

Building Specification for a 3D-Chess Board (original from TOS)

Rack (Framework)

Material:

approx. 15 - 20 mm strong board (solid wood)
Size: min. 45 x 45 cm
(the data are indicated in angle angles, so a scaling into other sizes is possible).

Proceeding:

Find the center of the board and from there lay on the radius R_1 of 18cm length = internal radius, subsequently, of the same point radius lay on $R_1 + \text{board strength } (S)$ (thus the framework gets in a square profile) = external radius.

> see: PIC 1 <

Then specify the center for radius R_2 (on a 19° angle from the vertical line bent straight line $9\text{cm} = R_2$ from the center of the board), afterwards likewise from the same (R_2) point lay on radius $R_2 + \text{board strength } (S) = \text{external radius}$.

> see: PIC 2 <

Then specify the flattening of the outside ring
- above: along the horizontal by the Intersection of a 16° of the vertical bent and the internal radius (R_1).

- down: along the horizontal by the intersection of a $33,5^\circ$ of the vertical bent and the internal radius (R_1)

> see: PIC 3 <

Then specify the flattening of the internal ring
- along the tangent the horizontal of the internal and outer radius - minus $\frac{1}{2}$ board strength (S) - of R_2 and leave approx. a board strength (S) untouched beyond the vertical.

> see: PIC 4 <

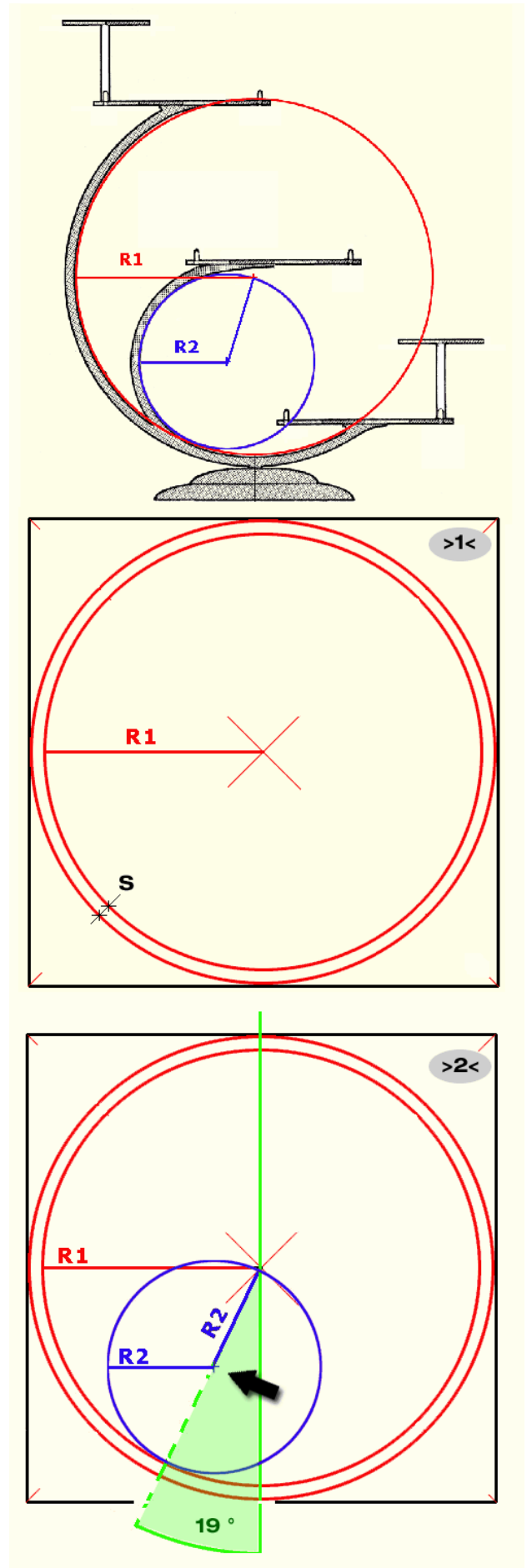
Finally saw everything spray or paint it silver.

Foot (Base)

One base already available as e.g. from a globe or comparable is very suitable. A wheel cover may be as effective also clever. Otherwise:

Material:

approx. 20 mm strong wood.



