

CIA/DER/S-06776-75
USSR AND EASTERN EUROPE
14 FEBRUARY 1975

PRODUCTION OF COMPUTER DISC DRIVES IN THE

Approved For Release 2001/12/05 : CIA-RDP88T00608R00060010012-3

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DD/S&T# 553-75

[REDACTED]

24 FEB 1975

MEMORANDUM FOR: Mr. Robert B. Wright, Director
Office of East-West Trade
Department of State

SUBJECT : Production of Computer Disc Drives in
the USSR and Eastern Europe

REFERENCE : Department of State Memorandum,
dated 30 January 1975, Request for
Assessment of Eurasian Communist
Countries Computer Technical Capability

1. Attached is our response to your request for information on the capabilities of Communist countries to manufacture disc drives and packs. Although we have not been able to resolve the question fully, we hope that the limited information we can offer will be helpful.

25X1A9a 2. Additional questions may be directed to [REDACTED]
[REDACTED] Office of Economic Research, (x-6901), or [REDACTED]
25X1A9a [REDACTED] Office of Scientific Intelligence, (x-5011), who
prepared the attachment.

[REDACTED]

25X1A

EDWARD W. PROCTOR
Deputy Director for Intelligence

[REDACTED]

25X1A

CARL E. DUCKETT
Deputy Director for Science and Technology

Attachment:
As stated

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§ 55(1)(a) (b) or (c) (circle one or more)
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Attachment

Production of Disc Drives and Packs
in the USSR and Eastern Europe

1. According to our information, disc drives of the IBM-2311 type are under development in the USSR, Bulgaria, Czechoslovakia, East Germany, and Poland. Each of these countries has developed and exhibited a prototype disc drive system. Each claims to be "producing" disc drives. With the exception of Bulgaria, we believe that disc drives are still in a developmental stage -- that is, not in production -- in all of these countries. Bulgaria is the only CEMA country that claims to have disc packs in serial production.

2. The case of Bulgaria is complex. The evidence seems convincing that Bulgaria is producing disc drives (and compatible packs) of the IBM-2311 type. Bulgaria has built two modern plants, equipped mostly with Western machinery, at Stara Zagora and Pazardzhik -- specifically for the production of disc drives and disc packs, respectively. According to Bulgarian officials, production has been underway since October 1972 at Stara Zagora and since early 1973 at Pazardzhik. US visitors to these facilities in 1973 observed drives and packs in production. Only Bulgarian disc drives have been observed in use with operational RYAD computers.

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3. The current rate of production of disc drives is not known. US visitors to Stara Zagora in 1973 estimated output capacity at about 80-100 drives per month. Actual output (in mid-1973) was estimated to be far below this level. Probably, no more than 500 systems were produced during 1973.

4. All of the disc drives that were produced in Bulgaria in 1973 almost certainly employed Western-made heads. Between June 1972 and December 1973, Bulgaria illegally acquired from a US supplier at least 15,000 completed head units, and additional quantities of other uncompleted disc drive subassemblies. Unspecified quantities of head units and other subassemblies allegedly have been illegally obtained in Western Europe as well. At the Stara Zagora plant, Bulgarian officials have attempted to disguise the foreign origin of the recording heads. [REDACTED]

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5. Bulgaria appears to have acquired at least enough heads to produce a minimum of 1500 disc drive systems. If the estimate of output of disc drives in 1973 is reasonably accurate (500 systems), Bulgaria would have had a quantity of heads sufficient to support capacity output of disc drives at Stara Zagora (80-100 per month) during most or all of 1974.

