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THE SEABASE SURFBOARD KIT - Instructions.

D.I.Y. SURFBOARD KIT:

This is a brief summary of how to make a surfboard, with particular reference to the materials you will be using from Seabase. The materials supplied are first quality, and are tested and checked before being sent out. They are in every day use as surfboard construction materials, and the reliability and suitability of the materials supplied are well proven. We are unable therefore to consider any claims for faults occurring before, during or after production, since it would be impossible to determine the cause. The information provided is to be used as a guide only, and should provide all of the basic information you require. A much more comprehensive tutorial is available in the book “Surfboard” available from Seabase at £14.99 included postage and packaging.
We highly recommend this book. (Written in both English and Japanese, for complete assurance !!)

Quantities of resin and catalyst will vary with board size and ambient (surrounding) working temperatures, and again should be treated as a guide only. Use the

STANDS:

Before you start you may need to make a pair of Y shaped stands. You need a design which allows you to rest the board flat, on its rail or at an angle. Two pieces of plywood cut to this shape are screwed either side of a 3" x 2" post, with spaces of the same thickness on either side. This assembly is then concreted or sanded into a 20 litre size can. The height of the stands should be about a foot below your standing elbow height to give a comfortable working position. Make both stands the same height and check the tops are horizontal (with a spirit level) before the concrete sets. Cover the tops with rubber carpet underlay, and a sling of carpet, so that the board never actually rests on a hard surface. If you are working in a clean area (such as your mum’s kitchen) protect the floor with cardboard to contain the resin drips. See the diagram supplied for an idea of how this looks (or page 7 of “Surfboard”)

SHAPING:

Here is a brief outline of the jobs you will need to do, and the order in which to do them. With a lot of elbow grease, a blank can be shaped by hand, with blocks and coarse papers. But a power planer saves a lot of hard work in the initial stages.

1. Check dimensions and squareness of blank. Use the stringer as your centre point.

2. Draw plan shape (previously cut from card or paper) onto the blank, ensuring the two halves either side of the stringer are perfectly symmetrical, then cut out with a saw using vertical strokes, to leave edges at 90° to the deck and bottom, then sand edges until fair and correct.

3. Take one thin layer (no more than ¼” to keep the strength of the board on the deck) of the tough and pitted skin off the top and bottom, smooth and level until all sides are square.

4. Shape in required rocker and foil (thickness) from the bottom.

5. Shape rails from deck side and finish deck.

6. Finish rails and fine sand whole board.

At this stage you should be left with a very white even surfboard shape, perfectly smooth and ready for glassing. Take any obvious bumps out at this stage. There is not a lot you can do about the hollows !
Since this is now a perfect medium for painting on, you can add graphics at this stage, either by spraying coloured or fluorescent paints on to the blank, or finger painting, or inking. Use water based paints for preference (available from Seabase) or car paints (cellulose) or any quick drying inks or paints. Avoid oil-based paints, though, and ensure whatever you use is well and truly dry before progressing to the glassing. You may need to seal thick paints with a sealer (available from us or use a car paint sealer) Use your imagination at this stage, but remember, once there its there for good. Keep in mind you may want to sell the board at some stage, and keep it clean and sensible.

FIBREGLASSING THE SURFBOARD:

LAYING UP; You will need handy - the fibreglass cloth cut to length, scissors, tissue decals, squeegee, a flat mixing stick, and a plastic bucket, acetone, the resin and catalyst and a trimming knife

The first task is to "lay up" the bottom of the board. This means cutting out and laying flat on it the layer of glass prior to wetting out the resin. In the kit, you get the cloth in a roll, it is unlikely to lay flat immediately. Spend time with a soft brush smoothing all bumps and removing air from under the material.

At the nose, cut a triangle out of the cloth to aid the wrap around of the cloth when wet with resin. At the tail cut a slit up to the rail edge at each corner.

GLASSING:

First clean and have all the equipment you will need to hand. Work in a temperature of 18° -22° C. Keep every thing clean and be organised before you start, you only have 20 -30 minutes to complete this job.

Laminate the bottom first !! Pour approximately 500 grams of ISO 7X Polyester Resin into a Tupperware type plastic box. (be careful - some plastics “melt”. We supply resin proof plastic buckets for this job. They are cheap and reusable.) To this add 1.5% -2% (7.5 cc - 10 cc) of catalyst and stir well with a flat stick. Use the lesser amount of catalyst for a longer gel time, i.e. before the resin becomes unusable. With experience you can add more catalyst to make the working time shorter.

