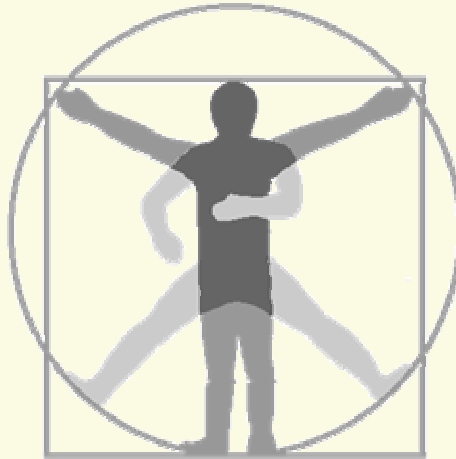
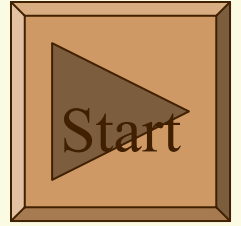
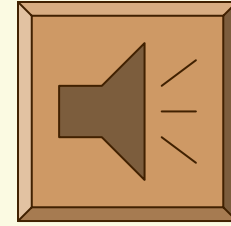


Two part rubber molds



MANNETRON

Step 1

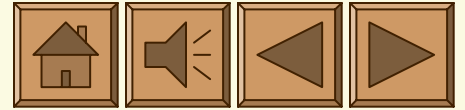
- Seal master with paste wax or Krylon clearcoat and buff.



Step 2a

- Determine parting line on master.





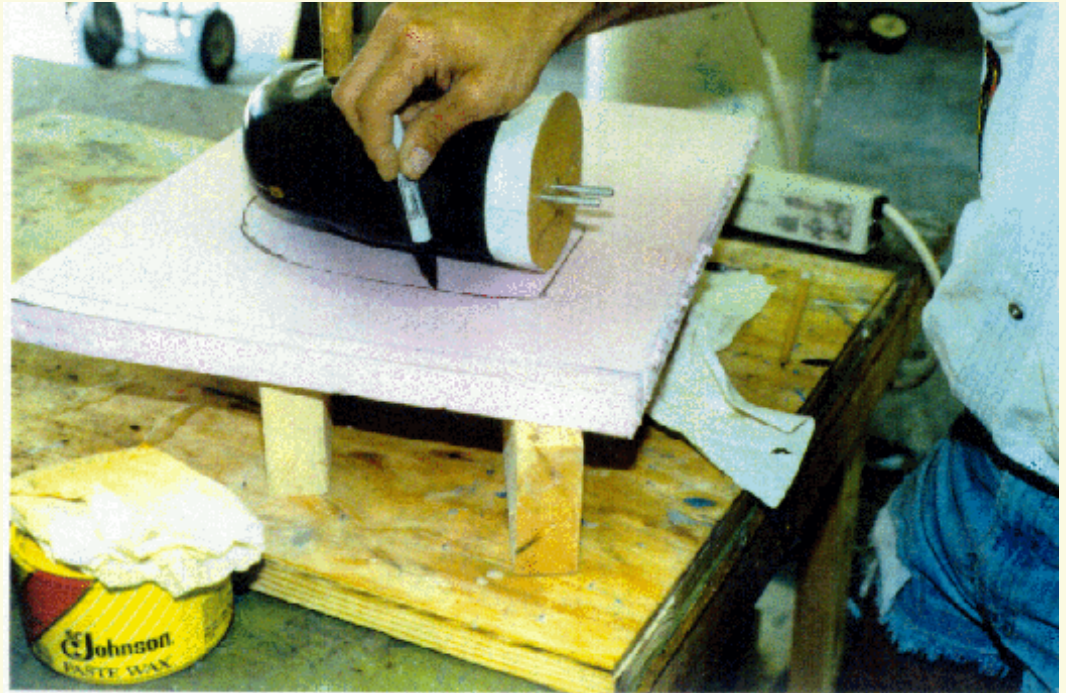
Step 2b

- Determine parting line on master.



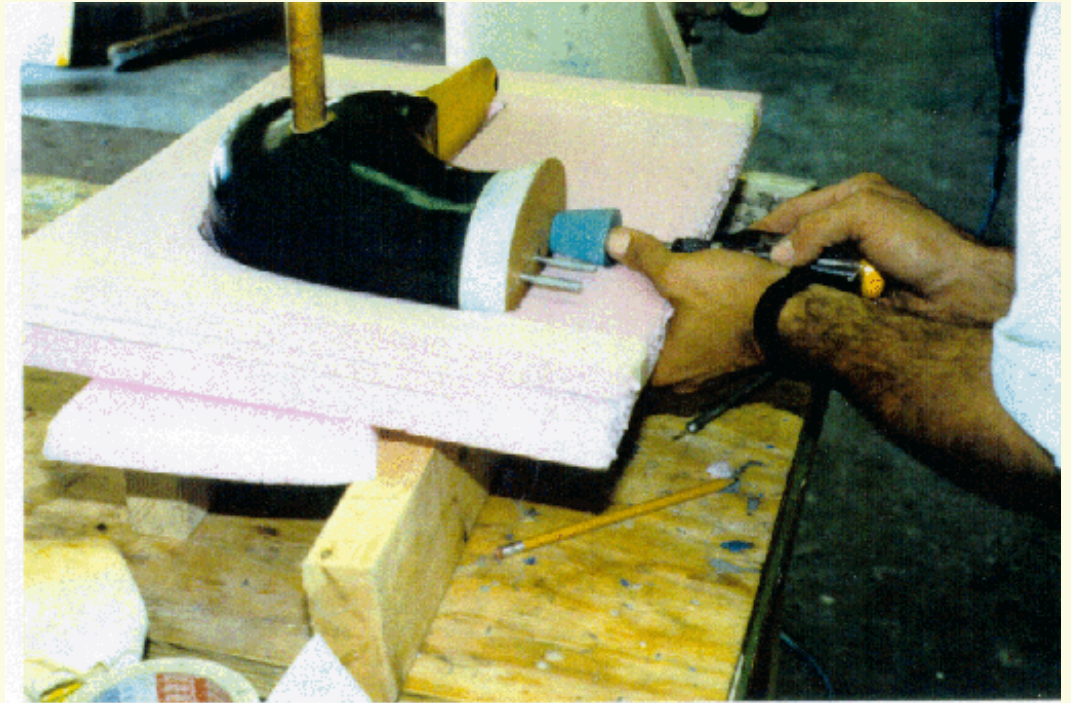
Step 3

- Find suitable support for clay (plywood, sheet foam, wood blocks, etc...) to suspend clay and master at parting line.



Step 4

- ▮ Determine proper location of pour spout and place rubber plug there.



Step 5a

- Begin clay-up at parting line following master all the way around. Use 3" width to allow a bolting plane for the cradle and the area where the rubber boots come together.



Step 5b

- Begin clay-up at parting line following master all the way around. Use 3" width to allow a bolting plane for the cradle and the area where the rubber boots come together.



