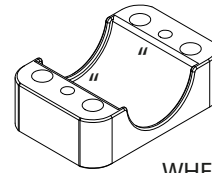
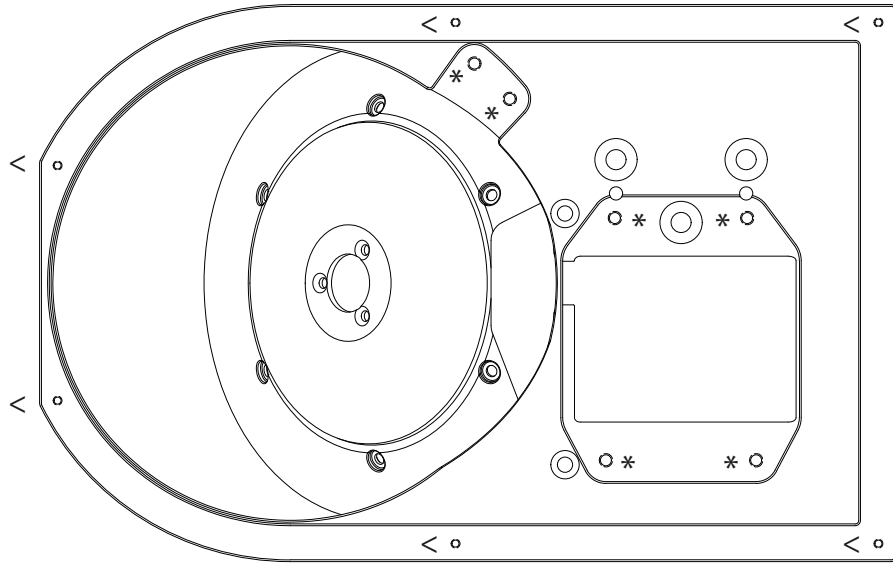


FORAGING PATCH

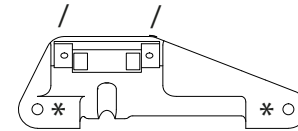
Assembly instructions

PARTS LIST

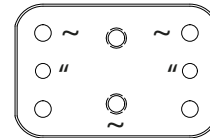
3D PRINTED PARTS



WHEEL HOLDER TOP



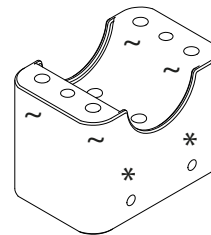
BEAM BREAK HOLDER



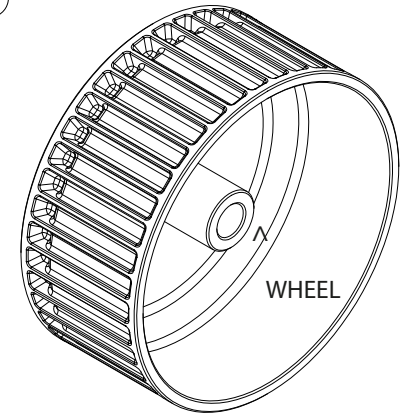
WHEEL HOLDER BASE (2 VIEWS)



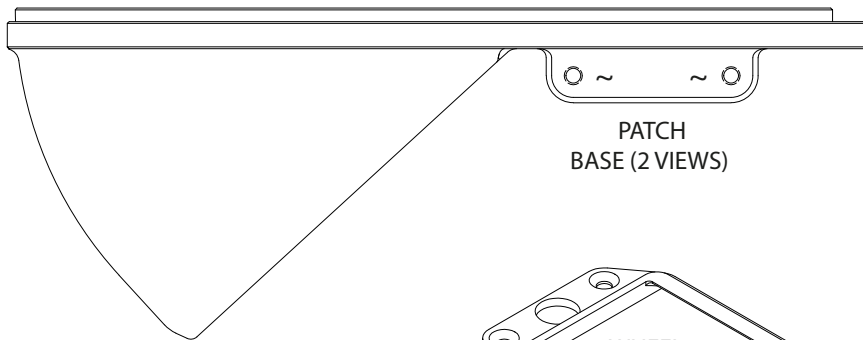
MAGNET HOLDER



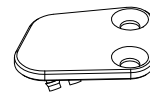
SPACER



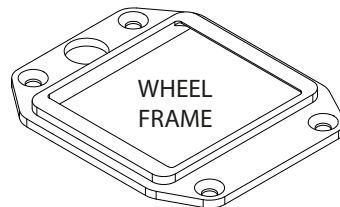
WHEEL



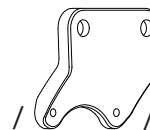
PATCH BASE (2 VIEWS)



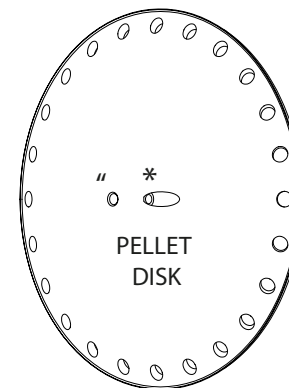
PELLET STOPPER



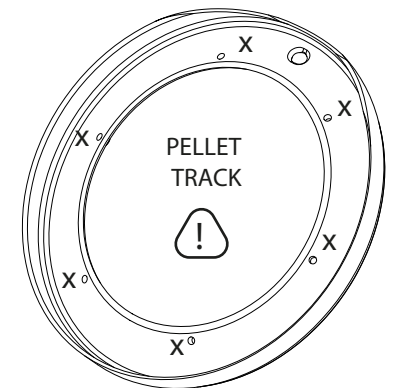
WHEEL FRAME



MAGNETIC ENCODER HOLDER



PELLET DISK



PELLET TRACK

ID	Screw Type	Screw Size	Length (mm)	Quantity
1	CSK	M3	8	4
2	CSK	M2	5	3
3	CSK	M2	8/10	6
4	CSK	M3	6	6
5	CSK	M2.5	4	6
6	CSK	M4	10	2
7	CAP	M2	6	2
8	CSK	M3	30	4
9	CAP	M4	20	4
10	GRUB	M3	10	1
11	CSK	M4	12	3
12	CAP	M2	4	2
13	PINS	M3	12	2

