USER MANUAL

Interceptor

Print preparation, assembly, electrical integration, system setup, and preflight reference for the Sauron Intelligence Interceptor aircraft model.

REVISION

06

ISSUED

September 2026

DOCUMENT TYPE

Digital aircraft manual

Compact high-speed aircraft architecture.

A NACA 0030 aircraft model developed for rapid-response missions, supervised autonomous routing, and integration with the SarumanOS AI pilot.

MAIN BODY ~325 mm	ESTIMATED AUW 1.1–1.4 kg	ENDURANCE 7–11 min
TOTAL RANGE 7–13 km	STANDARD MAX 180–200 km/h	PRIMARY MATERIAL PA6-CF

Mission focus

Rapid response, site observation, supervised autonomous routing, and high-speed aircraft research. Actual performance depends on build mass, battery, propeller, propulsion setup, weather, and flight profile.

Digital package

Printable aircraft model with printer and filament configuration references.

Control core

F7-class flight controller, 4-in-1 ESC, GPS, and ELRS receiver.

Ground station

SarumanOS mission planning, command, monitoring, and review workflow.

Bill of materials.

Primary components and compatible alternatives for one reference Interceptor build.

QTY	SYSTEM	PRIMARY SELECTION	INTEGRATION NOTE
1	FC + ESC stack	MAMBA F722 MK3 + 60A 4-in-1 ESC	Verify mounting, firmware, pinout, and cooling.
4	Motors	T-Motor VELOX V2 V2207 1750KV	6S system; approximately 5-inch propeller class.
4	Propellers	5.0–5.1-inch tri-blade	Use matched sets and verify motor direction.
1	Battery	6S 2500 mAh LiPo	3300 mAh alternative favors endurance; confirm balance.
1	GPS	Beitian BN-220	BN-880 alternative adds compass; isolate from power wiring.
1	ELRS receiver	RadioMaster RP3-H	Diversity preferred; preserve antenna separation.
1	FPV camera	Compact micro or nano camera	Nose mounted; verify voltage, cooling, and view.
22	Fasteners	M3 nuts	Confirm thread fit and retention at assembly points.
1 roll	Printing material	PA6-CF	Dry before printing; use wear-resistant hardware.

Before assembly: confirm electrical compatibility, current limits, connector pinouts, cooling, center of gravity, structural clearance, and all required wiring and fabrication consumables.

Propulsion alternative

T-Motor F60 Pro V 1750KV and 5-inch bi-blade propellers.

Battery alternative

6S 3300 mAh LiPo where volume, mass, and balance permit.

Material alternatives

LW-ASA or LW-PLA only after part-specific validation.

Prepare the aircraft parts.

RECOMMENDED MATERIAL

PA6-CF

Primary material for the Interceptor airframe and high-load parts. Use a hardened wear-resistant nozzle and maintain a dry filament path throughout production.

1

ROLL

01 Select the exact printer and PA6-CF filament in the website configurator, then download the separate filament and process JSON references.

02 Confirm the printer’s hotend, nozzle, enclosure, build surface, and build volume are compatible with the chosen material and part set.

03 Dry the filament according to its manufacturer instructions and keep it dry while printing.

04 Calibrate flow, shrinkage, adhesion, and dimensional accuracy with a representative test part.

05 Review part orientation against the model and expected structural load direction before slicing the full set.

06 Inspect every printed part for cracks, delamination, warping, poor bonding, blocked cable paths, and inaccurate mating features.

LW-ASA

Optional lightweight exterior material where heat and weather resistance matter.

LW-PLA

Optional low-density shell material after foaming and strength validation.

