

Long March-2C (with actuating grid fins)



Long March 2C (LM-2C), or Chang Zheng 2C (CZ-2C) as in Chinese pinyin is a member of the Long March 2 rocket family, an expendable launch system operated by the People's Republic of China. This vehicle was developed by the China Academy of Launch Vehicle Technology, and the first launch occurred on September 9, 1982. It is a two-stage launch vehicle with storable propellants, consisting of Nitrogen Tetroxide and Unsymmetrical Dimethylhydrazine. The rocket was derived from the Long March 2A launch vehicle.

China has launched a Long March 2C that featured actuating grid fins towards the top of the rocket's first stage much like those on the SpaceX Falcon 9 and Falcon Heavy boosters.

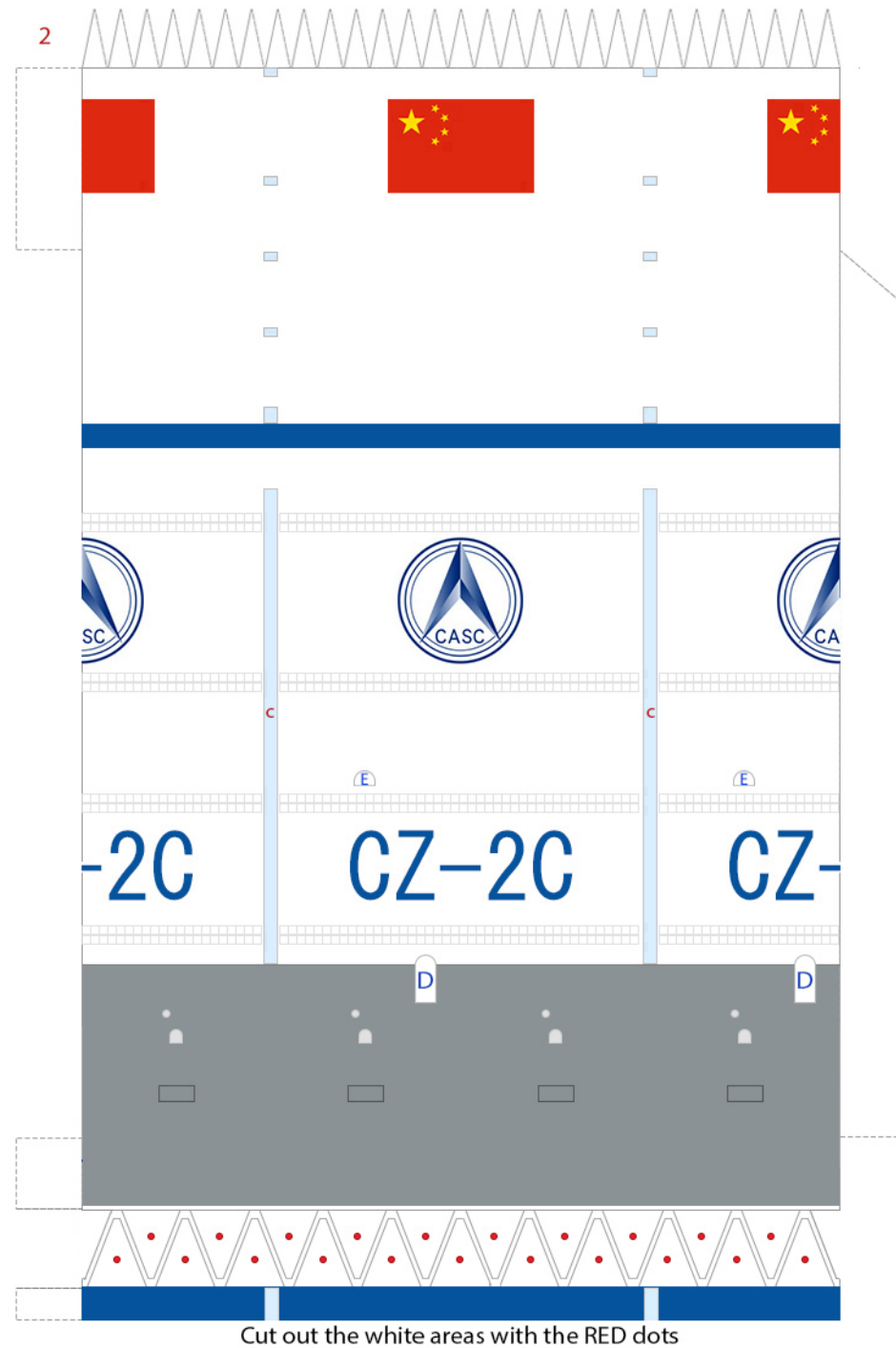
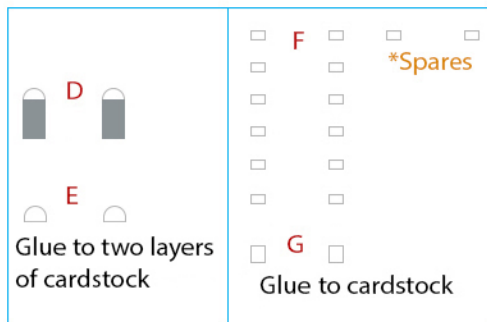
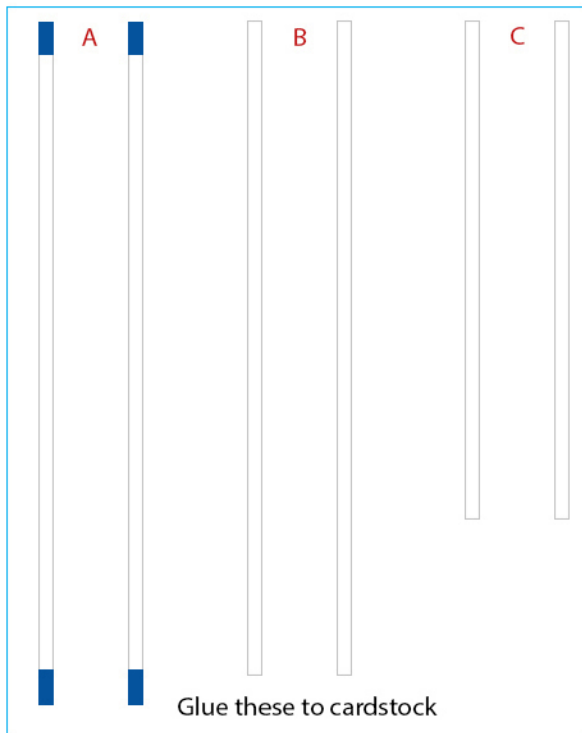
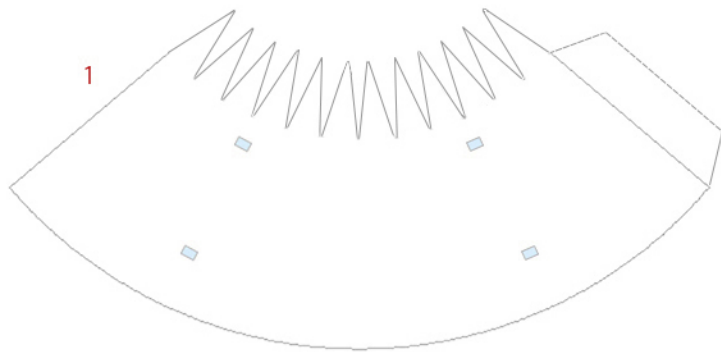
The Long March 2C sporting its new grid fins was launched from the Xichang Satellite Launch Center at 03:57 UTC on Friday, 26 July 2019. It carried three classified Yaogan 30 military satellites, which were deployed into a low Earth orbit at an altitude of approximately 600 kilometres. Although little is known about the function of the three satellites, Chinese officials have indicated they are designed for "remote sensing missions".