< M2 brass insert

“ M3 rim

^ M8 rim

/ M2 tap

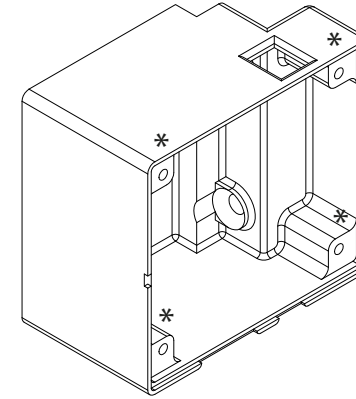
X M2.5 tap

* M3 tap

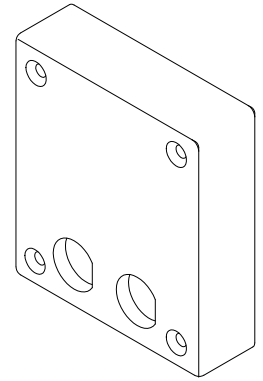
~ M4 tap



FRAGILE

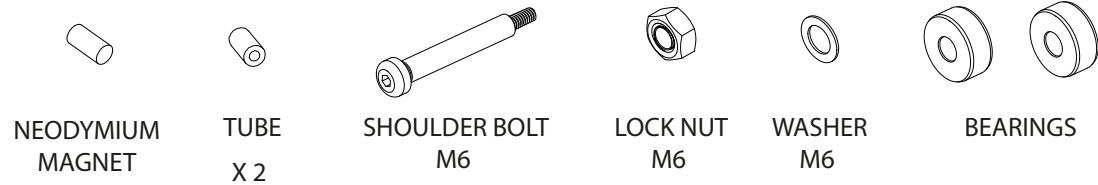


ELECTRONIC BOX



ELECTRONIC BOX LID

MISCELLANEOUS



NEODYMIUM MAGNET

TUBE X 2

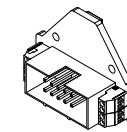
SHOULDER BOLT M6

LOCK NUT M6

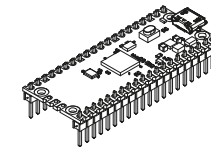
WASHER M6

BEARINGS

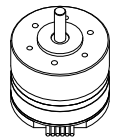
ELECTRONICS



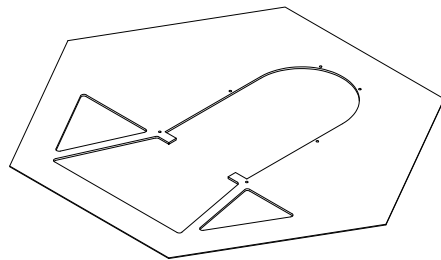
MAGNETIC ENCODER



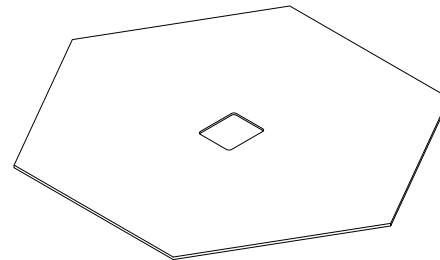
RASPBERRY PI PICO



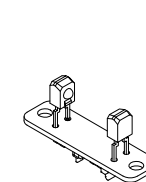
MOTOR



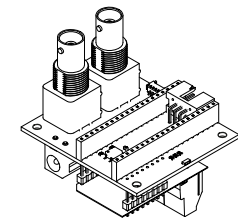
METAL HEX TILE 2mm



FORAGING PATCH TILE 3mm



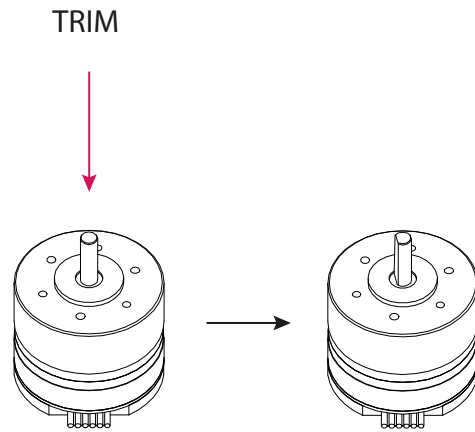
BEAM BREAK



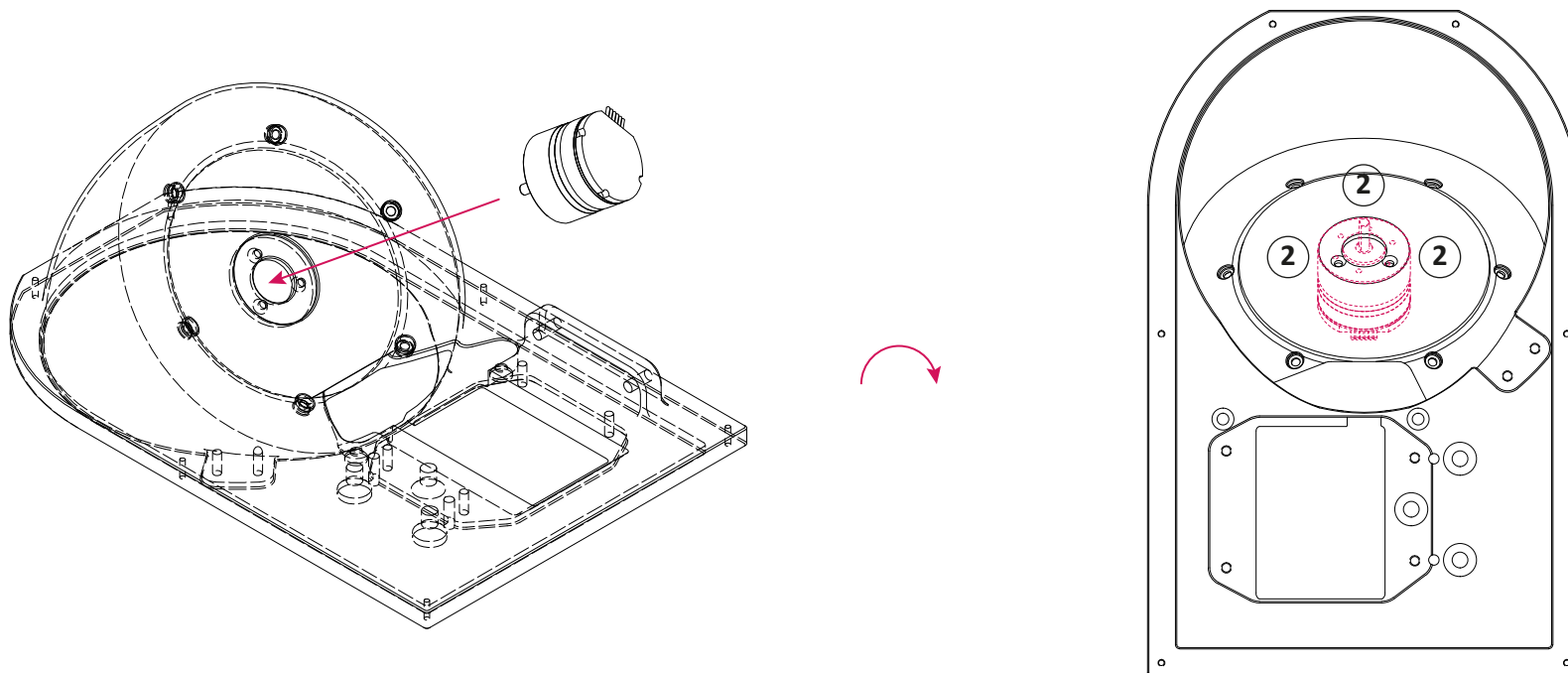
PATCH ELECTRONICS

+ White matt 3mm

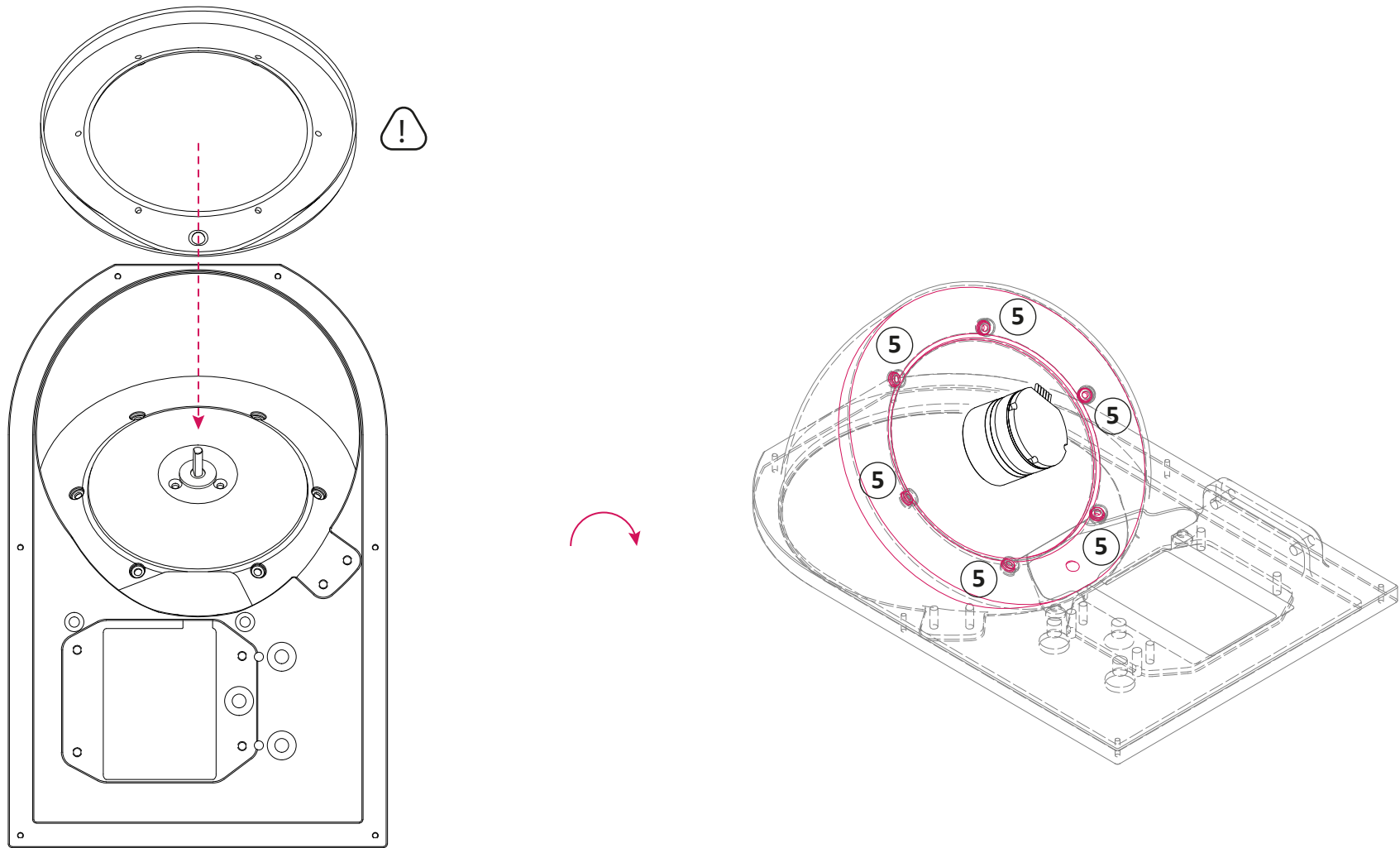
1. Trim slightly the motor metal pin using a grinding wheel or a handheld dremel. Trim until you create a flat surface on the pin.



