CHARACTERISTICS OF SOVIET BLOC CONVENTIONAL GROUND WEAPONS

Small Arms	Weight, Loaded (kg)	Effective Range (m)	Weight of Bullet (g)	Rate of Fire Cyclic (rpm)	Rate of Fire Practical (rpm)	Feed
7.62mm Pistol M52 (Czech)	1.1	50	5.6	NA	30	8-rd clip
9mm Pistol PM	0.8	50	6.1	NA	30	8-rd clip
9mm Pistol APS	1.2	[1]150	6.1	700-750	[2]30	20-rd clip
7.62mm Asslt Rifle AK	4.8	400	7.9	600	100	30-rd curved box magazine
7.62mm Asslt Rifle AKM	4.45	400	7.9	600	100	30-rd curved box magazine
7.62mm Asslt Rifle M58 (Czech)	3.9	400	7.9	800	80	30-rd curved box magazine
7.62mm LMG RPD	9.0	800	7.9	650	150	100-rd belt in drum
7.62mm LMG RPK drum box	68 5.6	800 800	7.9 7.9	600 600	50 50	40-rd curved box/ 75-rd drum
7.62mm LMG M52/57 (Czech)	[3]8.0	800	7.9	1,000	100-300	25-rd curved box/ 100-rd belt
7.62mm MG RP-46	[3]13.0	800	9.6	600	250	250-rd belt
7.62mm MG M59 (Czech) (as LMG)	[3]8.77	800?	9.6	700-850	150	50-rd belt
7.62mm MG M59 (Czech) (as HMG)	[4]19.5	1,000?	9.6	700-850	350	50-rd belt
7.62mm HMG SGM	[4]36.9	1,000	11.9	600-700	250	250-rd belt
7.62mm GPMG	?	1,000?	11.9	?	250?	?
12.7mm HMG DShK	122.0	3,000	48.3	540-600	125	50-rd belt

1 With shoulder stock.
2 Fully automatic.
3 Unloaded.
4 Unloaded with mount.

WARNING: Information underscored is classified SECRET. Other information in this figure is unclassified, except gaps, shown by a question mark, which are considered CONFIDENTIAL.

Figure 14-1

Grenades	Weight (g)	Weight of HE Filler (g)	Armor Penetration 0° (mm)	Range (m)
Hand Grenade F-1	700	45	NA	NA
Hand Grenade RGD-5	310	110	NA	NA
Hand Grenade RG-4 (Czech)[1]	500	105	NA	NA
AT Hand Grenade RPG-6	1,100	562	100	NA
AT Hand Grenade RPG-43	1,200	613	75	NA
AT Hand Grenade RKG-3	1,134	567	125	NA
Rifle Grenade F-1/N 60 (Polish)	?	45	NA	240 maximum
AT Rifle Grenade PGN 60 (Polish)	560	?	200?	100 effective

1 With fragmentation jacket.

[redacted]

Mortars	Weight in Travel Position (kg)	Maximum Range HE (m)	Weight HE Proj (kg)	Rate of Fire (rpm)
82mm Mortar M1937	55.8	3,040	3.05	25
120mm Mortar M1943	500.0	5,700	15.04	15
160mm Mortar M1943	1,125.0	5,020	40.00	3
160mm Mortar M-160	1,400.0	8,070	40.00	2-3
240mm Mortar	4,150.0	9,700	100.00	1

Figure 14-1 (cont)

Recoilless Antitank Weapons	Weight kg	Weight HE Proj (kg)	Maximum Range HE Proj (m)	Weight HEAT Proj (kg)	Effective Range HEAT Proj (m)	Armor Penetration HEAT at 0° (mm)	Rate of Fire (rpm)
AT Launcher RPG-2	2.83	NA	NA	1.62	150	180	4-6
AT Launcher RPG-7	?	?	500m	?	?	?	?
AT Launcher P-27 (Czech)	6.40	NA	NA	3.3	100	250	4
82mm Rcl Gun B-10	87.65	4.5	4,470	3.6	390	300	5-6
82mm Rcl Gun T-21 (Czech)	20.00	NA	NA	2.13	274	228	4-6
82mm Rcl Gun M59 (Czech)	?	?	?	?	900	?	6
107mm Rcl Gun B-11	305.00	13.6	6,650	9.0	457	380	4-5

Multiround Rocket Launchers	Weight RL and Vehicle (t)	Maximum Range HE Rocket (m)	Weight HE Rocket (kg)	Time to Reload (min)
130mm RL (32-rd) M51 (Czech)	8.5	8,200	24.2	2
140mm RL (8-rd) Towed	0.5?	9,000	31.7	2?
140mm RL (16-rd) BM-14	8.2	9.000	31.7	3-4
140mm RL (17-rd) on GAZ-63	4.5	9,000	31.7	3-4
115mm RL (?) (40-rd) on Ural-375	?	15,000?	?	?
200mm RL (4-rd) BMD-20	8.0	18,000	194.0	5?
240mm RL (12-rd) BM-24	9.0	7,000	112.0	5
240mm RL (12-rd) on AT-S	15.4	7,000	112.0	3-4
250mm RL (6-rd) on YaAZ-214	18.1	55,000 *	385 0 *	?

