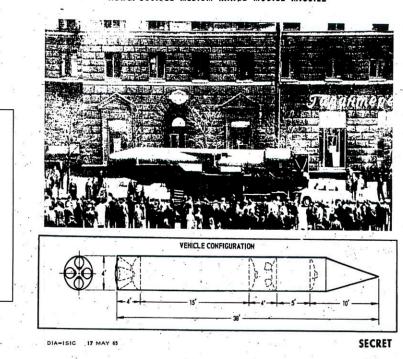
NEW_POSSIBLE MEDIUM RANGE MOBILE MISSILE



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Annual Ear Balance 2005(44)04 - Ole Boomers

More On Moscow Parade Weapons Analysis

Continuing analysis of the 9 May Moscow Parade photographs is refining initially published data and providing additional assessments of weapons' capabilities.

New Possible Medium-Range Mobile Missile.

The new mobile missile system contained in a pod and mounted on a large tracked transporter-erector-launcher may have a one- or two-stage solid-propellant configuration. The actual configuration and size is not known since the missile itself was not visible. The container is about 40 feet long and has a rear cover some five feet in diameter through which four nozzles protrude.

Performance analysis shows range capabilities between 300 and 800 nautical miles with a 1,500 to 3,000-lb payload for a two-stage design, the one considered more reasonable. A single-stage configuration would have a range of less than 300 nautical miles.

This system may be the one that has been tested on the Kapustin Yar Missile Test Range since March 1964.

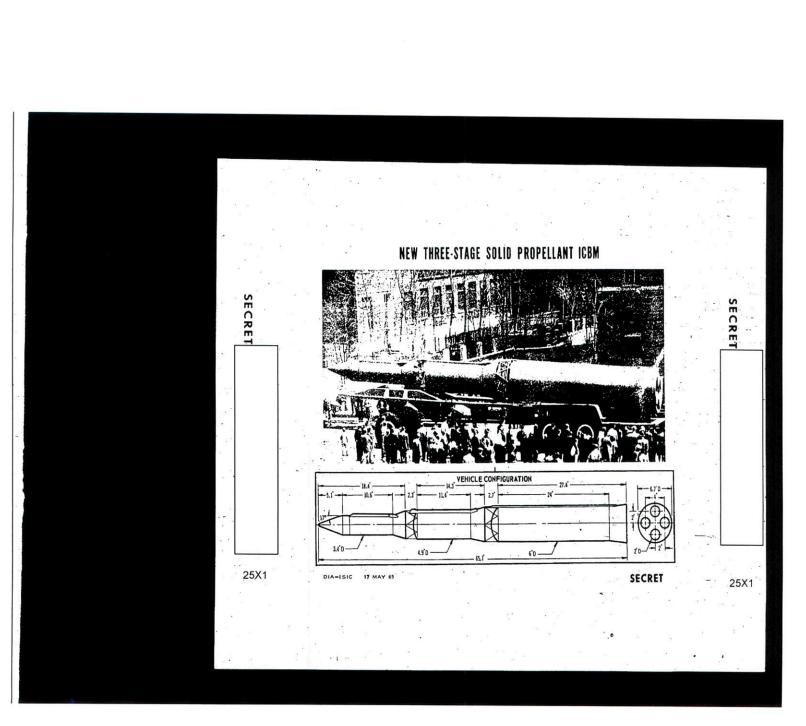
The pod probably provides environmental control or insulated protection for the solid-propellant missile. The missile is apparently erected to the vertical position behind the tracked vehicle and rests on the blast deflector which is at road level. Before ignition, the clamshell lid of the pod is opened by pneumatically operated latches and a hydraulically operated cylinder; the pod is then lowered to clear the missile lift-off path.

New Three-Stage Solid Propellant ICBM.

The new three-stage solid propellant ICBM is similar to the US MINUTEMAN in size and design.

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It is about 65.1 feet long and has a gross weight of around 90,000 pounds. It is considered capable of delivering a payload of about 800 pounds to a range in excess of 5,000 nautical miles.

The missile-guidance system is probably located in the two-foot cylindrical section located immediately behind the reentry vehicle and probably uses an autonomous or radio-inertial technique. Vehicle thrust vector control is probably attained through the use of swivel nozzles on each stage. The accuracy of the system has not yet been estimated.

