V19 ENTERPRISE NCC-1701

Assembly manual

Model author: zajic73

MakerWorld profile - zajic73

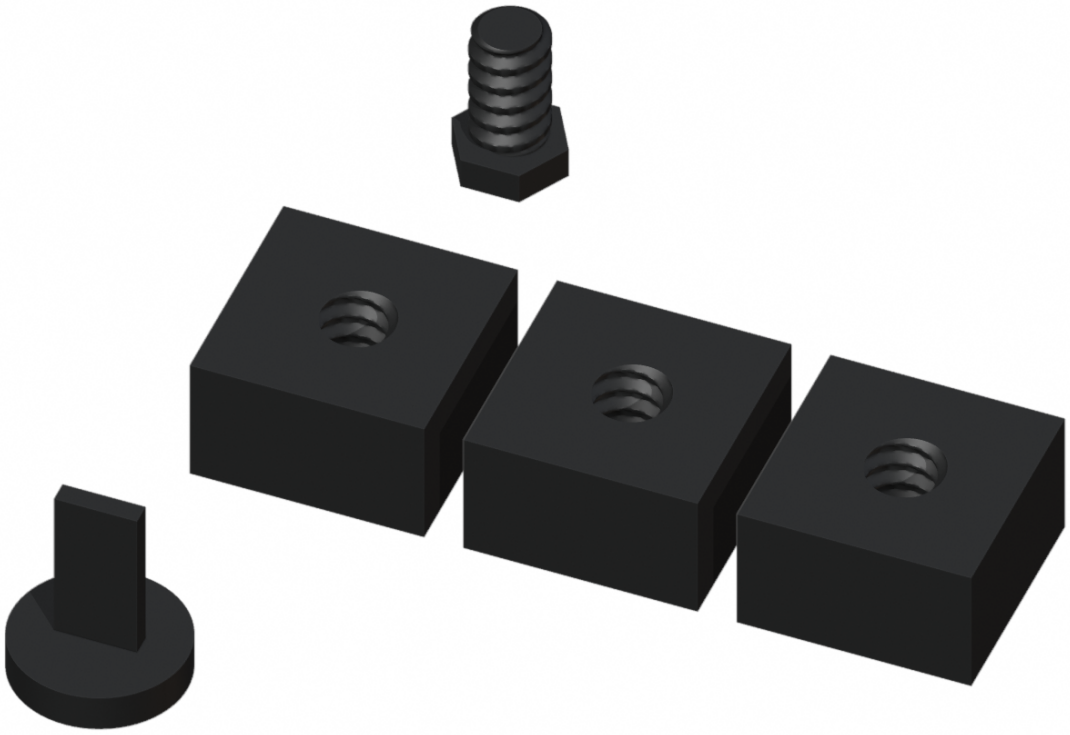


Enterprise NCC-1701, 600 mm. V19 contains 122 assembly parts plus 5 test/tool parts on 17 single-color plates, including 27 assembly screws. All screws are printed; no metal screws or nuts are required.

English part names match the 3MF objects and STL files. L = left, R = right. The former Czech P is now R.

Colored highlights in the illustrations are explanatory, not filament assignments.

01 Test the fit first

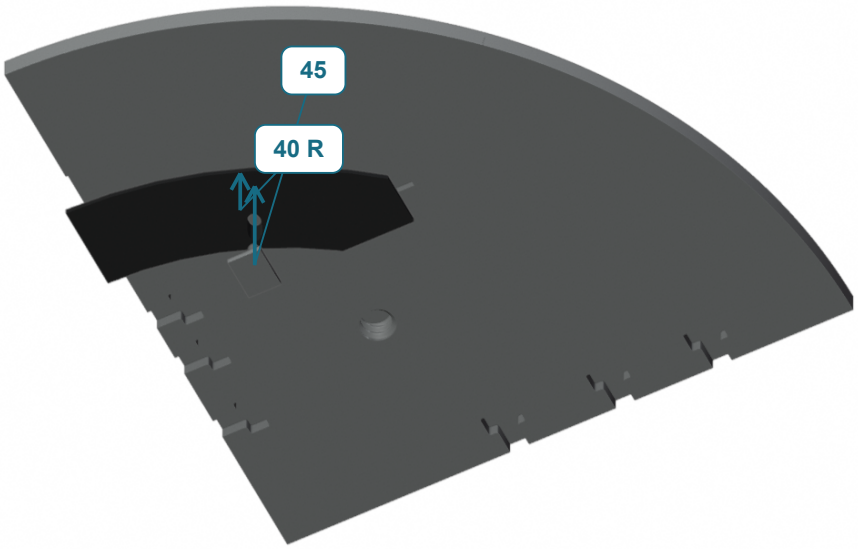


On plate 1, try screw 62 in thread blocks 61. The model uses 0.35 mm thread clearance. Prepare screwdriver 60 and a soft work surface; remove supports and burrs.

Test uncertain fits before printing large parts. Do not force a joint. Printed threads are T8 × 2.5, not metal M8.

Digital checks do not replace a physical fit test.

02 Saucer lettering

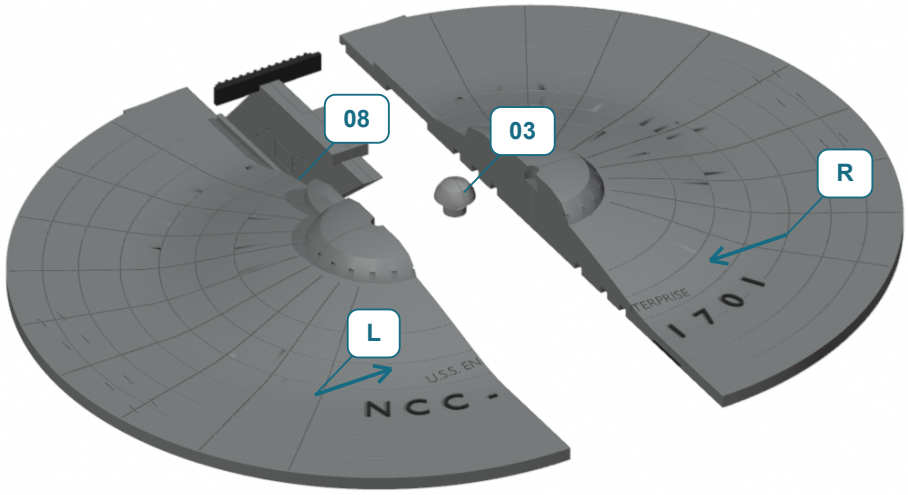


Place the front upper sectors 01 face down on a soft surface. Insert black lettering strips 40 L/R from inside.

Only then insert gray zero keeper 45 behind the right strip; its projection forms the center of the zero. Hold the inserts in place until the lower saucer captures them.

Keep left/right parts matched; do not bend the saucer to insert lettering.