* See WARNING, p. 14-13

Figure 14-1 (cont)

Field Artillery	Weight in Travel Position (metric tons)	Weight HE Proj (kg)	Maximum Range HE (m)	Rate of Fire (rpm)	Armor Penetration at 0° at 1,000 m AP (mm)	Armor Penetration at 0° at 1,000 m HVAP (mm)
57mm AT Gun M1943	1.2	3.75	8,400	25	96	95
57mm APAT Gun	1.1	3.75	8,400	15	96	95
85mm Div Gun D-44	1.7	9.50	15,650	15	102	130
85mm AP Fld Gun SD-44	2.3	9.50	15,650	15	102	130
85mm Fld Gun M52 (Czech)	1.9	9.50	15,160	10	102	130
100mm Fld Gun M1944	3.5	15.9	21,000	8	172	?
100mm Fld Gun M1955	3.0	15.9	21,000	8	172	?
100mm Fld Gun M53 (Czech)	3.4	15.9	21,000	8	172	?
122mm How M1938	2.3	21.8	11,800	5	(HEAT ammo 200mm at 0°)	
122mm Gun-How M1963	?	?	?	?	?	?
122mm Fld Gun D-74	6.6	25.0	21,900	6	190	?
130mm Fld Gun	8.6	33.4	26,700	5	?	?
152mm How M1943	3.6	40.0	12,400	4	?	?
152mm Gun-How M1937	7.9	43.6	17,265	4	124	NA
152mm Gun-How D-20	5.7	40.8	17,200	4	?	NA
203mm Gun-How M1955	20.4	102.0	29,250	3 rds in 4 minutes	NA	NA

Armored Personnel Carriers	Weight (metric tons)	Range of Action on Roads (km)	Maximum Frontal Armor (mm)	Personnel Load (crew and pass)	Amphibious
BTR-40p (BRDM)	5.1	500	13.5	5	Yes
BRDM M1963 ?	?	?	?	?	Yes
BTR-40	5.3	285	13.5	10	No
BTR-152V	8.9	650	13.5	19	No
BTR-60p	10.?	?	?	14?	Yes
M1962	?	?	?	?	Yes
BTR-50p	14.5	257	16	14	Yes

Figure 14-1 (cont)

Tanks	Weight (metric tons)	Caliber of Gun (mm)	Number of MG's	Range of Action on Roads (km)	Maximum Hull Frontal Armor (mm)	Armor Penetration at 0° at 1,000 m AP (mm)	Armor Penetration at 0° at 1,000 m HVAP (mm)
AMTK PT-76	14	76	1	257	16	61	58
Mdm Tk T-34 (85)	32	85	2	295	45	102	130
Mdm Tk T-54	36	100	3	400	103	172	?
Mdm Tk T-55	36	100	2	?	?	?	?
Mdm Tk T-62	?	*115	?	?	?	?	?
Hv Tk JS-2	46	122	2	180	110	190	?
Hv TK JS-3	46	122	2	180	120	190	?
Hv Tk T-10M	49	122	2	220	138	200	?

Antiaircraft Artillery	Weight in Travel Position (kg)	Maximum Horizon Range (m)	Effective AA Range (m)	Weight of HE Proj (kg)	Rate of Fire[1] Cyclic (rpm)	Rate of Fire[1] Practical (rpm)	Armor Penetration
Twin 14.5mm AAHMG ZPU-2	0.38	7,000	1,158	0.058	600	150	API at 0° at 1,000 m
Quad 14.5mm AAHMG ZPU-4	2.00	7,000	1,158	0.058	600	150	20mm
Twin 23mm AA Gun. ZU-23	?	?	?	?	?	?	?
Twin 30mm AA Gun M53 (Czech)	2.27	6,400	1,372	0.45	300?	50	?
57mm AA Gun S-60	4.7	12,000	4,877	2.8	120	60	See 57mm AT Gun M1943
85mm AA Gun KS-12	4.3	15,500	8,382	9.2	NA	15	See 85mm Div Gun D-44
85mm AA Gun (Czech)	5.0	18,000	10,200	9.5	NA	15	Better than Soviet M1939
100mm AA Gun KS-19	9.5	21,000	13,700	15.4	NA	15	See 100mm Fld Gun M1955
130mm AA Gun KS-30	29.5	29,260	16,640	33.4	NA	12	?

1 Per barrel.

* See WARNING, p. 14-13

Figure 14-1 (cont)

Self-Propelled Antiaircraft Guns	Weight (metric tons)	Range of Action on Roads (km)	Maximum Frontal Armor (mm)	
Twin 30mm on V3S (Czech)	7.2	240	13.5	Performance: see Twin 30mm AA Gun M53 (Czech).
Twin 57mm ZSU-57-2	28.1	400	100.0	Performance: see 57mm AA Gun S-60, except because of no off-carriage fire control, effective AA range limited to 1,829 m.

Assault Guns	Weight (metric tons)	Caliber of Gun (mm)	Range of Action on Roads (km)	Maximum Frontal Armor (mm)	Armor Penetration at 0° at 1,000 m AP (mm)	Armor Penetration at 0° at 1,000 m HVAP (mm)
ASU-57	5.4	57	320	15	96	95
ASU-85	13?	85	257	40?	102	130?
SU-100	30.0	100	295	45	172	?
JSU-152	46.0	152	180	90	124	NA

Superheavy Self-Propelled Cannon	Weight (metric tons)	Weight HE Proj (kg)	Maximum Range HE Proj (km)	Range of Action on Roads (km)
310mm SP Gun	63.5	320	* 25,600	130
420mm SP Mortar	54.5	*317	* 22,800	130

*See WARNING, p. 14-13

Figure 14-1 (cont)

ANNEX 15

NUCLEAR AND CBR WEAPONS

1. (U)(S) USSR.

a. (U)(S) Nuclear Capabilities.

