2

PROVISIONAL INTELLIGENCE REPORT

PLANNING, PROCUREMENT, AND SUPPLY IN THE TANK AND ASSAULT GUN INDUSTRY OF THE USSR

CIA/RR PR-89
20 December 1954

CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

US OFFICIALS ONLY
~~SECRET~~

216931, ~~CONFIDENTIAL~~

Approved For Release 1999/09/08 : CIA-RDP79-01093A000700110005-5

CONFIDENTIAL

S-E-C-R-E-T

US OFFICIALS ONLY

PROVISIONAL INTELLIGENCE REPORT

PLANNING, PROCUREMENT, AND SUPPLY IN THE TANK AND ASSAULT GUN INDUSTRY OF THE USSR

CIA/RR PR-89

(ORR Project 31.213)

NOTICE

The data and conclusions contained in this report do not necessarily represent the final position of ORR and should be regarded as provisional only and subject to revision. Comments and data which may be available to the user are solicited.

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

US OFFICIALS ONLY

S-E-C-R-E-T

CONFIDENTIAL

CONTENTS

Appendixes

CIA/RR PR-89
(ORR Project 31.213)

PLANNING, PROCUREMENT, AND SUPPLY IN THE TANK AND ASSAULT GUN INDUSTRY OF THE USSR*

Summary and Conclusions

The long lead time inherent in the production of modern weapons and the limitations of time and space lead to the primary tenet of Soviet armaments planning: the military equipment to be used to expand the Soviet armed forces to their maximum size must be produced before mobilization and not subsequent thereto. The practical effect of this basic planning principle on the armaments industry in general and on the tank and assault gun industry in particular is that, once the desired levels of equipment for active units and equipment reserves for inactive units are reached and the material is stored in the depots of the various military districts, the industry can engage in a planned, long-range production program of known proportions and constant volume, which is calculated to compensate for technical obsolescence and physical deterioration. The tank and assault gun industry can achieve this goal with an annual allocation of some 20 percent of its total industrial capacity to the production of military hardware.

Initial planning of the program for the production of tanks and assault guns is the primary responsibility of the direct consumer, the Main Administration for Tank and Mechanized Forces of the Ministry of Defense. This organization is charged with responsibility for the procurement, storage, issue, and maintenance of all armored vehicles and is in close liaison with the producer, the Main Administration for Tank Construction of the Ministry of Transport Machine Building. Intelligence analysis suggests a 10-year manufacturing cycle in this field, with the design, development, and testing task contained in one 5-year plan, and the serial production task set forth in the following 5-year plan. There are, of course, variations from this theme because of varying lead times, priorities, and the number of a particular model needed. Practical and technological considerations demand that

* The estimates and conclusions contained in this report are those of the responsible analyst as of 1 September 1954.

armaments planning, procurement, and supply be closely integrated with the rest of the economy. Of necessity the operation procedures followed in the tank and assault gun industry do not differ materially from those followed by the other machine-building industries. The 5-year plans which set the guide assignments are, in a sense, strategic in nature. It is the operational annual plan and the tactical quarterly plan which constitute the hard core of Soviet economic planning.

Preparation of the Plan for 1954 was accomplished as follows. On the basis of past production data, as well as information from other sectors of the economy, the Council of Ministers proposed goals for 1954. In general, these goals were based on the framework of the current Five Year Plan, although changes such as the so-called "new course" are not without precedent. On the basis of these stated goals for 1954, Gosplan and the Main Administration for Tank Construction simultaneously initiated the preparation of draft plans. The former agency was concerned with the over-all economy, while the latter concerned itself with its own subordinate plants. The Main Administration's draft plan was submitted to its plants for comment and estimates concerning the raw materials, components, and new production equipment needed to fulfill the draft plan. The Main Administration's draft plan, as amended, was then returned through channels to Gosplan, which reconciled all such draft plans with its own. The composite final draft plan was then submitted by Gosplan to the Council of Ministers for approval, and the Final Plan for 1954 was then redistributed through channels, each echelon amending its draft in accordance with the Final Plan. This process normally consumes 4 to 5 months. On the basis of the Final Plan, each tank plant adjusted its 1954 Technical-Production-Financial Plan, which controls the operation of the various departments, divisions, and staffs of the plant.

The Supply Plan for each tank plant is, of necessity, part and parcel of the procedure outlined above; the general supply program is outlined in the Plan. Under the Soviet system, all supplies are secured either through centralized or decentralized distribution. Centralized distribution is a system of direct commodity allocation which contains two categories: funded commodities and quota commodities. Funded commodities may not be disposed of by the producer but are distributed to a specific consumer for a specific purpose only upon the direct order of the Council of Ministers. Quota commodities are those which, within the structure of the approved Plan, are allocated by the principal ministry producing the commodity. Decentralized supplies are not centrally controlled, although prices

are fixed. The planning mechanism outlines what the tank plants and their suppliers are to produce and who will consume the products. The system is formally tied together and put into operation by means of legal contracts. The Main Administration for Supply of the Ministry of Transport Machine Building, to which ministry the Main Administration for Tank Construction is subordinate, negotiates a general contract with the Sales Directorate of a supplying ministry. On the basis of this general contract the tank plants negotiate, with the supplying plants of the other ministry, individual local contracts covering specifications and delivery dates.

The tank and assault gun industry consists of 6 final assembly plants, 41 prime subcontractors, and some 200 secondary subcontractors, or about 250 separately administrated installations. By way of contrast, 1 tank assembly plant in the US has some 12,000 suppliers. Soviet authorities recognize the value of this product specialization and are increasing the number of specialist component plants. They insist, however, that each tank assembly plant be as regionally self-sufficient as possible. At the present time there are four such regions: the Northern region, centered at Leningrad; the Southern region, centered at Khar'kov; the Urals region, centered at Nizhniy Tagil, Sverdlovsk, and Chelyabinsk; and the West Siberian region, centered at Omsk.