Step 5c

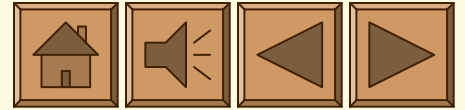
- Begin clay-up at parting line following master all the way around. Use 3" width to allow a bolting plane for the cradle and the area where the rubber boots come together.



Step 6

- Cover master with Saran Wrap or other clear plastic to protect.





Step 7a

- Clay up entire master using clay strips cut to uniform thickness of $\frac{3}{8}$ " to $\frac{1}{2}$ ". Lay strips starting near the parting line keeping flat against the master.



Step 7b

- Repeat this, putting each clay piece up against the other.
- Conform to the shape of the master without squeezing the clay thereby ensuring uniformity of thickness.



Step 7c

- Repeat this, putting each clay piece up against the other.
- Conform to the shape of the master without squeezing the clay thereby ensuring uniformity of thickness.



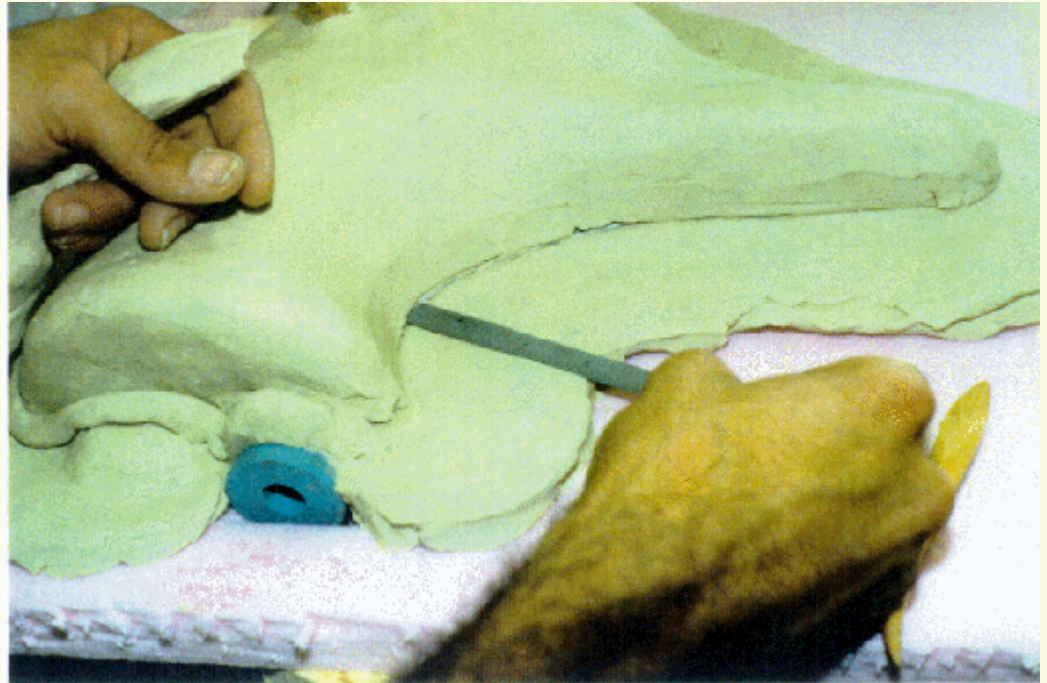
Step 8

- Once master is fully covered, fill cracks with clay.



Step 9

- Double-check parting surface for 3" width.



Step 10

- Place clay bead around parting edge next to clayed master. This will serve as a "grab" area for the cradle on the rubber boot.



Step 11

- Form a clay bead at a 90 degree angle to the base to avoid undercut.



Step 12

- ▮ Using a rounded end tool, evenly smooth the inside of the bead against clayed up master.



Step 13a

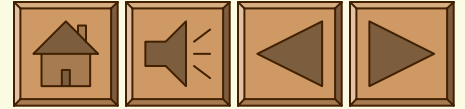
- Clay around added parts (in this example, the handle) to form a holder between the cradle and the rubber boot. Cut a groove in the bead to fit the cradle.



Step 13b

- Clay around added parts (in this example, the handle) to form a holder between the cradle and the rubber boot. Cut a groove in the bead to fit the cradle.





Step 14

- ▢ Double check for smooth surface

Step 15a

- ▮ Prepare materials for making fiberglass cradle: Polyester resin, fumed glass bubbles, brush, thin and thick glass matting torn into palm-sized pieces, mixing containers. Note: wear protective clothing, gloves and a mask.



Step 15b

- ▢ Prepare materials for making fiberglass cradle: Polyester resin, fumed glass bubbles, brush, thin and thick glass matting torn into palm-sized pieces, mixing containers. Note: wear protective clothing, gloves and a mask.



Step 16a

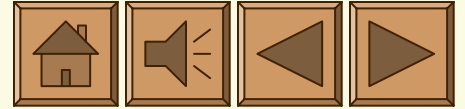
- ▮ Brush on a light coat of Vaseline on exposed exterior part, rubber plug and parting plane.



Step 16b

- ▮ Brush on a light coat of Vaseline on exposed exterior part, rubber plug and parting plane.





Step 17

- ▢ Mix Polyester resin with glass bead (also called fumed glass or glass bubbles)
- ▢ Use 50% by volume and mix to syrup consistency. Mix catalyst (MEKP) at 1% by weight.

Step 18a

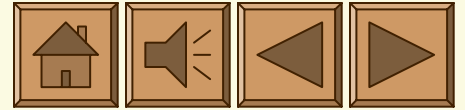
- Apply a surface coating of this mixture evenly to the entire surface of the clayed up mold.



Step 18b

- Apply a surface coating of this mixture evenly to the entire surface of the clayed up mold.





Step 19

- ▮ Allow first layer of resin to go to "tack" before applying first layer of glass fiber and resin.