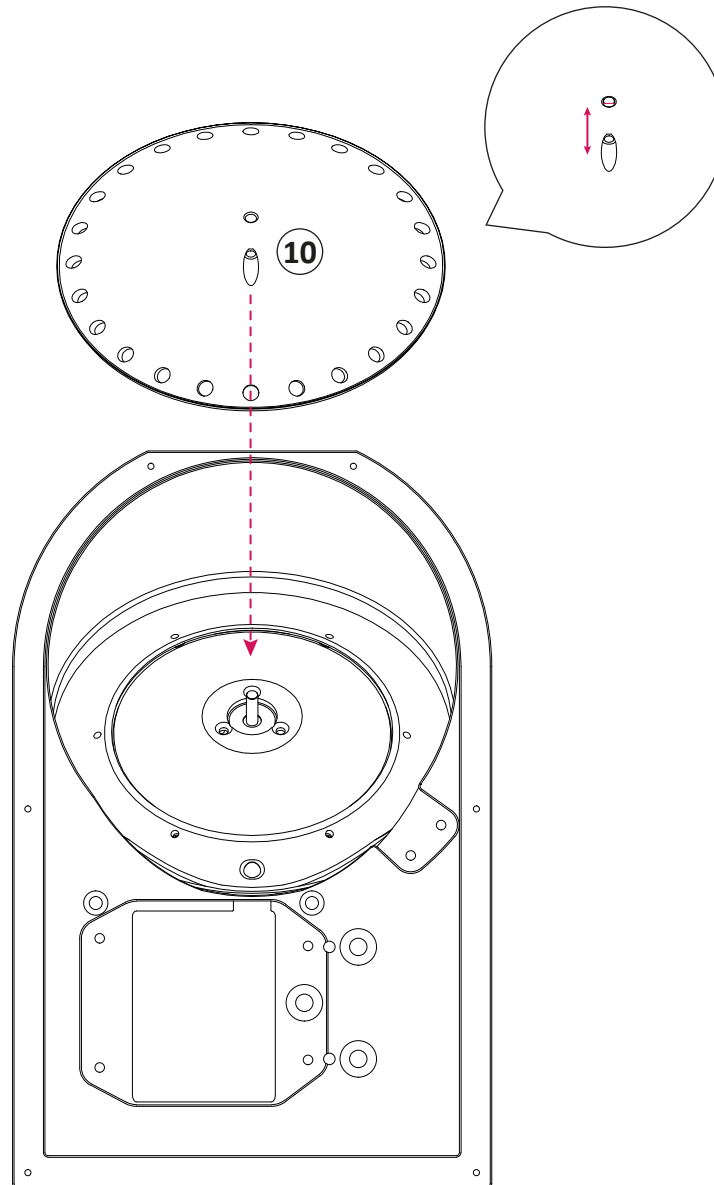
2. Rotate the foraging patch base and insert the motor. Screw the motor in place from the front using three screws (ID 2).



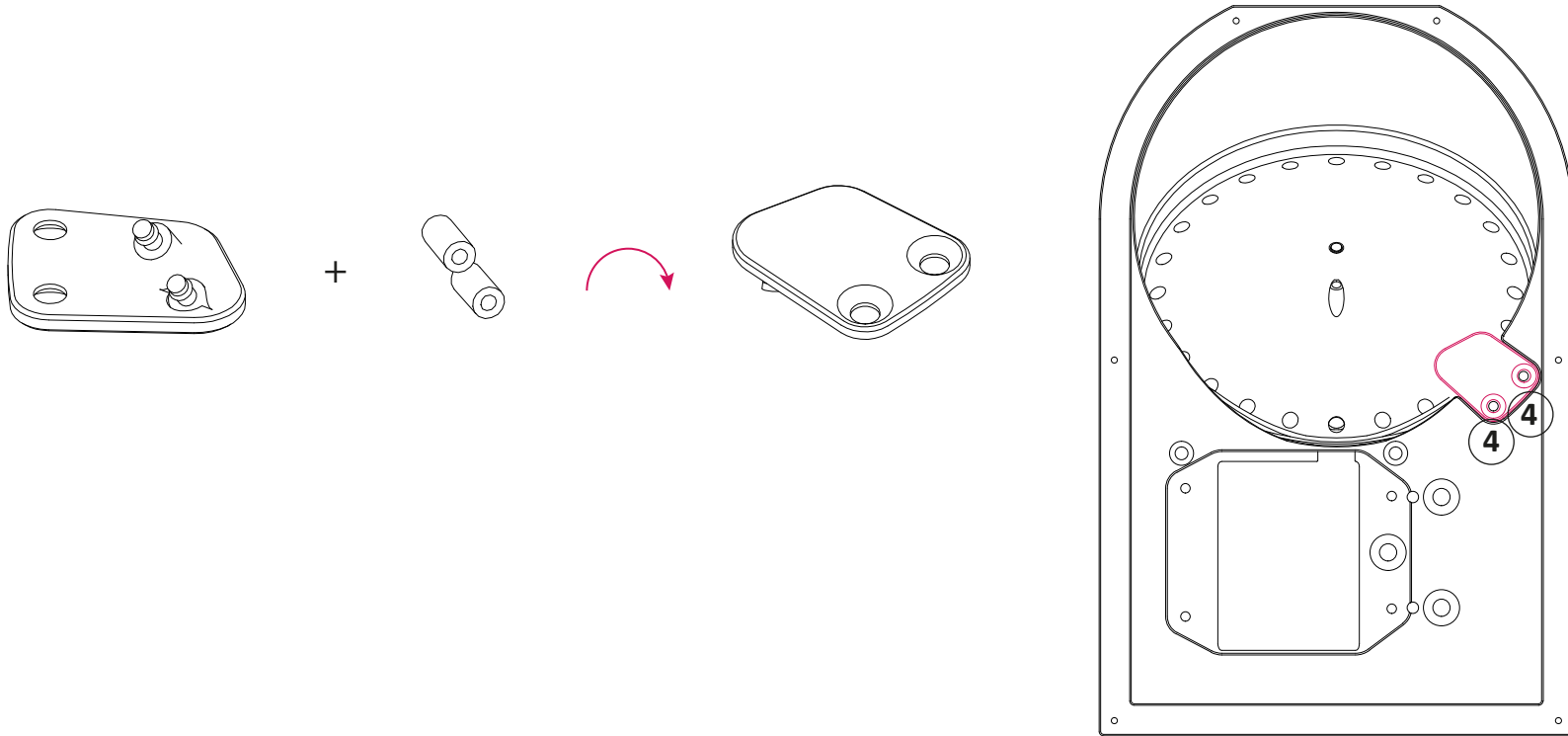
3. Carefully handle the track and gently insert it in the foraging patch making sure of aligning the holes. Rotate the base and hold the track in place by using six screws (ID 5).