(1) The Soviets can deliver nuclear warheads with yields extending into the megaton range against targets located anywhere in the USAREUR area of responsibility. The delivery systems, either manned aircraft or missiles, do not have to be based outside the periphery of the USSR. Against tactical targets in the front area, the Soviet ground forces are equipped with a variety of nuclear weapons, which range in yield from less than 5 kilotons to several hundred kilotons. These nuclear weapons can be delivered by tube artillery, free rockets, and guided missiles up to ranges of approximately 300 nautical miles. In addition, the tactical air armies and the strategic rocket forces can provide the ground forces with nuclear support against tactical or interdiction targets. According to Soviet doctrine, nuclear weapons will be used on a large scale in the event of general war. Present stocks of nuclear weapons available to the Soviet Army are sufficient for sustained, large-scale employment. The deployment of these to the Soviet forces in the Satellite countries could be accomplished without detection.

(2) As a result of nuclear testing conducted prior to the 1963 test-ban treaty, Soviet knowledge of nuclear weapons and weapons effects was significantly increased. The knowledge gained from the testing has provided a base upon which the Soviets can develop a more diversified nuclear weapons stockpile. This should provide the Soviets with nuclear weapons with more explosive energy yield per pound of weight then those currently ready for target delivery. During the coming months, these improved weapons systems will be ready for issue to delivery units. In addition, there remains the possibility that the Soviets may be developing or may have already developed fractional yield weapons.

(3) It is estimated that the Soviet tactical nuclear potential in the Group of Soviet Forces, Germany (GSFG) is not so formidable as the USAREUR nuclear strike capability. There is no firm evid .ce that the Soviets have deployed nuclear warheads to East Germany; the proximity of the USSR to East Germany permits the Soviets to defer the movement of warheads to the GSFG until

shortly before a Soviet-scheduled initiation of hostilities. However, if the East-West political situation should deteriorate over a period of several days or weeks, the Soviets probably would take steps to improve the nuclear warhead availability in the GSFG. With the build-up in East Germany of associated delivery systems, such as free-rocket-over-ground (FROG) rockets or surface-to-surface SS-1 (SCUD) missiles, it is logical to assume that the Soviets would have prepared for the ready accessibility of the nuclear warheads. Nuclear warheads can be moved, either by rail or air, into East Germany without detection by USAREUR. In East Germany, as well as in the other Satellites, the Soviets have a well-developed network of airfields. Many of these airfields can handle large transport aircraft used for the delivery of nuclear components to user units immediately before an attack. In early 1962 the HOOK (Mi-6) helicopter began arriving in the GSFG. This large helicopter can be used to deliver nuclear warheads to launch sites of the delivery systems.

b. (U)(S) Toxic Chemical Capabilities.

(1) Chemical Operations.

Soviet forces are capable of conducting large-scale chemical operations in support of combat operations. Toxic chemicals can be delivered against close-in targets by conventional ground delivery means and on deep targets by aerial spray or bombs.

(a) The USSR maintains a toxic agent stockpile, both in depots and available to tactical units, of at least 50,000 tons. Stocks of munitions are probably positioned in the Satellites under GSFG control, the Northern Group of Forces (NGF), and the Southern Group of Forces (SGF). The USSR can deliver additional stocks to these forces without detection. The total capacity of storage depots in the USSR has been estimated to be approximately 300,000 tons of bulk toxic agent and filled munitions. Of this capacity, 75 percent is in Western and Central USSR, primarily in the Volga and Turkestan Military Districts. The remaining 25 percent capacity is in the Far East.

(b) The chemical agents used for filling munitions and the relative quantities in stock are shown in Figure 15-1. The Soviets are currently replacing mustard-filled items with an unidentified V-type nerve agent, probably VR-55, and may have begun production of soman (GD). It is not known if the stockpile includes incapacitating agents; however, production of such agents is within the Soviet capability.

(c) No definite descriptive information or physical characteristics of current chemical munitions are available; however, it is estimated that any munition for delivery by artillery, mortars, rockets, mines, aircraft spray, bombs, and probably missiles are included in the stockpile.

(d) Soviet CBR organization calls for the assignment of chemical units with the mission of decontaminating personnel, equipment, and terrain. In addition, these CBR units are responsible for conducting limited defensive operations involving terrain contamination (See Figure 15-2).

(2) (U) (S) Chemical Defense.

Soviet forces have the capability to defend themselves against chemical attack and to continue operations in a chemically contaminated environment. For toxic chemical employment purposes they may be considered well trained, with protective equipment available. Frequent individual and unit training is conducted in both the defensive and offensive aspects of chemical operations. Actual agents occasionally are used in training.

(a) The current protective mask (model ShM-1) provides excellent protection against inhalation of all known toxic agents. Unit leaders, communication personnel and chemical personnel are being equipped with an improved model of this mask, which has a "voicemitter" for better communications. Adequate quantities of masks are in the hands of troops and in reserve stocks. Special masks and oxygen-breathing apparatus are available for pilots and troops working in heavily contaminated areas. Automatic alarms for detection of nerve agents probably are available down to regimental level.

(b) The Soviet forces have a complete line of protective clothing for protection against toxic agents, and sufficient quantities probably are available to cope with large-scale operations. Each soldier carries a disposable impregnated paper cape in his protective mask carrier. Impermeable protective overstockings are carried with the individual soldier's equipment. Unknown quantities of protective clothing are on hand at the unit level in Soviet forces. Items contained in the individual decontamination and treatment set are believed to be adequate for emergency personnel decontamination of US agents. This set probably contains an atropine syrette for nerve agent first aid.