I. Planning.

A. Planning for Armaments Production.

The fundamental feature of Soviet heavy industry in general and of the tank and assault gun industry in particular is the planned nature of its operations. The task of planning for Soviet armaments production consists of anticipating the equipment requirements of not only the forces in being but also the forces which would come into being under the terms of the Mobilization Plan. Once these requirements are established, Soviet industry will produce sufficient quantities of military end items to meet them. When these requirements are quantitatively satisfied, the planning objective becomes that of the maintenance of these stocks both in the hands of troops and in the military reserve system. The problem of maintenance has

both qualitative and quantitative aspects. Armament planning must provide for the replacement of weapons lost to physical deterioration and of those rendered obsolescent by technical progress.

This maintenance program requires, therefore, that large stocks of weapons be maintained which may be technically inferior at any given point in time to the latest developments in these weapons by other nations. It may be pointed out, however, that this apparent deficiency in the Soviet system is compensated for by the fact that since these weapons are always present in large numbers (full TO/E*), there is not the sudden necessity to produce the weapons to full level of TO/E starting with a prototype model or, perhaps, even less.

At the conclusion of World War II the USSR had large stocks of weapons on hand in its armed forces, and therefore a large part of the production to meet quantitative requirements had already been met by the end of the war in 1945. The planning tasks since that time, therefore, have been largely those of combating the deterioration of existing stocks of weapons and providing for the replacement of those weapons rendered technically obsolescent by late-war and postwar developments in technology.

1. Armored Fighting Vehicle Planning.

The manufacture of weapons is a complicated process which reaches into virtually every segment of the industrial economy. The production of armored fighting vehicles (AFV's) requires steel, coal, aluminum, rubber, optics, plastics, electrical equipment, and a host of other products. 1/** It is apparent that AFV production cannot operate in a vacuum but must be integrated with those other products which are a part of the Soviet planning system. From the point of view of procedure, planning for the production of AFV's does not differ radically from the planning for any other machine.

Events have indicated that Soviet armament planning since the war has followed guide assignments set forth in the 5-year plans and that actual production performance has been based on the more closely controlled annual plans. The time periods involved in research, development, acceptance, and mass production of a particular

* TO/E is a standard US Department of the Army abbreviation of the term "Table of Organization and Equipment."

** Footnote references in arabic numerals are to sources listed in Appendix C.

weapon vary with the lead time required, the priority assigned, and the quantitative size of the demand. Available evidence indicates that the first postwar 5-year plan (the Fourth Five Year Plan, 1946-50) set the task of designing, developing, and testing new AFV models, and there is abundant evidence that new models were in fact created during that time. The task of the current Plan (the Fifth Five Year Plan, 1951-55) has therefore become one of production of sufficient quantities of these new AFV models to replace the technically obsolete, earlier models which date back to the closing years of World War II.

2. Consumer.

Procurement of AFV's for the Soviet armed forces is the specific responsibility of the Main Administration for Tank and Mechanized Forces. 2/ This Main Administration is directly responsible to Ground Troops Headquarters, which in turn is subordinate to the Ministry of Defense. 3/ The Main Administration for Tank and Mechanized Forces is responsible for all aspects of armored warfare. It develops doctrine, conducts specialized training in the field, and operates schools for the instruction of army officers. 4/ It participates in the AFV research and development program and is responsible for the procurement, storage, issue, and maintenance of such equipment as falls within the purview of this organization. 5/

3. Producer.

Production of AFV's for the Soviet armed forces is the specific responsibility of the Main Administration for Tank Construction, which is subordinate to the Ministry of Transport Machine Building. 6/ Subordinate to this Main Administration are the various manufacturing plants which produce and/or contract for the various components, which when assembled are delivered as complete AFV's to the consumer, the Main Administration for Tank and Mechanized Forces. The plants subordinate to the Main Administration for Tank Construction are the following: (a) Leningrad Heavy Machine Building Plant No. 185 imeni Kirov; (b) Chelyabinsk Tank Plant No. 100 imeni Stalin; (c) Nizhniy Tagil Urals Tank Plant No. 183 imeni Kaganovich; (d) Khar'kov Transport Machine Building Plant No. 75 imeni Komintern; (e) Omsk Machine Building Plant No. 174 imeni Voroshilov; and (f) Sverdlovsk Tank Plant No. 50 (part of "Uralmash" complex). 7/

B. Preparation of the Plan.

The magnitude of the task of planning the Soviet economy challenges the imagination. It is a tremendous undertaking. The over-all plan must be conceived and drawn up by central authority in order to insure that the objectives of the state receive the desired emphasis. Central planning is necessary to insure internal consistency of the plan. 8/ At the same time, if the plants which must do the work had no voice in the preparation of the plan, it would tend to be unrealistic and unworkable with impossible tasks given some firms and genuine opportunities missed by others. The problem is recognized by the USSR as the need for "planning from above and below." 9/ It is evident that the 5-year plans provide general guidance toward long-range objectives and that specific production requirements are set forth in the annual plans. 10/ To illustrate, it is assumed that the Fifth Five Year Plan contained the general goal of replacing the existing park of medium tanks -- T34, T34/85, and T44 -- with the more modern T-54 tank. While this would be the primary or priority assignment of the Main Administration for Tank Construction, the Plan would be concerned with many other industrial products as well. The subordination of the tank plants to the Main Administration for Tank Construction is prompted by the nature of their primary production (AFV's), which at the present time occupies only some 20 percent of their capacity.* 11/

The preparation of an annual plan for the tank and assault gun industry is generally carried out as follows. On or before 1 October of the year preceding the year for which the plan is being made, producing plants of the Main Administration compile industrial data for the first 3 quarters of the year and make estimates for the fourth quarter of the year. 12/ This information is forwarded through and collated by the Main Administration for Tank Construction and the Ministry of Transport Machine Building before being sent to the Council of Ministers. 13/ On the basis of an over-all view of the economy obtained from this as well as similar information from other sectors, the Council of Ministers sets forth the specific economic

* The percentage would vary with the method used to estimate capacity such as assembly line capacity, metallurgical capacity, or tons of finished metal per year. The USSR uses assembly line capacity in a plant of this type.

