

A more practical prototype to print.

R3.4 keeps the R3.3 layout and replaces fragile printing details with broader walls, simpler button parts and a checked P1S print set.

The reason to print this revision

Fewer delicate features to lose during printing and cleanup, fewer loose shims to assemble, and a small button-fit plate to test first.

1 mm

STRUCTURAL WALL TARGET

All 25 print parts passed the sampled thickness screen.
Most rebuilt local walls target 1.2 mm or more.

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CLEAN PRINT MESHES

Each STL is one closed, watertight mesh. All five Bambu projects were test-sliced without mesh repairs.



The familiar size stays: 78 x 150 x 24 mm rigid case. The separate grille bezel extends 1 mm farther forward. The flexible rim and projecting buttons sit outside the rigid case envelope.

This document explains the frozen R3.4 prototype set. The separate 28.2-P1 design is a different branch; keep its parts separate.

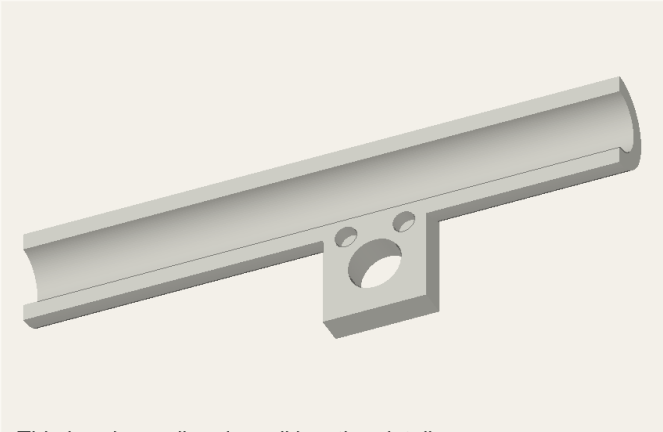
What changed - and why it helps

The changes target print fragility and assembly complexity while preserving the core R3.3 electronics layout and control positions.

AREA	R3.3 ISSUE / DETAIL	R3.4 PRINT REVISION
Shells + locators	Very thin legacy cage strips, narrow casting details and unused locator stubs remained inside the shells.	Removed obsolete details, including a 0.05 mm strip. Restored a nominal 2.2 mm skin under old blind pockets; active openings remain.
Shell closure	A narrow tongue and fine aperture shoulders were poorly suited to this print simplification.	Replaced the tongue with a 2.2 mm nominal butt-joint rim, retaining the existing closure screws and flexible bumper.
Play + volume	Separate cosmetic caps, bond films and small internal carrier features complicated the printed assembly.	Combined each cap with its printed carrier. Former M01, M02 and M03 caps are absorbed, not missing from the print set.
Switch seats	Separate 0.4 mm seat shims and paired 0.1 mm stop shims created tiny pieces to handle.	Integrated the seat and stop geometry into the parent parts. Seat floors total 1.3 mm. Removed fragile front lips and terminal strips.

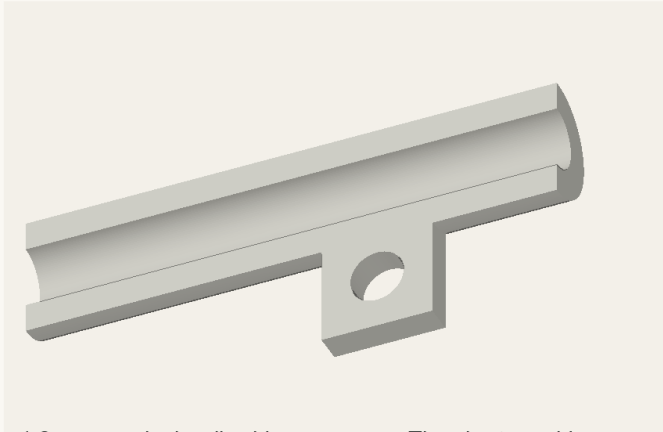
LOWER TALK GUIDE / ACTUAL CAD COMPARISON

R3.3 · BEFORE



Thin bearing wall and small locating details.

R3.4 · AFTER

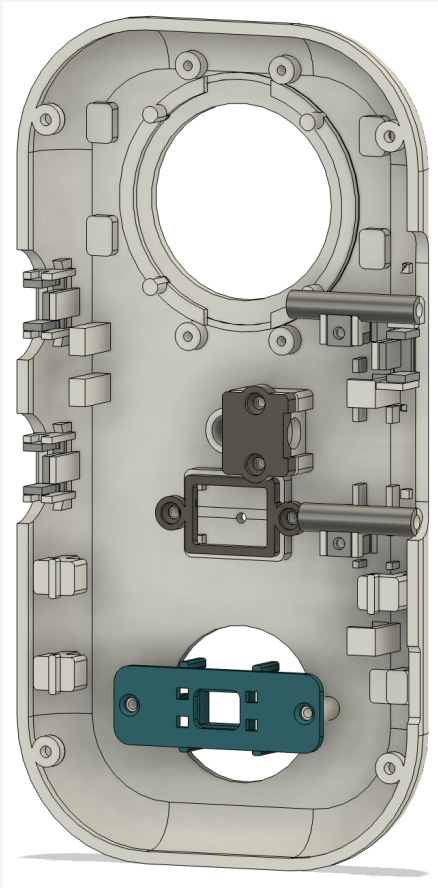


1.2 mm nominal wall; wider screw ear. The shorter guide clears the reinforced mic keeper.