Proceeding:

- Saw circle of 7cm diameter and perforate with a 6 mm drill centrally.
- Then saw second circle of approx. 21cm diameter with approx. 4cm diameters large hole in the center (for the nut). After the edges are sanded off and the circles are "lense-shaped" connect both centrally.
- Finally likewise spray or paint silver.

Levels

Material:

3-5mm strong plexiglass (transparent aluminium)
 3 pieces of 18x18cm (main levels) and 4 pieces of 9x9cm (ABs)

Proceeding:

- Leave protective plastic film on both sides (or if is missing attach self adhesive foil) and cut out the fields (4.5 x 4.5 cm) with a carpet knife on one side of the foil.
 - Free each dark field from the foil to release and spray red (original) or black. The colored side should be with later mounting the downside one, so the figures will be on the unsprayed side.
 - Finally smooth the edges with fine sandpaper.
- > The original game does not have a notation border (letters and numbers for the notation of a game). If you wish so simply give 2cm more to the 3 main levels (= 1cm once around, thus 20 x 20cm) and keep this covered by the foil during spraying !!! Finally attach the letters and numbers (e.g.: video labels or Letraset) on this strip. <

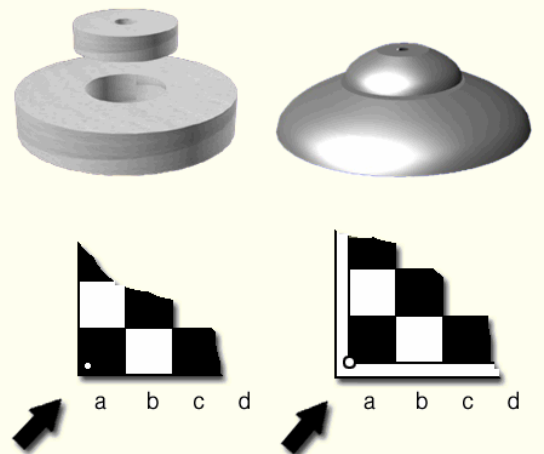
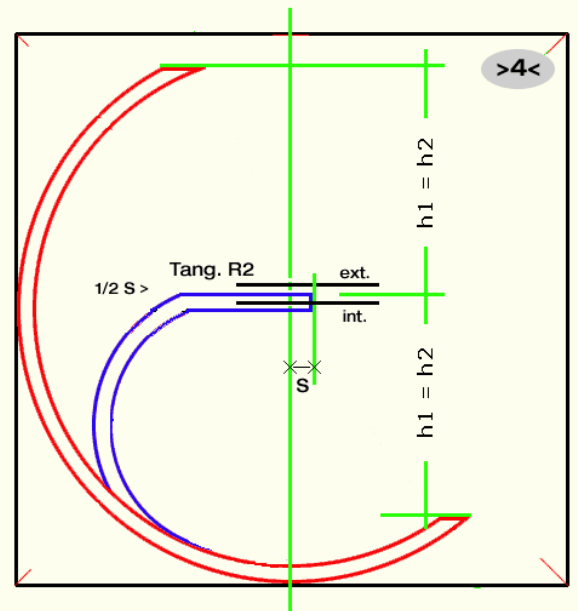
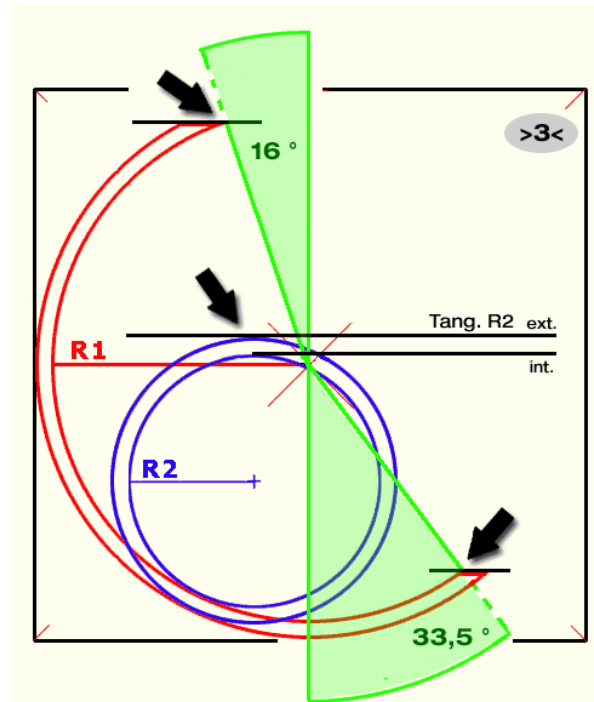
Attackboard (ABs)

Material:

Aluminum tubes approx. 8mm diameter external dimensions and approx. 6mm diameter internal dimension, substantial (plexiglass) round rod approx. 6mm diameter - in such a way that the bar leads well into the aluminum tube.

