Printables by JOSEF PRUSA

Object 77b v2 Gimbal - Remix for Thrustmaster T16000M

T TehStig

VIEW IN BROWSER

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Summary

Object 77b v2 Remixed for T16000M. Designed to use all the original electronics.

Gadgets > Video Games

Tags: joystick gimbal hotas flightsimulator joystickmod

This is not my design. It's a joystick remix of a gimbal designed by user Karavan on IL-2 Sturmovik forum: https://forum.il2sturmovik.ru/topic/13252-3d-печатная-механика-объект-77-б/ and shared on Thingiverse and v2 on Thangs.

Images and instructions for my build can be found on Imgur with discussions on r/HotasDIY.

T16000M Upgrade with modified Object 77b v2 Gimbal. All original electronics from the T16000M unmodified.

Gone is the terrible centering spring of the T16000M, all original electronics (3D Hall sensor).

Object 77b v2 stock modified to replicate the T16000M, all 3D printed apart from original twist rudder spring. Replicated twist rudder housing, springs were shortened slightly to ensure no contact with the grip housing.

The original Object 77b v2 core components had excess height below the bearing removed as far as possible to allow the T16000M PCB to fit below the core without impacting when X axis travelling, as well as set the correct position of the magnet relative to axes and sensor.

This is made possible due to the removal of separate on-axis hall sensors in favour of the T16000M 3D Hall sensor (MLX90333).

New design for the magnetic cap reduces the required length below axes, maintaining the approximate 3mm gap from the original mount. 9.5x1.5mm Neodymium magnet superglued to the base.

All original electronics are unchanged in this modification. Original wiring must be cut/de-soldered to remove the original spring assembly, single pin connectors have been added for easier disassembly, but could alternatively be removed and re-soldered to the original mainboard.

Object 77b top mount replaced with a bottom mount, base plate holds the T16000M sensor PCB. Dovetail design adds stabilty to the forward/rear fastenings (inward and downward pressure). Four M3 screws fasten the entire gimbal through the base of the T16000M case, the nuts are secured with superglue to ensure these are not lost or loose during assembly/ disassembly.

In order to fit the Gimbal within the T16000M base shell, all of the original spring housing supports must be removed down to a flat roof. These were removed via Rotary tool. The base shell requires four screw holes to be drilled for Gimbal assembly mounting.

Special shoutout to u/rolbista for his help along the way, and to Karavan @ forum-il2sturmovik-ru for the original Object 77b Gimbal design.

Printed on an Anycubic Mega-S. Using E-Sun Grey PLA+

0.2mm Layer Height

Manual supports

Wall Thickness 3mm

Horizontal hole expansion was required to ensure bearings and hardware fit correctly.

There are 2 types of bearings used:

MR104 (4x10x4mm) - 12 pcs. (cams and pushers);
6700 (10x15x4mm) - 4 pcs. (axes);
Everything is assembled on M4 screws with "countersunk" heads, enlarged washers, tapered for bearings and black self-tapping screws.

Hardware:

Self-tapping screw black 3.5x20mm - 4pcs;
Countersunk screw M4x20mm - 4 pcs;
Countersunk screw M4x35mm - 2 pcs;
Countersunk screw M4x45mm - 2 pcs;
M4 nut - 6 pcs;
Washer M4 enlarged - 6 pcs;
Washer M4 conical - 6 pcs;

I was unable to find conical washers, and used a small then large washer in their place. Some of the M4 screws were cut/ground to create additional clearance. You may be better with slightly shorter screws to avoid this step.

Model files

object-77-b-v2-t16000m-step.step

rudderpotcap.3mf

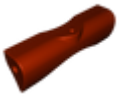
springlid.3mf

stock.3mf

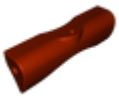
magnetcap.3mf

fastening-1.3mf

fastening-2.3mf



fastening-3-1.3mf



fastening-3-2.3mf

core-1-1.3mf

core-1-2.3mf

core-2-1.3mf

core-2-2.3mf

fastening-4_1_pcb-washer.3mf

fastening-4_1_pcb-washer-2.3mf

fastening-4_1.3mf

cam-hard-center-2-1.3mf

cam-hard-center-2-2.3mf

cam-hard-center-2-3.3mf

cam-hard-center-2-4.3mf

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