



# Phantom satellite?

What IS it?

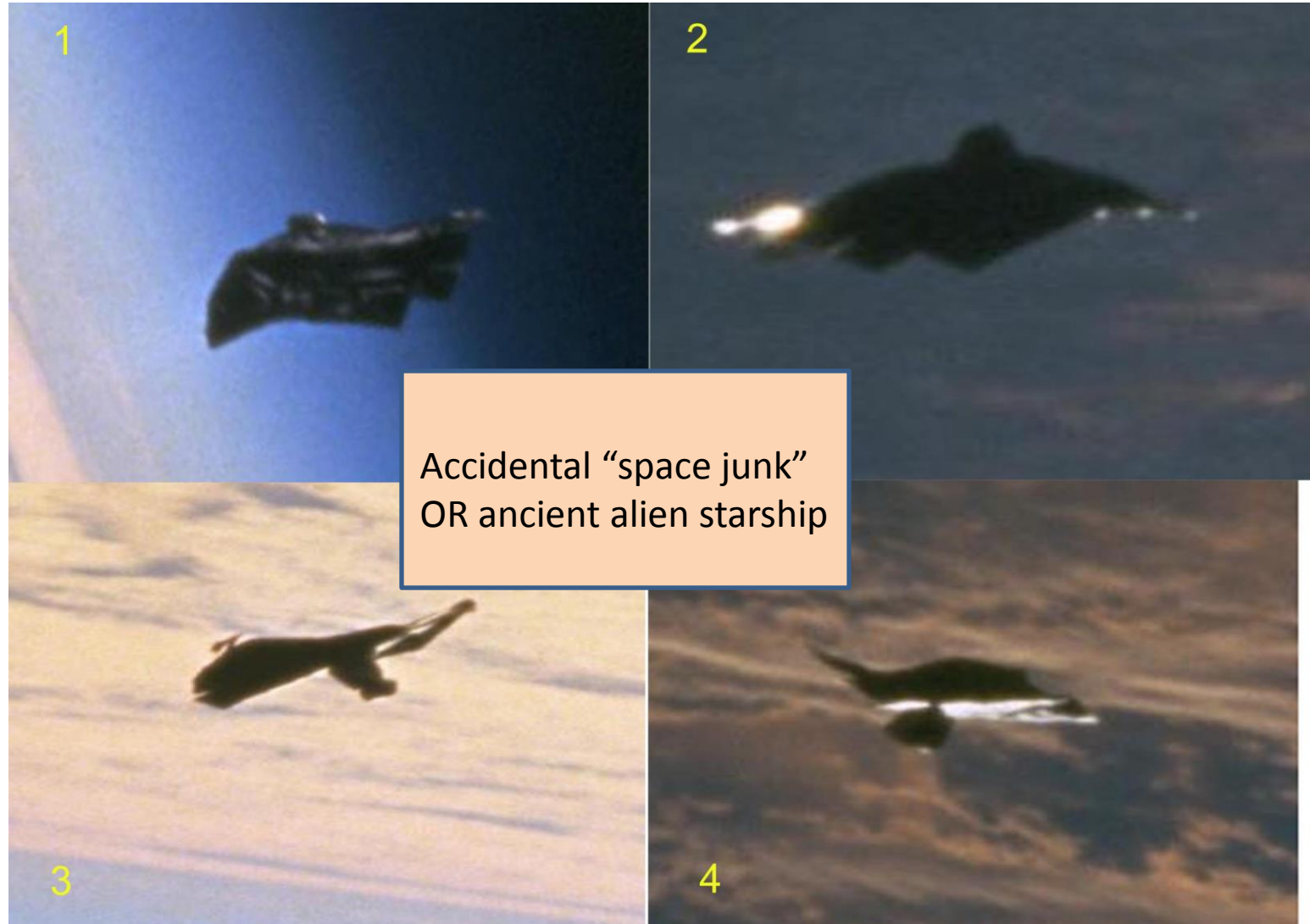
What ISN'T it?

WHY the confusion?

- Several still images on NASA website
- Entitled "STS-88 debris"
- BLACK shape with bright highlights
- Weird changing shape excites some folks
- Somehow absorbed into pre-existing myth of a pre-Space-Age phantom moonlet
- Wild imaginations regarding vehicle's origin, purpose, and proper treatment
- Prosaic explanation disappoints many



# STS-88 “whatsit” and the ‘Black Knight’ legend



# Hundreds of YOUTUBE videos

YouTube

Stargazer Nation

13,000 Year Old Black Knight Satellite/U.F.O That NASA Know...

Stargazer Nation® - 458 videos

Subscribe 4,380

72,449

80 21

[https://www.youtube.com/watch?v=qxYqHF\\_-5jo](https://www.youtube.com/watch?v=qxYqHF_-5jo)

December 3-15, 1998,  
'Discovery', crew of Bob  
Cabana, Rick Sturckow, Nancy  
Currie, Jim Newman, Jerry  
Ross, and Sergey Krikalyov

# The STS-88 mission



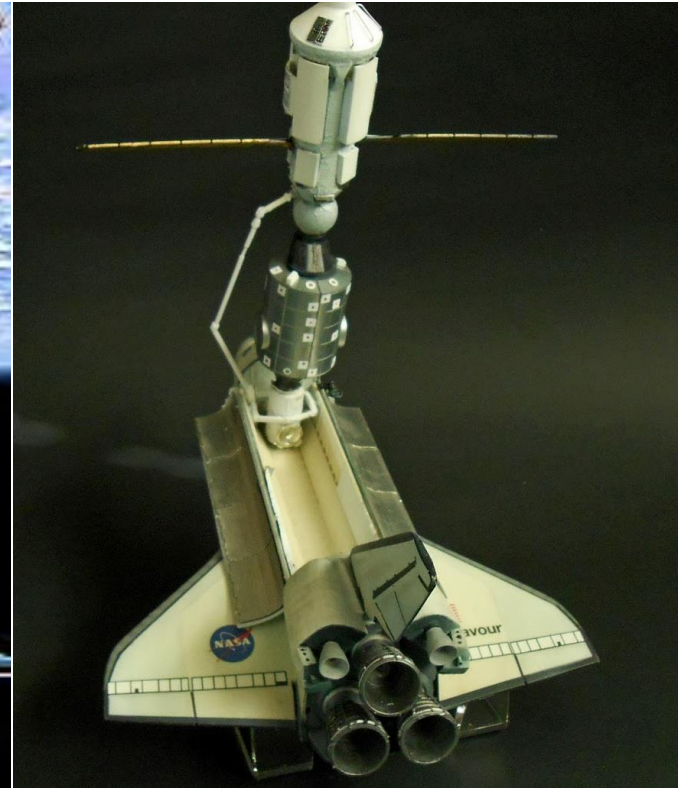
- First shuttle mission in support of assembly of International Space Station
- Mission: Grab Russian 'FGB' module already in low orbit, attach it to US 'Node 1' in payload bay, perform spacewalks to install equipment
- Crew also briefly enters Node 1 and FGB