Proceeding:

- drill approx. 6mm from both edges into each corner of the main levels with 4mm wood drill (with notation = border exactly into the corner of the field).
- cut 12 pieces of round rod in approx. 10mm length and adhesive with glue into the 12 corner holes approx. 7mm off bond above.
 - cut 4 pieces of aluminum tubes in 8cm length to form and deburr.
 - perforate the centers of the ABs likewise with 4mm wood drill and glue each approx. 12mm long plexiglass round rod, bond downwards and above as flat as possible.
 - Finally glue the 4 aluminum tubes to to the 4 AB plexiglass round rod.



Assembly

Material:

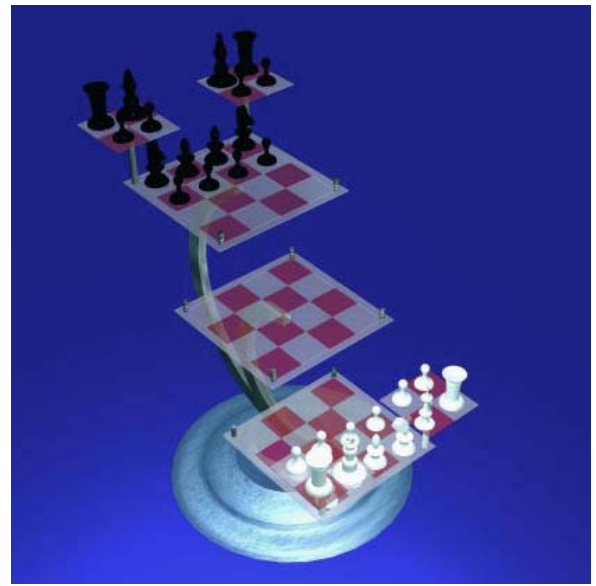
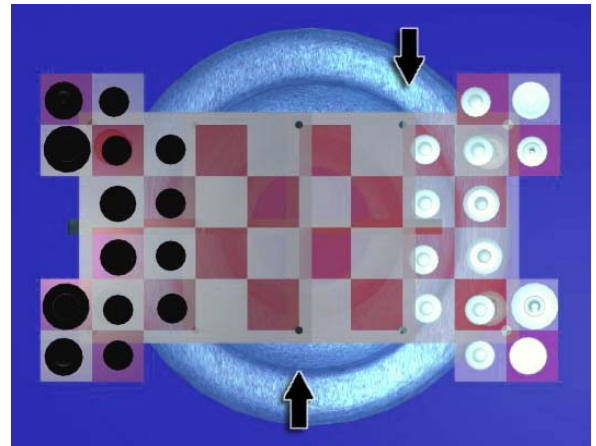
- Three 2 mm of countersunk screws 2-3 cm long and nuts.
- M6 lens head lock screw + (wings-) nut.

Proceeding:

- Place the rack on the bottom, so that the bearing surfaces for the levels are "in the water".
- Then perforate the rack then with a 6mm drill and lock screw with the foot bolt.
- Subsequently, put the play levels (work from down upwards) on the bearing surfaces and mark first (and perforate with 2mm wood drills), if the levels - seen from above - lie exactly to the half one above the other.
- Finally countersunk levels and rack with 2mm screws.

Difficulties:

1. The boreholes for the main levels are not appropriate compellingly in the center (particularly at the middle and upper level). To find the correct drilling points as exact as possible it might be helpful to attach the levels before with a small piece of tape "to the sample". Thus one can, at the same time, advisable their exact lap and the drilling point from above (and be sure not to perforate at the thinnest place of the Rack).
2. make sure that the front left field on each level is a dark one (A1, A3 and A5) !
3. Plexiglass breaks by too strong tension - try to bore sensitively !!!.



Technical data:

- # R1 = 2x R2 = 4x field side length
- # R2 = AB side length = 2 fields side length
- # Main level side length = 4 fields side length
- # King height = max. 175% of a field side length (otherwise you can't move an AB with King on it)

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