tasks of the 1954 plan based on the general objectives of the Fifth Five Year Plan. 14/ Such things as changes in relative priorities, the introduction of new products, solutions to problems arising during the current year, advances in technology, and the approximate increase in output are proposed. 15/ On the basis of these instructions, planning is simultaneously undertaken by Gosplan (the planning staff agency of the Council of Ministers) and by the Main Administration for Tank Construction. 16/ The emphasis in the Gosplan activity is, of course, on the reconciliation of the activities of the various sectors of the economy into a single, internally consistent national plan, while the Main Administration for Tank Construction is primarily concerned with AFV problems. The Main Administration draws up a first draft of its plan and distributes it to its subordinate plants for comment. 17/ They in turn draw up schedules of raw materials, additional capital equipment, and the like, needed to carry out their part of the draft plan and submit these together with any modifications, suggestions, or objections to the Main Administration. 18/ The amended draft is then forwarded by the Main Administration through the Ministry and again via the Council of Ministers to Gosplan, which reconciles the draft with its own and draws up a composite final draft for submission to the Council of Ministers for final approval. 19/ When such approval is obtained, final plans for the planned year are redistributed through channels to the Ministry, the Main Administration, and plants. 20/ The initial draft is revised at each level on the basis of the final plan, with each revision approved by the next higher echelon. 21/

C. Technical-Production-Financial Plan.

Generally speaking, the annual plans set forth what is to be done in broad terms and cover such items as (1) the quantity, quality, and variety of items to be produced; (2) capital expenditures to be made in terms of machinery to be purchased or main-plant units to be constructed; (3) labor in terms of the total number of workers, the wage scale of each class, and the desired percentage increase in labor productivity; (4) percentage reduction in costs to be attained; (5) the amounts of raw materials, semifinished articles, and equipment which have been allocated to the plant; and (6) the financial arrangements by which the plant is to conduct its business, given in terms of working capital, method for financing capital construction, and the like. These planned goals represent the general pattern of what is to be done. It remains for the producing plant to define how these tasks

are to be accomplished through its own Technical-Production-Financial Plan (Techpromfinplan). 22/

The Techpromfinplan follows the same outline as the annual plan described above but goes into sufficient detail to outline the activities of each division, department, and other subunit of the plant. 23/ A brief discussion of each of the three parts of the Techpromfinplan is useful.

1. Technical Plan.

For the tank plant, the technical plan deals with technical efficiency, implementation of technological advances, plant maintenance, intraplant transportation, and the like. It outlines current deficiencies in plant operation and lays down the course of action to be followed in overcoming those deficiencies. 24/ For example, the wartime installation of moving-conveyor assembly lines in the tank plants was handled in this section of the plan.

2. Production Plan.

The production plan of the plant subdivides the production tasks received from the Main Administration into four major product categories 25/: basic production, production based on orders from cooperating enterprises (as explained below), decentralized production, and other production.

Basic production constitutes the plant's specialty, which in the instance of AFV plants is both the basic AFV and some item of civilian production such as railroad cars.

Production based on orders from cooperating enterprises refers to a special type of production relationship established between plants by plan. 26/ Cooperation, in this sense, in the machine-building industries has assumed sizable proportions and takes two main forms 27/: (a) production of component parts for other plants producing finished machines and (b) cooperation between plants producing the same or similar products. In the case of the AFV plants, this type of cooperation may take the form of the production of large castings for other ministries, since the AFV plants' equipment is well suited to this production, or it could take the form of technological cooperation, in which skilled labor and technical personnel are lent to other plants for the purpose of instituting a new production method or other improvement.

Decentralized production is that production which is destined to local organizations. An example of this type of production is the output of pots and pans from the plants' scrap materials. 28/

Other production includes such job-lot services as the repair of farm machinery.

The production plan takes the form of an operational program which may be based on a 10-day period, month, or quarter. 29/ In establishing production schedules for this operational program, the plant must determine the calendar priority for the production of different products in order to guarantee timely fulfillment of orders. 30/ According to established procedures, orders from the Main Administration for Tank Construction must reach the plant not later than 10 days before the first of the month, so that the production schedule for the following month may be prepared in time. 31/

3. Financial Plan. 32/

The financial plan sets up a program for the receipt and expenditure of funds involved in the carrying out of the production plan. The plant's funds are maintained in an account with the State Bank (Gosbank), which acts as a clearinghouse for transactions between plants, chief directorates, and ministries. The plan specifies expenditures to be made; the size of the labor force to be employed, including a breakdown of the force by skills; and the wage fund from which wages and salaries are to be paid. 33/ The planned cost of production is calculated through the use of coefficients of utilization, that is, ratios of inputs to planned output. 34/ Deviations from this plan are made only at the risk of disruption of the over-all plan, and changes in it are assiduously avoided.

II. Procurement.

A. Material Balances.

A central role in the planning of the operation of the national economy is played by the system of national material balances (material'nye balansy). A material balance for any commodity serves to equate planned supply with a planned distribution schedule. On the supply side, there will be specific carry-

over inventories, planned production, planned imports, and the like. The material cost to the economy of this planned production is worked out in detail. The distribution schedule will indicate amounts to go to production, construction, direct retail sales, exports, and state reserves, and will be accompanied by the necessary set of norms specifying the amount of further product to be expected from the use of the material. 35/ Of late the detailed distribution schedule has come to be referred to separately, and it now frequently happens that reference is made to the "material balances and distribution schedules." 36/ Since 1934, these material balances have been made up by Gosplan.* 37/

Since these material balances require prodigious quantities of work in their preparation, they were originally made up for only a few items. Even as late as 1941 they covered only 450 items, 300 of which were raw materials and fuels. 38/ By 1951 they covered 1,600 commodities. 39/ The commodities so covered are the so-called "funded commodities," 40/ dealt with at greater length below. They include (1) the basic raw materials for agriculture, for industry, and for construction; (2) all of the basic fuels and energy sources; and (3) all of the important industrial finished units, such as motor vehicles, locomotives and freight and passenger cars, agricultural machines, metalworking machines, and construction machines. 41/

B. Procurement System.

Under the Soviet system, all goods and materials, whether producer goods or consumer goods, fall into 1 of 3 classes. The first two classes are centrally allocated. The third class -- goods which can best be handled locally and are of a lesser over-all importance -- is handled by decentralized supply. 42/

