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Handbook on USSR Military Forces, Chapter XII: Maps, Conventional Sign, and Symbols

War Department (USA)

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Technical Manual TM 30-430
Handbook on USSR Military Forces
Chapter XII
Maps, Conventional Sign, and Symbols

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Technical Manual, TM 30-430, Chapter XII

15 October 1946

Handbook on USSR Military Forces
Chapter XII
Maps, Conventional Sign, and Symbols

War Department
Washington, DC

Comments

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Abstract

TM 30-340, Handbook on USSR Military Forces, was “published in installments to expedite dissemination to the field.” TM30-430, Chapter XII, 15 October 1946, “Maps, Conventional Signs, and Symbols,” contains a brief description of the mapping system used in the Soviet Union and examples of symbols used on Soviet tactical maps and military topographic maps

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CHAPTER XII

MAPS, CONVENTIONAL SIGNS, AND SYMBOLS

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CHAPTER XII

MAPS, CONVENTIONAL SIGNS, AND SYMBOLS

Section I. MAP SYSTEMS

1. INTRODUCTION

Soviet tactical signs and symbols have undergone considerable change, particularly since 1942. These changes have consisted largely of the simplification of complex signs by more abundant use of abbreviations and by the introduction of new signs for recently introduced weapons, such as self-propelled guns.

Soviet usage is not always consistent, even in official manuals. Different arms and services frequently use signs which vary from those used by other arms and services. This is particularly applicable to the signs for fortifications used by the engineers and by the infantry.

Tactical symbols representing friendly troops are red. Those for enemy troops are blue, the converse of United States usage. On black and white maps or charts, friendly troops are represented by solid heavy lines and enemy troops are indicated by lighter, double lines.

Soviet military abbreviations and conversion tables of the old Russian and metric systems of weights and measures are published in TM 30-544.

2. COORDINATE SYSTEM

The U. S. S. R. is divided into 28 map sectors, each 6° wide. The map sectors are divided by parallels, 4° apart into rows of coordinate zones. Coordinate zones are numbered consecutively from 1 to 32, starting at Greenwich and continuing east. Numbers for coordinate zones are derived from the numbers of the map sectors in which they fall. The number of a coordinate zone is determined by subtracting 30 from the number of the map sector in which it falls or by adding 30 if the map sector number is less than 30 (fig. 1).

A rectangular grid system is superimposed on each coordinate zone. The center of coordinates is established at the intersection of the equator and the

central, or base, meridian of zone, that is, at the third, ninth, fifteenth etc., meridians. At the origin of this coordinate system, the value of the "X" coordinate is zero, and the value of "Y" coordinate is 500 kilometers. In the Soviet system the "X" coordinate is vertical, and the "Y" coordinate is horizontal because a large positive value is assigned to the "Y" coordinate, a value larger than half the width of a coordinate zone at the equator. The "Y" coordinate never becomes a negative value. The "X" coordinate, however, becomes negative in the southern hemisphere.

The length of a side of each grid square is equal to an even number of centimeters and represents an even number of kilometers on the ground. For example, the side of the grid square of a 1: 25,000 map is 4 centimeters and represents 1 kilometer on the ground. The side of the grid square of 1: 100,000 map is 2 centimeters, which represents 2 kilometers on the ground.

The full coordinate is written in the lower left corner of each sheet, the horizontal coordinate preceded by the number of the coordinate zone. The vertical or "X" coordinate indicates the distance in kilometers from the equator. The difference between the value of the horizontal or "Y" coordinate and 500 indicates the distance east of the base meridian of the coordinate zone if "Y" is greater than 500, and the distance in kilometers west of the base meridian if "Y" is less than 500. Thus, the numbers 5748 and 8690 locate the lower left corner of a map 5,748 kilometers north of the equator 190 kilometers east of the base meridian of the 8th zone. The full coordinate is printed only in the lower left corner of the map. Elsewhere only the last two numbers are given. In military communications, the "X" coordinate always is given first.

Although the decision to change from the old Russian system of weights and measures was made in the early 1920's, military maps employing the old

system still are in use. The old style military maps use the geographic coordinate system. The distances between consecutive vertical and horizontal lines are measured in *duims* (inches), which represent an even number of *versts* (0.663 miles) on the ground. For example, the size of a square on a 1:84,000 map is 1 *duim*, which represents 1 *verst* on the ground. Prior to the adoption of the new system of coordinates, a metric grid was superimposed on the geographical grid of the old style maps.

3. TYPES AND CLASSIFICATION OF MAPS

Military maps of the U. S. S. R. are classified according to scale as strategic, operational, and tactical maps.

Maps of small scale are intended for general planning and strategic studies. In the Red Army, metric system maps 1:500,000, 1:1,000,000, and 1:500,000,000 and old system maps 1:1,680,000 and 1:4,000,000 are utilized as strategic maps. These maps carry the usual geographic data.

Intermediate scale maps are intended for the planning of operations, for the scheduling of movements of large units and supplies, and for the selection of positions and communications systems. The operational maps generally include communications data classified according to the capacity and condition of roads, ridge lines, defiles, and other major terrain features and economic data. Operational maps of the new system include those of scales 1:200,000 to 1:1,050,000. The standard operational map of the Red Army is the new 1:200,000 map. The collection of data for this map was started in 1925. Relief is shown by tinting and by contour lines. In the compilation of data for this map, particular attention was centered on strict classification of railroad and road nets and on population and population statistical data. In sparsely populated areas, this map also is intended for tactical use.

Three old style operational maps exist. The 1:210,000 (1 *duim* equals 5 *versts*) map covers the Caucasus and the Turkmen S. S. R. The data on this map are old, and it is being replaced by the new 1:200,000 map. The 1:420,000 (1 *duim* equals 10 *versts*) map covers all the European S. S. R., neighboring western countries, Caucasus, Asia Minor, and

parts of Siberia. The 1:1,050,000 (1 *duim* equals 25 *versts*) map covers all of the European S. S. R. and extends westward to Berlin, Prague, and the Adriatic. It is one of the oldest Russian military maps.

