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ECONOMIC INTELLIGENCE REPORT

PRODUCTION OF LOCOMOTIVES AND ROLLING STOCK IN EAST GERMANY

CIA/RR 27-S-1
5 March 1954

CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

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CIA/RR 27-S-1

(ORR Project 32.12.2)

CENTRAL INTELLIGENCE AGENCY

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PRODUCTION OF LOCOMOTIVES AND ROLLING STOCK IN EAST GERMANY*

Summary and Conclusions

At the end of World War II, that portion of Germany which is designated as East Germany (Soviet Zone) was left with substantial plant facilities for the production of locomotives and rolling stock. Subsequent dismantling operations by the USSR involved the removal of a large percentage of the production equipment, and although some production was resumed early in 1946, it was not until 1947 or later that the majority of the plants were again able to produce significant quantities of railroad equipment. The only plant in East Germany which had the facilities for the production of main-line steam locomotives has never been re-equipped since the end of World War II. One plant has produced some main-line electric locomotives as reparations for the USSR (actually to be used in open-pit mining), but none has been produced for domestic use. East Germany has not produced a single main-line steam or diesel locomotive since the end of World War II.

Since 1946 the production of rolling stock and of mining locomotives and industrial and plant locomotives in East Germany has consistently increased both in terms of physical units and in terms of value. Table 1** shows this trend. Production in terms of physical units declined somewhat in 1952 and 1953, whereas production in terms of value continued to rise. This apparent discrepancy is accounted for by the production of larger numbers of more complex units such as refrigerator cars.***

The conversion of some railroad equipment plants to the production of other items and the cancellation of reparations payments as of 1 January 1954 leave considerable doubt as to what the longer-term plans of the locomotive and rolling stock industry in East Germany may be, but it is believed that by 1955 the industry may reach a point

* The estimates and conclusions contained in this report represent the best judgment of the responsible analyst as of 1 December 1953.

** Table 1 follows on p. 2.

*** For a breakdown by type of unit produced, see Table 2, p. 11, below.

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Table 1

Estimated Production of Locomotives and Rolling Stock in East Germany
1946-53

Item	Units	1946	1947	1948	1949	1950	1951	1952	1953 (Plan)
Industrial and Plant Locomotives	number	100	140	170	275	350	180	218	234
Freight Cars	number	2,150	2,900	2,900	4,200	5,000	5,200	6,000	5,527
Passenger Cars	number	N.A.	Negligible	10	215	600	670	620	943
Mining Cars	number	N.A.	4,000	4,200	4,650	6,650	6,000	N.A.	N.A.
Industrial and Plant Cars	number	90	700	900	2,100	2,900	2,700	2,400	N.A.
Total Value	million DME a/	N.A.	N.A.	112	275	453	485	511	586

a. Deutsche Mark East, January 1952.

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of equilibrium where all internal requirements and export requirements will be met by the productive capacity of the industry.

The industry is somewhat restricted in its production program by shortages of raw materials. The export controls imposed by the West have resulted in East Germany's turning toward the USSR and the other Satellites for more of its raw material requirements. Some difficulties in procurement as well as some complaints of poor quality of material have been noted, but it is not believed that the shortages will provide a very serious threat to the production program.

The inventories of main-line steam locomotives, freight cars, and passenger cars have shown varying degrees of change since the end of World War II. Operating inventories of main-line steam locomotives have increased at a very slow rate, but the concurrent rapid increase in the number of unserviceable locomotives* has created a serious problem. In an attempt to solve this problem, East Germany has stopped production of small steam and diesel locomotives at the Karl Marx Werke in Babelsberg for 1953 and 1954 and is using the facilities of that plant in a concentrated repair program. This repair program may increase the serviceable inventory by an amount large enough to provide at least the required minimum service for some time to come.

The freight car inventories have also increased since the end of World War II, but in this case the acquisition of some new units from internal production and the return by the USSR of 40,000 captured cars** have meant that the inventory has been adequate, although it must be noted that it has been only "just" adequate, with few or no cars that might be termed reserve.

No long-range estimate of passenger car inventories is possible, but available information shows no serious shortages.

Reparations deliveries to the USSR have accounted for most of the production of East Germany. From 1946, when 100 percent of East German production went to the USSR, reparations shipments have decreased

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* These are locomotives in the operating inventory but under or awaiting repair.

** It is estimated that 24,000 of the 40,000 captured cars are capable of operational service after repairs.

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to some 78 percent of the total value of production in 1952. In addition, a very small percentage of the total value of production has been exported to other Soviet Bloc countries (an average of 2 percent per year for the years 1946-52).

Although it is not within the scope of this report, it should be pointed out that the East German State Railways (Reichsbahn) have been able to operate, although poorly, on the railroad equipment inventories available. Such a condition cannot exist indefinitely, and new equipment to meet increased transportation requirements and to replace units mandatorially retired because of age or damage soon must be supplied to the railroads. The cancellation of the reparations contracts as of 1 January 1954 may well aid in this respect. Maintaining and increasing railroad equipment inventories in an expanding industrial economy is essential, and it must be assumed that production will be retained domestically in sufficient amounts to meet these requirements.

In the rolling stock segment of the industry, East Germany is fully capable of producing enough equipment to meet its own requirements and to provide a significant exportable surplus. Its ability to take full advantage of its productive capacity has been severely limited in the postwar years by the reparations demands of the USSR. It seems probable that after 1 January 1954 exports will drop in volume, at least to a point at which East Germany can more readily meet its internal requirements.

At present, however, East Germany is not capable of producing main-line steam locomotives. It is dependent upon major repairs to stocks of war-damaged units for additions to its operating inventory. Although the repair program may supply its needs for some time to come, it is to be expected that in the near future East Germany will make a serious attempt either to build and to equip capital facilities for the production of main-line steam locomotives or to import such units from Soviet Bloc or non-Bloc sources.

The principal vulnerability of East Germany in the field of locomotives and rolling stock appears to be the lack of "cushion," or reserve, in operating inventories. A reduction of these inventories would have the twofold effect of throwing a high demand for new

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equipment on the productive capacity of the industry, and of reducing the net operating inventory available to the economy as a whole.*

With one exception, the intentions of East Germany seem to be the normal expansions of production and inventory of an industrial economy. This exception is the unexplained 6-axle flatcar program. About 3,600 to 4,200 flatcars, mostly of 80-metric-ton capacity, were being built in 1952-53. Although it was thought at first that these cars would augment the operating inventory,** it now appears that they are to be held in marshalling areas for use as ordered by the Soviet Control Commission. The cars are ideally suited for movements of heavy military or industrial goods, and the situation regarding their use should be watched carefully as a possible indicator of intentions.

I. Introduction.

A. General Description of the Industry.

The primary concern of this report is with the production, distribution, and inventory of locomotives and rolling stock in East Germany. Production of parts and subassemblies and the activities of repair shops will be covered in limited detail, but only as these functions affect the production and inventory of the finished components.

For the purposes of this report, locomotives and rolling stock will be subdivided and defined as follows:

1. Locomotives.

a. Main-Line Locomotives.

Main-line locomotives include switching locomotives. Such locomotives may be steam, electric, or diesel.

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b. Mining Locomotives.

Mining locomotives are used in both underground and surface mining operations and may be steam, electric, or diesel.

c. Industrial and Plant Locomotives.

Industrial and plant locomotives are used in industrial installations, timbering operations, metallurgical plants, and the like. The category includes all locomotives not covered in a and b, above. The locomotives may be steam, electric, diesel, or fireless.*

2. Rolling Stock.

a. Freight Cars.

Freight cars include boxcars and flatcars and hopper, refrigerator, and other freight cars of European, or standard, gage (4 feet 8-1/2 inches) and Soviet, or broad, gage (5 feet).

b. Mining Cars.

Mining cars include small tub cars usually found in underground mining installations.**

* A fireless locomotive is a steam locomotive without a firebox. High-pressure steam is injected into an insulated tank, about three-fourths filled with water, which replaces the boiler, and the locomotive is operated in and around the plant area until the pressure drops to the point where refilling with additional steam is required.

** To avoid any misconception, it should be noted that in surface, or open-pit, mining it is common practice to use a mining locomotive as defined under 1b, above, with freight cars of the hopper (or gondola) type as defined in 2a, above. The subdivisions as made in 2, above, enable the statistics presented in II, below, to be tabulated in a meaningful form.

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c. Industrial and Plant Cars.

For the purposes of this report, industrial and plant cars are narrow-gage cars of various types usually found in timbering operations. The category includes flatcars, boxcars, combination freight-passenger cars, maintenance shop cars, and power cars -- all of narrow gage -- as well as foundry, slag, and coke-quenching cars found in metallurgical installations.

d. Passenger Cars.

Passenger cars include coaches and sleeping cars, mail cars, dining cars, and such other equipment associated with the transportation of personnel and their effects.

B. History of the Industry.

Before and during World War II, Germany* had an extensive and modern railroad equipment industry. 1/** With the end of World War II and the partition of Germany into four zones, East Germany (Soviet Zone) was left with 12 plants engaged in the production of locomotives and rolling stock. Two of these plants, located at Loessnitz and Vetschau, were capable of producing only small mining cars. Another, at Babelsberg, was capable of producing only small mining and industrial locomotives. One, at Wildau, had produced main-line steam locomotives during the prewar and wartime periods. The other eight, at Ammendorf, Bautzen, Dessau, Goerlitz, Gotha, Niesky, Weimar, and Werdau, produced rolling stock. 2/

In the immediate postwar period, at the direction of the Russians, the plants at Wildau, Bautzen, Goerlitz, Gotha, Niesky, and Werdau were subjected to severe dismantling operations, and it was 1947 or later before they were able to re-equip for production. The plant at Wildau was never re-equipped for the production of locomotives, but instead it was made a component of the VEG-ABUS*** plants engaged in the production of mining and metallurgical equipment. In addition,

* Prewar German boundaries.

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*** Volkseigener Betrieb - Ausruestung von Bergbau und Schwerindustrie -- People-Owned Enterprise for Mining and Heavy Industrial Machinery.

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the Russians planned and carried out the production of electric locomotives of varied types and sizes at the expropriated VVB-LEW* plant in Hennigsdorf.