JSON references

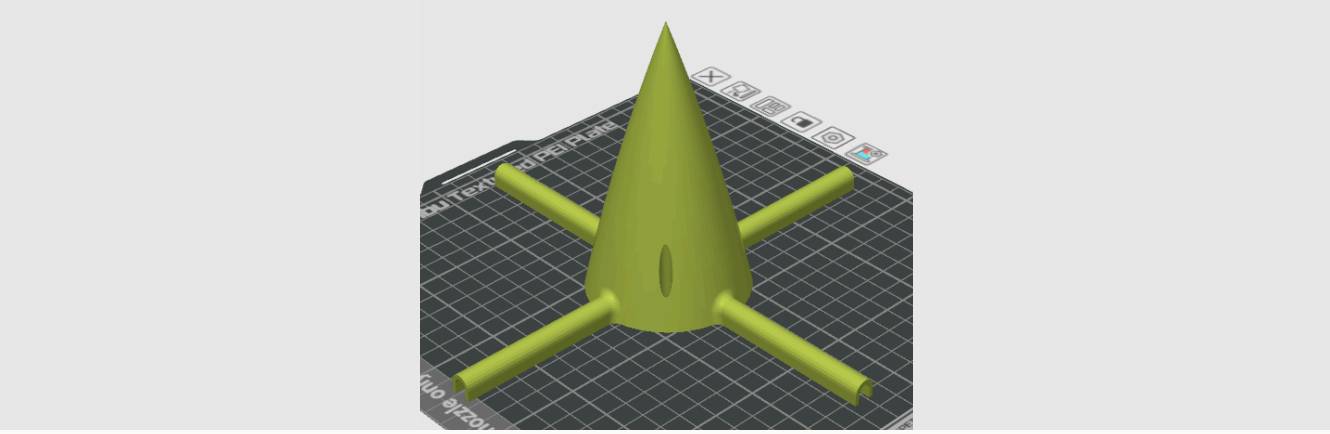
Human-readable setup references shared between Bambu Studio and OrcaSlicer.

CONFIGURATION STATUS

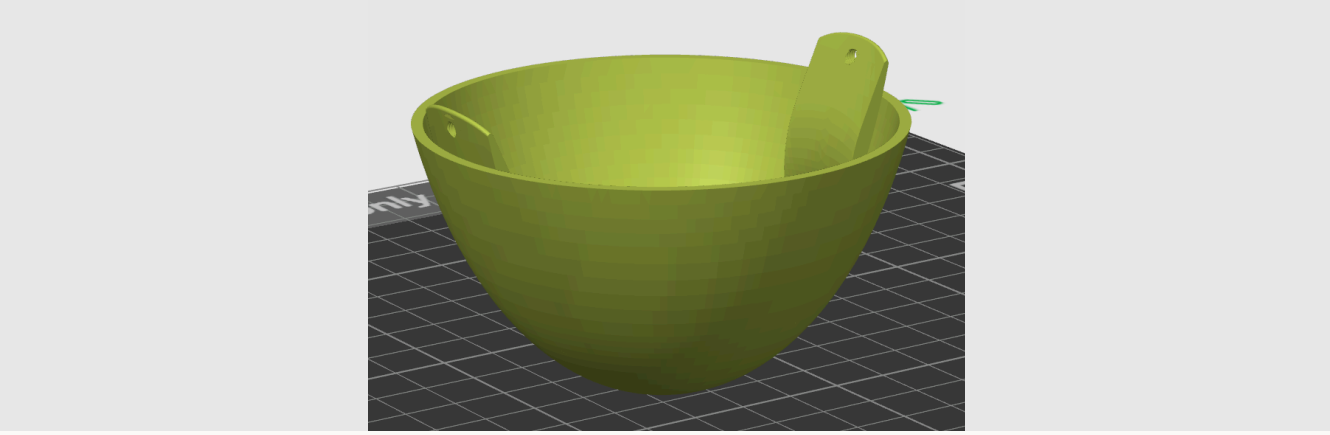
The JSON files are reference documents, not validated native presets. Create and validate the final slicer preset on the actual printer.

Part placement for printing.