Maps of scale 1:100,000 and larger are used as tactical maps. The new 1:50,000, supplemented by 1:25,000, is the basic tactical map. These maps include not only general topographic data, but also information regarding inhabitable localities, road nets, stream crossings and their condition, steep descents and ascents, classification of roads in terms of capacity, surface river system including speed of the current, and relief with emphasis on difficult terrain, orientation points, forests, and other vegetation by type.

On the 1:25,000, 1:50,000, and 1:100,000 maps, relief is indicated by 5-, 10-, and 20-meter contour lines respectively. Hachure marks are used where relief cannot be adequately represented by contour lines. Prominent heights and depressions are indicated by a number which represents the difference in altitude between the top and the base, heights indicated by a plus sign and depressions by a minus sign. Supplementary tactical maps, 1:10,000, are prepared as necessary during operations by the Military Topographic Service agencies in the field and by the Artillery Topographic Service.

In the old system the basic tactical map is 1:42,000. Relief is shown by contours. Originally these maps were in black only, but later four colors were added, contours in black, water in blue, forests in green, and other terrain features in brown. The 1:84,000 map of the western area also is used.

4. SPECIAL MAPS AND MAP SUBSTITUTES

Ground and air photomaps are used extensively to familiarize reconnaissance personnel with territory controlled by the enemy, to facilitate centralized fire control and target designation, to study defilades, and to facilitate coordination of infantry and artillery.

The Soviet photo-reconnaissance doctrines closely approximate standard United States practice. Air photographs, both oblique and vertical, are augmented by ground photo panoramas of critical sec-

tors. In preparing photomaps for the use of tank and mechanized forces, in addition to appropriate marginal notes and contour lines, steep slopes are indicated by an arrow whose direction and length represent the direction and length of the slope. A fraction is placed near such an arrow, its numerator indicating degree of slope and denominator indicating the length of the slope in meters.

Stereoscopes are used extensively to facilitate tactical and operational terrain map studies.

5. MAP INDEX SYSTEMS

Maps distributed by the Military Topographic Division of the General Staff of the Red Army are printed in sheets, the number of sheets for each map depending on the size of the area represented and the scale of the map. Index systems are necessary to catalog the sheets of each map. These systems consist of small schematic maps, which are divided by horizontal and vertical lines into rectangles or by meridians and parallels into trapezoids. Each rectangle or trapezoid represents a separate sheet of the map. Maps printed in the old measures are indexed in several systems. Maps printed in the metric system are all indexed in the same system.

a. Old Systems. There are two index systems for maps printed in the old measures. The first system used, if there are comparatively few sheets in a set, consists of numbering the sheets in sequence with Arabic or Roman numerals. With large-scale maps, this system becomes cumbersome. The second system consists of sheets arranged in horizontal rows, each row numbered with a Roman numeral. In each row, sheets are numbered in consecutive series of Arabic numerals, starting with "1." Thus, all sheets in the same vertical column have the same Arabic number. Each sheet of the map is designated by the Roman number of its row, and its Arabic number within that row.

b. Metric System. There is one index for all metric system maps. The basic map is the 1:1,000,000, which is divided into sectors and horizontal rows. Each row is designated by a Roman capital letter, starting with "A" at the equator. The height of each row is 4° of latitude. Thus, each sheet of the 1:1,000,000 map is 6° of longitude wide and 4° of latitude high. Each sheet is designated by naming its sector and its horizontal row. For example, the index number of the sheet which contains Smolensk is N-36 (fig. 1).