The guide is now 5.0 mm outside diameter with a 2.6 mm bore: a 1.2 mm nominal wall. Broad cheeks replace tiny locating nibs. The shortened lower bearing is 22.0 mm long.

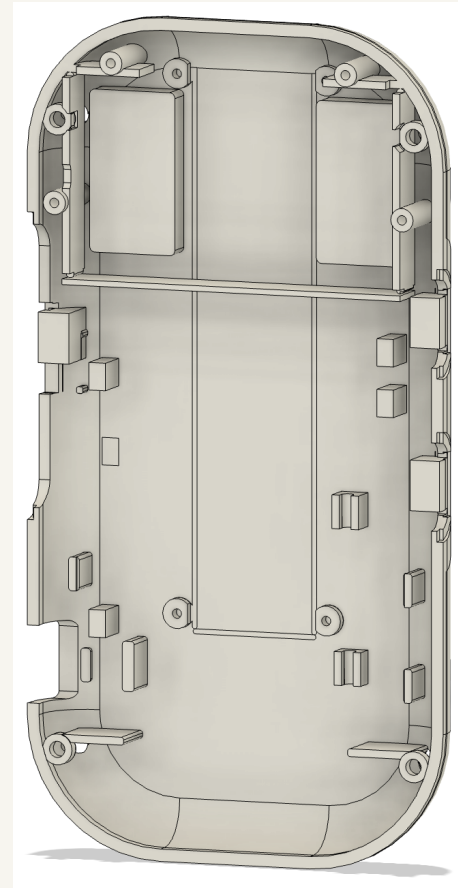
The inside is simpler to assemble

Actual R3.4 Fusion views, with electronics hidden so the printed mounts and retainers can be seen.



FRONT INTERIOR

- 1 Broader guides and keepers.**
The mic and LED keepers are reinforced. Upper / lower guide screws shift 0.8 / 0.6 mm from R3.3; guide pins remain unchanged. The shorter lower guide clears the broader mic keeper.
- 3 Assemble face down.**
Switches register against broad rails; the rear shell completes capture. Keep the front shell face down until the switches are captured. Dry-fit before tightening.



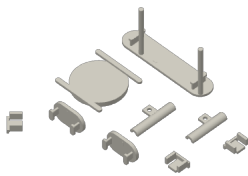
REAR INTERIOR

- 2 Space reserved for wiring.**
A broad 4.4 mm battery-wire channel passes above the upper guide. The cable bridge roof and battery fence are 1.0 mm. Modeled terminal and cable envelopes remain clear.
- 4 Do not add the old shims.**
The former 0.4 mm seat shims and paired 0.1 mm stop shims are already integrated. Adding them again changes seating height and available button travel.

Four main plates. One fit check first.

Open each .3mf as a project in Bambu Studio. Print once at 100% scale; do not print the backup STLs as a second set.

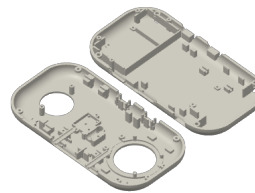
01 Button Fit First



9 parts
49 min
5.5 g PLA

Check the nominal switch fit before the longer shell print.

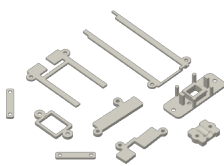
02 Front + Rear Shells



2 parts
6h 24m
72.6 g PLA

Supports included; inspect the layer and support preview.

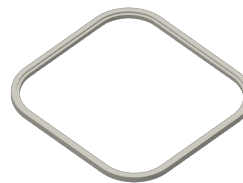
03 Internal Retainers



9 parts
48 min
5.5 g PLA

Keep every ID together for the matching R3.4 assembly.

04 Grille Bezel



1 part
12 min
0.8 g PLA

Prints the bezel only. The woven grille is purchased mesh.

Optional plate 05: two optical fit proxies, about 10 min / 0.3 g. Opaque PLA verifies fit, not illumination. **F01 rim and F02 talk grip:** separate flexible-material STLs; use their own suitable process and profile, not the PLA projects.

Supplied profile: P1S, 0.4 mm nozzle, 0.12 mm layers, 4 walls, 25% infill, automatic supports. Select your actual filament and build plate before slicing. The supplied 55 C textured-PEI setup produces Bambu's PLA bed-temperature warning; follow its door-open guidance or the settings for your actual filament.

Every printed part, measured

CAD bounding size in millimetres. X = device width, Y = device height, Z = device depth in the assembly coordinate system.

