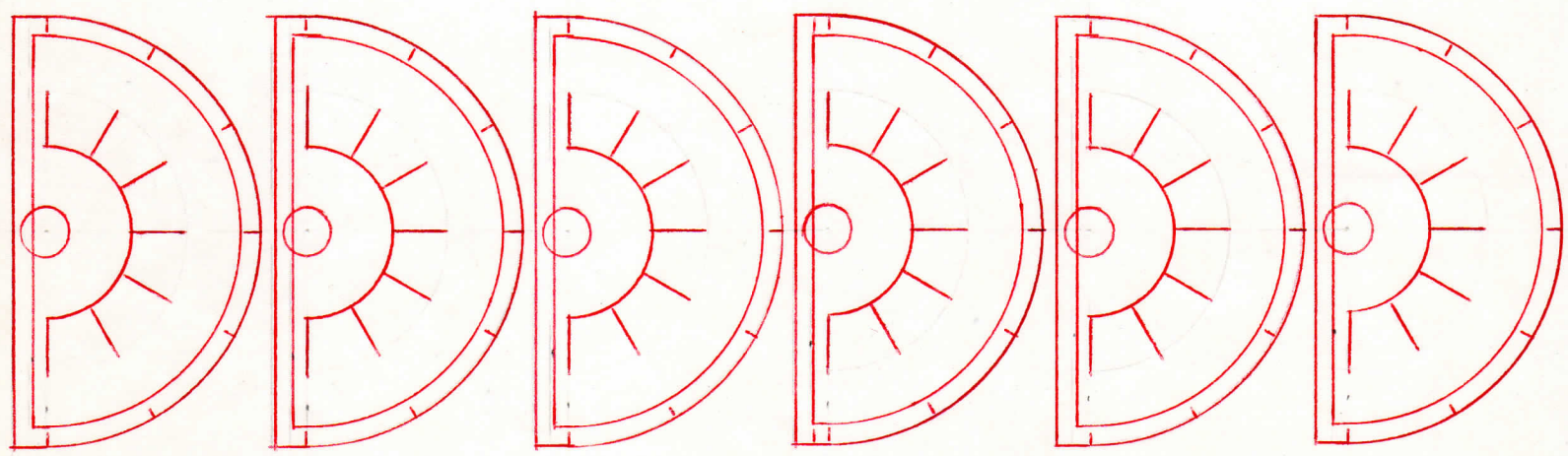
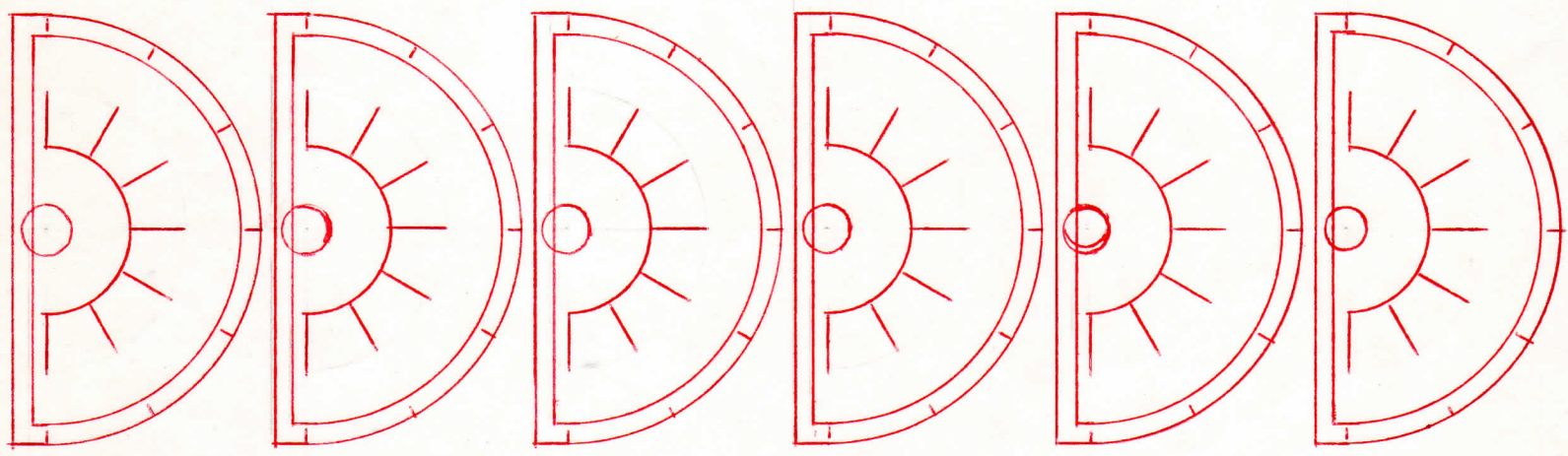
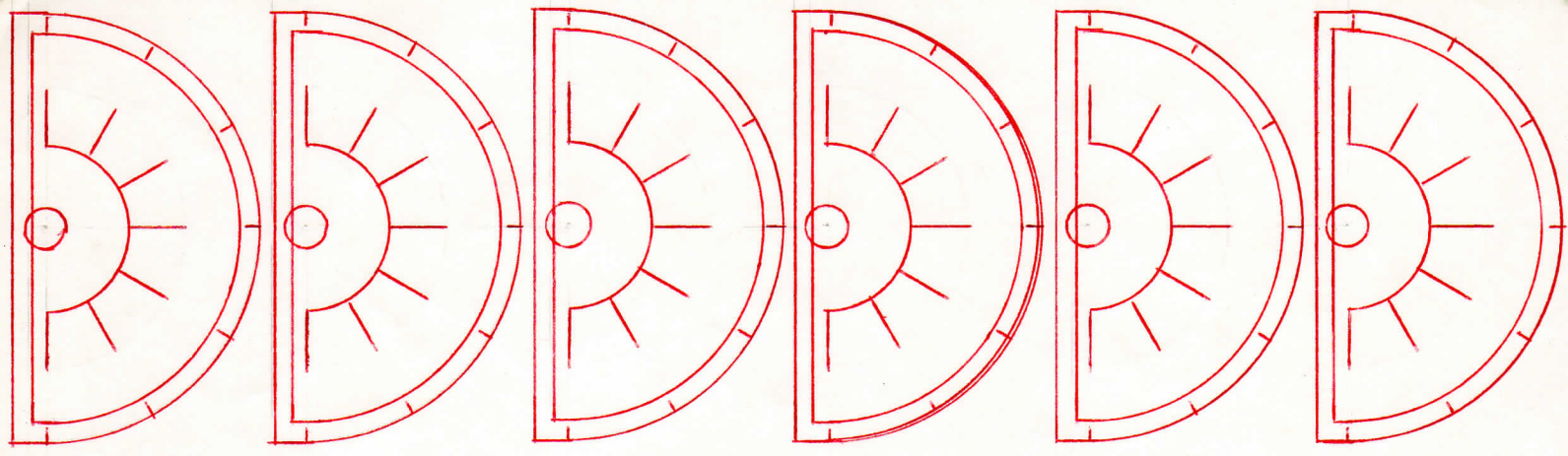
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