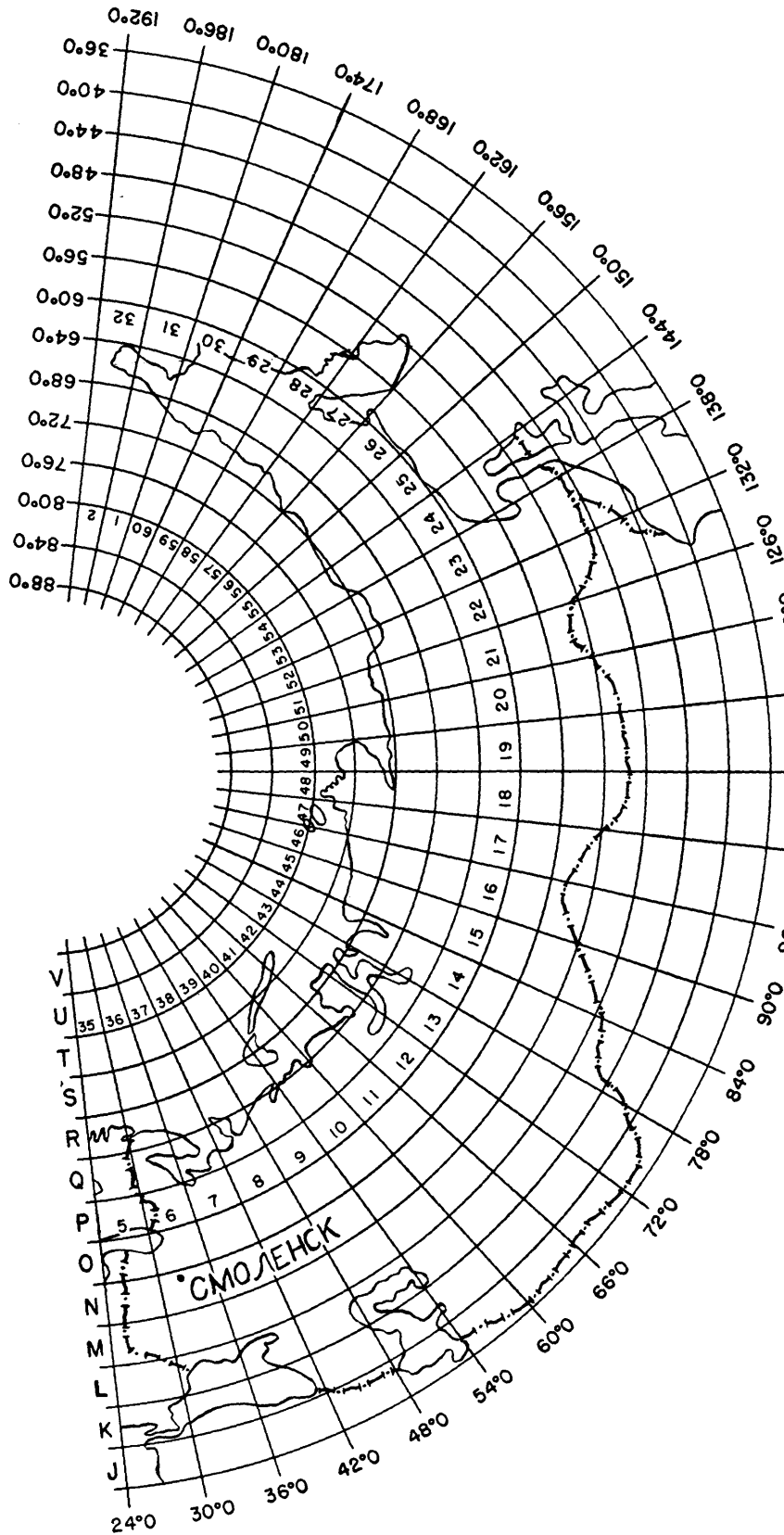


Figure 1. Index system for 1 : 1,000,000 maps.

Each sheet of the 1:1,000,000 map is divided for indexing larger-scale metric maps. A 1:1,000,000 sheet is divided into four 1:500,000 sheets, lettered A, Б, В, Г, (A, B, V, G). Thus, the sheet of the 1:500,000 map which contains Smolensk is designated by naming the sheet of the 1:1,000,000 map and by the appropriate letter, N-36-A (fig. 2).

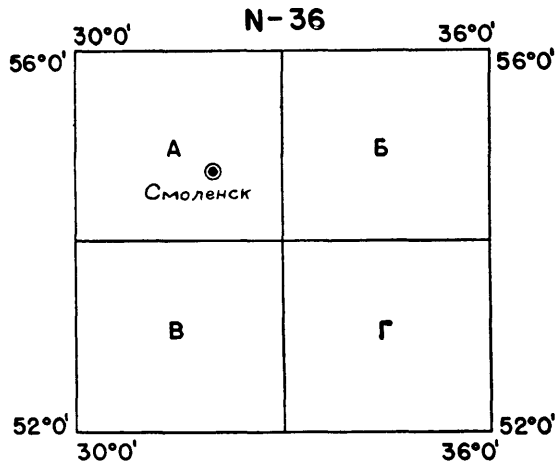


Figure 2. Index system for 1 : 500,000 maps.

Each 1:500,000 sheet is further divided into 18 1:200,000 sheets, each sheet designated by a Roman numeral, I through XVIII. The index number for the sheet of the 1:200,000 map which contains Smolensk is, for example, N-36-V (fig. 3).

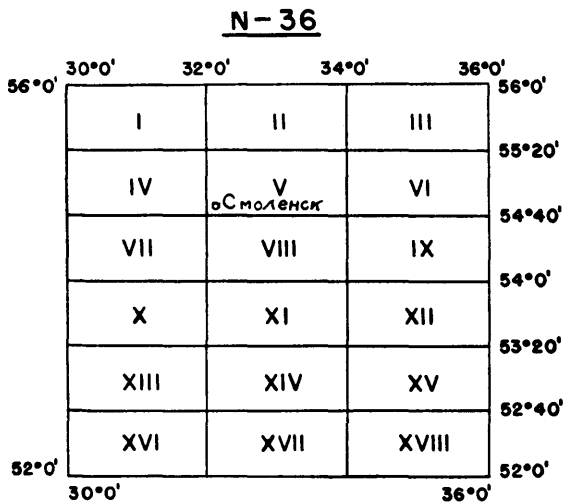


Figure 3. Index system for 1 : 200,000 maps.

Each 1:200,000 sheet is divided into 144 1:100,000 sheets. Each 1:100,000 sheet is numbered

with an Arabic numeral, 1 through 144. The index number for the sheet of the 1:100,000 map which contains Smolensk is N-36-41 (fig. 4).

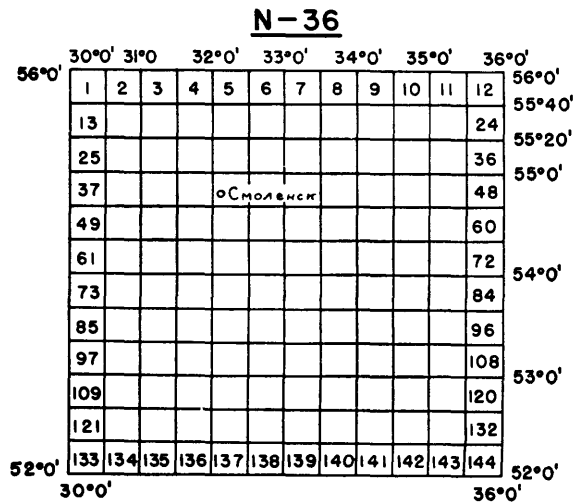


Figure 4. Index system for 1 : 100,000 maps.

Each sheet of the 1:100,000 map is divided into four 1:50,000 sheets, lettered A, Б, В, Г (A, B, V, G). Thus, the index number of the sheet of the 1:50,000 map which contains Smolensk is N-36-41-V (fig. 5). Each sheet of the 1:50,000 map is divided into four 1:25,000 sheets, lettered a, б, в, г (a, b, v, g). The

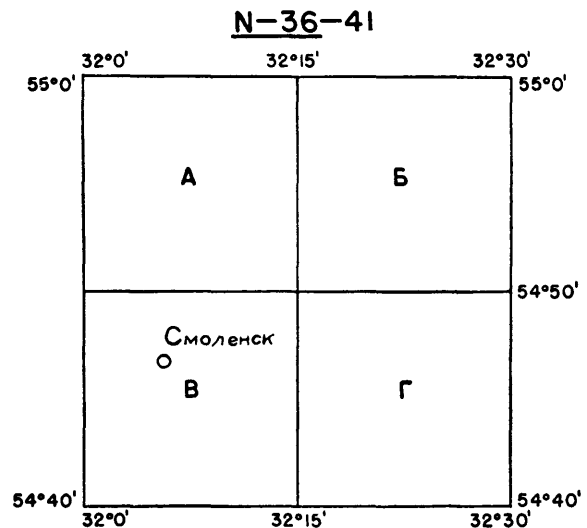


Figure 5. Index system for 1 : 50,000 maps.

index number of the sheet of the 1:25,000 map which contains Smolensk is N-36-41-B-a (fig. 6). Each sheet of the 1:25,000 map is divided into four 1:10,000 sheets, each designated by an Arabic num-

ber 1, 2, 3, or 4. Thus, the index number of the sheet of the 1:10,000 map which contains Gorki is N-36-41-B-g-3 (fig. 6).