Selected photo imagery [NASA photo gallery]

<http://spaceflight.nasa.gov/gallery/images/shuttle/sts-88/ndxpage6.html>



# Mission: Link first two ISS elements

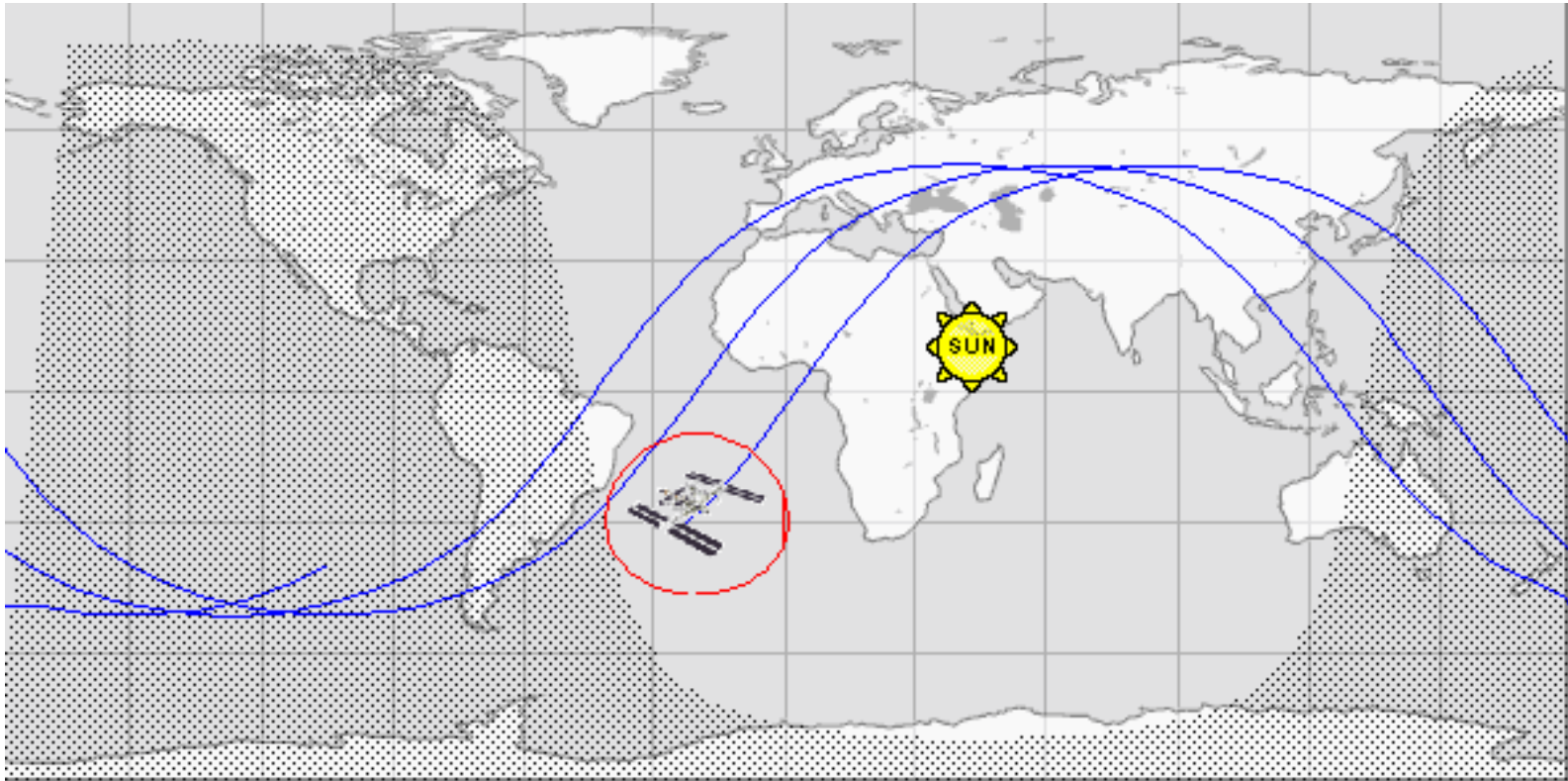


- Bring up Node-1, mount it atop airlock
- Rendezvous with already-launched FGB [from Russia]
- Grapple it with Canadian robot arm “in the blind”
- Berth it atop Node-1 “in the blind”
- Spacewalks for outfitting, connecting
- Brief internal visit as well

# Oberg led orbital design team

- Joint NASA/Russia 'Technical Interface Meetings' to choose orbit alignment between ISS and existing Mir space station
- Final agreement: Same orbital inclination as Mir [51.6°] but 'ascending node' [equator crossing in celestial coordinates] was very different, so orbits were significantly out of plane.
- This was NASA's going-in desire, so as to prevent Moscow substituting old 'Mir' for promised new habitation module.
- For entirely different reason [avoiding Mir/ISS tracking sites overlap], Russian side also wanted planar misalignment
- Shortly before launch, Moscow changed mind, asked orbit be made co-planar to insure Mir compatibility; NASA refused and stuck with Oberg's original plan
- Oberg received 'Sustained Superior Performance' award

# Space Station orbital path



Inclination of 51.6 degrees was chosen to be compatible with Russian launch site, Baykonur, which significantly cut shuttle payload weight.

“Mystery Object” is connected to “trunnion pins”

- What is a trunnion pin?
- Why do big shuttle payloads have them?
- Post-deploy, how can they be a problem?
- What can be done about the problem?
- What can go wrong when doing it?
- How can imagery of that be misinterpreted?



