

Rubikon² camera obscura

version 2.3 | paper cut-out | author Jaroslav Juřica



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INTRODUCTION

Rubikon is a cut-out, which becomes a functioning camera (camera obscura) after putting together. In 1979 the ABC magazine published a jigsaw called Dirkon, which paraphrased the at that time very popular single-lensed reflex cameras. Rubikon, as a redesign has come back to react to the digital techno...

The cut-out Rubikon was first published in 2005 in the 8. issue of the ABC magazine, 25 years after introducing Dirkon. Since that time it has been also published in foreign media dealing with photography. Rubikon is also used as a teaching aid at some schools of photography and elementary schools.

The second version of Rubikon, The Pinhole Rebel is even more user friendly and easy to build. The cut-out is distributed free of charge in PDF format and its further utilization and propagation is subjected to Creative Commons licence - some rights reserved.

The cut-out is also available for download on our website. Before putting it together, read the manual carefully, please! I will be very grateful for any feedback, comment and idea for improvement.

What is camera obscura?

The principle of the camera obscura, in other words pinhole camera, is based on passing light rays through a small hole (its size varies from hundredth of millimeters to a few millimeters depending on the size of the camera) that creates a picture of the outside space on the opposite wall inside the camera. This easy principle of projection that was described by Leonardo da Vinci is valid until today and is similarly used in every camera (even digital). The current form differs only in technological improvements of the mechanics and the optical system and in digital cameras celluloid film is replaced by a CCD sensor.

Camera obscura provides very interesting picture results often caused by the imperfection of light rays passing into the camera or by the fuzziness of the hole (optics). Thus taking a picture becomes an adventure even from the exposure until the developing process, which is often an experiment with the light conditions.

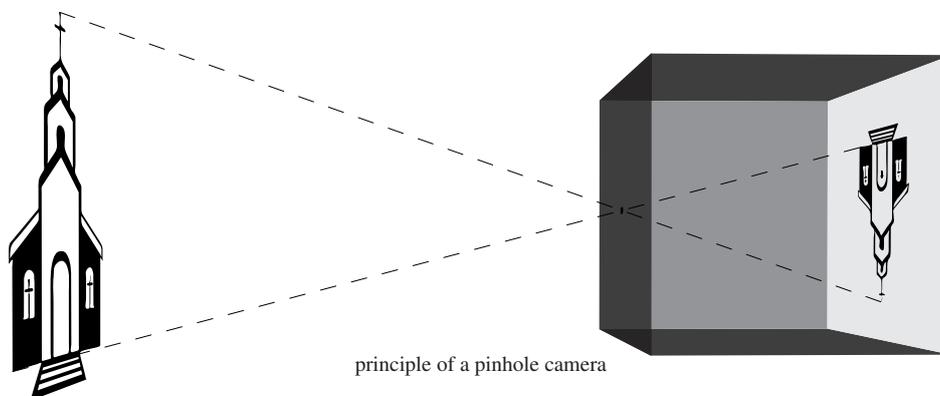


photo: Jaroslav Juřica, Brno - Denisovy sady, 2005 / photographed by Rubikon



photo: Alžběta Čechová, China - Forbidden city, 2006 / photographed by Rubikon

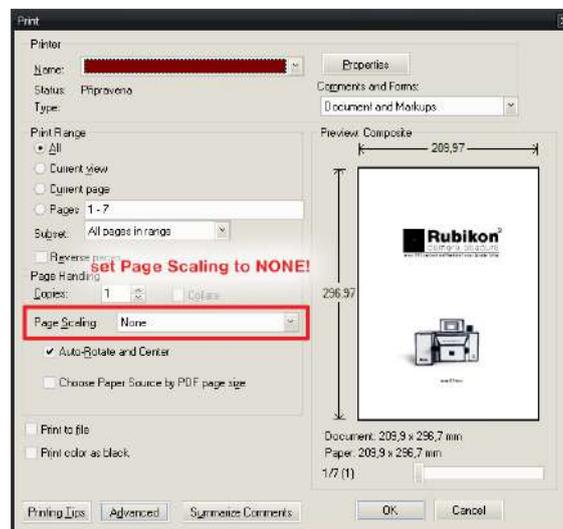
INSTRUCTIONS FOR GLUING THE CAMERA

Preparation (how to correctly print the PDF, tools, marking)

To achieve best results I recommend you to adhere the following process: Then, it is important to keep fixed page proportions for printing. In the printing window in Adobe Reader (shortcut CTRL + p) choose None (keep proportions – see picture) in the Page Scaling option. To set up print quality follow the brand instructions of the paper used for the printer (I recommend to print on mat photo paper in highest quality). Then use thicker paper to make the camera lightproof, preferably about 200 g/m² and do not forget to print page 7 on the back of the page 6.