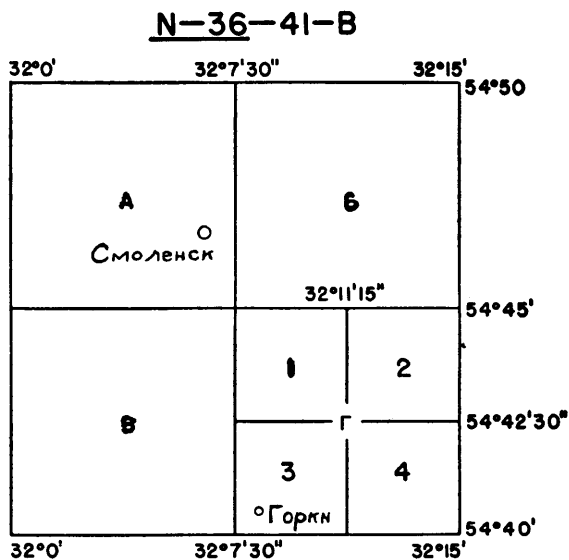


Figure 6. Index system for 1 : 25,000 and 1 : 10,000 maps.

6. SUPPLY OF MAPS

In peacetime, the Military Topographic Service of the General Staff of the Red Army is responsible for the distribution of regularly expendable maps for training and for general service purposes. Distribution is made on the basis of prescribed allotments.

The Military Topographic Service issues maps directly to the staffs of Military Districts, to independent armies, to the Main Administrations of the Peoples' Commissariat of Defense, to the Red Navy, and to the NKVD and the NKGB.

The Military Topographic Divisions of the staffs of military districts supply the other divisions of the staff and other organizations of the military district, including Red Army field units and formations, training installations, flotillas and training units of the Red Fleet, and NKVD and NKGB organizations.

The Chiefs of Staffs of military units and the Chiefs of Training Sections of military schools are responsible for initiation of requests for maps to Military Topographic Divisions of the staffs of military districts. They also are responsible for the distribution of maps within the units and the schools and for maintenance of topographic supply records.

The requisitions for maps by subordinate organizations are made on the basis of their allotments and on their programs for the year. These requisitions are consolidated annually by the military district and forwarded to the Military Topographic Division of the General Staff. Newly printed maps are distributed to the Peoples' Commissariat of Defense without formal requisition. Reproduction of maps without permission of the Military Topographical Service is prohibited.

The regularly expendable maps of peacetime must be replaced, corrected, or enlarged in time of war. Operational maps are drafted for use by the field army by the Topographic Service in accordance with the needs of constantly changing combat conditions. They are issued to designated units before or simultaneously with the preliminary orders of the Chief of Staff. New maps must be drafted as new terrain is encountered, and existing maps must be modified to meet requirements of varying types of combat.











Each unit maintains a supply of maps of the combat sector covering an area of 3 days' march forward and 2 days' march back from the current combat line.

The width of the sector covered by the map reserve of each unit encompasses its own front and those of its adjacent units. The quantity of each type of map issued for a given combat sector, as determined by army orders, usually is sufficient to supply each officer, each noncommissioned officer executing an independent mission, and each scout, sniper, and observer with a map.

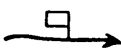
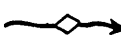
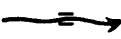

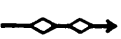

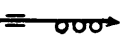
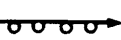
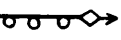
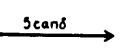





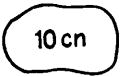


Troops are supplied with maps from either stationary or mobile map depots by agencies of the Military Topographic Service of staffs of formations, or if such agencies are not included in the Tables of Organization, by the chiefs of the Operations Divisions of the staffs. Maps normally are supplied by the higher to the next lower echelon without special request. A regimental staff is supplied from the mobile division reserve. The division reserves are supplied by mobile corps reserves and the corps reserves are supplied by an army stationary map depot, or its mobile branch. Independent formations and units receive maps from the formation to which they are attached.

Section II. Soviet Tactical Symbols

1. SYMBOLS FOR HEADQUARTERS

	Army group (Western Army Group)
	Army (Second Army)
	Corps (II Rifle Corps) ек — Rifle corps Тк — Tank corps or Кк — Cavalry corps
	Cavalry corps (alternate) (II Cavalry Corps)
	Formation (4th Rifle Division) с д — Rifle division с б р — Rifle brigade Т б р — Tank brigade а б р — Artillery brigade и с б р — Engineer-pioneer brigade т п л — Heavy tank regiment к д — Cavalry division
	Cavalry division (alternate) (5th Cavalry Division)
	Unit (10th Rifle Regiment) с п — Rifle regiment а п — Artillery regiment ш а п — Ground-attack air regiment Т б — Tank battalion Т т р — Heavy tank company
	Cavalry regiment (alternate) (15th Cavalry Regiment)
	Element (3d Battalion, 10th Rifle Regiment) с б — Rifle battalion а д — Artillery battalion т р — Tank company в з — ТТ — Heavy tank platoon
	Command post (Second Army) (Flag and characters designate unit)

2. SYMBOLS FOR OPERATIONS

	Infantry column (with staff)
	Infantry and tank column
	Infantry and artillery column
	Cavalry column
	Tank column
	Horse-drawn artillery column
	Motorized or tractor-drawn artillery column
	Motorized column
	Mechanized infantry column
	Column of other troops (5th Pioneer Battalion)
	Movement of troops by rail
	Infantry reconnaissance patrol
	Cavalry reconnaissance patrol
	Tank reconnaissance patrol
	Tank reconnaissance group
	Position area, infantry (10th Rifle Regiment)
	Position area, cavalry (15th Cavalry Regiment)
	Position area, tank troops (2d Tank Brigade)