03 Upper saucer around the neck

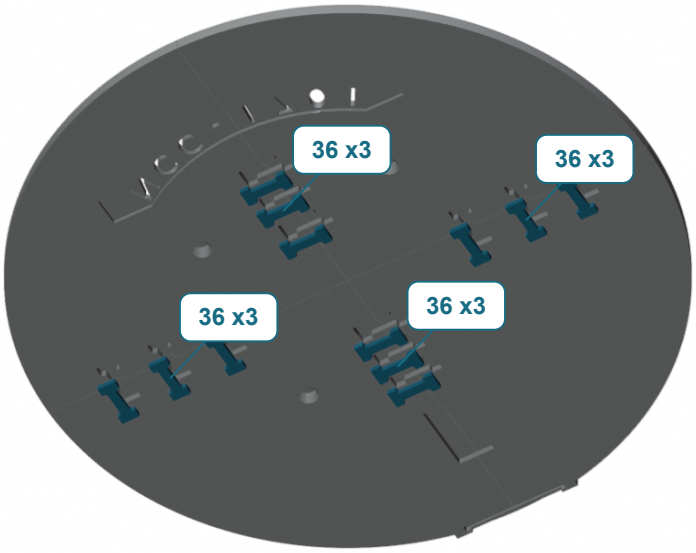


Prepare all four upper sectors 01, both sensor halves 03 and neck halves 08. Lettering 40/45 must already be installed.

Bring the sectors inward from the sides around the sensor and neck. Capture impulse grille 04 in the rear pocket.

Support the assembly and keep its inner face accessible for the I-keys. These parts use no old flexible snap pins.

03b Twelve upper I-keys

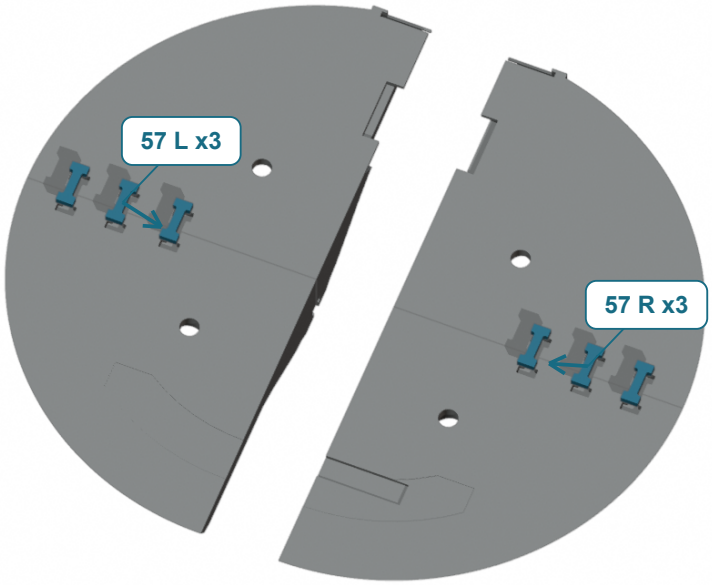


Insert three keys 36 across each sector joint, from the inner underside: twelve identical solid keys in total, 20 × 8 × 2.7 mm. Their wide ends bridge the joints and prevent separation.

Hold them until the lower saucer captures them. Design clearance is 0.25 mm per side.

The blue highlight means gray PLA in the print project; test the fit without forcing.

03c Join each lower half

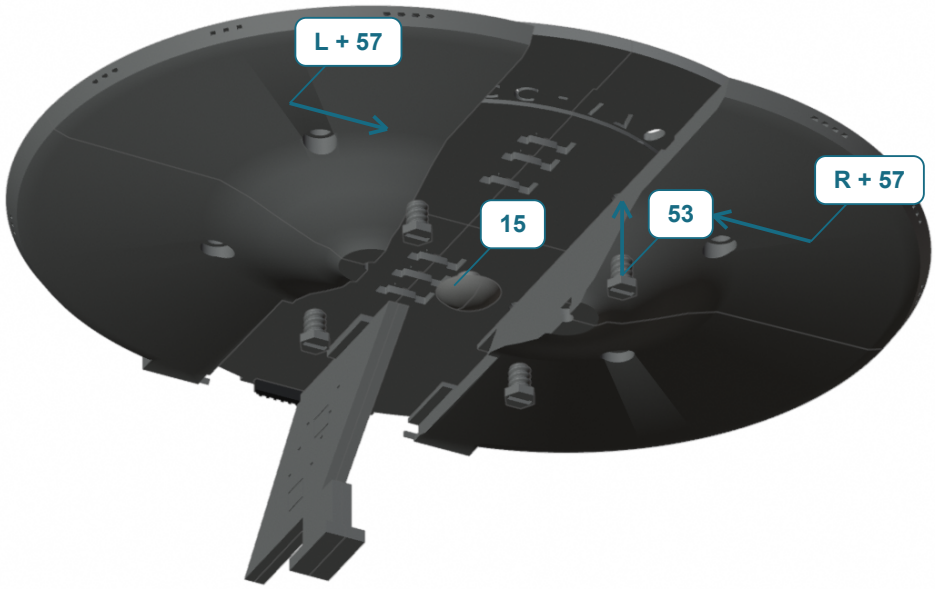


Join the left front and rear lower sectors 02 with three keys 57 L, inserted from the flat inner face. Repeat on the right with three 57 R keys.

This creates two assemblies, left and right; no extra key joins these two assemblies. All six keys lie below the mating plane.

Support both sectors with the inner face upward until captured. Keys 57 are 20 × 8 × 3.2 mm, with 0.30 mm side clearance; do not confuse them with thinner 36.

04 Slide the lower saucer inward

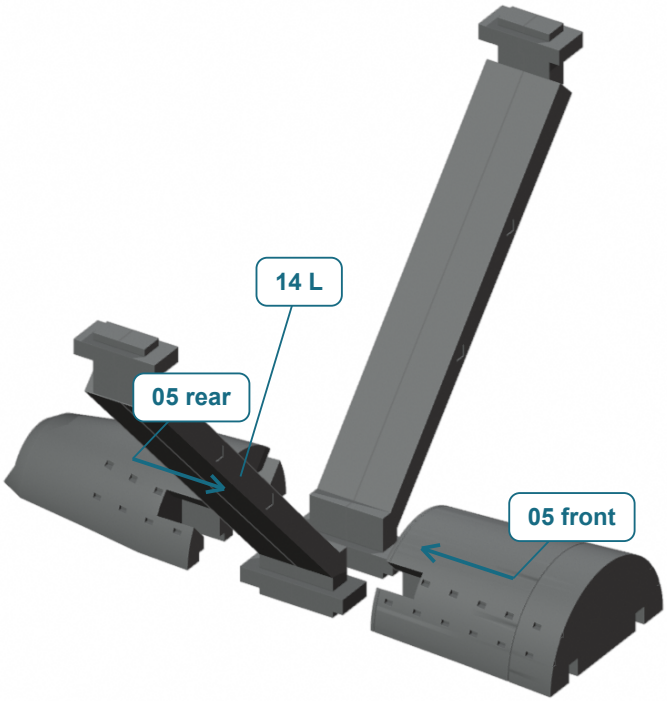


Prepare both lower sensor halves 15. Slide the complete left and right lower assemblies 02+57 horizontally inward around the sensor and neck.

