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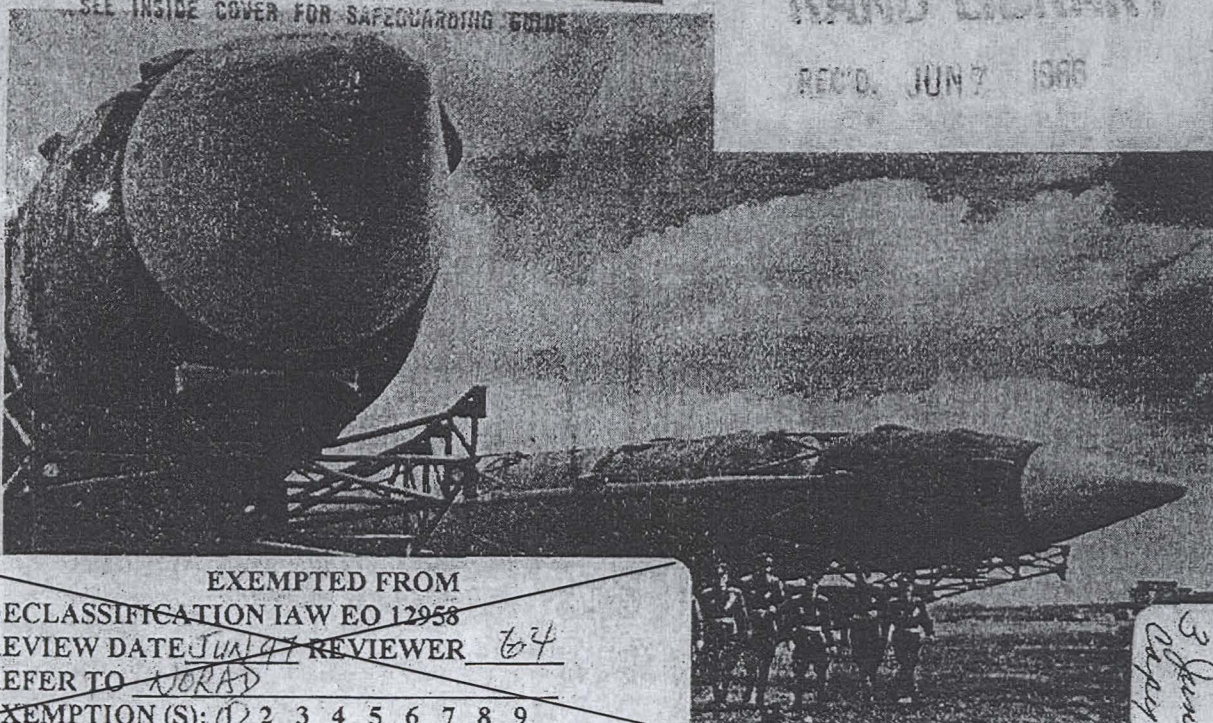
NORTH AMERICAN AIR DEFENSE COMMAND

W O R

WEEKLY INTELLIGENCE REVIEW (U)

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WIR 22/66
3 Jun 66

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Weekly
Intelligence
Review

Issue No. 22/66, 3 June 1966

The WIR in Brief

Portion identified as non-responsive to the appeal

MISSILE RANGE FIRING LOG
19 April-30 May.

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Space

THIRD POSSIBLE TEST OF FRACTIONAL ORBITAL
BOMBARDMENT SYSTEM CONDUCTED

Payload probably re-entered in Kamchatka
impact area.

SIGNAL SNAFU PROBABLY PROMPTED SOVIETS
TO DESTROY VOSKHOD 2's PRECURSOR,
COSMOS 57

Redundant signals may have commanded pre-
mature retrofire.

SPACE STATUS REPORT

As of 31 May 1966.

COSMOS 119 APPARENTLY A MISSION FAILURE;
PAYLOAD FAILED TO SEPARATE FROM
ROCKET

Apparently not transmitting information.

