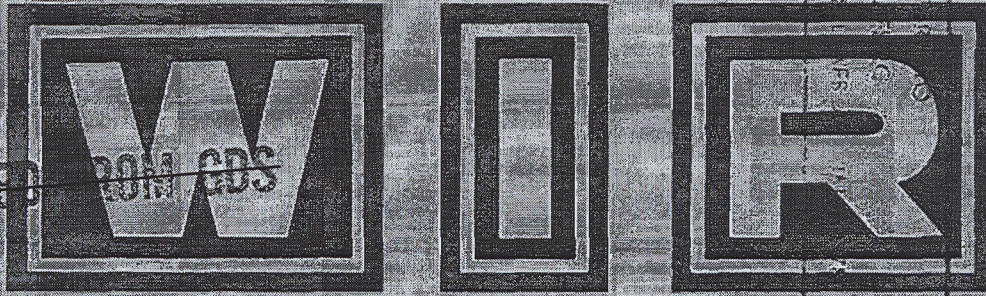




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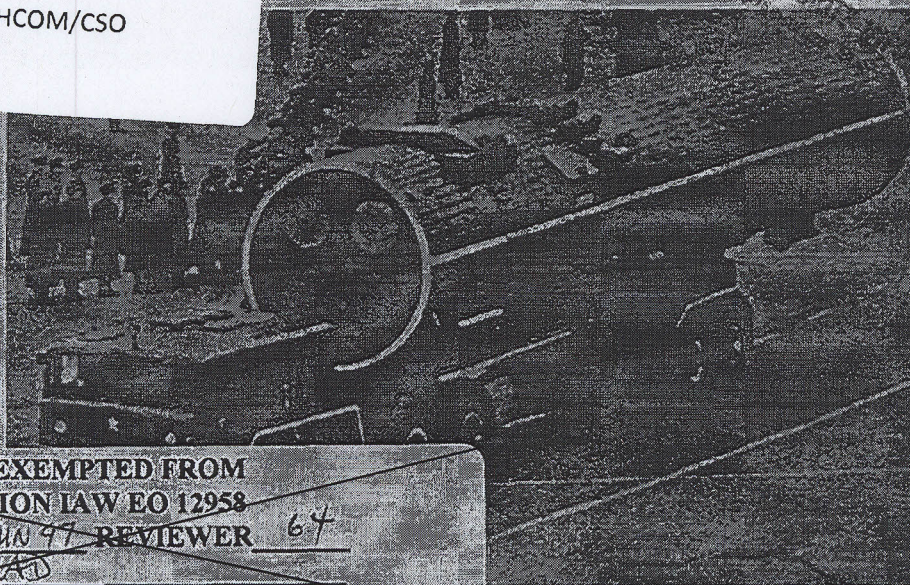
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WEEKLY INTELLIGENCE REVIEW (U)

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Weekly  
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Review

K410.607-22

Issue No. 29/65, 16 July 1965

## The WIR in Brief

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as non-responsive  
to the appeal

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to the appeal

### Space

POSSIBLE SPACE EVENT OF 13 JULY A FAILURE  
Telemetry intercepted but no object appears.  
SOVIET DESIGN PHILOSOPHY, OFTEN USEFUL,  
OF LITTLE USE IN INTERPLANETARY PROGRAM  
Soviets cannot rely on adaptations of "off-the-  
shelf" gear for deep-space communications.

Portion identified  
as non-responsive  
to the appeal

COVER: GALOSH ABM (from Flight Review  
International) (OFFICIAL USE ONLY)  
NOTE: Pages 24, 26, 27, 30, 31, 34, 35,  
38, and 39 of this issue are blank.

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# space

significant  
intelligence  
on space  
developments  
and trends

50X1 and 3, E.O.13526

## Possible Space Event of 13 July a Failure

A possible space or missile failure of 13 July is indicated by a brief [redacted] suggestive of the SS-6 ICBM booster [redacted] or detection of an associated payload or missile re-entry body.