Do not lower them vertically over the angled neck. Check grille 04, twelve keys 36, six keys 57, lettering 40 and keeper 45.

Keeper 45 fits the right front lower pocket. Only after seating, insert and lightly tighten all four screws 53 from below with tool 60.

05 Rear hull and pylons

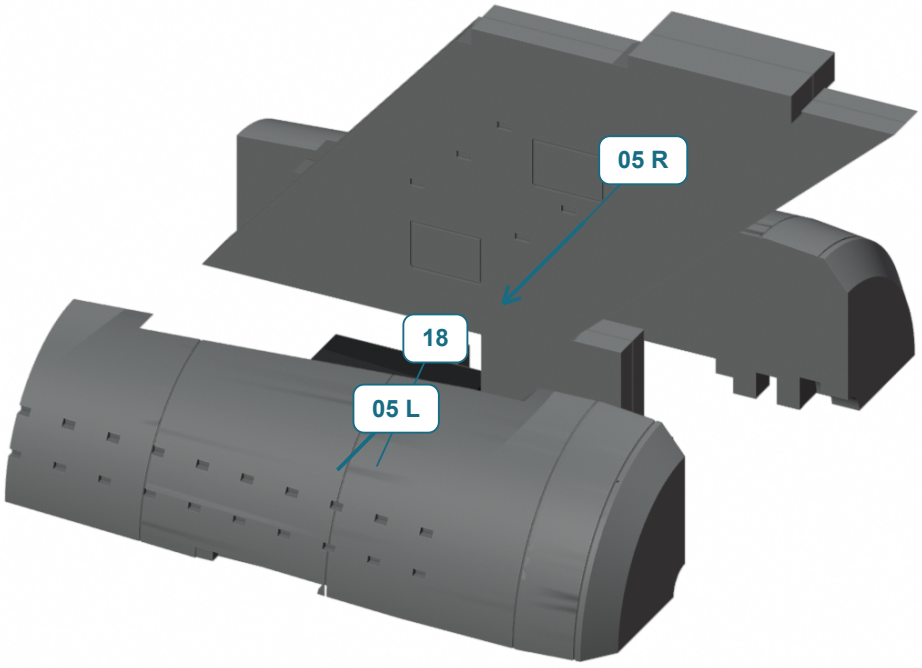


Join the front/rear halves of each pylon 14 L/R. Upper anchors face the nacelles; lower widened anchors fit inside the hull.

Slide upper hull 05 “before_pylons” lengthwise from the bow and “behind_pylons” from the stern. Do not lower the upper hull vertically over angled pylons.

Insert both hangar halves 07 from below into the rear upper hull. Hold until the lower hull closes it.

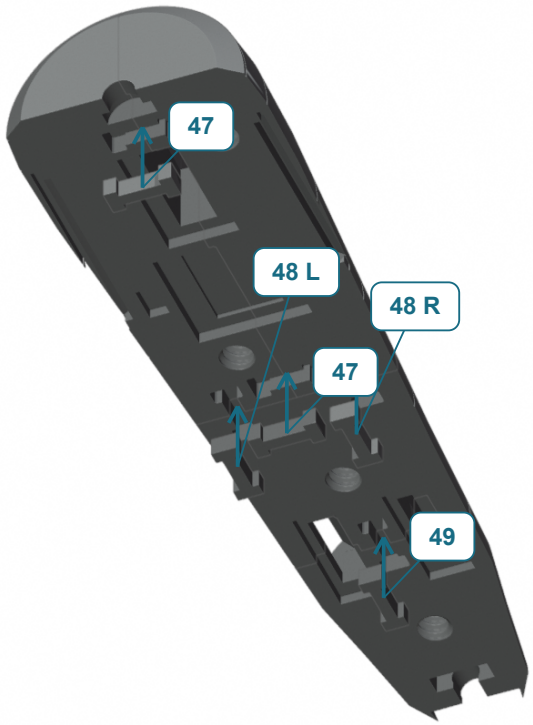
06 Front hull and stand socket



Prepare black socket 18 with its opening downward; do not attach the stand post yet. Bring the left and right front upper hull halves 05 inward from the sides around the lower neck anchor 08 and the wide head of socket 18.

Prepare gray alignment keys 44 L/R for the pockets between upper and lower front hull. They prevent sideways movement and are not disposable supports.

06b Upper hull keys

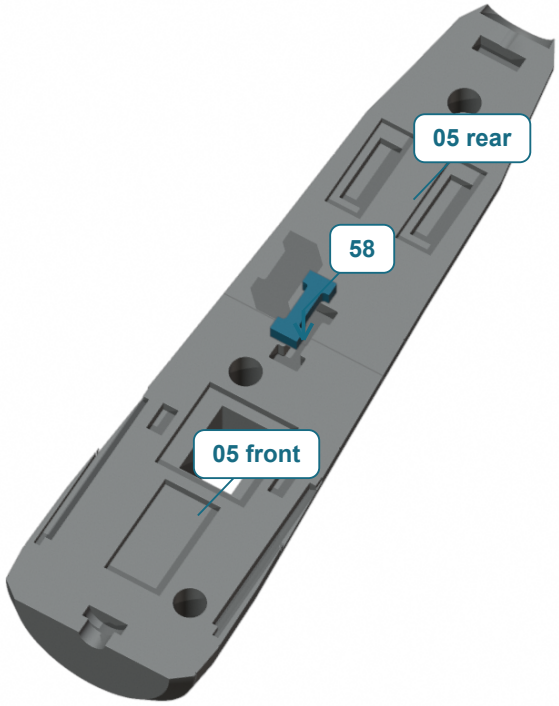


Complete the upper hull around the neck, socket and pylons before inserting keys. From below, insert two keys 47 across the left/right front upper seam, two keys 48 L/R across the front/rear upper seam, and optional key 49 at the rear seam by the pylons.

Also use keys 44 L/R. Hold the keys until the lower shell captures them.

Do not insert keys before the hull sections have slid into place.

