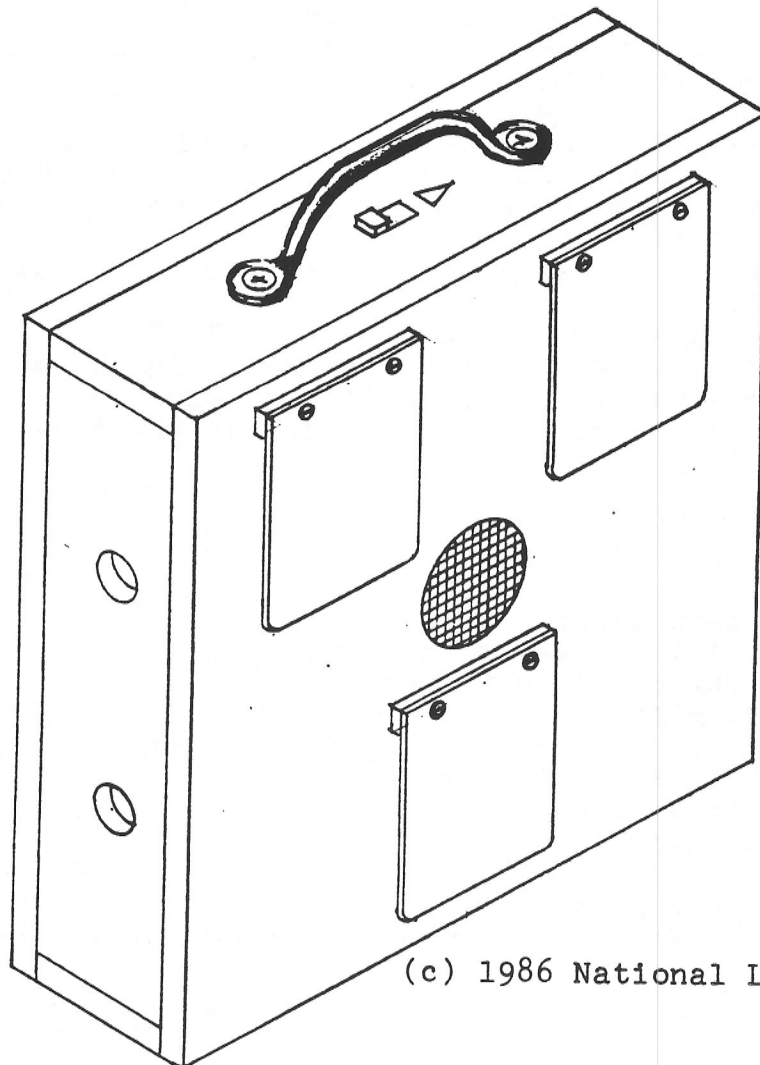


## BUSY BOX II

This Busy Box is smaller and a bit simpler than the Busy Box detailed in the first volume of the Lekotek Plan Book of Adaptive Toys. This Busy Box has several features that make it an excellent toy for a child with physical disabilities:

1. A light touch is all that is necessary to activate any of the three panels.
2. The box is relatively small, not very high and will enable a child who has difficulty extending his arms to reach any of the panels.
3. The bright color of each panel is different, giving the child an opportunity to choose by color as well as sound.

Each panel has a different sound. One beeps, one turns on a pre-set radio, and one activates a noisy vibration. There is an off-on switch under the carrying handle. The two "C" batteries are easily replaced by opening a plate on the side of the box.