(c) Soviet forces have an excellent capability for extensive decontamination of personnel, equipment, and clothing and for small-area terrain decontamination. The presence of large numbers of vehicle-mounted decontamination apparatus in the Soviet forces provides a highly mobile capability.

(3) (U) (S) Doctrine.

(a) Soviet doctrine provides for offensive and defensive chemical operations. The initial decision to employ toxic chemical agents probably will be at the Party Presidium level. Thereafter, front commanders normally will determine operations in which toxic chemical agents will be used. In the event of a general nuclear war, it is highly probable that toxic chemical agents will be employed. Open policy statements of national leaders emphasize that mass destruction means, such as chemical and biological weapons, will be utilized in future wars, and the Soviets have not entered into any international agreements that would affect their policy on employment. Soviet policy probably prohibits the large-scale stockpiling of toxic chemical weapons by the Satellites; however, the Soviets could supply them if necessary.

(b) Soviet doctrine provides for using toxic chemicals to inflict casualties on enemy troops; impeding movement by contamination of personnel, equipment, and terrain; weakening enemy strength and depressing enemy morale by prolonged use; and establishing barriers. Doctrine includes chemical fires on positions to be assaulted and the use of chemicals to complement nuclear weapons effects. Strategic doctrine calls for the use of chemicals to deny territory and decimate populations without destroying industrial facilities.

(4) (U) (S) Production.

The USSR is capable of producing necessary quantities of chemical munitions and defensive equipment to support sustained chemical operations. It is capable of producing approximately 65,000 tons of nerve-type agents annually.

(5) (U) (S) Research and Development.

The USSR has a well-organized chemical research and development program. The following areas of current Soviet emphasis could lead to improvements in chemical capabilities in the near future:

(a) Extensive work on organophosphorous compounds, which could result in new types of nerve agents.

(b) Particular emphasis on incapacitating compounds; developments in synthesis methods and reductions in production costs could result in Soviet forces being provided physical or mental incapacitating agent munitions by 1965/66.

c. (U) (S) Biological Capabilities.

(1) (U) (S) Biological Operations.

No stocks of biological weapons or agents have been identified; however, some munitions suitable for chemical delivery, such as spray tanks and bombs, are also suitable for biological agent delivery. Because of storage life problems, any plans for biological attack probably would not call for actual munition loading until a short time before employment. No special munitions would be necessary for covert delivery.

(a) Specific Soviet biological agents have not been identified. The extensive studies conducted by the USSR, including some testing programs on humans, indicate that the microorganisms shown in Figure 15-1 could be used.

(b) There is no separate tactical biological operations organization in the Soviet forces. The chemical organization is responsible for training, which emphasizes individual defense.

(2) (U) (S) Biological Defense.

Soviet forces are only moderately capable of defending themselves against biological attack.

(a) Chemical-protective clothing offers some protection against gross biological contamination, and the Soviet forces have a good biological decontamination capability provided by their chemical decontamination means.

(b) Soviet forces have no capability for rapid warning, detection, or identification of a biological agent attack. Within the current state of medical knowledge, the USSR is capable of supplying adequate quantities of pharmaceuticals to the Soviet forces for prevention and treatment of diseases.

(3) (U) (S) Doctrine.

Soviet doctrine on employment of biological agents is not known.

(4) (U) (S) Production.

The USSR is capable of producing sufficient quantities of biological agents for sustained large-scale employment.

(5) (U) (S) Research and Development.

The USSR has an active biological research and development program. Many aspects of their medical and public health research and development programs, such as aerosol immunization studies, are directly applicable to biological capabilities. The following areas of current Soviet emphasis could lead to improved biological capabilities:

(a) Extensive studies on botulinum toxin could lead to a capability for delivery of this agent.

(b) Research efforts in aerobiology could lead to large-area coverage capabilities.

(c) Research on immunizations could lead to new vaccines against US agents and candidate agents, as well as improved immunization methods.

d. (U) (S) Radiological Capabilities.

(1) (U) (C) Radiological Operations.

With the exception of nuclear weapons, Soviet forces do not possess any known capability for radiological operations. Available quantities of radioactive reactor wastes are insufficient to be of military significance.

(2) (U) (S) Radiological Defense.

The Soviet forces have a fair capability for defense against radiation effects and continuation of operations in a radiologically contaminated environment. Soviet forces are well trained in techniques necessary for minimizing radiation casualties

and continuing operations in contaminated areas.

(a) Soviet forces have adequate and dependable instruments for detection and measurement of radioactive contamination: the DP21a, DP21b, and DP23 dosimeters measure gamma dosage from 0 to 50 roentgens; and the DP1a, DP1b, and DP1c survey meters measure dose rates from .02 to 500 roentgens per hour. The DP62 measures from 10 to 500 milliroentgens, and the DP63 measures from 0 to 50 roentgens per hour. The DP11a, DP11b, and DP12 meters measure personnel and equipment contamination.

(b) Chemical-protective masks and clothing provide excellent protection from body contamination and inhalation of radioactive particles. Present chemical units and equipment provide an excellent capability for radiological reconnaissance and personnel and equipment decontamination.

(3) (U) (C) Doctrine.

Soviet doctrine considers surface nuclear burst as the primary sources of such contamination and indicates that this effect can be used to produce casualties and deny access to areas. Defensive doctrine calls for continuous radiological reconnaissance in conjunction with chemical reconnaissance.

(4) (U) (S) Production.