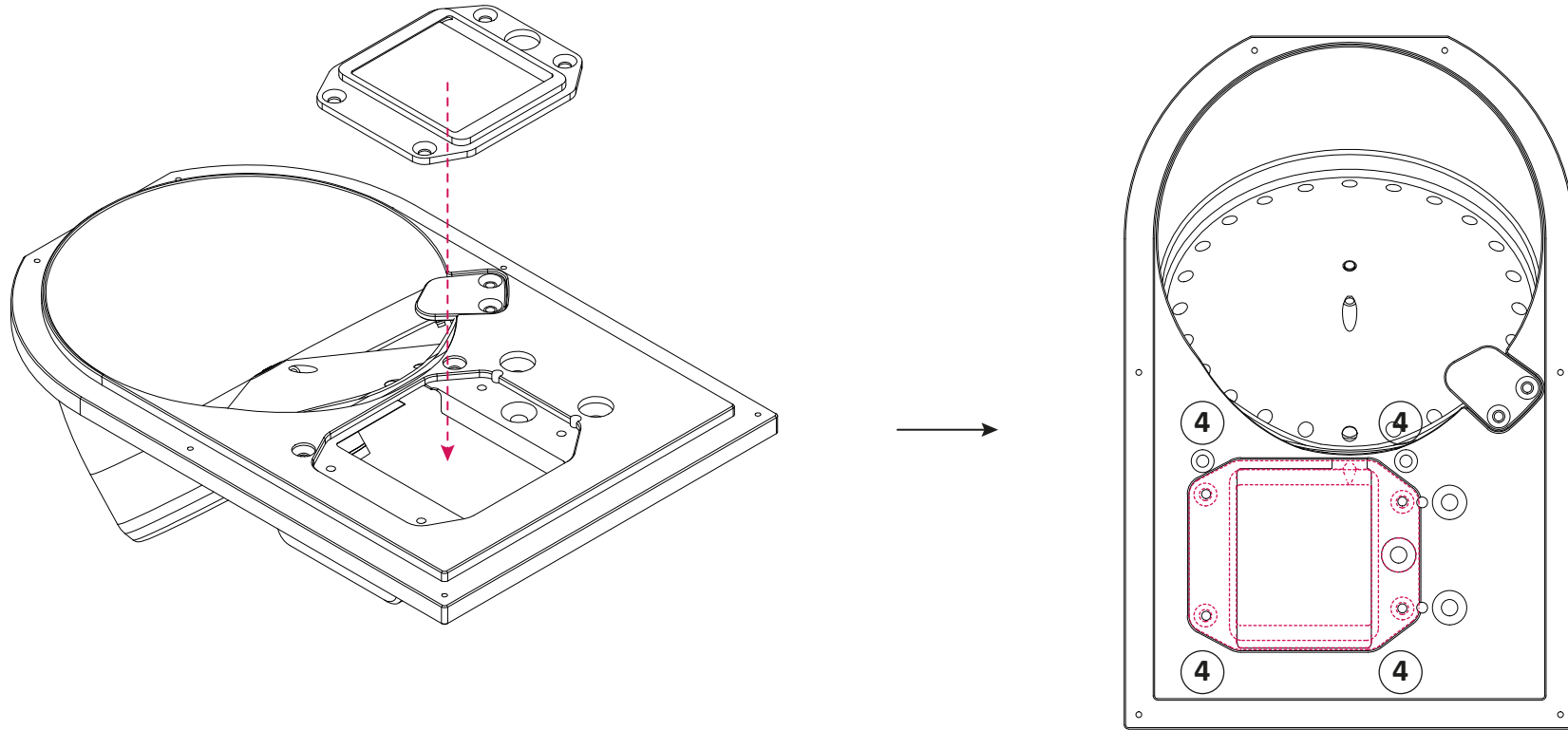
4. Lower the disk into the patch base making sure to orient the grub screw tapped hole toward the flat surface previously created on the motor metal pin (see step 1). Push down the disk until the top of the pin is flushed to the disk itself and use a grub screw (ID 10) to hold the disk in place. Make sure the grub screw touches the flat surface of the trimmed motor pin.



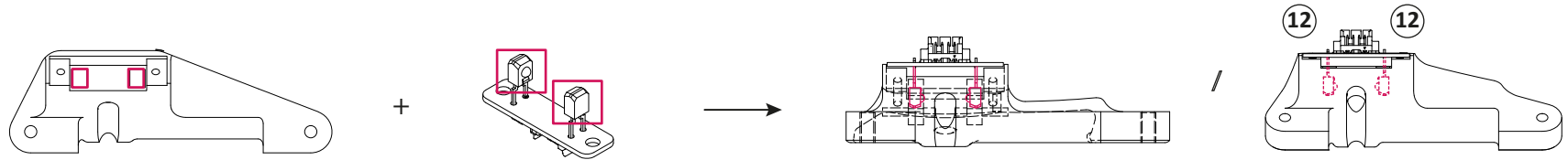
5. Insert two short silicon tubes in each pellet stopper pin and screw it in place with two screws (ID 4).



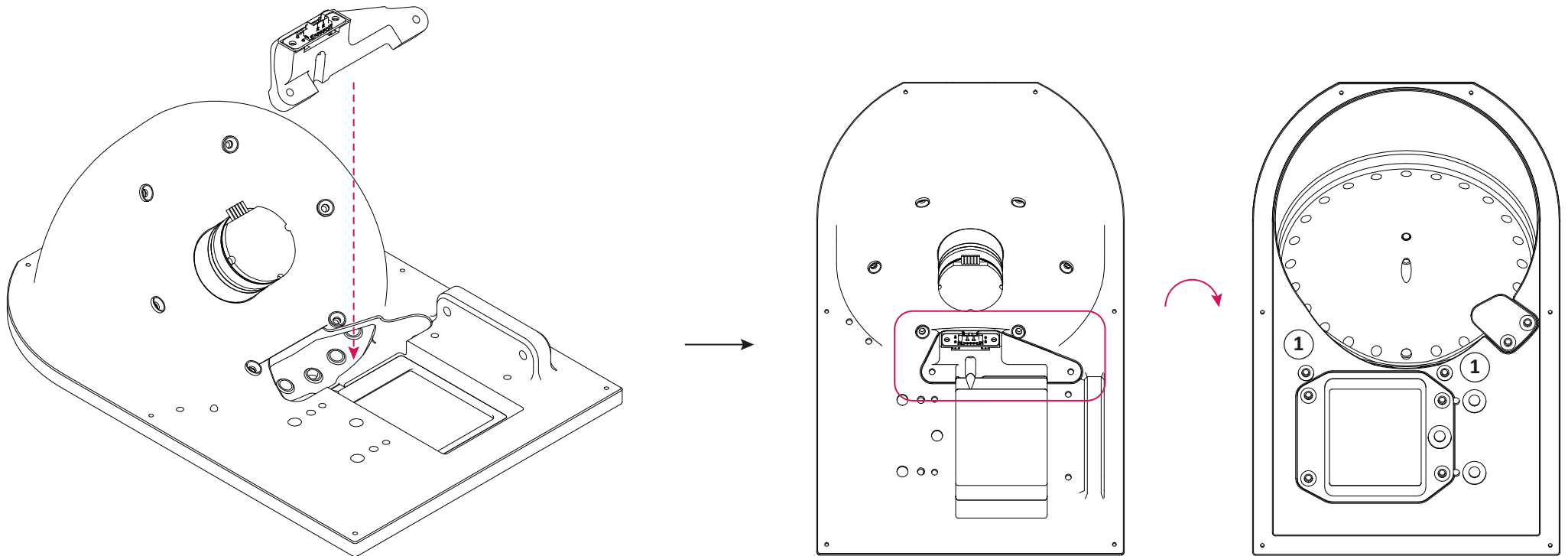
6. Place the wheel frame on the patch base with 4 screws (ID 4).