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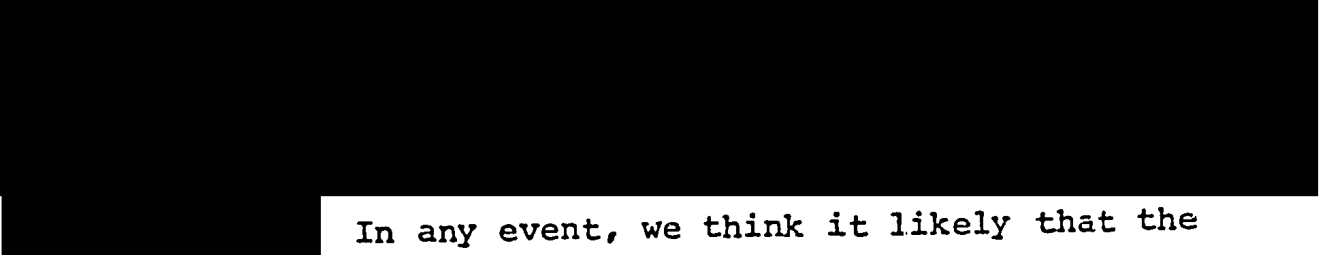
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6. We cannot determine, on the basis of information available to us, whether Bulgaria currently is serially producing disc drive systems using imported heads, heads assembled using imported parts, or purely Bulgarian-made heads. All requests by US visitors to observe disc head production have been denied. There is evidence that Bulgaria has made at least some heads on its own. A US firm acquired three heads in Bulgaria in late 1973 and was told that they were Bulgarian-made and were representative samples. Electrical tests concluded that the heads were suitable for 2311 type disc drives. Visual examination by US experts revealed that the heads could be purely Bulgarian-made but based on Western design features. The acquired heads could have been prototypes.

7. The Performance Subgroup of the CSTAC has estimated that Bulgaria has produced 20,000 of its own heads.

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In any event, we think it likely that the estimate, if it is accurate, includes a very large number of Western-made heads (see paragraph 4 above).

8. Several Bulgarian disc packs that have been tested, have been found to contain defects and to be below acceptable

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Western standards. Further, Bulgarian officials have admitted that pack yields are not satisfactory. Poor quality disc packs would result in unreliable disc systems even if the disc drive itself was of good quality.

9. There is no evidence that disc units equivalent to the more advanced IBM-2314 currently are being produced in the USSR or Eastern Europe. All 2314 type drives that Western observers have seen operating with Communist computers have been of Western origin. Bulgaria and the USSR are known to have 2314 type drives under development, and the Soviets have exhibited a non-working model of a disc drive with claimed 2314 characteristics.

10. Bulgaria and the USSR still have a long way to go before they can hope to produce, serially, double density 2314 or 3330 type disc drives. Bulgarian 2311 type heads will have to be further refined and developed; voice coil actuators will have to be designed and developed (Bulgaria has illegally acquired a small number of Western-made voice coil actuators, probably to aid native development); neither Bulgarian drives nor the prototype Soviet drives that have been observed employ the kind of stabilized base plate design needed for reliable high performance. It is not now evident that either the Bulgarians or the Soviets fully appreciate the base plate requirements. Also, grease seals and other electromechanical

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parts in Soviet drives are of poor quality. Finally, substantial improvement in disc packs, over those that have been examined, would be needed for the development of 2314 and 3330 type disc drives systems.

11. Summarizing, the information available to us supports the view that 2311 type disc drives are in production in Bulgaria. However, we cannot establish that the technology is exclusively Bulgarian, or that Bulgaria does not depend on Western suppliers for components. The continued interest in the purchase of large numbers of Western heads (and other subassemblies), raises strong suspicions that Bulgaria either does not produce its own heads, or does not yet have the capability to manufacture sufficient quantities of critical recording heads of the 2311 type without help.

12. We believe that the USSR, Bulgaria, and other Eastern countries will not have the capability to produce substantial numbers of more advanced type systems -- 2314 and 3330 types -- without Western help, for a few years. These countries can be expected to press for the acquisition of

- a) finished disc units; b) production technology; and
- c) complete computer systems incorporating 2314 and 3330 type disc units. Some design technology and maintenance experience

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could be derived from acquisition of finished disc units; probably, it would not be sufficient to enable these countries to produce disc systems. On the other hand, if finished disc units were acquired in quantity so that priority uses could be satisfied, there would be little need, in the short run at least, for a native production capability. In past approaches to Western firms for the purchase of large quantities of disc units, Communist countries have insisted upon follow-on transfer of disc production technology. The acquisition of a limited number of complete computer systems, with 2314 or 3330 type disc systems tailored for these systems, would minimize the technological gain to East European countries and the possibilities of diversion of disc systems to unauthorized uses.

CIA/OER/OSI
12 Feb 75

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