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COVER: SCRAP, which Soviets claim is
orbital missile (from Red Star)
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NOTE: Pages 28, 30, 31, 34, and 35 of
this issue are blank.

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Missile Range Firing Log

US sensors detected the following Soviet Space-missile launches during the period 19 April-30 May 1966:

<u>Approximate Time & Date of Launch</u>	<u>Vehicle or Propulsion System</u>	<u>Launch Site</u>	<u>Range</u>
1039Z, 20 Apr	Cosmos 115*	Tyuratam	Orbital
1515Z, 21 Apr	SS-11	Tyuratam	3400 n. m.
0419Z, 22 Apr	SS-9	Tyuratam	3400 n. m.
0907Z, 22 Apr	SS-4	Kapustin Yar	1050 n. m.
2055Z, 22 Apr	SS-4	Kapustin Yar	1050 n. m.
0544Z, 24 Apr	SS-11	Tyuratam	3400 n. m.
0710Z, 25 Apr	3d Molniya I#	Tyuratam	Orbital
1000Z, 26 Apr	SS-7	Tyuratam	3400 n. m.
1005Z, 26 Apr	Cosmos 116**	Kapustin Yar	Orbital
0315Z, 26 Apr	SS-9	Tyuratam	4500 n. m.
0627Z, 27 Apr	SS-4	Kapustin Yar	1050 n. m.
1102Z, 27 Apr	SS-4	Kapustin Yar	1050 n. m.
0409Z, 28 Apr	SS-11	Tyuratam	3400 n. m.
0418Z, 29 Apr	SS-11	Tyuratam	3400 n. m.
1059Z, 06 May	Cosmos 117*	Tyuratam	Orbital
1410Z, 11 May	Cosmos 118*	Tyuratam	Orbital
1100Z, 17 May	Satellite failure*	Plesetsk	Failure
1929Z, 19 May	Unidentified	Tyuratam	----
0315Z, 20 May	SS-11	Tyuratam	4500 n. m.
1236Z, 21 May	SS-4	Kapustin Yar	1050 n. m.
0530Z, 24 May	Cosmos 119**	Kapustin Yar	Orbital
0729Z, 25 May	SS-4	Tyuratam	1050 n. m.
1227Z, 25 May	SS-5	Kapustin Yar	1050 n. m.
1000Z, 26 May	SS-4	Kapustin Yar	1050 n. m.
0701Z, 27 May	SS-7	Plesetsk	3400 n. m.
0706Z, 27 May	SS-6	Tyuratam	3400 n. m.
1200Z, 27 May	SS-4	Kapustin Yar	1050 n. m.



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0305Z, 29 May	SS-9	Tyuratam	4500 n. m.
0604Z, 30 May	SS-4	Kapustin Yar	1050 n. m.
0506Z, 30 May	SS-5	Kapustin Yar	2000 n. m.
1653Z, 30 May	SS-11	Tyuratam	3400 n. m.

*Launched by SS-6 ICBM, injected into orbit by Lunik 3d stage.

#Launched by SS-6 ICBM, injected into orbit by Venik 3d stage, reinjected into still higher orbit by 4th interplanetary stage.

**Launched by smaller 2-stage vehicle.

Not included in the 21 March-18 April listing (WIR 16/66) was the test firing of a probable 3-stage solid-propellant missile on 11 April from Kapustin Yar (p. 6, WIR 17/66).

(Various Sensors)