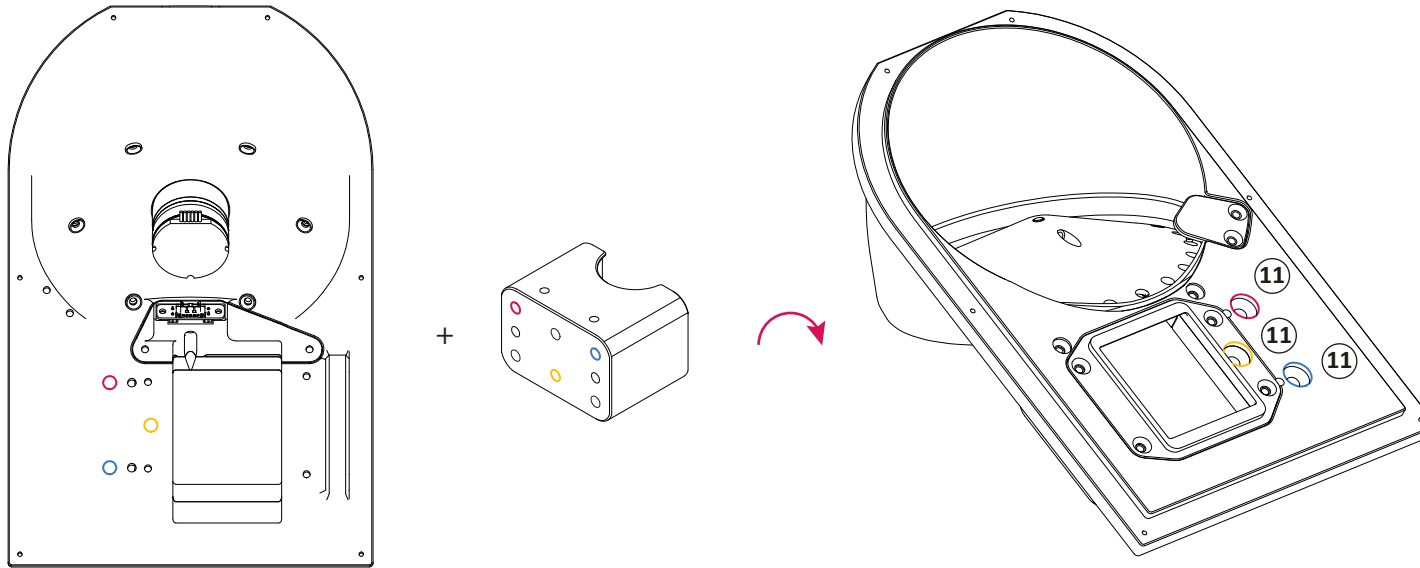
7. Carefully insert the beam break PCB board into the beam break holder (ID 12).



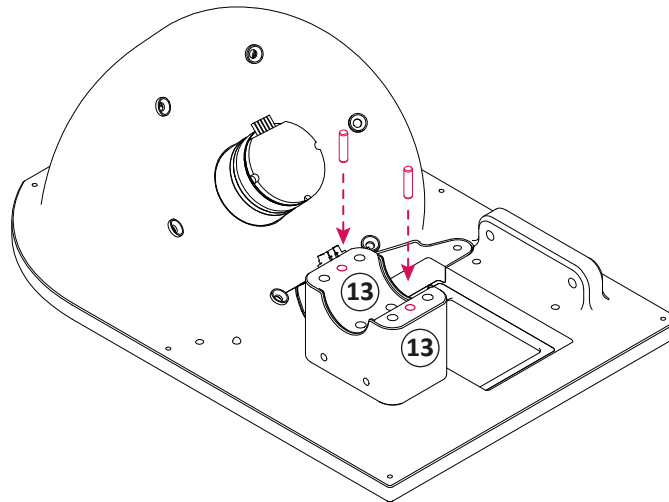
8. Slot the beam break holder in the back of the patch base and screw it in place from the front (ID 1).



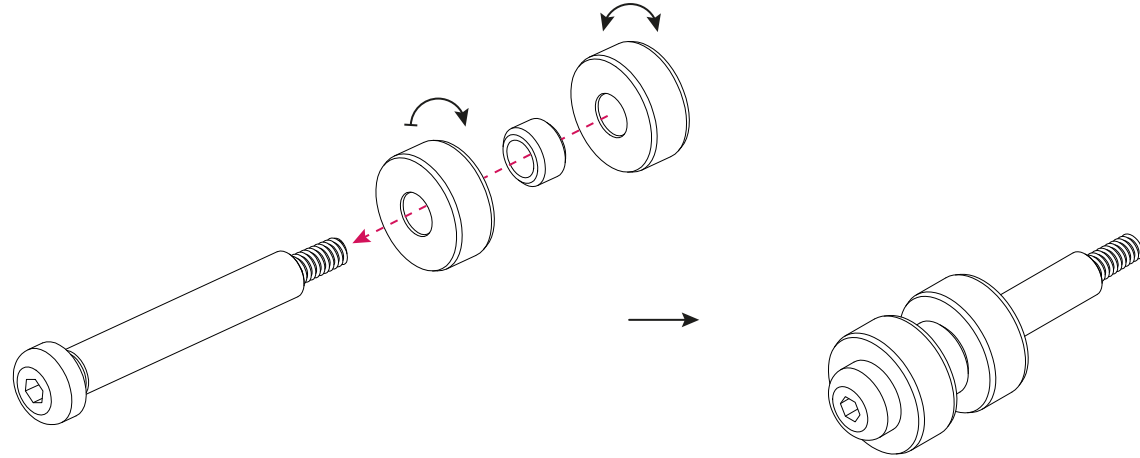
9. Hold the wheel holder base on the back of the patch base and screw it in place with 3 screws (ID 11).



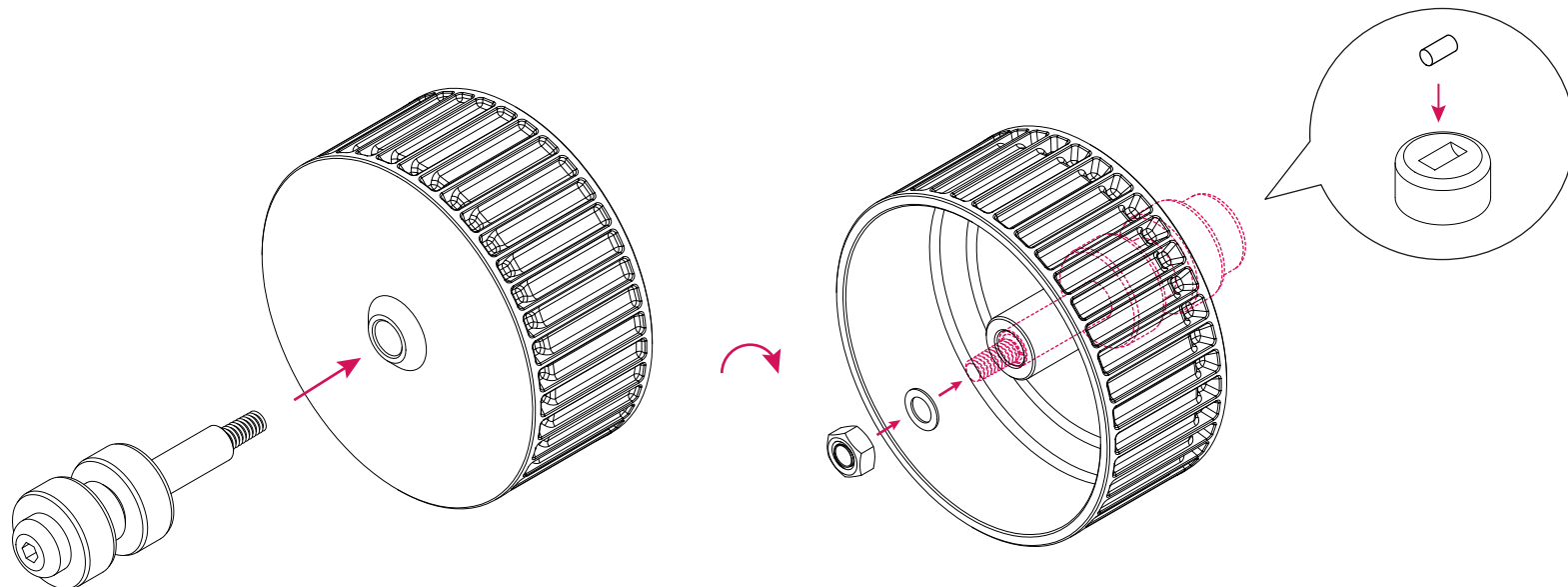
10. Insert two parallel pin (ID 13) in the middle holes. If needed, enlarge the holes using a sharp reamer.