1. Funded Commodities.

Funded commodities are those which are distributed by direct order of the Council of Ministers in quantities and for purposes fixed in advance by the plan. They are those for which the Council of Ministers and its staff agency, Gosplan, approve annual and quarterly material balances and distribution schedules. 43/ The assignment of funded commodities is usually to a main fund holder. 44/ In the case of AFV's, it is believed that

* During the existence of Gossnab (1948-March 1953) they were made up by Gossnab.

the Main Administration for Tank Construction is the main fund holder, being allotted given amounts of funded materials and equipment for precisely specified purposes. These supplies are not confined to those needed for the manufacture of tanks but also include material for the production of other items by the Main Administration, depending on the type and priority of that product. The Main Administration, in turn, divides this fund among the various plants subordinate to it. Thus, under the funded supply system, each plant has a definite allotment for each quarter and for the year as a whole. 45/

2. Quota Commodities.

Quota commodities are also handled by a centralized allocation. They are, however, goods of less importance and in less short supply than the funded commodities. Allocation is made by the principal producing ministry rather than by the Council of Ministers. Allocation is made in the form of a quota. Delivery is made by a producer to an individual user, provided the quota allotted to the user's industry, region, or plant has not been exceeded. The purpose for which the user wishes the material need not be specified to the producer in advance. 46/

3. Decentralized Supply.

Products in decentralized supply channels come largely from local and republic industries which are not directly under the control of the All-Union economic apparatus and consist of such things as agricultural products, the output of handicrafts, and certain local building materials. 47/ If they are produced by All-Union ministries, supplies may be allocated to each region and there sold to firms in accord with the suggestions of local planning institutions. 48/ Or they may be bought up by supply and procurement organizations of consuming ministries and Main Administrations for subsequent sale to their own firms. 49/ Other decentralized goods may be sold directly by the production plant to other firms. 50/

C. Procurement Process.

It is obvious that procurement planning must be carried out simultaneously with production planning. What is a matter of procurement with one organization is a matter of production with another. There exists, however, a parallel and highly integrated correlation between the mechanism for production and that for procurement.

1. Organization.

Each industrial ministry, including of course the Ministry of Transport Machine Building, has a Main Administration for Supply (Glavsnab). 51/ This Main Administration is responsible for planning the composite needs of the various production organizations in the Ministry, for example, the Main Administration for Tank Construction. 52/ Further, within the Main Administration for Tank Construction, there is a Directorate of Supply which, in turn, is responsible for planning the composite needs of the tank plants, which, as indicated, are producing many things in addition to tanks. 53/ Each of these different supply organizations is responsible, each on its own level, for defending its composite supply plans before higher bodies, for distributing allotments of centrally allotted goods to the proper consignee, and for helping in the actual purchase of such supplies. 54/

In spite of these supply organizations, each tank plant must do a great deal of its own procurement directly, if results are to be obtained, 55/ and the employment of plant representatives called "pushers" is a common practice. 56/

2. Planning.

Just as production planning has its aspects of planning from above and below, so too has the planning of procurement. The tank plant presents both annual and quarterly statements of its requirements for centrally distributed goods to the Main Administration for Tank Construction. 57/ The Directorate of Supply of the Main Administration for Tank Construction amalgamates the statements of needs from the various tank plants into the coordinated statement of the needs of the Main Administration, which is then forwarded to the Main Administration for Supply of the Ministry of Transport Machine Building. This Main Administration, having coordinated and amalgamated the requirements of the operating Main Administrations to the Ministry, submits its combined procurement plan to the State Planning Commission (Gosplan, now incorporating the former Gossnab) and to the Council of Ministers. 58/ These statements show the quantity and quality of raw materials, semifabricated goods, and fuels required. 59/ Thus, while the allocation of supply is from the top down, firms and even plant departments have some voice in it. The procurement plans for the various ministries are coordinated and brought into final form by Gosplan. After approval by the Council of

Ministers, the final plan is then issued to the Ministry, and through the Ministry to the Main Administration, which in turn advises the plant what materials it is to receive. 60/ The buying enterprise must then proceed to make contracts according to which its allotted supplies will actually be delivered by producing or by marketing organizations.

3. Economic Contracts.

During the period 1935 to 1950 the basic form of contractual relationship was the direct contract between the parties immediately concerned with the fulfillment of planned obligations. 61/ Under this system, however, the various main administrations of supply, trusts, and other sales, supply, and procurement organizations which were administratively interposed between the contractual parties were not legally and financially responsible for contract violations, even though such violations were directly attributable to them. 62/ This situation was altered by Decree No. 1586 of the Council of Ministers, dated 21 April 1949, which reintroduced the system of general and local contracts which prevails today. 63/

The general contract is one which is concluded according to plan between the responsible Main Administrations of Supply and consumer ministries. The general contract contains general provisions for the procedure and dates of submitting specifications and official orders and spells out the nature of contract relations between specific suppliers and consumers, with specific indications as to which plants will conclude local contracts. 64/

Local contracts are merely a refinement of the general contract. They are concluded between the individual plants which actually produce and consume the goods which are the subject of the contract. They are concluded after the general contract has gone into effect and serve to give more precise definition to delivery terms, dates of delivery, quality of the goods, price, accounting procedures to be followed, and consequences of contract violations. 65/

III. Supply.

Because of the planned nature of the economy of the USSR, there are many elements inherent in the supply structure of the AFV industry which make for a highly efficient supply network, capable of rapid conversion and expansion. Since the production of tanks and

other armaments is based on the long-range 5-year plans, the annual flow of materials and components for such production is constant, continuing, and generally even in volume. There are not the abrupt and radical changes which constantly alter supply networks in the US. Furthermore, since the suppliers are designated by central authority at the same time that the decision is made to produce the tanks, there is no need for the assembly plant to locate potential component suppliers and then compete in an open market for their services.