06c Lower hull I-key

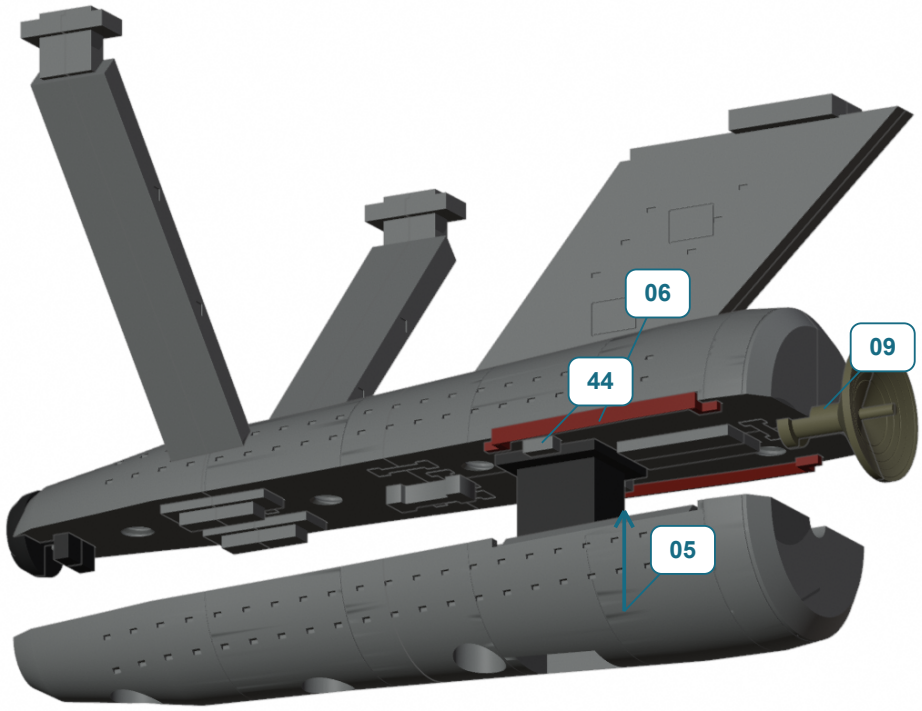


Join the front and rear lower hull sections 05. Insert solid I-key 58 from the inner face into their shared pocket.

It sits below the mating plane and prevents separation and rotation without flexing or snapping. Support both sections and lift the joined lower hull vertically into place in step 07; the upper hull captures the key.

Key 58: 20 × 8 × 4.4 mm, 0.30 mm side clearance; print flat and solid. Old pins 38 and tests 63/64 are not used.

07 Close the secondary hull

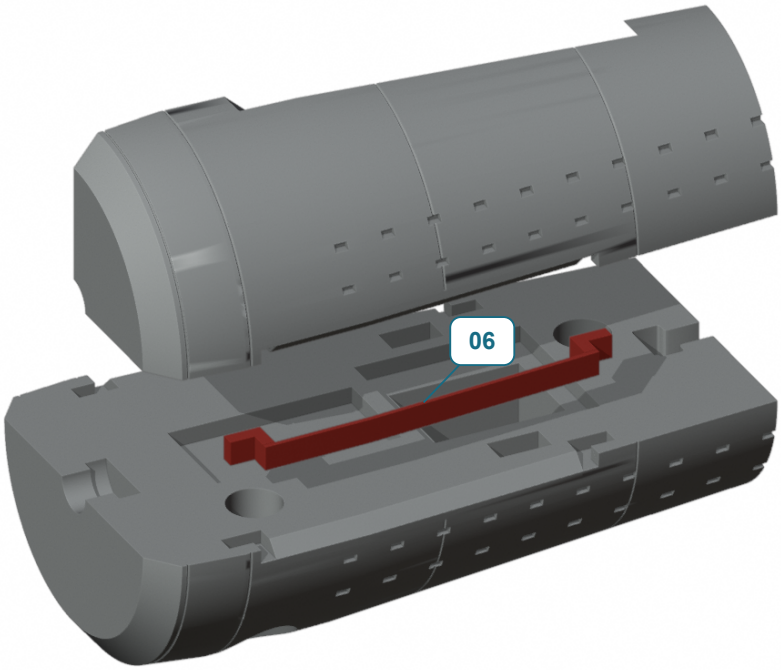


Prepare both deflector halves 09, red stripes 06 and keys 44. Load the deflector and stripes from below into the upper assembly.

The lower front/rear hull must already be joined by key 58. Raise this lower assembly vertically from below.

Check every captured item: neck, socket 18, pylons, deflector, hangar, stripes, keys 44/47/48 and optional 49. All mating surfaces must seat; never use screws to pull parts past an obstruction.

07b Capture the red stripes

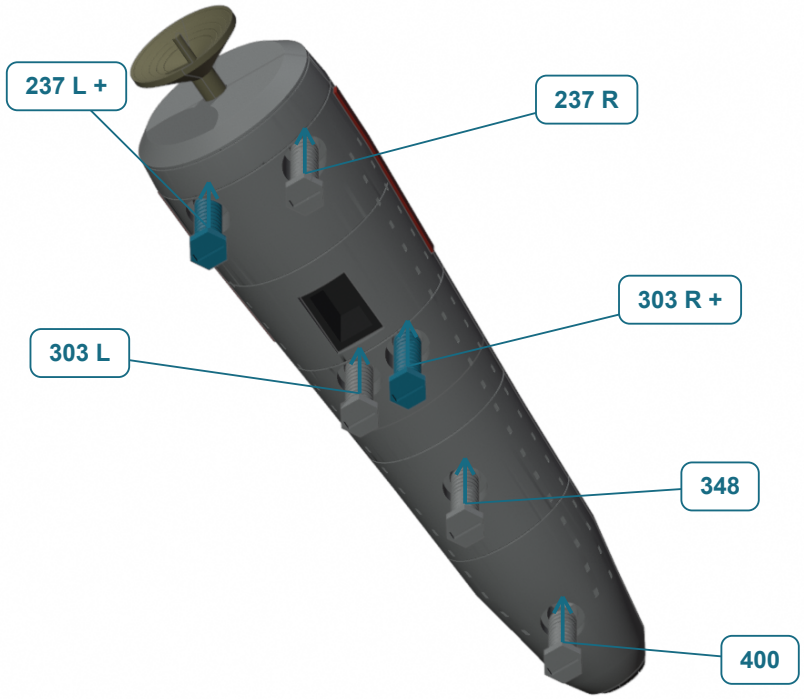


Stripes 06 have solid end tabs, not flexible clips. Place each stripe in its matching left/right open pocket before closing the front hull.

The lower shell captures the ends; screws 51 then secure the shells. Do not bend the tabs.

Use stripes and the three front hull pieces from this project together. Print the stripes on the supplied flat edge, 4 mm high; they were sliced without supports.

08 Six hull screws

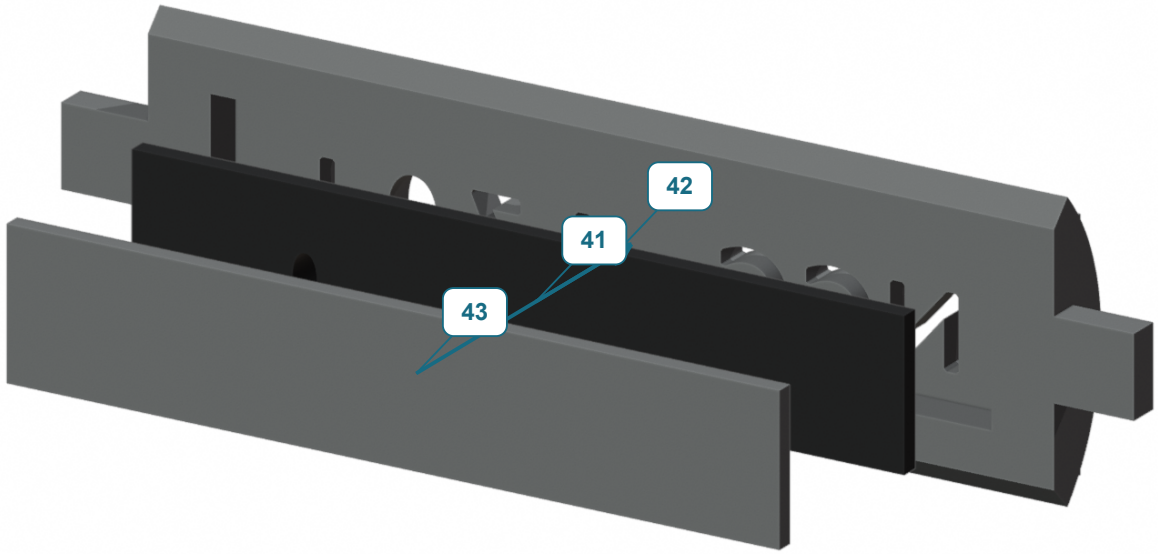


Use four screws 51 in the front hull: 237 R, 237 L, 303 L and 303 R. The added 237 L and 303 R are highlighted blue with a +, but print gray.