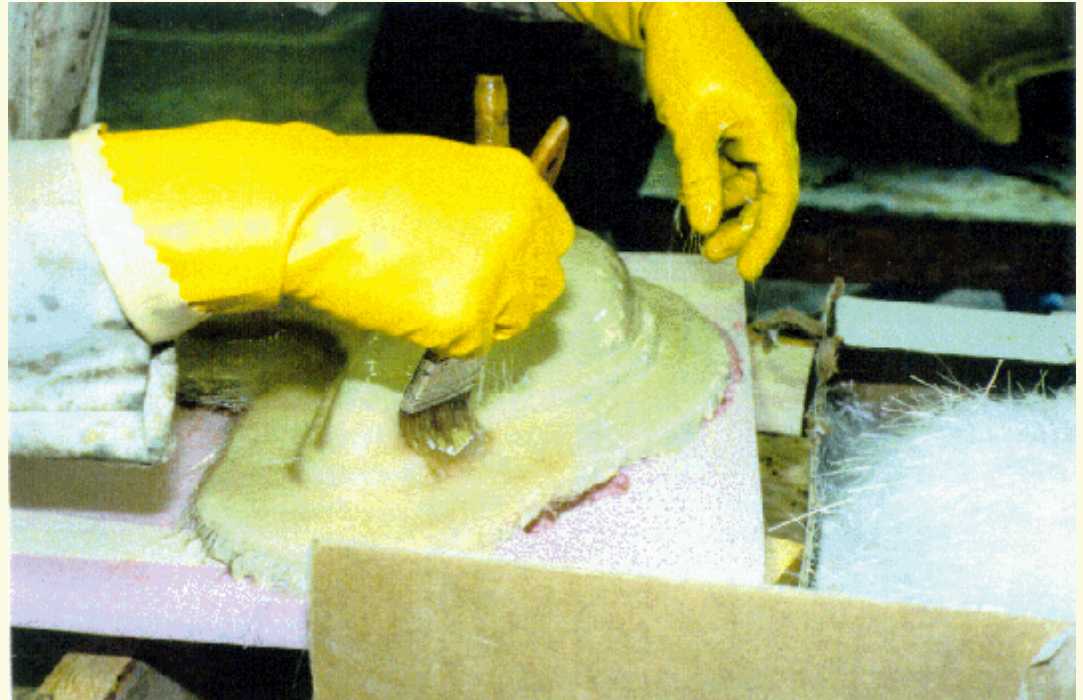
Step 20a

- Apply first layer of glass fiber and resin evenly, starting with a coat of resin then applying patches of glass matting coated in resin.



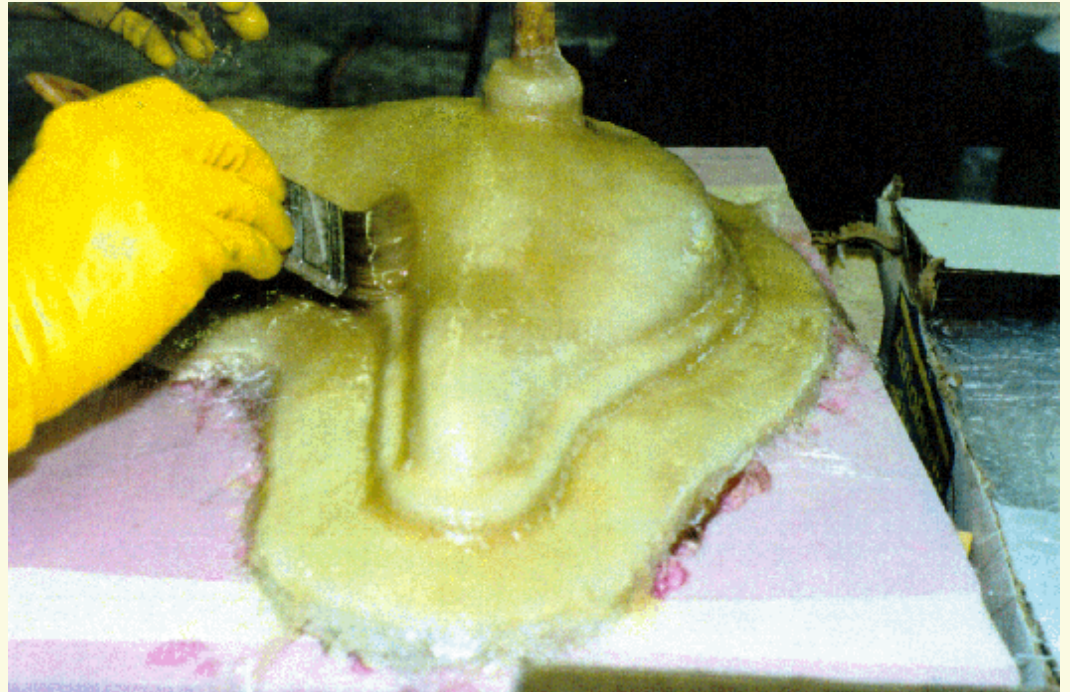
Step 20b

- Once the first layer is applied to the entire mold, a second layer of glass fiber and resin is applied.



Step 20c

- Once the first layer is applied to the entire mold, a second layer of glass fiber and resin is applied.



Step 21

- After two layers of thin glass matting and resin are applied, apply two coats
- of thick glass matting making four coats total, two thin and two thick with resin undercoat.



Step 22a

- Before leaving cradle to set up overnight, trim edges of fiberglass evenly.



Step 22b

- Before leaving cradle to set up overnight, trim edges of fiberglass evenly.



Step 23

- Flip over cradle exposing other side of master.



Step 24a

- Remove clay around parting plane only leaving clay within clay up area.



Step 24b

- Remove clay around parting plane only leaving clay within clay up area.



Step 25a

- Cover master with plastic food wrap.



Step 25b

- Cover master with plastic food wrap.



Step 26

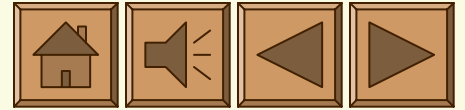
- Slice $\frac{3}{8}$ " to $\frac{1}{2}$ " strips of clay and cover master fully.



Step 27a

- Place groove in parting edge near pour spout and around mold.





Step 27b

- Place groove in parting edge near pour spout and around mold.



Step 28

- Smooth and trim mold edges.



Step 29

- Clay around external part as per previous instructions.



Step 30

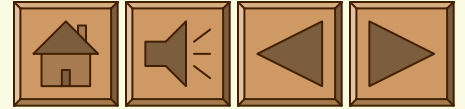
- Ensure edge of parting plane is even by grinding off any imperfections.



Step 31

- Wax the parting plane of mold. Work the wax in thoroughly by using small circular brush strokes.





Step 32

- ▣ Prepare materials for fiberglass cradle as usual: glass mat (thick and thin),
- ▣ polyester resin, glass bubbles, brush and containers.

Step 33

- Apply first resin coat and allow to dry to "tack"



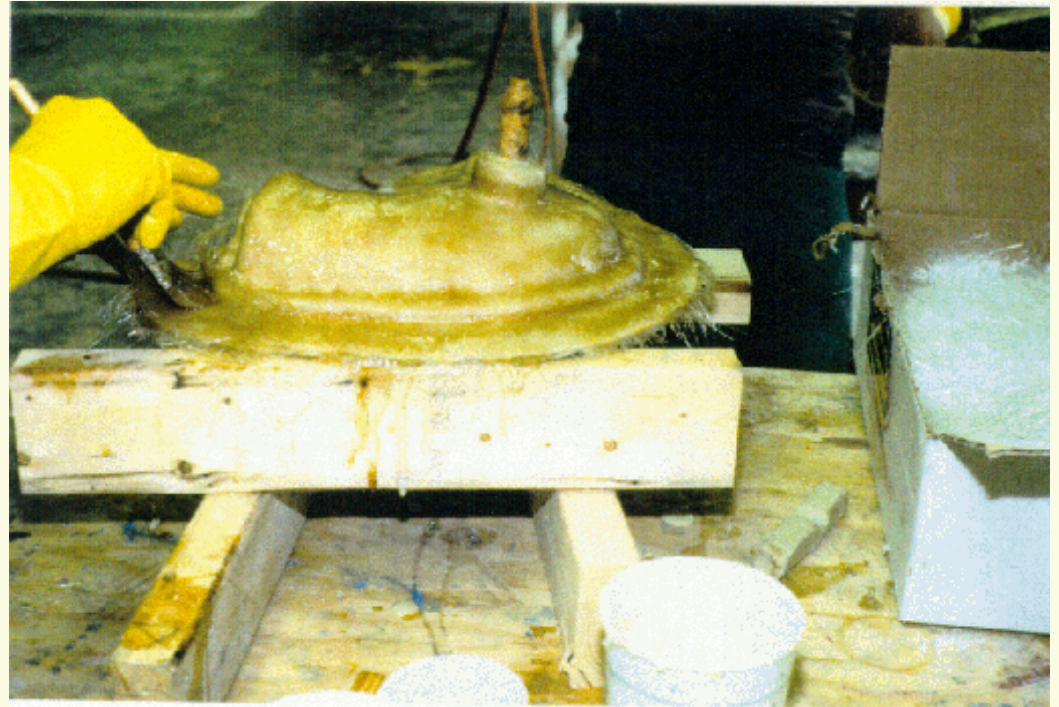
Step 34

- Apply two coats of thin glass fiber mat.