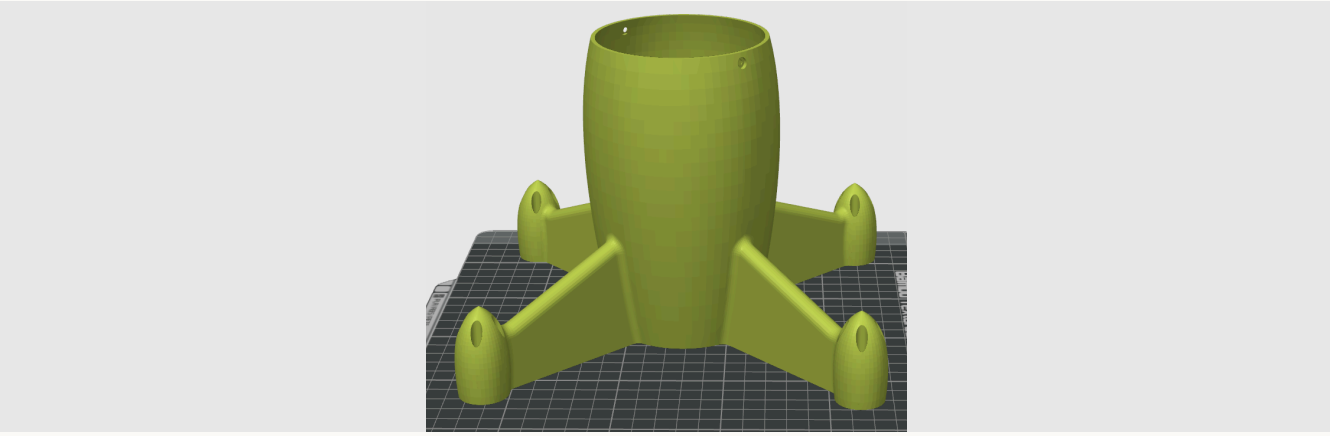
Use these screenshots as visual orientation references when arranging the aircraft parts in your slicer.