To glue the camera you will need the following tools: guide gib (ruler), cutter, thick graver for engraving bends (very useful is an empty biro), paper glue and small brush for coating the glue. I also recommend to use a thin metal sheet about 12 x 12 mm for the pin hole (optics), which will ensure sharper photographs – an aluminium sheet from a can is ideal. For a sliding pin you will need one paperclip.

The last but not least is cassette with 35 mm film on which you will take your pictures. Try to find one more empty cassette where you will reel up photographed pictures. You should get it for free at any photo shop, where photographs are developed.



print set-up

Exposition and camera set-up

One turn by the transport pivot (the sliding pin) slides the film by one image. Since locking the back cover would be another technically demanding factor, I just recommend you to seal up the cover with a scotch tape in a way it can be used again.

You can apply two methods to set the exposure time:

To achieve a rough exposition: Follow the icons of the Sun and clouds under the table. For exposure you can experiment with the following values: sunny (4 – 12 sec.), cloudy (12 – 30 sec.), artificial light (30 sec – 30 min).

To achieve a precise exposition: use the predetermined values in the table on the back of the camera. To find out the exposure time use an exposure meter which is embedded in all reflex cameras or use an external one. Set up ISO sensitivity of your film in the exposure meter and determine the shutter speed value for a diaphragm of 22. Find this value in the first row of the table on the back of the Rubikon. The number underneath is the exposure time you were looking for.

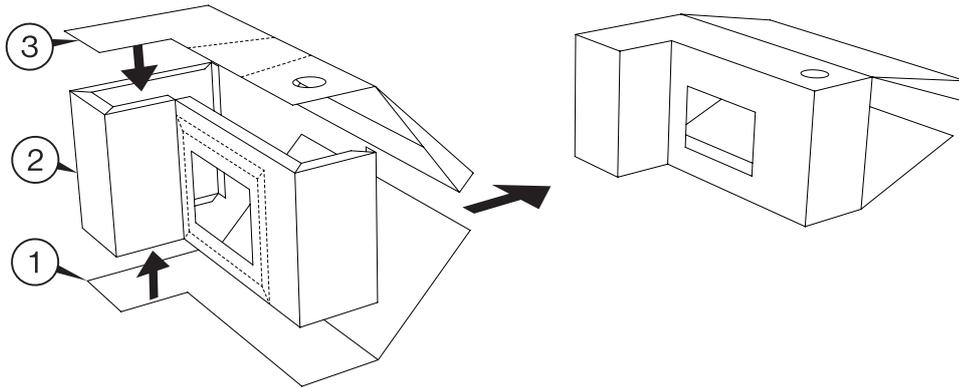
Enjoy!

note to release 2.3:

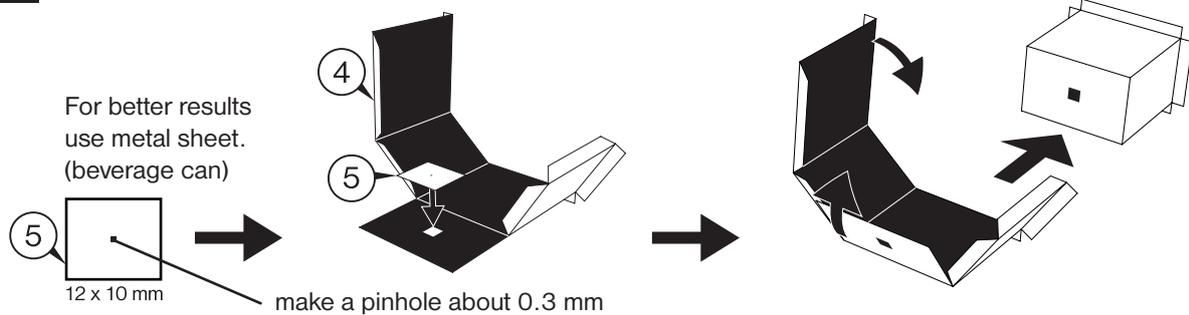
- page 7. added. Black areas ensures higher light proofing of the camera.
- whole colour of the camera body inverted to maintain light proofing.
- cylinder sliding pin replaced by flat one made of paperclip.

