

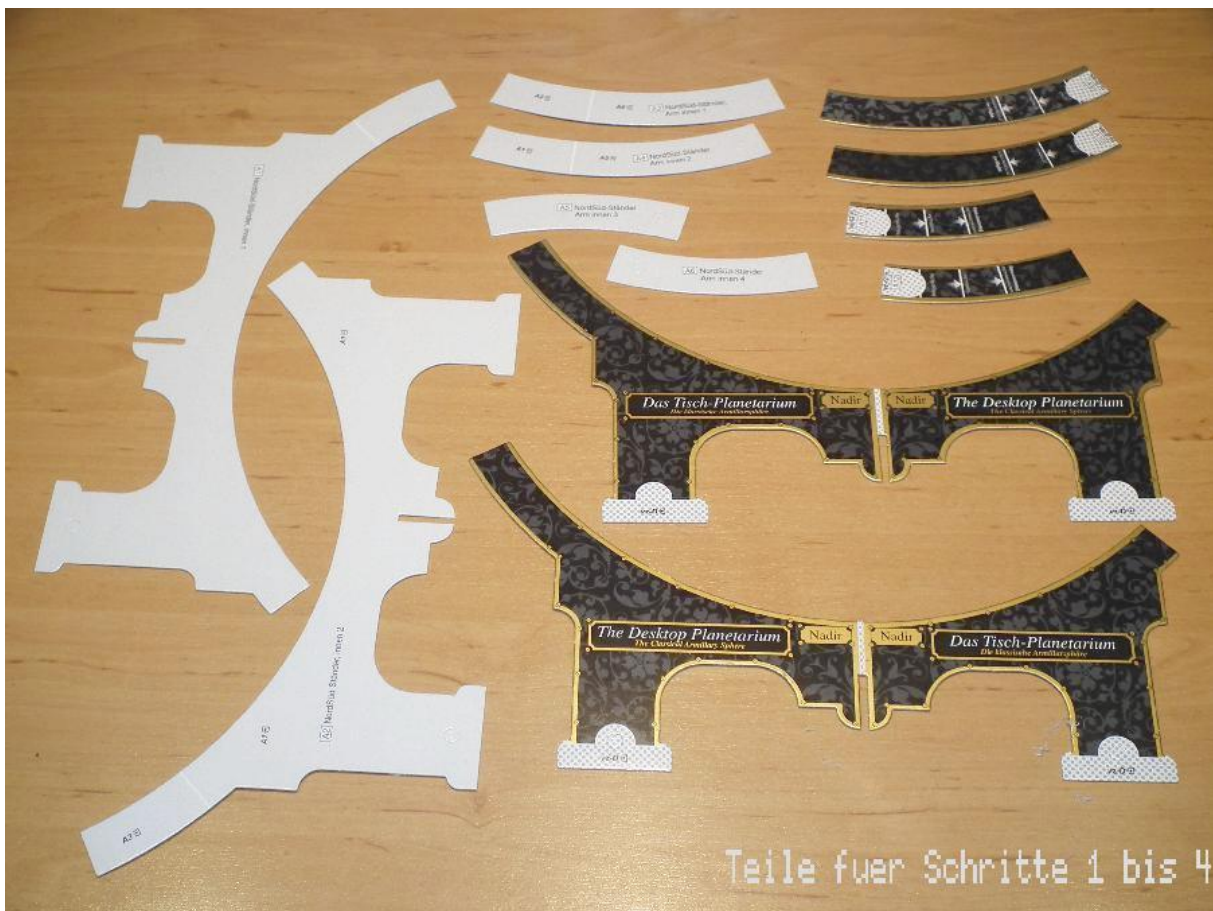
Illustrated construction manual: The Desktop Planetarium

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<https://michelswunderland.de/solderiron/planets.html>

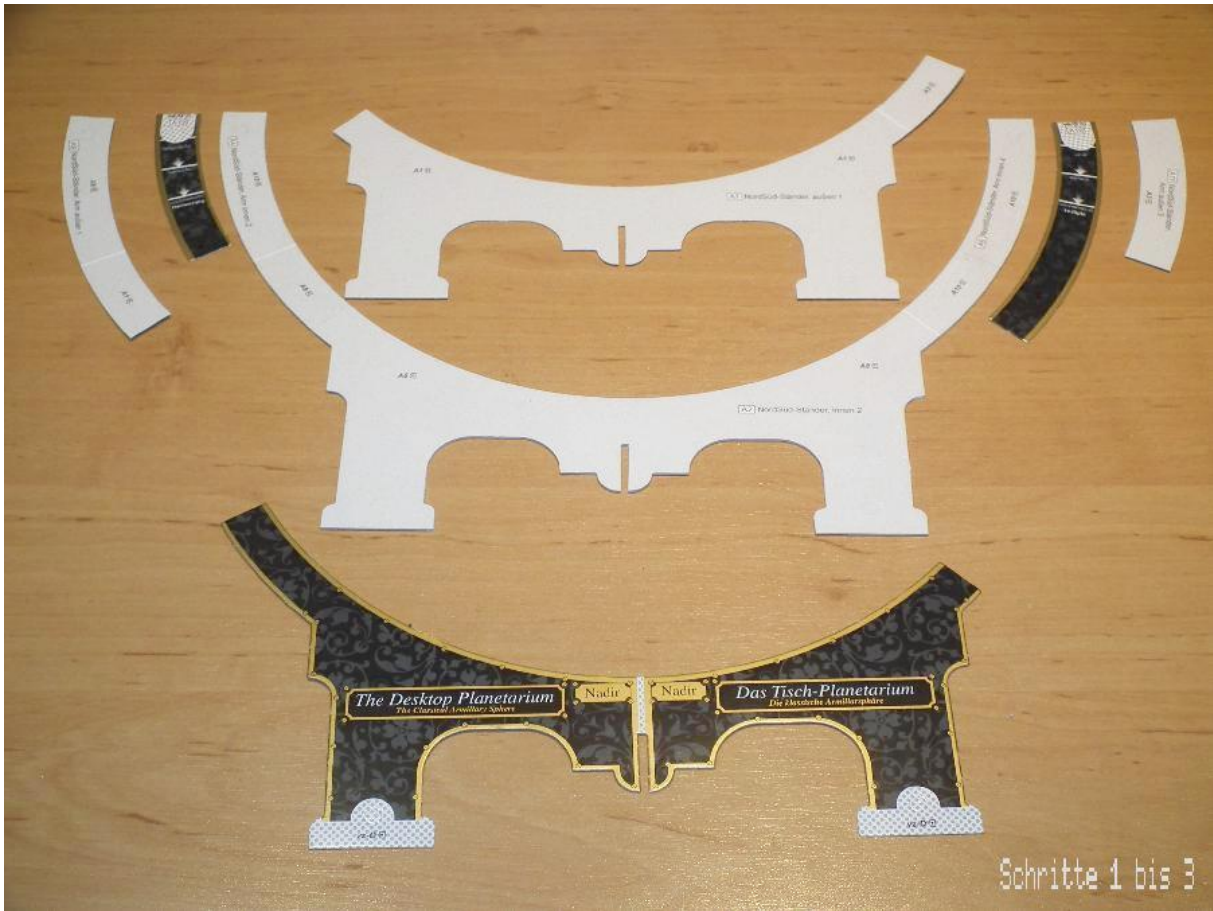


Freshly unpacked and the necessary tools and equipment ready.