## Materials needed:

- 3/8" birch plywood - refer to drawing on page 5
- Elmer's Carpenter's Glue
- Varathane gloss varnish or equal
- Wood screws, flat head, #4 x 3/4" and #4 x 1"
- One piece 3" x 3" aluminum screen wire, 16 mesh
- Hot melt glue
- One slide switch, Radio Shack #275-401 (off-on)
- Three Mini lever switches, Radio Shack #275-016
- One radio, Radio Shack #12-177
- One pulsating buzzer, Radio Shack #273-066
- One piece aluminum .027" - .030" for motor strap and vibrator bracket
- 1/4" Lexan (polycarbonate) for off-set weight
- Motor (See page 8 for ordering information.)
- 22 guage stranded wire, Radio Shack #278-1307
- Two "C" size flashlight batteries
- One Stanley door pull #CD479
- Three pieces 1/16" clear Lexan, 2 1/2" x 3"
- Three pieces 1/4" clear Lexan, 5/16" x 2 1/2"
- Superglue or equal
- One piece 22 guage stainless steel, 1 5/8" x 2 1/2"
- One machine screw, round head #6 x 3/4" w/2 hex nuts
- One pan head sheet metal screw #6 x 3/8"
- Six pan head sheet metal screws #4 x 3/4"
- Three pieces .027"-.030" aluminum sheeting cut to size for switch brackets. Source: aluminum gutter fabricator
- Two pieces same aluminum - scraps to hold radio and battery tube in place
- Six machine screws, #2-56 x 1/2" to mount switches to brackets
- 18 pan head sheet metal screws, #4 x 3/8"
- Four self-sticking cushion feet, Radio Shack #64-2346
- Spray enamel paint in red, white and blue
- One 1 1/4" PVC insert coupling for battery tube

## Tools needed:

- Table saw
- Sander or sand paper
- Electric drill and selected twist drills
- Expansion auger bit or holesaw 1 1/2"
- Hot melt glue gun
- Metal shears, screwdrivers, hammer, straight edge
- Wood auger bits 5/16", 1/2"
- Soldering iron (small)
- Rosin core solder
- Wire cutters, pliers
- Flat and round files
- Square file 1/4" for rectangle hole OFF-ON switch

### Construction suggestions:

Cut out the pieces of  $3/8$ " plywood to the sizes detailed on page 5. Locate the holes for the switch buttons, the "nose" screen, the battery compartment in the side panel and the on-off switch in the top panel. Sand all the pieces and, except for the back panel, glue and nail the pieces together. Screw on the back panel. Sand the box overall and apply two coats of Varathane gloss varnish, sanding lightly between coats.

The front "eye" panels and the "mouth" panel are all really switch activators made of  $1/16$ " Lexan. Bond the switch activators to the  $1/4$ " x  $5/16$ " x  $2\ 1/2$ " Lexan strips (as shown on page 8), with Superglue. When the bonding is set, paint the underside of the activator with bright shades of red, white and blue. Painting the underside leaves the tops easy to clean and the paint is not rubbed off through continual use. Drill holes as shown on page 8 and mount the activators in place as detailed in the drawing on page 5, center.

Turn the box over, remove the back, and proceed with the inside assembly. First, lay the screen wire over the  $1\ 1/2$ " "nose" hole on the inside and press the wire into the hole with the  $3/4$ " pipe coupling until the screen wire is even with the front surface of the box. Trim off leaving about  $3/8$ " inside and flatten this on the inside of the box. Fasten to the inside of the box with hot melt glue or tacks, then remove the coupling leaving a neat grill for the radio music and the pulsing buzzer.

Next, mount the off-on switch with the switch button protruding through the rectangular slot in the top of the box under where the handle will go.

Form the supports for the three lever switches, Radio Shack #275-016, as detailed in the top of page 8. Drill all indicated holes, mount the switches on brackets, then screw the brackets so the switch buttons protrude through the face panel under the activators as shown on page 5, center.

Mount the PVC coupling that is used for the battery compartment, as shown on page 7. Make and place the copper bracket at the end of the PVC coupling as shown on page 7. Best to solder a red wire onto the bracket before screwing down the copper bracket. Then, solder a black wire onto the bolt that is the pivot for the battery compartment closure (which is the outside sheet steel door to the battery compartment). The bolt with wire attached is shown in the lower left of the page 6 drawing. The wire goes to the switch at the top of the box under the handle. Locate the battery compartment closure as shown on the right side view of the box on page 5. Batteries go in with the tips pointing outward.