A space event is suggested, if the signals were actually SS-6 telemetry, since this ICBM is seldom used now for any purpose except space launches.

The purpose of the launch, which took place apparently at Tyuratam, is not known. However, launch of a photoreconnaissance-type Cosmos vehicle is suggested:

- The apparent time of launch (about 1100Z) is within the window of Cosmos photorecce launches of the past 18 months or more.
- All vehicles of this series have been launched from Tyuratam by the SS-6 ICBM.
- Soviet photorecce launches of the past two years have increased in frequency in June and July, when lighting conditions for photoreconnaissance in the northern hemisphere are at their optimum.

(Various sensors; NORAD)

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## Soviet Design Philosophy, Often Useful, of Little Use in Interplanetary Program

The Soviet design philosophy, "If it works, don't change it," well known to Western intelligence analysts, usually has paid off quite well in the USSR's military programs. It has been particularly evident in the development of new fighter aircraft, ground radars, and all types of missiles.

The practice of altering proven equipment whenever possible to meet new mission objectives, rather than designing completely new tailor-made systems, has often enabled the Soviets to save on the costs of designing and tooling up for production of new weaponry and equipment, reduced training time for operating and maintenance personnel, kept logistics problems to a minimum, and, most important of all, led to early operational capability.

The Soviet space program, founded as it was on the military-related aircraft, electronics, and munitions industries, fell heir to this philosophy. Missile boosters appear to have been used to launch all Soviet satellites to date (although special upper staging for space missions has also been used). The pressure shell of an old balloon gondola appears to have been adapted for use as a capsule for manned space flight. A SAM (surface-to-air missile) booster appears to serve as the retrorocket for recoverable satellites, and a SAM sustainer may have been used -- without success to date -- to provide retrofire for soft-landing instrumented payloads on the Moon.

Too great a past reliance on this philosophy, however, could have been detrimental to the Soviet interplanetary program, for in this area it would have few applications.

The Soviets have launched 13 interplanetary probes to date and all have been failures, except to the limited extent that 4 of them have telemetered some data on the space environment.

Nine failures resulted from malfunctions of propulsion systems -- the Venik 3d stage and the interplanetary 4th stage -- which had not been tested and proven previously in some other role.

The other 4 attempts -- Venus 1, Mars 1, Zond 1, and Zond 2 -- were successfully injected into interplanetary trajectories but failed to fulfill their missions when they ceased transmitting long before they were scheduled to reach their targets.

The reasons for these failures are not known -- perhaps not even to the Soviets. Soviet technology, so far as the West knows, is equal to the task of designing and building interplanetary probes which can transmit the necessary high-data-content telemetry back to Earth over the long distances involved in interplanetary flights. Soviet deep-space electronic



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systems, so far as can be determined, are soundly engineered and incorporate the required theoretical capability. Current Soviet know-how in low-noise devices and precision antennas (crucial factors in transmitting over long distances) and in the application of information theory (crucial in processing weak signals received over millions of miles) are believed to be adequate.

The Soviets, furthermore, habitually concern themselves with reliability and high quality of components for equipment used on high-priority missions, such as interplanetary flights.

The fact is that off-the-shelf electronics gear is far from adequate for transmitting signals over tens of millions or hundreds of millions of miles. The technology required for such missions pushes the existing state of the art to the limit. Instead of exploiting proven equipment, the Soviets have been driven to design communications gear, completely new from start to finish, which probably had to be laboratory-built.

The rigorous demands of deep-space communications may have also forced the Soviets to abandon other facets of their design philosophy, such as simplicity of concept. There is, of course, no way known to date of building equipment simply which can transmit at distances of a hundred million miles. Given their payload capabilities, however, the Soviets have probably managed to adhere to their favored concept of redundancy to insure reliability.

(CIA; NORAD)

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