Teile fuer Schritte 1 bis 4

The parts needed for **steps 1-4**.



Condition after gluing the parts according to **steps 1 to 3**.



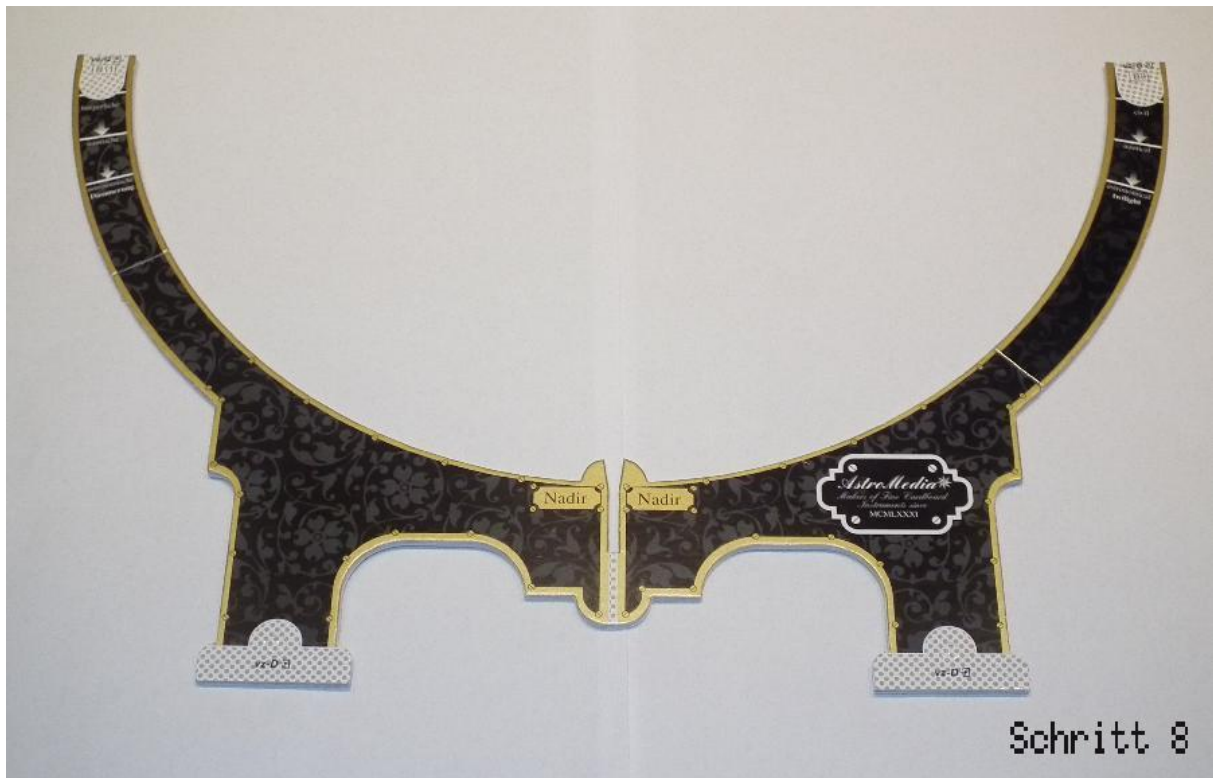
The north-south stand after completing **step 4**.



Parts needed for **steps 5-8**.



Condition after gluing the parts according to **steps 5 to 7**.



The east-west stand after completing **step 8**.



The two stands inserted into each other according to **step 9**.



Step 10: The parts for the arms of the base - four of the parts are already glued.



Steps 11 – 16: The almost finished base (steps 11-13) and the prepared feet (steps 14-15) as well as the glued together horizon stand (step 16).



These discs are needed in **step 12**.



The foot parts needed for **steps 14 and 15**.



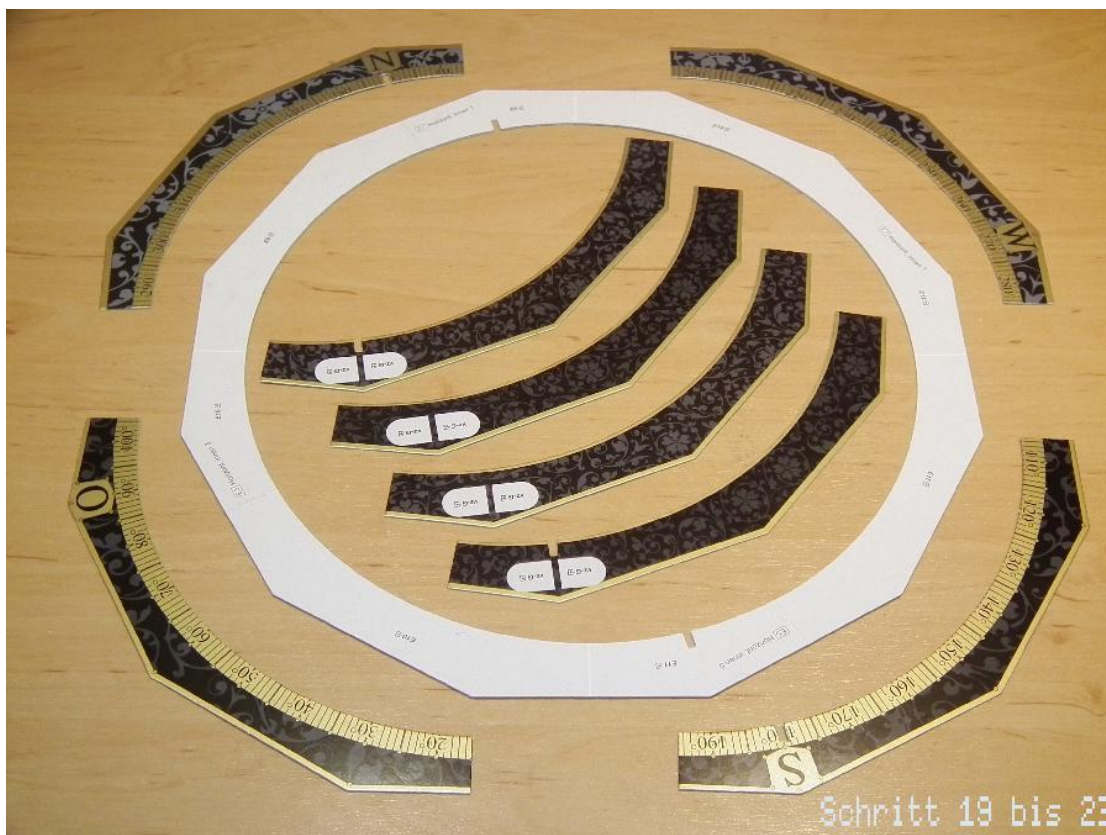
The creation of the feet is described in **step 15**.



Steps 17 and 18 explain how to mount the feet and the stand on the base.



