

Re: Why did it take so long to reach the moon

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- *From:* terry <tfmann@xxxxxxxxxxxxxxxx>
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On Feb 26, 2:15 am, P...@xxxxxx wrote:

I was just looking at the Apollo 15 DVD set. It showed them flying over their landing site at GMT 96 hours and something. that's 4 whole days after launch. If they were traveling at 25,000 MPH, they should have made it in about 10 hours. Did they slow down along the way? Do they orbit earth a few times to check things out or head for the moon as soon as they're in the right position?

25,000 mph is about the speed to escape the earth's gravity, then the craft just coasts, gradually losing speed until the moon's gravity is stronger and it begins to accelerate again. Actually the time of flight to the moon is a very strong function of the injection speed. the flight time chosen for Apollo missions was about 72 hrs which required an injection speed of about 10.84 km/sec. Increasing the injection speed to just 11.2 km/sec would have reduced the flight time to only 32 hours. It is all a balance of the wt of fuel required versus the extra supplies for life support.

The above figures come from "fundamentals of astrodynamics" by Bate, Mueller and White. I highly recommend it for explaining the maths of various spaceflight trajectories.

Terry

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