The AFV industry is capable of extremely rapid conversion to the capacity production of some 40,000 vehicles per year. 66/ This capability is the result primarily of the highly developed mobilization reserves system. Just as the planning for current production of AFV's is centralized, so also is the mobilization. 67/ These current component suppliers are designated to continue this supply at increased volume in case of war. 68/ To that end, the necessary machinery for conversion of the plants to full production of AFV parts is located in sealed warehouses at the plant. 69/ Furthermore, a supply of raw materials and semifabricated goods is stored on the plant premises, thus enabling the plant to convert immediately upon receipt of the mobilization order and to operate for a period of three or more months without recourse to its subcontractors. 70/ The advantages of this supply structure and organization are manifest. It permits the uninterrupted design, testing, and production of AFV according to a long-range plan; it permits the strategic dispersal of manufacturing and parts plants in such a manner as to insure their best utilization with a minimum of improvisation and inefficient use of transportation in both cold and hot war periods, and it permits the extremely rapid expansion of production. Its disadvantage lies in the great expense of perpetuating such a system.

A. Specialization and Regional Self-Sufficiency.

One of the outstanding characteristics of the Soviet AFV industry as contrasted with the US industry is the small number of separate installations involved. In addition to the 6 final assembly plants which have been previously mentioned, there are believed to be some 41 prime subcontractors who, in turn, have an estimated 200 secondary subcontractors, for a total of some 250 installations comprising the entire industry. By way of contrast, the tank plant in Cleveland, Ohio, which is operated by the Chrysler Corporation, had at

one point some 3,000 prime contractors who, in turn, had 9,000 subcontractors located in 23 states. 71/ The Soviet tank assembly plants are large complexes which perform themselves a large portion of the work which would be let out on contract in the US. 72/ Current Soviet literature indicates that the planners are not unaware of the advantages accruing from the highly specialized industrial pattern of the US. 73/ The value of this specialization first became apparent during World War II, when the Soviet machine-building industry, in which specialization was furthest advanced, demonstrated its ability to produce war equipment much more efficiently than some of the other industries. 74/ Since that time the building of machines has been based more and more on this system of product specialization and planned cooperation between assembly enterprises and their subcontractors. 75/ Stalin, in a speech made on the occasion of the twenty-eighth anniversary of the October Revolution (7 November 1945), stated that "our military plants and their subcontracting enterprises are faultlessly supplying the Red Army with equipment, mine sweepers, antiaircraft guns, tanks, machine guns, rifles, and ammunition." 76/ A Soviet engineer in referring to this statement in 1950 pointed out that "the fact that Stalin singled out the military subcontracting plants for special mention points not only to their great and responsible role in the country's economy but also to the extent of their cooperation." 77/

This increased emphasis on specialization is tempered, however, by Soviet insistence on regional self-sufficiency wherever possible. 78/ This is prompted primarily by the problem of transportation, which would be aggravated in case of war. Soviet literature stresses the fact that individual subcontracting plants should be tied together by plan with individual assembly plants in the interests of continuous supply, transport economy, and regional self-sufficiency. 79/ As a prime example of this cooperation between producers and their suppliers, it is stated that during the war "Urals combat vehicles were equipped with machine guns, motors, bearings, electric wiring, radio equipment, and rubber and plastic parts produced in the Urals." 80/

This system of final assembly plants and their component suppliers is dispersed throughout the USSR, with the exception of the Far East. The industry is organized into four general areas, which may be termed the Northern, Southern, Ural, and West Siberian areas. It should be pointed out that the following is a physical description of the industry based on geographical location. The administrative subordination of the various subcontractors is based on the industrial nature of their specialty, not on the fact that they produce tank

parts. 81/ Thus the armaments and optics plants are subordinate to the Ministry of Defense Industry; the electrical equipment plants to the Ministry of Electrical Industry; the ball bearing plants to the Ministry of Automobile, Tractor, and Agricultural Machine Building; the rubber parts suppliers to the Ministry of Chemical Industry; the steel suppliers to the Ministry of Ferrous Metallurgy; and so forth. 82/ As previously indicated, the Main Administration for Tank Construction administers little besides the six tank assembly plants themselves.

1. Northern Region.

The Northern Region is centered on the Leningrad Heavy Machine Building Plant No. 185 imeni Kirov, which is believed to be divided into four main production divisions. 83/ In addition to a division engaged in the production of basic steel products, a division producing turbines, and a division suspected to be producing a small full-tracked prime mover, the AFV division is producing heavy tanks and assault guns. 84/ The principal component suppliers and the component supplied by each are as follows:

Component Supplier**	Component Supplied
Kolpino Metallurgical Plant imeni Izhorskiy 87/	Ferrous Metal
Leningrad Plant imeni Kasitskiy 88/	Electrical and Radio Equipment
Leningrad Instrument Plant Votranpribor 89/	Optics and Special Instruments
Leningrad Plant imeni Voroshilov 90/	Engine
Saratov Plant No. 44 91/	Transmission
Leningrad Artillery Plant No. 7 imeni Frunze 92/	Primary Armament
Kovrov Small Arms Plant No. 2 93/	Secondary Armament
Yaroslavl' Rubber Kombinat 94/	Rubber Parts
Moscow State Bearing Plant** 95/	Antifriction Bearings

* In addition to the component listed above, ferroalloys are probably supplied to all six of the AFV final assembly plants by the Chelyabinsk Ferroalloy Plant imeni Voroshilov 85/ and by the Zestafoni Ferroalloy Plant imeni Beriya. 86/

** The association of this plant as an antifriction bearings supplier has been inferred.

2. Southern Region.

The Southern Region is centered on the Khar'kov Transport Machine Building Plant No. 75 imeni Komintern, which is producing diesel locomotives TE-1 and TE-2 in addition to the T-54 medium tank. 96/ Its principal component suppliers and the component supplied by each are as follows:

Component Supplier	Component Supplied
Zhdanov Metallurgical Plant imeni Il'ich 97/	Ferrous Metals
Khar'kov Electric-Mechanical Plant 98/	Electrical and Radio Equipment
Khar'kov Instrument Plant No. 13 99/	Optics and Special Instruments
Saratov Plant No. 44 100/	Transmission
Leningrad Artillery Plant No. 7 imeni Frunze 101/	Primary Armament
Kovrov Small Arms Plant No. 2 102/	Secondary Armament
Khar'kov Rubber Goods Plant 103/	Rubber Parts
Khar'kov State Bearing Plant No. 8 104/	Antifriction Bearings