01 / Tail section — pointed end upward.



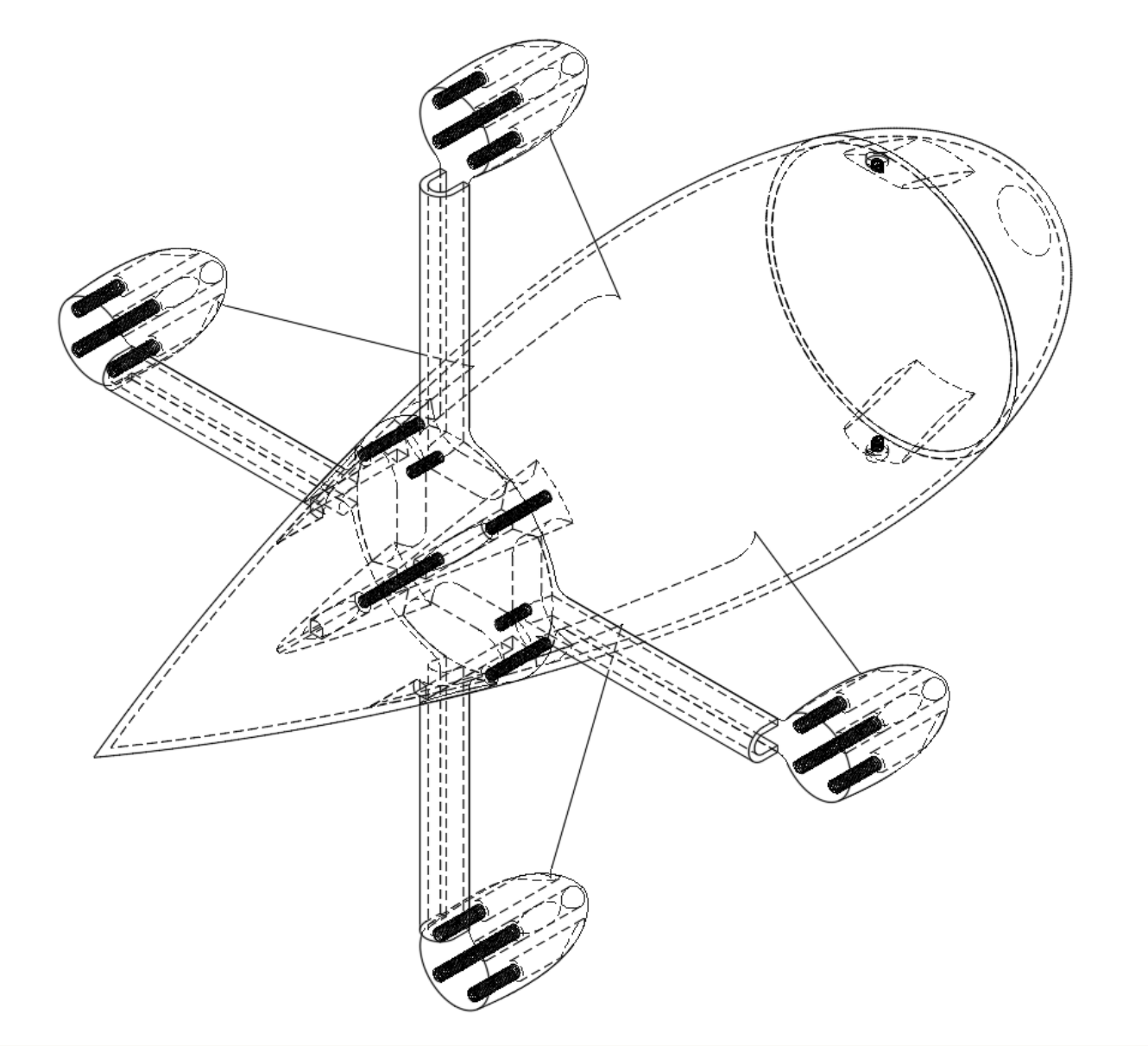
02 / Nose cap — open rim and mounting tabs upward.