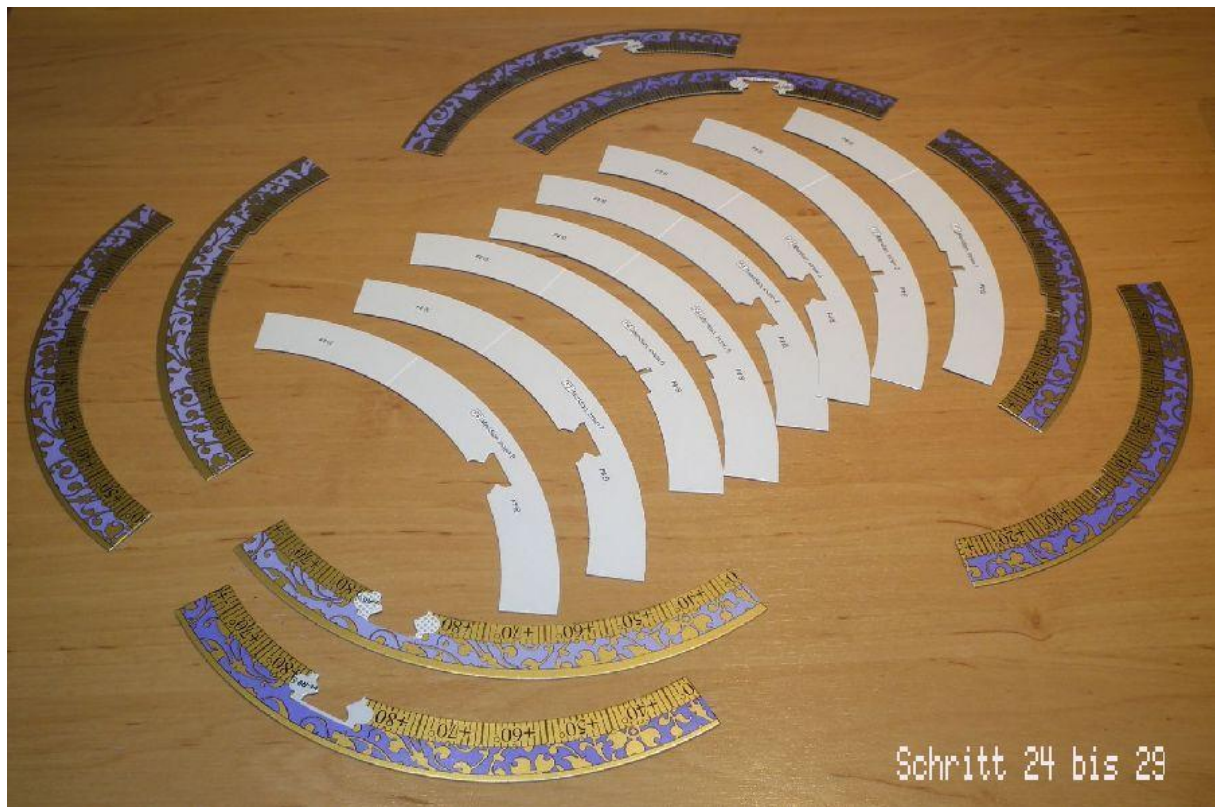
Base, feet and stand after completing **step 18**.



Steps 19 – 23: The parts needed for the horizon. The grey eight inner parts of the horizon are already glued together to form a ring.



Step 23: The finished horizon after gluing on the lower and upper parts.



In steps 24 to 29, 16 parts are needed to build the meridian, as with the horizon.



The meridian created in **step 29** in layered construction.



Step 29: Trying on the meridian in the horizon on the stand - it must be possible to turn the meridian without much resistance.



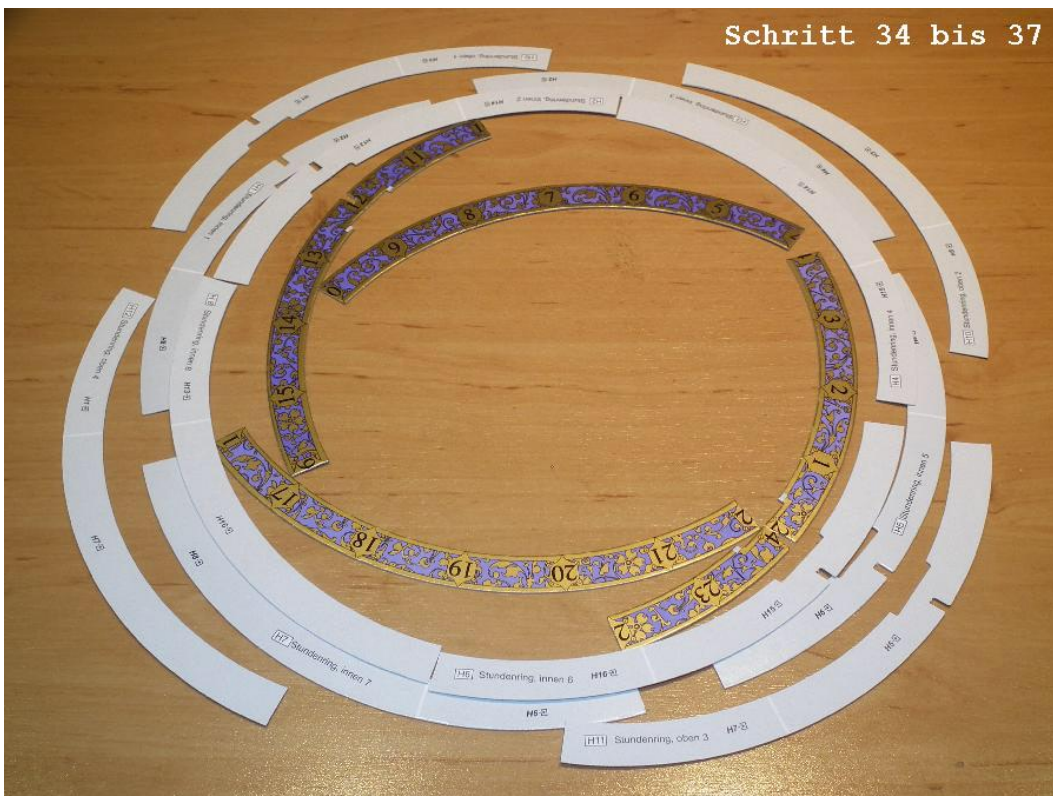
In **step 30 and 31** the angles for connecting the horizon and the stand are made from 16 parts. On the left of the picture there are four angles already glued together from two parts.



Steps 32 & 33: Detailed view of the assembly of the horizon, stand and connecting bracket.



Step 33: The meridian inserted into the finished horizon frame. It is advisable to check the mobility of the meridian again.



Steps 34 – 37: The 16 parts needed for the hour ring. Eight grey parts for the double-layered inner part and four coloured parts each for the outer part of the ring.



Step 38: The completed ring during the fitting at meridian.



The parts required in **step 39** for the construction of the hour ring supports.