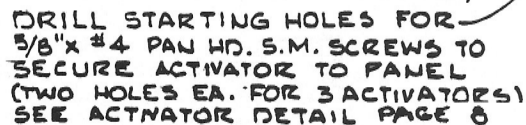
Make the vibrator assembly as detailed on page 8 and mount the assembly in the location shown on the page 6 drawing.

Snap open the radio and solder a red wire to the "+" terminal and a black wire to the "-" terminal. Keep the identity of these wires since the radio will not function if the polarity is reversed. The radio is to run on the "C" cells in the Busy Box II rather than the batteries in the radio. Make the two radio brackets, mounted on their 1/2" x 1/4" x 4 1/4" wood blocks, as detailed on the bottom of page 8 and install in the location detailed on page 6, item 4.

Connect wires as shown on page 6 and solder all connections after testing to be sure it works. Install the batteries.

Attach the four cushion feet to the back panel. This keeps any raised screw heads from marring the furniture the Busy Box II is placed on.

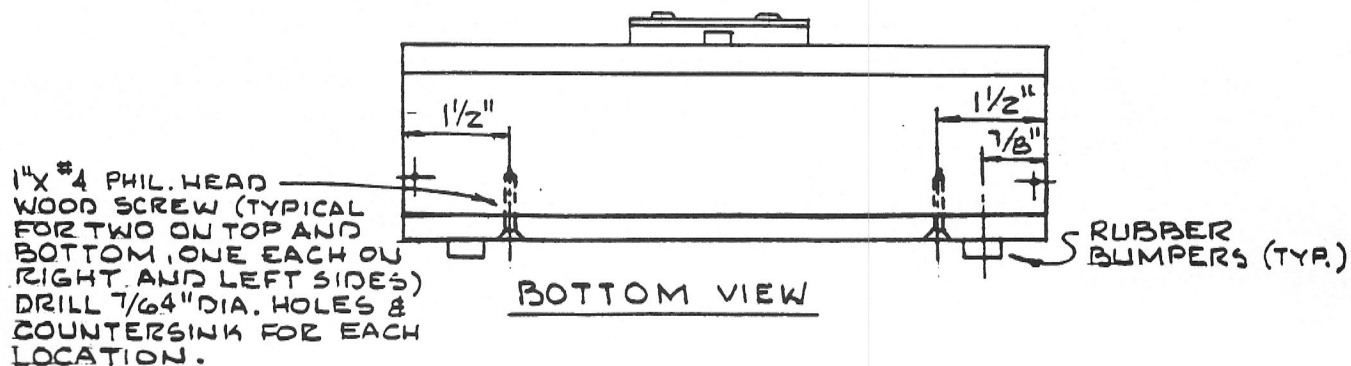




LEFT SIDE VIEW

FRONT VIEW OF BUSY BOX II

RIGHT SIDE VIEW

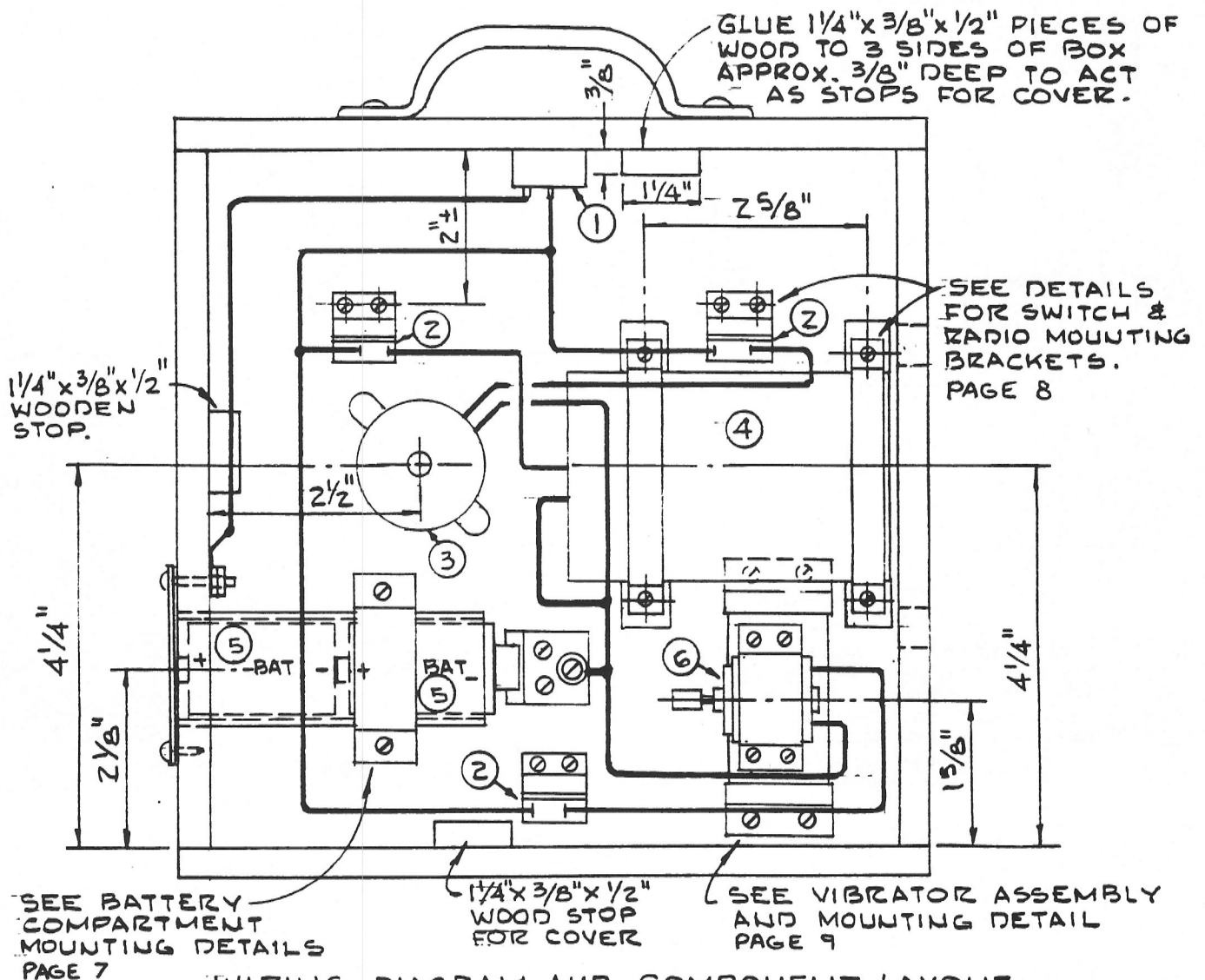


LIST OF NUMBERED COMPONENTS  
INSIDE BUSY BOX II (SEE WIRING DIAGRAM BELOW)