The propulsion system may use a cast, double-base solid propellant. All three stages have four nozzles which are visible, and all have similarily designed motor casings which appear to be fabricated from heavy sheet metal. The motors are probably ignited by a device which is clearly visible on the top dome of the motor casings for the first two stages. No thrust-termination devices are visible.

The sphere cone reentry vehicle (RV) on the parade missile appears to be a cover, mockup, or parade decoration. Its surface is rippled with dents, and it has a crimped lower edge. If the sphere cone depicts the RV's actual shape, the base diameter is about 3.4 feet and the length about 5.1 feet. A compatible warhead weight would be in the 500- to 700-1b class.

The three stages are connected by a lattice-type structure fabricated of metal tubing and arranged in a triangular pattern which exposes the interstage areas. The third stage has two conduits running from the nozzle compartments to the 2.2-footlong cylindrical section, probably for guidance and associated instrumentation cables. Access panels are located on the flared sections covering the nozzle compartments of all three stages and on the probable instrumentation compartment at the top of the missile.

The transporter is a six-wheel special-purpose trailer capable of carrying the missile with or

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LARGE UNIDENTIFIED THREE-STAGE VEHICLE SECRET YEHICLE CONFIGURATION 25X1 8.9°D — SECRET

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without the reentry vehicle and appears to have been designed specifically for this weapon. The maximum weight of the loaded transporter can range from 100,000 to 125,000 pounds. A tow speed of 30 miles per hour is assessed. The transporter does not appear to serve as an erector.

Large Unidentified Three-Stage Vehicle

The large three-stage vehicle has an over-all length of about 115 feet. Diameters of the first and second stages are about 8.9 feet with a flare at the base of the first stage to about 9.9 feet. The length of the third stage is about 22 feet with a base diameter of about 7.8 feet.

The first and second stages use liquid bipropellants; the third stage cannot be evaluated from available data. Analysis shows the vehicle is not compatible with known charateristics of the boosters used to launch VOSTOK and VOSKHOD capsules, but it could be used in a weapons system or in a spacevehicle launch system.

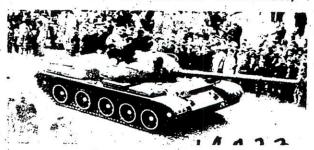
The third stage is not the type of body normally associated with a reentry vehicle. There is a small sphere-cone section on the front of this stage which could be, or could contain, the reentry vehicle. If this is a three-stage ICBM and the small sphere cone segment is the reentry vehicle, the payload could be on the order of 3,500 pounds. The other alternative is that the third stage is not intended to reenter and is a nonrecoverable vehicle with or without a propulsion system. This stage may have a single-chamber rocket engine surrounded by toroidal tanks as in the LUNIK vehicles. The stage appears large enough to hold guidance components and a retro system. The numerous protruberances, access panels, and apparent ports have not been identified.

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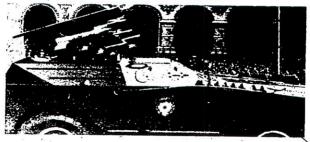
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GANAF (NOTE DAMAGED CONDITION)



T-62 MEDIUM TANK



NEW ANTI-TANK MISSILE

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Manufacturing techniques and construction features appear different from those of SKEAN and SASIN displayed in last November's parade; they more closely resemble those used in the older SCUD, SHYSTER, and SANDAL missiles.

The vehicle's estimated characteristics have compared to those of the SS-7, SS-8, SS-9, SS-10 and the new space booster first flown in mid-1964. The SS-7 and SS-9 were eliminated by the incompatibility of the ratio of the first-to-second stage propellant loading and the number of first stage engines. The SS-8 and SS-10 are possible contenders on the basis of the approximate first stage diameter, the ratio of first-to-second stage propellant loading, and the number of first stage engines number of first stage engines.

The vehicle could have a gross take-off weight of about 350,000 pounds and a first stage thrust from 550,000 to 650,000 pounds. Using conservative construction factors, the dry weight, including payload, would be less than 45,000 pounds, which is within the 60,000-lb load-carrying capability assessed for the transporter.

New Antitank Missile

Analysis of the new antitank missile is still under way. It is about two feet long and some four inches in diameter. It probably weighs about 15 to 20 pounds and has a maximum range of around 1,000 20 pounds and has a maximum range of around 1,000 meters. Six of them are mounted on a modified BRDM (light, amphibious, reconnaissance vehicle). The cover on the rear of the BRDM is raised by a center post to a height of two to three feet, and the missile launchers are mounted under the cover — three on each side of the centerpost. The guidance mode on each side of the centerpost. The guidance mode of the missile is unknown, but it may be by radio. The missile has a sphere-cone shaped nose similar

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to SNAPPER's, but its fins are similar to SWATTER's.