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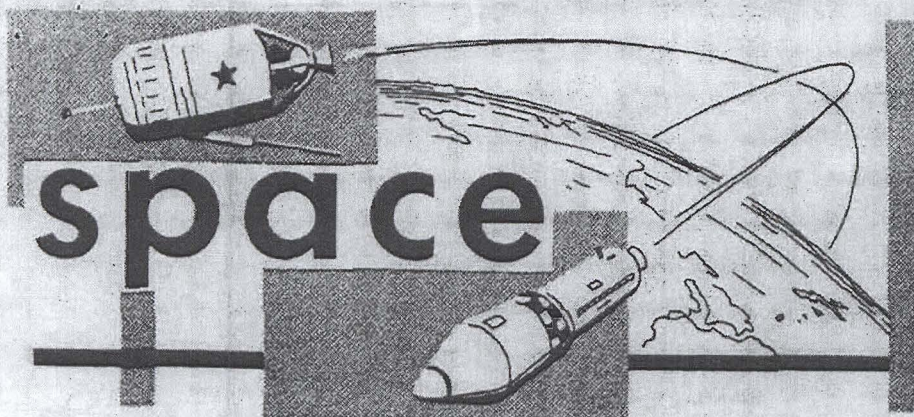
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significant
intelligence
on space
developments
and trends

Third Possible Test of Fractional Orbital Bombardment System Conducted

The Soviets on 19 May may have conducted their third test of a FOBS (fractional-orbit bombardment system).

A 3-stage vehicle comprising the 2-stage SS-9 ICBM and an apparent re-entry stage was launched from Tyuratam at about 1930Z. RADINT indicates that the trajectory at the end of second-stage thrust was very close to being orbital. The velocity, though not great enough to achieve orbit, was much greater than that of an ICBM, and the apogee was much lower than that of an ICBM. Debris, apparently from the second stage, fell into an area of the Pacific into which, the Soviets had warned, portions of booster rockets would fall. The thrust of the third stage, instead of adding velocity to the payload, probably slowed it down to survive re-entry and, possibly, impact on the Kamchatka Peninsula.

The 19 May launch appears to have been successful. The first test (16 December 1965) of this type apparently failed when the third (re-entry) stage malfunctioned (p. 5, WIR 18/66). The second test, conducted 5 February 1966, may have been successful, but the evidence is inconclusive.

In all 3 launches, debris and fragments, apparently from the second stage, impacted in an area of the northwestern Pacific (a rectangular zone near 43° N., just east of the International Date Line), apparently an extension of the Tyuratam Missile Test Range beyond the Kamchatka Peninsula. The Soviets probably did not intend that a payload or re-entry vehicle would impact in this area, for they apparently sent no ships to monitor such events. This area has now been opened to shipping, an indication that this particular test series has ended.

The Soviets announced last December that the launches would involve "tests of a variant of a system for landing space vehicles." The actual purpose of the launches cannot be determined at present with certainty, but test of a FOBS is a strong possibility; in any event, the tests gave the Soviets experience which could contribute to the development of such a system.

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Both ICBMs and FOBS have their advantages and disadvantages. For a given amount of thrust, the ICBM delivers more megatonnage to a range of about 6000 n. m., but the FOBS is less vulnerable to detection and interception and has unlimited range. The ICBM, therefore, can be more effective against undefended targets, while the FOBS is better suited for attacking targets which have ABM defenses and for making attacks over extended-range routes, such as launches around the South Pole.

(NORAD)

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Signal Snafu Probably Prompted Soviets to Destroy Voskhod 2's Precursor, Cosmos 57

Cosmos 57, unmanned precursor to Voskhod 2 (from which Cosmonaut Leonov made his space walk), may have been destroyed on command from the ground after unplanned activation of the retrofire programer by scrambled ground commands. The spacecraft was launched at about 0730Z, 22 February 1965, and began to disintegrate during Revolution One (some-time after its first northbound crossing of the Equator).

The primary mission of the launch was to test the operation of the airlock through which Leonov would leave Voskhod 2 for his 10-minute stay in space.

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Retrothrust commenced but the descent was not normal. Cosmos 57 began to tumble, apparently because retention of the extended airlock and its accessories and support equipment caused the vehicle to be off-balance in relation to the axis of thrust during retrofire. When the Soviets



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realized what was happening, they knew that a controlled descent was impossible, so they made the most of a bad situation by emptying the airlock in a test of the vent system. A few minutes later they may have commanded destruction of Cosmos 57.