Step 35

- Apply two coats of thick glass fiber mat.



Step 36

- Allow to cure overnight.



Step 37

- ▣ Grind off any sharp edges on parting plane or surface of cradle on both sides.



Step 38a

- Drill out bolt holes along parting plane.



Step 38b

- Drill out bolt holes along parting plane.



Step 39

- Start prying open cradle halves with a flat chisel.
- Open enough to then pry with a plastic parting wedge.



Step 40a

- ▢ Smooth clay along parting plane next to master using a tool to run
- ▢ clay perpendicular (90 degrees) to master.

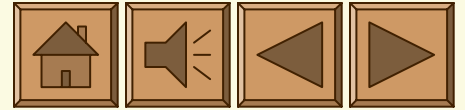


Step 40b

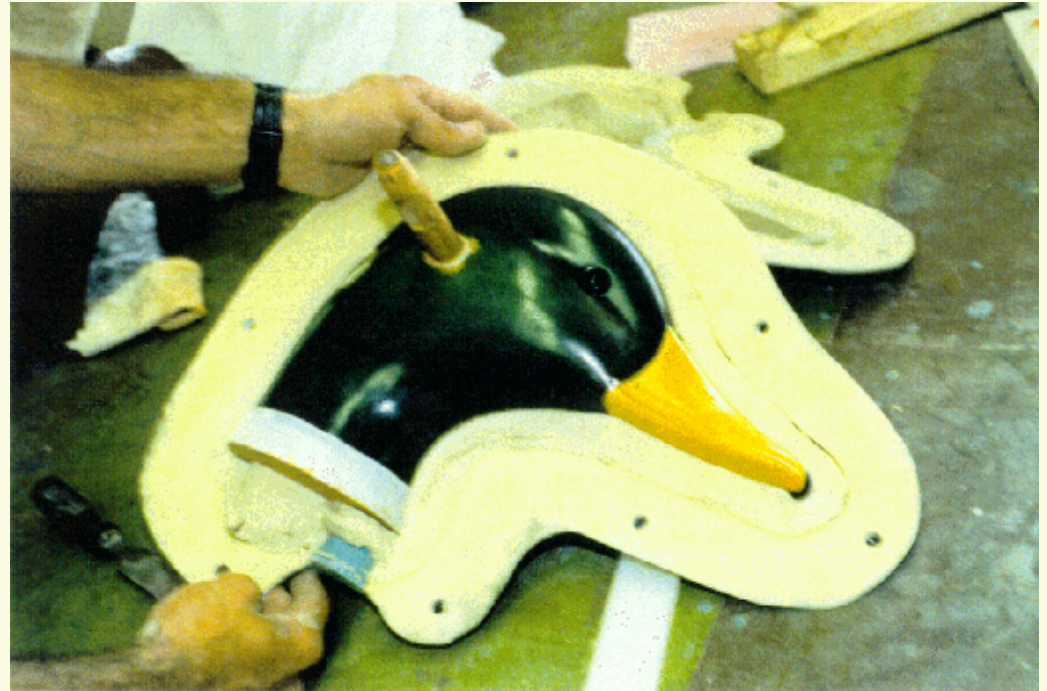
- If master has high detail, use fine dental tools.



Step 40c



Step 40d



Step 41

- Clean clay off of master.



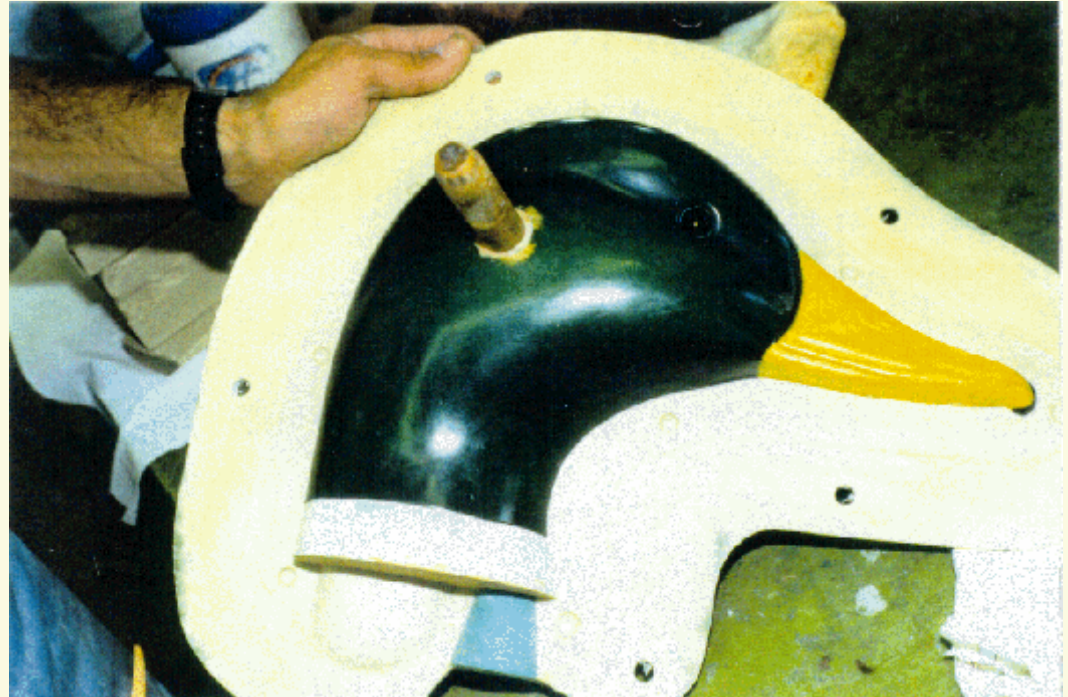
Step 42a

- Place circular keys to allow easy hole-to-hole cutting for groove key (see photo)



Step 42b

- Place circular keys to allow easy hole-to-hole cutting for groove key (see photo)



Step 43a

- Cut a groove in the clay parting line which will become the rubber boot parting line.



