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ISCAP APPEAL NO. 2009-068, document no. 88
DECLASSIFICATION DATE: December 5, 2014

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NORTH AMERICAN AIR DEFENSE COMMAND

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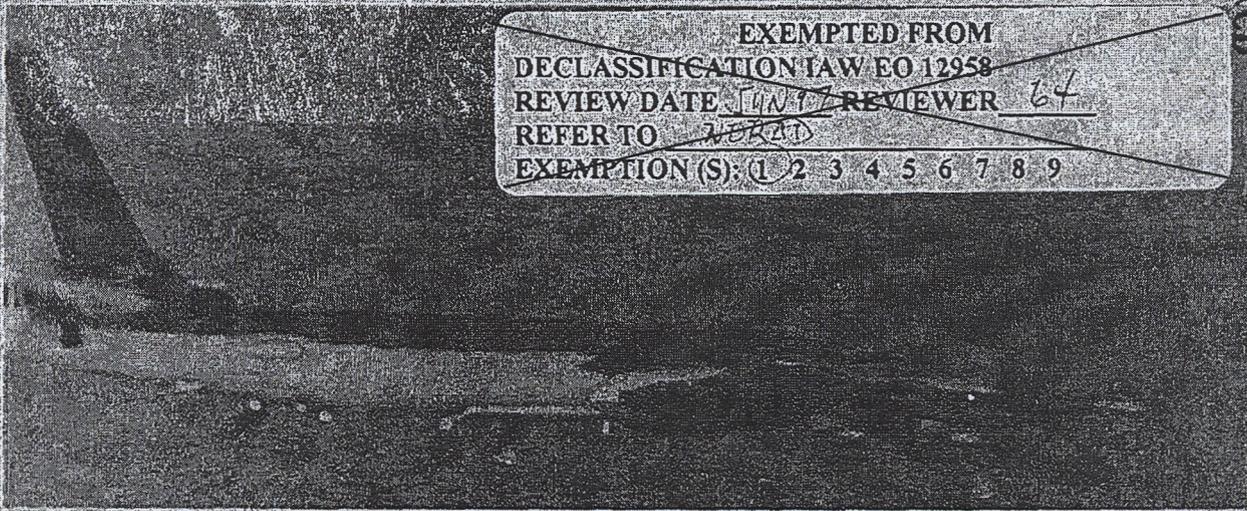
WEEKLY INTELLIGENCE REVIEW (U)

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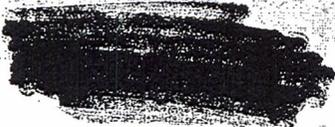
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Issue No. 32165, 6 August 1965

The WIR in Brief

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MISSILE FIRING LOG
For period 30 June to 2 August.

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Space

CERTAIN MYSTERIES OF PROTON 1 SOLVED; SYSTEMS
TESTING STILL CONSIDERED MAIN MISSION

Payload, at first masked from trackers by rocket
body, now discerned separately.

MOST RECENT INTERCEPTS OF SOVIET SPACE
VEHICLE TRANSMISSIONS

Oldest emitter, Molniya 1, launched 23 April
this year.

PHOTORECCO LAUNCHES RESUMED WITH
COSMOS-77

Ventilated. Has 51-degree orbit.

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COVER: Soviet BEAR bomber (UNCLASSIFIED)
NOTE: Pages 26, 27, 30, 31,
and 34 of this issue are blank.