	Position area, artillery (1st Artillery Regiment)
	Position area, special troops (6th Signal Battalion)
	Position area to be occupied by infantry (10th Rifle Regiment)
	Position area to be occupied by cavalry (15th Cavalry Regiment)
	Position area to be occupied by tank troops (2d Tank Brigade)
	Combat sector occupied until a set time limit
	Planned combat sector
	Disposition of troops in defense
	Disposition of troops in offense
	Direction of attack
	Direction of main effort
	Combat objectives
	Actual offensive
	Withdrawal of troops
	Withdrawal of troops after unsuccessful attack
	Feint or dummy movement
	Boundary between formations
	Boundary between units
	Boundary between elements












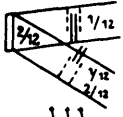







3. INFANTRY SYMBOLS

	Company position area
	Platoon position area
	Antitank rifle company
	Antitank rifle platoon
	120-mm mortar battery
	120-mm mortar platoon
	82-mm mortar company
	82-mm mortar platoon
	50-mm mortar platoon
	Four-piece machine gun battery
	Rifle company in offense (same for submachine gunners)
	Machine gun platoon in offense
	Submachine gun platoon in offense
	Rifle platoon deployed in line
	Rifle platoon in offense
	Rifle squad in offense (same for submachine gunners)
	Rifle squad deployed in line (same for submachine gunners)
	Submachine gun squad in defense
	Rifle squad in defense

	Company commander		Heavy machine gun (7.62-mm)
	Platoon commander		Heavy machine gun (12.7-mm)
	Squad commander		Light machine gun (automatic rifle)
	Observer		50-mm mortar
	Signalman		82-mm mortar
	Gun layer		120-mm mortar
	Sniper		Small-caliber (45- or 57-mm) antitank gun
	Submachine gunner		76-mm infantry howitzer
	Rifleman		
	Ammunition bearer		
	Loader		
	Pioneer		
	Chemical man		
	Horse driver		
	Rider		
	Mortar on cart		
	Machine gun squad on cart		
	Pack-loaded machine gun		
	Pack horse		
	Antitank rifle		


















4. ARTILLERY SYMBOLS

	Battery in firing position (either 76-mm or unspecified)
	Planned position for medium gun battery
	Dummy battery
	Artillery battalion position area (group supporting 6th Rifle Regiment)
	Artillery position area (1st Battalion, 5th Artillery Regiment)
	Meteorological post
	Flash ranging or optical reconnaissance post
	Sound ranging post
	Observation post (approximate location)
	Observation post (surveyed location)

-  Reserve observation post
 Д —Auxiliary observation post
 Б —Flank observation post
 П —Forward observation post
-  Topographic reconnaissance battery computation post
-  Survey base or check point
-  Battery base piece (approximate location)
-  Battery base piece (surveyed location)
-  Accurately located target
-  Base direction of fire
-  Supplementary direction of fire
-  Concentration
-  Antipersonnel defensive barrage
-  Fire for destruction
-  Antitank defensive barrage
-  Accompanying barrage
-  Heavy gun (152 to 203 mm)
-  Medium gun (100 to 122 mm)
-  76-mm gun (or artillery in general)
-  76-mm mountain gun
-  Medium or heavy howitzer (152 mm up)
-  122-mm howitzer



















 Rocket launcher





















5. TANK TROOP SYMBOLS

-  Light tank (or unspecified type)
-  Medium tank
-  Heavy tank
-  Self-propelled gun
-  Mine-clearance tank
-  Full-track personnel carrier
-  Light armored car
-  Heavy armored car
-  Armored half-track
-  Tanks in combat formation
-  Light or medium tank platoon in combat formation
-  Light or medium tank company in combat formation
-  Medium tank battalion in combat formation
-  Heavy tank company in combat formation
-  Heavy tank regiment in combat formation
-  Assembly area
 К —Terminal
 З —Reserve
 П —Intermediate
-  Terrain barrier passable for tanks












-+--+ Axis of communication (for supply and replacement)

6. AIR FORCE SYMBOLS



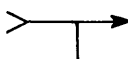


-  Fighter squadron
-  Short range bomber squadron
-  Long range bomber squadron
-  Ground attack squadron
-  Long range fighter squadron
-  Short range reconnaissance squadron
-  Army reconnaissance squadron
-  Long range reconnaissance squadron
-  Liaison squadron
-  Medical evacuation squadron
-  Dive bomber regiment
-  Artillery spotter squadron
-  Air transport squadron
-  Fighter regiment
-  Ground attack regiment
-  Short range bomber regiment
-  Long range bomber regiment
-  Long range fighter regiment

-  Air reconnaissance regiment
-  Air transport regiment
-  Heavy air regiment
-  Tactical reserve air regiment
-  Air control post
-  Permanent airdrome
-  Airfield
3 - Reserve
II - Dummy
-  Landing field
-  Landing field for heavy aircraft
-  Landing field for fighters
-  Air photo reconnaissance
-  Air rendezvous (showing time and elevation)
-  Unit alerted for airborne flight
-  Patrol area
-  Ground-attack target (showing time)
-  Bomb target (showing time)
-  Landing site for airborne troops
-  Airborne landing
-  Parachuted air cargo
-  Air passage lanes (showing entrance and exit)




















7. ANTI-AIRCRAFT DEFENSE SYMBOLS



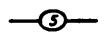

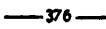

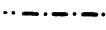

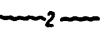














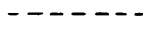










-  Antiaircraft artillery battery
-  Antiaircraft artillery battalion in firing position (showing effective zone)
-  Antiaircraft artillery battery on the march
-  Antiaircraft machine gun
-  Antiaircraft machine gun (double or quadruple mount)
-  Motorized antiaircraft machine gun
-  Small-caliber antiaircraft gun
-  Antiaircraft searchlight
-  Barrage balloon
-  Air observation and warning post
-  Air liaison post (for air warning at a ground CP)












8. CHEMICAL DEFENSE SYMBOLS

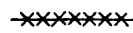
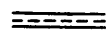

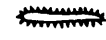
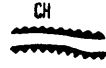
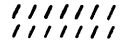