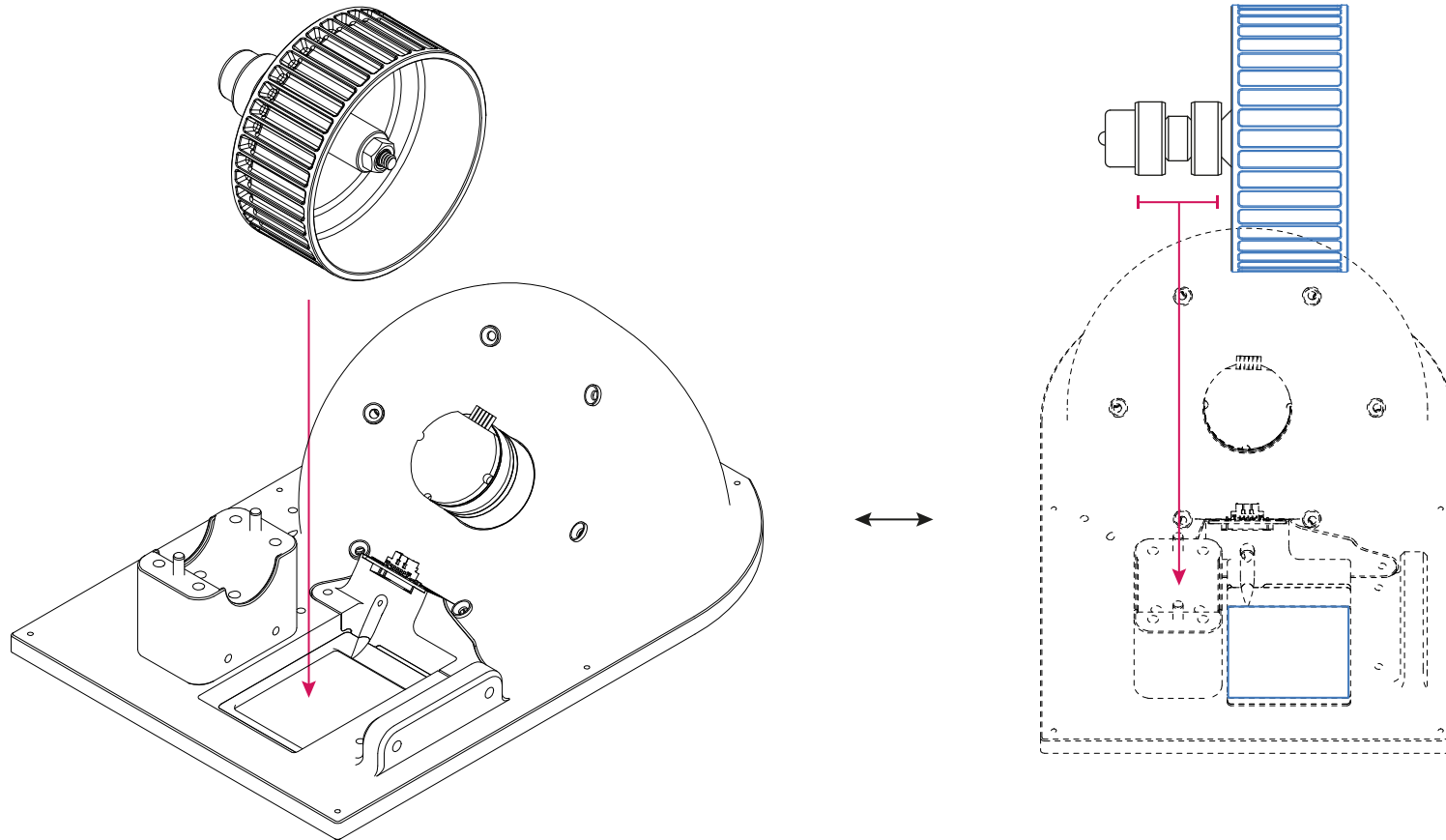
11. Slide the one way bearing, the spacer and the two ways bearing onto the shoulder bolt.



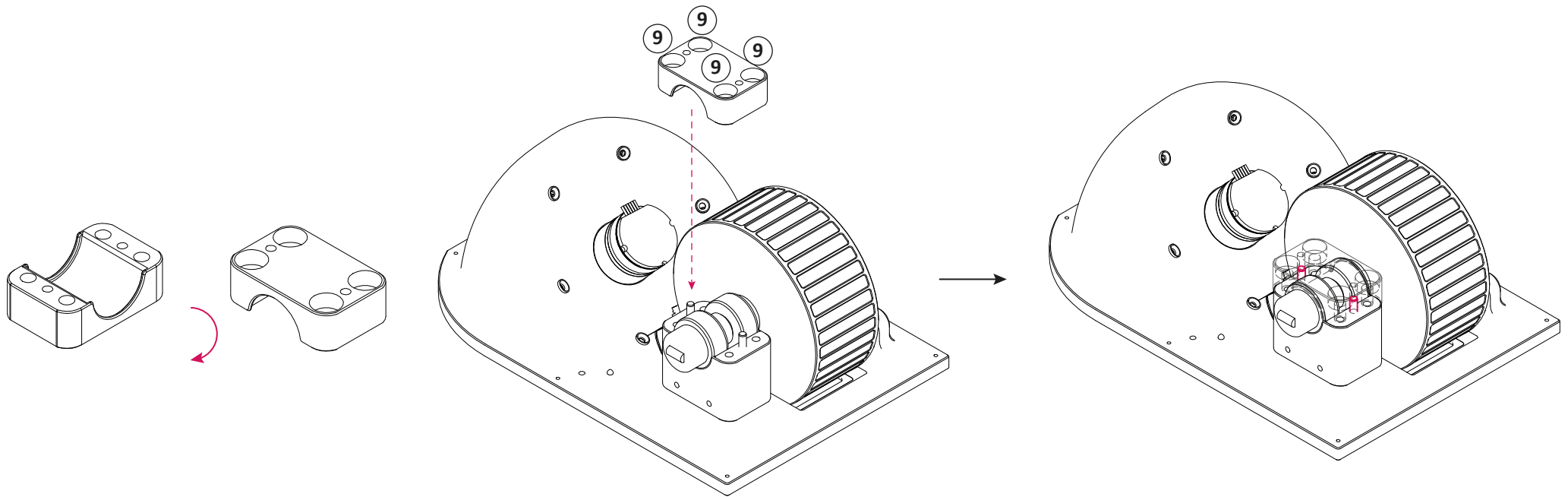
12. Insert the shoulder bolt into the wheel hole and tighten it in place using a lock nut. If needed, enlarge the hole using a sharp reamer. Holding the shoulder bolt, insert the magnet holder on the cap and put the neodymium magnet into place (the magnet would hold its position).