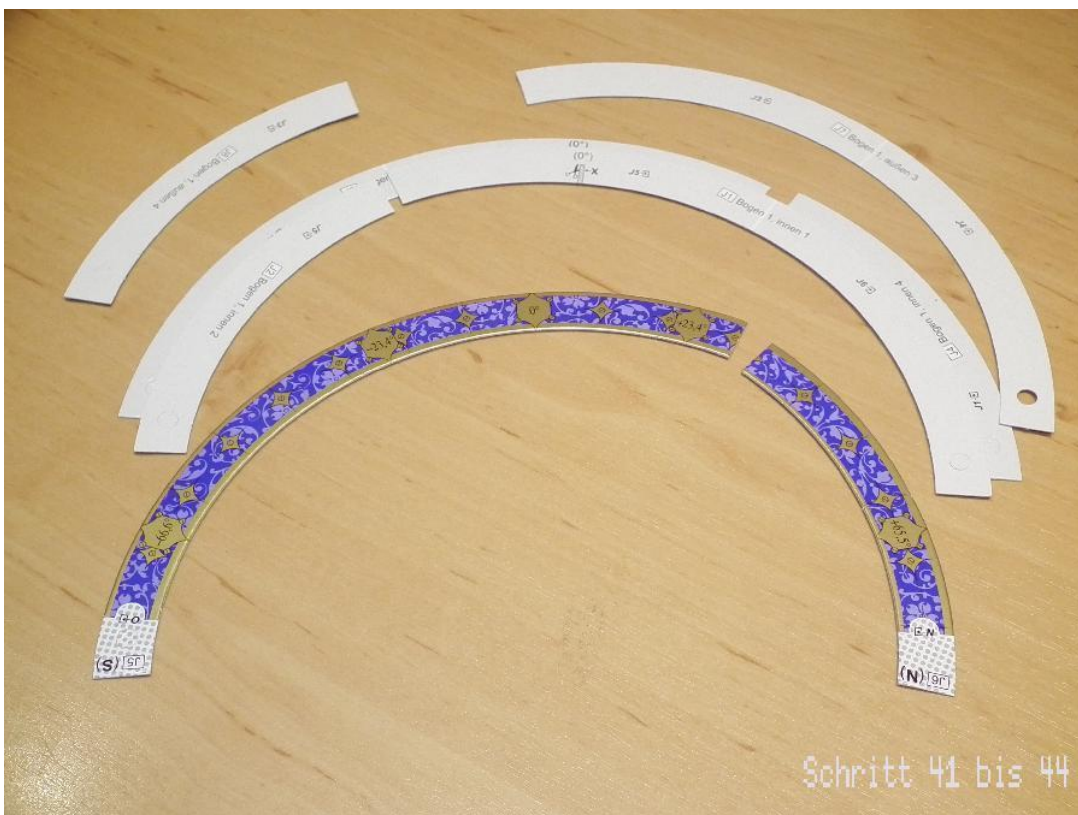
Step 39: The hour ring sets, each consisting of four parts.



Steps 34 – 39: Hour ring and its supports.



The supports were glued to the hour ring according to **step 40**.



Steps 41 – 44: The cardboard parts needed for the celestial sphere arch no.1.

ATTENTION: If the printing of the parts to be assembled here seems strange to you... In the first edition there was an error in the printing of the parts to be assembled in this section!

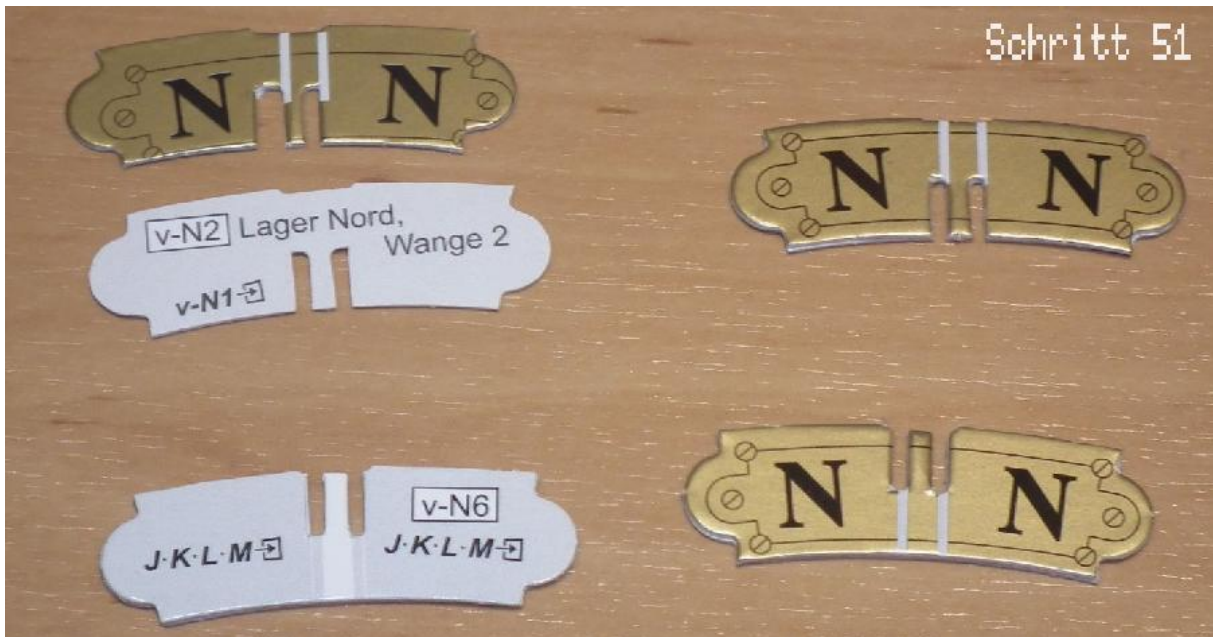


In **step 42**, a 1.3mm wide slot is made according to the printed marking for a wire pin.



Steps 43 & 44: The celestial sphere bow no.1 with inserted wire pin. A 2-component glue (Stabilit Express) was used to fix the wire pin.

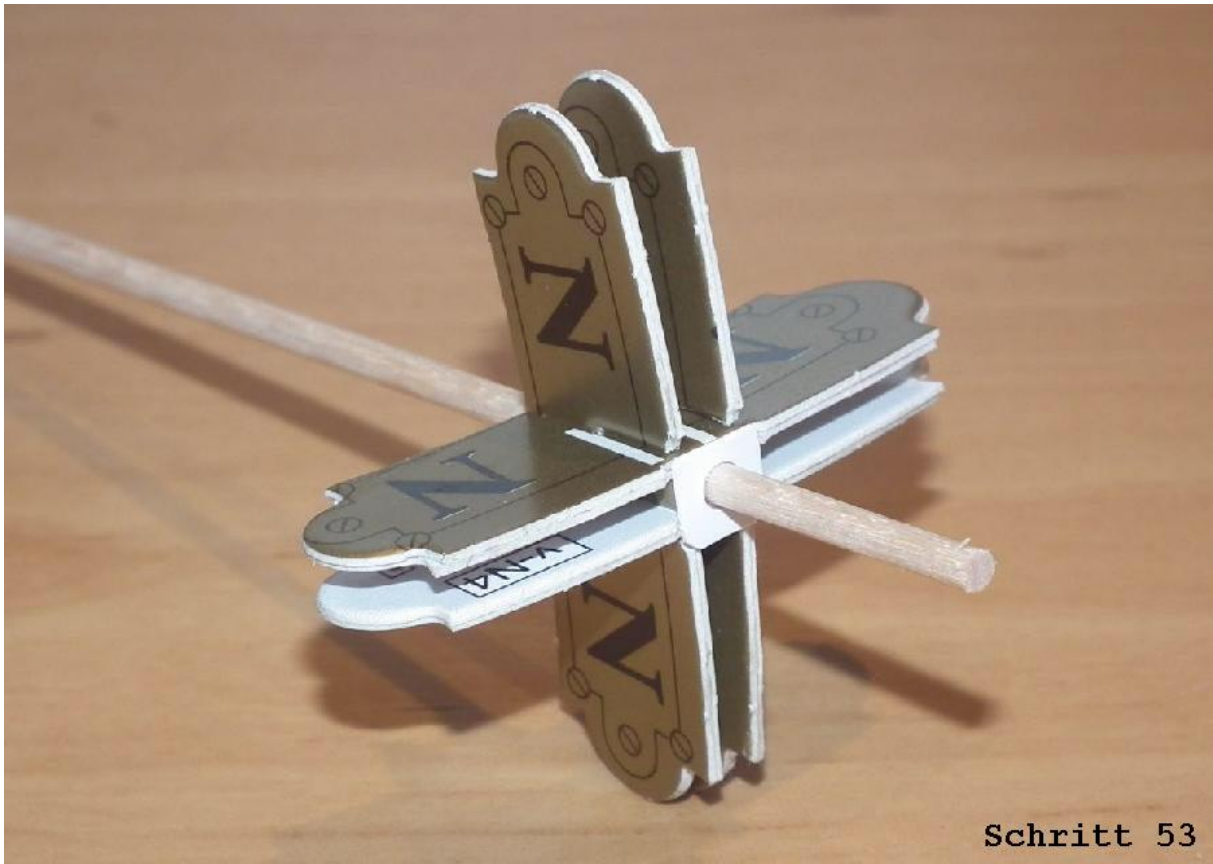
The documentation of steps 45 to 50 is omitted here, as the creation of the other celestial sphere arcs no.2 to no.4 is identical to the creation of arc no.1.