# Trunnion pins



ISS022E059023

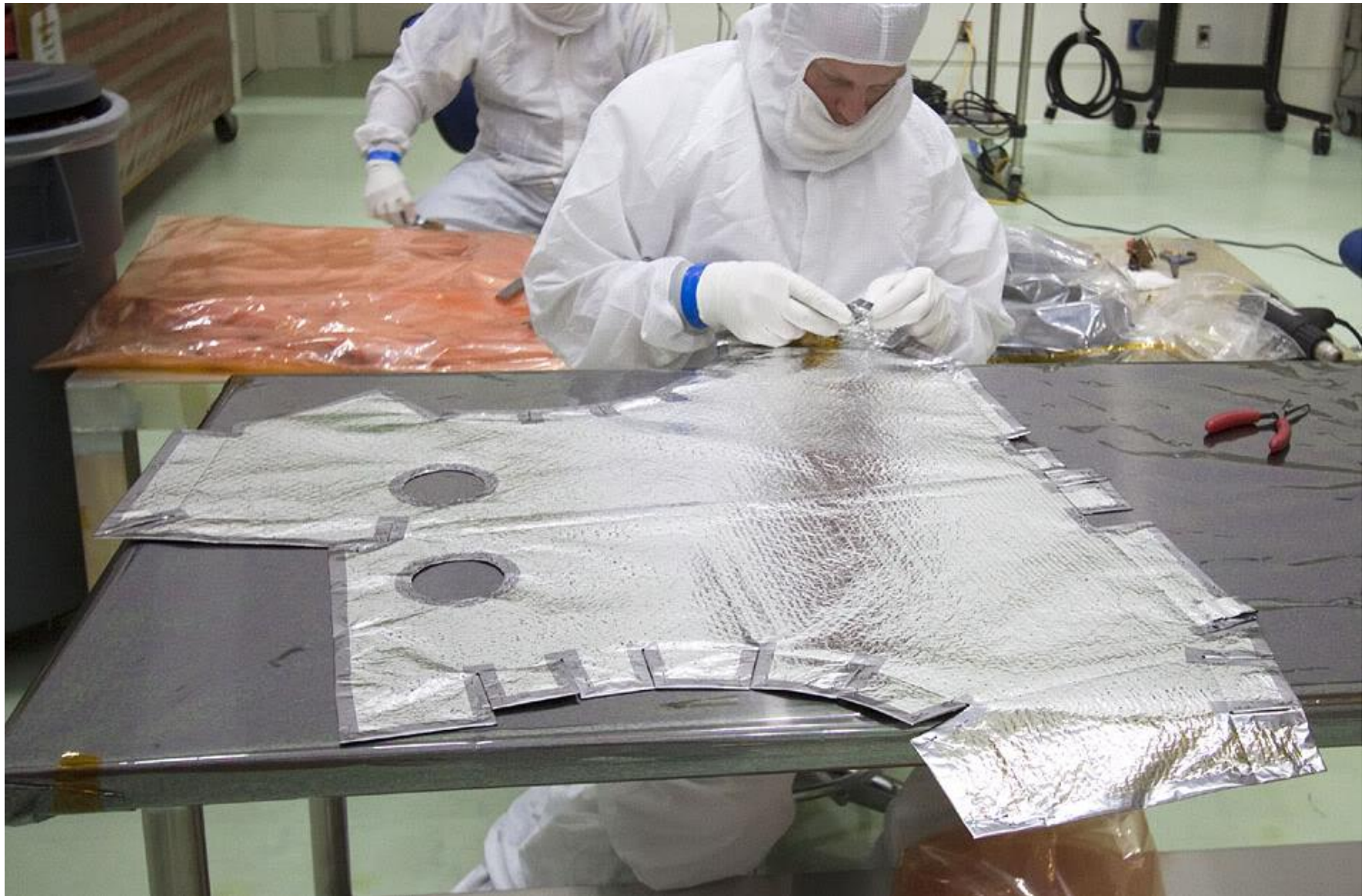


- One of the EVA tasks was installing thermal covers over the four trunnion pins on the Node. These are the stubby poles extending from its sides that had locked into sockets along the wall and keel of the Space Shuttle Orbiter's payload bay during launch to docking. Attached to round 'skid plate'.
- Once the node was deployed, the trunnion pins were useless. But as bare metal, they were 'heat leaks' into space. Strapping a blanket over each one would save a lot of power, since now it would not be needed for heating.

# What shape for the cover?

- The insulation blanket would need a 'sleeve' to slip over the long trunnion pin itself
- It would also need a reflective flat circular covering for the round metallic skid plate
- It would need flaps at points along the plate's circumference to easily attach to existing frames on the module, using bulky gloves
- It would have to contain handling loops and tiedowns for transport by the spacewalker
- It would need to fold up for stowage inside the shuttle cabin and to pass through hatches

# Thermal cover fabrication







# Space- walk task

Two spacewalks were needed for numerous assembly, connecting, and deploying operations [performed by Jerry Ross and Jim Newman].