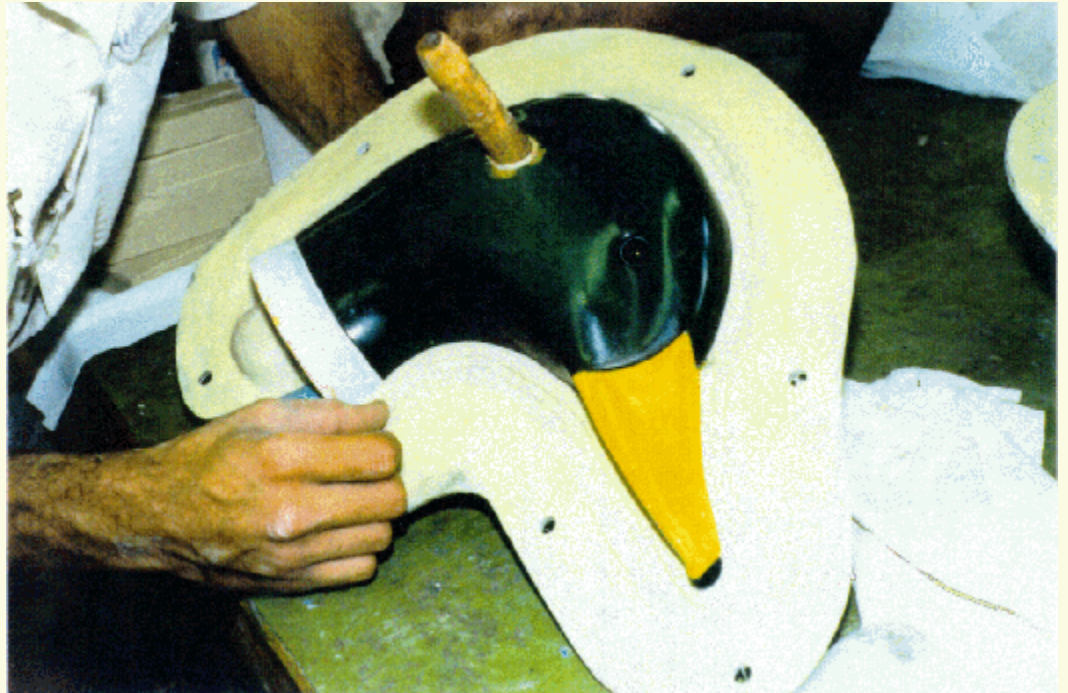
Step 43b

- Do Not cut keys too deep; avoid hitting the cradle on the other side.



Step 44

- Round off sharpened edge of groove key with finger.



Step 45

- Clean clay or debris from fiberglass parting plane.



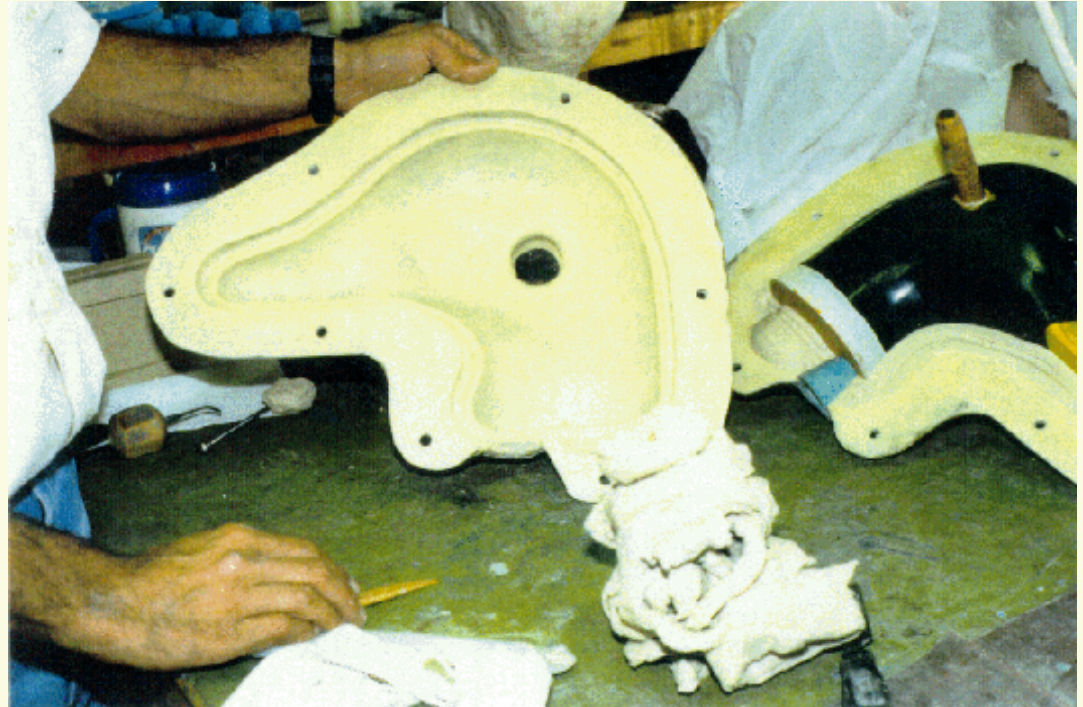
Step 46a

- Remove plastic wrap and clay from opposite cradle.



Step 46b

- Place clay to one side for rubber weighing purposes.



Step 47a

- Wash remains of clay from cradle with hot water.



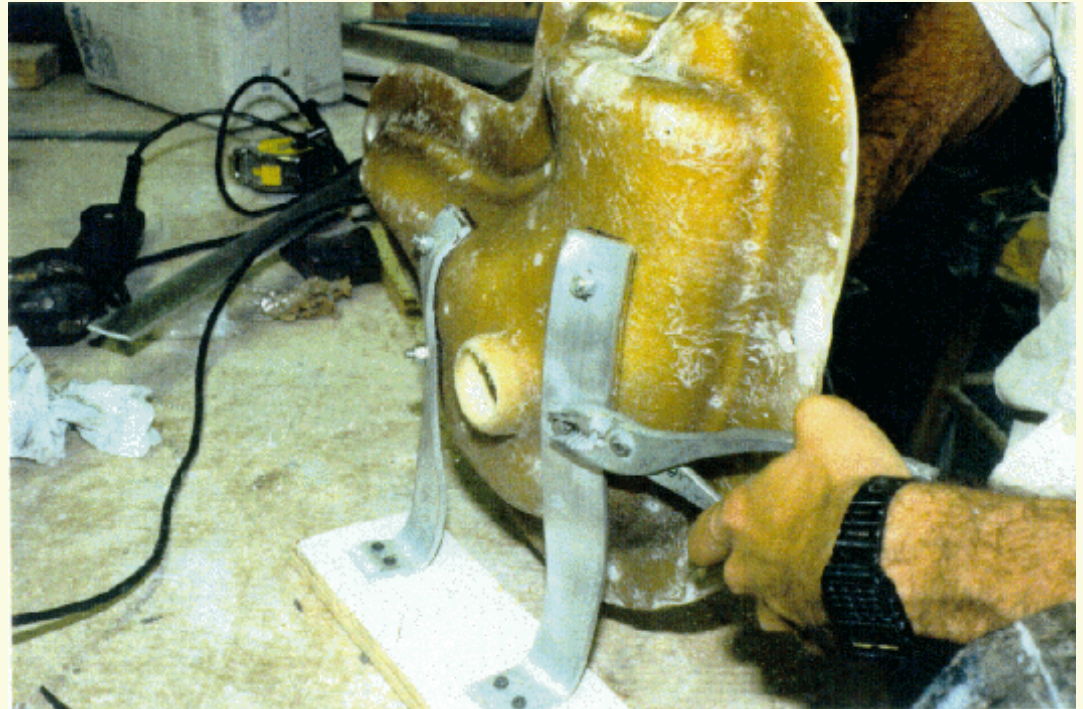
Step 47b

- Wash remains of clay from cradle with hot water.