By the end of 1952, several more changes had occurred or were contemplated. The rolling stock plants at Bautzen and Werdau were converted to the production of automotive equipment, 3/ the plant at Gotha was considered as a possible tractor plant, 4/ and the plant at Babelsberg had stopped production of mining and industrial and plant locomotives for a period of 2 years (1953-54) in order to concentrate exclusively on the repair of Reichsbahn steam locomotives. 5/ For more detailed descriptions of the estimated actual production of each of the above plants, see VI, below.

C. Technology.

There is apparently nothing unconventional or unique about East German technology in the manufacture of locomotives and rolling stock. Plants appear to be largely modern and well equipped. Assembly-line production on large orders is common, as is subcontracting of component parts such as wheel sets, brake assemblies, springs, buffers, and couplers. During World War II the increasing use of welding as a means of saving weight; the economizing on material; and the reducing of man-hours expended on bodies, underframes, and bogies was noted, and it appears probable, [redacted] 50X1
[redacted] that such practices have been continued. 6/ 50X1

It seems logical that much of the reparations produced for the Russians was controlled by Soviet blueprints and specifications, but because Soviet manufacturing processes in the locomotive and rolling stock industry are modern and conventional, it is not likely that production under Soviet direction has caused any significant changes in East German technology. 7/

D. Administrative Organization of the Industry. 8/

As of November 1953 the administrative organization of the locomotive and rolling stock industry in East Germany was as shown in Figure 1.**

* Verwaltung Volkseigener Betriebe - Lokomotivenbau Elektrotechnische Werke -- Association of People-Owned Enterprises - Locomotive Electrotechnical Works.
** Following p. 8.

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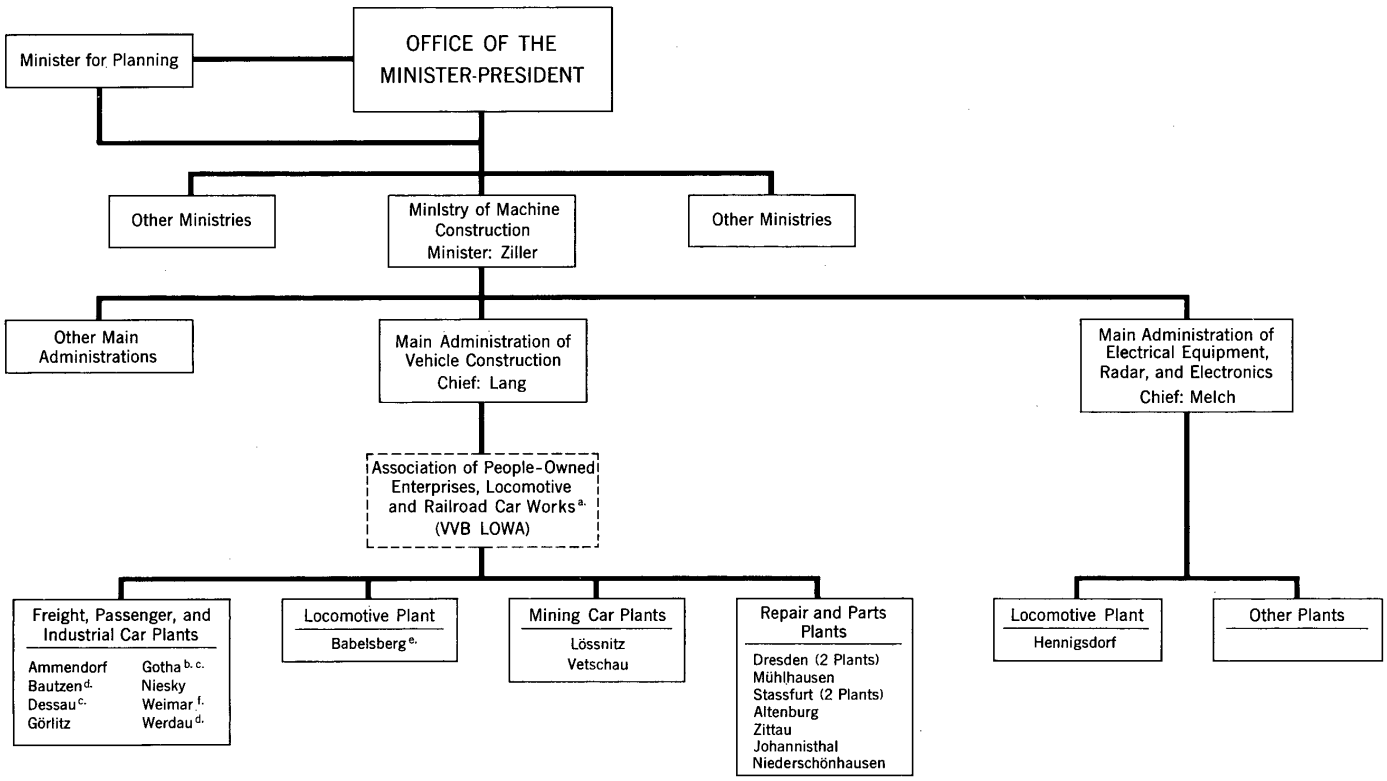
EAST GERMANY

ADMINISTRATIVE ORGANIZATION OF THE LOCOMOTIVE AND ROLLING STOCK INDUSTRY

21 November 1953



a. No longer exists as an administrative unit, but the name is still carried as a commodity classification.
b. May be converted to tractor production.
c. Reportedly will be converted to aircraft production under new Main Administration of Aircraft Production.
d. Reported converted to motor vehicle equipment production by end of 1952.
e. To engage in locomotive repair only during 1953 and 1954.
f. Production of railroad cars to be discontinued. Plant to be transferred to VVB-ABUS in 1953.

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In connection with Figure 1 it should be noted that three of the plants listed under Freight, Passenger, and Industrial Car Plants -- at Ammendorf, Dessau, and Weimar -- were Transmash SAG* plants until 29 April 1952. At that time these 3 plants, along with 63 other SAG plants, were transferred from Soviet ownership to East German ownership. 10/ This transfer is believed to have been largely political in nature, since the output of the plants has not been noticeably affected by the change in administrative control.

[redacted] additional changes in administrative organization have been effected. 50X1
The Ministry of Machine Construction had earlier been dissolved and replaced by three new ministries -- the Ministry of Heavy Machine Construction, the Ministry of Agricultural and Transport Machinery, and the Ministry of General Machine Construction. 11/ This, however, was apparently unsatisfactory, and on 21 November 1953 the East German press announced reconsolidation of the Ministry of Machine Construction. VVB-LOWA,** together with the other VVB's, has been dissolved as an administrative entity, and the plants formerly under its direction report directly to the Main Administration of Vehicle Construction, which again reports to the Ministry of Machine Construction. 12/ The commodity classification LOWA, however, has been continued. [redacted] the establishment of a new 50X1
Main Administration of Means of Transportation -- (Hauptverwaltung) Transportmittel*** -- under the Ministry of Agricultural and Transport

---

* Ministerstvo Transportnogo Mashinostroyeniya Sowjetische Aktiengesellschaft -- Ministry of Transport-Machine Building, Soviet Corporation. The Russians set up in East Germany an administrative body known as the Main Administration for Soviet Property in Germany (USIG). Under the direction of USIG are 19 SAG's, one of which is Transmash SAG. Headquarters for Transmash SAG are located in Leipzig. In transferring the plants at Ammendorf, Dessau, and Weimar to East German control the Russians did not lose complete control of the activities of these plants, because among the plants remaining under Transmash SAG are the plant in Berlin which manufactures brake sets and another in Ilsenburg which manufactures wheel sets. 9/

** Verwaltung Volkseigener Betriebe - Lokomotiv und Waggonbau -- Association of People-Owned Enterprises, Locomotives and Railroad Car Works. The locomotive plant at Hennigsdorf is under the Main Administration of Electrical Equipment, Radar, and Electronics.

*** Presumably in addition to the current Main Administration of Vehicle Construction.

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Machinery.* This main administration was reported to be a cover name for a Main Administration of Aircraft Production. The rolling stock plants at Dessau and at Gotha reportedly will be converted eventually for the production of aircraft. 13/

In summary, the efforts of the Russians and the high-level political and economic leaders of East Germany seem to be directed toward an administrative organization tightly knit to eliminate needless channels but flexible enough to permit effective control from the higher planning levels.

II. Supply.

A. Production.

1. By Physical Units and by Value.

Production of locomotives and rolling stock in East Germany is given by physical units in Table 2.** In Table 3,*** which is an extension of Table 2, the production by units has been translated into total value of production for the years 1948-52.****

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2. Production in 1953 and Future Production.

Information on actual production of locomotives and rolling stock in East Germany in 1953 has not yet been received in sufficient detail to permit an estimate of actual production for the year. Table 4***** gives the reported Plan figures for 1953.

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* The organizational position of the Main Administration of Means of Transportation has not been clarified since 21 November 1953, when the Ministry of Agricultural and Transport Machinery was reconsolidated into the Ministry of Machine Construction.