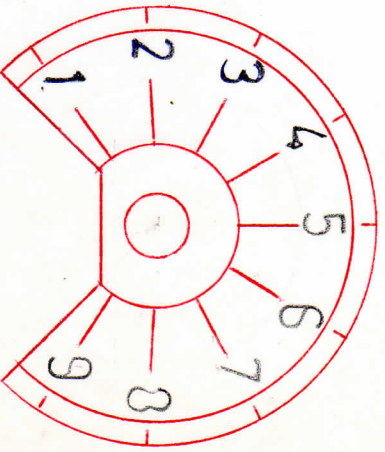
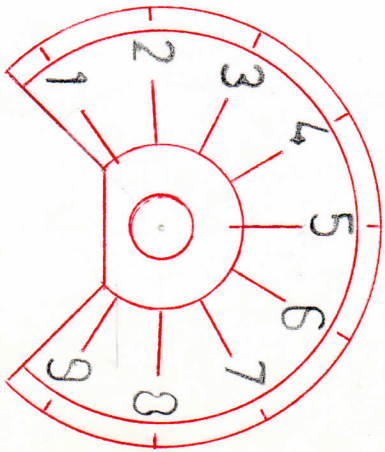
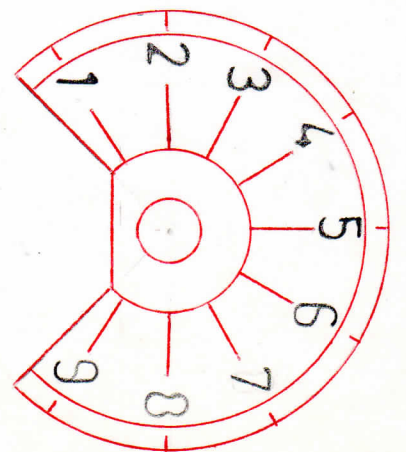
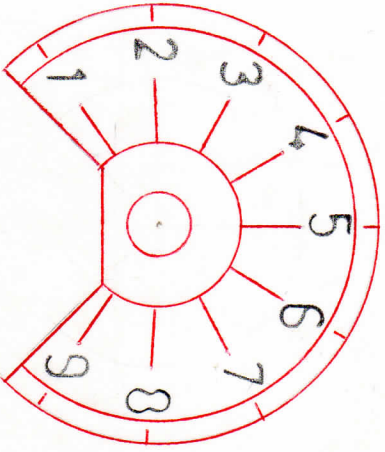
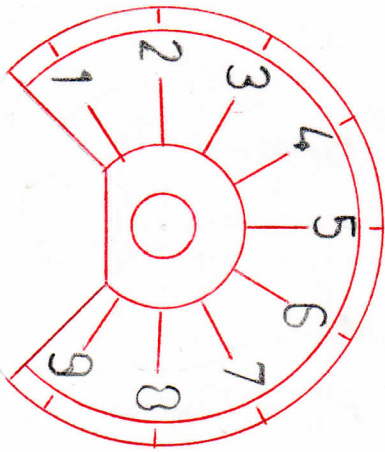