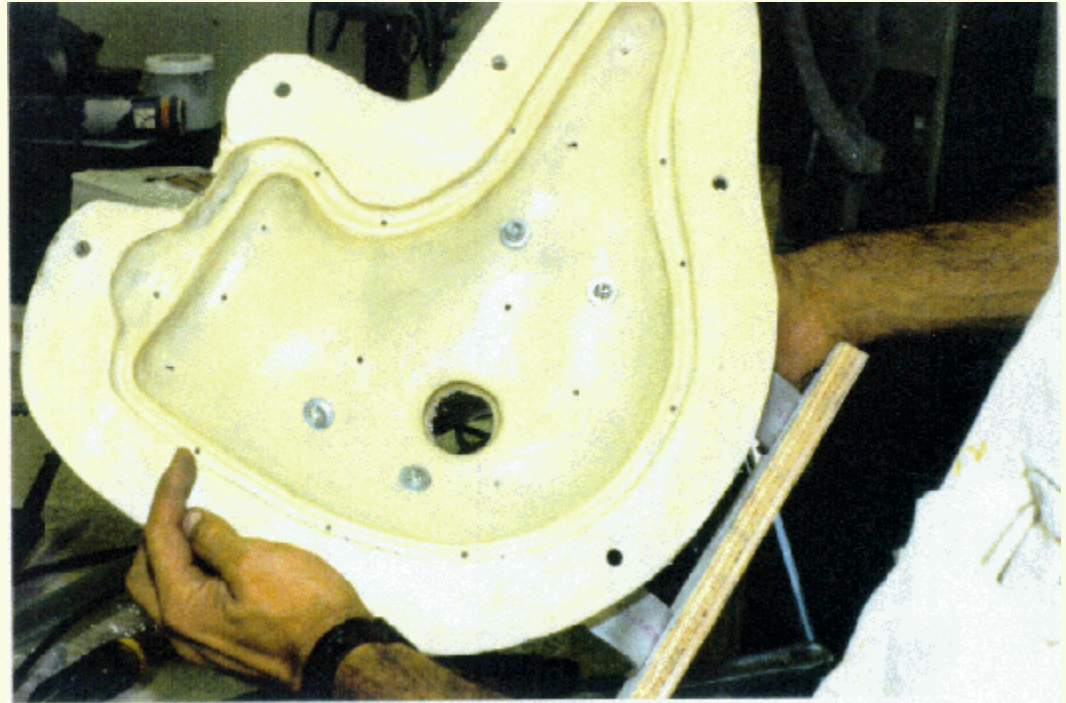
Step 48a

- Attach metal mounting legs for rotational casting by drilling through cradle and bolting into place.



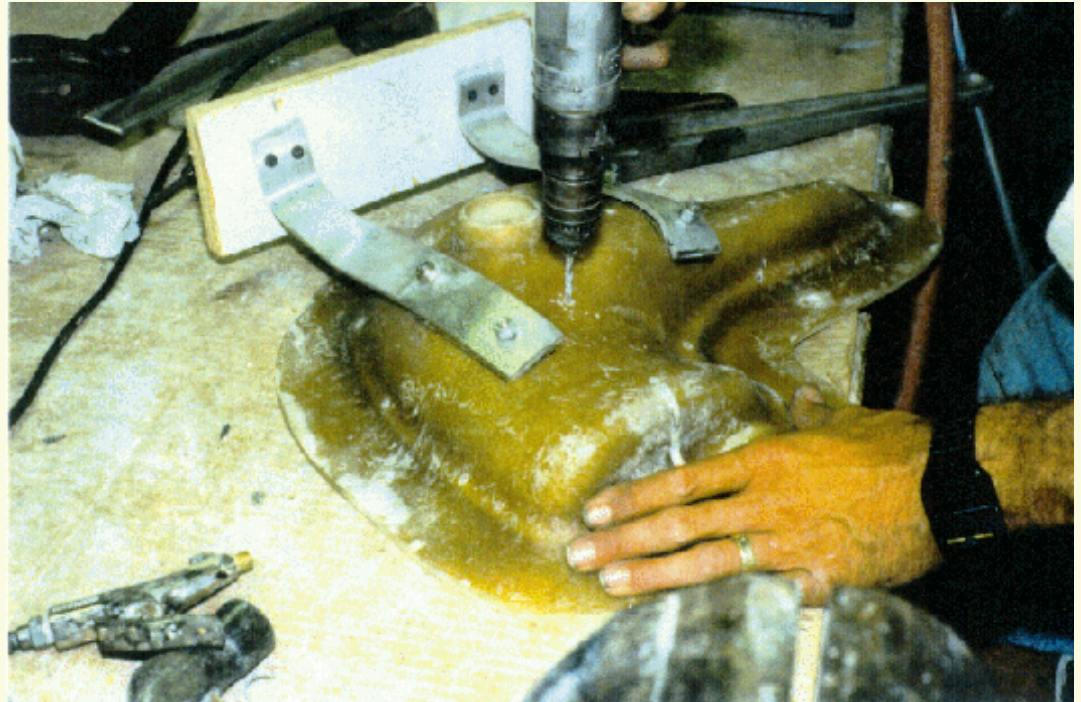
Step 48b

- Attach metal mounting legs for rotational casting by drilling through cradle and bolting into place.



Step 49

- Drill cradle for venting.



Step 50

- Apply a light coat of Vaseline to the inside of the cradle, clay parting line and fiberglass parting plane.



Step 51

- Place cradle over master and bolt together.



Step 52

- ▣ Secure mold assembly in preparation for rubber boot pouring.
- ▣ Clay up any exposed holes in cradle.



Step 53

- Construct a clay base for a paper pouring cup and attach to cup.



Step 54a

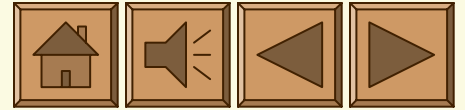
- Mix rubber as previously instructed, vacuum and pour as usual.



Step 54b

- Mix rubber as previously instructed, vacuum and pour as usual.





Step 54c

- Mix rubber as previously instructed, vacuum and pour as usual.



Step 54d

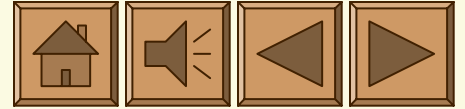
- Mix rubber as previously instructed, vacuum and pour as usual.



Step 55

- While pouring rubber, plug off vent holes as rubber rises through.