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Missile Range Firing Log

US radar detected the following space-missile launches during the period 30 June-2 August 1965:

<u>Approximate Time & Date of Launch</u>	<u>Launch Vehicle</u>	<u>Launch Site</u>	<u>Range</u>
02 Jul, 0632Z	Cosmos 70*	Kapustin Yar	Orbital
02 Jul, 1820Z	Unknown	Kapustin Yar	500 n. m.
09 Jul, 0333Z	SS-9 ICBM	Tyuratam	3400 n. m.
13 Jul, 1100Z	Unknown, probably space event #	Tyuratam	Failure
14 Jul, 2031Z	SS-5 IRBM	Kapustin Yar	2400 n. m.
16 Jul, 0332Z	Cosmos 71-75**	Tyuratam	Orbital
16 Jul, 1115Z	Proton 1##	Tyuratam	Orbital
18 Jul, 1432Z	Zond 3***	Tyuratam	Heliocentric orbit
21 Jul, 0414Z	SS-7 ICBM	Tyuratam	3400 n. m.
23 Jul, 1725Z	Unknown	Kapustin Yar	500 n. m.
23 Jul, 0435Z	Cosmos 76	Kapustin Yar	Orbital
24 Jul, 0305Z	Unknown	Tyuratam	3400 n. m.
24 Jul, 0640Z	SS-4 MRBM	Makat	
29 Jul, 0530Z	SS-7 ICBM	Tyuratam	3400 n. m.

*Orbited by unidentified 2-stage rocket which has launched all other Kapustin-Yar space events.

##Possibly launched by SS-6 ICBM.





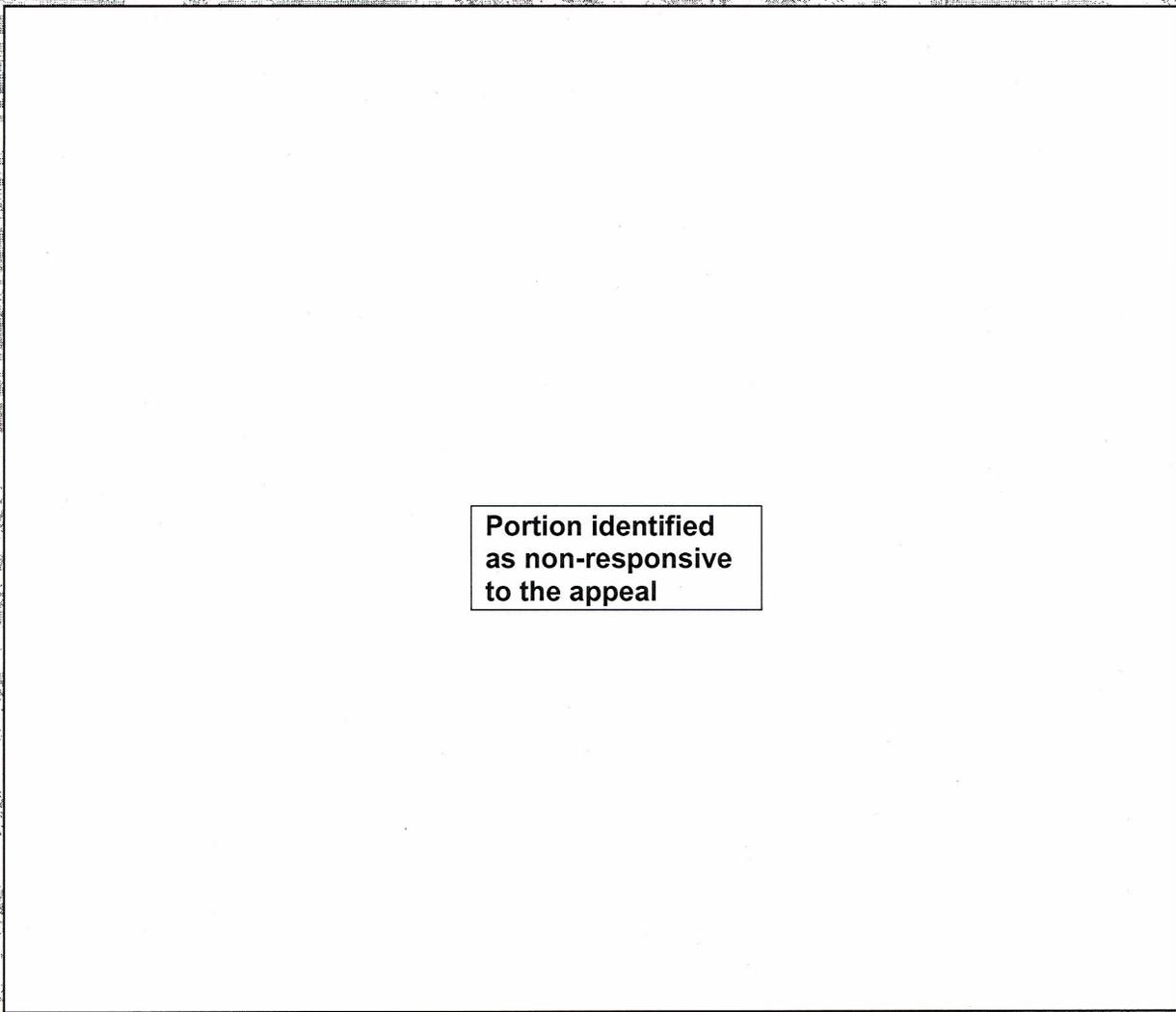
**Apparently launched by same 2-stage vehicle (SE-8) used in "triplet" launches of 18 Aug 64, 21 Feb 65, and 15 Mar 65.