Step 51: The northern bearing of the celestial sphere consists of 8 parts, 6 of which are already glued together in the picture.

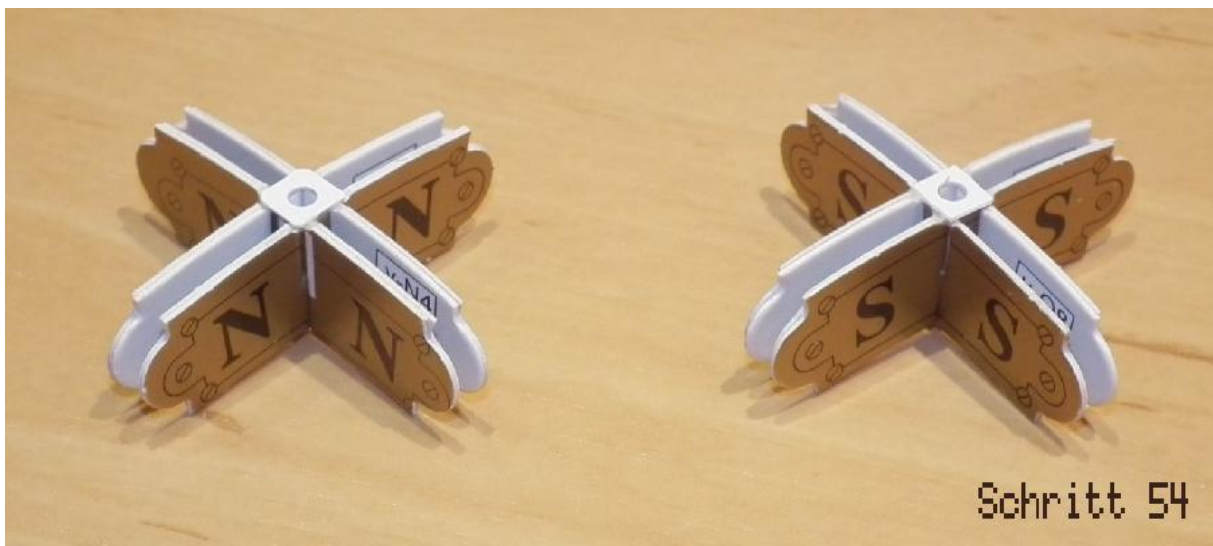


Step 52: Trial assembly of the northern bearing into a double cross with adjustment of the bearing washer.



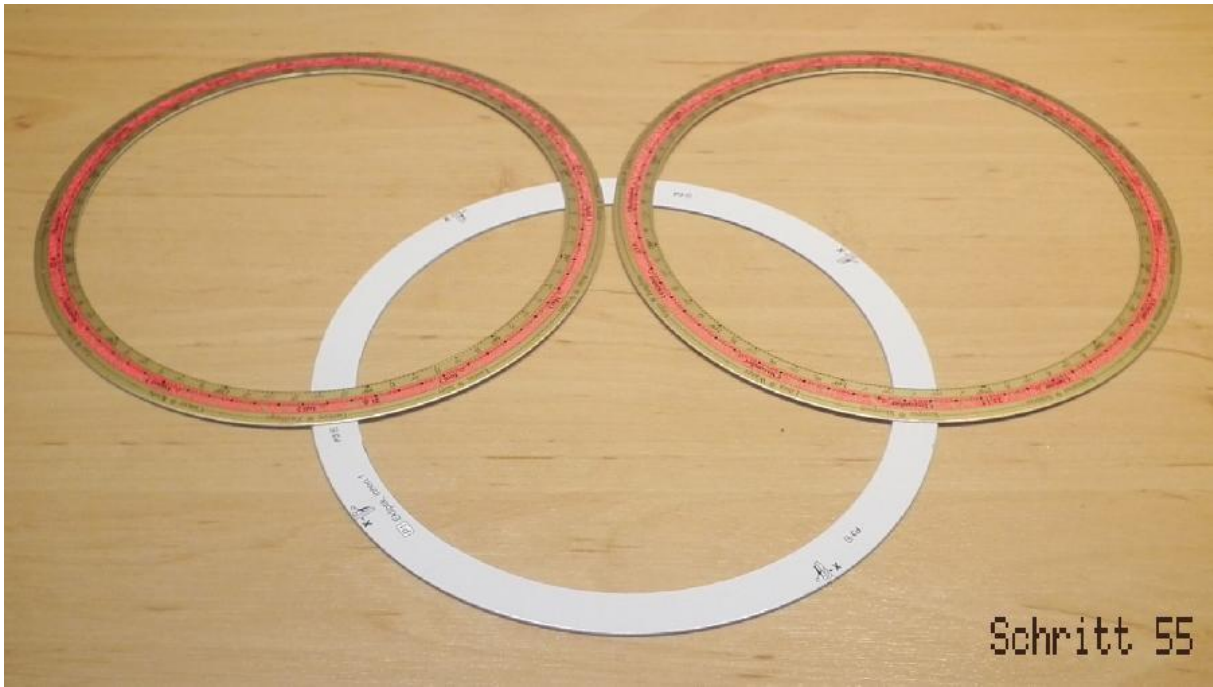
Schritt 53

Step 53: After checking the lightness, the parts of the bearing are glued together. Superglue was used for the bearing washer.