The Soviet nuclear reactor capacity will probably not be sufficient to produce militarily significant quantities of radioactive waste for several years. The Soviets are capable of producing adequate quantities of radiation protection and detection equipment to support the needs of their forces.

(5) (U) (S) Research and Development.

Although the USSR is conducting research and development programs in the radiation field, these will probably not lead to any significant changes in the capabilities of their forces in the near future.

e. (U) (S) Smoke Capabilities.

(1) (U) (C) Employment Capabilities.

Soviet forces have an excellent smoke capability, ranging from large-area screening to small-unit tactical employment. Available smoke munitions include phosphorous-filled artillery shells, mortar shells, hand grenades, candles, smoke pots, and hand grenades filled with burning-type smoke-producing mixtures. Aircraft spray tanks are also available for producing smoke screens. Some of the burning-type munitions contain adamsite (DM), which has a toxic effect.

(2) (U)(C) Doctrine.

The Soviets contend that smoke is one of the best support weapons and advocate its use, especially in offensive operations. Large-scale missions are accomplished by smoke battalions, while the individual may use smoke grenades to conceal movements.

(3) (U)(S) Research and Development.

The USSR is working on the development of smoke munitions for use against infrared and radar combat surveillance devices, also smokes that blend with terrain and smoke-toxic agent combinations. Such smokes could be available in 1965.

f. (U)(C) Flame Capabilities.

Soviet forces are equipped with a variety of flame weapons, including portable, emplaced, cart-mounted, and mechanized flamethrowers, incendiary grenades, mortar shells, artillery shells, and bombs. Munitions are filled with petroleum products or pyrotechnic mixtures. Flame support is provided by heavy and portable flamethrower battalions. Soviet doctrine advocates the use of flame in support of offensive and defensive operations.

2. (U)(S) Satellites.

a. (U)(S) Nuclear Capabilities.

Although all of the Satellites are making a contribution to the Soviet nuclear energy program, largely through supplying uranium, they are not producing nuclear weapons and do not have operational control over Soviet-produced nuclear warheads. East Germany and Czechoslovakia have the industrial bases required to support a moderate nuclear energy effort. In theory, these Satellites, with their resources and technical knowledge, could, with Soviet assistance, produce a nominal number of nuclear weapons with

the plutonium from their power reactors. However, this development is considered highly improbable in the foreseeable future. A more likely possibility is that the Soviets may establish a Warsaw Pact nuclear weapons pool. Weapons consigned to such a stockpile, although ostensibly for the use of all the Pact members, would remain under Soviet control.

b. (S) CBR Capabilities.

The Satellites are severely limited in the employment of toxic chemical agents because of a lack of munitions. Although Czechoslovakia, East Germany, Poland, and Rumania are capable of producing toxic agents, the USSR maintains overall control. The Satellites, except Albania and Bulgaria, maintain a good defense against toxic agents; however, all of the Satellite nations are vulnerable to biological attack (See Figure 15-3 for detailed capabilities).

Standard Soviet Chemical Agents

Type	Agent	US Symbol
Nerve	V-type agent	VX
	Tabun	GA
	Sarin	GB
Blister	Mustard	H
	Mustard-lewisite mixture	HL
	Phosgene oxime	CX
Other toxic agents	Hydrogen cyanide	AC
	Cyanogen chloride	CK
	Phosgene	CG
	Di phosgene	DP
Irritant agents	Chloroacetophenone	CN
	Adamsite	DM

Possible Soviet Biological Agents

Bacterial

1. Bacillus anthracis (Anthrax)
2. Brucella species (Brucellosis)
3. Intestinal pathogens (Cholera, Typhoid, Bacillary Dysentery)
4. Pasteurella tularensis (Tularemia)
5. Pasteurella pestis (Plague)

Viral

1. Encephalitides
2. Psittacosis-ornithosis (Parrot fever)
3. Yellow fever

Rickettsiae

1. Q fever
2. Typhus

Figure 15-1

Soviet Chemical Staff and Units

Level	Chemical Staff	Units	Capabilities	Presence
Front[1] [2]	Unknown	Chemical defense bde [3]	Depends on bn's assigned.	No
		Laboratory	Analysis.	Probable
Army[2]	6 officers	Chemical bn	Spray terrain contamination, chemical mine laying.	Possible[4]
		Chemical defense bn	Reconnaissance, terrain, personnel, and equipment decontamination.	Possible
		Terrain decon co	Terrain decontamination.	Unknown
		Clothing decon co	Clothing decontamination.	Possible[4]
Division	3 officers 1 EM	Chemical defense co	Reconnaissance, terrain, equipment and personnel decontamination, equipment repair.	Possible[4]
Regiment	2 officers (rifle) 1 officer 1 EM (Other)	Chemical plat	Reconnaissance, personnel, equipment, and terrain decontamination.	Confirmed

1 Group of forces in peacetime.

2 Units shown are attached to Front and army as necessary only in time of war; in peacetime [redacted] are assigned to divisions.

3 Formed from same type battalions listed under army.

4 Organization and equipment common to all these units is frequently sighted. Definite identification of units has not been made.

Figure 15-2

ANNEX 16

GUIDED MISSILES AND ROCKETS

1. (S) USSR.

a. General.

The Soviets have continued to place missile and rocket technology in the position of highest priority. The continuing deployment of the SA-2 GUIDELINE surface-to-air missile (SAM) system throughout the entire Soviet Bloc, the sale of this system to various non-Bloc countries, and the repeated display of Soviet surface-to-surface rockets and missiles in parades in the various Bloc countries serve to demonstrate the Soviet emphasis in this field.

b. Characteristics of Soviet Surface-to-Surface Missiles (SSM).

