My Balsa & Glass Workshop

1:144 Scale LGM-25C Titan II ICBM

3D Print & Assembly Description

5 June 2026

When I first entered the Air Force back in August 1969, after nine months of technical training I was assigned to Little Rock AFB, Arkansas as a Guidance and Control Specialist on the Strategic Air Command LGM-25C Titan II ICBM system. I worked not only on the missile inertial guidance system inside the underground silo, but also performed topside missile alignment surveys *at night* to ensure the inertial guidance system was properly aligned so the warhead would hit its intended target some ten-thousand miles away. I was also fortunate enough to participate as a member of the Little Rock AFB Team for two years in the Strategic Air Commands "Olympic Arena" Competition. It was very rewarding service.



Source of Images: Wikipedia.

The first flight of the Titan II was in March 1962 and the missile, now designated LGM-25C, reached initial operating capability in October 1963. The Titan II contained one W-53 nuclear warhead in a Mark 6 re-entry vehicle with a range of 8,700 nautical miles (10,000 mi; 16,100 km). The W-53 had a yield of 9 megatons. This warhead was guided to its target using an inertial guidance unit. The Titan II was in service from 1963 to 1987. There were originally 54 Titan II Strategic Air Command missiles. The 54 Titan II missiles were on 24-hour continuous alert with 18 missiles each surrounding three bases: Davis-Monthan Air Force Base near Tucson, Arizona, Little Rock Air Force Base in Arkansas, and McConnell Air Force Base in Wichita, Kansas. The 54 deployed Titan IIs formed the backbone of America's strategic deterrent force until the LGM-30 Minuteman ICBM was deployed in mass during the early to mid-1960s. Twelve Titan IIs were flown in NASA's Gemini crewed space program in the mid-1960s.

Here are the Titan II Specs:
Type: Inter-Continental Ballistic Missile (ICBM)
Place of origin: United States
Service history: In service 1962 to 1987
Used by: United States
Production history: Manufacturer - Glenn L. Martin Company
Specifications:
Total Launch Mass: 342,000 lb. (155,000 kg)
Stage I length: 67 feet (20 m)
Stage II length: 29 feet (8.8 m)
RV length (including spacer): 14 feet (4.3 m)
Stage I diameter: 10 feet (3.0 m)
Stage II diameter: 10 feet (3.0 m)
RV diameter (at missile interface): 8.3 feet (2.5 m)
Warhead: W-53 9 Mega Ton thermonuclear warhead
Detonation mechanism: Airburst or surface contact
Engine: Two-stage liquid-fueled rocket engines; first stage: LR-87s; second stage: LR-91
Propellant: N2O4 / Aerozine 50
Guidance system: Inertial IBM ASC-15
Launch platform: Missile silo

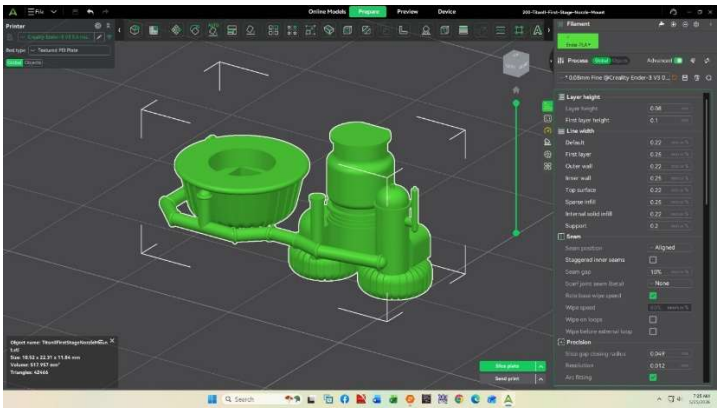
I have always wanted a model of the LGM-25C Titan II to sit on my shelf along with all the other models of the USAF systems/programs (B-52 AGM-69 SRAM, C-17, KC-135 GATM, RQ-4 Global Hawk, Litening Targeting Pod, and others) I worked on during my 41 years with the Air Force. So now that I have a nice 3D printer, I am finally going to be able to fill that wish.