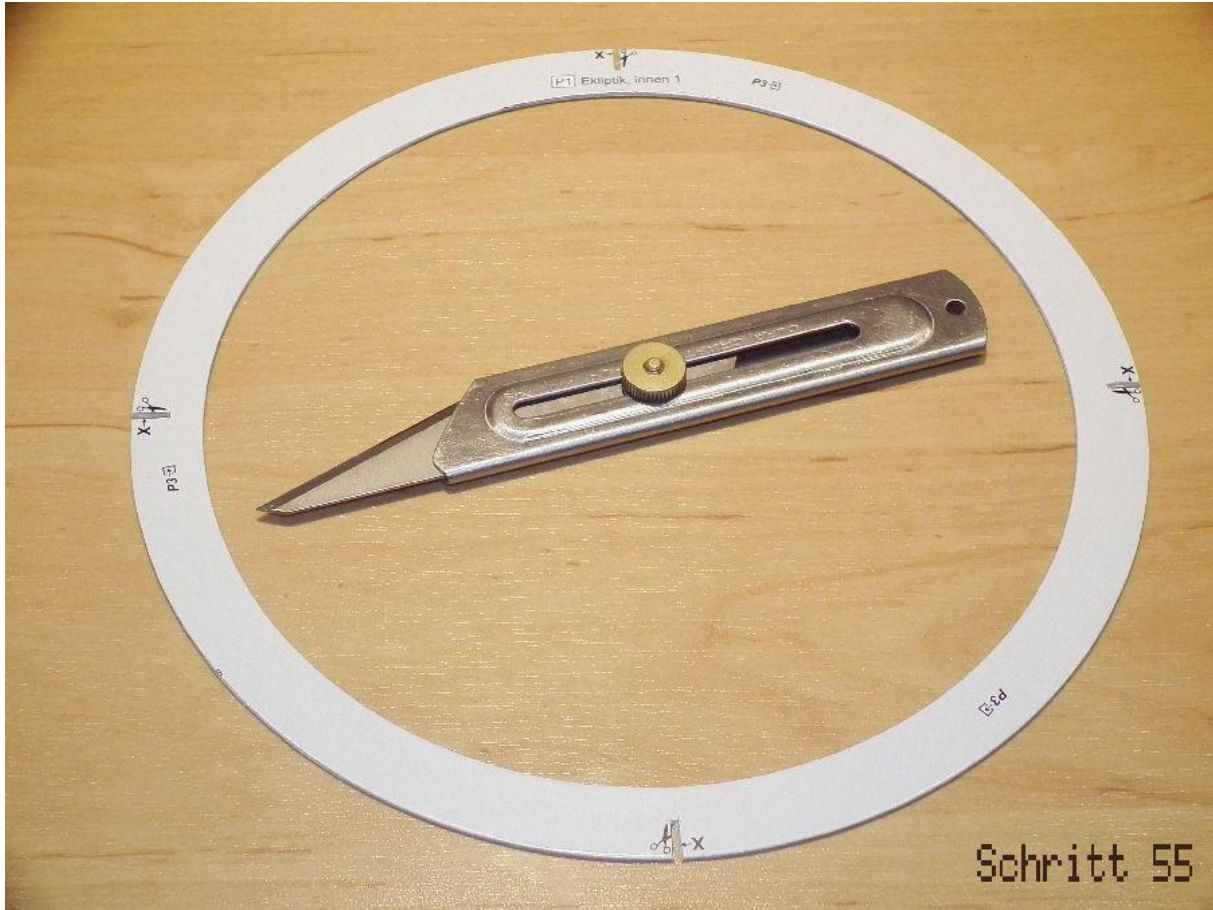


Schritt 54

Step 54: The construction of the southern camp is analogous to that of the northern camp.



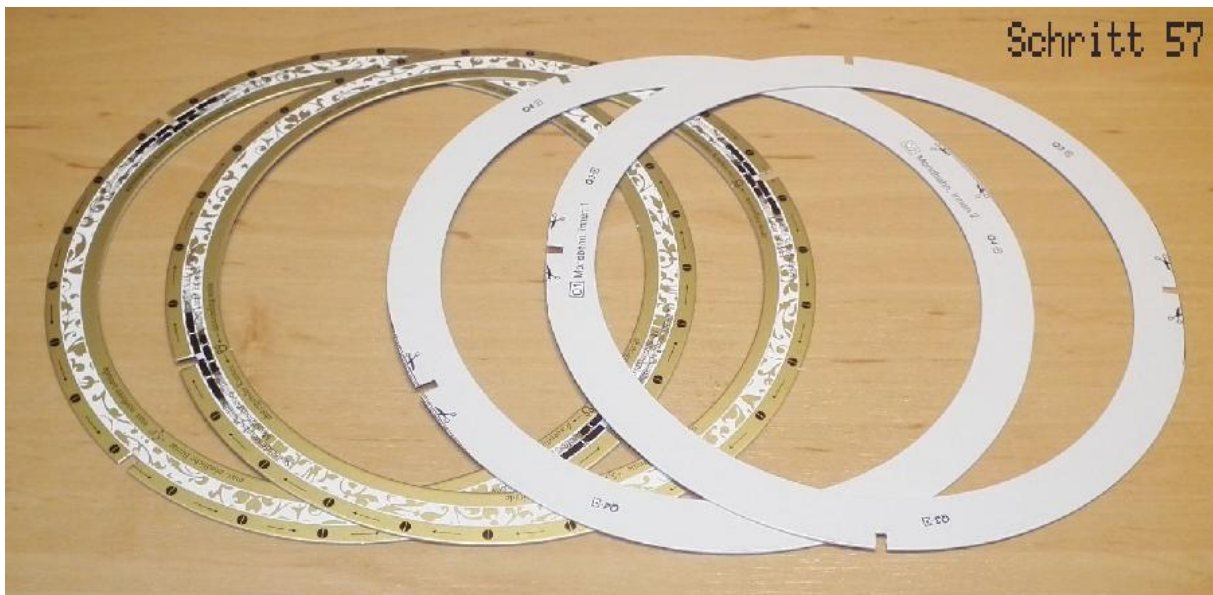
Step 55: The ecliptic is created from four rings, the two inner parts are already glued together.



Step 55: Before gluing on the outer parts, slots are made for the wire pins.



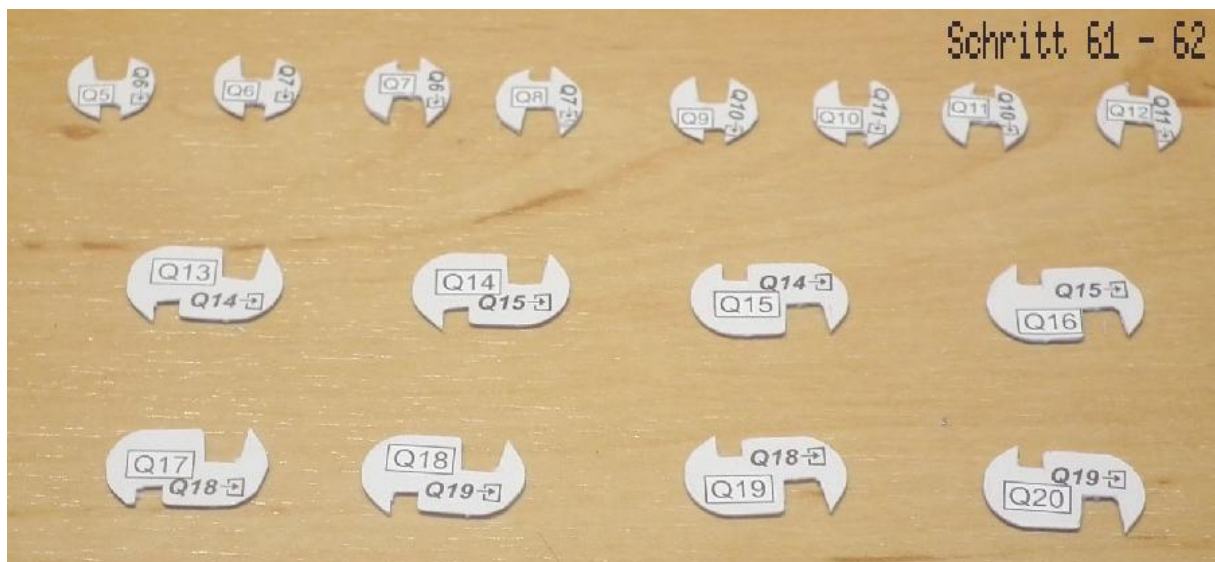
The ecliptic after completing **step 56**.