## Different blankets on Russian FGB

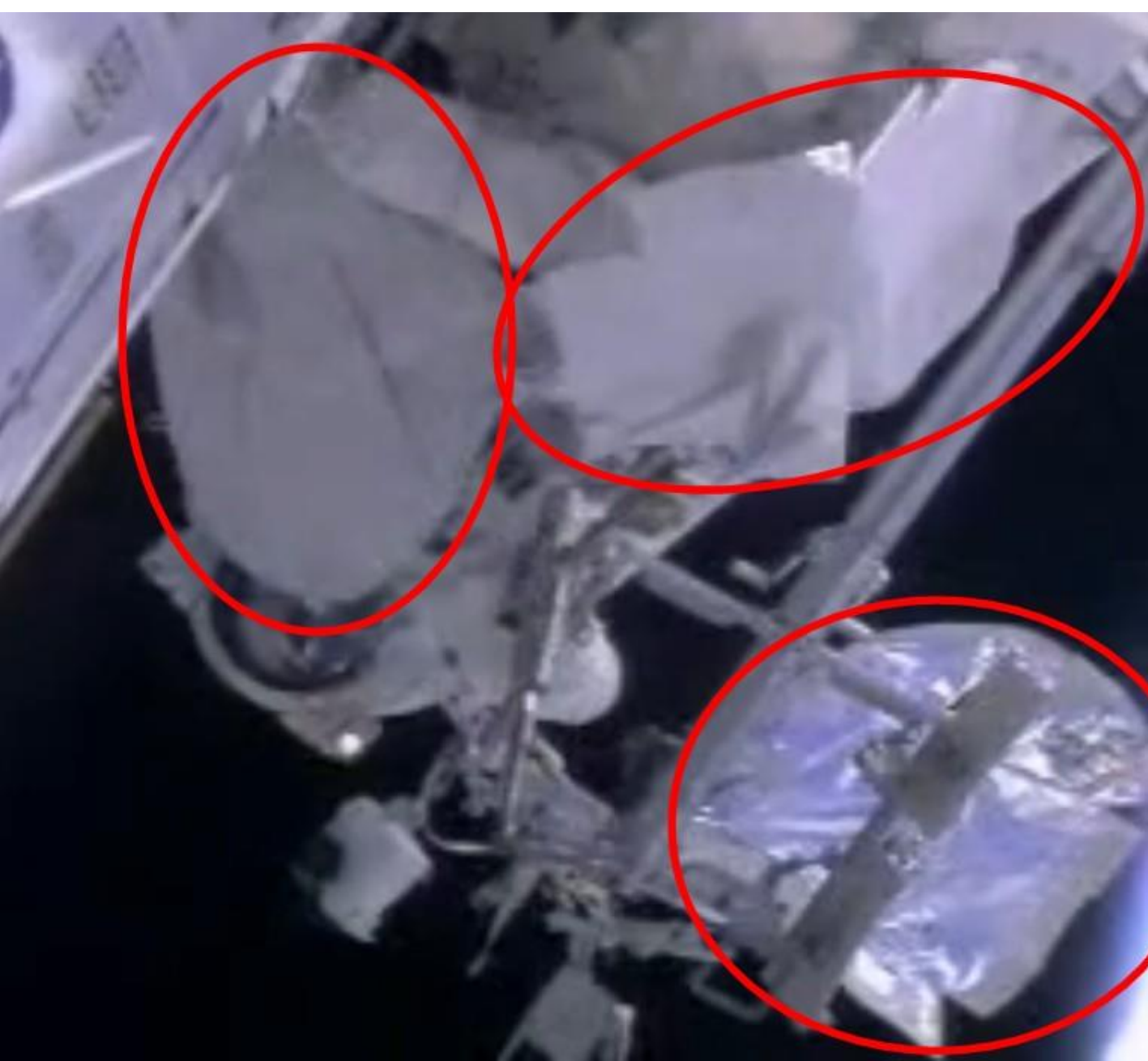
The second thermal blanket photo is on the Russian FGB module -- you can see the Cyrillic letter 'B' on the panel -- and none of them were dropped this time.



# Thermal blanket ready to install

From video of spacewalkers on STS-88 [December 1998]





EVA video of  
3 blankets  
awaiting  
installation,  
tethered  
loosely to  
astronaut  
spacesuit  
belt.

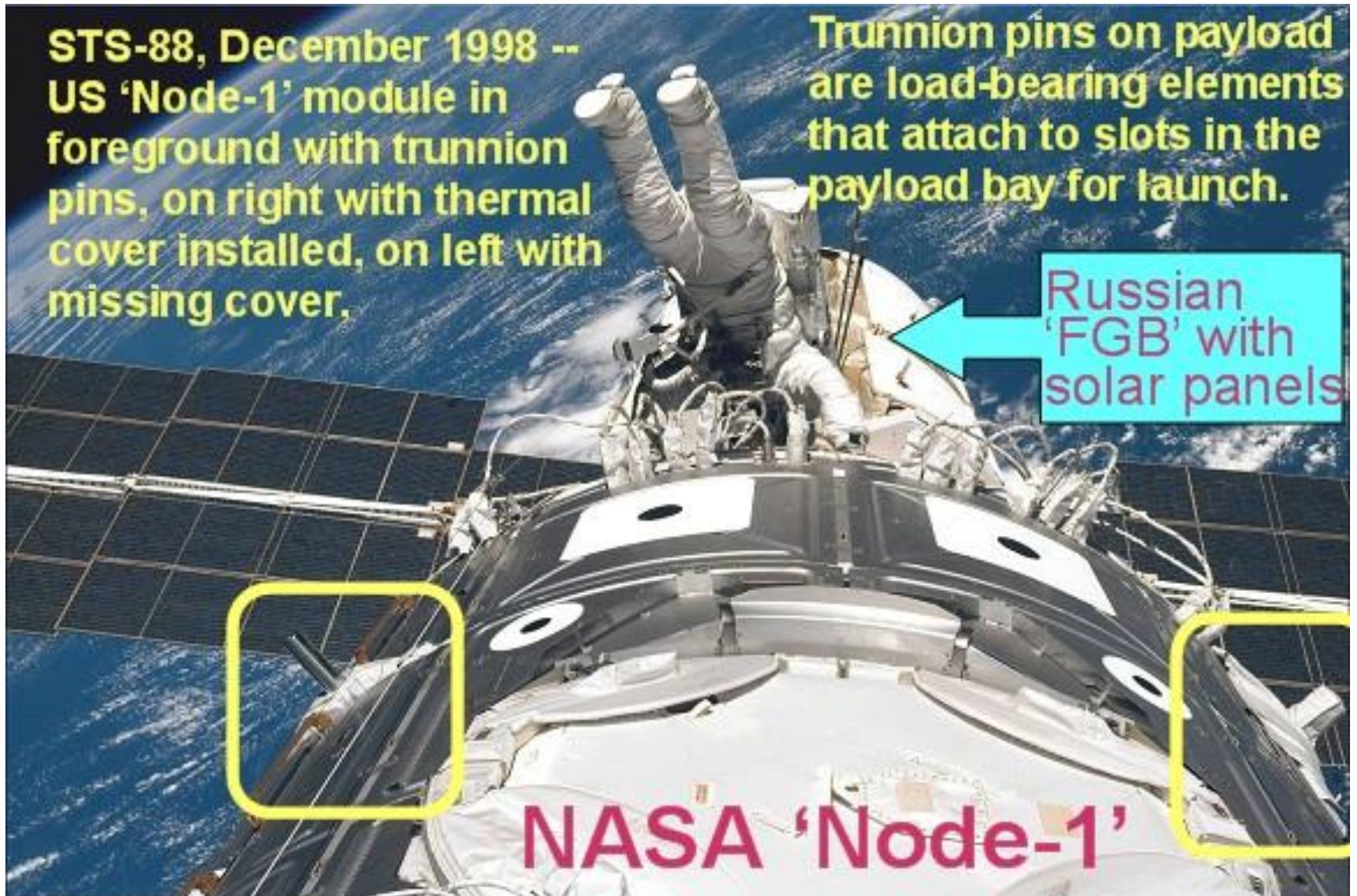
Three covers shown. Flat white top, silver underneath, pin 'sleeve' centered.