The rear hull uses screws 348 and 400. Insert from below and tighten alternately, only until the recessed heads seat, using tool 60.

The numbers indicate position, not thread size. Thread clearance is 0.35 mm; do not overtighten or substitute metal M8 screws.

09 Nacelle lettering cassette

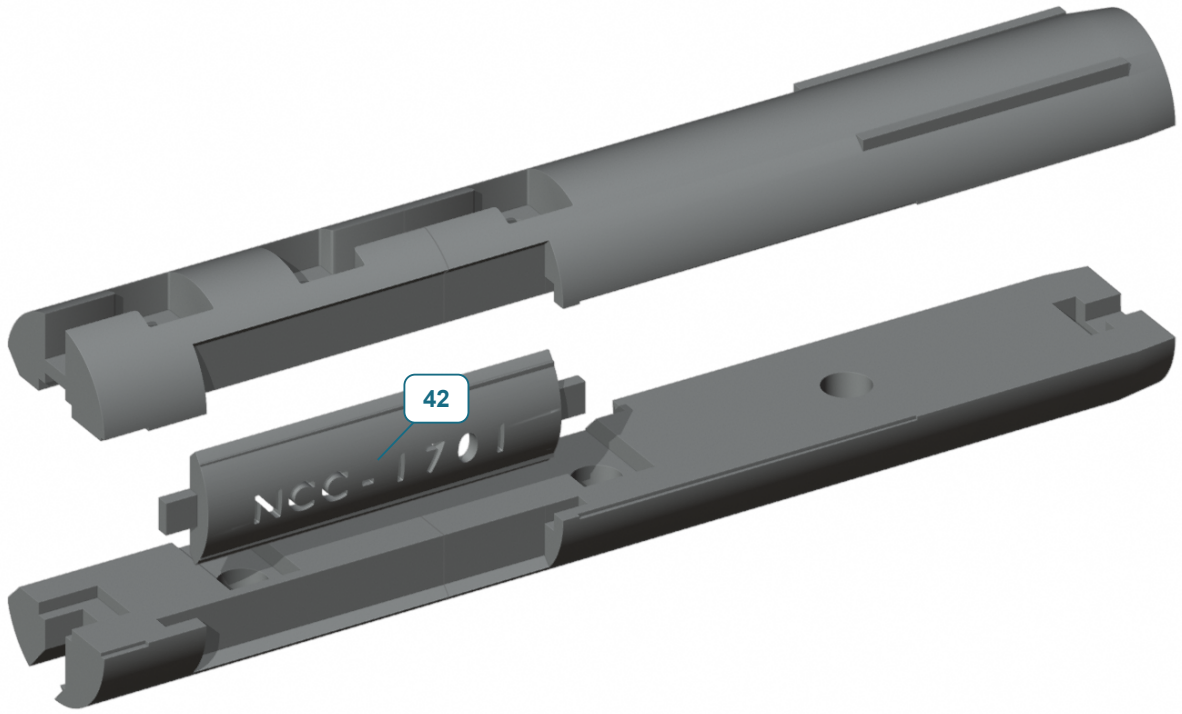


Turn gray panel 42 with its inner face toward you. Insert black lettering 41 straight from inside through the letter openings.

Then insert gray zero keeper 43 in the same direction; its projection passes through the black carrier to form the center of the zero. Hold 42+41+43 together until the nacelle halves capture them.

Repeat for the other side. Insert lettering into the separate panel, not through an assembled nacelle wall.

09b Capture the cassette end tabs



Panel 42 has two solid end tabs. In step 12, place them into the matching open pockets and bring the other nacelle half into position.

The tabs are captured inside; do not slide or snap them over an edge. The long thin retaining lip has been removed.

Use panels 42 and the middle/rear shells 10 from this project together; the pockets are not compatible with V16 panels.

10 Check the finished lettering

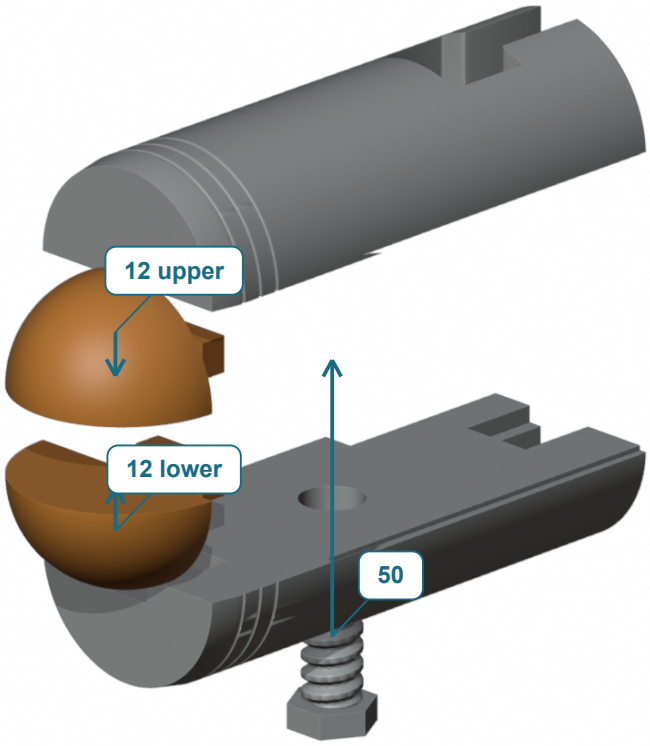


The face should show black characters and a gray center in the zero, with no bulging carrier. The solid end tabs retain the cassette between the screwed nacelle halves without glue.

Check L/R on all three pieces before closing the nacelle. Install keeper 43 only after lettering 41.

The design clearance around letters is 0.20 mm; verify the fit on a small printed set first.