3. West Siberian Region.

The West Siberian Region is centered on the Omsk Machine Building Plant No. 174 imeni Voroshilov, which has also engaged in the production of coal cutters in the postwar period. 105/ Its principal component suppliers and the component supplied by each are as follows:

Component Supplier	Component Supplied
Stalinsk Metallurgical Kombinat 106/	Ferrous Metal
Omsk Plant No. 210 imeni Kasitskiy 107/	Electrical and Radio Equipment
Tomsk Optical Plant 108/	Optics and Special Instruments
Tomsk Manometer Plant No. 23 109/	
Murom Plant imeni KPF	Transmission
Barnaul Diesel Engine Plant No. 77 110/.	Engine

Component Supplier	Component Supplied
Molotov Artillery Plant No. 172 111/	Primary Armament
Zlatoust Small Arms Plant No. 66 112/	Secondary Armament
Izhevsk Small Arms Plant No. 74 113/	
Omsk Tire Plant* 114/	Rubber Parts
Tomsk State Bearing Plant No. 5 115/	Antifriction Bearings.

* The association of this plant as a rubber parts supplier has been inferred.

4. Urals Region.

By far the most important region of the four in terms of both current output and potential capacity is the Urals region, which contains three assembly plants. These are the Ural Tank Plant No. 183, which is part of the Nizhniy Tagil Railroad Car Building Plant; the Chelyabinsk Tank Plant No. 100, which is part of the Chelyabinsk Tractor Plant; and the Sverdlovsk Tank Plant No. 50, which is part of the Sverdlovsk "Uralmash" Heavy Machine Building Plant imeni Ordzhonikidze. 116/ Their suppliers, many of which supply all three plants, and the component supplied by each, are as follows:

Component Supplier	Component Supplied
Novo Tagil Metallurgical Kombinat 117/	Ferrous Metal
Sverdlovsk Plant No. 210 118/	Electrical and Radio Equipment
Chelyabinsk Plant No. 255 119/	
Novosibirsk Optical Mechanical Plant No. 69 120/	Optics and Special Instruments
Murom Plant imeni KPF 121/	Transmission
Chelyabinsk Plant imeni Stalin 122/	Engine
Sverdlovsk Plant No. 8 123/	
Molotov Artillery Plant No. 172 124/	
Sverdlovsk Artillery Plant No. 9 125/	Primary Armament
Yurga Artillery Plant No. 75 126/	

Component Supplier	Component Supplied
Zlatoust Small Arms Plant No. 66 127/	Secondary Armament
Izhevsk Small Arms Plant No. 74 128/	
Sverdlovsk Rubber Parts Plant No. 721 129/	Rubber Parts
Sverdlovsk State Bearing Plant No. 6 130/	Antifriction Bearings

The importance of Sverdlovsk to the tank and assault gun industry is to be emphasized. The Urals region produces about 50 percent of the total AFV's manufactured in the USSR today, and Sverdlovsk plays an important role in that production. 131/ This city in addition to housing Plant No. 50, which is the home of assault guns in the USSR, is a major rail junction through which are routed supplies and finished components to the other two Urals assembly plants. 132/ Furthermore, the city supplies rubber products, antifriction bearings, electrical parts, and other equipment for all three Urals plants. 133/ The destruction or neutralization of Sverdlovsk would force a serious curtailment of AFV production in the USSR.

5. Far Eastern Region.

At the present time there is no Soviet AFV assembly plant farther east than the Omsk Machine Building Plant No. 174 imeni Voroshilov. 134/ In view of the pattern of regional self-sufficiency which prevails in the Soviet AFV industry and the probability that the USSR will continue to supply tanks and other armored vehicles to China for some time to come, a question arises concerning the possible intention on the part of the USSR to establish an AFV assembly plant in the Far Eastern region.

At the present time, AFV are transported to the Soviet Far East over the Trans-Siberian Railroad. Interdiction of this railroad in time of war would of course curtail the flow of tanks, which, in the event of large-scale military action, would be considerable. It would therefore seem logical to assume that this problem has received consideration by the Main Administration for Tank and Mechanized

Forces and by higher authority. Hence the establishment of a Far East AFV assembly plant stands out as a distinct possibility.

C. Transportation Requirements.

As has been indicated above, the supply of component parts to AFV assembly plants is based on the specialization of machine-building plants in the production of individual AFV components and, to the extent possible, on the location of these specialist plants in the same industrial region as the assembly plant. When feasible -- and it often is feasible -- these component plants are located in the same city as is the assembly plant. The industry shows at present a marked degree of compartmentalization in that, with few exceptions, the component plants are located very near the assembly plant in terms of railroad distance. The average distance of all component suppliers from the assembly plant served is 1,060 kilometers, or about 660 miles.* In all cases, ferrous metal, the primary component in terms of weight, is furnished to the assembly plants from mills located very near the assembly plant. The total rail-traffic requirement placed on Soviet railroads in 1953 by the tank and assault gun industry for the delivery of direct inputs is 123 million metric tons.** This magnitude represents only about 0.15 percent of the total estimated operating metric-ton kilometers of all freight transported in 1953 by Soviet railroads.

The tendency in the USSR is toward further increase in the number of machine-building plants and further increase in the number of plants specializing in the production of machines, parts, assemblies, and the like. 136/ These two developments and the strategic value considerations inherent in them indicate that in the future the industry pattern of plant location and the resulting scheme of supply

* As calculated from distances shown in 135/.

** This total is the summation of the metric-ton kilometers required for each of the six assembly plants. The total for each is the product of the multiplication of three factors: (1) the individual weight of a given component as known or estimated, (2) the number of units of this component needed to supply current estimated production, and (3) the railroad distance between the component plant and the assembly plant. Only those components which move by rail are included. The total metric tons transported by rail were estimated at 314,000.

will show an even more marked degree of regional self-sufficiency within the AFV producing regions, discussed previously. This further compartmentalization will result, also, in a better utilization of transport facilities in those regions of the USSR where railroad-freight-traffic capacity has been a stumbling block in the path of Soviet planners.