Instructions for gluing the camera

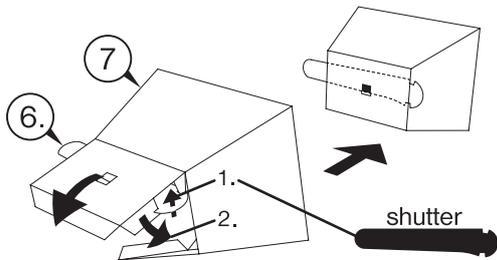
1 Main body assembly



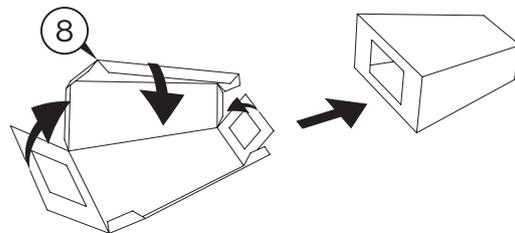
2 Darkroom



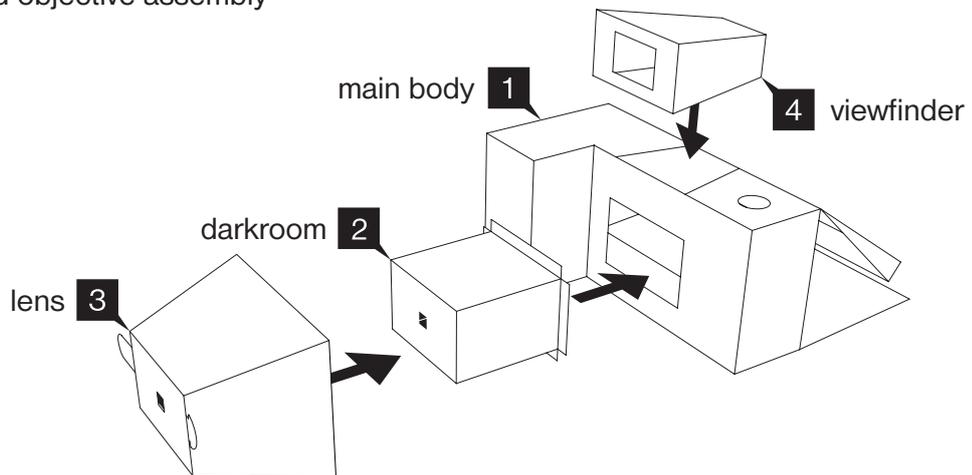
