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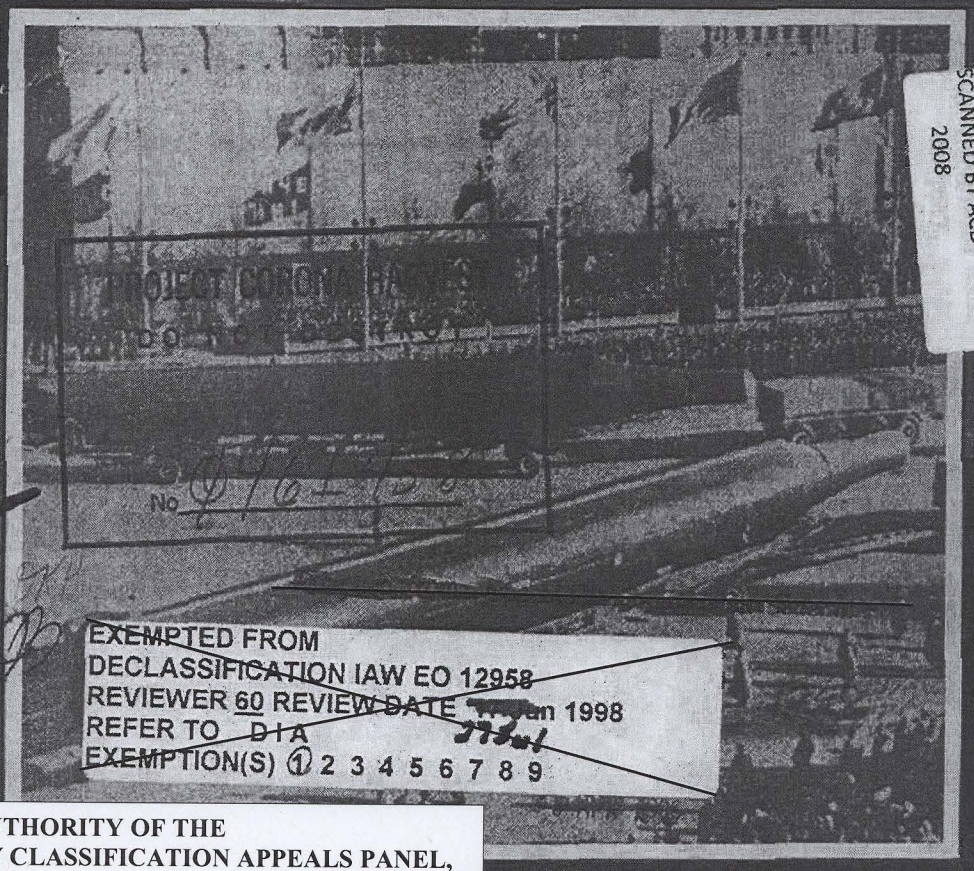
Defense Intelligence Digest

NO FOREIGN DISSEMINATION

(U)

January 1968 • Volume 6 • Number 1



DEFENSE INTELLIGENCE AGENCY

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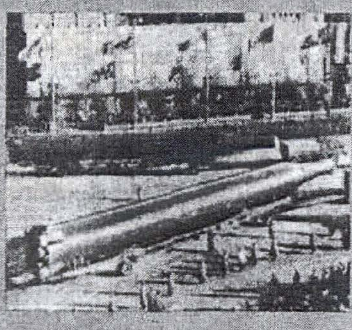

SCARP ICBM on parade in recent Moscow anniversary display. For details on weapons shown see article beginning on page 17. (U)

FOREWORD

MISSION: The mission of the monthly *Defense Intelligence Digest* is to provide all components of the Department of Defense and other United States agencies with timely intelligence of wide professional interest on significant developments and trends in the military capabilities and vulnerabilities of foreign nations. Emphasis is placed primarily on nations and forces within the Communist World.

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Joseph F. Carroll

JOSEPH F. CARROLL
Lt General, USAF
Director

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Close Look at VOSTOK CABIN INTERIOR

The location and functions of various items in the Vostok cabin shown at right are believed to be similar or the same for other Vostok vehicles. The top photograph, at right, shows the general overall design with the cosmonaut seated in the center of the capsule. Directly in front and hidden by his helmet is the VZOR or optical orientation device. This device operates similarly to an aircraft drift meter and enables the cosmonaut to orient his ship with the correct pitch, roll, and yaw stability for retrofire. Pitch and roll are correct when the horizon appears as a true circle in a system of annular mirrors. Yaw is correct when points on the earth drift in the direction of the arrows on the indicator glass. The rim of the VZOR is numbered from 0 to 360 degrees to aid judgment of drift direction, and a series of lighted arrows in slots around the rim indicate the direction in which attitude control thrust is being applied. An electrically controlled shutter within the VZOR can shut off the entering light, or a filter can be brought into place to lessen glare.

Clockwise around the cabin, a TV light source is used to illuminate the cabin transmission from the side-view television camera. Next to the light is a mirror, which the cosmonaut uses as an aid in seeing out the porthole located in the ejection hatch above his head.