Spacewalk  
video shows  
crewmembers  
and blanket



# Where were the thermal covers installed?



# Ross – “I dropped it”



- from STS-88 CBS archive  
[http://www.cbsnews.com/network/news/space/STS-88\\_Archive.txt](http://www.cbsnews.com/network/news/space/STS-88_Archive.txt)
- "Jerry, one of the thermal covers got away from you," Cabana radioed. "How did it do that?" Ross asked. "Jim saw a tether, I'll guarantee you. Where did it go?"  
"It's out my \_"  
"I don't believe this," Ross said, sounding dismayed.  
"Jerry, which tether did it come off of?" Newman asked a few moments later. "I need to know which one not to trust."
- NORAD satellite catalog: <http://planet4589.org/space/log/satcat.txt>  
Object number 025570, international designator 1998-067C  
EVA debris -- Trunnion pin cover [NASA] LEO/I 92.26 379 x 391 x 51.6
- Launch 1998 Dec 4 Reentered 1998 Dec 14 - 1998 Dec 10



# NASA statement on lost items from STS-88

- During spacewalks debris, both small and large, are often thrown off the station for convenience, although sometimes tools unintentionally slip away.
- Such was the case in December 1998 when a slidewire carrier and a worksite interface were lost by the STS-88 crew while conducting an extravehicular activity for ISS.
- These objects were large enough to be tracked by the U.S. SSN [space surveillance network] and were cataloged (U.S. satellite numbers 25564 and 25565).
- Three other objects were also released by STS-88 spacewalkers, one inadvertently (an insulation blanket) and two by design (antenna spools), although only the former was officially cataloged.

[http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20060024715\\_2006175325.pdf](http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20060024715_2006175325.pdf)

# Tumbling motion

**frames 65-69 - rotated to match Earth's curve - scale consistent - cloud patterns matched with steady offset**



**frames 69-70  
separate fix, deeper zoom  
cloud pattern-matched  
scale consistent**



**STS 088 space debris - frames 65-70**

<http://posting.org/image/r5dvhs04/>

# NASA stills of blanket

<http://eol.jsc.nasa.gov/sseop/photo.pl?mission=STS088&roll=724&frame=66>

## Identification

Mission: STS088                      Roll: 724      Frame: 66

Mission ID on the Film or image: STS88

Country or Geographic Name:              OCEAN

Features: PAN-SNGLNT [sun glint], SPACE DEBRIS

Note: the first image was taken at 20:16:41. The last image was taken at 20:18:44. A span of two minutes.

# NASA's "dropped blanket" videos

The two videos show the spacewalkers installing several thermal covers [blankets] over trunnion pins on the US Node. The thermal covers are silver reflective on one side, and flat white on the other, and are shaped somewhat like a flattened flower blossom with square-cut petals.

In the videos you can see one of them drifting off, after it came loose from its tether to the wrist of one of the astronauts. It shows different profiles, as it slowly tumbles, to the TV cameras inside the crew cabin and to various cameras located in corners of the payload bay.

TAPE NUMBER: 616430 TITLE: STS-88 / 2A Orbit 090, 091

(Downlink Reel # 030)

EVENT		GROUND		RECORDING
GMT	MET	GMT	MET	CAMERA
344	005	344	005	

00:44:51 16:09:17      00:44:52 16:09:18      ELB

MS/ Ross and Newman prepare to install trunnion pin covers. CAM zooms in/out. Newman and Ross separate covers and prepare to find corresponding trunnion pins. Ross exits FOV.

00:51:33 16:15:59      00:51:34 16:16:00      C, ELB

WS/ Newman and Ross prepare to install trunnion pin covers. CAMs cycle. Trunnion cover floats away.

00:52:59 16:17:25      00:53:00 16:17:26      B

WS/ PLB with trunnion pin cover floating away.

00:53:39 16:18:05      00:53:40 16:18:06      C

MS/ Newman on RMS arm preparing to install trunnion pin cover.



# NASA video orbiter aft flight deck during spacewalk when blanket is dropped



You can see copilot Rick Sturckow at the left window, Nancy Currie at the right window, Sergey Krikalyov with the Hasselblad getting those detailed still images.

There's a long sequence of the slowly-tumbling thermal cover, clearly the same object previously misidentified as the 'Black Knight' satellite. It's viewed through a dirty window but the shape is unmistakably the same

You can hear the inside crew speculating on whether the spacewalkers would have a chance to grab it if it floated back.

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- **sts88 debris handheld excerpt**
- **Published on Jun 4, 2013**
- <https://www.youtube.com/watch?v=IXqw6NpCwlg>
- Onboard video of the Trunnion Pin Thermal Cover accidentally release during an EVA on STS-88 AKA 'Black Knight' ALIEN SPACESHIP

## VIDEO-2: sts88 debris downlink excerpt

<https://www.youtube.com/watch?v=6omlycVM0cw>


Published on YOUTUBE on Jun 8, 2013

The accidental release of the trunnion pin thermal cover

View from aft bay  
external camera

Spacewalking  
astronauts here

Tumbling thermal  
cover drifts here,  
video shows its  
shadow crossing  
robot arm



The image shows a YouTube video player interface. At the top left is the YouTube logo and a search bar. The video frame shows a space station component with solar panels. A yellow circle highlights a small object near a robot arm, with a yellow arrow pointing to it from the text 'Spacewalking astronauts here'. An orange circle highlights a shadow on the robot arm, with an orange arrow pointing to it from the text 'Tumbling thermal cover drifts here, video shows its shadow crossing robot arm'. The video player shows a progress bar at 3:38 / 5:48. Below the video, the title 'sts88 debris downlink excerpt' is displayed. The channel name 'opua97 - 5 videos' is shown with a 'Subscribe' button and a notification bell icon. On the right, there are 1,935 views, 3 likes, and 3 dislikes.