This is the first time grid fins have been used aboard the Long March 2C, a rocket that has been in service since its maiden flight in 1982. Since then it has flown over 50 missions and suffered just one failure. However, due to the fact that many of the country's launch facilities are located inland, spent first stages of Long March 2C rockets and many other Long March rockets have posed a threat to nearby populated areas.

In the past, rocket stages were just left to plummet to the ground with evacuation notices issued to communities that may be in its path. However, with the inclusion of grid fins, these spent stages can be guided to remote areas greatly reducing the potential threat to property and person.

Despite releasing a statement following the launch on the purpose of the grid fins, Chinese officials have not stated if they plan to apply the control surfaces to other Long March variants. It is also unclear if these grid fins are the first tests of a push for reusability or merely, as has been stated, a way to direct spent stages away from populated areas.

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Inside - cut out the areas with the red dots

11

Glue this to the TOP INSIDE edge of the part below

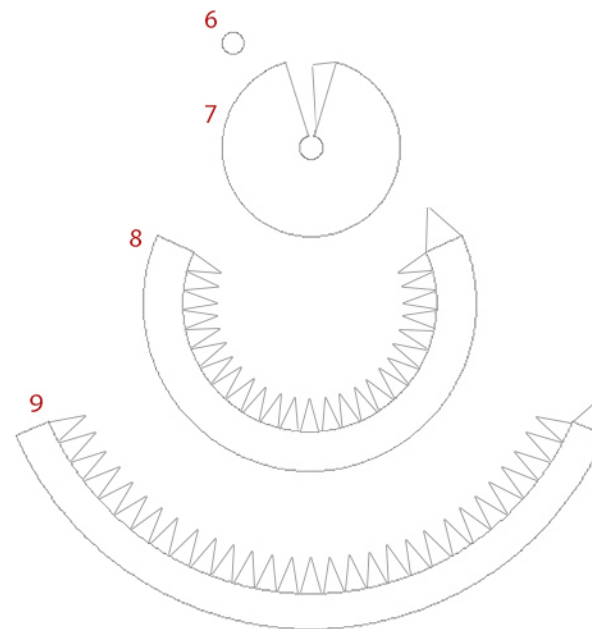
2 to 3 connector

Glue this lower area - below the line above - to the top inside edge of part 3

Roll to a ring



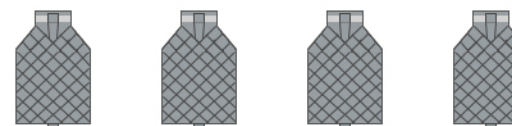
3 to 4 connector



10

6 - 9

Glue to cardstock



Grid Fins

Glue to three layers of cardstock

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