Step 56

- ▣ Allow rubber to cure for 24 hours as normal.

Step 57a

- Remove pouring cup and trim rubber from cup base.



Step 57b

- Remove pouring cup and trim rubber from cup base.



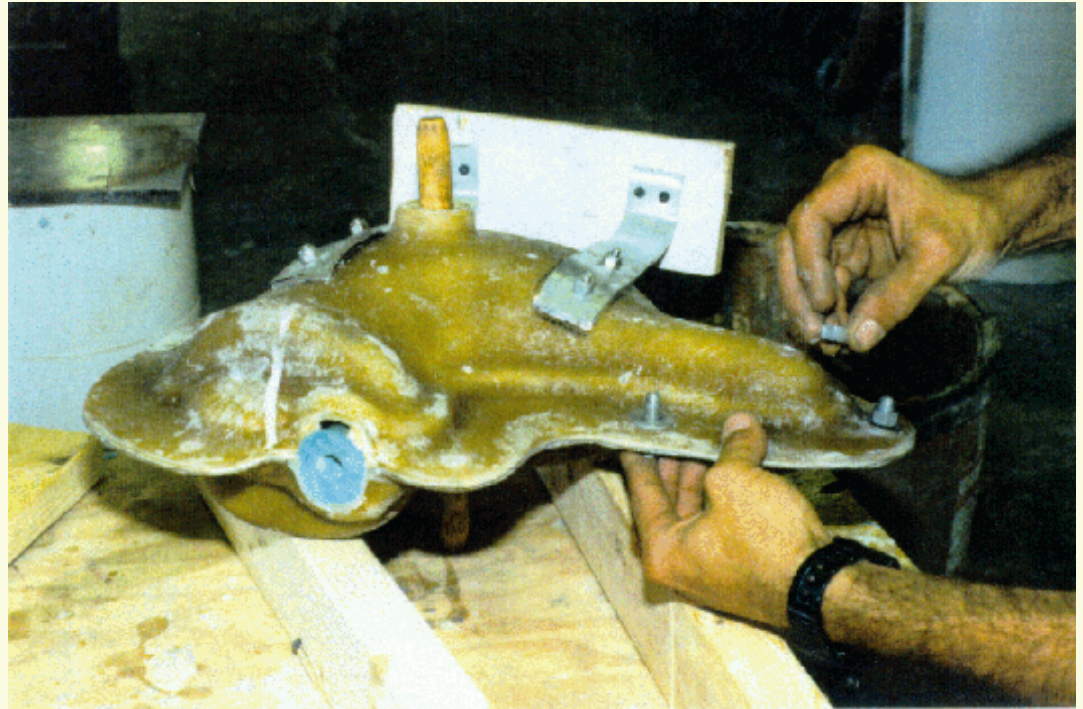
Step 58

- Remove clay plugs from vents.



Step 59

- Unbolt the cradle.



Step 60a

- Open mold side with parting wedge (you may have to start it with a flat screwdriver).



Step 60b

- Open mold side with parting wedge (you may have to start it with a flat screwdriver).



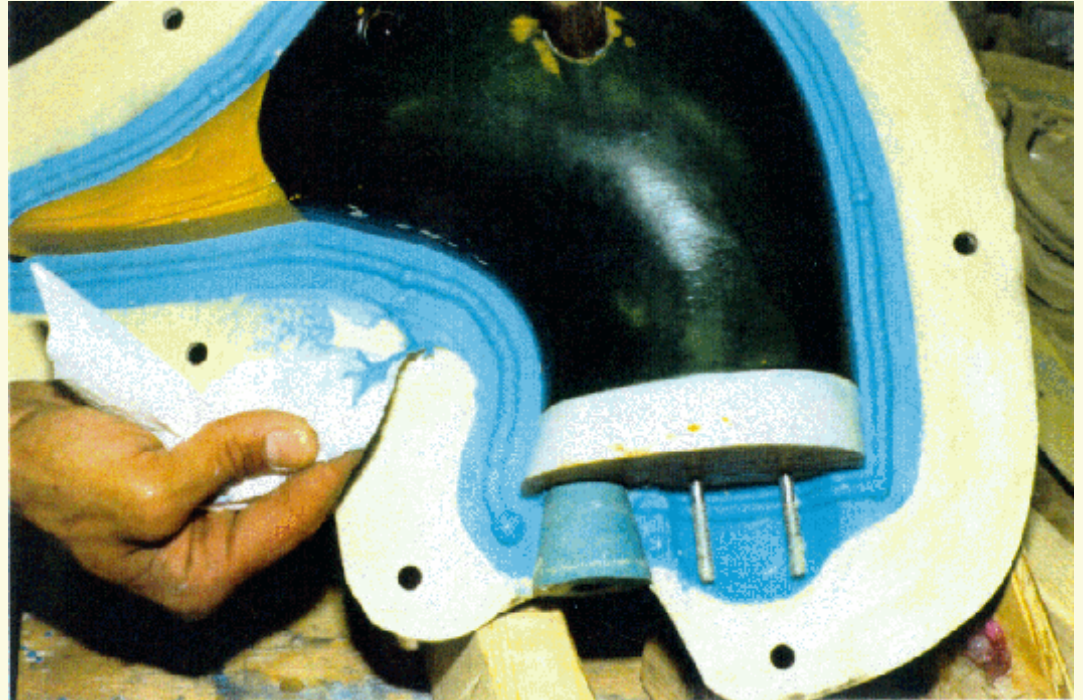
Step 61

- Remove clay from master.



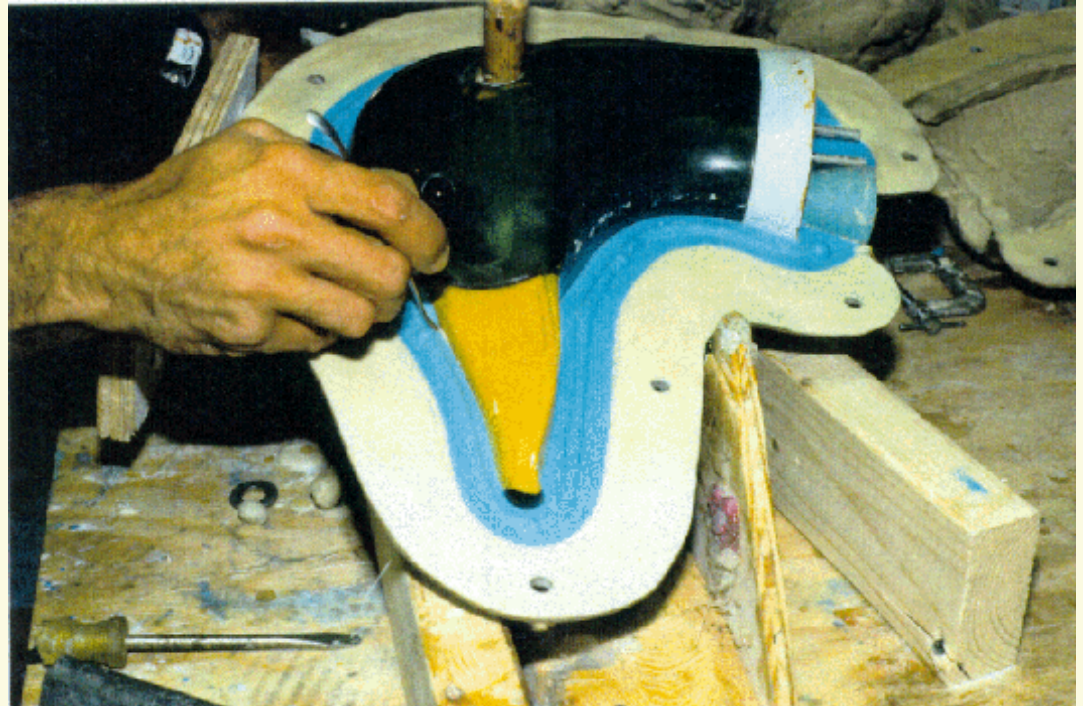
Step 62

- ▢ Remove any rubber flashing along parting line with a dry paper towel.