YOUTUBE: “The accidental release of the trunnion pin thermal cover”

<https://www.youtube.com/watch?v=6omlycVMOcw>

<https://www.youtube.com/watch?v=IXqw6NpCwlg>

The notorious still photographs that have been identified as the ‘Black Knight’ were taken from inside the cabin [one video shows the crewman while he is actually taking them], and show the same-shaped object, with the shiny reflective side facing space and thus looking pitch black. Even the sun gleams are the same.

The videos should convince any observant, perceptive person that the “Black Knight” stills are just higher-resolution snapshots of the same object seen in both videos: a thin, shiny thermal cover, one of several meant to be installed during the second spacewalk. But the “one that got away” -- and soon burned up.



Here's a still of the dropped thermal cover while it was still close to the Node. The irregular shape should look familiar, the reflected light seems different from a different angle.

# What happened to the blanket?

- The light, flimsy blanket was much ‘draggier’ than the dense, metallic shuttle and station
- At the assembly altitude, “differential drag” quickly sucks kinetic energy out of the blanket and it drops into a lower and lower orbit
- Blanket is briefly detected by NORAD radars
- But its orbit decays so fast it is gone in a week
- Reentry destruction is brief but thorough

**Dec 13, 1998 satellite observer’s log of dropped thermal cover**

<http://satobs.org/seesat/Dec-1998/0236.html>

# BUT – the blanket’s ghost lives ON!!

- Weird photos were seen and adopted by UFO buffs
- Exactly WHO imaginatively connected the pictures to the old ‘Black Knight’ myth isn’t yet known
- Reorganization of NASA on-line archives later led to rumors of censorship and coverup
- UFO sites refuse to acknowledge videos showing the object drifting away while crew discusses it.
- The rest, as they say, is history - or maybe hysteria?

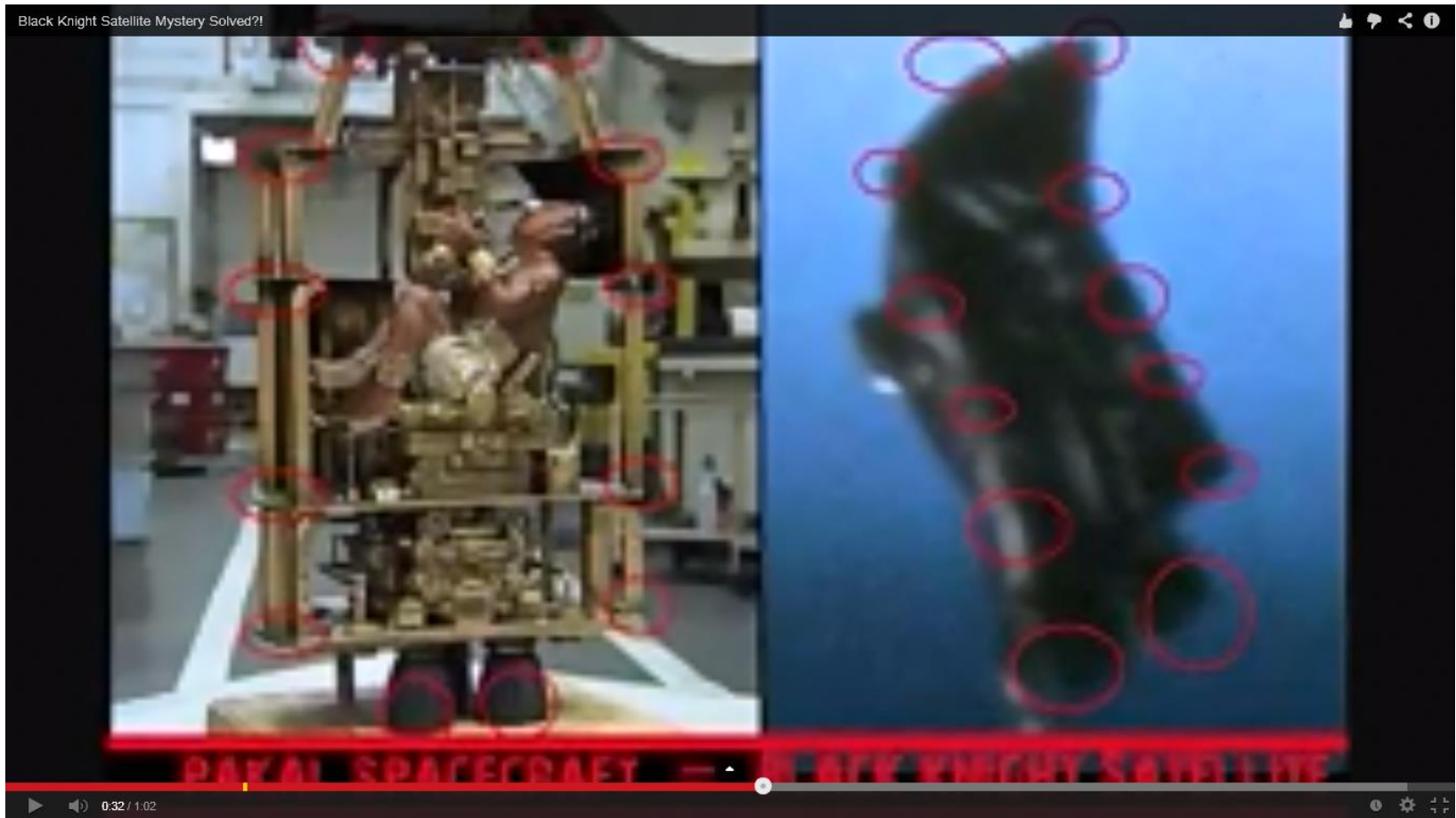
# HOAX PHOTO MONTAGE



“Artist concept” of alleged alien encounter, but falsely makes mystery object about five meters long. Also, no explanation of who was taking the photograph [one site: “A secret Soyuz mission”]



# Over-interpreted to match Mayan tomb statue of “spaceship pilot”



<https://www.youtube.com/watch?v=rgfFXgTsSbc>

**One thing is for sure, The Black Knight  
remains as one of the most mysterious  
objects to orbit our planet**



By adam horton,  
[http://article.wn.com/view/2014/05/22/NASA\\_lets\\_enthusiasts\\_reboot\\_zombie\\_1970s\\_spacecraft/#](http://article.wn.com/view/2014/05/22/NASA_lets_enthusiasts_reboot_zombie_1970s_spacecraft/#)  
<http://www.abovetopsecret.com/forum/thread882558/pg1>

When this satellite was discovered in the 50's, the U.S. did not have the technology to launch such a heavy payload.