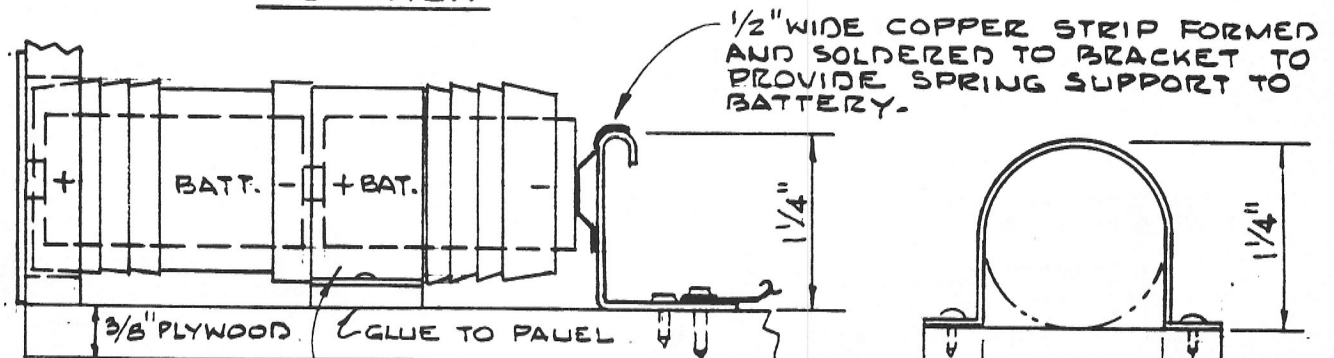
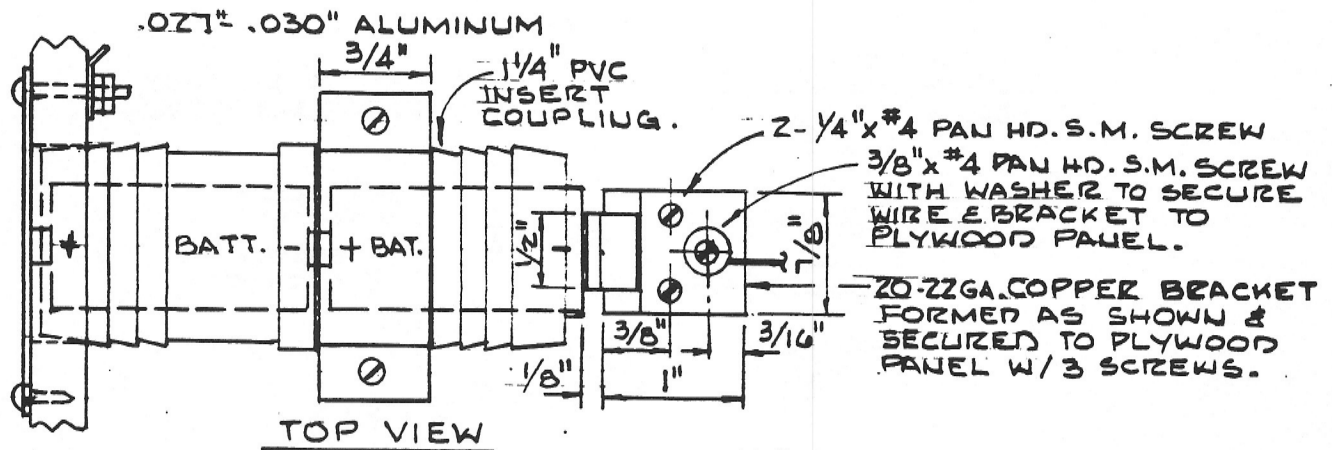
- ① SLIDE SWITCH - SPST RADIO SHACK # Z75-401
- ② 3 LEVER SWITCHES - SPDT RADIO SHACK # Z75-016
- ③ PULSATING BUZZER - RADIO SHACK # Z73-066
- ④ RADIO - RADIO SHACK # 12-177
- ⑤ 2 C" SIZE BATTERIES.
- ⑥ VIBRATOR MOTOR - MABUCHI RE-56 - JOHN J. MESHUA JR. INC.

SEE DETAIL OF  
 MOTOR MOUNTING & ASSEMBLY  
 PAGE 9

19 ALLERTON ST.  
 LYNN, MA. 01904  
 CATALOG NO. SP-40  
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 ITEM NO. H-56-19

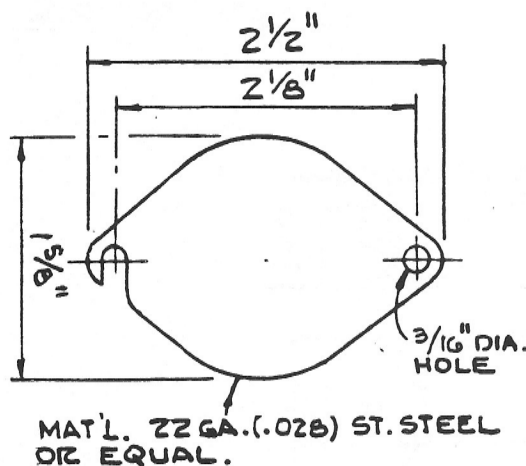
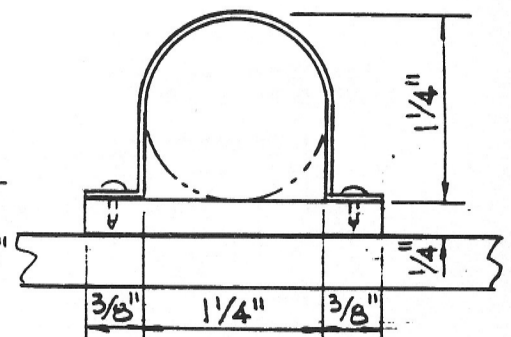