03 / Main body — upright, with the body opening upward.

Assembly reference drawing.

Airframe layout and visible fastening locations. Dashed lines show hidden geometry.



Airframe and system assembly.

Dry-fit the complete aircraft before final fastening. Preserve access to connectors, maintenance points, and cooling paths.

01 / INSPECT

Review the printed set

Check all parts, mating surfaces, holes, inserts, cable passages, and alignment features.

02 / DRY-FIT

Assemble without final locking

Confirm symmetry, motor-pod alignment, camera clearance, and removable access panels.

03 / AVIONICS

Install the FC and ESC stack

Use vibration-conscious mounting, clear airflow, insulated wiring, and adequate service loops.

04 / PROPULSION

Mount four motors

Secure each motor and route phase wires away from sharp edges and moving components.

05 / SENSORS

Place GPS, receiver, and camera

Separate navigation and receiver hardware from high-current wiring and preserve antenna exposure.

06 / FASTEN

Secure with 22 M3 nuts

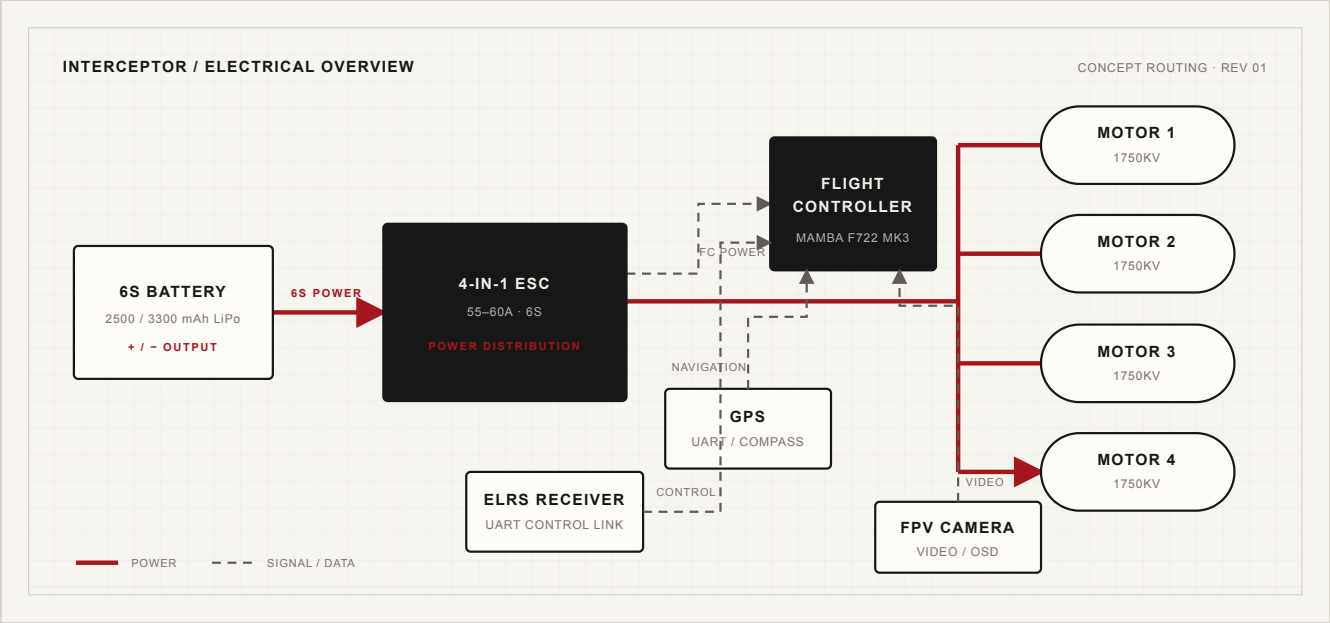
Tighten evenly at the defined assembly points. Confirm retention without crushing printed parts.

BEFORE PROPELLER INSTALLATION

Complete wiring inspection, firmware setup, sensor calibration, receiver failsafe, motor mapping, motor direction, and restrained low-power tests.

Power and signal layout.

Use this layout as a system map. Confirm every pin, voltage, protocol, and connector against the component manufacturers' documentation before applying power.



01 **Battery → ESC**
6S main power, correct polarity, secure strain relief.

02 **ESC → motors**
Four motor outputs; verify mapping and rotation without propellers.

03 **FC ↔ ESC**
Flight-controller power, motor signals, and available telemetry.

04 **Sensors → FC**
GPS, compass where fitted, ELRS control, and camera video path.