(1) Surface-to-Surface Strategic Missiles.

Weapon Designation	Operational Capability (date)	Maximum Range (kilometers)	Type of Guidance	Launch Site Configuration	Remarks
SS-3 (SHYSTER)	1956	1,150	Radio-inertial	4 launchers (soft site)	Limited road mobility.
SS-4 (SANDAL)	1959	1,900	Autonomous	4 launchers (soft site)	Limited road and rail mobility.
SS-5	1962	4,000	Autonomous	4 launchers (soft site)	May have limited rail mobility. Capable of intercontinental attack.
SS-6	1960	10,000	Radio-inertial	2 launchers	Not mobile.

The delivery systems listed in paragraph 1 b (1) are all estimated to have a nuclear capability.

(2) Surface-to-Surface Tactical Missiles and Rockets.

Weapon Designation	Operational Capability (date)	Max/Min Range (kilometers)	Time to Fire From Prepared Positions	Rate of Fire Maximum	Rate of Fire Sustained	Type of Guidance	Vehicle Speed (km/h) Road	Vehicle Speed (km/h) Cross-country
[1] FROG-1	1954	32.5/6	30 min	2/hr	4/day	Free rocket	30	20
FROG-2	1954	18/6	30 min	2/hr	4/day	Free rocket	40	25-30
FROG-3	1957	24/6	30 min	2/hr	4/day	Free rocket	40	25-30
FROG-4	1957	48/10	30 min	2/hr	4/day	Free rocket	40	25-30
SS-1 (SCUD A)	1957	170/50	30 min to 3 hr	4/day	2/day	Pre-set inertial	35-40	25-30
SS-1 (SCUD B)	1959	280/50	30 min to 3 hr	4/day	2/day	Command and inertial	35-40	25-30
SS-2	1954	550/150	30 min to 3 hr	4/day	1-2/day	Command and inertial	30	Limited to none

1 Free rocket over ground

(a) The FROG-1 and FROG-2 are probably obsolescent. The FROG-3 and FROG-4 use the same rocket engines; the only differences in these two weapons are the size of the warheads and the range. There are ample quantities of all FROG weapons, and it is believed that the FROG-3 and FROG-4 are in series production.

(b) The SS-1 SCUD A and SS-1 SCUD B are believed to be in series production. The ranges indicated are with nuclear warheads. While the SCUD A has a maximum range of 280 kilometers with a conventional warhead, it is believed that the Soviets would consider such employment as uneconomical and ineffective.

(c) The SS-2 is probably an outgrowth of the German World War II V-2 missile. While the exact configuration of the SS-2 is not known, it is believed to be larger than, but quite similar to, the older V-2. The SS-2 is obsolescent.

(d) The delivery systems listed in paragraph 1b(2) are all estimated to have nuclear capability.

(e) In addition to the above, the SNAPPER and SWATTER antitank missiles may be considered in the surface-to-surface category. The missiles are mounted on retractable launchers within the aft portion of the BRDM amphibious scout car. The SNAPPERS are mounted three abreast and are visually tracked, wire-guided missiles. The SWATTERS are mounted four abreast, in two staggered rows, and appear to be radio guided, with an automatic control system requiring the operator to track only the target. The SNAPPERS are also mounted on the UAZ-69 truck rather than on the BRDM. The UAZ-69 SNAPPER system consists of four missiles which are fired to the rear and are also wire-guided.

c. Deployment of Soviet Surface-to-Surface Missiles.