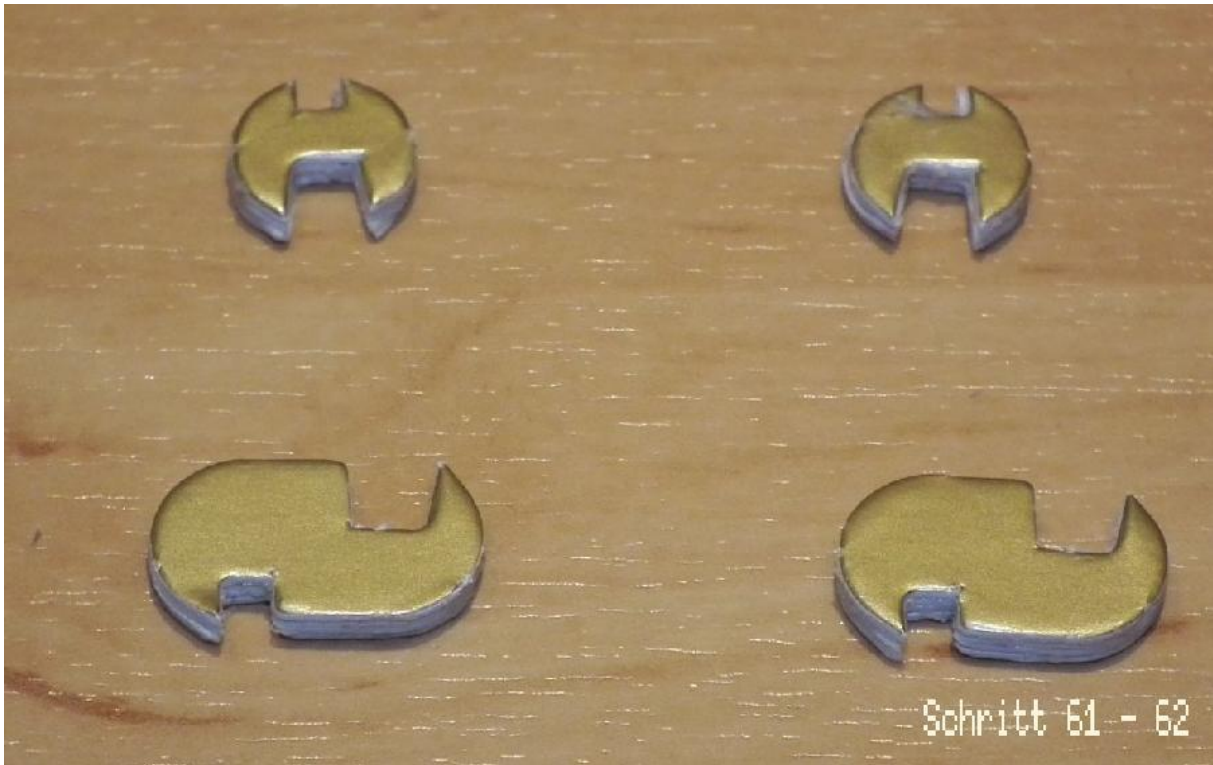
Step 57: The four cardboard rings of the lunar orbit, which must be trimmed according to the markings during assembly.



Step 57: The rings must not be wider than 13 mm at the points to be trimmed - recommendation: 12.5 mm.



Steps 61 & 62: 16 parts are provided for the lunar node and lunar orbit holders.



Steps 61 to 63 describe the assembly of each of the four-layer moon node and moon track holders.

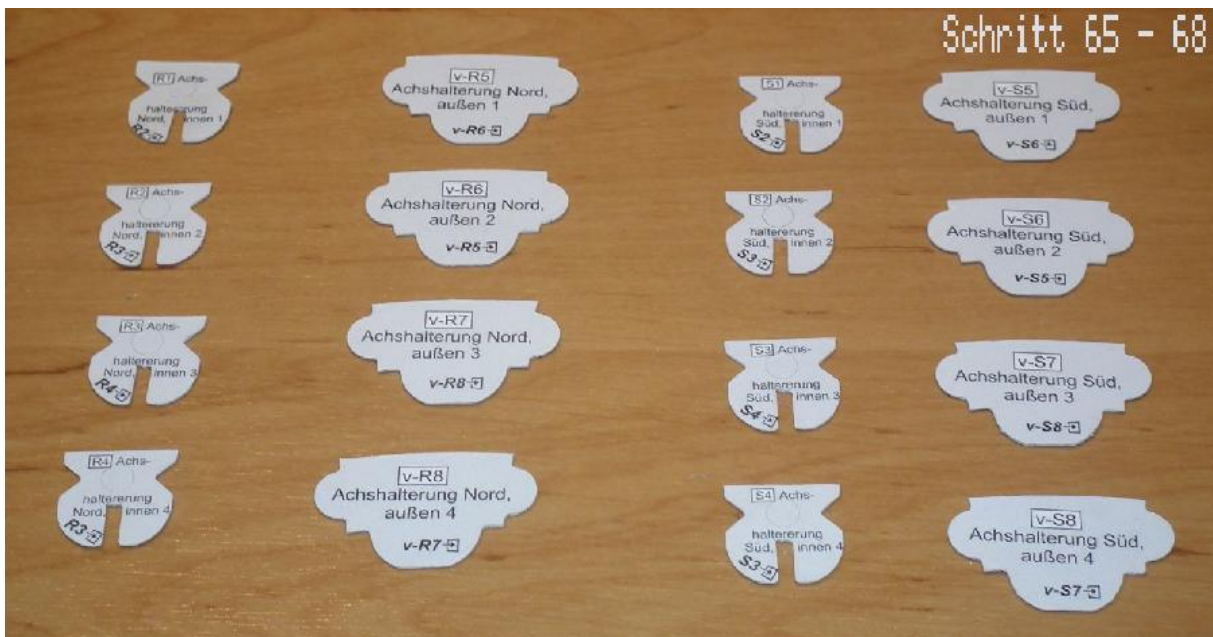


The lunar orbit built according to steps 57 to 63.



Step 64: The "marriage" of ecliptic and lunar orbit works surprisingly smoothly, and the latter can be easily rotated in the ecliptic.

The picture shows a moon's orbit set the wrong way round - the mistake was not noticed when the picture was taken and was only corrected later.