3 Lens assembly



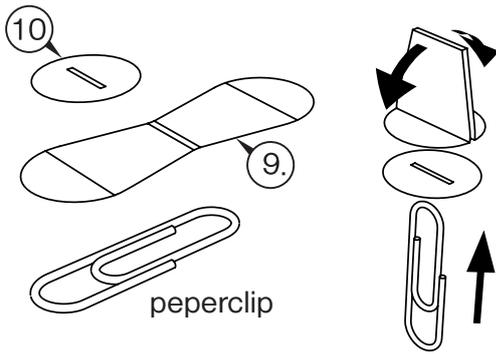
4 Viewfinder



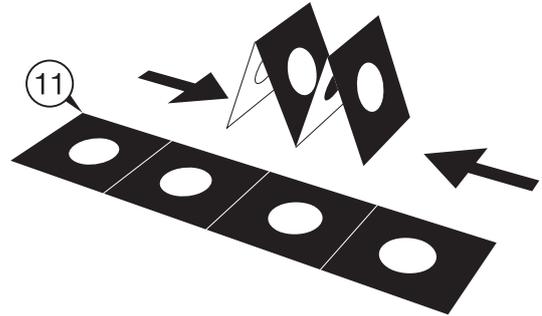
5 Body and objective assembly



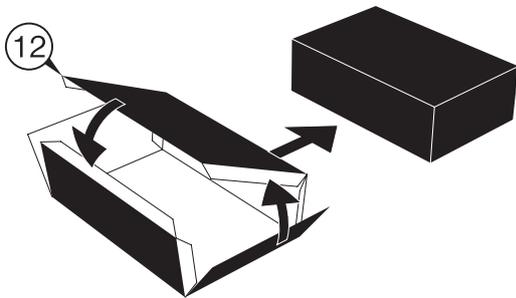
6 Sliding pin



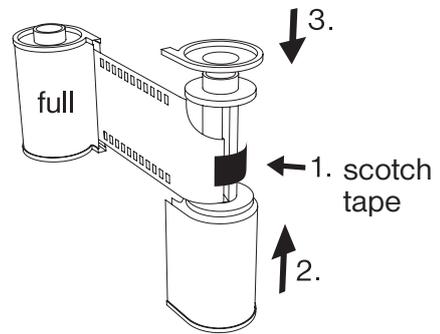
7 Shield



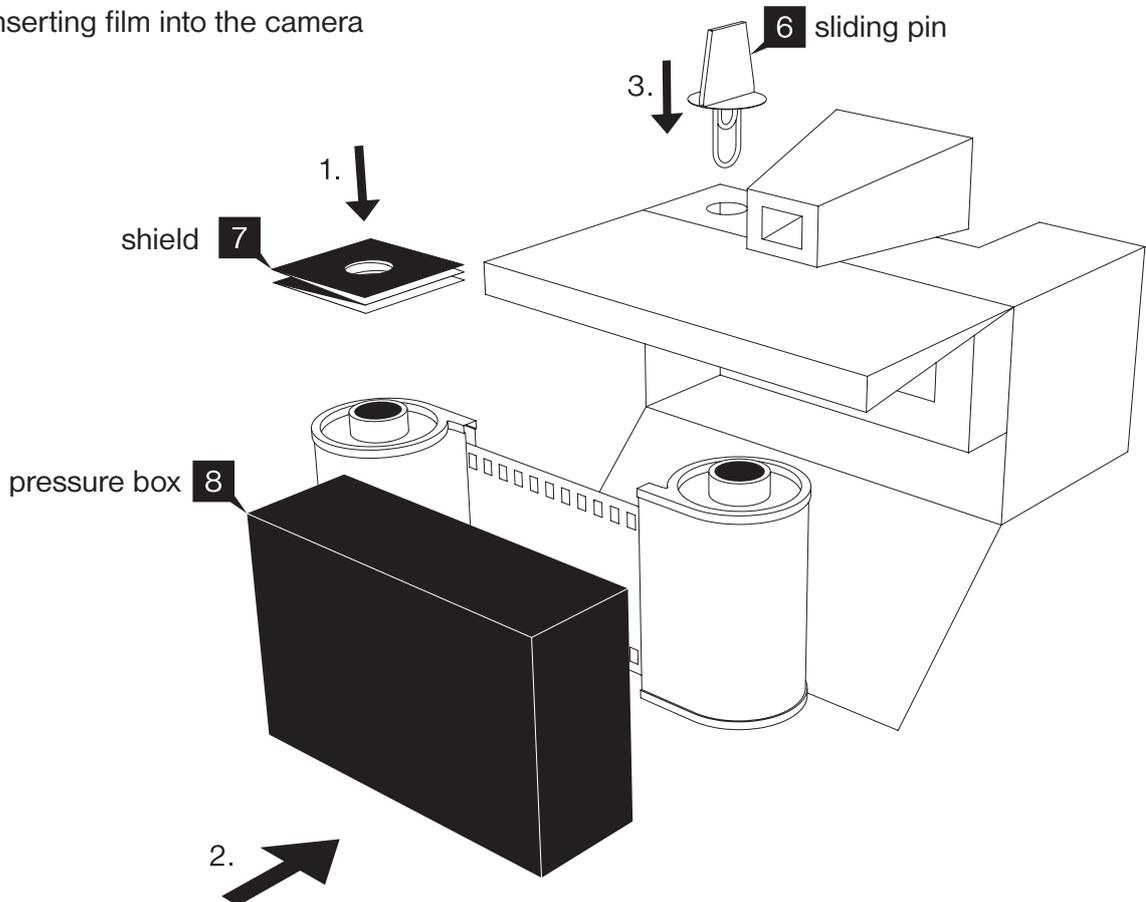
8 Pressure box

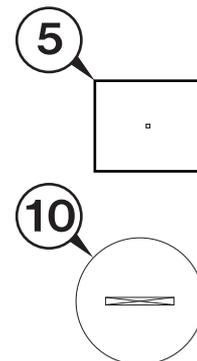