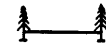
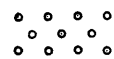
-  Contaminated area
-  Gas shelter
-  Meteorological station
-  Motorized decontaminator
-  Horse-drawn decontaminator

9. SIGNAL COMMUNICATIONS SYMBOLS



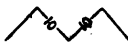

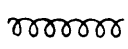

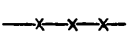

-  Signal battalion, company, or platoon (Right-hand letter indicates type of unit)
-  Radio battalion, company, or platoon (left-hand letter indicates size of unit)
-  Cavalry signal unit (telegraph squadron)
-  Radio direction finder company
-  Telegraph operating company
-  Telegraph construction company
-  Telephone line company
-  Telephone construction company
-  Cable construction company
-  Field post office
-  Message center
-  Telegraph
-  Central telegraph station
-  Sound-powered switchboard
-  Six-line switchboard (number of dots indicates number of lines)
-  Telephone testing station
-  Telephone control point (parallel connection)
-  Telephone control station (series connection)
-  Telephone


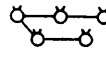





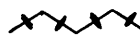

	Sound-powered telephone		Engineer reconnaissance
	Permanent telegraph line (five channels)		Pioneer reconnaissance patrol
	Permanent line		Pioneer (engineer) battalion
	Overhead telegraph line		Ponton battalion
	Cable (two-line)		Engineer dump
	Motorized radio direction finder station		Field power station
	Motorized radio		Field power compressor
	Radio receiver K -Testing C -Monitoring D -Auxiliary		Rifle squad trench
	Radio beacon		Light machine gun trench (arrow shows direction of fire)
	Radio net		Heavy machine gun trench
	Wave length (wave length 1)		Mortar emplacement
	Radio communication		Antiaircraft machine gun emplacement
	Messenger communication		Antitank gun emplacement
	Signal lamp communication		Artillery emplacement
	Signal flag communication		Reserve trench
	Signal rocket		Covered machine gun emplacement (general)
10. ENGINEER SYMBOLS			Splinter-proof machine gun emplacement
a. Tactical positions and fortifications			Reinforced earth-and-timber machine gun emplacement
	Antitank strongpoint		Reinforced concrete machine gun emplacement
	Fire plan		Fort







-  Shelter (general)
-  Light earthen shelter
-  Light shelter
-  Reinforced shelter
-  Heavy shelter
-  Reinforced concrete shelter
-  Armored machine gun turret
-  Communications trench
-  Concealed communications trench
-  Covered communications trench
-  Subterranean communications trench

-  Barbed wire fence (reinforced with stumps, bushes, etc.)
-  Antitank ditch
-  Antitank escarpment
-  Artificial ramparts
-  Rampart of snow
-  Dragons' teeth
-  Tank trap
-  Barrier of fallen timber
-  Cut-off timber
-  Timber antitank barrier
-  Antipersonnel minefield








b. Obstacles

-  Barbed wire (one row)
-  Barbed wire (three rows)
-  Barbed wire (ten rows)
-  Low wire
-  Concertina
-  Inconspicuous obstacle
-  Removable obstacle (knife rest, etc.)
-  Electrified barbed wire fence


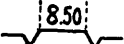
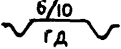
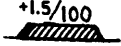
-  Antitank minefield
-  Controlled demolitions
-  Explosive charges
-  Delayed-action mines
-  Antipersonnel fragmentation mines
-  Booby trap
-  Unremovable mine
-  Antitank barrier (general)
-  Inundation















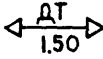
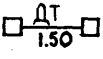

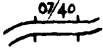

-  Earthen dam
-  Mined bridge
-  Flooding
-  Defended river bank
-  Defended river crossing
-  Booms


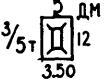


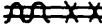


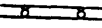









c. Camouflage

-  Dummy trench and dummy communication trench
-  Dummy gun
-  Dummy antitank ditch
-  Dummy bridge
-  Screening hedge
-  Road screens
-  Horizontal screens



d. Roads and bridges












-  Dirt road (3 meters wide)
-  Dirt road (8.5 meters wide, ditches at side)
-  Surfaced road (gravel road 6 meters wide, right of way 10 meters wide)
 EM -Macadam
 БШ -Concrete
 ЧШ -Asphalt
-  Fill (1.5 meters high, 100 meters long)

-  Dip (2 meters deep, 200 meters long)
-  Prolonged grade (7 percent)
-  Curve (radius 50 meters)
-  Wooden bridge (length, 10 meters; width, 5 meters; load capacity, 3 tons)
-  Serpentine (15 meters radius)
-  Road crossing
-  Overpass
-  Dirt road reinforced with corduroy (5 meters wide, 70 meters long)
-  Swampy road reinforced with brushwood cover (6 meters wide, 80 meters long, cover 0.40 meter thick)
-  Cross-country track
-  Muddy road (width, 6 meters; depth of mud, 0.15 meter; length, 100 meters)
-  Dirt road (two-way traffic)
-  Dirt road (one-way traffic)
-  Plank road
-  Wooden pipe (triangular, 1.5 meters across)
-  Wooden pipe (rectangular, 1.5 meters across)
-  Concrete pipe (1 meter in diameter)
-  Ford (0.7 meter deep, 40 meters wide)
-  Surfaced road needing repair (width, 6 meters; length, 1 kilometer)







-  Hard-surfaced road requiring major repair (width, 6 meters; length, 1.5 meters)
-  3-ton wooden bridge (requiring reinforcement up to 5-ton capacity)
-  Road in bad repair
-  Destroyed road
-  Dug-up and destroyed road
-  Detour
-  Mined road
-  Demolition charges on road
-  Stone bridge
-  Destroyed bridge
-  Bridge constructed from standard (T/E) equipment
-  Bridge (improvised construction)
-  Steel bridge
-  Ferry crossing
-  Ponton bridge
-  Ice crossing
-  Shell hole (7 meters in diameter, 2 meters deep)

e. Local resources


-  Sand deposit
-  Rock quarry















-  Logging area
-  Gravel quarry
-  Rock quarry (alternate symbol)
-  Boulders in field
-  Sand quarry
-  Clay quarry
-  Spring (flow, 30 liters per minute)
-  Open well
-  Piped well
-  Field pumping station
-  Water point (capacity of 400 liters of purified water per hour)