** Table 2 follows on p. 11.

*** Table 3 follows on p. 12.

**** Sufficient information was not available to warrant a value computation which would have meaning for the years 1946-47. Values per unit of production were found in various sources. 14/

***** Table 4 follows on p. 13.

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Table 2

Estimated Planned and Actual Production of Locomotives and Rolling Stock in East Germany a/
1946-52

Units

Item	1946		1947		1948		1949		1950		1951		1952	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Locomotives	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	639	N.A.	512	N.A.	432	N.A.	569	N.A.
Main-Line Locomotives	0	0	0	0	0	0	0	0	0	0	2	0	30	0
Mining Locomotives	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	200	N.A.	30	N.A.	100	N.A.	161	N.A.
Industrial and Plant Locomotives	N.A.	100	N.A.	140	N.A.	170	439	275	482	350	330	180	378	218
Rolling Stock	N.A.	N.A.	8,600	7,600	N.A.	8,010	12,000	10,965	14,670	15,150	14,975	14,570	N.A.	N.A.
Freight Cars	2,150	2,150	3,500	2,900	3,000	2,900	4,650	4,000	5,500	5,000	5,525	5,200	6,421	6,000
Boxcars	N.A.	N.A.	900	325	N.A.	700	700	300	2,950	730	600	1,100	N.A.	Negligible
Flatcars	N.A.	1,200	N.A.	1,450	N.A.	1,320	2,270	1,970	N.A.	550	N.A.	275	2,300	1,930
Tank Cars	0	0	0	0	0	0	0	0	0	0	600	600	600	600
Hopper Cars	0	0	N.A.	250	N.A.	250	N.A.	390	1,750	1,250	N.A.	800	800	800
Refrigerator Cars	50	50	N.A.	75	N.A.	100	N.A.	530	N.A.	1,490	2,190	2,190	2,290	2,420
Other Freight Cars	N.A.	900	N.A.	800	N.A.	530	800	810	N.A.	980	N.A.	235	N.A.	250
Mining Cars	N.A.	N.A.	N.A.	4,000	N.A.	4,200	N.A.	4,650	5,600	6,650	N.A.	6,000	N.A.	N.A.
Industrial and Plant Cars	90	90	1,000	700	1,300	900	2,400	2,100	2,900	2,900	2,800	2,700	2,560	2,400
Passenger Cars	N.A.	N.A.	100	Negligible	N.A.	10	350	215	670	600	650	670	615	620

a. Range of error, plus or minus 15 percent.

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Table 3

Estimated Total Value of Production of Locomotives and Rolling Stock in East Germany a/
1948-52

Thousand DME b/

Item	1948	1949	1950	1951	1952
Locomotives					
Main-Line Locomotives	0	0	0	0	0
Mining Locomotives	Negligible	10,000	1,500	5,000	8,000
Industrial and Plant Locomotives	4,500	11,750	15,000	8,250	13,950
Total Locomotives	4,500	21,750	16,500	13,250	21,950
Rolling Stock					
Freight Cars	85,920	151,020	212,190	231,857	270,765
Mining Cars	840	930	1,330	1,200	
Industrial and Plant Cars	18,000	42,000	58,000	54,000	48,000
Passenger Cars	2,750	59,125	165,000	184,250	170,500
Total Rolling Stock	107,510	253,075	436,520	471,307	489,265
Total Locomotives and Rolling Stock	112,010	274,825	453,020	484,557	511,215

a. Range of error, plus or minus 20 percent. In order to estimate total values, where actual physical production estimates were not available, plan figures were accepted as approximating actual production and were therefore used.
b. Deutsche Mark East, January 1952

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Table 4

Planned Production of Locomotives and Rolling Stock in East Germany 15/
1953

Units

Item	Amount
Locomotives	
Main-Line Locomotives	26
Mining Locomotives	Negligible
Industrial and Plant Locomotives	234
Total Locomotives	260
Rolling Stock	
Freight Cars	
Boxcars	172
Flatcars	2,000
Tank Cars	0
Hopper Cars	1,109
Refrigerator Cars	1,505
Other Freight Cars	741
Total Freight Cars	5,527
Mining Cars	N.A.
Industrial and Plant Cars	N.A.
Passenger Cars	943
Total Rolling Stock	6,470

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The total value of production as listed in Table 4 is a little less than 586 million DME.* This figure represents a 15-percent increase over the total value of production in 1952.

Planned production in 1955 has been reported as 179 percent of 1950 production in freight cars and 231 percent of 1950 production in passenger cars. 16/ This level of production would put freight car production in 1955 at about 9,000 units and passenger car production at about 1,400 units. These figures are not unreasonable, particularly because passenger car production is being stressed increasingly and because freight car production by that time probably will consist of a larger number of 2-axle cars for use on the Reichsbahn and of only a few of the larger 4-axle cars which are currently found in the reparations deliveries to the USSR.

When Babelsberg resumes production in 1955, after spending 2 years repairing main-line locomotives, the plant may be in a position to produce some main-line steam locomotives. The extent of this production cannot be reliably estimated, but it may reach the 1952 Plan figure of 30 locomotives. 17/

In terms of possible product mix the future production status of the railroad equipment plants in East Germany is fluid, and in view of (a) the conversion of two plants to motor vehicle production, (b) the probable conversion of a third to either tractor or aircraft production, and (c) the possible conversion of still a fourth to aircraft production, a firm estimate of trends is not possible. It is probable that, as obligatory exports to the USSR decrease, the production of locomotives and rolling stock will decrease to a level where production is just sufficient to meet the demand for new equipment needed to replace depreciated stock and to increase net inventories. Surplus productive capacity under these conditions probably will be turned toward the motor vehicle industry

* The same values per unit were used in making this calculation as were used in arriving at Table 3. In the case of mining cars the value of production of the 6,000 cars produced in 1951 was used, and in the case of industrial and plant cars the value of production of the 2,400 cars produced in 1952 was used. These assumptions affect only 8-1/2 percent of the total of 586 million DME, so that even a 50-percent error in the rate of production assumed, which is not likely, would affect the end result by only about 4 percent.

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and perhaps toward the aircraft industry. At what time such equilibrium conditions will be reached is speculative, but it probably will be after 1955.

B. Imports.

1. Soviet Bloc.

a. Locomotives and Rolling Stock.

(1) New Equipment.

Only one instance of the import of new railroad equipment by East Germany from Soviet Bloc countries has been discovered. Under terms of an over-all trade agreement East Germany is to import from Hungary a total of 12 diesel train sets during the period 1952-55. 18/ These train sets are probably similar to, if not identical with, diesel train sets produced by the Hungarian Ganz Electrical Equipment Factory in Budapest for export to Argentina and possibly to other Western countries as well as to the USSR. These are 3- or 4-car train sets, the first car of which is powered with a diesel engine of 600 horsepower. 19/ Negotiations reached the point where three train sets were to be delivered by the end of 1953, and, if they proved satisfactory, the remaining train sets were to be ordered. In view of the troubles the Ganz factory is having in producing train sets satisfactory to Argentina and the USSR, it is quite possible that delivery to East Germany was not made in 1953 or, if it was made, that East Germany refused to accept the train sets without rigorous inspection and testing. 20/

(2) Return of Equipment from the USSR.

It is estimated that during the Soviet advances near the end of World War II and the subsequent looting by the Russians, some 45,000 2-axle freight cars, 2,500 4-axle freight cars, 2,000 main-line steam locomotives, and 180 electric locomotives belonging to Germany were acquired by the USSR. 21/ It has been reported that in 1951 about 20,000 freight cars were returned by the Russians and that in 1952 20,000 more were returned, together with

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the 180 main-line electric locomotives.* The freight cars are referred to as "damaged cars," and repairs were needed on all of them to permit further operation. Of the first group of 20,000, some 40 percent needed only gage changing and minor repairs, 20 percent required capital repairs, and the remaining 40 percent were useless and had to be scrapped.** There is no reason to expect that the second group was in any better condition. The electric locomotives are to be used in the re-electrification of portions of the Reichsbahn, but an estimated 50,000 DME each are required for repairs. It is reported that the Russians did not make a gift of these cars but exacted a price of 3,000 DME each for the freight cars and an unknown price for the locomotives. 22/

b. Raw Materials and Component Parts.

Statistical information on imports of raw materials and component parts by the locomotive and rolling stock industry in East Germany is widely scattered chronologically and is lacking in detail. There is enough information, however, to indicate that East Germany is dependent upon the Soviet Bloc for imports of raw materials and component parts in order to fulfill its production plans. Reported examples of such imports are as follows:

(1) From the USSR: welding electrodes, steel, axles, boiler tubes, and tires.

(2) From Czechoslovakia: wheel sets and axles.

(3) From Poland: boiler tubes and rolled steel products.

(4) From Rumania: axles.

The degree of East German dependence on these imports cannot be ascertained, but [redacted] 50X1
[redacted] 50X1

* The returned freight cars were probably 2-axle cars, as the Russians would be likely to retain the more modern 4-axle units. The steam locomotives were also converted to Soviet gage [redacted] 50X1
[redacted] 50X1

** Presumably, when the cars were scrapped, salvageable parts were removed for further use.

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[redacted] it appears that imports from the other Satellites and the USSR play a significant role in East German ability to produce railroad equipment. 23/ 50X1

2. Non-Soviet Bloc.

a. Locomotives and Rolling Stock.

[redacted] 50X1

[redacted] Because as discussed in C, below, there has been a continual need for the acquisition of new main-line steam locomotives and freight cars it is likely that the lack of imports from the West is the result of the export controls imposed by COCOM (Coordinating Committee on East-West Trade). Shipments of locomotives and rolling stock are now illegal, and size and weight discourage clandestine shipments. 50X1

b. Raw Materials and Component Parts.

In the early postwar years, shipments of component parts and raw materials from Western Europe to East Germany were not uncommon. During 1950 the imposition of export controls on non-Soviet Bloc countries eliminated these, except for some clandestine shipments which apparently continue. The disruption in the unrestricted flow of goods from the West has meant an increase in the supply from the other Bloc countries. The loss to East Germany has not been so much in terms of the quantity of units produced as it has been in terms of the probable drop in the quality of these units. Following are quotations [redacted] 50X1

[redacted] refer to this situation 24/: 50X1

(1) "Most serious bottleneck is a shortage of high-grade welding electrodes. The supply from West Germany terminated in August 1950. USSR grades are brittle and break easily."

(2) "Until February 1950, axles came from Western Zone. There was a bottleneck until July 1950, when they were supplied from Czechoslovakia."

(3) "Since January 1949, axles are received from Russia, Rumania, Czechoslovakia, and Upper Silesia. They do not compare qualitywise with those made in Ruhr Valley, Westphalia, or Belgium."

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(4) "Stoppage of supplies of tools and spare parts from Western Zones has caused special difficulties."

Although an estimate of imports of raw materials and component parts cannot be made quantitatively, qualitatively, at least, these imports were of considerable importance prior to their being cut off by export control, and adjustment to this situation has not been easy for the industry. Some adjustment had been made by imports from the rest of the Soviet Bloc, but a lowered quality of output appears to be a contingent condition. The extent of the effect of this decrease in quality cannot be accurately evaluated. Indeed, all that can be said is that the effect undoubtedly has been felt.