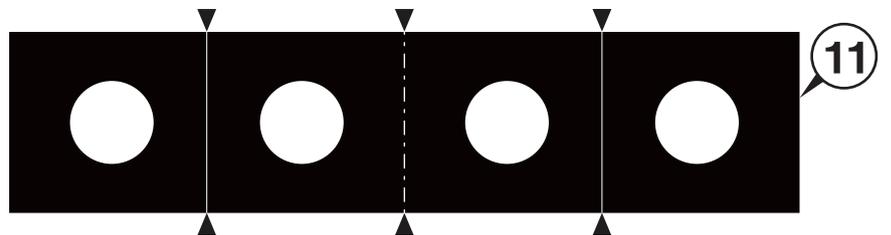
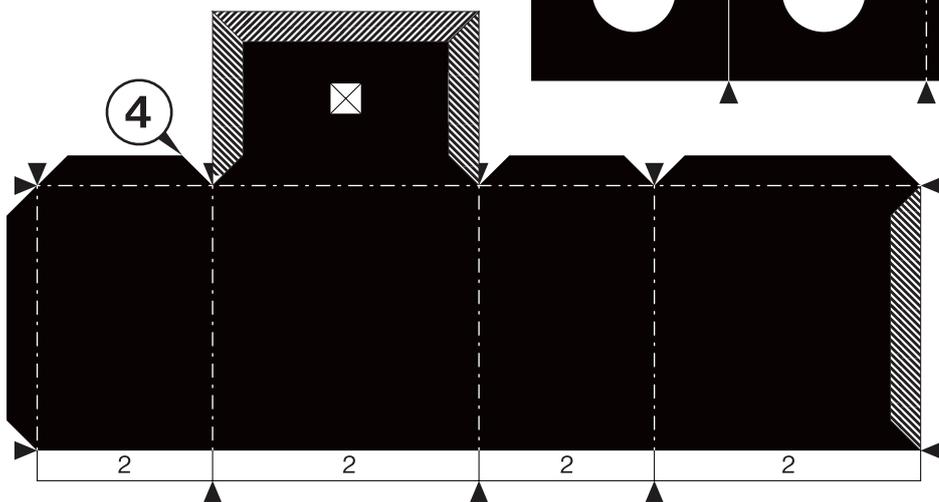
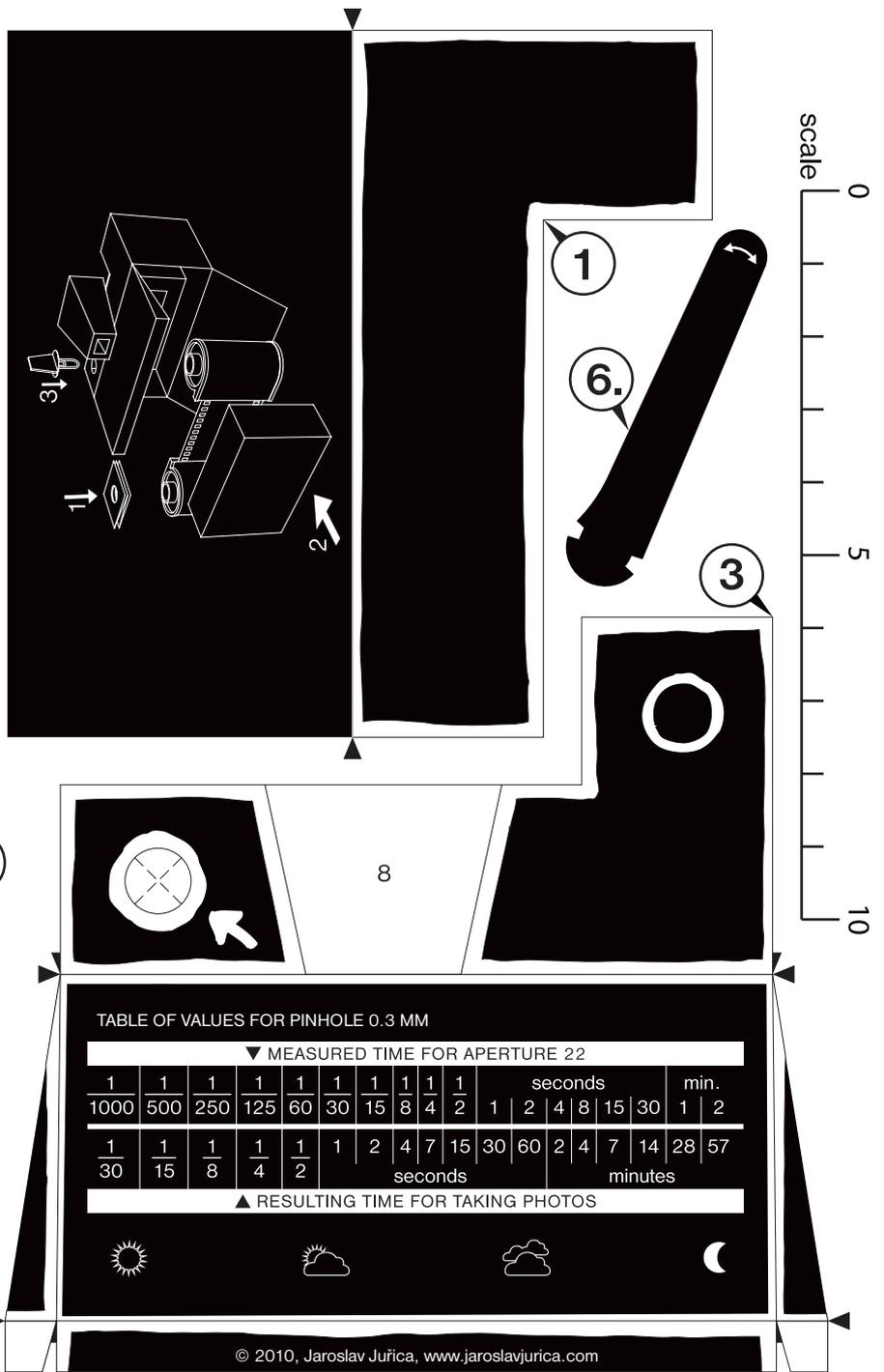
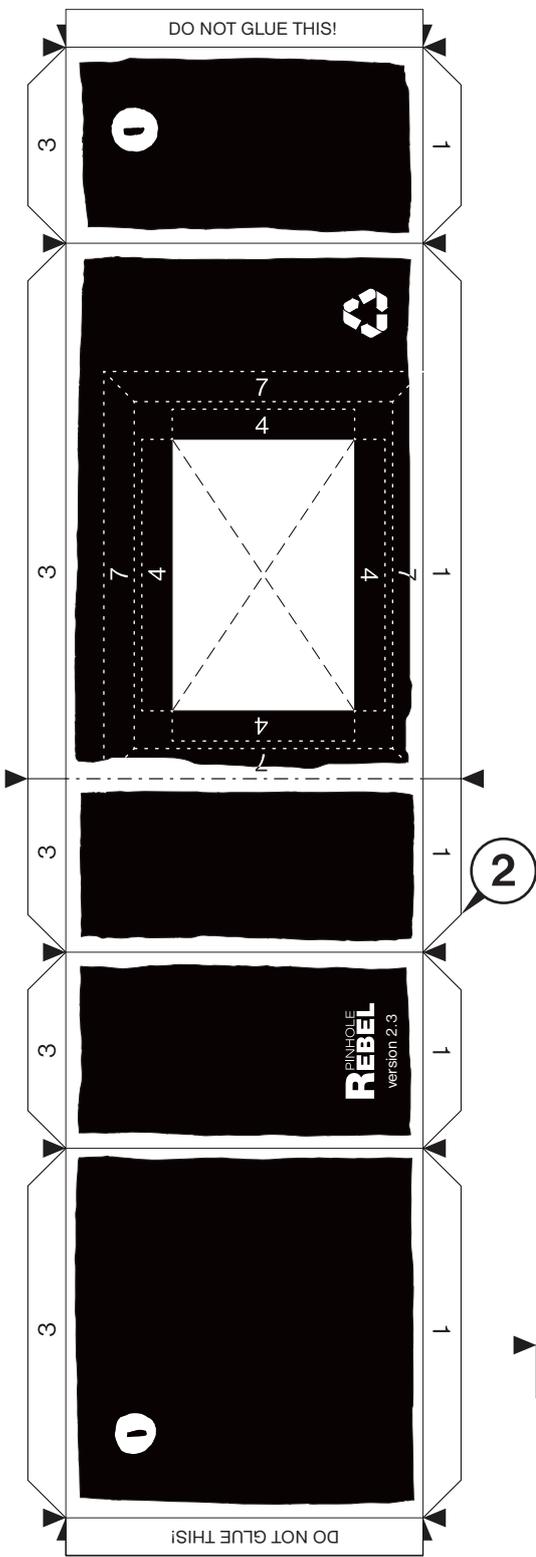