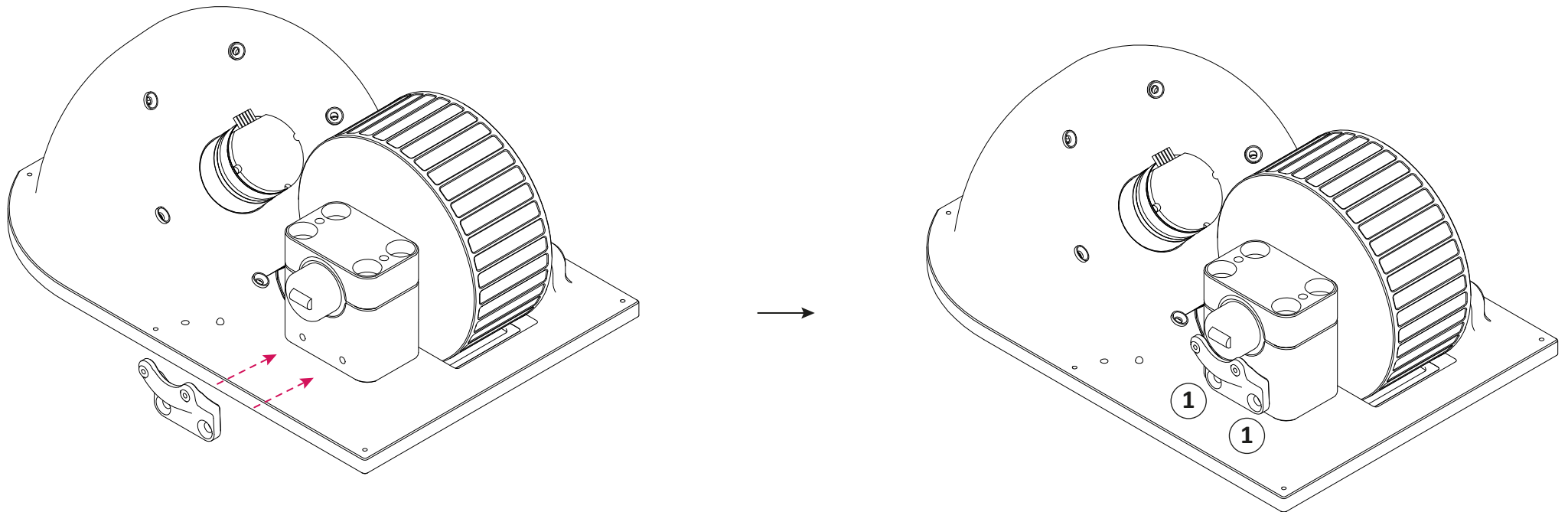
13. Rotate the foraging patch on its back and place the shoulder bolt with the bearings onto the wheel holder base. The wheel should sit within the patch base opening (blue).



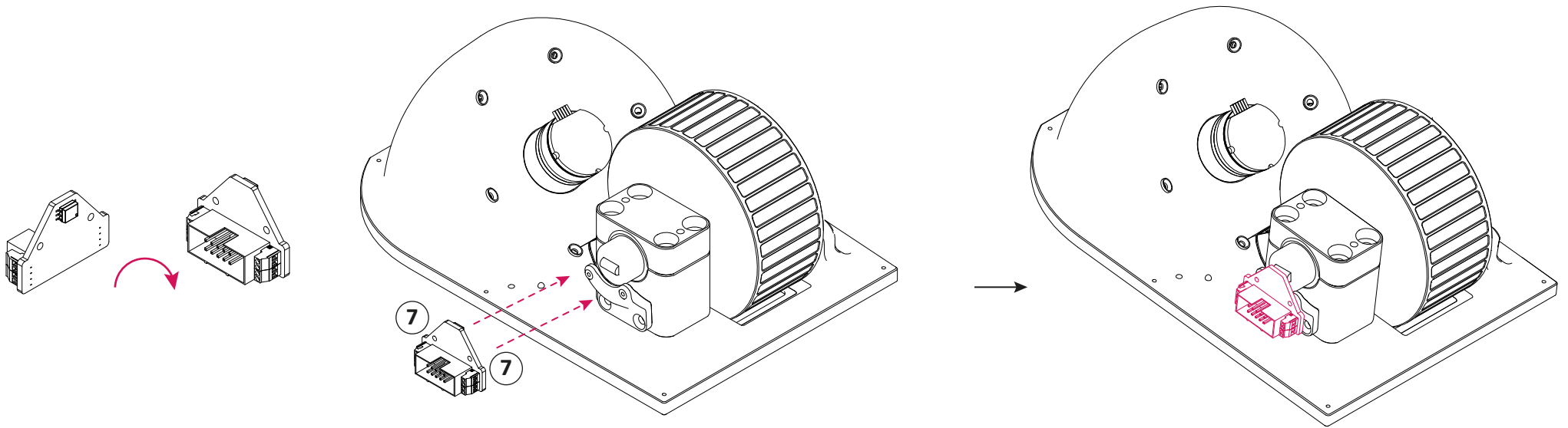
14. Lower the wheel holder top onto the bearing and insert the pins. Carefully align the holder base and top using the pins as well as 4 screws (ID 9). The aim is to obtain an equally spaced gap between the wheel holder base and the top.



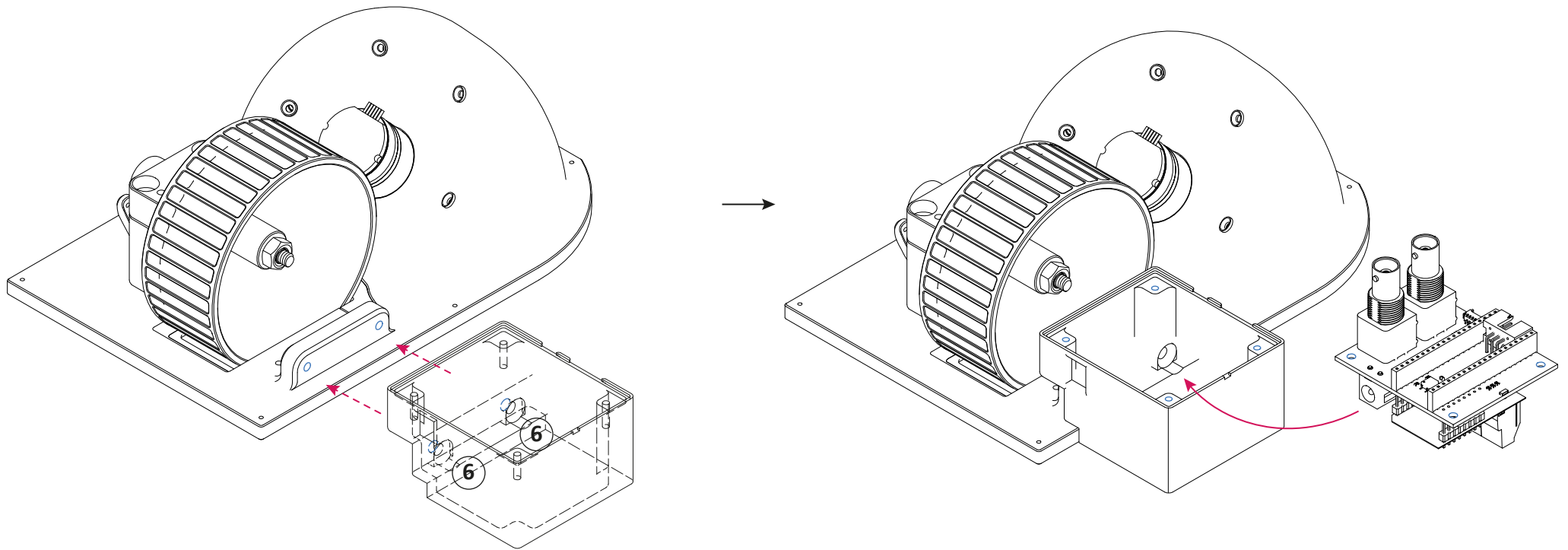
15. Screw the magnetic encoder holder into place (ID 1).