C. Inventories.

1. Locomotives.

a. Main-Line Locomotives.

[redacted] statistics of actual main-line locomotive inventories in East Germany are available from the end of 1949 through the end of 1952. End-of-year figures for these 4 years are given in Table 5.* The three main categories shown are (1) Reichsbahn locomotives, which are steam locomotives owned by and operated under the control of the East German Ministry of Railroads; (2) column locomotives, which are steam locomotives owned by the East German Ministry of Railroads but placed at the disposal of the Soviet Control Commission for hauling special reparations trains; and (3) foreign-owned locomotives, which are steam locomotives owned by other countries but were in East Germany at the end of the war. Control of these locomotives appears to be under the East German Ministry of Railroads. The vast majority of them are damaged. No effort has been made, and apparently no effort will be made, to return them to their original owners. 50X1

Analysis of Table 5 leads to several significant conclusions. Considering the grand total, it can be seen that during the 4-year period covered the total inventory has decreased by 510 locomotives. The number of damaged locomotives has decreased by a total of 689, and the total operating inventory has increased by 179

* Table 5 follows on p. 19.

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Table 5

Estimated End-of-Year Inventories of Main-Line Locomotives a/*
in East Germany 25/
1949-52

Units

Item	1949	1950	1951	1952
Reichsbahn-Owned Locomotives				
Serviceable	3,202	3,275	3,130	3,031
Under Repair, BW b/	497	517	415	305
Under Repair, RAW c/	484	497	498	913
Awaiting Repair, RAW	464	434	789	630
Total Operating Inventory	4,647	4,723	4,832	4,879
Damaged	1,095	960	620	590
Total Inventory	5,742	5,683	5,452	5,469
Column Locomotives				
Serviceable	321	332	308	305
Under Repair, BW	33	29	19	14
Under Repair, RAW	21	14	25	38
Awaiting Repair, RAW	1	1	18	14
Total Operating Inventory	376	376	370	371
Damaged	0	0	0	0
Total Inventory	376	376	370	371
Foreign-Owned Locomotives				
Serviceable	59	32	13	21
Under Repair, BW	11	3	1	1
Under Repair, RAW	4	2	0	3

* Footnotes for Table 5 follow on p. 20.

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Table 5

Estimated End-of-Year Inventories of Main-Line Locomotives a/ in East Germany 25/
1949-52
(Continued)

Units

Item	1949	1950	1951	1952
Foreign-Owned Locomotives (Continued)				
Awaiting Repair	7	3	3	8
Total Operating Inventory	81	40	17	33
Damaged	1,066	1,057	986	882
Total Inventory	1,147	1,097	1,003	915
Grand Total, All Steam Locomotives				
Serviceable	3,582	3,639	3,451	3,357
Under Repair, BW	541	549	435	320
Under Repair, RAW	509	513	523	954
Awaiting Repair, RAW	472	438	810	652
Total Operating Inventory	5,104	5,139	5,219	5,283
Damaged	2,161	2,017	1,606	1,472
Total Inventory	7,265	7,156	6,825	6,755

a. These main-line locomotives are exclusively steam.
b. BW is the abbreviation for Bahnbetriebswerk (Railroad Maintenance Shop).
c. RAW is the abbreviation for Reichsbahnbesserungswerk (East German Railway Repair Plant).

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locomotives. Thus out of every 3.85 locomotives removed from the damaged inventory, only 1 was made operable and 2.85 were scrapped. During this same period the net decrease in serviceable locomotives was 225, and the number of units either under or awaiting repair increased by 404 units, over 26 percent.

It is undoubtedly this 26-percent increase in unserviceable units which prompted East Germany to terminate production at the Babelsberg locomotive plant for a period of 2 years and concentrate on repair work.

In attempting to estimate the possible condition of the inventory at the end of 1954 (when the period of work concentration on repair will be terminated), the following assumptions are made: (1) the number of locomotives under or awaiting repair in BW's and RAW's will drop to the percentage level of 1949, (2) the reduction in the damaged locomotive inventory will be at the same annual rate as during the average of the preceding 4 years (172 locomotives per year), and (3) the resulting net increase in the operating inventory will bear the same ratio to the reduction in the damaged locomotive inventory as during this same 4-year period (1 locomotive out of every 3.85 removed from the damaged inventory will become operable). The end-of-year inventory in 1954 then becomes as given in Table 6.*

In summary, the East German main-line locomotive inventory may not be in as critical a condition [redacted] 26/ 50X1 The effect of concentrating on repair at the plant at Babelsberg for a period of 2 years may well increase the serviceable inventory by an amount large enough to provide at least the required minimum service for some time to come.

b. Mining Locomotives.

Information on the number of mining locomotives in use in East Germany is not available in statistical form. Any attempt to determine the actual inventory would involve a lengthy study of the mining activities of the country, and such a study is beyond the scope of this report.

* Table 6 follows on p. 22.

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Table 6

Estimated End-of-Year Inventories of Main-Line Locomotives in East Germany 1954

Grand Total, All Main-Line Steam Locomotives	Number of Locomotives
Serviceable	3,762 a/
Under or Awaiting Repair	1,610
Total Operating Inventory	5,372
Damaged Locomotives	1,128
Total Inventory	6,500

a. Of this 3,762 it is assumed that 316 will be column locomotives and 31 will be foreign-owned locomotives, leaving a total of 3,415 in the Reichsbahn Locomotive category -- a net increase of just under 13 percent in the 2-year period.

c. Industrial and Plant Locomotives.

50X1
50X1

narrow-gage and small locomotive inventories. It is believed that these two categories correspond to the category of Industrial and Plant Locomotives as used in this text. At the end of 1949 the total inventory of these 2 categories was 689 units, of which only 349 were serviceable. At the end of 1950 the total inventory was 694 units, of which 366 were serviceable. End-of-year totals for 1951 and 1952 which include both narrow-gage and small locomotives are not available. The number of narrow-gage locomotives, however, increased from 213 at the end of 1950 to 215 and 218 at the end of 1951 and 1952, respectively. 27/

Although, in terms of physical units, industrial and plant locomotives accounted for an additional 9-1/2 percent

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over and above the inventory of 7,265 road locomotives at the end of 1949, in terms of total power (that is, tractive effort*), this category shrank to almost negligible proportions and can be omitted when considering East German railroad transportation capabilities.

2. Rolling Stock.

a. Freight Cars.

End-of-year inventories of freight cars in East Germany are given in Table 7.** The total freight car inventory in early 1952 can be broken down as follows:

	Percent
Boxcars	24.1
Flatcars	17.4
Tank Cars	5.6***
Hopper Cars	43.2
Refrigerator Cars	0.7
Other Cars	9.0*** 29/

This percentage breakdown can probably be applied to any of the above years with only minor differences.

In 1951, slightly under 4 percent of the total freight car inventory were cars with 4 or more axles. The remainder of the cars were 2-axle freight cars similar to standard Western European freight cars. 30/ Of this group of cars with 4 or more axles, slightly more than half were heavy-duty flatcars and well-type cars. 31/ The addition of nearly 2,000 6-axle flatcars in 1952 at the demand of the

* Tractive effort is a term which takes into consideration both the power and the weight of a locomotive. It is a measure of the "pulling" ability of a locomotive.

** Table 7 follows on p. 24.

*** Not included under tank cars but included under other cars are about 5,800 privately owned tank cars. If included under tank cars, the percentage would go up to 11.0 percent, and the figure for other cars would become 3.6 percent. 28/

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Table 7

Estimated End-of-Year Inventories of Freight Cars
in East Germany a/ 32/
1949-52

Units

Item b/	1949	1950	1951	1952 June	1952 December
Operating Freight Cars					
Loaded	47,323	49,455	45,373	52,360	N.A.
Empty	31,427	32,866	35,790	36,894	N.A.
Total Operating Freight Cars	78,750	82,321	81,163	89,254	101,460
Nonoperating Freight Cars					
Damaged	14,460	(6,476)	11,837	12,904	10,968
Deadlined	195	( )	0	(12,370)	N.A.
Special Use	11,477	11,510	4,272	( )	N.A.
Reserve	1,629	958	6,092	1,793	N.A.
Total Nonoperating Freight Cars	27,761	18,944	22,201	27,067	N.A.
Total, All Freight Cars	106,511	101,265	103,364	116,321	N.A.

a. Includes all standard-gage freight cars owned by, and in use in, East Germany.
b. The damaged and deadlined cars include cars under or awaiting repair. Cars for special use are cars used by the Soviet Control Commission for the carrying of goods in special reparations trains. Reserve cars are cars in operating condition held for troop movements and the like.

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Soviet Control Commission raises the percentage of cars with 4 or more axles to about 6 percent, of which about two-thirds are flatcars and well-type cars.* The net result is to increase East German capabilities for transporting heavy equipment, particularly of the military types (such as tanks and artillery).

[redacted] the total of all freight cars as given in Table 7 does not include about 13,000 freight cars of East German ownership which are out of the country at any given time but does include about 6,400 foreign-owned freight cars which are in operation in East Germany at any given time. 33/ Thus about 6,600 cars can be added to the total freight car figure to show the net addition resulting from intercountry use of freight cars. 50X1

For efficient operation a quota of 100,000 operational freight cars has been set by the East German Ministry of Railroads. 34/ As can be seen in Table 7, this quota was reached in December 1952. There is no reason to expect it to drop below this figure. The return of the second group of 20,000 cars from the USSR is continuing, and this fact alone would keep the operating inventory at or above the minimum quota. In addition to this, the continuing production of flatcars at the Niesky plant in 1953 will add to the operating inventory if these cars are for internal East German use.

A statistical prediction of freight car inventories at the end of 1954 is not possible. The number of freight cars which will have to be retired because of old age cannot be determined, although undoubtedly it will be kept to a minimum through cannibalization of cars from the damaged inventory. An estimate of freight car inventories at the end of 1953, all factors considered, puts the total inventory at about 130,000 cars with an operating inventory of almost 110,000 cars.

b. Mining Cars.

The same difficulties which are present in attempting to make an estimate of mining locomotive inventories in East Germany are also present in making any estimate of mining car inventories. A study of the mining industries in East Germany would be required, and such a study is beyond the scope of this report. In addition, although such an estimate would have intelligence value as far as

* See Table 2, p. 11, above.