11. SYMBOLS FOR REAR SERVICES






-  Supply station
-  Army supply depot (similarly, tank corps supply point)
-  Hospital for infectious diseases
-  Field mobile hospital
-  Railhead field evacuation point
-  Army field veterinary hospital



a. Divisional units

-  Divisional supply point (similarly, tank brigade supply point)







-  Divisional decontamination platoon
-  Divisional portable artillery dump
-  Portable quartermaster dump
-  Ammunition transport company (motorized)
-  Divisional fuel point
-  Divisional medical point
-  Collection and first-aid station for lightly wounded
-  Collection point for damaged motor vehicles
-  Corps or division veterinary hospital
-  Evacuation section of a corps or division veterinary hospital
-  Motorized field bakery
-  Divisional sanitary battalion
-  Divisional artillery workshop
-  Divisional livestock herd

b. Regimental installations







-  Regimental ammunition point
-  Ammunition transport platoon of the transport company
-  Regimental medical station (similarly, tank brigade medical station)
-  Forward veterinary station
-  Regimental veterinary hospital

-  Ammunition platoon of an artillery battalion (horse-drawn)
-  Forward echelon of regimental rear services (second echelon bears No. 2)

c. Battalion, company, and battery installations

-  Battalion ammunition supply point
-  Battalion medical station
-  Battalion ration point
-  Company ammunition point
-  Platoon ammunition point
-  First-aid post

12. TRAFFIC SIGNS

-  Main traffic control post
-  Other traffic control posts
-  Auxiliary traffic control post
-  Warning sign
-  Road sign
-  Patrol

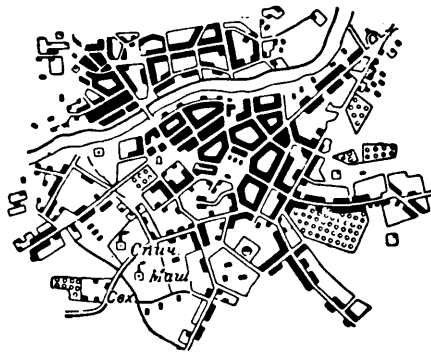
Section III. CONVENTIONAL SOVIET SIGNS

(For Military Topographic Maps,
Scale 1:50,000)

1. TOPOGRAPHIC SIGNS



Cities



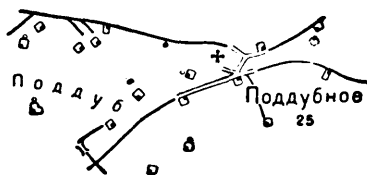
City-type and suburban settlements



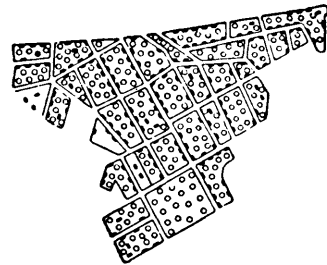
Farmhouse-type settlement
(more than 100 households)



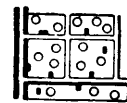
Farmhouse-type settlement
(less than 100 households)



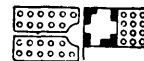
Separate farm households
(grouped under a single sign)



Resort



Barracks



State farm



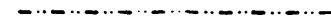
National boundary



Frontier marker



Union-Republic boundary



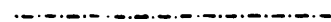
Krai, Oblast, and Autonomous Republic boundaries



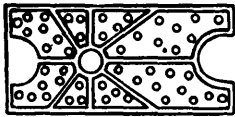
Autonomous Oblast boundary
(and boundary of Oblast subordinate to Krai)



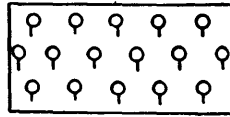
National and administrative district boundary



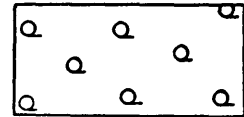
County (Rayon) boundary



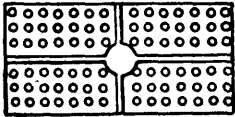
Park



Tea plantation



Thin forest and parkland



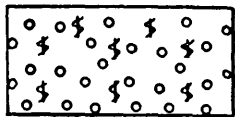
Orchard



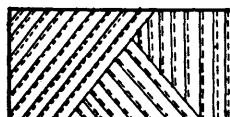
Tobacco plantation



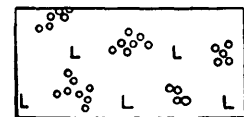
Passable marsh



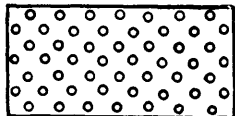
Orchard
(with mixed growth)



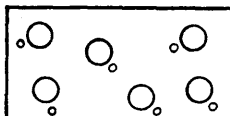
Truck garden



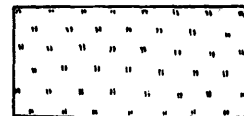
Cut forest
(with underbrush)



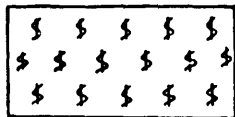
Nursery or seedlings



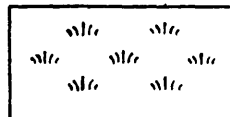
Bushes



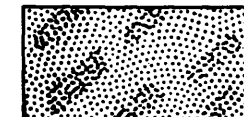
Meadow



Vineyard



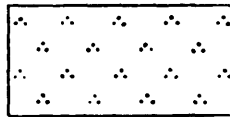
Tundra



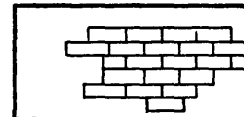
Sand and sand dunes



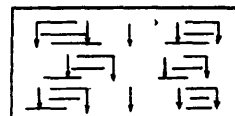
Hops



Tussocks



Peat



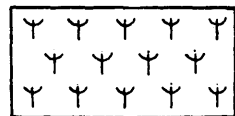
Rice plantation



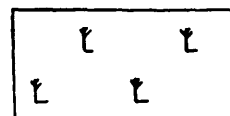
Impassable swamp
(with rashes)



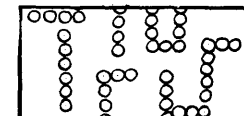
Narrow strips of bushes



Cotton plantation



Burned forest



Narrow strips of forest



Separate farm households
(not to scale)