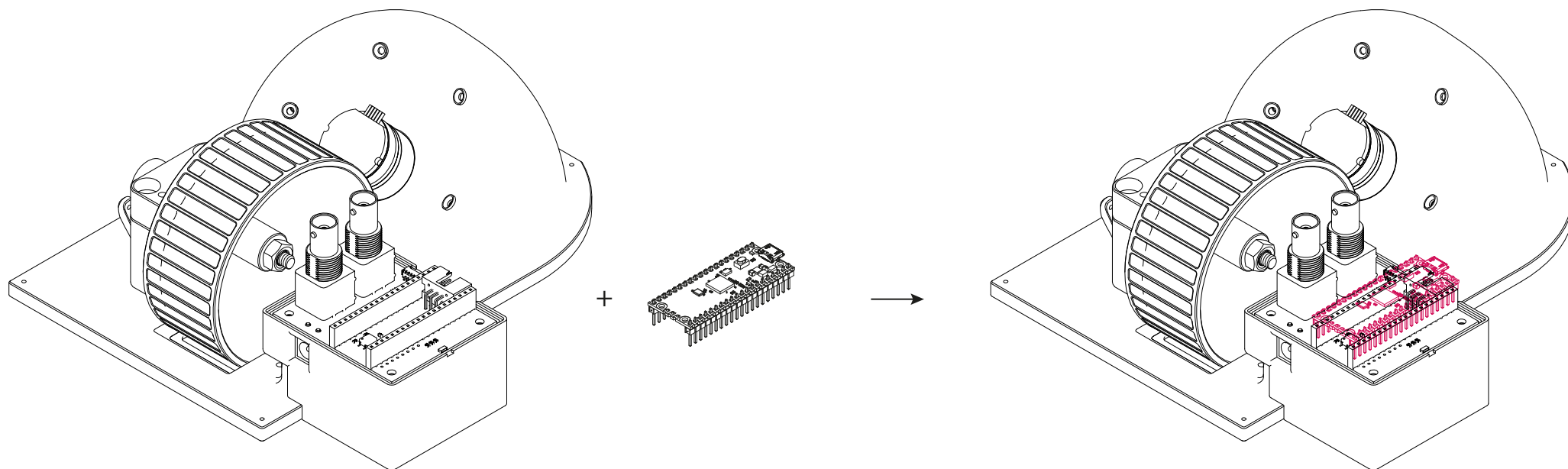
16. Gently place the magnetic encoder onto its holder (ID 7). The magnet should face the magnetic encoder chip.



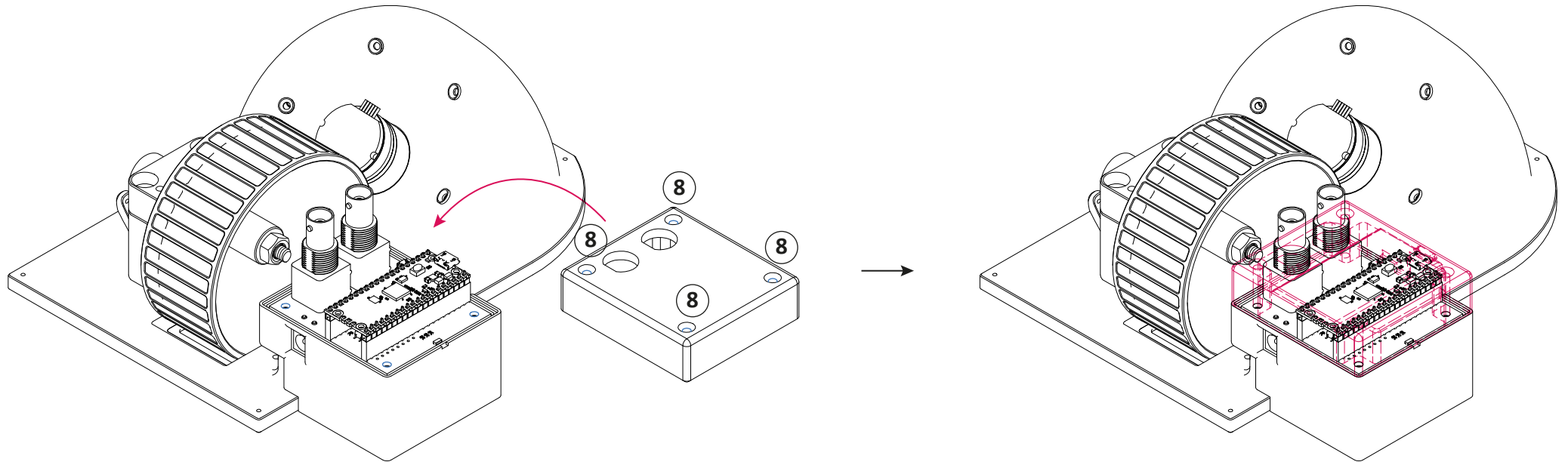
17. Screw the electronic box on the side of the foraging patch base (ID 6) and insert the electronics. The screws need to be inserted from the inside of the box itself.



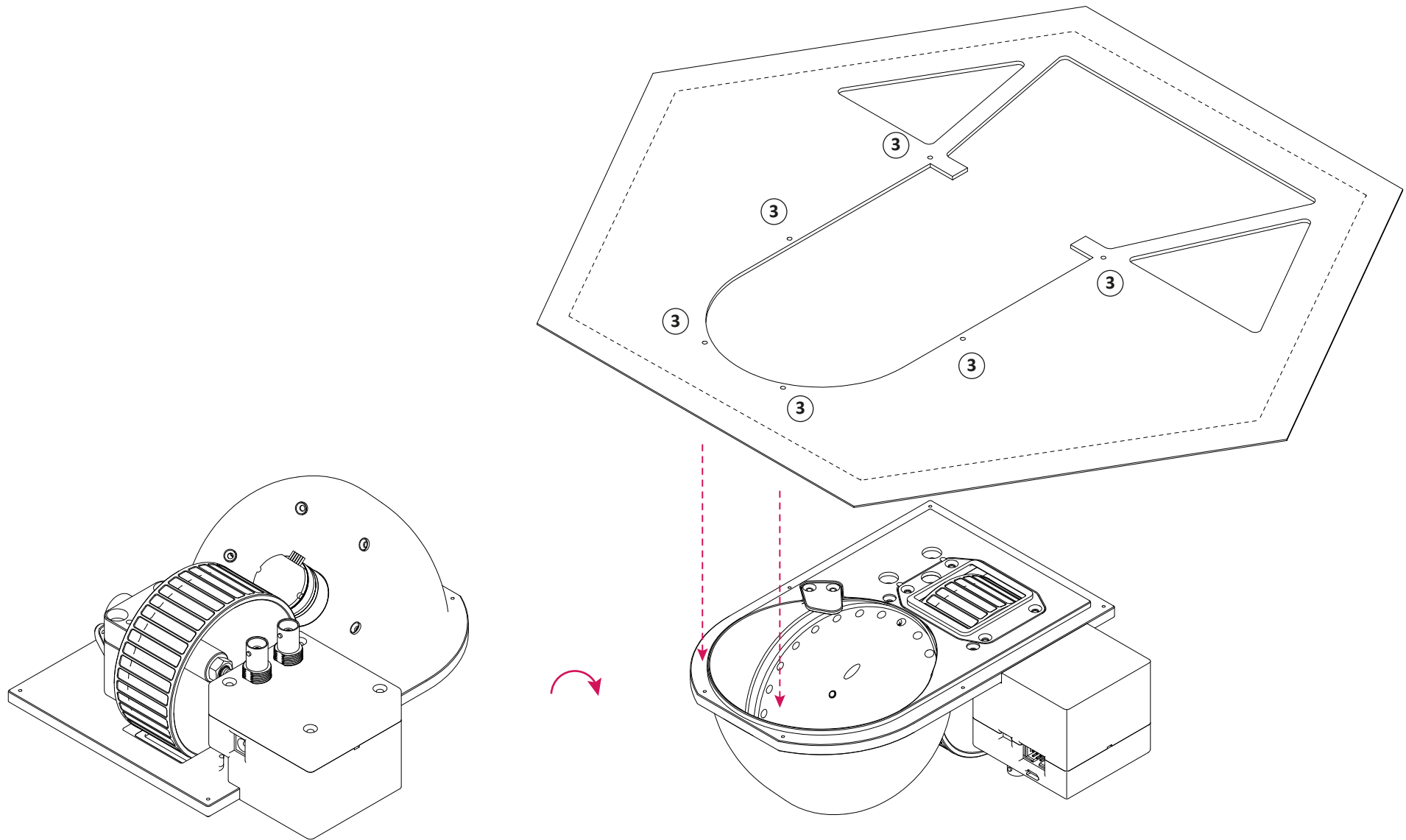
18. Add the Raspberry Pi Pico to the electronics.



19. Close the box with the electronics box lid (ID 8).



20. Attach the assembled foraging patch to the metal hexagon tile using 6 screws (ID 3).



NOTE: make a 1.25mm thick and 18mm wide rim all around the bottom of the metal hex tile using a milling machine.

21. Add the tile orienting its engraving with the foraging patch. Metal tile and patch tile should be flushed and only the wheel exposed.