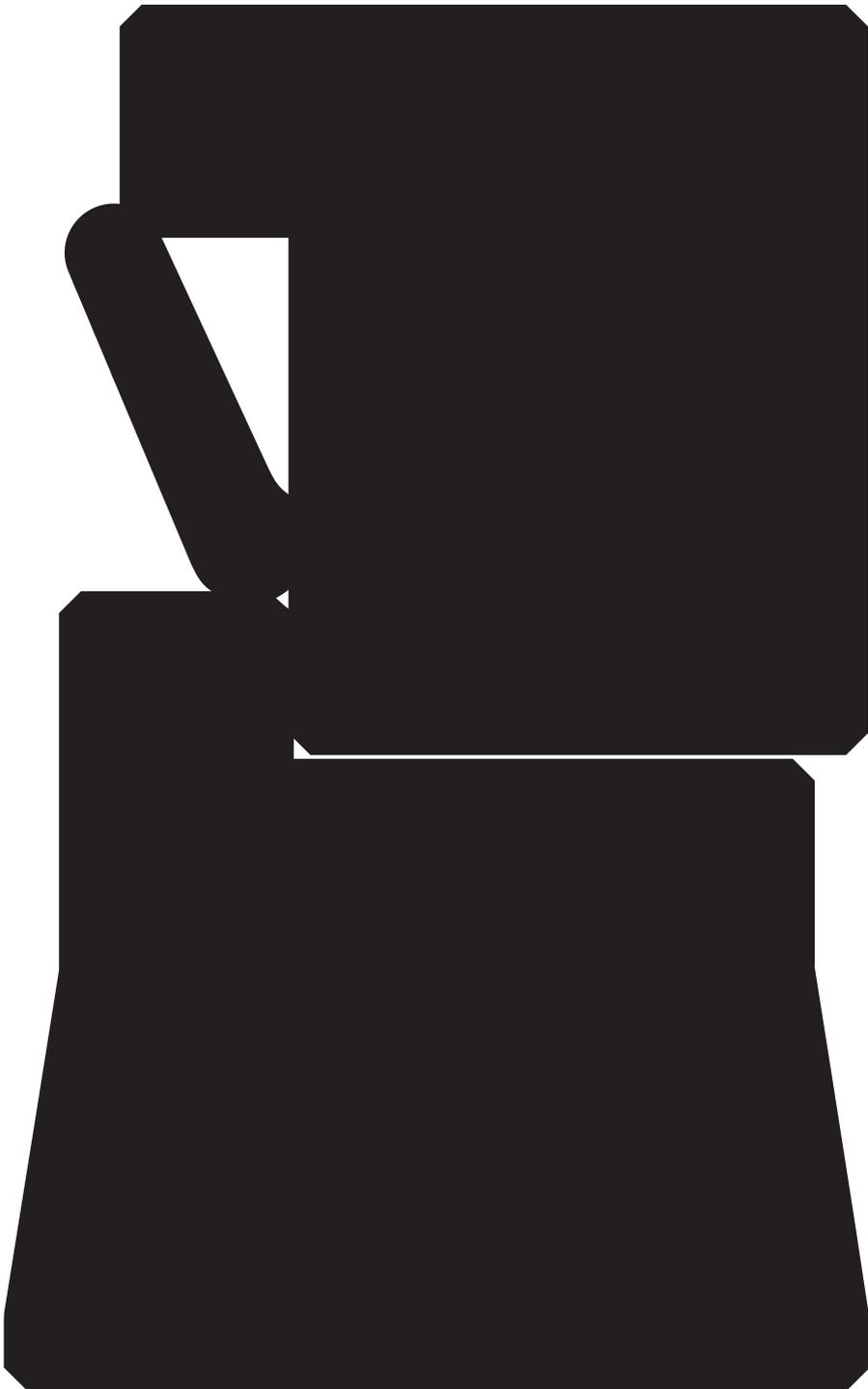
9 Assembling film cassettes



10 Inserting film into the camera

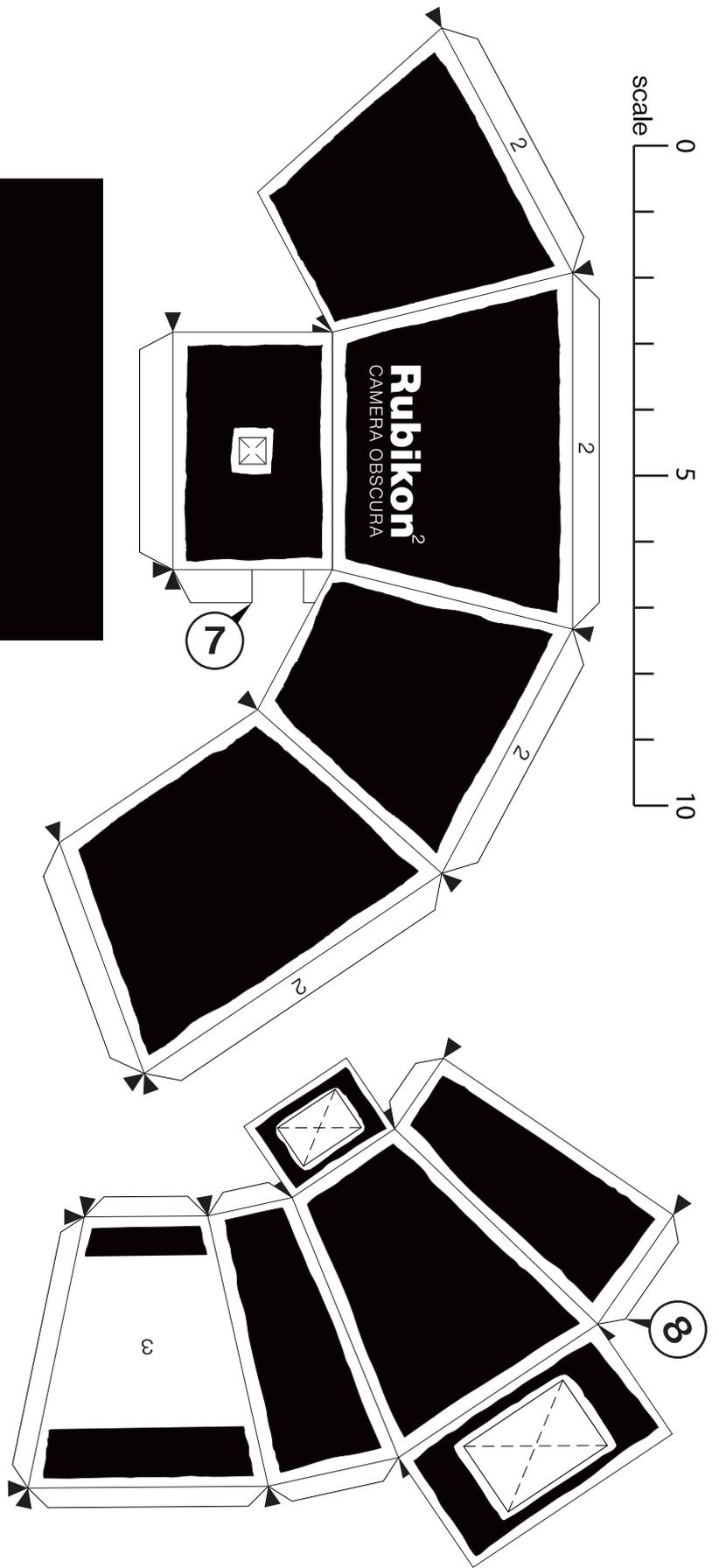
