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CENTRAL INTELLIGENCE AGENCY

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CHICKADEE

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Warheads

1. Soviet guided missiles are not restricted to one size of warhead with a fixed atomic yield. The missiles can be fitted with different sized warheads capable of delivering various atomic charges. The same warhead can contain more than one equivalent yield in the same overall space, and work is going on with the object of having

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numerous yields for the same size of warhead. So long as the weight remains the same, a weapon of any yield can be fitted to any one missile; in some cases it may be necessary to add ballast to equalize the weight in accordance with the ballistic characteristics designed for the missile. The weapon yield selected depends on the tactical mission and how far the target is from friendly troops.

2. Nuclear warheads differ in size and construction from conventional warheads because they are required to be of a different shape. This is primarily because of the temperature regulating equipment needed for atomic warheads, including intricate heating and cooling instruments and piping for winter and for summer use. The shape of the nuclear warhead, however, is always the same, no matter what the size.

Attachment of Warhead to Missile

3. There are different methods of attaching the warhead to the missile, varying according to the type of missile. This process is called "stykovka" (locking-in).¹ One method is to screw it in slightly, but not all the way around (interrupted screw). Another method is to attach it by bolts; the bolts pass through the body of the airframe (telo rubashki). Then, when this process has been completed, the entire joint is covered by a steel band. This is to prevent turbulence (zavikhreniye) to ensure a smooth surface. It is given a prime coat (gruntobatsya) and then is covered by special oil paints. This method takes very little time and is very dependable. There have been no cases in which this method was used where the warhead came off. For this operation the warhead is brought up on a carrier, a hoisting mechanism raises it, and the joining is done (stykovat).

Combat Radioactive Substances

4. There is also a special warhead for delivering "combat radioactive substances" (boyevye radioaktivnyye veshchestva - BRV), described as products of the decomposition of atomic substances. Although this weapon has been developed, it is not considered to be very effective, but it can be used as a supplementary method of contaminating an area, water supplies, etc. There are stockpiles of warheads (and artillery shells) filled with BRV; it can also be delivered by aircraft.

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Yields

5. The smallest weapon so far developed has a 5-kiloton yield; design work has been carried out on a 1-kiloton weapon, but development has not yet been completed. [Literally: "They have computed a one kiloton charge, but they have not yet developed the practical adaptation."] The scientists are still working on it. This 1-kiloton weapon is intended for use with 310 mm guns and mortars, i.e., 420 mm mortar, and its use is not contemplated with smaller caliber guns. Existing weapon yields range from 5 and 10 kilotons up to 25 kilotons, and missiles have been fired with a 25-kiloton equivalent nuclear charge. The 5-kiloton weapon is used with the atomic (310 mm) cannon.² Ten and 15 kiloton weapons are used with the R-2 and R-11 missiles; special firing tables, which take into account the effect of wind direction and velocity on radiation fall-out have been compiled for their operational employment. A large safety margin - tens of kilometers - is allowed. The 10-kiloton weapons are not believed to be used by rifled artillery. (For normal HE missiles the safety margin for Soviet troops is 2 kms.)

6. Aircraft are not so restricted; a normal A-bomb has a 50-kiloton yield, but the H-bomb yield is not known. [Source did not say this was the only A-bomb yield; it was the one of whose existence he had heard.]

Ratio of HE to Nuclear Warheads for Missiles

7. Source had no specific information regarding the ratio of conventional to nuclear warheads. In principle, the first requirement is to prepare everything for conventional HE warheads. If a crisis arises and it is decided to "bury Capitalism", then atomic warheads will be used; if the war is to be non-atomic, then the missiles will deliver HE (trotyl cardol, etc.) warheads. [Source's purely personal opinion was that in normal conditions the ratio might be one the order of 10 percent nuclear, 90 percent HE, but this is strictly conjectural.]

Storage and Transport

8. Nuclear warheads and missile airframes are stored separately in different locations, and are only brought together at a forward assembly point when the decision to use nuclear weapons has been taken.

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The responsibility for both items belongs to the Chief Artillery Directorate (Glavnoye Artilleriyskoye Upravleniye - GAU), under Col. General Zhdanov. The tendency now is to store both warheads and other equipment underground. The technique of drilling and constructing reinforced underground storage space was perfected during the building of the subways. This underground concept is also practiced in the DDR. A high-ranking general (name not available) controls an inspection directorate in GAU, and is responsible to the Minister of Defense and the General Staff for the coordination of the security of storage locations with the KGB. [Source has heard the name of General Grabin, whom he believed to be an engineer, but was not certain of his function.]

9. The KGB provides guards (OMSDON) for, and controls the security of, nuclear storage depots. They also transport and escort nuclear warheads direct to the unit to which they are issued, using railroad cars specialy equipped for the purpose. The warheads are conveyed in special containers bearing special markings and camouflage (no further information). They may also be transported by air in special containers.

Locations

10. An "assembly point" (or points) for nuclear warheads is located in the area of Klintsy. Some of the personnel are officers who have attended missile courses at the Dzerzhinskiy Academy.³

Control

11: There is no special General Staff directorate concerned with the use of nuclear warheads. Planning is carried out by the First (Operations) Directorate. Supply is the province of GAU, which plays a supervisory role with regard to production and is responsible for maintenance and storage. Security is the responsibility of the KGB. The issue of nuclear warheads from storage to units can be done only on the authority of the Central Committee, which is conveyed to the Minister of Defense and then transmitted by him to the appropriate missile commander (either strategic or tactical). There is no question of the front commander having stocks at his direct disposal on the spot.

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Training

12. Instruction is given at the Dzerzhinskiy Academy on the methods of selecting targets for nuclear attack and computing the appropriate kiloton yield to employ. All artillery men who are earmarked for intelligence reconnaissance work are taught how to make computations for low-yield weapons; the planning for high-yield weapons is done by the General Staff, since they will be for strategic targets. Training in the practical handling of warheads (mounting on the missile, etc.) is given at Glukhovo.

Testing

13. Source had not heard of any tests being carried out since the moratorium. The West did not, however, detect all the tests carried out in the active period prior to the moratorium. Many low-yield tests were carried out in deep trenches; these may have been picked up as an indication of a slight earthquake. A close watch was kept on the press to see what was said of these apparent seismic manifestations. The atomic cannon, for instance, have never been fired with actual atomic shells. The guns themselves have been intensively tested with HE shells, but the nuclear device has only been tested independently, including by release from aircraft, in which some form of radius control was exercised from the ground. At a film showing of the first A-bomb test the lecturer described how there was dual control of the release of the weapon from the aircraft; the pilot pressed the lever to drop the bomb but the bomb did not fall until the calculations on the ground were exact and a radio signal sent corrections.

14. Senior officers consider that tests should be continued, and some are pressing that they should be, since there are many problems still to be solved with regard to the high-yield weapon.

Production

15. Source was aware that the Ministry of Medium Machine Building was concerned with the nuclear program but knew no further details.

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1. [REDACTED] para 19 for another use of this Russian term.
 2. [REDACTED] para 16 for a wider range of yields for the 310 mm cannon.
 3. [REDACTED] Comment: Source was unable to locate other nuclear weapons assembly points, storage areas, or plants.