Factories, plants, and mills
(with smokestacks)



Mounds



Separate barn



Factories
(without smokestacks)



Machine-tractor station
(outside of inhabited place)



Permanent fenced yard
(in foreign countries)



Mine or quarry
(active)



Machine-tractor station
(in inhabited place)



Destroyed settlement



Mine or quarry
(inactive)



Base fuel depot



Monument



Ore body



Grain elevator



Christian cemetery



Prospecting and placer sites



Airbase



Non-Christian cemetery



Windmill
(stone and wood)



Radio station



Cemetery with vegetation
(drawn to scale)



Cross or roadside shrine



Power station



Monastery or church



Kilometer post or road sign



Post office



Chapel



Isolated stones



Telegraph station



Synagogue



Stones



Postal and telegraph station



Mosque



Pit



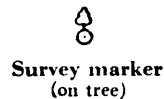
Central telephone station



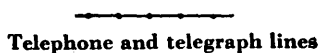
Meteorological station



Stone quarry



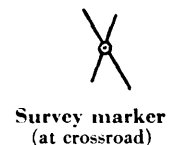
Survey marker (on tree)



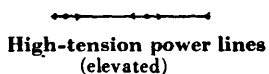
Telephone and telegraph lines



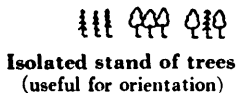
Oil seep



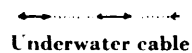
Survey marker (at crossroad)



High-tension power lines (elevated)



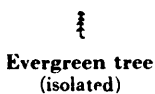
Isolated stand of trees (useful for orientation)



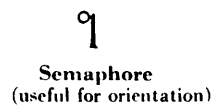
Underwater cable



Customs office



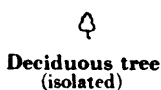
Evergreen tree (isolated)



Semaphore (useful for orientation)



Border-control station



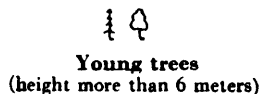
Deciduous tree (isolated)



Livestock corral



Border-control outpost



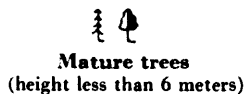
Young trees (height more than 6 meters)



Rain pit (with brick superstructure)



Quarantine station



Mature trees (height less than 6 meters)



Pass



Observation points



Forester's house



Spring



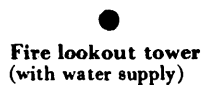
Oil derrick



Marker (astronomically located)



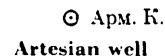
Well



Fire lookout tower (with water supply)



Bench mark



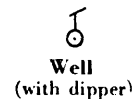
Artesian well



Permanent apiary



Bench mark (on mound)



Well (with dipper)



Clay quarry



Elevation marker



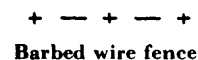
Well (with windmill)



Sand quarry



Survey marker

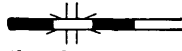


Barbed wire fence



Levies

2. ENGINEER SIGNS



Railroad overpass



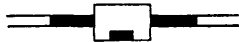
Tunnel



Culvert



Passenger and freight station
(first class, with water tower [A] and depot [B])



Passenger and freight station
(second class)



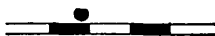
Passenger and freight station
(third class)



Loading platform and siding



Depot



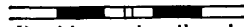
Water tower



Single-track railroad



Single-track railroad
(with stretches of double track)



Double-track railroad



Triple-track railroad



Electrified railroad



Horse-car railroad



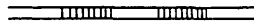
Electric tramway



Narrow-gauge railroad



Aerial cable tramway



Railroad under construction



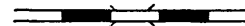
Dismantled railroad



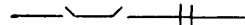
Bridge
(steel with triple track)



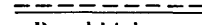
Bridge
(with single track)



Small bridge



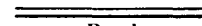
Bridge
(with two-way traffic)



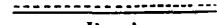
Paved highway
(section difficult to negotiate)



Paved highway
(under construction)



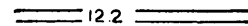
Road
(improved, ditched)



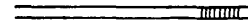
Road
(section of improved, ditched road,
difficult to negotiate)



Improved, ditched road
(under construction)



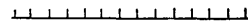
12 2
Paved highway
(showing usable width)



Incline
(10° or greater)



Stone wall
(by unimproved road)

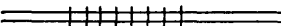


Wooden fence
(by unimproved road)

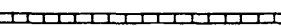
Unimproved road without ditching
(section difficult to negotiate)



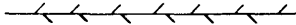
Winter road



Corduroy road



Wooden road



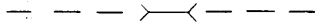
Road
(with hedges)



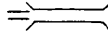
Steel drawbridge



Shoal



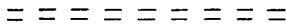
Path and footbridge



Bridge
(more than 10 meters long)



Tidal flat



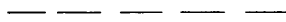
Lane
(heavy duty vehicles)



Bridge
(less than 10 meters long)



Buoy



Forest trail
(animal)



Lightship



Submerged rock



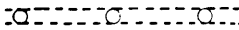
Aqueduct



Sluice



Visible rock



Water pipe or sewer
(underground)



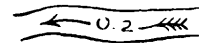
Flood land



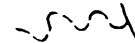
Ford



Steel bridge



Speed of current
(in meters-per-second)



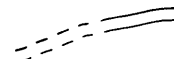
Intermittent stream
(less than 10 meters wide)



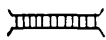
Stone bridge



Whirlpool



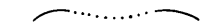
Dry creek



Wooden bridge



Beacon or lighthouse



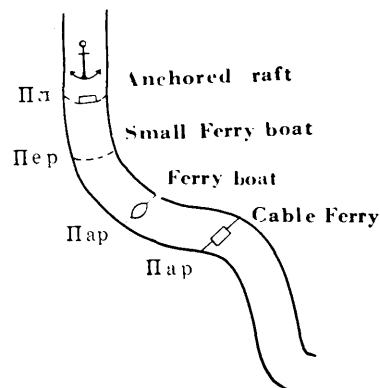
Subterranean stream



Ponton bridge



Floating bridge
(other than ponton)



Stone drawbridge



Wooden drawbridge