IV. Vulnerabilities and Intentions.

A. Vulnerabilities.

The Soviet tank and assault gun industry is subject to the same vulnerabilities as are other Soviet machine-building industries, such as loss of electric power and shortages of skilled labor and of material. The present study reveals no vulnerability of an economic nature which is peculiar to the tank and assault gun industry. Indeed, there is evidence that it enjoys preferential treatment in the allocation of productive resources, which tends to reduce the probability of occurrence of the normal production stoppages. It is to be pointed out, however, that the loss or denial of the output of Sverdlovsk industrial plants would constitute a serious curtailment of Soviet AFV production. This city supplies the assembly plants of the Urals region with electrical equipment, primary AFV armament, ball bearings, and rubber parts; and the three Urals assembly plants produce about 50 percent of the total AFV produced in the USSR.

A possible vulnerability indicated by the present subject matter is the lack of AFV assembly plants and component parts plants in the Far Eastern regions of the USSR. Should transport facilities between West Siberia and the maritime provinces be denied the USSR in time of war, the combat effectiveness of mechanized forces in the Far East would be materially lessened through the lack of the capability to resupply these units with AFV lost in combat.

B. Intentions.

The intentions of the Soviet government with respect to this industry appear to be unchanged -- continuing advances in the design of all AFV models, periodic replacement of its AFV park with modern equipment, and the maintenance of adequate production potential to support any possible course of action which the Soviet Army might take.

Since the war there has been an increase in the number of component parts suppliers in the industry, and this trend apparently will continue. The effect is twofold: (1) a more narrowly compartmental regional self-sufficiency in the various AFV's producing regions and (2) the further specialization of individual plants in the production of specific AFV components, the specialized plants being associated with specific assembly plants on a continuous contractual basis.

APPENDIX A

METHODOLOGY

Basically the purposes of this report are twofold: (1) to present a detailed description of the planning, procurement, and supply techniques which are operative in Soviet armament industries with particular reference to the AFV industry and (2) to present a comprehensive outline of the component-parts-supply structure of the industry and its regional distribution. The methodology employed for the first of these purposes was to study available material dealing with the historical development and the current Soviet philosophy of industrial planning, procurement, and supply, and to discover thereby the principles upon which this system operates and what are its specific practical effects.

For the second of these purposes the methodology involved the study of a great number of Soviet industrial plants, information about which is consolidated in the CIA/CD Industrial Register, and the tempering of the intelligence thus gleaned by the relatively few higher level reports which deal with the philosophy of procurement and supply received periodically from Soviet defectors, prisoners of war, and former Soviet citizens presently residing outside the Soviet Bloc.

In Section III of the report it was occasionally necessary to infer from general statements and geography that a particular component-part plant was associated with a specific AFV assembly plant, although the same plant's association with the AFV industry generally was readily apparent. The transport requirements of the AFV industry were calculated from known weights of some models of Soviet AFV's and their components and known railroad distances on Soviet lines. For the new AFV models, weights were estimated from those models for which weights are known.

APPENDIX B

GAPS IN INTELLIGENCE

There is in general a decided lack of information since 1949 dealing with AFV's. With specific reference to this report a particularly important gap in intelligence is the lack of detailed information on Soviet policy in the matter of replacement of older AFV models with the new, the rates of attrition for AFV models resulting from mechanical deterioration, the policy regarding the maintenance of an AFV reserve both in reserve units of the armed forces and in regular Soviet Army units, and the magnitude of this reserve stockpile. All these factors, when combined with technical obsolescence, are determining factors in establishing current production rates.

APPENDIX C

SOURCES AND EVALUATION OF SOURCES

1. Evaluation of Sources.

The sources used in the preparation of this report can be placed in two broad categories. These are (a) the sources of information on the operations of the Soviet economy with its planning, procurement, and supply aspects and (b) the sources furnishing information on the industrial association of specific Soviet enterprises for the manufacture of tanks and assault guns.

The material utilized from sources falling into the first category consists primarily of direct information from Soviet periodicals and monographs or similar information as quoted by Western authors. It is considered that this information is of the highest reliability. By and large, the Soviet authors are either setting forth principles and procedures to be followed by their compatriots or criticizing various aspects thereof. While it is necessary to fit the context of Soviet statements within the framework and philosophy of Soviet economic operations, it is believed that these sources are in the main accurate and reliable.

The sources falling into the second category consist primarily of repatriated prisoners of war and defectors. These, when taken individually, represent rather low-grade sources. When sources of this nature are taken collectively, however, and in relation to their probable knowledge, their reliability increases many times. Information on the operation of a Soviet industrial firm and its relationship with its customers and suppliers is not the kind of information which the above sources would be in a position to obtain normally. However, sufficient information is available to tie the subcontractors to the producing plant either on the basis of direct intelligence or inference from their relative geographical location and the known activity of each plant. In most cases, however, it was not possible to determine the flow of a specific component to a manufacturing plant with sufficient accuracy to establish a firm confirmation of production estimates made by other means.

CIA field requirements have not laid particular emphasis on this subject, and the possibility exists that considerable information could be obtained from available sources, using this approach.

The basic information dealing specifically with the AFV industry, chiefly in Section III of this report, has been obtained almost entirely from the CIA Industial Register. Because many of the documents in the Industrial Register do not bear sufficiently detailed information to be cited individually, or they cannot be found elsewhere, the only convenient reference has been the use of the IR number.

2. Sources.

Evaluations, following the classification entry and designated "Eval.," have the following significance:

Source of Information	Information
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which will carry the field evaluation "Documentary" instead of a numerical grade.

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluations on the cited document.

