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NORTH AMERICAN AIR DEFENSE COMMAND

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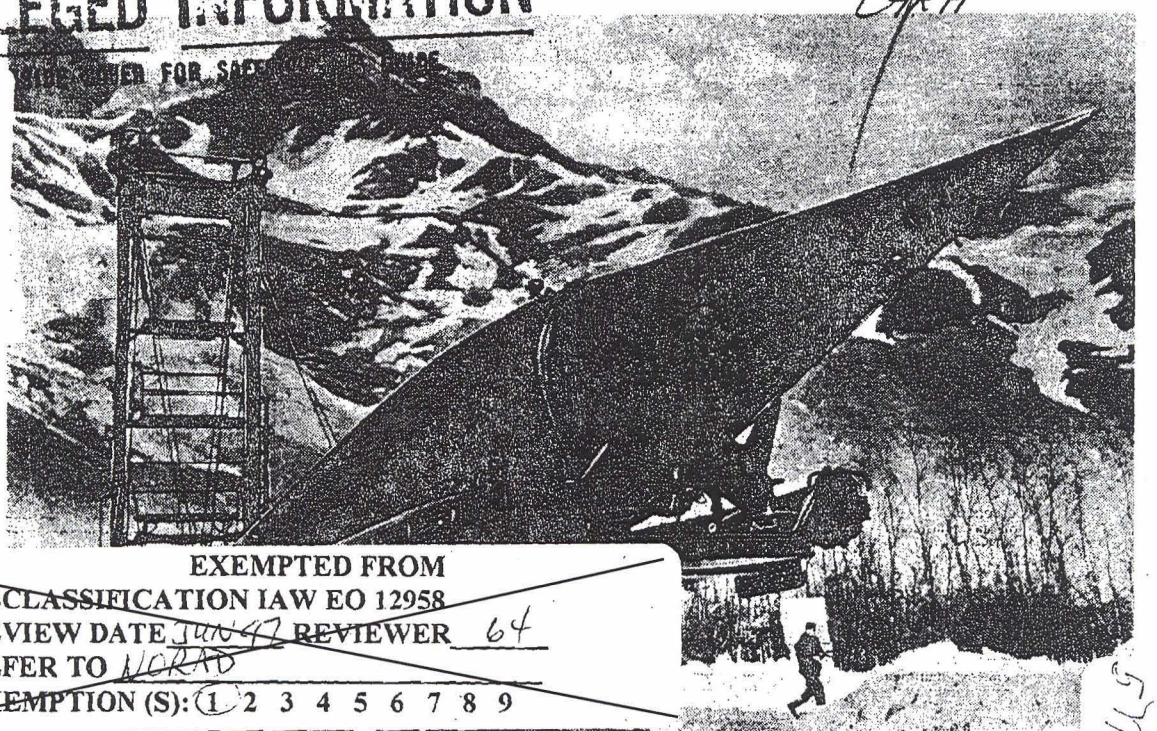
WEEKLY INTELLIGENCE REVIEW (U)



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5 Mar 1965

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NORAD Weekly Intelligence Review

Issue No. 10/65, 5 March 1965

The WIR in Brief

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

Space

Portion identified as non-responsive to the appeal

COVER: Soviet surface-to-surface missile. (From Red Star) (OFFICIAL USE ONLY)

NOTE: Pages 30, 31, 34, 35, and 38 of this issue are blank.

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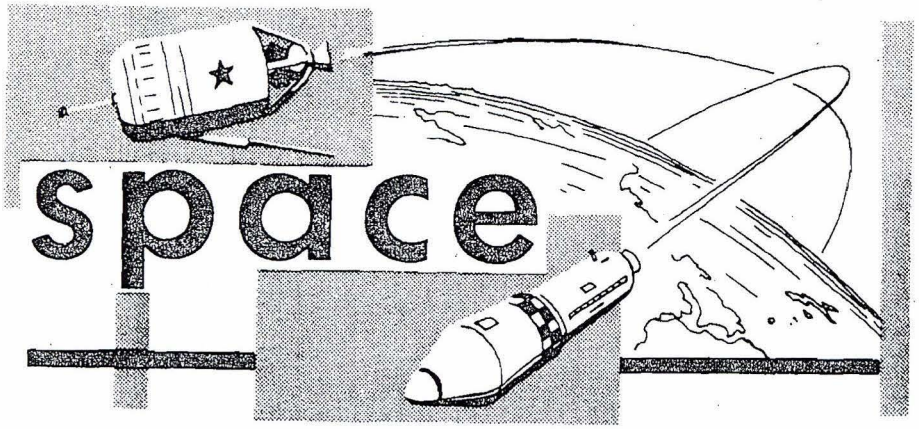