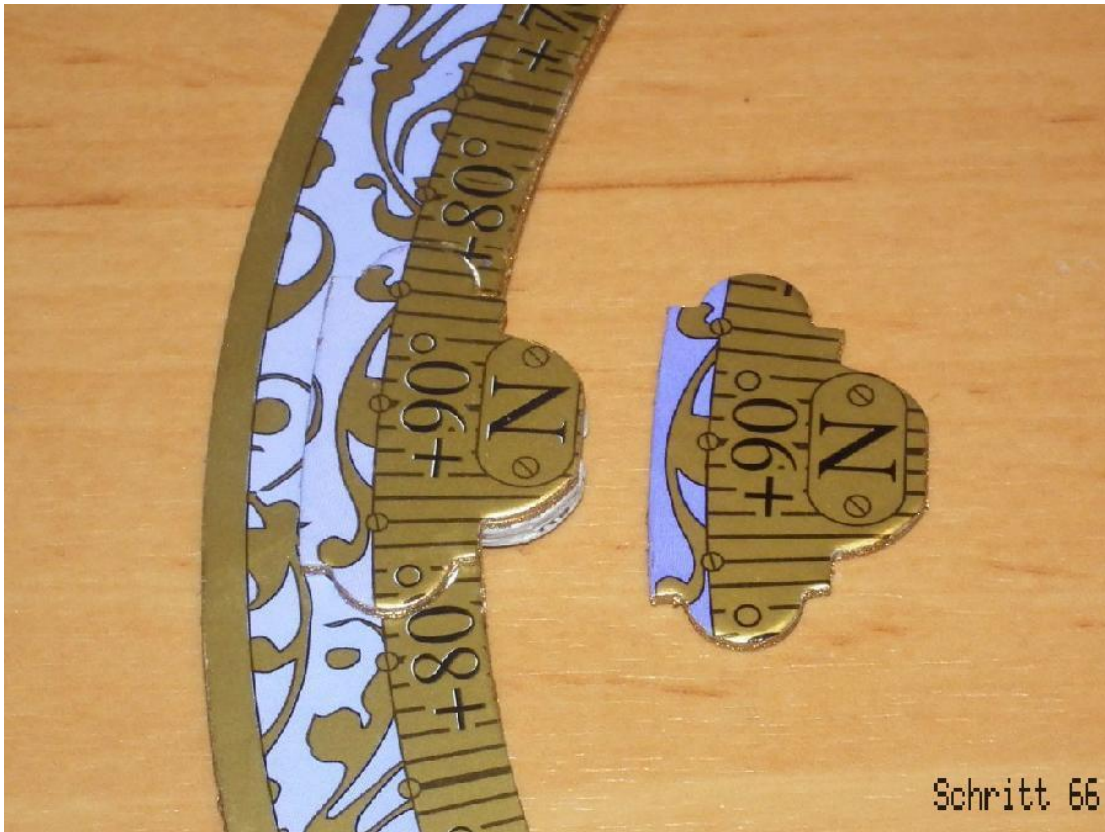
The two sky axis holders consist of a total of 16 parts, which are made in **steps 65 to 68**.



Steps 65 – 68: The inner and outer axle brackets before insertion into the meridian.



Step 65: A hammer is helpful when inserting the inner holders into the meridian to get an absolutely flat result.



Step 66: After inserting the inner axle bracket, only one of the two outer brackets is glued on - the same applies to the southern bracket as described in step 68.



Step 69/70: The globe does not receive any of the suggested decorations...



... a globe was the inspiration for a painting in the shape of the continents.



Steps 71 to 73 describe the assembly of the centre or earth sphere and its axis and the fitting of this assembly into the meridian. Furthermore, the axis is painted.



Steps 74 & 75: The assembly of the celestial sphere begins with the joining of two arches and the two bearings.



Steps 75 & 76: Before mounting the other arches, the ecliptic with the moon's orbit is installed.



Step 77: The third arc of the celestial sphere is added.



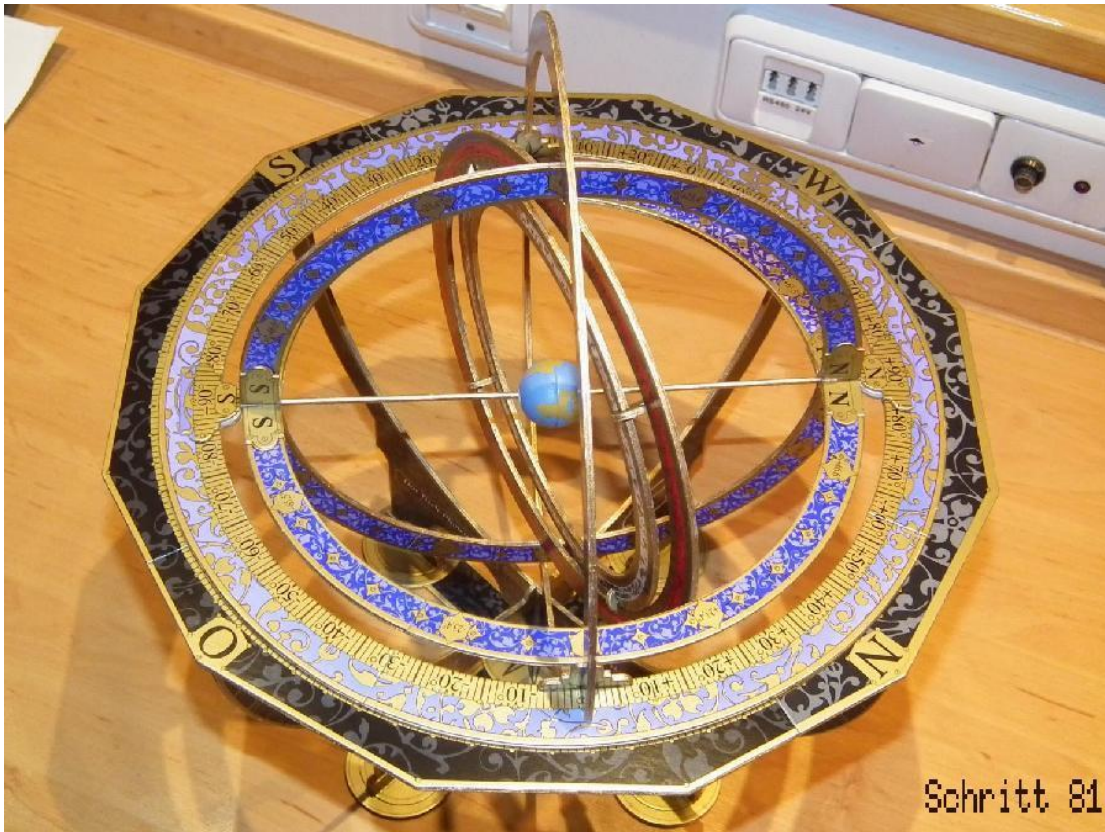
Step 78: The fourth arc completes the celestial sphere.



Step 79: Fitting the axle with the centre ball is a matter of seconds.



Step 80: The connection of the celestial sphere with the meridian is also accomplished in a few simple steps.



Schritt 81

Step 81: To attach the last two parts in the form of the axle holders, the meridian ring is placed on the horizon.



Schritt 81

Step 81: Finally, the complete assembly is placed in the horizon frame.



Step 82: Painting of the planetary, lunar and solar spheres.



"Sun, moon and stars..." - at their places on the ecliptic and the moon's orbit.
The model not only convinces with its construction and functionality, it is also wonderful to look at!