11 Nose block and Bussard collector

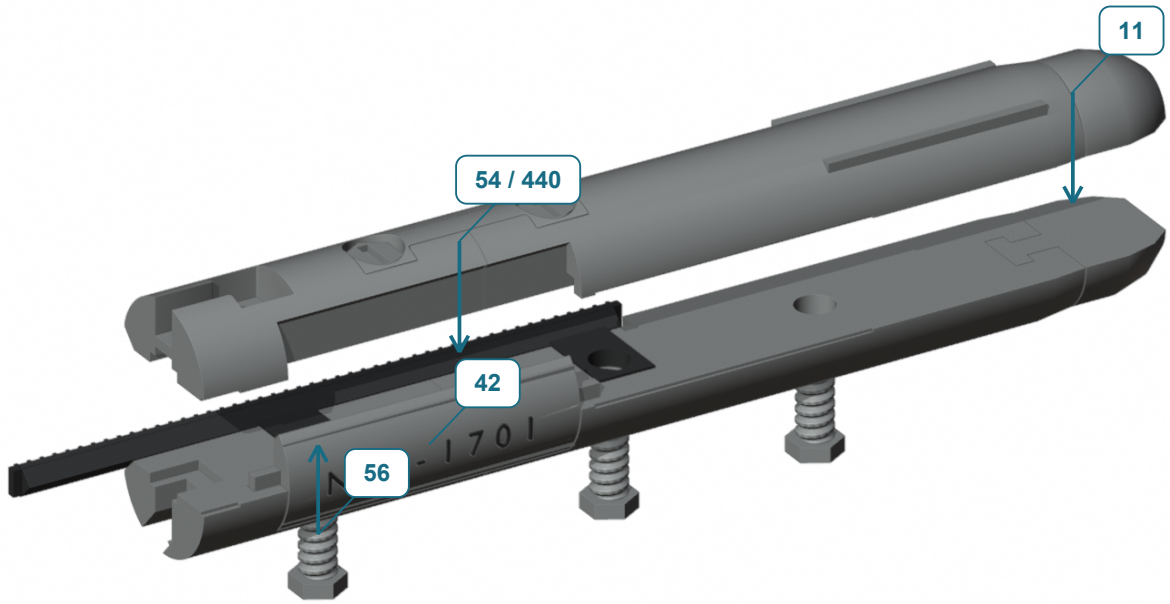


Prepare upper/lower nose shells 10 and both orange collector halves 12. Each collector half has a solid T-anchor.

Place the anchors in the open inner pockets, join the upper/lower shells and collector halves, then fasten the nose block from below with its front screw 50. Install the collector before closing the shells; it does not snap into an assembled nacelle.

Repeat on the other side. Old pins 32/33/46 are not used.

12 Middle and rear nacelle block

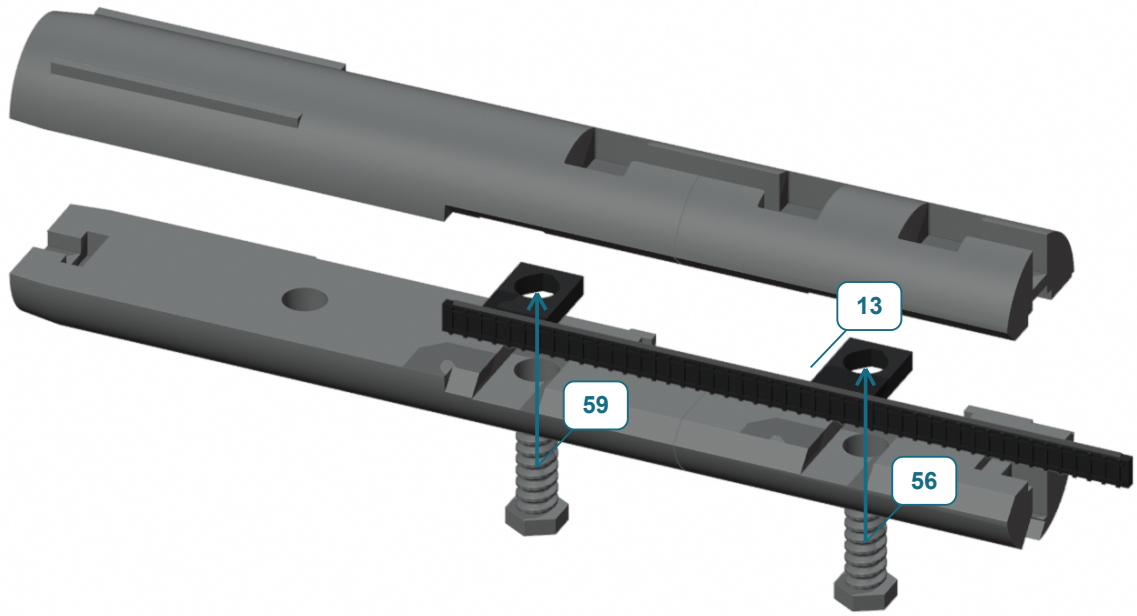


Join the upper middle/rear shells 10 with bridge 54 at position 440, inserted from above and secured by two screws 55/440. Capture lettering cassette 41+42+43 and both rear cap halves 11 inside.

Place the two solid lugs of grille 13 into their pockets, then close the lower shells. Screw 56 passes through the front lug and screw 59 through the rear lug.

Also install the rear screw 50. Tighten gently; old snap pins 37 are not used.

12b Secure the inner grille

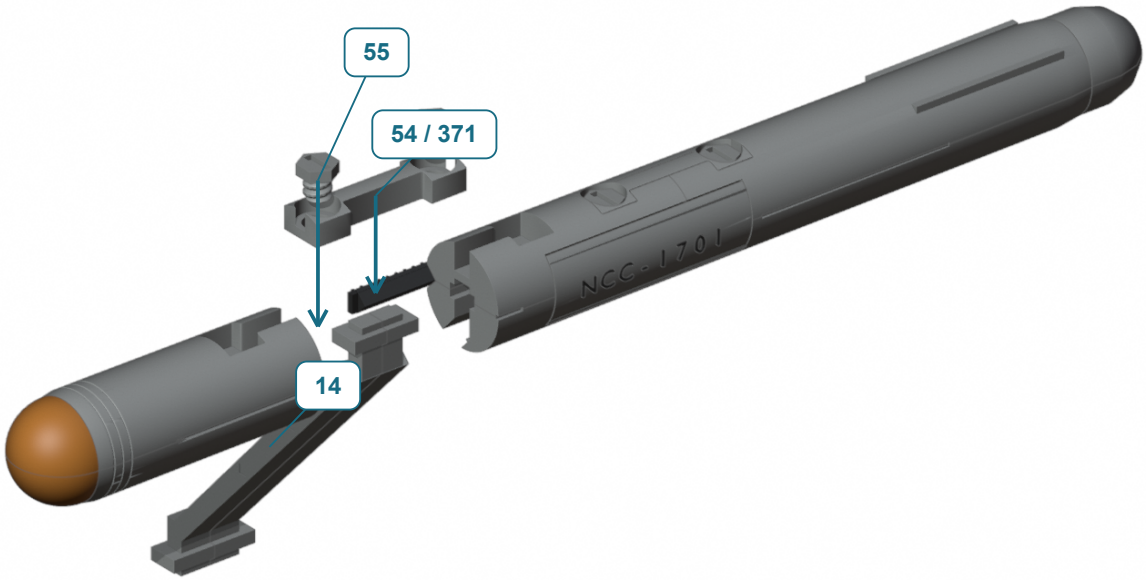


Grille 13 belongs on the inner side of the nacelle. Its two solid lugs are 4 mm thick; the shell seat is open and sloped, with no long retaining lip.