ID	PART	X	Y	Z	MIN*	PLATE
P01	Front shell	78.00	150.00	14.51	1.035	02
P02	Rear shell	78.00	150.00	15.65	1.000	02
P03	One-piece play button	29.00	28.40	4.05	1.200	01
P04	Front switch clamp	40.00	16.00	9.40	1.000	03
P05	Talk carrier	29.70	54.00	12.00	1.050	01
P06	One-piece volume up	6.65	18.80	11.00	1.000	01
P07	One-piece volume down	6.65	18.80	11.00	1.000	01
P08	Talk switch cradle	5.05	9.00	7.15	1.000	01
P09	Volume-up switch cradle	5.05	9.00	7.15	1.000	01
P10	Volume-down switch cradle	5.05	9.00	7.15	1.000	01
P11	Lower speaker keeper	23.20	4.40	1.40	1.050	03
P12	Upper speaker keeper	23.20	4.40	1.40	1.050	03
P13	Microphone keeper	29.00	13.80	1.85	1.039	03
P14	LED keeper	12.80	17.20	3.10	1.201	03

Quantity: one of each part ID. Dimensions describe each complete part, including its mounting ears, posts or other extensions. They are not the thickness of the part and are not the same as the dimensions of the entire assembled device.

*** MIN is a sampled wall-screen result.**
The minimum column reports the smallest accepted surface-normal chord in the screen, rounded to 0.001 mm. It is not a manufacturing tolerance or a certified global minimum. Keep the CAD / STEP as the geometry reference; this table is a readable size summary.

Retainers, rim and optical fit parts

The two flexible pieces and two optical proxies are included in the 25-part inventory, but are separated from the 21-part rigid PLA set.

ID	PART	X	Y	Z	MIN*	PLATE
P15	Lower antenna frame	33.40	62.85	2.63	1.000	03
P16	Upper antenna frame	33.40	40.60	1.20	1.200	03
P17	Lower talk guide	22.00	9.10	2.50	1.198	01
P18	Upper talk guide	24.70	9.30	2.50	1.199	01
P19	Battery keeper 1	15.80	35.60	2.00	1.399	03
P20	Battery keeper 2	15.80	37.60	2.00	1.399	03
M04	Printed grille bezel	48.00	50.00	1.65	1.200	04
F01	Flexible rim	80.70	152.70	24.38	1.187	Flex
F02	Flexible talk grip	1.30	54.00	12.00	1.300	Flex
L01	Lens fit proxy	5.40	5.40	3.92	1.350	05
L02	Light-guide fit proxy	4.20	4.20	5.55	1.800	05

What “at least 1 mm” means here

The target applies to meaningful printed structural walls and features. It does not prohibit a small edge radius, fine embossed marking, a clearance gap or a purchased film thinner than 1 mm. Mesh, adhesive films, pads, screws and electronics are not printed parts in this set.

Size and fit are different questions.

The rigid case remains 78 x 150 x 24 mm. F01 spans about 80.70 x 152.70 x 24.38 mm; buttons also project beyond the case. The bezel extends 1 mm farther forward than R3.3. The printed bezel has a 1.2 mm lip and 1.65 mm plate. Printed size depends on material, orientation, supports and calibration; verify critical interfaces on the print.

Good evidence for a fit prototype

The package has been checked from native CAD through exported meshes to Bambu Studio. The next proof is the physical assembly.

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PART GEOMETRY

Valid single-solid STEP and single closed, watertight STL for every print ID.

225,102

SAMPLE STARTS

No accepted wall-screen hits below 1 mm across the final 25 parts.

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MOTION POSITIONS

Five positions per button; no unintended intersections in the modeled travel sweep.

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PROJECTS SLICED

Every expected part in bounds, geometry matched and mesh-repair counters zero.

Before calling the prototype successful

- 1 Switch fit + return**
Install the actual four switches. Press the talk button at both ends; verify free return, seating and useful travel on every control. Supplier sizes remain nominal.
- 2 Closure + routing**
Dry-fit the screws, PCB, battery and wiring. Inspect screw-tip clearance, pinched wires and connector access before tightening the case.
- 3 Light, audio + radio**
Use the real optical material, microphone, speaker and mesh. Check light output, sound and RF performance with the Taoglas antenna installed.

Remaining model limits: U6 is still a 24 x 24 x 2.4 mm placeholder because its solid was missing from the supplied PCB model. The final populated PCB, real harness and switch terminal / travel measurements still need physical confirmation.

How the checks were made. The wall screen casts inward normal chords to an opposing face (normal dot < -0.98), excluding edge / mesh slivers at or below 0.02 mm. A fine STEP mesh was used where possible; P01 used Fusion's High STL after independent tessellation failed. Selected near-threshold witnesses were also checked against exact CAD. New static collisions and reserved terminal / cable envelopes were also checked. This is not a strength, fatigue, drop, thermal or production qualification.

Traceable local sources: committed_inventory.json; final_changes.json; independent_part_export_verification.json; native_thickness/parts; native_motion_samples.json; reserved_clearances.json; slice_checks/final_verification.json; PRINT_THIS/START_HERE.txt. Frozen print package: **Walkie_One_28_R3_4_PRINT_THIS.zip**. Keep this R3.4 set separate from 28.2-P1.