25X1A2g 1. [redacted]
2. [redacted]
25X1A
25X1X7 [redacted]
3. Ibid.
4. Ibid.
5. Ibid.
25X1A2g 6. [redacted]
7. CIA/RR PR-25, The Tank and Assault Gun Industry of the USSR, 27 Feb 1953. S.
8. D. Granik, Management of the Industrial Firm in the USSR, 1954, p. 64. U. Eval. RR 2.
9. Ibid.
Bienstock, Swartz, and Yugow, Management in Russian Industry and Agriculture, New York, 1946, pp. 47-55. U. Eval. RR 2.
A. Arakelian, Industrial Management in the USSR, Moscow, 1949 (translated), p. 97. U. Eval. RR 2.
Fortune, "How Business is Done in Russia," Feb 1953, p. 122. U. Eval. RR 2.
10. Ibid.
11. CIA/RR PR-25, op. cit.
12. I.A. Luganin, Administration and Planning of Industry in the USSR, Post 1946, as cited by Granik, op. cit. U. Eval. RR 2.
Granik, op. cit., pp. 64-67.
13. Granik, op. cit., pp. 64-67.
14. Ibid.
15. Bienstock, Swartz, and Yugow, op. cit., pp. 47-55. U. Eval. RR 2.
Arakelian, op. cit., p. 102.
16. Granik, op. cit., pp. 64-67.
17. Ibid.
18. Ibid.
19. Ibid.
20. Ibid.
21. Ibid.
22. V. Kontorovich, Tekpromfinplan promyshlennogo predpriyatiya, Moscow, 1948, pp. 19-22, as cited by Granik, op. cit. U. Eval. RR 2.
P.A. Shein, Material'no tekhnicheskoye snabzheniye mashinostroitel'nykh zavodov, Moscow-Leningrad, 1947, p. 102, as cited by Granik, op. cit. U. Eval. RR 2.
M. Demchenko, /"Intra-Factory Planning and the Technical-Production-Financial Plan of an Enterprise"/, Sovetskiye Profsoyuzy, Aug 1952. U. Eval. RR 2.

23. Ibid.
24. Kontorovich, op. cit., p. 22.
    A.I. But, Planirovaniye v tsvetnoy metallurgii, Moscow, 1946, pp. 8-9, as cited by Granik, op. cit. U. Eval. RR 2.
25. S. Ye. Kamenitser, Organizatsiya i planirovaniye sotsialisticheskogo promyshlennogo predpriyatiya, Gosplanizdat, Moscow, 1950, pp. 282-285. U. Eval. RR 2.
26. Ibid., pp. 17-21.

25X1A2g [redacted]

27. Ibid.
28. Ibid.
29. Kamenitser, op. cit., pp. 17-21.
30. B. Ya. Ryabin'skiy, Planirovaniye proizvodstva na metallurgicheskom zavode, Moscow, 1950, pp. 56-57. U. Eval. RR 2.
31. Ibid.
32. G.I. Bronskiy, Khozraschet i rentabel'nost promyshlennogo predpriyatiya, Gozfinizdat, Moscow, 1950, pp. 68-69. U. Eval. RR 2.
33. But, op. cit.
34. Avtomobil'naya i traktornaya promyshlennost', No. 7, 1952, "Usilit' rabotu po ekonomicheskomu ispol'sovaniyu metalla," U. Eval. RR 2.
35. B. Sukharevskiy, "Material'nye balansy promyshlennoy produktsii v narodnokhozyaystvennom plane," Planovoye Khozyaystvo, 1937, No. 11-12, pp. 27-40. U. Eval. RR 2.
    E. Lokshin, Planirovaniye material'no-tekhnicheskogo snabzheniya narodnogo khozyaystva, Moscow, 1952. U. Eval. RR 2.
36. E. Lokshin, "Voprosy planirovaniya material'no-tekhnicheskogo snabzheniya narodnogo khozyaystva SSSR," Narodnoye Khozyaystvo SSSR, Moscow, 1951, p. 220. U. Eval. RR 2.
37. Sukharevskiy, op. cit., p. 28.
38. Granik, op. cit., p. 135.
39. Lokshin, Planirovaniye material'no-tekhnicheskogo snabzheniya narodnogo khozyaystva, op. cit., p. 76.
40. Lokshin, "Voprosy planirovaniya material'no-tekhnicheskogo snabzheniya narodnogo khozyaystva SSSR," op. cit., pp. 219-220.
41. Ibid.
42. A.A. Iotkovskiy, Material'noye snabzheniye i sbyt produktsiy promyshlennogo predpriyatiya, Gospolitizdat, Leningrad, 1941, pp. 15-30. U. Eval. RR 2.
43. Granik, op. cit., p. 136.
44. Ibid.

45. Ibid.
46. Iotkovskiy, op. cit., pp. 15-30.
47. Beinstock, Swartz, and Yugow, op. cit., pp. 66-82.
Arakelian, op. cit., pp. 97-98.
48. Iotkovskiy, op. cit., pp. 15-30.
49. Ibid.
50. Ibid.
51. Beinstock, Swartz, and Yugow, op. cit., pp. 58-65.
52. Ibid.
53. F.N. Kaschenko, "Meropriyatiya po uporyadocheniyu raboty otraslevykh snabov i sbytov," Snab i Sklad, No. 6, dated 1936, p. 21, as cited by Granik, op. cit. U. Eval. RR 2.
54. Granik, op. cit., pp. 203-206. Eval. RR 2.
Beinstock, Swartz, and Yugow, op. cit., pp. 58-62. Eval. RR 2.
Arakelian, op. cit., pp. 97-98. Eval. Doc.
Shein, op. cit., pp. 17 and 21-22. Eval. Doc.
Demchenko, op.cit., pp. 19-21. Eval. Doc.
55. Granik, op. cit., p. 148.
56. Fortune, op. cit., p. 122.
Pravda, 26 Sep 1940, p. 3. U. Eval. RR 2.
57. Shein, op. cit., pp. 75-77.
58. Ibid.
59. Ibid.
60. Ibid.
61. Narodnoye Khozyaystvo, Vol. 3, 1950, pp. 254-264. U. Eval. RR 2.
62. Ibid.

25X1A2g [redacted]

63. Sobraniye postanovleniy i rasporyazheniy soveta ministrov SSSR, No. 9, op. cit.
64. Sovetskoye Gosudarstvo i Pravo, No. 8, dated 1943, pp. 86-98. U. Eval. Doc.
Kamenitser, op. cit., pp. 17-21.
Beinstock, Swartz, and Yugow, op. cit., pp. 58-65.
65. Ibid.
66. CIA/RR PR-25, op. cit., p. 39.

25X1A2g 67. [redacted]

N.A. Voznesenskiy, The Economy of the USSR During World War II, p. 830. U. Eval. RR 2.

25X1A [redacted]

Next 3 Page(s) In Document Exempt

Approved For Release 1999/09/08 : CIA-RDP79-01093A000700110005-5