Align the lugs with the screw holes before closing. Screw 56 uses the front lug, screw 59 the rear lug; both enter from below and engage the upper shell.

Shells must seat and the grille must lie straight before tightening. Print the grille ribbed face down; other internal pockets may need local supports.

13 Join the nacelle around its pylon

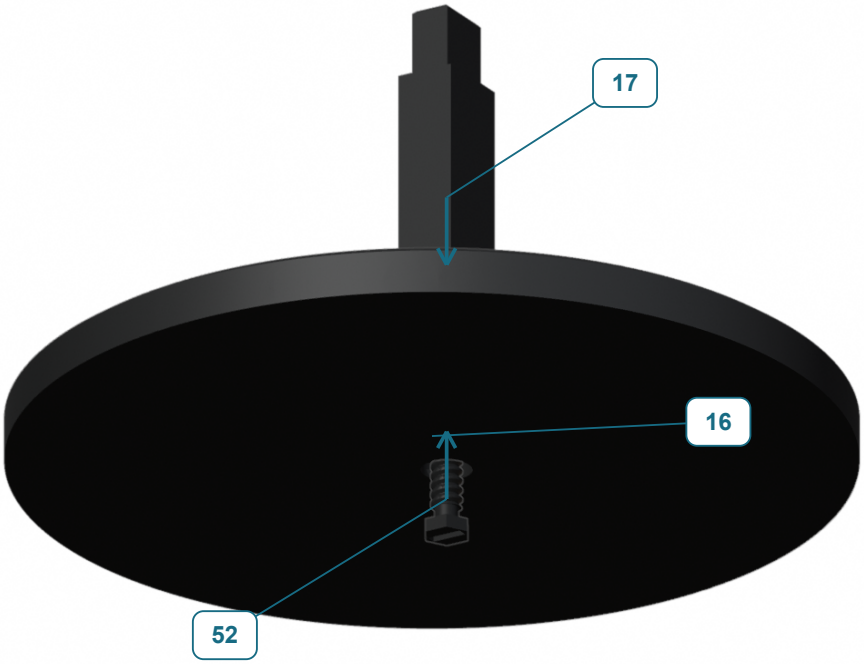


Slide the nose block rearward from the bow and the assembled middle/rear block forward from the stern, along the nacelle axis, capturing the upper T-anchor of pylon 14. Insert the front end of grille 13 into the nose block.

Once the faces meet, fit bridge 54/371 from above and secure it with two screws 55/371. Each nacelle uses two bridges 54, four screws 55, two 50, one 56 and one 59.

Fit the bridges only after the blocks surround the pylon. Old pins 39 are not used.

14 Assemble the removable stand

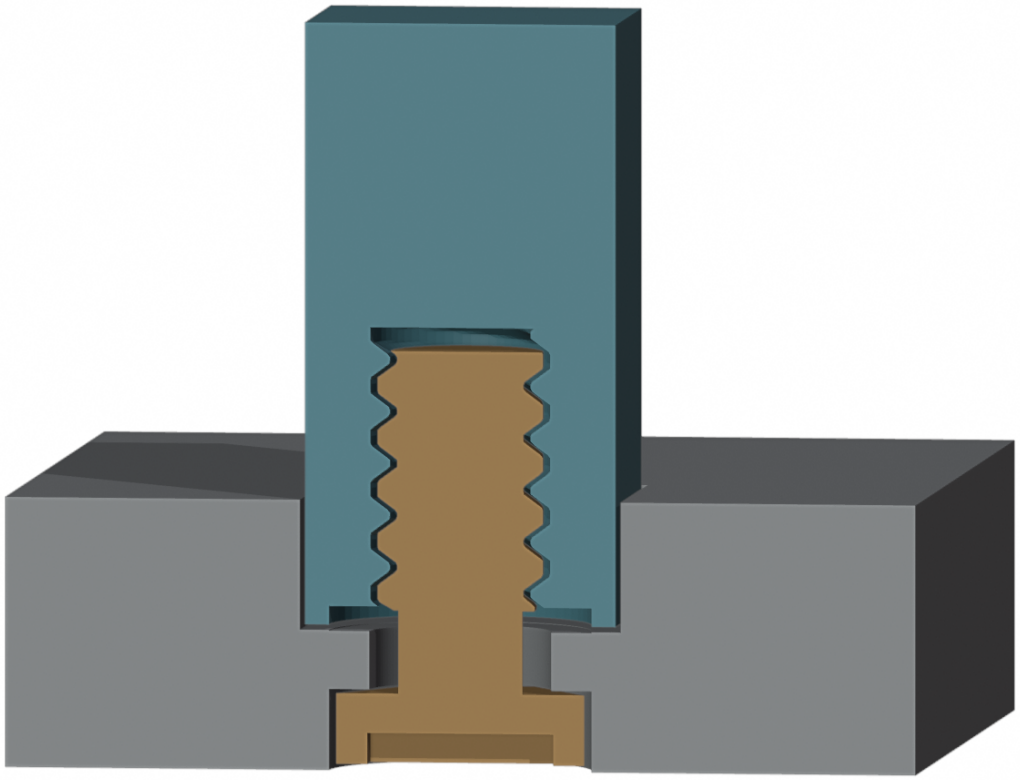


Use base 16 and screw 52 both from V19; post 17 is unchanged. Insert the post from above into the base, then the new screw from below. Lightly tighten with tool 60 until the post seats.

The head must bear on the base and remain recessed. The base is 13 mm high; do not use old screw 52. Lower the ship's socket 18 onto the rectangular post tenon.

Lift the ship about 20 mm to remove it. Support the base when carrying the whole assembly.

14b Stand screw bearing surface



The section shows base gray, post blue and screw orange; all print black. A 3.2 mm bearing web below the post pocket catches the head. V19 adds 4 mm under the base and lowers the screw head.

After geometric seating, tip clearance is about 0.69 mm; thread clearance remains 0.35 mm. Check that the base cannot separate from the post and the head does not project below it. Tighten gently.

The new joint still needs a physical print test.

A Screw inventory

Screw inventory: 51 hull ×6; 53 saucer ×4; 50 nacelles ×4; 56 middle ×2; 59 grilles ×2; 55 upper bridges ×8; 52 stand ×1. Total 27, excluding test screw 62.

Plate 2 holds 26 gray assembly screws; plate 13 holds black screw 52; plate 1 holds the test screw. V18 owners replace only 16 and 52 using Stand_Repair_V19_EN.3mf.

V17 owners also need the three front hull pieces 05 and added screws 51/237 L and 51/303 R from V18/V19.