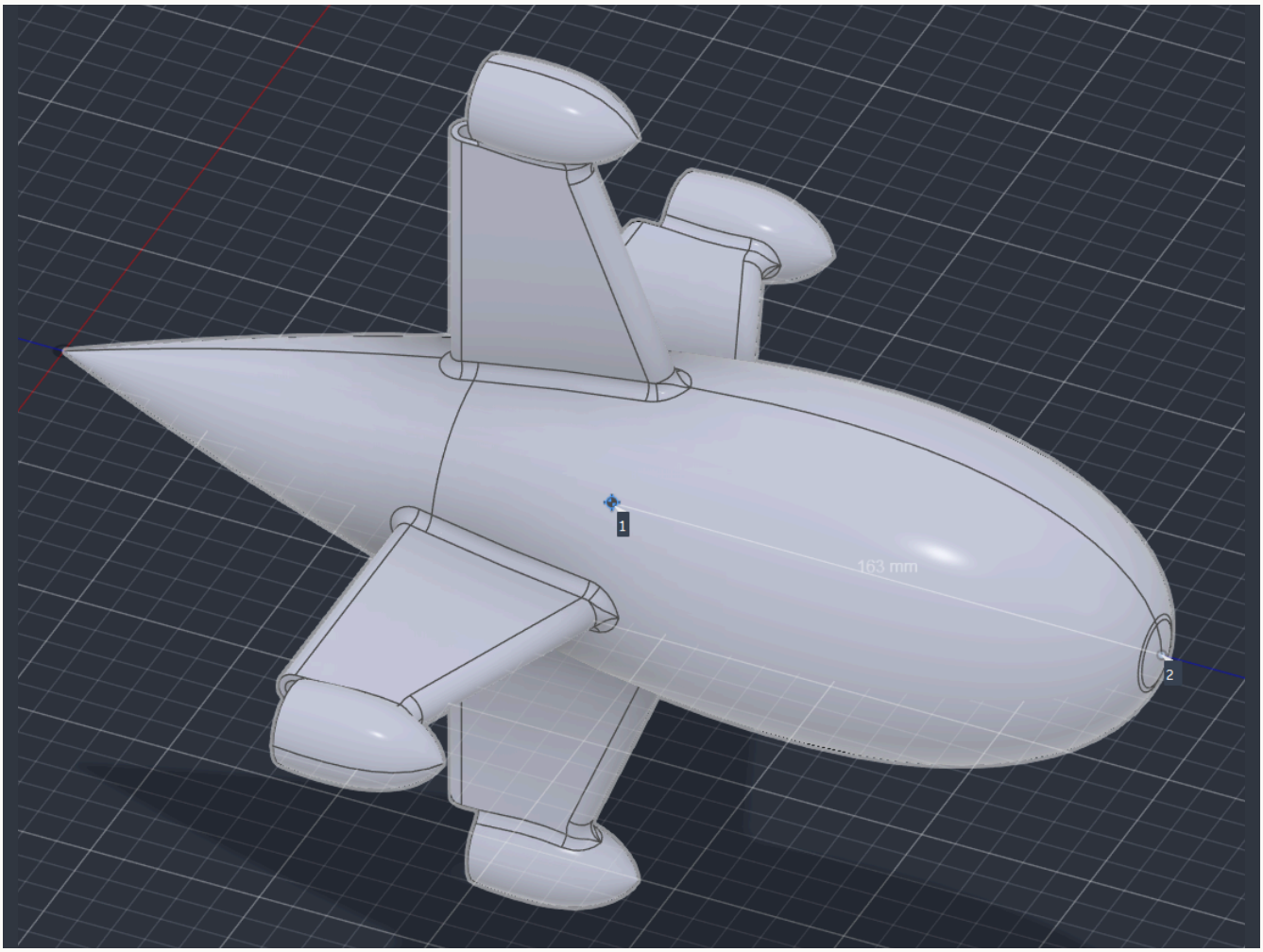
POWER-ON RULE

Remove all propellers before bench testing. Check continuity, polarity, exposed conductors, and current protection before connecting the battery.

Center of gravity.

163 mm from the nose tip

CG reference measured rearward from the nose tip along the body centerline, as shown below.



Validate before operation.

Treat the completed aircraft as a new prototype. Verify each system in stages and record the final configuration before flight.

01	Confirm firmware target, airframe configuration, sensor orientation, and calibrated accelerometer, compass, and radio inputs.
02	Verify motor output order and direction with propellers removed. Install matched propellers only after the test passes.
03	Confirm battery retention, center of gravity, wiring clearance, fastener security, and unobstructed cooling paths.
04	Configure and test loss-of-link, low-battery, navigation, and operator takeover behavior.
05	Verify GPS quality, control link, telemetry, video feed, and SarumanOS command-and-control connection.
06	Review local airspace, weather, operating area, people, property, and emergency landing options.
07	Begin with a restrained systems test and conservative low-speed validation flight before expanding the envelope.

Performance note

Estimated endurance is 7–11 minutes and estimated total range is 7–13 km. Standard-propeller maximum speed is estimated at 180–200 km/h. High-speed configurations require purpose-built propulsion and separate validation.

DOCUMENT SCOPE

This manual is a build and integration reference for the current Interceptor model. It does not replace component documentation, structural validation, flight testing, operator training, or applicable aviation rules.

Aircraft page

sauron.in/aircraft/interceptor-pro.html

Support

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