Step 63a

- Clean any remaining clay from master and wipe clean.



Step 63b

- Clean any remaining clay from master and wipe clean.



Step 64a

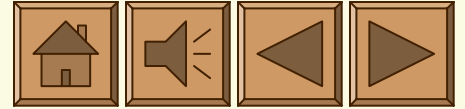
- Remove clay from inside of cradle.



Step 64b

- ▣ Remove clay from inside of cradle.





Step 65

- Wash cradle with hot, soapy water as previously instructed

Step 66

- Add metal legs to outside of cradle as previously illustrated.



Step 67

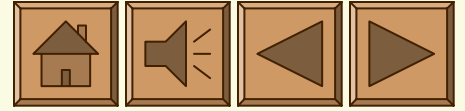
- Apply a light coat of Vaseline to master and rubber parting line.



Step 68

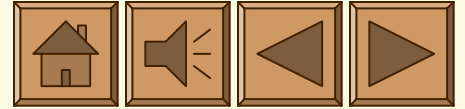
- Bolt Cradle in place.





Step 69

- Add cup funnel as previously illustrated.



Step 70

- Mix rubber, vacuum and pour as usual.

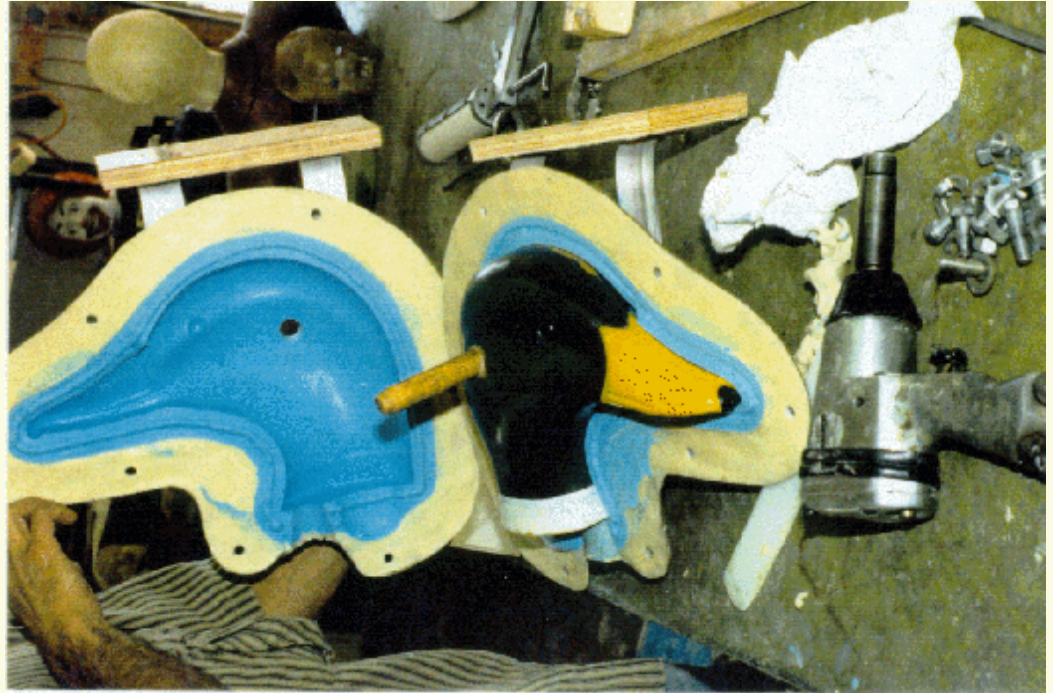
Step 71

- Allow rubber to cure for 24 hours.



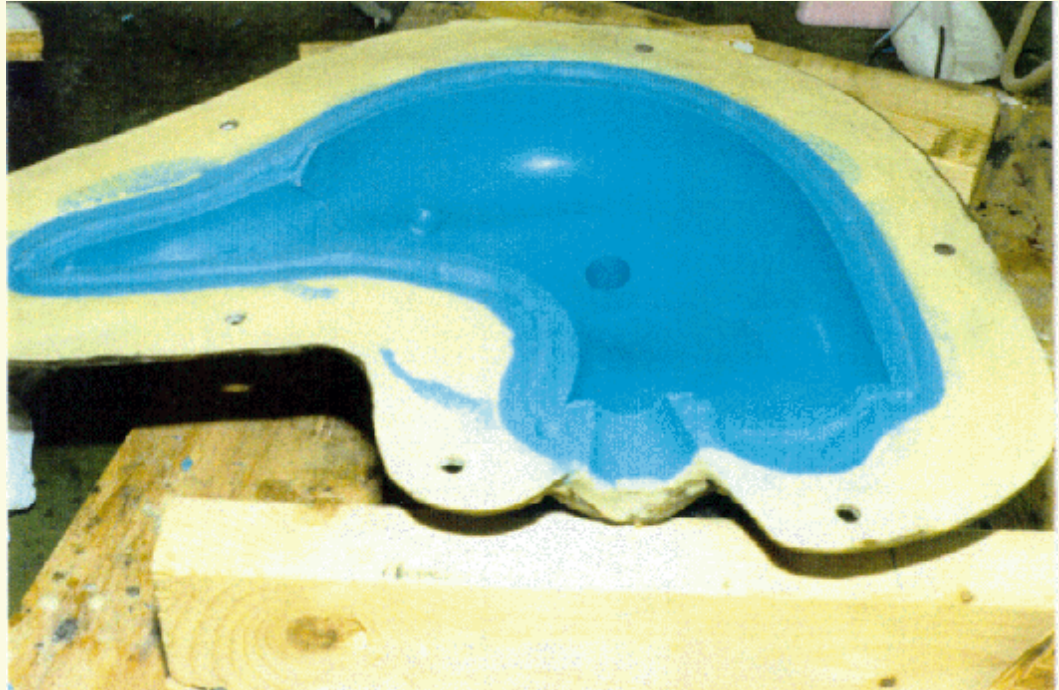
Step 72a

- Pull Cradle and your mold should be ready for use.



Step 72b

- Pull Cradle and your mold should be ready for use



Step 72c

- Pull Cradle and your mold should be ready for use