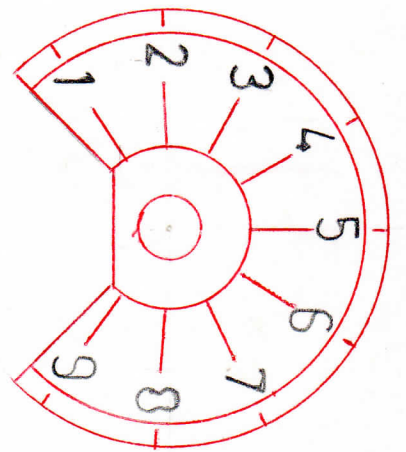
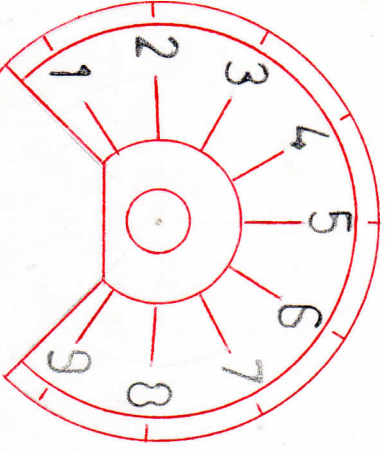
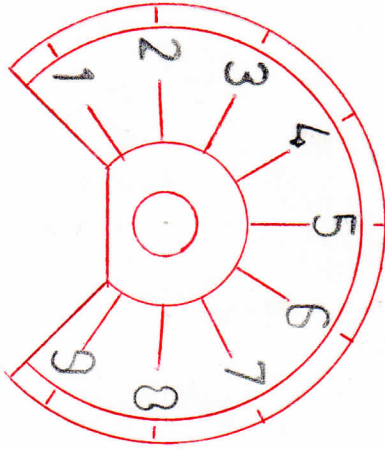
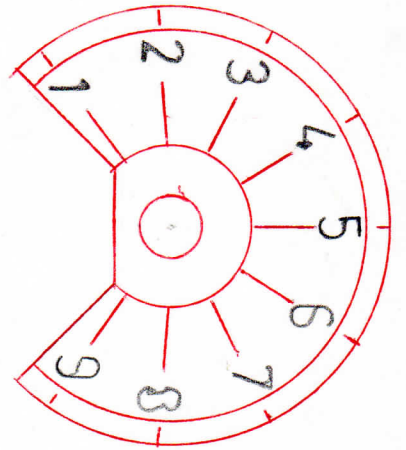