Launched by large, 2-stage vehicle.

*** Launched by the SS-6 ICBM, injected into parking orbit by the Heavy Venik upper stage, injected into heliocentric orbit by 4th interplanetary stage.

(Shemya & Diyarbakir RADINT; various ELINT sensors).

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significant
intelligence
on space
developments
and trends

Certain Mysteries of Proton 1 Solved; Systems Testing Still Considered Main Mission

Rapid 'Payload' Decay, 'Rocket Body' Telemetry Explained. Two mysterious circumstances began to present themselves to Western observers early in the history of Proton 1, which the Soviets claim is the world's heaviest space payload.

- The body initially identified as the payload (Object No. 1446) began to decay much more rapidly than the rocket body. This is the reverse of normal, since a payload, because of its higher density, is much less affected by atmospheric drag than the hollow shell of an expended rocket body.

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The mystery was finally solved when the true payload, which had been masked by the rocket body during the first few days of flight, began to appear as a distinct object on Western tracking sensors. This occurred when the rocket body, decaying -- as usual -- faster than the payload, began to speed up and pull away from the latter.

Object No. 1446 is now identified as an unusually large conical fragment, probably a launch nose cone or fairing.

Object No. 1451 is still identified as the rocket body.

Object No. 1466 is the newly detected payload. Its parameters have been reported as follows by SPADATS:

-6-

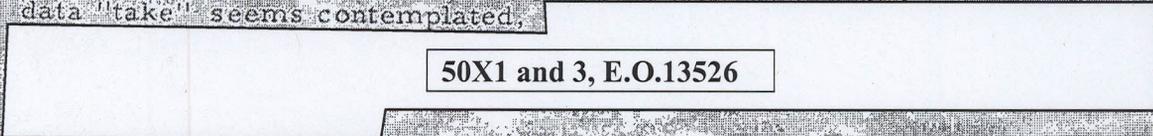
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Inclination	63.4449 degrees
Period	92.30 minutes
Apogee	601.6 kilometers (325 n.m.)
Perigee	175.6 kilometers (94 n.m.)

The Proton 1 Mission. The Soviets have announced only one mission to date for Proton 1 -- collection of data on cosmic particles of superhigh-energy. This mission was elaborated somewhat by a TASS announcement of 29 July which said that Proton 1 has started to carry out a program which includes: "study of solar cosmic rays and their radiation hazard; study of the energy spectrum and chemical composition of particles of primary cosmic rays with energies of up to 100 billion electron volts; study of nuclear interaction of superhigh-energy cosmic particles of up to 1 billion electron volts; determination of the absolute intensity and energy spectrum of galactic electrons; and determination of the intensity and energy spectrum of galactic gamma rays with energies exceeding 50 million electron volts."