Imaginative captions attached to 'space junk' are so much junk themselves, snares for naïve, imprudent viewers

# Open-minded internet surfers wanted!!

Be Aware! NASA is hiding something.



CREDITS

NASA.gov

AdamHorton@gmail.com

Google.com

Partnersinryme.com

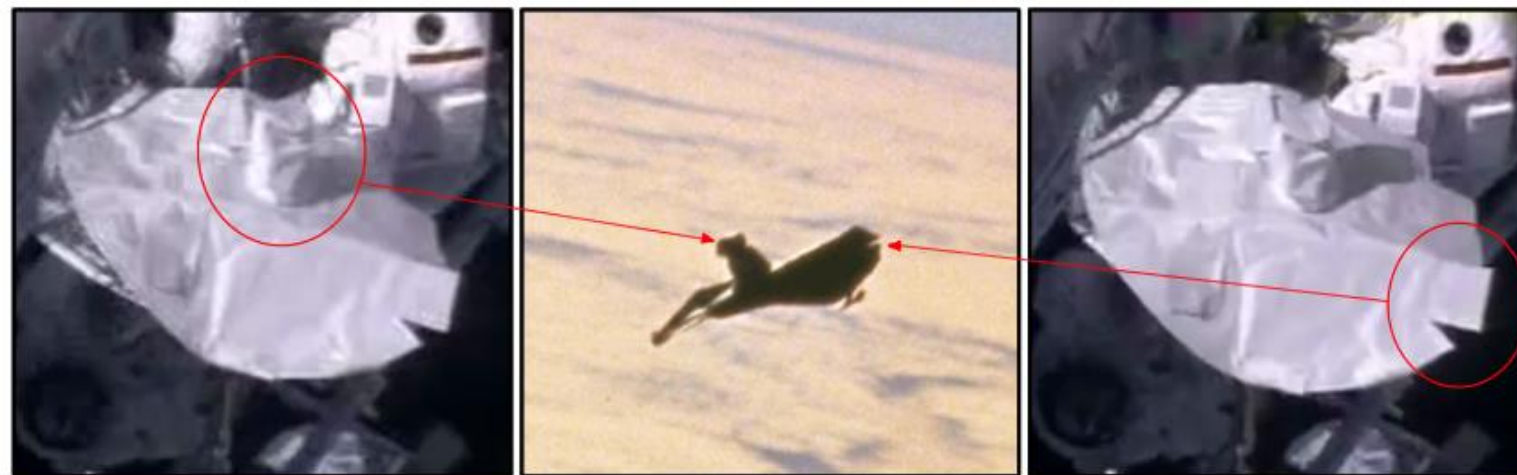
Thanks for watching!

Subscribe for more!

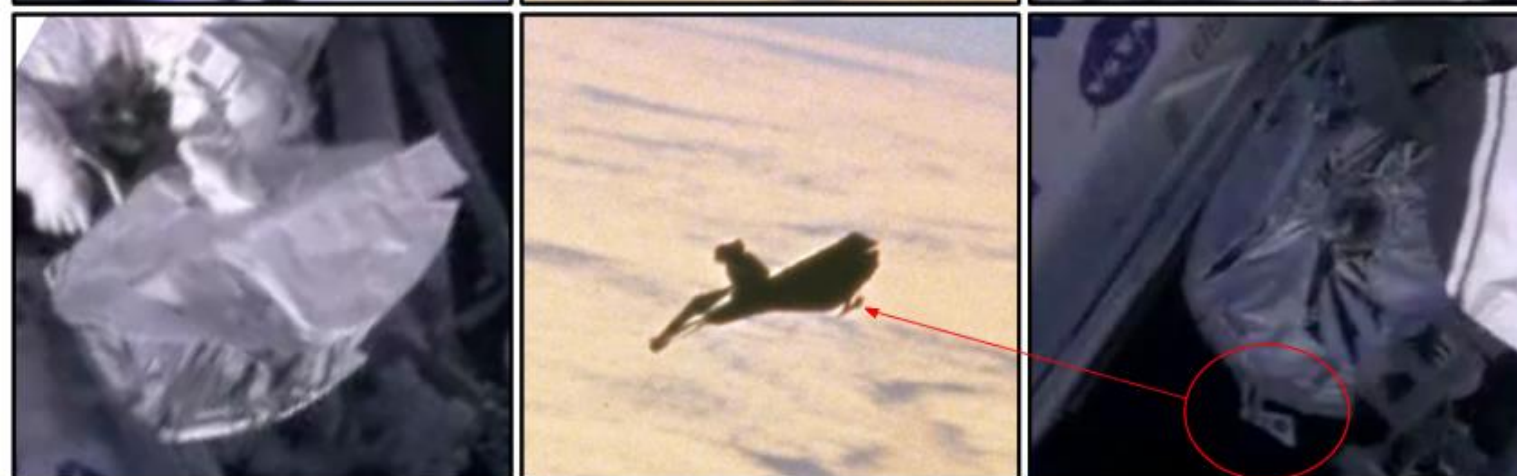
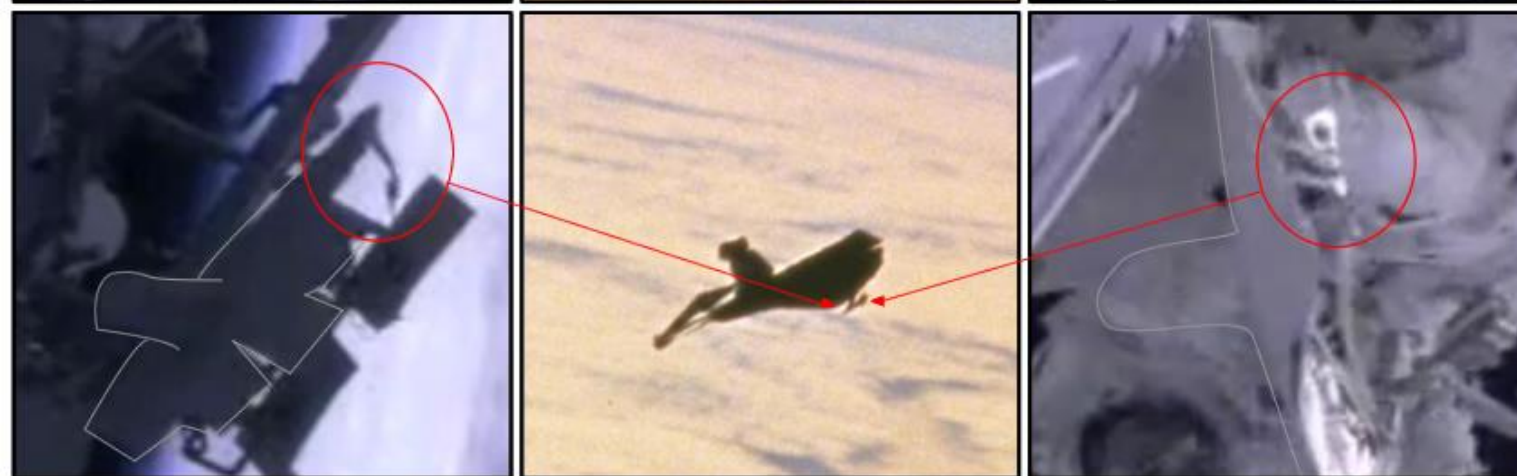