significant intelligence on space developments and trends

Soviet Lunar Shelter Concept Much Like US's

Soviet philosophy for design of lunar shelters is similar to the US's, judging by a Soviet paper presented to an international astronautical congress which met in Warsaw last year. The paper, which contained nothing revolutionary, indicated that the Soviet lunar-shelter program is still in its exploratory phase.

The first shelters will probably be temporary in nature, will rest on the surface, and will make use of conventional structures, such as the final stages of space rockets. Later shelters -- more permanent installations -- will probably be buried, inflatable structures.

Shelters will be buried to protect against meteorites, radiation, and the extreme fluctuations in temperature which mark the lunar surface. The main body of the buried shelter will be a rigid hexagonal cylinder supporting the surrounding inflated structure. The top of the shelter will form an air lock, through which supplies and personnel may be transferred directly between shelter and lunar vehicle.

A sphere would be the ideal shape for inflation, since it would provide the greatest volume with the least surface. The Soviet paper pointed out, however, that a sphere would not be optimum from the standpoints of fabrication, assembly, replacement of components, addition of new units, exploitation of lunar resources, and the direction of the Moon's gravity. (FTD)

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Most Recent Intercepts of Soviet Space-Vehicle Transmissions

Following are the most recently reported intercepts of transmissions from Soviet space vehicles which may still be transmitting:

Vehicle	Date of Launch	Signal Characteristics	Date of Intercept
Electron 4	10 Jul 64	50X1 and 3, E.O.13526	
Cosmos 36	30 Jul 64		
Zond 2	30 Nov 64		
Cosmos 53	30 Jan 65		
Cosmos 55	21 Feb 65		
Cosmos 56	21 Feb 65		

Cosmos 51, which was launched 9 December 1964 and was included in the intercept listing shown in WIR 5/65, apparently is no longer transmitting; last intercepts from this vehicle were made on 5 January 1965.
(Various ELINT sensors)
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Cosmos 58 Mission Not Known

The mission of Cosmos 58, which the Soviets launched from Tyuratam at about 0501Z, 26 February, is still speculative. Its orbital parameters have been announced as follows:

	By SPADATS	By TASS
Inclination	65 degrees	65 degrees
Period	96.77 minutes	96.8 minutes
Apogee	649 kilometers (348 n.m.)	659 kilometers (354 n.m.)
Perigee	560 kilometers (300 n.m.)	581 kilometers (313 n.m.)

Payload transmissions have been intercepted as follows:

50X1 and 3, E.O.13526

A 90.022-mc/s transmission reported by TASS 50X1 and 3, E.O.13526 as of latest report.

The standard Tyuratam launch vehicle -- SS-6 ICBM booster-sustainer and Lunik upper stage -- was used.

The Soviet news agency TASS made a stereotyped announcement 7 hours after launch (in contrast with the usual 3.5-4 hours) that all of Cosmos 58's systems were functioning normally and that the vehicle was participating in the Cosmos scientific program, which includes collection of data on near-Earth space and on the Earth's cloud cover. As usual, TASS did not specify which segments of this mission Cosmos 58 was performing.

The vehicle's average altitude (about 325 n.m.) and the circularity of its orbit are compatible with meteorological reconnaissance; however, no video signals, which would characterize a weather satellite, have been received from Cosmos 58.

The new satellite may be connected, however, with development of a communications relay satellite system, in association with Cosmoses 54, 55, and 56.