T-62 Medium Tank

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The T-62 tank has been known to exist for several years, but this was its first public display. It is a medium tank, weighs about 40.5 short tons, and mounts a 115-mm smoothbore gun that fires either a hypervelocity armor piercing discarding sabot round or a high explosive antitank (HEAT) round. The T-62 is only 7.9 feet high and has a cruising range of about 310 miles with auxiliary tanks. It is the most modern tank in use by the Soviet Army today; however, at a reception after the parade Marshal Romistrov, Chief Marshal of Armored Troops, stated that "some thought and work is under way on a new medium tank to replace all tanks."

Military equipment in the parade appeared in the following order.

## BRDM (Reconnais	NUMBER	ITEM	NUMBER	ITEM '
8			8	
Missile 42 BTR-60 (Wheeled, 16 GUILD Armored Personnel Carrier) 51 BTR-50 (Tracked, 2 GALOSH Armored Personnel carrier) 66 UAZ-69 (Light truck) 4 FROG-4 50 ASU-85 (Assault Gun) 4 FROG-3 88 T54/55 Medium tank 8 SCUD-A 21 T62 Medium tank 8 SCUD-B 21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 8 GANEF 2 SERB 16 100-mm Field Gun 4 SHYSTER		U/I Anti-Tank	8	
Armored Personnel Carrier) 51 BTR-50 (Tracked, 2 GALOSH Armored Personnel carrier) 66 UAZ-69 (Light truck) 4 FROG-4 50 ASU-85 (Assault Gun) 4 FROG-3 88 T54/55 Medium tank 8 SCUD-A 21 T62 Medium tank 8 SCUD-B 21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 8 GANEF 2 SERB 16 100-mm Field Gun 4 SHYSTER	16		16	GUIDELINES
Armored Personnel carrier) 66 UAZ-69 (Light truck) 4 FROG-4 50 ASU-85 (Assault Gun) 4 FROG-3 88 T54/55 Medium tank 8 SCUD-A 21 T62 Medium tank 8 SCUD-B 21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 8 GANEF 2 SERB 16 100-mm Field Gun 4 SHYSTER	. 42	Armored Personnel	16	GUILD
66 UAZ-69 (Light truck) 4 FROG-4 50 ASU-85 (Assault Gun) 4 FROG-3 88 T54/55 Medium tank 8 SCUD-A 21 T62 Medium tank 8 SCUD-B 21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 8 GANEF 2 SERB 16 100-mm Field Gun 4 SHYSTER	, 51	Armored Personnel	2	GALOSH
88 T54/55 Medium tank 8 SCUD-A 21 T62 Medium tank 8 SCUD-B 21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 2 SERB 6 100-mm Field Gun 4 SHYSTER		UAZ-69 (Light truck)	. 4 4	
21 ZSU 57-2 (Tracked 6 SHADDOCK Twin 57-mm AAA) 8 GANEF 2 SERB 16 100-mm Field Gun 4 SHYSTER	88	T54/55 Medium tank	. 8	SCUD-A
16 100-mm Field Gun 4 SHYSTER		ZSU 57-2 (Tracked	6	SHADDOCK
	8	GANEF	2	SERB
16 130-mm Field Gun 4 SANDAL	16	100-mm Field Gun	. 4	
	16	130-mm Field Gun	4	SANDAL

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NUMBER	ITEM	NUMBER	ITEM
	152-mm Gun-Howitzer	4	SKEAN
3 . ′	203-mm Gun-Howitzer	. 2	U/I SCUD like missile on tracked vehicle
' 8	40 Round Rocket Launcher	2	SASIN
8	200-mm Rocket Launcher	2	. U/I 65 ft 3 stage solid propellant missile
		. 2	U/I 115 ft 3 stage liquid propellant missile

The GANEF was grouped with the armored units, directly behind the ZSU 57/2 twin 57-AA guns. Whe it was first displayed on 1 May 64, the GANEF was grouped with the surface-to-air missiles; however, on 7 Nov 64 it was exhibited with the tactical ballistic missile (SCUD).

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