# True-believers' skeptical comments

- “Right off the bat the color is white, not black; and it possesses no details similar to the known NASA photos.”
- “This s###t , what ever it is has nothing to do with the original picture , this is just sad and a really pathetic attempt to cover this up.”
- [BC · South Groveland, Massachusetts](#) “A friend and I downloaded this set of six photos from STS 88 over a year ago;. We've shown them to anyone interested, and I've studied them extensively. In my opinion this set is undeniable proof of NASA's knowledge of advanced space technology, but whether it's ours or ‘theirs’ is up for debate.”
- [MB](#) “An insulation blanket? Really?,... further lies about the basics of e.t. existences here are just silly.”
- [PT](#) West Hills, California - “It can’t be a blanket due to there not being any wind in space... why would it contort in a vacuum? it's rearranging it's shape because it feels like it?”



Matching exact features of video of thermal blanket with famous still of “unidentified” object.



Courtesy Ectoplasm8

# Ectoplasm8's editorial

I find some of these responses quite funny. The intense passion to want to believe so badly that this is something alien, clouds any type of logical thinking. You're faced with an answer through statements, videos, and photos, yet you still refuse to accept it. Even with the relatively low quality of the video and the stills I've taken from that video, the similarities between the two are far too close to just write off. If you are on the fantasy side believing this is some sort of craft, alien satellite, etc., being defensive and refusing to accept anything outside of what you *want* to believe, is typical and expected.

Understanding that viewing any photo or video of a supposed UFO, or anything alien, is to be approached with an Earthly, boring, mundane explanation first. Not the other way around. And as we found out in this particular situation, the answer was an Earthly one. Unfortunately, some people are stubborn and form their initial opinions either just by what something looks like, or from UFO folklore and refuse to let go of that opinion even if the evidence shows otherwise.

<http://www.abovetopsecret.com/forum/thread963626/pg2>

# NOT THE END

- These kinds of reality-independent stories survive decades despite collapse of evidence
- Youtube “STS-88 UFO” gives 4,000 hits
- Google of “STS-88 UFO” gives 2.3 million hits
- Google of “Black Knight” sat gives 2,000,000.

VOICE OF RUSSIA pipes up:

[http://voiceofrussia.com/news/2013\\_08\\_08/13000-year-old-Alien-satellite-orbiting-Earth-7824/](http://voiceofrussia.com/news/2013_08_08/13000-year-old-Alien-satellite-orbiting-Earth-7824/)



# Further reading on original myth

Typical mythologized version

- [http://www.bibliotecapleyades.net/ciencia/ciencia\\_flyingobjects140.htm](http://www.bibliotecapleyades.net/ciencia/ciencia_flyingobjects140.htm)

THE CASE OF THE PHANTOM SPACECRAFT // Winter 1980

“Skeptical Inquirer”, by James Oberg

[http://www.jamesoberg.com/phantom\\_satellite.pdf](http://www.jamesoberg.com/phantom_satellite.pdf)

Duncan Lunan’s latest “Epsilon Bootes” [Long Delayed Echoes] view

- <http://www.blogtalkradio.com/earthancients/2014/03/15/duncan-lunan-epsilon-bootis-revisited>
- [http://www.winterwind-productions.com/feature\\_articles/duncan\\_lunan\\_unabridged\\_pt2/pg1/](http://www.winterwind-productions.com/feature_articles/duncan_lunan_unabridged_pt2/pg1/)

## [The Truth About the Black Knight Satellite Mystery](#)

**Armagh Planetarium, July 2013**

- <http://www.armaghplanet.com/blog/the-truth-about-the-black-knight-satellite-mystery.htm>

Brian Dunning at SKEPTOID website

- <http://skeptoid.com/episodes/4365> |

# Why “phantom satellite” stories started

As a kid I was a space nut and watched the media speculations on 'unknown' stuff in orbit. I saw the slow-flashing Sputnik booster. I kept scrapbooks.

Nobody really knew how to measure and verify many of the observations, there were teams of enthusiasts everywhere looking for anomalies [and Commies!] and for the most part spotting high-altitude aircraft, or occasional meteors.

Predictions for next day observations were shaky like weather forecasts, and many factors -- such as the oblateness of Earth -- had effects that were different from expected.

There was no way that confusion and honest misunderstanding was NOT going to pollute the raw data base, and it took several years to work out reliable techniques.

Once things settled down, there weren't any more 'phantom satellites' except occasional Soviet secret launches.