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COORDINATING COMMITTEE

MEMORANDUM FROM THE UNITED STATES DELEGATION

CONCERNING

THE STATUS OF SOVIET ELECTRONIC COMPUTER PRODUCTION

1. In view of the importance attached by the United States Government to the effective embargo of electronic computers, the United States Delegation has secured authorization to release, with appropriate security safeguards, further intelligence information supplemental to that presented to the Committee in COCOM Document 3715.65/2.

2. The Soviet lag in electronic computer production is best illustrated by the fact that only about 400 general purpose digital computers of all types have been produced. The United States alone has produced more than 4000 computers, a large proportion of which are superior to the best produced by the Bloc. The majority of those produced by the Soviet Union have been the slow and bulky "Ural I" capable of only one hundred single address operations per second. Even the new model of the "Ural I", which went into production in early 1959, is a slow speed computer although somewhat faster than the earlier model.

3. In value terms, it has previously been stated that total Soviet computer production in 1958 was at most $55 million. The modesty of this value of production can be gauged by comparing it with United States 1958 computer production which alone totaled about one billion dollars.

4. Because of Soviet shortages of computers their use is almost exclusively in the realm of strategic scientific research and development. This is not surprising in the light of United States experience because a similar concentration of computers was necessary in the United States in the early 1950's. Even today in the United States approximately two thirds (by value) of all electronic computers are used for military purposes and only one third for civilian needs. With regard to distinguishing use between analog and digital types, only 10% (in value) of analog computers are in civilian use; 55% (in value) of all military computers are digital types with the percentage of digital types used for military purposes rising relative to analog types. Finally, it should be borne in mind that approximately half of all Soviet electronic computer production is of digital machines while in the United States digital equipment accounts for 65 to 70% of computer production.

5. This shortage of numbers of electronic computers has significantly delayed Soviet use of digital computers in military "data-handling systems", i.e. electronic systems for detection of aircraft and missile attack as well as for the launching and guidance of aircraft and missile counter-measures. Such systems, which span entire continents, demand cable, radio relay and associated line transmission equipment instantaneously to supply information to the computers and to transmit directions to the retaliatory weapons systems.

6. Soviet "data-handling systems" have further suffered from a lack of adequate computer input/output equipment and computer memory systems. Free World manufacturers pioneered the research of the use of digital computers for data-handling

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systems with the assistance of costly military contracts. The result was the perfection of very fast input/output equipment, very large medium speed internal memory systems and very fast memory access speeds. But while these are essential features for military data handling systems they also have found use in commercial applications. The Sino-Soviet Bloc, however, is seriously deficient in these areas and is therefore emphasizing steps to overcome its lag. Nevertheless, at the present time the Soviet Union is still at least 4 years behind the Free World in the speed of operation of input/output equipment and at least three years behind in the total storage size and average access time of data handling. The USSR has nowhere displayed and is not believed to have a magnetic tape mechanism for input/output use or for internal storage which is within 5 years of current Free World technology. On the other hand, Soviet priority emphasis on scientific computers has resulted in relative success in achieving computing speeds nearly comparable to those of the Free World but these improvements have not yet been incorporated in production models of equipment and productivity, of course, continues to be a serious problem for the Bloc in this item.

7. Thus, the Free World maintains a decisive and significant technological lead over the Soviet Bloc not only in quantities of electronic computers produced and in use but also in such critical characteristics as speed and reliability of input/output equipment, internal memory and program storage as well as in the design and production of reliable miniature components.

8. The United States believes it essential that this strategic advantage should be protected by an effective embargo of electronic computers.