The ejection seat indicator is labeled "Permission to Catapult" and probably is used to show the state of readiness of the ejection-seat system. Next to the cabin light is a broadcast receiver, which allows the cosmonaut to tune in frequencies other than those used in the radio-communications system of the spacecraft.

The manual attitude control is a three-axis hand controller, which resembles a pilot's control stick. It may be used instead of the automatic orientation system to change the flight attitude of the Vostok.

In the lower right corner of the cabin is the sanitary waste disposal unit; some of the tubing is visible. The clock to the right of the tubing registers Moscow time.

The storage units are used for food, gear for experiments, and miscellaneous equipment.

The toggle switches on the telegraph unit probably change the beacon mode for normal orbital operation, telegraphy, or recovery operation.

The ejection seat is used for escape during a launch abort or for separate recovery of the cosmonaut after re-entry. It is ejected through the ejection hatch by a stick mortar unit, two seconds after the hatch is blown. As soon as the seat is clear of the ship, dual rocket bottles at the rear of the seat are ignited to separate the seat rapidly from the spacecraft and to gain altitude during an on-the-pad abort. The ejection guide rails mate with sliding pads and rollers on the seat to keep it steady.

The primary parachute stages for the cosmonaut are packed at the top of the seat. When these are deployed by the drogue gun, they are attached to the seat as well as to the pilot's shoulder harness. After deployment, the seat drops free, and the survival kit hangs beneath the cosmonaut on lanyards. The cosmonaut also wears an emergency back-pack parachute in case of failure of the seat parachutes.

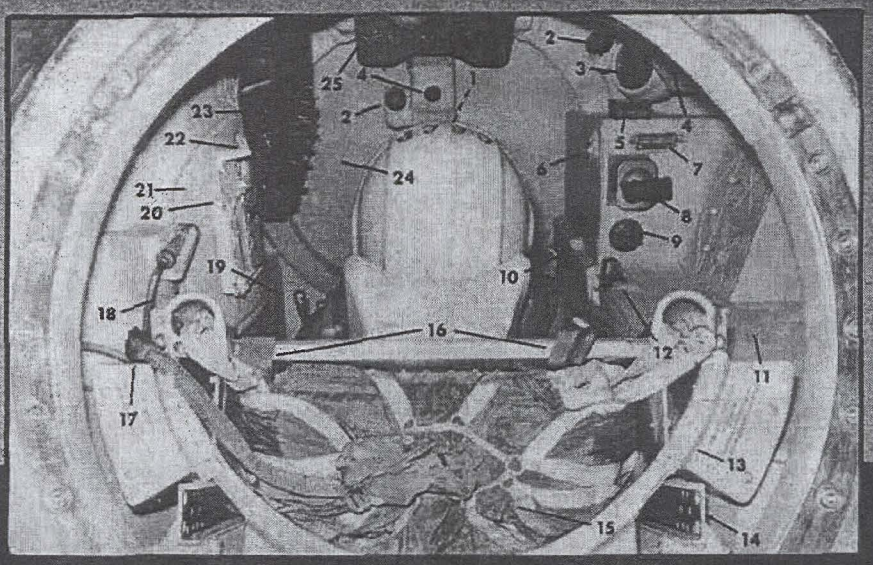
The water dispenser to the left of the cosmonaut operates on a vacuum principle to permit use of all water in the storage tank. The log-book holder prevents the log from floating around the cabin and keeps it in a convenient location. Two ejection controls are on the ejection seat.

The emergency exit hatch can be opened with a wrench to permit the cosmonaut to leave through the parachute hatch when the other hatches become stuck or obstructed. The porthole into the parachute compartment permits a visual check of deployment and condition of the cabin parachutes when the cosmonaut elects not to use the ejection seat.

The control panel contains toggle switches, rotary switches, and potentiometers controlling cabin temperature and oxygen content, operation of the navigation globe, selection of attitude-control gas supplies, operation of filters and shutters for portholes, operation of cabin lighting, television transmission, magnetic recording, radio-communications, and manual recovery operations.

The instrument panel contains the navigation globe emergency-warning lights, an elapsed time clock, and meters indicating various spacecraft parameters.

The starboard porthole, lower left photograph, has a canvas cover (applied manually). The porthole also may be closed by an electrically operated shutter, the control for which is on the control panel. The bulge in the cabin wall for the umbilical connection is the lead-in point for gas, fluids, and electricity carried into the cabin through the umbilical which connects the cabin to the instrument compartment. [END]



1. VZOR hidden by helmet above 2. TV lights 3. Mirror 4. TV cameras 5. Ejection seat indicator 6. Cabin light 7. Broadcast receiver 8. Manual attitude control 9. Clock with Moscow time 10. Sanitation device tubing 11. Storage units 12. Morse key 13. Ejection seat 14. Ejection guide rails 15. Cosmonaut's parachutes 16. Shoulder harness ps 17. Drogue gun lanyard 18. Water dispenser 19. Ejection seat controls 20. Log-book holder 21. Emergency exit hatch 22. Parachute compartment porthole 23. Control panel 24. Access hatch 25. Instrument panel 26. Cabin speakers 27. Starboard porthole 28. Interior portion of umbilical