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B Parts and build plates

1-40 / 127

Part name	Plate	PLA Basic
01_saucer_upper_L_front	4	Gray
01_saucer_upper_L_rear	5	Gray
01_saucer_upper_R_front	6	Gray
01_saucer_upper_R_rear	7	Gray
02_saucer_lower_L_front	8	Gray
02_saucer_lower_L_rear	9	Gray
02_saucer_lower_R_front	10	Gray
02_saucer_lower_R_rear	11	Gray
03_sensor_L	15	Jade White
03_sensor_R	15	Jade White
04_impulse_grille	12	Black
05_hull_front_lower	5	Gray
05_hull_front_upper_L	3	Gray
05_hull_front_upper_R	3	Gray
05_hull_rear_lower	3	Gray
05_hull_rear_upper_before_pylons	7	Gray
05_hull_rear_upper_behind_pylons	7	Gray
06_stripe_L	16	Red
06_stripe_R	16	Red
07_hangar_L	12	Black
07_hangar_R	13	Black
08_neck_L	3	Gray
08_neck_R	4	Gray
09_deflector_L	17	Bronze
09_deflector_R	17	Bronze
10_nacelle_L_front_lower_middle	6	Gray
10_nacelle_L_front_lower_nose	6	Gray
10_nacelle_L_front_upper_middle	6	Gray
10_nacelle_L_front_upper_nose	6	Gray
10_nacelle_L_rear_lower	3	Gray
10_nacelle_L_rear_upper	3	Gray
10_nacelle_R_front_lower_middle	6	Gray
10_nacelle_R_front_lower_nose	6	Gray
10_nacelle_R_front_upper_middle	6	Gray
10_nacelle_R_front_upper_nose	6	Gray
10_nacelle_R_rear_lower	3	Gray
10_nacelle_R_rear_upper	3	Gray
11_end_cap_nacelle_L_lower	7	Gray
11_end_cap_nacelle_L_upper	7	Gray
11_end_cap_nacelle_R_lower	7	Gray

B Parts and build plates

41-80 / 127

Part name	Plate	PLA Basic
11_end_cap_nacelle_R_upper	7	Gray
12_bussard_L_orange_lower	14	Orange
12_bussard_L_orange_upper	14	Orange
12_bussard_R_orange_lower	14	Orange
12_bussard_R_orange_upper	14	Orange
13_grille_L	12	Black
13_grille_R	12	Black
14_pylon_L_front	4	Gray
14_pylon_L_rear	4	Gray
14_pylon_R_front	5	Gray
14_pylon_R_rear	5	Gray
15_sensor_L	15	Jade White
15_sensor_R	15	Jade White
16_base	12	Black
17_post_removable	12	Black
18_socket_removable	13	Black
36_l_key_saucer_01	2	Gray
36_l_key_saucer_02	2	Gray
36_l_key_saucer_03	2	Gray
36_l_key_saucer_04	2	Gray
36_l_key_saucer_05	2	Gray
36_l_key_saucer_06	2	Gray
36_l_key_saucer_07	2	Gray
36_l_key_saucer_08	2	Gray
36_l_key_saucer_09	2	Gray
36_l_key_saucer_10	2	Gray
36_l_key_saucer_11	2	Gray
36_l_key_saucer_12	2	Gray
40_registry_saucer_L	13	Black
40_registry_saucer_R	13	Black
41_registry_nacelle_L	13	Black
41_registry_nacelle_R	13	Black
42_panel_lettering_nacelle_L	2	Gray
42_panel_lettering_nacelle_R	2	Gray
43_inner_zero_keeper_nacelle_L	2	Gray
43_inner_zero_keeper_nacelle_R	2	Gray
44_key_hull_L	2	Gray
44_key_hull_R	2	Gray
45_inner_zero_keeper_saucer_R	2	Gray
47_key_upper_LR_front	2	Gray

B Parts and build plates

81-120 / 127

Part name	Plate	PLA Basic
47_key_upper_LR_rear	2	Gray
48_key_upper_front_rear_L	2	Gray
48_key_upper_front_rear_R	2	Gray
49_key_rear_hull_optional	2	Gray
50_screw_nacelle_L_front	2	Gray
50_screw_nacelle_L_rear	2	Gray
50_screw_nacelle_R_front	2	Gray
50_screw_nacelle_R_rear	2	Gray
51_screw_hull_237_L	2	Gray
51_screw_hull_237_R	2	Gray
51_screw_hull_303_L	2	Gray
51_screw_hull_303_R	2	Gray
51_screw_hull_348	2	Gray
51_screw_hull_400	2	Gray
52_screw_stand	13	Black
53_screw_saucer_L_front	2	Gray
53_screw_saucer_L_rear	2	Gray
53_screw_saucer_R_front	2	Gray
53_screw_saucer_R_rear	2	Gray
54_I_bridge_nacelle_L_371	2	Gray
54_I_bridge_nacelle_L_440	2	Gray
54_I_bridge_nacelle_R_371	2	Gray
54_I_bridge_nacelle_R_440	2	Gray
55_screw_bridge_L_371_front	2	Gray
55_screw_bridge_L_371_rear	2	Gray
55_screw_bridge_L_440_front	2	Gray
55_screw_bridge_L_440_rear	2	Gray
55_screw_bridge_R_371_front	2	Gray
55_screw_bridge_R_371_rear	2	Gray
55_screw_bridge_R_440_front	2	Gray
55_screw_bridge_R_440_rear	2	Gray
56_screw_nacelle_middle_L	2	Gray
56_screw_nacelle_middle_R	2	Gray
57_I_hidden_lower_L_1	2	Gray
57_I_hidden_lower_L_2	2	Gray
57_I_hidden_lower_L_3	2	Gray
57_I_hidden_lower_R_1	2	Gray
57_I_hidden_lower_R_2	2	Gray
57_I_hidden_lower_R_3	2	Gray
58_I_hidden_lower_hull	2	Gray

B Parts and build plates

121-127 / 127

Part name	Plate	**PLA Basic**
59_screw_grille_L	2	Gray
59_screw_grille_R	2	Gray
60_screwdriver	1	Black
61_TEST_thread_0.25	1	Black
61_TEST_thread_0.35	1	Black
61_TEST_thread_0.45	1	Black
62_TEST_screw	1	Black

C Printing and checks

Open Enterprise_600_V19_EN_PLA_Basic.3mf as a project to retain names, colors and plates. Bambu Lab X2D, 0.4 mm nozzle, PLA Basic, 0.16 mm layers. Brim and skirt are off; automatic supports are locally blocked at small saucer windows.

Typical settings: 4 walls/20% infill; neck, pylons and post 6 walls/40%; keys, stripes 06, grilles 13, panels 42, screws and tests 100%. All 127 meshes are closed and connected, with no unwanted final assembly intersections. V19 stand seating and threaded removal were checked in 241 positions.

Its two revised parts were sliced; the full 17-plate V19 set was not re-sliced. The English edition changes labels only. Digital checks do not establish physical strength or long-term PLA durability.

Plate	PLA Basic	N
1	Black	5
2	Gray	61
3	Gray	8
4	Gray	4
5	Gray	4
6	Gray	9
7	Gray	7
8	Gray	1
9	Gray	1
10	Gray	1
11	Gray	1
12	Black	6
13	Black	7
14	Orange	4
15	Jade White	4
16	Red	2
17	Bronze	2