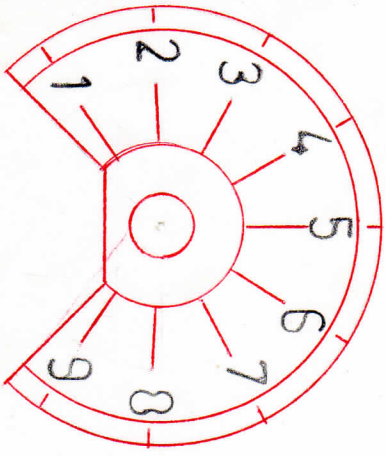
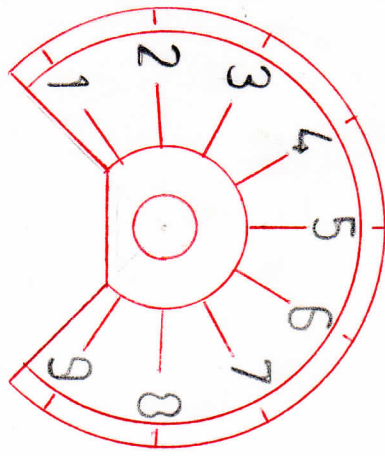
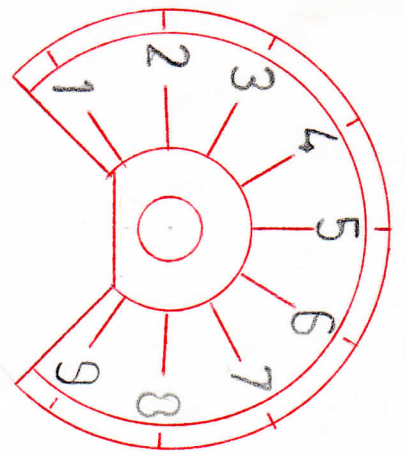
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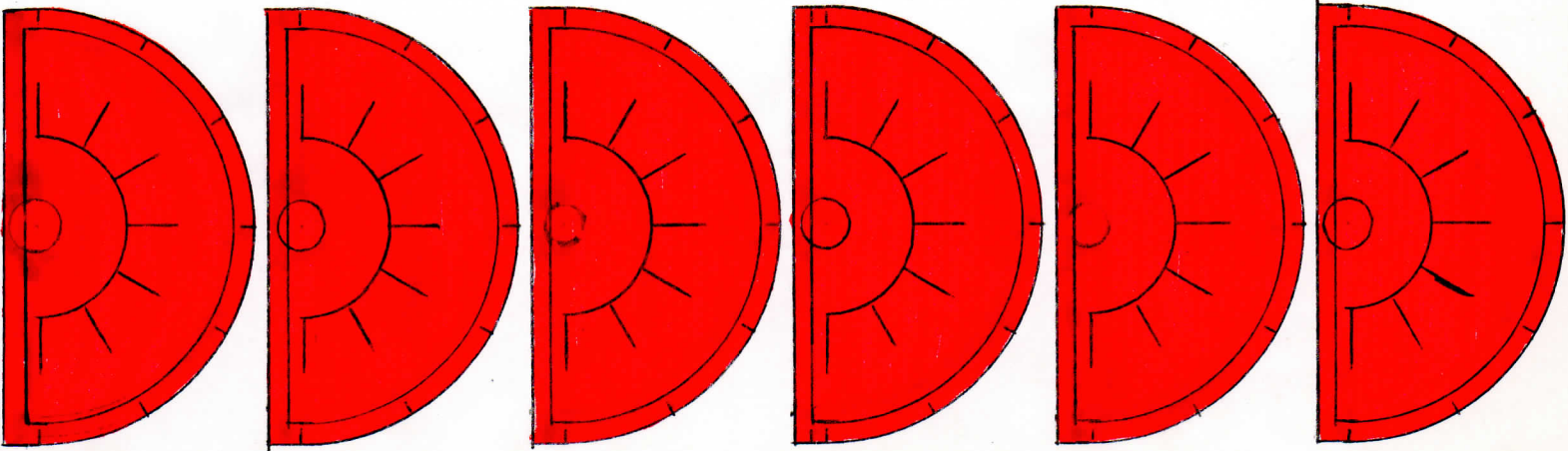