Losing no time pour all of the mix down the middle of the board. Immediately work this out longitudinally with the squeegee, (you must use the correct type of pure rubber squeegee) taking off the excess at either and back into the container. Hold the squeegee at an angle so that the resin is gradually worked out toward the rails, but still used with end to end strokes. You need to apply a firm and steady pressure, but be careful not to ruck the cloth.

As soon as the painted design, if any, is clearly visible, the cloth has been wetted out and it is then important to remove the excess resin before it floats the cloth and too much soaks into the blank.

Once the entire bottom has been wetted out, pour the remainder of the resin caught in the container, down the centre line of the board again. Pull half of the line of resin out to the edge, hold out the overhang of cloth with your free hand, and thoroughly wet it, gradually working from end to end.

This done, trim off with scissors, any long strands of glass which have pulled out and are hanging down. Then work round the rails of the board smoothing the overhang down onto the deck, being very careful not to touch any paint work on the deck with the squeegee. Continually smooth the overhang down as flat as possible, removing all lumps.

Once the resin really begins to “go off” (gel) it has to be left alone. As soon as the edges are neatly plastered down, clean all tools with acetone and yourself with Kleenall paste.

Leave the board overnight on the stands with no part of the laminate touching. It will cure with a tacky finish.

DECK LAY UP AND GLASSING:

The next stage is to go around the edges of the deck with a sureform to remove all the bubbles of hardened resin and sloping the edge down to the foam. Be very careful not to catch the exposed foam on the deck during this!

The deck lay up is started by cutting out a deck patch or reinforcement patch for the two thirds of the board from the tail area to the nose. Cut this to fit just inside the edge of the cured glass coming round the rail from the bottom. The second layer covers the whole of the board, and over the rails, the same as the bottom.

The laminating is just the same as before, except that the deck patch has to be worked particularly well to get thoroughly wetted out. Work from the centre of the patch to the outside.

GLASS ON FINS:

After the deck is fully cured, and if glass on fins (Available as Glass/CSM for cheapness, and black, white and translucent thruster sets from Seabase) are being used, put masking tape over the tops of the stands, and place the board on them bottom up.

Placement of the fins is up to the individual, but are perhaps best copied from existing designs of the similar dimensions known to perform satisfactorily.

Mark the positions for the fins onto the laminate surface with a compass point, any marks will disappear when resin is applied. Alternately the fin positions can be marked directly onto the blank with a soft pencil prior to glassing.

Hold all the fins in their desired positions and angles with masking tape and run a small amount of catalysed resin along their bases. When this has fully cured remove the tapes to leave the fins free standing.

Cut out two pieces of cloth for each fin slightly larger than the fin shape, and extending 12-13mm onto the bottom of the board. Lay these out on the board ready for use. Then prepare two bunches for each fin, of rovings, these are fine strands of glass which can be bought from Seabase, or alternatively you can pull out several strands from your offcuts. You will need enough to make a bunch about the thickness of your average pencil, and about 13mm longer than the base of the fins. Hold these together with a circle of tape at one end.

Dip these rovings, one bunch at a time into a container of catalysed resin and thoroughly wet them out, apply them to the bottom of the fins, one bunch per side. Then brush more resin up

the sides of the fins and place the pre cut glass onto the fins, over the rovings, and onto the bottom of the board. Use the best tools available for this job, your CLEAN fingers, to get rid of any air, paying particular attention to the front and trailing edges. After around two hours, trim off excess cloth and the taped ends of rovings with a stanley blade. See Fig. 2.

HOT COAT/SANDING COAT:

Polyester resin sets to a tacky finish, so the surface does not need to be prepared for the hot coat to "take". The hot coat refers to a brushed on layer of pre waxed resin which seals the surface, fills the weave, and makes it lose that tackiness.

Mix approximately 400gms of ISO 7X resin with 2% (8 cc) of warmed Wax in Styrene solution, then a further 2% of catalyst. Or use ISO 8XW which is pre waxed.

The resin is brushed from end to end with a large clean brush then out to the sides diagonally, and finally side to side. Brush resin onto fins (if fitted) at this stage whilst they are hanging underneath, this will let excess resin drop to the floor and not "pool" at the fin bases, causing extra work with the sander. Any extra resin is poured onto the brush and brushed well in, including the rails.

The board is left for a couple of hours for the resin to go off and then the bottom is treated in the same way.

FITTING FIN BOXES AND DECK PLUGS:

All D.I.Y builders face difficult decisions about where to site the various fittings on the deck and underside. A good shape can be made a “dog” to handle and uncomfortable to use if fins are wrongly placed. There can be no substitute for experience, and lacking first hand knowledge, the amateur builder usually takes the very sensible course of "borrowing" measurements from a board of similar length which works for him or her. From this you will see that there is no convenient instant guide.

