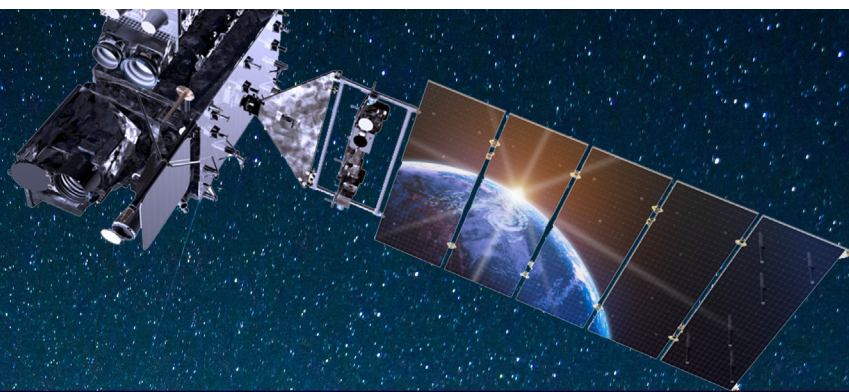




GOES-17 Loop Heat Pipe Fact Sheet



Role of the Advanced Baseline Imager (ABI) Loop Heat Pipe

Loop heat pipes keep the ABI at the correct operating temperatures. The ABI infrared detectors need to be cold to accurately measure the thermal energy radiated from the Earth's atmosphere. The detectors need to be cooled to varying degrees (some as low as -351°F) based on where they fall on the electromagnetic spectrum to function properly.

The ABI has different ways to maintain thermal control. The mechanical cooler pumps heat away from the visible and infrared detectors to cool them to their required temperatures. The heat is transported to an external radiator by the loop heat pipes. The radiator is a large reflective surface designed to reject excess thermal energy to space. The blankets and shields protect the instrument from absorbing too much solar radiation.

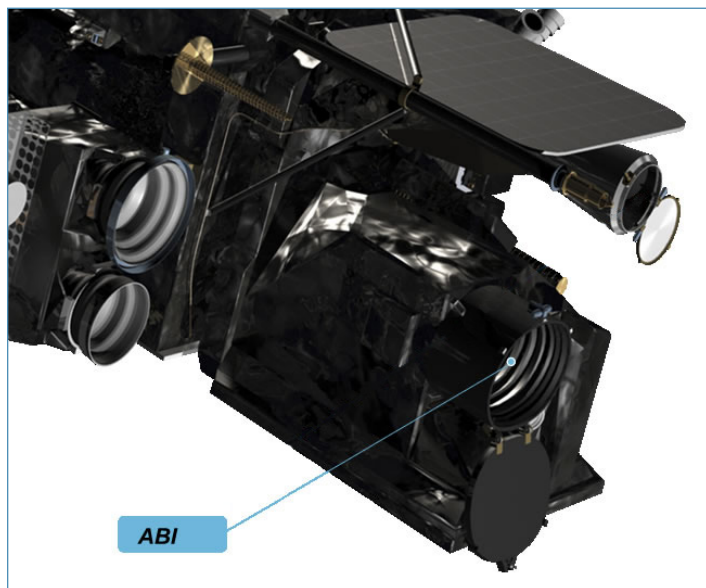
Why Loop Heat Pipes are Necessary

The loop heat pipes transfer excess thermal energy to the radiator. If the loop heat pipes are not operating correctly, the cryocooler and other electronics get too warm and have to be turned off to prevent them from being damaged.

Troubleshooting the Issue

Experts are investigating the cause of the issue and pursuing several possible corrective actions. Based on their efforts, the ABI is showing improved performance.

The experts are working to improve channel availability with adjustments in operating procedures, software and algorithm changes. They have also narrowed down the number of



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possible root causes to a few likely possibilities. A series of ground-based tests is underway to isolate the specific root case. Additionally, design modifications for the GOES-T and GOES-U ABIs are being explored to ensure the cooling system issue is not repeated.

MORE INFORMATION ABOUT ABI

<https://www.goes-r.gov/spacesegment/abi.html>