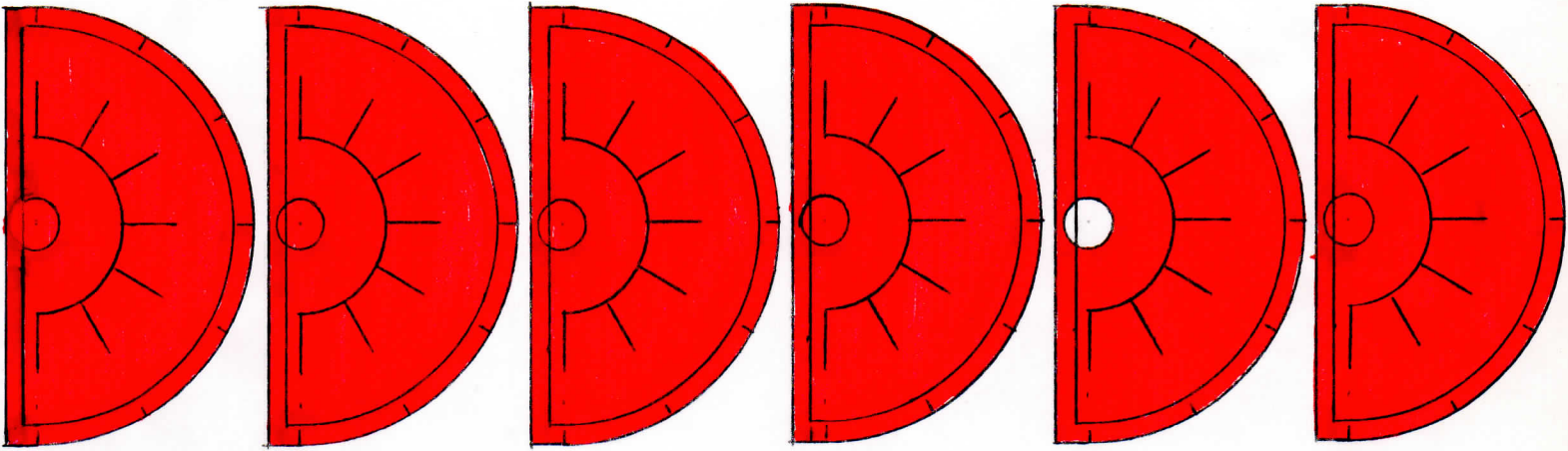
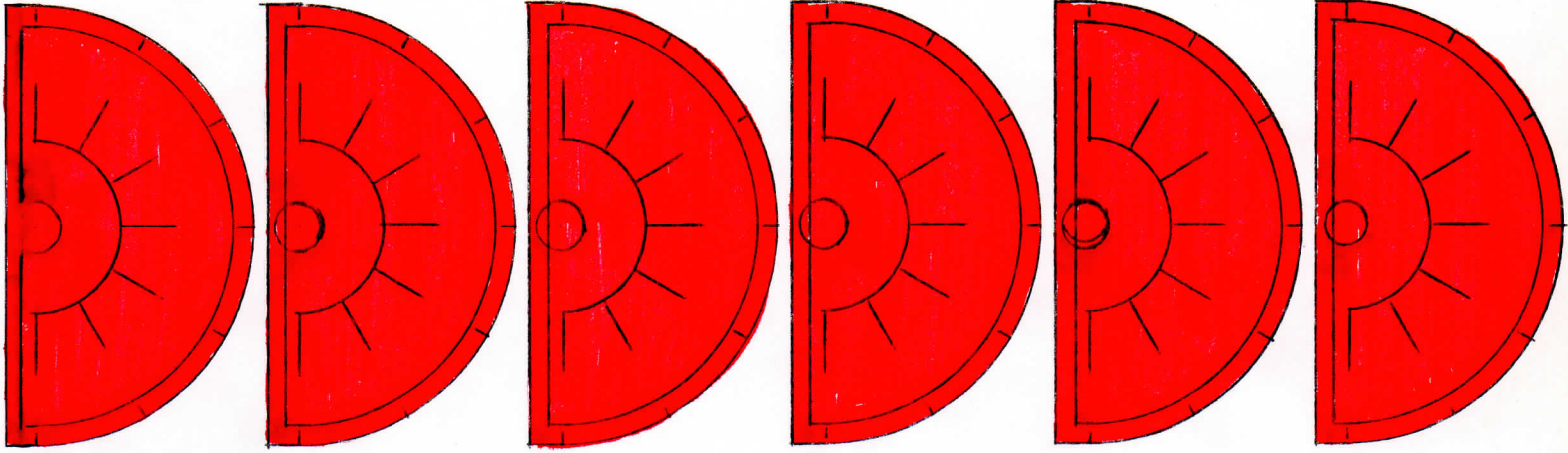
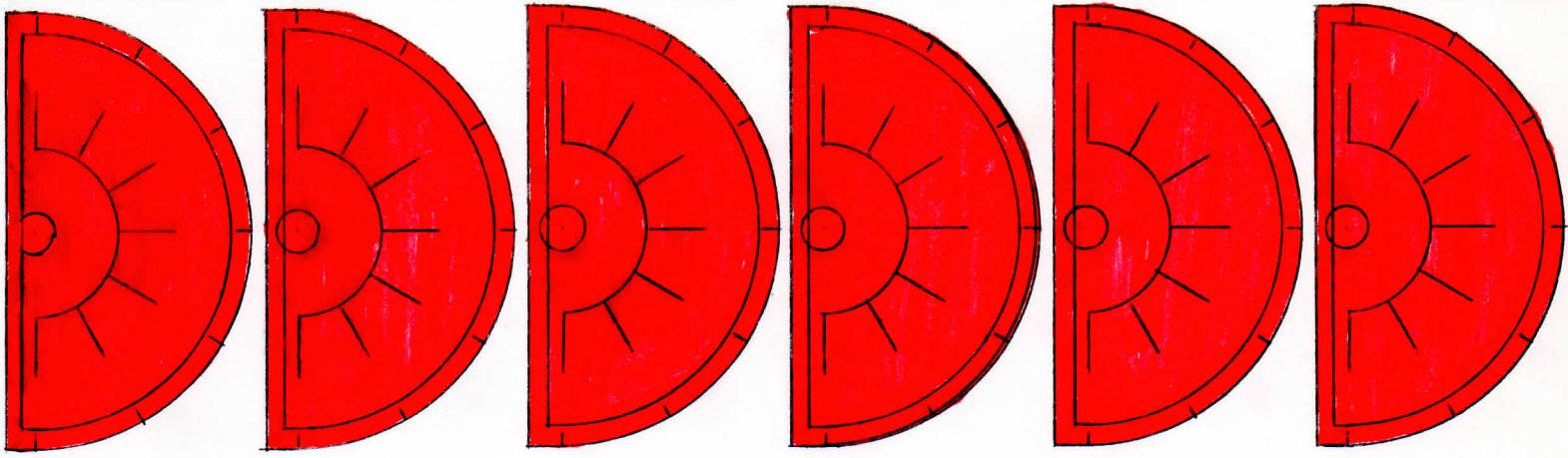
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\$31.00 