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the mining industry of East Germany is concerned, it would be of no particular value in this report.

c. Industrial and Plant Cars.

As defined in I, A, above, industrial and plant cars include narrow-gage cars used in timbering and similar operations as well as industrial cars used in metallurgical and other plants. [redacted] 50X1 the inventory of narrow-gage industrial and plant cars is approximately 3,600 units. 35/ The number of cars of standard gage which are classed as industrial or plant cars is not known. Because these cars are engaged wholly in intraplant transfer of materials, they are not significant as a measure of East German railroad capabilities. An estimate of the total inventory of this category, as in the case of mining cars and locomotives, would depend upon commodity and industry studies beyond the scope of this report.

d. Passenger Cars.

[redacted] 50X1

Considering only the first 7 items given in Table 8 as strictly passenger cars, it can be said that out of a total of 7,509 there were, at the end of January 1952, 6,079 passenger cars in serviceable condition. According to the current Plan, the passenger car inventory is to increase by 1,000 units between 1950 and 1955. 36/ Assuming the inventory at the end of 1950 to be about 6,000 serviceable units, the end-of-1955 inventory would then be 7,000 serviceable units. Such an increase in inventory does not seem unreasonable in the light of the productive capacity of the industry.

III. Demand.

A. Consumption by Major Industries.

The studies of individual production at each of the plants (see VI, below) make it possible to break down the total production of railroad equipment into the following three categories: (1) equipment for internal East German consumption, (2) reparations shipments

* Table 8 follows on p. 27.

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Table 8

Estimated Inventories of Passenger Cars in East Germany
15 July 1951 and 31 January 1952 37/

Units

Item	Serviceable		Under Repair		Beyond Repair		Total	
	July 1951	January 1952	July 1951	January 1952	July 1951	January 1952	July 1951	January 1952
Express Train (D-Zug)	429	457	104	127	53	98	586	682
Limited Stop Train (E-Zug)	233	199	35	44	13	10	281	253
Local Train	5,370	5,400	924	894	142	179	6,436	6,473
ISG Sleeping	5	0	0	0	23	38	28	38
ISG Dining	5	0	0	0	30	39	35	39
Mitropa Sleeping a/	N.A.	10	N.A.	1	N.A.	0	N.A.	11
Mitropa Dining a/	N.A.	13	N.A.	0	N.A.	0	N.A.	13
Baggage Cars	1,749	1,767	434	390	32	230	2,215	2,387
Berlin S-Bahn b/	1,094	1,018	10	111	228	179	1,332	1,308
Narrow-Gage	637	636	0	118	182	98	819	852
Mail	566	656	16	154	12	11	594	821
Service c/	1,301	1,344	120	153	5	1	1,426	1,498
Total, All Passenger Cars	11,389	11,500	1,643	1,992	720	883	13,752	14,375

a. Cars used exclusively on international runs.
b. Berlin area interurban cars.
c. Such as railroad crew cars, maintenance cars, tool cars, and crane cars.

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to the USSR, and (3) equipment exported to the European Satellites. There has been no reported instance of exports to any non-Soviet Bloc country. Tables 9, 10, and 11* give the distribution of production under these three categories. Since railroad equipment is by its very nature an end product for the railroad systems of the country to which it is shipped, the consuming industry in each of the three categories is the rail transportation industry.**

The values of production were calculated in the same manner [redacted] as the values in Table 3.*** The last line in each of the three tables which follow shows the percentage of the total value of production of railroad equipment represented by the particular category covered by that table. 50X1

1. Equipment for East German Internal Consumption.

Table 8 shows that East Germany has been receiving only about 10 to 20 percent of its production of railroad equipment for its own use. This fact alone explains the many reports of shortages of all types of equipment.

2. Reparations Shipments to the USSR.

The data in Table 10 make it clear that the Russians have placed a tremendous burden on the Reichsbahn by demanding over 80 percent of the production of new railroad equipment during the postwar years. The years 1951 and 1952 show a very slight downward trend which can be expected to continue in view of the proposed conversion of several of the manufacturing plants to activities other than the production of railroad equipment. Just how far the Russians will allow this trend to go is difficult to estimate. It is quite possible, however, that reparations deliveries will be cut in the

* Tables 9, 10, and 11 follow on pp. 29, 30, and 32, respectively.
** This statement must be qualified to the extent that mining cars and perhaps mining locomotives should be considered as being consumed by the mining industries and that industrial and plant cars should be considered as being consumed by a variety of industries. For the purposes of this report, however, classifying the consumption under the heading of the railroad transportation industry is acceptable.
*** P. 12, above.

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Table 9

Estimated Production of Locomotives and Rolling Stock for Internal Consumption in East Germany a/
1946-52

Item	Units	1946	1947	1948	1949	1950	1951	1952
Industrial and Plant Locomotives	number	0	40	52	79	86	43	43
Boxcars	number	0	325	300	0	530	700	Negligible
Flatcars	number	0	0	0	0	0	275	1,930
Hopper Cars	number	0	250	250	390	550	500	0
Tank Cars	number	0	0	0	0	0	600	600
Refrigerator Cars	number	0	0	0	0	50	176	220
Mining Cars b/								
Industrial and Plant Cars	number	0	250	0	100	120	65	65
Passenger Cars	number	0	0	0	0	0	50	50
Total Value	million DME	0	25	15	22	36	82	107
Percent of Total Value of All Production of Locomotives and Rolling Stock	percent	0	21 c/	13.5	8	8	17	21

a. Range of error, plus or minus 20 percent.
b. See footnote c, Table 10, below.
c. The total value of production of locomotives and rolling stock in 1947 is not shown in Table 3. It is estimated to be approximately 120 million DME.

50X1

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Table 10

Estimated Production of Locomotives and Rolling Stock as Reparations in East Germany a/
1946-52

Item	Units	1946	1947	1948	1949	1950	1951	1952
Mining Locomotives b/	number	N.A.	N.A.	N.A.	200	30	0	161
Industrial and Plant Locomotives	number	100	32	31	101	118	64	102
Boxcars	number	N.A.	0	400	300	200	400	Negligible
Flatcars	number	1,200	1,450	1,320	1,770	250	0	0
Hopper Cars	number	0	0	0	0	500	0	800
Tank Cars	number	0	0	0	0	0	0	0
Refrigerator Cars	number	50	75	100	530	1,440	1,992	2,200
Other Freight Cars	number	900	800	530	810	980	235	250
Mining Cars c/	number	N.A.	4,000	4,200	4,650	6,650	6,000	N.A.
Industrial and Plant Cars	number	90	450	900	2,000	2,780	2,635	2,335
Passenger Cars	number	N.A.	Negligible	10	215	600	620	570
Total Value	million DME	N.A.	93	95	245	398	383	402
Percent of Total Value of All Production of Locomotives and Rolling Stock	percent	100	77.5	84.5	89	88	79	78.5

a. Range of error, plus or minus 20 percent.
b. Plan figures. Assumed to be actual production for the purposes of this table. These figures include some main-line electric locomotives to be used in open-pit mining.
c. It is not certain that these mining cars were all produced as reparations. At a value of only 200 DME each, however, it would have little effect on the accuracy of the last two lines of Tables 8 and 9, above, whether they were carried in one table or the other. Since it is felt that they are more likely to be reparations than anything else, they are carried in Table 10.

50X1

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near future as a combined result of the physical changes in output of some of the plants, the need for new equipment by the Reichsbahn, and the propaganda value such a reduction would have.*

3. Exports to Other Soviet Bloc Countries.

Exports of railroad equipment from East Germany to the other Satellite members of the Soviet Bloc during the postwar years have been small. Exports are, however, a little larger than imports. Table 10 gives the estimated exports to the Satellites, 1946-52. A continued policy of exporting about 3 to 5 percent of total production of railroad equipment to other Satellite countries for the next few years is not unlikely.

B. Importance of the Industry.

1. Position in the Economy.

East Germany provides an excellent case in point for a discussion of the relative essentiality of production of locomotives and rolling stock, particularly as applied to one of the European Satellite countries. East Germany is a country, artificially created as the result of war, with a well-developed industrial and agricultural economy and with an extensive rail transportation network. The end of the war has left it with a considerably lowered industrial output and with a smaller-than-normal inventory of operational railroad equipment. It has, however, a sizable inventory of nonoperational equipment in the form of damaged locomotives and rolling stock of both its own origin and foreign origin.

As the scope of this report does not include a determination of the requirements for railroad equipment to move a given number of ton-kilometers of freight in a given period, the discussion of essentiality of production of such equipment takes on a special frame of reference. It becomes a study of the total amount of equipment produced and an evaluation of the amount of this production which was required for internal use.

* It was announced in the Soviet Press on 23 August 1953 that as of 1 January 1954 East Germany is released from any further reparations payments to the USSR. It is probable, however, that shipments of railroad equipment will taper off gradually with the USSR, after 1 January, paying for these items, whereas their value previously had been applied against the reparations accounts.

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Table 11

Estimated Exports of Locomotives and Rolling Stock to the Other European Satellites a/
1946-52

Item	Units	1946	1947	1948	1949	1950	1951	1952
Mining Locomotives (to Czechoslovakia)	number	0	0	0	0	0	100 b/	0
Industrial and Plant Locomotives (to Hungary, Poland, Rumania, and Czechoslovakia)	number	0	68	87	95	146	73	73
Flatcars (to Poland)	number	0	0	0	200	300	0	0
Hopper Cars (to Poland)	number	0	0	0	0	200	300	0
Refrigerator Cars (to Hungary)	number	0	0	0	0	0	22	0
Total Value	million DME	0	2	2	8	19	20	2
Percent of Total Value of All Production of Locomotives and Rolling Stock	percent	0	1.5	2.0	4.0	4.5	4.0	0.4

a. Range of error, plus or minus 20 percent.
b. Plan figure. Assumed to be actual production for the purposes of this table.

50X1

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In the light of the production statistics in II and III, A, above, the conclusion may be drawn that, as over 80 percent of the total production during the postwar years has not been made available to the Reichsbahn, the production of locomotives and rolling stock has not been essential to the East German economy. Properly qualified, this statement is true.