Cosmos 58 is similar in many respects to Cosmos 44, which was launched from Tyuratam on 28 August:

- Both were launched from Tyuratam by the same type of launch vehicle.
- Both were injected into highly circular orbits of 65-degree inclination, although Cosmos 58's average altitude is somewhat lower than that of Cosmos 44.
- Both followed by only a few days Tyuratam launches of multiple satellites. (Cosmos 44 was launched 10 days after the simultaneous launch of Cosmoses 38, 39, and 40; Cosmos 58 was launched 5 days after the simultaneous launch of Cosmoses 54, 55, and 56.)

Cosmoses 38, 39, 40, and 44 are also suspected of some role in the development of a communications relay system.
(SPADATS; various ELINT sensors; TASS; NORAD)
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Outcome of Zond 2 Mars Probe, Still in Doubt

The outcome of the mission of Zond 2, Soviet Mars probe launched from Tyuratam on 30 November 1964, is still in doubt.

Mikhail Keldysh, President of the Soviet Academy of Sciences, recently told a Western scientist that the probe's present trajectory will bring it within 800 n.m. of its target. SPADATS estimates, however, on the basis of two early photographic sightings of Zond 2 by the Mount Palomar observatory, that Zond 2 will miss Mars by about 1 million miles when it makes its closest approach to the planet next August. Keldysh's remark intimates that an inflight guidance correction has been made, one that should have been made relatively early in the flight. To date, however, the Soviet press has not announced execution of the correction, in contrast

with previous claims that two such corrections had been made for Zond 1, which was launched toward Venus earlier last year.

But then, the Soviets have been unusually reticent about the whole Zond 2 operation. They have not reported, for instance, since mid-December on the probe's progress or on the conduct of communications sessions. This normally could be taken as an indication that contact with the probe had been lost. But Zond 2 is still transmitting: a cooperating sensor reports an intercept of about an hour's duration on [50X1 and 3, E.O.13526] although the signal was very weak.
(SPADATS; CIA; cooperating sensor; NORAD)
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Soviet Space Effort Off To Running Start in 1965

The Soviet space program is off to a running start this calendar year. Few launches ordinarily are scheduled by the USSR for the first two months of the year, unless the window is open for an interplanetary or lunar event. Last year -- their busiest year yet -- the Soviets broke precedent with 3 launches involving 4 vehicles in January and February:

Electrons 1 and 2 (in a single launch)
Cosmos 25 -- a Kapustin Yar launch of a probable research vehicle
A Tyuratam launch of 19 February 1964 which failed to achieve orbit

This record for the Soviets has already been broken, with 5 launches involving 7 vehicles taking place in January and February this year:

Cosmos 52 -- a Tyuratam-launched vehicle, probably for photoreconnaissance and other missions
Cosmos 53 -- a Kapustin Yar-launched research vehicle
Cosmoses 54, 55 & 56 -- a single launch involving 3 payloads, probably associated with space communications
Cosmos 57 -- a test vehicle, probably intended as a forerunner of a manned space event
Cosmos 58 -- a test vehicle, possibly associated with meteorological reconnaissance or space communications

The Soviets probably planned a manned space event for about 1 March, but the disintegration in flight of its apparent precursor -- Cosmos 57 -- might delay it. Rumors that the Soviets would soon put more men in space were circulating in Moscow in late February. These reports apparently were leaks; similar reports have preceded previous launches and, in the case of last year's Voskhod, they proved correct in that the event was multi-manned.

The imminence of some type of space event is suggested by the fact that all 6 Soviet missile-range instrumentation ships, which deploy for some space events, are now on station in the Pacific. ICBM firings to a Pacific impact area are not likely at this time, since the Soviets have not announced the closure to shipping of any missile impact area.

One of the most probable events is an in-orbit maneuver or even a rendezvous of two spacecraft, either or both of which might be manned. Another but less likely possibility is a lunar event of some kind, such as a soft, instrumented landing on the Moon in which photography might also be involved. The next launch windows for such an event will be open on 11-12 March. (NORAD)

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