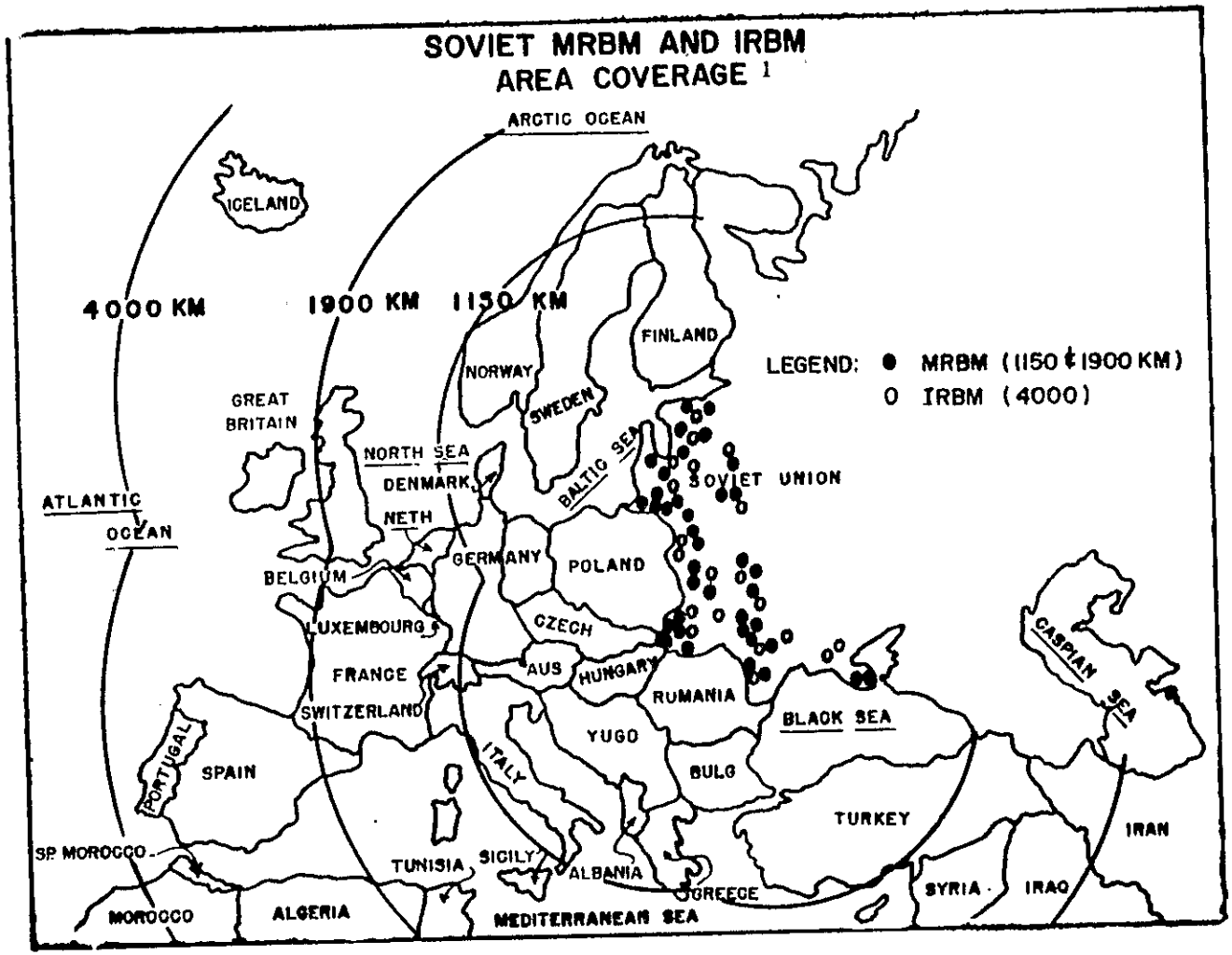
(1) Strategic.

(a) The 1,150-kilometer SS-3 SHYSTER SSM is not deployed in East Germany, since the great majority of strategic targets can be effectively covered from the Western military districts of the USSR with the SS-3, the 1,900-kilometer SS-4 SANDAL, and the 4,000-kilometer SS-5 (See Figure 16-1).

(b) The 1,150-kilometer SS-3 and the 1,900 kilometer SS-4 probably employ the same warhead. These weapons are in series production, but it is estimated that the SS-4 will gradually replace the SS-3 and become the mainstay of the Soviet medium range ballistic missile (MRBM) force.

(c) The 4,000-kilometer SS-5 is the newest operational strategic missile in the Soviet inventory. This weapon, which is capable of intercontinental attack, is also believed to be in series production.

(d) It is estimated that these MRBMs and intermediate range ballistic missiles (IRBM), using nuclear warheads, have the necessary range, accuracy, and reliability to be extensively employed in a Soviet attack against any NATO targets.



1 The drawing is not to scale, and the arc centers are arbitrary.

Figure 16-1

(2) Tactical.

(a) Tactical SSM's and single-round FROGs are present in the Group of Soviet Forces, Germany (GSFG). The FROG-3/4 and the SS-1 (SCUD B) missiles and support equipment have been observed during displays, on maneuvers, in transit, and in installations in East Germany.

(b) The accepted organizations of these tactical weapons systems are as follows:

1 One FROG battalion is in each of the 20 line divisions. Each battalion is organized with three FROG batteries of one launcher each. A new rocket launcher, based on the BMD-20 multiple-round rocket launcher, has been observed in the GSFG FROG battalions. These new launchers, two per FROG battalion, fire rockets estimated to be 20 feet long with a 400mm diameter warhead similar to the front half of a FROG-4 warhead; these new rockets are estimated to be used in a close support nuclear role. This organization results in a total of 60 FROG launchers and 40 short-range rocket launchers in GSFG.

2 One SS-1 SCUD brigade is in each of the five armies and one brigade is directly subordinate to GSFG headquarters. Each brigade is organized with two battalions with three batteries each. Each battery has one SS-1 launcher, giving the brigade a total of 36 launchers in the GSFG.

3 There have been no indications of SS-2 associated equipment in East Germany over the past several years and it is believed this system is obsolescent.

4 The GSFG has a definite need for a delivery system capable of a maximum range of 480 to 560 kilometers. To fill the gap in this range capability, which resulted from the apparent obsolescence of the SS-2 system, it is estimated that the GSFG has, or will, introduce, a surface-to-surface cruise missile (SSCM) system, possibly the SSC-1 SHADDOCK. It is estimated that this system would be organized as a regiment, subordinate to the 24th Tactical Air Army or directly subordinate to the GSFG. A regiment would consist of two battalions of two launchers each, for a total of four SSCM launchers.

5 One battery of antitank missiles is held in each GSFG motorized rifle regiment. A battery consists of either nine SNAPPER BRDM amphibious scout cars or six SWATTER BRDM's.

(c) Mockups of virtually every type of USAREUR operational missile have been reported in East Germany. These mockups are used as training aids for Soviet Bloc reconnaissance personnel and for forces specially trained for sabotage of missile sites. It is estimated that the Soviets will continue to emphasize such training and that as new missiles become operational in USAREUR, mockups of these weapons will appear in East Germany.

d. Cruise-type Surface-to-Surface Missiles.