The qualification must be made clear, however. There exists at present a sufficient supply of damaged equipment which can be repaired, in whole or in part, and which has been used to meet operating inventory retirements resulting from age and accident and to provide net additions required for traffic increases.

When the supply of equipment in the damaged class is wholly exploited by repairing all that is capable of repair, a supply of new equipment becomes essential if the inventory is to be maintained at a given level or is to be increased.*

To date, the qualification has been met by East Germany. In the locomotive inventory the terms fit the qualification precisely. In the rolling stock inventory the terms have been met but on a basis slightly different in that the return of captured freight cars from the USSR amounts to the same thing. When this qualification will no longer apply is a matter of conjecture. It seems only logical, however, that both Soviet and East German planners realize the fact that new equipment will eventually have to replace the old when it is worn out and incapable of repair. The facts that some new equipment has been made available and that there are indications that larger proportions of the total output will be made available for East German consumption support this assumption.

In summary, new** railroad equipment in an amount sufficient to replace retired equipment and to meet additional traffic requirements is essential to the efficient operation of the railroads of East Germany. Whether the supply will be provided through

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* Imports can be considered as production because payment for them eventually can be reduced to labor, capital, and raw materials which must be consumed to produce a comparable value in goods for export.

** The term new as used here is intended to include not only new equipment but also such net additions as may be made to the inventory through cannibalization of damaged inventories.

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the production of new equipment or through the methods indicated above depends upon the conditions existing at any given time.

2. Substitutes.

There are no substitutes for the production of railroad equipment. For the operation of a rail transportation network, production of railroad equipment is essential.* It should be pointed out here, however, that the scope of this report does not include a discussion of the possibilities of substituting other forms of transportation (road, water, or air) for rail transportation. Only the fact that the operation of a railroad system requires a supply of railroad equipment for which there is no substitute is considered here.

IV. Expansibility.

A. Existing Capacity.

In a planned economy such as has been imposed upon East Germany by the Russians, the assumption that capacity production and planned production are, to all intents and purposes, one and the same thing cannot be much in error. The fact that planned production of railroad equipment is often somewhat in excess of actual production in East Germany seems to be the result not of a lack of sufficient capacity but rather of a shortage of raw materials and, perhaps, of too many "adjustments" in planning. This assumption of "planned equals capacity production" is undoubtedly more valid when applied to short periods of time rather than to periods of 5 years as in the case of a Five Year Plan. Thus the planned production for 1953 as stated in late 1952 was probably an accurate indicator of 1953 capacity, whereas the planned production for 1955 as stated in 1950 would be subject to considerable examination before it could be assumed to be a statement of actual 1955 capacity.

Table 4** gives the production capacity for 1953. The total value of that year's production (capacity, not actual) is approximately 586 million DME.

* For a definition of the term essential, as used in this context, see III, B, 1, above.
** P. 13, above.

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B. Growth of Normal Production and Capacity through 1955.

Predictions of normal production and capacity growth in future years are subject to several handicaps. Not the least of these is the uncertainty of the future of reparations deliveries, and directly allied to this is the problem of the possible conversion of at least part of the production facilities to the output of goods other than railroad equipment. These two unknowns prevent any really firm estimate of future production.

In order to make an estimate, it will be assumed that in 1954 and 1955 the additional conversion of railroad equipment plants to other production will be at a relatively slow rate and therefore will not materially affect production capacity. In terms of total value, production in 1951 was about 107 percent of that of 1950, and 1952 production was about 105 percent of that of 1951. Planned production for 1953 was about 115 percent of 1952 actual production.* On this basis it is estimated that the average total value of actual production in 1953, 1954, and 1955 will be 110 percent of actual production of each preceding year (using 1952 estimated actual production as the base year).

On the same premise, 1954 and 1955 capacity (planned production) is estimated at a rate 115 percent of actual production in 1953 and 1954 respectively. The results of these calculations are given in Table 12.**

Table 12 gives estimated actual production and production capacity for 1953-55 in terms of total value of production. It does not purport to indicate what the product mix of this total value will be. As is obvious from Table 2,*** any such prediction of product mix would be sheer guesswork since the mix can vary, and has varied, from year to year.

C. Expansion Possibilities.

As has been previously pointed out, a discussion of expansion possibilities from the point of view of this report takes on

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* These percentage values are calculated from the information presented in II.

** Table 12 follows on p. 36.

*** P. 11, above.

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Table 12

Estimated Capacity and Probable Actual Production
of Locomotives and Rolling Stock
in East Germany
1953-55

Year	Total Value of Production (Million DME)	Percentage of Plan Fulfillment a/
1953		96
Capacity	586	
Actual Production	562	
1954		96
Capacity	646	
Actual Production	619	
1955		96
Capacity	711	
Actual Production	680	

a. Based upon Actual Total Value of Production divided by Capacity Total Value of Production times 100.

a negative approach. A reduction in facilities, rather than an expansion, seems probable. [redacted] 50X1
[redacted]* Whether or not plants such 50X1
as those at Gotha, Dessau, and Weimar will actually cease producing
railroad equipment is not yet certain. [redacted] 50X1
[redacted] such a reduction is most probable, and the contraction 50X1
of the locomotive and rolling stock industry to the point where it
serves only the needs of the Reichsbahn for new equipment, with little
or no reparations or export production, is to be expected in the future.

* See I, D, above, for a discussion of possible changes.

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What the final situation will be with regard to production and/or capacity will depend upon the demands which the Reichsbahn will make upon the industry. These demands will not become measureable until more information on the status of the remaining "damaged" inventories, coupled with estimates of rail traffic growth and equipment retirement rates, is available.

V. Inputs.

Table 13* is a tabulation of direct inputs into several selected types of railroad equipment produced in East Germany. [redacted] 50X1
[redacted] 50X1
[redacted] Several 50X1
important items of input, however, are missing from this information, notably, energy, transportation, and capital equipment. [redacted] 50X1
[redacted] 50X1
[redacted] This earlier schedule of inputs was developed by a method 50X1
which used an analogy between US and Soviet practice developed from the US Census of Manufactures, 1947, and statistical information from the Bureau of Labor Statistics.

[redacted] 50X1
[redacted] in Table 14.** As can be seen 50X1
from this table, the inputs derived by the analogy method vary from 65 percent to 200 percent of the inputs given in Table 13. Because these variations are both above and below the inputs in Table 13, it is believed that little value would be added to this report in attempting to estimate the inputs lacking in Table 13 by the use of the input schedule derived by the analogy method, and for this reason such estimates are purposely omitted. Future work in the field of inputs into railroad equipment is scheduled, and until such work can be completed there is no point in adding to this report an input estimate which may well be both unrealistic and inaccurate. 50X1

[redacted]

* Table 13 follows on p. 38.
** Table 14 follows on p. 39.

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Table 13

Estimated Input Requirements per Unit of Production of Selected Items of Locomotives and Rolling Stock in East Germany 39/
30 March 1950

Input Items	Units	Industrial Locomotives (50-HP-Steam)	Boxcars (2-Axle)	Flatcars (4-Axle)	Hopper Cars (4-Axle)	Refrigerator Cars (4-Axle)	Mining Cars	Passenger Cars (4-Axle)
Steel (Rolled)	mt	8.120	5.800	18.410	19.500	29.136	0.350	32.880
Steel (Forged)	mt	0.920	0.330	0	4.550	0	0	0
Steel (Cast)	mt	2.000	0.480	0.740	0.450	2.726	0.100	0.620
Iron (Cast)	mt	1.070	0.160	0.270	0.480	0.738	0.120	0.160
Nonferrous Metals	mt	0.410	0.001	0.020	0.040	0.624	0	1.690
Wood	cu m	1.670	5.400	6.300	0.300	10.479	0	35.000
Paint	mt	0.060	0.120	0.150	0.150	0.386	0	1.210
Glass	sq m	1.500	0	0	0.200	0	0	70.000
Labor	man-hours	2,457.0	715.0	1,722.0	1,893.0	N.A.	6.0	21,697.0
Machine Time	hours	1,593.0	375.0	390.0	1,262.0	N.A.	12.0	5,061.0
Weight								
Gross	mt	18.340	12.440	30.771	30.157	43.932	0.547	92.789
Finished	mt	N.A.	11.000	N.A.	N.A.	32.160	N.A.	N.A.

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S-E-C-R-E-T

Table 14

Comparison of Statistics on East German Items of Input per Unit of Production of Rolling Stock [redacted] with Statistics as Calculated from the US Census of Manufactures, 1947 50X1

Item	Units	Freight Cars			Passenger Cars		
		From Intelligence Data a/	From 1947 "Census"	1947 "Census" Data as Percent of Intelligence Data	From Intelligence Data a/	From 1947 "Census"	1947 "Census" Data as Percent of Intelligence Data
Steel (Raw) b/	mt	14.560	9.527	65	46.664	47.635	102
Nonferrous Metals	mt	0.015	0.030	200	1.690	1.500	89
Wood	cu m	2.285	3.710	163	35.000	42.890	123
Labor	man-hours	863	625	72	N.A.	3,125	N.A.

a. A weighted average of boxcars, flatcars, hopper cars, and refrigerator cars from Table 13 was used to calculate the values for this column.
b. Rolled steel is converted into raw steel by multiplying by 1.39. Forged steel, cast iron, and cast steel are converted by multiplying by 1.08. These conversion factors are standards previously developed by CIA analysts.

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VI. Plant Information.*

Estimates of production at the plants producing locomotives and rolling stock in East Germany have been made. For the geographical location of these plants, see the accompanying map.** Estimates of total employment at each of these plants are also included wherever possible. Caution must be exercised in using these employment figures, however, as most of the plants produce items other than, and in addition to, railroad equipment, and it has not been possible to determine that proportion of the total employment engaged only in production of locomotives and rolling stock.

A. Ammendorf. 40/

Proper Name: Waggonfabrik Ammendorf.
Former Name: Gottfried Linder AG.

Employment:

1946:	2,000
1947:	2,500
1948:	3,000
1949:	4,000
1950:	5,000
1951:	5,800
1952:	7,000
1953:	7,000

In addition to the items shown in Table 15,*** this plant has produced, since the end of World War II, the following items:

Three- and 5-ton truck trailers for the Soviet Army of Occupation (SAO).