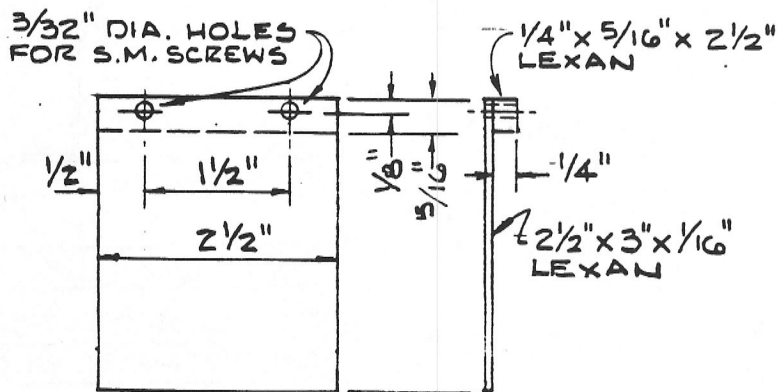
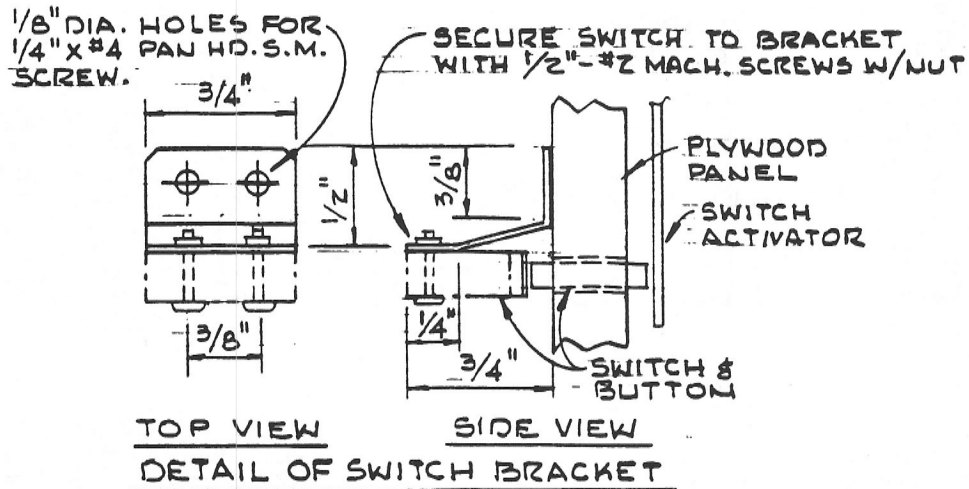
WIRING DIAGRAM AND COMPONENT LAYOUT  
VIEW OF BOX WITH BOTTOM COVER REMOVED



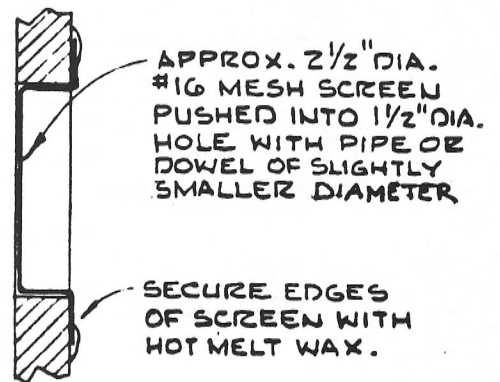
3/4" WIDE BRACKET .027"-.030" ALUMINUM MOUNTED ON 1/4" THK PLYWOOD. SEE DETAIL AT RIGHT.