Soviet interest in cruise-type missiles continues. It is estimated that the Soviets have continued the development of their capability to supplement the ballistic missile program as follows:

Reference Designation	Operational Capability (date)	Maximum Horizontal Range (kilometers)	Effective Altitude Limits (meters)	Guidance	Remarks
SA-1 (V-301)	1955	30-46	1,000 to 18,000	Radar track with radio command	Single-stage liquid propellant missile deployed in sites around Moscow. Each site gives 54° coverage.
SA-2	1957	50	1,200 to 25,000	Radar track with radio command	Solid propellant booster, liquid propellant sustainer, deployed in Soviet Bloc in both mobile and static defense. Gives 360° coverage.
SA-3	1961	18-30	15 to 12,000	Semiactive radar homing	Static low-altitude defense.
SA-4 (GANEF)	1964	50	100 to 20,000	Command	Mobile SAM for field army defense.
SA-5 (GRIFFON)	1963	65	15,000 to 35,000	Command	Improved anti-aircraft SAM, possibly has limited anti MRBM/IRBM capability.
Antimissile-missile (AMM)	1964-66	100	25,000 to 50,000	Command	Antimissile-missile system for static USSR defense.

e. Characteristics of Soviet Surface-to-Air Missiles (SAM).

Type and Range (kilometers)	Year Operational	Mach No.	Guidance
Aerodynamic 275	1961	1.0	Radio command and inertial
Aerodynamic 560	1962	1.0	Radio command and inertial
Aerodynamic 900	1962	1.0-1.5	Radio command and inertial
Aerodynamic 3,700	1964	2.0-3.0	Inertial-stellar corrected

16-6

f. Deployment of Soviet Surface-to-Air Missiles.

(1) The Soviets have continued to emphasize SAM programs. The already vast deployment of the SA-2 system in the USSR and Satellite countries has shown further expansion. Both the SA-2 and SA-3 systems are used to bolster the SA-1 double-concentric ring defense of Moscow. Improvements and refinements in the SA-2 equipment have continued to be made at GSFG SAM sites and sites within the USSR. The majority of the 22 GSFG SA-2 sites in East Germany are now equipped with the latest known version of the SA-2 SAM fire control radar, FAN SONG E, and a newly configured GUIDELINE missile. This three-dish radar and the newly configured missile probably improves the low-altitude capability of the SA-2 system. It is estimated that all GSFG sites will be equipped with this new radar and that this improved system is being introduced in Soviet SA-2 peripheral defense sites.

(2) The minimum altitude capability of the SA-2 system since the introduction of the FAN SONG E fire control radar is estimated at about 1,000 meters. This deficiency probably led the Soviets to develop a low-altitude system designated the SA-3. Deployment of this system, reportedly under development since late 1959, has been initiated within the Soviet Union as a supplement to existing SAM defense systems. This improvement in the low-altitude capability of the SAM defense system probably is only an interim measure. It is estimated that a mobile low-altitude SAM defense system will be introduced in GSFG during 1965.

(3) A new Soviet missile, nicknamed GRIFFON, was displayed in the 7 November 1963 Moscow parade. This new missile, which appears to be an extension of the SA-2 GUIDELINE design, is a two-stage, surface-to-air type with a solid propellant booster and probably a liquid sustainer. The booster missile fins are an interdigitated configuration, and one pair of opposing large missile fins is equipped with roll control ailerons. Four small, movable, in-line surfaces aft of the large missile fins are for steering control. Approximate dimensions are: overall missile-booster length, 53 feet; booster diameter, 3.4 feet; and missile diameter, 2.6 feet. Overall characteristics of the missile indicate it is probably a longer-range, higher-altitude SAM designed to improve Soviet anti-aircraft capability. The new missile may also have a limited anti-missile capability.

(4) A new Soviet missile, nicknamed GANEF, was displayed in the 1 May 1964 Moscow parade. The new system, which followed GRIFFON in the parade, consists of two missiles mounted

on a new type tracked chassis. The missiles, 27 feet long and [redacted] inches in diameter, employ four parallel separable solid-fueled [redacted] boosters and a ram-jet sustainer engine. The dual-arm launcher is capable of rotating 360 degrees and probably elevates both missiles together. The new weapon system is probably a mobile anti-aircraft missile system designed for field army use. It is estimated that deployment of the GANEF system began in 1964 and that this system will appear in the GSFG during 1965. The addition of GRIFFON and GANEF to the inventory would considerably enhance the GSFG air defense capabilities.

2. (U) (S) Satellites.

a. General.

The first missile system known to be in the hands of the Satellite forces was the SA-2 SAM system. Although reports of varying reliability have long suggested the presence of other missile and rocket systems in the various Satellite forces, it has only been recently that the presence of these systems has been confirmed.

b. Surface-to-Surface Missiles.

(1) East Germany.

The presence of FROG-3/4 and SS-1 SCUD A in the East German Army has been confirmed. These systems, which are probably organized along Soviet lines, are capable of delivering nuclear warheads, but the Soviets undoubtedly have retained strict control over them, releasing conventional warheads only. Two SNAPPER wire-guided antitank missile systems, one quad mounted on the UAZ-69 jeep and one triple mounted on the BRDM armored scout car, have been issued to EGA units.

(2) Other Satellites.

The presence of FROG-3/4 and SS-1 SCUD A in Polish forces has been confirmed. In Rumania, where SS-1 SCUD A has been confirmed, it is believed that FROG-3/4 is present, since this system is probably furnished to Satellite forces as soon as, if not sooner than, the SCUD A system. While it is felt that FROG-3/4 and SCUD A are in both Czechoslovakia and Bulgaria, their presence