Armored diesel locomotives for the USSR (the application of the armor, not the production of the locomotive).

50X1

** Following p. 50.
*** Table 15 follows on p. 41.

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Table 15

Estimated Production of Rolling Stock at Waggonfabrik Ammendorf a/
1946-52

Units

Item	1946	1947	1948	1949	1950	1951	1952
Flatcars	300	850	1,320	1,770	0	0	0
Industrial and Plant Cars	90	340	500	600	600	1,250	2,200
Passenger Cars	0	0	4	150	330	400	500

a. All items were produced as reparations goods for the USSR.

Superstructures for radio stations to be mounted on ZIS trucks for the USSR.
Tractor trailers.
A special train with electronics equipment for the USSR.
Automotive workshops for the SAO.

B. Babelsberg.* 41/

Proper Name: Karl Marx Werke.
Former Name: Orenstein und Koppel.

Employment:
1946: N.A.
1947: 800
1948: 1,300
1949: 1,900
1950: 2,000
1951: 2,000
1952: 2,000
1953: 2,000

C. Bautzen. 42/

Proper Name: Waggonbau Bautzen.
Former Name: Busch Waggonbau.

* See Table 16, p. 42, below.

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Table 16

Estimated Production of Locomotives at the Karl Marx Werke, Babelsberg
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952
Industrial and Plant Locomotives	USSR	100	32	31	101	68	34	34
	East Germany		40	52	40	86	43	43
	Other European Satellites		68	87	95	146	73	73
Mining Locomotives	USSR							8

C. Bautzen. 42/ (Continued).

Employment: 1946: 1,100
1947: 1,100
1948: 1,600
1949: 2,000
1950: 2,400
1951: 3,000
1952: 3,100
1953: 3,600

In addition to the items shown in Table 17,* this plant has produced, since the end of World War II, the following items:

Interurban motor cars.
Hospital cars converted from passenger and freight cars.
Superstructures for radio trucks.
Railroad passenger and freight car buffers.

D. Dessau. 43/

Proper Name: Waggonfabrik Dessau.

Employment: 1946: 1,600
1947: 1,600

* Table 17 follows on p. 43.

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Table 17

Estimated Production of Rolling Stock at Waggonbau Bautzen
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952 a/
Boxcars	East Germany		260	300	N.A.	530	400	
Industrial and Plant Cars	East Germany		250					65
	USSR		110				50	
Passenger Cars	East Germany						25	
	USSR		Negligible	6	35	55	55	

a. Waggonbau Bautzen was to be wholly converted to the production of tractors by the end of 1952.

D. Dessau. 43/ (Continued).

Employment: 1948: 2,000
1949: 2,500
1950: 2,800
1951: 3,000
1952: 3,500
1953: 4,000

In addition to the items shown in Table 18,* this plant has produced, since the end of World War II, the following items:

A communications train for the USSR.
Two-axle freight car bogies.
Superstructures for radio trucks for the USSR.
Bus bodies.

E. Goerlitz. 44/

Proper Name: Waggonbau Goerlitz.
Former Name: Wumag Waggon und Maschinen Werke.

* Table 18 follows on p. 44.

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Table 18

Estimated Production of Rolling Stock at Waggonfabrik Dessau
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952
Flatcars	USSR	900	600					
Refrigerator Cars	USSR	50	75	100	530	990	1,298	1,500
	Hungary						22	
Industrial and Plant Cars	East Germany				100	120	30	
Other Freight Cars	USSR	900	800	530	810	980	235	250
Passenger Cars	USSR					55	45	

E. Goerlitz. 44/ (Continued).

Employment: 1946: N.A.
1947: N.A.
1948: 2,400
1949: 3,200
1950: 4,100
1951: 4,500
1952: 5,800
1953: 6,000

In addition to the items shown in Table 19,* this plant has produced, since the end of World War II, the following items:

Hospital cars converted from passenger and freight cars.
Bogies.
Screw couplings.
Three-car automotive trains for Poland.
Trolley bus trailers.

* Table 19 follows on p. 45.

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Table 19

Estimated Production of Rolling Stock at Waggonbau Goerlitz
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952
Hopper Cars	USSR					500	0	400
	Poland					200	300	
	East Germany				140	300	300	
Flatcars	USSR					250		
	East Germany						235	700
Passenger Cars	USSR		Negligible	N.A.	30	160	120	70
	East Germany							40

F. Gotha. 45/

Proper Name: Waggonbau Gotha.
Former Name: Gothaer Waggonfabrik.

Employment:
1946: N.A.
1947: N.A.
1948: 1,800
1949: 1,900
1950: 2,000
1951: 2,100
1952: 2,500
1953: 3,000

In addition to the items shown in Table 20,* this plant has produced, since the end of World War II, the following items:

Special cars for V-2 trains.
Grunau Baby II gliders.
Heavy automotive trucks for the movement of freight cars over highways.
Tractors (reported in 1952).

* Table 20 follows on p. 46.

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Table 20

Estimated Production of Rolling Stock at Waggonbau Gotha
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952 a/
Hopper Cars	East Germany		250	250	250	250	200	
Flatcars	Poland				200	300		
Boxcars	East Germany						300	
Industrial and Plant Cars	East Germany						35	

a. No longer producing railroad equipment after the end of 1951.

G. Hennigsdorf. 46/

Proper Name: Lokomotivenbau Elektrotechnische Werke (LEW).
Former Name: AEG Borsig Lokomotivbau.

Employment:
1946: N.A.
1947: N.A.
1948: 3,400
1949: 4,100
1950: 4,864
1951: 5,500
1952: 6,234
1953: 6,970

In addition to the items shown in Table 21,* this plant has produced, since the end of World War II, a wide variety of electrical equipment as follows:

Electric lift trucks.
Electric ovens of all types.
Welding sets of 15 KVA/5KW, 21 KVA/6.5KW, and 0.4KVA.
Insulation paper and insulators of all types.
Mobile transmitters and amplifiers.
Axiometers (rudder controls for large ships).
Railway traction motors.

* Table 21 follows on p. 47.

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Table 21

Estimated Production of Locomotives
at the Lokomotivenbau Elektrotechnische Werke (LEW), Hennigsdorf
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952
Mining Locomotives	USSR	N.A.	N.A.	N.A.	200 (Plan)	30 (Plan)		153
	Czechoslovakia						100 (Plan)	
Industrial and Plant Locomotives	USSR					50	30	68
	East Germany				39			
Main-Line Steam Locomotives	East Germany						2 (Plan)	30 (Plan)

H. Loessnitz. 47/

Proper Name: LOWA Presswerk.

Employment: 1951: 400 (only figure available).

Production: No production has been credited to this plant up to 1950, when 2,800 mining cars were built, presumably for the USSR.* Production in 1951 was 3,000 mining cars. No information is available on 1952 production.

I. Niesky.** 48/

Proper Name: Waggon- und Stahlbau Niesky.
Former Name: Christoph und Unmack.

Employment: 1951: 1,200 (only estimate available).

* See footnote b, Table 10, p. 30, above.
** See Table 22, p. 48, below.

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Table 22

Estimated Production of Rolling Stock at Waggon- und Stahlbau Niesky
1946-52

Units

Item	Consumer	1946-50	1951	1952
Flatcars	East Germany	0	40	1,230
Passenger Cars	East Germany	0	25	10

J. Vetschau. 49/

Proper Name: LOWA Geraetebau.

Employment: 1951: 350 (only estimate available).

Production: The only report of railroad equipment production at this plant is for 1951 when some 3,000 mining cars were produced. In addition, five steam tractors were reportedly produced in 1951.

K. Weimar. 50/

Proper Name: Waggonbau Weimar.
Former Name: Fritz Saukel Werke.

Employment:
1946: N.A.
1947: N.A.
1948: N.A.
1949: N.A.
1950: 2,800
1951: 3,000
1952: 3,500
1953: N.A.

In addition to the items shown in Table 23,* this plant has produced, since the end of World War II, the following items:

* Table 23 follows on p. 49.

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Table 23

Estimated Production of Rolling Stock at Waggonbau Weimar
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952
Mining Cars	USSR		4,000	4,200	4,650	3,850		
Industrial and Plant Cars	USSR			400	1,100	1,680	1,335	135
Refrigerator Cars	USSR					450	694	650
Tank Cars	East Germany						600	600
Hopper Cars	USSR							400

Wheel sets.
Various cast railroad equipment parts.
Wooden packing cases for electrical equipment shipments.

L. Werdau. 51/

Proper Name: Waggonbau Werdau
Former Name: Schumann Werke.

Employment: 1946-48: N.A.
1949: 1,700
1950: 2,400
1951: 3,000
1952-53: N.A.

In addition to the items shown in Table 24,* this plant has produced, since the end of World War II, the following items:

Automobile trailers.
Truck cabs.
Bus bodies.
Trolley buses and trolley bus trailers.
Automotive X-ray cars.
Automotive dental surgery cars.
H-6 and G-5 trucks (1952 and thereafter).

* Table 24 follows on p. 50.

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Table 24

Estimated Production of Rolling Stock at Waggonbau Werdau
1946-52

Units

Item	Consumer	1946	1947	1948	1949	1950	1951	1952 a/
Boxcars	USSR			400	300	200	400	
	East Germany		65					
Industrial and Plant Cars	USSR				300	500		
Refrigerator Cars	USSR							50
	East Germany					50	176	220

a. Converted wholly to motor vehicle production by the end of 1952.

VII. Conclusions.

A. Capabilities.

When its capabilities are evaluated the East German railroad equipment industry presents something of a paradox. In the rolling stock segment of the industry, facilities currently in operation are fully capable of supplying the Reichsbahn with sufficient numbers of freight and passenger cars to maintain efficient levels of operating inventories.* In the locomotive segment of the industry, however, East Germany's production capabilities are almost nonexistent. No main-line steam locomotives have been built since the end of World War II. Facilities for the production of diesel locomotives do not

* This statement presupposes that the announcement of the cancellation of reparations as of 1 January 1954 will mean a material increase in the amounts of production designated for internal Reichsbahn use. Should the USSR maintain, through some pretext, its past level of imports of East German railroad equipment production, then the estimate of capabilities above should be qualified to indicate that East Germany is not receiving the benefit of its production capability.