to \$50.99.....	\$6.00
\$51.00 and over add	10%

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SALES TAX ( <input checked="" type="checkbox"/> <sup>MI</sup> CUSTOMERS)	_____
HANDLING CHARGE	_____ <input checked="" type="checkbox"/>
SHIPPING CHARGES	_____
TOTAL	_____





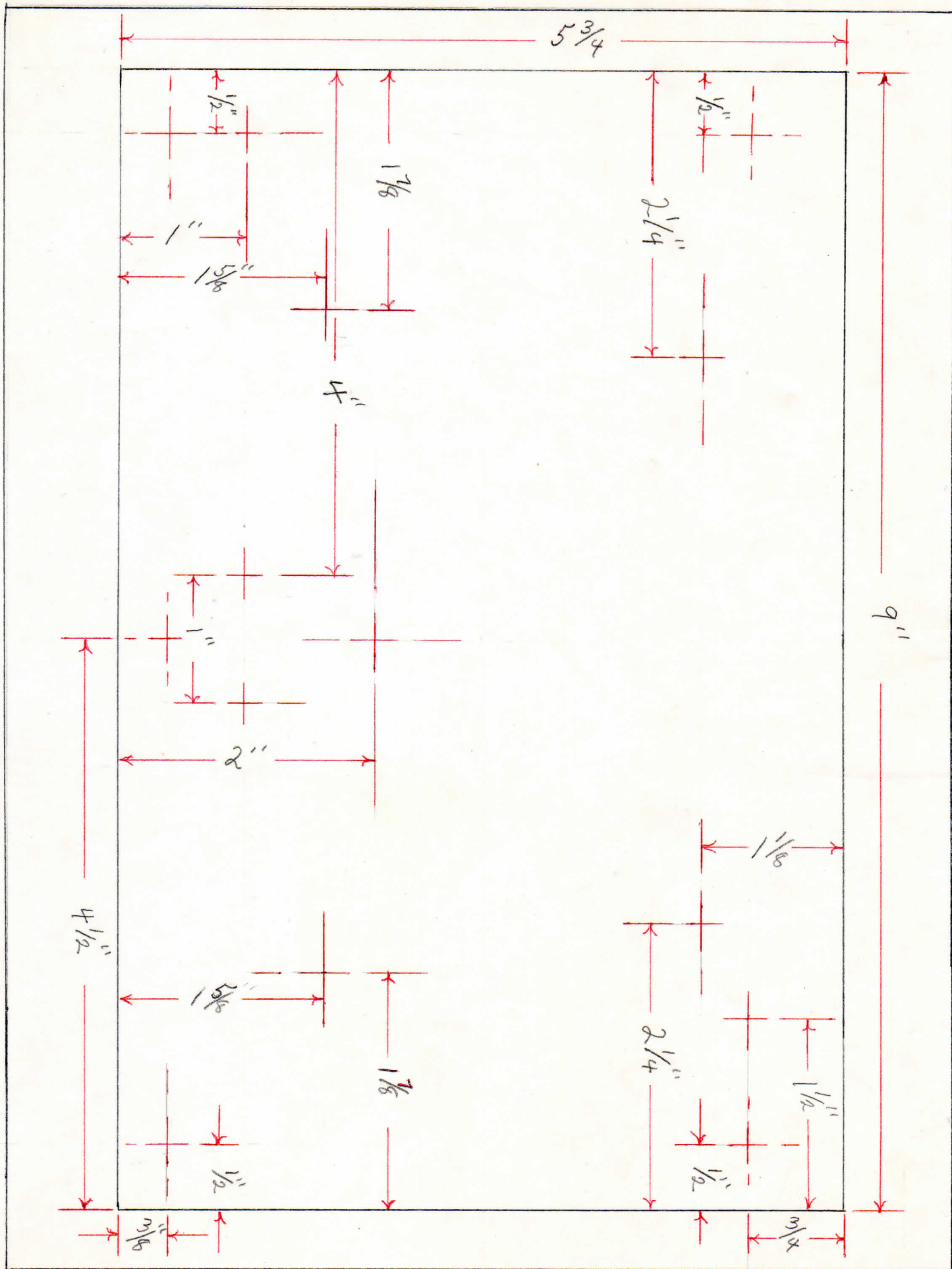






