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CENTRAL INTELLIGENCE AGENCY

25 May 1950

INTELLIGENCE MEMORANDUM NO. 295

SUBJECT: Dependence of the Soviet Bloc Electronics Industry upon the West

Western exports to Soviet orbit countries of certain electronics items, production materials, and plant equipment, although not large in dollar value, permit an expanding electronics production program in the Soviet bloc and are making an important contribution to the Soviet war potential. The electronics industry in Soviet orbit countries is dependent upon Western sources for a number of specialized materials, components, assembled equipment, and plant equipment, and the projected expansion of the production of electronics items in Eastern Europe is partially dependent upon the delivery of certain critical materials and plant equipment from suppliers in Western nations, particularly the US, the UK, and the Netherlands. Existing Western export controls do not prevent export to Eastern Europe of most of those items of electronics materials and equipment which Soviet bloc manufacturers need and are attempting to acquire.

1. Electronics Manufacturing in the Soviet Orbit.

All significant electronics manufacturing capability in Eastern Europe is in the USSR, Eastern Germany, Hungary, Czechoslovakia, and to a lesser extent, Austria. Prior to and during World War II, the major part of Soviet facilities, technology, and end-products was obtained from the US. From a low point during the war, the USSR has increased its capability to produce electronics materials by: (1) confiscating plant, engineering data, and skilled personnel from Germany and Hungary; (2) exploiting the reorganized industries in Eastern Germany and the Satellites; and (3) concentrating on developing production facilities and new techniques within the USSR.

The Soviet bloc electronics production capacity is still extremely small in comparison to US capacity. Using the quantity of vacuum tubes manufactured as a rough index of electronics production capability, the capacity of the Soviet bloc in 1949 was less than 20 percent of US capacity.

The Soviet bloc countries continue to rely upon Western sources for a number of specialized materials, components, assembled equipment, and

Note: This memorandum has not been coordinated with the intelligence organizations of the Departments of State, Army, Navy, and the Air Force.



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plant equipment not yet being produced or not being produced in adequate quantities in the Soviet bloc. Furthermore, projected expansion of production of electronics items in Eastern Europe is partially dependent upon the delivery of certain of these materials and plant equipment from suppliers in Western nations, particularly the US, the UK, and the Netherlands. These countries have normally supplied a large share of Eastern European requirements for electronics items, particularly components, specialized materials, and plant equipment. Substantial orders are still being ~~is~~ received. ~~The Netherlands, Canada, West Germany, Japan, and Sweden are, to a lesser extent, manufacturers of electronics equipment, but are not now important suppliers of this equipment to the Soviet orbit.~~ <sup>Although</sup> ~~the Soviet orbit does obtain considerable electronics supplies from some of these countries,~~ particularly West Germany.

2. Categories of Soviet-Bloc Electronics Imports.

a. Consumer Goods (radios and receiving tubes). Shipments of receiving tubes, which have military and industrial as well as consumer uses, have been considerable to the Soviet orbit, especially from the US where prices are relatively low. Probably because of foreign exchange limitations and lack of consumer purchasing power, trade in radios has not been significant. Western nations have not considered radios important to development of the Soviet war potential.

b. Assembled Equipment and Component Items. Soviet bloc interest has been noted in a limited list of assembled equipment and component items. The need to import such products is a result of current lack of production or of diversion in effort to other lines. This list includes:

- (1) Electronic test equipment
- (2) Prototypes
- (3) High-voltage capacitors
- (4) Electrical meters
- (5) Transmitting tubes
- (6) Receiving tubes

c. Specialized Parts or Materials. To support the needs of the expanding electronics manufacturing industries in the Soviet bloc, a number of specialized parts or materials are imported from Western sources. The apparent reason is usually inadequate existing fabricating capacity or serious technological difficulties, rather than a shortage of basic raw material in the Soviet bloc. Among the items requested from Western sources for Soviet orbit electronics industries are the following:

- (1) Electrolytic copper wire bars and billets
- (2) Special nickel tubing and ingots, of types required for vacuum tubes

- (3) Molybdenum metal
- (4) Tungsten ingots, rod and wire
- (5) Electrical capacitor thin paper
- (6) Zirconium compounds
- (7) Graphite anodes
- (8) Alumina insulation materials
- (9) Vacuum tube emission coating materials

d. Technical Data and Specialized Production Equipment. The Soviet bloc is also attempting to obtain:

- (1) Vacuum tube and lamp manufacturing machinery
- (2) Ductile tungsten and molybdenum fabricating equipment
- (3) Technical assistance agreements

3. US Export Controls.

Of these eighteen product-lines which the Soviet bloc electronics industries apparently need from Western sources, only four (electronic test equipment; molybdenum metal; zirconium compounds; and vacuum tube manufacturing machinery) are completely embargoed to Eastern European destinations by the US. Five more (transmitting tubes; electrolytic copper wire bars and billets; special nickel tubing and ingots, of types required for vacuum tubes; tungsten ingots, rod and wire; and ductile tungsten and molybdenum fabricating equipment) are controlled in part by quantitative (LB) restrictions on exports. For the remaining nine, which make an important contribution to the Soviet war potential, no adequate control is administered by the US. Furthermore, few of these eighteen items are known to be under export control by Western European countries.

4. Soviet Trade Channels for Procurement of Electronics Supplies.

The technical nature of many of the products listed limits the number of possible trade channels. Recent intelligence information points to three principal channels for the movement of these materials to Eastern Europe:

- a. Direct purchases by the Satellites and the USSR in the US, UK, and the Netherlands.
- b. Exports from Western countries via Austria to the Satellites, especially Hungary and Czechoslovakia.
- c. Exports from Western European and Western German sources to consumers and fabricators in the Soviet Zone of Germany.

Other channels used, but apparently less frequently, include:

- a. Through jobbers in Italy to Yugoslavia, the Satellites, and the USSR.
- b. Through jobbers and electrical manufacturers in Switzerland to Czechoslovakia.
- c. Through jobbers in Sweden to the USSR, Poland, and some other Satellites.
- d. Through Barcelona, Spain, to Eastern Europe.

5. Recent Indications of Trade in and Expansion of Soviet Orbit Electronics Production.

Recent highlights in East-West trading activities in electronics supplies are outlined:

- a. An Italian firm purchased in the US 100 tons of special capacitor paper (equal to a year's supply for a large manufacturer) for a Soviet contract. During 1949 Soviet inquiries for large quantities were directed to US sources through Sweden and Austria.
- b. Shortages of vacuum-tube heaters, cathodes and grid wire were reported at East German, Austrian, and Czechoslovak factories. OSW-Berlin (Oberspreewerk-Berlin, a Soviet-dominated electronics manufacture) was set up as principal supplier, obtaining tungsten, molybdenum, cathode nickel, and necessary chemicals from Western sources.
- c. Definite quotations for special nickel tubing (one year's supply) were requested in the US by L. Siebold Co., Vienna, probably for shipment to Eastern Europe.
- d. Foundry for molybdenum and tungsten metal fabrication was ordered by OSW-Berlin, through Sweden and Poland.
- e. Summary of Austrian-Hungarian trade agreement for 1950 (electronics items):
  - (1) Austria to supply Hungary with \$310,000 of components, materials (molybdenum, tungsten, nickel tubing, meters, capacitors-most must come from US, UK, and Netherlands sources).
  - (2) Hungary to sell Austria \$450,000 of finished products (tubes, lamps, radio parts).
- f. N.V. Philips, Netherlands, agreed to provide the USSR with \$5.5 millions of electronic products, manufacturing equipment, and technical assistance during 1950.
- g. The UK shipped tungsten metal to Eastern Europe (\$25,000 in October 1949).
- h. A major electronics plant was started in Czechoslovakia during 1949 with initial materials and plant equipment allegedly coming from Western European sources.

i. Frequent reports of materials shortages were made for plants producing tubes, capacitors, wire and cable, in Eastern Germany, Czechoslovakia, and the USSR.

6. Conclusions.

Although the value of Western shipments of electronics items and production materials to Eastern European industries is not a large part of total East-West trade, certain production materials and electronic devices represent a substantial contribution to the Soviet war potential. The major Eastern emphasis currently is in obtaining essential production materials and facilities of a special nature. The smaller part of the trade is in assembled equipments. Shipments of the materials noted above permit an expanding production program in the Soviet bloc, and existing Western export controls are not adequate in this field to prevent Soviet acquisition.

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1 June 1950

TO HOLDERS OF INTELLIGENCE MEMORANDUM NO. 295:

Please make the following correction on page 2. The sentence on line 9 beginning "The Netherlands, Canada....." should read:

"Although Canada, West Germany, Japan, and Sweden are, to a lesser extent, manufacturers of electronics equipment, the Soviet orbit does obtain considerable electronics supplies from some of these countries, particularly West Germany."

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