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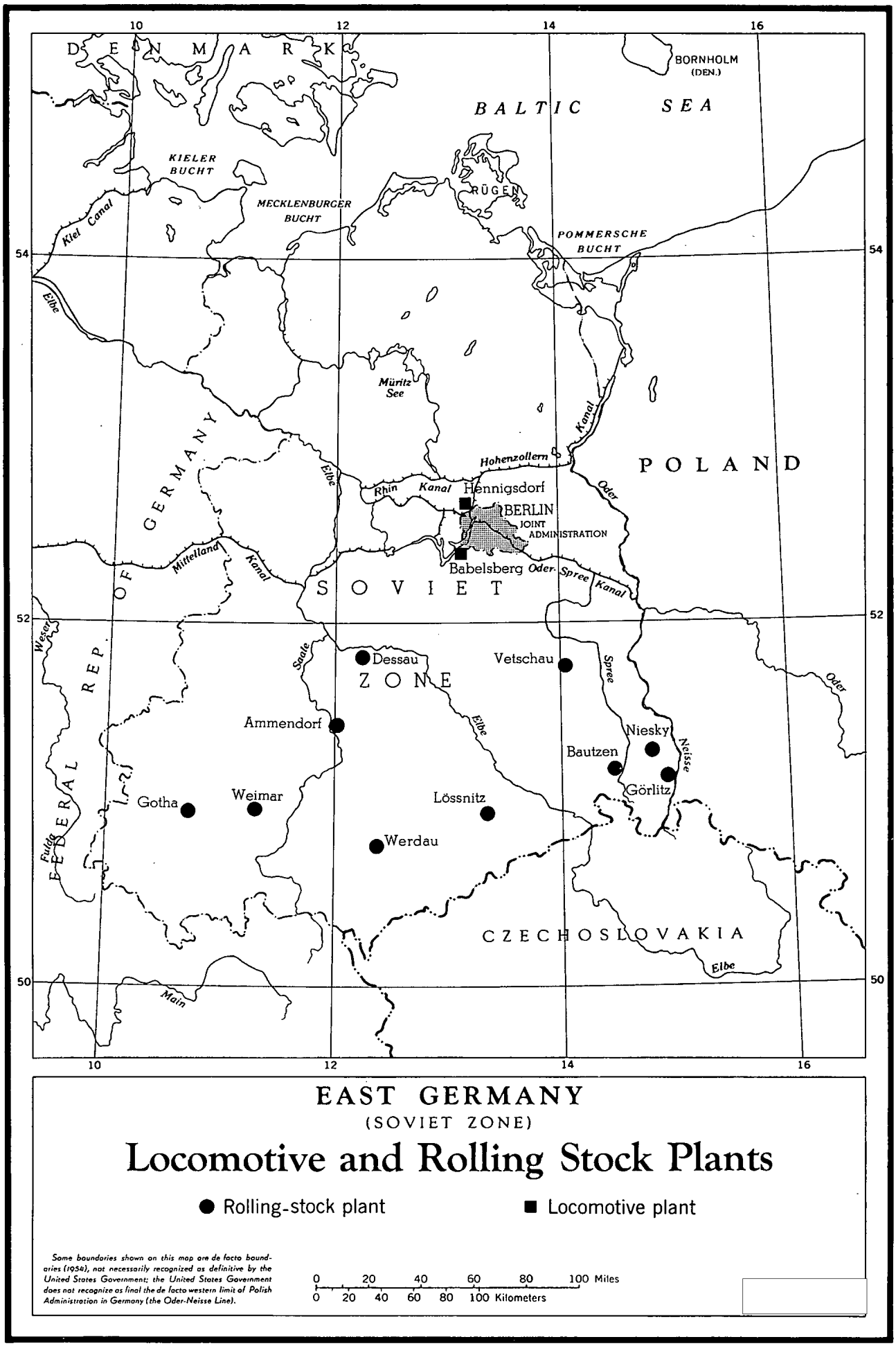

EAST GERMANY
(SOVIET ZONE)

Locomotive and Rolling Stock Plants

● Rolling-stock plant ■ Locomotive plant

Some boundaries shown on this map are de facto boundaries (1954), not necessarily recognized as definitive by the United States Government; the United States Government does not recognize as final the de facto western limit of Polish Administration in Germany (the Oder-Neisse Line).

0 20 40 60 80 100 Miles
0 20 40 60 80 100 Kilometers

12957 CIA, 1-54

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exist, and, although the electric locomotive plant at Hennigsdorf has the facilities for main-line electric locomotive production, no such production for East German use has occurred since the end of the war.

Insofar as current capabilities are concerned, it can be said that,with the possible exception of a few main-line electric locomotives,* East Germany is presently incapable of producing any new main-line locomotives. The need for more main-line steam locomotives in serviceable condition is so great that it has been reported that during the 2 years 1953-54 production of mining and industrial and plant locomotives, steam and diesel, at the Babelsberg plant will cease in order that the plant may concentrate on the repair of main-line steam locomotives in the present operating inventory and on the rebuilding of some of the locomotives in the damaged inventory.** Thus even the capability of East Germany to produce small mining and industrial and plant locomotives is being reduced because of serious inability to produce the main-line steam locomotives needed to maintain operating efficiency.

B. Vulnerabilities.

[redacted] 50X1

Two points, however, are of particular importance and worth re-stressing here.

The first is made earlier in this report.*** It is the fact that the serviceable inventory of main-line steam locomotives has undergone a steady decline in the past few years and that, lacking production facilities, East Germany has been literally forced into an extensive repair and rebuilding program in order to build up this inventory. Thus any action, either under cold- or hot-war conditions, which tends to deter the program would exploit this vulnerability.

The second point is related to the first. It is concerned with the import of raw materials and component parts.**** There is

* The number of these which could be used even if produced is, of course, restricted by the available electrified trackage.

** See II, C, 1, a, above, for further details on this program.

*** See II, C, 1, a and VII, A, above.

**** See II, B, 1, b and II, B, 2, b, above.

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sufficient evidence to indicate that the locomotive rehabilitation program is dependent, at least in part, on the importation of certain items such as boiler tubes, wheels and axles, welding electrodes, and high-grade rolled steel products. Thus any interference with the receipt of such imports, such as tightened COCOM controls, would serve to exploit this vulnerability.

C. Intentions.

1. Over-All Summary.

Current activities in the locomotive and rolling stock industry in East Germany indicate the intention to continue at an increasing rate the task of supplying the Reichsbahn with new equipment to increase the size and efficiency of the operational inventories.* This program is in keeping with the general objective of increasing the economic potential of the country.

How much the demands of the USSR for imports of railroad equipment on a trade basis in lieu of reparations will affect this over-all program is, to date, speculative. [redacted] 50X1 50X1 50X1 It does not appear logical that the USSR will allow its concession insofar as formal reparations are concerned to affect its planned program of railroad equipment acquisitions from East Germany.** In fact, the recent announcements of increased production of consumer goods could well mean greater drains on capital goods of the Satellite economies.

It is believed that the trend of the past few years will continue. That is, East Germany will be in a position to retain for its own use a gradually increasing percentage of its total production of railroad equipment.

* Included here as new equipment is the program of rebuilding damaged locomotives instead of new production.
** It must be made clear here that such a planned program is assumed to exist as a counterpart to over-all economic planning.

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2. Indicators.

a. Six-Axle Flatcar Program, 1952-53.

In May 1952 a program for the building of 2,300 6-axle flatcars of European gage was announced. The plants at Goerlitz and Niesky were to be responsible for the production of these cars, of which 1,600 were to be produced at the plant at Niesky and 700 at the plant at Goerlitz. It has been estimated that, by the end of 1952, the plant at Goerlitz had produced its quota of 700, and the plant at Niesky had produced some 1,230 cars. No evidence of 1953 production of these cars at the plant at Goerlitz has been received, but the plant at Niesky reportedly turned out its 1,750th car in July 1953 (total of 1952-53 production at Niesky).

Total planned production of this type of car is not accurately known, but reports place it at between 3,600 and 4,200. It was first thought that these cars were to be used for East German commercial traffic,* but [redacted] 50X1
the Soviet Control Commission (SCC) has ordered them to be made available for use on SCC orders only and that in the future they are not to be used for commercial traffic.

The cars are 6-axle flatcars with low sides held in place by stakes. Their load capacity is 50 to 80 metric tons, thus making them suitable for use in hauling tanks or other heavy military goods.

[redacted] the materials used in their 50X1
construction are of low grade and that failures of bumpers, end plates, and wooden sides have been common in perhaps 20 percent of the cars produced.

Considering that large numbers of these cars are being built, that they are suitable for military use, and that their use is presently restricted in spite of East German needs leads to speculation as to the intentions underlying the whole program. The most logical conclusion is that these cars are part of a program of preparedness for future hostilities. Certainly a reserve inventory of several thousand cars capable of transporting heavy military

* A number of them were actually observed in such use.

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equipment provides a capability to move such equipment in large amounts and is an indication of intention to use it at some future time. Sudden unexplained movements of these cars to marshalling areas or loadings of military equipment might well provide a more specific indicator of immediate intentions.

Assuming for purposes of analysis that there is no possibility of hostile action, the estimation of intentions behind the program becomes more subtle. The only apparently logical hypothesis is that the USSR, at some unspecified time and for reasons not presently obvious, may intend a wholesale movement of heavy industrial equipment. Since these cars are of European gage and can be used on any of the Satellite railroad lines, any speculations as to what heavy industrial equipment would be moved where would be nothing but pure guesswork and should not be attempted until some further indicators are received. 52/

b. Coal-Dust Locomotive Program.

[redacted] 50X1

[redacted] as late as March 1953 only three such locomotives were still in service and that the Reichsbahn had refused to order more of them as they had proved entirely unsuccessful. 53/ It seems probable that until such time as East Germany has a sufficient supply of copper for the installation of the copper fireboxes necessary in this type of locomotive the conversion program will be held in abeyance. 50X1

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