It is easier to use a router for cutting the holes than it is to use a drill and/or saw. The depth guide is very precise and the nature of the tool makes it far easier to achieve vertical cuts than with a hand held drill.

It is best to make a plywood template cut to the hole size allowing 2mm for resin and glass on each side and to check this up on the board until it is horizontal and then to tape in into place.

Score the walls and floors of the finished cavities with a screwdriver to provide a positive key for the resin.

From offcuts of glass cut four reinforcement pieces to bond in each box. These will be 2cm also longer than the box and a little wider than the total of the three enclosed sides of the box. The boxes themselves should be coarse sanded, again to provide a good key. Protect the area around the holes with tape and paper so that you have as little extra hardened resin to remove as possible.

Pour some catalysed, and, if you wish, pigmented resin along the bottom of the hole and paint it up the sides. Then lay the reinforcement glass over the hole and wet it out with a brush. Finally, paint the box with resin and push it and the glass down into the hole. It will pay to cover the box opening with tape to stop any resin entering.

Wait an hour or so until the resin has gelled and then peel all the tape off. The resin is still soft at this stage and most of the excess will peel off with the tape. Cut any stray strings away with a stanley blade. Leave 2cm or so of protruding glass undisturbed so as not to damage the resin until it has thoroughly hardened.

The same procedure should be used for the leash plug. This can be set anywhere in the tail area of the deck, so along as there is enough thickness in the blank to take the depth of the plug. Tape over the hole in the top of the plug to stop resin finding its way in during fitting.

SANDING:

After the hot coat, the board has a hard glossy coat all over, with a texture like goose pimples and a slightly waxy surface. The hot coat surface is very shiny and as soon as you start to sand it the gloss disappears, giving you a good guide as to when you have sanded down to the level of any hollows. If you do hit glass, it is white and weave will show quite plainly. If your work with the squeegee has been effective there is virtually no resin under the glass, so the sight of exposed mat should sound the warning bells and tell you that you are in danger of sanding through.

Start sanding with about 80 grit paper, and finish with 100 grit paper. Thoroughly brush dust from the board and wipe down with styrene to remove any greasy spots.

FINISHING:

Modern boards are finished in two ways - a gloss coat of resin or a mat coat of a very durable sealer / finish spray. Use Taupo Gloss for a gloss and polished board , or CX9 Finish Spray for a satin finish.

GLOSS or FLOW COAT:

Flow coat, or gloss coat resin is a specially formulated pre waxed resin that is self levelling, highly glossy, and durable.
Flow coat the deck of the board first, use tape to cover the hole in the deck plug, and position tape all around the rail line about half way down.

Leave this tape hanging away from the board to create an area for the excess resin to run off onto the floor, and not creep around the rails and onto the bottom. Also gloss coat the fins while they are pointing towards the floor, it is easier to fine sand the edges of the fins than to sand off thick pools of resin around the fin bases. Have all necessary equipment clean and to hand.

Wait until any dust settles before applying resin.

Take 400gms of gloss resin and add 2% (8 cc) of catalyst to this. Pour the resin through a paper paint filter down the centre line of the board and immediately brush from end to end with a very clean 4" brush until the whole deck is covered. Work it from side to side and once again longways. Do not forget the fins. Do not over brush.

After an hour at about 18 degrees plus the coat will have cured enough for the board to be turned over. The tape is removed and another put on hanging the other way, again scrooning the freshly resined surface of the deck. Repeat the procedure for the bottom.

Leave the board for at least 24 hours to allow the resin to completely cure before final sanding and polishing.

MAT FINISH SPRAY:

This type of finish is sprayed on a board using proper spray equipment. Dilute the CX9 with CX10 thinners until you get an even spray. Apply two or more thin coats of this in a dust free environment, when dry (after about 10 minutes) sand lightly if necessary with 800 or 1000gt water paper. This finish cannot be successfully applied by hand.

FINAL SANDING AND POLISHING:

400 grit wet and dry paper is used to remove dust particles, runs, ripples, and imperfections. Then the progression is 600, 800, 1000, followed by cutting compound, hand applied, then fine polish and machine buff.

All are best used wet to avoid deep scratches and a little detergent added to the several changes of water used during the sanding helps. The idea is to use each grade to remove the scratches of the one before and it is only necessary to let the paper bite for itself rather than putting pressure on it.

The final glossy, glassy surface is worth the several hours work involved.

This completes your board. We hope it has been a great success and that you get as much satisfaction from making it as you do riding it. Well done. You will now want to try again, for sure, so be sure you get a good price for your board by keeping it in good condition, repair dings quickly, keep out of excessive sun, and take care of it.

Good Surfing