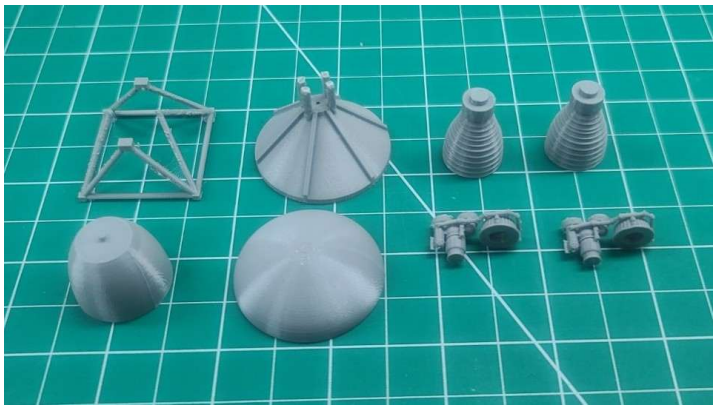
Cruising around on the web I was able to locate a very nice 1:144 scale 3D model by ESzczesniak on Cults3d.com (https://cults3d.com/en/3d-model/various/1-144-lgm-25c-titan-ii-icbm). The package includes ten STL files representing stages, nozzles, engine truss, warhead, and stand. This is a fairly simple model. The tolerances are rather tight and may need some light sanding. This was intentional to help insure the model would align itself well in assembly and without risk of introducing bends in the body. The STL's are scaled to 1:144. It should easily upscale, but the panel lines may start to look overdone, and the detail may be bland for a larger scale. While the model is intended for resin printing, I will have to see how the STL files will work on my FDM printer. The assembled model in the images below was painted and then spare decals from aircraft model kits used for the markings.

Source of Images: Cults3d.com.

Well, the time has finally come to start this long awaited project. First step was to determine the scale I would use. The 1:144 scaled parts as provided in the download resulted in first stage engine parts that were *way too small for my old fingers*, so using my Creality Print slicer I increased all ten of the model part sizes by 200%, which results in approximately a 1:72 scaled 3D model. I was limited to no larger than 200% by the resulting size of the largest part, TitanIIFirstStage.stl, and the print size limit of my Ender-3 V3. I then printed the smallest part, TitanIIFirstStageNozzleMount.stl, and found that using my standard 0.4mm nozzle was not going to provide the detail in the part needed, so I installed a 0.2mm nozzle and adjusted my Creality Print settings using 4 wall loops with a 0.08mm layer height and 0.22mm layer width, as you can see in the left image below. *Note, even at the 200% scaling, this part still is only 10.5x22.3x11.8mm in size.*

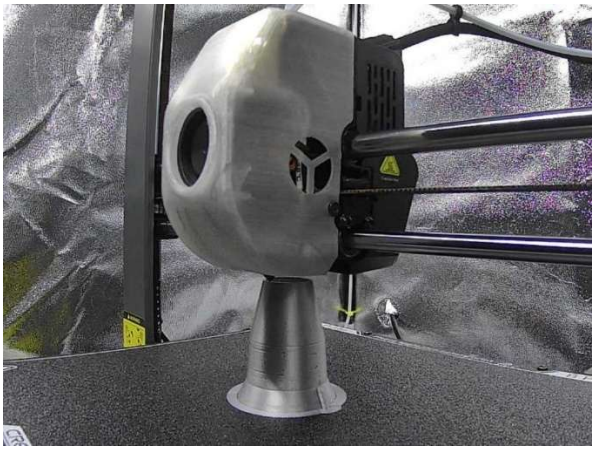
Using these slicer settings and some Gray Ender-PLA filament, I proceeded to 3D print the various parts displayed in the right image below. I think these should work just fine for my 3D model.





With those parts printed, I replaced the filament with some Silk-Silver PLA. I then adjusted the print settings for 3 wall loops with a 0.1mm layer height, 0.42mm layer width, and a 10% sparse infill density. The print speed was also reduced to 50mm/sec for the silk filament. The left image below shows part TitanIIWarhead.stl approximately 83% complete in its 2 hr. 28 min. print.

The Titan II missile body is divided into three parts; the first stage which at 200% is 218mmx46mm; the second stage at 111mmx45mm; and the warhead at 67mmx44mm. The *total print time* for these three parts was **18 hrs. 58 min.** *Note, there are 2,181 print layers in the first stage alone when printed at a layer height of 0.1mm.* All three Silk-Silver PLA printed parts are shown in the right image below.



The last part to print was the display stand. I installed some Space Gray PLA filament in my Ender-3 V3 and then adjusted the print settings for 3 wall loops with a 0.15mm layer height, 0.32mm layer width, and a 10% sparse infill density using a 0.4mm printer nozzle. The left image below shows the TitanStand.stl 3D printed part.

Last was some minor detail painting and model assembly. I limited my detailing to match the operational Titan II's in the silos that I worked on at Little Rock AFB, AR. The model designer painted his model in the colors used on the Titan in NASA's Gemini crewed space program. Using some white Hyper-PLA, I added a 3D printed title bar to the model stand. In the right image below is my finished Titan II 3D model. The other 3D model is an AGM-69 SRAM, another system I worked on when I cross-trained from Titan II. The two models are not the same scale.