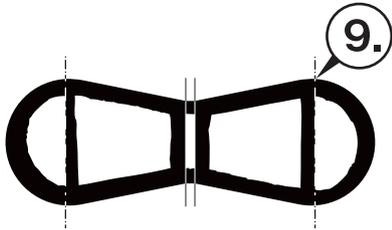
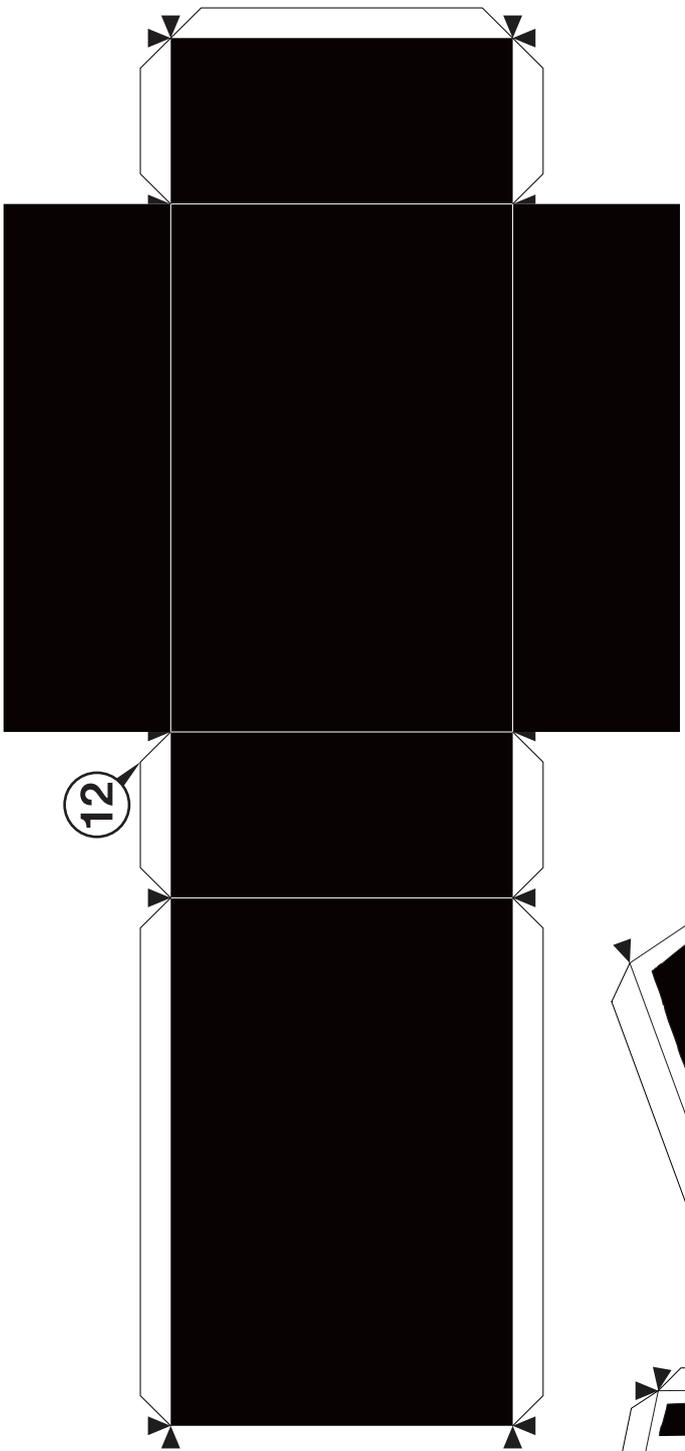






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INSTRUCTIONS