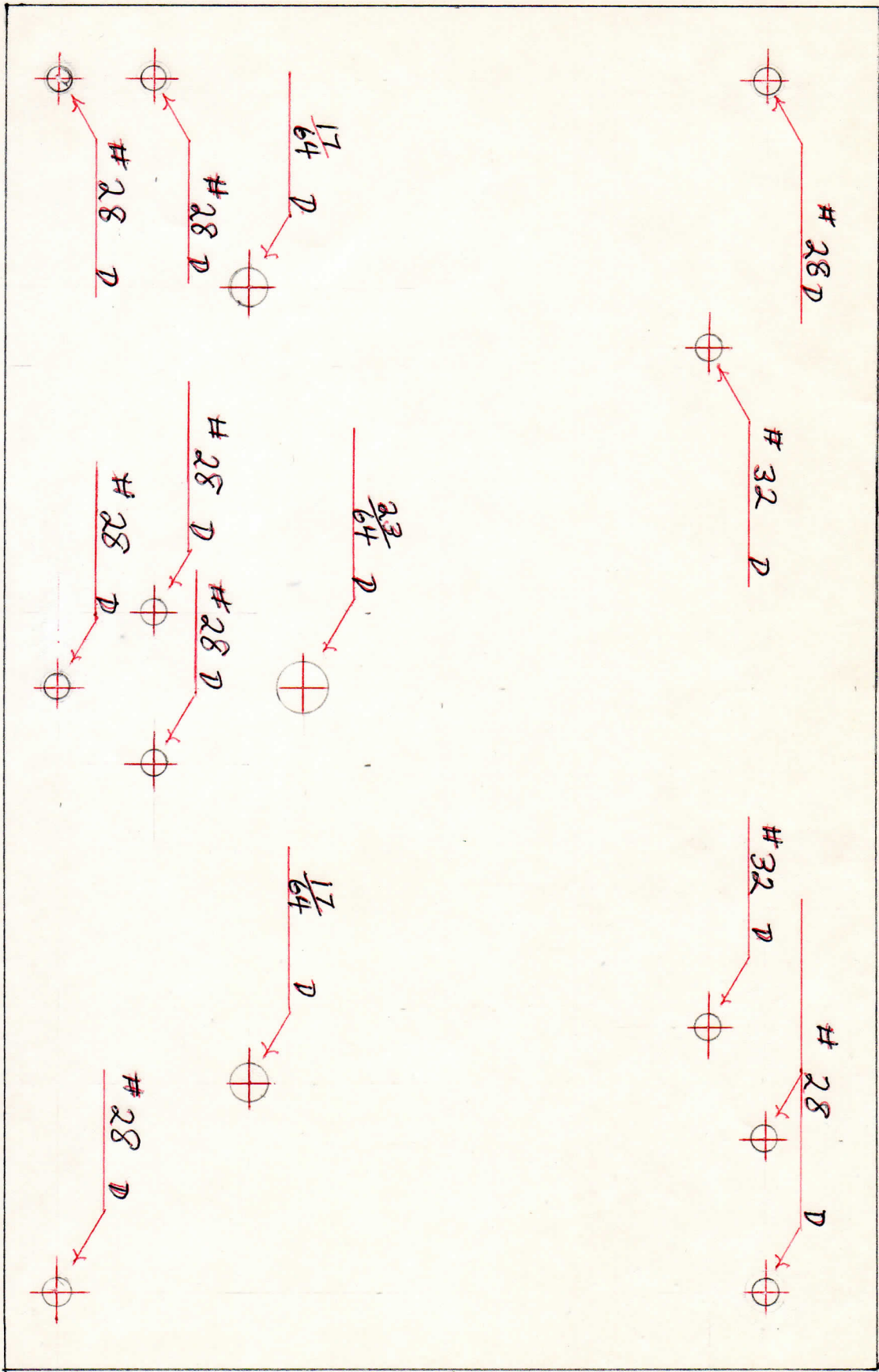


CRYSTAL SET KIT NO I (FRONT PANEL) 5/30/92





CRYSTAL SET KIT NO.1 (FRONT PANEL DRILL SIZE) 5/30/92



CRYSTAL SET KIT NO I (1/8" X 4' X 8' MASONITE ) 5/30/92