This incident demonstrated a weakness in the Soviet ground system which gives commands to unmanned, automatic vehicles of the Voskhod type (such as certain reconnaissance vehicles). Cosmos 57 might have been saved, had the Soviets been able to maintain ground command sites around the globe, not just on Soviet territory. A favorably situated site might have been able to detect the malfunction, deactivate the programmer in time, and/or jettison the airlock to improve the chances for achieving a more normal descent.

Despite the flight's brevity, the Soviets were able to test a number of airlock operations that were to be used during Voskhod 2's flight in connection with Cosmonaut Leonov's 10-minute stay in space. The airlock was extended, pressurized, depressurized, and the outer hatch and cabin-to-airlock valves were opened and closed. Major operations not tested included those relating to repressurization of the airlock from stored supplies of compressed air (needed during Leonov's return to Voskhod 2), opening and closing of the inner hatch, and jettisoning of the airlock and its externally mounted equipment.

(CIA)

NORAD Comment: The failure of this prototype at first led to Western estimates that launch of the manned sequel to Cosmos 57 would be delayed for a considerable period of time and that another prototype would be launched before the manned event would take place. But the Soviets, apparently undeterred by the mishap, decided that the crew of Voskhod 2 could be counted on to prevent any unwanted operations by removing any garbled commands from the programmer. No second prototype was flown. The Voskhod 2 flight was delayed, but apparently only long enough to analyze the Cosmos 57 incident, to decide that the manned Voskhod 2 could be flown safely, and to reschedule its launch. Voskhod 2 was launched 24 days after launch of Cosmos 57; in contrast, the Voskhod 1 flight in October 1964 came 6 days after launch of its precursor, Cosmos 47.

Neither did the Voskhod 2 flight come off exactly as programmed. This is the vehicle, it will be recalled, which missed the landing area by about 800 n.m. as a result of retrosequence malfunction, delaying recovery of the cosmonauts.

Little information is available to indicate when the next Soviet manned flight is to be flown. Fourteen months have now elapsed since the last one.

(CIA; NORAD)

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Space Status Report

The over-all space-vehicle status report as of 1000Z, 31 May 1966, was as follows:

	<u>USA</u>	<u>UK</u>	<u>Can</u>	<u>Italy-</u>	<u>France</u>	<u>USSR</u>	<u>Total</u>
Payloads orbiting Earth	174	2	2		3	44	225
Payloads orbiting Sun	9					9	18
Payloads on Venus						1	1
Payloads orbiting Moon						1	1
Payloads on Moon	5					5	10
Payloads en route to Moon	1						1
Debris orbiting Earth	672	1	2		11	137	823
Debris orbiting Sun	8					5	13
 T O T A L S	 869	 3	 4		 14	 202	 1092
 Payloads decayed or de-orbited	 183			1		113	297
Debris decayed	183					614	797
 T O T A L S	 1235	 3	 4	1	 14	 929	 2186

(NORAD Space Defense Center)
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Cosmos 119 Apparently a Mission Failure; Payload Failed to Separate from Rocket

Cosmos 119, a scientific satellite which the Soviets launched from Kapustin Yar on 24 May 1966, apparently has failed to perform its research mission. The spacecraft apparently is not transmitting any information. In any event, the orderly collection of information on the space environment would be difficult because the spacecraft is not stabilized. The payload and rocket body are tumbling together as a unit (separation apparently failed) at the rate of 4 times per minute.

There are several radar-signature indications of the failure of payload separation:

- There are only 2 objects in orbit -- a very large one, and a small fragment. Ordinarily there are 2 large easily distinguished objects -- rocket body and payload -- and several fragments which are residue from the separation process.



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- The single large object in orbit is about 4 feet longer than the rocket body of the other Kapustin Yar launches.
- The large object is cylindrical, which would be characteristic of the rocket body, but one end is conical, which would be characteristic only of a rocket body and a payload together.

As is usual for a failure, the TASS announcement about its launch was delayed. Announcements are usually made 4-6 hours after launch; the announcement about Cosmos 119 came about 11 hours after launch.

(NORAD)

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