This would seem to be a relatively small-scale collection effort which easily could be accomplished by a much smaller payload. No great data "take" seems contemplated,



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Proton 1's mission is still believed to be test of a large propulsion system not previously used for space launches, and initial check-out of a new, large spacecraft.

The spacecraft is probably a prototype of a new type of manned vehicle, such as a space station, which will probably accommodate 5 or 6 men. The propulsion system is probably being man-rated, that is, tested to determine whether it is reliable enough for manned flight.

Proton 1 may also figure in a coming attempt at rendezvous or docking. Its orbital inclination of 63.4449 degrees offers maximum stability of perigee; that is, perigee (closest approach to Earth) occurs at or near the same latitude on each orbit, instead of precessing. This characteristic would be desirable for either a prototype space station or initial rendezvous attempt.

(SPADATS, ELINT sensors, TASS, NORAD)

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Most Recent Intercepts of Soviet Space Vehicle Transmissions

Following is a 27 July listing of the most recently reported intercepts of transmissions from Soviet space vehicles which may still be active.





<u>Vehicle</u>	<u>Date of Launch</u>	<u>Signal Characteristics</u>	<u>Date of Most Recent Intercept</u>
Molniya 1	23 Apr 65	<div data-bbox="723 716 1075 758" style="border: 1px solid black; padding: 5px; display: inline-block;">50X1 and 3, E.O.13526</div>	
Cosmos 70	02 Jul 65		
Cosmos 71	16 Jul 65		
Cosmos 75	16 Jul 65		
Proton 1	16 Jul 65		
Cosmos 76	23 Jul 65		

It may be noted that:

- All 20 Soviet payloads launched into Earth orbit before 23 April 1965 and still in orbit (see listing in last week's WIR) apparently have ceased transmitting.
- Of the 5 payloads launched by a single vehicle on 16 July, only 2 are known to be transmitting. The other 3 -- Cosmoes 72, 73, and 74 -- apparently are silent.

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(Various ELINT sensors; NORAD)

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Photorecce Launches Resumed with Cosmos 77

The Soviets launched Cosmos 77, their 9th photoreconnaissance vehicle of 1965, from Tyuratam at about 1100Z, 3 August. The 39-day





interval since launch of their last photorecce vehicle, Cosmos 69, is unusually long for this time of year, when the long daylight hours permit greater photographic coverage. However, a Tyuratam launch failure of 13 July may have been an intended photorecce satellite.

Cosmos 77 will probably be de-orbited 11 August, 8 days after launch, if the launch and de-orbit pattern of the past year prevails.

Orbital parameters of the new vehicle have been reported as follows

	<u>By SPADATS</u>	<u>By TASS</u>
Inclination	51.78 degrees	51.84 degrees
Period	89.28 minutes	89.3 minutes
Apogee	300.3 Kilometers (162 n.m.)	297 kilometers (160 n.m.)
Perigee	184.4 kilometers (99 n.m.)	200 kilometers (108 n.m.)

It was launched by the SS-6 ICBM booster/sustainer and injected into orbit by the heavy Venik upper stage. The use of the Venik on 2 successive photorecce vehicles -- Cosmose 69 and 77 -- breaks the pattern of alternating use of Lunik and Venik stages set earlier this year. However, the vehicle launched 13 July, which failed before achieving orbit, may have incorporated a Lunik upper stage.

TASS stated that Cosmos 77 is continuing the Cosmos program of space research, but all indicators are that it is another in a long series of Tyuratam-launched photorecce satellites, although equipment for other missions could also be included in the estimated 6-ton payload.

Cosmos 77 is the second Soviet photorecce vehicle to combine a 51-degree orbit with use of the heavy Venik upper stage. These 2 features are advantageous for the photorecce mission:

- Use of the 51-degree orbit instead of the 65-degree orbit more than doubles the number of daylight hours that the vehicle spends over the US and southern Canada, assuming the same launch time.
- Soviet photorecce vehicles injected into orbit by the Venik are believed to carry a camera system of high resolution -- 5-8 feet.

(SPADATS, NORAD)

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