**BATTERY COMPARTMENT MOUNTING  
DETAIL**

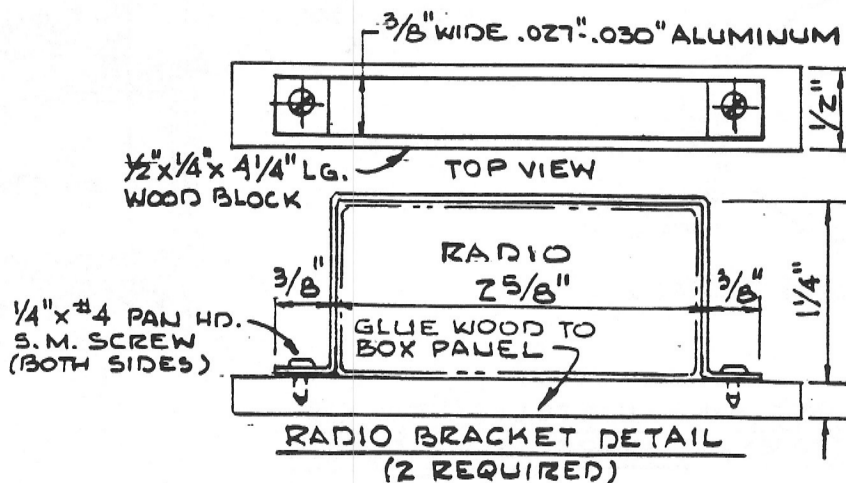


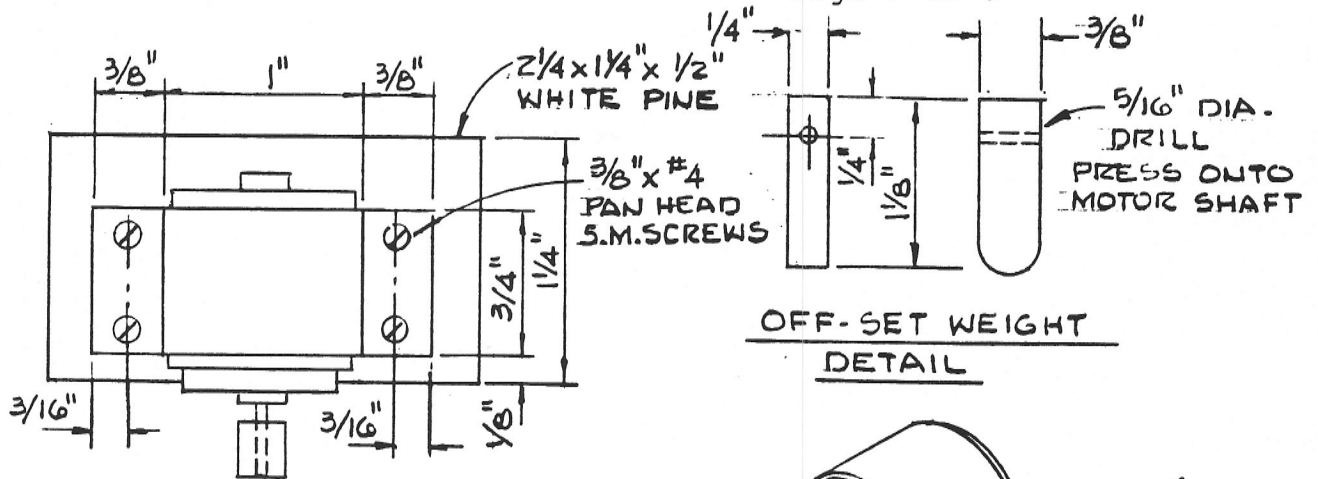


SWITCH ACTIVATOR DETAIL

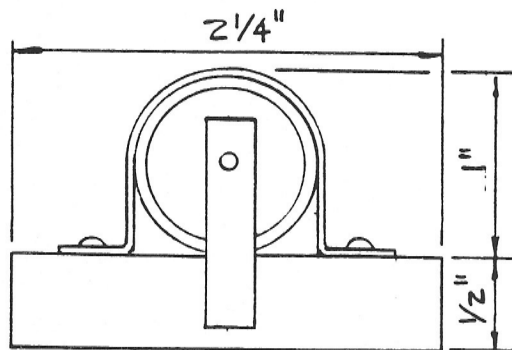


INSTALLATION DETAIL OF MESH SCREEN



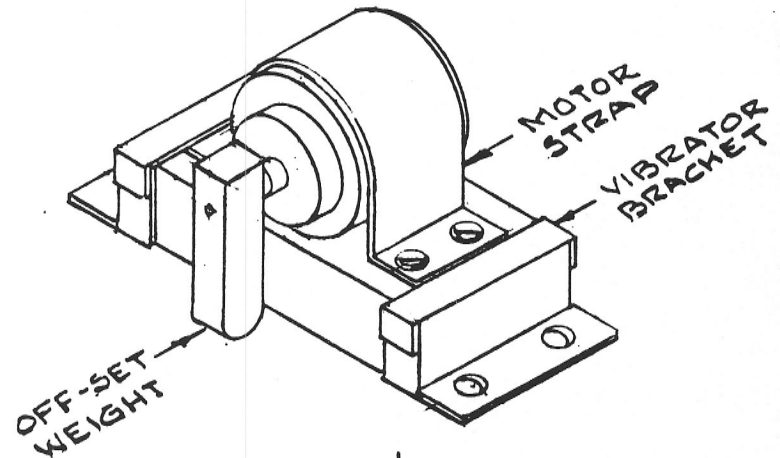


TOP VIEW

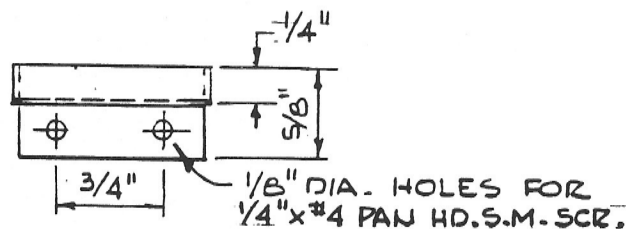


FRONT VIEW

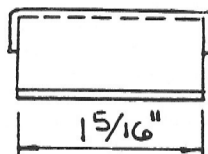
VIBRATOR MOTOR ASSEMBLY



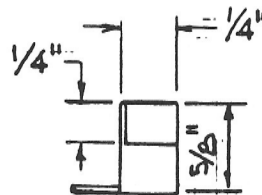
VIBRATOR ASS'Y WITH BRACKET



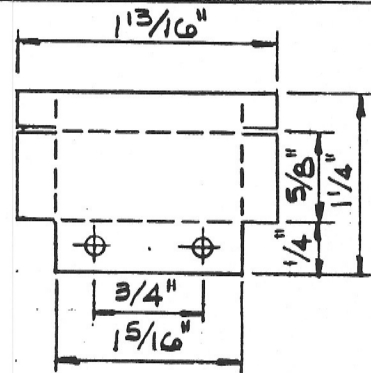
TOP VIEW



FRONT VIEW



SIDE VIEW

VIBRATOR BRACKET DETAIL  
(2 REQ'D)VIBRATOR BRACKET  
BEFORE FORMINGMATERIAL:

MOTOR STRAP AND VIBRATOR  
BRACKET: .027"-.030"  
ALUMINUM

OFF-SET WEIGHT: 1/4" LEXAN  
(POLYCARBONATE).

MOTOR - MABUCHI RE-56

JOHN J. MESHNA JR. INC.

19 ALLERTON ST.

LYNN, MA. 01904

CATALOG NO. SP-40

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